CRPL-F35

IONOSPHERIC DATA

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PREPARED BY CENTRAL RADIO PROPAGATION LABORATORY
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CRPL-F 35

CENTRAL RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
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CONTENTS

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 17 April to 5 May 1944, beginning with data for 1 Jan. 1945, median values were used by IRPL wherever possible. Thus, median values are given for Washington, for all stations reporting directly to the CRPL, for the Canadian stations, and for all others sending to the CRPL detailed tabulations from which medians can be computed.

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 missing because of E are counted as equal to or less than the lower limit of the recorder. Ordinarily, values of virtual heights, f^oF1, and f^oE missing for this reason are omitted from the median count.
   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°E, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of hEs missing for any reason at all are omitted from the median count.

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

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

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

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

It is expected that this practice will be of assistance in evaluating the monthly median Washington data.

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.
U -- forked record.
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 53 and figures 1 to 100 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL predictions of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data:

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

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

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

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

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

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

Carnegie Institution of Washington (Department of Terrestrial Magnetism):
- Huancayo, Peru
- Watheroo, W. Australia

United States Army Signal Corps:
- Fukaura, Japan
- Okinawa I.
- Shibata, Japan
- Tokyo, Japan
- Wakkanai, Japan
- Yamakawa, Japan

National Bureau of Standards (Central Radio Propagation Laboratory):
- Adak, Alaska
- Baton Rouge, Louisiana (Louisiana State University)
- Boston, Massachusetts (Harvard University)
- Fairbanks, Alaska (University of Alaska, College, Alaska)
- Guam I.
- Maui, Hawaii
- Palmyra I.
- San Francisco, California (Stanford University)
- San Juan, Puerto Rico (University of Puerto Rico)
- Trinidad, British West Indies
- Washington, D. C.
- White Sands, New Mexico
- Wuchang, China (National Wuhan University)

All India Radio (Government of India), New Delhi, India:
- Bombay, India
- Delhi, India
- Madras, India
- Peshawar, India

Indian Council of Scientific and Industrial Research, Radio Research Committee:
- Calcutta, India

Radio Wave Research Laboratory, Central Broadcasting Administration:
- Chungking, China
- Lanchow, China
- Peiping, China

French Ministry of Naval Armaments (Section for Scientific Research):
- Fribourg, Germany

Philippine Republic, Department of National Defense:
- Leyte, Philippine Is.

Norwegian Defense Research Establishment, Florida, Bergen, Norway:
- Oslo, Norway
- Tromso, Norway

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

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

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

a Differences in scaling records where spread echoes are present.

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

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

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. Predictions for individual stations used to construct the charts may be more accurate than the values read from the chart since some smoothing of the contours is necessary to allow for the longitude effect within a zone. The following predicted smoothed 12-month running-average Zurich sunspot numbers were used in constructing the contour charts, beginning with August 1945:

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

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

The data given in tables 54 to 65 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."

Attention is called to the fact that the Washington data for the months of February 1947 through May 1947, owing to equipment limitations, are not to be considered as accurate as the data taken during the months prior to February 1947 and in June 1947. Because of the limited power of the manual recorder, the reported critical frequencies tend to be too small. Comparison of January and June automatically recorded data with the intervening manual data indicates that the virtual heights were systematically too large. The latter was the more serious error and, as a consequence, the reported values of MUF factors tend to be low. Erratic variations in F1-layer critical frequencies were caused by poor resolution by the manual apparatus of the ordinary and extraordinary components. This is especially evident in the data for February and March.

Since February 1947, the fEs and h'fEs readings reported have been the values of fEs and h'fEs observed on the hourly record instead of the highest value of fEs and the lowest value of h'fEs observed during the hourly interval centered on the hour, as had been the practice up to that time.

IONOSPHERE DISTURBANCES

Table 66 presents ionosphere character figures for Washington, D.C., during June 1947, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, magnetic K-figures, which are usually covariant with them.

Table 67 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 June 1947.

Table 68 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 May 17 to June 5, 1947.

Table 69 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, May 1947, 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 for the North Atlantic are prepared from radio traffic and ionospheric data reported to the CRPL, in the manner described in detail in report IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued 1 February 1946.

The radio propagation quality figures for the North Pacific are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner similar to that of IRPL-R31. The master scale of IRPL-R31 was used to formulate conversion scales for the North Pacific reports. Beginning with CRPL-F23, issued July 1946, the North Pacific radio propagation quality figures reported are prepared from these revised conversion scales.

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 70 presents the daily median values of relative sunspot numbers as reported by American observers for June 1947. The reports have been reduced, by appropriate constants, approximately to the Zürich scale of relative sunspot numbers. The monthly relative sunspot number is the mean of the daily median values listed in the table. This method was devised by Mr. A. H. Shapley, while a member of the staff of the Department of Terrestrial Magnetism, Carnegie Institution of Washington. Details will be found in his article, "American Observations of Relative Sunspot Numbers in 1945 for Application to Ionospheric Prediction," Popular Astronomy, vol. 54, No. 7, pp. 351-358. The criteria for A observers have been modified slightly, beginning with September 1946. In order for an observer's report to be included in the American sunspot numbers, the mean deviation of the reduction factors for his observations for the four preceding months must have been within 15% of the 4-month running mean of his reduction factors, rather than within an interval of ± 0.16 of that running mean. This avoids favoring observers with small reduction factors and discriminating against observers with large reduction factors. In addition sunspot numbers must have been reported for at least one-half of the month during three-quarters of the preceding year. This will tend to restrict the observers to those whose observations are consistent from month to month without rejecting the work of observers for whom weather conditions are unsatisfactory for observations during some months of the year.

In addition, table 70 lists the daily provisional Zürich sunspot numbers. The first issue in which these numbers appear is CRPL-F35.

SOLAR CORONAL INTENSITIES OBSERVED AT CLIMAX, COLORADO

In table 71 the intensities of the green (λ 5303A), first red (λ 6374A), and second red (λ 6704A) lines of the solar corona as observed during June 1947, by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, are given for every 5° from astronomical north for each day on which observations were possible. An arbitrary intensity-scale of approximately 0 to 40 is used. To convert from astronomical north and to determine the positions relative to the solar rotational equator, subtract the algebraic value of the position-angle of the solar axis. This quantity varies from -26 to +26 degrees during the year, and is tabulated in the nautical almanacs. If observations are uncertain, the initials l.w. (low weight) follow the date. The time of observation in hours GCT is listed. Dashes indicate that the intensity for that position is below the observable threshold. Absence of observation made at a given position is indicated by X.

ERRATUM

In CRPL-F31 through F34, the latitude of Yamakawa, Japan, was given as 32.2°N. The correct latitude is 31.2°N.

Table 1*

Washington, D. C. (39.0°N, 77.5°W) June 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	6.6						2.6
01	290	6.4						2.6
02	280	5.8						2.6
03	300	5.4					1.5	2.5
04	300	5.0					1.9	2.6
05	290	5.0					2.3	2.7
06	420	5.6	235	4.1	100	2.5	3.8	2.6
07	480	5.8	230	4.7	90	3.1	4.4	2.4
08	580	6.1	220	5.1	90	3.6	5.1	2.4
09	540	6.1	210	5.2	90	3.8	4.6	2.4
10	520	6.7	200	5.5	90	3.9	4.8	2.4
11	545	6.9	200	(5.5)	90	(4.0)	4.4	2.4
12	525	6.9	200	(5.5)	90	(4.1)	4.4	2.4
13	535	7.2	200	5.6	90	(4.1)	4.3	2.4
14	520	7.2	210	5.6	90	4.0	5.1	2.4
15	495	7.0	210	5.5	90	3.9	4.7	2.4
16	450	7.2	220	5.3	90	3.7	4.0	2.6
17	430	7.2	220	5.0	95	3.4	4.4	2.6
18	350	7.0	220	4.7	100	2.9	4.2	2.6
19	265	7.2			100	2.1	4.7	2.8
20	270	7.3					4.3	2.7
21	280	7.7					4.0	(2.7)
22	275	7.6					2.3	2.7
23	270	7.3						2.6

Time: 75.0°W.
Sweep: 3.1 Mc to 17.0 Mc, June 1-11. Manual operation.
1.0 Mc to 25.0 Mc in 15 seconds, June 12-30. Automatic recorder.
*See 2nd par., p.7.

Table 2

Clyde, Baffin I. (70.5°N, 68.6°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	5.6						
01	300	5.7						
02	330	5.6						
03	300	5.3						
04	325	5.3						
05	310	5.4						
06	415	5.9						
07	410	5.8						
08	465	5.8						
09	460	6.0						
10	450	6.0						
11	435	6.2						
12	475	6.4						
13	470	5.8						
14	450	5.8						
15	465	6.1						
16	430	6.2						
17	420	6.2						
18	400	6.0						
19	310	6.0						
20	330	5.8						
21	330	5.8						
22	300	6.0						
23	315	5.7						

Time: 75.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute and 1.9 Mc to 13.0 Mc. Manual operation.

Table 3

Fairbanks, Alaska (64.9°N, 147.8°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	360	5.4					4.2	2.4
01	365	5.3					4.3	2.4
02	352	5.4				1.9	5.0	2.4
03	400	5.6				2.2	4.6	2.4
04	445	5.7	318	3.6		2.2	4.8	2.3
05	482	6.3	280	4.1		2.7	4.6	2.3
06	482	6.2	260	4.5		3.0	4.9	2.2
07	515	6.4	250	4.6		3.2	4.4	2.3
08	500	6.8	245	4.9		3.4	3.1	2.3
09	530	6.8	245	5.0		3.5	3.0	2.3
10	530	6.7	240	5.1		3.6	3.0	2.3
11	545	6.6	240	5.2		3.7		2.3
12	579	6.5	240	5.5		3.8		2.3
13	575	6.4	245	5.3		3.7		2.3
14	528	6.7	240	5.3		3.6		2.3
15	522	6.6	242	5.1		3.4		2.3
16	485	6.6	250	5.0		3.3		2.4
17	448	6.6	260	4.7		3.0		2.4
18	390	6.4	260	4.5		2.7	3.2	2.5
19	300	6.3		4.0		2.4	3.0	2.6
20	290	6.0				2.0	3.0	2.6
21	310	5.8					3.6	2.7
22	310	5.5					3.6	2.5
23	375	5.4					3.7	2.4

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

Table 4

Churchill, Canada (58.8°N, 94.2°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	340	5.1					3.8	2.4
01	360	5.1	290				3.7	2.4
02	345	4.8					3.5	2.5
03	330	4.8					3.2	2.6
04	350	5.1	285	3.3			3.2	2.6
05	380	5.0	270	3.6	110	2.6	3.2	2.6
06	440	5.3	250	4.2	100	3.0		2.6
07	500	5.9	260	4.7	100	3.3		2.4
08	500	6.2	250	5.1	100	3.5		2.4
09	495	6.5	250	5.2	100	3.6		2.4
10	520	6.4	240	5.3	100	3.5		2.4
11	525	6.6	250	5.4	100	3.5		2.4
12	510	6.9	250	5.4	100	3.5		2.3
13	505	6.9	250	5.4	110	3.6		2.3
14	480	7.2	245	5.4	100	3.4		2.4
15	450	7.6	240	5.3	100	3.5		2.3
16	440	7.6	240	5.2	100	3.4		2.4
17	410	7.0	250	4.8	100	3.2		2.5
18	400	7.0	250	4.8	102	3.0		2.5
19	340	6.6	285	4.2	115	2.9		2.6
20	300	6.5			110	2.8	2.6	2.7
21	300	6.3				2.5	3.6	2.7
22	310	5.6					5.7	2.6
23	340	5.6					6.0	2.5

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

Table 5

Prince Rupert, Canada (54.3°N, 130.3°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	5.0					3.2	2.5
01	310	4.6						2.5
02	340	4.5					2.7	2.5
03	350	4.2					3.2	2.5
04	355	4.1					3.2	2.5
05	390	4.8	310	3.5	130	2.0	3.9	2.5
06	480	5.6	270	4.1	120	2.4	4.0	2.4
07	460	6.1	255	4.6	120	2.9	4.1	2.4
08	500	6.5	240	4.8	110	3.3	4.4	2.4
09	520	6.8	240	5.0	110	3.5	4.4	2.3
10	510	7.1	230	5.3	110	3.7	4.3	2.3
11	515	7.0	230	5.4	110	3.8	4.4	2.3
12	510	7.2	235	5.5	110	3.8	4.5	2.3
13	520	7.2	240	5.6	110	3.9	4.2	2.3
14	530	7.1	240	5.5	110	3.8	4.3	2.3
15	485	7.2	240	5.5	110	3.7	4.0	2.4
16	480	7.2	240	5.5	110	3.6	4.0	2.4
17	430	7.1	250	5.2	110	3.3	3.8	2.4
18	390	7.1	250	4.8	120	3.0	4.0	2.5
19	330	7.1	270	4.2	120	2.6	3.8	2.6
20	290	7.0	285	3.5	140	2.1	3.2	2.6
21	280	6.5				1.8	3.4	2.6
22	280	6.2					3.2	2.6
23	290	5.7					2.7	2.6

Time: 120.0°W.
Sweep: Manual operation.

Table 6

Adak, Alaska (51.9°N, 176.6°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.2					2.1	2.6
01	310	5.9						2.5
02	320	5.7						(2.5)
03	340	5.4					2.2	(2.5)
04	335	5.8	320				1.8	2.5
05	400	8.8	265	4.0	120	2.2	2.5	2.5
06	415	7.4	250	4.5	110	2.8	3.8	2.5
07	405	8.2	230	5.0	100	3.2	4.2	2.5
08	440	7.8	220	5.3	100	3.5	4.7	2.4
09	465	7.5	(220)	5.5	100	3.7	5.0	2.4
10	455	7.4	(210)	5.5	100	3.8	5.0	2.5
11	460	7.5	(220)	(5.7)	(100)	(3.9)	5.1	2.5
12	460	7.8	220	5.7	100	(4.0)	4.1	2.5
13	450	7.7	220	5.7	100	(3.8)	4.1	2.5
14	435	7.5	220	5.5	100	(3.8)	4.1	2.5
15	415	7.5	220	5.4	100	(3.5)	4.0	2.5
16	370	7.5	230	5.3	100	3.4	3.8	2.7
17	(340)	7.5	(240)	(5.0)	100	(3.1)	3.7	2.8
18	280	7.5	260	(4.5)	110	(2.5)	4.1	2.8
19	270	7.5			120	(2.1)	3.2	2.8
20	270	7.5					2.9	2.8
21	260	7.4					2.0	2.7
22	265	6.8					2.0	2.5
23	280	8.5					1.7	2.5

Time: 180.0°W.
Sweep: 1.2 Mc to 15.5 Mc. Manual operation.

Table 7

Portage la Prairie, Manitoba (49.9°N, 98.3°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.6					2.0	2.4
01	300	5.2					2.0	2.5
02	310	5.0					2.0	2.4
03	350	4.4					3.1	2.3
04	320	4.5					2.0	2.4
05	300	4.8			120	1.8	2.0	2.5
06	260	5.6	250	3.8	120	2.4	2.4	2.6
07	325	6.4	230	4.6	110	3.0		2.6
08	450	6.6	230	4.8	100	3.4		2.4
09	455	7.0	225	5.1	100	3.6		2.4
10	470	7.3	220	5.4	100	3.8		2.4
11	470	7.4	220	5.4	100	3.8		2.4
12	460	7.4	220	5.4	100	4.0		2.4
13	450	7.3	220	5.4	100	4.0		2.4
14	500	7.4	220	5.2	100	3.8		2.4
15	470	7.2	220	5.2	105	3.8		2.3
16	450	7.2	230	5.2	100	3.6		2.4
17	430	7.3	230	4.9	100	3.2		2.4
18	370	7.6	250	4.4	110	2.9		2.5
19	295	7.3	250	4.0	110	2.4		2.6
20	270	7.2			120	2.0		2.6
21	270	6.8						2.6
22	270	6.6					2.0	2.6
23	295	6.0					2.6	2.4

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

Table 8

Ottawa, Canada (45.5°N, 75.8°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	5.4						2.5
01	330	5.0						2.5
02	330	5.4						2.6
03	340	5.0						2.5
04	310	5.1						2.7
05	280	5.7						2.7
06	250	6.3	240	3.8	110	2.5		2.7
07	250	6.6	230	4.1	110	3.0		2.8
08	255	7.0	220	4.5	110	3.4		2.6
09	260	7.2	220	4.8	100	3.5		2.5
10	260	7.4	210	4.8	100	3.8		2.5
11	260	7.8	210	4.9	100	3.7		2.5
12	260	7.9	210	5.0	100	3.8		2.5
13	255	7.9	220	4.9	100	3.8		2.4
14	250	8.2	220	4.8	100	3.9		2.5
15	250	8.3	230	4.5	110	3.7		2.5
16	260	8.4	230	4.4	110	3.5		2.5
17	280	8.3	240	4.3	110	3.2		2.5
18	280	8.2	260	3.8	115	2.5		2.5
19	290	8.4						2.5
20	265	8.2						2.5
21	290	7.6						2.5
22	300	7.0						2.5
23	310	8.5						2.6

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

Table 9

Boston, Massachusetts (42.4°N, 71.2°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	7.1						2.4
01	330	7.0						2.4
02	350	6.5						2.4
03	335	6.2						2.4
04	320	6.3						2.5
05	320	6.7			130	2.4	1.9	2.6
06	310	8.0			125	2.7		2.7
07	330	7.8			125	2.8		2.7
08	300							
09	315							
10								
11	350							
12								
13								
14	390							
15	400							
16	370							
17	350	8.0	310	5.3				2.6
18	340	8.0			125	2.7		2.6
19	320	8.0			125	2.2		2.7
20	300	7.9					1.6	2.7
21	300	7.6						2.6
22	300	7.5						2.5
23	320	7.4						2.4

Time: 75.0°W.
Sweep: 0.85 Mc to 13.75 Mc in 1 minute.

Table 10

San Francisco, California (37.4°N, 122.2°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.4					3.0	2.6
01	280	6.4					2.8	2.7
02	280	6.0					2.7	2.6
03	280	5.8					2.4	2.6
04	280	5.5						2.6
05	280	5.6	310	3.2			2.1	2.6
06	240	6.6	260	4.0	100	2.5	2.6	2.7
07	350	7.6	220	5.0	100	3.2	3.9	2.5
08	360	8.8	200	5.6	100	3.5	4.1	2.5
09	360	9.6	200	6.0	100	3.8	4.7	2.5
10	380	10.2	200	6.0	100	3.9	4.7	2.6
11	365	10.8	200	6.1		4.0		2.6
12	360	11.0	200	6.2	100	3.9	5.0	2.6
13	340	10.5	210	6.0	100	4.0	4.2	2.6
14	360	10.4	210	5.9	100	4.0		2.6
15	350	10.0	220	5.7	100	3.8		2.6
16	320	9.6	220	5.4	100	3.6		2.7
17	255	9.2	220	5.0	100	3.3		2.8
18	225	8.7	240	4.3	100	2.6	3.5	2.8
19	240	7.9					2.5	2.8
20	230	7.6					2.6	2.7
21	240	7.0					2.8	2.7
22	260	6.6					2.7	2.7
23	300	6.5					2.6	2.6

Time: 120.0°W.
Sweep: 1.5 Mc to 18.5 Mc in 4.5 minutes.

Table 11

White Sands, New Mexico (32.6°N, 106.5°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	6.7					3.0	2.4
01	320	6.8					2.6	2.5
02	300	6.6					2.6	2.5
03	300	6.4					2.7	2.5
04	320	6.2					2.9	2.4
05	320	6.4	300				3.1	2.6
06	300	7.0	240	3.8	110	2.6	4.8	2.6
07	300	8.2	230	4.8	110	3.2	4.9	2.6
08	340	8.9	230	5.1	110	3.5	5.2	2.6
09	400	10.0	220	6.0	110	3.8	5.4	2.5
10	400	10.2	215	6.2	110	4.0	5.4	2.5
11	400	10.9	220	6.2	110	4.0	4.7	2.5
12	400	11.0	220	6.4	110	4.1	4.8	2.4
13	400	11.1	225	6.2	110	4.1	4.4	2.5
14	400	10.8	230	5.9	110	4.0	4.4	2.5
15	390	10.4	230	5.8	110	3.9	4.6	2.5
16	380	9.8	230	5.6	110	3.6	4.7	2.6
17	325	9.3	240	5.3	110	3.2	4.5	2.6
18	300	9.0	240		115	2.4	3.6	2.7
19	280	8.6					3.3	2.7
20	255	7.8					2.9	2.6
21	300	7.0					2.8	2.5
22	310	7.0					3.3	2.5
23	320	6.5					3.4	2.4

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

Table 12

Wuchang, China (30.6°N, 114.4°E) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	10.0					3.3	2.7
01	300	9.6					2.8	2.7
02	280	9.0					2.8	2.8
03	280	8.3					2.4	2.7
04	300	7.6					1.9	2.6
05	310	7.7					2.1	2.6
06	270	8.8			130	2.4		2.8
07	250	9.8			120	3.0		2.9
08	275	10.1	250	7.0	120	3.5	5.2	2.8
09	370	11.0	245	7.0	120	3.8	6.0	2.7
10	380	12.0	250	7.2	120	4.0	6.2	2.5
11	395	13.0	235	7.4	120	4.1	6.4	2.6
12	395	13.5	250	6.8	120	4.2	6.0	2.6
13	400	13.2	250	6.5	120	4.0		2.6
14	390	13.5	260	6.4	120	4.1		2.6
15	375	12.5	245	6.2	120	4.0		2.7
16	365	13.0	250	6.0	120	3.8		2.6
17	340	12.5	260	5.7	120	3.5	4.4	2.6
18	310	12.0	280	5.2	130	2.8	5.8	2.7
19	300	11.5					5.6	2.8
20	310	9.8					5.4	2.7
21	328	9.4					4.4	2.6
22	325	9.7					3.2	2.6
23	320	9.9					3.3	2.7

Time: 120.0°E.
Sweep: 1.2 Mc to 14.0 Mc in 2 minutes.

Table 13

Baton Rouge, Louisiana (30.5°N, 91.2°W) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	360	7.0						2.6
01	350	7.0						2.5
02	350	8.7						2.6
03	335	6.8						2.6
04	335	6.1						2.6
05	310	6.4						2.7
06	300	7.1		4.0	130	2.6		2.8
07	320	7.6	260	4.8	120	3.1	3.9	2.7
08	360	8.6	250	5.5	120	3.4		2.6
09	410	10.0	276	6.0	120	3.6		2.5
10	410	10.7	290	6.2	120	3.7		2.5
11	440	10.1		6.1	120	(3.7)		2.6
12	440	11.0		6.1	120	(3.6)		2.5
13	450	9.6		6.2	120	(3.7)		2.6
14	450	9.0		5.8	120	(3.8)		2.6
15	445	11.0	260	6.6	120	3.6		2.5
16	420	8.2	270	6.0	120	3.4		2.5
17	400	8.0	260	4.7	120	2.8	4.0	2.6
18	345	7.9	290	(3.7)	130	2.4	3.2	2.6
19	300	7.6						2.8
20	300	7.5						2.6
21	320	7.2						2.5
22	350	7.1						2.5
23	360	7.0						2.4

Time: 90.0°W.
Sweep: 2.0 Mc to 15.0 Mc in 5 minutes.

