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IONOSPHERIC DATA IN JAPAN

FOR JULY 1952

Vol. 4 No. 7

Issued in August 1952

PREPARED BY THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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東京都北多摩郡国分寺局区内

電波研究所

御中

受領書

第 卷 第 号 册

右正に受領いたしました

昭和 年 月 日

所在地
所属機関名
氏名

電波研究所長殿

印

August 1, 1952

To Whom It May Concern:

We wish to inform you that, pursuant to partial amendments to the laws for the establishment of the Government organs, the Radio Regulatory Commission ceased to exist on August 1 and the Radio Regulatory Administrative Office was merged into the Ministry of Postal Services. Consequently, the Central Radio Wave Observatory has become an auxiliary organ of the name of the Radio Research Laboratories created within the said Ministry.

It is intended that the ionospheric sounding will be conducted by the Radio Research Laboratories and its continued reports will be published for distribution by this Laboratories.

It is further wished that you will favour us with the same continued cooperation in the exchange of ionospheric data.

Very truly yours,

Shogo Amari, Chief

Radio Research Laboratories

CRWO—F43

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN FOR JULY 1952

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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 purposes 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° 08.2' 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. 46° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

foF2

Jul. 1952

Day	00	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	S	S	S	S	S	S	S	B	B	B	B	B	C	C	C	C	C	C	(63)PS	[64]C	6.4 P	[62]S	6.1	
2	6.1	4.8	4.7	4.3	(4.3)P	4.5	A	B	B	B	B	5.8	B	B	A	A	6.5	[60]S	5.5	6.0	6.2	6.3	5.8	5.3	
3	5.0	4.2	5.0 H	4.6	(4.5)PS	5.5	6.2	6.0	[6.0]A	5.9	6.1	5.8	S	A	B	A	A	A	S	7.0 J	6.3	6.0	5.4	5.1	
4	5.4	4.8	4.3	4.1	3.5 K	4.1 K	4.0 K	4.3 K	A K	B K	B K	B K	B K	B K	B K	B K	B K	4.7 J	5.1 K	5.0 K	[4.8]S	(4.6)PS	4.7 J	(4.6)PS	
5	4.9 K	[4.4]S	3.8 K	3.7 K	3.0 K	3.8 K	S K	S K	A K	A K	A K	B K	B K	B K	B K	B K	B K	C K	C K	C K	5.7 K	4.8 K	[4.6]S	4.3 K	
6	4.7 K	S K	A K	3.6 K	3.4 K	3.0 K	S K	S K	A K	B K	B K	B K	B K	B K	B K	B K	B K	4.1 K	B K	B K	5.1 J	4.7 K	4.9 K	4.4 P	
7	BK	3.5 K	3.3 K	2.6 K	3.0 K	3.5 K	4.2 P	4.5 P	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	5.0 K	5.5	6.0	5.8	4.7	3.9
8	4.2	3.3	3.3	3.3	3.3	4.5	B	B	B	B	B	B	A	A	B	B	B	4.8	A	A	A	S	S	S	
9	5.0	4.3	4.2	4.0	4.0	4.1	[4.6]A	5.1	5.2 J	5.2	S	S	S	S	S	S	A	A	A	5.8	5.7 P	[6.1]S	(6.5)PS	5.0	[4.8]A
10	4.5 F	4.5	4.0	4.4 F	3.9 F	A	C	C	A	A	S	S	S	S	S	S	A	A	A	5.3	[5.6]A	6.0	6.0 H	5.7	
11	4.8	4.0	3.9	4.0	3.8	W	W	5.7	B	A	A	A	B	B	B	B	C	A	A	4.6	4.8 J	5.0	4.8	5.1	4.8
12	F	S	4.5	4.5	3.6	4.2	A	5.7	SA	B	A	B	B	B	B	B	B	A	A	5.8	5.8	5.8	A	A	
13	5.2 F	5.4 F	(4.7)S	4.0 F	3.5	5.0	5.3	5.0	A	B	A	A	A	B	A	A	M	M	M	5.1	4.7	5.7	5.9	[5.7]A	
14	5.5	5.5 J	5.3 J	4.8	(4.4)P	4.7	5.3	5.0	A	A	A	A	B	B	B	B	B	B	A	5.8	6.3 S	(5.0)S	[5.3]S	5.6	
15	5.5	5.6 F	5.0 F	4.5	4.6	5.0	[4.8]A	4.6	SA	A	C	C	C	C	C	C	C	5.4	5.5	5.5	5.7	6.0	5.6	5.8	
16	4.9	4.7	4.8	5.0	(5.0)P	5.3	B	B	6.1	6.3 P	B	B	A	B	B	C	A	6.1	[6.2]A	6.2	[6.0]S	5.8	6.0	A	
17	4.6	4.7	[4.6]A	4.5	3.8	5.0	A	B	5.6	A	B	A	B	B	B	4.8	5.6	5.2	5.6	5.6	6.3	5.5	5.8 P	5.5	
18	4.6	4.8 F	4.6 H	4.3 H	4.5 H	4.6	5.3	5.2	5.5	5.3	[5.2]A	5.0	[5.0]B	5.0	5.1	5.2	5.6	5.0	[5.3]A	6.0 P	6.6	5.9	4.7 P	4.5	
19	4.0 F	4.1 F	4.2 F	3.0	3.9	4.5	5.8	A	A	A	A	A	A	A	B	A	A	5.0	5.1 P	5.2	6.5	6.0	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	5.6	5.4	[5.6]A	5.7	[5.8]P	6.0 V	6.2 H	6.0 F	
21	5.8 H	5.6	4.6	3.9	4.0	5.2	4.8	[5.0]A	5.3	4.8	5.0	5.0	5.4	5.4	4.7	5.8	6.1	5.4	[5.6]A	5.8	5.8	5.8	5.3 P	4.8	
22	(4.4)P	4.3 P	4.5 J	(4.0)P	4.5	5.1	5.0	A	A	C	5.9	A	A	A	5.1	W	5.3	4.9	5.4	6.0	(6.0)P	5.8	A	A	
23	(5.3)JF	5.1 JF	5.0	4.1	3.8 H	4.2	4.6	5.0	5.2	[5.7]A	6.2	5.7	A	A	B	6.0	5.9	6.3 P	5.8	6.0	6.0	5.6	5.3	4.9	
24	5.0 F	(4.5)PF	A	A	3.0	3.7	5.1	5.2	A	C	A	A	A	A	5.3	5.5	5.5	5.3	5.2	4.9	5.5	5.8	6.3 P	5.7	[5.4]A
25	(5.1)P	4.9	4.0	3.9 F	3.5 F	3.7	[4.4]B	5.0	B	A	A	A	A	A	5.7	5.4	5.4	[5.2]A	5.1	5.4	A	S	S	S	
26	A	4.3	4.2	3.6 S	3.4 F	B	B	4.7	[4.8]A	4.8	5.3	5.8	M	M	M	M	M	M	M	M	M	M	M	M	
27	M	M	M	M	M	M	M	M	M	M	A	4.8	4.8	[5.2]A	5.7	[5.4]A	5.2	4.8	[5.2]A	5.5	5.2	[5.3]F	4.8 F	3.9 F	
28	4.5 F	4.8 F	4.2 F	[3.8]A	3.4 F	[4.1]A	4.8	A	A	5.9	B	A	A	A	5.4	B	B	5.5	[5.8]A	6.0	6.2	6.0	6.0	5.6	
29	5.4	C	C	C	C	C	C	C	B	B	5.5	6.0	5.6	5.9	[5.6]B	5.3 P	[5.3]A	5.3	5.2	5.0	5.8 F	5.3 F	5.5 F	5.6 F	
30	5.4 F	5.0 F	4.5 F	4.1	4.0 P	4.8	4.4	4.8	A	B	B	B	B	B	B	B	6.1	A	A	A	A	A	5.5 F	5.6 F	
31	4.3	[4.2]S	4.0 F	(4.8)JF	(4.4)JF	4.4	(4.9)P	5.9	6.0	B	A	A	A	A	A	4.8	[5.0]B	5.3	[6.2]A	7.2	7.6 J	6.9	[6.6]A	6.2	
Mean Value	5.0	4.7	4.4	4.1	3.8	4.5	5.0	5.1	5.5	5.5	5.6	5.5	5.2	5.5	5.4	5.4	5.5	5.3	5.5	5.7	5.9	5.7	5.7	5.5	5.2
Median Value	5.0	4.7	4.5	4.0	3.8	4.5	4.8	5.0	5.5	5.5	5.6	5.8	5.5	5.4	5.4	5.4	5.4	5.3	5.5	5.5	5.7	5.8	5.8	5.5	5.2
Count	24	25	25	26	27	23	17	16	9	8	7	8	4	8	8	11	14	18	20	26	27	27	25	24	

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

IONOSPHERIC DATA

135° E Mean Time

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

h_pF₂

Jul. 1952

Day	00	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	S	S	S	S	S	S	S	B	B	A	B	B	C	C	C	C	C	C	C	[320]C	310P	[350]S	370
2	410	460	410	350	(390)P	390	A	B	B	B	B	A	A	A	A	A	360	S	S	360	350	380	380	350
3	460	430	460H	380	(370)P	380	340	350	A	A	U	A	S	A	B	A	A	A	S	(320)J	320	350	400	390
4	390	A	(450)S	380	500K	500K	430K	U	A	A	B	B	B	B	B	B	B	U	U	410K	(350)S	(380)J	(390)K	(390)K
5	410K	(370)S	330K	390K	330K	330K	S	A	A	A	A	B	B	B	B	B	C	C	C	C	310K	450K	(440)S	430K
6	390K	S	A	A	A	A	A	A	A	A	B	B	B	B	B	B	A	B	B	B	(360)J	430K	400K	370K
7	B	440K	380K	440K	400K	U	U	A	B	B	B	B	B	B	B	B	B	B	B	330K	(350)A	370	340	370
8	(380)A	390	420	410	320	A	A	A	B	B	B	B	B	A	A	A	B	U	A	A	(330)S	(330)PS	410	(410)A
9	400	380	400	400	370	320	A	U	S	S	S	S	S	S	S	S	A	A	A	A	A	A	A	390
10	410F	370	430	420F	440F	A	C	C	A	A	S	S	S	S	S	S	A	A	A	A	A	A	A	390
11	430	400	390	400	470	W	W	470	B	A	A	S	A	S	C	C	C	A	A	A	A	A	A	400
12	F	S	350	360	400	400	A	U	A	SA	B	A	B	B	B	B	B	A	A	A	400	380	A	A
13	430F	370F	(350)S	350F	400	390	U	U	A	B	A	A	A	A	A	A	M	M	M	340	300	390	360	(380)A
14	400	(360)J	(380)A	400	(450)P	420	310	S	A	A	A	B	B	B	B	B	B	B	A	A	380S	(350)S	(380)S	410
15	400	390F	(420)H	380	(430)S	370	U	U	SA	A	C	C	C	C	C	C	C	390	370	360	(350)S	410	420	390
16	380	440	370	370	(340)P	380	B	B	350	330P	B	A	B	360P	C	A	A	390	(360)A	320	(360)S	400	400	A
17	A	390	(360)A	350	350	A	A	B	410	A	B	A	B	B	U	U	U	400	(380)A	360	370	350	410P	360
18	380	400FH	400H	400H	420H	400	420	U	400	U	A	U	B	U	U	U	S	410	(380)A	350P	330	350	420P	400
19	(400)J	(410)J	(410)J	420	390	C	C	C	A	A	A	A	A	A	A	A	A	410	(380)A	360	(310)J	490V	420H	490FY
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	390	370	400	350	420	C	C
21	420H	390	420	440	410	350	U	A	U	U	A	U	U	A	A	A	A	410	(380)A	360	(310)J	490V	420H	490FY
22	(430)P	440P	(400)J	(460)J	370	400	300	A	A	C	430	A	A	U	W	U	U	400	(380)A	350	370	420	430P	410
23	(400)J	(390)J	350	340	320H	280	300	340	U	A	U	U	A	A	B	B	A	320P	370	370	(340)J	370	A	A
24	420F	(420)F	A	A	320	320	360	390	A	C	A	A	A	U	U	U	U	310	380	370	380	340P	370	370
25	(370)P	370	390	370F	440F	350	B	U	B	A	A	A	A	A	U	U	(380)A	370	390	A	S	S	S	S
26	A	M	M	M	340F	B	B	U	A	A	B	M	M	M	M	M	M	M	M	M	M	M	M	M
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
28	400F	370F	BF	A	A	U	U	A	A	A	A	A	A	A	A	A	B	440	(370)A	340	400	(390)J	(440)F	390F
29	C	C	C	C	C	C	C	C	B	B	U	U	B	U	U	U	A	380	350	350	390F	410F	420F	350
30	(380)J	410F	(420)J	420	350F	310	U	U	A	B	B	B	B	B	B	B	300	A	A	A	A	A	(390)J	(380)J
31	350	(360)S	380F	(350)J	A	(360)P	370	370	390	B	A	A	A	A	A	U	B	430	(410)A	390	(340)J	390	A	360
Mean	400	390	390	390	370	370	350	370	390	330	430	390	—	380	380	430	370	400	380	360	350	380	400	400
Max	400	390	400	390	380	380	350	360	400	330	430	390	—	380	380	430	370	400	380	360	350	380	400	400
Min	23	23	24	25	26	17	9	5	4	1	1	1	—	2	1	2	5	14	15	22	26	27	24	24
Count	23	23	24	25	26	17	9	5	4	1	1	1	—	2	1	2	5	14	15	22	26	27	24	24

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

h_pF₂

W 2

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

R'F2

Wakkanai

Lat. 45° 28.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	300	330	300	300	S	S	S	B	B	B	B	B	C	C	C	C	C	C	300S	[310]C	320A	[320]A	320	
2	320	A	(400)A	300	320	370	A	B	B	B	B	400A	B	A	A	A	360	S	S	350	300	300	300	310	
3	400	400	300H	320	300	370	310	350S	(380)A	400A	430	A	S	A	B	A	A	A	340	300	290	280	330	390S	
4	380A	(380)A	380A	320	500K	500K	420K	500K	A K	B K	B K	B K	B K	B K	B K	B K	B K	B K	400A	300K	300K	300K	320K	330K	
5	330K	[310]K	290K	300K	300K	320K	360A	A K	A K	A K	A K	A K	B K	B K	B K	B K	B K	B K	C K	C K	270K	320K	320K	360K	
6	320K	A K	A K	300K	A K	A K	S K	S K	A K	B K	A K	B K	B K	B K	B K	B K	(550)A	B K	B K	300K	310K	300K	300K	290K	
7	310K	310K	340K	400A	370A	500K	440K	A K	B K	B K	B K	B K	B K	B K	B K	B K	B K	B K	300K	300A	300	300A	300	320	
8	(320)A	320	310	330	300A	A	B	B	B	B	B	B	A	A	A	A	B	470	A	A	A	300A	300	300	
9	320	300	310	310	310	320	[400]A	480	S	S	S	S	S	S	A	A	A	A	(420)A	320	320	300	A	A	
10	320	300	310	360	(360)A	A	C	C	A	A	S	S	S	S	S	S	A	A	A	A	A	300	310H	300	
11	(320)A	330	300	360	470	W	W	470	B	A	A	S	A	S	C	C	C	A	A	A	A	(350)A	(370)A	300	
12	300	300	290	300	320	400	A	A	SA	A	A	B	B	B	B	B	B	A	A	A	330A	A	A	A	
13	330	310	270F	300	330	400	400	400	A	B	A	A	A	A	A	A	A	M	M	A	300A	320	300	[350]A	
14	400	300	[340]A	370	400A	420	300	420S	A	A	A	A	B	B	B	B	B	B	A	A	A	300A	320	300	
15	300	310	320H	320	330	370	[440]A	500	SA	A	A	C	C	C	C	C	C	C	390	350	310	(330)A	(400)A	360A	
16	300	320	310	300	300	330	[310]B	290	310	330	A	A	A	A	C	A	A	A	390	[340]A	300A	300	320	400A	
17	A	300	(300)A	300	320	400A	A	B	410	A	A	A	B	A	A	400	400	400	[340]A	280	300	300	320	300	
18	300	320H	300H	340H	320H	400	410	400	400B	400	[400]A	510	[510]B	510	470	480	[440]S	410	[360]A	310	290	260	310	300A	
19	340	330	320	400A	310	400A	340	A	A	A	A	A	A	A	A	A	A	A	A	A	300	300	300	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	460	400	400	[360]A	320A	(360)A	310	320H	320	
21	300H	300	320	400	400SA	340	410	[400]A	380	400	[400]A	490	440	450A	500	460	400	400	[360]A	300	300	320	300	310	
22	400	350	340	320	A	290	A	A	A	C	430	B	A	500	W	450	450	390	350	300	300	280	A	A	
23	340	340	300	300	310HA	280	300	340	460	[400]A	350	320	A	A	B	B	A	A	320	350	300	300	320	300	
24	330	370A	A	A	A	300	360	330	A	C	A	A	A	400	400	380	370	350	300A	350	340	310	300	[300]A	
25	310	300	310	300	350	300B	[340]B	370	B	B	B	B	A	(400)A	(430)A	400	[380]A	350	380A	A	A	A	A	A	
26	A	A	320A	270	290F	B	B	430	[420]A	400A	420A	430	M	M	M	M	M	M	M	M	M	M	M	M	
27	M	M	M	M	M	M	M	M	M	M	M	M	A	A	A	380	[380]A	370	400A	[350]A	300	400A	(360)A	300F	
28	(360)ME	300	A	C	300F	(380)A	470	A	A	A	360A	B	A	B	500	B	B	420	A	A	300A	320	300A	300	
29	C	C	C	C	C	C	C	C	C	C	380	390	390	[370]B	350	[360]A	300A	A	A	A	A	A	A	320	
30	300F	320F	330F	350	300	300	320	430	A	P	B	B	B	B	B	B	330A	A	A	A	A	A	320	310	
31	320	[340]A	350	350	290	[320]A	350A	370	390	B	A	A	A	A	A	400	[420]B	430	[360]A	300	300	320	[320]A	330A	
Mean Value	330	310	320	330	340	370	370	410	390	380	410	430	450	440	430	420	400	390	400	350	310	310	310	320	320
Minimum Value	320	310	320	320	320	370	360	400	400	400	420	430	440	450	430	420	380	400	350	300	300	300	300	320	320
Count	25	25	25	26	25	22	20	16	8	7	7	7	3	7	9	10	13	15	17	21	25	28	25	24	

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

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

Jul. 1952

foF1

195° 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						S	S	S	B	B	A	B	B	C	C	C	C	C	C					
2						33	A	B	B	B	B	A	B	B	A	A	4.1	3.8	A					
3						3.4	3.7	A	A	A	4.8	A	S	4.0	B	A	A	A	A					
4						3.0	3.5	3.5	A	B	B	B	B	B	B	B	3.7	3.8	A					
5						Q	3.8	A	A	A	B	B	B	B	B	C	C	C	C					
6						A	3.4	3.7	A	B	A	B	B	B	4.3P	4.0	A	B	A					
7						3.0	3.4	[3.7]A	4.0	B	B	B	B	B	B	A	A	A	A					
8						A	3.4	B	B	B	B	B	A	A	B	B	B	3.9	A					
9						3.0	[3.6]A	4.2	(4.3)E	S	S	S	S	S	A	A	A	A	A					
10						A	C	C	A	A	S	S	S	S	S	S	A	A	A					
11						3.1	A	A	A	A	S	A	S	S	C	C	C	A	A					
12						3.3	A	A	SA	A	A	B	B	B	B	B	B	A	A					
13						3.3	4.2	A	A	B	A	A	B	A	A	M	M	M	M					
14						3.2	Q	3.9E	A	A	A	A	B	B	B	B	B	B	A					
15						3.3	[3.6]A	3.9	SA	A	C	C	C	C	C	C	C	3.7	3.5					
16						2.7	3.5	4.1	4.3	A	A	A	A	A	C	A	A	A	3.9	A				
17						3.2	3.4	3.8 ^H	[4.0]B	4.4	[4.4]A	4.4	[4.4]B	4.3	4.3S	4.1	[4.0]A	3.9	A					
18						3.4	A	A	A	A	A	A	A	A	4.3S	4.1S	4.0	A	A					
19						C	C	C	C	C	A	A	A	A	A	A	A	A	A					
20						C	C	C	C	C	A	A	A	A	A	A	A	A	A					
21						3.0	3.8	[4.0]A	4.1	4.3	A	A	4.1	[4.3]A	4.2	4.1	3.9	3.8	A					
22						L	Q	A	A	C	A	B	A	4.3	4.2	4.2P	4.1	3.7	3.4					
23						A	A	A	4.2	A	A	4.4	A	A	B	B	A	4.0	3.2					
24						Q	B	A	B	B	B	B	A	A	A	4.3	4.1	3.8 ^H	Q					
25						B	3.3	3.7	A	A	A	B	A	A	A	B	A	A	A					
26						M	M	M	M	A	A	B	M	M	M	M	M	M	M					
27						A	3.6	A	A	A	A	4.3	A	A	A	A	4.1	A	A					
28						C	C	C	B	B	A	B	B	A	4.5	B	A	A	A					
29						A	3.6	4.0	A	B	B	4.5	[4.5]A	4.5	4.4	A	A	A	Q					
30						A	A	3.9	4.0	B	B	B	B	B	B	B	A	A	A					
31						A	A	3.9	4.0	B	A	4.2	B	A	A	4.2	B	A	A					
Mean Value						3.2	3.6	3.9	4.1	4.4	4.6	4.4	4.4	4.3	4.3	4.1	4.0	3.8	3.4					
Median Value						3.2	3.6	3.9	4.1	4.4	4.6	4.4	4.4	4.3	4.3	4.1	4.0	3.8	3.4					
Count						14	15	13	7	2	2	5	3	5	8	7	8	10	3					

foF1

Swamp 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 4

Lat. 46° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

R'F1

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	S	S	B	B	B	B	B	C	C	C	C	C	C					
2						300	A	B	B	B	B	A	B	A	A	A	A	A	A					
3						300	280	A	A	A	A	A	S	300	B	A	A	A	A					
4						300	300	280	[280] ^A	280	B	B	B	B	B	B	250	300	A					
5						Q	360 ^A	A	A	A	A	B	B	A	B	300 ^B	C	C	C					
6						A	280 ^A	300	A	A	A	A	B	260	270	300	A	A	A					
7						320	300	[280] ^A	270	B	B	B	B	260	B	A	A	A	A					
8						A	A	B	B	B	B	B	A	A	A	A	B	A	A					
9						300	A	A	A	A	A	A	A	S	A	A	A	A	A					
10						A	C	C	A	A	A	270	A	A	S	S	A	A	A					
11						300	A	A	A	B	A	A	A	A	S	C	C	C	A					
12						300	A	A	A	A	A	A	B	B	B	B	B	B	A					
13						300	290	A	A	B	A	A	B	B	A	A	M	M	M					
14						310	Q	300	A	A	A	A	B	B	B	B	A	A	A					
15						300	[300] ^A	300	SA	A	C	C	C	C	C	C	C	310	A					
16						250	260	260	270	A	A	A	A	A	A	A	A	A	270	A				
17						A	A	A	A	A	A	A	230	A	A	280	[290] ^A	300	A					
18						270	280	300 ^H	A	A	A	250 ^A	[250] ^B	250 ^A	B	B	B	A	A					
19						360 ^A	A	A	A	A	A	A	A	A	A	A	A	A	A					
20						C	C	C	C	C	C	A	A	A	A	A	A	A	A					
21						300	280	[260] ^A	250	A	A	A	250	A	A	A	A	A	300 ^A	A				
22						280	Q	A	A	A	C	A	B	A	250	340 ^A	250	260	280	300				
23						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
24						Q	A	A	290	A	C	A	A	A	A	A	A	240	230 ^H	Q				
25						Q	B	A	A	B	B	B	A	A	A	A	A	A	A					
26						260 ^F	300 ^A	380	A	A	A	B	M	M	M	M	M	M	M					
27						M	M	M	M	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	A	A	B	B	B	A	A	460	A	A	A					
29						C	C	C	A	A	A	260	[260] ^A	250	280	280	A	A	A					
30						A	280	260	A	B	B	B	B	B	B	B	B	A	A					
31						A	A	280 ^A	250	B	A	A	A	A	370 ^A	A	230	A	A					
Mean Value						300	290	290	270	280	-	260	250	260	340	280	250	280	300					
Median Value						300	280	280	270	280	-	260	250	260	340	290	250	300	300					
Count						16	12	12	7	1	-	3	4	4	5	4	5	7	1					

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

IONOSPHERIC DATA

Lat. 46° 23.6' N
Long. 141° 41.1' E

Wakkanai

foE

JUL 1952

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	S	S	B	B	B	B	B	C	C	C	C	C	C					
2						A	2.3	B	B	B	B	3.3	B	B	3.3	3.0	2.8	2.0	A					
3						A	2.2	3.0	3.2	3.0	3.3	3.3 ^B	3.3 ^P	3.3	3.0	3.0	2.7	2.4	1.8					
4						1.2	2.4	2.5	2.8	3.3	3.0 ^J	3.1 ^J	3.1 ^J	3.1 ^J	3.1 ^J	(3.0) ^B	2.9	2.3	2.1					
5						1.8	2.2	2.6	2.9	3.0	3.1	(3.0) ^B	3.0	3.2	3.2	3.0	C	C	C					
6						2.0	2.4	2.7	3.0	3.0	3.1	B	B	3.3	2.7	(2.7) ^A	2.7	2.4	1.9					
7						1.9	2.2	2.7	2.9	3.0	3.0	A	B	3.4	(3.2) ^B	3.1	B	B	A					
8						A	2.2	B	B	B	B	B	3.2	3.0	A	B	B	2.8	2.3					
9						2.0	2.4	2.7	3.0	3.1	3.0	2.8	3.4	(3.4) ^S	3.3	3.1	2.9	2.4	2.0 ^P					
10						1.8	C	C	2.9	3.0	3.1	3.1	S	A	S	3.0 ^J	2.9	2.3	2.1					
11						2.1	(2.4) ^A	2.7	2.9	3.0	3.1	3.1	3.0	3.0 ^J	C	C	C	2.8	2.0					
12						1.8	2.5	2.8	3.0	3.1	3.1	(3.1) ^B	3.1	3.2	3.1 ^J	(3.0) ^A	2.9	2.9	2.1					
13						2.2 ^H	2.4	2.8	3.0	B	A	B	B	B	B	A	M	M	M					
14						1.7	2.6	3.0	3.0	3.1	3.2	3.1	B	B	B	B	A	A	A					
15						2.0	2.5	2.8	3.1	3.1	C	C	C	C	C	C	C	2.5 ^A	2.1					
16						1.9	2.1	2.4	2.9	3.1	3.2	3.2	A	A	C	3.2	(2.8) ^A	2.3	2.0					
17						2.0	2.3	2.7	3.1	3.0	3.0	3.0	3.0	A	A	3.1	2.8	2.4	1.8					
18						A	A	2.6	2.8	3.0	(3.1) ^B	3.2	3.3	(3.2) ^A	3.0	2.8	2.6	2.5	2.0					
19						A	2.3	2.6 ^J	3.0	3.0	3.0	3.0	3.0	B	A	A	A	A	A					
20						C	C	C	C	C	3.1	3.1	3.2	3.1	A	A	A	A	A					
21						1.8	2.3	2.7	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.0	2.7	2.3	A					
22						1.8	2.3	2.4 ^P	2.8	(2.9) ^C	3.0	B	A	A	A	3.2	3.1	A	2.0					
23						B	A	2.6	3.0	3.0	(3.0) ^A	3.0	3.0	A	B	B	A	A	A					
24						A	A	2.8	3.0	(3.1) ^C	3.2	3.2	3.1	3.0	2.9	(2.8) ^A	2.6	A	A					
25						B	A	2.7	B	B	B	B	B	B	A	A	A	2.5	2.0					
26						1.9	2.3	2.6	3.1	3.1	3.1	B	M	M	M	M	M	M	M					
27						M	M	M	M	3.0	2.9	3.0	3.2	3.2	3.1	3.0	2.8	2.5	A					
28						1.8	2.1	2.5	2.9	2.9	B	A	B	A	A	A	A	2.6	2.3					
29						C	C	C	3.1	(3.1) ^B	3.1	3.2 ^J	3.5	3.2	3.0 ^J	A	A	A	A					
30						A	2.2	2.6 ^F	2.6	B	B	B	B	B	A	B	A	A	A					
31						1.2	1.8 ^A	2.3	2.7	(2.6) ^B	3.0	3.1	B	A	A	A	B	A	A					
Mean Value						1.8	2.3	2.7	2.9	3.0	3.1	3.1	3.2	3.2	3.1	3.0	2.8	2.5	2.0					
Median Value						1.8	2.3	2.7	3.0	3.0	3.1	3.1	3.1	3.2	3.1	3.0	2.8	2.4	2.0					
Count						18	22	24	25	24	23	20	16	15	14	16	14	18	15					

foE

SwEEP 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

W 6

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

Lat. 45° 28.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

f_oF₂

Jul. 1952

Day	00	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	120	120	120	[120]B	120	120	B	C	C	C	C	C	C					
2						A	130	[130]B	130	120	[120]B	130	B	B	130	120	120	120	A					
3						A	120	120	130	130	120	130	120	120	120	130	130	120	120					
4						130	120	120	120	130	130	130	130	130	130	130	120	120	130					
5						140	130	130	130	120	120	120	130	140	130	140	C	C	C					
6						130	120	130	120	110	110	B	B	120	110	[110]A	110	120	130					
7						120	120	110	120	120	120	[120]A	130	120	130	130	B	B	A					
8						A	110	130	120	120	B	B	120	120	A	B	B	120	120					
9						120	120	120	120	120	130	120	120	[120]S	120	130	120	130	130					
10						130	C	C	120	120	130	130	130	[130]A	130	120	A	130	110					
11						130	[130]A	120	120	130	120	120	120	120	C	C	C	130	150					
12						120	120	120	120	120	120	[120]S	120	120	120	[120]A	110	120	130					
13						A	130	130	130	B	A	B	B	B	A	A	M	M	M					
14						140	130	130	130	130	130	130	B	B	B	130	C	C	A					
15						120	120	120	120	120	C	C	C	C	C	C	C	C	A					
16						130	120	130	120	120	120	120	120	120	A	A	A	120	130					
17						130	120	130	130	120	120	120	120	120	A	A	120	120	120					
18						A	A	120	120	120	120	120	120	120	120	120	110	[120]A	120	120				
19						A	120	120	120	130	130	130	120	130	A	A	A	A	A					
20						C	C	C	C	C	130	100	100	100	A	A	A	110	A					
21						120	120	120	130	120	120	120	120	120	120	120	120	120	120					
22						130	120	120	140	[140]C	130	B	A	A	130	130	130	[130]A	130					
23						130	[130]A	130	120	120	[120]A	130	120	A	A	B	A	A	A					
24						A	A	120	120	[120]C	120	110	110	120	110	[110]A	110	A	A					
25						B	B	120	B	B	B	B	B	B	B	A	A	A	110	110				
26						120	120	120	120	120	120	120	M	M	M	M	M	M	M					
27						M	M	M	M	130	120	130	120	120	120	120	120	120	120					
28						120	120	120	130	A	B	A	B	A	A	A	A	130	130					
29						C	C	C	120	120	120	120	120	120	120	A	A	A	A					
30						A	120	120	150	B	B	B	B	120	[120]A	110	A	A	A					
31						120	[120]A	120	110	130	130	130	B	A	A	A	140	A	A					
Mean Value						130	120	120	120	120	120	120	120	120	120	120	120	120	120					
Median Value						130	120	120	120	120	120	120	120	120	120	120	120	120	120					
Count						18	24	27	28	26	25	23	18	18	16	18	13	18	14					

