CRPL-F45

IONOSPHERIC DATA

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CRPL-F45

CENTRAL RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
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CONTENTS

TERMINOLOGY AND SCALING PRACTICES

The symbols and terminology used in this report are those adopted by the International Radio Propagation Conference, and given in detail on pages 24 to 26 of the report IRPL-C61, "Report of International Radio Propagation Conference," and in the section on "Terminology" in report IRPL-F5.

Beginning with IRPL-F14 the symbol L, defined as follows, is used in detailed tabulations of hourly values of ionosphere characteristics observed at Washington:

> L or l = critical frequency, muf, or muf factor for F1 layer omitted because no definite and abrupt change in slope of the h'f curve occurs either for the first reflection or for any of the multiples.

In the past, ionospheric conditions were summarized on a monthly basis by using average or mean values for each hour of the day for each month. However, following the recommendations of the International Radio Propagation Conference, held in Washington April 17 to May 5, 1944, beginning with data for January 1, 1945, median values are published wherever possible.

Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The monthly median values used here are the values equaled or exceeded on half the days of the month at the given hour. The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in the report referred to above, IRPL-C61.

a. For all ionospheric characteristics:
Values missing because of A, B, C, or F (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:
Values of f^oF2 (and f^oE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count. See CRPL-F38, page 9.
Values missing because of D are counted as equal to or greater than the upper limit of the recorder.
Values missing because of G are counted:
1. For f^oF2, as equal to or less than f^oF1.
2. For h'F2, as equal to or greater than the median.
Values missing for any other reason are omitted from the median count.

c. For muf factors (M-factors):
Values missing because of G are counted as equal to or less than the median.
Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):
Values of fEs missing because no Es reflections appeared, the equipment functioning normally otherwise, are counted as equal to or less than the median f^oE, or equal to or less than the lower frequency count of the recorder.
Values of fEs missing for any other reason, and values of hEs missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Beginning with CRPL-F33, an additional group of symbols is used in recording the Washington, D.C. data. The list of additional symbols and their meanings follows:

N - unable to make logical interpretation.
P - trace extrapolated to a critical frequency.
Q - the F1 layer not present as a distinct layer.
R - curve becomes incoherent near the F2 critical frequency.
S - no observation obtainable because of interference.
V - forked record (previously denoted by U. This change should also be made in CRPL-7-1).
Z - triple split near critical frequency.

For a more detailed explanation of the meaning and use of these symbols, see the report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

MONTHLY AVERAGE AND MEDIAN VALUES OF WORLD-WIDE IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 59 and figures 1 to 121 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL predictions of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data:

Australian Council for Scientific and Industrial Research,
Radio Research Board:
- Brisbane, Australia
- Canberra, Australia
- Hobart, Tasmania
- Townsville, Australia

Australian Department of Supply and Shipping, Bureau of
Mineral Resources, Geophysical Section:
- Watheroo, W. Australia

British Department of Scientific and Industrial Research,
Radio Research Board:
- Slough, England
- Falkland Is.

Canadian Radio Wave Propagation Committee:
- Churchill, Canada
- Clyde, Baffin I.
- Ottawa, Canada
- Portage la Prairie, Canada
- Prince Rupert, Canada
- St. John's, Newfoundland

New Zealand Radio Research Committee:
- Campbell I.
- Christchurch, New Zealand (Canterbury University College Observatory)
- Fiji Is.
- Rarotonga I.

South African Council for Scientific and Industrial Research:
- Johannesburg, Union of S. Africa

Scientific Research Institute of Terrestrial Magnetism, Moscow, U.S.S.R.:
- Alma Ata, U.S.S.R.
- Bay Tiksey, U.S.S.R.
- Bukhta Tikhaya, U.S.S.R.
- Chita, U.S.S.R.
- Leningrad, U.S.S.R.
- Moscow, U.S.S.R.
- Sverdlovsk, U.S.S.R.
- Tomsk, U.S.S.R.

Japanese Physical Institute for Radio Waves (under supervision of Supreme Commander, Allied Powers):

- Fukaura, Japan
- Shibata, Japan
- Tokyo (Kokobunji), Japan
- Wakkanai, Japan
- Yamakawa, Japan

United States Army Signal Corps:

- Adak, Alaska
- Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):

- Baton Rouge, Louisiana (Louisiana State University)
- Boston, Massachusetts (Harvard University)
- Fairbanks, Alaska (University of Alaska, College, Alaska)
- Guam I.
- Huancayo, Peru (Instituto Geofisico de Huancayo)
- Maui, Hawaii
- Palmyra I.
- San Francisco, California (Stanford University)
- San Juan, Puerto Rico (University of Puerto Rico)
- Trinidad, British West Indies
- Washington, D. C.
- White Sands, New Mexico
- Wuchang, China (National Wuhan University)

All India Radio (Government of India), New Delhi, India:

- Bombay, India
- Delhi, India
- Madras, India

Indian Council of Scientific and Industrial Research, Radio Research Committee:

- Calcutta, India

Radio Wave Research Laboratory, Central Broadcasting Administration:

- Chungking, China
- Lanchow, China
- Nanking, China
- Peiping, China

French Ministry of Naval Armaments (Section for Scientific Research):

- Fribourg, Germany

National Laboratory of Radio-Electricity (French Ionospheric Bureau):

- Bagneux, France

Philippine Republic, Radio Control Division, Department of Commerce and Industry:

- Leyte, Philippine Is.

Norwegian Defense Research Establishment, Florida, Bergen, Norway:

- Tromso, Norway

Beginning with CRPL-F26, publication of tables of so-called "provisional data" reported to the CRPL by telephone or telegraph was discontinued. The reason for this change in policy is that users of the data hitherto published in this form receive them through established channels sooner than through the F series. Furthermore, having two sets of data, "provisional" and "final," for the same station for the same month leads to confusion.

It must be emphasized that no change has been made in the methods used for rapid reporting and exchange of data. The change has to do only with the printing of provisional data in the F series.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of these errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when f^oF2 is less than or equal to f^oF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. The final presentation is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number. The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot No.			
	1948	1947	1946	1945
December		126	85	38
November		124	83	36
October		119	81	23
September		121	79	22
August		122	77	20
July		116	73	
June		112	67	
May		109	67	
April	133	107	62	
March	133	105	51	
February	133	90	46	
January	130	88	42	

IONOSPHERIC DATA FOR EVERY DAY AND HOUR AT WASHINGTON, D. C.

The data given in tables 60 to 71 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Terminology and Scaling Practices."

IONOSPHERE DISTURBANCES

Table 72 presents ionosphere character figures for Washington, D.C., during April 1948, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

Table 73 lists for the stations whose locations are given the sudden ionosphere disturbances observed on the continuous field intensity recordings made at the Sterling Radio Propagation Laboratory during April 1948.

Table 74 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Point Reyes, California, receiving station of RCA Communications, Inc., from April 7 to April 17, 1948.

Table 75 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Platanos, Argentina, receiving station of the International Telephone and Telegraph Corporation from March 11 to April 21, 1948.

Table 76 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Brentwood and Somerton, England, receiving stations of Cable and Wireless, Ltd., from March 19 through April 20, 1948.

Table 77 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, March 1948, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics, such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all the disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

SOLAR CORONAL INTENSITIES OBSERVED AT CLIMAX, COLORADO

In tables 78a and 78b are listed the intensities of the green (5303A) line of the emission spectrum of the solar corona as observed during April 1948 by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, for east and west limbs, respectively, at 5° intervals of position angle north and south of the solar equator at the limb computed to the nearest 5°. A correction, P, as listed, has been applied to the position angles of the actual observations which were on astronomical coordinates. The time of observation is given to the nearest tenth of a day, GCT. The tables of coronal observations in CRPL-F29 to F41 listed the data on astronomical coordinates; the present format on solar rotation coordinates is in conformity with the tables of CRPL-1-4, "Observations of the Solar Corona at Climax, 1944-46."

Tables 79a and 79b give similarly the intensities of the first red (6374A) coronal line; tables 80a and 80b list the intensities of the second red (6704A) coronal line. The following symbols are used in tables 78, 79, and 80: a, observation of low weight; -, corona not visible; and x, position-angle not included in plate estimates.

AMERICAN AND ZÜRICH PROVISIONAL RELATIVE SUNSPOT NUMBERS

Table 81 presents the daily American relative sunspot number, R_A, computed from observations communicated to CRPL by observers in America and abroad. Beginning with the observations for January 1948, a new method of reduction of observations is employed such that each observer is assigned a scale-determining "observatory coefficient," ultimately referred to Zürich observations in a standard period, December 1944 to September 1945, and a statistical weight, the reciprocal of the variance of the observatory coefficient. The daily numbers listed in the table are the weighted means of all observations received for each day. Details of the procedure will be published shortly. The American relative sunspot number computed in this way is designated R_A. It is noted that a number of observatories abroad, including the Zürich observatory, are included in R_A. The scale of R_A was referred specifically to that of the Zürich relative sunspot numbers in the standard comparison period; since that time, R_A is influenced by the Zürich observations only in that Zürich proves to be a consistent observer and receives a high statistical weight. In addition, this table lists the daily provisional Zürich sunspot numbers, R_Z.

ERRATUM

1. CRPL-F43, p. 42, table 87, and CRPL-F44, p. 42, table 80, under "Symbols," opposite "G": Change 3 to 5.

Table 1

Washington, D. C. (39.0°N, 77.5°W) April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	6.9						2.7
01	290	6.8						2.6
02	270	6.6						2.7
03	270	5.9						2.6
04	260	5.5						2.7
05	260	5.5						2.8
06	250	6.4			130	1.9		3.1
07	230	7.8	230		100	2.7		3.0
08	240	8.8	230		100	3.2		3.0
09	250	9.5	220	5.2	100	3.4		2.9
10	255	9.8	210	5.3	100	3.7		2.8
11	280	10.6	200	5.5	100	3.8		2.8
12	280	10.7	200	(5.5)	100	(3.9)		2.7
13	300	10.6	210	5.6	100	3.9		2.7
14	300	10.5	210	5.0	100	3.9		2.7
15	250	10.5	220		100	3.7		2.7
16	250	10.2	230		100	3.4		2.7
17	240	9.8	230		100	3.0		2.8
18	240	(9.6)			120	2.3		(2.9)
19	240	(9.4)						(2.9)
20	240	8.7						2.8
21	240	7.9						2.7
22	260	7.6						2.7
23	270	7.2						2.7

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Fairbanks, Alaska (64.9°N, 147.8°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	352	3.9					4.4	2.6
01	345	4.0					4.3	2.5
02	355	3.8					4.8	2.5
03	358	4.0					5.3	2.6
04	352	4.0					4.2	2.5
05	345	4.0					3.6	2.6
06	318	4.7				1.8	3.0	2.7
07	282	5.6				2.3	2.8	2.8
08	285	6.1	245	4.0		2.5		2.9
09	280	6.3	232	4.2		2.8	2.6	2.9
10	285	6.8	235	4.3		3.0		2.8
11	310	7.3	238	4.6		3.0		2.8
12	275	8.0	235	4.4		3.0		2.8
13	275	8.2	235	4.5		3.0		2.8
14	250	8.2	245	4.2		3.0		2.8
15	248	8.5				2.6		2.9
16	240	9.0				2.4		2.9
17	240	8.8				2.0	2.1	3.0
18	240	8.0				1.6	1.6	3.0
19	238	6.6				1.2	2.8	3.0
20	260	5.0				1.6	2.8	3.0
21	250	4.3					2.9	2.9
22	290	3.8					3.0	2.8
23	320	3.8					3.8	2.8

Time: 150.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes, automatic operation.

Table 3

Adak, Alaska (51.9°N, 176.6°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	3.8						2.7
01	320	3.8						2.6
02	320	3.8						2.7
03	320	3.8						2.6
04	310	3.8						2.6
05	310	3.6						2.6
06	260	5.0			145	1.8		2.8
07	230	6.8	230		130	2.4		3.2
08	230	8.6	220	3.8	120	2.9		3.2
09	230	9.7	210	4.0	120	3.2		3.2
10	230	10.6	210	4.2	120	3.4		3.1
11	240	11.2	210	4.3	120	3.5		3.1
12	230	11.5	210	4.4	110	3.6		3.2
13	240	11.5	215	4.4	120	3.5		3.1
14	230	11.2	220	4.2	120	3.4		3.1
15	230	10.8	220	4.2	120	3.2		3.2
16	230	10.2	220	3.6	120	2.9		3.2
17	220	9.4			120	2.4		3.3
18	220	8.6			140	1.8		3.3
19	220	7.5						3.2
20	220	6.2						3.2
21	230	5.0						3.1
22	260	4.3						2.9
23	290	3.9						2.8

Time: 180.0°W.
Sweep: 1.2 Mc to 15.5 Mc in 12 minutes, manual operation.

Table 4

Boston, Massachusetts (42.4°N, 71.2°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	6.3						2.6
01	270	6.0						2.7
02	260	5.5						2.7
03	252	5.2						2.7
04	250	4.8						2.8
05	250	4.9						2.7
06	250	5.4			120	1.9		3.0
07	248	7.3			120	2.0		3.1
08	245	8.5			120	2.4		3.1
09	245	9.4			120	2.6		3.0
10	250	10.4			120	3.2		3.0
11	250	10.8			120	3.2		2.9
12	250	11.2			122	3.1		2.9
13	250	11.1						2.9
14	250	11.2			120	2.8		2.9
15	250	11.0			120			2.9
16	250	10.9			120	2.5		2.9
17	245	10.4			125	2.1		2.9
18	240	10.0			120	1.4		3.0
19	230	9.0						2.9
20	240	8.3						2.8
21	250	7.5						2.7
22	250	7.0						2.7
23	260	6.6						2.7

Time: 75.0°W.
Sweep: 0.8 Mc to 14.0 Mc in 1 minute.

Table 5

San Francisco, California (37.4°N, 122.2°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	4.6						2.6
01	300	4.7						2.6
02	280	4.7						2.6
03	280	4.6						2.6
04	280	4.5						2.5
05	300	4.3						2.5
06	280	4.8						2.7
07	240	7.2			120	2.4		3.1
08	240	9.0			110	2.9		3.1
09	230	10.0	220		110	3.2		3.0
10	250	10.6	205		110	3.4		2.9
11	260	11.6	210		110	3.6		2.9
12	260	12.4	220	5.1	110	3.6		2.8
13	260	12.6	210	5.2	110	3.6		2.6
14	260	12.2	220		110	3.6		2.8
15	255	12.0	220		110	3.4		2.8
16	240	11.6			110	3.2		2.9
17	240	11.2			120	2.6		2.9
18	220	10.0						3.0
19	220	8.5						3.0
20	220	6.8						2.9
21	240	5.8						2.9
22	260	5.2						2.7
23	280	4.9						2.6

Time: 120.0°W.
Sweep: 1.3 Mc to 18.5 Mc in 4 minutes 30 seconds.

Table 6

White Sands, New Mexico (32.3°N, 106.5°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	5.3					1.9	2.7
01	280	5.3					2.3	2.7
02	280	5.2					2.3	2.8
03	260	5.1					2.3	2.8
04	280	4.7					2.4	2.7
05	290	4.4					2.4	2.7
06	280	5.2					2.9	2.9
07	240	7.5			120	2.4	3.3	3.2
08	240	9.5			120	3.0	3.9	3.2
09	230	10.0	220		120	3.3	4.1	3.1
10	260	10.5	210	(4.6)	120	3.5	4.1	3.0
11	280	11.2	220	4.7	120	3.7	4.0	2.9
12	280	11.3	220		120	3.8	3.9	2.9
13	280	11.5	220		120	3.8	4.4	2.9
14	280	11.3	220		120	3.7	4.4	3.0
15	240	11.3	220		120	3.5	4.3	2.9
16	240	11.2			120	3.3	4.0	3.0
17	240	11.0			120	2.7	3.6	3.0
18	230	10.5					2.7	3.1
19	220	8.9					2.4	3.0
20	230	7.2					2.3	3.0
21	250	6.6					2.3	2.9
22	260	6.1					2.2	2.8
23	270	5.6						2.8

Time: 105.0°W.
Sweep: 0.79 Mc to 14.0 Mc in 2 minutes.

Table 7

Baton Rouge, Louisiana (30.5°N, 91.2°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	5.8						2.9
01	290	5.7						2.8
02	290	5.5						2.9
03	290	5.1						2.9
04	290	4.7						2.8
05	300	4.4						2.8
06	290	5.4						2.9
07	270	8.0			130	2.3		3.2
08	280	9.9	230		120	3.0		3.1
09	290	10.8	220		120	3.4		3.0
10	290	11.3	220	(5.0)	120	3.6		2.9
11	300	12.0	220	(5.2)	120	3.7		2.9
12	300	12.2	(225)	(5.3)	120	(3.7)		2.9
13	310	12.2	(230)	(5.4)	120	3.7		2.9
14	300	12.2	230	(5.2)	120	3.7		2.9
15	310	12.2	240		120	3.5		2.8
16	295	12.0	250		120	3.2		2.9
17	280	11.8	250		120	2.7		2.9
18	250	10.6						3.0
19	230	9.0						3.0
20	240	7.6						3.0
21	280	6.8						2.9
22	280	6.5						2.9
23	280	6.1						2.9

Time: 90.0°W.
Sweep: 2.15 Mc to 18.5 Mc in 5 minutes, automatic operation.

Table 8

Maui, Hawaii (20.8°N, 156.5°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	230	8.7						3.3
01	220	6.9						3.4
02	220	5.4						3.3
03	220	4.0						3.2
04	260	3.8						3.0
05	295	3.8						3.0
06	300	3.8						3.0
07	220	7.0				2.3		3.3
08	220	9.6			110	2.8		3.4
09	240	11.5	210		100	3.3		3.2
10	250	12.6	205	5.4	100	3.6		3.2
11	260	13.4	200	5.4	100	3.8		3.1
12	275	14.0	200	5.6	100	3.9		3.1
13	280	15.8	200	5.5	100	3.9		3.0
14	270	15.8	200	5.4	110	3.8		3.0
15	260	15.6	200	5.6	100	3.5		2.9
16	250	15.3	200	5.0	100	3.3		3.0
17	220	14.9			100	2.9		3.1
18	215	14.1			110	2.4		3.2
19	210	13.6						3.2
20	230	12.5						3.2
21	230	10.6						3.0
22	230	9.1						3.1
23	230	8.7						3.4

Time: 150.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute; above 16.0 Mc, manual operation.

Table 9

San Juan, Puerto Rico (18.4°N, 66.1°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		8.3						2.7
01		7.8						2.8
02		7.1						2.8
03		5.6						2.8
04		4.8						2.7
05		4.5						2.7
06		5.0						2.6
07	260	7.5		2.5				2.9
08	270	9.3		3.0		2.8		2.9
09	280	11.0		4.5		3.4		2.8
10	290	12.2				3.7		2.8
11	290	12.6				3.8		2.7
12	290	12.6				4.0		2.8
13	310	12.5				4.0		2.7
14	305	12.5				4.0		2.7
15	300	12.4				3.8		2.6
16	300	12.1				3.4		2.6
17	290	11.4				2.9		2.7
18	270	11.0						2.7
19	270	10.4						2.7
20		9.6						2.6
21		8.8						2.6
22		8.3						2.6
23		8.4						2.6

Time: 60.0°W.
Sweep: 2.8 Mc to 13.0 Mc in 9 minutes, supplemented by manual operation.

Table 10

Guam I. (13.6°N, 144.9°E) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	230	(11.8)					2.8	(3.1)
01	230	12.5					2.5	3.2
02	225	11.2					2.2	3.3
03	220	7.9					1.7	3.3
04	230	6.7						3.2
05	240	5.8					2.8	3.2
06	240	5.0					3.1	3.1
07	260	8.1					3.4	3.1
08	240	11.0					5.0	3.1
09	220	12.2					5.1	2.8
10	220	12.9					5.0	2.4
11	210	12.7					5.0	2.4
12	210	12.6					5.0	2.3
13	200	12.3					5.3	2.4
14	200	12.7					5.2	2.4
15	215	13.5					5.0	2.6
16	230	14.3					4.8	2.5
17	240	14.5					4.8	2.5
18	260	14.1					4.3	2.5
19	315	13.7					2.5	2.3
20	355	(13.0)					1.9	(2.2)
21	295							
22	240	(13.0)					2.2	(2.7)
23	230	(13.2)					2.5	(2.8)

Time: 150.0°E.
Sweep: 1.25 Mc to 19.0 Mc in 12 minutes, manual operation.

Table 11

Trinidad, Brit.West Indies (10.6°N, 61.2°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	10.6						3.1
01	220	9.4						3.3
02	210	7.2						3.2
03	210	5.5						3.2
04	225	3.8						3.0
05	270	3.5						2.8
06	270	4.3						2.9
07	230	7.9			120	2.2	2.6	3.3
08	220	10.1			100	3.0	3.4	3.1
09	250	11.8	220	5.0	100	3.5	4.0	3.0
10	260	12.5	220	5.1	100	3.8	4.3	3.0
11	270	13.3	200	5.4	100	3.9	4.4	2.9
12	270	13.4	200	5.5	110	4.0	4.6	2.9
13	280	13.8	220	5.4	105	4.0	4.5	2.9
14	280	13.6	220	5.2	100	3.9	4.6	2.9
15	270	13.2	220	5.0	110	3.7	4.6	2.8
16	270	12.9	220	(4.6)	100	3.4	4.3	2.8
17	240	12.8	220	(4.1)	110	2.9	3.7	2.8
18	250	12.4			120	2.0	2.8	2.9
19	250	11.7					2.4	2.8
20	250	11.6						2.8
21	240	11.4						2.9
22	250	11.0						2.9
23	250	10.8						2.9

Time: 60.0°W.
Sweep: 1.2 Mc to 18.0 Mc, manual operation.

Table 12

Palmyra I. (5.9°N, 162.1°W) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	12.3					3.0	3.1
01	230	(10.2)					2.7	(3.1)
02	240	(8.3)					2.1	(3.0)
03	250	(7.4)					2.7	(3.0)
04	250	(6.3)					2.7	(3.0)
05	250	(6.5)					2.9	(2.9)
06	250	5.6					3.0	2.9
07	270	8.5			130	2.3	3.4	2.9
08	250	10.7			120	3.0	3.5	2.7
09	240	11.9	230		120	3.5		2.5
10	280	11.8	220		120	3.7		2.4
11	300	11.5	220	5.0	120	4.0		2.3
12	310	11.5	220	5.3	120	(4.0)		2.3
13	300	11.8	200	5.0	120	4.0		2.3
14	300	12.3	220	4.9	120	3.8		2.3
15	260	12.9	200	4.3	120	3.6		2.4
16	250	13.6	230	3.7	120	3.3		2.4
17	250	14.0			120	2.9	3.6	2.5
18	280	14.0			140	2.2	3.6	2.5
19	325	13.7					3.0	2.4
20	370	(13.0)					1.7	(2.2)
21	300	14.3					2.1	(2.5)
22	250	(14.4)					3.0	(2.6)
23	240	12.8					3.5	(2.9)

Time: 157.5°W.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 36 seconds, automatic operation; 13.0 Mc to 18.0 Mc, manual operation.

Table 13

Clyde, Baffin I. (70.5°N, 68.6°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	295	4.6						
01	310	4.0						
02	300	3.6						
03	300	3.4						
04	330	3.4						
05	300	3.3						
06	300	3.2						
07	300	3.8						
08	260	5.4						
09	250	6.9						
10	260	6.1						
11	250	7.2						
12	260	6.6						
13	250	8.0						
14	250	8.0						
15	250	8.0						
16	250	7.4						
17	260	7.2						
18	260	6.2						
19	260	6.1						
20	260	5.9						
21	260	5.2						
22	275	4.6						
23	270	5.2						

Time: 75.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute; 1.9 Mc to 13.0 Mc, manual operation.

Table 14

Churchill, Canada (58.8°N, 94.2°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	4.4					5.4	2.8
01	290	4.2					7.0	3.0
02	300	4.3					4.6	2.8
03	300	4.4		3.2			4.1	3.0
04	305	3.9					3.8	(2.7)
05	320	4.4					4.0	(2.9)
06	330	4.2					3.8	(2.9)
07	305	4.4					4.2	(3.[illegible])
08	280	5.5					4.2	3.0
09	275	6.3				2.8	3.8	3.0
10	280	7.4			120	3.0	3.8	3.0
11	280	8.2	250	4.4	120	3.2		2.9
12	275	8.5	250	4.4	110	3.2		2.9
13	260	10.2	240	4.4	120	3.2		2.9
14	260	11.0	240	4.2	110	3.1		2.9
15	260	10.6	230	4.2	120	2.7		2.9
16	250	10.2	230	4.4	140	2.6	2.6	2.9
17	260	8.2	230	4.7			3.4	2.9
18	260	6.8	200				3.4	2.9
19	265	6.0	220	4.2			4.0	2.9
20	280	5.4					4.0	2.9
21	270	5.2		3.2			4.5	2.9
22	290	4.8					5.4	(2.9)
23	270	5.2					4.2	2.8

Time: 90.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 15

Prince Rupert, Canada (54.3°N, 130.3°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	2.6						2.9
01	300	2.5						2.8
02	300	2.4						2.7
03	330	2.4						2.7
04	330	2.4						2.7
05	330	2.4						2.6
06	330	2.7						2.6
07	320	2.6						2.8
08	270	4.1			E	E		3.0
09	250	6.8			120	2.2	2.4	3.1
10	240	7.8	240	3.7	120	2.6	3.0	3.0
11	260	9.1	230	4.1	120	2.8	3.2	3.0
12	250	10.0	230	4.2	120	3.0	3.5	3.0
13	260	10.4	230	4.1	120	3.0		2.9
14	250	10.4	230	4.0	120	2.9		2.9
15	250	10.8	235	4.0	120	2.8		3.0
16	240	10.4	240		120	2.5		3.0
17	230	10.0			130	2.1		3.0
18	230	9.2			E	E		3.0
19	220	7.5						3.1
20	220	5.4						3.1
21	230	4.0						3.0
22	260	3.3						3.0
23	270	2.8						2.9

Time: 120.0°W.
Sweep: 1.6 Mc to 13.5 Mc, manual operation.

Table 16

Portage la Prairie, Canada (49.9°N, 98.3°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	3.4						(2.7)
01	290	3.0					1.9	(2.7)
02	280	3.0					2.4	(2.8)
03	290	3.1					2.4	(2.8)
04	290	3.0					1.9	(2.7)
05	290	3.3					1.6	(2.6)
06	290	3.2					2.2	(2.8)
07	270	3.2					1.9	(2.7)
08	250	5.0			E	E		(3.0)
09	240	6.6			120	2.4		3.1
10	225	7.7			110	2.7		3.0
11	225	9.0			110	3.0		3.0
12	220	9.8			110	3.1		3.0
13	220	10.4			110	3.1		3.0
14	220	10.6			110	3.1		2.9
15	230	10.6			110	2.9		2.9
16	230	10.7			120	2.6		3.0
17	240	10.4			130	2.2		3.0
18	230	10.0			E	E		3.0
19	230	8.6						2.9
20	240	6.8						2.9
21	240	5.6						2.9
22	250	4.6						2.8
23	260	3.8						(2.8)

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes 30 seconds.

Table 17

St. John's, Newfoundland (47.6°N, 52.7°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	3.3						3.0
01	290	3.6						3.1
02	300	3.6						3.1
03	290	3.4						3.1
04	280	3.1						3.1
05	280	2.9						3.2
06	270	3.3						3.2
07	250	4.6						3.1
08	230	7.0			120	2.2	1.6	3.2
09	230	8.7	230	3.8	120	2.8		3.1
10	230	9.9	220	4.4	120	3.1		3.1
11	260	10.8	220	4.6	120	3.2		3.1
12	260	11.0	220	4.6	120	3.3		3.1
13	260	11.0	220	4.6	120	3.4		3.0
14	250	11.0	220	4.4	120	3.3		3.0
15	240	10.9	230	4.2	120	3.0		3.1
16	230	10.7	230	3.9	120	2.7		3.1
17	230	10.1			120	2.2		3.1
18	230	9.5						3.0
19	240	8.0						3.0
20	240	7.0						2.9
21	250	6.0						2.9
22	270	5.4						3.0
23	280	3.6						3.1

Time: 52.5°W.
Sweep: 1.2 Mc to 20.0 Mc, manual operation.

Table 18

Ottawa, Canada (45.5°N, 75.8°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.2						
01		4.3						
02		3.5						
03		3.2						
04		3.6						
05		3.4						
06		3.5						
07		4.7						
08		6.7				2.2		
09		8.9				2.7		
10		9.8		4.0		3.0		
11		10.9		4.3		3.2		
12		11.3		4.5		3.3		
13		11.2		4.3		3.2		
14		11.2		4.2		3.1		
15		11.0		3.9		2.9		
16		10.8		3.6		2.5		
17		10.2				2.2		
18		9.5						
19		8.5						
20		7.0						
21		6.0						
22		5.2						
23		4.5						

Time: 75.0°W.
Sweep: 1.7 Mc to 18.0 Mc, manual operation.

Table 19

Huancayo, Peru (12.0°S, 75.3°W) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	(9.6)						(2.9)
01	230	8.8						3.1
02	240	7.4						3.1
03	240	6.6						3.1
04	240	5.3						3.2
05	240	4.6						3.2
06	270	5.9				1.8	(2.2)	3.0
07	240	9.2				2.7	3.2	3.1
08	230	11.4				3.3	5.5	2.8
09	280	12.6	220	5.5		3.8	7.1	2.6
10	290	12.6	210	5.5		4.0	7.2	2.4
11	280	11.9	210	5.5			11.0	2.3
12	280	11.2	210	5.5			7.2	2.2
13	280	11.2	210	5.4			7.1	2.2
14	200	11.8	200	5.4			7.1	2.3
15	210	11.9					7.0	2.3
16	220	12.2				3.4	7.0	2.2
17	250	12.0				2.9	5.5	2.2
18	280	12.0				2.0	3.8	2.3
19	350	11.0						2.2
20	400	10.3						2.1
21	375	9.7						2.2
22	335							
23	285	(10.2)						(2.6)

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 20

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	5.7						2.9
01	270	5.3						2.9
02	260	4.9						2.9
03	270	4.6						2.9
04	(270)	4.3						2.9
05	(270)	4.0						2.9
06	250	5.5						3.1
07	240	7.5	230		110	2.6	3.3	3.2
08	250	8.9	220		100	3.2	4.0	3.0
09	280	9.8	210	5.4	100	3.5		2.9
10	310	10.6	200	5.5	100	3.8	4.0	2.8
11	310	11.3	205	5.5	100	4.0		2.8
12	310	11.6	200	5.5	100	4.0		2.8
13	320	11.8	200	5.5	100	(4.0)		2.8
14	320	11.6	210	5.5	100	3.9		2.8
15	310	11.5	210	5.3	100	3.7		2.8
16	290	11.0	220	5.0	100	3.5	4.0	2.8
17	260	10.5	230		110	3.1	3.9	2.9
18	240	10.1			110	2.3	3.3	2.9
19	230	9.8					2.4	2.9
20	230	8.8					2.3	2.9
21	240	7.8						3.0
22	250	6.7						3.0
23	250	6.1						2.9

Time: 30.0°E.
Sweep: 2.0 Mc to 15.0 Mc in 8 seconds.

Table 21

Christchurch, New Zealand (43.5°S, 172.7°E) February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	7.5					3.5	2.6
01	300	7.1					2.9	2.6
02	290	6.6					2.9	2.6
03	280	6.0					2.8	2.6
04	280	5.6					2.8	2.7
05	270	5.3				(1.3)	2.7	2.8
06	255	5.9				2.0	2.8	3.0
07	250	7.0		4.2		2.7	4.5	3.0
08	280	7.8	230	4.9		3.1	5.1	3.0
09	310	8.3	240	5.3		3.4	5.2	2.9
10	300	8.6	220	5.2		3.6	5.3	3.0
11	320	9.0	225	5.5		3.7	5.0	2.9
12	320	9.0	220	5.5		3.8	4.1	2.8
13	325	8.8	230	5.6		3.8		2.8
14	330	8.8	220	5.5		3.7		2.8
15	295	8.8	240	5.5		3.6		2.8
16	300	8.6	240	5.0		3.3		2.8
17	250	8.9	240			3.0		2.8
18	250	9.2				2.4		2.8
19	260	9.0				1.6	3.0	2.8
20	260	9.0					2.8	2.7
21	270	8.4					3.7	2.6
22	290	7.9					3.3	2.6
23	300	7.6					3.2	2.6

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc.

Table 22

Fukaura, Japan (40.6°N, 139.9°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	350	3.3					2.0	2.6
01	330	3.4						2.6
02	320	3.4						2.8
03	300	3.4						2.8
04	330	3.2						2.6
05	330	3.2						2.7
06	280	3.4						2.9
07	255	6.2				1.8	2.6	[illegible]
08	240	8.3			120	2.4	[illegible]	[illegible]
09								
10								
11								
12	245	(10.3)					(7.4)	(3.[illegible])
13	260	9.5			110	3.2		3.1
14	(240)	(9.2)						([illegible].1)
15								
16								
17	240	6.9					2.3	3.1
18	240	6.4					[illegible]	[illegible].1
19	240	5.1						3.2
20	240	4.2					2.0	[illegible].1
21	300	3.2					2.1	2.[illegible]
22	320	3.3					2.0	[illegible]
23	330	3.3					2.[illegible]	2.[illegible]

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc, manual operation.

Table 23

Peiping, China (39.9°N, 116.4°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.8						
01		3.8						
02		3.6						
03		3.7						
04		3.6						
05		3.8						
06		4.0						
07		4.9						
08		8.4						
09		11.0						
10		12.0						
11		12.4						
12		12.2						
13		12.0						
14		11.9						
15		12.0						
16		11.7						
17		10.9						
18		8.0						
19		(8.6)						
20		(8.4)						
21		5.0						
22		4.0						
23		3.6						

Time: 120.0°E.
Sweep: 2.3 Mc to 14.0 Mc in 15 minutes, manual operation.

Table 24

Lanchow, China (36.1°N, 103.8°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	395	3.6						2.4
01	395	3.6						2.4
02	390	3.6						2.5
03	365	3.6						2.5
04	375	3.5						2.5
05	385	3.2						2.5
06	380	3.3						2.5
07	320	4.7						[illegible]
08	300	8.8	280		220	2.5		2.[illegible]
09	300	10.5	280	5.8	140	3.[illegible]		2.[illegible]
10	310	11.5	270		140	3.4	3.7	[illegible].7
11	320	12.2	270	5.5	140	3.6		2.7
12	320	12.0	270		130	3.7		2.[illegible]
13	320	12.0	275		135	3.6	[illegible].6	[illegible]
14	330	12.0	275	5.6	140	3.5	3.2	2.[illegible]
15	320	11.3	280		140	3.4		2.7
16	305	11.1	280		140	3.0		[illegible]
17	300	10.1	260					[illegible]
18	280	8.8						
19								
20								
21	280	4.6						2.[illegible]
22	360	3.6						2.4
23	385	3.5						[illegible]

Time: 105.0°E.
Sweep: 2.4 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 25

Chungking, China (29.4°N, 106.8°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	5.2						2.5
01	300	5.0						2.6
02	290	4.6						2.6
03	305	4.0						2.6
04	330	3.5						2.6
05	335	3.1						2.5
06	320	3.2					2.6	2.5
07	295	6.7					3.3	2.7
08	280	10.8	280		135	2.8	4.2	2.8
09	275	12.1	260		130	3.1	4.4	2.9
10	290	12.2	260				4.7	2.8
11	300	13.5	260		120	3.4	5.0	2.7
12	305	13.7	250		120	3.6	4.5	2.6
13	320	14.2	260		130	3.5	4.2	2.6
14	300	14.4	270		130	3.4	4.4	2.6
15	290	15.2	245		120	3.2	4.5	2.7
16	260	15.2			110	2.9	3.6	(2.7)
17	240	14.0			130	2.5	3.6	2.8
18	240	10.9					3.6	2.7
19	260	10.6					3.0	2.7
20	260	9.4						2.8
21	250	8.4						2.8
22	260	5.4						2.6
23	325	4.8						2.5

Time: 105.0°E.
Sweep: 1.7 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 26

Huancayo, Peru (12.0°S, 75.3°W) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	305	8.4						(2.7)
01	280	7.8						2.8
02	265	7.4						3.0
03	245	6.9						3.1
04	230	6.5						3.1
05	240	5.6					2.8	3.2
06	270	7.7				2.0	2.8	3.0
07	250	10.3				2.9	4.8	2.9
08	230	11.9				3.5	7.2	2.6
09	230	12.7	220	5.5		3.8	9.3	2.4
10	280	12.2	220	5.4		4.0	10.0	2.2
11	280	10.9	210	5.4			10.0	2.2
12	280	10.6	210	5.5			10.0	2.1
13	280	11.2	210	5.4			10.0	2.1
14	290	10.8	210	5.4		4.0	9.8	2.1
15	230	11.3	215	5.4		3.8	9.8	2.2
16	225	11.6				3.5	9.6	2.2
17	260	11.8				2.9	5.5	2.2
18	290	11.8				2.0	2.9	2.2
19	340	(10.2)						(2.2)
20	420	9.7						2.0
21	430	9.0						2.0
22	400	(9.1)						(2.3)
23	340	(8.5)						(2.5)

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 27

Fiji Is. (18.0°S, 178.2°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	10.6					3.8	
01	290	10.2					3.5	
02	305	9.8					2.9	
03	290	9.7					3.3	
04	280	9.6					2.8	
05	250	9.1					2.7	
06	250	9.3			100	(1.8)	3.3	
07	235	9.2			105	2.6	4.6	
08	255	9.4	220		105	3.3	6.0	
09	310	10.2	230	6.3	100	3.7	5.7	
10	335	11.0	220	6.0	108	4.0	5.6	
11	370	11.6	220	6.2	105	4.1	5.4	
12	400	12.7	230	6.2	110	4.2	5.3	
13	380	D	230	6.2	110	4.2	5.3	
14	360	D	210	6.0	110	4.1	5.6	
15	360	D	230	6.2	110	3.9	5.6	
16	345	13.2	230	5.9	108	3.5	5.4	
17	330	11.6			100	3.0	5.4	
18	(260)	10.8			100	2.2	5.3	
19	280	10.5					4.1	
20	340	10.6					4.6	
21	330	10.8					3.1	
22	310	11.2					3.4	
23	305	10.8					3.3	

Time: 180.0°E.
Sweep: Upper limit, 13.0 Mc.

Table 28

Townsville, Australia (19.4°S, 146.5°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	268	9.5					3.3	2.8
01	250	9.3					3.0	(2.9)
02	240	9.0					3.0	2.8
03	250	8.4					2.9	2.8
04	260	8.0					2.8	2.8
05	260	7.4					2.7	2.7
06	250	7.3				1.8	3.0	2.8
07	240	7.5	240			2.8	3.4	2.9
08	300	8.5	220	5.1		3.4	4.0	3.0
09	310	9.5	210	5.7		3.8	4.2	2.9
10	350	10.2	200	6.0		4.0	5.7	2.7
11	360	11.4	200	6.2	100	4.0	5.3	2.6
12	350	12.0	200	6.0		4.1	5.6	2.7
13	350	12.0	200	6.0	100	4.2	5.0	2.6
14	345	12.4	200	6.0	100	4.0	5.5	2.7
15	332	12.0	205	5.8	100	3.9	4.8	2.8
16	328	11.5	220	5.7	100	3.6	3.8	2.7
17	300	10.3	225		100	3.2	3.2	2.7
18	250	9.5				2.5	3.6	2.7
19	270	9.5					3.4	2.6
20	300	9.5					3.0	2.6
21	305	9.8					2.9	2.6
22	300	10.0					2.8	(2.6)
23	280	10.0					2.8	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 29

Rarotonga I. (21.3°S, 159.8°W) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		11.2						
01								
02								
03		9.2						
04								
05								
06		9.7						
07		10.1						
08		10.4						
09		10.8						
10		11.6						
11		12.3						
12		13.5						
13		14.1						
14		14.3						
15		13.8						
16		13.7						
17		12.5						
18		12.2						
19		11.4						
20		11.0						
21		11.3						
22		11.6						
23		11.3						

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual operation.

Table 30

Canberra, Australia (35.3°S, 149.0°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	8.0					4.0	2.7
01	260	7.7					3.6	2.7
02	260	7.3					3.4	2.6
03	270	6.8					3.2	2.6
04	260	6.0					3.0	2.6
05	278	6.0			105	1.6	3.0	2.7
06	250	6.4			110	2.5	3.2	2.8
07	230	6.9	240	4.6	100	3.1	3.8	2.8
08	330	7.2	210	5.0	100	3.5	4.7	2.8
09	360	7.6	210	5.4	100	3.6	5.0	2.7
10	390	8.0	200	5.6	100	3.9	6.0	2.7
11	385	8.2	200	5.9	100	4.0	5.9	2.6
12	360	8.5	200	5.7	100	4.0	5.4	2.6
13	390	8.8	200	6.0	100	4.0	4.3	2.6
14	365	8.8	200	5.7	100	3.9		2.7
15	360	8.5	200	5.5	100	3.8		2.7
16	340	8.5	200	5.4	100	3.5		2.7
17	225	8.4	210	4.9	100	3.2		2.8
18	240	8.5			100	2.8	3.3	2.8
19	250	8.0			105	1.8	3.4	2.8
20	250	8.2					3.5	2.7
21	290	8.8					3.6	2.6
22	300	8.3					3.8	2.6
23	290	8.1					3.5	2.7

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 31

Hobart, Tasmania (42.8°S, 147.4°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	6.7					3.0	2.6
01	260	6.2					2.5	2.5
02	265	5.8					1.8	2.5
03	260	5.5					2.6	2.5
04	285	5.0					2.7	2.6
05	275	5.0					2.1	2.8
06	250	5.5	238		100	2.5	2.7	2.8
07	340	6.1	250	4.6	100	3.0	3.2	2.8
08	395	6.6	232	4.9	100	3.4	3.7	2.7
09	410	6.8	210	5.2	100	3.5	4.8	2.7
10	408	7.0	210	5.4	100	3.8	5.0	2.7
11	440	7.0	240	5.5			5.6	2.6
12	445	7.0	208	5.6	100	3.8	4.4	2.5
13	405	7.4	210	5.5			4.2	2.7
14	425	7.5	225	5.5	100	3.8	4.0	2.6
15	400	7.5	205	5.5	100	3.7	3.7	2.6
16	380	7.5	215	5.4	100	3.5	3.5	2.7
17	350	7.5	235	5.0	100	3.3	3.6	2.8
18	320	7.4	250	4.5	100	2.8	3.4	2.8
19	265	7.5			110	2.3	3.3	2.8
20	290	7.5					3.5	2.7
21	290	7.5					4.0	2.6
22	290	7.5					4.0	2.6
23	290	7.0					3.3	2.6

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 32

Christchurch, New Zealand (43.5°S, 172.7°E) January 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	7.6					3.1	2.5
01	300	6.9					3.1	2.5
02	300	6.5					2.8	2.5
03	290	6.3					3.3	2.6
04	290	5.8					2.8	2.6
05	280	5.7				1.6	3.5	2.7
06	265	6.4	250	4.1		2.5	3.3	2.8
07	300	7.1	250	4.9		3.0	4.4	2.8
08	330	7.4	245	5.1		3.4	4.7	2.7
09	355	7.8	240	5.5		3.6	5.3	2.7
10	360	8.2	230	5.5		3.8	5.4	2.7
11	380	8.3	240	5.6		3.8	5.5	2.7
12	410	8.0	230	5.8		3.9	5.5	2.6
13	410	8.2	230	5.8		3.8	5.0	2.7
14	400	8.2	230	5.7		3.8		2.6
15	400	8.2	240	5.8		3.7		2.6
16	365	8.2	240	5.5		3.5	4.3	2.6
17	345	8.1	240	5.0		3.2		2.6
18	275	8.3	250	4.2		2.7	3.8	2.7
19	280	8.2				2.0	3.5	2.7
20	280	8.4				1.2	3.1	2.6
21	290	8.5					3.2	2.5
22	300	8.2					3.4	2.5
23	300	8.0					3.6	2.5

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc.

