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# IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1953

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KOKUBUNJI, TOKYO, JAPAN

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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## PREFACE

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.

Lat. 45° 28.6' N  
Long. 141° 41.1' E

# Wakkanai

## IONOSPHERIC DATA

135° E Mean Time

foF2

Oct. 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	(3.4)F	3.3	3.3P	3.3P	(3.4)F	2.8P	4.8	(5.6)P	7.7	6.8	6.3	6.3	C	C	C	C	C	6.4	5.8	4.9	3.9	3.4	(3.4)P	3.4
2	3.2P	3.3	3.3	3.2	3.2	3.3	5.2	4.9	6.6	6.2	6.9	7.0	7.2	6.8	6.7	6.7	6.3	6.4	5.8	4.9	4.4	(3.8)F	(3.6)F	3.5
3	(4.0)F	(3.8)F	3.6F	3.8P	3.8P	3.8P	4.8P	4.9	5.7	6.4	6.5	7.1	7.5	(7.1)P	6.1	5.8	(6.1)P	5.8P	5.4	5.2	5.0F	4.6	(4.4)F	4.3F
4	4.5	4.6F	4.5F	3.7P	3.7P	(3.5)F	4.1	4.7	5.5	5.8	6.9	6.2	7.7	7.0	6.7	6.6	6.4	6.0	6.1	5.3P	4.7	4.4	4.0F	4.2F
5	(4.2)F	4.3F	(4.3)F	4.3F	4.5F	(4.0)F	4.7	5.4	5.4	(6.9)P	6.6	6.4	6.5	6.0	6.0	6.6	(5.9)P	(6.7)P	5.5	4.9	(4.0)P	3.7P	3.7	3.6F
6	3.7	4.0F	3.9F	3.8F	4.2	(3.9)F	4.8	5.6	6.0	6.1	6.8	6.5	7.0	6.6	7.0	6.7	6.2	5.7	4.8	4.4	4.7	3.9F	3.9	3.9
7	3.4	3.5F	3.4F	(3.4)F	3.5F	3.4F	4.7	6.2	5.6	6.3	7.0	6.7	6.6	6.3	6.9	6.5	5.9	5.2	5.0	4.7	4.7F	5.1F	5.0F	4.5
8	3.0	(3.3)F	3.5F	3.6F	(4.0)F	4.0F	5.8	5.3	5.8	7.5	7.3	7.7	(7.6)F	7.6	6.3	C	C	6.2	6.0	(6.1)F	5.2	4.8	5.1	4.7
9	4.2	4.0	4.3F	4.3	3.4	3.1	(3.9)F	5.3	6.1	6.9	(8.4)F	7.7	7.1	6.6	6.1	6.0	6.6	6.8	5.2	4.5	S	3.8	3.7	3.7
10	C	4.0F	4.1F	4.3	4.3P	3.5P	4.6	5.9P	6.6	6.8	8.0P	7.3	7.2	7.1	7.3	6.2	6.3	5.2	4.0	4.4	4.4	(4.3)F	4.4	(4.6)F
11	4.7	A	F	4.3F	4.0	4.1	4.8	4.9	C	C	C	C	C	C	C	C	C	C	C	4.7	4.7	4.3	4.2	4.3
12	4.3	4.1	4.4	4.0	3.8	3.8	4.7	5.5	5.8H	7.5	B	8.0	7.1	6.6	(6.2)F	6.2	6.6	6.2	5.4	5.0	4.5	4.0	4.1	4.5
13	(4.4)A	4.3F	4.0	3.9	3.7	3.7P	4.8	5.7	6.4	(6.8)F	7.2	7.4	7.7	(7.0)F	6.4	6.8	7.2	5.7	A	A	3.8	3.9F	(4.0)F	4.2
14	4.4	4.3F	4.3	(4.0)F	4.3F	4.3F	4.2	5.3	6.0H	7.6	6.8	6.7	7.3	6.6	7.1	6.6	6.6	6.6	5.9	4.5	4.5	4.5	(4.8)F	5.2F
15	(4.7)F	(4.9)F	(5.0)F	4.6F	4.7F	(4.3)F	5.1F	5.5	6.0	6.8	7.4	7.8	7.8	6.8	6.8	6.4	6.4	5.7	3.8	4.5	4.3F	4.3F	4.5	(5.0)F
16	3.6F	(3.7)F	(3.8)F	(3.6)F	F	F	3.2K	5.6K	7.3K	6.5K	8.6K	B	1.5K	(8.8)F	6.3K	6.4F	6.3K	6.3K	(5.8)F	5.3K	5.4K	4.6K	4.6K	(4.5)F
17	(3.8)F	4.0K	3.8K	(4.0)F	(4.5)F	(4.1)F	4.8K	5.2K	5.7K	6.9K	(7.0)F	7.2K	6.1K	(6.7)F	6.0K	5.7K	5.7K	5.9K	(5.2)F	4.6K	(3.9)K	2.8K	2.2K	1.8K
18	1.8K	A	A	A	A	A	4.0K	4.4K	4.5K	5.9K	6.4K	6.4K	8.3K	6.1K	5.8K	6.6K	5.7K	5.7K	5.1K	3.9K	F	(4.5)F	4.2F	3.6K
19	3.0K	3.0K	3.2K	3.4K	2.9K	2.3F	A	A	4.8K	4.5K	4.8K	5.2K	6.1K	6.3K	6.3K	6.1K	6.9K	6.2K	4.2K	C	C	C	3.4K	3.4F
20	3.0K	C	C	C	C	C	C	C	C	C	8.0K	7.5K	7.8F	(7.2)F	7.2K	(6.6)F	6.9K	6.2K	4.8K	3.4K	(3.8)F	(3.6)F	(3.5)F	FA
21	A	F	2.9F	2.3K	3.3F	2.5K	3.7K	5.8K	(6.4)F	(7.0)F	6.7K	6.2K	6.7K	6.1K	6.1K	6.8K	5.8K	5.2K	3.3K	(4.0)F	(4.2)F	4.3F	3.6F	(3.8)F
22	3.9F	3.6F	3.5F	F	3.0F	2.8	3.3	4.7	5.4	5.3	6.3	7.3	6.5	6.8	6.1	6.1	5.8	5.0	3.6	3.0	2.8	F	F	F
23	F	(3.1)F	3.1F	3.0F	3.1F	2.7F	4.1	4.9	6.2	5.6	6.0	6.6	6.3	6.4	5.2	5.3	5.8	4.4	3.4	4.0	3.1	3.3	F	F
24	3.2F	3.4	3.4F	3.1F	3.3P	3.0F	3.7P	5.9	6.4F	6.5	6.9	8.2	7.4	6.4	6.2	5.4	5.8	4.3	3.2	A	(3.2)F	(3.0)F	2.8F	F
25	2.9F	3.0F	3.0F	3.5F	(2.6)F	1.8	3.3	4.7	C	C	C	C	C	C	C	C	C	C	C	3.7	3.7	3.8	A	S
26	3.7F	3.9F	4.0F	(3.8)F	3.7F	3.2F	3.6	5.2	6.3	6.0	6.4	6.8	6.8	6.0	5.6	6.0	6.0F	4.6	2.8	3.0	3.1	(3.2)F	3.4F	3.0
27	3.1F	3.3F	(3.9)F	(3.4)F	3.2	(3.6)F	(4.1)F	5.3	7.2P	6.9F	6.9	6.7	7.2	6.4	6.4	6.3	6.4	4.8	3.6	(3.7)F	3.8F	(3.8)F	3.7F	3.8
28	(3.8)A	3.7F	3.6F	3.4	3.5	(3.6)F	3.8	5.8	B	6.6	6.5	B	8.2	6.7	6.1	6.0	6.0	4.8	3.8	(3.6)F	3.5	3.8F	4.5F	4.6F
29	(4.1)F	(4.3)F	(3.9)F	(3.7)F	(3.9)F	3.7F	5.2	6.2	6.2	6.2	6.6	7.0	7.2	6.0	6.0F	6.4	5.3	4.8	4.3	(3.8)F	3.4	(3.7)F	4.0F	(4.1)F
30	3.9F	F	4.0F	3.6F	3.3	3.3P	3.9F	6.1	6.2	6.7	(8.4)F	8.2F	8.8F	5.8	6.3F	6.1	(7.9)F	5.7F	4.5	4.6	F	5F	F	5F
31	F	F	(5.1)F	(5.1)F	(5.2)F	4.0F	C	C	7.2	6.9	6.3	8.4F	8.3	6.8F	6.6	6.7	5.5	4.0F	A	A	A	2.9	3.0	(3.0)F
Mean Value	3.7	3.8	3.8	3.7	3.7	3.4	4.3	5.3	6.1	6.5	7.0	7.1	7.4	6.5	6.4	6.2	6.2	5.5	4.5	4.4	4.1	3.9	3.9	4.0
Median Value	3.8	3.8	3.8	3.7	3.7	3.6	4.2	5.3	6.1	6.6	6.8	7.0	7.2	6.6	6.3	6.3	6.1	5.7	4.5	4.6	4.1	3.9	3.9	4.2
Count	27	25	28	29	28	28	28	28	27	28	28	27	28	28	28	27	27	27	26	26	27	27	27	24

Sheep  Manual  Automatic

Scale  I.D. Mc to 1.5 S. Mc in 2 min

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N  
Long. 141° 41.1' E

31pF2

Oct. 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)F	330	340F	320F	(330)H	370F	260	[260]P	(250)P	250	250	250	C	C	C	C	270	250	270	260	270	260	300	(350)F	350
2	350F	360	350	300	290	300	250	240	250	260	270	250	270	260	270	270	270	250	280	290	290	(300)F	(320)F	(350)F	350
3	(370)F	(320)F	340F	340F	330F	(280)F	240F	230	280	250	270	270	260	(280)F	250	270	(270)F	260F	280	290	310F	340H	(350)F	(370)F	360F
4	(340)F	310F	270F	280F	(300)F	(290)F	250	250	270	270	270	280	270	280	280	280	280	280	270	290F	290	(310)F	(310)F	(310)F	(310)F
5	(320)F	(320)F	(320)F	(310)F	310F	(300)F	250	250	(260)F	260	260	250	260	280	270	270	(270)F	(280)F	280	270	(300)F	(300)F	300	(290)F	(290)F
6	280	(320)F	(280)F	(280)F	290	(260)F	240	230	250	240	240	280	270	270	280	260	250	250	270	300	(310)F	(320)F	(290)F	(290)F	290
7	300	310F	290F	(320)F	310	290	250	230	250	250	250	270	270	260	260	250	250	250	330	350	360F	310F	290F	(280)F	(280)F
8	320	(350)F	270F	300F	(270)F	280F	260	230	260	260	260	270	(280)F	280	270	C	C	270	310	(300)F	310	310	330	A	A
9	330	350	270H	(300)F	310	300	(230)F	240	260	280	(260)F	250	250	250	260	260	270	260	280	270	S	S	A	A	A
10	C	(310)F	(320)F	310	280F	280F	250	240F	250	260	260F	250	270	280	260	260	250	250	A	300	330	(300)F	A	A	A
11	A1	A	F	310F	290	280	250	230	C	C	C	C	C	C	C	C	C	C	C	310	330	(300)F	A	A	A
12	310	320	320	290	290	270	250	240	290H	250	B	240	250	250	(240)F	280	250	270	280	270	270	270	330	350	330
13	A	A	280F	280F	280	300F	240	240	240	(240)F	250	270	260	A	A	250	260	230	A	A	310	(340)F	(350)F	(320)F	(320)F
14	300	320F	310	(300)F	290F	310F	210	230	290H	240	250	250	260	250	280	260	260	250	300	300	310	330F	310F	310F	310F
15	(270)F	(300)F	(300)F	290F	270F	(270)F	250F	210	230	270	250	270	250	240	250	240	230	230	270	(350)F	(290)F	340F	320	(260)F	(260)F
16	A <sup>K</sup>	(390)F	(340)F	(350)F	F <sup>K</sup>	T <sup>K</sup>	290 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	320 <sup>K</sup>	B <sup>K</sup>	290 <sup>K</sup>	(250)F	240 <sup>K</sup>	280 <sup>H</sup>	260 <sup>K</sup>	280 <sup>K</sup>	(300)F	A <sup>K</sup>	(280)F	310 <sup>K</sup>	270 <sup>K</sup>	(310)F	(310)F
17	(360)F	320 <sup>K</sup>	330 <sup>K</sup>	(330)F	(320)F	(340)F	280 <sup>K</sup>	240 <sup>K</sup>	290 <sup>K</sup>	320 <sup>K</sup>	(300)F	270 <sup>K</sup>	290 <sup>K</sup>	(280)F	270 <sup>K</sup>	260 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	(280)F	310 <sup>K</sup>	310 <sup>K</sup>	310 <sup>K</sup>	B <sup>K</sup>
18	350F	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	270 <sup>K</sup>	280 <sup>K</sup>	U <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	240 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	270 <sup>K</sup>	F <sup>K</sup>	F <sup>K</sup>	(320)F	310 <sup>K</sup>	330 <sup>K</sup>	F <sup>K</sup>	F <sup>K</sup>
19	370F	380F	390 <sup>K</sup>	350 <sup>K</sup>	350 <sup>K</sup>	360F	A <sup>K</sup>	A <sup>K</sup>	350 <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	[270]F	280 <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	330 <sup>K</sup>	340F
20	370 <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	(280)F	280 <sup>K</sup>	(260)F	250 <sup>K</sup>	250 <sup>K</sup>	270 <sup>K</sup>	240 <sup>K</sup>	270 <sup>K</sup>	(330)F	(340)F	(340)F	F <sup>K</sup>
21	A <sup>K</sup>	F <sup>K</sup>	360F	300 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	300 <sup>K</sup>	260 <sup>K</sup>	(250)F	280 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	240 <sup>K</sup>	240 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	240 <sup>K</sup>	240 <sup>K</sup>	290 <sup>K</sup>	310F	(310)F	310F	(290)F	(340)F	
22	(310)F	340F	330F	F	320F	290	260	260	250	260	240	260	250	260	260	250	250	250	270	260	330	F	F	F	F
23	T	(310)F	340F	320F	350F	330F	250	250	260	260	280	290	250	260	260	260	260	240	280	260	330	F	F	F	F
24	340F	330	300F	320F	300F	280F	260F	250	250F	270	250	280	250	A	260	250	250	230	A	(290)F	(300)F	370F	370F	F	
25	360F	320F	370F	(260)F	(260)F	250	270	260	C	C	C	C	C	C	C	C	C	C	A	(290)F	(300)F	300	370F	F	
26	350F	350F	(310)F	(320)F	(300)F	300F	250	250	240	250	250	250	250	250	240	260	260	240	300	290	290	310	(300)F	(290)F	290
27	(320)F	(310)F	(340)F	(310)F	300F	(290)F	250	250	250	250	240	300	270	270	250	240	250	260	300	290	280	(300)F	(290)F	(290)F	320
28	(320)F	330F	340F	300	310	(300)A	290	300	B	250	290	B	240	240	260	260	240	250	250	(280)F	280	310	310F	320F	300F
29	(280)F	(290)F	(290)F	(330)F	(290)F	(270)F	250F	230	240	250	270	290	260	230	250F	250	240	240	280	(280)F	270	A	A	(290)F	(290)F
30	(310)F	F	(330)F	320F	320	280F	270F	250	250	(270)F	250	250	240	240	250F	260	(260)F	220	290	F	F	F	F	F	F
31	F	F	(270)F	(270)F	(280)F	C	C	C	240	240	250	260F	260	(260)F	260	250	230	280F	A	A	A	310	290	(310)F	(310)F
Mean Value	330	330	320	310	300	290	260	250	250	260	260	270	260	260	260	250	250	260	280	290	300	310	320	310	310
Median Value	320	320	320	310	300	290	250	240	250	250	260	270	260	260	260	250	250	260	280	290	300	310	320	310	310
Count	24	24	24	28	28	28	28	28	26	27	27	26	28	26	27	27	27	27	28	25	27	28	26	24	19

31pF2

Sweep 1.0 Mc in 15.5 Mc in 2 min

Manual  Automatic

Lat. 45° 23.6' N  
Long. 141° 41.1' E

# Wakkanai

## IONOSPHERIC DATA

135° E Mean Time

RF2

Oct, 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	300	280	260	260	260 <sup>H</sup>	300 <sup>F</sup>	220	230	240	250	250	250	C	C	C	C	C	C	220	230	250	250	300	300
2	320 <sup>A</sup>	330 <sup>A</sup>	320	260	270	250	220	230	240	250	260	260	260	260	260	250	250	240	230	250	250 <sup>A</sup>	270 <sup>A</sup>	270	310
3	330 <sup>F</sup>	280	280	290	280 <sup>A</sup>	250 <sup>F</sup>	210 <sup>F</sup>	230	270	250	270	260	250	270	240	250	250	240	250	250	260	310 <sup>H</sup>	260 <sup>F</sup>	260
4	290	260	220	230	250	210	240	230	260	270	260	260	260	270	250	250	250	240	220	250	240	230	260	280
5	290	270	260	250	250	240	230	230	250	250	260	260	260	260	260	260	260	240	230	230	240	250	260	260
6	250	290	230	240	250	230	210	220	240	240	240	240	260	260	270	240	240	230	210	300 <sup>F</sup>	270	270	260	250
7	260	280	250	270	270	270	250	220	250	250	250	260	260	260	270	250	240	230	330 <sup>A</sup>	300	320	300 <sup>A</sup>	250 <sup>F</sup>	250
8	320	310	300	270	270	250	250	220	250	260	260	260	260	260	260	260	260	230	230	250	240	250	250	270 <sup>A</sup>
9	290	290	250 <sup>H</sup>	260	200	260	230	230	250	260	250	250	250	250	250	240	250	230	230	260 <sup>F</sup>	250	330 <sup>A</sup>	340 <sup>A</sup>	A
10	C	260	250	240	240	230	240	220	250	240	250	250	260	260	250	240	230	240	A	270	300	270	A	A
11	A	A	FA	260	230	230	230	230	C	C	C	C	C	C	C	C	C	C	C	C	270	240	280	280
12	270	270	270	250	240	240	220	230	LH	250	230	230	240	250	240	250	240	230	240	230	250	280	290	A
13	A	A	250	240	210	240	210	230	230	2240 <sup>F</sup>	250	260	240	270 <sup>A</sup>	300 <sup>A</sup>	250	230	210 <sup>A</sup>	A	A	290	320 <sup>A</sup>	340 <sup>A</sup>	290
14	270	270	250	220	240 <sup>F</sup>	250 <sup>F</sup>	200	220	220 <sup>H</sup>	240	240	230	250	240	250	240	230	230	240	240	260	270	260	250
15	230 <sup>F</sup>	250 <sup>F</sup>	250 <sup>F</sup>	240 <sup>F</sup>	230	230	220	210	230	240	250	250	240	240	240	240	220	210	220	250	250	290	280	260 <sup>F</sup>
16	A <sup>K</sup>	350 <sup>K</sup>	300 <sup>K</sup>	310 <sup>K</sup>	280 <sup>K</sup>	200 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	260 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	A <sup>K</sup>	240 <sup>K</sup>	260 <sup>K</sup>	250 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>
17	310 <sup>K</sup>	300 <sup>K</sup>	270 <sup>K</sup>	280 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	240 <sup>K</sup>	240 <sup>K</sup>	230 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>
18	350 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	340 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	270 <sup>A</sup>	300 <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	240 <sup>K</sup>	290 <sup>K</sup>	240 <sup>K</sup>	230 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>
19	300 <sup>K</sup>	310 <sup>F</sup>	330 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	340 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	350 <sup>K</sup>	320 <sup>K</sup>	340 <sup>H</sup>	360 <sup>K</sup>	300 <sup>K</sup>	280 <sup>K</sup>	260 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>
20	320 <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	250 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	240 <sup>K</sup>	200 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	290 <sup>K</sup>	310 <sup>K</sup>
21	A <sup>K</sup>	310 <sup>K</sup>	330 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	220 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	260 <sup>K</sup>	270 <sup>K</sup>	280 <sup>F</sup>	290	260	250	290
22	260	260	290	280	280	250	250 <sup>A</sup>	250	250	260	240	250	250	240	250	240	230	230	230	230	290	300 <sup>F</sup>	330 <sup>F</sup>	280 <sup>F</sup>
23	300 <sup>F</sup>	270	280 <sup>F</sup>	310 <sup>F</sup>	300	300	230	230	240	250	270	280	250	240	250	240	240	200	250	230	300 <sup>A</sup>	310 <sup>A</sup>	280 <sup>F</sup>	280 <sup>F</sup>
24	290	280	250	250	250	250	250 <sup>A</sup>	240 <sup>A</sup>	240	260	250	260	240	A	250	240	230	220	A	A	220	250	350 <sup>F</sup>	300 <sup>F</sup>
25	320	310	330	250	240 <sup>A</sup>	230	250	240	C	C	C	C	C	C	C	C	C	C	C	240	250	260	270	270
26	310 <sup>A</sup>	300 <sup>F</sup>	280	290	250	230	220	230	240	240	250	240	250	240	230	240	220	210	270 <sup>A</sup>	270 <sup>A</sup>	270	260 <sup>A</sup>	250	240
27	290	290 <sup>F</sup>	270	250	240	230	230	230	240	230	230	250	250	250	240	240	220	230	230	240 <sup>F</sup>	250	260 <sup>A</sup>	280	300
28	300 <sup>A</sup>	300	270	260	270	260 <sup>A</sup>	260	280	250	240	250	250	240	230	240	240	220	220	220	220	240 <sup>A</sup>	270	260	250
29	250 <sup>F</sup>	250 <sup>F</sup>	250 <sup>F</sup>	270	250	240	230	220	230	240	270 <sup>A</sup>	250	250	250	250	240	240	220	230	250	A	A	A	250
30	260	270 <sup>F</sup>	270 <sup>H</sup>	250	260	250	230	230	240	240	250	240	230	240	240	240	250	200	230	240	260 <sup>F</sup>	260 <sup>F</sup>	250 <sup>F</sup>	290
31	310 <sup>F</sup>	260 <sup>F</sup>	240	230 <sup>F</sup>	220 <sup>F</sup>	230 <sup>H</sup>	C	C	230	230	230	240	250	250	250	240	210	250 <sup>A</sup>	A	A	290 <sup>A</sup>	290 <sup>A</sup>	250	290 <sup>F</sup>
Mean Value	300	280	270	260	250	230	230	230	250	250	260	260	250	250	250	240	240	230	240	250	260	270	280	280
Median Value	300	280	270	260	250	240	230	230	240	250	250	250	250	250	250	240	230	230	230	250	260	270	270	280
Count	26	27	28	30	29	29	28	28	27	28	29	29	28	27	27	27	26	28	24	26	28	29	28	26

Automatic

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

W 3

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

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

Oct. 1953

f<sub>o</sub>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								3.0	3.8	3.8	4.1	4.5	C	C	C	C	C								
2								Q	4.0	4.0	4.3	4.3	4.3	4.2	4.0	3.8	Q								
3								Q	4.0	4.1	4.3	[4.3] <sup>H</sup>	4.3	4.3	3.9	3.6	Q								
4								Q	L	4.0	4.2	4.3	4.3	4.2	B	B	L								
5								Q	3.9 <sup>L</sup>	4.1	4.2	4.3	4.3	4.1	4.0 <sup>L</sup>	L	L								
6								Q	L	4.0	4.0	4.2	4.3	4.1	4.1	3.6	Q								
7								Q	3.5	4.0	4.0	4.1	4.3	4.0	4.1	3.6	Q								
8								Q	A	4.0	4.2	4.2	C	C	C	C	C								
9								Q	3.8 <sup>L</sup>	4.0	[4.2] <sup>F</sup>	4.3	4.2	3.9	3.3	L	L								
10								Q	3.6	[3.9] <sup>A</sup>	4.2	4.2	4.0	4.0 <sup>L</sup>	3.8	Q	Q								
11								Q	C	C	C	C	C	C	C	C	C								
12								Q	L	L	4.2	4.1	4.2	[4.0] <sup>H</sup>	3.8	A	Q								
13								Q	3.7	A	A	4.3	4.2	A	A	A	Q								
14								Q	Q	3.9	4.1	3.9	4.1	4.0	3.3	Q	Q								
15								Q	Q	3.9	4.0	4.2	4.2	3.9	3.8	3.7	Q								
16								Q	A	4.0	4.3	4.3	4.2	3.8	3.7	L	A								
17								Q	3.9	A	A	4.0	4.0	4.0	3.8	Q	Q								
18								Q	4.1 <sup>F</sup>	4.0	4.0	4.1	4.0 <sup>H</sup>	4.0	3.8	L	Q								
19								A	3.7	3.8	4.0	4.0 <sup>H</sup>	3.9	3.9	3.6	3.3	C								
20								C	C	C	4.1	4.2	4.1	4.0 <sup>H</sup>	3.8 <sup>H</sup>	3.2	Q								
21								Q	C	4.0	A	A	A	A	3.7	3.4 <sup>L</sup>	A								
22								Q	3.4	L	3.8 <sup>H</sup>	[3.7] <sup>B</sup>	4.0	3.9	L	Q	Q								
23								Q	3.6	3.6	3.9	4.2	[3.9] <sup>B</sup>	3.6	3.6 <sup>L</sup>	Q	Q								
24								Q	3.7	3.7	3.8	4.1	4.1	A	A	Q	Q								
25								Q	C	C	C	C	C	C	C	C	C								
26								Q	3.5 <sup>L</sup>	3.6	3.8	4.0	4.0 <sup>H</sup>	3.8	3.6	3.2	Q								
27								A	3.6	3.8	3.9	4.0 <sup>L</sup>	L	B	3.7	Q	Q								
28								Q	3.4	Q	Q	4.2 <sup>H</sup>	4.0	3.9	3.6 <sup>L</sup>	Q	Q								
29								Q	L	3.8	A	L	4.1	3.7	A	Q	Q								
30								Q	L	(3.8) <sup>B</sup>	3.9 <sup>L</sup>	3.9	3.8	3.6	L	Q	Q								
31								C	3.7	L	L	L	4.2	[4.0] <sup>A</sup>	3.8 <sup>L</sup>	L	Q								
Mean Value								3.0	3.7	3.9	4.1	4.2	4.1	4.0	3.8	3.5	-								
Median Value								3.0	3.7	4.0	4.1	4.2	4.1	4.0	3.8	3.6	-								
Count								1	18	22	23	26	25	23	21	9	-								

f<sub>o</sub>F1

Group 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 4



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

Lat. 45° 23.6' N  
Long. 141° 41.1' E

# Wakkanai

## IONOSPHERIC DATA

135° E Mean Time

Oct. 1953

f'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								210	240	200	250	230	C	C	C	C	C							
2								Q	A	230 <sup>A</sup>	200	240	230	230	230	250	Q							
3								Q	230	230	200	A	A	A	230	230	Q							
4								Q	230	230	[230] <sup>F</sup>	230	220	230	230	240	240							
5								Q	220	220	220	220	200	200	200	240	240							
6								Q	220	220	220	230	240	200	200	240	Q							
7								Q	220	220	220	210	200	200	250	230	Q							
8								Q	A	B	A	230	C	C	C	C	C							
9								Q	230	240	[240] <sup>A</sup>	230	200	240	210	240	240							
10								Q	240	[240] <sup>A</sup>	230	230	220	220	230	Q	Q							
11								Q	C	C	C	C	C	C	C	C	C							
12								Q	210	240 <sup>A</sup>	240	220	210	[230] <sup>A</sup>	230	A	Q							
13								Q	210	A	A	A	230	A	A	A	Q							
14								Q	Q	220	220	190	[210] <sup>A</sup>	230	220 <sup>A</sup>	Q	Q							
15								Q	Q	230	240	230	240	210	230	230	Q							
16								Q	A	220	A	A	A	B	230	230	A							
17								Q	250	A	A	230	220	250	230	Q	Q							
18								Q	250	220	200	250	190 <sup>H</sup>	240	210	250 <sup>A</sup>	Q							
19								A	250	230	220	200 <sup>H</sup>	230	240	230	240	C							
20								C	C	C	210	220	210	240 <sup>H</sup>	220 <sup>H</sup>	230	Q							
21								Q	C	240	A	A	A	A	230	240	A							
22								Q	240	210	200 <sup>H</sup>	[220] <sup>B</sup>	240	240	240	Q	Q							
23								Q	240	210	210	A	B	230	230	Q	Q							
24								Q	230 <sup>A</sup>	240	250 <sup>A</sup>	[240] <sup>A</sup>	230	A	A	Q	Q							
25								Q	C	C	C	C	C	C	C	C	C							
26								Q	230	220	200	200	190 <sup>H</sup>	240	A	240	Q							
27								A	230 <sup>A</sup>	230	220	220	250	200	B	Q	Q							
28								Q	230	Q	Q	200 <sup>H</sup>	240	220	220	Q	Q							
29								Q	A	220	[220] <sup>H</sup>	220	230	230	A	Q	Q							
30								Q	230	220	220	210	230	220	230	Q	Q							
31								C	230	230	230	230 <sup>A</sup>	220	[220] <sup>A</sup>	230	250	Q							
Mean Value								210	230	220	220	220	220	230	230	240	240							
Median Value								210	230	220	220	220	220	230	230	240	240							
Count								1	21	24	23	24	23	22	22	15	3							

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

foE

Oct. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	08	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								2.3	2.6	2.8	2.7	3.0	C	C	C	C	C							
2								2.2	2.6	3.0	2.9	2.8	A	A	AF	A	A							
3								A	2.6	2.7	2.9	2.9	A	A	2.9	A	A							
4						1.8		2.2	2.6	2.9F	3.1F	3.2F	3.0	3.0F	2.7F	2.5F	2.0							
5								2.1	2.5	2.9	2.9	2.9	2.8	[2.8]A	2.7	A	A							
6						1.9		[2.2]A	2.5	2.8	3.0H	3.0	2.7	2.5	2.2	2.0	A							
7								2.2	2.6	2.8	2.9	3.0	2.9F	2.4	2.2	A	A							
8								2.0P	2.5F	2.8F	2.9	2.9	C	A	C	C	C							
9								2.1F	2.5F	2.7	A	A	A	2.9	2.8	2.3	2.0							
10								AF	2.5	A	A	A	A	A	A	A	AF							
11							1.6	2.1	C	C	C	C	C	C	C	C	C							
12								2.1	2.4	2.7	2.8	2.8	2.6	A	A	A	A							
13								1.9	2.4	2.6	2.6	2.4	2.8	A	A	A	A							
14								2.2	2.6	2.7F	A	A	A	A	A	A	A							
15								1.8	2.5	2.8	2.8	2.9	3.0	3.0	3.0	AF	A							
16								2.0	[2.4]A	2.7	2.8	[2.8]A	2.9	2.9	2.8	2.0F	1.8							
17								2.0	2.4	2.7	2.7	A	A	2.5	2.4	2.3	1.8							
18								1.7	2.1F	2.5	[2.7]A	2.9	[2.8]A	2.8	A	A	A							
19								A	2.0	2.5F	A	A	A	AF	AF	2.0	C							
20								C	C	C	2.7	A	A	A	A	2.4	A							
21								1.9	[2.2]F	2.5	A	A	A	2.5	2.3	A	A							
22								A	2.0	2.5	A	A	B	2.6	2.5	F	A							
23								B	2.2	A	A	A	B	A	2.5	2.3	1.8							
24								A	2.2	2.4	2.7	2.6	A	AT	A	A	1.8							
25								A	C	C	C	C	C	C	C	C	C							
26								1.8	2.2	2.4	B	B	2.7	2.6	[2.4]F	2.3	B							
27								A	A	2.8	A	A	A	2.7	2.6	B	B							
28								2.0	2.5F	2.7F	AF	A	2.9	2.7	2.5F	B	B							
29								B	2.0	2.0	A	AF	A	A	A	A	A							
30								2.0	2.2	A	A	A	2.8F	[2.6]A	2.5	A	B							
31								C	2.0	A	AF	AF	3.0	A	A	A	A							
Mean Value							1.8	2.0	2.4	2.7	2.8	2.9	2.8	2.7	2.5	2.2	1.9							
Median Value							1.8	2.0	2.4	2.7	2.8	2.9	2.8	2.7	2.5	2.3	1.8							
Count							3	2.0	2.7	2.4	1.6	1.4	1.3	1.5	1.7	8	5							

foE

Sweep 1.0 Me to 15.5 Me in 2 min

Manual  Automatic

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N  
Long. 141° 41.1' E

195° E Mean Time

11'E

Oct. 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	120	110	110	110	C	C	C	C	C								
2								120	100	110	110	110	A	A	AF	A	A								
3								A	110	110	110	110	A	A	110	110	A								
4						150	120	110	110	100 <sup>F</sup>	100 <sup>F</sup>	110 <sup>F</sup>	110 <sup>F</sup>	110	120	110	120								
5							120	110	110	110	110	110	110	110 <sup>A</sup>	110	110	A								
6							110	110 <sup>A</sup>	110	110	110 <sup>A</sup>	110	110	110	110	110	A								
7							120	120	110	110	110	110	100 <sup>F</sup>	100	110	A	A								
8							120	100 <sup>F</sup>	110 <sup>F</sup>	110	110	110	C	A	C	C	C								
9							110 <sup>F</sup>	110	110	110	A	A	A	110	110	110	120								
10							AF	140	A	A	A	A	A	A	A	A	AF								
11							B	130	C	C	C	C	C	C	C	C									
12							130	110	110	110	110	110	110	A	A	A	A								
13							120	110	110	110	110	110	100	A	A	A	A								
14							120	110	110 <sup>F</sup>	A	A	A	A	A	A	A	A								
15							120	120	120	110	110	110	110	110	110	AF	A								
16							110	110 <sup>A</sup>	110	110	110	110 <sup>A</sup>	110	110	110	110 <sup>F</sup>	130								
17							120	110	110	110	110	A	A	110	110	120	130								
18							120	120	110	110 <sup>A</sup>	110	110 <sup>A</sup>	110	110 <sup>A</sup>	100	A	A								
19							A	120	110	A	A	A	A	EA	AF	130	C								
20							C	C	C	120 <sup>A</sup>	A	A	A	A	A	A	A								
21							120	120 <sup>C</sup>	110	A	A	A	A	110	110	A	A								
22							A	120	110	A	A	A	110	110	120	F	A								
23							120	120	A	A	A	A	110	110 <sup>A</sup>	110	120	150								
24							A	110	110	110	110	110	A	AF	A	A	A								
25							A	C	C	C	C	C	C	C	C	C	C								
26							130	120	110	110	110	110	110	110	110 <sup>A</sup>	110	B								
27							A	A	120	A	A	A	A	100	120	B	B								
28							130 <sup>B</sup>	110 <sup>H</sup>	110 <sup>F</sup>	AF	A	A	120	110	110	110	110								
29							130	110	110	A	AF	A	A	A	A	A	A								
30							130	120	A	A	A	A	110	1120 <sup>A</sup>	120	A	B								
31							C	110	A	AF	AF	120	A	A	A	A	A								
Mean Value							130	120	110	110	110	110	110	110	110	110	130								
Median Value							130	120	110	110	110	110	110	110	110	110	110								
Count							2	22	27	24	17	15	15	16	16	9	6								