Sweep 1.0 Mc to 15.5 Mc in 2 min Manual Automatic

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

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

Jul. 1952

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	6.0	E	E	E	G	2.6	G	G	G	B	6.0	G	5.5	C	C	C	C	C	C	C	3.0	6.0	3.8	5.0
2	6.0	6.0	6.0	3.8	3.6	2.4	6.0	B	G	G	B	6.0	B	B	9.8	10.0	3.8	3.8	3.8	4.0	4.0	3.0	1.5	3.0
3	6.0	4.0	4.0	5.0	3.0	3.6	3.8	4.5	6.0	6.0	9.0	6.0	G	G	4.1	6.0	7.2	6.0	6.0	3.0	2.8	2.4	3.8	2.9
4	4.7	6.0	3.9	3.9	G	2.2	G	3.3	6.0	4.0	G	G	G	G	G	G	3.5	3.5	3.9	G	3.2	2.3	E	E
5	3.8	3.2	2.8	3.2	1.9	3.6	4.0	8.0	6.0	7.0	6.0	G	G	G	G	G	C	C	C	C	2.6	E	E	2.2
6	3.0	3.8	5.0	3.0	3.0	6.0	3.8	3.8	6.0	4.0	5.0	3.9	B	G	G	3.6	4.5	3.7	3.8	1.6	2.3	E	E	E
7	E	E	3.0	2.5	2.6	2.6	3.9	4.5	3.5	G	G	3.5	G	G	G	5.0	4.5	3.8	4.0	6.0	3.0	6.0	3.7	3.3
8	3.8	3.0	2.6	1.2	3.7	3.7	3.8	G	G	G	B	6.0	9.1Y	4.1	B	B	4.0	4.0	6.0	8.0	6.0	3.9	3.0	E
9	3.0	E	E	E	3.2	3.2	5.5	6.0	3.8	3.9	3.9	G	S	5.0	5.0	8.0	6.0	6.0	3.5	5.8	5.9	6.0	6.0	
10	2.6	2.6	3.2	2.9	3.6	6.0	C	C	8.5	6.0	4.0	3.8	3.8	3.8	G	G	6.0	6.0	6.0	6.0	6.0	3.0	4.7	3.0
11	3.8	5.2	2.0	1.5	G	G	4.2	6.0	3.7	12.0	6.0	3.8	6.0	G	C	C	C	8.5	6.0	5.0	5.0	3.8	6.0	E
12	E	E	E	3.0	2.1	2.4	6.4	7.0	5.0	5.0	6.0	B	G	G	G	3.4	G	6.0	6.0	3.7	6.0	6.0	6.0	6.0
13	4.0	3.0	2.4	3.8	2.9	3.0	G	4.0	8.3	B	6.0Y	6.0	3.8	6.0	6.0	6.0	M	M	M	5.0	4.0	3.0	3.0	6.0
14	3.8	9.0	6.0	6.0	5.0	3.4	4.7	3.8	8.0	7.0	6.2	6.0	C	C	C	G	C	3.0	3.8	4.1	4.7	4.7	5.0	6.0
15	5.6	3.2	3.0	3.0	3.9	3.5	6.0	4.0	6.3	6.0	C	C	C	C	C	C	C	3.8	6.0	4.8	3.2	2.2	3.4	6.0
16	3.3	E	5.0Y	3.0	2.8	G	G	G	G	5.2	5.1	6.4	5.4	4.3	C	7.9	7.4	7.9	6.1	6.0	3.8	4.4	6.4	6.0
17	6.0	6.0	6.0	3.8	3.8	5.0	5.6	4.0	5.8	6.0	5.5	6.0	3.8	5.5	3.5	G	4.0	4.0	5.5	3.0	3.0	3.0	5.0	2.6
18	3.8	3.4	3.6	3.0	G	3.0	3.0	4.0	G	3.9	6.1	3.9	G	3.5	G	2.7	4.2	4.2	5.8	3.6	3.0	3.0	4.0	2.6
19	3.6	3.4	2.6	4.0	2.3	5.2	6.0	1.30	6.2	9.0	14.0	6.5	6.0	G	6.0	6.0	6.0	6.0	6.0	6.0	5.0	6.0	C	C
20	C	C	C	C	C	C	C	C	C	C	6.0	7.0	7.0	6.0	9.0	6.0	6.5	5.2	9.8	6.0	6.0	2.6	6.0	E
21	E	5.2	E	E	3.6	G	3.5	6.0	4.2	6.0	4.3	G	G	6.4	5.4	6.0	4.6	6.0	8.7	E	2.9	E	E	E
22	3.3	2.8	3.1	3.2	3.4	3.1	3.8	6.0	5.3	C	5.0	6.0	6.0	3.6	5.6	G	G	3.0Y	3.6	3.0	3.7	E	6.0	5.8
23	4.2	3.7	3.2	4.6	4.7	3.8	4.8	4.7	4.8	6.0	6.0Y	5.7	6.0	6.0Y	B	B	6.0Y	5.0	3.8	3.8	E	2.0	3.0	E
24	2.0	3.0	6.0	6.0	6.0	5.5	5.0	4.0	6.0	C	6.1	9.0	6.1	6.1	5.3	4.6	G	5.0	3.8	4.5	4.2	3.8	3.1	6.0
25	3.7	1.2	1.6	2.5	2.9	B	B	5.6	B	5.7	6.0	6.0	6.0	6.0	6.0	3.1	5.5	4.7Y	6.0	6.0Y	3.2	3.0	2.4	4.8
26	5.0	4.5	3.0	1.7	2.6	2.6	3.1	4.5Y	6.0	5.3	4.9	G	M	M	M	M	M	M	M	M	M	M	M	M
27	M	M	M	M	M	M	M	M	M	8.7	13.5	6.0	6.0	6.0	5.0	6.2	4.6	5.5	7.5	5.0	6.0	5.8	5.8	3.0
28	5.0	3.0	3.0	5.0	1.5	5.2	4.1	7.0	6.0	6.0	3.8	6.0Y	6.0Y	6.0	3.8	6.0	6.4	6.0	7.3	6.0	6.0	5.7	6.0	3.2
29	E	C	C	C	C	C	C	C	C	B	4.0	6.3	5.1	4.2	G	G	5.2	6.3	4.6	2.8	4.0	3.7	2.9	5.0F
30	5.1F	4.0	3.8	3.8	3.8	5.0	3.5	5.5	9.7	B	B	6.0Y	6.0Y	4.9Y	6.0	6.0	6.0	5.9	3.9	6.0	6.0	5.5	5.5	1.6
31	3.2	3.9	3.1	3.1	1.6	5.0	6.0	4.2	4.3	3.9	6.0	6.0	6.0	8.9	5.7Y	5.1	3.0	6.0	8.4	6.0	5.5	3.9	6.0	6.0
Mean Value	4.2	4.0	3.7	3.7	3.2	3.8	4.6	5.4	5.9	5.9	6.3	5.5	5.5	6.0	5.6	5.5	5.2	5.2	5.7	4.6	4.3	4.0	4.4	4.4
Median Value	3.8	3.3	3.0	3.0	3.0	3.4	4.0	4.5	5.8	6.0	6.0	6.0	5.4	6.0	5.0	4.9	4.6	5.2	6.0	4.1	4.0	3.4	3.8	3.0
Count	2.9	2.8	2.8	2.8	2.8	2.7	2.6	2.6	2.7	2.5	2.7	2.5	2.5	2.5	2.4	2.5	2.4	2.7	2.7	2.9	2.9	3.0	2.9	2.9

fEs

Sweep 1.0 Mc to 1.5.5 Mc in 2 min

Manual Automatic

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

Lat. 45° 23.8' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

(M3000)F2

Jul. 1952

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	S	S	S	S	S	S	S	B	B	A	B	B	C	C	C	C	C	C	C	(30) ^S	(30) ^P	(2.9) ^S	2.8	
2	2.6	2.7	2.6	2.6	(2.6) ^S	2.8	A	B	B	B	B	2.7	B	B	A	A	2.8	(2.8) ^S	2.8	2.8	2.9	2.9	2.6	2.8	
3	2.7	2.5	2.6 ^H	2.7	(2.8) ^S	2.7	2.8	2.9	(2.9) ^A	2.9	2.7	2.4	S	A	B	A	A	A	S	(3.0) ^J	3.1	2.8	2.5	2.6	
4	2.7	2.5	2.4	2.7	2.3 ^K	2.4 ^K	2.5 ^K	2.5 ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	(2.7) ^K	2.7 ^K	3.0 ^K	(2.8) ^K	(2.7) ^K	(2.7) ^K	2.5 ^K	
5	2.6 ^K	(2.8) ^K	3.0 ^K	2.6 ^K	2.6 ^K	3.0 ^K	S ^K	A ^K	A ^K	A ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	2.4 ^K	C ^K	C ^K	3.0 ^K	2.5 ^K	(2.5) ^K	(2.5) ^K	2.5 ^K	
6	2.7 ^K	S ^K	A ^K	2.8 ^K	2.6 ^K	A ^K	S ^K	A ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	2.4 ^K	2.6 ^K	2.7 ^K	2.7 ^K	2.7 ^K	
7	B ^K	2.6 ^K	2.7 ^K	2.5 ^K	2.7 ^K	2.5 ^K	2.6 ^{PH}	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	3.0 ^K	2.8	2.7	2.9	2.7	
8	2.5	2.7	2.6	2.6	3.0	2.7	2.7	2.7	B	B	B	B	A	A	B	B	B	2.5	A	A	A	S	S	S	
9	2.6	2.6	2.6	2.5	2.7	3.1	(2.8) ^A	2.5	(2.5) ^S	2.5 ^S	S	S	S	S	S	S	A	A	A	2.6	(2.8) ^S	(2.9) ^S	2.6	(2.6) ^A	
10	2.6 ^F	2.7	2.5	2.6 ^F	2.5 ^F	A	C	C	A	A	S	S	S	S	S	S	C	C	A	A	(2.7) ^A	(2.7) ^A	2.7	2.6 ^H	
11	2.5	2.6	2.6	2.6	2.5	W	2.5	W	B	A	A	S	A	S	C	C	C	A	A	2.7	(2.6) ^J	2.6	2.8	2.7	
12	F	S	2.8	2.7	2.5	2.7	A	2.7	A	B	A	B	B	B	B	B	B	A	A	A	2.5	2.6	A	A	
13	2.6 ^F	2.7 ^F	(2.8) ^F	2.9 ^F	2.5	2.8	2.8	2.8	A	B	A	A	B	B	A	A	M	M	M	M	2.8	3.1	2.6	2.7	(2.7) ^H
14	2.7	(2.8) ^J	(2.8) ^A	2.9 ^F	(2.5) ^P	2.5	3.0	2.6	A	A	A	A	A	B	B	B	B	B	A	A	2.7	(2.8) ^S	(2.6) ^S	2.6	2.5
15	2.7	2.6 ^F	(2.5) ^H	2.6	(2.5) ^S	2.8	(2.7) ^A	2.6	SA	A	C	C	C	C	C	C	C	C	2.7	2.7	2.7	(2.8) ^S	2.6	2.5	
16	2.7	2.5	2.7	2.7	(2.9) ^P	2.7	B	B	2.8	3.1 ^P	B	A	B	B	2.8	2.7	2.7	2.7	2.8	2.8	2.9	(2.8) ^S	2.7	2.7	
17	A	2.6	(2.8) ^A	2.9	2.8	2.8	A	B	2.7	A	B	A	B	B	A	A	A	A	A	A	2.7	2.8	2.7	2.8	
18	2.6	2.7 ^H	2.6 ^H	2.6 ^H	2.6 ^H	2.6	2.5	2.7	2.7	2.9	(2.7) ^A	2.5	(2.5) ^B	2.5	2.6	2.5	2.5	2.5	2.7	2.7	2.7	2.6	2.8	2.5 ^P	
19	(2.6) ^F	(2.6) ^F	(2.6) ^F	2.7	2.6	2.7	2.7	A	A	A	A	A	A	A	B	A	A	A	2.8	2.8	2.8	2.8	2.8	2.5 ^P	
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.6	2.8	2.5	C	
21	2.5 ^H	2.7	2.5	2.5	2.6	2.8	2.7	(2.8) ^A	2.8	2.9	2.5	2.7	2.7	2.6	2.5	2.8	2.7	2.6	2.7	2.6	(3.0) ^P	2.4 ^V	2.5 ^H	2.6 ^{FV}	
22	(2.5) ^P	2.5 ^P	(2.6) ^J	(2.5) ^P	2.7	2.6	3.0	A	A	C	2.6	A	A	A	2.5	W	2.7	2.5	2.7	2.8	2.5	(2.8) ^P	2.7	2.5 ^P	
23	(2.6) ^F	(2.7) ^F	2.8	2.8	3.0 ^H	3.1	3.0	3.0	2.6	(2.8) ^A	3.0	3.1	A	A	B	2.8	2.8	3.0 ^P	2.8	2.7	2.7	2.5	2.5 ^P	2.7	
24	2.6 ^F	(2.6) ^F	A	A	2.9	3.0	2.8	3.1	A	C	A	A	A	A	A	2.8	2.9	2.8	2.7	2.6	2.8	2.7	2.6	2.7	
25	(2.7) ^P	2.7	2.6	2.6 ^F	2.6 ^F	2.8	(2.8) ^B	2.9	B	A	A	A	A	A	2.7	2.7	2.7	2.7	2.7	2.7	A	S	2.9 ^P	(2.7) ^A	
26	A	2.7	2.8	2.7 ^S	2.9 ^F	B	B	2.6	(2.7) ^A	2.8	2.7	2.7	M	M	M	M	M	M	M	M	M	M	M	M	
27	M	M	M	M	M	M	M	M	M	M	A	2.5	A	A	2.8	2.8	2.9	2.7	(2.8) ^A	2.8	2.7	(2.7) ^F	2.5 ^F	2.6 ^F	
28	2.6 ^F	2.7 ^F	(2.5) ^F	(2.6) ^A	2.6 ^F	2.5	A	A	A	2.9	B	A	A	A	2.5	B	B	2.6	(2.7) ^A	2.8	3.0	2.8	2.8	2.8	
29	2.6	C	C	C	C	C	C	C	B	B	2.9	2.7	(2.8) ^A	2.8	(2.8) ^B	2.9 ^P	(2.8) ^A	2.8	2.8	2.7	2.6 ^F	2.5 ^F	2.6 ^F	2.6 ^F	
30	2.7 ^F	2.5 ^F	(2.5) ^F	2.6	2.8 ^P	3.1	3.2	2.7	A	B	B	B	B	B	B	B	2.9	2.9	A	A	B	A	(2.6) ^F	(2.7) ^F	
31	2.8	(2.8) ^S	2.7 ^F	(2.7) ^F	2.8	(2.8) ^F	2.7	2.7	2.7	B	A	A	A	A	A	2.9	(2.8) ^B	2.6	(2.6) ^A	2.6	(2.8) ^J	2.6	(2.6) ^A	2.7	
Mean Value	2.6	2.6	2.6	2.6	2.7	2.8	2.7	2.7	2.7	2.9	2.7	2.7	2.7	2.6	2.7	2.7	2.8	2.7	2.7	2.8	2.8	2.7	2.7	2.6	
Median Value	2.6	2.7	2.6	2.6	2.6	2.8	2.7	2.7	2.7	2.9	2.7	2.7	2.7	2.6	2.8	2.7	2.8	2.7	2.7	2.7	2.8	2.7	2.7	2.6	
Count	24	25	25	26	27	23	17	15	9	8	7	8	3	7	8	11	14	10	20	26	27	27	25	24	

W9

Manual Automatic

Sweep 1.0 Mc to 1.5.5 Mc in 2 min

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

Lat. 45° 23.6' N
Long. 141° 41.1' E

IONOSPHERIC DATA

Wakkanai

Jul. 1952

f min F

135° E Mean Time

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

f min F

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

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

Lat. 45° 28.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

f_{minE}

Jul. 1952

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	E	E	E	E	1.4	1.4	1.4	[1.4]B	1.4	2.0	5.0	C	C	C	C	C	C	E	C	1.4	1.3	1.4
2	E	E	E	E	E	E	1.4	[1.7]B	2.0	1.3	[1.3]B	1.3	B	B	2.6	1.4	1.4	1.2	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	2.0	2.1	1.4	2.1	1.6	1.6	1.6	2.0	1.3	1.6	1.4	1.6	1.4	1.4	1.4	E
4	E	E	E	E	E	E	E	E	1.4	E	E	E	1.2	1.5	E	1.6	E	E	E	1.5	E	1.7	E	E
5	E	E	E	E	E	E	E	E	1.4	1.4	1.4	1.4	2.0	2.4	1.4	2.0	C	C	C	C	1.4	E	E	1.4
6	E	E	E	E	E	E	1.4	1.4	E	1.3	1.4	3.4	[2.4]B	1.5	1.4	1.4	1.4	E	1.2	1.4	2.0	E	E	E
7	E	E	E	E	E	E	E	E	E	1.6	1.6	2.4	1.6	1.6	1.6	1.6	3.0	E	E	E	E	E	E	1.6
8	E	E	E	E	E	1.6	E	1.6	1.6	2.6	B	B	1.2	1.3	1.3	B	B	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	1.2	E	E	1.4	1.4	1.3	[1.4]S	1.4	1.3	1.2	1.2	E	1.4	1.4	1.4	1.4	1.2
10	E	E	1.2	E	E	E	C	C	1.4	E	1.5	E	1.5	E	E	1.5	1.4	E	1.2	1.1	1.3	1.4	1.2	
11	E	E	E	E	E	1.6	E	E	1.5	1.6	1.6	1.6	1.6	1.6	C	C	C	1.6	E	1.6	E	1.6	E	E
12	E	E	E	E	E	E	E	1.3	1.6	1.5	2.0	[2.3]B	2.6	2.6	2.0	1.5	1.4	E	E	E	E	E	E	E
13	E	E	E	E	E	E	1.3	1.6	1.5	[1.4]B	1.3	3.6	3.4	5.0	1.6	1.6	M	M	1.6	1.4	1.4	1.6	1.4	1.4
14	E	E	E	E	E	E	E	1.4	1.4	1.5	1.6	1.6	B	B	B	1.2	1.4	1.4	1.5	1.2	1.3	1.4	2.1	1.7
15	1.1	E	E	E	E	E	E	E	1.4	1.4	C	C	C	C	C	C	C	1.1	1.4	1.3	1.4	1.4	1.4	1.4
16	E	E	E	E	E	E	1.4	2.0	1.4	1.4	1.3	1.4	1.4	1.4	[1.4]C	1.4	E	E	E	1.2	1.3	E	E	E
17	E	E	E	E	E	E	E	E	1.4	1.4	1.6	1.4	1.4	1.4	1.4	E	1.4	E	1.3	1.4	E	1.3	E	E
18	E	E	E	E	E	E	E	1.4	1.3	1.4	1.2	1.3	1.5	1.5	1.4	1.4	1.4	E	E	E	E	1.4	1.4	1.4
19	E	E	E	E	E	E	1.4	2.0	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.4	E	E	E	E	E	C	C
20	C	C	C	C	C	C	C	C	C	C	2.0	2.0	2.1	2.1	1.8	2.2	1.8	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	1.4	1.6	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.1	1.4	E	E	E	E
22	1.4	E	E	E	E	E	1.4	1.4	2.2	[1.8]C	1.4	5.4	E	E	1.4	1.4	1.4	1.3	1.3	1.3	2.1	E	1.3	E
23	E	E	E	E	E	E	E	1.3	1.6	1.4	1.4	1.4	1.4	1.6	B	B	1.4	1.4	E	E	E	E	1.4	E
24	E	E	1.4	E	E	E	E	1.4	1.4	[1.4]C	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.2	E	E	1.4	1.3	1.4	1.3
25	E	E	E	E	E	B	B	1.4	[3.3]B	5.2	5.0	3.3	3.5	3.9	1.7	1.4	1.4	E	1.3	1.4	1.4	1.4	1.4	1.4
26	E	E	E	E	E	E	E	E	1.4	1.2	1.4	1.4	M	M	M	M	M	M	M	M	M	M	M	M
27	M	M	M	M	M	M	M	M	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
28	E	1.4	1.1	E	E	E	1.4	1.4	1.3	2.2	3.3	2.3	3.2	1.5	1.5	1.5	1.5	1.2	1.3	E	1.2	1.2	1.5	1.5
29	E	C	C	C	C	C	C	C	1.3	1.4	1.6	1.6	1.5	1.6	1.5	1.4	1.4	E	E	E	1.2	1.5	1.5	1.7E
30	1.8	E	1.1	E	1.1	1.1	1.1	1.4	1.5	B	B	B	B	1.7	1.4	1.5	1.3	1.3	1.3	1.4	1.4	1.3	1.3	1.4
31	E	E	E	E	E	E	E	E	E	1.4	1.4	1.4	5.3	1.5	1.4	1.5	1.2	1.2	1.4	1.4	1.4	1.4	1.4	1.4
Mean Value	1.4	1.3	1.2	—	—	1.5	1.4	1.5	1.6	1.7	1.7	2.0	2.1	1.9	1.5	1.5	1.5	1.4	1.3	1.4	1.4	1.4	1.5	1.4
Median Value	E	E	E	E	E	E	E	4	1.4	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.1	E	1.2	1.2	1.3	1.3	1.2
Count	29	28	28	28	28	27	26	27	29	29	28	28	26	26	25	24	24	27	27	29	29	30	29	29

Manual Automatic

Sweep 1.0 Mc to 15.5 Mc in 2 min

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

Lat. 38° 48.6' N
Long. 140° 08.9' E

IONOSPHERIC DATA

A k i t a

135° E Mean Time

f_oF₂

Jul. 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	6.3	6.7	6.4	5.2	4.5	4.4	5.0	5.4	A	A	6.5	B	A	6.2 ^H	7.1	7.8	8.3	8.0	8.2	7.5	6.9	6.9	6.2	6.3	
2	6.1	5.9	5.5	4.9	5.7	4.8	6.1	6.9	5.7	6.7	5.9	6.9	5.8	6.0	6.4	6.0	6.9	7.3	7.8	6.7	6.8	6.7	5.9	4.9	
3	5.4 ^F	(6.1) ^{PF}	5.5 ^F	5.2	4.9	5.6	7.0	6.9	5.7	6.4	5.8	6.0	6.3	6.6	6.8	6.5	6.3	6.6	[7.6] ^A	8.5	[6.8] ^{SB}	5.2	5.1 ^F	[5.2] ^A	
4	5.3 ^F	4.5 ^F	4.5	4.4 ^F	4.0 ^F	4.2 ^K	4.9 ^K	5.0 ^K	5.1 ^K	4.6 ^K	4.7 ^K	4.9 ^K	4.7 ^K	4.9 ^K	(4.8) ^B	4.8 ^K	4.8 ^K	5.1 ^K	[5.0] ^B	5.1 ^K	4.7 ^K	4.7 ^K	4.9 ^K	4.9 ^K	
5	4.7 ^K	4.4 ^K	4.1 ^K	4.7 ^K	3.6 ^K	4.9 ^K	A	A	A	A	A	A	A	A	5.3 ^K	5.3 ^K	5.4 ^K	5.5 ^K	6.6 ^K	[6.4] ^A	6.2 ^{RE}	6.4 ^{RE}	[5.4] ^A	4.9 ^{SK}	
6	4.3 ^{RE}	4.6 ^{FK}	4.2 ^K	4.3 ^{RE}	3.3 ^K	3.6 ^K	4.2 ^K	[4.3] ^{RE}	4.4 ^{RE}	4.6 ^K	4.6 ^K	A	A	A	4.4 ^{FK}	4.6 ^{FK}	4.7 ^K	4.8 ^K	4.4 ^K	4.4 ^K	8.5 ^K	8.5 ^K	4.9 ^{SK}	4.9 ^{SK}	
7	4.5 ^{SK}	4.3 ^K	4.1 ^K	3.6 ^K	3.4 ^K	4.3 ^K	5.2 ^K	5.3 ^K	4.6 ^K	4.8 ^{HK}	4.8 ^{HK}	4.8 ^K	5.2 ^K	5.4 ^K	A	A	A	5.0 ^K	5.5	5.9	6.2	[5.8] ^A	5.5	4.6	
8	4.0	3.7	4.3	3.5	3.4	4.2	5.3	6.0	7.0	A	A	A	5.5	5.9	5.7	A	A	A	A	A	7.8	A	FS	FS	
9	4.9 ^F	4.2	4.5 ^V	4.0	3.9	3.8	A	A	5.0	5.5	A	A	A	A	A	B	A	A	A	A	A	6.5	[5.6] ^A	4.8 ^F	
10	[5.0] ^A	5.3 ^F	F	F	4.0 ^{FK}	4.3 ^F	6.7	A	A	A	A	A	A	A	A	4.7	A	A	A	A	A	4.9	5.6	A	
11	5.2	4.9	5.0	4.8	[5.4] ^A	6.0	6.3	[5.9] ^A	5.5	BS	A	A	A	A	A	A	A	A	(5.5) ^{PF}	5.5 ^P	(5.5) ^P	5.3 ^{PF}	5.0 ^{PF}	[5.0] ^A	
12	5.0 ^{TF}	(5.0) ^{PH}	[4.9] ^{PH}	4.8 ^F	FB	B	B	A	5.5	[5.4] ^A	5.2	5.2	5.6	5.2	[5.2] ^B	5.1	5.5	A	A	A	A	A	A	FS	(5.4) ^{PF}
13	4.8	4.6	4.7 ^F	4.7 ^F	3.6	4.5	5.1	5.7	A	A	A	A	A	A	A	6.0	6.6	6.6	6.2	5.7	5.9 ^Z	SB	SB	A	
14	A	A	A	FS	FS	(5.8) ^{RE}	7.3	6.1	[6.1] ^A	6.1 ^J	A	A	A	A	6.0	7.1	7.0	A	BS	5.8	(6.0) ^{PH}	[6.2] ^A	6.3 ^{PF}	5.5 ^{PF}	
15	F	F	4.8	4.8	4.6 ^F	4.8 ^F	A	A	A	A	8.3	[7.0] ^A	5.8	6.2	6.1	[5.8] ^B	5.4	6.0	6.3	6.2	5.8	4.9	5.1 ^{PF}	5.3	
16	5.4	4.8	4.6	4.5	5.0	5.2	5.5	7.0	6.5	5.8	5.6	6.0	6.6	6.7	[6.8] ^A	6.8	6.7	A	A	7.4 ^J	6.8 ^J	B	5.9 ^J	A	
17	5.4	4.9	4.9	(5.2) ^{PF}	5.2	4.6	4.4	5.3	A	A	A	A	A	A	6.4	6.3	6.3	5.9	6.5	5.7	6.1	5.8	5.3 ^{PF}	5.9 ^F	
18	5.2 ^F	4.6 ^F	[4.6] ^F	4.5 ^F	4.2 ^F	4.5 ^F	5.4	5.8	5.8	5.9	5.7 ^V	A	A	A	6.1	5.3	[5.3] ^A	5.7	A	A	7.0	4.8	4.1	4.1	
19	4.2	4.1	4.4	[4.2] ^A	4.0	4.6	6.4	5.7	[5.6] ^A	5.4	[5.6] ^A	5.8	5.3	5.3	5.5	5.1	5.5	5.5	5.4	5.8	5.9	A	A	(5.2) ^F	
20	5.3 ^{TF}	[4.9] ^{RE}	4.5 ^{PF}	4.4 ^F	4.4 ^{TF}	5.0 ^Z	6.2	5.2	5.6	5.6	A	A	A	8.1	A	A	6.8	6.9	7.0	6.6	6.7	5.5	6.0 ^{TF}	6.0	
21	5.5	5.9	5.0	5.2	5.2 ^{TF}	4.5	5.2	5.4	A	A	4.7	B	6.4	5.8	6.0	6.2	7.4	7.4	7.2	B	5.5	5.3	5.0	4.9	
22	4.4	4.9	4.9	4.4	4.7	5.0	5.2	5.2	C	C	C	C	C	A	5.2	[5.4] ^C	5.6	5.6	5.7	[6.0] ^A	6.3	5.4	5.0	A	
23	F	F	5.0 ^{TF}	F	3.5 ^{TF}	4.5	5.3	(5.9) ^{PH}	A	A	A	A	5.8	A	A	6.6	5.7	A	A	A	A	A	5.7	5.7	
24	5.0	5.0	4.6	4.0	F	4.4	5.4	5.7	5.8	5.4	A	A	A	A	A	A	6.3	6.4	6.1	6.5	5.7	4.6	A		
25	5.1	(5.4) ^{RE}	4.8	4.9	3.6	4.0	4.5	5.1	5.5	A	A	A	5.8	6.2	A	A	6.3	6.4	6.1	C	A	5.7	5.7		
26	A	A	A	4.2 ^{TF}	[3.9] ^A	3.6	5.0	5.3	5.7	[5.5] ^A	5.5	5.6	6.0	6.4	6.1	7.2	6.9	6.4	6.1	C	A	5.2 ^{PF}	(5.7) ^{PF}	[5.2] ^{FS}	
27	4.8 ^{TF}	(5.4) ^{PF}	4.7 ^F	[4.6] ^C	4.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	5.0	4.8 ^F	4.3 ^H	4.4	3.4	3.7	5.2	[6.1] ^A	7.0	A	A	A	5.3	5.3	5.9	5.2	5.1	6.4	6.5	A	A	FS	5.5 ^{TF}		
29	[5.1] ^H	4.9 ^F	4.7 ^F	4.3 ^F	4.4 ^F	4.6	5.7	7.8 ^H	7.2	A	A	6.0	6.4 ^H	6.5	6.2	6.5	6.2	5.5	5.6	[5.4] ^A	5.5	5.6	5.4 ^F	FS	
30	FS	FS	FS	FS	FS	4.7	4.6	4.6	C	C	C	A	A	A	6.8	[6.4] ^A	6.1 ^J	A	A	A	A	5.4 ^F	5.2 ^F	[5.0] ^F	
31	A	A	A	4.8 ^{TF}	4.7 ^{TF}	4.0	5.8 ^J	5.3 ^T	6.3 ^H	5.7	5.9	6.3	[5.9] ^A	5.5	5.6	5.6	5.3	5.9 ^H	A	A	A	5.0	5.9	6.3	
Mean Value	5.0	5.0	4.8	4.5	4.2	4.6	5.4	5.7	5.8	5.6	5.7	5.9	5.8	6.0	5.9	5.9	6.1	6.1	6.3	6.2	6.1	5.5	5.5	5.4	
Median Value	5.0	4.9	4.7	4.5	4.0	4.5	5.2	5.7	5.7	5.6	5.6	6.0	5.8	6.0	6.0	5.9	5.9	6.0	6.2	6.1	5.9	5.4	5.4	5.2	
Count	24	25	27	27	27	29	26	24	20	15	13	11	16	18	21	24	26	22	19	20	21	22	24	23	