Table 33*

Slough, England (51.5°N, 0.6°W) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	307	3.4					2.4	2.4
01	310	3.4					2.6	
02	315	3.3					2.2	2.4
03	294	3.2					2.9	
04	268	3.0					2.6	2.6
05	262	3.1					3.2	2.7
06	262	2.5					2.6	2.6
07	256	3.1					3.3	
08	227	6.6			123	1.8	3.3	2.9
09	223	9.8	205	4.0#	117	2.3	3.4	
10	223	11.4	210	5.0#	114	2.6	3.3	2.9
11	227	12.1	212	5.1#	114	2.8	3.3	
12	224	12.2			115	2.9	3.3	2.9
13	225	12.0	225	4.9#	118	2.8	3.3	
14	232	12.2			118	2.6	3.4	2.9
15	224	11.6			125	2.2	3.3	
16	219	10.2				1.8#	3.3	2.9
17	219	8.2					3.3	
18	228	6.6					3.3	2.8
19	241	5.4					3.0	
20	255	4.0					3.2	2.7
21	288	3.8					2.6	
22	307	3.6					3.0	2.4
23	319	3.4					3.0	

Time: Local.
Sweep: 0.5 Mc to 14.0 Mc in 6 minutes; 14.0 Mc to 25.0 Mc, manual operation.
*Average values except for f°F2 and fEs, which are median values.
#Less than 3 observations.

Table 34

Peiping, China (39.9°N, 116.4°E) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.9						
01		3.6						
02		3.8						
03		3.7						
04		3.8						
05		3.8						
06		4.5						
07		5.4						
08		9.8						
09		11.2						
10		(11.8)						
11		12.4						
12		12.4						
13		12.0						
14		12.0						
15		(12.2)						
16		11.5						
17		10.3						
18		(9.2)						
19		8.8						
20		7.4						
21		(6.0)						
22		5.5						
23		4.4						

Time: 120.0°E.
Sweep: 1.7 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 35

Lanchow, China (36.1°N, 103.8°E) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	420	3.2						2.3
01	430	3.2						2.4
02	440	3.1						2.3
03	420	3.3						2.3
04	400	3.3						2.4
05	400	3.3						2.4
06	380	3.2						2.5
07	340	5.4						2.5
08	300	11.0	300		160	E		2.6
09	300	12.0	280		160	3.0	3.2	2.6
10	300	12.5	280		160	3.2	3.6	2.6
11	300	12.6	280		160	3.5		2.6
12	310	12.3	280		160	3.6		2.5
13	320	12.4	280		160	3.6		2.5
14	320	12.0	280		160	3.5		2.5
15	320	12.0	280		160	3.1	3.4	2.6
16	300	11.5	280		160	2.8		2.6
17	290	10.2	280		160			2.6
18	(285)	(8.1)						2.6
19								
20								
21	320	4.2						2.6
22	390	3.4						2.4
23	440	3.2						2.3

Time: 105.0°E.
Sweep: 2.3 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 36

Nanking, China (32.1°N, 119.0°E) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05	320	3.6					1.5	2.4
06	320	3.8					1.9	2.4
07	280	7.0	250				1.8	2.7
08	280	10.5	245		160	2.6	2.9	2.8
09	280	12.5	240		160	3.1	3.5	2.8
10	290	13.5	240		140	3.5	4.0	2.8
11	300	13.8	250		160	3.6	4.2	2.7
12	320	14.0	250		120	3.7	4.4	2.6
13	300	14.0	240				4.4	2.6
14	320	13.1	245				4.2	2.6
15	320	13.8	240				3.7	2.6
16	280	13.0	240		130	3.3	8.1	2.7
17	260	12.0	240		160	2.5	2.5	2.7
18	250	10.0	240				1.9	2.7
19	240	8.4					2.0	2.7
20	240	7.8					1.9	2.7
21	240	6.9					1.9	2.6
22	260	5.8					1.9	2.5
23								

Time: 120.0°E.
Sweep: 1.7 Mc to 15.0 Mc in 20 minutes, manual operation.

Table 37

Chungking, China (29.4°N, 106.8°E) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	5.0						2.4
01	330	4.7						2.5
02	320	4.4						2.5
03	340	3.8						2.5
04	325	3.6						2.7
05	330	3.2						2.5
06	340	3.4						2.5
07	305	7.6					2.8	2.7
08	290	12.0	280		130	2.8	4.0	2.7
09	280	(14.0)	270		120	3.1	4.1	2.8
10	300	14.5	260		135	3.4	4.6	2.7
11	300	14.0	260	5.8	130	3.6	4.5	2.6
12	205	14.3	270	6.8	130	3.7	4.2	2.6
13	320	14.5	260	6.2	120	3.6	4.4	2.6
14	320	14.7	260	5.7	130	3.4	4.0	2.6
15	320	15.4	280		120	3.2	4.2	2.7
16	290	15.0	280		130	2.7	3.7	2.7
17	270	14.8	250		120	2.2	3.5	2.8
18	250	12.5					3.0	2.7
19	260	9.6					2.8	2.8
20	260	9.4					2.4	2.8
21	260	8.4						2.7
22	280	6.5						2.6
23	290	5.6						2.4

Time: 105.0°E.
Sweep: 1.7 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 38*

Slough, England (51.5°N, 0.6°W) November 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	317	4.5					1.0	2.4
01	318	4.4						
02	315	4.2						2.4
03	300	4.0						
04	280	3.8						2.6
05	265	3.6					3.0	2.6
06	271	3.4					2.7	2.5
07	247	5.5			139	1.6	3.3	
08	227	9.2			120	2.1	3.3	3.0
09	226	12.2			117	2.6	3.3	
10	226	13.6	220	5.0#	111	2.9		2.9
11	227	14.3			112	3.0		
12	231	14.1	255	5.6#	110	3.1		2.8
13	229	13.9			112	3.0		
14	235	13.8			112	2.7		2.8
15	231	13.3			118	2.3	3.3	
16	223	12.3			135	1.8#	3.3	2.8
17	222	10.9					3.3	
18	224	8.6					3.2	2.8
19	228	6.9					3.2	
20	251	5.5					3.2	2.6
21	285	5.0					3.2	
22	309	4.7					2.5	2.4
23	317	4.6						

Time: Local.
Sweep: 0.5 Mc to 14.0 Mc in 6 minutes; 14.0 Mc to 25.0 Mc, manual operation.
*Average values except for f°F2 and fEs, which are median values.
#Less than three observations.

Table 39

Lanchow, China (36.1°N, 103.8°E) November 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	360	5.0						2.4
01	355	4.7						2.4
02	360	4.6						2.5
03	360	4.8						2.4
04	340	4.7						2.5
05	360	4.3						2.5
06	340	4.3						2.5
07	300	8.8						2.6
08	280	13.5	280		155	2.7		2.6
09	280	14.5	270		150	3.1	3.5	2.6
10	300	14.5	280		160	3.5	3.8	2.6
11	300	14.5	270		150	3.7	3.6	2.6
12	320	14.6	270		150	3.8		2.5
13	320	15.0	280		150	3.8	3.6	2.5
14	305	15.0	280		150	3.5	3.4	2.5
15	300	14.5	270		150	3.4	3.7	2.5
16	300	14.0	280		150	2.8		2.5
17	280	13.5	280		140			2.5
18								
19								
20								
21	300	6.7						2.6
22	320	5.8						2.5
23	340	5.2						2.5

Time: 105.0°E.
Sweep: 2.4 Mc to 16.0 Mc, manual operation.

Table 40

Delhi, India (28.6°N, 77.1°E) November 1947

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000 **
00	390	6.7						2.6
01	360	6.8						
02	360	5.8						
03	(360)	(6.3)						
04	330	4.7						2.7
05	360	5.0						
06	360	6.0						
07	360	10.5						
08	360	13.0						2.9
09	360	14.0						
10	390	(14.2)						
11	420	(14.5)						
12	420	(14.6)						
13	405	(14.7)						
14	405	(14.5)						
15	(420)	(14.5)						
16	(405)	(14.5)						
17	390	(14.4)						
18								
19								
20	360	12.0						3.0
21	360	10.2						
22	360	8.1						
23	390	7.3						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 41

Bombay, India (19.0°N, 73.0°E) November 1947

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000 **
00		(14.6)						2.8
01	(390)	(12.9)						
02	(360)	(10.1)						
03	(330)	(8.9)						
04	(300)	(7.2)						3.2
05	(330)	(5.5)						
06	(360)	(6.2)						
07	(330)	11.0						
08	345	14.0						2.9
09	360	15.1						
10	(405)	(15.2)						
11		15.3						
12		(15.3)						
13		(15.5)						
14		(15.5)						
15		(15.7)						
16		(15.7)						
17		(15.7)						
18		(15.6)						
19		(15.6)						
20								
21		(15.2)						
22		(15.2)						
23		(15.5)						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 42

Madras, India (13.0°N, 80.2°E) November 1947

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000 **
00								
01								
02								
03								
04								
05								
06								
07	420	11.0						
08	480	12.9						2.4
09	540	14.0						
10	600	(14.0)						
11	600	(14.0)						
12	600	13.9						2.1
13	600	13.8						
14	600	13.9						
15	660	13.8						
16	600	13.7						2.1
17	600	13.2						
18	600	13.0						
19	600	(12.4)						
20		(12.2)						2.1
21		(12.3)						
22		(13.0)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 43 *

Falkland Is. (51.7°S, 57.8°W) November 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	345	9.7					3.0	
01	331	9.6						
02	322	9.4						
03	339	9.3						
04	306	9.6	290#	4.3#		(2.0)		
05	278	10.4	273	4.8	127	2.5		
06	291	11.1	258	5.6	114	3.1		
07	312	11.6	263	6.1	110	3.3	4.0	
08	316	11.8	264	6.3	109	3.5	5.0	
09	329	11.9	254	6.2	107	3.7	5.6	
10	316	12.3	264	6.4	108	3.8	5.5	2.4
11	330	12.4	254	6.3	109	3.8	5.3	2.5
12	315	12.4	251	6.3	108	3.8	5.2	2.5
13	308	12.0	244	6.1	108	3.8	4.6	2.5
14	301	11.2	249	6.1	110	3.7	4.4	2.6
15	310	10.8	256	6.2	108	3.6	4.0	2.7
16	286	9.8	252	5.7	109	3.3	3.6	2.7
17	274	9.4	260#	5.0#	112	2.9	4.4	2.7
18	278	9.3			125	2.4	4.6	2.6
19	292	9.3					4.4	
20	304	9.1					3.7	
21	340	9.4					2.8	
22	344	9.7					2.8	
23	344	9.6					2.4	

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minue.
*Average values except f°F2 and fEs, which are median values.
#One or two values only.

Table 44

Delhi, India (28.6°N, 77.1°E) October 1947

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000 **
00	420	9.2						2.4
01	420	8.2						
02	420	7.4						
03	390	7.1						
04	390	6.4						2.7
05	390	6.2						
06	360	7.7						
07	330	11.6						
08	360	12.9						2.9
09	360	13.5						
10	390	(14.0)						
11	390	(14.2)						
12	405	(14.0)						
13	420	(14.0)						
14	390	(14.0)						
15	420	(14.0)						
16	405	(14.0)						
17	390	(13.8)						
18								
19								
20	390	12.5						2.6
21	390	11.7						
22	390	10.9						
23	390	9.7						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 45

Bombay, India (19.0°N, 73.0°E) October 1947

Time	*	f^oF2	h'F1	f^oF1	h'E	f^oE	fEs	F2-M3000**
00		(14.5)						
01	(360)	(14.3)						
02	(330)	(14.6)						
03	(360)	(9.5)						
04		(7.9)						2.7
05	(360)	(6.6)						
06	(360)	(7.8)						
07	330	12.0						
08	360	14.2						2.9
09	420	15.1						
10	(465)	(15.2)						
11		(15.3)						
12		(15.3)						
13		(15.3)						
14		(15.4)						
15		(15.3)						
16		(15.3)						
17		(15.5)						
18		(15.4)						
19	(495)	(15.4)						
20		(15.3)						
21	525	15.1						
22	540	14.9						
23		(16.1)						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f^oF2.
**M3000, average values; other columns, median values.

Table 46

Madras, India (13.0°N, 80.2°E) October 1947

Time	*	f^oF2	h'F1	f^oF1	h'E	f^oE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	300	11.5						
08	480	(14.0)						
09		(14.0)						
10	(540)	(14.0)						
11	600	(14.0)						
12	600	(14.0)						
13	630	13.8						
14	600	(14.0)						
15	(600)	(14.0)						
16	(630)	(14.0)						
17	630	(14.0)						
18	600	13.6						
19	(660)	(13.0)						
20		(12.8)						
21		(13.0)						
22		(13.0)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 f^oF2.

Table 47*

Hourly Monthly Averages of f^oF2 Observations

Tromso, Norway (69.7°N, 18.9°E) 1945

Time	Jan.	Feb.	Mar.	Apr.	h'E	f^oE	fEs	F2-M3000
00	3.2	3.1	3.5	3.7				
01	2.9	2.7	3.2	3.6				
02	3.5	3.0	2.2	3.5				
03	2.8	2.7	2.5	3.2				
04	2.9	3.0	2.5	3.5				
05	2.2	2.8	2.7	3.8				
06	2.1	2.3	3.2	4.1				
07	1.7	2.9	3.7	4.4				
08	1.7	3.5	4.0	4.6				
09	2.9	4.0	4.4	4.8				
10	3.8	4.6	4.5	5.2				
11	4.5	4.9	4.7	5.0				
12	4.7	5.2	4.8	5.1				
13	4.6	5.2	5.0	5.0				
14	4.2	4.9	4.8	5.1				
15	3.8	4.7	4.8	4.9				
16	3.2	4.2	4.4	4.9				
17	2.5	3.8	4.2	4.8				
18	2.3	3.1	3.8	4.7				
19	3.4	3.2	3.8	4.6				
20	3.6	2.8	3.5	4.3				
21	3.6	3.0	3.0	4.2				
22	3.0	3.4	3.4	4.1				
23	3.7	3.8	3.4	3.8				

Time: 15.0°E.
*These data were obtained through the courtesy of Dr. W. R. Piggott, National Physical Laboratory, England, and Dr. O. Burkard, University of Graz, Austria.

Table 48*

Hourly Monthly Averages of f^oF2 Observations

Tromso, Norway (69.7°N, 18.9°E) 1944

Time	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	F2-M3000
00	4.0	3.9	3.4	3.0	2.8	2.6	2.8	
01	4.0	3.8	3.4	3.2	2.8	2.7	3.2	
02	3.9	4.0	3.3	3.1	3.1	3.1	3.3	
03	3.9	3.9	3.3	2.7	3.1	2.9	2.8	
04	3.9	3.9	3.2	2.8	2.7	3.0	2.6	
05	3.9	3.9	3.5	3.1	2.4	2.5	2.2	
06	4.0	4.0	3.8	3.6	2.5	2.6	2.1	
07	4.1	4.1	4.1	3.9	3.3	2.6	1.6	
08	4.2	4.3	4.2	4.1	4.1	2.7	2.2	
09	4.2	4.3	4.3	4.3	4.6	3.6	2.4	
10	4.4	4.3	4.4	4.4	4.7	4.0	3.4	
11	4.2	4.3	4.4	4.5	4.6	4.3	3.8	
12	4.2	4.2	4.4	4.5	4.8	4.3	4.1	
13	4.2	4.2	4.3	4.5	4.8	4.1	3.7	
14	4.2	4.2	4.3	4.4	4.5	4.0	3.1	
15	4.2	4.2	4.3	4.4	4.5	3.5	3.0	
16	4.1	4.2	4.3	4.3	4.2	3.1	1.7	
17	4.2	4.2	4.3	4.2	4.4	2.7	2.7	
18	4.2	4.2	4.1	4.0	3.7	2.3	3.1	
19	4.2	4.1	4.0	3.9	3.6	2.6	3.1	
20	4.1	4.1	3.9	3.7	3.6	2.3	4.2	
21	4.0	4.0	3.7	3.5	3.8	2.6	3.2	
22	3.9	4.0	3.7	3.5	3.5	2.6	3.3	
23	3.9	3.9	3.5	3.2	3.0	2.5	3.2	

Time: 15.0°E.
*These data were obtained through the courtesy of Dr. W. R. Piggott, National Physical Laboratory, England, and Dr. O. Burkard, University of Graz, Austria.

Table 49*

Tromso, Norway (69.7°N, 18.9°E) August 1943

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.8						
01		4.8						
02		4.7						
03		3.9						
04		3.5						
05		3.3						
06		3.2						
07		3.4						
08		4.0						
09		3.4						
10		3.8						
11		4.0						
12		3.9						
13		3.8						
14		5.6						
15		5.2						
16		5.3						
17		5.1						
18		4.7						
19		4.8						
20		4.3						
21		4.9						
22		4.6						
23		6.0						

Time: 15.0°E.
*These data are hourly monthly averages of f°F2 observations, and were obtained through the courtesy of Dr. W. R. Piggott, National Physical Laboratory, England, and Dr. O. Burkard, University of Graz, Austria.

Table 50*

Canberra, Australia (35.3°S, 149.0°E) December 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	295	7.8					4.7	
01	296	7.1					4.8	
02	308	6.8					4.8	
03	322	6.2					4.4	
04	330	5.9					4.4	
05	296	6.0			110	2.5#	3.6	
06	269	6.8	290#	4.3	127	2.6	3.9	
07	280	7.6	255#	4.4	120	3.1	5.3	
08	291	8.4	233	4.9	117	3.4	6.1	
09	331	8.9	235	5.3	115	3.6	6.6	
10	331	9.4	228	5.3	114	3.7	6.6	
11	358	9.6	217	5.5	116	3.8	6.1	
12	348	9.5	227	5.5	112	3.8	5.9	
13	350	9.7	220	5.5	106	3.7	6.4	
14	344	9.5	223	5.4	108	3.7	5.3	
15	299	9.2	228	5.3	112	3.6	5.4	
16	271	8.9	228	5.0	116	3.4	5.0	
17	250	8.4	241	4.5	121	3.1	4.2	
18	265	8.4	230	4.0#	122	2.5	4.0	
19	269	8.1			140#	2.4#	3.8	
20	303	7.6					4.4	
21	331	8.5					5.0	
22	343	8.5					4.0	
23	325	7.9					4.8	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "abnormal E."
#One or two values only.

Table 51*

Canberra, Australia (35.3°S, 149.0°E) November 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	309	8.2					3.6	
01	308	7.6					3.9	
02	315	7.1					3.7	
03	315	6.7					3.5	
04	318	6.4					3.4	
05	302	6.5			(140)#	2.2#	3.1	
06	267	7.0	221	3.9#	130	2.4	3.6	
07	291	7.7	232	4.6	122	3.0	4.5	
08	320	8.4	235	5.0	116	3.3	4.6	
09	343	8.9	230	5.2	114	3.5	5.0	
10	340	9.1	219	5.2	106	3.6	5.5	
11	328	9.3	212	5.2	108	3.7	5.3	
12	330	9.2	218	5.2	106	3.7	5.4	
13	342	9.2	216	5.4	106	3.6	5.1	
14	334	9.2	222	5.2	104	3.6	5.3	
15	332	8.9	231	5.1	110	3.5	5.0	
16	293	8.7	233	4.9	112	3.3	5.0	
17	280	8.6	246	4.5	118	2.9	4.4	
18	294	8.6	240	4.2#	120	2.4	4.1	
19	293	8.7			120#	2.3#	4.7	
20	312	8.6					4.4	
21	328	8.8					4.4	
22	330	8.7					4.5	
23	321	8.6					4.2	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "abnormal E."
#One or two values only.

Table 52*

Canberra, Australia (35.3°S, 149.0°E) October 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	300	7.4					3.0	
01	300	7.0					3.0	
02	307	6.5					3.0	
03	312	6.2					3.3	
04	311	6.3					3.0	
05	294	6.3					3.1	
06	252	7.2	210#			2.4	3.3	
07	246	8.2	230	4.2		2.9	3.9	
08	269	8.9	222	4.7		3.3	4.0	
09	290	9.4	218	4.9		3.5	4.5	
10	280	9.7	214	5.0		3.7	4.3	
11	274	10.0	210	4.9		3.7	4.3	
12	261	10.1	208	4.8		3.7	4.3	
13	272	10.2	217	4.9		3.8	4.5	
14	253	10.0	217	4.8		3.7	4.5	
15	263	9.8	228	4.6		3.5	4.5	
16	273	9.7	230	4.4		3.2	3.9	
17	267	9.7	243	4.0		2.7	3.3	
18	254	9.6	280#	4.7#		2.4#	3.6	
19	261	9.1					3.4	
20	275	8.7					3.8	
21	288	8.4					4.0	
22	294	8.0					3.6	
23	303	7.7					3.5	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "abnormal E."
#One or two values only.

Table 53*

Canberra, Australia (35.3°S, 149.0°E) September 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	261	7.2					3.0	
01	262	6.9					3.1	
02	[illegible]	6.5					3.2	
03	258	6.0					3.4	
04	273	5.7					3.1	
05	272	5.5					3.5	
06	248	6.3					3.0	
07	227	8.9				2.4	3.9	
08	234	10.4	222	4.1		2.9	4.0	
09	240	11.1	215	4.4		3.2	5.0	
10	233	11.3	211	4.6		3.4	4.2	
11	236	11.6	205	4.6		3.5	4.4	
12	238	11.6	201	4.7		3.6	4.4	
13	241	11.3	203	4.7		3.5	4.8	
14	233	11.1	202	4.5		3.5	4.5	
15	236	10.7	207	4.3		3.4	4.1	
16	234	10.4	215	3.9		2.9	3.6	
17	229	10.2		3.0#		2.4	3.7	
18	224	9.8					3.0	
19	231	9.0					2.9	
20	246	8.7					3.3	
21	250	8.3					3.6	
22	254	8.0					3.3	
23	259	7.7					3.0	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 54*

Canberra, Australia (35.3°S, 149.0°E) August 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	287	5.6					3.6	
01	[illegible]	5.5					3.5	
02	292	5.4					3.6	
03	288	5.3					3.7	
04	[illegible]	4.9					4.1	
05	234	4.5					3.5	
06	281	4.5					3.5	
07	239	7.5					3.3	
08	229	9.8	230#		122	2.6	3.4	
09	236	10.4	230	4.3	115	3.1	4.0	
10	240	10.6	225	4.3	113	3.3	4.3	
11	236	10.9	220	4.4	112	3.4	4.0	
12	241	10.9	217	4.5	113	3.5	4.0	
13	239	10.5	217	4.4	114	3.5	4.6	
14	241	10.4	216	4.2	113	3.4	3.9	
15	240	10.0	219	4.0	114	3.2	3.8	
16	242	9.8	230	4.0	119	2.8	3.8	
17	237	9.6				2.2	3.4	
18	236	8.9				3.7#	3.8	
19	246	8.1					3.4	
20	251	7.5					3.0	
21	262	6.6					3.8	
22	269	6.2					3.4	
23	276	5.8					3.4	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 55*

Canberra, Australia (35.3°S, 149.0°E) July 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	301	4.4					3.6	
01	312	4.5					4.4	
02	308	4.5					4.6	
03	314	4.6					3.8	
04	285	4.7					4.0	
05	261	4.2					4.0	
06	271	3.8					3.4	
07	249	5.4					3.2	
08	234	8.3			132#	2.4	3.8	
09	240	9.6			115	2.8	3.3	
10	244	10.3			109	3.2	3.6	
11	246	10.6			105	3.2	3.8	
12	247	10.4			103	3.3	4.8	
13	252	10.6			105	3.3	4.6	
14	250	10.6			110	3.2	5.3	
15	249	10.2			112	3.0	4.8	
16	232	9.9			117	2.7	4.0	
17	230	9.3			(130)#	2.3#	3.5	
18	228	8.2					3.1	
19	231	6.7					3.4	
20	249	6.0					3.5	
21	267	5.3					3.3	
22	280	5.0					4.0	
23	297	4.7					3.8	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 56*

Canberra, Australia (35.3°S, 149.0°E) June 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	302	4.2					3.0	
01	313	4.2					3.1	
02	310	4.2					3.6	
03	308	4.3					3.6	
04	287	4.5					3.2	
05	259	4.2					3.4	
06	266	3.7					3.3	
07	252	5.2					3.2	
08	227	8.3			123#	2.8	3.4	
09	230	9.6			122	2.9	3.8	
10	234	10.1			114	3.2	3.8	
11	242	10.3			109	3.3	4.1	
12	244	10.1			109	3.4	4.8	
13	246	10.3			109	3.3	4.7	
14	249	10.3			111	3.2	5.0	
15	246	10.4			116	2.9	4.5	
16	237	10.0			126	2.5	4.3	
17	231	9.0					3.8	
18	228	7.8					3.7	
19	238	6.8					3.4	
20	243	5.6					3.3	
21	266	4.8					3.2	
22	274	4.7					3.2	
23	285	4.3					3.3	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 57*

Canberra, Australia (35.3°S, 149.0°E) May 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	314	4.4					4.1	
01	316	4.4					3.5	
02	318	4.4					3.6	
03	318	4.4					3.5	
04	299	4.4					3.4	
05	280	3.9					3.8	
06	288	3.6					3.4	
07	259	5.8			120#	2.2#	3.2	
08	249	8.3			135	2.6	3.9	
09	249	9.5			122	3.0	3.6	
10	256	10.2			118	3.2	3.7	
11	258	10.4			119	3.5	4.8	
12	258	10.5			120	3.5	4.8	
13	266	10.6			120	3.5	4.6	
14	260	10.6			118	3.3	4.4	
15	255	10.6			122	3.0	5.1	
16	247	10.2			128	2.6	3.5	
17	236	9.5				2.7#	3.4	
18	239	8.2					3.8	
19	248	7.0					3.6	
20	257	6.0					4.4	
21	273	5.3					3.9	
22	293	4.8					4.7	
23	305	4.6					4.5	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 58*

Canberra, Australia (35.3°S, 149.0°E) April 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00	327	6.0					4.0	
01	333	5.9					3.8	
02	333	5.9					3.5	
03	312	5.9					3.4	
04	294	5.7					3.5	
05	294	4.8					3.6	
06	309	4.6					3.8	
07	276	7.1			130#	2.2#	3.4	
08	272	9.2			135	2.8	3.8	
09	280	10.8			131	3.2	4.2	
10	278	11.0			125	3.2	4.2	
11	287	11.2			128	3.5	4.9	
12	290	11.4			124	3.5	5.7	
13	292	11.5			122	3.5	5.1	
14	289	11.4			129	3.5	4.2	
15	292	11.4			132	3.2	4.5	
16	282	11.2			133	2.9	4.0	
17	269	10.6			134	2.5	3.7	
18	262	9.7					3.8	
19	270	8.5					3.5	
20	282	7.8					3.7	
21	284	7.2					4.6	
22	292	6.7					4.2	
23	308	6.2					4.7	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Table 59*

Canberra, Australia (35.3°S, 149.0°E) March 20 to 31, 1937

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs**	F2-M3000
00		6.7					3.0	
01		6.5					3.1	
02		6.4					3.3	
03		6.2					3.3	
04		5.9					2.9	
05		5.6					3.4	
06		5.8					3.2#	
07		7.9				2.4	3.2#	
08		10.0				3.0	3.6#	
09		10.5				3.3	3.7#	
10		11.0				3.6	4.7	
11		11.2				3.7	4.6	
12		11.4				3.6	5.8	
13		11.4				3.6	4.6#	
14		11.3				3.4	3.9	
15		10.9				3.4	3.9	
16		10.9				3.1	4.1	
17		10.9				2.7	3.6	
18		10.6					3.6	
19		9.4					3.0	
20		8.7					3.0	
21		8.3					2.6	
22		7.6					2.8	
23		7.1					4.2	

Time: 150.0°E.
Sweep: 2.2 Mc to 13.0 Mc in 2 minutes.
*Average values.
**Reported as "Abnormal E."
#One or two values only.

Form adopted June 1946

TABLE 60

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), April (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: K. L. W., N. M.

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	250	270	250	250	260	260	260	230	240	240	240	230	250	240	270	250	250	240	230	220	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	280	270	270	270	230 H	230	230	230	220	200	(240) S	250	(280) S
3	280	260	250	240	240	(260) A	250	230	220	250	C	C	C	260	250	230	250	230	240	230	220	240	250	260
4	250	270	300	300	300	280	250	230	220	250	240	280	300	250	220	250	220	240	250	230	220	240	250	250
5	260	260	250	250	250	250	250	230	250	250 H	250	280	270	240	250	230	240	240	240	230	220	230	240	270
6	280	290	300	270	270	250	240	230	230	240	240	230	270	300	300	250	240	240	240	230	220	240	250	270
7	270	270	260	260	260	260	270	250	240	230	200	240	230	250	(250) C	230	240	240	240	220	220	220	240	250
8	270	250	270	250	230	230	230	220	240	240	250	260	250	250	[250] C	250	240	240	230	210	200	220	240	250
9	240	250	240	240	230	230	240	220	220	240	250	260	270	280	(240) H	250	230	220	240	220	220	(240) S	250	250
10	250	240	240	230	230	250	240	230	220	220	270	210	(240) H	(240) H	230	220	220	240	240	230	230	240	230	250
11	290	290	290	270	260	250	270	270	300	290	(330) H	400	350	340	360	340	340	300	230	240	240	250	250	290
12	280	290	270	250	250	230	240	230	220	260	200	250	240	300 H	250	230 H	220	230	240	240	230	240	260	280
13	280	290	260	230	C	C	C	C	210	220	260	250	240	320	250 H	(230) H	250 H	230	240	240	240	250	260	260
14	(270) S	(280) S	240	220	270	280	250	250	380 K	400 K	450 K	480 K	450 K	450 K	380 K	280 K	250	230	240	240	240	240	270	280
15	300	300	280	270	250	250	240	230	220	200	230	230	290	340	240	220	230	240	240	240	240	240	260	260
16	260	270	270	260	260	250	240	230	220	230	230	330	260	240	(320)	(240) H	(240) H	240	240	240	230	240	260	280
17	270	250	260	250	260	270	250	240	[290] C	340	360	430	420	390	340	[280] C	230	240 H	240	240	[240] C	240	260	270
18	270	[260] C	240	C	C	C	C	230	230	C	C	C	C	C	C	C	C	C	C	C	C	270	260	280
19	[280] C	290	280	270	260	230	260	240	240	240	250	250	260	350	250	240	240	240	270	250	250	260	240	230
20	270	300	290	290	280	240	250	240	230	240	C	370	380	390	[320] C	240	[240] C	250	260	260	(330) S	340	320	270
21	250	(300) S	300	300	290	300	260	280	330 K	380 K	430 K	440 K	450 K	430 K	430 K	420 K	380 K	270 K	260 K	270 K	260 K	260 K	280 K	290 K
22	390 K	(380) K	420 K	360 K	300 K	350 K	340 K	430 K	G K	(600) K	G K	G K	G K	G K	G K	550 K	490 K	420 K	280 K	300 K	280 K	280 K	290 FK	270 K
23	320 K	320 K	300 K	300 K	280 K	300 K	280 K	250 K	340 K	350 K	350 K	370 K	400 K	360 K	380 K	400 K	380 K	260 K	260 K	270	270	270	270	300
24	300	300	310	290	260	260	250	250	270	300	310	290	(320)	370	400	350	350	260	250	280	250	270	280	270
25	290	300	280	270	270	300	250	340 H	320 K	350 K	(460) CK	450 K	430 K	430 K	(370) CK	390 K	350 K	250 K	260 K	260 K	260 K	270	280	280
26	280	270	280	270	280	280	240	240	240	340	330	340	350	400	360	370	350	250	240	220	250	270	280	280
27	280	300	280	270	300	300	250	230	210	240	240	250	250	280	340	330	270	300	230	270	250	250	260	300
28	290	290	300	270	260	270	240	230	[240] C	240	220	240	260	250	250	250	280	260	250	250	240	250	250	260
29	270	290	270	340	330	280	250	230	260	250	370	(360)	340	370	330	350	[300] C	240	260	250	240	250	260	270
30	280	280	260	260	280	[260] C	250	240	230	270	(290) C	(300) C	(300) C	250	(360) H	260	260	250	240	270	260	240	260	270
31																								
Median	280	290	270	270	260	260	250	230	240	250	255	280	280	300	300	250	250	240	240	240	240	240	260	270
Count	29	29	29	28	27	27	27	28	29	28	26	28	28	29	29	29	29	29	29	29	28	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 61

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: M. C. E., K. L. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	6.9	6.4	6.0	5.6	5.3	4.5	5.6	(7.6)S	8.8	9.4	11.3	11.8	12.4	12.2	12.3	12.0	11.5	11.5	(11.0)S	(10.2)S	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	11.5	11.6	12.0	12.2	12.0	11.7	(11.3)P	S C	S C	(7.9)P	(7.9)J	(7.0)J	7.2
3	6.9	6.9	6.7	5.9	5.4	(4.5)P	4.9	(6.5)F	7.8	8.7	C	C	C	(10.7)P	(10.5)P	10.6	10.2	(10.0)S	(9.6)P	9.3	(8.0)P	7.2	6.9	(6.7)JV
4	(6.0)JF	(6.0)JF	(5.1)JF	(4.8)JF	(5.0)J	(5.0)JV	(6.4)JF	7.5	7.8	9.2	(9.6)P	(10.5)P	10.9	(11.0)P	10.5	10.5	(10.0)P	9.7	(9.8)PS	9.0	7.8	(7.4)J	(6.6)J	(6.6)P
5	(6.1)J	6.2	(6.0)S	(5.8)J	(5.1)JF	(5.1)JF	6.4R	7.5	8.2	9.4	9.8	(10.8)C	(10.5)P	10.6	11.0	(10.4)S	10.2	(10.9)P	(9.9)S	(9.7)S	8.7	7.9	7.1	6.5
6	(6.4)JF	(6.2)JF	(5.6)JF	(5.7)JF	(5.6)JF	(5.5)JF	6.5	7.9	9.1	(9.9)P	(10.7)P	11.0	11.3	11.3	(10.6)P	(9.8)P	(9.9)SP	(9.8)S	(9.4)S	(9.6)S	8.8	7.7	7.0	7.1
7	6.9	6.8	6.5	5.8	5.3	4.8F	5.3	6.8	8.8	(10.2)P	11.4	11.6	11.5	11.5H	11.5	(10.5)P	10.4	(9.7)SP	11.4	(9.5)S	(9.2)S	(7.8)S	7.1	6.9
8	6.5	6.5	6.1	5.7	5.2	5.1	6.5	9.0	(9.9)P	10.3	11.5	(11.6)JC	12.0	12.0	[12.0]C	11.9	11.9	(11.9)P	(10.5)S	(10.6)S	9.0	8.7	7.9	7.8
9	7.3	7.2	6.9	6.5	6.0	5.3	6.3	8.3	(9.8)P	(11.0)P	(11.2)P	11.5	11.6	11.5	11.4	11.4	11.2	11.0	(10.0)PS	(9.8)P	9.1	8.8	8.4	8.2
10	8.0	7.9	7.4	6.8	6.2	6.0	7.2	9.6	(10.2)S	10.3	11.4	11.6	11.7	11.6	11.8	11.5	(11.1)S	(11.0)S	(10.8)S	(10.4)S	9.1	8.9	7.9	(7.3)J
11	6.7	6.7	6.7	6.5	6.2	5.7	(6.3)S	7.1	(7.4)J	(7.8)J	7.7	8.2	8.9	9.3	9.4	9.3	9.2	8.8	8.6	8.4	7.7	7.5	7.0	6.7
12	(6.7)J	6.5	6.4	(6.1)JS	6.1	5.7	6.9	8.7	(9.9)P	11.4	11.6	11.8	11.4	11.5	11.5	11.3	(10.8)C	10.3	(9.7)P	(9.4)SP	8.7	8.3	(7.9)J	(7.3)J
13	7.1	7.1	(7.4)J	6.9	C	C	C	C	(10.6)JS	11.9	12.0	12.0	12.2	11.9	11.6	11.3	10.5	(10.3)JS	[10.3]JS	(10.3)S	(9.5)P	8.4	7.8	8.0
14	7.3	8.0	7.8	6.2	5.7	5.3	6.4	7.2	7.5K	6.8K	6.8K	7.0K	7.8K	7.9K	8.8K	9.1K	9.0	9.1	8.9	8.8	7.9	7.3	6.9	(6.7)P
15	6.6	6.3	6.2	5.9	5.5	5.7	(7.5)P	8.7	9.4	(10.0)SP	10.9	11.5	11.4	11.7	11.5	11.1	(10.3)S	(10.1)SP	(9.8)SP	9.4	8.8	8.6	8.1	8.1
16	7.4	7.0	6.9	(6.6)S	6.4	6.3	(7.4)S	8.8	9.7	10.3	10.4	11.3	11.5	11.5	11.3	11.4H	(10.5)HP	(10.4)PS	(10.0)S	(9.8)S	8.9	8.4	8.1	7.9
17	7.9	7.3	(6.9)J	6.5	5.9	5.9	(6.9)JS	7.8	[7.9]C	8.0	7.9	8.3P	9.0	9.4	10.0	[9.9]S	(9.8)S	9.8H	(9.7)S	(9.7)SP	[8.7]C	8.0	(7.6)JS	7.0
18	(6.7)JS	[6.5]C	6.3P	C	C	C	C	8.0	9.4	C	C	C	C	C	C	C	C	C	C	C	C	(8.1)C	(8.0)JS	(7.5)JS
19	[7.3]C	(7.1)S	6.9	(6.8)JF	6.4	6.3	(7.6)S	9.7	(10.1)SP	11.0	11.0	11.3	11.3	11.0	11.2	10.9	10.3	10.2	(9.8)S	(9.8)S	9.3	8.4	8.2	7.7
20	7.4	7.0	6.9	6.9	6.9	7.0	8.0	9.4	10.1	10.3	(9.8)P	10.3	(10.3)P	10.2	[10.4]C	10.5H	[10.4]C	(10.2)S	(9.7)P	(9.4)P	(7.4)P	7.2	(7.6)J	(8.2)J
21	(7.1)J	(6.5)J	(6.3)J	(5.5)JV	(5.2)J	(5.4)P	6.9	8.2	8.2K	7.9K	7.6K	7.5K	7.7K	7.9K	7.8K	7.9K	7.9K	7.9K	8.1K	8.0K	(7.0)JK	(6.6)JSK	(6.1)JSK	(5.6)SPK
22	FK	FK	FK	3.0FK	3.1FK	3.6FK	(4.1)JFK	4.9K	GK	(5.3)K	GK	GK	GK	GK	GK	6.1K	6.2K	(6.4)JK	6.3K	6.6K	6.6K	6.3K	(6.0)SK	(6.1)JK
23	(5.8)JFK	(5.6)JFK	(4.7)JF	(4.7)JFK	(4.4)JF	4.5K	5.6K	6.5K	7.0K	7.8K	8.3K	9.0K	8.9K	9.0K	8.8K	(8.5)JK	8.3K	8.1K	8.0K	7.9	8.2	(7.8)J	7.5	6.9
24	6.9	6.9	6.3	6.5	6.4	(5.9)J	(6.7)JS	(8.1)J	8.6	9.6	10.3	(10.6)P	(10.3)P	10.0	(9.8)B	(9.7)P	9.5	9.2	8.9	(8.9)S	9.0	(8.7)S	(8.7)S	(7.9)S
25	(7.4)JS	(7.4)JS	7.1	(6.5)J	6.0	5.7	(6.2)S	7.2	6.9K	7.3K	(7.5)JK	(7.9)PK	(8.1)JK	8.3K	8.3K	8.6K	8.9K	8.9K	8.6K	8.4K	7.8K	(7.7)J	7.5	(7.2)J
26	(6.8)J	(6.4)J	(5.8)JS	5.6	5.3	4.5	(5.9)S	(7.7)J	7.5	8.9	(9.5)P	9.4	(9.8)P	9.5	9.5	9.4	9.4	(9.4)P	8.9	9.0	8.6	(8.3)C	(7.7)J	(7.9)J
27	7.4	(6.9)JS	(6.7)S	(5.7)S	(5.5)JS	5.2	6.1	7.6	(9.4)SP	(10.0)P	(9.6)P	9.8	10.2	(10.0)P	9.7	10.3	9.8	9.5	(9.4)SP	(9.6)P	(9.3)SP	8.7	8.3	7.7
28	(7.5)S	7.1	7.0	7.0	(6.5)SP	6.3	7.1	8.3	[9.0]C	(9.8)P	(10.6)P	(10.5)SP	(11.7)P	(10.5)P	10.4	(10.6)P	(10.7)P	(9.6)P	(9.6)S	(9.7)S	9.5	9.1	8.4	(7.7)S
29	(7.5)S	7.2	(6.6)S	3.9F	4.9	(6.3)S	7.1	8.2	8.0	8.0	8.6	9.0	(9.7)SP	(9.6)P	(9.5)P	9.3	[9.2]C	9.0	8.9	8.9	(8.1)C	(7.5)C	(6.9)JC	(6.2)C
30	(6.3)C	6.6	(6.5)JC	(5.9)C	(5.4)JC	[5.7]JC	6.0	(7.7)JC	(8.5)JC	(8.6)J	(8.9)C	(9.5)C	(9.6)C	9.5	9.4	9.6	(9.9)P	9.6	9.0	9.3	8.9	(6.9)S	7.3	7.1
31																								
Median	6.9	6.8	6.6	5.9	5.5	5.5	6.4	7.8	8.8	9.5	9.8	10.6	10.7	10.6	10.5	10.5	10.2	9.8	(9.6)	(9.4)	8.7	7.9	7.6	7.2
Count	28	28	28	28	27	27	27	28	29	28	27	28	28	29	29	29	29	29	28	28	28	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 62

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

f°F2 (Characteristic), Mc (Unit), April (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: J. J. S., J. M. C., E. J. W.