Table 14

Maui, Hawaii (20.8°N, 156.5°W) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	10.5						2.6
01								
02								
03								
04								
05								
06	265	7.2			110	2.2	2.4	2.5
07	230	8.6			110	3.0	3.4	2.7
08	230	10.1	220	6.2	110	3.6		2.7
09	280	10.9	220	6.6	110	4.0		2.4
10	360	12.2	220	7.0	110	4.0		2.4
11	380	13.1	220	7.0	110	4.2		2.5
12	370	13.7	220	6.7	110	4.3		2.5
13	370	14.3	220	7.0	110	4.4		2.6
14	370	14.4	220	6.8	110	4.3		2.6
15	360	14.5	220	6.6	110	4.2		2.6
16	340	14.1	230	6.4	110	3.9	4.3	2.6
17	330	14.2	230	8.0	100	3.4	4.8	2.6
18	280	13.7	260	4.8	100	2.6	4.3	2.7
19	270	13.3					4.8	2.7
20	290	12.1					4.5	2.6
21	280	12.0					3.9	2.5
22	285	10.8					3.8	2.6
23	280	10.5					3.7	2.6

Time: 150.0°W.
Sweep: 1.2 Mc to 18.0 Mc. Manual operation.

Table 15

San Juan, Puerto Rico (18.4°N, 66.1°W) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.6						2.7
01		8.7						2.7
02		8.2						2.8
03		6.4						2.8
04		7.9						2.7
05		7.4						2.7
06		8.1						2.7
07	300	8.7		2.9			3.9	2.8
08	290	10.2		4.1		3.3	4.3	2.7
09	310	11.0		6.5		3.7	4.3	2.6
10	330	11.0		6.8		4.0		2.8
11	350	11.3		8.1				2.6
12	396	11.7						2.6
13	355	12.2						2.8
14	360	12.0				4.2	4.6	2.8
15	350	11.6		5.8		4.0	4.4	2.6
16	320	11.4		4.8		3.6	4.7	2.8
17	310	11.0				3.3	4.4	2.6
18	300	10.4					4.0	2.6
19	310	9.5						2.7
20		9.0						2.7
21		9.4						2.7
22		9.4						2.7
23		9.9						2.6

Time: 60.0°W.
Sweep: 2.8 Mc to 13.0 Mc in 8 minutes.

Table 16

Guam I. (13.6°N, 144.8°E) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	(13.0)					3.8	(2.6)
01	260	12.2					4.5	(2.9)
02	240	10.9					3.4	2.8
03	240	10.6					3.8	2.9
04	230	9.0					3.4	3.0
05	220	7.7					4.2	3.0
06	255	8.0					4.8	(2.8)
07	242	9.4					6.6	2.9
08	230	10.7					8.4	2.6
09	230	11.6					9.0	2.3
10	220	12.4					8.5	2.2
11	210	13.1					6.5	2.2
12	220	13.8	220	7.0			7.0	2.2
13	220	14.1	220	6.7			6.5	2.2
14	222	14.3	230	6.6			7.0	2.2
15	235	14.1	230	6.3			7.4	2.1
16	240	14.4	248	6.2			5.5	2.2
17	250	14.2			110	3.2	6.2	2.2
18	270	13.8					5.4	2.1
19	330	12.0					4.8	2.1
20	430	11.5					2.4	2.0
21	420	10.9					2.4	(2.1)
22	400	11.4					2.2	2.2
23	360	(11.7)					3.2	(2.4)

Time: 150.0°E.
Sweep: 1.25 Mc to 18.8 Mc. Manual operation.

Table 17

Trinidad, Brit. West Indies (10.6°N, 61.2°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	10.8						2.7
01	280	9.9						2.6
02	280	9.3						2.7
03	265	9.0						2.7
04	270	8.0						2.7
05	280	7.6						2.6
06	290	7.7					2.4	2.6
07	250	9.5			120	2.8	3.4	2.8
08	250	10.8			120	3.4	4.0	2.7
09	265	11.6	240	(6.0)	120	3.8	4.2	2.6
10	330	12.3	235	5.9	120	4.2	4.6	2.5
11	345	12.8	230	6.0	120	4.2	4.6	2.5
12	380	13.5	240	6.1	120	4.4	5.0	2.5
13	380	13.6	240	6.4	120	4.4	5.0	2.4
14	380	13.3	240	6.1	120	4.2	5.1	2.4
15	400	13.0	240	6.4	120	4.0	5.0	2.4
16	380	12.0	250	(5.8)	120	3.6	5.0	2.4
17	280	11.5			120	3.0	4.6	2.4
18	290	11.1					3.0	2.4
19	320	10.6					3.0	2.4
20	350	11.4					2.6	2.4
21	340	11.6						2.4
22	320	11.8						2.5
23	300	11.4						2.6

Time: 60.0 W.
Sweep: 1.2 Mc to 15.5 Mc. Manual operation.

Table 18

Palmyra I. (5.9°N, 162.1°W) May 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	13.2					3.1	(2.8)
01	240	(12.5)					3.0	(2.8)
02	250	12.3					2.9	(2.9)
03	240	11.5					2.9	3.0
04	220	9.8					2.8	3.0
05	230	7.6					2.8	2.9
06	280	7.5			200	1.7	3.1	2.7
07	250	8.8			110	2.8	4.0	2.7
08	230	10.3			100	3.5		2.6
09	230	11.5	210		100	3.9		2.4
10	240	12.0	210	5.3	100	4.2		2.3
11	250	12.6	205	5.3	100	4.4		2.2
12	275	13.1	200	5.6	100	4.6		2.2
13	280	13.3	200	5.6	100	4.5		2.3
14	280	13.3	200	5.4	100	4.2		2.3
15	250	13.3	210	5.2	100	4.0		2.2
16	250	13.2	230	6.3	100	3.6		2.2
17	245	13.0			110	3.1		2.2
18	270	12.6			150	2.2	4.0	2.2
19	370	11.6					3.6	2.1
20	410	11.0					2.8	2.1
21	350	11.8					2.0	2.2
22	310	12.0					3.2	(2.4)
23	290	12.9					3.1	2.7

Time: 157.5°W.
Sweep: 1.0 Mc to 13.0 Mc in 1.6 minutes.

Table 19

Churchill, Canada (58.8°N, 94.2°W) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.9					3.9	2.6
01	290	5.5					3.4	2.6
02	305	4.9					2.8	2.5
03	320	4.0			110	3.0	2.6	2.4
04	340	4.2			130	2.9	2.6	2.6
05	335	5.0			120	2.7	2.6	2.7
06	340	5.2	305	3.5	120	3.0	2.5	2.5
07	320	5.4	260	4.3	110	3.0		2.7
08	345	6.3	260	4.6	110	3.4	2.5	2.7
09	380	7.0	260	5.0	110	3.4	3.2	2.6
10	415	7.0	250	5.0	100	3.4	3.2	2.6
11	430	7.0	270	5.2	110	3.4	3.2	2.6
12	410	7.8	250	5.3	110	3.4		2.5
13	380	8.5	240	5.1	110	3.3	3.0	2.5
14	340	8.8	240	5.1	100	3.3	3.2	2.6
15	360	9.2	250	5.2	100	3.3	2.6	2.5
16	340	8.7	245	4.8	100	3.2		2.5
17	315	8.0	250	4.2	100	3.0		2.6
18	300	7.7	290	4.0	110	2.9	2.5	2.7
19	310	7.9			110	2.8		2.7
20	300	6.3			125	2.9		2.6
21	305	6.0			110	2.7	3.4	2.6
22	300	5.4					6.5	2.6
23	280	5.8					3.9	2.5

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

Table 20

Prince Rupert, Canada (54.3°N, 130.3°W) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	5.0						2.6
01	310	4.6						2.6
02	320	4.4					2.8	2.6
03	350	4.1						2.6
04	345	4.0					2.6	2.6
05	340	4.1			E	E	2.6	2.6
06	330	4.7	280	3.6	120	1.9	3.2	2.7
07	350	5.7	260	4.2	120	2.4	3.7	2.6
08	410	6.2	250	4.6	110	2.8	3.5	2.6
09	400	6.6	240	5.0	110	3.2	3.7	2.5
10	400	7.3	230	5.2	110	3.4	3.8	2.5
11	420	7.8	220	5.3	110	3.6	4.0	2.5
12	400	8.0	220	5.5	110	3.6	3.9	2.5
13	400	8.1	230	5.6	110	3.6	3.7	2.5
14	400	8.2	230	5.6	110	3.6	4.0	2.5
15	370	8.3	230	5.6	110	3.5	3.9	2.6
16	360	8.7	240	5.4	110	3.3	3.9	2.6
17	310	8.6	240	5.0	110	3.0	3.1	2.7
18	270	8.6	250	4.2	110	2.6	3.0	2.8
19	260	8.4	250	3.7	120	2.1	2.4	2.8
20	250	7.8			E	1.7	2.1	2.8
21	260	6.8						2.8
22	250	6.0						2.7
23	280	5.4						2.7

Time: 120.0°W.
Sweep: Manual operation.

Table 21

St. Johns, Newfoundland (47.6°N, 52.7°W) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	6.4						2.7
01	260	F4.2						2.6
02	260	4.0						2.8
03	260	F4.1						2.6
04	260	F4.0						2.6
05	240	F4.9					1.3	2.7
06	220	6.2	210	3.6	90	2.3	1.9	3.2
07	210	6.7	210	4.0	100	2.6	2.6	3.2
08	210	6.9	205	4.3	90	3.0		3.2
09	250	7.0	210	5.0	90	3.4		3.1
10	285	7.8	200	5.4	90	3.6	3.5	3.0
11	290	8.3	200	5.6	90	3.8	3.6	3.0
12	290	8.8	200	5.7	90	3.8	3.7	2.9
13	295	9.0	200	6.6	90	3.8	3.8	3.0
14	290	9.6	210	5.6	90	3.7	3.7	3.0
15	270	9.8	210	5.3	90	3.5	3.6	3.0
16	255	9.8	210	5.0	90	3.2	3.3	3.0
17	220	10.2	220	4.8	100	3.0		3.0
18	220	10.1	220	4.2	100	2.6		3.1
19	220	9.8			100	1.8		3.1
20	220	8.9						3.0
21	225	8.2						2.9
22	230	7.2						2.7
23	250	F6.6						2.6

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

Table 22*

Wakkanai, Japan (45.4°N, 141.7°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.0						2.5
01	300	7.7						2.6
02	300	7.6						2.6
03	270	7.4						2.6
04	280	6.9						2.5
05	300	7.6						2.5
06	250	9.0			120	2.3	2.6	2.7
07	240	10.2			120	2.7	3.0	2.8
08	260	11.0	235		120	3.4	3.8	(2.8)
09	260	11.1	240		110	3.7	4.0	2.9
10	270	11.5	250		110	3.9	(4.7)	2.8
11	295	12.4	240		100	3.8	4.6	2.7
12	300	12.5	235				4.3	
13	290	12.8	250		120	3.9	4.4	(2.8)
14	270	12.2	225		120		4.1	(2.7)
15	270	11.9	240				(3.6)	(2.7)
16	270	11.3	240				(3.5)	2.8
17	250	10.7	220		130	2.7	(3.0)	(2.8)
18	245	10.5						(2.8)
19	250	10.2						(3.0)
20	240	8.4						(2.8)
21	250	8.3						2.9
22	275	8.2						2.6
23	275	8.0						2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc. Manual operation.
* Data for April 1 through 22.

Table 23

Fukaura, Japan (40.5°N, 139.9°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	7.5						
01	310	7.4						
02	300	7.2						
03	300	6.9						
04	300	6.5						
05	320	7.0						
06	275	8.4			120	2.3	1.6	
07	240	8.8			120	2.6		
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19	260	8.6					2.4	
20	260	8.2					2.4	
21	285	8.0					2.0	
22	300	7.8					2.0	
23	300	7.7						

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc.

Table 24

Shibata, Japan (37.9°N, 139.3°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	8.3						2.7
01	290	8.2					1.8	2.7
02	280	7.9					1.7	2.8
03	260	7.2					1.4	2.8
04	290	6.8						2.6
05	300	7.1						2.7
06	240	9.7			120	2.2		3.0
07	230	11.3			110	2.8	2.5	3.0
08	230	12.1	215		110	3.4	3.6	3.0
09	240	12.6	230		110	3.7	4.4	2.9
10	245	12.8	220		110	3.9	4.4	2.9
11	250	13.1	230		110	3.9	4.3	2.8
12	250	13.3	230		110	4.0	4.4	2.7
13	270	13.2	230		110	4.0	4.5	2.7
14	260	13.0	225		110	3.8	3.5	2.8
15	250	12.9	230		110	3.6	4.0	2.8
16	235	12.2	220		110	3.4	2.6	2.9
17	240	12.0	230		100	2.8	3.3	2.9
18	250	11.6			120	2.0	3.7	3.0
19	250	10.6					4.0	3.0
20	250	8.8					3.4	2.8
21	260	8.6					3.0	2.8
22	280	8.7					2.0	2.8
23	275	8.5					2.0	2.8

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

Table 25

Tokyo, Japan (35.7°N, 139.5°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	9.2					2.1	2.6
01	290	9.0						2.6
02	265	8.5					2.3	2.7
03	240	7.8						2.6
04	260	7.2					2.0	2.6
05	290	7.8					2.0	2.6
06	230	10.0			100	2.3	3.0	2.9
07	220	11.7			100	3.0	3.6	3.1
08	220	12.4	220		100	3.5	3.8	3.0
09	230	12.6	210		100	3.6	4.2	2.9
10	240	13.0	230		100	4.0	4.5	2.8
11	260	13.2	220		100	4.0	4.4	2.8
12	290	13.7	220		100	4.0	4.0	2.7
13	310	13.7	220		100	4.0	3.9	2.7
14	300	13.6	220		100	3.9	4.2	2.7
15	290	13.2	220		100	3.8	3.8	2.7
16	270	12.9	220		100	3.4	3.9	2.7
17	250	12.7	240		100	3.0	4.1	2.8
18	240	12.2			105	2.0	3.7	2.9
19	230	11.2					3.5	2.9
20	240	9.6					3.6	2.7
21	270	9.4					3.1	2.6
22	300	9.5					3.0	2.6
23	280	9.4					2.3	2.7

Time: 135.0°E.
Sweep: 1.5 Mc to 15.0 Mc in 15 minutes. Manual operation.

Table 26

Yamakawa, Japan (31.2°N, 130.6°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	10.9					2.4	2.8
01	280	10.3					1.9	2.8
02	280	9.6						2.8
03	260	8.6						2.8
04	265	7.8						2.6
05	290	7.5						2.6
06	280	9.4			120	2.0		2.8
07	240	11.3			110	2.8		3.1
08	240	12.0			110	3.3	4.2	3.0
09	240	12.6			105	3.6	5.0	2.9
10	250	13.1	230	4.9	100	3.9	5.0	2.7
11	250	13.6	230	5.3	110	4.1	5.2	2.7
12	260	14.1	230	5.3	110	4.2	5.2	2.7
13	265	14.2	230	5.6	110	4.2	5.1	2.7
14	260	14.3	230	5.4	105	4.0	5.0	2.6
15	260	14.2	230	4.8	105	3.8	4.9	2.7
16	250	14.0	240	4.4	100	3.6	4.4	2.7
17	270	14.1	235	4.4	110	3.2	3.8	2.7
18	270	13.6			110	2.5	4.0	2.7
19	260	12.6					3.9	2.8
20	265	11.4					3.7	2.6
21	290	10.4					3.2	2.6
22	300	11.2					2.8	2.6
23	290	11.1					2.2	2.7

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

Table 27

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	12.4					3.8	2.7
01	280	11.4					3.3	2.8
02	280	10.0					3.2	2.8
03	280	8.6					3.2	2.7
04	285	7.8					3.2	2.5
05	300	7.5					3.6	2.7
06	240	9.8			120	2.4	4.1	2.9
07	220	11.3			100	3.0	4.5	3.0
08	240	12.3	210		100	3.3	5.9	2.8
09	240	13.0	210		100	3.7	7.0	2.7
10	280	14.1	210		95		5.5	2.6
11	300	15.0	210	7.2	95		5.6	2.5
12	340	15.7	220	7.4	95	4.3	6.8	2.5
13	340	15.2	220	7.0	100	4.3	4.8	2.5
14	340	15.0	220	7.0	100	4.2	4.9	2.5
15	330	15.8	240	6.6	110	3.8	4.8	2.5
16	310	15.5	240	6.2	110	3.5	4.7	2.5
17	280	15.4	240		100	3.0	4.8	2.5
18	280	15.5					5.4	2.7
19	280	15.0					4.7	2.6
20	285	14.0					4.2	2.5
21	290	13.2					4.0	2.5
22	295	12.9					3.7	2.5
23	300	12.5					3.5	2.6

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

Table 28

Okinawa, I. (26.3°N, 127.8°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		14.9					3.1	2.9
01		13.2					3.2	2.9
02		12.3					3.0	3.0
03		9.7					3.0	2.8
04		8.5					2.6	2.7
05		7.8					2.5	2.7
06		8.2					2.6	2.7
07		10.6				2.5	3.2	3.0
08		12.3				3.2	4.8	3.0
09		12.8				3.6	5.5	2.8
10		13.6				3.8	5.3	2.7
11		14.6				4.1	5.4	2.6
12		15.5				4.2	5.5	2.6
13		15.5				4.2	5.2	2.6
14		15.6				4.2	5.3	2.6
15		15.8				4.0	5.0	2.6
16		16.1				3.7	4.4	2.6
17		16.0				3.3	4.5	2.7
18		15.8				2.6	4.5	2.8
19		15.0					5.0	2.7
20		15.0					3.9	2.7
21		15.4					3.4	2.7
22		14.8					3.0	2.7
23		15.2					2.9	2.8

Time: 135.0°E.
Sweep: 1.6 Mc to 20.0 Mc. Manual operation.

Table 29

Johannesburg, Union of South Africa (26.2°S, 28.0°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	4.8						3.0
01	260	4.5					2.2	2.9
02	260	4.3						2.9
03	250	4.0						3.0
04	260	4.0						2.9
05	260	4.0						2.9
06	250	4.4						2.9
07	220	8.6			110	2.4		3.3
08	220	11.2			100	3.0		3.2
09	230	13.0	210		100	3.5		3.1
10	250	13.5	210		100	(3.6)		3.0
11	(250)	13.5	210		100	(3.8)		2.9
12	280	13.5	210		100	(3.9)		2.8
13	300	13.5	210		100	(4.0)		2.8
14	(280)	13.5	220		100	(3.8)		2.8
15	(290)	13.4	220		100	3.6		2.8
16	(270)	(13.1)	230		100	3.4	3.6	(2.8)
17	235	(12.8)	240		100	(2.5)	3.0	(2.8)
18	230	(12.4)					2.8	(2.9)
19	220	11.2					2.1	3.0
20	230	10.1					2.2	3.0
21	225	8.8						3.0
22	220	7.5						3.1
23	230	5.6						3.0

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

Table 30

Rarotonga I. (21.3°S, 159.8°W) March 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.8						(2.6)
01		10.1						(2.6)
02		9.4						(2.6)
03		8.7						(2.5)
04		8.6						(2.7)
05		8.8						(2.7)
06		9.3						(2.8)
07		11.5						(2.7)
08		12.7						(2.7)
09		13.5						(2.7)
10		14.6						2.7
11		15.1						2.8
12		15.0						2.7
13		15.4						(2.8)
14		15.1						(2.7)
15		14.9						(2.8)
16		14.3						(2.6)
17		14.4						(2.6)
18		13.7						(2.7)
19		13.4						2.7
20		12.4						2.6
21		12.3						2.7
22		11.7						2.7
23		11.3						2.6

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

Table 31

Brisbane, Australia (27.5°S, 153.0°E) March 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.5						2.6
01	300	8.2						2.6
02	300	7.6						2.6
03	300	7.0						2.6
04	310	7.0						2.5
05	300	6.9						2.6
06	270	8.0						2.9
07	240	10.4			120	2.7		3.0
08	240	11.4			115	3.2	3.9	3.0
09	240	12.2	220		110	3.6	3.7	3.0
10	270	12.5	220		110	3.8	4.0	2.9
11	295	12.5	220		110	4.1	4.1	2.9
12	300	(12.5)	220	6.9	110	4.2	3.6	(2.8)
13	300	12.3	220	6.9	110	4.1		2.8
14	330	12.0	230	6.3	115	4.0		2.7
15	290	11.9	240	6.5	115	3.7		2.8
16	250	11.6			120	3.3		2.8
17	260	11.5			120	2.7		2.8
18	250	11.0						2.8
19	270	9.5						2.6
20	300	9.3						2.6
21	315	9.0						2.6
22	300	9.3						2.6
23	300	8.7						2.6

Time: 150.0°E.
Sweep: 2.2 Mc to 12.5 Mc in 2 minutes 30 seconds.

