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IONOSPHERIC DATA IN JAPAN

FOR APRIL 1953

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KOKUBUNJI, TOKYO, JAPAN

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN FOR APRIL 1953

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PREFACE

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

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

The First Division has the following three sections:

Ionospheric Propagation Section which shall carry on researches on ionosphere and wave propagation;

Tropospheric Propagation Section which shall carry on researches on troposphere and wave propagation; and

Data Coordination Section which shall conduct the collection and arrangement of observational results, supply of operational data relating to radio propagation, preparation of radio propagation forecasts and radio disturbance warnings broadcast of URSIGRAM and physical basic studies of wave propagation in general.

The Second Division has the following two sections:

Frequency Standard Section which shall carry on researches on the frequency standard and broadcast the standard frequencies and time signals (J. J. Y.); and

Apparatus Section which shall carry on researches on radio apparatus used for radio regulatory purpose and conduct the approval service of types of radio equipments.

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

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

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

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

Aug. 1952

SITE OF THE IONOSPHERIC STATIONS

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

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

REMARKS ON SYMBOLS

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

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

f_oF₂

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	S	S	S	S	3.1 ^T	3.0 ^P	3.4	B	B	B	B	B	B	B	B	B	B	3.7 ^P	3.6 ^P	3.4 ^T	3.2	SF	S	S	
2	S	S	S	S	3.3	3.6	3.4 ^P	5.1 ^T	B	B	B	B	B	B	B	B	B	B	B	S	S	S	S	S	
3	S	SF	S	3.3	S	S	3.6 ^P	5.1 ^T	B	B	B	B	B	6.6	6.4	6.1	5.9	6.4	5.5	5.3 ^A	3.1	3.8	S	S	
4	S	2.7	B	3.3	3.3	4.3	4.6 ^P	4.8	6.0	6.2 ^B	6.5	B	B	B	B	6.5 ^P	6.6	C	C	C	3.2	S	S	S	
5	S	S	S	S	S	S	B	S	B	M	B	B	B	B	B	B	6.1	6.0	M	S	5.1	S	S	S	
6	S	4.0	(4.0) ^S	4.0	(4.2) ^S	4.4	4.6 ^T	4.5	5.1	5.5	6.0	6.5	6.6	6.6	6.4 ^P	6.2 ^P	6.4	(6.7) ^P	6.5 ^P	3.2	3.0	S	S	S	
7	SF	SF	SF	4.4	3.9 ^T	S	4.4 ^P	5.5	5.7	B	B	6.4	(7.1) ^P	7.8 ^T	(7.0) ^M	6.3 ^P	B	(6.4) ^P	(6.4) ^P	S	S	S	S	S	
8	S	3.6 ^P	S	S	4.1	(4.2) ^P	4.3	5.5	5.9	6.0	B	6.0	6.9	7.4 ^P	7.2 ^B	6.3 ^P	6.2 ^P	(6.4) ^P	6.7 ^P	S	S	S	S	S	
9	S	S	S	S	S	(3.4) ^P	4.3	5.0	6.8	6.8	7.2	7.9	(7.6) ^S	7.4 ^P	7.1	6.7 ^B	6.7 ^B	6.3 ^P	5.0	S	S	S	4.3	(4.7) ^P	
10	3.2	3.2	C	C	C	C	C	C	C	C	6.1	6.5	C	C	8.1	7.2	6.6	S	S	5.6 ^T	S	S	4.7 ^T	S	
11	S	S	S	S	S	S	B	5.2 ^T	6.6	(7.2) ^T	7.9 ^P	6.1	6.7	6.6	(6.4) ^M	6.3	6.3	M	M	M	M	M	M	M	
12	M	M	M	M	M	M	M	M	M	M	M	5.3	(6.0) ^B	6.8	6.0	5.6	5.6	5.6	6.1	S	S	(4.4) ^B	S	S	
13	S	S	3.9	(3.6) ^S	3.3	3.8	4.8	5.7	5.8	(6.0) ^C	6.2	5.3 ^P	5.5	5.5	(6.2) ^C	6.9	5.8	5.8	S	S	S	S	S	S	
14	S	(3.4) ^P	C	C	C	C	C	C	C	C	C	C	C	C	C	C	5.4	5.4	6.1	6.0 ^M	S	3.3	2.8	(5.0) ^S	3.1 ^P
15	SF	S	S	S	S	S	S	C	C	C	T	T	6.0	(6.2) ^C	6.3	6.2	5.1	4.5 ^P	4.0	S	S	S	S	S	
16	C	C	C	C	C	C	C	C	B	B	C	C	6.7	6.3	6.7	7.2	7.0	7.0	5.0	S	3.5	C	C	C	
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	5.0	5.1	4.8	4.5	C	3.8	2.8	3.6	S	
18	C	C	C	C	C	C	C	C	C	C	6.4	5.2 ^P	(5.5) ^S	5.8	(5.8) ^S	6.9	6.3	5.2	5.0	5.8 ^P	4.3 ^P	4.6	4.6	3.0	
19	C	C	4.0	3.8	4.0	4.5	4.4	B	M	5.5	6.0	6.2	6.1	6.0	4.9	5.9	B	6.5	7.0	6.7 ^P	S	S	S	S	
20	3.9	3.8	SF	3.2 ^T	3.8 ^P	3.2	B	B	A	A	B	5.5	5.5	6.2	(6.6) ^A	5.9	C	C	C	C	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	5.8	A	0	5.7	5.2 ^T	5.0	5.9 ^T	6.3 ^P	(4.8) ^S	4.3	4.3 ^T	(5.0) ^C	
22	3.7	3.0 ^F	3.9 ^F	3.4	2.7	S	B	B	B	B	B	B	B	B	B	C	B	B	A	A	A	4.7 ^P	A	C	
23	C	C	SF	3.2 ^T	F	S	A	B	B	B	B	B	B	B	B	5.6	5.6	B	6.5	S	S	4.6	A	A	
24	3.0	3.6 ^T	4.0	(3.6)	3.4 ^V	3.0	BK	BK	BK	BK	BK	5.5 ^K	5.4	5.7 ^B	5.3 ^K	5.4	5.4	5.7	6.0	5.9 ^P	S	S	4.0 ^F	3.9	
25	4.2	(4.0) ^S	3.7 ^T	3.7 ^T	3.4 ^P	4.4 ^P	B	5.6	6.0	5.8	5.5	6.0	6.2 ^P	6.2	(6.3) ^A	6.4 ^P	6.3 ^P	6.3 ^P	6.3 ^P	6.5 ^P	A	A	A	4.6	
26	4.6	C	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	C	C	S	S	(5.6) ^C	(5.7) ^C	
27	3.8	3.8	4.0	(3.6)	3.6	4.7 ^F	5.8	5.4	B	B	A	6.0	C	A	6.0	(6.0) ^A	6.0	5.8	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	5.6	5.7	6.1	5.8	6.1	B	6.3 ^P	6.0	5.7	5.9 ^P	(6.4) ^S	6.2 ^P	5.6	4.8 ^P	4.2	
29	SF	5.1	4.5	4.4	4.8	5.1	5.5	(6.0) ^S	6.0	5.9	6.3	5.8	6.0	B	6.0	6.3 ^P	(6.4) ^P	6.0	(6.4) ^P	6.2	6.0	5.9	5.5 ^T	5.3 ^P	
30	4.8	4.5 ^P	4.5	4.5 ^P	4.7	4.7 ^P	4.8	5.3	5.7	6.2 ^P	6.3 ^P	7.1	6.2 ^P	6.3 ^P	7.2 ^P	7.2 ^P	B	B	S	S	S	S	S	S	
31																									
Mean Value	3.7	3.7	4.1	3.7	3.7	4.0	4.7	5.3	5.9	6.1	6.3	6.1	6.3	6.4	6.3	6.2	6.0	5.6	5.5	5.3	4.4	4.2	4.4	4.2	
Median Value	3.8	3.7	4.0	3.6	3.6	4.2	4.6	5.4	5.9	6.0	6.2	6.1	6.1	6.2	6.3	6.2	6.0	5.7	5.7	5.7	4.3	4.4	4.2	4.6	
Count	9	12	9	14	14	14	13	12	10	11	12	16	17	17	18	22	23	19	18	11	11	12	10	9	

Sweep 1.0 Mc to 16.5 Mc in 2 min Manual Automatic

W 1

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

IONOSPHERIC DATA

Lat. 46° 23.6' N
Long. 141° 41.1' E

Wakkanai

Apr. 1953

f_pF₂

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	S	S	S	(280) ^F	(300) ^F	290	B	B	B	B	B	B	B	B	B	B	(310) ^F	330 ^F	370 ^F	S	240	S ^F	S	
2	S	S	S	S	350	340	(340) ^B	(310) ^J	330	B	B	B	B	B	330	B	B	S	S	S	S	S	S	S	
3	S	S ^F	S	240	S	S	300 ^F	B	B	B	B	B	310	310	(320) ^B	340	270	360	370	(340) ^A	300	390	S	S	
4	370	330	B	340	(320) ^S	290	(300) ^B	300	350	(340) ^B	340	B	B	B	B	(280) ^F	300	C	C	C	340	S	S	S	
5	S	S	S	S	S	B	B	5B	B	M	B	B	B	B	B	B	340	310	M	S	390	S	S	S	
6	S	400	(380) ^S	370	(360) ^M	350	(360) ^F	340	300	340	320	360	350	(350) ^F	(310) ^F	350 ^F	350	(330) ^F	(290) ^F	320	310	S	S	S	
7	S ^F	S ^F	S ^F	(380) ^F	(330) ^F	S	320 ^F	310	270	B	B	(320) ^F	(320) ^F	(310) ^S	(300) ^M	290 ^F	B	B	B	(270) ^F	S	S	S	S	
8	S	S	S	S	(310) ^S	300 ^F	280	300	340	350	B	B	B	B	370	300 ^F	360 ^F	(360) ^C	350 ^F	S	S	S	S	S	
9	S	S	S	S	S	(320) ^F	270	260	C	B	Z80	320	(300) ^B	290 ^F	(320) ^F	310	(290) ^B	270 ^F	310	S	S	S	360	(310) ^F	
10	330	360	C	C	C	C	C	C	C	B	310	330	C	C	300	310	320	S	S	(310) ^F	S	S	(480) ^S	S	
11	S	S	S	S	S	S	B	(400) ^J	340	(340) ^M	350 ^F	360	340	320	(310) ^M	310	310	M	M	M	M	M	M	M	
12	M	M	M	M	M	M	M	M	M	M	M	L	L	B	300	270	300	A	310	S	S	(310) ^F	S	S	
13	S	S	310	(320) ^S	330	320	300	B	330	(300) ^C	280	310 ^F	(320) ^S	(320) ^S	340	(320) ^F	310	270	B	S	S	S	S	S	
14	S	(370) ^F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	C	C	C	C	C	C	T	T	260	(280) ^F	300	L	L	310	290 ^F	270	S	S	S	S	
16	S ^F	S	S	S	S	S	S	B	B	B	C	C	C	310	320	(340) ^B	350	310	S	S	S	380	C	C	
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	400	370	370	C	C	C	310	370	S	
18	C	C	C	C	C	C	C	C	C	C	C	C	C	(350) ^F	350	(360) ^C	370	380	410	410	360 ^F	360 ^F	380	440	
19	C	C	S	400	330	350	270	B	M	340	320	320	330	360	(430) ^S	B	B	(330) ^J	320	300 ^F	(340) ^F	S	S	S	
20	370	340 ^F	S ^F	(350) ^F	350 ^F	330	B	B	A	A	B	B	B	B	A	340	C	C	C	C	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	A	C	290	(370) ^J	340	360 ^F	320 ^F	(320) ^S	320	350 ^F	(480) ^F	
22	440	400 ^F	440 ^F	340	330	S	S	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	
23	C	S ^F	(340) ^F	J	S	A	B	B	B	B	B	B	B	B	B	B	340	B	360	S	S	350	A	A	
24	380	420 ^F	420	(370) ^F	390 ^F	380	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	280	280	290	300 ^F	S	S	300 ^F	330	
25	350	(340) ^S	340 ^F	(370) ^F	320 ^F	290 ^F	B	300	320	B	L	360	300 ^F	380	(360) ^A	340 ^F	310 ^F	310 ^F	310 ^F	320 ^F	290 ^F	A	A	360	
26	410	e	C	C	C	B	B	B	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
27	360	390	400	(360) ^F	(380) ^S	330 ^F	310	300	B	B	A	390	C	A	380	A	A	A	300	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	U	L	360	L	B	330 ^F	290	300	320 ^F	300	320 ^F	(340) ^F	(360) ^F	340	350 ^F	
29	S ^F	350	330	330	330	320	290	(280) ^F	320	B	330	B	L	B	380	360 ^F	(380) ^F	310	(320) ^F	360	330	350	(350) ^F	340 ^F	
30	340	370 ^F	320	330 ^F	320	270 ^F	270	340	360	300 ^F	320 ^F	360 ^F	340	360 ^F	380 ^F	330 ^F	B	B	S	S	S	S	S	S	
31																									
Mean Value	370	370	370	350	330	320	300	300	330	330	320	350	330	330	340	330	320	320	320	320	320	340	340	360	360
Minimum Value	360	360	360	340	330	320	300	300	340	340	320	360	330	330	330	330	320	320	310	320	320	340	340	350	350
Count	9	12	8	14	15	14	13	11	10	7	10	13	14	15	16	19	22	18	18	11	10	12	10	9	

f_pF₂

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

f_oF₂

Apr. 1953

135° E Mean Time

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

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 28.6' N
Long. 141° 41.1' E

Apr. 1953

f_oF₁

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	Q	3.6	B	B	B	B	B	4.0P	3.8	3.2	3.0						
2						Q	L	B	B	3.9	B	B	B	B	B	3.9	3.2	Q						
3						Q	B	B	B	3.9	B	B	B	B	4.0	S	S	A						
4						B	Q	B	3.4	(3.7)B	4.0	(4.0)P	4.1	(4.2)B	(4.0)B	3.8	B	C						
5						B	SB	B	L	M	B	B	B	B	B	B	Q	B						
6						Q	3.2	Q	L	B	(4.1)B	(4.2)B	(4.0)B	(4.0)B	(4.0)B	3.9	Q	A						
7						Q	Q	Q	Q	3.8	B	B	(4.2)B	B	4.0P	3.7	B	Q						
8						Q	B	B	B	3.8	4.3	(4.3)B	4.3	(4.2)B	(4.2)B	3.7	Q	C						
9						Q	3.8	A	A	B	B	B	B	B	B	3.4	B	Q						
10						C	C	C	C	B	(4.2)B	(4.2)B	C	C	4.0P	4.0	3.4	Q						
11						B	B	B	B	M	B	B	B	B	M	B	3.8	M						
12						M	M	M	M	M	M	4.0	B	B	B	3.9	3.6	A						
13						2.8	B	B	B	C	B	B	3.8	3.8	(3.7)C	3.6	3.4	3.1						
14						C	C	C	C	C	C	C	C	C	C	C	Q	Q						
15						C	C	C	C	C	4.7	T	4.3	(4.2)C	4.1B	3.9	(3.5)B	Q						
16						L	B	B	B	B	C	C	4.5	4.4	(4.1)B	3.8	B	B						
17						C	C	C	C	A	C	C	C	C	C	4.2H	3.7	G						
18						C	C	C	C	C	B	3.8	(3.9)C	4.0	(3.8)C	3.6	3.5	3.1						
19						3.2	3.6	(3.8)M	3.9	4.0	3.9	4.0	4.0P	3.8	B	B	A							
20						3.1	3.5	A	A	(3.9)B	(3.9)B	4.0	B	A	A	3.9	C							
21						C	C	C	C	C	C	C	A	A	C	(4.0)A	4.0	3.5						
22						A	A	B	B	B	A	A	A	B	B	C	A	A						
23						A	A	B	A	A	A	A	B	B	B	B	3.4	3.2						
24						3.2	3.6	B	B	A	4.0	B	B	B	B	3.8	3.5	3.4						
25						Q	B	4.3	(4.4)B	4.5	4.4A	4.5B	4.4	A	A	4.1	A							
26						B	B	C	C	C	C	C	C	C	C	C	C	C						
27						3.5	3.7	4.2B	B	A	A	A	A	A	A	A	A	A						
28						C	C	C	4.4	(4.5)B	(4.6)B	4.3	4.3	4.3	4.3	4.3	4.1	3.6						
29						Q	3.5	4.3	B	B	B	B	B	B	4.7	4.3	4.0	Q						
30						Q	L	3.8	(4.2)B	4.7	(4.6)B	4.7	4.7P	4.6	4.5	4.3	4.0	3.4						
31																								
Mean Value						3.2	3.6	3.9	4.0	4.3	4.2	4.2	4.2	4.2	4.1	3.9	3.7	3.3						
Minimum Value						3.2	3.6	3.8	3.9	4.2	4.2	4.2	4.2	4.2	4.0	3.9	3.6	3.3						
Count						5	7	7	9	11	11	13	12	14	20	16	8							

f_oF₁

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

W 4

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

R'F1

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q	Q	250	B	B	B	B	B	(280) ^P	280 ^B	250	300						
2							Q	270	(240) ^B	220	B	B	B	B	B	250	280	Q						
3							Q	B	230	250	B	B	B	B	B	A	A	A						
4							B	Q	B	B	B	B	B	B	B	B	B	B						
5							B	5B	B	M	B	B	B	B	B	B	Q	B						
6							Q	320	200	B	B	B	B	B	B	B	Q	A						
7							Q	Q	(250) ^B	B	B	B	A	B	260 ^B	260 ^B	B	Q						
8							Q	B	210	260 ^B	B	B	B	B	B	270	Q	C						
9							Q	200	A	B	B	B	B	B	B	260	B	Q						
10							C	C	B	B	250 ^B	C	C	C	(280) ^B	250	250	Q						
11							B	B	B	M	B	B	B	B	M	B	260	M						
12							M	M	M	M	M	260	260	B	B	B	260	A						
13							270	B	B	C	B	230	220	(240) ^C	250	260	260							
14							C	C	C	C	C	C	C	C	C	C	Q	Q						
15							C	C	C	C	200	200	230	C	A	260	240 ^B	Q						
16							230	B	B	C	250 ^A	250	(280) ^B	300	B	B	B							
17							C	C	C	C	C	C	C	C	C	200	200	Q						
18							C	C	C	C	220	(260) ^C	300 ^B	310	310	330								
19							270	270	M	A	240	220	240 ^A	A	A	B	B	A						
20							290	A	A	A	220	230	260	B	A	280	C	C						
21							C	C	C	C	C	C	A	A	C	A	240	270						
22							A	A	B	B	A	A	A	B	B	C	A	A						
23							A	A	B	A	A	A	A	B	B	B	B	250						
24							260	230	A	A	240 ^B	250	A	B	B	250 ^B	230 ^B	260 ^B						
25							Q	B	220	B	A	A	B	A	A	A	250	A						
26							B	B	C	C	C	C	C	C	C	C	C	C						
27							280	240	280	250	A	A	A	A	A	A	A	A						
28							Q	C	C	250	B	B	B	B	(260) ^A	280	250	230						
29							Q	210	220	B	B	B	B	B	250	230	270	Q						
30							Q	260	280	(280) ^B	270 ^A	220	250	220 ^A	260	250	270	270						
31																								
Mean Value							270	250	240	240	230	250	240	240	270	260	260	270						
Median Value							270	250	240	250	220	250	230	260	260	260	260	260						
Count							6	8	8	7	6	8	8	5	9	16	16	8						

