CRPL-F48

IONOSPHERIC DATA

ISSUED

AUGUST 1948

PREPARED BY CENTRAL RADIO PROPAGATION LABORATORY
National Bureau of Standards
Washington, D.C.

CRPL-F48 CENTRAL RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
WASHINGTON, D.C.

Issued
27 Aug. 1948

IONOSPHERIC DATA

CONTENTS

Page

Terminology and Scaling Practices 2

Monthly Average and Median Values of World-Wide Ionospheric Data 4

Ionospheric Data for Every Day and Hour at Washington, D. C. 6

Ionosphere Disturbances 7

American and Zürich Provisional Relative Sunspot Numbers 8

Solar Coronal Intensities Observed at Climax, Colorado 9

Tables of Ionospheric Data 10

Graphs of Ionospheric Data 46

Index of Tables and Graphs of Ionospheric Data in CRPL-F48 75

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-F36, 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 fEs 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 57 and figures 1 to 111 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 in this issue:

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

British Department of Scientific and Industrial Research,
Radio Research Board:
Lindau/Harz, Germany

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

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

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

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:
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)

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.

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. The following points are worthy of note:

a. 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. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

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	125	116	73	
June	129	112	67	
May	130	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 58 to 69 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 70 presents ionosphere character figures for Washington, D. C., during July 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 71 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 July 1948.

Table 72 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 June 25 to July 1, 1948.

Table 73 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Point Reyes, California, receiving station of RCA Communications, Inc., for July 29, 1948.

Table 74 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 May 4 to May 21, 1948.

Table 75 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, June 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.

AMERICAN AND ZÜRICH PROVISIONAL RELATIVE SUNSPOT NUMBERS

Table 76 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 <u>all</u> 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.

SOLAR CORONAL INTENSITIES OBSERVED AT CLIMAX, COLORADO

In tables 77a and 77b are listed the intensities of the green (5303A) line of the emission spectrum of the solar corona as observed during July 1948 by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, for east and west limbs, resepctively, 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 78a and 78b give similarly the intensities of the first red (6374A) coronal line; tables 79a and 79b list the intensities of the second red (6704A) coronal line. The following symbols are used in tables 77, 78, and 79: a, observation of low weight; -, corona not visible; and x, position-angle not included in plate estimates.

TABLES OF IONOSPHERIC DATA

Table 1

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	6.6						2.7
01	260	(6.2)						(2.8)
02	260	5.9						2.8
03	260	5.6						2.8
04	270	4.9						2.8
05	270	4.8			100			2.9
06	250	5.5	250		100	2.3	3.4	3.0
07	340	6.3	210	4.5	100	3.0	4.2	2.9
08	355	6.8	200	4.9	100	3.3	4.6	2.8
09	350	7.0	200	5.0	100	3.6	4.0	2.9
10	370	7.0	200	5.3	100	3.8	4.3	2.8
11	400	7.1	200	5.5	100	3.9	4.3	2.7
12	400	7.1	200	5.5	100	4.0	4.0	2.7
13	400	7.3	200	5.5	100	4.0		2.7
14	420	7.1	200	5.5	100	3.9	4.0	2.7
15	400	7.4	200	5.4	100	3.9		2.7
16	375	7.3	210	5.1	100	3.7	4.1	2.8
17	350	7.5	220	4.9	100	3.3	4.0	2.8
18	300	7.4	210		100	2.7	3.8	2.9
19	250	7.5			110	2.1	3.2	2.9
20	250	7.5					3.2	2.8
21	260	7.3						2.8
22	260	7.2						2.8
23	265	(7.0)						(2.8)

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

Table 2

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	8.9						2.9
01	250	8.8						3.0
02	240	8.6						3.1
03	240	7.6						3.0
04	250	7.2						3.0
05	250	6.9						3.0
06	240	6.6				2.0		2.9
07	220	7.5			110	2.8		3.1
08	220	8.0	200		110	3.2	4.0	2.9
09	305	8.5	210	5.7	110	3.6	4.6	2.6
10	380	9.4	200	5.9	110	3.9	4.8	2.5
11	380	10.1	200	5.8	110	4.1	4.8	2.6
12	350	11.0	210	5.8	110	4.2	5.0	2.7
13	340	11.3	200	5.8	110	4.2	5.2	2.7
14	330	11.6	210	5.7	110	4.1	5.2	2.8
15	310	11.9	200	5.6	110	3.9	4.7	2.9
16	300	11.9	200	5.4	110	3.7	4.7	2.9
17	280	11.8	210		110	3.2	4.6	3.0
18	220	11.5			110	2.7	3.8	3.0
19	230	10.8					3.4	3.1
20	240	9.8					3.2	3.0
21	250	9.4						2.9
22	260	9.2						2.9
23	250	9.4						2.9

Time: 150.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 3

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.9				1.6	4.4	2.7
01	330	5.9				1.8	5.2	2.6
02	345	5.8		3.0		2.0	5.4	2.5
03	385	6.1	300	3.7		2.2	4.5	2.5
04	425	6.0	270	4.0		2.6	5.5	2.5
05	462	6.2	260	4.3		2.8	5.5	2.3
06	475	6.3	245	4.4		3.1	5.3	2.4
07	472	6.4	240	4.7		3.3	5.4	2.4
08	480	6.5	228	4.8		3.5	4.8	2.4
09	495	6.5	230	5.0		3.6	3.6	2.4
10	520	6.5	220	5.1		3.6	3.6	2.4
11	530	6.6	220	5.1		3.7	3.5	2.4
12	530	6.5	230	5.2		3.7	3.7	2.4
13	525	6.4	225	5.2		3.7	4.2	2.4
14	500	6.4	225	5.2		3.6	3.5	2.4
15	500	6.2	225	5.1		3.5	3.2	2.4
16	420	6.2	230	5.0		3.3	3.3	2.4
17	435	6.4	242	4.8		3.1	3.4	2.5
18	400	6.5	250	4.5		2.9	3.2	2.6
19	290	6.5	260	4.0		2.6	3.4	2.7
20	280	6.4	270	3.5		2.3	3.4	2.7
21	285	6.3				2.0	3.4	2.8
22	275	6.3				1.8	3.3	2.8
23	280	6.1				1.7	3.2	2.7

Time: 150.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 4

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	6.0					3.8	2.7
01	290	5.5					3.0	2.6
02	300	5.2					2.9	2.6
03	315	4.7					3.6	2.6
04	320	5.0	315			1.6	3.8	2.6
05	390	5.4	280	3.5	130	2.1	4.1	2.5
06	435	5.8	250	4.1	120	2.6	4.2	2.5
07	450	6.3	230	4.4	110	2.9	4.2	2.5
08	465	6.4	220	4.7	110	3.3	4.2	2.4
09	480	6.6	210	4.9	110	3.5	4.2	2.4
10	510	6.8	210	5.1	110	3.7	4.4	2.4
11	475	7.0	210	5.2	110	3.8	4.2	2.4
12	480	7.1	220	5.2	110	3.8	4.2	2.4
13	490	6.7	220	5.3	110	3.8	4.3	2.4
14	495	6.8	220	5.3	110	3.8	4.2	2.4
15	490	6.7	215	5.2	110	3.7	4.2	2.4
16	460	6.5	220	5.2	110	3.6	4.1	2.5
17	440	6.5	230	5.0	110	3.4	4.1	2.5
18	400	6.3	230	4.8	110	3.1	4.1	2.6
19	345	6.5	250	4.4	110	2.8	3.8	2.7
20	290	6.6	265	3.7	120	2.3	3.6	2.7
21	270	6.8				(1.8)	3.4	2.8
22	270	6.6						2.7
23	270	6.5					3.6	2.7

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

Table 5

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.8					3.0	(2.6)
01	300	5.3					2.4	(2.4)
02	310	5.0					2.5	(2.5)
03	300	4.6					2.8	(2.5)
04	300	4.6					2.4	(2.7)
05	270	5.0			115	1.9		(2.7)
06	250	5.4	250	4.0	110	2.5		2.5
07	430	5.9	230	4.4	110	2.9		2.5
08	450	6.2	220	4.8	100	3.3		2.5
09	485	6.4	210	5.0	100	3.5		2.5
10	470	6.5	210	5.1	100	3.5		2.4
11	500	6.7	200	5.2	100	3.7		2.4
12	470	6.8	210	5.2	100	3.8		2.5
13	465	6.9	210	5.2	100	(3.8)		2.5
14	480	6.9	220	5.2	100	3.7		2.5
15	455	6.9	210	5.2	100	3.6		2.5
16	450	6.9	220	5.2	100	3.5		2.5
17	430	6.8	230	5.0	110	3.3		2.5
18	350	6.9	240	4.8	110	3.0		2.6
19	250	7.1			110	2.6		2.6
20	260	7.2			130	2.0	2.8	2.7
21	260	7.2					2.4	2.8
22	260	6.9					2.1	2.6
23	280	6.4					2.4	(2.6)

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

Table 6

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	6.7						2.8
01	270	6.4						2.8
02	275	5.9						2.8
03	280	5.4						2.8
04	280	5.4					2.1	2.8
05	260	5.8	250	3.7	115	2.4	2.4	2.9
06	280	6.2	230	4.1	110	2.8	3.0	2.9
07	325	6.6	220	4.8	110	3.2	4.2	2.9
08	325	6.8	220	5.0	100	3.5	4.6	2.9
09	370	6.8	220	5.4	100	3.7	4.8	2.8
10	420	6.8	210	5.5	100	3.8	4.8	2.7
11	430	7.0	210	5.6	100	4.0	4.4	2.7
12	440	7.0	210	5.6	100	4.0	4.5	2.6
13	460	7.0	215	5.6	100	4.0	4.6	2.6
14	425	7.1	220	5.6	100	3.9	4.7	2.7
15	410	7.4	220	5.4	100	3.7	4.4	2.7
16	395	7.4	220	5.3	100	3.6	3.8	2.7
17	390	7.4	230	5.0	110	3.4	4.0	2.7
18	330	7.6	230	4.6	110	2.9	3.7	2.7
19	285	7.8	250	3.8	110	2.4	3.6	2.8
20	270	8.0			120	1.8	2.0	2.8
21	265	8.0					2.2	2.8
22	270	7.8					2.8	2.7
23	270	7.4						2.7

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

Table 7

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	370	6.6						2.4
01	375	6.1						2.4
02	375	5.4						2.4
03	370	4.9						2.5
04	360	5.0						2.5
05	340	5.3			150	2.4		2.5
06	350	5.8	290	4.2	140	2.6		2.5
07	470	6.2	290	4.8	140	3.1		2.5
08	490	6.5	280	5.0	130	3.4	5.2	2.4
09	520	6.5	270	5.2	130	3.6	5.4	2.4
10	540	6.6	280	5.4	130	3.7	5.3	2.3
11	550	6.9	250	5.5	130	3.8	5.2	2.3
12	580	6.9	260	5.5	130	3.8	5.2	2.3
13	590	7.0	260	5.5	130	3.9	5.2	2.3
14	575	7.1	270	5.5	130	3.8	5.0	2.3
15	555	7.2	270	5.4	130	3.7	5.0	2.3
16	520	7.4	270	5.2	140	3.5		2.3
17	470	7.6	290	5.0	140	3.2		2.3
18	420	7.5	290	4.6	140	2.8		2.4
19	330	7.6	340	4.0	(150)	(2.3)		2.4
20	340	7.7						2.4
21	340	7.8						2.4
22	340	7.2						2.4
23	350	7.0						2.4

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

Table 8

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	7.1						2.6
01	290	6.6						2.6
02	275	6.1					1.6	2.5
03	260	5.6					1.8	2.5
04	295	5.7					1.7	2.7
05	300	6.0			102	1.9		2.8
06	368	6.4	260	5.0	110	2.0		2.7
07	420	6.7	252	4.9				2.6
08	440	6.8	235	5.0				2.6
09	440	6.8	225	5.1				2.6
10	455	7.0	220	5.3				2.5
11	460	7.0	215	5.0				2.5
12	483	7.1	240	5.5				2.5
13	485	6.8	222	5.0				2.5
14	490	7.4	230	5.2				2.5
15	435	7.1	240	5.1				2.6
16	412	7.0	245	4.9				2.6
17	352	7.7	280	4.9				2.7
18	290	7.8			120	2.4		2.7
19	290	8.0						2.7
20	270	8.0						2.7
21	275	8.0						2.7
22	285	7.8						2.6
23	290	7.4						2.6

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

Table 9

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	6.4					4.4	2.5
01	300	6.3					4.0	2.4
02	300	6.0					2.6	2.5
03	300	5.8					2.9	2.5
04	300	5.4					2.2	2.5
05	300	5.6						2.5
06	340	6.4	260	4.0	120	2.5		2.5
07	385	7.0	240	4.8	120	3.0	4.6	2.5
08	440	7.6	220	5.2	120	3.3	4.8	2.4
09	420	8.2	220	5.3	120	3.6	5.0	2.4
10	420	8.7	220	5.6	110	3.8	4.9	2.4
11	420	8.9	220	5.6	110	3.9	4.8	2.4
12	420	8.6	220	5.5	110	3.9	5.2	2.4
13	410	8.7	220	5.6	120	3.9		2.4
14	405	8.7	220	5.5	110	3.9	4.8	2.5
15	400	8.5	220	5.3	120	3.8		2.5
16	380	8.2	220	5.3	120	3.6	4.8	2.6
17	360	8.0	240	4.9	120	3.2	4.4	2.6
18	260	7.8			120	2.7	4.2	2.7
19	280	7.6					4.2	2.7
20	260	7.4					3.2	2.7
21	280	7.2					3.7	2.6
22	280	6.6					5.1	2.5
23	300	6.4					5.0	2.5

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

Table 10

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	6.8					3.8	2.6
01	300	6.8					3.4	2.6
02	300	6.6					3.0	2.6
03	290	6.5					2.6	2.6
04	285	6.2					2.6	2.6
05	290	6.2					3.2	2.6
06	260	7.0		4.0	120	2.5	4.6	2.7
07	335	7.8	235	4.8	110	3.0	5.0	2.6
08	380	8.8	220	5.3	120	3.4	5.3	2.5
09	395	9.0	220	5.6	120	3.6	5.4	2.5
10	430	9.5	210	5.8	120	3.8	5.4	2.4
11	405	9.4	220	5.8	120	3.9	5.3	2.5
12	410	9.7	220	5.7	120	4.1	5.4	2.5
13	415	9.8	220	5.7	120	4.1	5.1	2.5
14	400	9.4	220	5.5	120	4.0	5.0	2.5
15	400	9.2	225	5.5	120	3.8	5.2	2.5
16	385	8.8	230	5.3	120	3.6	4.9	2.6
17	360	8.6	240	5.1	110	3.3	5.2	2.6
18	280	8.2	250		120	2.6	4.4	2.7
19	280	8.4					3.0	2.8
20	260	8.0					3.2	2.7
21	280	7.2					2.7	2.6
22	300	7.0					3.0	2.6
23	320	6.8					3.7	2.5

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

Table 11

Wuchang, China (30.6°N, 114.4°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	9.8					4.4	2.8
01	280	9.8					4.3	2.9
02	265	8.8					5.0	2.9
03	270	8.4					3.6	2.8
04	270	7.9					3.5	2.8
05	275	7.8			110		3.0	2.7
06	240	8.4			100	2.2	3.2	2.9
07	235	9.2			100	2.9	5.0	3.0
08	250	9.4	210	5.2	92	3.4	6.0	3.0
09	310	9.6	232	6.2	90	3.7	6.8	2.7
10	355	9.7	240	6.2	90	3.9	6.6	2.6
11	360	10.8	245	6.4	92	4.0	7.4	2.6
12	372	11.1	230	6.2	95	4.1	7.1	2.6
13	362	12.0	248	6.0	95	4.0	6.3	2.6
14	355	11.8	225	6.0	100	4.0	5.7	2.7
15	340	11.8	225	6.0	95	3.7	4.4	2.7
16	330	12.0	228	5.7	100	3.6	5.0	2.8
17	310	11.8	230	5.4	100	3.4	5.0	2.8
18	282	11.2	240		100	2.9	5.4	2.8
19	275	10.8			100	1.9	4.5	2.8
20	275	10.2					3.8	2.7
21	292	9.6					3.5	2.6
22	300	9.6					3.8	2.6
23	300	9.6					4.8	2.7

Time: 120.0°E.
Sweep: 1.2 Mc to 19.2 Mc, manual operation.

Table 12

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	7.2						2.6
01	310	6.9						2.7
02	300	6.8						2.7
03	300	6.5						2.7
04	300	6.2						2.7
05.	300	6.5						2.8
06	300	7.3			120	2.5		2.9
07	330	8.0	250	5.0	120	3.1		2.8
08	390	8.6	250	5.4	120	3.6		2.7
09	400	9.3	240	5.5	120	3.7		2.5
10	420	9.4	(250)	5.6	120	(3.7)		2.6
11	420	9.9	(250)	5.7	(120)	(3.7)		2.5
12	410	10.0	(250)	5.7	(120)	(3.7)		2.5
13	420	10.0	250	5.6	120	(3.7)		2.5
14	420	9.8	250	5.6	120	(3.7)		2.5
15	420	9.3	260	5.5	120	(3.7)		2.5
16	400	9.3	260	5.2	120	3.6		2.6
17	390	8.7	250	4.8	120	3.2	3.9	2.7
18	350	8.0			120	2.4	3.7	2.8
19	300	8.0					3.0	2.8
20	290	7.8						2.7
21	300	7.4						2.6
22	320	7.0						2.6
23	330	7.3						2.6

Time: 90.0°W.
Sweep: 2.12 Mc to 15.3 Mc in 5 minutes, automatic operation.

Table 13

Okinawa I. (26.3°N, 127.7°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		11.4					3.1	2.7
01		11.1					2.6	2.9
02		9.9					2.5	3.0
03		8.5					2.8	2.9
04		8.2					2.2	2.8
05		7.5					2.6	2.8
06		8.2					3.2	2.9
07		8.8					4.4	3.0
08		8.8					5.6	2.9
09		9.5		6.4			6.1	2.6
10		9.4		(6.5)			7.2	2.5
11		10.6		(6.1)			7.4	2.4
12		11.8		6.0			7.0	2.5
13		11.8		6.1			6.8	2.6
14		12.4		6.0			6.3	2.6
15		12.3		6.0			7.0	2.6
16		12.4		(6.1)			6.4	2.6
17		12.5		(5.5)			6.2	2.7
18		12.0		(5.4)			6.2	2.8
19		11.4					5.4	2.8
20		10.6					5.0	2.6
21		10.8					4.2	2.5
22		10.7					3.6	2.6
23		11.2					3.4	2.6

Time: 135.0°E.
Sweep: 1.8 Mc to 18.0 Mc in 15 minutes, manual operation.

Table 14

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	9.8						2.9
01	250	9.7						3.0
02	250	8.6						3.0
03	250	7.9						3.0
04	250	7.5						3.0
05	270	7.5						2.8
06	240	7.4				2.4		2.8
07	230	8.0			110	2.8		2.8
08	220	8.8	230		110	3.3	4.3	2.7
09	310	9.4	200	5.5	110	3.7	4.9	2.5
10	385	10.1	200	6.1	120	3.9	4.5	2.5
11	390	10.9	200	6.0	120	4.1	4.6	2.6
12	360	11.6	205	6.0	120	4.2	5.2	2.6
13	350	12.0	210	5.9	120	4.2	4.6	2.7
14	340	12.1	200	5.8	110	4.1	4.7	2.8
15	330	12.4	210	5.8	120	3.9	4.8	2.8
16	310	12.2	210	5.4	110	3.6	4.6	2.9
17	290	12.1	220		110	3.2	4.7	2.9
18	240	11.9			110	2.6	5.0	3.0
19	250	11.4					4.0	2.9
20	255	10.7						2.9
21	260	10.4					3.4	2.8
22	270	9.9						2.8
23	270	9.7						2.8

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

Table 15

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		9.8						2.9
01		(8.9)						2.9
02		(8.6)						2.9
03		8.2						2.9
04		7.9						2.9
05		7.6						2.9
06		8.0						2.9
07	245	8.5				E		2.9
08	250	9.1				3.3	4.3	2.9
09	305	10.0		5.0		3.6		2.7
10	320	10.5		5.7		3.8		2.7
11	340	11.0		6.0		(4.0)		2.5
12	350	11.5		6.0		4.0		2.6
13	350	11.8		6.0				2.6
14	350	11.8		6.0		4.0		2.6
15	330	11.4		5.5		3.8		2.7
16	340	11.2		5.1		3.6		2.7
17	300	10.6					5.3	2.7
18	285	(10.2)						(2.8)
19	270	9.9						2.8
20		9.2						2.9
21		(8.7)						(2.9)
22		(8.9)						(2.9)
23		(9.1)						(2.8)

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

Table 16

Guam I. (13.6°N, 144.9°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	345	(9.5)					4.7	(2.5)
01	320						4.8	
02	280	(9.0)					3.7	(2.6)
03	265	9.1					3.6	2.9
04	240	8.2					2.5	2.9
05	235	7.8					2.4	3.0
06	260	8.5					3.9	3.0
07	240	9.2					5.0	3.0
08	230	9.8					5.0	2.8
09	220	10.2					5.8	2.5
10	220	10.5					7.0	2.4
11	220	11.2			115	4.1	5.5	2.3
12	220	12.0			110	4.2	6.2	2.3
13	220	12.4					6.2	2.2
14	220	12.6					5.3	2.3
15	220	12.6					6.2	2.3
16	220	13.0					6.0	2.3
17	240	13.4					7.0	2.3
18	260	13.4					5.8	2.3
19	310	12.5					5.2	2.2
20	380	11.0					5.0	2.2
21	400	10.8					2.5	2.2
22	400						2.6	
23	390						3.0	

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

Table 17

Leyte, Philippine Is. (11.0°N, 125.0°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		9.1					3.0	2.8
01		8.6					2.2	2.8
02		8.4					1.8	3.0
03		7.8					1.8	3.1
04		6.6					1.9	3.1
05		6.4					2.0	3.0
06		8.7				2.6	3.8	2.9
07		10.0				3.6	5.0	2.7
08		10.6				4.0	5.4	2.4
09		11.0				4.3	5.4	2.3
10		11.0				4.6	6.0	2.2
11		11.2				4.6	5.3	2.2
12		11.5				4.7	5.0	2.1
13		11.4				4.6	5.3	2.1
14		11.5				4.4	5.4	2.1
15		(11.3)				4.0	6.9	2.1
16		(11.2)				3.6	5.4	(2.1)
17		(11.0)				2.8	5.0	(2.1)
18		(10.7)					5.4	(2.1)
19		9.6					3.6	2.1
20		8.8					2.8	(2.1)
21		8.8					2.2	(2.2)
22		9.3					3.0	(2.3)
23		9.4					3.0	2.6

Time: 120.0°E.
Sweep: 1.6 Mc to 16.0 Mc, manuel operation.

Table 18

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	10.8						2.8
01	260	10.3						2.8
02	260	9.8						2.8
03	255	8.8						2.8
04	260	8.3						2.8
05	260	7.8						2.8
06	260	8.2			110	1.8	2.2	2.9
07	245	8.8			120	2.8	3.2	3.0
08	240	9.4	225	4.6	120	3.3	4.0	2.8
09	270	9.8	220	5.1	120	3.7	4.5	2.6
10	320	10.7	220	(5.4)	120	4.0	4.8	2.5
11	340	11.4	220	5.8	120	4.2	4.8	2.5
12	370	11.9	220	(5.8)	120	4.2	4.9	2.5
13	375	12.1	220	(6.0)	120	4.2	5.6	2.5
14	370	12.0	220	5.7	120	4.0	5.4	2.5
15	365	12.0	220	5.7	120	3.9	5.2	2.5
16	350	11.6	240	5.4	120	3.4	5.0	2.5
17	300	11.4	240	(4.9)	120	3.1	4.5	2.6
18	280	11.1			120	2.3	3.5	2.5
19	300	11.0					3.3	2.5
20	320	11.2					3.3	2.5
21	320	11.4					2.8	2.6
22	300	11.4					2.4	2.6
23	280	11.6					2.0	2.7

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

Table 19

Palmyra I. (5.9°N, 162.1°W) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	11.2					2.2	(2.6)
01	270	(10.3)					1.7	(2.8)
02	270	(10.0)					2.0	(2.9)
03	260	(9.8)					1.5	(3.0)
04	250	7.8					1.4	3.0
05	240	7.0					1.6	3.1
06	270	6.4			130	(1.4)	1.8	2.9
07	260	8.0			120	2.6	2.6	2.9
08	240	8.6			110	3.4	2.5	2.7
09	250	9.7	230		110	3.8		2.4
10	260	10.2	220		120	4.0		2.3
11	280	10.6	220		120	4.2		2.3
12	280	11.2	220		120	4.4		(2.3)
13	295	11.6	220	5.0	120	4.3		2.3
14	270	11.8	220	5.0	120	4.2		2.3
15	270	11.3	220		120	3.9		2.3
16	250	11.8	220	4.3	120	3.5		2.3
17	250	11.8	240		120	3.1	3.6	(2.2)
18	280	(11.0)			120	2.3	3.4	(2.2)
19	340	10.5					2.1	(2.1)
20	430	9.3						2.1
21	400	(10.0)						(2.2)
22	360	(11.0)					2.2	(2.4)
23	300	(12.2)					2.9	(2.5)

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

Table 20

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	7.9						2.9
01	240	7.5						3.0
02	240	7.3						3.1
03	250	6.2						3.0
04	250	5.2						3.0
05	260	4.4						3.0
06	300	5.0				1.5	1.7	2.8
07	270	8.2				2.6	7.0	2.9
08	250	10.2				3.2	7.2	2.7
09	240	10.8	230	5.5		3.8	7.4	2.5
10	235	10.8	230	5.5		4.0	8.4	2.3
11	290	10.4	220	5.5		4.0	8.4	2.3
12	285	10.3	220	5.5		4.1	8.4	2.2
13	265	10.2	220	5.5		4.0	8.4	2.2
14	300	10.0	230	5.5		3.8	7.6	2.2
15	240	10.1				3.5	8.4	2.2
16	250	10.0				3.0	7.4	2.2
17	280	9.8				2.4	6.9	2.2
18	330	9.4				1.2		2.2
19	355	8.7						2.2
20	330	8.5						2.3
21	290	8.3						2.4
22	255	8.2						2.6
23	240	8.4						2.8

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

Table 21

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	2.8					1.8	2.7
01	290	2.9					2.1	2.7
02	280	2.9						2.8
03	270	2.9						2.8
04	(260)	2.7						2.9
05	(270)	2.6					3.6	2.9
06	(260)	2.6					3.6	2.8
07	240	6.1				1.9		3.1
08	230	9.1			110	2.7		3.3
09	250	10.8	230	3.9	110	3.2		3.2
10	250	11.3	220		100	3.5		3.1
11	255	11.6	220	4.8	105	3.7		3.0
12	270	11.3	210	5.8	100	3.8		3.0
13	280	11.0	220	(4.8)	100	3.7		2.9
14	290	10.8	220	5.5	100	3.5	4.1	2.8
15	270	11.0	220	4.8	105	3.2	3.7	2.8
16	245	11.0	240		110	2.9	3.6	2.9
17	230	10.7			100	2.1	2.8	3.0
18	220	9.0					2.2	3.2
19	220	5.8					2.0	3.1
20	230	4.8					2.0	3.1
21	240	3.8					2.1	3.2
22	250	3.2					1.8	3.0
23	(250)	2.9					1.6	2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 22

Lindau/Harz, Germany (51.6°N, 10.1°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.9					3.2	
01	300	6.6					3.1	
02	300	6.0					3.2	
03	300	5.8					3.3	
04	310	5.6					3.3	
05	300	5.8	290	3.3			3.6	
06	330	6.1	230	4.2	110	2.4	3.7	
07	390	6.6	220	4.7	105	3.0	4.0	
08	370	7.3	210	4.8	100	3.3	4.3	
09	400	7.6	210	5.3	100	3.5	4.6	
10	400	7.9	210	5.7	100	3.6	4.6	
11	395	8.2	210	6.0	100	3.8	4.9	
12	400	8.3	210	5.9	100	3.8	4.9	
13	400	8.3	210	6.1	100	3.7	4.6	
14	400	8.1	210	5.9	100	3.8	5.2	
15	380	8.1	210	5.8	100	3.6	4.7	
16	380	7.9	210	5.5	105	3.4	4.6	
17	320	8.0	220	5.1	105	3.2	4.5	
18	300	7.8	220		105	2.8	3.8	
19	280	7.9			110	2.2	3.5	
20	290	7.6					3.3	
21	290	7.7					3.1	
22	300	7.6					3.4	
23	300	7.3					3.0	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 12 minutes.

Table 23

Wakkanai, Japan (45.4°N, 141.7°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	7.9					2.4	2.6
01	270	7.8					2.2	2.6
02	275	7.5					2.4	2.6
03	280	7.1					2.2	2.7
04	280	7.2				1.4	2.2	2.6
05	250	8.0	240		100	2.3	2.8	2.7
06	275	8.7	220		100	2.9	3.5	2.8
07	305	9.2	225		100	3.3	5.0	2.7
08	310	9.0	215	4.8	100	3.6	5.4	2.7
09	375	8.9	205	5.2	100	3.7	5.6	2.6
10	380	9.2	210	5.5	100	3.8	5.6	2.7
11	330	8.9	210	5.7	95		5.2	2.7
12	370	9.3	210	5.7	100	4.0	5.0	2.7
13	370	9.4	205	5.7	90		5.6	2.7
14	350	9.0	210	5.5	100		4.6	2.8
15	350	8.7	205	5.0	100	3.6	5.1	2.7
16	310	8.3	220		100	3.4	5.4	2.8
17	290	8.4	230		100	3.0	4.9	2.8
18	230	8.3	235		100	2.5	3.8	2.8
19	280	8.2					3.5	2.8
20	250	8.2					4.0	2.6
21	260	8.1					3.1	2.7
22	270	8.2					2.9	2.7
23	280	8.1					2.8	2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 24

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	8.4					3.0	2.5
01	310	8.2					3.0	2.6
02	300	8.0					2.8	2.6
03	305	7.6					2.8	2.5
04	310	7.4				E	2.4	2.5
05	290	8.0			130	2.0	2.4	2.7
06	290	9.0			120	2.8	3.4	2.8
07	300	9.7	250		110	3.2	4.6	2.8
08	310	9.6	235		110	3.6	5.2	2.7
09	380	9.8			120	3.8	6.4	2.6
10	400	10.0			120		5.7	2.5
11	400	10.0		5.6	115		6.0	2.5
12	400	10.3	265	5.8	115		6.0	2.6
13	400	10.0			110		5.9	2.6
14	400	9.8	250	5.6	110	4.1	5.7	2.6
15	380	9.6			115	3.8	5.0	2.7
16	380	9.4			120	3.5	4.8	2.6
17	315	9.2	255		120	3.0	5.6	2.6
18	300	9.2			120	2.3	5.0	2.8
19	300	9.0					4.2	2.7
20	300	8.6					4.0	2.7
21	300	8.5					4.7	2.5
22	320	8.5					4.4	2.5
23	320	8.6					4.2	2.6

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

Table 25

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02		8.6						
03		8.4						
04		(8.0)						
05		8.8						
06		10.5						
07		(11.4)						
08		11.0						
09		11.6						
10		12.0						
11		12.2						
12		12.0						
13		12.2						
14		12.0						
15		12.0						
16		12.1						
17		12.0						
18		11.7						
19		11.0						
20		9.9						
21		9.6						
22		9.7						
23		9.2						

Time: 120.0°E.
Sweep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 26

Shibata, Japan (37.9°N, 139.3°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.8					3.2	2.7
01	300	8.6					3.0	2.7
02	290	8.0					2.9	2.7
03	280	7.6					2.8	2.6
04	300	7.6				E	2.8	2.6
05	265	8.4			110	2.0	2.8	2.8
06	245	9.2	230		100	2.9	3.8	2.8
07	280	10.0	250		100	3.3	4.7	2.7
08	270	10.2	220		100	3.6	5.5	2.7
09	310	10.6	215		100	3.9	5.6	2.6
10	375	10.6	220		100	4.0	5.7	2.6
11	380	11.1	220	5.5	100	4.0	5.7	2.6
12	360	11.5	220	6.5	100	4.0	5.4	2.6
13	350	11.2	220	5.8	100	4.0	6.8	2.6
14	360	11.0	230		100	4.0	6.4	2.6
15	340	10.9	240		100	3.8	5.4	2.7
16	330	10.4	225		100	3.5	5.4	2.7
17	300	10.2	245		100	3.2	5.5	2.8
18	280	10.0	250		100	2.6	4.0	2.8
19	270	9.5					4.8	2.8
20	300	8.9					4.4	2.7
21	296	8.9					4.4	2.6
22	(320)	8.9					4.7	2.6
23	310	9.0					4.2	2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 27

Tokyo, Japan (35.7°N, 139.5°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	305	9.1					3.0	2.7
01	280	9.0					3.2	2.7
02	270	8.3					3.0	2.7
03	280	7.8					3.0	2.7
04	290	7.7					2.7	2.6
05	260	8.6			120	2.0	2.6	2.8
06	240	9.6	230		100	2.8	3.6	2.9
07	250	10.2	235		100	3.4	4.8	2.8
08	310	10.2	215		100	3.6	5.6	2.7
09	355	10.6	220		100	3.8	6.3	2.6
10	360	11.0	220	5.7	100	4.0	6.4	2.6
11	360	11.5	220		100		6.2	2.6
12	350	11.8	220		100		5.6	2.7
13	360	11.8	230	6.0	100		6.2	2.7
14	350	11.4	230		100		5.8	2.7
15	350	11.2	220		100	3.7	6.1	2.7
16	320	10.8	240	5.3	100	3.6	5.6	2.7
17	300	10.4	240		100	3.2	5.6	2.8
18	290	10.3	245		105	2.4	4.6	2.8
19	270	9.8					4.4	2.8
20	290	9.2					5.4	2.6
21	310	9.0					3.6	2.6
22	320	9.3					4.6	2.6
23	320	9.2					4.4	2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 28

Yamakawa, Japan (31.2°N, 130.6°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	10.2					4.0	2.6
01	300	10.1					4.6	2.6
02	300	9.7					4.0	2.7
03	300	8.6					3.8	2.6
04	300	8.0					3.0	2.6
05	300	8.0					2.9	2.5
06	280	9.0			120	2.2	3.0	2.8
07	270	9.7	245		120	2.8	4.6	2.9
08	280	9.9	235		110	3.4	5.0	2.7
09	320	10.5	230		110	3.7	5.7	2.6
10	380	11.1	230			4.0	6.8	2.5
11	390	12.0	235				6.2	2.5
12	390	12.4	230	5.8			6.6	2.5
13	380	12.7	230				6.4	2.6
14	380	12.4	235				6.0	2.5
15	380	12.3	230				6.0	2.6
16	350	12.3			110	3.5	5.9	2.6
17	320	11.9	240		120	3.4	5.4	2.6
18	300	11.6	250		115	2.8	4.8	2.7
19	290	11.0				2.0	4.6	2.7
20	290	10.5					4.2	2.6
21	300	9.9					3.4	2.5
22	320	10.4					4.2	2.5
23	320	10.0					4.2	2.6

Time: 135.0°E.
Sweep: 0.6 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 29

Wuchang, China (30.6°N, 114.4°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	11.2					3.6	2.8
01	260	10.5					2.8	2.9
02	250	9.9					2.8	3.0
03	245	9.0					2.4	2.9
04	258	7.8					2.3	2.8
05	268	7.7					2.4	2.7
06	240	8.5			110	2.1		3.0
07	230	9.6			100	2.9	4.4	3.0
08	230	10.0	225		100	3.4	5.0	2.9
09	298	10.8	230	6.8	100	3.8	5.6	2.8
10	320	11.5	230	6.6	100	4.0	5.7	2.7
11	350	12.2	240	6.7	100	4.0	6.2	2.7
12	350	13.3	240	6.9	100	4.2	5.9	2.6
13	360	13.5	230	6.6	100	4.2	6.0	2.7
14	350	13.5	230	6.5	100	4.0		2.7
15	345	13.5	220	6.3	100	3.8		2.8
16	310	13.5	230	6.0	100	3.6		2.8
17	300	13.0	230	5.6	100	3.2		2.8
18	255	12.5	240	5.0	100	2.8	4.5	2.8
19	270	12.2			100	2.0	5.0	2.8
20	270	12.0					4.0	2.8
21	282	11.2					3.5	2.8
22	290	11.0					3.6	2.7
23	290	10.8					3.2	2.8

Time: 120.0°E.
Sweep: 1.2 Mc to 19.2 Mc, manual operation.

Table 30

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	11.5					3.8	2.6
01	290	11.4					3.5	2.6
02	280	10.0					4.0	2.7
03	280	8.8					3.6	2.6
04	290	8.0					2.8	2.5
05	280	7.4					2.4	2.5
06	260	9.0					4.3	2.8
07	260	10.0	250		110	3.2	5.2	2.8
08	280	10.7	240		100	3.5	6.2	2.7
09	320	11.3	240		100	3.9	6.4	2.6
10	345	12.2	250	7.0	100	4.3	6.4	2.5
11	370	13.0	250	7.0	100	4.7	7.0	2.5
12	380	13.8	250	7.0	110	4.6	6.7	2.5
13	370	14.0	250	6.8	110	4.8	6.0	2.5
14	365	14.5	240	6.8	100	4.2	5.3	2.5
15	360	14.2	260	6.8	100	3.8	5.0	2.6
16	320	13.6	240	(6.4)	90	3.6	4.8	2.6
17	320	13.7	250		100	3.2	4.8	2.6
18	300	13.2	270				4.6	2.6
19	300	14.0					4.2	2.6
20	300	12.9					3.8	2.5
21	300	11.4					3.2	2.5
22	300	11.9					3.3	2.5
23	300	11.5					3.8	2.5

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

Table 31

Okinawa I. (26.3°N, 127.7°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		14.2					4.6	2.8
01		12.4					4.7	3.0
02		10.6					3.2	2.9
03		9.7					3.0	2.9
04		9.1					2.8	2.8
05		8.2					2.2	2.8
06		8.6					3.0	2.9
07		9.7					4.2	3.0
08		10.1					5.5	2.9
09		10.7		(6.5)			5.8	2.8
10		11.6		(8.6)			6.0	2.6
11		12.6		(6.8)			8.2	2.8
12		13.4		(8.8)			5.8	2.6
13		14.1		(6.7)			6.0	2.6
14		14.4		(6.4)			6.8	2.8
15		14.8		(6.4)			6.0	2.6
16		14.8		6.4			5.8	2.7
17		14.9		(5.8)			6.0	2.7
18		14.8		(5.4)			5.2	2.7
19		14.1					4.0	2.7
20		13.6					4.4	2.6
21		14.0					3.6	2.8
22		(14.1)					3.0	(2.7)
23		14.3					3.2	2.7

Time: 135.0°E.
Sweep: 1.8 Mc to 18.0 Mc in 15 minutes, manual operation.

Table 32

Leyte, Philippine Is. (11.0°N, 125.0°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.3					2.8	(2.8)
01		9.8					1.8	2.9
02		8.4					1.8	2.9
03		8.0					1.8	3.0
04		7.0					2.8	2.9
05		6.4					3.0	2.9
06		9.2				2.6	4.6	2.9
07		11.4				3.4	5.0	2.7
08		12.4				3.7	5.0	2.5
09		12.6				4.2	5.1	2.3
10		(12.7)				4.4	6.2	(2.2)
11		(12.3				4.7	5.6	(2.1)
12		12.0				4.6	6.7	2.1
13		12.0				4.6	5.6	2.1
14		12.0				4.5	5.4	2.1
15		11.7				4.0	5.0	2.1
16		(11.4)				3.5	5.0	2.1
17		(11.2)				2.8	4.8	(2.1)
18		(10.6)					3.6	(2.1)
19		(9.7)					2.4	(2.0)
20		(9.0)					1.8	(2.0)
21		9.4					1.9	(2.2)
22		10.4					2.4	(2.4)
23		10.8					2.9	(2.6)

Time: 120.0°E.
Sweep: 1.6 Mc to 16.0 Mc, manual operation.