Table 32

Canberra, Australia (35.3°S, 149.0°E) March 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	7.4						2.5
01	300	7.0						2.6
02	300	6.5						2.5
03	280	6.5						2.5
04	290	6.2						2.5
05	290	6.0						2.6
06	270	6.5						2.8
07	250	8.0			120	2.6		3.2
08	250	9.0			110	3.0		3.0
09	300	10.0	250	5.2	100	3.5		3.0
10	300	10.8	250	5.2	100	3.5		2.9
11	300	11.3	250	5.2	100	3.5		2.8
12	300	11.2	250	5.4	100	3.5		2.8
13	350	12.0	250	6.0	100	3.5		2.7
14	300	11.1	250	5.8	100	3.5		2.7
15	300	11.0	250	6.0	100	3.5		2.7
16	255	11.0	250	5.5	100	3.4		2.8
17	250	10.9			105	2.8		2.9
18	260	10.1			110	2.2		2.8
19	250	9.0						2.7
20	255	8.1						2.6
21	300	8.0						2.6
22	290	7.5						2.6
23	300	7.5						2.6

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

Table 33

Hobart Tasmania (42.8°S, 147.4°E) March 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	315	6.5						2.4
01	310	6.1						2.4
02	315	6.0						2.4
03	330	5.5						2.4
04	305	5.5						2.5
05	300	5.2						2.6
06	290	5.2						2.7
07	250	6.5			115	2.5		2.9
08	258	7.4	245	5.0	115	3.0		3.0
09	260	7.5	240	5.2	105	3.2		2.8
10	290	9.1	250	5.6	105	3.4		2.9
11	310	8.6	250	6.0	105	3.4	3.5	2.9
12	305	8.8	245	6.0	105	3.3	3.4	2.8
13	310	9.5	250	6.4	100	3.4	3.4	2.7
14	300	9.1	240	6.0	100	3.5	3.2	2.8
15	300	(9.2)	245	6.0	105	3.4		(2.8)
16	298	8.0	240	5.6	110	3.3		2.7
17	250	8.4			115	2.8		2.9
18	250	(9.0)			120	2.5		(2.8)
19	252	(8.5)						(2.8)
20	260	(7.5)						(2.7)
21	288	(7.5)						(2.6)
22	300	7.0						2.5
23	308	6.6						2.4

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

Table 34

Christchurch, New Zealand (43.5°S, 172.7°E) March 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.5					2.2	2.5
01	305	6.5					2.5	2.5
02	290	6.5					2.5	2.6
03	285	5.8					2.6	2.6
04	290	5.4					2.6	2.6
05	275	4.6					2.6	2.6
06	280	5.2				1.6		2.9
07	250	7.0				2.5		2.9
08	240	7.6	225	5.0		3.0		2.9
09	250	9.2	230	5.0		3.4		2.8
10	250	9.8	230	5.0		3.5		2.8
11	305	10.6	230	5.2		3.5		2.8
12	285	10.7	230	5.5		3.6		2.7
13	285	10.3	225	6.0		3.6		2.7
14	240	10.9	225	6.2		3.6		2.7
15	250	10.2	240	5.4		3.4		2.7
16	250	10.2	230	5.2		3.0		2.7
17	250	10.7				2.6		2.7
18	250	10.1				1.9		2.7
19	250	9.6					2.7	2.7
20	250	8.6					2.6	2.5
21	270	7.6					2.6	2.6
22	285	7.1					2.6	2.5
23	300	7.0					2.1	2.5

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

Table 35

Peshawar, India (34.0°N, 71.5°E) February 1947

Time	*	f°F2	h'F1	f°F1	h'E	f°E **	fEs	F2-M3000 ***
00								
01								
02								
03								
04								
05								
06								
07								
08	300	10.5				3.0		3.1
09	330	11.5				3.2		
10	330	12.3				3.4		
11	360	12.5				3.4		
12	360	12.5				3.5		2.9
13	360	12.6				3.4		
14	390	12.0				3.5		
15	390	12.2				3.5		
16	360	12.0				3.2		2.8
17	360	12.0				3.1		
18	360	11.5				3.0		
19	360	8.7				2.7		
20	330	8.3						2.9
21	345	7.0						
22	360	6.2						
2230	360	5.5						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes. Manual operation.
*Height at 0.83 f°F2.
**Both normal and abnormal values of E.
***M3000, average values; other columns, median values.

Table 36

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

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000 **
00	390	7.4						2.8
01	420	7.0						
02	390	6.0						
03	405	5.6						
04	390	4.4						2.9
05	390	4.2						
06	390	4.0						
07	360	8.0						
08	360	11.3						3.0
09	360	12.6						
10	360	13.3						
11	390	14.0						
12	390	14.2						2.8
13	390	14.6						
14	420	14.8						
15	420	14.2						
16	420	14.2						2.7
17	390	13.9						
18								
19								
20	390	11.6						2.9
21	390	11.0						
22	390	10.0						
23	390	9.5						

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

Table 37

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000 **
00								2.8
01								
02								
03								
04								2.9
05	330	(5.0)						
06	360	(5.1)						
07	360	7.7						
08	360	11.8						2.8
09	390	13.4						
10	420	14.5						
11		(14.9)						
12		(15.0)						
13		(15.1)						
14		(15.3)						
15		(15.3)						
16		(15.5)						
17		(15.3)						
18		(15.1)						
19		(15.3)						
20		(15.1)						
21	390	(14.8)						
22	360	(14.4)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes. Manual operation.
*Height at 0.83 foF2.
**M3000, average values; other columns, median values.

Table 38

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	450	8.5						
08	480	11.8						
09	600	13.3						
10	660	13.6						
11	660	13.4						
12	690	12.8						
13	720	12.9						
14	720	12.8						
15	705	12.7						
16	660	12.7						
17	660	13.2						
18	660	13.0						
19	720	12.4						
20	720	12.0						
21	660	12.5						
22	540	11.6						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes. Manual operation.
*Height at 0.83 foF2.

Table 39

Townsville, Australia (19.4°S, 146.5°E) February 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	260	10.5					2.1	2.9
01	250	9.9					2.1	2.9
02	250	8.7					2.1	2.8
03	250	8.0					2.7	2.8
04	250	7.5					2.4	2.8
05	250	7.0					2.5	2.7
06	275	7.2				1.7	2.4	2.8
07	240	9.0			100	2.7	2.8	3.1
08	245	10.0	240			3.3	3.6	3.0
09	282	10.8	225			3.6	5.2	2.9
10	300	11.0	205	6.0		3.9	(5.0)	2.8
11	330	11.5	200	6.4			(5.4)	
12	330	12.0	205	6.3			(5.3)	(2.8)
13	335	12.0	205	6.5			(4.6)	
14	332	12.0	210	6.6			(5.3)	(2.8)
15	325	12.0	200	6.0	100	3.9	3.0	(2.8)
16	325	11.5	222	6.0	100	3.6	3.0	2.8
17	300	10.5	228		100	3.2	3.2	(2.8)
18	250	10.1				2.5	4.4	2.8
19	260	9.8					3.4	2.7
20	285	9.6					2.5	2.6
21	300	10.2					2.9	2.6
22	300	10.5					2.6	2.7
23	275	(10.5)					2.7	(2.8)

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

Table 40

Barotonga I. (21.3°S, 159.8°W) February 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		11.4						2.7
01		10.7						2.7
02		10.1						2.7
03		9.4						2.7
04		9.2						2.7
05		9.0						2.7
06		10.0						2.8
07		11.2						2.9
08		11.4						2.9
09		11.6						2.8
10		12.6						2.6
11		13.6						2.6
12		14.4						2.6
13		14.6						2.7
14		14.2						2.7
15		13.9						2.6
16		13.4						2.6
17		13.0						2.6
18		12.5						2.7
19		12.0						2.6
20		11.4						2.6
21		12.0						2.6
22		11.9						2.7
23		11.9						2.7

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

Table 41

Hobart, Tasmania (42.8°S, 147.4°E) — February 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	285	6.5					2.0	2.5
01	275	6.6						2.6
02	285	5.8					2.4	2.6
03	282	5.5					2.4	2.6
04	285	4.8					2.7	2.6
05	280	4.6					2.4	2.7
06	282	5.7			100	2.3		2.8
07	292	6.2	258	4.1	122	2.7	3.0	2.9
08	312	6.9	250	4.8	115	3.1	3.4	2.9
09	345	7.0	240	5.2	110	3.4	3.5	2.9
10	375	7.6	242	5.6	112	3.4	3.9	2.8
11	350	7.5	240	5.5	100	3.4	4.0	2.8
12	350	7.5	235	5.8	100	3.9	4.0	2.8
13	370	8.0	240	5.9	100	3.8	3.8	2.8
14	360	7.6	250	5.7	100	3.9	3.8	2.6
15	385	7.5	240	5.7	100	3.5	3.5	2.6
16	345	7.5	245	5.5	105	3.4		2.7
17	318	8.0	250	5.0	105	3.2	2.0	2.8
18	260	8.2			115	2.6	2.4	2.8
19	265	8.0						2.8
20	255	8.0					2.7	2.8
21	280	7.5					3.0	2.7
22	298	7.2					3.2	2.6
23	290	6.9					2.6	2.6

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

Table 42

Townsville, Australia (19.4°S, 146.5°E) — January 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	10.0					3.0	2.9
01	250	9.1					2.6	2.8
02	270	8.5					2.9	2.7
03	260	8.6					2.9	2.8
04	250	8.0					2.6	2.8
05	260	7.2					2.0	2.7
06	250	7.4				2.0	2.8	2.8
07	240	8.4				2.8	3.4	2.9
08	250	9.4	230	5.5		3.4	4.0	2.9
09	312	9.8	220	5.6		3.7	5.5	2.8
10	340	10.1	200	5.8			6.2	2.7
11	380	10.5	222	6.1			5.7	2.6
12	370	11.0	205	6.0			6.2	2.7
13	360	11.0	200	6.0			5.5	2.7
14	350	11.0	225	6.0			5.8	2.7
15	350	10.6	200	5.7			6.2	2.6
16	350	10.5	225	5.8	100	3.7	3.8	2.7
17	330	9.6	225	5.5	100	3.3	3.8	2.6
18	250	9.1	255			2.6	3.5	2.7
19	300	9.1				1.8	3.6	2.6
20	320	9.3					3.1	2.6
21	300	10.0					3.1	2.6
22	300	10.3					2.9	2.7
23	278	10.5					2.8	2.8

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

Table 43

Rarotonga I. (21.3°S, 159.8°W) — January 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.8						
01		10.0						
02		9.4						
03		9.0						
04		8.5						
05		8.3						
06		8.8						
07		9.7						
08		10.5						
09		11.4						
10		12.1						
11		13.2						
12		14.5						
13		14.6						
14		14.5						
15		13.4						
16		12.3						
17		11.9						
18		11.2						
19		10.6						
20		10.3						
21		10.5						
22		11.0						
23		11.1						

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

Table 44

Hobart, Tasmania (42.8°S, 147.4°E) — January 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	258	7.0					2.8	2.7
01	260	6.5					2.8	2.7
02	260	6.0					2.1	2.6
03	252	5.4					2.5	2.6
04	275	4.8					2.2	2.7
05	260	5.0			100	1.8	2.4	2.9
06	240	5.7	250		100	2.6	2.8	2.9
07	250	6.3	230	4.5	100	3.1	3.5	2.9
08	340	6.6	222	4.9	100	3.4	3.8	2.9
09	375	6.9	212	5.2	100	3.6	3.6	2.7
10	362	7.0		5.6	100	3.8	4.2	2.6
11	395	7.2	205	5.6	100	3.9	4.5	2.6
12	405	7.4	202	5.7	100	3.9	4.5	2.5
13	400	7.6	200	5.5		3.9	4.4	2.7
14	400	7.5	200	5.5	95	3.9	4.5	2.6
15	385	7.6	200	5.4	95	3.8	4.1	2.7
16	375	7.8	210	5.4	100	3.5	3.6	2.7
17	340	7.5	220	5.0	100	3.3	3.5	2.7
18	275	7.8	240	4.6	100	2.9	2.9	2.7
19	250	7.5			100	2.2	3.4	2.8
20	270	7.8					3.5	2.7
21	260	8.1					3.4	2.7
22	262	7.6					3.5	2.6
23	265	7.3					1.6	2.7

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

Table 45*

U.S.S. Canisteo, Byrd Expedition (66°S, 105°W) January 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	7.0						2.9
01	300	7.0						2.9
02	310	7.5						2.8
03	320	7.0			110	2.6		2.8
04	310	7.5	260	4.2	100	2.7		2.7
05	300	7.4	255	4.6	110	2.8		2.8
06	330	7.5	260	4.7	105	3.1		2.8
07	300	7.5	260	5.1	105	3.2		2.7
08	350	7.5	250	5.3	100	3.2		2.8
09	335	8.3	255	6.0	100	3.3		2.7
10	350	8.0	260	6.0	100	3.4		2.8
11	320	7.0	260	5.6	105	3.5		2.8
12	350	7.8	250	5.8	100	3.5		2.8
13	390	7.0	260	5.8	110	3.6		2.8
14	370	7.0	250	5.8	110	3.5		2.9
15	375	8.2	260	5.7	100	3.2		2.7
16	400	8.0	260	5.5	105	3.3		2.7
17	350	8.0	260	5.2	120	3.1		2.8
18	350	7.5	260	5.0	120	3.1		2.7
19	340	7.2	260	4.7	110	2.9		2.8
20	310	7.2			120	2.7		2.7
21	300	7.0			100	2.5		2.6
22	320	7.0						2.8
23	320	6.8						2.9

Time: Local.
Sweep: 1.0 Mc to 20 Mc in 27 seconds.
* Data taken from 11 January through 31 January 1947, only.

Table 46

Calcutta, India (22.6°N, 88.4°E) December 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000*
00	(330)	(11.0)				1.0		(3.0)
01		(9.4)						
02		(8.0)				1.1		
03	(300)	(5.8)				1.1		(3.1)
04		(4.6)				1.2		
05		(4.2)				1.0		
06	(330)	(4.6)				2.0		(3.0)
07		(7.7)				3.0		
08		(11.[illegible])				3.5		
09	(360)	(13.2)				3.9		(2.9)
10		(14.2)				4.2		
11		(14.5)				4.2		
12	(360)	14.2				4.4		2.8
13		14.6				4.3		
14		14.6				4.0		
15	360	15.0				3.8		2.8
16		14.6				3.4		
17		14.9				3.0		
18	375	14.8				2.3		2.8
19		14.4				1.9		
20		14.7				1.5		
21	345	14.0				1.1		2.9
22		13.5				1.0		
23		13.0				1.0		

Time: Local.
* Parabolic-layer method.

Table 47

Calcutta, India (22.6°N, 88.4°E) November 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000*
00	330	9.2				1.2		3.0
01		8.8				1.1		
02		7.4				1.0		
03	330	6.8				1.0		3.0
04		6.1				1.0		
05		5.6				1.1		
06	330	5.2				(1.2)		3.0
07		8.0				2.1		
08		10.2				3.8		
09	330	12.2				4.2		2.9
10		(13.6)				4.4		
11		14.2				5.0		
12	360	14.4				5.0		2.8
13		14.2				4.8		
14		14.4				4.6		
15	360	14.0				4.5		(2.8)
16		13.5				3.2		
17		13.6				2.6		
18	(360)	(13.2)				2.0		(2.8)
19		14.5				2.0		
20		14.9				1.8		
21	330	14.5				1.8		3.0
22		13.8				1.8		
23		13.2				1.7		

Time: Local
* Parabolic-layer method.

Table 48

Fribourg, Germany (48.1°N, 7.8°E) August 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		6.4					3.4	
01		6.1					3.9	
02		6.0					3.3	
03		5.7					3.8	
04		5.5					3.5	
05		5.6					3.7	
06		6.6					4.8	
07		7.2		4.1			5.2	
08		7.6		4.8			5.8	
09		7.9		5.1			6.2	
10		8.0		4.9			6.2	
11		8.0		5.1			6.2	
12		7.9		5.1			6.2	
13		8.1		5.2			5.8	
14		8.1		4.9			5.5	
15		8.1		4.8			5.2	
16		8.0		4.6			5.2	
17		8.1		4.4			4.6	
18		8.3		(3.4)			4.2	
19		8.3					4.4	
20		8.3					4.2	
21		7.9					3.6	
22		7.2					4.1	
23		6.6					4.5	

Time: 7.5°E.
Sweep: 2.0 Mc to 11.5 Mc. Manual operation.

Table 49 (Supersedes table 31, F-29)

Fribourg, Germany (48.0°N, 7.8°E) July 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E*	fEs	F2-M3000
00		6.4					2.8	
01		6.3					2.7	
02		6.0					2.4	
03		5.5					2.2	
04		5.4					3.1	
05		5.6					3.6	
06		6.5					4.0	
07		6.9					4.4	
08		6.9					5.4	
09		7.1				3.5	5.1	
10		6.8					5.5	
11		6.8				3.5	4.5	
12		7.0				3.5	4.3	
13		7.0				3.5	4.4	
14		6.9				3.5	4.4	
15		7.1				3.5	4.3	
16		7.2					4.1	
17		7.1					4.4	
18		7.7					4.9	
19		7.7					4.0	
20		7.6					3.7	
21		7.2					5.7	
22		6.9					3.3	
23		6.6					3.2	

Time: 7.5°E.
Sweep: 2.0 Mc to 11.5 Mc. Manual operation.
* At least 3.5 Mc and less than 4.0 Mc.

Table 50*

Ottawa, Canada (45.5°N, 75.8°W) April 1943

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	335	3.0					4.1	
01	343	2.6					3.4	
02	(334)	(2.7)					4.0	
03	(325)	(2.8)					3.4	
04	(393)	(2.7)					3.9	
05	284	2.9					3.9	
06	281	3.8	248	2.7	133	2.2	3.6	
07	295	4.4	246	3.4	127	2.5	3.7	
08	334	5.1	242	3.9	125	2.7	3.6	
09	355	5.3	231	4.1	122	2.8	4.0	
10	365	5.5	221	4.2	123	3.0	3.9	
11	376	5.7	209	4.5	118	3.1	3.7	
12	384	5.6	210	4.4	118	3.2	3.9	
13	372	5.8	216	4.4	122	3.1	3.9	
14	350	6.1	229	4.3	122	3.0	4.0	
15	349	5.9	242	4.2	122	2.9	4.0	
16	347	5.7	243	3.9	121	2.7	3.6	
17	321	5.6	259	3.6	125	2.5	4.0	
18	298	5.6	276	3.0	130	2.2	3.1	
19	282	5.6			(123)	(2.1)	3.4	
20	296	5.1			(120)	(2.3)	3.7	
21	294	4.2			(130)	(2.7)	3.9	
22	310	3.7					3.7	
23	324	3.2					3.8	

Time: 75.0°W.
Sweep: 1.93 Mc to 13.5 Mc. Manual operation.
*Average values.

Table 51*

Ottawa, Canada (45.5°N, 75.8°W) March 1943

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	298	3.1					4.0	
01	325	2.6					3.0	
02	351	2.5					3.1	
03	359	2.2					3.0	
04	366	2.4					3.0	
05	250	3.3					3.0	
06	287	2.9			140	2.6	3.7	
07	253	4.0	180	3.7	129	2.2	3.6	
08	256	4.6	237	3.3	125	2.5	3.5	
09	295	5.1	222	3.9	121	2.7	3.8	
10	318	5.6	215	4.1	120	2.9	3.7	
11	329	5.9	214	4.3	123	3.1	3.7	
12	338	6.0	208	4.3	121	3.1	3.6	
13	338	5.9	212	4.2	122	3.1	3.8	
14	324	6.3	221	4.2	124	2.9	4.1	
15	324	6.0	228	4.0	123	2.9	3.7	
16	292	5.9	231	3.8	127	2.6	4.0	
17	285	5.8	258	3.5	131	2.2	4.0	
18	266	5.7	240	2.5	150	2.0	3.9	
19	267	5.3					5.6	
20	278	4.5			130	2.0	2.8	
21	284	3.9					3.4	
22	288	3.6					4.3	
23	295	3.3					3.7	

Time: 75.0°W.
Sweep: 1.93 Mc to 13.5 Mc. Manual operation.
*Average values.

Table 52*

Ottawa, Canada (45.5°N, 75.8°W) February 1943

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	340	2.4					3.2	
01	360	2.3					3.1	
02	380	2.2					3.4	
03	370	2.3					3.4	
04	350	2.3					3.2	
05	360	2.3					3.3	
06	350	2.2					3.5	
07	290	2.9						
08	250	4.4			129	2.2		
09	260	5.1	221	3.4	129	2.5		
10	270	5.4	212	3.8	122	2.5		
11	300	5.6	214	4.1	125	2.8		
12	300	6.0	219	4.2	125	2.9		
13	290	6.1	212	4.1	123	2.8		
14	290	6.0	219	4.1	124	2.7		
15	280	5.9	230	3.9	123	2.6		
16	260	5.8			131	2.3		
17	250	5.5						
18	260	4.7						
19	260	4.2						
20	280	3.4						
21	290	3.0						
22	310	2.6						
23	330	2.5						

Time: 75.0°W.
Sweep: 1.93 Mc to 13.5 Mc. Manual operation.
*Average values except fEs, which are median values.

Table 53*

Ottawa, Canada (45.5°N, 75.8°W) January 1943

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	2.7					3.6	
01	340	2.4					3.7	
02	350	2.3					3.8	
03	330	2.4					3.6	
04	250	2.9					3.9	
05	300	3.0					3.7	
06	300	2.6					3.5	
07	300	2.8					3.3	
08	240	4.2		2.0	123	2.5		
09	260	4.9	180	3.9	128	2.4		
10	240	5.4	186	3.4	122	2.7		
11	260	6.0	215	3.8	121	2.8		
12	260	6.2	215	4.0	115	3.0		
13	260	6.4	211	3.3	120	2.8		
14	260	6.3	229	3.7	128	2.5		
15	250	6.0	242	3.4	123	2.4		
16	230	5.7		2.6	131	2.1		
17	240	5.2						
18	240	4.3						
19	250	3.5						
20	230	2.8						
21	290	2.8					2.3	
22	310	2.7					2.9	
23	300	2.7					3.3	

Time: 75.0°W.
Sweep: 1.93 Mc to 13.5 Mc. Manual operation.
*Average values except fEs, which are median values.

TABLE 54

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

Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic), km (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: R. P., R. E. P.