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

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

foE

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	2.1	B	B	B	B	B	B	B	2.6	2.4	2.3	B						
2						B	2.0	2.6	2.6	2.7	2.7	2.7	[2.8] ^F	2.8	[2.7] ^F	2.6	S	S						
3						B	[2.1] ^F	2.6	[2.8] ^F	3.0	2.6	A	A	A	A	A	A	A						
4						B	1.9	2.6	[2.6] ^F	2.7	B	B	B	B	B	B	2.5	C						
5						B	SB	B	M	B	B	B	B	B	B	B	B	B						
6						B	2.2	2.6	B	B	B	B	B	B	B	B	A	A						
7						B	2.2	2.4	B	B	B	B	B	B	B	2.7	B	B						
8						B	2.5 ^F	[2.6] ^F	2.7	2.8	B	B	B	B	B	2.6	B	C						
9						B	2.4	A	C	B	2.8	B	C	C	C	B	B	B						
10						C	C	C	B	M	B	B	B	B	M	B	B	M						
11						M	M	M	M	M	A	A	A	A	B	A	A	A						
12						S	B	B	C	B	B	B	2.7	3.0	[2.8] ^C	2.7	2.2	B						
13						C	C	C	C	C	C	C	C	C	C	C	2.2	2.0						
14						C	C	C	C	C	B	3.0	C	C	C	B	2.4	A						
15						B	B	B	B	C	C	C	A	3.1	2.9	2.8	B	B						
16						C	C	C	C	C	C	C	C	C	C	2.7	2.3	B						
17						C	C	C	C	C	C	C	C	C	C	2.6	[2.3] ^B	2.0						
18						C	C	C	C	C	2.9	2.8	C	B	C	B	A	A						
19						[2.1] ^B	2.5	3.0	2.9	2.9	2.9	2.9	2.9	[2.8] ^F	2.8	B	A	A						
20						2.27	[2.4] ^F	[2.5] ^B	2.8	3.0	3.0	3.0	3.0	[3.0] ^B	3.0	2.6	C	C						
21						C	C	C	C	C	C	C	A	A	A	C	2.6	B						
22						[2.2] ^F	[2.4] ^B	2.7	[2.8] ^B	3.0	3.0	A	A	A	B	3.0	2.5	(2.3) ^F						
23						B	C	[2.9] ^F	3.0	3.1	[3.2] ^F	3.2	2.8	3.0	3.0	2.8	2.7	B						
24						B	2.5	2.9	3.0	3.0	3.0	A	B	B	B	2.7	B	A						
25						B	B	3.1	3.1	3.1	3.3	3.3	3.3	3.3	3.1	3.0	2.7	A						
26						B	B	C	C	C	C	C	C	C	C	C	C	C						
27						B	2.7	2.9	3.0	[3.1] ^F	3.2	3.4	3.4	3.4	3.3	3.3	2.8	2.1						
28						C	C	C	3.1	3.1	3.2	B	B	B	3.2	2.9	2.7	2.4						
29						B	2.8	3.0	[3.0] ^B	[3.0] ^F	A	B	B	B	3.3	3.1	2.8	B						
30						B	2.8	3.0	3.2	3.3	3.3	3.2	3.1	3.2	3.1	3.0	2.8	2.4						
31																								
Mean Value						1.9	2.4	2.7	2.9	3.0	3.0	3.1	3.0	3.0	3.0	2.8	2.5	2.2						
Median Value						2.0	2.4	2.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8	2.5	2.1						
Count						6	15	16	14	16	12	9	9	9	12	18	16	7						

foE

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 6

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

f_oF₂

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B 100	B	B	B	B	B	B	B	B	120	110	120						
2							B 120	120	100	120	130	130	130	120	f120 ^B	120	S	S						
3							120	f110 ^B	f110 ^B	120	120	120	A	A	A	A	A	A						
4							B 120	120	f120 ^B	110	f120 ^B	130	B	B	B	B	140	C						
5							B	S ^B	B	M	B	B	B	B	B	B	B	B						
6							110	100	100	B	B	B	B	B	B	B	B	A						
7							B 120	120	B	B	B	B	A	B	B	110	110	A						
8							B 150	f140 ^B	120	100	f120 ^B	130	B	B	B	130	B	C						
9							120 ^A	A	A	B	120	B	B	B	B	B	B	B						
10							C	C	C	B	120	B	C	C	C	B	130	E						
11							B	B	M	B	B	B	B	B	M	B	B	M						
12							M	M	M	M	A	A	A	B	B	A	A	A						
13							S	B	B	C	B	B	110	110	f120 ^B	120	130	130						
14							C	C	C	C	C	C	C	C	C	C	C	C						
15							C	C	C	C	B	B	110	C	B	120	110	A						
16							120	B	B	B	C	C	C	C	C	110	B	B						
17							C	C	C	C	110 ^B	110	f110 ^B	110	f120 ^B	130	110	B						
18							C	C	C	C	110	110	f110 ^B	110	f120 ^B	130	110	B						
19							B 120	110	110	110	110	120	120	f120 ^B	130	B	A							
20							B	B	B	110	110	120	120	f120 ^B	110	100	C	C						
21							C	C	C	C	C	C	A	A	A	120 ^B	130 ^B	B						
22							B	B	110	f120 ^B	120	120	f120 ^B	120	110	f120 ^C	140 ^B	B						
23							130	f140 ^C	140	100	100	110	110	120	100	110	110	B						
24							120	120	110	120	130	A	B	140	130	120	120	A						
25							130	f120 ^B	120	110	110	130	120	120	120	120	120 ^A	A						
26							B	B	C	C	C	C	C	C	C	C	C	C						
27							B 120	120	120	f120 ^A	110	130	130	130	130	120	120	120						
28							C	C	C	120	120	120	120	110	110	120	120 ^B	120						
29							110	130	120	120	(100) ^B	f110 ^A	120	110	110	120	120	B						
30							120	130 ^B	130	110	110	120	120	120	120 ^A	120 ^A	120	120						
31																								
Mesh Value							120	120	120	110	110	120	120	120	120	120	120	120						
Median Value							120	120	120	110	110	120	120	120	120	120	120	120						
Count							9	15	15	14	16	16	16	13	16	19	17	8						

Swamp 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

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

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

Apr. 1953

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	B	G	B	B	B	B	B	B	G	G	G	G	E	E	E	E	E	E
2	E	E	E	E	E	E	B	G	B	G	G	G	G	G	B	G	S	S	E	S	S	S	S	S
3	E	E	E	E	E	E	B	G	B	G	G	G	3.0	3.0	3.0	3.2	3.0	4.0	S	C	C	C	C	S
4	E	E	E	E	E	E	B	G	B	G	G	B	B	B	B	B	G	C	C	C	C	C	C	S
5	E	E	E	E	E	E	B	SB	B	M	B	B	B	B	B	B	B	B	3.6	3.0	E	S	S	S
6	E	E	E	E	E	E	G	G	B	B	B	B	B	B	B	B	3.2	4.0	2.8	E	E	S	S	S
7	3.8	3.0	2.6	E	E	E	B	G	B	B	B	B	3.6	B	G	G	G	G	E	M	E	E	E	E
8	E	E	E	E	E	E	B	G	B	G	G	B	B	B	B	B	B	C	E	S	E	S	E	E
9	E	E	S	S	E	E	2.8	G	3.8	3.0	B	G	B	B	B	B	B	B	E	S	E	S	E	E
10	E	E	C	C	C	C	C	C	C	B	G	B	C	C	C	B	G	E	E	E	E	S	E	S
11	E	E	E	S	S	S	B	B	B	M	B	B	B	B	M	B	B	M	M	M	M	M	M	M
12	M	M	M	M	M	M	M	M	M	M	M	3.1	3.1	B	B	2.8	2.8	4.9	S	S	S	S	S	S
13	S	S	E	E	E	E	S	B	B	C	C	C	C	C	C	C	G	G	E	E	E	E	E	E
14	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.6	2.8	E	E	E	E	E	E
15	C	C	C	C	C	C	C	C	C	C	B	4.3	4.0	C	C	4.7	G	4.0	3.0	E	S	S	S	S
16	E	S	S	S	S	S	G	B	C	C	C	C	3.8	4.2	3.5	G	B	B	3.0	E	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	2.8	C	2.4	2.1	1.6	S
18	C	C	C	C	C	C	C	C	C	C	G	3.8	C	C	C	C	3.8	2.8	2.6	3.0	E	E	E	E
19	C	C	E	E	E	E	B	G	G	3.7	G	G	3.8	3.5	3.9	3.8	3.5	3.9	3.5	3.2	5.0	1.6	3.0	E
20	E	E	E	E	E	E	3.5	3.7	5.0	5.7	3.8	G	3.8	B	5.5	G	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	5.0	7.0	C	4.5	G	B	E	3.0	E	E	E	C
22	E	E	E	E	E	E	3.8	3.8	G	7.0	3.9	4.0	5.5	G	G	C	4.4	5.0	6.7	6.0	7.2	4.8	5.6	C
23	C	C	E	E	E	S	4.4	4.0	G	3.9	4.9	4.3	G	G	G	G	G	B	E	3.0	2.6	3.2	5.0	3.0
24	E	E	E	E	E	E	2.9	3.2	4.0	4.5	G	3.8	3.8	3.3	G	G	G	3.8	3.2	3.8	4.7	E	E	E
25	E	E	E	E	E	E	G	B	4.0	4.0	5.0	4.4	4.1	4.1	6.5	5.2	3.6	4.3	E	4.7	4.6	6.0	4.0	3.8
26	3.0	C	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	C	C	4.4	E	E	E	C
27	E	E	E	E	E	1.6	3.6	G	4.0	G	6.0	5.0	4.5	8.0	6.0	6.0	6.0	4.0	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	G	G	G	G	G	4.1	G	G	G	2.9	2.6	E	2.4	E	E
29	E	E	E	E	E	E	G	G	G	G	S	3.8	G	G	G	G	4.0	B	S	2.8	2.6	2.6	E	E
30	E	E	E	E	E	G	G	G	G	G	4.0	G	G	G	3.3	G	G	G	3.1	E	E	E	E	E
31																								
Mean Value	3.4	3.0	2.6	-	-	1.6	3.5	3.7	4.3	4.5	4.6	4.1	4.0	4.7	4.4	4.1	3.8	4.0	3.4	3.5	3.9	3.2	3.8	3.4
Median Value	E	E	E	E	E	E	E	G	G	3.0	G	G	3.4	G	3.5	G	G	3.8	E	3.0	E	E	E	E
Count	2	1.9	1.9	1.8	1.8	1.8	1.2	1.5	1.6	1.3	1.5	1.6	2.0	1.5	1.5	2.1	2.2	1.7	2.2	2.0	2.4	1.8	2.1	1.4

fEs

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

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

Lat. 46° 28.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

(M3000)F2

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	S	S	S	S	(3.2) ^J	(3.1) ^P	3.3	B	B	B	B	B	B	B	B	B	3.0	(3.1) ^{PJ}	3.0 ^P	3.1 ^P	(3.0) ^S	2.9	SF	S	
2	S	S	S	S	3.0	2.9	(3.0) ^B	(3.2) ^J	3.1	B	B	B	B	3.0	B	B	B	B	S	S	S	S	S	S	S
3	S	SF	S	3.0	S	3.1 ^P	B	B	B	B	B	B	3.2	3.1	(3.0) ^B	2.9	2.8	2.7	(3.0) ^A	3.2	2.7	S	S	S	
4	3.2	3.0	B	3.0	(3.1) ^S	3.2	(3.2) ^B	3.1	3.0	(3.0) ^B	2.9	B	B	B	B	(3.3) ^P	3.2	C	C	C	2.9	S	S	S	
5	S	S	S	S	S	S	B	SB	B	M	B	B	B	B	B	B	2.9	3.1	M	S	2.7	S	S	S	
6	S	2.7	(2.8) ^S	2.8	(2.8) ^M	2.9	(2.8) ^J	2.9	3.2	2.8	3.1	2.9	2.9	(2.9) ^P	3.0 ^P	2.9 ^P	3.0	(3.0) ^{PJ}	(3.2) ^{PJ}	3.1	3.3	S	S	S	
7	SF	SF	SF	(2.9) ^J	(2.9) ^J	S	3.0 ^P	3.0	2.9	B	B	(3.1) ^P	(3.2) ^M	(3.2) ^B	3.2 ^P	B	B	(3.2) ^P	B	S	S	S	S	S	
8	S	3.0 ^P	S	S	3.2	3.2 ^P	3.3	3.1	2.9	2.8	B	B	B	2.7	B	3.1 ^P	(2.8) ^C	2.8 ^P	3.0	S	S	S	S	S	
9	S	S	S	S	S	(3.0) ^P	3.3	3.4	B	3.1	3.2	3.0	(3.1) ^B	3.2 ^P	(3.1) ^B	3.0	(3.2) ^B	3.3 ^P	3.0	S	S	S	S	S	
10	3.0	2.8	C	C	C	C	C	C	C	B	3.1	3.0	C	C	3.1	3.1	3.1	S	(3.1) ^{PJ}	S	S	S	2.8	(3.0) ^{PJ}	
11	S	S	S	S	S	S	B	(3.1) ^J	3.0	(3.0) ^M	2.9 ^P	2.9	2.9	3.1	(3.1) ^M	3.1	3.0	M	M	M	M	M	M	M	
12	M	M	M	M	M	M	M	M	M	M	M	2.9	(3.0) ^B	3.1	3.3	3.2	3.1	3.2	3.1	S	S	(3.0) ^B	S	S	
13	S	S	3.1	(3.0) ^S	2.9	3.1	3.2	3.3	3.2	(3.2) ^C	3.2	3.1 ^P	2.9	3.0	(3.1) ^C	3.2	3.3	B	S	S	S	S	S	S	
14	S	(2.9) ^P	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.0	3.0	3.0 ^M	S	S	S	S	S	
15	C	C	C	C	C	C	C	C	C	C	T	T	3.4	(3.3) ^C	3.2	3.3	3.1	2.9 ^P	3.3	S	S	S	S	S	
16	SF	S	S	S	S	S	S	B	B	B	C	C	3.0	(2.9) ^B	2.8	3.0	3.1	S	S	S	2.6	C	C	C	
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.8	2.9	2.7	3.1	C	S	3.0	2.8	S	
18	C	C	C	C	C	C	C	C	C	C	C	3.0	(3.0) ^C	3.0	(2.8) ^C	2.7	2.8	2.6	2.7 ^P	2.9 ^P	2.6	2.7	2.7	2.4	
19	C	2.5 ²	2.6	2.6	3.0	3.1	3.4	B	M	3.0	3.0	3.0	3.1	2.8	2.6	B	B	(3.0) ^J	3.1	3.2 ^P	(2.9) ^P	S	S	S	
20	2.8	3.0	SF	(2.9) ^J	2.9 ^P	2.9	B	B	A	A	B	B	3.0	(3.0) ^A	3.0	3.0	(2.9) ^J	2.9	2.9 ^P	3.0 ^P	(3.0) ^S	3.0	2.9 ^P	(2.7) ^C	
21	C	C	C	C	C	C	C	C	C	C	C	C	3.2	A	C	3.3	(2.9) ^J	2.9	2.9 ^P	3.0 ^P	(3.0) ^S	3.0	2.9 ^P	(2.7) ^C	
22	2.5	2.7 ^F	2.5 ^F	3.0	3.0	S	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	2.9 ^P	A	C	
23	C	C	SF	(2.9) ^{PJ}	F	S	A	B	B	B	B	B	B	B	B	B	3.0	B	3.0	S	S	2.9	A	A	
24	2.7	2.5 ^{PJ}	2.6	(2.8) ^M	2.7 ^V	3.3	B ^K	B ^K	B ^K	B ^K	B ^K	2.4 ^K	3.6 ^P	3.1 ^K	3.3	3.3	3.3	3.1	3.0 ^P	S	S	3.0 ^P	A	A	
25	2.8	(2.8) ^S	2.9 ^{PJ}	(2.7) ^F	3.0 ^P	3.2 ^P	B	3.1	3.1	3.2	2.7	2.8	2.9 ^P	2.7	(2.8) ^A	3.0 ^P	3.0 ^P	3.0 ^P	3.0 ^P	3.1 ^P	A	A	2.8	2.8	
26	2.6	C	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	S	S	(3.0) ^P	(2.9) ^C	
27	2.8	2.6	2.7	(2.8) ^J	2.7	3.0 ^P	3.2	3.3	B	B	A	2.8	A	2.7	A	A	A	3.2	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	3.0	2.7	3.0	2.7	2.9	R	2.9 ^P	3.2	3.1	3.0 ^P	(2.8) ^P	2.8 ^P	2.8	2.8	2.9 ^P	
29	SF	2.8	3.0	3.0	2.9	3.0	3.1	(3.3) ^P	3.1	3.2	3.1	3.1	2.7	B	2.9	2.9 ^P	(3.2) ^P	3.1	(3.0) ^P	2.8	3.0	2.9	(2.8) ^J	2.9 ^P	
30	2.8	2.8 ^P	3.0	3.0 ^P	3.0	3.2 ^P	3.3	3.0	2.8	3.3 ^P	3.1 ^P	3.0 ^P	2.9	2.9 ^P	2.8 ^P	3.0 ^P	B	S	S	S	S	S	S	S	
31																									
Mean Value	2.8	2.8	2.8	2.9	3.0	3.1	3.2	3.2	3.0	3.1	3.0	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.8	2.8	
Median Value	2.8	2.8	2.8	2.9	3.0	3.1	3.2	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.8	2.8	
Count	9	12	9	14	15	14	13	12	10	11	12	16	17	17	18	21	22	19	18	11	11	12	10	9	

Sweep 1.0 Me to 15.5 Me in 2 min

Manual Automatic

W 9

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

IONOSPHERIC DATA

Lat. 45° 2' 3.6" N
Long. 141° 41.1' E

Wakkanai

fminF

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.4	1.2	1.4	1.2	E	E	2.2	2.4	3.2	4.5	4.5	4.7	5.2	4.6	3.6	3.5	2.4	2.1	1.4	1.4	1.4	1.4	1.4	1.4
2	1.4	1.4	1.1	1.2	1.4	1.4	2.0	2.5	4.5	4.5	4.2	4.4	4.4	4.1	4.3	2.8	2.6	2.2	2.0	S	S	S	S	S
3	1.4	1.3	1.2	1.2	1.4	2.0	2.1	2.1	3.6	4.0	4.0	4.4	4.4	3.8	3.8	3.8	4.0	4.5	3.6	3.8	2.0	2.0	2.0	2.0
4	1.5	1.6	1.4	1.6	1.8	2.0	2.3	2.6	3.2	3.4	3.6	4.4	4.2	4.2	4.2	3.4	3.8	0	0	0	C	1.2	1.5	1.4
5	1.4	1.4	1.4	1.5	1.2	1.4	2.4	2.4	B	M	B	B	B	B	B	B	2.8	4.0	1.4	1.4	1.4	1.4	1.4	1.4
6	1.4	E	E	2.2	E	2.2	2.2	2.4	2.9	4.0	4.1	4.2	4.0	4.0	4.2	3.2	3.5	3.8	3.8	2.0	2.0	2.0	2.0	2.0
7	1.4	1.2	1.8	E	E	1.2	2.0	2.6	3.4	3.6	4.2	4.4	4.2	4.3	3.2	3.4	4.3	2.4	1.9	2.0	1.6	1.6	1.6	1.8
8	E	E	E	1.2	E	1.4	2.0	3.6	3.5	3.0	3.7	4.7	4.2	4.0	4.2	3.0	2.2	2.2	2.0	1.8	1.8	1.8	2.0	2.0
9	1.4	1.4	S	S	1.2	1.2	2.1	2.9	(4.4) ^A	4.8	4.5	4.4	4.4	4.2	4.2	2.9	2.2	2.0	2.0	1.7	1.4	1.4	1.4	1.4
10	E	1.2	C	C	C	C	C	C	C	B	4.2	3.6	C	C	3.6	3.1	2.5	1.4	1.4	1.5	1.8	1.8	2.0	S
11	S	1.4	S	S	S	S	2.2	2.6	4.5	(4.4) ^M	4.3	4.5	4.5	4.0	(4.4) ^M	4.8	3.0	M	M	M	M	M	M	M
12	M	M	M	M	M	M	M	M	M	M	M	3.6	3.4	4.5	4.3	3.8	3.2	3.0	S	A	A	1.4	1.2	S
13	S	S	2.0	2.2	1.6	2.0	2.1	5.0	3.8	(4.2) ^C	4.5	4.5	3.2	3.0	3.0	3.0	3.6	2.2	1.4	1.4	1.5	1.4	1.2	1.4
14	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.3	2.3	1.4	1.4	1.4	1.4	1.4	1.4
15	C	C	C	C	C	C	C	C	C	C	4.2	3.7	3.8	(4.0) ^C	4.1	3.4	2.8	2.3	3.0	1.6	S	S	S	S
16	1.9	S	S	S	S	S	2.6	B	B	B	C	C	C	C	6.5	3.3	4.6	2.7	2.4	1.5	1.5	1.5	1.5	1.5
17	C	C	C	C	C	C	C	C	A	C	C	C	C	C	C	2.8	2.5	2.0	2.0	2.0	A	A	A	A
18	C	C	C	C	C	C	C	C	C	C	5.0	3.2	(3.3) ^C	3.4	(2.0) ^C	2.7	2.6	2.2	2.0	2.0	1.4	1.4	1.4	1.7
19	C	C	3.5	2.6	2.2	3.6	2.3	3.3	(3.5) ^M	3.7	3.2	3.4	3.6	3.6	3.6	B	B	3.0	3.0	2.8	4.0	4.0	4.0	4.0
20	1.4	1.3	1.4	1.2	1.2	2.1	2.8	3.0	A	A	3.3	3.2	3.2	4.5	(3.8) ^A	3.2	0	0	0	0	0	0	0	0
21	C	C	C	C	C	C	C	C	C	C	C	C	4.0	A	C	4.0	2.7	2.4	2.4	2.4	2.4	2.4	2.0	2.0
22	E	E	E	E	E	E	A	A	B	B	A	A	B	B	B	C	A	A	A	A	A	2.2	2.2	A
23	C	C	E	E	E	S	A	A	B	A	A	A	B	B	B	B	2.7	2.2	2.0	2.0	2.2	2.2	2.2	A
24	E	E	E	E	E	2.0	2.7	2.7	A	A	B	3.5	A	B	5.0	3.5	3.0	3.1	2.7	2.7	2.4	2.0	2.2	2.4
25	1.6	2.0	2.0	2.2	2.2	2.4	2.8	2.8	3.5	3.2	4.2	4.2	4.2	4.2	(4.4) ^A	4.2	2.8	3.5	2.0	2.0	A	A	A	1.4
26	2.4	C	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	2.6	2.2	2.2	2.2
27	1.5	E	E	E	E	1.5	2.5	3.1	3.3	3.4	(4.0) ^A	4.7	A	A	4.4	(5.2) ^A	3.7	3.7	3.7	0	0	0	0	0
28	C	C	C	C	C	C	C	C	C	3.5	4.5	4.7	4.6	3.7	4.0	3.3	2.8	2.7	3.2	2.0	1.6	1.6	1.6	1.6
29	1.4	E	E	E	E	1.3	2.2	2.9	3.3	5.0	4.0	5.0	4.7	4.5	3.6	3.2	2.8	2.6	2.6	2.2	2.0	2.0	1.8	1.8
30	2.0	2.0	2.8	2.0	2.0	2.0	3.0	3.2	3.4	4.7	2.0	3.7	3.6	3.6	3.6	3.2	3.4	2.7	2.3	2.0	1.5	1.5	1.5	1.5
31																								
Mean Value	1.6	1.5	1.8	1.7	1.6	1.9	2.4	3.1	3.6	4.1	4.1	4.1	4.1	4.0	4.1	3.5	3.1	2.8	2.3	2.1	1.9	1.8	1.6	1.7
Median Value	1.4	1.2	1.4	1.2	1.2	2.0	2.3	2.9	3.5	3.8	4.2	4.4	4.2	4.0	4.1	3.3	2.8	2.4	2.1	2.0	1.8	1.7	1.5	1.5
Count	2.0	1.8	1.9	1.8	1.9	1.8	1.9	1.7	1.5	1.6	2.0	2.2	2.1	2.0	2.3	2.4	2.6	2.5	2.4	2.2	2.0	2.0	1.8	1.5