Calculated by: M. C. E., K. L. W.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	6.5	6.4	6.1	5.1	5.0	4.8	6.8	8.2	9.3	10.5	11.4	12.0	12.0	12.3	12.3	11.5	(11.7)S	11.4	(10.4)S	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	(10.2)C	[10.9]C	11.6	12.0	12.0	(11.9)C	(11.8)C	(11.4)P	[10.8]SC	10.2	(8.9)P	(8.0)J	7.2	7.0	6.8
3	6.8	6.8	6.3	5.4	5.7	(4.0)P	(5.6)F	7.2	(8.3)F	C	C	C	10.4	(10.5)P	10.5	10.4	(10.1)P	(9.8)PS	(9.5)P	8.5	7.4	7.2	6.8	(6.6)JK
4	(5.9)JF	(6.0)JS	(5.2)JF	(4.6)J	(5.0)J	(5.2)J	(7.7)J	7.8	9.0	10.0	(10.4)P	(10.6)P	11.0	(11.0)P	(10.7)P	10.3	9.8	(9.8)P	9.5	(8.5)P	(7.8)J	(7.4)P	(7.0)P	(6.4)J
5	5.9	6.0	(6.4)JC	(5.2)JF	(5.1)JF	(5.4)JC	7.2	7.7	8.7	9.6	10.3	(10.8)C	11.0	10.6	(10.7)S	(9.9)P	10.3	(10.0)S	(9.7)S	9.0	8.0	7.6	(6.7)F	(6.5)F
6	(6.3)JF	(5.7)JF	(5.7)JF	5.3	(5.6)JF	(5.9)J	7.3	8.7	9.5	(10.3)P	(10.7)S	11.3	11.4	11.3	10.3	(9.9)S	(10.3)S	(9.8)S	(9.8)S	(9.4)S	8.1	7.5	7.2	7.0
7	(6.9)J	6.6	6.1	5.5	4.9F	4.9F	5.9	7.7	9.3	(11.0)J	11.9	11.6	11.5H	11.5	11.1	(10.5)P	(9.6)SP	(9.8)SP	[9.7]S	(9.6)S	8.6	7.5	7.0	6.5
8	6.5	6.3	6.1	5.5	5.4	5.4	7.2	9.5	(10.3)SP	11.5	11.5	[11.8]C	12.0	12.0	[12.0]C	12.0	(11.8)P	(11.7)P	(10.6)S	(10.3)S	8.8	8.4	7.9	7.5
9	7.4	6.9	6.8	6.3	(5.7)P	5.5	(7.5)J	(9.4)P	(10.2)P	(10.8)P	11.3	11.4	11.6	11.2	11.5	11.3	11.0	S C	S C	9.6	8.8	8.7	8.4	8.2
10	8.1	7.7	7.1	6.5	5.9	6.4	8.2	(10.2)PS	(10.5)P	11.1	11.4	11.8	11.6	11.6	11.6	11.5	(11.1)S	(10.8)S	(10.4)S	(9.8)SP	9.0	8.6	7.8	6.9
11	6.8	6.7	6.5	6.5	5.7	(6.0)S	6.7	7.2	7.5	7.6	7.9	8.9	9.2	9.3	9.4	9.2	8.9	8.7	8.6	7.9	7.5	7.3	6.9	(6.8)
12	6.5	6.4	(6.3)J	6.1	6.0	6.1	(7.7)J	9.6	(10.6)C	11.7	11.8	11.8	(11.4)C	11.6	11.4	[10.9]C	(10.4)C	(9.9)S	(9.6)SP	9.3	8.7	(8.0)J	7.6	7.3
13	7.0	(7.4)J	(7.1)JS	(6.8)J	C	C	C	(10.3)S	11.4	12.0	12.0	12.0	12.0	12.0	11.3	11.1	(10.3)P	[10.2]SC	(10.1)PS	[9.7]SC	(9.3)S	(8.1)J	(8.0)P	7.9
14	7.3	8.2	6.9	5.8	5.3	5.7	7.1	7.1	7.0K	7.1K	6.8K	7.4K	7.7K	(8.3)JK	9.2K	9.3K	8.3	9.1	8.9	8.5	7.5	7.0	7.0	(6.7)J
15	6.3	6.1	6.0	5.7	5.5	6.4	8.3	9.5	(9.8)P	10.4	11.1	11.4	11.5	11.4	11.3	(11.1)S	(10.4)J	(9.9)SP	9.7	9.3	8.8	(8.2)S	8.1	7.7
16	7.1	6.9	6.6	6.5	6.3	6.7	8.3	9.7	(9.2)SP	(10.5)SP	11.3	11.5	11.9	11.3	11.4	11.0	10.3	[10.2]SC	(10.0)S	9.7	8.8	8.3	(7.9)JS	(7.9)JS
17	7.8	7.2	6.6	6.0	5.8	6.3	7.3	7.9	7.9	7.9	[8.0]C	8.8	[9.0]SC	9.6	[10.2]C	(10.1)S	9.8	(9.7)S	(9.5)SP	[9.0]C	[8.3]C	[7.5]SC	[7.5]SC	7.0
18	C	6.5F	C	C	C	C	C	[8.5]C	9.5	C	C	C	C	C	C	C	C	C	C	C	C	8.4	7.9	(7.5)JS
19	(7.0)JS	7.0SF	(6.8)JS	(6.6)J	6.3	(6.6)S	8.6	10.1	(10.4)S	11.3	11.2	11.3	11.0	11.2	11.3	(10.5)F	(10.2)S	(10.2)S	(9.9)S	9.7	8.9	(8.1)J	7.9	(7.7)J
20	7.1	6.9	6.9	6.9	7.1	7.3	8.7	[9.3]C	10.5	10.0	(10.3)P	(10.3)P	(9.8)P	C	C	(10.4)SK	(10.3)P	(9.9)P	S C	(8.5)JS	(7.1)J	(7.1)J	S C	(8.0)JS
21	(6.5)J	(6.5)J	(5.7)J	(5.0)J	5.2	6.1	8.0	8.4	8.0K	7.6K	7.6K	7.8K	7.9K	7.9K	7.9K	8.5K	7.9K	7.9K	8.0K	7.6K	(6.6)JK	K(6.2)JS	K(6.2)JS	F K
22	F K	F K	3.1FK	3.1FK	3.3FK	4.1FK	4.4K	4.1K	5.5FK	5.7K	G K	G K	G K	G K	6.1K	6.2K	6.1K	6.3K	6.5K	6.6K	6.7K	6.3K	[6.0]SK	K(5.7)JF
23	5.5FK	4.9FK	4.5FK	4.6FK	4.5FK	4.9K	6.1K	(6.7)JK	7.5K	7.8K	8.5K	[9.8]CK	9.0K	8.8K	8.5K	8.4K	8.2K	7.9K	7.9K	8.0	(8.0)J	7.7	(7.1)J	(7.1)J
24	7.0	6.8	6.4F	6.4	6.0	6.2	(7.6)J	(8.2)J	9.3	(10.1)P	10.5	(10.4)P	10.2	9.8	9.8	9.5	9.4	9.3	8.9	9.3	8.7	(8.7)S	(8.2)J	(7.6)JF
25	(7.2)SP	(7.4)J	6.9	6.3	5.5	6.0	6.5	7.2	(7.3)JK	G K	(7.6)JK	(8.1)JK	(8.2)JK	8.5K	(8.0)JK	8.9K	8.9K	8.7K	8.8K	8.0K	(7.7)JK	(7.6)J	(7.3)J	6.9
26	(6.6)JS	(5.9)JS	(5.7)JS	(5.4)S	4.9	5.3	6.7	8.0	8.2	8.8	9.3	9.4	9.5	9.6	9.7	9.5	9.5	9.2	8.7	8.7	(8.5)J	(8.2)J	(7.7)J	7.5
27	6.6	(6.8)JS	(6.4)JS	(5.5)JS	(5.2)JS	5.7	6.7	8.3	(9.4)JP	9.4	9.7	10.2	(10.0)P	10.0	10.3	9.4	(9.5)SP	(9.5)SP	(9.5)SP	(9.4)SP	9.1	8.5	(8.1)J	(7.7)J
28	(7.2)S	(7.1)JS	7.1	(6.8)JS	6.1	6.7	(7.7)JS	8.8	[7.8]C	(6.9)P	(10.5)SP	(10.5)P	(10.8)P	(10.2)P	(10.4)P	10.7	9.6	(9.6)SP	(9.6)SP	(9.6)SP	9.3	8.7	(8.2)JS	7.7
29	7.2	(7.1)JS	(5.5)S	3.8F	(5.7)S	6.7	7.5	7.9	8.2	(8.5)C	8.8	9.7	(9.6)P	(9.6)P	9.3	9.2	[9.0]C	8.8	8.9	8.9	(7.9)C	(7.3)C	(6.7)JC	(6.2)C
30	(6.9)JC	(6.6)SC	(6.2)C	(5.9)C	(5.3)C	(5.5)JC	(7.1)JC	C	C	(8.1)JC	(8.4)JC	(9.8)C	9.5	9.4	[9.6]C	9.8	9.8	9.4	8.9	9.0	8.5	7.7	7.2	7.1
31																								
Median	6.9	6.8	6.4	5.8	5.5	5.9	7.3	8.2	9.2	10.0	10.4	10.6	10.8	10.6	10.4	10.3	9.8	(9.8)	(9.5)	9.0	8.4	7.7	7.4	7.1
Count	27	28	28	28	27	27	27	28	28	28	28	28	29	28	28	29	29	28	27	28	28	29	28	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 63

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

h'F1 (Characteristic), Km (Unit), April (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: K. L. W., G. G. H.

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									200	220	210	180	230	210	220	210	210							
2									C	C	C	200	200	200	200									
3										200	C	C	C	190	200		220							
4										230	200	200	(210)B	220		220								
5									220	200	200	200	190	210	200	220	230	230						
6										200	200	190	200	230	200	210	220							
7								230	230	200		230	180	170	(210)C	200	220							
8									200	190	180	180	210	200	C	200	220	230						
9										220	200	200	200	190	180	210								
10											200		200	190				230						
11								230	230	220	220	230	230		200	220	220	230						
12										200		200	180	230	230	220								
13											200	200	190	200	200	220	220							
14									230K	230K	200K	200K	(200)BK	200K	210K	220K	230							
15											200	190	200	210	220		220	220						
16											200	210	190	200	210	220	220							
17								230	C	220	210	210	200	210	220	C		230						
18										C	C	C	C	C	C	C	C	C						
19											220	220	230	230	230									
20										240	240	220	250	230	C		C							
21								250	230A	230K	250K	220K	220K	230K	230K	230K	230K	230K						
22							280FK	250K	210K	240K	230K	230K	230K	230K	240K	250K	250K	260K						
23									230K	220K	220K	190K	200K	220K	(220)BK	(220)BK	230K	230K						
24									230	230	230	230	200	220	220	230	230	230						
25								250	240K	230K	(250)AK	220K	210K	230K	220K	210K	230K	230K						
26										230	230	230	200	210	210	230	230	240						
27										220	190	200	200	220	(220)B	230	230	230						
28										220		220	220	200	200	220	230	230						
29									220	230	220	200	220	250	230	230	C							
30								230		210	(220)C	(200)C	200	200	200	210	230							
31																								
Median								230	230	220	210	200	200	210	210	220	230	230						
Count								7	12	23	24	27	28	28	25	22	20	14						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 64

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°F1 (Characteristic), Mc (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: G. G. H., K. L. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	4.9	L	L							
2									C	C	C	L	L^{H}	4.7	L									
3										L	C	C	C	L	L		L							
4										L	L	L^{H}	L	L		L								
5									L	L	$(4.6)^{L}$	$(4.9)^{L}$	$(4.9)^{L}_{H}$	L	$(4.9)^{L}$	L	L	L						
6										L	4.1	4.7	L	L	L	L	L^{H}							
7								L	L	L		L	L	L^{H}	L									
8									L	L	L^{H}	L	L	L	C	L	L	L						
9										L	L	L	$(5.0)^{J}$	$(5.2)^{H}$	(4.8)	L								
10											L		L	L				L						
11								L	L	L	5.4	5.6	$[5.5]^{L}$	$(5.3)^{P}$	L	L	L	L						
12										L		L	L	L	L	L								
13											L	L	L	(6.1)	L^{H}	L	L							
14									5.1^{K}	5.4^{K}	5.2^{K}	5.7^{K}	5.8^{K}	5.7^{K}	5.8^{K}	L^{K}	L							
15											L	4.7	$[5.4]^{L}$	6.0	L		L	L						
16											L	L	L	L	L	L	L							
17								L	C	5.1	5.6^{H}	5.7	$(5.9)^{H}$	5.9	5.7	C		L^{H}						
18										C	C	C	C	C	C	C	C	C						
19											L	L	L	6.2	L									
20										L	$(6.3)^{C}$	$[6.2]^{L}_{H}$	6.2	6.5	C		C							
21								L	$(5.5)^{K}$	5.5^{K}	$(5.6)^{K}$	5.5^{K}	5.4^{K}	5.4^{K}	5.4^{K}	5.5^{K}	L^{K}	L^{K}						
22							L^{K}	3.9^{K}	4.5^{K}	4.8^{K}	4.9^{K}	5.1^{K}	5.2^{K}	5.1^{K}	5.0^{K}	5.0^{K}	5.0^{K}	L^{K}						
23									L^{K}	L^{K}	L^{K}	6.1^{K}	6.1^{K}	5.6^{K}	C^{K}	L^{K}	L^{K}	L^{K}						
24									L	L	L	L	L	L	L	L	L	L						
25								L	L^{K}	L^{K}	5.8^{K}	$(5.4)^{C}_{K}$	$[5.2]^{L}_{K}$	4.9^{K}	$(5.2)^{C}_{K}$	4.9^{K}	L^{K}	L^{K}						
26										L	(4.9)	L	L	5.9^{H}	L	L	L	L						
27										L^{H}	L	L	L	L	L	L	L	L						
28										5.8		L	L	L	4.4	L	L	L^{H}						
29									L^{H}	L	5.6	5.5	$[5.8]^{L}$	6.0	L	L	C							
30								L		$(4.9)^{C}$	$(5.1)^{J}_{C}$	$(5.4)^{C}$	$(5.5)^{C}$	5.5	$[5.0]^{L}$	4.5	L							
31																								
Median										5.2	5.3	5.5	(5.5)	5.6	5.0									
Count										6	12	13	13	16	10									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O 702519

Form adopted June 1946

TABLE 65

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat. 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: K. L. W., N. M.

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							140	100	100	100	100	100	100	100	100	100	100	100	120					
2							C	C	C	C	C	100	100	A	A	(120)^{A}	100	100	100					
3							(130)^{S}	100	100	100	C	C	C	100	100	100	100	100	(130)^{S}					
4							100	100	100	100	100	100	100	100	100	100	100	100	120					
5							(120)^{S}	110	100	100	100	100	100	A	100	100	100	100	120					
6								100	A	A	A	100	100	100	100	100	100	100	120					
7							130	100	100	100	100	100	100	100	100	90	90	90	110					
8							150^{H}	100	100	100	100	100	100	100	C	100	100	100	110					
9							150	100	100	100	100	100	A	100	100	(120)^{A}	100	110	130					
10							(140)^{S}	100	100	(120)^{A}	100	100	100	100	100	100	100	100	110					
11							(130)^{A}	100	100	100	B	100	B	B	100	100	100	100	120					
12							130	100	100	100	100	100	B	100	B	100	100	100	100					
13							C	C	100	100	100	B	100	100	100	100	100	100	(110)^{S}					
14							120	100	100^{K}	100^{K}	A^{K}	A^{K}	A^{K}	A^{K}	100^{K}	100^{K}	100	100	100					
15							120	100	100	100	100	100	100	100	100	100	100	100	110					
16							130	100	100	100	100	100	100	100	100	100	100	100	100					
17							120	100	C	100	100	(90)^{B}	(100)^{B}	100	100	C	100	100	110					
18								100	100	C	C	C	C	C	C	C	C	C	C					
19							120	120	120	120	110	110	110	110	A	120	110	110	130					
20							130	110	120	110	B	120	110	110	C	120	C	A	120	S				
21							130	A	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	100^{K}	100^{K}	120^{K}	100^{K}	100^{K}	120^{K}	130^{K}				
22							130^{K}	110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	120^{K}	100^{K}	110^{K}	110^{K}	110^{K}	110^{K}	130^{K}	130^{K}				
23							130^{K}	120^{K}	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	100^{K}	110^{K}	B^{K}	110^{K}	110^{K}	130^{K}					
24							130	120	110	110	110	110	110	110	110	110	110	110	130	140				
25							120	120	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	110^{K}	120^{K}					
26							110	110	110	A	110	110	110	100	100	110	110	110	120					
27							110	110	100	110	100	110	110	100	100	110	100	110	110					
28							120	110	C	100	100	100	100	120	110	110	100	110	130					
29							140	110	110	110	100	110	110	100	100	100	C	110	120	120				
30							(120)	(110)^{C}	110	100	(110)^{C}	C	110	100	110	110	110	110	120					
31																								
Median							130	100	100	100	100	100	100	100	100	100	100	100	120					
Count							26	27	26	26	23	25	24	25	24	27	27	28	29					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 66

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat. 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: K. L. W., G. G. H.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							1.8	2.4	2.9	3.4	(3.2)B	B	B	B	B	3.5	3.2	2.9	2.1					
2							C	C	C	C	C	A	A	(3.7)B	3.7	3.6	3.3	2.8	(2.2)H					
3							(1.9)S	2.5	2.8 H	3.3	C	C	C	(3.8)B	3.7	(3.6)B	3.2	2.7	(2.2)					
4							(1.3)	(2.5)	3.0	3.4	[3.6]A	(3.8)B	B	B	(3.7)B	(3.6)B	(3.4)B	2.7	2.1					
5							(1.5)H	2.5	3.0	3.3	3.5	[3.7]B	(3.9)B	3.9	3.9	(3.7)B	3.4	2.9	2.2					
6								2.4	[3.0]B	3.5	[3.6]A	3.7	[3.8]B	(3.9)B	[3.5]B	(3.1)B	3.3	3.1	2.1					
7							1.8 F	[2.5]B	3.2	3.5	3.7	[3.8]A	(3.8)B	3.9	3.8	3.3	3.3	2.8	2.1					
8							1.9	2.5 H	3.1 H	3.4	3.5	3.7	3.8	B.	C	3.7 B	3.3	2.9 B	2.2					
9							1.9 H	2.7	(3.2)B	3.5	3.7	3.8	A	B	(3.3)B	3.7	3.5	2.9	(2.3)J					
10							(1.8)H	2.7	3.3	(3.6)A	3.8	3.8	[3.8]B	(3.9)B	3.8	3.6	(3.3)	3.0	2.4					
11							1.9	2.5 H	A	B	B	B	B	B	3.8	3.7	3.4	3.1	2.4					
12							2.0	2.7	3.2	3.7	3.8	(3.8)B	B	B	B	3.7	3.3	[2.8]A	2.4					
13							C	C	3.2	3.4	(3.7)B	B	B	4.1	4.0	(3.8)F	(3.5)F	3.0	2.3					
14							1.8 H	2.8	3.3 K	3.6 K	A K	A K	A K	A K	(3.9)BK	3.9 K	[3.4]B	3.0	2.3					
15							2.1 F	2.7	3.2	3.5	3.7	3.7	3.8	4.0	3.9	3.7 H	3.5	3.1	2.4					
16							2.1	2.7	3.2	3.5	3.6	3.9	(3.8)B	4.0	3.9	3.8	(3.4)H	(3.1)H	2.3					
17							2.1	2.9	[3.3]C	3.7	3.7	(3.9)B	(4.1)B	4.1	4.1	[3.9]C	3.7	3.3	A					
18								2.9	3.4	C	C	C	C	C	C	C	C	C	C					
19							A	(3.0)A	(3.5)B	(3.9)B	4.1	[4.1]B	(4.1)B	[4.0]B	4.0	3.9	3.7	3.1	2.3					
20							A	2.7	3.6 H	3.5 HB	B	A	(4.0)B	4.2	[4.0]C	3.9	C	A	2.5	S				
21							(2.2)	A	A K	(3.6)AK	(3.7)AK	(3.7)AK	[3.8]AK	(3.9)BK	3.8 K	3.7 HK	(3.5)BK	2.9 HK	(2.4)HK	(2.1)BK				
22							1.7 HFK	2.7 K	3.1 K	(3.3)BK	(3.7)CK	3.9 K	3.9 K	(3.9)BK	(3.9)BK	3.7 BK	3.2 K	2.9 K	2.5 K	1.7 K				
23							2.3 K	2.9 K	3.4 K	3.3 K	(3.7)BK	3.7 BK	(3.9)BK	B K	B K	B K	3.7 K	3.2 K	2.4 K					
24							2.1	2.9	3.2	(3.3)B	(3.7)B	(3.8)B	3.9	(3.9)BS	(3.7)B	3.7	3.4	3.1	2.5	1.5				
25							2.1 H	2.8	3.2 K	3.3 K	(3.7)AK	3.7 K	3.9 K	3.8 BK	3.7 K	3.7	3.2 BK	3.1 BK	2.3 K					
26							(1.7)A	2.9	3.2	[3.4]A	3.7	(3.9)B	(3.9)B	3.9	3.9	3.7	3.5 B	3.0	2.4					
27							1.9	2.9 H	3.0	3.3	(3.7)B	(4.0)B	4.0	(4.0)B	A	B	3.4	3.0	2.4					
28							2.1	2.7	[2.8]C	2.9 H	3.7 B	3.9 B	[4.0]B	4.0	(3.9)B	(3.3)B	3.3	2.9 H	2.3					
29							2.2	2.9	(3.2)B	3.3 B	(3.4)B	B	B	B	(3.9)B	3.5	[3.2]C	2.9	2.3	B				
30							2.1	2.7	3.2	3.2	C	C	C	C	4.0	(3.7)B	(3.3)H	3.0	2.3					
31																								
Median							1.9	2.7	3.2	3.4	3.7	3.8	(3.9)	3.9	3.9	3.7	3.4	3.0	2.3					
Count							24	27	27	27	23	20	18	19	24	27	28	28	28					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

Form adopted June 1946

TABLE 67

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: J. J. S., J. M. C., E. J. W.

Calculated by: J. T. D., F. H. L.

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																	3.5 130	4.4 130	3.2 130		C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	5.0 100	4.1 100	3.4 100	3.4 100	2.8 100		2.9 130						
3						3.0 120					C	C	C											
4											35 120				38 130			2.9 130						
5								26 130	3.2 120	36 100	41 100			3.4 100									1.8 100	31 100
6	45 100								3.7 100	42 100	49 100								1.9 90			2.0 110		
7										37 110	4.0 100	46 100			4.2 110	3.8 120								
8				26 100				33 110							C									
9								4.3 110					3.9 100			3.2 100		2.0 100	1.9 90					
10								3.0 150	3.5 140	39 120		32 120	4.1 120	42 120	40 120	3.9 120		3.4 120						
11							14 100	3.2 110	33 100			40 120	4.0 120	4.2 100										
12	32 100	3.7 100									4.0 120	4.0 100						3.8 110						
13					C	C	C	C																
14				1.3 120						4.0 120	44 100	4.0 100	4.1 100	40 100				3.2 130						
15								3.0 130			40 110	4.1 100							2.3 120					
16												4.3 100						3.2 130	3.5 130	1.9 110				
17									C							C		4.3 130	3.4 110		C			
18		C		C	C	C	C		42 120	C	C	C	C	C	C	C	C	C	C	C	C			
19	C						3.1 130	3.7 140						3.7 110	3.7 110					1.7 130				
20						2.3 130	3.0 140		3.8 140			4.1 130			C	4.0 130	C	4.0 120						
21				26 130				28 120	3.2 130	3.6 120	4.1 120	4.3 120	39 120						3.7 140	2.9 140				
22		3.2 120					42 100																	
23							4.7 100																	
24			3.4 110	1.3 110	2.3 120				4.7 130	3.7 130	4.2 120													
25										38 130	56 120								4.6 130	47 120	3.6 120			
26							3.7 130	32 140	4.6 120	4.5 110							4.8 120							
27							2.1 130								40 100					1.7 140				
28							31 130	3.2 120	C					2.8 100		36 110			30 140	1.7 130				
29		33 130	2.3 140	32 130			1.9 130										C		4.6 120					
30					3.1 120	C					C	C	C	C				4.4 130	4.0 130	3.2 130	3.1 120			
31																								
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	28	28	29	28	27	26	27	28	27	28	26	27	27	28	27	28	27	29	29	29	27	29	29	29

** MEDIAN fEs LESS THAN f°E, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 702519

Form adopted June 1946

TABLE 68

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

F2-M1500 (Characteristic), ____ (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: N. M., J. L. K.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.8	1.7	1.8	1.8	1.8	1.9	1.9	(2.2)S	2.1	2.1	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.1	(2.0)S	(2.0)S	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	(2.0)C	2.0	1.9	2.0	1.9	1.9	(2.0)P	S C	S C	(2.0)P	(1.9)J	(1.9)J	1.8
3	1.8	1.9	1.9	1.8	1.8	(1.9)P	2.1	(2.1)F	2.2	2.2	C	C	C	(2.1)P	(2.0)F	2.1	2.0	(2.0)S	(2.1)P	2.0	(2.0)F	1.9	1.9	(1.9)JY
4	(1.9)JF	(1.9)JF	(1.8)JF	(1.7)JF	(1.7)J	(1.9)JY	(2.0)JF	2.3	2.2	2.1	(2.1)P	(2.0)P	2.0	(2.0)P	2.0	1.9	(1.9)P	1.9	(2.0)PS	2.0	2.1	(1.9)J	(2.0)J	(1.9)P
5	(1.8)J	1.9	(1.9)S	(2.0)J	(2.1)JF	(1.9)JF	2.1 R	2.2	2.1	2.1	2.0	(2.1)C	(2.1)P	2.1	1.9	(2.0)S	2.0	(1.8)P	(2.1)S	(2.1)S	2.0	2.0	1.9	1.9
6	(1.9)JF	(1.7)JF	(1.7)JF	(1.8)JF	(1.7)JF	(2.0)JF	2.1	2.2	2.0	(1.9)P	(2.0)P	2.0	1.9	1.9	(1.9)P	(1.9)P	(1.9)SP	(2.0)S	(2.2)S	(2.1)S	1.9	1.8	1.9	1.8
7	1.7	1.8	1.9	1.7	1.7	1.8 F	2.0	2.1	2.0	(2.0)P	2.0	1.9	2.0	1.9 H	(1.7)C	(1.9)P	1.9	(2.2)SP	2.0	(2.3)S	(1.9)S	(2.1)S	1.8	1.9
8	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	(2.3)P	2.2	2.0	(2.0)JC	2.0	1.9	C	1.9	2.0	(1.9)P	(2.2)S	(2.1)S	2.1	1.9	1.9	1.9
9	1.9	1.9	2.0	2.1	2.0	1.9	2.2	2.2	(2.2)P	(2.0)P	(2.0)P	1.9	1.9	2.0	1.9	1.9	1.9	2.0	(2.2)PS	(2.0)P	1.9	1.8	1.9	1.9
10	1.8	1.9	1.9	1.9	1.8	1.8	2.1	2.1	(2.2)S	2.0	2.0	1.9	1.9	1.8	1.9	1.8	(1.9)S	(1.8)S	(1.9)S	(1.9)S	1.9	1.9	2.0	(1.8)J
11	1.5	1.6	1.7	1.7	1.8	1.8	(2.1)S	2.0	(2.0)J	(1.9)J	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.7	1.7	1.7
12	(1.7)J	1.6	1.7	(1.7)JS	1.7	1.8	2.1	2.0	(2.1)P	2.0	1.9	1.8	1.7	1.7	1.7	1.8	(1.8)C	1.8	(1.9)P	(1.9)SP	1.8	1.7	(1.8)J	(1.7)J
13	1.7	1.7	(1.8)J	1.8	C	C	C	C	(2.1)JS	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	(1.8)JS	S C	(2.0)S	(1.9)P	1.9	1.7	1.7
14	1.7	1.7	2.0	1.8	1.8	1.8	1.9	2.0	1.8K	1.8K	1.7K	1.7K	1.7K	1.6K	1.7K	1.8K	1.9	1.9	2.0	1.9	1.9	1.8	1.8	(1.7)P
15	1.6	1.6	1.7	1.7	1.6	1.8	(2.1)P	2.0	2.0	(1.9)SP	1.8	1.8	1.7	1.7	1.7	1.8	(1.8)S	(1.9)SP	(1.8)SP	1.9	1.9	1.7	1.8	1.8
16	1.8	1.7	1.7	(1.7)S	1.7	1.8	(2.0)S	2.1	2.1	1.8	1.8	1.8	1.8	1.7	1.8	1.8H	(1.9)HP	(1.8)PS	(1.9)S	(2.0)S	1.7	1.8	1.7	1.7
17	1.8	1.8	(1.8)J	1.8	1.7	1.8	(2.1)JS	1.9	C	1.8	1.7	1.6P	1.7	1.8	1.7	C	(1.8)S	1.8H	(1.9)S	(1.8)SP	[1.8]C	1.8	(1.8)JS	1.8
18	(1.8)JS	C	1.7P	C	C	C	C	2.0	1.9	C	C	C	C	C	C	C	C	C	C	C	C	(1.8)C	(1.8)JS	(1.7)JS
19	C	(1.7)S	1.8	(1.9)JF	1.8	1.9	(2.0)S	1.9	(2.0)SP	1.9	1.8	1.8	1.7	1.7	1.8	1.7	1.8	1.8	(1.9)S	(1.9)S	1.8	1.8	1.7	1.7
20	1.6	1.6	1.7	1.6	1.7	1.9	2.0	1.9	1.9	1.7	(1.7)P	1.7	(1.6)P	1.7	C	1.7H	C	(2.1)S	(1.9)P	(1.9)P	(1.6)P	1.5	(1.6)J	(1.7)J
21	(1.6)J	(1.6)J	(1.7)J	(1.7)JY	(1.7)J	(1.7)P	1.9	2.0	1.9K	1.8K	1.7K	1.7K	1.7K	1.7K	1.7K	1.7K	1.7K	1.8K	1.9K	1.9K	(1.8)JK	K(1.7)JS	K(1.6)JS	K(1.7)SP
22	F K	F K	F K	1.4 FK	1.5 FK	1.7 FK	K(1.9)JF	1.5K	G K	(1.5)CK	G K	G K	G K	G K	G K	1.5K	1.6K	(1.7)JK	1.7K	1.8K	1.7K	1.7K	K(1.7)SP	K(1.7)JF
23	K(1.7)JF	K(1.7)JF	K(1.8)JF	K(1.7)JF	K(1.7)JF	1.8K	1.9K	2.0K	1.7K	1.9K	1.8K	1.8K	1.6K	1.8K	1.8K	(1.7)JK	1.8K	1.8K	1.8K	1.8	1.7	(1.8)J	1.7	1.7
24	1.7	1.6	1.7	1.6	1.8	(1.9)J	(2.2)JS	(2.1)J	2.0	1.8	1.8	1.7	(1.7)P	1.8	(1.7)B	(1.8)P	1.8	1.8	1.9	(1.8)S	1.8	(1.6)S	(1.7)S	(1.7)S
25	(1.6)JS	(1.7)JS	1.7	(1.7)J	1.7	1.8	(2.1)S	1.8	1.9K	1.9K	(1.6)JK	(1.6)PK	(1.7)JK	1.7K	1.8K	1.7K	1.8K	1.8K	1.8K	1.9K	1.7K	(1.8)J	1.8	(1.8)J
26	(1.8)J	(1.8)JF	(1.8)JS	1.8	1.7	1.9	(1.9)S	(2.0)J	2.0	1.9	(1.8)P	1.8	(1.7)P	1.7	1.9	1.8	1.8	(1.8)P	1.8	1.8	1.7	(1.7)C	(1.8)J	(1.7)J
27	1.7	(1.8)JS	(1.6)S	(1.8)S	(1.8)JS	1.8	2.0	1.9	(1.9)SP	(1.9)P	(1.9)P	1.9	1.9	(1.8)P	1.8	1.8	1.7	1.9	(1.9)SP	(1.9)P	(1.8)SP	1.8	1.9	1.8
28	(1.7)S	1.7	1.8	1.7	(1.8)SP	1.9	2.1	2.0	C	(1.9)P	(1.9)P	(1.9)SP	(1.7)P	(1.9)P	1.8	(1.8)P	(1.8)P	(1.9)P	(2.0)S	(2.0)S	1.9	1.8	1.9	(1.8)S
29	(1.8)S	1.8	(1.8)S	1.6F	1.7	(1.8)S	2.1	2.1	2.0	1.7	1.8	1.8	(1.8)SP	(1.8)P	(1.8)P	1.8	C	1.9	1.9	1.9	(2.0)C	(1.9)C	(1.8)JC	(1.9)C
30	(1.9)C	1.8	(1.8)JC	(1.8)C	(1.8)JC	C	2.0	(2.1)JC	(2.0)JC	(2.1)J	(2.0)C	(2.0)C	(1.8)C	1.8	1.9	1.8	(1.8)P	1.9	1.9	1.9	1.9	(2.1)S	1.7	1.7
31																								
Median	1.8	1.7	1.8	1.8	1.7	1.8	2.1	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	(1.9)	(1.9)	1.9	1.8	1.8	1.8
Count	27	27	28	28	27	26	27	28	27	28	27	28	28	29	27	28	27	29	27	28	28	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 69

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

F2-M3000 (Characteristic), ____ (Unit), April (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: J. L. K., N. M.

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	2.7	2.6	2.7	2.7	2.8	2.8	2.9	$(3.2)^{S}$	3.1	3.1	2.8	2.9	2.8	2.9	2.9	2.8	3.0	3.1	$(3.1)^{S}$	$(3.0)^{S}$	C	C	C	C		
2	C	C	C	C	C	C	C	C	C	C	C	$(2.9)^{C}$	3.0	2.9	2.9	2.9	2.9	$(3.1)^{P}$	S^{C}	S^{C}	$(3.0)^{P}$	$(2.9)^{J}$	$(2.9)^{J}$	2.7		
3	2.9	2.8	2.8	2.7	2.6	$(2.8)^{P}$	3.1	$(3.1)^{F}$	3.2	3.2	C	C	C	$(2.9)^{P}$	$(2.9)^{P}$	3.1	2.9	$(3.0)^{S}$	$(3.1)^{P}$	3.0	$(3.0)^{P}$	2.8	2.8	$(2.9)^{J}_{V}$		
4	$(2.8)^{J}_{F}$	$(2.8)^{J}_{F}$	$(2.7)^{J}_{F}$	$(2.5)^{J}_{F}$	$(2.6)^{J}$	$(2.8)^{J}_{V}$	$(3.0)^{J}_{F}$	3.5	3.2	3.2	$(3.1)^{P}$	$(3.0)^{P}$	3.0	$(2.9)^{P}$	2.9	2.9	$(2.9)^{P}$	2.9	$(3.1)^{P}_{S}$	2.9	3.0	$(2.9)^{J}$	$(2.9)^{J}$	$(2.8)^{P}$		
5	$(2.7)^{J}$	2.8	$(2.8)^{S}$	$(2.9)^{J}$	$(3.2)^{J}_{F}$	$(3.0)^{J}_{F}$	3.1^{R}	3.2	3.0	3.2	3.1	$(3.1)^{C}$	$(3.1)^{P}$	3.1	2.9	$(3.0)^{S}$	2.9	$(2.8)^{P}$	$(3.1)^{S}$	$(3.1)^{S}$	2.9	2.9	2.8	2.8		
6	$(2.8)^{J}_{F}$	$(2.6)^{J}_{F}$	$(2.6)^{J}_{F}$	$(2.7)^{J}_{F}$	$(2.7)^{J}_{F}$	$(3.0)^{J}_{F}$	3.1	3.2	3.0	$(2.9)^{P}$	$(2.9)^{P}$	2.9	2.7	2.8	$(2.8)^{P}$	$(2.8)^{P}$	$(2.8)^{S}_{P}$	$(3.1)^{S}$	$(3.2)^{S}$	$(3.1)^{S}$	2.8	2.9	2.8	2.8		
7	2.8	2.7	2.8	2.6	2.6	2.7^{F}	3.0	3.1	3.0	$(3.0)^{P}$	3.0	2.9	2.9	2.8^{H}	$(2.7)^{C}$	$(2.9)^{P}$	2.9	$(3.2)^{S}_{P}$	3.0	$(3.3)^{S}$	$(2.9)^{S}$	$(3.1)^{S}$	2.8	2.8		
8	2.8	2.8	2.8	3.0	2.9	2.9	3.2	3.2	$(3.4)^{P}$	3.2	3.0	$(2.9)^{J}_{C}$	2.9	2.9	C	2.9	2.9	$(2.9)^{P}$	$(3.1)^{S}$	$(3.1)^{S}$	3.1	2.9	2.9	2.9		
9	2.9	3.0	2.9	3.0	3.0	2.9	3.2	3.3	$(3.2)^{P}$	$(3.1)^{P}$	$(3.0)^{P}$	2.9	2.9	2.9	2.8	2.9	2.8	2.9	$(3.0)^{P}_{S}$	$(3.1)^{P}$	2.8	2.7	2.8	2.8		
10	2.8	2.9	2.8	2.8	2.7	2.8	3.1	3.1	$(3.1)^{S}$	3.0	3.0	2.8	2.9	2.7	2.7	2.7	$(2.8)^{S}$	$(2.7)^{S}$	$(2.8)^{S}$	$(2.9)^{S}$	2.8	2.9	3.0	$(2.7)^{J}$		
11	2.5	2.5	2.6	2.6	2.7	2.9	$(3.0)^{S}$	3.0	$(3.0)^{J}$	$(2.9)^{J}$	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.9	2.8	2.7	2.7	2.6	2.6		
12	$(2.5)^{J}$	2.5	2.6	$(2.6)^{J}_{S}$	2.6	2.6	3.2	3.0	$(3.1)^{P}$	3.0	2.8	2.7	2.6	2.6	2.7	2.6	$(2.7)^{C}$	2.8	$(2.8)^{P}$	$(2.9)^{S}_{P}$	2.7	2.6	$(2.7)^{J}$	$(2.7)^{J}$		
13	2.6	2.6	$(2.8)^{J}$	2.7	C	C	C	C	$(3.1)^{J}_{S}$	2.9	2.9	2.8	2.8	2.6	2.8	2.7	2.7	$(2.8)^{J}_{S}$	S^{C}	$(2.9)^{S}$	$(2.8)^{P}$	2.9	2.6	2.6		
14	2.6	2.6	3.0	2.7	2.7	2.7	2.8	2.9	2.6^{K}	2.7^{K}	2.7^{K}	2.5^{K}	2.5^{K}	2.4^{K}	2.7^{K}	2.7^{K}	2.8	2.7	3.0	2.8	2.8	2.7	2.7	$(2.6)^{P}$		
15	2.4	2.5	2.5	2.5	2.5	2.7	$(3.2)^{P}$	3.0	3.0	$(2.9)^{S}_{P}$	2.8	2.6	2.6	2.6	2.6	2.7	$(2.8)^{S}$	$(2.8)^{S}_{P}$	$(2.7)^{S}_{P}$	2.8	2.7	2.7	2.7	2.7		
16	2.7	2.6	2.6	$(2.6)^{S}$	2.7	2.7	$(3.1)^{S}$	3.1	3.1	2.8	2.8	2.7	2.7	2.6	2.7	2.6^{H}	$(2.8)^{H}_{P}$	$(2.8)^{S}_{S}$	$(2.9)^{S}$	$(3.0)^{S}$	2.8	2.7	2.6	2.6		
17	2.7	2.7	$(2.6)^{J}$	2.7	2.6	2.9	$(3.1)^{J}_{S}$	2.9	C	2.8	2.6	2.5^{P}	2.5	2.6	2.6	C	$(2.7)^{S}$	2.7^{H}	$(2.8)^{S}$	$(2.8)^{S}_{P}$	$[2.7]^{C}$	2.8	$(2.9)^{J}_{S}$	2.7		
18	$(2.8)^{J}_{S}$	C	2.7^{P}	C	C	C	C	3.1	2.9	C	C	C	C	C	C	C	C	C	C	C	C	$(2.7)^{C}$	$(2.7)^{J}_{S}$	$(2.6)^{J}_{S}$		
19	C	$(2.6)^{S}$	2.7	$(2.7)^{J}_{F}$	2.7	3.1	$(3.0)^{S}$	2.8	$(3.0)^{S}_{P}$	2.8	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7	$(2.9)^{S}$	$(2.9)^{S}$	2.7	2.6	2.9	2.8		
20	2.5	2.5	2.6	2.5	2.6	2.9	3.0	2.9	2.8	2.5	$(2.6)^{P}$	2.8	$(2.5)^{P}$	2.6	C	2.7^{H}	C	$(3.0)^{S}$	$(2.9)^{P}$	$(2.9)^{P}$	$(2.4)^{P}$	2.4	$(2.5)^{J}$	$(2.7)^{J}$		
21	$(2.5)^{J}$	$(2.5)^{J}$	$(2.5)^{J}$	$(2.6)^{J}_{V}$	$(2.5)^{J}$	$(2.6)^{P}$	2.8	3.0	2.8^{K}	2.8^{K}	2.5^{K}	2.5^{K}	2.5^{K}	2.6^{K}	2.6^{K}	2.6^{K}	2.6^{K}	2.7^{K}	2.8^{K}	2.8^{K}	$(2.7)^{J}_{K}$	$^{K}(2.6)^{J}_{S}$	$^{K}(2.4)^{J}_{S}$	$^{K}(2.5)^{S}_{P}$		
22	F^{K}	F^{K}	F^{K}	2.1^{F}_{K}	2.4^{F}_{K}	2.5^{F}_{K}	$^{K}(2.9)^{J}_{F}$	2.5^{K}	G^{K}	$(2.3)^{C}_{K}$	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	2.3^{K}	2.4^{K}	$(2.5)^{J}_{K}$	2.7^{K}	2.7^{K}	2.6^{K}	2.7^{K}	$^{K}(2.6)^{S}_{P}$	$^{K}(2.6)^{J}_{F}$		
23	$^{K}(2.6)^{J}_{F}$	$^{K}(2.4)^{J}_{F}$	$^{K}(2.7)^{J}_{F}$	$^{K}(2.6)^{J}_{F}$	$^{K}(2.5)^{J}_{F}$	2.7^{K}	2.9^{K}	3.0^{K}	2.6^{K}	2.8^{K}	2.7^{K}	2.8^{K}	2.6^{K}	2.7^{K}	2.7^{K}	$(2.6)^{J}_{K}$	2.7^{K}	2.7^{K}	2.8^{K}	2.8	2.6	$(2.7)^{J}$	2.7	2.6		
24	2.6	2.5	2.6	2.6	2.8	$(2.8)^{J}$	$(3.3)^{J}_{S}$	$(3.1)^{J}$	2.9	2.8	2.8	$(2.6)^{P}$	$(2.6)^{P}$	2.6	$(2.6)^{B}$	$(2.6)^{P}$	2.6	2.7	2.8	$(2.7)^{S}$	2.7	$(2.6)^{S}$	$(2.6)^{S}$	$(2.7)^{S}$		
25	$(2.5)^{J}_{S}$	$(2.5)^{J}_{S}$	2.6	$(2.6)^{J}$	2.6	2.7	$(3.1)^{S}$	2.8	2.8^{K}	2.8^{K}	$(2.4)^{J}_{K}$	$(2.5)^{P}_{K}$	$(2.6)^{J}_{K}$	2.6^{K}	2.7^{K}	2.6^{K}	2.7^{K}	2.6^{K}	2.7^{K}	2.8^{K}	2.6^{K}	$(2.7)^{J}$	2.7	$(2.8)^{J}$		
26	$(2.8)^{J}$	$(2.8)^{J}_{F}$	$(2.7)^{J}_{S}$	2.7	2.6	2.7	$(2.9)^{S}$	$(2.9)^{J}$	3.0	2.8	$(2.8)^{P}$	2.6	$(2.6)^{P}$	2.6	2.7	2.6	2.7	$(2.7)^{P}$	2.7	2.7	2.6	$(2.6)^{C}$	$(2.6)^{J}$	$(2.7)^{J}$		
27	2.6	$(2.6)^{J}_{S}$	$(2.4)^{S}$	$(2.7)^{S}$	$(2.7)^{J}_{S}$	2.7	3.0	2.8	$(2.9)^{S}_{P}$	$(2.9)^{P}$	$(2.9)^{P}$	2.9	2.8	$(2.7)^{P}$	2.8	2.8	2.6	2.8	$(2.8)^{S}_{P}$	$(2.8)^{P}$	$(2.7)^{S}_{P}$	2.8	2.9	2.7		
28	$(2.6)^{S}$	2.5	2.7	2.6	$(2.7)^{S}_{P}$	2.9	3.1	3.0	C	$(3.0)^{P}$	$(2.8)^{P}$	$(2.9)^{S}_{P}$	$(2.6)^{P}$	$(2.9)^{P}$	2.7	$(2.8)^{P}$	$(2.7)^{P}$	$(2.9)^{P}$	$(3.0)^{S}$	$(3.0)^{S}$	2.8	2.6	2.8	$(2.7)^{S}$		
29	$(2.8)^{S}$	2.6	$(2.7)^{S}$	2.5^{F}	2.5	$(2.7)^{S}$	3.1	3.0	2.9	2.6	2.7	2.6	$(2.7)^{S}_{P}$	$(2.8)^{P}$	$(2.8)^{P}$	2.7	C	2.8	2.8	2.8	$(2.9)^{C}$	$(2.7)^{C}$	$(2.7)^{J}_{C}$	$(2.9)^{C}$		
30	$(2.8)^{C}$	2.8	$(2.7)^{J}_{C}$	$(2.7)^{C}$	$(2.7)^{J}_{C}$	C	3.0	$(3.2)^{J}_{C}$	$(3.1)^{J}_{C}$	$(3.2)^{J}$	$(2.8)^{C}$	$(2.9)^{C}$	$(2.7)^{C}$	2.7	2.8	2.6	$(2.7)^{P}$	2.9	2.8	2.8	2.8	$(3.2)^{S}$	2.6	2.6		
31																										
Median	2.7	2.6	2.7	2.6	2.7	2.8	3.1	3.0	3.0	2.9	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.8	(2.9)	(2.9)	2.8	2.7	2.7	2.7		
Count	27	27	28	28	27	26	27	28	27	28	27	28	28	29	27	28	27	29	27	28	28	29	29	29		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 70

