

CRWO—F 28

551. 510. 535. 05(52) (047.3)

IONOSPHERIC DATA IN JAPAN

FOR APRIL 1951

Vol. 3 No. 4

Issued in May 1951

PREPARED BY THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

KOKUBUNJI, TOKYO, JAPAN

THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

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PREFACE

The radio administration in Japan has hitherto been carried out by the Radio Regulatory Agency. With the reorganization of part of the government offices effective on June 1, 1950, the Radio Regulatory Commission was established and the work of researches on radio propagation has become to fall under the charge of the radio wave observatories, auxiliary organs of the Radio Regulatory Commission.

The radio wave observatories are composed of the Central Radio Wave Observatory located at Kokubunji, Tokyo, and five local radio wave observatories established at Wakkanai, Akita, Hiraiso, Inubo and Yamagawa respectively.

The Central Radio Wave Observatory has the following four 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;

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, and physical basic studies of wave propagation in general; and

Administrative Section which shall conduct the general affairs of the observatory. 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 Radio Regulatory Agency 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.

Uyeda Hiroyuki
Chief, Central Radio Wave Observatory.
Radio Regulatory Commission

May, 1951.

SITE OF THE IONOSPHERIC STATIONS

Ionospheric observation is carried out at four stations in Japan.

The stations are situated as follows :

	longitude	latitude	site
Wakkanai	141° 41.1' E	45° 23.6' N	Wakkanai-shi, Hokkaido
Akita	140° 08.2' E	39° 43.5' N	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	139° 29.3' E	35° 42.4' N	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	130° 37.7' E	31° 12.5' N	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

REMARKS ON SYMBOLS

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

Apr. 1951

foF2

135° E Mean Time

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	(4.4)F	4.8F	6.0F	7.1	6.9	8.3	8.8	8.7	9.1	8.8	8.7	8.1J	7.5	6.5	B	7.3	6.1F	5.8	5.6	5.2J
2	5.0	4.9	5.0	4.9	4.3	4.4	6.1	7.8	7.6	8.6	B	B	8.3	8.7	8.9	8.7	8.7	8.9	7.8	6.7	6.9	6.8	6.1	5.3
3	5.3	5.2	4.0V	4.9	5.1	5.4	5.9	8.5	6.1F	8.7	8.7	B	8.2J	8.0	8.7J	B	7.3	7.6F	S	S	S	7.2	6.6	5.7
4	5.1	5.1	4.2	3.5H	3.6	3.5H	4.5	4.9	5.3	5.6H	6.3	8.9	7.9	7.1	7.9	8.1	8.3	7.8	7.7	7.4	7.1	6.0	5.1	5.0
5	4.7	5.0H	5.0F	5.0	4.2V	4.2	5.4	5.3	5.2K	6.0K	6.5K	6.9K	6.9K	6.7K	6.3K	6.0H	6.0H	5.7	5.6	5.4	5.2	5.2	4.8F	4.8
6	4.6	4.4H	4.8	4.4H	2.9	4.4Z	5.9	5.2	6.1	7.4	8.7	7.3	7.8	7.0	7.4	7.4	7.5	7.8	7.7	7.0	6.6	5.9	5.7	(5.8)F
7	5.2F	4.9	4.5H	4.6	3.5	3.9K	4.6K	5.1K	5.7K	6.7K	7.3	8.7H	7.7	7.0	7.4	7.4	7.4	6.4	6.0	5.5	5.4	5.4	5.3	5.2
8	5.1	4.7	4.3F	3.5F	3.2	4.3	5.1	7.2	6.8	6.6	7.3	7.6	7.2	8.8	8.8	8.5	7.8	6.9	6.0	6.3	6.4	6.3	6.0	5.8F
9	5.3F	4.4F	4.5F	4.5F	4.8F	5.3F	6.6	7.3	8.2	8.9	9.0	8.6	7.4	7.2	7.5	7.8	7.5	6.9	7.4	7.6	7.0	6.9	5.8	5.7
10	5.8	5.7	5.4	5.2F	4.4F	4.4F	5.1	6.5	6.5	7.3F	7.3F	8.3J	8.3J	8.1	8.9	8.6	7.9	6.8	6.4	5.8	5.5	5.7	5.2	5.2
11	4.8	4.7	4.9	5.0H	4.1F	4.8	4.9	6.3	C	C	C	C	C	C	C	C	7.6	7.7	7.4	6.6	5.8	5.6	5.6	5.8H
12	5.5	5.2	5.4	5.5	4.2	5.8	5.3	5.0	5.8	7.5	8.9	9.1S	8.9	(8.8)J	8.8	7.7	7.2	7.0	7.4	6.6	6.6	6.4F	6.6	5.9F
13	5.4F	5.0F	C	C	C	4.6F	6.0	6.7H	7.7	9.1	8.8	8.7	B	B	9.0	9.0	7.8	7.3	7.8	7.0	7.0	7.0	6.8	6.5H
14	6.1H	6.0	5.9	5.5	4.7	3.8	4.3K	4.4K	4.8K	5.5K	6.4K	6.8K	7.0K	7.1K	7.3K	7.4K	7.6	7.2	7.4	7.8	6.2	5.9	5.5	5.6H
15	5.4H	5.2	5.3	5.0	5.2	5.0	6.1	6.3	7.3	8.2Z	9.1	9.0H	8.8	8.7	9.0	8.0	7.8	C	C	C	C	6.4	6.0H	5.7F
16	5.8	5.8	5.6	5.4	5.0H	5.8	7.1	7.2	7.5	7.7	8.2	8.3J	8.7	8.7	8.9	8.7	7.8	7.9	7.4	8.0	7.2	7.3	6.8	6.4
17	6.4	6.2	6.0	5.8	5.4H	C	C	8.2	9.0	8.7	8.8	(9.4)F	8.9	(9.0)F	10.3	8.9	9.0	8.7	8.7	7.3	6.7	6.7	7.1	6.6
18	6.5	6.4	6.0	5.6	5.2H	6.3	7.7	8.8	9.3	9.6	9.6	9.4	B	B	9.5	10.3	9.2	8.3	8.0	8.2F	7.9H	7.5H	6.6	5.7V
19	5.4	5.4	5.2	4.3	4.1	4.9	5.6	6.3	6.4	7.2	7.5	7.5	A	B	B	B	8.1F	8.1	8.5	8.1	7.4	7.7	7.0	6.6
20	6.5	6.3	6.2	5.5	5.7	5.9	7.0	7.4	7.6	8.0	(8.1)F	9.3	9.1	8.5	8.7	8.3	8.0	7.6	7.4	(7.4)F	7.3	6.7	6.3	6.2
21	5.5	6.3	6.0	5.8	4.0Z	5.4K	5.9K	BK	BK	BK	7.3K	7.0K	7.6	7.9	9.0	7.8	7.9	7.6	7.8	7.3	7.0	6.6	6.2	5.6F
22	5.7F	5.7F	5.8F	5.2F	4.7F	5.0F	5.5K	5.3K	5.8K	C	C	C	C	C	C	C	C	8.0	7.6	7.8	7.0	6.6	6.2	5.6F
23	6.9	6.0	6.0	5.3	4.3	4.5	5.5	6.5	6.9	7.0	7.2Z	7.7	7.7	C	C	C	C	8.0	7.6	7.8	7.0	6.6	6.2	5.6F
24	6.7H	6.5	6.3	6.3	5.7	6.5	7.4	8.6	8.3	8.9	9.5	9.4	9.0	8.7	8.8	8.0	8.7	8.5	8.3	7.6	7.4	7.2	7.3	7.4
25	7.0	6.5	5.6	5.2	A	4.7K	5.3K	6.2K	6.3K	6.8K	5.7K	5.9K	6.6K	(10.0)F	10.4	9.3	9.0	8.7	8.0F	7.5	7.5	7.3F	7.2	7.3
26	5.8	5.8	4.8	4.4	4.0	5.1	5.4K	A	G	5.6K	6.2K	6.0K	6.6K	6.2K	6.9K	6.4	6.8	6.6	6.7	6.7	5.7F	5.5	6.0	5.7
27	5.8F	5.3F	5.0F	4.8F	5.0	5.5	6.0	6.4	6.5	7.0	6.8	6.7H	A	7.1	7.3	7.1H	7.5	7.3	7.7	7.3	7.1	6.8H	6.5H	6.4
28	5.8	6.4	5.9	5.6	6.0Z	6.1	6.8	5.9H	6.8	6.9	7.9	7.9	7.3	7.6	7.6	6.9	6.4	6.4	6.7	7.7	7.4	7.4	6.8	6.0
29	5.8	5.6	5.3	5.0	4.8	5.8F	6.8V	6.1	6.4	6.0	6.9	7.4	7.9	8.0	7.7	8.1	8.0	8.7	8.2	7.6	7.0	6.8	6.6	6.4
30	6.1	C	C	C	C	C	C	6.8	6.6	7.2	8.1	8.7	8.4	8.3	C	8.0	8.0	7.5	7.4	8.6	8.5	7.8F	6.8	6.1
31	Mean Value	5.7	5.5	5.3	5.0	4.5	5.8	6.6	6.8	7.4	7.7	8.0	8.0	8.0	8.4	8.0	7.7	7.5	7.3	7.2	6.8	6.5	6.3	6.0
	Median Value	5.8	5.5	5.3	5.0	4.4	5.0	6.5	6.5	7.3	7.5	8.3	7.9	8.0	8.8	8.0	7.8	7.6	7.4	7.4	7.0	6.6	6.3	5.8
	Count	24	28	27	27	28	28	28	28	27	27	26	25	24	26	26	29	29	27	28	28	30	30	30

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f_pF₂

Wakkanai

Lat. 45° 2' 3.6" N
Long. 141° 41.1' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	(4.0) ^F	4.0 ^F	3.0 ^F	3.10	3.00	3.10	3.10	3.20	3.30	3.20	3.10	(3.20) ^J	3.20	3.10	B	3.30	3.30 ^J	4.00	3.50	(3.70)	
2	4.20	3.70	3.50	3.50	3.40	3.70	2.90	2.90	3.00	3.10	B	B	3.00	3.30	3.20	3.20	3.20	3.10	3.00	3.70	3.80	3.60	3.80	3.70	
3	4.70	4.50	4.0 ^V	4.00	4.10	3.30	2.80	3.00	2.80 ^F	3.10	3.20	B	(3.10) ^J	3.40	(3.10) ^J	B	3.00	3.20	S	S	S	3.30	3.60	4.00	
4	3.90	3.20	3.50	4.40	4.40	4.00	3.30	3.00	3.10	G ^H	3.90	3.40	3.30	2.80	3.10	3.20	2.90	2.90	3.10	3.10	3.10	3.80	4.10	4.20	
5	4.60	4.20	3.90	3.60	3.40	3.50	3.40	3.20	3.40	3.60	3.80	4.00	3.90	3.40	3.50	3.40 ^H	3.30 ^H	3.10	3.20	3.50	3.90	4.00	(3.60)	4.10	
6	4.10	4.20	4.30	4.40	2.80	3.20	3.00	2.60	3.10	3.70	3.20	3.10	3.10	3.20	3.30	3.20	3.20	3.20	3.20	3.30	3.30	3.20	4.10	(4.50)	
7	4.00 ^F	3.90 ^F	4.00 ^H	3.80	3.50	3.40 ^K	G ^K	3.70 ^K	3.90 ^K	3.20 ^K	3.60	3.20	3.30	B	3.30	3.00	2.90	3.00	3.10	3.20	3.40	4.10	4.00	4.00	
8	3.80	3.80	3.70	3.40 ^F	4.20	3.10	3.00	3.00	3.00	3.00	3.20	3.20	3.30	3.30	3.30	3.20	3.00	3.10	3.20	3.40	3.40	3.50	3.80	3.70 ^F	
9	3.90 ^F	3.30 ^F	3.60 ^F	3.70 ^F	3.60 ^F	3.00 ^F	3.00	3.00	3.10	3.20	3.10	3.10	3.20	3.10	3.10	3.10	3.00	3.30	3.40	3.30	3.40	3.60	3.50	4.10	
10	3.90	3.80	3.40	3.60 ^F	3.60 ^F	3.50 ^F	3.10	3.20	2.90	3.00 ^F	3.10 ^F	(3.30) ^F	(3.50) ^F	(3.20) ^F	(3.30) ^F	3.20	3.00	3.00	3.20	3.20	4.10	4.10	4.20	4.00	
11	4.20	4.20	3.70	3.30	3.10	2.80	3.20	3.00	C	C	C	C	C	C	C	B	3.10	3.10	3.10	3.20	3.30	3.80	3.90	4.30 ^H	
12	4.00	4.10	3.40	3.20	3.40	3.40	3.10	3.20	G	3.20	3.10	3.10 ^S	3.10	(3.20) ^J	3.20	2.90	3.00	3.00	3.10	3.50	3.80 ^F	4.10	3.80	3.60	
13	4.10 ^H	4.30 ^F	C	C	C	3.00 ^F	2.80	3.20 ^H	3.20	3.10	3.40	3.50	B	B	B	3.20	2.90	3.00	3.30	3.50	3.70	3.90	4.20	4.40 ^H	
14	4.40 ^H	4.20	4.30	3.10	3.50	4.40	G ^K	G ^K	G ^K	G ^K	4.10	3.40	3.10	3.10	3.00	3.10	3.00	3.10	3.20	3.10	3.20	3.80	4.00	4.00	
15	4.10 ^F	3.60	3.80	3.40	3.50	3.40	3.00	2.90	3.20	3.10	3.20	3.20	3.30	3.20	3.10	3.10	3.10	C	C	C	C	3.30	4.00	4.30 ^H	
16	4.00	3.90	4.20	3.20	3.40	3.40	3.00	3.00	3.00	3.10	3.20	(3.30) ^J	3.50	(3.50) ^J	3.20	(3.10) ^J	3.20	3.10	3.10	3.30	3.30	3.70	3.80	4.10	
17	4.10	3.70	3.70	3.60	3.40 ^F	C	C	C	3.10	3.10	3.20	3.10	(3.10) ^F	3.20	(3.40) ^F	3.10	2.90	3.20	3.30	3.30	3.60	3.80	4.10	4.30	
18	4.20	3.90	3.60	3.70	3.30	3.20	3.10	3.10	3.00	3.10	3.10	3.30	B	B	(3.10) ^F	3.10	2.90	3.00	3.10	3.30	3.40	3.70	4.10	4.30	
19	4.80	4.50	4.70	4.30	4.30	3.50	3.10	3.30	2.70	3.20	3.10	3.60	4.00	A	B	B	3.50	3.50	3.30	3.20	3.40	3.70	4.10	4.00	
20	4.20	4.20	4.20	4.10	4.20	3.70	3.10	3.30	3.30	3.50	(3.30) ^K	4.00	3.60	3.50	3.70	3.40	3.10	3.20	3.10	(3.30) ^F	3.40	3.50	4.30	4.30	
21	4.40	4.00	3.90	3.90	3.80	3.50	G ^F	B ^K	B ^K	B ^K	4.00	3.80 ^F	3.50	3.60	3.10	3.10	3.10	3.20	3.10	3.30	4.20	3.90	4.50	4.50	
22	4.30 ^F	4.30 ^F	(4.40) ^F	4.00 ^F	3.70 ^F	3.90 ^F	3.90	4.30	G ^K	G ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	4.20	4.00	4.20	4.00	
23	4.30	4.90	4.50	4.20	4.50	4.50	4.10	3.20	3.50	3.70	3.70	3.20	3.30	3.40	3.20	3.20	3.30	3.10	3.20	3.20	3.80 ^H	3.30	3.90	4.00	
24	3.90 ^H	4.00	3.70	3.80	3.60 ^H	3.10	3.10	3.10	3.10	3.10	3.40	3.40	3.20	(3.30) ^F	3.40	3.50	3.60	3.00	3.10	3.30	4.00	(4.10) ^K	3.70	4.20	
25	3.80	4.30	4.30	4.10	A	4.20	G ^K	4.00	3.90	G ^K	G ^K	G ^K	4.60 ^K	4.00 ^K	3.30 ^K	3.80 ^K	3.20 ^K	3.20 ^K	3.80 ^K	3.60 ^H	3.90 ^H	4.30	4.30		
26	4.00	3.80	4.20	4.20	4.70	3.70	G ^K	A ^K	G ^K	B ^K	B ^K	B ^K	4.20	3.50 ^K	A ^K	3.10	3.30	3.40	3.20	3.40	3.50	3.70	3.60		
27	3.80 ^F	3.90 ^F	4.20	3.90 ^F	4.00	3.70	3.10	3.10	3.20	3.90	3.30	AH ^F	A	3.40	3.30	3.70 ^H	3.40	3.10	3.20	3.40	3.60	3.90	4.10	3.80	
28	4.00	4.10	4.10	4.30	4.00	4.10	4.00	3.60	4.00	4.20	4.10	4.00	3.40	3.40	3.40	3.10	3.00	3.20	3.40	3.60	3.70	3.50	3.70	3.90	
29	4.00	3.90	3.80	4.00	3.70	3.50 ^F	3.40 ^F	3.00	3.30	3.20	3.40	3.60	3.40	3.50	3.20	3.00	3.10	3.10	3.00	3.20	3.40	4.00	4.20	4.10	
30	4.20	C	C	C	C	C	C	3.00	3.30	3.20	3.20	3.40	3.10	3.10	C	3.40	3.10	3.30	3.00	3.90	3.30	3.40	3.50	3.70	
31																									
Mean Value	4.10	4.00	3.90	3.80	3.70	3.50	3.20	3.20	3.20	3.30	3.40	3.40	3.40	3.30	3.20	3.20	3.10	3.10	3.10	3.20	3.40	3.60	3.80	4.00	4.10
Median Value	4.10	4.00	3.90	3.80	3.60	3.50	3.10	3.10	3.20	3.20	3.20	3.40	3.30	3.40	3.20	3.20	3.10	3.10	3.10	3.20	3.30	3.60	3.80	4.00	4.00
Count	24	28	27	27	27	28	28	28	28	26	26	25	25	24	25	26	29	29	27	28	28	28	30	30	30

f_pF₂

Sweep 1.0 - Mc to 17.0 Mc in 1.5 min

Manual

W 2

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Apr. 1951

f'F2

Lat. 45° 3.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	300 ^F	300	260	270	260	240	280	240	310	300	280	240	240	300	260	250	270	300	280	300	
2	300	300	280	260	250	280 ^H	230	250	270	240	240	240	240	310	300	250	240	270	260	280	280	280	260	240	
3	340	350	340	330	320	280 ^H	320	280	260	300	300	240	310	280	300	280	250	270	280	280	270	280	240	310	
4	310	240	270	280 ^H	340	350 ^H	270	300	300	300	310	320	300	270	300	240	270	250	270	240	250	240	240	330	
5	380	320 ^H	300	280	250	310	(320 ^A)	300	340 ^K	360 ^K	380 ^K	400 ^K	340 ^K	330 ^K	330 ^K	300 ^H	270	280	280	300	300	300	300	310	
6	320	320 ^H	320	320 ^H	260	270	250	240	300	360	310	310	300	300	320	300	240	240	260	270	250	270	240	310	
7	300	300	310 ^H	300	280	300 ^K	300 ^K	370 ^K	340 ^K	320 ^K	320	310 ^H	320	300	240	280	270	270	260	280	270	310	320	320	
8	300	300	240	320	320	270	260	300	300	300	300	310	300	310	310	240	270	250	260	280	240	300	300	300	
9	300	300	310	310	300	280	280	280	300	300	300	300	300	300	300	300	260	280	280	260	240	280	280	280	
10	300	300	300	300	300	310	270	290	270	300	240	310 ^H	300	310	300	300	270	270	250	270	240	320	330	320	
11	320	320	300	260	230	230	300	280	C	C	C	C	C	C	C	270	300	240	270	270	270	310	310	320	
12	240	300	300	300	240	280	300	300	300	300	300	300	300	310	300	280	280	240	250	270	240	320	300	300	
13	320	340 ^H	C	C	C	270	250 ^B	250 ^H	300	300	310	310	310	240	300	240	260	280	270	280	240	240	310	330 ^H	
14	320	330	320	250	280	320	510 ^K	620 ^K	600 ^K	590 ^K	410 ^K	340 ^K	310 ^K	310 ^K	300 ^K	300 ^K	260	260	270	260	240	240	240	310	
15	310 ^H	300	240	270	300	280	250 ^H	280	310	310	300	300	240	240	300	270	300	C	C	C	C	260	240	310	
16	320	300	310	300	270 ^H	240	250	270	240	300	300	300	300	310	300	280	240	270	280	260	270	270	280	310	
17	320	300	280	230	240 ^H	C	C	240	280	300	300	300	300	310	300	300	280	270	250	270	240	320	300	300	
18	300	300	240	300	250 ^H	240	280	300	250	270	270	240	300	300	300	240	270	260	270	270	270	300	380	400	
19	360	310	250	330	340	310	240	300	260	310	280	330	240	A	300	(330 ^B)	300	300	280	280	280	260	240	240	
20	310	310	310	300	310	300	280	300	310	320	310	360	330	320	330	320	300	240	250	280	270	280	240	320	
21	360	320	300	300	320	320	340 ^K	340 ^K	340 ^K	340 ^K	400 ^K	C ^K	380 ^K	300	310	300	270	280	240	250	320	300	330	360	
22	330	300	320	300	300	300	340 ^K	430 ^K	400 ^K	370	360	320	330	310	C	C	C	280	240	280	300	280	310	300	
23	300	350	340	330	330	300	400	310	340	370	360	320	330	310	300	300	300	270	250	230	300	240	300	300	
24	240 ^H	300	300	280	270 ^H	260	300	300	300	300	240	300	300	300	300	300	300	300	270	280	270	320	300	330	
25	240	320	320	240	A	A ^K	A ^K	350 ^K	400 ^K	390 ^K	430 ^K	510 ^K	460 ^K	400 ^K	330 ^K	380 ^K	310 ^K	240 ^K	310 ^K	300 ^H	280	280	320	320	
26	240	240	330	300	390	320	400 ^K	A ^K	4 ^K	(420 ^{KB})	(430 ^{KB})	A ^K	420 ^K	350 ^K	(370 ^{KA})	300	300	280	270	240	240	270	300	300	
27	300	310	320 ^F	310	240	250	260	240	320	380	330	(370 ^{HA})	A	320	300	240 ^H	300	300	270	240	280	240	310	310	
28	330	300	300	300	300	300	340	350	300 ^H	400	380	380	330	330	310	280	280	280	300	300	300	240	280	300	
29	310	300	310	300	280	230	300	300	330	310	320	320	320	350	320	300	310	280	270	260	260	240	310	310	
30	300	C	C	C	C	C	C	300	280	310	320	310	310	310	C	300	240	240	250	240	260	260	270	300	
31																									
Mean Value	310	310	310	240	240	240	300	310	320	330	330	330	320	310	310	300	280	280	270	270	280	240	300	310	
Median Value	310	300	310	300	300	240	280	300	300	310	310	310	300	310	300	300	240	280	270	270	280	240	300	310	
Count	24	28	27	27	27	27	28	28	28	27	28	27	27	27	27	24	24	24	24	24	24	24	24	30	30