A 1

Manual Automatic

Group: 1.0 - Mc to 17.0 Mc in 1.5 min

f_oF₂

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

Lat. 39° 43.5' N
Long. 140° 08.2 E

Akita

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

f_pF₂

Day	00	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	(350)A	320	320	340	330	400	360	A	A	A	B	A	310H	320	310	300	300	290	290	270	310	310	320
2	310	320	370	330	310	260	U	280	U	360	U	A	A	U	310	320	320	320	300	280	300	280	320	310
3	360F	(400)F	310F	320	300	300	280	260	U	290	U	U	350	340	330	300	U	310	(300)A	280	SB	340	350F	(360)A
4	380F	360F	360	310F	(430)F	420K	390K	U	U	U	U	U	U	U	B	U	U	U	310K	(300)B	280K	310K	320K	360K
5	340K	320K	320K	340K	320K	290K	A	A	A	A	A	A	A	A	U	U	U	360K	300K	(270)A	(240)F	(250)F	(270)A	(310)F
6	320F	350F	420K	(340)F	350K	U	U	A	U	U	U	U	B	B	U	U	U	340K	340K	A	BS	BS	330K	340K
7	350K	290K	320K	370K	350K	330K	300K	350K	U	U	U	U	U	U	U	A	A	290	300	280	(280)A	280	310	300
8	320	290	350	340	340	350	310	280	260	A	A	A	U	U	U	A	A	A	A	310	A	FS	FS	FS
9	320F	350	(380)F	290	310	290	A	A	U	U	U	A	A	A	A	B	A	A	A	A	A	310	(320)A	350F
10	(350)A	370F	F	F	(360)F	350F	A	A	A	A	C	A	A	A	B	U	A	A	A	A	A	310	A	A
11	390	370	310	300	(300)A	290	250	(260)A	280	BS	A	A	A	A	A	A	A	U	(330)F	280P	(310)F	(310)F	(320)F	(360)A
12	(390)F	(370)F	(340)F	(310)F	FB	B	B	A	A	A	U	U	U	U	B	U	U	A	A	A	A	A	FS	(310)F
13	310	320	320F	(340)F	320	290	310	300	A	A	A	A	A	A	A	A	310	310	300	290	300	300	SB	SB
14	A	A	A	FS	FS	(320)F	310	280	A	A	A	A	A	A	U	340	340	A	BS	280	(300)F	(300)A	(500)F	(300)F
15	F	F	340	350	350F	320F	A	A	A	A	260	A	U	U	310	B	350	330	290	280	330	380	(390)F	320
16	350	330	330	340	300	300	330	290	260	290	U	U	370	320	(320)A	310	320	A	A	(300)F	(300)F	B	(500)F	A
17	A	(340)F	340	(340)F	320	270	290	U	A	A	A	A	A	A	A	A	320	300	300	300	300	320	(330)F	350F
18	350F	350F	(340)F	340F	330F	U	370	320	U	U	U	U	A	A	A	U	A	380	A	A	280	330	320	320
19	360	350	360	(340)A	320	290	250	U	A	U	A	U	U	U	U	A	U	U	310	290	310	A	(330)F	A
20	(320)F	FS	(350)F	310F	(330)F	270F	240	U	290	U	A	A	A	A	A	A	360	300	320	300	300	320	(330)F	350F
21	360	340	360	360	(300)F	360	350	A	A	A	U	B	340	U	350	390	430	330	280	B	290	330	350	350
22	340	350	380	350	310	320	290	U	C	C	C	C	C	A	B	C	U	330	300	(310)A	320	300	310	A
23	F	F	(300)F	F	(280)F	300	280	(330)F	A	A	A	A	U	A	A	A	(310)A	300	A	A	A	280S	310S	340S
24	330	330	330	290	F	310	290	300	250	A	A	A	U	A	A	290	U	A	A	A	A	300	320	350
25	340	(390)F	360	370	330	310	U	U	U	A	A	A	U	A	A	A	310	280	280	A	A	FS	(300)F	(300)F
26	A	A	A	(280)F	(300)A	320	A	U	U	A	A	A	A	A	A	A	310	280	280	A	A	(310)A	330	A
27	(290)F	(340)F	300F	(300)C	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	330	340F	310H	320	340	310	340	(300)A	270	A	A	A	U	U	U	320	U	300	280	A	A	FS	(300)F	(300)F
29	(300)F	310F	(300)F	(290)F	320F	300	320	300H	260	A	A	U	420H	290	A	U	310	280	A	A	310	320	330F	FS
30	FS	FS	FS	FS	FS	230	U	C	A	C	C	A	A	A	A	300	(290)A	A	A	A	A	340F	300F	(310)F
31	A	A	(350)F	(320)F	280	270	(280)F	A	280H	U	U	U	U	U	U	U	U	300H	A	A	A	350	330	340
Mean	340	340	340	350	320	310	310	300	270	310	260	-	370	320	330	320	330	310	300	290	300	310	330	330
Maximum	340	340	340	330	320	300	300	300	260	290	260	-	370	320	320	310	310	300	290	300	300	320	320	320
Count	24	24	24	27	27	27	20	14	8	3	1	-	5	7	10	11	14	20	18	17	20	22	24	23

Manual Automatic

Sweep 1.0 Mc to 17.0 Mc in 15 min

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

Lat. 39° 43.5' N
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

Jul. 1952

R'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	[300] ^A	310 ^A	300	300	310	400	360	A	A	330	270	[290] ^A	310 ^H	320	300	290	280	270	250	230	260	260	280	
2	280	260	280	300	290	250	320	280	290	360	320	A	A	340	310	320	320	300	290	230	240	230	250	250	
3	280	300	260	250	260	270	270	260	390	290	350	360	350	340	330	300	330	310	[280] ^A	260	230	240	290	A	
4	A	330 ^A	300	270	330 ^A	420 ^K	390 ^K	430 ^K	330 ^K	430 ^K	520 ^K	500 ^K	530 ^K	440 ^K	[480] ^K	510 ^K	410 ^K	310 ^K	300 ^K	260 ^K	290 ^K	290 ^K	300 ^K	300 ^K	
5	300 ^K	280 ^K	240 ^K	250 ^K	270 ^K	260 ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	360 ^K	340 ^K	380 ^K	360 ^K	290 ^K	[260] ^K	220 ^K	220 ^K	[250] ^K	280 ^K	
6	300 ^K	300 ^K	[320] ^A	340 ^A	A ^K	420 ^K	400 ^K	A ^K	B ^K	A ^K	A ^K	A ^K	B ^K	B ^K	(620) ^K	490 ^K	420 ^K	340 ^K	340 ^K	[320] ^K	290 ^K	270 ^K	260 ^K	280 ^K	
7	270 ^K	250 ^K	260 ^K	340 ^K	310 ^K	330 ^K	300 ^K	350 ^K	(440) ^K	490 ^K	490 ^K	700 ^K	390 ^K	400 ^K	A ^K	A ^K	330 ^K	290	290	260	[270] ^A	280 ^A	280	280	
8	280	290	320	320 ^A	290	220	310	280	260	A	A	A	400	340	330	A	A	A	A	A	290 ^A	260	300 ^A	250	(310) ^A
9	280	300	300	260	280	260	A	A	350	330	A	A	A	A	A	250	A	A	A	A	A	290 ^A	A	A	300
10	[300] ^A	300 ^A	350 ^H	300 ^H	270	350	A	A	A	A	C	A	A	A	B	470	A	A	A	A	A	270 ^A	A	A	A
11	280	290	280	280	[270] ^A	290	240 ^A	[260] ^A	280	250	A	A	A	A	A [*]	A	A	A	390	320 ^A	260 ^A	290	290	[300] ^A	300
12	310 ^A	310 ^A	[300] ^H	300 ^H	280 ^A	240	B	A	370 ^A	A	450	440	390	350	[420] ^H	500	390	A	A	A	A	A	A	280	280
13	260	290	290	300	280	260	300	300	A	A	A	A	A	A	A	A	310	270	280	280	250	300 ^A	280	A	
14	A	A	380 ^A	250	310 ^A	300	270	260	A	A	A	A	A	A	A	380	330	310	[290] ^A	270 ^A	280	300 ^A	[290] ^A	280	290
15	280	290	300	300 ^A	300 ^A	270	A	A	A	A	250	[320] ^A	390	370	310	410	350	330	260	230	270 ^A	310	(380) ^A	250	250
16	[280] ^A	300	300	280	240	250	260	250	260	270 ^A	390	380	370	320	[320] ^A	310	310	300	280 ^A	290 ^A	290 ^A	300 ^A	230	240	
17	[280] ^A	310 ^A	310 ^A	310 ^A	270	260	A	410	A	A	A	A	370	320	[320] ^A	320	300	280 ^A	290 ^A	290 ^A	240	240	320 ^H	240	
18	260	300 ^A	310 ^A	300 ^A	310 ^A	390	370	320	320	390	380	A	A	A	320 ^A	400	370	370 ^A	A	A	260 ^A	260	300 ^A	300 ^A	
19	300 ^A	300 ^A	300 ^A	290 ^A	270	280	240	260	[320] ^A	370	[380] ^A	380	470	400	400	440 ^A	310	300	310	240	260	300 ^A	[300] ^A	310 ^A	
20	310 ^A	410 ^A	310 ^A	300 ^A	290	250	230	320	290	290	A	A	A	310 ^A	A	A	350	290	320 ^A	270 ^A	280	280	340 ^A	300 ^A	
21	310 ^A	280	290	280	270	340	330	A	A	A	400	B	340	390	350	390	410	300	270	250	230	270	280	310 ^A	
22	300	[300] ^A	290	280	260	250	340	A	C	C	C	C	C	A	B	C	360	330	300	[280] ^A	260	240	250	[280] ^A	
23	310 ^A	330 ^F	280	310 ^F	240	270	260	300 ^H	A	A	A	A	390	A	A	310 ^A	[300] ^A	290	A	A	A	240	260	300 ^A	280
24	290	280	300 ^A	280	300 ^A	250	270	300	250	A	A	A	A	A	A	290	280	A	A	A	A	240	260	270	
25	290	300	280	280	280	300	400	330	290	A	A	A	380 ^A	350	A	A	310	280	A	A	240	260	300 ^A	280	
26	A	A	A	240	A	A	A	290	290	[340] ^A	400	400	380	330	380	330	300	290	280	240	[270] ^A	300 ^A	A	A	
27	260	300	250	[250] ^C	250	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	290	270	230 ^H	280	270	270 ^B	340	[300] ^A	270	A	A	A	390	410	320	400	370	300	250	A	A	AF	290	260	
29	[260] ^H	260	260	260	290	300	310	270 ^H	250	A	A	370	390 ^H	290	320 ^A	320	310	280	A	A	A	270	270	280	300 ^A
30	220	290	320 ^A	280	270	230	280	260	A	C	C	A	A	A	300	1290 ^H	280	A	A	A	A	A	310 ^A	300 ^A	
31	A	A	330	280	240	250	280	A	280 ^H	270	300	310	[340] ^A	370	400	360	390	AH	A	A	A	A	260	310 ^A	
Mean Value	280	300	290	280	290	310	310	310	340	380	400	390	360	360	360	370	340	310	290	260	270	280	280	290	280
Median Value	280	300	280	280	270	300	300	290	340	380	380	390	350	330	330	330	320	300	280	260	270	280	280	280	280
Count	27	28	31	29	29	23	22	18	12	13	11	16	17	20	23	26	22	19	19	23	27	28	28	26	

R'F2

Sweep 1.0 Mc to 17.0 Mc in 15 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

Akita

IONOSPHERIC DATA

f_oF1

Jul. 1952

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	3.6	3.9	A	A	A	A	A	4.7	A	A	B	L	L					
2						2.8	4.2	3.7	4.3	4.6	4.6	A	A	4.7	4.7	4.5	4.3	(4.0) ^A	3.8 ^L					
3						3.0	3.7 ^L	4.3	5.0	4.6	4.5	4.7	4.6	4.6	4.6	4.4	4.4	A	A					
4						2.9	3.4	3.9	4.0	4.2	4.4	4.5	4.4	4.4	4.3	4.3	4.1	3.8	3.4					
5						Q	A	A	A	A	A	A	A	A	4.3	4.3 ^B	3.9	3.8	A					
6						2.9	3.5	3.8 ^J	3.9	A	A	A	B	4.4 ^J	4.1	4.0	3.9	3.7	3.4					
7						3.0	3.6	4.0	4.1	4.3	4.5	4.6	4.4	4.4	4.3 ^J	4.2 ^J	4.2	L	Q					
8						Q	3.8	A	A	4.7	A	A	A	4.5	4.5	A	A	A	A					
9						Q	A	A	4.2	4.4	4.3	A	A	A	A	4.1 ^J	A	A	A					
10						3.0	A	A	A	A	C	A	A	4.4	4.3	4.3 ^A	A	A	A					
11						Q	A	A	4.2	A	A	A	A	A	A	A	A	A	A					
12						A	3.9	A	A	A	4.5	4.5	4.6	4.6	4.6	4.4	4.7	A	A					
13						Q	3.5	A	A	A	A	A	A	A	A	A	4.4	4.4	3.6	L				
14						A	A	Q	A	A	A	A	A	A	4.8	4.4	4.4 ^H	A	A					
15						Q	A	A	A	A	A	A	A	4.7	4.6	4.5	4.2	4.0	A					
16						Q	Q	Q	A	A	4.3 ^A	4.8	4.8	4.7	A	A	4.3	A	A					
17						2.7	A	4.1	A	A	A	A	A	A	4.4	4.4	4.2	4.0	A					
18						3.2	3.7	(4.0) ^A	4.4	4.4	4.5	A	(4.6) ^H	4.5	A	4.4	(4.2) ^A	4.0	A					
19						Q	A	4.2	A	A	A	4.6	A	A	A	A	4.2	4.0	3.6 ^J					
20						Q	3.0	3.7	A	A	4.5	A	A	A	A	A	A	L	A					
21						3.1	3.7	A	A	A	4.5	B	4.6	4.6	4.5	4.5	4.2	3.9	L					
22						Q	Q	4.0	C	C	C	C	C	A	4.4 ^J	C	A	3.8	3.4 ^L					
23						Q	Q	A	A	A	A	4.3 ^J	4.6	A	A	A	A	A	A					
24						A	3.6 ^L	3.8	A	A	A	A	A	A	A	A	A	A	A					
25						2.8 ^L	3.6	4.0	4.1	A	A	4.4	4.6	4.6	4.4	4.4	4.0	3.9	A					
26						A	A	A	A	A	C	C	C	C	C	C	C	C	C					
27						B	3.5	A	A	A	A	A	A	4.5	4.4	4.3	4.4	3.9	A					
28						3.5	4.1 ^L	4.2 ^L	A	A	A	4.4 ^J	(4.4) ^H	4.5	(4.4) ^A	4.4	4.2	4.0	A					
29						A	3.8	4.0	A	C	C	4.8	A	A	4.6	(4.4) ^A	4.1	A	A					
30						A	3.4	3.9 ^H	4.2	(4.4) ^A	4.5 ^H	A	A	4.6	4.5	4.4	4.3	A	A					
31																								
Mean Value						3.0	3.6	4.0	4.3	4.5	4.5	4.6	4.6	4.6	4.5	4.3	4.2	3.9	3.5					
Median Value						3.0	3.6	4.0	4.2	4.4	4.5	4.6	4.6	4.6	4.4	4.4	4.2	3.9	3.4					
Count						11	18	16	11	9	11	10	10	17	19	19	21	15	7					

Manual Automatic

SwEEP 1.0 Mc to 17.0 Mc in 1.5 min

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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

JUL 1952

f'F1

135° E Mean Time

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

f'F1

Manual Automatic

Sweep 1.0 Mc to 1.7.0 Mc in 1.5 min

A 5

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

Lat. 39° 43.5' N
Long. 140° 09.2' E

Akita

IONOSPHERIC DATA

foE

135° E Mean Time

Jul. 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	2.8	2.8	3.4 ^B	3.4	3.5	3.4	3.4	3.4	A	A	A	A					
2						A	2.4	A	A	3.3	3.3	3.4	3.3	3.3	3.4	3.5	2.9 ^F	A	A					
3						2.0	2.3	3.0	3.2	3.3	3.4	3.4	3.4	3.4	3.4	3.2	A	A	A					
4						A	2.4	2.8	3.0	3.1	3.1	3.2	3.3	3.3	(3.4) ^A	3.3	2.9	2.6	2.0					
5						1.8	2.3	2.8	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.2	2.8	2.8	A					
6						1.7	2.2	2.7	2.9	3.2	3.3	3.3	3.3	3.4	A	A	A	2.4	2.0					
7						1.5	2.2	2.7	2.9	3.1	3.2	3.3 ^H	3.2	3.3	3.2	3.0	3.0	2.5	2.4					
8						A	A	A	2.9	3.2	3.2	3.3	A	A	A	A	A	2.5	2.1					
9						2.0	(2.3) ^A	2.6	2.9	A	A	A	A	A	A	3.2 ^B	3.1	(2.6) ^A	2.2					
10						1.6	2.2	2.7	3.0	3.1	(3.2) ^C	3.3	3.3	(3.2) ^B	3.2	3.1	3.1	2.6	2.1					
11						A	A	2.8	2.8	3.0	3.1	3.2	(3.2) ^A	3.3	3.4	3.2	2.9	2.7	2.2					
12						A	2.5	2.8	3.1	3.3	3.3	3.3	3.2	A	A	A	A	2.7	A					
13						A	2.3	2.6	3.2	3.2	3.3	(3.4) ^A	3.4	A	A	A	A	2.7	2.2					
14						1.9	2.3	2.7	3.1	3.3	3.4	3.3	3.4	3.4	3.1	2.8	3.0 ^H	A	A					
15						1.7	2.4	2.8	3.1	3.2	3.3	A	A	A	A	A	3.0	2.6	2.2					
16						A	A	3.0	A	A	A	3.2	A	A	3.4 ^A	3.3	2.9	2.7	A					
17						1.9	2.5	2.7	3.1	2.9	2.9	A	A	A	(2.8) ^A	2.6 ^J	A	A	1.9					
18						2.0	2.6	2.9	(3.0) ^A	3.2	3.3	3.4	3.4	3.4	3.3	3.0	2.8	A	A					
19						1.2	(2.0) ^A	2.8	3.1	(3.2) ^A	3.3	3.5	3.4	3.4	3.4	3.3	3.0	2.7	A					
20						A	A	2.7	A	A	A	A	3.4	3.1	3.1	(3.0) ^A	3.0	2.6 ^J	A					
21						A	A	A	A	A	3.3	3.4	3.5	(3.4) ^B	3.3	3.3	2.9	2.6	A					
22						A	A	2.8	C	C	C	C	C	3.3	3.3	(3.0) ^C	2.8	2.6	A					
23						1.6	2.3	2.7	3.0	3.2	3.3	3.4	3.4	(3.1) ^A	2.8	A	A	A	A					
24						A	2.2	3.0	3.0	3.2	3.3	3.3	3.3	3.3	A	A	A	A	A					
25						1.7	(2.2) ^A	2.8	3.0	A	A	A	A	A	A	A	3.2	A	A					
26						1.7	2.2	2.8	(3.0) ^A	3.2	3.3	A	B	3.2	2.9	2.9	A	A	2.2					
27						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
28						1.2	2.1	2.5	C	A	A	A	A	A	A	A	3.0	2.7	C					
29						C	2.3	2.7	C	A	A	3.5	3.4	A	A	3.3	3.1	C	C					
30						A	A	A	C	C	A	A	A	A	A	3.1	2.8	A	A					
31						A	A	A	3.1	A	A	A	A	A	A	A	A	2.6	A					
Mean						1.7	2.3	2.8	3.0	3.2	3.3	3.4	3.3	3.3	3.2	3.1	3.0	2.6	2.1					
Median						1.7	2.3	2.8	3.0	3.2	3.3	3.4	3.4	3.3	3.3	3.2	3.0	2.6	2.2					
Value						1.5	2.1	2.5	2.2	2.0	2.1	2.0	1.9	1.9	1.8	1.9	1.8	1.8	1.1					
Count																								

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual Automatic

A 6

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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

f_oF₂

Jul. 1952

135° E Mean Time

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

f_oF₂

Manual Automatic

Sweep 1.0 Mc to 17.0 Mc in 15 min

A 7

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

Lat. 39° 43.5' N
Long. 140° 03.2' E

A k i t a

IONOSPHERIC DATA

135° E Mean Time

fEs

Jul. 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.8	5.8	4.6	5.0	3.0	3.4	2.6	3.8	9.0	7.2	6.0	6.4	7.4	G	5.6	8.6	3.8	4.8	5.0	5.2	4.2	2.4	2.9	3.8
2	3.4	2.8	2.8	2.4	2.4	3.6	3.8	4.8	4.6	4.4	4.4	4.9	9.6	5.6	5.2	G	4.4	4.4	3.2	3.2	3.0	2.2	2.6	2.2
3	2.0	1.4	2.8	3.0	3.4	3.4	4.0	4.4	4.8	G	G	G	G	G	5.2	5.0	4.6	6.4	7.2	5.2	3.8	2.8	3.4	6.8
4	4.8	3.8	3.4	3.3	3.6	3.4	3.5	4.0	4.4	4.2	4.6	G	G	4.1	4.1	4.2	4.2	3.9	5.6	4.4	3.9	3.6	2.8	2.2
5	2.4	E	E	2.6	2.8	4.8	5.8	6.4	9.8	7.2	5.6	6.8	7.0	6.8	4.4 ^Y	G	3.5	G	5.6	9.0	5.2	5.8	6.4	3.4
6	3.0	4.0	3.8	4.7	3.6	3.2	4.8	4.8	3.6	6.8	8.6	5.2	4.0	G	4.8	4.9	3.2	4.0	4.5	5.0	2.4	2.8	2.6	2.4
7	E	2.6	1.6	3.5	3.0	3.2	3.6	G	4.8	5.6	4.6	4.6	4.0	3.8	6.4	7.0	G	3.2	3.0	2.8	7.4	4.8	3.6	3.4
8	3.2	3.4	3.4	3.5	E	E	4.3	5.5	5.7	6.7	5.6	7.0	5.8	5.1	5.6	9.4	10.5	8.4	11.3	6.6	6.8	5.6	4.2	6.2
9	3.2	4.2	2.4	2.8	2.2 ^Y	G	6.8	10.0	4.5	4.8	8.2	10.2	10.4	7.6	9.2	5.2	7.0	7.2	12.2	8.0	7.2	4.8	7.6	4.3
10	7.8	8.4	4.8	3.5	2.7	3.2	5.2	8.2	9.6	6.8	C	11.7	12.3	6.7	G	4.8	8.6	14.1	15.2	4.0	5.4	7.2	7.3	6.6
11	4.0	3.0	4.0	5.0	5.9	5.0	6.0	7.0	5.4	5.2	9.2	10.4	13.4	9.8	G	9.5	9.6	10.7	4.9	4.7	4.4	4.2	4.8	7.8
12	3.4	5.6	5.2 ^F	5.2 ^F	5.2	3.4 ^F	4.6	7.2	6.6	9.2	5.0	4.8	6.4	3.8	3.6	5.8	5.7	11.2	8.6	8.2	7.6	7.0	5.0	5.2
13	3.4	3.0	3.5	3.2	2.8	3.8	3.8	6.0	8.1	10.8	10.5	14.5	12.5	12.5	9.4	12.8	4.8	4.2	4.2	3.9	4.6	4.4	4.9	5.8
14	6.4	5.8	5.2	4.7	3.6	3.6	4.6	4.4	7.3 ^Y	6.6	8.8	10.6	12.1	9.5	7.2	6.6	3.9	7.3	5.0	4.8	4.8	6.8	6.4	7.6
15	5.2	5.0	3.7	3.4	2.8	G	7.4	7.0	9.3	7.6	7.2	9.4	5.8	5.4	5.2	4.6	G	3.8	4.4	3.8	5.7	3.8	4.4	3.8
16	5.0	4.0	3.8	3.0	2.4	3.0	3.4	3.9	6.0	4.6	4.6	5.6	6.6	6.2	11.7	13.7	14.2	9.4	8.6	4.2	5.8	5.4	5.8	7.9
17	5.4	4.3	4.8	5.2	4.4	3.4	3.4	3.6	8.3	7.4	8.4	8.0	7.8	8.6	4.4	3.8	4.0	4.1	4.8	4.6	4.6	2.5	4.0	3.4
18	4.8	4.7	4.2	2.8	3.3	3.8	3.6	4.8	4.4	5.1	4.6	6.4	11.7	9.6	7.8	5.1	7.2	4.6	8.3	7.0	6.0	3.0	2.6	3.2
19	2.4	3.0	4.6	6.1	3.7	5.1	4.7	4.6	6.4	5.8	6.8	5.6	4.8	5.0	5.4	5.1	5.0	5.8	3.5	3.8	3.4	7.4	6.8	3.8
20	5.2	5.2	4.2	5.0	3.4	4.0	3.5	3.4	5.2	4.4	11.4	10.8	11.2	6.0	10.4	9.2	6.0	5.0	5.6	6.1	6.8	4.0	4.8	5.2
21	4.7	4.0	E	2.9	4.7	2.9	4.6	5.4	9.4	13.7	5.1 ^Y	G	G	G	G	5.4	4.8	5.2	3.6	4.0	2.4	3.0	E	2.5
22	3.4	4.2	3.6	3.2	3.2	4.8	3.6	3.7	C	C	C	C	C	7.1	G	C	6.8	3.9	5.8	6.8	5.0	3.0	3.4	7.0
23	4.2	5.2	5.0	5.2	3.2	3.0	3.6	3.8	6.8	9.6	1.64	9.6	9.4	1.34	9.6	6.7	7.7	5.5	8.6	7.8	5.1	3.3	3.8	2.6
24	2.6	2.7	4.2	3.8	3.6	3.2	2.8	G	4.8	5.4	7.2	9.6	6.8	1.65	9.0	5.6	5.0	7.2	5.8	8.0	7.2	4.2	3.2	2.8
25	2.6	1.6	2.8	1.9	E	2.8	3.2	3.5	G	6.4	7.4	9.6	1.38	6.2	9.4	1.32	5.2	3.8	4.2	4.0	6.6	3.6	5.2	5.1
26	6.2	6.8	7.8	4.8	6.6	4.0	5.2	4.6	5.6	8.2	7.2	6.2	4.0	G	G	4.7	5.4	4.3	4.2	C	8.8	4.8	4.6	2.8
27	2.6	2.6	2.4	C	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	E	E	E	4.4	1.4	G	3.3 ^Y	8.0	7.0	1.35	9.4	6.8	6.6	5.2	4.5	4.1 ^Y	4.4 ^Y	3.8	5.6	10.0	7.0	5.1	5.8	5.7
29	9.2	4.0	3.4	1.3	5.8	3.5	3.8 ^Y	3.3	5.6	8.2	7.8	4.4	5.0	4.4	6.0	4.4	4.8	3.9	7.2	7.4	3.4	3.8	3.4	4.3
30	3.6	4.2	3.8	5.4	5.6	4.4	4.6	C	1.40	C	C	8.0 ^F	1.24	10.4	6.2	10.0	7.4	14.2	14.5	1.32	1.20	4.6	4.4	4.6
31	6.6	6.2	4.8	3.7	1.4	3.7	4.2	5.2	4.9	5.4	5.4	5.7	10.3	5.2	3.9	5.1	4.8	5.6	8.4	9.6	7.6	3.4	4.6	4.4
MEAN Value	4.3	4.2	4.0	3.8	3.6	3.7	4.3	5.1	6.6	7.1	7.3	7.8	8.7	7.4	6.6	6.8	6.0	5.9	6.6	6.1	5.6	4.4	4.5	4.6
Median Value	3.6	4.0	3.8	3.5	3.2	3.4	3.9	4.6	5.7	6.6	7.2	6.8	7.0	5.8	5.5	5.1	5.0	4.7	5.6	5.2	5.3	4.1	4.4	4.3
Count	31	31	31	30	31	30	30	29	29	28	27	29	29	30	30	29	30	30	30	29	30	30	30	30

Manual Automatic

Sweep 1.0 Mc to 171.0 Mc in 15 min

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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

