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IONOSPHERIC DATA IN JAPAN

FOR MAY 1951

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PREPARED BY THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

KOKUBUNJI, TOKYO, JAPAN

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THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

KOKUBUNJI, TOKYO, JAPAN

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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

JUNE 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.

IONOSPHERIC DATA

Lat. 45° 23.8' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time

f_oF₂

May, 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	5.9 ^H	5.9 ^H	5.6 ^H	5.6 ^H	5.9	6.7	7.6	7.8	8.2	8.3	8.4	(8.5) ^F	8.2	8.4	9.1	8.5	8.7	8.6	(8.8) ^F	8.9 ^F	(8.0) ^F	7.0	6.2	5.7
2	5.7 ^F	5.2	4.7 ^H	5.1 ^H	5.4	4.8	4.8 ^K	5.5 ^K	A ^K	B ^K	B ^K	5.6 ^K	6.8 ^K	5.8 ^K	7.0	6.4 ^H	7.3	7.0	6.9	7.3	6.9	6.7	5.9	5.7 ^F
3	5.0 ^F	6.0 ^F	5.8 ^F	A ^K	3.0 ^K	3.9 ^K	4.2 ^V	A ^K	G ^K	A ^K	A ^K	6.8	6.8	7.1	7.0	7.1	7.2	7.6	6.4	7.2	6.4	6.0 ^H	C	5.3 ^F
4	5.5 ^F	5.6 ^F	5.2 ^F	4.7	4.3	4.9	5.9	6.5	7.2	7.3	6.3	6.6	6.9	8.4 ^F	(7.9) ^F	8.7 ^H	7.2	6.7	7.2	7.2	7.3	7.3	6.6	6.7
5	5.9	5.5 ^F	5.7	5.4	5.1	5.3	6.8	7.0	6.6	6.9	6.9	7.3	7.1	7.3	7.6	7.7	7.3	7.1	6.3	7.7	7.5	7.5	6.0 ^H	5.7
6	4.9	5.5	5.7	4.9	5.1	5.6	5.7	5.7	5.7	7.4	7.5	7.2	7.3	7.9	7.2	7.1	7.3	7.3	8.3	9.0	7.6	7.6	6.2 ^H	5.6
7	5.4 ^F	5.1	5.0	5.0 ^H	5.8	5.7	5.3	5.3	5.8	6.1	6.5	6.3	6.9	6.7	6.6	7.5	7.1	6.7	6.4	7.0	7.2	7.4	7.3	6.8
8	6.3	6.0	6.0	5.7	5.3	5.6	6.5	6.8	7.9	7.8	7.0	7.1	6.8	6.9	6.9	6.5	6.9	6.7	7.2	7.9 ^F	8.0	7.0	6.2	5.8
9	5.5	5.1	4.9	4.9	4.8	5.3	6.2	6.6	7.2	7.7	7.8	7.4	7.1	7.1	7.3	7.7	7.5	7.2	6.8	8.7	7.1	7.0	7.2 ^F	7.3 ^F
10	6.1 ^H	5.5 ^F	5.7 ^F	4.1 ^F	4.5 ^H	5.4	5.5 ^K	5.7 ^K	5.6 ^K	5.5 ^K	C ^K	C ^K	C ^K	C ^K	C ^K	6.7 ^K	6.2 ^K	7.2	6.8	6.7	6.3	6.1 ^H	5.7	5.3
11	4.7	4.1	4.8 ^F	5.1 ^F	5.2 ^F	5.8 ^F	6.2	7.1	6.4	6.5	6.6	7.0	6.5	6.7	7.2	7.9	7.8	7.3	7.2 ^H	8.0	7.4	6.9	6.9	6.6
12	6.3	6.0	5.9	5.3	4.1 ^K	5.0 ^K	5.5 ^K	5.8 ^K	5.1 ^K	S ^K	B ^K	A ^K	C	C	C	6.9	7.0	6.8	5.5 ^K	5.7 ^K	6.4	6.0	5.4	4.9
13	4.3 ^F	5.0 ^F	5.4 ^F	4.6 ^F	4.8 ^F	5.0 ^F	C	C	C	C	C	C	C	C	C	C	6.9	7.0	6.8	7.4	7.5	6.5	6.6	6.9
14	6.5	6.3	5.9	5.7	5.8	6.8 ^H	7.4	7.1	7.6	7.4	(7.7) ^F	7.6	8.0	7.3	8.0	7.8	(8.1) ^F	8.1	7.8	7.7	8.4	7.7	7.3	7.4
15	6.5 ^V	6.8 ^H	6.6	6.2	6.8	7.4	8.1 ^Z	8.6	7.8	7.2	7.5	8.5	8.6	8.5	9.1	8.9	8.8	8.3	(8.2) ^F	(7.7) ^F	8.1	7.7	7.8	7.4
16	7.6	7.4	7.0	6.8	7.1	7.6	7.7	7.8	7.2	7.5	7.6	8.0	8.5	7.1	7.3	7.7	7.8	7.8	8.3	(8.2) ^F	(7.7) ^F	7.7	7.8	7.8
17	7.8	6.8	6.4	6.1	5.3	5.3	5.7	5.9	6.0	6.1	6.4	6.4	6.4	7.1	7.3	7.7	7.8	7.8	7.6 ^H	8.3 ^F	7.7	7.5 ^H	7.1 ^H	6.5
18	6.6 ^H	5.7	6.2	5.7	4.1 ^K	4.1 ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	6.1	6.5 ^K	6.4	6.3	6.2	6.3	6.5	6.5 ^F	6.5 ^H	6.5 ^F
19	5.7	5.4	5.3	5.3	5.7	6.0	7.0	8.0	8.5	7.5	7.2	7.3	B	7.4	8.1	(7.5) ^F	(7.5) ^F	(7.5) ^F	7.4 ^F	7.4 ^F	7.8	7.3	7.3	7.2
20	6.6	6.7 ^H	6.5	6.6 ^H	6.2	6.7	7.3	7.3	7.8	7.7	8.0	8.2	7.9	8.2 ^F	8.6	8.9	(8.4) ^F	(8.0) ^F	(7.9) ^F	7.3 ^F	7.3	7.3	7.2	7.2
21	7.7	7.4	7.5	7.1	7.3	7.3	7.7	8.2	7.4	7.4	7.2	B	8.8	8.9	8.9	8.7	8.4 ^H	8.5	8.3	7.7	7.4	7.5	7.2	6.8 ^H
22	7.0	6.9	6.8 ^H	6.8 ^H	7.0	6.9	6.2	6.6	6.2	6.2	B	(6.6) ^B	B	B	7.2	8.0	8.0	7.2	7.7	7.7	7.4	7.2	7.0	7.0
23	7.2 ^H	6.9 ^F	6.3 ^H	6.4 ^H	7.0 ^H	(7.4) ^F	7.7	7.5	7.1	6.8	8.0	(8.1) ^F	8.2	8.4	S	S	8.5	8.7	8.0	8.5	9.0	8.9	8.9	8.9
24	8.7	8.6	7.3	6.4	6.3	6.1	7.1	6.8	7.2	7.5	7.0	6.5	B	B	7.2	7.3	6.9	6.6	6.7	7.5	7.3	6.5 ^F	6.8 ^F	7.2
25	6.3	5.9	5.7	5.4	6.0	5.6	5.1 ^K	5.8 ^K	5.6 ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	C ^K	5.5 ^K	5.9	6.5 ^H	6.8	5.3	6.1 ^H	6.0
26	5.4	5.7	5.4	5.7	6.2	6.3	5.7 ^H	6.7	7.3	7.5	7.3	6.7	6.9	6.9	6.7	6.7	6.9	7.2	7.3	7.2	7.5	7.4	7.6	7.2
27	7.1 ^H	6.8	6.7	6.3	6.2	6.3	C	C	C	C	C	C	C	C	C	C	C	A	A	5.6	6.7 ^H	6.5 ^H	6.3	6.3
28	6.0	6.0	6.0	5.8	6.2	6.2	7.1	7.0	B	B	B	B	B	B	B	B	7.8	7.8	7.5	7.5	7.4	7.4	7.3	7.2
29	7.0	6.3	6.3	6.1	6.5	7.2	7.1	7.2	7.5	6.7 ^V	6.6	6.3	6.5	7.1	7.4	7.4	7.3	7.1	8.4	7.2	7.2	7.0	7.0	6.5
30	6.1	5.8	6.1 ^Z	6.0 ^Z	4.8	5.1	6.0	6.1	6.7	6.5	6.9	6.4	6.6	6.4	6.6	6.4	6.6	6.7	6.3	7.1	7.3	7.6	6.5	5.9
31	5.7	5.8	5.9 ^Z	5.6 ^F	5.4 ^H	5.5 ^K	5.1 ^K	5.9 ^K	6.5 ^K	6.1 ^K	6.7 ^K	A ^K	B ^K	B ^K	5.6 ^K	6.0	6.3	6.6	6.4	6.7	6.5	6.4 ^F	5.8	5.9
Mean Value	6.2	6.1	5.9	5.7	5.6	6.0	6.5	6.8	7.0	7.0	7.2	7.1	7.4	7.3	7.5	7.4	7.4	7.4	7.2	7.4	7.3	7.0	6.8	6.6
Median Value	6.1	5.9	5.9	5.7	5.4	5.8	6.2	6.8	7.2	7.3	7.2	7.0	7.1	7.3	7.5	7.4	7.3	7.2	7.2	7.4	7.3	7.0	6.8	6.6
Count	31	31	31	30	31	31	28	27	26	23	21	22	21	22	25	27	29	30	29	30	31	31	30	31

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

IONOSPHERIC DATA

May 1951

f_pF₂

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	390 ^H	400 ^H	360 ^H	370 ^H	350	330	290	300	300	340	330	(310) ^F	380	370	370	320	340	340	(330) ^H	(370) ^H	(320) ^F	320	350	380	
2	390	380	400 ^H	390 ^H	380	350	310 ^K	G ^K	A ^K	B ^K	B ^K	G ^K	350	380 ^K	380 ^K	330 ^K	330	A	320	310	400	410	430 ^F		
3	(460) ^H	(430) ^H	410 ^F	A ^K	G ^K	A ^K	G ^K	A ^K	G ^K	A ^K	A ^K	370 ^G	G	340	B	330	340	310	350	330	310	380 ^H	C	400 ^F	
4	380 ^F	450 ^F	400 ^F	370 ^F	410	510	370	380	350	300	320	350	430	300 ^F	(330) ^F	330 ^F	310	320	320	360	400	350	380	380	
5	420	360 ^F	410	410	260	370	330	320	310	320	370	370	310	330	320	300	310	300	320	360	340	330	350	350	
6	340	390	340	330	330	290	350	320	320	320	360	330	360	320	320	330	340	340	370	320	340	320	340	360	
7	380 ^F	420	370	340	340 ^H	310	320	G	320	350	310	G	310	300	350	310	300	300	330	360	400	370	360	350	
8	370	430	340	340	380	360	330	340	310	310	310	310	330	310	350	320	310	330	340	350	340	330	350	340	
9	360	400	400	350	350	340	340	320	320	330	320	310	360	350	360	340	310	310	A	B	A	300	420 ^F	(350) ^F	
10	400 ^H	360 ^F	380 ^F	330 ^F	370 ^H	400	G ^K	410 ^K	B ^K	G ^K	C ^K	C ^K	C ^K	C ^K	A ^K	370 ^K	420 ^K	350	310	380	320	400	420	340	
11	380	380	460 ^F	340 ^F	310 ^F	360 ^F	330 ^F	330	350	420	400	G	A	400	370	340	310	310	390 ^H	350 ^H	310	370	400	350	
12	400	420	390	380	440 ^H	500 ^H	410 ^K	390 ^K	A ^K	S ^K	B ^K	A ^K	G ^K	G ^K	C	400	370 ^K	310 ^K	350	340	420	370	360	380	
13	370 ^F	400 ^F	400 ^F	420 ^F	A	C	C	C	C	C	C	C	C	C	C	400	(320) ^F	320	330	330	380	380	410	400	
14	340	380	340	370	370	370	310	330	330	370	(340) ^P	400	380	400	400	410	380	320	360	360	350	400	410	410	
15	400 ^S	410 ^H	360	410	400	340	340 ^F	320	310	320	390 ^H	400	340	B	340	340	380	320	360	360	350	400	410	410	
16	440	460	430	430	400	350	290	350	320	400	400	430	400	400	380	(360) ^F	350	(320) ^F	370 ^F	350 ^F	330	(350) ^F	390	400	
17	370	360	400	390	380	340	380	370	G	G	G	G	410	380	390	390	380	350	380	350	370	400	430	420	
18	410 ^H	380	400	390	430	330	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	G ^K	330	360	330	380	370	440	400 ^H	430	
19	440	430	410	400	350	360	330	330	320	310	350	460	B	390	400	(320) ^F	(320) ^F	(340) ^F	320 ^F	360 ^F	400	380	400	380	
20	430	410 ^H	400	400	370	330	370	320	330	340	340	330	410	(410) ^H	410	400	(380) ^H	(360) ^H	(330) ^H	(350) ^H	370	360	380	400	
21	410	420	420	420	340	390	380	340	310	380	G	B	380	360	390	390	390	370	320	290	340	330	390	420	
22	420	440	420 ^H	400 ^H	370	310	360	370	G	390	B	B	B	B	400	390	350	340	370	360	300	300	300	310	
23	420 ^H	430 ^H	410 ^H	440 ^H	420 ^H	(360) ^H	310	330	310	330	390	B	B	390	S	S	370	370	360	360	430	380	430	460	
24	420	400	390	420	410	440	380	420	370	340	370	A	B	B	400	380	380	370	370	360	420	(370) ^F	380	380	
25	420	410	410	410	410	430	G ^K	410 ^K	G ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	C ^K	C ^K	C ^K	420	420	320	400	380	
26	420	400	380	360	350	320	380 ^H	G	370	340	330	410	410	370	380	380	B	330	360	300	350	340	380	380	
27	400 ^H	400	390	420	410	400	C	C	C	C	C	C	C	C	C	C	C	C	A	A	410	360 ^F	360 ^F	420	
28	390	400	420	360	330	340	290	300	B	B	B	B	B	B	B	B	B	350	360	310	320	360	360	370	
29	(340) ^S	390	390	350	390	330	330	320	310	330 ^Y	G	370	G	G	360	350	330	340	340	320	300	340	310	370	380
30	400	370	400 ^F	400 ^F	350	340	390	A	A	A	330	390	A	A	360	G	310	310	330	350	360	350	390	370	
31	410	390	340 ^F	(370) ^F	400 ^F	280 ^F	B ^K	360 ^K	380 ^K	310 ^K	A ^K	A ^K	B ^K	G ^K	B ^K	400	360	330	320	350	390	420 ^F	350		
Mean Value	400	400	400	380	380	360	340	350	330	340	350	370	370	360	370	360	340	340	330	340	340	370	360	380	
Median Value	400	400	400	390	380	350	340	330	320	340	340	390	380	380	370	360	340	340	330	340	350	360	370	380	
Count	31	31	31	30	24	24	24	23	23	22	20	19	18	21	22	22	27	28	24	24	30	31	30	31	

f_pF₂

Sweep 1.0-Mc to 17.0-Mc in 1.5 min

Manual

W 2

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

May. 1951

ƒF2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300 ^H	310 ^H	240	300	240	230	220	270	280	300	310	300	370	340	330	300 ^F	310	240	240	240	260	260	240	240
2	300	310	330 ^H	300 ^H	280	330	240 ^F	340 ^F	A ^K	B ^K	B ^K	630 ^K	350 ^K	380 ^K	380 ^K	300 ^K	310	A	300	300 ^F	250	300	380 ^H	400
3	400 ^F	360	350	A ^K	A ^K	A ^K	A ^K	A ^K	G ^K	A ^K	A ^K	360	330	330	(330) ^B	320	320	240	300	260	250	250 ^H	C	350
4	350 ^F	(420)	340	240	320	510	360	350	240	300	320	350	400	400	300	300	310 ^H	280	240	240	310	240	300	240
5	310	310	240	280	300	300	300	310	300	310	370	350	310	320	310	300	270	270	280	300	250	270	260 ^H	240
6	300	300	240	250	250	250	330	310	310	310	310	350	320	340	300	320	320	270	280	300	270	250	260	280
7	300	320	320	300	280	280	300	400	320	340	310	360	310	300	330	300	300	240	280	300	300	300	300	280
8	240	310	270	280	300	300	300	300	310	300	310	310	330	310	340	300	280	240	240	270	290	240	280	280
9	300	310	320	240	240	240	260	320	310	310	310	320	350	350	360	320	300	300	300	(310) ^A	(400) ^A	250	A	270
10	260 ^H	300 ^F	320	250 ^H	340 ^H	300	400	410	B ^K	420 ^B	C ^K	C ^K	C ^K	C ^K	A ^K	370 ^K	400 ^K	340	300	300	280	240	320	240
11	310	300	340	270	280	(300) ^A	360	320	350	420	400	320	A	400	370	320	300	290	240	280	270	260 ^H	280	240
12	300	310	300	300	370 ^K	440 ^K	400	380 ^K	A ^K	A ^K	B ^K	A ^K	G ^K	460 ^K	B ^K	380 ^K	370 ^K	300	300	300	330	240	280	240
13	320	310	300	350	380	400	C	C	C	C	C	C	C	C	C	340	(300) ^B	310	300	300	240	240	300	310
14	300	240	(300)	300	310	300	300	300	330	360	380	370	370	360	350	400	330	310	240	280	240	300	310	310
15	300	300	300	300	300	300	240	300	300	300 ^H	310 ^H	400	320	340	330	320	320	240	240	280	270	320	310	310
16	320	310	300	310	310	280	270	310	310	400	400	L	400	360	360	350	280	240	310	300	240	380	310	300
17	280	270	240	240	300	350	300	370	440	430	420	420	410	370	380	380	350	240	300	300 ^H	280	300	310	300
18	330 ^H	280	280	300	(380) ^K	240 ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	360 ^K	400 ^K	320	310	300	330	300 ^F	310 ^H	320	
19	330	360	320	300	310	300	300	320	300	310	300	450	410	380	400	320	320	300	300	300	320	240	300	320
20	320	240 ^H	300	280 ^H	250	270	240	300	320	320	320	320	400	(380) ^C	350	380	360	300	240	300	240	280	240	320
21	320	310	320	300	300	330	310	310	300	360	390	B	350	350	360	310	300 ^H	310	300	260	280	300	300	300
22	310	330	310 ^H	300 ^H	310	300	300	370	400	390 ^A	B	(410) ^B	340	400	400	370	300	300	240	300	300	310	300	350
23	310 ^H	310 ^H	310 ^H	310 ^H	300 ^H	(300) ^H	290	300	300	320	380	(380) ^B	390	390	390	340	320	240	280	300	310	300	300	240
24	300	300	240	310	360	400	360	400	340	330	330	420 ^A	B	B	400	320 ^A	280	340	300	240	370	310	300	240
25	240	250	300	320	330	300	450 ^K	410 ^K	460 ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	C ^K	380 ^K	320 ^K	300	300	300	320	310
26	300	310	300	300	300	300	240 ^H	400	350	320	330	340	410	370	380	370	350 ^B	320	300	300	300	300	240	320
27	300 ^H	310	320	300	300	340	C	C	C	C	C	C	C	C	C	C	C	A	A	(400) ^A	240 ^H	300	350	
28	300	310	320	300	240	240	280	270	B	(330) ^B	B	B	(330) ^B	B	310	330	320	320	280	300	240	240	310	240
29	300	340	320	300	280	310	310	300	310	320	370	410	340	360	330	300	300	300	240	270	266	266	326	350
30	310	310	300	300	300	270	340	A	A	380	330	380	340	360	350	300	300	300	240	300	280	240	260	240
31	300	300	250	240	400 ^K	280 ^K	B ^K	360 ^B	380 ^B	310 ^K	400 ^K	A ^K	B ^K	450 ^K	(420) ^K	400 ^K	360	320	260	270	320	330	310	240
Mean Value	310	310	310	300	310	320	320	340	330	340	350	380	370	360	360	340	320	300	240	240	240	240	300	310
Upper Value	300	310	300	300	300	300	320	310	310	320	330	370	370	360	360	330	310	300	300	300	240	240	300	300
Count	31	31	31	30	30	30	26	26	23	24	21	21	23	24	26	24	24	24	24	31	31	31	24	31

Sweep 1.0 Mc to 17.0 Mc in 15 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

Wakkanai

135° E Mean Time

foF1

May 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						Q	Q	3.7	4.5	4.6	5.0	5.2	5.3	5.2	5.0	4.7	Q	Q						
2						3.0	Q	4.2	A	B	(4.9)	4.7	4.6	4.6	A	A	4.0	A	Q					
3						A	A	3.8	4.7	A	A	4.6	(4.6)	(4.7)	4.4	4.4	Q	Q	Q					
4						3.3	3.5	4.2	4.2	4.6 ^B	4.9	4.7	4.8	4.7	B	(4.2)	3.7	Q	Q					
5						Q	4.0	A	4.4	4.7	B	B	4.5	4.8	4.8 ^B	4.6	3.2	Q	Q					
6						Q	4.1	4.2	4.4	4.6	4.7	4.6	4.6	4.5	4.5	4.4	4.5	Q	Q					
7						3.5	3.9	4.5	4.3	4.7	4.6	5.0	4.6	4.7	L	4.2	4.2	L	Q					
8						Q	Q	4.7	4.5	4.6	4.7	4.8	4.8	4.8	4.8	L	Q	Q	Q					
9						Q	Q	4.6	4.8 ^J	4.6	4.7	4.8	4.8	4.8	4.8	4.6	(4.5)	Q	A					
10						3.2 ^J	3.8	A	A	4.5	C	C	C	C	A	4.6	4.0	3.6	2.4					
11						Q	A	A	A	A	4.7	A	4.6	4.6	4.5	Q	Q	Q	Q					
12						3.2	3.9	4.2	A	A	A	A	5.3	B	4.8	4.4	3.8 ^J	Q	Q					
13						A	C	C	C	C	C	C	C	C	C	4.8	B	L	Q					
14						Q	4.0	4.6	4.7	A	A	A	5.0	5.0	4.7	L	4.8	L	Q					
15						Q	L	4.1	B	Q	Q	B	5.4 ^B	5.4	L	4.6	4.7	Q	Q					
16						Q	Q	L	A	4.5 ^J	L	L	5.4	5.2	5.2	5.0	A	A	A					
17						3.2	3.7	4.1 ^J	4.4 ^J	4.9	5.2	5.2	5.2	4.9	5.2	5.0	4.7	Q	Q					
18						Q	4.5	B	B	B	B	B	B	B	B	5.0	4.7	4.3	A	A				
19						Q	L	4.6	4.8	5.0	B	5.8	5.6	5.6	5.2	4.9	4.6	Q	A					
20						Q	Q	4.0	5.0	L	A	L	5.7	C	L	4.4 ^J	L	Q	A					
21						3.6 ^J	L	4.5	A	5.3	6.0	B	5.3	5.0 ^B	4.8 ^J	4.9	4.9	4.3	3.7 ^J					
22						3.5	3.7	4.4	4.8	A	B	B	B	A	A	4.8	Q	Q	Q					
23						C	4.0	4.4	B	4.7	(5.0) ^B	B	B	B	B	A	B	4.5	Q	Q				
24						3.5	4.2	4.5	4.7	4.7	3.9	A	B	B	B	Q	Q	A	Q					
25						3.3	4.0	4.5	(4.4) ^J	B	B	B	B	B	B	B	C	4.0	Q					
26						L	Q	4.6	(4.6) ^A	A	L	4.9	5.0	5.0 ^B	4.9	4.6	A	A	Q					
27						3.7	C	C	C	C	C	C	C	C	C	C	C	A	A					
28						Q	Q	Q	B	B	B	B	B	B	A	A	A	A	Q					
29						3.3	4.2	4.5	4.5	4.9	4.9	(4.8) ^J	5.2	(5.2) ^A	5.0	4.6	4.4	4.2	Q					
30						Q	3.9	A	A	4.8	4.8	A	A	A	A	A	4.2	4.0	Q					
31						3.9	3.9	(4.0) ^J	4.5	4.7	A	A	B	4.2 ^B	(4.2) ^B	4.2 ^F	4.1	3.9	(3.2) ^A					
Mean Value						3.4	4.0	4.3	4.6	4.7	4.9	4.9	5.0	4.9	4.8	4.6	4.3	4.0	3.1					
Median Value						3.3	4.0	4.4	4.5	4.7	4.9	4.8	5.0	4.8	4.8	4.6	4.4	4.0	3.2					
Count						13	16	22	18	16	13	14	19	19	17	22	20	6	3					

foF1

Sweep 1.0 Mc to 1.7 Mc in 1.5 min

Manual

W 4

May, 1951

f'F1

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

Sweep 1.0 Mc to 1.7 Mc in 1.5 min

Manual

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

IONOSPHERIC DATA

May 1951

foE

Wakkanai

Lat. 45° 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						1.9	2.5	2.8	3.2	B	3.5	B	B	B	B	B	2.8	2.7	1.7					
2						1.9	2.8	A	A	(3.3) ^B	3.4	3.4	(3.4) ^B	2.8	2.8	2.7	2.5	N						
3						A	A	A	B	3.3	B	B	B	B	B	3.2	2.7	2.5	1.8					
4						1.8	2.3	2.8	3.2	B	B	B	B	B	B	3.0	3.0	2.5	1.8					
5						1.3	2.2 ^B	2.5	B	B	B	B	B	B	B	A	B	2.4	1.9					
6						1.8	2.4	2.8	3.1	A	3.5	A	B	A	A	3.3	A	2.5	A					
7						N	2.3	2.8	2.8	A	B	B	B	B	B	3.2	2.7	2.2	A					
8						1.7	2.4	A	B	3.3	3.3	3.4	3.4	B	B	B	2.9	2.4	A					
9						1.9	2.7	3.1	3.2	3.4	3.5	3.5	A	B	A	3.2	A	2.3	1.8					
10						N	2.6	A	3.1	B	C	C	C	C	C	B	B	2.6	A					
11						A	A	2.9 ^B	B	B	B	B	B	3.4	3.3	3.2	3.0	2.7	2.1					
12						2.1	2.7	3.1	3.1	B	B	B	B	B	B	B	3.3	2.7 ^B	A					
13						A	C	C	C	C	C	C	C	C	C	C	B	2.7	2.4					
14						B	2.6	3.0	3.1	B	B	B	B	B	B	B	2.8	2.7	2.2					
15						1.7	2.7	3.1	B	B	B	B	B	B	B	A	B	2.9	A	2.3				
16						2.3	2.9	3.2	3.5	B	B	B	B	B	B	B	A	A	2.2					
17						2.0	2.5	3.0	B	B	B	B	B	B	B	B	B	2.9 ^B	2.7	B				
18						1.9	2.7	B	B	B	B	B	B	B	B	B	3.3	2.9	B					
19						2.4	2.9	B	B	B	B	B	B	B	B	B	B	2.5 ^J	A					
20						2.0	2.5	2.9	B	B	B	B	B	B	B	C	B	A	A					
21						1.9 ^J	2.8 ^B	3.3	3.3	3.7	B	B	B	B	B	B	3.1 ^J	B	2.9	1.9				
22						2.4	2.8	3.2	3.5	B	B	B	B	B	B	B	B	B	B					
23						1.9	2.6	3.1 ^B	B	3.4 ^J	B	B	B	B	B	B	B	B	2.8	2.3				
24						B	2.7	B	B	B	B	B	B	B	B	B	A	A	A					
25						2.0	2.7	3.0	(3.1) ^B	B	B	B	B	B	B	B	B	C	B	A				
26						2.4	2.8	3.2 ^J	3.2	B	B	B	B	B	B	B	B	3.0	2.7	2.2				
27						B	C	C	C	C	C	C	C	C	C	C	C	C	2.5	2.2 ^B				
28						2.2	2.6	2.9	B	B	B	B	B	B	B	B	B	B	A	A				
29						2.1 ^J	3.1	B	3.1	3.3 ^B	B	B	B	B	B	B	3.2	2.5 ^J	1.9					
30						1.8	2.5	A	A	A	B	B	B	B	B	B	A	A	B					
31						1.8 ^B	B	3.2	3.3	B	A	A	A	B	B	A	3.5	2.9	2.6	A				
Mean Value						2.0	2.6	3.0	3.2	3.4	3.4	3.4	3.4	3.4	3.1	3.2	2.9	2.6	2.0					
Minimum Value						1.9	2.6	3.0	3.2	3.4	3.4	3.4	3.4	3.4	3.0	3.2	2.9	2.6	2.1					
Count						2.3	2.6	2.0	1.5	8	5	3	4	2	2	4	1.6	2.3	1.5					