Sweep 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

Lat. 46° 28.6' N  
Long. 141° 41.1' E

IONOSPHERIC DATA

Wakkanai

Oct. 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	2.2	E	E	2.4Y	2.5Y	E	E	4	4	4	4	4	C	C	C	C	C	C	E	2.4	E	E	E	E	
2	3.8	3.0	4.2	2.5	3.2	2.6	3.5	2.7	4.4	4.4	4.8	5.0Y	5.5	5.5F	4.5F	3.4F	4.4	3.6	3.6F	4.5	6.0	3.0	1.9	5.5	
3	4.5F	3.6F	2.9	5.5	3.6F	3.1	4.5	3.4F	4	4	4.2	5.8	4.7	4.8	5.0F	4.7	5.0F	4.5	3.7	3.5	3.2	3.6	2.9	2.8	
4	2.5Y	1.9	1.2	2.2Y	2.8	E	E	4	4	4.5Y	4.9Y	4.6Y	3.4	4	4	3.0F	4	E	2.5	3.2	2.5	2.6	3.0F	2.5	
5	1.6	2.2	3.5	2.5F	2.2Y	E	2.5Y	3.0F	4	4	4	4	4	3.6	4	3.4	3.0	2.5	2.6Y	2.5Y	E	E	E	E	
6	E	3.0	E	2.3Y	2.6	3.0	2.5	3.6	4	4	4	4	4	4	3.5	3.6	3.5	3.1	6.0	4.3	3.1	2.6	1.8	E	
7	2.6	2.9	3.1F	2.8	3.0	E	E	4	4	4	4.2Y	4.2	4.2	3.4Y	3.6Y	3.4	3.0	1.9	7.0	7.0	4.5	5.1	3.2	5.3	
8	4.7F	3.1F	3.0F	3.4	3.6	2.0Y	4.3	3.5	4.8Y	4.3	5.0	4.3	C	5.5	C	C	C	4.4F	5.0F	3.4	2.8	E	2.0	5.0	
9	4.0	4.7	3.0	3.5	3.0	2.5F	2.0	3.5	4	4.5	5.5	4.5	5.0F	4	4	4	4	E	E	E	3.0	S	4.5Y	5.0	
10	C	3.1	3.5	2.2	3.0	2.6	4.0	3.5F	3.6	4.7	4.5	5.3F	3.0	3.6	5.5F	3.5	5.5F	5.5F	6.0F	4.5	4.4	3.7	4.7	5.4	
11	6.3	6.4	3.0	2.6	1.9	E	2.4	4.1	C	C	C	C	C	C	C	C	C	C	C	4.5F	3.0	2.3	2.0	E	
12	E	E	2.3F	2.6F	3.0F	2.8F	2.2	4	4	3.6Y	4.0	4.0	4.3Y	4.5	5.0	5.0	5.3	3.3	2.5	3.2	5.0	3.0	2.7	6.5	
13	7.0	5.0	3.2	2.5	1.9Y	2.0	2.5	3.3	4	8.1	5.4	5.4	5.3	8.7F	7.0	4.4F	4.8F	4.0	5.4	6.5	5.3	4.4	3.3	4.6	
14	3.4	3.4	2.0Y	2.3Y	2.0	2.6	2.5	4	4	5.3	4.7	4.0	4.3	3.4	4.1	3.6	3.5	3.5	3.5	2.0F	3.5F	3.0	3.0	1.9	
15	E	E	1.3	2.5	2.4	E	E	4	3.0	3.4	4.7	4.4	4	5.5Y	4	5.0F	3.1F	3.0	3.6F	2.3S	3.4	3.4	2.6F	4.5	
16	4.4F	3.0	1.8Y	E	2.0	2.0Y	2.5	3.6	6.5F	5.5	4.5	6.5F	4.6	3.4	3.2	5.1F	4.7	2.6Y	C	5.5F	5.3	5.2	6.0	3.5	
17	3.0	3.0	1.9	E	E	E	2.6	4	3.0	5.5	9.0	5.4	3.6F	4.2	3.3	4.0	3.1	5.5	6.5	5.6	6.0	5.0F	2.8F	5.0F	
18	2.0	3.9	4.5F	3.0	5.0	6.5	4.0	3.2	3.6	5.3	4.4F	3.6	3.5	3.0F	4.0	3.7	4.8	3.6F	3.5	2.0	E	E	E	E	
19	E	1.9Y	1.9Y	1.9Y	2.2Y	3.6Y	3.8	3.8	6.3	4.7	4.0F	5.5	5.0	3.4F	3.6F	2.6F	C	E	C	C	C	C	2.6Y	2.5	
20	2.8F	C	C	C	C	C	C	C	C	C	3.0	2.9	4.9Y	3.6	3.6Y	3.5	3.0	2.6Y	2.0	5.0	5.0	2.3	3.2	3.2	3.5
21	6.0	4.8F	3.5	3.6	3.6	2.5Y	2.8Y	4	C	4.2	6.4	6.4	5.5	5.0	3.6	5.0	4.8	2.4	4.0	E	E	E	2.6	2.7	E
22	1.9	2.4	2.4	2.2Y	2.2F	1.2	3.9	3.4	5.1Y	4	2.8	3.4	4	4	4	F	3.0	3.4F	3.0	3.0	E	E	2.7	4.5F	5.0F
23	5.5F	3.0F	4.0F	5.5	3.0	3.3F	E	3.5Y	2.6	5.0F	4.6	4.0	4	3.0	4	4	2.5	2.4	2.5	2.6	4.5Y	6.5Y	3.2F	2.6	
24	2.6	2.5	2.0Y	E	2.5	3.0	4.7	3.7	5.0	4.1	4.2	4.6	3.6	7.7F	6.7	5.2F	5.0	3.6	6.0Y	5.5	2.8F	8.0Y	4.3	2.5	
25	2.9F	3.2F	3.0F	3.3F	3.5	2.4	2.5	3.2	C	C	C	C	C	C	C	C	C	C	2.4	E	3.0	3.0	5.2	2.6	
26	5.0F	4.0F	2.8F	3.0	2.9	2.0Y	2.6	4	3.4Y	3.4Y	4	4	4	4	4.8	4	B	2.7Y	5.7	6.5	3.0	3.5	E	2.6	
27	2.5	4.6Y	3.2F	3.2	1.8Y	1.9Y	2.2	4.5	3.6Y	4	3.4	4.2Y	4.6Y	4	4	2.8F	B	E	3.0F	2.8	3.0F	5.6	4.5	4.5	
28	5.0	3.5F	3.0F	3.6	2.9	4.5	4.6	4.0	3.6F	5.8	4.2F	3.0	3.5Y	3.6	4	4	4	3.3F	2.9F	4.5	5.0	2.4	2.8	3.0	
29	2.0	E	2.3Y	1.9Y	1.2	2.7Y	2.5Y	2.3	4.0	5.0F	8.1	5.8F	5.3	5.5	6.0	5.4	3.6	2.8	2.7	3.2	4.5	5.0	3.2	3.0	
30	2.6F	2.6F	2.4Y	2.6Y	2.4Y	2.4	E	4	3.3F	5.0	3.6	3.6	3.6	3.0	2.6	3.4	2.6	E	E	3.0	2.8	3.2F	2.4F	2.7F	
31	3.0F	3.0F	3.0	3.6F	2.0F	3.0F	C	C	3.9	5.0Y	5.4F	5.5F	4.9	5.5	3.4	5.4	4.0	5.2F	4.4	5.5	6.7	2.8	E	E	
Mean	3.6	3.4	2.8	2.9	2.7	2.8	3.1	3.4	4.1	4.8	4.8	4.6	4.4	4.5	4.3	4.1	4.0	3.5	3.6	4.0	3.9	3.8	3.3	3.8	
Median	2.8	3.0	3.0	2.6	2.6	2.4	2.5	3.2	3.3	4.4	4.4	4.3	4.2	3.6	3.5	3.6	3.6	3.0	3.5	3.3	3.0	3.0	2.8	2.8	
Count	30	30	30	30	30	30	29	29	27	28	29	29	27	28	27	26	24	28	28	30	30	29	31	31	

fEs

Sweep 1.0 Me to 15.5 Me in 2 min

Manual

Automatic

Lat. 45° 2.8' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

Oct. 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	(2.8)F	3.0	2.9F	3.0F	(3.0)F	2.8F	3.3	(3.4)F	3.4	3.5	3.6	C	C	C	C	C	C	C	B	3.3	3.1	3.0	(2.8)F	2.9	
2	2.8F	2.8	3.0	3.0	3.2	3.4	3.4	3.6	3.5	3.4	3.4	3.4	3.3	3.3	3.4	3.4	3.3	3.5	3.3	3.3	3.2	(3.2)F	(3.0)F	2.9	
3	(2.8)F	(2.9)F	2.9F	3.0F	2.9F	(3.2)F	3.5F	3.6	3.2	3.4	3.3	3.2	3.4	(3.3)F	3.5	3.3	(3.5)F	3.3F	3.2	3.0	3.0F	2.9H	(3.0)F	3.1F	
4	2.8	2.8F	3.3F	(3.0)F	(3.1)F	3.5	3.4	3.4	3.3	3.3	3.3	3.2	3.3	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.1F	3.1	3.4	(3.0)F	(3.1)F
5	(3.0)F	(3.0)F	(3.0)F	(3.0)F	(3.0)F	3.4	3.5	3.5	3.5	(3.3)F	3.5	3.5	3.4	3.3	3.5	3.3	(3.3)F	(3.2)F	(3.2)F	3.2	3.2	(3.1)F	(3.1)F	3.1	(3.1)F
6	3.2	(3.0)F	(3.2)F	(3.2)F	3.2	(3.4)F	3.5	3.6	3.5	3.6	3.2	3.3	3.3	3.4	3.4	3.4	3.5	3.5	3.5	3.3	3.2	(3.0)F	(3.3)F	3.1	
7	3.1	3.0F	3.2F	(3.0)F	3.0	3.1	3.5	3.7	3.6	3.4	3.5	3.4	3.3	3.4	3.3	3.4	3.4	3.4	3.0	2.9	2.8F	2.9F	3.1F	3.3	
8	3.4	(2.9)F	3.0F	3.1F	(3.4)F	3.4	3.4	3.7	3.4	3.4	3.5	3.3	(3.3)F	3.3	3.5	C	C	3.3	3.0	(3.0)F	3.0	3.1	2.9	3.2	
9	2.9	2.8	3.0H	(3.1)F	3.0	(3.5)F	3.6	3.3	3.3	(3.5)F	3.5	3.5	3.5	3.5	3.4	3.4	3.3	3.3	3.2	3.3	S	S	3.0	A	
10	C	(3.0)F	(2.9)F	3.1	3.2F	3.4	3.5F	3.5	3.4	3.4F	3.5	3.4	3.4	3.5	3.4	3.4	3.3	3.5	3.3	3.0	2.9	(3.1)F	(3.0)F	(3.0)F	
11	3.2	A	F	3.1F	3.2	3.1	3.5	3.7	C	C	C	C	C	C	C	C	C	C	C	3.0	3.2	3.1	2.9	2.9	
12	3.0	3.0	3.0	3.1	3.1	3.1	3.4	3.6	3.2H	3.5	B	3.6	3.4	3.4	(3.5)F	3.2	3.5	3.4	3.6	3.1	3.3	3.1	2.9	2.8	
13	A	A	3.2	3.2	3.2	3.1F	3.5	3.6	3.5	(3.5)F	3.5	3.3	3.5	(3.4)F	3.3	3.5	3.4	3.6	A	A	3.1	(3.0)F	(2.9)F	3.0	
14	3.1	3.0F	3.0	(3.1)F	3.2F	3.0F	3.9	3.6	3.3H	3.6	3.5	3.4	3.4	3.4	3.2	3.3	3.4	3.5	3.0	3.1	3.1	2.9F	(3.0)F	3.0F	
15	(3.2)F	(3.1)F	(3.0)F	3.2F	3.4F	(3.3)F	3.6F	3.7	3.7	3.3	3.6	3.4	3.4	3.5	3.5	3.5	3.6	3.6	3.3	2.8	(3.2)F	2.9F	3.0	(3.3)F	
16	(2.9)F	(2.9)F	(2.8)F	(2.8)F	F	F	3.1K	3.2K	3.5K	3.1K	2.9K	B	3.3K	(3.4)F	3.7K	3.4H	3.4K	3.3K	(3.2)F	3.0K	3.1K	3.2K	3.0K	(3.0)F	
17	(2.8)F	3.0K	2.9K	(2.9)F	(3.0)F	(2.9)F	3.2K	3.5K	3.2K	3.1K	(3.2)F	3.3K	3.2K	(3.2)F	3.3K	3.3K	3.3K	3.3K	(3.1)F	3.0K	(3.0)F	3.0K	3.0F	3.1F	
18	2.9F	A	A	3.0F	A	A	3.3K	3.2K	(3.2)K	3.1K	3.2K	2.9K	3.2K	3.6K	3.3K	3.4K	3.5K	3.3F	3.1F	F	C	C	3.0F	F	
19	2.7K	2.7K	2.7K	2.9K	2.8K	2.8F	A	A	3.0K	3.2K	3.1K	3.1K	3.1K	3.0K	3.4K	3.3K	(3.2)F	3.2K	C	C	C	C	3.0K	3.0F	
20	2.7K	F	C	C	C	C	C	C	C	C	C	C	3.3K	(3.3)F	3.3K	(3.3)F	3.5K	3.5K	3.6K	3.2K	(3.0)F	(3.0)F	(2.9)F	3.0F	
21	A	A	F	3.0F	3.1F	3.1K	3.3K	3.3K	(3.4)F	3.2K	3.4K	3.4K	3.5K	3.5K	3.3K	3.5K	3.5K	3.2K	3.6K	3.0F	(2.8)F	3.0F	(3.2)F	(2.9)F	
22	(3.2)F	2.9F	3.0F	3.0F	3.2	3.4	3.4	3.4	3.7	3.5	3.6	3.4	3.4	3.4	3.5	3.4	3.5	3.4	3.3	3.3	2.9	F	F	F	
23	F	(3.0)F	2.9F	3.0F	2.9F	2.9F	3.5	3.6	3.4	3.3	3.1	3.4	3.3	3.3	3.5	3.4	3.4	3.5	3.2	3.5	2.9	2.9	F	F	
24	2.8F	3.0	3.1F	3.0F	3.1F	3.2F	3.4F	3.5	3.4F	3.3	3.5	3.2	3.5	3.5	3.5	3.5	3.5	3.6	3.2	A	(3.1)F	(3.1)F	2.8F	F	
25	2.8F	3.0F	2.8F	(3.4)F	(3.4)F	3.3	3.3	3.4	C	C	C	C	C	C	C	C	C	C	3.4F	3.1	3.1F	3.1F	A	S	
26	2.9F	2.8F	(2.7)F	(3.0)F	(3.1)F	3.0F	3.5	3.4	3.6	3.6	3.4	3.5	3.5	3.6	3.5	3.4	3.4F	3.4	2.9	3.2	3.1	(3.1)F	(3.1)F	3.2	
27	(3.0)F	(3.1)F	(2.8)F	(3.0)F	3.1	(3.0)F	(3.1)F	3.3	3.4F	3.6	3.2	3.3	3.4	3.4	3.4	3.5	3.5	3.4	3.1	(3.2)F	3.3F	(3.2)F	3.1F	3.1	
28	(3.0)F	3.0F	2.9F	3.2	3.1	(3.2)F	3.2	B	3.5	3.2	B	3.6	3.6	3.6	3.3	3.3	3.6	3.4	3.5	(3.2)F	2.9	3.0F	3.0F	3.1F	
29	(3.2)F	(3.2)F	(3.2)F	(3.2)F	(3.2)F	(3.4)F	3.5F	3.6	3.6	3.5	3.1	3.1	3.5	3.6	3.5F	3.4	3.5	3.3	3.2	(3.2)F	3.2	(3.4)F	(3.5)F	(3.2)F	
30	(3.0)F	T	(2.9)F	3.1F	3.0	3.3F	3.4F	3.5	3.4	3.6	(3.3)F	3.5F	3.6	3.5	3.4F	3.5	(3.4)F	3.5F	3.1	3.2	F	5F	F	5F	
31	F	F	(3.3)F	(3.2)F	(3.1)F	C	C	C	3.5	3.6	3.5	3.3F	3.3	(3.5)F	3.4	3.6	3.6	3.2F	A	A	A	3.1	3.1	(3.0)F	
Mean Value	3.0	2.9	3.0	3.1	3.1	3.1	3.4	3.5	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.2	3.1	3.1	3.0	3.0	3.1	
Median Value	3.0	3.0	3.0	3.0	3.1	3.2	3.4	3.5	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.2	3.2	3.1	3.0	3.0	3.1	
Count	26	24	28	29	28	28	28	28	27	28	28	27	28	28	28	27	27	28	26	26	27	27	27	23	

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

Oct. 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	1.6	1.2	E	E	E	E	2.0	2.4	3.1	3.2	3.2	3.3	C	C	C	C	C	C	1.7	1.7	1.7	1.7	1.7	1.7	
2	A	A	2.2A	1.7	1.7	1.5	2.2A	2.7	2.6A	3.3	[3.2]A	3.2	3.7	3.6	3.2	2.7	3.4A	2.0A	2.2A	2.5A	2.5A	2.4A	1.7	2.0A	
3	2.2A	1.7	1.4	1.7	2.0A	1.7F	2.6F	2.5	2.9	3.2	3.4	5.0A	4.0A	4.0A	3.4	2.8	2.8A	2.2A	3.0A	2.2A	2.4A	2.5A	2.2A	1.8	
4	1.7	1.3	1.3	1.2	1.8	E	2.1	2.6	2.7	3.4	4.1	3.7	3.4	3.4	3.2	3.3	2.4	1.7	1.7	2.4A	1.7	1.7	1.7	2.2	
5	1.8	1.7	1.3	1.7	1.2	1.2	2.0	2.5	2.8	3.1	3.3	3.2	3.2	3.1	3.1	2.8	2.2	1.7	1.7	1.7	1.7	1.7	1.7	1.8	
6	1.7	1.7	1.0	1.0	1.7	1.2	1.9	2.8	2.9	3.0	3.3	3.3	3.6	3.0	3.0	2.8	2.4	1.8	1.7	3.4A	4.5S	1.7	1.8	1.5	
7	1.7	2.0A	1.7	1.7	1.7	E	1.8	2.5	2.8	3.3	3.3	3.5	3.4	3.0	3.0	2.9	2.9A	1.7	4.0A	2.2A	1.8	4.0A	2.5A	2.5A	
8	2.2A	1.7	2.0A	2.4A	2.2	1.3	4.0A	2.9	4.0A	3.8	4.0A	3.7	C	<5.0°	<5.2°	C	C	2.2	4.0A	2.2A	1.7	1.7	1.7	4.2A	
9	2.5A	1.7	1.7	2.5A	E	1.2	1.8	2.3	2.7	3.4	4.5A	3.6	3.0	3.3	3.1	2.6	2.2	1.7	1.7	3.4F	2.5A	[2.8]	3.2A	4.0A	
10	C	1.7	E	1.6	1.8	1.4	2.9A	2.5	3.2	4.0A	3.3	3.3	3.0	2.9	3.2	2.7	4.0A	3.6A	3.8A	2.2A	2.5A	2.4	4.0A	[4.2]A	
11	4.5A	A	FA	1.2	1.1	E	1.7	3.4	C	C	C	C	C	C	C	C	C	C	C	2.8A	3.2	1.7	1.5	1.5	
12	1.5	1.2	1.5	1.5	1.5	1.5	1.7	2.3	2.6	3.5	3.4	3.2	3.5	4.0A	3.0	4.0A	3.2A	2.5A	1.7	2.2A	3.2	2.4A	1.9	3.9A	
13	[4.0]A	4.0F	1.8	1.5	E	E	1.8	2.5	2.8	[3.6]A	4.5A	4.0A	3.2	[4.4]A	5.1A	4.0A	4.0A	2.5A	A	A	2.1A	2.8A	2.8A	2.2A	
14	2.5A	2.0A	1.0	1.3	1.4F	1.6	1.7	2.5	3.0	3.2	3.1	3.3	3.9A	3.2	3.0A	3.3A	2.5	3.1A	2.3A	1.6	2.2A	1.7	1.7	1.5	
15	1.3F	E	1.3F	1.2	1.7	1.2	1.7	2.4	2.6	3.2	3.6	3.2	3.5	3.0	3.1	2.7	2.2	1.6	1.8	1.7	1.7	1.7	1.7	4.0A	
16	3.5A	1.7	1.0	E	E	1.8F	1.6	2.7	4.0A	3.1	3.6	4.0A	3.8	3.6	3.2	2.8F	A	1.7	[2.8]C	4.0A	3.7A	3.0A	1.7	2.2A	
17	1.7	1.7	E	E	E	E	1.9	2.2	2.8	4.0A	[3.7]A	3.4	3.1	3.1	2.8	2.3	2.2	3.0A	[3.5]A	4.0A	2.0A	2.2A	1.7	1.6F	
18	1.4	A	A	1.5	A	A	3.2A	2.2	3.2	1.8	3.0	3.2	2.8	2.9	3.1	2.8	2.4	2.3A	1.7	1.7	1.6	1.6	1.6	1.6F	
19	1.2	1.3F	1.3	1.1	E	1.3	A	A	2.2	2.8	2.9	3.0	2.9	2.8	2.5	2.4	[2.0]C	1.7	C	C	C	C	1.7	1.7	
20	1.7	C	C	C	C	C	C	C	C	C	3.0	3.2	2.9	3.0	2.9	2.5	2.2	1.7	1.4	1.6	1.6	1.6F	1.7F	FA	
21	A	1.7F	1.7	1.6	1.7	1.4	1.7	2.2	[2.8]C	3.4	4.2A	5.1A	4.0A	4.2A	3.1	2.7	3.8A	1.6	2.2A	1.6F	1.6	1.7	1.7	1.6	
22	1.5	1.3	1.3	1.2	1.1	E	A	2.5	2.8	2.6	3.1	3.9	3.2	3.1	3.0	2.4	2.3	2.2	1.7	1.7	1.6	1.6F	2.0F	1.7F	
23	1.2F	1.4	1.7	1.8	[1.8]A	1.7	1.6	2.1	3.0	2.8	3.2	4.0A	4.0	2.8	2.8	2.5	2.4	1.6	1.5	1.7	2.2A	2.2A	1.8	1.7	
24	1.7	1.5	E	E	1.7	1.8	2.6A	A	A	3.4	3.4	3.9A	3.2	5.5A	4.0A	3.2A	3.7A	2.5A	2.8A	A	1.7	1.7	2.0F	1.6F	
25	1.7	1.9	1.7	1.8	A	E	1.7	1.8	C	C	C	C	C	C	C	C	C	C	2.2	1.6	2.2A	1.7	[2.0]A	2.2A	
26	2.2A	2.2A	1.9	1.9	1.9	1.3	1.7	2.5	2.4	2.9	2.9	2.9	2.8	2.9	3.2A	2.3	2.2	1.8	1.7A	2.1A	1.7	[1.7]A	1.7	1.7	
27	1.7	1.7F	1.7	1.7	E	E	1.7	4.2A	A	3.2	3.1	3.2	3.2	2.8	3.6	2.4	1.8	1.7	2.2	[1.8]A	1.7	[1.7]A	1.7	2.2A	
28	[2.0]A	1.7	1.7	1.8	1.7	[2.0]A	2.2	3.2A	2.5	2.8	3.1	2.9	3.1	2.8	2.6	2.5	2.0	2.2A	2.2	[2.0]A	1.7	1.7	1.7	1.6	
29	1.2	E	E	E	E	1.3	1.7	2.3	3.3A	3.2	5.2A	3.3	3.1	3.2	4.7A	2.9	2.3	2.0	1.7	2.3A	2.8A	[3.3]A	3.8F	2.2	
30	1.6	1.6F	E	E	1.0	1.2	1.6	2.2	2.6	2.9	2.9	3.2	3.1	2.9	2.5	2.4	1.7	1.7	1.7	2.1A	1.9F	4.0F	1.7F	1.8	
31	1.7	1.5	1.5	2.3A	1.7	1.8F	C	C	2.4	3.0	3.4A	3.1	3.1	3.9A	2.8	2.7	3.1A	2.8A	A	A	A	2.1A	1.8	1.7F	
Mean Value	2.0	1.7	1.5	1.6	1.6	1.5	2.1	2.6	2.9	3.2	3.5	3.3	3.3	3.3	3.2	2.8	2.6	2.1	2.2	2.2	2.2	2.1	2.0	2.2	
Median Value	1.7	1.7	1.4	1.5	1.6	1.3	1.8	2.5	2.8	3.2	3.3	3.3	3.2	3.1	3.1	2.7	2.4	1.8	1.8	2.1	1.9	1.7	1.7	1.8	
Count	28	27	28	30	28	29	27	27	26	28	29	29	27	27	27	27	26	27	26	27	27	29	30	31	30

fminF

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual  Automatic

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

Lat. 45° 23.8' N  
Long. 141° 41.1' E

**Wakkanai**

**IONOSPHERIC DATA**

f<sub>min</sub>E

Oct. 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	1.7	E	E	1.7	E	E	E	1.6	1.7	1.8	1.8	1.8	C	C	C	C	C	C	E	1.7	E	E	E	E
2	1.4	1.0	E	1.0	E	1.1	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8 <sup>F</sup>	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7
3	1.7	E	E	E	E	E	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.6	1.6 <sup>F</sup>	1.7	1.6	1.6	1.7	1.7	1.6	1.6
4	1.6	E	E	E	E	E	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	E	1.6	1.7	2.1	1.6	1.7 <sup>F</sup>	1.7
5	1.2	E	E	1.7	E	E	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	2.2	1.7	1.7	E	E	E	E
6	1.7	E	E	1.0	1.0	1.0	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.6	2.4	1.7	E
7	1.5	E	E	E	E	E	E	E	1.7	1.7	1.8	1.7	2.2 <sup>F</sup>	1.7	1.7	1.8	1.7	1.7	1.6	1.7	1.6	1.7	1.7	1.7
8	1.5	E	1.1	E	E	E	1.3	1.6	1.6 <sup>F</sup>	1.6	1.7	1.7	1.7 <sup>C</sup>	1.7	C	C	C	1.6	1.6 <sup>F</sup>	1.6	1.7	E	1.7	1.7
9	1.7	1.2	E	E	E	E	1.6	1.6 <sup>F</sup>	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.7	E	E	E	2.2	[2.0 <sup>F</sup> ]	1.7	1.7
10	C	E	E	E	E	E	1.6	1.7 <sup>F</sup>	1.7	1.6	1.6	1.6	1.7	1.7	1.6	1.6	1.6	1.7 <sup>F</sup>	1.6	1.6	1.6	1.6	1.6	1.7
11	1.6	1.2	E	E	E	E	1.5	1.7	C	C	C	C	C	C	C	C	C	C	C	1.7	1.6	1.7	1.6	E
12	E	E	E	E	E	1.2	1.8	1.6	1.5	1.7	1.6	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.7	1.6	1.7	1.6	1.6	1.6
13	1.3	1.1	E	E	E	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.6	1.7	1.8	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7
14	1.1	E	1.0	E	1.7	1.1	1.7	1.7	1.8	1.7	1.7	1.8	1.7	1.8	1.7	2.2	1.6	1.6	1.6	1.6	1.6 <sup>F</sup>	1.6	1.7	1.7
15	E	E	E	E	E	1.2	E	1.6	1.7	2.2	1.7	1.7	1.7	1.7	1.5	1.7	1.6	1.6	1.6	1.5	1.6	1.7	1.7	1.7
16	1.3	E	E	E	1.7	E	1.6	1.6	1.6	1.6	1.7	1.6	1.7	1.7	1.7	1.7	1.6	1.6	1.6 <sup>F</sup>	1.6	1.6	1.6	1.6	1.6
17	1.3	1.1	1.7	E	E	E	1.7	1.7	1.7	1.6	1.6	1.7	1.7	1.6	1.7	1.7	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6
18	1.7	E	E	E	E	E	1.6	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.7	E	C	E	E
19	E	E	E	E	E	E	1.6	1.6	1.7	1.6	1.6	1.7	1.7	1.6	1.6	1.7	1.7	C	E	C	C	E	E	1.7
20	1.3	C	C	C	C	C	C	C	C	C	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1	1.6	1.6
21	1.6	E	E	E	E	E	1.7	1.7	1.7 <sup>F</sup>	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	2.2	1.6	E	E	1.6	1.7	E
22	1.7	1.0	E	E	E	E	1.6	1.7	1.7	1.7	1.6	1.8	1.7	1.8	2.0	1.7 <sup>F</sup>	1.6	1.6	1.6	1.5	E	1.6	1.6	1.6 <sup>F</sup>
23	1.7	E	E	E	E	E	E	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.5	1.6	1.6	1.8	1.7	1.7	1.6	1.6	1.6	1.7
24	1.2	E	E	E	E	E	1.7	1.7	1.5	1.7	1.7	1.7	1.7	1.7	1.5	1.7	1.6	1.6	1.6	1.5	1.7	1.5	1.6	1.7
25	1.3	E	E	E	E	E	2.2	1.6	1.7	C	C	C	C	C	C	C	C	C	2.2	E	1.7	1.7	1.7	1.7
26	1.8 <sup>F</sup>	1.0	E	E	E	E	1.0	1.7	1.7	1.6	1.7	1.8	1.7	2.1	2.2	1.7	1.7	1.8	1.6	1.7	1.7	1.7	1.7	1.7
27	1.7	1.4	E	E	E	E	1.9	1.7	1.8	1.7	1.7	1.7	1.7	1.7	2.2	2.2 <sup>F</sup>	B	E	1.7	1.7	1.7	1.7	1.6	1.7
28	1.7	E	E	E	E	E	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.6	2.0	1.6	1.6
29	1.6	E	E	E	E	E	1.8	1.6	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.8	1.7	1.6	1.6
30	1.6 <sup>F</sup>	E	E	E	E	E	2.2	E	1.7	1.7	1.7	1.7	1.7	1.9	1.7	1.6	2.2	E	E	1.6	1.7	1.8	1.7	1.8
31	1.7	1.2	E	E	E	E	E	C	1.6	1.7	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.8	1.7	1.6	E	E
Mean Value	1.5	1.1	1.3	1.4	1.5	1.4	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7	1.7	1.6	1.7	1.7	1.7	1.7
Median Value	1.6	E	E	E	E	E	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7
Count	30	30	30	30	30	30	29	29	28	28	29	29	28	28	27	27	24	28	29	30	30	30	31	31

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 11

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

Lat. 39° 43.5' N  
Long. 140° 08.9' E

# IONOSPHERIC DATA

## A k i t a

Oct. 1953

135° E Mean Time

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	2.8	2.9	2.9	2.8	2.9F	3.0F	4.5	5.0	6.2	6.4	6.8	7.7	6.3	6.0	5.8	6.3	7.3	8.1	7.8	4.7	3.6	3.6	3.5	3.4
2	3.7	3.4	3.3F	3.5	3.0F	3.1F	4.9	6.0	6.8	6.4	6.4	6.9	7.2	7.1	6.6	6.7	6.9	6.4	6.0P	4.7	4.1	4.1	4.0F	3.7F
3	3.8F	3.5F	3.5F	3.6F	4.0F	4.0F	(4.9P)	5.5	(6.2P)	6.7	6.7	7.3	7.4	6.7	6.5	5.9	6.0	5.9	5.6	4.2	4.5	4.5	4.6V	4.2F
4	4.4F	4.4F	4.3F	3.6F	3.4F	3.2F	4.7	5.5	6.5	6.0	6.2	7.4	8.5	7.5	6.2	6.0	6.6	7.7	6.2	5.3	4.2	3.7	3.5	3.5
5	3.6	3.5F	3.7	3.5F	3.7	3.3	4.7	(5.4M)	6.0	6.0	6.6	6.9	6.0	7.0	6.6	6.0	6.6	(8.0P)	6.9	5.0	3.7	3.4	3.4F	3.4
6	3.5	3.5	3.5	3.4	3.5	3.3	4.4	5.2	6.4	6.0	C	C	7.4P	6.2P	6.2	7.0	7.3	6.0	4.8	4.0	4.0	3.8	3.6F	3.6F
7	3.2	C	C	3.2	3.2	3.5	4.8	5.5	6.0J	6.1	5.9	7.4	7.4	6.1	6.0	6.6	6.7	6.0	4.7	4.7	4.8P	5.0	5.2	3.1
8	3.1F	3.2F	3.1	3.5	3.2	3.5	4.9	6.1	C	C	C	C	C	C	C	C	C	7.0	6.4	5.5	4.9	5.2	5.0	5.0
9	4.6	4.5F	4.4F	4.2F	3.8	3.3	4.7	6.2	6.7	6.7	8.6	10.3	7.0	6.4	6.1	6.2	6.5	6.3	(5.6A)	5.0	4.6	4.3	4.3	4.0
10	4.1F	4.0	3.7	3.7	3.6	3.3	4.8	6.1	6.7	6.1	7.4	9.1	7.8	7.6	7.3	6.8	6.6	5.8	3.8	3.8	4.0	(4.0M)	3.9	3.8F
11	3.8	3.5	3.5F	3.9F	3.6F	3.0F	4.7	6.1	6.7	6.6	8.0	8.5	7.7	6.8	6.6	7.5	7.4	6.2	5.3	5.0	4.5	4.5	4.3F	4.4
12	4.3F	4.0F	4.5F	4.2F	3.6F	3.4F	4.8	5.7	6.6	6.9	7.9	9.0	7.6	6.1	6.5	5.9	6.5	5.9	C	C	C	4.0	(4.1A)	4.2
13	4.3	3.6	3.7	3.7	3.6	3.5	4.6	5.7	6.3	6.0	7.0	8.3	7.5	7.3	6.8	7.1	7.0	5.8	3.9	A	A	3.5	3.6	3.6
14	3.7	3.6V	3.6F	3.6F	3.5F	3.0F	4.6	5.5	6.3	7.2	6.2	6.9	7.0	6.8	6.7	7.0	6.5	5.8	4.2	4.0	4.1	3.8	4.0	3.8F
15	4.0F	3.8F	3.7	3.6	3.7	3.1	4.5	5.5	6.5	6.5	6.9	7.7	8.3	6.9	6.7	6.5	5.9	5.8	4.0	3.8F	4.3F	3.9F	4.2F	4.2F
16	3.9F	3.9F	3.9F	3.2F	3.3F	3.2F	3.1K	5.3K	7.8K	7.7K	(8.7K)	11.0K	12.5K	9.2K	6.8K	6.4K	6.4K	7.0K	5.5K	5.8K	4.6K	4.3K	3.7K	4.0F
17	3.7K	3.8K	3.7K	3.7K	3.8K	3.8K	4.8K	7.4K	6.5K	9.5K	6.2K	7.1K	8.8K	7.5K	7.5K	6.7K	(7.6K)	5.6K	4.9K	4.3K	4.3K	3.2K	2.7F	2.7F
18	2.6K	2.7K	2.8K	4.5K	4.2K	(4.0P)	3.8K	5.9K	5.7K	7.9K	6.1K	7.2K	8.3K	7.2K	6.0K	6.4K	6.5K	5.4K	3.6K	4.6K	4.5K	4.0K	3.7K	3.1K
19	3.0K	3.3K	3.3K	3.3K	3.0K	2.6K	4.0K	4.7K	5.7K	6.9K	5.7K	5.7K	8.1K	8.0K	7.4K	7.3K	6.5K	5.3K	3.9K	4.6K	3.7K	3.6K	3.2K	3.1K
20	3.4K	3.5K	3.3K	3.3K	3.3K	2.6K	4.6K	5.5K	6.9K	5.9K	(7.0K)	(8.9K)	(8.0K)	6.5K	(7.3P)	7.6K	7.3K	5.6K	4.8K	3.0K	3.1K	3.0K	3.4K	3.4K
21	3.3K	3.5K	3.4K	3.6K	3.0K	2.7K	3.5K	5.5K	7.0K	(9.4K)	7.2K	7.2K	7.0K	7.0K	7.0K	7.0K	7.6K	5.7K	(4.6A)	3.6	3.6	3.6	3.4	3.1
22	3.3	3.3	3.2F	3.4	3.2F	2.9	3.7	5.0	6.6	5.9	6.4	7.3	7.5	7.2	6.5	7.0	6.5	4.7	(4.0J)	3.3	2.5H	2.7	2.5P	3.2F
23	3.2F	3.2F	3.3F	3.1F	3.0F	2.8F	3.6	5.5	5.9	6.4	5.7	7.1	6.9	6.2	6.6	6.6	6.1	4.9	3.9P	(3.4A)	3.0F	2.9	3.2	3.4F
24	3.5F	3.6F	3.6	3.6	3.4	3.5	4.0	5.5	6.5	6.3	6.6	7.3	8.1	6.7	6.3	6.3	5.7	4.4	3.2	3.5	2.9	2.7	2.8	2.9
25	2.8	3.0	2.9	3.2	3.2	2.1	3.1	5.1	6.5	6.9	7.5	8.4	6.5	5.7	6.0	5.5	5.7	5.2	3.7	3.0	3.3	3.3F	3.3F	3.3F
26	3.2F	3.3F	3.3F	3.3F	3.2F	2.8F	3.9	5.2	6.6	6.6	6.5	7.0	6.9	6.9	6.0	5.5	6.1	5.0	3.0	3.1	3.1	3.1F	3.5F	3.3F
27	2.9F	2.9	3.0	3.1	3.1	2.8	3.3	5.8	6.2	8.5	6.3	6.1	7.7	6.9	7.0	6.2	7.2	4.7	3.6	3.5	3.7	3.4	3.5	3.5
28	3.5	3.5	3.5	3.4	3.5	3.3	4.1	5.4	6.6	7.3	6.8	9.0	9.0J	6.8	6.3	6.8	6.7	4.5	3.3	3.5	3.2	3.5	4.0F	4.0F
29	4.0F	3.9F	4.0F	3.6F	3.4F	3.0F	3.5	5.5	5.9P	6.6	6.8	6.9	7.8	6.9	6.6	6.1J	C	C	3.7	4.2	4.0	3.4	3.5	3.2
30	3.2F	3.4F	3.2	3.2	3.0	2.8	3.7	5.9	6.8	7.7	10.5	10.7	8.0	6.2	6.3	6.6	7.6	6.9	3.8P	4.2	3.9F	4.3F	4.2F	3.8F
31	3.8F	3.5F	3.7F	3.7F	3.0F	2.9F	3.5	5.8	7.0	7.2	7.6	7.2	7.8	7.2	7.8	6.7	6.0	(4.8A)	3.6	3.4	3.2	A	A	2.8
Mean Value	3.6	3.5	3.5	3.5	3.4	3.1	4.2	5.6	6.5	6.9	7.0	7.8	7.7	6.9	6.6	6.5	6.7	5.9	4.6	4.2	3.9	3.7	3.7	3.6
Median Value	3.5	3.5	3.5	3.5	3.4	3.1	4.5	5.5	6.5	6.6	6.8	7.3	7.6	6.9	6.6	6.6	6.6	5.8	4.1	4.2	4.0	3.6	3.6	3.5
Count	31	30	30	31	31	31	31	31	30	30	29	29	30	30	30	30	29	30	30	29	29	30	30	31