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							G	N	N	C	C	C	C	C	C	C	C	N	N					
2							C	C	(360)	(400)	(400)	(410)	C	N	(450)	440	(500)	470	N					
3							430	N	N	N	C	C	N	C	(580)	C	C	C	N					
4							N	(470)	N	N	(520)	N	N	N	520	[470]K	(440)	430	(350)					
5							GK	(550)K	GK	GK	GK	GK	GK	C	C	C	(550)	[480]C	(450)					
6							C	N	N	A	(520)	C	C	(500)	(510)	[480]N	450	[440]C	(420)					
7							A	A	C	C	C	C	C	G	(580)	590	C	S	S					
8							(450)	500	(600)	(600)	C	C	S	A	A	S	S	C	S					
9							370	(560)	(590)	(600)	550	(500)	G	(540)	(530)	(500)	450	450	400					
10							C	480	(575)	550	A	N	(470)	(580)	[560]N	(490)	(470)	410	C					
11							C	(410)	C	C	C	N	(560)	(550)	C	C	C	C	440					
12	230	230	300	280	240	260	250	210	[270]C	C	370	370	360	380	390	380	380	370	310	250	240	220	230	250
13	230	260	270	250	250	220	260	(290)	420	370	370	G	450	410	450	390	290	360	320	260	270	290	280	330K
14	330K	320K	350K	360K	260K	320K	CK	GK	GK	GK	CK	CK	(540)K	CK	430K	520K	430K	480K	340K	250K	270K	250	240	280
15	280	270	260	340	290	270	270	470	330	380	280	390	C	440	440	420	380	350	280	240	240	240	240	290
16	250	240	230	250	250	260	C	300	310	360	380	430	430	(430)	420	420	370	(350)	300	250	270	280	240	280
17	310	290	290K	300K	320K	450K	480K	600K	GK	650K	GK	GK	GK	GK	GK	610K	550K	490K	400K	AK	290K	(300)K	(280)K	280K
18	(310)K	(390)K	320K	(330)K	320K	250K	250K	(520)K	610K	GK	610	(540)	[540]C	530	510	520	410	400	(300)	(240)	270	240	270	270
19	290	300	300	280	290	270	C	C	C	470	(590)	(540)	[520]C	470	460	(460)	(450)	(380)	[340]C	300	[290]A	280	(300)	270
20	270	270	280	(330)	300	290	[350]C	C	C	C	C	520	[530]C	480	500	(530)	[460]C	420	[370]C	280	290	290	[280]C	[270]C
21	270	300	[280]K	[280]C	[300]F	[310]C	[410]F	520	580	A	A	600	570	[560]C	560	530	490	480	410	320	270	300	300	290
22	280	270	260	300	310	420	480	420	540	680	500	[550]C	520	[570]C	540	550	490	430	390	270	280	320	330	270
23	330	300	310	380	330	380K	500K	580K	(600)K	(540)K	AK	AK	AK	GK	620K	GK	540K	CK	C	220	300	290	280	270
24	260	240	260	(300)	330	320	520	630	620	G	G	570	460	540	630	(540)	450	450	A	300	290	250	230	280
25	330	310	300	310K	310K	290K	GK	GK	620K	590K	GK	GK	GK	GK	(710)K	700K	570K	500K	440	A	A	310	270	A
26	280	320	300	290	C	C	C	C	C	500	C	(600)	500	C	A	490	[410]C	390	360	280	280	280	260	250
27	260	280	260	(330)	380	390	(410)K	CK	AK	490K	(570)K	AK	GK	CK	520K	480K	440K	420K	340	280	270	270	280	270
28	300	290	280	280	310	320	A	380	(490)	510	430	450	500	470	C	450	400	420	320	260	250	250	260	A
29	240	290	280	310	280	260	230	340K	CK	530K	CK	GK	AK	520K	470K	510K	480K	460K	350	290	280	260	280	250
30	260	270	270	290	300	280	420	430	550	540	C	C	(450)	C	C	C	C	C	C	C	C	C	C	C
31																								
Median	280	290	280	300	300	290	420	480	580	540	520	545	525	535	520	495	450	430	350	265	270	280	275	270
Count	19	19	19	19	18	18	19	21	19	21	17	18	20	20	23	24	24	23	21	16	17	18	18	16

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc—Manual JUNE 1-11 Automatic JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 702510

TABLE 55

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

Form adopted June 1946

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat. 39.0°N, Long. 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: R. E. P., M. C. E.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							<4.0 G	N	N	C	C	C	C	C	C	C	C	N	(5.9)					
2							C	C	(9.4)	(9.9)J	10.1	10.0	10.0	9.5	(9.3)	9.2	[8.5]S	(7.6)P	N					
3							6.3	N	N	N	C	C	N	C	7.3	7.4	(7.0)	N	N					
4							(6.4)J	[6.6]N	(6.7)	[6.8]N	(6.9)	N	N	7.6	7.9	8.1	7.7	C	C					
5							<4.0 GK	(5.6)K	<(5.3)JGK	<(5.2)JG	<5.5 GK	G K	G K	(7.2)N	(7.3)J	(7.0)J	7.1	7.5	7.9					
6							C	(6.3)	N	A	(6.9)	C	N	7.8	(7.8)J	7.9	8.1	[8.0]C	7.9					
7							A	5.9	C	C	C	C	C	<(5.7)G	N	7.5	N	S	S					
8							(6.0)	6.1	(5.8)	6.1	C	C	S	A	A	S	S	C	S					
9							5.6	5.8	5.8	(6.2)J	[6.7]N	(7.3)	<[5.6]NG	(6.9)	7.6	7.7	7.6	7.6	7.3					
10							6.1	6.5	C	C	A	N	(7.3)	7.1	7.0	7.0	N	C	C					
11							C	5.8	C	C	C	6.1	[6.3]C	6.5	C	C	C	C	6.8					
12	6.6	5.9	5.5	5.7	5.7	5.7	7.1	C	[7.6]C	8.0	8.0	8.0	8.3	8.2	7.8	8.1	8.2	8.2	8.8	(8.5)	8.3	8.2	7.2	6.9
13	6.8	6.6	6.4	5.5	(5.1)J	5.4	5.6	5.6	6.2	6.3	6.0	<5.4G	6.9	7.4	7.3	7.6	7.4	7.8	7.9	8.4	9.0	8.0	7.2	(6.4)FK
14	(5.6)JK	(4.5)K	4.3 K	3.0 FK	3.3 FK	3.4 K	C K	<4.7 GK	<4.8 GK	G K	C K	C K	(6.2)JK	C K	6.4 K	6.2 K	6.4 K	6.0 K	6.7 K	6.8 K	6.8 K	7.2	6.8	(6.2)
15	(5.8)F	5.1F	(4.2)JF	(4.2)J	(4.0)	4.6	5.2	5.7	6.5	7.7	7.8	7.6	7.0	7.2	7.3	7.6	7.7	8.0	8.2	8.2	7.8	7.8	7.8	7.5
16	7.6	7.0	6.5	(6.0)	(5.5)	5.8	C	7.8	7.8	8.1	8.0	7.8	7.6	7.4	7.6	7.8	8.0	7.8	8.0	7.8	7.9	8.4	8.0	(7.6)
17	6.6	6.0	(6.0)JK	5.3 FK	4.3 FK	4.6 FK	4.9 K	4.9 K	<4.7 GK	(5.4)K	<5.1 GK	<(5.5)HK	<(5.5)GK	<5.5 GK	<5.3 GK	(5.9)K	5.9 K	6.0 K	6.1 K	6.2 K	6.2 K	(6.8)K	(6.4)K	(6.2)FK
18	6.1 K	5.6 K	4.9 FK	4.3 FK	4.2 FK	4.5 FK	5.1 K	5.6 FK	5.8 FK	<5.3 GK	6.7	(6.9)F	[7.0]C	7.2F	7.2	7.0	7.6	7.7	(7.4)F	(7.8)	8.0	(7.8)J	7.7	7.4
19	7.0	(6.4)J	(6.4)J	(6.1)J	5.4	(5.5)	C	C	C	6.9	(6.7)	7.0	[7.0]C	7.4	7.5	7.5	7.4	(7.4)	(7.1)J	(7.2)	[7.3]C	(7.6)	C	C
20	C	C	C	C	(5.0)	5.4	[5.8]C	C	C	C	C	6.8	[7.0]C	(7.2)	7.3	(7.0)	[7.1]C	6.9	[6.9]C	6.9	(7.0)J	(7.2)	[7.5]C	[7.1]C
21	(7.0)	6.9	[6.2]C	[6.1]C	[5.7]C	[5.8]C	5.9	6.1	6.4	[6.4]A	[6.4]A	6.4	6.6	(6.8)J	6.6	6.8	7.0	6.7	6.9	6.6	(6.8)	7.4	(7.6)J	7.3
22	7.1	(7.2)	6.3	5.2	5.0	5.0	5.7	6.4	6.1	(6.0)	6.8	[6.9]C	(6.9)	[6.9]C	(7.0)	7.0	7.1	7.2	7.0	6.9	7.1	(7.7)	7.8	7.3
23	(6.6)J	6.8	(5.7)J	5.6	(5.2)J	4.4 K	4.9 K	(5.2)K	(5.7)K	(5.6)K	A K	A K	A K	<5.6 CK	(6.3)K	<5.6 CK	6.5 K	C K	C	7.0J	(7.0)	(7.7)J	7.7	7.5
24	(7.0)J	6.2	5.5	(5.1)	4.9	5.0	5.2	5.5	5.5	<5.0 G	5.4	6.1	5.7	(6.7)J	(6.8)	(7.0)	7.2	7.1	7.4	7.6	7.8	(7.7)	(7.4)	(7.0)
25	(6.7)J	(6.5)J	(5.3)	5.0 K	4.2 K	(4.1)FK	4.7 FK	5.0 FK	5.6 K	(6.0)K	<(5.5)HK	<(5.4)HK	<(5.3)HCK	<(5.4)K	(5.8)K	(5.7)K	6.0 K	(6.2)K	6.2	(6.3)J	A	(6.9)	7.0	6.9
26	6.3	6.0	(5.2)J	(5.3)J	C	C	C	C	(6.2)	6.9	[7.2]JC	[7.0]CJ	(7.0)	C	A	6.9	[7.1]C	7.1	6.9	7.2	7.2	(7.5)	7.8	7.4
27	[6.4]C	(5.8)	5.3	4.8	(4.3)J	4.7	5.2 K	F K	A K	(5.9)K	(5.8)K	A K	(5.6)K	C K	(6.4)K	(6.6)JK	(6.6)JK	6.4 K	6.8	7.0	7.0	(7.4)	(7.3)	7.2
28	(7.0)J	(6.6)J	6.9	5.9	5.0	(5.0)J	A	6.4	6.6 F	(6.6)	6.9	(7.0)J	7.0	7.3	7.0	7.2	(7.4)	(7.2)	7.7	7.4	7.9	(7.9)	8.0	7.7
29	7.2	6.7	6.3	5.9	5.8	5.8	6.2	6.4 K	(6.4)JK	6.3 K	C K	<(5.5)HFK	A K	(6.4)K	6.5 K	6.5 K	6.6 K	6.7 K	6.9	7.2	7.5	8.0	7.8	7.8
30	6.3	6.4	5.9	5.4	5.2	5.2	5.2	5.6	5.5	(5.7)	C	C	C	C	C	(7.3)	C	C	C	C	C	C	C	C
31																								
Median	6.6	6.4	5.8	5.4	5.0	5.0	5.6	5.8	6.1	6.1	6.7	6.9	6.9	7.2	7.2	7.0	7.2	7.2	7.0	7.2	7.3	7.7	7.6	7.3
Count	18	18	18	18	18	18	21	22	21	23	19	19	21	23	24	27	24	21	22	18	17	18	17	17

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc – Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 56

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

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat. 39.0°N, Long. 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: M. C. E., R. E. P.

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																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12	6.3	5.7	5.6	5.8	5.5	(6.6)^J	C	7.9	(8.2)^J	(8.1)	C	8.0	8.3	8.1	7.9	8.2	8.1	8.6	(8.9)	8.3	8.3	7.9	7.1	6.7
13	6.8	6.6	6.0	5.4	5.1	5.4	5.7	(5.6)	6.0	G	6.5	6.5	6.8	7.4	7.3	7.6	7.0	7.9	8.0	9.0	8.3	8.2	7.4^F	5.7^FK
14	4.9^K	4.6^K	3.9^K	3.1^FZK	3.0^FK	4.1^FK	G^K	G^K	G^K	G^K	G^K	C^K	(6.3)^JK	A^K	(6.2)^JK	6.4^K	6.2^K	6.5^K	6.8^K	(6.6)^JK	7.2^K	7.2	(6.3)^J	(6.0)^F
15	5.4^F	4.6^F	(4.3)^F	4.1	4.0	5.0	5.3	(6.6)	6.9	8.1	7.4	(7.7)^Z	(7.2)	7.1	7.6	7.6	7.9	8.3	8.2	7.9	7.8	7.9	7.8	7.7
16	7.5	6.9	6.2	5.7	5.5	6.4	7.4	7.7	7.7	7.9	7.8	7.4	7.4	7.5	7.7	7.9	8.0	8.0	7.9	7.6	8.4	8.4	7.9	7.3
17	6.4	6.0	5.8^FK	5.8^FK	4.2^K	4.8^K	4.9^K	4.9^K	G^K	G^K	G^K	G^K	G^K	G^K	(5.8)^K	(5.6)^K	6.2^K	6.1^K	6.1^K	6.2^K	A^K	6.9^K	(6.2)^K	(6.4)^FK
18	5.7^K	5.2^FK	4.8^K	4.2^FK	4.2^FK	4.8^FK	5.4^K	5.6^FK	G^K	(6.8)^FK	(7.0)^F	[7.0]e	(7.1)^J	7.1	[6.9]c	7.2	7.5	7.6	7.8^F	8.0	8.0	7.8	7.6	7.3
19	6.5^F	6.2	(6.1)^J	5.8	5.5	5.7	C	C	(6.6)	(6.6)^J	[6.8]c	6.9	7.4	7.6	7.4	(7.6)	[9.4]c	[7.2]c	(7.0)^J	[7.4]c	(7.4)^J	(7.8)	C	C
20	C	C	C	(5.3)	(5.4)	5.6	5.9	C	C	C	(6.3)	[7.1]e	(6.9)^J	[7.2]e	7.3	(7.0)^J	7.1	7.0	6.9	6.9	(7.1)^J	(7.6)	(7.1)	(7.0)^J
21	(6.9)^J	6.8	5.9	(5.9)	5.5	5.9	6.0	[6.2]e	6.4	(6.4)	[6.4]^A	(6.5)	6.8	[6.6]e	6.8	(6.9)^J	6.7	6.7	6.8	(6.8)^J	(7.1)^J	(7.8)^J	7.4	(7.4)^J
22	(7.3)	(6.5)	5.7	5.2	4.8	5.3	6.3	6.1	6.0	(6.6)	(6.8)	(6.9)	7.0	6.9	7.2	7.1	7.0	6.9	7.1	7.1	7.5	(7.8)	(7.8)	(7.0)^J
23	6.8	5.8	5.7	5.2	4.7	5.0^FK	5.4^K	(5.5)^K	(5.7)^A	G^K	A^K	A^K	(6.3)^K	G^K	C^K	6.4^K	C^K	C^K	C	7.0	7.7	7.8	7.7	(7.1)
24	6.6	5.9	5.3	5.0	4.8	5.2	[5.5]^A	5.7	(5.5)^F	G	G	G	6.4	(6.6)	7.1	[7.1]^S	7.0	7.2	7.6	(7.5)	(7.6)	7.8	7.2	6.6
25	(6.5)^F	6.0	5.0	4.9^K	(4.0)^FK	(4.6)^FK	4.8^FK	5.5^FK	(5.9)^K	G^K	G^K	(5.4)^K	G^K	G^K	(5.7)^K	5.8^K	5.9^K	6.0^K	6.1	(6.4)^A	6.7	[7.0]^A	(6.8)	6.6
26	6.0	5.8	5.2^F	C	C	C	C	C	A	[7.2]^A	(7.1)^J	7.2	C	A	5.8	6.9	[7.0]^C	6.9	7.0	7.2	7.5	7.7	7.5	6.9
27	5.6	5.8	5.0	4.8	4.0	(4.9)	F^K	A^K	A^K	(6.0)^K	(6.3)^K	A^K	C^K	(6.4)^JK	C^K	(6.6)^JK	6.6^K	6.8^K	6.9	7.0	(7.2)	(7.4)	7.2	(7.2)^J
28	(6.8)	(6.4)	6.0	5.4	(4.8)^J	5.4	5.9	(6.0)	(6.2)^J	7.2	6.9	(7.0)	7.2	7.2	6.9	7.5	7.1	7.4	7.6	7.6	(7.9)	(7.9)	(7.8)	(7.7)
29	(7.2)	6.6	6.1	5.9	5.8^F	5.9	(6.4)	6.3^K	6.4^K	6.3^K	6.2^K	6.3^K	A^K	6.4^K	6.5^K	(6.6)^K	6.5^K	6.6^K	7.0	7.1	7.8	7.8	7.9	6.8
30	6.5	6.3	5.8	5.4	5.0	5.5	5.5	5.5	5.7	C	C	G^K	C	C	(7.3)	C	C	C	C	C	C	C	C	C
31																								
Median	6.5	6.0	5.7	5.4	4.8	5.4	5.5	5.7	6.0	6.4	6.4	6.9	6.9	7.0	7.1	7.0	7.0	7.0	7.0	7.2	7.6	7.8	7.4	7.0
Count	18	18	18	18	18	18	15	15	16	17	16	16	15	16	17	18	17	17	17	18	17	18	17	17

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc–Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

TABLE 57

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

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), km (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: R. E. P., R. P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							E	N	(260)	C	C	C	C	C	C	C	C	N						
2							C	C	A	C	C	C	C	C	C	C	C	C	N					
3							C	N	C	C	N	N	N	N	C	280	(280)	N	N					
4							C	(310)	240	240	230	C	C	250	C	C	250	(250)	A					
5							C K	(250)K	[270]AK	(280)K	A K	A K	(270)K	N	N	C	280	C	C					
6							C	C	300	[280]A	270	A	C	C	N	300	A	A	A					
7							A	A	C	C	A	N	C	A	C	A	N	N	S					
8							C	C	A	A	N	N	N	A	A	A	C	C	A					
9							(300)	290	N	C	N	C	N	C	C	C	270	C	C					
10							Q	C	(250)	C	A	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							220	220	[200]C	200	180	200	200	200	190	200	210	200	230					
13							220	190	180	180	170	C	190	180H	210	210	220	200H	(230)					
14							C K	240K	230K	200K	C K	C K	220K	C K	A K	A K	200HK	220K	A K					
15							230	190	(230)	190	190	190	220	190	C	200	210	220	Q					
16							C	230	200	200	A	A	A	180	210	230	220	220	220					
17						290K	250K	230K	220K	180HK	200K	230HK	190K	200K	220K	200K	A K	210HK	210K					
18							Q K	210K	200K	180HK	230	220H	190	240H	200H	200	200	220	230					
19							C	C	C	210	190	200	200	[210]C	190	210	220	210	220					
20							[240]C	230	C	C	C	230	[200]C	230	A	A	[230]A	210H	A					
21							A	220	200	A	A	190H	[200]C	200	210	230	200H	220	220					
22						310	240	240	230	220	200	210	210	200H	210H	220	220	230	220					
23							230K	240K	A K	220K	A K	A K	A K	A K	230K	220K	220K	C K	C					
24							A	230	200	200	210	210	200	200	200	(200)	220	A	A					
25							250K	220K	210K	220K	200HK	210HK	220HK	230K	220HK	220HK	220K	260K	A	A				
26							C	C	230	A	A	A	220	C	A	190	[230]C	230	220					
27						290	A K	220K	A K	A K	(210)K	A K	A K	C K	A K	A K	A K	A K	220H					
28							A	A	220	210	200H	200	190	A	A	A	220	220	240					
29							Q	A K	A K	220K	180K	180HK	A K	220K	(200)K	200K	210K	250K	230	260				
30							220	230	210	A	C	190	180H	C	200H	(220)	C	C	C					
31																								
Median							235	230	220	210	200	200	200	200	210	210	220	220	220					
Count							10	18	19	17	14	13	16	14	13	17	20	16	12					

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc — Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 703319

TABLE 58

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

IONOSPHERIC DATA

Form adopted June 1946

f°Fl (Characteristic), Mc (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat. 39.0°N, Long. 77.5°W

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: R. E. P., M. C. E.

75°W Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							4.0	[4.3]N	(4.5)	C	C	C	C	C	C	C	C	N						
2							C	C	L	(5.9)	6.2	N	C	C	N	(6.1)	[5.8]S	(5.5)	N					
3							(4.9)	N	C	C	N	N	N	N	5.8	(5.5)	5.5	(5.2)	N					
4							L	(5.0)	(5.1)	(5.4)	(5.5)	[5.7]C	(5.9)	[5.9]A	(5.8)	5.8	(5.6)	(5.3)	N					
5							4.0K	4.5K	(5.3)JK	(5.2)JK	5.5K	NK	NK	N	N	(5.8)J	(5.7)J	(4.8)	(4.7)					
6							C	(4.6)	(5.2)	[5.4]A	(5.5)	A	N	N	N	(5.7)	5.6	(5.3)J	A					
7							A	A	C	C	A	N	C	(5.7)	[5.7]N	5.7	S	N	S					
8							(4.4)	(4.8)	(5.0)	5.1	N	N	S	A	A	A	N	N	A					
9							N	(5.1)	(5.4)	(5.4)	(5.5)	(5.6)	[5.6]A	5.6	[5.6]N	(5.5)	5.1	5.0	4.3					
10							Q	5.0	5.0	5.1	[5.3]A	(5.4)	5.5	5.5	(5.6)	(5.5)	[5.3]N	5.0	C					
11							C	4.9	C	C	C	(5.5)	(5.5)	(5.5)	C	C	C	(5.2)	5.0					
12							L	C	L	L	(5.7)	C	(5.4)	5.5	(5.7)	5.4	4.8	L	L					
13							L	L	4.8	5.0	5.1	5.4	5.4	5.4	5.5	5.4	4.9	5.0	4.3					
14							CK	4.7K	4.8K	CK	CK	CK	(5.3)K	CK	(5.2)K	5.2K	4.9HK	4.8K	AK					
15							L	4.4	L	5.0	5.4	5.5	(5.8)J	5.6	C	5.6	5.2	5.0	Q					
16							C	L	L	5.6	5.6	A	A	C	5.5	5.5	5.5	L	L					
17						(3.1)FK	3.8K	4.3K	4.7K	4.9HK	5.1K	(5.3)HK	(5.5)K	5.5K	5.3K	5.2K	4.9K	4.7HK	LFK					
18							QK	(4.9)K	5.1K	5.3K	(5.6)	(5.7)	[5.8]C	(5.9)H	(5.8)H	5.6	5.3	5.4	L					
19							C	C	C	5.4	5.5	(5.6)	[5.8]C	(5.6)	5.5	5.6	(5.5)	[5.1]C	(4.7)					
20							L	(4.9)	C	C	C	(5.5)	[5.7]C	(5.9)	A	A	[5.4]C	5.0H	L					
21							A	4.9	5.1	(5.4)	[5.5]A	5.6H	(5.6)	(5.6)H	5.5	5.5	5.3H	4.9	L					
22						L	4.1	4.9	5.4	(5.4)	5.5	5.6	5.7	5.8H	5.8H	5.7	5.5	4.9	4.6					
23							3.8K	(5.1)K	AK	5.2K	AK	(5.6)AK	AK	5.6K	5.7K	5.6K	5.2K	CK	C					
24						L	4.3	4.7	4.9	5.0	5.1	5.5	(5.4)	5.7	(5.6)	(5.5)	5.2	L	L					
25							4.3K	4.3FK	4.8K	5.3K	(5.5)HK	(5.4)HK	(5.3)HK	(5.4)HK	(5.3)HK	5.2K	5.1K	4.8FK	A	A				
26							C	C	(5.7)	A	(5.3)J	5.8	(5.9)	C	A	(5.4)	[5.1]C	4.7F	4.0					
27						L	(4.1)K	(4.3)FK	AK	(4.9)K	CK	AK	5.3K	CK	5.5K	5.5FK	(5.2)K	5.1K	L					
28							A	(4.4)	5.6F	5.6U	(5.6)FH	5.8F	(5.8)F	5.7	5.7U	A	5.4	5.2	L					
29							Q	(4.6)AK	5.2K	5.2K	5.2K	5.5HK	AK	5.4K	5.2FK	(5.3)FK	5.3K	5.0K	(4.8)	L				
30							L	4.5	4.7	5.1	C	5.5	(5.5)	C	(5.4)H	(5.5)	C	C	C					
31																								
Median							4.1	4.7	5.1	5.2	5.5	(5.5)	(5.5)	5.6	5.6	5.5	5.3	5.0	4.7					
Count							10	22	19	22	20	19	20	19	21	25	25	22	9					