Jul. 1952

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	2.9	2.7	2.9	3.0	2.8	3.0	2.8	2.9	A	A	3.2	B	A	3.0 ^H	3.1	3.1	3.1	3.0	3.1	3.1	3.2	3.1	3.0	2.9
2	3.1	2.8	2.7	2.9	3.0	3.3	3.3	3.3	3.4	2.8	3.0	3.1	[3.0] ^A	2.8	3.1	3.0	3.1	3.1	3.1	3.1	3.0	3.1	2.9	2.9
3	2.8 ^F	(2.6) ^F	3.0 ^F	3.0	3.0	3.3	3.4	3.4	3.0	3.3	3.1	3.0	3.0	3.0	3.0	3.1	3.1	3.1	[3.2] ^A	3.2	[3.0] ^{SB}	2.9	2.8 ^F	[2.8] ^A
4	2.7 ^F	2.8 ^F	3.1 ^F	3.1 ^F	(2.5)	2.6 ^K	2.7 ^K	2.6 ^K	3.1 ^K	2.8 ^K	2.5 ^K	2.5 ^K	2.5 ^K	2.8 ^K	[2.6] ^B	2.5 ^K	2.7 ^K	3.2 ^K	[3.2] ^B	3.2 ^K	3.0 ^K	2.9 ^K	2.7 ^K	2.8 ^K
5	2.8 ^K	3.0 ^K	3.1 ^K	2.8 ^K	2.9 ^K	3.3 ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	3.0 ^K	2.9 ^K	2.8 ^K	2.9 ^K	3.0 ^K	[3.2] ^A	[3.4] ^K	[3.5] ^K	[3.3] ^A	3.1 ^K
6	3.0 ^K	2.9 ^K	2.6 ^K	(2.9) ^K	2.7 ^K	2.9 ^K	2.8 ^K	A ^K	B ^K	2.5 ^K	A ^K	A ^K	A ^K	B ^K	(2.2) ^K	2.6 ^K	2.8 ^K	3.0 ^K	2.9 ^K	3.1 ^K	3.1 ^K	3.1 ^K	3.0 ^K	2.8 ^K
7	2.8 ^K	3.2 ^K	3.0 ^K	2.8 ^K	2.9 ^K	2.7 ^K	3.2 ^K	2.8 ^K	2.7 ^K	2.6 ^K	2.1 ^K	2.1 ^K	2.9 ^K	2.9 ^K	A ^K	A ^K	3.1 ^K	3.1	3.1	3.2	[3.3] ^A	3.4	3.0	2.8 ^K
8	3.0 ^F	2.9	2.9	2.9	2.9	2.8	3.1	3.3	3.5	A	A	A	A	3.1	A	A	A	A	A	A	A	F	F	F
9	2.9 ^F	2.8	(2.8) ^F	3.1	3.0	2.7	A	A	3.1	3.1	A	A	A	A	A	B	A	A	A	A	A	3.1	[3.0] ^A	3.0 ^F
10	[2.8] ^A	2.7 ^F	F	F	(2.9) ^K	2.7 ^F	3.0	A	A	A	C	A	A	A	A	2.6	A	A	A	A	3.2	3.0	A	A
11	2.7	2.7	3.0	3.1	[3.0] ^A	3.0	3.4	[3.4] ^A	3.3	BS	A	A	A	A	A	A	A	2.9	(2.9) ^F	3.2 ^F	(3.1) ^P	(3.0) ^F	[3.0] ^F	[2.8] ^A
12	(2.6) ^F	(2.7) ^F	[2.8] ^A	(3.0) ^F	FB	3.0	B	A	2.8	[2.8] ^A	2.7	2.7	2.8	3.2	[2.8] ^B	2.5	2.8	A	A	A	A	A	F	FS
13	3.1	3.1	3.0 ^F	(2.8) ^F	3.0	3.1	3.0	3.1	A	A	A	A	A	A	A	3.0	3.1	3.3	3.0	3.1	3.2 ^z	SB	SB	A
14	A	A	A	FS	(3.0) ^z	3.0	3.2	(3.3) ^A	A	A	A	A	A	A	2.9	2.9	2.9	A	BS	3.3	(3.1) ^z	[3.0] ^A	(3.0) ^F	(3.0) ^F
15	F	F	2.9	2.9	2.8 ^F	3.0 ^F	A	A	A	A	3.3	(3.0) ^A	2.7	3.0	3.1	[3.0] ^B	2.9	3.0	3.1	3.2	2.7	2.7	(2.8) ^F	3.0
16	2.8	2.9	2.9	2.9	3.0	3.1	2.9	3.1	3.3	3.2	2.9	3.0	2.8	3.1	[3.0] ^A	3.0	3.0	A	A	(3.2) ^z	(3.0) ^z	(3.0) ^z	(3.0) ^F	A
17	A	(2.8) ^z	2.8	(2.8) ^F	3.0	3.3	3.1	2.7	A	A	A	A	A	A	3.0	3.2	3.1	3.3	3.1	3.0	3.1	2.9	(2.9) ^F	2.8 ^F
18	2.7 ^F	2.8 ^F	[2.8] ^F	2.9 ^F	2.9 ^F	2.9 ^F	2.9 ^F	3.1	3.2	2.7	2.9 ^V	A	A	(2.8) ^A	3.0	2.8	[2.8] ^A	2.9	A	A	3.2	2.9	3.0	3.0
19	2.8	2.8	[2.8] ^A	2.9	3.2	3.5	3.7	(3.4) ^A	3.0	(3.0) ^A	2.9	2.9	2.7	3.0	2.8	2.6	3.1	3.4	3.1	3.2	3.0	A	A	(3.0) ^F
20	(3.0) ^z	(3.0) ^z	(2.9) ^F	3.1 ^F	(2.8) ^F	3.3 ^z	3.5	3.2	3.3	3.3	A	A	A	A	3.0	A	2.8	3.1	3.0	3.1	3.1	3.0	(2.8) ^F	3.0
21	2.8	2.9	2.7	2.7	(2.7) ^F	2.7	2.8	2.7	A	A	3.0	B	3.1	2.9	3.0	2.7	2.5	2.9	3.3	[3.2] ^B	3.1	3.0	2.8	2.8
22	2.9	2.9	2.6	2.8	3.0	3.0	3.0	3.0	C	C	C	C	C	C	A	2.9	3.0	3.0	3.1	[3.0] ^A	3.0	3.1	3.0	A
23	F	F	(3.0) ^F	F	(3.0) ^F	3.0	3.3	(2.9) ^H	A	A	A	A	A	A	A	2.9	[3.0] ^A	3.2	A	A	A	3.1 ^S	3.0 ^S	3.0 ^S
24	2.9	2.9	3.0	3.1	F	3.0	3.3	3.2	3.5	2.9	A	A	A	A	A	3.2	3.4	A	A	A	3.1	3.0	2.8	
25	3.0	(2.6) ^z	2.9	2.8	2.9	3.1	2.8	3.1	3.4	A	A	A	2.8	2.9	A	A	3.1	3.3	3.4	3.2	3.3	2.9	A	A
26	A	A	A	(3.0) ^F	(3.0) ^F	3.0	3.3	(2.9) ^H	A	A	A	A	A	A	A	2.9	3.0	3.0	3.2	C	C	C	C	C
27	(3.2) ^F	(3.1) ^F	3.1 ^F	[3.1] ^C	3.1	C	C	C	C	[3.1] ^A	2.9	2.9	2.8	2.9	2.8	2.9	3.0	3.2	3.3	C	A	(2.9) ^F	(3.0) ^F	[3.0] ^F
28	2.9	2.9 ^F	(3.1) ^B	3.0	2.9	3.0	2.9	(3.2) ^A	3.4	A	A	A	2.8	2.8	3.2	2.9	3.1	3.2	3.2	A	A	F	(3.1) ^F	(3.1) ^F
29	(3.0) ^H	3.0 ^F	(3.1) ^F	(3.0) ^F	2.8 ^F	3.1	3.0	3.2 ^H	3.4	A	A	2.8	3.2 ^H	3.2	3.2	3.2	3.2	3.3	A	A	3.1	3.1	2.9 ^F	FS
30	FS	FS	FS	FS	FS	3.8	3.5	C	C	C	C	C	C	A	[3.2] ^A	(3.3) ^z	A	A	A	A	A	3.0 ^F	3.1 ^F	(3.0) ^F
31	A	A	(2.7) ^F	(2.8) ^F	3.2	3.2	(3.2) ^F	A	3.1 ^H	3.5	3.2	3.3	[3.2] ^A	3.0	2.8	3.0	2.9	3.2 ^H	A	A	A	2.9	2.9	2.9
Mean Value	2.9	2.8	2.9	2.9	2.9	3.0	3.1	3.1	3.2	3.0	2.9	2.8	2.9	3.0	2.9	2.9	3.0	3.1	3.1	3.2	3.1	3.0	3.0	2.9
Median Value	2.9	2.8	2.9	2.9	2.9	3.0	3.0	3.2	3.3	3.0	3.0	2.9	2.8	3.0	3.0	2.9	3.0	3.1	3.1	3.2	3.1	3.0	3.0	3.0
Count	24	25	27	27	27	29	26	22	19	15	13	11	16	18	20	23	26	22	18	20	21	23	24	23

M3000(F2)

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

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

f_{min}F

Akita

Lat. 39° 43.6' N
Long. 140° 08.9' 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	3.4 ^A	5.7 ^A	4.7 ^A	2.0 ^A	1.2	2.0	3.4	3.4	A	A	5.6 ^A	4.6 ^A	[4.5]	4.4	5.3 ^A	5.2 ^A	4.4	3.0	3.0 ^A	3.6 ^A	2.4 ^A	2.0 ^A	1.8	1.8
2	1.9	1.2	1.5	E	1.3	2.2	2.8	3.4	3.8	4.0	4.3 ^A	6.3 ^A	5.4 ^A	4.6 ^A	4.6 ^A	4.2	4.3	4.2 ^A	2.4	2.2 ^A	2.0 ^A	1.5	1.4	1.4
3	1.2	1.2	1.5	1.4	1.3	2.1	2.3	4.1 ^A	4.0	3.8	4.0	4.2	4.2	4.3	4.5 ^A	4.0	3.8	5.0 ^A	[5.0] ^A	5.0 ^A	4.4	2.0 ^A	1.7	[3.0] ^A
4	4.3 ^{AF}	3.0 ^A	2.2 ^A	1.7	[1.8] ^A	2.0 ^A	2.4	3.0	3.2	4.2 ^A	4.4 ^A	4.5	4.4	4.4	3.7	3.6	3.0	2.7	2.2	[2.6] ^A	3.0 ^A	1.8	1.7	1.6
5	1.5	1.2	E	E	1.4	1.7	A	A	A	A	A	A	A	A	3.7	3.3	3.2	2.9	4.8	A	A	A	A	2.0 ^A
6	1.8	1.4	3.4 ^A	3.2 ^A	2.2 ^A	2.6	3.0	4.2 ^A	3.2	4.3 ^A	A	A	B	4.6	3.6	3.4	3.3	3.0	3.0 ^A	[2.3] ^A	1.6	1.6	1.6	1.6
7	1.4	1.2	E	1.8	1.2	2.0	2.8	3.4	3.6	4.1 ^A	4.2 ^A	3.8	4.0	4.1	4.2 ^A	4.3 ^A	3.2	2.6	3.1	2.8 ^A	[3.6] ^A	4.4 ^A	2.4 ^A	1.6
8	1.6	E	2.5 ^A	2.5 ^A	E	1.9	3.5 ^A	4.2 ^A	4.3 ^A	A	A	A	4.5 ^A	4.1	4.2	A	A	A	A	4.5 ^A	1.6	4.2 ^A	3.0 ^A	3.8 ^A
9	1.9	1.4	E	1.4	E	2.0	A	A	3.4	3.8	4.1	A	A	A	A	4.4 ^A	4.3 ^A	A	A	A	A	4.5 ^A	[3.6] ^A	2.7 ^A
10	[2.8] ^A	3.0 ^A	2.3 ^{AF}	AF	1.3	2.6 ^A	4.6 ^A	A	A	A	C	A	A	A	A	4.2	3.2	A	A	4.1 ^A	3.4 ^A	A	A	A
11	1.8	1.7	1.6	2.8 ^A	[2.1] ^A	1.4	A	A	3.6	4.6 ^A	A	A	A	A	A	A	A	4.1 ^A	4.2 ^A	3.8 ^A	4.2 ^A	2.8 ^A	3.0 ^A	A
12	A	A	3.7 ^{AF}	[3.6] ^A	3.6 ^A	2.9 ^A	3.6 ^A	[4.2] ^A	4.7 ^A	[4.3] ^A	3.9	4.2	4.0	3.6	3.6	3.4	4.4 ^A	A	A	A	A	A	2.6 ^A	1.8
13	1.8	1.4	E	E	1.2	1.8	2.6	4.2 ^A	A	A	A	A	A	A	A	5.1 ^A	3.4	3.0	2.3	2.7 ^A	2.4 ^A	3.5 ^A	1.7	A
14	A	A	2.6 ^A	1.2	[1.8] ^A	2.4	4.4 ^A	3.4	A	A	A	A	A	A	4.8 ^A	4.2 ^A	3.4	[3.6] ^A	3.8 ^A	4.4 ^A	4.7 ^A	[3.8] ^A	2.8 ^A	3.0 ^A
15	2.2 ^A	1.8	2.4 ^A	A	A	2.1	A	A	A	A	6.0 ^A	[5.5] ^A	5.0 ^A	4.7 ^A	4.0	4.3 ^A	3.2	3.6 ^A	3.7 ^A	1.6	4.2 ^A	1.6	3.8 ^A	2.0 ^A
16	4.3 ^A	1.7	1.4	1.4	1.4	1.6	2.4	3.4	4.4 ^A	4.4 ^A	4.4 ^A	4.7 ^A	4.7 ^A	4.7 ^A	[4.7] ^A	4.7 ^A	4.3 ^A	A	A	3.6 ^A	4.4 ^A	5.4 ^A	1.8	1.7
17	A	A	A	A	A	2.4 ^A	2.6	3.4	3.4	4.4 ^A	4.1	A	A	A	3.8	2.9	2.8	3.4	4.3 ^A	3.8 ^A	4.3 ^A	1.7	3.8 ^{AF}	1.5
18	1.5	A	A	E	A	2.6	3.3	4.2 ^A	3.4	4.4 ^A	4.1	A	A	5.4 ^A	5.2 ^A	4.4 ^A	3.9 ^A	3.8 ^A	A	A	4.8 ^A	2.0 ^A	A	A
19	A	A	1.8	2.1 ^A	E	3.0 ^A	4.4 ^A	2.9	[3.8] ^A	4.7 ^A	[4.6] ^A	4.6 ^A	4.8 ^A	4.3	4.8 ^A	4.5 ^A	4.2	3.0	2.8	1.8	1.8	4.6 ^A	A	A
20	A	4.2 ^A	A	A	2.2 ^A	2.4	2.7	3.0	3.8	3.8	A	A	A	5.4 ^A	A	A	4.2 ^A	3.8 ^A	[3.4] ^A	2.9 ^A	3.4 ^A	1.7	2.7 ^A	3.7 ^A
21	[2.5] ^A	1.3	1.5	2.0 ^A	E	1.8	3.1 ^A	4.9 ^A	A	A	3.8	4.8	4.6	4.3	4.3 ^A	4.5 ^A	3.8	3.0	2.6	1.6	2.4 ^A	1.6	1.6	2.8 ^A
22	1.7	3.5 ^A	1.4	1.2	1.4	1.4	2.0	A	C	C	C	C	C	A	3.7	[3.6] ^C	3.4	2.6	2.7	[3.3] ^A	3.9 ^A	2.3 ^A	1.5	A
23	A	3.8 ^{AF}	2.2 ^A	4.0 ^{AF}	1.2	2.2	2.3	3.8 ^A	A	A	A	4.4 ^A	4.6 ^A	A	A	A	5.1 ^A	4.4 ^A	A	A	A	2.7 ^A	1.5	[1.8] ^A
24	1.7	1.6	[1.7] ^A	1.8	2.4 ^A	2.4	2.8	3.0	4.2 ^A	4.8 ^A	A	A	A	4.8 ^A	A	A	3.2	3.4	3.0	2.7 ^A	5.3 ^A	A	A	A
25	1.8	E	1.3	1.4	E	1.7	2.5	2.9	3.1	A	A	A	5.0 ^A	4.2	3.4	3.4	2.8	2.4	3.5 ^A	C	A	3.6 ^A	1.8	1.6
26	A	A	A	2.4 ^A	[2.7] ^A	3.0 ^A	4.8 ^A	4.3 ^A	4.6 ^A	[4.5] ^A	4.4 ^A	4.3	4.2	3.7	3.4	C	C	C	C	C	C	C	C	C
27	1.6	1.8	1.5	[1.5] ^C	1.5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	1.4	E	E	1.4	E	2.3	3.0	[3.7] ^A	4.4 ^A	A	A	4.6 ^A	4.5 ^A	4.3	3.8	3.8	3.8	3.8 ^A	3.8 ^A	A	A	4.7 ^{AF}	1.8	2.0 ^A
29	4.5 ^{AF}	2.0 ^A	2.3 ^A	2.9	2.3 ^A	2.6 ^A	2.7	3.0	4.5 ^A	A	A	4.4	4.4	4.4	5.4 ^A	4.3 ^A	4.2	3.7	5.6 ^A	[3.8] ^A	1.9	2.3 ^A	1.6	3.2 ^A
30	1.6	1.2	2.8 ^A	1.8	2.4 ^A	3.8 ^A	3.0 ^A	A	A	C	C	4.4 ^A	A	A	4.2	[4.0] ^A	3.8 ^A	A	A	A	A	A	A	A
31	A	A	1.7	1.3	E	3.1 ^A	2.2	3.4	3.5 ^A	4.3 ^A	4.0	5.0 ^A	[4.8] ^A	4.6 ^A	4.0	4.4 ^A	4.2 ^A	4.6 ^A	A	A	A	1.5	A	A
Mean Value	2.2	2.2	2.2	2.0	1.8	2.3	3.1	3.6	3.9	4.3	4.4	4.6	4.6	4.5	4.3	4.1	3.7	3.4	3.5	3.2	3.3	2.8	2.2	2.2
Median Value	1.8	1.5	1.7	1.7	1.4	2.2	2.9	3.4	3.8	4.3	4.2	4.5	4.6	4.4	4.2	4.2	3.8	3.4	3.2	3.1	3.4	2.3	1.8	2.0
Count	23	24	27	27	29	30	26	23	19	15	14	15	17	20	23	25	26	23	20	20	22	25	23	21

Sweep 1.0 - Mc to 17.0 - Mc in 1.5 min Manual Automatic

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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 03.2' E

Akita

Jul. 1952

fmine

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	E	E	E	1.2	1.4	1.6	1.6	1.6	1.7	1.8	1.8	1.9	1.9	1.7	1.7	1.7	1.5	1.6	1.5	1.5	1.6	1.5	
2	1.2	E	E	E	E	E	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.8	2.0	2.0	1.8	1.8	1.6	1.6	1.5	1.4	1.4	
3	E	E	E	E	E	E	1.5	1.7	1.8	2.0	2.2	2.2	2.1	1.8	1.8	1.8	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	
4	1.2	E	E	E	E	E	1.5	1.6	1.6	1.8	2.0	2.0	2.2	1.8	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6	
5	E	E	E	E	E	E	1.7	1.7	1.8	1.6	1.9	1.9	2.0	1.9	2.0	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.4	1.4	
6	1.4	1.2	E	E	E	E	1.4	1.5	1.6	1.6	1.6	1.8	2.2	2.0	1.6	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.8	1.6	
7	E	E	E	E	E	E	1.4	1.6	1.6	1.6	1.5	1.8	1.8	1.8	2.0	2.0	2.2	1.8	1.6	1.6	1.6	1.6	1.6	1.6	
8	1.6	E	E	E	E	E	1.5	1.5	1.6	1.8	1.6	1.6	1.7	1.9	2.1	1.9	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.4	
9	1.4	E	E	E	E	E	1.1	1.4	1.5	1.6	1.6	1.6	1.9	1.9	2.2	2.1	2.0	1.8	1.6	1.5	1.5	1.5	1.6	1.5	
10	1.5	E	E	E	E	E	1.5	1.5	1.6	1.6	(1.6) ^c	1.6	2.0	1.9	2.2	2.0	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
11	1.3	E	E	E	E	E	1.2	1.4	1.4	1.6	1.6	1.7	2.0	1.9	1.9	1.9	1.6	1.6	1.5	1.6	1.6	1.5	1.5	1.5	
12	1.2	E	E	E	E	E	1.5	1.6	1.6	1.6	1.6	2.0	1.8	1.8	2.0	1.8	1.8	1.7	1.6	1.4	1.4	1.4	1.4	1.2	
13	1.2	E	E	E	E	E	1.6	1.6	1.6	1.6	1.7	1.9	2.2	1.9	1.8	1.9	1.8	1.6	1.6	1.6	1.6	1.6	1.5	1.5	
14	1.3	E	E	E	E	E	1.1	1.5	1.6	1.7	1.7	1.9	2.1	1.9	2.0	1.9	1.8	1.6	1.5	1.6	1.6	1.6	1.6	1.6	
15	1.6	E	E	E	E	E	1.5	1.5	1.5	1.5	1.6	1.9	1.8	1.6	1.8	2.0	1.8	1.8	1.6	1.6	1.6	1.6	1.6	1.6	
16	1.2	E	E	E	E	E	1.2	1.4	1.4	1.6	1.6	1.6	1.6	1.8	1.8	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	
17	1.2	E	E	E	E	E	1.5	1.5	1.6	1.6	1.8	1.8	2.0	2.0	1.9	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	
18	1.5	E	E	E	E	E	1.5	1.6	1.6	1.6	1.8	1.7	1.9	1.9	1.9	1.7	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1.4	
19	1.2	E	E	E	E	E	1.6	1.6	1.6	1.7	1.8	1.9	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	
20	1.4	E	E	E	E	E	1.6	1.6	1.6	1.6	1.8	1.8	2.0	2.4	2.4	2.0	2.2	2.0	1.8	1.6	1.6	1.6	1.6	1.5	
21	E	E	E	E	E	E	1.5	1.5	1.5	1.5	1.6	1.6	1.9	2.0	2.2	2.0	1.8	1.8	1.7	1.6	1.6	E	2.3	1.6	
22	1.3	E	E	E	E	1.2	1.4	1.6	C	C	C	C	C	1.9	1.8	1.8	1.9	1.6	1.5	1.5	1.5	1.8	1.5	1.5	
23	1.4	E	E	E	E	E	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
24	1.3	E	E	E	E	E	1.6	1.6	1.6	1.6	1.8	2.1	2.0	1.9	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	
25	1.4	E	E	E	E	E	1.5	1.7	1.7	1.6	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.6	1.6	1.5	1.5	1.5	1.6	1.5	
26	1.4	E	E	E	E	E	1.5	1.5	1.6	1.6	1.8	2.0	2.0	2.0	1.9	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
27	1.6	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
29	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
30	1.5 ^s	E	E	E	E	E	C	C	C	C	C	1.6	1.6	1.6	1.7	1.7	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.2	
31	1.2	E	E	E	E	E	1.6	1.6	1.6	1.6	1.6	1.8	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.5	1.5	1.5	1.5	1.4	
Mean Value	1.4	1.2	E	E	E	1.3	1.5	1.6	1.6	1.7	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.5	1.6	1.6	1.5	
Median Value	1.3	E	E	E	E	E	1.5	1.6	1.6	1.6	1.8	1.8	1.9	1.9	1.9	1.8	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	
Count	3	1	3	1	3	1	2	9	2	6	6	2	7	2	8	2	8	2	8	2	8	3	0	3	0

Sweep 1.0 Me to 177.0 Mc in 15 min Manual Automatic

fmine

Kokubunji Tokyo
Lat. 35° 42.4' N
Long. 139° 29.3' E

IONOSPHERIC DATA

135° E Mean Time

f_oF₂

JUL 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	A	6.2	7.0	7.3	6.6	7.3	8.7	9.2	18.6 ^A	8.1	8.0 ^P	(7.0) ^P	6.7	6.6	6.6	
2	6.0	6.1	5.4 ^S	5.3	(5.2) ^P	5.4	5.8	6.0	(6.0) ^B	5.9 ^Z	6.0	6.6	6.2	7.0	7.8 ^P	(7.6) ^A	7.5	(8.2) ^T	9.0	7.8	6.8	5.8	6.0	6.0	
3	5.7	5.6	5.8	5.2	4.9	4.0 ^K	6.8	7.3	6.7	6.3	5.5	6.5	7.0	7.4	(7.2) ^A	7.0	7.6	7.9 ^K	8.7	8.7 ^P	5.7 ^H	5.2	5.2	5.1	
4	5.0	4.5 ^{FF}	4.5 ^F	4.6	4.2	4.0 ^K	4.6 ^K	4.8 ^K	4.9 ^K	B ^K	A ^K	4.8 ^K	5.0 ^K	5.5 ^K	5.2 ^K	5.2 ^K	5.1 ^K	5.2 ^K	5.6 ^K	C ^K	C ^K	4.5 ^K	(4.7) ^P	4.6 ^K	
5	4.4 ^R	4.3 ^K	4.3 ^K	(3.7) ^K	3.7 ^K	3.7 ^K	3.8 ^K	4.2 ^K	5.2 ^K	A ^K	A ^K	A ^K	A ^K	5.7 ^K	5.8 ^K	5.8 ^K	5.5 ^K	5.5 ^K	8.1 ^K	7.7 ^K	4.6 ^K	4.2 ^K	4.3 ^K	4.2 ^K	
6	3.9 ^K	3.7 ^K	3.6 ^K	3.9 ^K	(3.8) ^K	4.3 ^K	4.3 ^K	(4.3) ^A	4.8 ^K	B ^K	B ^K	B ^K	A ^K	B ^K	4.7 ^K	(4.8) ^A	4.9 ^K	5.4 ^K	4.9 ^P	5.8 ^K	5.7 ^K	5.5 ^K	5.6 ^K	5.5 ^K	
7	4.8 ^K	4.8 ^K	4.6 ^{F_K}	3.9 ^K	3.7 ^K	4.5 ^K	5.6 ^K	5.3 ^K	5.3 ^K	5.5 ^K	4.9 ^K	4.9 ^K	5.6 ^K	5.6 ^K	5.1 ^K	5.1 ^K	5.4 ^K	5.4 ^K	6.3	7.0	6.0	(5.2) ^P	A	A	
8	A	4.0 ^F	3.9 ^{FF}	4.0 ^F	4.0 ^F	4.0	5.5	6.6	(6.2) ^A	5.7	A	A	5.5	6.1	6.4	5.5	A	A	6.0	(6.6) ^A	7.2 ^P	A	AF	A	
9	A	4.2 ^F	4.2 ^F	4.0 ^F	3.9 ^F	4.0	4.7	5.3	M	A	4.8	5.4	5.4	(5.2) ^A	5.1	5.1 ^Z	(5.3) ^A	5.8 ^P	6.1	S	7.2 ^Z	5.1	A	F	
10	A	A	4.0 ^F	4.1 ^F	4.2 ^F	(4.5) ^P	4.7	4.5	4.5	5.1	A	B	C	B	5.1	4.8	5.2	5.1	(5.5) ^A	5.9	A	A	A	5.0	
11	(4.5) ^P	4.0 ^{FF}	4.0 ^{FF}	4.2 ^F	4.2 ^F	4.0 ^F	4.6 ^S	A	A	A	A	A	A	A	5.2	5.2	4.8	(5.4) ^A	6.1	6.0	5.5	5.2	5.1	5.0	
12	(4.8) ^P	4.5 ^F	(4.9) ^{FF}	4.4 ^F	5.0	3.8	(4.2) ^A	4.6	5.7	6.2	4.9	(5.2) ^A	5.5	A	A	A	6.4	6.2 ^P	6.2	7.1	(6.0) ^F	4.9 ^{FF}	A	F	
13	F	4.2 ^{FF}	(4.2) ^F	4.1 ^F	4.2 ^F	4.0 ^Z	4.8	A	A	5.6	5.1	5.7	5.7	6.3 ^P	5.7	6.3	7.0	7.2	7.0	6.6	(6.2) ^A	5.9 ^{FF}	5.5 ^F	F	
14	AF	F	F	F	F	4.9	7.0	6.2	(6.0) ^A	5.8	6.2	(6.1) ^A	6.0	6.1	6.5	8.5	8.4	8.5	7.6	(7.3) ^A	7.0	(6.7) ^A	6.4 ^Z	6.2 ^{FF}	
15	(5.8) ^F	(5.4) ^{FF}	5.0	5.2 ^F	4.7 ^F	(5.1) ^T	5.5	6.5	6.5	A	A	A	A	6.7	6.8	6.1	6.0	6.7	6.7	5.9	5.7	5.4	AF	F	
16	4.9	AF	F	F	4.8 ^{FF}	4.7	5.7	6.8	6.7	5.5	5.6	6.1	7.0	7.6	(7.0) ^A	6.3	6.8	7.6	8.0	(7.5) ^P	(7.5) ^P	6.7	6.0 ^F	5.5 ^F	
17	5.5 ^F	5.7	4.9	C	C	C	C	C	C	C	C	C	C	C	C	6.0	A	A	6.5	7.7	7.7	5.3	4.6	4.5 ^F	
18	C	C	C	C	C	C	C	C	C	C	C	C	T	T	5.4	5.5	5.7	5.5	5.5	6.0	(5.8) ^C	5.6	4.9	5.0 ^F	
19	4.2	4.1 ^F	4.4 ^F	4.2 ^F	4.0 ^F	4.3	5.6	6.6	6.6	A	B	5.1	6.0	T	5.4	5.5	5.7	7.1	(7.5) ^P	6.5	5.7	6.0	5.9 ^P		
20	5.2 ^Z	4.9 ^F	4.0 ^F	4.3 ^F	(4.3) ^A	4.3 ^F	4.9	5.8	6.4	5.8	5.5	(6.0) ^A	6.5	6.5	6.6	5.9	6.5	6.7	9.2	7.5	6.1	5.7	5.5	5.3 ^P	
21	5.5 ^F	6.0	5.4	(5.5) ^P	4.9 ^F	4.3 ^{FF}	4.9 ^P	5.8	6.2 ^Z	5.5	(5.5) ^B	5.5	5.8	6.2	6.8	6.7	8.5	8.7	9.2	7.5	6.1	6.2 ^F	5.5 ^F	5.5	4.9 ^P
22	5.0	5.0	4.9 ^F	5.5	4.2	(4.7) ^P	6.0	5.2	6.1	6.9	A	A	A	5.9	5.9 ^Z	6.1	6.2	5.7	6.0	7.1 ^P	6.2 ^F	5.5 ^F	5.5	4.9 ^P	
23	(5.0) ^F	5.0 ^F	5.0 ^F	5.4 ^F	3.5 ^{FF}	4.0	5.5	4.7	M	A	A	A	A	6.6	7.1 ^P	A	A	A	6.7	6.3	(6.2) ^A	6.0	5.6	5.9 ^P	
24	4.9	4.9	5.1 ^Z	4.2	4.0 ^F	4.6 ^F	5.0	M	M	M	M	5.5	(6.4) ^A	7.3	8.2	7.5	(6.2) ^A	5.0	5.2	5.7	6.2 ^V	5.8	5.9	5.2	
25	5.0	4.5	4.9	5.3 ^{FZ}	5.0 ^F	4.6 ^F	4.5	6.0	5.3	5.4	B	A	6.1	(7.0) ^A	7.9	7.3	7.4	7.9	7.1	6.4	(5.3) ^P	4.2	4.0 ^F	A	
26	AF	5.3 ^{FF}	AF	AF	AF	3.7	4.5	5.5	5.7	(5.6) ^A	5.4	5.6	6.5	7.2	7.0	8.0	8.5	8.2	6.8	6.1	5.6	AF	AF	AF	
27	F	F	4.8 ^F	4.2 ^{FF}	(4.4) ^F	4.5	4.7 ^P	5.9 ^P	(5.3) ^C	4.7	5.2	A	A	C	8.6	8.0 ^T	6.1	5.5	6.2	6.3	5.6	5.2 ^P	5.0	4.5	
28	4.5	(4.5) ^C	4.5	4.0	3.6 ^P	4.0	5.0	7.0	6.7	A	A	A	5.6	5.2	5.7	5.6	6.3	7.2	M	M	5.6	5.5 ^V	5.5	5.7 ^F	
29	5.1 ^F	(5.0) ^F	4.8 ^F	4.2 ^F	3.8 ^F	4.1	5.5	7.0	7.1	6.6	5.2	5.7	6.3	6.7	6.5	6.1	6.0	5.3	5.8	5.6	5.3	5.5	5.6 ^F	F	
30	F	4.3 ^F	AF	AF	F	F	4.6	5.5	A	A	A	5.7	5.7	7.2	7.5	6.6	5.7	5.7	5.6	5.3	5.3 ^F	5.6 ^F	F	4.9 ^{FF}	
31	A	AF	4.4 ^{FF}	(4.2) ^F	(4.0) ^F	4.2	5.1	6.1	5.5	5.7	5.6	5.8	5.7	5.7	5.3	5.7	6.1	6.1	7.0	7.2	7.0	6.6	6.1 ^{FF}	6.0 ^F	5.8
Mean Value	5.0	4.8	4.6	4.5	4.2	4.3	5.2	5.7	5.8	5.8	5.4	5.8	6.0	6.4	6.5	6.3	6.2	6.6	6.7	6.7	6.1	5.5	5.4	5.4	5.3
Median Value	5.0	4.6	4.6	4.2	4.2	4.3	5.0	5.8	6.0	5.7	5.4	5.7	5.9	6.4	6.5	6.1	6.2	6.4	6.3	6.6	6.0	5.5	5.5	5.5	5.2
Count	2.0	2.4	2.5	2.5	2.6	2.8	2.9	2.6	2.2	1.8	1.8	1.9	2.2	2.4	3.0	2.8	2.8	3.0	3.0	2.8	2.9	2.8	2.9	2.8	2.1