A1

Manual  Automatic

Sheep 0.85 Mc to 22.0 Mc in 2 min

foF2



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

Lat. 39° 43.6' N  
Long. 140° 08.3' E

**A k i t a**

**IONOSPHERIC DATA**

135° E Mean Time

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

Oct. 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	350	340	330	330	310 <sup>F</sup>	400 <sup>F</sup>	240	240	240	280	280	250	270	300	290	300	300	250	250	230	310	330	380	350
2	380	350	380 <sup>F</sup>	310	300 <sup>F</sup>	320 <sup>F</sup>	240	240	240	250	290	280	270	300	260	(260 <sup>F</sup> )	260	250	250 <sup>F</sup>	290	300	350	350 <sup>F</sup>	350 <sup>F</sup>
3	(350 <sup>F</sup> )	350 <sup>F</sup>	350 <sup>F</sup>	350 <sup>F</sup>	(400 <sup>F</sup> )	(350 <sup>F</sup> )	(250 <sup>F</sup> )	270	(240 <sup>F</sup> )	260	270	270	260	270	270	270	260	260	270	300	340	350	330 <sup>F</sup>	350 <sup>F</sup>
4	340 <sup>F</sup>	320	280 <sup>F</sup>	290 <sup>F</sup>	290 <sup>F</sup>	300 <sup>F</sup>	260	250	250	270	270	300	270	280	260	270	280	270	270	270	290	340	360	350
5	350	350 <sup>F</sup>	320	330 <sup>F</sup>	310	320	250	(240 <sup>F</sup> )	240	250	250	260	260	280	270	280	280	(260 <sup>F</sup> )	250	270	260	340	360 <sup>F</sup>	350
6	320	320	320	330	260	280	240	240	250	240	C	C	270 <sup>F</sup>	260 <sup>F</sup>	280	280	260	250	250	280	270	310	340 <sup>F</sup>	330 <sup>F</sup>
7	280	C	C	300	280	280	(240 <sup>F</sup> )	270	(240 <sup>F</sup> )	270	270	250	270	300	300	270	260	250	270	340	320 <sup>F</sup>	300	290	260
8	370 <sup>F</sup>	380 <sup>F</sup>	350	320	300	300	250	230	C	C	C	C	C	C	C	C	C	270	280	290	310	310	310	310
9	350	380 <sup>F</sup>	350 <sup>F</sup>	320 <sup>F</sup>	280	320	270	260	240	290	280	260	260	260	260	270	260	260	(280 <sup>F</sup> )	300	300	300	310	350
10	360 <sup>F</sup>	330	320	300	300	300	240	250	250	250	300	260	260	280	280	260	250	230	280	310	320	(340 <sup>F</sup> )	350	320 <sup>F</sup>
11	300	350	350 <sup>F</sup>	350 <sup>F</sup>	300 <sup>F</sup>	310 <sup>F</sup>	300	260	250	240	270	260	260	260	290	260	250	260	280	280	300	350	360 <sup>F</sup>	330
12	350 <sup>F</sup>	370	350 <sup>F</sup>	(320 <sup>F</sup> )	280 <sup>F</sup>	330 <sup>F</sup>	250	260	240	280	270	250	240	250	280	A	270	250	C	C	C	360	(350 <sup>F</sup> )	340
13	300	300	310	300	270	270	250	230	240	260	270	280	250	270	280	260	250	240	A	A	A	350	350	340
14	300	300	300	300	300	290	250	250	250	240	230	270	260	250	280	270	240	250	270	320	320	310	340	340 <sup>F</sup>
15	310 <sup>F</sup>	310 <sup>F</sup>	320	300	290	300	230	230	240	250	270	260	250	250	270	250	250	240	270	340 <sup>F</sup>	340 <sup>F</sup>	370 <sup>F</sup>	(320 <sup>F</sup> )	(350 <sup>F</sup> )
16	(350 <sup>F</sup> )	(420 <sup>F</sup> )	(450 <sup>F</sup> )	410 <sup>K</sup>	(350 <sup>F</sup> )	220 <sup>F</sup>	240 <sup>F</sup>	320 <sup>F</sup>	270 <sup>F</sup>	260 <sup>F</sup>	(380 <sup>F</sup> )	300 <sup>K</sup>	260 <sup>F</sup>	260 <sup>F</sup>	270 <sup>F</sup>	250	270	270	260 <sup>F</sup>	290 <sup>F</sup>	280 <sup>F</sup>	320 <sup>F</sup>	350 <sup>F</sup>	350 <sup>F</sup>
17	(360 <sup>F</sup> )	350 <sup>K</sup>	320	360 <sup>K</sup>	290 <sup>K</sup>	290 <sup>K</sup>	330 <sup>K</sup>	260 <sup>K</sup>	290	270	300 <sup>K</sup>	310 <sup>K</sup>	270	270	270	260 <sup>F</sup>	(260 <sup>F</sup> )	280 <sup>F</sup>	280 <sup>F</sup>	280 <sup>F</sup>	310 <sup>K</sup>	320 <sup>K</sup>	350 <sup>K</sup>	360 <sup>F</sup>
18	400 <sup>F</sup>	420 <sup>K</sup>	400 <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	(300 <sup>F</sup> )	310 <sup>K</sup>	280 <sup>K</sup>	330 <sup>K</sup>	280 <sup>K</sup>	260 <sup>K</sup>	310 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	270	240 <sup>K</sup>	240 <sup>K</sup>	300 <sup>K</sup>	330 <sup>K</sup>	320 <sup>K</sup>	350 <sup>K</sup>	320 <sup>K</sup>	360 <sup>F</sup>
19	370 <sup>K</sup>	350 <sup>K</sup>	350 <sup>K</sup>	400 <sup>K</sup>	400 <sup>K</sup>	300 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	330 <sup>K</sup>	270 <sup>K</sup>	300 <sup>K</sup>	260 <sup>K</sup>	300 <sup>K</sup>	280 <sup>K</sup>	300 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	310 <sup>K</sup>	310 <sup>K</sup>	300 <sup>K</sup>	350 <sup>K</sup>	350 <sup>K</sup>	400 <sup>K</sup>
20	350 <sup>K</sup>	320	360 <sup>K</sup>	300 <sup>K</sup>	270 <sup>K</sup>	(350 <sup>F</sup> )	250 <sup>K</sup>	(250 <sup>K</sup> )	250 <sup>K</sup>	260 <sup>K</sup>	(300 <sup>K</sup> )	(270 <sup>K</sup> )	(270 <sup>K</sup> )	270 <sup>K</sup>	(300 <sup>K</sup> )	260 <sup>K</sup>	240 <sup>K</sup>	220 <sup>K</sup>	220 <sup>K</sup>	330 <sup>K</sup>	350 <sup>K</sup>	310 <sup>K</sup>	300 <sup>F</sup>	340 <sup>F</sup>
21	400 <sup>F</sup>	320	350 <sup>K</sup>	250	280 <sup>K</sup>	A	270 <sup>K</sup>	300 <sup>F</sup>	280	(250 <sup>K</sup> )	270	240	270	260	270	290 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	(300 <sup>F</sup> )	360	330	300	340	370
22	340	340	360 <sup>F</sup>	320	(310 <sup>F</sup> )	300	270	240	260	240	260	260	260	260	240	250	230	250	(260 <sup>F</sup> )	270	330 <sup>H</sup>	300	280 <sup>F</sup>	(380 <sup>F</sup> )
23	320 <sup>F</sup>	320 <sup>F</sup>	320 <sup>F</sup>	300 <sup>F</sup>	300 <sup>F</sup>	320 <sup>F</sup>	270	250	260	250	260	280	270	270	260	250	240	250	300 <sup>F</sup>	(300 <sup>F</sup> )	290 <sup>F</sup>	300	300	350 <sup>F</sup>
24	340 <sup>F</sup>	340 <sup>F</sup>	340	320	320	300	270	280	250	250	270	280	260	260	260	240	(240 <sup>F</sup> )	250	270	270	290	310	330	350
25	360	350	350	300	210	310	260	270	250	270	260	250	250	260	250	A	260	250	260	300	270	350 <sup>F</sup>	350 <sup>F</sup>	360 <sup>F</sup>
26	360 <sup>F</sup>	360 <sup>F</sup>	350 <sup>F</sup>	300 <sup>F</sup>	280 <sup>F</sup>	320 <sup>F</sup>	250	250	240	240	250	260	260	260	260	240	240	240	280	320	300	340 <sup>F</sup>	310 <sup>F</sup>	310 <sup>F</sup>
27	320 <sup>F</sup>	340	330	320	290	290	270	270	270	240	220	260	260	260	270	250	250	250	270	300	340	310	320	320
28	310	350	330	310	310	340	250	250	240	260	260	270	(260 <sup>F</sup> )	250	270	290	240	230	280	280	330	310	330 <sup>F</sup>	270 <sup>F</sup>
29	280 <sup>F</sup>	270 <sup>F</sup>	(340 <sup>F</sup> )	300 <sup>F</sup>	290 <sup>F</sup>	240	230	240 <sup>F</sup>	240 <sup>F</sup>	230	260	250	260	260	250	(240 <sup>F</sup> )	C	C	320	300	250	270	290	280
30	340 <sup>F</sup>	340 <sup>F</sup>	350	320	300	340	290	260	220	250	270	250	240	250	260	270	260	240	300 <sup>F</sup>	300	290 <sup>F</sup>	340 <sup>F</sup>	360 <sup>F</sup>	360 <sup>F</sup>
31	360 <sup>F</sup>	380 <sup>F</sup>	320 <sup>F</sup>	260 <sup>F</sup>	310 <sup>F</sup>	300 <sup>F</sup>	290	230	260	300	250	250	270	280	260	240	230	(270 <sup>F</sup> )	310	280	270	A	A	270
Mean Value	340	340	340	320	300	310	260	250	260	270	270	260	270	270	270	260	250	250	280	300	300	330	330	340
Median Value	350	340	340	310	300	300	250	250	250	260	270	260	260	260	270	260	250	250	280	300	300	330	340	350
Count	31	30	30	31	31	30	31	31	30	30	29	29	30	30	30	28	29	30	29	29	28	29	30	31

Energy 0.85 Mc to 22.0 Mc in 2 min

A 2

Manual

Automatic

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

Lat. 39° 48.5' N  
Long. 140° 08.2' E

# IONOSPHERIC DATA

## Akita

Oct. 1953

κ'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	300	280	290	290	270	320	220	240	240	260	270	250	260	280	L	290	270	250	210	210	240	260	300	270
2	290	280	300	250	220	250	220	230	230	250	280	270	270	290	260	(260)	250	240	220	230	250	250	290	300
3	280	250	270	300	300	270	220	250	230	260	260	270	260	260	260	250	250	240	240	240	290	260	260	260
4	270	240	220	220	220	240	230	230	250	250	260	300	260	260	250	250	270	250	220	230	230	270	250	290
5	280	270	240	250	250	230	240	240	240	250	250	250	260	270	270	260	270	250	210	210	210	270	300	270
6	270	280	250	260	220	240	210	220	240	240	270	(260)	260	250	270	270	250	230	220	210	260	260	310	260
7	240	C	C	250	240	240	220	230	240	270	270	260	250	260	250	270	250	230	220	270	260	250	210	220
8	320	310	290	250	250	250	230	220	C	C	C	C	C	C	C	C	C	250	260	250	260	270	270	260
9	270	300	(280)	260	240	250	240	230	230	270	270	250	250	250	290	260	250	240	240	260	250	250	250	260
10	(260)	270	250	250	220	230	210	230	230	250	290	250	250	270	260	250	230	210	230	250	260	(280)	300	280
11	250	270	290	280	260	A	280	250	240	240	260	250	250	250	280	240	250	220	250	230	230	270	300	300
12	290	310	290	270	220	250	220	230	240	260	250	250	230	250	260	A	250	240	C	C	C	300	(290)	280
13	240	230	250	250	220	230	220	220	230	250	270	270	250	260	270	250	230	220	A	A	A	A	320	300
14	290	A	300	270	270	270	230	(240)	240	230	220	260	250	250	260	250	230	220	210	260	250	250	260	290
15	270	250	240	250	240	230	210	210	230	250	260	250	250	250	260	250	230	220	240	270	(310)	270	270	280
16	250	280	340	340	270	210	220	320	240	250	280	270	240	220	230	250	250	240	230	230	230	250	290	300
17	(320)	300	300	300	240	240	240	240	270	260	270	300	260	260	250	250	240	230	230	230	250	250	240	300
18	360	340	340	340	250	(250)	270	270	250	270	260	310	280	280	A	250	240	210	220	280	290	(300)	250	310
19	310	290	300	310	320	240	240	240	330	260	280	260	280	260	260	230	240	210	250	270	270	(260)	280	320
20	300	290	300	300	240	(240)	230	(260)	250	220	250	270	260	240	290	240	240	210	250	270	270	(260)	280	320
21	340	360	300	240	250	A	250	(260)	260	250	230	240	240	240	290	240	220	220	220	260	300	240	270	360
22	300	290	300	260	(260)	250	240	230	250	240	260	250	240	250	240	240	220	230	(240)	(250)	(250)	250	250	300
23	270	290	270	250	260	260	240	240	260	240	260	270	260	260	250	230	230	220	270	A	A	260	260	290
24	280	280	280	250	240	250	240	240	240	250	260	260	250	250	260	240	240	220	250	(290)	(290)	290	300	300
25	300	290	300	260	200	300	230	230	250	250	240	240	240	240	250	A	250	240	240	(250)	220	300	290	300
26	310	300	300	260	230	300	230	230	230	230	240	250	250	250	250	230	230	230	240	(260)	280	300	260	280
27	250	280	280	250	240	230	250	240	250	230	220	250	260	240	260	240	220	210	240	290	A	(280)	260	270
28	270	300	270	250	250	260	220	230	220	250	250	260	250	250	260	250	230	200	250	240	270	270	280	260
29	240	240	290	270	250	240	210	210	230	230	250	240	250	250	240	230	C	C	260	250	220	(260)	260	A
30	290	290	300	270	270	270	240	230	220	240	250	250	230	230	250	240	240	220	(250)	220	230	(300)	340	330
31	340	300	280	240	230	260	250	220	240	(240)	240	250	250	250	250	230	220	(250)	280	230	250	A	A	240
Mean Value	290	280	280	260	250	250	230	240	240	250	260	260	250	250	260	250	240	230	240	250	260	270	280	290
Median Value	280	290	290	250	240	250	230	230	240	250	260	260	250	250	260	250	240	220	240	250	260	270	280	290
Count	31	29	30	31	31	29	31	31	30	30	30	30	30	30	28	28	29	30	29	28	27	29	30	30

κ'F2

Sweep 0.85 Mc to 22.0 Mc in 2 min

Manual

Automatic

A 3

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

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**A k i t a**

**IONOSPHERIC DATA**

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

135° E Mean Time

**Oct. 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							Q	3.7 <sup>L</sup>	4.0	4.3	4.6 <sup>L</sup>	4.5	4.3	4.1	(4.1)	4.1 <sup>L</sup>	3.8							
2							Q	Q	3.8	4.2	4.5 <sup>L</sup>	4.5	4.3	4.3 <sup>L</sup>	A	A	A							
3								(3.5)	3.6	4.2	4.3	4.5 <sup>L</sup>	4.4	4.1	4.0 <sup>L</sup>	3.5 <sup>L</sup>	Q							
4							Q	Q	3.8	4.1	4.3	4.5	4.5 <sup>L</sup>	4.3 <sup>L</sup>	4.0 <sup>L</sup>	3.7 <sup>L</sup>	3.5 <sup>L</sup>							
5							Q	Q	3.8	4.0	4.2	4.3	4.3 <sup>L</sup>	4.3	4.2 <sup>L</sup>	3.7 <sup>L</sup>	(3.3)							
6								Q	3.9 <sup>L</sup>	3.9	4.3	(4.4)	4.4 <sup>H</sup>	4.4	4.0	3.9	3.5							
7								3.3	A	A	A	4.3	4.3	4.2 <sup>L</sup>	3.8 <sup>L</sup>	3.7 <sup>L</sup>	Q							
8								Q	C	C	C	C	C	C	C	C	C							
9							Q	3.8	3.9	4.3	4.3	4.4	4.4	(4.6)	4.7	3.7	Q							
10							Q	3.8	4.0	4.3 <sup>L</sup>	4.3	4.2	4.2	4.3	4.0	3.7	3.4 <sup>L</sup>							
11								3.5 <sup>L</sup>	3.8	4.1	4.1	4.4	4.3 <sup>L</sup>	4.1 <sup>L</sup>	4.2 <sup>L</sup>	3.5	(3.4)							
12								Q	3.8 <sup>L</sup>	4.2	4.2	4.3	4.3	4.0	4.0	A	Q							
13							Q	A	3.8	4.4	(4.4)	4.3	4.3	(3.9)	3.5	Q	Q							
14							L	3.5 <sup>L</sup>	4.1	4.2	4.1	4.1 <sup>H</sup>	4.1	(4.0)	4.0 <sup>L</sup>	L	L							
15								Q	3.7 <sup>L</sup>	4.1	4.3 <sup>L</sup>	4.3	4.2	4.1	4.0 <sup>L</sup>	3.5	Q							
16								3.5	3.6 <sup>L</sup>	4.2	4.1	4.0	4.0	4.0	(3.8)	3.5	3.4 <sup>L</sup>							
17								Q	3.8 <sup>L</sup>	4.1 <sup>L</sup>	4.3 <sup>L</sup>	4.5	(4.2)	4.0	4.0 <sup>L</sup>	(3.4)	(2.7)							
18								A	3.6	4.0 <sup>L</sup>	4.0	A	A	4.2	(3.8)	3.5 <sup>L</sup>	L							
19								Q	3.8	3.8	4.0 <sup>L</sup>	4.0	4.2 <sup>H</sup>	4.0	3.8 <sup>L</sup>	3.6	Q							
20								A	A	3.6	(3.8)	4.1	(4.0)	(4.0)	4.1	3.5	A							
21								L	A	4.3	4.0	4.0 <sup>L</sup>	(4.0)	3.9	3.4	3.3 <sup>L</sup>	A							
22								2.9	3.6 <sup>H</sup>	4.0	4.0 <sup>L</sup>	4.0	4.0 <sup>L</sup>	4.0 <sup>L</sup>	3.8 <sup>L</sup>	3.5	A							
23								3.0 <sup>L</sup>	3.8 <sup>L</sup>	3.8	4.0 <sup>H</sup>	4.1	4.1 <sup>L</sup>	4.1 <sup>L</sup>	3.8	A	A							
24								L	3.7 <sup>L</sup>	3.8	4.0	4.0 <sup>L</sup>	4.1	4.0	A	A	A							
25								Q	3.6	3.7 <sup>L</sup>	4.2 <sup>L</sup>	4.2	4.1	L	A	A	A							
26								L	3.6	3.8	3.8	3.8	4.1 <sup>H</sup>	4.0 <sup>L</sup>	3.6	L	Q							
27								Q	L	4.0	3.9	3.9 <sup>L</sup>	4.0 <sup>H</sup>	3.9	3.8	3.5	Q							
28								Q	A	4.0 <sup>L</sup>	A	A	4.1 <sup>H</sup>	3.9 <sup>L</sup>	3.8 <sup>L</sup>	3.5	Q							
29								Q	3.5 <sup>L</sup>	3.6	4.0	4.0 <sup>L</sup>	4.1 <sup>L</sup>	3.9	3.8 <sup>L</sup>	3.4 <sup>L</sup>	C							
30								Q	Q	3.5	4.0	4.5	4.0	3.7	3.6	3.0	A							
31								Q	L	A	4.0 <sup>L</sup>	4.0	4.2	L	A	A	A							
Mean Value								3.3	3.7	4.0	4.1	4.2	4.2	4.1	3.9	3.6	3.4							
Minimum Value								3.5	3.8	4.0	4.2	4.3	4.2	4.1	4.0	3.5	3.4							
Count								7	22	28	28	28	29	28	26	23	8							

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

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

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

135° E Mean Time

R'F1

Oct 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							Q	2.10	2.20	2.00	2.30	2.00	2.20	2.30	2.50	2.50	(2.50)								
2							Q	Q	2.20	2.30	2.20	2.10	2.00	2.40	A	A	A								
3								2.40	2.30	2.30	2.30	2.00	1.90	2.00	2.20	2.50	Q								
4							Q	Q	2.30	2.20	2.10	2.00	2.30	2.30	2.20	2.10	2.50								
5							Q	Q	2.20	2.10	2.00	2.20	2.00	2.20	2.50	2.40	2.50								
6								2.40	(2.20)	2.10	(2.00)	2.00	2.10	2.00	2.00	2.40	2.40								
7								2.10	A	A	A	2.30	2.20	(2.10)	2.00	2.50	Q								
8								Q	C	C	C	C	C	C	C	C	C								
9							Q	Q	2.30	2.00	2.00	2.20	1.90	2.40	2.20	2.40	Q								
10							Q	Q	2.20	2.10	2.00	2.50	2.40	(2.20)	2.30	2.50	2.40								
11								2.40	2.40	2.20	(2.40)	2.50	2.10	2.20	2.50	2.50	2.50								
12								Q	2.40	2.00	2.00	2.40	2.20	2.00	A	A	Q								
13							Q	Q	A	2.00	2.30	A	A	A	A	2.40	Q								
14								2.20	2.30	2.20	2.20	2.00	2.00	2.50	2.40	2.40	2.40								
15								Q	2.20	2.30	2.10	2.00	2.40	2.20	2.20	2.20	Q								
16								2.20	2.30	2.30	2.00	(2.70)	2.40	2.20	2.30	2.30	2.40								
17								Q	2.60	2.30	2.20	(2.50)	A	A	2.40	2.50	2.40								
18								A	2.20	2.20	2.00	A	A	A	A	2.40	2.50								
19								Q	2.40	2.20	(2.10)	2.00	1.90	2.40	2.40	2.40	Q								
20								A	A	2.20	2.00	2.40	2.50	2.10	2.40	2.40	A								
21								2.50	A	2.50	2.40	A	A	2.40	2.40	2.40	A								
22								2.20	2.20	2.20	2.00	1.90	1.90	2.30	2.40	2.30	A								
23								2.30	2.30	2.00	2.00	2.00	2.30	2.40	2.30	A	A								
24								2.10	2.30	2.30	2.10	2.00	2.40	2.30	A	A	A								
25								Q	2.40	2.00	2.50	2.50	2.20	A	A	A	A								
26								2.20	2.30	2.20	2.10	2.00	1.90	2.30	2.40	2.30	Q								
27								Q	2.30	2.30	2.10	2.00	1.90	2.40	2.10	2.30	Q								
28								Q	A	2.50	A	A	2.20	2.20	2.20	2.30	Q								
29								Q	2.20	2.10	A	A	A	A	2.40	2.40	C								
30								Q	Q	2.10	2.20	2.50	2.30	2.10	2.10	2.10	A								
31								Q	2.30	(2.40)	2.40	2.40	2.40	A	A	A	A								
Mean Value								2.20	2.30	2.20	2.20	2.20	2.20	2.20	2.30	2.40	2.50								
Median Value								2.20	2.30	2.20	2.10	2.10	2.20	2.20	2.30	2.40	2.50								
Count								11	2.4	2.9	2.7	2.5	2.5	2.4	2.3	2.4	1.0								

R'F1

Sweep 0.85 Mc to 22.0 Mc in 2 hr.

Manual  Automatic

A5

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

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

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

135° E Mean Time

**Oct. 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						1.5	2.3	2.7 <sup>A</sup>	2.6	2.9	3.1	3.0	2.9	3.0	2.7	A								
2						1.8	2.4	2.6	2.9	2.9	A	A	A	A	A	A	A							
3						2.0	2.4 <sup>H</sup>	2.6	2.8	3.0	3.0	3.2	A	A	A	A	A							
4						1.8	2.3 <sup>H</sup>	2.7 <sup>H</sup>	2.8	[2.9]	3.0	3.1	A	A	A	A	A							
5							2.4	2.7	2.8	2.9	3.0	3.0	3.0	2.9	A	A	A							
6							2.3	2.6	2.9 <sup>A</sup>	3.0	[3.1]	3.2	3.1	A	A	A	A							
7							2.4	2.8	3.0	3.0	3.4	A	A	A	A	A	2.3							
8							2.2	C	C	C	C	C	C	C	C	C	C							
9							2.3	2.5	2.7	2.8	[3.0]	3.1	3.0	3.0	[2.6]	2.1								
10							2.3	2.6	2.8	2.9	3.0	A	A	A	2.9	[2.6]	2.2							
11							2.3	2.6	2.8	2.8	3.0	A	A	A	A	A	A							
12							2.1	2.5	2.8	3.0	[3.0]	3.0	A	A	A	A	2.3	A						
13						1.6	2.4 <sup>H</sup>	2.6 <sup>H</sup>	2.9	2.9	2.6	2.7	3.0	2.9	A	A	A							
14							2.3 <sup>H</sup>	2.6 <sup>H</sup>	2.7	2.7	[2.8]	3.0	[2.9]	2.8	2.8	A	A							
15							2.3 <sup>H</sup>	2.5	3.0	2.8	3.1	3.1	3.0	2.8	2.6	2.0								
16							2.2	[2.4]	2.7	2.8	3.0	2.9	2.9	2.8	2.5	2.2								
17							2.3	2.5	2.7	2.8 <sup>A</sup>	A	A	A	A	2.7	2.5	2.1							
18							1.9	2.3	2.7	A	A	A	A	A	2.3 <sup>A</sup>	A								
19							A	2.5	A	A	2.8	2.8	2.8	2.8 <sup>A</sup>	2.6	2.4	2.1 <sup>H</sup>							
20							1.8	2.2	2.8	[2.8]	2.7	2.9	2.7	2.5	A	A	A							
21							2.0 <sup>A</sup>	2.5	2.7	2.6	2.8	2.8	2.8	2.6	2.4	1.8								
22							2.2	[2.4]	2.7	2.8	2.9	2.9	2.8	2.6	2.3	1.8								
23							1.8	2.4	2.6	2.8	2.9	2.9	2.8	2.7	2.3	1.8								
24							A	A	A	A	2.9	2.9	A	A	A	A	A							
25							2.2	2.4	[2.7]	3.0	3.0	A	A	A	A	A	A							
26							2.0	2.3	2.5	2.6	3.0	3.0	2.9	2.9	2.5	2.1 <sup>H</sup>								
27							2.0 <sup>A</sup>	2.4 <sup>A</sup>	2.7	[2.8]	2.9	2.9	2.8	2.4	A	A	A							
28							2.0	2.5	2.6	2.9	A	A	A	2.9	2.6	A	A							
29							1.8	2.1	2.5	A	A	A	A	A	2.4	C								
30							1.9	2.4	2.7	A	A	A	A	A	A	A	A							
31							1.9	2.4	[2.6]	2.8	2.9	2.9	A	A	A	A	A							
Mean							1.7	2.2	2.5	2.7	2.8	3.0	3.0	2.9	2.7	2.5	2.0							
Median							1.8	2.2	2.5	2.7	2.8	3.0	3.0	2.9	2.8	2.5	2.1							
Mode							5	2.9	2.9	2.8	2.5	2.4	2.0	1.6	1.7	1.5	1.1							
Count																								

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

Lat. 39° 48.6' N  
Long. 140° 08.3' E

**A k i t a**

**IONOSPHERIC DATA**

135° E Mean Time

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

**Oct. 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 110	(110) <sup>A</sup>	110	110	100	100	100	100	100	100	A							
2							(150) <sup>A</sup>	110	110	110	110	A	A	A	A	A	A							
3							110	100	110	100	110	100	A	A	A	A	A							
4							150	120 <sup>H</sup>	110 <sup>H</sup>	100	(100) <sup>A</sup>	100	110	A	A	A	A							
5							160	120	110	110	100	100	(100) <sup>A</sup>	100	100	A	A							
6								130 <sup>A</sup>	100	A	C	100	100	A	A	A	A							
7								120	120	110	110	110	A	A	A	A	120							
8								120	C	C	C	C	C	C	C	C	C							
9								110	110	110	100	100	100	100	130	100	(110) <sup>A</sup>	120						
10								120	110	110	100	100	A	A	130	A	A							
11								120	110	100	100	100	A	A	A	A	A							
12								120	110	100	100	(100) <sup>A</sup>	100	A	A	100	A							
13							B	120 <sup>H</sup>	110 <sup>H</sup>	110	100	110	110	110	110	A	A							
14								110 <sup>H</sup>	110 <sup>H</sup>	110	110	110	110	(100) <sup>A</sup>	100	110	A							
15								120 <sup>H</sup>	110	120	110	110	110	110	110	100	100							
16								120	110	110	110	110	110	110	110	110	120							
17								120	110	110	A	A	A	A	110	(110) <sup>A</sup>	110							
18								120	110	110	A	A	A	A	A	A	A							
19								A	110	110	110	110	A	A	A	120	B <sup>H</sup>							
20								120 <sup>B</sup>	110	110	(110) <sup>A</sup>	110	110	110	110	A	A							
21								A	120	110	110	110	110	110	110	110	120							
22								120	(120) <sup>A</sup>	110	110	110	100	100	100	110	120							
23								120	120	110	(100) <sup>A</sup>	100	100	100	110	120	130							
24								120	A	A	A	110	110	A	A	A	A							
25								120	110	(100) <sup>A</sup>	100	100	A	A	A	A	A							
26								130	110	110	110	(100) <sup>A</sup>	100	110	110	120	130 <sup>B</sup>							
27								A	A	110	(110) <sup>A</sup>	110	110	110	110	A	A							
28								120	120	110	110	A	A	100	110	A	A							
29								120	110	110	A	A	A	A	A	100	C							
30								120	110	100	A	A	A	A	A	A	A							
31								130	110	(110) <sup>A</sup>	110	100	100	A	A	A	A							
Mesh Value							150	120	110	110	110	110	100	110	110	110	120							
Median Value							150	120	110	110	110	110	100	110	110	110	120							
Count							3	28	28	28	24	23	19	15	16	13	9							