Table 33

ayo, Peru (12.0°S, 75.3°W) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	9.0						2.9
01	240	8.4						2.9
02	240	7.8						3.0
03	240	7.1						3.0
04	250	6.0						3.0
05	250	5.3						3.0
06	285	6.1				1.7	3.2	2.8
07	270	9.5				2.7	5.5	2.8
08	250	11.6				3.3	10.7	2.7
09	240	12.2	240	5.4		3.7	11.9	2.4
10	270	12.1	230	5.5		4.0	12.2	2.3
11	270	11.5	230	5.5		4.0	12.2	2.2
12	275	11.5	220	5.5		4.1	12.3	2.1
13	280	11.1	225	5.5		4.1	12.4	2.1
14	290	11.0	230	5.5			12.2	2.1
15	240	11.3				3.7	11.9	2.1
16	260	11.1				3.1	11.8	2.1
17	280	11.0				2.3	5.5	2.1
18	360	10.5						2.1
19	400	9.4						2.1
20	350	9.8						2.2
21	280	9.3						2.4
22	250	9.2						2.6
23	240	9.2						2.7

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

Table 34

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	4.0					1.8	2.8
01	270	4.0						2.8
02	270	4.0						2.8
03	265	3.8						2.9
04	260	3.6						2.8
05	260	3.6					1.6	2.8
06	255	3.8						2.8
07	230	8.0			110	2.1		3.2
08	230	10.9			110	2.9		3.2
09	250	12.2	220		100	3.3		3.1
10	250	13.8	220		100	3.5		3.0
11	265	13.8	220		100	3.9		2.9
12	280	13.6	210		100	4.0		2.8
13	300	13.3	220		100	3.9		2.8
14	300	13.9	220	7.0	100	3.7	3.7	2.8
15	290	13.8	230		100	3.4	3.9	2.8
16	280	13.4	230		100	3.0	3.4	2.8
17	240	13.1			100	2.2	3.1	2.9
18	220	12.2					2.6	3.0
19	220	10.0					2.2	3.0
20	230	9.0					1.8	3.0
21	230	8.2					2.0	3.1
22	220	6.1					1.9	3.0
23	250	4.3					1.5	2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 35

tchurch, New Zealand (43.5°S, 172.7°E) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	5.6					2.7	2.6
01	300	5.5					2.7	2.6
02	300	5.5					3.2	2.6
03	295	5.0					2.9	2.5
04	280	5.0					2.8	2.7
05	270	4.8					2.7	2.7
06	260	4.8					2.7	2.8
07	260	6.4				(1.2)	3.0	3.0
08	240	9.6				2.2	2.6	3.1
09	240	11.5				2.8		3.1
10	230	12.5				3.1		3.0
11	240	13.0				3.2		3.0
12	240	12.8	240	6.0		3.3		2.9
13	250	12.9				3.3		2.9
14	250	12.7				3.1		2.9
15	240	12.8				2.8		2.9
16	240	12.4				2.2	2.6	2.8
17	240	11.1				1.5	3.0	2.8
18	240	9.3					3.2	2.8
19	250	8.1					2.7	2.7
20	260	7.2					2.7	2.7
21	270	6.4					2.6	2.6
22	290	5.8					2.8	2.6
23	300	5.9					2.7	2.6

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

Table 36

Lindau/Harz, Germany (51.6°N, 10.1°E) April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	7.3					3.1	
01	300	6.7					3.2	
02	300	6.4					3.3	
03	300	5.8					3.1	
04	300	5.6					3.5	
05	300	5.4					3.6	
06	260	6.1			110	2.2	4.5	
07	230	7.4	210	4.7	105	2.8	4.6	
08	220	7.9	210	5.0	105	3.1	4.6	
09	(250)	9.1	210	5.0	105	3.4	4.4	
10	(260)	10.0	200	5.3	105	3.5	4.6	
11	(270)	10.3	200	5.8	105	3.7	4.5	
12	(280)	10.5	210	6.1	110	3.6	4.7	
13	300	10.3	210	5.8	105	3.7	4.6	
14	300	10.3	210	5.3	105	3.6	4.3	
15	210	10.1	210	5.4	105	3.5	4.2	
16	220	10.0			105	3.2	4.2	
17	230	9.5			105	3.0	3.6	
18	250	9.5			110	2.4	3.5	
19	230	9.5					3.2	
20	250	9.0					3.0	
21	230	8.3					3.0	
22	280	7.8					3.0	
23	290	7.5					3.1	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 12 minutes.

Tabla 37

Wakkanai, Japan (45.4°N, 141.7°E)

April 1948

Tima	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	265	7.6						2.7
01	230	7.5						2.7
02	270	7.2						2.8
03	260	6.9						2.8
04	280	6.8						2.7
05	250	8.0			130	1.8		2.8
06	220	9.0	220		100	2.5		3.1
07	235	9.6	220		100	3.1		3.0
08	250	10.2	200		100	3.4	2.9	3.0
09	280	10.9	210		100	3.7	3.8	2.9
10	290	10.6	210		100	3.8	4.1	2.8
11	290	11.0	200		100	3.8	4.0	2.8
12	300	11.2	210		100		4.1	2.8
13	300	11.1	210		100	3.7		2.8
14	300	11.3	210		100	3.6	3.5	2.8
15	300	10.3	205		100	3.5	3.3	2.9
16	260	10.2	220		100	3.2		2.9
17	235	9.8	220		100	2.8		3.0
18	230	9.6			100	2.1	2.2	3.0
19	220	8.8					2.2	3.1
20	230	8.2					2.2	2.9
21	235	8.1					1.6	2.8
22	245	7.9						2.7
23	260	7.8						2.8

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

Tabla 38

Fukaura, Japan (40.6°N, 139.9°E)

April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.0						2.6
01	300	8.0						2.6
02	300	7.6						2.6
03	290	7.2						2.6
04	300	7.0						2.6
05	300	8.0				1.8		2.6
06	250	9.5	250		120	2.4	2.2	3.0
07	250	10.0	240		110	2.9	3.2	2.9
08	260	10.9	240		120	3.2	3.6	2.8
09	285	11.2	250		120	3.6	4.0	2.8
10	300	11.6	250		120	3.7	4.0	2.8
11	300	11.6	250		120	4.0	4.6	2.7
12	300	12.0	260		120	4.0	4.6	2.7
13	320	11.8	260		120		(4.0)	2.7
14	320	11.7	270		120	3.8	4.0	2.7
15	290	11.5	255		120	3.8	4.2	2.7
16	290	11.1	250		120	3.2	3.4	2.7
17	280	10.8			120	2.7	3.4	2.7
18	280	10.5	270		120	2.1	3.0	2.8
19	265	9.9					2.0	2.9
20	260	8.6					1.7	2.7
21	280	8.4						2.6
22	300	8.2					1.6	2.6
23	300	8.3						2.6

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

Table 39

Peiping, China (39.9°N, 116.4°E)

April 1948

Tima	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		(7.6)						
01		(7.4)						
02		8.0						
03		8.0						
04		7.7						
05		8.0						
06		8.6						
07		9.8						
08		(10.5)						
09		(11.4)						
10		11.6						
11		11.7						
12		11.8						
13		12.0						
14		12.0						
15		11.8						
16		(12.0)						
17		(11.9)						
18		11.2						
19		10.1						
20		9.3						
21		8.4						
22		8.3						
23		8.2						

Time: 120.0E.
Sweep: 2.3 Mc to 13.5 Mc in 15 minutes, manual operation.

Tabla 40

Shibata, Japan (37.9°N, 139.3°E)

April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	8.5						2.8
01	270	8.4						2.8
02	270	8.0						2.9
03	250	7.6						2.8
04	260	7.2						2.8
05	260	8.0			150	1.6	1.3	2.8
06	220	9.8			120	2.4		3.0
07	220	10.5			110	3.0	2.7	3.2
08	235	11.0	220		105	3.3	3.6	3.0
09	240	11.5	210		100	3.6	3.5	3.0
10	250	12.2	210		100	3.8	4.1	2.9
11	290	12.4	210		100	3.9	4.1	2.9
12	285	12.6	205		100	4.0	4.0	2.9
13	300	12.8	210		110	3.9	4.4	2.9
14	300	12.7	205		100	3.9	4.1	2.9
15	280	12.2	210		100	3.7	3.8	2.9
16	260	11.8	210		100	3.3	3.8	3.0
17	240	11.4			110	2.9	2.8	3.0
18	240	11.1			120	2.0	2.6	3.1
19	240	10.4					2.8	3.0
20	235	9.1					2.0	3.0
21	250	8.7						2.8
22	280	8.7						2.8
23	280	8.6						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 41

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	390	9.0						2.3
01	400	7.4						2.2
02	400	7.6						2.2
03	400	7.0						2.3
04	390	7.0						2.3
05	400	6.8						[illegible]
06	360	9.0						2.4
07	340	11.0			170	3.0	3.6	2.5
08	360	12.0	320		160	3.5	4.0	2.5
09	370	12.8	310		160	4.0	3.8	2.3
10	380	13.4	320				4.0	2.3
11	400	13.7	320				4.0	2.3
12	400	14.0	320	6.9			4.4	2.3
13	420	(14.5)	320	6.8			4.3	2.3
14	420	14.0	320	6.9			4.2	2.2
15	410	14.0	320	6.8			4.0	2.2
16	400	13.6	320				3.6	2.2
17	400	13.5	330		160	3.4	3.6	2.3
18	370	12.4	330				3.0	2.4
19	355	11.8					2.9	(2.3)
20								
21	350	(9.4)						(2.4)
22	370	9.6						2.3
23	360	9.4						2.2

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

Table 42

Tokyo, Japan (35.7°N, 139.5°E) April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	9.0						2.6
01	300	8.8					1.8	2.6
02	295	8.4					1.8	2.7
03	280	7.7						2.6
04	290	7.6						2.6
05	300	8.1				1.6		2.6
06	245	10.0			110	2.5		3.0
07	245	10.7	240		100	3.2	3.5	3.0
08	250	11.4	230		100	3.6	4.2	2.8
09	275	12.0	220		100	4.0	4.2	2.8
10	300	12.3	220		100		4.4	2.7
11	320	13.2	210		100		4.8	2.7
12	330	13.4	210		100		5.4	2.7
13	350	13.4	220		100		5.0	2.7
14	340	13.4	230		100	3.9	4.4	2.7
15	330	12.9	230		100	3.8	4.4	2.7
16	320	12.6	240		100	3.5	4.2	2.6
17	295	12.2	250		100	2.8	3.4	2.8
18	270	12.0	250		110	2.2	3.0	2.8
19	260	10.8					2.9	2.9
20	255	9.4					2.9	2.7
21	280	9.2					2.4	2.5
22	300	9.4					2.0	2.6
23	305	9.3					1.8	2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 43

Nanking, China (32.1°N, 119.0°E) April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05	280	7.4						2.5
06	280	9.0					2.3	2.7
07	240	10.7			140	2.9	3.0	2.7
08	280	12.0	240		120	3.6	3.7	2.6
09	320	13.0	240			4.2	4.2	2.5
10	360	14.0	240		120	4.2	4.2	2.4
11	360	14.5	240	6.7	120	4.4	4.2	2.4
12	360	(14.6)	240	7.4		4.3	4.2	2.4
13	380	(14.8)	240	6.9			4.4	(2.4)
14	360	(14.9)	240	7.0			4.2	2.5
15	390	14.5	240	6.8			4.2	2.5
16	360	14.3	240				3.7	2.5
17	360	14.5	260				3.6	2.5
18	280	14.0			130	2.8	3.4	2.5
19	265	13.5					2.7	2.5
20	250	11.6					2.7	2.5
21	270	11.2					1.9	2.4
22	300	11.5					1.9	2.5
23								

Time: 120.0°E.
Sweep: 1.7 Mc to 15.0 Mc in 15 minutes, manual operation.

Table 44

Yamakawa, Japan (31.2°N, 130.6°E) April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	10.6						2.7
01	290	10.3						2.7
02	290	9.8						2.8
03	270	9.0						2.8
04	275	8.2						2.6
05	290	7.7						2.7
06	290	8.8			130	1.9		2.8
07	240	10.0			120	2.7		3.0
08	250	10.6	240		110	3.2	3.4	3.0
09	280	12.0	220		110	3.6	4.2	2.8
10	300	12.6	220		110	3.6	4.7	2.7
11	300	13.4	220		110		4.8	2.7
12	340	13.8	220		110		5.4	2.7
13	345	14.0	220				5.4	2.7
14	350	14.0	230		110		5.2	2.7
15	350	13.9	230				5.2	2.6
16	335	13.8	230		110	3.5	4.7	2.7
17	300	13.5	250		110	3.2	3.8	2.8
18	290	13.3	260		110	2.7	3.0	2.8
19	280	12.7			110	2.0	3.1	2.8
20	270	11.0					2.8	2.8
21	280	10.5					2.4	2.7
22	300	10.6						2.6
23	300	10.8						2.7

Time: 135.0°E.
Sweep: 0.6 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 45

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	11.6						2.7
01	280	11.0						2.7
02	280	10.7						2.7
03	280	8.8						2.6
04	280	7.4						2.5
05	290	7.3					2.2	2.5
06	280	9.3					3.4	2.8
07	250	11.0	240		100	2.8	4.8	2.9
08	260	11.5	240		100	3.4	5.0	2.7
09	260	12.6	230		100	3.8	5.0	2.6
10	280	13.0	220				5.0	2.6
11	315	14.0	220				5.4	2.5
12	340	15.0	220	7.2			4.4	2.6
13	360	15.6	230	7.0	120	4.0	4.6	2.5
14	360	16.4	220	7.0			4.5	2.5
15	350	16.0	240	7.0	110	3.8	4.4	2.6
16	335	16.0	240	6.8	105	3.6	4.3	2.6
17	290	14.5	270	5.3	100		3.6	2.7
18	280	14.8	265				3.4	2.6
19	280	14.2					3.0	2.7
20	260	14.0						2.6
21	260	13.4						2.6
22	270	13.0						2.6
23	280	12.0						2.7

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

Table 46

Brisbane, Australia (27.5°S, 153.0°E) Arril [illegible]

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	7.6					1.9	[illegible]
01	260	7.5					2.5	[illegible]
02	250	7.4					3.0	[illegible]
03	250	6.9					2.5	[illegible]
04	250	6.4					2.0	[illegible]
05	240	6.0					1.8	[illegible]
06	240	6.6				1.7		3.1
07	230	10.0			105	2.6		3.3
08	240	12.0	230		100	3.2		[illegible]
09	250	13.0	225		110	3.6		3.1
10	250	13.0	220		108	3.8		3.0
11	250	13.0	215		110	4.0		3.0
12	300	12.8	220	6.5	110	4.0		2.8
13	300	13.0	220		110	3.9		2.8
14	300	13.0	230		110	3.8		2.8
15	250	12.7	230		110	3.5		2.8
16	240	12.0			110	3.1		2.8
17	240	12.0			120	2.2		2.9
18	230	11.0					1.8	2.9
19	230	9.5						2.9
20	250	9.0						2.9
21	250	8.5						2.9
22	240	8.2						2.9
23	250	7.9						2.8

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

Table 47

Canberra, Australia (35.3°S, 149.0°E)

April 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	6.6					3.0	2.6
01	280	6.6					2.9	2.6
02	280	6.6					2.6	2.6
03	260	6.6					2.6	2.7
04	250	6.3						2.7
05	250	6.1						2.7
06	240	5.8						2.9
07	230	8.2			115	2.3	2.4	3.1
08	230	10.7			105	3.0		3.1
09	230	12.2			100	3.3		3.1
10	230	12.7			100	3.6		3.0
11	235	13.0			100	3.7	3.6	2.9
12	230	13.0			100	3.7		2.8
13	240	13.0			100	3.8		2.8
14	240	12.6			100	3.7		2.8
15	240	12.3			100	3.5		2.8
16	240	12.0			100	3.0		2.9
17	240	11.7			100	2.3	3.4	2.8
18	230	10.8					2.6	2.8
19	240	9.5						2.8
20	240	8.7						2.8
21	250	8.0						2.7
22	250	7.5					3.0	2.7
23	260	7.0					2.5	2.6

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

Table 48

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	255	6.0					2.4	2.6
01	260	6.0					2.5	2.6
02	262	5.8					2.6	2.6
03	255	5.5					2.8	2.7
04	250	5.5					2.5	2.8
05	250	4.8					2.4	2.8
06	250	4.5						2.8
07	240	7.0						3.2
08	235	9.1			105	2.7	3.2	3.4
09	220	10.4	210		100	3.0	3.8	3.4
10	235	11.0	210	4.8	100	3.2	3.8	3.5
11	240	10.8	205	4.4	100	3.5	3.5	3.4
12	240	11.0	210	4.8	100	3.5		3.4
13	235	11.0	205		100	3.6		3.4
14	235	11.0	208		100	3.4	3.4	3.3
15	230	10.8			100	3.2	3.0	3.3
16	225	10.5			100	2.9	2.8	3.4
17	225	10.5			100	2.3	2.8	3.3
18	240	10.5					2.0	3.2
19	240	9.5						3.1
20	235	8.5						3.0
21	240	7.5						2.9
22	240	7.0						2.8
23	250	6.5						2.7

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

Table 49

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	6.4					2.6	2.6
01	290	6.2					2.7	2.6
02	290	6.1					2.6	2.6
03	280	5.8					2.6	2.7
04	270	6.0					2.6	2.7
05	260	5.1					2.5	2.8
06	250	4.9					2.5	2.9
07	250	7.8				1.5	2.6	3.0
08	240	10.6				2.6		3.1
09	230	11.8				3.0		3.0
10	240	12.8				3.3		2.9
11	240	12.8				3.5		3.0
12	250	(13.2)				3.5		2.8
13	245	12.5	230	5.4		3.5		2.8
14	250	12.4				3.4		2.8
15	240	12.4				3.1		2.8
16	250	12.2				2.7		2.8
17	250	11.6				1.8	2.5	2.8
18	240	10.8				1.3	2.6	2.8
19	250	9.6					2.7	2.7
20	260	8.8					3.0	2.8
21	260	8.0					2.7	2.6
22	270	7.5					2.6	2.6
23	290	6.7					2.7	2.6

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

Table 50

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	400	6.8						2.3
01	420	6.4						2.2
02	410	6.0						2.2
03	390	6.0						2.3
04	380	5.5						2.3
05	390	5.2						2.3
06	400	5.6						2.3
07	330	8.5						2.5
08	350	10.5	330		180	3.0	3.1	2.6
09	360	11.0	320		160	3.4	3.8	(2.6)
10	360	12.5	320		150	3.7	3.8	2.4
11	370	13.5	320		160	3.7	3.8	2.4
12	390	13.5	320	5.4	160	4.0	3.8	2.3
13	380	14.0	320		150	3.6	3.9	2.4
14	370	14.0	320		150	3.9	3.6	2.3
15	380	13.0	320		160	3.7	3.8	2.3
16	375	12.6	320		160	3.4	3.4	2.3
17	360	12.5	330		165	3.0	3.1	2.4
18	330	11.8						2.5
19	330	9.8						2.5
20	340	8.5						2.5
21	360	8.4						2.4
22	360	8.0						2.3
23	380	7.0						2.3

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

Table 51

Nanking, China (32.1°N, 119.0°E) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05	290	4.8						2.5
06	300	5.9						2.5
07	270	8.8			160	2.5	2.2	2.9
08	280	10.5			140	3.0	2.7	2.8
09	280	11.8	250		140	3.5	3.7	2.8
10	320	13.2	240		120	3.7	3.9	2.6
11	340	14.0	240		120	3.9	4.0	2.5
12	360	14.0	240		120	4.0	3.9	2.5
13	340	14.5	240		120	3.9	4.1	2.6
14	360	14.5	240		120	3.9	4.4	2.6
15	360	14.5	240		120	3.6	4.2	2.6
16	320	14.5	240		120	3.5	3.9	2.6
17	280	14.4	240		135	3.2	3.4	2.6
18	280	13.0					2.3	2.7
19	240	11.8					1.7	2.6
20	240	9.8						2.6
21	260	9.0						2.6
22	260	8.4						2.5
23								

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

Table 52

Fiji Is. (18.0°S, 178.2°E) March 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	11.2						
01	270	10.8						
02	250	9.0						
03	250	8.0					2.5	
04	270	7.8						
05	260	7.8						
06	270	8.3					2.5	
07	240	11.0			110	2.4	3.0	
08	230	12.0			110	3.1	5.0	
09	230	13.0			110	3.5	5.5	
10	260	13.2	210	5.4	105	3.7	5.6	
11	300	D			100	3.9	5.5	
12	310	D		6.4	110	4.0	5.7	
13	310	D		6.7	105	3.9	5.4	
14	340	D	210	6.5	110	3.8	5.3	
15	310	D		5.6	110	3.7	5.1	
16	295	D			102	3.3	4.7	
17	250	D			110	2.8	4.4	
18	260	D			102	2.0	3.1	
19	260	12.8					2.8	
20	275	12.4					2.6	
21	290	11.6					2.5	
22	290	11.6						
23	290	11.3						

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

Table 53

Rarotonga I. (21.3°S, 159.8°W)

February 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.9						
01								
02								
03		10.3						
04								
05								
06		10.2						
07		10.4						
08		10.7						
09		11.5						
10		12.0						
11		12.6						
12		13.5						
13		13.8						
14		13.5						
15		13.0						
16		13.1						
17		12.2						
18		11.9						
19		11.4						
20		10.9						
21		10.8						
22		11.2						
23		10.9						

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

Table 54

Fribourg, Germany (48.1°N, 7.8°E)

December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	3.7						
01	340	3.8						
02	(335)	3.9						
03	320	3.8						
04	300	3.5						
05	280	3.3						
06	270	2.9						
07	280	4.0						
08	240	(7.4)				1.7		
09	240	9.9			130	2.3		
10	240	11.5			120	2.7	3.5	
11	240	11.6			125	3.0	3.3	
12	240	(11.6)			120	3.0	3.4	
13	245	(11.2)			130	3.0	3.4	
14	245	(11.4)			130	2.8		
15	240	11.2			130	2.3		
16	240	9.6			160	1.8	3.0	
17	230	7.9					3.4	
18	240	(6.5)					2.9	
19	240	5.4						
20	260	4.3						
21	(292)	3.6						
22	(320)	3.6						
23	(330)	3.6						

Time: Local.
Sweep: 1.6 Mc to 17.6 Mc in 10 minutes, automatic operation.

Table 55

Bagneux, France (48.8°N, 2.3°E)

November 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	300	(4.8)						(2.8)
07	240	(8.7)						(3.1)
08	220							(3.0)
09	230		220					
10	230		220					
11	220		215					
12	230		210					
13	230		220					
14	240		225					
15	250		220					
16	250		220					
17	230		230					(3.1)
18	250	(8.6)						(3.0)
19	250	(7.4)						(3.0)
20	280	(6.0)						(2.8)
21	310	(5.6)						(2.9)
22	(300)	(5.5)						(2.8)
23								

Time: 0.0°.
Sweep: 4.0 Mc to 11.2 Mc in 12 minutes.

Table 56

Fribourg, Germany (48.1°N, 7.8°E)

November 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	4.7					2.9	
01	300	4.6					2.8	
02	290	4.5					2.9	
03	280	4.3					2.8	
04	260	4.0					2.8	
05	230	3.7					2.8	
06	255	3.6					2.8	
07	220	6.2			110	1.8	2.8	
08	202	10.3			100	2.3	3.3	
09	200	(12.0)			100	2.7	4.2	
10	200	(13.8)			102	3.0	4.5	
11	200	(14.0)			100	3.1	4.0	
12	205	(13.7)			105	3.2	4.1	
13	200	(13.7)			100	3.1	4.1	
14	210	(13.5)			100	2.9	3.6	
15	200	(13.2)			100	2.6	3.4	
16	200	(11.8)			110	2.0	3.1	
17	200	10.8				E	3.0	
18	200	(8.7)					2.8	
19	200	7.6						
20	225	5.9						
21	250	5.1						
22	270	4.8					2.8	
23	275	4.5						

Time: Local.
Sweep: 1.6 Mc to 17.6 Mc in 10 minutes, automatic operation.

Table 57

Fribourg, Germany (48.1°N, 7.8°E)

October 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.0					2.6	
01	305	5.7					2.7	
02	305	5.2					2.6	
03	310	5.6					2.8	
04	290	4.9					2.7	
05	270	4.3					2.7	
06	265	5.2					2.4	
07	240	8.1			110	2.1	3.2	
08	228	(9.7)			110	2.8	3.5	
09	228	(11.5)			110	3.1	4.0	
10	220	(11.5)			100	3.3	4.4	
11	220	(12.1)			100	3.4	4.0	
12	220	(12.4)			100	3.5	4.5	
13	225	(12.3)			100	3.5	4.5	
14	230	(12.2)			100	3.2	3.9	
15	230	(12.0)			100	2.9	3.6	
16	230	(11.6)			105	2.6	3.4	
17	235	(11.1)			100	(1.9)	3.3	
18	230	(9.8)					3.0	
19	240	(8.7)					2.7	
20	240	(7.6)					2.1	
21	255	6.6						
22	280	6.5						
23	300	6.2					2.0	

Time: Local.
Sweep: 1.6 Mc to 17.6 Mc in 10 minutes, automatic operation.

TABLE 58

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

Form adopted June 1946

IONOSPHERIC DATA

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

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

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

Calculated by: J.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	280	260	270	270	270	300	(340)S	(230)A	(330)C	350H	C	(380)C	400	360	400	370	350	(300)A	(250)A	(270)A	230	260	280
2	300	270	250	270	300	270	250	310K	330K	330HK	430K	AK	AK	AK	580K	480K	470K	410K	AK	AK	A	A	A	250
3	280	(250)A	240	290	300	280	250	330	450	350	A	420	390	330	390	350	350	350	300	260	250	250	260	260
4	260	260	270	300	300	260	240	230	280	270	A	340H	420	410	380	400	390	360	350	280	260	300	250	240
5	220	250	280	320	(330)A	290	320	720K	480K	550K	CK	600K	AK	600K	GK	500K	450K	430K	360HK	(330)S	260	260	240	230
6	250	260	270	290	290	250	(360)S	330	390K	660K	470K	GK	510K	(480)SK	450K	480K	430SK	CK	350	250	250	330	(270)S	270
7	260	270	260	230	270	280	240H	390	320	330	510	410	450	(450)A	420	A	380	350	250H	(280)A	(280)A	A	(300)A	280
8	300	260	270	300	300	280	(210)HK	(480)HK	580K	460K	GK	GK	GK	470K	430	380	380S	370S	320S	(270)A	(310)AS	(300)A	(280)A	(280)S
9	260	280	260	250	240	240	(250)A	330	310	330	300	310	380	410	360	310	330	300	300	250	250	250	250	250
10	250	260	280	300	270	260	230K	(230)HK	400K	(330)HK	300K	540K	NK	CK	NK	460	400	(400)C	260	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	330	400	C	C	C	330	330	280	(250)A	240	240	250	280
12	290	280	250	250	280	280	330	230	440	370	460	N	(430)S	(380)S	(430)S	430	360	300H	300	270	250	250	270	270
13	280	270	270	250	240	260	210	340	360	400	340	370	C	370	470	380	390	340	300	250	250	260	270	270
14	260	260	260	250	A	270	210	370	[310]C	310	330	370	390	390	360	400	350	330	270	250	240	260	250	250
15	240	280	A	300	(320)A	A	A	330	300	300	370	400	370	400	350	360	380	340	290	280	250	200	250	260
16	260	270	290	260	260	260	310	350	390	310	370	400	390	390	360	360	370	360	290	260	250	250	270	260
17	300	290	270	260	250	270	260	370	340	250	360	350	380	360	360	360	350	340	240	240	240	260	260	270
18	270	250	250	250	250	280	300	240	250	350	300	340	370	380	380	360	340	270	270	260	240	250	290	270
19	250	260	250	260	250	270	250	340	370	370	350	(370)C	420	420	C	380	380	340	270	250	250	280	260	260
20	260	260	250	270	240	260	240	380	300	330	360	370	350	400	400	400	370	330	300	250	250	270	250	250
21	240	250	250	250	260	260	250	320	330	370	400	C	(440)C	420	420	C	C	C	C	C	C	C	C	(300)C
22	260	(270)A	280	290	280	250	230K	(430)AK	GK	480K	(470)CK	(470)CK	530K	510K	450K	450K	CK	GK	320K	240K	260	(280)A	280	250
23	250	250	250	220	240	260	250	350	340	410	450	G	450	S	500	430	AS	380	330	(250)A	250	240	260	270
24	(260)A	260	260	250	(280)A	250	(230)A	(250)A	280	270	320	330	330	320	330	390	310	320	270	260	260	240	260	260
25	240	240	280	260	250	300	240	220	350	(230)H	A	470	450	480	(480)S	440	390	350	330	250	240	260	260	270
26	270	330	250	250	240	(270)A	A	480	400	440	420	380	400	410	400	400	370	300	300	240	230	240	240	(270)A
27	260	280	270	260	250	260	A	330	320	310	A	380	(380)C	380	C	350	350	270	260	250	(240)A	(300)A	260	270
28	260	280	260	270	250	(280)A	240	230	380	380	340	400	(380)C	350	400	370	350	300	300	260	240	240	230	230
29	240	(310)A	300	280	300	300	280K	480K	GK	660K	460K	520K	GK	400K	470K	BK	400K	380K	240K	250HK	260	250	280	280
30	280	260	260	280	260	300K	400K	470K	480K	530K	500K	520K	480K	550K	440K	500K	430	350	230	270	250	300	280	260
31	260	280	(280)A	260	290K	320K	450K	500K	550K	500K	GK	GK	CK	CK	500K	610K	460K	370K	220K	(280)AK	(260)AK	280K	(270)AK	(250)AK
Median	260	260	260	260	270	270	250	340	355	350	370	400	400	400	420	400	375	350	300	250	250	260	260	265
Count	30	30	29	30	29	29	27	30	30	30	25	27	26	26	27	27	28	29	29	28	28	27	28	30

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 59

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

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), July (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.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	7.5	7.1	6.3	6.2	$(5.7)^C_P$	5.4	$(6.3)^J_S$	$(7.4)^J_S$	$[8.1]^C$	$(8.9)^P$	9.5	$[9.4]^C$	9.4	8.7	8.6	8.6	8.8	8.8	8.6	8.8	$(8.2)^J$	$(7.4)^J_S$	$(7.2)^J$	$(6.8)^J$
2	$(6.8)^J$	$(6.6)^J$	$(6.4)^J_S$	$(5.3)^J$	5.1	5.3	5.8	6.9^K	7.7^K	7.3^K	7.0^K	$(6.7)^J_K$	A^K	A^K	$(6.2)^J_K$	$(6.4)^P_K$	$(6.6)^J_K$	6.8^K	$^K(7.0)^J_S$	$^K(7.1)^J_S$	$[7.0]^A$	7.0	$(6.6)^J_A$	$(6.4)^J_S$
3	$(6.1)^J_S$	5.7	$(5.3)^J$	$(5.2)^J_S$	4.8	4.8	5.7	$(6.3)^J$	$(6.3)^J$	7.0	7.3	7.6	8.6	8.5	8.2	8.3	8.1	8.2	8.5	8.2	8.0	$(7.9)^J$	$(7.8)^J$	7.3
4	$(6.9)^J$	$(6.5)^J$	5.9	5.7	$(5.1)^J$	$(4.9)^J$	6.0	7.7	9.0	8.5	$(7.8)^J$	$(8.2)^J$	8.4	8.0	8.3	8.0	7.4	8.0	7.6	7.3	7.9	$(7.7)^S_C$	$(7.8)^S_C$	$^C(7.7)^J_S$
5	$^C(6.5)^J_S$	$(6.1)^P$	5.6	5.1	$(4.7)^S_C$	4.2	$^C(5.1)^J_S$	5.7^K	5.7^K	5.7^K	C^K	5.9^K	A^K	5.9^K	G^K	5.9^K	$(6.1)^S_K$	$^K(6.3)^J_S$	$^K(6.5)^J_S$	$(6.4)^S$	6.9	$[7.2]^S_C$	$(7.5)^J_S$	6.3
6	$(5.6)^S$	5.7	$(5.3)^J$	$(5.0)^J_S$	$(4.7)^J$	$(4.7)^J$	$(5.5)^S$	$(6.7)^J$	$(6.3)^J_K$	5.5^H_K	5.8^K	G^K	6.1^K	$(6.4)^S_K$	$(6.6)^S_K$	$(6.0)^S_K$	$(5.9)^S_K$	$[6.2]^C_K$	6.6	6.9	$(7.0)^S$	$(6.6)^J_S$	7.0	$(6.9)^J$
7	6.9	$(6.2)^J$	$(6.0)^P$	$(5.6)^P$	4.6	$(4.9)^J_S$	5.5	6.3	7.5	$(7.0)^J$	6.8	7.1	6.7	7.0	7.1	7.3	$(7.1)^J_S$	7.4	7.5	7.4^S	7.7^S	7.4	7.7	7.1
8	7.2	$(6.7)^J$	$^P(6.3)^J_C$	$(5.1)^P$	$(4.9)^J$	4.9	5.1^K	5.6^K	6.8^K	$(6.0)^C_K$	G^K	G^K	G^K	$(5.7)^S_K$	6.8	6.6	6.5	6.6	6.9	7.1	$(7.1)^S$	7.2	6.9	$(6.8)^S$
9	$(6.6)^S$	$(6.3)^J_S$	$(5.9)^F$	$(5.9)^F_P$	5.5^F	$^S(5.0)^J_F$	5.9	6.6	7.6	8.5	9.0	8.0	8.1	8.0	8.6	8.6	8.4	8.3	8.3	8.4	$(8.3)^S_P$	8.0	$(8.1)^J$	$(7.9)^J_S$
10	7.3	6.7	$(6.2)^J_F$	5.9	5.8	5.5^F	5.8^K	5.9^K	6.2^K	$(6.9)^J_K$	$(5.8)^C_K$	5.9^K	N^K	C^K	N^K	$(6.4)^J$	$(6.6)^J$	$(6.4)^C$	6.3	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	7.5	7.3	C	C	C	7.3	7.5	7.7	$(7.7)^S$	$(8.0)^J_S$	$(7.3)^J_F$	$(6.8)^J_S$	$(6.4)^J_S$
12	$(6.6)^J$	$(6.7)^J$	$(5.7)^J_P$	5.3	5.1	4.8^F	5.0	5.2	5.7	$(6.4)^J$	6.0	6.2	6.5	6.5	6.6	6.7	6.9	6.8	6.9	7.2	7.2	7.0	$(7.0)^J$	$(6.7)^J$
13	$(6.0)^C$	$(5.9)^C$	6.0	$(5.6)^J$	$(5.1)^C$	5.0	5.2	6.5	6.8	7.0	6.8	7.4	7.0	7.4	7.2	7.3	7.2	7.5	7.2	$(7.9)^J$	7.3	7.5	$(7.5)^C$	$(7.2)^C$
14	7.2	7.0	6.5	6.2	5.4	$(5.0)^C$	5.0	6.3	$[7.1]^C$	7.7	8.3	8.0	7.7	7.9	7.9	7.6	7.8	7.9	8.2	8.4	8.3	8.0	7.5	6.9
15	$(6.2)^J$	$(5.6)^J$	5.0	4.8	4.2	$(4.6)^J_A$	$[5.5]^A$	6.4	6.8	7.0	7.6	7.5	7.5	7.8	7.9	7.6	7.5	7.9	8.4	8.4	8.4	8.4	7.7	7.4
16	7.0	6.2	$(6.0)^C$	5.5	4.6	4.6	$(5.3)^P$	6.0	6.4	6.8	6.9	7.5	7.7	7.6	7.7	7.7	7.5	7.5	7.5	8.0	7.6	$(7.6)^C$	7.3	7.0
17	6.5	6.6	$(6.2)^J$	5.9	5.2	4.9	5.8	7.0	8.8	8.2	8.4	8.5	8.2	8.4	8.0	8.2	8.4	8.3	8.3	8.2	7.8	$(7.6)^J$	7.2	7.2
18	6.7	6.5	6.3	5.6	5.3	5.0	$(5.8)^C$	7.0	7.6	8.2	8.3	8.2	8.2	7.9	7.9	8.2	8.2	8.0	8.0	8.0	7.8	7.2	7.2	7.2
19	7.0	6.5	5.8	5.6	4.8	4.6	5.6	6.3	6.7	7.2	$(7.3)^C$	6.9	7.0	7.0	$(6.9)^C$	7.2	6.7	6.8	6.8	6.9	7.4	$(7.2)^J_C$	7.6	7.2
20	7.1	6.7	5.8	5.6	5.0	5.0	5.9	$(6.4)^J$	6.7	7.0	7.5	7.6	7.8	7.5	7.5	7.7	8.0	8.0	8.1	7.9	8.2	8.2	8.0	7.6
21	7.0	6.2	5.5	5.0	$(4.4)^J$	4.6	5.5	6.6	7.0	7.2	6.8	6.7	6.7	6.8	7.0	C	C	C	C	C	C	C	C	$(7.1)^C$
22	6.7	5.8	5.2	4.6	4.8	4.6	5.0^K	$(5.4)^H_K$	G^K	5.8^K	$(5.4)^C_K$	6.0^K	6.2^K	5.9^K	6.3^K	6.0^K	C^K	G^K	6.6^K	6.4^K	6.8	7.0	7.2	$(7.0)^J$
23	$(6.4)^J$	$(6.2)^J$	5.6	4.9	4.5	4.6	5.8	6.2	6.5	6.3	6.2	G	6.4	$(6.4)^J_S$	6.2	$(6.1)^J$	$[6.3]^A_S$	6.5	6.7	$(6.7)^J_S$	7.3	7.2	7.1	7.1
24	6.9^V	$(6.6)^J$	6.5	5.6	5.3	5.2	6.3	7.0	7.9	8.2	8.8	8.6	8.9	8.5	8.3	8.4	8.5	8.3	8.3	$(8.3)^S$	$(7.9)^S$	(8.0)	7.6	7.6
25	7.1	$(6.4)^J$	5.8	5.6	4.7	4.4	5.7	7.2	7.0	$(6.7)^N$	7.1	5.9	6.4	6.2	$(6.5)^J_S$	6.7	6.8	6.6	6.8	6.8	7.0	7.1	7.0^S	$[6.8]^S_C$
26	6.6	$(6.2)^J$	5.9	5.7	$(5.1)^J$	4.6	5.0	5.6	5.9	6.6	7.0	7.3	7.0	7.2	7.1	7.4	7.7	7.9	7.8	$(7.7)^J_S$	$(7.5)^S$	7.1	S^C	6.0
27	5.7	$(5.0)^J$	5.1	4.9	4.5	4.3	5.3	6.0	$(6.9)^J$	7.5	7.1	7.3	7.1	$(7.0)^C$	$(7.0)^C$	7.5	$(7.7)^J_S$	7.6	7.4	7.5	7.4	$(7.4)^J$	$(7.3)^J_S$	$(6.7)^J$
28	$(6.3)^J$	6.3	6.0	5.7	5.1	4.6	5.5	5.6	$(6.2)^J$	6.5	$(6.7)^J$	7.1	7.3	7.5	7.6	7.5	7.3	7.6	7.7	$(7.9)^J$	$(7.6)^J$	7.4	7.1	$(6.7)^J$
29	$(6.0)^J$	$(5.7)^J$	5.3	5.1	4.7	4.6	5.0^K	4.9^K	G^K	5.3^K	5.7^K	5.7^K	G^K	C^K	$(5.4)^C_K$	B^K	$(6.4)^J_K$	$(6.1)^J_K$	6.2^K	6.3^K	6.4	$(6.4)^J_S$	$(6.2)^J$	$(5.9)^J$
30	$(6.1)^J_F$	5.9	5.3	5.0^F	$(4.9)^J_F$	4.5^F_K	$(4.6)^F_K$	4.9^K	5.3^K	5.3^K	5.7^K	5.7^K	6.0^K	5.9^K	6.3^K	5.9^K	6.7	6.7	$(6.3)^J$	6.7	$(6.7)^J_F$	6.7	7.0	$(6.7)^J_S$
31	$(6.4)^J$	$(6.1)^J$	6.1	4.9	3.9^K	3.9^K	$(4.3)^J_K$	4.5^F_K	4.8^K	5.3^F_K	G^K	G^K	C^K	C^K	5.7^K	5.4^K	5.7^K	$(5.8)^J_K$	5.5^F_K	5.7^K	$^K(5.7)^J_F$	$^F(6.3)^J_S$	$(5.8)^J_K$	5.7^K
Median	6.6	(6.2)	5.9	5.6	4.9	4.8	5.5	6.3	6.8	7.0	7.0	7.1	7.1	7.3	7.1	7.4	7.3	7.5	7.4	7.5	7.5	7.3	7.2	(7.0)
Count	30	30	30	30	30	30	30	30	30	30	29	31	27	26	29	28	29	30	30	29	29	29	28	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 705518

Form adopted June 1946

TABLE 60

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

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), July (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.J.S., J.S.T.