Sweep 1.0—Mc to 17.0 Mc in 15 min Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Apr. 1951

f_oF1

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q	Q	A	A	A	A	4.4	4.6	L	L	L	Q						
2							Q	Q	4.1	L	L	L	L	L	4.2	Q	L	Q						
3							Q	Q	Q	L	L	L	L	L	4.0	L	Q	L						
4							Q	Q	Q	(4.5) ^B	4.8	5.0	4.5	4.5	L	L	4.6	Q						
5							A	A	(3.8) ^A	4.4	4.5	4.5	4.5	4.5	L	Q	Q	Q						
6							Q	Q	3.8	4.5	4.6	4.7	4.6	4.6	4.7	L	3.7 ^J	Q						
7							3.8	4.1	4.3	4.6	4.5	4.6	4.7	4.5	4.3	4.2	Q	Q						
8							Q	L	4.1	4.2	B	4.4	4.4	4.6	4.6	4.2	3.0 ^B	Q						
9							Q	Q	4.7	L	4.9	4.8	4.8	4.8	L	4.8	4.5	Q						
10							Q	Q	4.1	L	L	L	L	4.7	4.6	4.4	Q	Q						
11							3.8	B	C	C	C	C	C	C	C	C	3.8	L						
12							Q	Q	4.7	4.7	4.6	4.7	4.5	4.4	4.5	4.4	4.2	C						
13							B	Q	L	4.3	5.1	5.1	4.8	4.8	4.4	4.2	L	4.1						
14							3.4	3.8	4.1	4.5	4.7	4.9	5.0	5.0	L	4.8	Q	Q						
15							Q	3.7 ^T	4.3 ^T	L	4.7	4.7	L	B	4.2	Q	4.1	C						
16							Q	3.6	4.1	4.5	L	L	4.6	4.8	4.5	L	Q	Q						
17							C	Q	4.4	4.6	4.8	4.9	5.0	5.0	4.7	4.7	4.1	Q						
18							3.8 ^T	L	Q	B	4.8	L	4.9	5.0	B	4.5	Q	Q						
19							Q	B	B	B	B	B	B	B	B	B	B	A						
20							B	4.0	4.4	L	5.1	5.3	5.2	5.1	5.1	L	4.6	Q						
21							4.7	B	B	B	4.9	5.0 ^J	4.7	B	4.9	4.4	Q	Q						
22							3.8	(4.0) ^B	4.7	C	C	C	C	C	C	C	C	Q						
23							3.9	4.1	4.5	4.7 ^J	4.8 ^J	4.9	5.4	5.0	4.9	4.6	4.1	Q						
24							4.0 ^J	4.2 ^J	4.6	4.7	4.6	B	5.0	5.0	L	4.2	4.4	4.2						
25							3.5 ^J	4.2	4.6	4.8	5.0	4.9	4.8	5.1 ^B	4.6	4.6	4.1	Q						
26							4.2	A	4.9	B	(4.9) ^B	(5.0) ^J	A	A	A	A	A	Q						
27							Q	Q	4.4	4.8	4.9	A	A	5.0	4.5	Q	L	Q						
28							4.3 ^H	4.3 ^H	4.2	4.3 ^J	5.0	5.0	5.0	5.0	5.0	Q	L	Q						
29							Q	3.9	4.3	B	A	B	Q	5.4	5.2 ^B	4.4	L	Q						
30							C	4.3	Q	L	5.0	5.1	5.0	5.1	C	L	Q	4.0						
31							3.9	4.0	4.3	4.5	4.8	4.9	4.8	4.8	4.6	4.4	4.1	3.8						
Mean Value							3.8	4.0	4.3	4.5	4.8	4.9	4.8	4.8	4.6	4.4	4.1	3.8						
Median Value							3.8	4.0	4.3	4.5	4.8	4.9	4.8	4.8	4.6	4.4	4.1	3.8						
Count							11	12	21	15	20	18	21	21	19	14	11	4						

f_oF1

Group 1.0-Mc to 1.17.0 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 46° 23.6' N
Long. 141° 41.1' E

Apr. 1951

R'F1

135° E Mean Time

Wakkanai

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q	Q	A	A	A	A	260	260	260	250	260	Q						
2							Q	Q	250	250	220	250	240	250	230	Q	240	Q						
3							Q	Q	Q	260	260	300 ^B	200 ^A	210	210	250	Q	280	Q					
4							Q	Q	Q	280	210	300	250	220	230	270	280	Q						
5							A	A	A	280	270	280	280	280	280	Q	Q	Q						
6							Q	Q	240	240	250	260	250	250	210	250	240	Q						
7							300	280	300	280	240	320	230	230	260	240	Q	Q						
8							Q	250	260	260	B	290 ^A	250	220	240	250	250	230						
9							Q	Q	280	280	260	250	250	260	260	250	Q	Q						
10							Q	Q	230	250	250	220	230	230	260	270	Q	Q						
11							230	B	C	C	C	C	C	C	C	Q	260	260						
12							Q	Q	280	210	260	210	250	240	250	280	250	C						
13							B	Q	260	210	240	210	210	210	270	250	250	270						
14							300	300	310	250	230	250	250	250	250	250	Q	Q						
15							Q	250	250	240	210	210	210	B	220	Q	270	C						
16							Q	210	240	260	250	250	260	260	250	260	Q	Q						
17							C	250	220	220	210	210	270	260	230	230	250	Q						
18							260	210	Q	B	230	260	260	B	270	Q	Q	Q						
19							Q	B	B	B	B	B	A	A	B	B	B	A						
20							B	230	260	230	210 ^B	280	260	(210) ^B	290	270	250	Q						
21							320	280	B	B	210	320	260	B	240	(280) ^B	Q	Q						
22							310	280	280	C	C	C	C	C	C	C	C	Q						
23							310	240	280	240	210	220	260	230	230	260	280	Q						
24							250	280	250	260	240	B	210	280	280	250	270	280						
25							300	(290) ^B	290	A	A	240	210 ^A	B	230	270	B	Q						
26							290	A	300	B	B	A	A	A	A	A	A	Q						
27							Q	Q	230	240	220	220	A	A	230 ^A	Q	(210) ^B	Q						
28							210	280 ^H	250	250	300	260	230	230	260	Q	260	Q						
29							Q	260	260	B	A	B	Q	300	B	270	290	Q						
30							C	270	Q	260	240	300 ^A	250	230	C	270	Q	260						
31							290	270	260	260	250	260	250	250	250	260	260	260						
Median Value							3.00	270	260	260	250	260	250	250	260	260	260	260						
Count							11	15	21	21	22	23	24	21	23	21	16	6						

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

foE

Wakanai

Lat. 46° 23.6' N
Long. 141° 41.1' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	2.5	2.7	3.2	A	A	A	A	A	2.8	2.7	2.2						
2							1.7	2.5	2.7	3.0 ^B	3.2	3.3	3.2 ^B	3.3	(3.1) ^B	3.1 ^A	A	2.3						
3							2.1	2.5 ^J	B	B	B	B	B	3.3	N	B	2.5	2.0						
4							1.7	2.5	2.9	3.1 ^B	(3.3) ^B	3.2	A	B	B	B	2.6	1.9						
5							2.0	2.5	2.7	2.6	2.9	A	A	A	A	A	A	2.2						
6							B	2.4	2.9	B	3.3	B	B	B	B	B	B	2.1 ^J						
7							2.0	2.4	2.7	3.0 ^B	B	B	B	B	B	B	B	A						
8							1.8	2.4	2.6	2.9	B	B	3.1 ^B	B	B	B	2.6	2.0						
9							2.1	2.4 ^J	3.3	A	A	A	A	A	A	2.8	2.7	2.2						
10							(1.8) ^B	2.5	3.0	B	3.4 ^B	(3.5) ^B	(3.5) ^B	B	B	B	B	B						
11							2.0	2.3	C	C	C	C	C	C	C	C	A	A						
12							2.2	2.7	3.1	B	B	3.2	(3.3) ^B	B	B	B	2.8	C						
13							B	(2.7) ^B	(3.0) ^B	B	B	B	B	B	A	B	B	2.4						
14							1.9	2.4	2.8	B	3.4	3.4	3.5	3.5 ^B	3.4 ^B	3.3	2.7	A						
15							2.4	2.6 ^J	3.1	3.4	3.5 ^B	3.5	B	B	B	B	B	C						
16							2.2	2.6	3.1	3.1	3.4	A	A	A	A	A	A	2.4						
17							C	2.5	3.1	B	B	B	B	B	B	B	3.1	2.6						
18							2.5	2.6 ^J	B	B	B	B	B	B	B	B	2.8 ^J	2.6						
19							2.3	B	B	B	B	B	B	B	A	B	B	A						
20							2.2	2.6	3.1	3.5	B	B	B	B	B	B	2.7	A						
21							2.6	B	B	B	B	B	B	B	B	B	B	B						
22							2.4	2.7	3.2	C	C	C	C	C	C	C	C	2.5						
23							2.5	3.1	3.2	A	A	A	B	B	B	B	B	1.9						
24							2.6	2.6 ^J	3.4	B	B	B	B	B	B	B	2.7	2.5						
25							2.3	2.9	B	A	B	B	A	A	B	A	B	B						
26							2.4	2.8	3.1	B	B	B	B	B	B	A	B	2.7						
27							2.1	2.7	3.2	B	B	A	A	A	A	3.1	B	2.7						
28							2.0	2.7	3.0	2.9	A	B	B	B	A	A	A	2.4						
29							B	2.6	3.1	3.1 ^J	A	3.2 ^J	B	B	B	B	2.6 ^J	2.6						
30							C	B	B	B	B	B	B	B	B	C	B	2.5						
31																								
Mean Value							2.2	2.6	3.0	3.1	3.3	3.3	3.3	3.4	3.3	2.9	2.7	2.3						
Median Value							2.2	2.6	3.1	3.1	3.4	3.3	3.3	3.3	3.2	2.9	2.7	2.4						
Count							2.4	2.7	2.3	1.1	8	7	5	3	2	9	1.3	2.0						

Frequency 1.0 - Mc to 17.0 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Apr. 1951

f'F₂

135° E Mean Time

Wakkanai

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

Sweep 1.0-Mc to 17.0-Mc in 1.5 min

Manual

W 7

The Central Radio Wave Observatory
oganeai-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fEs

135° E Mean Time

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	E	E	1.7	4.9	5.3	6.4	4.7	4.8	4.8	4.1	3.8	G	G	G	E	E	E	1.9	2.0	2.6
2	E	E	E	E	E	E	G	G	G	G	4.4	4.4	5.4	G	G	4.3	3.6	G	G	E	E	E	E	E
3	E	E	E	E	E	E	G	G	G	G	G	G	4.9	G	N	G	G	2.9	3.0	2.8	2.5	1.8	E	E
4	E	E	E	E	E	E	G	G	G	G	4.6	4.8	5.6	G	G	G	G	G	3.5	2.6	2.4	2.0	E	E
5	2.0	2.6	2.0	E	E	G	4.8	3.8	4.2	4.4	3.9	4.6	4.1	4.0	4.2	3.6	3.6	G	G	1.5	E	E	E	E
6	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E
7	E	E	E	E	E	E	G	G	4.7	4.6	G	B	G	G	G	G	4.0	4.1	3.3	E	3.2	E	E	E
8	E	E	E	E	E	E	G	G	G	4.7	4.2	4.6	G	G	G	E	G	G	G	E	E	E	E	E
9	E	E	E	E	E	E	G	G	G	4.0	4.4	4.1	4.2	4.4	4.2	4.1	3.6	3.4	2.0	2.2	E	E	E	E
10	E	E	E	1.5	E	1.8	G	G	G	G	4.2	4.5	4.5	G	G	G	E	G	2.4	E	E	E	E	E
11	E	E	E	E	E	E	G	G	C	C	C	C	C	C	C	G	2.8	2.7	G	E	E	1.8	E	E
12	E	2.7	2.2	3.4	E	E	G	G	G	G	E	G	G	G	3.7	G	G	C	2.8	2.4	E	E	1.9	1.7
13	E	E	C	C	C	E	G	G	G	G	G	G	G	G	G	G	G	G	2.2	E	E	E	E	E
14	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	2.0	2.2	1.7	E	E	E	E
15	E	E	E	E	E	E	G	G	G	G	G	G	E	E	G	G	G	C	C	C	C	E	E	2.0
16	2.0	E	E	2.2	1.5	1.3	G	G	G	G	G	3.9	4.2	3.9	3.8	3.4	3.4	G	G	E	E	E	E	E
17	E	E	E	E	E	C	C	G	G	G	G	4.5	G	G	G	G	G	G	G	1.8	E	E	E	1.8
18	E	E	E	E	E	E	G	G	G	E	G	G	E	E	E	G	G	G	G	E	E	E	E	E
19	1.9	E	2.5	1.3	1.3	G	G	E	G	E	4.2	E	E	9.0	5.0	E	E	4.0	4.4	3.0	E	E	E	E
20	E	E	E	E	E	E	G	G	3.4	G	E	E	4.6	3.8	G	G	G	2.8	G	1.6	E	E	E	E
21	E	E	E	E	E	E	G	E	E	E	4.3	4.7	4.1	E	E	E	E	G	2.0	E	2.2	1.9	E	E
22	1.8	E	E	1.6	E	E	E	G	G	C	C	C	C	C	C	C	C	G	4.2	3.4	E	3.2	3.6	3.2
23	F	E	E	E	E	E	G	G	G	4.2	6.6	4.1	E	E	E	E	G	G	4.8	5.4	4.4	5.6	E	E
24	E	E	E	E	E	E	G	G	G	G	G	G	G	G	E	G	G	G	G	2.4	2.3	2.6	1.7	E
25	E	2.4	E	3.4	5.4	5.0	G	G	5.0	5.1	5.3	4.9	4.2	4.2	E	3.3	G	G	E	E	E	E	E	E
26	1.2	3.8	2.8	3.0	E	G	G	7.4	4.6	G	G	6.0	5.8	6.5	7.2	5.4	5.2	3.5	4.6	4.5	3.2	2.2	3.0	4.4
27	2.6	2.8	E	E	E	E	G	G	G	G	4.1	7.2	8.4	4.6	4.5	G	E	G	3.4	3.8	3.2	E	3.1	2.8
28	1.2	E	E	1.4	E	E	G	G	G	G	4.4	G	G	G	3.4	3.6	3.6	G	G	3.5	3.4	1.5	E	E
29	E	1.4	E	E	E	E	G	G	G	G	4.6	G	G	E	E	G	G	4.2	4.2	2.6	2.6	E	1.8	E
30	E	C	C	C	C	C	C	G	E	E	E	5.0	E	G	C	G	G	G	(3.2)	G	F	E	E	1.4
31	Mean Value	1.8	2.6	2.3	2.2	2.7	3.3	5.4	4.5	3.3	4.6	4.8	5.0	4.9	4.4	4.0	3.7	3.3	3.3	2.8	2.9	2.5	2.4	2.5
	Median Value	E	E	E	E	E	G	G	G	G	4.1	G	G	G	G	G	G	G	2.0	1.7	E	E	E	E
	Count	2.9	2.8	2.7	2.7	2.8	2.8	3.0	2.9	2.8	2.8	2.7	2.8	2.8	2.6	2.9	2.9	2.8	2.9	2.9	2.9	2.4	3.0	3.0

fEs

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

W 8

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 46° 28.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time

M3000F2

Apr. 1951

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

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual

W 9

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fminF

135° E Mean Time

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	1.1	1.1	1.5	3.0	A	A	A	A	3.9	3.8	3.6	3.1	2.7	2.2	1.5	1.2	1.5 ^F	1.4	E	1.4	
2	E	E	E	E	E	2.1	2.6	2.9	3.5	3.3	3.6	3.5	3.5	3.5	3.3	3.3	2.9	2.3	1.6	1.2	1.4	1.4	1.4	1.4	
3	E	E	E	E	E	1.2	2.3	3.4	3.8	3.6	3.5	3.6	A	3.3	3.4	3.3	2.8	2.3	1.5	1.8	1.8	1.3	1.3	1.3	
4	1.2	1.3	1.1	1.1	1.1	1.7	1.8	N	3.3	3.8	3.8	3.9	A	3.3	3.2	A	3.2	2.1	A	1.7	1.6	1.3	1.4	1.5	
5	1.3	1.5	E	E	E	1.5	A	A	3.8	3.8	3.8	3.7	3.7	3.7	3.7	A	A	2.2	1.6	1.7	1.5	1.5	E	1.2	
6	E	E	E	E	E	1.4	1.3	2.7	3.0	3.4	3.8	3.8	3.8	3.8	3.8	3.3	2.9	3.2	1.6	1.4	1.4	1.4	1.4	1.4	
7	E	E	E	E	E	1.5	2.4	3.0	A	3.8	4.1	3.4	3.4	3.8	3.4	A	A	A	A	1.4	A	1.4	1.4	1.4	
8	1.3	1.2	1.2	1.1	E	1.4	2.0	3.0	3.3	3.7	4.3	A	3.7	3.4	3.8	3.2	2.9	2.3	1.7	1.5	1.5	1.5	1.5	1.5	
9	1.1	E	E	E	E	1.2	2.2	3.8	3.8	A	3.4	3.8	3.8	3.7	3.8	3.5	A	A	1.6	1.2	E	1.4	E	E	
10	E	1.2	1.3	1.3	1.2	1.4	2.3	2.8	3.3	3.7	3.6	3.7	3.7	3.7	3.7	3.8	3.7	3.2	1.8	1.5	1.4	1.3	1.4	1.2	
11	1.2	E	E	E	1.2	1.6	2.2	3.8	C	C	C	C	C	C	C	3.8	3.2	2.5	1.7	1.5	1.3	1.3	1.3	1.3	
12	1.2	1.1	1.2	A	1.2	1.2	2.7	3.3	3.3	3.2	3.6	3.8	3.7	3.7	3.8	3.2	3.2	3.8	2.1	1.6	1.5	1.4	1.4	1.5	
13	1.1	E	C	C	C	1.6	3.8	3.2	3.5	3.8	4.0	4.2	3.8	3.8	3.8	3.3	3.0	2.7	1.6	1.3	1.3	1.3	1.2	1.1	
14	1.1	E	1.1	1.1	1.2	1.2	2.4	3.0	3.8	3.7	3.7	3.7	3.8	3.7	3.7	3.3	2.9	1.8	1.4	1.2	E	1.1	1.1	E	
15	E	E	E	E	E	1.7	2.9	3.4	3.8	3.8	3.9	3.8	3.8	4.9	3.8	3.7	3.1	C	C	C	C	C	1.2	1.1	1.2
16	1.1	1.1	1.1	1.2	1.1	1.7	2.5	3.2	3.3	3.4	3.4	3.8	3.8	3.8	3.8	3.6	3.7	2.9	1.8	1.4	1.4	1.2	1.2	1.2	
17	E	E	E	E	E	C	C	3.8	3.4	3.7	3.8	3.8	4.2	3.8	3.4	3.3	3.2	2.9	1.9	1.3	1.3	1.2	1.2	1.2	
18	1.2	E	E	E	E	2.4	2.7	3.8	3.6	4.5	4.0	4.3	3.9	5.9	5.0	3.7	3.2	3.0	2.3	1.6	1.3	1.3	1.5	1.3	
19	1.2	1.1	1.5	1.4	1.3	1.9	2.7	4.3	4.4	4.8	4.4	5.5	4.3	A	4.8	4.0	5.3	4.3	2.1	1.7	1.3	1.3	1.2	1.1	
20	1.1	E	E	E	E	1.9	3.8	3.4	3.4	3.7	4.5	4.6	4.0	(3.9)	4.2	3.7	3.2	3.0	1.8	1.4	1.2	1.2	1.3	1.2	
21	1.2	1.2	E	E	E	1.3	3.8	3.4	B	B	4.1	A	4.0	5.0	3.8	4.1	3.6	2.7	2.1	1.5	1.6	1.5	1.4	1.2	
22	1.1	1.2	1.3	1.2	1.1	1.5	2.4	3.3	3.4	C	C	C	C	C	C	C	C	2.8	2.2	1.8	1.3	1.3	1.9	1.4	
23	1.1	E	E	E	E	1.6	2.8	3.2	3.8	3.8	4.2	4.1	4.1	3.8	3.8	3.8	3.8	3.8	3.2	A	1.6	1.5	1.4	1.2	
24	E	E	E	E	E	1.8	2.9	3.7	3.7	3.6	3.9	4.6	4.4	4.5	4.2	3.6	3.7	3.3	2.3	1.8	1.8	1.8	1.4	1.6	
25	1.7	1.7	1.2	1.5	A	A	3.0	3.4	3.9	4.8	A	3.8	4.1	5.1	3.8	3.8	3.8	3.2	3.8	1.6	E	1.6	1.6	1.6	
26	1.6	1.6	A	E	1.2	2.6	2.5	A	3.9	5.0	4.4	5.4	A	A	A	A	4.2	3.0	2.6	A	1.4	1.3	1.3	1.3	
27	1.2	1.7	E	E	1.2	2.4	2.7	3.2	3.4	3.8	A	3.8	A	A	A	4.1	(3.1)	3.8	3.0	A	1.8	E	A	1.5	
28	1.4	1.2	1.2	1.3	E	1.9	2.9	3.3	3.5	3.3	A	3.8	3.8	3.8	3.6	3.1	2.8	2.5	A	A	1.6	1.4	1.4	1.6	
29	1.2	1.1	1.1	1.2	1.2	2.5	3.1	3.3	3.9	4.5	4.9	4.8	3.8	4.6	5.2	3.8	3.8	3.2	A	A	1.5	1.3	1.5	1.4	
30	1.2	C	C	C	C	C	C	C	3.8	4.2	3.9	3.7	A	4.0	4.0	C	3.7	3.9	3.2	3.0	E	1.2	1.2	1.4	
31	Mean	1.2	1.2	1.2	1.2	1.7	2.6	3.3	3.6	3.9	3.9	4.1	3.9	4.0	3.9	3.7	3.4	2.9	2.1	1.5	1.5	1.4	1.4	1.3	
	Median	1.1	E	E	E	1.6	2.5	3.3	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6	3.2	2.9	1.8	1.5	1.4	1.3	1.4	1.3	
	Count	2.9	2.8	2.6	2.6	2.7	2.7	2.7	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.6	2.4	2.7	3.0	2.9	3.0	

fminF

Step 1.0 Mc to 1.70 Mc in 1.5 min

Manual

W 10

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

fminE

Apr. 1951

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	E	E	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9	1.7	1.6	1.5	1.6	E	E	E	F	E	1.4
2	E	E	E	E	E	E	E	E	E	1.5	1.5	1.7	1.6	1.7	1.6	1.6	1.5	1.5	1.2	E	E	E	E	E
3	E	E	E	E	E	E	1.1	E	1.2	1.3	1.4	1.5	1.2	1.6	N	1.3	E	E	1.2	1.2	1.4	E	E	
4	E	E	E	E	E	E	1.6	1.1	1.6	1.3	1.2	1.6	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.5	1.2	1.7	E	E
5	1.2	E	E	E	E	E	E	1.2	1.1	1.2	1.6	1.7	1.8	1.8	1.7	1.6	1.6	1.6	1.3	E	E	E	E	E
6	E	E	E	E	E	E	E	E	1.3	1.6	1.7	1.7	1.8	1.7	1.7	1.7	1.4	1.4	1.4	1.2	E	E	E	E
7	E	E	E	E	E	E	E	E	1.4	1.4	1.5	B	2.3	2.1	1.6	1.3	1.4	1.4	1.4	E	1.3	E	E	E
8	F	E	E	E	E	E	1.4	1.3	1.5	1.4	2.0	1.7	2.1	2.2	2.1	E	1.5	1.5	1.6	E	E	E	E	E
9	E	E	E	E	E	E	1.2	1.8	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.5	1.5	1.8	E	E	E	E
10	E	E	E	1.3	E	1.2	1.4	1.6	1.6	1.5	1.5	1.6	1.5	2.0	2.0	2.0	2.0	1.6	1.2	E	E	E	E	E
11	E	E	E	E	E	E	E	E	C	C	C	C	C	C	C	1.7	1.3	1.2	1.3	E	E	1.4	E	E
12	E	E	1.2	E	E	E	E	1.2	1.5	1.6	E	2.7	3.3	2.2	1.6	1.5	1.6	1.6	1.6	1.3	E	E	1.7	1.5
13	E	E	C	C	C	E	1.5	1.7	1.6	1.4	1.5	1.7	1.5	1.5	1.7	1.5	1.4	1.4	1.2	E	E	E	E	E
14	E	E	E	E	E	E	E	1.1	1.2	1.5	1.6	1.7	1.6	1.7	1.7	1.6	1.4	1.3	1.3	1.6	E	E	E	E
15	E	E	E	E	E	1.3 ^B	1.4	1.4	1.4	1.6	1.6	1.6	E	E	E	1.5	1.2	C	C	C	C	E	E	1.1
16	1.8	E	E	1.2	1.3	1.1	1.5	1.7	1.9	1.8	1.7	1.7	1.9	1.8	1.7	1.7	1.7	1.3	1.4	E	E	E	E	E
17	E	E	E	E	E	C	C	C	1.1	1.2	1.5	1.5	1.6	1.7	1.7	1.6	1.4	1.3	1.4	1.3	E	E	E	1.5
18	E	E	E	E	E	1.2	1.4	1.5	2.2	E	2.1	1.7	E	E	E	3.1	1.4	1.4	1.7	E	E	E	E	E
19	1.7	E	1.1	1.1	1.3 ^B	1.3	E	E	1.7	E	3.8	E	E	3.2	4.3	E	E	2.3	1.7	1.3	E	E	E	E
20	E	E	E	E	E	E	E	E	1.2	1.6	E	E	3.3	1.6	1.6	1.7	1.5	1.4	1.4	1.3	E	E	E	E
21	E	E	E	E	E	1.2	1.4	E	E	F	3.8	3.9	3.7	E	E	E	E	1.5	1.4	1.4	1.6	1.6	E	E
22	1.7	E	E	1.2	E	E	1.5	1.6	1.6	C	C	C	C	C	C	C	C	1.3	1.6	1.3	E	1.3	1.2	1.3
23	E	E	E	E	E	E	1.1	1.1	1.2	2.5	2.0	2.2	E	E	E	E	2.0	1.6	1.4	1.4	1.6	1.5	E	E
24	E	E	E	E	E	E	1.2	1.4	1.5	2.1	1.7	1.6	1.8	1.7	E	1.7	1.6	1.2	1.8	1.4	1.4	1.6	1.6	E
25	E	1.1	E	1.1	1.2	1.5	1.6	1.5	1.7	1.6	1.6	1.7	1.8	1.7	E	1.7	1.4	1.5	E	E	E	E	E	E
26	F	F	E	E	E	1.7	1.2	1.2	1.6	2.0	2.3	4.4	3.8	4.6	2.9	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.2	1.2
27	1.2	E	E	E	E	E	1.2	1.2	1.2	1.5	1.5	1.5	1.7	1.9	2.9	2.0	E	1.6	1.3	E	E	E	E	E
28	E	E	E	1.2	E	1.1	1.4	1.4	1.6	1.7	2.2	2.2	2.0	2.0	1.9	1.9	1.5	1.6	E	1.5	1.5	1.4	E	E
29	E	1.1	E	E	E	1.5	E	1.7	1.6	1.6	2.6	2.2	2.1	E	E	2.3	1.5	1.5	1.4	1.3	1.4	E	1.5	E
30	E	C	C	C	C	C	C	1.3	E	E	E	3.5	E	2.4	C	1.7	1.7	1.4	1.4	1.2	E	E	E	1.2
31																								
Mean Value	1.5	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.9	2.0	2.1	2.0	2.0	1.7	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3
Median Value	F	F	E	E	E	E	1.2	1.2	1.5	1.5	1.6	1.7	1.8	1.7	1.6	1.6	1.5	1.5	1.4	1.2	E	E	E	F
Count	29	28	27	27	28	28	28	30	29	28	28	27	28	28	26	29	29	29	29	29	29	29	30	30