Survey 1.0 Mc to 1.7.2 Mc in 2 min Manual Automatic

K 1

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

185° E Mean Time
f_oF₂

Jul. 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	350	370	370 ^S	C	C	C	C	C	A	330	370	290	390	360	320	320	(320) ^A	320	310 ^P	(310) ^P	360	320	320
2	C	370	380	350	C	C	C	C	(380) ^B	400 ^Z	U	390	A	380	360 ^P	(360) ^A	370	(340) ^T	310	340	330	350	380	370
3	C	370	380	350	C	C	C	C	300	400	U	420	380	370	A	400	330	300	270 ^P	360 ^H	430	400	430	420
4	C	410	470 ^{FF}	450 ^F	C	C	C	C	300	400	U	420	380	370	A	400	330	300	270 ^P	360 ^H	430	400	430	420
5	C	390 ^K	390 ^K	350 ^K	C	C	C	C	A	A	A	A	A	U	U	U	U	U	U	C	C	C	C	(410) ^K
6	C	380 ^K	390 ^K	420 ^K	C	C	C	C	A	A	A	A	A	U	U	U	U	U	U	C	C	C	C	(410) ^K
7	C	380 ^K	370 ^K	360 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
8	C	390 ^F	370 ^F	360 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
9	C	350 ^F	370 ^F	360 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
10	C	410 ^{AF}	400 ^{AF}	400 ^{AF}	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
11	C	380 ^F	410 ^{AF}	400 ^{AF}	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
12	C	380 ^F	400 ^F	340 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
13	C	410 ^{FF}	380 ^{FF}	340 ^{FF}	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
14	C	410 ^{FF}	380 ^{FF}	340 ^{FF}	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
15	C	350 ^F	350 ^F	350 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
16	C	390 ^F	400 ^F	380 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
17	C	350 ^F	380 ^F	370 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
18	C	380 ^F	370 ^F	380 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
19	C	380 ^F	370 ^F	380 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
20	C	320 ^V	400 ^F	400 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
21	C	370 ^F	370 ^F	370 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
22	C	390 ^F	390 ^F	400 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
23	C	380 ^F	400 ^F	340 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
24	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
25	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
26	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
27	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
28	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
29	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
30	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
31	C	380 ^F	350 ^F	320 ^F	C	C	C	C	320 ^K	300 ^K	U	U	U	U	U	U	U	U	U	C	C	C	C	(410) ^K
Mean Value	370	380	360	360	340	330	320	300	310	330	330	400	360	360	360	350	350	330	320	310	320	310	320	320
Count	20	24	24	25	25	27	25	20	16	9	1	4	7	16	17	14	22	27	27	26	28	27	23	21

f_oF₂

Manual Automatic

Sweep 1.0 Mc to 17.2 Mc in 2 min

K 2

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

R'F2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	A	330	370	280	380	340	300	290	[280] ^A	280	260	240	280	280	280
2	270	280	280	280	270	300	270	L	300	400	410	370	400	360	340	[340] ^A	340	[310] ^T	280	250	240	250	300	280
3	300	300	330	260	270	270	280	400	270	350	550	360	370	330	[380] ^A	430 ^A	320	300	270	240	300 ^{MA}	290	300	300
4	320	330	330	320	290	430 ^K	410 ^K	400 ^K	420 ^K	B ^K	A ^K	B ^K	470 ^K	520 ^K	450 ^K	410 ^K	440 ^K	370 ^K	270 ^K	C ^K	C ^K	320 ^K	310 ^K	
5	300 ^K	300 ^K	280 ^K	310 ^A	290 ^K	250 ^K	B ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	360 ^K	370 ^K	400 ^K	420 ^K	290 ^K	230 ^A	220 ^K	350 ^K	350 ^K	300 ^K
6	350 ^K	[320] ^K	350 ^K	260 ^K	A ^K	A ^K	430 ^K	[440] ^A	500 ^K	B ^K	B ^K	B ^K	500 ^K	[500] ^K	510 ^K	[480] ^A	450 ^K	350 ^K	300 ^A	280 ^K	290 ^K	330 ^K	330 ^K	300 ^K
7	300 ^K	270 ^K	300 ^K	300 ^K	300 ^K	280 ^K	300 ^K	320 ^K	320 ^K	380 ^K	380 ^K	510 ^K	390 ^K	380 ^K	[380] ^K	380 ^K	380 ^K	330 ^K	330 ^K	290	250	220	270	A
8	A	A	290	300 ^{AF}	310	400	300	270	[280] ^A	300	A	A	A	A	310	410	A	A	A	A	250	A	A	A
9	AF	290	280	320 ^A	260	270	330	330	M	A	450	380	390	[410] ^A	430	410 ^A	[400] ^A	380	360	260	240	300 ^A	A	A
10	A	A	280	320 ^A	300	310	480	A	540	450	490	B	C	B	450	530	410	[360] ^A	280 ^F	A	A	A	A	
11	A	A	AF	350 ^{AF}	300 ^F	400	A	A	A	A	A	A	A	A	400	400 ^A	500	[400] ^A	300	270	260	300	260	320
12	310	320	310 ^A	310 ^A	220	230	A	A	A	A	A	A	420	A	A	A	300	[340] ^M	300 ^A	300	260	300	260	320
13	A	300 ^{AF}	AF	A	A	240	A	A	A	360	360	380	360	330	350	380	300	300	300	300	[300] ^F	300	260	320
14	[360] ^A	370	270	260	320	260	250 ^A	280 ^A	[300] ^A	310	310	[350] ^A	390	390	[370] ^A	340	[320] ^A	300	300	270	260	[260] ^A	270 ^F	270
15	280	270	300 ^A	300	300 ^F	[320] ^T	350	300	300	300	440	420	350	310	A	A	340	310	260	[260] ^A	270	240	280	330 ^A
16	290	[300] ^F	320 ^F	270 ^F	260	250	300	280	300	300	350	A	A	A	A	[330] ^C	310	290	280	270	260	280 ^F	280	C
17	320 ^A	300	290 ^F	300 ^A	270 ^F	250	370	340	300	350	A	A	A	A	A	350	A	320	270	250	220	300 ^A	320	320
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	370	A	A	320	270	250	260	280 ^F	280	320
19	320	310	300	270	270	300 ^A	290	250	A	B	450	370	T	T	420	370	330	320	300	260	[240] ^C	230 ^A	280 ^F	310
20	280	300	280 ^F	300	AF	AF	240	300	310	330	350	[350] ^A	350	370	350	370	330	310	280	260	[260] ^F	260 ^F	320	290
21	300 ^{AF}	280	300	270 ^F	260	340	360	300	330	270	[380] ^B	490	360	370	340	390	310	290	270	220	240	260	290	300
22	310	310	300	270	280 ^F	280	300	270	330	300	A	A	450	A	370	A	320	350	A	240 ^F	300 ^A	270 ^F	280	280 ^F
23	310	310 ^F	270	240	280 ^F	250	260	260	M	A	A	A	A	A	350	340	A	A	A	A	A	320	340 ^A	300
24	300	290	240	230	310	250	250	M	M	M	A	A	A	A	330	320 ^A	300	[300] ^A	300	340	[320] ^A	300	320	280
25	300	300	290	300 ^F	280	260 ^F	340	270	270	290	B	A	380	[340] ^A	310	340	320	270	260	250	[260] ^A	270	320	A
26	AF	250 ^F	AF	AF	AF	300 ^{AF}	320	300 ^A	290 ^A	A	A	400	260	330	390	350	300	270	260	260	[360] ^{AF}	260 ^F	AF	AF
27	F	300 ^{AF}	270 ^F	280	220	240	210	270	C	A	380	A	A	C	A	290	290	350	260	250	270	250	280	300
28	300	C	C	250	300	260	370	290	270	A	A	A	400	400	380	380	340	280	M	M	250	250 ^{AF}	280	300 ^A
29	250	300 ^F	260	280	280	300	300	270	270	270	300	390	340	300	300	350	300	[290] ^A	280	250	300 ^A	270	300 ^F	300
30	360 ^{AF}	300 ^{AF}	AF	AF	250 ^F	[280] ^F	310	300	A	A	A	420	320	300	300	300	300	300	290	260	250	270	280	300 ^F
31	[300] ^A	290 ^F	300	260	220 ^F	[220] ^H	230 ^A	270	270	350	320	330	450	390	460	400	330	300	280	250	260	280 ^F	310	300 ^F
Mean Value	310	300	290	280	280	290	310	310	320	330	390	390	370	370	370	370	370	350	320	290	260	260	280	300
Max Value	300	300	290	280	280	270	300	290	300	320	380	380	360	380	360	380	330	310	280	260	260	280	290	300
Count	22	25	24	26	25	27	23	25	20	16	15	14	20	22	28	26	28	29	27	27	28	27	24	23

Sweep 1. Mc to 7.2 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° 29.5' E

Kokubunji Tokyo

foF1

Jul. 1952

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	4.7	4.7	5.0	4.6	4.5	4.2	A	A					
2						L	3.9	L	4.3	4.5	4.5	A	A	4.6	A	A	4.2	[3.8]T	3.5					
3						Q	3.7	4.1	4.4	4.5	4.8	4.5	4.9	A	A	A	4.1 ^H	4.0	3.4					
4						2.7	3.3	3.7	4.0	4.2	[4.2]A	4.3	4.3	4.4	4.2	4.1	4.1	3.8	3.1					
5						Q	3.6	A	A	A	A	A	A	4.1	[4.2]A	4.2	4.0	3.8	3.2					
6						A	3.4	3.7	3.8	4.0	[4.2]B	4.3	[4.2]A	4.2	4.2	[4.1]A	4.0	3.7	A					
7						Q	3.6	4.0	A	A	4.3	4.4	[4.4]A	4.3	[4.2]A	4.2	4.0	3.6	3.3					
8						3.0	3.6	3.9	[4.1]A	4.3	A	A	A	A	A	4.3	A	A	A					
9						Q	3.6	3.9	M	A	4.3	4.5	4.3	A	A	A	4.1	A	A					
10						L	3.5	3.8	3.9	4.1 ^H	4.3	4.4	C	A	4.3	4.2	4.0	3.8	A					
11						2.9	A	A	A	A	A	A	A	A	4.3	A	A	A	A					
12						Q	A	A	A	A	A	A	A	A	A	A	A	A	A					
13						Q	A	A	A	4.5	[4.5]A	4.5	A	A	A	4.3	4.2	4.0	3.5 ^L					
14						Q	Q	A	A	4.5	A	A	A	4.7	A	A	4.4	4.2	3.9	3.4				
15						T	3.8	[4.2]T	4.5	A	A	A	A	A	A	4.4	4.2	3.9	3.4					
16						Q	L	4.2	L	4.5	4.8	4.7 ^H	[4.7]A	4.7	A	A	4.3	4.3	L					
17						Q	4.0	4.2	4.2	4.0	A	A	A	A	4.5	[4.4]C	4.2	3.8	A					
18						C	C	C	C	C	C	C	C	C	4.5	A	A	3.8	L					
19						A	L	4.0	[4.3]A	4.6	4.3	A	T	T	4.6	4.3	4.2	3.9	A					
20						A	A	4.2	4.3	4.3	A	A	A	4.5	4.5	4.3	4.0	3.9	3.4 ^L					
21						L	3.6	4.0	4.1	4.4	4.5	4.7	4.4	4.5 ^H	A	A	A	A	3.2 ^L					
22						A	3.5	L	A	A	A	A	A	A	A	A	3.8	3.9	A					
23						Q	Q	Q	M	A	A	A	A	4.3	4.4	A	A	A	A					
24						Q	Q	M	M	M	M	A	A	A	A	A	A	A	A					
25						Q	3.4	3.8	4.1	4.2	4.6	[4.5]A	4.4	[4.4]A	4.3	4.4	[4.0]A	3.7	3.2					
26						AF	3.5	A	A	A	A	4.5	4.5	4.5	4.4	4.3	4.1	A	A					
27						Q	Q	A	C	A	4.4	A	A	C	A	A	4.0	3.9	3.2					
28						Q	3.7	3.8	A	A	A	A	4.4	4.5	[4.4]A	4.3	4.0	3.6	M					
29						Q	L	4.0	4.3	A	4.6	4.5	4.5	4.3	A	A	A	A	L					
30						F	A	4.0	A	A	A	A	A	A	4.5	[4.3]A	4.1	3.5	L					
31						A	Q	L	A	4.4	4.5	4.5	[4.4]A	4.4	4.5	4.4	4.0	A	L					
Mean Value						2.9	3.6	4.0	4.2	4.4	4.5	4.5	4.5	4.5	4.4	4.3	4.1	3.8	3.3					
Median Value						2.9	3.6	4.0	4.2	4.4	4.5	4.5	4.4	4.4	4.4	4.3	4.1	3.8	3.3					
Count						3	16	17	13	15	15	14	13	16	17	17	22	19	11					

foF1

freq. 1.0 Mc to 1.72 Mc in 2 min

Manual Automatic

K 4

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

Lat. 36° 42.4' N
Long. 139° 29.8' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

R'F1

JUL 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						C	C	C	C	A	A	230	(240) ^A 250 ^A	230	230	230	A	A							
2						260	240	280	240	220	200	A	A	A	A	A	250	(250) ^H 250	250						
3						Q	250	270 ^A	270 ^A	230	200	210	A	A	A	A	200	230	A						
4						270	250	230	210	210	(220) ^A 240	220	220	220	220	230	230	240	240						
5						Q	250	A	A	A	A	A	240	(220) ^A 210	250	250	250	250							
6						A	270	(250) ^A	230	230	280	280	(260) ^A 250 ^A	230	A	A	A	270	A						
7						Q	280 ^A	270	A	A	A	220	(230) ^A 240	(240) ^A 230	240	240	250	250							
8						250	230	250	A	A	A	A	A	A	A	A	A	A	A						
9						Q	250	230	M	A	200	200	230	A	A	A	A	A	A						
10						270	260	(240) ^M 220	220	190 ^H	220	250	C	A	240	220	240	250 ^A	A						
11						230	A	A	A	A	A	A	A	A	250	A	A	A	A						
12						Q	A	280	A	A	A	A	A	A	A	A	A	A	A						
13						Q	A	A	A	A	A	A	A	200 ^A (200) ^A	200	280 ^A	270	250							
14						Q	Q	Q	A	A	A	A	A	300	A	A	A	A	A						
15						T	250	(240) ^T	230	A	A	A	A	A	A	220	250	(250) ^M 250 ^A	A						
16						Q	250	230	A	200	210	220 ^H	(240) ^A 250	A	A	A	220	280 ^A	A						
17						Q	230	250	220	210	A	A	A	A	A	C	A	230	A						
18						C	C	C	C	C	C	C	C	A	250	A	A	270	250						
19						A	230 ^A	A	A	220	200	A	T	T	280	220	210	230	A						
20						A	A	230 ^A	210	210 ^A	A	A	A	230	210	250 ^A	260 ^A	220	250						
21						300	280	230	250	230	230	240	210	200 ^H	A	A	A	A	A						
22						A	260	240 ^A	A	A	A	A	A	A	A	A	A	A	A						
23						Q	Q	Q	M	A	A	A	A	200	230	A	A	A	A						
24						Q	Q	M	M	M	M	A	A	A	A	A	A	A	A						
25						Q	250	250	230	200	210	(200) ^M 200	200 ^A	A	A	A	A	A	A						
26						AF	250	A	A	A	A	A	210	210	220	210	250	A	A						
27						Q	Q	A	C	A	200	A	A	C	A	A	250	210	240						
28						Q	220	220	A	A	A	A	210	220	(240) ^M 250 ^A	240	240	240	M						
29						Q	250	230	200	(210) ^M 220	210 ^A	300	200	200	A	A	A	A	250 ^F						
30						F	A	250	A	A	A	A	A	A	A	A	240 ^F	200	250						
31						A	Q	260	A	A	260	A	A	210	230	240	250	(260) ^A 260							
Mean Value						260	250	250	230	210	220	230	230	230	230	230	240	240	250						
Median Value						260	250	240	230	210	210	220	230	220	230	220	240	250	250						
Count						6	19	20	11	12	13	11	11	16	15	12	17	18	14						

K 5

Manual Automatic

Sweep 1.0 Mc to 11.2 Mc in 2 min

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 38.3' E

Kokubunji Tokyo

foE

Jul. 1952

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	3.3	3.2	3.5	3.5	3.4	A	A	A	A	A					
2						1.9	2.2	2.8	[3.0] ^A	3.3	3.5	3.6	3.5	3.5	3.4	3.2	3.1	T	A					
3						B	2.2	3.1	3.2	[3.2] ^A	3.4	3.6	3.5	3.5	3.3	3.3	2.8	2.4	A					
4						A	2.1	A	A	3.2	3.3	3.3	3.4	3.3	A	A	2.8	2.3F	A					
5						1.6 ^B	2.3	2.7	A	3.0	3.2	3.4	3.5	3.2	3.2	3.1	[2.6] ^A	2.1	A					
6						1.5	2.2	2.7	2.8	3.1	3.2	3.2	3.2	3.3	A	A	2.8	2.2	2.0					
7						1.7	2.2	2.6	2.8	3.0	3.1	3.2	3.2	3.2	3.2	3.1	A	A	A					
8						A	A	2.5	2.9 ^A	(3.0) ^A	3.2	3.1	3.1	3.1	3.0	A	A	2.7	AF					
9						1.8	AF	A	M	3.1	[3.2] ^A	3.2	3.4	3.4	3.3	3.2	2.9	2.5	2.0					
10						B	2.1	2.6	A	A	A	C	C	3.3	3.3	3.2	2.8	2.5	A					
11						B	2.3	2.7	3.0	3.0	3.1	3.3	3.4	3.4	3.4	3.2	2.9	2.7	2.0					
12						1.8	2.3	2.8	3.1	3.4	3.4	3.4	3.3	A	A	2.9	[2.8] ^A	2.7	2.2					
13						A	2.3	2.7	3.0	[3.2] ^A	3.5	3.5	3.2	3.1	3.5 ^A	3.3	3.0	2.7	1.9 ^F					
14						1.8	2.2	2.7	3.1	3.2	3.3	3.3	3.3	3.2	3.2	A	A	A	A					
15						A	2.2	2.7	3.1	3.2	3.3	3.3	3.4	3.2	3.2	[3.1] ^A	3.0	2.6	2.1					
16						A	A	2.4	A	A	A	A	3.6	3.5	3.3	[3.1] ^A	2.9 ^F	2.6 ^F	A					
17						B	A	2.7	3.1	3.3	3.5	3.2	A	A	A	C	A	A	A					
18						C	C	C	C	C	C	C	C	C	A	A	A	A	A					
19						B	A	A	A	3.1	[3.2] ^A	3.4	T	T	3.4	3.3	2.9	2.6	A					
20						A	A	AF	A	3.2 ^A	3.4	3.5	3.5	3.3	3.2	3.2 ^A	A	A	A					
21						1.3	A	A	A	3.2 ^A	A	A	A	A	3.5	3.3	3.2	2.7 ^A	2.5	A				
22						A	2.2	2.6	3.0 ^A	3.1	A	3.2	3.2	3.3	A	A	A	A	A					
23						A	A	A	M	3.2	3.5	3.4	3.4	3.2	A	A	A	A	A					
24						A	2.2	M	M	M	M	3.3	3.2	3.3	3.0	A	A	A	A					
25						A	2.2	[2.5] ^A	2.8	[3.0] ^A	3.3 ^A	3.2 ^A	3.2	[3.2] ^A	3.3	3.2	2.8	2.5	A					
26						A	2.3	2.6	3.1	3.2	[3.2] ^A	3.3	3.3	3.4	[3.4] ^C	3.5	3.2	2.8	2.5 ^F	AF				
27						1.0	1.8	2.4	[2.8] ^C	3.3	3.3	3.3	3.4	[3.4] ^C	3.5	3.2	2.8	2.5 ^F	AF					
28						1.2	2.1	2.5	2.7	A	A	A	A	A	A	A	A	2.8 ^F	2.3	M				
29						B	A	A	2.9	A	A	A	3.4	3.4	3.3	3.1	2.9	2.5	A					
30						A	1.9	2.6	2.8	3.2	[3.3] ^A	3.4	3.4	3.4	3.3	3.1	[2.8] ^A	2.5 ^F	A					
31						A	2.1	2.6	A	A	A	3.1	3.2	3.5	3.5	A	A	2.4 ^A	A					
Mean Value						1.6	2.2	2.6	3.0	3.2	3.3	3.3	3.4	3.3	3.3	3.2	2.9	2.5	2.0					
Median Value						1.6	2.2	2.6	3.0	3.2	3.3	3.3	3.4	3.3	3.3	3.2	2.8	2.5	2.0					
Count						1.0	2.0	2.1	1.8	2.5	2.3	2.5	2.5	2.6	2.1	1.8	1.9	2.0	6					

foE

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual Automatic

K 6

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

Lat. 35° 42.4' N
Long. 139° 28.3' E

Kokubunji Tokyo.

IONOSPHERIC DATA

f_oF₂

135° E Mean Time

JUL 1952

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

Sweep 1.0 Mc to 1.22 Mc in 2 min Manual Automatic

K 7

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Jul. 1952

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	8.5	7.0	5.8	5.0	7.2	4.7	8.7	10.0	8.2	6.7	5.0	2.9	3.7	3.1
2	2.9	2.9	2.9	2.6	2.3	G	3.3	4.0	5.0	4.9	4.9	7.5	9.0	6.0	8.7	10.0	5.7	T	4.2	3.1	4.5	2.4	3.7	3.5
3	2.7	3.1	4.0	2.9	2.9	3.3	3.8	3.8	5.5	4.9	4.9	G	3.0	7.1	6.6	7.5	6.2	3.2	3.5	4.2	4.3	3.0	2.1	E
4	3.2	3.0	4.5	3.7	3.8	3.0	3.5	3.8	4.0	4.0	4.0	4.0	G	G	4.0	4.9	6.2	6.6	3.2	C	C	E	2.3	2.7
5	2.3	3.7	4.1	3.8	2.5	2.5	4.3	7.1	6.5	7.5	8.2	8.8	5.0	5.0	5.0	5.0	4.2	3.7	3.0	3.8	2.1	2.3	2.3	2.5
6	3.2	4.5	3.7	6.5	7.0	4.4	3.8	6.5	4.5	G	3.9	3.9	5.9	4.0	3.9	5.8	4.5	3.5	4.3	4.8	3.8	4.0	3.9	2.9
7	3.1	2.2	4.0	5.4	3.5	4.5	4.0	5.0	5.5	6.0	4.7	4.4	5.8	5.6	6.7	4.9	5.5	4.5	3.3	2.6	E	2.0	6.7	7.0
8	7.1	6.5	4.5	4.0	3.0	2.5	4.3	5.7	7.0	7.0	8.5	6.4	7.0	7.1	5.3	6.6	6.5	6.8	8.5	9.0	9.1	7.0	6.2	9.0
9	6.7	3.1	2.9	4.2	2.5	2.5	4.5	4.2	M	8.5	10.0	G	5.5	5.7	8.0	5.9	6.7	8.6	6.8	6.6	3.9	6.7	6.0	4.7
10	8.0	8.5	6.0	3.0	3.5	2.6	4.0	4.4	3.6	4.6	4.3	3.9	C	5.5	G	G	G	4.2	6.0	4.0	8.5	6.7	6.7	4.0
11	7.5	7.0	4.5	4.0	3.5	2.5	6.7	10.0	7.2	7.6	9.0	7.1	8.5	8.5	5.0	5.5	5.4	6.6	4.7	4.2	4.0	4.2	3.0	4.5
12	4.1	4.8	5.0	4.8	3.7	3.3	6.5	5.4	6.2	6.5	6.5	8.2	5.7	6.9	10.0	9.0	6.8	7.5	9.0	8.5	8.5	4.4	8.0	4.5
13	6.0	6.5	4.0	4.1	5.8	4.1	5.0	10.0	9.8	8.5	7.4	7.0	8.7	6.8	5.0	5.2	5.5	4.9	3.7	3.7	8.0	5.7	6.5	6.5
14	6.7	6.5	6.5	8.3	4.0	2.9	5.0	5.6	7.0	5.0	6.0	7.9	5.7	5.0	8.2	5.8	8.0	7.5	8.0	9.0	7.1	7.4	8.5	3.2
15	3.0	4.3	3.5	3.0	2.7	T	4.0	T	3.9	10.5	7.3	6.6	8.5	7.5	5.0	5.0	4.3	4.3	3.6	3.8	3.1	5.7	3.7	4.5
16	6.5	5.5	4.5	3.4	3.8	5.4	4.0	4.6	5.0	5.8	4.5	4.7	6.0	5.2	7.0	10.0	7.5	9.0	4.7	6.5	3.9	2.7	4.8	4.5
17	6.0	6.0	5.0	3.5	3.0	2.5	4.6	4.5	5.5	6.5	7.0	6.5	6.8	6.8	5.0	C	4.3	3.8	4.0	4.2	4.8	5.5	6.5	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	6.5	10.0	10.0	4.2	3.7	5.0	4.0	4.0	3.2	3.1
19	4.0	2.7	4.3	4.7	6.0	6.3	4.0	6.0	6.9	4.8	4.2	4.2	T	T	G	G	3.5	3.3	8.0	3.9	C	3.7	5.2	4.5
20	3.8	3.7	3.5	5.9	4.8	5.6	4.6	4.5	4.3	6.0	8.0	8.0	8.7	6.5	6.5	6.8	7.0	6.5	5.0	4.5	6.5	3.1	3.0	3.5
21	4.0	3.1	2.5	2.5	3.7	4.0	4.2	5.0	4.1	4.0	5.0	4.0	4.0	G	5.1	5.5	6.5	5.2	3.5	2.7	2.7	2.5	2.5	2.9
22	3.0	5.0	2.9	6.5	6.5	9.0	4.5	5.5	5.5	5.0	7.3	8.5	4.3	6.8	4.3	6.5	5.0	6.2	7.5	3.6	5.2	4.0	3.7	3.3
23	4.5	4.0	3.2	2.9	2.3	4.1	3.8	5.0	M	10.0	8.0	9.0	9.0	9.0	6.7	9.0	7.5	7.0	7.0	6.5	5.0	4.7	3.8	3.8
24	3.0	3.0	2.5	2.2	3.0	3.0	3.7	M	M	M	M	6.9	10.0	7.2	7.2	7.5	7.0	5.5	5.2	6.6	4.4	4.4	3.2	3.1
25	2.5	2.9	3.1	3.5	2.5	4.0	4.2	4.5	4.5	4.4	4.6	4.8	5.7	9.2	5.5	5.0	5.0	6.5	8.5	4.3	8.5	4.2	4.3	8.3
26	4.7	8.5	5.0	6.6	6.6	6.0	4.3	6.5	6.5	7.0	9.0	6.0	7.0	4.5	6.4	4.5	4.7	6.8	6.7	6.7	4.5	9.0	7.0	7.0
27	3.6	3.8	3.1	3.6	2.8	3.3	3.7	5.2	C	7.0	9.5	6.5	6.5	C	8.2	6.6	6.7	4.1	5.0	2.8	3.0	3.0	3.2	2.9
28	E	C	C	E	E	2.5	2.2	3.5	5.0	9.2	4.0	8.7	5.3	4.7	6.4	5.0	4.5	3.5	M	M	4.5	7.0	3.5	6.5
29	3.2	4.5	3.0	3.0	3.5	2.6	4.5	3.6	4.2	6.0	6.8	5.6	4.8	5.0	5.5	5.7	5.6	6.0	3.4	3.8	3.0	2.9	3.9	4.5
30	5.7	4.9	5.0	5.5	5.4	5.7	5.0	4.9	9.0	8.5	9.0	7.2	7.0	6.8	5.3	10.7	9.0	9.0	6.7	4.6	4.5	4.5	4.5	7.0
31	6.7	6.5	5.0	4.0	4.5	6.0	4.5	3.7	5.7	5.6	5.9	6.6	6.0	G	6.0	5.0	4.5	4.5	8.0	6.5	3.7	5.4	6.6	6.5
Mean Value	4.6	4.7	4.0	4.2	4.1	4.1	4.3	5.3	5.7	6.6	6.8	6.5	6.3	6.1	6.2	6.6	6.5	5.8	5.6	5.1	5.1	4.5	4.8	4.8
Median Value	4.0	4.4	4.0	3.8	3.7	3.8	4.3	5.0	5.5	6.0	7.0	6.6	6.0	5.6	6.4	5.8	6.0	5.8	5.1	4.3	4.5	4.2	3.9	4.5
Count	29	28	28	29	29	28	27	25	25	29	29	30	28	20	31	30	30	30	30	29	29	31	31	30

fEs

freq. 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° 29.3' E
Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