fminF

Sweep 1.0 Mc to 15.5 Mc in 2 min Manual Automatic

W 10

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

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

f_{min}E

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	E	E	E	E	E	B	1.8	B	B	B	B	B	B	1.5	1.5	1.5	E	E	E	E	E	E	E	
2	E	E	E	E	E	E	B	1.4	1.5	1.8	1.8	1.3	1.8	1.8	1.8	1.5	1.5	S	E	S	S	S	S	S	
3	E	E	E	E	E	E	B	[1.4] ^B	1.4	1.7	2.0	E	E	E	E	2.0	1.6	1.6	[1.6] ^S	1.6	E	E	S	S	
4	E	E	E	E	E	E	B	1.6	1.8	[1.6] ^B	1.5	[1.8] ^B	2.2	B	B	B	1.8	C	C	C	C	E	E	S	
5	E	E	E	E	E	E	B	SB	B	M	B	B	B	B	B	B	B	B	B	1.4	E	S	S	S	
6	E	E	E	E	E	E	B	1.3	1.2	B	B	B	B	B	B	B	1.8	E	1.8	E	S	S	S	S	
7	E	E	E	E	E	E	B	1.8	E	B	B	B	2.0	[2.1] ^B	2.2	1.8	1.5	1.8	E	M	E	E	E	E	
8	E	E	E	E	E	E	B	1.8	[1.8] ^B	1.8	1.8	[1.9] ^B	2.0	B	B	1.8	B	C	E	S	E	E	E	E	
9	E	E	E	E	E	E	B	1.8	E	E	B	1.2	B	B	B	B	B	B	E	S	E	E	E	E	
10	E	E	E	E	E	E	C	C	C	B	2.2	C	C	C	B	B	1.8	E	S	E	E	E	E	E	
11	E	E	E	E	E	E	C	C	C	B	M	B	B	B	M	B	B	M	M	M	M	M	M	M	
12	M	M	M	M	M	M	M	M	M	M	M	2.0	1.8	B	B	1.8	2.0	1.6	S	S	1.8	E	E	S	
13	S	S	S	S	S	S	S	S	S	S	C	B	2.1	2.0	[1.8] ^S	1.6	1.8	1.5	E	E	E	E	E	E	
14	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	1.8	1.4	1.4	E	E	E	E	E	E	
15	C	C	C	C	C	C	C	C	C	C	B	3.4	2.0	[2.4] ^S	3.1	1.9	2.0	2.4	2.0	E	S	S	S	S	
16	E	S	S	S	S	S	1.4	B	B	B	C	C	2.0	2.0	2.1	2.0	B	B	1.5	1.5	E	C	C	C	
17	C	C	C	C	C	C	C	C	2.2	C	C	C	C	C	C	2.1	2.0	[2.0] ^B	2.0	C	E	E	1.4	S	
18	C	C	C	C	C	C	C	C	C	C	2.6	2.3	[2.2] ^S	2.2	[2.2] ^S	2.2	2.3	1.4	1.4	1.4	E	E	E	E	
19	C	C	C	C	C	C	B	1.8	1.6	1.8	2.0	2.1	2.2	3.1	2.2	2.5	1.4	2.0	1.5	1.5	1.5	1.5	1.5	E	
20	E	E	E	E	E	E	2.2	2.4	2.5	2.0	2.0	2.4	2.0	[2.1] ^B	2.2	2.2	C	C	C	C	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	2.3	2.2	[2.3] ^C	2.4	2.2	B	E	1.6	C	C	C	C	
22	E	E	E	E	E	E	2.2	2.5	2.2	4.6	2.6	2.7	2.4	2.7	[2.3] ^S	2.4	2.2	2.3	1.5	1.5	1.5	1.5	1.5	C	
23	C	C	C	C	C	C	1.4	2.8	2.4	2.2	2.2	2.6	2.3	2.3	2.3	2.3	2.2	B	E	1.4	1.3	1.4	1.4	1.4	
24	E	E	E	E	E	E	1.5	2.1	2.4	2.4	2.2	2.4	2.4	3.0	2.4	2.2	2.0	1.9	2.4	2.0	E	E	E	E	
25	E	E	E	E	E	E	1.4	[2.0] ^B	2.6	2.2	2.3	2.2	2.4	2.2	2.2	2.2	2.1	2.2	E	2.0	1.4	1.4	1.4	1.9	
26	1.4	C	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	1.7	E	E	E	E	C	
27	E	E	E	E	E	E	1.2	2.8	2.2	2.4	2.6	2.3	2.2	2.3	2.3	2.3	2.2	1.7	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	2.3	2.4	2.8	2.4	2.3	2.3	2.4	2.3	1.5	1.6	E	1.5	E	E	E	
29	E	E	E	E	E	E	1.5	2.2	2.4	2.3	(2.1) ^S	2.8	2.0	2.2	2.4	2.4	1.4	B	S	2.3	2.0	2.2	E	E	
30	E	E	E	E	E	E	1.2	1.4	2.4	2.3	2.2	2.2	2.2	2.2	1.6	1.5	1.5	1.5	2.0	E	E	E	E	E	
31																									
Mean Value	1.4	1.2	—	—	—	1.2	1.7	1.9	2.1	2.2	2.2	2.3	2.1	2.3	2.2	2.0	1.9	1.8	1.8	1.7	1.6	1.6	1.4	1.6	
Median Value	E	E	E	E	E	E	1.4	1.8	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	1.9	1.6	1.4	1.4	E	E	E	E	
Count	21	19	19	18	18	18	12	17	17	15	16	18	21	18	19	22	22	18	23	20	24	18	21	14	

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual Automatic

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

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

Apr. 1953

f_oF₂

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	4.2	3.8	3.6	2.8 ^F	2.7 ^F	4.3	4.8	5.8	6.4	8.3	7.0	8.0	7.3	7.5	7.5	7.0	5.6	5.8	5.0	5.7	4.6	4.4	4.4	4.4 ^F	
2	4.4 ^F	4.6 ^P	4.4	3.0	3.6	3.5 ^F	4.6	5.5	5.6	6.8	7.3	8.5	8.5	7.5	7.6	8.1	7.1	6.2	6.0	5.4	4.4	3.8 ^P	3.6	3.6	
3	4.0	3.8	3.5	3.7	3.4	3.5 ^F	4.9	6.2	6.6	[7.0]	7.3	(6.8) ^P	T	8.1	8.9 ^P	[7.6]	6.4	[6.4]	6.5	6.0	5.5	3.6	3.6	3.6	
4	A	4.0	4.1 ^{VF}	4.1 ^F	4.0 ^F	3.9	5.0	5.7	5.9 ^P	6.5	7.0	8.2	9.6 ^P	10.3	10.5	9.8	7.3	6.4	(6.2) ^P	5.4	(5.8) ^A	(4.7) ^P	4.7 ^P	4.5	
5	4.6	4.6 ^P	4.5 ^F	4.2	3.7	3.6	5.5	6.0 ^P	7.6	8.2	8.1	8.4	8.4	8.0	7.5	7.6 ^P	7.0	6.6	6.9	(5.7) ^F	4.5	(4.0) ^F	4.0 ^F	4.2	
6	4.2	4.2	3.7 ^F	3.8 ^F	3.3 ^F	3.6 ^F	5.0	5.6	6.2	7.0	7.8	M	M	8.0	7.9	7.5	7.1	7.2	7.5	5.5	4.3 ^F	4.1 ^F	4.5	4.5 ^F	
7	4.7	4.5	4.3	3.9 ^F	4.0	4.0	5.5	5.7	[6.2]	6.8	6.5	7.5	7.6	8.2	8.5 ^F	7.9	7.2	7.7	6.7	5.5	4.3	F	F	4.4 ^F	
8	F	F	3.5 ^F	3.5 ^F	3.5 ^F	4.7	5.4	5.7	6.2	6.6	8.0	8.5	8.0	8.2	7.9	7.1	6.5	6.7	6.7	7.2	6.1 ^F	5.4	4.8	4.8	
9	4.8	4.7 ^F	4.7	5.0	3.6	3.4 ^F	4.8	5.2	C	C	C	C	C	C	C	C	C	6.8	7.0	5.9	4.7	4.9 ^P	4.6 ^F	4.9	
10	4.4 ^{VF}	4.4	4.4 ^F	4.1 ^F	3.6 ^F	3.9 ^F	4.9	5.7	6.4	M	M	6.9	7.8	7.8	8.5	M	M	M	6.3 ^F	6.5	5.3	5.0 ^F	T	T	
11	T	4.6 ^F	4.1 ^F	4.1	4.3 ^F	4.3	5.2	5.9	6.8	8.5	8.2	7.2	6.8	7.6	7.2	6.0 ^F	6.9	7.5	7.4	7.4	5.7	3.4 ^F	F	3.6 ^F	
12	3.5 ^F	3.5 ^F	3.5 ^F	3.4 ^F	4.2	4.3	4.2	5.3	5.4	6.2	6.8	7.5	7.6	7.8	7.0	6.5	6.5	5.9 ^P	6.0	6.5	5.5	5.2	4.6	4.1	
13	4.3 ^F	4.1 ^F	4.3 ^F	4.0	3.4	3.4	4.6	5.1	5.5	6.2	6.8	7.5	6.9	6.5	7.0	7.1	7.5	6.1 ^F	5.3	5.0	4.8	4.8	4.5	4.2	
14	4.0	3.8	4.1	3.5	3.4	3.4	4.6	5.6	6.5	6.8	6.5	6.6	6.5	7.0	6.4	6.7	5.8	6.5	6.4	6.2 ^F	(4.9) ^P	3.4	3.6	3.6	
15	3.7 ^F	4.0	3.9	3.6 ^F	3.6 ^F	3.3 ^F	4.2	5.0	5.6	5.5	(6.2) ^P	5.6	(6.1) ^P	6.9	6.2	(6.0) ^F	5.5	5.2	4.9	4.6	(4.9) ^P	4.6	4.3	4.0	
16	4.0 ^F	(4.0) ^F	4.0 ^F	3.6 ^F	3.6 ^F	3.1	4.4	5.1	(5.8) ^P	5.2	5.9 ^P	5.6	(6.1) ^P	7.5	8.1	8.0	8.0	5.9 ^P	5.9 ^F	5.8 ^F	3.3	3.2	3.4	3.4 ^F	
17	3.4 ^F	3.3 ^F	3.5 ^F	3.3 ^F	3.1 ^F	3.5	4.0	3.9 ^K	4.0 ^K	4.3 ^K	5.2 ^K	B ^K	B ^K	B ^K	B ^K	5.1 ^K	5.5 ^K	5.0	5.0	5.6	4.6	3.2	3.9	3.8 ^P	
18	3.8 ^F	3.8 ^F	3.9 ^P	[3.3]	2.7	3.2	3.9	4.5	5.0	5.5	5.5	7.0	5.6	5.5	T	T	6.0 ^F	5.9 ^P	5.5	5.8	5.3	4.5	4.0	3.8	
19	3.8	3.7	3.8	4.0	3.5	3.7	5.2	5.4	5.0	(5.4) ^F	5.7 ^P	5.7	(6.3) ^P	6.6	7.0	6.8	7.5	7.1	8.6	6.5	4.8	(4.4) ^F	4.1 ^F	3.6 ^F	
20	[3.6]	3.5 ^F	3.6 ^F	2.8 ^F	2.8 ^F	3.3 ^F	A	A	A	A	5.7 ^F	5.7	7.2	[6.4]	5.6	(6.0) ^F	6.5	5.7 ^F	(6.0) ^F	6.7 ^F	5.7	4.8	3.6 ^F	F	
21	3.5 ^F	3.6 ^F	3.6 ^F	F	A	A	4.5	A	A	A	A	A	A	7.1	6.3 ^J	(6.2)	6.2 ^J	(6.0)	6.6	6.2	5.6	4.5 ^F	4.1 ^F	3.4 ^F	
22	3.5 ^F	3.5 ^F	3.9 ^F	3.5 ^F	2.9 ^F	(3.9) ^F	4.6	4.7	4.8 ^J	A	A	A	A	5.5	5.9 ^P	6.2	5.3	5.2	5.3	(5.3) ^J	5.3	A	AF	A	
23	4.0 ^F	3.4 ^F	3.2 ^F	[3.2]	3.2 ^F	3.3	A ^K	A ^K	A ^K	4.7 ^K	5.5 ^K	5.8 ^K	5.6 ^K	(6.0) ^K	5.4 ^K	5.9 ^K	6.6	(5.8)	5.8	5.9	4.9	4.5 ^F	(4.2) ^F	4.1 ^F	
24	F	F	F	F	2.9 ^F	3.4 ^F	3.7	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	6.3 ^K	6.5 ^K	(6.4)	6.3	5.8	5.7	5.8	5.1	4.7 ^F	4.4 ^F	
25	4.2 ^F	4.0 ^F	3.9 ^F	3.9 ^F	3.3 ^F	3.8	5.3	5.5	5.3	A	A	A	T	T	7.8	8.0	6.8	6.8	7.2	7.1	5.4	4.7 ^F	4.5 ^F	4.2 ^F	
26	3.7 ^F	4.0 ^F	3.9 ^F	3.6 ^F	3.5 ^F	3.7 ^F	5.4	5.6	6.2	6.0 ^J	6.5	6.6	6.7	6.7	6.7	7.0	6.9	7.0	8.0	8.1 ^F	7.0	5.8	5.0	4.5	
27	4.1	3.8	3.8	3.7	4.0	4.5	5.8 ^P	5.4	6.2 ^H	[6.4]	6.5	6.6	7.5	7.2	7.5	[7.5] ^F	7.5 ^F	(7.4) ^F	7.2	A	A	(5.8)	[5.2]	4.5	
28	4.4 ^F	A	A	A	A	4.4	4.8 ^P	A	A	5.5	5.8	6.0	6.8	7.5	8.1	7.8	6.8	6.8	5.8 ^P	6.0	6.8	6.3	6.1	5.5	5.1
29	4.9	F	4.8	5.0 ^F	4.4	[4.6] ^B	4.9 ^J	5.9	5.9	5.6	5.9	6.3	6.5	6.8	7.7	7.0	7.4	6.9	5.9 ^F	6.5	5.1	5.2	4.9	5.1	
30	4.9	4.5	4.4	4.4	4.1	4.2	4.8 ^P	5.2	5.9	6.5	6.7	7.2	6.8	6.5	6.6	7.0	8.1	6.2	5.7	6.2	6.4	6.1 ^F	B	B	
31																									
Mean Value	4.1	4.0	4.0	3.8	3.5	3.7	4.8	5.4	5.8	6.3	6.7	6.9	7.2	7.2	7.2	7.1	6.7	6.3	6.3	6.1	5.2	4.7	4.3	4.2	
Maximum Value	4.0	4.0	3.9	3.7	3.5	3.6	4.8	5.5	5.9	6.4	6.5	6.9	6.8	7.2	7.4	7.0	6.8	6.3	6.1	5.9	5.3	4.6	4.4	4.2	
Count	26	26	28	27	28	29	28	25	25	23	24	23	22	25	28	2.7	28	2.9	3.0	2.9	2.9	2.8	2.5	2.6	

Sweep 0.85 Mc to 2.2 Mc in 2 min

f_oF₂

Manual Automatic

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

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

$f_p F_2$

Apr. 1953

135° E Mean Time

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

Sweep 0.85 Mc in 2.2 min Z min Manual Automatic

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

Lat. 35° 43.5' N
Long. 140° 08.2' E

IONOSPHERIC DATA

A k i t a

Apr. 1953

135° E Mean Time

f'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	280	260	250	230	200	230	250	250	290	330	280	300	300	290	280	270	260	260	240	230	240	270	280	300 ^F	
2	300 ^F	260 ^F	240	240	250	260 ^F	240	250	250	300	310	300	280	280	280	280	270	250	240	250	240	240	300	300	
3	280	260	270 ^F	250 ^F	260	280	240	260	270	240 ^B	300	330	300	320	280	280	280	260	240	250	230	240	350 ^A	380 ^F	
4	390	280	280	250	230	250	240	250	270	300	300	320	350	300	280	270	250	250	A	A	280 ^A	280	300	310	
5	310	300	270	250	290	260	250	270	270	270	280	310	280	300	300	270	280	250	250 ^A	[260 ^A]	260	300 ^A	330 ^F	320	
6	300 ^F	300 ^F	280 ^F	250 ^F	230	260	240	270	280	290	280	M	M	M	M	300	280	270	260	240	290	310 ^F	310 ^F	290	
7	280	280	280	260	240	260	240	240	270	270	270	280	310	310	270	270	270	250	230	230	240	320 ^F	310 ^F	290 ^F	
8	280 ^F	280 ^F	280 ^F	250 ^F	240	250	220	240	280	290	280	300	290	270	280	280	280	280	250	250	240	240	260	280 ^F	280
9	290	290	270	230	220	240	230	240	C	C	C	C	C	C	C	C	C	250	250	240	240	300 ^F	330 ^F	290 ^F	
10	250 ^F	300 ^F	280 ^F	260	280	270	240	250	270	M	M	300	320	300	300	M	M	M	240	240	240	290 ^F	300	300	
11	280 ^F	260	300	250	260 ^F	230	240	250	300	270	270	300	320	300	280	320	280	280	280	230	210	240	320	270	
12	290 ^F	310 ^F	290	280	300	220	220	240	270	320	320	300	300	280	280	280	260	260	250	270	250	260	250	290	
13	280	290	260	230	240	260	240	240	290	300	290	300	310	300	300	290	250	250	240	270	250	260	260	270	
14	290	320	270	230	250	260	250	250	250	270	280	280	320	280	270	270	280	260	240	240	[290 ^A]	340 ^A	310	300	
15	290	260 ^F	250	230 ^F	250	280	240	280	260	310	290	330	330	300	300	290	280	250	250 ^F	270	260 ^F	270	250	300	
16	300 ^F	290 ^F	290 ^F	240	250	250	250	280	280	300	330	330	380	340	300	300	270	250	270	230	250	320	310	320	
17	310 ^F	300	300	260	280	230	250	280 ^K	560 ^K	570 ^K	380 ^K	320 ^K	B ^K	B ^K	310 ^K	300 ^K	300 ^K	270 ^K	280	270	270	320	330	340 ^F	
18	320 ^F	300	250	250 ^F	260	310	280	330	350	290	330 ^A	280	310	330	300	280	280	270	260	250	240	260	260	300	
19	320	300	280	300 ^A	280	220	250	240	260	[270 ^T]	280	330	330	340	300	310	280 ^A	290	250	220 ^A	240	[270 ^A]	300	340 ^F	
20	310 ^F	310 ^F	280 ^F	280 ^F	270 ^F	270 ^F	A	A	A	A	B	A	290 ^B	300	350	310	280	[280 ^A]	290	270	240	270 ^A	320	280	
21	300	310 ^F	290 ^F	220 ^A	A	240	A	A	A	A	A	A	A	300	320	310	[290 ^T]	270	260	[260 ^A]	250	250	250 ^F	280	
22	350	350	300 ^F	250	290 ^F	260	290	320	330	A	A	A	A	380	350	310	290	300	300 ^A	270 ^F	A	A	A	A	
23	300	320 ^F	320 ^F	260 ^F	240 ^F	250	A ^K	A ^K	510 ^K	340 ^K	350 ^K	370 ^K	340 ^K	340 ^K	390 ^K	360 ^K	300	280	250	250	250	300 ^F	320 ^F	A	
24	F	250 ^F	300 ^F	300 ^F	320 ^F	270	280	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	A ^K	350 ^K	270	280	250	240	240	210 ^F	270	290	
25	320	310	290	260	270	270	260	270	290	A	A	A	340	320	300	270 ^A	280	280	270 ^A	250	240	260 ^F	260 ^F	310 ^F	
26	310 ^F	310 ^F	290 ^F	280	240	250	260	280	280	300	[320 ^T]	330	330	320	320	290	300	310	280	240 ^A	230 ^A	240	[240 ^A]	250	
27	300	320 ^A	320	290 ^F	270	260	250	240	[280 ^H]	320	300 ^A	[320 ^T]	330	340	330	300	280	A	A	390	[360 ^A]	330	[320 ^A]	320	
28	370	[350 ^A]	330 ^A	A	A	250	250	A	A	A	350	380	350	350	300	290	280	270	260	270	250	250	270	320 ^A	
29	280	310 ^F	260	250	250	250	250	270	280	[310 ^L]	340	350	350	350	300	290	290	260	250	250	250	300	300	300	
30	290	300	300	250	230	220	250	[280 ^L]	300	300	320	310	320	340	340	320	270	260	270	[250 ^H]	270 ^F	270	310	280	
31																									
Mean Value	300	300	280	250	260	250	250	260	300	310	310	320	320	310	310	290	280	270	260	250	250	280	290	300	
Median Value	300	300	280	250	250	260	250	250	280	300	300	310	320	310	300	290	280	260	250	250	250	270	270	300	
Count	29	30	30	29	28	29	28	25	25	22	23	23	24	26	29	28	28	28	28	28	29	29	29	28	