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	7.6	7.0	6.4	(5.9)C	[5.4]C	(5.7)S	(6.8)JS	(7.9)JS	8.4	9.1	9.6	9.2	9.0	8.8	8.5	8.6	8.8	8.6	8.9	(8.5)SC	(7.9)S	7.2	[7.0]C	6.8
2	(6.8)J	(6.2)JS	(5.5)J	(5.1)J	5.1	5.7	(6.4)JS	7.4K	7.4K	7.2K	K(6.7)JC	6.7K	G K	G K	6.5K	(6.5)JK	(6.5)JK	6.9K	K(6.9)JS	K(7.0)JA	(7.0)JA	(7.0)S	(6.7)JS	(6.3)P
3	(5.9)P	(5.6)JS	5.5	(5.1)JS	4.7	5.3	6.0	(6.0)J	6.8	7.5	7.4	7.8	(9.0)S	(8.4)J	8.1	8.2	8.0	8.0	8.2	(8.0)JS	(7.9)J	(7.8)P	(7.8)SC	(7.3)J
4	(6.7)J	6.1	5.8	5.4	4.9	5.5	6.9	8.6	8.8	8.3	(8.5)F	8.0	8.4	8.2	9.5	7.7	7.5	7.8	7.5	(7.8)JS	(7.5)JS	(7.8)SC	(7.7)SC	C(6.9)JS
5	C(6.2)JS	(5.7)C	(4.9)FC	(4.8)JC	4.1	(4.7)JS	5.7	5.5K	5.6K	5.7K	G K	6.0K	5.8K	G K	(5.9)SK	(5.9)SK	(5.8)SK	S K	(6.4)SK	[6.8]S	7.2	7.8	(7.2)JS	(6.0)P
6	5.7	(5.3)S	(5.1)J	(4.9)JS	4.5	(5.2)JS	5.7	(6.1)SP	6.7K	G K	G K	G K	6.0K	G K	S K	A K	S K	C K	6.8	(6.9)JS	[6.9]S	6.9	6.9	(6.8)JS
7	(6.5)J	(5.9)C	5.8	4.9	4.6	(5.2)S	(5.9)S	7.1	(7.4)P	(6.8)J	7.0	(6.8)S	6.7	(7.0)S	7.0	7.3	7.3	7.5	7.3	7.6	7.5	7.5	7.2	(7.0)JS
8	7.0	(6.4)J	[5.6]C	5.3	4.7	5.0	K5.5FS	6.1K	[6.2]CK	6.4K	(6.5)JF	6.6K	6.4K	6.8K	6.8	6.5	6.5	6.7	(6.9)JS	(7.1)S	7.0	7.1	(6.6)JS	(6.5)JS
9	[6.2]JF	(6.3)S	6.2	5.6F	4.7	5.5	(5.8)S	7.0	7.7	8.7	8.4	7.9	8.0	8.5	8.8	8.6	8.1	8.1	8.5	8.6	(8.1)J	8.1	(8.0)J	7.7
10	7.3	(6.3)J	(6.0)J	5.9	5.8	5.7	5.7K	(6.0)SK	5.9K	C K	C K	6.7K	[6.6]CK	(6.4)JK	6.4K	(6.5)J	6.7	(6.5)C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	7.5	7.0	C	C	C	7.5	7.7	7.6	7.9	(7.9)J	(7.0)JS	(6.8)J	(6.5)JF
12	(6.5)JS	[6.3]JC	5.6	5.0F	4.7F	4.9	5.2	5.7	[6.0]N	6.4	6.3	6.4	6.4	[6.5]C	6.6	6.7	6.9	6.8	6.8	7.2	7.3	6.8	(6.7)J	[6.4]SC
13	(6.0)J	[6.0]C	(5.9)C	5.6	4.9	5.5	[6.2]C	6.9	6.7	7.0	7.0	7.2	7.2	(7.3)P	7.2	7.3	7.5	7.4	7.2	7.5	(7.2)C	(7.8)J	7.3	7.2
14	7.1	[6.6]C	(6.2)J	5.5	4.8	5.0	(5.4)C	6.7	7.5	7.7	7.8	7.9	7.9	8.0	7.8	7.8	7.8	8.0	8.2	8.3	8.0	8.0	7.1	[6.7]C
15	(5.8)C	(5.2)J	5.0	4.3	C	A	A	6.8	7.0	7.3	7.6	7.6	7.8	7.8	7.9	7.5	7.5	8.2	8.7	8.4	8.4	7.9	7.3	7.0
16	6.5	5.9	(5.7)J	5.2	4.5	(5.3)P	5.4	6.0	6.6	6.8	7.2H	7.6	7.8	7.7	7.7	7.6	7.3	7.6	7.8	8.0	(7.6)C	7.5	7.2	6.6
17	(6.1)J	6.6	6.0	5.7	4.4	5.5	6.4	7.6	9.0	8.0	8.4	8.4	8.4	8.0	8.0	8.2	8.4	8.2	8.2	7.8	7.5	7.5	(7.2)J	7.0
18	(6.4)J	6.4	6.2	5.4	4.9	5.1	6.3	7.5	7.6	8.2	[8.3]C	8.2	8.0	7.6	8.2	8.2	8.0	8.2	8.2	7.8	(7.4)J	7.5	7.0	7.0
19	6.9	(6.2)J	5.8	5.4	4.5	4.9	5.8	(6.5)J	(6.7)J	7.3	6.7	(6.8)J	7.0	6.9	7.0	7.0	6.8	6.7	6.7	7.2	(7.4)C	7.5	7.4	7.0
20	7.1	6.4	5.7	5.0	4.9	5.6	(6.2)J	6.4	7.0	6.9	7.4	7.9	7.5	[7.4]C	7.5	7.7	8.0	8.1	7.6	7.8	(8.1)J	(8.0)J	7.6	7.9
21	6.4	5.8	5.0	4.7	4.2	5.0	5.8	6.9	7.0	6.6	7.0	6.5	6.8	6.9	C	C	C	C	C	C	C	C	C	6.9
22	(5.9)J	5.4V	4.9	(4.6)J	4.6	4.9	5.5VK	(5.5)HK	5.7K	(5.6)HK	6.0K	(6.2)CK	6.3K	6.0K	G K	6.1K	6.2K	6.7K	(6.6)JK	(6.7)JK	6.8	[6.9]A	7.0	7.0
23	6.2	5.9	5.4	4.6	4.5	5.4	6.2	6.5	6.6	6.2	(6.0)P	6.4	[6.4]F	(6.5)C	6.1	(6.5)AS	6.3	6.4	6.8	[6.9]S	(7.4)JS	7.3	7.2	7.1
24	6.7	6.6	5.9	5.3	5.3	5.5	6.7	7.6	8.2	8.0	8.6	8.7	8.8	8.4	8.3	(8.4)S	8.4	8.2	8.5	(8.3)S	8.1	7.7	7.5	7.4
25	(7.0)JS	5.7	5.8	5.1	4.4	5.1	6.3	7.1	7.0	6.7	(7.0)AS	6.3	(6.3)J	6.4	6.6	(6.4)S	6.7	6.7	(6.9)S	(6.9)S	(7.0)JS	(6.9)JS	[6.8]S	(6.6)JS
26	(6.4)J	(6.1)J	5.8	5.5	4.9	(4.8)J	5.7	5.9	6.3	6.7	6.9	7.1	7.1	7.0	7.1	7.5	(7.8)SC	7.6	(7.9)S	7.7	(7.1)JS	7.0	[6.1]SC	5.9
27	5.4	5.1	(5.1)JS	4.9	4.2	4.9	5.6	(6.5)J	7.1	7.1	7.2	7.2	7.2	7.1	7.5	(7.4)C	7.7	(7.5)S	7.2	7.3	7.4	(7.4)S	(7.1)JS	(6.6)J
28	6.5	(6.3)J	5.7	5.5	4.6	5.1	5.6	(5.7)J	6.3	7.0	(7.1)P	7.3	7.4	7.3	7.5	7.3	7.6	7.6	8.0	(7.7)J	(7.6)P	7.5	7.0	(6.4)J
29	(5.9)J	5.7	5.2V	4.9	4.3	4.7	K(4.6)FV	5.6K	5.5K	(5.7)CK	G K	G K	G K	G K	K(6.1)JC	(6.4)CK	(6.3)JK	6.3K	K(5.9)JC	(6.1)PK	(6.5)J	6.5	(6.1)J	(6.0)J
30	5.9	5.7	5.3	(4.9)FV	4.5F	K(4.6)FS	4.8K	5.1K	5.1K	5.3K	(5.6)K	G K	G K	G K	6.1K	[6.4]CK	6.7	(6.5)J	6.5	(6.6)J	6.7	(6.7)JS	(7.1)JS	(6.5)J
31	(6.5)J	(5.6)J	5.7	(4.5)J	3.7K	4.2K	4.9K	4.6K	G K	5.2K	G K	G K	C K	C K	(5.3)SK	5.5K	5.7	5.7K	5.5K	5.6K	K(5.7)JS	(5.6)S	(5.7)SK	(5.6)SK
Median	(6.4)	(6.0)	5.7	5.1	4.6	5.1	5.8	6.5	6.8	6.9	7.0	7.1	7.0	7.0	7.2	7.3	7.5	7.6	7.3	7.6	(7.4)	7.5	(7.1)	6.8
Count	30	30	30	30	29	29	29	30	30	29	29	31	30	29	28	28	29	28	29	29	29	29	29	30

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 61

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

IONOSPHERIC DATA

h'F1 (Characteristic) Km (Unit) July (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.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							(230)A	A	Q	200	200	C	200	200H	210H	190H	230	230H	G					
2							Q	230HK	220K	200K	(220)AK	200K	200K	AK	AK	230HK	210K	250K	QK					
3							Q	240	(230)A	A	A	A	200	200	200H	200	200H	(230)A	Q					
4							Q	Q	200	Q	A	200	210	220	B	200	200	230	230	230				
5							240	210K	(200)AK	200K	AK	AK	(210)AK	(230)K	200K	200K	SK	230HK	200K					
6							A	210	220K	200K	200K	200K	210K	200K	(210)AK	AK	(210)SK	CK	200					
7							Q	230	200	200	A	(200)A	A	A	A	A	A	230H	Q					
8							QK	200K	200HK	200HK	200HK	190K	200K	(220)AK	200	200	200	210H	220					
9							Q	230	(230)A	A	200	180	200	(250)A	A	(210)A	AC	200	200					
10							QK	QK	ACK	CK	CK	CK	CK	CK	CK	C	200	C	210	C				
11							C	C	C	C	C	200H	190	C	C	C	210	200	AH	200				
12							220	G	200	200H	200	180	190	190	(190)A	200	220	200	210					
13							Q	210	210	200	A	200	180	A	200	200	220H	220H	210					
14							Q	200	[200]C	200	200	210	200	210	200	220	190	220	(230)A					
15							A	200	200	200	170H	220	180	210	210	210	210	200	A					
16							250	210	210	200	250	180	170	200	230	200	200	220	250					
17							250	220	200	A	200	200	180	210	220	200	230	230	A					
18							250	A	220	200	180	200	200	200	200	230	220	200	230					
19							Q	210	210	210	210	200	210	200	210	210	200	230	210					
20							Q	200	220H	200	200	200	200	200	A	230	220	230	A					
21							Q	230	220	200	180	180	200	180H	200	C	C	C	C					
22							QK	200HK	190K	180K	AK	200K	190K	200K	200K	200K	200K	200K	210K					
23							Q	210	210	200	200	200	200H	200	A	A	A	200	A					
24							Q	Q	A	A	180	200	190	(200)A	200	(230)A	A	A	G					
25							Q	Q	190H	(180)H	A	(200)A	190	200	230	A	A	A	230					
26							Q	230A	200	200	200	(200)A	200	200	220	200	220	A	A					
27							Q	(200)A	230	210	A	200	180	200	C	C	200	200	200					
28							Q	Q	200	200	200	180	240	190	200	200	200	230	230					
29							230K	200K	200K	200K	(200)BK	190K	200K	200K	200K	BK	210HK	200K	QK					
30							(250)AK	(200)HK	200K	200K	190K	200K	(200)BK	190K	(200)AK	200HK	A	200	Q					
31							250K	(220)AK	200K	(210)AK	200K	210K	CK	CK	200K	210HK	220K	210K	QK					
Median							250	210	200	200	200	200	200	200	200	200	210	220	210					
Count							9	22	27	24	21	27	28	25	22	22	23	25	16	2				

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.

Form adopted June 1946

IONOSPHERIC DATA

f°F1 (Characteristic), Mc (Unit), July (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.M.C., J.J.S.

Calculated by: J.J.S., J.S.T.

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 S	Q	C	5.7	C	C	5.6 H	5.6	(5.8) C	L H	L	Q					
2							Q	L K	5.3 K	4.9 HK	5.5 K	A K	A K	A K	5.4 K	(5.3) SK	(5.1) SK	4.9 K	Q K	K				
3							Q	4.8	4.9	A	A	5.5	5.7	5.8	5.9	5.5	5.3 H	L S	Q					
4							Q	Q	L	Q	A	N	5.5	5.7	[5.7] B	5.7	5.4 H	5.1	L H	L				
5							3.9	4.9 K	K 4.9 SC	K (5.0) SC	C K	A K	A K	5.7 K	5.5 K	A SK	S K	(4.7) SK	S K					
6							L S	4.7	4.8 K	4.8 K	5.0 K	5.4 K	[5.4] SK	5.5 SK	S K	S K	S K	C K	L					
7							Q	4.9	L H	5.0	[5.2] A	5.5	[5.5] A	(5.5) A	A	A	5.2	5.0	Q					
8							Q K	4.5 HK	(5.4) HK	4.7 K	5.9 K	5.4 K	5.5 K	(5.1) SK	5.5 H	5.4	5.1	4.9	L					
9							Q	L	L	5.1	[5.4] L	(5.7) H	(5.7) H	5.7	(5.7) A	L	5.7 H	L H	L H					
10							Q K	Q K	4.8 K	C K	C K	C K	5.3 K	C K	C K	5.1	5.1	L	L	C				
11							C	C	C	C	C	5.5	5.7	C	C	C	4.9 H	(4.9) H	L					
12							L	Q	(4.7) S	4.7	(5.3) H	5.6	5.5	5.4	5.0	5.0	5.1	4.2	L					
13							Q	4.5	4.9	5.4	(5.0) P	5.4	(5.0) P	[5.0] A	(4.9) A	[5.0] S	5.1	4.9	L					
14							Q	4.3	[4.9] C	5.0	5.0	5.6	5.6	5.5	5.4	5.4	5.0	L	L					
15							A	4.4	4.8	5.1	5.2 H	5.5	5.4	5.7	5.5	5.5	5.3	4.4 H	L					
16							L	4.5	4.9	5.4 H	5.8	5.6	(5.2) H	5.9	5.6	5.6	5.5	5.1	L					
17							4.7	5.0	5.2	L	5.4	5.6	5.9	5.9	5.5	5.2 H	5.4	5.0	A					
18							L	A	L	5.7 H	5.0 H	5.5	5.8 H	5.6	5.5	4.9	(5.4) C	4.2	L					
19							Q	4.4	(5.2) C	5.0	5.6	5.4	5.4	5.4	(5.1) C	5.4	5.4	4.8	L					
20							Q	L	4.7	5.2	5.5	5.5	5.3	(5.7) C	5.5 H	5.4	5.4 H	5.0	L					
21								4.5	4.9	5.5 H	5.6	5.4	5.3	5.3 H	5.2	C	C	C	C					
22							Q K	(4.1) HK	4.9 HK	5.2 K	4.8 K	5.2 K	5.4 K	5.3 HK	4.9 K	4.8 K	4.8 HK	4.4 K	4.0 K					
23							Q	L	4.9	5.3	5.3	5.3	5.4	5.3	5.3	A	A	5.0	A					
24							Q	Q	A	A	5.4	5.7	5.7	5.5	5.5	(5.6) A	4.9	L	Q					
25							Q	Q	5.3 H	N H	A	5.5	5.3	5.4	(5.2) S	[5.2] A	5.1	4.7	L					
26							Q	5.1	5.0	5.2	5.7	5.8	5.5	5.6	5.3	5.5	5.3	L	L					
27							Q	L	5.1	5.1	[5.4] A	5.6	5.7	(5.8) C	[5.6] C	(5.5) C	5.1	L	L					
28							Q	Q	5.0	5.0	5.3	5.3	(5.7) C	5.4 H	5.8	5.7	5.3	L	L					
29							4.8 K	4.3 FK	4.3 K	4.9 K	4.9 K	5.1 K	5.1 K	(5.1) CK	(4.9) CK	[5.0] BK	5.1 HK	(5.6) CK	Q K					
30							L K	4.1 K	4.5 K	4.9 K	4.9 K	5.1 K	5.4 K	5.3 K	5.3 K	5.0 K	4.9	4.9	Q					
31							4.1 K	4.1 FK	4.5 K	4.6 K	4.9 K	4.9 K	C K	C K	5.1 K	5.1 K	4.7 K	L FK	Q K					
Median								4.5	4.9	5.0	5.3	5.5	5.5	5.5	5.5	5.4	5.1	4.9						
Count							4	17	24	23	25	26	27	27	27	24	26	19	1					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 63

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

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), July (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.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	100	100	100	100	100	C	100	100	100	100	100	100	100	110				
2						120	100	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	110K				
3							100	100	100	100	100	100	100	100	100	100	100	100	100	110				
4							100	100	100	100	100	100	100	100	B	100	100	100	100	110				
5							100	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	S				
6						110	100	100	100K	100K	100K	100K	100K	100K	100K	100K	100K	CK	100	100				
7							100	100	100	100	100	100	100	100	100	100	100	100	100	110				
8							110K	100K	100K	100K	100K	100K	100K	100K	100	100	100	100	100	A				
9							100	100	100	100	100	100	100	100	100	100	100	100	100	110				
10						100	CK	100K	100K	100K	100K	100K	100K	100K	100K	100	100	C	100	C				
11							C	C	C	C	C	100	100	C	C	C	100	100	100	100				
12							100	100	100	100	100	100	(100)B	100	100	100	100	110	100	100				
13							100	100	100	100	100	100	100	100	100	100	100	(120)A	100	110				
14							100	A	[100]C	100	100	100	100	100	100	100	100	100	100	A				
15							A	100	100	100	100	100	100	100	100	100	100	100	100	A				
16							100	100	100	100	100	100	100	100	100	100	100	100	100	(130)C				
17							110	100	100	100	100	100	100	100	100	100	100	A	100	100				
18						100	110	100	100	100	100	100	100	100	100	100	100	100	100	A				
19							100	100	100	100	100	100	100	100	100	100	100	(120)A	(110)A	(120)A				
20							110	(120)A	100	100	100	100	100	100	100	100	110	100	100	A				
21								100	100	100	100	100	100	100	100	C	C	C	C	C				
22							100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	120K				
23							100	100	100	100	100	100	100	100	100	100	100	100	100	100				
24							100	100	100	100	100	100	100	100	100	100	100	100	A	100				
25						100	100	100	100	100	100	100	100	100	100	100	100	100	100	110				
26						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
27						100	110	100	100	100	A	100	100	100	C	100	100	100	100	100				
28							100	100	100	100	100	100	100	100	100	100	100	100	90	100				
29							100K	100K	100K	100K	100K	100K	90K	100K	100K	BK	100K	100K	100K	130K				
30							100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100	100	100	100				
31							100K	100K	100K	100K	100K	100K	CK	CK	100K	100K	100K	100K	100K	100K				
Median						100	100	100	100	100	100	100	100	100	100	100	100	100	100	110				
Count						7	27	29	30	30	29	30	30	29	28	28	30	27	29	23				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

TABLE 64

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

Form adopted June 1946

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), July (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.M.C., J.J.S.

Calculated by: J.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	2.6	3.1	A	C	3.9	[4.0]C	(4.0)C	4.0	4.0	4.0	3.8	3.5H	2.9	(2.1)A				
2						2.0	2.5H	[3.0]AK	3.5K	3.7K	(3.7)AK	[3.7]AK	3.7K	[3.7]AK	3.7K	(3.5)AK	3.7K	3.4K	2.9K	(2.1)AK				
3							2.5F	[3.0]A	3.6	3.7	3.9	4.1	[4.1]A	4.1	[4.0]A	3.9	3.7	[3.3]A	2.9	(1.9)A				
4							2.4	[2.8]A	(3.2)A	[3.4]A	(3.5)A	B	B	3.8	[3.8]B	3.9	3.7	3.3	2.6H	2.2				
5							A	3.0K	3.2K	(3.6)AK	3.7K	3.9K	(3.9)AK	[4.0]AK	(4.0)AK	3.7K	3.8K	3.3K	2.8K	S				
6						2.0	AS	A	3.3K	(3.6)AK	3.4K	(3.8)AK	(3.9)AK	AK	ASK	K(3.9)AS	(3.7)SK	CK	S	(2.0)AS				
7							2.5H	[2.8]A	3.3H	3.6	A	A	(3.7)A	(3.7)A	A	A	3.5	3.3	2.9	2.1				
8							2.5K	2.9K	3.3K	3.6K	[3.7]AK	(3.8)AK	4.0K	3.9K	3.9	3.7	3.7	3.2	2.7	A				
9							2.3	3.0	3.3	A	A	A	A	A	(3.8)A	[3.8]A	3.7	3.4	2.9H	A				
10						A	CK	3.0K	3.4K	3.7K	(3.8)CK	(3.5)SK	[3.7]CK	3.9K	(3.9)CK	(3.9)C	3.5	[3.1]C	2.7	C				
11							C	C	C	C	C	(3.9)A	3.9	C	C	C	(3.6)A	(3.3)A	2.9	A				
12							2.3	A	A	A	A	(3.7)A	3.9	4.0	[3.8]A	3.7	3.4	3.3	2.7	2.1				
13							2.1	[2.7]A	3.3A	3.6	3.6	A	A	A	A	A	3.5	3.2	2.9	2.1				
14							A	A	[3.4]C	3.7	[3.8]C	3.9	4.0	4.0	4.0	4.0	3.6	3.2H	(2.7)A	A				
15							A	2.8	3.2	A	A	A	A	(3.6)A	A	A	AC	3.3H	2.7	A				
16							A	2.8	[3.2]A	3.6	(4.0)C	4.2	4.2	[4.0]A	3.9	(3.8)C	A	A	(2.5)A	A				
17							2.0H	3.0	[3.6]A	4.1	3.9	[4.0]A	4.0	4.2	3.9	4.0	3.8	[3.2]A	2.7	A				
18						1.3	1.2	3.0	2.0	3.8	3.9	3.9	[4.0]C	4.2	4.0	[3.8]A	3.7	3.3	2.7	A				
19							2.1	3.0	3.4	3.5	[3.6]A	3.8	3.9	3.7	(3.9)C	[3.8]C	3.8	(3.2)C	2.6	(1.9)A				
20							2.4	3.0H	A	C	3.8	C	C	4.0	4.0	3.9	3.7	3.3	2.6	A				
21							(2.1)A	3.0	3.3	3.4	A	A	4.0	(3.7)S	3.9	C	C	C	C	C				
22							(2.3)AK	3.1K	3.4K	3.7K	3.8K	4.2K	4.0K	4.0K	4.0K	3.9K	3.5K	3.3K	2.9K	2.0K				
23							2.2	3.0	3.3	3.7	3.7	(4.1)C	4.0	(4.0)S	3.9	3.8	3.5	A	A	A				
24							2.1	2.7	3.3	3.3	A	A	A	A	4.0	3.9	3.7	3.2	2.6	2.1				
25						A	2.4F	3.1	3.4	A	A	A	A	3.9	4.0	3.9	3.6	3.2	[2.6]A	2.1				
26						A	A	2.5	A	A	3.9	A	(4.0)C	4.0	(3.9)C	3.9	(3.7)C	3.3	2.7	2.1				
27						1.7	2.1	2.9	3.4	3.7	A	A	A	3.9	C	C	3.7	[3.2]A	2.7	A				
28							2.1	A	3.1	[3.5]A	3.9	(4.0)A	3.9	4.1	4.1	3.9	3.7	3.3	2.9	A				
29							2.1K	[2.7]AK	(3.3)BK	AK	AK	AK	3.9K	(3.9)CK	4.0K	[3.9]BK	3.8K	3.3K	2.5K	2.1K				
30							2.1K	[2.8]AK	3.5K	3.7K	3.9K	3.9K	AK	AK	3.9K	[3.8]AK	(3.6)A	[3.2]A	2.7	A				
31							2.3K	2.7K	3.3K	[3.6]AK	3.9K	3.9K	CK	CK	(4.0)SK	(3.7)SK	(3.5)SK	3.1K	2.5K	AK				
Median							2.3	3.0	3.3	3.6	3.8	3.9	4.0	4.0	3.9	3.9	3.7	3.3	2.7	2.1				
Count						4	23	26	22	22	21	19	21	24	25	25	28	27	28	14				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 65

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

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit), July (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.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						3.2 110	39 110	5.2 100	4.8 110	4.0 110	4.2 100	C	4.3 110				5.0 110	57 110	4.6 100	4.6 100	1.9 100			
2				30 100	3.4 100	3.2 110	38 100	4.7 100	4.2 100	4.4 100	4.3 100	5.9 100	6.2 100	5.7 100	3.8 130				54 110	4.7 100	75 100	9.0 100	6.4 100	
3		3.1 100		3.2 100	25 100			4.5 100	5.1 110	5.6 110	6.2 100	5.7 100	4.9 100		4.2 110		4.1 100	4.6 100	5.6 110	5.6 110	3.6 100			
4								4.7 100	57 110	7.6 100	6.7 100							5.8 100	3.6 100					
5		2.4 120	2.5 110	2.5 110	3.6 110		4.5 100	3.8 100	4.3 100	3.9 110	4.6 100	5.5 100	5.6 100	4.8 100	(4.3) 130	5.8 120	4.6 120	3.8 100						
6					2.4 130		3.1 100	4.2 100	4.7 100	4.0 100	4.6 100	4.7 100	4.6 100	5.3 100	4.5 100	4.7 110	4.0 100	C		3.2 130	3.0 100	5.7 110		2.0 110
7	3.3 100	2.5 100						4.4 110	3.6 130		12.4 100	8.6 100	6.0 100	5.8 100	7.6 100	5.8 100	5.6 100		4.2 120	4.6 110	6.0 100	5.9 100	8.2 100	3.8 100
8	3.7 100	30 110	2.4 140			17 120		4.7 110	49 100	4.0 110	4.1 100	46 100	4.3 110	4.2 110	4.3 110	4.5 120	4.6 100	4.7 110	5.9 110	57 100	4.3 100	4.7 100		
9	30 100	3.7 100	3.5 100				3.6 110	4.6 110	4.8 110	7.7 100	4.7 100	5.4 100	4.2 100	4.8 100	5.6 100	5.6 100	56 110			3.2 110	54 100	26 110	C	27 100
10						3.2 100	30 120	3.7 120	5.8 110					4.4 110				C		C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	5.6 110	4.6 110	C	C	C	94 110	4.8 110		57 100	1.9 140			
12				3.1 120			3.4 110	4.0 100	4.7 100	3.9 100	5.4 100	4.0 100			42 100		4.1 100	24 100						
13		1.9 110		60 100	19 100	3.5 110	3.6 100	4.2 100	4.6 100		54 100	42 100	4.5 100	5.9 100	6.0 100	3.8 100		31 100	3.7 110	24 130				
14					48 100	2.0 100	3.2 100	4.2 100	C										3.4 110	24 110	3.2 100	3.2 100		
15			5.5 100	2.0 100	4.2 110	4.9 100	8.4 100	4.2 110	4.3 100	5.6 100	39 100	41 100	4.0 100	40 100	4.2 100	4.2 100	4.2 110		49 110	5.7 100			3.2 100	
16							3.8 100	3.9 100	4.2 100	4.2 110	.			42 110			46 120	4.1 130	34 110	32 120	19 110		1.8 110	32 100
17		23 300	2.2 100	33 100			3.3 130	4.2 110	4.6 110	5.1 110		4.5 110			4.2 130		56 110	4.2 100	42 120	2.2 100	32 100	33 100		
18		3.2 100	3.0 100			2.2 130	3.0 130	4.4 130	10.0 110		5.7 100	5.7 110		4.8 120		4.3 100		4.6 130		34 110	34 120		5.0 100	22 100
19	2.2 100						38 110	4.6 100	46 110	4.0 100	46 100	42 100						2.2 100	2.2 100	1.9 100	38 100	42 100	3.4 100	
20						1.9 100		24 100	3.4 110					54 120	4.8 120	42 130		4.7 110	42 100	38 100	3.2 100	34 110		20 100
21								4.2 110	4.7 110	4.6 100	4.2 100	4.0 100				C	C	C	C	C	C	C	C	
22	31 100	3.4 100	1.9 (120)s				2.5 140	(8.8) 120			4.2 110				4.8 120	47 120				23 130	3.6 100	3.7 100	36 100	
23							40 100	3.9 100	4.4 100	4.7 120					5.7 110	7.6 110	11.2 100	90 100	58 100	4.6 100	5.6 100			42 100
24	3.8 100	4.6 100	3.0 100	30 100	4.3 100	1.9 100	3.9 100	5.4 100	6.0 100	6.3 100	4.8 100	51 100	5.4 100	4.7 100		46 110	5.3 110	5.5 100	5.0 100	7.8 100	3.1 100			
25		4.7 90				3.4 100	3.4 100		9.0 110	5.7 100	9.8 100	7.7 100	4.1 120		5.9 110	7.0 100	5.7 110	5.8 100	43 110	30 120	38 120		2.3 110	36 100
26	2.2 110					42 100	5.8 100	4.3 100	4.3 100	3.8 100		5.7 100					.	48 100	44 100				1.9 100	46 100
27	36 100	2.3 100	2.3 100	1.9 100	2.3 100		7.0 100	42 100	4.0 110		6.3 100	47 100	44 100					55 100	5.6 100	22 100	3.2 100	5.7 100	36 100	1.9 100
28		4.2 100	30 100	3.0 100	30 100	36 100	5.5 100	4.3 100	4.5 100	5.5 100	4.2 100	4.3 100					4.2 100		3.2 100	3.7 100	37 100	20 100	1.9 100	2.0 100
29		5.5 100					2.3 100	4.7 100		3.7 100	4.3 100	4.3 100	4.3 100			B			3.2 100	3.2 130			2.3 100	2.8 100
30	2.4 100					2.8 100	3.4 100	3.8 110				4.3 100	5.4 100	41 100	4.4 100	5.2 100	54 100	3.2 100	3.9 100	2.3 100	1.7 100			
31		2.3 90	31 100	2.2 110				3.5 100		4.7 100	9.5 100		C	C					3.8 110	5.6 100	5.7 100		3.2 130	5.7 100
Median	**	**	**	**	**	**	3.4	4.2	4.6	4.0	4.3	4.3	4.0	**	4.0	**	4.1	4.0	3.8	3.2	3.2	**	**	**
Count	30	30	30	30	30	30	30	30	29	30	30	30	30	29	30	28	30	28	30	29	29	29	28	30

** 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 1948 O - 772510

Form adopted June 1946

TABLE 66

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

IONOSPHERIC DATA

F2-M1500 (Characteristic), ____ (Unit), July (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.J.S., J.S.T.

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	1.7	1.7	(1.8)CP	1.9	(1.9)JS	(1.9)JS	C	(2.0)P	1.8	C	1.8	1.7	1.8	1.7	1.8	1.8	1.9	2.0	(1.9)J	(1.8)JS	(1.8)J	(1.7)J
2	(1.8)J	(1.9)J	(1.9)JS	(1.7)J	1.8	2.0	2.0	1.8K	2.0K	1.9K	1.8K	(1.7)JK	A K	A K	(1.6)JK	(1.7)FK	(1.6)JK	1.8K	K(1.9)JS	K(1.9)JS	A	1.8	(1.7)JA	(1.8)JS
3	(1.8)JS	1.8	(1.7)J	(1.8)JS	1.7	2.0	1.8	(2.0)J	(1.7)J	1.8	1.7	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.9	1.9	(1.8)J	(1.8)J	1.8
4	(1.8)J	(1.8)J	1.8	1.8	(1.8)J	(1.9)J	2.0	2.1	2.1	2.1	(1.9)J	(1.8)J	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	(1.8)SC	(1.9)SC	C(1.9)JS
5	C(1.8)JS	(1.8)P	1.9	1.7	(1.7)SC	1.7	C(1.8)JS	1.4K	1.8K	1.6K	C K	1.6K	A K	1.5K	G K	1.7K	(1.7)SK	K(1.9)JS	K(1.8)JS	(1.8)S	1.8	S C	(1.9)JS	1.9
6	(1.7)S	1.8	(1.8)J	(1.8)JS	(1.8)J	(2.0)J	(1.8)S	(2.0)J	(1.9)JK	1.5HK	1.8K	G K	1.7K	(1.7)SK	(1.7)SK	(1.8)SK	(1.8)SK	C K	1.9	1.9	(1.9)S	(2.0)JS	1.8	(2.0)J
7	1.9	(1.8)J	(1.9)P	(1.9)P	1.8	(1.9)JS	2.2	1.8	2.0	(2.0)J	1.6	1.8	1.7	1.7	1.8	1.8	(1.8)JS	1.8	2.0	1.9S	2.0S	1.8	1.8	1.8
8	1.8	(1.9)JP	(1.8)JC	(1.8)P	(1.7)J	1.8	1.9K	1.6K	1.4K	(1.7)CK	G K	G K	G K	(1.8)SK	1.8	1.8	1.8	1.9	1.9	2.0	(1.9)S	1.9	1.9	(1.9)S
9	(1.8)S	(1.8)JS	(1.9)F	(1.7)FP	1.8F	S(2.2)JF	2.3	2.0	2.0	2.0	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.8	1.8	1.9	(2.0)SP	1.9	(1.9)J	(2.0)JS
10	1.9	1.8	(1.7)JF	1.7	1.7	2.0F	2.2K	2.0K	1.9K	(2.0)JK	(2.2)CK	1.6K	N K	C K	N K	(1.7)J	(1.8)J	(1.7)C	2.0	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	1.9	1.8	C	C	C	1.8	1.9	1.9	(1.9)S	(2.0)JS	(2.0)JF	(1.8)JS	(1.8)JS
12	(1.8)J	(1.9)J	(1.9)JP	1.8	1.8	1.9F	2.0	1.7	1.8	(2.0)J	1.8	N	1.8	1.9	1.8	1.8	1.9	1.9	2.0	2.0	1.9	1.9	(1.9)J	(1.8)J
13	(1.8)C	(1.9)C	1.9	(2.0)J	(2.0)C	2.0	(2.2)J	2.0	1.9	1.8	2.0	1.9	C	1.8	1.6	1.9	1.9	2.0	1.9	(1.9)J	1.9	1.9	(1.9)C	(1.9)C
14	1.8	1.9	1.8	2.0	1.9	(2.0)C	2.0	1.8	[1.8]C	1.9	1.9	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.9	2.0	1.8	1.9	1.9	(1.9)J
15	(1.8)J	(1.9)J	A	1.7	1.9	(1.9)JA	A	1.9	2.1	2.0	1.9	1.8	1.8	1.8	1.9	1.9	1.8	1.9	2.0	2.1	1.9	1.9	1.9	1.9
16	1.9	1.8	(1.8)C	1.8	1.9	1.9	(2.0)P	2.0	1.8	1.9	1.9	1.7	1.8	1.8	1.9	1.9	1.8	1.8	1.9	2.0	2.0	(1.9)C	1.9	1.7
17	1.7	1.7	(1.7)J	1.7	1.9	1.9	2.0	1.8	1.8	2.4	1.8	1.8	1.8	1.9	1.9	1.8	1.9	1.9	1.9	2.0	2.0	(1.8)J	1.9	1.8
18	1.8	1.8	1.9	1.9	1.8	1.9	(1.9)C	2.0	2.1	1.9	2.1	2.0	1.8	1.9	1.9	1.8	1.8	1.8	2.0	2.0	2.1	1.9	1.8	1.8
19	1.9	1.8	1.8	1.8	1.9	2.0	1.9	1.7	1.8	1.9	(1.9)C	1.9	1.8	1.8	(1.7)C	1.9	1.9	1.9	1.8	1.9	1.9	(1.9)JC	1.8	1.9
20	1.8	1.9	1.9	1.9	1.9	2.1	2.1	(2.3)J	2.1	1.9	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.9	2.0	1.9	1.9	1.9	1.9	1.9
21	2.0	1.9	1.9	1.8	(1.9)J	2.0	2.0	2.1	2.0	2.1	1.8	C	1.7	1.8	1.9	C	C	C	C	C	C	C	C	(1.8)C
22	1.9	1.9	1.7	1.9	1.9	1.9	2.3K	(1.7)HK	G K	1.7K	(1.9)CK	1.7K	1.5K	1.7K	1.7K	1.8K	C K	G K	2.0K	2.0K	1.9	1.7	1.8	(1.8)J
23	(1.9)J	(2.0)J	2.0	2.0	1.8	2.0	2.1	1.9	1.9	1.8	1.8	G	1.7	(1.7)JS	1.6	(1.7)J	A S	1.9	1.9	(1.9)JS	1.9	1.9	1.8	1.8
24	1.8V	(1.9)J	1.9	1.9	1.9	2.0	2.2	2.0	2.1	2.1	2.0	2.0	2.0	1.9	1.8	1.9	2.0	1.9	2.0	(2.1)S	(2.0)S	(1.9)S	1.9	1.9
25	1.9	(2.0)J	1.8	1.9	2.0	2.0	2.0	1.9	2.0	(2.3)N	(1.6)A	1.8	1.8	1.7	(1.7)JS	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9S	S C
26	1.8	(1.9)J	1.9	1.8	(2.0)J	2.0	2.0	1.7	1.8	1.7	1.7	1.8	1.9	1.8	1.9	1.8	1.8	2.0	1.9	(2.1)JS	(2.0)S	1.9	S C	(1.8)A
27	1.9	(1.8)J	1.9	1.8	1.9	2.0	2.0	2.0	(1.9)J	2.0	(2.0)A	1.9	1.8	(1.9)C	(1.8)C	1.9	(1.9)JS	2.1	1.9	1.9	1.9	(1.9)J	(2.0)JS	(1.9)J
28	(1.8)J	2.0	1.9	1.9	2.0	1.9	2.0	1.9	(1.8)J	1.8	(2.0)J	1.9	1.9	2.0	1.8	1.9	1.9	2.0	1.9	(2.0)J	(1.9)J	1.9	1.9	(2.0)J
29	(1.8)J	(1.8)J	1.7	1.8	1.8	2.0	2.1K	1.8K	G K	1.4K	1.8K	1.6K	G K	C K	(1.8)CK	B K	(1.8)JK	(1.8)JK	1.9K	1.9K	1.9	(1.9)JS	(1.8)J	(1.8)J
30	(1.7)JF	1.8	1.8	1.7F	(1.8)JF	1.8FK	(1.8)FK	1.7K	1.7K	1.6K	1.6K	1.6K	1.7K	1.6K	1.8K	1.7K	1.7	1.9	(1.9)J	1.9	(1.9)JF	1.7	1.7	(1.9)JS
31	(1.8)J	(1.7)J	1.8	1.7	1.8K	1.9K	(1.8)JK	1.6FK	1.6K	1.7FK	G K	G K	C K	C K	1.7K	1.5K	1.8K	(1.8)JK	1.9FK	1.9K	K(1.8)JF	FK(1.8)JS	(1.8)JK	1.9K
Median	1.8	(1.8)	1.8	1.8	1.8	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	(1.9)
Count	30	30	29	30	30	30	29	30	29	30	29	28	26	26	29	28	28	29	30	29	28	28	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 67

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

IONOSPHERIC DATA

F2-M3000 (Characteristic), ______ (Unit), July (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. J. S., J.S.T.