(M3000)F2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	A	3.0	2.8	3.3	2.7	2.9	3.1	3.0	[3.0]A	3.0	3.1P	(3.1)P	2.8	2.8	2.8	
2	2.8	2.7	2.6S	2.8	(2.9)P	3.0	3.2	2.9	[2.8]B	2.7Z	2.6	2.7	2.8	2.7	2.8P	[2.8]A	2.8	[2.9]T	3.0	2.9	3.0	2.8	2.7	2.7	
3	2.8	2.6	2.8	2.9	2.8	3.1	3.1	3.2	3.2	2.7	2.3	2.7	2.7	2.7	[2.7]A	2.7	2.8	2.9	3.0	3.3P	2.7H	2.6	2.7	2.6	
4	2.6	2.5P	2.6F	2.7	2.6	2.4K	2.6K	2.7K	2.6K	Bk	AK	AK	AK	2.9K	2.4P	2.6P	2.8K	2.8K	2.9K	3.2K	Ck	Ck	2.6K	(2.6)P	
5	2.7K	2.6K	2.9K	[2.8]F	(2.8)F	3.2K	(2.3)T	[2.6]A	2.8K	AK	AK	AK	AK	2.8K	2.9K	2.8K	2.7K	2.6K	3.0K	3.5K	2.7K	2.5K	2.7K	2.6K	
6	2.7K	2.8K	2.5K	3.1K	[2.8]A	2.5K	[2.6]A	2.5K	2.5K	Bk	Bk	Bk	Bk	AK	BK	2.5K	[2.8]A	2.6K	3.0K	2.8K	2.8K	2.6K	2.7K	2.7K	
7	2.8K	2.7F	2.6F	2.8K	2.8K	3.0K	3.1K	3.2K	3.1K	3.2K	2.9K	2.5K	2.8K	2.8K	[2.8]A	2.9K	2.7K	2.7K	3.0	3.1	2.9	3.2	(2.7)P	A	
8	A	2.8F	(2.6)F	2.8F	2.6F	2.7	2.7	3.1	[3.2]A	3.3	A	2.8	2.8	2.8	2.8	2.7	A	A	2.9	[3.0]A	3.0P	A	A	A	
9	A	2.8F	2.7F	2.8F	2.9F	3.0	3.1	3.2	M	A	2.6	2.6	2.7	[2.7]A	2.7	(2.8)T	[2.8]A	2.8P	2.6	S	3.1Z	2.7	A	F	
10	A	A	2.7F	2.5F	2.8F	(3.0)P	3.0	2.5	2.4	2.6	2.6	B	C	B	2.5	2.4	2.6	2.4	[2.6]A	2.9	A	A	A	2.5	
11	(2.7)P	2.5A	[2.6]A	2.6F	(2.7)F	2.7F	A	A	A	A	A	A	A	A	2.8	2.8	2.5	[2.6]A	2.8	3.0	2.9	2.8	3.0	2.8	
12	(2.9)P	2.9F	(2.8)P	2.8F	3.7	3.3	A	A	3.0	3.1	A	A	2.9	2.8	2.9P	2.9	A	2.6	[2.8]A	2.9	3.0	[2.8]F	(2.6)F	A	
13	F	2.6P	[2.8]F	2.9F	2.9F	3.0Z	2.8	A	A	2.9	3.0	2.8	2.8	2.9P	2.9	2.7	3.0	3.0	3.0	3.1	[2.9]A	2.7F	2.7F	F	
14	AF	F	F	F	F	3.0	3.5	3.2	[3.1]A	3.0	3.2	[3.0]A	2.7	2.7	[2.7]A	2.7	2.7	2.7	3.0	3.1	[2.9]A	2.7	[2.6]A	(2.6)T	
15	[2.8]F	(2.8)F	2.9	2.7F	2.8F	[2.9]T	3.0	3.0	3.1	A	A	A	A	2.8	2.9	2.7	2.7	2.7	3.0	3.0	2.9	2.8	(2.7)F	AF	
16	2.7	AF	F	F	(3.0)F	3.3	3.0	3.2	3.2	3.2	2.7	2.6	2.8	3.0	[2.9]A	2.8	2.9	2.9	3.1	(2.9)P	(2.8)P	3.0	2.7F	3.0F	
17	3.0F	2.6F	2.7	3.0	3.1Z	3.1V	2.9	2.8	3.0	2.7	3.0	[2.8]A	2.7	2.6	2.9	(3.0)P	3.0	3.0	3.0	3.0	2.9	2.8	2.7	C	
18	C	C	C	C	C	C	C	C	C	C	C	C	T	T	2.8	A	A	A	2.9	3.1	3.2	3.1	2.7	2.8	
19	2.7	2.8F	2.7F	3.0F	3.0F	3.1	3.1	3.6	A	B	2.7	2.8	T	T	2.7	2.8	2.7	2.8	3.1	3.0	[3.0]C	3.1	2.8	2.6F	
20	(3.2)T	2.7F	2.6F	3.1F	[3.2]A	3.2F	3.2	3.3	3.1	3.2	3.0	[3.0]A	2.9	2.7	2.8	2.7	2.8	3.1	3.0	(3.0)P	2.9	2.7	2.5	3.0P	
21	2.6F	2.7	2.9	(2.7)P	2.7F	2.6F	2.8P	3.1	3.0Z	3.6	[3.0]B	2.5	2.8	2.8	2.8	2.6	2.9	2.9	3.1	3.1	2.7	2.7	2.8	2.7P	
22	2.7	2.7	2.7F	2.9	2.7	(3.0)P	3.1	3.2	3.0	3.2	A	A	2.5	(2.5)T	2.7	2.6	2.9	2.7	2.8	3.1P	2.7F	3.0F	2.7B	2.8P	
23	[2.8]F	2.7F	2.9F	2.9F	(3.0)F	3.1	3.4	3.3	M	A	A	A	2.8	2.9P	A	A	3.0	3.0	3.0	[2.9]A	2.8	2.8	2.7	2.9	
24	2.7	2.8	(3.1)T	3.1	2.7F	3.0F	M	M	M	M	M	A	A	2.9	3.0	3.2	[3.2]A	3.1	3.1	2.9	2.8	2.7	2.8	2.7	
25	2.8	2.7	2.8	2.9Z	2.7F	3.1F	2.8	3.3	3.4	3.4	B	A	2.7	[2.9]A	3.1	2.7	2.8	3.1	3.3	3.1	(3.3)P	2.8	2.7F	A	
26	AF	3.1F	AF	AF	AF	AF	3.0	[3.2]A	3.3	[3.0]A	2.7	2.7	2.8	2.9	2.6	2.8	2.7	3.2	3.2	3.1	3.2	AF	AF	AF	
27	F	3.1F	3.0	3.0	[3.0]F	3.3	3.7P	3.3P	C	A	2.9	A	A	C	3.0	(2.9)T	3.1	2.9	3.2	3.0	2.8	2.8P	2.8	2.8	
28	2.7	[2.8]C	3.0	3.0	2.9P	2.8	2.7	3.1	3.2	A	A	A	2.8	2.7	2.7	2.7	2.8	3.1	M	M	2.7	2.7P	2.8	2.7F	
29	2.8F	[2.8]F	2.7F	2.8F	2.9F	2.9	3.0	3.3	3.3	3.1	3.0	2.8	3.0	2.9	3.2	2.9	3.1	[3.1]A	3.1	3.1	2.5	2.7	2.7F	F	
30	F	2.8P	AF	AF	F	F	3.2	3.0	A	A	3.3	2.8	3.0	3.2	3.0	3.1	3.1	3.1	3.1	3.2	A	F	F	(3.0)F	
31	A	AF	(2.8)F	(3.2)F	(3.1)F	3.1	3.3	3.1	3.1	3.1	3.2	3.0	2.6	2.8	2.6	2.7	3.0	3.1	3.2	3.0	3.0	(3.1)F	2.7F	2.7	
Mean Value	2.8	2.7	2.8	2.8	2.7	3.1	3.0	3.1	3.0	3.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.0	2.9	2.8	2.7	
Median Value	2.8	2.7	2.7	2.8	2.8	3.1	3.1	3.1	3.1	3.1	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0	3.0	3.0	2.9	2.7	2.7	
Count	20	24	25	25	26	26	28	27	25	21	17	16	21	24	30	28	28	30	30	30	27	28	27	23	21

Sweep 1.0 Mc to 7.2 Mc in 2 min

Manual Automatic

K 9

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

Jul. 1952

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	C	C	C	C	C	C	C	C	C	A	5.0A	3.8	4.5A	4.0	3.5	3.5	3.2	6.5A	3.5A	3.5A	2.0A	1.8	1.7	1.8
2	1.8	1.9	E	1.1	E	1.9	2.4	3.3	3.5	3.6	3.7	5.2A	5.5A	3.7	4.6	[4.0]A	3.5	[2.7]T	1.9	4.9	1.7	1.7	1.8	1.9
3	1.7	1.8	1.9	1.6	1.6	1.9	2.4	3.8	4.2A	3.3	3.7	5.0A	5.5]A	4.3	5.0A	6.0A	3.3	2.7	2.5	3.5A	2.1A	1.7	1.7	1.6
4	2.4A	1.8	1.7	1.9	1.0	1.8	2.3	2.7	3.2	3.3	[3.5]A	3.7	3.5	3.5	3.3	3.3	3.0	2.9	2.4A	C	C	1.7	1.7	1.6
5	1.1	E	1.7	[1.7]A	1.7	1.8	2.3	[3.6]A	4.8A	A	A	A	A	A	3.3	4.3A	3.5	2.0	2.0	[1.7]A	1.5	1.6	1.8	1.8
6	A	A	1.7	1.6	[2.6]A	3.5A	2.6	3.3	3.3	3.4	3.6	4.0	4.3A	3.8	3.3	[3.5]A	3.7	3.0	3.5A	2.0A	1.5	2.2A	1.7	1.9
7	1.6	E	2.3A	1.8	1.5	1.8	3.0	3.3	4.2A	4.3A	4.0	3.7	5.1A	3.9	5.3A	3.3	3.3	3.0	2.4	1.8	1.5	1.7	A	A
8	A	3.0A	1.6	2.4A	1.7	1.8	2.4	3.5A	[3.8]A	4.0A	A	5.0A	5.5A	4.8A	4.0A	A	4.2A	4.8A	5.0A	[3.3]A	1.6	A	A	A
9	A	1.7	1.1	1.0	E	1.8	2.8	3.0	M	A	3.7	4.0	[4.2]A	4.4A	4.8A	3.5	4.2A	3.5A	1.8	1.8	3.3A	[3.3]A	3.3A	
10	A	A	2.0A	[1.8]AF	1.7	1.8	3.0	3.3	3.3	3.5	3.7	3.9	C	A	3.8	3.4	3.3	3.2	[2.5]A	1.8F	A	A	3.8A	
11	[3.0]A	2.3AF	3.3AF	[2.5]A	1.7	1.8	4.3A	A	A	A	A	A	A	A	3.8	4.6A	4.2A	[3.8]A	3.3A	1.7	1.7	2.8AF	1.1	1.7
12	1.7F	1.7	A	A	1.1	1.8	A	A	4.2A	4.4A	4.5A	[4.6]A	4.7A	A	A	A	4.5A	[4.9]A	5.3A	5.3A	[4.0]AF	1.7	[2.6]A	3.5AF
13	A	A	A	A	1.1	1.8	3.7A	A	A	4.0	4.2	3.7	3.7	3.7	4.5A	3.6	3.7	2.8	2.3	1.8A	1.8F	1.6	A	A
14	AF	3.4AF	E	1.1	[1.5]A	1.9	2.5	5.0A	[4.6]A	4.3A	5.2A	[5.1]A	5.0A	4.2A	6.0A	5.0A	7.7A	5.4A	6.2A	[4.0]A	1.7	A	2.0A	A
15	1.2	1.8	E	1.6	E	T	2.7	[3.1]T	3.5	A	A	A	A	5.5A	4.5A	3.3	3.6	3.6A	A	A	1.9	1.8	[1.8]AF	1.9F
16	1.7	[1.7]AF	1.7	1.6	1.9	2.2A	2.8	3.5A	4.2A	3.4	3.7	4.1	5.0A	4.3	[4.9]A	5.5A	3.3	3.6A	3.3A	4.8A	3.2A	1.2	1.8	A
17	A	E	1.7	[1.6]A	1.6F	1.8	2.7	3.4	3.6	3.7	5.5	[5.5]A	5.5A	5.7A	4.3A	[4.0]C	3.8	2.9	3.3A	2.8A	1.8F	1.8F	1.8	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.2	A	A	3.4	1.9	1.8	1.9	[2.0]A	2.2A	2.2A
19	1.7	1.7	1.7	2.0A	1.8	3.3A	2.6	3.5A	[3.4]A	3.4	4.0	4.7A	T	T	4.1	3.6	3.1	2.8	3.0A	1.4	C	A	1.8	1.6
20	2.5A	E	1.6	1.8	[2.6]AF	3.4A	3.0	3.5	3.4	4.0	5.0A	[5.2]A	5.5A	3.9	3.7	3.9	3.5	2.7F	2.2A	1.8F	1.8	1.6	1.6	
21	[1.4]A	1.3	1.5	E	2.0	2.0	2.9	3.5	3.6	3.7	3.5	3.7	3.6	3.5	4.7A	4.8A	5.2A	4.5A	2.5	1.6	1.7	1.6	1.7	1.7
22	1.6	1.9	1.0	1.1	2.0	2.0	2.9	3.5	4.6A	4.5A	A	A	5.3	5.4A	4.3A	5.1A	3.6	3.5A	5.3A	1.6	[1.7]AF	1.8F	1.7	1.6
23	1.7	1.8	E	1.6	1.6	2.0	2.3	2.8	M	A	A	A	A	A	3.9	3.7	A	5.5A	5.5A	[5.2]A	5.0A	2.0A	3.5A	2.2A
24	1.8	1.6	1.2	E	1.0	1.8	2.6	M	M	M	M	5.2A	[5.3]A	5.4A	7.0A	6.5A	[5.2]A	4.0A	3.8A	4.7A	3.5A	3.3A	2.3A	2.0A
25	1.6	1.7	1.1	E	1.0	E	1.9F	2.3	3.3	3.3	3.3	3.3	[3.5]A	3.7	[4.0]A	4.2	4.2A	4.0A	3.5A	[2.0]A	1.6	4.5A	1.7	1.7
26	AF	1.6F	AF	AF	AF	AF	2.2	[3.6]A	5.0A	A	A	4.3A	3.6	3.5	3.4	3.3	3.3	4.1A	3.1A	[2.4]AF	1.8	AF	AF	AF
27	F	A	1.8	1.6	E	2.2	3.1	3.6	C	A	3.5	A	A	C	7.5A	5.5A	3.6	2.5	1.8	1.5	1.8F	1.8	1.7	1.5
28	1.1	C	C	E	E	1.7	2.3	2.8	4.2A	A	A	A	3.5	3.3	4.4A	3.9	3.3	2.3	M	M	1.8	2.0AF	2.0A	2.6A
29	1.6	1.7	1.6	1.2	1.8	1.6	2.7	3.0	3.3	4.2A	4.0	[4.0]A	4.1	4.0	4.6A	5.0A	5.0A	[3.6]A	2.2F	2.8	3.4A	1.6	[1.7]AF	1.8
30	3.3A	2.3AF	AF	AF	1.8F	[2.8]F	3.7A	3.3	A	A	A	5.0A	4.7A	4.2	5.2A	3.5	2.7	2.8	3.5A	1.8	1.6	1.7	1.7F	
31	[1.6]A	1.5	E	1.5	E	3.5A	2.3	3.3	4.2A	4.2	4.0	4.4A	4.9A	3.8	3.8	3.5	3.3	3.8A	2.3F	1.6	2.8AF	1.8F	3.3A	2.8F
Mean Value	1.8	1.9	1.7	1.6	1.7	2.1	2.7	3.4	3.9	3.8	4.1	4.3	4.5	4.2	4.5	4.3	3.8	3.6	3.2	2.7	2.3	1.9	2.0	2.1
Median Value	1.7	1.7	1.6	1.6	1.6	1.9	2.6	3.3	3.7	3.7	4.0	4.2	4.7	4.0	4.3	4.0	3.5	3.4	2.8	2.1	1.8	1.8	1.8	1.8
Count	20	24	23	25	27	27	28	25	22	18	20	22	23	25	30	28	28	30	29	28	28	26	26	24

fminF

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual Automatic

Lat. 35° 42.4' N
Long. 139° 29.3' E
Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

f_{min}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	C	C	C	C	C	C	C	C	C	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.4	1.7	1.7	1.7	1.6	1.2	1.6
2	E	E	E	E	E	E	1.2	1.7	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.6	(1.6)	1.6	1.2	1.6	1.7	1.7	1.6
3	1.7	E	E	E	E	E	1.0	1.6	2.2	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.2	1.3	1.6	1.5	1.6	E
4	E	E	E	E	E	E	E	1.6	1.7	1.8	1.7	1.8	1.9	1.9	1.8	1.8	1.7	1.7	1.7	C	C	E	1.7	1.7
5	E	E	E	E	E	E	E	1.2	1.7	1.8	1.8	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.9
6	1.0	E	E	E	E	E	E	1.7	1.7	1.8	1.8	1.8	1.9	1.8	1.8	1.7	1.7	1.5	1.2	E	1.5	1.5	1.5	1.5
7	E	1.9	E	E	E	E	E	1.6	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.6	1.6
8	1.2	E	E	E	E	E	E	1.6	1.7	1.8	1.7	1.7	1.8	1.9	1.8	1.8	1.7	1.6	1.5	1.6	1.6	1.6	1.5	1.5
9	1.6	E	E	E	E	E	E	1.6	1.7	1.8	1.7	2.0	1.9	1.7	1.7	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.5	1.6
10	1.6	E	E	E	E	E	E	1.6	1.7	1.8	1.8	1.8	(1.8) ^C	1.8	1.8	1.7	1.6	1.6	1.2	1.2	1.6	1.6	1.6	1.6
11	1.5	E	E	E	E	E	E	1.7	1.7	1.8	1.8	1.9	1.8	1.8	1.8	1.6	1.6	1.6	1.3	1.4	1.5	1.3	1.4	1.2
12	1.2	E	E	E	E	E	E	1.1	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.3	1.0	1.2	1.7	1.6	1.6
13	1.0	E	E	E	E	E	E	E	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.1	1.6	1.1	1.6	1.1	1.2
14	1.1	E	E	E	E	E	E	E	1.6	1.8	1.8	1.9	1.8	1.8	1.9	1.6	1.6	1.6	1.5	1.1	1.3	1.4	1.5	1.2
15	1.7	E	E	E	E	E	E	1.1	1.7	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.6	1.5	1.7	1.7	1.0	E	1.6	1.6
16	E	E	E	E	E	E	E	1.0	1.3	1.7	1.8	1.8	1.9	1.8	1.7	1.6	1.7	1.6	1.5	1.5	1.5	1.7	1.6	1.5
17	1.0	E	E	E	E	E	E	1.2	1.6	1.7	1.7	1.7	1.7	1.7	1.7	(1.7) ^C	1.7	1.2	1.4	1.5	1.5	1.4	1.5	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.7	1.6	1.2	E	E	1.6	1.5	1.6	1.6
19	1.2	E	E	E	E	E	E	1.0	1.7	1.8	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.5	1.2	1.5	1.6	1.6	1.6	1.6
20	1.5	E	E	E	E	E	E	1.4	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.4	1.5	1.2	1.5	1.6	1.6	1.5	1.6
21	1.2	E	E	E	E	E	E	1.3	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.8	1.8	1.7
22	1.5	E	E	E	E	E	E	1.1	1.7	1.8	1.8	1.7	1.9	1.9	1.7	1.7	1.6	1.6	1.1	1.4	1.5	1.6	1.6	1.6
23	1.6	E	E	E	E	E	E	1.6	1.6	(1.7) ^M	1.8	1.8	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.1	1.6	1.5	1.7	1.6
24	1.6	E	E	E	E	E	E	1.6	M	M	M	1.8	1.7	1.8	1.7	1.7	1.7	1.6	1.6	1.0	1.6	1.0	1.6	1.6
25	1.6	E	E	E	E	E	E	1.3	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.3	1.1	1.1	1.1	1.6	1.2	1.2	1.7
26	1.1	E	E	E	E	E	E	1.0	1.6	1.2	1.7	1.8	2.0	1.8	1.7	1.7	1.7	1.2	1.1	E	1.6	1.5	1.6	1.6
27	1.6	E	E	E	E	E	E	1.3	1.3	(1.5) ^C	1.7	1.7	(1.7) ^C	1.7	1.7	1.7	1.7	1.3	1.2	1.6	1.3	1.6	1.4	1.5
28	E	C	C	C	C	C	C	1.6	1.6	1.8	1.7	1.7	1.8	1.7	1.8	1.7	1.6	1.3	M	M	1.6	1.6	1.6	1.4
29	1.0	E	E	E	E	E	E	1.1	1.6	1.7	1.7	1.6	1.7	1.8	1.7	1.6	1.6	1.1	1.0	1.6	1.5	1.6	1.6	1.6
30	1.0	E	E	E	E	E	E	1.2	1.2	1.3	1.7	1.8	1.9	1.8	1.8	1.8	1.6	1.6	1.4	1.6	1.2	1.5	1.6	1.5
31	1.4	E	E	E	E	E	E	1.1	1.2	1.6	1.6	1.8	1.7	2.2	1.7	1.7	1.6	1.3	1.2	1.2	1.4	1.5	1.4	1.4
Mean Value	1.3	1.9	E	E	E	E	E	1.0	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.4	1.4	1.5	1.5	1.5	1.5
Median Value	1.2	E	E	E	E	E	E	1.6	1.7	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.4	1.4	1.6	1.6	1.6	1.6
Count	29	28	28	29	29	29	29	29	29	29	29	30	29	29	29	31	31	31	30	29	30	31	31	30

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

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Jul, 1952

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	C	C	C	C	C	C	C	C	C	A	100	70	70	90	80	60	80	[90] ^A	100	90 ^P	70 ^P	60	120	110	
2	70	100	100	80	(70) ^P	100	60	80	[80] ^B	70 ^Z	U	110	A	120	110 ^P	[100] ^A	100	[100] ^A	90	110	80 ^H	110	70	90	
3	80	80 ^{FF}	80 ^F	80	110	120	100	100	100	50	U	80	120	A	A	U	U	120	90	100 ^P	100 ^H	120	90	90	
4	80	110 ^K	100 ^K	80	110	90 ^K	80 ^K	U ^K	U ^K	B ^K	A ^K	B ^K	U ^K	U ^K	U ^K	U ^K	U ^K	90 ^K	100 ^K	C ^K	C ^K	80 ^K	80 ^K	80 ^K	
5	100 ^P	110 ^K	100 ^K	[100] ^K	(90) ^K	130 ^K	U ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	60 ^K	70 ^K	70 ^K	70 ^K	80 ^K	90 ^K	60 ^K	90 ^K	80 ^K	90 ^K	100 ^K	
6	100 ^K	100 ^K	110 ^K	110 ^K	A ^K	A ^K	U ^K	A ^K	U ^K	B ^K	B ^K	B ^K	U ^K	B ^K	U ^K	A ^K	U ^K	U ^K	110 ^K	60 ^K	110 ^K	90 ^K	90 ^K	100 ^K	
7	100 ^K	80 ^{FF}	70 ^{FF}	100 ^K	100 ^K	70 ^K	50 ^K	100 ^K	50 ^K	U ^K	U ^K	U ^K	U ^K	U ^K	U ^K	U ^K	U ^K	90 ^K	100	100	100	100	90 ^K	90 ^K	100 ^K
8	A	80 ^F	100 ^F	90 ^F	120 ^F	130 ^F	60	70	[60] ^A	50	A	A	A	A	60	U	A	A	100	[80] ^A	70 ^P	A	AF	A	
9	A	100 ^F	100 ^F	100 ^F	120 ^F	130 ^F	60	60	M	A	U	U	U	U	U	U	A	70 ^P	100	S	50 ^Z	A	A	F	
10	A	A	50 ^F	100 ^F	90 ^F	100 ^F	100	U	U	U	U	B	C	B	U	U	U	220	[170] ^A	120	A	A	A	100	
11	(120) ^P	90 ^{AF}	100 ^{AF}	100 ^F	70 ^F	70 ^F	A	A	A	A	U	A	A	A	U	A	U	A	70	A	90	110	90	90	80
12	(90) ^P	70 ^F	60 ^{FF}	60 ^F	60	140	A	A	70	100	A	A	U	U	U	80	90	A	A	80	[90] ^F	(100) ^F	A	F	
13	F	100 ^{FF}	[100] ^F	100 ^F	80 ^F	90 ^F	100	A	A	U	U	U	U	100 ^P	[70] ^A	60	[80] ^A	100	90	(100) ^A	120	[100] ^A	(80) ^F	(100) ^F	
14	AF	F	F	F	F	90	70	60	[60] ^A	60	A	A	A	80	[70] ^A	60	[80] ^A	100	90	(100) ^A	120	[100] ^A	(80) ^F	(100) ^F	
15	[100] ^F	(100) ^F	60	110 ^F	70 ^F	[70] ^F	70	100	100	A	A	A	A	70	80	110	120	90	100	(100) ^A	120	[100] ^A	(80) ^F	(100) ^F	
16	80	AF	F	F	(60) ^{FF}	90	100	70	60	U	U	70	100	80	80	110	120	90	100	(100) ^A	120	[100] ^A	(80) ^F	(100) ^F	
17	80 ^F	100 ^F	100	60	90 ^{F2}	100 ^V	60	120	120	140	A	A	A	A	70	[80] ^C	80	110	100	(70) ^P	(80) ^P	80	110 ^F	70 ^F	
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	70	A	80	80	110	140	120	140	120	C
19	70	100 ^F	70 ^F	90 ^F	90 ^F	90	60	50	A	B	U	U	T	U	U	U	50	U	80	80	80	80	70	90 ^F	
20	(80) ^T	100 ^F	60 ^F	100 ^F	[80] ^A	50 ^F	100	90 ^P	40	70	A	B	A	A	80	A	A	A	80	80	120	80	70	90 ^F	90 ^F
21	110 ^F	140	120	(140) ^P	100 ^F	100 ^{VF}	100	100	80 ²	70	A	A	U	U	160	100	110	70	80	(120) ^P	120	160	140	110 ^P	
22	60	90	100 ^F	110	130	(80) ^P	90	130	70	40	A	A	U	80	120	90	80	90	70	120	100 ^P	80	60	100 ^P	
23	[70] ^F	60 ^F	80 ^F	100 ^F	(90) ^F	110	70	100	M	M	A	A	A	80	80 ^P	A	A	80	A	100 ^P	90 ^F	[90] ^F	90	80 ^P	
24	90	100	(70) ^T	100	80 ^F	100 ^F	80	M	M	M	M	A	A	60	A	A	A	100	100	[90] ^A	80 ^V	80	100	70	
25	100	70	100	80 ^{2F}	100 ^F	80 ^F	90	120	60	U	B	A	A	70	[60] ^A	60	100	70	90	80	70	[90] ^A	110	80 ^F	
26	AF	110 ^{FF}	AF	AF	AF	100	120	A	A	A	A	U	80	80	110	110	80	100	80	90	90	AF	AF	AF	
27	F	F	90 ^F	120 ^{FF}	[100] ^F	70	150 ^P	90 ^P	C	A	U	A	A	C	A	(80) ^J	70	100	90	60	80	80 ^P	100	70	
28	100	(90) ^C	80	80	60 ^P	90	110	80	70	A	A	U	U	U	80	U	80	90	M	M	90	90	70	100 ^F	
29	80 ^F	[90] ^F	100 ^F	110 ^F	100 ^F	90	90	60	70	80	U	80	100	70	100	100	100	100	100	100	100	60	110	50 ^F	
30	F	110 ^P	AF	AF	F	F	60	110	A	A	A	A	A	80	100	90	100	110	90	A	F	F	F	(70) ^{JF}	
31	A	AF	(100) ^F	(110) ^F	100	70	100	100	110	U	U	U	U	U	U	U	70	80	90	110	90	(110) ^{JF}	90 ^F	80	
Mean Value	90	100	90	100	90	100	80	90	80	70	100	80	90	90	90	90	90	90	90	100	90	100	90	90	90
Max Value	90	100	100	100	90	90	80	100	70	100	100	80	80	80	90	90	90	90	90	100	90	100	90	90	90
Count	20	24	25	25	25	26	25	20	16	9	1	4	7	16	17	14	22	27	27	26	29	27	23	21	