Sweep 0.55 Mc to 2.2 Mc in 2 min

Manual

Automatic

A 3

f'F2

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

IONOSPHERIC DATA

Akita

Lat. 39° 48.5' N
Long. 140° 08.2' E

Apr. 1953

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	3.9	4.4	4.4	4.6	4.5	4.4	4.4	4.0	3.5	L						
2							2.4	Q	LH	4.4 ^L	4.5	4.5	4.6	4.5	4.5	4.2	3.9 ^L	Q						
3							Q	(3.6) ^L	4.0	B	4.5 ^H	4.5	4.2	4.5	4.1	4.0	L	(2.9) ^L						
4							Q	Q	4.0	4.5	4.5 ^L	4.6	4.6	4.6	4.5	4.3	3.7	Q						
5							Q	L	4.0	4.3	4.4	(4.6) ^L	4.7	4.5	4.5	4.1 ^L	3.7 ^L	Q						
6							Q	3.7 ^L	4.0 ^L	4.3	4.3	M	M	M	4.5	4.1	4.0 ^L	L						
7							Q	Q	4.0	4.2 ^L	4.2 ^L	4.5	4.5	4.5	4.3	4.1	[3.7] ^L	(3.3) ^L						
8							Q	L	4.2	4.2	4.5	4.6	4.2	4.5	4.3	4.2	3.8	Q						
9							Q	3.1	C	C	C	C	C	C	C	C	C	Q						
10							Q	3.5 ^L	3.9	M	M	B	4.5	4.4	4.5	M	M	M						
11							Q	Q	4.4	4.3	4.4	4.4 ^L	4.5	4.3	4.3	4.5	3.6 ^L	3.4 ^L						
12							Q	Q	L	4.4	4.5	4.5	4.4	4.2	4.3	4.0	3.5	Q						
13							Q	Q	4.2	4.2	4.3	4.4	4.4	4.4	4.3	4.0	3.6 ^H	(3.1) ^L						
14							Q	Q	4.0	4.1	(4.2) ^L	4.3	4.5	4.2	4.3	3.9	3.7 ^L	L						
15							Q	3.5 ^L	3.9	4.0	4.0	4.3	A	A	A	4.0	3.6	Q						
16							Q	A	3.8	4.0	4.2	4.3	4.3	4.1	4.0	4.0	3.6	L	L					
17							Q	Q	3.7	3.7	4.0 ^A	B	B	B	3.9	3.6	L							
18							L	3.5	4.0	A	A	4.2	4.5	4.2	4.1	4.0	3.8	3.5 ^L						
19							Q	3.5 ^L	3.6 ^L	(3.9) ^L	4.2	4.2 ^L	4.4	4.5	4.2	A	A	Q						
20							A	A	A	A	A	A	A	4.1	(4.0) ^A	4.0 ^A	A	A						
21							Q	A	A	A	A	A	A	4.2	4.2	4.1	3.5 ^H	3.0 ^L						
22							3.4 ^A	(3.9) ^L	4.4	A	A	A	A	4.2	4.0	4.0	Q	Q						
23							A	A	4.0	[4.1]A	4.2	4.3	4.3	4.3	4.2	4.0	4.0	3.3						
24							Q	A	A	A	A	A	A	A	A	4.5	4.2	L						
25							Q	3.8 ^L	4.0	A	A	A	4.6	A	A	T	A	3.9 ^L	3.6 ^L					
26							2.0	A	4.2	4.4 ^B	(4.5) ^L	4.6	4.6	4.5	4.5	4.3	4.0	3.7	(2.8) ^L					
27							3.4 ^L	3.6 ^L	(4.6) ^L	4.5	A	A	S	4.6	4.5	4.4	A	A						
28							Q	A	A	4.5 ^A	4.7	4.6	4.5	4.4	4.4	4.2	4.0	A						
29							2.9	3.9	4.0	[4.2]L	4.5	4.6	4.6	4.5	4.4	4.3	4.0	A						
30							Q	L	4.2	4.5	4.6	4.6	4.7	4.7	4.7 ^H	4.4	4.0	3.4						
31																								
Mean Value							2.0	3.0	3.6	4.0	4.3	4.4	4.5	4.4	4.3	4.1	3.8	3.3	2.8					
Median Value							2.0	3.2	3.6	4.0	4.3	4.4	4.5	4.4	4.3	4.1	3.7	3.4	2.8					
Count							1	4	11	22	20	21	20	21	24	26	23	10	1					

Sweep 0.85 Mc to 2.2 Mc in 2 min Manual Automatic

A 4

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

Lat. 39° 43.5' N
Long. 140° 08.3' E

Akita

IONOSPHERIC DATA

R'F1

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q	Q	250	230	220	240	[240] ^A	230	230	220	240	240						
2							230	Q	240 ^H	230	230	220	220	220	240	210	250	Q						
3							Q	260	240	B	240 ^H	240	230	200	220	240	250	240						
4							Q	Q	Q	250	250	290	230	250	230	250	240	Q						
5							Q	250	230	250	230	[230] ^T	230	220	240	250	240	Q						
6							Q	240	240	250	270	M	M	M	250	240	240	230						
7							Q	Q	260	240	220	230	230	220	A	A	240	250						
8							Q	230	240	220	240	210	220	210	230	230	230	Q						
9							Q	240	C	C	C	C	C	C	C	C	C	Q						
10							Q	240	240	M	M	B	230	220	250	M	M	M						
11							Q	Q	250	250	260	[230] ^A	200	250	270	240	230	260						
12							Q	Q	220	220	240	[260] ^A	270	230	260	250	250	Q						
13							Q	Q	250	240	240	220	210	220	220	240	240 ^H	240						
14							Q	Q	250	230	220	210	240	240	260	240	260	240						
15							Q	250	240	280	220	A	A	A	A	230	250	Q						
16							Q	A	250	260	250	220	200	[220] ^A	250	[250] ^A	250	250	270					
17							Q	Q	250	240	A	B	B	B	290	220	250	250						
18							250	250	A	A	A	250	220	210	200	250	240	250						
19							Q	250	[240] ^T	230	240 ^A	240	[240] ^T	250	A	A	Q	Q						
20							A	A	A	A	A	A	A	A	A	A	A	A						
21							Q	A	A	A	A	A	250	[240] ^A	240	240 ^H	240	240						
22							A	A	A	A	A	A	A	250	250	Q	Q	Q						
23							A	A	A	A	260 ^A	[260] ^A	260 ^A	[230] ^A	200	[220] ^A	250	250						
24							Q	A	A	A	A	A	A	A	220 ^A	260	240	240						
25							Q	250	270	A	A	A	230 ^A	A	T	A	A	A						
26							230	A	250	[230] ^A	220	220	220	220	220	230	220 ^A	250 ^A	A					
27							240	230	230	250	A	A	S	210	290	270	A	A						
28							Q	A	A	A	340	270 ^A	210	220	230	250	270	A						
29							200	250	230	250	240	240	260	250	250	260	A	A						
30							Q	250	270	A	A	210	220	250	220 ^H	250	270	A						
31																								
Mean Value							230	250	250	240	240	240	230	230	240	240	240	250	270					
Median Value							230	240	240	240	240	240	230	230	240	240	240	240	250	270				
Count							4	13	21	18	19	19	21	23	25	24	22	14	1					

R'F1

Sweep 5.85 Mc to 2.2 Mc in 2 min
 Manual Automatic

A 5

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

Lat. 39° 43.5' N
Long. 140° 08.5' E

Akita

IONOSPHERIC DATA

f_oE

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						1.8	2.2	2.3	2.8	3.0	3.2	3.2	2.9	3.2	3.0 ^F	2.8	2.5	2.0						
2						1.7	2.4	2.7	2.7	3.0	3.2	3.1	A	A	3.1	2.9	2.5	2.1						
3						1.6	2.4	2.7	2.9	3.0	3.1	3.2	3.2	3.2	(2.8 ^F)	2.5	2.2							
4						A	2.4	2.7	3.0	3.2	3.3	3.1	(3.0 ^F)	3.0	3.0	2.6	2.2							
5						1.6	2.4	2.7	3.0	3.1	3.2	3.4	3.2	3.1	A	A	A							
6						B	2.5 ^F	2.8 ^F	3.0	3.1	M	M	M	M	3.2	3.0	2.5	2.3						
7						1.6	2.3	2.8	3.0	3.1	(3.1 ^F)	3.1	2.8	A	A	3.0	2.6	A						
8						1.8	2.3	2.7	3.0	3.1	3.3 ^F	3.2	3.2	3.0	3.0	2.7	2.2 ^F	1.4 ^F						
9						1.8	2.4	C	C	C	C	C	C	C	C	C	C	1.8						
10						1.8	2.4	2.8	M	M	M	3.3	3.3	3.3	3.3	M	M	M						
11						2.0	2.5	2.8	3.0	3.0	A	A	A	A	A	2.9	2.6	2.3						
12						1.8	2.5	2.8	2.9	3.0	3.0	3.0	3.2 ^B	3.0	3.0	3.0	2.5	2.2						
13						2.0	2.5	2.8	2.8	2.7	(2.8 ^F)	3.0	3.1	3.0	3.0	(2.6 ^A)	2.2							
14						2.0	2.5	2.7	2.9	3.0	3.1	3.2	3.2	3.2	3.0	2.8	2.6	2.2						
15						1.8	2.5	2.7	3.0	3.0	3.0	3.0	3.0	2.8	2.8	2.5	2.2							
16						1.9	2.5	2.7	2.9	3.1	3.2	3.2	3.0	3.0	3.0	2.8	2.7	2.3 ^F	1.7 ^F					
17						1.9 ^F	2.4	2.7	2.8	3.0	A	A	A	A	3.0	2.8	2.5	2.2						
18						1.8	2.4	2.6	2.8	2.8	2.7	3.1	3.0	3.0	3.0	2.8	2.7	2.3						
19						A	2.6 ^A	2.9	3.0	3.0	3.2	3.0	3.2	3.0	3.0	2.8	2.6	A						
20						1.8	2.3	2.7	2.9	2.9	3.0	2.9	2.9	2.9	2.6 ^B	A	A	A						
21						2.0 ^A	2.5	2.7	2.8	2.9	3.0	A	A	A	3.0	2.9	2.5	2.4						
22						2.0	2.5	2.7	3.0	3.1	3.2	3.2	3.2	3.2	3.0	2.8	2.6	2.2						
23						1.8	2.6	2.7	3.0	3.2	3.2	3.2	3.3	3.3	3.2	3.0	2.6	A						
24						2.2	2.5	2.8	3.0	3.1	3.0	3.0	3.0	2.8	2.8	A	A	A						
25						1.9	2.5	(2.8 ^F)	3.1	3.3	3.3	3.3	3.3	3.3	3.2	3.0	2.7	A						
26					0.9	2.3	2.7	2.9	3.0	3.2	3.2	3.4	3.4	3.2	3.0	2.7	2.3							
27						2.3	2.7	3.0	3.0	3.0	3.3	3.2	(3.0 ^F)	2.9	3.0	2.8	2.4							
28						2.1 ^A	2.7	3.0	3.1	3.0	3.1	A	A	A	3.2	3.0	2.7	2.3						
29						2.2	2.8	3.0	3.2	3.3	3.4	A	A	A	3.2	3.2	2.8	A						
30					B	2.2	2.6	3.0	3.3	3.3	3.3	3.2	3.2	3.2	(3.2 ^F)	3.1	2.8	2.4	1.8					
31																								
Mean						1.9	2.5	2.8	3.0	3.1	3.1	3.2	3.1	3.0	2.9	2.6	2.2							
Median						1.9	2.5	2.8	3.0	3.1	3.2	3.2	3.2	3.0	3.0	2.6	2.2							
Value						1	30	29	28	28	26	22	22	22	27	24	25	21						
Count																								

Sweep Manual Automatic

A 6

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

IONOSPHERIC DATA

Lat. 39° 43.6' N
Long. 140° 08.3' E

Akita

Apr. 1953

f'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						150	120	110	110	110	110	110	110	110	110	110	120	120						
2						160	120	110	110	110	110	120	A	A	130	130 ^A	110	130						
3						B	120	110	110	110	110	110	120	110	110	110	110	130						
4						A	110	110	110	110	110	110	(110 ^A)	(110 ^A)	110	110	120	110						
5						B	110	110	110	110	110	110	(110 ^A)	110	110	A	A	A						
6						B	120	(120 ^A)	110	110	M	M	M	M	110	110	110	130						
7						140	120	110	110	110	(110 ^A)	110	110	110	A	A	110	A						
8						130	110	110	110	110	110	110	110	(110 ^A)	110	110	120	120 ^F	β					
9						140	120	C	C	C	C	C	C	C	C	C	C	130 ^A						
10						130	120	110	M	M	110	110	110	110	110	M	M	M						
11						130	110	110	110	110	110	A	A	A	A	110	120	120						
12						130	110	110	110	110	110	110	110	110	110	110	110	120						
13						130	110	110	110	110	(110 ^A)	110	110	110	110	110	(110 ^A)	110						
14						130	110	110	110	110	120	110	120	110	110	110	130	130						
15						130	120	110	110	110	110	110	110	110	110	110	110	130						
16						130	120	110	110	110	110	110	110	110	110	110	120	120	β					
17						130	110	110	110	110	110	A	A	A	A	110	120	120						
18						130	120	110	110	110	110	110	110	110	110	110	110	130						
19						A	A	120	110	110	110	110	110	110	110	110	120	A						
20						130	110	110	110	110	110	110	110	110	110	110	A	A						
21						A	110	110	110	110	110	110	(110 ^A)	110	110	110	120	130						
22						120	120	110	110	110	110	110	110	110	110	110	120	120						
23						120	120	110	110	110	110	110	110	110	110	110	110	A						
24						120	110	110	110	110	110	110	110	110	110	A	A	A						
25						120	110	(110 ^A)	110	110	110	110	110	110	110	110	110	A						
26						130	120	110	110	110	110	110	110	110	110	110	120	120						
27						120	120	110	110	110	110	110	110	110	110	110	110	120						
28						A	110	110	110	110	110	110	110	(110 ^A)	110	100	100	120						
29						110	110	110	110	110	110	110	A	A	110	110	110	A						
30						110	110	110	110	110	110	110	120	110	(110 ^A)	110	110	110	130					
31																								
Mean						120	130	110	110	110	110	110	110	110	110	110	110	120	130					
Median						120	130	110	110	110	110	110	110	110	110	110	110	120	130					
Value						2	23	29	29	28	28	26	24	24	27	24	25	21						
Count																								

f'F₂

Sweep 5.85 Mc to 22. Mc in 2 min

Manual Automatic

A 7

Lat. 39° 43.5' N
Long. 140° 08.3' E

Akita

IONOSPHERIC DATA

135° E Mean Time

fEs

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	23	23	E	E	2.0	G	G	G	3.5	G	3.6	4.9	G	G	G	3.7	G	28Y	20Y	E	E	E	E	
2	E	17	23	20	22	2.1	22Y	G	G	G	3.6	G	4.1	4.0	3.6	3.5	G	2.4	2.6	2.4	2.0	E	E	E	
3	E	E	E	E	2.3	2.3	2.3	G	G	G	G	G	3.5	G	G	3.6	G	G	1.6	2.4	4.5	2.4	3.5	5.5	
4	4.4	E	E	2.0	2.3Y	2.5	2.9	G	4.0	5.0Y	4.5	G	4.5	G	G	G	3.5	4.5	5.6	6.5	5.5	4.5	2.0	2.0	
5	2.8	1.7	2.0Y	2.4	2.2	2.1	G	G	3.4	G	G	G	3.5	G	5.4	5.0	3.6	3.6	5.0F	6.7F	4.2F	3.8F	3.5F	3.5	
6	3.5	3.2F	2.4	2.8	2.2	2.3	2.8	3.1	3.5	3.6	G	M	M	M	G	3.5	3.5	3.1	3.0	4.5	3.0	3.0	4.0	2.3	
7	2.0	E	E	E	E	E	G	2.8	3.3	3.5	4.5	4.1	4.1	3.5	4.8	7.2Y	3.5	5.2	3.5	3.0F	4.0F	E	2.2Y	2.3F	
8	2.3	2.3	2.1	2.2	E	E	G	2.9	3.5	G	G	G	G	G	G	G	G	G	G	E	2.1F	2.3	E	2.0	
9	2.2	E	2.0	2.0	E	E	2.9Y	G	C	C	C	C	C	C	C	C	C	1.8	3.0	2.5F	2.8	2.8	2.0Y		
10	E	E	2.0	2.3	2.4	E	G	G	G	M	M	G	G	G	G	M	M	M	2.3	2.3	2.4	E	2.3	2.2	
11	2.1	E	E	E	E	E	G	2.3	G	G	4.3	3.6	4.3	4.1	3.8	G	3.5	G	2.5	2.3	2.1	E	2.5	2.1	
12	3.5	4.3	2.3Y	2.1Y	E	E	G	G	G	3.5	4.6	5.0	G	G	4.0	4.5	6.0	5.0	3.0	5.5	3.5	4.5	2.3F	2.5	
13	2.3F	2.2Y	2.0Y	1.9	E	E	G	G	G	G	4.5	3.1	G	G	G	G	3.1F	2.3	2.3	2.1	E	E	E	E	
14	E	E	E	E	E	E	2.7Y	G	G	G	G	3.4	G	3.5	G	G	G	3.5F	2.9	2.1	3.5	5.5	3.7	2.8	4.5
15	3.9	3.8	E	2.3	E	E	G	G	G	G	4.2	4.2	5.2	6.5	5.5	4.3	G	3.5	G	4.2	3.1	3.0	2.6	E	E
16	E	E	E	2.3	E	E	G	4.5	G	G	G	G	G	4.7	4.5	4.3	G	G	G	2.9	3.0	2.7	2.8	E	E
17	2.4F	1.9	2.2	2.3	2.2	E	3.8	4.0	G	G	5.1	3.5	3.4Y	3.5Y	G	G	G	3.5	3.5	3.5	3.3	2.5	3.6	3.1	
18	3.5	2.8	2.3	2.3F	2.3	2.3	G	3.5	4.5	5.3	5.5	4.5	3.4	G	3.5	G	G	G	3.0	3.0	2.3	2.4	2.1	2.1	
19	2.0	E	E	3.7	3.3	2.3	3.0	3.5	G	T	G	5.5	4.6Y	G	G	5.5	6.0	4.2	5.6	5.5	3.0	5.5	3.9	1.9	
20	1.8	1.7	E	E	E	2.4	7.2	5.9Y	9.5	8.5	5.0	6.4	4.3	5.2	4.2	4.3Y	5.1	5.6	4.5	3.2	2.9	4.5	3.5	2.4	
21	2.3	E	2.3	2.8	6.5F	5.5F	4.4	8.0	1.05	1.65Y	1.62Y	1.64	1.25Y	4.3	4.5	3.0	2.9	G	3.2	5.0	3.5	2.1	3.0	2.3Y	
22	3.5	2.9	3.0Y	E	E	2.1Y	4.4	4.5	5.0	8.0	5.7	4.6	7.3	5.0	4.8	G	4.2	4.5	4.7	3.4	5.5	5.6	3.8	5.6	
23	4.3	3.5	2.2	2.2	E	2.2	4.3	4.5	4.6	5.1	4.6	4.7	4.6	4.4	G	G	3.6	3.5	3.2	2.4	3.1	4.4	4.5F	4.3F	
24	4.7	3.0	2.5	2.8	3.7	1.8	3.5	5.6	5.6	7.1	7.3	7.8	6.6	9.6Y	4.2	4.2	3.6	3.3	1.8	2.1F	2.3	3.1F	2.4	2.9	
25	3.1	2.3	E	2.3	3.5	2.3Y	G	3.5	3.7	6.6	6.5	6.6	4.2	5.5	T	6.6	4.5	4.6	5.6	4.9F	2.7F	4.2F	9.6	4.5F	
26	3.6	3.6F	4.1F	3.3	2.8Y	G	4.0	4.5	G	3.7	G	G	G	G	G	G	4.2	3.7	3.4	3.0	3.0	2.3	4.3F	1.8	
27	2.8	2.8	E	E	E	1.7	G	G	G	G	5.2	5.5	S	9.5Y	G	G	4.5	7.5	7.4	5.6	6.5Y	5.5	4.6Y	4.5	
28	5.5	3.5	3.3	3.3	3.2	3.5	2.9	6.6	6.0	5.9	5.2	5.3	4.0	4.0	4.2	4.1	4.5	4.2	3.5	3.5	3.3	3.0	3.3	3.3	
29	2.6	2.8	2.9Y	2.0	2.3	2.3	G	4.3	G	4.5	3.9	5.5	4.5	4.9	G	4.1	4.5	4.5	3.5	3.0	2.6	2.8	2.6	2.1	
30	2.0	E	2.8Y	3.0	2.4	2.2Y	G	G	3.6	4.9	5.0	4.6	G	G	4.1	3.5	G	2.9	2.5Y	3.9	3.2Y	2.3	E	E	
31																									
Mean Value	3.0	2.8	2.5	2.5	2.9	2.4	3.6	4.4	5.1	6.0	5.5	5.4	4.9	5.2	4.4	4.5	4.1	3.9	3.5	3.6	3.4	3.5	3.4	3.0	
Median Value	2.4	2.0	2.0	2.2	2.2	2.2	G	2.8	G	3.5	4.5	4.2	4.1	3.8	G	3.2	3.5	3.3	3.1	3.0	3.0	2.8	2.8	2.2	
Count	30	30	30	30	30	30	30	30	29	27	28	28	27	28	28	28	28	28	29	30	30	30	30	30	30

Sweep 0.85 sec Me to 2.2 Mc in 2 min

Manual Automatic

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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.3' E