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	2.6	(2.7)SP	2.8	(2.9)JS	(2.9)JS	C	(2.9)P	2.8	C	2.7	2.7	2.7	2.6	2.6	2.7	2.8	3.0	(2.9)J	(2.7)JS	(2.8)J	(2.6)J
2	(2.7)J	(2.7)J	(2.8)JS	(3.0)J	2.7	2.9	3.0	2.8K	2.9K	2.8K	2.6K	(2.6)JK	AK	AK	(2.4)JK	(2.6)PK	(2.4)JK	2.6K	K(2.8)JS	K(2.9)JS	A	2.7	(2.5)JA	(2.7)JS
3	(2.7)JS	2.6	(2.7)J	(2.7)JS	2.6	2.7	2.8	(3.0)J	(2.7)J	2.9	2.6	2.7	2.6	2.7	2.8	2.9	2.8	2.8	2.8	2.8	2.8	(2.8)J	(2.7)J	2.7
4	(2.8)J	(2.7)J	2.8	2.7	(2.6)J	(2.9)J	2.9	3.1	3.1	3.1	(2.9)J	(2.6)J	2.6	2.7	2.8	2.8	2.7	2.8	2.8	2.7	2.7	(2.6)SC	(2.9)SC	C(2.8)JS
5	C(2.7)JS	(2.8)P	2.8	2.6	(2.5)SC	2.6	C(2.7)JS	2.1K	2.7K	2.5K	CK	2.3K	AK	2.3K	GK	2.6K	(2.5)SK	K(2.9)JS	K(2.7)JS	(2.8)S	2.7	SC	(2.8)JS	2.8
6	(2.7)S	2.8	(2.8)J	(2.7)JS	(2.7)J	(2.9)J	(2.7)S	(3.0)J	(2.8)JK	2.3HK	2.7K	GK	2.6K	(2.6)SK	(2.6)SK	(2.7)SK	(2.8)SK	CK	2.8	2.8	(2.8)S	(3.1)JS	2.7	(3.1)J
7	2.8	(2.7)J	(2.9)P	(2.9)P	2.7	(2.9)JS	3.3	2.7	3.1	(2.9)J	2.4	2.7	2.6	2.6	2.8	2.7	(2.7)JS	2.7	2.9	2.9S	3.0S	2.7	2.7	2.7
8	2.6	(2.8)J	P(2.7)JC	(2.7)P	(2.6)J	2.8	2.7K	2.4K	2.2K	(2.7)CK	GK	GK	GK	(2.7)SK	2.6	2.7	2.8	2.7	2.8	2.9	(2.8)S	2.8	2.8	(2.8)S
9	(2.7)S	(2.7)JS	(2.9)F	(2.6)FP	2.7F	S(3.1)JF	3.4	2.9	3.0	2.9	2.9	2.8	2.8	2.7	2.8	2.8	2.8	2.8	2.8	2.9	(3.0)SP	2.9	(2.8)J	(3.0)JS
10	2.9	2.7	(2.6)JF	2.5	2.6	2.9F	3.3K	3.0K	2.9K	(3.0)JK	(3.3)CK	2.5K	NK	CK	NK	(2.5)J	(2.7)J	(2.6)C	2.9	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	2.9	2.7	C	C	C	2.6	2.8	2.9	(2.9)S	(3.0)JS	(3.0)JF	(2.8)JS	(2.6)JS
12	(2.7)J	(2.8)J	(2.8)JP	2.7	2.7	2.8F	3.0	2.6	2.7	(2.9)J	2.7	N	2.8	2.9	2.7	2.7	2.9	2.8	2.9	3.0	2.8	2.9	(2.7)J	(2.7)J
13	(2.7)C	(2.9)C	2.9	(3.0)J	(2.9)C	3.0	(3.1)J	3.0	2.8	2.7	2.9	2.8	C	2.7	2.5	2.7	2.8	2.9	2.9	(2.9)J	2.8	2.9	(2.7)C	(2.8)C
14	2.8	2.9	2.8	3.0	2.8	(3.0)C	2.8	2.8	[2.9]C	2.9	2.9	2.7	2.8	2.7	2.9	2.7	2.8	2.8	2.9	2.9	2.8	2.9	2.8	(2.7)J
15	(2.7)J	(2.8)J	A	2.6	2.9	(2.8)JA	A	2.8	3.1	2.9	2.9	2.7	2.7	2.7	2.9	2.9	2.7	2.9	2.9	3.0	2.8	2.8	2.8	2.8
16	2.7	2.7	(2.7)C	2.7	2.8	2.8	(2.9)P	3.3	2.8	2.9	2.9	2.7	2.7	2.8	2.9	3.0	2.8	2.7	2.8	3.0	2.9	(2.8)C	2.8	2.6
17	2.6	2.6	(2.6)J	2.8	2.8	2.9	2.9	2.7	2.8	3.3	2.8	2.8	2.8	2.9	2.9	2.6	2.7	2.9	2.9	3.0	2.9	(2.7)J	2.8	2.6
18	2.7	2.8	2.9	2.8	3.0	2.8	(2.9)C	2.9	2.8	2.9	3.0	3.0	2.9	2.9	2.9	2.9	2.8	2.9	3.0	3.1	3.1	2.9	2.8	2.8
19	2.7	2.8	2.8	2.8	2.8	2.9	2.9	2.6	2.6	2.8	(2.9)C	2.8	2.7	2.7	(2.8)C	2.8	2.8	2.8	2.7	2.9	2.7	(2.9)JC	2.8	2.8
20	2.7	2.8	2.9	2.8	2.9	3.1	3.1	(3.2)J	3.1	2.8	2.9	2.9	2.9	2.8	2.7	2.7	2.6	2.9	3.0	2.8	2.8	2.9	2.9	2.8
21	2.9	2.9	2.9	2.8	(2.9)J	3.0	3.1	3.1	3.0	3.0	2.7	C	2.6	2.6	2.6	C	C	C	C	C	C	C	C	(2.6)C
22	2.9	2.9	2.7	2.6	2.5	2.8	3.4K	(2.6)HK	GK	2.6K	(2.6)CK	2.5K	2.3K	2.5K	2.6K	2.8K	CK	GK	3.0K	3.0K	2.8	2.7	2.6	(2.7)J
23	(2.9)J	(2.9)J	3.0	2.9	2.8	2.9	3.1	2.9	3.0	2.7	2.7	G	2.7	(2.6)JS	2.6	(2.6)J	AS	2.8	2.8	(3.0)JS	2.9	2.8	2.8	2.7
24	2.7V	(2.8)J	2.8	2.9	2.8	3.0	3.2	3.1	3.1	3.0	3.0	2.9	2.9	2.8	2.8	2.9	2.9	2.9	3.0	(3.0)S	(3.0)S	(2.8)S	2.9	2.9
25	2.9	(3.0)J	2.8	2.8	2.9	2.9	3.0	2.9	2.9	(3.5)N	(2.5)A	2.7	2.7	2.6	(2.6)JS	2.7	2.8	2.8	2.8	2.9	2.7	2.8	2.7S	SC
26	2.7	(2.6)J	2.8	2.8	(2.9)J	3.0	2.9	2.5	2.8	2.6	2.6	2.7	2.7	2.8	2.8	2.7	2.7	3.0	2.9	(3.1)JS	3.0	2.8	SC	(2.8)A
27	2.8	(2.7)J	2.8	2.8	2.9	3.0	3.0	3.0	(2.9)J	3.1	(3.0)A	2.8	2.7	(2.8)C	(2.7)C	2.8	(2.8)JS	3.1	2.9	2.9	2.8	(2.8)J	(2.9)JS	(2.9)J
28	(2.7)J	3.0	2.8	2.8	2.9	2.9	3.1	2.9	(2.7)J	2.8	(3.0)J	2.8	2.8	3.0	2.8	2.8	2.8	3.0	2.9	(3.0)J	(2.8)J	2.8	2.9	(3.1)J
29	(2.7)J	(2.6)J	2.6	2.6	2.7	3.0	3.2K	2.7K	GK	2.2K	2.7K	2.5K	GK	CK	(2.6)CK	BK	(2.7)JK	(2.7)JK	2.9K	2.9K	2.8	(2.8)JS	(2.7)J	(2.7)J
30	(2.6)JF	2.7	2.6	2.6F	(2.8)JF	2.7FK	(2.7)FK	2.6K	2.6K	2.5K	2.5K	2.5K	2.6K	2.5K	2.7K	2.7K	2.6	2.8	(2.9)J	2.8	(2.9)JF	2.5	2.6	(2.9)JS
31	(2.6)J	(2.6)J	2.8	2.6	2.6K	2.8K	(2.7)JK	2.4FK	2.5K	2.5FK	GK	GK	CK	CK	2.6K	2.3K	2.6K	(2.7)JK	2.9FK	2.8K	K(2.8)JF	FK(2.7)JS	(2.7)JK	2.8K
Median	2.7	(2.8)	2.8	2.8	2.8	2.9	3.0	2.9	2.8	2.9	2.8	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.9	2.9	2.8	2.8	2.8	(2.8)
Count	30	30	29	30	30	30	29	30	29	30	29	28	26	26	29	28	28	29	30	29	28	28	28	29

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 68

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

IONOSPHERIC DATA

FI-M3000 (Characteristic), ____ (Unit), July (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.J.S., J.S.T.

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 S	Q	C	3.7	C	C	3.8 H	3.7	(3.4) C	L H	L	Q					
2							Q	L K	3.4 K	4.1 HK	3.6 K	A K	A K	A K	3.3 K	(3.9) SK	(3.4) SK	3.5 K	Q K					
3							Q	3.3	3.7	A	A	3.8	3.6	3.6	3.4	3.7	3.6 H	L S	Q					
4							Q	Q	L	Q	A	N	3.7	3.6	B	3.4	3.4 H	3.3	L H	L				
5							3.3	3.3 K	K(3.9) SC	K(3.8) SC	C K	A K	A K	3.5 K	3.7 K	A SK	S K	(3.8) SK	S K					
6							L S	3.4	3.7 K	4.0 K	4.2 K	3.7 K	S K	(3.8) SK	S K	S K	S K	C K	L					
7							Q	3.5	L H	3.8	A	3.8	A	(3.6) A	A	A	3.5	3.4	Q					
8							Q K	3.5 HK	(3.3) HK	4.0 K	3.2 K	3.7 K	3.7 K	(3.9) SK	3.5 H	3.5	3.5	3.5	L					
9							Q	L	L	3.7	L	(3.9) H	(3.7) H	4.1	A	L	(3.8) CW	L H	L H					
10							Q K	Q K	K(3.8) JH	C K	C K	C K	(3.6) CK	C K	C K	3.5	3.6	L	L	C				
11							C	C	C	C	C	3.8	3.7	C	C	C	3.7 H	(3.4) H	L					
12							L	Q	(3.6) S	3.8	(3.7) H	3.4	3.6	3.8	4.2	4.0	3.6	4.1	L					
13							Q	3.6	3.6	3.5	A	3.8	(4.4) P	A	(4.1) A	S	3.5	3.7	L					
14							Q	3.7	[3.5] C	3.7	3.8	3.7	3.7	3.7	3.7	3.7	3.9	L	L					
15							A	3.6	3.8	3.8	4.0 H	3.8	3.7	3.5	3.6	3.6	3.6	3.9 H	L					
16							L	3.5	3.6	3.5 H	3.4	3.7	(4.0) H	3.4	3.6	3.9	3.5	3.5	L					
17							3.2	3.4	3.5	L	3.6	3.6	3.4	3.5	3.8	3.8 H	3.5	3.8	A					
18							L	A	L	3.5 H	4.2 H	3.8	3.8 H	4.7	3.6	3.9	(3.3) C	4.2	L					
19							Q	3.8	(3.5) C	3.8	3.2	4.0	3.9	3.7	(3.9) C	3.5	3.5	3.5	L					
20							Q	L	3.8	3.6	3.8	3.6	3.9	(3.3) C	3.5 H	3.5	3.3 H	3.6	L					
21								3.9	3.6	3.5 H	3.6	3.8	3.8	(4.2) H	3.8	C	C	C	C					
22							Q K	(4.0) HK	3.8 HK	3.9 K	4.2 K	4.0 K	3.9 K	3.7 HK	4.1 K	4.0 K	3.8 HK	3.9 K	3.6 K					
23							Q	L	3.6	3.1	3.8	3.8	3.7	4.0	3.6	A	A	3.4	A					
24							Q	Q	A	A	3.8	3.5	3.7	(3.7) A	3.7	(3.4) A	3.8	L	Q					
25							Q	Q	3.7 H	N H	A	3.6	4.0	4.0	(3.8) S	A	3.5	3.6	L					
26							Q	3.1	3.6	3.7	3.4	3.4	3.8	3.7	3.9	3.3	3.3	L	L					
27							Q	L	3.5	3.7	A	3.7	3.6	(3.4) C	C	C	3.6	L	L					
28							Q	Q	3.4	3.8	3.6	4.0	(3.7) C	4.0 H	3.4	3.3	3.4	L	L					
29							2.8 K	3.7 FK	4.0 K	3.2 K	4.0 K	4.0 K	3.8 K	(3.8) CK	(4.1) CK	B K	3.5 HK	(3.0) CK	Q K					
30							L K	3.6 K	3.8 K	3.7 K	3.9 K	3.7 K	3.7 K	3.9 K	3.6 K	4.0 K	3.7	3.5	Q					
31							2.9 K	3.5 FK	3.7 K	3.2 K	3.8 K	3.8 K	C K	C K	3.6 K	3.5 K	3.7 K	L FK	Q K					
Median							-	3.5	3.6	3.7	3.8	3.8	3.7	3.7	3.7	3.6	3.5	3.5						
Count							4	17	24	23	21	26	25	26	24	20	26	19	1					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 702519

Form adopted June 1946

TABLE 69

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

IONOSPHERIC DATA

E-M1500 (Characteristic), ____ (Unit), July (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.J.S., J.S.T.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	4.1	4.3	A	C	4.4	C	(4.4)C	4.4	4.3	4.3	4.5	4.5H	4.3	(4.4)A				
2						4.4	4.3H	AK	4.4K	4.5K	(4.6)AK	AK	4.6K	AK	4.7K	(4.6)AK	4.1K	4.3K	4.4K	(4.4)AK				
3							4.4F	A	4.2	4.5	4.5	4.3	A	4.3	A	4.5	4.3	A	4.3	(4.4)A				
4							4.5	A	(4.7)A	A	(4.6)A	B	B	4.6	B	4.4	4.3	4.2	4.4H	4.1				
5							A	4.3K	4.7K	(4.4)AK	4.3K	4.5K	(4.5)AK	AK	(4.4)AK	4.5K	4.1K	4.4K	4.1K	S				
6						4.5	AS	A	4.5K	(4.4)AK	4.5K	(4.6)AK	(4.6)AK	AK	ASK	(4.5)AS	(4.3)SK	CK	S	(4.3)AS				
7							4.4H	A	4.2H	4.4	A	A	(4.7)A	(4.6)A	A	A	4.3	4.4	4.1	4.3				
8							4.0K	4.3K	4.9K	4.3K	AK	(4.6)AK	4.4K	4.4K	4.4	4.4	4.3	4.4	4.2	A				
9							4.3	4.1	4.3	A	A	A	A	A	(4.6)A	A	4.2	4.3	4.3H	A				
10							CK	4.0K	4.2K	4.3K	(4.2)CK	(4.6)CK	CK	4.4K	(4.5)CK	(4.4)C	4.3	C	4.1	C				
11							C	C	C	C	C	(4.5)A	4.5	C	C	C	(4.4)A	(4.2)A	4.1	A				
12							4.4	A	A	A	A	(4.7)A	4.5	4.8	A	4.7	4.5	4.5	4.4	4.1				
13							4.7	A	4.5A	4.7	4.9	A	A	A	A	A	4.6	4.7	4.4	4.3				
14							A	A	[4.6]C	4.3	C	4.5	4.4	4.3	4.3	4.7	4.2	4.4H	(4.4)A	A				
15							A	4.6	4.7	A	A	A	A	(4.8)A	A	A	AC	4.2H	4.4	A				
16							A	4.9	A	4.7	(4.4)C	4.2	4.2	A	4.5	(4.6)C	A	A	(4.7)A	A				
17							5.0H	4.3	A	4.2	4.5	A	4.4	4.3	4.5	4.4	4.6	A	4.1	A				
18						5.4	4.2	4.3	A	4.1	4.5	4.4	C	4.2	4.4	A	4.2	4.5	4.5	A				
19							4.8	4.4	4.4	4.3	A	4.6	4.5	4.7	(4.4)C	C	4.0	(4.4)C	4.3	(4.1)A				
20							3.9	4.1H	A	C	4.4	C	C	4.4	4.2	4.1	4.1	4.5	4.6	A				
21							(4.5)A	4.7	4.7	4.6	A	A	4.5	(4.7)S	4.5	C	C	C	C	C				
22							(4.3)AK	4.7K	4.5K	4.6K	4.6K	4.5K	4.8K	4.4K	4.4K	4.5K	4.9K	4.5K	4.1K	4.4K				
23							4.5	4.7	4.5	4.5	4.7	(4.8)C	4.6	(4.5)S	4.5	4.6	4.8	A	A	A				
24							4.7	4.5	4.5	4.5	A	A	A	A	4.4	4.5	4.2	4.4	4.4	3.9				
25						A	4.2F	4.0	4.4	A	A	A	A	4.4	4.3	4.3	4.2	4.1	A	4.7				
26						A	A	4.6	A	A	4.5	A	(4.4)C	4.4	(4.4)C	4.5	(4.3)C	4.2	4.4	4.3				
27						4.7	4.7	4.5	4.4	4.3	A	A	A	4.4	C	C	4.3	A	4.4	A				
28							4.5	A	4.5	A	4.5	(4.4)A	4.5	4.3	4.2	4.4	4.3	4.4	4.3	A				
29							4.6K	AK	(4.5)BK	AK	AK	AK	4.5K	(4.5)CK	4.4K	BK	4.3K	4.5K	4.4K	3.8K				
30							4.6K	AK	4.3K	4.5K	4.5K	4.5K	AK	AK	4.5K	AK	(4.6)A	A	4.4	A				
31							4.4K	4.5K	4.5K	AK	4.5K	4.4K	CK	CK	(4.4)SK	(4.3)SK	(4.3)SK	4.2K	4.4K	AK				
Median							4.4	4.4	4.5	4.4	4.5	4.5	4.5	4.4	4.4	4.5	4.3	4.4	4.4	4.3				
Count						4	23	19	23	19	18	16	18	21	22	20	28	22	27	14				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702510

Table 70

Ionospheric Storminess at Washington, D. C.

July 1948

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	2	3			2	2
2	2	5	1200	---/	2	2
3	1	3	---/	0100	2	3
4	1	2			2	4
5	1	5	1200	2400	3	3
6	2	4	1300	2300	2	2
7	1	1			2	2
8	2	4	1100	1900	3	2
9	1	3			2	2
10	1	4	1100	2000	3	2
11	***	2			2	2
12	1	2			3	2
13	1	2			2	2
14	1	1			4	3
15	2	2			2	3
16	1	1			3	3
17	2	3			3	3
18	1	3			2	2
19	1	1			1	1
20	1	1			1	2
21	0	1			2	3
22	2	4	1100	---/	2	1
23	1	3	---/	0100	2	2
24	1	3			2	1
25	1	3			2	2
26	1	0			2	3
27	1	1			2	2
28	1	1			1	3
29	2	4	1100	2400	4	2
30	2	4	1000	2100	3	3
31	1	5	1100	---/	4	3

*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 59 for detailed explanation.

/Dashes indicate continuing storm.

Table 71

Sudden Ionosphere Disturbances Observed at Washington, D. C.

July 1948

Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
4	1853	1920	Ohio, D.C.	0.0	
5	1404	1530	England	0.1	
5	1900	1945	Ohio, D.C., England, New Brunswick	0.05	
6	1503	1600	Ohio, D.C., England, New Brunswick	0.02	
26	1340	1430	Ohio, D.C., England	0.1	
29	1248	1310	Ohio, D.C., England	0.1	Terr.mag.pulse** 1240-1255
29	1950	2025	Ohio, D.C., England, New Brunswick	0.05	

*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 July 5.

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

Table 72

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
June 25	0850	1000	Brentwood	Austria, Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Malta, Palestine, Southern Rhodesia, Spain, Switzerland, Syria, Yugoslavia, Zanzibar
July 1	1047	1105	Brentwood	Bahrein I., Belgian Congo, Bulgaria, Canary Is., Greece, India, Kenya, Palestine, Portugal, Spain, Switzerland, Syria, Trans-Jordan, Turkey, Zanzibar
6	1525	1540	Brentwood	Austria, Colombia, France, Greece, Portugal, Spain, Syria, Turkey, U.S.S.R., Yugoslavia

Table 73

Sudden Ionosphere Disturbances Reported by

RCA Communications, Inc., as Observed

at Point Reyes, California

1948 Day	GCT Beginning	End	Location of transmitters
July 29	1956	2030	Australia, China, Hawaii, Japan, Philippine Is.

Table 74

Sudden Ionosphere Disturbances Reported by

International Telephone and Telegraph Corporation,

as Observed at Platanos, Argentina

1948 Day	GCT Beginning	End	Location of transmitters
May 4	1353	1425	Bolivia, Brazil, Chile, England, Germany, New York, Peru, Switzerland, Venezuela
7	1755	1845	Bolivia, Brazil, Chile, England, France, Germany, Netherlands, New York, Peru, Spain, Venezuela
18	1653	1715	Bolivia, Brazil, Chile, Colombia, Netherlands, New York, Spain, Venezuela
21	1130	1624	England, Germany, New York, Switzerland

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 75

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

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

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.
**In addition to dates marked X, the following were designated as probable disturbed days on forecasts more than 8 days in advance of said dates: June 5, 6, 18, 19 and 26.

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 76

American and Zürich Provisional Relative Sunspot Numbers

July 1948

Date	R_A*	R_Z**	Date	R_A*	R_Z**
1	164	161	16	183	133
2	149	146	17	151	123
3	158	142	18	163	107
4	154	114	19	143	105
5	151	115	20	150	107
6	132	95	21	166	128
7	135	112	22	171	132
8	138	121	23	173	139
9	156	118	24	207	128
10	191	135	25	221	154
11	213	163	26	219	183
12	218	171	27	196	170
13	234	163	28	217	158
14	211	118	29	236	178
15	197	151	30	259	192
			31	256	212
			Mean:	184.3	141.1

*Combination of 44 observers; see page 8.

**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 77a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
GCT	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																																						
July 1.6	-	-	-	-	-	-	-	-	-	-	-	-	5	9	13	12	12	13	11	11	14	14	12	12	12	13	3	-	-	-	-	-	-	-	-	-	-	0
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	5	10	14	13	12	14	17	15	13	12	10	8	8	8	-	-	-	-	-	-	-	-	-	-	0
4.6	-	-	-	-	-	-	-	-	-	-	-	-	5	9	13	16	15	10	8	15	13	12	12	13	10	-	-	-	-	-	-	-	-	-	-	-	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	8	11	15	19	17	8	5	7	9	9	8	8	9	5	-	-	-	-	-	-	-	-	-	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	4	6	9	14	7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	18	22	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
8.6	-	-	-	-	-	-	-	-	-	-	-	-	5	11	12	14	15	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	10	13	12	11	10	10	11	12	10	8	7	5	-	-	-	-	-	-	-	-	-	-	-	-	0
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	7	9	10	5	5	5	8	12	10	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	-	-	-	2	3	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12.7	-	-	-	-	-	-	-	-	-	-	7	8	8	-	-	-	-	-	-	6	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
13.7	-	-	-	-	-	-	-	-	-	3	9	11	8	8	9	10	9	9	7	8	11	12	10	7	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
14.8	-	-	-	-	-	-	-	-	-	-	3	8	9	8	8	8	9	9	8	8	9	10	12	11	9	-	-	-	-	-	-	-	-	-	-	-	-	/5
15.7	-	-	-	-	-	-	-	-	-	10	14	15	15	16	17	17	15	14	15	16	18	19	23	17	10	-	-	-	-	-	-	-	-	-	-	-	-	/5
16.7	-	-	-	-	-	-	-	-	7	9	10	11	11	12	14	13	12	12	12	14	13	12	13	13	10	8	-	-	-	-	-	-	-	-	-	-	-	/5
17.6	-	-	-	-	-	-	-	-	-	-	7	9	10	8	9	10	9	10	9	8	10	10	13	13	10	7	-	-	-	-	-	-	-	-	-	-	-	/5
19.7	-	-	-	-	-	-	-	-	-	-	5	8	10	9	9	9	10	13	12	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
20.9	-	-	-	-	-	-	-	-	-	-	-	7	9	8	-	-	7	10	9	8	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	8	9	9	7	8	9	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	7	7	-	-	-	6	11	11	8	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
24.8	-	-	-	-	-	-	-	-	-	-	-	-	4	8	7	6	6	-	-	8	12	13	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
26.0	X	X	X	X	X	X	X	-	-	-	-	-	4	5	6	6	8	6	-	-	10	11	12	10	9	X	X	X	X	X	X	X	X	X	X	X	X	/10
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	5	5	-	-	-	6	8	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
28.0	-	-	-	-	-	-	-	-	-	-	-	-	4	5	4	4	5	5	5	4	5	5	4	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
29.0	X	X	X	X	X	X	X	-	-	-	-	-	-	8	9	9	10	9	7	7	8	7	6	5	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	6	10	8	6	7	7	7	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	8	9	8	9	10	10	9	8	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8	10	9	-	5	8	8	8	7	-	-	-	-	-	-	-	-	-	-	-	-	-	/10

Table 78a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
GCT	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																																						
July 1.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	7	8	12	4	5	10	11	13	8	2	1	1	1	-	-	-	-	-	-	-	-	-	-	0
2.6	-	-	-	-	-	-	-	-	-	-	-	-	1	3	12	11	8	1	9	11	3	5	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0
4.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	10	10	9	7	3	5	8	7	7	3	3	1	1	-	-	-	-	-	-	-	-	-	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	10	12	5	1	1	1	2	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	16	14	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	12	18	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	8	3	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	9	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	2	2	1	1	5	4	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	/5
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	7	8	9	10	5	-	-	-	-	-	-	-	-	-	-	-	-	/5
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
20.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	5	4	3	1	1	14	10	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4	9	9	1	-	-	-	-	-	-	-	-	-	-	-	-	/10
26.0	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	1	5	10	9	5	1	X	X	X	X	X	X	X	X	X	X	X	X	/10
26.6	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	2	3	3	5	4	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	/10
28.0	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
29.0	X	X	X	X	X	X	X	-	-	-	-	-	-	1	1	2	2	3	3	4	5	3	2	1	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
29.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	3	7	9	8	7	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
30.7	-	-	-	-	-	-	-	-	-	-	-	1	1	3	3	3	4	3	3	4	4	4	2	1	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	2	3	4	4	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	/10

Table 77b

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																																						
July 1.6	-	-	-	-	-	-	-	-	-	-	4	6	10	14	20	21	18	12	11	12	13	14	13	13	12	11	10	8	-	-	-	-	-	-	-	-	-	0
2.6	-	-	-	-	-	3	4	3	-	3	4	5	8	10	15	31	32	18	14	15	20	19	18	19	17	14	13	13	6	-	-	-	-	-	-	-	-	0
4.6	-	-	-	-	-	-	-	3	8	10	13	12	11	12	13	14	13	15	13	13	11	7	9	8	5	-	-	-	-	-	-	-	-	-	-	-	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	-	-	6	14	13	11	10	13	12	9	5	-	-	-	-	-	-	-	-	-	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	8	13	17	10	5	10	10	11	11	5	-	-	-	-	-	-	-	-	-	0
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	9	6	8	15	19	19	13	11	11	11	10	8	-	-	-	-	-	-	-	-	-	0
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	10	8	8	7	10	9	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9.6	-	-	-	-	-	-	-	-	-	-	-	-	8	8	9	12	13	12	11	7	8	9	9	9	9	5	-	-	-	-	-	-	-	-	-	-	-	0
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	8	12	9	7	-	-	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	9	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
13.7	-	-	-	-	-	-	-	-	-	-	-	4	4	7	8	10	6	4	4	9	10	9	9	8	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
14.8	-	-	-	-	-	-	-	-	-	-	-	5	8	8	8	7	8	6	5	9	11	11	10	7	7	5	-	-	-	-	-	-	-	-	-	-	-	/5
15.7	-	-	-	-	-	-	-	-	-	-	5	8	9	7	8	11	13	14	12	12	15	17	14	12	5	-	-	-	-	-	-	-	-	-	-	-	-	/5
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	10	9	11	11	10	11	13	11	9	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	8	10	7	5	5	5	6	9	13	12	10	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	10	13	11	10	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
20.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	13	23	20	10	-	-	-	-	-	-	-	-	-	-	-	-	/5
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	9	10	22	18	16	13	10	5	-	-	-	-	-	-	-	-	-	-	/5
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	9	10	10	9	9	11	12	12	12	12	7	-	-	-	-	-	-	-	-	-	-	/5
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	10	10	10	10	10	10	10	10	10	11	8	-	-	-	-	-	-	-	-	-	-	/5
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	8	8	8	7	7	8	9	10	10	10	8	6	-	-	-	-	-	-	-	-	-	/10
26.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	/10
26.6	-	-	-	-	-	-	-	-	-	-	-	-	5	6	7	11	10	9	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
28.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	/10
29.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	/10
29.6	-	-	-	-	-	-	-	-	-	-	-	-	7	9	11	13	14	13	12	9	7	9	9	7	5	5	6	7	7	-	-	-	-	-	-	-	-	/10
30.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	/10
31.7	-	-	-	-	-	-	-	-	-	-	-	-	7	8	10	10	9	9	11	10	9	10	12	8	8	8	8	6	6	5	-	-	-	-	-	-	-	/10

Table 78b

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																																						
July 1.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	6	7	7	1	1	2	5	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	10	9	10	1	1	11	8	8	7	1	-	-	-	-	-	-	-	-	-	-	-	-	0
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	5	5	1	1	1	-	-	-	-	-	-	-	-	-	-	0
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	1	1	1	2	2	2	2	2	1	1	1	-	-	-	-	-	-	-	-	-	0
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	8	6	3	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	1	2	2	7	2	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	2	7	8	7	5	14	13	5	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	5	12	14	13	5	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	1	1	8	9	9	6	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	8	5	2	1	-	-	-	-	-	-	-	-	-	-	-	/5
20.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	14	13	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	12	13	13	2	-	-	-	-	-	-	-	-	-	-	-	-	/5
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	10	8	3	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
26.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	/10
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
28.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	/10
29.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	/10
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	10	-	-	2	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
30.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	/10
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	/10

Table 79a

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

Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
		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	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	2	2	2	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	/10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	/10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/10

Table 79b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		
	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																																						
July 1.6	-	-	-	-	-	-	-	-	1	1	1	1	2	2	3	3	2	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2.6	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	3	4	4	3	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	0
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
20.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
26.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	<10
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
28.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	<10
29.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	<10
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
30.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	<10
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10