foE

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

R'E

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

135° E Mean Time

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

Manual

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

W 7

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

IONOSPHERIC DATA

Lat. 45° 23.8' N
Long. 141° 41.1' E

fEs

May, 1951

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	E	E	E	E	E	G	G	G	G	G	G	G	E	G	G	G	G	G	G	2.4	E	E	E	2.4
2	1.8	E	E	E	E	G	G	4.7	6.4	G	(6.2)	6.3	5.2	7.0	G	5.0	6.2	6.2	E	2.7	3.2	3.0	4.3	6.1
3	3.8	5.0	5.7	5.8	4.6	7.3	4.0	6.3	5.0	6.9	8.3	5.3	6.2	4.7	G	G	G	G	G	2.7	2.9	5.5	G	4.8
4	6.1	6.7	3.8	2.6	1.6	G	G	G	G	G	G	3.7	G	G	G	4.2	G	G	G	G	E	E	E	2.0
5	E	1.9	1.4	1.4	G	2.5	G	5.4	4.7	5.2	4.0	(5.0)	G	G	3.5	3.2	G	G	G	3.4	E	E	E	2.8
6	E	E	E	E	E	G	G	G	5.2	4.8	G	3.8	G	3.8	G	G	3.6	G	2.8	1.8	2.8	E	E	E
7	E	2.6	3.0	3.7	1.5	F	G	G	3.5	4.6	5.4	F	E	E	E	G	G	G	2.0	E	G	1.9	E	2.0
8	E	F	1.8	E	1.9	G	G	4.1	4.3	G	G	G	4.0	4.1	G	G	G	5.1	3.6	3.1	E	2.4	E	1.8
9	E	2.0	E	2.0	E	G	G	G	5.6	5.0	4.4	4.4	4.6	E	4.4	5.4	6.8	G	G	G	6.6	3.9	6.6	3.5
10	2.4	E	2.7	2.6	G	E	G	4.6	G	5.0	C	C	C	C	5.7	G	G	(3.3)	E	E	E	E	E	E
11	2.0	3.0	1.8	E	3.3	3.0	5.6	6.5	6.2	6.1	8.5	6.4	7.0	4.2	G	G	G	4.2	G	4.4	5.0	4.1	2.9	2.8
12	1.2	E	E	E	G	G	G	G	4.9	5.0	5.7	7.2	4.6	4.3	E	G	G	3.8	3.4	3.4	4.1	3.2	E	E
13	E	E	E	3.8	4.8	5.7	C	C	C	C	C	C	C	C	C	3.2	G	G	4.7	3.3	1.5	E	E	E
14	E	E	3.1	1.6	G	E	G	G	4.6	6.2	6.5	5.7	4.7	4.7	4.2	5.4	4.7	3.4	4.0	2.9	E	3.1	E	E
15	E	E	E	E	G	2.7	G	G	E	E	5.5	E	4.3	4.8	4.3	G	4.4	3.6	4.0	3.4	3.8	4.2	2.6	E
16	E	E	E	1.8	2.5	G	3.6	4.6	5.7	4.6	6.2	E	4.9	5.2	5.8	5.5	4.8	4.4	4.2	5.4	4.1	4.8	E	1.7
17	E	1.7	E	E	G	G	3.5	4.5	G	4.4	4.6	5.0	5.8	4.4	E	E	G	G	G	G	4.0	3.2	E	1.8
18	E	E	E	2.9	4.6	3.7	5.1	4.4	5.0	5.2	4.6	E	E	E	E	E	5.0	4.2	3.2	3.8	4.3	2.4	2.3	3.3
19	2.4	1.8	1.3	E	G	G	G	4.5	4.6	4.0	E	E	E	E	E	G	G	G	4.2	5.8	4.4	3.4	3.2	E
20	E	E	1.7	E	G	G	G	4.6	5.1	4.7	7.8	5.6	4.6	C	E	G	4.2	4.0	7.5	4.4	3.2	3.8	2.6	2.8
21	3.2	3.4	1.5	E	G	G	G	G	4.4	5.0	E	E	4.0	G	E	6.0	7.4	4.8	5.3	6.2	3.8	3.4	E	2.4
22	1.4	1.8	E	E	2.4	3.0	4.0	4.6	4.2	5.6	E	E	5.8	5.9	E	E	4.7	4.5	G	3.3	3.3	E	E	E
23	E	E	2.8	1.4	G	G	G	G	5.1	G	E	E	E	E	E	G	G	G	2.8	3.2	3.2	2.8	2.3	2.4
24	E	E	E	E	2.6	G	G	E	5.3	4.2	3.8	7.3	E	E	E	4.6	3.2	5.2	3.8	5.8	4.6	3.6	E	2.1
25	F	E	E	E	G	G	4.7	5.8	4.8	4.4	E	E	E	E	E	E	C	E	E	5.1	4.5	2.0	E	1.5
26	F	E	E	E	G	G	G	4.6	5.1	6.6	5.1	4.9	3.9	3.6	3.6	G	5.2	5.2	4.2	3.8	3.8	3.0	E	3.2
27	4.5	4.0	3.3	E	G	G	C	C	C	C	C	C	C	C	C	C	C	7.8	7.6	6.8	4.8	4.6	4.0	3.8
28	2.8	3.4	2.8	5.0	2.2	G	4.4	5.2	E	5.1	E	E	E	E	6.1	6.2	5.4	4.2	3.4	4.8	3.8	1.7	4.9	4.2
29	3.0	3.2	3.0	4.5	4.7	G	G	4.5	5.4	5.4	5.8	5.4	5.2	6.2	4.6	E	G	G	3.0	1.9	4.8	5.4	6.6	5.4
30	2.6	2.9	2.6	2.9	3.0	G	5.9	6.8	6.6	7.8	3.8	5.0	7.8	7.4	7.4	6.4	3.3	2.9	3.2	E	E	E	E	E
31	2.4	2.4	2.2	2.1	G	2.7	E	3.7	4.9	4.9	7.8	7.0	3.9	3.3	3.2	G	G	4.4	6.2	4.2	6.7	4.8	4.4	6.2
Mean Value	2.5	3.1	2.6	2.9	3.1	3.8	4.5	5.0	5.1	5.2	7.8	5.5	5.0	4.9	4.8	4.6	4.9	4.6	4.2	3.9	3.9	3.5	3.9	3.1
Median Value	E	E	1.4	E	G	G	4.5	4.5	4.9	4.9	4.5	4.1	4.0	3.6	E	G	G	3.4	3.4	3.3	3.3	3.0	3.0	2.1
Count	31	31	31	31	31	31	24	24	29	29	28	28	28	27	29	30	29	31	31	31	31	31	30	31

fEs

Sweep 1.0 Mc to 1.7 Mc in 1.5 min

Manual

W 8

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

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time

fminF

May 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	1.2	1.2	1.1	1.1	1.1	2.2	2.8	3.6	3.8	3.4	4.7	4.6	4.1	3.7	4.2	4.7	3.7	3.4	2.7	1.5	1.3	1.2	1.2	1.9	
2	1.4	2.8	E	A	1.3	2.4	3.1	3.8	A	B	4.0	4.0	4.3	4.1	4.9	4.0	3.7	3.3	2.4	1.6	1.4	1.7	4.3	2.9	
3	1.7	3.0	E	(2.9)	3.7	4.0	3.2	4.3	A	A	4.4	4.4	4.6	4.6	3.8	3.4	3.0	2.7	1.8	1.6	1.4	1.3	C	1.2	
4	1.5	3.8	1.2	1.3	1.2	1.8	3.2	3.2	3.3	3.7	4.4	3.8	3.8	4.0	5.0	3.3	3.2	2.5	1.8	1.3	1.3	1.2	1.2	1.2	
5	E	1.2	E	E	1.1	1.6	2.4	4.6	3.7	4.0	5.0	4.6	3.8	4.8	3.6	3.3	3.0	2.6	2.7	2.2	1.3	E	E	1.8	
6	E	E	E	E	1.1	1.9	3.4	3.4	3.4	3.9	3.6	3.6	3.6	3.5	3.7	3.3	3.3	2.5	2.1	1.5	1.4	1.4	1.2	1.2	
7	1.1	1.2	2.0	2.8	1.2	2.2	2.5	3.2	3.5	3.8	4.2	3.9	3.8	3.9	3.8	3.4	3.0	2.5	1.8	1.3	1.3	1.4	1.2	E	
8	1.2	E	E	E	1.2	1.7	2.6	3.3	4.3	3.6	3.6	3.7	4.0	3.7	3.7	3.5	3.3	3.3	1.8	1.4	1.2	1.6	1.2	1.1	
9	E	E	E	E	E	1.9	2.7	3.3	3.5	3.4	3.9	3.7	4.6	4.4	4.1	4.6	4.5	3.2	A	(5.5)	A	2.1	A	3.5	
10	1.6	E	E	E	1.4	1.7	2.9	4.6	5.1	4.4	C	C	C	C	5.4	3.7	3.3	2.9	1.9	1.6	1.4	1.5	1.5	1.1	
11	1.5	1.5	1.6	1.4	3.7	(3.2)	4.6	5.2	5.1	5.4	5.4	4.7	5.9	4.3	3.8	3.8	3.8	3.3	2.2	1.7	1.6	1.7	1.8	1.6	
12	E	E	E	E	1.6	2.2	3.0	3.4	4.2	(4.7)	A	A	5.2	5.0	3.8	3.6	3.4	3.2	3.3	2.3	1.8	2.1	1.2	E	
13	E	E	E	2.5	3.8	3.8	C	C	C	C	C	C	C	C	C	3.8	(3.8)	3.3	3.0	2.4	1.6	1.5	1.4	1.2	
14	1.2	2.0	1.3	1.2	1.4	2.2	3.3	3.7	4.4	5.6	5.8	5.0	4.3	4.4	4.1	4.7	4.5	3.2	3.0	2.5	1.6	1.5	1.3	1.2	
15	1.2	1.3	1.2	1.2	2.4	2.5	3.2	3.4	6.3	4.8	5.0	6.8	5.4	4.8	4.7	3.7	3.7	3.1	2.5	1.5	1.4	3.6	1.6	1.3	
16	1.2	E	E	1.1	1.5	2.5	3.6	3.6	5.0	4.6	5.2	4.6	4.9	4.9	4.6	4.8	3.6	3.9	3.4	2.3	2.5	4.6	1.3	1.4	
17	E	E	E	E	1.5	2.5	3.2	4.0	3.9	4.2	4.4	4.7	(5.0)	A	4.9	3.7	3.3	3.3	2.5	1.8	3.0	2.2	1.4	1.5	
18	1.5	E	E	E	3.0	1.9	3.3	B	B	B	B	B	B	B	B	3.9	4.1	3.4	3.9	3.2	3.3	2.0	2.3	2.3	
19	1.6	2.1	1.1	1.2	1.7	2.7	3.3	3.6	4.5	4.5	4.7	4.5	4.3	4.5	4.1	4.1	3.6	3.4	3.8	5.0	3.4	1.6	1.8	1.2	
20	1.1	E	1.5	E	1.5	3.3	3.8	3.8	4.8	4.7	5.8	4.6	4.6	{4.4}	4.3	4.6	3.6	3.9	3.9	2.6	1.9	1.4	1.6	2.2	
21	2.2	1.9	1.3	E	1.6	2.8	3.4	3.7	4.5	4.0	5.1	B	4.6	4.3	4.5	4.7	3.8	3.5	2.4	1.5	E	2.4	E	E	
22	1.2	1.3	1.1	1.1	1.6	2.5	3.5	4.0	4.6	4.9	B	6.0	5.0	5.8	5.9	4.5	4.0	3.9	3.3	2.4	2.5	1.5	1.2	1.2	
23	1.3	1.2	2.3	1.3	1.7	{2.5}	3.2	3.9	4.8	4.1	(4.7)	B	6.9	6.5	5.1	5.8	3.8	3.3	2.8	2.0	1.6	1.5	1.3	1.6	
24	E	E	E	E	1.9	1.7	3.2	4.5	4.7	4.6	3.8	6.0	B	B	5.6	4.6	3.8	4.5	3.3	2.9	4.2	1.8	1.2	1.2	
25	1.1	E	E	1.1	1.7	2.7	3.3	4.4	4.4	B	B	B	B	B	B	B	C	3.5	3.2	4.5	2.2	2.3	1.1	2.0	
26	E	E	E	E	1.7	2.6	3.9	4.0	4.6	5.7	5.1	4.6	4.6	4.7	4.3	4.2	5.2	4.6	3.1	2.9	2.5	2.9	1.5	3.0	
27	2.6	2.5	2.9	1.3	1.7	3.0	C	C	C	C	C	C	C	C	C	C	C	A	A	4.8	4.7	1.7	2.4	1.8	
28	1.3	1.4	1.4	2.0	1.6	2.4	3.6	3.3	B	5.8	B	B	5.8	5.3	6.1	5.8	4.8	4.1	2.6	3.1	2.6	1.3	2.8	2.5	
29	2.6	3.3	1.4	1.8	1.7	2.9	3.2	4.4	3.9	4.5	4.9	4.8	4.2	5.2	3.8	3.8	3.8	3.3	1.9	1.4	1.2	1.2	4.0	3.8	
30	1.9	1.4	1.4	1.3	1.7	2.5	3.0	6.0	6.1	5.7	3.7	4.3	5.5	6.1	5.2	5.2	3.2	3.7	2.1	1.5	1.4	1.4	1.5	1.2	
31	1.4	1.8	1.1	1.5	1.6	2.3	3.1	4.2	3.8	3.9	5.4	A	B	{3.7}	3.5	3.2	3.2	3.2	1.6	1.6	3.6	2.8	2.2	2.8	
Mean Value	1.8	1.6	1.5	1.8	2.4	3.2	3.9	4.6	4.4	4.5	4.7	4.6	4.7	4.6	4.5	4.1	3.7	3.4	2.7	2.3	2.2	1.9	1.7	1.8	
Standard Value	1.2	1.2	1.1	1.1	1.6	2.5	3.2	3.8	4.4	4.5	4.7	4.6	4.6	4.5	4.2	4.0	3.6	3.3	2.7	1.8	1.6	1.6	1.4	1.4	
Count	31	31	31	30	31	31	29	28	26	25	22	21	24	25	28	29	29	30	29	31	31	31	29	29	31

W 10

Manual

Sweep 1.0—Mc to 1.75 Mc in 1.5 min

fminF

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

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

May 1951

fminE

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	E	E	E	E	E	1.2	1.2	1.2	2.2	1.4	1.8	E	E	1.6	1.7	1.7	1.5	1.5	1.3	E	E	E	E	1.2	
2	1.2	E	E	E	E	1.2	1.2	1.2	2.2	1.6	1.6	2.0	1.7	1.8	2.0	1.4	1.4	1.7	1.5	1.4	1.4	1.3	1.4	1.2	
3	1.2	1.1	1.1	E	E	1.3	1.6	1.6	1.7	2.0	2.0	2.0	2.0	2.0	1.8	1.6	1.6	1.4	1.3	E	1.2	1.2	F	1.2	
4	1.5	1.2	E	E	E	1.2	1.2	1.2	1.4	1.5	1.8	1.6	2.2	1.6	1.6	1.6	1.6	1.5	1.3	E	E	E	E	1.6	
5	E	E	E	E	E	1.6	1.2	1.2	1.5	1.5	3.8	3.8	1.6	1.7	1.5	1.6	1.5	1.5	1.3	1.4	E	E	E	E	
6	E	E	E	E	E	E	E	E	1.2	1.3	1.5	1.6	1.6	1.7	1.6	1.5	1.4	1.4	1.5	1.4	1.4	E	E	E	
7	E	1.2	1.1	E	E	1.3	1.4	1.3	1.5	1.6	3.5	E	E	E	E	2.3	1.4	1.4	1.2	E	E	E	E	E	
8	E	E	1.4	E	1.1	1.4	1.3	1.5	1.3	1.6	1.6	1.6	1.7	1.6	1.5	1.4	1.5	1.5	1.2	E	E	1.2	F	1.3	
9	E	E	E	E	E	E	1.2	1.3	1.3	1.5	1.6	1.7	1.6	E	1.5	1.4	1.4	1.4	1.4	1.3	E	1.4	1.4	1.5	
10	1.4	E	E	E	E	1.3	1.3	1.6	1.6	2.1	C	C	C	C	1.4	1.3	1.5	1.4	1.3	E	E	E	E	E	
11	1.1	1.2	1.2	E	1.1	1.5	1.6	1.7	1.7	3.7	3.8	3.7	3.7	2.4	2.3	1.9	1.4	1.4	1.1	1.2	1.1	1.2	1.1	1.1	
12	E	E	E	E	E	1.1	1.7	1.6	2.2	3.6	3.6	3.8	3.8	3.6	E	1.7	1.7	1.6	1.5	1.5	1.4	1.3	E	E	
13	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	3.0	1.6	1.5	1.3	1.3	E	E	E	E	
14	E	E	1.2	1.2	1.1	1.6	1.4	1.5	1.7	3.3	3.5	3.8	3.7	3.3	3.2	3.1	1.5	1.5	1.2	1.4	E	2.7	E	E	
15	E	E	E	E	1.4	1.3	1.4	1.4	E	E	4.2	3.8	3.8	2.4	3.8	1.8	1.6	1.3	1.2	1.3	1.2	1.2	1.2	E	
16	E	E	E	E	1.2	1.5	1.7	1.3	2.3	4.4	4.3	E	4.3	3.7	3.4	2.2	2.1	1.8	1.6	1.4	1.4	1.3	E	1.2	
17	E	E	E	E	E	E	E	1.1	2.0	3.7	3.4	3.2	3.9	3.9	E	E	2.1	2.0	1.4	1.4	1.2	1.2	E	1.2	
18	E	E	E	E	E	E	1.3	3.8	3.8	3.8	4.3	E	E	E	E	E	2.0	1.8	1.8	1.4	1.4	1.5	1.4	1.1	
19	1.1	1.2	1.1	E	1.3	1.4	1.6	1.6	1.8	3.8	E	E	E	E	E	1.6	1.5	1.9	1.8	1.4	1.2	1.2	E	E	
20	E	E	E	E	E	E	1.2	1.2	1.7	1.7	1.6	1.8	4.0	C	C	1.8	1.8	1.8	1.5	1.5	1.5	1.2	1.4	1.2	
21	E	E	E	E	E	E	2.1	2.1	2.1	2.3	E	E	3.7	2.6	E	3.7	3.4	1.8	1.2	E	E	E	E	E	
22	1.1	1.1	E	E	1.4	1.5	1.4	1.6	2.2	2.8	E	E	3.7	3.9	3.7	E	2.2	1.5	1.7	1.4	1.4	E	E	E	
23	E	E	1.1	1.2	1.2	(1.3)	1.4	1.6	1.5	1.6	E	E	E	E	3.8	1.5	2.2	1.4	1.2	1.4	1.1	1.2	E	E	
24	E	E	E	E	E	1.5	1.5	E	1.8	3.7	2.8	3.8	E	E	E	3.9	1.4	1.4	1.3	1.3	1.3	1.3	E	1.2	
25	E	E	E	E	E	E	1.1	1.2	1.6	3.8	E	E	E	E	E	E	C	3.2	1.6	1.5	1.5	1.6	E	1.2	
26	E	E	E	E	1.5	1.2	1.5	1.6	1.4	3.9	2.2	4.6	3.7	3.2	3.2	1.9	2.1	1.8	1.6	1.4	1.4	1.5	E	1.2	
27	1.1	1.1	1.2	E	1.3	1.4	C	C	C	C	C	C	C	C	C	C	C	1.6	1.4	1.5	1.4	1.2	E	E	
28	E	E	E	E	1.1	1.2	1.2	1.6	E	5.0	E	E	E	E	4.9	1.8	1.8	1.6	1.3	1.4	1.3	1.3	1.2	1.2	
29	E	E	E	E	E	E	E	1.9	1.6	1.6	3.8	1.7	1.7	1.7	E	1.4	1.4	1.3	1.2	1.2	1.2	1.2	E	E	
30	E	E	E	E	1.3	1.3	1.4	1.5	1.8	2.8	3.1	3.7	3.6	3.3	3.2	1.7	1.7	1.6	1.4	E	E	E	E	E	
31	1.2	1.1	1.1	E	1.1	1.4	E	1.8	1.6	1.8	1.9	2.4	2.4	3.2	2.4	1.7	1.5	1.3	1.2	1.3	1.3	1.3	1.3	E	
Mean Value	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.9	2.6	2.8	2.7	2.9	2.6	2.5	2.0	1.7	1.6	1.4	1.4	1.3	1.4	1.3	1.2	
Median Value	F	F	E	E	E	1.3	1.4	1.5	1.6	2.0	2.0	1.6	1.7	1.7	1.6	1.6	1.5	1.5	1.3	1.4	1.2	1.2	1.2	E	
Count	31	31	31	31	31	31	29	29	29	29	28	28	28	27	29	30	29	31	31	31	31	31	31	30	31

Sweep 1.0-Mc to 1.7.0 Mc in 1.5 min Manual

W 11

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

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time

3pF2

May, 1951

IONOSPHERIC DATA

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	350	340	340	320	310	290	260	250	300	290 ^H	280	310	230 ^H	330	300	C	C	320	350	290	280	280	300 ^P	370	340	
2	340	360	(390) ^{FV}	350	360	290	300	320 ^K	A K	G K	A K	B K	A K	A K	A K	310	300	300	290	280	290	(370) ^P	390	410		
3	430	370	310 ^V	AS	320 ^F	300 ^F	(220) ^{KAF}	A K	A K	A K	A K	A K	300	300	270	290	290	290	280	280	300	290 ^Z	280 ^S	290 ^S		
4	320 ^S	(350) ^P	360	320	340	290	310 ^H	300	280	260	300	370	320	370	300	310	290	290	(300) ^F	C	C	290	320	310 ^S		
5	(320) ^S	320	330	300	340	300	290	270	300	280	290	290	300	300	310	(300) ^F	260	290	290	300	260	290	310	330		
6	340	320	300	310	340	270	270	250	270	270	290	310	310	300	290	310	310	320	320	290 ^S	250	290 ^P	320	330		
7	340 ^P	360	(340) ^C	320	280	280	250	260	300	300	300	300	290	300	310	290	280	270	290	340 ^P	B	B	300	(330) ^B		
8	(350) ^P	330	340	340	310	350	310	(290) ^F	270	260	270	300	C	C	C	C	300	290	290	280	280	290	330	340		
9	340	360	340	360	360	290	290	290	280 ^V	300	300	(310) ^V	310	330	A	310	270	290	310 ^H	340	350	320	300	(340) ^P		
10	330	F	(300) ^V	300	T	(300) ^F	310	B	350	390	300	310	310	A	330	(340) ^P	290	330 ^A	290	280	300	330 ^S	370 ^S	340 ^S		
11	340 ^S	400	350	320	330	300	A	300	310	350	310	330	310	290	300	300	300	290	310	300	280	B S	B S	340		
12	360	330	320 ^H	390 ^F	400 ^F	400 ^K	380 ^K	300 ^K	360 ^K	G K	G K	G K	B K	B K	250 ^K	340 ^K	300 ^K	300 ^K	300 ^K	290	320	330	320	350 ^P		
13	330	360 ^F	310	300	300 ^F	(290) ^B	320	310	A	310	380	370	250	310 ^B	300	300	300	290	290	270	290	300	330	320 ^F		
14	B F	B F	(320) ^P	320	330	310	240 ^S	260	300	A	360	340	(350) ^B	310	340	320	310	300	S	280 ^S	A	370	380	340		
15	360	F	350	340	390	(320) ^P	270	290	280	300	350	300	310	320	320	310	290	300	300	320	340	300 ^H	310	330		
16	330	(400) ^B	360 ^B	360	340	290	280	270	280	B	320	370	360	350	340	320	300	310 ^H	290	A	A	380 ^S	390 ^S	370		
17	340	320	330	340	340	370	300	330	330	370	380	360	350	370	340	310 ^B	310	310	300	280 ^B	A	B	390 ^B	B		
18	370	B S	360	350	390 ^H	350 ^K	400 ^K	A K	B K	B K	B K	B K	B K	460 ^Z	380 ^K	330 ^K	320 ^K	320 ^K	300	310	340	370	340	350		
19	390 ^H	400	360	330	340	300	290	300	300 ^B	260	360	360	350	330	B	350 ^C	320	310	320	320	330	340	380 ^H	400 ^P		
20	390	320	330	300 ^H	350 ^H	320	280 ^H	280	320	280	320	330	380	350	(320) ^C	300	300	300	290	300	330	330	390	360		
21	360	380	370	380	360	300	270	290	260	320 ^H	B	B	360	320	320	310	300	300	320	300	AS	340	350	340		
22	380	390	350	330	310	250	300	300	A	320 ^H	B	B	B	B	B	320	340	310	300	340	300 ^S	(360) ^S	400	380		
23	380	340 ^S	350	360	330 ^S	260	260	260	260	340 ^H	(340) ^V	B	360	350	350	350	320	300	S	S	340	340	350	390		
24	330	320	290	360	340 ^H	370 ^H	330	430 ^H	380	330	320	310	(350) ^V	350	B	310	340 ^H	310	290 ^H	A	(310) ^S	S	S	S		
25	340	320	370	380 ^P	380	340	380 ^K	G K	G K	A K	B K	B K	B K	B K	B K	A K	390 ^K	A K	A K	A K	A K	330	340	330		
26	350	(360) ^P	350	330	300	270	(270) ^P	320	310 ^H	A	300	270	340	350	300	300	340	340	310	290	320	340	350	340		
27	380 ^S	390	310	350	390	350	340	300	A K	A K	A K	A K	B K	380 ^K	400 ^K	320 ^K	320 ^K	320 ^K	310 ^K	A K	380	S	350 ^S	380 ^V		
28	380	360	(320) ^V	350	390	300	270	290	300	310	320	(340) ^F	350	330	320	A	A	A	A	320	310	(290) ^S	310	340		
29	340	400 ^V	340	400	390 ^P	330 ^H	300 ^Z	300	310	260	270	330	320	330	310 ^P	310	300 ^B	A	A	(330) ^P	330 ^H	300	310	370 ^H		
30	(420) ^F	F	320	280	300	(290) ^V	290	A	A	A	A	350	330	330	300	310	(300) ^B	A	A	(330) ^P	350	300	340	(390) ^S		
31	370	330	300	370	320	290 ^K	320 ^K	330 ^K	290 ^K	320 ^K	350 ^K	330 ^K	400 ^K	G K	360 ^K	330	330	300	270	310	310	350	370	340		
Mean Value	360	360	340	340	340	310	300	300	300	290	320	330	320	320	320	320	310	300	300	300	310	330	350	350	350	
Value	350	360	340	340	340	300	290	300	300	310	320	330	320	330	320	310	300	300	300	300	310	330	340	340	340	
Count	30	26	31	30	30	31	30	27	24	23	24	24	24	25	26	27	29	28	27	25	25	26	29	29	29	