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

F1-M3000 (Characteristic), ____ (Unit), April (Month), 1948

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: E. J. W., J. J. S., J. M. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

Calculated by: J. L. K., N. M.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	4.1	L	L							
2									C	C	C	L	L	4.3	L									
3										L	C	C	C	L	L		L							
4										L	L	L	L	L		L								
5									L	L	(4.1)L	(4.1)L	(4.1)L	L	(4.1)L	L	L	L						
6										L	4.3	4.3	L	L	L	L	L							
7								L	L	L		L	L	LH	L									
8									L	L	LH	L	L	L	C	L	L	L						
9										L	L	L	(3.3)J	(4.0)H	(4.4)	L								
10											L		L	L				L						
11								L	L	L	3.9	3.6	L	(4.0)P	L	L	L	L						
12										L		L	L	L	L	L								
13											L	L	L	(3.5)	LH	L	L							
14									3.5K	3.3K	3.7K	3.5K	3.6K	3.5K	3.4K	LK	L							
15											L	4.3	L	3.6	L		L	L						
16											L	L	L	L	L	L	L							
17								L	C	3.8	3.5	3.7	(3.7)H	3.7	3.8	C		L						
18										C	C	C	C	C	C	C	C	C						
19											L	L	L	3.4	L									
20										L	(3.4)C	L	3.4	3.2	C		C							
21								L	(3.3)K	3.5K	(3.4)K	3.5K	3.5K	3.6K	3.5K	3.3K	LK	LK						
22							LK	3.4K	3.6K	3.5K	3.6K	3.6K	3.6K	3.5K	3.6K	3.4K	3.2K	LK						
23									LK	LK	LK	3.3K	3.3K	3.5K	CK	LK	LK	LK						
24									L	L	L	L	L	L	L	L	L	L						
25								L	LK	LK	3.3K	(3.7)CK	LK	3.6K	(3.7)CK	3.9K	LK	LK						
26										L	(3.9)	L	L	3.4H	L	L	L	L						
27										LH	L	L	L	L	L	L	L	L						
28										3.5		L	L	L	4.4	L	L	LH						
29									L	L	3.5	3.6	L	3.4	L	L	C							
30								L		(3.7)C	(3.4)JC	(3.8)C	(3.8)C	3.7	L	3.9	L							
31																								
Median										3.5	3.5	3.6	3.5	3.6	3.8									
Count										6	12	12	9	16	9									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 71

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

E-M1500 (Characteristic) ____ (Unit) April (Month) 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. J. S., J. M. C.

Calculated by: J. L. K., N. M.

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	4.2	4.5	4.4	(4.8)B	B	B	B	B	4.1	4.4	4.1	4.6					
2							C	C	C	C	C	A	A	(4.7)B	4.3	4.2	4.5	4.6	(3.8)H					
3							(3.7)S	4.5	4.6H	4.4	C	C	C	(4.5)B	4.5	(4.2)B	4.4	4.4	(4.0)					
4							(4.6)	(4.2)	4.3	4.4	A	(4.5)B	B	B	(4.2)B	(4.3)B	(4.4)	4.5	4.3					
5							(4.5)H	4.4	4.7	4.5	4.9	B	(4.5)B	4.4	4.4	(4.3)B	4.5	4.3	4.4					
6								4.6	B	4.4	A	4.5	B	(4.4)B	B	(4.5)B	4.2	4.2	4.5					
7							4.1F	B	4.5	4.5	4.7	A	(4.5)B	4.4	4.2	4.6	4.5	4.4	4.3					
8							3.8	4.4H	4.1H	4.3	4.6	4.3	4.5	B	C	4.3B	4.5	4.3B	4.1					
9							3.4H	4.3	(4.4)B	4.4	4.2	4.4	A	B	(4.7)B	4.3	4.3	4.4	(4.1)J					
10							(4.6)H	4.4	4.3	(4.3)A	4.6	4.6	B	(4.4)B	4.5	4.4	(4.5)	4.4	4.2					
11								4.6H	A	B	B	B	B	B	4.4	4.3	4.4	4.3	4.3					
12							3.9	4.1	4.4	4.3	4.6	(4.6)B	B	B	B	4.3	4.5	A	4.2					
13							C	C	4.8	4.6	(4.6)B	B	B	4.3	4.0	(4.3)F	(4.6)F	4.5	4.5					
14							4.6H	4.3	4.5K	4.5K	AK	AK	AK	AK	(4.5)BK	4.3K	B	4.3	4.2					
15							4.0F	4.5	4.6	4.6	4.6	4.6	4.6	4.5	4.5	4.6H	4.5	4.3	4.1					
16							4.0	4.7	4.5	4.7	4.8	4.4	(4.6)B	4.4	4.5	4.5	(4.4)H	(4.5)H	4.1					
17							4.1	4.3	C	4.6	4.6	(4.5)B	(4.3)B	4.3	4.3	C	4.3	4.3	A					
18								4.5	4.6	C	C	C	C	C	C	C	C	C	C					
19							A	(3.9)A	(4.2)B	(4.2)B	4.3	B	(4.1)B	B	A	3.9	4.1	4.1	4.2					
20							A	4.3	4.1	4.4HB	B	A	(4.3)B	4.0	C	4.3	C	A	3.8	S				
21							(4.1)	A	AK	(4.2)AK	(4.6)AK	(4.6)AK	(4.5)AK	(4.5)BK	4.1K	4.2HK	(4.3)BK	4.5HK	(3.9)HK	(4.4)BK				
22							4.6HFK	4.4K	4.4K	(4.4)BK	(4.6)CK	4.1K	4.3K	(4.4)BK	(4.3)BK	4.3BK	4.4K	4.2K	3.7K	4.6K				
23							3.7K	4.1K	4.4K	4.5K	(4.2)BK	(4.6)BK	(4.4)BK	BK	BK	BK	4.1K	4.2K	4.2K					
24							4.0	4.1	4.5	(4.4)B	(4.4)B	(4.5)B	4.4	(4.5)BS	(4.2)B	4.2	4.4	4.1	4.1	4.2				
25							4.0H	4.0	4.4K	4.3K	(4.5)AK	4.5K	4.4K	4.5BK	4.3K	4.2K	(4.5)BK	4.1BK	4.3K					
26							(4.6)A	4.0	4.3	A	4.6	(4.4)B	(4.4)B	4.4	4.1	4.1	4.0B	4.2	4.3					
27							4.3	4.1H	4.6	4.5	(4.3)B	(4.4)B	4.2	(4.4)B	A	B	4.3	4.3	4.2					
28							4.3	4.4	C	4.8	4.3	4.4B	B	4.4	(4.5)B	(4.5)B	4.2	4.1H	4.3					
29							3.7	4.1	(4.8)B	4.5B	(4.5)B	B	B	B	(4.1)B	4.3	C	4.5	4.0	B				
30							4.3	4.4	4.3	4.7	C	C	C	C	3.8	(4.2)B	(4.4)H	4.0	4.2					
31																								
Median							4.0	4.3	4.4	4.4	4.6	4.5	(4.4)	4.4	4.3	4.3	4.4	4.3	4.2					
Count							23	26	24	26	21	17	15	18	21	26	26	27	28					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 72

Ionospheric Storminess at Washington, D. C.

April 1948

Day	Ionsopheric character* 00-12 GCT	Ionsopheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	1	0			4	3
2	***	1			4	2
3	1	2			3	2
4	2	2			2	1
5	1	1			1	1
6	2	1			2	4
7	1	2			3	3
8	1	2			1	1
9	0	1			1	1
10	0	1			1	2
11	2	3			2	1
12	2	1			2	2
13	2	2			3	2
14	1	5	1300	2000	3	2
15	3	1			2	2
16	1	2			1	2
17	1	3			1	2
18	1	***			2	2
19	2	1			1	1
20	2	2			3	2
21	2	4	1300	---/	4	2
22	6	7	---/	---/	5	3
23	4	4	---/	2300	2	2
24	3	1			2	2
25	2	4	1300	---/	3	2
26	2	1	---/	0100	2	3
27	2	1			3	2
28	2	3			3	2
29	3	1			3	3
30	2	2			3	2

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

***No readable record. Refer to table 61 for detailed explanation.

/Dashes indicate continuing storm.

Table 73

Sudden Ionosphere Disturbances Observed at Washington, D. C.

April 1948

Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
1	1352	1400	Ohio, D.C., England	0.1	
1	1648	1700	Ohio, D.C., England	0.0	
3	1953	2020	Ohio, D.C.,	0.03	
4	1722	1750	Ohio, D.C.,	0.3	
5	1351	1410	Ohio, D.C., England	0.2	
6	1608	1625	Ohio, D. C., England	0.2	
10	1437	1505	Ohio, D.C., England	0.02	
10	1848	1905	Ohio, D.C.,	0.03	
12	1805	1825	Ohio, D. C., England	0.1	
13	1740	1750	Ohio, England	0.1	
14	1829	1910	Ohio, D. C., England	0.0	
16	1259	1320	England	0.2	
19	2236	2255	Ohio, D.C.	0.1	Terr.mag.pulse** 2230-2240
20	1223	1255	Ohio, D.C., England	0.0	Terr.mag.pulse** 1223-1235
20	1446	1515	Ohio, D.C., England	0.03	
22	1615	1635	Ohio, D.C., England	0.1	Terr.mag.pulse** 1616-1630
23	1808	1855	Ohio, D.C., England	0.05	
23	1930	2025	Ohio, D.C., England, New Brunswick	0.05	
26	1417	1430	Ohio, England	0.1	
27	1247	1305	Ohio, D.C., England	0.2	

*Ratio of received field intensity during SID to average field intensity before and after, for station W8XAL, 6080 kilocycles, 600 kilometers distant, for all SID except the following: Station GLH, 13525 kilocycles, received in New York, 5340 kilometers distant, was used for the SID on April 16.

**As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

Table 74

Sudden Ionosphere Disturbances Reported by

RCA Communications, Inc., as Observed

at Point Reyes, California

1948 Day	GCT Beginning	GCT End	Location of transmitters
April 7	0310	0330	China, Chosen, Japan, Philippine Is.
9	2325	0000	Australia, China, Chosen, Hawaii, Japan, New York, Philippine Is.
10	0129	0215	Australia, China, Chosen, Japan, Philippine Is.
17	1831	2000	Australia, China, Chosen, Hawaii, Japan, Philippine Is.

Table 75

Sudden Ionosphere Disturbances Reported by

International Telephone and Telegraph Corporation,

as Observed at Platanos, Argentina

1948 Day	GCT Beginning	GCT End	Location of transmitters
March 11	1222	1300	Brazil, Chile, England, New York, Switzerland, Venezuela
11	1852	1900	Bolivia, Brazil, Chile, Colombia, England, New York, Spain, Switzerland, Venezuela
17	1630	1650	Bolivia, Brazil, Chile, New York, Netherlands, Peru, Spain, Venezuela
20	1224	1255	Brazil, Chile, New York, Venezuela
21	1425	1445	Bolivia, Brazil, Chile, England, New York, Peru, Switzerland, Venezuela

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Table 76

Sudden Ionosphere Disturbances Reported by

Engineer-in-Chief, Cable and Wireless, Ltd.,

as Observed in England

1948 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
March 19	1130	1145	Brentwood	Belgian Congo, Canary Is., Chile, Kenya, Southern Rhodesia, Spain, Switzerland, Thailand, Yugoslavia, Zanzibar
20	0630	0730	Brentwood	Afghanistan, Belgian Congo, Bulgaria, Greece, India, Iran, Kenya, Palestine, Southern Rhodesia, Syria
20	0958	1015	Brentwood	Austria, Bahrein I., Belgian Congo, Canary Is., Greece, India, Iran, Italian East Africa, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
20	1225	1310	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Chile, Colombia, Greece, India, Iran, Kenya, Madagascar, Malta, Palestine, Portugal, Southern Rhodesia, Spain, Surinam, Switzerland, Syria, Thailand, Turkey, Yugoslavia, Zanzibar
20	0635	0715	Somerton	Ceylon, China, Egypt, India, Union of S. Africa
20	0958	1015	Somerton	Argentina, Ceylon, India, Union of S. Africa
20	1225	1252	Somerton	Argentina, Australia, Barbados, Brazil, Canada, Ceylon, China, Egypt, Gold Coast, India, New York, Nigeria, Union of S. Africa
21	0945	1020	Brentwood	Austria, Belgian Congo, Greece, India, Iran, Palestine, Spain, Syria, Turkey, U.S.S.R.
21	1420	1440	Brentwood	Austria, India, Spain, Turkey, U.S.S.R.
21	0950	1015	Somerton	Australia, China, Gold Coast, India, Nigeria, Union of S. Africa
21	1420	1440	Somerton	Gold Coast, New York, Nigeria, Union of S. Africa

Table 76 (Continued)

1948 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
22	1005	1035	Brentwood	Austria, Belgian Congo, India, Kenya, Southern Rhodesia, Syria, Turkey
26	0945	1035	Brentwood	Belgian Congo, French Equatorial Africa, India, Madagascar, Palestine, Syria, U.S.S.R., Yugoslavia, Zanzibar
April 1	0630	0655	Brentwood	India, Iran, Kenya, Palestine, Southern Rhodesia, Syria, U.S.S.R.
1	0910	0935	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Eritrea, Greece, India, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
1	1335	1400	Brentwood	Austria, Canary Is., Greece, U.S.S.R.
1	1650	1715	Brentwood	Chile, Colombia, Uruguay, Venezuela
1	0918	0948	Somerton	Ceylon, India
1	1340	1400	Somerton	Argentina, Brazil, Union of S. Africa
2	1015	1030	Brentwood	Austria, Greece, India, Kenya, Southern Rhodesia, Turkey
2	1225	1240	Brentwood	Spain, U.S.S.R., Yugoslavia, Zanzibar
2	1225	1240	Somerton	Argentina, Australia, Brazil, Gold Coast, Union of S. Africa
4	0730	0745	Brentwood	Belgian Congo, Kenya, Southern Rhodesia
5	0830	0915	Brentwood	Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Portugal, Southern Rhodesia, Spain, Switzerland, Zanzibar
7	1030	1120	Brentwood	Austria, Bulgaria, Greece, India, Iran, Portugal, Southern Rhodesia, Switzerland, Syria, Zanzibar
8	1000	1020	Brentwood	Belgian Congo, Canary Is., Greece, India, Iran, Palestine, Portugal, Southern Rhodesia, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar

Table 76 (Continued)

1948 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
9	0950	1025	Brentwood	Belgian Congo, Bulgaria, India, Palestine, Southern Rhodesia, Spain, Thailand, Turkey, U.S.S.R., Yugoslavia, Zanzibar
10	1105	1130	Brentwood	Austria, Belgian Congo, Canary Is., Greece, India, Southern Rhodesia, Spain, Switzerland, Thailand, Turkey, Yugoslavia, Zanzibar
13	1100	1115	Brentwood	Austria, Canary Is., Chile, Greece, India, Iran, Kenya, Southern Rhodesia, Switzerland, Thailand, U.S.S.R., Yugoslavia, Zanzibar
16	1145	1215	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Chile, Greece, Iran, Kenya, Madagascar, Portugal, Southern Rhodesia, Spain, Switzerland, Thailand, Turkey, U.S.S.R., Yugoslavia, Zanzibar
16	1145	1225	Somerton	Argentina, Ascension I., Australia, Brazil, Ceylon, Gold Coast, Union of S. Africa
19	0725	0755	Brentwood	Belgian Congo, Eritrea, French Equatorial Africa, Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Syria, U.S.S.R., Yugoslavia, Zanzibar
20	0720	0740	Brentwood	Belgian Congo, French Equatorial Africa, Greece, India, Iran, Kenya, Madagascar, Palestine, U.S.S.R.
20	1215	1300	Brentwood	Austria, Bahrein I., Belgian Congo, Bulgaria, Canary Is., Chile, Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Turkey, U.S.S.R., Yugoslavia, Zanzibar
20	1225	1330	Somerton	Argentina, Australia, Barbados, Brazil, Canada, Ceylon, China, Egypt, Gold Coast, India, Malay States, New York, Union of S. Africa

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Table 77

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and CRPL Probable Disturbed Period Forecasts)
March 1948

Day	North Atlantic: Quality figure 01-12 GCT	Quality figure 13-24 GCT	CRPL* Warning 01-12 GCT	CRPL* Warning 13-24 GCT	CRPL Forecast of probable disturbed periods	Geomagnetic K_{Ch} 01-12 GCT	Geomagnetic K_{Ch} 13-24 GCT	North Pacific: Quality figure 01-12 GCT	Quality figure 13-24 GCT	CRPL* Warning 01-12 GCT	CRPL* Warning 13-24 GCT	CRPL Forecast of probable disturbed periods	Geomagnetic K_{Ch} 01-12 GCT	Geomagnetic K_{Ch} 13-24 GCT
1	5	6			X	5	3	6	5			X	5	3
2	5	6	X		X	4	4	4	6	X		X	4	4
3	5	6	X	X	X	4	2	5	5	X	X	X	4	2
4	6	6	X		X	2	1	6	6	X		X	2	1
5	7	6			X	2	2	6	6			X	2	2
6	6	6				2	2	6	5				2	2
7	6	5				2	1	6	6				2	1
8	6	6				0	2	7	6				0	2
9	7	6				2	2	6	7				2	2
10	7	7				1	2	6	6				1	2
11	7	6				0	1	6	6				0	1
12	5	6		X		3	2	7	7		X		3	2
13	5	(4)	X	X	X	4	4	5	(4)	X	X	X	4	4
14	5	6	X	X	X	4	3	5	5	X	X	X	4	3
15	(3)	(2)	X	X	X	6	5	(4)	(4)	X	X	X	6	5
16	(4)	5	X		X	2	1	5	5	X		X	2	1
17	6	5			X	3	1	6	6			X	3	1
18	6	6				2	1	7	6				2	1
19	7	6				2	2	6	5				2	2
20	6	7				2	2	6	6				2	2
21	7	7				3	2	6	5				3	2
22	7	6				1	2	6	6				1	2
23	6	6				1	1	6	6				1	1
24	7	6				1	0	6	7				1	0
25	7	7				1	2	7	7				1	2
26	7	6				1	2	7	6				1	2
27	6	6				3	2	6	6				3	2
28	7	6			X	2	0	6	6			X	2	0
29	7	6			X	1	1	7	6			X	1	1
30	6	7			X	3	3	7	7			X	3	3
31	7	6			X	2	2	7	6			X	2	2
Score:														
H			3		3					3		3		
M			0		0					0		0		
G			23		17					23		17		
(S)			4		5					3		4		
S			1		6					2		7		

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.

Quality Figure Scale:
1 - Useless
2 - Very poor
3 - Poor
4 - Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

Symbols:
- X Warning given or probable disturbed date
- H Quality 4 or worse on day or half day of warning
- M Quality 4 or worse on day or half day of no warning
- G Quality 5 or better on day of no warning
- (S) Quality 5 on day of warning
- S Quality 6 or better on day of warning
- ( ) Quality 4 or worse (disturbed)

Geomagnetic K_{Ch} on the standard scale of 0 to 9, 9 representing the greatest disturbance.

Table 78a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	-	-	-	-	-	-	2	3	3	5	8	7	7	5	10	13	19	19	5	10	11	14	16	15	17	13	7	7	4	4	3	2	3	3	3	3	3	-25
28.7	-	-	-	-	-	-	-	-	2	3	3	5	12	17	15	16	37	30	13	8	10	9	6	3	3	3	3	3	3	3	3	4	4	3	2	2	2	-25
29.8	-	-	-	-	-	-	-	-	-	-	2	3	5	12	18	20	34	32	9	8	9	4	1	3	4	3	3	4	-	-	-	-	-	-	-	-	-	-25
30.7	-	-	-	-	-	-	-	-	-	2	3	6	7	12	20	20	26	22	8	6	6	3	4	8	10	7	5	5	3	2	1	1	-	-	-	2	2	-25

Table 79a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	4	1	1	2	2	-	-	-	-	-	-	-	-	-	-25
28.7	-	-	-	-	-	-	-	-	-	-	-	-	2	3	1	1	12	11	9	1	1	3	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-25
29.8	-	-	-	-	-	-	1	1	1	1	1	-	-	5	5	10	14	14	1	-	-	5	5	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-25
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	1	5	8	1	1	3	10	10	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-25

Table 80a

Coronal observations at Climax, Colorado (6704A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25

Table 78b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	3	3	2	2	-	-	-	2	5	8	6	7	12	11	12	13	14	12	12	10	14	18	18	9	5	7	7	5	2	2	2	1	-	-	-	-	-	-25
28.7	2	5	4	3	2	2	-	-	-	-	-	-	2	5	37	39	40	31	23	12	10	13	18	20	27	23	18	10	4	3	3	-	-	-	-	-	-	-25
29.8	-	-	-	-	-	-	-	-	-	-	-	-	3	7	20	30	30	19	11	10	10	11	14	17	18	17	15	10	6	1	-	-	-	-	-	-	-	-25
30.7	2	2	2	2	2	2	-	-	2	3	4	4	3	10	19	18	16	13	10	14	17	20	18	18	19	18	13	10	5	2	-	-	-	-	-	-	-	-25

Table 79b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	1	2	3	3	7	12	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
28.7	-	-	-	-	-	-	-	-	1	1	1	1	2	4	7	14	15	15	3	1	1	5	12	17	3	1	10	5	-	-	-	-	-	-	-	-	-	-25
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	7	22	12	12	10	9	3	13	15	15	6	5	3	2	1	-	-	-	-	-	-	-	-25
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	11	12	2	2	1	3	8	13	10	5	3	3	3	1	-	-	-	-	-	-	-	-25

Table 80b

Coronal observations at Climax, Colorado (6704A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Apr. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
28.7	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-25

Table 81

American and Zürich Provisional Relative Sunspot Numbers

April 1948

Date	R_A*	R_Z**	Date	R_A*	R_Z**
1	201	160	16	266	200
2	222	190	17	263	190
3	227	194	18	237	226
4	220	181	19	228	228
5	227	170	20	215	206
6	199	152	21	209	179
7	205	163	22	226	184
8	194	151	23	243	212
9	211	167	24	253	245
10	199	173	25	244	215
11	223	181	26	211	190
12	261	190	27	204	188
13	264	219	28	170	166
14	295	243	29	154	169
15	261	215	30	143	138
			Mean	222.5	189.5

* Combination of 47 observers; see page 9.
** [illegible] observations at Zürich Observatory and its stations [illegible] a.