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

foF2

135° E Mean Time

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	5.3	5.2	5.1	5.2	5.0	5.4	6.1	8.8 ^H	9.3	9.2	9.1	9.9	10.7	11.2	9.9	8.9	8.3	8.1	8.8 ^H	8.0	5.0	5.2	5.3	5.2	
2	5.3	5.1	5.2	5.1	4.1	4.1	6.5	7.2	7.7	8.7	9.2	11.1	10.3	9.3	9.4	9.5	9.3	9.1	8.3	6.7	6.7	6.7 ^H	6.4	5.2 ^H	
3	5.3	5.0	5.1	5.3 ^S	5.2	5.4	6.2	6.8	8.4	9.3	9.7	9.3	9.0	8.9	9.8	10.5	8.2	8.8	9.4	9.5	5.0	5.2	5.2	6.4	
4	6.4	6.6	6.2	4.3 ^H	4.2	4.1 ^V	5.1	5.5	6.9	6.5	7.9	9.7	9.7	8.4	8.6	8.9	8.9	9.6 ^S	8.8	7.8 ^S	7.0 ^H	5.3	5.2	5.1	
5	5.2 ^H	5.2	5.2	5.8 ^Z	4.6	3.9	6.3	8.0	7.7	8.1	7.9	9.5 ^H	9.5	9.7	8.4	7.6	7.1	7.4	7.1	5.1 ^H	4.8	4.8	4.9	4.8	
6	5.2	4.7	4.6	4.4	3.8	3.5	5.2	5.7	7.7	7.8	1.1	9.4	7.9	8.2	8.3	8.6	7.8	8.3	8.4	7.5	6.3 ^H	5.2	8	5.3 ^P	
7	5.5	5.3 ^S	5.3	5.0	4.3	3.9	5.8	6.7	7.9	8.8	9.2	9.2	10.3	11.3	11.4	10.0	7.6	6.8	6.8	5.8	5.2	5.2 ^F	8	5.3 ⁸	
8	5.2 ^S	5.4 ^S	5.3 ^Z	3.9	3.9	3.9	5.6 ^P	6.6	7.4	7.6	8.1	8.3	8.5	9.2	10.6	9.8	8.8	7.1	6.8	6.5	6.2	5.7	6.3	5.9	
9	5.8	5.6	5.1	5.2	5.0	5.5	7.4 ^H	6.9	8.2	9.0	8.7	9.3 ^H	9.6	8.7	8	9.0	(8.5) ^P	7.1	8.1 ^H	9.0	8.8	6.5	5.7	5.5 ^Z	
10	5.9	6.2	5.7 ^S	5.4	5.0	4.8	7.1	8.0	C	C	C	C	C	C	C	C	C	C	C	7.0	5.1	6.2 ^F	5.8 ^F	5.7 ^F	
11	5.9	5.3	5.3	5.1	4.7	4.5	5.7	7.0	7.2	8.7	9.6 ^Z	9.6	10.0	(9.9) ^C	9.8 ^H	10.1	9.0	7.6	8.3	7.1	5.7	5.3	5.6 ^F	5.4	
12	5.4	(5.1) ^F	5.5 ^F	8.7	4.0 ^F	4.3 ^F	6.0	7.6	8.2	9.1	10.7	12.4	11.2	10.3	9.7	9.7	9.5	7.8	7.0	7.0	6.6	6.5	6.4	6.1	
13	5.8	(6.1) ^F	(5.8) ^F	5.2 ^F	4.2 ^F	4.9 ^F	6.2	7.2	8.1	9.1	10.0	10.2	10.8	11.5	10.3	9.4	9.1	8.7	9.0	8.1	6.4	5.3	6.6	S	
14	S	(5.7) ^P	6.3	7.0	4.9	4.7	4.8 ^K	6.0 ^H	6.9 ^K	8.9 ^K	8.8 ^K	8.8 ^K	8.2 ^K	8.3 ^K	8.3 ^K	8.5 ^K	8.2	7.9 ^F	(7.7) ^B	8.1	(6.8) ^C	5.4 ^B	5.7	5.7	
15	(5.8) ^P	6.2	5.9	5.4	4.6	5.2	7.4	8.0 ^B	8.9	9.2	7.5	7.8	9.3	9.4	8	9.5	9.5	9.0	9.2	8.0	6.8	6.1	5.1	6.1	
16	6.1	6.4	5.2	5.2 ^H	4.9 ^H	(5.5) ^H	8	(7.7) ^B	8.5	8.8	9.1	9.5	9.3	10.5	11.6	11.9	11.0	9.2	8.0	8.7 ^P	7.2	S	6.5	5.7 ^S	
17	6.6	6.4	6.5	6.4	5.2	5.8	7.4	8.7	9.2	9.6	9.2	9.5	9.3	10.5	11.6	11.9	11.0	9.2	8.0	8.7 ^P	7.2	S	6.5	5.7 ^S	
18	6.7 ^S	6.7	6.3	6.2	5.2	5.2	6.0	8.0	8	9.3	9.6	10.2	10.7	(10.2) ^C	10.8	10.9	10.2	8.9	8.9	8.9	7.1	5.5	(5.9) ^S	5.7 ^P	
19	7.4	6.6 ^H	4.8	4.2	4.1 ^F	4.7 ^F	6.6	7.0	8.0 ^Z	7.8	8	8.5	8	9.2	9.1	8	9.2	9.1	9.3	A	8	8	6.3 ^P	6.5 ^H	
20	6.6 ^P	7.0	6.8	6.5	6.3	6.6	7.8	8.4	8.8	8.7	8	10.8 ^P	10.9	10.7	10.4	(10.0) ^P	9.6	9.3	9.3	8.3	7.9	6.8	6.3	6.3	
21	6.2	6.5	6.5	5.9	5.4	5.7	7.1	6.9	7.7	8	8	9.9	9.5	9.1	10.3	10.3	8.8	7.8	8.1 ^J	8.1	6.7	6.9 ^P	6.6	6.5	
22	6.6	6.8	6.3	5.7 ^F	5.0 ^F	5.3	6.4	6.6 ^F	6.8 ^K	7.6 ^K	6.8 ^K	7.8 ^K	7.4 ^K	8.9	9.0	8.8	9.2	8.7	8.2	7.5	6.8	6.8	6.9	7.1	
23	6.9	6.2 ^F	6.4 ^F	6.4 ^F	5.7 ^V	5.3	6.4	7.5	7.0 ^P	8.0	8.7 ^B	(9.5) ^B	10.8	10.4	9.9	10.1	9.7	9.1	8.8	7.4	6.7	6.5	6.9	6.6	
24	7.0	6.7	6.4	5.8	5.0	5.4	7.3	9.2	9.3	C	C	C	11.9	11.5	11.6	10.5	10.0	9.6	9.0	8.5	6.7	(7.8) ^B	(8.0) ^B	8	
25	(7.1) ^B	6.6	(6.4) ^H	6.5 ^H	5.1	5.2	8.6	6.2 ^J	6.8 ^K	6.2 ^K	6.4 ^K	6.5 ^K	7.2 ^K	7.9 ^K	7.6 ^K	7.0 ^K	6.7 ^K	6.3 ^K	6.9 ^K	6.1	6.0	6.1	6.4	6.2	
26	5.7	5.6	5.6	4.8	4.6	5.7	7.3	7.2	6.5 ^K	7.2 ^K	8.7 ^K	8.7 ^K	8.2 ^K	8.6 ^K	8.6 ^K	7.2 ^K	7.1 ^K	7.3 ^K	7.2 ^S	7.5 ^S	(7.5) ^B	6.8	6.7 ^H	6.7	
27	6.5	6.5 ^H	5.8	5.6	6.2	5.4	6.2	7.1	7.4 ^V	8.4 ^H	8.7 ^H	8.4 ^H	8.8 ^H	8.9	8.3	8.3	8.7	9.1	9.2	8.5	7.3 ^S	7.2 ^S	7.1 ^S	S	
28	6.8	6.8	6.4	6.1	6.0	6.6	7.3	8.3	8.2	9.1	9.6	9.9	9.1	8.5	(8.2) ^C	8.0	7.2	7.0	7.3	8.1	7.5	4.4	6.2	6.2	
29	6.1 ^Z	6.0	6.2	6.0	5.4	6.5	7.5	7.9	7.9	7.5	8.1	8.6	9.7	9.6	10.3	10.6	10.6	10.0	9.3	9.7 ^P	4.6	5.5	6.2	6.8	
30	6.5	6.5	6.0	5.5	5.7	7.1	8.4 ^P	C	C	8.4	8.8	10.2	10.1	9.4	9.5	8.8	8.8	8.5	8.6	9.2	8.4	7.0	6.8 ^S	6.8	
31																									
Mean Value	6.1	6.0	5.8	5.5	4.9	5.2	6.6	7.4	7.9	8.4	8.9	9.4	9.6	9.6	9.3	8.8	8.4	8.3	7.7	6.6	6.0	6.2	6.0	6.2	
Median Value	6.1	6.2	5.8	5.4	5.0	5.3	6.6	7.2	7.9	8.7	9.0	9.5	9.7	9.4	9.8	9.5	8.9	8.7	8.5	8.0	6.7	6.1	6.3	6.1	
Count	29	30	30	29	30	30	28	28	28	26	24	28	28	29	27	27	29	29	28	27	27	27	28	27	

foF2

Sweep 1.0—Mc to 17.0—Mc in 1.5—min

Manual

A1

The Central Radio Wave Observatory
Koganei-machi, Kitazama-gun, Tokyo, Japan

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time

Apr 1951

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	340	360	360	410	340	340	260	290 ^H	280	310	280	310	320	300	270	280	280	260	300 ^H	270	260	340	330	320	
2	360	340	330	300	310	330	270	240	300	290	310	280	280	290	290	300	300	260	240	310	(320) ^S	330 ^H	340	300 ^H	
3	410	390	390	330 ^S	290	270	230	250	270	300	270	280	300	320	300	280	300	300	320	290	270	290	320	350	
4	300	310	260	340 ^H	400	370 ^V	240	260	280	290	300	300	290	270	280	270	280	280 ^S	280	280 ^S	280 ^S	280 ^S	350	320	
5	420 ^H	370	330	300 ^S	240	350	290	290	290	310	390	310 ^H	310	290	280	290	300	270	260	300 ^H	350	340	320	320	
6	370	330	340	320	280	340	250	300	300	340	290	270	300	300	290	290	270	280	260	280	300 ^H	320	330	330 ^P	
7	360	360 ^S	330	370	290	330	270	280	290	270	300	300	290	300	300	270	250	250	260	300	350	370 ^F	350	350	
8	320 ^S	330 ^S	280 ^S	(300) ^S	370	330	250 ^P	290	280	270	280	300	280	280	310	300	280	250	280	280	280	300	320	330	370
9	340	330	340	340	310	320	250 ^H	270	270	280	280	300	280	290	300	300	(280) ^P	300	300	300	280	300	310	340	360 ^Z
10	390	360	300 ^S	270	360	310	270	250	C	C	C	C	C	C	C	C	C	C	C	290	300	(370) ^F	370 ^F	370 ^F	
11	390	370	360	350	350	320	250	300	300	310 ^S	300	300	(300) ^C	300 ^H	290	290	260	240	270	270	300	300	410 ^F	390	
12	340	(360) ^F	330 ^F	310 ^F	330 ^F	310 ^F	260	280	290	290	320	280	290	290	300	270	290	290	290	290	300	330	(350) ^S	350	
13	400	(420) ^F	(370) ^F	270 ^F	330 ^F	310 ^F	260	270	270	320	310	320	330	310	300	290	280	290	270	280	290	290	320	380	S
14	S	(400) ^P	410	300	280	340	360 ^K	310 ^H	320 ^K	B ^K	300 ^K	280 ^K	290 ^K	280 ^K	290 ^K	270 ^K	280	260 ^B	(270) ^B	280	(300) ^C	390 ^B	360	370	
15	(380) ^F	350	340	290	340	340	250	270 ^B	330	280	300	270	(330) ^H	(320) ^F	310	300	290	280	280	270	290	310	320	380	
16	400	340	330	300	320	320	270	280	290	300	300	310	300	300	300	300	270	270	280	280	310	S	330	350 ^S	
17	380	350	340	290	330	350	270	280	260	310	300	300	300	300	310	300	290	290	290	290	320	360	(370) ^S	420 ^P	
18	380 ^S	S	340	320	310	320	260	B	270	B	310	310	(300) ^C	300	320	300	290	290	300	290	320	360	(370) ^S	420 ^P	
19	380	330 ^H	350	370 ^Z	350 ^F	330 ^F	250	260	280 ^Z	B	300	B	310	300	B	B	B	B	290	280	A	320	320 ^P	300 ^H	
20	360 ^P	350	350	360	390	330	300	290	B	300	B	340 ^P	310	330	310	(310) ^P	300	290	270	300	280	360	370	410 ^S	
21	420	380	370	380	420	350	240	290	240	B	B	270	310	320	310	300	290 ^B	290	(280) ^V	290	350	380 ^P	420	430	
22	390	380	380	320 ^F	340 ^F	290	330	350 ^F	320 ^K	310 ^K	310 ^K	330 ^K	310 ^K	330	310	310	310	310	290	290	290	380	360	370	
23	350	380 ^F	410 ^F	390 ^F	420 ^V	390	340	300	280 ^P	290	300 ^B	(320) ^B	320	320	320	310	300	270	280	270	350	340	340	370	
24	340	320	310	280	310	310	300	280	290	C	C	B	310	320	310	300	300	290	290	290	B	(400) ^P	370	B	
25	(360) ^B	410 ^F	(400) ^H	350 ^H	340	300	300	(360) ^B	B ^K	B ^K	410 ^K	A ^K	B ^K	390 ^K	320 ^K	300 ^K	330 ^K	300 ^K	320 ^K	320 ^K	320	400	410	360	
26	360	330	330	410	420	350	270	260	310 ^K	320 ^K	B ^K	290 ^K	310 ^K	300 ^K	280 ^K	270 ^K	280 ^K	280 ^K	280 ^K	300 ^S	300 ^S	310 ^H	310 ^H	340	
27	350	(350) ^F	380	350	360	310	260	280	280 ^V	300 ^H	300 ^H	300 ^H	300	300	300	300	290	280	280	300	320 ^S	350 ^S	350 ^S	S	
28	380	350	310	390	380	310	320	330	290	330	310	290	290	(310) ^C	300	290	290	280	300	300	290	260	320	360	
29	360 ^Z	360	340	340	350	280	260	250	290	310	310	320	300	300	280	280	280	280	280	260 ^P	270	320	320	350	
30	350	350	380	360	380	380	290	270 ^P	C	300	330	330	300	300	290	290	280	290	270	280	270	300	330 ^S	340	
31																									
Mean Value	370	360	350	320	340	330	270	280	290	300	310	300	300	310	300	290	290	280	280	280	290	310	340	350	360
Median Value	360	360	340	340	340	330	260	280	290	300	300	300	300	300	300	300	280	280	280	280	290	300	340	340	360
Count	29	29	30	29	30	30	28	27	26	23	24	27	27	27	29	27	27	28	29	28	27	27	27	28	27

A 2

Manual

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

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f'F2

Lat. 36° 43.5' N
Long. 140° 08.2' E

Akita

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	290	310	(310) ^A	310	260	260	210	220 ^H	250	250	250	280	280	260	260	260	250	220	230 ^H	220 ^A	210 ^A	280	280	280	
2	290	280	260	220	210	230	220	210	200	280	280	260	260	260	260	260	250	210	220	220	230	250 ^H	270	240 ^H	
3	300	310	310	270	230	210	260	220	260	270	270	260	290	270	280	250	250	270	250	230	210	260	280	290	
4	240	220	220	240 ^H	300	330	230	230	230	270	290	270	260	260	270	260	230	240	230	210 ^H	210 ^H	270	270	310	
5	310 ^H	290	240	250	200	260	230	220	270	290	280 ^H	290	260	260	260	290	260	250	230	230 ^H	280 ^H	290	280	280	
6	280	280	270	230	250	270	230	230	300	310	280	260	300	270	280	280	240	250	250	230	210 ^H	270	270	270	
7	290	290	270	260	230	280	230	240	270	220	250	300	280	290	270	250	230	230	240 ^A	240	280	300 ^F	320 ^F	290	
8	260	240	230	240	A	270	220	230	260	250	270	270	270	280	270	260	240	220	240	230	230	260	290	270	
9	300	280	280	280	260	270	210 ^H	220	260	260	270 ^H	260	270 ^H	260	290	280	240	290	230 ^H	210 ^A	220	230	290	290	
10	300	280	250	210	280	280	220	220	C	C	C	C	C	C	C	C	C	C	C	230	230	300 ^F	280	290	
11	290	290	300	300	280	260	230	230	250	280	270	260	(260) ^C	270 ^C	270	270	230	210	230	220	220	280	300	310	
12	290	290	270	220	200	240	220	220	260	260	290	260	260	280	260	240	240	230	240	230	260	260	260	270	
13	280	310	270	210	210	240	250	230	260	270	280	290	300	280	270	270	240	230	240	220 ^A	240	280	310	310	
14	310	310	300	290	240	290	250 ^K	260 ^K	320 ^K	300 ^K	290 ^K	270 ^K	280 ^K	270 ^K	270 ^K	270 ^K	220	230	230	230	(240) ^C	260	280	290	
15	290	270	260	230	240	270	230	250	300	260	300	260	270 ^H	250	270	280	240	250	240	230 ^A	240	250	280	300	
16	300	270	230	220 ^H	230 ^H	270 ^H	210	260	250	270	270	260	280	270	270	260	240	290	240 ^H	220 ^A	220	270	260	280	
17	300	260	260	240	250	280	240	240	250	260	280	280	280	270	280	270	250	230	230	220	230	(260) ^C	280	290	
18	290	270	240	240	220	260	210	260	240	250	260	280	(280) ^C	280	270	280	250	250	250	240	260	320	330	360	
19	300	240 ^H	300	320	300	290	230	260	230	B	(270) ^{AF}	280	290	280	280	B	260	240	240	A	B	280	270	260 ^H	
20	290	280	290	280	290	270	220	240	270	270	B	300	280	300	280	270	270	270	260	230	220	230	250	300	
21	300	290	270	290	360	300	230	230	210	B	310 ^B	270	270	300	300	270	250	250	260	250	260	310	310	340	
22	300	290	270	230	260	260	280	340 ^K	320 ^K	310 ^K	300 ^K	300	310	300	300	300	300	240	240	250	300	310	350	350 ^A	
23	280	320	320	300 ^F	310 ^F	320	320	240	270	270	280	300 ^B	300	300	300	290	280	240	240	230 ^A	240	280	310 ^A	340 ^A	
24	270	270	240	220	240	270	290	240	260	C	C	310	290	280	280	240	230	230	230	250	A	280	310 ^A	340 ^A	
25	260	300	300 ^H	250 ^H	290	260	390 ^K	360 ^K	320 ^K	380 ^K	470 ^K	450 ^K	350 ^K	300 ^K	290 ^K	290 ^K	320 ^K	270 ^K	280 ^K	220	250	300	300	290	
26	280	270	230	280	320	270	250	240	260 ^K	270 ^K	330 ^K	290 ^K	280	300 ^K	280 ^K	260 ^K	250 ^K	260 ^K	210 ^H	230	290	300	260 ^H	270	
27	260	270 ^H	290	280	260	250	240	250	260	280 ^H	260 ^H	260 ^H	260 ^H	290	260	290	280	250	230	230 ^F	260	260	290	290	
28	300	270	260	280	310	250	240	310	280	290	310	300	280	(290) ^C	300	250	260	250	260	210	240	(260) ^A	260	300	
29	290	280	280	270	280	250	220	240	280	290	300	310	300	290	290	280	260	260	210	240	240 ^A	290	280	280	
30	270	270	280	260	290	250	220	C	C	240	300	310	280	280	290	280	270	230	250	230 ^A	230 ^A	250	260	260	
31																									
Mean	290	280	270	260	260	270	240	250	270	270	290	290	290	280	280	270	250	250	240	230	240	280	290	300	
Median	290	280	270	250	260	270	230	240	260	270	280	280	280	280	280	270	250	250	240	230	240	280	280	290	
Count	30	30	30	30	29	30	29	29	28	26	27	28	29	29	29	28	29	29	29	29	29	28	30	30	30

f'F2

Sweep 1.0—Mc to 17.0—Mc in 1.5 min

Manual

A 3

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

f_oF₁

Apr. 1951

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	L	L	L	Q	4.7	4.8	4.5	4.4 ^J	L	3.6	Q					
2							Q	Q	Q	4.9	4.7	4.8	B	Q	L	L	L	L	Q					
3							Q	Q	L	L	L	L	L	L	L	L	L	L	Q					
4							Q	Q	L	L	L	4.9	Q	L	L	L	L	L	Q					
5							Q	Q	L	4.5	A	B	4.7	4.5	4.6	L	4.0	Q	Q					
6							Q	Q	L	L	L	4.5	4.8	L	4.4 ^J	4.2	Q	Q	Q					
7							Q	Q	A	Q	A	B	5.0	5.0	4.8	Q	Q	Q	Q					
8							Q	Q	L	L	L	L	L	5.3 ^B	L	4.0	L	L	Q					
9							Q	Q	L	A	4.5	L	5.0 ^J	4.6	4.3	L	Q	A	Q					
10							Q	Q	C	C	C	C	C	C	C	C	C	C	C					
11							Q	Q	L	L	5.1	L	L	C	L	L	Q	Q	Q					
12							Q	Q	L	B	L	4.6	5.1	5.0	4.8 ^J	4.6	Q	Q	Q					
13							Q	Q	L	L	L	L	L	L	L	L	Q	Q	Q					
14							Q	Q	4.6	4.7	5.0	5.0	4.8	L	L	L	Q	Q	Q					
15							Q	L	L	L	L	B	5.0	Q	L	L	Q	L	Q					
16							Q	Q	L	L	L	B	L	L	B	Q	Q	L	Q					
17							Q	Q	L	L	4.6 ^B	Q	L	L	L	4.7	L	L	Q					
18							Q	L	Q	Q	L	L	C	B	L	L	L	L	Q					
19							Q	Q	Q	B	A	A	L	B	B	B	B	Q	Q					
20							Q	Q	L	B	B	B	L	5.1	L	L	A	4.0	Q					
21							Q	Q	Q	B	B	A	A	4.9	B	L	B	Q	A					
22							Q	L	4.6	B	4.8	L	5.0	4.9	B	L	B	Q	Q					
23							3.9	Q	L	L	L	B	L	L	L	L	Q	Q	Q					
24							L	Q	L	C	C	L	L	L	L	L	Q	Q	Q					
25							3.8 ^J	4.4	4.4	B	4.4 ^J	A	A	A	A	5.1	4.5	B	Q					
26							Q	Q	A	L	A	B	B	B	A	A	L	Q	Q					
27							Q	Q	L	A	Q	Q	4.8	B	4.8	4.8	L	L	Q					
28							Q	L	L	L	L	L	L	L	C	L	Q	Q	Q					
29							Q	L	L	B	L	B	5.2	5.1	4.7	5.0	Q	Q	A					
30							Q	C	C	Q	B	B	4.9	B	B	4.9	L	Q	Q					
31							3.9	4.4	4.5	4.7	4.7	4.8	4.9	4.9	4.7	4.6	4.0	3.8						
Mean							3.8	4.4	4.6	4.7	4.7	4.8	5.0	5.0	4.8	4.6	4.0	3.7						
Median							3.8	4.4	4.6	4.7	4.7	4.8	5.0	5.0	4.8	4.6	4.0	3.7						
Value							2	1	3	3	3	9	5	12	10	9	2	3						
Count																								