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc — Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

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

Form adopted June 1946

TABLE 59

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

IONOSPHERIC DATA

h'E (Characteristic), km (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: R. E. P., M. C. E.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C ←												→ C					
2							C ←												→ C					
3							C ←												→ C					
4							C ←												→ C					
5							C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C	C	C	C	C					
6							C ←												→ C					
7							C ←												→ C					
8							C ←												→ C					
9							C ←												→ C					
10							C ←												→ C					
11							C ←												→ C					
12							A	110	C	100	90	90	90	90	90	90	100	90	100	100				
13							100	100	90	90	90	C	100	100	90	100	100	100	100	100				
14							C^{K}	90^{K}	90^{K}	90^{K}	C^{K}	C^{K}	90^{K}	C^{K}	80^{K}	90^{K}	90^{K}	90^{K}	90^{K}	100^{K}				
15						100	90	90	90	80	90	90	90	90	90	90	90	90	80					
16							C	90	80	80	90	90	90	90	90	90	90	90	90	100				
17							90^{K}	90^{K}	90^{K}	80^{K}	80^{K}	80^{K}	80^{K}	80^{K}	80^{K}	90^{K}	90^{K}	90^{K}	90^{K}					
18							A^{K}	90^{K}	90^{K}	90^{K}	90	90	80	90	90	90	90	90	90	100				
19							C	C	C	90	90	90	90	90	90	90	90	C	100	100				
20							[90]C	90	C	C	C	90	[90]C	90	90	90	[90]C	100	[100]C					
21							A	100	90	80	100	100	80	80	80	80	80	100	100					
22						100	100	100	100	90	100	100	90	100	90	90	90	100	100	110				
23							110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	90^{K}	90^{K}	90^{K}	90^{K}	100^{K}	C^{K}	C	100				
24							110	100	90	100	100	100	100	90	100	100	100	100	100	110				
25							100^{K}	100^{K}	90^{K}	90^{K}	90^{K}	90^{K}	90^{K}	90^{K}	90^{K}	90^{K}	90^{K}	100^{K}	100	100				
26							C	C	100	90	90	90	90	C	100	90	[90]C	100	100	110				
27						100	100^{K}	100^{K}	100^{K}	90^{K}	90^{K}	90^{K}	90^{K}	C^{K}	90^{K}	90^{K}	100^{K}	90^{K}	90	110				
28							A	90	100	90	90	90	90	90	90	90	100	100	90	110				
29							A	90^{K}	90^{K}	90^{K}	80^{K}	80^{K}	90^{K}	80^{K}	80^{K}	80^{K}	80^{K}	80^{K}	90	100				
30							80	90	80	80	C	80	90	C	90	(100)	C	C	C	C				
31																								
Median							100	90	90	90	90	90	90	90	90	90	90	95	100	100				
Count							10	17	16	18	16	17	19	15	19	19	18	16	17	14				

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc—Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 705519

TABLE 60

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

IONOSPHERIC DATA

Form adopted June 1946

f°E (Characteristic), Mc (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat. 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: M. C. E., R. E. P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C ←												→ C					
2							C ←												→ C					
3							C ←												→ C					
4							C ←												→ C					
5							C K	C K	C K	C K	C K	C K	C K	C	C	C	C	C	C					
6							C ←												→ C					
7							C ←												→ C					
8							C ←												→ C					
9							C ←												→ C					
10							C ←												→ C					
11							C ←												→ C					
12							A	A	C	A	A	A	(4.2)	(4.2)	3.7	(3.7)	(3.5)	3.2	2.7	19				
13							2.4	(3.0)	3.3	(3.6)	(3.8)	C	(4.2)	4.1	4.0	3.8	3.6	3.3	2.7	(2.2)				
14							C K	(3.0) K	3.3 K	(3.5) K	C K	C K	A K	A K	A K	A K	A K	3.3 K	2.8 FK	A K				
15						2.0 F	2.6 F	(3.2) F	3.5	A	(3.9)	(4.0)	(4.1)	C	(3.9)	3.9	3.7	3.3	2.8	A				
16							C	3.3	3.6	3.8	3.9	A	A	(4.1)	4.1	3.9	3.7	3.3	2.7	2.1				
17							(2.4) K	2.9 K	(3.4) K	3.6 K	3.6 K	(3.7) K	3.9 K	(3.9) K	(3.9) K	3.9 K	3.6 K	(3.1) K	(2.6) K	A K				
18							A K	3.1 K	(3.6) K	3.7 K	4.0	A	C	4.1	4.0	3.9	3.7	3.6	2.9	(2.0) F				
19							C	C	C	3.9	3.9	4.0	4.0	(3.9)	(3.8)	(3.7)	(3.7)	[3.3] C	2.9	2.1				
20							[2.4] C	3.3	C	C	C	(4.0)	[4.1] C	(4.2)	4.3	4.1	[3.9] C	3.7	[3.0] C	A				
21							A	3.0	3.7	3.8	[3.9] A	4.1	4.0	4.1	(4.1)	4.1	3.9	3.5	2.9	A				
22						1.6 F	2.6	3.2	3.7	3.9	4.2	(4.2)	(4.5)	(4.3) F	(4.1)	4.1	3.9	3.6	2.9	2.1				
23							(2.2) FK	3.1 FK	3.7 K	3.9 FK	4.1 K	4.1 K	A K	4.3 FK	4.3 FK	4.2 K	3.9 K	C K	C	2.2 F				
24							2.6	3.1	3.5	3.8 F	A	(4.1)	(4.0)	(4.2)	4.1	(4.0)	3.8	3.5	2.8	2.1				
25							A K	3.1 FK	A K	(3.7) K	3.9 K	(3.8) K	(3.8) K	A K	3.9 K	A K	3.7 K	3.5 K	2.9	2.2				
26							C	C	A	A	A	A	4.2	C	4.0	3.7	C	A	(2.9)	2.2				
27						(1.9) F	2.6 K	3.2 K	3.4 K	3.8 K	(4.0) K	A K	A K	C K	4.2 K	4.0 K	3.9 K	3.5 K	(2.9)	2.1				
28							A	2.9	3.7	3.9	(4.0)	A	(4.3)	4.1	4.1	A	A	3.5	2.9	2.1				
29							A	(3.1) K	3.5 K	(3.7) K	A K	A K	A K	A K	A K	A K	A K	3.3 K	2.9	2.0 F				
30							(2.5)	3.2	3.6	3.7	C	3.9	4.0	C	(3.9)	A	C	C	C	C				
31																								
Median							2.5	3.1	3.6	3.8	3.9	(4.0)	(4.1)	(4.1)	4.0	3.9	3.7	3.4	2.9	2.1				
Count							9	16	14	15	12	10	13	12	17	14	14	16	17	13				

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc — Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 708819

Form adopted June 1946

TABLE 61

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

IONOSPHERIC DATA

Es (Characteristic), Mc,km (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat. 39.0°N, Long. 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

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							C	C	C	C	C	C	C	C	C	C	C	C	C					
2							C	C	6.0 130	(5.9) 130	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	4.9 130	C	C	C	C	C	C	C	C	C	4.5 120					
5							C	C	5.1 120	C	4.4 120	4.4 150	C	C	(5.1) 150	C	C	C	C					
6							C	C	C	6.2 120	4.5 120	5.8 (140)	C	C	4.6 140	4.6 150	4.9 120	5.5 130	4.9 120					
7							5.7 120	5.5 120	4.4 120	4.2 120	6.1 150	C	4.2 130	5.0 120	C	4.9 120	4.3 (160)	C	C					
8							C	C	4.3 120	4.3 120	C	C	C	12.5 120	9.5 120	6.1 130	C	C	5.4 (150)					
9							C	C	C	C	C	C	C	C	C	C	(4.0) 120	C	C					
10							C	C	C	C	6.4 120	(5.5) 130	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12			2.6 100	2.9 100	3.4 100	2.3 110	1.8 100	3.2 120	C	4.4 100	4.2 100	4.1 90	–	4.3 100	4.1 100		·	4.4 100	3.5 110	2.2 100				
13								3.9 100	3.4 110					4.3 140	4.3 120	4.2 120	4.1 110							
14						1.8 100	C				C	C	4.4 90	5.2 90	5.1 90	5.4 90	3.6 90	–	5.4 110	2.4 100				
15									(5.2) 100	3.8 90									5.0 100	4.7 90	4.2 90			5.6 90
16				1.7 100	3.3 100	3.8 100	C	4.5 100	5.8 80	6.5 90	6.0 90	7.4 90	5.9 90	–	4.7 120	5.4 110	4.0 120	4.5 120	3.5 100	4.7 100	6.6 90	5.2 90		
17									(4.2) 100	(4.3) 90	–	(4.0) 90	(4.2) 90	(4.3) 100	(4.2) 100	(4.3) 100	5.8 100	4.5 90	(3.8) 90	6.1 90	4.4 90	5.7 90	6.0 100	
18	6.3 90	4.6 90	3.3 120	3.4 100	1.9 100	2.3 100	3.7 90	4.2 100	–	4.0 100		4.7 100							3.7 110	4.7 100	4.7 100	4.0 90		
19	–	–	–	2.7 90	–	2.0 120	C	C	C	4.4 100	4.4 100	4.4 100	4.6 100	–	–	–	–	C	–	3.5 100	5.8 90	4.4 90	4.5 90	–
20	–	–	–	1.6 90	–	–	–	–	C	C	C	–	C	(4.7) 110	5.7 110	4.9 110	C	4.5 110	C	4.7 100	(3.2) 100	–	C	–
21	–	3.7 110	C	C	C	C	5.5 100	5.9 100	4.5 90	8.0 100	7.5 100	4.5 110	–	–	–	–	–	–	3.8 110	5.5 100	5.8 90	3.3 100	3.5 90	–
22	–	–	–	–	–	–	3.8 100	3.7 110	5.0 110	5.6 100	–	5.6 110	5.7 100	–	5.5 100	4.5 110	–	5.4 110	9.0 110	5.9 100	3.8 120	4.4 120	4.1 100	3.8 100
23	3.4 100	6.4 100	3.2 90	4.6 100	3.3 100	3.9 100	4.9 100	6.0 100	6.2 100	4.5 100	8.0 110	8.0 110	8.0 100	5.9 120	5.2 120	4.4 130	4.4 110	C	C	4.7 120	(3.6) 130	(4.8) 100	2.3 110	–
24	–	2.5 100	(2.4) 100	–	(2.9) 100	3.5 110	4.2 110	5.2 110	6.0 110	(6.2) 110	(5.9) 110	–	4.2 110	–	–	–	–	8.0 120	8.9 110	6.8 100	(6.0) 100	(3.4) 110	(2.5) 120	(3.0) 110
25	4.9 100	3.7 120	(2.4) 100	–	(3.2) 100	4.2 100	3.5 110	(6.5) 110	7.1 100	(4.7) 110	–	4.2 100	4.3 100	4.5 100	(5.3) 100	5.8 100	–	5.9 120	6.2 110	6.1 110	9.0 110	(7.3) 110	3.7 100	6.0 100
26	(3.9) 100	4.7 90	–	–	C	C	C	C	8.0 110	8.2 90	6.5 100	5.7 110	5.2 100	C	13.0 110	6.0 100	C	4.2 100		4.1 110	9.2 100	4.0 100	–	
27				4.0 110	3.7 100	3.5 100	4.5 100	5.7 100	8.6 100	(6.4) 90	5.5 90	(8.2) 100	8.0 90	C	5.9 100	5.6 110	5.4 120	4.4 110	(3.3) 120	5.1 110	3.6 100		3.2 100	2.6 100
28	4.3 100	4.0 100	4.0 100	3.4 100	2.3 110	4.1 100	7.5 100	4.9 100	5.0 100	(4.4) 100	5.0 110	4.4 110	5.8 100	6.4 100	6.0 100	7.2 90	4.0 100	4.1 120	4.3 100	3.8 100	3.8 90	8.2 100	3.8 90	6.2 90
29	3.4 90	3.9 90	4.5 90	3.7 90	3.4 90	3.3 90	3.9 90	6.0 100	(9.0) 90	5.9 100	9.0 90	4.9 100	9.0 90	8.0 100	5.8 100	4.8 80	4.3 100	5.4 80	4.2 80	3.7 100	4.7 100	4.3 90		
30						2.0 120	3.7 80	3.9 80	5.7 80	5.6 90	C	4.2 100	4.4 100	C	C	5.0 (100)	C	C	C	C	C	C	C	C
31																								
Median				1.5	1.9	2.3	3.8	4.4	5.1	4.6	4.8	4.4	4.4	4.3	5.1	4.7	4.0	4.4	4.2	4.7	4.3	4.0	2.3	
Count	19	19	18	18	17	17	16	18	21	22	20	21	19	18	21	22	19	17	19	18	18	18	17	18

Sweep 1.0 Mc to 25.0 Mc in 1/4 min — Automatic ☒ JUNE 12-30

Sweep 3.1 Mc to 17.0 Mc—Manual ☒ JUNE 1-11

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

TABLE 62

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

Form adopted June 1946

IONOSPHERIC DATA

F2-M1500 (Characteristic), ____ (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: N. M., B. C. V.

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							G	N	N	C	C	C	C	C	C	C	C	N	(1.6)					
2							C	C	(1.7)^{J}	(1.5)^{J}	(1.6)	1.6	1.6	1.6	(1.6)	(1.6)^{J}	S	(1.7)^{F}	N					
3							(1.4)	N	N	N	C	C	N	C	(1.4)	(1.4)	C	N	N					
4							(1.6)^{J}	N	N	N	(1.5)^{J}	N	N	(1.5)	1.5	(1.5)^{J}	(1.7)	C	C					
5							G^{K}	(1.5)^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(1.4)$^{N}_{J}$	C	(1.4)^{J}	(1.5)	1.5	1.5					
6							C	(1.6)	N	A	C	C	N	(1.6)	(1.5)^{J}	1.7	1.6	C	1.6					
7							A	1.5	C	C	C	C	C	G	N	1.5	N	S	S					
8							(1.7)	(1.6)	(1.4)	1.5	C	C	S	A	A	S	S	C	S					
9							1.7	1.5	1.6	(1.5)^{J}	N	(1.5)	G	N	N	(1.5)	1.5	1.6	1.7					
10							1.6	1.5	C	C	A	N	(1.6)	(1.6)	(1.5)	(1.6)	N	C	C					
11							C	(1.8)	C	C	C	(1.6)	C	(1.5)	C	C	C	C	1.6					
12	2.0	1.9	1.8	1.8	1.9	2.1	2.3	C	[2.1]^{C}	2.1	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	(2.0)	2.0	1.9	1.9	1.8
13	1.7	1.8	1.8	1.8	(1.7)^{J}	2.1	2.2	2.0	1.7	2.0	2.0	G	(1.8)	1.8	1.6	1.8	(1.8)	1.8	1.8	2.0	1.9	1.6	1.6	(1.6)$^{F}_{K}$
14	(1.6)$^{F}_{K}$	(1.8)^{K}	1.6^{K}	(1.4)$^{FZ}_{K}$	1.5$^{FZ}_{K}$	1.9^{K}	C^{K}	G^{K}	G^{K}	G^{K}	C^{K}	C^{K}	C^{K}	C^{K}	1.5^{K}	1.6^{K}	1.8^{K}	1.6^{K}	1.8^{K}	1.8^{K}	1.8^{K}	1.8	1.8	(1.6)
15	(1.7)^{F}	1.7^{F}	(1.7)$^{F}_{J}$	(1.7)^{J}	(1.7)	1.8	2.3	2.1	1.9	1.9	2.2	1.8	C	1.7	1.7	1.8	1.7	1.8	1.9	1.9	1.8	1.8	1.8	1.8
16	1.8	1.9	1.8	(1.8)	(1.8)	2.0	C	2.0	1.9	1.9	1.9	1.7	1.7	1.7	1.7	1.6	1.7	1.9	1.9	1.8	1.7	1.7	1.7	(1.7)
17	1.6	1.7	(1.5)$^{J}_{K}$	1.6$^{F}_{K}$	1.6$^{F}_{K}$	1.6$^{F}_{K}$	1.6^{K}	1.5^{K}	G^{K}	(1.4)^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(1.5)^{K}	1.8^{K}	1.6^{K}	1.7^{K}	1.7^{K}	1.8^{K}	(1.7)^{K}	(1.7)^{K}	(1.7)$^{F}_{K}$
18	1.8^{K}	1.7^{K}	1.6$^{F}_{K}$	1.7$^{F}_{K}$	1.8$^{F}_{K}$	1.7$^{F}_{K}$	2.0^{K}	1.5$^{F}_{K}$	(1.5)$^{F}_{K}$	G^{K}	1.5	(1.7)^{F}	[1.6]^{C}	1.7^{F}	1.6	1.6	1.7	1.7	(1.8)^{F}	(1.9)	1.9	(1.8)^{J}	1.7	1.8
19	1.6	(1.6)^{J}	(1.8)^{J}	(1.7)^{J}	1.7	(1.7)	C	C	C	1.6	(1.5)	1.6	[1.6]^{C}	1.7	1.7	1.7	1.7	(1.8)	C	(1.8)	[1.8]^{C}	(2.0)	C	C
20	C	C	C	C	(1.7)	1.8	[1.7]^{C}	C	C	C	C	1.6	[1.7]^{C}	(1.7)	1.6	(1.6)	[1.7]^{C}	1.7	[1.7]^{C}	1.8	(1.7)^{J}	(1.8)	[1.7]^{C}	[1.7]^{C}
21	(1.7)	1.7	[1.7]^{C}	[1.9]^{C}	[1.8]^{C}	[1.8]^{C}	1.8	1.6	1.5	A	A	1.5	1.5	C	1.5	1.5	1.6	1.6	1.7	1.8	(1.8)	(1.7)^{J}	(1.6)^{J}	1.7
22	1.7	(1.7)	1.6	1.6	1.6	1.3	1.6	1.7	1.6	(1.5)	1.6	[1.6]^{C}	(1.6)	[1.5]^{C}	(1.6)	1.6	1.6	1.7	1.8	1.8	1.7	(1.6)	1.7	(1.6)
23	(1.6)^{J}	1.7	(1.6)^{J}	1.6	(1.6)^{J}	1.7^{K}	1.6^{K}	(1.6)^{K}	(1.6)^{K}	(1.6)^{K}	A^{K}	A^{K}	A^{K}	G^{K}	(1.5)^{K}	G^{K}	1.7^{K}	C^{K}	C	(1.8)^{J}	(1.8)	(1.8)^{J}	1.8	1.8
24	(1.8)^{J}	1.8	1.7	(1.6)	1.6	1.7	1.5	1.5	1.5	G	1.9	1.6	1.9	(1.6)^{J}	(1.6)	(1.6)	1.7	1.8	1.7	1.9	1.9	(1.8)	(1.8)	(1.7)
25	(1.6)^{J}	(1.7)^{J}	(1.7)	1.7^{K}	1.8^{K}	(1.8)$^{F}_{K}$	1.7$^{F}_{K}$	1.9$^{F}_{K}$	1.5^{K}	(1.6)^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(1.5)^{K}	(1.5)^{K}	1.5^{K}	(1.6)^{K}	1.7	(1.7)^{J}	A	(1.8)	1.7	1.7
26	1.7	1.6	(1.7)^{J}	(1.6)^{J}	C	C	C	C	(1.5)	1.6	[1.7]$^{C}_{J}$	[1.7]$^{C}_{J}$	(1.7)	C	A	1.8	[1.8]^{C}	1.9	1.8	1.9	1.9	(1.9)	1.9	1.8
27	[1.9]^{C}	(1.9)	(1.8)^{J}	1.8	(1.8)^{J}	1.8	1.9^{K}	F^{K}	A^{K}	(1.7)^{K}	(1.6)^{K}	A^{K}	C^{K}	C^{K}	(1.6)^{K}	(1.7)$^{J}_{K}$	(1.7)$^{J}_{K}$	1.8^{K}	1.8	1.8	1.8	(1.7)	(1.7)	1.8
28	(1.7)^{J}	(1.8)^{J}	1.4	1.6	1.6	(1.9)^{J}	A	1.8	1.6^{F}	(1.5)	1.8	(1.8)^{J}	1.6	1.7	(1.6)	1.7	(1.8)	(1.8)	2.0	1.9	1.8	(1.8)	1.9	1.7
29	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.9^{K}	C^{K}	1.6^{K}	C^{K}	G^{K}	A^{K}	(1.7)^{K}	1.7^{K}	1.6^{K}	1.7^{K}	1.8^{K}	1.8	1.9	2.1	1.8	1.8	1.9
30	1.7	1.7	1.7	1.6	1.6	1.8	1.8	1.8	1.6	(1.6)	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
Median	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.8	(1.8)	1.7	1.7
Count	18	18	18	18	18	18	21	21	19	21	16	19	18	21	23	26	22	20	21	18	17	18	17	17

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc - Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 708519

Form adopted June 1946

TABLE 63

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

IONOSPHERIC DATA

F2-M3000 (Characteristic), ______ (Unit), June (Month), 1947

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

Calculated by: N. M., B. C. V.

