CRWC—F 35

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

IONOSPHERIC DATA IN JAPAN

FOR NOVEMBER 1951

Vol. 3 No. 11

Issued in December 1951

PREPARED BY THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

KOKUBUNJI, TOKYO, JAPAN

CRWO—F 35

THE CENTRAL RADIO WAVE OBSERVATORY
THE RADIO REGULATORY COMMISSION

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN FOR November 1951

CONTENTS

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 observateries 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

DECEMBER 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 dada.

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

IONOSPHERIC DATA

Nov. 1951 | **f_0F2** | 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	(3.6)P	4.0	C	C	C	C	C	C	10.3J	8.8	8.8	S	S	8.6	9.1PJ	8.7	7.3	4.8	4.1	3.7	3.4	3.6	S	A
2	S	S	S	C	C	C	C	C	8.4	S	S	S	9.4PS	9.1	8.5	8.0	8.2	8.3	4.8	A	A	A	A	4.2
3	A	4.7	4.1J	3.9JF	3.6JF	3.5JF	4.2JF	7.3	S	S	9.0PJ	S	9.0PJ	8.9	9.1	8.9	8.0	6.6	A	A	3.7	3.0	3.6P	4.2
4	2.6	4.5	4.4	4.3	4.0	4.6	4.4	8.4	9.0	S	9.4P	S	9.9	9.0	8.2	7.8	7.8	6.3P	5.8	5.4	3.9	3.5	3.5	3.3P
5	3.7	3.5	S	C	3.9	C	C	C	9.3	C	S	9.8	10.1P	8.4	9.2	8.4	6.8	4.9	4.9J	4.4	S	3.7	4.0	S
6	4.1	4.1	(3.8)PS	3.8H	3.6	3.2	C	C	8.5	8.2	8.4	8.8PJ	8.3	8.6	8.7	8.7	6.5	(6.7)PJ	4.4	4.2J	C	C	C	C
7	C	C	C	C	C	C	C	C	S	8.2	8.0	10.8	9.9PS	10.5	(9.2)PJS	9.1	8.4	5.1	4.6	4.1	4.0	4.1	4.1	4.3J
8	4.1	4.2	4.0	4.2	4.2H	4.3H	4.3	7.5	8.7	9.0	9.4P	(9.7)P	8.8	8.7	8.2	7.6	6.5	4.3	3.7J	3.4P	2.8	3.1	2.9	2.9
9	3.3P	3.3F	3.5F	3.2	3.6	3.2	4.1	6.1	7.9	8.6	9.7	(10.0)PJ	8.2	7.5	8.2	8.0	7.6	5.0	A	4.9	A	2.6P	2.9	3.0
10	3.1	3.1	3.3J	3.9J	3.7J	4.2JP	2.8	5.8	7.3	9.1	(9.9)PJ	S	9.4P	8.4	7.8	8.1	7.0	4.9	4.1	4.7J	4.1JP	A	4.7	A
11	4.6JF	5.0FJ	5.1JF	5.0JF	5.1	4.6	4.4JF	(7.4)P	C	C	C	C	C	C	C	C	C	4.7	3.6J	3.7	(3.6)S	3.6	3.4JH	3.6
12	3.6	3.7	3.8	3.8	3.8	3.2	3.5	6.2	8.2	10.0	9.5	9.4	8.4	8.4	8.9	8.6	7.4	5.1	3.7	3.6	3.2	2.9	S	S
13	3.6PJFS	3.5JHF	3.2PJFS	A	3.5	3.2	3.6JH	5.9	7.2	9.5	S	9.1	9.6	8.4	7.7	7.5	7.0	4.8	3.8	3.2	4.1	S	3.8P	4.0
14	4.0	3.5	3.6P	3.0K	2.7K	3.1PK	4.4K	AK	6.3K	6.9K	8.6K	7.4K	6.8K	6.9K	6.6K	6.5K	5.5K	4.8	3.9	3.4F	(3.0)JPF	4.2JF	(4.0)JPF	2.8PJF
15	(3.3)PJF	3.0F	3.3F	3.5F	2.8F	A	2.4	4.9	6.0	7.5	8.6	8.4	7.1	8.0	8.0	6.8	6.3	6.1	4.0	4.0	S	S	3.8J	3.9F
16	4.2F	4.9F	4.0F	(4.0)C	4.0F	(4.2)C	4.5	6.6	7.1	8.0	9.3PJ	8.2	7.6	8.2P	7.3	S	6.3	6.3	C	C	3.0	2.4	2.8	3.0
17	3.0	3.0P	3.0P	3.0P	2.9	2.8	2.9	6.9	8.6	9.2	8.2	8.3	7.6	7.4	7.4	6.4	5.4	4.3	4.2	S	S	S	S	3.1F
18	SF	4.4JF	4.5JF	4.8JF	(4.0)C	3.2FJ	2.6F	4.8	8.5	9.3J	8.6	8.0	7.8J	8.2	9.2	7.5	7.4	5.3	4.0	4.1	3.5	3.3	2.8JF	2.6JF
19	2.5	2.9	4.1	4.6JF	4.4JF	3.9JF	2.7	6.4	7.7J	7.6	8.7	8.2J	8.0	8.4	7.3	7.9	7.0	4.3	3.3	(3.2)S	3.1	3.0	2.8F	(3.4)FS
20	4.0F	3.8FJ	(3.7)JPF	4.3FJ	4.3FJ	4.1F	2.8F	B	7.1	7.2	9.0	(9.6)PJ	8.9	7.4	6.7	6.6	6.2	3.9F	3.2	3.4F	3.0F	(3.0)FS	2.9F	2.8F
21	S	3.3F	3.3F	3.1FP	3.3F	4.0FJ	2.6F	7.2	8.0	(9.5)P	9.3P	S	9.5	9.1	8.7	8.3	7.9	6.4JP	4.2	3.8JF	3.1	4.3F	3.6F	4.9F
22	4.6	4.8F	4.9JF	4.9	4.7F	4.1JF	6.5	C	C	C	C	C	C	C	C	C	C	4.9	4.6	S	2.7	2.7	S	3.8PJF
23	3.8JF	3.8JF	(3.3)P	3.1P	(3.0)S	2.9	2.8	6.4P	8.7PJ	(9.3)PJ	8.4	S	9.2	9.3J	8.8	8.4	6.5	5.5	A	A	4.3	4.4	4.6H	4.7P
24	4.3J	5.0J	5.0	5.5	5.3	5.0	B	5.4	7.3	9.4	9.7	9.4	8.6	8.6	8.4	7.8	7.1	(6.4)S	5.7	5.8	4.6	4.7P	5.4	5.4
25	5.0J	S	S	5.5PJ	C	C	4.5	5.4	8.2	8.2	S	S	8.2	8.3	A	C	C	C	C	2.8	2.6	SF	SF	SF
26	3.1PF	(3.0)PF	3.1	3.4F	3.6PF	4.1JF	(4.6)S	5.2	7.7	C	S	C	C	C	C	7.7	5.7	A	4.2	B	C	C	C	(3.0)PJF
27	3.3FP	3.3FP	S	C	C	3.3	3.3	6.8	S	7.9J	7.4P	8.5J	7.9J	(7.9)C	7.9J	8.0	6.9	C	C	C	4.4J	S	4.0J	4.0J
28	3.8	3.6	3.8H	3.7J	S	S	S	5.7	7.5	9.0	(9.2)P	(8.8)S	8.5	7.7	7.7	6.8	5.0	C	C	4.0	3.7	4.2	3.5	3.9
29	3.1	3.7	4.0	4.0	4.1	3.7	3.8	4.9	8.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	S	S	S	S	8.9	7.9	7.5	(7.7)PS	4.1	3.7JP	(3.1)P	A	2.9	A	3.0F
31																								
Mean Value	3.7	3.8	3.9	4.0	3.8	3.7	3.7	6.3	8.0	8.6	8.9	9.0	8.6	8.4	8.2	7.8	6.9	5.4	4.2	3.9	3.4	3.5	3.6	3.6
Median Value	3.6	3.7	3.8	3.9	3.8	3.8	3.7	6.2	8.1	8.8	9.0	8.8	8.6	8.4	8.2	7.9	7.0	5.0	4.0	3.8	3.5	3.4	3.6	3.6
Count	24	26	23	23	23	22	22	21	24	21	21	17	24	26	25	25	26	25	22	21	21	20	20	23

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

W 1

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

IONOSPHERIC DATA

Nov. 1951 | h_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	(410)F	410	C	C	C	C	C	C	(290)J	280	330	S	S	310	(290)J	270	270	290	310	340	360	390	S	A
2	S	S	S	C	C	C	C	C	300	S	S	S	310S	320	320	280	320	300	340	A	A	A	A	370
3	A	390	(380)J	(420)F	(410)F	(410)F	(380)F	300	S	S	(320)P	S	(280)P	310	310	300	300	290	A	A	410	390	370P	450
4	400	410	440	370	390	410	400	340	300	S	310P	S	300	320	310	300	300	330P	350	320	380	330	360	350P
5	430	430	S	C	320	C	C	C	310	C	S	300	290P	300	290	290	290	340	(340)J	370	S	380	400	S
6	430	410	(400)S	350H	330	380	C	C	260	280	360	(300)P	300	340	300	290	290	(270)P	310	(310)J	C	C	C	C
7	C	C	C	C	C	C	C	C	S	300	320	340	310S	330	(300)S	300	290	330	380	390	360	400	420	(360)J
8	380	430	420	430	430H	400H	290	370	290	300	300P	(280)P	300	300	290	280	290	310	A	330P	330	330	340	340
9	440P	470F	420F	390	400	370	360	300	280	300	300	(290)P	290	310	300	290	300	330	A	290	A	380 P	430	440
10	440	430	(380)J	(390)J	(370)J	(300)P	410	310	290	330	(310)P	S	310P	310	300	310	300	390	370	(350)J	(310)P	A	400	A
11	(370)P	(320)F	(300)F	(380)F	330	340	(290)F	(320)P	C	C	C	C	C	C	C	C	C	230	(280)J	300	(300)S	300	(360)J	320
12	380	370	350	380	350	340	380	310	310	290	300	310	290	320	300	310	280	290	290	S	360	420	S	S
13	(410)F	(400)F	(430)F	A	400	380	(400)F	280	310	300	S	280	300	310	320	300	290	280	360	430	360	S	370P	400
14	450	440	490P	470K	510K	400P	480K	A K	440K	400K	380K	360K	330K	310K	310K	330K	330K	300	390	390F	(400)F	(380)F	(350)F	(400)F
15	(430)F	470F	430F	400F	370F	A	370	310	320	330	320	300	320	320	310	280	320	360	310	280	S	S	(370)J	410F
16	370F	410F	380F	(350)C	320F	(330)C	340	280	290	320	(310)P	310	320	300P	280	S	300	300	C	C	360	360	360	440
17	430	370P	370P	370P	410	410	400	320	330	290	280	290	290	310	290	270	290	260	320	S	S	S	S	380F
18	SF	(390)F	(330)F	(340)F	(320)F	(290)F	(430)F	310	310	(290)J	310	290	(300)J	310	310	300	300	320	370	300	320	350	(370)F	(360)F
19	350	390	400	(320)F	(330)F	(350)F	320	270	(270)J	280	320	(280)J	320	310	300	310	250	280	340	(340)S	350	370	(410)S	(420)S
20	430F	(430)F	(440)F	(400)F	(310)F	(290)F	340F	B	280	300	300	(310)P	290	310	290	300	280	280F	360	320F	340F	(340)S	340F	430F
21	S	460F	450F	430F	400F	(280)F	400F	300	290	(290)P	310P	S	300	290	290	300	300	(260)P	310	(320)F	330	350F	330F	380F
22	380	430F	(390)F	400	360F	(290)F	300	C	C	C	C	C	C	C	C	C	C	290	300	S	310	360	S	(440)F
23	(440)F	(420)F	(370)F	350P	(380)S	400	370	280P	(270)P	(270)P	320	S	300	(290)J	300	290	270	270	A	A	300	310	330H	330P
24	(280)J	(400)J	440	400	370	300	B	290	300	280	290	280	290	330	320	300	290	(300)C	320	350	300	350P	380	400
25	(420)J	S	S	(410)F	C	C	C	320	290	300	S	S	290	310	A	C	C	C	C	340	330	SF	SF	SF
26	370P	(440)F	440	380F	(330)F	(330)F	(310)S	290	290	C	S	C	C	C	C	310	300	A	330	B	C	C	C	(460)F
27	480F	460F	S	C	C	380	380	290	S	(270)J	280P	(300)J	(290)J	(290)C	(290)J	300	280	C	C	C	(280)J	S	(350)J	(430)J
28	370	370	400H	(360)J	S	S	S	290	310	290	(300)P	(280)C	270	280	240	260	310	C	C	330	330	340	290	400
29	360	440	400	420	(360)S	350	400	370	330	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	S	S	S	S	300	290	290	(280)S	310	(320)F	(320)P	A	330	A	410F
31																								
Mean Value	400	420	400	390	370	350	370	300	300	300	310	300	300	310	300	290	290	300	330	340	340	350	360	400
Median Value	410	420	400	390	370	350	380	300	300	290	310	300	300	310	300	300	290	300	330	330	330	360	360	400
Count	24	26	23	23	23	22	21	21	24	21	21	17	24	26	25	25	26	25	21	20	21	20	20	23

h_pF2 | Sweep 1.5 Mc to 15.5 Mc in 2 min | ☐ Manual ☒ Automatic | W 2

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Nov. 1951

h'F2

135° E Mean Time

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

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

W 3

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

IONOSPHERIC DATA

Nov. 1951 | foF1 | 135° E Mean Time | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								C	C	Q	4.3	L	Q	Q	Q	Q	Q							
2								C	A	Q	L	A	Q	Q	Q	Q	Q							
3								Q	Q	Q	L	Q	Q	Q	Q	Q	Q							
4								Q	Q	Q	L	Q	C	Q	Q	Q	Q							
5								C	Q	C	4.2	Q	L	Q	Q	Q	Q							
6								C	Q	Q	Q	L	Q	L	Q	Q	Q							
7								C	Q	Q	L	L	Q	Q	Q	Q	Q							
8								Q	Q	Q	Q	L	L	L	Q	Q	Q							
9								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
10								Q	Q	A	Q	Q	Q	Q	Q	Q	Q							
11								Q	C	C	C	C	C	C	C	C	C							
12								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
13								Q	Q	Q	Q	4.3	Q	Q	Q	Q	Q							
14								A	3.5	3.9	4.0	4.0	4.0	3.9	Q	Q	Q							
15								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
16								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
17								Q	Q	Q	Q	3.6	Q	Q	Q	Q	Q							
18								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
19								Q	Q	Q	L	Q	Q	Q	Q	Q	Q							
20								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
21								Q	Q	Q	Q	Q	B	Q	Q	Q	Q							
22								C	C	C	C	C	C	C	C	C	C							
23								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
24								Q	Q	Q	Q	Q	Q	Q	Q	Q	Q							
25								Q	Q	Q	Q	Q	Q	4.0	A	C	C							
26								Q	Q	C	Q	C	C	C	C	Q	Q							
27								Q	Q	Q	Q	Q	Q	C	Q	Q	Q							
28								Q	Q	Q	Q	C	Q	Q	Q	Q	Q							
29								Q	Q	C	C	C	C	C	C	C	C							
30								C	C	Q	Q	Q	Q	Q	Q	Q	Q							
31																								
Mean Value									3.5	3.9	4.2	4.0	4.0	4.0										
Median Value									3.5	3.9	4.2	4.0	4.0	4.0										
Count									1	1	3	3	1	2										

foF1

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

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

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IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Nov. 1951

h'F1

135° E Mean Time

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

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | foE | 135° E Mean Time | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

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

foE

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | fᵢE | 135° E Mean Time | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

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

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Nov. 1951 | fEs | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	2.6	C	C	C	C	C	C	C	5.3	4.9	G	3.3	4.3	G	G	B	E	G	2.6	E	3.0	3.2^{S}	5.5
2	3.2	3.3	3.0	C	C	C	C	C	6.5	4.2	5.3	6.4	G	G	G	G	B	E	5.1	8.8	4.3	4.7	5.8	E
3	5.2	3.9	2.6	E	E	E	E	6.2	3.8	2.8	G	G	G	G	G	B	B	E	5.5	8.1	3.3	3.0	2.8	3.6
4	E	3.6	2.4	E	E	E	E	3.0	5.2	5.1	G	5.2	C	G	G	G	B	E	E	E	E	E	E	E
5	E	E	S	C	E	C	C	C	G	C	B	G	3.0	B	G	G	B	E	E	E	E	E	E	E
6	E	E	E	E	E	E	C	C	G	G	G	G	G	G	G	G	B	E	E	E	C	C	C	C
7	C	C	C	C	C	C	C	C	3.0	G	G	G	G	G	3.6	G	B	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	B	G	4.8	G	G	G	G	G	G	B	E	3.7	E	2.6	E	E	S
9	E	E	E	2.6	E	E	E	B	3.2	G	4.1	G	G	G	G	B	B	3.7	2.9	8.5	3.0	4.9	2.8	2.9	2.8
10	2.6	E	E	2.2	2.2	E	E	2.2	4.7	7.2	G	G	G	G	G	B	B	E	E	E	E	5.8	4.3	5.8
11	3.1	3.2	E	E	2.8	E	E	B	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E	E
12	3.0	E	E	E	E	E	E'	B	2.8	G	G	G	G	G	G	G	B	E	E	2.6	2.4	E	E	E
13	E	E	E	5.4	2.6	3.0	3.2	G	2.8	2.8	G	G	G	G	G	G	B	E	E	E	E	2.8	2.3	E
14	E	E	E	E	E	2.4	3.2	5.4	4.8	4.6	3.4	G	B	B	3.2	2.8	5.4	3.6	2.8	E	E	E	3.7	2.6
15	E	E	E	E	3.2	5.8	2.4	B	G	B	B	B	B	B	B	3.0	3.0	4.2	E	3.0	3.0	3.0	3.0	2.8
16	E	E	E	E	E	C	3.0	B	2.6	G	3.7	5.8	G	G	B	B	B	3.1	C	C	E	E	E	E
17	E	2.8	E	E	E	E	E	B	G	G	G	G	G	G	G	B	B	E	E	E	E	E	E	E
18	E	E	E	E	C	E	E	B	G	G	3.0	3.0	5.6	G	G	G	B	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	B	G	3.4	3.0	G	G	G	G	B	2.2	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	B	B	G	B	B	B	B	B	B	3.3	E	2.6	2.7	E	E	E	2.9
21	3.2	E	E	E	E	E	2.7	2.6	3.3	G	B	B	B	G	B	B	E	E	2.7	E	E	3.2^{F}	2.8	3.0
22	2.6	E	2.8	E	E	2.9	G	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	S	E
23	E	E	E	2.4	S	E	E	B	G	6.1	3.8	G	G	G	G	2.5	2.6	4.8	7.0	5.0	3.0	3.0	3.0	3.0
24	E	E	E	E	E	2.6	4.0	5.0	G	G	G	G	G	G	G	B	B	C	3.0	3.0	3.2	E	E	E
25	E	3.2	2.4	E	C	C	C	B	B	G	G	G	G	G	7.9	C	C	C	C	2.2	2.2	E	E	2.8
26	E	3.0	2.8	2.4	E	E	2.2	B	G	C	G	C	C	C	C	2.7	4.7	6.2	2.7	3.3	C	C	C	E
27	E	E	2.7	C	C	3.1	3.2	B	3.9	G	5.2	G	G	C	G	3.0	2.6	C	C	C	E	3.0	E	E
28	E	2.6	2.6	3.0	E	E	2.6	3.2	2.6	6.2	G	C	G	G	G	3.4	3.2	C	C	2.6	S	S	E	2.7
29	E	2.4	E	E	E	E	3.2	3.7	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	G	G	3.1	B	G	G	B	B	E	E	E	5.3	E	4.7	E
31																								
Mean Value	3.3	3.1	2.7	3.1	2.7	3.3	3.0	3.9	3.7	4.8	4.0	4.7	4.0	4.3	4.9	2.9	3.4	4.1	4.4	3.9	3.4	3.4	3.5	3.4
Median Value	E	E	E	E	E	E	E	3.2	2.7	G	G	G	G	G	G	G	3.1	E	E	E	E	E	E	E
Count	28	28	26	24	22	23	23	9	24	24	23	22	20	21	22	16	10	25	25	27	26	26	26	27

fEs

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | (M3000)F2 | 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	(2.9)P	2.6	C	C	C	C	C	C	(3.2)J	3.2	2.8	S	S	3.1	(3.2)P J	3.3	3.3	3.1	3.0	2.9	2.8	2.6	S	A
2	S	S	S	C	C	C	C	C	3.2	S	S	S	3.1 PS	3.1	3.0	3.1	3.0	3.1	2.8	A	A	A	A	2.7
3	A	2.5	(2.5)J	(2.5)J F	(2.6)J F	(2.5)J F	(2.6)J F	3.1	S	S	(3.2)P J	S	(3.3)P J	3.0	3.2	3.1	3.2	3.1	A	A	2.5	2.7	2.7P	2.5
4	2.6	2.5	2.5	2.8	2.6	2.8	2.7	2.8	3.1	S	3.0P	S	3.1	3.0	3.1	3.1	3.1	3.0P	2.8	2.9	2.7	2.9	2.8	3.0P
5	2.5	2.5	S	C	3.0	C	C	C	3.1	C	S	3.1	3.1P	3.0	3.1	3.2	3.2	2.8	(2.9)J	2.7	S	2.8	2.7	S
6	2.5	2.6	(2.6)P S	2.8H	2.9	2.7	C	C	3.4	3.3	2.8	(3.2)P J	3.2	2.9	3.2	3.2	3.2	(3.2)P J	3.0	(2.9)J	C	C	C	C
7	C	C	C	C	C	C	C	C	S	3.0	3.0	2.9	3.0 P S	2.8	(3.1)P J	3.1	3.2	2.9	2.7	3.0	2.7	2.6	2.5	(2.7)J
8	2.6	2.6	2.5	2.5	2.5H	2.6H	3.1	2.7	3.1	3.1	3.2P	(3.2)P	3.0	3.2	3.3	3.2	3.2	3.0	A	2.9P	2.9	2.9	3.0	3.0
9	2.5P	2.4F	2.6F	2.8	2.5	2.7	2.7	3.0	3.2	3.2	3.1	(3.1)P J	3.2	3.1	3.2	3.2	3.1	2.9	A	3.1	A	2.8P	2.6	2.5
10	2.6	2.5	(2.7)J	(2.6)J	(2.8)J	(3.0)J P	(2.6)S	3.0	3.1	2.9	(3.0)P J	·S	3.0P	3.1	3.1	3.1	3.1	3.1	2.6	(2.7)J	(3.0)J P	A	2.6	A
11	(2.6)J F P	(3.0)J F P	(2.6)J F	(2.7)J F	2.9	2.8	(3.1)J F	(3.0)P	C	C	C	C	C	C	C	C	C	3.4	(3.1)J	3.1	(3.2)P S	3.2	(2.8)J H	2.8
12	2.8	2.7	2.8	2.8	2.8	2.9	2.7	3.0	3.0	3.2	3.1	3.0	3.1	3.0	3.1	3.1	3.3	3.2	3.1	2.7	2.9	2.6	S	S
13	(2.6)P F S	(2.6)J H	(2.5)P S F	A	2.5	2.7	(3.0)J H	3.2	3.0	3.1	S	3.2	3.2	3.0	2.9	3.2	3.2	3.2	2.8	2.6	2.8	S	2.8P	2.6
14	2.5	2.5	2.3P	2.3K	2.2K	2.7PK	2.3K	A K	2.5K	2.6K	2.7K	2.8K	2.9K	3.1K	3.1K	2.9K	2.9K	3.0	2.6	2.7F	(2.7)P H	(2.6)J F	(2.8)J F P	(2.6)J S
15	(2.6)P J F	2.4F	2.5F	2.6F	2.7F	A	2.8	3.1	3.0	2.9	3.0	3.1	3.0	3.1	3.0	3.2	2.9	2.8	3.1	3.2	S	S	(2.7)J	2.7F
16	2.6F	2.6F	2.7F	[2.8]C	3.0F	[3.0]C	2.9	3.3	3.1	3.0	(3.2)P J	3.0	2.9	3.1P	3.2	S	3.1	3.0	C	C	2.7	2.8	2.9	2.6
17	2.4	2.8P	2.8P	2.9P	2.7	2.6	2.7	3.0	2.9	3.2	3.2	3.3	3.2	3.1	3.2	3.2	3.1	3.3	2.9	S	S	S	S	2.8F
18	SF	(2.6)J F	(2.9)J F	(2.9)J F	[3.0]C	(3.1)J F	2.5F	3.1	3.1	(3.2)J	3.1	3.1	(3.1)J	3.0	3.0	2.9	3.1	3.0	2.7	3.1	3.0	2.8	(2.8)J F	(2.8)J F
19	2.9	2.7	2.6	(2.9)J F	(2.9)J F	(2.8)J F	3.1	3.3	(3.2)J	3.2	3.1	(3.3)J	2.9	3.1	3.1	3.1	3.3	3.2	2.9	[2.9]S	2.9	2.7	2.7F	[2.6]J F
20	2.5F	(2.5)J F	(2.5)J F	(2.5)J F	(3.0)J F	3.1F	2.8F	B	3.2	3.0	3.1	(3.1)P J	3.2	3.0	3.2	3.1	3.2	3.2F	2.7	3.0F	2.9F	[2.9]S F	2.9F	2.7F
21	S	2.5F	2.5F	2.6F P	2.7F	(3.2)F J	2.6F	3.1	3.1	(3.1)P	(3.1)P	S	3.1	3.0	3.2	3.1	3.1	(3.3)J P	3.0	(3.0)J F	3.0	2.8F	3.0F	2.7F
22	2.7	2.5F	(2.6)J F	2.6	2.8F	(3.1)J F	3.1	C	C	C	C	C	C	C	C	C	C	3.2	3.0	S	3.0	2.9	S	(2.5)P J F
23	(2.5)J F	(2.6)J F	(2.8)P	2.9P	[2.8]J S	2.7	2.8	3.2P	(3.2)P J	(3.2)P J	3.0	S	3.2	(3.4)J	3.2	3.2	3.2	3.2	A	A	3.0	3.0	3.0H	2.9P
24	(3.1)J	(2.7)J	2.5	2.6	2.6	3.0	B	3.2	3.1	3.1	3.1	3.2	3.2	2.9	3.0	3.2	3.2	[3.2]C	3.1	2.9	3.1	2.9P	2.7	2.7
25	(2.6)J	S	S	(2.6)P J F	C	C	2.7	3.0	3.2	3.1	S	S	3.1	3.1	A	C	C	C	C	2.8	2.9	SF	SF	SF
26	2.8PF	2.6P F	2.6	2.7F	(2.9)J P F	(2.9)J F	[3.0]	3.1	3.1	C	S	C	C	C	C	3.1	3.1	A	2.9	B	C	C	C	(2.4)P J F
27	2.5PF	2.6P F	S	C	C	2.8	2.8	3.2	S	(3.4)J	3.3P	(3.1)J	(3.2)J	[3.2]C	(3.3)J	3.2	3.3	C	C	C	(3.4)J	S	(2.8)J	(2.5)J
28	2.8	2.8	2.7H	(2.8)J	S	S	S	3.2	3.0	3.2	(3.1)P	[3.2]	3.2	3.2	3.5	3.3	3.0	C	C	3.0	3.0	2.9	3.2	2.6
29	2.8	2.5	2.6	2.6	(2.7)S	2.9	2.7	2.7	2.8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	S	S	S	S	3.1	3.1	3.2	(3.2)P J F	3.0	(2.9)J P	(3.0)P	A	3.0	A	2.7F
31																								
Mean Value	2.6	2.6	2.6	2.7	2.8	2.8	2.8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.9	2.9	2.9	2.8	2.8	2.7
Median Value	2.6	2.6	2.6	2.7	2.8	2.8	2.8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.1	2.9	2.9	2.9	2.8	2.8	2.7
Count	24	26	23	23	23	22	22	21	24	21	21	17	24	26	25	25	26	25	21	21	21	20	20	23