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Jul. 1952

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	S	A	A	FS	A	F	4.3 ^F	4.9	C	C	C	C	(6.9) ^P	7.1 ^P	6.9	A	10.4	10.6	9.8	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	7.3 ^J	7.1	6.2	6.8	7.8	10.6	11.3	8.0	6.4	7.2	6.5	6.8
3	7.0	6.4	6.1	6.2	5.0	4.6	5.4	6.2	5.5	T	A	A	T ^K	T ^K	T ^K	T ^K	5.1 ^K	5.5 ^K	6.1 ^K	4.9 ^K	4.5 ^K	4.5 ^K	(4.9) ^J	5.2
4	C	C	C	C	C	C	C	C	C	T	A	A	T ^K	T ^K	T ^K	A ^K	A ^K	6.2 ^K	8.3 ^K	5.9 ^K	4.2 ^K	4.5 ^K	4.4 ^K	5.0 ^K
5	4.6 ^{KP}	5.0 ^K	4.7 ^K	3.3 ^K	2.8 ^K	2.8 ^K	C ^K	C ^K	C ^K	C ^K	A ^K	A ^K	T ^K	T ^K	4.9 ^K	[5.1] ^K	5.3 ^R	5.8 ^P	5.4	A	S	4.6	5.1	(4.8) ^P
6	C ^K	C ^K	3.8 ^N	3.8 ^R	2.9 ^K	[3.2] ^A	3.6 ^H	[4.0] ^A	4.4 ^K	T ^K	T ^K	C	6.5	[7.2] ^A	7.9	8.3	8.1	8.0	C	C	C	A	AS	4.3
7	4.4	4.9	4.8	4.6	4.1	4.8	4.2	5.3 ^P	6.8	C	C	C	5.8	6.1	6.6	6.3	7.0	6.2	[6.7] ^C	7.2	6.4 ^J	S	A	A
8	4.7	4.8 ^P	4.7	C	C	C	C	C	C	C	5.0	5.5	5.1	5.3	5.6	5.9	C	6.2	6.2	8.2 ^H	5.9 ^J	[5.2] ^A	5.1 ^P	[4.8] ^F
9	5.2	AS	A	4.5	4.0	[4.5] ^C	5.0 ^J	[5.2] ^T	5.3	T	T	5.0	T	A	5.2 ^P	[5.2] ^C	5.1	6.0	5.9	(5.8) ^P	5.3 ^P	5.1 ^P	[4.8] ^F	4.5
10	A	F	4.7	3.8	4.0	3.2 ^F	3.8	[4.1] ^C	4.4	A	T	A	C	C	5.2	T	A	A	A	A	5.8	4.9 ^S	FA	A
11	4.5 ^F	F	F	4.4	3.8	3.4	3.8	A	T	T	A	A	A	T	[6.2] ^T	6.2	6.9	7.5	7.4	6.9	C	C	5.2	5.0 ^F
12	A	S	FS	4.5 ^F	3.6 ^E	3.1 ^F	4.8	6.5 ^P	C	A	5.4 ^J	A	T	6.2	[6.2] ^T	6.2	6.9	7.4	7.4	7.4	7.4	6.9	[5.7] ^B	4.5 ^J
13	F	F	AF	F	4.4 ^F	[4.9] ^F	5.4	6.0	6.1	C	A	A	A	6.2	A	A	A	9.8	[8.2] ^A	6.6	[6.8] ^T	7.0	F	S
14	S	F	F	6.8	C	C	C	C	C	C	A	A	A	A	7.7	7.4	7.4	8.1	6.7	7.0	5.5 ^P	5.4	5.3 ^P	5.0 ^J
15	5.2 ^P	(5.0) ^P	[5.3] ^F	5.6 ^J	5.4	4.5	5.1	6.0	5.4 ^J	[5.6] ^T	5.9	6.0	7.1	8.5	6.8	5.9	6.3 ^P	7.4	7.7	8.3	8.5	(6.1) ^P	5.3	5.5
16	5.5 ^P	5.1	4.7	5.0	4.4	3.6	4.4	C	C	A	6.1	6.0	6.8	7.4	A	A	6.9	6.5 ^P	[6.4] ^C	6.4 ^J	6.4	5.9	AF	S
17	5.0 ^P	4.5	3.8	3.9	[4.0] ^E	4.2	5.2	(6.5) ^P	6.1	6.2	6.0	6.7 ^J	A	A	A	A	T	9.3	8.5	4.7	4.8 ^H	4.9	4.9	
18	4.6	4.5	4.5	4.4	4.2	4.0	(5.1) ^S	5.3	6.4	6.1	6.0	6.0	6.0	(6.5) ^P	6.3 ^P	6.9	6.4 ^P	6.6	5.7	5.4	[5.0] ^B	4.7	4.0	4.1
19	4.1	3.9 ^J	4.2	[4.1] ^S	4.0	[3.8] ^N	3.7	5.3	(5.7) ^P	6.5	[6.5] ^T	A	A	A	A	A	7.2	7.6	8.0	C	C	6.3 ^P	6.5	6.4 ^P
20	(6.1) ^P	6.2	6.7 ^J	6.1	6.0	4.6	4.7	C	C	T	A	A	A	T	6.3 ^J	[6.2] ^T	8.9	10.1	8.8	7.8	5.8 ^P	6.4 ^J	6.6 ^J	6.6 ^J
21	6.4	5.6 ^J	6.4	7.2	5.0	3.9	4.7	[5.6] ^T	6.6	7.5	T	T	T	T	8.0	7.4	6.9	6.7 ^J	(7.4) ^P	7.5	(5.1) ^P	5.4	4.6 ^J	(4.9) ^P
22	3.4	5.2	C	C	C	4.0	3.8	C	T	T	T	T	T	A	A	A	8.9	8.1	A	A	A	(5.2) ^S	5.2 ^P	4.9 ^P
23	5.1 ^P	4.6	4.7	4.5	4.0 ^H	4.2	4.8	4.5	5.4 ^J	5.5 ^P	T	C	T	7.4	8.3	9.4	9.5 ^J	9.0	8.4	7.1	[5.6] ^C	4.0	4.0	3.9
24	4.7	4.0 ^H	3.9	4.1	3.6	3.7 ^F	4.8 ^P	5.1	4.9 ^P	C	A	A	A	7.5	7.1	8.3	9.4	9.7	[9.0] ^C	8.4	6.5	C	C	C
25	3.8	[3.8] ^A	3.9	F	A	F	4.0	5.5	A	A	C	C	C	C	8.4	8.5	8.8	8.5	7.9	[6.7] ^C	5.5	5.3	4.6	4.4
26	4.4 ^H	4.4	4.5	3.7	3.5	3.4	4.5	C	C	C	5.0	A	A	A	T	5.8	6.4 ^P	7.3	6.4	5.3	5.7	(5.6) ^P	5.4 ^J	5.0 ^P
27	[4.8] ^E	4.7	A	A	F	3.7 ^H	4.6	6.3	6.2	T	T	(5.6) ^P	6.4	6.7	[6.8] ^T	6.8	6.2	6.0	6.4	5.9 ^J	5.2	T	T	4.8
28	4.5 ^P	[4.4] ^S	4.4	[3.7] ^S	3.0 ^F	2.9 ^F	4.3	5.7 ^J	[5.6] ^C	5.4 ^J	5.0	T	A	A	C	7.2	6.4	6.1	5.9 ^J	[6.3] ^T	6.7	5.4 ^P	S	S
29	4.5 ^J	(4.6) ^J	4.7 ^J	4.7	2.9	2.8	4.3	(5.9) ^P	[5.6] ^T	(5.3) ^P	5.9	C	T	6.2	[6.8] ^T	7.5	(7.4) ^P	7.3	7.1	6.6	7.0	6.1	4.8	4.8
Mean Value	4.9	4.8	4.9	4.6	4.0	3.8	4.5	5.5	5.7	5.9	5.8	6.0	6.4	6.8	6.8	6.8	7.2	7.6	7.6	6.9	5.9	5.4	5.1	5.0
Median Value	4.7	4.7	4.7	4.4	4.0	3.8	4.5	5.5	5.6	5.6	5.9	6.0	6.4	6.7	6.8	6.7	7.0	7.4	7.5	6.7	5.8	5.4	5.0	4.9
Count	21	19	20	20	21	23	25	19	16	11	9	9	10	17	21	20	23	26	27	24	24	26	22	21

Sweep L-O Mc to 22.5 Mc in 20 min

Manual Automatic

Y 1

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.6' N
Long. 130° 37.7' E

JUL 1952

19pF2

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	S	A	A	F S	A	F	300 ^F	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	340	340	340	300	250	300	270	260	260	T	T	400 ^P	(300)	400	400	380	A	310	300	270	C	300	300	320	350
4	C	C	C	C	C	C	C	C	C	T	A	A	T K	T K	T K	T K	U K	350 ^K	300 ^K	260 ^K	(270)	(350)	380	350	
5	350 ^K	340 ^K	300 ^K	320 ^H	350 ^K	350 ^K	C K	C K	C K	C K	C K	A K	A K	T K	A K	A K	A K	370 ^K	290 ^K	(210)	A K	420 ^K	(350)	360	
6	C K	C K	400 ^K	310 ^K	300 ^K	[350]	400 ^K	A K	A K	T K	T K	T K	T K	T K	U K	U K	440 ^P	350 ^P	310	A	S	350	360	(350)	
7	[320]	300	300	350	300	250	300	320 ^P	250	C	C	C	A	A	A	300	300	290	C	C	C	A	A	A	330
8	310	350 ^F	330	C	C	C	C	C	C	C	C	U	U	U	U	U	320	320	320	310 ^F	300	B	S	A	A
9	A	A	A	A	F	F	250	(400)	T	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	380	AS	A	390	320	[360]	320 ^F	250	C	C	C	C	U	U	U	U	U	340	290 ^H	(250)	[300]	350	350	350	
11	A	F	260	370	340 ^F	320 ^F	250	C	U	A	T	T	C	C	C	C	C	350	330	270	290	B	A	F	
12	(340)	F	F	310 ^F	320 ^F	270	290	A	T	T	A	C	A	T	350	T	400	350	330	330	270	290	B	A	F
13	A	S	FS	250 ^F	300 ^F	300 ^F	300	A	C	A	U	A	A	A	A	A	A	300	[300]	300	270	290	B	A	F
14	F	F	AF	F	340 ^F	[290]	240	260	A	C	A	A	A	A	A	A	340	340	290	A	A	270	310 ^S	AF	A
15	S	F	320	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	270	310 ^S	AF	A
16	350 ^P	(320)	F	(320)	250	250	290	250	(300)	T	A	U	370	300	300	A	A	A	330	330	310	260	(260)	390	360
17	390 ^P	340	350	330	300	340	310	C	C	A	350	[360]	(360)	350	A	A	A	A	A	A	C	310	300	AF	S
18	310 ^F	300	350	300	[340]	300	290	(300)	350	390	400	A	A	A	A	A	T	T	T	T	300	250	350	360 ^H	370
19	350	350	340	320	320	300	(260)	240	290	340	U	U	U	U	U	350	320 ^P	300	290	280	[260]	240	360	340	
20	350	(320)	360	[290]	220	[260]	300	280	(300)	300	T	(380)	A	A	A	A	350	330	300	C	C	380 ^P	350	320 ^P	
21	(350)	360	(330)	350	300	270	300	C	C	T	A	A	A	A	A	A	350	300	280	290 ^P	(300)	340	(350)	(300)	
22	370	(340)	390	300	290	340	300	[300]	290	300	T	A	T	U	T	B	350	300	280	270	(300)	340	(320)	(340)	
23	350	280	C	C	C	290	250	C	T	T	T	T	C	C	C	340	340	300	290	280	300	C	C	C	
24	350 ^P	350	300	320	340 ^H	300	250	250	U	290 ^P	T	T	B	350	350	330	(300)	300	290	260	270	260	270	310	350
25	390	350 ^H	340	280	350	350 ^F	270 ^P	250	300 ^P	C	T	T	B	350	350	330	340	300	290	270	260	270	260	270	310
26	310	[330]	350	F	A	F	250	300	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	350 ^H	330	290	280	300	290	290	C	C	U	A	A	A	A	A	A	350 ^P	300	290	290	280	270	260	270	310
29	[320]	300	A	A	F	300 ^H	280	290	250	T	A	A	A	A	A	350 ^P	300	290	290	280	270	260	270	260	270
30	350 ^P	[350]	350	[280]	220 ^F	330 ^F	260	(250)	C	U	U	T	U	330	U	T	300	(320)	300	300	(250)	320	T	T	350
31	(300)	(310)	[290]	240	250	300	290	(250)	[260]	(280)	B	C	T	B	A	330	(300)	300	[300]	300	300	300	300	300	340
Mean Value	34.0	33.0	33.0	31.0	30.0	30.0	29.0	27.0	28.0	31.0	38.0	34.0	34.0	34.0	34.0	34.0	34.0	32.0	32.0	30.0	28.0	30.0	32.0	34.0	35.0
Median Value	35.0	34.0	34.0	32.0	30.0	30.0	29.0	27.0	29.0	30.0	38.0	34.0	35.0	34.0	34.0	34.0	34.0	30.0	30.0	30.0	28.0	30.0	31.0	35.0	35.0
Count	21	19	19	20	21	23	25	15	11	7	2	3	4	11	9	13	18	24	25	24	22	25	20	21	

19pF2

Sweep J... Mc to 2.2... Mc in 2... min Manual Automatic

Y 2

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

R'F2

JUL 1952

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	310 ^A	A	A	300 ^A	300 ^A	300 ^A	250	240	C	C	C	C	C	C	400 ^A	A	A	300	260	250	200 ^A	250	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	310	300	400 ^A	A	A	300	260	250	200 ^A	250	C	C	C
3	280	270	270	230	220	250	270	250	250	400	350	400	300	300	450	400	360	290	250	240	200 ^F	300 ^A	330 ^A	300	300
4	300 ^F	C	C	C	C	C	C	C	C	A	A	A	630 ^K	410 ^K	350 ^K	410 ^K	400 ^K	350	250	240 ^K	280 ^K	310 ^K	300 ^K	300 ^K	
5	300 ^A	280 ^K	250 ^K	210 ^K	270 ^K	300 ^K	C	C	C	A	A	A	430 ^K	350 ^K	A	A	A	360	260	200 ^K	400 ^K	350 ^K	350 ^K	300 ^K	
6	C	C	C	350 ^K	290 ^K	280 ^K	250 ^K	A	A	A	A	A	A	A	450 ^K	440 ^K	440 ^K	440 ^K	340	240	290	330 ^A	320 ^A	310 ^A	
7	300 ^F	270	260	310 ^A	290	230	240	220	C	C	C	C	300 ^A	300 ^A	300	290	290	300	260	C	C	C	C	C	
8	280	300	300	C	C	C	C	C	C	490	400	400	380	320	300	300	310	310	280 ^K	260	230 ^A	230 ^A	A	A	
9	A	A	A	A	250	210	230	C	C	280	C	C	A	480	380	380	C	C	330	250 ^H	200	240 ^A	290	310	
10	300 ^F	A	A	320 ^A	290	320 ^K	360	360	360	450	450	450	A	A	430	440	460	350	270	300	290	300 ^A	340 ^A	330 ^A	
11	300 ^F	270 ^F	240	330	310 ^A	300	250	300 ^K	350	440	470	T	C	C	380	T	A	A	A	A	220 ^A	260	310	310 ^F	
12	310 ^A	320 ^A	280	250 ^A	290 ^F	250	250	280	280	A	A	A	A	A	A	T	460	350	A	A	A	220 ^A	260	310	
13	300 ^F	280	250 ^F	210 ^F	260	280	270	250 ^A	280	320	390	370	350	300	400	400	400	350	300	300	250	250 ^A	A	A	
14	350	290	300	320 ^A	300 ^F	250 ^F	230	260	A	A	A	A	A	400	A	A	A	A	280	270	250	250	260	270	
15	280	270 ^F	290	C	C	C	C	C	C	C	A	A	A	A	A	340	330	300	250	A	A	280	270	300	
16	300 ^F	290 ^F	330 ^A	280	210 ^A	200 ^A	250	240	300	400	380	440	360	290	300 ^A	400 ^A	360	300	300	250	250 ^A	A	A	320	
17	290	300 ^A	300 ^A	250	230	280	230	C	C	A	350	360	360	350 ^A	A	A	A	320 ^A	300 ^C	280 ^A	270 ^A	240	290	310	
18	270	270	320	370 ^A	310	290	280	270	330	390	400	370 ^A	A	A	A	A	A	A	280	220	280 ^A	300 ^A	290	290	
19	300	300	280	260	250	260	240	240	290	340	370	380	350	420	350	330	310	300	280	280	250	200	200	290	
20	300 ^F	300 ^F	320 ^A	250	200	240	290	270	290	300	350	380	A	A	A	A	A	350	370	300 ^A	250	200	270	270	
21	280	290	270	270	240	230	240	270	A	T	A	A	A	A	380	440	440	280	280	280	250	280 ^A	290	320	
22	290	300	300	250	200 ^A	270	260	280	290	280	T	A	A	A	360	310	350	330	370	300 ^B	240	250	280 ^A	290	
23	310 ^A	250	C	C	C	240	240	250	260	T	T	A	A	A	A	A	A	420	300	A	A	250	240	290	
24	290	290	250	250	300 ^H	270	260	280	290	280	A	C	C	340	320	A	A	A	A	280	250	280	240	290	
25	300	300 ^H	290	250	250	290 ^F	250	250	280	C	T	T	B	350	340	380	370	300	290	250	240	250	250	290	
26	300 ^A	300 ^A	300 ^A	270 ^A	280	300 ^F	230	290	A	A	A	A	A	A	330	380	370	300	260	220	220	280	290	300	
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	320	300	300	300	260	240	C	C	C	C	
28	300 ^H	290	250	250	270	250	260	C	C	340	A	A	A	A	A	A	A	350	350	290	250	250	250	290	
29	280	250 ^A	A	A	290	250 ^H	250	270	250	290	330	350	330	320	330	300 ^A	300	300	280	220 ^A	200 ^F	260	250	300 ^A	
30	310	300	310 ^A	260 ^A	200	290	250	250	300	340	300	T	A	C	310 ^A	300	330	C	A	200 ^A	200 ^A	300 ^A	280 ^A	250	
31	280	290 ^F	250	210	200	270	250	250	250	280	B	C	T	B	A	310	300	290	300 ^A	280 ^A	280 ^A	250 ^A	300 ^A	300	
Mean	300	290	290	270	260	250	250	270	290	340	380	390	370	350	360	360	340	310	280	250	250	270	290	300	
Median	300	290	290	260	260	250	250	260	280	340	380	380	350	340	350	350	330	300	280	250	250	280	290	300	
Count	27	24	23	23	25	26	25	21	17	16	12	10	11	18	20	21	22	25	26	25	25	28	27	27	

Sweep 1.0. Mc to 22.0. Mc in 2 min

Manual Automatic

Y 3

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

JUL 1952

foF1

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	C	C	C	C	C	C	C	C	C	C	C						
2							C	C	C	C	C	C	C	A	4.7	A	A	A	A	3.6					
3							L	L	L	4.5	4.8	[4.8] ^A	4.7	4.9	[4.6] ^B	4.4	4.0	4.0	A						
4							C	C	C	A	A	A	A	4.5	4.2	4.2	4.0	3.9	L						
5							C	C	C	C	A	A	A	A	A	A	A	A	3.6						
6							Q	A	A	4.2	A	A	A	A	A	A	A	3.8	3.5						
7							Q	A	4.0	C	C	C	A	A	4.4	4.4	4.1	A	A						
8							C	C	C	C	4.4	4.5	4.5	4.4	4.4	4.3	4.1	A	C						
9							Q	C	C	4.3	C	A	4.5	4.4	A	C	C	A							
10							Q	3.8	3.9	[4.1] ^L	4.3	4.4	[4.3] ^A	4.2	[4.2] ^C	4.2	3.8	3.5							
11							Q	C	3.9	4.0	[4.2] ^A	4.3	C	C	4.3	A	A	A	A						
12							Q	A	A	A	A	C	A	A	A	B	4.4	4.0 ^H	3.7						
13							3.3	A	C	A	4.5	4.5	4.6	4.6	4.5	4.4	4.4	4.3	3.8						
14							Q	L	A	A	A	A	A	A	A	A	A	4.1	A						
15							C	C	C	A	A	A	A	A	A	A	A	A	A						
16							Q	3.6	4.3	4.5	[4.6] ^A	4.8	4.7	A	A	A	A	4.2	A						
17							Q	C	C	A	4.6	B	A	A	A	A	A	A	C						
18							L	3.9	[4.2] ^A	4.4	A	A	A	A	A	A	A	A	3.6						
19							A	3.7	A	A	A	A	B	4.5	4.5	4.5	4.4	3.9	L						
20							L	L	4.2	[4.4] ^A	4.5	A	A	A	A	A	A	4.2	4.1						
21							Q	3.2	A	B	A	A	A	A	A	A	B	4.3	4.0	3.7					
22							L	A	4.0	[4.5] ^A	5.0	A	A	A	A	4.5	[4.7] ^A	4.2 ^H	4.1	A					
23							Q	C	B	B	A	A	4.3	A	A	A	A	A	A						
24							Q	Q	3.9	4.0	A	C	C	A	A	A	A	A	A						
25							Q	L	3.7	[4.1] ^C	4.5	A	B	A	A	A	A	4.0	L						
26							Q	3.8	A	A	A	A	A	4.4	4.3	4.3	4.0	4.0	3.5						
27							C	C	C	C	C	C	C	A	A	A	4.3	4.0	3.6						
28							L	C	C	4.2	A	A	A	A	4.4	A	A	A	3.5						
29							L	L	3.7 ^H	4.5	4.4	4.5	4.5	4.5	4.4	[4.4] ^A	4.3	4.0	A						
30							Q	Q	C	4.4	4.5	4.5	A	C	A	4.4	B	C	A						
31							L	L	4.0	4.2	4.4	[4.5] ^F	4.6	A	A	A	A	A	A						
Mean Value							3.3	3.7	4.0	4.3	4.5	4.5	4.5	4.5	4.4	4.4	4.2	4.0	3.6						
Median Value							3.3	3.8	4.0	4.3	4.5	4.5	4.5	4.4	4.4	4.4	4.3	4.0	3.6						
Count							1	6	11	15	13	9	9	10	13	12	13	16	12						

foF1

Sweep 1.0 Mc to 22.0 Mc in 2 min

Manual Automatic

Y 4

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'F1

JUL 1952

Day	00	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	C	C	C	C	C	C	C	C	C	C	C					
2							C	C	C	C	C	C	A	200	A	A	A	A	200					
3							210	240	220	270	A	A	A	200	240	250	[240] ^A	220	A					
4							C	C	C	A	A	A	200	200	250	230	230	220	240					
5							C	C	C	C	A	A	A	A	A	A	A	A	A					
6							Q	A	A	240	A	A	A	A	A	A	A	300	250					
7							Q	A	220	C	C	C	A	A	240	A	A	A	A					
8							C	C	C	C	200	200	200	200	[220] ^B	250	220	A	C					
9							Q	C	C	200	C	C	A	(270) ^A	B	A	C	C	A					
10							Q	210	210	200	240	210	250	A	A	C	240	250	260 ^A					
11							Q	C	240	240	[240] ^A	250	C	C	B	A	A	A	A					
12							Q	A	A	A	C	C	A	A	B	230	200	200 ^H	230					
13							240	A	C	A	200	[220] ^A	250	250	240	250	200	230	240					
14							Q	250	A	A	A	A	A	A	A	A	A	250	A					
15							C	C	C	C	A	A	A	A	A	A	A	A	A					
16							Q	220	200	250	[270] ^A	290 ^A	250	A	A	A	A	A	240	A				
17							Q	C	C	A	190	B	A	A	A	A	A	A	C					
18							240	260 ^A	A	A	A	A	A	A	A	A	A	A	A					
19							A	210 ^A	A	A	A	A	B	230	240	200	230	200 ^A	220					
20							240	230	200	[240] ^A	270	A	A	A	A	A	A	210	210					
21							Q	260	A	B	A	A	A	A	A	240	240	220	250					
22							210 ^A	[200] ^A	200	[200] ^A	200	A	A	A	240	[220] ^A	200 ^H	230	A					
23							Q	C	220	B	A	C	B	A	A	A	A	A	A					
24							Q	240	200	220	A	C	C	A	A	A	A	A	A					
25							Q	240	200	[200] ^B	200	A	B	A	A	A	A	250	210 ^A					
26							Q	250	A	A	A	A	A	240	220	200	220	210	220					
27							C	C	C	C	C	C	C	C	A	A	230	220 ^A	220					
28							240	C	C	250	A	A	A	A	250	A	A	A	230					
29							220	220	200	240	230	250	200	210	B	A	250	220	A					
30							Q	Q	C	200	210 ^A	250	A	C	A	240	B	C	A					
31							230	240	240	220	230	[220] ^C	220	A	A	A	A	A	A					
Mean Value							230	230	210	230	220	240	220	240	240	230	230	230	230					
Median Value							240	240	200	230	220	240	220	210	240	240	230	220	220					
Count							8	13	12	14	12	8	7	9	9	10	12	16	14					

Manual Automatic

Sweep 1.0 Mc to 22.0 Mc in 2 min

IONOSPHERIC DATA

135° E Mean Time

foE

JUL 1952

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

foE

Sweep 1.0 Mc to 22.0 Mc in 2 min

Manual Automatic

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

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

f_oE

JUL 1952

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							11.0	10.0	C	C	C	C	C	C	C	C	C	C	C					
2							C	C	C	C	C	C	10.0	10.0	10.0	10.0	10.0	10.0	[100] ^A	10.0	10.0	10.0	10.0	10.0
3							10.0	[100] ^F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A
4							C	C	C	10.0	10.0	10.0	A	A	10.0	10.0	A	A	10.0	A	A	A	A	A
5							C	C	C	C	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A	A
6							B	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A	A	A	A	A	A
7							13.0	11.0	10.0	C	C	A	A	A	A	A	A	A	A	A	A	A	A	A
8							C	C	C	C	10.0	10.0	A	A	A	A	A	A	A	A	A	A	A	A
9							AF	C	C	10.0	C	C	A	A	10.0	10.0	C	C	10.0	C	C	10.0	C	10.0
10							A	A	10.0	10.0	10.0	10.0	10.0	10.0	10.0	[100] ^F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
11							15.0	[120] ^C	10.0	10.0	10.0	10.0	C	C	10.0	10.0	10.0	10.0	12.0	10.0	10.0	10.0	10.0	10.0
12							14.0	12.0	10.0	10.0	[100] ^C	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
13							10.0 ^F	10.0	[100] ^C	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	[100] ^A	10.0	[100] ^F	10.0	10.0	10.0
14							A	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
15							C	C	C	C	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A	A
16							A	A	10.0	[100] ^F	10.0	[100] ^A	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
17							12.0	C	C	10.0	10.0	[100] ^A	10.0	[100] ^A	10.0	10.0	10.0	A	A	C	C	10.0	10.0	
18							14.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A	A
19							A	A	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A
20							A	A	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
21							A	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
22							A	A	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A
23							13.0	[120] ^C	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A	A
24							15.0	10.0	11.0	10.0	10.0	C	C	10.0	10.0	10.0	10.0	A	A	A	A	A	A	A
25							15.0	11.0	10.0	C	A	A	A	A	10.0	10.0	10.0	A	A	A	A	A	A	A
26							13.0	12.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	11.0	[110] ^A	11.0	11.0	11.0	11.0	11.0	11.0
27							C	C	C	C	C	C	C	C	C	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
28							A	C	C	10.0	10.0	C	C	C	C	C	C	A	A	A	A	A	A	A
29							10.0	10.0	10.0	A	A	A	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
30							A	10.0	[100] ^C	10.0	A	A	10.0	[100] ^C	10.0	A	A	C	A	A	A	A	A	A
31							A	A	A	A	10.0	[100] ^C	10.0	A	A	A	A	A	A	A	A	A	A	A
Mean							13.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Median							13.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Mode							13	16	20	21	23	21	21	21	21	25	21	14	12	12	12	12	12	12
Count																								