A k i t a

Apr. 1953

(M3000)F2

135° E Mean Time

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

Sweep 0.5 to 5 Mc in 2.2 Mc in 2 min
 Manual
 Automatic

(M3000)F2

Lat. 39° 43.5' N
Long. 140° 08.3' E

Akita

IONOSPHERIC DATA

fminF

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.4	1.0	1.0	1.0	E	E	22	27	30	33	33	33	41	34	33	2.9	2.7	2.2	1.5	1.4	1.5	1.4	1.5	1.6
2	1.5 ^F	1.0	E	1.0	1.0	1.0	2.0	27	29	32	33	34	34	34	33	2.9	2.8	2.2	1.8	1.7	1.5	1.5	1.5	1.5
3	1.5	1.0	E	1.1	1.1	1.5	2.2	29	30	40	35	38	42	34	32	3.1	2.9	2.4	1.5	2.3 ^A	2.0 ^A	1.5	2.5 ^A	2.5 ^A
4	2.0 ^A	1.0	1.0	1.0	1.5	1.7	2.2	27	28	30	33	4.0	3.2	3.8	3.3	3.1	2.7	2.3	5.5 ^A	{4.5}	3.5 ^A	1.5	1.5	1.5
5	1.5	1.2	1.0	1.5	1.4	1.4	2.1	27	30	32	34	33	3.5	3.2	3.3	3.4	2.7	2.7	A	A	2.4 ^A	{2.0}	1.6 ^F	1.5
6	1.5	1.5 ^F	1.0	E	E	1.4	2.4	26	32	36	35	M	M	M	3.4	3.4	2.7	2.3	3.0	1.7	2.4 ^A	1.5	1.9	1.5
7	1.4	1.0	1.0	1.1	1.1	1.0	2.2	27	28	32	32	33	33	33	3.8 ^A	3.7 ^A	2.6	2.7	1.8	1.6	1.6	1.5	1.5	1.5
8	1.5 ^F	1.3 ^F	1.1	1.1	E	1.3	2.4	28	28	33	35	34	33	33	3.4	3.2	2.7	2.5 ^F	1.7	1.5	1.5	1.5	1.5	1.5
9	1.5	1.5	1.1	E	E	1.0	2.4	27	C	C	C	C	C	C	C	C	C	1.9	1.9	1.6	1.5	1.6	1.5	1.5 ^F
10	1.5	1.3 ^F	1.1 ^F	1.1	E	1.0	1.9	27	30	M	M	4.5	3.3	3.4	3.3	M	M	1.5	1.5	1.5	1.5	1.5	1.5	1.5
11	1.5 ^F	1.0	1.0	E	E	1.1	2.0	26	28	35	35	33	3.2	3.5	3.2	3.0	2.7	2.5	1.5	1.5	1.4	1.5	1.5	1.5
12	1.5	1.6 ^F	1.1	E	E	E	2.3	26	28	34	33	4.0 ^A	3.5	3.5	3.5	3.5	2.7	2.5	2.2	3.5 ^A	1.5	1.6	1.5	1.5
13	1.5	1.0	E	E	E	E	2.2	27	35	31	30	34	33	32	3.1	3.1	2.7	2.4	1.6	1.5	1.5	1.4	1.5	1.5
14	1.5	1.4	E	E	E	1.4	2.2	26	28	31	33	33	3.5	3.4	3.5	3.1	2.7	2.2	1.5	2.9 ^A	{2.6}	2.2 ^A	1.7	1.6
15	1.5	1.0	E	E	E	1.0	2.3	27	28	35	35	4.0 ^A	4.5	4.9	4.3	2.9	2.9	2.7	1.5	1.6	1.6	1.6	1.5	1.5
16	1.5	1.0	E	E	E	1.6	2.4	35	31	30	32	34	3.4	4.0 ^A	3.5	3.6	2.7	2.5	1.8	1.9	1.5	1.5	1.5	1.5
17	1.5	1.0	E	E	E	1.0	2.5	25	27	30	4.0 ^A	4.5	B	B	3.2	2.8	2.7	2.2	2.8	2.6	2.5	1.7	2.3 ^A	1.5
18	1.5 ^F	1.0	1.5	1.5 ^F	1.5	1.5	2.1	25	37 ^A	40	49	35	3.3	3.3	3.1	3.2	2.8	2.5	2.2	1.7	1.5	1.5	1.5	1.5
19	1.5	1.3	E	2.5 ^A	1.4	2.4	3.0	30	{32}	34	36	36	3.3	3.8	3.4	4.5 ^A	5.5 ^A	3.2	4.0 ^A	{2.8}	1.5	{1.6}	1.6	1.5 ^F
20	1.5 ^F	1.5 ^F	1.5 ^F	1.4 ^F	1.3	1.5	A	A	A	A	6.0	5.2 ^A	4.5	4.1	4.5	4.0	4.2	5.3	3.6	2.4	2.2	3.5	1.5	1.5
21	1.5	1.0	E	E	A	A	2.3	A	A	A	A	A	A	4.0	3.9	3.0	2.7	2.5	2.5	4.5	2.5	1.5	1.6 ^F	1.5
22	1.5	1.6	1.5 ^F	E	E	1.5	3.4 ^A	3.9 ^A	4.1 ^A	A	A	A	A	3.3	3.1	3.3	2.7	2.8	4.3	1.7	3.7 ^A	A	AF	A
23	1.5	1.3	1.0	1.0	1.0	1.6	A	A	3.8 ^A	4.3	3.9	4.0	3.6	3.2	3.2	3.6	3.2	2.7	2.4	1.6	1.5	1.6 ^F	2.5 ^{AF}	AF
24	F	1.5	E	1.5 ^F	1.5	1.5	2.4	A	A	A	A	A	A	A	A	A	3.0	2.5	1.8	1.5	1.5	1.5	1.8	1.7
25	1.5	1.3	1.2	1.3	1.5	1.5	2.4	3.4	3.2	A	A	A	3.8	4.9	5.7	5.5	3.5	3.4	4.5	4.1	1.8	1.5	1.5	1.8 ^F
26	1.5 ^F	1.5 ^F	1.6 ^F	1.7	E	1.5	3.3 ^A	4.0	3.3	3.7	3.7	3.6	3.5	3.5	3.3	3.2	3.5	{3.0}	2.6	A	A	1.5	3.6	1.5
27	1.5	A	E	E	E	1.7	2.5	2.8	3.3	3.7	5.2	5.3 ^A	5.4	3.7	3.8	3.6	3.8	5.2	6.5	3.7	{3.6}	3.6	3.9	2.0 ^A
28	2.6 ^A	{2.6}	2.7	A	A	2.5 ^A	2.7	A	A	5.9 ^A	4.0	4.0	3.5	3.4	3.5	3.2	2.8	3.5	2.4	1.5	3.7	1.5	1.5	2.3
29	1.5	1.5	1.3	1.0	1.4	1.7	2.4	3.2	3.4	3.7	3.4	4.0	4.0	3.8	3.6	3.4	3.5	3.6	2.4	1.8	1.5	1.5	1.5	1.5
30	1.5	1.0	1.0	E	1.5	2.1	2.8	3.2	3.2	4.2	4.2	3.4	3.7	3.7	3.4	3.4	3.2	3.3	2.6	2.6	1.6	1.5	1.5	1.4
31																								
Mean	1.5	1.3	1.2	1.3	1.4	1.4	2.4	2.9	3.1	3.6	3.7	3.8	3.7	3.6	3.5	3.4	3.1	2.8	2.6	2.3	2.0	1.7	1.8	1.6
Median	1.5	1.3	1.0	1.0	E	1.4	2.4	2.7	3.0	3.4	3.5	3.6	3.5	3.4	3.4	3.2	2.8	2.5	2.2	1.7	1.6	1.5	1.5	1.5
Count	29	29	30	28	28	29	28	25	25	23	24	24	24	26	28	28	27	28	29	29	28	29	29	28

Sweep 2.55 Mc to 2.2 Mc in 2 min Manual Automatic

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 09.2' E

Apr. 1953

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	1.7	1.7	E	E	1.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.4	1.5F	1.6	E	E	E		
2	E	1.6	1.6	E	1.1	E	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.6	1.4	1.4	1.4	1.4	1.6	E	E	E	
3	E	E	E	E	1.7	E	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
4	1.5	E	E	1.6	E	E	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	
5	1.5	1.5	1.0	1.0	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5F	1.5	
6	1.4	1.0F	1.0	1.5	E	1.0	1.5	1.5	1.4	1.6	1.6	M	M	M	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	
7	1.6	E	E	E	E	E	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5F	1.5F	1.5F	E	1.6	1.6F	
8	1.6	E	1.1	1.1	E	E	1.5	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.7	1.5	1.5	E	1.5	1.5	E	1.7	
9	1.6	E	1.5	1.7	E	E	1.5	1.5	C	C	C	C	C	C	C	C	C	1.4	1.5	1.5	1.5	1.5	1.5	1.5	
10	E	E	1.5	1.6	1.8	E	1.5	1.5	1.5	M	M	1.5	1.5	1.5	M	M	M	1.1	1.5	1.5	1.5	E	1.5	1.8	
11	1.8	E	E	E	E	E	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.6	1.5	1.5	1.4	1.5	1.9	1.7	E	1.5	1.5	
12	1.5	E	E	1.7	E	E	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.5	1.5	1.6	1.5	1.5	1.5	1.4	1.5	1.4	1.5F	1.5	
13	1.5F	1.0	1.5	1.6	E	E	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.4F	1.4	1.5	1.6	E	E	E	E	
14	E	E	E	E	E	1.7	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.4	1.4	1.5	1.4	1.5	1.5	1.5	1.5	
15	1.4	1.0	E	1.5	E	E	1.5	1.4	1.5	1.4	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
16	E	E	E	1.6	E	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.5	1.3	1.5	1.5	E	
17	1.5F	1.6	1.5	E	1.6	E	1.5	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
18	1.5	1.0	E	1.1	E	E	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.7
19	1.7	E	E	1.0	E	E	1.5	1.4	1.6	1.6	1.6	1.6	1.7	1.7	1.5	1.7	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.6	
20	1.5	1.6	E	E	E	1.4	1.5	1.5	1.5	1.5	1.6	1.7	1.6	1.7	1.7	1.5	1.5	1.4	1.5	1.5	1.5	1.4	1.5	1.9	
21	1.6	E	1.0	E	E	E	1.5	1.5	1.5	1.6	1.5	1.7	1.6	1.6	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.9	1.5	1.6	
22	1.5	1.0	E	E	E	1.0	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.6	1.7	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
23	1.5	1.3	1.5	1.0	E	1.3	1.5	1.5	1.6	1.6	2.9	1.6	1.6	1.8	1.9	1.6	1.6	1.8	1.5	1.5	1.5	1.5	1.5F	1.5	
24	1.5	1.3	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5F	1.5	1.5F	1.5	1.5	
25	1.5	1.5	E	1.3	E	1.4F	1.4	1.3	1.5	1.5	1.6	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5F	1.5F	1.5F	1.5	1.5	
26	1.1	E	E	E	E	E	1.4	1.4	1.5	1.5	1.5	1.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.7	
27	1.0	E	E	E	E	E	1.5	1.5	1.5	1.5	1.7	1.5	1.6	1.5	1.5	1.6	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	
28	1.0	E	E	E	E	E	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
29	1.5	E	E	1.0	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	
30	1.5	E	1.0	E	E	E	1.5	1.5	1.5	1.5	1.5	1.6	2.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7	E	E	
31																									
Mean	1.5	1.3	1.3	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	
Median	1.5	E	E	E	E	E	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Count	3	0	3	0	3	0	3	0	3	0	2	8	2	8	2	8	2	8	2	9	3	0	3	0	3

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

IONOSPHERIC DATA

foF2

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F	(3.9) 4.0	3.4 4.1	3.4 3.4	2.3 2.6	3.0 3.0	4.5 4.7	5.5 5.5	6.0 6.0	6.6 6.5	8.9 ^P 7.2	7.6 (8.4) ^B	7.6 9.5	7.1 (8.1) ^B	8.6 ^P 8.0	B 8.0 ^P	6.1 7.2	6.0 6.4	5.7 5.9	6.0 4.8	4.5 4.0	4.0 3.8	4.4 ^F 3.7	F 3.7	
2	4.0	4.0	3.8	3.7	3.2	3.3	4.7 ^B	6.1	6.7	6.7	7.5	8.1 ^P	8.0 ^P	10.0	9.3	8.2 ^P	6.8	7.0	6.7	6.0	5.3	3.1	3.3	3.3	
3	4.0	(3.9) ^F	4.2	4.0 ^F	3.0 ^H	3.3 ^F	5.0	5.5	6.6	6.7	7.1	(8.4) ^B	9.7	B	B	9.6	(8.1) ^F	6.5	6.1	6.4	5.2	4.2	4.4 ^F	4.1	
4	4.2	4.0	4.0	3.6	3.2	3.4	5.7	6.5	8.2 ^P	8.9 ^P	7.7	(8.8) ^A	10.0	9.1	7.5	7.8 ^P	7.8 ^P	(7.6) ^F	7.5	6.3	3.7	4.2 ^F	4.3 ^F	3.7 ^F	
5	4.2 ^F	4.4	3.7	3.5 ^F	3.6 ^F	3.8 ^F	5.1	6.2	6.4	8.0 ^P	8.8 ^P	9.1	T	T	T	T	B	T	T	A	4.1	F	F	F	
6	F	F	F	4.2 ^F	4.2 ^F	4.0 ^F	5.1	5.5	6.5	6.3	C	8.5 ^J	8.3 ^J	9.2	9.8 ^P	10.0	(8.8) ^F	7.7	7.0	5.3 ^P	3.8	4.2 ^F	F	3.9 ^F	
7	F	F	F	(3.6) ^F	(3.4) ^F	3.4 ^F	5.0	5.5	6.5	7.0	8.0 ^J	9.1	9.0	8.8 ^J	8.4 ^J	7.5	6.7	7.2	7.9	7.8	5.6	4.7	4.5 ^F	F	
8	F	4.8 ^F	(5.2) ^F	5.5 ^J	S	3.0 ^F	4.9	5.3 ^P	6.7	8.0 ^P	9.0	9.2	9.2	9.8	8.6	9.7 ^F	(8.3) ^F	7.2	6.5	6.0	4.9	4.3	4.2	F	
9	F	4.4 ^F	F	F	C	4.0 ^F	5.1	6.0	6.5	7.0	7.7	8.1 ^P	8.5	9.0	8.9 ^F	9.7 ^F	8.4 ^J	7.6	7.5 ^F	7.3 ^P	6.3 ^P	4.6	4.8 ^F	F	
10	F	F	4.4 ^F	4.2 ^F	4.0 ^F	4.3	5.0	5.9	7.3	8.6 ^P	8.0	8.2 ^P	8.4 ^J	8.1	7.3	7.4	8.2	7.5	8.7 ^F	7.0 ^P	6.6 ^P	3.2	F	F	
11	F	F	F	F	F	4.2 ^F	4.9	5.2	5.6	6.2	7.3	8.4 ^J	9.0 ^F	8.5	8.0 ^F	8.0 ^F	6.8	6.5	6.4 ^F	A	A	5.4 ^J	4.4 ^J	4.0	
12	3.2 ^P	3.6	4.0	4.1 ^F	4.1 ^V	3.0	3.5	5.7	5.9	6.6	7.3	8.2 ^P	8.2	8.5	7.3	8.1	8.0	7.2	5.3 ^P	4.9	F	4.9	5.0 ^P	4.0	
13	3.8	3.6	4.0	3.5	3.2	3.4	4.8	6.5	7.0	6.5	6.6	6.4	7.0	7.7	7.5	7.1	7.5	7.1	6.2	5.6 ^Z	4.0 ^F	4.5 ^F	4.4 ^F	4.0	
14	3.8	(4.0) ^A	4.1	3.1	3.1 ^F	3.1 ^F	5.0	5.6	6.0	5.8	6.0	6.1	7.1	8.0	7.0	6.9	5.7	5.4	5.5	5.0 ^P	4.5 ^F	4.4 ^F	(4.2) ^F	4.0	
15	4.0	(3.8) ^F	3.7 ^F	4.0 ^F	3.0 ^F	2.9 ^F	5.0	5.5	5.6	5.5	6.3	(6.8) ^F	7.4	8.6 ^F	9.2	9.0	9.0	8.4 ^F	7.5 ^F	6.3	(4.8) ^A	3.2	3.2	3.3 ^F	
16	3.2	3.3	3.3	3.5	2.8	3.7 ^J	4.5	4.8 ^F	(5.2) ^F	5.6 ^K	5.8 ^K	6.6 ^K	6.5 ^K	5.5 ^K	6.1 ^K	7.0 ^K	6.3 ^K	5.5 ^P	5.5	5.3 ^P	4.8	4.5 ^V	(4.4) ^F	4.2	
17	4.3 ^F	4.4 ^F	4.4 ^F	3.6	2.8	2.9	4.3	5.0	6.0	7.0	6.2	7.2	6.4	6.0	6.9	7.3	6.5	6.0	6.3	6.2	6.2	4.4 ^F	4.3	4.2	
18	4.1	4.0	4.1	4.0	3.1	3.5 ^F	5.0	5.1	5.8	5.8	6.2	6.0	6.9	6.9 ^J	8.5 ^J	8.1 ^P	8.5	8.6	9.0	6.2 ^P	4.0	3.8 ^F	3.8	3.5 ^F	
19	F	F	F	F	F	3.0 ^F	3.8	5.7 ^A	A	A	A	8.1 ^F	8.0	7.9	6.1	6.7	7.5	6.5	6.9	7.5	6.7	A	A	A	
20	3.2 ^F	F	A	AF	A	A	5.0	5.5	6.2	5.7	6.7	7.2 ^V	7.9 ^V	7.5 ^V	7.0	7.5	7.0	6.7	7.0	6.6	5.8	4.7	3.8	3.6 ^F	
21	F	4.0	3.6 ^F	3.9 ^F	3.6 ^F	3.9	5.0 ^F	B	A	A	A	M	7.1	7.2	6.3	6.6	6.2	(6.0) ^A	5.8	6.6	4.6	(4.3) ^A	4.0 ^F	3.9	
22	4.0 ^V	3.2 ^F	F	F	2.9 ^F	3.4	A ^K	A ^K	A ^K	5.7 ^K	6.4 ^K	6.4 ^K	6.5 ^K	6.5 ^K	6.1 ^K	6.6 ^K	7.5	6.7	5.6	6.7	4.7	4.0	4.0	4.0	
23	3.8 ^F	3.3 ^F	3.3 ^F	3.2 ^F	3.2 ^F	3.5	4.5	4.5 ^K	5.7 ^K	5.6 ^K	(5.8) ^A	5.9 ^K	(6.2) ^A	6.6 ^K	6.6 ^K	7.6 ^K	B	7.5	6.6	6.7	6.2	4.7	4.4	4.5	
24	4.3	4.5	4.3	4.1	3.4	3.6 ^P	6.0	5.6	5.4	6.8	6.0	6.2	7.2	7.9 ^F	9.1	8.7 ^F	(8.0) ^F	7.7 ^F	7.8 ^F	B.5	6.4	4.3	4.4 ^F	4.1	
25	4.0	4.1 ^F	4.2 ^F	(4.0) ^A	3.8 ^P	4.0	5.2	6.2	6.7	6.6	6.4	6.7	7.7	8.1	8.2	8.6 ^P	8.7 ^P	(8.5) ^F	19.0 ^A	9.5	8.2	5.0	4.4 ^F	4.3 ^F	
26	4.2 ^F	4.0 ^F	F	3.6 ^F	F	4.3 ^F	5.8	5.9	(6.3) ^A	6.7	6.6 ^H	7.1	8.9	9.2	9.6	9.9	8.7	7.6 ^F	(7.2) ^A	6.7	A	F	F	4.4 ^F	
27	4.5 ^F	4.2	4.0 ^F	4.3	3.8	4.8	5.9	6.2	(6.0) ^A	5.8 ^F	(6.2) ^A	6.7	7.9 ^F	8.7	9.4	9.5 ^F	8.1 ^F	7.0 ^F	(6.8) ^A	6.5 ^F	(6.4) ^F	5.8	5.7	5.5	
28	5.6	5.2 ^F	5.2	4.5	4.2	4.0	5.5	6.3	6.1	6.0	5.8	6.8	7.5	9.3 ^F	C	C	C	C	C	C	C	4.8	4.9	4.9 ^F	
29	5.0	4.5	4.4	4.3	3.4	4.2	4.8	5.6	6.4	6.6	7.4	7.6	7.2	7.5	(7.8) ^F	8.2 ^V	7.5	6.7	6.5	6.1 ^F	6.2	5.9 ^F	5.5		
30																									
31																									
Mean Value	4.1	4.1	4.1	3.9	3.2	3.6	5.1	5.7	6.3	6.6	7.0	7.5	7.9	8.1	7.9	8.1	7.6	7.0	6.8	6.4	5.2	4.4	4.4	4.1	
Median Value	4.0	4.0	4.1	3.9	3.2	3.5	5.0	5.6	6.2	6.6	6.7	7.6	7.9	8.1	8.0	8.0	7.8	7.2	6.7	6.4	5.2	4.3	4.4	4.0	
Count	21	23	22	25	25	28	29	27	27	27	27	29	29	28	27	27	27	27	28	28	26	25	27	24	22