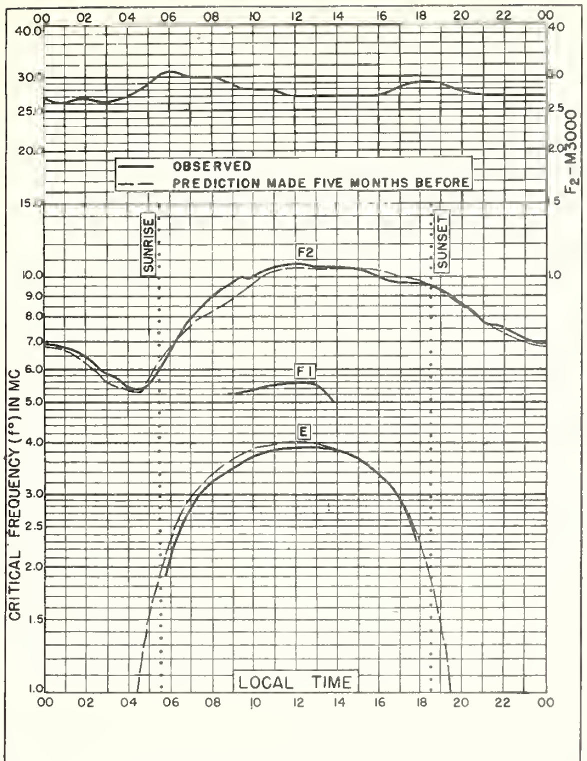

Fig. 1. WASHINGTON, D. C.
39.0°N, 77.5°W APRIL 1948

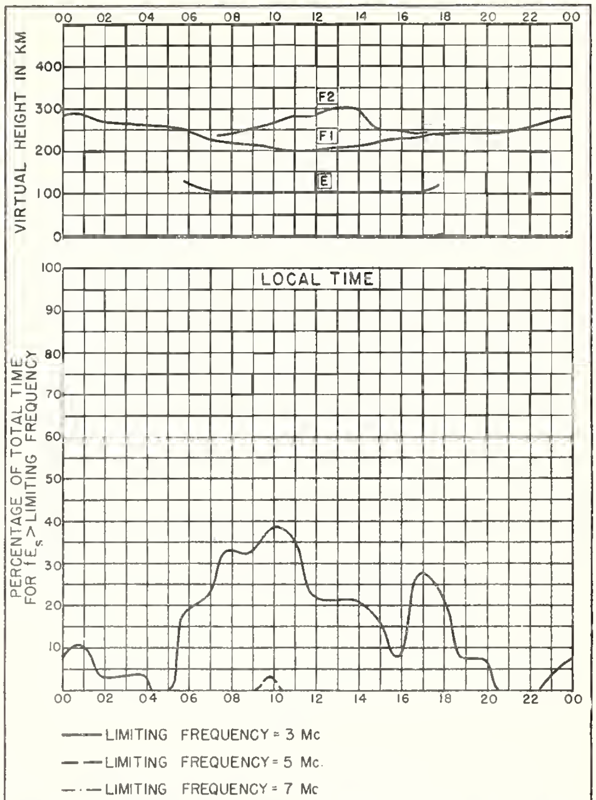

Fig. 2. WASHINGTON, D. C. APRIL 1948

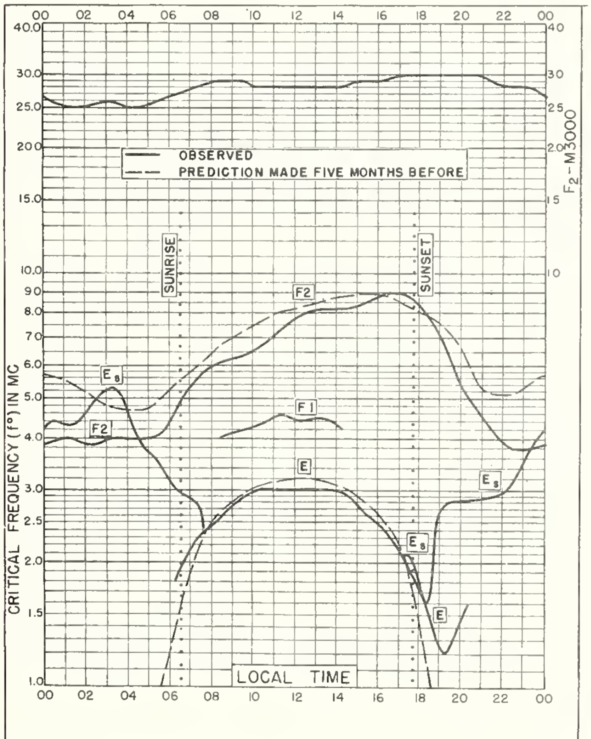

Fig. 3. FAIRBANKS, ALASKA
64.9°N, 147.8°W MARCH 1948

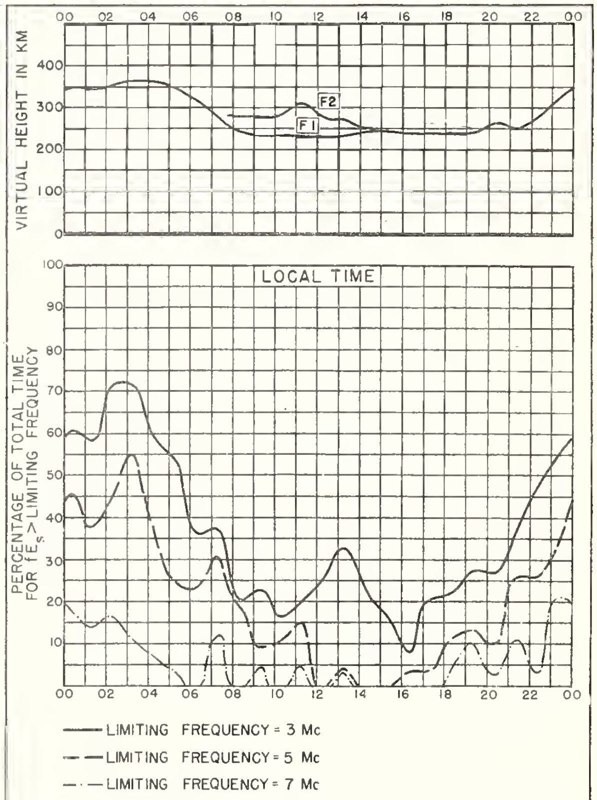

Fig. 4. FAIRBANKS, ALASKA MARCH 1948

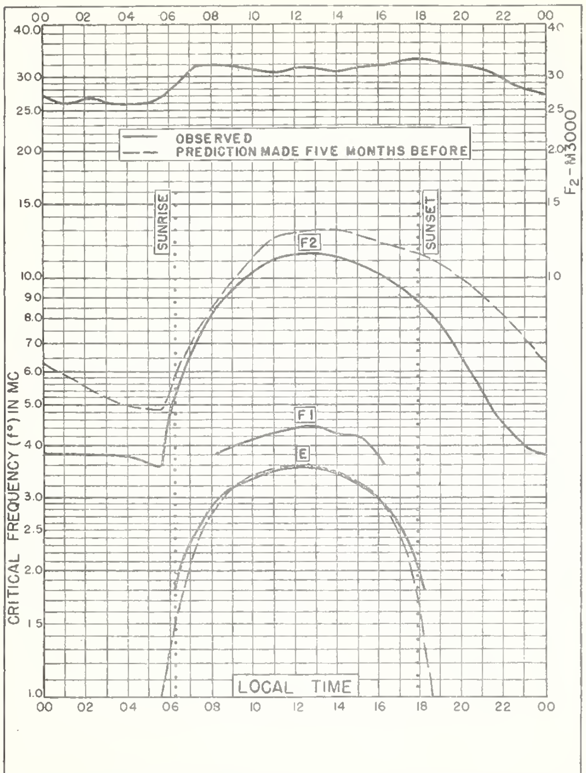

Fig. 5. ADAK, ALASKA
51.9°N, 176.6°W MARCH 1948

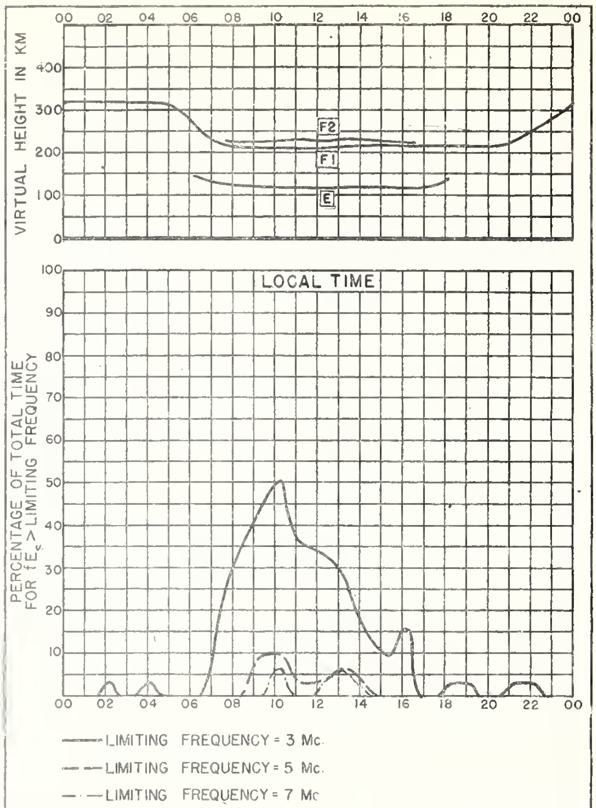

Fig. 6. ADAK, ALASKA MARCH 1948

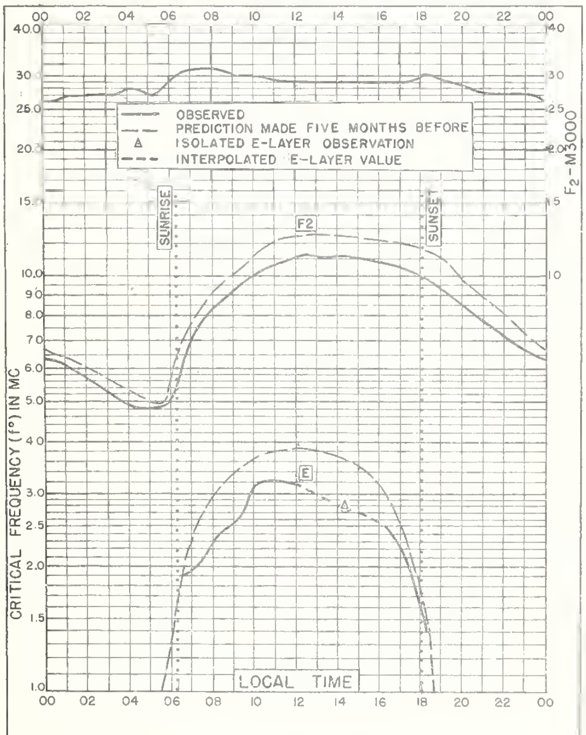

Fig. 7. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W. MARCH 1948

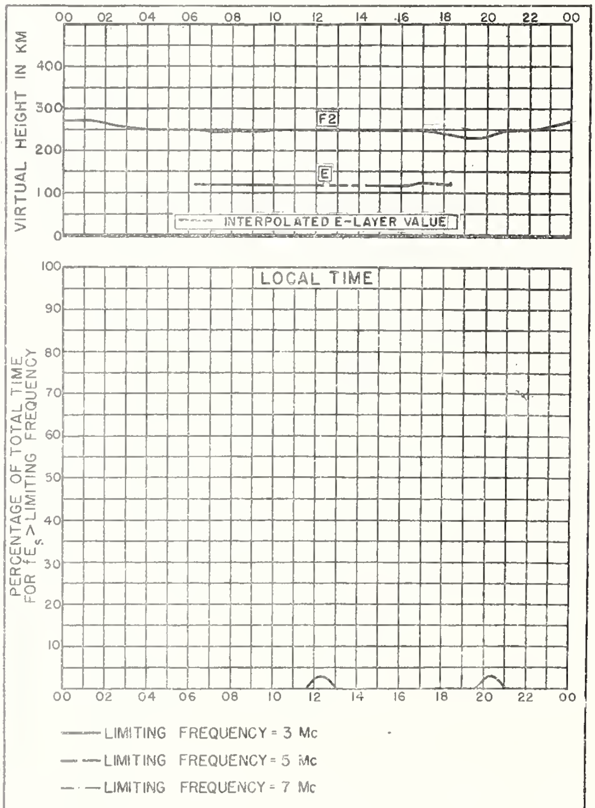

Fig 8. BOSTON, MASSACHUSETTS MARCH 1948

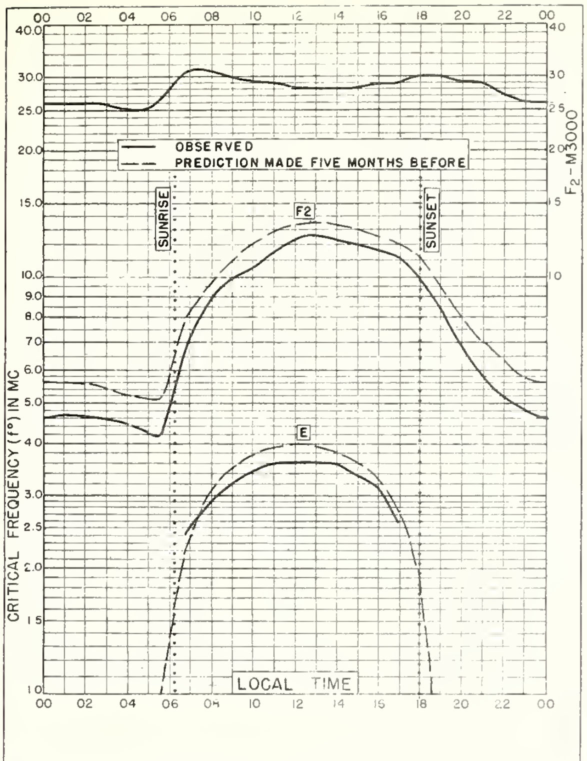

Fig. 9. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W MARCH 1948

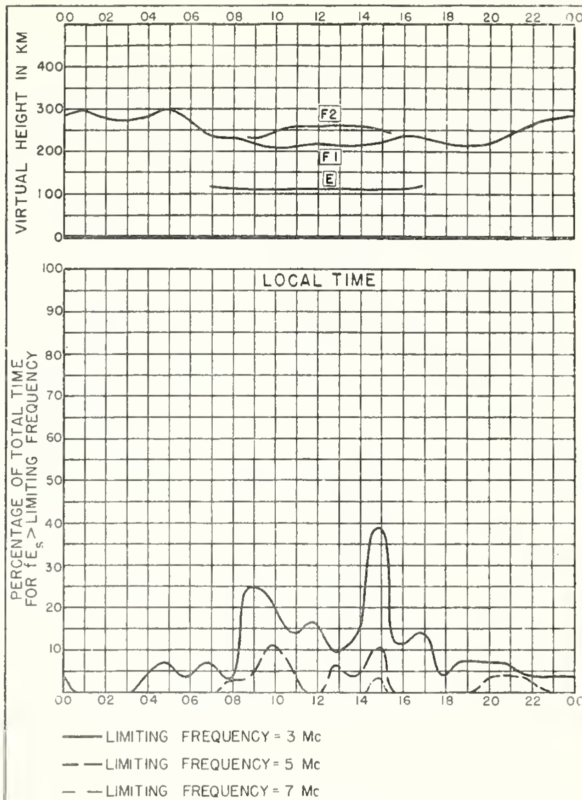

Fig. 10. SAN FRANCISCO, CALIFORNIA MARCH 1948

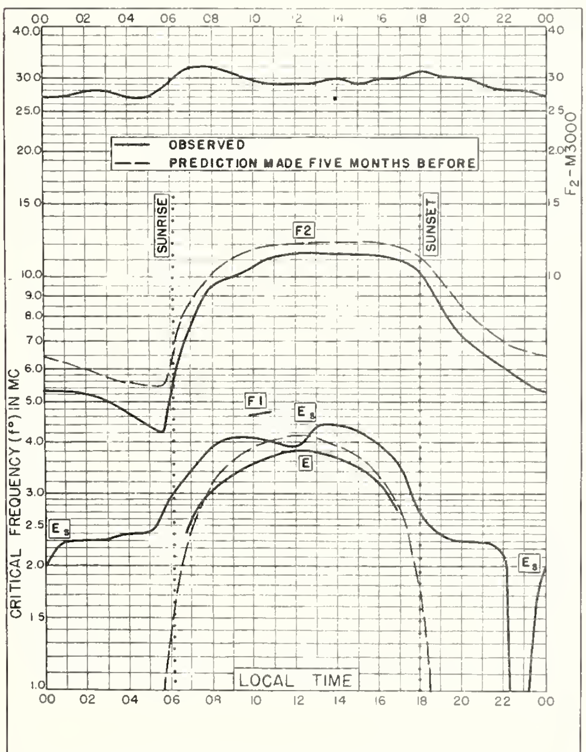

Fig. 11. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MARCH 1948

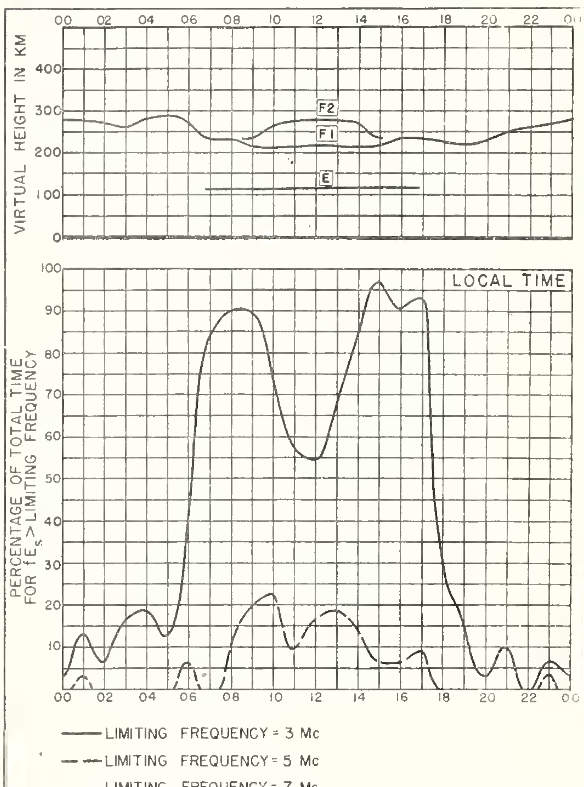

Fig. 12. WHITE SANDS, NEW MEXICO MARCH 1948

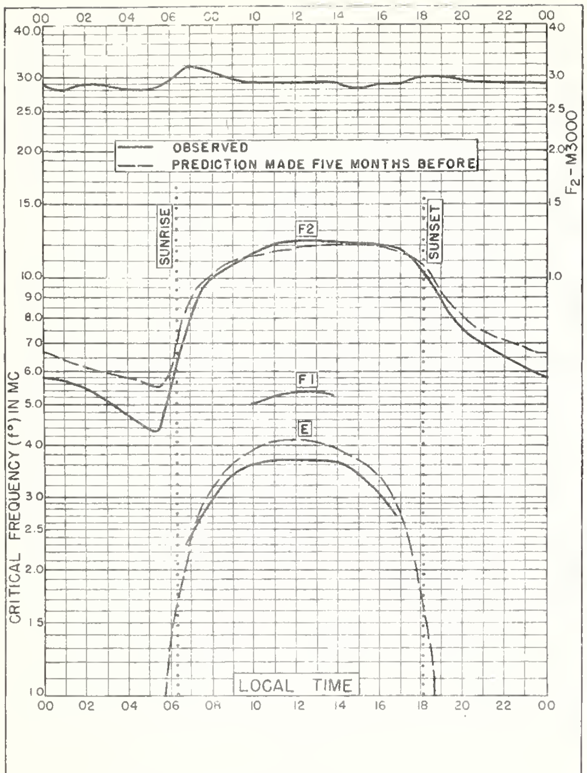

Fig. 13. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W MARCH 1948

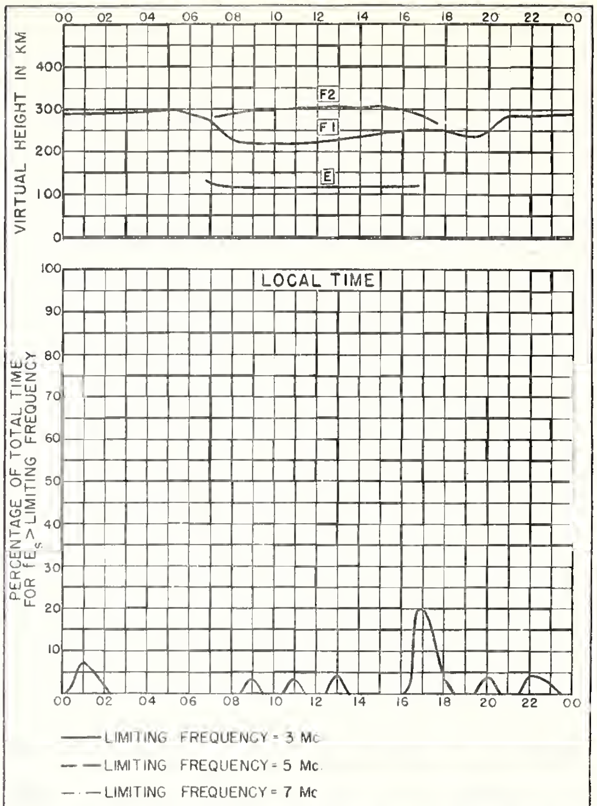

Fig. 14. BATON ROUGE, LOUISIANA MARCH 1948

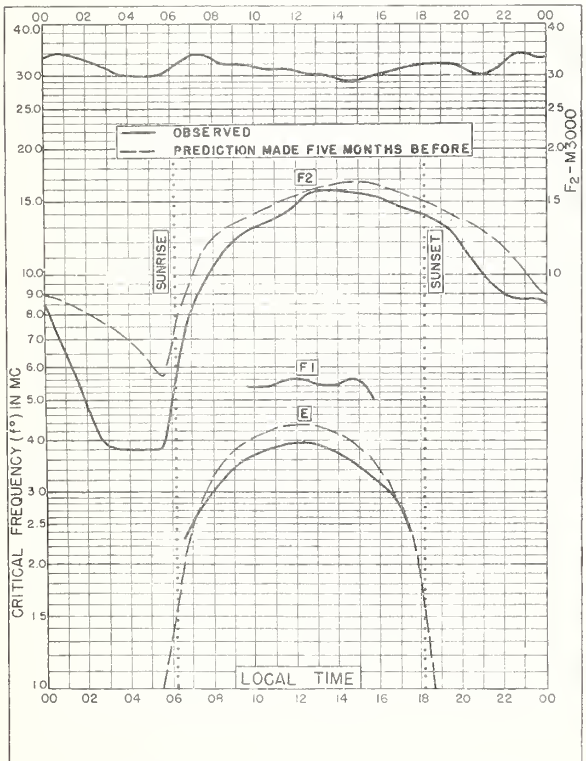

Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W MARCH 1948

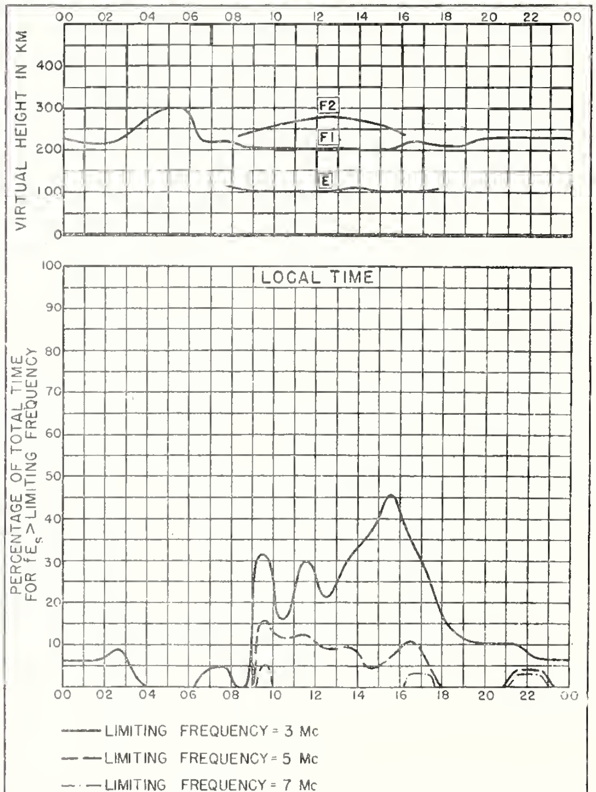

Fig. 16. MAUI, HAWAII MARCH 1948

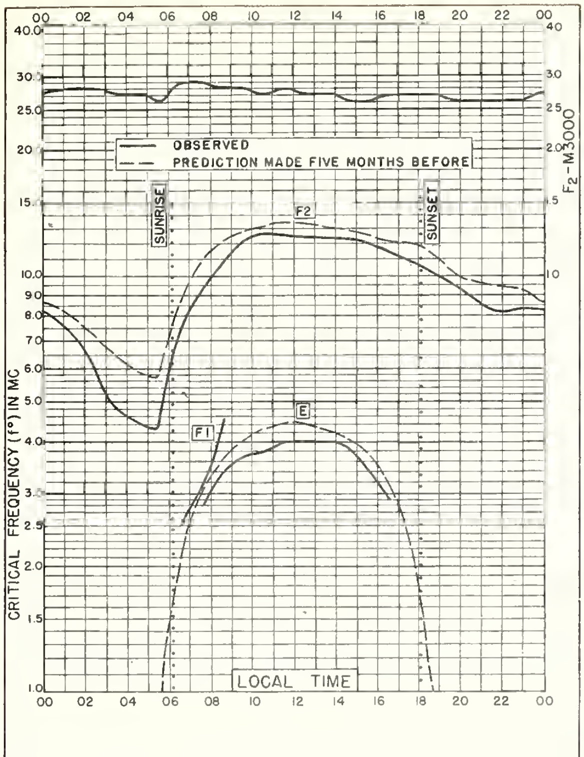

Fig. 17. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W MARCH 1948

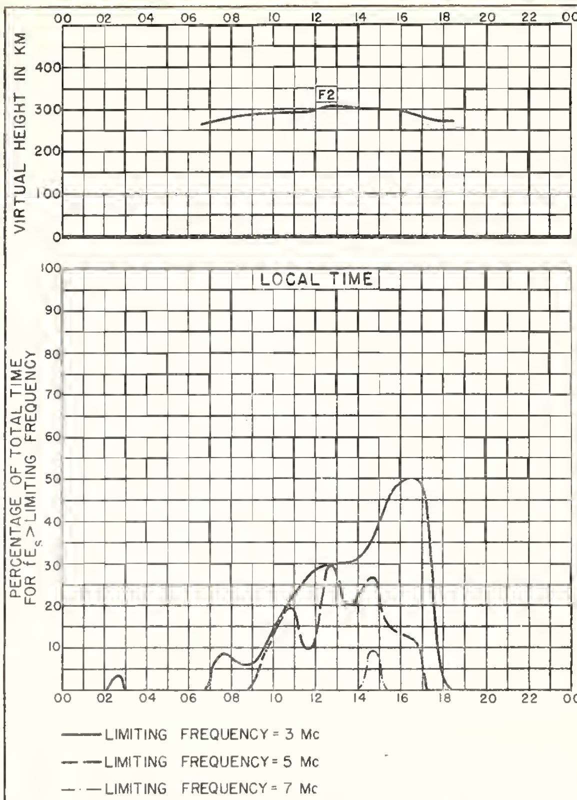

Fig. 18. SAN JUAN, PUERTO RICO MARCH 1948

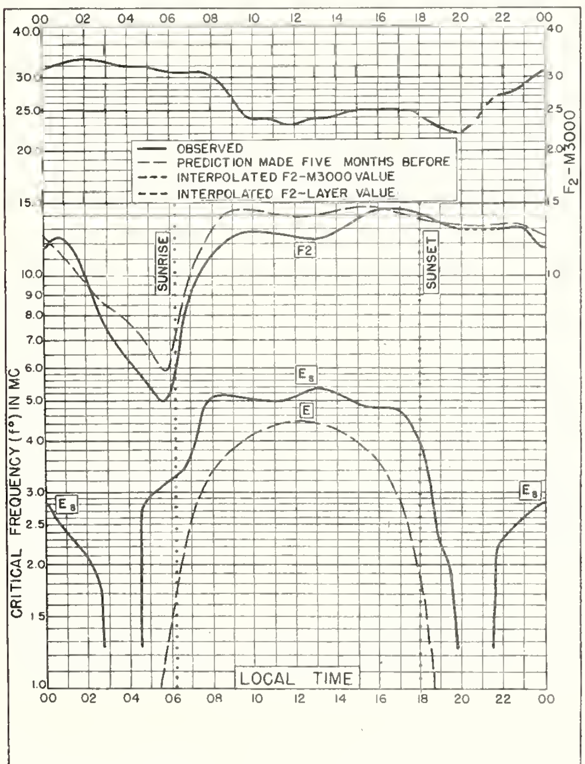

Fig. 19. GUAM I.
13.6°N, 144.9°E MARCH 1948

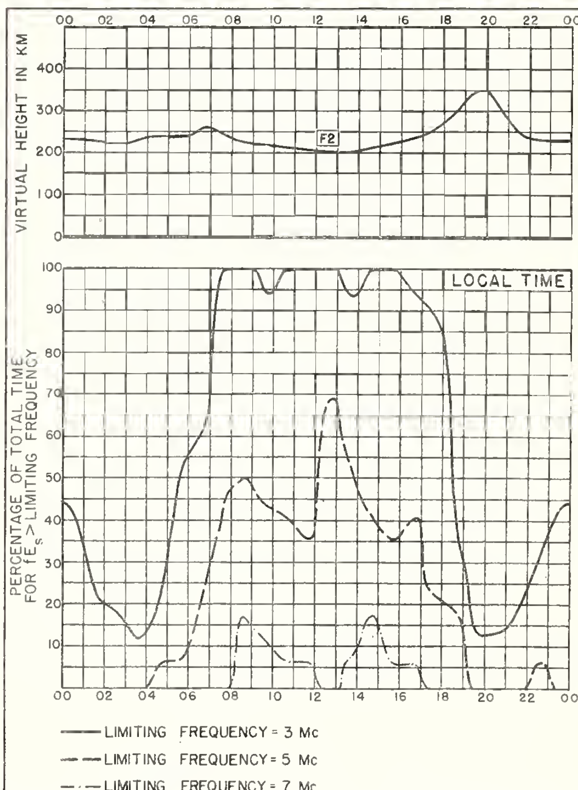

Fig. 20. GUAM I. MARCH 1948

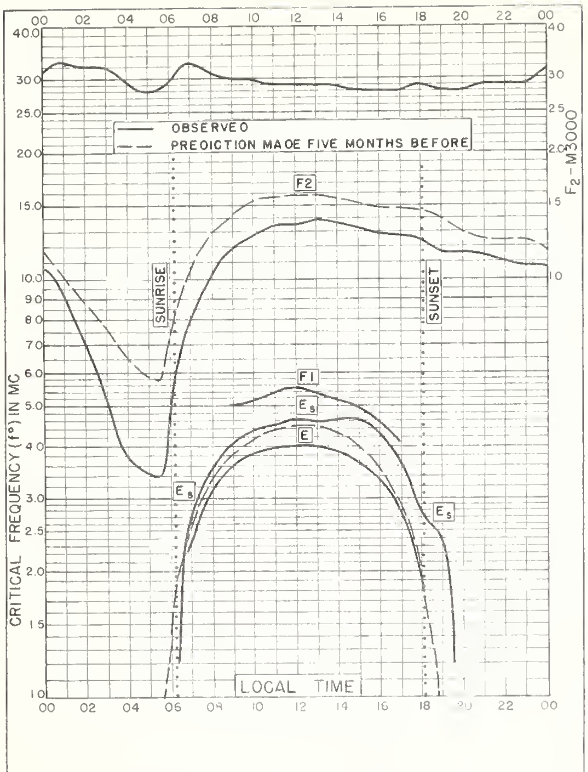

Fig. 21. TRINIDAD, BRIT. WEST INDIES
10. 6°N, 61. 2°W MARCH 1948

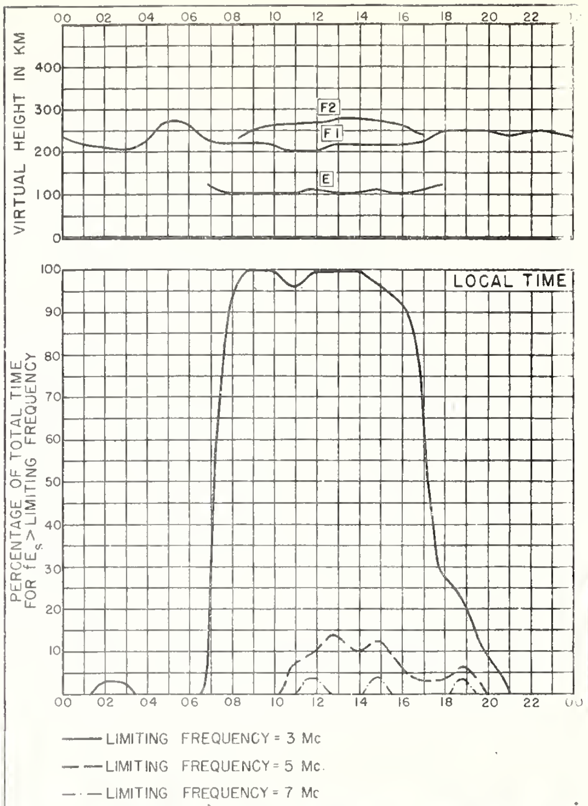

Fig. 22. TRINIDAD, BRIT. WEST INDIES MARCH 1948

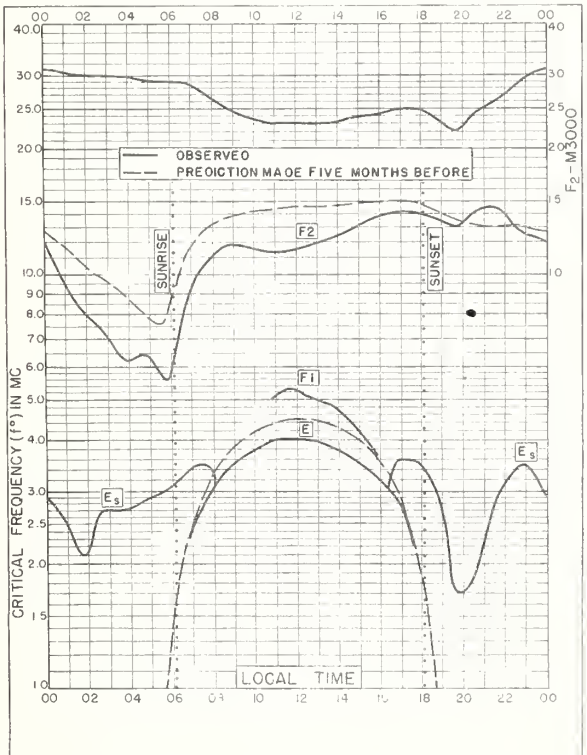

Fig. 23. PALMYRA I.
5. 9°N, 162. 1°W MARCH 1948

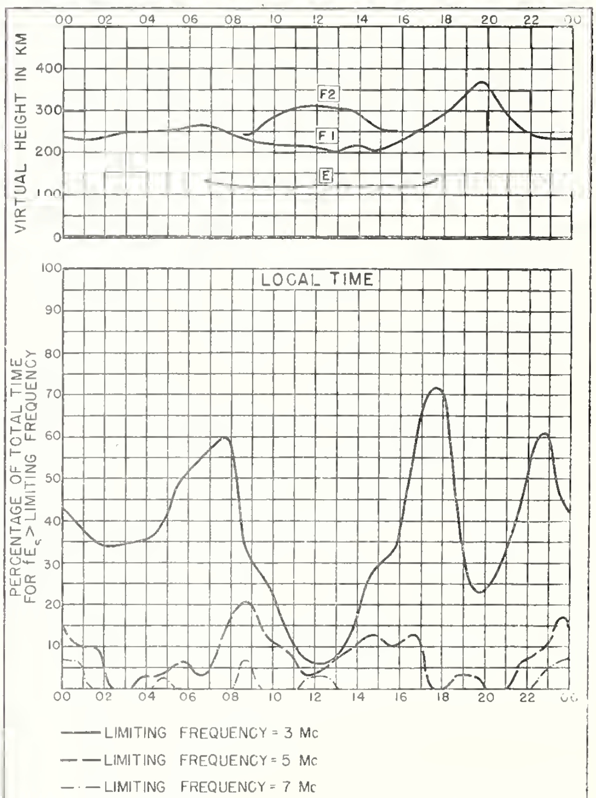

Fig. 24. PALMYRA I. MARCH 1948

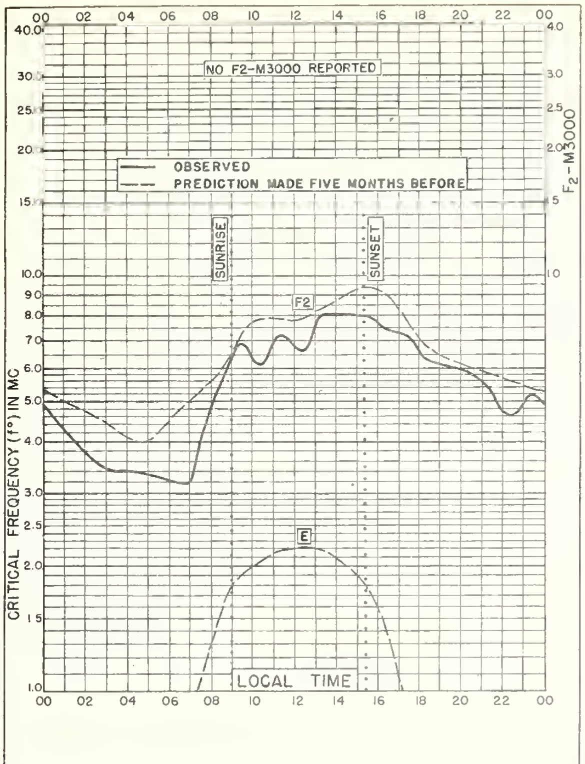

Fig. 25. CLYDE, BAFFIN, I.
70.5°N, 68.6°W FEBRUARY 1948

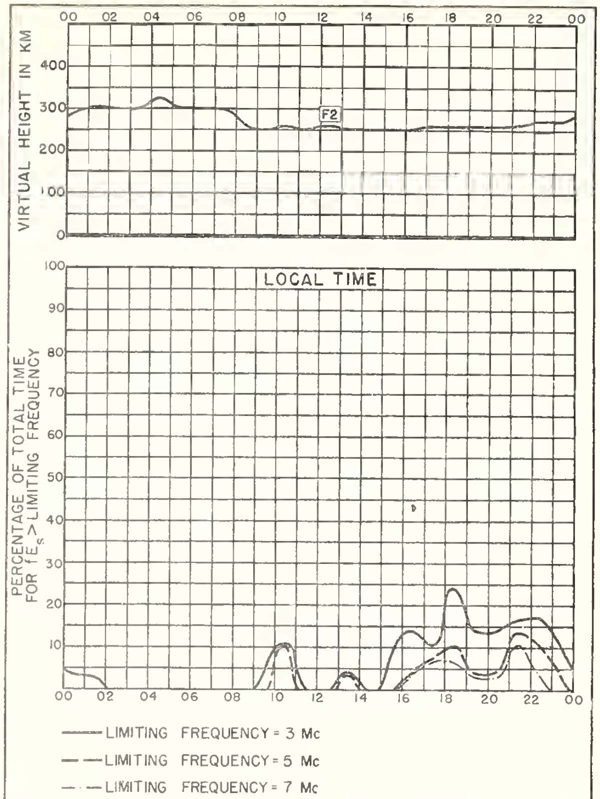

Fig. 26. CLYDE, BAFFIN, I. FEBRUARY 1948

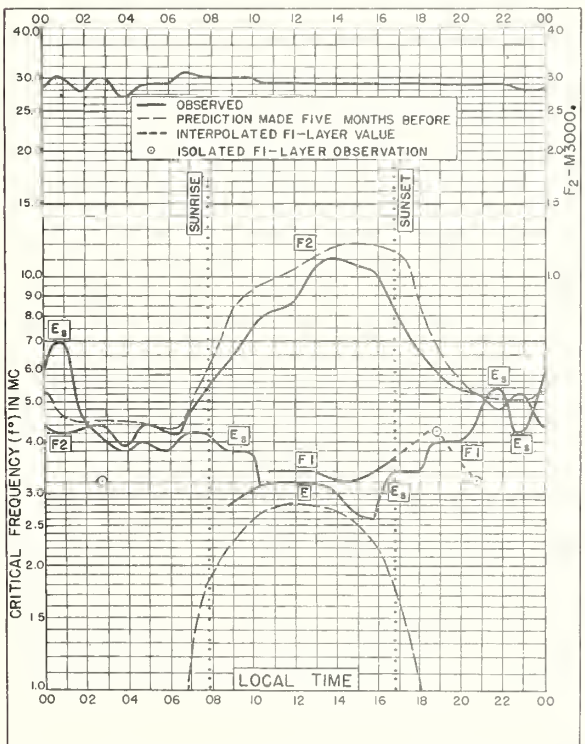

Fig. 27. CHURCHILL, CANADA
58.8°N, 94.2°W FEBRUARY 1948

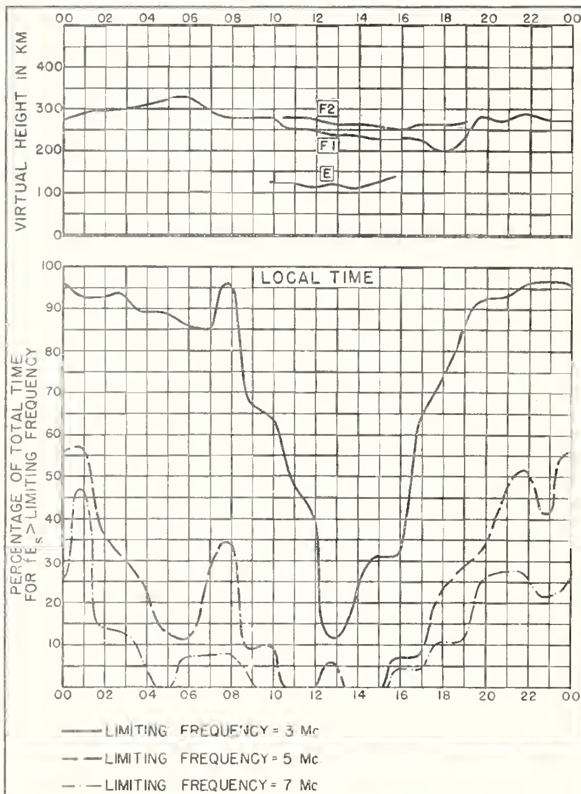

Fig. 28. CHURCHILL, CANADA FEBRUARY 1948

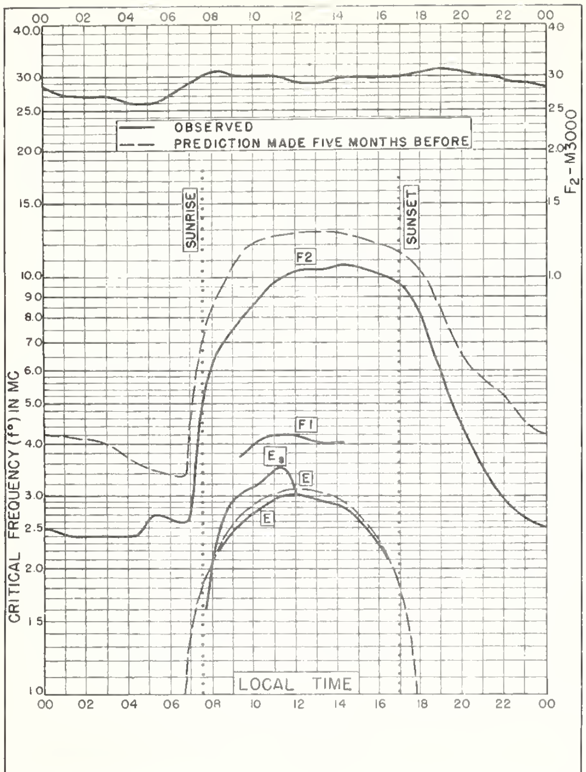

Fig. 29. PRINCE RUPERT, CANADA
54.3°N, 130.3°W FEBRUARY 1948

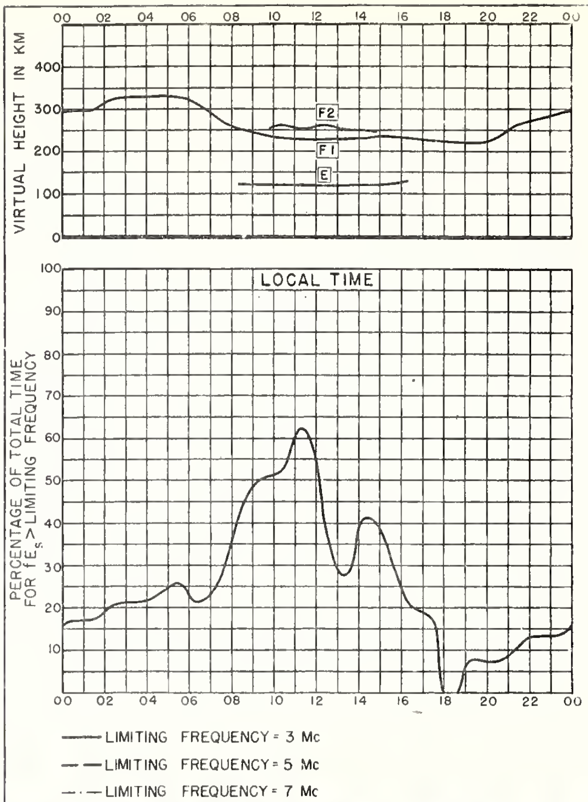

Fig. 30. PRINCE RUPERT, CANADA FEBRUARY 1948

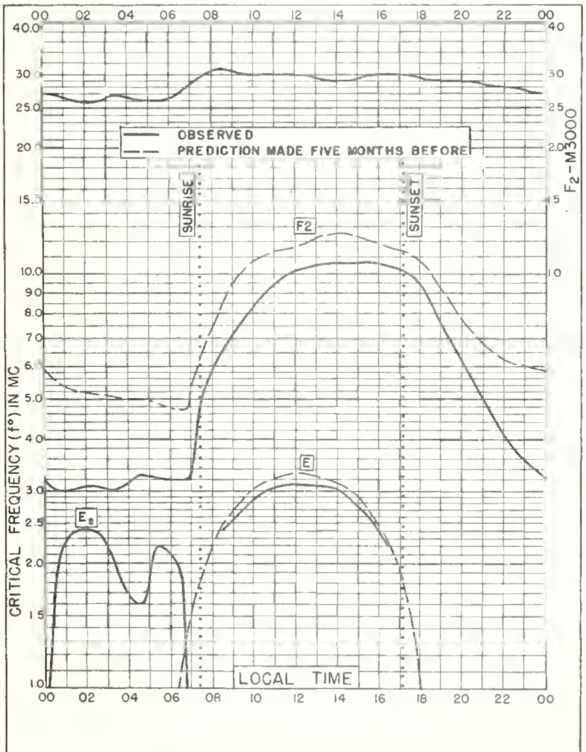

Fig. 31. PORTAGE la PRAIRIE, CANADA
49.9°N, 98.3°W FEBRUARY 1948

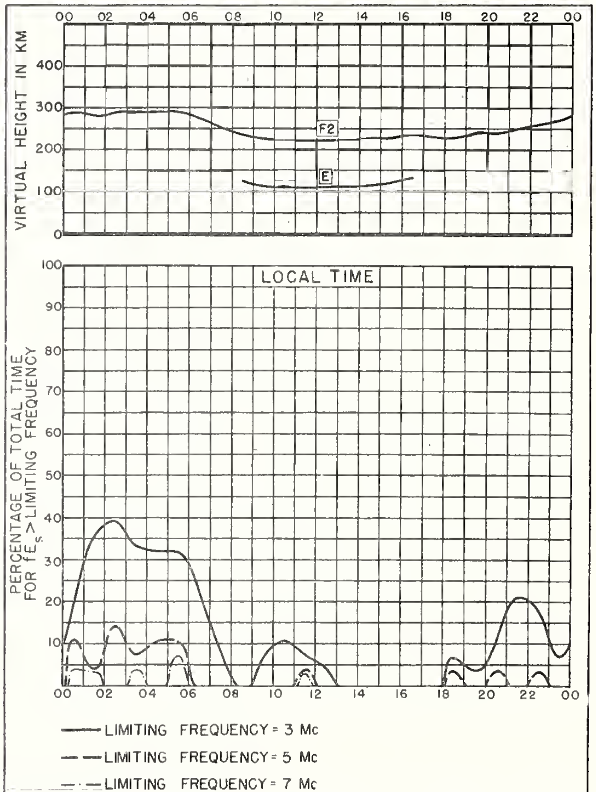

Fig. 32. PORTAGE la PRAIRIE, CANADA FEBRUARY 1948

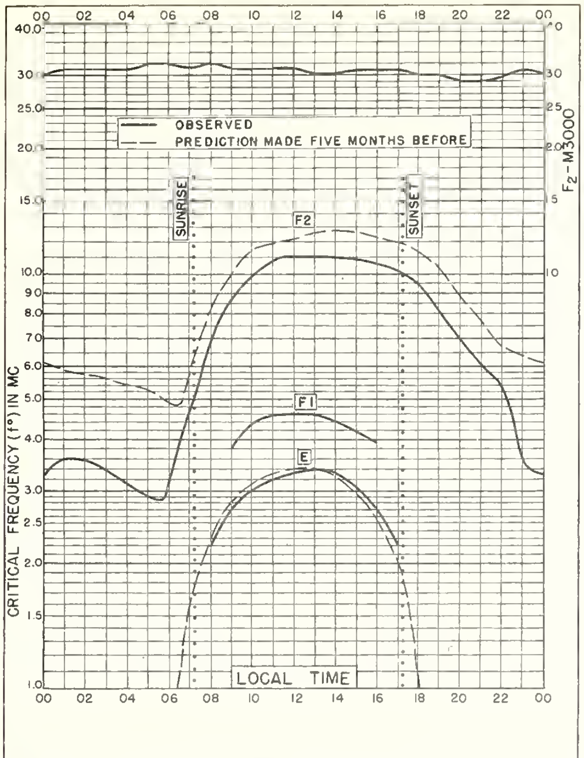

Fig. 33. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W FEBRUARY 1948

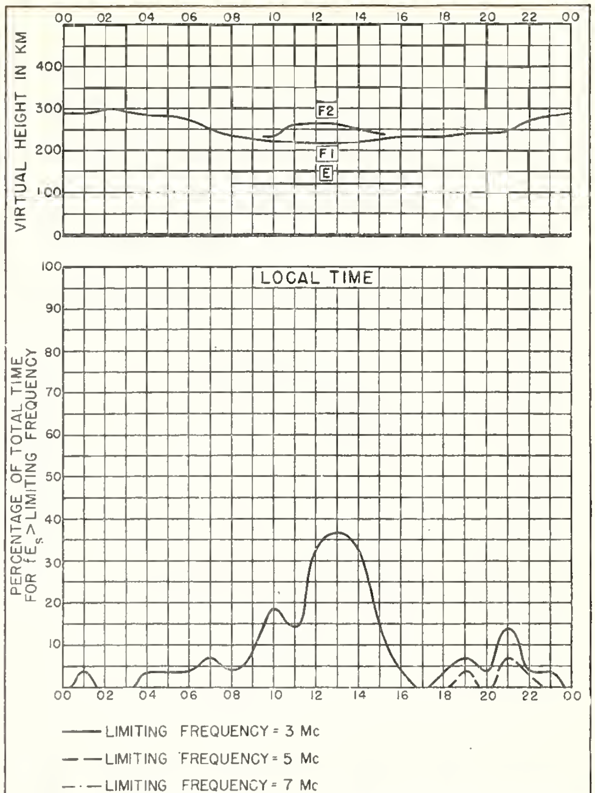

Fig. 34. ST. JOHN'S, NEWFOUNDLAND FEBRUARY 1948

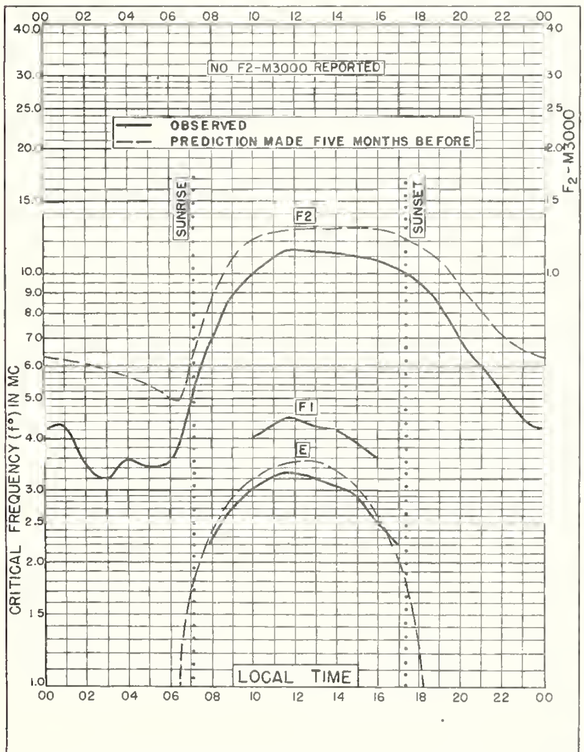

Fig. 35. OTTAWA, CANADA
45.5°N, 75.8°W FEBRUARY 1948