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

A 4

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

f'F1

Apr. 1951

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

f'F1

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

foE

135° E Mean Time

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						E	1.6B	2.6	A	3.2	B	A	B	B	3.0	3.2	2.9	A	A						
2						E	1.8	2.5	2.9	3.2	3.2	3.4	A	B	A	A	2.8	2.4	A						
3						B	1.8F	2.5F	2.9	3.2	3.2	B	3.6	A	3.3	3.0	2.8	2.4	A						
4						E	1.9	2.5	2.8	3.2	3.2	3.3	3.4B	A	3.2	3.0A	2.7	A	A						
5						E	1.7	2.4	3.0	3.0 ^T	A	A	A	B	3.3	3.1	2.8	2.5	1.9						
6						A	1.9	2.4	2.8	3.2	B	B	B	B	B	A	2.6	2.2	A						
7						E	1.6	2.4	2.8	3.1	3.1	3.0	A	A	A	A	A	2.3	A						
8						E	1.5	2.1	2.9 ^B	3.0	3.1	A	B	3.4	3.2	2.8	2.6	2.4	A						
9						E	2.0	A	2.8	3.0	3.1	A	B	3.4	A	A	A	A	A						
10						1.3	2.0	2.8	C	C	C	C	C	C	C	C	C	C	C						
11						A	2.3	2.6	2.8 ^T	3.5	B	B	3.6	C	A	A	A	2.4	(1.4) ^B						
12						E	1.8	2.7	3.1	3.3	B	B	B	B	B	B	2.6	A	A						
13						E	2.5	3.0	3.2	3.4	3.4	B	3.4	A	3.5	3.3	3.0	2.5	(1.5) ^B						
14						1.2	1.9	2.7	3.3	B	B	B	B	B	B	3.3	3.1	2.7	A						
15						1.1	2.3	2.7	2.9 ^T	3.2 ^T	A	B	B	B	B	A	2.9	2.5	A						
16						1.4	B	2.8 ^T	A	3.2	B	B	B	B	B	3.3	B	2.4	B						
17						1.2	2.4	2.7	3.0	3.4	B	3.4	B	B	B	3.3	A	2.5	1.9						
18						E	2.2	3.0	3.2	B	3.5	B	C	B	C	3.4	3.2	2.6	A						
19						1.2	2.4	B	3.2	B	B	B	A	B	B	B	B	2.4	A						
20						1.4	2.3	2.8	B	B	B	B	B	B	B	B	A	A	B						
21						A	2.2	2.9	A	B	B	B	B	B	B	3.4	B	A	A						
22						1.2	2.3	2.8	3.1	B	B	B	B	B	B	B	B	B	2.0						
23						(1.6) ^B	2.2F	2.9	A	B	B	B	B	B	B	3.3	B	2.7	1.9						
24						1.3	2.4	3.1	3.3	C	C	B	B	B	3.4 ^B	3.4	3.2	2.6	2.1F						
25						B	2.5	2.9	A	B	A	A	B	B	B	3.5	3.2	3.0	2.6	2.1					
26						1.6	2.4 ^H	2.9	3.1	B	B	B	B	B	B	A	A	A	A						
27						B	2.3	2.6	3.2 ^B	A	A	A	B	A	B	B	3.0	2.6	1.8						
28						E	2.3	2.8	3.2	3.2 ^B	B	B	B	B	C	A	2.8	2.5	1.9						
29						1.6	2.4	A	3.2	3.2	B	B	B	B	B	3.4	A	3.2	2.6	A					
30						1.4	2.4	C	C	B	B	B	B	B	3.2	B	A	2.6	1.8						
31						1.3	2.1	2.7	3.0	3.2	3.2	3.3	3.5	3.3	3.3	3.2	2.9	2.5	1.8						
						1.2	2.2	2.7	3.0	3.2	3.2	3.4	3.5	3.4	3.4	3.3	2.9	2.5	1.9						
						2.4	2.9	2.6	2.2	1.7	1.8	5	4	3	1.0	1.3	1.7	2.1	1.1						
Mean Value						1.3	2.1	2.7	3.0	3.2	3.2	3.3	3.5	3.3	3.3	3.2	2.9	2.5	1.8						
Median Value						1.2	2.2	2.7	3.0	3.2	3.2	3.4	3.5	3.4	3.4	3.3	2.9	2.5	1.9						
Count						2.4	2.9	2.6	2.2	1.7	1.8	5	4	3	1.0	1.3	1.7	2.1	1.1						

Sweep 1.0 - Mc to 17.0 Mc in 15 min Manual

Radio Regulatory Agency (Denpacho)

Aoyama-Kita-machi, Minato-Ku, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f'E

135° E Mean Time

Akita

Lat. 38° 43.5' N
Long. 140° 08.2' E

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

f'E

Steep 1.0 - Mc to 17.0. Mc in 1.5 min

Manual

The Central Radio Wave Observatory.
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Apr. 1951

fEs

Akita

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	2.4	2.7	3.0	3.0 ^B	2.2 ^B	1.8 ^B	G	G	3.4	4.0	3.6Y	3.7	G	G	G	G	G	3.4	2.8	2.6	2.4	E	E	E	
2	2.0	E	E	E	E	E	3.0Y	G	3.4	3.7	4.4Y	G	3.6	B	3.4	3.2	G	3.4Y	2.5	2.4	2.4	E	E	E	
3	E	E	E	2.3	E	E	G	3.3	3.5	G	G	3.5Y	G	3.6	G	3.8	G	3.7	2.5	2.8	2.8	E	E	E	
4	E	1.3	2.2F	3.0	1.8	1.4	G	G	G	4.4	4.6	3.9	4.4	3.6	3.7	G	G	3.2	2.8	1.8	2.2	2.5	E	E	
5	2.0	E	E	E	E	E	G	3.1	3.8	4.2	7.2	3.6	3.6	G	G	G	G	G	1.8	2.2	2.4	2.4	2.2	E	
6	1.8	2.0	2.5	2.6	2.3Y	2.2	G	G	G	4.2	G	E	G	G	3.6	3.7	3.4	G	2.3	2.6	2.6	2.6	E	E	
7	E	E	2.4	E	E	E	G	G	4.9	3.6	4.8	4.3	4.4	4.2	3.4	4.6	4.0	G	3.7 ^B	3.3	3.3	2.4	4.7	2.8	
8	2.2	2.4	2.3	2.2	3.9	2.6	G	G	G	G	G	3.6	G	3.4	G	4.0	3.7	G	2.8	3.2	3.0	2.6	2.8	E	
9	2.8	2.8	E	E	E	1.4	G	3.0	G	6.8	4.2	3.7	G	3.6	3.6	3.2	C	4.9	2.7	2.2	E	2.2	2.6	E	
10	E	2.6	2.7	1.2	E	E	G	G	C	G	C	C	C	C	C	C	C	C	C	2.4	2.4	2.0	1.9	E	
11	E	E	E	E	2.0	2.0	G	G	G	G	G	G	G	C	3.6	3.7	3.0	G	G	2.2	2.2	E	E	E	
12	E	E	E	E	E	E	G	3.1	G	G	G	G	G	G	G	G	G	2.7	2.6	2.6	2.8	E	E	E	
13	2.4	1.8	1.7	E	2.5	2.2	G	G	G	G	G	G	3.7	3.5	G	G	G	G	2.6	2.2	E	E	E	E	
14	E	E	3.0	E	E	G	G	G	G	G	4.2Y	G	G	E	E	G	G	G	2.6	2.2	E	E	E	E	
15	E	2.6	2.8	1.9	2.6	G	G	G	3.8	G	3.8	G	E	E	3.6	3.6	G	G	3.6	4.0	4.6	3.0	2.4	E	
16	E	E	E	E	E	G	E	5.5	3.4	G	G	G	G	G	G	G	G	G	3.4	3.6	2.4	3.3	E	2.0	
17	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	
18	E	E	E	E	E	G	G	2.8Y	G	E	G	G	C	E	E	G	G	G	2.2	E	E	E	E	E	
19	E	1.8 ^B	2.2	1.4	1.8	G	G	E	G	E	6.8	6.8	8.7	E	E	E	E	5.0	4.2	9.2	4.0	3.2	E	E	
20	E	E	E	E	E	E	G	2.6	4.5Y	G	E	E	E	E	E	3.6	4.6	3.2	G	2.2	2.6	E	E	E	
21	E	E	E	E	1.8	1.7	G	G	3.0	E	E	5.0	5.8	4.5	G	G	G	4.6	4.8	3.8	2.4	2.4	E	E	
22	2.6	E	2.6	2.5	2.3Y	G	G	G	G	E	G	G	E	E	E	E	G	G	2.4	3.2	4.6	2.6 ^B	4.6	5.0	
23	3.2	3.4	3.8	3.1F	2.0	3.2	4.2	5.2	5.0	4.7	E	E	E	E	E	E	G	G	3.3	3.2	2.2	2.4	4.8	7.1	
24	E	E	E	E	E	E	G	G	G	C	C	G	G	G	G	G	G	G	G	3.4	5.2	4.2	3.4	E	
25	E	E	E	E	E	2.8	4.0	3.4	3.4	E	4.4	6.4	6.9Y	5.9Y	G	G	G	G	2.8	2.8	2.0	2.0	1.8	E	
26	2.0	2.1	E	E	E	1.5	4.6	4.2	5.0	G	5.9Y	5.8Y	4.3	E	6.6	8.5	5.9	3.4	4.0	2.8	6.3	5.1	E	E	
27	E	3.3	2.4	1.5	E	E	G	G	G	5.2	4.6	4.8	G	5.0Y	G	G	G	G	3.6	3.6	4.2	2.3	4.8	E	
28	2.1	E	E	E	E	E	G	G	G	G	G	E	G	3.4	C	3.2	G	G	3.7	3.9	3.4	3.6	2.6	E	
29	1.6	2.0	1.5	1.6	1.7	G	G	3.2	G	G	4.7Y	G	G	G	G	3.4	G	4.2	3.8	4.0	3.4	2.8	1.8	E	
30	E	E	1.2	E	E	E	G	C	C	G	G	G	G	G	G	3.4	4.1	G	G	2.6	2.2	2.2	2.4	E	
31	Mean Value	2.3	2.4	2.4	2.2	2.2	2.1	3.7	3.8	3.9	4.5	4.9	4.6	5.3	4.2	3.9	4.0	3.9	3.7	3.3	3.2	3.1	2.8	3.0	3.3
	Median Value	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	3.0	2.8	2.6	2.2	1.8	E
	Count	30	30	30	30	30	30	29	28	28	28	29	28	27	28	29	29	29	29	30	29	29	29	30	30

Sweep 1.0—Mc to 17.0—Mc in 1.5—min Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

(M3000)F2

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	2.9	2.8	2.9	2.6	2.8	2.8	3.4	3.1H	3.3	2.9	3.1	3.1	2.9	3.1	3.3	3.2	3.3	3.3	3.2H	3.2	3.3	3.0	3.0	3.0	3.0		
2	2.7	2.9	2.9	3.1	3.0	3.0	3.3	3.6	3.2	3.2	3.2	3.1	3.2	3.2	3.1	3.1	3.2	3.3	3.5	3.0	3.0	2.9H	2.9	3.1H			
3	2.6	2.7	2.8	3.05	3.1	3.4	3.5	3.4	3.5	3.1	3.2	3.3	3.2	3.0	3.1	3.3	3.4	3.2	3.0	3.2	3.2	3.2	3.0	2.8			
4	3.1	3.0	3.3	2.8H	2.6	2.7V	3.4	3.3	3.2	3.2	3.1	3.1	3.3	3.3	3.3	3.3	3.3	3.25	3.2	3.25	3.2H	2.9	3.0	2.7			
5	2.6H	2.8	3.0	3.18	3.7	2.9	3.2	3.3	3.1	3.0	3.2	3.0H	3.1	3.2	3.1	3.2	3.3	3.4	3.4	3.0H	2.9	3.0	3.0	3.0	3.0		
6	2.8	2.9	2.8	3.0	3.1	2.9	3.5	3.1	3.3	2.8	3.2	3.4	3.2	3.1	3.2	3.3	3.2	3.1	3.4	3.2	3.2H	3.0	3.0	3.0	3.0		
7	2.9	2.85	2.9	2.8	3.1	2.9	3.3	3.3	3.2	3.2	3.4	3.2	3.1	3.0	3.2	3.3	3.4	3.6	3.3	3.2	2.9	2.8F	3.0	2.9	2.9		
8	3.05	2.95	3.2B	3.1	2.8	3.0	3.4P	3.3	3.3	3.3	3.3	3.1	3.2	3.1	3.3	3.3	3.4	3.5	3.3	3.2	3.1	3.0	3.0	2.7			
9	2.9	2.8	2.9	2.8	3.0	3.0	3.5H	3.3	3.3	3.2	3.2	3.1H	3.2	3.3	3.3	3.3	(3.2)P	3.3	3.2H	3.3	3.2	3.0	2.9	2.82			
10	2.7	2.9	3.15	3.2	2.7	3.0	3.3	3.3	C	C	C	C	C	C	C	C	C	C	C	3.2	3.2	(2.7)F	2.7F	2.8F			
11	2.7	2.8	2.9	2.9	2.8	3.0	3.4	3.2	3.0	3.1	3.22	3.1	3.1	(3.2)C	3.2H	3.2	3.5	3.4	3.3	3.3	3.0	2.8	2.6F	2.7			
12	2.8	(2.7)F	3.0F	3.0F	3.1F	3.0F	3.3	3.4	3.2	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.2	3.2	3.2	2.9	2.8	2.8	2.8			
13	2.6	(2.5)F	(2.7)F	3.2F	2.9F	3.0F	3.4	3.3	3.3	3.0	3.1	3.0	2.8	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.0	2.7	S			
14	S	(2.6)P	2.6	3.1	2.2	2.8	2.7K	3.0H	3.0K	3.2K	3.3K	3.3K	3.3K	3.3K	3.2K	3.4K	3.2	3.3P	(3.4)B	3.2	(3.0)C	2.7B	2.8	2.8			
15	(2.7)P	2.9	2.9	3.2	2.9	2.9	3.5	3.2B	3.0	3.2	3.3	3.3	(3.0)H	(3.0)P	3.0	3.1	3.1	3.2	3.1	3.3	3.1	3.0	3.0	2.7			
16	2.7	2.8	3.0	3.2H	3.0H	(2.8)H	B	B	3.4	3.2	3.1	3.1	3.2	3.1	B	B	3.2	3.1	3.1	3.3P	3.2	S	2.9	2.95			
17	2.8	2.8	2.9	3.1	2.9	2.9	3.3	3.4	3.3	3.0	3.1	3.2	3.0	3.0	3.0	3.1	3.2	3.1	3.2	3.1	B	C	2.95	2.75			
18	2.75	2.95	2.8	3.0	3.1	2.9	3.4	B	3.3	3.2	3.1	3.0	(2.0)C	3.1	2.9	3.1	3.2	3.1	3.0	3.1	3.0	2.9	(2.8)S	2.6P			
19	2.8	2.8H	2.8	2.72	2.9F	2.9F	3.4	3.5	3.12	3.1	B	3.2	B	B	B	B	3.3	3.1	3.2	A	B	2.9	3.0P	3.2H			
20	2.9P	2.8	2.8	3.0	2.6	3.0	3.2	3.2	B	3.1	B	2.8P	3.0	3.0	3.0	(3.1)P	3.1	3.1	3.3	3.1	3.1	3.1	2.7	2.7	2.6		
21	2.6	2.6	2.7	2.7	2.5	2.9	3.5	3.1	3.5	B	B	3.3	3.1	2.9	3.1	3.2	3.2	3.1	(3.2)T	3.1	2.8	2.7P	2.6	2.5			
22	2.6	2.7	2.6	3.0F	2.9F	3.2	2.9	2.8F	3.0K	2.9K	3.1K	3.0K	3.0K	3.0	3.1	3.0	3.0	3.1	3.1	3.1	3.2	2.7	2.7	2.6	2.8		
23	2.7	2.7F	2.7F	2.6F	2.5V	2.7	2.8	3.1	3.2P	3.1	3.1B	(2.9)B	3.0	2.9	3.0	3.0	3.1	3.2	3.2	3.2	3.3	2.8	2.9	2.8	2.8		
24	2.8	3.0	2.9	3.2	3.0	3.1	3.0	3.3	3.1	C	C	B	3.0	3.0	3.1	3.1	3.0	3.2	3.2	3.0	3.0	B	(2.7)B	2.7			
25	(2.8)B	2.7	(2.7)H	2.8H	3.0	3.1	3.0K	(2.9)K	2.9K	2.6K	2.5K	2.7K	2.7K	2.7K	2.9K	3.1	2.9K	3.0K	3.0K	3.0	3.0	2.8	2.6	2.5	2.7		
26	2.7	2.9	2.8	2.7	2.6	2.8	3.3	3.4	3.0K	2.9B	BK	3.2K	3.0K	3.4K	3.4K	3.4K	3.2K	3.3K	3.35	3.25	(3.1)B	2.9	(2.9)5	2.8			
27	2.8	2.8H	2.7	2.7	2.8	3.0	3.4	3.3	3.2V	3.1H	3.1H	3.1H	3.1H	3.1	3.0	3.2	3.2	3.1	3.3	3.5	3.05	2.85	2.85	S			
28	2.7	2.8	3.0	2.6	2.6	3.0	2.9	2.9	3.1	2.9	2.9	3.0	3.2	(3.0)C	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.4	3.0	2.7			
29	2.82	2.8	2.8	2.9	2.8	3.2	3.3	3.4	3.1	3.0	3.1	3.0	3.1	3.0	3.1	3.1	3.2	3.2	3.3	3.3P	3.2	3.0	3.0	2.9			
30	2.7	3.0	2.8	2.8	2.7	3.2	3.3P	C	C	3.1	2.9	3.0	3.1	3.2	3.3	3.2	3.2	3.1	3.2	3.2	3.2	3.1	2.95	2.9			
31	Mean Value	2.8	2.8	2.9	2.9	3.0	3.3	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.0	2.9	3.0	2.8		
	Value	2.7	2.8	2.8	3.0	3.0	3.3	3.3	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.1	2.9	2.9	2.8		
	Count	2.9	3.0	3.0	2.9	3.0	2.8	2.7	2.7	2.6	2.4	2.8	2.8	2.8	2.9	2.6	2.7	2.9	2.9	2.8	2.7	2.7	2.7	2.7	2.8	2.7	

(M3000)F2

Sweep 1.0 - Mc to 17.0 - Mc in 15 min

Manual

A 9

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 36°43.5'N
Long. 140°08.2'E

IONOSPHERIC DATA

Akita

fminF

Apr. 1951

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	1.2	A	A	A	A	1.6	2.0	2.7	3.4	4.0	4.2	4.3	4.1	4.2	4.0	3.2	3.0	2.2	2.5	A	A	1.5	1.6	1.6	
2	1.4	1.2	E	E	E	E	2.0	2.9	3.2	3.9	4.2	4.1	4.4	4.4	3.4	3.2	3.0	A	1.8	1.8	1.5	1.5	1.5	1.4	
3	1.2	E	E	E	E	1.5	2.1F	2.5F	3.1	4.0	4.1	4.2	4.2	3.6	3.3	3.6	3.0	2.6	2.1	A	1.6	1.4	1.3	1.4	
4	E	E	E	E	E	1.2	2.0	2.8	3.2	4.0	4.0	4.2	4.3	4.0	3.5	3.9	3.0	A	AF	A	1.7	1.8	1.7	1.4	
5	1.7	1.4	E	E	E	E	2.0	2.8	3.5	3.8	A	4.8	3.6	3.8	3.8	3.3	2.8	2.9	1.9	1.7	1.4	1.4	1.4	1.4	
6	1.2	1.2	E	1.4	1.2	1.2	2.0	2.5	3.1	A	4.2	4.1	3.4	4.1	4.2	3.6	3.0	2.2	1.9	1.9	A	1.6	1.5	1.4	
7	1.2	E	1.5	E	E	1.3	2.2	3.0	A	3.6	A	A	4.2	4.0	4.2	A	3.2	2.4	A	1.6	1.7	1.4	1.6	1.7	
8	1.2	E	1.9	1.6	A	E	2.2	2.7	3.1	3.4	4.0	4.1	4.1	3.6	3.4	3.4	3.0	2.4	1.8	A	A	A	A	1.8	
9	1.2	1.2	1.2	1.2	1.3	1.3	2.0	2.4	2.9	A	4.0	4.4	4.1	3.5	4.2	4.0	3.0	A	2.2	A	1.6	1.5	1.4	1.8	
10	1.2	E	E	E	E	1.3	1.9	3.0	C	C	C	C	C	C	C	C	C	C	C	1.6	1.6	1.5	1.5	1.5	
11	1.2	E	E	E	E	1.6	2.6	2.8	A	4.1	4.2	4.1	4.0	[4.0]C	4.0	3.4	3.4	2.4	1.9	1.5	1.5	1.6	1.5	1.5	
12	1.2	1.1	E	E	E	E	2.2	2.9	3.9	4.4	4.3	4.3	4.2	4.2	4.0	4.2	3.3	2.8	2.4	1.6	A	1.6	1.6	1.6	
13	1.2	E	E	E	E	1.4	2.9	3.3	3.4	3.6	4.2	4.6	4.3	4.4	4.1	3.8	3.2	2.6	1.8	A	1.4	1.6	1.4	1.4	
14	1.5	1.5	E	E	1.2	1.2	2.0	2.9	3.4	3.8	4.2	4.2	4.4	4.4	4.2	4.0	3.1	2.7	1.6	1.6	[1.6]C	1.5	1.5	1.5	
15	1.3	1.2	E	E	E	1.6	2.6F	3.4	3.8	4.2	3.8	5.0	4.6	4.8	4.6	4.2	3.2	2.8	A	A	1.6	1.6	1.6	1.6	
16	E	E	1.3	E	E	E	2.2	3.0	3.3	5.0	3.3	4.3	4.3	4.4	5.4	4.0	4.0	3.0	1.8	A	1.5	A	1.5	1.4	
17	1.3	E	1.1	E	E	E	1.7	2.4	3.0	3.3	4.1	4.0	4.8	4.4	4.6	4.2	3.1	2.6	2.0	1.6	1.8	[0.8]C	1.7	1.6	
18	1.2	E	E	E	E	1.3	2.6	3.2	3.5	4.5	4.3	4.4	[5.0]C	5.8	4.2	4.4	3.3	2.8	2.2	1.6	1.6	1.6	1.7	1.6	
19	1.6	2.0	1.7	1.3	1.4	1.3	2.6	4.0	3.8	7.0	A	A	A	4.2	6.0	B	5.8	3.3	2.1	A	B	A	1.8	1.8	
20	1.8	1.7	1.2	E	E	1.7	2.8	3.0	4.0	5.0	B	5.4	4.4	4.0	4.8	4.0	A	2.8	2.0	1.8	1.6	1.5	1.4	1.4	
21	1.2	E	E	E	E	1.4	1.6	2.6	3.2	3.0	B	6.3	5.8	4.3	5.2	4.1	4.2	A	A	A	1.7	1.6	1.6	1.6	
22	1.2	1.3	1.8	1.6	1.5	1.4	2.7	3.9	3.8	5.6	4.3	4.2	4.4	4.2	4.2	4.1	4.0	2.4	2.3	A	A	A	A	A	
23	1.8	1.9	E	1.5	E	2.4	A	3.3	A	4.4	4.4	5.8	4.7	4.7	4.1	4.1	4.3	3.4	2.0	A	1.6	1.6	A	A	
24	E	E	E	E	E	2.0	2.7	4.0	3.8	C	C	4.2	4.2	4.0	4.0	3.8	3.8	2.8	2.1	A	A	A	A	1.6	
25	1.2	E	E	E	E	2.2	A	4.0	3.4	4.4	4.4	4.3	A	4.4	4.1	3.2	3.3	A	1.6	A	A	A	1.6	1.4	
26	1.2	1.2	E	E	E	1.8	2.6	3.3	A	4.2	5.7	5.7	4.4	5.5	A	A	A	3.0	3.0	1.9	A	A	1.6	1.5	
27	1.2	1.6	1.3	1.1	E	1.9	2.7	3.6	4.0	4.8	A	3.8	4.4	5.8	4.2	4.2	4.0	2.8	A	1.5	A	1.5	A	1.5	
28	1.2	E	E	E	E	1.7	2.6	3.4	4.0	4.3	4.1	4.1	4.3	[3.8]C	3.5	3.2	3.2	2.0	A	A	A	1.6	1.6	1.6	
29	1.6	1.4	1.4	1.4	1.2	2.0	2.8	3.2	3.4	4.0	4.7	4.2	4.6	4.4	4.0	3.3	2.9	A	4.2	A	1.8	1.6	1.6	1.6	
30	1.2	1.2	E	E	E	2.0	2.5	C	C	3.8	4.8	5.3	4.2	5.4	5.4	3.8	A	2.9	2.2	A	A	1.5	1.5	1.5	
31																									
Mean Value	1.3	1.4	1.4	1.4	1.3	1.5	2.4	3.1	3.5	4.2	4.4	4.5	4.3	4.4	4.3	3.9	3.4	2.8	2.1	1.8	1.6	1.6	1.6	1.4	
Median Value	1.2	1.1	E	E	E	1.6	2.6	3.0	3.4	4.0	4.2	4.3	4.3	4.2	4.2	4.0	3.2	2.8	2.0	1.6	1.6	1.6	1.6	1.5	
Count	30	29	29	29	28	30	28	29	24	24	23	26	26	28	28	26	26	25	22	16	15	21	25	28	