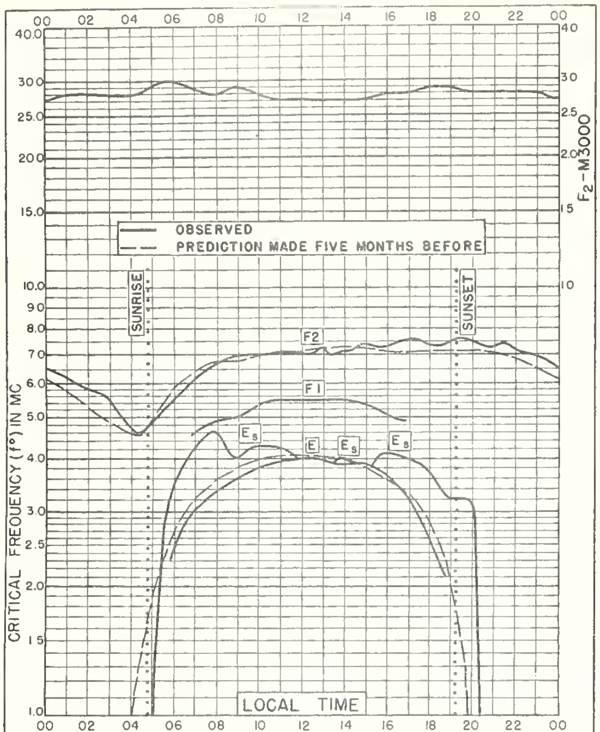

Fig. 1. WASHINGTON, D. C.
39.0°N, 77.5°W JULY 1948

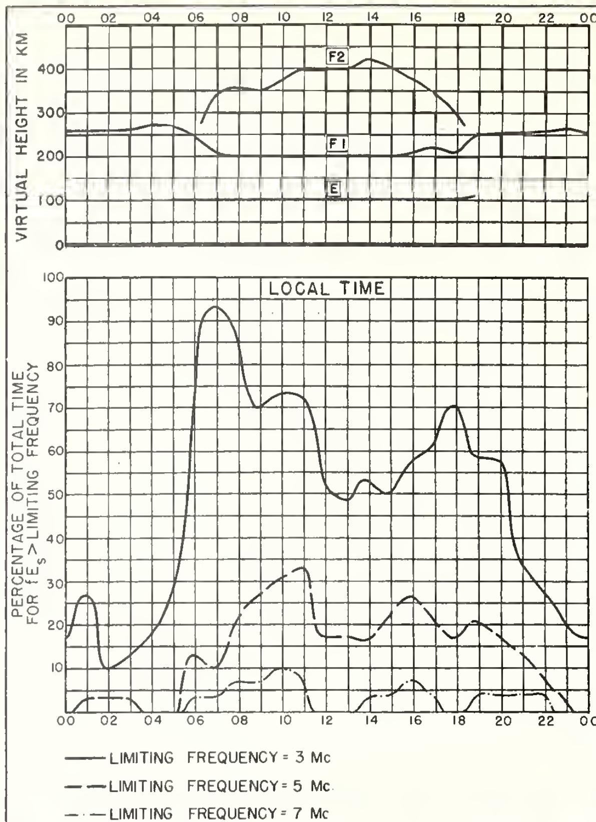

Fig. 2. WASHINGTON, D. C. JULY 1948

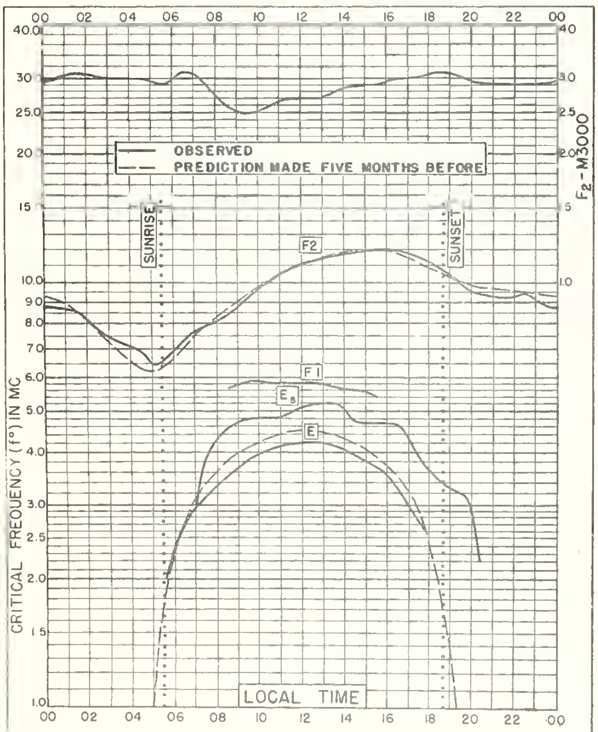

Fig. 3. MAUI, HAWAII
20.8°N, 156.5°W JULY 1948

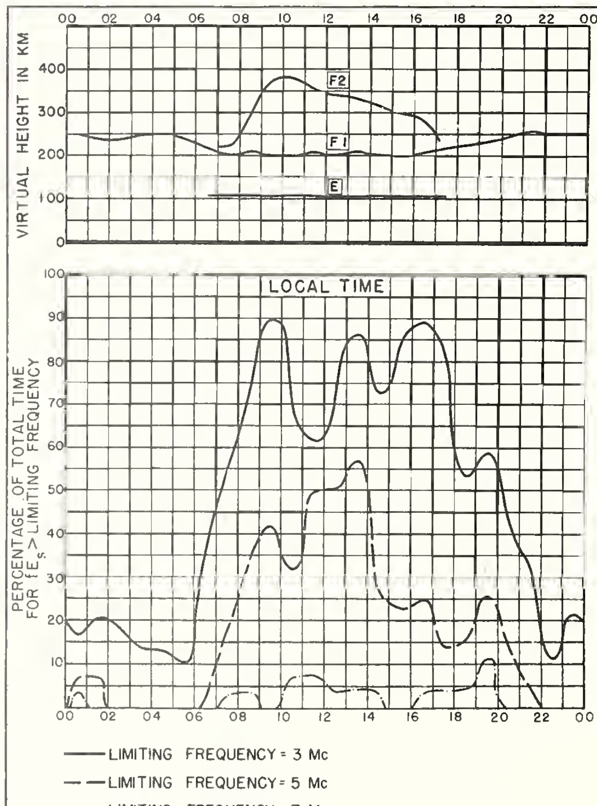

Fig. 4. MAUI, HAWAII JULY 1948

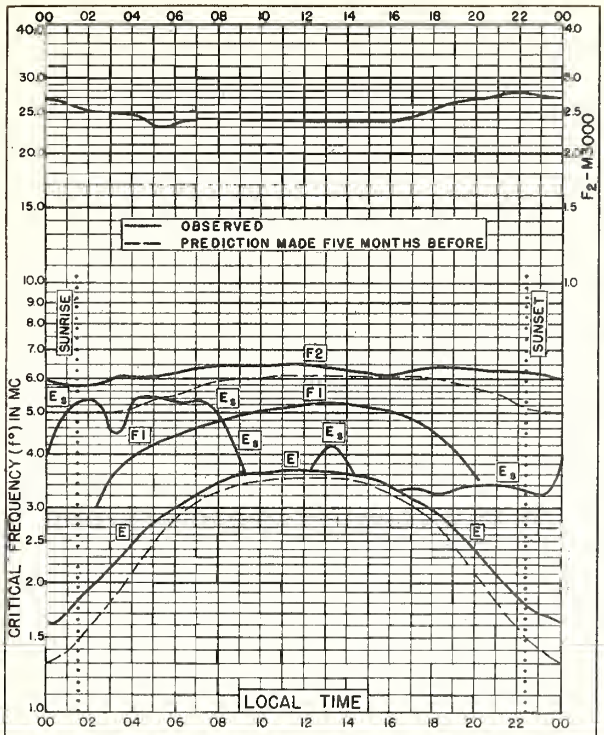

Fig. 5. FAIRBANKS, ALASKA
64.9°N, 147.8°W JUNE 1948

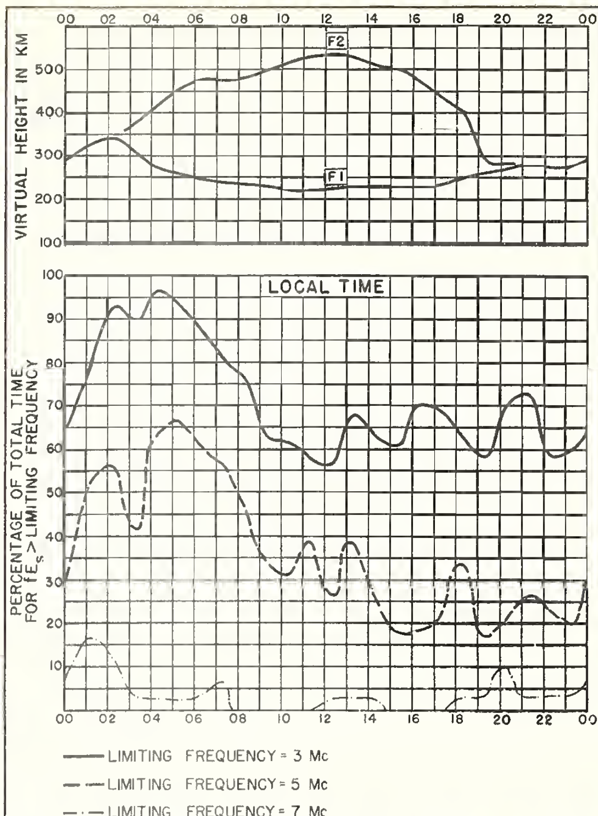

Fig. 6. FAIRBANKS, ALASKA JUNE 1948

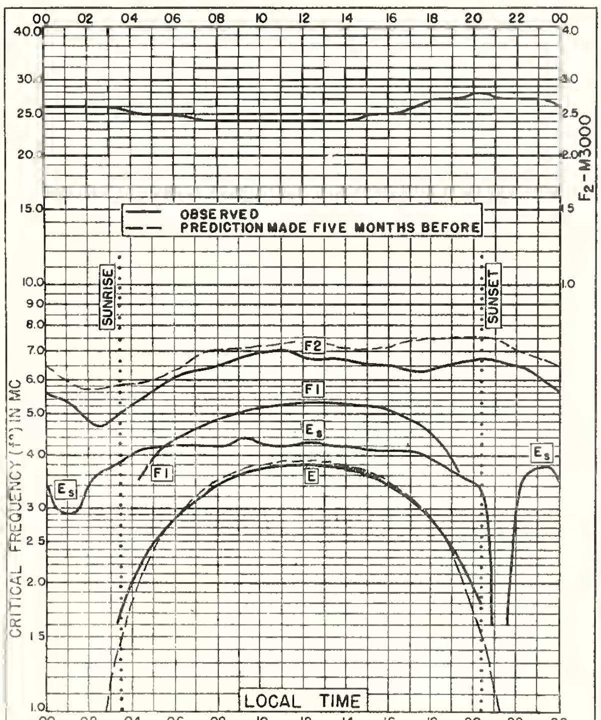

Fig 7. PRINCE RUPERT, CANADA
54.3°N, 130.3°W JUNE 1948

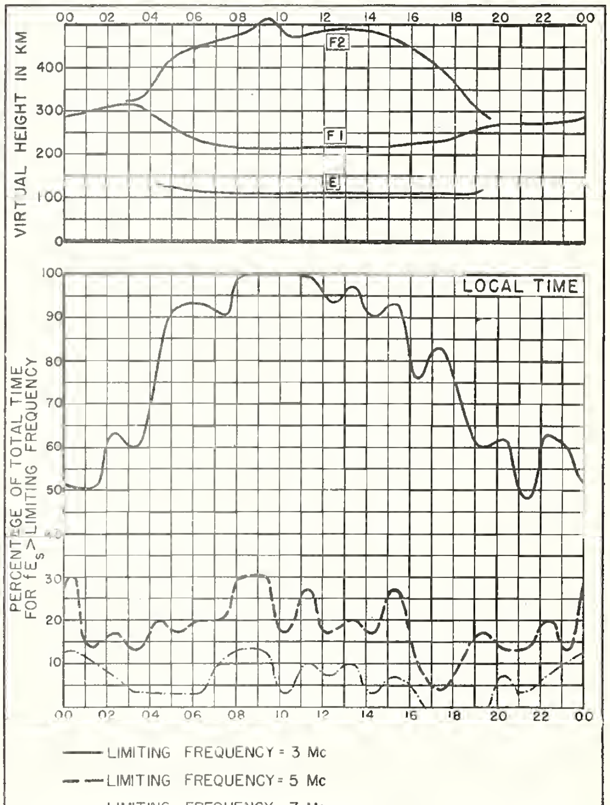

Fig. 8. PRINCE RUPERT, CANADA JUNE 1948

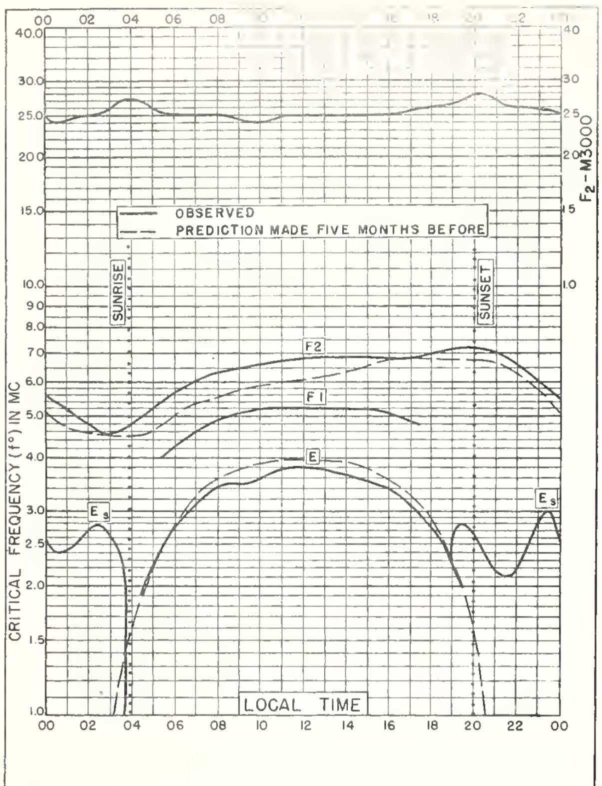

Fig. 9. PORTAGE la PRAIRIE, CANADA
49.9°N, 98.3°W JUNE 1948

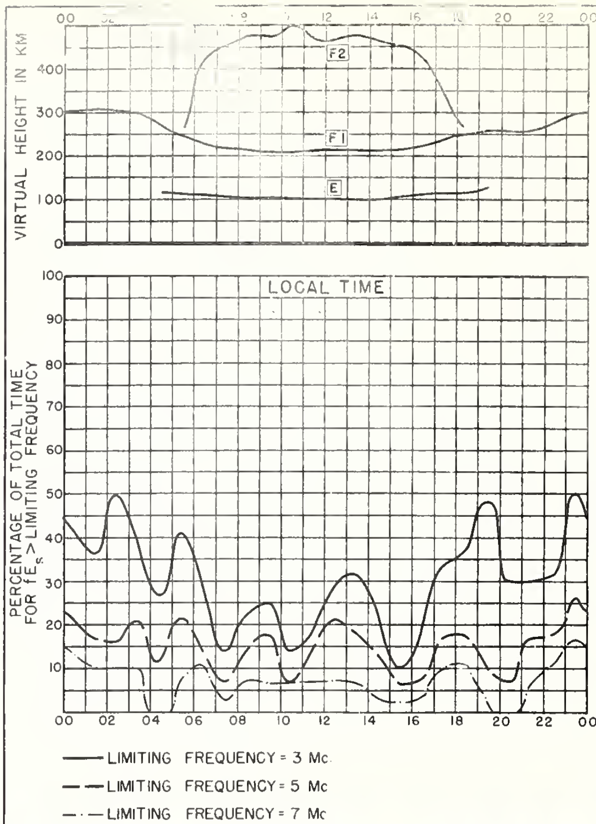

Fig. 10. PORTAGE la PRAIRIE, CANADA JUNE 1948

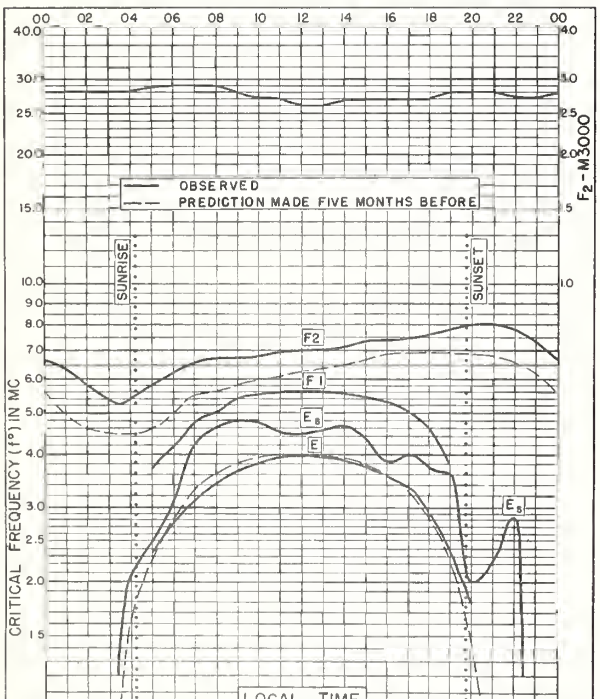

Fig. 11. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JUNE 1948

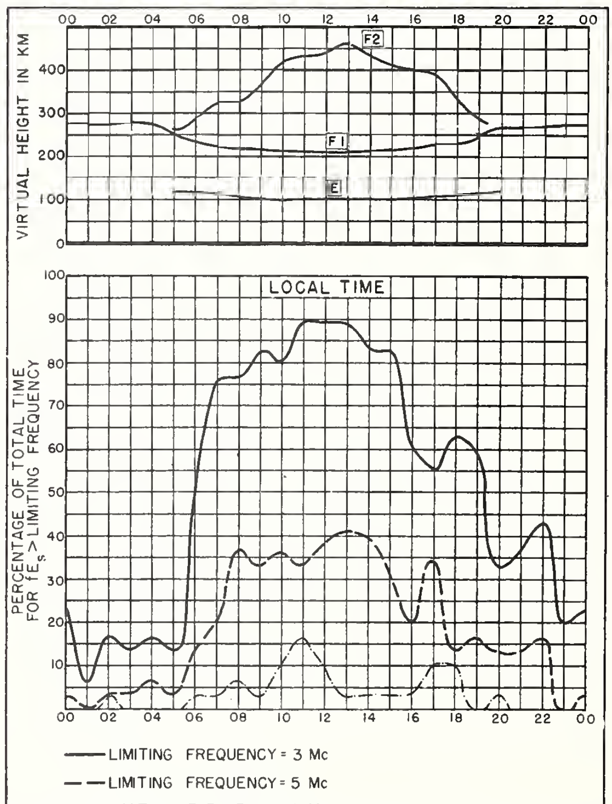

Fig. 12. ST. JOHN'S, NEWFOUNDLAND JUNE 1948

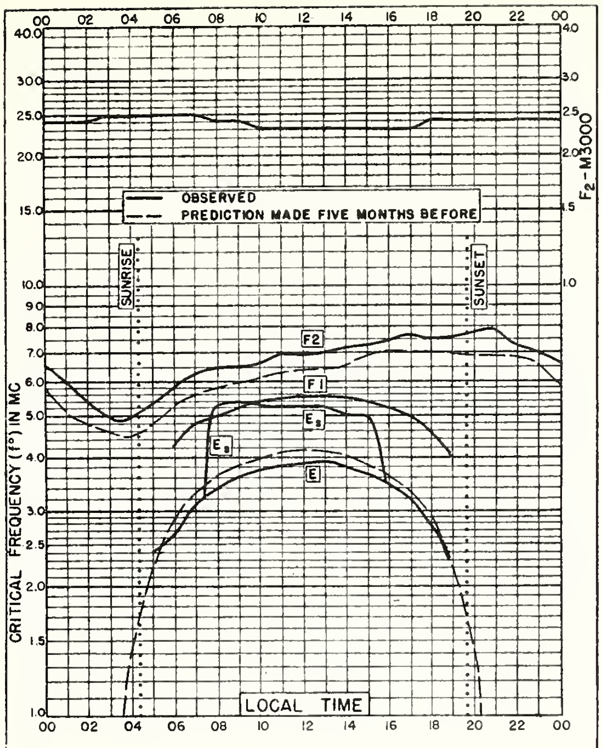

Fig. 13. OTTAWA, CANADA
45.5°N, 75.8°W JUNE 1948

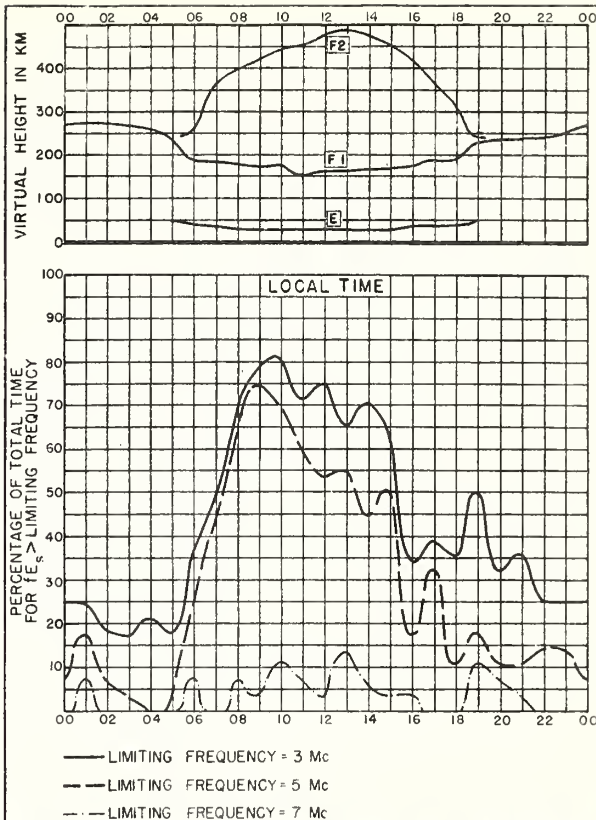

Fig. 14. OTTAWA, CANADA JUNE 1948

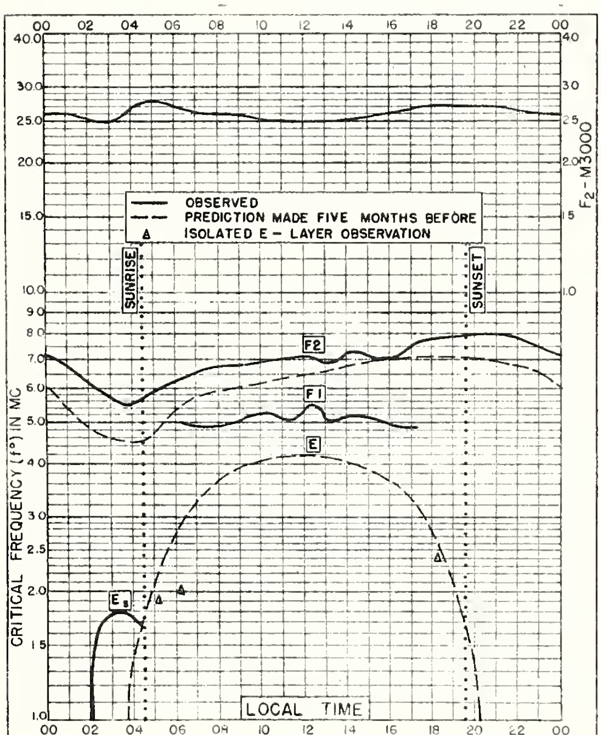

Fig. 15. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W JUNE 1948

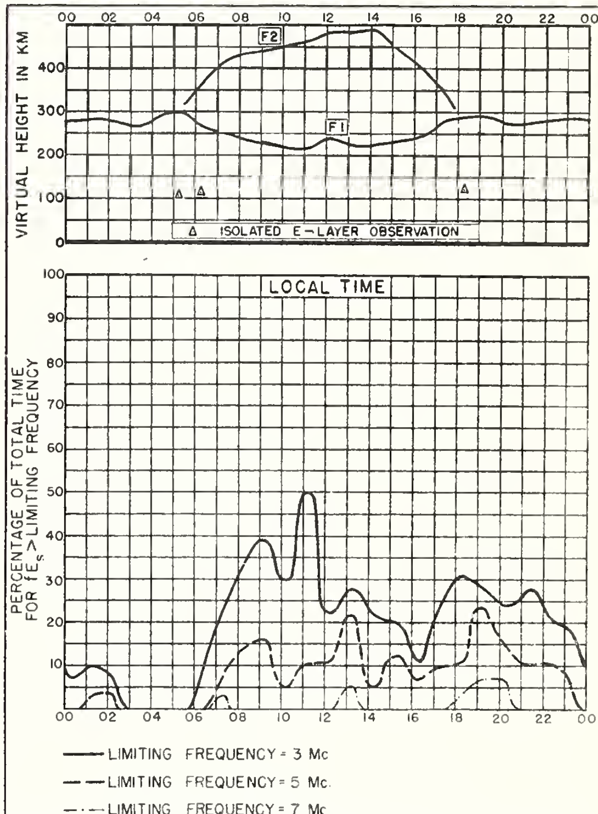

Fig. 16. BOSTON, MASSACHUSETTS JUNE 1948

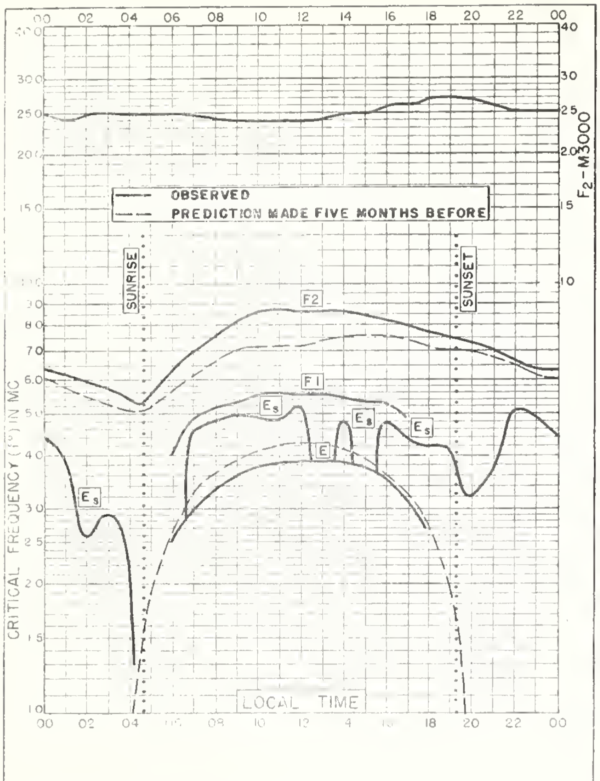

Fig. 17. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JUNE 1948

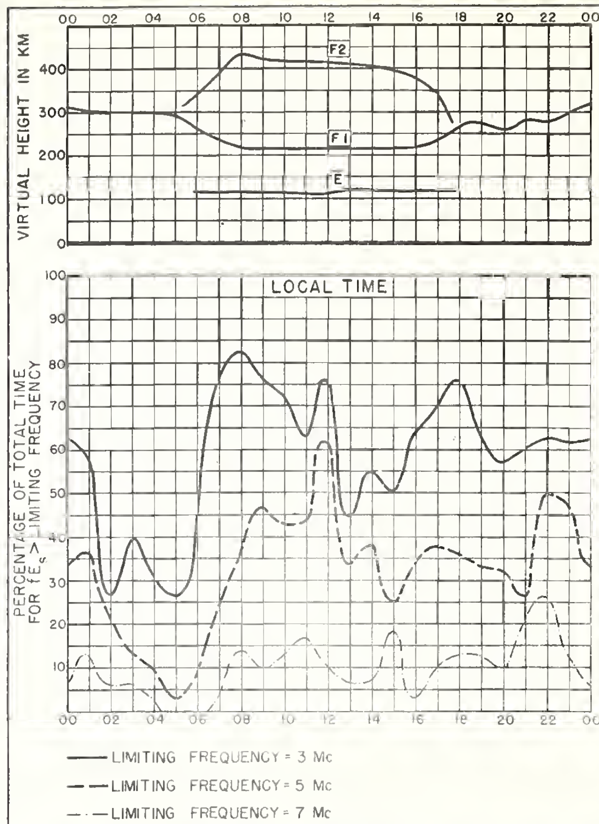

Fig. 18. SAN FRANCISCO, CALIFORNIA JUNE 1948

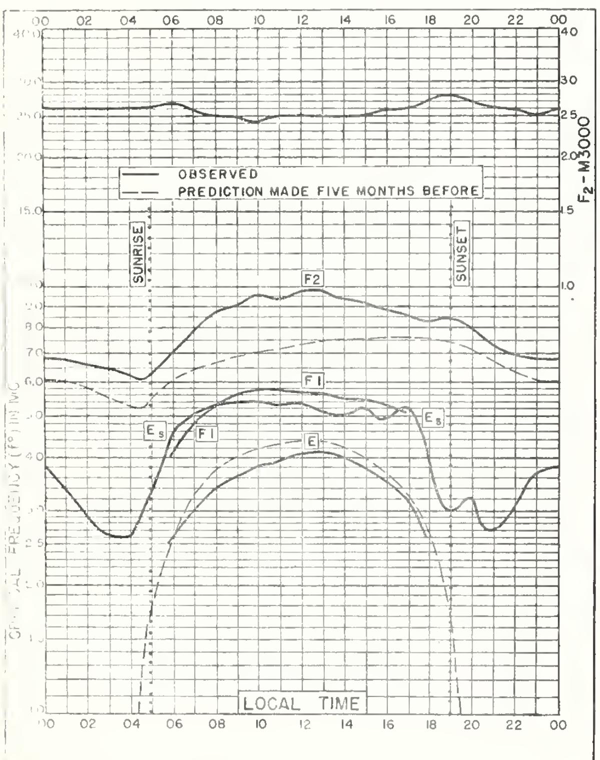

Fig. 19. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JUNE 1948

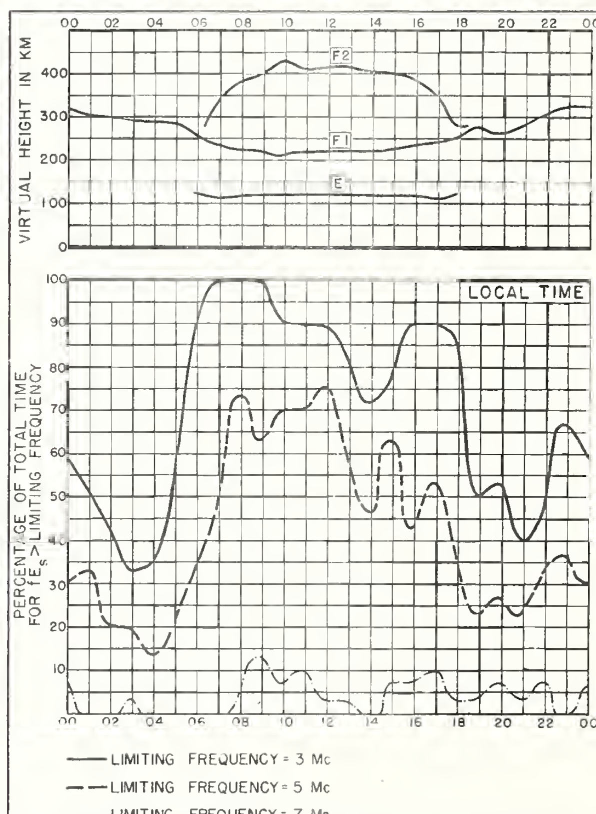

Fig. 20. WHITE SANDS, NEW MEXICO JUNE 1948

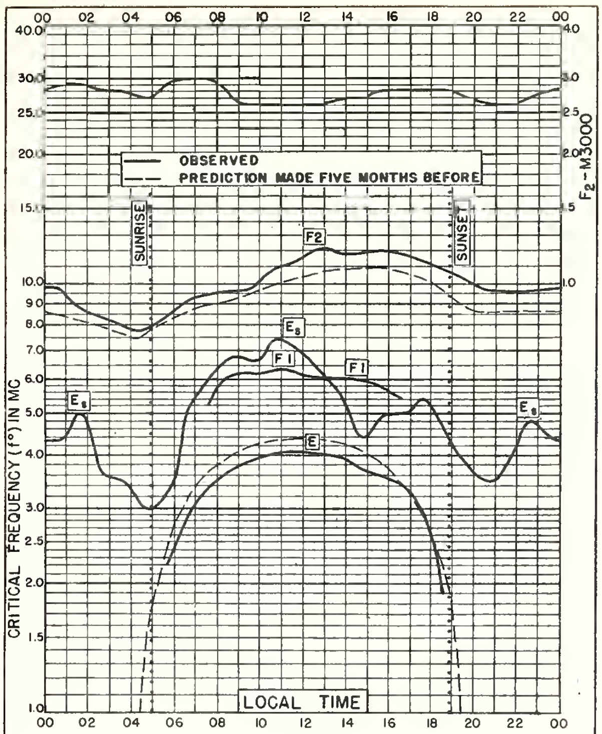

Fig. 21. WUCHANG, CHINA
30.6°N, 114.4°E JUNE 1948

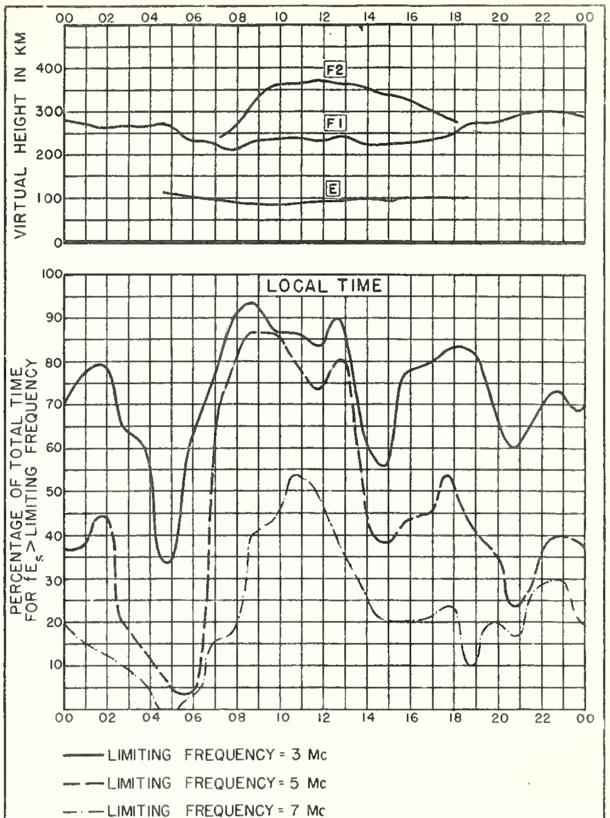

Fig. 22. WUCHANG, CHINA JUNE 1948

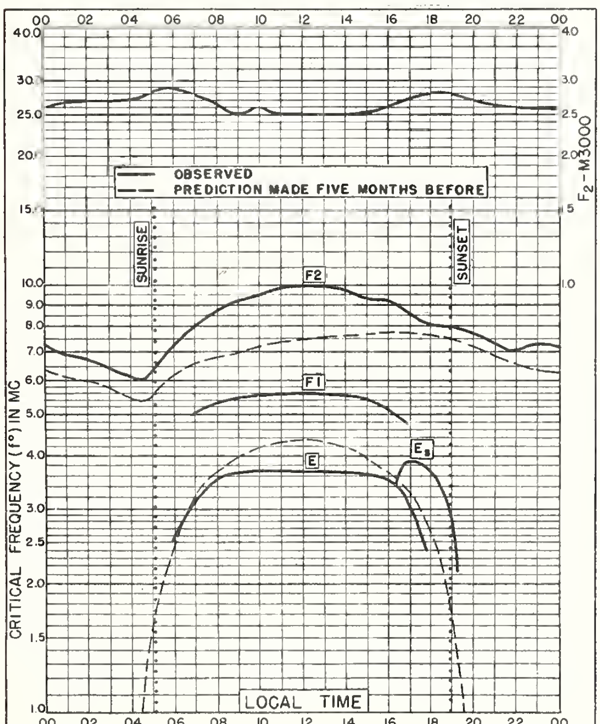

Fig. 23. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W JUNE 1948

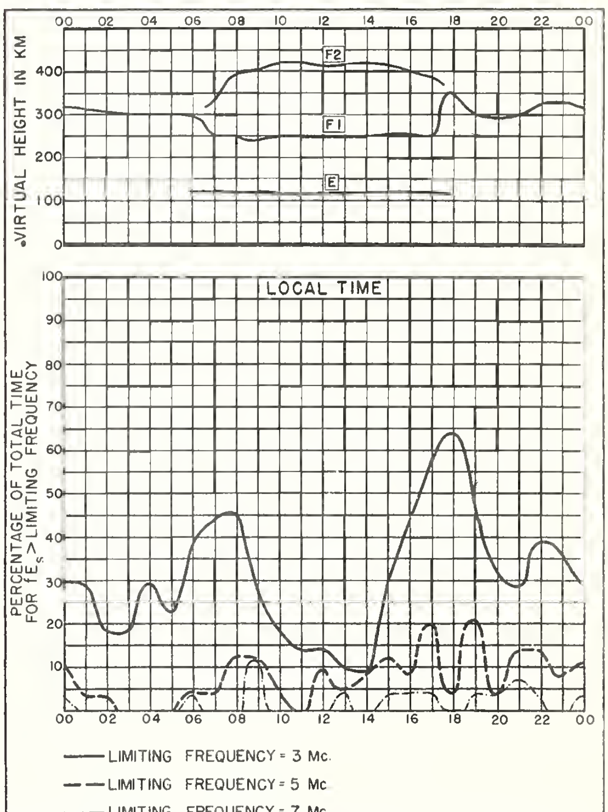

Fig. 24. BATON ROUGE, LOUISIANA JUNE 1948

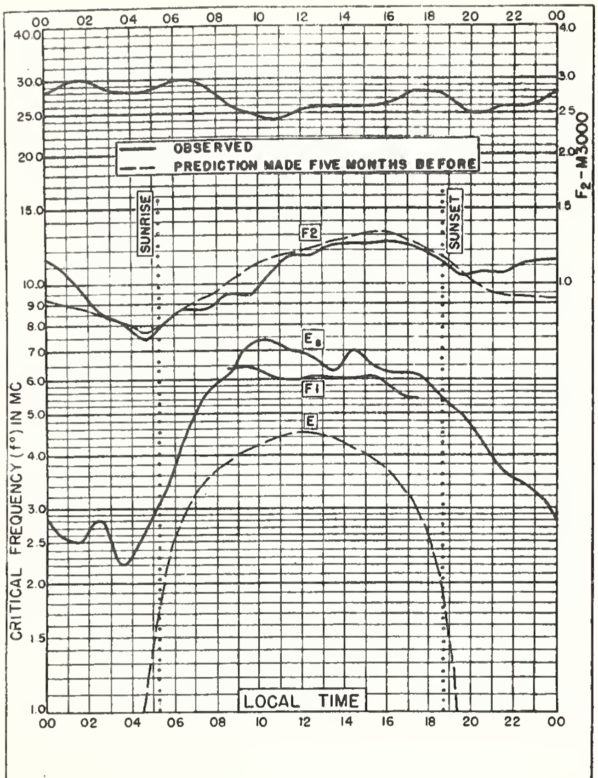

Fig.25. OKINAWA I.
26.3°N, 127.7°E JUNE 1948

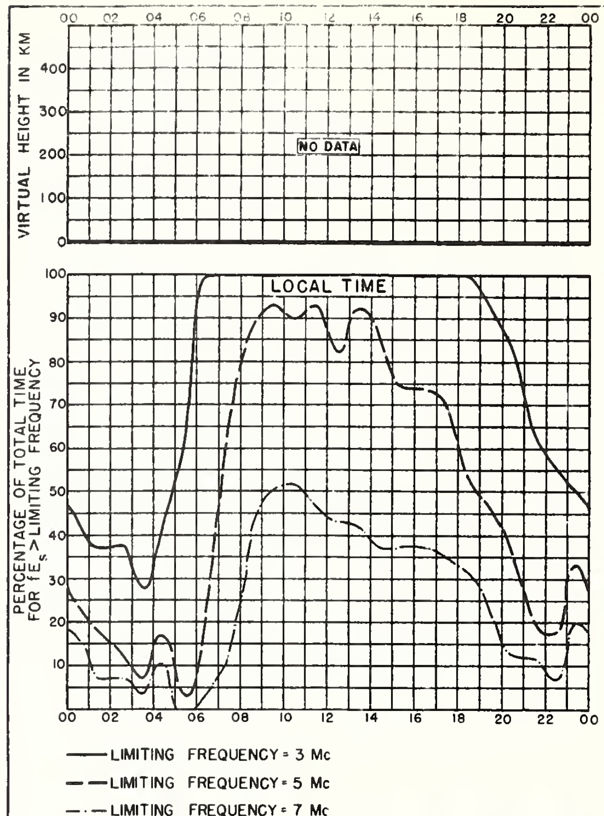

Fig. 26. OKINAWA I. JUNE 1948

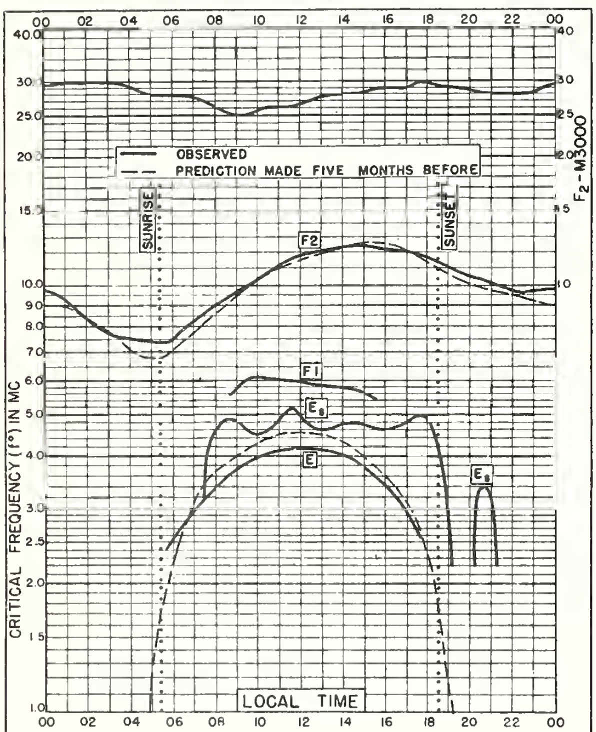

Fig. 27. MAUI, HAWAII
20.8°N, 156.5°W JUNE 1948

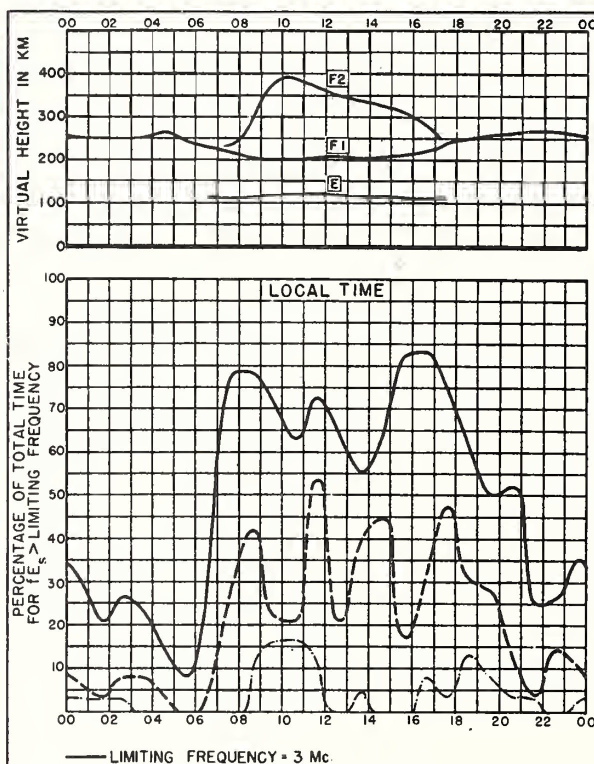

Fig. 28. MAUI, HAWAII JUNE 1948

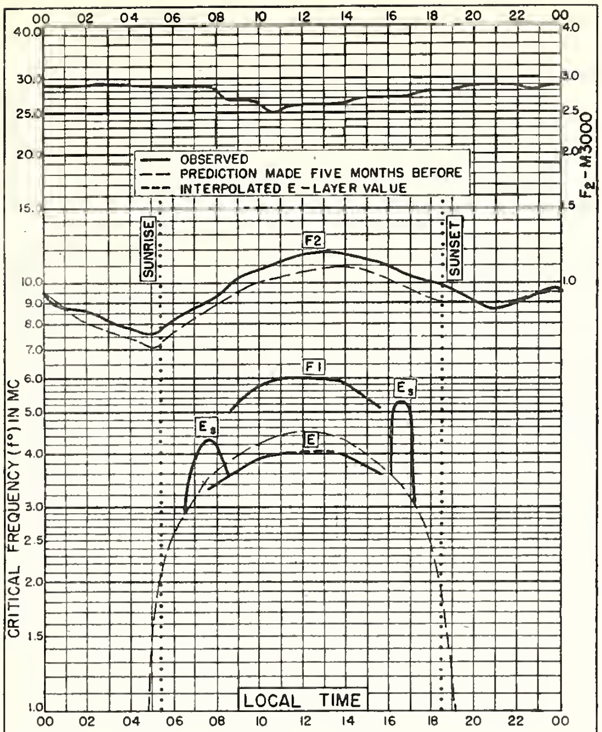

Fig. 29. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W JUNE 1948

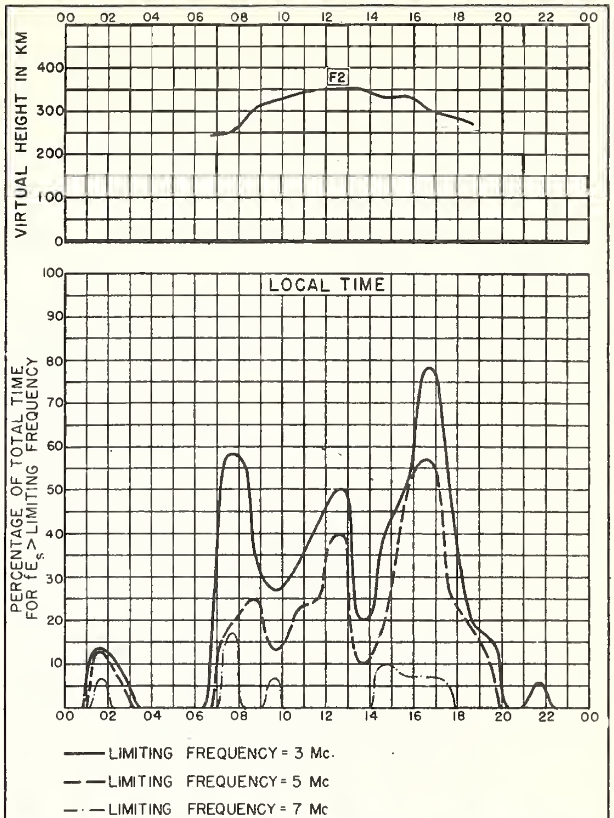

Fig. 30. SAN JUAN, PUERTO RICO JUNE 1948

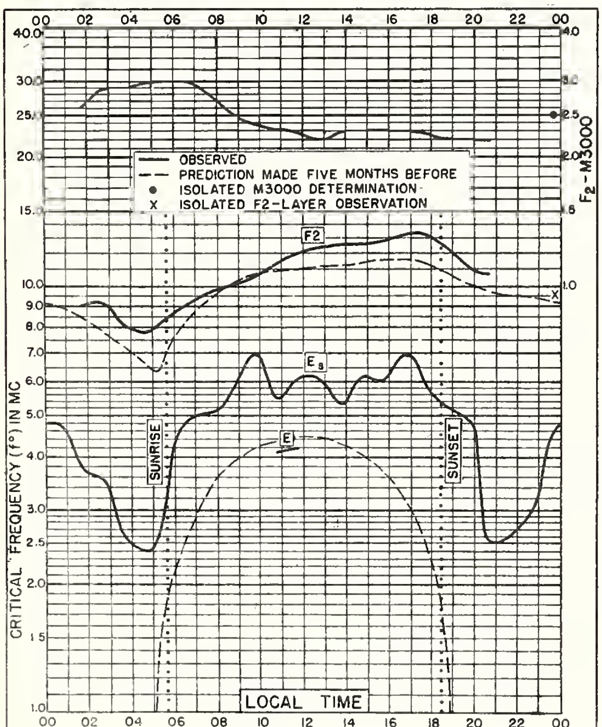

Fig. 31. GUAM I.
13.6°N, 144.9°E JUNE 1948

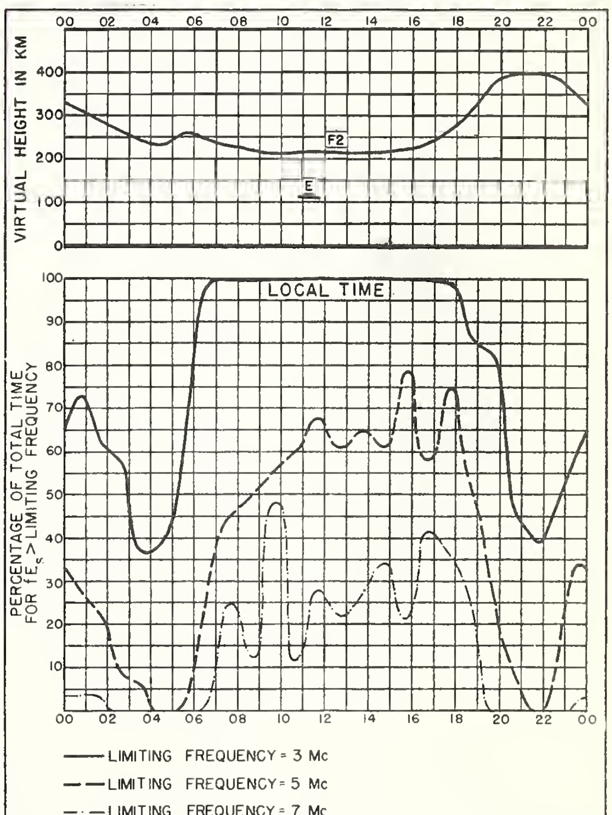

Fig. 32. GUAM I. JUNE 1948

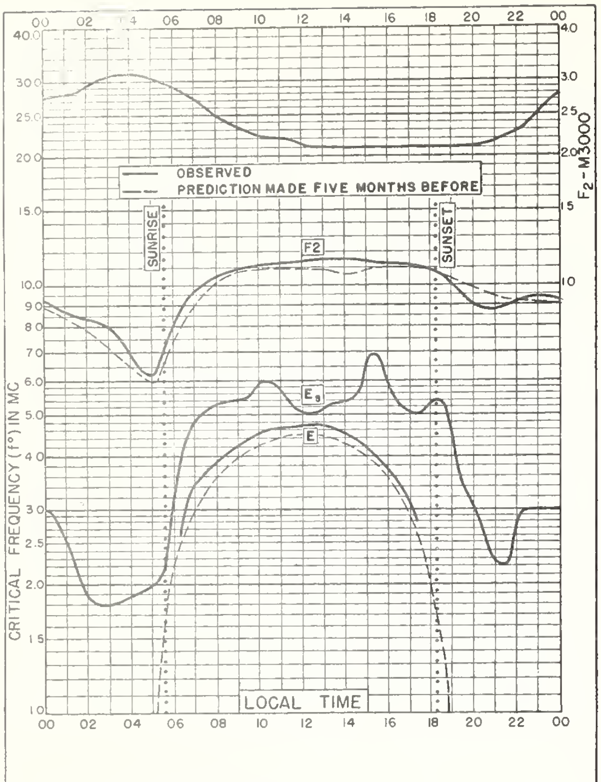

Fig. 33. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E JUNE 1948

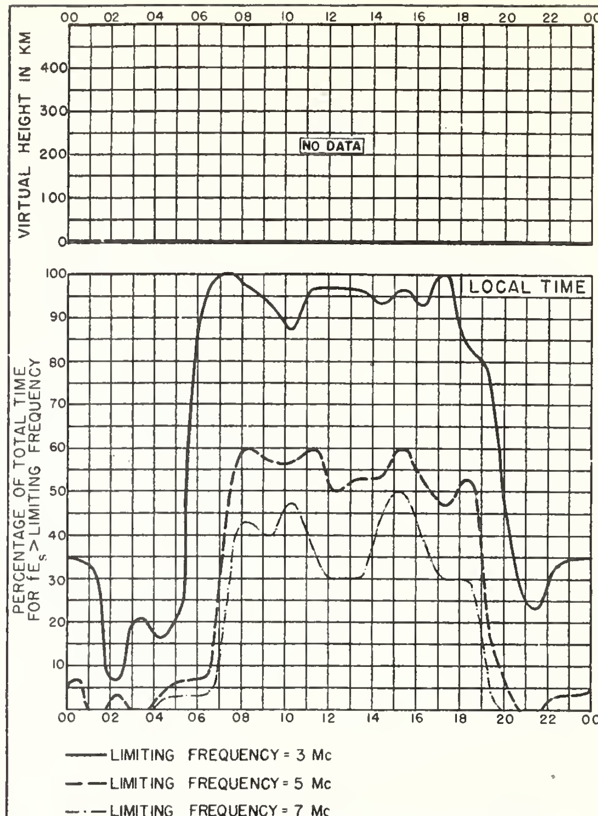

Fig. 34. LEYTE, PHILIPPINE IS. JUNE 1948

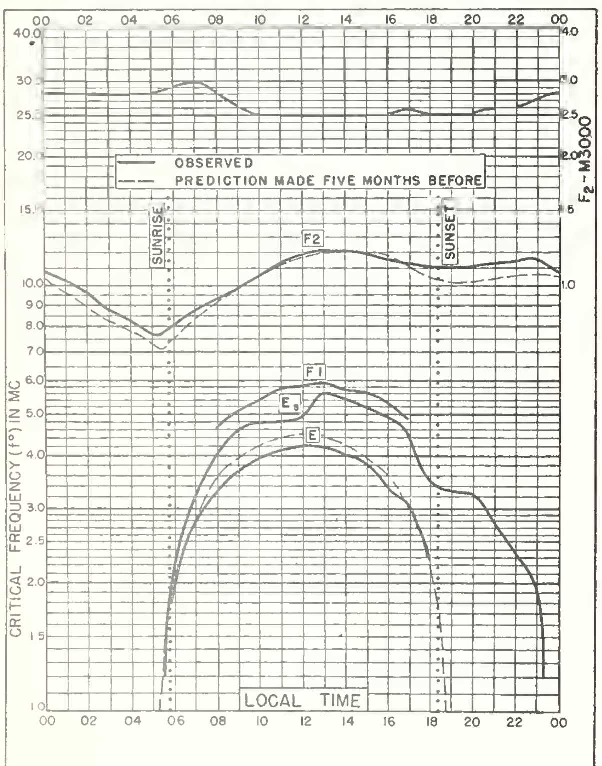

Fig. 35. TRINIDAD BRIT. WEST INDIES
10.6°N, 61.2°W JUNE 1948

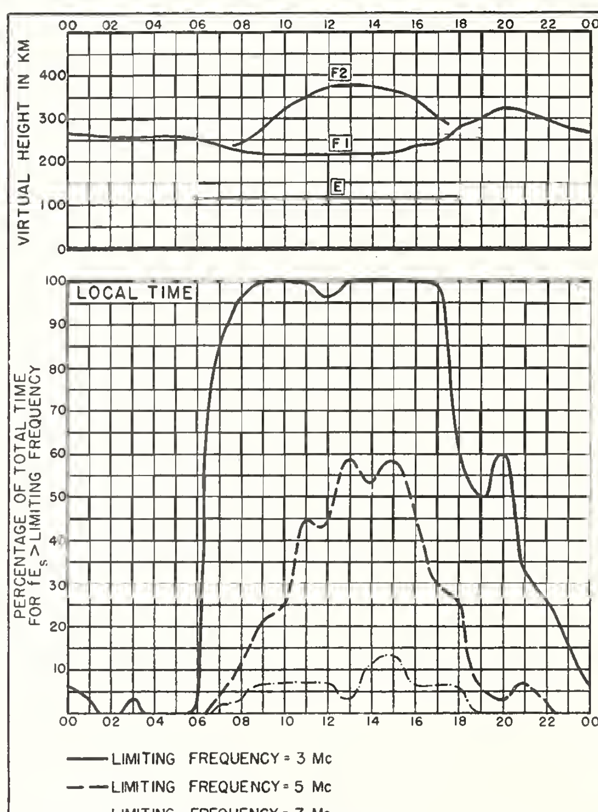

Fig. 36. TRINIDAD BRIT. WEST INDIES JUNE 1948

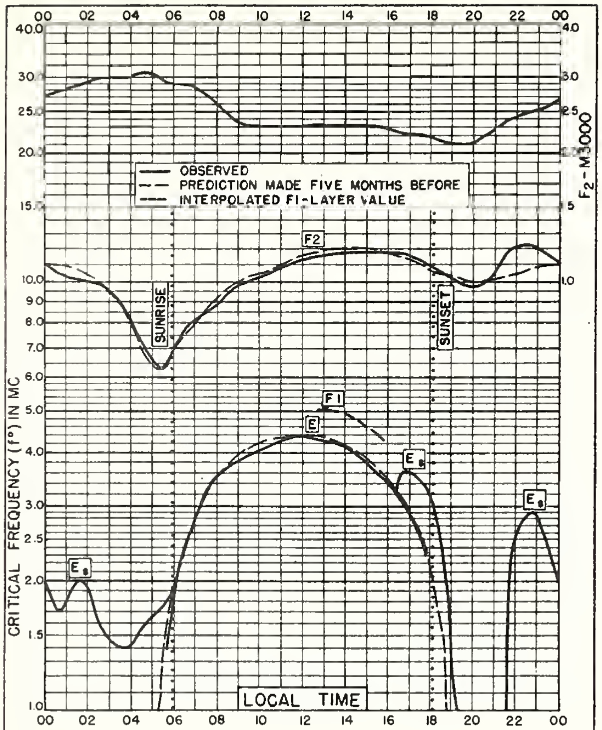

Fig. 37. PALMYRA I.
5.9°N, 162.1°W JUNE 1948

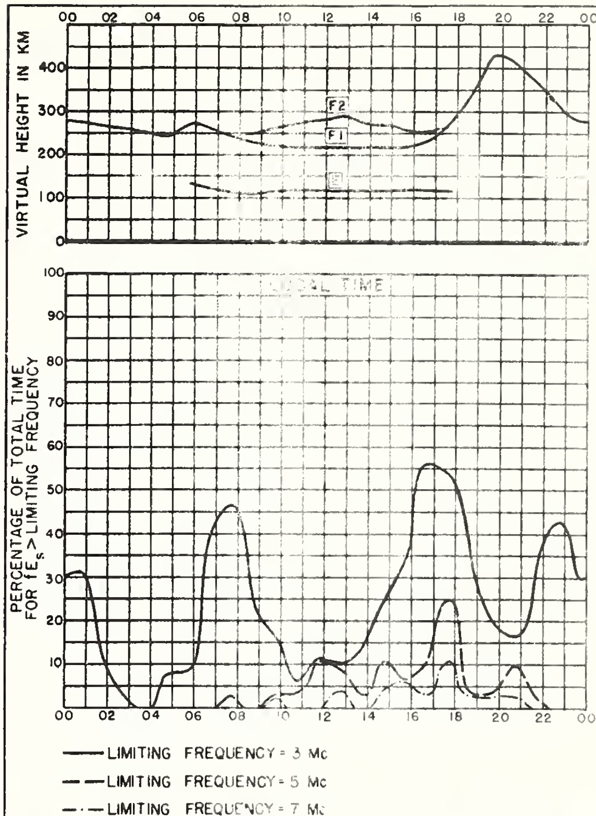

Fig. 38. PALMYRA I JUNE 1948

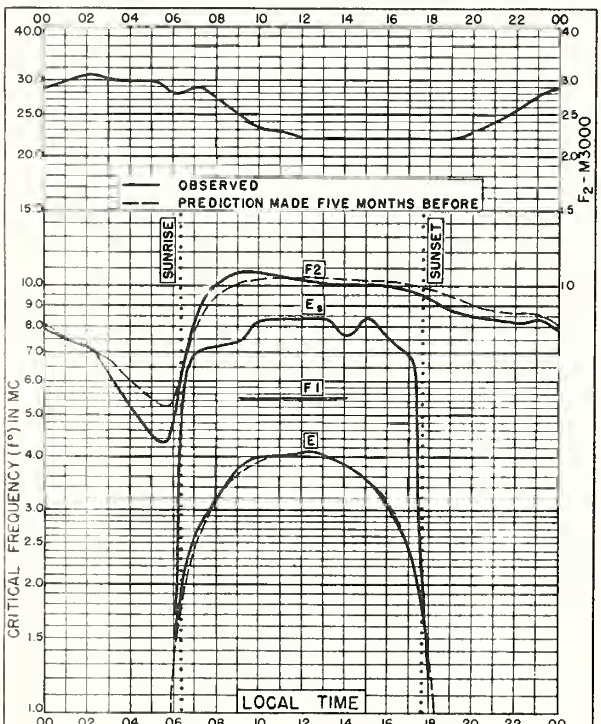

Fig. 39. HUANCAYO, PERU