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							G	N	N	C	C	C	C	C	C	C	C	N	(2.3)							
2							C	C	(2.5)J	(2.3)J	(2.4)	2.5	2.5	2.4	(2.5)	(2.4)J	S	(2.6)P	N							
3							(2.2)	N	N	N	C	C	N	C	(2.1)	(2.2)	C	N	N							
4							(2.4)J	N	N	N	(2.3)J	N	N	(2.3)	2.4	(2.3)J	(2.5)	C	C							
5							GK	(2.2)K	GK	GK	GK	GK	GK	(2.1)NJ	C	(2.1)J	(2.2)	2.3	2.2							
6							C	(2.4)	N	A	C	C	N	(2.4)	(2.3)J	2.5	2.5	C	2.4							
7							A	3.2	C	C	C	C	C	G	N	2.3	N	S	S							
8							(2.5)	(2.4)	(2.1)	2.2	C	C	S	A	A	S	S	C	S							
9							2.6	2.3	2.3	(2.2)J	N	(2.3)	G	N	N	(2.2)	2.3	2.5	2.6							
10							2.5	2.4	C	C	A	N	(2.4)	(2.4)	(2.3)	(2.5)	N	C	C							
11							C	(2.6)	C	C	C	(2.4)	C	(2.3)	C	C	C	C	2.4							
12	2.8	2.7	2.7	2.7	2.8	3.0	3.2	C	[3.3]C	3.0	2.9	2.9	2.8	2.7	2.9	2.8	2.7	3.0	2.8	(3.0)	3.0	3.0	2.8	2.7		
13	2.6	2.7	2.8	2.8	(2.7)J	3.1	3.1	3.0	2.8	2.9	3.1	G	(2.7)	2.7	2.5	2.8	(2.7)	2.7	2.8	2.9	2.6	2.5	2.4	(2.5)FK		
14	(2.5)JFK	(2.5)K	2.4K	(2.3)FZK	2.8FZK	2.7K	CK	GK	GK	GK	CK	CK	CK	CK	2.7K	2.5K	2.7K	2.5K	2.8K	2.8K	2.7K	2.8	2.8	(2.5)		
15	(2.5)F	2.6F	(2.2)ZF	(2.4)J	(2.7)	2.8	3.1	2.5	2.8	2.9	3.3	2.8	C	2.6	2.6	2.8	2.7	2.8	2.9	2.9	2.8	2.8	2.9	2.9		
16	2.8	2.8	2.8	(2.8)	(2.7)	3.0	C	3.0	2.9	2.8	2.8	2.7	2.6	2.6	2.6	2.7	2.7	2.8	2.9	2.9	2.8	2.8	2.8	(2.6)		
17	2.4	2.5	(2.2)JK	2.4FK	2.5FK	2.4FK	2.4K	2.3K	GK	(2.2)K	GK	GK	GK	GK	GK	(2.3)K	2.3K	2.5K	2.5K	2.6K	2.7K	(2.6)K	(2.7)K	(2.6)FK		
18	2.7K	2.4K	2.4FK	2.5FK	2.5FK	2.0FK	3.0K	2.3FK	(2.3)FK	GK	2.4	(2.5)F	[2.4]C	2.4F	2.4	2.4	2.6	2.7	(2.7)F	(2.8)	2.8	(2.8)J	2.6	2.6		
19	2.5	(2.5)J	(2.7)J	(2.5)J	2.5	(2.6)	C	C	C	2.5	(2.4)	2.5	[2.4]C	2.5	2.5	2.5	2.5	(2.8)	C	(2.8)	[2.7]C	(2.8)	C	C		
20	C	C	C	C	(2.6)	2.8	[2.6]K	C	C	C	C	2.4	[2.6]C	(2.5)	2.4	(2.3)	[2.6]C	2.6	[2.6]C	2.7	(2.6)J	(2.7)	[2.7]C	[2.7]C		
21	(2.6)	2.6	[2.7]C	[2.8]C	[3.0]C	[2.8]C	2.7	2.5	2.4	A	A	2.3	2.4	C	2.4	2.4	2.5	2.5	2.6	2.7	(2.6)	(2.6)J	(2.4)J	2.5		
22	2.6	(2.5)	2.3	2.4	2.4	2.5	2.4	2.7	2.5	(2.2)	2.4	[2.3]C	(2.5)	[2.3]C	(2.4)	2.4	2.5	2.5	2.6	2.6	2.6	(2.5)	2.6	(2.5)		
23	(2.5)	2.5	(2.5)J	2.4	(2.4)J	2.5K	2.4K	(2.4)K	(2.3)K	(2.4)K	AK	AK	AK	GK	(2.3)K	GK	2.6K	CK	C	(2.7)	2.7	(2.7)J	2.8	2.7		
24	(2.7)J	2.6	2.6	(2.5)	2.4	2.7	2.4	2.3	2.3	G	2.9	2.4	2.9	(2.8)J	(2.3)	(2.4)	2.6	2.6	2.5	2.9	2.8	(2.7)	(2.7)	(2.6)		
25	(2.7)J	(2.8)J	(2.5)	2.5K	2.6K	(2.8)FK	2.7FK	2.9FK	2.7K	(2.4)K	GK	GK	GK	GK	(2.1)K	(2.2)K	2.3K	(2.5)K	2.5	(2.6)J	A	(2.7)	2.6	2.6		
26	2.7	2.4	(2.6)J	(2.4)J	C	C	C	C	(2.3)	2.5	[2.6]JC	[2.6]C	(2.6)	C	A	2.8	[2.8]C	2.8	2.7	2.8	2.8	(2.7)	2.6	2.7		
27	[2.8]C	(2.8)	(2.6)J	2.9	(2.6)J	2.5	2.8K	FK	AK	(2.5)K	(2.3)K	AK	GK	CK	(2.5)K	(2.6)JK	(2.6)JK	2.8K	2.7	2.7	2.7	(2.6)	(2.7)	2.7		
28	(2.6)J	(2.8)J	2.3	2.7	2.5	(2.9)J	A	2.8	2.6F	(2.4)	2.8	(2.7)J	2.5	2.5	(2.5)	2.8	(2.7)	(2.7)	2.9	2.6	2.8	(2.8)	2.9	2.6		
29	2.8	2.7	3.0	2.6	2.7	2.7	2.9	2.3K	CK	2.4K	CK	GK	AK	(2.5)K	2.6K	2.5K	2.6K	2.5K	2.8	2.9	2.8	2.8	2.6	2.8		
30	2.5	2.6	2.5	2.5	2.5	2.7	2.8	2.8	2.4	(2.5)	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
31																										
Median	2.6	2.6	2.6	2.5	2.6	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.8	2.7	(2.7)	2.7	2.6		
Count	18	18	18	18	19	18	21	21	19	21	16	19	18	21	22	26	22	20	21	18	17	18	17	17		

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

Sweep 3.1 Mc to 17.0 Mc - Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

Form adopted June 1946

TABLE 64

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

IONOSPHERIC DATA

FI-M3000 (Characteristic), ____ (Unit), June (Month), 1947

Observed at Washington, D. C.

Lat 39.0°N, Long. 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							3.0	N	(3.7)	C	C	C	C	C	C	C	C	N						
2							C	C	L	C	3.2	N	C	C	N	(3.1)	S	(2.9)	N					
3							C	N	C	C	N	N	N	N	C	(3.3)	(3.0)	(2.8)	N					
4							L	(2.8)	(3.4)	(3.4)	(3.7)	C	C	N	C	(3.2)	(3.2)	(3.1)	N					
5							3.1^{K}	3.3^{K}	A^{K}	$(3.5)^{K}$	A^{K}	N^{K}	N^{K}	N	N	$(3.3)^{J}$	$(3.1)^{J}$	(2.8)	(2.9)					
6							C	(2.9)	(3.1)	A	(3.5)	A	N	N	N	(3.3)	(3.1)	A	A					
7							A	A	C	C	A	N	C	A	N	A	S	N	C					
8							C	(3.1)	A	A	N	N	S	A	A	A	N	N	A					
9							N	(3.7)	(2.9)	(3.1)	N	(3.1)	N	C	N	(3.3)	3.5	3.0	3.2					
10							Q	N	3.2	3.4	A	C	C	C	N	C	N	(2.9)	C					
11							C	3.1	C	C	C	(3.2)	C	C	C	C	C	(3.2)	(3.3)					
12							L	C	L	L	(3.5)	C	(3.9)	3.6	(3.5)	3.6	3.7	L	L					
13							L	L	3.8	(4.0)	4.0	C	4.0	3.8	4.2	3.7	3.7	3.5	3.6					
14							C^{K}	3.4^{K}	3.8^{K}	C^{K}	C^{K}	C^{K}	$(3.9)^{K}$	C^{K}	$(3.8)^{K}$	3.7^{K}	3.8^{H}_{K}	3.6^{K}	A^{K}					
15							L	4.1	L	4.0	3.8	4.1	$(3.6)^{J}$	3.8	C	3.6	3.8	3.6	Q					
16							C	L	L	3.9	A	A	A	C	4.0	3.6	3.5	L	L					
17						$(3.0)^{F}_{K}$	3.4^{K}	4.0^{K}	3.8^{K}	4.1^{H}_{K}	4.0^{K}	$(3.7)^{H}_{K}$	$(3.8)^{K}$	3.7^{K}	3.8^{K}	4.0^{K}	3.8^{K}	3.7^{H}_{K}	L^{F}_{K}					
18							Q^{K}	$(3.6)^{K}$	3.9^{K}	3.9^{K}	(3.7)	(3.4)	[3.8]C	$(3.3)^{H}$	$(3.8)^{H}$	3.7	3.8	3.3	L					
19							C	C	C	3.8	3.8	(3.8)	[3.6]C	(3.9)	3.6	3.6	(3.7)	C	(3.5)					
20							L	(3.5)	C	C	C	(3.8)	[3.6]C	(3.6)	A	A	[3.6]C	3.5^{H}	L					
21							A	3.7	3.8	(3.8)	A	3.8^{H}	(3.5)	$(3.7)^{H}$	3.8	3.6	3.5^{H}	3.8	L					
22						L	3.2	3.3	3.3	(3.9)	3.8	3.8	3.7	3.6^{H}	3.4^{H}	3.6	3.6	3.8	3.7					
23							3.6^{K}	$(3.5)^{K}$	A^{K}	3.6^{K}	A^{K}	$(3.8)^{A}_{K}$	A^{K}	3.6^{K}	3.5^{K}	3.8^{K}	3.8^{K}	C^{K}	C					
24						L	3.3	3.6	3.9	3.9	4.1	3.9	(3.9)	4.1	(3.8)	(3.6)	3.8	L	L					
25							3.4^{K}	3.9^{F}_{K}	3.9^{K}	3.7^{K}	$(3.9)^{H}_{K}$	$(3.9)^{H}_{K}$	$(4.0)^{H}_{K}$	$(3.8)^{H}_{K}$	$(4.0)^{H}_{K}$	3.8^{K}	3.7^{K}	3.5^{F}_{K}	A	A				
26							C	C	(3.7)	A	$(4.2)^{J}$	3.6	(3.9)	C	A	(3.4)	[3.7]C	3.6^{F}	4.0					
27						L	$(3.5)^{K}$	$(4.0)^{F}_{K}$	A^{K}	A^{K}	C^{K}	A^{K}	4.1^{K}	C^{K}	3.8^{K}	3.8^{F}_{K}	$(3.6)^{K}$	3.6^{K}	L					
28							A	(3.9)	3.3^{F}	3.7^{U}	$(3.9)^{F}_{H}$	3.6^{F}	$(3.9)^{F}$	3.7	3.7^{U}	A	3.7	3.7	L					
29							Q	A^{K}	3.4^{K}	4.1^{K}	A^{K}	4.2^{H}_{K}	A^{K}	4.1^{K}	4.0^{K}	$(4.1)^{F}_{K}$	3.7^{K}	3.3^{K}	(3.4)	L				
30							L	3.8	3.8	3.9	C	3.9	(3.9)	C	$(3.7)^{H}$	(4.0)	C	C	C					
31																								
Median							3.4	3.6	3.7	3.8	3.8	3.8	3.9	3.7	3.8	3.6	3.7	3.5	3.4					
Count							8	19	17	18	14	16	16	14	16	23	23	20	8					

Sweep 3.1 Mc to 17.0 Mc—Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

Sweep 1.0 Mc to 25.0 Mc in 1/4 min

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 705318

TABLE 65

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

IONOSPHERIC DATA

Form adopted June 1946

E-M1500 (Characteristic), ____ (Unit), June (Month), 1947

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., A. H. S.

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C ←											→ C						
2							C ←												→ C					
3							C ←												→ C					
4							C ←												→ C					
5							C^K	C^K	C^K	C^K	C^K	C^K	C^K	C	C	C	C	C	C					
6							C ←												→ C					
7							C ←												→ C					
8							C ←												→ C					
9							C ←												→ C					
10							C ←												→ C					
11							C ←												→ C					
12							A	A	C	A	A	A	(4.9)	(4.9)	4.7	(4.4)	(5.0)	C	C	C				
13							4.8	(5.0)	4.5	(4.6)	(4.6)	C	(4.8)	4.6	4.6	4.6	4.6	4.7	4.4	(4.6)				
14							C^K	(5.0)^K	4.9^K	(4.9)^K	C^K	C^K	A^K	C^K	A^K	A^K	A^K	4.8^K	4.6^FK	A^K				
15						(4.5)^F	4.8^F	(4.7)^F	4.9	A	(4.6)	(5.0)	(5.1)	C	(4.5)	4.5	4.3	4.7	4.8	A				
16							C	4.7	4.9	4.7	5.1	A	A	(4.9)	4.5	4.5	4.7	4.7	5.2	4.8				
17							(5.0)^K	5.2^K	(4.7)^K	(4.9)^K	4.9^K	(5.0)^K	5.3^K	(4.7)^K	(4.6)^K	5.1^K	5.0^K	(5.0)^K	(5.2)^K	A^K				
18							A^K	4.5^K	(4.4)^K	(4.7)^K	4.6	A	C	4.5	4.5	4.6	4.6	4.3	4.6	(4.8)^F				
19							C	C	C	4.6	4.9	4.6	4.6	(5.1)	(4.7)	(4.9)	(4.9)	C	4.6	4.8				
20							[4.8]C	4.7	C	C	C	(4.8)	[4.6]C	(4.8)	4.2	4.3	[4.2]C	4.0	[4.3]C	A				
21							A	4.3	4.1	4.6	A	4.3	4.5	4.4	(4.4)	4.0	4.0	4.6	4.3	A				
22						5.0^F	4.6	4.7	4.7	4.6	4.8	(4.8)	(4.7)	(4.6)^F	(4.9)	4.9	4.5	4.4	4.5	4.5				
23							(4.5)^FK	4.8^FK	4.7^K	4.6^FK	4.5^K	4.5^K	A^K	4.7^FK	4.7^FK	4.4^K	4.5^K	C^K	C	4.3^F				
24							4.8	4.8	4.6	4.7^F	A	(5.1)	(4.6)	(4.8)	4.9	(4.6)	4.6	4.6	5.4	4.8				
25							A^K	4.8^FK	A^K	(4.7)^K	4.5^K	(4.7)^K	(4.7)^K	A^K	4.6^K	A^K	4.6^K	4.3^K	4.5	5.0				
26							C	C	A	A	A	A	4.4	C	4.5	4.7	C	A	(4.5)	4.3				
27						(4.7)^F	4.5^K	4.7^K	4.9^K	4.7^K	(4.6)^K	A^K	A^K	C^K	4.8^K	4.6^K	4.6^K	4.9^K	(4.8)	4.5				
28							A	4.8	4.7	4.6	(4.2)	A	(4.0)	4.9	4.6	A	A	5.0	5.0	4.8				
29							A	(5.2)^K	4.8^K	(4.9)^K	A^K	A^K	A^K	A^K	A^K	A^K	A^K	4.8^K	5.2	5.0^F				
30							(4.8)	5.2	4.9	4.9	C	4.6	5.0	C	(4.6)	A	C	C	C	C				
31																								
Median							4.8	4.8	4.7	4.7	4.6	4.8	4.7	4.8	4.6	4.6	4.6	4.7	4.6	4.8				
Count							9	16	14	15	11	10	13	12	17	14	14	14	16	12				

Sweep 1.0 Mc to 25.0 Mc in 1/4 min
Sweep 3.1 Mc to 17.0 Mc—Manual ☒ JUNE 1-11 Automatic ☒ JUNE 12-30

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

Table 66

Ionospheric Storminess, June 1947

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	***	***			4	2
2	***	2			1	1
3	***	***			3	2
4	***	3			2	2
5	***	5	--//	1800	4	4
6	***	1			2	1
7	***	***			3	4
8	***	***			3	3
9	***	3			4	3
10	***	2			2	2
11	***	3			2	3
12	1	2			2	2
13	0	2			3	4
14	4	4	0400	---/	6	4
15	3	2	----	0200	4	3
16	0	1			2	3
17	2	5	0700	----	4	4
18	4	2	----	1500	3	2
19	2	1			3	3
20	2	2			3	2
21	2	3			2	2
22	2	3			3	3
23	2	4	1000	2300	3	3
24	1	3			3	3
25	3	5	0800	2300	4	3
26	2	2			3	3
27	3	4	1100	2300	2	2
28	2	2			3	2
29	1	4	1200	2300	2	2
30	1	***			3	2

*Ionospheric 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, magnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

***No readable record. Refer to table 55 for detailed explanation.

/Dashes indicate continuing storm.

//Time of beginning unknown because of loss of record.

Table 67

Sudden Ionosphere Disturbances Observed at Washington, D. C.

1947 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
June					
2	1622	1925	Ohio, D.C., England, Ontario	0.0	
3	1240	1400	Ohio, D.C., Ontario	0.1	
3	1657	1710	Ohio, D.C., England, Ontario	0.1	
3	2157	2240	Ohio, D.C., England, Mexico, Ontario	0.0	
5	1008	***	Ohio, Ontario	0.3	
5	1043	1110	Ohio, D.C., England, Ontario	0.2	
6	1928	1940	Ohio, D.C., Mexico, Ontario	0.05	
8	1239	1300	Ohio, D.C., England	0.2	
8	1445	1520	Ohio, D.C., England, Mexico	0.03	Terr.mag.pulse** 1445-1500
9	2143	2210	Ohio, D.C., Mexico, Ontario	0.2	
10	1700	***	Ohio, D.C., England, Ontario	0.0	
11	0909	0930	England	0.1	
13	1524	1630	Ohio, D.C., England, Ontario	0.2	
14	1033	1110	Ohio, D.C., England, Ontario	0.0	
16	1559	1700	D.C., England, Ontario	0.03	
20	1225	1300	Ohio, D.C., Ontario	0.1	
20	1920	1945	Ohio, D.C., Ontario	0.0	
24	1415	1435	England, Ontario	0.1	
26	1846	1900	Ohio, D.C., Ontario	0.1	
26	2117	2145	Ohio, D.C., Ontario	0.1	

*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 June 11, 16, and June 24.

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

***Incomplete recovery of SID.

Table 68

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief.

Cable and Wireless, Ltd., as Observed in England

1947 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
May 17	1118	1315	Somerton	Argentina, Ascension I., Australia, Barbados, Brazil, Canada, Ceylon, China, Egypt, Gold Coast, India, New York, Union of S. Africa
18	0755	0815	Brentwood	Austria, Bahrein I., Bulgaria, India, Iran, Madagascar, Southern Rhodesia, U.S.S.R.
19	1135	1225	Brentwood	Austria, Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
19	1140	1210	Somerton	Ascension I., Argentina, Barbados, Brazil, Ceylon, China, Gold Coast, India, Malay States, New York, Union of S. Africa
20	0825	0900	Brentwood	Austria, Belgian Congo, Greece, India, Kenya, Palestine, Southern Rhodesia, Spain, Switzerland, Turkey, U.S.S.R., Yugoslavia, Zanzibar
20	1200	1220	Brentwood	Austria, Belgian Congo, Greece, India, Syria, Turkey
20	1255	1350	Brentwood	Chile, Colombia, Iran, Kenya, Southern Rhodesia
21	1830	2005	Brentwood	Colombia, Venezuela
21	1835	1930	Somerton	Barbados, Canada, New York
22	0715	0730	Brentwood	Belgian Congo, India, Iran, Kenya, Portugal, Southern Rhodesia, Syria
22	1850	2010	Brentwood	Chile, Colombia, Venezuela
22	1855	1905	Somerton	Argentina, Barbados, Brazil, Canada, New York
23	0800	0815	Brentwood	Austria, Belgian Congo, Greece, Iran, Madagascar, Palestine, Portugal, Southern Rhodesia, Zanzibar
23	0755	0825	Somerton	Ceylon, China, Gold Coast, India, New York, Nigeria
23	1220	1310	Brentwood	Austria, Belgian Congo, Canary Is., Chile, Colombia, Greece, India, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Thailand, Turkey, Zanzibar
23	1231	1256	Somerton	Argentina, Brazil, Gold Coast, Nigeria, Union of S. Africa
26	1155	1300	Brentwood	Austria, Greece, India, Iran, Kenya, Madagascar, Palestine, Spain, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
26	1205	1235	Somerton	Australia, Ceylon, India, New York, Union of S. Africa
26	1330	1500	Brentwood	Canary Is., Greece, India, Spain, Syria, Thailand, Turkey, U.S.S.R., Yugoslavia
27	0900	0925	Brentwood	Austria, Bahrein I., Belgian Congo, Bulgaria, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar

Table 68 (Continued)

1947 Day	GCT Beginning	End	Receiving station	Location of transmitters
May				
27	0907	0920	Somerton	Argentina, China, Gold Coast, India, Nigeria, Union of S. Africa
28	0830	0920	Brentwood	Austria, Greece, Iran, Madagascar, Palestine, Southern Rhodesia, Spain, Turkey, U.S.S.R.
29	0645	0710	Brentwood	Austria, Belgian Congo, Bulgaria, France, French Equatorial Africa, Greece, India, Iran, Kenya, Southern Rhodesia, Syria, U.S.S.R.
29	0645	0735	Somerton	Ceylon, China, India
29	0815	0900	Brentwood	Bahrein I., Belgian Congo, Bulgaria, Greece, Southern Rhodesia, U.S.S.R.
29	1430	1505	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Chile, Colombia, Greece, India, Iran, Kenya, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Turkey, U.S.S.R., Zanzibar
29	1430	1500	Somerton	Argentina, Australia, Barbados, Brazil, Canada, Ceylon, India, New York, Nigeria
30	0950	1200	Brentwood	Austria, Belgian Congo, India, Kenya, Southern Rhodesia, Spain, Switzerland, U.S.S.R., Yugoslavia
30	1410	1430	Brentwood	Canary Is., Chile, France, Greece, Iran, Palestine, Spain, Switzerland, Thailand, U.S.S.R., Zanzibar
June 3	0915	0945	Brentwood	Bahrein I., Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Switzerland, Syria, Turkey, U.S.S.R.
3	1205	***	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Iran, Kenya, Palestine, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Zanzibar
3	1210	1225	Somerton	Canada, Gold Coast, Nigeria
3	1245	1415	Brentwood	Canary Is., Chile, Colombia, France, Switzerland, U.S.S.R., Zanzibar
3	1247	1400	Somerton	Brazil, New York
5	1035	1140	Brentwood	Austria, Belgian Congo, Canary Is., France, Greece, India, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, Uruguay, U.S.S.R., Yugoslavia, Zanzibar
5	1040	1110	Somerton	Argentina, Australia, Barbados, Brazil, Canada, Ceylon, China, Egypt, Gold Coast, India, New York, Nigeria, Union of S. Africa

***Incomplete recovery of SID.

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 69

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and CRPL Probable Disturbed Period Forecasts)
May 1947