Sweep 1.0 Me to 17.0 Mc in 1.5 min Manual

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

IONOSPHERIC DATA

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time

fl'F2

May, 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	260	270	280	260	250	260	230	220	250	220	270	270	230 ^H	310	280	C	270	290	250	220	200	200	300	300	300
2	270	300	320	290	250	290	290	250 ^K	A	G	A	A	410 ^K	A	A	320 ^K	300	300	260	220	230 ^A	310	300	330	370
3	340	350 ^A	300 ^A	280 ^A	270	260	210 ^F	A	A	A	A	A	300	300	290	270	270	300	250	240	220	240	230	250	250
4	280	300	280	250	270	280	240 ^H	280	280	260	290	350	320	320	280	280	270	250	260	C	C	240	270	290	290
5	280	290	250	240	260	280	250	250	280	280	280	240	280	280	300	300	260	270	240	240	240	240	240	270	270
6	280	270	270	220	250	230	240	250	260	260	280	300	300	300	270	270	300	290	290	240	270	240	230	260	260
7	270	300	280	270	220	250	240	240	300	300	280	290	290	300	300	280	270	250	240	270	270	260	240	250	250
8	280	290	290	270	280	280	260	250 ^C	240	250	250	290	C	C	C	C	290	270	250	230	220 ^A	220 ^H	250	280	280
9	270	260	270	270	280	240	250	280	280	300	300	300	320 ^A	A	280	340	280	A	250	250 ^H	A	300	300 ^A	250	300 ^A
10	290	300 ^A	250	280	280 ^A	260	310 ^A	320	350	370 ^A	300	300	300	300	280	340	280	A	250	240	230	230	270	270	270
11	270	290	280	280	280	270	A	300	290	350	310	310	300	290	300	290	270	250	260	240	250	350 ^A	330	280	
12	290	260	240 ^H	270	300	400 ^K	370 ^K	300 ^K	340 ^K	G	G	G	G	B	310 ^K	250 ^K	340 ^K	300 ^K	290 ^K	300 ^K	260	250	280 ^A	280 ^A	270
13	290	300 ^A	240	240	300	240	310	310	A	300	380	360	250	310	300	290	290	270	270	240	240	240	270	A	280
14	280	280	250	240	290	220	220	250	280	A	360	330	340	310	320	320	300	290	270	270	240	240	270	A	280
15	300	340	280	270	300	250	210	250	280	290	350	300	310	310	300	280	A	280 ^A	250	250	260	250	250	310 ^A	300
16	300	290	280	270	280	230	260	260	270	(310) ^B	310	360	360	330	320	300	260	250 ^H	280 ^A	A	A	300	310	290	
17	280	260	270	260	270	270	260	270	330	370	380	350	330	320	330	310	280	290	240	250	A	A	350	300	300
18	300 ^A	280	250	260	330 ^H	290 ^K	290 ^K	A	B	B	A	A	340 ^B	B	400 ^K	370 ^K	300 ^K	270 ^K	280	290	280	260	280	310	300
19	300 ^H	300	290	280	300	270	280	280	290	240	360	360	350	320	340	320	290	290	270	250	270	250	280	260	310
20	300	280	290	270 ^H	250 ^H	250	270 ^H	260	300	270	300	300	370 ^A	350	340	(320) ^C	300	280	280	260	250	260	250	280	290
21	290	300	300	300	280	250	240	250	250	240 ^H	300	B	350	310	310	270	290	270	250	260 ^A	A	260	280	270	270
22	290	300	290	250	250	240	280	280	A	320 ^H	B	B	B	B	300	310	300	280	270	270	260	250	290	300 ^H	300
23	290	270	280	270	250	210	210	230	240	290 ^H	340	B	340	330	330	310	290	290	250	270	280	300	280	300	300
24	280	260	230	280	290 ^H	280 ^H	320	260 ^H	370	320	320	310	340	350	B	300	300	290	240 ^H	A	250	310	310	300	300
25	260	250	280	260	300	270	370 ^K	440 ^K	500 ^K	A	B	B	B	B	B	A	390 ^K	A	A	A	A	250	320 ^A	300	280
26	280	290	270	260	260	240	230	310	300 ^H	A	300	270	340	350	300	280	280	270	270	250	270	270	260	270	270
27	310	280	260	260	300	290	310	260	A	A	A	A	B	380 ^K	400 ^K	320 ^K	310 ^K	290 ^K	300 ^K	A	340 ^A	A	290	(310) ^A	
28	(310) ^A	310 ^A	280	260	290	240	240	290	290	300	310	(320) ^H	330	310	310	A	A	A	290	260	240	240	290	260	260
29	260	290	250	310	310 ^A	250 ^H	290	280	290	260	270	330	320	330	300	300	300	A	A	A	250	230	250	290 ^H	270
30	290 ^H	290	260	220	260	250	290	A	320 ^A	A	340	330	320	280	300	270	250	260	260	250	260	290	220	270	270
31	310	300	280	300	260	280 ^K	260 ^K	300 ^K	280 ^K	320 ^K	350 ^K	330 ^K	400 ^K	370 ^K	360 ^K	330	320	280 ^A	250	270 ^A	260	250	300	310	
Mean Value	290	290	270	270	280	260	270	280	300	290	310	320	320	320	310	300	290	280	280	260	250	260	270	280	290
Median Value	290	290	280	270	280	250	260	260	280	300	300	320	320	320	300	300	290	280	280	260	250	260	260	280	290
Count	31	31	31	31	31	31	31	28	25	24	24	26	24	26	27	27	27	28	27	24	26	29	30	31	31

fl'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

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

May, 1951

foF1

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						L	Q	Q	L	Q	L	4.6	4.5	4.9	4.7	C	C	Q	Q					
2						Q	L	Q	A	4.9	A	B	A	A	5.0	A	A	L	Q					
3						Q	A	A	A	A	A	A	A	A	A	A	Q	L	Q					
4						Q	Q	L	L	4.1	4.7	4.9	L	4.9	A	Q	Q	Q	L					
5						L	Q	L	L	(4.1) ^B	5.0	4.5 ^B	4.6	L	4.8	A	A	Q	Q					
6						Q	Q	L	L	4.9	4.6	L	4.9 ^B	4.6	4.6	B	A	L	L					
7						Q	Q	Q	L	4.4	4.4	5.0	4.8	5.0	4.5	4.4	A	L	Q					
8						Q	Q	C	4.4	4.7	5.0	C	C	C	C	A	L	Q	Q					
9						Q	Q	4.5	4.3	L	A	5.2	4.8	A	A	L	Q	Q	Q					
10						Q	A	A	A	A	A	A	A	A	4.5	L	4.5	A	Q					
11						Q	A	Q	L	4.8	4.9	4.8	5.1	B	4.8	4.7	B	A	A					
12						3.2	3.6	A	A	4.9	5.0 ^B	5.1	B	4.7	4.6	4.7	Q	A	A					
13						Q	L	4.7 ^J	A	A	A	5.2	A	A	4.6	4.7	L	A	L					
14						Q	Q	L	4.6	A	A	5.4	4.9	A	L	A	L	Q	Q					
15						Q	Q	A	A	A	A	A	A	A	4.8 ^B	A	A	Q	Q					
16						Q	L	L	5.1	B	B	B	5.0 ^B	5.0	4.9	4.3	Q	Q	A					
17						Q	Q	Q	A	5.0	4.9	(4.9) ^B	5.0 ^B	4.8 ^B	4.8	Q	L	Q	Q					
18						Q	B	A	A	A	A	B	B	4.9 ^B	4.5	L	Q	Q	Q					
19						Q	Q	A	A	Q	5.6	L	5.4 ^J	5.3	5.0	L	Q	A	A					
20						Q	L	Q	A	A	A	A	A	A	A	C	B	Q	Q					
21						Q	Q	Q	A	L	5.0	B	A	A	4.8 ^B	4.6	A	L	Q					
22						Q	Q	Q	A	5.1	B	B	B	B	B	4.6	4.8	Q	A					
23						Q	Q	Q	Q	4.5	B	B	B	5.2 ^B	5.2 ^B	L	4.5	4.5	Q					
24						Q	L	Q	A	A	L	A	A	A	B	B	L	L	Q					
25						Q	3.7 ^J	4.1 ^A	4.3 ^A	A	B	B	B	B	B	A	4.3	A	A					
26						Q	A	A	A	A	4.5	A	A	B	4.6	4.6	4.1	Q	A					
27						L	3.6	L	A	A	A	A	B	A	A	A	A	3.6	L					
28						Q	L	L	L	A	4.9 ^B	(4.9) ^C	4.9	4.7	4.8	A	A	A	A					
29						A	4.2 ^J	L	4.7	4.6	5.0	4.8 ^B	4.8	4.8	A	A	A	A	A					
30						Q	L	A	A	A	5.1 ^J	4.7	4.8	4.6	B	A	A	A	A					
31						3.4	3.4	L	Q	4.3	4.4	4.6	4.6	4.4	4.4	4.1	4.1	B	Q					
Mean Value						3.3	3.7	4.4	4.6	4.7	4.8	4.9	4.8	4.9	4.8	4.6	4.4	4.1	4.1					
Median Value						3.3	3.6	4.5	4.5	4.8	4.9	4.9	4.8	4.8	4.8	4.6	4.3	4.0	4.0					
Count						2	5	3	6	12	14	15	13	13	20	11	7	2						

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

May 1951

f'F1

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' 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						230	Q	Q	230	Q	250	210	210	210	250	C	C	Q	Q						
2						Q	260	Q	A	A	A	B	A	A	A	280	260	A	280 ^A	Q					
3						Q	A	A	A	A	A	A	A	A	A	A	A	Q	270	Q					
4						Q	Q	240	230	230	220	200	230	220	A	Q	Q	Q	Q	240					
5						230	Q	220	A	A	220	(200) ^B	220	220	A	A	A	A	Q	Q					
6						Q	Q	230	230	A	220	200	240 ^B	210	A	B	A	250	260	Q					
7						Q	Q	Q	280 ^A	280	240	260	A	230	220	260 ^A	230	230	Q						
8						Q	Q	Q	230	230	200	200	C	C	C	C	A	Q	Q						
9						Q	Q	250	260	B	A	210	250 ^A	A	A	280 ^A	Q	Q	Q						
10						Q	A	A	A	A	A	A	A	A	A	250	A	A	Q						
11						Q	A	Q	220	250 ^A	300 ^A	230	220	B	210	240	B	A	A						
12						300	260	A	A	230	(240) ^B	(300) ^B	B	240	B	B	Q	A	A						
13						Q	220	A	A	A	A	250	A	A	A	250 ^B	270	A	250						
14						Q	Q	(260) ^A	240	A	A	220	220	A	A	A	A	A	280 ^A	Q					
15						Q	Q	A	A	A	A	A	A	A	A	230 ^A	A	A	Q						
16						Q	230	230	220	B	220	B	B	280	240	220	250	Q	A						
17						Q	Q	Q	A	240	240	260	260	230	230	230	Q	260	Q						
18						Q	B	A	A	B	B	A	A	B	230	B	220	Q	Q						
19						Q	Q	Q	A	Q	200	180	200	250	250	260 ^B	Q	A	A						
20						Q	230	Q	A	A	A	A	A	A	A	C	B	Q	A						
21						Q	Q	Q	A	230	250	B	A	A	A	A	230	Q	Q						
22						Q	Q	Q	A	240	B	B	B	B	B	260 ^B	260	Q	A						
23						Q	Q	Q	Q	200	B	B	B	270 ^B	260 ^B	250	260	280 ^B	Q						
24						Q	240	Q	A	A	240	A	A	A	A	B	B	250	250	Q					
25						Q	A	A	A	A	B	B	B	B	B	A	300 ^A	A	A						
26						Q	A	A	A	A	210	A	A	A	B	230	240	Q	A						
27						260	240	230	A	A	A	A	A	B	A	A	A	A	250	250					
28						Q	B	260	270	A	A	C	230	240 ^B	270	A	A	A	A						
29						A	270	240	250	220	230	200	(260) ^B	180	A	A	A	A	A						
30						Q	260	A	A	A	A	B	260	260	230	B	A	A	A						
31						220	220	270	Q	250	220	(280) ^A	260	260	220	250	260	B	C						
Mean Value						250	240	240	240	240	230	230	230	240	240	250	250	260	250						
Median Value						230	240	240	240	230	220	210	230	240	240	260	250	260	250						
Count						5	10	10	12	11	16	15	13	14	17	14	10	10	10						4

f'F1

Sweep 1.0 — Mc to 17.0 — Mc in 1.5 min

Manual

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

IONOSPHERIC DATA

May, 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						A	A	A	3.0	A	B	B	B	B	C	C	2.4 ^J	B						
2						1.2	2.3	2.8	3.1	3.2	3.4	3.5	3.4	3.5	A	2.8	2.8	A						
3						A	A	2.7	2.9	B	A	3.6	A	A	A	A	3.0 ^J	A						
4						1.4	2.3	2.9	3.3	A	A	A	A	B	3.4	3.0 ^B	2.8	2.6	A					
5						1.6	A	2.7 ^J	3.0 ^J	A	A	3.3 ^J	3.4 ^J	A	A	A	A	(1.8) ^B						
6						1.9	2.3	2.8	3.1	B	3.3	B	A	B	A	A	2.9	A						
7						1.8 ^B	2.3	2.8	3.1	3.3	3.2	A	A	A	A	A	2.9	2.5	A					
8						A	2.5	C	B	3.1	A	A	C	C	C	C	2.8	2.7	A					
9						1.4 ^J	2.6	2.9	3.4 ^F	3.1 ^B	3.4	3.3	A	3.1	A	A	3.0	2.6	A					
10						A	2.5	A	A	A	B	B	A	A	B	B	2.9 ^J	2.7	2.0					
11						A	2.5	2.8	B	A	3.6	A	B	B	B	A	3.2	A	A					
12						1.9	2.5	2.9	3.4	3.5	A	B	3.5	B	B	B	3.2	2.9	A					
13						1.8	2.5	2.8 ^B	3.3	B	A	A	B	B	A	A	A	A						
14						1.8	B	3.0	3.3	3.4	3.4	B	B	B	A	A	A	A						
15						1.7 ^B	2.6	2.8	B	B	B	B	B	B	B	A	A	A						
16						A	2.5	3.1	A	B	B	B	B	B	B	A	3.4	2.6	2.4					
17						1.8	2.6	3.1	A	3.5	(3.3) ^A	(3.5) ^A	B	B	B	3.3	3.0	2.8	2.0					
18						1.8	2.6	B	B	B	B	B	B	B	B	3.5 ^B	3.4	3.2	2.9	2.5				
19						2.1	A	3.0	3.3	B	B	B	B	B	B	B	3.0	2.7	A					
20						A	2.4 ^J	A	3.4	B	B	A	B	A	B	C	A	B	2.3					
21						A	2.8	2.8	A	A	B	B	B	B	B	B	A	3.0	2.4					
22						A	2.6	3.0	3.3	B	B	B	B	B	B	B	A	3.0	A					
23						1.8	2.7	3.1	B	B	B	B	B	B	B	B	3.1	2.9	2.2					
24						B	2.6	3.0 ^F	3.2	3.2	B	A	B	B	B	B	3.1 ^F	2.7	A					
25						A	2.8	3.0	A	A	B	B	B	B	B	B	B	3.0	A					
26						1.7	2.4	2.9	A	B	B	B	B	B	B	B	3.3	3.0	2.2					
27						2.1	2.5	2.9	3.2	3.4	B	A	B	B	B	A	B	B	2.0					
28						A	2.5 ^B	B	3.2	B	B	C	B	A	3.4	3.0	2.9	A						
29						A	A	2.6 ^J	3.0	3.3	B	B	B	A	3.3	A	3.1	2.7	A					
30						1.8	A	3.3	3.2	3.2	AF	A	A	A	A	B	B	A						
31						1.7	A	3.2	3.3	3.2	B	3.4	B	B	3.3	3.2	3.0	2.5	A					
Mean Value						1.7	2.5	2.9	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.1	3.0	2.8	2.2					
Median Value						1.8	2.5	2.9	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.1	3.0	2.7	2.2					
Count						1.8	2.3	2.4	1.9	1.3	6	5	3	2	5	6	1.9	2.0	1.0					

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

May 1951

f'E

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	11.0	A	11.0	A	11.0	11.0	B	B	10.0	C	C	A	B					
2						B	11.0	11.0	11.0	11.0	11.0	B	11.0	11.0	A	11.0	11.0	A	A					
3						A	11.0	11.0	11.0	11.0	A	11.0	A	A	A	A	A	11.0	A					
4						11.0	11.0	11.0	11.0	11.0	A	A	A	11.0	11.0	11.0	12.0	12.0	A					
5						10.0	A	10.0	11.0	11.0	A	11.0	11.0	A	A	A	A	A	B					
6						B	10.0	A	11.0	11.0	A	11.0	11.0	A	A	A	10.0	A	A					
7						B	11.0	10.0	11.0	10.0	11.0	A	A	A	A	A	11.0	11.0	A					
8						A	11.0	11.0 ^C	11.0	11.0	A	A	C	C	C	C	11.0	11.0	A					
9						12.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	A	A	11.0	11.0	A					
10						A	11.0	A	A	11.0	11.0	A	A	A	B	11.0	11.0	11.0	11.0					
11						A	11.0	11.0	11.0	A	11.0	A	10.0	11.0	11.0	A	10.0	11.0	A					
12						12.0	11.0	11.0	11.0	11.0	A	B	11.0	11.0	B	11.0	11.0	11.0	A					
13						12.0	11.0	11.0	11.0	11.0	A	A	11.0	10.0	A	A	A	A	A					
14						B	B	10.0	11.0	11.0	11.0	10.0	B	B	A	A	A	A	A					
15						B	11.0	11.0	11.0	11.0	B	B	B	B	B	A	A	A	A					
16						A	11.0	11.0	A	B	B	B	B	11.0	10.0	A	10.0	10.0	12.0					
17						B	12.0	12.0	A	11.0	11.0	11.0	B	B	11.0	11.0	11.0	11.0	12.0					
18						12.0	11.0	11.0	B	B	B	B	B	B	11.0	11.0	11.0	11.0	12.0					
19						11.0	A	11.0	11.0	10.0	10.0	B	B	B	B	10.0	11.0	11.0	A					
20						A	11.0	A	11.0	B	B	11.0	B	A	B	C	A	B	11.0					
21						A	11.0	11.0	A	A	B	B	B	B	B	B	A	11.0	11.0					
22						A	11.0	11.0	11.0	11.0	B	B	B	B	B	B	A	11.0	A					
23						11.0	10.0	10.0	10.0	10.0	B	B	B	B	B	B	11.0	12.0	11.0					
24						B	11.0	11.0	11.0	11.0	B	A	B	B	B	B	11.0	11.0	A					
25						A	10.0	10.0	A	A	B	B	B	B	B	B	B	11.0	A					
26						B	11.0	11.0	A	B	B	B	B	B	B	B	10.0	10.0	11.0					
27						12.0	11.0	11.0	11.0	10.0	10.0	A	B	B	10.0	A	B	B	11.0					
28						A	11.0	11.0	11.0	11.0	B	C	B	A	11.0	11.0	11.0	A	A					
29						A	A	11.0	10.0	10.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	A					
30						11.0	A	11.0	10.0	10.0	A	A	A	A	A	A	B	A	A					
31						12.0	A	11.0	10.0	10.0	B	11.0	11.0	11.0	11.0	11.0	11.0	11.0	A					
Mean Value						11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0					
Median Value						12.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0					
Count						11	24	27	24	20	12	10	9	11	10	9	19	20	9					

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

f'E

A 7

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

fEs

May, 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	F	E	E	2.4	2.0	3.1	3.2	G	3.6	G	G	E	E	G	C	C	4.8	3.6	E	E	E	E	3.2	
2	3.6	3.4	3.3	3.0	G	G	4.6	4.6	7.8	5.0Y	10.5Y	6.6	8.8Y	10.5	5.6	5.2	6.6	5.7	3.2	E	3.2	6.4Y	6.6Y	3.9	
3	5.0	6.2Y	8.2Y	6.8Y	6.8	3.8	4.8	7.4	6.2	6.8Y	8.7	7.0Y	7.8	7.1	9.6	10.5	6.5	4.9	4.4	4.0	4.6	4.8	3.2	4.2	
4	4.8	3.4	4.4	3.2	2.4	G	G	G	G	4.4Y	6.7	5.2	4.8	G	7.8	5.6Y	4.5	3.7	2.7	C	C	2.5	2.1	E	
5	F	E	E	1.2	E	G	3.2	G	3.9	4.6	4.0	G	G	6.0	4.4	9.4	7.4	5.2	G	2.0	4.4B	5.0	3.2B	E	
6	2.0	E	E	E	2.8	G	G	3.4	2.9	4.4	5.3Y	4.1	G	G	4.6	3.3	4.7	3.8	3.6	4.7	3.8	4.1	2.9	2.5	
7	F	E	C	E	E	G	G	G	4.6B	4.2	4.2	4.4	4.8B	3.6	4.6	4.0	G	G	4.1	4.4	3.1	E	2.8	2.6	
8	2.4	2.8	2.4	2.2	2.8	2.8	2.8	C	4.4Y	4.4Y	3.7	4.6	C	C	C	C	C	4.3	3.6	2.6B	3.2	3.2	3.0	3.0	
9	3.0	1.6	2.8	2.4	E	G	G	G	G	4.7Y	5.5Y	4.9	4.8	7.2	10.4	6.0	6.2Y	4.8	6.6	9.6	9.5	10.0	8.0	7.2	
10	4.4	4.8	3.7	5.0	5.0	3.0	5.4	5.6	5.4	7.0Y	7.0Y	7.0Y	6.6	10.4	E	4.8Y	G	8.8	3.0	2.7	3.2	2.5	1.9	E	
11	3.0	3.2	3.6	3.2	3.4	3.0	7.4	5.7	G	6.1	4.4	4.6	G	G	G	3.4	G	6.6	4.8	3.0	3.6	4.8	6.5	2.6	
12	2.4	2.3Y	2.3Y	E	1.2	3.1	G	4.7	5.2	G	3.8	E	4.4Y	4.6Y	4.7	G	G	5.8	4.8	3.5	3.0	4.0	6.0	2.0Y	
13	1.2	2.3	1.2	E	E	G	3.2Y	3.6	9.2	5.0Y	5.6	4.6	6.3Y	7.0Y	3.6	3.4	4.8Y	4.9	3.6	3.7	3.0	E	6.8	E	
14	E	2.6	E	E	E	G	E	3.8	4.6	7.2	6.2Y	4.2Y	4.8	6.2	4.8	6.0	5.2	5.8	6.0	5.0	8.4	5.0	3.2	3.0	
15	4.0	4.1	4.3	3.6	3.9	3.9	G	4.7	5.6Y	5.8	5.4	5.6	5.6	4.8	4.6	4.8	6.8	6.6	2.6	4.4B	4.6B	2.4B	4.2	3.6	
16	4.6Y	2.0Y	1.4	1.4	1.4	2.2	G	4.2	5.0	4.5	4.4	4.4	4.6	4.7Y	4.2Y	3.4	4.0	6.7	7.4	8.4	8.5	3.8	4.5	2.3	
17	3.0	2.4	E	E	E	E	G	G	5.8	4.7	5.0	4.4	E	E	G	G	G	3.6	4.1	4.0	8.2	4.8	4.6	3.8	
18	2.4	2.4	E	2.6	2.4	3.4	3.8	5.6Y	5.1	4.8	5.7	4.8	6.5Y	4.4Y	G	G	G	3.2	4.2	4.2	3.0	3.4	3.2	3.0	
19	3.0	2.8	2.6	E	E	G	3.2	4.8	5.4	G	G	E	E	E	E	G	4.6Y	4.8Y	4.6	G	3.8	4.9	4.8	5.8	
20	3.8	3.0	3.6	3.0	E	2.2	G	3.5	5.0	5.4	5.0	5.4	9.7	5.6	E	C	3.8	E	5.4	4.5	3.6	3.4	3.6	3.4	
21	2.6	3.4	3.6	3.0	2.6	2.2	3.7	4.6	4.9	4.6	4.4	F	6.8	6.8	4.8	E	4.8	G	3.9	6.8	8.2	3.6	2.2	2.0	
22	1.4	4.3	1.4	2.0Y	E	3.0	4.5	4.8	5.9Y	4.4Y	E	E	E	E	E	E	4.6Y	3.8	4.4	3.2	2.8	2.2	E	1.2	
23	E	1.4	1.3	1.4	2.2	G	G	4.6	G	4.5Y	E	E	E	E	E	E	G	4.5Y	4.4	4.6	4.4	5.8	3.8	E	
24	1.9	E	2.8	2.0	G	2.4	3.6	4.5	6.2Y	6.4Y	4.6	8.2	8.2	7.5	E	E	G	G	4.4	7.0	4.6	3.2	2.7	3.0	
25	E	1.7	2.3	2.4	G	3.0	4.0	5.8	5.0	6.6	E	E	E	E	E	7.8	5.6Y	8.6	7.9	7.2	2.8	3.2	4.4	3.2	
26	3.0	E	E	E	2.0Y	G	4.2	5.0	5.6	7.6	5.0	6.5	6.6	4.6	4.6	E	G	4.9	5.7	4.6	4.6	3.4	2.5	3.3	
27	3.7	2.8	2.7	2.4	1.4	2.9	G	6.8	13.3	10.4B	9.8	7.3	E	5.0	5.4	5.6	5.2	4.4	4.9	6.8	4.8	4.8	4.6	4.3	
28	2.8	2.8	1.6	2.7	2.8	4.8	3.4Y	G	4.8	6.1Y	4.8	C	4.3	4.4	4.7Y	9.2	10.8	10.2	7.0	4.0	2.6	2.8	3.2	2.8	
29	2.8	3.0	4.2	7.4	3.8	4.4	10.2	4.4	4.6	4.6Y	4.6Y	4.8Y	G	3.6	9.6Y	8.2	8.4	11.7	13.0	8.7	2.8	3.3	4.0	3.5	
30	3.2	E	E	1.6	2.4	2.4	3.2	7.3	7.2	7.2	13.8	4.6	4.2	4.3	4.0	4.6	4.1	4.8	4.4	2.9	2.8	3.2	E	E	
31	2.6	2.2	2.6	2.6B	2.2	2.6	2.7	G	4.8	G	E	G	G	G	G	G	G	4.8	4.2	5.0	2.9	2.9	4.0	4.0B	
Mean Value	3.1	3.0	2.9	3.0	2.9	3.0	4.2	4.9	5.7	5.5	5.9	5.7	6.1	5.8	5.7	5.8	5.7	5.7	4.8	4.9	4.4	4.4	4.0	3.3	
Median Value	2.6	2.4	2.4	2.2	2.0	2.4	3.1	4.6	5.0	4.7	4.8	4.6	4.5	4.5	4.3	4.3	4.6	4.8	4.4	4.3	3.6	3.4	3.2	3.0	
Count	31	31	30	31	31	31	31	30	31	31	31	30	30	30	30	28	30	31	31	30	30	30	31	31	31