Swamp 1.0... Mc in 2.2... Mc in 2... min
 Manual Automatic

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

IONOSPHERIC DATA

Apr. 1953

195° E Mean Time

Lat. 35° 42.4' N
Long. 139° 26.3' E

Kokubunji Tokyo

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F	F	(280) ^F	280 ^F	290 ^F	350 ^F	260	260	320	320	(290) ^F	300	310 ^F	280 ^F	300 ^F	B	260	280	270	290	290	380	360 ^F	F	
2	370 ^F	300	280	300 ^F	320 ^F	350 ^F	250	260	290	290	300	(300) ^B	300	(320) ^B	330	290 ^F	280	260	270	300	300	340	390 ^F	360	
3	360	340	350 ^F	300	370	350	[300] ^B	300	270	300	320	290 ^F	350 ^F	320	310	290 ^F	270	280	270	270	300	260	350	390	340
4	F	(320) ^F	340	290 ^F	360 ^F	300 ^F	260	260	270	310	360	(380) ^B	400 ^B	B	B	290	(270) ^F	270	300	300	270 ^F	370	400 ^F	400	
5	400	360	310	320 ^F	370	340	250	300	290 ^F	(300) ^F	270	(290) ^A	310	300	290	350 ^F	270 ^F	(270) ^A	270	250	310	420 ^F	390 ^F	370 ^F	
6	(380) ^F	380	340	290 ^F	(310) ^F	330 ^F	270	280	310	300 ^F	(300) ^F	310	T	T	T	T	B	B	T	T	A	410	F	F	
7	F	F	F	300 ^F	300 ^F	F	240	290	300	C	(320) ^F	330 ^F	320	310 ^F	310 ^F	280	(270) ^B	260	250	260 ^F	360	400 ^F	F	(340) ^F	
8	F	F	F	(305) ^F	(280) ^F	(280) ^F	240	260	320	320	(310)	300	300	(310) ^F	(300) ^F	300	300	300	300	290	270	330	370 ^F	F	
9	F	(340) ^F	(380) ^F	(250) ^F	S	(350) ^F	270	260 ^F	320	330 ^F	310	320	340	290	320	270 ^F	(270) ^F	290	280	280	310	350	370	F	
10	F	(380) ^F	F	F	C	(320) ^F	260 ^F	270	280	280	290	330 ^F	320	330	300 ^F	290 ^F	(290) ^F	310	290 ^F	280 ^F	290 ^F	370	330 ^F	F	
11	F	(350) ^F	380 ^F	(320) ^F	(350) ^F	290	270	290	290	280 ^F	320	310 ^F	(300) ^F	310	320	310	300	310	340 ^F	270 ^F	280 ^F	320	F	F	
12	360 ^F	F	F	F	F	300 ^F	340	250	260	340	360	(320) ^F	320 ^F	300	310 ^F	280 ^F	270	270	300 ^F	A	A	(350) ^F	(350) ^F	350	
13	350	(360) ^F	320 ^F	320 ^F	300	320	240	250	290	300	330	310 ^F	330	300	310	310	290	280	270	270	F	F	370	320	
14	350	400	360	280	350	320	270	270	260	260	280	340	330	300 ^F	300 ^F	310	270	250	250	270 ^F	F	F	310	A	
15	330	(320) ^A	300	330	330 ^F	340 ^F	280	260	270	300	300	300	330	320	310	300	[280] ^A	270	270	300 ^F	(330) ^F	AF	A	A	
16	370	(360) ^F	(340) ^F	320 ^F	320 ^F	300 ^F	290	270	260	310	330	(350) ^A	370	350 ^F	320	320	300	300 ^F	270 ^F	260	(330) ^A	400	400	400 ^F	
17	400	350	330	330	320	(280) ^F	240	260 ^F	(330) ^A	400 ^K	350 ^K	320 ^K	320 ^K	360 ^K	320 ^K	280 ^K	270	300 ^F	280	320 ^F	340	350 ^F	(370) ^F	390	
18	400 ^F	F	350 ^F	270	330	320	260	290	300	280	340	280	310	320	300	290	290	290	290	320	290	330 ^F	360	360	
19	370	360	320	270	270	280 ^F	240	270	260	320	300	350	330	(320) ^F	(320) ^F	320 ^F	300	300	270	270 ^F	(320) ^A	360 ^F	380	400 ^F	
20	F	F	F	F	F	290	300 ^F	A	A	A	A	330 ^F	320	300	330	320	290	300	320	300	290	A	A	A	
21	400 ^F	F	A	AF	A	A	250	260	310	330	400	(360) ^A	(320) ^F	(320) ^F	320	310	290	280	310	280	310	280	330	(330) ^F	
22	F	390	390 ^F	320 ^F	340 ^F	310	270 ^F	B	A	A	A	M	350	300	340	320	300	(300) ^A	290	270	290	(340) ^F	390 ^F	380	
23	410 ^V	390 ^F	F	F	320 ^F	280	A	A	A	A	340 ^K	300 ^K	340 ^K	320 ^K	370 ^K	350 ^K	320	280	310	280	270	380	(370) ^F	360	
24	(370) ^F	400 ^F	360 ^F	(360) ^F	360 ^F	290	280	U	330 ^K	A	A	310 ^K	A	A	A	A	300 ^K	B	260	280	300	280	350	350	
25	350	360	360	300	300	310 ^F	270	270	290	310	(320) ^A	330	350	330 ^F	310	290 ^F	(280) ^F	310 ^F	300 ^F	B5	280	340	370 ^F	400	
26	360	390 ^F	340 ^F	(320) ^A	310 ^F	290	270	290	280	300	320	360	330	350	320	330 ^F	330 ^F	(340) ^F	(320) ^A	300	300 ^F	270	370 ^F	370 ^F	
27	340 ^F	370 ^F	F	390 ^F	F	300 ^F	250	250	(280) ^A	300	360 ^H	350	380	350	320	300	290	A	A	270	A	F	F	370 ^F	
28	(400) ^F	400	370 ^F	350	310	250	270	260	A	A	A	A	360 ^F	350	320	310 ^F	280 ^F	290 ^F	(310) ^A	330 ^F	(350) ^F	350	340	380	
29	370	360 ^F	350	290	320	300	310	260	260	300	350	350	360 ^F	C	C	C	C	C	C	C	C	370	400	420 ^F	
30	360	370	350	290	320	300	260	290	310	320	320	320 ^F	300	360	370	B	(320) ^F	300	310	360	350 ^F	370	360 ^F	400	
31																									
Mean Value	370	360	340	310	320	310	270	270	290	310	320	320	330	320	320	300	290	280	290	290	300	350	370	370	
Median Value	370	360	340	300	320	300	270	260	290	300	320	320	330	320	320	300	280	290	290	280	290	300	350	370	
Count	21	23	22	25	25	28	29	26	26	24	25	28	28	27	26	26	27	27	27	26	25	27	24	22	

Apr F2

K2

Sweep 1.0 Mc to 17.2 Mc in 2 min
 Manual Automatic

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

Lat. 35° 42.4' N
Long. 139° 08.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

Apr. 1953

f'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	310 ^F	260	220	210	210	260 ^F	230	250	310	300	270	290	300	270	290	260	250	240	230	230	280	280	300	350 ^F	
2	300	250	240	230	240	270	230	240	270	290	300	360	270	290	310	280	260	240	230	230	240	270	310	300	
3	290	260	250	240	260	280	250	250	260	300	310	280	340	300	270	270	260	260	240	240	220	250	320	290	
4	300 ^F	260	270	240	260	230	230	240	270	300	320 ^A	330	370	300	270	260	250	250	230	210	260	330 ^A	350 ^A		
5	320	300	250	250	300	280	250	270	260	270	280 ^A	290	280	280	280	290	270	260 ^A	250 ^A	220	220	310	350	330	
6	300	310	320	240	240	270	240	260	290	290	290	290	280	290	290	280	260 ^A	250	240	300 ^A	350	300	270		
7	300	280	250	240	250	280	240	230	250	C	300	310	300	300	290	270	260	240	220	230	330	330	350	290	
8	290	260	250	250	240	250	240	240	300	290	310	280	290	300	280	280	290	260	240	230	220	250	270	300	
9	300	280	250	220	210	290	230	240	300	260	290	300	320	280	280	280	260	240	240	230	240	270	310	300 ^F	
10	290 ^F	300 ^F	280 ^F	250 ^F	260 ^F	260	240	250	270	280	250	310	300	310	290	270	270	270	240	240	220	290	300	310 ^F	
11	270 ^F	260	280	260	270	230	240	250	280	270	280	300	270	270	290	290	280	260	260	240	220	220	370	300 ^F	
12	300 ^F	290	300	310 ^F	280 ^F	250	220	240	250	330	340	300	300	280	280	270 ^A	250	250	250	A	A	320 ^A	300 ^A	290	
13	280	230	250	220	220	260	240	250	270	290	320	300	310	280	300	280	260	240	230	250	280	250	250		
14	280	310	280	220	260	270	250	250	250	280	280	300	310	290	290	290	250	250	220	280	250	250	250		
15	320 ^A	280	250	270	260	260 ^A	250	260	260	300	300	320	300	300	300	280	260 ^A	250	240	250 ^A	260	270	280	300	
16	300	300	280	240	250	260	250	260	250 ^A	310	330 ^A	340 ^A	350	330	300 ^A	300 ^A	270	260	240	250 ^A	280 ^A	320	330	370 ^A	
17	350	300	290	270	280	250	230	260	320 ^A	400 ^K	370 ^K	340 ^K	310	360 ^K	320 ^K	270 ^K	260 ^K	270	240	250 ^A	270	280	350	350	
18	310 ^F	320 ^F	260 ^F	210	250	320 ^A	230	280	300	270	330	280	310	320	300	280	270	270	260	240	230	240	290	300	
19	300	290	260	220	230	270	230	270	260	320	300	320	330	310	310	310	280	270	240	220 ^A	260 ^A	300	310	340	
20	320 ^F	280	220 ^F	260	300	250	270	A	A	A	A	320	300	280	330	310	270	280	290	250 ^A	A	A	A	A	
21	310	310	A	AF	A	A	240	250	300	330 ^A	A	A	320	280	320	300	280	270	260	240	280 ^A	260 ^A	290	250	
22	350	300	310	260	250	260	250	310	A	A	A	M	350	300	340	300	300	A	A	250	A	A	330 ^A	300	
23	340	340	310 ^F	280 ^F	230	240	A	A	A	A	K	340 ^K	300 ^K	320 ^K	370 ^K	340 ^K	300	260	250	220	220	300	320	330 ^A	
24	300	350	320 ^A	320 ^A	320	260	270	350 ^K	330 ^K	A	A	310 ^K	320 ^K	330 ^K	320 ^K	300 ^K	270	250	250	230	240	270	280		
25	300	290	290	250	250	270	250	260	260	300	320 ^A	330	340	320	300	280	270	270	260	270	230	250	340 ^A	350	
26	320 ^A	330 ^A	310	280 ^A	280 ^A	250	240	260	280	310	350	320	310	310	310	300	300	300	250 ^A	250 ^A	220	270	330 ^A		
27	300	300	320	200	300 ^F	250	230	250	280 ^A	300	300	340	350	320	300	290	270	(290 ^A)	(280 ^A)	270	330 ^A	320	320	320	
28	320 ^A	300	330 ^A	300	270	240	240	260 ^A	A	A	A	350	320	310	290	260	260	290 ^F	(280 ^A)	270	300	270	270	300	
29	300	300	270	240	260	260	250	250	260	250	350	350	320	C	C	C	C	C	C	C	C	290	330	300	
30	300	300	280	250	230	250	230	280	300	320	320	310	290	350	350	350	290	270	270	(280 ^A)	300	300	300	300	
31																									
Mean Value	310	290	280	250	260	260	240	260	280	300	310	310	320	300	300	290	270	260	250	240	250	280	310	310	
Median Value	300	300	280	250	260	260	240	250	270	300	310	300	320	300	300	280	270	260	250	240	240	270	300	300	
Count	30	30	29	29	29	29	29	28	26	24	24	27	30	30	29	29	29	28	28	28	26	27	28	28	

K 3

Sweep 1.0 Me to 17.2 Mc in 2 min

Manual Automatic

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

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

Apr. 1953

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

foF1

Sweep L. 0. Me to 17.2. Mc in 2. min

Manual

Automatic

K 4

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

ƒ'F1

Apr. 1953

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

Swing 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° 28.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

f_oE

Apr. 1953

135° E Mean Time

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

f_oE

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual Automatic

K 6

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

Lat. 35° 42.4' N
Long. 139° 28.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

Apr. 1953

f_oF₂

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

Sweep 1.0 Mc to 17.2 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

Apr. 1953

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	E	2.4Y	E	E	E	G	G	3.2	G	G	G	4.2	4.1	3.5	4.1	G	2.8	2.5	E	E	E	E	E	
2	E	E	E	E	E	2.5	G	G	3.2	4.5	3.2	4.2	4.5	4.7	4.7	3.0	2.9	G	2.4	2.0	E	E	E	E	
3	E	E	E	E	E	E	2.0	G	3.2	G	G	G	4.2	4.2	3.1	G	G	2.6	E	2.2	2.2	3.0	3.0	3.0	
4	2.6F	5.5F	3.2	2.2	2.5	2.5Y	2.5	3.1	G	G	5.7	5.1	4.6	G	4.2	3.9	G	G	2.7	2.1	2.0	2.7	4.8	3.3	
5	2.7	2.0Y	2.1Y	2.9	3.2Fs	2.9	2.5F	4.5	4.8	4.5	4.8	10.0	7.0	6.5	4.8	6.5	4.8	7.5	7.0	6.5	2.8	4.2	2.2	3.0	
6	2.5	4.4	4.2	4.0	C	2.6Y	3.0	3.3	G	4.1	4.5	4.0	4.8	4.9	G	4.4	5.3	5.0	5.5	7.5	6.6	5.5	2.2	3.9	
7	2.5	2.0	2.0Y	2.6	3.0	2.5	2.5	3.8	4.8	C	C	5.0	4.7	4.9	5.5	6.7	3.8	5.8F	4.0	4.4	4.7	3.0	3.2	2.2	
8	2.0	2.3Y	2.9Y	2.2Y	2.2Y	3.8	4.2	4.2	5.0	4.3	4.0	3.9	4.5	5.4	4.1	G	3.9	3.7	2.5	2.4	2.0	E	2.0	E	
9	E	2.0	E	E	E	2.0	2.0	4.8	G	4.5Y	4.5Y	5.0Y	5.0	4.2Y	5.0Y	4.5Y	G	2.9	2.2	3.0	2.1	2.4	4.2Y	2.0	
10	2.0	2.1Y	2.2Y	2.0F	C	E	G	4.2Y	G	4.0	4.8Y	4.3Y	4.0	4.5	G	G	2.9	3.2Y	2.6	2.5	2.4	2.0	E	E	
11	E	E	E	E	1.3	2.7	G	G	G	G	4.2	4.5	5.0	4.5Y	4.0	4.0	G	3.2	4.2	2.5	2.0	2.0	E	E	
12	2.0	3.0	2.6	2.1Y	E	2.1	G	3.8	4.6F	5.0	4.5	6.5	5.0	5.2	5.5	7.2	4.0	4.0Y	4.6	9.0	7.5	7.0	4.5	E	
13	E	2.0F	2.1	2.0	E	E	3.0	3.8	3.5	3.7	4.9F	6.5	7.5	3.5	4.5	4.0F	3.0	2.7	2.5	2.2	2.0F	E	E	E	
14	E	E	E	2.0F	E	2.2	2.2F	G	4.2	5.0	4.0	4.5	5.5	4.3	G	4.5	5.0	5.5	3.7	2.3	3.2	5.0F	5.0	4.9	
15	5.1	6.8	6.6	5.5	5.3	4.0	3.7Y	4.3	3.8	4.3	4.8	4.5	4.1	4.7	5.0	4.3	7.0	3.5	3.5	4.0Y	6.5	2.9	3.0	2.3	
16	2.4	2.0Y	2.0F	E	2.2Y	E	3.5	4.3	5.4	5.8	5.8	9.6	5.8	6.2	6.5	4.5	4.5	4.5	2.5	5.2	5.0	2.2	5.0	3.5	
17	3.1	2.7	2.3	2.5	2.7	2.2	3.2	4.6	6.5	4.8	3.9	3.8	3.8	4.9	3.8	3.0	3.0	4.0	3.5	2.3	3.0	3.2	3.7	3.2	
18	2.2	2.6	3.0F	2.0F	2.5	3.8	2.6	3.0	4.0	4.3	4.3	4.0	4.2	4.0	3.8	3.7	3.3	5.0Y	4.3Y	3.3	2.6	2.0	2.6	2.3	
19	E	2.3Y	1.8	4.9Y	3.0	3.8	2.5Y	G	4.5	4.5	4.5	4.5Y	G	5.2	4.8	5.2	5.3	4.0	4.0	4.6Y	4.0	2.0	2.0	3.8	
20	1.8	2.2	E	2.0	2.1	2.0	5.0	6.5	8.0	7.5	11.5	6.8	6.0	7.0F	4.6	4.8	3.7	5.0	3.2	3.5	6.5	6.7	5.0	4.9	
21	5.0	2.1Y	4.8	6.5Y	6.0	5.4	2.2	4.3	4.4	5.5	7.0	7.3	5.0	5.5	4.7	G	3.0	G	2.4	2.1	5.0	4.7	2.3	2.3	
22	3.7	2.5Y	2.6	2.1Y	2.4	2.0Y	5.4Y	4.1	7.5	7.5	7.5	M	6.4Y	4.9	G	G	5.2	6.6	5.4	3.2	4.0	7.1	3.9	3.2	
23	4.9	4.2	2.2	2.0	2.2Y	2.2F	4.9	5.3	6.5	6.5	5.5	5.0	4.8	5.0	3.3Y	G	3.0	4.7	2.6	2.7	2.3	2.3	4.7	3.7	
24	4.2	3.2Y	3.7	3.3Y	3.0F	2.3Y	4.2	5.5	4.8	7.5	8.7	9.1	7.0	7.6	6.9	6.1	4.3Y	2.5	2.2	2.0S	2.3	2.3	2.1	2.3	
25	2.4	2.1S	2.1S	2.4	2.4	2.2	4.0Y	3.7	5.0	5.0	6.4	5.4	5.0	5.8	5.0	6.4	5.5	6.8	5.5	6.5	3.9	2.4	4.3	4.4	
26	4.0	7.0	4.2	5.4	4.0	2.2	G	5.0	4.3	5.0	4.5	6.3	5.5	4.5	7.4Y	4.5Y	G	4.8	7.5	5.0	4.2	2.5	3.2	4.9	
27	2.0	2.3	2.2	2.2F	2.7	3.7	4.2	5.0	9.5	9.0	9.0	6.5	7.0	4.4	4.7	G	5.0	9.5	10.3	9.5	9.2	6.0	4.5	3.5	
28	4.3	4.2	5.0F	3.7	3.4	3.0	3.0	5.5	7.5	6.0	9.0	6.9	6.7	6.5	5.5	4.7	6.5	10.0	9.0	7.0	4.5	2.6	3.0	2.3	
29	3.3	3.8	2.5	2.9	2.2	2.9	4.3	4.9	4.1	4.5	5.7	5.5	5.0	5.0	C	C	C	C	C	C	C	2.4	2.5	3.3	
30	2.2	2.0Y	2.0Y	2.1Y	2.4	3.2	4.5Y	4.0Y	4.6	5.0Y	6.7	6.5	5.0	5.3	5.1	4.5F	G	4.2	3.4	6.0	3.0	3.0	3.0	E	
31																									
Mean Value	3.0	3.1	2.9	3.0	2.9	2.7	3.3	4.4	5.0	5.3	5.7	5.8	5.2	5.1	4.8	4.8	4.3	4.8	4.2	4.1	3.9	3.5	3.5	3.3	3.3
Minimum Value	2.3	2.2	2.1	2.2	2.2	2.2	2.8	4.2	4.4	4.5	4.8	5.0	5.0	4.9	4.7	4.3	3.7	4.0	3.5	3.2	3.0	2.6	3.0	2.3	2.3
Count	30	30	30	30	28	30	30	30	30	29	29	29	30	30	29	29	29	29	29	29	29	29	30	30	30