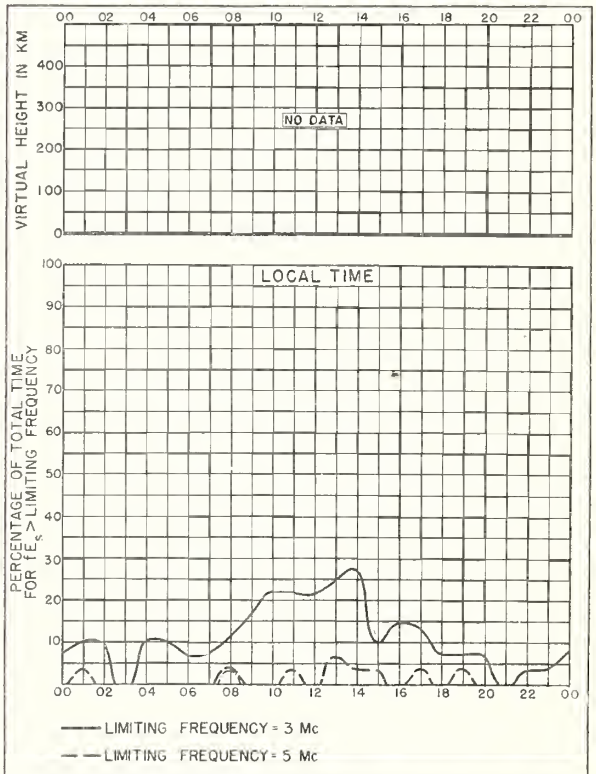

Fig. 36. OTTAWA, CANADA FEBRUARY 1948

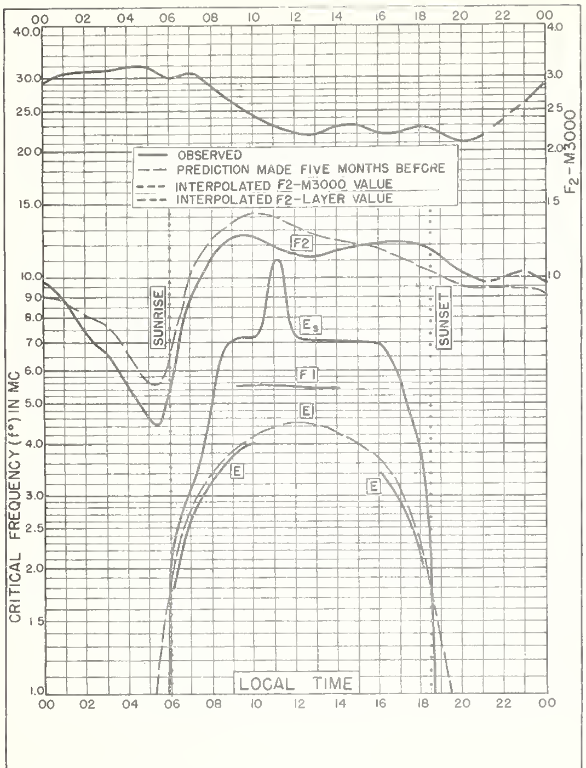

Fig. 37. HUANCAYO, PERU
12.0°S, 75.3°W FEBRUARY 1948

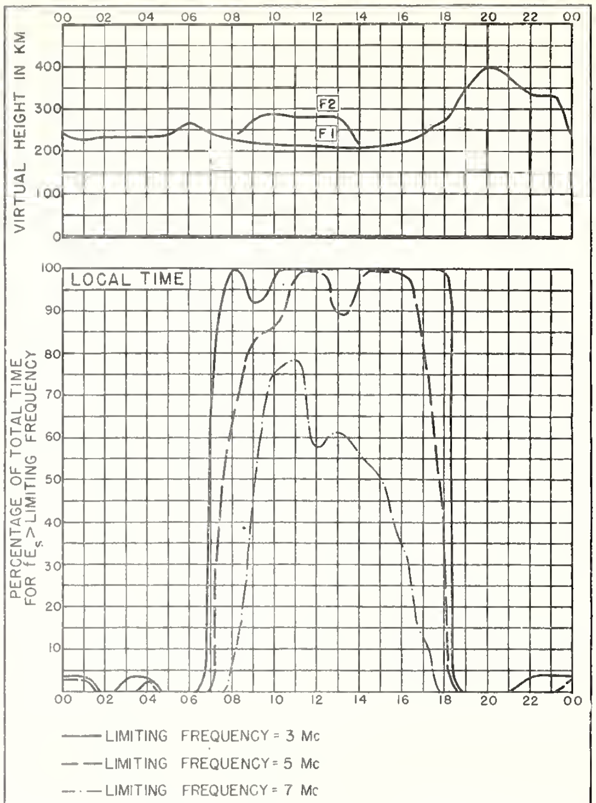

Fig. 38. HUANCAYO, PERU FEBRUARY 1948

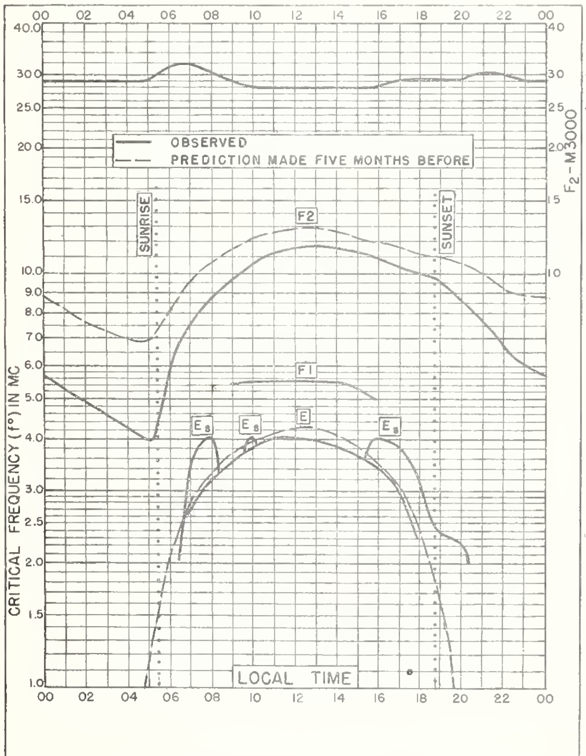

Fig. 39. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E FEBRUARY 1948

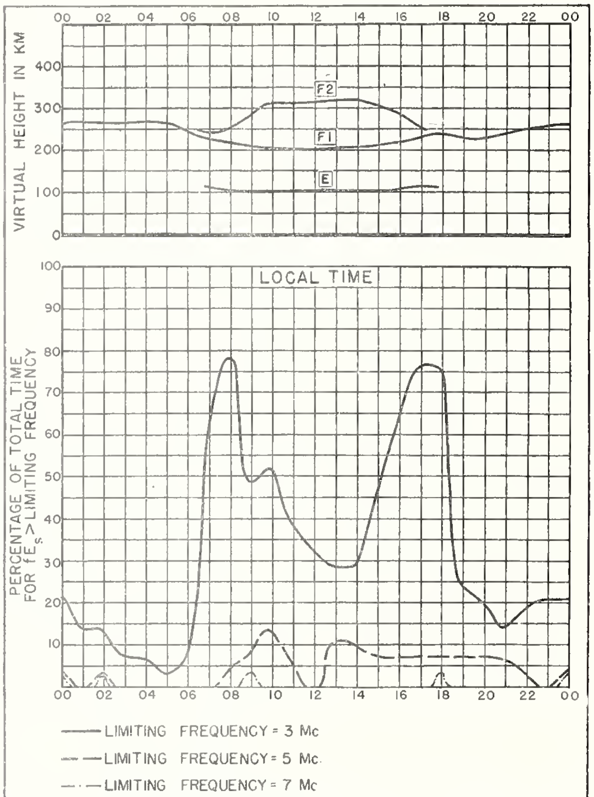

Fig. 40. JOHANNESBURG, U. OF S. AFRICA FEBRUARY 1948

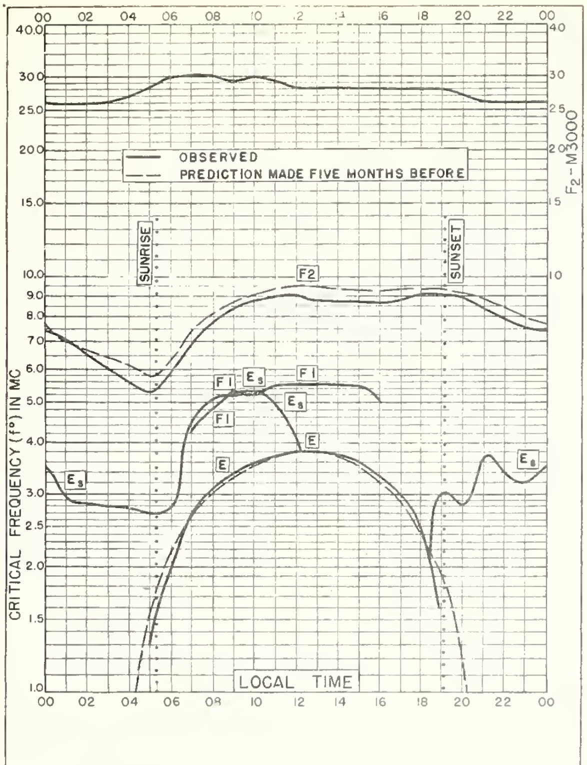

Fig. 41. CHRISTCHURCH, N.Z. 43.5°S, 172.7°E FEBRUARY 1948

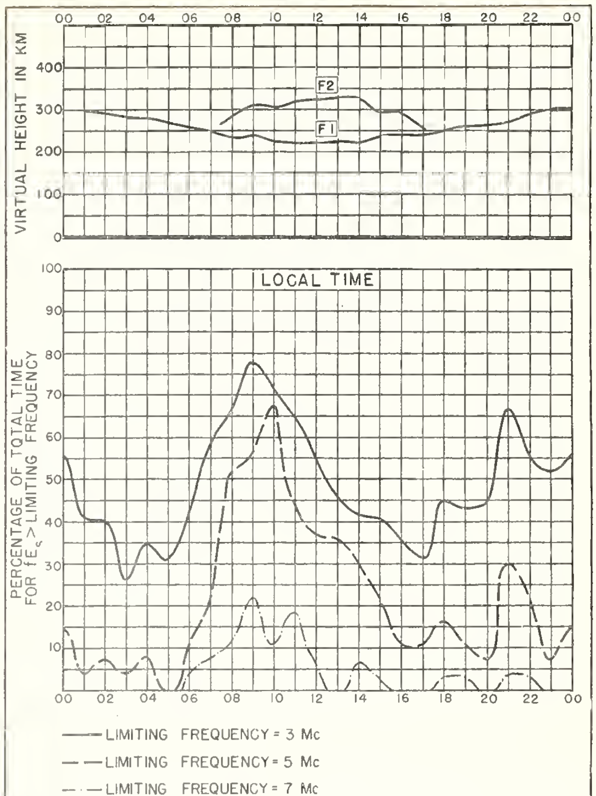

Fig. 42. CHRISTCHURCH, N.Z. FEBRUARY 1948

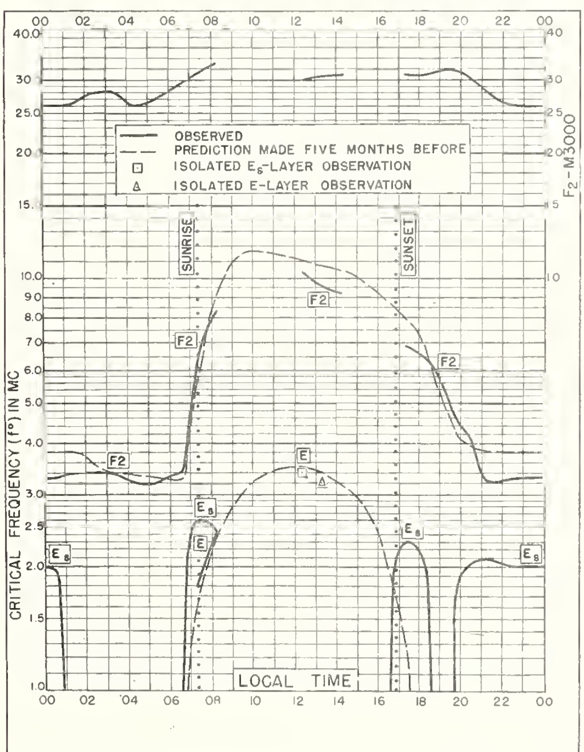

Fig. 43. FUKAURA, JAPAN 40.6°N, 139.9°E JANUARY 1948

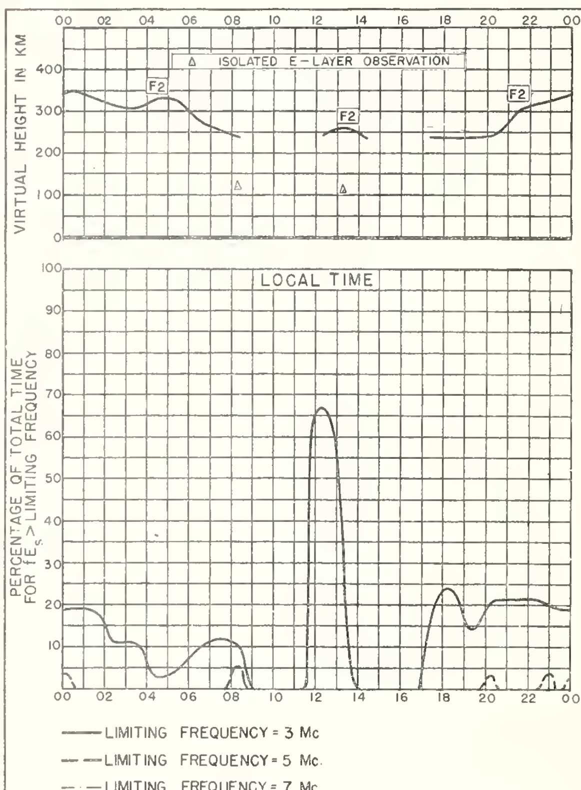

Fig. 44. FUKAURA, JAPAN JANUARY 1948

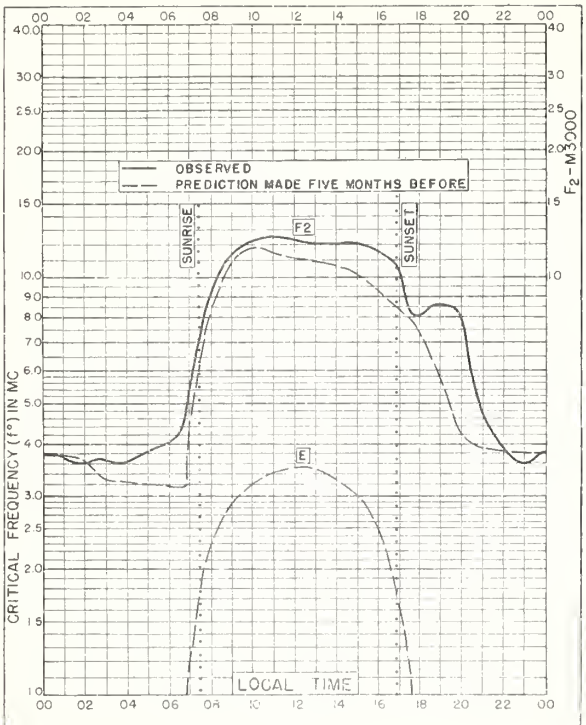

Fig 45. PEIPING, CHINA
39.9°N, 116.4°E JANUARY 1948

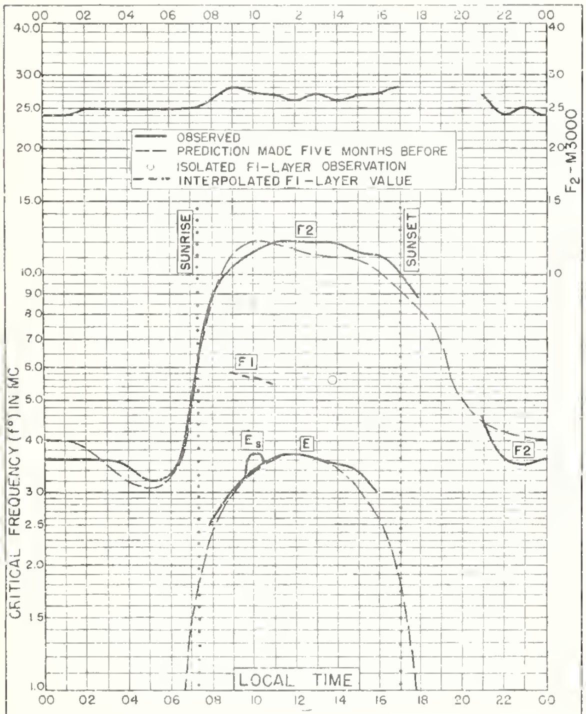

Fig. 46. LANCHOW, CHINA
36.1°N, 103.8°E JANUARY 1948

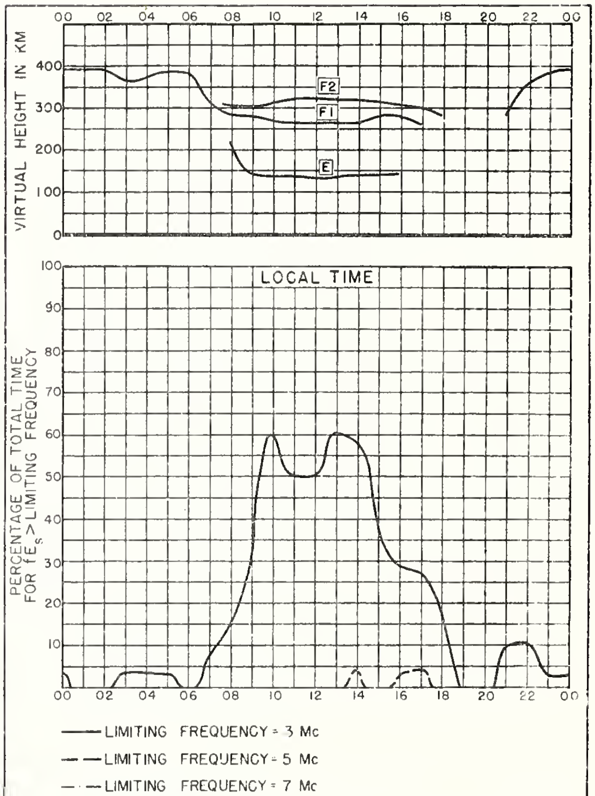

Fig. 47. LANCHOW, CHINA JANUARY 1948

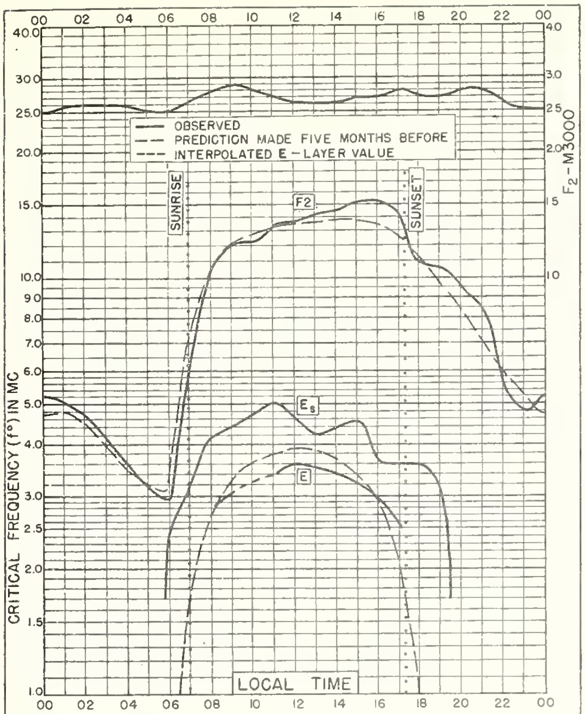

Fig. 48. CHUNGKING, CHINA
29.4°N, 106.8°E JANUARY 1948

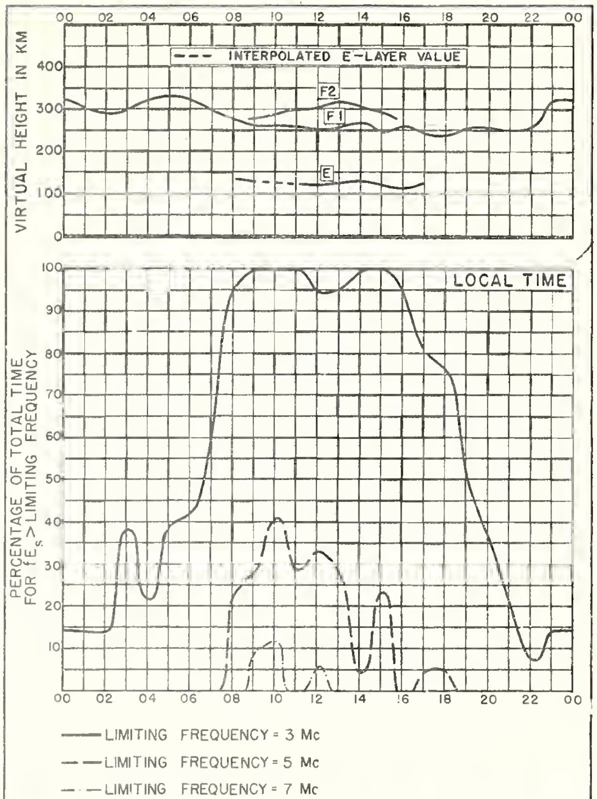

Fig. 49. CHUNGKING, CHINA JANUARY 1948

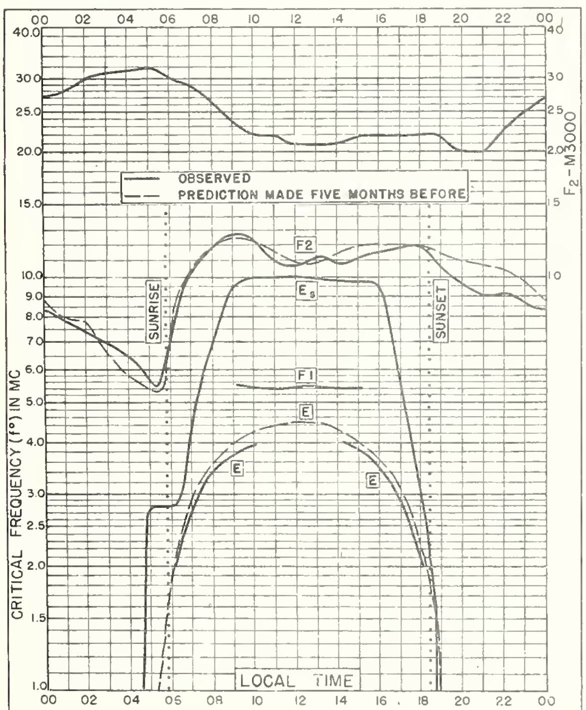

Fig. 50. HUANCAYO, PERU
12.0°S, 75.3°W JANUARY 1948

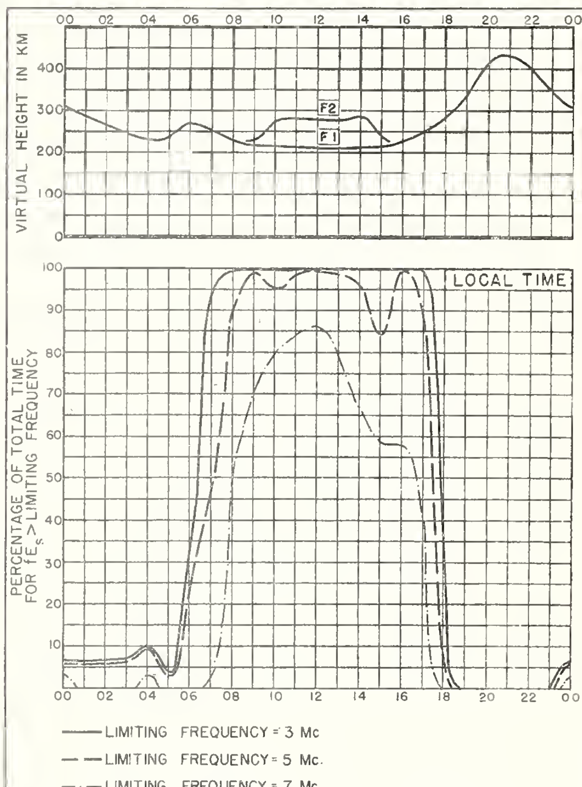

Fig. 51. HUANCAYO, PERU JANUARY 1948

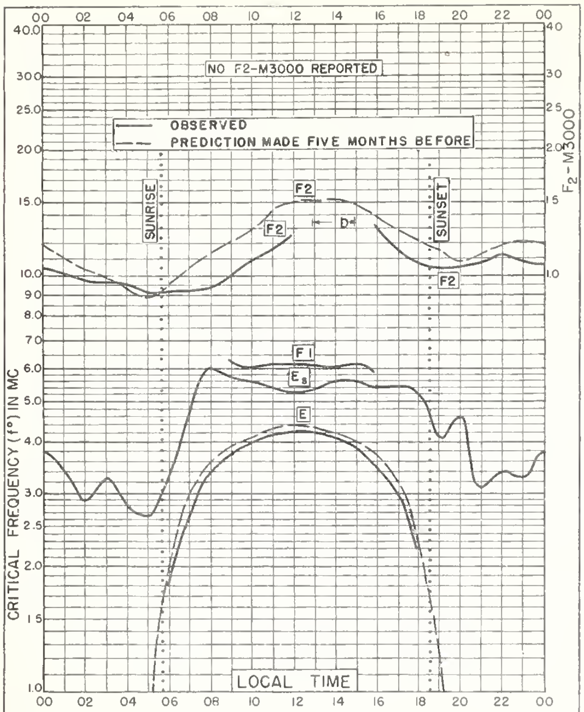

Fig. 52. FIJI IS.
18.0°S, 178.2°E JANUARY 1948

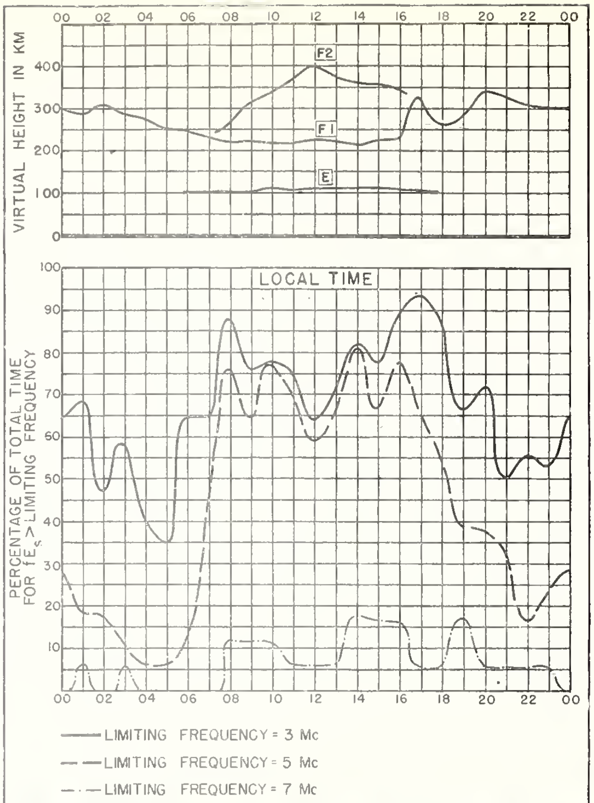

Fig. 53. FIJI IS. JANUARY 1948

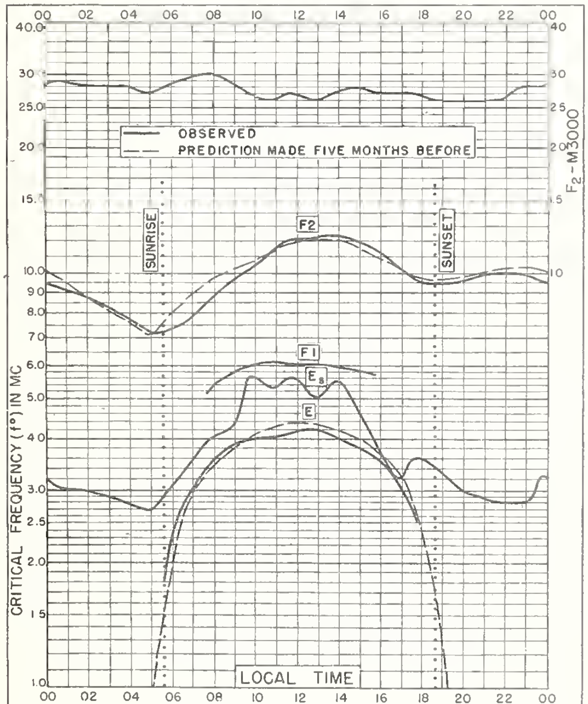

Fig. 54. TOWNSVILLE, AUSTRALIA
19.4°S, 146.5°E JANUARY 1948

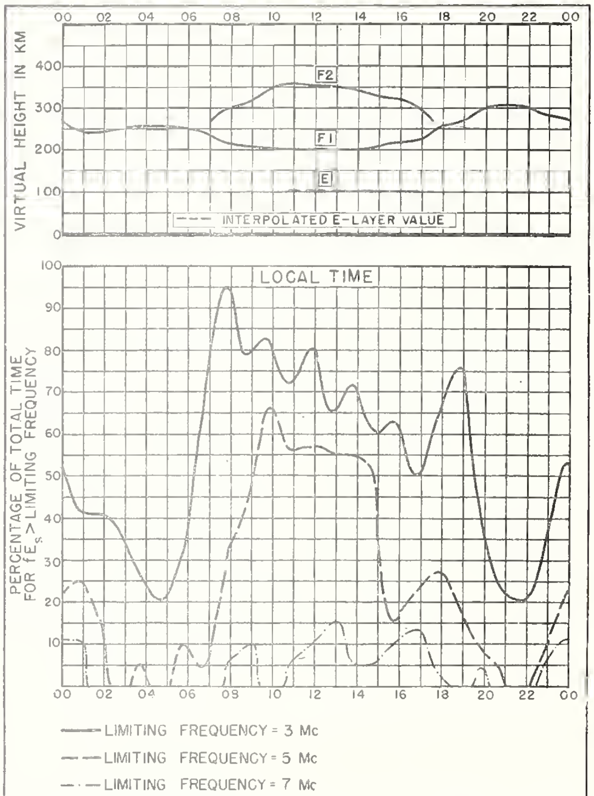

Fig. 55. TOWNSVILLE, AUSTRALIA JANUARY 1948

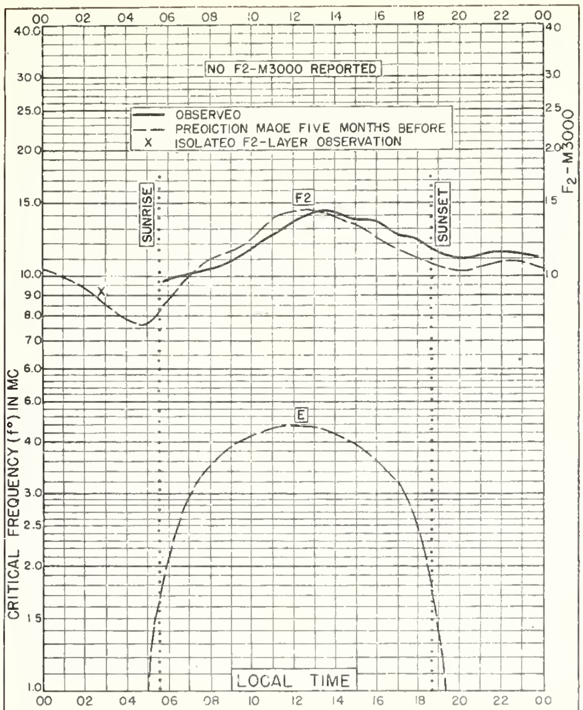

Fig. 56. RAROTONGA I.
21.3°S, 159.8°W JANUARY 1948

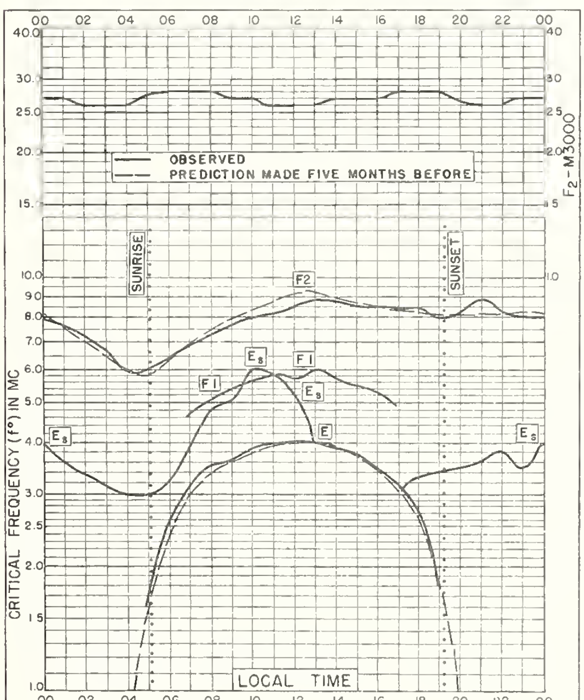

Fig. 57. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JANUARY 1948

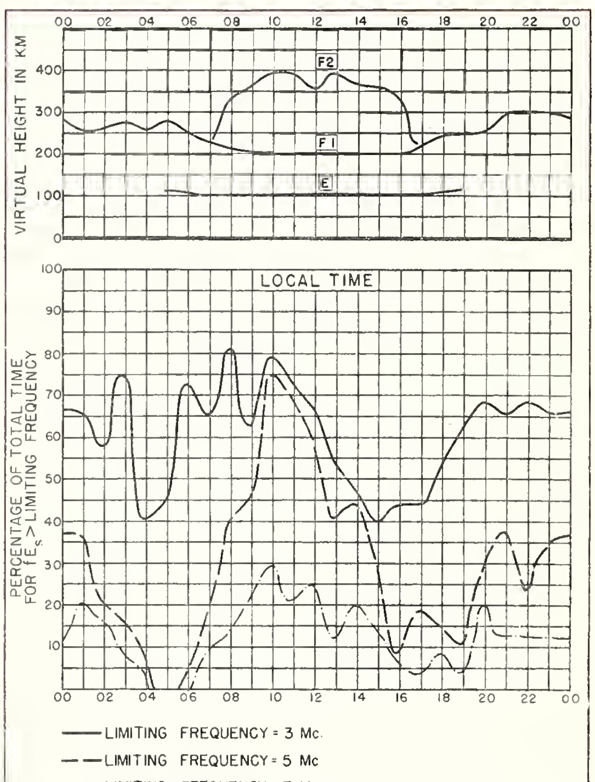

Fig. 58. CANBERRA, AUSTRALIA JANUARY 1948

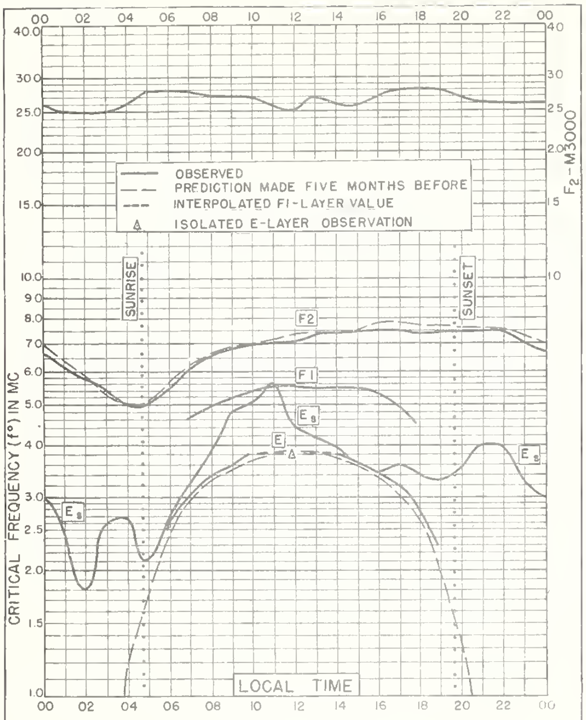

Fig. 59. HOBART, TASMANIA
42.8°S, 147.4°E JANUARY 1948

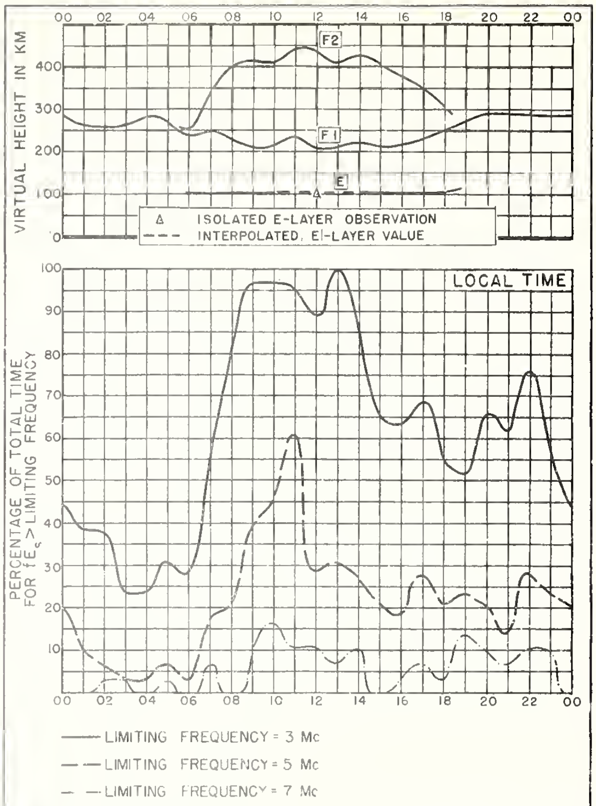

Fig. 60. HOBART, TASMANIA JANUARY 1948

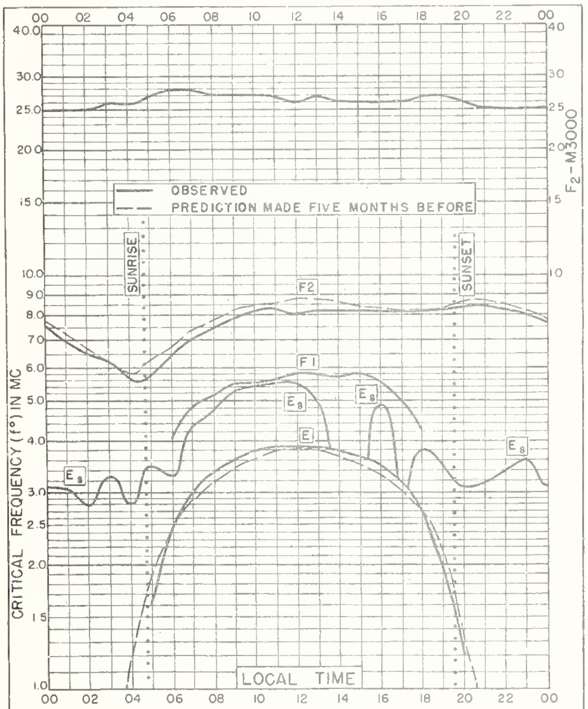

Fig. 61. CHRISTCHURCH, N Z.
43.5°S, 172.7°E JANUARY 1948

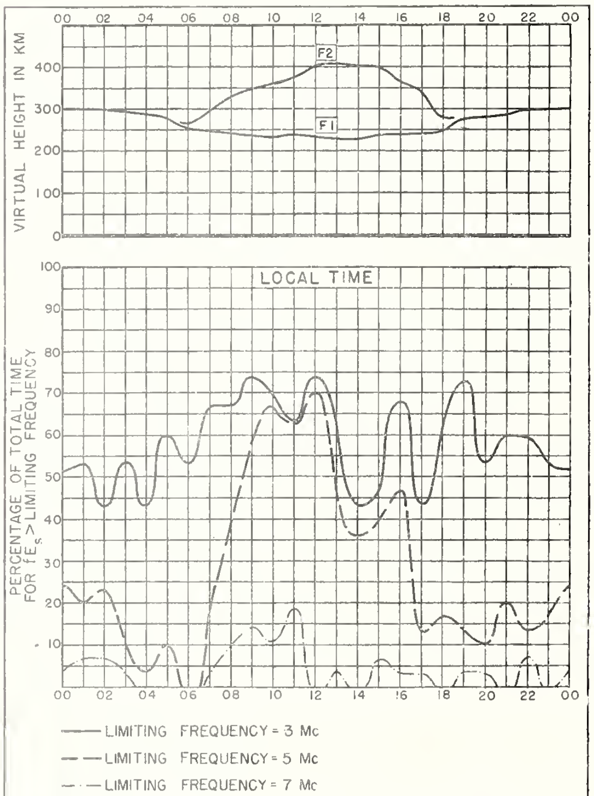

Fig 62. CHRISTCHURCH, N Z. JANUARY 1948

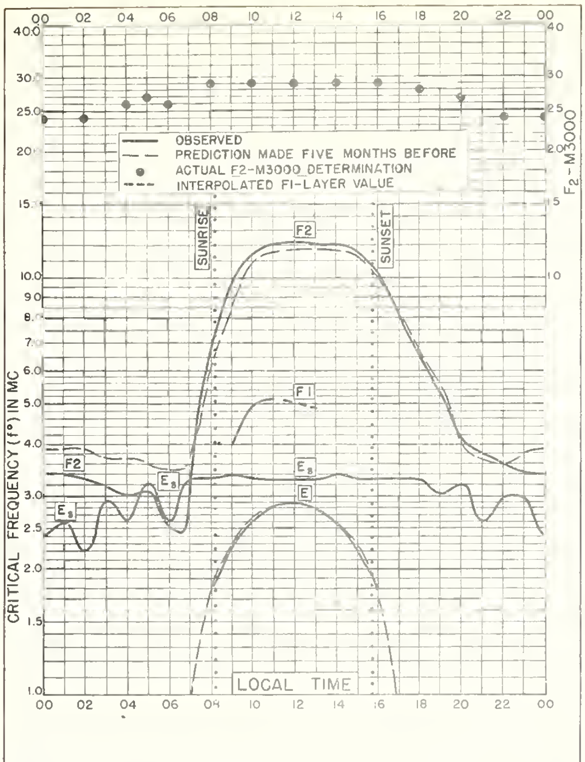

Fig. 63. SLOUGH, ENGLAND
51.5°N, 0.6°W DECEMBER 1947

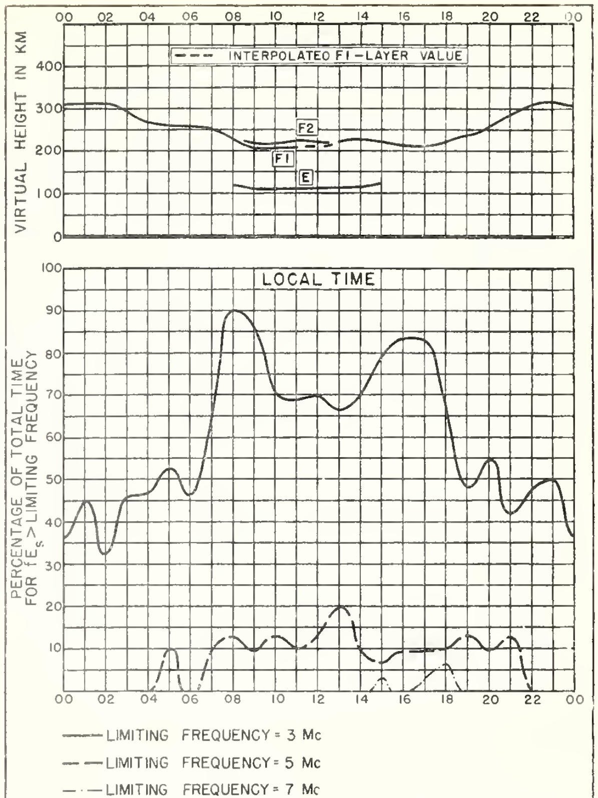

Fig. 64. SLOUGH, ENGLAND DECEMBER 1947

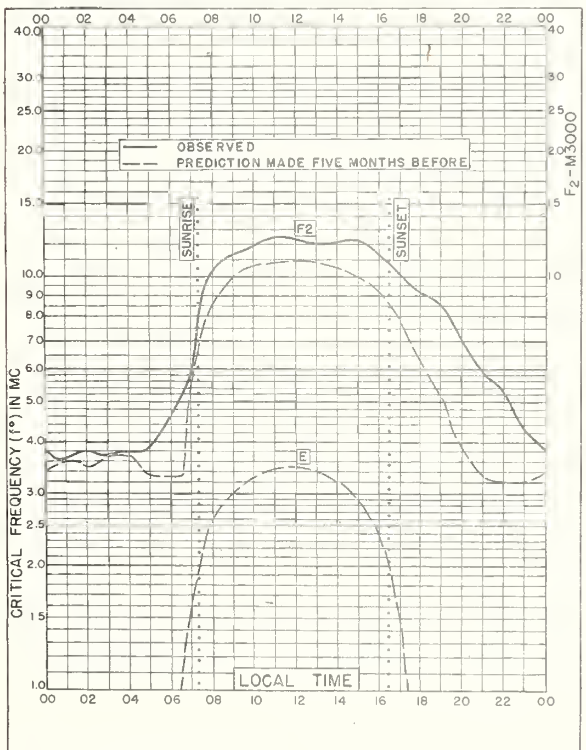

Fig. 65. PEIPING, CHINA
39.9°N, 116.4°E DECEMBER 1947

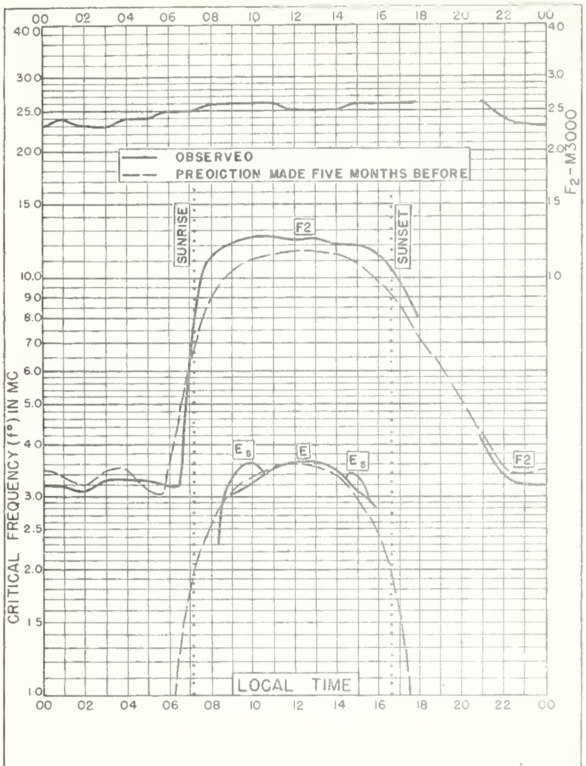

Fig. 66. LANCHOW, CHINA
36.1°N, 103.8°E DECEMBER 1947

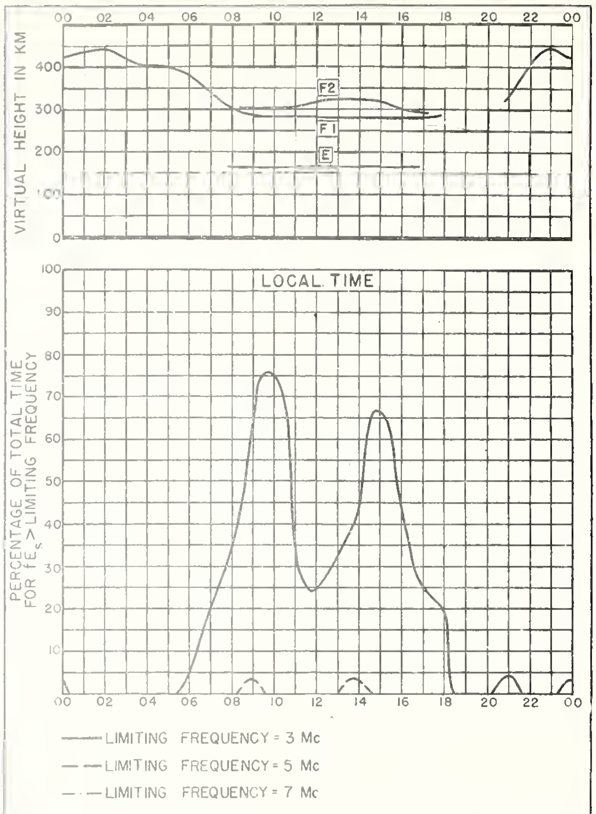

Fig. 67. LANCHOW, CHINA DECEMBER 1947

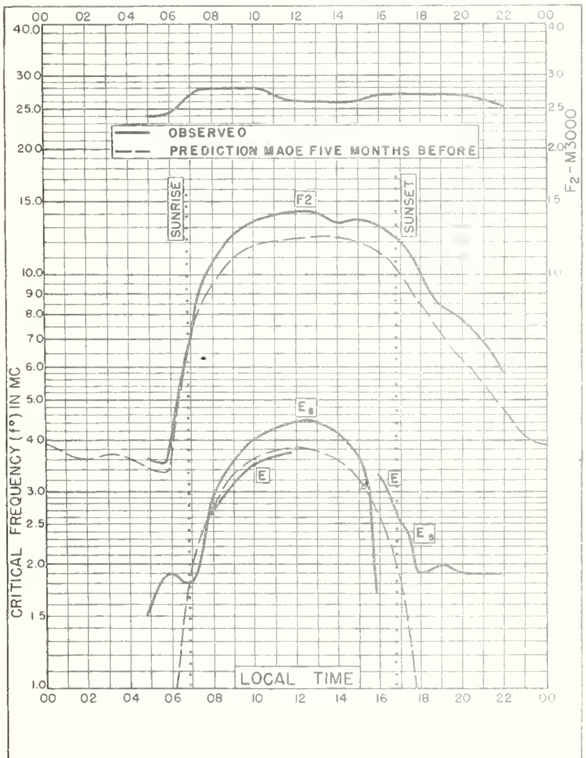

Fig. 68. NANKING, CHINA
32.1°N, 119.0°E DECEMBER 1947

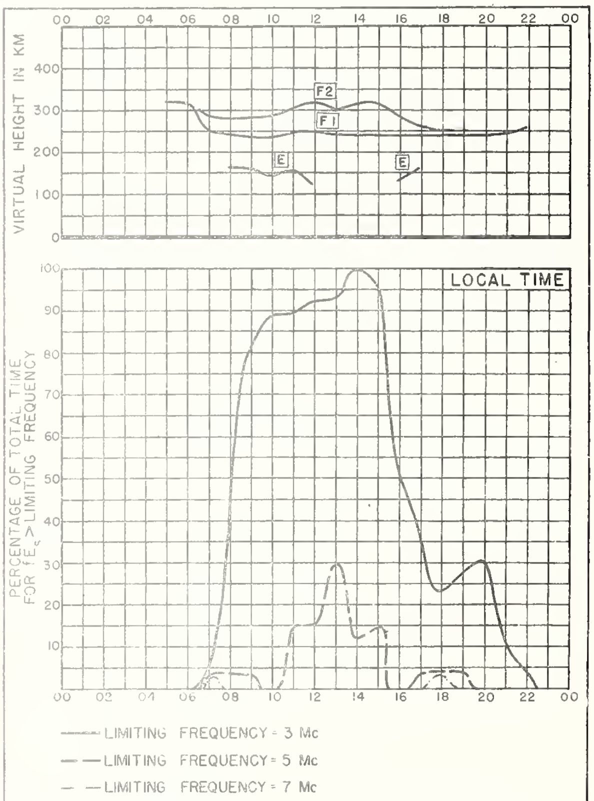

Fig. 69. NANKING, CHINA DECEMBER 1947

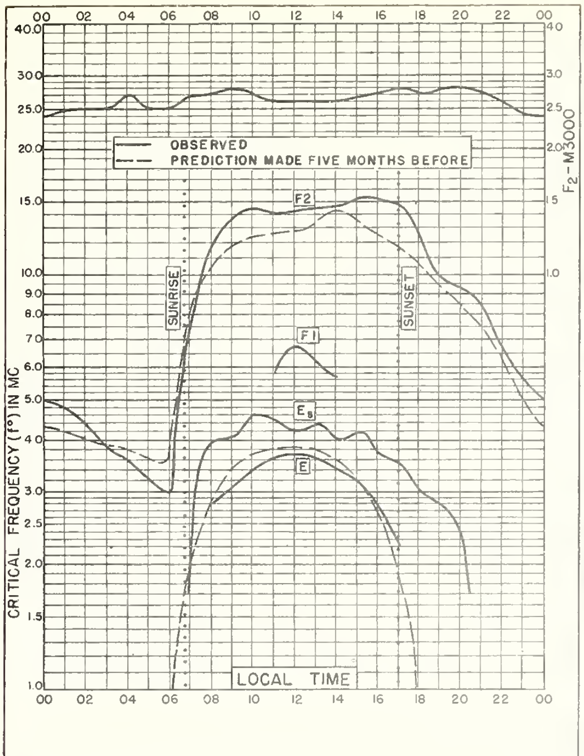

Fig. 70. CHUNGKING, CHINA
29.4°N, 106.8°E DECEMBER 1947

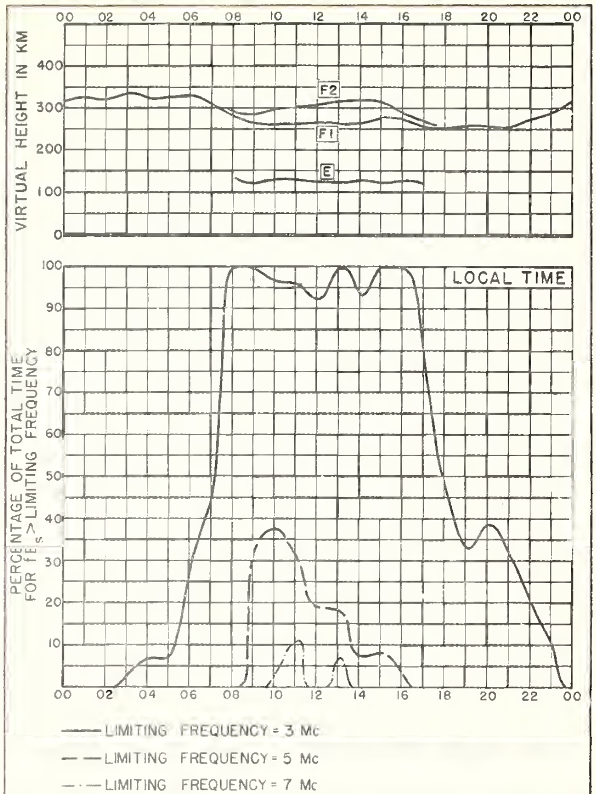

Fig. 71. CHUNGKING, CHINA DECEMBER 1947

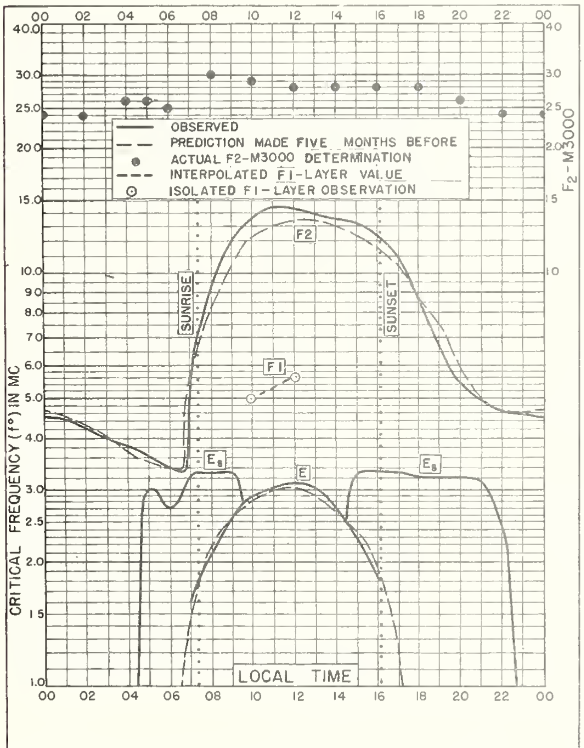