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

IONOSPHERIC DATA

May 1951

(M3000)F2

Akita

Lat. 36° 43.5' N
Long. 140° 08.2' 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	2.9	2.9	2.8	2.9	3.0	3.2	3.4	3.4	3.2	3.2 ^H	3.1	2.9	3.6 ^H	3.0	3.2	C	3.0	2.9	3.2	3.1	3.0 ^B	2.7	2.8	
2	2.9	2.7	2.9 ^V	2.8	2.8	3.3	3.1	3.0 ^K	A ^K	G ^K	A ^K	2.7 ^K	A ^K	A ^K	3.1 ^K	3.1	3.1	3.2	3.1	3.0	(2.7) ^F	2.7	2.6	
3	2.5	2.7	3.1 ^V	A ^S	3.0 ^F	3.0 ^F	(3.7) ^F	A ^K	A ^K	A ^K	A ^K	3.2	3.2	3.1	3.2	3.3	3.3	3.1	3.3	3.1	3.1 ²	3.1 ^S	3.1 ^S	
4	3.1 ^B	(2.8) ^P	2.8	3.0	2.8	3.2	2.9 ^H	3.1	2.3	3.5	3.2	3.0	3.0	2.7	3.1	3.1	3.3	3.3	(3.1) ^P	C	3.2	3.0	3.2 ^S	
5	(3.0) ^S	3.0	2.9	3.1	2.9	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.2	3.1	3.1	(3.2) ^P	3.4	3.2	3.1	3.3	3.2	3.0	3.0	
6	2.9	3.0	3.1	3.0	2.8	3.2	3.2	3.3	3.3	3.4	3.3	3.2	3.1	3.1	3.2	3.1	3.1	2.9	3.0	3.2 ^S	3.5	3.2 ^P	3.1	2.9
7	2.9 ^P	2.8	(2.9) ^C	2.9	3.0	3.2	3.5	3.5	3.1	3.1	3.1	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	B	B	3.1	(2.9) ^B	
8	(2.8) ^P	3.0	2.9	2.9	3.0	2.8	3.0	(3.2) ^C	3.3	3.4	3.3	3.2	C	C	C	C	3.2	3.2	3.2	3.1	3.2	3.1 ^H	2.9	2.9
9	2.8	2.8	2.9	2.9	2.8	3.1	3.2	3.3	3.2 ^V	3.2	3.2	(3.2) ^T	3.1	2.9	A	3.1	3.2	3.1	3.1 ^H	3.0	2.9	3.0	3.1	(2.9) ^P
10	2.9	F	(3.2) ^T	3.1	T	(3.2) ^F	3.0	B	2.9	2.8	3.3	3.1	3.0	A	3.0	(2.9) ^P	3.2	3.0 ^A	3.1	3.3	3.1	2.9 ^B	2.8 ^S	2.8 ^S
11	3.0 ^S	2.6	2.8	3.0	2.9	3.1	A	3.1	3.1	2.9	3.0	2.9	3.1	3.2	3.0	3.1	3.2	3.1	3.1	3.2	3.1	B ^S	B ^S	2.8
12	2.8	2.9	3.1 ^H	2.6 ^F	2.7 ^F	2.7 ^K	2.7 ^K	3.0 ^K	2.9 ^K	G ^K	G ^K	G ^K	B ^K	2.8 ^K	3.6 ^K	2.8 ^K	3.1 ^K	3.0 ^K	3.1 ^K	3.1	3.0	3.0	2.9	2.8 ^P
13	2.7	2.8	F	3.0	3.0	2.9 ^F	(3.3) ^B	3.0	3.1	A	3.1	2.9	3.5	3.0 ^B	3.1 ^B	3.2	3.2	3.2	3.2	3.3	3.1	3.2	3.0	3.1 ^F
14	BE	BE	(3.0) ^P	3.0	3.0	3.0	3.4 ^S	3.4	3.2	A	3.0	2.9	2.9	3.0	2.9	3.0	3.1	3.1	S	A	2.7	2.8	2.9	
15	2.8	F	2.9	2.9	2.6	(2.9) ^P	3.3	3.0	3.2	3.1	3.0	3.3	3.2	3.0	3.0	3.1	3.1	3.1	3.1	2.9	2.9	3.1 ^H	3.1	2.9
16	3.0	(2.7) ^B	2.7 ^B	2.8	2.7	3.2	3.2	3.3	3.3	B	2.9	2.8	2.8	3.0	2.9	2.9	3.1	3.0 ^H	3.2	A	A	2.8 ^S	2.7 ^S	2.8
17	2.9	2.9	2.9	2.9	2.9	2.7	3.0	2.9	2.9	2.8	2.9	2.8	2.8	3.0	2.9	3.1 ^B	3.0	3.0	3.1	3.2 ^B	A	B	2.7 ^B	B
18	2.8	B ^S	2.8	2.8	2.7 ^H	2.7 ^K	2.7 ^K	A ^K	B ^K	B ^K	B ^K	B ^K	2.8 ^K	2.7 ^K	2.9 ^K	3.0 ^K	3.0 ^K	3.1 ^K	3.1	3.0	2.9	2.7	2.9	2.8
19	2.7 ^H	2.6	2.8	3.0	2.9	3.1	3.2	3.2	3.1 ^B	3.4	3.0	2.9	2.8	3.1	B	2.8	3.0	3.0	3.0	2.9	2.9	2.9	2.7 ^H	2.6 ^P
20	2.6	3.0	2.9	3.0 ^H	2.8 ^H	3.0	3.2 ^H	3.2	3.0	3.2	3.0	2.9	2.7	2.9	3.0	(3.0) ^C	3.1	3.1	3.1	3.0	2.9	2.9	2.6	2.7
21	2.8	2.7	2.7	2.8	2.8	3.1	3.2	3.1	3.3	3.1 ^H	3.1	B	2.8	3.0	2.9	3.1	3.0	3.0	3.0	3.1	A ^S	2.8	2.8	2.9
22	2.7	2.6	2.7	2.9	3.0	3.4	3.1	3.2	3.1	2.9 ^H	B	B	B	B	3.0	2.9	3.1	3.0	3.1	2.9	3.0 ^S	2.7 ^S	2.6	2.7 ^H
23	2.7	2.8 ^S	2.8	2.8	2.9 ^S	3.4	3.4	3.3	3.3	2.9 ^H	(2.9) ^T	B	2.7	2.9	2.7	2.8	3.0	3.1	S	S	2.9	2.9	2.8	2.7
24	2.8	3.0	3.2	2.8	2.8 ^H	2.7 ^H	2.9	2.6 ^H	2.7	3.0	3.0	3.1	(2.8) ^T	2.9	B	3.1	3.0 ^H	3.0	3.2 ^H	A	(3.1) ^S	S	S	S
25	3.0	2.9	2.8	2.6 ^P	2.7	2.8	2.8 ^K	2.7 ^K	2.6 ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	A ^K	2.7 ^K	A ^K	A ^K	A ^K	2.9	2.9	2.7	2.7
26	2.8	(2.7) ^P	2.9	2.9	3.1	3.2	(3.2) ^P	3.1	3.0 ^H	A	3.1	3.3	2.9	2.9	3.1	3.1	2.8	3.1	3.1	3.0	2.9	2.8 ^H	2.9	2.9
27	2.8 ^S	2.7	3.0	2.8	3.1	3.2	(2.8)	3.1	A ^K	A ^K	A ^K	A ^K	2.7 ^K	2.7 ^K	2.6 ^K	3.1 ^K	2.9 ^K	2.9 ^K	3.0 ^K	A ^K	2.7	S	2.8 ^S	2.7 ^V
28	2.7	2.9	(2.8) ^V	2.8	2.6	3.0	3.3	3.3	3.2	3.0	3.1	(3.0) ^C	2.8	3.1	3.1	A	A	2.9	3.1	(3.1) ^S	3.0	2.9	2.9	2.9
29	2.9	2.6 ^V	2.8	2.7	2.7 ^P	2.9 ^H	3.1 ²	3.0	3.2	3.4	3.4	3.0	3.0	3.0	3.0	3.1	3.3 ^B	A	A	(2.8) ^P	3.1 ^H	3.1	2.7 ^H	2.9
30	(2.6) ^F	F	3.0	3.3	3.1	(3.2) ^V	3.2	A	3.0	3.0	A	2.8	2.9	3.0	3.2	3.0	(3.1) ^P	3.4	3.1	2.8	3.0	2.8	(2.6) ^S	2.9
31	2.7	3.0	3.1	2.7	2.9	3.0 ^K	2.9 ^K	2.9 ^K	3.2 ^K	3.0 ^K	2.9 ^K	3.0 ^K	2.7 ^K	3.1 ^K	3.0 ^K	3.0	2.9	3.2	3.4	3.2	3.0	2.8	2.8	2.9
Mean Value	2.8	2.8	2.9	2.9	2.9	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.0	3.0	2.9	2.9	2.8
Median Value	2.8	2.8	2.9	2.9	2.9	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.0	2.9	2.9	2.8
Count	30	26	31	30	30	31	30	27	26	24	25	26	26	26	26	27	29	28	27	25	25	26	29	29

(M3000)F2

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

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

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

fminF

May 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	1.5	E	E	E	E	2.0	1.8	3.2	3.8	4.6	4.5	4.2	4.3	4.2	4.3	C	C	4.6	3.2	1.5	1.5	1.5	1.5	2.5	
2	1.5	2.0	A	2.2	1.2	1.7	2.5	3.3	A	4.6	A	5.6	A	3.4	4.4	4.4	5.8	4.2	3.2	1.6	A	3.8	1.6	1.6	
3	1.2	4.2	4.6	4.1	1.2	2.0	A	A	A	A	A	6.0	5.6	4.8	5.6	4.6	4.1	4.0	3.5	2.6	1.4	1.6	2.6	1.8	
4	E	1.2	1.8	2.0	1.5	2.1	2.6	3.5	4.0	3.9	4.2	4.0	4.2	4.0	4.4	4.4	4.0	3.0	1.9	C	C	1.6	1.6	1.6	
5	E	E	E	E	E	1.8	2.4	3.0	4.2	4.3	4.0	4.2	4.2	4.3	4.4	7.2	6.2	4.2	2.0	1.6	3.2	3.0	2.4	1.4	
6	E	E	E	E	E	1.2	1.9	3.0	3.3	4.4	4.0	4.0	4.3	4.0	4.4	4.2	4.0	2.5	2.3	3.3	2.7	2.9	2.0	1.2	
7	E	E	E	E	E	1.8	2.3	3.0	4.3	4.2	4.2	4.2	4.6	4.2	3.9	4.0	3.0	2.7	3.5	3.2	2.2	1.5	1.7	1.4	
8	1.6	1.4	1.4	1.3	1.4	2.2	2.4	[3.2]C	4.0	4.1	4.0	4.0	C	C	C	C	4.0	3.6	3.4	2.3	A	A	1.6	1.2	
9	E	E	1.3	E	E	2.1	2.6	3.0	3.9	4.4	5.5	4.1	4.4	6.2	A	4.6	4.0	3.0	2.9	6.2	4.2	5.5	2.1	A	
10	3.0	A	3.0	1.5	(2.5)A	2.3	5.3	5.5	5.4	6.4	5.6	5.4	5.4	A	4.0	4.2	3.9	6.2	2.3	1.6	1.8	1.6	1.5	1.3	
11	1.7	1.6	1.6	1.6	1.6	2.0	A	4.2	3.2	4.4	4.4	4.1	5.0	4.0	4.0	4.2	4.2	5.0	3.6	1.5	2.0	4.2	1.6	1.8	
12	1.6	1.4	1.2	E	1.2	2.3	3.0	4.2	5.2	4.0	4.4	4.4	B	4.2	4.5	4.4	4.0	4.5	4.6	2.3	1.9	3.9	3.3	1.2	
13	1.2	A	E	E	E	2.0	2.8	4.0	A	5.3	5.4	4.6	5.7	6.4	4.3	4.3	4.2	4.4	3.4	2.4	A	1.4	5.2	2.2	
14	1.9	2.0	E	1.4	1.7	2.4	3.4	3.3	4.2	A	5.8	4.1	4.4	4.8	4.8	A	5.0	3.8	A	A	A	3.8	2.2	1.6	
15	3.8	3.0	1.5	1.4	E	3.0	3.0	4.2	5.6	5.6	5.4	5.6	5.2	4.6	5.0	A	A	6.2	2.6	3.0	3.6	2.2	A	1.4	
16	1.4	E	E	1.2	E	2.2	2.9	3.8	3.9	(6.0)B	4.4	5.5	6.1	4.7	4.2	4.2	3.8	3.8	6.2	A	A	3.3	3.6	1.2	
17	2.3	1.5	E	E	1.1	2.2	3.0	3.4	5.0	4.0	4.4	4.4	4.4	4.4	4.2	4.0	3.5	3.6	2.2	3.5	A	A	3.4	2.3	
18	A	1.5	E	E	1.4	2.3	4.0	A	B	B	B	5.4	5.5	5.3	4.2	4.3	3.7	3.8	3.0	4.0	2.6	1.8	1.8	2.2	
19	E	E	E	E	E	1.6	2.1	3.0	4.7	5.3	4.1	4.0	4.0	4.5	4.2	4.2	4.4	4.5	4.0	2.2	2.6	1.8	1.9	1.8	
20	1.2	1.3	3.0	3.0	1.2	2.2	3.3	3.3	5.0	5.4	5.2	5.4	6.8	5.3	5.6	[5.4]C	5.2	4.0	4.8	4.1	3.6	1.4	2.3	2.4	
21	1.6	1.6	1.6	1.8	1.4	2.2	3.4	3.7	4.6	4.3	4.5	B	6.2	5.8	4.5	4.2	4.5	3.1	2.9	5.0	(5.6)A	2.4	1.5	1.5	
22	1.5	E	1.2	E	1.2	2.2	3.8	4.1	5.4	4.4	B	B	B	B	5.4	4.4	4.0	3.3	4.0	3.0	2.2	1.9	1.6	1.5	
23	E	1.1	E	1.4	1.5	2.2	3.0	3.9	4.0	4.0	5.2	7.2	5.6	4.6	4.4	4.0	3.8	4.2	2.2	4.0	2.0	2.8	1.3	1.2	
24	1.3	E	1.6	1.6	1.5	2.3	3.2	3.8	5.8	5.4	4.6	5.4	5.6	6.0	B	5.5	3.2	2.9	2.2	A	1.6	3.2	1.6	3.0	
25	1.2	1.2	1.3	1.4	1.3	1.8	4.0	4.2	4.3	A	B	B	B	B	B	A	4.0	A	A	A	A	2.2	A	2.4	1.4
26	1.4	E	E	E	1.4	2.2	3.8	4.5	5.8	A	4.2	6.0	5.0	4.2	4.2	3.9	3.2	3.9	4.9	3.4	3.0	2.0	1.5	1.8	
27	3.7	1.6	1.7	1.6	1.4	2.2	2.9	4.3	A	A	A	A	5.4	4.9	5.2	5.4	5.0	3.0	3.3A	A	4.0F	A	2.4	A	
28	A	A	1.2	1.7	1.7	1.8	4.0	4.0	4.4	5.4	4.5	(4.4)C	4.3	4.4	4.2	A	A	A	A	4.0	1.8	2.0	1.8	1.8	
29	1.4	E	E	E	2.4	A	3.4	4.0	3.1	4.0	4.1	4.3	4.5	3.9	5.2	5.8	6.8	A	6.7	4.0	6.7	1.9	2.8	1.7	
30	E	E	E	1.6	2.0	2.2	3.0	A	5.6	6.8	A	4.4	4.1	4.1	3.9	4.2	4.1	3.8	3.8	2.0	2.2	2.3	1.4	1.4	
31	E	1.6	1.6	1.6	2.2	2.0	2.4	3.2	4.0	3.9	4.0	4.2	4.0	4.0	3.9	3.9	3.2	4.2	3.2	4.6	2.3	1.5	1.5	2.2	
Mean Value	1.8	1.8	1.9	1.8	1.5	2.2	3.1	3.7	4.5	4.4	4.6	4.8	5.0	4.8	4.5	4.4	4.2	4.0	3.8	3.2	3.0	2.6	2.5	2.1	1.7
Median Value	1.4	1.2	1.2	1.4	1.4	2.2	3.0	3.8	4.3	4.4	4.4	4.6	4.6	4.6	4.3	4.3	4.0	3.8	3.2	3.0	2.2	2.0	1.8	1.6	
Count	2.9	2.8	2.9	3.1	3.0	3.1	2.9	2.8	2.6	2.5	2.4	2.7	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.5	2.5	2.7	3.0	2.9	

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

Lat. 38° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time

May, 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	E	E	2.0	1.2	1.4	1.6	1.8	1.9	1.8	2.0	E	E	2.1	C	C	2.1	1.9	E	E	E	E	1.5
2	1.3	E	E	E	E	E	1.6	1.6	1.6	1.8	2.1	5.6	1.8	1.8	2.0	2.0	2.0	1.6	1.6	E	1.6	1.6	1.6	1.6
3	1.2	E	E	1.2	E	1.2	1.7	1.7	1.7	2.1	1.9	2.0	1.9	2.1	2.1	1.8	1.6	1.6	1.5	1.4	1.4	1.4	1.5	1.4
4	E	E	E	E	E	1.2	1.6	1.8	1.8	1.8	1.8	1.9	2.0	2.1	2.0	1.9	1.7	1.7	1.5	C	C	1.4	1.5	E
5	E	E	E	E	E	1.2	1.5	1.5	1.9	1.9	2.1	2.2	2.4	2.0	2.0	1.8	1.7	1.8	1.7	1.4	1.4	1.4	1.4	1.4
6	1.2	E	E	E	E	1.9	1.8	1.8	1.8	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.8	1.7	1.4	1.6	1.4	1.4	1.4	1.4
7	E	E	C	E	E	1.8	1.6	1.7	1.8	2.0	2.0	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.8
8	1.3	1.2	E	E	E	1.4	1.4	1.6	1.8	1.9	1.9	1.9	C	C	C	C	1.8	1.5	1.7	1.6	1.6	1.6	1.6	1.2
9	E	1.2	E	E	E	1.6	1.8	1.6	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.5	1.6	1.5	1.5	1.5	1.3
10	1.1	E	E	E	E	1.6	1.6	1.8	2.0	2.0	2.0	2.2	2.0	2.2	E	2.0	2.1	1.8	1.6	1.4	1.5	1.5	1.7	E
11	E	E	E	E	E	1.2	1.4	1.6	2.0	2.2	2.1	2.6	2.3	2.0	2.2	1.8	1.8	1.8	1.6	1.5	1.5	1.5	1.4	1.2
12	E	E	E	E	E	E	1.6	1.6	2.2	2.4	3.2	E	3.0	3.0	4.5	2.4	1.8	1.8	1.6	1.5	1.5	1.4	1.4	1.2
13	E	E	E	E	E	E	1.6	1.7	1.8	2.0	2.0	2.1	2.1	2.3	2.0	2.0	2.0	1.6	1.6	1.4	1.4	1.4	1.4	E
14	E	1.6	E	E	E	E	1.8	E	1.8	1.9	2.0	2.0	4.2	3.8	3.0	2.2	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.6
15	1.2	E	E	E	E	E	1.7	1.5	1.8	2.0	3.4	4.1	4.0	3.7	4.0	2.0	2.0	2.0	1.6	1.4	1.4	1.4	1.4	1.2
16	1.2	E	E	E	E	E	1.5	1.6	1.6	1.8	4.0	4.1	4.0	4.3	2.4	2.2	2.0	1.9	1.6	1.6	1.4	1.4	1.4	1.8
17	E	E	E	E	E	E	1.6	1.6	1.7	2.0	2.2	2.2	E	E	2.2	2.0	1.7	1.8	1.5	1.4	1.4	1.4	1.4	1.2
18	1.2	E	E	E	E	E	1.5	1.6	2.1	4.2	4.2	4.1	4.2	4.3	2.2	2.1	1.8	1.8	1.8	1.8	1.8	1.8	1.6	E
19	E	E	E	E	E	E	1.7	1.7	1.8	1.9	2.2	2.2	E	E	E	2.1	2.1	1.8	1.7	1.5	1.5	1.5	1.4	1.3
20	1.2	E	E	E	E	E	1.8	1.8	1.8	4.0	4.0	4.0	3.6	3.6	4.0	C	3.0	2.1	1.7	1.5	1.5	1.5	1.4	1.4
21	E	E	E	E	1.4	1.4	1.4	1.6	2.1	2.0	4.1	E	4.2	4.2	4.0	E	2.2	2.0	1.6	1.5	1.5	1.5	1.4	E
22	E	E	E	E	E	E	1.5	1.6	1.8	1.9	3.1	E	E	4.2	4.0	E	2.0	1.8	1.7	1.6	1.6	1.6	1.6	E
23	E	E	E	E	E	E	1.6	1.6	1.7	2.0	2.2	E	E	4.0	E	E	2.0	2.0	1.8	1.6	1.6	1.6	1.3	E
24	1.6	E	E	E	E	E	1.8	1.8	2.0	2.0	4.0	2.0	4.0	4.0	E	4.2	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
25	E	E	E	E	E	E	1.5	1.6	1.7	2.8	3.0	E	E	E	E	4.2	3.6	1.8	1.8	1.6	1.6	1.6	1.4	1.2
26	1.2	E	E	E	E	E	1.6	1.9	1.9	2.3	4.0	4.0	4.0	4.1	3.9	E	2.0	2.0	1.6	1.4	1.4	1.4	1.8	1.2
27	E	E	E	E	E	E	1.5	1.6	1.6	1.7	1.8	2.0	E	4.0	3.0	3.0	3.2	3.0	1.6	1.5	1.5	1.5	1.5	E
28	E	E	E	E	E	E	1.6	1.8	1.8	2.0	4.0	(4.0) ^C	4.0	3.0	1.9	1.7	1.7	1.6	1.6	1.8	1.6	1.6	1.6	E*
29	E	E	E	E	E	E	1.6	1.6	1.7	1.8	1.8	2.0	2.2	1.9	1.9	1.8	1.8	1.8	1.6	1.5	1.5	1.5	1.4	1.2
30	E	E	E	E	E	E	1.7	1.8	1.8	1.8	2.0	2.0	2.0	2.0	2.1	4.1	3.0	1.6	1.5	1.5	1.5	1.4	E	E
31	E	1.4	1.4	1.4	1.4	1.4	1.6	1.8	1.9	2.0	E	2.2	2.2	2.1	1.8	1.7	1.8	1.5	1.5	1.5	1.5	1.6	1.5	E
Mean Value	1.2	1.4	1.4	1.3	1.4	1.6	1.6	1.7	2.0	2.4	2.7	2.7	2.9	2.8	2.5	2.3	2.1	1.8	1.6	1.5	1.5	1.5	1.5	1.4
Median Value	E	E	E	E	E	E	1.6	1.6	1.7	1.9	2.0	2.0	2.0	2.2	2.0	2.0	2.0	1.8	1.6	1.5	1.5	1.5	1.5	1.4
Count	31	31	30	31	31	31	31	31	31	31	31	31	30	30	30	28	30	31	31	30	30	30	31	31