fEs

Manual Automatic

Swing 1.0 Mc to 17.2 Mc in 2 min

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 39.3' E

Apr. 1953

(M3000)F2

135° E Mean Time

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

K 9

Automatic

Manual

Sweep: 4.0 Mc in 1.2.2 Mc in 2 min

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 28.3' E

Kokubunji Tokyo

Apr. 1953

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	1.6	E	E	E	E	E	2.0	2.6	3.0	3.3	3.5	3.5	3.5	3.5	3.4	3.3	2.7	2.2	1.6	1.6	1.5	1.6	1.5	1.6	
2	1.6	E	E	E	E	E	1.0	2.2	2.8	3.2	3.4	3.5	3.6	3.5	4.0 ^A	3.7	3.0	2.7	2.4	1.7	1.5	1.6	1.6	1.5	
3	1.5	E	E	E	E	E	2.0	2.8	3.4	3.5	3.5	3.5	3.5	3.6	3.3	3.3	2.8	2.3	1.7	1.5	1.5	1.5	1.5	1.5	
4	1.6	E	1.7	1.2	1.2	1.0	2.0	2.7	3.1	3.4	5.0 ^A	4.8	3.7	3.7	3.5	3.5	2.6	2.2	1.7	1.6	1.5	1.6	3.5 ^A	[2.6]A	
5	1.6	1.2	E	1.0	1.5	1.7	2.1	3.5	3.2	3.3	4.0 ^A	[4.1]A	4.2 ^A	5.0 ^A	4.1 ^A	3.5 ^A	3.5 ^A	A	A	1.7	1.6	1.7	1.7	1.7	
6	1.4	2.4 ^A	2.4	1.4	[1.5]C	1.6	2.3	2.7 ^A	3.3	3.3	4.1 ^A	4.0	4.0	4.0	4.0	3.5	4.7 ^A	3.6	5.0 ^A	4.1 ^A	[2.9]A	1.7	1.6	1.7	
7	1.5	1.2	1.0	1.3	1.7	1.6	2.2	3.0	3.4	C	C	4.2	3.5	3.5	4.6 ^A	4.5 ^A	2.8	2.4	1.8	2.8 ^A	1.6	1.7	1.6	1.6	
8	1.6	E	A	1.1	1.0	1.1	2.9	2.8	3.4	3.6	3.5	3.7	3.8	4.2	[3.7]A	3.2	3.0	2.6	2.0 ^A	2.2	1.6	1.5	1.6	1.6	
9	1.2	1.1	E	E	E	1.1	2.5	2.8	3.4	3.6	3.5	3.8	4.4 ^A	3.8	4.1 ^A	3.2	2.8	2.4	1.6	1.6	1.6	1.7	1.7	1.7	
10	1.6	1.2	1.0	1.0F	[1.0]C	1.0	2.3	2.8	3.0	3.3	3.3	3.7	3.8	3.6	3.6	3.5	2.9	2.6	1.9	1.7	2.0	1.6	1.6	1.7	
11	1.6	1.0	1.0	1.0	1.0	1.0	2.0	2.8	3.2	3.3	3.6	3.6	3.5	3.3	3.3	3.2	2.7	2.4	2.8 ^A	1.7	1.6	1.6	1.5	1.6	
12	1.6	1.6	1.0	1.0	1.0	1.0	2.2	2.8	3.1	4.1 ^A	3.6	5.5 ^A	4.0 ^A	5.0 ^A	4.1	5.5 ^A	3.0	2.7	2.7 ^A	A	A	4.0 ^A	2.7 ^A	1.5	
13	1.5	1.0	1.0	1.0	1.0	1.0	2.2	3.0	3.0	3.2	3.3	4.0 ^A	3.3	3.3	3.3	2.8	2.9	2.7	1.7	1.6	1.6	1.6	1.6	1.5	
14	1.2	1.2	E	1.0	E	E	2.1	2.6	2.9	3.3	3.4	3.5	4.0 ^A	3.6	3.6	3.5	3.6 ^A	3.5 ^A	[2.5]A	1.5	1.5	AF	A	A	
15	3.0 ^A	[2.3]A	1.6	1.7	1.0	2.5 ^A	2.8 ^A	2.7	3.2	3.5	4.1 ^A	3.8	3.6	3.6	4.0 ^A	3.3	4.9 ^A	2.7	2.6 ^A	[2.1]A	1.6	1.7	1.6	1.5	
16	1.5	1.0	E	E	E	1.0	2.8 ^A	2.7	[3.6]A	4.5	5.0 ^A	[5.0]A	5.0 ^A	5.5 ^A	6.0 ^A	3.8	3.3	3.0 ^A	2.7 ^A	A	A	1.5	1.5	2.2 ^A	
17	1.7	1.8	1.6	1.5	1.6	1.0	2.4	3.9 ^A	[3.8]A	3.8	3.3	3.5	3.3	3.5	3.3	2.9	2.7	2.7	1.5	1.6	2.1 ^A	1.7	[2.2]A	2.8 ^A	
18	1.3	E	C	C	C	2.4 ^A	2.2	2.7	2.8	3.3	4.0 ^A	3.3	3.7	3.3	3.3	3.3	2.8	3.2 ^A	3.3 ^A	1.7	1.8	1.6	1.8	1.8	
19	1.3	E	E	A	A	2.5 ^A	2.3	3.0	2.9	3.3	3.5	3.6	3.5	3.5	4.0	3.5	4.5 ^A	3.0	2.8 ^A	A	A	2.0 ^A	1.6	1.6	
20	1.5F	1.2	1.1	1.5	1.0	1.5	4.1 ^A	A	A	A	6.2 ^A	4.3 ^A	4.3 ^A	5.1 ^A	3.7	3.8 ^A	3.2	3.7 ^A	2.7 ^A	[4.0]A	5.4 ^A	A	A	A	
21	1.6	1.2	A	AF	A	2.7 ^S	3.3	3.3	3.2	4.5 ^A	5.0 ^A	6.6 ^A	3.5	4.5 ^A	4.1 ^A	3.3	2.4	2.4	1.7	1.7	4.0 ^A	3.4 ^A	1.6	2.4	
22	1.7	1.7	1.7	E	E	1.7	2.0	3.0	A	A	A	M	5.2 ^A	4.2 ^A	3.5	3.7	4.6 ^A	[4.6]A	4.6 ^A	1.8	3.4 ^A	[2.9]A	2.4 ^A	1.8	
23	1.8	1.4	E	E	E	1.6	A	A	5.4 ^A	4.7 ^A	4.0 ^A	3.5	3.5	3.5	3.5	3.1	2.8	3.3 ^A	1.7	2.4 ^A	1.6	1.7	3.5 ^A	[2.6]A	
24	1.7	1.7	[2.2]A	2.8 ^A	1.7	1.6	2.4	2.8	3.6	5.2 ^A	[4.7]A	4.2 ^A	[5.0]A	5.8 ^A	6.1 ^A	5.3 ^A	3.0	2.7	1.8	1.6	1.6	1.6	1.5	1.7	
25	1.5	1.3	1.0	1.0	1.5	1.5	2.4	3.0	3.4	4.0	5.1 ^A	4.6 ^A	4.0	5.0 ^A	4.2 ^A	5.0 ^A	5.0 ^A	5.0 ^A	4.0 ^A	5.4 ^A	2.0 ^A	1.6	[1.7]A	1.8	
26	A	A	2.8 ^A	[2.6]A	2.5 ^A	1.5	2.5	2.8	3.2	3.5	3.5	4.0 ^A	4.2 ^A	3.8 ^A	4.3 ^A	3.5	3.5	4.0 ^A	A	A	A	1.6	1.6	[1.5]A	
27	1.4	1.3	E	E	E	1.2	[2.0]A	2.7	[3.8]A	5.0 ^A	4.3 ^A	5.5 ^A	5.6 ^A	3.5	4.0	3.7	4.2	6.5 ^A	[5.8]A	5.0 ^A	[3.4]A	1.7	2.2 ^A	A	
28	A	2.7 ^A	2.6 ^A	[2.2]A	1.9	1.7	3.0 ^A	A	A	5.1 ^A	[5.5]A	5.9 ^A	5.3 ^A	5.1 ^A	5.0 ^A	3.3	2.8	3.5 ^A	[3.0]A	2.4 ^A	3.3 ^A	1.8	1.8	1.7	
29	1.8	2.3 ^A	1.6	1.7	1.7	1.8	2.6	3.0	3.3	3.9	4.6 ^A	4.1	3.4	3.7	C	C	C	C	C	C	C	M	1.9	1.7	
30	1.5	E	E	1.0	1.6	1.7	2.5	3.1	4.0 ^A	3.9	4.6 ^A	5.8 ^A	4.0	3.6	3.5	3.3	3.0	2.4	2.3	5.0 ^A	1.7	1.6	1.6	1.7	
31																									
Mean Value	1.6	1.5	1.6	1.4	1.4	1.4	2.4	2.9	3.3	3.8	4.1	4.3	4.0	4.0	4.0	3.6	3.3	3.1	2.6	2.4	2.2	1.8	1.9	1.8	
Median Value	1.6	1.2	1.0	1.0	1.0	1.5	2.3	2.8	3.2	3.5	4.0	3.8	3.7	3.7	3.7	3.5	3.0	2.7	2.3	1.7	1.6	1.6	1.6	1.7	
Count	28	29	27	27	27	29	29	27	26	27	27	29	3.0	3.0	2.9	2.9	2.9	2.8	2.7	2.5	2.5	2.7	2.8	2.7	

f min F

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

Lat. 35° 42.4' N
Long. 139° 28.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

f_{min}E

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	1.2	E	E	E	E	1.5	1.2	1.4	1.6	1.8	1.8	1.9	1.8	1.7	1.6	1.7	1.6	1.8	E	E	E	E	E
2	E	E	E	E	E	E	1.5	1.4	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.5	1.6	1.8	E	E	E	E	E
3	E	E	E	E	E	E	1.5	1.5	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.6	1.6	1.5	E	1.7	1.7	1.5	1.5	1.9
4	1.7	E	1.0	E	E	E	1.3	1.6	1.6	1.7	1.7	1.9	1.8	1.9	2.0	1.7	1.6	1.6	1.6	1.7	1.6	1.7	1.6	1.6
5	1.6	1.2	E	E	E	E	1.6	1.6	1.4	1.6	1.7	1.8	1.7	1.7	1.7	1.6	1.5	1.8	1.6	1.6	1.6	1.7	1.6	1.7
6	1.4	E	E	E	E	E	1.3	1.3	1.4	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.8	1.5	1.6	1.6	1.5	1.5	1.7	1.6
7	1.7	1.9	E	E	E	E	1.6	1.6	1.6	C	C	1.8	1.9	1.8	1.8	1.7	1.7	1.6	1.5	1.5	1.4	1.7	1.6	1.6
8	1.6	1.3	E	E	E	E	1.6	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.7	1.6	1.6	1.6	1.3	1.3	1.6	E	E	E
9	E	1.1	E	E	E	E	1.9	1.6	1.7	1.8	1.6	1.7	2.8	1.8	1.7	1.8	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.6
10	1.6	1.2	1.0	E	E	E	1.6	1.6	1.6	1.6	1.6	1.7	1.9	1.8	1.7	1.6	1.5	1.8	1.6	1.5	2.0	1.8	E	E
11	E	E	E	E	E	E	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.3	1.4	1.6	1.6	E	E
12	1.7	E	1.0	E	E	E	1.7	1.6	1.5	1.7	1.7	1.7	1.6	1.7	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.2	1.3	E
13	E	1.5	1.0	E	E	E	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.4	1.0	1.5	1.6	1.6	E	E	E
14	E	E	E	E	E	E	1.7	1.6	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.5	1.5	1.5	1.6
15	1.6	E	E	E	E	E	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.4	1.5	E	1.6	1.4	1.6	1.6
16	1.6	1.4	E	E	E	E	1.6	1.3	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.2	1.5	1.6	1.6	1.5	1.2
17	1.5	E	E	E	E	E	1.6	1.5	1.6	1.7	1.6	1.7	1.8	1.6	1.6	1.7	1.7	1.3	1.5	1.7	1.5	1.5	1.6	1.5
18	1.4	C	C	C	C	C	1.3	1.4	1.6	1.6	1.7	1.7	1.8	1.7	1.6	1.6	1.9	1.7	1.6	1.6	1.5	1.5	1.6	1.8
19	E	1.8	1.0	E	E	E	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.5	1.6
20	1.6	1.6	E	E	E	E	1.5	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.5	1.6
21	1.5	E	E	E	E	E	1.6	1.6	1.6	1.6	1.7	1.8	1.8	1.7	1.6	1.6	1.5	1.5	1.4	1.8	1.5	1.6	1.6	1.7
22	1.4	1.2	E	E	E	E	1.6	1.4	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.7	1.6	1.7
23	1.4	1.2	E	E	E	E	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.7	1.6	1.6	1.7	1.6	1.6	1.8	1.9	1.5	1.6
24	1.6	1.0	E	E	E	E	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.8	1.7	1.6	1.6	1.6	1.6	1.8	1.8	1.7	1.6	1.6
25	1.7	1.7	1.8	E	E	E	1.0	1.6	1.7	1.7	1.6	1.6	1.7	1.8	1.7	1.6	1.6	1.4	1.5	1.5	1.5	1.7	1.5	1.5
26	1.5	1.5	E	E	E	E	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.4	1.4	1.4	1.5	1.7	1.7	1.3
27	1.7	1.0	E	E	E	E	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.7	1.8	1.7	1.6	1.6	1.2	1.6	1.6	1.6	1.6	1.5
28	1.5	E	E	E	E	E	1.5	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.4	1.7	1.7	1.8	1.8	1.8
29	1.6	1.2	E	E	E	E	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.7	C	C	C	C	C	C	C	M	1.7	1.7
30	1.6	E	E	E	E	E	1.0	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.8	E	E
31																								
Mean Value	1.6	1.4	1.1	1.3	1.3	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6
Median Value	1.5	1.0	E	E	E	E	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6
Count	30	29	29	29	27	29	30	30	29	29	30	30	30	30	29	29	29	29	29	29	29	29	29	30

Sweep 1.0 Mc to 17.2 Mc in 2 min Manual Automatic

K U

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

Apr. 1953

135° E Mean Time

YPF2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F	(110) ^F	90F	120 ^F	100 ^F	90	70	80	70	80	(70) ^T	60	50 ^F	70 ^F	70 ^F	B	70	90	90	100	70	130	110 ^F	F	
2	100 ^F	90	100	90 ^F	80 ^F	100 ^F	100	90	80	90	70	(60) ^B	60	(70) ^B	80	60 ^F	50	50	80	90	100	70	60 ²	100	
3	120	110	90 ^F	110	90	60	(60) ^F	70	40	50	80	60 ^F	80 ^F	90	90	90 ^F	80	80	70	80	60	100	70	60	
4	F	(80) ^F	100	80 ^F	100 ^{FH}	100 ^{FH}	100	80	70	50	70	(60) ³⁵	50 ^F	B	B	50	(50) ^F	80	60	50	60 ^F	90	80 ^F	70	
5	100	80	90	70 ^F	90	60	80	60	60 ^F	(70) ^T	80	(70) ^A	60	70	70	50 ^F	60 ^F	60 ^F	50	70	90	70 ^F	100 ^F	50 ^F	
6	(80) ^{FH}	90	60	60 ^F	(60) ^F	60 ^F	60	70	60	70 ^F	(70) ^T	60	T	T	T	T	B	B	T	T	A	100	F	F	
7	F	F	F	110 ^F	100	F	90	60	70	C	(70) ^F	60 ^F	60 ^F	60	60 ^F	60	(60) ^B	50	70	70 ^F	90	60 ^F	F	(60) ^{FH}	
8	F	F	F	(60) ^F	(80) ^F	(80) ^F	60	70	40	100	(60) ^T	90	80	(40) ^T	(60) ^T	60	50	50	60	60	60	80	80 ^F	F	
9	F	(80) ^{FH}	(60) ^F	(50) ^F	S	(50) ^F	120	60 ^F	70	50 ^F	70	70	60	60	60	50 ^F	(50) ^F	70	50	60	60	90	70	50 ^F	F
10	F	(50) ^F	F	F	C	(60) ^F	50 ^F	50	70	70	70	70 ^F	60	60	60 ^F	50 ^F	(50) ^T	70	70 ^F	60 ^F	70 ^F	60	90 ^F	F	
11	F	(50) ^F	70 ^F	(50) ^F	(50) ^F	90	90	80	70	60 ^F	100	60 ^F	(100) ^T	90	90	110	70	110	90 ^F	60 ^F	90 ^F	130	F	F	
12	70 ^F	F	F	F	F	90 ^F	60	80	60	70	60	(90) ^T	90 ^F	90 ^F	90 ^F	80 ^F	80	80	90 ^F	A	A	(70) ^F	(100) ^T	90	
13	80	(100) ^F	90 ^{FH}	80 ^V	100	90	90	60	90	60	70	60 ^F	60	100	70	70	90	80	80	80	130	110	110 ^F	110	
14	100	80	120	80	80	90	110	100	80	60	80	70	100	60 ^F	100	90	80	80	70	70 ²	130	(90) ^{FH}	AF	A	
15	90	(80) ^A	80	100	80 ^{FH}	70 ^F	100	70	80	60	100	60	100	100	110	100	(100) ^A	100	80	90 ^F	90 ^F	(70) ^{FH}	100 ^F	[90] ^F	80
16	90	(80) ^F	(80) ^{FH}	80 ^F	80 ^F	100 ^F	100	80	90	60	80	(80) ^A	80	70 ^F	70	80	70	80 ^F	80 ^F	70	70 ^F	80 ^F	80	70	70 ^{FH}
17	60	60	80	70	80	(90) ^T	80	70 ^F	[80] ^A	80 ^K	70 ^K	120 ^K	130 ^K	130 ^K	90 ^K	120 ^K	100 ^K	100 ^K	70	70 ^F	100	70 ^V	[80] ^F	80	
18	90 ^F	F	100 ^F	90	100	80	70	80	50	60	50	100	60	60	70	60	60	60	70	80	80	80 ^F	60	70	
19	70	80	70	60	50	50 ^{FH}	70	40	60	50	50	100	80	(80) ^T	(80) ^T	60 ^F	70	70	50	90 ^F	[90] ^A	90 ^F	70	80 ^{FH}	
20	F	F	F	F	90 ^F	60	60 ^F	A	A	A	A ^V	90 ^F	80	80	60	50	60	60	90	50	70	A	A	A	
21	100 ^F	F	A	AF	A	A	60	70	90	80	70	(60) ^A	(100) ^T	80 ³	80	70	60	50	70	90	60	80	70	(80) ^{FH}	
22	F	60	50 ^F	80 ^{FH}	50 ^{FH}	90	40 ^F	B	A	A	A	M	80	50	60	70	50	[60] ^A	60	70	100	[400] ³	110 ^F	120	
23	90 ^V	60 ^{FH}	F	F	80 ^F	70	A ^K	A ^K	A ^K	A ^K	60 ^K	60 ^K	60 ^K	70 ^K	80 ^K	70 ^K	60	60	70	70	50	70	[70] ^A	70	
24	(50) ^{FH}	50 ^F	50 ^F	[60] ^{FH}	80 ^F	60	50	U ^K	70 ^K	A ^K	A ^K	90 ^K	A ^K	A ^K	A ^K	80 ^K	[60] ^B	50	70	50	60	110	70	70	
25	70	70	60	100	100	90 ^F	80	70	70	100	[110] ^A	120 ^F	70	90 ^F	80	70 ^F	(60) ^F	80 ^F	60 ^F	BS	80	80	80 ²	80	
26	100	80 ^F	110 ^F	[100] ^A	80 ^F	90	80	90	70	100	100	90 ^F	100	100	90	120 ^F	90 ^F	(80) ^F	[90] ^A	100	100 ^F	100	90 ^F	70 ^F	
27	80 ^{FH}	80 ^F	F	70 ^F	F	110 ^F	100	100	[80] ^A	60	70 ^H	90	80	90	80	60	70	A	A	60	A	F	F	80 ^{FH}	
28	(70) ^{FH}	100	80 ^F	80	80	100	80	50	A	A	A	60 ^F	70	80 ^F	70	80 ^F	70 ^F	80 ^F	[80] ^A	80 ^F	(70) ^{FH}	80	70	80	
29	80	80 ^{FH}	100	100	80	60	70	60	80	100	60	70	80	110 ^F	C	C	C	C	C	C	C	90	110	100 ^F	
30	90	80	100	70	100	110	100	80	90	50	80	80 ^F	100	70	70	B	(90) ^T	90	70	90	80 ^F	80	100 ^F	60	
31																									
Mean Value	80	80	80	80	80	80	80	70	70	70	70	70	80	80	80	80	70	70	80	70	80	90	80	80	80
Median Value	90	80	80	80	80	90	80	70	60	70	70	70	80	70	80	70	60	60	80	70	70	80	80	80	80
Count	21	23	22	25	28	28	29	26	26	24	25	28	28	27	26	26	28	27	27	26	25	27	24	22	

Sweep 1.0 Mc to 1.2 Mc in 2 min

Manual

Automatic

K 12

YPF2

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E
Yamagawa

Apr. 1953

135° E Mean Time

f_oF₂

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
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17	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	7.2	[6.7]A	6.2	6.3	5.1	4.6P	4.4	4.4	
18	4.0	4.2	4.5F	3.6F	2.4	2.2P	3.4	5.5	6.1	(6.6)S	(7.0)P	6.4	7.5	8.7	9.3	7.0	7.2	7.8P	7.1	6.5	S	4.7P	4.5P	4.4	
19	4.3	4.0H	4.2	4.9	3.3	2.5	4.3	5.2	6.3	6.5	6.9	6.3	7.1	8.4	9.4	[9.8]C	[9.8]C	[9.5]P	7.0	AS	AS	AS	AS	3.7	
20	3.5P	3.5H	3.4F	3.0F	2.6F	2.6F	4.5	5.7	5.9	5.8	7.3	A	(9.3)P	8.7	[8.0]A	7.5	(9.4)P	C	(8.0)P	7.3	A	2.9	[2.8]A		
21	2.8	A	A	3.4	A	A	A	5.0	(7.2)P	[7.0]A	6.8	7.2	7.0	8.4P	(8.4)S	(8.2)S	9.1	8.8	7.2H	7.6	6.0P	5.2	[4.5]A	3.8	
22	3.5F	3.5F	4.0	4.1	2.5F	2.5F	5.7	6.2	6.8	9.1	[8.0]A	7.0	9.2	8.7	7.1	7.6	7.8	7.9	8.4	[6.8]A	5.1	4.1	3.8	3.3P	
23	3.3P	[3.4]W	3.4H	3.2	S	F	3.9	S	5.0	6.2	[7.4]A	8.5H	8.1	8.3	8.9H	8.5	8.3	7.9	8.2	8.1	4.7	A	A	3.9F	
24	3.9	3.7H	3.4	3.4	3.3	3.3	4.7	5.1	6.0	6.0	5.8	6.2	6.8	8.2	8.6	9.2P	9.3	(9.1)S	(9.0)S	(8.0)S	(6.1)S	5.1	5.2	5.5	
25	4.8	4.2	4.3	4.0	4.4	3.9	4.9	5.5	5.9	7.1	6.5	6.8	8.7	9.9H	10.2	10.1	10.1	[10.4]S	S	S	6.2P	3.9	4.0	4.0	
26	3.9	3.9	4.0	3.7	3.4	3.4	4.7	7.0	7.2	6.3H	6.7H	7.8	8.7	9.3	9.4	10.2	10.2	9.1	(8.0)S	B	10.8P	A	A	A	
27	3.3	3.4	2.5F	2.6	3.1	3.0	3.3	6.6	6.6	6.4	6.9	8.0	9.2	11.5	11.5	12.4	12.6	11.1	(9.1)A	7.1	5.6H	4.9H	AS	S	
28	S	5.0	4.2	(5.0)S	(5.0)P	3.5F	4.9	5.4	6.0	5.8	A	A	A	11.6	12.2	12.3	12.0	[9.8]A	7.7	7.6	7.7P	7.1	A	S	
29	S	5.0	4.9	4.5	4.7	3.4	5.6	6.5	6.5	5.6	6.5	7.0	8.1	10.5P	11.3	11.0	10.1	9.7	7.4	6.4	5.9	A	A	5.6P	
30	5.5F	5.1F	5.4	F	3.2F	2.4F	4.9	6.4H	5.9	6.7	7.6	8.4	[8.7]C	9.0	9.1	[10.0]T	10.9	10.0P	[8.2]S	6.4H	6.0	6.0	4.1	4.2P	
31																									
Mean Value	(3.9)	(4.1)	(4.0)	(3.8)	(3.4)	(2.9)	(4.7)	(5.9)	(6.3)	(6.5)	(6.9)	(7.2)	(8.5)	(9.3)	(9.4)	(9.5)	(9.6)	(9.2)	(8.0)	(7.2)	(6.4)	(5.1)	(4.2)	(4.1)	
Median Value	(3.9)	(4.0)	(4.1)	(3.6)	(3.3)	(2.9)	(4.8)	(5.7)	(6.1)	(6.4)	(6.9)	(7.0)	(8.7)	(8.7)	(9.1)	(9.5)	(9.8)	(9.1)	(8.1)	(7.0)	(6.0)	(4.9)	(4.2)	(4.0)	
Count	11	7	12	12	11	11	12	12	13	13	12	11	12	11	13	14	14	13	12	12	12	9	8	11	