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

W 9

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

IONOSPHERIC DATA

Nov. 1951 | fmin F | 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	2.0	1.8	C	C	C	C	C	C	<4.4	2.9	3.6	3.6	3.3	3.4	3.1	2.7	2.1	2.0	2.5	2.0	2.0	2.6A	A	A
2	2.3	A	A	C	C	C	C	C	5.2A	A	3.4	4.4A	3.6	3.3	3.1	2.6	2.4	2.0	2.4	A	A	A	A	2.0
3	A	2.0	2.0	1.8	E	2.0	2.0	2.0	2.0	2.8	3.1	3.4	3.0	3.6	3.5	3.7	2.4	1.9	A	A	2.2	1.9	2.0	2.4A
4	2.0S	2.0	2.0	2.0	2.0	E	2.0	2.3	2.9	3.5	3.0	3.2	[3.2]C	3.3	2.8	2.2	1.8	E	1.6	2.2	1.8	1.8	2.0	1.8
5	1.8	1.8	4.0S	C	1.8	C	C	C	3.0	[3.3]C	3.6	3.5	3.0	4.2	3.5	3.9	2.3	1.9	1.9	1.8	1.9	2.0	1.9	1.8
6	2.0	1.9	2.1	1.9	1.8	1.9	C	C	2.9	3.3	3.1	3.3	3.0	3.2	2.9	2.3	2.0	2.0	2.0	2.0	C	C	C	C
7	C	C	C	C	C	C	C	C	2.7	2.9	2.8	3.2	3.0	3.0	3.0	2.6	1.9	1.9	1.9	1.9	1.8	1.8	1.6	1.6
8	1.6	1.8	2.0	2.0	1.7	1.8	1.7	2.2	2.8	3.0	3.0	3.1	3.5	3.0	3.0	2.4	1.9	1.8	4.0	1.9	1.8	2.0	1.8	2.2S
9	E	2.0	E	1.8	1.8	E	2.0	1.9	2.3	3.3	3.3	3.3	3.2	3.5	3.4	2.6	3.3A	2.3	A	1.9	A	2.0	2.0	2.0
10	2.0	2.0	1.9	1.9	1.9	1.8	2.0	2.0	3.0	5.2A	3.4	3.4	3.2	3.0	2.9	3.3	2.1	2.2	2.2	1.9	2.2	A	2.9A	A
11	2.0	2.0	2.0	1.9	1.9	2.0	2.4	2.3	C	C	C	C	C	C	C	C	C	1.8	2.0	2.0	2.0	2.1	2.0	2.0
12	2.0	2.0	2.0	2.0	1.7	1.8	2.0	2.0	2.0	2.9	3.4	3.9	4.0	3.3	2.8	2.5	1.9	1.8	1.8	3.2S	2.0	2.0	1.7	E
13	1.8	1.8	E	A	2.0	2.0	2.0	2.3	2.8	3.4	3.0	3.0	3.3	2.9	3.0	2.6	1.6	1.6	E	1.8	1.8	1.6	1.8	E
14	E	1.6	1.6	1.8	1.6	E	2.0	A	3.0A	3.2	3.0	3.0	3.2	3.0	3.2	2.3	1.8	1.8	2.0	1.8	1.8F	1.8F	1.8F	2.0F
15	1.8	1.8	1.8F	1.8	2.0	A	1.8	1.8	2.8	3.4	4.0	4.0	3.9	3.4	2.4	3.0	2.6	2.0	2.0	2.0	A	2.0	2.0	2.0
16	2.0	1.8	2.0	E	2.0	[2.3]C	2.6A	2.0	2.3	2.8	3.0	3.6A	3.1	2.8	3.0	2.2	2.1	2.3	C	C	2.0	2.0	2.0	1.9
17	1.9	1.9	1.9	1.8	2.0	1.9	1.8	2.0	2.6	3.3	3.3	3.1	3.2	3.2	3.0	2.6	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0F
18	2.0	2.0	2.0	2.0	[2.0]C	2.0	2.0	2.0	2.8	3.0	3.1	3.0	3.5	2.8	2.8	2.4	2.0	1.8	1.8	1.9	2.0	1.8	1.8F	2.0F
19	E	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	3.0	2.8	3.3	3.1	2.8	3.0	2.8	2.0	2.0	2.0	2.0	1.7	1.8	1.8	1.8
20	2.0	E	1.6	1.6	2.0	2.0	2.0	2.0	2.6	3.0	3.2	4.0	3.6	3.3	3.7	4.4	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0
21	2.0	2.0	2.0	2.0	2.0F	2.0	2.0	2.0	3.4	3.0	3.2	3.3	3.9	3.2	3.3	3.0	1.8	2.0	2.0	2.0	2.0	2.1	2.0	2.3
22	2.0	2.0	2.1	E	E	2.0	2.3	C	C	C	C	C	C	C	C	C	C	1.9	2.0	2.0	2.0	2.0	S	1.8
23	2.0	2.0	2.0	1.9	[2.0]S	2.0	1.9	2.2	2.4	A	3.8A	3.2	2.9	3.2	3.0	2.4	2.0	3.4A	A	A	2.4	2.0	2.0	2.0
24	E	2.0	2.0	1.8	1.8	2.2	A	2.4	2.6	3.0	3.6	3.4	3.2	3.0	3.0	3.0	2.2	[2.0]C	1.8	2.2	2.2	1.8	2.2	1.8
25	1.8	1.8	1.8	E	C	C	<4.0	2.1	2.4	2.6	3.3	3.0	3.2	3.3	A	C	C	C	C	2.0	2.0	2.0F	2.0F	1.9
26	2.0F	2.0F	2.0	2.0	2.0	2.0	2.0	1.8	2.8	[3.0]C	3.2	C	C	C	C	3.3	2.0	A	2.3	A	C	C	C	2.0F
27	2.0F	2.1F	A	C	C	2.8A	1.9	2.0	3.0	3.3	N	N	3.4	[3.2]C	3.0	2.4	2.6	C	C	C	2.0	A	1.8	1.8
28	1.8	1.8	1.8	1.8	2.0	1.8	1.8	2.0	2.2	3.4	3.4	[3.3]C	3.2	3.2	2.8	2.6	3.0	C	C	1.6	2.8S	2.9S	1.8	1.8
29	1.8	1.8	1.6	E	2.2	1.8	2.4	3.0A	2.2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	2.9	3.1	3.4	3.6	3.2	3.3	2.4	2.0	2.0	2.0	2.0	A	2.0	A	1.9F
31																								
Mean Value	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.1	2.8	3.2	3.2	3.4	3.3	3.2	3.0	2.7	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.9
Median Value	2.0	2.0	2.0	1.8	2.0	2.0	2.0	2.0	2.8	3.0	3.2	3.3	3.2	3.2	3.0	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Count	27	27	25	23	24	23	22	22	27	25	28	25	26	26	25	26	26	25	22	23	23	24	23	26

fmin F

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

W 10

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

IONOSPHERIC DATA

Nov. 1951 | fminE | 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	E	1.8	C	C	C	C	C	C	C	1.9	2.5	2.0	1.9	2.0	2.0	2.2	B	E	2.1	2.0	E	2.0	2.0	1.8
2	2.0	1.8	2.0	C	C	C	C	C	E	2.0	2.0	2.0	2.2	2.0	2.0	1.9	B	E	2.0	1.9	2.0	2.0	1.9	E
3	1.9	2.2	2.0	E	E	E	E	2.0	2.0	2.0	2.4	2.6	2.4	2.6	1.8	B	B	E	1.9	1.8	1.9	2.2	2.6	E
4	E	2.0	2.0	E	E	E	E	1.6	E	2.0	1.8	1.8	(2.0)C	2.2	2.0	1.7	B	E	E	E	E	E	E	E
5	E	E	S	C	E	C	C	C	1.8	C	B	2.2	2.6	B	2.4	1.9	B	E	E	E	E	E	E	E
6	E	E	E	E	E	E	C	C	2.0	2.0	2.4	2.2	2.1	2.3	2.1	2.0	B	E	E	E	C	C	C	C
7	C	C	C	C	C	C	C	C	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	B	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	B	2.0	1.8	2.2	1.8	2.0	2.0	2.0	2.0	B	E	1.8	E	2.2	E	E	S
9	E	E	E	1.8	E	E	E	B	E	2.0	1.9	2.0	2.0	2.0	E	B	2.0	1.9	1.8	2.0	2.0	1.9	2.0	2.0
10	1.9	E	E	2.0	2.0	E	E	2.0	1.6	2.0	2.2	2.2	2.1	2.2	2.1	B	B	E	E	E	E	2.0	2.0	1.9
11	1.9	2.0	E	E	2.0	E	E	B	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E	E
12	2.0	E	E	E	E	E	E	B	1.8	1.8	1.8	2.2	2.0	2.0	2.2	1.8	B	E	E	1.8	2.2	E	E	E
13	E	E	E	E	E	E	1.8	2.0	1.9	2.2	2.0	2.0	2.0	2.0	2.2	2.4	B	E	E	E	E	1.8	2.0	E
14	E	E	E	E	E	E	1.8	1.8	1.8	1.8	1.8	1.8	B	B	2.2	2.0	1.8	1.8	1.6	E	E	E	2.0	1.8
15	E	E	E	E	E	E	1.8	B	1.9	B	B	B	B	B	B	2.0	2.0	1.8	E	2.0	2.0	2.0	2.0	2.0
16	E	E	E	E	E	C	2.0	B	2.0	2.0	2.2	2.0	E	1.9	B	B	B	2.2	C	C	E	E	E	E
17	E	1.9	E	E	E	E	E	B	2.0	E	2.0	2.3	2.5	2.5	2.5	B	B	E	E	E	E	E	E	E
18	E	E	E	E	C	E	E	B	2.0	1.9	2.0	2.0	2.4	2.1	2.0	2.0	B	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	B	2.0	2.0	2.0	2.0	2.0	2.2	2.0	B	2.0	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	B	B	2.0	B	B	B	B	B	B	2.0	E	2.0	2.0	E	E	E	2.0
21	2.0	E	E	E	E	E	2.0	2.0	2.0	2.4	B	B	B	2.0	B	B	E	E	2.1	E	E	2.0	2.2	2.0
22	2.1	E	2.4	E	E	2.0	2.0	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	S	E
23	E	E	E	1.8	S	E	E	B	2.0	2.0	2.0	2.0	1.8	2.0	2.0	2.0	1.8	2.4	2.0	2.0	2.0	2.0	2.0	2.0
24	E	E	E	E	E	E	2.0	1.8	2.0	2.0	2.1	2.1	E	1.6	2.0	B	B	C	1.8	2.2	2.0	E	E	E
25	E	E	1.8	E	C	C	C	B	B	1.8	2.0	2.3	2.0	2.0	2.0	C	C	C	C	2.0	2.0	E	E	1.9
26	E	2.0	2.0	2.0	E	E	2.0	B	2.0	(2.0)C	2.0	C	C	C	C	2.0	1.6	2.0	2.0	2.0	C	C	C	E
27	E	E	1.9	C	C	2.0	2.0	B	2.0	1.8	1.9	1.6	2.0	(1.9)C	1.8	2.0	2.0	C	C	C	E	2.0	E	E
28	E	2.0	2.0	2.0	E	E	1.8	2.0	2.0	1.8	1.8	(1.8)C	1.8	1.8	1.8	1.8	1.8	C	C	E	S	S	E	1.8
29	E	1.8	E	E	E	E	1.8	1.8	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	2.2	1.8	2.0	B	2.2	2.0	B	B	E	E	E	2.0	E	2.0	E
31																								
Mean Value	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.1	1.9
Median Value	E	E	E	E	E	E	E	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	E	E	E	E	E	E	E
Count	28	28	26	24	22	23	23	9	24	25	23	23	21	22	22	16	10	25	25	27	26	26	26	27

Sweep 1.5 Mc to 15.5 Mc in 2 min ☐ Manual ☒ Automatic

W 11

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1951 | f_oF_2 | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.9	4.0	4.0	4.1	4.2	4.0	5.0	8.4	10.0	10.0	9.6	10.3	11.5	11.2	10.3	9.5	7.7	4.8	3.4^{V}	3.6	3.4	3.2	3.3	3.2^{F}
2	3.3^{F}	(3.4)^{PF}	3.5^{V}	3.4	3.5	3.5^{F}	4.5^{F}	7.8^{P}	8.5	9.4	11.1	(11.8)^{PJ}	11.7^{P}	11.0	9.7	9.4	9.1	8.0	4.5	3.4	A	A	3.5	A
3	3.7	3.6	3.7	3.6^{H}	3.6	3.5	4.4	8.2	9.7	9.2	11.4	11.7	11.7	10.2^{H}	9.7	9.2	7.1	7.3	4.6	3.2^{H}	3.6	A	3.7	3.7
4	3.7	4.0	3.8	4.0	4.0	3.9	4.1	8.2	9.2	12.3	11.8	11.9	10.7	9.3	9.3	8.4	8.0	7.0	5.6	4.7	3.4^{H}	3.7	3.7	3.6
5	3.6	3.5	3.8	4.7	3.5	3.4^{Z}	4.5	6.8	9.1	12.6	11.5^{J}	10.7	9.7	9.7	9.5	(8.5)^{P}	6.4	4.9	4.1	4.6	4.4	3.7	4.2	4.2
6	4.4	4.4	4.4	4.6	3.7	3.4	4.6	7.8	7.5	7.8	8.3	10.4	11.0	9.9	10.6	10.2	6.9	6.9	4.2	4.2	3.5	3.6	3.5	3.7
7	3.7	3.5	3.4	3.5	4.1	2.7	4.7	7.2	9.5	9.0	8.3	10.1	10.7	10.9	9.3	9.4	8.5^{H}	5.3	4.2	4.6	4.7^{H}	4.2	4.0	4.4
8	4.1	3.9	3.7^{H}	4.0	3.6	3.9	5.5	6.8	8.4	9.5	11.0	11.3	10.1	9.9	9.3	8.3	6.1	5.0	4.5	3.9	3.2	3.4	A	3.4
9	3.5	3.5	3.4	3.7^{V}	3.5	3.3	3.9	7.3	8.9	8.1	9.0	9.4	10.5	9.4	8.2	8.0	7.9	5.4	4.4	4.6	A	2.8	3.1	3.2^{V}
10	3.4	3.2	3.4	3.5	3.4	3.8	3.3	6.0	8.0	8.4	11.4	10.8	9.4	8.7	9.1	7.5^{P}	7.7	5.3	3.8	4.2	4.6	4.7	4.2	4.2
11	4.0^{F}	4.6^{JF}	4.8^{F}	4.5^{F}	4.5^{F}	4.5^{F}	5.3^{F}	7.4	8.0	8.4	9.2	10.3	9.4	9.0	7.5	7.8	6.7	5.1	3.5	3.9	3.5	3.3	3.3	3.3
12	3.5	3.4	3.5	3.6	3.3	3.0	3.4	6.4	8.4	10.9	10.0	9.3	9.1	8.0	8.2	8.2	6.9	5.0	3.9	3.6	3.4	A	A	3.6
13	3.2	3.5	3.5	4.1	3.1	3.2	3.7	7.4	9.5	C	C	C	C	C	C	C	C	4.5	4.3	3.8	3.7	3.5	3.5^{S}	4.1^{PS}
14	3.5	3.2	3.6	3.5^{K}	3.2^{K}	3.3^{FK}	3.4^{HK}	4.2^{HK}	5.8^{K}	7.6^{K}	10.8^{K}	10.0^{K}	8.2^{K}	8.0^{K}	7.9^{K}	(7.4)^{KPS}	6.3	(5.4)^{PS}	A^{S}	4.7	3.6	4.0	3.8	4.6^{F}
15	4.6	4.8	4.6	5.0	4.4^{F}	3.4^{JF}	4.1	6.0	6.3	7.5	9.1^{H}	9.3	8.1	8.0	8.5	7.7	6.5	5.7	5.5	5.0	3.3^{F}	3.5^{PF}	(3.8)^{PF}	3.5^{F}
16	3.5^{F}	3.5^{F}	3.6	3.4	3.4	3.6	3.5	7.1	7.6	7.3	9.0	9.3	8.2	8.2	8.1	6.5	6.8	5.6	4.6	4.8^{S}	2.6	2.9	2.9	2.9
17	3.1	3.2	3.2	3.2	3.1	2.9	3.1	6.9	7.0	9.5	8.3	8.0	8.2	7.3	7.5	6.6	6.1	4.8	3.6	4.3	3.1	3.1	2.7	3.1^{V}
18	3.2	3.6	(3.8)^{P}	(4.0)^{P}	3.2	3.9^{JF}	3.9^{JF}	6.9	9.4	10.2	9.2	7.4	7.9	9.3	10.0	8.3	6.8	5.8	4.2	3.5	4.4	3.3	3.3	3.4
19	4.0	3.8	3.6^{F}	4.9^{JF}	4.1^{Z}	(3.4)^{PF}	3.7^{Z}	5.6	6.3	7.6^{J}	7.3	8.8	7.4	7.8	8.6	8.3	7.4	5.1	4.6	3.0	3.0	2.7	2.9^{F}	3.2^{F}
20	2.9^{F}	3.3^{F}	3.4	3.6	3.9	3.5	3.3^{JF}	5.5	6.9	7.9	8.9	10.3	10.6	9.0	8.0^{P}	7.1	6.5	5.0	3.4	2.8	2.9	3.0	2.8	3.4
21	3.4	3.4	3.4^{F}	3.3^{F}	3.4^{F}	3.6^{J}	2.9^{F}	6.3	8.3	9.5	11.6	11.7	11.0	9.2	9.3	8.2^{J}	(7.4)^{PS}	6.0	3.9	3.6	3.3	3.3	3.4	3.5
22	3.5	3.9	4.0^{F}	4.1^{F}	4.3	3.6	4.2	7.2	9.2	9.5	9.1	10.5	8.6	9.1	10.0^{JB}	8.2	6.5	5.5	S	3.4^{V}	3.0	3.0	3.1	2.9^{V}
23	3.3	3.5^{V}	3.8	3.4	3.2	2.8	3.3	7.2	8.1	8.5	8.6	10.8	10.2^{J}	8.9	B	B	7.2	5.6	4.5	4.2	3.9	4.3^{JF}	4.5	4.0^{F}
24	(4.4)^{PF}	(4.3)^{PF}	4.2^{F}	5.1	5.0	4.8	4.7	6.2	7.1	11.7	11.5^{J}	9.4	7.5	8.5	8.5	8.7	6.7	5.5	5.5^{H}	5.1	4.8	4.7	4.8	5.4
25	5.2	5.4	5.9	5.6^{JF}	(5.4)^{P}	5.3	4.2	5.3	7.4	8.8	10.6	11.2	9.1	8.2	8.3	8.8	5.8	3.4	3.4	3.4	3.2	3.2	3.4^{JF}	3.2^{F}
26	3.1^{F}	3.1^{F}	2.9	3.0^{F}	3.3	3.2^{F}	2.5^{F}	(5.3)^{P}	7.6	9.7	9.7	9.5	8.2	7.4	8.4	8.3	7.2	4.7	3.9	3.8	3.3	3.1	3.5^{V}	3.1^{F}
27	3.1^{F}	3.0^{PF}	3.0	3.5	F	A	3.5	B	7.9^{J}	8.9	9.2	9.2	8.9	9.3	10.0	B	6.4	4.7	4.3	3.9	4.1	2.7	3.8^{Z}	A^{F}
28	3.5^{F}	3.6^{F}	3.8^{F}	3.7	3.6	3.1	2.9^{F}	5.9	7.1	9.4	8.6	9.3	9.2	8.2	8.9	8.5^{PH}	(6.9)^{P}	4.6	4.1	3.5	2.8	2.7	2.9	3.2
29	3.4	3.4^{Z}	3.8^{Z}	3.9^{Z}	3.8	3.5	3.6	5.3	9.1	9.6	11.1	10.1	9.1	9.0	8.4	7.8^{H}	7.2	4.3	4.4	4.7	3.7	3.7	3.7	3.4
30	3.6	3.9	3.9	4.3	3.8^{F}	3.7	3.4	7.5	B	10.3	11.1	11.4	9.3	9.4	8.3	8.3	7.8	5.4	4.4	2.9	3.0	3.1^{F}	3.5^{JF}	4.3^{JF}
31																								
Mean Value	3.6	3.7	3.8	4.0	3.8	3.6	3.9	6.7	8.1	9.3	9.9	10.0	9.5	9.0	8.9	8.3	7.1	5.4	4.3	4.0	3.5	3.4	3.5	3.6
Median Value	3.5	3.5	3.7	3.8	3.6	3.5	3.8	6.9	8.1	9.4	9.6	10.3	9.3	9.0	8.8	8.3	6.9	5.3	4.2	3.9	3.4	3.3	3.5	3.4
Count	30	30	30	30	29	29	30	29	29	29	29	29	29	29	28	27	29	30	28	30	28	27	28	28