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fminE

Lat. 38° 43.5'N
Long. 140° 08.2'E

Akita

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	1.2	E	E	E	E	E	1.6	1.4	1.4	2.1	2.2	2.3	2.0	2.3	1.8	1.8	1.8	1.5	1.5	1.6	1.5 ⁰	E	E	E
2	1.1	E	E	E	E	E	1.6	1.6	1.6	1.7	1.7	1.9	2.0	2.0	2.0	2.0	1.8	1.6	1.4	1.5	1.5	1.6	E	E
3	E	E	E	2.0	E	E	1.6	1.6	1.6	1.6	1.7	2.0	2.0	1.9	1.6	1.8	1.6	1.6	1.6	1.6	1.6	1.6	E	E
4	E	E	E	E	E	E	1.6	1.6	1.6	1.6	1.6	1.8	1.7	1.7	1.5	1.5	1.4	1.5	1.4	1.6	1.8	1.8	E	E
5	1.8	E	E	E	E	E	1.5	1.5	1.8	1.9	1.7	1.9	1.8	2.0	2.0	1.8	1.8	1.7	1.6	1.4	1.8	1.4	1.4	1.4
6	1.2	E	E	E	E	E	1.5	1.6	1.6	1.6	2.0	E	2.2	2.0	1.9	1.7	1.6	1.6	1.4	1.4	1.4	E	E	E
7	E	E	E	E	E	E	1.6	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.4	1.4	1.4	1.4	1.7
8	E	E	E	E	E	E	1.4	1.5	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.8	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.4
9	1.2	E	E	E	E	E	1.7	1.6	1.6	1.7	2.1	2.1	2.0	1.8	1.9	1.8	1.7	1.6	1.6	1.4	1.9	E	1.8	1.9
10	E	E	E	E	E	E	1.6	1.6	1.6	C	C	C	C	C	C	C	C	C	C	1.5	1.5	1.6	1.7	E
11	E	E	E	E	E	E	1.4	1.4	1.4	2.1	2.1	2.0	2.0	(2.0) ^c	2.0	1.8	1.8	1.7	1.4	1.6	1.6	E	E	E
12	E	E	E	E	E	E	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.0	2.0	2.2	2.0	2.0	1.6	1.6	1.6	E	E	E
13	1.8	E	E	E	E	1.7	E	1.6	1.7	1.8	2.0	2.0	2.0	2.0	1.7	1.7	1.7	1.6	1.5	1.4	E	E	E	E
14	E	E	E	E	E	E	1.6	1.6	1.8	1.8	1.8	1.9	2.0	2.0	2.0	2.0	1.8	1.8	1.5	1.5	C	E	E	E
15	E	E	E	E	E	E	1.6	1.8	1.8	2.2	2.4	2.3	E	E	E	3.2	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
16	E	E	E	E	E	E	E	1.7	1.8	1.9	2.2	2.2	2.0	2.2	1.8	1.7	1.8	2.0	1.8	1.6	2.0	1.5	E	1.8
17	E	E	E	E	E	E	1.8	1.7	1.9	2.0	2.0	2.0	2.1	2.2	2.0	2.2	1.9	1.7	1.6	E	E	E	E	2.0
18	E	E	E	E	E	E	1.7	1.8	2.2	E	2.3	2.3	C	E	E	2.9	1.9	1.8	1.8	E	E	E	E	E
19	E	E	E	E	E	E	1.8	1.8	2.0	5	3.4	4.2	2.4	E	E	E	E	1.9	1.7	1.8	E	E	E	E
20	E	E	E	E	E	E	1.7	1.7	1.9	2.0	E	E	E	E	2.0	2.2	2.1	1.8	1.6	1.4	1.6	1.8	E	E
21	E	E	E	E	1.2	1.4	1.6	1.6	1.6	E	E	4.2	4.0	4.3	3.0	3.0	2.2	1.8	1.6	1.6	1.6	1.6	E	E
22	2.4	E	E	E	E	E	1.6	1.7	1.9	(2.1) ^B	2.2	2.4	F	3.1	E	E	2.0	1.8	1.6	1.6	1.6	1.6	1.6	1.6
23	1.2	E	E	E	E	E	1.6	1.8	1.8	4.0	2.1	E	2.2	E	2.3	2.1	2.3	1.7	1.6	1.4	1.8	1.9	1.4	1.5
24	E	E	E	E	E	E	1.6	1.6	1.6	C	C	1.9	1.9	1.9	2.3	1.9	1.9	1.7	1.8	1.6	1.6	1.6	1.6	1.6
25	E	E	E	E	E	E	1.8	1.8	1.8	E	1.8	2.0	2.1	2.1	2.2	2.0	1.7	1.7	1.9	1.6	1.4	1.4	1.4	1.4
26	1.6	1.6	E	E	E	E	1.5	1.6	1.8	2.0	2.4	4.1	4.0	E	3.2	2.0	1.8	1.8	1.5	1.5	1.5	1.6	E	E
27	E	E	1.1	1.3	E	E	1.8	1.9	1.9	2.0	2.0	2.2	2.2	2.4	2.1	2.0	2.0	1.8	1.6	1.5	1.4	2.0	1.5	E
28	1.8	E	E	E	E	E	1.6	1.7	1.9	2.1	2.0	E	2.4	1.9	(1.9) ^c	1.9	1.8	1.6	1.6	1.6	1.6	1.6	1.8	E
29	1.2	E	E	E	E	E	1.4	1.6	2.0	2.0	2.2	2.2	2.2	2.1	2.0	1.8	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
30	E	E	E	E	E	E	1.2	1.5	C	1.8	1.8	1.8	2.0	2.0	2.2	1.6	2.1	1.8	1.6	1.4	1.8	1.5	2.0	E
31																								
Mean Value	1.5	1.3	1.1	1.7	1.5	1.8	1.6	1.6	1.8	2.0	2.0	2.3	2.1	2.1	2.1	1.9	1.8	1.7	1.6	1.5	1.6	1.6	1.6	1.6
Median Value	E	E	E	E	E	E	E	E	1.8	1.8	2.0	2.0	2.0	2.0	2.0	1.8	1.8	1.7	1.6	1.5	1.6	1.5	1.4	E
Count	30	30	30	30	30	30	30	29	28	28	28	29	28	29	29	30	29	29	29	30	29	29	30	30

fminE

Sweep 1.0—Mc to 17.0—Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35°42.4'N
Long. 139°29.3E

f_oF₂

Apr. 1951

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	5.0 ^S	(4.5) ^S	4.8	4.9	4.2 ^P	4.2	(6.1) ^F	7.0	8.4	8.7	10.0	10.8	10.9	11.6	10.8	9.4	8.9	8.7	8.9	8.1 ^P	5.2	4.8	5.0	4.9	
2	4.9	4.8	C	C	C	C	C	C	C	8.0	9.9	10.0	11.1	10.3	9.5	9.6	9.6	(9.6) ^P	8.6	6.9	6.5	6.2	5.9	(6.0) ^F	
3	5.1	5.0	5.0	5.3	5.0 ^P	5.0	6.3	6.9	8.0	9.0	10.6	9.5	8.8	9.4	9.8	10.9	8.8	8.7 ^P	8.8	S	(7.0) ^P	5.5 ^F	6.2	6.4	
4	5.8 ^S	6.1	6.2 ^P	3.8	3.7	3.5 ^F	5.6	5.8	6.6	7.8	9.2	10.5	10.4	9.3	9.3	8.9	9.4	9.6 ^S	9.0 ^S	7.6	6.6	4.8	S	T	
5	T	C	C	C	C	C	C	C	C	C	10.8	12.0	11.8	11.8	11.0	9.4 ^S	8.3	8.1 ^P	7.0	5.3	5.3	5.4	5.5	5.4	
6	5.3	4.7	4.7	4.1	3.4	3.3	3.4	5.8	7.6	7.0	10.2	10.0	8.2	8.8	9.4	9.1	8.8	7.6	8.8	7.2	6.0	S	4.8	5.2	
7	5.0	5.0	5.1	4.6	4.3	3.4	6.0	7.1	8.0	9.3	8.3	10.2	11.2	11.6	11.1	10.4	9.1	6.9	7.1	6.4	5.1	5.3	(5.3) ^F	(5.3) ^F	
8	5.5 ^F	5.9	4.9	3.4 ^F	3.1 ^F	3.3	5.7	6.1	7.5	8.8	8.5	8.7	9.4	9.8	10.8	9.8	8.7	7.0 ^F	7.0 ^F	(6.5) ^S	6.0 ^F	5.6	(5.7) ^F	5.6	
9	5.4	5.3 ^P	4.7 ^F	4.7 ^F	5.0 ^F	5.7 ^F	6.8	6.9	7.9	8.2	9.0	9.9	11.1	9.4	8.5	8.9	8.4	7.2	A	S	8.4	4.9	4.9	(4.9) ^S	
10	(4.9) ^P	5.3	S	4.7	4.2 ^P	4.5	4.7	7.2	7.5	8.3	9.9	10.3	10.6	10.3	10.9	10.9	8.1	7.2	7.2	6.8	5.6	5.5	5.7	5.6	
11	5.5 ^P	5.1	5.5	5.4	2.7	3.5	5.6	6.5	6.6	T	8.9	10.8	11.4	10.8	9.8	10.2	9.6 ^F	8.2	8.8	7.4	5.4	4.6	5.0 ^P	4.9 ^P	
12	5.0 ^P	5.1	4.9	5.2	3.1	3.6	6.0	7.3	7.9	8.9	10.8	12.4	12.2	11.2	10.8	10.2	8.0	7.2	6.9	6.9	6.4	6.1	5.7	5.9	
13	5.9 ²	5.4	5.5	5.2	3.8	4.0	6.4	7.2	7.4	8.6	10.6	11.1	11.3	11.8	10.8	9.7	9.8 ^P	8.9 ^F	7.5 ^F	8.4	6.9	6.6	6.2 ^F	6.6	
14	6.6	6.6	5.9 ^P	6.7	5.6	5.5	5.8	T	8.4	9.6	11.3	10.4 ^P	10.0 ^K	8.9 ^K	8.6 ^K	8.9 ^K	8.6 ^K	8.4 ^K	7.4 ^F	7.4 ^F	6.0	5.3	(5.6) ^S	5.8	
15	5.4	5.8 ^P	5.8 ^P	4.5	4.2 ^P	4.2 ^P	6.8	7.3	8.2	9.6	10.2	11.6	11.4	11.0	10.2	10.4	10.7	9.7	9.5 ^F	8.2	6.7	5.8	5.9 ^F	6.0	
16	5.7 ^F	6.4 ^F	6.1	5.1 ^F	4.7 ^F	4.9 ^F	7.6	7.6 ^F	8.3	8.9	9.8	9.7	10.2	11.2	9.5	9.8	10.0	9.5 ^S	9.4	A	8.5 ^J	6.9	6.6	6.9	6.8
17	6.6	6.4	6.5	6.4	4.7	4.9 ^P	7.8	9.2	8.8	7.9	10.9	11.7	11.7	M	12.6	12.5	11.6	10.2	9.6	8.9	7.4 ^F	7.0	6.9	7.0	
18	6.6	6.6	6.5	5.8	5.3	5.5	8.1	7.8	8.9	9.4	10.2	11.3	11.2	11.8	11.2	10.8	10.3	9.4 ^P	9.2 ^P	8.9	7.8	7.1	7.7	5.6	
19	6.1 ^S	5.4 ^F	4.7	4.1 ^P	3.9	4.2 ^P	6.5	7.6	8.9	9.2	9.0	9.1 ^H	9.6	9.8	10.2	B	10.3	9.6	(9.5) ^S	9.2 ^P	7.0	6.8 ^V	6.8	7.5 ^F	
20	7.0 ^F	7.0 ^F	6.8	6.5	6.0	6.6 ^F	8.1	9.0	(9.2) ^S	9.4	(10.4) ^J	11.2	11.6	11.8	11.3	11.0	10.4	10.2	10.0	9.0 ^P	8.0 ^P	5.4	5.0	5.7	
21	5.5 ^S	6.0 ^S	6.2	5.4	5.0 ^F	5.8	B	7.4	8.0 ^J	7.2	(10.0) ^K	10.9	11.1	(11.0) ^O	11.0	11.2	11.0	9.5	7.7 ^F	8.8	8.6	7.1	6.8	6.7	
22	(6.4) ^F	C	C	C	4.6	5.0	5.6 ^K	7.0 ^K	7.1 ^N	8.0 ^K	7.6 ^K	8.8 ^K	9.0 ^K	11.4	11.2	11.0	10.3	9.3	8.8	8.1	7.4	6.8	6.2	6.7	
23	6.9	6.4	6.3	6.2	5.3	5.4	6.5	8.2	7.3	8.6	10.0	11.0	11.4	11.2	11.0	10.3	10.1	9.6	9.1	7.5 ^F	6.5	6.5	6.7	6.5	
24	6.6	(6.3) ^J	6.2 ^P	5.6	4.9	5.2 ^F	7.0	8.8 ^F	(9.3) ^S	(9.4) ^S	9.6	11.4	12.8	12.3	12.1	11.2	10.4	(10.2) ^S	(9.8) ^S	8.4	6.8	(7.0) ^S	A	7.0 ^S	
25	7.3	6.5	6.6	6.4	6.0 ^P	6.5	5.4 ^K	A ^K	A ^K	A ^K	6.4 ^K	7.0 ^K	7.5 ^K	8.2 ^K	8.0 ^K	7.5 ^K	7.0 ^K	6.8 ^K	7.0 ^K	6.6	6.2 ^J	6.3	6.5	6.6	
26	6.3 ^S	6.2	5.4	4.6	4.2	5.2 ^J	7.8	8.0	7.1 ^K	8.5 ^K	8.6 ^K	10.4 ^K	10.1 ^K	9.2 ^K	9.2 ^K	8.0 ^K	7.2 ^K	7.3 ^K	5.7 ^K	8.3 ^J	7.3 ^S	(7.3) ^S	6.9	6.7	
27	6.7	(6.4) ^P	6.0 ^F	5.6	6.2 ^P	6.8 ^J	7.5	7.7	8.4	8.8	9.9	10.0	10.0	9.0	9.3	9.1	8.4	7.2	8.3	8.3	8.2 ^F	6.9	6.0 ^F	6.1	
28	6.9	7.0	6.8	6.0	6.3	6.9	7.0	7.1	8.4	8.8	9.9	10.4	10.0	10.6	10.7	11.1	11.4	10.6 ^S	10.5 ^S	(7.6) ^S	6.5	S	7.3 ^S	7.0	
29	6.0	5.7	6.0	5.5	5.6	6.3	7.6 ^P	6.9 ²	7.1	7.7	8.5	9.6	10.6	10.7	11.1	11.7	11.4	10.6 ^S	10.5 ^S	(7.6) ^S	6.5	S	7.3 ^S	7.0	
30	6.8	6.6	6.0	5.5	5.6	6.8	(8.2) ^F	8.8	8.8	7.9	8.7	10.1	11.1	10.1	10.2	10.0	9.3 ^F	9.0	S	(9.4) ^S	7.6 ^S	6.6	6.6	6.7 ^S	
31																									
Mean Value	5.6	5.8	5.7	5.2	4.7	5.0	6.5	7.4	7.9	8.6	9.5	10.2	10.6	10.5	10.3	10.0	9.3	8.6	8.8	7.8	6.7	6.1	6.1	6.1	
Median Value	5.9	6.0	6.0	5.3	4.7	5.0	6.5	7.2	8.0	8.7	9.8	10.4	11.0	10.3	10.5	10.0	9.3	8.8	8.8	7.8	6.8	6.2	6.1	6.0	
Count	29	28	26	27	28	28	27	26	27	27	30	30	30	30	29	30	29	30	30	30	27	28	30	28	28

Sweep J. 0 - Mc to 18.5 - Mc in 2 - min Automatic

K 1

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f_oF₂

135° E Mean Time

Kokubunji Tokyo

Lat. 35°-42.4' N
Long. 139°-29.3E

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

f_oF₂

Sweep 1-0 Mc to 18.5 Mc in 2 min

Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3E

Kokubunji Tokyo

135° E Mean Time

f'F2

Apr. 1951

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	280	260	230	230	220	220	220	230	240	250	270	270	270	250	240	250	230	230	210	190	270	280	260
2	260	260	C	C	C	C	C	C	C	280	270	260	270	260	250	250	240	200	240	240	210	250	220	240
3	240	310	300	260	260	200	210	220	230	270	230	280	260	270	270	240	240	250	200	230	210	250	230	280
4	250	250	210	250	340	310	210	220	220	270	260	270	260	260	250	250	260	230	220	240	220	230	220	310
5	320	C	C	C	C	C	C	C	C	C	270	280	260	270	260	250	250	230	220	250	270	300	280	280
6	260	250	270	200	T	260	230	230	270	260	270	250	260	280	270	270	250	230	220	260	210	A	270	260
7	220	260	240	240	220	270	240	250	250	240	250	300	270	260	260	250	240	230	230	230	250	310	360	270
8	260	250	200	200	300	210	230	230	230	250	250	270	270	270	250	250	210	(200)	220	220	210	230	300	250
9	270	240	250	300	A	270	250	220	250	250	260	290	250	240	250	260	240	230	A	230	200	A	200	300
10	300	260	200	210	300	270	220	210	240	260	260	260	270	260	270	260	250	230	230	220	210	280	280	280
11	280	270	250	200	280	250	230	230	240	T	260	280	270	260	260	260	240	230	230	200	200	270	300	290
12	290	270	250	200	230	250	220	220	210	260	240	260	250	250	270	250	220	230	240	240	250	250	250	270
13	300	300	250	200	210	250	240	230	220	250	280	270	290	290	260	260	240	230	230	220	220	220	250	310
14	310	280	270	230	210	280	250	T	290	290	260	250	260	250	230	260	250	260	240	220	220	310	300	300
15	270	260	240	200	260	270	220	220	220	260	250	280	260	260	280	260	250	250	260	A	210	200	270	270
16	330	260	240	210	260	270	220	230	240	240	260	250	270	270	260	250	240	230	230	230	230	220	260	270
17	270	260	240	210	230	280	230	230	230	230	230	280	280	270	260	250	240	230	230	220	220	250	310	340
18	270	260	230	210	230	260	230	230	220	240	280	270	280	270	280	B	260	250	240	220	220	220	310	340
19	310	230	230	320	320	280	210	240	240	250	230	240	280	270	280	B	260	250	240	220	220	220	310	270
20	270	260	250	240	270	270	220	240	(240)	250	280	250	220	280	250	260	250	240	240	240	240	230	210	280
21	290	280	270	250	350	260	200	240	270	300	(280)	270	310	(290)	270	250	240	230	250	230	230	300	310	300
22	280	C	C	C	270	250	250	320	300	280	300	300	270	300	280	280	240	240	260	270	270	300	350	A
23	300	280	310	280	290	290	240	250	230	280	270	280	280	290	280	270	270	240	240	230	230	260	280	270
24	280	260	230	210	250	250	220	240	250	(260)	260	300	330	330	320	310	280	270	230	230	260	280	270	350
25	270	290	280	260	280	260	A	A	A	A	A	430	370	380	370	370	280	270	270	290	320	350	300	270
26	270	270	270	300	330	280	250	240	230	270	310	280	280	280	270	230	240	230	250	240	240	270	270	260
27	250	250	250	270	270	240	220	240	250	250	260	300	270	260	250	270	260	240	240	210	310	260	260	280
28	290	280	250	250	300	250	230	260	270	300	290	290	270	260	290	270	260	260	260	250	220	240	260	310
29	300	270	260	230	270	250	220	210	240	230	260	280	280	280	280	260	240	240	230	220	250	300	270	250
30	250	250	250	250	280	240	220	250	250	250	300	300	280	280	280	250	250	250	250	250	210	220	270	220
31																								
Mean	280	270	250	240	270	260	230	240	240	260	270	280	270	270	270	270	260	250	240	240	240	270	280	280
Median	280	260	250	230	270	260	220	230	240	260	260	280	270	270	270	260	250	240	230	230	230	220	270	280
Count	30	28	27	27	27	28	27	26	27	27	30	30	30	30	30	29	30	30	27	30	30	30	29	29

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f_oF1

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

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	L	L	L	L	L	L	L	L	L	Q						
2							C	C	C	L	L	L	L	L	L	L	L	Q						
3							Q	Q	Q	L	L	L	L	L	L	L	L	Q						
4							Q	Q	Q	L	4.3	L	L	L	L	L	L	Q						
5							C	C	C	C	L	L	L	L	L	L	L	Q						
6							Q	Q	L	L	L	L	L	L	L	L	L	Q						
7							Q	L	L	L	L	L	L	L	L	L	L	Q						
8							Q	Q	L	L	L	L	L	(4.8)	L	L	L	Q						
9							Q	L	L	L	L	L	L	L	L	L	L	Q						
10							Q	Q	L	L	L	L	4.5	4.4	4.3	L	L	L						
11							Q	Q	L	L	L	4.5	L	L	L	L	L	L						
12							Q	Q	Q	L	L	L	L	L	L	L	L	L						
13							Q	Q	Q	4.5	4.9	L	L	L	L	L	L	L						
14							Q	T	L	L	L	L	L	L	L	L	L	L						
15							Q	Q	Q	L	L	L	L	L	L	L	L	L						
16							Q	Q	L	L	L	L	L	L	L	L	L	L						
17							Q	L	L	L	L	L	L	L	L	L	L	L						
18							Q	Q	L	L	L	L	L	L	4.9	L	L	L						
19							Q	Q	Q	L	L	L	L	L	L	L	L	L						
20							Q	B	Q	B	B	Q	L	L	L	L	L	L						
21							Q	L	C	L	B	L	A	L	L	L	L	L						
22							Q	L	B	L	L	L	L	L	L	L	L	L						
23							Q	L	L	L	L	5.1	L	L	L	L	L	L						
24							Q	Q	S	C	L	L	L	L	L	L	L	L						
25							A	A	A	A	4.8	4.7	4.8	4.6	4.8	4.5	A	L						
26							Q	Q	Q	A	L	L	L	A	L	L	L	L						
27							Q	L	L	L	4.4	L	L	L	L	L	L	L						
28							Q	L	L	L	4.9	L	4.8	L	4.8	L	L	L						
29							Q	Q	L	Q	L	L	L	L	L	L	L	L						
30							Q	L	L	L	L	L	L	L	L	L	L	L						
31																								
Mean Value							4.2		-	4.5	4.7	4.8	4.7	4.6	4.6	4.5								
Median Value							4.2		-	4.5	4.8	4.7	4.8	4.6	4.8	4.5								
Count							1		0	1	5	3	3	3	5	1								

f_oF1

Sweep 1.0 Mc to 18.5 Mc in 2 min

Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35°42.4'N
Long. 139°28.3'E

Apr. 1951

f'F1

135° E Mean Time

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							Q	Q	220	200	210	180	140	220	220	210	220	Q						
2							C	C	C	200	190	200	190	220	220	220	210	Q						
3							Q	Q	Q	250	220	230	250	220 ^F	220	210	Q							
4							Q	Q	Q	240	210	210	200	230	230	220	230	Q						
5							C	C	C	C	A	A	210	200	210	250	230	Q						
6							Q	Q	230	220	230	180	230	220	200	210	230	Q						
7							Q	230	220	A	220	A	240	A	220	210	230	Q						
8							Q	Q	210	200	190	230	210	200	200	200	Q							
9							Q	220	200	200	190	220	230	220	230	230	220	Q						
10							Q	Q	210	210	200	230	210	200	200	210	Q	220						
11							Q	Q	220	T	200	190	200	230	210	210	220	Q						
12							Q	Q	Q	210	220	240	210	220	200	200	220	Q						
13							Q	Q	Q	210	200	230	210	230	210	210	220	Q						
14							Q	T	220	220	220	210	210	210	Q	250	A	A						
15							Q	Q	Q	220	210	210	220	200	210	230	230	Q						
16							Q	Q	220	200	200	200	200	200	220	220	220	A						
17							Q	220	210	210	200	180	210	220	230	220	220	Q						
18							Q	Q	Q	220	220	190	240	B	240	230	230	Q						
19							Q	B	Q	B	B	Q	230	250	230	B	A	A						
20							Q	220	(220)	220	B	220	A	230	220	A	240	Q						
21							Q	230	B	240	(220)	210	230	C	A	Q	Q	Q						
22							Q	230	220	240	200	220	220	210	220	220	220	A						
23							Q	220	210	230	210	210	210	220	250	270	240	A						
24							Q	Q	Q	S	C	200	200	A	230	200	200	Q						
25							A	A	A	A	A	230	230	220	220	220	A	250						
26							Q	Q	Q	A	220	210	240	A	220	Q	210	Q						
27							Q	220	220	210	180	220	230	230	220	240	210	Q						
28							Q	230	220	210	200	210	210	220	200	240	220	230						
29							Q	Q	220	Q	190	200	260	230	230	230	240	Q						
30							Q	230	(230)	210	200	200	210	210	250	230	250	230						
31																								
Mean Value							230	220	220	210	200	220	220	220	220	220	230	230						
Minimum Value							220	220	210	200	210	210	210	220	220	220	220	220	220					
Count							10	17	22	22	27	27	28	28	26	28	26	23	4					