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

Sweep 1.85 Mc in 22.0 Mc in 2 min

Manual

Automatic

**A 7**

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

Lat. 39° 43.6' N  
Long. 140° 08.9' E

# Akita

## IONOSPHERIC DATA

135° E Mean Time

Oct. 1953

fEs

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.4	2.3	3.0	2.2	2.2	3.1	2.1	3.1	4.2	4.2	3.9	4.8	3.7	5.4	3.5	3.5	3.5	3.5	3.1	3.0	3.0Y	2.5	2.2	2.1
2	2.0Y	E	2.8Y	2.2	3.4Y	3.0	3.4Y	3.0	G	4.3	4.2	4.5	4.2	4.3	6.0	6.9	6.5	4.5	3.1Y	3.0	3.5	2.4	3.1	2.2
3	3.0	E	2.2	9.5	3.0	3.0	G	G	4.0	4.5	5.4	4.1	4.5	5.6	6.1	5.2	5.5Y	5.4F	4.9F	3.5	3.6	2.4	3.1	2.7F
4	3.2	2.2Y	2.4	3.0	2.1	3.1	2.4Y	3.4	4.3	3.5	4.5	4.5	4.5	4.7	4.5	4.4	3.5	3.2	3.0	4.4Y	4.4Y	3.3	3.0	2.4
5	3.2Y	2.3Y	2.6Y	3.0Y	2.5	2.3	3.2	M	G	3.5	G	3.5	3.5	4.5	3.5	4.4	3.0	3.3Y	2.1	2.7	3.0	3.5	3.0	2.4F
6	2.5	2.6	2.3	2.3	2.2	2.4	2.5Y	2.7	4.0	4.1	4.3	C	3.7	4.1	3.5	4.1F	3.9	3.1	4.4	3.5	3.8	3.5	4.4	3.5
7	3.0	C	C	3.2	3.0	3.2	2.3	3.0	5.0	7.0	11.0	4.5	4.4	4.6	4.5	4.3	3.1	3.0	3.2	2.3Y	2.8	2.4	2.3	2.1
8	3.1	2.3	2.3	2.5	3.0Y	2.3	2.4Y	3.8	C	C	C	C	C	C	C	C	C	6.2	6.5	4.7	6.5Y	3.2	3.2	3.1
9	3.6	4.5	3.5	4.3	3.5	2.4F	3.4	4.0	3.5	4.1	4.5	3.6	3.6	4.3	5.4Y	3.4	2.9	3.0	6.5	5.5	5.4	9.5Y	5.3Y	3.5
10	4.2	3.2	2.2Y	2.3	2.2	2.1Y	2.2	G	4.0	G	4.2	3.7	4.3	4.2	3.4	4.5	3.0	2.4	3.0	2.3	3.0	M	9.8Y	5.8
11	4.1	2.1	2.3	3.2	4.5	3.8	3.5	3.8	4.2	6.5	10.5	4.5	6.1	5.2	4.5	3.8	3.5	2.9	4.3	3.8	7.1Y	7.0	4.2	4.5
12	4.7	5.5	5.5	3.8	3.0	2.5	3.4	2.7	5.5	4.5Y	3.9	4.2	4.2	4.3	4.8	5.8	3.5	>1.8C	C	C	C	4.7	7.8	5.5Y
13	3.5	2.3	2.9	2.2	2.5	2.3	2.2	G	4.2	4.2	4.5	5.7	6.5	10.0Y	6.5	4.1	5.3	5.4	8.0	7.8	6.8	4.5	3.1	4.5
14	3.4	4.2	4.4	4.3	3.1	3.5	3.4	2.3	3.8	4.2	4.2	4.3	G	3.8	3.5	G	3.4	2.8	2.0	2.5	2.1	2.5	2.7	2.3
15	2.8	2.9	2.2Y	2.1Y	2.2	2.1	G	G	4.2	4.5	5.5	4.5	4.2	G	3.5	G	3.5	4.7	3.3	3.5	5.0	4.5	3.8	3.5
16	2.0	2.2	2.3	2.3	1.8	2.1	2.3	4.3	4.3	4.5	6.5Y	4.9	4.1	4.1	G	G	3.7	3.2	3.5	4.5	7.0	4.7	4.4	4.7
17	5.5	4.3	3.8	2.3	1.8	E	3.0Y	G	4.4	4.2	3.5	4.7	7.0	5.1	G	4.2	4.0	3.5	4.6	4.8	3.8	6.8	3.7	4.4
18	3.0	3.0Y	3.5F	2.9Y	2.9	3.2	3.5	4.5	4.3	4.7	4.5	7.4	6.0	6.9	7.9	3.5	3.0	3.4	2.7	4.2Y	4.0	6.5	4.2	4.3
19	3.1	2.1	2.5	2.0Y	2.2Y	3.5Y	3.0	3.9	3.5	4.7	5.5	4.3	3.5	4.6	4.4	2.8	3.5	3.0	4.4	4.3	4.0	5.5	4.4	2.8
20	3.8	6.5	3.4	3.9	4.5	4.0	2.2	5.7	6.5	4.4	5.1	3.5	G	3.5	2.9	3.5	3.7	2.9	3.5	2.3Y	3.0	2.4	2.2	E
21	2.7	4.3	4.7F	4.1F	4.0F	4.1	3.5	2.1	G	3.6	4.3	6.5	5.6	5.5Y	4.2	3.5	4.5	4.4	5.2	3.2	E	1.8	3.1	3.9
22	3.2	3.5	4.4	2.6	4.1	1.7	2.1	2.7Y	3.5	3.4	3.5	G	3.5	3.2	3.5	3.4	4.5	4.3	9.3Y	3.0	4.3	4.2	4.2	4.3
23	2.5F	4.3	4.0	2.9	3.0	2.4	2.4	2.7Y	G	4.2	4.2	3.6	4.1	4.1	G	6.7	4.5	4.7	4.5	6.5	4.5	2.5	3.3	4.7
24	3.3	2.6	2.4	1.8	2.3Y	2.3	3.0	G	3.2	4.5	4.2	G	3.9	4.5	5.8	5.3	5.8	4.3	3.5	5.2	3.8	3.1	2.5	1.8
25	2.3	2.3	2.3	4.3	4.2	3.1	2.1	4.2	4.7	5.5	G	4.2	5.5	6.7	5.1	5.7	5.7	4.7	3.5	2.9	3.3	3.8	4.4	3.2
26	4.0	2.3F	3.5	4.1	2.5	2.9	2.1	G	3.5	3.7	3.9	3.5	3.5	3.5	G	3.3Y	3.5	3.7	5.3	7.0	6.4Y	3.6	3.5	3.4
27	3.0Y	1.8	1.8	1.8	1.8	2.1	2.1	3.1	4.3	4.1	4.5	4.2	G	G	3.5	3.5	3.9	3.0	2.3	4.0	5.5	5.3	3.5	3.2
28	3.9	3.2	3.2	2.8F	2.5F	2.2	E	4.1	4.6	4.5	6.5	6.7	3.9	3.5	3.5	3.5F	3.5	3.1	3.0	3.0	2.9	2.1	4.4	3.5
29	2.9F	3.4F	2.9	2.4	2.4	2.0	E	3.0	G	4.3	4.7	6.6	5.7	5.5	5.5	3.5	C	C	3.5	2.3	3.0	4.4	4.2	5.5
30	3.2	2.4	2.1	2.9Y	2.8	E	E	G	3.6	4.2	4.4	4.5	4.5	4.2	3.4	3.5	4.5	4.1	5.1	3.6	3.1	6.5	4.5	5.7
31	6.4	3.5	3.1	4.2	2.9	2.1Y	1.9	2.9	4.0	6.5	6.5	5.4	4.5	6.6	6.6	5.7	5.2	5.2	3.5Y	3.5Y	3.6	4.3	4.3	2.9Y
Mean Value	3.4	3.1	3.0	3.1	2.9	2.7	2.7	3.4	4.2	4.5	5.1	4.7	4.5	4.9	4.6	4.3	4.1	3.8	4.2	3.9	4.2	4.1	3.9	3.6
Median Value	3.2	2.6	2.8	2.9	2.8	2.4	2.4	3.0	4.0	4.2	4.4	4.5	4.2	4.4	3.8	3.6	3.7	3.5	3.5	3.5	3.8	3.7	3.7	3.5
Count	31	30	30	31	31	31	31	30	30	30	30	29	30	30	30	30	29	29	30	30	30	30	31	31

Sweep 0.85 Mc to 22.0 Mc in 2 min  Manual  Automatic

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

Lat. 39° 43.6' N  
Long. 140° 08.3' E

**A k i t a**

**IONOSPHERIC DATA**

(M3000)F2

Oct. 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	3.0	3.0	3.0	2.9	3.1F	3.6F	3.6	3.6	3.5	3.1	3.3	3.5	3.3	3.2	3.2	3.1	3.2	3.5	3.6	3.0	3.0	2.9	2.7	2.7
2	2.7	3.0	2.7F	3.1	3.2F	3.0F	3.6	3.6	3.6	3.5	3.1	3.3	3.4	3.2	3.5	3.4	3.4	3.4	3.5P	3.2	3.1	2.7	2.8F	2.7F
3	(2.8F)	2.8F	2.8F	2.8F	(2.5F)	(2.7F)	(3.4F)	3.4	(3.7F)	3.4	3.4	3.4	3.5	3.4	3.3	3.5	3.5	3.5	3.3	3.1	2.9	2.9	2.9V	2.9F
4	2.9F	3.0F	3.3F	3.2F	3.0F	3.1F	3.5	3.5	3.5	3.5	3.3	3.1	3.2	3.4	3.4	3.3	3.3	3.3	3.3	3.2	3.1	2.8	2.7	2.8
5	2.8	3.0F	2.9	3.1F	3.0	2.9	3.4	(3.6F)	3.7	3.5	3.5	3.4	3.5	3.3	3.3	3.3	3.3	(3.3F)	3.5	3.2	3.5	2.8	2.7F	2.8
6	2.9	2.9	C	2.9	3.3	3.3	3.5	3.6	3.6	3.6	C	C	3.3P	3.5P	3.2	3.2	3.5	3.6	3.4	3.2	3.3	3.1	3.0F	3.0F
7	3.1	C	C	3.0	3.1	3.1	3.5	3.4	(3.6F)	3.4	3.5	3.4	3.5	3.4	3.1	3.3	3.5	3.6	3.3	2.8	3.0P	3.1	3.4	3.2
8	2.7F	2.8F	2.9	2.9	3.0	3.0	3.4	3.7	C	C	C	C	C	C	C	C	C	3.5	3.2	3.1	3.0	3.0	3.0	3.1
9	2.8	2.6F	2.8F	3.0F	3.2	3.0	3.4	3.5	3.6	3.3	3.2	3.4	3.4	3.3	3.4	3.3	3.3	3.4	(3.2)A	3.1	3.0	3.0	3.0	2.9
10	2.8F	3.0	3.0	3.2	3.1	3.1	3.5	3.6	3.7	3.6	3.2	3.4	3.3	3.2	3.3	3.4	3.5	3.6	3.3	3.1	3.0	(2.9F)	2.8	2.9F
11	3.1	2.8	2.7F	2.8F	3.3F	3.0F	3.1	3.6	3.6	3.5	3.3	3.4	3.4	3.5	3.3	3.4	3.4	3.5	3.3	3.3	3.0	2.8	2.7F	2.9
12	2.8F	2.7F	2.8F	(2.9F)	3.1F	2.9F	3.5	3.4	3.6	3.3	3.4	3.5	3.6	3.7	3.3	3.5	3.1	3.4	C	C	C	2.8	(2.8A)	2.9
13	3.2	3.2	3.0	3.2	3.3	3.3	3.5	3.8	3.6	3.5	3.4	3.3	3.3	3.4	3.3	3.4	3.5	3.5	A	A	A	2.8	2.8	3.0
14	3.1	3.2V	3.0F	3.1F	3.2F	3.5	3.5	3.5	3.5	3.7	3.5	3.3	3.5	3.6	3.4	3.3	3.7	3.5	3.2	3.0	3.0	3.1	3.0	2.9F
15	3.0F	3.0F	3.0	3.1	3.4	3.2F	3.6	3.7	3.7	3.6	3.4	3.4	3.5	3.6	3.4	3.6	3.7	3.6	3.3	2.8F	2.8F	2.8	(3.0F)	(2.9F)
16	(3.0F)	(2.5F)	(2.5F)	2.5F	(2.9F)	3.7K	3.6K	3.1K	3.3K	3.4K	(2.7F)	3.1K	3.3K	3.4K	3.5K	3.2K	3.2K	3.2K	3.4K	3.1K	3.2K	3.3K	3.0K	2.8K
17	2.8K	2.8K	3.0K	2.7K	3.1K	3.2K	2.9K	3.3K	3.1K	3.4K	3.1K	3.2K	3.5K	3.4K	3.2K	3.3K	(3.3F)	3.2K	3.0K	3.0K	3.0K	2.9F	3.4F	2.5F
18	2.6K	2.6K	2.6K	3.1K	3.1K	(3.1F)	3.1K	3.3K	3.0K	3.3K	3.4K	3.3K	3.3K	3.4K	3.3K	3.3K	3.5K	3.5K	3.0K	2.8V	2.9K	2.9K	2.9K	2.8K
19	2.6K	2.8K	2.7K	2.6K	2.6K	3.0K	3.3K	3.6K	3.1K	3.4K	3.1K	3.3K	3.2K	3.3K	3.1K	3.6K	3.5K	3.5K	3.0K	3.0K	3.0K	2.9K	2.8K	2.7K
20	3.0K	3.0K	2.7K	3.0K	3.2K	(2.9K)	3.5K	3.6K	3.5K	3.4K	(3.2F)	(3.3F)	(3.5K)	3.2K	(3.2K)	3.4K	3.6K	3.7K	3.7K	2.9K	2.9K	3.0K	3.0K	2.9K
21	2.7K	2.9F	2.8K	3.5K	3.0K	3.7K	3.3K	3.3K	3.4K	(3.5K)	3.4K	3.6K	3.2K	3.5K	3.4K	3.1K	3.5K	3.7K	(3.2F)	2.8	2.9	3.1	2.9	2.7
22	3.1	3.0	2.8F	3.0	3.1F	3.1	3.5	3.4	3.3	3.5	3.5	3.4	3.4	3.4	3.7	3.6	3.8	3.4	(3.4F)	3.3	2.8H	3.0	3.3P	(2.8F)
23	3.0F	3.0F	2.9F	3.1F	3.3F	2.9F	3.3	3.5	3.5	3.7	3.3	3.3	3.4	3.3	3.6	3.6	3.6	3.4	3.2P	(3.1F)	3.0F	3.0	3.1	2.8F
24	2.8F	3.0F	3.0	3.1	3.2	3.1	3.3	3.1	3.6	3.6	3.5	3.5	3.5	3.4	3.6	3.7	3.7	3.5	3.2	3.3	3.1	3.0	2.9	2.8
25	2.8	2.9	2.9	3.1	3.9	3.0	3.3	3.3	3.6	3.3	3.4	3.5	3.4	3.3	3.6	3.3	3.5	3.4	3.5	3.0	3.3	3.0	2.8F	2.7F
26	2.8F	2.7F	2.9F	3.2F	3.3F	3.0F	3.4	3.6	3.6	3.7	3.5	3.5	3.4	3.5	3.7	3.7	3.7	3.7	3.2	3.0	3.0	2.9F	3.0F	3.0F
27	2.9F	2.9	2.9	3.0	3.2	3.1	3.1	3.4	3.5	3.7	3.8	3.4	3.4	3.5	3.4	3.6	3.7	3.3	3.0	2.9	3.1	3.0	3.0	2.9
28	3.0	2.8	2.9	3.1	2.9	3.4	3.4	3.4	3.6	3.4	3.5	3.5	(3.4F)	3.6	3.3	3.6	3.7	3.5	3.1	3.2	2.9	3.0	2.8F	3.2F
29	3.0F	3.2F	(2.8F)	(2.9F)	3.2F	3.2F	3.4	3.8	3.8P	3.7	3.5	3.4	3.4	3.6	3.6	(3.7F)	C	C	3.0	3.1	3.4	3.2	3.2	3.1
30	2.8F	2.8F	2.8	3.0	2.8	2.9	3.2	3.5	3.8	3.5	3.4	3.5	3.7	3.6	3.3	3.3	3.4	3.5	3.2P	3.0	3.0F	2.9F	2.6F	2.7F
31	2.8F	2.7F	3.0F	3.3F	3.0F	3.0F	3.1	3.7	3.5	3.1	3.6	3.4	3.4	3.4	3.5	3.6	3.7	(3.4F)	3.0	3.1	3.4	A	A	3.2

Mean Value	2.9	2.9	2.9	3.0	3.1	3.1	3.4	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.2	3.1	3.1	2.9	2.9	2.9
Median Value	2.8	2.9	2.9	3.0	3.1	3.0	3.4	3.5	3.6	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.5	3.2	3.1	3.0	2.9	2.9	2.9
Count	31	30	30	31	31	31	31	31	30	30	29	29	30	30	30	30	29	30	29	29	29	30	30	31

(M3000)F2

Swing 0.85 Mc to 22.0 Mc in 2 min

Manual

Automatic



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

Lat. 39° 48.5' N  
Long. 140° 08.3' E

**IONOSPHERIC DATA**

**Akita**

f min F

135° E Mean Time

Oct. 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	1.5	1.3	1.4	1.3	1.0	1.0	2.2	2.9	3.2	3.3	3.6	3.5	3.4	3.6	3.3	3.0	3.0	3.0 <sup>A</sup>	2.2 <sup>A</sup>	1.7	1.6	1.5	1.6	1.5
2	1.3	1.0	1.0	1.0	1.2	1.1	1.8	2.7	3.0	3.5	3.4	3.4	3.3	3.6	4.5 <sup>A</sup>	6.0 <sup>A</sup>	4.0 <sup>A</sup>	2.2 <sup>A</sup>	1.5	1.5	1.5	1.5	1.5	1.5
3	1.5 <sup>F</sup>	1.0	1.0	1.8	1.5 <sup>F</sup>	1.6 <sup>F</sup>	1.8	2.5	3.0	3.6	3.7 <sup>A</sup>	3.3	3.3	3.3	3.1	2.5	2.5	2.6 <sup>A</sup>	2.6 <sup>A</sup>	1.5	2.4 <sup>A</sup>	1.5	1.5	1.5
4	1.4	1.0	1.0	1.0	1.0	1.0	2.0	2.7	3.0	2.8	3.2	3.5	3.2	3.2	3.1	2.7	2.5	1.8	1.6	1.5	1.8	2.3 <sup>A</sup>	1.5	1.5
5	1.5	1.0	E	E	1.5	E	1.8	2.5	2.8	3.1	3.4	3.5	3.3	3.0	3.1	3.0	2.8	2.3 <sup>A</sup>	1.5	1.5	1.5	1.5	1.5	1.5
6	1.3	1.5	1.5	1.0	E	1.6	1.7	2.7	3.2	3.6	3.4	(3.4 <sup>A</sup> )	3.3	3.3	3.0	2.6	2.4	1.9	1.6	1.6	2.5 <sup>A</sup>	1.5	(1.8 <sup>A</sup> )	2.0 <sup>A</sup>
7	1.5	C	C	1.3	1.3	1.5	1.7	2.4 <sup>A</sup>	5.0 <sup>A</sup>	3.7	4.1 <sup>A</sup>	3.5	3.6	(3.4 <sup>A</sup> )	3.2	3.0	2.5	2.2 <sup>A</sup>	1.6	1.5	1.5	1.5	1.5	1.5
8	1.5	1.5	1.0	E	1.0	1.3	1.7	2.7	C	C	C	C	C	C	C	C	C	4.8 <sup>A</sup>	3.9 <sup>A</sup>	2.7 <sup>A</sup>	2.2	2.5 <sup>A</sup>	2.4 <sup>A</sup>	2.2 <sup>A</sup>
9	1.8	1.7	2.1 <sup>A</sup>	1.6	1.7	1.3	1.8	2.4	2.7	3.0	3.3	3.3	3.1	3.4	3.1	2.8	2.4	2.4 <sup>A</sup>	1.7	3.2 <sup>A</sup>	1.8	1.8	1.8	1.8
10	2.9 <sup>A</sup>	1.5	1.3	1.4	1.0	E	2.0 <sup>A</sup>	2.5	2.8	3.0	3.2	3.5	3.7	(3.4 <sup>A</sup> )	3.0	3.0	2.2	1.6	1.5	1.5	1.7	(1.6 <sup>A</sup> )	1.5	1.7
11	1.7	E	1.3	1.4	2.2 <sup>A</sup>	2.5 <sup>A</sup>	2.7 <sup>A</sup>	2.7	3.2	3.1	3.7 <sup>A</sup>	3.5	3.3	3.2	3.3	3.0	2.2	1.8	2.3 <sup>A</sup>	1.8	(1.9 <sup>A</sup> )	2.0	1.8	2.4 <sup>A</sup>
12	1.7	(1.8 <sup>A</sup> )	2.0 <sup>A</sup>	1.8	1.4	1.5	1.6	2.9	2.5	2.9	3.2	3.5	3.3	3.2	3.8 <sup>A</sup>	5.3 <sup>A</sup>	2.3	1.7	C	C	C	2.5 <sup>A</sup>	(2.0 <sup>A</sup> )	1.5
13	1.7	1.4	1.3	1.0	(1.2 <sup>A</sup> )	1.4	1.6	2.6	3.5	3.4	(4.2 <sup>A</sup> )	4.9 <sup>A</sup>	3.9	4.2 <sup>A</sup>	4.0 <sup>A</sup>	2.8	A	A	3.6 <sup>A</sup>	A	A	2.6 <sup>A</sup>	1.7	1.8
14	1.9	2.8 <sup>A</sup>	2.0 <sup>A</sup>	2.2 <sup>A</sup>	2.2 <sup>A</sup>	1.9	2.4 <sup>A</sup>	2.4	3.1	A	A	3.2	3.1	3.3	3.0	2.8	2.4	1.9	1.5	1.5	1.5	1.5	1.7	1.5
15	1.5	1.5	E	E	F	1.0	1.5	2.5	3.2	3.5	3.3	3.2	3.2	3.1	3.0	2.8	2.6	1.9	2.1 <sup>A</sup>	1.7	3.2 <sup>A</sup>	1.5	1.6	1.7 <sup>F</sup>
16	1.5	E	1.3	E	E	E	1.5	2.7	2.7	2.8	3.0	3.3	3.3	3.3	2.8	2.6	2.5	A	A	A	A	1.5	1.5	1.7
17	3.2 <sup>A</sup>	(2.6 <sup>A</sup> )	2.1 <sup>A</sup>	1.1	E	E	1.7	2.3	3.2	2.9	2.9	3.6	5.8 <sup>A</sup>	3.6	2.9	2.6	2.2	1.7	(2.1 <sup>A</sup> )	2.5 <sup>A</sup>	1.5 <sup>F</sup>	(1.6 <sup>A</sup> )	1.7	1.5 <sup>F</sup>
18	1.4	1.0	1.0	1.0	1.4	(2.0 <sup>A</sup> )	2.5 <sup>A</sup>	3.3 <sup>A</sup>	2.7	3.3 <sup>A</sup>	3.0	4.6 <sup>A</sup>	5.0 <sup>A</sup>	3.7	5.1 <sup>A</sup>	2.5	2.2	(1.8 <sup>A</sup> )	1.5	2.2 <sup>A</sup>	2.2 <sup>A</sup>	2.0 <sup>A</sup>	1.5	2.0 <sup>A</sup>
19	1.5	1.0	1.0	1.0	1.0	1.0	2.0 <sup>A</sup>	2.8	(2.8 <sup>A</sup> )	2.8	3.6 <sup>A</sup>	2.9	2.8	3.0	2.7	2.5	2.0	1.7	2.1 <sup>A</sup>	2.4 <sup>A</sup>	1.7	3.0 <sup>A</sup>	1.7	1.5
20	1.4	1.8	1.5	E	2.0 <sup>A</sup>	2.1 <sup>A</sup>	1.5	5.0 <sup>A</sup>	5.3 <sup>A</sup>	A	3.1	3.5	3.4	3.0	3.0	2.5	3.0	1.9	1.7	1.5	1.7	1.5	1.5	1.5
21	1.5	2.4 <sup>A</sup>	1.3	1.5	(2.0 <sup>A</sup> )	2.4 <sup>A</sup>	1.4	2.6	3.5 <sup>A</sup>	3.2	3.2	3.8 <sup>A</sup>	(3.5 <sup>A</sup> )	3.2	3.1	2.7	2.8 <sup>A</sup>	2.4 <sup>A</sup>	(2.0 <sup>A</sup> )	1.5	1.5	1.5	1.5	A
22	A	A	1.4	1.3	2.8 <sup>A</sup>	1.0	1.5	2.2	2.5	2.7	2.8	2.9	2.9	3.2	2.9	2.6	A	A	A	2.3 <sup>A</sup>	1.6	1.5	1.5	1.5
23	1.5	1.5	1.4	1.4	1.0	1.4	1.5	2.2	3.0	2.8	3.1	3.0	3.3	3.3	2.9	(3.0 <sup>A</sup> )	3.2 <sup>A</sup>	(2.8 <sup>A</sup> )	2.5 <sup>A</sup>	(2.4 <sup>A</sup> )	2.4 <sup>A</sup>	1.7	1.7	1.5
24	1.7 <sup>F</sup>	1.4 <sup>F</sup>	1.5	1.0	1.0	1.4	(1.8 <sup>A</sup> )	2.2	2.7	(3.0 <sup>A</sup> )	3.2	3.0	3.3	3.5	5.5 <sup>A</sup>	4.3 <sup>A</sup>	4.8 <sup>A</sup>	2.8 <sup>A</sup>	1.7	2.7 <sup>A</sup>	2.4 <sup>A</sup>	1.9	1.5	1.5
25	1.4	1.0	1.5	1.6	1.4	1.4	1.5	2.3	2.7	2.9	3.5	3.3	3.3	3.6	4.5 <sup>A</sup>	4.8 <sup>A</sup>	4.0 <sup>A</sup>	3.3 <sup>A</sup>	2.4 <sup>A</sup>	1.9	1.7	1.7	1.5	1.5
26	(1.4 <sup>A</sup> )	1.3	1.3	1.8	1.3	1.4	1.5	2.4	2.7	3.0	3.0	3.0	3.0	3.3	3.0	2.8	2.6	2.7 <sup>A</sup>	1.5	2.6 <sup>A</sup>	1.5	1.7	1.7	1.7
27	1.4	1.0	1.0	1.0	1.0	1.0	1.5	2.4	2.7	2.8	3.0	3.0	2.9	3.0	2.7	2.5	2.1	1.5	1.5	1.9	3.2 <sup>A</sup>	2.5 <sup>A</sup>	1.5	1.5
28	1.7	1.6	1.4	1.3	1.0	1.3	1.5	2.7	3.3	(3.7 <sup>A</sup> )	4.1 <sup>A</sup>	4.5 <sup>A</sup>	3.1	2.9	2.6	2.7	2.0	1.5	2.0 <sup>A</sup>	1.6	1.5	1.5	1.5	2.0 <sup>A</sup>
29	1.5	1.3	1.3	1.3	1.0	1.0	1.5	2.4	2.7	2.9	3.6	3.7	3.7	3.7	2.9	2.5	C	C	1.7	1.5	1.5	2.5 <sup>A</sup>	2.0 <sup>A</sup>	2.6 <sup>A</sup>
30	1.8	1.4	1.5	1.5	1.9	1.0	1.5	2.4	A	A	3.2	3.3	3.0	3.2	2.7	2.4	3.4 <sup>A</sup>	(3.0 <sup>A</sup> )	2.5 <sup>A</sup>	1.5	1.5	2.7 <sup>A</sup>	2.7 <sup>F</sup>	(2.6 <sup>A</sup> )
31	2.6 <sup>A</sup>	1.5	1.4	1.4	1.5	1.0	1.5	2.2	A	5.4 <sup>A</sup>	3.2	3.3	3.2	3.6	5.5 <sup>A</sup>	3.6 <sup>A</sup>	3.7 <sup>A</sup>	(3.0 <sup>A</sup> )	2.4 <sup>A</sup>	1.5	2.5 <sup>A</sup>	A	A	1.5
Mean	1.7	1.5	1.4	1.3	1.4	1.4	1.8	2.6	3.1	3.2	3.4	3.5	3.4	3.3	3.4	3.1	2.8	2.3	2.0	1.9	1.9	1.9	1.7	1.7
Median	1.5	1.4	1.3	1.3	1.2	1.3	1.7	2.5	3.0	3.0	3.2	3.4	3.3	3.3	3.0	2.8	2.5	2.2	1.8	1.6	1.7	1.6	1.6	1.5
Count	30	29	30	31	31	31	31	31	28	27	29	30	30	30	30	30	27	27	27	28	28	30	30	30

Sweep 0.85 Mc to 22.0 Mc in 2 min  Manual  Automatic

A 10

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

IONOSPHERIC DATA

Oct. 1953

f<sub>min</sub>E

135° E Mean Time

Akita

Lat. 39° 43.6' N  
Long. 140° 08.2' 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	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	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5
2	1.3	E	E	1.0	1.0	1.0	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.6
3	1.5	E	1.7	E	1.5	E	1.5 <sup>F</sup>	1.5	1.6	1.5	1.6	1.6	1.6	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.5	1.5
4	1.4	1.0	1.4	1.4	1.6	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	1.5	1.5	1.5	1.5	1.5	1.6
5	1.5	1.5	1.5	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	1.5	1.5	1.5
6	1.5	E	E	1.6	1.5	1.0	1.0	1.5	1.5	1.5	1.5	(1.6)	1.6	1.6	1.5	1.5	1.5 <sup>F</sup>	1.6	1.5	1.5	1.5	1.5	1.5	1.5
7	1.4	C	C	E	E	E	1.5	1.5	1.5	1.7	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.8
8	1.3	1.5	1.0	1.0	E	E	1.6	1.5	C	C	C	C	C	C	C	C	C	1.5	1.5	1.5	1.5	1.5	1.6	1.5
9	1.4	E	E	1.0	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	1.5	1.5	1.5
10	1.0	E	1.5	E	1.0	1.7	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	(1.5)	1.5	1.5
11	1.3	1.5	E	E	E	E	1.5	1.0	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
12	1.4	E	E	E	E	E	1.5	1.5	1.5	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	C	1.5	1.5	1.5
13	1.4	1.0	1.0	E	E	1.0	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
14	1.4	1.0	1.0	E	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.5	2.0	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.6
15	1.4	E	1.0	1.9	1.4	1.7	1.9	1.5	1.5	2.5	1.6	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16	1.5	E	E	E	1.7	E	1.0	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
17	1.5	E	E	E	1.4	E	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18	1.5	1.7	1.0	1.0	E	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
19	1.4	1.0	E	1.0	1.0	1.8	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20	1.3	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	1.5	1.5	1.5
21	1.4	E	1.0	1.0	1.0	E	1.5	1.5	1.5	1.5	1.5	1.7	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	E	1.7	1.5	1.5
22	1.4	1.0	1.0	1.0	1.0	1.6	1.8	1.5	1.5	1.7	1.5	1.6	1.7	1.6	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
23	1.5	E	E	E	E	E	1.5	1.5	1.5	1.7	1.7	1.6	1.6	1.6	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
24	1.1	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7
25	1.5	1.0	1.0	1.0	E	E	1.9	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	1.5	1.5
26	1.1	1.0	1.0	1.0	1.0	1.0	1.7	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
27	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
28	1.4	1.0	1.0	1.0	1.0	1.0	E	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5
29	1.5 <sup>F</sup>	1.0	1.0	1.0	1.0	1.5	E	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	C	1.5	1.5	1.7	1.5	1.5	1.5	1.5
30	1.4	1.0	E	1.0	1.0	E	E	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	1.5	1.5	1.5 <sup>F</sup>	1.5 <sup>F</sup>
31	1.3	1.0	E	1.0	1.0	E	1.5	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	1.5	1.5	1.5	1.5
Mean Value	1.4	1.1	1.1	1.1	1.2	1.2	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Median Value	1.4	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Count	31	30	30	31	31	31	31	31	30	30	30	30	30	30	30	30	29	30	30	30	30	31	31	31

f<sub>min</sub>E

Sweep 0.85 Mc in 22.0 Mc in 2 min

Manual  Automatic

A11

**Kokubunji Tokyo**  
Lat. 35° 42.4' N  
Long. 139° 28.3' E

**IONOSPHERIC DATA**

**foF2**

**Oct. 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	2.8	3.1	2.8	2.9	3.0	3.0F	5.6P	5.6	6.6	6.0	6.6	8.5P	7.3	6.2	6.0	6.5	8.3P	9.0P	7.6P	4.4	3.5P	3.4	3.3	3.3
2	3.3	3.4	3.4	3.5F	3.0	2.7	5.2P	6.0	6.5	6.3	6.2	7.4	8.0	7.4	7.5	7.2	7.4	7.0	5.7	[4.8]A	3.8	3.7	4.0F	4.0F
3	4.2P	3.6	3.6	3.7	3.5	5.0P	6.3	6.3	7.0	6.3	7.1	7.5	8.4	7.2	7.0	7.0	6.5	6.5	5.9	5.0	B	4.5P	4.5P	[4.2]E
4	4.0	4.1	[3.8]B	3.6	2.8F	4.9P	5.8P	7.5P	7.5P	7.1	6.3	6.7P	9.0	8.5	6.5P	6.5	7.5	8.2	7.5P	5.8	3.8	3.3	3.3	3.4
5	3.3	3.5P	3.4	3.4	3.3	3.1	5.1	5.9	7.7P	6.5	6.5	7.0	7.0	6.8	7.1	7.1	7.2	B	B	6.0	3.5P	3.1	3.2	3.3P
6	3.2F	3.2	3.3	3.3	3.3	2.7	B	5.4P	6.5	6.7	6.6	8.2P	7.2	7.3	6.2H	7.2	8.0	6.8	5.3P	4.3	3.8	3.7	3.3	3.3
7	3.5P	3.2	3.3	3.3	3.4P	3.2	4.9P	6.0	6.5	6.3	6.3	8.3	8.5	6.7	5.7	7.3	7.4	7.5P	5.7	4.5	4.7	BF	B	2.8
8	2.8	3.0	3.2	3.5P	3.0	3.1	4.9	8.1P	7.4	6.4	7.0	C	C	7.5	7.1	7.0	C	B	6.1P	5.0P	5.0	4.9	4.8T	4.1
9	4.1	3.7	C	C	C	C	C	C	C	C	7.9T	9.0	8.6	6.5H	7.2	6.5	6.7	[6.4]A	6.0	[5.0]A	4.1	4.5	4.5	3.9
10	3.8	3.7	3.7	3.7	3.2	3.4	4.9P	6.0	7.3	6.7	6.5	9.6	9.2	8.5	8.1	8.0T	6.8	6.0	4.5	3.7	4.0	3.9V	3.9	3.8
11	3.7	3.5	3.5	3.6	3.4	2.9	4.5	6.4	7.6T	7.2	6.9	8.4	7.9	7.5	7.5	7.5	6.8	6.3	5.7	5.0	3.9	3.5	4.3	4.0F
12	AF	3.9I	4.0F	4.0	2.7F	3.0F	4.4	5.6	7.4	7.0	7.5	C	C	5.9	6.5	6.7	6.2	7.0	6.4P	4.6	[4.0]A	3.3	3.1	[3.4]A
13	3.7F	[3.6]A	3.5F	3.9F	4.0F	[4.2]F	4.4	6.8	6.8	7.2	6.3	7.7	7.7	7.4	7.7	7.5	6.8	[5.8]A	4.7	3.5	3.3	3.5	3.5P	3.8P
14	3.7	3.8	3.5	A	A	2.8P	4.5	6.2	6.5	7.2	7.1	6.8	8.4	6.8	6.6	8.1P	7.3	6.0	4.4	3.5	3.8	3.8	3.8	3.8
15	3.7F	3.7	3.6	3.5	3.4	3.2	4.8	5.5	6.5	6.7	6.9	7.5	9.3	6.7	6.5	6.3	6.1	3.9	3.4	3.7Z	3.8	3.8	3.6F	[3.6]A
16	3.7K	[3.4]K	3.0K	2.8K	3.5K	3.1K	3.5K	5.1K	5.8K	8.9K	8.6K	BK	BK	9.9K	7.1K	6.4K	6.8K	BK	6.3K	5.5K	BK	3.5K	AK	AK
17	CK	AK	CK	CK	CK	CK	CK	CK	CK	8.0K	8.6K	[9.0]K	9.4K	7.5K	8.5K	8.0K	7.3K	7.8K	7.3K	6.7K	5.7K	5.8K	3.5K	[3.8]K
18	4.0K	4.0K	4.0K	FK	4.0K	[4.0]K	3.9K	5.5K	7.0K	7.0K	8.0K	6.6K	8.6K	8.4K	8.0K	7.1K	7.6K	6.2K	3.7K	4.0K	4.6K	3.4K	3.7K	[3.6]K
19	3.6K	3.5K	3.4K	[3.1]K	2.8K	3.3K	4.9K	7.2K	6.0K	8.1K	8.2K	7.8K	8.6K	9.7K	8.9K	8.7K	6.7K	6.3K	4.2K	4.5K	4.2K	[3.8]K	3.3K	3.1K
20	3.5K	3.6K	3.4K	3.5K	3.0K	2.6K	4.4K	(8.0)K	6.4K	7.0K	7.2K	9.1K	8.8K	6.7K	7.5K	9.6K	7.9K	5.6K	4.0K	2.7K	3.0K	3.9K	2.9K	3.8K
21	3.2K	3.8K	3.2K	4.7K	2.7K	[3.2]K	3.7K	5.1K	7.2K	9.9K	8.3K	[7.8]K	7.2K	7.0K	7.0K	9.3K	7.6K	6.7	4.0	3.5	3.7	3.7	3.6	3.5
22	3.4	3.6P	3.1	3.5	3.5	3.0	3.8	6.3	6.1	7.9	7.0	6.7	8.4	7.3	8.0	6.9	7.4	5.0	4.3	3.7	[3.2]A	2.7	2.8	3.0
23	3.0F	3.7F	3.7F	(3.4)F	3.5F	3.1F	3.9	5.7	6.3	6.9	6.7	7.6P	8.3	7.2	7.1	7.1	6.1	5.4	A	A	3.1	[3.1]A	3.1	3.2F
24	3.4F	3.7F	3.4	3.3	3.2	3.2	4.5P	6.1	7.2	7.0	6.9	8.8P	8.7	9.0	7.0	6.5	6.0P	5.2	3.5	3.4	3.0	3.0	3.0	3.0
25	2.9	2.9	2.8	3.1	3.5P	[3.5]A	3.5	5.3	6.7	7.4	7.3	9.2	8.4	6.0	6.8	5.9	6.0	5.5	4.5	3.3	3.1	3.0	F	F
26	3.2F	3.3F	3.6F	3.7	3.0F	2.6F	3.9	6.7	6.5	7.9P	6.8	6.8	6.5P	7.3P	6.7	6.0	6.0	5.2	3.7	[3.4]A	3.1	[3.2]A	3.3	3.3
27	3.0	2.9	3.0F	3.1	3.1H	2.8	3.8	5.7	7.6	8.3P	7.0	6.3	7.0	7.3P	7.2	7.0	6.2	5.0	4.3	3.5	3.5	3.7	3.3	3.5
28	3.5	3.4	3.4	3.5	3.2	3.5	C	C	8.0P	[2.8]C	7.5	7.5	8.7	8.1	7.3	7.5	6.1	5.0	3.1	3.6	3.2	3.4	3.7	3.5
29	4.0	3.5	3.5	3.4F	3.3	2.8F	4.2	5.0	6.5	7.0	7.0	7.7	7.5P	7.1	6.5	6.6	5.6	4.1	[4.2]A	4.3	4.5	3.7	3.3	3.0
30	3.0	3.2	3.2	3.3	3.0F	2.7	4.0	7.2	7.0	6.9	7.2	9.5P	9.2	6.0	6.4	7.0	[7.1]A	7.2	4.7	A	A	A	A	4.4F
31	[4.1]F	3.8	[3.7]F	3.6F	C	C	C	C	C	B	9.0P	7.5P	8.5	8.4P	9.3T	7.5	5.9	4.5	3.5	3.6P	3.2P	2.5	2.6	[2.6]F
Mean Value	3.5	3.5	3.4	3.4	3.2	3.1	4.4	6.1	7.0	7.2	7.2	7.9	8.2	7.4	7.2	7.2	6.8	6.2	5.0	4.3	3.8	3.6	3.5	3.5
Median Value	3.5	3.6	3.4	3.5	3.2	3.1	4.4	6.0	6.9	7.0	7.0	7.7	8.4	7.3	7.1	7.1	6.8	6.2	4.5	4.3	3.8	3.5	3.3	3.5
Count	29	30	29	27	27	27	27	27	28	29	31	28	28	31	31	31	30	28	29	29	28	29	27	29