f_oF_2

Sweep 1.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

A 1

15

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

IONOSPHERIC DATA

Nov. 1951 | foF2 | 135° E Mean Time | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	380	350	320	340	300	310	290	280	250	260	260	300	280	250	250	250	220	270	300V	290	310	290	320	(350)F
2	270F	(370)PF	320V	330	300	330F	280F	260P	260	280	300	(300)FJ	290P	300	270	280	290	280	250	320	A	A	400	A
3	390	380	390	340H	330	360	330	240	240	300	280	310	310	280H	280	280	250	250	280	320H	300	A	360	360
4	360	360	340	340	360	400	340	240	270	290	260	290	280	280	270	260	280	280	330	270	340H	320	330	340
5	370	360	390	360	340	360Z	320	250	310	270	(260)J	270	280	280	270	(240)P	230	270	270	320	290	310	350	370
6	370	330	310	300	240	360	290	220	230	240	270	300	280	270	300	280	250	260	300	310	330	340	340	390
7	380	390	390	350	240	350	310	260	280	250	290	290	270	280	260	250	250H	230	340	340	300H	310	350	340
8	310	320	390H	390	330	330	280	280	260	280	280	270	280	290	270	250	240	260	300	260	300	340	A	320
9	330	350	380	380V	350	330	330	250	260	230	270	260	260	260	260	250	250	240	300	A	A	360	380	410V
10	390	340	360	310	380	310	280	270	260	250	270	260	250	250	270	250P	250	290	290	310	300	280	280	350
11	330F	(330)JF	330F	330F	300F	300F	300F	240	240	260	270	270	260	260	250	260	230	240	310	300	290	270	330	360
12	400	360	340	340	290	320	330	270	260	250	240	260	250	240	250	260	250	270	320	290	340	A	A	350
13	360	390	370	310	210	300	310	260	270	C	C	C	C	C	C	C	C	280	280	260	270	300	310S	290FS
14	320	380	390	380K	400K	340FK	410HK	370HK	340K	300K	320K	270K	290K	290K	270K	(240)KFS	250	(280)FS	AS	310	270	360	340	380F
15	380	360	360	300	260F	(360)JF	260	260	240	270	280H	280	260	280	260	250	270	280	280	340	290F	360FF	(380)FF	360F
16	370F	360F	340	350	330	300	310	250	250	280	280	250	250	270	240	250	240	240	260	260n	380	360	320	380
17	330	370	330	350	330	350	320	280	250	240	260	260	260	250	260	240	260	260	300	270	230	300	300	380V
18	340	350	(330)P	(260)P	340	(310)JF	(350)JF	260	280	260	240	250	260	290	290	240	250	250	240	280	320	280	350	380
19	370	370	370F	(330)JF	320B	(320)FF	290Z	240	230	(260)J	240	260	250	280	280	250	260	250	260	290	290	300	320F	370F
20	320F	370F	350	350	330	340	(310)JF	260	260	270	290	290	280	260	270F	260	250	240	240	280	280	310	320	330
21	370	350	410F	380F	380F	(220)JF	310F	290	260	260	270	270	240	270	270	(250)J	(260)FS	260	250	290	290	340	350	340
22	350	360	300F	350F	300	340	280	250	260	240	270	290	260	310	(260)JB	240	250	280	S	250V	370	320	350	360V
23	270	360V	270	290	330	370	310	260	260	280	280	300	(270)J	270	B	B	230	280	220	300	260	(360)JF	320	350F
24	(300)FF	(400)FF	350F	340	280	290	270	230	260	290	(270)J	240	250	280	260	250	250	270	320	380	290	310	310	350
25	370	310	350	(360)JF	(370)P	300	260	260	250	260	270	280	250	260	260	230	220	220	300	300	310	290	(380)JF	280F
26	350F	370F	400	340F	290	270F	310F	(260)P	250	260	260	270	240	250	270	260	240	250	320	250	250	300A	330V	410F
27	390F	390FF	360	310	F	A	310	B	(230)J	250	300	240	270	260	250	B	240	260	250	A	240	240	350FF	AF
28	340F	350F	340F	310	330	330	280F	250	250	250	240	240	250	270	250	260FN	(270)P	260	280	280	300	290	340	360
29	360	380Z	380Z	350Z	310	350	340	310	280	300	250	260	260	260	250	260H	250	270	300	240	290	420	310	390
30	360	400	370	360	330F	330	330	270	B	290	260	270	280	240	270	230	240	270	260	290	280	280F	(300)JF	(330)JF
31																								
Mean Value	360	360	350	340	320	330	310	260	260	270	270	270	270	270	270	250	250	260	280	290	300	320	340	350
Median Value	360	360	360	340	330	330	310	260	260	260	270	270	260	270	260	250	250	260	280	290	290	310	340	360
Count	30	30	30	30	29	29	30	29	29	29	29	29	29	29	28	27	29	30	28	28	28	27	28	28

Sweep 4.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

A 2

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

IONOSPHERIC DATA

Nov. 1951 | h'F2 | 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	280	270	270	260	270	250	250	220	210	210	230	250	250	230	250	230	210	190	260	230	290	250	290	280
2	220	290	260	270	240	250	220	220	220	260	240	250	250	260	250	240	230	210	220	250	A	A	360^{A}	A
3	300	330	310	270^{H}	270	300	260	220	220	230	250	260	230	230^{H}	230	230	220	220	230	240^{H}	260	A	310	300
4	300	300	300	300	300	300	300	230	230	250	240	250	240	250	240	220	220	220	250	240	230^{H}	280	290	300
5	330	290	300	280	220	280	260	220	240	270	230	260	250	250	260	230	210	220	220	270	250	250	270	290
6	290	270	260	250	220	300	240	220	220	220	250	280	270	270	240	240	220	220	260	260	260	300	300	300
7	280	290	300	300	230	300	270	250	250	220	290	290	250	240	240	240	220^{H}	200^{A}	260	300	250^{H}	260	270	280
8	250	260	300^{H}	300	270	270	240	230	230	220^{A}	260	230	220^{A}	230	260	240	230	220	260	230	240	280	A	270
9	270	290	320	300	290	270	270	230	230	210	220	230	230	240	230	220^{A}	220^{A}	200	220	A	300	A	300	320
10	320	300	300	280	280	260	220	250	220	230	260	240	230	230	260	230	230	220	250	260	250	240	230	230
11	260	270	280	280	270	280	240	220^{A}	220^{A}	220	240	240	240	230	230	220	210	210	250	250	240	270	280	300
12	300	320	280	260	220	250	260	240	250	230	230	240	240	240	220	220	220	210^{A}	220	240	260	A	A	290
13	300	310	300	310	210^{A}	260	280	240	250	C	C	C	C	C	C	C	C	200	250	250	240	270	270	260
14	280	340	320	330^{K}	330^{K}	280^{K}	350$^{H}_{K}$	330$^{H}_{K}$	280^{K}	300^{K}	300^{K}	240^{K}	270^{K}	260^{K}	240^{K}	230^{K}	220	210	A	250	220	300	310	290
15	320	300	290	240	210	270^{P}	230	250	230	260	260^{H}	260	250	250	240	230	230	230	230	260	270	290	310	280
16	300	300	300	280	270	250	250	220	230	220	250	240	250	250	230^{A}	230	230	220	230	220	310	310	290	310
17	280	300	300	300	290	290	280	250	230	230	220	230	250	220	230	220	230	210	230	230	210	280	270	310
18	280	280	240	230	280	250	280	220	240	220	220	220	250	270	260	230	220	210	210	220	230	240	260	340
19	300	270	270	250	220	240	240	220	230	230	230	250	240	250	250	230	220	220	230^{A}	290^{A}	250	260	300	320
20	300	300	300	290	280	250	220	210	210	240	260	260	250	240	240	230	220	220	220	240	250	280	310^{A}	320^{A}
21	310	310	350	340	300	210^{A}	220	250	210^{A}	240	250	220^{A}	220^{A}	220	240	230	220	210	230	230	230	280	300	310^{A}
22	310^{A}	300^{A}	270	270	250	220	250	210	230	210	210	250	230	240	250	220	240	210	210	220	320	290	310	310
23	330	310	230	220	260	300	250	220	220	200	260	270	240^{A}	260^{A}	240	230	210^{A}	210	210	250	220	330	270	270
24	260	290	280	280	230	220	230	220^{A}	220	230	220	230	220	260	230	230	220	250	250^{H}	230	220	220	230	350
25	280	280	300^{A}	300	250	230	220	240	220	230	250	250	250	240	220	220	210	220	270^{A}	250	250^{B}	240^{B}	300^{F}	260
26	300^{A}	310	380^{A}	310^{A}	260	220	A	220	230	220	250	240	210^{A}	220	250	240	220	200	A	230	210	A	A	380
27	330	310	300	240	280	A	300	A	210	220	230	230	230	230	230	220	210	210	220^{A}	A	220^{A}	230	300	290
28	300	290	280	260	280	250	240	220	210	240	220	230	230	240	240	230^{H}	220	220	220	240	280	280	310^{A}	320
29	290	290	270	260	260	280	280	250	240	230	230	230	230	230	250	220^{H}	220^{A}	220	240	210	240	360	260^{A}	320
30	300	350^{A}	290	300	290	270	240	230	220^{A}	230	230	230	240	230	220	220	210	220	210	240	250	240	250	260
31																								
Mean Value	290	300	290	280	260	260	250	230	230	230	240	240	240	240	240	230	220	220	230	240	250	270	290	300
Median Value	300	300	300	280	270	260	250	220	230	230	240	240	240	240	240	230	220	220	230	240	250	280	290	300
Count	30	30	30	30	30	29	29	29	30	29	29	29	29	29	29	29	29	30	28	28	29	25	27	29

h'F2 | Sweep 1.0 Mc to 17.0 Mc in 15 min | ☒ Manual | ☐ Automatic

A 3

17

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1951

foF1

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								Q	Q	Q	L	L	L	Q	4.0	4.0	Q							
2								Q	Q	L	Q	B	B	4.6	L	Q	Q							
3								Q	Q	Q	L	L	L	L	Q	Q	Q							
4								Q	Q	Q	L	L	4.2	L	L	Q	Q							
5								Q	L	4.6	L	L	L	L	L	Q	Q							
6								Q	Q	Q	L	L	L	5.0	L	Q	Q							
7								L	L	Q	L	L	L	Q	L	L	Q							
8								Q	Q	Q	L	Q	A	Q	L	L	L							
9								Q	Q	Q	L	L	L	L	L	A	A							
10								L	B	3.9	A	A	Q	Q	4.1	A	Q							
11								A	A	L	4.0	L	L	L	L	Q	Q							
12								Q	L	L	L	L	L	L	Q	Q	Q							
13								Q	L	C	C	C	C	C	C	C	C							
14								Q	Q	L	L	Q	4.2	Q	Q	Q	Q							
15								A	Q	L	L	L	L	L	L	Q	Q							
16								Q	L	Q	4.3	4.0	4.2	4.0	A	Q	Q							
17								Q	Q	Q	Q	L	L	Q	Q	Q	Q							
18								Q	L	Q	Q	Q	L	L	L	Q	Q							
19								L	L	L	L	4.3	L	L	L	Q	Q							
20								Q	Q	L	L	L	L	L	L	Q	Q							
21								L	A	L	L	L	Q	Q	Q	Q	Q							
22								Q	L	Q	Q	L	L	L	Q	Q	L							
23								Q	Q	Q	L	L	A	A	Q	L	Q							
24								Q	Q	Q	Q	L	Q	Q	Q	Q	Q							
25								Q	Q	L	Q	L	L	L	Q	Q	Q							
26								Q	Q	Q	Q	Q	Q	Q	L	Q	Q							
27								A	Q	Q	B	L	L	L	Q	Q	Q							
28								Q	Q	Q	Q	Q	Q	Q	L	Q	Q							
29								Q	Q	Q	L	L	L	L	L	Q	A							
30								Q	A	L	L	L	Q	Q	Q	Q	Q							
31																								
Mean Value										4.3	4.2	4.2	4.2	4.5	4.1	4.0								
Median Value										4.2	4.2	4.2	4.2	4.6	4.0	4.0								
Count										2	2	2	3	3	2	1								

Sweep 1.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

A 4

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

IONOSPHERIC DATA

Nov. 1951 | h'F1 | 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								Q	Q	Q	200	200	230	Q	230	220	Q							
2								Q	Q	220	Q	B	B	240	220	Q	Q							
3								Q	Q	Q	230	220	220	220	Q	Q	Q							
4								Q	Q	Q	220	200	210	230	230	Q	Q							
5								Q	220	220	210	230	B	220	230	Q	Q							
6								Q	Q	Q	220	230	240	220	230	Q	Q							
7								240	210	Q	240	230	B	Q	230	220[A]	Q							
8								Q	Q	Q	240	Q	A	Q	240	220	210							
9								Q	Q	Q	200	210	200	220	220	A	A							
10								250	B	210[A]	A	A	Q	Q	230	A	Q							
11								A	A	210	200	210	230	200	220	Q	Q							
12								Q	230	220	210	220	220	230	Q	Q	Q							
13								Q	240	C	C	C	C	C	C	C	C							
14								Q	Q	A	A	Q	240[A]	Q	Q	Q	Q							
15								A	Q	230	230	230	220	220	230	Q	Q							
16								Q	210	Q	200	210	220	220	A	Q	Q							
17								Q	Q	Q	Q	220	220	Q	Q	Q	Q							
18								Q	220	Q	Q	Q	230	210	240	Q	Q							
19								200	210	210	200	250	230	220	240	Q	Q							
20								Q	Q	220	240	220	220	220	210	Q	Q							
21								230	A	210	210	220	Q	Q	Q	Q	Q							
22								Q	210	Q	Q	210	220	210	Q	Q	230							
23								Q	Q	Q	220[A]	A	A	A	Q	A	Q							
24								Q	Q	Q	Q	200	Q	Q	Q	Q	Q							
25								Q	Q	220	Q	220	220	220	Q	Q	Q							
26								Q	Q	Q	Q	Q	Q	Q	230	Q	Q							
27								A	Q	Q	B	200	200	200	Q	Q	Q							
28								Q	Q	Q	Q	Q	Q	Q	230	Q	Q							
29								Q	Q	Q	220	210	230	220	220	Q	A							
30								Q	A	220	220	220	Q	Q	Q	Q	Q							
31																								
Mean Value								230	220	220	220	220	220	220	230	220	220							
Median Value								240	220	220	220	220	220	220	230	220	220							
Count								4	8	11	18	21	18	17	17	3	2							

h'F1 | Sweep 1.0 Mc to 17.0 Mc in 15 min | ☒ Manual ☐ Automatic

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1951

foE

135° E Mean Time

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

Sweep 1.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | f'E | 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	110	110	110	110	110	A	A	A	120							
2								A	110	110	110	110	110	110	100	A	A							
3								110	A	110	110	100	110	110	110	A	A							
4								110	110	A	110	A	110	110	100	A	110							
5								110	110	A	110	110	110	100	100	A	A							
6								120	110	110	110	110	110	110	110	110	110							
7								140[B]	120	110	100	110	100	110	A	A	110							
8								110	120	A	110	110	110	110	110	110	A							
9								130	110	110	110	110	110	110	A	A	A							
10								B	100	A	A	A	A	A	A	A	A							
11								A	A	110	110	110	110	110	100	A	A							
12								130[B]	A	110	A	110	110	110	110	110	A							
13								120	120	C	C	C	C	C	C	C	C							
14								120[B]	A	110	A	A	A	110	110	110	120[B]							
15								A	A	110	100	A	110	110	110	110	110							
16								A	A	100	110	110	A	100	A	A	A							
17								110	110	110	110	110	110	110	110	110	B							
18								B	110	110	110	110	110	110	110	110	B							
19								110	100	110	110	110	100	110	110	110	A							
20								A	A	A	110	110	110	110	100	110	100							
21								A	A	A	A	A	A	A	110	A	B							
22								B	A	A	110	110	110	110	110	110	110							
23								120[B]	110	110	A	A	A	A	A	A	A							
24								A	110	110	110	110	110	110	A	110	B							
25								B	120	110[H]	100	110	110[H]	110	A	110	110							
26								A	110	110	110	110	A	A	110	110	A							
27								A	A	A	110	110	100	110	120	120	B							
28								110	110	A	110	110	110	110	110	A	A							
29								A	A	A	110	110	110	110	100	100[H]	A							
30								B	A	110	110	110	110	110	110	110	130[A]							
31																								
Mean Value								120	110	110	110	110	110	110	110	110	110							
Median Value								120	110	110	110	110	110	110	110	110	110							
Count								14	18	19	24	23	23	24	21	16	10							

f'E

Sweep 1.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

A 7

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

IONOSPHERIC DATA

Nov. 1951 | fEs | 135° E Mean Time | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	2.7	2.1	E	2.1	3.2	3.5	3.6	3.6	3.8	4.0	4.0	4.6	G	E	2.0	2.7	3.3	2.4	4.8	2.9
2	2.0	E	2.5	2.5	2.4	2.6	2.6	2.7	G	G	G	G	G	G	3.9	3.6	2.2	2.3	E	3.6	4.8	5.4	3.8	4.2
3	3.0	2.8	2.3Y	1.4	E	E	E	G	5.0	6.6	3.8	G	G	G	G	3.2	2.8	3.0	3.0	2.2	2.8	4.3	3.4	2.6
4	1.9	1.3	1.4	1.6	1.8	2.0	2.2	2.1	G	4.2	3.8	3.6	G	3.9	3.4	3.4	G	3.0	3.2	2.6	E	E	E	E
5	E	E	E	E	E	E	E	G	G	4.0	G	G	G	G	3.5	3.6	3.2	2.5	2.1	E	E	E	E	E
6	2.4	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	2.0	1.8	1.8	1.9
7	E	E	E	E	E	2.0	E	G	G	G	5.0	G	G	G	3.8	3.4	2.3	2.4	3.4	3.0	3.0	3.0	E	E
8	E	E	E	E	E	E	E	3.0	3.7	4.0	G	G	G	G	4.4	G	2.0	E	2.6	E	3.2	3.7	5.1	2.4
9	2.4	3.6	3.0	2.7	E	E	E	G	3.0	5.0	3.8	3.6	3.8	3.8	4.2	4.6	3.6	E	2.8	4.6	12.4	3.4	3.2	2.8
10	2.0	1.6	2.0	2.5	2.5	2.1	E	2.2	G	4.2	5.4	9.4	6.2	4.0	3.4	4.4	3.4	2.6	2.6	3.4	3.0	3.0	2.3	2.2
11	E	2.6	4.6	3.8	2.8	2.4	2.4	2.2	2.4	3.2	G	G	G	G	G	3.0	2.4	2.2	E	E	E	2.2	2.4	E
12	2.0	2.2	1.9	2.3	2.2	E	E	G	3.2	3.6	3.8	3.6	3.8	G	3.0	3.6	2.2	2.4	2.0	E	2.4	4.2	4.2	E
13	E	E	2.2	2.2	1.3	2.6	E	2.6	3.1	C	C	C	C	C	C	C	C	G	1.9	E	2.2	2.3	3.0	3.0
14	2.8	2.4	2.6	3.2	2.4	1.8	E	G	4.0	4.0	6.0	4.0	3.6	G	G	3.4	G	E	5.4	3.8	2.5	5.3	3.4	3.2
15	4.5	5.1	3.0	3.0	2.3	E	2.3	3.6	3.6	G	3.8	3.6	G	G	G	3.7	3.4	3.4	3.0	3.0	2.6	2.4	2.4	2.4
16	2.8	2.2	2.7	1.4	1.2	2.5	2.8	5.0	3.8	G	G	G	4.2	3.4	4.6	3.6	4.1	3.3	3.0	2.6	2.1	3.0Y	2.2	E
17	2.5	2.2Y	2.4	2.6	2.4	2.4	E	2.8Y	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
18	E	1.3	E	2.4	1.5	G	E	3.2	3.6	3.8	G	G	G	G	G	G	G	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	G	G	G	3.3	3.2	3.6	G	G	G	2.8	2.6	3.0	3.4	2.4	2.4	2.6	2.2
20	2.4	2.2	1.8	1.4	E	E	E	2.6	3.2	4.0	G	G	G	G	G	G	G	3.4	E	E	2.2	2.6	3.1	3.4
21	3.7	2.5	3.0	3.1	1.6	1.4	E	2.0	4.0	3.2	3.0	3.8	3.2	3.8	G	4.2	G	E	3.2	2.8	2.6	2.5	E	3.5
22	2.9	2.8	3.3	2.3	E	E	E	G	3.3	3.8	G	G	G	G	G	G	2.0	E	2.5	2.8	2.6	2.6	E	1.8
23	E	E	E	2.4	E	E	E	G	G	3.4Y	3.7	5.7	8.0	7.4	3.6	4.2	3.4	E	3.1	3.3	2.3	3.8	2.8	2.7
24	E	2.5	1.8	E	E	E	2.4	3.2	G	G	G	G	G	G	3.8	G	B	E	E	E	E	E	2.0	2.6
25	E	E	2.8	2.6	E	1.4	E	G	G	G	G	G	G	G	3.8	3.4	2.4	3.4	3.2	3.8	2.9	2.5	2.5	E
26	3.1	3.0	3.0	2.0	1.5	2.2	2.9	2.0	G	G	G	G	3.2	3.0	G	G	2.0	2.0	3.8	3.6	2.8	3.2	3.4	2.4
27	E	E	E	3.0	3.0	3.6	3.0	3.0	3.3	4.2	G	G	G	G	G	G	B	2.8	2.9	3.5	3.2	3.0	2.5	4.0
28	2.2	2.6	2.6	2.7	2.5	E	2.2	G	G	3.4	3.6	G	G	G	3.4	3.0	3.2	3.0	2.6	2.2	2.6	2.2	3.0	2.6
29	2.3	2.2	1.6	1.6	1.6	1.8	2.0	2.0	2.6	5.0	3.5	G	G	G	4.1	G	3.2	3.4	2.7	2.5	2.2	E	3.0	E
30	E	3.4	2.3	2.2	1.9	1.8	2.4	G	4.0	G	G	G	G	G	G	G	1.8	2.2	2.0	E	E	E	E	2.4
31																								
Mean Value	2.6	2.6	2.5	2.4	2.1	2.2	2.5	2.7	3.5	4.1	4.0	4.4	4.3	4.2	3.8	3.7	2.8	2.8	2.9	3.1	3.1	3.1	3.0	2.7
Median Value	2.0	2.2	2.1	2.2	1.5	1.4	E	2.0	2.8	3.4	G	G	G	G	3.0	3.2	2.2	2.2	2.6	2.6	2.4	2.5	2.5	2.4
Count	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	27	30	30	30	30	30	30	30