Steep 1.0 Mc to 18.5 Mc in 2 min Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

f_oE

135° E Mean Time

Kokubunji Tokyo

Lat. 35°42.4' N
Long. 139°28.3E

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	2.3	2.9	3.1	3.2	3.2	3.3	3.2	3.2	A	3.0	2.6	A							
2						C	C	C	2.9 ^B	3.2	3.3	3.1	3.2	3.2	3.2	3.0	2.6	2.1							
3						1.6	A	2.7	2.9	3.4	3.2	3.2	3.2	3.2	3.2 ^F	3.0	2.7	2.2 ^F							
4						1.9	2.3 ^F	3.0 ^F	3.1	3.1 ^B	3.1 ^J	3.1	3.1	3.1	A	A	T	2.2							
5						C	C	C	C	3.1 ^B	3.1	A	3.2	A	A	A	2.2 ^F	2.2 ^F							
6						1.8	2.4 ^F	2.8	3.0	3.1	3.3	3.3	3.3 ^B	3.1	3.1	2.9	2.7	2.2							
7						1.7	2.3	2.7	3.0	3.1	3.3	B	A	A	3.1	A	A	2.2 ^F							
8						1.6	2.3	2.7	2.9	3.2	3.3	3.4	3.2	3.2	3.2	2.9	AF	AF							
9						1.7	2.4	2.8	3.2 ^B	3.3	B	A	AF	A	AF	A	3.2 ^S	2.7 ^S	AF						
10						1.8	2.3	3.0	3.1	3.2 ^B	3.3	3.4	3.3 ^B	3.2	3.2	B	B	2.5							
11						2.0 ^F	2.6	3.0	T	B	B	B	3.5	3.4 ^F	3.4	3.1 ^S	2.9	2.3							
12						1.7	2.5	3.0	3.1	3.4 ^B	3.5 ^B	B	B	B	3.2	3.1	3.0	2.9							
13						2.1 ^J	2.9	3.1	3.2	3.3	3.6	3.6	3.6	3.6	3.4	3.1 ^S	3.0	2.5 ^F							
14						1.9	T	3.2	3.2	3.2 ^B	3.3	3.3 ^B	3.3 ^B	B	3.0 ^J	2.9 ^J	2.4 ^S	2.5 ^F							
15						2.0	2.7	3.0	3.0 ^J	3.4	3.4 ^J	3.4 ^B	3.4 ^B	B	B	3.2	2.8	2.5							
16						2.0	2.8	3.1	3.2	3.3	3.4	3.5	3.5	3.5	3.3 ^B	3.1	2.9	2.4							
17						1.7	2.6	3.0	3.2	3.2	3.3	3.4 ^B	3.5	3.2 ^B	A	3.0	AF	AF							
18						2.2	2.8	3.3	3.6	3.5	3.6	B	B	B	3.5	3.5	A	2.5							
19						2.1	B	3.3	B	B	B	B	3.6	3.6	B	B	B	2.8							
20						1.9	2.6	3.2 ^B	3.2 ^B	B	B	B	3.2 ^B	A	A	A	A	2.5							
21						1.6	2.7 ^B	B	B	B	B	3.0 ^B	C	A	A	A	A	A							
22						2.2	2.7	3.1	3.1	3.2	3.6	3.5	3.5	3.5	3.2	3.2	3.2	2.4							
23						2.2	2.6	3.1	3.1 ^B	3.6	3.5	3.7	S	S	S	3.3	3.2	2.5							
24						2.2	2.7	S	C	3.3	3.6	3.7	B	B	3.3	3.1	3.1	2.7							
25						2.3	2.7	3.2	3.1	3.4 ^B	3.6	3.6	3.6	3.6	3.5	3.0 ^S	A	A							
26						2.3	2.8 ^S	3.1	3.2	3.5	3.6	3.6	A	A	A	A	3.0	2.4							
27						2.0	2.5	3.1	3.3	3.5	B	3.6	3.5	3.4	3.2	3.0	2.4	2.4							
28						2.2	2.6	2.8	3.2	3.5	3.6 ^B	3.5	3.3 ^F	3.3 ^B	3.1	2.9	2.5	2.5							
29						2.0	2.8	3.1	3.4	B	B	B	B	B	3.5	3.3	2.9	A							
30						2.3	2.7	B	3.2	3.4	A	3.6	3.6	3.6	3.4	3.1 ^S	2.9	AF							
31						2.0	2.6	3.0	3.1	3.3	3.4	3.4	3.4	3.4	3.3	3.1	2.9	2.4							
Mean Values						2.0	2.6	3.0	3.1	3.3	3.4	3.5	3.5	3.3	3.3	3.1	2.9	2.4							
Median Values						2.0	2.6	3.0	3.1	3.3	3.4	3.5	3.5	3.3	3.3	3.1	2.9	2.4							
Count						28	25	25	25	25	22	22	23	19	20	21	21	22							

f_oE

Sweep 1.0 Mc to 10.5 Mc in 2 min

Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

82

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3E

Apr. 1951

f_oF₂

Kokubunji Tokyo

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

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

K 7

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fEs

135° E Mean Time

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3E

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	2.7	2.4F	2.4	G	G	G	G	G	G	G	3.7Y	3.9Y	G	G	G	3.3	2.9	2.6	2.2	E	2.5Y	2.3	
2	E	2.7	C	C	C	C	C	C	C	3.6Y	G	G	G	G	G	G	G	G	3.3	2.9	2.6	2.2	E	2.5Y	2.3
3	2.2	1.9	2.0	E	E	2.8	3.5	4.4Y	4.6Y	4.6Y	G	3.8	G	4.6F	3.6	G	3.7F	3.0F	2.9	2.8	2.6	2.4	3.1	2.1	
4	E	E	1.8	2.0F	1.8F	G	G	G	G	4.9	4.4Y	G	4.6Y	4.6Y	4.5	3.7	G	T	4.6	(4.8)	4.8	2.0Y	E	2.4	
5	T	C	C	C	C	C	C	C	C	C	5.4	5.6	4.2Y	G	3.8	4.6	G	G	3.4	3.4	2.9	2.4	1.9	T	
6	1.8	1.6	1.6	1.6Y	T	1.9Y	G	G	G	4.4Y	4.6Y	4.6F	G	G	G	G	G	5.1	8.8	5.4F	6.8F	3.7	2.4		
7	E	2.2	2.3	2.0Y	2.6	E	3.8	G	3.9	5.1	4.6	5.6Y	5.6Y	G	4.4	3.7	4.1	3.5	3.1	5.0	3.7	3.8F	3.7	2.3	
8	3.0	2.6	E	2.4	1.8	1.9	G	G	G	4.2Y	4.2Y	4.6Y	4.6Y	G	3.8Y	G	4.6	5.0F	3.7F	2.2	2.3	4.6F	5.4		
9	3.6	2.3	2.7	3.1	3.0	2.4Y	G	G	G	G	G	4.5Y	4.6F	4.7F	4.7F	4.7F	5.4	5.4	4.0F	2.2	2.0	2.3	2.3F		
10	1.8	1.6	2.3	2.3Y	2.0Y	E	G	G	4.0	4.6Y	G	G	G	G	G	G	E	G	3.1F	4.6	3.8	2.6F	2.0	E	
11	2.3F	1.5	E	E	E	G	G	G	G	T	G	G	G	G	G	G	G	G	2.5Y	2.6	2.3	E	E	E	
12	E	E	E	E	E	E	G	G	G	G	4.5Y	G	G	G	G	G	G	G	3.0	2.9	3.2	3.2	E	E	
13	E	1.5	2.4	2.5F	2.0F	2.5Y	G	G	G	4.6	G	G	G	G	G	G	3.8	3.8	3.0	2.9	1.9	E	E	E	
14	E	E	E	E	E	E	G	T	G	G	G	4.5Y	4.3Y	3.8Y	G	4.8Y	6.4	6.8	9.2	5.6Y	3.4	2.2	E	E	
15	E	1.7F	2.4Y	E	E	G	G	G	3.8	3.7	G	G	G	G	G	G	G	G	3.6	2.9	6.8	7.0	5.2Y	7.1	
16	4.3Y	2.3	1.9Y	1.6Y	E	G	G	G	G	G	G	G	G	G	G	G	G	6.4	9.0	3.4	2.5F	3.1F	3.0	2.2	
17	2.1	E	E	E	E	E	G	G	G	G	G	4.8Y	4.8Y	4.4Y	4.8	4.6	4.6	3.9F	3.6	3.0	2.1	1.8	E	E	
18	E	E	E	E	E	E	G	G	G	G	G	G	E	E	E	G	4.6	4.6	3.3	2.4	2.4	E	E	E	
19	E	E	1.8	E	E	2.3	2.8	E	E	5.4Y	4.7	G	G	G	E	E	5.8	6.0	4.8	2.9	3.0	6.8F	3.8	2.5	
20	3.1	2.3	2.0Y	E	E	2.5Y	G	G	C	4.8	E	3.8	5.4	4.8	4.6	6.8Y	6.8Y	3.3	3.8	3.2	3.6	2.7	1.8	E	
21	E	E	E	E	E	E	G	2.4Y	4.1	E	E	E	G	C	7.8	7.7	6.2	4.8	5.0	5.2	3.6	2.0	1.9	2.1	
22	2.1	C	C	C	E	2.9	G	G	G	4.5Y	G	4.6	5.6	4.7Y	G	G	6.2	6.8	7.4	6.0	6.6	6.8F	4.8F	9.4F	
23	4.8F	2.6F	3.1	E	1.8	G	G	4.3	4.1Y	G	G	G	G	G	4.6	5.0	4.7	4.8	3.1	3.8	3.8	2.4B	2.1	5.4F	
24	3.6	4.7F	3.9	2.5	3.8	2.5	G	G	G	C	G	G	G	G	G	G	G	G	3.6	3.8	2.5	5.4	4.6	4.6	
25	2.5	2.3	1.4	1.5	G	G	4.6Y	7.8	5.4Y	12.3Y	5.1Y	G	G	G	G	3.8Y	5.1	3.6	5.8	5.4	4.7	3.7	2.5	2.3	
26	1.9Y	2.0	2.3	2.4F	2.4	2.4	G	6.4Y	4.8	5.4	5.7	5.5	4.6	6.8	4.6	5.2	G	G	2.0Y	3.4	4.3	5.6	2.9	E	
27	E	2.3	2.3	3.1	2.7F	2.5F	G	G	4.4	4.6Y	G	G	4.3Y	G	G	G	3.8	3.8	3.5Y	2.4	6.8	3.1	2.1	2.6	
28	E	E	E	E	2.0	G	G	G	3.5	4.6Y	G	G	G	G	G	G	G	G	3.7	3.1	2.3Y	3.3Y	2.9	3.7	
29	2.3	E	2.3	2.3Y	2.2Y	G	G	G	G	4.7	G	G	G	G	G	G	5.6	5.8	5.1	5.2Y	6.8F	3.3	1.8	E	
30	E	E	1.8Y	1.8	E	G	G	4.2Y	3.6Y	G	3.8	G	G	G	5.2Y	3.6	3.5	3.6Y	3.6	4.8	2.4	2.0	T	1.9	
31																									
Mean Value	2.8	2.2	2.3	2.2	2.3	3.3	5.1	4.2	5.0	4.8	4.7	4.8	4.7	4.6	4.7	4.7	4.9	4.7	4.3	3.8	3.7	3.3	3.0	3.5	
Minimum Value	1.8	1.6	1.9	1.6	1.8	G	G	G	4.2	G	G	G	G	G	G	G	3.6	3.6	3.6	3.4	3.1	2.6	2.1	2.2	
Count	29	28	27	27	27	28	27	27	27	27	30	30	29	30	30	30	30	29	30	30	30	30	29	29	

fEs

Sweep—1.0—Mc to 18.5 Mc in 2—min

Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35°42.4'N
Long. 139°59.3E

Kokubunji Tokyo

IONOSPHERIC DATA

(M3000)F2

Apr. 1951

135° E Mean Time

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

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fminF

135° E Mean Time

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3E

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	1.3	1.1	1.1	1.1	1.1	1.2	1.9	2.6	3.0	3.4	3.5	3.5	3.6	3.6	3.4	3.1	2.7	2.3	2.0	1.4	1.3	1.3	1.5	1.1	
2	1.1	1.1	C	C	C	C	C	C	C	3.4	3.4	3.6	3.5	3.5	3.4	3.2	2.8	2.2	A	A	A	1.3	1.5	1.3	
3	1.3	1.2	1.5	1.1	1.1	1.1	2.2	2.9	3.4	4.0	3.7	4.1	4.0	3.6	3.5	3.0	2.9	2.2	A	A	1.4	1.1	1.4	1.7	
4	1.2	1.1	E	1.1	E	E	2.0	3.0	3.4	4.0	3.6	4.0	4.1	4.0	3.5	3.2	T	2.2	A	A	A	1.4	1.5	1.4	
5	1.1	C	C	C	C	C	C	C	C	C	A	A	3.5	3.3	3.4	4.1	2.8	2.2	A	A	A	1.6	1.5	1.6	
6	1.2	1.1	1.1	E	T	1.1	2.3	2.7	3.2	3.6	4.1	3.6	3.7	3.5	3.3	3.1	3.3	2.2	1.9	F	1.6	A	1.7	1.3	
7	1.2	1.1	1.3	1.2	1.1	1.1	3.1	2.9	3.3	A	4.0	A	4.0	A	3.5	2.8	3.3	2.2	F	A	A	A	1.7	1.3	
8	1.3	1.1	E	1.1	1.1	1.1	2.2	2.6	3.0	3.5	3.6	4.1	3.6	3.4	3.3	3.3	2.0	A	1.7	1.4	1.1	M	1.4	1.3	
9	A	1.3	A	A	A	1.1	2.2	2.8	3.2	3.5	3.5	4.0	4.0	3.5	4.0	3.5	3.1	2.9	A	A	A	1.4	1.3	1.2	
10	1.3	1.1	A	1.1	1.2	E	2.2	3.0	3.4	3.5	3.5	4.1	3.8	3.6	3.4	3.5	3.4	2.5	2.0	A	A	1.3	1.5	1.3	
11	1.4	E	E	E	E	1.2	2.4	2.8	3.4	T	(3.6)	3.7	3.6	3.6	3.5	3.4	3.0	2.4	2.0	A	1.5	1.3	1.5	1.3	
12	1.3	1.1	1.1	1.2	E	1.1	2.2	3.0	3.4	3.4	4.2	4.1	4.1	4.1	3.5	3.4	3.2	3.0	2.2	A	A	A	1.3	1.3	
13	1.2	F	E	E	E	1.2	3.0	3.2	3.6	3.5	4.0	4.0	4.1	4.1	3.5	3.3	3.1	2.5	1.7	A	1.3	1.3	1.5	1.3	
14	1.1	1.1	1.1	1.1	E	1.1	2.2	T	3.4	3.6	4.1	4.1	4.1	4.1	4.0	4.0	A	A	A	A	A	1.3	1.3	1.4	
15	1.2	1.1	1.1	1.1	1.1	1.4	2.8	3.2	3.6	3.6	4.1	4.1	4.0	4.1	3.7	3.5	3.2	2.6	A	A	A	A	A	A	
16	A	1.1	E	1.1	E	1.2	2.7	3.3	3.4	3.6	3.7	4.0	4.1	3.7	4.1	3.6	3.3	3.3	A	1.5	F	1.3	A	1.5	1.2
17	1.1	1.1	1.1	1.1	1.1	1.2	2.3	2.9	3.3	3.6	4.0	4.0	4.0	3.9	3.6	4.0	3.3	2.5	1.7	1.5	1.3	1.3	1.3	1.2	
18	1.1	1.1	E	E	E	1.1	2.4	3.2	3.4	3.6	4.0	3.7	4.4	6.0	4.3	3.7	3.4	2.6	1.9	1.4	1.8	1.4	1.5	1.3	
19	1.1	1.1	1.2	1.2	1.1	1.6	3.3	4.4	4.1	6.2	4.8	4.6	4.2	4.6	4.3	B	A	A	A	A	A	A	A	1.8	
20	A	E	E	E	E	1.3	2.4	3.0	(3.6)	4.1	8.2	4.3	5.0	4.2	4.1	4.1	3.4	2.9	A	A	1.5	1.5	1.4	1.2	
21	1.3	1.1	E	1.1	E	1.5	1.9	3.4	6.4	4.2	4.2	4.1	4.0	C	A	4.4	4.5	3.1	A	1.5	1.6	1.3	1.5	1.4	
22	1.2	C	C	C	E	A	2.4	3.0	3.5	4.1	3.9	4.2	4.2	4.1	4.2	3.5	3.2	A	A	A	A	A	A	A	
23	1.7	1.1	1.1	1.1	E	1.4	2.3	4.4	3.4	4.1	4.1	4.1	4.1	4.1	4.2	4.3	4.0	A	A	1.5	A	1.6	1.4	A	
24	A	A	1.4	1.3	E	1.5	3.3	4.4	4.4	(4.3)	4.2	4.1	4.1	4.1	4.4	3.4	3.2	2.8	A	A	A	A	A	1.7	
25	1.8	1.3	1.1	E	E	1.6	A	A	A	A	4.1	4.2	4.1	4.1	3.6	3.5	A	2.8	A	A	A	A	1.4	1.5	
26	1.2	1.1	A	1.1	E	1.3	2.4	A	3.5	A	4.4	4.4	4.3	A	4.1	4.1	3.2	2.6	1.5	A	A	A	1.5	1.5	
27	1.1	1.3	1.1	1.2	1.2	1.7	2.4	3.1	3.6	4.0	3.6	4.1	4.3	4.0	4.0	4.0	3.0	3.3	3.3	1.2	A	A	1.3	1.4	
28	1.2	1.1	E	1.1	E	1.8	2.4	3.3	3.5	3.6	4.2	4.2	4.1	4.1	3.4	3.5	3.2	2.7	3.0	A	1.5	2.0	1.3	2.1	
29	1.5	F	1.5	E	1.1	1.5	2.4	3.2	3.7	4.3	4.0	4.3	4.1	4.0	3.6	3.2	3.2	3.2	1.6	A	A	A	1.3	1.4	
30	1.2	E	E	E	E	1.6	2.4	3.2	3.6	3.6	3.7	4.1	3.7	4.1	4.3	3.6	3.4	2.7	2.2	A	A	1.5	T	1.3	
31																									
Mean Value	1.3	1.1	1.2	1.1	1.1	1.3	2.4	3.1	3.6	3.9	4.1	4.0	4.0	4.0	3.7	3.6	3.2	2.6	2.0	1.4	1.4	1.4	1.4	1.4	
Median Value	1.2	1.1	1.1	1.1	1.1	1.3	2.4	3.0	3.4	3.6	4.0	4.1	4.1	4.0	3.6	3.5	3.2	2.6	2.0	1.4	1.4	1.3	1.4	1.3	
Count	26	27	24	26	25	27	27	25	27	25	29	28	29	27	29	29	26	24	14	8	12	17	25	27	

fminF

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N
Long. 139° 29.3E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

Apr. 1951

fminE

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	1.1	1.3	1.2	1.1	1.2	1.4	1.4	T	1.4	1.6	2.2	1.5	1.4	1.3	1.2	1.1	1.1	1.3	1.5	E	1.1	1.5
2	E	1.1	C	C	C	C	C	C	C	1.7	2.1	1.9	1.9	1.6	1.4	1.4	1.3	1.3	1.1	1.2	1.3	1.2	1.4	1.6
3	1.6	1.1	1.1	E	E	E	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.3	1.1	1.1	1.3	1.1	1.7	1.5	E	1.1
4	E	E	1.5	1.4	1.3	1.3	1.1	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.3	1.3	1.1	1.3	1.2	1.1	1.4	1.5
5	1.2	C	C	C	C	C	C	C	C	C	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.3	1.2	1.2	1.2	1.1	1.3	1.1
6	1.4	1.3	1.3	1.3	T	1.1	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.3	1.4	1.4	1.4	1.1	1.1	1.3	1.3	1.3	1.2	1.3
7	F	1.3	E	1.1	1.4	E	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.5	1.3	1.3	1.2	1.1	1.2	1.2	1.2	1.2	1.3
8	1.2	1.1	E	E	1.5	1.5	1.1	1.3	1.3	1.3	1.5	1.9	1.4	1.7	1.3	1.3	1.3	1.2	1.1	1.7	1.6	1.7	1.5	1.2
9	1.2	E	E	E	E	E	1.1	1.2	1.3	1.3	1.3	1.3	1.4	2.2	1.3	1.7	1.3	1.1	1.3	1.4	1.3	1.3	1.3	E
10	1.3	1.3	1.1	1.1	1.2	E	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.7	2.2	E	1.3	1.1	1.4	1.3	1.5	1.5	E
11	1.1	1.3	E	E	E	E	1.2	1.4	1.4	T	1.6	1.4	1.9	1.3	1.3	2.2	1.3	1.3	1.3	1.1	1.1	1.3	E	E
12	E	E	E	E	E	E	1.2	1.3	1.4	1.3	1.7	2.3	2.2	2.2	1.7	1.5	1.3	1.8	1.3	1.1	1.1	1.3	E	E
13	E	1.4	1.3	1.2	1.3	F	1.9	1.7	1.4	1.4	1.5	1.6	1.9	1.4	1.6	1.4	1.4	1.4	1.2	1.3	1.3	1.5	E	E
14	E	E	E	E	E	E	1.4	1.4	1.5	1.9	1.7	1.7	1.7	1.9	2.2	1.5	1.4	1.4	1.4	1.2	1.4	1.3	1.5	E
15	E	1.4	1.4	E	E	1.1	1.4	1.3	1.6	1.5	1.4	1.1	2.2	E	2.2	1.5	1.4	1.3	1.3	1.2	1.2	1.5	1.5	1.2
16	1.2	E	1.4	1.4	E	E	1.4	1.5	1.5	1.3	1.9	1.7	2.2	2.2	2.2	1.7	1.3	1.4	1.3	1.1	1.3	1.3	1.3	1.5
17	1.5	E	E	E	E	E	1.3	1.5	1.7	1.5	2.1	1.7	2.0	1.8	1.6	2.1	1.5	1.3	1.2	1.1	1.7	1.6	E	E
18	E	E	E	E	E	1.1	1.3	1.4	1.4	2.2	2.0	2.2	2.4	E	2.5	2.4	1.4	1.3	1.4	1.3	1.3	E	E	E
19	E	E	1.5	E	E	E	1.4	E	1.6	E	2.4	4.1	2.2	2.1	E	E	3.5	1.3	1.1	1.2	1.1	1.2	1.1	1.2
20	E	1.7	1.3	E	E	E	1.4	1.5	1.8	2.0	E	3.6	4.9	2.3	1.9	1.6	1.5	1.5	1.3	1.2	1.2	1.4	1.4	1.5
21	F	F	E	E	E	1.1	1.2	1.5	F	E	E	E	2.5	2.3	2.1	2.2	2.0	1.3	1.2	1.4	1.3	1.8	1.7	1.8
22	1.7	C	C	C	C	E	1.1	1.3	1.4	1.5	2.2	1.9	2.2	2.2	2.6	1.7	1.4	1.3	1.2	1.1	1.3	1.3	1.3	1.4
23	1.1	1.1	1.1	E	1.6	1.1	1.3	1.4	1.4	2.2	2.1	2.0	2.0	1.9	1.7	1.7	1.7	1.7	1.3	1.1	1.3	1.3	1.6	1.3
24	1.2	1.1	1.1	1.1	1.1	1.2	1.4	2.2	2.2	2.2	2.2	1.8	2.1	1.8	1.8	1.5	1.5	1.5	1.5	1.5	1.1	1.1	1.3	1.3
25	1.1	1.1	1.3	1.3	E	1.2	1.5	1.6	1.5	1.5	1.9	1.8	2.2	1.9	1.9	1.4	1.4	1.3	1.9	1.5	1.5	1.1	1.3	1.3
26	1.5	1.7	1.1	E	E	1.1	1.3	1.4	1.4	1.3	2.2	2.2	2.2	3.6	2.0	1.3	1.5	E	E	1.2	1.5	1.5	1.5	1.1
27	E	E	E	E	E	E	1.5	1.3	1.5	1.4	1.8	2.2	2.2	2.2	2.0	2.0	1.5	1.5	1.5	1.4	1.1	1.5	1.5	1.5
28	E	E	E	E	E	1.4	1.2	1.3	1.8	1.5	2.0	2.1	2.2	1.9	1.7	1.5	1.4	1.5	1.1	1.5	1.5	1.3	1.4	1.3
29	1.1	E	1.3	1.3	1.3	1.1	1.3	1.7	1.4	1.7	2.2	1.9	2.2	1.9	1.8	1.5	1.3	1.3	1.2	1.1	1.3	1.2	1.2	1.6
30	E	E	1.3	1.6	E	1.1	1.3	1.3	2.2	2.2	1.9	1.8	2.2	1.8	1.7	1.5	1.9	1.1	1.1	1.5	1.3	1.5	T	1.5
31																								
Mean	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.4	1.5	1.6	1.8	1.9	2.0	1.9	1.8	1.6	1.5	1.3	1.2	1.3	1.4	1.4	1.4	1.4
Median	E	E	1.1	E	E	1.1	1.3	1.4	1.4	1.4	1.7	1.8	2.1	1.8	1.7	1.5	1.4	1.3	1.2	1.2	1.3	1.3	1.3	1.2
Count	30	28	27	27	27	28	28	28	28	28	30	30	30	30	30	30	30	30	30	30	30	30	29	30