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

Jul. 1952

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	5.0	7.3Y	7.0Y	5.0	5.5	3.5F	2.9	3.5	C	C	C	C	C	C	6.0Y	7.2Y	13.0Y	6.2Y	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	4.8	5.0Y	4.3	5.0	4.5	5.0	4.5	3.3	3.1	3.3	3.1	3.6	3.6
3	3.1	2.5	2.8	2.5	2.2	2.3	3.3	3.6	3.5	4.1	5.0Y	4.7	5.0Y	4.5	4.3	5.0	4.0	3.5	3.0	2.6	2.6	3.5	3.5	3.5	
4	E	C	C	C	C	C	C	C	C	4.5	6.2Y	5.0	5.0	4.5	4.3	8.5Y	4.0	3.5	2.5	E	2.0	3.0	3.0	2.8	
5	3.5	4.0	2.5	2.4	2.4	2.5	C	C	C	C	6.0Y	6.0Y	5.0	6.0Y	12.0Y	7.3Y	8.5Y	5.0	3.6	4.0	3.9	3.0	C	C	
6	C	2.9	2.9	2.9	2.7	3.9	6.0Y	7.3	5.3	4.5	5.0Y	4.5	4.5	4.5	4.5Y	4.5	4.5	4.3	3.5	5.0	4.4	4.2	3.5	4.5	
7	5.0	5.0	6.0Y	6.0Y	3.7	3.0	3.2	4.8	4.5	C	C	C	6.8	9.2	4.8	5.2	4.6	4.6	5.0	C	C	5.7	5.8	5.9Y	
8	4.5	4.3	6.1	C	C	C	C	C	C	C	4.6	4.6	6.4	4.2Y	3.6	3.4	3.6	4.8	C	3.5	4.5	5.0	5.0	4.5	
9	6.9Y	6.1	7.0Y	5.0Y	3.0Y	3.0	2.9F	C	C	C	C	C	5.6	3.8	4.5	5.2	C	5.3	4.6	3.1	4.8	3.1	3.3	3.3	
10	5.0F	6.0	5.0	3.8	3.0Y	C	4.6	3.5F	4.4	4.5	4.0	4.0	4.5	6.7	4.5	C	4.4	3.9	4.5	4.0	4.5	4.4	4.5	4.5	
11	5.0	5.0	4.5Y	4.5	5.0	3.0	3.2	C	4.5	5.0	4.5	4.5	C	C	4.5	5.9Y	7.4	7.1	10.0Y	4.2	3.5	4.5	4.5	4.5F	
12	3.5	4.0	3.5	3.2	2.5	3.7	3.5	6.9Y	7.0Y	6.0Y	7.2Y	C	7.2Y	7.0Y	4.5	4.5	4.3	3.8	3.2	C	C	3.2	3.5F	4.8F	
13	4.8F	3.5F	3.5F	3.0F	3.0	3.3F	3.5	7.1Y	C	10.5Y	4.3	6.0Y	4.5	4.5	4.5	4.5	4.3Y	3.7	4.3	5.0	4.0	5.0	5.0	3.5	
14	4.5	3.9	4.3Y	3.7	3.2	3.0	3.7	3.7	6.0Y	6.1	6.0	7.2Y	12.2Y	6.6Y	9.7Y	10.5	10.0	4.5	10.5	5.0F	7.4	4.5	5.0F	5.0	
15	5.0	4.4F	5.0F	C	C	C	C	C	C	C	11.6Y	12.5Y	10.4	8.6Y	8.6Y	6.8Y	7.0Y	5.0	4.5	3.5	3.0	3.0	3.0	2.7	
16	3.8F	3.1	4.5	3.9	3.0	4.5	3.0	3.9	4.5	4.7	5.0Y	4.4	4.5	5.0	6.0	6.0	5.5	4.1	4.6	5.0	3.7F	3.0	2.4	3.1	
17	3.1	3.1	3.5	2.6	3.0	2.5F	2.7	C	4.5	11.5Y	4.3	3.8	5.0Y	8.5Y	10.0Y	9.6Y	7.5Y	6.0	C	4.5	3.7	3.1	4.5F	5.0	
18	3.5	2.6	3.8	4.6	4.0	3.3	3.8	4.5	4.5	5.8Y	5.0	6.2Y	7.3Y	8.7Y	8.5Y	9.0Y	6.2	6.2	3.5	3.6	2.5	2.1	2.5	2.5	
19	3.0	3.2	3.0	2.3	2.5	E	3.7	4.2	5.0	5.0	4.5	5.0	4.5	4.5	4.5	3.8	3.8	2.8	2.6	3.0	2.2	3.7	3.1	3.1	
20	3.5	3.5	3.7	3.1	2.3	2.5	2.5	3.8	3.7	6.0Y	4.5	5.0	4.1Y	11.5Y	11.5Y	10.6Y	6.0Y	3.8	3.5	C	C	3.0	3.2	2.3	
21	3.7	3.0	E	E	2.7	2.5	2.7	3.6	4.5	4.5	6.0Y	7.2Y	4.5	5.0	5.0	3.7	4.5	4.1	3.4	E	2.3	4.5	4.8	2.5	
22	2.7	2.2	2.5	2.3	3.7	3.7	3.7	6.0Y	3.8	4.5Y	3.7	6.0Y	6.0Y	5.0	4.5	3.8	4.1	3.8	6.0	3.4	3.2	3.8	3.2F	3.7	
23	4.2	3.5	C	C	C	E	3.0	C	3.7	3.8	4.3Y	6.0Y	3.7	4.0Y	11.5Y	12.8Y	8.7Y	5.1	8.6Y	6.0	6.0	3.0	3.0	2.5	
24	2.5	2.5	2.4	2.4	1.7	2.0	4.5	3.5	3.6	4.5	5.0	C	C	4.4Y	7.0Y	10.1Y	8.3Y	7.0Y	7.1	4.5	3.6	3.5	3.5	3.5	
25	E	2.5F	3.0F	2.4	E	3.7	2.7	5.0Y	4.5	4.5	3.9Y	5.0Y	3.7	5.0	6.2Y	9.3Y	6.7Y	4.4Y	3.7	2.8	C	3.0	2.4	2.4	
26	3.0	5.0	3.7	3.5F	4.5	2.5F	3.4	4.0	9.0Y	9.5Y	12.5Y	13.4Y	10.7Y	4.4	4.5	3.7	4.5	3.8	3.5	3.0	C	C	C	C	
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.5	5.0	3.7	4.2	3.1	C	3.6	3.0	2.5	2.4	
28	E	E	2.0	2.0	E	E	2.5	C	C	4.5	6.3	6.0Y	7.0Y	9.0Y	4.7	4.5	5.0F	5.0	3.7	3.0	2.4	2.5	2.3	2.3	
29	3.8F	3.1	5.0F	6.0Y	3.8	3.0	3.5	3.8	3.8	4.8	6.1Y	4.5	4.4Y	4.1	4.5	6.2Y	4.4	3.8	4.5	3.8	3.5F	2.1	2.5	2.0F	
30	2.7	3.0	3.9	5.0	3.0	3.1	3.8	4.9	C	4.5	4.5	4.5	12.2Y	C	7.2Y	6.0Y	3.8	C	7.4	5.0	4.7	4.5	4.5	3.8	
31	3.8	3.0	2.5	3.0F	2.5	2.5	2.7	3.0	3.8	3.8	4.5	C	4.5	4.5	9.2	6.1Y	6.2	6.2	6.7	8.5Y	5.0	4.4	4.4	3.7	
Mean Value	4.0	3.8	4.2	3.5	3.2	3.0	3.4	4.5	4.7	5.7	5.7	6.0	6.7	6.3	6.9	6.7	6.0	4.8	4.9	4.4	3.9	3.6	3.6	3.6	3.5
Median Value	3.6	3.5	3.7	3.1	3.0	3.0	3.3	4.0	4.4	4.5	4.8	5.0	5.0	5.0	4.8	5.2	4.6	4.4	4.5	3.7	3.6	3.5	3.5	3.4	
Count	28	27	27	25	25	25	25	20	19	23	26	23	27	27	30	29	29	28	28	26	25	29	29	28	

fEs

Sweep 1-9 Mc to 22.0 Mc in 2 min Manual Automatic

Y 8

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

IONOSPHERIC DATA

Yamagawa
Lat. 31° 12.6' N
Long. 130° 37.7' E

Jul. 1952

(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	S	A	A	Fs	A	F	3.1F	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	(3.1) ^F	3.1P	2.7	A	A	3.0	3.1	3.2	C	C	3.1	3.2	3.0
3	2.9	2.9	3.0	3.2	3.4	3.0	3.3	3.5	3.2	T	T	2.8P	(3.2) ^F	3.2	2.6	2.7	2.8	3.2	3.4	3.3	(3.2) ^F	(2.8) ^F	(2.8) ^F	2.7	2.8
4	C	C	C	C	C	C	C	C	C	T	A	A	TK	TK	TK	TK	2.8K	3.0K	3.8P	3.3K	2.7K	(3.0) ^F	(2.9) ^F	2.7	2.8
5	2.9P	3.0K	3.0K	3.0H	3.0K	2.8K	C	C	C	T	A	A	TK	TK	TK	TK	AK	AK	AK	AK	AK	AK	AK	AK	AK
6	C	C	2.7K	3.1R	3.1K	[2.9]K	2.7K	AK	AK	TK	TK	TK	TK	TK	2.8K	[2.7]K	2.6P	2.9P	3.0	A	S	3.0	2.8	(2.9) ^F	
7	2.8	3.1	3.1	2.9	C	C	3.5	3.1	3.2P	C	C	C	3.2	[3.2]M	3.1	3.2	3.3	3.1	3.3	C	C	C	A	AS	3.1
8	3.0	2.9P	2.9	C	C	C	C	C	C	C	2.6	2.7	2.8	3.0	3.3	3.2	3.0	3.0	[3.0]C	3.0	(3.4) ^F	S	A	A	
9	A	A	A	A	F	F	3.4	C	C	C	C	C	2.8	2.5	2.9	2.9	C	C	2.9	3.0H	(3.4) ^F	[3.1] ^A	2.8	2.9	
10	2.7	AS	A	2.8	3.1	[2.8]C	(2.6) ^F	[3.2]C	2.7	T	T	2.7	T	A	2.7P	[2.6]C	2.6	2.8	3.3	(3.1) ^P	3.1P	3.0P	[3.0]F	2.9	
11	A	F	3.4	2.8	2.9	2.9F	3.3	3.2	3.1	A	T	T	C	C	C	T	A	A	A	A	3.1	3.0S	AF	A	
12	(3.0) ^F	F	F	2.8	3.0	3.2	3.1	A	T	T	A	C	A	T	[3.0]T	2.7	2.7	3.0	2.9	3.2	C	C	2.9	2.7F	A
13	A	S	Fs	3.3F	3.0S	3.1F	3.1	3.6P	C	A	(3.0) ^F	A	A	A	2.5	A	A	A	3.1	[3.0]A	3.0	[2.9]A	2.8	F	S
14	F	F	AF	F	2.8F	[3.2]F	3.7	3.5	3.5	3.3	A	A	A	A	2.9	2.9	2.9	3.2	3.1	3.1	3.0P	2.9	2.9P	(2.9) ^F	
15	S	F	2.9	C	C	C	C	C	C	C	A	A	A	A	2.9	2.8	3.0P	3.0	3.0	A	3.1	3.0P	2.9	2.9P	
16	2.6P	(3.0) ^P	[3.0]F	(3.1) ^J	3.3	3.3	3.2	3.6	(3.3) ^F	[3.0]T	2.8	2.7	2.6	3.2	3.2	2.8	3.0P	3.0	3.0	3.0	3.4	(3.4) ^F	2.7	2.8	
17	2.6P	2.9	2.4	3.0	3.1	3.0	2.9	C	C	C	3.0	2.7	2.9	3.0	A	A	T	T	3.2	3.6	2.8	2.9H	2.8	2.8	
18	3.1P	3.0	2.8	2.8	[2.8]S	2.9	3.2	(3.3) ^P	3.1	2.8	2.7	(2.9) ^F	A	A	A	A	T	T	3.2	3.6	2.8	2.9H	2.8	2.8	
19	2.8	2.8	2.9	3.0	3.0	3.2	(3.2) ^S	3.7	3.4	3.0	2.7	3.0	3.1	(2.6) ^F	3.0P	3.3	3.1P	3.1	3.2	3.3	[3.4] ^P	3.5	2.8	2.8	
20	3.0	(2.9) ^F	2.9	[3.2]S	3.6	[3.4]N	3.1	3.3	(3.2) ^F	3.1	[3.0]T	(2.9) ^P	A	A	A	A	2.9	3.0	3.1	C	C	2.7P	2.8	3.0P	
21	(2.8) ^F	2.8	(3.1) ^J	3.1	3.1	3.4	3.1	C	C	T	A	A	T	(2.8) ^J	[2.8]T	(2.7) ^J	2.9	3.2	3.0	3.2	(2.8) ^J	(2.8) ^J	(2.8) ^J	(3.2) ^F	
22	2.7	(2.4) ^J	2.7	3.1	3.1	3.0	3.2	[3.2]M	3.3	3.4	T	T	T	T	T	3.0	2.9	3.0	3.1	A	A	3.0	2.8	3.0P	
23	2.9	3.3	C	C	C	3.2	3.4	C	T	T	T	T	C	2.7	3.0	A	A	A	A	3.2P	3.1	[3.2]S	(3.2) ^F	2.8	
24	2.9P	3.0	3.0	3.1	2.9H	3.0	3.5	3.4	(3.5) ^F	3.2P	T	C	C	2.7	2.9	3.0	(3.2) ^J	3.1	3.2	3.3	[3.1]C	C	C	C	
25	2.6	2.9H	3.0	3.2	2.9	2.9F	3.3P	3.6	3.1P	C	T	T	T	T	2.9	2.9	3.0	3.0	3.1	3.2	[3.2]S	3.2	3.0	2.8	
26	2.8	(2.8) ^A	2.9	F	A	F	3.4	3.0	A	A	A	A	A	3.0	2.7	2.7	2.9	3.0	3.1	3.2	3.1	C	C	C	
27	C	C	C	C	C	C	C	C	C	3.2	C	C	C	C	3.0	3.1	3.0	3.0	3.2	3.4	3.3	[3.1]S	2.7P	3.0P	
28	2.8H	2.9	3.1	3.2	3.1	3.3	3.3	3.4	C	3.2	A	A	A	3.0	2.7	2.7	2.9	[3.0]C	3.2	3.1	C	C	C	C	
29	(3.0) ^S	3.1	A	A	F	3.1H	3.4	3.4	3.6	T	T	(2.8) ^P	3.1	3.2	[3.2]T	3.3	3.0	3.1	3.2	(3.5) ^F	3.0	3.0	T	2.9	
30	2.8P	[2.8]S	2.9	[3.4]S	3.8F	2.9F	3.3	(3.5) ^F	[3.3]C	(3.1) ^J	3.3	T	A	C	3.3	3.2	3.1	(3.0) ^J	[3.2]A	3.4	3.2P	3.1	S	S	
31	(3.1) ^J	(3.0) ^F	(3.4) ^F	3.8	3.2	3.2	(3.3) ^F	(3.3) ^F	[3.3]T	(3.3) ^F	3.2	C	T	2.6	[2.8]M	3.0	(3.2) ^F	3.3	3.3	3.3	3.1	3.0	3.1	3.0	
Mean Value	2.8	2.9	3.0	3.1	3.1	3.1	3.2	3.3	3.3	3.1	2.9	2.8	3.0	2.9	2.9	2.9	2.9	3.0	3.2	3.3	3.1	3.0	2.9	2.9	
Median Value	2.8	2.9	3.0	3.1	3.1	3.1	3.2	3.4	3.3	3.2	3.0	2.8	3.0	3.0	2.9	2.9	3.0	3.1	3.2	3.2	3.1	3.0	2.8	2.9	
Count	21	19	20	20	21	23	25	18	15	11	9	9	10	17	21	20	22	26	27	24	24	26	22	21	

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

Jul 1952

fminF

Day	00	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 ^A	A	A	A	A	AF	2.0	2.9	C	C	C	C	4.7 ^A	3.6	5.6 ^A	A	A	4.5 ^A	2.3	1.9	[1.8] ^A	1.6	2.3 ^A	[2.0] ^A
2	C	C	C	C	C	C	C	C	C	C	C	C	5.6	3.6	4.3	4.0	4.0	3.1	4.5 ^A	A	AF	A	2.7 ^A	1.5
3	1.7	1.7	1.7	1.5	1.5	1.3	2.0	3.0	3.4	4.1	4.4	4.5	4.0	3.9	3.5	3.3	3.4	2.8	2.5	1.8	1.6	1.5	1.6	1.4
4	1.5 ^F	C	C	C	C	C	C	C	C	A	A	A	4.0	4.6 ^A	4.6 ^A	A	A	4.0 ^A	A	A	A	2.9 ^A	2.0 ^A	C
5	[1.8] ^A	2.1	<2.0	E	E	1.6	C	C	C	C	C	A	4.6 ^A	4.6 ^A	4.6 ^A	4.0 ^A	4.0 ^A	3.5	2.8	2.5 ^A	3.3 ^A	A	A	A
6	C	C	3.0 ^A	2.0 ^A	2.0 ^A	[1.8] ^A	1.6	[2.9] ^A	4.2 ^A	3.2	A	A	5.6 ^A	[4.8] ^A	4.0	4.0	4.0	3.6	4.6 ^A	C	C	1.9	1.6	1.6
7	AF	1.5	3.0 ^A	[2.4] ^A	C	1.7	1.5	4.1 ^A	2.8	C	C	C	5.6 ^A	[4.8] ^A	4.0	4.0	4.0	3.6	4.6 ^A	C	C	1.9	1.6	1.6
8	1.5	1.8	2.2 ^A	C	C	C	C	4.1 ^A	C	C	3.5	4.0	4.0	4.2	4.4	4.0	3.1	4.2 ^A	[3.6] ^F	2.9 ^A	A	A	A	A
9	A	A	A	A	1.5	1.3	2.2	C	C	3.4	C	C	4.6 ^A	[3.8] ^A	4.2	4.4 ^A	C	C	C	C	2.2 ^A	[1.8] ^A	1.6	1.8
10	2.0 ^F	A	A	A	1.5	[1.8] ^C	2.2	2.7	3.0	3.5	3.9	3.9	4.0	[4.0] ^A	4.0 ^A	[3.8] ^A	3.5	3.2	3.2	3.7 ^A	3.5 ^A	4.0 ^A	A	A
11	A	1.6 ^F	1.7	1.7	[1.7] ^A	1.7	2.3	[2.6] ^C	3.0	3.3	4.2	4.1	C	C	4.2	A	A	A	A	A	A	A	1.9	1.9
12	A	2.5 ^A	2.0 ^A	1.6	1.5 ^F	1.4	2.0	[4.2] ^A	6.5 ^A	A	A	C	A	A	B	3.6	3.2	2.9	2.4	C	C	1.5	1.5 ^F	A
13	A	1.6	1.5	1.5	1.5	1.5	2.0	A	4.3 ^A	4.0	4.3 ^A	4.3	4.3	4.0	4.2	4.1	3.4	3.1	2.9	1.7	A	A	1.5	1.6
14	1.6	1.5	[1.9] ^A	2.3 ^A	2.0 ^A	1.5	2.8	2.9	5.6 ^A	5.6 ^A	C	A	A	5.6 ^A	A	A	A	3.0	A	A	A	3.0 ^A	1.9	A
15	A	3.1	1.6	C	C	C	C	C	C	C	A	A	A	A	7.0 ^A	5.8 ^A	5.5 ^A	5.5	3.8	2.8 ^A	2.4 ^A	1.8	1.6	1.6
16	1.8 ^F	2.0 ^F	[1.9] ^A	1.8	A	A	2.0	2.7	3.2	4.1	5.4	4.3 ^A	4.3	5.7	5.6 ^A	5.3 ^A	5.8	3.0	4.1 ^A	2.0	1.5	1.5	1.5	1.6
17	1.5	A	A	1.5	1.5	1.3	1.8	C	C	A	3.6	5.7	5.7	6.5 ^A	A	A	A	5.6 ^A	[4.8] ^F	4.0 ^A	3.1 ^A	1.9	2.1 ^A	1.6
18	1.3	1.4	1.6	2.8 ^A	1.8	1.8	2.0	3.5 ^A	4.2 ^A	4.3 ^A	5.0 ^A	5.7 ^A	A	A	A	A	A	A	2.3	2.8 ^A	2.8 ^A	[2.2] ^A	1.5	1.7
19	1.9	1.6	1.5	1.5	1.6	1.4	2.9 ^A	[3.4] ^A	4.0 ^A	4.5 ^A	4.8	4.5	4.7	A	A	A	A	[3.0] ^A	2.4	2.0	1.6	1.5	2.0 ^A	1.6
20	1.6 ^F	1.9 ^F	[1.7] ^A	1.5	1.4	1.9	1.8	2.7	3.1	4.8 ^A	4.2	4.7	A	A	A	A	5.6 ^A	2.7	2.7	C	C	2.0 ^A	[1.8] ^A	1.6
21	2.0 ^A	1.5	1.5	1.0	E	1.2	2.0	2.7	A	B	A	A	A	4.8 ^A	[4.1] ^A	3.4	3.4	2.9	2.7	1.7	1.5	[2.8] ^A	4.0 ^A	1.5
22	1.5	1.4	1.3	1.4	[1.5] ^A	1.6	A	A	3.0	4.4 ^A	3.7	A	A	5.7	3.5	4.8	3.3	3.2	7.5	2.2	1.8	2.6 ^A	1.6	2.7
23	[2.4] ^A	2.1 ^A	C	C	C	1.3	1.7	[2.6] ^C	3.4	A	A	A	4.2	A	A	A	8.0 ^A	4.1 ^A	A	A	A	1.7	1.7	1.6
24	1.6	1.4	1.4	1.3	1.5	1.4	1.8	2.7	3.1	3.2	A	C	C	4.8	6.5 ^A	A	A	A	A	3.2 ^A	3.5 ^A	1.7	3.5 ^A	1.7
25	1.6	1.5	1.8	1.5	1.4	1.6	2.0	2.5	3.1	[3.6] ^F	4.0	[4.8] ^A	5.7	4.7	5.6 ^A	5.6 ^A	6.0 ^A	3.5	[2.6] ^A	1.7	[1.6] ^C	1.5	1.6	1.5
26	A	A	AF	2.4 ^A	A	AF	2.3	2.7	A	A	A	A	A	4.1	3.5	3.2	3.1	3.3	2.5	1.7	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.7	4.5 ^A	3.3	[2.8] ^A	2.3	[2.0] ^C	1.8	1.7	1.6	1.6
28	1.6	1.6	1.5	1.6	1.6	1.6	1.7	C	C	4.0	A	A	A	A	4.3 ^A	4.5 ^A	4.5 ^A	[3.7] ^C	2.9 ^A	[2.2] ^C	1.5	1.5	1.5	1.9
29	1.7	1.6	A	A	1.5	1.7	1.8	3.0	3.0	4.0 ^A	4.0	4.3 ^A	3.9	4.2	4.2	5.6 ^A	3.5	2.9	3.8 ^A	A	AF	1.9	1.9	[1.8] ^A
30	1.7	1.6	A	A	1.6	1.9	1.9	2.5	[3.0] ^C	3.5	[3.9] ^A	4.3 ^A	A	C	6.6 ^A	4.0	4.3	C	A	A	A	4.0 ^A	[2.8] ^A	1.6
31	1.5	1.6 ^F	1.3	1.1	1.3	1.3	2.0	2.9	3.7	3.6	4.1	[4.2] ^C	4.2	5.8	[5.2] ^A	4.5 ^A	5.6 ^A	5.5 ^A	6.0 ^A	3.4 ^A	3.9 ^A	2.0 ^A	2.7 ^A	1.9
Mean Value	1.7	1.8	1.7	1.7	1.6	1.5	2.0	3.0	3.6	4.0	4.2	4.5	4.6	4.6	4.7	4.3	4.3	3.6	3.4	2.4	2.3	2.1	2.0	1.7
Median Value	1.6	1.6	1.7	1.6	1.5	1.5	2.0	2.8	3.2	4.0	4.0	4.3	4.4	4.4	4.3	4.1	3.8	3.2	2.9	2.2	1.8	1.9	1.8	1.6
Count	21	21	18	20	22	23	24	20	18	18	15	14	16	20	23	21	22	25	23	20	17	25	25	22

fminF

Manual Automatic

Sweep 1.0... Mc to 22.0 Mc in 2... min

Y 10

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

IONOSPHERIC DATA

135° E Mean Time

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

fminE

Jul. 1952

Day	00	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	1.4	1.6	1.4	1.4	1.4 ^F	1.5	1.5	C	C	C	C	1.7	1.6	1.7	1.7	1.6	1.6	1.6 ^F	1.5	1.4	1.5	1.5	1.5
2	C	C	C	C	C	C	C	C	1.0	2.0	2.0	2.0	2.2	1.9	1.9	1.7	1.6	1.6	1.5	1.5	1.6	1.5	1.5	1.6
3	1.5	1.5	1.6	1.6	1.5	1.7	1.5	1.9	2.0	2.0	1.9	1.8	1.9	1.7	2.0	1.9	1.9	1.6	1.5	1.5	E	1.6	1.6	1.6
4	E	C	C	C	C	C	C	C	C	1.6	1.9	1.8	1.8	1.8	1.6	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6
5	1.4	1.5	E	1.6	1.6	E	C	C	C	C	1.8	1.7	1.8	1.8	1.6	1.7	1.7	1.6	1.4	1.4	1.5	1.6	1.5	C
6	C	C	E	E	E	E	1.5	1.5	1.6	1.6	C	C	2.0	2.3	1.9	2.2	2.0	1.6	1.4	1.4	1.5	1.5	1.5	1.5
7	1.5	1.4	1.5	1.6	1.5	1.5	1.5	1.6	1.6	C	1.8	2.0	1.9	2.2	2.0	1.9	1.9	1.9	[1.7] ^F	1.5	1.5	1.5	1.5	1.5
8	1.5	E	1.4	C	C	C	C	C	C	2.0	C	C	2.2	2.4	2.4	2.4	C	C	1.5	1.5	1.5	1.5	1.6	1.5
9	1.5 ^F	1.6	1.2	E	E	E	C	1.6	1.6 ^F	1.6	1.6	1.9	1.8	1.8	1.6	[1.7] ^C	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5
10	1.5	1.5	1.0	1.0	1.4	E	1.6	[1.6] ^C	1.7	1.7	1.6	1.7	C	C	1.7	1.8	1.8	2.0 ^S	1.5	1.5	1.5	1.5	1.6	1.5 ^F
11	1.6	1.6	1.4	1.0	1.2	1.4	1.5	1.8	1.8	2.0	1.9	[2.1] ^C	2.3	1.9	2.0	2.2	1.8	1.6	1.5	C	C	1.5	1.6 ^F	1.5 ^F
12	1.5 ^F	1.4 ^F	1.4 ^F	1.4 ^F	1.1	1.4 ^F	1.4 ^F	1.5	[1.6] ^C	1.6	1.8	1.9	1.8	1.9	2.0	2.0	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.6
13	1.5	1.4	1.5	1.6	1.4	1.4	1.5	1.6	1.6	1.6	1.8	1.9	1.8	2.2	2.3	2.0	1.7	1.6	1.5	1.5 ^F	1.5	1.5	1.5	1.6
14	1.5	E	1.0	C	C	C	C	C	C	C	1.7	1.8	2.0	2.0	1.9	1.7	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.6
15	1.5 ^F	E	1.1	1.4	1.3	1.5	1.6	1.5	1.6	1.6	2.2	1.8	2.0	2.0	1.9	2.1	1.9	1.8	1.5	1.5	1.5 ^F	1.6 ^F	1.6	1.6
16	1.5	1.5	1.4	1.4	1.2	1.6 ^F	1.5	C	C	1.7	1.8	1.9	2.0	2.0	2.5	2.0	1.9	1.6	[1.6] ^C	1.6	1.5	1.5	1.6 ^F	1.5
17	1.6	1.3	1.4	1.3	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.1	2.2	2.0	2.2	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.6
18	1.6	1.5	1.5	2.0	1.3	E	1.5	1.6	1.7	1.8	2.0	2.0	2.2	1.9	2.0	2.0	1.9	1.6	1.6	1.5	1.6	1.8	1.5	1.6
19	1.6	1.5	1.5	1.4	2.0	1.5	1.6	1.6	1.8	1.9	2.0	1.9	2.0	1.9	2.0	1.9	1.8	1.7	1.6	C	C	1.5	1.5	1.6
20	1.5	1.4	E	E	1.0	1.6	1.5	1.6	1.6	1.7	1.6	1.9	2.0	2.0	2.0	1.9	1.7	1.7	1.5	E	1.6	1.5	1.5	1.5
21	1.6	1.7	1.7	1.7	1.2	1.2	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.1	1.9	2.0	1.8	1.5	1.4	1.5	1.5	1.5	1.5	1.6
22	1.5	1.4	C	C	C	E	1.5	[1.6] ^C	1.7	2.2	2.0	2.2	2.0	2.0	2.0	1.8	1.6	1.6	1.4	1.5	1.6	1.5	1.5	1.6
23	1.5	1.6	1.5	1.5	1.5	1.8	1.6	1.8	1.8	1.8	1.7	C	C	2.0	2.0	1.9	1.9	1.6	1.4	1.5	1.6	1.5	1.5	1.5
24	E	1.5 ^F	1.6 ^F	1.5	E	1.5	1.6	1.6	1.8	[1.8] ^C	1.8	2.2	2.0	2.0	2.0	1.9	1.6	1.5	1.5	1.4	[1.5] ^C	1.6	1.5	1.5
25	1.5	1.3	1.4	1.4 ^F	1.4	1.4 ^F	1.5	1.5	1.6	1.8	1.7	1.9	1.9	2.1	2.0	1.9	2.2	1.6	1.5	1.5	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.7	1.8	1.8	1.7	1.5	[1.5] ^C	1.5	1.6	1.5	1.6
27	E	1.5	1.5	1.5	E	E	1.4	C	C	1.6	1.8	C	C	C	C	1.6 ^F	1.6	1.6	1.4	[1.5] ^C	1.6	1.5	1.7	1.5
28	1.5 ^F	1.6	1.4 ^F	1.4	1.5	1.4	1.5	1.5	1.7	1.8	1.8	[1.8] ^C	1.9	1.8	1.8	1.6	1.6	1.5	1.4	1.6	1.5 ^F	1.5	1.6	1.5 ^F
29	1.5	1.5	1.5	1.5	1.1	E	1.5	1.5	[1.6] ^C	1.8	1.8	1.9	2.2	[2.0] ^C	1.9	1.9	1.7	[1.6] ^C	1.4	1.4	1.5	1.5	1.5	1.5
30	1.5	1.3	1.0	1.3	1.6	1.6	1.5	1.6	1.8	1.9	1.9	[2.1] ^C	2.3	2.0	1.9	2.0	1.8	1.5	1.5	1.4	1.5	1.5	1.5	1.5
31	1.5	1.3	1.0	1.3	1.6	1.6	1.5	1.6	1.8	1.9	1.9	2.0	2.0	1.9	1.9	2.0	1.8	1.5	1.5	1.4	1.5	1.5	1.5	1.5
Mean Value	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Median Value	1.5	1.5	1.4	1.4	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Count	28	27	27	25	25	25	25	22	21	24	26	24	26	27	29	29	29	29	30	27	26	29	29	28

Swamp J. 0 - Mc to 22.0 Mc in 2 min

Manual Automatic

IONOSPHERIC DATA IN JAPAN FOR JULY 1952

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編集兼
発行人

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東京都北多摩郡小金井町小金井新田一之久保573

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