Sweep 1.0 Mc to 19.0 Mc in 15 min ☒ Manual ☐ Automatic

A 8

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

IONOSPHERIC DATA

Nov. 1951 | (M3000)F2 | 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	2.6	2.8	3.1	2.9	3.1	3.2	3.1	3.2	3.1	3.4	3.4	3.1	3.2	3.4	3.4	3.5	3.7	3.3	3.0 V	3.2	3.0	3.1	3.1	2.9 F
2	3.3 F	(2.8) PF	3.0 V	3.0	3.2	2.9	3.2 F	3.4 P	3.5	3.1	3.0	(3.2) PJ	3.1 P	3.1	3.3	3.3	3.2	3.1	3.4	3.4	A	A	2.7	A
3	2.6	2.7	2.7	2.8 H	3.0	2.8	2.9	3.6	3.7	3.1	3.2	2.9	3.0	3.2 H	3.3	3.2	3.4	3.4	3.2	2.9 H	3.2	A	2.9	2.8
4	2.8	2.7	2.9	3.0	2.8	2.5	2.9	3.4	3.3	3.1	3.3	3.1	3.1	3.2	3.4	3.4	3.3	3.2	3.5	3.2	2.9 H	3.0	3.0	3.0
5	2.8	2.8	2.6	2.7	2.8	2.7 Z	2.9	3.4	3.0	3.5	(3.4) J	3.5	3.3	3.4	3.3	(3.5) P	3.5	3.3	3.2	2.9	3.1	3.0	2.8	2.7
6	2.7	2.9	3.0	3.2	3.5	2.8	3.1	3.7	3.6	3.4	3.3	3.2	3.2	3.3	3.1	3.2	3.4	3.4	3.0	3.0	2.9	2.9	2.8	2.6
7	2.6	2.6	2.5	2.8	3.6	2.7	3.0	3.4	3.3	3.6	3.2	3.1	3.2	3.2	3.4	3.5	3.5 H	3.4	2.9	2.9	3.1 H	3.2	2.9	3.0
8	3.1	3.0	2.7 H	2.7	3.1	3.0	3.3	3.2	3.4	3.2	3.3	3.3	3.2	3.2	3.3	3.5	3.5	3.4	3.1	3.3	3.0	2.8	A	3.0
9	3.0	2.9	2.7	2.6 V	2.9	3.0	2.9	3.5	3.3	3.6	3.3	3.4	3.3	3.4	3.4	3.5	3.5	3.5	3.0	A	A	2.8	2.7	2.5 V
10	2.6	2.9	2.8	3.1	2.7	3.0	3.1	3.4	3.5	3.3	3.3	3.5	3.4	3.4	3.3	3.4 P	3.5	3.2	3.1	3.1	3.0	3.3	3.2	2.8
11	3.0 F	(2.9) JF	2.7 F	2.9 F	3.1 F	3.1 F	3.0 F	3.5	3.6	3.4	3.2	3.3	3.3	3.3	3.4	3.3	3.6	3.5	3.0	3.0	3.1	2.9	3.0	2.8
12	2.6	2.7	3.0	2.9	3.2	3.0	3.0	3.3	3.4	3.4	3.4	3.3	3.3	3.4	3.3	3.3	3.4	3.2	2.9	3.2	3.0	A	A	2.9
13	2.8	2.7	2.7	3.0	3.7	3.1	3.0	3.4	3.4	C	C	C	C	C	C	C	C	3.1	3.2	3.4	3.3	3.2	3.1 S	3.2 PS
14	3.1	2.7	2.7	2.7 K	2.6 K	3.0 FK	2.6 HK	2.7 HK	2.9 K	3.1 K	2.9 K	3.3 K	3.1 K	3.1 K	3.2 K	(3.5) PSK	3.3	(3.2) PS	AS	3.0	3.3	2.8	2.8	2.6 F
15	2.7	2.8	2.8	3.1	3.3 F	(2.7) JF	3.3	3.3	3.4	3.3	3.2 H	3.2	3.4	3.2	3.3	3.4	3.3	3.1	3.2	2.9	3.2 F	2.8 PF	(2.7) PF	2.7 F
16	2.8 F	2.7 F	3.0	2.8	3.0	3.2	3.1	3.6	3.5	3.2	3.2	3.3	3.4	3.3	3.4	3.4	3.5	3.4	3.4	3.2 S	2.6	2.7	3.1	2.6
17	2.9	2.7	2.9	2.8	2.9	2.8	2.9	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.3	3.3	3.0	3.3	3.6	3.1	3.1	2.7 V
18	2.9	2.8	(3.0) P	(3.3) P	2.9	(3.0) JF	(2.8) JF	3.3	3.3	3.3	3.5	3.5	3.4	3.2	3.3	3.6	3.5	3.4	3.5	3.2	3.0	3.3	2.8	2.7
19	2.7	2.7	2.7 F	(2.9) JF	3.3 Z	(3.0) PF	3.1 Z	3.6	3.6	(3.5) J	3.6	3.5	3.6	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1	3.1 F	2.8 F
20	3.0 F	2.8 F	2.8	2.8	2.9	2.8	(3.0) JF	3.3	3.3	3.2	3.1	3.2	3.2	3.3	3.1 P	3.4	3.5	3.6	3.5	3.3	3.2	3.0	3.1	3.0
21	2.9	2.9	2.7 F	2.7 F	2.7 F	(3.7) J	3.0 F	3.3	3.2	3.4	3.2	3.3	3.5	3.2	3.3	(3.5) J	(3.5) PS	3.3	3.4	3.1	3.2	2.8	3.0	3.0
22	2.9	2.8	3.1 F	2.8 F	3.1	2.9	3.3	3.4	3.3	3.4	3.2	3.3	3.3	3.2	(3.5) JB	3.4	3.3	3.2	S	3.5 V	2.8	3.0	2.8	2.8 V
23	2.7	2.8 V	3.1	3.1	2.9	2.7	2.9	3.3	3.2	3.1	3.3	3.3	(3.4) J	3.3	B	B	3.6	3.1	3.5	3.0	3.4	(2.7) JF	3.0	2.8 F
24	(2.7) PF	2.6 PF	2.8 F	2.9	3.2	3.2	3.3	3.6	3.4	3.2	(3.3) J	3.6	3.4	3.3	3.4	3.4	3.5	3.3	3.0 H	3.1	3.1	3.0	3.0	2.8
25	2.7	3.0	2.8	(2.7) JF	(2.7) P	3.0	3.4	3.4	3.5	3.4	3.4	3.3	3.5	3.4	3.3	3.5	3.6	3.6	3.2	3.2	3.1	3.2	(2.7) JF	3.1 F
26	(2.8) F	2.8 F	2.7	3.0 F	3.2	3.3 F	3.0 F	3.2 P	3.5	3.4	3.4	3.3	3.4	3.5	3.3	3.4	3.6	3.4	3.0	3.4	3.3	3.1	2.9 V	2.5 F
27	2.6 F	2.8 PF	2.8	3.0	F	A	3.2	B	(3.6) J	3.4	3.0	3.4	3.3	3.4	3.4	B	3.7	3.3	3.4	3.3A	3.5	3.3	2.8 Z	AF
28	2.9 F	2.9 F	2.9 F	3.0	2.9	3.0	3.2 F	3.5	3.4	3.5	3.4	3.7	3.4	3.2	3.5	3.4 PH	(3.4) P	3.3	3.2	3.2	3.2	3.2	2.8	2.8
29	2.7	2.6 Z	2.7 Z	2.8 Z	3.0	2.8	2.8	2.9	3.2	3.0	3.4	3.4	3.4	3.3	3.5	3.4 H	3.5	3.3	3.1	3.5	3.1	2.6	3.1	2.6
30	2.8	2.6	2.7	2.7	2.9 F	3.0	2.9	3.2	B	3.1	3.4	3.3	3.3	3.5	3.3	3.4	3.5	3.2	3.3	3.1	3.2	3.2 F	(3.1) JF	(2.9) JF
31																								
Mean Value	2.8	2.8	2.8	2.9	3.0	3.0	3.0	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.5	3.3	3.2	3.2	3.1	3.0	2.9	2.8
Median Value	2.8	2.8	2.8	2.9	3.0	3.0	3.0	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.5	3.3	3.2	3.2	3.1	3.0	3.0	2.8
Count	30	30	30	30	29	29	30	29	29	29	29	29	29	29	28	27	29	30	28	29	28	27	28	28

(M3000)F2 | Sweep 1.0 Mc to 17.0 Mc in 15 min | ☒ Manual ☐ Automatic

23

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1951

fmin F

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	1.3	1.7	1.5	2.3	2.6	2.9	3.1	3.2	3.4	3.6	3.4	3.2	2.1	1.6	1.9	1.6	1.6	1.6	2.0[A]	1.6
2	1.5	E	E	1.2	E	1.3	1.5	2.5	2.8	3.4	4.0	5.0	4.8	4.2	3.2	2.8	2.1	1.6	1.6	2.0[A]	A	A	2.4[A]	A
3	1.6	1.6	1.4	E	E	E	1.5	2.2	3.2	4.0	3.6	3.4	3.4	3.4	3.3	2.8	2.2	2.0[A]	1.6	1.6	1.7	A	2.0[A]	1.8
4	1.6	1.3	1.2	1.2	1.2	1.2	1.2	2.2	2.6	3.2	3.4	3.4	3.4	3.4	3.1	2.7	2.1	2.4[A]	2.2[A]	1.8	1.6	1.6	1.4	1.4
5	1.3	1.2	E	E	E	E	1.6	2.3	2.7	3.0	3.2	3.4	4.3	3.1	3.0	3.0	2.2	1.6	1.7	1.5	1.5	1.5	1.5	1.4
6	1.3	E	E	E	E	E	1.5	2.2	2.7	2.9	3.1	3.2	3.2	3.2	3.5	3.0	2.0	1.6	1.6	1.6	1.4	1.6	1.4	1.2
7	1.2	1.2	E	1.3	E	E	1.6	2.3	2.9	3.1	3.1	3.6	4.0	4.0	3.2	A	2.0	A	1.5	1.8	1.6	1.6	1.5	1.5
8	1.4	1.2	E	E	E	E	1.5	2.2	2.3	A	3.6	3.4	A	N	3.0	2.6	2.0	1.6	2.1[A]	1.5	1.4	1.7	A	1.4
9	1.3	E	1.3	E	E	E	1.2	1.4	2.0	2.5	3.1	3.4	3.3	3.4	3.1	2.8	A	A	1.6	1.6	4.0[A]	2.0[A]	1.8	1.6
10	1.2	E	E	E	E	E	1.5	1.6	2.7	A	4.6[A]	5.2[A]	4.0	4.0	3.2	4.2[A]	2.4	1.8	1.6	1.9	1.6	1.6	1.5	1.5
11	1.5	1.8	1.6	1.6	2.0[A]	2.0[A]	1.8	A	A	3.0	3.4	3.6	3.8	3.3	2.8	2.7	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
12	1.2	1.1	E	E	1.2	E	1.5	2.0	2.5	3.0	3.2	3.6	3.2	3.2	2.4	2.2	1.8	A	1.4	1.5	1.5	A	A	1.5
13	E	E	E	E	A	1.2	1.5	2.2	2.8	C	C	C	C	C	C	C	C	1.8	1.8	1.6	1.5	1.5	1.4	1.4
14	1.4	1.2	1.2	1.6	1.4	E	1.8	2.9	2.7	3.5	4.8[A]	4.0	3.8	3.0	N	2.5	1.9	1.6	A	2.4[A]	1.9	1.5	2.3[A]	1.4
15	2.1[A]	1.8	1.4	1.5	E	1.3[F]	1.4	3.4[A]	3.0[A]	3.2	3.4	3.3	3.2	3.4	2.8	2.5	2.1	3.4[A]	2.6[A]	2.4[A]	2.2[A]	1.8	1.6	1.4
16	1.4	1.2	1.4	1.2	1.2	1.8	1.5	2.4	2.4	3.0	3.2	3.1	3.5	3.0	4.0[A]	2.6	2.8	2.4[A]	1.9	2.4[A]	1.5	1.5	1.5	1.5
17	1.5	1.4	1.6	1.6	1.2	1.2	1.4	2.1	2.8	2.8	2.8	3.6	3.5	3.4	2.9	2.5	2.0	1.6	1.6	1.6	1.6	1.4	1.4	1.4
18	1.2	E	E	E	1.1	1.3	1.5	1.6	2.5	3.0	3.4	3.4	3.2	3.0	2.9	2.5	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
19	E	E	E	E	E	E	1.4	2.1	2.5	3.0	3.0	3.1	3.3	3.1	2.8	2.4	1.9	2.0[A]	3.4[A]	2.4[A]	1.7	1.6	1.6	1.6
20	1.6	1.2	1.2	1.2	1.2	1.4	1.4	2.0	2.4	2.6	3.5	3.5	3.6	3.6	3.0	2.8	2.2	2.2[A]	1.5	1.6	1.6	1.9	2.0[A]	2.6[A]
21	1.4	1.3	1.5	1.4	1.2	A	1.5	1.9	A	3.2	3.0	A	A	3.8	2.9	3.0	1.9	1.6	1.6	1.6	1.6	1.6	1.6	A
22	A	A	1.8	E	E	E	1.4	1.9	2.3	3.0	3.2	3.1	3.4	3.0	3.1	2.4	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.4
23	1.4	1.4	E	E	E	E	1.6	2.1	2.6	2.7	A	4.1[A]	5.0[A]	6.2[A]	3.0	A	A	1.5	1.5	1.5	1.5	1.9	2.0[A]	1.5
24	1.2	E	E	E	E	E	1.6	A	2.6	2.7	3.1	3.0	4.2	3.8	4.0	2.5	2.0	2.4	1.7	1.6	1.6	1.4	1.4	1.4
25	1.2	1.2	A	1.3	E	1.2	1.6	1.9	2.6	3.1	3.5	3.1	3.1	3.1	2.8	2.5	1.9	2.4[A]	2.0[A]	1.7	1.6	1.5	1.5[F]	1.5
26	A	1.4	1.8	A	1.4	1.5	1.9	1.9	2.2	2.8	3.9	3.9	A	2.9	2.8	2.6	1.9	1.6	3.2[A]	1.5	A	A	A	1.5
27	1.4	E	E	E	2.6[A]	A	2.0[A]	A	3.4	3.0	4.1	3.1	3.0	3.0	3.1	2.6	1.6	2.6[A]	2.8[A]	3.7	2.8[A]	1.8	1.9	1.9
28	1.5	1.7	E	E	1.6	E	1.4	1.9	2.6	3.1	3.1	3.1	3.3	3.0	2.8	2.6	2.8[A]	2.0[A]	1.8	1.6	1.8	1.7	2.0[A]	1.6
29	E	E	E	E	1.2	1.2	1.2	A	2.8	3.2	3.1	3.2	3.3	3.0	2.8	2.6	A	1.5	1.5	1.5	1.7	1.6	2.0[A]	1.5
30	1.2	2.4[A]	1.3	1.4	1.1	1.1	1.5	1.7	A	2.8	3.3	3.6	3.7	3.8	3.4	3.2	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
31																								
Mean Value	1.4	1.2	1.4	1.4	1.4	1.4	1.5	2.1	2.7	3.0	3.4	3.5	3.6	3.4	3.0	2.7	2.1	1.9	1.9	1.9	1.7	1.6	1.7	1.5
Median Value	1.4	1.2	E	E	1.1	1.2	1.5	2.1	2.6	3.0	3.4	3.4	3.4	3.2	3.0	2.6	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Count	28	29	29	29	29	28	30	26	27	27	28	28	26	28	28	26	26	28	29	30	28	27	27	28

Sweep 1.0 Mc to 17.0 Mc in 15 min ☒ Manual ☐ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | fminE | 135° E Mean Time | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

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

fminE

Sweep 4.0 Mc to 17.0 Mc in 1.5 min ☒ Manual ☐ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | foF2 | 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	3.2	3.4	(3.6)P	3.7	3.8	3.6	4.7	8.5J	10.2J	[10.3]B	10.4	10.8	12.3	12.4	12.0	11.2	C	C	3.6	3.5	3.4	3.4	3.9	4.1
2	3.4	3.3	3.3	3.4	3.2	2.9F	4.4	C	C	C	C	C	12.1	C	C	C	C	6.5	4.9	3.5	3.0	3.7F	A	3.6
3	3.6	3.5Z	3.5Z	C	C	C	C	8.6	10.0	8.9	11.4	11.5	12.3	11.3	9.1	9.0	7.6	7.3P	4.5P	3.5	3.7	(3.4)P	3.3	A
4	3.6	3.7	3.8	3.5	3.0	3.4	5.0	8.4	11.3H	12.2	12.0	11.9	10.3	10.1	10.2	9.3	8.2P	6.7	5.3	5.2	3.5	3.5	3.3P	3.3
5	3.3	3.6	3.3P	3.9	3.4	3.0J	4.1	8.0J	9.0	11.3	11.5	10.6	10.0	10.5	(9.5)PB	8.9	7.0H	5.4H	4.2H	4.5	4.9	3.8	3.9	4.0
6	4.3Z	4.3	[4.6]C	4.8P	3.3	3.4	4.9	(7.9)P	7.2	8.2	8.4	10.4	11.7	10.9	10.2PS	9.6	7.5	6.1	4.6	3.8	3.5	3.3	3.6	3.6
7	3.3	3.6	3.6	3.5	3.7	2.7	5.5	7.7P	(7.8)P	9.9P	9.2	(10.9)P	11.2	11.4	10.9J	11.0P	9.1	5.4P	4.5	SB	SB	4.4	4.3P	4.3
8	4.3	3.8	(3.3)P	3.7	3.1	3.8	5.6	7.5	9.0	9.6	11.6	11.9	11.2P	10.7	10.2	8.8	7.1	5.1	4.5	4.3	3.4J	3.3J	3.3	3.2
9	3.4	3.6	3.7	3.6	3.4	3.3	4.1	(8.0)P	10.0	9.8	9.1	9.9	11.8	B	10.1	9.0	8.0	6.0	4.2	4.3	4.0	3.7	A	A
10	A	3.2JF	3.4JF	3.7	2.9	3.3	4.0	5.6	7.7S	9.2	(10.9)P	11.3P	9.5	9.1	8.3	7.2	7.2	6.5H	4.3	3.5	(4.0)P	4.5	4.2	3.3
11	3.3H	3.7F	3.7F	3.6	3.6	3.6	5.0	7.6	8.2	7.8	8.5	9.7	C	C	8.0	7.8	6.7	5.5	4.2	3.5	3.6H	3.2	3.2	3.4
12	(3.5)P	3.3F	3.5	3.4	3.1	3.0F	3.5	6.6	8.6	11.0	12.0P	9.6	9.4	8.8	9.7	8.5	6.7	4.9	4.2	3.5P	3.5J	A	(3.2)P	3.2
13	3.4	3.5	3.2	3.8	3.2	3.4	3.9	7.1H	9.4P	10.5	B	12.5	10.9	8.8	9.4J	8.3J	6.6	4.9	4.3	4.5	A	3.9J	4.0P	4.2
14	3.0	3.2	3.3P	3.1K	3.0K	2.6PFK	3.3KH	4.8K	B K	B K	B K	12.1K	9.3K	9.2K	8.9K	7.3K	6.8	6.1	5.2	4.9	3.7	3.9	3.9	3.9
15	4.2	4.6	4.1	5.0	4.2	3.3JF	3.5	7.6	(8.1)P	(8.1)P	8.7J	(11.0)P	9.6	9.4J	8.9	8.5J	6.7	5.3	5.4	5.1	2.8	2.8	2.8	3.6
16	3.1	3.2	2.9	3.3H	3.4	3.4H	3.6	(7.7)P	C	C	C	C	C	8.5	8.7	7.3	6.6	6.3	4.9	(4.1)P	AS	2.7F	2.9	2.9
17	3.0	2.9	3.0	2.9	2.9	2.8	3.4	6.7	9.4J	9.6J	9.4J	8.3J	8.1J	7.9P	(7.7)P	(8.2)P	6.2	5.6H	4.1	3.9H	3.0	2.7	2.7	3.0
18	3.2	3.2P	3.7	3.3	2.7	2.7	4.8	7.2	8.2P	(10.1)P	8.9	7.3	8.7	9.7	10.2	9.6	7.3	7.0	4.5	(3.8)P	3.0	3.0F	2.8F	3.1F
19	3.3JF	3.2JF	M	M	3.1	2.7	3.7	6.3	6.8	7.2	7.5	7.6	8.3	8.6	9.2	8.9	7.8	4.9J	4.8	A	3.0	2.7	2.9	2.9
20	3.4	3.5	3.7	(3.8)P	3.1	3.1	3.0H	(5.5)P	6.4H	7.4	8.8	9.8	11.2P	10.3P	7.7	6.7	6.6	5.3	3.8J	2.8	2.9H	2.5F	2.8	3.1
21	3.3	(3.3)P	3.1	3.1	3.3	(3.6)P	3.0	5.8	8.7	10.1	12.1	11.4	10.2	9.9J	(8.8)P	8.3J	7.1	5.5	4.6	3.7	3.2	3.3	3.4F	A
22	3.7	3.9	4.0P	4.0	3.7	3.9	5.9	7.8	8.5	8.9	8.8	(8.3)P	9.6	9.2	9.1	7.6	6.9	5.6	4.7	3.2H	2.6	2.8	3.0	3.5
23	3.9	3.7	3.7	3.1	3.0	2.7	3.9	C	C	C	C	C	C	C	C	C	C	5.7	4.7	3.7	3.6	3.7	3.7JF	3.6J
24	3.6	3.5	3.6	3.9	4.5	3.5F	3.7F	7.2	8.1	10.0	9.5P	(8.2)P	(8.0)P	8.7	8.7	6.7	6.4	5.3	5.2	(5.7)PS	4.5	3.9F	4.0S	4.2
25	4.3	(4.2)PS	F	3.9F	4.2JF	3.9	3.2P	5.8	8.1J	9.2	10.4	11.5	9.7	(8.7)P	(9.2)P	8.8	7.0	4.2	(3.0)A	B	3.1	3.2	2.8	3.0
26	3.0	(3.0)P	3.0	3.2	3.7	2.2	3.0	6.3	8.0	9.4S	9.9	9.7	8.4	7.8	(8.2)P	[7.3]C	6.4	4.7	3.8	3.5	3.1	2.8	3.0	2.6F
27	(2.8)JF	2.6JF	3.1JF	(4.0)JP	2.9F	2.9V	3.3	7.4	8.5	9.2	9.8	9.4	9.3	9.5	10.2	7.7	6.2	(5.3)PS	(4.4)PS	(3.7)P	(3.4)P	2.8	2.8	3.2
28	3.0	3.2F	3.7F	3.5	3.5	3.2F	3.3	B	C	9.3B	10.3PS	10.1PS	9.1	7.9S	(8.2)P	7.3	6.7	4.7	C	3.3P	(3.9)P	2.6	2.8	3.0
29	3.1	3.1	3.1	3.3	3.2	3.1	3.5Z	7.1	8.4J	8.6	10.7	10.9	9.0	9.3	8.7	7.7	7.2	B	3.8	B	B	2.9	A	3.2
30	3.3	3.4	3.4	3.8	3.8	3.5	4.1J	C	C	C	C	C	C	C	C	C	C	4.9	3.7	2.6	2.9	2.9H	2.8	3.0F
31																								
Mean Value	3.4	3.5	3.5	3.6	3.4	3.2	4.0	7.1	8.6	9.4	10.0	10.3	10.0	9.5	9.3	8.4	7.1	5.6	4.4	3.9	3.4	3.3	3.3	3.4
Median Value	3.3	3.4	3.5	3.6	3.3	3.3	3.9	7.3	8.4	9.4	9.8	10.5	9.6	9.3	9.1	8.3	7.0	5.4	4.5	3.7	3.4	3.3	3.2	3.3
Count	29	30	28	28	29	29	29	26	24	25	24	26	26	25	27	27	26	28	29	26	26	29	27	27