12.0°S, 75.3°W JUNE 1948

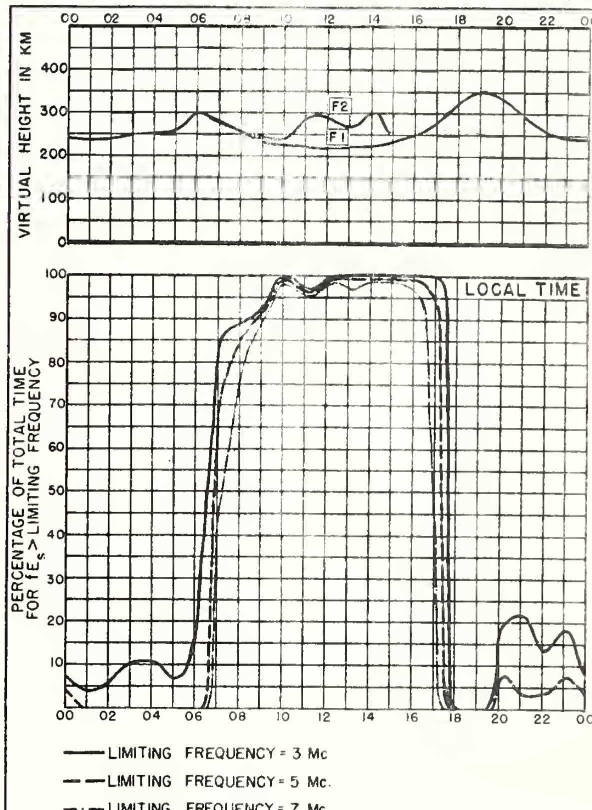

Fig. 40. HUANCAYO, PERU JUNE 1948

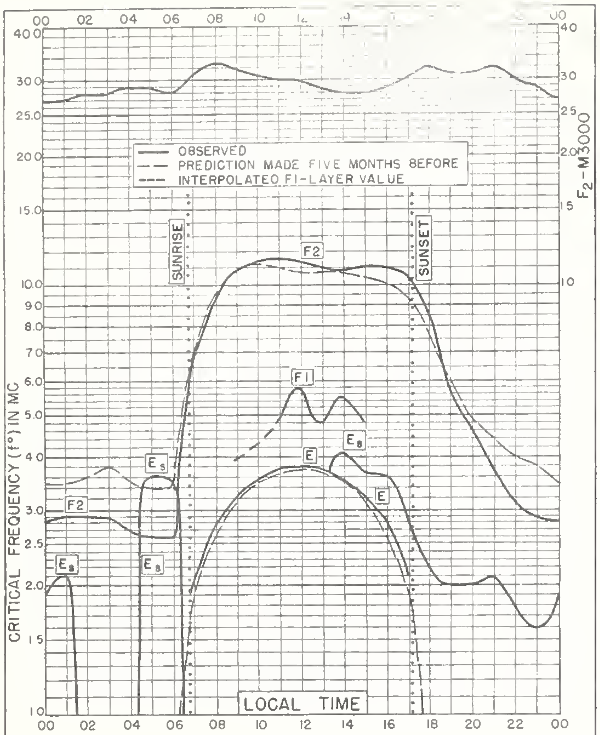

Fig. 41. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E JUNE 1948

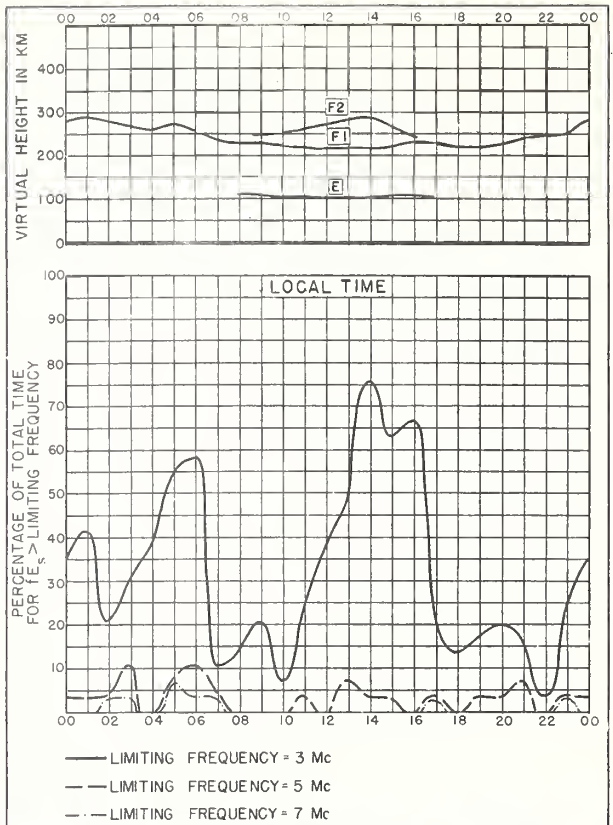

Fig. 42. JOHANNESBURG, U. OF S. AFRICA JUNE 1948

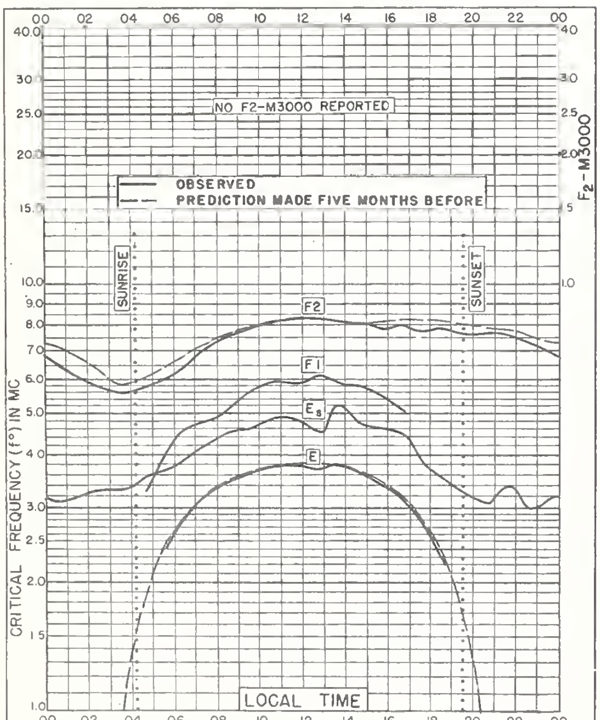

Fig. 43. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E MAY 1948

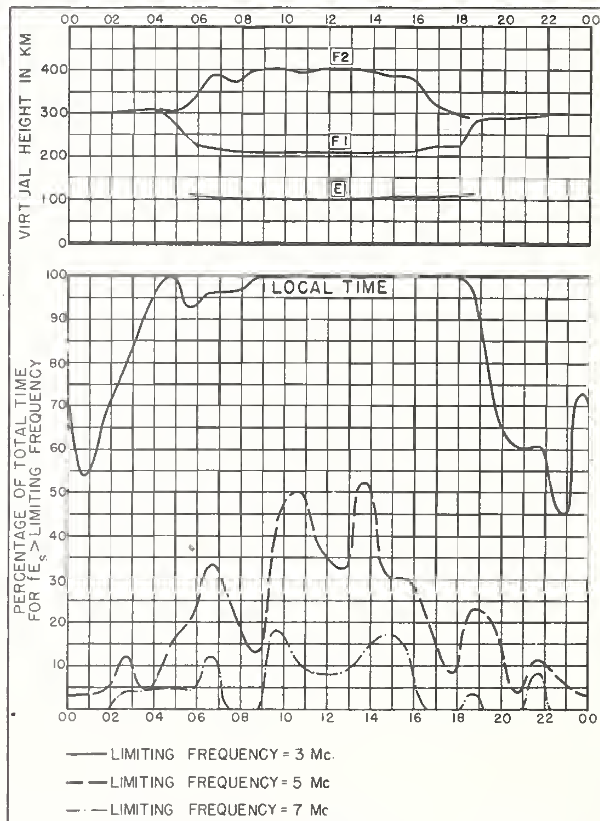

Fig. 44. LINDAU/HARZ, GERMANY MAY 1948

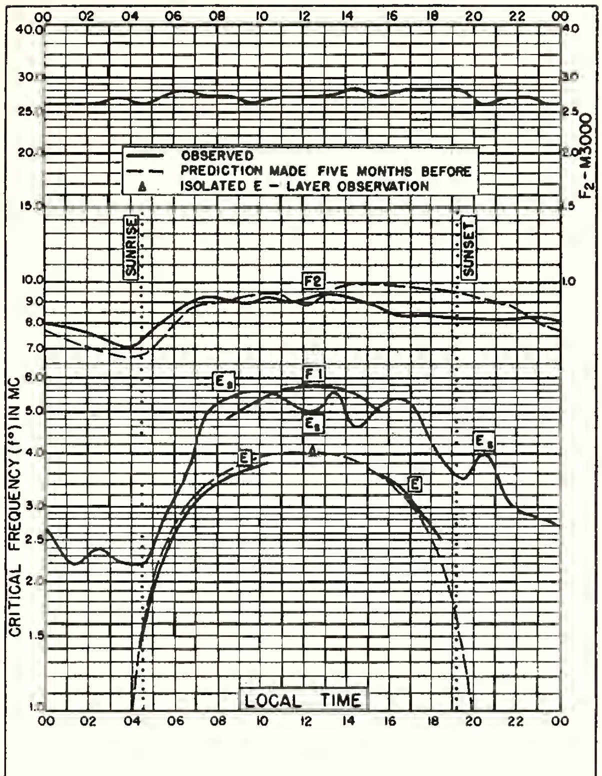

Fig. 45. WAKKANAI, JAPAN
45.4°N, 141.7°E MAY 1948

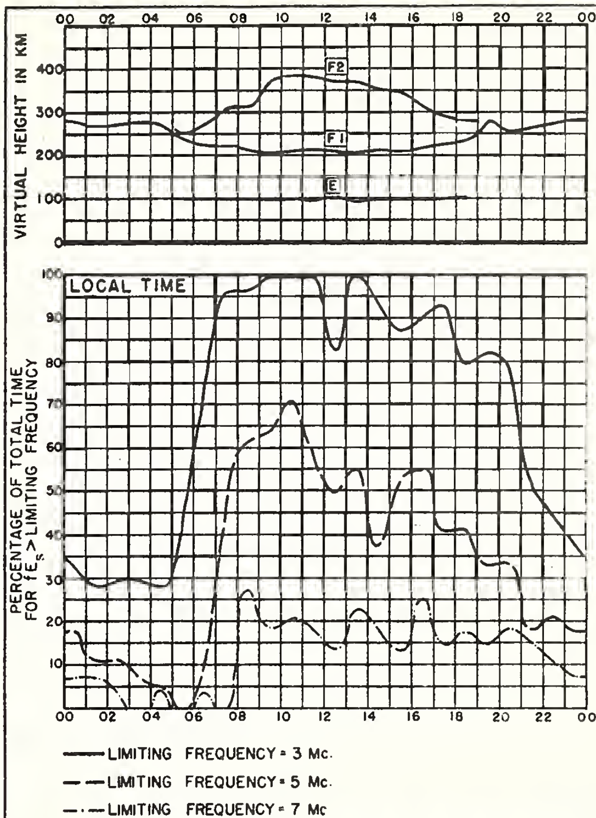

Fig. 46. WAKKANAI, JAPAN MAY 1948

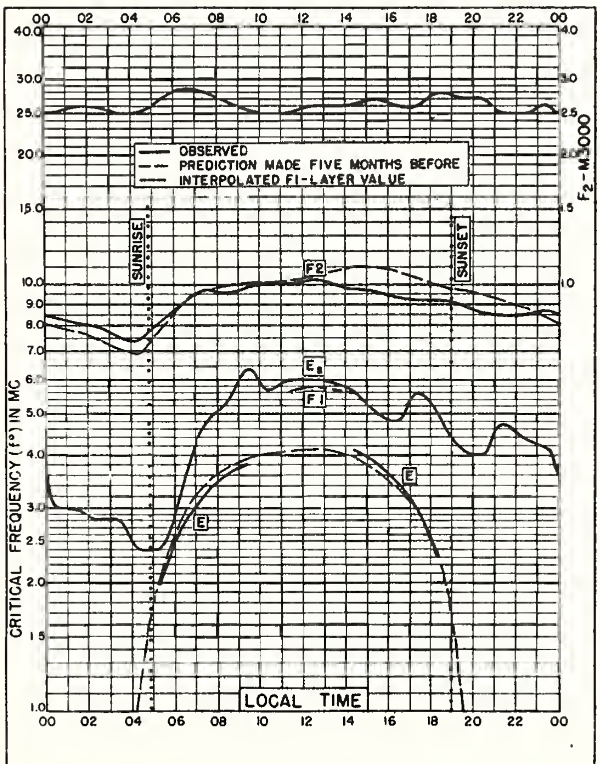

Fig. 47. FUKAURA, JAPAN
40.6°N, 139.9°E MAY 1948

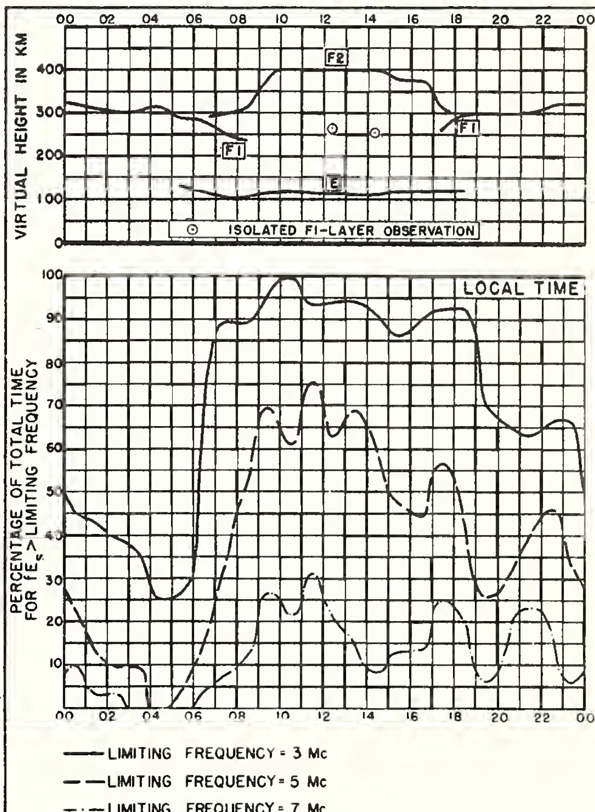

Fig. 48. FUKAURA, JAPAN MAY 1948

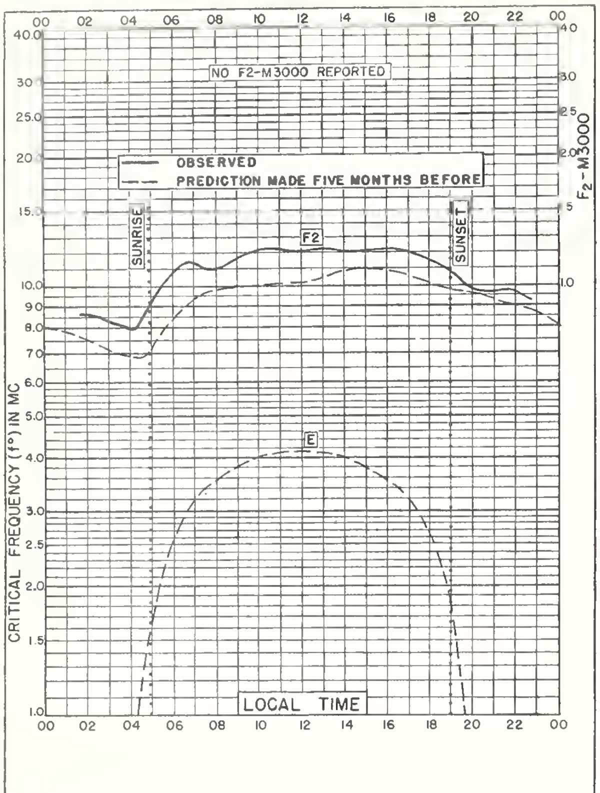

Fig. 49. PEIPING, CHINA
39.9°N, 116.4°E MAY 1948

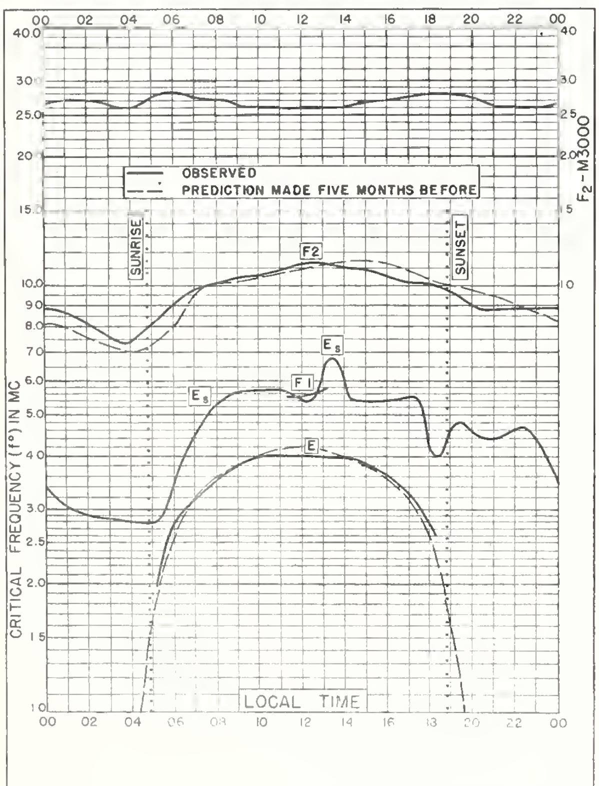

Fig. 50. SHIBATA, JAPAN
37.9°N, 139.3°E MAY 1948

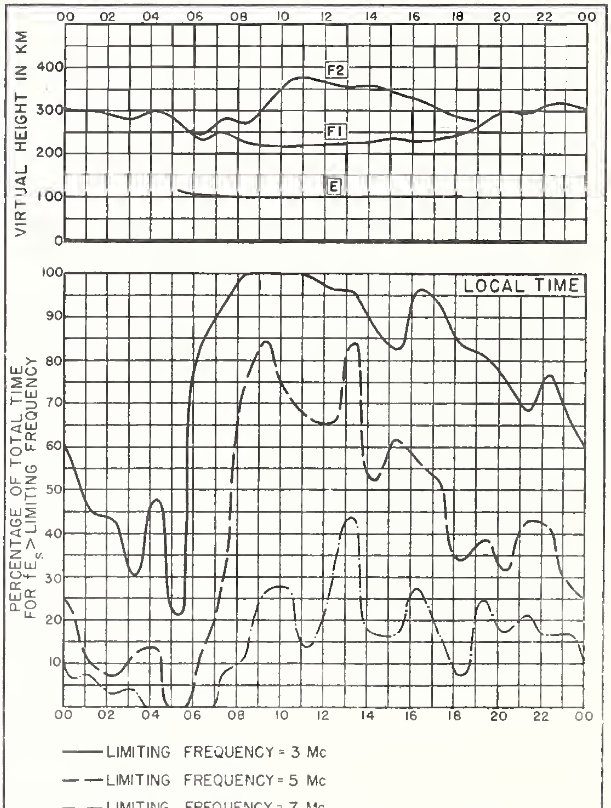

Fig. 51. SHIBATA, JAPAN MAY 1948

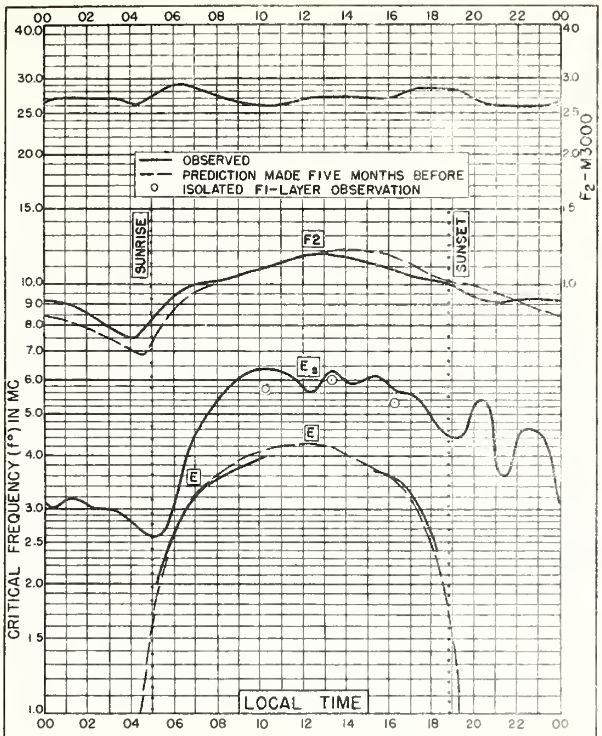

Fig. 52. TOKYO, JAPAN
35.7°N, 139.5°E
MAY 1948

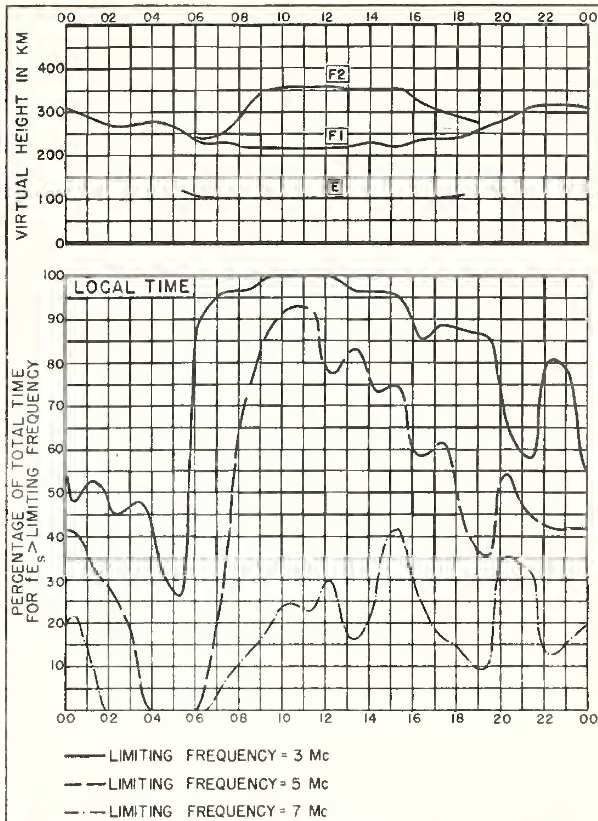

Fig. 53. TOKYO, JAPAN
MAY 1948

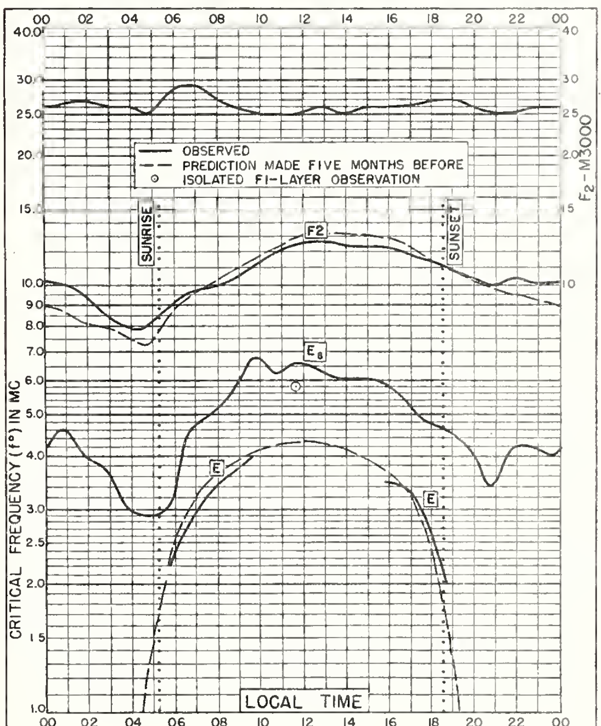

Fig. 54. YAMAKAWA, JAPAN
31.2°N, 130.6°E
MAY 1948

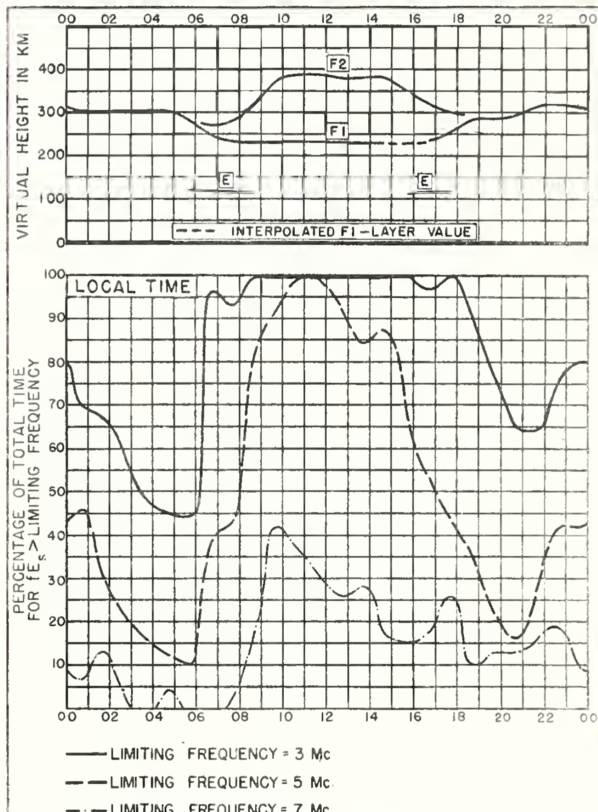

Fig. 55. YAMAKAWA, JAPAN
MAY 1948

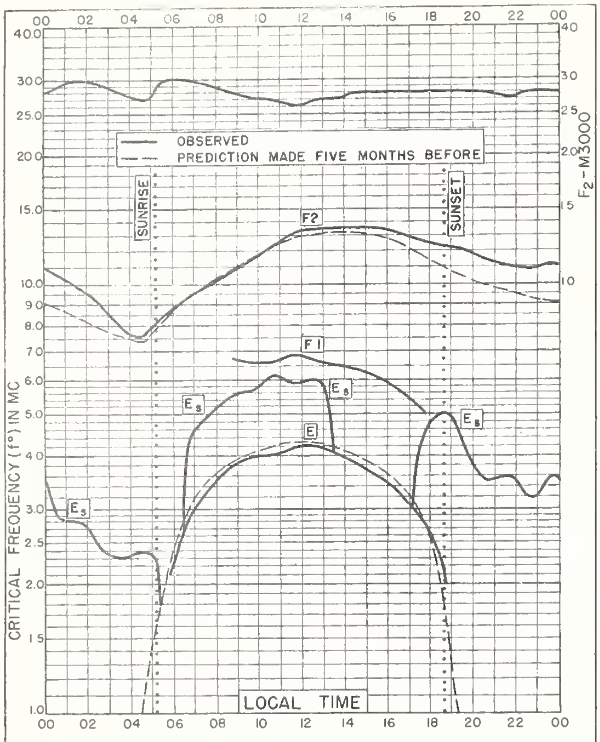

Fig. 56. WUCHANG, CHINA
30.6°N, 114.4°E MAY 1948

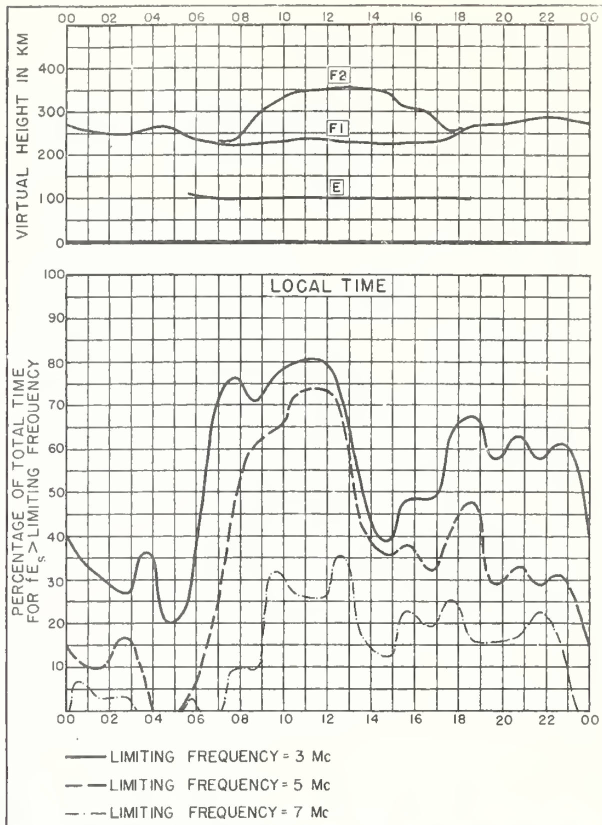

Fig. 57. WUCHANG, CHINA MAY 1948

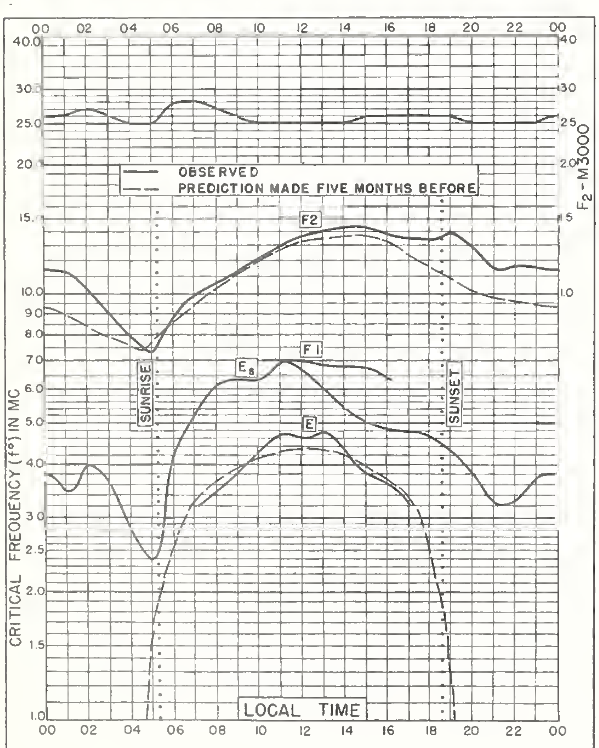

Fig. 58. CHUNGKING, CHINA
29.4°N, 106.8°E MAY 1948

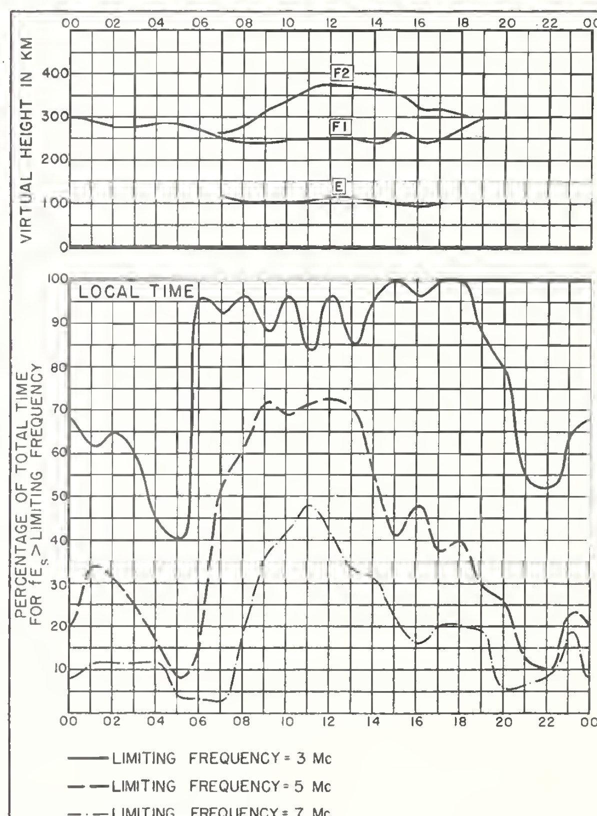

Fig. 59. CHUNGKING, CHINA MAY 1948

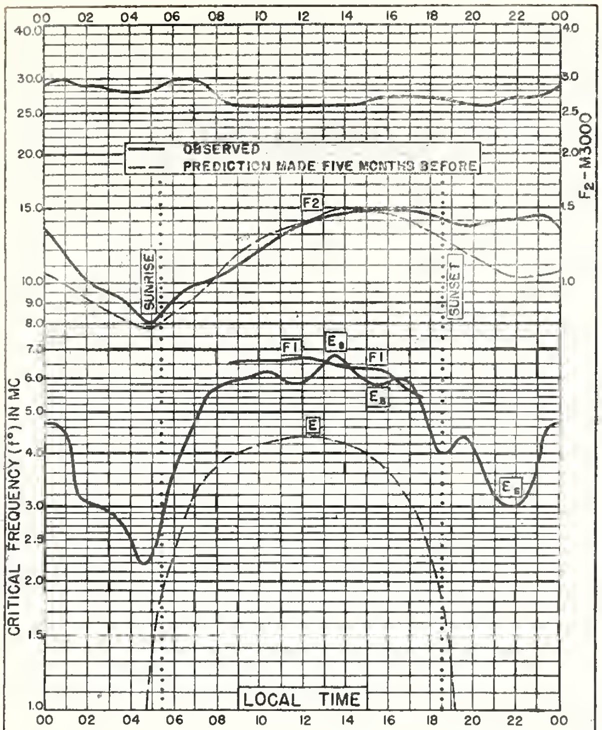

Fig. 60. OKINAWA I.
26.3°N, 127.7°E MAY 1948

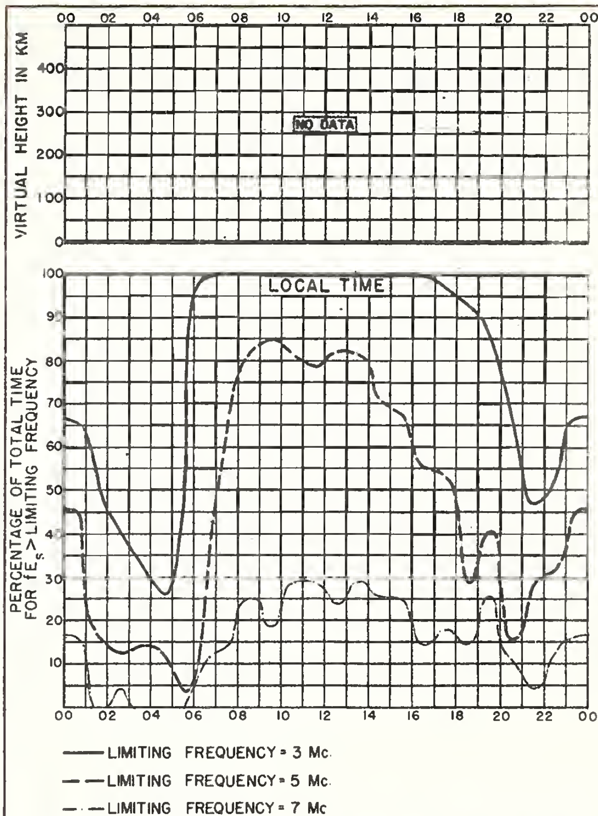

Fig. 61. OKINAWA I. MAY 1948

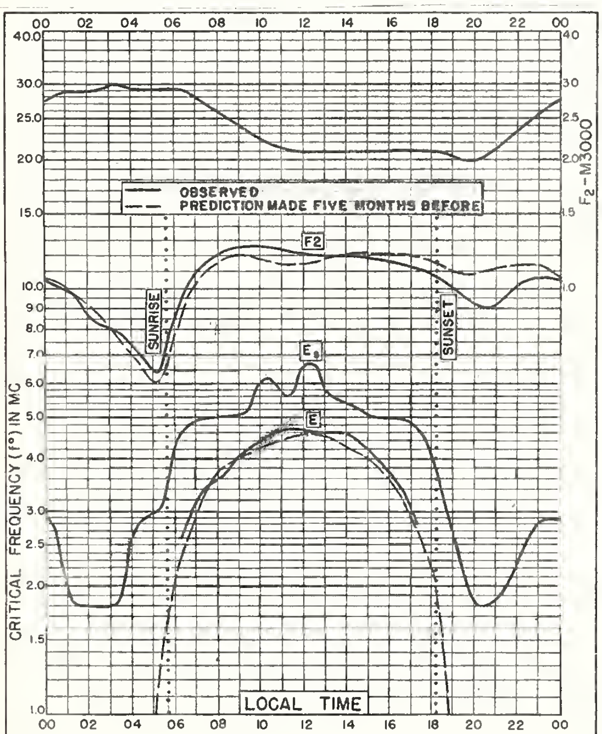

Fig. 62. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E MAY 1948

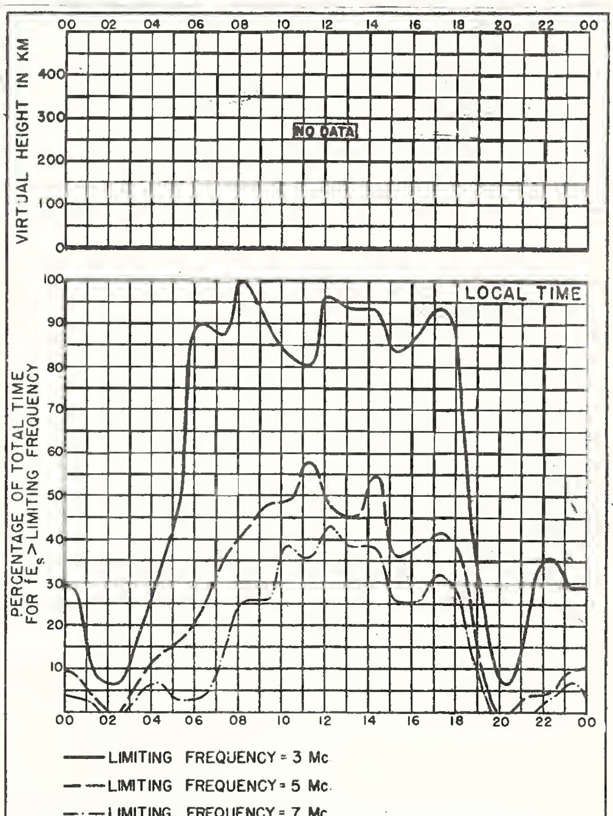

Fig. 63. LEYTE, PHILIPPINE IS. MAY 1948

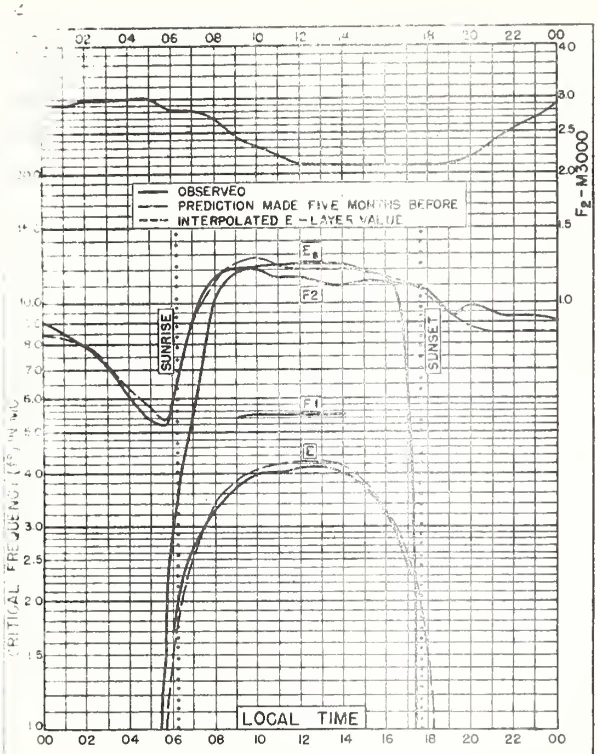

Fig. 64. HUANCAYO, PERU
12.0°S, 75.3°W MAY 1948

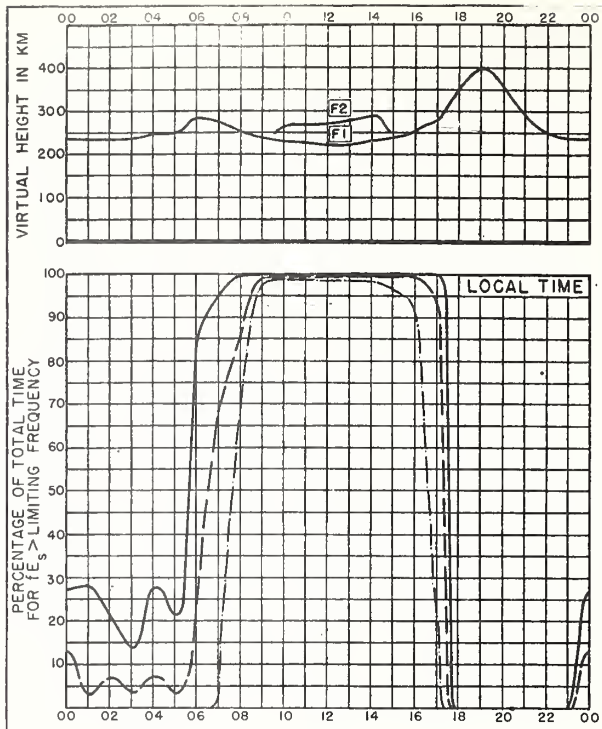

Fig. 65. HUANCAYO, PERU MAY 1948

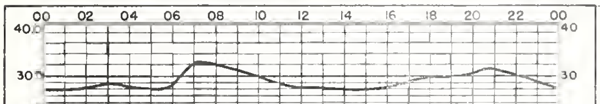

Fig. 66. JOHANNESBURG, U. OF S. AFRICA
26. 2°S, 28. 0°E MAY 1948

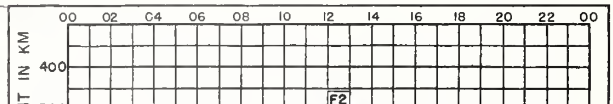

Fig. 67. JOHANNESBURG, U. OF S. AFRICA MAY 1948

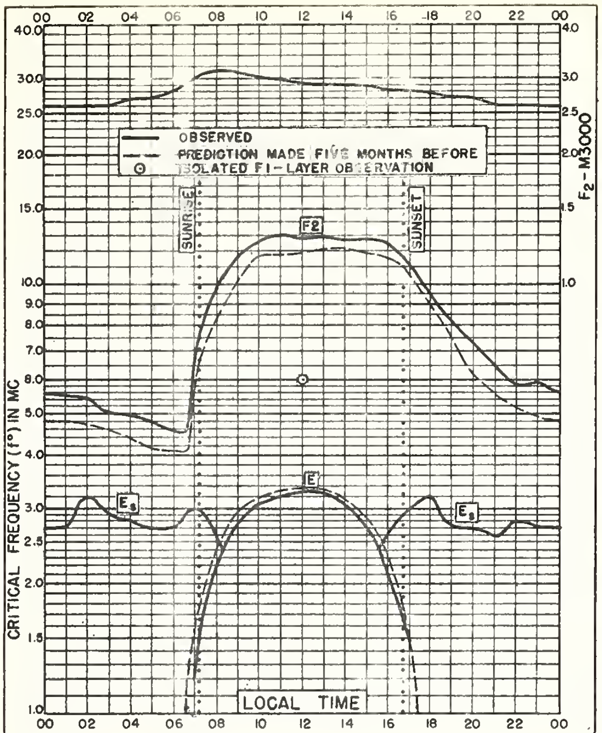

Fig. 68. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E MAY 1948

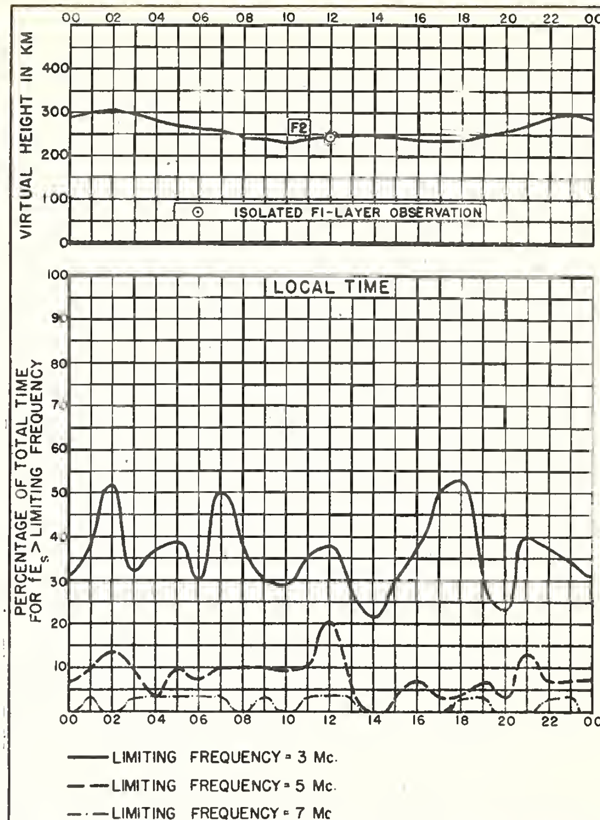

Fig. 69. CHRISTCHURCH, N.Z. MAY 1948

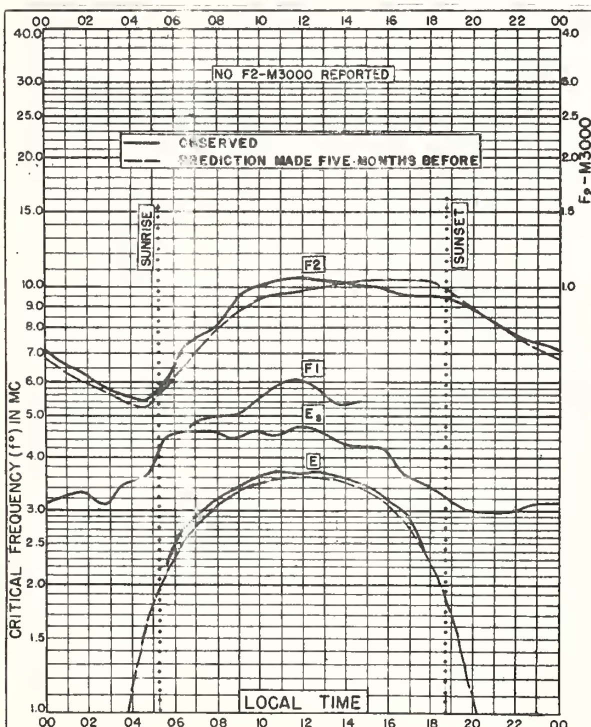

Fig. 70. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E APRIL 1948

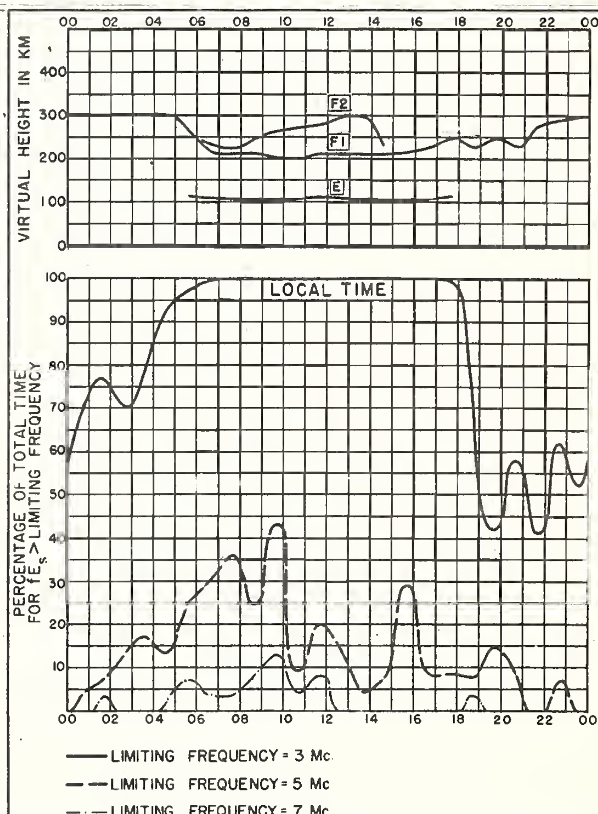

Fig. 71. LINDAU/HARZ, GERMANY APRIL 1948

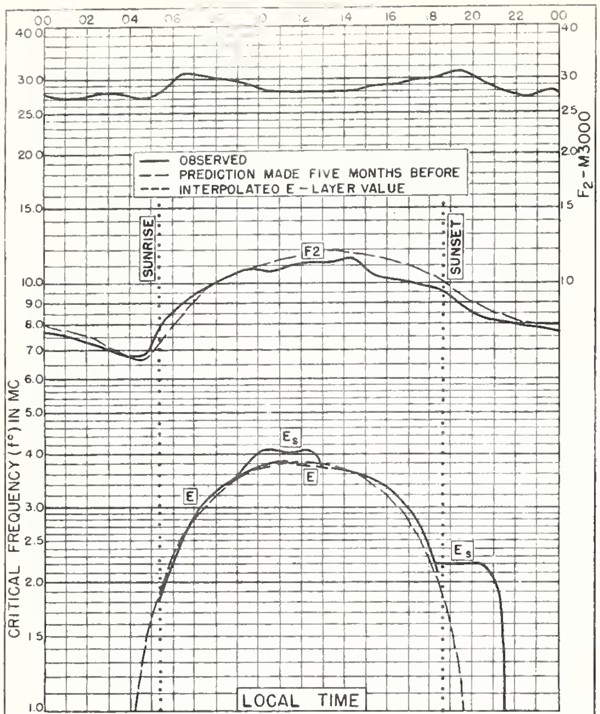

Fig. 72. WAKKANAI, JAPAN
45.4°N, 141.7°E APRIL 1948

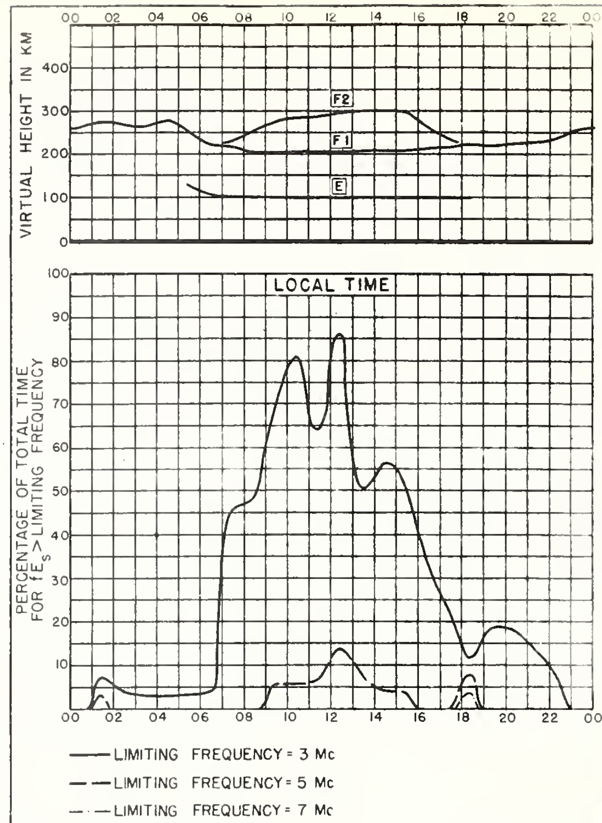

Fig. 73. WAKKANAI, JAPAN APRIL 1948

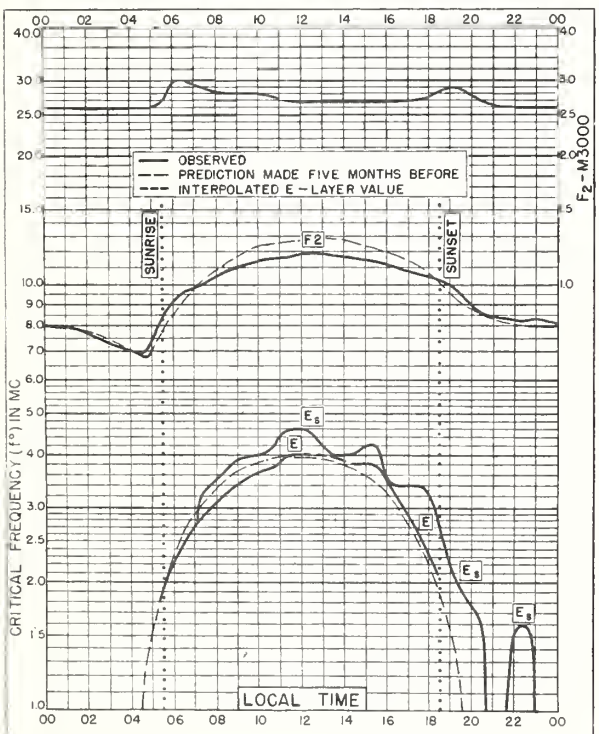

Fig. 74. FUKAURA, JAPAN
40.6°N, 139.9°E APRIL 1948

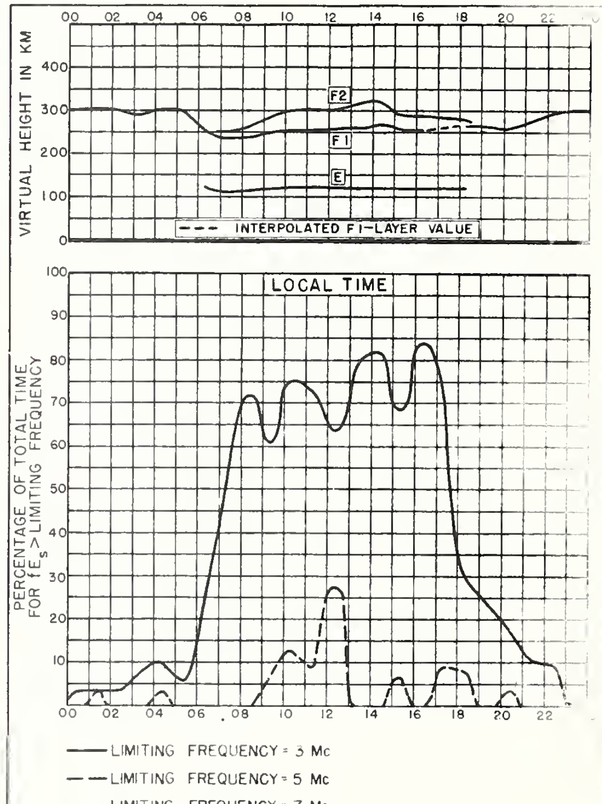

Fig. 75. FUKAURA, JAPAN APRIL 1948

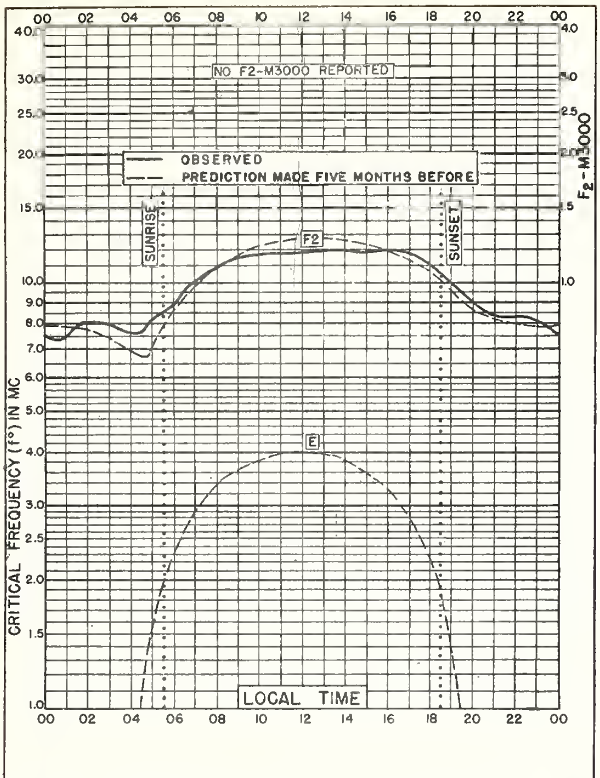

Fig. 76. PEIPING, CHINA
39.9°N, 116.4°E APRIL 1948

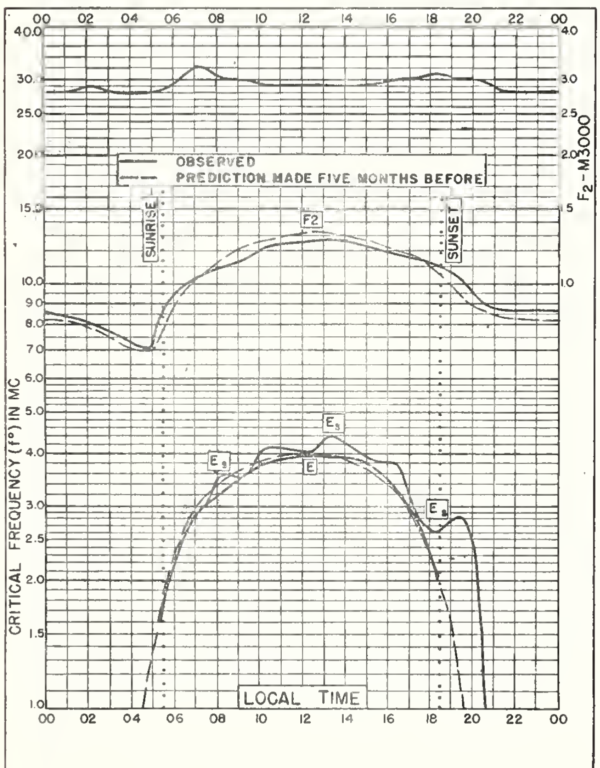

Fig. 77. SHIBATA, JAPAN
37.9°N, 139.3°E APRIL 1948

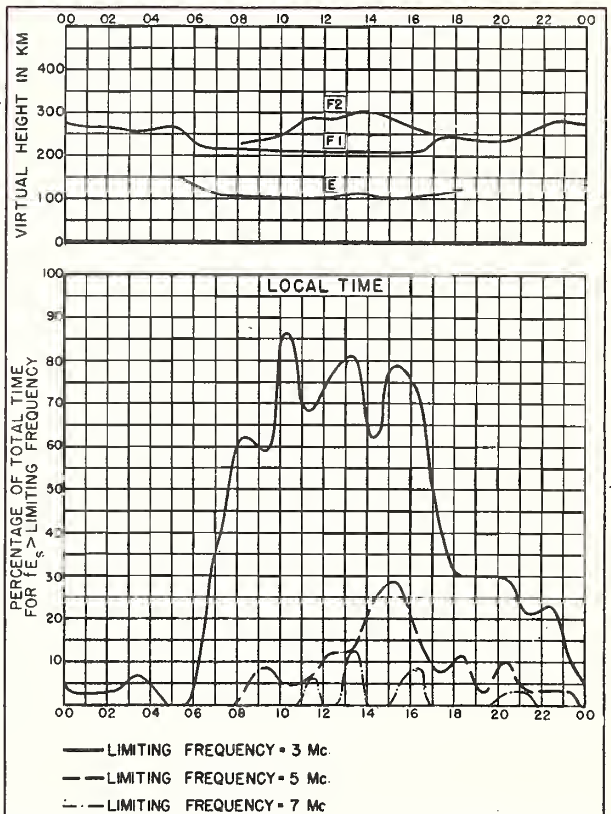

Fig. 78. SHIBATA, JAPAN APRIL 1948

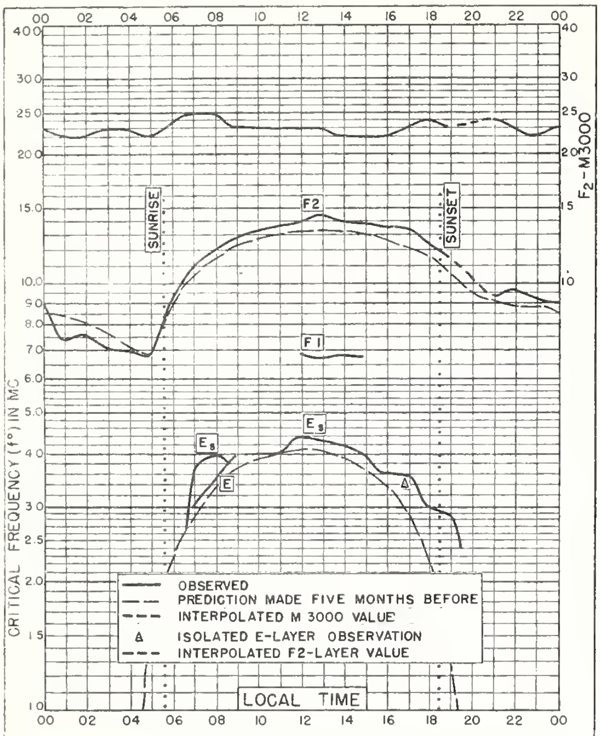