fminE

Sweep 1.0— Mc to 17.0— Mc in 15 min

Manual

A 11

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_oF₂

May 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	6.6	6.5	6.1	6.2 ^P	5.6	6.8	8.2 ^P	7.9	7.0	(8.1) ^P	7.8	9.4	9.8	10.5	11.3	12.1	10.6	9.7	9.8 ^S	11.7 ^P	(9.2) ^S	6.9	(6.5) ^P	6.7	
2	6.3	6.3 ^P	6.0	5.6	5.1	4.5	6.0	6.4 ^K	6.3 ^K	B ^K	7.4 ^K	8.0 ^K	(8.3) ^P	7.5 ^K	7.4 ^K	8.0	8.7	8.6	9.4	8.8	6.0 ^S	T	A	5.6	
3	C	C	C	C	C	4.9 ^F	5.9	A ^K	A ^K	7.6	7.7	8.2	9.1	9.4	10.9	10.3	9.5	7.7	8.3 ^P	8.7	7.1 ^P	(7.7) ^P	6.6	6.3	
4	5.6 ^V	5.0	5.1	4.7	4.3 ^F	4.2 ^F	6.9	8.0 ^F	(8.4) ^P	7.0	7.5 ^Z	7.6	8.0	9.7	9.9	9.7	9.0	8.3 ^P	7.8	8.5	(8.3) ^P	(6.0) ^V	5.1 ^V	5.5 ^V	
5	6.3	6.0	6.7	(6.2) ^S	4.4	5.8	7.2	7.6	7.0	7.4	7.4	8.6	8.6	9.9	9.6	8.4	9.0	9.7	9.8 ^S	(9.8) ^S	9.8 ^P	6.9	6.2 ^F	6.1	
6	5.3	5.5	5.2	4.6	4.3	5.1	6.9	8.0 ^S	7.9	7.4	7.4	8.6	8.6	9.9	9.6	8.4	9.0	7.8 ^P	7.4	7.2 ^S	B	6.9	(6.3) ^P		
7	5.9	5.7 ^F	5.6 ^F	5.6 ^F	5.0 ^F	5.5	6.2	6.3	7.2	8.1	8.5	8.8	9.4	9.5	8.2	8.6	8.7	9.2 ^P	9.0	9.1 ^P	(7.5) ^P	5.1 ^P	5.6	5.5	
8	(6.3) ^P	5.8	5.7	5.4	(4.7) ^T	4.5	6.0 ^V	8.0	10.4 ^P	7.7	7.8 ^P	7.2	7.7	7.9	8.2 ^P	8.6	8.7	7.8	8.3 ^F	8.1 ^Z	(8.2) ^F	S	(7.2) ^F	(6.8) ^F	
9	5.4	5.2	4.9	(4.7) ^T	4.5	5.1	6.6	7.2	8.2 ^S	7.1 ^S	7.6	8.2 ^P	A	9.2 ^P	10.0	(10.2) ^P	9.0	7.8	8.3 ^F	8.1 ^Z	(8.2) ^F	S	(7.2) ^F	(6.8) ^F	
10	7.2 ^F	7.2 ^F	6.8	6.8 ^F	5 ^F	6.1 ^F	A	8.0 ^P	8.8	10.4	10.3	9.5	9.1	7.6	7.3	7.7	9.4	8.5	AS	(8.8) ^P	7.1	6.7	6.4	6.4	
11	(6.3) ^P	6.0 ^V	5.7 ^V	6.8 ^F	5.8	5.8 ^S	6.4	7.0	8.2 ^S	8.8	9.6	10.2	11.2	11.3	10.6	10.8	10.0 ^P	9.6	8.1	8.6	7.1	6.1	(6.6) ^S	A	
12	FS	6.4 ^F	(5.8) ^F	(5.5) ^F	(4.8) ^F	4.5	5.8 ^K	6.8 ^K	6.0 ^K	5.2 ^K	A	6.4 ^K	6.4 ^K	6.7 ^K	7.0 ^K	6.6	6.4 ^K	6.8 ^K	7.0	(6.4) ^P	AS	A	FS		
13	5.6 ^S	(5.2) ^P	5.3	(4.4) ^P	3.9 ^P	5.0	6.6 ^S	7.8	8.6	(7.9) ^P	A	8.5	9.4	9.6	9.4	9.6 ^S	9.1	8.8	8.3	7.2	6.9	7.1 ^Z	7.0 ^P	F	
14	F	F	(7.2) ^F	6.4 ^F	[6.2] ^F	6.9	8.2	7.3	6.8	6.9	7.5	8.2	8.9	9.3	9.4	9.4	(10.0) ^S	BS	(9.3) ^S	6.8	(6.7) ^S	6.9	7.1 ^P	6.9 ^P	
15	7.1 ^S	6.6	6.2 ^F	6.0 ^F	6.2 ^F	6.9	8.3	7.6	8.2	8.2	8.5	10.1	10.9	(11.6) ^P	12.2	11.2	10.0 ^S	9.4	8.5	(8.1) ^S	7.7 ^P	C	C	(7.5) ^P	
16	7.3	7.2 ^P	7.2	7.3	6.7 ^S	(7.6) ^P	8.3	7.6	7.1 ^H	7.6	8.4	9.4	10.7	11.5	11.4	A	A	(9.9) ^S	A	(7.9) ^S	8.4 ^F	(8.6) ^J	AS	8.3	
17	8.9 ^P	8.4	7.2	6.8	6.4	7.0	7.2	6.9	7.2	(7.5) ^S	7.4 ^S	8.7	8.8	9.4	10.3	10.8	9.4	10.2	B	B	7.4	7.4 ^P	AS	8.3	
18	(7.4) ^P	(7.6) ^P	6.8	6.4	5.8	5.5	6.0	5.7 ^S	A	6.2 ^K	6.8 ^K	7.1 ^K	7.2	7.0 ^K	7.8	8.0 ^K	7.8	7.3 ^K	7.0	7.2	S	7.1	7.0	6.8	
19	6.6	6.4 ^F	C	C	C	C	8.9	8.5	7.2 ^S	7.6	7.0 ^H	8.0	8.6	9.6	9.4	9.4	9.5	9.5	(9.8) ^P	BS	S	7.5	7.8	8.0	
20	7.8 ^F	7.4	7.8	C	C	C	C	C	9.0	8.9 ^S	7.4	8.5	9.4	10.3	11.6	11.9	11.8	11.6	10.6 ^S	9.4	7.2 ^S	7.4 ^S	7.8	8.0	
21	8.9	8.6	8.5	8.4	8.8	9.3	8.9	8.6	8.9	8.2	8.0	8.6	(9.2) ^P	10.2	10.8	11.0	10.9	10.7 ^S	B	BS	7.2 ^S	7.4 ^S	7.6		
22	(7.8) ^P	7.7	7.6 ^P	7.5	7.7	7.3	(8.2) ^P	[7.7] ^C	7.2	6.6	B	(8.9) ^F	(10.4) ^P	10.6	9.7	10.2	10.6	9.6	A	(9.4) ^P	7.6 ^P	(7.2) ^P	7.4	7.4	
23	7.5 ^S	7.4 ^F	7.2	7.0 ^F	(7.3) ^F	(7.6) ^P	8.2	7.2	6.9	A	8.2	B	(10.0) ^P	9.8 ^P	9.6	10.4	(10.6) ^P	(10.5) ^P	9.5 ^P	S	S	S	9.9 ^P	S	
24	S	S	8.9	7.2	C	C	7.4	6.8	8.8	B	B	(8.6) ^P	(8.3) ^F	(9.1) ^P	7.9	7.7	8.4	(8.3) ^S	8.0 ^P	(7.4) ^P	(7.1) ^P	7.1	7.3		
25	7.0 ^F	(7.3) ^F	6.8 ^S	6.6	6.2	6.9	6.0 ^K	B ^K	A ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	6.3 ^K	A ^K	6.4 ^K	A ^K	6.6	6.7	6.5	(5.7) ^S	A	
26	(6.0) ^F	(5.8) ^F	5.7 ^P	5.8 ^P	5.9	[6.0] ^C	6.0	7.4 ^S	7.8	A	7.5 ^P	8.2	8.9 ^P	9.2	9.5	8.7	8.0 ^S	8.0 ^S	8.4	8.6	8.4 ^S	8.6	(8.4) ^S	8.2 ^S	
27	8.0	7.8	7.1 ^P	6.0	B	6.8	8.6	8.0	A	A	A	7.2	7.8	7.9 ^K	7.0 ^K	7.1	7.0 ^K	6.5	6.4	6.2	6.3	6.5	6.6	6.0 ^F	
28	6.0 ^F	6.4 ^F	5.9	5.7 ^F	6.8 ^F	7.1	(7.2) ^M	7.4 ^S	7.4 ^S	7.4 ^S	8.2	8.7	8.4	9.6	9.6	S	9.9 ^S	10.1 ^P	9.3 ^P	S	8.8	8.0 ^P	S	S	
29	7.7 ^P	6.9	6.5	6.2	C	C	C	C	C	C	8.5	8.0 ^S	A	6.8	7.8	8.6 ^S	A	10.0 ^S	8.9	8.0 ^S	8.4	8.2	(7.4) ^P	7.6	
30	(7.4) ^K	C	C	C	C	C	C	C	T	7.4	A	7.9	(10.0) ^S	9.6 ^S	9.6 ^S	8.6	A	6.6	6.9	7.0	(7.2) ^F	7.1	M	6.7	
31	6.2	(6.4) ^P	(6.0) ^S	S	(4.2) ^K	4.8	6.5 ^K	7.9 ^K	6.7 ^K	6.5 ^K	6.8 ^K	6.6	7.1 ^K	7.0 ^K	(7.3) ^P	7.8 ^K	8.2 ^S	8.2 ^P	7.5	(6.7) ^P	(5.9) ^K	S	S	5.8 ^S	
Mean	6.8	6.6	6.5	6.1	5.7	6.1	7.2	7.5	7.7	7.6	7.8	8.4	8.9	9.2	9.4	9.3	9.2	8.7	8.4	8.1	7.5	7.2	6.9	6.8	
Median	6.6	6.4	6.4	6.2	5.7	6.0	7.1	7.6	7.8	7.6	7.6	8.5	8.9	9.4	9.6	9.4	9.2	8.7	8.4	8.1	7.3	7.1	7.0	6.7	
Count	27	27	28	26	23	26	27	26	26	25	23	29	29	29	29	29	28	30	26	28	26	28	25	22	24

Steep 1.0 Mc to 18.5 Mc in 2 min Automatic

K 1

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

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3E

Kokubunji Tokyo

135° E Mean Time

May. 1951

fpF2

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

fpF2

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

K 2

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

Lat. 35° 42.4' N
Long. 139° 29.3E

Kokubunji Tokyo

135° E Mean Time

f'F2

May, 1951

IONOSPHERIC DATA

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	250	230	240	230	220	230	220	250	260	250	310	290	300	270	250	270	270	270	240	210	200	270	300	
2	250	280	280	260	220	230	250	260	240	B ^K	400 ^K	300 ^K	280 ^K	280 ^K	320 ^K	300	270	280	250	270	210	300	A	350	
3	C	C	C	C	C	270	230	A ^K	A ^K	360 ^K	300 ^K	270	270	280	270	250	230	250	210	210	240 ^F	250 ^F	300 ^A	300	
4	250	250	220	240	270	270	230	220	220	250	320	300	280	300	270	250	240	240	250	220	230	270	200	290	
5	270	270	240	200	250	220	240	240	250	260	280	320	280	270	270	250	260	250	250	230 ^F	230	220	280	260	
6	330	250	230	230	230	220	220	250	240	250	260	270	270	270	270	270	290	270	260	230	210	200	270	260	
7	260 ^F	270 ^F	270 ^F	240 ^F	200	230	200	200	280	250	260	270	280	270	270	250	260	230 ^A	250	300	280	240	230	230	
8	270	290	250	220	230	230	280	260	240	240	260	260	280	290	300	270	270	260	230 ^F	220	200 ^F	210 ^F	260	270	
9	250	250	[240 ^T]	240	260	230	230	250	250	260	270	280	A	290	270	250	250	260	260	260	310 ^A	270 ^A	310 ^A	300 ^A	
10	290	290	260	260	A	230	A	300	330 ^A	310	280	280	300	290	310	330	270	270	250	260	240	230	290	290	
11	300 ^A	300 ^F	320 ^F	260 ^F	220 ^A	260	250	310	280	300	300	280	280	280	270	260	260	250	240	250	220 ^A	220 ^A	310 ^A	300	A
12	270	250	220	270	290	360 ^K	350 ^K	310 ^K	300 ^K	430 ^K	A ^K	360 ^K	350 ^K	370 ^K	340 ^K	310 ^K	280 ^K	280 ^K	260 ^K	260	300	310	A	270	
13	290 ^A	270	250	220 ^F	300	240	230	300	280	260	A	320	320	290	310	300	270	260	270	330	280	360 ^A	250	360	
14	260 ^F	280	230	250	230	230	230	240	250	300	330	320	330	320	310	300	300 ^A	260	230 ^F	240	(320 ^A)	290	360	340	
15	280	320 ^A	290	290	300 ^F	240	230	230	270	310	310 ^A	350 ^A	320	300	280	270	270	270	250	300 ^A	310	C	C	300	
16	300	280	270	270	260	[240 ^F]	230	230	220 ^H	260	370	350	330	310	330 ^A	A	A	A	A	320 ^A	330	A	290 ^A	290	
17	250	240	250	250	250	240	250	260	300	300	300	320	320	310	320	290	290	280	250	240	220	290	310	320	
18	300 ^A	260	240	230	290	280	370	380	A ^K	470 ^K	380 ^K	340 ^K	340 ^K	360 ^K	320 ^K	300 ^K	300	250	260	250	260 ^F	280	270	220	
19	350	300	C	C	C	C	250	230	260	280	280 ^H	350	350	330	320	320	290	280	250	270	230	260	310	290	
20	310 ^A	320	250	C	C	C	C	C	270	270	260	360	360	320	320	290	290	260	240	270	300	270	300	290 ^F	
21	290 ^F	280	310	280	260	240	240	250	240	320	330	310	330	320	320	290	280	270	250	250	260	280 ^F	270	280	
22	280 ^F	270 ^F	270 ^F	260 ^F	240	230	[240 ^C]	230	250	260	B	310	300	300	290	300	280	270	A	210	280	350	300	300	
23	300	280	280	280	260	220	250	240	250	A	310	B	320	320	340	320 ^S	290	260	270	250	230	300	280	310	
24	280	250	220	240	C	C	290	280	350	280	310	290	300	320	280	260	230	270	250	260 ^F	A	280	310 ^A	280	
25	280	260	250	280	280	260	300 ^K	A ^K	A ^K	A ^K	B ^K	B ^K	B ^K	B ^K	B ^K	B ^K	350 ^K	A ^K	330 ^A	280	260	(360 ^S)	(420 ^S)	A	
26	270 ^F	280 ^F	280	270	230	[250 ^C]	270	300	270	A	400 ^A	350 ^A	350 ^A	320	300	280	280	(330 ^A)	300	260 ^F	310	280	260	260	
27	280	310	240	280	290	250	250	290	A ^K	A ^K	A ^K	430 ^K	380 ^K	340 ^K	400 ^K	320	300	300	290	300	AS	360	310 ^A	300 ^F	
28	280	290	250	260	270	230	220	[240 ^H]	260	330	320	300	310	A	320	340 ^A	310	(350 ^A)	350 ^A	250 ^F	260	250 ^F	280	300	
29	250	260	250	250 ^F	C	C	C	A	270	290	A	290	320	320	A	320	260	290	300	250	300	260	250	270	
30	290 ^F	C	C	C	C	C	C	C	350	310	A	380	350	310	270	270	A	270	260	260	250	260	360	270	
31	270	270	240	220	220 ^K	240 ^K	270 ^K	270 ^K	B ^H	350 ^K	350 ^K	350 ^K	310 ^K	340 ^K	350 ^K	[320 ^C]	290	270	250	300	310	A	250	300	
Mean Value	280	270	260	250	250	250	250	260	270	300	310	320	310	310	300	290	270	270	260	260	260	270	280	280	290
Max Value	280	280	250	250	250	240	250	250	260	280	280	310	320	310	310	310	290	280	270	250	250	260	270	280	290
Count	30	29	28	27	24	26	27	26	26	26	24	29	29	29	29	30	28	30	29	31	29	28	27	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

Lat. 35° 42.4' N
Long. 139° 29.8E

May 1951

foF1

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	L	L	L	L	L	L	L	L	L	Q	Q	Q					
2							Q	L	L	5.2 ^S	(5.1) ^B	(4.9) ^B	Q	L	A	L	A	A	A					
3							L	A	A	4.8	4.8 ^A	4.7	(4.7) ^A	4.7	4.6	L	L	L	L					
4							L	3.9 ^S	L	Q	L	4.9	L	L	L	L	L	L	L					
5							L	L	L	L	4.1	L	L	L	4.8	4.6	L	L	L					
6							Q	L	L	L	L	L	L	L	4.9	4.5	L	L	L					
7							Q	Q	L	L	4.5	4.8	L	L	L	L	L	L	L					
8							L	A	L	L	L	L	L	4.7	4.6	A	A	A	Q					
9							Q	A	L	L	L	L	L	A	4.7	L	L	L	Q					
10							A	A	L	L	L	L	L	A	L	L	L	L	A					
11							Q	A	A	L	L	L	L	L	L	L	L	L	Q					
12							3.8 ^S	4.1	L	4.6	A	4.8	4.8	B	(4.7) ^B	4.6	L	L	L					
13							Q	L	A	L	A	L	L	L	A	A	A	A	A					
14							Q	Q	A	A	5.2	L	L	L	L	L	L	L	Q					
15							Q	Q	A	L	A	A	L	L	L	(5.1) ^L	A	L	A					
16							L	A	L	L	L	L	L	L	L	A	A	A	A					
17							L	A	L	L	L	L	L	L	L	5.5	(5.1) ^L	L	L	Q				
18							A	B	A	B	A	A	5.4	L	L	4.8	L	Q	Q					
19							Q	Q	A	A	L	L	5.5	L	L	5.2	L	L	Q					
20							C	C	L	L	Q	L	L	5.3	(5.1) ^S	L	L	L	Q					
21							Q	A	Q	L	L	B	L	L	L	L	L	L	A					
22							Q	C	A	A	B	B	B	B	L	L	L	L	A					
23							L	L	A	A	L	B	(5.4) ^L	L	A	L	L	L	A					
24							L	L	4.9	A	A	5.1	B	B	B	L	Q	L	Q					
25							B	A	A	A	B	B	B	B	L	L	L	L	A					
26							A	L	A	A	A	A	5.1	A	L	A	L	L	A					
27							Q	A	A	A	A	4.9 ^B	4.8 ^B	4.8 ^B	A	A	A	A	A					
28							Q	M	A	L	L	B	L	A	A	A	A	A	A					
29							C	Q	A	L	A	A	5.0 ^A	A	A	A	A	A	A					
30							C	Q	A	A	A	A	A	A	4.6	A	A	A	A					
31							L	L	4.3	4.6 ^B	L	L	4.6 ^B	L	4.6 ^B	C	L	L	A					
Mean Value							3.8	4.0	4.6	4.6	5.0	4.9	5.0	5.0	4.8	5.0								
Min Value							3.8	4.0	4.6	4.6	5.0	4.9	4.9	4.9	4.6	5.1								
Count							1	2	2	6	4	6	10	7	10	5								

foF1

Sweep 1.0 Mc to 18.5 Mc in 2 min

Automatic

K 4

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

IONOSPHERIC DATA

May. 1951

f'F1

135° E Mean Time

Lat. 35° 42.4' N
Long. 139° 29.3E

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	210	230	200	210	200	210	220	250	230	Q	Q	Q					
2							Q	240	230	290	250	300 ^A	Q	260	A	250	A	A	A					
3							220	A	A	190	A	200	A	220	200	230	200	210	Q					
4							220	220	220	240	220	Q	220	250	250	220	210	220	220					
5							210	200	230	200	210	180	280	220	210	250	210 ^A	Q	A					
6							Q	210	220	220	210	170	250 ^A	190	200	200 ^A	220 ^F	250	240					
7							Q	Q	230	230	200	220	210	220	180	240	220	A	A					
8							260	A	220	230	200	200	200	210	250	A	A	A	Q					
9							Q	A	A	A	A	A	A	A	A	210	220	220	A	Q				
10							A	A	A	A	A	A	A	A	A	210	280	230	A	A				
11							Q	A	A	280 ^A	220	A	220	220	220	260	240	Q	Q					
12							240	200	230	230	A	260	A	B	210	220	220	260	A					
13							Q	A	A	A	A	A	A	A	A	A	A	A	A					
14							Q	Q	210	200	210	200	A	240	280	230 ^A	A	A	A	Q				
15							Q	Q	A	A	A	A	A	A	A	250	A	250	A					
16							A	A	A	250	A	A	250	A	A	A	A	A	A					
17							230	A	A	A	250	220	210	210	240	220 ^S	210	250	Q					
18							A	B	A	B	A	A	320	250	B	B	A	Q	Q					
19							Q	Q	A	A	230	300 ^B	260 ^A	260 ^B	300 ^B	230	240	240	Q					
20							C	C	250	A	Q	A	A	260 ^B	270 ^B	260	230	250	Q					
21							Q	A	Q	270	260	B	280 ^A	B	270	270	A	A	A					
22							Q	C	A	A	B	B	B	B	B	B	A	A	A					
23							230	230	A	A	A	B	B	B	310	A	A	A	A					
24							250	A	A	A	A	260	B	B	B	B	Q	24.0	Q					
25							B	A	A	A	B	B	B	B	B	B	A	A	A					
26							A	220	A	A	A	A	A	A	A	B	230	A	A					
27							Q	A	A	A	A	B	B	A	A	A	A	A	A					
28							Q	M	A	310 ^A	A	B	A	A	A	A	A	A	A					
29							C	A	A	A	A	260	A	A	A	A	A	A	A					
30							C	C	A	A	A	A	A	A	A	260 ^A	A	A	A					
31							270	S	220	B	B	B	B	B	B	C	B	B	A					
Mean Value							240	220	230	240	220	230	240	230	240	240	220	240	230					
Median Value							230	220	230	230	220	220	240	220	240	230	220	250	230					
Count							9	8	11	13	12	14	12	14	18	17	13	9	2					

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

May. 1951

foE

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

foE

Sweep 1.0—Mc to 18.5 Mc in 2 min

Automatic

K 6

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

f' E

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

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°29.38'E

May 1951

135° E Mean Time

fEs

fEs

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	E	E	E	E	E	G	G	3.8Y	5.1	4.6Y	4.8Y	G	4.6Y	G	4.8	G	4.6	4.8	5.0	5.0	2.1	E	E	3.2	
2	3.3	3.1	2.4	2.3	E	G	2.6S	G	G	5.6	G	6.8	6.5	5.2Y	5.8	4.7	5.6	6.9S	3.5	3.1S	C	2.3	6.9Y	6.7Y	
3	C	C	C	C	C	5.6F	G	6.9Y	6.4	5.6Y	5.8	4.6	4.8	6.2	3.8	4.6	G	4.7Y	4.7	7.8Y	6.5Y	5.1F	5.6F	3.7	
4	3.6	4.7Y	4.6	2.1Y	3.3F	2.1	2.8	3.6	4.5	5.4	5.4	G	4.6Y	5.2	5.7Y	4.7Y	3.8	3.7	2.8	4.8	2.3	3.0S	2.4	2.7	
5	2.1	2.3Y	1.4	2.3	2.3Y	2.3	3.1	G	G	G	G	4.7	5.2	4.6	5.9S	G	4.3Y	4.7Y	3.7Y	3.6B	5.3	11.0Y	6.6Y	4.7Y	
6	4.7Y	2.3Y	2.5	2.4F	2.3F	2.4F	G	G	4.6Y	4.3Y	4.7Y	4.6	5.8	5.6	4.6Y	4.6	5.0	4.6	2.6	3.1	2.9	2.3	4.6F	2.6	
7	3.2	3.8	2.3Y	2.3	2.0	2.9	G	4.5	4.7	4.7	4.7	5.0	4.6	G	4.7	G	4.7	5.6	7.0	6.8	2.6F	3.1F	3.0F		
8	3.7	3.5	2.3	2.6S	2.4	2.7	5.4	4.7	4.6S	4.7	4.7	4.7	4.6	4.7Y	G	6.6Y	6.3Y	9.0	4.7	2.1	2.3	2.7S	2.4	1.9	
9	E	1.7Y	T	E	1.5S	G	G	4.8	5.5	5.6S	5.2	5.4	12.0Y	5.5	G	4.6Y	6.8	6.8	5.9	8.4	9.4F	6.3	8.3Y	7.2F	
10	5.0	7.1	5.4F	6.6	6.8	3.1	8.6Y	7.0Y	7.1S	7.4	5.9	6.8Y	7.4	6.8	G	G	G	9.2S	11.4	6.6	3.1	2.4	2.1	2.4	
11	3.8	4.7F	4.7F	3.9F	4.6Y	3.7	4.6	6.6	6.6	5.6	6.6Y	6.5	G	G	3.6Y	3.5	G	4.7	4.6	4.7	2.9	3.7	3.8	8.4Y	
12	2.4	2.2	2.1Y	2.0Y	E	G	G	G	4.7	4.7	7.8	4.6Y	6.8Y	6.6Y	G	G	G	5.6Y	5.9	6.6Y	11.2Y	5.2S	9.0Y	3.1B	
13	2.5	2.3	E	2.6S	1.9	G	G	5.5	7.0	5.5	9.6	6.0Y	7.0	7.1F	9.0F	10.8Y	7.7F	7.0	8.2F	7.3	5.6	6.8	3.7	5.6F	
14	3.0F	3.8Y	2.5F	3.0	2.5	G	G	4.6Y	4.5Y	4.6Y	4.7	5.4	6.0	4.6Y	4.7	4.8Y	7.8Y	4.5	5.3	5.2Y	4.6Y	2.5	4.8	6.7F	
15	4.8F	4.7F	3.7	2.9	2.5	G	G	4.7	6.9	6.9	6.7S	8.6	6.0	6.9S	7.1S	5.6S	5.7	5.5	3.6S	6.6	7.1S	C	C	4.7	
16	2.8	2.4	2.3Y	2.5S	2.0S	C	4.1Y	5.1	5.6	4.7	6.8Y	10.2	6.8	5.2	10.4	12.6	12.4	9.4S	9.4S	6.8	6.8F	8.6	4.6S	5.4S	
17	2.3Y	2.5S	1.9	E	E	2.4	3.4	5.6	6.4Y	7.2S	5.6Y	5.6Y	E	G	3.8F	G	G	3.8Y	3.8	3.7	2.0Y	2.9Y	8.4Y	3.7Y	
18	3.8F	3.7	2.3	1.9	2.4	3.6	5.5Y	4.2Y	6.8	5.0	5.6	6.5	G	4.2	3.8	3.7	5.2	3.8	4.2	3.0	5.5F	3.7	3.0F	C	
19	3.8S	2.5F	C	C	C	C	3.7Y	G	5.8	6.0	9.4S	4.3Y	5.4Y	G	G	G	G	4.2	4.2	5.8Y	2.5F	3.6F	3.7	2.5S	
20	5.2Y	3.1S	2.3Y	C	C	C	C	C	3.7F	5.6S	5.2	6.7	6.7	G	G	G	G	G	4.6	8.6	5.6Y	3.8F	3.7	3.0S	
21	3.1S	3.7	3.8S	3.0S	2.4F	3.7Y	3.5S	4.8	4.8Y	6.2	4.2	E	5.8Y	E	G	4.2Y	7.0S	5.5	5.6	6.8	3.6	3.9F	3.7F	2.3	
22	2.1	2.5	2.1	2.6S	2.0Y	2.9	4.2Y	C	5.9	6.0	E	E	E	3.8	4.6	5.0	11.2Y	6.9	9.8S	6.7	7.0	6.6	2.9S	2.9	
23	3.1S	2.4	2.4F	3.6	2.5	2.6	2.8	G	6.1	7.7	4.6Y	E	E	E	G	7.4S	7.0S	6.2Y	7.2	2.4	5.5	3.6	3.7F	3.0	
24	2.0	2.5S	2.6S	2.9	C	C	C	C	5.4	6.1Y	5.9Y	E	4.3Y	E	E	G	3.6	3.5	4.2S	4.2S	5.6Y	6.1Y	4.6Y	3.7	
25	2.6S	2.6S	2.0	2.4	2.5F	G	4.3	6.2	7.0S	7.0	E	E	E	E	E	E	8.6	6.5	5.4S	4.3Y	7.2S	8.6S	6.9S	8.6Y	
26	3.1	3.0Y	2.8	3.5Y	3.4Y	C	3.8	8.6F	6.6Y	8.3Y	8.2Y	6.8Y	5.5Y	7.7Y	5.0Y	7.1S	3.8S	7.4	7.5S	3.8Y	6.5F	3.8S	2.9S	3.7Y	
27	3.8S	5.6F	3.4S	2.4F	2.3F	1.8	4.6S	6.0	11.2	12.0	10.7Y	G	G	5.6Y	6.3	5.0S	5.6Y	5.6	5.3	4.2S	6.4Y	5.3Y	5.4Y	3.7F	
28	3.7F	3.1S	2.4	2.4S	2.5	G	G	M	6.0	5.6S	5.2Y	E	6.0Y	>13.6	7.4S	9.4	7.7	9.4S	9.0	7.2S	5.7	2.5S	3.6		
29	2.5	2.3F	2.2Y	1.8	C	C	C	C	9.8	5.4	7.4S	10.8S	5.2	10.2	9.4	>13.6	9.2	7.0	7.5	6.6	4.6S	8.2Y	3.8S	2.5	2.8
30	2.4S	C	C	C	C	C	C	C	>6.2	7.4S	10.7	7.1S	9.4S	7.2S	5.6S	6.8	10.5	5.9	3.7	3.8	3.7Y	2.2	3.8S	1.7	
31	E	E	E	2.3	1.9Y	2.9	G	G	G	G	G	G	G	G	G	C	3.6	4.8Y	4.8Y	3.8	3.7	3.8	2.0Y	3.7S	
Mean Maximum Minimum Value	3.3	3.3	2.8	2.8	2.7	3.0	4.2	5.6	6.3	6.2	6.5	6.0	6.4	5.9	5.7	6.3	6.9	6.0	5.6	5.3	5.3	4.4	4.4	4.0	
Count	30	29	27	27	25	24	28	27	31	31	31	31	31	31	31	30	31	31	31	31	31	30	30	30	30