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 1

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Nov. 1951

h_pF2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	350	(370)P	350	300	340	320	(280)J	(260)J	B	290	340	310	300	300	270	C	C	310	320	340	370	400	400
2	380	350	370	340	300	300F	280	C	C	C	C	C	290	C	C	C	C	290	290	300	350	390F	A	390
3	390	400Z	390Z	C	C	C	C	300	290	280	330	310	310	320	300	290	310	300P	280P	330	360	(350)P	380	A
4	420	420	330	290	300	290	280	280	300H	320	280	300	300	320	310	280	290P	280	320	290	310	340	340P	330
5	390	360	270P	340	230	(380)J	310	(270)J	290	300	280	320	300	280	(260)P,B	250	290H	310H	370H	330	310	330	360	370
6	300Z	330	(310)C	290P	280	370	300	(250)P	250	280	300	330	310	310	290S	280	260	270	230	290	320	350	350	360
7	310	450	430	350	290	400	310	250P	(250)P	280P	290	(300)P	310	290	(290)J	280P	250	250P	330	SB	SB	320	360P	350
8	310	310	(390)P	420	350	390	310	300	280	280	300	270	300P	300	280	260	250	290	310	250	A	A	350	A
9	350	330	330	300	320	340	330	(280)P	270	260	280	280	310	B	280	280	250	240	300	310	280P	280	A	A
10	A	(330)JF	(370)JF	290	310	360	290	250	300S	310	(290)P	270P	290	270	280	260	280	280H	280	340	(330)P	310	310	300
11	320H	330F	340F	330	400	300	290	270	280	250	270	280	C	C	270	280	280	270	270	310	310H	320	320	370
12	(390)P	390F	390	340	310	400F	290	300	290	300	290P	290	300	300	280	250	260	280	290	310P	(310)J	A	(370)P	380
13	410	390	370	350	290	330	330	320H	320P	310	B	300	280	250	(260)JP	(250)J	240	280	330	310	A	(360)J	320P	290
14	400	410	420P	(420)KJ	360K	480KPF	380KH	320K	BK	BK	BK	270K	280K	310K	270K	270K	270	270	300	300	280	320	330	370
15	410	380	340	300	260	(380)JF	370	280	(250)P	(290)P	(270)J	(280)P	280	(290)J	280	(260)J	240	260	290	270	270	390	330	320
16	330	370	340	320H	320	320H	320	(280)P	C	C	C	C	C	280	270	260	270	250	250	(230)P	AS	360F	370	370
17	340	380	320	340	330	370	330	270	(250)J	(260)J	(280)J	(270)J	(280)J	260P	(280)P	(270)P	260	270H	280	260H	260	340	320	360
18	340	290P	300	260	340	300	310	290	260P	(260)P	250	260	290	290	280	260	250	260	260	(310)P	330	350F	370F	370F
19	(360)JF	(370)JF	M	M	230	310	310	260	280	270	260	300	270	310	300	250	240	A	A	A	300	320	360	340
20	330	300	380	(340)P	290	280	230H	(260)P	280H	280	280	290	290P	270P	260	B	250	260	(240)J	350	310H	320F	350	330
21	380	(370)P	410	390	320	(260)P	360	260	270	300	290	300	270	(290)J	(290)P	(280)J	270	270	310	300	320	340	350F	A
22	370	350	360P	370	330	330	290	250	250	270	260	(270)P	300	270	270	250	260	260	270	310H	320	390	370	440
23	400	410	380	300	320	410	290	C	C	C	C	C	C	C	C	C	C	250	280	300	300	360	(370)JF	(370)J
24	320	360	350	410	320	320F	340F	310	250	250	240P	(270)P	(270)P	300	270	230	250	290	280	(280)PS	250	300F	320S	360
25	370	(300)PJ	F	340F	(320)JF	240	310P	260	(270)J	330	280	290	260	(270)P	(260)P	280	250	270	A	B	320	310	330	390
26	A	(420)P	400	350	250	280	300	250	260	260S	280	280	280	280	300P	[280]C	250	250	320	290	280	400	370	400F
27	(430)JF	(380)JF	(380)JF	(310)JPF	270F	330V	340	270	280	260	270	280	280	300	280	240	290	(270)PS	(270)PS	(280)P	(280)P	280	360	380
28	360	390F	410F	330	310	370F	310	B	C	250B	250PS	260PS	250	S	(250)P	250	250	250	C	290P	(290)P	340	370	400
29	390	350	390	320	330	340	380Z	270	(250)J	290	290	280	280	260	280	250	240	B	310	B	B	410	A	380
30	380	410	350	370	360	340	(280)J	C	C	C	C	C	C	C	C	C	C	250	260	310	350	350H	320	370F
31																								
Mean Value	360	370	360	340	310	340	310	280	270	280	280	290	290	290	280	260	260	270	290	300	310	340	350	370
Median Value	370	370	370	340	310	340	310	270	270	280	280	280	290	290	280	260	260	270	290	300	310	340	350	370
Count	28	30	28	28	29	29	29	26	24	24	24	26	26	24	27	26	26	27	27	26	25	28	27	26

h_pF2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 2

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

IONOSPHERIC DATA

Nov. 1951 | h'F2 | 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	280	280	290	280	260	260	270	250	250	260	250	290	290	280	290	250	C	C	270A	310	310	310	A	320
2	A	270	270	280	260	280	250	C	C	C	C	C	270	C	C	C	C	220	220	220	280	300	A	A
3	320A	320A	350A	C	C	C	C	260	270	270	270	280	270	280	250	260	270	240	220	240	290	280	310	A
4	360A	360	300	280	270A	250	280	270	270H	280	280	260	270	270	270	270	250	220	260	230	250	280	250	260
5	320	300	210	270	210	350	270	230	270	280	270	280	280	270	250	230	210H	260H	240H	280	240	240	290	310
6	290	260	(240)C	230	210	300	260	230	220	260	280	310	280	300	260	260	240	210	210	250	250	300	300	320
7	260	350	340	290	230	300	280	220	220	260	260	270	250	270	260	260	220	230	230	270	270	260	300	310
8	260	250	300	300	290	300	300	280	250	230	280	250	250	270	250	240	230	210	240	220	A	A	320	A
9	280	270	260	250	260	280	270	260	250	250	250	260	280	270	250	250	230	210	250	250	230	240	A	A
10	A	300F	330F	250	250	310	230	220	230	280	280	260	270	250	250	240	230	210H	240	290	280	260	250	230
11	270H	280	280	260	250	250	250	270	230	240	250	260	C	C	250	250	250	220	230	230	250H	260	270	280
12	280	310	310	290	260	320	280	300	270	290	270	270	290	290	280	250	240	220	240	270	290	A	340	300
13	330	300	310	300	220	270	260	260H	250	270	290	270	260	230	260	240	210	240	310	260	A	290	260	230
14	370A	390A	380	370K	290K	360K	340HK	280K	BK	300K	290K	240K	270K	290K	250K	250K	240	230	230	220	220F	270	300F	300F
15	350	320	290	210	220	300	290	270	220	270	260	270	250	280	260	240	220	250	250	250	250	300	300	300
16	300	310	320	270H	280	270H	230	240	C	C	C	C	C	240	250	240	230	220	220	210	AS	320	300	300
17	280	300	280	270	270	310	300	250	230	240	270	260	280	250	260	250	220	220H	230	220H	200	270	290	300
18	280	250	230	220	270	260	260	270	240	250	240	230	260	260	260	230	230	220	220	210	250	270	280	300
19	300	310	M	M	210	270	250	250	220	220	240	280	250	290	280	240	230	A	A	A	280	310	360	340
20	320	290	300	260	240	220	210H	240	240H	250	260	270	270	260	250	230	230	210	200	250	220H	230	280	280
21	300	320F	370	360	270	220	220	230	230	280	280	290	250	250	250	230	230	220	230	240	240	290	300	A
22	320	300	290	300	250	280	250	240	230	230	230	240	260	250	250	240	240	200	210	220H	300	340	350	350
23	350	320	300	240	250	310	250	C	C	C	C	C	C	C	C	C	C	230	230	240	250	290	300	A
24	270	300	290	350	250	280	290	280	230	240	230	230	260	250	240	220	220A	220	210	220	210	220	270	270
25	270	280	300	300F	270	220	250	210	250	290	260	260	230	250	250	250	240	220	A	270	270	260	280	330
26	400A	350	340	320	240	220	270	250	240	250	270	260	250	240	240	(230)C	220	230	290A	230	230	290	300	340
27	400F	340F	330	230	220	270	290	220	220	230	250	250	220	240	260	230	210	220	220	230	240	250	320	330
28	300	300	260	270	270	310	250	B	C	240	230	230	230	230	220	240A	230	210	C	220	210	250	300	360A
29	320	A	330	270	290	280	290	240	230	240	280	260	230	250	260	230	220	B	250	230	A	350	A	310
30	320	340	280	290	280	290	240	C	C	C	C	C	C	C	C	C	C	210	210	280	280	260H	300	320
31																								
Mean Value	310	310	300	280	250	280	260	250	240	260	260	260	260	260	260	240	230	220	240	240	250	280	300	300
Median Value	300	300	300	280	260	280	260	250	240	260	260	260	260	260	250	240	230	220	230	240	250	280	300	300
Count	28	29	29	28	29	29	29	26	24	26	26	26	26	26	27	27	26	27	27	29	26	28	26	24

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 3

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

IONOSPHERIC DATA

Nov. 1951 | foF1 | 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								Q	L	L	L	L	L	L	L	Q	C							
2								C	C	C	C	C	L	C	C	C	C							
3								Q	Q	L	L	L	L	L	Q	Q	A							
4								L	A	L	L	L	L	L	Q	L	Q							
5								Q	L	L	L	L	L	L	L	Q	Q							
6								Q	Q	C	L	L	L	L	L	Q	Q							
7								Q	Q	L	L	L	L	L	L	L	Q							
8								Q	Q	Q	L	L	L	L	L	L	Q							
9								Q	Q	L	L	L	L	L	L	L	Q							
10								Q	Q	L	L	L	L	Q	Q	Q	Q							
11								Q	Q	L	L	L	C	C	Q	Q	Q							
12								L	L	4.2	L	L	L	L	L	Q	Q							
13								Q	Q	Q	L	L	L	B	Q	Q	Q							
14								Q	4.5	B	4.8	B	L	L	L	B	Q							
15								L	Q	L	L	L	L	L	L	L	Q							
16								Q	C	C	C	C	C	Q	Q	Q	Q							
17								Q	Q	Q	L	L	L	L	L	Q	Q							
18								Q	Q	L	Q	Q	L	L	L	Q	Q							
19								Q	Q	Q	Q	L	L	L	L	Q	Q							
20								Q	Q	Q	L	L	L	L	L	Q	Q							
21								Q	Q	L	L	L	L	L	L	Q	Q							
22								Q	Q	Q	Q	L	L	Q	L	L	Q							
23								C	C	C	C	C	C	C	C	C	C							
24								Q	Q	L	L	L	L	Q	Q	Q	Q							
25								Q	Q	L	Q	Q	Q	L	L	Q	Q							
26								Q	Q	L	L	L	L	Q	L	C	Q							
27								Q	Q	Q	L	L	Q	Q	Q	Q	Q							
28								B	C	L	Q	Q	Q	L	Q	Q	Q							
29								Q	Q	L	A	Q	Q	Q	L	Q	Q							
30								C	C	C	C	C	C	C	C	C	C							
31																								
Mean Value									4.5	4.2	4.8													
Median Value									4.5	4.2	4.8													
Count									1	1	1													

foF1

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 4

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

IONOSPHERIC DATA

Nov. 1951 | h'F1 | 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								Q	240	230	220	200	240	240	250	Q	C							
2								C	C	C	C	C	260	C	C	C	C							
3								Q	Q	250	240	240	240	270	Q	Q	A							
4								250	A	250	260	240	240	240	Q	250	Q							
5								Q	240	260	260	250	250	250	240	Q	Q							
6								Q	Q	C	240	260	260	250	230	Q	Q							
7								Q	Q	220	240	240	230	250	240	250	Q							
8								Q	Q	Q	240	250	230	250	250	240	Q							
9								Q	Q	240	220	230	210	260	240	230	Q							
10								Q	Q	240	240	220	220	Q	Q	Q	Q							
11								Q	Q	210	230	210	C	C	Q	Q	Q							
12								260	220	260	270	A	270	270	270	Q	Q							
13								Q	Q	Q	270	A	A	B	Q	Q	Q							
14								Q	260	B	260	B	250	250	B	A	Q							
15								250	Q	230	230	230	220	230	220	230	Q							
16								Q	C	C	C	C	C	Q	Q	Q	Q							
17								Q	Q	Q	250	220	260	220	230	Q	Q							
18								Q	Q	230	Q	Q	230	230	240	Q	Q							
19								Q	Q	Q	Q	200	180	250	260	Q	Q							
20								Q	Q	Q	230	220	250	240	230	Q	Q							
21								Q	Q	220	250	260	230	220	Q	Q	Q							
22								Q	Q	Q	Q	210	230	Q	220	230	Q							
23								C	C	C	C	C	C	C	C	C	C							
24								Q	Q	240	240	210	220	Q	Q	Q	Q							
25								Q	Q	250	Q	Q	Q	230	210	Q	Q							
26								Q	Q	230	230	240	230	Q	220	C	Q							
27								Q	Q	Q	220	230	Q	Q	Q	Q	Q							
28								230	C	200	Q	Q	Q	210	Q	Q	Q							
29								Q	Q	230	A	Q	Q	Q	250	Q	Q							
30								C	C	C	C	C	C	C	C	C	C							
31																								
Mean Value								250	240	230	240	230	240	240	240	240								
Median Value								250	240	230	240	230	230	240	240	240								
Count								4	4	17	20	19	21	18	16	6								

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 5

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

IONOSPHERIC DATA

Nov. 1951 | foE | 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							B	2.2F	2.4	B	2.9	B	A	A	A	B	C							
2								C	C	C	C	C	3.6	C	C	C	C							
3								B	2.3J	3.2F	3.4	A	B	A	A	2.5	A							
4								AF	AF	3.0	B	3.3H	A	B	A	2.4	2.0							
5								B	2.5F	2.8	A	B	B	3.0	3.0	2.5	2.1							
6								1.8	2.5	2.8	B	3.2	B	A	3.1	2.6	B							
7								2.1	2.7	2.8	A	3.3	3.3	A	A	A	2.1							
8								2.2	A	2.8	3.0	3.3B	3.0	3.0B	2.9	A	B							
9								2.0J	A	2.8	A	A	3.2	A	B	A	A							
10								B	2.4	2.9	3.0J	A	3.1F	3.0J	A	A	A							
11								A	B	2.8	3.0A	3.4	C	C	2.5	A	2.0							
12								A	A	2.6	A	3.0	3.0	3.5	3.2	2.6	2.4							
13								2.3	2.5	A	A	A	A	B	2.8	2.5	A							
14								1.7	2.0	(2.5)AF	2.9	3.5	2.8	B	2.5	B	B							
15								A	A	A	A	3.2	3.2	B	3.0	A	A							
16								A	C	C	C	C	C	2.9	2.9	A	A							
17								A	A	2.9J	2.9J	3.0	B	3.0	2.9	2.6	1.8							
18								A	2.4	2.6	B	3.0	A	2.9	2.7	2.6	2.2							
19								2.0	A	2.6J	3.0B	B	3.0	3.0	3.1	2.7J	2.4A							
20								1.7A	1.9	2.2	A	A	A	A	2.8	A	B							
21								1.9B	A	2.5	A	A	A	A	B	A	A							
22								2.1	2.5	A	2.7	A	A	B	2.8	2.6	1.9							
23								C	C	C	C	C	C	C	C	C	C							
24								E	A	A	2.8	3.0	3.0	3.0	2.8	2.5	2.0							
25								1.8	B	2.5	2.8	A	3.2	A	2.8	A	A							
26								A	2.5	2.8	3.1	3.5	3.2	3.0	A	C	B							
27								2.0B	2.2	2.8	2.5	2.9	2.9	A	3.0B	2.3J	B							
28								B	2.5	2.8	3.1	B	A	A	A	A	A							
29								A	A	A	A	3.3	3.2	B	B	2.5	A							
30								C	C	C	C	C	C	C	C	C	C							
31																								
Mean Value								2.0	2.4	2.7	2.9	3.2	3.1	3.0	2.9	2.5	2.1							
Median Value								2.0	2.4	2.8	3.0	3.2	3.2	3.0	2.9	2.5	2.0							
Count								14	14	20	14	14	14	10	17	13	10							

foE

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 6

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

IONOSPHERIC DATA

Nov. 1951 | h'E | 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								130	120	120	110	100	A	A	A	100	C							
2								C	C	C	C	C	120	C	C	C	C							
3								120	140	110	110	A	110	A	A	100	A							
4								AE	AE	110	130	120H	110	110	A	110	110							
5								100	100	100	A	100	100	100	110	110	A							
6								120	110	110	110	110	110	A	110	120	130							
7								120	110	110	100	100	100	100	110	A	A							
8								130	A	100	110	110	110	110	110	A	110							
9								130	A	A	A	A	110	A	110	110	A							
10								110	110	100	100	A	100	110	A	120	A							
11								A	120	100	100	100	C	C	110	110	100							
12								A	A	120	A	120	110	120	120	120	140							
13								A	120	A	A	A	A	110	100	110	A							
14								140	120	110F	110	120	120	130	120	110	B							
15								A	A	A	A	110	110	100	110	A	A							
16								A	C	C	C	C	C	120	120	A	A							
17								A	A	130	120	110	120	110	110	110	110							
18								A	110	110	110	110	A	110	110	110	110							
19								140	A	110	110	110	100	100	100	100	100							
20								A	130	110	A	A	A	A	120	A	130							
21								130	A	110	A	A	A	A	110	A	A							
22								120	120	A	110	A	A	110	110	120	110							
23								C	C	C	C	C	C	C	C	C	C							
24								E	A	A	110	110	110	110	120	A	100							
25								B	130	120	110	A	110	A	110	A	A							
26								A	120	120	110	110	110	A	A	C	140							
27								120	110	110	110	110	110	A	110	110	100							
28								110	120	110	100	110	A	A	A	A	A							
29								A	A	A	A	100	110	120	120	100	A							
30								C	C	C	C	C	C	C	C	C	C							
31																								
Mean Value								120	120	110	110	110	110	110	110	110	110							
Median Value								120	120	110	110	110	110	110	110	110	110							
Count								14	16	20	18	18	19	16	21	17	13							

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 7

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

IONOSPHERIC DATA

Nov. 1951 | fEs | 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	E	E	E	E	E	E	B	G	G	G	G	G	3.7	4.2	3.9	G	C	C	3.2	3.2	2.8	11.6	4.8	3.0
2	4.4	E	E	2.4	2.3	1.9	2.2	C	C	C	C	C	G	C	C	C	C	E	E	2.7	2.8F	1.6	5.6	3.5
3	3.3	2.6	3.3	C	C	C	C	G	G	4.5	G	5.2	G	5.0	3.5	G	2.9	2.8F	E	2.2F	2.8	2.2	3.6	4.2
4	2.8F	3.2	3.5	2.7	2.2	1.6	2.5	3.0F	3.8	G	G	G	4.0	G	3.6	3.8	G	2.9	2.8	2.6	2.3	1.8	2.6	E
5	E	2.6	2.0	1.6	2.4	E	B	G	3.4	G	3.5	G	G	G	G	2.9	2.9	G	E	E	E	E	E	2.0
6	2.2	2.4	C	E	1.9	2.3	G	G	G	C	4.1Y	G	G	3.6	G	G	G	B	E	E	E	E	E	E
7	1.4	E	1.5	E	E	E	G	G	G	G	5.8	4.9	4.6	4.2	4.4	2.8	3.3	3.6	1.8	2.0	E	2.8	3.5	2.8
8	2.4Y	2.5	2.0Y	2.2	2.0	2.4Y	2.4	3.3	2.5F	4.3	4.4	G	G	3.9	G	3.5	G	E	2.7	2.8	3.7	3.4	3.6	2.8
9	2.4	E	E	2.2	E	2.1	2.4	G	3.6	3.6	3.8	4.2	G	3.6	3.8	4.4	4.4	2.8	2.4	2.2Y	3.8	3.4	8.4	4.8
10	3.6	2.4	1.6	2.3	2.5	2.5	2.3	3.5	3.6	3.2	G	3.6	4.6	G	3.5	2.8	2.8	2.3	2.6	2.9	2.6	2.3	2.4	E
11	E	E	E	E	2.8	2.4	2.6	2.0	G	G	4.1	G	C	C	3.7	3.2	G	2.4	2.6F	2.2	2.2	E	2.2	2.2
12	2.0	E	E	1.7F	2.0F	2.3	1.9	2.7Y	2.7	G	3.2	5.2	4.8	G	G	3.8	G	2.2	2.4	2.4	2.4	4.2	2.6	3.0
13	2.1	2.4F	E	E	2.1F	E	2.0	G	G	3.5	4.2	4.4	7.7	G	G	G	2.8	2.5	3.6	E	6.0	E	2.0	3.0
14	2.9	2.9	2.8	2.4	1.6	E	E	2.8	3.6	G	3.6	G	G	G	G	3.4	3.7Y	3.0	2.5	2.4	3.4	2.8	2.4F	2.8
15	2.8	2.8	2.9	1.8	E	1.6	E	2.6	9.5	6.2	4.4	G	3.4	G	3.7	3.8	3.0	4.0	E	2.2	1.5	E	E	2.0
16	2.0	1.9	2.0	2.5	2.6Y	E	E	2.8	C	C	C	C	C	3.6	4.5S	3.4	3.6	3.0	2.6	3.0	4.1	E	2.5	1.8
17	2.5Y	2.5	1.5F	1.5Y	2.2YF	2.4YF	2.2	2.6F	3.3	G	G	G	G	G	G	G	G	2.4	E	E	E	E	E	E
18	E	E	E	2.5F	2.2	1.8	G	2.7	3.6	3.4	G	G	3.6	G	G	G	G	2.1Y	E	E	E	E	E	E
19	E	E	M	M	E	E	2.0	G	2.3	G	G	3.8	G	G	G	3.8	3.8	5.4	4.7	4.2	2.6	2.7	2.4	2.5
20	2.5F	2.3	2.3F	2.0	E	E	E	1.7	3.1Y	3.6	4.6Y	3.6	3.8	3.6	G	3.5	G	2.4	E	E	E	E	E	E
21	E	2.8	2.8	2.2	2.3F	2.5	E	G	3.5	4.0	4.7	5.9	3.8	4.0	G	2.8	2.3	2.4	2.0	4.7	3.2	2.8	1.8	3.8
22	2.9	3.1	2.0	2.0Y	2.1Y	E	E	G	3.6	3.3	G	3.4	3.4	G	G	G	G	E	1.6	2.8	2.4	2.9	2.7	2.7
23	2.0F	2.0F	1.8	E	E	E	E	C	C	C	C	C	C	C	C	C	C	3.7	2.8	3.0	3.0	2.8	3.0	3.7
24	2.5	2.2	2.1Y	1.5	1.3	1.6	1.5	1.5	2.4	4.0	G	G	G	G	3.1	4.1	4.6	3.1	2.8	E	E	2.4	E	E
25	2.0	3.0	2.6F	2.2F	2.6	2.2	1.7	G	3.2	G	G	4.0	G	3.5	G	5.8	4.0	2.8	3.6	2.6	3.0	2.2	E	2.8
26	2.4	2.2	2.4	3.0	2.6	1.6	2.9	2.9	G	G	G	G	3.7	3.1	3.2	C	G	E	2.9	2.0	E	2.4	E	E
27	E	E	E	E	2.6	E	2.2	G	G	G	3.6	G	G	4.3	G	G	G	E	1.9	2.4	E	E	2.4	2.3
28	2.3	1.8	2.0	1.9	1.6	E	E	G	C	G	G	G	3.4	3.2	3.6	3.6	3.0	2.4	C	3.0	1.6	3.0	3.2	3.0
29	3.0	2.8	2.5	2.5	2.2	1.6	2.4	2.2	3.5Y	2.9	5.6	G	G	G	G	G	3.1	2.0	2.2	2.5	3.2	2.0	3.4	E
30	E	2.3	1.9	2.5	1.8	1.6	E	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E	E
31																								
Mean Value	2.6	2.5	2.3	2.2	2.2	2.0	2.2	2.6	3.6	3.9	4.3	4.4	4.2	3.8	3.7	3.6	3.3	2.9	2.7	2.7	3.0	3.1	3.3	2.9
Median Value	2.2	2.3	2.0	2.0	2.1	1.6	1.7	1.5	3.1	G	3.4	G	G	G	G	3.0	2.8	2.4	2.4	2.4	2.4	2.2	2.4	2.4
Count	30	30	28	28	29	29	27	27	25	25	26	26	26	26	27	26	26	28	29	30	30	30	30	30