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

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

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

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

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

Table 70

American and Zürich Provisional Relative Sunspot Numbers

June 1947

Date	American* No.	Zürich** No.	Date	American* No.	Zürich** No.
1	191	225	16	141	164
2	166	206	17	196	197
3	135	179	18	210	228
4	135	143	19	275	274
5	133	143	20	263	251
6	153	150	21	265	246
7	163	158	22	230	232
8	116	132	23	213	232
9	81	114	24	186	195
10	114	120	25	164	204
11	95	104	26	140	151
12	89	93	27	143	150
13	87	90	28	138	148
14	95	99	29	162	163
15	140	134	30	170	143
No. Days 30	Monthly Means:			159.6	168.9

*Median of data from 15 observers.
**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 71

COBONAL OBSERVATIONS AT CLIMAX, COLORADO

June 1947

First row - green line 5303A
Second row - red line 6374A
Third row - red line 6704A

Date	Time of observation GCT	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175
													Degrees from astronomical north																								
1	1436-1445	X	X	X	X	X	X	X	X	X	10	12	20	24	25	27	17	13	19	25	22	18	13	8	5	5	4	4	4	--	4	5	7	9	9	8	6
												1	1	3	4	8	7	3	1	1	1																
															1	1	1	1	1	2	2	1	1														
2	1724-1731	8	7	5	-	--	--	5	8	14	17	27	28	30	28	25	19	12	20	28	27	20	14	10	7	6	5	5	4	5	5	6	9	10	9	8	6
									1	2	8	10	8	6	9	7	3	1	1	3	1																
											1	3	3	2	2	1	1	1	1	2	2	1	1	1	1												
6	2233-2357	-	6	6	6	--	--	--	6	7	15	21	25	23	25	18	6	5	12	18	18	18	16	13	11	7	6	6	5	5	5	5	6	6	7	7	6
										1	2	9	7	3	8	4	1	1	2	1	1			1													
													1	1	1																						
7	1333-1415	6	7	6	5	6	7	8	7	7	15	27	28	26	23	16	8	9	10	13	15	17	17	15	11	8	7	6	4	--	--	--	--	4	6	7	5
										1	1	5	2	3	5	2	1	1																			
													1	1																							
8	1422-1447	-	-	-	-	--	--	--	--	9	15	20	21	21	20	17	9	9	10	11	11	10	10	10	8	8	--	--	--	--	--	--	--	--	--	--	--
											1	4	7	10	11	9	2	1	2	1	1	1	1														
9	1602-1623	6	6	6	5	5	7	11	13	12	19	26	26	25	24	21	16	12	11	12	12	15	17	18	14	7	5	--	--	--	--	--	--	5	5	6	6
										1	1	3	9	12	15	10	2	1	2	1	1	1	3	1													
													1	1	1																						
10	1533-1556	6	5	4	7	9	14	16	16	15	18	30	33	33	30	27	20	15	13	14	15	18	21	23	20	13	6	3	3	3	4	5	5	7	9	12	11
						1	2	1			1	2	15	14	11	12	4	1		1	3	1	2	4	1	1											
											1	1	2	3	1	1					1	1	1														
13	1351-1419	5	5	6	8	10	12	13	13	9	15	34	40	40	39	34	28	23	18	20	27	27	25	20	15	10	8	6	4	3	3	4	4	7	9	12	12
										1	4	16	10	18	17	15	4	1	1	3	2	7	6	2	1	1	1	1	1								
										1	1	4	8	4	5	5	4	2	2	2	1	2	2	1	1	1											
14	1346-1417	8	8	9	10	11	11	12	12	11	10	18	29	29	28	26	24	19	17	31	25	20	15	12	10	9	8	7	4	--	--	3	4	6	10	11	11
								1	1	3	1	7	14	13	15	10	4	1	1	1	7	2	5	2	1	1	1	1	2	1	1						
										1	2	3	5	6	6	5	3	2	2	3	2	1	2	1	1	1											
15	1351-1422	9	9	8	7	--	--	--	--	7	9	16	21	21	19	21	12	7	15	21	22	18	14	9	7	--	--	--	--	--	--	--	6	8	10	10	9
										1	2	8	11	9	5	3	1	1	2	3	3	8	5	2	1	1	1	1	2	1	1						
											1	2	2	1	2	2	1	2	2	3	3	2	1														
19	1359-1422	6	5	5	3	3	3	3	3	5	6	9	12	16	17	10	6	5	11	17	16	13	15	14	14	11	8	6	4	4	3	3	3	3	5	7	6
											1	1	3	5	5	3	1			1	1	4	10	8	5	3	2	1	1	1	1						
																1	1	1	2	2	3	2	1	1	1												
20	1552-1625	6	6	6	4	--	--	--	--	4	4	6	7	12	15	13	11	7	5	5	7	10	12	13	12	10	8	6	4	4	4	3	3	3	4	5	6
														1	2	1				1	1	3	8	10	6	4	2	1	1	1							
																			1	1	1	1	1														
24	1400-1435	-	7	7	7	--	--	--	--	--	--	--	7	8	12	11	10	7	--	7	15	20	21	20	15	10	15	12	8	6	--	6	8	11	9	7	6
											1	1	1	2	5	6	1	1		1	3	2	2	1													
																		1	1	2	2	3	3	2	2	1											
25	1416-1452	-	-	-	-	--	--	--	--	--	--	--	--	5	10	14	13	9	6	4	9	12	14	15	16	12	7	12	10	--	--	--	5	9	6	4	--
													1	3	6	10	3						2	1	1												
																					1	1	1	1	1												
26	1446-1525	-	-	-	-	--	--	--	--	--	--	--	--	--	10	12	9	--	--	--	--	10	11	13	11	10	--	--	--	--	--	--	--	--	--	--	--
														2	4	5	2						1	2	4	1											
27	1527-1553	-	-	-	-	--	--	--	--	--	--	--	--	8	14	14	13	10	--	--	--	11	13	14	13	9	--	--	--	--	--	--	--	--	--	--	--
										1	1	1	2	4	5	4	2	1																			
28	1522-1544	-	-	-	-	--	--	--	--	--	--	--	11	15	14	14	13	11	9	8	--	12	12	11	10	10	--	--	--	--	--	--	--	--	--	--	--
													10	9	8	12	9	2																			
29	1709-1729	6	6	5	-	--	--	--	--	--	--	5	9	17	28	24	19	15	11	6	5	10	14	11	9	8	8	6	5	--	--	--	--	5	7	7	6
										1	2	2	4	12	9	11	9	3	1																		
													1	2	2	1																					
30	1421-1446	-	-	-	-	--	--	--	--	--	--	7	18	22	23	20	12	7	--	--	--	7	8	10	10	9	8	7	--	--	--	--	--	--	--	7	7
												1	3	10	10	12	3	1	1			1	1														
														1	3	1	1																				

Table II (continued)

Date	Time of observation GCT	Degrees from astronomical north																																	
		180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355
1	No observation																																				
2	No observation																																				
6	2233-2357	6	6	6	5	6	11	14	14	12	16	20	25	26	28	20	13	6	5	8	18	17	11	8	7	6	5	--	--	--	--	--	--	--	--	--	--
							1	1	2	3	4	4	8	11	5	1				1	8	5	2	2	1	1											
											1	1	2	3	2	2	1	1																			
7	1333-1415	5	6	7	5	5	10	12	14	13	20	26	30	34	35	25	15	5	7	15	20	18	12	6	5	5	5	--	--	--	--	--	5	5	7	5	--
							1	1	2	4	6	5	4	5	4	1	1			1	9	5	2	1	1				1	1	1	1					
									1	1	2	3	4	4	3	3	1	1	1	1																	
8	1422-1447	8	8	5	5	7	10	14	15	18	20	27	30	28	28	20	8	6	10	19	25	12	6	5	5	--	--	--	--	--	--	--	--	--	--	--	--
						1	1	1	2	3	3	3	1	2	3	1			1	2	10	14	6	1	1												
							1	1	1	1	1	3	3	3	3	1	1																				
9	1602-1623	6	7	7	7	8	10	15	12	15	26	26	27	28	29	26	15	12	11	17	25	7	--	--	--	--	--	--	--	--	--	--	--	5	6	5	5
								1	1	1	1	1	2	4	12	3	1			1	6	11	5	2	1												
								1	1	2	4	5	[illegible]	8	7	4	2	1																			
10	1533-1556	11	14	12	8	8	12	15	15	20	27	30	29	33	34	32	17	10	11	15	20	15	6	3	--	--	--	--	--	--	--	3	5	6	8	6	6
										1	1	1	1	2	8	12	1		1	3	5	8	4	2	1	1											
						1	1	1	1	3	4	5	5	7	9	4	1	1	1	1	2	1	1														
13	1351-1419	12	11	8	5	5	5	6	6	3	8	15	19	21	21	20	11	11	14	18	15	17	16	14	4	3	3	--	--	--	--	3	3	4	5	5	6
															1	1	1	1	2	2	3	5	4	3	2	1	1	1	1	1	1						
										1	1	2	2	4	4	2	1	1			1	1	1	1													
14	1346-1417	12	11	9	7	7	6	5	4	6	10	13	16	18	19	17	12	11	14	20	23	25	20	7	5	4	3	3	--	--	--	--	3	4	4	6	7
															1	1	1	1	1	1	3	3	6	12	5	1	1	1	1	1	1	1					
										1	1	1	1	2	2	1	1			1	1	2	3	2	2												
15	1351-1422	8	10	10	7	6	--	--	--	6	9	11	12	16	21	20	10	6	10	18	25	27	24	11	7	6	--	--	--	--	--	--	--	--	6	6	7
															1	1	1	1	1	1	3	3	6	12	5	1	1	1	1	1	1	1					
												1	1	1	1	1				1	1	2	2	1	1												
19	1359-1422	6	5	6	3	3	3	3	3	5	8	17	17	23	26	21	13	10	8	15	19	22	26	24	17	12	6	5	5	3	3	—	--	—	3	3	4
				1	1								1	2	8	5	2	1			1	3	6	5	2	1	1										
											1	1	2	3	3	1	1	1				1	1	3	2	1											
20	1552-1625	6	7	7	6	-	--	—	--	--	6	11	12	14	16	15	14	10	10	9	14	17	19	17	14	11	8	X	X	X	X	X	X	X	X	X	X
														1	1	3	1					1	1	1													
													1	1	1	1	1						1	1	1												
24	1400-1435	-	-	-	-	-	--	--	--	--	9	12	15	17	20	20	11	7	7	23	25	20	15	13	11	10	10	8	7	6	6	--	--	--	--	--	--
										1	2	3	6	4	10	15	20	10	4	10	8	6	2	1													
												1	1	1	2	2	1	1		1	1	3	2	2	1	1	1										
25	1416-1452	-	-	-	-	-	--	--	--	--	9	11	13	15	13	13	13	8	7	9	12	22	25	15	12	9	9	10	10	--	--	--	--	--	--	--	--
											1	5	9	9	9	10	9	5	3	10	9	9	2														
																				1	2	2	2	2	3	1	1										
26	1446-1525	-	-	-	-	-	--	--	--	--	--	10	10	11	11	11	9	--	--	--	--	15	20	20	20	13	--	--	--	--	--	--	--	--	--	--	--
											1	3	5	7	10	11	2																				
27	1527-1553	-	-	-	-	-	--	--	--	--	8	7	9	14	13	13	15	15	--	--	12	13	16	23	28	13	9	--	--	--	--	--	--	--	--	--	--
												1	3	5	9	9	1				1	2	3	4	3	2	1										
											2	2	2	2	2	2	2	2	2	1	1	2	3	3	3	2	2	1									
28	1522-1544	-	-	-	-	-	--	--	--	--	--	8	8	9	12	13	12	14	12	9	9	15	15	13	22	18	12	--	--	--	--	--	--	--	--	--	--
												1	1	1	12	11	10	1	2	2	2	1			7	2	1										
29	1709-1729	5	6	7	7	5	--	--	--	--	--	6	11	15	18	18	14	15	14	11	18	21	17	19	22	15	8	6	6	6	6	--	--	--	--	--	--
											1	1	1	4	15	2	4	1	--	--	1	3	2	2	1	1											
											1	1	1	2	2	2	1	1	1	1	1	2	2	2	1	1											
30	1421-1446	-	-	-	-	-	--	--	--	--	--	7	8	15	17	15	17	18	12	10	11	16	18	20	18	11	7	--	--	--	--	--	--	--	--	--	--
													1	2	8	6	2	1	1			1	3	6	3	2	1										
														1	1	1							1	2	1	1											