Trace 1.0-Mc to 18.5-Mc in 2 min

fEs

Automatic

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

IONOSPHERIC DATA

May, 1951

fminF

135° E Mean Time

Kokubunji Tokyo

Lat. 35°42.4'N
Long. 139°29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	1.5	E	E	E	E	1.6	2.4	3.1	3.2	4.1	4.0	4.1	4.1	4.1	4.2	3.6	4.1	4.0	4.3	3.3	1.5 ^S	1.4	1.3 ^S	4.1	
2	1.3	2.2	1.7	1.5	1.1	1.2	2.5	3.3	3.5	4.5	4.0	4.6	6.1	4.4	5.0	3.4	5.0	6.2	2.8	1.4	1.6	1.7	A	2.3	
3	C	C	C	C	C	2.3	2.5	A	A	3.5	4.7	4.0	4.4	4.2	4.1	4.0	3.0	2.6	AF	A	1.9F	2.2F	A	A	
4	1.3	E	1.3	1.2	1.2	1.7	2.3	3.0	3.2	4.4	4.3	4.3	4.1	4.4	4.1	3.5	3.2	2.9	2.2	1.6	1.4	2.2	1.5	1.5	
5	1.1	1.1	E	1.1	1.1	1.5	2.5	3.0	4.2	3.5	4.1	3.7	4.2	3.7	4.1	3.7	A	3.2	3.0	2.2	4.3	2.3	1.7	1.7	
6	4.1 ^A	1.3	1.3	1.1	1.1	1.7	2.4	3.0	3.4	4.0	4.0	3.6	4.4	4.2	3.4	A	3.4	3.4	1.9	2.1	2.0	1.5	2.7	1.3	
7	1.3	1.2	1.1	1.2	E	2.1	2.7 ^S	3.6	3.5	4.0	4.1	4.2	4.1	4.1	3.6	3.6	3.2 ^S	A	4.0	5.2 ^A	4.2	1.6	1.8	1.3 ^S	
8	2.2	3.0	1.1	E	1.1	1.4	3.4	4.3	3.2	4.1	4.4	4.0	4.0	4.4	4.2	5.6	5.5	6.2	3.4F	1.3	1.5	1.4	1.6	1.3 ^S	
9	1.0	E	T	1.0	1.0	1.8	2.5	4.1	4.7	4.8	4.9	4.6	A	5.4	3.5	3.5	3.3	5.4	3.8	4.6	A	4.2	A	A	
10	1.6	2.0	2.9 ^S	3.5	A	1.5	A	6.2	6.4 ^A	6.3	4.8	4.9	7.6	5.5	4.1	3.5	3.2	4.4	4.4	6.0	2.8	1.4	1.5	2.2	
11	A	1.9F	1.4F	2.2	A	3.5	4.1	5.2 ^A	5.8	4.7	4.2	6.1	4.1	4.1	4.1	4.1	4.1	3.6	3.7	3.5	4.5	2.2 ^A	A	3.3	4.3 ^S
12	1.3	1.5	1.2	1.2	1.1	1.9	2.7	3.0	3.7	4.1	A	4.2	4.5	4.6	3.7	3.5	3.2	3.7	4.4	4.2	4.0 ^S	3.3	A	1.3 ^S	
13	1.8 ^A	1.0	1.0	1.3F	E	1.9F	2.6	4.8	6.4	4.7	A	5.4	5.2	5.4	7.5	8.1	5.4	5.1	6.5	6.5	4.4	5.2	1.5	2.2	
14	1.1	1.3	1.1	2.3	1.1	2.5	3.0	3.5	3.7	4.1	4.1	4.2	5.4	4.3	4.5	4.2	7.5 ^A	3.7	2.2F	3.5F	A	1.7	4.3	4.8	
15	4.8	3.6	1.3	1.5	1.3	2.0	3.2	3.7	6.0	5.8	5.8	8.1 ^A	5.2 ^A	6.0 ^A	5.4 ^A	4.2	4.5	3.6	4.7 ^S	6.1 ^S	4.4	C	C	2.3F	
16	1.6 ^A	1.1	1.0	1.3	1.2	[2.2] ^S	3.3	3.7	4.4	4.8	5.9	5.2 ^A	4.5	5.1 ^A	9.6 ^A	A	A	A	A	A	4.4 ^S	A	2.3F	2.4	
17	1.2	1.8	1.0	1.2	E	2.0	2.7	4.4 ^S	5.6	6.2	4.5	4.3	4.2	4.4	4.1	3.7	3.3	3.2	3.0	3.3 ^S	1.3 ^S	2.0	1.7	3.6	
18	A	2.8	1.5	1.4	1.6	3.0	5.0	6.8	A	5.2	5.1	5.9	5.1	4.6	5.1	4.4	4.6	3.3	3.7 ^S	2.2	2.2F	2.7 ^S	1.8	(1.2) ^S	
19	2.2 ^A	1.1	C	C	C	C	3.3	T	5.0	5.2	4.6	5.0	4.8 ^A	4.7	4.9	4.1	3.6	3.2	3.5	5.4	1.5	1.5	3.2	1.2	
20	A	2.8 ^A	E	C	C	C	C	C	4.2	5.0	4.8	6.0	6.0	4.7	4.8	4.2	3.5	3.3	2.3	6.2	5.2	1.3 ^S	3.5	1.7F	
21	2.2F	1.8	4.5	1.4	1.1	2.6	3.0	4.4	4.1	5.7 ^S	5.2	6.1	5.0	5.0	4.5	4.6	6.6 ^A	4.4	4.6	5.8	1.4 ^S	1.5 ^S	2.2	1.3	
22	1.1	1.1	1.1	1.4	1.1	2.1	3.3	[4.2] ^C	5.2	5.4	B	7.4	6.4	5.8	5.0	5.4	5.0	5.9	A	4.8	5.4	5.0	1.8	1.4	
23	1.5	1.6	1.5	1.3	1.4	2.2	2.9	3.6	5.3	A	5.2	B	5.2	5.0	4.9	6.8 ^S	5.2	4.6	6.3	1.7	4.5	2.2	1.7	1.8	
24	1.0	1.5	1.3	1.3	C	C	3.2	4.4	4.6	5.5	5.2	4.6	6.2	6.4	6.2	4.5	3.3	2.9	3.3	3.4F	6.3	1.8	A	1.8	
25	1.8	1.1	1.1	1.1	1.1	2.1	4.8	T	A	A	B	B	B	B	B	4.8	A	5.3 ^S	3.7	2.8	5.8	5.2 ^A	A	A	
26	1.2	1.2	1.9	1.9	2.2	[3.2] ^C	4.1	3.4	4.6	A	6.8	6.2	3.9 ^A	5.9	5.0	6.3	3.5	A	6.9	3.2F	5.0	3.4 ^S	2.1	1.0	
27	1.3	5.4	1.3	1.5	1.3	1.9	4.5	5.1	A	A	A	4.9	4.8	4.8	5.6	4.4 ^A	4.8	4.5	4.6 ^S	4.7	AS	5.2 ^S	A	A	
28	1.4	2.2	1.4	1.1	1.4	1.9	2.4	M	4.9	4.9 ^A	4.6	6.2	5.2	A	6.8 ^S	8.4 ^A	6.5	9.2 ^A	8.3 ^A	3.2F	4.2 ^S	1.9F	1.5 ^S	2.1	
29	1.2	1.0	1.2	1.1F	C	C	C	A	4.5	5.8 ^S	A	4.6 ^S	6.4	6.4	A	8.6 ^A	6.4	6.8 ^S	6.0	4.8 ^S	6.2	2.8	1.6	1.2	
30	1.2	C	C	C	C	C	C	C	4.9	6.2	A	6.4	8.5	9.4	4.1 ^A	6.1	A	5.0	2.7	3.0	2.2	1.5	1.5	1.2	
31	1.2	1.1	1.0	1.1	1.2	1.9	3.2	4.2	3.3	4.6	5.0	4.6	4.6	4.9	4.7	[4.6] ^S	4.4	4.4	4.8 ^A	4.6	4.6 ^S	A	1.4 ^S	1.8	
Mean Value	1.6	1.8	1.5	1.4	1.2	2.1	3.1	4.1	4.4	4.9	4.8	5.1	5.1	5.0	4.9	4.8	4.4	4.4	4.1	3.8	3.4	2.5	2.1	2.0	
Median Value	1.3	1.3	1.2	1.3	1.1	2.0	3.0	3.9	4.5	4.8	4.6	4.6	4.8	4.7	4.5	4.2	4.1	4.2	3.8	3.5	4.1	2.0	1.7	1.7	
Count	27	29	27	27	23	26	27	24	27	27	24	29	29	29	29	29	27	28	28	28	29	28	27	23	27

Sweep 1.0 Mc to 18.5 Mc in _____ min

Automatic

fminF

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

IONOSPHERIC DATA

Lat. 35°42.4'N
Long. 139°29.3E

May 1951

fminE

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	E	E	E	E	E	E	E	E	1.6	2.1	1.9	2.2	2.1	2.2	1.3	1.4	1.3	1.2	1.1	1.7	E	E	1.3 ^S		
2	1.2	E	1.1	E	E	1.3	1.3	1.3	1.4	1.5	1.7 ^S	2.0	2.0	1.7 ^S	1.5	1.4	1.3	1.3	1.1	1.1	[1.2]	1.3 ^S	1.3 ^S		
3	C	C	C	C	C	1.2	1.3	1.3	1.4 ^S	1.4	1.4	2.2 ^S	1.5	1.4	1.6 ^S	1.5	1.3	1.2	1.5 ^S	1.5 ^S	1.5 ^S	1.4 ^F	1.3	1.3	
4	1.1	E	1.1	1.6	E	1.1	1.2	1.3	1.3	1.3	1.5	1.7	1.6	1.7	1.7	1.3	1.3	1.3 ^F	1.2	1.3 ^S	1.3 ^S	1.3 ^S	1.2	1.1	
5	1.6	2.1	1.3	2.2	1.6	E	1.3	1.3	1.7	1.5 ^S	1.6	1.9 ^S	1.9 ^S	1.9 ^S	1.7 ^S	1.3 ^S	1.4 ^S	1.3 ^S	1.3 ^S	1.3 ^S	1.3 ^S	1.2	1.4 ^S	1.3 ^F	
6	1.1	E	E	E	1.3 ^F	1.3	1.3	1.3	1.3	1.3	1.1	1.3	1.8	1.7	1.5	1.4	[1.2]	1.1	1.2	1.1	1.1	1.3 ^S	1.3 ^S	1.3	
7	1.1	E	1.2	1.1	1.3	1.1	1.3	1.2	1.3	1.3	1.4	1.4	1.6	1.5 ^S	1.4	1.4	1.3	1.3	1.1	1.4 ^F	1.1	1.1 ^S	1.3 ^S	1.3	
8	1.1	1.1	1.4	1.3	1.3	1.1	1.2	1.3	1.3	1.3	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.7	1.1 ^S	1.4 ^S	1.1 ^S	1.7	1.7	
9	E	1.5	T	E	1.3	1.3 ^S	1.3	1.3	1.3	1.3	1.5 ^S	1.8	3.3	1.8	1.4	1.5	1.4	1.3	1.4	1.6	1.5	1.3	1.4 ^S	1.4	
10	1.1	1.3	1.1	1.0	1.1	1.3	1.4	1.5	1.5	1.7 ^S	1.9 ^S	2.1	2.2	2.1	2.2	1.9 ^S	1.5 ^S	1.3	1.3	1.1 ^S	1.3 ^S	1.3	1.6	1.1	
11	1.1	1.1	1.1	1.1	1.0	1.3	1.3	1.4	1.7 ^S	2.1	2.2	2.2	2.2	2.2	2.2	2.1	1.7	1.3	1.3	1.3	1.1	1.3	1.1	1.3	
12	1.0	E	2.1	1.1	E	1.3	1.5	1.4	1.8 ^S	1.8 ^S	2.1	2.2 ^S	3.4	2.2	2.2	2.0	1.5 ^S	1.3 ^S	1.3	1.1	1.4 ^S	1.1 ^S	1.1	1.1	
13	E	1.0	E	1.0	1.4	1.3	1.3	1.3	1.4	1.4	1.8	1.8	1.9	1.9	2.0	1.5	1.9	1.5	1.3	1.2	1.5	1.3	1.1	1.1	
14	1.0	E	E	E	E	1.3	1.3	1.4	2.0	1.5 ^S	2.2	2.2	3.4	3.4	2.6	2.0	1.5	1.5 ^S	1.3	1.1 ^S	1.2 ^S	1.3	1.1	1.1	
15	1.1	1.4	1.1	1.0	1.1	1.5	1.4	1.4	2.2	2.2	2.2	2.2	2.2	2.2	1.9 ^S	2.2	1.7 ^S	1.4	1.3	1.3 ^F	1.4 ^F	[1.4]	1.3 ^S	1.1	
16	1.1	1.0	1.2	1.0	1.1	[1.2]	1.3 ^F	1.4 ^F	1.5	4.1	2.4	3.0	4.1	4.1	2.2	1.5	1.4	1.4	1.3	1.1	1.1	1.2 ^S	1.2 ^S	1.0	
17	E	E	1.6	E	E	1.3	1.4 ^S	1.7	1.7	2.0	2.2	2.3	E	2.2	3.4	2.0	2.1	1.7 ^S	1.4	1.2	1.1 ^S	1.1 ^S	[1.2]	1.2	
18	1.2	1.1	1.2	1.6	1.2	1.4	1.3	2.7	3.5	2.2	2.3	3.3	3.5	3.6	2.2	2.2	1.8 ^S	1.9	1.3	1.1	1.1 ^S	1.4 ^S	1.1	1.1	
19	E	E	C	C	C	C	C	T	T	2.2	2.2 ^S	2.2	2.2	2.5	3.0 ^S	1.9	1.4	1.4 ^S	1.2	1.2	1.2	1.2 ^S	1.3 ^S	1.3 ^S	
20	1.1	1.1	1.1	C	C	C	C	C	1.9	2.3	2.2	2.2	2.2	2.2	2.2	2.2	1.2	2.2	1.4	1.3 ^S	1.4 ^S	1.3 ^S	1.0	1.0	
21	E	1.0	1.2	1.1	1.3 ^F	1.3	1.5	1.4	1.4	1.8	4.1	E	3.3	E	2.3	2.2	2.1	1.3	1.4	1.1	1.1	1.1	1.2	1.1	
22	1.6	1.1	1.0	E	1.4	1.4	1.3	[1.8]	2.2	2.2	E	E	E	3.4	3.0 ^S	3.0 ^S	1.8	1.6	1.4 ^S	1.1 ^S	1.2	1.3 ^S	1.2	1.2	
23	1.2	1.1	1.3	1.1	1.1	1.4	1.4	1.8	1.9	2.2	3.3	E	E	E	2.5	2.2	1.5	1.5	1.3	1.1 ^S	1.5 ^S	1.1 ^S	1.3 ^S	1.2 ^S	
24	E	E	E	1.0	C	C	C	C	1.5	2.0	2.3	E	2.9	E	E	3.0	1.5	1.5	1.2	1.5 ^S	1.4 ^S	1.3 ^S	1.4 ^S	1.2	
25	1.1	1.1	1.6	1.1	1.1	1.4	1.4	1.4	1.4	1.5	E	E	E	E	E	E	2.2	2.1	1.3	1.5 ^S	1.3 ^S	1.3	1.3 ^S	1.2	
26	1.1	1.0	1.1	1.1	1.2	[1.4]	1.5	1.5	1.8	2.2	2.3	3.4	2.7	2.2	2.2	1.8	1.4	1.3	1.3	1.3	1.1	1.1 ^S	1.3	1.1	
27	1.0	1.0	E	1.0 ^F	1.3	1.3	1.3	1.3 ^S	[1.4]	1.4	1.3 ^S	2.1	1.9 ^S	1.9	1.5 ^S	1.4 ^S	1.4 ^S	1.4 ^S	1.2	1.4	1.2	1.4	1.2	1.0	
28	1.0	1.0	1.1	1.0	1.1	1.3	1.3	[1.4]	1.5	1.5 ^S	4.1	B	4.1	2.2	2.2	1.9	1.7	1.5	1.3	1.2	1.1 ^S	1.1	1.1	1.1	
29	1.0	1.1	1.0	1.5 ^S	C	C	C	C	1.5	1.4	2.2	2.2	2.1	2.1	1.9 ^S	1.4	1.5 ^S	1.3	1.2	1.1 ^S	1.1	1.2	1.2	1.2	
30	1.1	C	C	C	C	C	C	C	1.5	1.4	2.2	2.2	1.5	1.8	1.5 ^S	1.4	1.3	1.3	1.1 ^S	1.4 ^S	1.1 ^S	1.3 ^S	1.5	1.5	
31	E	E	E	1.4	1.4	1.3	1.3	1.9	1.7	2.2	1.4	2.2	2.2	2.2	1.4	[1.4]	1.3	1.4	1.2	1.1	1.3	1.1	1.5	1.1	
Mean Value	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.5	1.6	1.8	2.1	2.1	2.4	2.2	2.0	1.8	1.5	1.4	1.3	1.2	1.3	1.2	1.3	1.2	1.2
Minimum Value	1.1	1.0	1.1	1.1	1.1	1.3	1.3	1.4	1.5	1.7	2.1	2.2	2.1	2.1	2.0	1.5	1.4	1.3	1.2	1.3	1.2	1.3	1.3	1.2	1.2
Count	30	29	27	27	25	26	27	28	30	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31

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

May 1951

YPF2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	7.0	7.0	6.0	8.0P	8.0	9.0	8.0P	7.0	8.0	(8.0)P	11.0K	8.0	8.0	9.0	6.0	7.0	7.0	8.0	7.0P	(5.0)S	11.0	(12.0)P	9.0		
2	7.0	11.0P	9.0	8.0	8.0	9.0F	10.0	6.0K	8.0K	B	7.0	11.0K	(9.0)P	7.0P	8.0	7.0	7.0	8.0	7.0	7.0P	11.0S	T	A	4.0	
3	C	C	C	C	C	9.0F	8.0	A	A	K	6.0	7.0	7.0P	7.0P	7.0P	7.0	7.0	8.0	2.0P	(4.0)P	5.0P	7.0P	6.0	8.0V	
4	9.0V	7.0	9.0	8.0	8.0F	(7.0)S	8.0	9.0P	A	K	5.0	8.0	9.0	8.0	8.0	8.0	7.0	7.0	8.0P	6.0	7.0P	(6.0)P	9.0	8.0	
5	8.0	6.0	7.0	(7.0)S	8.0	9.0	6.0K	10.0K	6.0K	8.0K	6.0	9.0	7.0	6.0	7.0	7.0	7.0P	9.0K	8.0K	(7.0)P	10.0V	(5.0)V	7.0V		
6	6.0	7.0	8.0	5.0	7.0	8.0	6.0	8.0S	7.0	9.0	8.0	8.0	9.0	6.0	7.0	8.0	10.0	7.0	7.0P	(8.0)P	9.0P	10.0	8.0F	7.0S	
7	8.0P	8.0F	9.0F	8.0F	8.0F	7.0	9.0	9.0	10.0	11.0	6.0	8.0	7.0	7.0	10.0	8.0P	6.0	8.0P	8.0	5.0S	B	B	7.0	(8.0)P	
8	(8.0)P	8.0	7.0	8.0	8.0	8.0V	10.0	6.0	8.0P	7.0	9.0P	11.0	9.0	10.0	8.0P	7.0	8.0	8.0P	8.0	5.0P	(6.0)P	7.0P	8.0	8.0	
9	9.0	8.0	7.0	(8.0)P	8.0	7.0	7.0	7.0	7.0S	(9.0)S	10.0	9.0P	A	7.0P	7.0	(10.0)P	10.0	7.0	7.0P	(7.0)P	(8.0)P	S	(7.0)P	(7.0)P	
10	9.0F	8.0P	9.0	7.0F	SF	10.0F	A	10.0P	10.0	8.0	10.0	6.0	6.0	8.0	9.0	7.0	9.0	8.0	8.0	AS	(6.0)S	(8.0)S	9.0	10.0	7.0
11	(8.0)P	10.0V	8.0V	7.0F	8.0	7.0S	6.0	6.0	9.0S	9.0	9.0	8.0	6.0	6.0	9.0	8.0	9.0P	6.0	8.0	8.0	9.0	8.0	(9.0)S	A	
12	FS	9.0F	(10.0)F	(10.0)F	(7.0)F	9.0	10.0	8.0	8.0	G	A	G	5.0	A	6.0	5.0	5.0	9.0	8.0	7.0	(8.0)P	AS	A	FS	
13	8.0S	(7.0)P	5.0	(5.0)P	(9.0)S	9.0	8.0S	8.0	8.0	(10.0)P	A	9.0	7.0	7.0	6.0	(6.0)S	7.0	6.0	A	A	B	9.0S	8.0P	F	
14	F	F	(9.0)F	10.0F	10.0F	9.0F	6.0	8.0	8.0	8.0	8.0	10.0	8.0	8.0	8.0	8.0	(8.0)S	BS	(7.0)S	9.0	(11.0)S	8.0	6.0P	5.0P	
15	6.0S	8.0	8.0F	9.0F	8.0	7.0	9.0	8.0	8.0	9.0	12.0	12.0	9.0	(9.0)P	6.0	7.0	9.0S	7.0	7.0	(13.0)S	10.0P	C	C	(7.0)P	
16	8.0	9.0P	9.0	10.0	10.0S	(12.0)P	9.0	10.0	12.0H	10.0	9.0	10.0	7.0	7.0	A	A	A	AS	A	AS	12.0F	A	(9.0)S	T	
17	8.0P	7.0	11.0	9.0	10.0	6.0	10.0	8.0	10.0	(10.0)S	8.0S	8.0	8.0	8.0	8.0	8.0	7.0	9.0	B	B	10.0	11.0P	AS	8.0	
18	(11.0)P	(9.0)P	7.0	10.0	9.0	9.0	10.0	G	A	K	5.0K	9.0K	8.0K	6.0K	8.0K	8.0K	9.0K	10.0K	8.0	8.0	10.0	8.0	8.0	8.0	[8.0]C
19	9.0	10.0F	C	C	C	C	10.0	8.0	5.0S	9.0	19.0H	10.0	10.0	10.0	9.0	7.0	8.0	6.0	(9.0)P	BS	S	9.0	9.0	9.0	
20	8.0F	6.0	8.0	C	C	C	C	C	9.0	8.0S	11.0	8.0	9.0	10.0	8.0	9.0	8.0	9.0	9.0S	7.0S	9.0	(9.0)S	9.0S	(5.0)P	
21	8.0	6.0	8.0	7.0	6.0	7.0	7.0	7.0	6.0	7.0	8.0	9.0	(10.0)P	9.0	10.0	9.0	9.0	8.0S	B	BS	9.0S	10.0F	9.0	8.0	
22	(7.0)P	10.0	9.0P	10.0	10.0	10.0	(10.0)P	[10.0]C	11.0	11.0	B	(9.0)P	(9.0)P	6.0	10.0	10.0	10.0	8.0	A	(9.0)P	9.0P	(8.0)P	(10.0)S	10.0	
23	10.0S	10.0F	10.0	8.0F	(10.0)P	9.0	8.0	8.0	12.0	A	7.0	B	(8.0)P	7.0P	7.0	8.0	(11.0)P	(9.0)P	6.0P	S	S	7.0P	S	S	
24	S	S	7.0	10.0	C	C	9.0	10.0	13.0	B	B	(7.0)P	(7.0)P	(8.0)P	(7.0)P	9.0	9.0	7.0	(9.0)S	10.0P	10.0P	(8.0)S	9.0	9.0	
25	9.0F	(9.0)F	6.0S	9.0	8.0	9.0	9.0K	B	A	K	A	B	B	B	B	6.0K	A	7.0K	8.0	9.0	AS	S	A	A	
26	(8.0)P	(9.0)F	10.0P	9.0P	10.0	[9.0]C	8.0	6.0S	8.0	A	A	9.0	11.0P	6.0	7.0	9.0	10.0S	(9.0)S	9.0S	8.0	10.0S	8.0	[8.0]S	9.0S	
27	10.0	8.0	8.0P	11.0	B	8.0	7.0	8.0	A	K	A	11.0K	9.0K	8.0K	8.0K	11.0K	8.0K	9.0	8.0	13.0	AS	(10.0)S	9.0	7.0P	
28	8.0F	7.0F	10.0	7.0F	8.0F	6.0F	11.0	[10.0]M	9.0S	7.0S	8.0	9.0	8.0	A	10.0	S	10.0S	A	A	S	7.0	12.0P	S	S	
29	9.0P	10.0	9.0	11.0	C	C	C	C	C	T	7.0	A	9.0	9.0	9.0S	8.0	8.0	8.0	10.0	9.0S	8.0	(8.0)P	9.0S	(8.0)P	
30	(11.0)P	C	C	C	C	C	C	C	C	C	11.0K	11.0K	SA	B	5.0S	6.0	A	10.0	10.0	8.0S	(9.0)S	8.0S	M	9.0	
31	9.0	10.0P	(9.0)P	S	(11.0)P	(11.0)P	6.0K	6.0K	5.0K	7.0K	9.0K	10.0K	6.0K	6.0K	(11.0)P	[10.0]C	8.0S	8.0P	10.0	(10.0)P	(11.0)S	S	S	10.0S	
Mean Value	8.0	8.0	8.0	8.0	9.0	9.0	8.0	8.0	9.0	8.0	9.0	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.0	9.0	8.0	8.0
Median Value	8.0	8.0	8.0	8.0	9.0	9.0	8.0	8.0	8.0	9.0	9.0	9.0	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	9.0	9.0	8.0	8.0
Count	27	27	28	26	23	26	27	26	26	25	22	29	28	27	28	29	28	28	28	23	25	25	23	22	24