Manual  Automatic

Sweep 1.0 Mc to 17.2 Mc in 2 min

K1

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

Lat. 35° 42.4' N  
Long. 139° 28.3' E

### Kokubunji Tokyo

## IONOSPHERIC DATA

Oct. 1953

h<sub>p</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	410	280	300	340	350	370 <sup>F</sup>	270 <sup>F</sup>	220	240	250	280	280 <sup>F</sup>	260	280	310	320	300 <sup>P</sup>	260 <sup>F</sup>	250 <sup>F</sup>	250	300 <sup>P</sup>	320	320	350	350
2	340	330	320	330 <sup>F</sup>	260	320	230 <sup>F</sup>	240	240	240	280	290	280	280	280	280	270	250	260	[280] <sup>F</sup>	300	320	320 <sup>F</sup>	340 <sup>F</sup>	
3	330 <sup>P</sup>	330	320	340	340	350	250 <sup>F</sup>	230	250	250	A	280	[280] <sup>F</sup>	270	280	250	270	250	240	300	B	310 <sup>F</sup>	320 <sup>F</sup>	[320] <sup>F</sup>	
4	320	310	[280] <sup>F</sup>	250	260 <sup>F</sup>	F	250 <sup>F</sup>	250 <sup>F</sup>	250 <sup>F</sup>	250 <sup>F</sup>	270	(310) <sup>F</sup>	270	250	280 <sup>F</sup>	300	270	270	250 <sup>F</sup>	250	300	320	330	380	
5	350	330 <sup>P</sup>	330	320	280	310	250	240	240 <sup>F</sup>	240	270	270	270	280	300	280	270	B	B	240	270 <sup>F</sup>	310	330	320 <sup>F</sup>	
6	340 <sup>F</sup>	320	310	310	240	260	B	(220) <sup>F</sup>	240	230	260	280 <sup>F</sup>	260	270	340 <sup>H</sup>	300	250	250	270 <sup>F</sup>	260	270	260	320	320	
7	340 <sup>F</sup>	330	350	310	260 <sup>F</sup>	300	230 <sup>F</sup>	240	240	240	270	270	260	250	280	300	260	250 <sup>F</sup>	A	320	340	BF	B	300	
8	330	340	350	310 <sup>F</sup>	320	320	270	250 <sup>F</sup>	250	260	280	C	C	C	240	280	270	C	B	260 <sup>F</sup>	280 <sup>F</sup>	330	290	(270) <sup>F</sup>	320
9	330	330	C	C	C	C	C	C	C	(300) <sup>F</sup>	270	270	260	280 <sup>H</sup>	260	260	260	[260] <sup>F</sup>	270	[300] <sup>F</sup>	320	300	290	320	
10	330	330	270	280	300	300	250 <sup>F</sup>	240	250	240	280	270	270	270	280	(350) <sup>F</sup>	250	230	260	300	[320] <sup>F</sup>	340 <sup>V</sup>	340	310	
11	320	290	340	300	240	310	260	260	(290) <sup>F</sup>	240	270	260	260	270	270	260	240	260	240	240	290	350	320	380 <sup>F</sup>	
12	AF	(940) <sup>F</sup>	340 <sup>F</sup>	270	270 <sup>F</sup>	320 <sup>F</sup>	230	230	240	240	260	C	C	250	280	250	260	260	240 <sup>F</sup>	260	[300] <sup>F</sup>	350	360	[330] <sup>F</sup>	
13	300 <sup>F</sup>	[300] <sup>F</sup>	300 <sup>F</sup>	260 <sup>F</sup>	320 <sup>F</sup>	[280] <sup>F</sup>	230	240	230	250	270	280	270	290	280	260	250	[260] <sup>F</sup>	270	280	300	330	300	350 <sup>F</sup>	
14	320	270	300	A	A	250 <sup>F</sup>	250	240	250	240	250	260	260	260	270	260 <sup>F</sup>	240	250	220	310	300	300	310	320	
15	340 <sup>F</sup>	300	290	310	270	270	220	230	250	250	260	280	260	270	260	250	250	240	260	290	320 <sup>F</sup>	320	350 <sup>F</sup>	[320] <sup>F</sup>	
16	300 <sup>K</sup>	[350] <sup>F</sup>	400 <sup>K</sup>	380 <sup>K</sup>	310 <sup>K</sup>	(260) <sup>K</sup>	220 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	350 <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	300 <sup>K</sup>	B <sup>K</sup>	310 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	
17	C <sup>K</sup>	A <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	310 <sup>K</sup>	300 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	260 <sup>K</sup>	280 <sup>K</sup>	230 <sup>K</sup>	[320] <sup>F</sup>	
18	420 <sup>F</sup>	390 <sup>F</sup>	380 <sup>F</sup>	F <sup>K</sup>	300 <sup>F</sup>	[280] <sup>F</sup>	270 <sup>F</sup>	270 <sup>F</sup>	260 <sup>K</sup>	300 <sup>K</sup>	270 <sup>K</sup>	350 <sup>K</sup>	270 <sup>K</sup>	300 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	290 <sup>K</sup>	360 <sup>K</sup>	270 <sup>K</sup>	350 <sup>K</sup>	270 <sup>K</sup>	[340] <sup>F</sup>	
19	420 <sup>F</sup>	410 <sup>F</sup>	380 <sup>K</sup>	[350] <sup>K</sup>	320 <sup>K</sup>	330 <sup>F</sup>	300 <sup>K</sup>	250 <sup>F</sup>	320 <sup>K</sup>	290 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	330 <sup>K</sup>	260 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	300 <sup>K</sup>	310 <sup>K</sup>	260 <sup>K</sup>	[280] <sup>F</sup>	330 <sup>K</sup>	350 <sup>F</sup>	
20	(340) <sup>F</sup>	340 <sup>K</sup>	340 <sup>F</sup>	300 <sup>K</sup>	300 <sup>K</sup>	360 <sup>F</sup>	270 <sup>K</sup>	(220) <sup>F</sup>	260 <sup>K</sup>	230 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	210 <sup>K</sup>	260 <sup>K</sup>	340 <sup>K</sup>	330 <sup>K</sup>	280 <sup>K</sup>	330 <sup>K</sup>	370 <sup>F</sup>	
21	(360) <sup>K</sup>	350 <sup>F</sup>	320 <sup>F</sup>	300 <sup>K</sup>	230 <sup>K</sup>	[240] <sup>F</sup>	250 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	[250] <sup>F</sup>	250 <sup>K</sup>	260 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	230 <sup>K</sup>	230 <sup>K</sup>	240	390	360	350	280	320	
22	340	320 <sup>F</sup>	340	290	260	300	240	240	230	290	240	270	270	280	240	240	230	230	260	260	[280] <sup>F</sup>	310	340	300	
23	350 <sup>F</sup>	300 <sup>F</sup>	290 <sup>F</sup>	(310) <sup>F</sup>	300 <sup>F</sup>	(310) <sup>F</sup>	250	240	250	240	280	260 <sup>P</sup>	250	260	270	230	230	250	A	A	350	[360] <sup>F</sup>	370	350 <sup>F</sup>	
24	360 <sup>F</sup>	350 <sup>F</sup>	350	300	300	270	260 <sup>F</sup>	250	240	250	270	280 <sup>P</sup>	280	270	250	250	240 <sup>F</sup>	250	250	270	300	320	320	340	
25	350	360	330	310	220 <sup>F</sup>	[240] <sup>F</sup>	260	270	270	250	310	260	250	250	260	250	230	260	250	260	290	300	F	F	
26	380 <sup>F</sup>	350 <sup>F</sup>	300 <sup>F</sup>	270	230 <sup>F</sup>	300 <sup>F</sup>	260	220	240	250 <sup>F</sup>	240	270	260 <sup>F</sup>	270 <sup>F</sup>	250	240	240	230	240	[260] <sup>F</sup>	290	[290] <sup>F</sup>	290	290	
27	290	330	330 <sup>F</sup>	310	260	310	260	250	230	250 <sup>F</sup>	250	280	280	250 <sup>F</sup>	260	250	230	230	250	290	300	300	290	330	
28	330	340	320	280	320	330	C	C	270 <sup>F</sup>	[360] <sup>F</sup>	260	300	280	260	270	260	230	240	300	270	300	330	300	350	
29	330	300	340	290 <sup>F</sup>	260	290 <sup>F</sup>	260	220	250	260	250	260	270 <sup>F</sup>	260	250	240	220	240	[280] <sup>F</sup>	310	260	280	250	340	
30	320	330	320	330	300 <sup>F</sup>	320	330	250	240	260	280	270 <sup>F</sup>	240	250	270	270	[360] <sup>F</sup>	260	260	A	A	A	A	310 <sup>F</sup>	
31	[320] <sup>F</sup>	340 <sup>F</sup>	[320] <sup>F</sup>	300 <sup>F</sup>	C	C	C	C	C	B	260 <sup>F</sup>	260 <sup>F</sup>	280	270 <sup>F</sup>	(260) <sup>F</sup>	240	230	240	280	270 <sup>F</sup>	260 <sup>F</sup>	300	370	[360] <sup>F</sup>	
Mean Value	340	330	330	310	280	300	260	240	250	260	270	280	270	270	280	260	250	250	260	290	300	310	320	330	
Median Value	340	330	320	310	280	300	250	240	250	250	270	270	270	270	270	250	250	250	260	280	300	310	320	330	
Count	29	30	29	27	27	27	27	27	28	29	30	28	28	31	31	31	30	28	28	29	28	29	27	29	

K2

Manual  Automatic

Energy 1.0 Mc to 17.2 Mc in 2 min

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

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

Lat. 36° 42.4' N  
Long. 139° 28.8' E

# Kokubunji Tokyo

## IONOSPHERIC DATA

135° E Mean Time

RF2

Oct. 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	330	250	250	280	270	310	220	220	230	250	270	260	260	260	280	310	280	230	220	210	260	270	290	280
2	300	270	250	250	210	260	210	220	220	240	270	280	270	290	270	260	250	240	230	230	240	250	270	280
3	250	270	260	290	270	250	220	220	230	250	280	280	270	270	280	250	250	230	220	240	260	250	260	260
4	270	250	230	230	200	250	220	220	240	230	260	310	260	250	260	270	260	240	200	210	250	270	270	290
5	290	270	270	250	220	250	210	230	230	240	260	270	270	280	280	270	260	240	230	210	220	270	290	290
6	310	270	270	260	210	240	210	220	230	230	260	270	250	250	260	270	240	220	220	200	230	240	260	250
7	250	280	290	260	220	220	200	220	230	240	270	260	250	250	250	270	250	230	220	270	300	250	210	270
8	290	280	280	250	230	260	220	240	240	250	280	270	260	240	280	260	250	230	230	250	270	250	240	270
9	280	290	C	C	C	C	C	C	C	C	270	240	240	240	260	250	230	220	220	290	250	250	240	270
10	270	290	220	230	220	240	220	220	240	240	260	250	260	260	260	250	230	220	220	290	230	300	280	280
11	280	240	280	260	200	250	330	240	230	230	250	260	250	270	260	240	230	220	220	220	230	320	300	310
12	330	310	310	230	190	250	210	220	240	240	260	C	C	230	250	250	250	230	220	220	270	340	300	310
13	270	260	260	220	230	230	210	220	230	240	260	280	260	260	260	240	240	230	220	230	260	280	280	300
14	310	250	240	A	A	A	A	A	230	240	250	250	250	250	260	250	230	220	200	220	280	250	260	270
15	280	250	260	230	220	220	210	210	240	230	250	280	250	240	250	230	230	220	230	230	270	270	290	290
16	240	300	350	340	250	220	200	230	270	250	300	300	230	230	240	240	240	220	220	230	210	260	A	A
17	C	A	C	C	C	C	450	C	C	240	290	280	260	250	250	250	230	220	220	220	230	240	180	280
18	320	300	300	240	230	230	230	260	250	260	250	260	260	270	270	240	230	210	250	300	240	260	230	270
19	320	320	300	300	250	250	260	240	250	260	260	250	300	250	270	240	230	220	250	270	250	280	300	290
20	280	280	280	240	230	300	250	220	260	230	280	260	260	260	270	230	220	210	230	230	220	260	280	310
21	320	300	270	260	220	220	230	230	240	260	230	240	250	250	260	250	230	210	230	220	300	280	240	260
22	270	270	300	250	230	250	230	240	220	230	240	250	250	250	240	230	220	210	220	220	260	300	320	270
23	320	270	240	270	230	250	230	220	240	240	260	260	250	260	250	230	210	220	A	A	280	320	350	280
24	280	250	260	240	240	230	240	240	230	240	250	260	250	250	250	240	220	220	230	240	270	270	290	290
25	300	300	250	250	200	220	230	220	250	240	290	250	220	240	260	230	230	220	220	240	250	250	270	300
26	320	300	270	250	200	270	230	210	230	240	240	260	250	270	240	230	220	210	210	230	220	260	260	270
27	260	260	260	260	220	230	230	220	230	240	240	250	260	250	250	240	220	220	220	230	300	250	230	270
28	260	280	260	250	230	260	C	C	250	250	260	280	250	250	250	250	210	210	280	250	240	290	250	280
29	260	230	270	270	230	240	220	200	220	240	240	240	250	250	240	240	220	210	210	220	240	250	240	320
30	300	230	280	280	260	270	240	240	230	250	260	260	230	240	260	270	270	240	A	A	A	A	A	250
31	290	300	250	220	C	C	C	C	C	250	250	250	280	260	250	230	220	210	230	240	220	220	320	320
Mean Value	290	270	270	260	230	250	220	230	240	240	260	260	250	250	260	250	240	220	230	240	260	260	270	280
Median Value	280	270	270	250	230	250	220	220	230	240	260	260	250	250	260	250	240	220	220	230	260	260	270	280
Count	30	30	29	28	27	27	27	27	28	30	31	30	30	31	31	31	31	31	30	29	30	30	29	30

Speed 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° 29.3' E

Kokubunji Tokyo

foF1

Oct. 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	4.1	4.0L	4.5	4.5	4.2	4.2	4.1L	4.2L	A	A						
2							Q	Q	4.0L	4.1	4.4L	4.5	4.5	4.4	4.2L	4.0	A	A						
3							A	Q	3.9L	L	A	A	A	A	A	4.0L	L	Q						
4							Q	Q	4.0L	4.2	4.3L	4.6	4.2L	4.4L	L	L	L	Q						
5							Q	3.3	4.0L	4.2	L	LH	4.6HL	4.7H	4.0L	L	L	Q						
6							Q	L	4.2L	[4.4]A	4.5	4.4	4.4	4.3	L	L	L	Q						
7							Q	2.8L	4.0L	4.2	[4.4]A	4.5	4.3	4.4	4.0H	4.2L	L	Q						
8							Q	L	4.1L	L	A	A	4.5	[4.5]A	4.5	A	Q	Q						
9							C	C	C	4.5LH	4.4L	4.4L	4.3	3.8	4.0	L	L	A						
10							Q	Q	L	L	4.2	4.3	4.3	4.3L	4.0L	L	Q	A						
11							Q	Q	L	A	4.1L	4.0	4.2	[4.2]L	4.2L	A	A	A						
12							A	A	A	4.4L	A	C	C	4.0	L	L	L	Q						
13							Q	3.0L	[3.6]L	4.2L	4.4L	4.2	4.3L	A	A	L	A	A						
14							A	Q	L	L	4.4L	4.4L	4.5	4.2L	L	L	L	Q						
15							Q	Q	L	4.0L	4.3L	4.4	4.5	[4.3]L	4.1	3.7	Q	A						
16							Q	Q	A	L	L	LH	L	L	C	L	Q	Q						
17							C	C	C	3.8L	4.6	[4.6]L	4.5	4.1	4.2L	3.7L	3.0	A						
18							Q	L	L	4.0L	4.0	4.1	4.3	4.3L	4.0	3.6L	Q	Q						
19							Q	L	A	4.0	4.2	4.0	4.5L	4.4	4.0L	3.6L	A	Q						
20							Q	L	A	4.0	[4.2]A	4.5	4.5	4.5	4.1L	L	Q	Q						
21							Q	Q	L	4.1	4.1	4.4	4.2H	4.1L	[3.7]L	3.7	A	Q						
22							A	L	3.7L	4.0	4.1	[4.2]L	4.2L	4.1L	4.0L	3.7L	Q	Q						
23							A	Q	3.5L	4.0	4.3L	4.3	4.4	4.2L	[3.8]L	3.5	A	Q						
24							Q	3.2	3.5L	4.0L	[4.2]L	4.4	4.2L	4.3	4.0L	A	A	A						
25							Q	Q	L	4.1L	4.7H	4.3	4.2	4.1L	4.0L	Q	Q	Q						
26							Q	L	3.5L	4.2L	4.2H	4.2H	4.2H	4.1L	4.0L	L	A	Q						
27							Q	Q	L	4.0L	4.2	4.2L	4.2	4.2L	3.9L	3.6L	Q	A						
28							C	C	L	C	C	L	4.3	4.2L	[3.8]C	3.5	A	Q						
29							Q	Q	Q	4.0L	4.2L	4.1	4.2	4.0	3.9L	3.5	Q	Q						
30							Q	L	L	A	A	4.3LH	[4.2]A	4.0	L	A	A	A						
31							C	C	L	L	L	4.2	[4.2]A	4.3	4.0L	L	A	Q						
Mean Value								3.1	3.8	4.1	4.3	4.3	4.3	4.2	4.0	3.7	3.0							
Median Value								3.1	4.0	4.0	4.3	4.3	4.3	4.2	4.0	3.7	3.0							
Count								4	12	22	23	25	28	28	23	14	1							

foF1

Group 1.0 Me to 1.7.2. Me in 2 min

Manual  Automatic

K 4

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

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

Q'F1

Oct. 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	210	210 <sup>A</sup>	220 <sup>A</sup>	270 <sup>A</sup>	210	210	210	250 <sup>A</sup>	A	A						
2							Q	Q	220	210	220	200	210	220	230	260 <sup>A</sup>	A	A						
3							A	Q	220	A	A	A	A	A	A	A	230	Q						
4							Q	Q	220	220	210	200	240	240	240	240 <sup>A</sup>	230	Q						
5							Q	200	220	200	200	180 <sup>H</sup>	190 <sup>H</sup>	190 <sup>H</sup>	220	240	220	Q						
6							Q	210	Q	240	[230 <sup>A</sup>	220	200	220	230	250	240	Q						
7							Q	220	210	200	[200 <sup>A</sup>	200	200	220	180 <sup>H</sup>	250	240	Q						
8							Q	230	230	200	200	[200 <sup>A</sup>	210	A	A	A	Q	Q						
9							C	C	C	C	200 <sup>H</sup>	200	190	200	220	220	230	A						
10							Q	Q	230	220	200	[200 <sup>A</sup>	210	240	230	250	Q	A						
11							Q	Q	230	A	A	210	220	200 <sup>A</sup>	210	A	A	A						
12							A	A	A	220	A	C	C	210	230	240	230	Q						
13							Q	200	220	220	200	230 <sup>A</sup>	230	A	A	A	A	A						
14							A	Q	220	A	A	A	A	200	230	250 <sup>B</sup>	240 <sup>F</sup>	Q						
15							Q	Q	220	230	200	200	250 <sup>B</sup>	230	220	210	Q	A						
16							Q	Q	A	240 <sup>A</sup>	200	200 <sup>H</sup>	200	220	[220 <sup>C</sup>	220 <sup>A</sup>	Q	Q						
17							C	C	C	220	230	[240 <sup>F</sup>	250	230	240	250	230	A						
18							Q	250	260	220	210	210	[220 <sup>A</sup>	230	240	240	Q	Q						
19							Q	250	[240 <sup>A</sup>	230	200	230 <sup>A</sup>	230	250	230	A	A	Q						
20							Q	230	A	A	A	250 <sup>A</sup>	230	200 <sup>A</sup>	260	240	Q	Q						
21							Q	Q	210 <sup>A</sup>	240	230	200	190 <sup>H</sup>	250	270	270	A	Q						
22							A	220	210	210	200	200	200	230	240	230	Q	Q						
23							Q	Q	200	230	210	240	250	240	250	220	A	Q						
24							Q	220	200	210	[230 <sup>A</sup>	250	200	220	250	A	A	A						
25							Q	Q	230 <sup>A</sup>	220 <sup>A</sup>	200 <sup>H</sup>	250	220	230	220	Q	Q	Q						
26							Q	220	210	210	210 <sup>H</sup>	200 <sup>H</sup>	190 <sup>H</sup>	240	240	240 <sup>A</sup>	A	Q						
27							Q	Q	240	220	210	200	190	230	230	230	Q	A						
28							C	C	250	C	C	A	250	230	220	220	A	Q						
29							Q	Q	Q	210	240	200	250 <sup>A</sup>	230	230	240	Q	Q						
30							Q	230	230 <sup>A</sup>	A	A	200 <sup>H</sup>	[200 <sup>A</sup>	210 <sup>A</sup>	240 <sup>A</sup>	A	A	A						
31							C	C	C	220	250	210	[220 <sup>A</sup>	240	240	220	A	Q						
Mean Value							220	220	220	210	210	210	210	220	230	240	230							
Median Value							220	220	220	210	200	200	210	230	230	240	230							
Count							12	23	24	24	24	27	28	28	28	23	9							

Sweep 1.0 Me to 17.2 Me in 2 mi.

Manual

Automatic

K 5

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

# IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.8' E

Kokubunji Tokyo

f<sub>o</sub>E

Oct. 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	2.4	2.7 <sup>A</sup>	A	A	A	A	A	A	3.0	A	A	A						
2						1.8	2.3 <sup>F</sup>	2.7	2.9	3.0	3.0	[3.0] <sup>A</sup>	3.0	2.8	[2.7] <sup>A</sup>	2.6	2.5 <sup>F</sup>	2.2 <sup>A</sup>						
3						A	2.3	2.8	2.9	3.0	3.0	A	A	A	A	A	A	A						
4						1.7	2.3	2.8	2.9	3.1	3.2	3.2	3.2	A	A	A	A	A						
5						1.6	2.3	2.7	3.0	3.0	2.9	A	A	A	A	A	2.5 <sup>S</sup>	A						
6						1.7	2.5 <sup>F</sup>	2.6 <sup>A</sup>	3.0	3.1	3.1	3.1	3.2	3.0	3.0	2.7	2.3	A						
7						1.6	2.3	2.7	3.0	A	A	A	3.3	3.2	2.8	2.6	2.3 <sup>F</sup>	1.7						
8						1.7 <sup>F</sup>	2.2	2.7	2.9	3.0	3.0	[3.0] <sup>A</sup>	3.0	A	A	A	2.5 <sup>F</sup>	A						
9						C	C	C	C	3.1	3.1 <sup>B</sup>	3.1	3.1	3.0 <sup>B</sup>	[2.6] <sup>A</sup>	2.2	A							
10						B	2.3	2.6	2.8	2.9	3.0	3.0	3.0	3.0 <sup>H</sup>	2.8	2.7 <sup>A</sup>	2.4	1.7						
11						A	2.3 <sup>H</sup>	2.5	2.8	3.0	A	A	A	A	A	A	A	A						
12						A	2.2	2.7	2.7	2.9	C	C	C	A	A	2.6	2.2	A						
13						A	2.2	2.6	A	A	3.0	3.0	3.0	3.0	3.0	2.7	2.1	A						
14						A	2.4	[2.6] <sup>A</sup>	2.8	3.0	A	A	A	A	AF	A	2.2 <sup>F</sup>	A						
15						B	2.4 <sup>F</sup>	2.6 <sup>F</sup>	[2.8] <sup>A</sup>	3.0	3.0	3.0	[3.0] <sup>B</sup>	3.0	2.9	2.7	2.3 <sup>F</sup>	A						
16						A	AF	2.4 <sup>F</sup>	2.7	A	A	A	AF	3.0	C	A	A	A						
17						C	C	C	C	A	C	A	A	A	3.0	2.9	2.5 <sup>A</sup>	2.0 <sup>AF</sup>	A					
18						1.8 <sup>F</sup>	A	A	A	A	A	A	A	A	3.0	A	A	A						
19						A	2.0 <sup>A</sup>	A	A	AF	A	AF	3.2	AF	AF	AF	AF	AF						
20						A	2.0 <sup>F</sup>	2.4	2.6	A	A	A	A	A	A	2.5	2.0	A						
21						A	A	A	AF	3.0	3.0	3.0	3.0	3.0	2.9 <sup>A</sup>	2.5 <sup>A</sup>	A	B						
22						A	1.8 <sup>F</sup>	AF	A	A	B	3.0	3.0	3.0	3.0	2.8	2.5	A	B					
23						B	2.0 <sup>F</sup>	2.5 <sup>AF</sup>	2.7	[2.8] <sup>A</sup>	3.0	[3.0] <sup>A</sup>	2.9	2.7	2.4	A	A	A						
24						B	AF	2.5 <sup>F</sup>	A	A	A	A	3.1 <sup>A</sup>	A	A	A	A	A						
25						B	2.2	2.3	A	A	A	A	A	A	2.8	2.5 <sup>AF</sup>	A	A						
26						B	2.2	2.4 <sup>A</sup>	2.6	[2.8] <sup>A</sup>	3.0	[3.0] <sup>A</sup>	3.0	2.9	2.7	2.0	A							
27						B	2.0	2.5 <sup>F</sup>	[2.7] <sup>A</sup>	2.9 <sup>AF</sup>	[3.0] <sup>B</sup>	3.0	3.0 <sup>B</sup>	2.8	A	AF	AF							
28						C	C	2.5 <sup>F</sup>	C	C	A	A	A	A	A	A	A	A						
29						B	2.0	2.4 <sup>A</sup>	2.7 <sup>A</sup>	A	A	A	A	A	AF	AF	2.1 <sup>A</sup>	A						
30						B	A	A	A	A	A	A	A	A	A	A	A	A						
31						C	C	C	A	A	A	A	A	A	2.9	A	A	A						
Mean Value						1.7	2.2	2.6	2.8	3.0	3.0	3.1	3.0	2.9	2.6	2.2	1.9							
Minimum Value						1.7	2.2	2.6	2.8	3.0	3.0	3.0	3.0	2.9	2.6	2.2	1.7							
Count						8	22	23	18	16	14	15	17	16	15	15	3							

f<sub>o</sub>E

Swamp J.O. Mc to J.Z.Z. Mc in 2 min  
 Manual  Automatic

K6



IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N  
Long. 139° 28.3' E

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

135° E Mean Time

Oct, 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							150	110	110	A	A	A	A	A	100A	A	A	A						
2							150	120	110	110	110	[110]A	110	110	[110]A	110	120	120						
3							A	110	110	110	110	110	A	A	A	A	A	A						
4							150	120	110	110	110	110	100	A	A	A	A	A						
5							150	110	100	110	110	110	A	A	A	A	110	A						
6							160	110	[110]A	110	110	110	100	100	100	100	100	100						
7							160	120	110	110	A	A	110	100	100	110	120	140						
8							130	120	110	110	110	110	[110]A	110	A	A	110	A						
9							C	C	C	C	100	100	100	100	100	[110]A	120	A						
10							B	120	110	110	110	100	100	100H	110	[120]A	120	110						
11							A	120H	110	110	110	A	A	A	A	A	A	A						
12							A	120	110	110	110	C	C	A	A	A	110	120	A					
13							A	130A	110	A	A	110	110	110	110	110	120	A						
14							A	100	[100]A	110	110	A	A	A	A	AF	A	110	A					
15							B	120	110	[100]A	100	110	[100]B	100	100F	100F	100F	A						
16							A	AF	110F	110	A	A	AF	110	110	A	A	A						
17							C	C	A	A	A	C	A	110	110	[120]A	120	A						
18							120	A	A	A	A	A	A	110	A	A	A	A						
19							A	A	A	A	A	A	A	100	A	A	AF	AF						
20							A	120F	110	100	A	A	A	A	A	120	130	A						
21							A	A	A	AF	110	110	100	100	A	A	A	B						
22							A	120	AF	A	A	110	110	110	110	120	A	B						
23							B	120	110	110	[110]A	110	[110]A	110	110	120	A	A						
24							B	AF	110F	A	A	A	120A	A	A	A	A	A						
25							B	120	110	A	A	A	A	A	120A	A	A	A						
26							B	120	120A	100	[100]A	100	[100]A	110	120	120	120	A						
27							B	120	110	[110]A	110	110	110	110	110	A	AF	AF						
28							C	C	C	C	C	A	A	A	A	A	A	A						
29							B	120	A	A	A	A	A	AF	AF	AF	A	A						
30							B	A	A	A	A	A	A	A	A	A	A	A						
31							C	C	C	A	A	A	A	A	110	A	A	A						
Mean Value							150	120	110	110	110	110	110	110	110	110	110	120	120					
Median Value							150	120	110	110	110	110	110	110	110	110	110	120	120					
Count							8	21	22	17	16	15	15	17	16	13	14	3						