Fig. 79. LANCHOW, CHINA
36.1°N, 103.8°E APRIL 1948

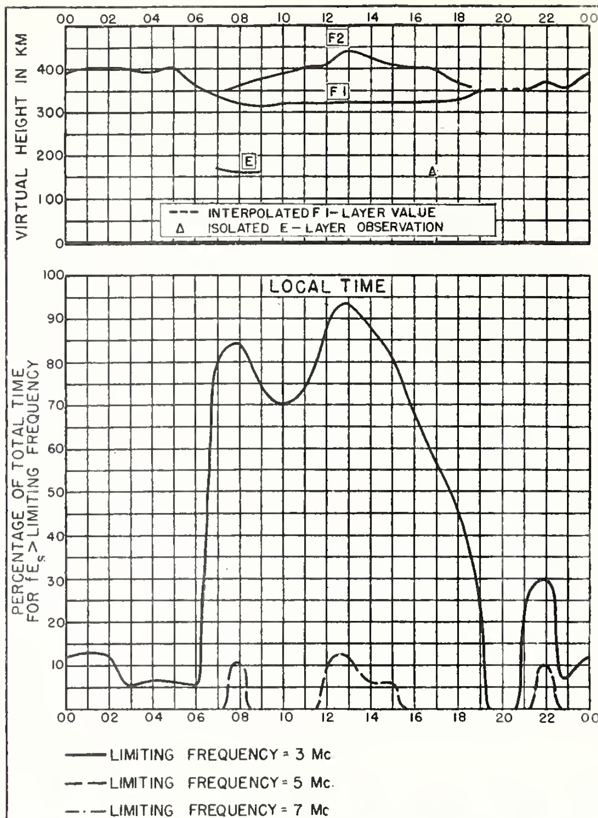

Fig. 80. LANCHOW, CHINA APRIL 1948

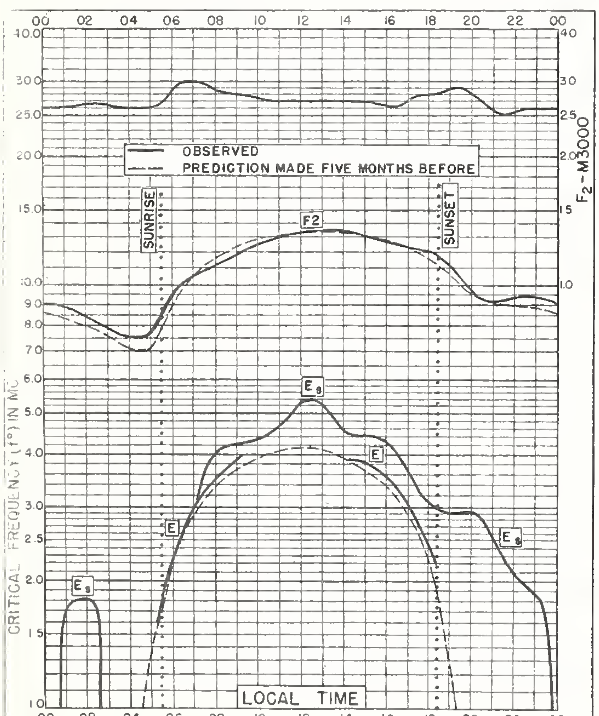

Fig. 81. TOKYO, JAPAN
35.7°N, 139.5°E APRIL 1948

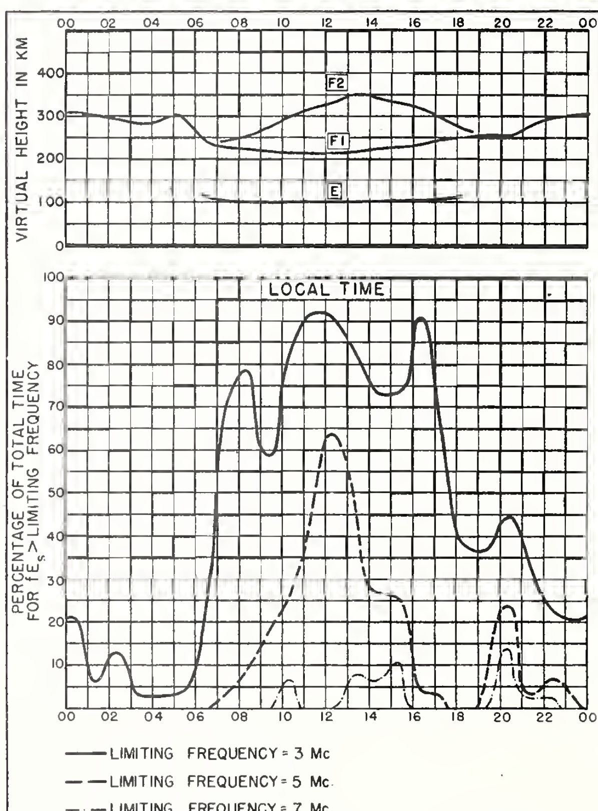

Fig. 82. TOKYO, JAPAN APRIL 1948

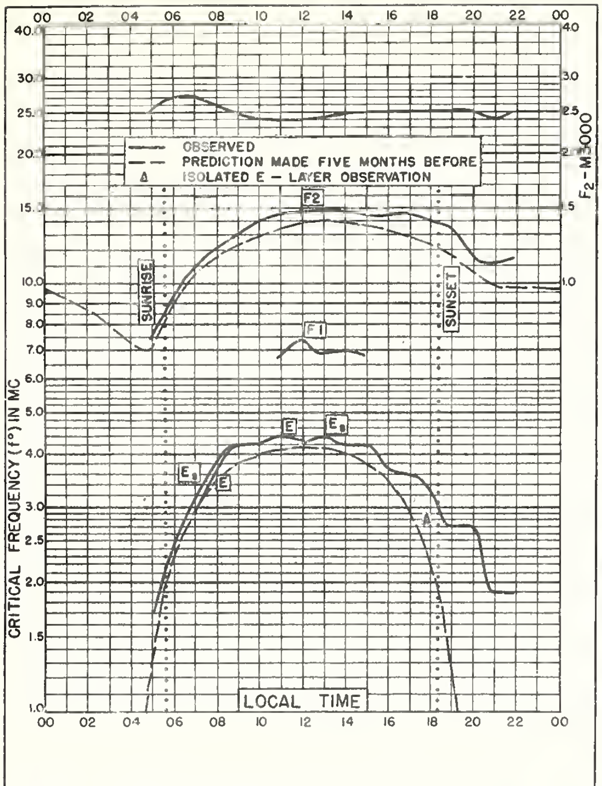

Fig. 83. NANKING, CHINA
32.1°N, 119.0°E APRIL 1948

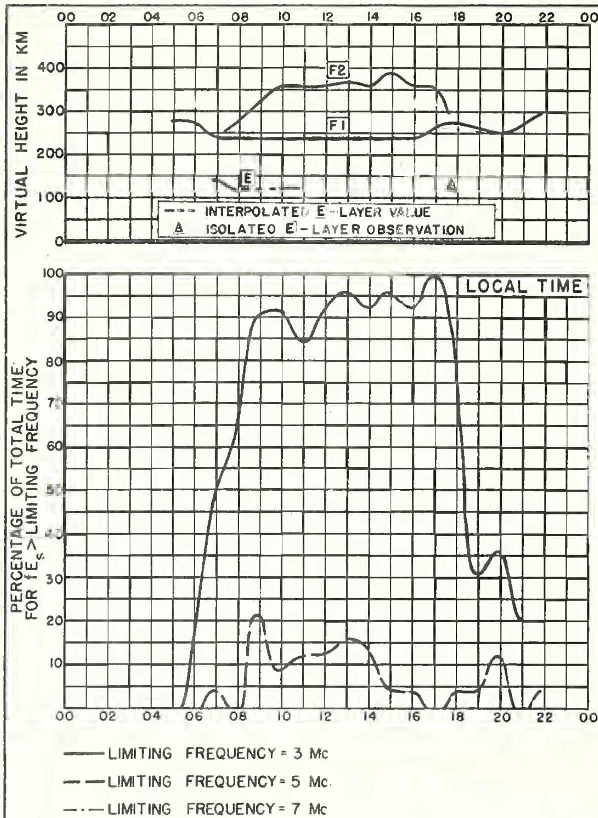

Fig. 84. NANKING, CHINA APRIL 1948

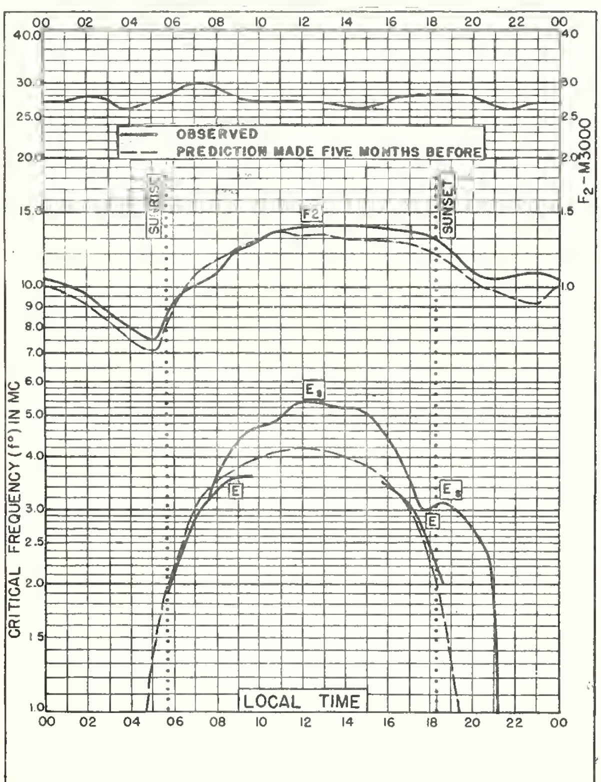

Fig. 85. YAMAKAWA, JAPAN
31.2°N, 130.6°E APRIL 1948

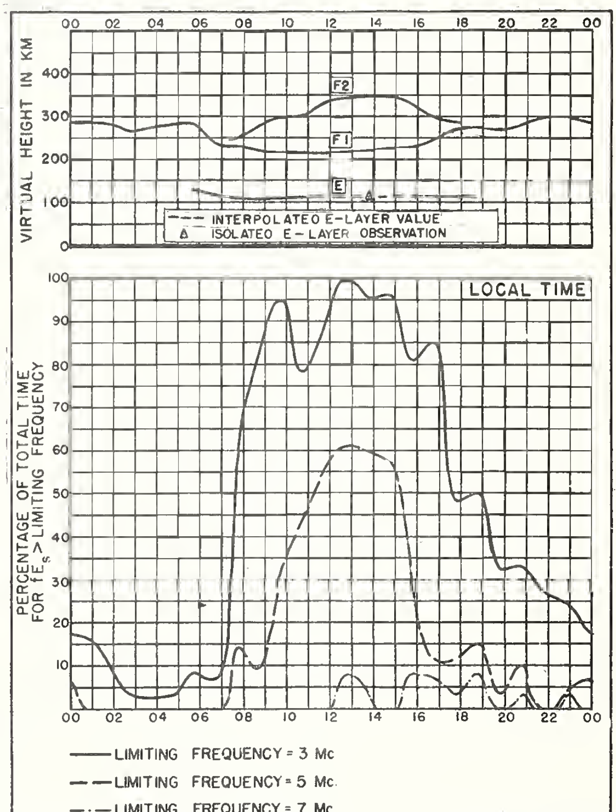

Fig. 86. YAMAKAWA, JAPAN APRIL 1948

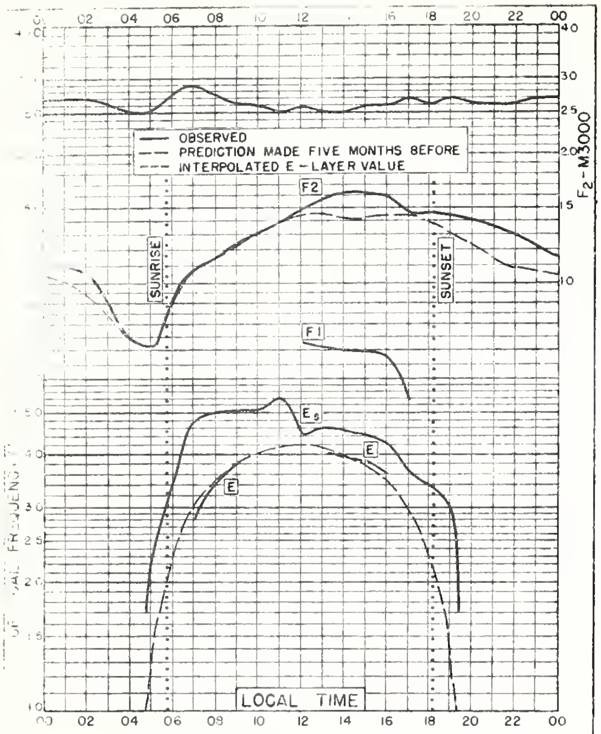

Fig. 87. CHUNGKING, CHINA
29.4°N, 106.8°E APRIL 1948

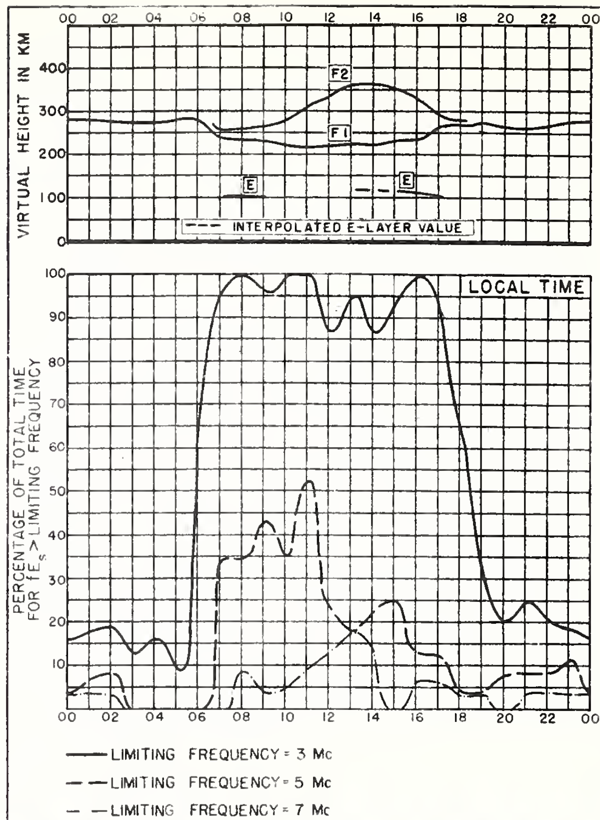

Fig. 88. CHUNGKING, CHINA APRIL 1948

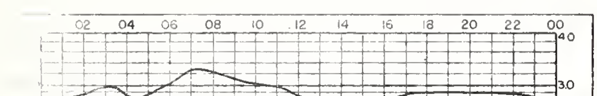

Fig. 89. BRISBANE, AUSTRALIA
27.5°S, 153.0°E APRIL 1948

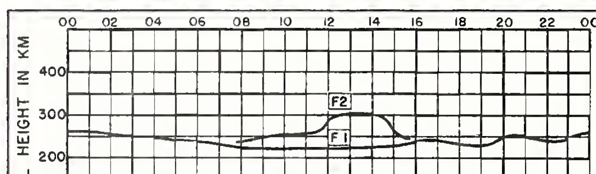

Fig. 90. BRISBANE, AUSTRALIA APRIL 1948

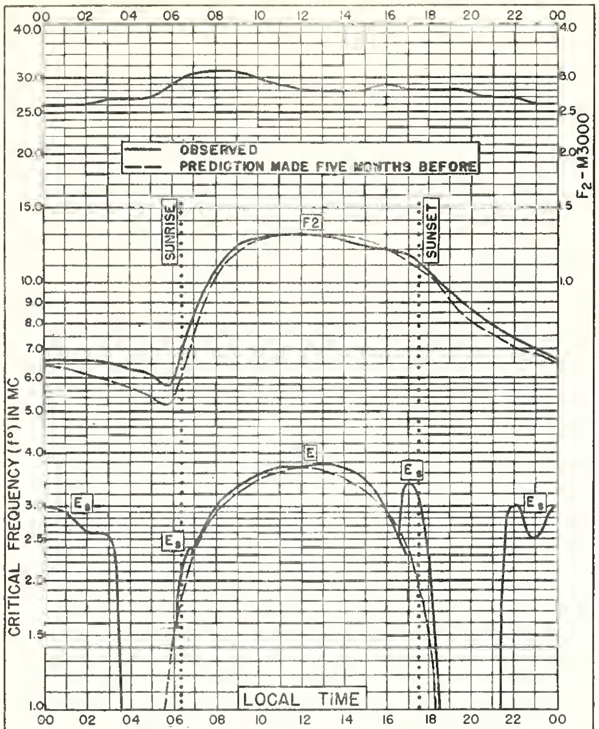

Fig. 91. CANBERRA, AUSTRALIA
35.3°S, 149.0°E APRIL 1948

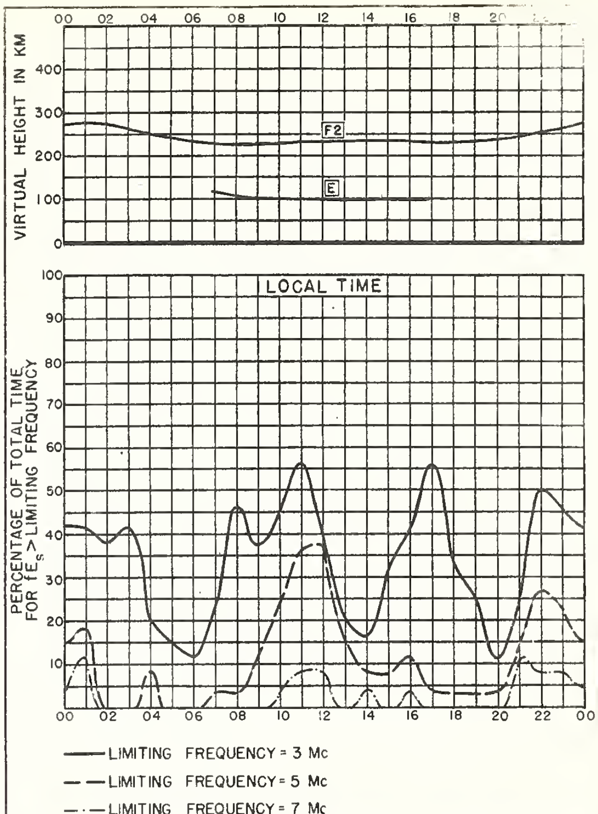

Fig. 92. CANBERRA, AUSTRALIA APRIL 1948

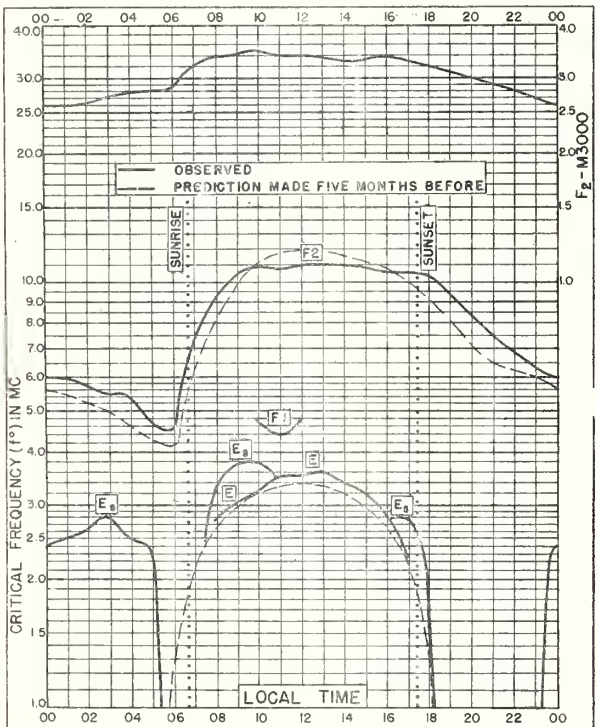

Fig. 93. HOBART, TASMANIA
42.8°S, 147.4°E APRIL 1948

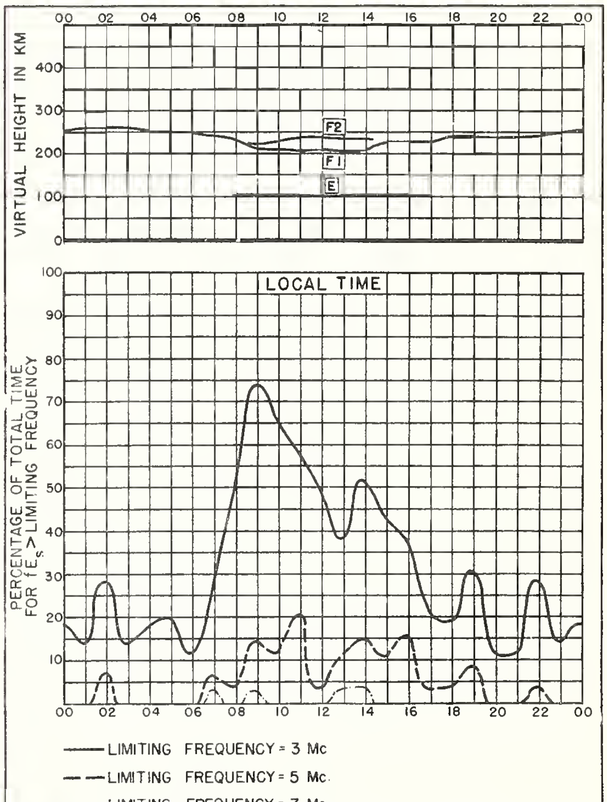

Fig. 94. HOBART, TASMANIA APRIL 1948

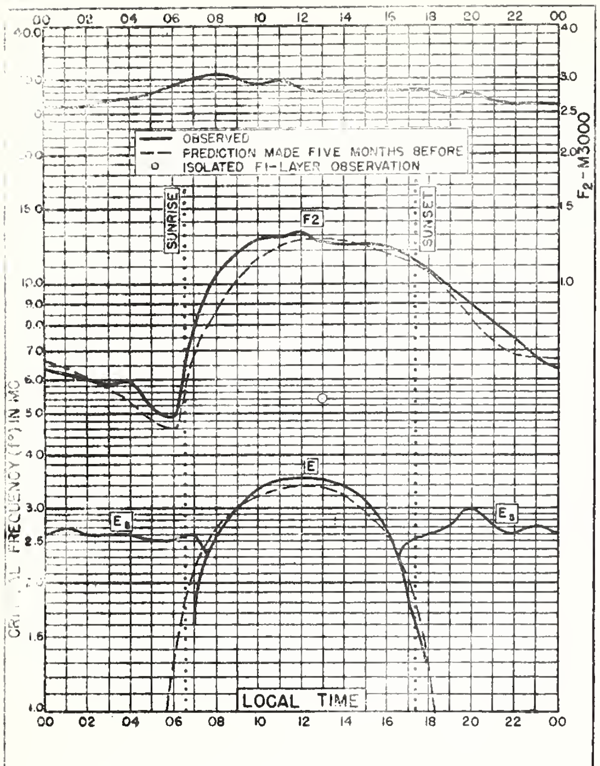

Fig. 95. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E APRIL 1948

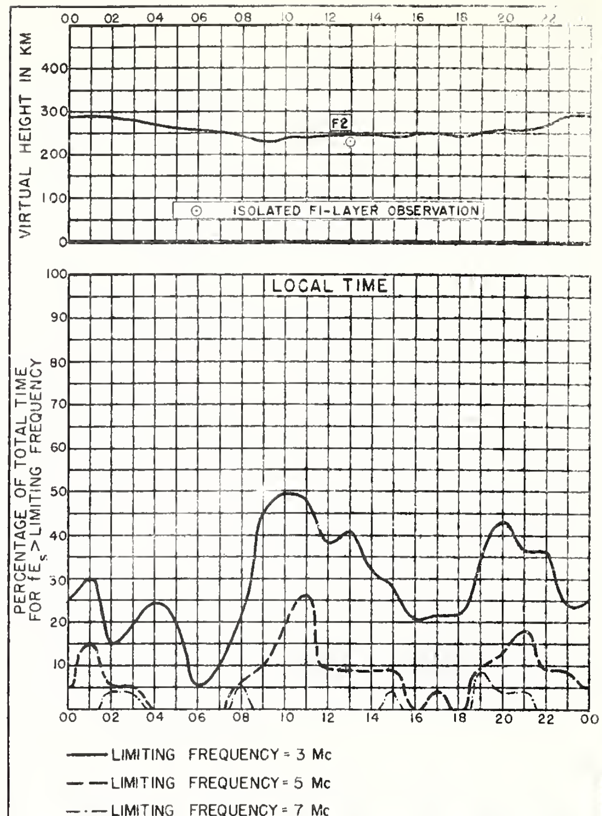

Fig. 96. CHRISTCHURCH, N. Z. APRIL 1948

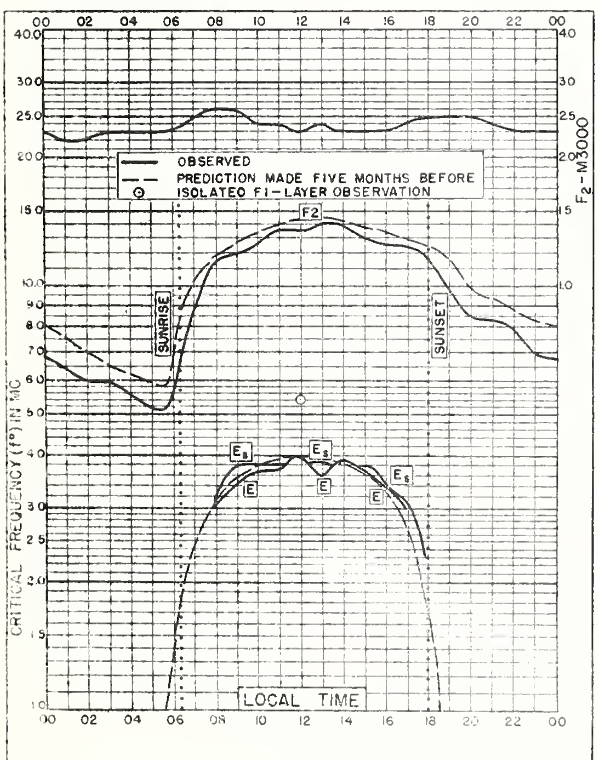

Fig. 97. LANCHOW, CHINA
36.1°N, 103.8°E MARCH 1948

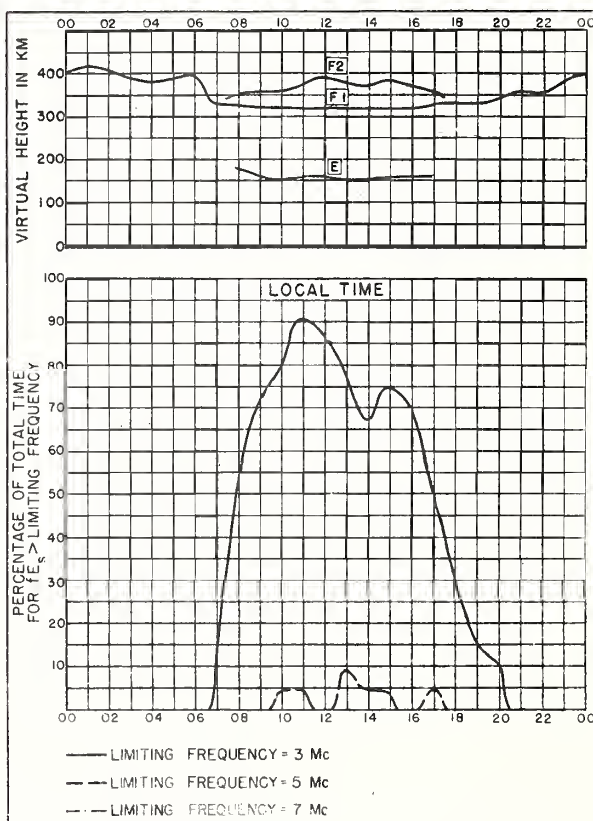

Fig. 98. LANCHOW, CHINA MARCH 1948

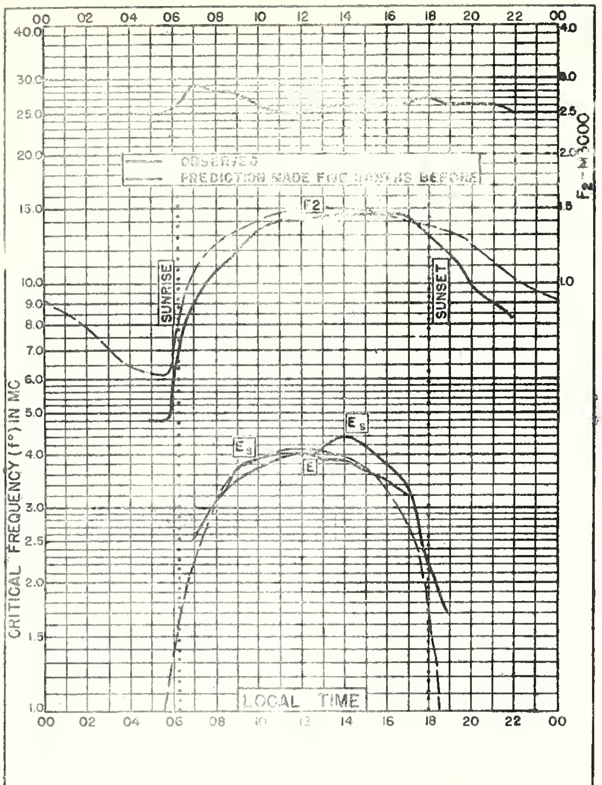

Fig. 99. NANKING, CHINA
32.1°N, 119.0°E
MARCH 1948

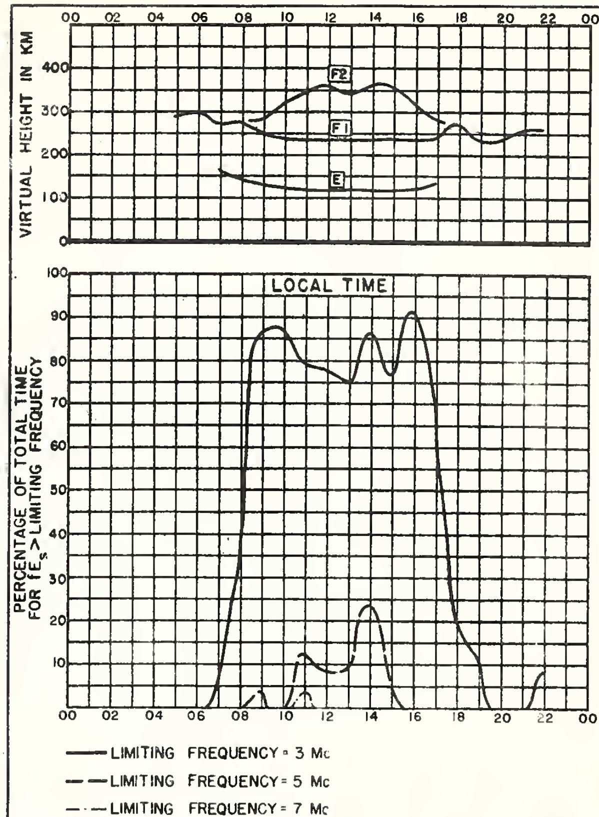

Fig. 100. NANKING, CHINA
MARCH 1948

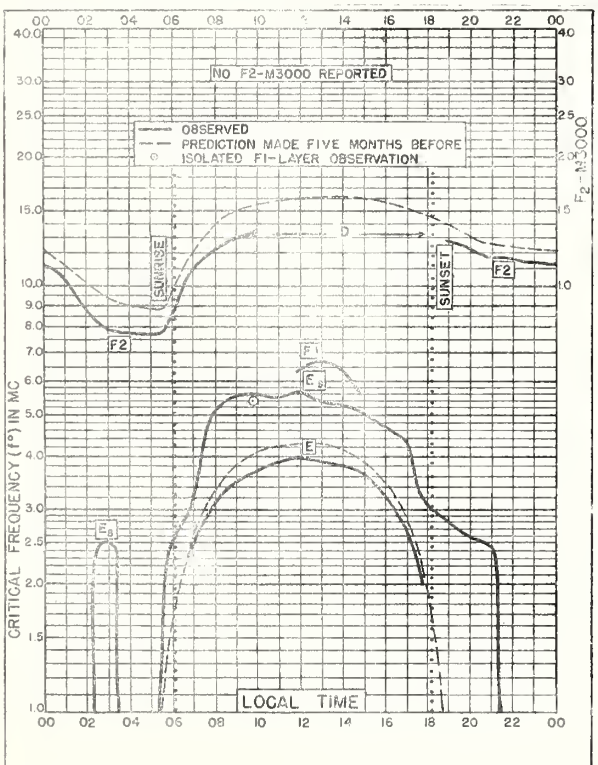

Fig. 101. FIJI IS.
18.0°S, 178.2°E
MARCH 1948

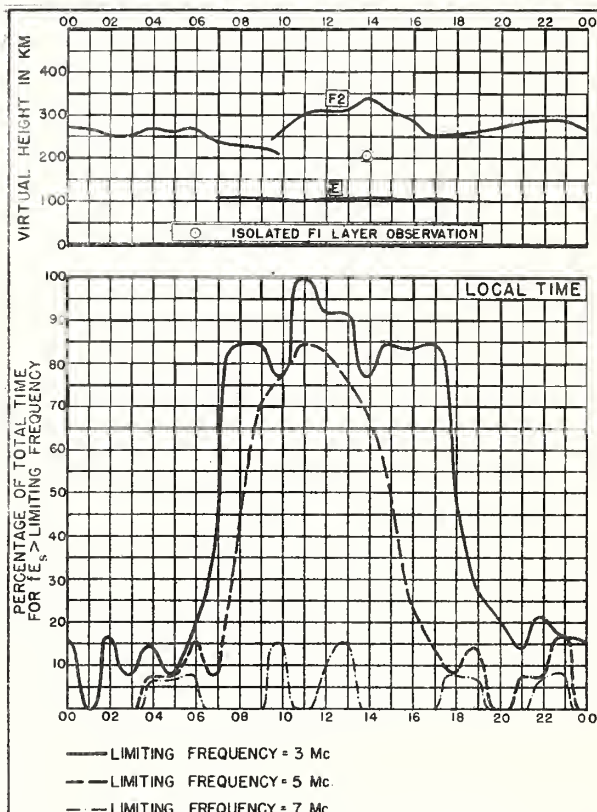

Fig. 102. FIJI IS.
MARCH 1948

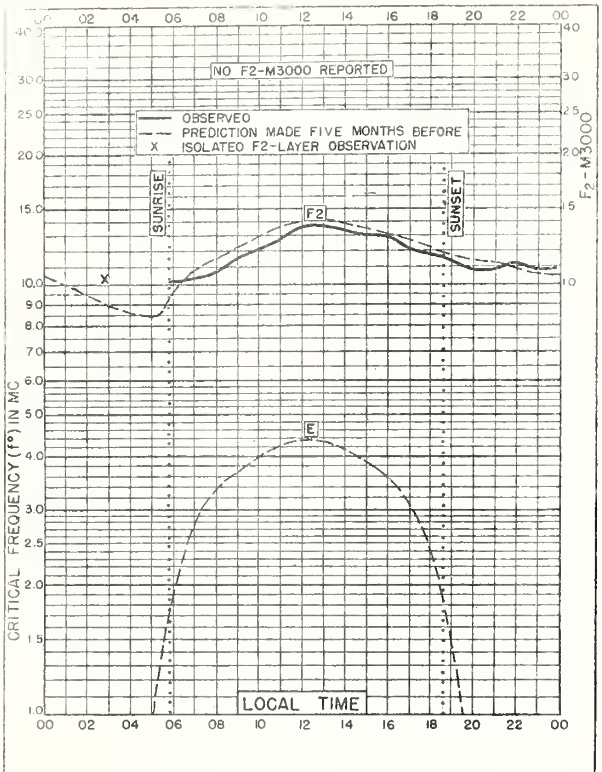

Fig. 103. RAROTONGA I.
21.3°S, 159.8°W FEBRUARY 1948

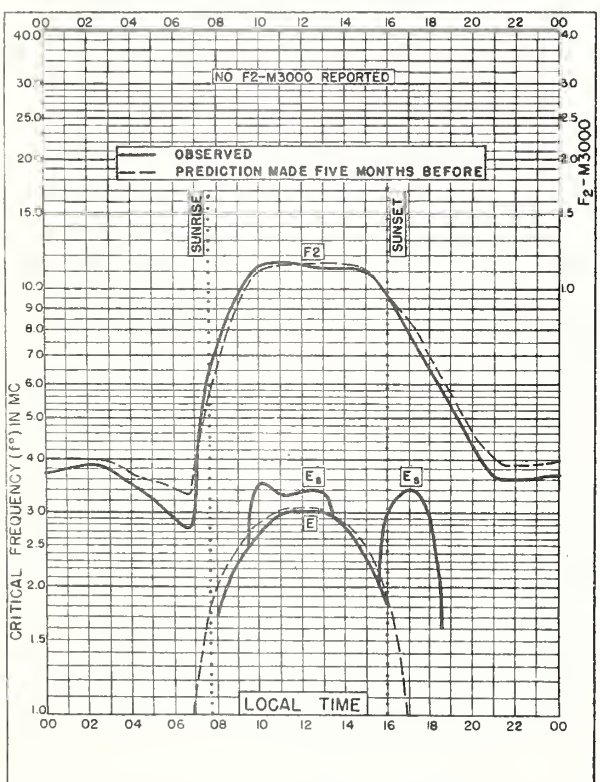

Fig. 104. FRIBOURG, GERMANY
48.1°N, 7.8°E DECEMBER 1947

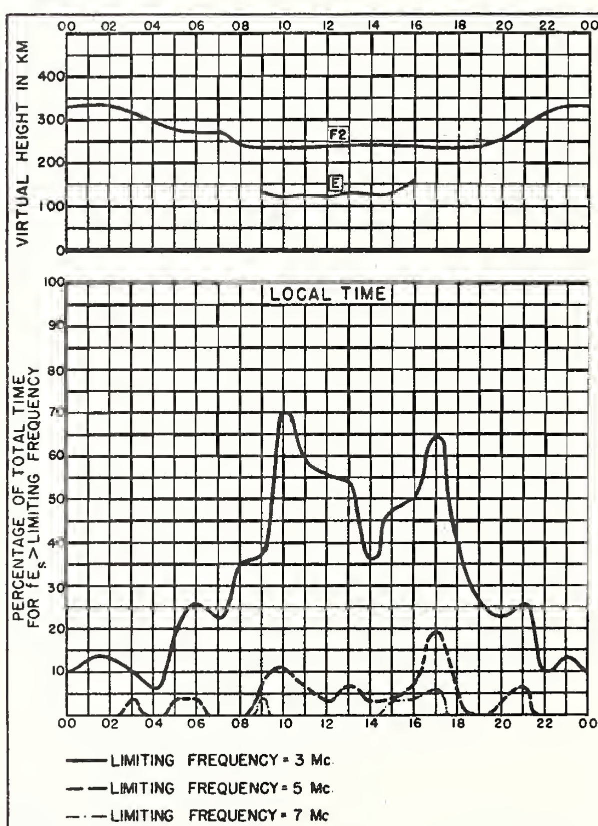

Fig. 105. FRIBOURG, GERMANY DECEMBER 1947

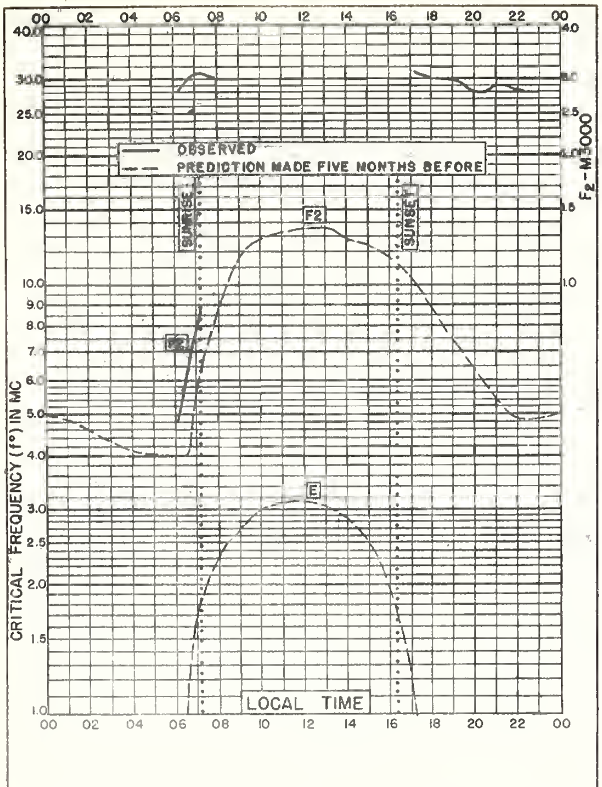

Fig. 106. BAGNEUX, FRANCE 48.8°N, 2.3°E NOVEMBER 1947

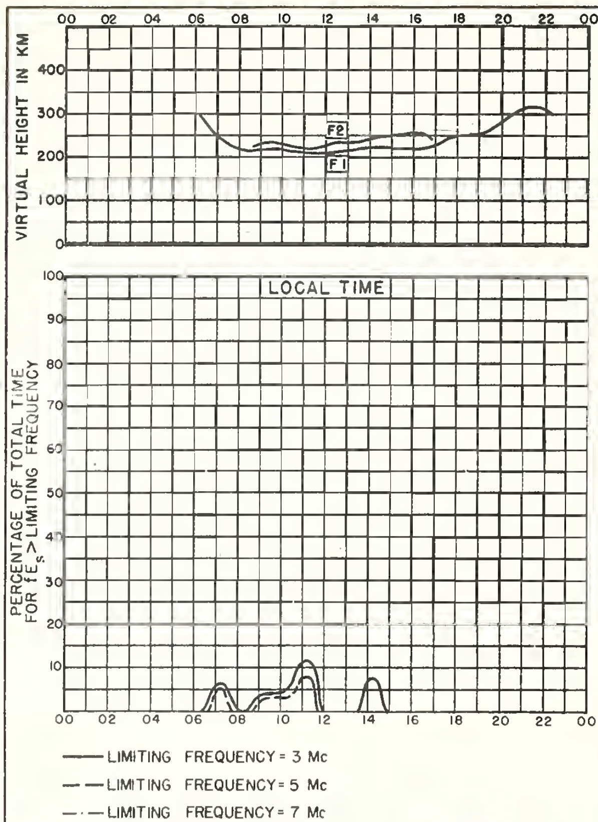

Fig. 107. BAGNEUX, FRANCE NOVEMBER 1947

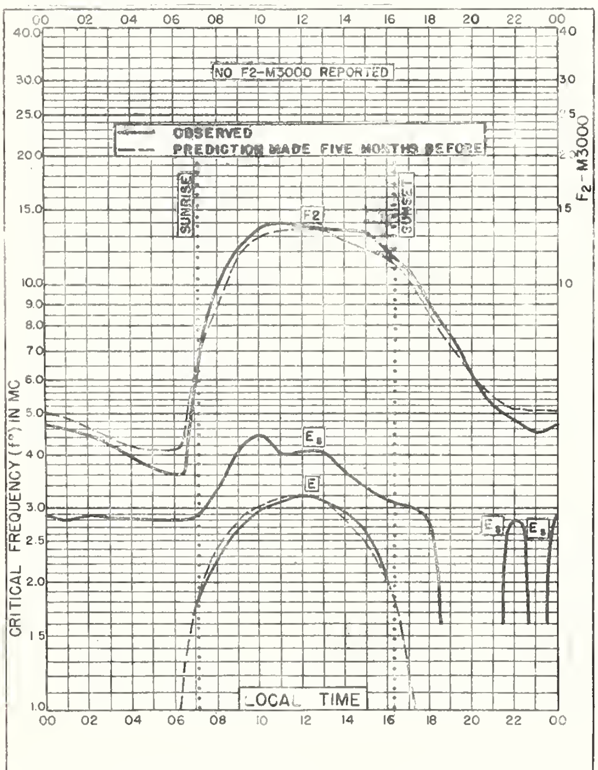

Fig. 108. FRIBOURG, GERMANY 48.1°N, 7.8°E NOVEMBER 1947

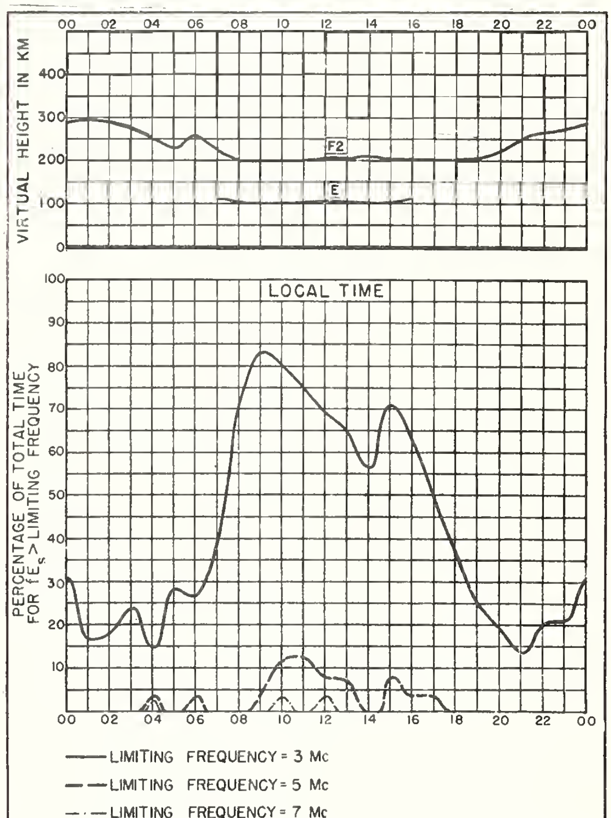

Fig. 109. FRIBOURG, GERMANY NOVEMBER 1947

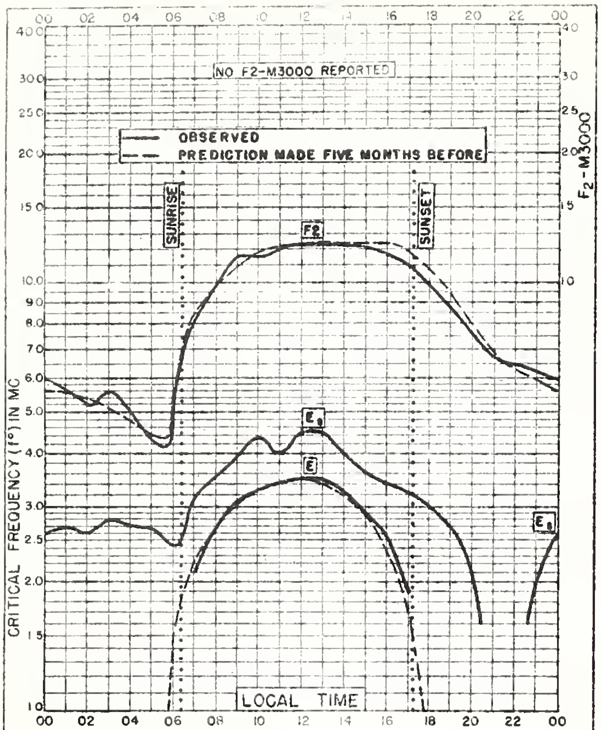

Fig. 110. FRIBOURG, GERMANY
48.1°N, 7.8°E OCTOBER 1947

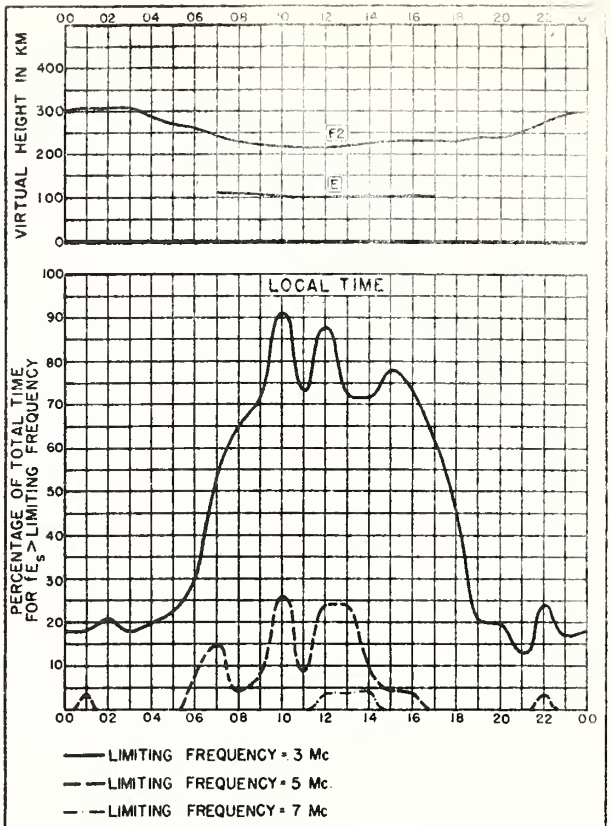

Fig. 111. FRIBOURG, GERMANY OCTOBER 1947

Index of Tables and Graphs of Ionospheric Data

in CRPL-F48

	Table page	Figure page
Bagneux, France		
November 1947	23	73
Baton Rouge, Louisiana		
June 1948	12	51
Boston, Massachusetts		
June 1948	11	49
Brisbane, Australia		
April 1948	21	68
Canberra, Australia		
April 1948	21	69
Christchurch, New Zealand		
May 1948	18	63
April 1948	22	70
Chungking, China		
May 1948	17	60
April 1948	21	68
Fairbanks, Alaska		
June 1948	10	47
Fiji Is.		
March 1948	22	71
Fribourg, Germany		
December 1947	23	72
November 1947	24	73
October 1947	24	74
Fukaura, Japan		
May 1948	15	57
April 1948	19	64
Guam I.		
June 1948	13	53
Hobart, Tasmania		