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

K 11

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

YPF2

Kokubunji Tokyo

Lat. 35°42.4'N
Long. 139°29.3E

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	π ^S	(π ^S)	80	π ^O	π ^O	π ^O	(π ^O)	60	50	110	π ^O	80	80	80	80	90	60	80	60	π ^O	110	90	π ^O	50	
2	60	π ^O	C	C	C	C	C	C	C	80	60	90	110	110	π ^O	π ^O	(π ^O)	π ^O	π ^O	π ^O	90	80	(60)	(π ^O)	
3	90	80	π ^O	π ^O	80 ^F	50	60	100	π ^O	50	π ^O	60	π ^O	40	50	60	π ^O	60 ^F	50	S	(40)	50 ^F	π ^O	π ^O	
4	60 ^S	60	60 ^F	90	π ^O	80 ^F	80	π ^O	100	π ^O	60	60	80	50	60	80	60	(30)	60 ^S	90	100	(50)	S	T	
5	T	C	C	C	C	C	C	C	C	C	80	π ^O	80	π ^O	50	40 ^S	100	80 ^F	30	π ^O	π ^O	60	60	π ^O	
6	80	π ^O	80	90	π ^O	80	50	80	50	50	π ^O	π ^O	90	60	80	50	60	π ^O	π ^O	π ^O	π ^O	S	80	π ^O	
7	80	π ^O	π ^O	110	90	π ^O	80	50	π ^O	80	80	80	π ^O	60	80	90	60	50	60	60	110	80	(50)	(50)	
8	60 ^F	90	π ^O	50 ^F	50 ^F	60	30	π ^O	60	60	80	π ^O	60	π ^O	60	60	60	60	90 ^F	90 ^F	90	90	(π ^O)	π ^O	
9	80	60 ^F	π ^O	60 ^F	90 ^F	50 ^F	π ^O	80	80	100	90	80	π ^O	80	100	80	π ^O	π ^O	A	S	60	110	50	(π ^O)	
10	(90)	50	S	π ^O	π ^O	90	50	60	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	60	50	100	80	π ^O	π ^O	80	π ^O	80	π ^O	
11	π ^O	60	60	90	π ^O	π ^O	80	90	90	T	100	90	60	π ^O	60	50	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
12	π ^O	80	60	80	π ^O	π ^O	π ^O	60	80	π ^O	90	π ^O	80	π ^O	π ^O	50	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
13	π ^O	π ^O	80	π ^O	π ^O	80	π ^O	60	π ^O	90	100	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
14	60	π ^O	60 ^F	80	80	100	π ^O	T	100	90	π ^O	90	π ^O	80 ^K	80 ^K	π ^O	80 ^K	60 ^K	A ^K	A ^K	100	90	180 ^S	80	
15	80	80 ^F	90 ^F	100	80 ^F	90 ^F	60	120	100	90	90	60	50	80	60	π ^O	60	50	π ^O	120	A	90	60	60	
16	60 ^F	50 ^F	π ^O	60 ^F	80 ^F	π ^O	π ^O	90 ^F	π ^O	π ^O	π ^O	π ^O	80	90	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
17	60	80	60	80	80	60	60	80	60	90	80	π ^O	π ^O	M	50	60	60	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
18	π ^O	80	80	100	90	π ^O	π ^O	100	80	π ^O	90	60	60	40	80	90	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
19	50 ^S	(100)	π ^O	π ^O	90	50 ^F	50	60	60	π ^O	60 ^S	60	60	40	80	B	90	π ^O	(π ^O)	60 ^F	50	60	90	60	
20	50 ^F	π ^O	60	90	π ^O	π ^O	90	60	(80)	90	(π ^O)	π ^O	π ^O	π ^O	60	π ^O	80	90	π ^O	π ^O	80 ^F	90	60	π ^O	
21	40 ^S	60	60	π ^O	(50)	110	B	80	(80)	80	(90)	100	90	(80)	60	60	60	60 ^F	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
22	(π ^O)	C	C	C	80	60	90 ^K	40 ^K	90 ^K	100 ^K	π ^O	π ^O	120	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
23	π ^O	80	80	80	80	80	100	60	60	90	90	π ^O	π ^O	π ^O	80	50	80	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
24	60	(80)	90 ^F	90	100	90 ^F	π ^O	π ^O	(π ^O)	(80)	80	60	60	60	π ^O	60	80	(100)	(π ^O)	60	80	(40)	A	60	
25	π ^O	90 ^B	80	80	100 ^F	90	π ^O	A ^K	A ^K	A ^K	G ^K	G ^K	60 ^K	80 ^K	80 ^K	80 ^K	60 ^K	60 ^K	60 ^K	80 ^K	90	80	π ^O	60	
26	110 ^S	50	90	π ^O	50	(π ^O)	60	π ^O	80 ^K	80 ^K	80 ^K	60 ^K	90 ^K	60 ^K	60 ^K	80 ^K	80 ^K	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
27	80	(100)	(80)	π ^O	(80)	(100)	60	60	π ^O	π ^O	90	90	80	80	π ^O	60	60	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
28	80	π ^O	80	80	100	120	90	110	100	90	80	80	π ^O	90	80	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	π ^O	
29	π ^O	50	90	90	60	50	80 ^F	60	90	100	80	90	80	80	π ^O	60	60	80 ^S	90 ^S	80 ^S	80 ^S	100 ^S	50	60	
30	80	π ^O	80	90	80	(80)	50	(80)	80	100	80	π ^O	60	90	80	π ^O	π ^O	90	S	(90)	90 ^S	60	(60)	50	
31																									
Mean Value	70	70	70	80	80	80	70	80	80	80	80	70	70	80	70	70	70	70	70	70	70	80	80	70	70
Median Value	70	70	80	80	80	70	70	70	70	80	80	70	70	80	70	70	70	70	70	70	70	80	80	70	70
Count	29	28	26	27	28	28	27	26	27	27	30	30	30	29	30	29	30	30	26	28	29	28	28	28	

YPF2

Sweep 1.0 Mc to 18.5 Mc in 2 min

Automatic

K 12

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

foF2

Yamagawa

Lat 31° 12.5' N
Long. 130° 37.7' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	4.4	5.1	4.6	4.2	5.0	3.9	4.8	7.5	7.6	8.6	10.4	12.5	13.5	13.4	12.3	11.1	10.6	10.8	10.3	6.2 ^P	4.7 ^H	4.9	5.4	5.4	
2	5.1	5.1	4.7	4.4	3.7	3.4	3.7	5.6	6.9	8.5	8.9	10.1	12.0	12.3	12.1	9.6	9.7	10.0	8.9	9.1	5.7 ^H	6.6	5.9	5.9	
3	5.9 ^H	5.8 ^H	5.4	5.7	5.2	5.0 ^H	5.0	6.0	7.1	7.6	8.8	9.8	9.5	10.1	11.5	12.2	12.0	10.9	11.3	11.1	7.9	6.8 ^H	7.2	6.3	
4	6.9	6.1	6.3	5.3	4.0	4.2 ^H	6.2 ^P	5.8	7.0	7.6	9.4	11.1	10.7	11.4	12.5	11.1	11.2	10.6	9.3	9.0	6.6	4.9	4.8	4.8	
5	4.7	4.5	5.5	5.5	4.9	3.9	4.3	6.1	9.6	9.5	11.6	11.6	12.1	12.7	13.7	13.0	11.6	10.3	8.3	7.1	5.3	5.3	6.3	6.3	
6	5.2	5.1	4.1	4.1	3.5	3.0 ^H	4.2	6.7	6.9	8.6	9.7	9.8	9.3	11.3	12.5	13.1	11.4	8.8	8.8	7.9	6.9	6.3	5.4	3.8	
7	3.8	4.2	(6.1) ^P	4.1	4.5 ^F	3.9	4.8	6.9	7.7	8.0	8.1	9.6	11.3	13.4	12.8	11.8	11.7 ^P	9.7	9.4	8.1	(8.8) ^A	5.1	(4.9) ^F	FHS	FHS
8	(5.9) ^F	(5.8) ^F	5.2	3.6	3.2 ^F	3.2	4.2	6.2	7.9 ^S	9.1	8.8	10.2	11.9	12.4	12.4	10.4	9.7	9.7	8.4	7.8	7.9	4.9	4.7	4.5	4.5
9	4.4 ^F	4.7 ^F	5.3	4.7	4.9	4.7	5.2	7.6	8.3	7.6	9.1	11.1	12.1	12.7	11.6	11.0	9.6	(9.6) ^C	9.7	10.1	9.3	5.6	4.2	4.5 ^H	
10	4.4	4.6	5.6	4.1	3.2	C	5.2	6.1	6.6	8.5	10.3	11.6	11.7	12.2	13.0	11.7	10.1	7.9	7.8	7.7	7.1	5.4	5.6	5.8	
11	(5.8) ^P	5.8	5.4	4.9	4.1	3.3	4.3	4.6	6.8	7.5	8.5	8.9	11.9	13.7 ^P	11.9	11.4	11.0	9.8	9.0	8.7	7.8	3.9	4.4	4.9	
12	5.2	5.1	5.0 ^F	5.5	4.1	3.0	4.7	6.8	7.3 ^P	7.8	8.9	9.5	10.3	10.7	10.9	11.8	12.7	11.7	8.3	8.3	8.0	6.3 ^P	4.1	(4.9) ^P	
13	(4.7) ^P	4.0	4.5 ^J	4.7	2.9 ^J	2.6	5.5	7.0	C	C	C	C	C	C	C	C	C	C	C	10.7	8.4	6.2 ^H	7.5	7.8	
14	7.3	7.2	7.3	6.5	5.4	4.8	5.0	8.0	9.7	11.4	12.2	13.4	12.4	12.3	12.2	10.9	10.2	9.8	8.8	8.1	C	5.0	5.8	5.8	
15	6.8	6.9	7.0	5.7	4.1	3.9	5.1	7.3	7.7	9.9	10.4	11.6	12.3	12.1	11.4	11.3	11.0	11.4	10.3	9.4	8.2	6.4	6.0	3.9	
16	5.4	5.0	7.2	6.8	4.8	4.8	6.0	8.4	8.1	9.8	10.2	10.7	10.7	11.3	10.6	10.3	11.0	11.6	10.9	9.4	8.5	6.4	5.5	6.7	
17	7.0	7.0	6.9	6.0	4.1 ^F	4.1	5.9	8.5	(8.4) ^C	8.5	(8.8) ^C	9.3	C	C	C	C	C	C	C	9.7	9.5	8.0	7.5	7.6	
18	7.4	7.1	6.9	5.7	5.2	4.8	5.9	9.1	8.9	9.4	11.8	12.5	13.1	12.5	11.8	11.5	12.0	10.7	10.6	9.3	8.5	9.5	8.4	8.4	
19	6.6	11.3	6.6	6.0	5.8	6.0	6.4	8.0 ^V	9.3	11.2	9.5	10.1	10.1	11.4	10.7	11.7	11.4	11.1	11.7	10.9	8.6	7.4	7.2	7.6 ^J	
20	8.0	7.2	6.5	6.1	6.1	5.8	6.5	6.5	9.3	10.2	10.9	11.5	13.2	13.7	13.6	13.2	13.2	13.3	11.5	10.9 ^S	8.6	A	5.1	5.0 ^H	
21	A	6.3	6.2	5.6	4.5	5.0 ^H	7.5	7.2	8.9	9.3	10.2	11.8	12.0	13.1	12.8	13.3	12.4	9.8	9.7	10.9	8.1 ^J	(7.2) ^C	6.3	7.4	
22	7.3	6.9	7.3	5.2	6.1	4.8	5.8	7.2	7.8	8.5	9.4	10.7	12.2	13.1	11.8	11.2	10.9	10.4	9.5	8.9	7.9	6.7	6.4	6.6 ^S	
23	7.1	6.9	6.3	6.6	A	5.5 ^H	5.8	7.2	7.2	8.1	9.9	11.3	12.5	13.0	13.6	12.9	11.6	11.2	10.3	8.9	7.5	5.3	5.3	6.1	
24	7.4	7.8	7.0	6.7	4.7	4.5	6.2	8.0	8.9	8.8	10.2	12.0	13.2	13.9	13.7	13.6	12.4	(12.0) ^C	11.5	9.6	7.4	7.6 ^H	7.6 ^H	8.2	
25	8.0	6.9	6.7	6.3	5.6	6.0	7.0 ^H	9.1	8.4	8.7	8.9	10.1	10.5 ^K	10.8 ^K	11.1 ^K	11.5 ^K	9.4 ^K	8.6 ^K	8.2 ^K	7.9	7.8	6.7	6.2	5.5	
26	5.5	5.3	6.4	5.1 ^H	5.7 ^F	5.0 ^F	6.8	6.9	7.7	8.2	9.0	A	C	10.8 ^K	10.7 ^K	10.4 ^K	9.5 ^K	8.1 ^K	8.9	9.4	7.9	6.8	5.8	5.5	
27	6.0 ^F	6.9	6.8	6.3 ^H	6.1	6.1	7.8	7.2	C	C	C	C	C	C	C	C	C	C	C	C	C	7.8	7.4	7.4	
28	7.2	7.4	(7.6) ^P	6.7	6.5	7.0	8.0	7.5	8.7	9.5	9.6	11.2	12.3	11.5	11.8	12.1	12.1	11.1	10.2	9.5	8.9	6.6	(6.5) ^F	6.4	
29	6.3	5.8	7.6	7.2	5.7	5.9	7.7	7.2	7.6	8.6	9.9 ^H	11.4	12.4	13.1	13.0	13.2	13.2	11.5	10.7	9.5	7.5	7.5	7.8	7.6	
30	7.9	7.2	6.9	6.4	6.3	6.3	7.5	8.6	10.2	8.0	9.7	9.7	10.1	10.2	12.3	12.4	11.9	11.7	12.9	11.8	7.9	6.6	(7.1) ^S	7.3	
31																									
Mean Value	6.1	6.0	6.2	5.5	4.8	4.6	5.8	7.2	8.1	8.8	9.7	10.8	11.6	12.2	12.2	11.9	11.2	10.5	10.0	9.4	8.0	6.3	6.1	6.2	6.2
Median Value	6.0	6.0	6.4	5.6	4.9	4.8	5.8	7.2	7.8	8.6	9.6	11.1	12.0	12.3	12.3	11.8	11.4	10.8	10.0	9.4	8.0	6.4	5.9	6.1	6.1
Count	29	30	30	30	29	29	30	30	28	28	27	27	26	27	27	27	27	28	27	29	28	29	30	29	29

Sweep 1.0-Mc to 18.5-Mc in 1.5 min

Manual

Y I

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 31° 14.8' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

Apr. 1951

f_pF₂

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

f_pF₂

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Apr. 1951

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

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

Y 3

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

foF1

135° E Mean Time

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								Q	L	L	L	L	L	L	L	L	L	L	Q					
2								Q	Q	L	L	L	L	L	L	L	L	L	Q					
3								Q	Q	Q	L	Q	4.7	L	A	L	L	Q	Q					
4								Q	L	L	L	A	4.2	L	L	L	L	L	Q					
5								Q	L	L	A	A	L	L	A	L	L	Q	Q					
6								Q	L	L	L	4.6	4.8	L	L	L	4.2	L	Q					
7								L	L	Q	L	A	L	L	L	L	L	L	Q					
8								Q	Q	L	L	L	L	L	L	L	L	L	Q					
9								Q	Q	L	L	L	L	L	L	L	L	L	Q					
10								Q	Q	L	L	L	L	L	L	L	L	Q	Q					
11								Q	Q	Q	L	L	L	L	L	A	L	L	L	Q				
12								Q	Q	Q	4.6	4.7	L	L	L	L	L	L	Q					
13								Q	C	C	C	C	C	C	C	C	C	C	C					
14								Q	L	L	L	L	L	L	L	L	L	L	L	Q				
15								Q	L	L	L	L	L	L	L	A	L	Q	Q					
16								Q	L	L	L	L	L	L	L	L	L	L	A	Q				
17								Q	C	4.2	C	(5.1) ^A	C	C	C	C	C	C	C					
18								Q	Q	Q	L	L	L	L	L	L	L	L	L	Q				
19								Q	Q	Q	B	Q	L	L	L	B	B	A	L	Q				
20								Q	L	L	B	A	A	A	A	L	L	L	L	Q				
21								Q	B	A	L	L	L	L	L	L	L	L	Q	Q				
22								L	L	L	L	L	L	L	L	L	L	A	A	L				
23								Q	Q	L	L	L	L	5.2	5.2	L	S	L	L	Q				
24								Q	Q	Q	L	L	L	L	L	L	L	L	C	Q				
25								Q	L	A	A	L	L	L	L	L	A	L	L	Q				
26								Q	Q	L	A	A	C	A	L	A	L	L	L	Q				
27								Q	C	C	C	C	C	C	C	C	C	L	L	C				
28								Q	L	L	L	4.6	4.5	L	L	L	L	L	L	Q				
29								Q	L	L	L	L	L	L	L	L	5.2	L	5.2	4.5				
30								Q	L	L	L	A	L	L	L	L	L	L	L	L				
31																								
Mean Value								4.2	4.6	4.6	4.8	4.5	5.2	5.2	5.2	5.2	4.2	4.2	4.5					
Median Value								4.2	4.6	4.6	4.6	4.6	5.2	5.2	5.2	5.2	4.2	4.2	4.5					
Count								1	1	1	4	4	4	1	1	1	1	1	1					

foF1

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

R'F1

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

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

Swamp 1.0 Mc to 18.5 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Apr. 1951

foE

IONOSPHERIC DATA

135° E Mean Time

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									2.8	3.0	A	A	3.2	A	3.2	3.0	2.9	2.6	2.0					
2								A	A	A	A	3.2 ^J	3.2 ^J	(3.2) ^A	A	3.0 ^A	A	2.8	2.0					
3								B	2.6	3.0	A	A	A	A	3.5	A	A	A	2.0					
4								A	2.5	2.9	3.3	3.4	A	A	3.2	3.2	3.0	2.6	2.2 ^J					
5								2.1	2.6	3.1	A	A	3.2	A	A	A	A	A	A					
6								B	A	A	3.4	A	3.4	3.4	3.0	A	3.0	A	A					
7								2.0	A	A	3.4	3.2	3.4 ^J	A	3.4	3.0	3.0	2.6	2.0					
8								2.2	A	A	A	A	A	A	A	A	A	A	A					
9								A	A	A	A	B	3.2	3.1	3.3	3.2	A	C	A					
10								A	A	A	A	A	A	A	3.2 ^J	A	A	2.5 ^J	2.2					
11								1.8	A	3.3	A	3.5	3.0	A	3.6	3.4	3.3	2.9	A					
12								2.2	2.8	3.3	3.4	3.5	A	A	A	A	3.4	A	A					
13								2.4	C	C	C	C	C	C	C	C	C	C	C					
14								A	A	3.2	A	A	A	3.6	A	A	2.9 ^J	A	A					
15								2.4	2.9	3.4	3.2	A	A	A	A	A	A	3.0	1.8					
16								2.5	3.0 ^H	3.3	3.4	3.4	A	A	A	3.4	B	3.0	2.2	A				
17								A	C	A	C	A	C	C	C	C	C	C	C					
18								A	A	3.3	3.2	3.6	A	B	B	B	A	A	2.0 ^J					
19								2.3 ^J	A	B	A	B	B	B	B	B	B	A	1.7 ^J					
20								2.4	3.0	3.2	B	B	B	B	A	A	A	A	2.0					
21								2.1	B	B	B	B	B	B	B	B	B	2.8	2.0 ^J					
22								2.3	A	3.3	3.5	3.7	3.6	3.7	A	A	A	A	A					
23								2.4 ^J	3.0	3.4	A	A	A	(3.8) ^B	3.6 ^H	3.5 ^H	3.3	3.1	A					
24								2.8	A	3.5	3.6	3.8	4.0	B	B	A	A	3.3	3.0	2.4				
25								2.6	3.0	A	3.6	A	3.4	A	A	A	A	A	A					
26								2.3	2.9	3.4	3.6	A	C	B	B	3.3	3.2	2.9	2.3					
27								2.2	C	C	C	C	C	C	C	C	C	2.8	C					
28								2.7	2.9	3.3	3.5	3.6	3.6	3.4	3.4	3.4	3.4	2.9	2.8 ^J					
29								B	B	3.3	3.5	3.5	3.6	3.6	3.5	3.5	3.1	2.7	A					
30								A	3.3	3.5	A	A	A	A	B	A	A	A	2.1					
31																								
Mean Value								2.3	2.9	3.3	3.4	3.5	3.4	3.5	3.3	3.3	3.1	2.7	2.1					
Median Value								2.3	2.9	3.3	3.4	3.5	3.4	3.5	3.4	3.2	3.1	2.8	2.0					
Count								18	13	18	13	11	13	8	12	10	13	16	15					

foE

Sweep 1.0 - Mc to 18.5 Mc in 1.5 min

Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E

Mean Time

Apr. 1951

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

Sweep 1.0 Mc to 18.5 Mc in 1.5 min Manual

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fEs

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.2	2.8 ^Y	E	E	2.8	2.4	1.8	G	G	G	3.9	4.6	G	3.8	3.7	E	G	G	2.7	2.2 ^Y	2.1 ^Y	2.0 ^Y	E	4.8
2	2.4	3.0	3.2	2.4	2.2	2.2	2.2	2.5	3.4	3.8	3.8	G	G	3.8	3.8	G	3.2	G	5.0	4.4	3.0	2.1 ^Y	E	4.6
3	2.8	E	E	E	2.5	1.4	2.0	G	3.0	G	4.7	4.8	4.3	4.2	5.2	4.7	3.8	3.7 ^Y	E	E	2.0	2.4	E	E
4	E	E	E	E	2.1	2.2	E	G	G	G	5.2	6.0	G	5.0 ^Y	3.8 ^Y	3.6	3.5	3.6 ^Y	G	2.2	E	2.6	2.2	E
5	2.4	2.8	2.2	3.0	3.2	2.6	1.8	G	3.8	5.0	7.6	6.6	4.8	5.0	8.8	3.8	3.8	4.0	3.9	3.3	3.2	3.1	F	E
6	E	1.8	1.8	1.6	1.6	2.2	G	G	G	3.2	G	4.8	4.8	5.0	3.8	4.2	3.8	4.2	3.7	3.2	3.5	3.8	4.2	2.8
7	2.4	1.8	E	E	E	E	E	3.1 ^F	3.9 ^F	3.5 ^F	G	4.4	G	5.0	G	G	G	G	G	3.1	9.3	2.3	E	5.6
8	3.2	E	5.2	2.4	2.2	3.0	2.2	2.8	2.8	3.7	4.8	4.4	4.6	4.0	4.2	4.2	4.2	3.2	2.4	2.2	2.4	2.4	2.4	2.2
9	E	E	2.2	E	E	E	E	2.8	3.8	3.8	4.0	3.7 ^Y	4.4 ^Y	G	G	4.0	4.2	C	2.4	3.3	3.0	2.0	E	E
10	2.4	2.6	2.6	2.8	2.4	C	2.4	3.4	3.6 ^F	3.8	4.2	4.6	4.8	5.0	5.0	5.4	4.4	3.0	G	3.4 ^F	3.6 ^Y	2.8	2.0 ^Y	4.0
11	2.2	2.0	1.8	E	E	E	1.6	G	3.2	G	4.4	4.4	4.4	3.9	6.1	3.9	G	G	2.4	3.0	2.4	2.0	3.0	1.6
12	2.2	2.4	E	E	E	E	2.3	G	E	4.1	4.9	5.0	5.2	5.9	6.6	5.6	6.2	4.8	3.4	2.7	3.0	4.6	3.1	2.4
13	E	E	1.8	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	C	3.2	4.4	4.4	5.0	3.2
14	2.0	4.0	E	E	E	E	2.4	3.4	3.6	G	5.0	4.4	4.8	4.6	5.2	5.0	4.2	4.4	3.7	2.4	C	4.2	9.6	4.1
15	2.2	E	E	2.8	2.5	3.0	2.2 ^Y	G	G	G	4.8	4.8	4.8	4.8	4.8	4.2	4.2	4.6	5.1	5.2	4.3	4.2	3.6	4.2
16	3.8	3.7	7.4	3.2	2.4	2.2 ^Y	2.4 ^Y	4.6	G	G	4.4	5.1	4.8	5.4	3.8	G	5.2	5.4	5.4	4.4	3.8	4.7	3.8	2.2
17	1.8	3.0	3.0	3.1	4.0	3.3	4.0	4.8	C	4.3	C	5.9	C	C	C	C	C	C	C	C	2.5	2.8	1.8	E
18	E	1.6	E	E	E	E	E	3.2	3.8	G	4.7	G	4.4	E	3.9 ^Y	E	5.4	6.6	3.6	5.2	4.2	2.6	4.8 ^B	2.1
19	2.8	2.6	2.0	2.2	E	E	3.0	G	4.2	E	5.3	E	4.9 ^Y	E	E	7.0	7.0	4.6	3.9	2.5 ^Y	1.1	E	E	3.0
20	3.8	3.8	3.8	3.6	4.6	4.6	3.2	4.1	4.6	6.8	E	8.8	6.8	5.6	5.2	5.2	5.2	3.8	4.0	3.0	3.9	9.1	E	4.5
21	6.0	4.2	4.2	3.6	3.7	E	2.5	2.4	6.3	6.6	5.0	5.8	4.8	E	E	E	E	4.0	2.8	2.2	4.0 ^B	C	2.4	2.2
22	E	E	E	E	E	1.2	2.4	3.9	3.6	5.2	4.6	4.9 ^Y	4.8	4.1	4.1	4.9	5.3	6.5	7.6	5.7	5.6	4.6	3.2 ^S	3.8
23	3.8	3.0	2.7	7.0	6.8	3.1	1.4	G	3.3	G	4.2	4.8	4.6	G	4.1 ^Y	G	G	G	2.4	2.8	3.2	4.4	3.0	3.2
24	3.8	3.6	2.2	3.8	3.6	3.0	G	G	4.8	5.6	5.4	5.6	5.6	4.7	G	4.6 ^Y	4.3	C	G	4.6	3.4	3.0	4.0	4.4
25	3.4	3.4	3.8	4.0	4.2	2.2	E	5.4	5.0	6.8	5.8	5.6	4.8	4.0	4.2	6.4	3.8	2.8	3.1	3.3	3.5	4.7	3.8	4.0
26	4.2	3.8	2.2	2.6	1.3	2.2 ^Y	2.5 ^Y	4.0	5.6	5.8	6.2	13.4	C	5.6	6.0	4.8	G	G	G	3.5	2.4	3.4	3.4	3.3
27	4.3	1.6	(2.0) ^B	1.9	E	1.4	3.2	4.2 ^Y	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.3
28	2.0	2.0	2.4	2.6	2.6	2.8	G	G	4.2	G	5.0	4.7 ^Y	G	G	G	G	G	4.5	3.8	5.0	4.0	4.8	C	2.6
29	1.4	2.0	E	E	E	E	2.2	G	G	1.8	2.0	2.4	2.6	2.2	2.3	4.0	4.6	G	3.4	E	E	1.6	E	2.0
30	4.0	2.8	E	2.4 ^Y	1.6	2.0	2.8	2.4	-G	G	4.8	5.3	5.7	5.0	4.2	4.9	4.7	5.1	5.4	3.9	4.0	3.0	2.5	2.6
31																								
Mean Value	3.0	2.8	3.0	3.4	3.0	2.5	2.4	3.5	4.0	4.6	4.8	5.4	4.8	4.6	4.7	4.6	4.1	4.4	3.8	3.4	3.5	3.5	3.4	3.1
Max Value	2.4	2.5	2.0	2.3	2.2	2.2	2.2	2.4	3.6	3.4	4.7	4.8	4.8	4.2	4.1	4.0	4.2	3.8	3.4	3.2	3.3	3.0	2.5	2.7
Count	3	0	3	0	3	0	3	0	2	7	2	8	2	2	7	2	7	2	6	2	7	2	9	3