Sweep 1.0... Mc to 1.7.2... Mc in 2... min  
 Manual  Automatic

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

**Kokubunji Tokyo**

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**IONOSPHERIC DATA**

135° E Mean Time

fEs

Oct. 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	3.6	3.0	2.5	2.4	2.7	2.5Y	G	3.5	4.0	4.0	4.5	4.5	4.0	3.9	3.3	3.9	5.5	4.4	3.7	2.7	2.0	E	E	E	
2	E	E	E	E	E	E	2.6	3.3	4.0	4.0	4.3	3.9	4.0	4.0	4.0	4.3	5.0	4.4	4.0	6.9F	4.0F	3.9	3.0	4.0	
3	2.5	2.5	3.0	2.0	2.1	2.4	3.5	G	3.8	4.9	6.5	5.7	8.5	7.0	7.0	7.0	3.6F	3.5	3.0	2.8	2.0	2.0	E	3.0	
4	2.8Y	2.5Y	3.0	3.0	2.2	2.0Y	G	G	G	4.0	4.1	G	G	4.0	4.2	4.4	3.0	3.3	3.0	3.7	2.9	3.2	E	E	
5	2.5	2.9	2.4	2.5	2.2	2.5	G	G	3.6	G	G	G	3.8	3.7	3.5	3.5	3.0	3.5	3.5	2.6	3.5F	3.2	E	2.0	
6	5.6	3.6	2.8	2.5Y	3.0	2.7	G	G	3.5	4.2	5.2	G	G	4.3	4.2	4.0	3.3	3.5	4.0F	3.7	3.3	3.3	3.2	4.0	
7	E	3.0	2.9	2.9	1.9	2.0	G	G	3.6	G	7.0	4.0	3.8	G	3.0	3.7	4.0	4.0	4.5	4.0	4.0F	3.0	2.5	3.0	
8	2.7	2.5	2.5	3.0	2.1	2.5F	2.7	3.5	4.2	5.5	G	7.0	6.5	7.5	5.6	7.0	5.0	4.5	4.5F	3.8	3.0	2.9	2.6	E	
9	2.5	2.5	C	C	C	C	C	C	C	C	4.1	G	G	G	G	3.3	3.5	7.5	4.0	7.2	4.0	3.0	3.1	3.2	
10	2.4	4.0	2.4	2.1	2.3	E	2.5	3.2	3.7	3.8	3.9	4.9	4.1	5.5	4.2	4.8	4.9	5.5	3.0	4.6Y	5.5	7.2	3.7	5.5	
11	2.9	2.4	2.6	2.4	2.4	2.0	3.0	4.2	4.2	7.5	5.3	4.5	5.0	5.5	4.2	4.5	4.9	3.9	3.0	2.5	3.0F	5.5F	5.5	4.7	
12	5.4	5.5F	4.0F	4.0	3.0	2.5F	3.4	5.0	7.3	5.5	7.3	C	C	3.8	3.3	3.5Y	2.7	3.0	2.9	3.0F	4.7	4.0	5.0F	7.2Y	
13	4.7F	5.5F	4.7F	4.0	4.5	2.5	3.8	3.7	G	3.5	4.0	4.5	4.5	10.5	6.5	5.6	4.5	8.5	3.5	2.5	2.5	2.6	E	3.0	
14	3.7	2.9	2.2	5.0F	4.8F	3.7F	4.0F	4.3	4.0	4.5	4.7	4.7	5.0	4.0F	3.6F	3.0	3.3F	3.3	3.0	2.5Y	3.0	2.8F	2.5	2.6	
15	2.5F	2.5F	2.6	2.2F	2.0F	2.6	B	G	4.0	3.5	4.5	4.0	B	G	4.0	3.0	3.7	3.9	3.4	2.6Y	5.5	3.8	5.0F	3.0	
16	3.8	2.6	3.2	2.7	2.2	2.4	2.4	3.6	5.7	4.5	4.2	5.1Y	4.3F	G	C	3.8	3.2	5.0	4.3	3.0	3.2	3.7	7.0	5.5	
17	C	7.2	C	C	C	C	C	C	C	2.9	3.7	C	3.8	G	4.0	4.2	4.0	4.5	3.2	3.0	4.5	3.0	E	3.0	
18	2.6F	2.5F	3.0F	2.2F	2.2F	3.5	2.5	3.3	4.5	5.5	5.6	3.5	9.4	4.5	4.5	4.4	5.5	4.3	5.5	4.7	3.0	2.1	3.2	2.6	
19	1.9	2.5	2.2	2.2	2.4	E	3.0	3.0	7.0	4.9	4.8	7.1	4.5	3.5F	4.7	5.8	4.5F	4.0F	2.9	3.8	5.5F	4.8	5.0	3.0	
20	2.4	2.6F	2.6F	2.3	2.9Y	3.0	3.7	2.9	5.6	7.2	7.2	5.6	5.5	4.3	4.3	2.7	4.4	4.5	3.8	2.5	2.6	3.7	3.4	2.5	
21	E	2.8	3.0F	4.3	3.5F	5.0F	3.0	3.5	3.5	3.5	3.8	2.9	G	3.5	3.6	4.0	4.3	2.9	3.6	2.4	E	2.4	2.9	2.9	
22	2.5	3.0	3.0F	2.5	3.0	2.7	3.2	2.8	4.5	3.8	3.9F	G	G	G	G	2.7	2.9	2.7Y	4.2F	4.4F	4.4	3.4	3.2	2.5	
23	E	E	2.4	2.5	3.2	2.3	3.0	2.5	3.7	5.5	5.0	G	3.8	G	G	3.6	3.9	2.9	5.9	6.5	4.5	4.5	3.9	3.5F	
24	2.9	2.0	2.9Y	2.2Y	2.0Y	2.1	2.4	3.0F	3.2F	3.8	5.0	4.8	3.6	4.5	3.7	4.6	4.5	2.9	3.2	2.6	3.0	2.5	3.0F	2.5F	
25	1.9	2.8	2.5	2.5F	2.8	3.0	2.6	3.2	4.0	4.5F	4.3	5.5	5.5F	4.2F	4.3	3.6	4.0F	4.5F	4.0F	3.0F	3.0F	3.0	4.3F	3.0	
26	3.3F	2.9	3.0F	3.6F	3.5F	2.7F	2.5F	G	3.6	3.0	4.0	3.5Y	3.7	3.0	2.9	3.2	4.5	3.5	3.0	4.5	2.6F	3.5F	3.0	3.0	
27	3.2	2.6	2.5Y	2.9Y	2.5Y	2.5	1.8	2.8	3.5	4.0	4.0	G	G	G	G	3.0	4.0F	3.0F	3.0F	2.7	2.0	E	E	E	
28	E	2.5F	2.8	2.5	2.5Y	2.9Y	C	C	4.2	C	5.5	6.5	5.5	3.7	4.0	4.0	3.6	3.0	3.2	2.6	2.5	2.9	2.3	2.6	
29	2.5	3.0	4.7	2.5	3.5F	2.5	2.0	G	4.3	3.7	4.3	6.5	5.3	4.7	4.3F	4.0F	3.0	2.9	4.2	4.0	3.0	3.0	4.2Y	5.2	
30	2.8	3.8	2.5	2.4	2.7	2.6	B	3.0	4.5	5.5	7.0	4.9	5.5	4.0	4.5	7.5	10.0	9.0Y	4.5	5.7	5.6	5.5	3.0	3.0	
31	5.7	4.5	5.0F	2.6	C	C	C	C	C	4.6	4.5	4.4	7.0	4.5	G	3.5	3.0	2.7	2.4	E	E	E	3.7	3.0	
Mean Value	3.2	3.2	3.0	2.7	2.8	2.7	2.9	3.4	4.3	4.7	4.9	4.9	5.2	4.7	4.2	4.2	4.2	4.2	3.7	3.7	3.6	3.5	3.7	3.4	
Median Value	2.6	2.8	2.8	2.5	2.6	2.5	2.6	3.0	4.0	4.0	4.5	4.5	4.1	3.9	3.7	3.9	4.0	3.9	3.5	3.0	3.0	3.0	3.0	3.0	
Count	30	31	29	29	28	28	25	27	28	29	31	29	29	31	30	31	31	31	31	31	31	31	31	31	31

fEs

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual  Automatic

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

Lat. 35° 42.4' N  
Long. 139° 29.8' E

Kokubunji Tokyo

IONOSPHERIC DATA

Oct. 1953

(M3000)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	2.6	3.2	3.2	3.0	3.0	2.9F	3.2P	3.7	3.6	3.5	3.3	3.2P	3.4	3.2	3.0	3.1	3.3P	3.5P	3.5P	3.5	3.0P	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.1F	3.5	3.1	3.6P	3.6	3.6	3.6	3.3	3.3	3.1	3.1	3.3	3.3	3.3	3.5	3.5	(3.3)A	3.1	3.0	3.0F	2.9F	
3	3.0P	3.0	3.0	2.9	3.0	2.9	3.4P	3.6	3.5	3.5	3.2	3.4	3.4	3.4	3.4	3.6	3.4	3.5	3.5	3.3	B	3.1P	3.0P	(3.0)B	
4	3.0	3.1	(3.4)B	3.6	3.5F	F	3.4P	3.5P	3.6P	3.5	3.4	(3.3)F	3.3	3.5	3.2P	3.2	3.3	3.2	3.4P	3.4	3.1	3.1	3.0	2.9	
5	3.1	3.0P	3.1	3.1	3.2	3.2	3.5	3.5	3.5P	3.6	3.6	3.6	3.5	3.3	3.1	3.3	3.3	3.3	B	3.5	3.4P	3.1	3.1	3.3P	
6	3.1F	3.2	3.2	3.2	3.6	3.3	B	(3.7)F	3.6	3.7	3.4	3.1P	3.3	3.3	2.9H	3.2	3.3	3.5	3.3P	3.4	3.2	3.5	3.1	3.1	
7	2.9P	3.0	2.9	3.1	3.4P	3.2	3.6P	3.5	3.5	3.6	3.3	3.3	3.2	3.4	3.1	3.1	3.4	3.5P	3.4	3.1	3.0	BF	B	3.2	
8	3.0	3.1	3.0	3.1P	3.2	3.1	3.3	3.5P	3.5	3.3	3.3	C	C	3.6	3.3	3.3	C	B	3.3P	3.3P	3.1	3.2	(3.3)T	3.0	
9	3.0	3.1	C	C	C	C	C	C	C	C	(3.1)J	3.4	3.4	3.3H	3.3	3.3	3.4	(3.4)A	3.3	(3.2)A	3.1	3.1	3.2	3.0	
10	2.9	2.9	3.1	3.1	3.1	3.2	3.4P	3.5	3.5	3.6	3.3	3.3	3.4	3.2	3.3	(3.4)J	3.6	3.6	3.4	3.1	3.1	2.9P	3.0	3.1	
11	3.1	3.2	3.2	3.2	3.5	3.1	3.5	3.5	(3.4)J	3.6	3.4	3.4	3.5	3.3	3.5	3.5	3.5	3.5	3.4	3.6	3.3	3.2	3.0	3.1	2.7F
12	AF	(2.9)F	2.8F	3.5	3.3F	3.0F	3.6	3.6	3.6	3.3	3.3	C	C	3.5	3.2	3.3	3.5	3.5	3.5P	3.4	3.2	(3.2)A	3.0	2.8	(3.0)F
13	3.1F	(3.1)A	3.1F	3.5F	3.1F	3.7	3.6	3.7	3.7	3.6	3.4	3.3	3.4	3.3	3.4	3.4P	3.5	3.5	(3.4)A	3.4	3.2	3.1	3.0	2.9F	2.8F
14	3.1	3.2	3.1	A	A	3.3P	3.4	3.4	3.5	3.6	3.5	3.6	3.3	3.4	3.3	3.4P	3.5	3.5	3.7	3.1	3.1	3.1	3.1	3.1	
15	2.9F	3.2	3.2	3.2	3.3	3.7	3.7	3.7	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.4	3.5	3.4	3.1	3.0P	(3.0)K	
16	3.0K	(2.8)K	2.7K	2.7K	3.0K	(3.4)K	3.7K	3.5K	3.3K	3.3K	2.9K	BK	BK	BK	3.4K	3.3K	3.3K	BK	3.4K	3.1K	BK	3.1K	AK	AK	
17	C	AK	C	C	C	C	C	C	C	C	3.1K	(3.2)K	3.3K	3.2K	3.4K	3.5K	3.4K	3.4K	3.2K	3.2K	3.2K	3.5K	3.3K	3.7K	(3.1)K
18	2.5K	2.6K	2.7K	F	3.2K	3.4K	3.3K	3.3K	3.3K	3.2K	3.1K	(3.2)K	3.3K	3.1K	3.1K	3.4K	3.5K	3.6K	3.2K	2.8K	3.2K	2.8K	3.0K	(2.8)K	
19	2.6K	2.7K	2.7K	(2.8)K	3.0K	2.9K	3.1K	3.4K	2.9K	3.3K	3.2K	3.4K	3.1K	3.5K	3.2K	3.5K	3.7K	3.5K	3.3K	3.2K	3.2K	3.5K	(3.2)A	2.9K	2.9K
20	(2.8)K	3.0K	2.9K	3.2K	3.1K	2.8K	3.4K	(3.7)K	3.4K	3.7K	3.2K	3.4K	3.3K	3.4K	3.3K	3.6K	3.6K	3.8K	3.3K	3.3K	3.0K	3.3K	3.0K	3.3K	2.8K
21	(3.0)K	2.9K	3.1K	3.3K	3.6K	(3.6)K	3.5K	3.6K	3.2K	3.3K	3.5K	(3.6)K	3.6K	3.3K	3.4K	3.4K	3.6K	3.7	3.5	2.7	2.8	2.9	3.1	3.0	
22	2.9	3.0P	2.9	3.2	3.2	3.1	3.4	3.5	3.6	3.2	3.5	3.2	3.5	3.3	3.7	3.6	3.7	3.6	3.4	A	2.9	(2.9)A	2.9	2.9P	
23	3.0F	3.1F	3.1F	(3.1)F	3.1F	(3.0)F	3.4	3.5	3.4	3.6	3.2	3.4P	3.5	3.4	3.4	3.7	3.6	3.5	A	A	2.9	(2.9)A	2.9	2.9P	
24	2.8F	2.8F	2.8	3.1	3.0	3.3	3.3P	3.5	3.7	3.5	3.1	3.3P	3.3	3.3	3.4	3.3	3.5P	3.4	3.4	3.2	3.1	3.0	3.0	2.9	
25	3.0	2.8	2.9	2.9	3.7P	(3.6)A	3.4	3.3	3.3	3.5	3.4	3.4	3.5	3.5	3.2	3.3	3.5	3.3	3.4	3.3	3.1	3.0	F	F	
26	2.8F	2.8F	3.2F	3.0	3.5F	3.0F	3.0	3.7	3.4	3.5P	3.4	3.2	3.4P	3.2P	3.5	3.5	3.5	3.5	3.5	(3.4)A	3.2	(3.2)F	3.2	3.2	
27	3.1	3.0	3.0F	3.1	3.4	3.1	3.3	3.5	3.7	3.5P	3.3	3.4	3.1	3.5P	3.5	3.4	3.4	3.4	3.1	3.2	2.9	3.1	3.1	2.9	
28	2.9	2.8	3.0	3.2	2.9	2.9	C	C	3.5P	(3.4)C	3.4	3.2	3.3	3.4	3.1	3.7	3.5	3.6	3.1	3.3	3.1	3.0	3.1	2.9	
29	2.8	3.0	3.0	3.1F	3.5	3.3	3.3	3.7	3.4	3.4	3.5	3.5	3.4P	3.5	3.4	3.4	3.5	3.4	(3.2)A	3.1	3.4	3.3	3.4	3.0	
30	3.0	3.0	3.0	3.0	3.1F	3.0	3.6	3.5	3.3	3.2	3.3P	3.5	3.5	3.5	3.3	3.5	(3.5)A	3.5	3.4	A	A	A	A	3.0F	
31	(3.0)F	3.0F	(3.1)F	3.2F	C	C	C	C	C	B	3.4P	3.4P	3.4	3.4P	(3.4)P	3.6	3.6	3.5	3.3	3.4P	3.5P	3.1	2.9	(2.9)F	
Mean Value	3.0	3.0	3.0	3.1	3.3	3.1	3.4	3.5	3.5	3.5	3.3	3.4	3.4	3.4	3.3	3.4	3.5	3.5	3.4	3.2	3.1	3.1	3.1	3.0	
Median Value	3.0	3.0	3.0	3.1	3.2	3.1	3.4	3.5	3.5	3.5	3.3	3.4	3.4	3.4	3.3	3.4	3.5	3.5	3.4	3.3	3.1	3.1	3.1	3.0	
Count	29	30	29	27	27	27	27	27	28	29	31	28	28	31	31	31	30	28	29	29	28	29	27	29	

Sweep 1.0 Mc to 1.7.2 Mc in 2 min  Manual  Automatic

**IONOSPHERIC DATA**

fminF

Oct. 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	1.8	2.0 <sup>A</sup>	1.2	1.4	1.2	1.4	1.7	2.8	3.2	[3.4] <sup>A</sup>	3.5 <sup>A</sup>	3.3	3.3 <sup>A</sup>	3.3	3.2	3.3	3.7 <sup>A</sup>	[3.5] <sup>A</sup>	3.3 <sup>A</sup>	1.9	1.5	1.5	1.5	1.4
2	1.5	E	E	E	E	1.0	1.8	2.5	2.7	3.3	3.5	3.3	3.4	3.4	3.3	3.5	A	A	A	A	1.5	1.9	1.5	1.8
3	1.5	1.6	1.4	1.4	1.0	E	2.5	2.5	3.0	4.1 <sup>A</sup>	6.0 <sup>A</sup>	5.0 <sup>A</sup>	7.5 <sup>A</sup>	4.0 <sup>A</sup>	5.0 <sup>A</sup>	3.3	2.5	1.7	[1.7] <sup>A</sup>	1.7	1.7	1.5	1.7	2.0 <sup>A</sup>
4	1.7	1.7	1.7	2.0 <sup>A</sup>	[1.5] <sup>A</sup>	1.0	2.0	2.7	2.8	3.3	3.3	3.3	3.5	3.5	3.3	3.3	2.5	1.7	1.5	1.8	2.0 <sup>A</sup>	1.7	1.6	1.6
5	1.5	1.6	1.5	E	E	E	1.6	2.3	2.7	3.1	3.3	3.3	3.3	3.3	3.3	3.0	2.5	2.3	A	A	A	1.9	1.7	1.7
6	1.7	1.5	1.9	1.1	1.5	1.7	1.7	2.5	2.7	3.4	4.4 <sup>A</sup>	3.5	3.4	3.5	3.3	3.3	2.6	[2.0] <sup>A</sup>	1.4	[1.4] <sup>A</sup>	1.5	2.2 <sup>A</sup>	1.6	1.7
7	1.5	1.7	1.5	1.6	1.1	E	1.8	2.5	2.9	3.2	5.0 <sup>A</sup>	3.3	3.3	3.5	3.0	3.0	2.3	2.2 <sup>A</sup>	2.2 <sup>A</sup>	2.2 <sup>A</sup>	2.3 <sup>A</sup>	1.7	1.4	1.7
8	1.4	1.0	1.2	1.4	1.3	1.1	1.7	2.2	2.7	3.3	3.3	5.0 <sup>A</sup>	3.5	5.0 <sup>A</sup>	4.0 <sup>A</sup>	4.1 <sup>A</sup>	2.5 <sup>F</sup>	1.9	[2.2] <sup>A</sup>	2.4 <sup>A</sup>	2.2 <sup>A</sup>	1.7	1.5	1.6
9	1.7	1.5	C	C	C	C	C	C	C	C	3.3	3.3	3.3	3.3	3.1	2.8	2.3	[2.6] <sup>A</sup>	3.0 <sup>A</sup>	[2.4] <sup>A</sup>	1.7	1.6	2.2 <sup>A</sup>	1.9
10	1.5	2.0 <sup>A</sup>	1.0	E	1.3	1.0	1.6	2.4	3.0	2.8	3.2	4.0 <sup>A</sup>	3.4	3.5	3.2	2.9	2.7	2.8 <sup>A</sup>	1.9	3.0 <sup>A</sup>	3.5 <sup>A</sup>	2.2 <sup>A</sup>	2.9 <sup>A</sup>	2.4 <sup>A</sup>
11	2.4 <sup>A</sup>	1.5	1.8	1.5	[1.3] <sup>A</sup>	1.1	2.0	2.3	2.7	[3.4] <sup>A</sup>	4.6 <sup>A</sup>	3.5	3.6	3.5 <sup>A</sup>	3.2	3.8 <sup>A</sup>	3.8 <sup>A</sup>	2.5 <sup>F</sup>	2.0 <sup>A</sup>	1.5	1.6	1.7	A	A
12	3.3 <sup>A</sup>	A	A	1.9	E	1.2	2.4	3.4	4.4 <sup>A</sup>	3.4	4.2	C	C	3.4	3.4	2.9	2.4	1.7	A	A	A	2.3 <sup>A</sup>	2.3 <sup>A</sup>	[2.3] <sup>A</sup>
13	2.3 <sup>A</sup>	[2.0] <sup>A</sup>	1.7	1.5 <sup>A</sup>	1.4	1.3	2.4	2.4	3.0	3.3	3.3	3.9 <sup>A</sup>	3.7	6.2 <sup>A</sup>	5.2 <sup>A</sup>	3.5 <sup>A</sup>	3.5 <sup>A</sup>	A	A	A	A	1.5	1.5	1.5
14	[1.8] <sup>A</sup>	2.2 <sup>A</sup>	1.3	A	2.1 <sup>A</sup>	2.5	2.4	2.4	2.8	3.9 <sup>A</sup>	4.0 <sup>A</sup>	4.0 <sup>A</sup>	3.9 <sup>A</sup>	3.9 <sup>A</sup>	3.3	3.3	2.3	2.2	[1.8] <sup>A</sup>	1.4	2.2 <sup>A</sup>	1.7	1.6	1.4
15	1.4	1.3	1.7	E	E	E	1.5	2.4	3.3 <sup>A</sup>	3.6	3.4	3.4	3.8	3.5	3.3	2.7	2.3	[2.2] <sup>A</sup>	2.1 <sup>A</sup>	1.5	1.5	1.6	1.8	1.9
16	1.9	1.4	1.8	1.7	E	E	1.7	2.2	4.2 <sup>A</sup>	3.6	3.3	3.4	3.3	3.5	<4.0 <sup>C</sup>	A	2.4	2.9 <sup>A</sup>	[2.2] <sup>A</sup>	1.5	1.5	1.7	A	A
17	C	A	C	C	C	C	<2.9 <sup>C</sup>	C	C	2.9	2.9	[3.2] <sup>C</sup>	3.4	3.4	3.3	2.8	2.6	[2.0] <sup>A</sup>	1.3	1.4	1.4	1.3	1.3	1.5
18	1.6	1.0	E	E	E	AF	A	2.5	2.9	3.2	3.0	3.3	4.0 <sup>A</sup>	3.3	2.9	2.7	2.5	1.8	2.3 <sup>A</sup>	1.9	1.5	1.5	1.5	1.5
19	1.4	1.7	1.2	1.0	1.1	E	1.6	2.4	3.5 <sup>A</sup>	3.2	3.3	3.5 <sup>A</sup>	3.4	3.3	3.2 <sup>A</sup>	3.2 <sup>A</sup>	2.9 <sup>AF</sup>	2.2	1.9	1.8	2.9 <sup>AF</sup>	2.2 <sup>A</sup>	2.5 <sup>A</sup>	1.6
20	1.5	1.4	E	E	1.1	1.3	1.7	2.1	5.0 <sup>A</sup>	3.9 <sup>A</sup>	4.4 <sup>A</sup>	3.8 <sup>A</sup>	3.5	[3.4] <sup>A</sup>	3.4	2.6	2.9	2.3	[2.0] <sup>A</sup>	1.6	1.4	2.6 <sup>A</sup>	1.4	1.5
21	1.3	1.0	E	AF	1.5	[1.8] <sup>A</sup>	2.2	2.4	[2.9] <sup>A</sup>	3.4	3.3	3.3	3.4	3.4	3.5	2.8	3.3 <sup>A</sup>	1.5	2.6 <sup>A</sup>	1.5	1.3	1.5	1.5	1.5
22	1.3	1.4	1.3	1.4	1.5	1.3	[1.8] <sup>A</sup>	2.2	3.0	2.8	3.0	3.5	3.1	3.3	3.1	2.6	2.3	1.5	[1.7] <sup>A</sup>	1.9	[2.0] <sup>A</sup>	2.0 <sup>A</sup>	2.0 <sup>A</sup>	2.0 <sup>A</sup>
23	1.5	1.0	E	1.0	1.0	1.0	1.6	2.3	2.5	3.0	3.5	3.0	3.5	3.3	3.2	3.1	3.0	1.8	A	A	2.0 <sup>A</sup>	[2.1] <sup>A</sup>	2.2 <sup>A</sup>	1.5
24	1.4	1.3	E	E	1.0	E	1.4	2.1	2.5	2.9	4.0 <sup>A</sup>	3.7	3.2	3.5	3.2	3.8 <sup>A</sup>	3.7 <sup>A</sup>	[3.1] <sup>A</sup>	2.5 <sup>A</sup>	1.9	2.2 <sup>A</sup>	1.6	1.5	1.5
25	1.2	1.4	E	E	1.2	[1.4] <sup>A</sup>	1.5	2.3	A	A	3.3	3.5	3.5	3.3	2.9	2.8	2.7 <sup>A</sup>	2.7 <sup>A</sup>	2.3 <sup>A</sup>	1.6	1.5	1.5	1.5	1.5
26	1.5	1.3	1.5 <sup>AF</sup>	2.0 <sup>AF</sup>	[1.6] <sup>A</sup>	1.2	1.4	2.2	2.4	3.2	3.5	3.2	3.2	3.5	3.0	3.0	3.5 <sup>A</sup>	2.2	2.2 <sup>A</sup>	[1.9] <sup>A</sup>	1.6	[1.6] <sup>A</sup>	1.5	1.8
27	1.7	1.1	E	E	E	E	1.5	2.5	2.9	2.8	3.2	3.3 <sup>B</sup>	3.2	3.3	3.1	2.7	2.6	[2.0] <sup>AF</sup>	1.5	1.6	1.5	1.4	1.4	1.5
28	1.4	1.0	E	1.0	E	1.1	C	C	2.7	C	<5.0 <sup>C</sup>	4.1 <sup>A</sup>	3.5	2.9	2.8	2.5	[2.3] <sup>A</sup>	2.1	2.5 <sup>A</sup>	1.8	1.5	1.5	1.5	1.5
29	1.5	1.4	1.4	1.4	E	1.2	1.4	2.4	2.4	3.2	3.4	3.5	3.8	3.4	3.0	3.1 <sup>A</sup>	2.5	1.5	[2.2] <sup>A</sup>	2.9 <sup>A</sup>	2.5 <sup>A</sup>	2.1 <sup>A</sup>	2.1 <sup>A</sup>	2.3 <sup>A</sup>
30	1.9	1.7	1.6	1.5	1.9	E	1.4	2.2	[3.6] <sup>A</sup>	5.0 <sup>A</sup>	4.4 <sup>A</sup>	3.1	4.9 <sup>A</sup>	[4.4] <sup>A</sup>	3.8 <sup>A</sup>	5.5 <sup>A</sup>	[5.2] <sup>A</sup>	5.0 <sup>A</sup>	3.4 <sup>A</sup>	A	A	A	A	1.6
31	1.6	1.4	E	1.0	C	C	C	C	C	3.5	3.5	3.5	6.0 <sup>A</sup>	3.4	2.8	2.5	[2.0] <sup>A</sup>	1.5	1.5	1.5	1.5	1.4	1.6	[1.6] <sup>AF</sup>
Mean Value	1.7	1.5	1.5	1.4	1.3	1.3	1.8	2.4	3.1	3.4	3.4	3.6	3.7	3.6	3.4	3.2	2.7	2.2	2.1	1.8	1.8	1.8	1.7	1.7
Median Value	1.5	1.4	1.2	1.1	1.1	1.1	1.7	2.4	2.9	3.3	3.4	3.5	3.4	3.4	3.2	3.0	2.6	2.2	2.2	1.8	1.6	1.6	1.7	1.6
Count	30	29	28	27	27	27	26	27	27	28	30	30	30	31	30	30	30	30	29	26	25	28	30	29

fminF

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>minE</sub>

135° E Mean Time

Oct. 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	1.5	1.0	E	E	1.0	1.0	1.3	1.4	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.3	1.5	1.5	1.5	1.6	1.5	E	E	E	
2	E	E	E	E	E	1.4	1.4	1.4	1.4	1.4	1.3	1.5	2.2	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	
3	1.7	1.0	1.0	E	E	1.5	1.4	1.3	1.4	1.4	1.4	1.5	2.2	1.4	1.6	1.4	1.4	1.2	1.5	1.4	1.7	1.7	E	1.6	
4	1.5	1.0	1.1	E	E	1.0	1.3	1.4	1.4	1.3	1.3	1.4	2.2	1.4	1.4	1.4	1.5	1.5	1.6	1.4	1.5	1.5	E	E	
5	1.9	1.0	E	E	E	E	1.5	1.2	1.3	1.4	1.4	1.4	2.2	1.7	2.3	1.4	1.4	1.2	1.5	1.6	1.5	1.5	E	1.7	
6	1.5	1.5	1.0	1.0	1.5	1.0	1.5	1.5	1.4	1.2	1.3	1.5	1.5	1.4	1.4	1.2	1.4	1.5	1.5	1.6	1.5	1.4	1.5	1.5	
7	E	1.0	E	E	1.4	1.4	1.5	1.5	1.3	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.4	
8	1.4	1.0	1.0	E	E	E	1.4	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	E	
9	1.5	1.5	C	C	C	C	C	C	C	C	C	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.6	1.5	1.5	1.5	1.4	1.5	
10	1.5	1.4	E	E	1.0	E	1.5	1.5	1.2	1.4	1.4	1.5	1.5	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.2	1.5	1.5	1.5	
11	1.1	1.0	E	E	E	E	1.4	1.5	1.5	1.2	1.5	1.4	1.5	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.5	1.5	1.5	
12	1.6	1.0	E	E	E	E	1.5	1.4	1.2	1.4	1.5	C	C	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.6	1.5	1.5	1.5	
13	1.4	1.1	E	E	E	E	1.6	1.3	1.4	1.3	1.4	1.5	2.2	1.5	1.5	1.3	1.5	1.4	1.5	1.5	1.5	1.8	E	1.4	
14	1.5	1.0	E	E	E	E	1.5	1.5	1.5	1.4	1.6	1.5	2.2	1.8	1.4	2.2	1.4	1.4	1.4	1.5	1.3	1.4	1.4	1.4	
15	1.4	1.0	E	E	E	1.4	E	1.4	1.4	2.5	1.5	2.1	(2.1) <sup>B</sup>	2.1	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6	
16	1.4	1.0	E	E	1.4	1.7	1.6	1.4	1.4	1.4	1.4	2.2	1.8	2.2	(1.8) <sup>C</sup>	1.5	1.5	1.5	1.4	1.5	1.4	1.4	1.4	1.5	1.5
17	(1.4) <sup>C</sup>	1.4	C	C	C	C	C	C	C	1.4	1.4	(1.4) <sup>C</sup>	1.5	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.3	1.4	E	1.3	
18	1.6	1.2	E	E	E	E	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.2	1.3	1.4	1.4	1.5	1.5	1.6	
19	1.5	E	E	E	E	E	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.4	1.3	
20	1.3	1.0	E	E	E	E	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.7	1.3	1.7	1.5	
21	E	1.4	E	E	E	E	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.4	1.9	E	1.4	1.5	1.5	
22	1.2	E	E	E	E	E	1.3	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.4	1.3	1.5	1.5	
23	E	E	1.7	E	E	1.5	1.6	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.5	
24	1.4	1.0	E	E	E	E	1.7	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.3	1.3	1.3	1.3	1.3	1.5	1.5	
25	1.5	1.4	E	E	E	1.0	1.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.6	1.4	1.3	1.3	1.5	1.5	1.3	1.5	1.3	
26	1.4	1.4	E	E	E	E	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	
27	1.3	1.4	E	E	1.0	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.3	1.4	1.3	1.4	1.5	E	E	
28	E	1.4	E	E	E	E	C	C	1.4	C	<50 <sup>C</sup>	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.4	1.5	1.5	1.4	
29	1.5	1.0	E	E	E	E	1.5	1.5	1.4	1.5	1.4	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.3	1.4	1.4	1.4	1.4	1.5	
30	1.5	1.4	E	E	E	E	B	1.4	1.4	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.4	
31	1.3	1.0	E	E	E	C	C	C	C	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	E	E	E	1.4	1.5	
Mean Value	1.5	1.2	1.2	1.3	1.2	1.3	1.5	1.4	1.4	1.4	1.4	1.5	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.5	
Median Value	1.4	1.0	E	E	E	E	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.5	
Count	31	31	29	29	28	28	26	27	28	29	30	30	30	31	31	31	31	31	31	31	31	31	31	31	

K 11

Manual  Automatic

Sweep 1.0... Mc to 17.2 Mc in 2... min

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

# IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

## Kokubunji Tokyo

Oct. 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	40	100	60	60	90	100	60	80	60	70	80	80	50	70	70	80	50	70	70	80	50	70	60	50
2	60	60	80	70	60	80	80	70	60	60	60	70	40	70	70	40	80	60	80	80	80	100	90	80
3	80	50	70	70	60	70	90	80	60	60	50	50	40	40	50	50	50	50	60	50	80	60	70	80
4	70	50	70	50	50	80	80	80	40	100	50	100	50	50	90	70	90	100	80	80	80	80	80	70
5	60	80	70	60	90	70	70	90	80	60	50	50	50	50	80	60	70	70	60	60	80	80	60	40
6	40	40	50	60	60	80	60	60	60	40	60	70	60	60	70	50	80	50	70	70	80	60	80	70
7	80	90	80	80	60	100	100	60	100	40	60	70	60	70	70	100	90	60	60	80	70	80	80	70
8	70	60	70	90	50	60	80	50	70	70	70	60	60	60	60	60	60	60	50	60	50	80	70	80
9	50	50	80	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	60	70	90	80	100	80	90	80	60	40	100	70	50	60	60	60	50	70	70	90	60	70	70	80
11	80	90	60	60	60	90	60	40	40	50	50	50	60	80	50	60	60	50	50	60	50	40	60	70
12	AF	70	110	60	90	80	70	60	30	70	50	60	60	70	60	50	40	60	60	70	60	50	60	60
13	70	60	50	50	60	60	60	40	50	50	80	60	50	60	40	60	60	60	60	100	90	70	70	70
14	50	60	70	60	60	100	80	80	60	50	50	40	80	80	80	90	90	60	60	70	60	60	60	60
15	60	60	50	60	60	80	80	70	50	50	50	50	60	30	60	60	50	60	60	60	50	50	40	60
16	70	80	90	80	80	50	80	50	50	80	80	80	60	50	80	70	70	70	80	80	60	60	60	60
17	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
18	90	100	70	70	100	100	100	90	120	80	100	100	70	90	90	70	70	80	80	90	70	70	80	80
19	80	60	80	80	80	110	120	80	100	50	60	60	50	50	70	40	40	50	50	70	80	100	110	70
20	70	60	70	50	100	90	100	60	80	60	70	40	50	50	50	30	70	70	70	70	70	60	60	80
21	50	60	70	60	110	80	60	40	60	40	50	50	50	70	60	40	60	60	60	90	70	60	60	80
22	70	60	60	60	80	80	60	50	50	40	60	60	50	50	40	40	50	40	40	80	60	60	60	60
23	60	60	70	60	80	90	60	50	80	60	70	60	60	50	50	40	40	70	80	80	100	90	80	90
24	80	90	80	80	60	60	60	30	40	60	90	80	60	70	70	70	80	80	100	120	100	80	80	80
25	50	50	110	80	70	60	60	80	40	80	70	40	100	80	90	90	90	60	60	60	100	90	60	60
26	70	100	50	90	60	100	100	90	60	60	70	90	40	70	40	60	60	60	60	60	70	70	70	50
27	80	60	70	60	70	60	80	50	50	60	70	50	80	60	40	70	90	80	90	80	60	100	80	70
28	70	60	50	80	50	80	60	60	80	60	70	70	60	60	90	70	50	50	90	70	70	50	60	50
29	70	80	50	100	60	70	60	40	60	60	80	60	60	60	60	50	50	60	60	80	70	60	50	60
30	70	70	80	70	90	80	70	50	90	80	60	50	60	70	80	50	60	60	60	60	60	60	60	60
31	80	70	60	50	60	60	60	60	60	60	70	70	40	70	70	50	40	60	60	50	50	100	60	150
Mean Value	70	70	70	70	80	80	80	60	60	60	70	60	60	60	60	60	60	60	60	70	70	70	70	70
Median Value	70	60	70	60	70	80	70	60	60	60	70	60	60	60	60	60	60	60	60	70	70	70	70	70
Count	29	30	29	27	27	27	27	27	28	29	30	28	28	31	31	31	30	28	28	29	28	24	27	29

YPF2

Sweep 1.0 Mc to 17.2 Mc in 2 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