Fig. 72. SLOUGH, ENGLAND
51.5°N, 0.6°W NOVEMBER 1947

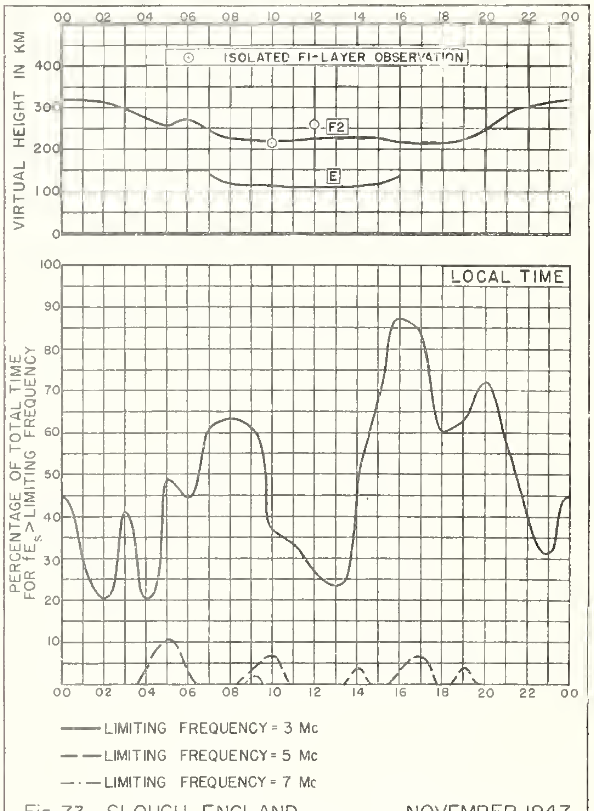

Fig. 73. SLOUGH, ENGLAND NOVEMBER 1947

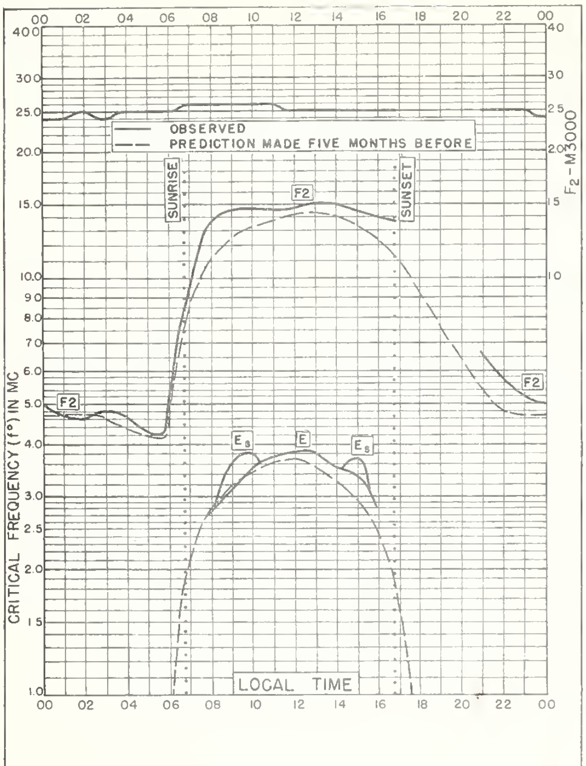

Fig. 74. LANCHOW, CHINA
36.1°N, 103.8°E NOVEMBER 1947

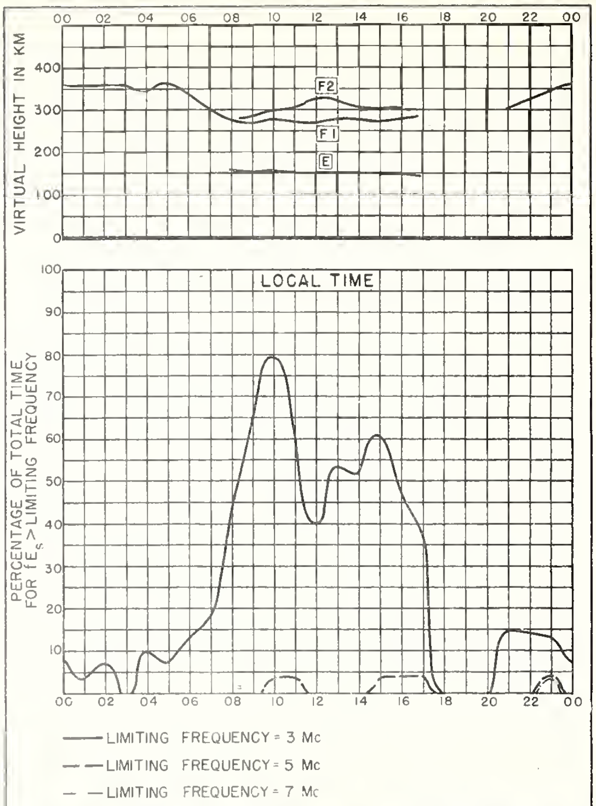

Fig. 75. LANCHOW, CHINA NOVEMBER 1947

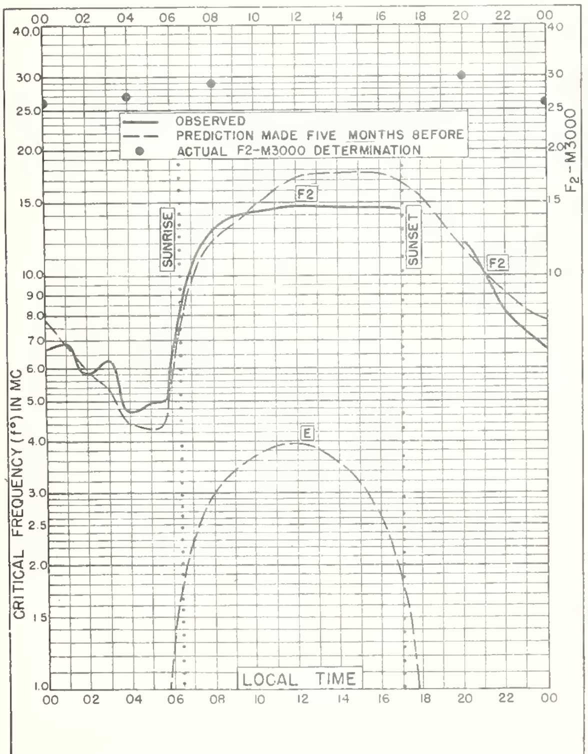

Fig. 76. DELHI, INDIA
28.6°N, 77.1°E NOVEMBER 1947

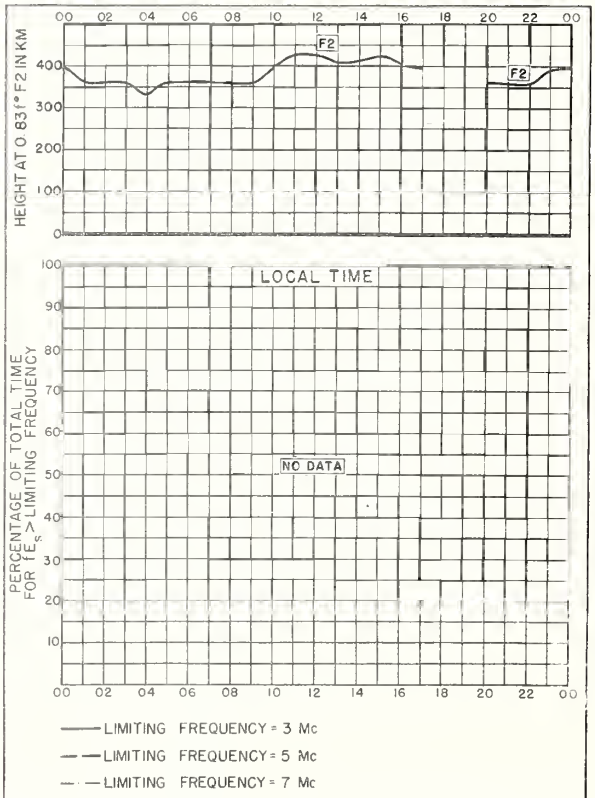

Fig. 77. DELHI, INDIA NOVEMBER 1947

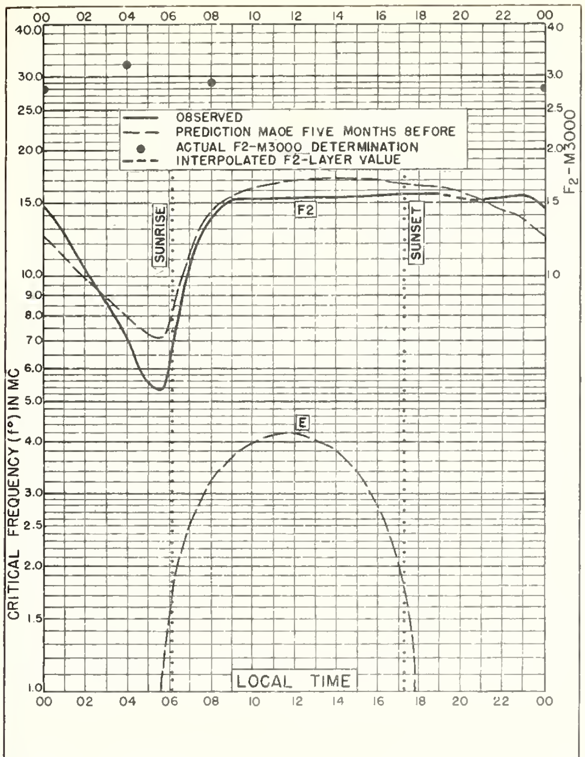

Fig. 78. BOMBAY, INDIA
19.0°N, 73.0°E NOVEMBER 1947

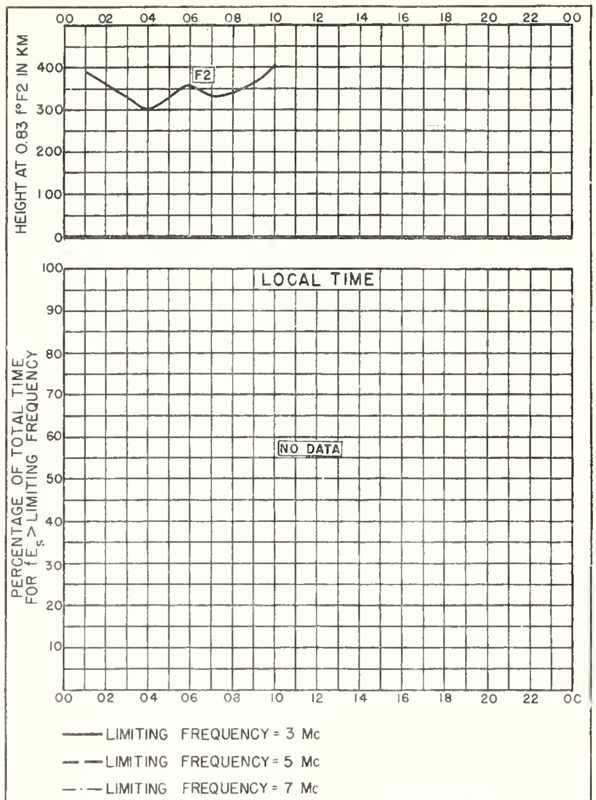

Fig. 79. BOMBAY, INDIA NOVEMBER 1947

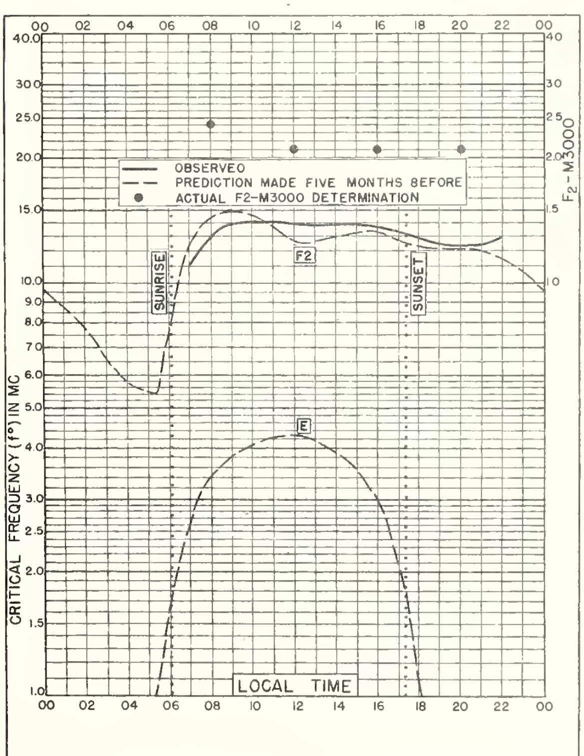

Fig. 80. MADRAS, INDIA
13.0°N, 80.2°E NOVEMBER 1947

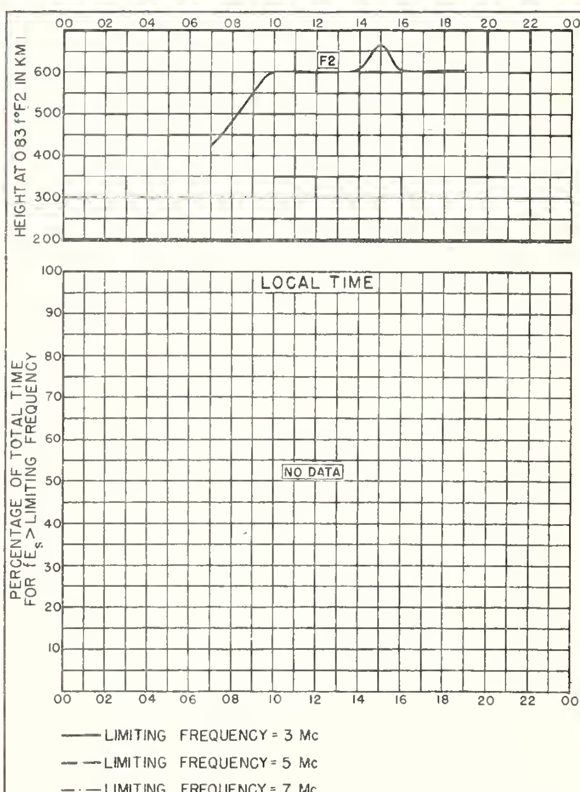

Fig. 81. MADRAS, INDIA NOVEMBER 1947

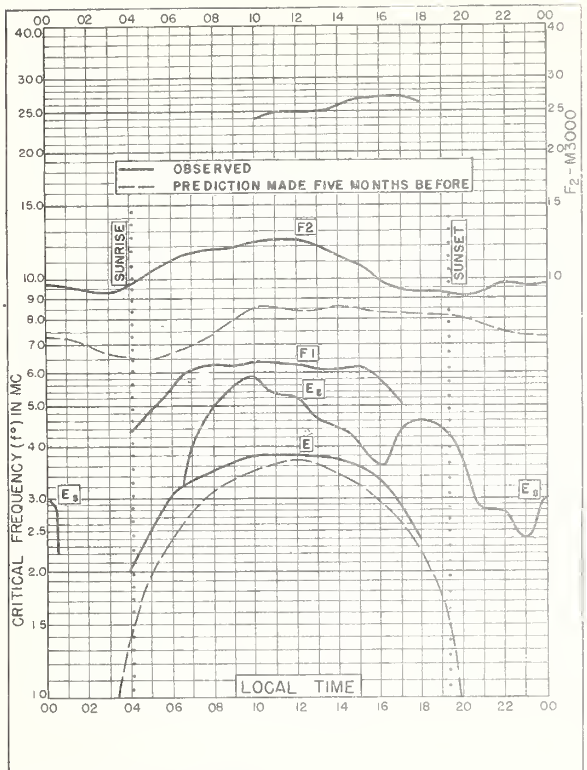

Fig. 82. FALKLAND IS.
51.7°S, 57.8°W NOVEMBER 1947

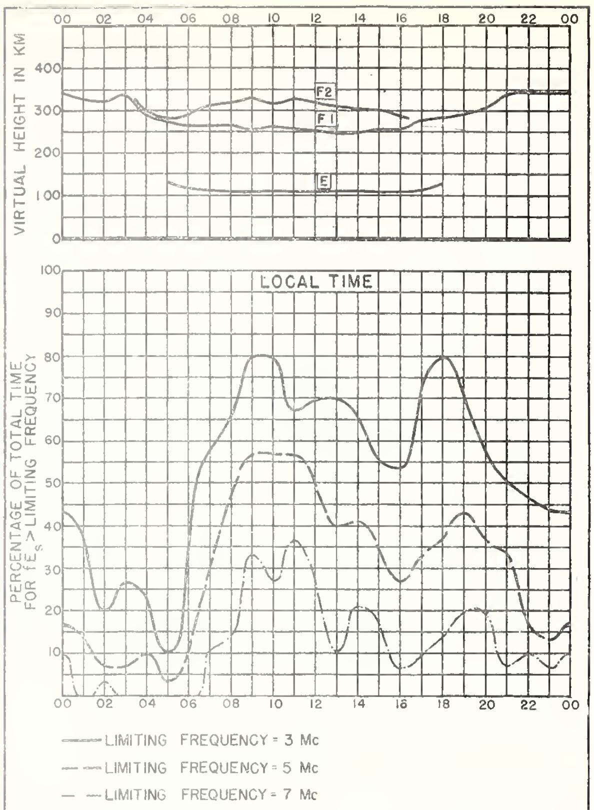

Fig. 83. FALKLAND IS. NOVEMBER 1947

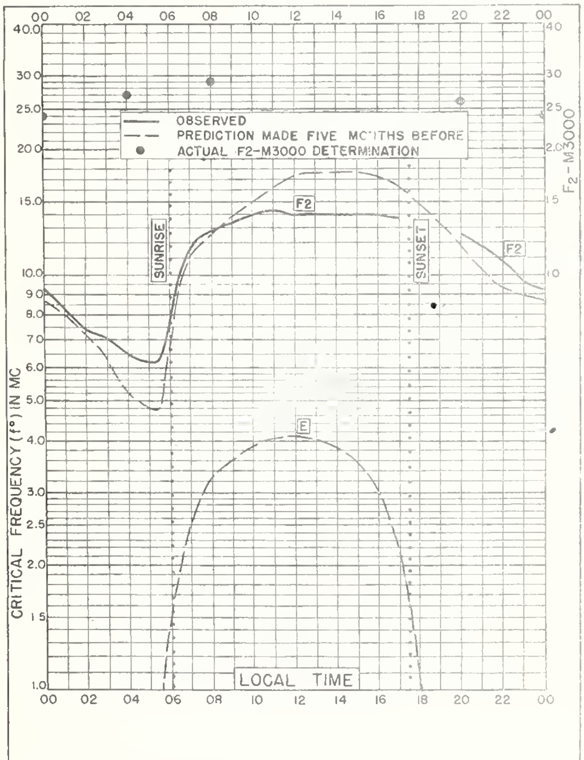

Fig. 84. DELHI, INDIA
28.6°N, 77.1°E OCTOBER 1947

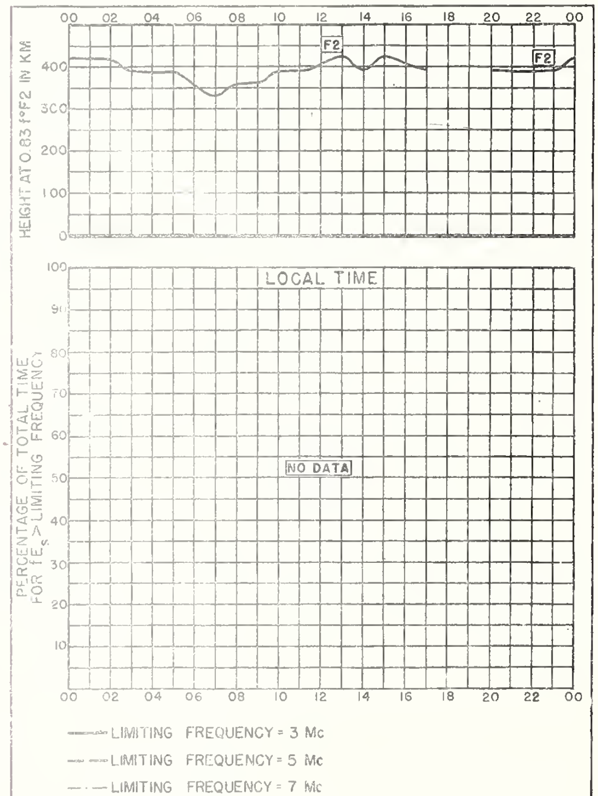

Fig. 85. DELHI, INDIA OCTOBER 1947

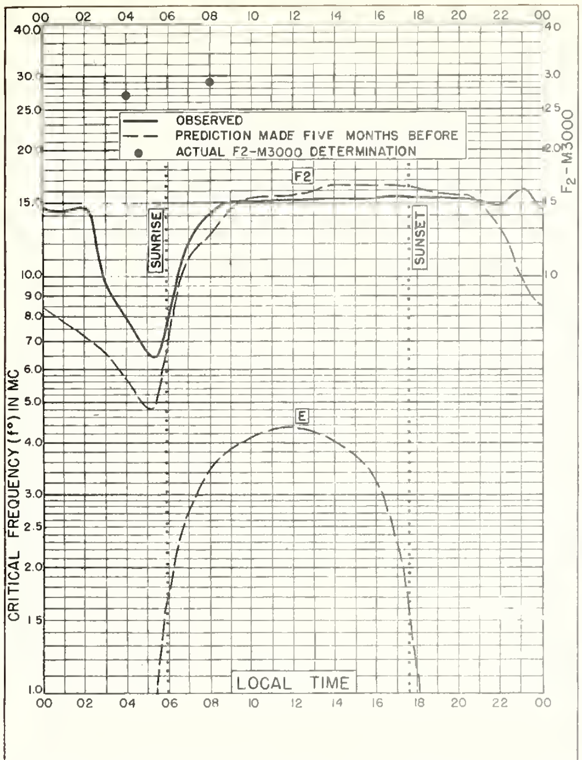

Fig. 86. BOMBAY, INDIA
19.0°N, 73.0°E OCTOBER 1947

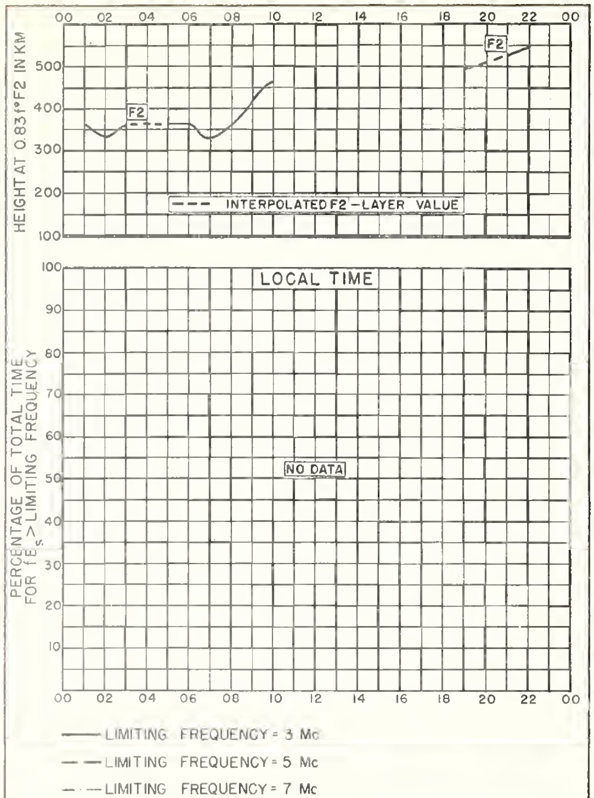

Fig. 87. BOMBAY, INDIA OCTOBER 1947

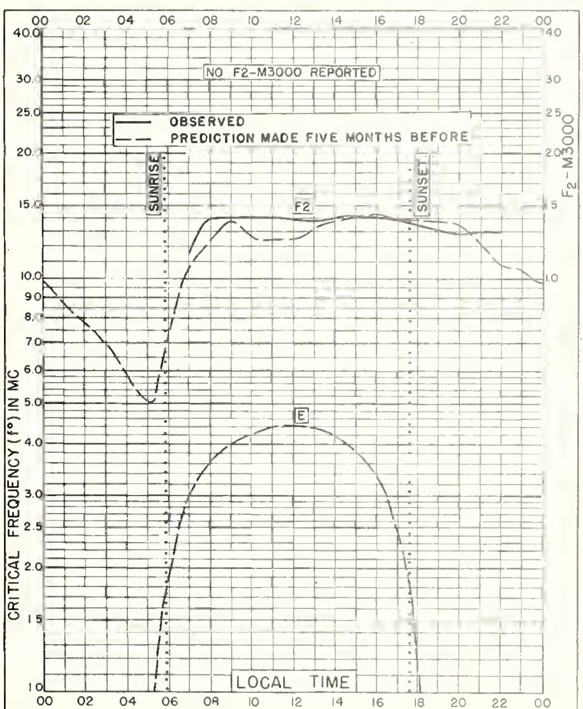

Fig. 88. MADRAS, INDIA
13.0°N, 80.2°E OCTOBER 1947

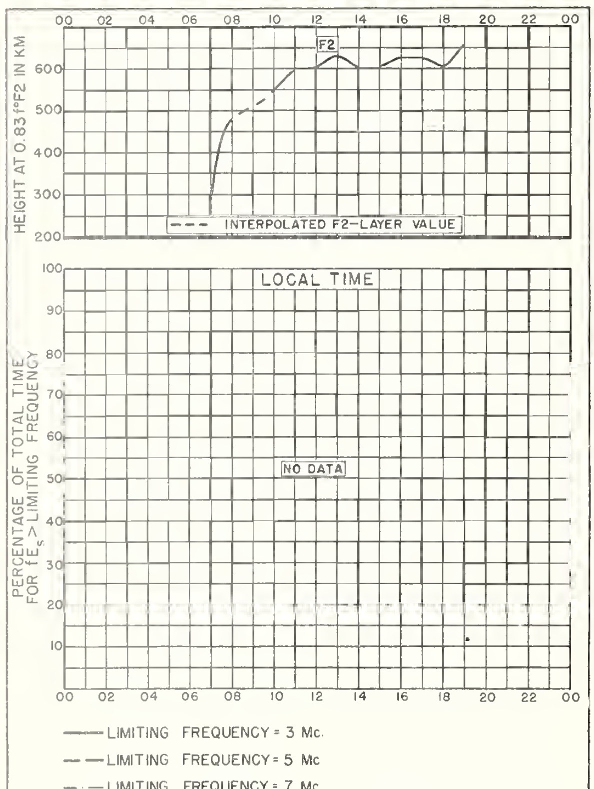

Fig. 89. MADRAS, INDIA OCTOBER 1947

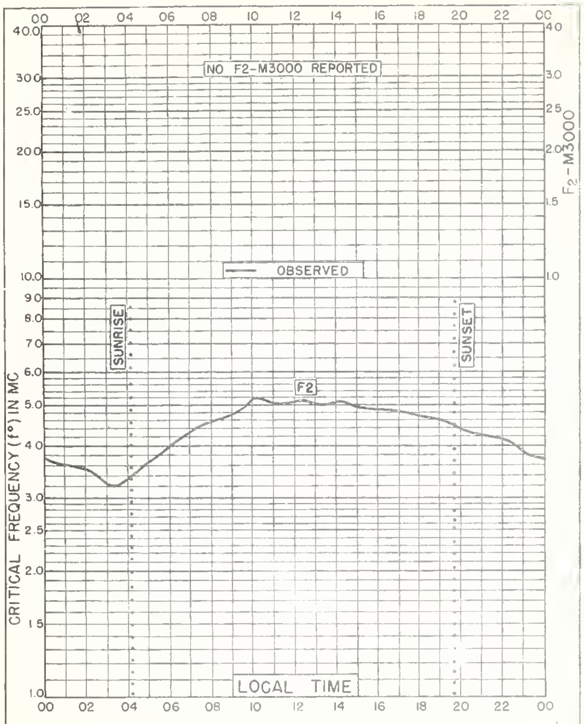

Fig. 90. TROMSO, NORWAY
69.7°N, 18.9°E APRIL 1945

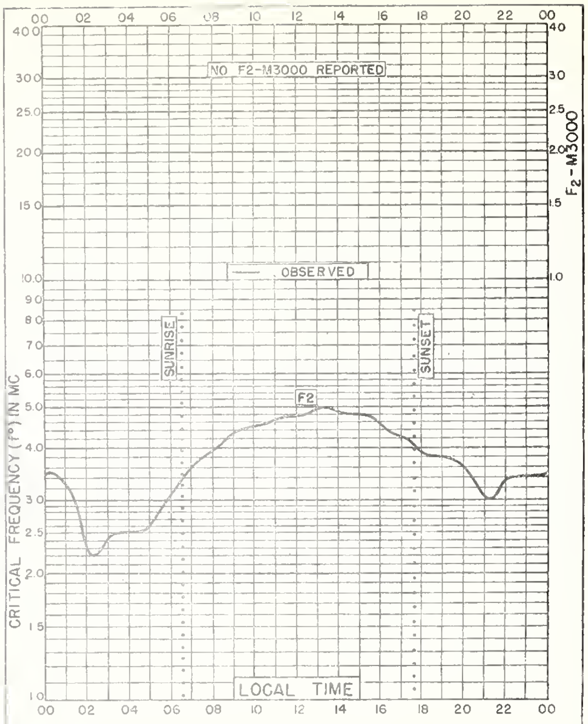

Fig. 91. TROMSO, NORWAY
69.7°N, 18.9°E MARCH 1945

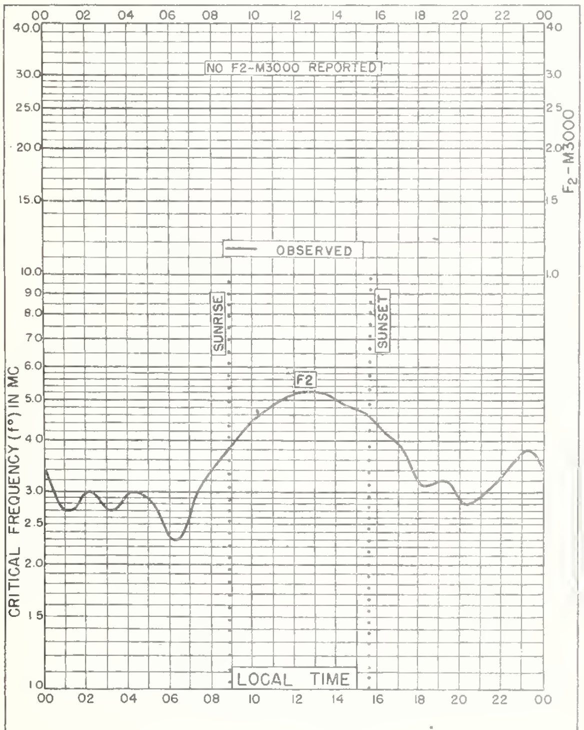

Fig. 92. TROMSO, NORWAY
69.7°N, 18.9°E FEBRUARY 1945

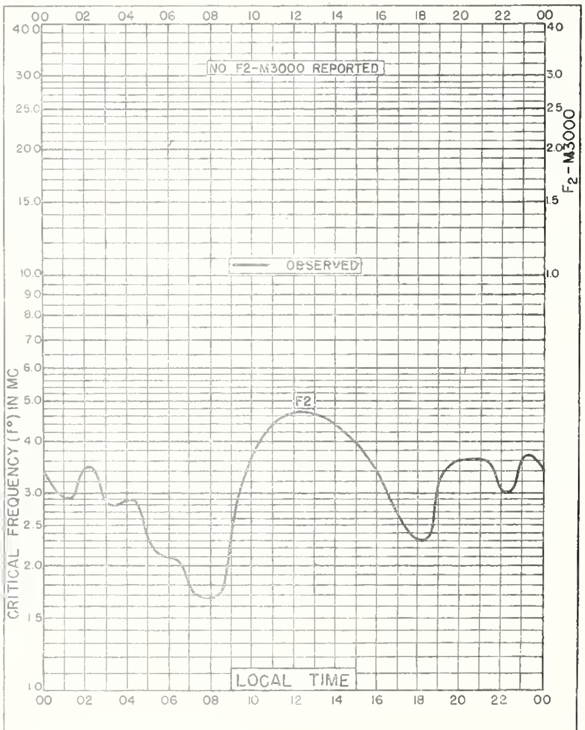

Fig. 93. TROMSO, NORWAY
69.7°N, 18.9°E JANUARY 1945

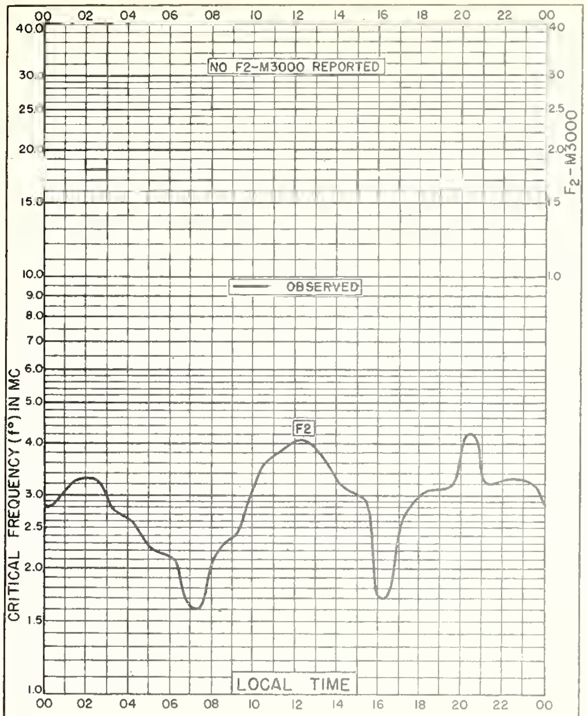

Fig. 94. TROMSO, NORWAY
69.7°N, 18.9°E DECEMBER 1944

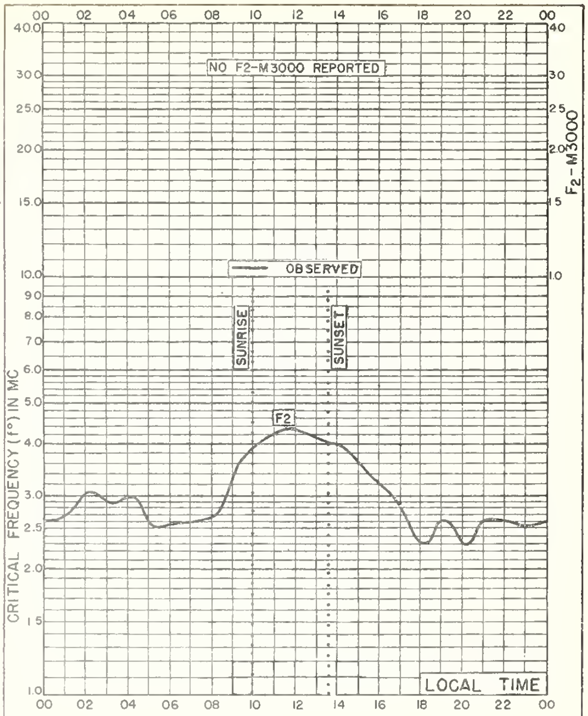

Fig. 95. TROMSO, NORWAY
69.7°N, 18.9°E NOVEMBER 1944

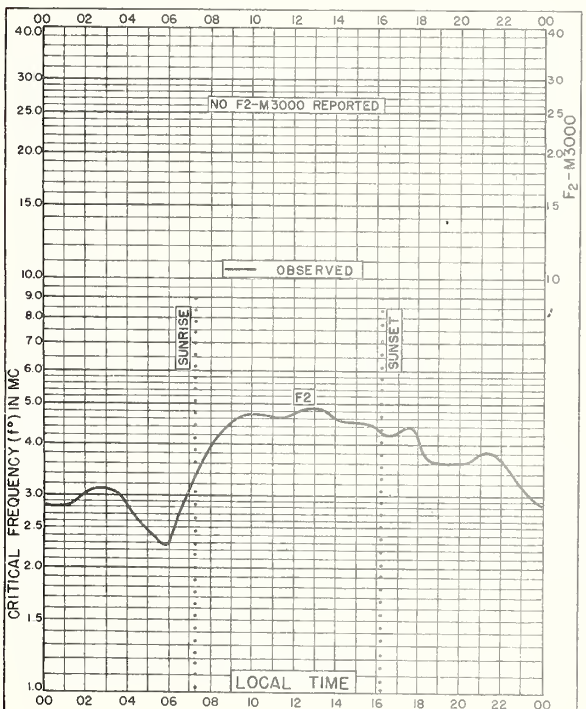

Fig. 96. TROMSO, NORWAY
69.7°N, 18.9°E OCTOBER 1944

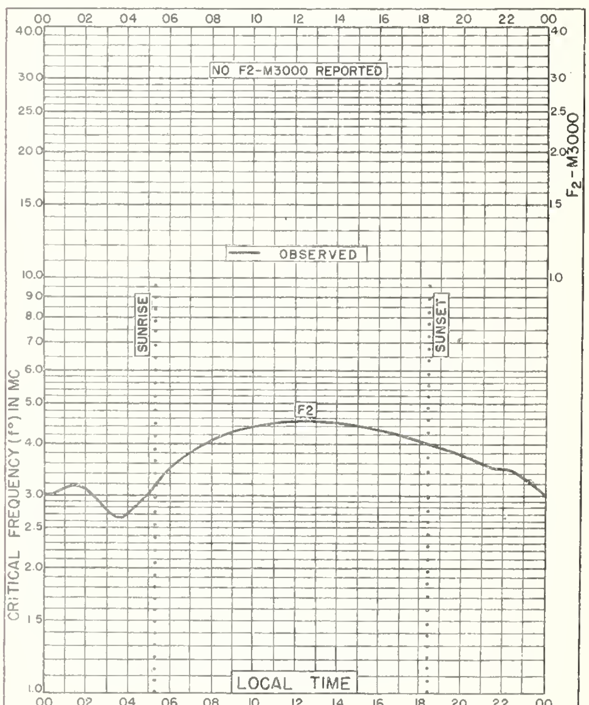

Fig. 97. TROMSO, NORWAY
69.7°N, 18.9°E SEPTEMBER 1944

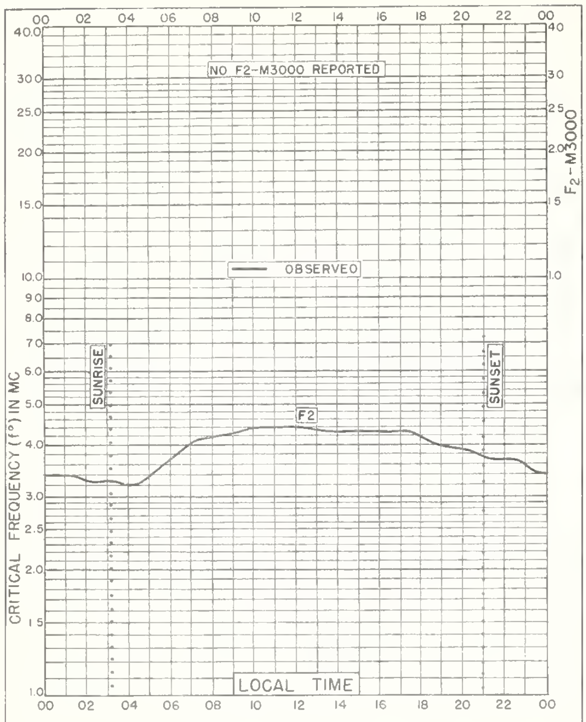

Fig. 98. TROMSO, NORWAY
69.7°N, 18.9°E AUGUST 1944

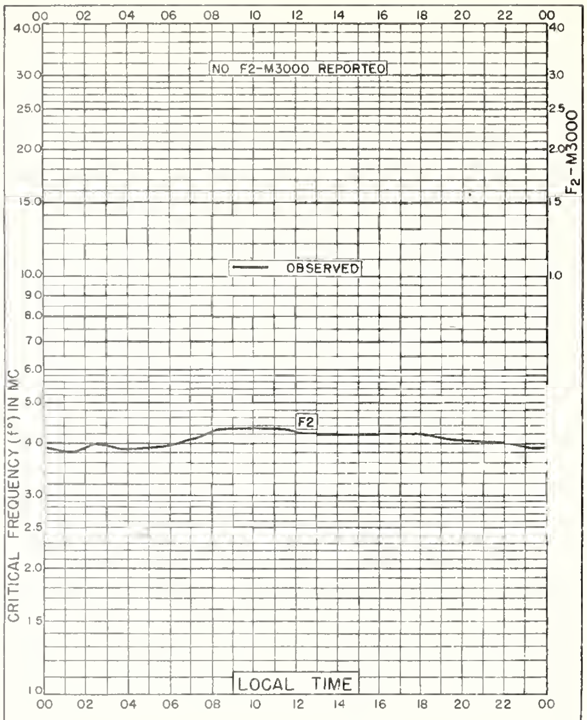

Fig. 99. TROMSO, NORWAY
69.7°N, 18.9°E JULY 1944

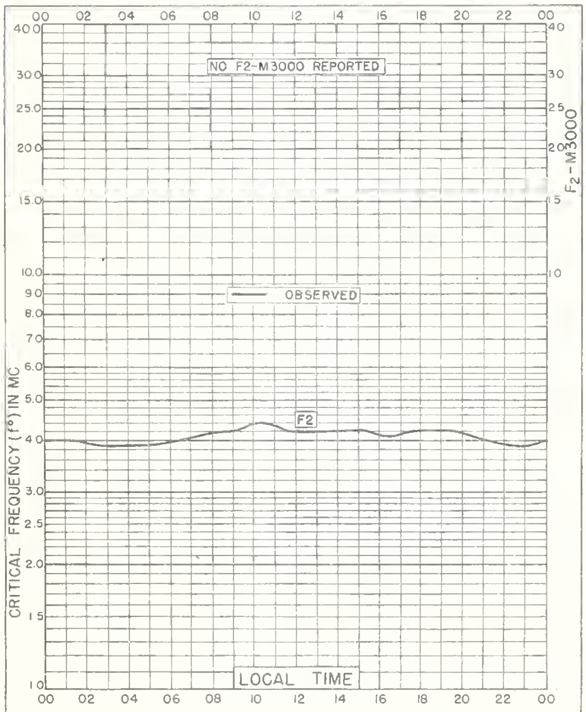

Fig. 100. TROMSO, NORWAY
69.7°N, 18.9°E JUNE 1944

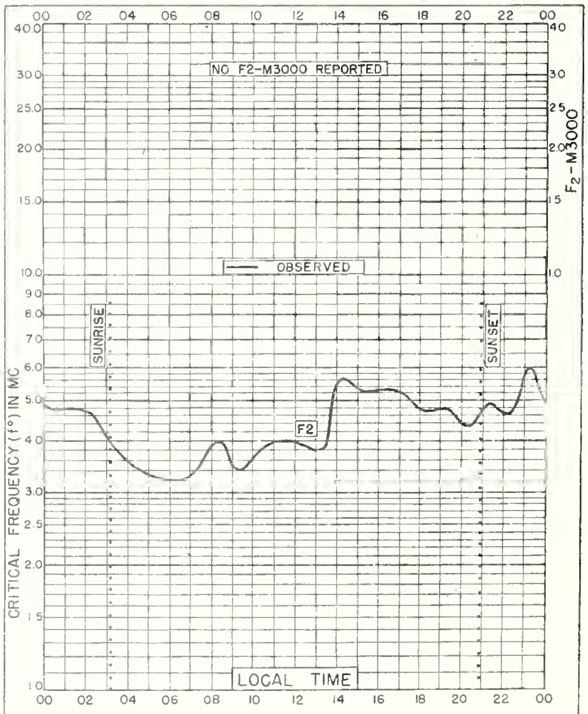

Fig. 101. TROMSO, NORWAY
69.7°N, 18.9°E AUGUST 1943

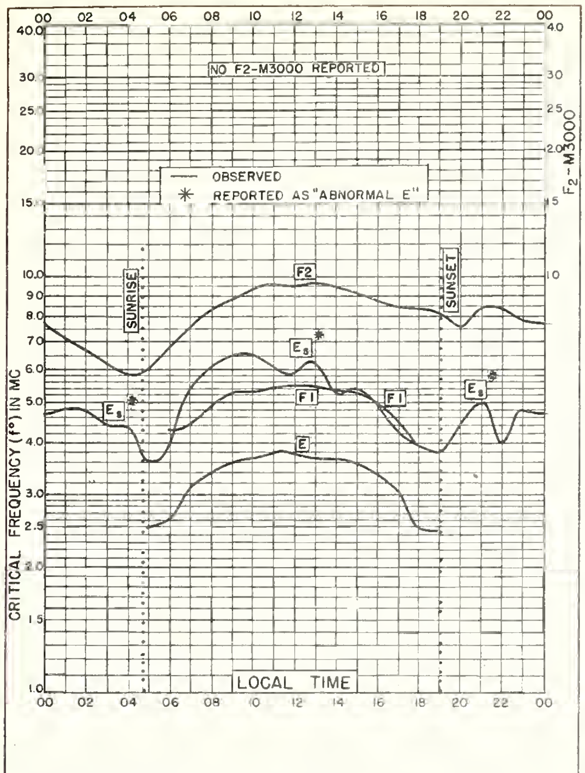

Fig. 102. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1937

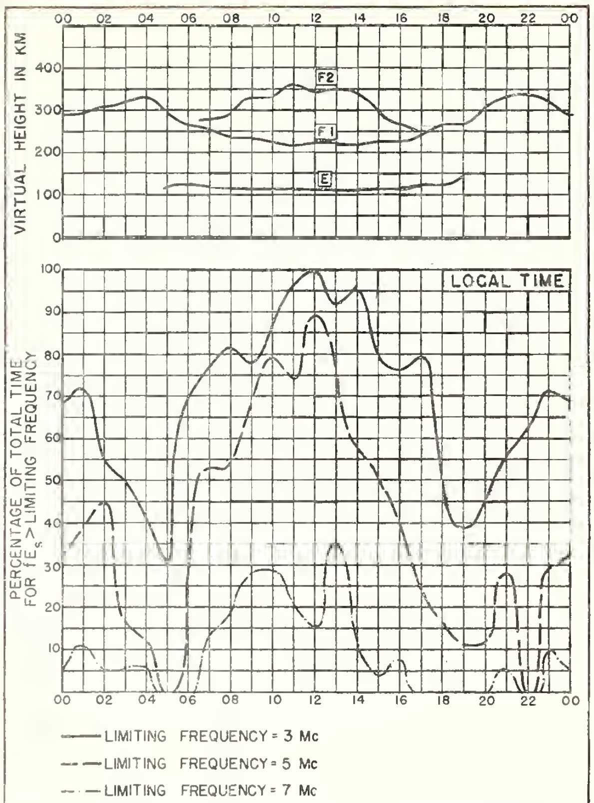

Fig. 103. CANBERRA, AUSTRALIA DECEMBER 1937

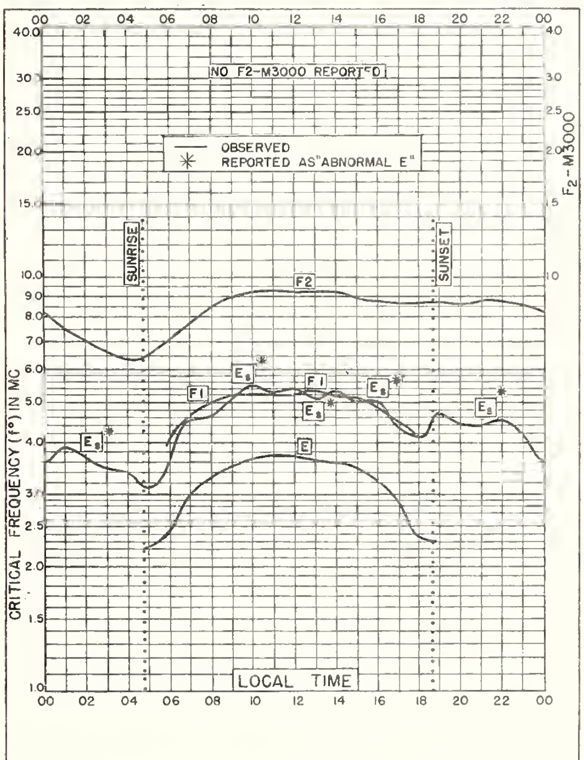

Fig. 104. CANBERRA, AUSTRALIA
35.3°S, 149.0°E NOVEMBER 1937

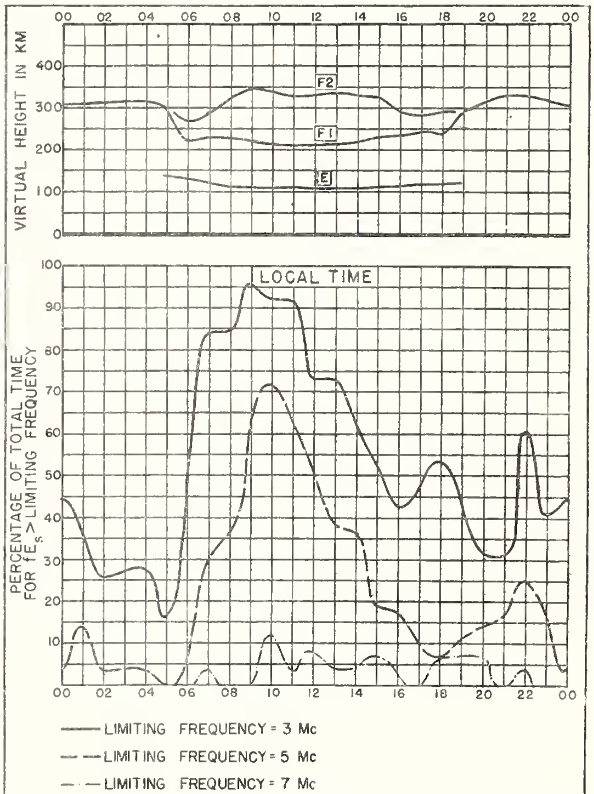

Fig. 105. CANBERRA, AUSTRALIA NOVEMBER 1937

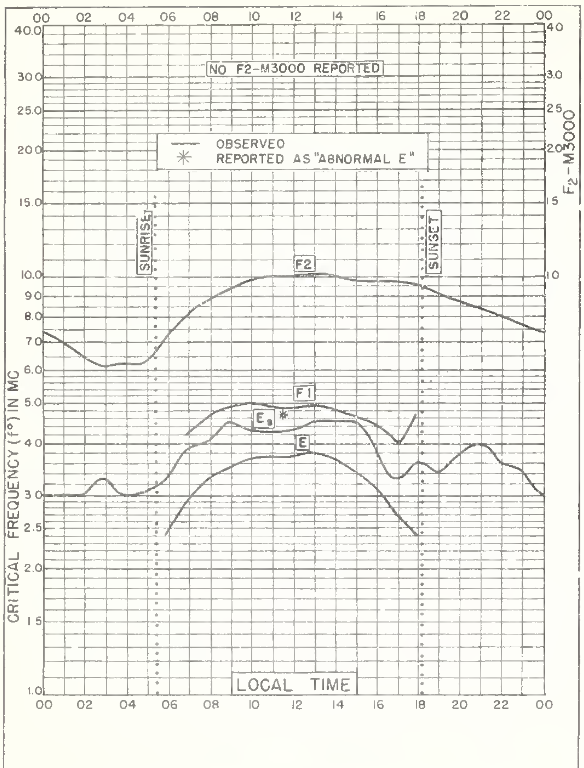

Fig. 106. CANBERRA, AUSTRALIA
35.3°S, 149.0°E OCTOBER 1937

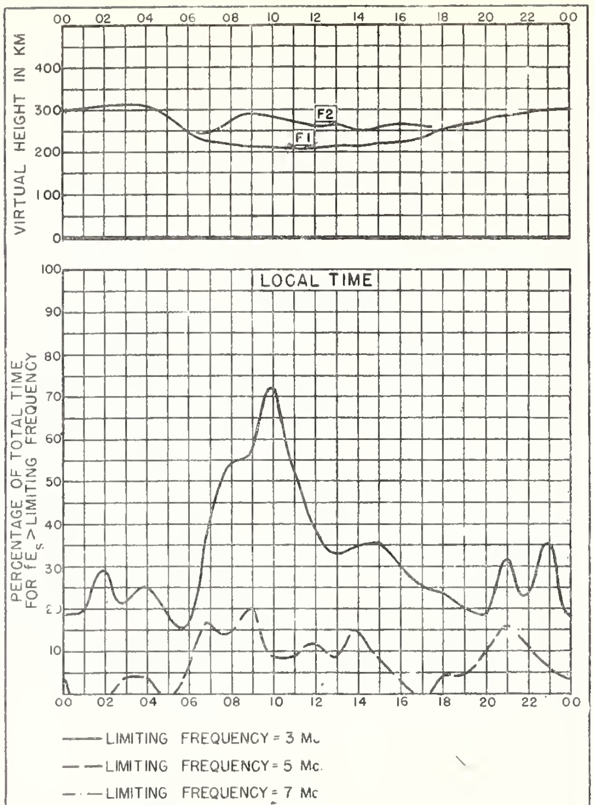

Fig. 107. CANBERRA, AUSTRALIA OCTOBER 1937

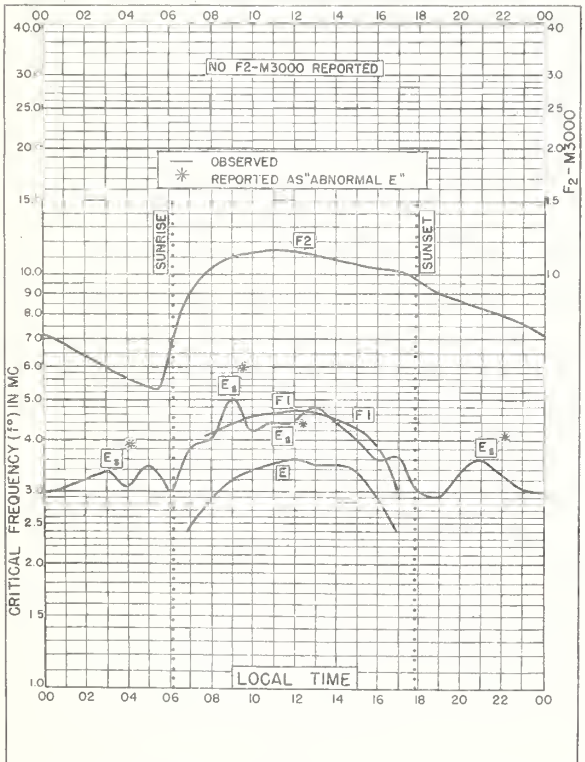

Fig. 108. CANBERRA, AUSTRALIA