fEs

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 8

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

IONOSPHERIC DATA

Nov. 1951 | **(M3000)F2** | 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	3.1	2.9	(2.7)P	2.9	3.2	2.9	3.0	(3.3)J	(3.5)J	B	3.2	3.0B	3.0	3.3	3.4	3.4	C	C	3.0	3.0	2.9	2.7	2.7	2.6
2	2.7	2.8	2.7	2.9	3.1	3.0F	3.1	C	C	C	C	C	3.1	C	C	C	C	3.2	3.2	3.1	2.9	2.7F	A	2.7
3	2.6	2.6Z	2.8Z	C	C	C	C	3.1	3.3	3.1	2.9	3.0	3.0	3.1	3.1	3.2	3.1	3.0P	3.3P	2.9	2.8	(2.8)P	2.8	A
4	2.6	2.6	3.0	3.2	3.0	3.1	3.4	3.4	3.2H	3.0	3.3	3.1	3.0	3.0	3.1	3.3	3.2P	3.3	3.1	3.2	3.1	3.0	2.9P	2.9
5	2.7	2.8	3.3P	2.9	3.5	(2.7)J	3.0	(3.3)J	3.2	3.0	3.2	3.0	3.1	3.3	(3.2PB	3.4	3.2H	3.0H	2.6H	2.9	3.1	2.9	2.8	2.8
6	2.7Z	3.0	(3.0)C	3.1P	3.2	2.8	3.1	(3.5)P	3.6	3.1	3.1	3.0	3.2	3.0	3.3PS	3.2	3.4	3.2	3.6	3.3	3.0	2.9	2.8	2.8
7	3.0	2.4	2.5	2.8	3.2	2.5	3.1	3.5P	(3.3)P	3.3P	3.3	(3.2)P	3.0	3.2	(3.1)J	3.3P	3.4	3.4P	2.9	SB	SB	2.9	2.7P	2.8
8	3.2	3.0	(2.6)P	2.5	2.8	2.6	3.1	3.2	3.2	3.2	3.2	3.2	3.5P	3.1	3.2	3.6	3.5	3.2	3.0	3.4	(3.2)J	(2.8)J	2.9	2.8
9	2.8	3.0	2.9	3.0	3.0	3.0	2.9	(3.3)P	3.4	3.5	3.3	3.2	3.1	B	3.4	3.3	3.4	3.5	3.0	3.0	3.2	3.2	A	A
10	A	(3.0)JF	(2.8)JF	3.2	3.0	2.8	3.2	3.5	3.2S	3.1	(3.2)P	3.4P	3.2	3.2	3.2	3.4	3.1	3.1H	3.1	(2.9)P	3.1	3.0	3.1	2.7
11	3.1H	2.9F	2.9F	2.9	2.6	3.1	3.2	3.3	3.3	3.5	3.4	3.3	C	C	3.4	3.3	3.3	3.2	3.4	3.0	3.0H	3.0	3.1	2.7
12	(2.6)P	2.9F	2.7	2.9	3.3	3.0F	3.1	3.2	3.2	3.4	3.2P	3.2	3.1	3.2	3.2	3.4	3.5	3.1	2.9	3.0P	(3.1)J	A	(2.7)P	2.7
13	2.6	2.7	2.8	2.8	3.2	2.9	3.0	3.0H	3.0P	3.1	B	3.2	3.3	3.5	(3.5)JP	(3.4)J	3.4	3.2	3.0	3.1	A	(2.8)J	3.1P	3.3
14	2.6	2.7	2.6P	(2.6)JK	2.8K	2.3KPF	2.6HK	2.9K	B K	B K	B K	3.3K	3.3K	3.0K	3.3K	3.4K	3.3	3.2	3.1	3.0	3.2	3.0	3.0	2.6
15	2.6	2.7	2.9	3.0	3.3	(2.7)JF	2.7	3.2	(3.4)P	(3.2)P	(3.2)J	(3.5)P	3.3	(3.2)J	3.3	(3.4)J	3.5	3.2	3.2	3.2	3.2	2.7	2.9	3.0
16	2.9	2.7	3.0	3.5H	2.8	3.0H	3.0	(3.2)P	C	C	C	C	C	3.2B	3.3	3.4	3.4	3.4	3.5	(3.6)P	AS	2.8F	2.7	2.7
17	2.9	2.7	3.0	2.8	2.9	2.8	2.9	3.3	(3.6)J	(3.4)J	(3.4)J	(3.3)J	(3.2)J	3.3P	(3.2)P	(3.4)P	3.3	3.2H	3.1	3.4H	3.3	3.3	3.1	2.9
18	2.9	3.2P	3.1	3.4	2.9	3.2	3.1	3.3	3.4P	(3.4)P	3.4	3.3	3.2	3.2	3.3	3.4	3.5	3.3	3.3	(3.0)P	3.0	2.8F	2.7F	2.7F
19	(2.8)JF	(2.6)JF	M	M	3.5	2.9	3.0	3.5	3.3	3.2	3.3	3.1	3.4	3.2	3.1	3.5	3.7	(3.2)J	3.3	A	3.3	2.9	2.8	2.9
20	3.0	3.1	2.7	(2.9)P	3.2	3.2	2.9H	(3.3)P	3.3H	3.3	3.2	3.3	3.2P	3.4P	3.5	3.5	3.5	3.4	(3.5)J	2.7	3.1H	2.9F	2.7	2.9
21	2.8	(2.8)P	2.7	2.7	3.0	(3.3)P	2.7	3.4	3.3	3.2	3.2	3.2	3.3	(3.2)J	(3.2)P	(3.2)J	3.3	3.3	3.0	3.0	3.1	3.0	2.9F	A
22	2.7	2.9	2.8P	2.7	3.1	3.0	3.2	3.5	3.4	3.3	3.2	(3.2)P	3.1	3.2	3.2	3.5	3.3	3.3	3.2	3.3H	3.0	2.7	2.9	2.4
23	2.6	2.6	2.7	3.1	3.0	2.6	3.2	C	C	C	C	C	C	C	C	C	C	3.3	3.4	3.1B	3.1	(2.7)B	(2.7)JF	(2.8)J
24	3.0	2.8	2.8	2.6	2.9	3.0F	2.9F	3.1	3.4	3.5	3.5P	(3.2)P	(3.3)P	3.2	3.3	3.7	3.4B	3.1	3.1	(3.3)PS	3.5	3.1F	3.0S	2.8
25	2.8	(3.1)PS	E	2.9F	(3.0)JF	3.1	3.0P	3.3	(3.3)J	3.1	3.3	3.2	3.6	(3.4)P	(3.4)P	3.2	3.4	3.0	A	B	3.1	3.0	2.9	2.6
26	2.5	(2.6)P	2.7	2.8	3.5	3.1	3.2	3.4	3.3	3.5S	3.3	3.3	3.3	3.3	(3.1)P	[3.2)C	3.4	3.5	3.1	3.1	3.2	2.6	2.7	2.5F
27	(2.6)JF	(2.7)JF	(2.6)JF	(3.1)JPF	3.2F	3.0V	2.9	3.3	3.1	3.3	3.3	3.1	3.2	3.1	3.3	3.4	3.3	(3.3)PS	(3.3)PS	(3.2)P	(3.3)P	3.1	2.7	2.6
28	2.8	3.0F	2.6F	3.0	3.1	2.8F	3.0	B	C	3.5B	3.5PS	3.4PS	3.5	3.4S	(3.4)P	3.6	3.5	3.4	C	3.2P	(3.2)P	2.8	2.6	2.7
29	2.8	2.8	2.7	3.0	2.9	2.9	2.7B	3.3	(3.4)J	3.0	3.2	3.3	3.3	3.3	3.3	3.4	3.5	B	3.2	B	B	2.5	A	2.7
30	2.7	2.5	2.9	2.7	2.8	2.9	(3.2)J	C	C	C	C	C	C	C	C	C	C	3.4	3.4	3.0	2.7	2.8H	2.8	2.7F
31																								
Mean Value	2.8	2.8	2.8	2.9	3.1	2.9	3.0	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.3	3.4	3.4	3.2	3.2	3.1	3.1	2.9	2.8	2.7
Median Value	2.8	2.8	2.8	2.9	3.0	2.9	3.0	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.3	3.4	3.4	3.2	3.2	3.1	3.1	2.9	2.8	2.7
Count	29	30	28	28	29	29	29	26	24	24	24	26	26	25	27	27	26	28	28	26	26	29	27	27

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 9

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

IONOSPHERIC DATA

Nov. 1951 | $f_{min}F$ | 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	1.2	1.1	E	E	1.2	E	1.5	2.3	2.6	3.9	3.5	3.6	4.1	3.8	3.5	3.3	C	C	2.4A	2.4A	2.0A	1.2	3.4A	1.6
2	2.3A	1.2	1.2	1.3	1.2	1.3	1.9	C	C	C	C	C	3.8	C	C	C	C	1.3	1.4	1.2	1.3	1.5	A	2.6A
3	2.3A	1.9	2.2A	C	C	C	C	2.8	2.4	3.8	3.6	3.8	3.6	4.1	3.3	3.1	3.5A	1.9	1.3	1.3	1.3	1.7	1.3	A
4	2.0A	2.0A	2.5A	2.4A	2.0A	1.3	2.3	2.3	3.9	3.5	3.6	3.6	3.5	3.6	3.5	2.5	2.2	1.6	1.5	1.4	1.1	1.1	1.2	1.1
5	1.1	1.1	1.1	1.1	E	1.4	1.3	3.0	3.4	3.5	3.5	3.8	4.0	4.3	3.4	3.0	2.3	2.0	1.2	1.4	1.4	1.3	1.3	1.6
6	1.1	1.1	C	E	E	E	1.3	2.4	2.8	5.6	3.5	4.1	3.6	3.4	3.6	3.0	2.2	1.5	1.2	1.2	1.2	1.3	1.3	1.2
7	1.2	1.2	1.2	1.1	E	E	1.4	2.3	2.8	3.4	3.6	4.0	4.0	3.6	3.8	2.8	2.1	3.5A	1.3	1.3	1.2	1.2	2.0A	1.6
8	1.2	E	E	E	1.1	E	3.0	2.4	2.3	3.5	3.4	3.5	3.5	3.5	3.3	2.7	2.1	1.4	2.0A	1.4	3.4A	3.3A	2.0A	2.8A
9	1.2	1.2	E	1.1	1.1	1.1	1.3	2.1	3.4	3.1	3.2	3.6	3.6	3.6	3.4	2.5	2.2	2.0	2.0A	1.3	1.3	1.5	A	A
10	A	1.3	2.0	E	1.3	E	1.6	2.1	3.0	3.3	3.5	3.6	3.5	3.5	3.5	2.8	2.2	1.9	2.2A	1.9	1.9	1.6	1.8	1.1
11	1.1	1.3	E	E	1.3	1.6	1.3	1.6	2.5	3.1	3.3	3.4	C	C	2.5	2.6	2.2	1.3	1.5	1.3	1.3	1.3	1.5	1.3
12	1.1	E	1.2	1.5	1.5	1.7	2.0	2.2	2.8	3.4	3.7	4.1	3.8	3.6	3.4	3.6	2.4	1.9	1.6	1.9	1.2	A	1.7	1.1
13	1.2	E	1.2	1.2	1.2	1.2	1.3	2.5	3.2	3.5	4.1	4.2	A	5.6	4.1	2.6	2.3	2.5	2.0A	1.6	A	1.4	1.6	1.6
14	2.2A	2.2A	1.4	1.4	E	1.1	1.9	3.0	2.0	4.1	3.5	7.4	3.5	2.5	4.1	4.3	2.0	1.3	1.3	1.2	1.2	1.5	2.0A	1.7
15	2.0A	1.3	1.5	1.3	E	E	1.3	2.2	2.5	3.8	3.4	3.4	3.4	3.4	3.0	2.7	2.4	3.4A	1.3	1.5	1.2	E	1.2	1.2
16	1.2	1.3	1.7	1.1	E	E	1.1	2.2	C	C	C	C	C	3.3	3.2	2.7	2.0	2.0	1.6	1.6	AS	1.2	1.6	1.2
17	E	1.2	1.2	1.2	1.1	1.2	1.7	2.1	2.7	2.8	3.5	3.5	3.6	3.4	3.3	2.7	2.4	1.2	2.0	1.2	2.2	1.2	1.3	1.3
18	1.3	E	E	E	E	E	1.9	2.4	2.8	3.0	3.6	3.6	3.6	3.4	3.2	2.6	2.2	1.3	1.2	1.2	1.2	1.2	1.1	1.2
19	1.1	E	M	M	E	E	1.1	2.7	2.1	3.2	3.5	3.3	3.3	3.3	3.2	3.2	3.2	4.6A	4.2A	A	2.0A	2.0A	2.3A	2.2A
20	2.4A	2.5	1.8	E	E	E	1.3	2.4	3.0	3.2A	3.3	3.3	3.5	2.8	2.8	2.6	2.4	1.8	1.3	1.4	1.2	1.2	1.3	1.2
21	1.2	1.6F	1.7	1.2	1.2	1.2	1.2	1.9	1.8	3.0	3.8	4.3A	3.8	3.1	3.5	2.4	1.9	1.6	1.2	1.3	1.2	1.6	1.8	A
22	1.8	1.3	1.2	1.2	1.1	1.1	1.5	2.3	2.5	3.0	2.5	3.4	3.7	4.0	2.9	2.6	2.3	1.6	1.6	1.3	1.6	1.3	1.5	2.6A
23	1.6	1.6	1.1	E	E	E	1.1	C	C	C	C	C	C	C	C	C	C	3.5A	2.1A	2.4A	1.6	1.3	1.8	3.0A
24	1.2	1.2	E	1.2	1.2	1.2	1.4	1.2	2.3	3.1	3.1	3.2	3.1	3.1	3.3	2.6	A	1.6	1.4	1.2	1.3	1.3	1.2	1.2
25	1.3	1.8	1.2	1.2	1.2	1.2	1.2	2.0	2.7	2.8	4.0	4.0	3.3	3.3	2.9	3.4	3.2A	2.0A	2.8A	1.8	1.6	1.4	1.2	1.6
26	2.2A	1.4	1.2	1.8	1.8	E	1.7	1.9	2.5	2.9	3.1	3.5	3.2	3.1	2.9	[2.4]C	2.0	1.6	2.4A	1.2	1.2	1.3	1.5	1.3
27	1.2F	1.4F	1.3	E	1.7	E	1.5	2.2	2.5	2.8	2.7	3.3	3.5	3.6	3.4	3.4	2.0	1.7	1.6	2.0A	1.2	1.5	1.6	2.1A
28	1.5	E	1.4	1.5	1.3	1.1	1.5	2.6	2.5	3.0	N	1.9	3.4	3.3	3.6	A	2.5	2.0A	C	1.3	1.2	1.5	1.4	2.0A
29	1.4	A	1.2	1.2	1.2	1.2	1.2	2.0	2.8	2.9	4.6A	3.5	4.0	4.1	3.3	3.2	2.8	1.6	1.5	1.3	A	1.6	A	1.2
30	1.1	E	E	E	E	E	1.4	C	C	C	C	C	C	C	C	C	C	1.5	1.2	1.5	1.6	1.9	2.0	2.2
31																								
Mean Value	1.5	1.5	1.5	1.3	1.3	1.3	1.5	2.3	2.7	3.4	3.5	3.7	3.6	3.6	3.3	2.9	2.4	2.0	1.7	1.5	1.5	1.5	1.6	1.7
Median Value	1.2	1.2	1.2	1.2	1.1	1.1	1.4	2.3	2.6	3.2	3.5	3.6	3.6	3.4	3.3	2.7	2.2	1.7	1.5	1.3	1.3	1.3	1.5	1.6
Count	29	29	28	28	29	29	29	27	26	26	25	26	25	26	27	26	25	29	29	29	27	29	27	27

$f_{min}F$

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 10

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

IONOSPHERIC DATA

Nov. 1951 | fminE | 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	E	E	E	E	E	E	B	1.2	1.3	1.5	1.4	1.8	1.9	1.2	1.3	1.3	C	C	1.2	1.2	1.3	1.2	1.3	2.0
2	1.7	E	E	E	E	E	1.2	C	C	C	C	C	1.4	C	C	C	C	E	E	1.4	1.2	1.4	1.2	1.2
3	1.3	1.1	E	C	C	C	C	1.2	1.3	1.2	1.4	1.3	1.4	1.3	1.2	1.4	1.8	1.3	E	2.0F	1.3	1.3	1.1	E
4	1.1	1.1	1.1	1.1	1.1	1.1	1.3	1.7F	1.8F	1.3	2.0	2.0	1.3	1.5	1.3	1.2	1.3	1.5	1.1	1.1	1.7	1.1	1.2	E
5	E	1.8	1.6	1.1	E	E	B	1.2	1.3	1.3	1.5	1.2	1.3	1.6	1.5	1.2	1.2	B	E	E	E	E	E	1.6
6	2.0	1.3	C	E	E	1.3	1.3	1.2	1.2	1.2	1.2	2.0	2.0	1.5	1.5	2.0	1.3	B	E	E	E	E	E	E
7	1.2	E	1.2	E	E	E	1.2	1.3	1.2	1.2	1.2	1.2	1.6	1.2	1.2	1.2	1.2	1.2	1.5	1.7	E	1.2	1.2	1.1
8	1.2	2.0	1.1	E	1.1	1.3	2.1	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.2	E	1.4	1.4	1.4	1.4	1.4	1.2
9	2.0	E	E	2.0	E	1.1	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.3	1.2	1.2	1.2
10	1.3	1.4	1.4	E	E	E	1.2	1.2	1.2	1.4	1.7	1.4	1.4	1.3	1.5	1.2	1.2	1.2	1.1	1.2	1.5	1.5	1.2	E
11	E	E	E	E	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.2	C	C	1.4	1.2	1.2	1.7	1.1	1.3	2.0	E	1.1	1.3
12	1.1	E	E	1.1	1.1	1.1	1.5	1.6	1.7	1.2	1.2	1.2	1.5	1.3	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
13	E	2.0	E	E	2.0	E	1.8	1.2	1.4	1.4	1.6	1.6	2.0	2.0	1.3	1.2	1.2	1.2	1.1	E	1.6	E	1.6	1.2
14	1.2	1.2	1.1	1.2	E	E	E	1.4	1.3	1.3	1.3	1.3	2.0	2.0	1.2	1.3	2.0	1.3	1.3	1.2	1.2	1.2	1.2	1.2
15	1.3	1.2	1.2	1.3	E	E	E	1.3	1.2	2.0	1.6	1.5	1.4	1.6	1.2	1.2	1.2	1.1	E	1.2	1.2	E	E	1.5
16	1.6	1.2	1.3	2.0	1.2	E	E	1.2	C	C	C	C	C	1.2	1.2	1.2	1.2	1.4	1.2	1.2	1.5	E	1.6	1.2
17	1.4	1.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.6	1.7	1.8	1.3	1.2	E	E	E	E	E	E
18	E	E	E	1.4	E	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.1	1.2	E	E	E	E	E
19	E	E	M	M	E	E	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.5	1.2	1.4	1.4
20	1.1	1.3	1.1	E	E	E	E	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.4	1.3	1.4	1.3	E	E	E	E	E	E
21	E	E	1.2	1.2	1.2	1.2	E	1.2	1.2	1.3	1.3	1.4	1.8	1.9	1.9	1.4	1.5	1.3	1.8	1.3	1.2	1.2	1.2	1.1
22	1.2	1.2	1.2	1.1	1.3	E	E	1.2	1.2	2.0	2.0	1.6	1.4	1.5	1.4	1.4	1.4	E	1.3	1.3	1.2	1.3	1.2	1.2
23	1.2	1.3	1.2	E	E	E	E	C	C	C	C	C	C	C	C	C	C	1.5	1.2	1.2	1.2	1.2	1.2	1.3
24	1.3	1.2	E	1.2	1.2	1.1	1.1	1.1	E	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	E	E	2.2	E	E
25	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.6	1.2	1.3	1.6	1.6	1.6	1.6	1.6	1.4	1.6	1.3	1.3	1.3	1.4	1.2	E	1.2
26	1.8	1.4	1.4	E	E	E	1.2	1.2	1.2	1.3	1.3	1.4	1.3	1.4	1.3	(1.3)C	1.3	E	1.1	1.2	E	1.2	E	E
27	E	E	E	E	E	E	1.2	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	E	1.3	1.3	E	E	1.6	1.5
28	1.3	E	E	1.1	1.1	E	E	2.0	1.6	1.4	1.3	1.6	2.1	1.5	1.8	1.3	1.3	1.4	C	1.3	1.2	1.2	1.2	1.4
29	E	E	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5	2.2	2.0	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.5	E
30	E	E	1.4	1.3	E	1.4	E	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E	E
31																								
Mean Value	1.4	1.4	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3
Median Value	1.2	1.2	1.1	1.1	E	E	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Count	30	30	28	28	29	29	27	27	26	26	26	26	26	26	27	27	26	27	29	30	30	30	30	30

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 11

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

IONOSPHERIC DATA

Nov. 1951 | ypF2 | 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	50	60	(90)P	50	60	80	80	(60)J	(50)J	B	70	60	80	40	30	60	C	C	80	60	100	100	60	70
2	60	70	90	80	80	60F	100	C	C	C	C	C	90	C	C	C	C	80	80	80	70	70F	A	80
3	110	100Z	70Z	C	C	C	C	100	60	130	90	110	110	80	100	80	60	90P	80P	130	110	(90)P	70	A
4	60	60	60	60	100	70	50	40	50H	70	50	90	90	70	50	40	70P	60	60	60	70	70	90P	80
5	80	60	70P	80	80	(80)J	70	(50)J	60	80	140	80	90	70	(100)PB	60	60H	120H	130H	70	60	90	70	70
6	90Z	50	(70)C	90P	120	90	70	(80)P	60	110	80	60	50	100	50PS	100	80	90	40	50	110	60	100	70
7	110	120	90	90	60	100	60	60P	(110)P	60P	60	(60)P	90	70	(80)J	70P	70	80P	100	SB	SB	110	110P	100
8	60	120	(100)P	90	100	100	100	80	90	80	50	80	110P	80	70	40	100	70	90	70	A	A	60	A
9	70	70	80	100	70	70	120	(60)P	60	60	60	80	50	B	40	100	70	60	90	90	90	80	A	A
10	A	(70)JF	(80)JF	70	90	70	80	100	60S	70	(70)P	50P	70	110	90	70	120	120H	130	70	(90)P	60	100	100
11	60H	90F	60F	110	100	70	80	80	40	50	50	70	C	C	50	60	80	80	60	70	80H	80	50	90
12	(70)P	70F	70	60	30	100F	110	50	60	100	70P	70	60	60	120	70	50	90	100	90P	(80)J	A	(80)P	90
13	80	90	80	80	120	100	80	70H	90P	70	B	60	50	80	(70)JP	(70)J	90	60	50	60	A	(70)J	60P	50
14	100	50	60P	(60)JK	80K	80PFK	120HK	90K	B K	B K	B K	70K	70K	80K	70K	50K	70	80	60	90	90	90	70	140
15	90	110	90	120	110	(90)JF	70	60	(80)P	(70)P	(70)J	(50)P	70	(60)J	50	(60)J	60	110	70	90	160	70	90	100
16	90	120	60	50H	100	60H	80	(100)P	C	C	C	C	C	80P	70	50	50	70	70	(60)P	AS	80F	90	90
17	80	80	110	70	90	80	100	80	(50)J	(70)J	(60)J	(60)J	(80)J	90P	(90)P	(70)P	100	90H	120	60H	90	90	50	60
18	80	70P	80	70	120	50	80	70	100P	(60)P	70	160	80	70	50	70	50	90	90	(70)P	70	100F	100F	90F
19	(90)JF	(130)JF	M	M	120	100	80	70	60	90	110	80	80	50	100	60	60	A	A	A	40	90	90	60
20	60	60	80	(70)P	60	80	130H	(150)P	70H	60	60	60	70P	50P	40	B	70	60	(60)J	160	80H	130F	150	90
21	70	(80)P	60	60	80	(60)P	140	60	60	50	50	50	70	(90)J	(60)P	(70)J	80	100	80	100	70	60	60F	A
22	80	60	70P	130	90	90	70	60	90	60	90	(90)P	90	130	90	70	80	120	110	40H	90	70	40	130
23	100	120	90	80	80	90	80	C	C	C	C	C	C	C	C	C	C	130	70	100	60	90	(100)JF	(70)J
24	80	90	90	90	100	100F	80F	90	100	60	80P	(70)P	(80)P	60	60	50	80	90	90	(70)PS	70	40F	60S	80
25	70	(70)PS	E	60F	(70)JF	120	100P	90	(70)J	40	50	80	30	(70)P	(60)P	80	70	70	A	B	60	70	120	120
26	A	(70)P	80	100	70	150	70	100	70	60S	60	60	70	70	(90)P	(90)C	90	70	50	110	70	120	130	120F
27	(70)JF	(60)JF	(70)JF	(110)VPF	120F	70V	70	70	80	80	70	120	80	60	50	140	60	(70)PS	(70)PS	(60)P	(70)P	70	80	120
28	70	60F	70F	80	70	80F	80	B	C	70B	60PS	60PS	70	S	(70)P	50	70	100	C	60P	(70)P	100	100	60
29	50	90	60	80	70	100	110Z	90	(70)J	90	60	50	70	90	60	80	60	B	50	B	B	90	A	60
30	80	90	60	80	90	90	(70)J	C	C	C	C	C	C	C	C	C	C	80	70	90	170	190H	130	120F
31																								
Mean Value	80	80	80	80	90	90	90	80	70	70	70	70	80	80	70	70	70	90	80	80	80	90	90	90
Median Value	80	70	80	80	90	80	80	80	60	70	60	70	80	70	70	70	70	80	80	70	80	80	90	90
Count	28	30	28	28	29	29	29	26	24	24	24	26	26	24	27	26	26	27	27	26	25	28	27	26