Sweep 1.0 Mc to 18.5 Mc in 2 min Automatic

YPF2

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

foF2

May 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	T.4	T.3	T.2	6.7	5.5	5.6	7.2	8.2	8.0	8.2	8.5	9.8	C	C	C	C	C	C	9.8	9.1	8.3	8.2	7.4	6.3	
2	6.0	6.3	6.5	5.8	5.0	4.7	6.0	7.4	(7.2) ^M	5.1	6.7	9.6	9.1	8.5	8.1	8.9	10.3	9.4	10.2	9.7	10.1	5.4	5.9	6.2	
3	6.1	6.0	8.3	A	3.4	3.3	6.0	5.7	4.8	B	8.8	8.8	9.7	8.6	9.4	10.1	9.9	10.7	11.0	(10.6)	(7.7) ^S	6.0	6.3	7.0	
4	6.5	6.8	6.4	5.7	5.0	4.5	6.0	8.0	7.6	(7.4) ^C	7.3	9.1	9.1	9.1	C	C	C	8.9	10.3	9.3	7.3	7.9	(6.7) ^F	6.5	
5	7.5	7.3	7.3	7.2	4.9	5.2	6.3	7.2	7.8	6.7	7.8	9.0	10.1	11.0	13.1	12.5	10.9	10.6	11.4	10.9	8.9	(6.3) ^F	6.0	5.9	
6	6.2	5.6	6.1	5.3	4.7	5.2	5.7	6.5	7.3	6.9	7.3	8.6	9.7	11.3	11.4	11.0	10.4	10.3	10.6	10.9	10.7	8.1	6.2	6.1	
7	6.3	5.2	4.7	4.3	3.6	2.8	5.4	6.5	7.5	6.0	10.2	8.1	10.2	11.9	11.6	11.0	10.5	10.6	10.0	8.8	8.5	8.4	8.1	6.9	
8	6.3	6.7	6.0	5.2	3.3	4.8	6.2	9.2	9.6	7.3	7.2	7.7	8.7	8.8	9.8	11.1	11.1	(10.0) ^A	A	A	A	7.1	6.8	(6.8) ^F	
9	(6.8) ^P	5.4	6.9	6.6	7.3	6.2	7.2	7.9	7.8	9.4	9.8	A	A	12.8	13.2	12.3	12.3	10.7	10.0	9.0	8.9	8.5	8.4	8.0	
10	7.3	6.9	(6.8) ^F	(6.3) ^F	6.2	6.4	6.0	7.2	8.8	11.2	A	A	A	9.8	9.4	9.9	10.5	10.2	11.2	9.3	A	7.1	5.7	5.9	
11	6.1	5.7	4.6	6.0	6.1	A	B	A	8.6	9.3	9.2	10.7	12.5	(13.9) ^F	13.1	13.7	12.2	11.1	10.3	9.2	9.1	8.5	7.2	6.1	
12	6.0	6.4	6.5	(6.5) ^V	5.8	5.0	5.9	6.7	5.8	5.0	6.6	6.5	8.0	7.3	7.9	8.7	8.3	7.8	8.2	8.3	7.5	4.6	4.9	6.4	
13	6.3	6.1	6.2	6.1	4.3	3.9	5.7	7.2	7.4	(7.7) ^F	8.0	8.6	9.8	10.0	9.9	10.3	11.3	11.3	10.0	7.9	5.5	6.7	8	7.6	
14	8.0	8.3	7.7	7.1	5.5	5.4	8.3	7.7	7.4	7.5	7.7	8.6	9.8	10.1	11.3	12.0	12.2	11.9	10.1	7.6	6.4	6.8	7.5	7.8	
15	(7.8) ^H	7.6	7.2	6.2	5.9	6.0	7.3	7.1	8.0	8.8	8.5	9.4	9.6	C	C	13.0	12.1	10.6	9.9	9.5	8.6	7.8	7.5	7.0	
16	6.5	8.5	8.6	9.4	7.2	7.5	7.8	7.4	6.7	8.3	8.8	10.9	12.1	13.0	12.9	12.2	11.6	9.8	9.4	8.9	8.4	7.9	F	8.8	
17	8.4	7.6	7.0	6.0	6.6	6.2	7.4	8.6	8.5	8.9	8.6	9.6	10.5	11.9	12.1	11.4	12.0	12.7	12.1	10.2	A	6.9	7.6	8.4	
18	8.1	8.4	7.9	6.2	6.5	6.3	7.3	6.9	A	7.0	7.8	7.7	8.2	8.2	8.0	8.8	9.0	8.9	A	A	8.1	7.5	7.6	7.7	
19	7.5	7.7	6.9	(6.7) ^F	(6.6) ^P	6.6	7.3	6.9	7.3	8.1	8.1	8.7	8.2	8.4	8.5	9.1	9.1	9.1	10.7	11.0	10.3	7.4	7.8	8.0	8.0
20	8.5	7.6	7.5	7.6	7.2	7.4	8.0	8.7	7.7	8.1	8.7	8.7	9.7	11.4	11.5	13.0	12.9	12.1	11.9	10.8	8.9	7.8	6.9	9.4	
21	9.8	7.0	5.8	5.2	5.1	4.4	6.7	8.4	8.7	8.2	8.5	9.2	(10.6) ^H	10.0	A	12.4	A	12.7	11.8	10.0	C	C	C	C	
22	C	FS	C	(9.3) ^F	8.5	8.6	7.7	8.7	7.7	7.3	8.5	10.9	11.5	(11.4) ^F	11.3	11.7	11.6	12.2	11.9	A	A	7.2	8.4	8.5	
23	8.2	8.3	7.9	7.0	7.8	8.3	8.0	7.4	6.9	8.0	8.9	9.2	9.8	10.8	12.1	12.7	13.1	12.4	11.8	11.2	8.2	9.4	10.5	(10.7) ^P	
24	9.9	10.3	11.0	8.7	7.1	6.8	7.1	6.8	7.1	7.0	7.4	8.5	10.2	9.0	10.9	10.9	9.5	9.8	A	10.7	A	7.3	6.4	A	
25	7.9	7.9	(8.3) ^S	7.5	7.5	7.6	7.6	7.6	C	C	C	C	C	C	C	C	C	C	C	8.1	7.5	7.4	7.2	6.8	
26	6.2	7.2	FH	9.6	6.8	5.6	5.4	7.1	7.7	6.9	7.6	8.8	10.0	9.8	10.2	10.6	9.6	9.0	9.1	8.9	9.0	8.5	8.9	8.6	
27	9.3	9.0	C	5.5	4.9	6.4	8.5	7.7	5.9	7.3	8.8	9.5	10.8	10.6	9.4	10.1	9.9	8.7	7.7	A	A	6.4	6.1	6.1	
28	6.4	7.4	7.6	6.8	6.4	6.1	6.6	7.7	7.4	8.3	8.7	9.0	9.0	9.6	(9.6) ^P	11.4	11.8	12.0	11.5	9.9	9.0	9.4	9.0	8.9	
29	8.5	F	8.6	7.9	7.4	6.8	7.5	9.3	9.4	9.5	9.5	9.2	9.4	9.7	10.1	9.8	9.8	9.2	9.0	9.5	9.0	7.3	6.7	7.0	
30	6.8	6.5	5.7	6.7	6.2	5.7	6.3	6.2	7.5	7.4	7.6	8.6	10.6	12.1	10.8	8.8	8.0	8.7	A	8.7	5.9	5.8	6.3	6.5	
31	6.9	6.6	6.4	4.9	4.2	4.5	6.1	7.5	6.5	6.6	7.7	8.0	8.3	8.1	8.0	9.0	10.2	9.1	8.1	7.8	6.5	5.7	6.4	6.7	
Mean Value	7.3	7.1	7.1	6.7	6.0	5.8	6.9	7.5	7.6	7.8	8.3	9.0	9.8	10.3	10.5	10.9	10.7	10.4	10.3	9.4	8.1	7.3	7.2	7.3	
Minimum Value	7.1	7.1	7.0	6.6	6.1	5.8	6.9	7.4	7.7	7.8	8.5	9.0	9.8	10.0	10.2	11.0	10.5	10.6	10.2	9.3	8.4	7.4	7.0	7.0	
Count	30	29	28	30	31	30	30	29	29	28	29	28	27	28	26	28	27	29	26	27	24	30	28	29	

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

Y 1

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

May. 1951

f_oF₂

135° E Mean Time

Yamagawa

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

f_oF₂

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

IONOSPHERIC DATA

Lat. 31° 13.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

f'F2

May 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	290	260	250	230	230	260	240	250	250	250	300	300	C	C	C	C	C	C	290	260	230	250	290	300
2	290	280	290	280	210	260 ^H	240	270	250 ^K	260 ^K	340	340	300 ^K	300 ^K	330 ^K	370 ^K	330	280	250	360 ^A	250	360	300	340
3	350	410	270	A	310	370 ^A	240 ^A	270	270 ^A	260 ^A	340 ^A	300	300	300	300	300	290	290	260	220 ^A	280	300	300	320 ^F
4	300	300	300	290	270	300	280	240	260	320 ^C	380	320	300	320	C	C	C	240	290	250	290	270	290	330
5	320	320	280	210	210	250	230	220	210	250	300	360	350	310	300	310	300	300	280	250	250	250	280	310
6	250	300	320	350	300	300	280	250	270	300	300	380	340	330	310	330	340	300	290	290	210	200	240	300
7	310	300	300	310	230	210	240	250	270	290	290	300	370	300	290	300	290	300	300	300	250	250	250	300
8	350	340	270	240	280	290	270	300	240	270	300	300	320	320	330	310	280	A	A	A	A	A	320 ^A	300 ^A
9	300	300	300	280	290	300	280	260	260	260	350 ^A	A	A	A	330 ^A	330 ^A	320	280	250	250	260	260	280	290 ^F
10	300	300	290	260	290	220	230	290	250	260	A	A	A	A	350	370	370	320	330	270	260	A	320 ^H	350 ^F
11	300	310	220	300	220 ^A	A	280	A	300	310	280 ^K	360 ^K	320	300	300	290	300 ^K	270	270	270	270	280	270	290
12	260	300	290	290	290	300	290	290	320 ^K	270 ^K	400 ^K	360 ^K	320 ^K	350 ^K	380 ^K	310 ^K	300	280	280	240	240	260	300	360 ^A
13	290	400	280	250	200 ^H	380	270	220	290	290	310	370	350	370	A	360	300	290	270	240	250	370 ^A	350 ^A	370 ^A
14	360	270	260	260	270	310	240	220	270	300	310	400	370	350	360	300	310	290	250	260	A	380 ^A	340	300
15	270	300	300	320	340	300	250	280	270	300	360	370	350	C	C	300	250	300	280	280	260	240	280	300
16	290	340	300	260	250	280	250	270	250	370	370	390	370	340	310	330	330	290	290	290	300	330	A	300
17	290	250	290	280	260	260	260	270	300	290	300	210	360	360	340	310	320	310	270	260	A	38 ^A	370	320
18	350	310	280	280	310	300	280	280	A	430 ^K	360 ^K	330 ^K	300	280	A	360 ^K	310 ^K	280	A	340 ^A	300	300	310	320
19	330	330	320	300	290	260	240	270	270	290	320	340	340	340	350	370	330	320	290	270	250	400	340	320
20	330	330	310	280	300	300	250	300	290	300	400	400	400	400	370	340	310	300	280	250	300	280	300	280
21	290	300	310	280	270	280	270	240	290	290	370	400	370	390	A	340	A	300	280	240	C	C	C	C
22	C	280	280	280	270	270	260	290	240	290	380	350	320	320	320	320	400	280	290	300	A	340	390 ^F	290
23	300	300	290	290	290	240	210	230	230	280	340	370	370	380	360	380	300	290	350	290	250	320	330	330
24	320	280	250	230	250	330	290	270	340	400	300	320	320	310	350	300	320	300	A	250	A	400	360	A
25	300	300	260	270	300 ^H	270	250	C	C	C	C	C	C	C	C	C	C	C	C	C	260	270	280	280
26	250	300	300	310	300	290	280	250	330	230	400	400	360	350	360	330	320	310	300	320	300	370	370	330
27	310	250	C	280	340	300	250	250	280	A	410	390	380	360	340	350	290	290	310	A	400	400	340	350
28	300	300	280	280	300	300	260	300	310	330	340	320	360	430	350	350	320	290	300	290	290	290	300	300
29	300	300	300	280	270	270	300	300	290	300	290	330	330	350	340	360	320	300	300	260	260	260	380	370
30	330	310	330	320	300	300	300	280	320	370	310	370	330	290	290	300	310	340	A	230	260	300	300	300
31	300	310	310	290	280	280	280	280	300	300	370	350	370	350	400	390	300	320	270	230	300	300	350	320
Mean Value	300	310	290	280	270	300	260	270	280	300	340	350	340	340	340	330	310	290	280	270	270	270	310	320
Median Value	300	300	290	280	280	290	260	270	270	290	340	360	350	340	340	330	310	300	280	260	260	260	300	320
Count	30	31	30	30	31	31	31	29	29	29	29	28	27	28	24	28	27	28	26	29	23	30	29	29

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

Lat. 31° 12.8' N
Long. 130° 37.7' E

May 1951

foF1

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	L	L	L	L	L	C	C	C	C	C	C	Q					
2							Q	Q	Q	Q	Q	L	L	Q	L	L	L	Q	Q					
3							Q	Q	Q	Q	A	A	A	A	5.0	4.8	4.5	L	Q					
4							Q	L	C	A	5.0	L	5.0	C	C	C	C	Q	Q					
5							Q	Q	Q	Q	5.1	5.0	L	L	4.8	4.7	L	L	A					
6							Q	Q	L	L	4.8	5.2	4.8	5.0	5.2	4.0	4.2	L	Q					
7							Q	3.5	L	A	A	A	L	5.1	A	L	L	L	L					
8							Q	L	L	L	L	4.8	5.1	A	5.0	4.5	A	A	A					
9							Q	Q	Q	Q	A	A	A	A	A	L	L	A	A					
10							Q	Q	Q	Q	A	A	A	A	6.0	5.0	4.8	L	4.9	A				
11							A	A	L	L	5.6 ^J	A	B	5.4	L	L	L	Q	Q					
12							Q	L	L	4.2 ^J	4.5 ^J	A	L	L	L	5.0 ^J	L	L	L					
13							Q	Q	A	A	5.4	A	L	L	A	A	A	4.5	L					
14							Q	Q	Q	A	A	A	5.6	5.2	L	5.4	L	L	Q					
15							Q	L	Q	B	B	A	A	C	C	L	Q	L	A					
16							Q	L	A	A	A	(5.0) ^A	A	A	L	L	L	L	A					
17							Q	Q	A	A	A	Q	L	5.1	5.5	L	L	L	Q					
18							Q	L	A	A	A	L	L	L	A	A	5.1	Q	A					
19							Q	Q	L	4.3	4.6	L	L	L	A	5.4 ^H	4.6	L	Q					
20							Q	L	L	A	A	5.9	5.8	L	6.0	L	L	L	A					
21							L	Q	L	A	A	B	L	A	A	A	L	L	A					
22							Q	L	L	L	B	B	B	C	L	L	A	L	L					
23							Q	Q	Q	Q	L	B	L	L	5.6	L	L	L	A					
24							A	Q	A	A	A	A	A	L	A	L	L	L	A					
25							Q	C	C	C	C	C	C	C	C	C	C	C	C					
26							Q	Q	A	Q	A	5.4	5.1	L	5.0	4.9	L	L	L					
27							Q	Q	A	A	5.0	A	5.2	5.3	4.8	5.4	L	L	A					
28							Q	L	A	A	L	L	A	A	L	A	A	A	A					
29							L	L	4.2	4.4	4.8	5.0	L	L	L	L	L	L	A					
30							Q	Q	L	A	4.8	A	L	L	A	4.6	L	L	A					
31							Q	L	4.0	L	L	4.8	A	4.8	4.7	4.8	A	A	A					
Mean Value							3.5	4.1	4.4	4.8	5.0	5.2	5.2	5.2	4.9	4.6	4.7							
Median Value							3.5	4.1	4.4	4.8	5.0	5.2	5.1	5.0	4.8	4.6	4.7							
Count							2	2	2	7	10	8	9	11	12	5	2							

foF1

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

Y 4

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

f'F1

May, 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							Q	230	230	220	230	270 ^A	C	C	C	C	C	C	C						
2							Q	Q	Q	Q	Q	280	280 ^A	Q	270	300	300	Q	Q						
3							Q	Q	Q	Q	A	A	A	A	230	A	220	220	Q						
4							Q	230	220	C	A	290	A	A	C	C	C	Q	Q						
5							Q	Q	Q	Q	Q	(250) ^A	270	(230) ^A	250	250	250	250	A						
6							Q	Q	240	250	250	270	310	230	230	230	230	250	Q						
7							Q	270	230	A	A	310 ^A	200	A	A	250	260	250							
8							Q	Q	Q	Q	A	A	A	A	A	240 ^A	A	A	A						
9							Q	Q	Q	Q	A	A	A	A	A	310	A	A	A						
10							Q	Q	Q	Q	A	A	A	A	260	260	300	270 ^A	A						
11							A	A	A	A	240	280 ^A	A	B	270	A	260	Q	Q						
12							Q	240	250	Q	A	A	A	A	320	310	260	230	250	250					
13							Q	Q	A	A	200	A	A	A	250	340	A	A	270	240					
14							Q	Q	Q	A	A	A	280	210	290	290	A	280	Q						
15							Q	250	Q	B	B	A	A	C	C	A	Q	270	A						
16							Q	220	A	A	A	A	A	A	270	310	310	240	A						
17							Q	Q	A	A	A	Q	280	230	270	300	250	270	Q						
18							Q	250	A	A	A	A	A	A	A	A	250	Q	A						
19							Q	Q	250	220	220	220	A	A	A	290 ^H	270	300	Q						
20							Q	250	240	A	270	A	280	290	290	300	300	280	A						
21							A	Q	270	A	A	B	300	A	A	A	A	260	A						
22							Q	280	A	230	B	B	C	C	250	A	A	250	250						
23							Q	Q	Q	Q	270	B	280	300	300	A	300	A	A						
24							A	Q	A	A	A	A	A	290	A	A	A	280	A						
25							Q	C	C	C	C	C	C	C	C	C	C	C	C						
26							Q	Q	A	A	Q	A	280	250 ^A	A	260	260	270	270	250					
27							Q	Q	A	A	A	A	300	240	A	270	210	270	A						
28							Q	260	A	A	A	A	A	A	A	A	A	A	A						
29							260	250	250	240	270	290	A	A	A	A	A	A	A						
30							Q	Q	270	A	250 ^A	A	A	A	A	A	270	290	A						
31							Q	250	210 ^A	250	230	230	A	290	240	300	A	A	A						
Mean Value							260	250	240	230	240	260	280	260	260	280	260	260	250						
Median Value							260	250	240	230	240	280	280	250	260	280	260	260	270	250					
Count							1	13	12	7	12	10	13	14	16	16	17	18	5						

Sweep 1.0 Mc to 18.5 Mc in 1.5 min Manual

Y 5

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

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

May. 1951

foE

Yamagawa

135° E Mean Time

Day	00	01	02	03	04	05	06	07 ⁰	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	2.4	2.9	A	A	A	C	C	C	C	C	C	A					
2							B	2.3	2.8	A	A	A	3.4	3.8	A	3.8	N	N	A					
3							1.8	2.4 ^A	A	3.3	3.5	3.7	3.6	3.4	3.4	A	3.2	2.8	B					
4							E	2.6	3.0	C	A	A	A	A	C	C	C	2.5	2.2					
5							1.7	2.4	2.8	A	A	A	A	A	A	B	3.5	A	2.8 ^H	A				
6							A	A	2.6 ^A	A	3.4	A	A	3.6 ^J	3.4 ^J	A	A	A	2.7 ^H	2.4				
7							1.7	2.6	2.8	3.4 ^F	3.3	3.4	3.3	3.1	3.1	3.0	3.3	2.6	A					
8							A	A	2.9	3.0	3.4	A	A	A	A	3.4	3.2	A	A					
9							A	A	A	3.5	3.6	A	A	A	A	A	A	A	A					
10							B	2.4 ^F	A	3.4	A	A	A	A	A	A	B	3.0	2.6					
11							A	2.7	A	3.4	A	B	3.8	B	A	3.2	A	A	A					
12							B	2.7	3.1	A	3.8	A	A	4.2 ^J	3.6	3.7 ^J	2.8 ^J	2.6 ^J	A					
13							B	2.8	3.1	3.2	3.5	3.7	3.9	A	A	3.8	3.5	3.1	2.6					
14							A	3.0 ^J	3.2	3.4	A	A	3.8 ^J	A	A	A	A	A	3.0	2.5				
15							B	2.6	A	3.4	A	A	A	C	C	A	3.5	3.2	A					
16							A	B	3.2	3.6	3.8 ^J	3.6 ^J	B	4.4 ^J	3.3	3.2	3.5	3.2	2.6					
17							A	A	2.9	3.4	3.8	3.7	B	3.7	3.9	3.7	3.5	A	A					
18							A	2.4 ^J	A	3.3	3.6	3.6	B	B	A	3.2	A	3.1	A					
19							1.6	A	A	A	3.7	A	A	A	A	A	3.3	3.2	2.6					
20							A	A	A	3.8	4.0	4.0	4.2	A	A	3.8 ^J	3.6	A	A					
21							A	A	3.6	3.9	4.2	B	4.3	B	B	3.6	3.0 ^J	A	A					
22							2.2	2.8	3.2	3.5	B	B	B	C	A	3.8	3.6	3.2	3.6					
23							2.0	2.5	A	A	3.6	B	B	B	A	A	A	A	2.6					
24							1.9	2.9	3.4	3.8	A	A	A	3.2	A	A	A	A	A					
25							1.6	C	C	C	C	C	C	C	C	C	C	C	C					
26							2.0	2.8	3.2 ^H	3.4	3.6	3.6	A	A	3.4 ^J	A	3.4	A	3.1	2.4				
27							2.0 ^J	A	A	F	(3.1) ^A	(3.3) ^A	A	3.7	3.7	3.6	3.5	3.2	3.1	2.3				
28							2.0	A	A	A	3.0 ^J	A	B	A	A	A	A	A	2.9	A				
29							1.8	A	A	A	A	A	A	A	A	A	A	A	2.9	2.5				
30							A	A	3.0	3.4	3.4 ^A	3.6	3.6	A	A	A	A	A	A					
31							A	A	A	3.3 ^J	A	A	A	A	A	A	A	3.2	A	A				
Mean							1.9	2.6	3.1	3.4	3.6	3.6	3.8	3.7	3.4	3.5	3.3	3.0	2.5					
Median							1.8	2.6	3.0	3.4	3.6	3.6	3.8	3.7	3.4	3.4	3.3	3.0	2.6					
Value							1.3	1.7	1.7	2.0	1.7	9	1.0	9	9	1.6	1.4	1.9	1.2					
Count																								

foE

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

Manual

Y 6

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

f'F_E

May. 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							A	1.00	11.0	A	A	A	C	C	C	C	C	C	A					
2							B	1.10	11.0	A	A	A	1.30	1.30	A	1.30	N	N	A					
3							11.0	A	A	11.0	10.0	11.0	10.0	10.0	10.0	A	10.0	10.0	B					
4							E	1.30	1.20	C	A	A	A	A	C	C	C	10.0	11.0					
5							11.0	11.0	10.0	A	A	A	A	A	A	B	1.20	A	11.0	A				
6							A	1.20	11.0	A	11.0	A	11.0	11.0	10.0	11.0	A	11.0	1.20					
7							10.0	1.20	11.0	10.0	10.0	10.0	11.0	11.0	10.0	11.0	10.0	11.0	11.0	A				
8							A	A	10.0	10.0	A	A	A	A	A	1.20	1.20	1.20	A	A				
9							A	A	A	11.0	1.20	A	A	A	A	A	1.20	A	A	A				
10							B	1.10 ^F	A	11.0	A	A	A	A	A	A	B	10.0	1.20					
11							A	1.10	A	11.0	A	B	10.0	10.0	A	10.0	A	A	A					
12							B	1.10	A	1.20	A	A	A	11.0	11.0	11.0	11.0	11.0	A					
13							B	1.10	1.20	10.0	10.0	10.0	11.0	A	A	A	10.0	1.30	1.30					
14							A	A	11.0	10.0	A	A	11.0	A	A	A	A	11.0	1.20					
15							B	1.20	A	A	A	A	B	C	C	A	11.0	1.20	A					
16							A	1.10	11.0	11.0	11.0	B	11.0	10.0	10.0	10.0	10.0	10.0	10.0					
17							A	A	1.30	11.0	11.0	10.0	10.0	11.0	11.0	10.0	10.0	10.0	A					
18							A	1.00	A	11.0	1.20	1.20	B	B	A	11.0	A	10.0	A					
19							10.0	A	A	1.20	A	A	A	A	A	A	A	11.0	11.0	11.0				
20							A	A	A	11.0	1.20	1.20	11.0	A	A	A	11.0	11.0	1.20	11.0				
21							A	A	1.00	1.20	10.0	B	1.20	B	B	1.20	1.20	A	A					
22							1.20	11.0	11.0	10.0	B	B	10.0	C	A	10.0	11.0	11.0	11.0					
23							11.0	10.0	A	A	1.30	B	B	B	A	A	A	10.0	11.0					
24							11.0	11.0	11.0	11.0	A	A	A	10.0	A	A	A	A	A					
25							1.30	C	C	C	C	C	C	C	C	C	C	C	C					
26							1.20	11.0	10.0 ^H	11.0	11.0	1.20	A	A	11.0	11.0	A	11.0	11.0					
27							11.0	11.0	AF	10.0	11.0	A	10.0	11.0	10.0	10.0	11.0	10.0	11.0					
28							11.0	A	A	1.20	A	B	A	A	A	1.20	A	10.0	A					
29							10.0 ^F	A	11.0	A	A	A	A	A	A	A	A	10.0	1.20					
30							A	A	11.0	11.0	11.0	11.0	11.0	A	A	A	A	A	A					
31							A	A	A	11.0 ^F	A	A	A	A	A	A	A	11.0	A					
Mean Value							11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0					
Median Value							11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0					
Count							13	16	17	20	17	9	12	10	9	17	14	20	13					