35.3°S, 149.0°E SEPTEMBER 1937

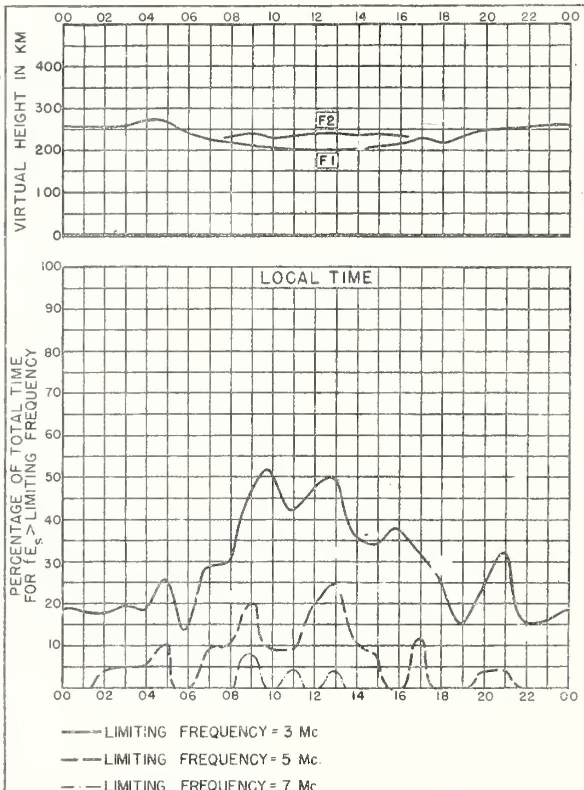

Fig. 109. CANBERRA, AUSTRALIA SEPTEMBER 1937

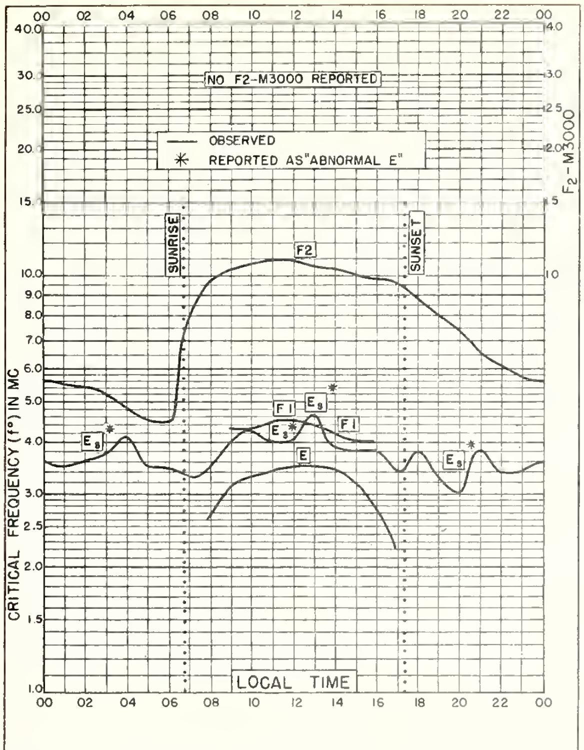

Fig. 110. CANBERRA, AUSTRALIA
35. 3°S, 149. 0°E AUGUST 1937

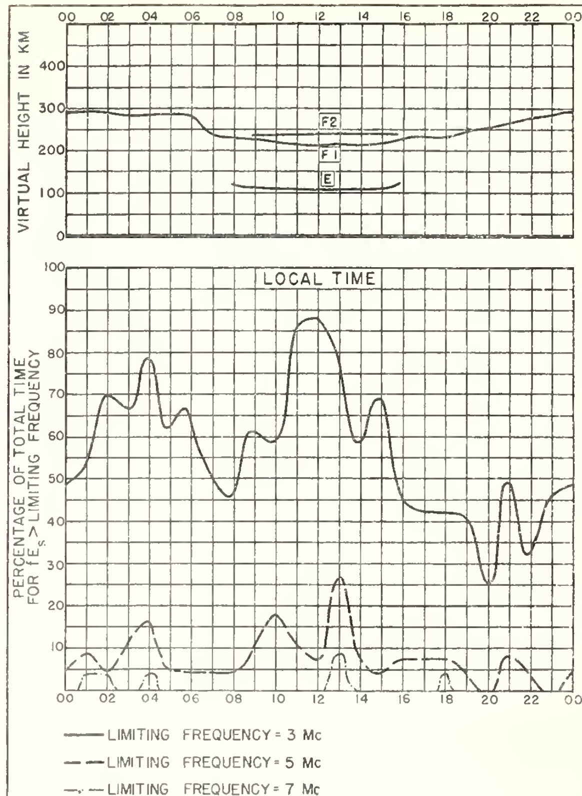

Fig. 111. CANBERRA, AUSTRALIA AUGUST 1937

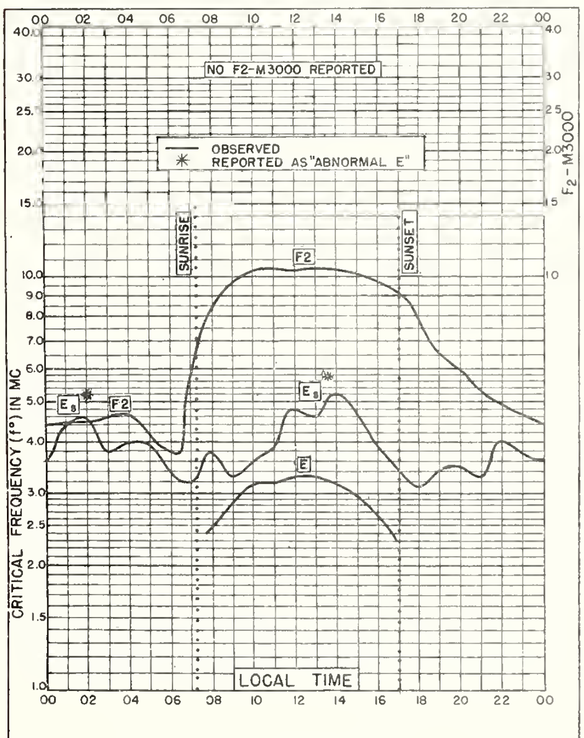

Fig. 112. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JULY 1937

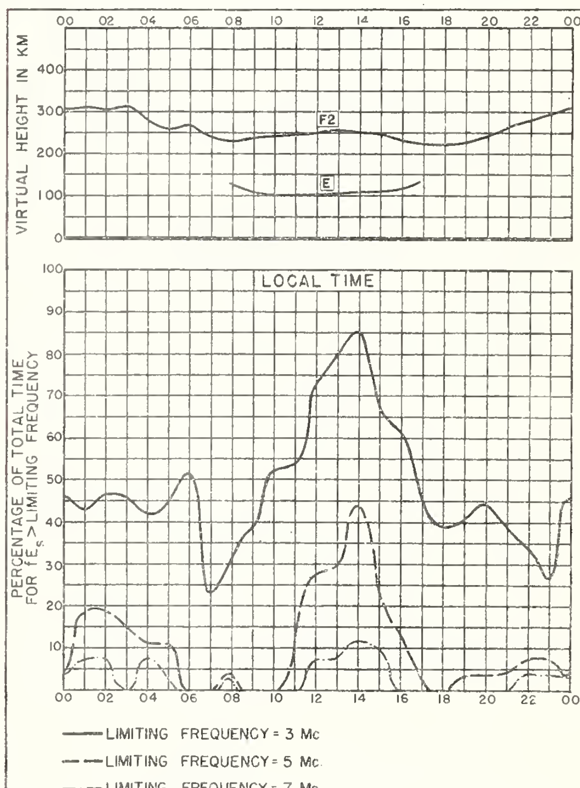

Fig. 113. CANBERRA, AUSTRALIA JULY 1937

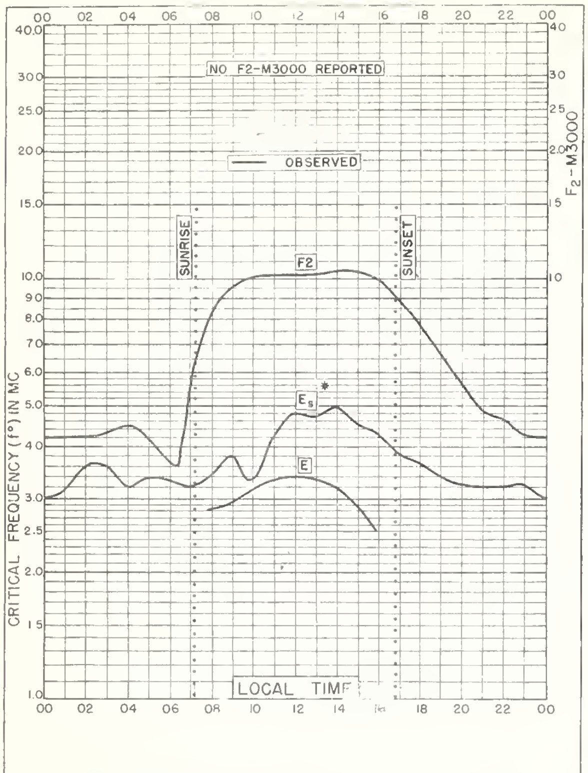

Fig. 114. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JUNE 1937

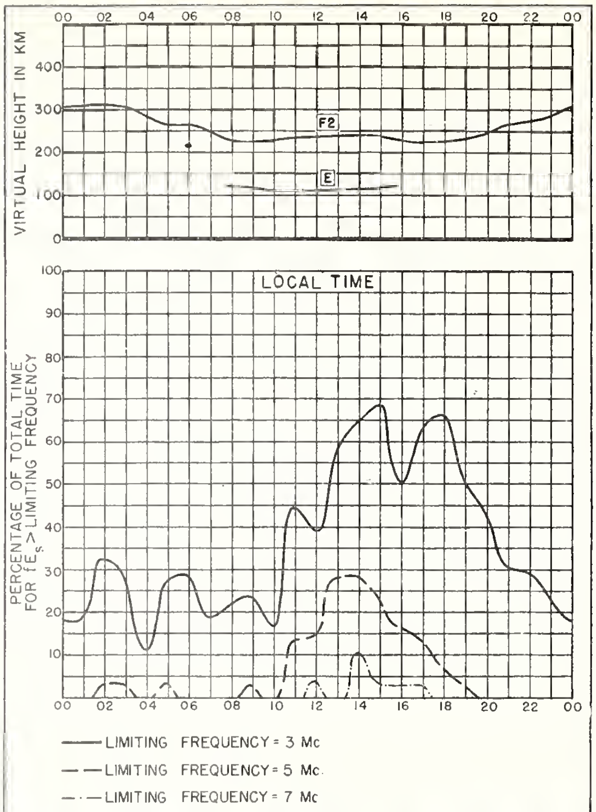

Fig. 115. CANBERRA, AUSTRALIA JUNE 1937

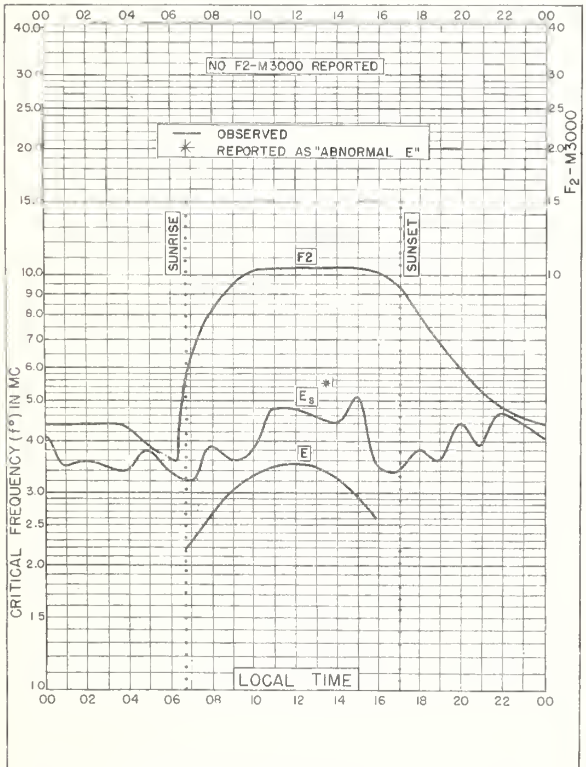

Fig 116. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MAY 1937

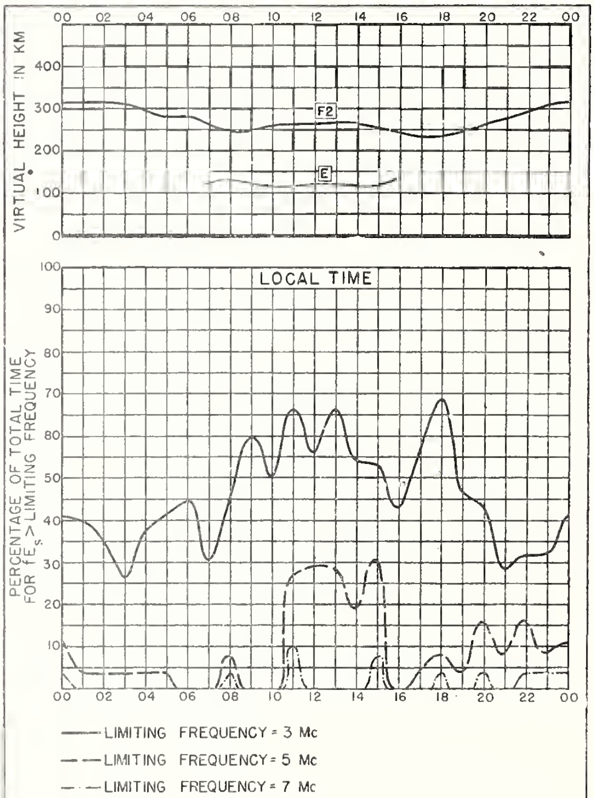

Fig. 117. CANBERRA, AUSTRALIA MAY 1937

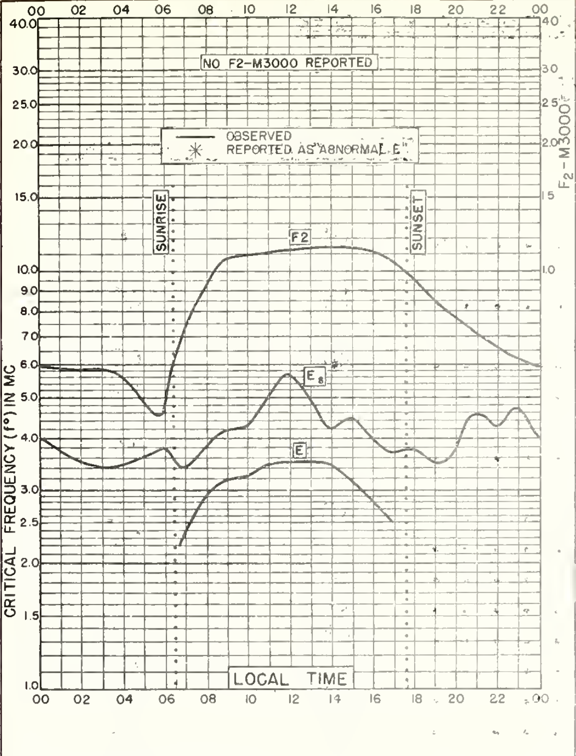

Fig. 118. CANBERRA, AUSTRALIA
35.3°S, 149.0°E APRIL 1937

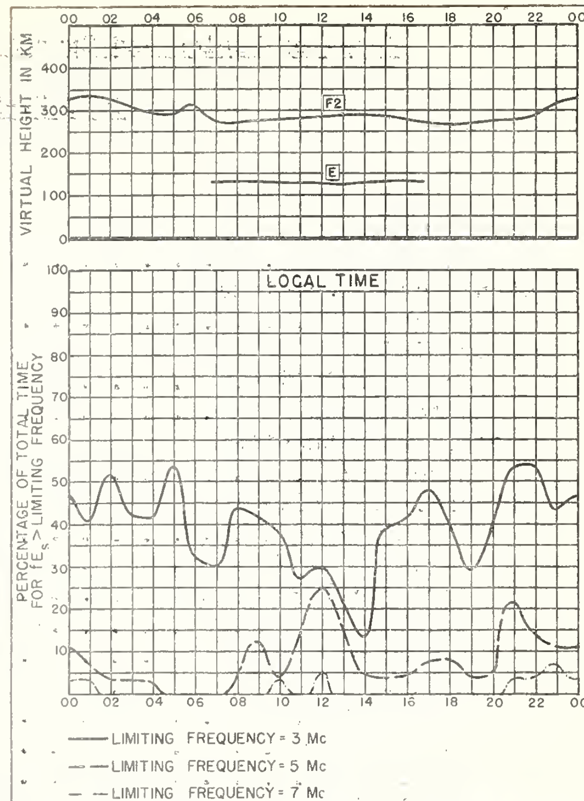

Fig. 119. CANBERRA, AUSTRALIA APRIL 1937

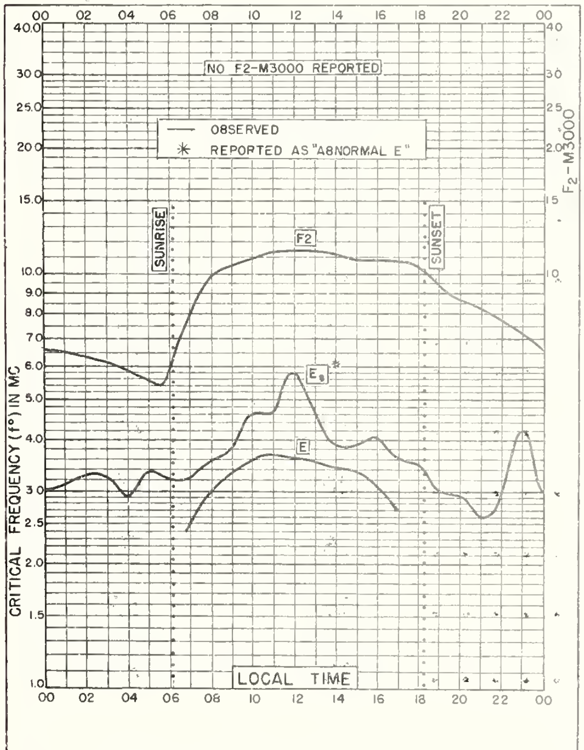

Fig. 120. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MARCH 1937

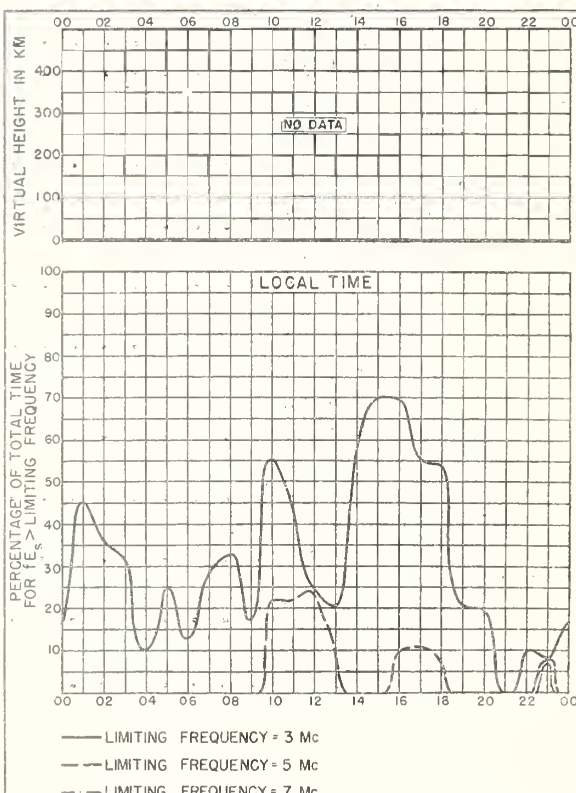

Fig. 121. CANBERRA, AUSTRALIA MARCH 1937

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CRPL–F. Ionospheric Data.

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NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL–R. Nonscheduled reports:
- R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
- R5. Criteria for Ionospheric Storminess.
- R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
- R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
- R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.
- R12. Short Time Variations in Ionospheric Characteristics.
- R14. A Graphical Method for Calculating Ground Reflection Coefficients.
- R15. Predicted Limits for *F*2-layer Radio Transmission Throughout the Solar Cycle.
- R16. Predicted *F*2-layer Frequencies Throughout the Solar Cycle, for Summer, Winter, and Equinox Season.
- R17. Japanese Ionospheric Data—1943.
- R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
- R19. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for June.
- R20. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for September.
- R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
- R22. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for December.
- R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
- R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
- R25. The Prediction of Solar Activity as a Basis for Predictions of Radio Propagation Phenomena.
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- R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
- R28. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for January.
- R30. Disturbance Rating in Values of IRPL Quality-Figure Scale From A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
- R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
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- R33. Ionospheric Data on File at IRPL.
- R34. The Interpretation of Recorded Values of *fEs*.
- R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.

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