ypF2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 12

37

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Nov. 1951 | f_0F2 | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.8	3.8	3.6	4.0	4.2	3.2	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	M	M	M	M	S	S	S	S	C	C	C	C	C	C	C	C	4.6	4.5	4.1^F	4.4^F
3	4.4	4.8	4.3^F	4.4^F	SF	4.4^Z	4.8	5.7	M	M	M	M	M	M	M	M	M	M	M	4.4	4.7	5.0	3.7	3.7
4	3.5^Z	3.6	4.1	3.4	2.5	2.8	3.0	5.2	S	$(10.2)^P$	12.9	11.5	9.8	S	S	S	S	S	S	S	5.4	3.8	3.6	3.2
5	3.3	3.6	3.9	3.6	4.2	2.6	2.8	4.9	B	B	13.2	10.6	B	11.7^P	B	B	B	6.8	5.2	5.1	S	4.8	3.3^S	3.5^F
6	3.9	4.6	3.6	3.7^F	3.8^F	3.3	3.4	B	C	C	C	C	C	12.5	S	B	B	10.8^P	B	5.4	S	4.8	4.4	4.1
7	3.7^F	3.5	3.4^F	3.5^F	3.6	2.5^F	2.9^Z	5.6	S	9.5	10.8	11.5	11.5	13.2	S	11.7	12.3	10.0^P	S	S	S	S	4.0	3.2
8	3.5	3.5	3.3	3.4	3.6	2.7	3.0	5.1	S	S	10.8	$(13.2)^P$	11.8	11.8	12.4	11.2	$(8.2)^P_S$	S	S	4.9	4.9	3.5	3.0^F	3.2^F
9	$(3.5)^F$	3.5^F	4.2	3.3	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	5.5	3.1	3.1
10	A	3.7^F	3.6	4.0	3.8	2.8	5.0	B	$(8.6)^P$	$[10.8]^C$	13.0^P	12.6	10.7	11.5	C	C	7.0^P	S	C	C	$(3.5)^T_S$	4.3	4.5^P_S	3.3
11	3.1	3.0	3.1	3.1	3.7	2.9	3.1	5.0	7.0^P	B	8.2	C	C	B	10.5	7.9	$[7.4]^S$	$(7.0)^P_S$	S	4.7	3.9	3.8	3.6	3.4
12	3.1	2.9	3.0	3.3	3.5	2.9	2.7	C	B	B	S	11.6	9.5	11.1	$[10.0]^B$	8.8	7.5	7.1	6.8	4.6	4.4	4.8	3.3	2.9
13	3.2	3.4	3.5	3.5	4.0	2.2^H	2.5	3.6	7.6	12.6	13.2	13.1	11.2	$[11.0]^B$	10.7^J	9.9^P_S	S	7.0	S	$(5.6)^P_S$	4.3	4.6	4.2^V	3.6
14	3.1	2.8^K	3.0^K	A^K	A^K	3.0^K	3.0^K	4.0^K	B^K	M^K	M^K	11.6^K	11.7^K	12.2^K	8.8^K	7.1^K	7.8^S	7.1	S	4.0^H	3.4	3.3	3.4	3.1
15	3.3	3.9	4.3	3.4	$[3.2]^C$	3.0^F	3.1^F	4.9	7.9^P	7.3	8.4	12.6	C	C	C	C	C	C	C	6.3^P	4.6	3.7^P	2.8	2.9
16	2.9	2.9	3.0	3.5	3.6	2.9	2.8	4.8	B	7.4	C	C	C	C	$[11.9]^T$	$(13.2)^P$	S	8.8	$(7.3)^P_S$	$(7.3)^P_S$	4.6^P_S	3.7^P	3.6	4.0^P
17	2.7	2.6	2.7	2.7	2.8	2.7	2.8	4.2	S	S	C	C	C	C	C	S	S	7.0^S	5.2	4.4	4.2	3.4	2.7	2.8
18	2.9	2.9	3.0	3.2	3.0	2.8	2.5	4.1	B	B	7.6	7.9^P	B	B	B	10.9	9.7^P	9.3^P	7.2^P	4.2	4.2	3.4	3.0	3.6^F
19	3.3	3.4	3.3	3.4	4.0	3.3	2.3	3.9	C	C	$(7.8)^P_S$	$(9.0)^P$	C	C	C	C	C	C	C	C	C	3.4	3.3	3.0
20	3.0	3.1	3.3	3.8	3.1	3.4	2.1	4.2	6.8	C	C	C	12.0	12.7	$[11.9]^C$	11.1	9.7	$[7.0]^C$	4.2	3.4	3.7	3.0	3.0	3.2
21	3.5	3.5	3.3	3.3	3.3	3.3	2.3	4.7	8.5	8.7	9.7	10.5	11.6	11.0	10.2^P	S	7.5	6.6	6.6	4.0	3.2	3.0	3.4^F	3.6^F
22	3.7	3.8	3.7	3.8	4.4	3.6	3.8	4.7	8.4	8.4	9.0	8.6	9.8	10.4	10.0	9.0	7.6	7.3	6.5	4.5	3.5^H	2.7	2.8	3.0
23	3.3	3.6	3.5	3.4	4.2^H	3.2	3.4	$(5.7)^P$	7.2	7.3	8.0	9.8	12.4	10.0	8.0	8.8	9.3	$[7.4]^C$	5.6	$[5.2]^C$	4.8	4.2	2.7	3.0
24	3.2	3.0	C	C	C	C	C	$(7.1)^P$	C	C	C	C	C	C	C	C	C	C	5.2	5.5	3.2	3.4^F	3.4	3.2
25	3.5^F	C	C	C	C	C	C	C	C	C	9.2	10.5	10.2^P	10.3^J	10.9	9.3^P	8.0	7.4	4.4	4.4	4.4	4.0	3.9	2.9
26	2.8	2.7	2.8	2.7^F	C	C	C	C	$(8.0)^J$	$[8.3]^C$	8.6	C	C	9.8^P	8.5	12.0	9.4	7.0	A	4.0	4.2	3.5	2.6	2.5
27	2.6	2.8	3.1	3.1	3.8	2.2	2.4	6.0	7.6^P	$(9.0)^S$	8.5	10.2^P	C	C	11.4	9.6	8.1	7.1	5.0	4.3	4.3	4.3	3.1	3.0
28	2.9	2.9	3.0	3.1^F	3.7	2.9	2.8	4.9	7.7	7.8	11.3	10.7	11.0	12.1	10.4	$(9.8)^P$	8.2^P	6.2	4.5	4.7	5.5	3.8	3.0	3.1
29	3.2	3.3	C	C	3.3	2.8	3.2	5.7	8.0^P	6.8^P	8.8	11.2	12.5	12.5	S	8.8^P	8.8	$[7.2]^C$	5.7^P	4.6	4.9^P	3.5	3.6	3.9
30	3.3	3.4	3.6	3.6	3.7	3.2	3.7	5.2	7.9^Z	11.0^J	$[10.9]^C$	10.8	10.6	10.7	B	9.2	9.2	$(7.7)^P_S$	4.9	$[4.2]^C$	3.4	3.4	2.6	2.7
31																								
Mean Value	3.3	3.4	3.4	3.4	3.6	3.0	3.1	5.0	7.8	8.9	10.0	10.9	11.1	11.4	10.4	9.9	8.6	7.6	5.6	4.8	4.2	3.9	3.4	3.3
Median Value	3.3	3.4	3.4	3.4	3.6	2.9	3.0	4.9	7.9	8.4	9.2	10.8	11.0	11.3	10.4	9.6	8.2	7.1	5.2	4.6	4.3	3.8	3.3	3.2
Count	28	28	26	25	24	25	24	22	13	14	19	19	15	18	14	17	17	20	15	23	24	28	29	29

Sweep 1.0 Mc to 22.0 Mc in 4 min ☐ Manual ☒ Automatic

Y 1

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

IONOSPHERIC DATA

Nov. 1951 | h_pF2 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	340	350	350	320	300	300	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	M	M	M	M	S	S	S	S	C	C	C	C	C	C	C	C	330	310	310^{F}	430^{F}
3	420	400	450^{F}	330^{F}	SF	330^{Z}	360	350	M	M	M	M	M	M	M	M	M	M	M	320	340	290	350	390
4	390^{Z}	410	320	240	300	400	400	290	S	(320)^{P}	300	300	310	S	S	S	S	S	S	S	300	320	340	350
5	400	400	340	340	250	430	400	310	B	B	270	270	B	300$^{P}_{B}$	B	B	B	250	270	350	S	250	410^{S}	400^{F}
6	350	270	250	300^{F}	290^{F}	400	340	B	C	C	C	C	C	B	S	B	B	250^{P}	B	330	S	380	310	320
7	310^{F}	400	430^{F}	370^{F}	350	350^{F}	440^{Z}	290	S	300	300	300	350	310	S	300	290	250^{P}	S	S	S	S	320	380
8	350	360	350	400	350	260	350	310	S	S	300	(300)^{P}	300^{B}	(320)^{B}	300	300	(280)$^{P}_{S}$	S	S	290	260	300	360^{F}	310^{F}
9	(420)^{F}	360^{F}	300	250	250	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	300	450	420
10	A	360^{F}	350^{F}	310	250	450	250	B	(300)^{P}	[300]^{C}	290^{P}	290	330	300	C	C	270^{P}	S	C	C	(300)$^{J}_{S}$	330	300$^{S}_{P}$	260
11	320	360	350	350	280	330	330	250	250^{P}	B	250	C	C	B	(300)^{B}	250	[250]^{S}	(250)$^{P}_{S}$	S	240	400	300	300	300
12	310	350	370	310	300	370	320	C	B	B	S	290	300	300	[280]^{B}	250	250	290	250	250	330	290	340	400
13	400	380	390	360	280	430^{H}	390	380	300	300	300	270	300	[300]^{J}	(300)^{J}	270$^{P}_{S}$	S	270	S	(350)$^{P}_{S}$	340	350	360^{V}	280
14	300	430^{K}	440^{K}	A^{K}	A^{K}	500^{K}	400^{K}	360^{K}	B^{K}	M^{K}	M^{K}	300^{K}	320^{K}	290^{K}	250^{K}	250^{K}	260^{S}	280	S	370^{H}	280	280	340	360
15	360	350	250	280	(360)^{C}	450^{F}	390^{F}	310	(270)$^{P}_{B}$	(270)^{B}	330	300	C	C	C	C	C	C	C	250^{P}	360	370^{P}	360	380
16	360	370	390	300	260	340	350	260	B	(300)^{B}	C	C	C	300	[280]^{T}	(270)^{P}	S	250	(290)$^{P}_{S}$	(250)$^{P}_{S}$	300$^{P}_{S}$	420^{P}	350	340^{P}
17	300	300	350	300	350	360	370	330	S	S	C	C	C	C	C	S	S	250^{S}	280	290	300	270	350	350
18	320	340	350	300	300	270	340	340	B	B	250	250^{P}	B	B	B	270	270^{P}	(250)$^{P}_{B}$	250^{P}	300	350	350	350	380^{F}
19	380	350	320	350	300	250	350	290	C	C	(300)$^{P}_{S}$	(300)^{P}	C	C	C	C	C	C	C	C	C	340	290	390
20	370	380	340	280	290	230	370	290	250	C	C	C	300	270	[260]^{C}	260	280	[290]^{C}	300	400	320	350	340	340
21	350	350	400	400	340	280	330	270	260	260	290	300	300	300	280^{P}	S	250	260	270	250	310	320	330^{F}	320^{F}
22	310	310	320	320	330	320	330	290	250	250	260	290	300	280	280	250	250	250	260	250	330^{H}	350	350	350
23	420	320	270	310	300^{H}	400	350	(250)^{P}	250	250	300	290	270	310	270	290	270	[260]^{C}	260	[260]^{C}	270	240	340	370
24	370	420	C	C	C	C	C	(270)$^{P}_{B}$	C	C	C	C	C	C	C	C	C	C	290	300	350	350^{F}	350	340
25	380^{F}	C	C	C	C	C	C	C	C	C	270	300	300^{P}	(280)^{J}	260	250^{P}	250	240	300	330	320	300	270	320
26	310	350	390	350^{F}	C	C	C	C	(260)^{J}	[270]^{C}	280	C	C	250^{P}	300	280	250	240	A	300	300	300	290	390
27	370	390	300	310	230	350	280	270	250^{P}	[270]^{S}	290	280^{P}	C	C	270	290	250	250	220	260	310	260	320	370
28	340	340	350	360^{F}	310	300	350	270	250	250	270	300	300	270	280	(260)^{P}	250^{P}	220	290	320	270	270	350	380
29	380	350	C	C	300	330	320	250	250^{P}	250^{P}	300	300	280	300	S	250^{P}	280	[260]^{C}	250^{P}	300	250^{P}	400	320	310
30	400	370	350	350	310	350	310	280	260^{Z}	(280)^{J}	[270]^{C}	260	290	290	B	270	250	(240)$^{P}_{S}$	260	[300]^{C}	350	270	300	370
31																								
Mean Value	360	360	350	320	300	350	350	300	260	280	290	290	300	290	280	270	260	260	270	300	320	320	340	360
Median Value	360	360	350	320	300	350	350	290	250	270	290	300	300	300	280	270	250	250	270	300	320	300	340	360
Count	28	28	26	25	24	25	24	22	13	14	19	19	15	17	14	17	17	20	15	23	24	28	29	29

h_pF2 | Sweep 1.0 Mc to 22.0 Mc in 2 min | ☐ Manual ☒ Automatic

Y 2

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

IONOSPHERIC DATA

Nov. 1951 | h'F2 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	280	270	260	230	230	C	C	M	M	M	M	M	M	M	M	C	C	C	C	270	260	270F	360A
2	M	M	M	M	M	M	M	M	240	270	260	270	C	C	C	C	C	C	C	C	270	260	270F	360A
3	400A	360A	330F	300A	250	280	300	250	250	250	300	290	280	250	250	250	240	240	230	250	240	250	250	310
4	350	380	250	200A	290	350	330	250	240	250	250	250	250	300	260	250	240	220	220	240	220	250	250	270
5	310	320	270	250	220	340	330	280	250	270	250	250	250	270	250	240	220	220	220	250	250	220	320	340
6	300	240	230	250	230	250	300	240	C	C	C	C	C	260	250	250	240	220	200	220	250	240	270	250
7	280F	300	310	300F	260	200	350	250	230	250	260	270	270	300	270	250	240	220	210	240	230	210	220	300
8	280	270	270	350	270	200	290	250	250A	210	270	260	250	280	260	240	210	210	210	210	220	230	300	260
9	350F	260F	250F	220	230	C	C	C	C	C	C	C	C	C	C	C	C	C	C	250	230	220	300	350
10	A	310F	320	260	210	360	220	240	240	(250)C	260	250	280	260	C	C	220A	210A	C	C	270	270	250	240
11	250	260	270	270	250	240	260	240	220	250	250	C	C	270	270	240	230	220	210	210	240	250	250	260
12	250	260	270	260	250	230	260	(250)C	240	240	250	250	280	260	260	240	230	220	210	220	270	220F	250	340
13	340	300	300	290	240	350H	330	300	250	260	270	250	250	260	250	250	230	220	200A	250	250	300A	270	250
14	250	370K	360K	AK	AK	430KA	340K	260K	270K	(260)MK	250K	250K	250K	250K	240K	220K	230	220	200A	200AH	250A	250A	290A	340A
15	350	310	240	240	(320)C	390F	300	270	220	260A	300	290	C	C	C	C	C	C	C	200	200	240	280	300
16	300	300	310	260	250	250	260	240	230	240	C	C	C	270	250	250	220	220	200	200	190	300	270	250
17	250	270	300	250	270	300	300	260	240	240	C	C	C	C	C	240	230	210	200	210	220	250	290	290
18	270	260	250	250	240	220	270	270	220	220A	250	240	300	290	250	240	240	220	200	200	240	250	250	340
19	300	260	260	260	240	220	250	250	C	C	300	260	C	C	C	C	C	C	C	C	C	260	240	300
20	300	300	260	250	220	220	320	240	210	C	C	C	270	250	(250)C	250	250	(220)C	200	250	240	280	280	270
21	270	270	300	340	260	200A	300	250	240	250	250	270	260	260	250	240	210A	250A	210A	200A	280	290	280F	300F
22	260	250	260	280	250	260	260	250	240	230	240	250	260	260	260	230	230	220	210	200	250H	270	310	300
23	300	280	250	290	250H	300	270	230	230	230	270	270	250	250	240	250	220	(210)C	200	(220)C	250	220	300	310
24	320	350	C	C	C	C	C	250	230	C	C	C	C	C	C	C	C	C	200A	240	250	300F	300	270
25	300F	C	C	C	C	C	C	C	C	C	250	240	250	260	250	240	230	200	210	250	250	250	220	260
26	260	300	300	310F	C	C	C	C	230	(240)C	250	C	C	240	250	260	230	220	A	220	240	220	260	330
27	340	340	250	250	210	280	260	230	210	230	250	250	C	C	250	250	210	220	200	200	250	240	250	300
28	270	260	300	320F	250	240	300	250	230	220	250	250	260	250	250	250	210	200A	200	250	230	220	260	350
29	320	300	C	C	250	250	300	230	210	250	270	270	250	240	250	240	240	(220)C	200A	250	240	250	300	250
30	390A	340A	280	280	250	280	250	250	240	260	(250)C	240	240	250	250	230	230	210	200	(220)C	240	220	260	320
31																								
Mean Value	300	300	280	270	250	270	290	250	230	240	260	260	260	260	250	240	230	220	210	230	240	250	270	300
Median Value	300	300	270	260	250	250	300	250	240	250	250	250	260	260	250	240	230	220	200	220	240	250	270	300
Count	28	28	26	25	25	25	24	25	25	23	23	21	18	22	22	23	24	24	23	26	28	29	29	29

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 3

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

IONOSPHERIC DATA

Nov. 1951 | foF1 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								C	M	M	M	M	M	M	M	M	M	M						
2								M	Q	L	L	L	C	C	C	C	C	C						
3								Q	Q	L	L	L	L	L	L	Q	Q	Q						
4								Q	Q	L	L	L	L	L	L	Q	Q	Q						
5								Q	Q	L	L	4.9	L	L	L	Q	Q	Q						
6								Q	C	C	C	C	C	L	Q	L	Q	Q						
7								Q	Q	L	L	L	L	L	L	L	Q	Q						
8								Q	Q	Q	L	L	4.5	L	L	Q	Q	Q						
9								C	C	C	C	C	C	C	C	C	C	C						
10								Q	Q	C	L	L	L	A	C	C	A	Q						
11								Q	Q	L	L	C	C	L	L	Q	Q	Q						
12								c	Q	Q	L	L	5.0^{H}	5.2	5.1^{H}	4.0	Q	Q						
13								Q	Q	L	L	4.7	Q	L	Q	L	Q	Q						
14								Q	L	M	M	L	L	L	L	Q	Q	Q						
15								Q	Q	A	L	4.8	C	C	C	C	C	C						
16								Q	Q	L	C	C	C	A	L	L	Q	Q						
17								Q	Q	Q	C	C	C	C	C	L	Q	Q						
18								Q	Q	Q	L	L	L	L	L	L	Q	Q						
19								Q	C	C	L	L	C	C	C	C	c	c						
20								Q	Q	C	C	C	L	5.0	$[4.8]^{C}$	4.6	L	C						
21								Q	Q	L	4.8	L	L	L	4.5	L	A	Q						
22								Q	Q	L	L	L	L	5.0	L	L	Q	Q						
23								Q	Q	Q	L	L	4.8	4.5	L	L	Q	C						
24								Q	Q	C	C	C	C	C	C	C	C	C						
25								C	C	C	L	L	L	5.1	4.5	4.1	Q	Q						
26								C	Q	C	Q	C	C	4.5	L	4.5	Q	Q						
27								Q	Q	Q	L	L	C	C	L	L	Q	Q						
28								Q	Q	Q	L	L	L	L	L	L	Q	Q						
29								Q	Q	L	L	L	5.0	L	L	L	Q	C						
30								Q	Q	L	C	L	Q	L	L	Q	Q	Q						
31																								
Mean Value											4.8	4.8	4.8	4.9	4.7	4.3								
Median Value											4.8	4.8	4.9	5.0	4.6	4.3								
Count											1	3	4	6	4	4								

foF1

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 4

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

IONOSPHERIC DATA

Nov. 1951 | h'F1 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								C	M	M	M	M	M	M	M	M	M	M						
2								M	Q	Z20	Z20	Z50	C	C	C	C	C	C						
3								Q	Q	Z30	Z20	Z30	Z30	Z40	Z40	Q	Q	Q						
4								Q	Q	Z20	Z20	Z20	Z10	Z10^{H}	Z50^{A}	Q	Q	Q						
5								Q	Q	Z30	Z40	Z30	Z30	Z30	Z50	Q	Q	Q						
6								Q	C	C	C	C	C	Z50^{A}	Q	Z20	Q	Q						
7								Q	Q	Z20	Z50	Z40	Z30	Z60^{A}	Z30	Z20	Q	Q						
8								Q	Q	Q	Z20	Z10	Z10	Z10	Z30^{A}	Q	Q	Q						
9								C	C	C	C	C	C	C	C	C	C	C						
10								Q	Q	C	Z40	Z30	Z40	A	C	C	A	Q						
11								Q	Q	Z30	Z10	C	C	Z10^{A}	Z20^{A}	Q	Q	Q						
12								C	Q	Q	Z20	Z20	Z20^{H}	Z30	Z30^{H}	Z30	Q	Q						
13								Q	Q	Z50	Z50	Z50^{A}	Q	Z50	Q	Z40	Q	Q						
14								Q	Z50	M	M	Z30	Z20	Z10	Z30	Q	Q	Q						
15								Q	Q	A	Z20^{A}	Z20^{A}	C	C	C	C	C	C						
16								Q	Q	Z10	C	C	C	A	Z30	Z40	Q	Q						
17								Q	Q	Q	C	C	C	C	C	C	Q	Q						
18								Q	Q	Q	Z20	Z20	Z40	Z30	Z30	Z20	Q	Q						
19								Q	C	C	Z20	Z30	C	C	C	C	C	C						
20								Q	Q	C	C	C	Z20^{A}	Z20^{A}	(Z30)^{C}	Z40	Z20	C						
21								Q	Q	Z20	Z20	Z30^{A}	Z30	Z20^{A}	Z10^{A}	Z10	A	Q						
22								Q	Q	Z20	Z10	Z00^{A}	Z00	Z40	Z30^{A}	Z20	Q	Q						
23								Q	Q	Q	Z30	Z20	Z30	Z30^{A}	Z20^{A}	Z30	Q	C						
24								Q	Q	C	C	C	C	C	C	C	C	C						
25								C	C	C	Z20	Z20	Z00	Z20	Z00	Z00	Q	Q						
26								C	Q	C	Q	C	C	Z30	Z20	Z30^{A}	Q	Q						
27								Q	Q	Q	Z10	Z30	C	C	Z30	Z20^{A}	Q	Q						
28								Q	Q	Q	Z20	Z10	Z30^{A}	Z30	Z20^{A}	Z20^{A}	Q	Q						
29								Q	Q	Z20	Z00	Z10	Z10	Z00	Z40	Z10	Q	C						
30								Q	Q	Z40	(Z20)^{C}	Z10	Q	Z20	Z30	Q	Q	Q						
31																								
Mean Value									250	230	220	220	220	230	230	220	220							
Median Value									250	220	220	220	220	230	230	220	220							
Count									1	12	21	21	16	20	20	15	1							