135° E Mean Time

foF2

Oct. 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	2.9 <sup>H</sup>	2.9 <sup>H</sup>	3.0 <sup>F</sup>	2.9	2.6 <sup>F</sup>	2.6 <sup>F</sup>	3.8	5.7	5.7	6.0	7.7	7.9	7.5	7.5	6.6	6.8	8.7	S	S	6.3 <sup>H</sup>	3.3	3.4 <sup>H</sup>	3.6 <sup>H</sup>	3.7	
2	3.5	3.5 <sup>H</sup>	3.2	2.9	2.2	2.6	4.0	7.1	6.0	6.8	6.2	7.9	9.2	8.9	9.3 <sup>P</sup>	9.0 <sup>P</sup>	8.2 <sup>J</sup>	7.2	(6.5) <sup>P</sup>	5.6	3.7	3.4	3.1	3.5 <sup>F</sup>	
3	3.2 <sup>F</sup>	3.2 <sup>F</sup>	(3.2) <sup>A</sup>	3.3 <sup>F</sup>	(3.2) <sup>F</sup>	3.2 <sup>F</sup>	3.4 <sup>F</sup>	5.7	6.9	7.5	7.3	7.3	8.3	9.1	8.3 <sup>J</sup>	9.1	9.0	8.9	8.8	5.2	(4.6) <sup>A</sup>	4.1	3.2	3.6	
4	3.5	3.7	3.7	2.6 <sup>F</sup>	2.2 <sup>F</sup>	2.2	3.5	6.0	C	C	C	C	C	C	C	C	C	C	10.1 <sup>J</sup>	6.2	3.1 <sup>H</sup>	3.4	3.7	3.7	
5	3.5	3.6	3.3	3.4	3.7	2.3	3.0	4.9	6.6	6.7	6.0	6.4	7.3	(7.8) <sup>S</sup>	8.2	(8.1) <sup>S</sup>	7.3	7.5	(6.9) <sup>P</sup>	3.5	3.1	3.2	3.1		
6	3.7	3.5	3.4	2.6	3.7 <sup>F</sup>	2.9 <sup>F</sup>	2.9	5.4	6.3	6.6	7.1	7.2	8.6	7.8	8.5	8.4 <sup>J</sup>	9.1 <sup>J</sup>	8.5	7.8 <sup>P</sup>	5.9	4.9 <sup>H</sup>	2.9	2.5	2.8	
7	2.9 <sup>H</sup>	3.1	3.1	[3.2] <sup>C</sup>	3.4	3.1	3.0	5.6	6.4	7.3	7.1	7.7	8.5	7.9	7.6	7.5	8.6	8.9 <sup>S</sup>	(9.0) <sup>S</sup>	5.9	3.9 <sup>H</sup>	3.8	3.7	3.0	
8	3.0	3.0	3.0	3.3	3.3	2.7	3.0	6.3 <sup>P</sup>	6.7	6.7	7.3	7.7	9.7	9.1	7.2	7.8	8.6	7.9	7.3	5.4	4.3	4.1	3.4 <sup>H</sup>		
9	3.4	3.2 <sup>H</sup>	3.2	3.8	3.4	2.8	3.1	6.2	6.7	8.8	8.3	7.8	9.8	8.1	7.2	6.4	7.4	7.2	7.3	4.7	3.9	4.3	3.6	3.4	
10	3.3	3.4	3.8 <sup>F</sup>	3.0	2.9	2.8	2.8	5.6	6.1	7.7	7.8 <sup>P</sup>	7.5	S	10.4 <sup>H</sup>	10.0 <sup>J</sup>	9.1	7.7	7.3 <sup>P</sup>	5.7	4.5	A	A	3.4	3.3	
11	3.3	3.3	3.3	3.4	3.1	2.5	3.0	5.0	7.5 <sup>P</sup>	8.2 <sup>J</sup>	7.5	A	8.8	10.3	(10.0) <sup>S</sup>	7.4	7.6	(7.4) <sup>S</sup>	(7.3) <sup>S</sup>	3.8	2.9	3.3 <sup>F</sup>	[3.6] <sup>A</sup>	3.9	
12	4.0 <sup>F</sup>	F	3.5 <sup>F</sup>	(4.3) <sup>P</sup>	3.9 <sup>F</sup>	3.2 <sup>F</sup>	3.4 <sup>F</sup>	4.9	6.6	7.9 <sup>F</sup>	7.8 <sup>J</sup>	9.7	10.3	(8.4) <sup>P</sup>	6.5	6.7	7.4	7.0	6.0	4.4	[4.0] <sup>A</sup>	3.5	[3.4] <sup>F</sup>	3.3	
13	3.8	3.6	3.3	3.2	3.3	2.4	2.8	4.8	6.7	7.4	6.6	6.2	8.2 <sup>S</sup>	9.8 <sup>S</sup>	8.8 <sup>H</sup>	8.4 <sup>J</sup>	7.4	[6.7] <sup>A</sup>	6.0	4.4	3.2	[3.3] <sup>A</sup>	3.4 <sup>F</sup>	3.9 <sup>F</sup>	
14	4.1 <sup>F</sup>	3.6	3.5 <sup>H</sup>	3.3	3.0	2.7	2.6	5.4	6.3	7.2	6.2	7.8	8.5	6.4	7.4	8.3 <sup>H</sup>	7.6	6.4	A	A	A	3.2 <sup>P</sup>	3.8	3.7	
15	3.8 <sup>H</sup>	3.6	3.2	3.1	3.0	2.7	3.0	5.3	C	C	C	C	C	C	C	C	C	6.4	5.7	4.2	3.5	3.2	3.3	3.2 <sup>K</sup>	
16	3.7 <sup>K</sup>	3.2 <sup>K</sup>	2.9 <sup>K</sup>	2.7 <sup>K</sup>	2.6 <sup>K</sup>	2.9 <sup>K</sup>	3.0 <sup>K</sup>	4.6 <sup>K</sup>	7.2 <sup>K</sup>	7.8 <sup>K</sup>	8.9 <sup>K</sup>	11.1 <sup>K</sup>	12.5 <sup>K</sup>	8.4 <sup>K</sup>	8.4 <sup>K</sup>	7.5 <sup>K</sup>	7.8 <sup>K</sup>	8.4 <sup>K</sup>	7.4 <sup>K</sup>	5.1 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	3.0 <sup>K</sup>
17	3.2 <sup>K</sup>	3.3 <sup>K</sup>	3.3 <sup>K</sup>	3.4 <sup>K</sup>	3.3 <sup>F</sup>	3.1 <sup>K</sup>	2.8 <sup>K</sup>	6.0 <sup>K</sup>	6.1 <sup>K</sup>	6.9 <sup>K</sup>	10.2 <sup>K</sup>	9.2 <sup>K</sup>	9.5 <sup>K</sup>	(10.6) <sup>P</sup>	10.4 <sup>K</sup>	8.4 <sup>K</sup>	7.7 <sup>K</sup>	(8.3) <sup>K</sup>	(8.1) <sup>K</sup>	(7.1) <sup>K</sup>	4.8 <sup>H</sup>	4.5 <sup>K</sup>	4.5 <sup>K</sup>	2.8 <sup>H</sup>	
18	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	5.8 <sup>K</sup>	7.0 <sup>K</sup>	7.0 <sup>K</sup>	(9.0) <sup>P</sup>	6.7 <sup>K</sup>	8.8 <sup>K</sup>	10.0 <sup>K</sup>	11.1 <sup>K</sup>	10.0 <sup>K</sup>	7.8 <sup>K</sup>	6.4 <sup>K</sup>	5.3 <sup>K</sup>	5.2 <sup>K</sup>	5.1 <sup>K</sup>	3.7 <sup>K</sup>	3.4 <sup>K</sup>	2.8 <sup>K</sup>	
19	2.9 <sup>K</sup>	3.0 <sup>K</sup>	2.8 <sup>K</sup>	2.7 <sup>K</sup>	2.6 <sup>K</sup>	3.0 <sup>K</sup>	3.0 <sup>K</sup>	(6.8) <sup>S</sup>	9.0 <sup>K</sup>	8.4 <sup>K</sup>	8.4 <sup>K</sup>	10.1 <sup>K</sup>	11.2 <sup>K</sup>	S <sup>K</sup>	S <sup>K</sup>	S <sup>K</sup>	7.3 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	3.2 <sup>K</sup>	3.1 <sup>K</sup>	3.3 <sup>K</sup>	
20	[3.3] <sup>A</sup>	3.3 <sup>K</sup>	3.8 <sup>K</sup>	3.5 <sup>K</sup>	3.1 <sup>K</sup>	2.4 <sup>K</sup>	3.0 <sup>K</sup>	5.6 <sup>K</sup>	5.5 <sup>K</sup>	7.4 <sup>K</sup>	S <sup>K</sup>	8.5 <sup>K</sup>	8.7 <sup>K</sup>	7.6 <sup>K</sup>	9.2 <sup>K</sup>	(9.4) <sup>S</sup>	9.6 <sup>K</sup>	6.8 <sup>K</sup>	4.7 <sup>K</sup>	3.1 <sup>K</sup>	[3.2] <sup>A</sup>	3.4 <sup>K</sup>	3.0 <sup>K</sup>	3.0 <sup>K</sup>	
21	3.1 <sup>K</sup>	2.8 <sup>F</sup>	3.0 <sup>F</sup>	3.2 <sup>P</sup>	3.4 <sup>F</sup>	2.5 <sup>K</sup>	2.4 <sup>K</sup>	5.1 <sup>K</sup>	7.6 <sup>K</sup>	(10.1) <sup>K</sup>	8.4 <sup>K</sup>	7.4 <sup>K</sup>	8.7 <sup>K</sup>	6.9 <sup>K</sup>	9.3 <sup>K</sup>	(10.7) <sup>S</sup>	(9.4) <sup>S</sup>	7.5	5.6 <sup>J</sup>	3.7	3.5	3.5	3.8 <sup>H</sup>	3.6	
22	3.1	3.0	3.0	3.2	2.7	3.1	4.0	5.9 <sup>J</sup>	8.1 <sup>J</sup>	7.2	[7.2] <sup>A</sup>	7.3	9.9 <sup>F</sup>	(9.1) <sup>P</sup>	9.4	8.5	7.0 <sup>J</sup>	5.8	5.0 <sup>H</sup>	3.7	2.9	2.5	2.7	2.8	
23	2.9	[3.2] <sup>A</sup>	3.6	3.0 <sup>F</sup>	3.5 <sup>F</sup>	2.5 <sup>F</sup>	2.8 <sup>F</sup>	5.5	6.1	7.9 <sup>S</sup>	6.8	7.5	8.6 <sup>J</sup>	7.8	8.5	8.8	6.7	5.8	5.9	3.3	2.9	2.8 <sup>F</sup>	[2.9] <sup>A</sup>	3.0	
24	2.6	3.1 <sup>F</sup>	3.0	3.3	3.3	3.1	2.5	5.7	6.1	6.4	7.6	8.6 <sup>J</sup>	9.7	9.9	9.6	9.8	8.3	6.3	5.2	3.3 <sup>H</sup>	2.9	2.9	2.8 <sup>H</sup>	3.0 <sup>H</sup>	
25	3.2 <sup>H</sup>	2.9	3.0	3.4	3.4	3.2	2.5	5.3	S	6.3	6.8	(7.7) <sup>S</sup>	9.1	5.9	6.6	6.8	5.5	6.0 <sup>H</sup>	5.1	4.4 <sup>H</sup>	3.3	2.6	2.7	2.9	
26	2.9	2.9	3.1	3.6	2.6	2.0	2.6	5.9	6.8	7.1	7.4 <sup>P</sup>	7.3	7.6	(9.2) <sup>P</sup>	9.2 <sup>P</sup>	8.5 <sup>J</sup>	6.4	5.3	5.2	4.1	3.3	3.5 <sup>F</sup>	[3.3] <sup>S</sup>	3.1	
27	3.1	2.7	2.8 <sup>H</sup>	2.8	4.1 <sup>P</sup>	2.2	2.5	(6.0) <sup>P</sup>	[6.3] <sup>A</sup>	6.6	7.4	6.9	7.6	9.7	10.1	(7.9) <sup>P</sup>	7.2 <sup>H</sup>	4.7	[4.2] <sup>C</sup>	3.8	3.1	3.1	3.2 <sup>J</sup>	2.9	
28	3.3	3.3 <sup>H</sup>	3.2	3.5	2.5	2.6	3.0	5.7	6.9	S	S	(8.0) <sup>P</sup>	8.7	9.2 <sup>J</sup>	8.3 <sup>J</sup>	8.3 <sup>J</sup>	5.8	5.2	4.8 <sup>H</sup>	3.1	3.2	3.1	3.5 <sup>H</sup>	3.6 <sup>F</sup>	
29	3.3 <sup>H</sup>	3.4 <sup>J</sup>	3.2 <sup>F</sup>	3.5	3.9	3.4	2.9	5.6	6.7	7.0	8.4 <sup>P</sup>	(8.5) <sup>S</sup>	S	9.2	(9.4) <sup>P</sup>	(8.0) <sup>S</sup>	6.2	5.0	3.8	4.3	4.3 <sup>J</sup>	4.2	3.7	3.6 <sup>H</sup>	
30	A	A	3.7	3.0	3.3	2.5	3.0	6.6	7.2	6.2	7.5	(9.8) <sup>P</sup>	10.4	6.7	7.0	7.5	7.4	7.5 <sup>P</sup>	5.4	3.6	3.5	3.7	3.7	3.5	
31	3.1	F	3.2 <sup>F</sup>	[3.6] <sup>A</sup>	(4.0) <sup>P</sup>	2.9 <sup>F</sup>	2.5 <sup>F</sup>	5.1	6.2	7.6	S	8.2	8.4	11.0 <sup>P</sup>	12.5	9.3 <sup>J</sup>	6.4	5.4	4.7	3.1	3.5	2.7	A	A	
Mean Value	3.3	3.2	3.3	3.2	3.2	2.7	3.0	5.6	6.6	7.3	7.6	7.9	9.0	8.8	8.7	8.3	7.6	6.8	6.2	4.6	3.6	3.5	3.3	3.3	
Median Value	3.3	3.2	3.2	3.2	3.3	2.7	3.0	5.6	6.6	7.2	7.4	7.8	8.7	9.1	8.6	8.4	7.6	6.9	5.7	4.4	3.5	3.4	3.4	3.3	
Count	29	27	30	30	30	30	30	31	28	28	26	28	27	29	28	28	29	28	27	28	27	29	28	30	

Sweep 0.8 Mc in 20.0 Mc in 1.5 min  Manual  Automatic

Y1

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

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Oct. 1953

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	380 F <sub>H</sub>	320 PF <sub>H</sub>	380 F	370	370 F	(390) JF	360	250	230	270	300	270	300	270	300	330	310	S	S	(230) J	(330) S	300 H	370 H	360
2	340	350 H	320	270	340	360	310	230	240	240	270	330	300	310	310 P	270 P	(240) J	260	(250) P	240	270	(300) A	320	330 F
3	(330) JF	360 F	[370] A	(370) JF	(370) JF	(370) JF	(370) JF	240	270	270	270	310	300	300	(300) J	300	270	300	250	A	A	A	410	410
4	[360] A	310	240 F	270 F	270 F	360	300	260	C	C	C	C	C	C	C	C	C	C	(240) J	240	350 H	360	340	350
5	360	370	360	330	270	320	310	230	250	240	240	320	300	(310) P <sub>S</sub>	300	(300) P <sub>S</sub>	270	240	S	(270) P	270	350	370	370 F
6	350	330	340	350	(300) JF	(270) JF	300	230	260	280	260	330	300	300	310	(300) J	(270) J	250	260 P	5 H	250 H	270	340	350
7	340 H	350	370	[330] J	310	260	310	250	250	260	300	300	310	310	300	300	310	270 P <sub>S</sub>	(240) P <sub>S</sub>	250	340 H	340	280	320 H
8	380	360	370	320	270	300	330	260 P	250	(270) J	300	310	310	310	300	300	280	280 P	270	300	310	320	270	320 H
9	360	360 H	380	370	320	280	300	300	260	260	280	310	270	270	270	270	280	280	240	280	300	270	280	330
10	370	360	300 F	320	270	270	350	260	260	360	270 P	330	S	300 H	(300) J	260	270	250 P	250	250	A	A	330	350
11	360	320	320	310	280	370	330	280	280 P	(250) J	260	A	340	270	(340) P <sub>S</sub>	260	270	(250) P <sub>H</sub>	(270) A	230	A	380 F	[380] A	(270) B
12	400 F	F	340 F	(320) JF	(280) F	(280) JF	(280) JF	260	270	(270) JF	(240) J	300	310	(270) P	260	300	280	270	260	250	(320) A	380	F	350
13	330	270	280	270	240	300	330	250	260	260	270	280	310 P <sub>S</sub>	(300) P <sub>S</sub>	270 H	(270) J	260	[260] A	250	280	320	A	A	380 F
14	370 P <sub>F</sub>	320	270 H	300	280	250	310	250	250	270	260	300	280	270	310	(300) J <sub>H</sub>	260	250	A	A	A	410 P <sub>S</sub>	340	350
15	350 H	300	270	310	280	270	320	250	C	C	C	C	C	C	C	C	C	C	270	250	260	330	370	370 K
16	350 F <sub>K</sub>	310 K	410 K	400 K	380 K	330 K	350 K	270 K	270 K	340 K	340 K	(330) J <sub>K</sub>	280 K	300 K	300 K	270 K	290 P <sub>K</sub>	(270) J	250 K	270 K	A	A	A	360 K
17	310 K	340 K	350 H	320 K	320 K	320 K	370 K	270 K	250 K	270 K	310 K	280 K	310 K	(310) P	280 K	290 K	260 K	(270) P	(270) P	(250) P <sub>S</sub>	(300) J <sub>K</sub>	370 P <sub>S</sub>	S	300 F <sub>H</sub>
18	C	C	C	C	C	C	C	C	250 P <sub>K</sub>	280 K	(270) J	300 P <sub>K</sub>	370 K	(300) J	(310) J	(270) J	250 K	280 K	270 K	270 K	280 K	280 K	310 K	360 H
19	400 F <sub>K</sub>	360 P <sub>K</sub>	430 K	430 K	380 K	330 K	400 K	(240) P <sub>S</sub>	(320) P <sub>S</sub>	280 K	270 K	270 K	360 K	270 K	S	S	240 K	A	A	A	A	A	A	A
20	A	A	A	250 K	310 F	300 K	370 K	250 K	240 K	290 P <sub>K</sub>	S	250 K	270 P <sub>K</sub>	290 K	310 K	(260) P <sub>S</sub>	280 K	(230) J	A	A	A	A	330 K	280 P <sub>K</sub>
21	330 K	(360) JF	(350) JF	(340) JF	(230) JF	480 K	320 K	300 K	260 K	(260) P <sub>K</sub>	240 K	270 K	(260) J	(260) J	250 K	280 P <sub>S</sub>	(240) P <sub>S</sub>	250	(240) J	240	340	350	300 H	310
22	320	350	340	310	270	280	240	(250) J	(250) J	[240] A	280	(270) P	(270) P	260	260	260	(230) J	230	250 H	230	340	280	350	350
23	390	[330] A	270	300 F	(270) JF	(270) JF	270 F	240	250	300 P <sub>S</sub>	260	310	(270) J	270	300	250	240	250	250	260	320	320 F	A	A
24	A	A	360	310	260	260	270	240	240	250	270	(280) J	300	280	270	260	260	230	230	250 H	340	340	300 H	360 H
25	380 H	370	340	320	250	280	320	250	S	280	250	(270) P <sub>S</sub>	250	260	270	250	250	250	250	260 H	340	340	320	340
26	330	320	320	310	270	[270] B	270	260	250	240	270 P	270	300	(270) P	(250) P	(250) J	230	230	260	270	320	280 F	[290] S	300
27	280	330	360 H	340	280 P	230	340	(300) P	[280] A	260	280	270	310	300	270	(270) P	250 H	230	[240] C	240	320	(280) J	(280) J	320
28	350	310 H	330	260	250	340	320	260	240	S	S	(260) P	360	(270) J	(240) J	230 J	210	250	250 H	240	310	270 H	(330) F	350 H
29	360 H	310 P <sub>K</sub>	330 F	350	280	270	280	250	240	260	(290) P <sub>S</sub>	S	280	(250) P	(240) P <sub>S</sub>	240	220	280	280	300	(310) J	240	270	350 H
30	A	A	320	270	280	300	310	240	240	230	260	(300) P	250	260	290	260	240	250 P	230	270	320	320	270	270
31	320	F	400 F	[360] A	(310) JF	270 F	250 F	260	250	280	S	270	270	280 P	270	(230) J	230	220	250	280	300	270	A	A
Mean Value	370	340	340	330	300	310	260	270	260	270	270	270	300	270	270	270	260	260	250	260	260	310	320	350
Median Value	350	330	340	320	290	300	270	280	270	280	270	300	300	270	260	270	260	250	250	260	260	330	320	350
Count	27	25	30	30	30	30	31	28	28	28	26	28	27	27	28	28	27	27	27	26	24	27	24	28

Sweep 0.8 Mc in 20.0 Mc in 1.5 min  Manual  Automatic

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

Y 2



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

Lat. 31° 12.6' N  
Long. 130° 37.7' E

# Yamagawa

## IONOSPHERIC DATA

135° E Mean Time

R'F2

Oct. 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	340 <sup>H</sup>	260 <sup>H</sup>	300 <sup>F</sup>	300	B	350 <sup>F</sup>	300	250	230	270	300	290	300	280	300	330	290	250	240	210 <sup>H</sup>	260	250 <sup>H</sup>	300 <sup>H</sup>	300	
2	310	300 <sup>H</sup>	270	260	310	330	250	220	250	260	250	320	290	290	300	260	250	250 <sup>A</sup>	240	230 <sup>A</sup>	260 <sup>A</sup>	270 <sup>A</sup>	290	300	
3	300	330	[340 <sup>A</sup> ]	350	300	340	310	230	250	270	260	300	290	300	300	300	290	270	240	A	A	A	(370 <sup>A</sup> )	390 <sup>A</sup>	
4	[340 <sup>A</sup> ]	300	240	220	240	280	250	240	C	C	C	C	C	C	C	C	C	C	240	220	210 <sup>H</sup>	300	270	300	
5	300	290	300	280	250	260	260	230	250	240	250	300	290	300	300	280	270	250	240	230	240	280	320	360 <sup>F</sup>	
6	310	280	280	310	290	280	270	220	240	280	260	310	290	280	300	280	260	250	240	230	230 <sup>A</sup>	250	A	340	
7	300 <sup>H</sup>	300	310	[280 <sup>F</sup> ]	260	220	270	240	240	260	290	290	280	280	300	290	290	250	240	250	250 <sup>H</sup>	300	240	250	
8	330	300	300	290	250	260	270	240	250	260	300	290	250	310	280	300	250	250	240	250	260	270	250	(270 <sup>H</sup> )	
9	300	300 <sup>H</sup>	300	300	250	260	250	300	250	270	260	260	290	270	280	270	270	270	260	230 <sup>A</sup>	240	240	250	300	
10	340 <sup>A</sup>	330 <sup>A</sup>	260	290 <sup>A</sup>	260	240	250	250	250	290	260	270	270	270	290	260	240	250	230 <sup>A</sup>	240	240	250	250	300	
11	310	290	280	260	240	330	300	250 <sup>A</sup>	250	250	260	[290 <sup>H</sup> ]	320	280	330	250	280	250	240	210	A	340	[320 <sup>A</sup> ]	300	
12	350	300	310	250	240	240	250	210	240	280	260	280	300	280	250	290	240	240	250	250	[300 <sup>A</sup> ]	340	370	350	
13	300	250	250	240	240	290	(310 <sup>H</sup> )	230	260	250	270	280	300	290	280 <sup>H</sup>	270	250	[250 <sup>A</sup> ]	250	270	(300 <sup>A</sup> )	A	A	350	
14	280	270	240 <sup>H</sup>	260	240	240	290	230	230	260	260	280	270	260	310	280 <sup>H</sup>	250	250	A	A	A	(350 <sup>H</sup> )	(280 <sup>A</sup> )	300 <sup>A</sup>	
15	300 <sup>H</sup>	240 <sup>A</sup>	250	260	250	250	280	240	C	C	C	C	C	C	C	C	C	250	230	240 <sup>A</sup>	240 <sup>A</sup>	250	310	290	340 <sup>K</sup>
16	300 <sup>K</sup>	270 <sup>K</sup>	380 <sup>K</sup>	370 <sup>K</sup>	350 <sup>K</sup>	280 <sup>K</sup>	350 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	300 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	280 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	A	A	(330 <sup>H</sup> )	
17	280 <sup>K</sup>	310 <sup>K</sup>	310 <sup>H</sup>	270 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	B <sup>H</sup> K	250 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	270 <sup>K</sup>	290 <sup>K</sup>	300 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	300 <sup>K</sup>	240 <sup>K</sup>	
18	C	C	C	C	C	C	C	C	240 <sup>A</sup>	250 <sup>A</sup>	250 <sup>A</sup>	260 <sup>A</sup>	320 <sup>A</sup>	290 <sup>A</sup>	280 <sup>A</sup>	280 <sup>A</sup>	240 <sup>A</sup>	240 <sup>A</sup>	260 <sup>A</sup>	250 <sup>A</sup>	240 <sup>A</sup>	A	A	290 <sup>H</sup>	
19	350 <sup>K</sup>	310 <sup>H</sup>	360 <sup>K</sup>	350 <sup>K</sup>	330 <sup>K</sup>	290 <sup>K</sup>	350 <sup>K</sup>	230 <sup>K</sup>	240 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	350 <sup>K</sup>	270 <sup>K</sup>	270 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	A	A	A	A	A	A	A	
20	A	A	220 <sup>A</sup>	270 <sup>K</sup>	260 <sup>K</sup>	310 <sup>K</sup>	270 <sup>K</sup>	220 <sup>K</sup>	230 <sup>K</sup>	250 <sup>K</sup>	290 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	260 <sup>K</sup>	300 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	220 <sup>K</sup>	230 <sup>K</sup>	(290 <sup>A</sup> )	(300 <sup>A</sup> )	300 <sup>K</sup>	250 <sup>H</sup>	330 <sup>K</sup>	
21	300 <sup>K</sup>	340 <sup>K</sup>	310 <sup>K</sup>	300 <sup>K</sup>	210 <sup>K</sup>	390 <sup>K</sup>	300 <sup>K</sup>	240 <sup>K</sup>	250 <sup>K</sup>	250 <sup>K</sup>	240 <sup>K</sup>	240 <sup>K</sup>	260 <sup>K</sup>	240 <sup>K</sup>	280 <sup>K</sup>	250 <sup>K</sup>	230 <sup>K</sup>	230	220 <sup>A</sup>	210	300	300	250 <sup>H</sup>	270	
22	310	300	300	270	270	260	230	240	230	240	250 <sup>H</sup>	280	280	270	250	250	220	210	250 <sup>H</sup>	200	300	250	320	310	
23	380	[320 <sup>H</sup> ]	250	270	250	230	250	220	240	250 <sup>H</sup>	250	300	280	270	290	230	240	240	240	(250 <sup>A</sup> )	(310 <sup>A</sup> )	250	A	A	
24	A	A	(350 <sup>A</sup> )	270	230	220	250	230	230 <sup>A</sup>	230	280	250	260	270	260	260	240	230	220 <sup>A</sup>	220 <sup>A</sup>	220 <sup>A</sup>	330	320	260 <sup>H</sup>	
25	320 <sup>H</sup>	340	300	280	230	250	300	240	250	250	250	270	250	260	290	250	250	250 <sup>A</sup>	220 <sup>A</sup>	230 <sup>H</sup>	270	300	290	300	
26	290	290	270	290	290	[270 <sup>B</sup> ]	250	240	250	240	260	270	290	280	250	240	230	220	220	220	300	250	240	280	
27	260	(310 <sup>A</sup> )	320 <sup>H</sup>	310	250	220	300	240	[240 <sup>A</sup> ]	240	250	260	300	290	260	260	240 <sup>H</sup>	230	[230 <sup>F</sup> ]	230 <sup>A</sup>	290	290	250	290	
28	300	270 <sup>H</sup>	280	240	230	310	290	240	240	230	[240 <sup>A</sup> ]	250	260	250	240	220	210	210	210 <sup>H</sup>	220 <sup>A</sup>	310	270	270	280	
29	260 <sup>H</sup>	280	300	280	250	230	250	230	240	250	250	250	260	260	250	240	230	210	220	260	300	230	260	310 <sup>H</sup>	
30	330 <sup>A</sup>	[300 <sup>A</sup> ]	260	260	250	290	280	220	230	230	260	290	240	250	280	240	230	220	210	230	260	260	230	240	
31	240	350	390	[320 <sup>A</sup> ]	260	240	240	210	220	260	260	(250 <sup>A</sup> )	260	270	250	230	220	200	230	230	250	240	A	A	
Mean Value																									
Min Value																									
Max Value	300	300	300	280	250	260	270	240	240	250	260	280	290	270	280	260	250	250	240	240	270	280	280	310	
Count	28	28	30	30	29	30	29	31	29	29	29	29	29	29	29	29	29	29	29	29	28	26	27	25	

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

IONOSPHERIC DATA

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

foF1

Oct. 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								Q	L	4.2	4.4	4.5	4.6	4.1	4.5	4.4	4.1	Q						
2								Q	Q	(4.0) <sup>L</sup>	L	L	4.5	[4.5] <sup>L</sup>	4.5	4.2	3.9	L						
3								Q	L	A	4.4	4.5 <sup>L</sup>	4.5	4.4	4.6 <sup>T</sup>	4.6	3.8	3.3						
4								Q	C	C	C	C	C	C	C	C	C	C						
5								Q	Q	L	Q	4.3	4.2	L	L	L	L	Q						
6								Q	Q	4.0 <sup>L</sup>	4.4	[4.4] <sup>L</sup>	4.4	4.6	L	L	4.3	3.9	Q					
7								Q	Q	4.3	4.5	4.6	4.6 <sup>H</sup>	4.3	4.5 <sup>H</sup>	4.0	3.7	Q						
8								Q	3.6 <sup>L</sup>	L	A	Q	A	4.8	4.2	L	L	Q						
9								L	Q	L <sup>H</sup>	4.4	4.6	4.5	L	A	4.1	3.9	A						
10								Q	Q	4.0	4.4	4.4	4.4	4.4 <sup>H</sup>	4.1	4.1	Q	Q						
11								Q	Q	Q	4.2	A	A	A	L	L	L	Q						
12								Q	Q	L	L	L	A	L	Q	3.9	Q	Q						
13								Q	Q	4.1	4.3	4.5	4.3	4.6	A	A	3.8	A						
14								Q	A	Q	L	A	4.3	4.3	4.6	S	L	Q						
15								Q	C	C	C	C	C	C	C	C	C	Q						
16								Q	Q	Q	L	4.3	4.8	4.0	4.1	4.2	3.8	3.2						
17								Q	Q	A	4.6	A	L	L	L	L	A	A						
18								L	A	4.0 <sup>L</sup>	4.1	L	L	4.4	[4.2] <sup>L</sup>	4.0 <sup>T</sup>	L	Q						
19								Q	A	3.8	L	L	4.5 <sup>L</sup>	4.5	4.2	4.2	Q	A						
20								Q	L	L	L	A	4.5	A	4.6	Q	A	A						
21								Q	Q	3.9	[4.0] <sup>L</sup>	4.2	4.1	A	L <sup>H</sup>	L	L	L						
22								A	Q	L	A	4.7	4.3	4.4	4.1	A	L	A						
23								Q	L	3.3	4.0	4.4	(4.6) <sup>L</sup>	4.3	4.1	3.8	3.8	Q						
24								Q	A	Q	4.0	[4.2] <sup>L</sup>	4.5	L	L	L	2.9	Q						
25								Q	L	L	4.0 <sup>H</sup>	4.4	4.2	[4.3] <sup>A</sup>	4.4	3.6	A	A						
26								Q	L	A	4.1	4.4	4.3 <sup>H</sup>	4.5	4.2	3.8	A	Q						
27								Q	A	A	4.0	4.2	4.6	[4.4] <sup>L</sup>	4.3	4.0	A	Q						
28								Q	Q	L	A	4.2	4.3	4.5	4.0	L	Q	Q						
29								Q	Q	3.7	[3.9] <sup>L</sup>	4.1	4.4	4.5	4.2	3.9	3.5	Q						
30								Q	Q	3.6	4.2 <sup>L</sup>	L	A	A	L	A	L	Q						
31								Q	Q	3.9	4.3	[4.4] <sup>A</sup>	4.4 <sup>H</sup>	4.3	4.4	L	L	Q						
Mean Value									3.6	3.9	4.2	4.4	4.4	4.4	4.3	4.1	3.7	3.3						
Median Value									3.6	4.0	4.2	4.4	4.4	4.4	4.2	4.0	3.8	3.2						
Count									1	13	19	19	23	20	19	18	11	2						

foF1

Sweep 0.8 Mc to 20.0 Mc in 1.5 min

Manual

Automatic

Y 4

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.6' N  
Long. 130° 37.7' E

f'F1

Oct. 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	220	220	210	250A	190	200	240	240	260	θ						
2								Q	Q	250	230	210	200	230	240	250	(250)A	240						
3								Q	250	[240]A	220	250A	260	(280)A	[260]A	250	240	240						
4								Q	C	C	C	C	C	C	C	C	C	C						
5								Q	Q	240	θ	210	250	220	210	250	240	θ						
6								Q	Q	250A	250	210	210	230	210	250	240	θ						
7								Q	Q	210	220	210	220H	200	200H	250	250	θ						
8								Q	230	240	A	Q	A	250	250	(260)A	240	θ						
9								280	Q	220H	230	240	240	A	A	240	250	A						
10								Q	Q	240	220	210	200	200H	210	250	θ	θ						
11								Q	Q	Q	240	A	A	230	290	240	250	θ						
12								Q	Q	250	250	240	(250)A	260	θ	250B	θ	θ						
13								Q	Q	220	250	240	240	A	A	A	250A	A						
14								Q	A	Q	250	A	A	230A	(280)A	s	A	θ						
15								Q	C	C	C	C	C	C	C	C	C	θ						
16								Q	Q	Q	240	220	250	250	250	240	250	250						
17								Q	Q	A	250A	(240)A	220	290	260	250	250	A						
18								230	[220]A	220	210	210	200	210	270	230	240	Q						
19								Q	A	230	240	200	200	250	220	230	θ	A						
20								Q	230	230	A	A	230	(250)A	270	θ	A	A						
21								Q	Q	230	240	210	230	[220]A	210H	250	230	A						
22								A	Q	230	[220]A	200	190	200	220	[230]	240	A						
23								Q	240	220	230	250	250	250	250	A	A	θ						
24								Q	A	Q	220	230	210	240	250	240	240	θ						
25								Q	240	210	230H	210	250	(240)A	240	200	A	A						
26								Q	230	[220]A	220	200	190H	200	230	230	A	Q						
27								Q	A	A	240	240	200	200	250	250	A	θ						
28								Q	Q	230	[220]A	210	210	220	220	220	Q	Q						
29								Q	Q	230	240A	230	200	220	220	240	230	Q						
30								Q	Q	190	220	240	A	A	240	(240)A	230	Q						
31								Q	Q	230	220	[230]A	240H	250	230	230	220	θ						
Mean Value								260	230	230	220	220	220	230	240	240	240	240						
Median Value								260	230	230	220	220	220	230	240	240	240	240						
Count								2	8	23	26	25	25	26	26	25	19	3						