April 1948	21	69
Huancayo, Peru		
June 1948	14	55
May 1948	18	62
Johannesburg, Union of S. Africa		
June 1948	15	56
May 1948	18	62
Lanchow, China		
April 1948	20	66
March 1948	22	70
Leyte, Philippine Is.		
June 1948	14	54
May 1948	17	61
Lindau/Harz, Germany		
May 1948	15	56
April 1948	18	63

Index (CRPL-F48, continued)

	Table page	Figure page
Maui, Hawaii		
July 1948	10	46
June 1948	13	52
Nanking, China		
April 1948	20	67
March 1948	22	71
Okinawa I.		
June 1948	13	52
May 1948	17	61
Ottawa, Canada		
June 1948	11	49
Palmyra I.		
June 1948	14	55
Peiping, China		
May 1948	16	58
April 1948	19	65
Portage la Prairie, Canada		
June 1948	11	48
Prince Rupert, Canada		
June 1948	10	47
Rarotonga I.		
February 1948	23	72
St. John's, Newfoundland		
June 1948	11	48
San Francisco, California		
June 1948	12	50
San Juan, Puerto Rico		
June 1948	13	53
Shibata, Japan		
May 1948	16	58
April 1948	19	65
Tokyo, Japan		
May 1948	16	59
April 1948	20	66
Trinidad, Brit. West Indies		
June 1948	14	54
Wakkanai, Japan		
May 1948	15	57
April 1948	19	64
Washington, D. C.		
July 1948	10	46
White Sands, New Mexico		
June 1948	12	50
[illegible], China		
June 1948	12	51
May 1948	17	60
Yamakawa, Japan		
May 1948	16	59
April 1948	20	67

CRPL and IRPL Reports

Daily:

Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards.
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Weekly:

CRPL–J. Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL–Ja. Semimonthly Frequency Revision Factors for CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC–13–1 ( ), monthly supplements to DNC–13–1.)

CRPL–F. Ionospheric Data.

Quarterly:

*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

*IRPL–H. Frequency Guide for Operating Personnel.

Nonscheduled reports:

CRPL–1–1. Prediction of Annual Sunspot Numbers.
CRPL–1–2, 3–1. High Frequency Radio Propagation Charts for Sunspot Minimum and Sunspot Maximum.
CRPL–1–3. Some Methods for General Prediction of Sudden Ionospheric Disturbances.
CRPL–1–4. Observations of the Solar Corona at Climax, 1944–46.
CRPL–1–5. Comparison of Predictions of Radio Noise with Observed Noise Levels.
CRPL–1–6. The Variability of Sky-Wave Field Intensities at Medium and High Frequencies.
CRPL–7–1. Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records.
NBS Circular 462. Ionospheric Radio Propagation.
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 $F2$-layer Radio Transmission Throughout the Solar Cycle.
- R16. Predicted $F2$-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 $F2$-layer Frequencies Throughout the Solar Cycle, for June.
- R20. Nomographic Predictions of $F2$-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 $F2$-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 the Prediction of Radio Propagation Phenomena.
- R26. The Ionosphere as a Measure of Solar Activity.
- R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
- R28. Nomographic Predictions of $F2$-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.
- R32. Nomographic Predictions of $F2$-layer Frequencies Throughout the Solar Cycle, for February.
- 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.

IRPL–T. Reports on tropospheric propagation:

- T1. Radar operation and weather. (Superseded by JANP 101.)
- T2. Radar coverage and weather. (Superseded by JANP 102.)

CRPL–T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG–5.)

---

*Items bearing this symbol are distributed only by U. S. Navy. They are issued under one cover as the DNC-14 series.

U. S. GOVERNMENT PRINTING OFFICE: 19--