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 5

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

IONOSPHERIC DATA

Nov. 1951 | foE | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

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

foE

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 6

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

IONOSPHERIC DATA

Nov. 1951 | h'E | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

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

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 7

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Nov. 1951 | fEs | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	2.4	2.4	E	E	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	M	M	M	M	4.0	5.3	4.8	G	C	C	C	C	C	C	C	C	E	2.7	4.4^{F}	5.2^{F}
3	4.6^{F}	4.6^{F}	4.0^{F}	3.2	2.7^{F}	2.4	E	2.3	3.3	4.0	4.1	G	G	4.2	G	G	G	G	3.1	2.5	2.5	2.5	E	2.5
4	2.5	4.4^{F}	2.5	2.9^{F}	2.9	2.4^{F}	2.3	2.5	3.5	4.0	4.2	4.4	5.3	4.4	5.2	3.7	G	3.2	3.1	2.6	2.2	E	E	E
5	E	2.4	E	E	E	E	2.4	3.4	3.4	3.7	4.0	G	4.1	4.1	3.8	G	G	2.6	2.7	E	E	E	E	E
6	E	E	E	E	E	2.6	E	G	C	C	C	C	C	5.4	4.2	G	4.0	2.7	E	2.5	E	2.1	2.5^{F}	2.3^{F}
7	2.4^{F}	2.1	E	E	E	E	E	2.1	G	G	G	G	4.6	4.8	4.0	G	G	2.6	2.6^{F}	E	2.4	E	E	E
8	E	2.0	2.3	3.2	3.3	2.3	2.0	2.4	3.0	3.8	4.6	4.4	4.2	4.5	4.6	G	G	G	3.0^{Y}	E	2.5^{F}	2.2	E	E
9	5.0^{F}	3.2^{F}	3.8^{F}	2.3^{F}	2.9^{F}	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.5	E	2.0	2.3	3.0^{F}
10	5.3^{F}	4.7^{F}	3.7^{F}	2.5^{F}	4.2	2.0	2.3	G	3.8	C	4.4	4.5^{Y}	4.7	5.6	C	C	5.5	4.0	C	C	E	2.0	2.3	E
11	E	E	E	E	E	E	E	2.5^{Y}	G	G	G	C	C	4.5	4.3	3.8	3.7	3.7^{Y}	2.7	2.4^{Y}	2.3	E	E	E
12	E	E	E	E	E	2.7^{F}	2.5^{F}	C	4.0	G	G	4.2	4.2	G	4.0^{Y}	3.8	G	G	E	E	E	2.0^{F}	1.8	2.5
13	2.5	2.8^{Y}	2.5	2.3^{Y}	2.5	E	E	2.1	3.1	4.1	4.5	4.7	5.6	5.7	5.3	4.6	G	2.5	3.2^{F}	2.8	3.5^{F}	7.0^{F}	2.9	3.0
14	2.5	E	3.4^{F}	4.9^{F}	4.3^{F}	2.5	E	2.5	4.2	M	M	5.2^{Y}	4.7	4.8	4.3	3.6	G	B	2.9	4.4	3.2	2.9	3.1	2.9
15	2.7^{F}	4.4^{F}	4.3^{F}	4.0^{F}	C	2.7^{F}	E	2.5	3.0	11.1^{Y}	4.3	5.2	C	C	C	C	C	C	C	3.0	3.1	2.5	E	E
16	1.9	E	E	E	2.5^{Y}	E	E	B	G	G	C	C	C	5.6	4.2	G	4.0^{F}	3.9^{F}	3.2	2.3^{F}	2.4	2.5	2.2	E
17	1.9	E	E	E	E	E	2.0	G	G	G	C	C	C	C	C	C	3.8^{Y}	G	E	E	2.2	E	E	E
18	E	E	E	E	E	2.4	E	2.4	2.9	4.0	4.2	4.2	G	4.0	G	4.1	3.2	3.1	E	2.4	2.6^{F}	2.2	1.9	E
19	E	E	E	E	E	E	E	2.2	C	C	3.9	4.3	C	C	C	C	C	C	C	C	C	E	E	E
20	E	E	E	E	E	E	E	G	G	C	C	C	4.1	4.4	C	4.4	4.0	C	E	2.1	E	E	E	E
21	E	E	E	2.4	2.5^{F}	2.9^{F}	3.1^{F}	2.4	G	4.2	4.4	5.0	4.4	4.8	5.3	4.8^{F}	5.0	4.7	4.3^{F}	3.1^{F}	3.1^{F}	5.5	3.0^{F}	3.0
22	2.9^{Y}	2.6	2.5^{F}	2.6^{F}	2.5	2.5^{Y}	E	2.1	3.0	4.0	4.4	5.2	4.3	4.4	4.4	4.9	3.8	3.0	2.6	2.5	E	2.0	E	E
23	E	3.9^{F}	3.7^{F}	2.9^{F}	2.3	E	2.6^{Y}	2.5	G	G	G	4.2	4.2	4.4	4.5^{F}	4.4^{F}	3.5^{F}	C	2.0	C	E	2.0	E	4.5
24	4.0^{Y}	4.4	C	C	C	C	C	G	G	C	C	C	C	C	C	C	C	C	3.1	E	E	E	E	E
25	E	C	C	C	C	C	C	C	C	C	4.1	4.0	4.2	4.1	4.1	G	4.3	G	2.1	2.6	2.3	E	E	E
26	E	2.0	E	3.0	C	C	C	C	3.1	C	G	C	C	4.0	4.3	3.9	4.2	3.1^{Y}	4.7	1.9	E	1.9	E	E
27	E	E	E	E	E	2.5	2.0	G	G	G	4.2	4.4	C	C	4.8	4.5	4.2	3.5	2.5	2.2	2.5	1.9	E	E
28	E	E	E	E	E	2.5	3.5^{Y}	2.5	4.1	3.9	4.0	4.9	4.5	4.4	4.5	5.0	4.9	3.8	2.9^{Y}	2.9	2.9	2.8^{Y}	3.2	4.1
29	4.0	2.5	C	C	2.5^{F}	2.5^{Y}	2.5	G	4.2	4.2	G	G	4.4	4.0	4.4	4.4	3.0	C	3.1	3.1	2.2	2.2	E	2.5
30	4.0	3.1	E	E	E	2.5	E	G	3.7^{Y}	G	C	4.1	G	4.1	4.0	4.5	4.5	3.0	E	C	E	2.6^{Y}	E	E
31																								
Mean Value	3.3	3.3	3.2	3.0	2.9	2.5	2.5	2.4	3.5	4.7	4.3	4.6	4.5	4.6	4.4	4.3	4.1	3.3	3.0	2.7	2.6	2.7	2.7	3.2
Median Value	E	2.0	E	E	E	2.4	E	2.2	3.0	3.8	4.1	4.3	4.2	4.4	4.3	3.8	3.8	3.0	2.7	2.4	2.2	2.0	E	E
Count	29	28	26	26	25	25	24	23	25	20	21	21	18	22	21	22	24	20	24	24	28	29	29	29

fEs

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 8

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

IONOSPHERIC DATA

Nov. 1951 | (M3000)F2 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.9	2.8	2.8	3.0	3.3	3.0	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	M	M	M	M	S	S	S	S	C	C	C	C	C	C	C	C	2.8	2.8	3.0^{F}	2.6^{F}
3	2.5	2.7	2.5^{F}	2.8^{F}	SF	2.8^{Z}	2.6	2.8	M	M	M	M	M	M	M	M	M	M	M	3.0	2.9	3.1	2.8	2.7
4	2.6^{Z}	2.6	2.9	3.4	3.0	2.6	2.6	3.1	S	(3.0)^{P}	3.2	3.1	3.0	S	S	S	S	S	S	S	3.1	3.0	2.8	2.8
5	2.6	2.5	2.9	2.9	3.4	2.5	2.6	3.0	B	B	3.4	3.4	B	3.0^{P}	B	B	B	3.4	3.1	2.8	S	3.4	2.6^{S}	2.7^{F}
6	2.7	3.2	3.3	2.9^{F}	3.0^{F}	2.5	2.8	B	C	C	C	C	C	3.3	S	B	B	3.3^{P}	B	2.9	S	2.7	3.0	3.0
7	2.7^{F}	2.5	2.5^{F}	2.6^{F}	3.1	2.8^{F}	2.5^{Z}	3.1	S	3.2	3.1	3.2	2.7	3.1	S	3.0	3.2	3.4^{P}	S	S	S	S	3.0	2.6
8	2.7	2.7	2.8	2.6	2.8	3.2	2.8	3.1	S	S	3.0	(3.3)^{P}	3.3	3.2	3.2	3.3	(3.2)$^{P}_{S}$	S	S	3.1	3.2	3.0	2.8^{F}	2.9^{F}
9	F	2.9^{F}	3.1	3.3	3.3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	3.0	2.3	2.5
10	A	2.8^{F}	2.7^{F}	3.0	3.1	2.5	3.4	B	(3.1)^{P}	(3.2)^{C}	3.2^{P}	3.3	3.0	3.2	C	C	3.3^{P}	S	C	C	(2.7)$^{J}_{S}$	2.9	3.0$^{P}_{S}$	3.1
11	3.0	2.8	2.9	2.9	2.8	2.9	2.9	3.4	3.4^{P}	B	3.4	C	C	B	3.3	3.4	(3.4)^{S}	(3.5)$^{P}_{S}$	S	3.6	2.5	3.0	3.0	2.9
12	3.0	2.8	2.7	2.8	3.2	2.7	2.8	C	B	B	S	3.2	3.0	3.2	(3.2)^{B}	3.3	3.4	3.2	3.3	3.2	2.8	3.1	2.8	2.5
13	2.5	2.6	2.7	2.8	3.1	2.5^{H}	2.6	2.6	3.0	3.2	3.1	3.3	3.2	(3.2)^{B}	(3.3)^{J}	3.3$^{P}_{S}$	S	3.4	S	(2.8)$^{P}_{S}$	2.9	2.9	2.7^{V}	3.1
14	3.0	2.5^{K}	2.5^{K}	A^{K}	A^{K}	2.2^{K}	2.6^{K}	2.8^{K}	B^{K}	M^{K}	M^{K}	3.1^{K}	2.9^{K}	3.3^{K}	3.4^{K}	3.4^{K}	3.3^{S}	3.3	S	2.7^{H}	3.2	3.2	2.8	3.0
15	3.3	2.7	3.4	3.2	[2.8]^{C}	2.5^{F}	2.7^{F}	2.9	3.6^{P}	3.4	2.9	3.2	C	C	C	C	C	C	C	3.0^{P}	2.7	2.7^{P}	2.8	2.7
16	2.7	2.7	2.7	3.1	3.2	2.9	2.9	3.2	B	3.5	C	C	C	3.2	[3.2]^{T}	(3.3)^{P}	S	3.2	(3.2)$^{P}_{S}$	(3.5)$^{P}_{S}$	3.0$^{P}_{S}$	2.5^{P}	2.7	2.8^{P}
17	3.1	2.8	2.8	3.0	2.9	2.7	2.7	3.0	S	S	C	C	C	C	C	S	S	3.5^{S}	3.2	3.1	3.2	3.2	2.8	2.8
18	3.1	2.9	2.8	3.1	3.1	3.3	2.9	3.0	B	B	3.4	3.2^{P}	B	B	B	3.4	3.1^{P}	3.4^{P}	3.4^{P}	3.1	2.9	2.7	2.8	2.6^{F}
19	2.7	2.8	2.9	2.8	3.2	3.3	2.9	3.0	C	C	(3.2)$^{P}_{S}$	(3.1)^{P}	C	C	C	C	C	C	C	C	C	2.8	3.1	2.6
20	2.8	2.7	2.9	3.2	3.1	3.6	2.7	3.2	3.6	C	C	C	3.2	3.3	[3.4]^{C}	3.5	3.2	[3.2]^{C}	3.1	2.6	2.8	2.8	2.8	2.9
21	2.8	2.8	2.7	2.6	2.9	3.3	2.8	3.3	3.4	3.5	3.1	3.1	3.2	3.2	3.2^{P}	S	3.3	3.3	3.4	3.6	3.0	3.0	2.9^{F}	2.9^{F}
22	3.1	3.0	3.0	3.0	3.0	2.9	2.9	3.1	3.5	3.6	3.3	3.3	3.1	3.2	3.3	3.6	3.4	3.6	3.4	3.5	2.9^{H}	2.8	2.7	2.8
23	2.7	3.0	3.1	3.0	3.1^{H}	2.6	2.8	(3.6)^{P}	3.5	3.2	3.2	3.2	3.3	3.6	3.3	3.2	3.4	[3.4]^{C}	3.3	(3.2)^{C}	3.2	3.5	2.8	2.8
24	2.8	2.5	C	C	C	C	C	(3.4)^{P}	C	C	C	C	C	C	C	C	C	C	3.1	3.2	2.8	2.8^{F}	2.8	2.9
25	2.7^{F}	C	C	C	C	C	C	C	C	C	3.2	3.0	3.2^{P}	(3.4)^{J}	3.5	3.4^{P}	3.6	3.7	3.0	2.9	3.0	3.1	3.3	3.1
26	3.0	2.9	2.7	2.8^{F}	C	C	C	C	(3.3)^{J}	(3.2)^{C}	3.2	C	C	3.4^{P}	3.1	3.3	3.5	3.4	A	3.0	3.1	3.0	3.0	2.6
27	2.6	2.6	3.2	3.0	3.6	2.9	3.2	3.3	3.6^{P}	S	3.3	3.2^{P}	C	C	3.4	3.3	3.5	3.6	3.7	3.4	3.1	3.6	2.9	2.7
28	2.9	2.9	2.8	2.8^{F}	3.0	3.2	2.8	3.2	3.5	3.3	3.4	3.1	3.2	3.3	3.2	(3.6)^{P}	3.5^{P}	3.4	3.2	2.9	3.3	3.2	2.8	2.7
29	2.6	2.7	C	C	3.1	2.9	3.0	3.5	3.2^{P}	3.6^{P}	3.2	3.2	3.2	3.1	S	3.3^{P}	3.2	(3.3)^{C}	3.4^{P}	3.2	3.3^{P}	2.5	3.0	2.9
30	2.7	2.8	2.9	2.8	3.1	2.8	3.0	3.1	3.4^{Z}	(3.3)^{J}	(3.4)^{C}	3.4	3.2	3.1	B	3.2	3.4	(3.5)$^{P}_{S}$	3.2	(3.0)^{C}	2.8	3.2	3.0	2.6
31																								
Mean Value	2.8	2.8	2.9	2.9	3.1	2.8	2.8	3.1	3.4	3.3	3.2	3.2	3.1	3.2	3.3	3.3	3.3	3.4	3.3	3.1	3.0	3.0	2.9	2.8
Median Value	2.7	2.8	2.8	2.9	3.1	2.8	2.8	3.1	3.4	3.3	3.2	3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.2	3.1	3.0	3.0	2.8	2.8
Count	27	28	26	25	24	25	24	22	13	13	19	19	15	18	14	17	17	20	15	23	24	28	29	29

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

Y 9

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Nov. 1951 | fminF | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.4	E	1.1	1.2	1.1	1.1	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	M	M	M	M	2.6	3.0	2.9	3.4	C	C	C	C	C	C	C	C	1.5	1.4	1.5	2.0[A]
3	3.5[A]	2.9[A]	2.0[A][F]	2.2[A]	1.6	1.4	1.4	1.5	2.4	2.9	3.1	3.3	3.4	3.4	3.3	2.9	2.6	2.1	2.2[A]	1.6	1.5	1.5	1.4	1.6
4	1.4	2.2[A]	1.2	A	1.7	1.6	1.6	1.5	2.3	2.9	3.2	3.1	3.1	3.1	3.6	3.1	2.3	1.9	1.5	1.6	1.5	1.1	1.4	1.4
5	1.4	1.0	1.1	1.0	E	1.2	1.6	1.6	2.3	2.8	3.5	3.3	4.2	3.5	3.3	2.9	2.4	2.1	1.4	1.4	1.4	1.5	1.6	1.3
6	1.5	1.2	1.2	1.2	1.2	1.3	1.4	1.7	C	C	C	C	C	4.4[A]	3.1	2.9	2.3	2.0	1.4	1.7	1.5	1.4	1.1	1.3
7	1.4[F]	1.6	1.1	E	1.3	E	1.6	1.6	2.4	2.8	3.2	3.4	3.4	4.2[A]	3.2	2.8	2.3	1.8	1.4	1.6	1.5	1.4	1.5	1.4
8	1.1	1.1	1.1	1.8	1.1	1.0	1.4	1.5	A	2.6	2.8	3.2	3.3	3.3	A	3.0	2.5	2.0	1.5	1.1	1.2	1.6	1.4	1.4
9	1.8[F]	1.2	1.0	1.2	1.3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.3	1.5	1.5	1.5	1.6
10	A	1.6[F]	1.4	1.1	1.2	1.2	1.5	2.3	2.7	[3.0][C]	3.2	3.6	3.4	5.0[A]	C	C	A	A	C	C	1.4	1.6	1.6	1.5
11	1.2	1.0	1.2	1.0	1.2	1.2	E	1.5	2.3	2.7	3.1	C	C	A	A	2.9[A]	2.2	1.9	1.5	1.4	1.5	1.5	1.4	1.4
12	1.4	1.0	1.1	1.1	1.1	1.0	1.4	[2.0][C]	2.5	2.8	3.1	3.2	3.3	3.3	3.4	2.7	2.6	1.3	1.5	1.4	1.4	1.7[F]	1.6	1.5
13	1.4	1.1	1.2	1.0	1.2	E	1.5	1.5	2.4	3.2	3.0	4.1[A]	3.2	3.2	3.0	2.7	2.3	2.1	A	1.6	1.6	2.6[A]	1.7	1.7
14	1.6	1.1	1.4	A	A	A	1.4	1.5	2.6	M	M	3.1	3.2	3.0	2.6	A	1.9	1.5	A	A	2.1[A]	2.1[A]	2.0[A]	2.0[A]
15	1.8	1.6	1.6	1.8	C	<1.6	1.5	1.9	2.3	6.4[A]	A	A	C	C	C	C	C	C	C	C	1.5	1.6	1.6	1.4	1.5
16	1.5	1.2	1.3	1.3	1.2	1.2	1.4	1.5	2.6	2.9	C	C	C	8.0	3.2	2.9	2.3	2.2	1.6	1.7	1.6	1.6	1.6	1.6
17	1.5	1.3	1.4	1.3	1.2	1.3	1.4	1.5	2.3	2.3	C	C	C	C	C	C	2.6	1.9	1.5	1.6	1.3	1.6	1.6	1.5
18	1.5	1.4	1.0	1.2	E	1.3	1.6	1.6	2.2	A	3.3	3.5	3.4	3.3	3.2	2.8	2.4	1.9	1.6	1.5	1.6	1.6	1.7	1.8
19	1.6	1.1	1.4	1.4	1.2	1.2	1.6	1.6	C	C	3.2	3.5	C	C	C	C	C	C	C	C	1.5	1.5	1.5	1.5
20	1.4	1.2	1.2	1.4	1.2	1.2	1.5	1.6	2.3	C	C	C	A	A	C	3.1	2.8	[2.2][C]	1.5	1.6	1.5	1.5	1.5	1.4
21	1.4	E	1.2	1.2	1.1	A	1.5	1.6	2.5	2.8	3.0	A	3.0	A	A	3.3[A]	A	4.0[A]	A	A	1.8	1.7	1.5[F]	1.5
22	1.5	1.2	1.2	1.2	1.2	1.2	1.4	1.5	A	2.7	2.9	A	3.4	3.5	A	3.0	2.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5
23	1.3	1.8	1.7	1.6	1.3	E	1.4	1.6	2.4	2.8	3.1	3.1	3.0	A	A	2.8	2.3	[1.9][C]	1.5	[1.5][C]	1.5	1.5	1.5	1.4
24	1.8	1.4	C	C	C	C	C	1.9	2.4	C	C	C	C	C	C	C	C	C	A	1.7	1.7	1.5[F]	1.4	1.5
25	1.3[F]	C	C	C	C	C	C	C	C	C	3.3	3.4	3.2	3.3	3.2	2.8	2.6	1.7	1.5	1.7	1.5	1.5	1.5	1.5
26	1.5	1.3	1.1	1.7	C	C	C	C	2.4	[3.1][C]	3.8	C	C	3.5	3.4	A	2.5	1.8	A	1.2	1.5	1.5	1.5	1.5
27	1.2	1.3	E	1.1	1.2	1.3	1.5	1.6	2.3	3.1	3.1	3.5	C	C	3.0	A	2.5	1.8	1.5	1.5	1.5	1.5	1.5	1.5
28	1.1	1.1	1.6	E	E	1.3	1.5	1.5	2.3	2.8	3.0	3.1	A	3.2	A	A	A	A	1.5	1.7	1.6	1.5	1.5	2.0[A]
29	1.5	1.7	C	C	E	1.2	1.6	1.7	2.4	2.8	3.3	3.4	3.3	3.3	3.3	2.9	2.5	C	A	2.3[A]	1.5	1.5	1.5	1.5
30	2.5[A]	2.0[A]	1.3	1.2	1.2	1.3	1.5	1.6	2.5	2.9	[3.0][C]	3.2	3.5	3.5	3.5	3.0	3.5[A]	1.9	1.5	[1.5][C]	1.5	1.5	1.5	1.5
31																								
Mean Value	1.6	1.4	1.3	1.3	1.2	1.2	1.5	1.6	2.4	3.0	3.1	3.4	3.3	3.8	3.2	2.9	2.5	2.0	1.5	1.6	1.5	1.6	1.5	1.5
Median Value	1.4	1.2	1.2	1.2	1.2	1.2	1.5	1.6	2.4	2.8	3.1	3.4	3.3	3.4	3.2	2.9	2.5	1.9	1.5	1.6	1.5	1.5	1.5	1.5
Count	28	28	26	24	24	22	24	25	23	21	21	18	16	18	15	18	21	21	18	24	28	29	29	29

fminF

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1951 | fminE | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	1.6	1.2	E	E	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M.
2	M	M	M	M	M	M	M	M	1.1	1.2	1.4	1.4	C	C	C	C	C	C	C	C	E	1.6	1.4	1.3
3	1.1	1.1	1.2	1.2	1.2	1.2	E	1.7	1.4	1.4	1.6	1.8	1.8	1.9	1.8	1.6	1.5	1.4	1.4	1.6	1.7	1.8	E	1.7
4	1.6	1.2F	1.0	1.0	E	E	1.8	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.7	1.5	1.4	1.3	1.4	1.4	1.6	E	E	E
5	E	1.6	E	E	E	E	1.6	1.6	1.4	1.4	1.4	1.5	1.6	1.6	1.4	1.5	1.6	1.4	1.6	E	E	E	E	E
6	E	E	E	E	E	1.6	E	1.5	C	C	C	C	C	1.6	1.7	1.5	1.4	1.4	E	1.3	E	1.6	1.6	1.6
7	1.6F	1.8	E	E	E	E	E	1.7	1.3	1.4	1.3	1.6	1.6	1.6	1.6	1.4	1.4	1.2	1.6F	E	1.6	E	E	E
8	E	1.7	E	1.1	E	1.4	1.4	1.7	1.4	1.5	1.4	1.4	1.4	1.6	1.6	1.8	1.4	1.4	1.6	E	1.7F	1.6	E	E
9	1.0F	1.1F	1.0F	1.7F	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.6	E	1.8	1.3	1.4F
10	1.4F	1.2F	1.2F	1.3	1.0	1.4	1.6	1.3	1.4	[1.4]C	1.4	1.8	1.6	1.4	C	C	1.4	1.4	C	C	E	1.8	1.6	E
11	E	E	E	E	E	E	E	1.8	1.4	1.4	1.4	C	C	1.6	1.4	1.2	E	1.3	1.5	1.5	1.8	E	E	E
12	E	E	E	E	E	1.4F	1.4F	[1.4]C	1.3	1.6	1.6	1.4	1.4	1.6	1.5	1.4	1.5	E	E	E	E	1.6F	1.3	1.5
13	1.6	E	1.6	1.6	1.8	E	E	1.6	1.8	1.5	1.4	1.5	1.4	1.5	1.5	1.5	<1.5	1.4	1.3	1.4	1.5	1.5	1.5	1.5
14	1.2	E	E	1.0F	E	E	E	1.6	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.5	B	1.5	1.5	1.4	1.2	1.5	1.5
15	1.4	1.2	1.1	1.0	C	<1.6	E	1.5	1.5	1.6	1.4	1.5	C	C	C	C	C	C	C	1.5	1.5	1.4	E	E
16	1.6	E	E	E	Z.1	E	E	B	1.5	1.6	C	C	C	1.5	1.4	1.4	1.7	1.4	1.6	1.7F	1.6	1.6	1.7	E
17	1.6	E	E	E	E	E	1.8	1.7	1.5	1.4	C	C	C	C	C	C	1.6	1.2	E	E	1.6	E	E	E
18	E	E	E	E	E	1.8	E	1.6	1.5	1.4	1.4	1.4	1.6	1.5	1.8	1.6	1.5	1.4	E	1.6	1.6F	1.6	1.6	E
19	E	E	E	E	E	E	E	1.6	C	C	1.4	1.6	C	C	C	C	C	C	C	C	C	E	E	E
20	E	E	E	E	E	E	E	1.4	1.4	C	C	C	1.6	1.5	[1.6]C	1.6	1.5	C	E	1.7	E	E	E	E
21	E	E	E	1.2	1.2	1.1F	1.6F	1.5	1.5	1.5	1.5	1.7	1.5	1.5	1.5	1.5	1.4	1.4	1.5F	1.5F	1.5	1.7F	1.7F	1.5F
22	1.2	E	1.7	1.1	1.3	1.8	E	1.8	1.5	1.5	1.4	1.4	1.7	1.5	1.5	1.4	1.5	1.5	1.8	2.0	E	1.7	E	E
23	E	1.0F	E	E	1.2	E	1.8	1.5	1.4	1.4	1.5	1.5	1.7	1.5	1.4	1.4	1.4	[1.6]C	1.8	C	E	1.7	E	1.4
24	1.4	1.3	C	C	C	C	C	1.7	1.5	C	C	C	C	C	C	C	C	C	1.5	E	E	E	E	E
25	E	C	C	C	C	C	C	C	C	C	1.5	1.4	1.6	1.5	1.7	1.6	1.5F	1.5	1.7	1.5	1.7	E	E	E
26	E	1.6	E	1.5	C	C	C	C	1.5	[1.5]C	1.5	C	C	1.5	1.4	1.4	1.4	1.4	1.5	1.7	E	1.5	E	E
27	E	E	E	E	E	1.1	1.5	1.5	1.5	1.5	1.5	1.7	C	C	1.4	1.4	1.4	1.2	1.5	1.6	1.6	1.6	E	E
28	E	E	E	E	E	1.3	1.6	1.5	1.3	1.5	1.4	1.8	1.5	1.5	1.7	1.5	1.4	1.4	1.7	1.5	1.6	1.6	1.5	[1.6]M
29	1.7F	1.3	C	C	1.5	E	1.6	1.5	1.2	1.5	1.5	1.5	1.4	1.5	1.5	1.7	1.5	[1.5]C	1.5	1.5	1.8	1.6	E	1.7
30	1.2	1.2	E	E	E	1.5	E	1.8	1.5	1.5	[1.4]C	1.4	2.5	1.8	1.5	1.5	1.2	1.5	E	C	E	1.5	E	E
31																								
Mean Value	1.4	1.3	1.3	1.2	1.4	1.4	1.6	1.6	1.4	1.5	1.4	1.5	1.6	1.6	1.5	1.5	1.5	1.4	1.6	1.6	1.6	1.6	1.5	1.5
Median Value	E	E	E	E	E	E	E	1.6	1.4	1.5	1.4	1.5	1.6	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.6	E	E
Count	29	28	26	26	25	24	24	24	25	23	23	21	18	22	22	22	23	22	24	24	28	29	29	29

Sweep 1.0 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

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IONOSPHERIC DATA IN JAPAN FOR NOVEMBER 1951

電波觀測報告　第3巻　第11号

1951年12月25日　印　刷
1951年12月30日　発　行
（不許複製非売品）

編集兼発行人　菅野菊雄
東京都北多摩郡小金井町小金井新田一之久保573

発行所　電波監理委員会　中央電波観測所
東京都北多摩郡小金井町小金井新田一之久保573
電話　国分寺　138，139，151

印刷所　今井印刷所
東京都新宿区筑土八幡町8番地