Sweep 1.0 Mc to 1.8.5 Mc in 1.5 min Manual

Y 7

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

IONOSPHERIC DATA

May 1951

fEs

135° E Mean Time

Yamagawa

Lat. 31° 12.6' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2.2	1.6	2.2	2.0	2.2	1.4	2.8	3.2	4.1	4.0	3.8	4.4	C	C	C	C	C	4.2	4.6	4.3	4.1	3.7	3.5	
2	3.2	3.8	2.4	3.0	1.2	E	G	G	3.6	4.2	3.8	G	G	4.0	5.2	E	E	6.8	9.8	3.8	2.8	E	3.0	
3	4.0	5.0	4.6	7.8	3.8	3.2	3.8	5.2	8.0	6.8	8.7	10.8	7.0	7.8	6.8	3.8	G	3.0	3.4	3.8	4.6	3.6	4.2	
4	5.6	4.4	4.2	2.8	E	E	G	G	C	7.4	7.2	5.2	4.4	C	C	C	4.0	5.2	4.2	6.4	5.5	6.7	3.4	
5	4.6	2.6	3.9	2.3	2.4	2.9	3.8	5.0	4.2	6.4	4.6	4.4	4.4	5.4	G	5.2	6.0	6.3	4.6	4.0	4.6	3.5	1.7	
6	3.9	3.8	3.8	4.6	2.8	E	2.4	2.8	4.4	4.8	5.0	5.4	7.6	6.8	4.0	6.8	G	4.5	3.9	3.9	3.4	2.4	3.0	
7	2.7	2.6	2.8	2.8	2.4	2.2	G	G	3.1	5.6	5.9	6.2	5.5	4.8	8.0	5.0	5.0	6.0	4.0	3.8	(8.2)	4.0	4.0	
8	5.4	3.7	1.8	1.4	E	2.2	2.0	3.0	4.4	4.2	5.8	5.1	6.9	5.1	G	7.2	14.0	15.2	15.2	12.8	6.8	5.6	5.4	
9	4.4	3.2	5.0	3.8	2.6	E	2.4	2.6	3.8	7.5	9.3	13.3	13.6	9.9	8.7	5.8	6.9	7.2	4.4	4.6	5.8	6.6	8.6	
10	6.4	3.8	2.4	2.4	2.4	2.6	4.0	6.2	6.8	12.4	14.4	14.0	13.6	4.6	3.6	G	6.0	7.2	4.6	8.7	4.8	4.8	5.6	
11	2.3	2.8	2.5	3.4	2.5	5.9	5.2	7.5	8.6	7.6	5.0	5.4	6.6	3.0	4.8	3.8	4.0	5.0	5.8	5.9	6.2	5.0	3.9	
12	4.2	3.8	3.7	2.4	2.5	E	E	G	4.6	4.8	5.0	5.6	5.4	5.2	5.6	4.6	4.2	2.6	3.6	4.0	2.8	4.2	5.4	
13	2.5	5.6	3.4	2.8	2.6	E	G	4.0	4.6	8.9	4.9	8.3	5.3	7.9	9.6	7.7	7.8	G	5.0	4.3	2.9	6.8	3.3	
14	6.6	3.0	3.0	2.8	4.0	3.4	3.8	3.2	7.2	6.4	6.2	6.0	7.6	7.0	5.0	4.2	6.0	6.0	4.8	5.8	4.2	4.4	2.2	
15	2.4	2.8	2.8	E	E	E	G	G	3.8	4.2	5.0	5.8	8.5	C	C	4.2	13.8	7.9	5.7	6.1	5.6	4.6	4.8	
16	3.6	7.4	3.8	3.2	3.8	2.4	2.6	3.0	6.0	8.2	9.8	10.2	10.4	7.4	5.0	5.6	6.6	6.3	7.7	4.7	3.1	6.9	7.4	
17	1.8	2.8	3.4	2.0	3.0	E	2.3	3.4	6.4	6.6	6.0	6.2	5.0	4.9	5.4	6.0	G	5.8	3.8	4.4	8.8	4.0	3.6	
18	8.8	8.4	4.0	5.8	4.4	2.6	3.6	5.0	8.2	7.0	7.1	5.8	7.4	9.3	9.8	5.0	3.8	13.6	10.4	6.4	4.2	2.7	3.8	
19	4.4	2.6	2.0	3.8	2.2	3.6	4.8	4.6	4.5	5.8	5.5	6.3	7.1	7.3	5.6	5.6	5.3	5.2	5.4	4.4	7.0	7.2	2.3	
20	2.0	2.8	2.6	3.8	3.8	3.8	3.8	3.4	5.4	8.0	6.8	6.8	G	4.8	5.0	G	6.2	4.6	6.2	4.0	7.0	5.0	4.0	
21	3.0	3.2	3.6	2.8	3.1	3.2	3.7	3.9	G	G	7.8	7.8	7.0	8.0	10.4	7.6	11.2	9.8	4.8	5.0	C	C	C	
22	C	2.4	C	1.2	2.4	E	G	G	6.4	G	E	E	G	C	9.0	F	11.7	13.1	4.0	6.0	10.6	12.8	8.4	
23	4.8	4.3	5.0	3.8	3.3	3.0	3.5	G	4.8	5.0	5.0	E	E	5.0	4.4	3.8	3.6	6.8	10.8	9.6	3.0	8.0	4.0	
24	6.6	2.6	3.3	2.4	3.0	4.0	4.8	5.4	6.4	8.0	8.0	9.0	8.8	9.6	5.8	5.8	5.8	3.8	12.0	9.0	14.4	4.8	8.4	
25	3.6	1.8	2.4	3.2	2.2	1.8	3.1	C	C	C	C	C	C	C	C	C	C	C	C	3.2	4.2	5.2	5.6	
26	4.9	7.4	5.6	6.6	9.0	6.9	G	5.4	7.4	4.4	5.4	7.0	9.8	6.8	G	4.6	G	4.4	8.0	5.0	9.4	7.8	8.8	
27	5.4	4.0	C	2.4	2.4	E	G	3.0	6.1	8.8	8.8	8.3	4.9	4.8	F	4.0	G	6.1	8.9	9.0	5.8	6.9	6.7	
28	6.4	2.8	2.4	2.2	2.4	2.2	2.4	4.8	6.6	6.6	5.7	5.9	7.8	8.7	4.4	4.3	7.0	7.3	7.0	6.2	4.5	4.2	5.4	
29	4.4	4.2	3.6	2.6	2.4	3.8	3.2	3.9	4.5	4.4	4.9	5.3	5.7	5.4	6.2	6.6	7.3	8.0	5.6	4.6	8.3	5.2	6.7	
30	4.0	2.6	3.4	6.0	3.8	3.8	2.6	5.0	5.2	6.4	4.6	7.3	6.4	6.0	9.2	5.0	5.4	5.3	9.8	3.8	5.6	3.8	3.8	
31	3.0	2.8	3.6	3.2	2.9	2.4	3.3	3.6	6.0	6.1	5.0	5.3	7.8	4.9	4.4	4.6	8.4	9.0	7.2	5.8	5.2	3.2	4.1	
Mean Value	4.2	3.7	3.4	3.3	3.1	3.2	3.3	4.1	5.6	6.3	6.4	6.9	7.4	6.2	6.6	5.9	6.6	6.3	6.6	6.1	6.2	5.4	5.0	4.9
Median Value	3.0	3.2	2.9	2.8	2.6	2.4	2.6	3.4	5.1	5.8	6.0	6.4	5.4	5.4	5.7	5.0	6.0	6.0	6.0	4.7	5.4	5.0	4.5	4.1
Count	3	0	3	1	3	1	3	1	3	0	3	0	2	2	2	2	2	2	2	3	3	3	3	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

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time

(M3000)F2

May, 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	2.8	3.0	3.0	3.2	3.0	3.0'	3.4	3.3	3.2	3.3	2.8	2.7	C	C	C	C	C	C	3.2	3.2	3.5	3.3	3.1	3.1
2	2.9	2.8	2.9	2.9	3.2 ^F	3.0 ^H	3.4	3.4 ^P	3.3 ^K	3.3 ^K	2.9 ^K	3.0	3.1	3.0 ^K	2.9 ^K	2.8 ^K	2.8	3.4	3.1	2.7	3.2	2.7	2.7	2.7
3	2.6	2.5	(3.2) ^J	A	2.9	2.7	3.1	3.2	3.5	B	2.8	3.1	3.1	3.1	3.0	3.0	2.9	2.9	3.3	3.0	(2.9) ^S	2.6 ^H	2.7 ^P	(2.7) ^J
4	2.7 ^F	2.6 ^F	2.7	3.0	2.8	3.0	3.5	3.3	(3.1) ^C	2.9	(2.9)	2.9	2.9	2.7	C	C	C	3.2	3.0	3.1	3.1	(2.6) ^F	2.6 ^F	2.6 ^F
5	2.8	2.6 ^F	3.2 ^F	3.4 ^F	3.1 ^F	3.4	3.3	3.1	3.4	3.3	3.0	2.9	(2.9) ^J	3.2	3.0	2.9	2.9	2.9	3.2	3.4	3.3	(3.0) ^F	(2.9) ^J	2.6
6	(3.1) ^J	3.0	3.1	2.9	2.9	3.1	3.3	3.3	3.4	3.3	3.0	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.5	3.0 ^H	2.8
7	2.9 ^H	3.0	2.9	3.0	3.4	3.2	3.5	3.4	3.2	3.0	3.2	2.9	2.8	3.0	3.1	2.9 ^H	3.0	2.9	3.1	(3.1) ^B	3.0	3.2	3.0	2.7
8	2.7	2.7	3.0	3.0	2.7	2.8	2.9	2.9	2.8 ^S	3.2	(3.0) ^J	2.9	2.8	2.8	2.8	2.9	3.2	A	A	A	A	2.9	(2.7) ^S	(2.7) ^H
9	2.6 ^P	3.0	3.0 ^J	3.2	3.2	2.9	3.3	3.4	3.2	3.3	2.9	A	A	A	3.0	2.9	3.0	3.1	3.2	3.1	3.0	2.8	3.0 ^S	2.7 ^S
10	2.9 ^P	(2.8) ^F	2.7 ^F	(2.9) ^F	(2.9) ^F	3.2	3.3	2.7	3.0	(3.4) ^J	A	A	A	2.7	2.8	2.8	3.0	2.6	3.3 ^S	3.1	A	2.6 ^H	2.8 ^S	2.7
11	2.8 ^S	2.7 ^H	3.3	(3.0) ^J	(3.4) ^H	A	B	A	3.1	2.9	2.8 ^H	2.8	2.9	(2.9) ^F	2.9	3.0	3.1 ^H	3.1	3.3	3.2	3.3	3.1	3.2	2.7
12	3.1	2.8 ^F	(3.0) ^F	(2.8) ^V	3.2	2.8	2.9	3.2	3.1	3.2	2.6	2.9	3.0	2.9	2.8	2.9	3.1	3.2	3.1	3.1	3.2	2.9	2.8	2.7
13	2.7 ^H	2.6	3.0	3.1	3.0 ^H	2.5	3.1	3.2	3.1	(3.1) ^P	3.0	2.8	2.9	2.8	A	2.8	2.9	3.1	3.1 ^S	3.2	2.9	2.8 ^S	S	2.7 ^Z
14	2.6 ^H	3.3	3.1	3.1	2.8	2.7	3.4	3.3	3.3	2.9	2.9	2.6	2.7	2.7	2.9	2.9	2.9	3.1	3.2	3.2	A	2.8	2.7	2.6
15	(3.0) ^H	2.8	2.9	2.7	2.6	3.1	3.1	3.2	3.0	3.0	2.8	2.8	2.9	C	C	2.8	(3.1) ^J	3.1	3.3	3.3	3.4	3.4	3.2	3.4
16	3.1	2.7	2.9 ^P	2.9 ^H	3.3	2.8	3.2	3.4	3.1	2.8	2.6	2.6	2.7	2.7	2.8	2.9	2.7	3.2	3.2	2.9	2.7	2.9	2.7	2.9
17	2.9	2.8	2.9	2.7	2.8	2.9	2.9	3.0	(3.1) ^P	2.9	2.8	3.2 ^Z	2.6	2.7	2.8	2.8	2.7	2.9	3.0	3.1	A	2.9	2.7	2.7
18	2.9	2.7 ^H	3.0	3.0	2.7	2.8	3.1	3.1	A	2.6	2.9	3.0	3.1	3.4	(2.8) ^K	2.9	2.9	2.9	A	A	A	2.9	(2.7) ^J	2.7
19	(2.6) ^J	(2.6) ^F	(2.6) ^F	(2.7) ^P	(2.8)	3.1	3.2	3.3	3.2	3.2	3.0	2.8	2.9	2.8	2.8	2.8	2.9	2.8	2.9	3.0	2.9	2.5	(2.6) ^H	2.6
20	2.5 ^F	2.8	3.0	3.2	2.9	3.0	3.3	3.0	3.0	3.0	2.7	2.5	2.6	2.8	2.9	2.8	2.8	2.9	2.9	3.2	2.8	2.9	2.9	2.9
21	2.8	2.9	3.0	3.1	3.1	3.1	3.3	3.1	3.2	3.1	2.8	2.5	(2.6) ^H	2.9	A	2.9 ^H	A	2.9	3.1	3.1	C	C	C	C
22	C	F ^S	C	(2.9) ^F	3.0	3.2	3.1	3.0	3.6	2.9	(2.8) ^P	2.7	2.9	[2.9] ^C	2.9	2.8	2.9	2.9	2.9	3.0	A	2.6 ^F	2.7 ^F	2.7 ^F
23	2.7	(2.8) ^J	2.7	(2.7) ^F	2.7	3.2	(3.1) ^S	3.2	3.4	2.9	2.8	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.0	3.0	3.3 ^P	(2.6) ^J	2.6 ^F	(2.6) ^P
24	(2.8) ^J	3.0 ^F	3.1 ^H	3.0 ^F	2.7	2.7	2.8	3.2	(2.5) ^B	2.8	2.9	2.7	2.7	2.7	2.8	2.8	3.0	2.9	3.0	A	3.4	2.7	2.6 ^H	A
25	2.7	(2.7) ^H	(2.8) ^S	(2.8) ^H	2.6 ^H	(2.9) ^F	3.3	C	C	C	C	C	C	C	C	C	C	C	C	3.2	3.2	3.2	3.2	3.2
26	3.2	(2.9) ^F	F ^H	2.8 ^H	3.0 ^H	3.3 ^Z	3.3	3.1	3.0	2.8	2.5	2.5	2.7	2.7	2.7	2.8	2.8	2.9	2.9	(3.2) ^J	2.9	2.6	2.7	2.7
27	2.8	3.0	C	2.9	2.7	3.0	3.3	3.2	3.2	(2.5) ^A	2.4	2.5	2.6	2.7	2.7	2.7	2.9	2.9	3.1	A	A	2.8	(2.6) ^P	(2.8) ^F
28	2.8	2.7 ^Z	2.7 ^F	(2.6) ^S	2.4 ^F	2.8	2.8	2.9	2.9	3.0	2.8	2.8	2.7	2.6	(2.7) ^P	2.7	2.8	2.9	2.9	3.1	3.2	2.8	2.8	2.7
29	2.9	F	(2.9) ^F	2.9	3.0	2.9	2.9	2.9	3.0	2.9	3.0	2.7	3.0	2.8	2.9	2.9	3.2	3.0	2.9	2.9	3.3	3.2	2.7 ^F	2.6 ^P
30	2.8 ^H	2.6	3.0	3.0	3.0	2.9	3.0	3.3	3.0	2.9	2.7 ^H	2.8	(2.9) ^J	3.2	3.1	3.2	2.7	2.7	A	3.2	3.2	2.8	2.8	3.0
31	2.8	2.9	3.0	3.0	3.0	3.0	3.3	3.2	3.3	2.7 ^K	2.9	2.9	2.9	2.9	2.8	2.8	3.1	3.1	3.2	(3.2) ^J	(3.1) ^J	2.7	2.6	2.8
Mean	2.8	2.9	2.9	2.9	2.9	3.2	3.2	3.2	3.0	2.8	2.8	2.8	2.9	2.8	2.9	2.9	2.9	3.0	3.1	3.1	3.1	2.9	2.8	2.8
Median	2.8	2.8	3.0	2.9	3.0	3.2	3.2	3.2	3.0	2.8	2.8	2.8	2.9	2.8	2.9	2.9	2.9	2.9	3.1	3.1	3.1	3.2	2.8	2.7
Count	30	29	28	30	31	30	29	29	29	29	29	28	27	28	25	28	27	28	26	27	23	30	28	29

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

Lat. 31° 12.5' N
Long. 130° 37.7' E

May, 1951

fminF

135° E Mean Time

Yamagawa

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	1.2	1.1	E	2.0	2.7	3.4	3.6	3.6	4.2	C	C	C	C	C	C	4.1	2.5	2.3	2.1	1.5	1.3	
2	1.3	1.2	1.8	1.8	E	E	1.9	2.8	3.4	3.2	4.0	3.6	3.8	4.4	3.7	4.2	4.4	3.0	2.0	6.0	3.4	2.0	E	1.4	
3	1.4	4.5	3.0	A	2.0	2.0	1.8	2.6	3.4	3.6	6.0	6.0	7.2	5.4	4.1	4.7	3.3	2.8	2.3	A	3.4	3.0	2.0	A	
4	2.0	2.0	1.4	2.0	E	E	E	2.6	3.0	C	6.0	4.0	4.2	4.6	C	C	C	N	4.2	3.7	4.4	4.4	2.3	2.0	
5	2.2	1.6	2.0	A	A	1.4	1.7	2.8	2.9	3.4	4.6	4.4	4.4	4.5	4.0	4.0	3.8	2.8	4.3	4.3	4.4	3.0	1.7	1.5	
6	2.3	E	1.4	1.2	1.2	E	2.2	2.4	3.1	3.3	3.7	4.3	4.4	3.8	3.5	3.6	2.1	2.1	2.6	2.1	1.3	A	1.4	1.6	
7	2.7	1.4	1.4	1.2	1.2	1.6	1.6	3.0	3.4	4.6	5.2	5.2	4.8	4.0	5.9	4.6	3.4	3.4	3.2	3.0	3.0	2.0	1.5	1.6	
8	1.5	E	1.8	1.2	E	E	1.4	2.2	3.4	3.4	3.4	3.9	4.6	4.5	4.0	3.9	5.7	(9.6)	A	A	A	A	A	A	
9	A	A	A	1.8	E	E	1.4	2.6	3.5	3.5	7.6	A	A	9.0	7.3	5.6	4.8	5.3	5.6	3.9	3.4	3.1	4.1	5.4	
10	A	1.8	1.7	1.4	1.8	E	3.3	3.7	2.8	A	A	A	A	3.4	3.2	3.8	4.2	3.8	4.5	2.9	A	1.7	1.7	2.2	
11	1.5	2.1	A	2.9	A	A	4.5	A	4.6	4.0	4.2	4.8	5.3	4.3	4.4	4.7	3.8	3.6	3.6	3.1	3.4	2.4	1.8	1.9	
12	1.8	A	2.0	1.8	1.7	2.0	2.0	2.8	3.4	4.2	4.4	4.6	4.6	4.8	4.8	4.6	3.8	4.0	2.6	2.8	2.5	2.0	3.0	5.0	
13	2.6	3.8	2.2	2.4	A	2.0	2.1	2.8	3.8	4.7	3.9	7.0	4.6	5.6	9.6	7.1	6.8	3.2	3.1	2.0	1.7	5.6	4.0	5.1	
14	4.2	3.0	2.0	1.8	2.6	1.8	2.4	3.6	3.5	5.6	4.2	6.0	4.6	4.0	4.6	4.2	6.0	3.3	2.8	4.8	6.3	4.2	3.5	2.0	
15	1.7	A	A	E	E	E	2.6	3.2	2.8	5.0	6.1	5.4	4.6	C	C	4.7	4.5	4.0	3.9	3.2	2.8	1.7	2.2	1.8	
16	1.6	2.4	A	2.2	3.0	1.8	2.2	2.8	4.3	7.0	5.0	4.8	5.4	7.0	4.5	5.4	6.0	3.9	5.7	3.9	2.1	A	A	1.6	
17	F	E	1.8	1.2	1.2	1.1	2.2	2.9	5.4	5.4	5.5	5.6	4.6	4.2	4.6	4.7	3.9	3.4	2.4	3.2	(7.6)	3.8	2.8	1.8	
18	A	A	E	3.0	3.0	2.0	2.2	3.1	A	6.1	6.3	5.3	5.3	7.2	7.6	7.1	3.9	3.6	A	7.7	A	A	1.7	1.7	
19	1.2	1.6	1.4	2.1	1.6	2.6	3.6	4.0	3.6	3.7	4.1	4.6	5.0	5.2	5.6	4.6	3.8	4.4	3.4	2.8	3.3	5.4	2.6	1.4	
20	1.4	1.3	1.2	3.4	A	A	2.4	2.9	3.8	7.0	4.7	6.4	4.6	4.8	4.6	4.6	4.7	4.6	6.0	2.0	5.3	1.8	3.0	2.0	
21	1.3	1.4	1.4	1.6	1.4	1.6	2.7	3.3	4.1	4.7	7.4	7.3	4.8	7.2	A	6.6	A	3.6	5.0	A	C	C	C	C	
22	C	E	C	E	1.2	1.2	2.2	2.9	4.0	4.2	7.0	6.8	6.8	(5.6)	4.4	6.3	10.9	10.9	3.4	2.7	9.2	A	3.2	6.4	2.2
23	A	A	E	F	2.0	2.2	2.5	2.4	3.6	4.2	4.2	7.2	4.6	4.8	4.2	5.6	4.6	4.9	10.4	7.2	1.6	A	1.7	A	
24	1.8	1.6	1.7	E	2.0	2.6	4.2	4.0	4.8	7.8	6.0	6.4	A	4.6	7.6	4.8	A	3.2	A	A	A	3.8	1.4	A	
25	A	E	1.2	2.0	1.2	1.1	2.2	C	C	C	C	C	C	C	C	C	C	C	C	1.6	1.8	1.6	1.4	1.6	
26	1.6	A	2.4	1.2	4.6	3.4	2.2	3.2	6.0	3.6	5.4	4.4	4.4	5.0	4.2	3.8	4.0	3.4	2.6	7.8	4.2	6.4	6.8	A	
27	A	E	C	E	E	E	2.8	3.0	4.1	6.9	4.4	5.8	4.5	4.1	4.7	4.0	3.2	3.1	5.3	A	A	5.7	E	2.0	
28	E	1.4	E	2.4	A	A	2.1	3.6	5.6	3.8	5.7	5.6	6.8	8.3	5.4	6.8	6.5	6.1	6.8	5.6	5.7	4.5	3.8	2.8	
29	2.8	3.0	2.4	1.4	1.4	2.2	2.2	2.6	3.8	3.9	4.0	4.5	5.7	6.0	6.1	6.1	5.9	6.6	4.2	3.8	3.0	3.6	4.7	3.7	
30	1.7	1.4	1.4	E	1.6	1.6	1.6	2.6	3.0	4.6	4.5	6.1	4.7	6.0	6.4	4.2	4.2	5.0	5.0	A	2.0	3.5	3.0	1.8	
31	A	1.2	1.4	1.2	1.3	1.2	2.8	2.6	A	3.5	4.4	4.0	6.0	4.1	3.9	4.1	7.1	7.6	4.6	A	5.0	2.0	2.6	1.8	
Mean Value	1.9	2.0	1.8	1.8	1.9	1.8	2.4	3.0	3.8	4.8	5.0	5.4	5.1	5.2	5.1	4.9	4.8	4.2	4.2	4.0	3.6	3.3	2.7	2.3	
Median Value	1.6	1.4	1.4	1.4	1.4	1.5	2.2	2.8	3.6	4.2	4.6	5.2	4.6	4.8	4.6	4.6	4.3	3.6	4.0	3.2	3.4	3.0	2.1	1.8	
Count	23	25	25	24	24	28	31	29	28	28	29	28	26	28	26	28	26	28	26	28	25	24	25	28	25

Y 10

Manual

Sweep 1.0 Mc to 18.5 Mc in 1.5 min

fminF

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

IONOSPHERIC DATA

May 1951

fminE

135° E Mean Time

Yamagawa

Lat. 31°-12.8' 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	E	E	E	E	E	E	E	E	1.7	2.0	2.2	2.2	C	C	C	C	C	C	1.8	1.6	1.5	1.3	1.1	E	
2	E	E	E	E	E	E	1.7	1.7	1.7	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.0	1.6	1.4	1.6	1.8	E	1.6	
3	1.4	1.2	E	E	E	E	E	1.4	1.6	2.0	2.1	1.9	1.8	2.0	2.0	2.0	1.7	2.0	2.0	1.5	1.1	1.5	E	E	
4	E	E	E	E	E	E	E	2.4	1.4	(1.7)	2.0	3.0	1.8	C	C	C	C	1.4	1.4	1.2	1.1	1.4	1.4	E	
5	E	E	E	E	E	E	1.3	1.7	1.7	1.8	1.8	1.8	2.8	2.0	3.6	1.8	1.8	1.5	1.6	1.6	1.6	2.0	1.5	1.5	
6	1.7	E	E	E	E	E	E	1.6	1.4	1.8	2.0	2.0	2.2	2.0	2.0	2.0	1.6	1.6	1.3	1.3	E	E	E	E	
7	E	E	E	E	E	E	E	1.1	1.4	1.6	1.7	1.8	2.0	1.8	1.7	1.7	1.5	1.6	1.4	E	E	1.6	E	E	
8	E	E	E	E	E	E	1.2	1.2	1.6	1.7	1.7	1.9	2.0	1.7	2.1	1.9	1.7	1.6	1.5	1.1	E	1.4	1.1	E	
9	E	E	E	E	E	E	E	1.4	1.7	1.8	2.0	1.8	1.8	1.9	1.7	1.6	1.6	1.6	1.5	1.2	1.3	E	1.1	E	
10	E	E	E	E	E	E	1.5	1.6	1.8	2.0	2.2	2.2	2.2	2.4	2.4	2.4	2.2	1.6	1.5	E	E	E	E	E	
11	E	E	1.7	E	1.1	1.1	1.6	2.0	1.7	2.0	2.0	4.6	2.8	2.8	2.0	2.0	2.0	1.8	1.6	1.5	1.4	1.4	1.2	1.1	
12	E	E	E	E	1.2	E	E	1.7	1.8	1.8	2.0	2.6	2.8	2.8	2.6	1.8	2.0	1.6	1.8	1.4	1.2	1.2	1.2	E	
13	E	2.0	1.2	1.6	2.0	E	1.6	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	1.7	2.0	1.6	1.2	1.1	E	1.2	E	
14	E	E	E	E	E	E	1.2	1.7	1.8	2.2	2.2	2.2	2.7	2.6	2.7	2.2	2.2	1.8	1.7	1.3	1.5	1.2	1.2	1.1	
15	E	E	E	E	E	E	1.4	1.6	1.8	2.0	2.4	1.8	3.6	C	C	3.0	1.6	1.5	1.3	1.3	1.2	1.1	E	E	
16	E	E	E	E	E	1.2	1.4	1.5	2.1	2.4	2.9	2.6	4.2	2.4	2.4	2.2	2.0	1.4	1.3	E	1.2	1.1	E	E	
17	E	E	E	E	E	E	1.3	1.6	1.9	1.7	2.0	2.0	2.7	2.3	2.2	1.7	1.7	2.2	1.8	1.6	1.4	1.6	1.6	1.2	
18	1.2	E	E	E	E	E	E	1.1	1.2	2.3	2.1	2.4	2.8	3.5	4.2	2.3	2.2	1.8	2.1	2.0	E	E	E	1.1	
19	E	E	E	E	E	E	E	1.1	1.3	2.3	2.4	2.6	2.5	2.4	2.4	2.7	2.6	2.4	1.7	1.5	1.4	E	E	E	
20	E	E	E	E	E	E	1.4	1.6	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.1	1.6	1.8	1.6	1.4	1.4	1.4	E	
21	E	E	E	E	E	E	E	1.3	1.6	2.2	2.7	7.1	3.4	4.6	3.9	3.0	2.5	2.0	2.2	1.2	C	C	C	C	
22	C	E	C	E	E	E	E	1.2	1.8	2.2	2.0	E	3.0	(3.0) ^c	2.9	2.6	2.0	1.8	1.8	1.6	E	E	E	E	
23	E	E	E	E	E	E	1.6	1.7	1.8	2.0	2.4	E	4.4	4.6	2.6	2.2	2.2	1.7	1.6	1.4	E	E	1.2	E	
24	E	E	E	E	E	E	1.7	1.6	1.8	1.8	2.0	2.2	2.2	2.2	2.8	2.8	1.8	1.6	1.6	1.2	1.2	1.2	E	E	
25	E	E	E	E	E	E	1.2	C	C	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	
26	E	E	E	E	1.2	1.2	1.5	1.6	1.8	2.2	2.4	2.2	2.4	2.4	2.2	2.2	2.0	1.8	1.7	1.4	1.2	1.2	E	E	
27	E	E	C	E	E	E	1.8	1.6	1.6	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.5	1.7	1.6	E	E	E	E	E	
28	E	E	E	E	1.1	1.4	1.6	1.8	1.6	1.7	2.0	4.3	3.4	1.7	2.0	1.7	1.7	1.6	1.6	1.1	E	E	E	E	
29	E	E	E	E	E	E	E	1.3	1.5	2.1	2.9	2.9	2.6	2.9	2.8	1.8	2.7	1.7	1.4	1.1	E	E	E	E	
30	E	E	E	E	E	E	1.2	1.8	1.6	1.6	2.2	2.2	2.2	2.2	1.9	2.1	2.1	1.6	1.5	E	1.6	E	E	E	
31	E	E	E	E	E	E	1.2	1.4	1.7	1.7	2.0	1.9	2.0	2.0	2.1	2.0	2.0	1.8	1.4	1.2	E	E	E	E	
Mean Value	1.4	1.6	1.5	1.6	1.3	1.3	1.4	1.6	1.8	2.0	2.2	2.5	2.6	2.5	2.4	2.1	1.9	1.7	1.6	1.4	1.3	1.4	1.3	1.3	
Value	E	E	E	E	E	E	E	1.2	1.6	1.7	2.0	2.1	2.2	2.2	2.2	2.1	2.0	1.7	1.6	1.2	1.1	1.1	E	E	
Count	3	0	3	1	2	9	3	1	3	0	3	0	2	9	2	8	2	2	9	3	0	3	0	3	0

Sweep 1.0 Mc to 18.5 Mc in 1.5 min Manual

IONOSPHERIC DATA IN JAPAN FOR MAY 1951

電波觀測報告 第3卷 第5号

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