fEs

Sweep 1.0-Mc to 18.5-Mc in 1.5-min

Manual

Y 8

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

(M3000)F2

135° E Mean Time

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.8	2.7	2.8	2.7	3.0	2.5	2.9	3.2	3.4	3.2	3.1	3.0	3.1	3.0	3.1	3.0	3.2	3.1	3.2	3.3	3.2	3.1	2.8	2.7
2	2.9	2.9	3.0	3.3	3.2	3.1	3.1	3.7	3.4	3.4	3.0	2.9	2.9	3.0	3.0	3.1	3.0	3.1	3.2	3.2	3.2	2.8	2.8	2.8
3	2.6 ^P	2.7 ^H	2.8	2.8	3.0	3.2 ^H	3.1	3.7	3.2	3.1	3.1	3.1	3.1	2.9	3.1	3.1	3.1	2.9	2.9	3.2	(3.2) ^S	2.6 ^H	2.7	3.1
4	3.1	3.1	3.2	3.2	2.6 ^Z	2.8 ^H	3.2 ^P	3.6	3.2	3.3	3.0	3.1	3.0	3.0	3.2	3.0	3.1	3.1	3.2	3.1	3.2	3.0	2.8	2.7
5	2.6	2.7	3.1 ^H	3.1	3.1	3.1	3.3	3.3	3.1	3.0	3.0	3.1	3.1	2.9	3.1	3.1	3.2	3.4	3.3	3.3	3.1	2.9	2.7	2.8
6	3.2	3.0	3.0	3.1 ^H	3.1	2.9 ^H	3.1	3.6	3.3	3.2	3.3	3.0	2.9	3.1	3.2	3.2	3.2	3.3	3.5	3.4	3.5	3.5	3.6	3.1
7	3.1	3.1	(3.3) ^P	2.9	3.0 ^F	3.3	3.3	3.3	3.3	3.2	3.0	2.7	3.1	3.1	3.0	3.2	3.1	3.3	3.3	3.4 ^Z	(3.4) ^A	2.7	(2.7) ^F	FHS
8	(2.6) ^F	(3.0) ^S	2.8 ^Z	3.5	2.5 ^F	2.7	3.1	3.3	(3.4) ^S	3.3	3.2	2.8 ^Z	3.1	3.1	3.3	3.2	3.3	3.3	3.5	3.2	3.4 ^J	(3.6) ^J	2.9	2.7
9	(2.7) ^F	(3.1) ^F	3.2	2.8	3.0	2.8	3.0	3.3	3.2	3.2	3.0	3.0	3.0	3.2	3.2	3.0	3.2	(3.2) ^C	3.2	3.4 ^J	(3.6) ^J	3.9	2.7	2.6 ^H
10	2.8	3.1	3.5	3.0	2.7	3.1	3.3	3.5	3.3	3.2	3.2	3.3	3.1	3.2	3.2	3.3	3.2	3.2	3.3	(3.7) ^J	(3.7) ^J	3.9	2.6	2.6
11	(2.7) ^P	2.9	2.9	3.2	3.1	3.1	3.3	3.3	3.5	3.3	3.3	2.8	3.0	3.1 ^P	3.2	3.2	(3.3) ^S	3.3	3.2	3.3	3.4	3.1	2.8	2.7
12	2.7	2.9	2.8 ^F	3.4	2.9	2.8	3.2	3.5	3.3	3.2	3.0	3.0	3.1	2.9	3.7	3.2	3.1	3.3	3.2	3.1	3.3	3.3	(2.8) ^J	(2.7) ^P
13	(2.8) ^P	2.8	(2.7) ^J	3.4	(2.7) ^J	2.7	3.1	3.4	C	C	C	C	C	C	C	C	C	C	C	C	C	3.0	3.2	2.5
14	2.6	2.7	3.1	2.9	2.9	3.0	2.8	3.2	3.1	3.0	3.1	3.1	3.2	3.0	3.0	3.1	3.2	3.3	3.3	3.3	C	3.4 ^H	2.6	2.8
15	2.8	2.9	3.4 ^P	3.5	3.0	2.8	3.0	3.5	3.3	3.2	2.9	2.9	3.0	2.9	3.1	3.0	3.0	3.0	3.0	3.3	3.4	3.1	2.9	2.9
16	3.1	3.4	3.3	3.3	2.7	2.7	2.8	3.3	3.2	3.2	3.1	2.9	2.9	2.9	3.0	3.1	2.9	3.1	3.3	3.2	3.4	3.1	2.8	2.7
17	2.8	2.8	3.0	3.6	2.8 ^H	2.8	3.1	3.5	(3.4) ^J	3.1	(2.9) ^C	3.1	C	C	C	C	C	C	C	C	C	3.2	3.1	3.0
18	2.9	2.9	3.1	2.7	2.9	3.0	3.0	3.3	3.3	3.2	3.2	2.9	2.9	3.0	2.9	2.9	2.9	3.0	3.4	3.3	3.1	2.9 ^H	2.9	2.9 ^S
19	2.9	3.4	3.0	2.5	2.5	2.5	3.2	3.3 ^V	3.1	3.3	3.3	2.9	2.8	2.9	2.9	2.9	2.9	3.0	3.1	3.3	3.0	3.0	2.6	(2.8) ^H
20	2.9	2.7	2.9	2.9	3.0	2.8	3.2	3.5	3.1	3.0	3.0	2.7	2.8	2.9	2.9	2.9	2.9	3.0	(3.1) ^S	(3.1) ^S	3.4	A	2.8	2.8
21	A	2.7	2.8	2.9	2.6 ^S	2.6 ^F	3.3	3.2	3.1	3.1	2.8	2.9	2.8	2.8	2.9	3.0	3.2	3.1	3.2	3.1	(3.3) ^F	C	2.7	2.7
22	2.8	2.8	2.9	2.9	3.2	3.0	3.1	3.3	3.0	3.2	3.0	2.8	2.8	2.9	3.0	3.0	3.0	3.0	3.1	3.2	2.9	(2.6) ^H	2.5	(2.6) ^S
23	2.7	2.7	2.7	2.9	A	2.7 ^H	2.9	3.2	3.4	3.1	3.1	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.1	3.2	2.9	3.1	2.9	2.8
24	2.8	3.1	3.0	3.3	2.9	2.8	3.1	3.2	3.2	3.2	3.0	2.8	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.2	3.1	2.9	2.8
25	2.8	2.6	2.7	2.7	2.9	2.8	3.0	3.0	3.0	3.0	3.1	2.8	2.8	2.8	2.8	2.8	2.8	3.1	3.2	3.2	3.3	3.1	3.3	3.5
26	3.0	3.1	3.0	2.5 ^H	2.4 ^F	2.5 ^F	3.2	3.1	3.1	3.0	2.9	A ^K	C	C	3.0	2.9	3.0	3.0	3.0	3.0	3.3 ^H	3.0	3.2	3.1
27	2.7	2.8	3.0	2.8 ^H	2.8	2.9	3.3	3.6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.9	2.8
28	2.7	2.8	(2.8) ^P	2.8	2.6	2.8 ^P	3.2	3.1	3.1	3.0	2.8	2.8 ^H	2.9	2.9	2.8	2.8	3.0	3.1	3.1	3.0	3.1	3.0	[2.9]	2.8
29	2.7	2.8	2.9	3.1	2.7	2.9	3.1	3.1	3.1	2.8	2.6 ^H	2.9	2.9	2.9	2.9	3.0	3.1	3.2	3.1	3.2	2.9 ^H	2.7	2.7	2.9
30	3.0	3.0	2.8 ^H	2.8	2.9	2.8	3.0	3.2	3.1	3.1	3.0	2.9	3.0	3.0	3.0	2.9	2.9	3.0	3.0	3.2	3.3	3.2	2.8	(2.7) ^S
31																								
Mean Value	2.8	2.9	3.0	3.0	2.9	2.8	3.1	3.3	3.2	3.1	3.0	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.0	2.8
Median Value	2.8	2.9	3.0	2.9	2.9	2.8	3.1	3.3	3.2	3.2	3.0	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.2	3.3	3.2	3.0	2.8
Count	2.9	3.0	3.0	3.0	2.9	2.9	3.0	3.0	2.8	2.8	2.7	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.9	2.8	2.8	3.0

Sweep 1.0—Mc to 18.5—Mc in 1.5—min

Manual

Y 9

The Central Radio Wave Observatory
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Apr. 1951

fminF

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	E	E	E	1.6	E	E	2.4	2.8	3.2	A	3.3	3.7	3.9	3.7	3.6	3.1	2.9	2.2	1.5	1.5	1.2	1.1	A	
2	1.8	1.8	1.4	1.3	1.2	1.1	1.3	2.6	2.7	A	3.4	3.8	4.4	3.8	3.6	3.6	2.8	3.0	2.0	A	1.7	1.2	1.2	1.7	
3	E	E	E	E	1.6	E	1.4	2.2	2.6	3.2	3.9	4.2	3.7	4.1	A	3.2	2.7	A	2.2	1.6	1.4	1.6	1.2	1.2	
4	E	E	E	E	1.5	A	1.2	2.3	3.1	3.3	3.8	A	3.7	4.2	3.5	3.6	3.7	2.7	2.2	2.0	E	E	E	E	
5	E	E	E	E	E	E	1.8	2.4	2.8	3.2	A	A	3.6	4.2	A	3.4	3.1	2.7	2.8	2.2	1.6	A	1.9	1.5	
6	E	F	1.2	E	E	E	1.6	2.2	2.8	3.5	3.4	4.0	4.0	4.2	3.6	A	3.2	2.6	1.9	1.4	1.3	1.2	1.2	1.1	
7	E	1.2	E	E	E	E	1.6	2.4	2.9	2.6	3.4	A	3.8	4.0	3.7	3.5	3.2	2.8	2.1	1.8	A	1.4	1.2	1.1	
8	A	E	A	E	E	A	1.2	2.4	2.8	3.0	3.6	3.4	3.8	3.6	3.4	3.0	3.2	2.6	2.2	1.6	1.6	A	1.6	1.2	
9	E	E	E	E	E	E	E	2.6	3.4	3.1	A	4.0	3.8	3.8	3.5	3.5	2.9	[2.6]	2.2	1.7	1.7	A	1.6	1.6	
10	1.6	1.6	1.8	1.2	E	C	1.6	2.5	2.9	A	3.8	4.2	4.2	4.2	A	A	A	3.2	2.4	A	A	A	1.3	A	
11	1.8	E	E	E	E	E	E	1.9	2.8	4.1	3.8	3.8	4.4	4.2	A	3.6	3.3	2.9	3.0	2.7	1.8	1.2	E	E	
12	E	1.2	E	E	E	E	1.6	2.4	3.0	3.6	3.6	4.2	3.8	4.4	A	4.4	4.3	3.4	2.6	1.6	1.6	A	A	1.8	
13	1.4	1.2	E	E	E	E	1.6	2.6	C	C	C	C	C	C	C	C	C	C	C	2.1	1.6	A	1.1	1.5	
14	1.1	E	E	E	E	E	E	2.6	3.3	3.5	3.7	4.0	4.0	4.0	4.2	4.0	4.6	3.0	2.3	2.0	C	A	1.8	1.4	
15	1.2	E	E	1.4	1.8	1.6	1.7	2.4	3.3	3.6	4.2	4.2	4.4	4.2	4.2	3.8	3.8	3.2	1.9	1.4	1.3	1.2	1.1	E	
16	1.1	E	A	A	1.3	1.1	1.7	2.7	3.1	3.6	4.0	4.0	4.1	4.1	A	4.0	A	A	2.4	A	A	A	A	1.6	
17	1.4	1.8	E	1.7	1.8	1.3	A	2.8	C	A	C	A	C	C	C	C	C	C	C	A	1.6	A	1.3	1.2	
18	1.2	E	E	E	E	E	E	2.8	3.4	4.2	4.4	4.1	4.4	6.0	4.2	6.0	A	3.8	2.8	1.8	1.8	1.4	A	1.8	
19	1.8	1.6	1.1	E	E	E	1.7	3.6	3.4	4.6	4.1	4.7	4.4	4.5	4.6	7.8	A	A	A	1.8	1.3	E	1.2	A	
20	A	A	1.2	1.4	1.7	1.9	1.9	2.6	A	3.6	3.4	A	A	A	A	A	A	3.2	2.8	1.8	1.5	A	1.7	1.7	
21	A	A	A	A	A	E	2.0	2.8	6.9	A	A	A	4.4	4.2	4.0	4.2	4.0	3.1	2.4	1.6	A	C	1.8	1.8	
22	E	F	1.1	F	E	E	1.8	3.1	3.2	4.0	4.1	4.1	4.0	4.0	4.3	4.1	A	A	A	A	A	A	A	A	
23	1.9	A	1.5	A	A	1.3	1.7	2.7	3.3	4.1	4.1	4.1	4.2	4.5	4.1	3.9	3.7	3.5	2.0	1.6	1.6	A	1.4	1.2	
24	E	E	E	A	1.4	1.4	1.9	2.8	3.5	4.2	4.4	A	4.8	4.1	3.9	4.0	4.1	[3.3]	2.8	1.5	A	A	3.0	A	
25	2.8	1.1	A	A	1.2	1.2	1.8	2.8	3.4	A	A	4.4	4.2	4.2	A	A	A	3.2	2.6	2.3	2.1	1.7	1.4	1.2	
26	1.6	1.4	1.6	E	E	1.1	1.9	3.2	3.6	A	A	A	C	A	4.4	A	A	2.9	2.8	1.7	1.6	A	A	1.9	
27	E	E	E	E	E	1.3	2.0	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	1.6	
28	1.2	1.8	1.4	1.7	1.4	A	2.0	2.7	3.5	3.9	4.2	3.8	3.9	4.0	4.0	4.0	3.4	3.4	3.0	1.5	1.3	E	C	E	
29	E	E	E	E	E	A	1.4	2.5	3.5	3.5	3.9	3.9	4.2	4.3	4.0	4.1	3.9	2.9	2.4	1.8	1.2	1.2	1.2	1.8	
30	A	1.5	E	1.4	E	E	1.8	2.5	3.6	3.7	4.1	A	4.9	4.6	3.9	4.2	4.1	A	2.2	2.0	A	1.8	E	A	
31																									
Mean Value	1.6	1.5	1.4	1.4	1.5	1.3	1.7	2.6	3.3	3.6	4.1	4.0	4.1	4.2	3.9	4.1	3.5	3.0	2.4	1.7	1.6	1.4	1.5	1.5	
Minimum Value	1.1	E	E	E	E	E	1.6	2.6	3.2	3.6	3.9	4.0	4.1	4.2	4.0	4.0	3.4	3.0	2.4	1.7	1.6	1.2	1.2	1.4	
Count	25	27	26	25	28	26	29	30	26	22	21	19	25	25	19	22	19	23	25	24	21	14	24	24	

fminF

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

Y 10

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

fminE

Apr. 1951

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	1.2	E	E	E	E	E	1.2	1.4	1.6	1.6	2.1	2.0	2.4	2.4	2.1	1.6	1.2	E	E	E	E	E	E	
2	E	E	E	E	E	E	E	1.1	1.2	1.6	2.2	2.2	2.6	2.6	2.2	2.2	2.0	1.3	1.3	E	E	E	E	1.1	
3	E	E	E	E	E	E	E	1.2	1.4	1.6	1.8	2.1	2.1	2.4	2.3	2.2	2.0	1.8	1.2	1.2	1.6	1.2	E	E	
4	E	E	E	E	E	E	E	1.2	1.3	1.4	1.3	1.9	2.0	2.0	2.0	1.8	1.7	1.3	1.6	1.2	E	E	E	E	
5	E	E	E	E	E	E	E	1.4	1.6	1.6	1.7	1.7	1.8	1.8	1.8	2.0	2.0	1.3	E	E	E	E	E	E	
6	E	E	1.2	E	E	E	E	2.2	1.1	1.6	1.6	1.8	1.8	2.0	2.0	1.8	1.8	1.4	1.3	1.2	1.1	E	E	E	
7	E	E	E	E	E	E	E	E	1.1	1.4	1.6	1.9	1.8	1.6	1.6	1.6	1.8	1.6	1.3	E	E	1.1	E	1.1	
8	E	E	E	2.2	E	E	E	1.3	1.6	1.6	1.6	1.4	1.6	1.6	1.6	1.6	1.6	1.4	1.3	E	E	E	E	1.6	
9	E	E	E	E	E	E	E	1.6	1.8	1.6	1.6	2.0	2.0	1.9	2.0	1.9	1.6	C	E	1.2	1.5	1.6	E	E	
10	E	E	E	E	E	C	E	1.1	E	1.6	2.0	2.0	2.6	2.6	2.0	2.8	2.4	2.2	1.7	E	F	E	E	E	
11	E	E	E	E	E	E	E	E	1.1	1.9	2.2	2.2	2.2	2.9	2.0	2.0	1.6	1.3	1.2	E	1.2	1.2	1.2	E	
12	1.2	1.4	E	E	E	E	E	E	1.5	1.6	1.8	1.9	2.1	2.2	2.3	2.1	2.0	1.8	1.7	1.6	1.6	1.6	1.7	1.8	
13	E	E	1.6	E	E	E	E	1.4	1.6	C	C	C	C	C	C	C	C	C	C	1.1	E	E	1.1	2.2	
14	1.2	2.6	E	E	E	E	E	1.4	1.4	1.8	2.0	2.0	2.0	2.8	3.2	2.6	2.2	1.8	1.3	1.2	1.1	E	E	E	
15	E	E	E	E	E	E	E	1.4	1.6	1.8	1.8	2.2	2.2	2.8	3.2	2.6	2.2	1.8	1.3	1.2	1.1	E	E	E	
16	E	E	E	E	E	E	E	1.2	1.4	1.8	1.4	2.0	1.6	1.8	1.8	1.6	1.4	1.2	1.6	1.2	E	1.2	1.2	E	
17	1.2	E	E	E	E	E	E	1.4	[1.5] ^C	1.4	[1.8] ^C	1.9	C	C	C	C	C	C	C	C	E	E	1.4	E	
18	E	E	E	E	E	E	E	1.6	1.6	2.3	2.1	2.2	3.2	E	3.0	E	1.8	1.7	1.6	1.4	1.6	1.1	1.8	1.4	
19	1.2	E	1.1	2.0	E	E	E	1.3	2.0	1.6	E	2.2	E	1.8	E	E	4.2	2.2	1.7	1.4	E	E	E	E	
20	E	E	E	E	E	E	E	1.3	1.4	1.7	1.8	E	4.1	3.2	2.4	2.5	1.8	1.6	1.6	1.3	E	E	1.3	E	
21	E	E	E	E	E	E	E	1.2	5.5	4.5	3.8	3.8	3.8	E	E	E	E	2.0	1.6	2.0	1.6	C	1.2	E	
22	E	E	E	E	E	E	E	1.2	1.7	2.0	1.8	2.0	1.8	2.0	2.1	1.9	1.8	1.7	1.4	1.2	E	1.1	1.1	1.4	
23	E	1.1	E	E	E	E	E	1.6	1.6	2.2	2.1	2.2	2.2	2.7	1.7	1.8	2.9	1.9	1.6	1.4	1.2	1.2	E	E	
24	E	E	E	E	E	E	E	1.6	1.6	1.8	1.8	2.0	2.0	2.8	2.1	2.0	1.7	[1.9] ^C	1.5	1.3	E	E	1.4	1.1	
25	1.1	E	E	1.2	1.8 ^B	E	E	1.6	1.8	2.0	2.0	2.2	2.4	2.2	2.0	1.8	1.6	1.6	1.8	1.5	1.3	1.3	E	E	
26	E	E	E	1.8	1.1	E	E	1.1	E	1.7	2.0	3.0	2.1	C	4.0	2.6	2.0	1.8	1.6	E	E	1.4	E	E	
27	E	E	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	E	E	E	
28	E	E	1.1	1.1	E	E	E	1.1	1.7	1.7	1.9	1.9	2.1	3.2	2.3	3.0	1.8	1.4	1.8	E	E	E	C	E	
29	E	E	E	E	E	E	E	1.4	1.4	1.4	1.3	2.0	1.8	1.7	1.7	1.8	1.7	1.8	1.7	E	E	1.2	E	1.8	
30	1.2	E	E	E	E	E	E	1.4	1.6	2.0	2.1	2.3	2.4	2.8	2.9	3.6	3.1	2.7	1.9	1.3	E	E	E	E	
31																									
Mean	1.2	1.6	1.3	1.7	1.3	1.1	1.3	1.5	1.7	1.7	2.0	2.1	2.2	2.4	2.2	2.1	2.0	1.7	1.5	1.3	1.4	1.3	1.3	1.5	
Mean	E	E	E	E	E	E	E	E	1.4	1.6	1.6	1.8	2.0	2.2	2.0	2.0	1.8	1.7	1.6	1.2	E	E	E	E	
Median	E	E	E	E	E	E	E	E	1.4	1.6	1.6	1.8	2.0	2.2	2.0	2.0	1.8	1.7	1.6	1.2	E	E	E	E	
Value	E	E	E	E	E	E	E	E	1.4	1.6	1.6	1.8	2.0	2.2	2.0	2.0	1.8	1.7	1.6	1.2	E	E	E	E	
Count	3	0	3	0	3	0	3	0	2	8	2	8	2	8	2	7	2	7	2	7	2	8	2	9	3

Sweep 1.0-Mc to 18.5-Mc in 1.5 min Manual

IONOSPHERIC DATA IN JAPAN FOR APRIL 1951

電波觀測報告 第3卷 第4号

1951年5月25日 印刷
1951年5月30日 發行

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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

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