Sweep 1.0 sec. Me to 2.0 sec. Me in 1.5 min

Manual Automatic

Y1

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

Apr. 1953

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	
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17	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	250	230	(240) ^H	250	260 ^{PS}	240	260 ^P	320	320	
18	320	300	250 ^F	200 ^F	250	(250) ^F	230	210	210	210	230 ^F	240	280	230	250	250	250	230 ^F	220	240 ^{PS}	S	260 ^P	290 ^P	210	
19	260	310 ^H	250	210	(200) ^F	240	210	210	200	240	240	270	280	290	270	(260) ^C	260	(240) ^C	(220) ^P	210	AS	AS	AS	310	
20	250 ^F	290 ^F	280 ^F	230 ^F	250 ^F	240 ^F	230	210	230	(240) ^H	260	A	(260) ^F	260	220	(250) ^H	280	(230) ^P	C	(230) ^P	A	A	A	A	
21	320	A	A	260 ^{HF}	A	A	A	200	A	A	A	(270) ^S	260	260 ^P	(280) ^{PS}	(260) ^{PS}	260	230	230 ^H	230	220 ^P	210	(240) ^A	260 ^{PS}	
22	320 ^{FF}	270 ^F	250	230 ^F	310 ^{FF}	(300) ^{FF}	240	(240) ^F	230	240	(270) ^A	340	260	260	290	290	260 ^{PS}	240	250 ^{PS}	A	A	290	310	300 ^P	
23	300 ^F	(280) ^H	270 ^H	A	S	F	(240) ^F	S	240	A	A	260 ^H	290	290	290	280	260	280	(230) ^J	200 ^{PS}	200 ^{PS}	A	A	310 ^F	
24	270	290 ^H	280	270	260	260	240	230	240	240	240	280	300	280	280	250	250	(230) ^S	(230) ^S	(220) ^S	(220) ^S	A	(270) ^{PS}	270	
25	260	(280) ^F	330	270	280	290	250	250	230	230	240	340	220	280 ^H	(240) ^{PS}	(240) ^{PS}	250	(230) ^S	(230) ^S	S	210 ^P	240	320	310	
26	280	310	280	230	240	280	230	240	230	250 ^H	270 ^{HF}	(280) ^A	290	290	290	280	250	250 ^S	A	B	A	A	A	A	
27	330	330 ^{ZF}	310 ^F	260	(280) ^F	290 ^F	240	210	240	240	240	350	350	300	280	300	270 ^{PS}	(260) ^A	270	270 ^H	270 ^H	270 ^H	AS	S	
28	S	(400) ^S	370	(250) ^{PS}	(220) ^F	270 ^F	220	210	210	210	A	A	A	300	300	270 ^{PS}	260	270	260	270	270 ^P	S	AS	S	
29	S	350 ^{PS}	320	270	290	330	260	260	250	230	290	290	300	300 ^F	260	260	240	280	200	240 ^{FSH}	260	A	A	300 ^{PF}	
30	(280) ^F	280 ^F	(270) ^F	F	250	280 ^F	250	230 ^H	250	260	260	270	(260) ^C	250	280	(280) ^T	270	240 ^P	(240) ^S	250 ^H	300	290	330	300 ^P	
31																									
Mean Value	(300)	(310)	(290)	(240)	(260)	(280)	(240)	(220)	(230)	(240)	(260)	(290)	(280)	(270)	(270)	(270)	(250)	(240)	(230)	(240)	(240)	(260)	(260)	(300)	(300)
Min Value	(300)	(300)	(280)	(250)	(280)	(280)	(240)	(220)	(230)	(240)	(250)	(280)	(280)	(270)	(280)	(270)	(260)	(240)	(230)	(240)	(240)	(260)	(260)	(310)	(300)
Count	//	12	12	11	//	//	12	12	12	11	10	11	12	13	13	14	14	13	11	11	9	7	7	10	

f_pF₂

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

R'F2

Apr. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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18	260	240	210	170	240	250	210	200	210	220	230	230	280	230	A	250	230	230	230	220	200A	200	260	260
19	230	240H	230	190	200	230	200	190	200	190	230	270	270	270	270	240	250	230	210	210	190	210	260	230
20	300A	250	250	220	230	230	210	210	220A	240A	250	270	260	220	250A	280	240	240E	230	220	200	260	300A	250A
21	310	A	A	220H	A	A	A	200	A	A	A	270	250	260	250	250	240	240E	230	220	A	A	A	250
22	260	260	230	230F	230	270F	230	220A	230	230	280A	340	260	250	270	290	250	220	210H	200A	200A	200A	220A	250F
23	290	[270]W	250H	230	230A	300F	240A	220	240	260A	260A	260H	270	280	260H	260	260	250	240	230	[230]A	280A	250	[270]A
24	250	250H	240	240	240	240	230	200	230A	240	230	260	300	270	250	250	240	230	210	200	200	200	A	270F
25	220	250	250	240	220	260	230	230	220	230	230	340	210	250H	250	240	240S	210	210	200A	180	180	300A	250
26	260	250	240	200	200	250	210	210	230	230A	250H	260A	260	280	270	250	240	250	260A	A	A	A	A	A
27	270	270	280	250	220	240	210	200	220	230	220	320	320	270	280	270	220	220	[220]A	220	240A	240H	[260]A	300
28	330	360	330A	220	200	200	200	200	210	210	A	A	300A	300A	300A	270A	270A	[260]A	260A	270	260A	5	A	320A
29	290	320	260	230	240	240A	240	230	250	200	290	300	280	280	250	240	230	220	200	200H	220A	A	A	260
30	250	240	240F	170	230	260	220	230	250	260	260	[260]C	250	260	260	250	240	220	210H	240A	270A	A	A	240
31																								
Mean Value	(270)	(270)	(250)	(220)	(220)	(250)	(220)	(210)	(230)	(230)	(250)	(270)	(260)	(260)	(260)	(260)	(240)	(230)	(220)	(210)	(210)	(230)	(260)	(260)
Median Value	(260)	(250)	(240)	(220)	(230)	(250)	(220)	(210)	(220)	(230)	(250)	(270)	(260)	(260)	(260)	(260)	(240)	(230)	(220)	(210)	(210)	(240)	(260)	(260)
Count	13	12	12	13	12	12	12	13	12	12	11	12	12	13	13	14	14	14	14	13	12	9	8	13

Sweep 1.0 Mc to 2.0 Mc in 1.5 min Manual Automatic

Y3

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12' 5" N
Long. 130° 37' 7" E

foF1

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
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Median Value																									
Count																									

S

foF1

Sweep 1.0 Mc to 30.0 Mc in 1.5 min

Manual

Automatic

Y4

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

Apr. 1953

R'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
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Mean Value																								
Median Value																								
Count																								

Sweep 1.0 sec. Mc to 20.0. Mc in 1.5 min

Manual Automatic

Y5

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

Apr. 1953

foE

135° E Mean Time

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

foE

Sweep J.L.C. Mc to 2.5.e. Mc in J.S. min

Manual Automatic

Y6

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Apr. 1953

f_oF₂

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
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Mean Value																									
Minimum Value																									
Count																									

C

Y7

Manual Automatic

Sweep 1.0 Mc to 2.0 Mc in 1.5 min

Count

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

Apr. 1953

fEs

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
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16																									
17	C	C	E	2.4Y	2.5	2.5	2.0	C	4.2	4.9Y	6.6	4.4	C	7.5	6.2	7.3	7.1	7.6	6.2	4.1	2.4	2.0	2.2	1.9	
18	2.3	2.6	2.6	2.4Y	2.9	2.8	B	G	3.5Y	3.0	3.4	3.6	G	4.4	4.0	3.8	4.0	3.8	4.2	4.2	3.6	2.6	3.0	3.3	
19	2.6	2.6	2.6	2.5	2.5	3.6	3.0	4.3	5.4	6.1	C	8.8	7.7	6.2Y	9.0Y	8.6F	3.2F	C	5.0	7.2	6.6	4.7	2.6	3.8	
20	4.4	3.6	3.4	3.7	5.6	4.8	4.8	3.7	6.6	7.5	6.9	5.8	8.2	7.2	6.0	6.0	5.5	3.9	G	3.1	2.6	4.0Y	4.6	E	
21	3.2F	4.0F	5.5	3.0	1.2	E	3.2	5.3	6.6	7.6	13.6F	6.0F	6.0	G	5.5	5.8	6.0	3.4	5.4	9.4	4.8	4.2	6.4	4.5	
22	3.2	3.2	3.0	3.0	1.2	E	3.6	4.4	4.4	6.0	8.4	5.4	6.0	6.4	4.6	G	G	3.4	G	2.0	4.2	5.4	5.6F	3.9F	
23	4.6	2.6	3.4	2.6	2.4	E	3.8	2.9	5.4	5.2	4.3	4.6	5.0	6.4	6.1	6.4	4.3	4.0	3.1	4.8	4.0	4.8	3.0	3.0	
24	4.0	4.0	3.2	2.6	5.0	4.4	3.8	2.0	3.8	3.9	4.7	4.7	4.1	6.8	8.4	5.8	5.4	5.2	5.2	4.5	5.0	3.1	3.8	E	
25	3.4	1.7	2.0	2.0	2.0	2.0	B	G	3.7	4.2	6.5	6.2	8.0F	9.7	6.1	G	5.2	7.5	9.1	10.1	13.5	13.2	12.5	6.5	
26	3.2	1.6	E	E	1.4	2.6	G	3.7	4.2	6.5	6.2	8.0F	8.8	9.7	6.1	G	5.2	7.5	9.1	10.1	13.5	13.2	12.5	6.5	
27	2.5	2.5	2.5	2.1	1.7	2.6Y	3.2	3.5	4.2	5.0	6.4	4.4	4.0	4.0	G	4.4	G	4.4	8.6	4.2	4.0	3.6	5.4	3.0	
28	3.8	3.0	3.4	3.4	2.8	E	G	3.9	4.7	7.0	7.5	8.0F	13.2	9.2	10.2	11.2	10.1	11.4	6.6	4.9	5.8	3.5Y	6.3	5.8	
29	2.7	3.5	3.4	3.2	3.6	2.6	2.2	2.4	3.0	4.3	6.3	5.2	5.4	4.6	5.6	9.2Y	6.8	5.4	5.0	4.0	4.1	7.0	5.4	2.4	
30	2.2	3.6	2.4	3.0	3.1	2.3Y	3.5Y	4.8	5.4	5.6	6.6	5.2	C	4.6	4.4	3.7Y	G	G	3.0	2.4	3.2	4.2	3.4	2.5	
31																									
Mean	(3.2)	(3.0)	(3.2)	(2.7)	(2.8)	(3.0)	(3.3)	(3.8)	(4.7)	(5.6)	(6.7)	(5.7)	(6.7)	(6.2)	(6.3)	(6.4)	(5.6)	(5.4)	(5.6)	(4.9)	(5.0)	(4.8)	(4.7)	(3.8)	
Median	(3.2)	(3.0)	(3.0)	(2.6)	(2.5)	(2.6)	(3.2)	(3.7)	(4.4)	(5.6)	(6.5)	(5.2)	(5.7)	(6.2)	(5.8)	(5.8)	(4.8)	(4.4)	(5.1)	(4.2)	(4.2)	(4.2)	(4.5)	(3.2)	
Value	13	13	13	13	13	13	11	13	13	13	12	13	12	14	14	14	14	13	14	14	14	14	14	14	
Count																									

fEs

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

(M3000)F2

Apr. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
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16																									
17	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	B	3.6	[3.6]A	3.5	3.4	3.5	3.4	3.5	3.4	3.0
18	3.0	3.1	3.5	4.0	3.5	3.8	3.8	4.1	(3.8)	(3.7)	3.5	3.4	3.4	3.6	3.8	3.7	3.6	3.7	3.8	3.5	S	3.2	3.1	3.4	
19	3.4	3.0	3.5	3.9	(4.1)	3.5	3.9	4.1	3.4	3.7	3.3	3.5	3.3	3.3	3.3	[3.4]	[3.6]	(3.7)	3.7	3.5	3.5	3.7	3.5	3.1	
20	2.9	3.2	3.5	3.8	3.5	3.4	3.8	3.7	3.5	3.4	A	(3.3)	3.3	3.4	[3.6]A	3.4	(3.6)	C	(3.7)	3.7	3.5	A	2.9	[3.0]A	
21	3.0	A	A	3.6	A	A	3.9	(4.0)	[3.6]A	(3.2)	(3.4)	3.3	3.4	3.4	(3.2)	3.5	3.7	3.6	3.7	3.7	3.7	3.7	3.7	[3.6]A	
22	3.0	3.3	3.5	3.7	3.1	3.5	4.0	4.0	3.7	[3.4]A	3.0	3.3	3.2	3.2	3.3	3.2	3.5	3.5	3.5	[3.6]A	3.6	3.1	3.1	3.0	
23	3.3	[3.4]M	3.4	3.7	S	F	(3.5)	S	3.6	3.6	[3.5]A	3.4	3.4	3.3	3.3	3.2	3.8	3.4	(3.6)	3.9	3.9	A	A	3.1	
24	3.3	3.3	3.3	3.2	3.3	3.3	3.7	3.8	3.8	3.8	3.4	3.4	3.4	3.4	3.4	3.4	3.7	(3.7)	(3.8)	(3.7)	3.7	3.7	(3.4)	3.3	
25	3.4	(3.3)	3.2	3.2	3.1	3.0	3.4	3.6	3.7	3.8	3.4	3.0	3.3	3.4	3.5	(3.7)	(3.6)	(3.6)	S	S	3.7	3.4	3.0	3.2	
26	3.2	3.1	3.3	3.6	3.6	3.3	3.6	3.7	3.5	3.2	(3.1)	3.2	3.2	3.2	3.2	3.3	3.4	3.6	(3.6)	B	3.6	A	A	A	
27	3.0	3.0	3.1	3.4	3.3	3.3	3.5	3.9	3.5	3.5	2.8	3.0	3.0	3.2	3.4	3.1	3.6	3.5	(3.5)	3.5	3.5	3.3	3.3	S	
28	S	2.8	2.7	(3.6)	(3.6)	3.2	3.7	3.9	4.1	A	A	A	A	3.1	3.2	3.3	3.4	(3.4)	3.4	3.4	3.4	3.3	A	S	
29	S	2.9	3.0	3.2	3.1	3.0	3.4	3.6	3.8	3.4	3.1	3.1	3.1	3.1	3.4	3.5	3.7	3.7	3.9	3.5	3.4	A	A	(3.1)	
30	(3.2)	3.3	3.3	F	3.5	3.5	3.8	3.7	3.5	3.4	3.2	(3.4)	3.3	3.5	3.3	(3.3)	3.3	3.6	(3.5)	3.4	3.1	3.1	3.0	3.1	
31																									
Mean	(3.2)	(3.1)	(3.3)	(3.6)	(3.4)	(3.3)	(3.6)	(3.8)	(3.7)	(3.5)	(3.2)	(3.3)	(3.3)	(3.3)	(3.4)	(3.4)	(3.6)	(3.6)	(3.6)	(3.5)	(3.5)	(3.4)	(3.4)	(3.1)	(3.2)
Median	(3.2)	(3.2)	(3.3)	(3.6)	(3.5)	(3.3)	(3.5)	(3.7)	(3.6)	(3.4)	(3.2)	(3.3)	(3.3)	(3.3)	(3.3)	(3.4)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.4)	(3.1)	(3.2)
Value	1.1	1.2	1.2	1.2	1.1	1.2	1.2	1.3	1.3	1.2	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
Count	11	12	12	12	11	12	12	13	13	12	11	12	12	13	13	14	14	13	12	12	12	12	9	8	11

Sheet 1 of 2 Me to 24.0 Mc in 1.5 min

Manual Automatic

Y9

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

IONOSPHERIC DATA

Yamagawa

Apr. 1953

135° E Mean Time

f min F

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
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3																									
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9																									
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14																									
15																									
16																									
17	C	1.5	1.1	1.6	1.1	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7
18	1.5	1.5	1.1	1.6	1.1	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7	1.6	1.7
19	2.2A	1.9	1.6	2.0	2.2	1.8	2.0	2.2	1.8	2.0	2.2	1.8	2.0	2.2	1.8	2.0	2.2	1.8	2.0	2.2	1.8	2.0	2.2	1.8	2.0
20	2.2A	2.1A	1.8	1.9	1.7	1.6	1.8	3.0A	4.4	5.5A	4.9	6.8A	7.0A	5.0A	4.6	4.1A	2.9	1.4-2.3	5.6	5.6A	6.8	4.6A	2.5A	2.6A	
21	2.0	A	A	1.9	A	A	A	3.5A	6.7	16.6M	6.6A	4.8A	6.4A	5.4A	5.8A	4.5A	4.6A	2.8	2.2	A	A	A	A	A	
22	1.6	E	2.2A	2.0A	E	E	1.6	5.2A	3.0	6.5A	15.6A	4.8A	4.8A	3.5	4.5	4.9A	5.5A	3.0	4.1A	4.3A	3.0A	1.6	2.6A		
23	2.4A	1.6	2.3A	2.7	2.3A	2.0F	1.8	4.5	4.1A	5.5A	15.4A	5.4	5.8A	4.4A	3.8	3.9	3.2	3.0	3.7	1.8	1.9	A	A	1.6F	
24	1.8	1.6	1.4	1.7	1.6	1.3	2.0	2.6	4.7A	4.4A	4.4A	3.5	4.0	4.0	4.5A	4.0	3.7	3.2	3.4	2.5	2.7A	4.5A	2.6A	1.9	
25	1.7	1.7	1.6	1.6	1.8	2.0A	1.8	2.1	3.8A	3.4	4.1A	3.6	4.0	4.1	5.8A	8.0A	4.4A	4.7A	4.0A	3.5A	3.0A	1.8	2.9A	1.5	
26	1.8	E	1.2	E	E	1.8	1.9	2.4	2.9	4.6A	5.1A	7.2A	5.0A	7.2A	3.9	3.9	3.5	4.6A	7.2A	9.9A	10.1A	A	A	A	
27	1.2	E	1.2	1.7	1.6	1.6	1.8	2.1	4.2A	3.5	4.8A	4.0	4.0	4.0	4.4	6.0A	4.7A	3.4A	4.0A	4.0A	2.2A	A	A	2.8A	
28	4.0	3.4	2.5A	1.6	1.5	E	2.0	2.8	3.5	4.7A	A	A	A	A	6.0A	4.8A	4.8A	18.1A	4.4A	6.0	5.8A	6.0	4.8A	3.5A	
29	2.4A	3.0A	1.5	2.0	1.7	2.4A	1.8	2.5	3.0	3.6	4.1	4.2	4.0	4.0	3.9	5.4A	4.5A	3.4A	3.2A	3.0A	3.0A	A	A	1.6	
30	1.5	1.3	1.4	1.2	2.0	1.8	2.1	3.0	4.5A	4.6A	5.7A	5.4	5.0C	4.6	3.7	3.3	3.0	3.0	2.4	2.0A	2.7A	4.2A	1.4	1.6	
31																									
Mean Value	(2.0)	(2.0)	(1.7)	(1.8)	(1.8)	(1.8)	(2.0)	(3.0)	(3.9)	(4.5)	(4.7)	(4.8)	(4.8)	(4.6)	(4.7)	(4.3)	(4.5)	(3.8)	(4.0)	(3.9)	(4.1)	(3.4)	(2.5)	(2.2)	
Min Value	(1.8)	(1.6)	(1.6)	(1.7)	(1.6)	(1.8)	(1.8)	(2.6)	(3.8)	(4.6)	(4.8)	(4.5)	(4.4)	(4.2)	(4.4)	(4.0)	(3.8)	(3.3)	(3.6)	(3.5)	(3.2)	(3.2)	(2.5)	(1.9)	
Count	13	12	12	13	12	12	12	13	13	13	12	12	12	12	13	14	14	14	14	13	13	10	9	13	

Y10

Manual Automatic

Speed 1.0 Mc to 2.0 Mc in 1.5 min

f min F

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

Lat. 31° 12.5' N
Long. 130° 37.7 E

Yamagawa

IONOSPHERIC DATA

f_{min}E

Apr. 1953

138° 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																									
3																									
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12																									
13																									
14																									
15																									
16																									
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
18	1.5	1.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
19	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
20	1.6	1.6	1.6	1.4	1.3	1.1	1.6	1.6	1.6	1.7	1.7	1.5	1.7	1.7	1.7	1.5	1.5	1.4	1.4	1.4	1.6	1.5	1.6	1.6	
21	1.3	1.2	1.7	1.2	1.8	1.1	1.5	1.4	1.9	1.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.4	1.6	1.6	
22	1.5	E	E	E	E	E	1.6	1.5	1.5	1.5	1.6	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.6	E	
23	1.5	1.6	1.7	1.9	2.0	E	1.4	1.6	1.6	1.5	1.6	2.0	2.8	2.0	1.6	2.0	1.6	1.7	1.7	1.7	1.6	1.6	1.6	1.6	
24	1.5	1.4	1.2	1.6	1.6	1.6	1.5	1.8	1.6	1.6	1.7	2.2	2.3	2.4	3.0	2.3	1.5	1.4	1.4	1.6	1.7	1.7	1.6	1.6	
25	1.7	1.6	1.4	1.6	1.4	1.4	[1.5]B	1.6	1.4	1.4	1.7	1.6	1.7	1.7	1.8	1.7	1.6	1.5	1.4	1.5	1.9F	1.5	1.6	1.6	
26	1.7	E	E	E	E	E	1.3	1.6	1.6	1.6	1.6	1.8	2.0	1.5	1.8	1.6	1.6	1.5	1.4	1.5	1.6	1.5	1.6	E	
27	1.8	E	1.2	1.9	1.6	1.6	1.3	1.5	1.6	1.6	2.0	2.5	2.0	1.8	2.0	1.8	1.6	1.5	1.4	1.5	1.6	1.5	1.5	1.5	
28	E	E	E	E	E	E	1.5	1.6	1.4	1.5	1.7	2.5	2.4	2.7	2.2	1.4	1.6	1.8	1.6	1.6	1.6	1.6	1.6	1.6	
29	1.5	1.7	1.5	1.6	1.6	1.4	1.6	1.4	1.6	1.6	1.6	2.4	2.0	2.1	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
30	1.6	1.3	E	E	E	E	1.7	1.6	1.8	1.6	1.6	1.8	1.8	1.8	1.5	1.6	1.4	1.6	1.6	1.6	1.6	1.4	1.4	1.6	
31																									
Mean	(1.6)	(1.5)	(1.5)	(1.6)	(1.6)	(1.5)	(1.6)	(1.6)	(1.6)	(1.7)	(2.0)	(2.0)	(2.1)	(1.9)	(1.8)	(1.8)	(1.6)	(1.6)	(1.6)	(1.5)	(1.6)	(1.6)	(1.6)	(1.6)	
Median	(1.5)	(1.3)	(1.2)	(1.4)	(1.4)	(1.5)	(1.6)	(1.6)	(1.6)	(1.6)	(1.8)	(1.8)	(2.0)	(1.8)	(1.8)	(1.6)	(1.6)	(1.6)	(1.6)	(1.5)	(1.6)	(1.6)	(1.6)	(1.6)	
Value	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
Count	13	13	13	13	13	13	13	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	

Sweep 1.0 Mc to 2.0 Mc in 1.5 min Manual Automatic

IONOSPHERIC DATA IN JAPAN FOR APRIL 1953

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(不許複製非売品)

編集兼
發行 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

發行所

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