Sweep 0.5 Mc to 20.0 Mc in 1.5 min  Manual  Automatic

Y5

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

Lat. 31° 12.6' N  
Long. 130° 37.1' E

Yamagawa

IONOSPHERIC DATA

foE

Oct. 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								2.0	2.6	2.8	3.0	A	A	3.0	3.1 <sup>H</sup>	2.8 <sup>H</sup>	2.6	2.2						
2								2.0 <sup>J</sup>	[2.4] <sup>A</sup>	2.8	3.0	3.1	3.2 <sup>H</sup>	3.2	3.0	2.9	2.6	1.9						
3								1.8	2.5	2.9	3.0	3.0	2.9	2.9	2.5	[2.4] <sup>A</sup>	2.3	2.2	1.3 <sup>J</sup>					
4								2.2	C	C	C	C	C	C	C	C	C	C						
5								2.0	2.4	2.9	3.0	3.1	3.0	3.0	3.0	2.9	2.6	2.1	1.7					
6								A	A	2.8	[3.0] <sup>A</sup>	3.2	3.0	A	3.3	3.0	2.7	AF						
7								1.9	2.4	2.6	2.8	A	B	3.2	3.0	[2.8] <sup>A</sup>	2.6	2.1						
8							1.4 <sup>J</sup>	A	A	2.3	A	A	A	A	2.8	A	A	2.0						
9								B	2.4	2.9	3.0	2.9	[3.0] <sup>A</sup>	3.1	3.0	2.9	A	A						
10								1.8	2.4	[2.8] <sup>A</sup>	3.1 <sup>J</sup>	3.2 <sup>J</sup>	A	A	3.2	2.7 <sup>J</sup>	2.7 <sup>J</sup>	2.1						
11								B	2.3	2.8 <sup>H</sup>	2.9	2.9	2.8	2.8	[2.6] <sup>A</sup>	2.4	2.4	A						
12								A	1.8 <sup>A</sup>	2.4	A	A	A	A	3.1	A	A	2.3	1.8					
13								A	A	A	3.0	3.0	[3.1] <sup>A</sup>	3.2	3.1	2.9	A	A						
14								2.2	[2.5] <sup>A</sup>	2.8	2.9	3.1	3.1	2.8	2.6	[2.4] <sup>S</sup>	2.2	A						
15								2.0	C	C	C	C	C	C	C	C	C	A						
16								A	A	A	A	A	3.1	[3.2] <sup>A</sup>	3.2 <sup>A</sup>	2.9	2.5	1.9						
17								A	2.6	2.6	2.9	[2.9] <sup>A</sup>	2.9	3.2	3.1	2.9	2.1 <sup>J</sup>	2.1						
18								1.9	2.3	2.6	[2.7] <sup>A</sup>	2.8	A	A	3.0	2.8	2.2	2.2						
19								B	AF	A	AF	2.9 <sup>J</sup>	A	A	2.8	[2.6] <sup>A</sup>	2.4	2.0						
20								1.8 <sup>J</sup>	2.2	A	A	A	A	A	A	A	A	A						
21								A	2.3	2.6	3.0	3.0	2.8	[2.9] <sup>A</sup>	3.0 <sup>H</sup>	2.5	A	A						
22								A	A	A	A	A	A	A	3.0	A	A	2.2						
23								1.7	2.1	2.3	2.6	3.0	A	A	2.9	2.7	2.4	1.9						
24								B	A	A	A	A	3.2	B	A	A	A	2.2						
25								1.9	2.3	2.5	2.7	3.1	3.1	3.2	2.9	2.7	A	A						
26								B	A	2.5	2.8	3.2	3.3	3.0	2.8	A	A	1.9						
27								AF	2.2 <sup>F</sup>	2.4	A	A	A	A	A	3.0	2.8	AF	A					
28								B	2.3 <sup>H</sup>	2.7	2.7	A	A	A	A	A	2.3	1.8						
29								B	2.2	2.5 <sup>J</sup>	2.9	[2.9] <sup>A</sup>	2.9	3.1	2.9	2.8	2.4	1.8						
30								A	A	2.6	2.7	A	A	2.6	A	A	A	A						
31								AF	2.6	A	AF	A	A	A	A	A	2.3	A						
Mean Value								1.4	1.9	2.3	2.6	2.9	3.0	3.0	2.9	2.7	2.4	2.0	1.5					
Median Value								1.4	1.9	2.4	2.6	2.9	3.0	3.0	3.0	2.8	2.4	2.0	1.5					
Count								1	13	20	22	19	11	15	18	23	20	18	18	2				

foE

Sweep 0.3 Mc to 20.0 Mc in 1.5 min

Manual

Automatic

Y6

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

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

K'E

Oct. 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								140	110	110	110	A	A	100	100H	[100]A	100								
2								140	[120]A	110	110	110	100H	100	100	100	100	100							
3								130	130	110	110	110	110	110	110	[110]A	110	120	B						
4								140	C	C	C	C	C	C	C	C	C	C							
5								130	120	110	110	100	110	110	110	110	110	120	B						
6								A	A	110	[110]A	110	110	110	100	110	100	AF							
7								B	120	110	110	[110]A	110	110	110	A	110	130							
8								A	A	110	A	A	A	A	A	A	A	120							
9								B	100	110	100	[100]A	100	100	100	100	A	A							
10								B	120	[120]A	110	110	A	A	A	110	110	110							
11								B	120	100H	110	110	110	110	[100]A	100	110	A							
12								A	120	A	A	A	A	A	A	A	110	110							
13								A	A	A	A	130A	[120]A	100	110	100	A	A							
14								140	[120]A	100	100	100	100	100	120	100	100	A							
15								100	C	C	C	C	C	C	C	C	C	C							
16								A	A	A	A	A	A	A	A	A	120	110	120						
17								A	110	110	120A	120	110	110	120	110	120	120							
18								120	110	110	[110]A	110	A	A	A	120A	130A	100	120A						
19								B	BF	A	AF	110	A	A	A	A	A	110	130						
20								B	110	A	A	A	A	A	A	A	A	A							
21								A	110	100	100	100	100	[100]A	100H	110	A	A							
22								A	A	110	110	A	A	A	120A	110	A	A	110						
23								120	110	100	100	100	A	A	A	120	110	110	120						
24								B	A	A	A	A	A	100	110	A	A	110							
25								B	110	110	110	110	110	110	110A	110A	130	A	A						
26								B	A	110	110	110	110	110	120	110	A	A	120						
27								AF	140	110	110	A	A	A	A	130	130	AF							
28								B	120H	130	100	A	A	A	A	A	A	110	140						
29								B	110	110	110	[100]A	100	100	110	100	110	120							
30								A	A	120A	120A	A	A	A	A	A	A	A							
31								AF	100F	A	AF	A	A	A	AF	A	A	100	A						
Mean Value								130	120	110	110	110	110	110	110	110	110	110	120						
Median Value								130	120	110	110	110	110	110	110	110	110	110	120						
Count								9	20	22	21	18	16	19	21	18	18	18	18						

Sweep 0.8 Mc to 2.0 Mc in 15 min  Manual  Automatic

Y7

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

IONOSPHERIC DATA

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

fEs

Oct. 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	E	E	1.2	1.0	2.0	E	E	G	3.0	G	4.2	4.6	4.0	G	G	G	3.2	3.7	3.6	3.8	2.3	2.3	1.8	2.4
2	E	E	E	E	2.6	2.0	2.2	G	3.4	4.3	4.2	G	4.2	G	4.5	4.4	4.4	3.3	4.6	5.4	2.4	3.5	3.7	2.7
3	2.5	3.0	5.8	2.4	2.6	1.6	2.7	G	4.0	5.8	4.5	4.6	5.2	7.4	5.0	3.6	4.0	3.0	G	6.0	7.8	3.6	5.6	4.4
4	5.0Y	3.2	2.8	2.4Y	E	1.8	2.0	2.9	C	C	C	C	C	C	C	C	C	C	2.6	3.1	2.4	2.9F	2.7	2.9
5	E	1.2	1.0	2.2	2.6	2.4	2.2	2.8	3.2	G	4.4	G	G	G	G	G	G	G	G	3.3	2.5	2.6	E	E
6	2.7	2.8	2.4	2.0	2.2	2.8	2.4	2.2	2.6	4.4	4.0	4.2	4.1	4.2	G	G	G	3.0F	3.2	3.4	4.7	4.3	3.7	3.4
7	2.0	2.2	1.8	C	E	1.8Y	E	G	G	3.8	3.9	4.1	G	G	G	4.2Y	G	G	4.2	5.7	3.4	3.1	2.7	E
8	2.1	1.8Y	2.0Y	2.4	2.4	2.6	G	2.8	3.4	3.2	4.5	3.6	4.4	3.8	G	3.4	2.6	3.1	3.2	3.0F	4.1F	2.7	2.2	3.0
9	2.5	2.0F	E	2.61	2.6	2.2	E	3.8	3.6	G	G	4.8	6.2	4.8	5.1	4.4	7.0	6.4	3.8	2.0	E	E	E	2.6
10	4.2	2.4	3.2	2.8	2.5	2.1	2.0	2.6	4.2	4.0	3.0	4.2	4.1	4.2	G	G	G	G	4.5	3.2	3.8	5.2	3.2	2.9
11	2.6	2.2	2.3	2.4	2.5	2.8	2.2	3.0	5.0	6.2	5.8	7.8	7.6	4.4	3.6	3.6	G	4.0	4.4	4.1	4.0	3.1	6.0	2.9
12	3.6F	2.3Y	E	E	E	E	E	2.2	G	2.8	2.6	4.0	7.0	5.4	3.2	3.4	3.2	G	4.1	4.3	4.2	2.6	3.6	4.0
13	3.0	2.2	2.0	2.2	2.4	2.6	2.8	2.8	5.8	5.8	5.2F	4.2	4.4	5.5	6.0	7.0	5.3	8.4	5.2	6.1	3.2	5.8	3.8	4.2
14	2.4	2.2	2.3Y	2.4	2.1Y	2.3	2.8	3.6Y	5.2	4.7	5.0	5.3	4.9	5.0	5.8	3.9Y	4.2Y	4.8	8.0	12.8	8.0F	3.8F	3.2	3.5
15	2.6	2.2	1.2	E	E	1.2	E	G	C	C	C	C	C	C	C	C	C	3.4	3.8	3.6	3.0	2.9	2.4	2.4
16	4.7	2.7	1.8	2.0	2.6	E	2.4	3.2	3.4	4.4	4.0	4.0	3.9	3.8	4.1	G	G	G	3.9	2.8	6.2	5.8	4.6	3.0
17	2.6	3.0	1.2	1.8	2.4	1.8	2.3	2.8	3.6	6.2	4.5	5.2	G	G	4.8	4.9	4.9	5.2	8.4	7.2	5.7F	3.0	2.4F	2.4
18	C	C	C	C	C	C	C	G	3.8	4.2	4.0	4.4	3.6	4.6	3.2	2.8	G	2.5Y	3.4	2.4	2.4	1.8	2.4	2.4
19	2.2	E	2.2	2.0	1.0	3.0	E	2.5Y	3.2F	4.4F	4.4F	3.8	4.2	4.2	3.4	3.5	G	7.4	6.6	8.8	7.4	3.8F	4.7F	4.2F
20	5.8F	5.2F	3.2	2.6	2.4	2.2Y	2.2	2.2	3.7	3.1	4.2	7.8	7.3	7.0	3.5	3.5	6.0	3.6	4.2	7.5	7.6	3.5	2.0F	2.1F
21	6.6	2.2	E	E	1.0	2.2	2.2	2.0	G	5.6	5.4	3.5	5.1	5.4	2.9	4.2	3.9	3.7	5.6	2.8	2.8	3.9	3.0	3.3
22	3.3	2.4	2.4	2.6	2.6	2.8	3.2	5.2	4.2	4.7	8.4	5.4	3.8	3.4	G	6.5	2.7	3.8	2.6	E	2.4	2.0	2.2	2.9
23	2.9	4.0	2.4	2.1	2.2Y	E	E	G	G	8.7	3.6	G	4.2	3.6	G	4.0	4.4	3.3	3.8	3.3	3.2	4.8F	4.6	4.5
24	3.0	4.1	3.0	2.4	2.3	1.0	E	G	4.4	2.2	3.0	3.6	3.8	3.2	3.0	4.4	2.4	3.6	2.0	2.8	2.8	3.1	3.6	2.8
25	2.3	2.2F	2.4	2.2	E	E	E	G	3.2	3.6	3.6	G	G	5.5	3.5	3.8	3.8	4.8	2.4	2.0	E	E	E	E
26	E	E	2.8	2.5	2.1	2.2	2.2	2.1	3.5	3.8	4.2	G	G	G	3.8	3.8	4.1	G	E	3.2	2.2	2.2	2.7	2.4
27	2.5	2.5F	2.2	E	E	E	E	2.5F	6.8F	5.0	6.4	6.0	4.0	5.0	3.4	5.0	5.0F	3.6	C	3.4	2.4	2.4	2.3	2.0
28	E	E	E	E	2.1	2.2	E	B	G	4.3	6.5	4.9	5.2	4.4	3.4	3.2	3.2	2.7	2.4	2.5	2.9	2.8	2.6	4.2
29	4.3	3.0	3.2	E	1.4	E	E	B	G	4.4	5.1	4.1	4.5	4.7	4.1	4.0	G	G	E	2.8	4.9	3.8	4.0	7.1
30	6.8	6.4	2.6	2.6	3.0	2.8	2.4	2.2	2.6	3.4	4.6	6.2	5.0	5.4	5.3	4.7	3.8	3.6	3.6	2.4	E	E	1.9	2.0
31	2.4	3.0	6.3	6.6F	5.8	3.4	2.8	2.7F	3.6F	4.6	6.8F	7.2	4.6	4.2F	5.4	3.9	3.7	2.6	2.4	2.3	2.2	2.2	7.4	4.6
Mean Value	3.2	2.8	2.5	2.5	2.4	2.3	2.4	2.8	3.9	4.3	4.6	4.9	4.8	4.7	4.2	4.2	4.1	4.1	4.1	4.2	4.0	3.3	3.4	3.3
Median Value	2.6	2.2	2.2	2.2	2.2	2.1	2.2	2.2	3.4	4.3	4.4	4.2	4.2	4.2	3.5	3.8	3.2	3.4	3.7	3.3	3.2	3.0	2.7	2.9
Count	30	30	30	2.9	30	30	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.1	3.1	3.1	3.1

Sweep  $\frac{0.5}{\text{sec}}$  Mc to  $\frac{2.0}{\text{sec}}$  Mc in  $\frac{1}{\text{sec}}$  min  Manual  Automatic

fEs

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

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

(M3000)F2

Oct. 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	2.7HF	2.7PFH	2.8F	2.8	2.8F	(2.6)F	2.7	3.6	3.8	3.3	3.2	3.1	3.2	3.4	3.1	3.0	3.1	S	S	(3.8)H	3.0	3.1H	2.8H	2.8
2	2.7	2.8H	3.0	3.3	3.0	2.8	3.1	3.8	3.5	3.4	3.3	3.0	3.2	3.0	3.1P	3.2P	(3.5)J	(3.5)J	(3.3)P	3.3	3.3	3.0	3.0	3.0F
3	(2.9)F	2.8F	(2.8)A	(2.8)JF	(2.6)PF	(2.9)JF	3.6	3.1	3.4	3.5	3.4	3.1	3.1	3.2	(3.2)J	3.2	3.2	3.3	3.4	3.5	[3.0]A	2.6	2.6	2.7
4	(2.7)A	3.1	3.3	3.5F	3.0F	2.8	3.1	3.5	C	C	C	C	C	C	C	C	C	C	(3.6)J	3.7	2.8H	2.7	2.9	2.9
5	2.8	2.7	2.9	3.0	3.3	3.0	3.0	3.6	3.4	3.7	3.3	3.1	3.2	(3.0)Ps	3.1	(3.0)Ps	3.4	3.4	S	(3.5)P	3.4	2.9	2.8	2.6
6	2.8	3.0	2.9	2.9	(3.1)F	(4.2)F	3.1	3.5	3.4	3.4	3.5	3.0	3.2	3.1	3.1	(3.1)J	(3.4)J	3.5	3.4P	SH	3.6H	3.1	3.0	3.0
7	2.9H	2.8	2.8	(3.0)C	3.2	3.4	3.1	3.5	3.5	3.5	3.2	3.2	3.3	3.0	3.0	3.1	3.1	3.2Ps	(3.4)Ps	3.6	2.9H	3.0	3.2	2.9
8	2.7	2.8	2.7	3.0	3.4	3.1	3.0	3.4P	3.5	(3.4)J	3.3	3.1	3.3	3.3	3.1	3.2	3.3	3.4P	3.4	3.1	3.2	3.1	3.2	3.0H
9	2.9	2.8H	2.7	2.5	3.2	3.2	3.1	3.1	3.4	(3.4)B	3.5	(2.7)S	3.3	3.4	3.3	3.4	3.3	3.3	3.5	3.3	3.1	3.3	3.0	3.0
10	2.7	2.8	3.2F	3.0	3.2	3.3	2.8	3.5	3.5	3.3	3.4P	2.9	S	3.2H	(3.1)J	3.4	3.5	3.7P	3.4	3.5	A	3.0	3.0	2.9
11	2.9	3.0	3.0	3.1	3.3	3.1	3.0	3.3	3.3P	(3.6)J	3.6	A	3.0	3.3	(3.0)S	3.3	3.3	(3.5)Ps	(3.2)Ps	3.5	3.1	2.6F	[2.6]A	2.6
12	2.6F	F	2.9F	(2.9)F	2.7F	(3.1)F	(3.2)F	3.4	3.3	(3.3)J	3.3	3.3	3.3	(3.4)P	3.3	3.2	3.3	3.4	3.4	3.5	[3.2]A	2.8	[2.8]F	2.9
13	2.9	3.3	3.2	3.2	3.4	3.1	2.8	3.5	3.5	3.6	3.3	3.2	3.0Ps	(3.1)Ps	3.2H	(3.2)J	3.4	[3.4]A	3.4	3.2	3.0	[3.0]A	3.0F	2.6F
14	2.8PF	3.1	3.2H	3.1	3.3	3.5	3.0	3.5	3.6	3.3	3.3	3.2	3.3	3.4	3.1	(3.3)H	3.4	3.5	A	A	A	2.6Ps	2.8	2.9
15	2.8H	3.2	3.2	3.1	3.2	3.0	3.0	3.5	C	C	C	C	C	C	C	C	C	3.4	3.5	3.4	3.2	2.9	2.6	2.6K
16	2.9K	3.0K	2.8K	2.7K	2.8K	3.0K	2.9K	3.3K	3.3K	2.7K	3.0H	(3.0)J	3.2K	3.0K	3.3K	3.4K	3.2Pk	(3.4)J	3.6K	3.1K	A	A	A	2.8K
17	3.1K	2.9K	2.8H	3.1K	3.2H	3.1K	2.7H	3.3K	3.4K	3.2K	3.1K	3.2K	2.7K	(3.1)P	3.3K	3.3K	3.4K	(3.2)P	(3.2)P	(3.5)Ps	(3.0)H	2.6K	5K	3.1H
18	C	C	C	C	C	C	C	C	3.7Ps	3.3K	(3.3)J	3.1P	2.8K	(3.2)J	3.0K	3.5K	3.2K	3.5K	A	A	A	3.2K	3.1K	2.8H
19	2.5K	2.8H	2.5K	2.5K	2.8K	3.0K	2.6K	(3.6)Ps	(2.9)Ps	3.2K	3.2K	3.2K	2.7K	2.8K	3.4K	3.5K	3.3K	3.5K	A	A	A	3.2K	3.1K	2.9K
20	(3.0)A	3.1K	3.6K	3.1K	3.1K	2.7K	3.0K	3.5K	3.7K	3.3H	3.3K	3.3K	3.6K	3.3K	3.2K	(2.5)Ps	3.4K	3.8K	(3.7)J	3.5K	[3.3]A	3.1K	3.2H	2.7K
21	2.9K	(2.8)E	(2.8)E	(2.9)E	(2.7)E	2.8K	3.0K	3.1K	3.5K	(3.4)P	3.5K	3.3K	(3.4)J	3.4K	3.3P	(3.5)Ps	(3.6)Ps	3.0	(3.7)J	3.7	2.9	2.9	3.3H	3.1
22	3.0	2.8	2.9	3.1	3.3	3.3	3.6	(3.4)J	(3.7)J	3.6	(3.4)A	3.3	(3.6)P	(3.2)P	3.5	3.5	(3.7)J	3.7	3.5H	3.7	3.2	2.9	2.8	3.0
23	2.7	(3.0)A	3.4	3.0F	(3.1)F	(3.2)F	3.2F	3.5	3.6	3.2Ps	3.3	3.2	(3.2)J	3.3	3.2	3.8	3.8	3.6	3.7	3.4	3.0	2.9F	A	A
24	3.0	2.8F	2.9	3.1	3.5	3.4	3.3	3.6	3.7	3.5	3.2	(3.3)J	3.2	3.3	3.6	3.6	3.5	3.6	3.6	3.6H	2.8	3.0	3.3H	2.7H
25	2.7H	2.7	2.8	3.0	3.6	3.2	3.0	3.4	S	3.4	3.5	(3.2)Ps	3.5	3.4	3.3	3.7	3.5	3.3H	3.5	3.4H	3.0	2.9	2.9	2.8
26	2.7	3.0	3.0	3.1	3.3	3.2	3.0	3.4	3.5	3.7	3.4P	3.3	3.3	(3.2)P	(3.4)P	(3.6)J	3.7	3.7	3.4	3.4	3.0	3.2F	[3.2]S	3.2
27	3.4	2.9	2.9H	2.9	3.2P	3.6	2.9	(3.0)P	[3.2]A	3.4	3.3	3.4	3.0	3.2	3.5	(3.2)P	3.6H	3.7	[3.6]C	3.6	3.1	3.0	(3.3)J	3.1
28	2.9	3.0H	2.9	3.5	3.5	2.9	3.0	3.5	3.6	S	(3.5)P	S	3.3	(3.4)J	(3.7)J	(3.8)J	3.9	3.5	3.5H	3.7	2.9	3.1	3.2H	3.0F
29	3.3H	3.2Z	3.0F	2.8	3.3	3.2	3.3	3.6	3.7	3.3	3.3P	(3.1)Ps	S	3.3	(3.5)P	(3.7)Ps	3.7	3.8	3.2	3.2	(3.2)J	3.5	3.2	3.1H
30	A	A	3.1	3.3	3.2	3.2	3.1	3.8	3.5	3.7	3.6	(3.2)P	3.6	3.4	3.3	3.5	3.7	3.6P	3.7	3.4	3.0	3.0	3.4	3.1
31	3.2	F	2.7F	[2.8]A	(3.0)F	3.3F	3.4F	3.4	3.4	3.4	S	3.3	3.4	3.3P	3.4	(3.7)J	3.7	3.8	3.5	3.2	3.1	3.3	A	A
Mean Value	2.9	2.9	2.9	3.0	3.2	3.1	3.0	3.5	3.6	3.4	3.3	3.2	3.2	3.2	3.3	3.4	3.5	3.5	3.5	3.5	3.1	3.0	3.0	2.9
Median Value	2.9	2.9	2.9	3.0	3.2	3.1	3.0	3.5	3.4	3.4	3.3	3.2	3.2	3.3	3.2	3.4	3.5	3.4	3.5	3.5	3.0	3.0	3.0	2.9
Count	29	27	30	30	30	30	30	30	28	28	26	28	27	29	28	28	29	28	27	28	27	27	27	27

Sweep 0.8 Mc to 2.0 Mc in 1.5 min  Manual  Automatic

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

Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

**f<sub>min</sub>F**

**Oct. 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	E	E	1.0F	1.0	1.8	1.8	1.8	2.2	2.8	3.0	3.5	4.0A	3.5	3.5	3.6	3.3	3.2	2.5	2.8A	1.8	1.6	1.7	[1.6]A	1.6
2	1.8	1.6	1.4	1.4	1.2	1.4	1.0	2.4	2.7	3.5	3.6	3.5	3.5	3.6	3.6	3.5	3.6A	2.5	[2.0]A	1.6	A	3.1A	1.7	1.6
3	1.5	1.6	[1.6]A	1.6	1.7	1.1	1.7	2.0	2.7	4.4A	3.5	4.1A	3.6	4.2A	3.8A	3.6	2.8	2.3	1.9	4.8A	[4.2]A	3.5A	2.2A	2.4A
4	3.4A	2.4A	1.8	1.8	0.9	0.9	1.6	2.3	C	C	C	C	C	C	C	C	C	C	2.4A	2.4A	1.8	1.6	1.0	1.8
5	1.0	1.2	1.5	1.6	1.8	1.6	1.8	2.2	2.7	3.1	3.1	3.6	3.2	3.6	3.3	3.1	2.7	2.5	1.8	3.0A	2.0A	1.6	1.6	1.6F
6	1.0	1.8	1.4	1.3	1.8	1.4	1.3	1.7	2.6	3.6	3.3	3.4	3.5	3.4	3.3	3.5	2.8	2.6	1.8	1.6	3.1A	1.6	2.0A	1.7
7	1.4	1.4	1.7	[1.4]C	1.2	E	1.6	2.2	2.5	3.1	3.3	3.4	3.3	3.4	3.2	3.3	2.7	2.2	1.6	4.8A	2.2A	1.7	2.0A	1.5
8	1.6	1.2	1.2	1.4	1.5	1.7	1.6	2.2	2.2	2.4	4.5A	3.4	3.8	4.0	3.3	3.4	2.9	2.6	2.2A	1.8	1.8	1.6	1.8	2.2A
9	1.8	1.7	1.4	1.6	2.0A	1.8	1.8	2.2	2.8	3.2	3.3	4.0A	3.9	4.4A	4.4A	3.5	3.2	4.4A	[3.1]A	1.8	1.3	1.4	1.4	1.8
10	2.2A	[1.9]A	1.6	2.1A	1.6	1.0	1.3	1.9	3.3A	2.8	3.2	3.4	3.4	4.3	3.2	3.1	2.8	2.5	A	3.0A	A	A	2.0A	1.6
11	1.7	1.7	1.4	1.7	1.7	1.8	1.7	1.8	2.6	2.8	3.6	[4.2]A	4.8A	3.7	3.3	3.1	2.8	2.4	1.9	2.4A	2.5A	1.9	[1.8]A	1.7
12	2.3A	1.5	0.9	1.1	E	E	1.3	2.2	2.8	2.4	2.4	3.6	5.0A	3.1	3.0	3.6	2.6	2.2	3.3A	3.5A	[2.7]A	1.9	1.8	1.8
13	2.0A	1.0	1.0	1.4	1.6	1.8	2.1A	2.2	2.8	2.7	3.5	3.5	4.2A	5.1A	5.3A	3.4	3.6A	3.9A	3.2A	2.3A	[2.7]A	[2.7]A	3.1A	2.3A
14	1.7	1.4	1.2	1.7	1.3	1.4	1.7	2.3	3.8A	3.4	3.5	4.5A	4.1A	A	4.0A	5.4 <sup>s</sup>	3.3	2.5	A	A	A	2.2A	2.2A	2.2A
15	1.8	A	E	0.8	0.9	0.9	1.6	2.1	C	C	C	C	C	C	C	C	C	C	2.4A	2.4A	2.0A	2.2A	1.7	1.7
16	1.7	1.1	1.1	1.2	1.2	1.0	2.0A	1.7	2.2	2.3	3.5	3.4	3.7	3.8	3.5	3.0	2.6	2.0	1.7	2.5A	1.8	A	A	2.2A
17	1.3	1.4	1.4	1.8	1.8	1.4	2.0A	2.0	2.6	4.6A	3.6	4.0A	3.6	3.9	3.6	3.4	2.2	4.1	4.6A	A	2.0A	1.8	1.8	1.8
18	C	C	C	C	C	C	C	2.4	[2.7]A	3.0	2.8	3.0	3.2	3.2	3.2	2.9	2.7	2.2	1.8	1.6	1.6	1.6	1.7	1.7
19	1.7	1.7	1.2	1.2	0.9	E	1.7	1.8	3.3F	2.8	3.2	3.0	2.6	3.4	2.9	2.8	2.4	A	A	A	A	2.4A	2.8A	3.0A
20	[3.0]A	3.0A	A	2.0A	1.2	1.4	1.6	[2.0]A	2.4	2.7	4.0A	4.4A	3.5	4.4A	3.8	3.0	4.2A	3.8	2.2A	2.8A	2.3A	1.8	1.5	1.7
21	1.7	1.1	E	E	E	1.7	1.8	2.0	2.4	3.0	3.1	3.2	3.5	4.5A	3.2	3.3	2.9	2.6	[2.1]A	1.6	1.6	1.6	1.8	1.9
22	2.0A	1.8	1.4	1.3	1.2	1.4	1.4	4.0A	3.0	3.6A	5.6A	3.1	3.1	3.1	3.1	4.1A	2.6	3.2	[2.4]A	1.5	1.6	1.6	1.7	1.6
23	2.1A	[1.9]A	1.7	E	1.3	E	1.6	2.0	[2.0]A	2.2	3.0	3.8	3.7	3.7	3.3	3.2	A	A	1.8	2.5A	2.3A	1.6	1.6	[2.2]A
24	2.2A	2.8A	2.4A	1.4	1.3	1.2	1.6	1.7	2.0	2.2	2.2	3.0	3.5	4.0	3.4	3.0	2.5	2.2	[2.0]A	1.8	2.0A	1.8	1.8	1.8
25	1.4	1.3	1.6	1.8	1.8	1.8	1.8	1.9	2.6	3.0	3.4	3.2	3.6	[3.6]A	3.5	3.3	3.2	A	A	1.6	1.0	1.6	1.8	1.8
26	1.6	1.4	1.4	2.0A	2.0A	1.7	1.7	1.8	2.2	3.7A	3.5	3.3	3.3	3.3	3.0	2.6	3.4A	2.4	1.7	1.7	2.3A	1.7	1.7	1.7
27	1.7	2.0A	1.7	1.8	1.7	1.4	1.7	1.9	[2.3]A	2.7	3.7A	3.0	3.2	3.2	3.4	3.6	4.0A	2.5	[2.8]C	3.0A	1.8	2.0A	1.7	1.7
28	1.6	1.6	1.0	1.7	1.7	1.7	1.7	1.8	2.5	3.0	[3.1]A	3.2	2.9	3.8	2.7	2.7	2.3	2.4	2.4A	A	2.2A	1.8	1.8	2.0A
29	2.0A	1.6	2.0A	1.4	1.8	2.0	1.8	2.0	2.5	3.3	[3.4]A	3.5	3.5	3.4	3.2	3.1	2.6	1.9	1.7	1.6	1.8	2.8A	1.8	1.8
30	3.0A	[2.2]A	1.4	1.3	1.4	1.3	1.2	1.6	1.8	3.1	3.3	3.4	4.3A	4.6	3.3	4.1A	2.7	2.6	1.6	1.6	1.6	1.6	1.7	1.6
31	1.6	2.2A	2.0A	[1.8]A	1.7	1.6	1.7	[2.2]A	2.7	2.9	3.2	6.4A	3.6	3.4	3.0	2.9F	2.3	1.8	2.0A	1.7	1.7	1.7	A	A
Mean Value	1.9	1.7	1.5	1.5	1.5	1.5	1.6	2.1	2.6	3.1	3.5	3.7	3.6	3.7	3.4	3.4	2.9	2.6	2.3	2.4	2.0	1.9	1.9	1.9
Median Value	1.7	1.6	1.4	1.4	1.6	1.4	1.7	2.0	2.6	3.0	3.4	3.5	3.5	3.6	3.3	3.3	2.8	2.5	2.0	1.8	2.0	1.7	1.8	1.8
Count	30	29	29	30	30	30	30	31	29	29	29	29	29	28	29	29	28	27	27	27	27	29	29	30

**f<sub>min</sub>F**

freq. 0.8 Mc to 2.0. Mc in 1.5 min  
 Manual  Automatic

Y10



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

Lat. 31° 12.5' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

135° E Mean Time

**f<sub>min</sub>E**

**Oct. 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	E	E	E	E	1.8	E	E	1.6	1.2	1.6	1.6	1.7	1.5	1.7	1.7	1.6	1.3	1.4	1.1	1.7	1.7	1.7	1.6	1.7
2	E	E	E	E	1.4	1.3	1.4	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.3	1.1	E	1.6	1.5	1.7	1.6	1.5	1.6
3	1.4	1.6	E	E	1.5	E	1.6	1.2	1.6	1.7	1.6	1.7	1.7	1.6	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.6	1.6	1.6
4	1.6	1.6	0.9	E	E	E	1.6	1.5	C	C	C	C	C	C	C	C	C	C	1.4	1.5	1.6	1.6	1.8F	1.5
5	E	0.8	E	E	E	E	1.2	1.4	1.6	1.6	1.5	1.5	1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	E	E
6	1.3	E	E	E	F	1.0	1.0	1.2	1.5	1.3	1.6	1.6	1.5	1.6	1.6	1.5	1.2	1.0	1.6	1.6	1.6	1.6	1.6	1.6
7	1.6	E	E	E	E	E	E	1.7	1.6	1.2	1.7	1.7	1.7	1.6	1.7	1.6	1.4	1.3	1.5	1.1	1.2	1.6	1.5	E
8	1.9	E	E	E	E	E	1.6	1.6	1.4	1.4	1.5	1.4	1.6	1.6	1.4	1.6	1.4	1.6	1.6	1.5F	1.6	1.6	1.8F	1.6
9	1.4	E	E	E	E	1.8	E	1.8	1.6	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.2	E	E	E	1.2
10	1.6	E	E	E	E	1.3	1.7	1.5	1.3	1.5	1.5	1.6	1.5	1.6	1.7	1.6	1.6	1.2	1.1	1.7	1.6	1.6	1.6	1.5
11	1.7	1.7	E	E	E	E	1.7	1.6	1.3	1.5	1.7	1.8	1.7	1.8	1.8	1.8	1.7	1.6	1.6	1.7	1.6	1.6	1.6	1.7
12	0.9	E	E	E	E	E	E	1.5	1.4	1.4	1.4	1.6	1.6	1.7	1.6	1.6	1.6	1.4	1.4	1.7	1.7	1.7	1.4	1.3
13	1.3	E	E	E	E	E	1.4	1.7	1.7	1.2	1.5	1.5	1.4	1.5	1.2	1.1	1.2	1.5	1.7	1.6	1.6	1.6	1.6	1.6
14	1.3	E	E	E	E	E	1.2	1.3	1.6	1.1	1.0	1.2	1.2	1.5	1.5	1.5	1.3	1.1	1.6	1.4	1.6F	1.6	1.6	1.6
15	1.3	E	E	E	E	E	1.7	C	C	C	C	C	C	C	C	C	C	1.6	1.5	1.2	1.6	1.4	1.1	1.7
16	0.9	E	1.0	1.0	1.0	E	1.4	1.4	1.6	1.2	1.6	1.3	1.7	1.6	1.5	1.6	1.6	1.6	1.5	1.2	1.2	1.4	1.4	1.4
17	1.2	1.0	E	E	E	E	1.8	1.5	1.5	1.3	1.6	1.6	1.5	1.6	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.8F	1.7
18	C	C	C	C	C	C	C	1.6	1.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.2	1.2	1.6	1.8	1.6	1.7	1.7
19	1.3	E	E	E	E	1.9	E	1.8F	1.2	1.6	1.5	1.6	1.8	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.6F	1.6	1.6
20	1.3	E	E	E	E	E	1.6	1.7	1.3	1.6	1.6	1.6	1.7	1.8	1.6	1.4	1.5	1.5	1.5	1.8	1.8	1.8	1.8F	1.8F
21	1.7	E	E	E	E	2.0	1.8	1.6	1.6	1.2	1.3	1.6	1.6	1.6	1.5	1.4	1.6	1.5	1.6	1.6	1.8	1.6	1.5	1.4
22	1.4	1.0	1.0	E	E	1.0	1.4	1.4	1.6	1.6	1.5	1.6	1.4	1.6	1.7	1.6	1.7	1.6	1.4	E	1.6	1.6	1.7	1.6
23	1.4	E	E	E	E	E	1.5	1.6	1.3	1.2	1.2	1.4	1.5	1.6	1.6	1.6	1.4	1.6	1.6	1.6	1.7	1.6	1.7	1.5
24	1.4	E	E	E	E	E	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.8	1.6	1.7	1.4	1.4	1.5	1.6	1.7	1.8	1.7	1.8
25	1.4	1.8F	1.6	1.8	E	E	1.8	1.7	1.6	1.6	2.0	1.6	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.6	E	E	E	E
26	E	E	1.4	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.5	1.6	1.5	1.7	1.8	1.7	1.7	1.7	E	E	1.7	1.7	1.7	1.7
27	1.7	1.7F	1.7	E	E	E	1.4F	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	(1.6) <sup>c</sup>	1.6	1.6	1.7	1.7	1.8
28	E	E	E	E	E	1.8	1.6	E	B	1.5	1.5	1.5	1.5	1.5	1.5	1.2	1.5	1.7	1.6	1.6	1.6	1.8	1.8	1.5
29	E	E	E	E	E	E	1.8	1.6	1.6	1.6	1.3	1.5	1.6	1.6	1.6	1.4	1.6	1.6	E	1.8	1.6	1.8	1.6	1.7
30	E	E	E	E	1.2	1.0	1.2	1.4	1.6	1.1	1.2	1.6	1.6	1.7	1.6	1.5	1.6	1.6	1.6	1.6	E	1.7	1.6	1.6
31	1.7	E	E	E	E	E	1.6	1.6F	1.7	1.5	1.5	1.5	1.5	1.6	1.5	1.4	1.6	1.6	1.7	1.5	1.5	1.6	1.6	1.3
Mean Value	1.4	1.4	1.3	1.3	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Median Value	1.3	E	E	E	E	E	1.2	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Count	30	30	30	29	30	30	29	29	29	29	29	29	29	29	29	29	30	30	31	31	31	31	31	31

Y11

Manual  Automatic

Swing 0.5 Mc to 20.0 Mc in 1.5 min

IONOSPHERIC DATA IN JAPAN FOR OCTOBER 1953

電波觀測報告 第5卷 第10号

1953年11月25日 印刷

1953年11月30日 發行

(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

郵 政 省 電 波 研 究 所  
東京都北多摩郡小金井町小金井新田一之久保573  
電 話 因分寺 138, 139, 151

印刷所

今 井 印 刷 所  
東京都新宿区筑土八幡町8番地