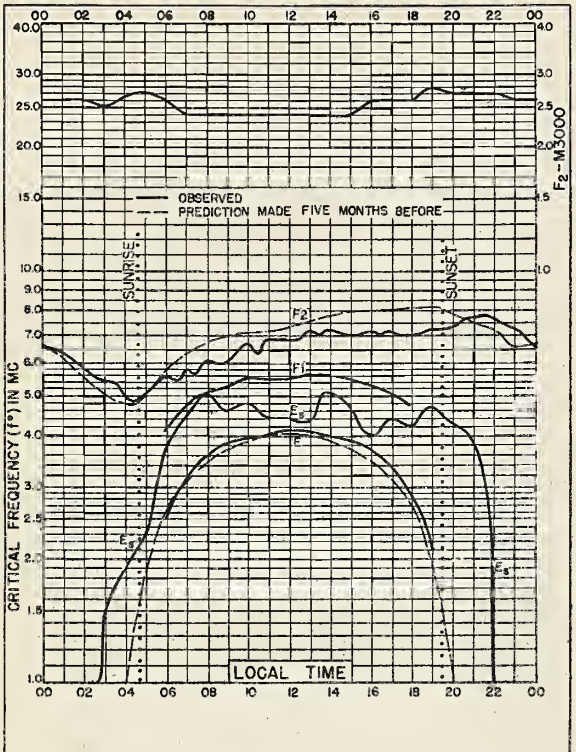


Fig. I. WASHINGTON, D. C.
39. 0°N, 77.5°W JUNE 1947

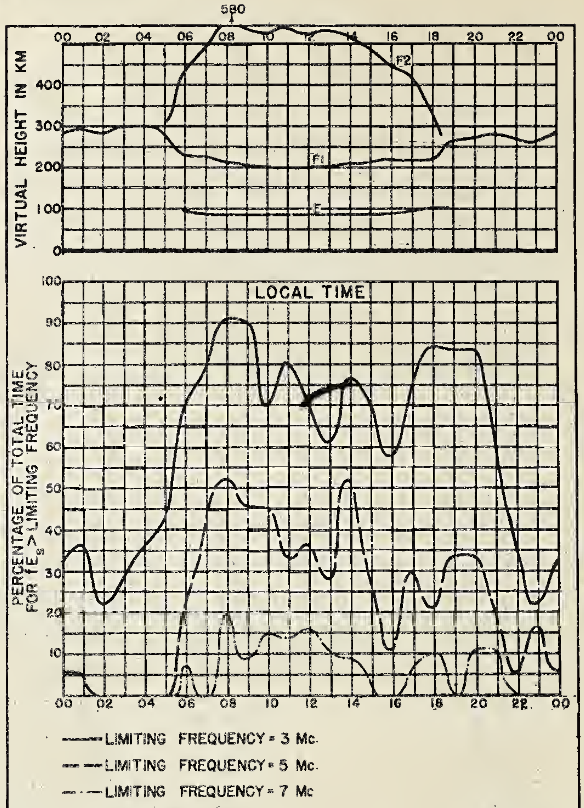


Fig. 2. WASHINGTON, D. C. JUNE 1947

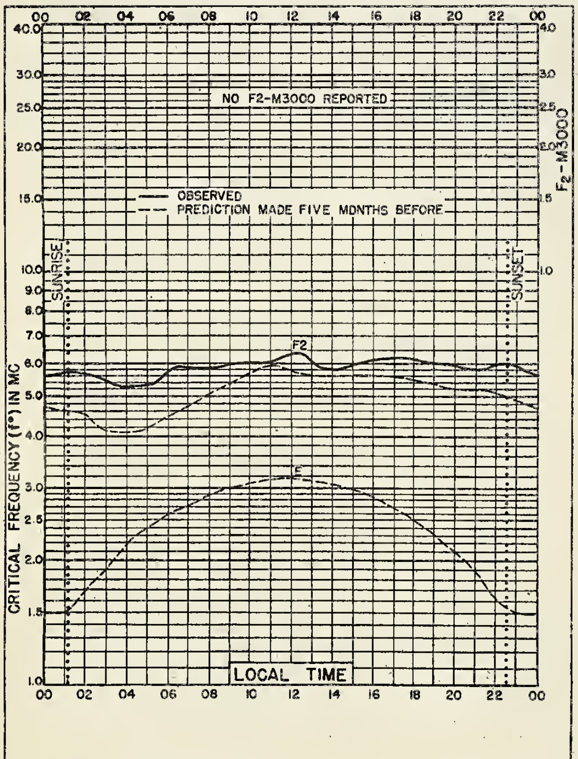


Fig. 3. CLYDE, BAFFIN I.
70.5°N, 68.6°W MAY 1947

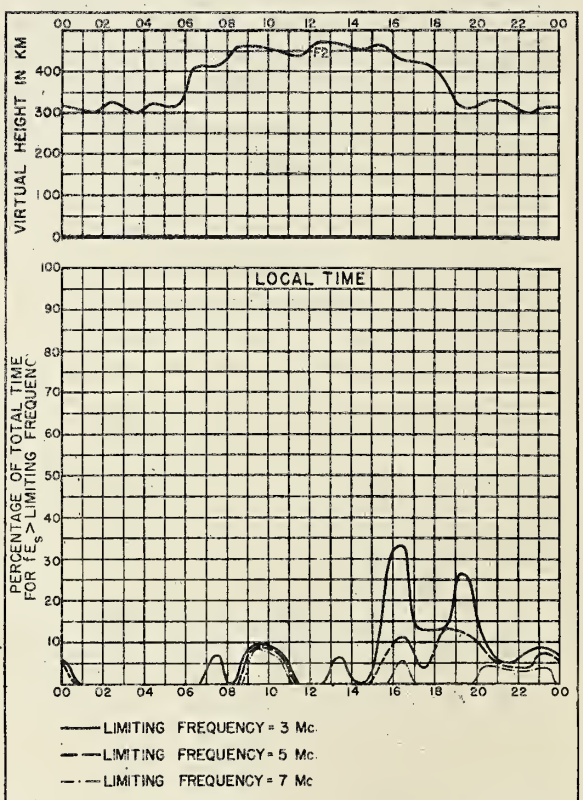


Fig. 4. CLYDE, BAFFIN I. MAY 1947

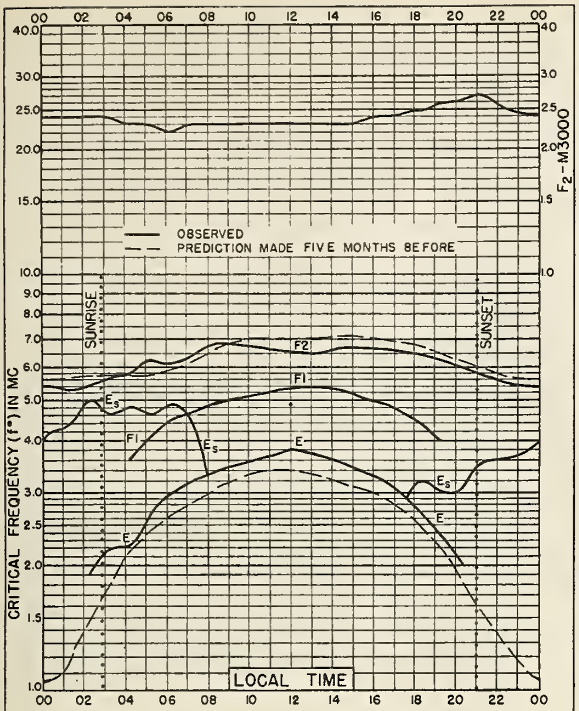


Fig. 5. FAIRBANKS, ALASKA
64.9°N, 147.8°W MAY 1947

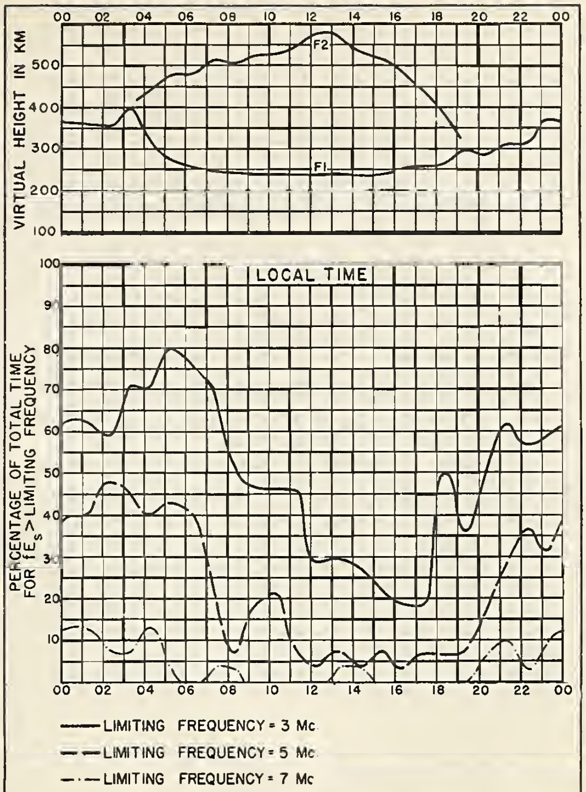


Fig. 6. FAIRBANKS, ALASKA MAY 1947

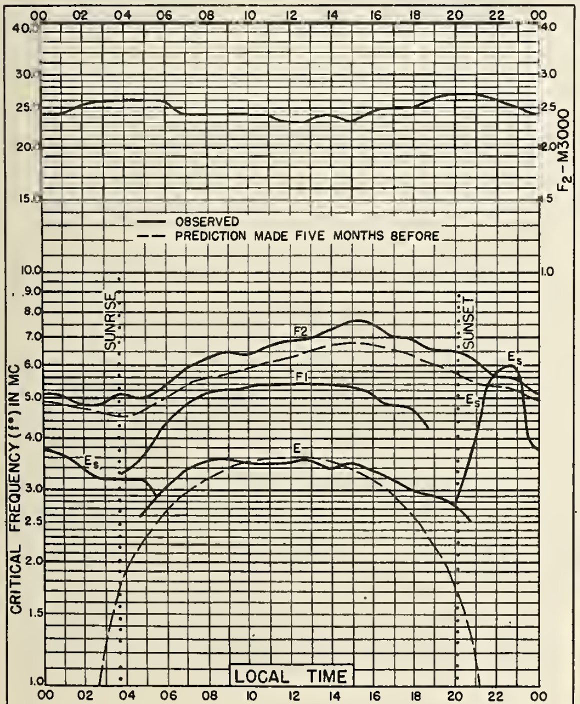


Fig. 7. CHURCHILL, CANADA
58.8°N, 94.2°W MAY 1947

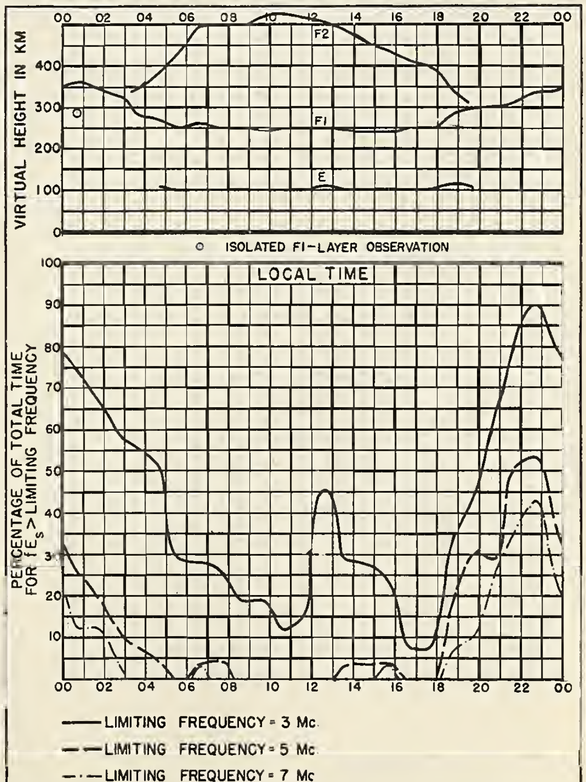


Fig. 8. CHURCHILL, CANADA MAY 1947

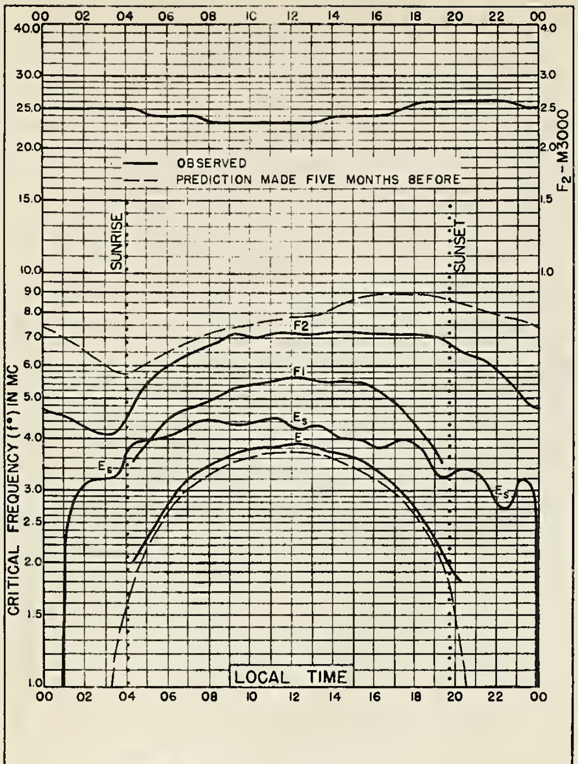


Fig. 9. PRINCE RUPERT, CANADA
54.3°N, 130.3°W MAY 1947

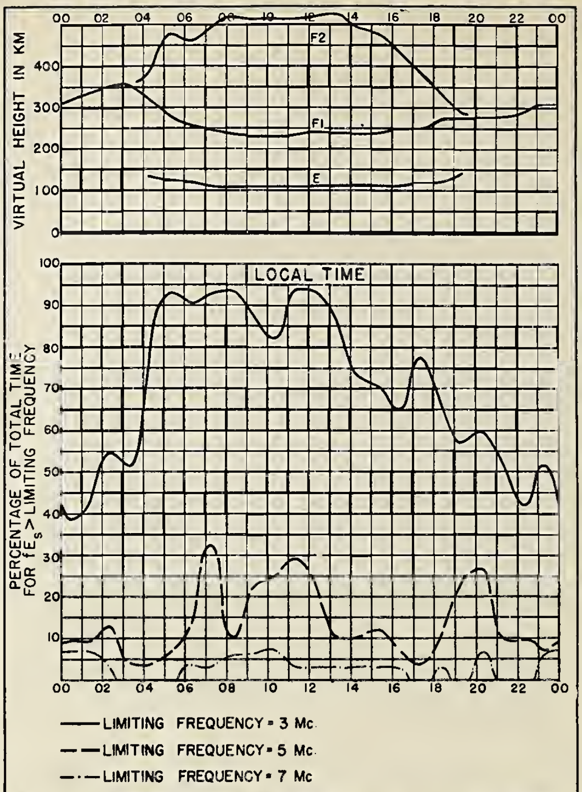


Fig. 10. PRINCE RUPERT, CANADA MAY 1947

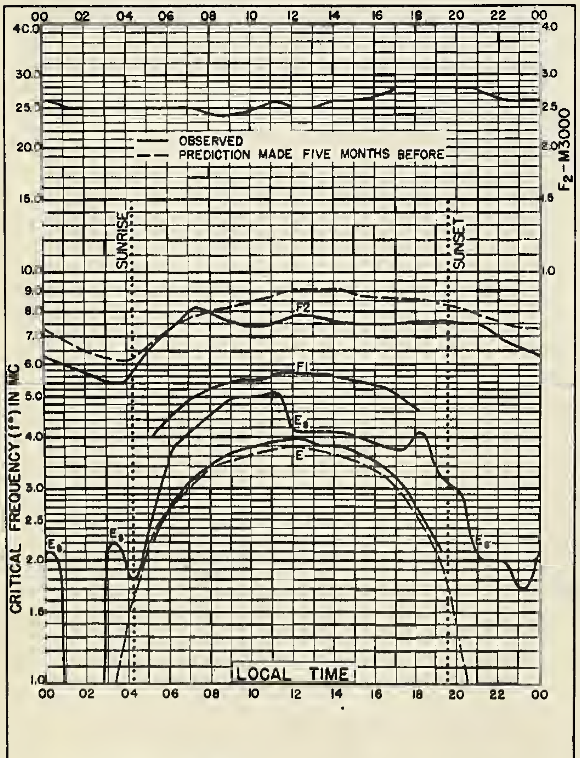


Fig. 11. ADAK, ALASKA
51.9°N, 176.6°W MAY 1947

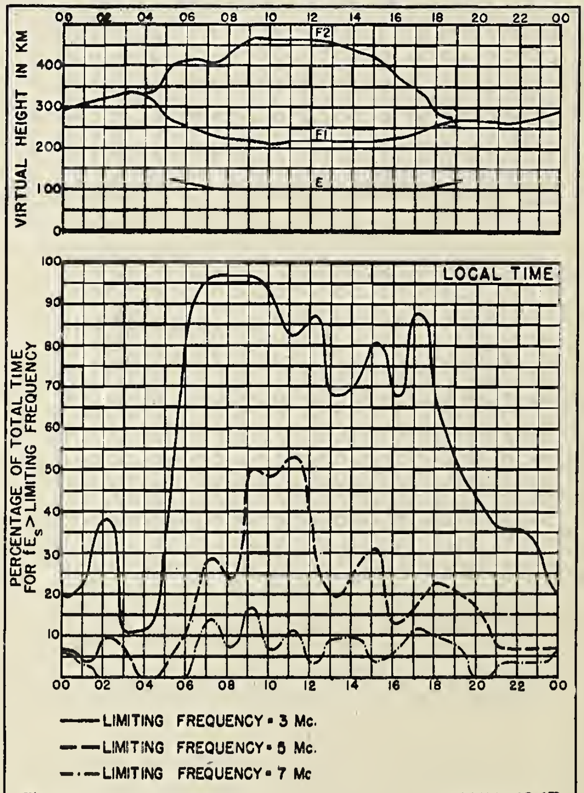


Fig. 12. ADAK, ALASKA MAY 1947

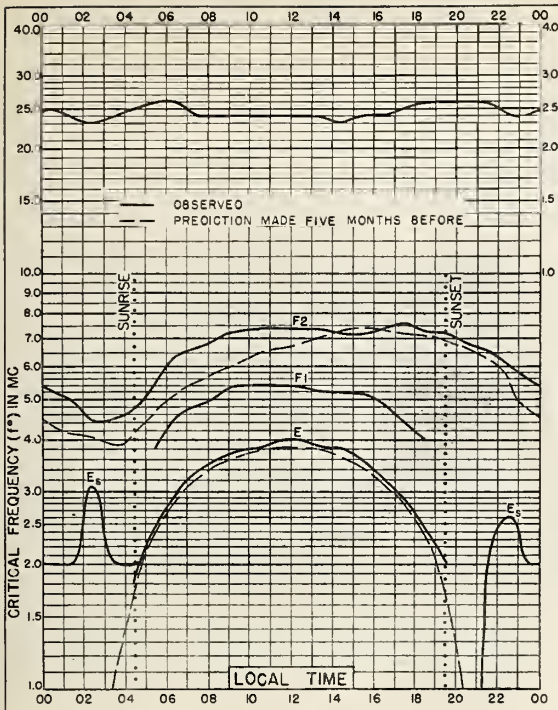


Fig. 13. PORTAGE la PRAIRIE, MANITOBA
49.9°N, 98.3°W MAY 1947

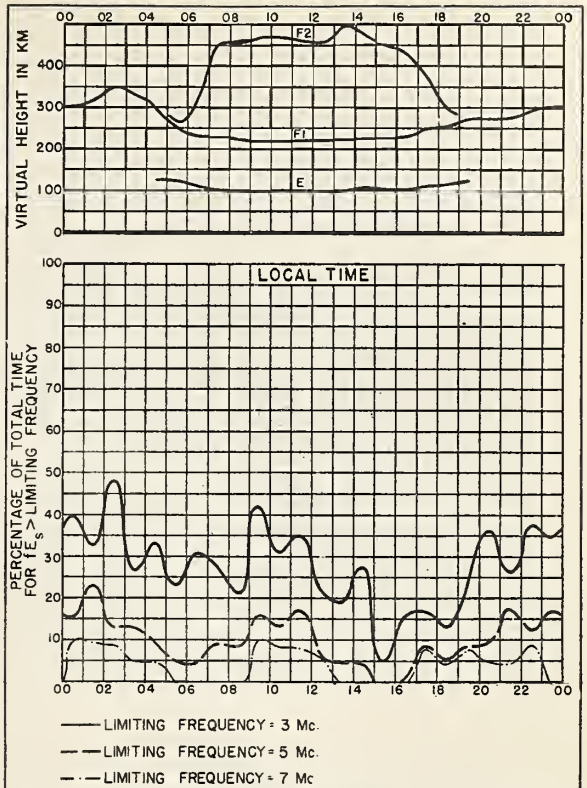


Fig. 14. PORTAGE la PRAIRIE, MANITOBA MAY 1947

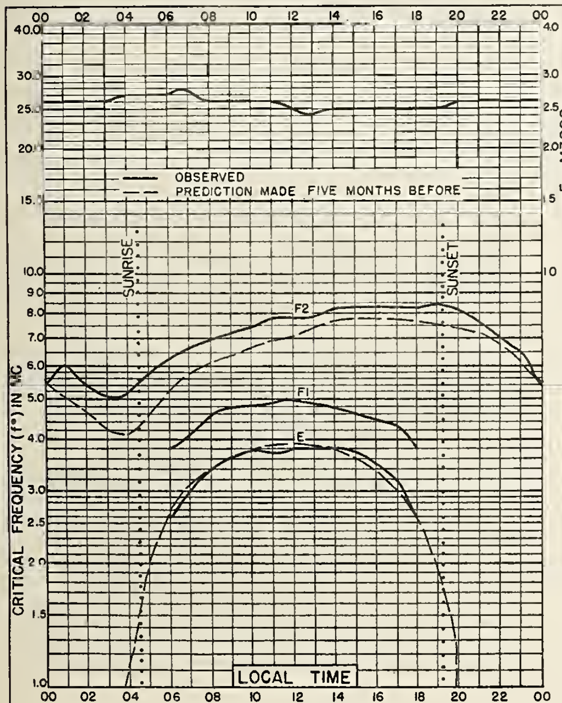


Fig. 15. OTTAWA, CANADA
45.5°N, 75.8°W MAY 1947

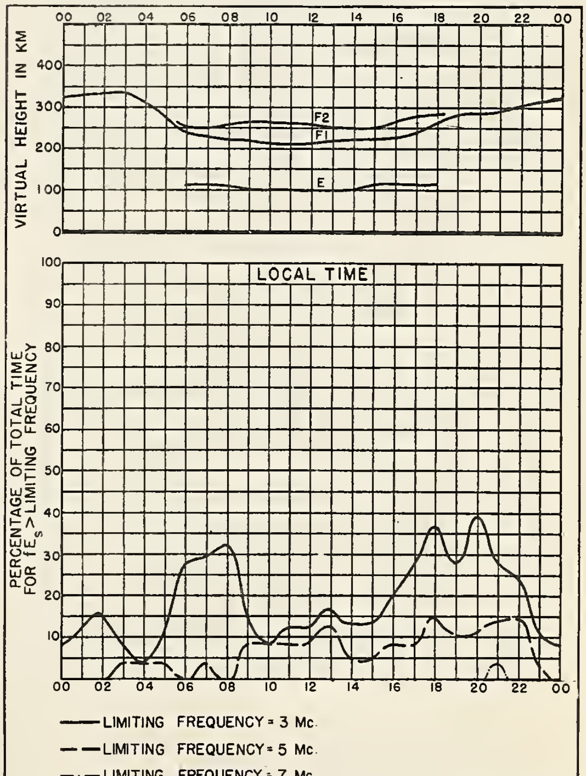


Fig. 16. OTTAWA, CANADA MAY 1947

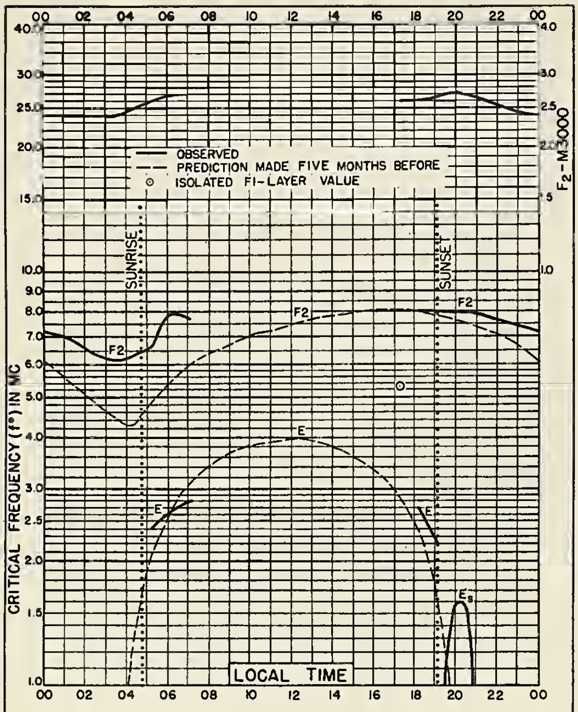


Fig. 17. BOSTON, MASSACHUSETTS 42.4°N, 71.2°W MAY 1947

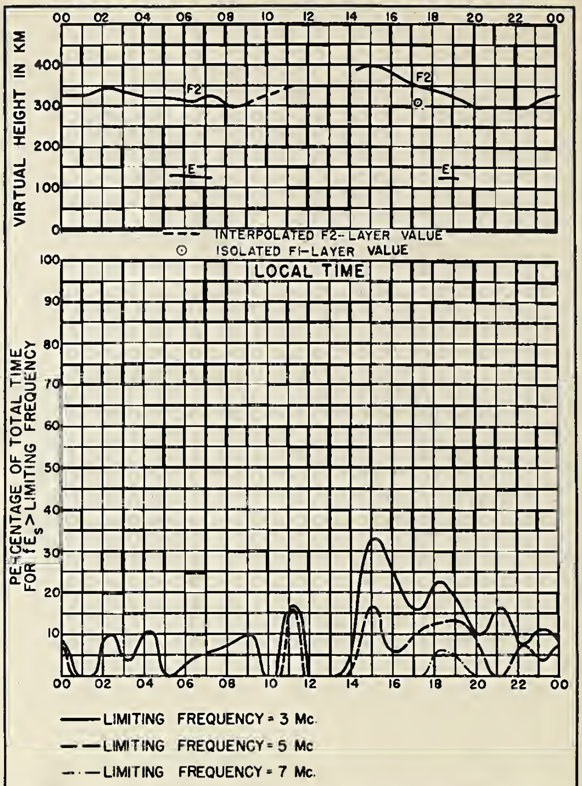


Fig. 18. BOSTON, MASSACHUSETTS MAY 1947

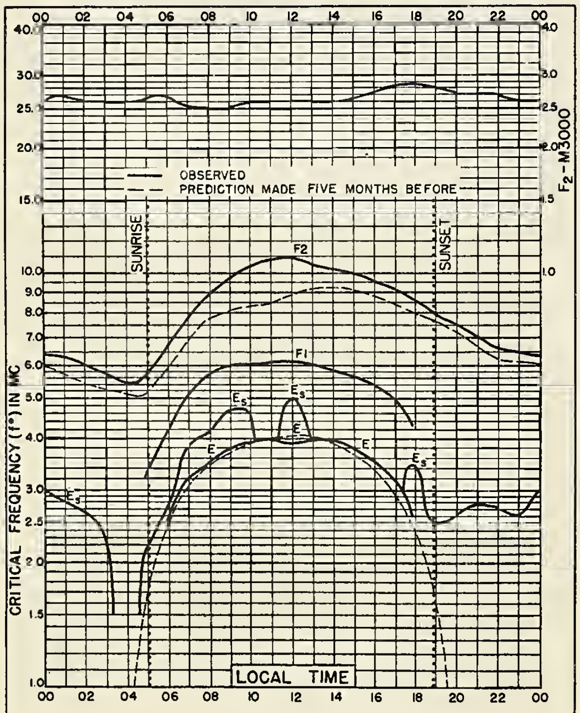


Fig. 19. SAN FRANCISCO, CALIFORNIA 37.4°N, 122.2°W MAY 1947

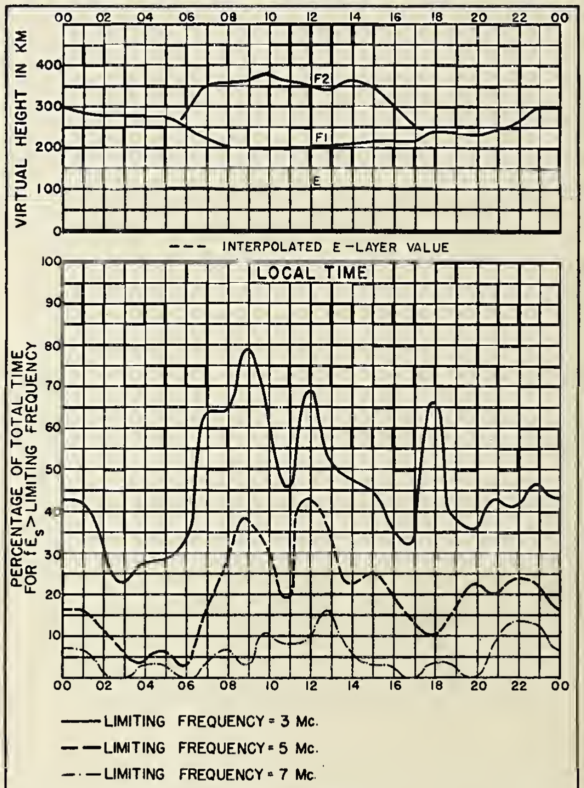


Fig. 20. SAN FRANCISCO, CALIFORNIA MAY 1947

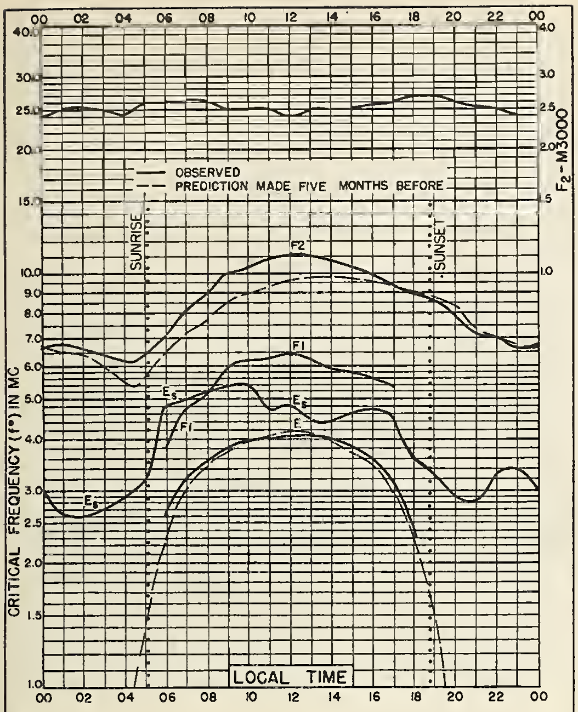


Fig. 21. WHITE SANDS, NEW MEXICO
32.6°N, 106.5°W MAY 1947

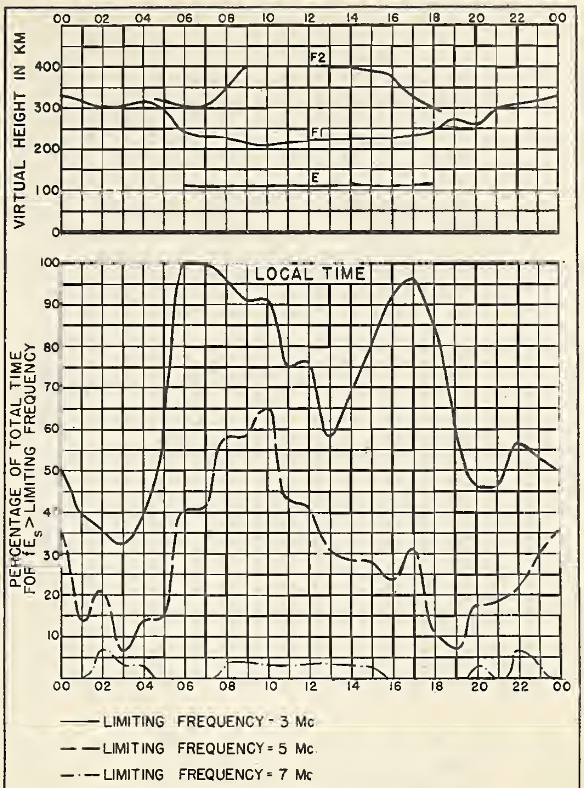


Fig. 22. WHITE SANDS, NEW MEXICO MAY 1947

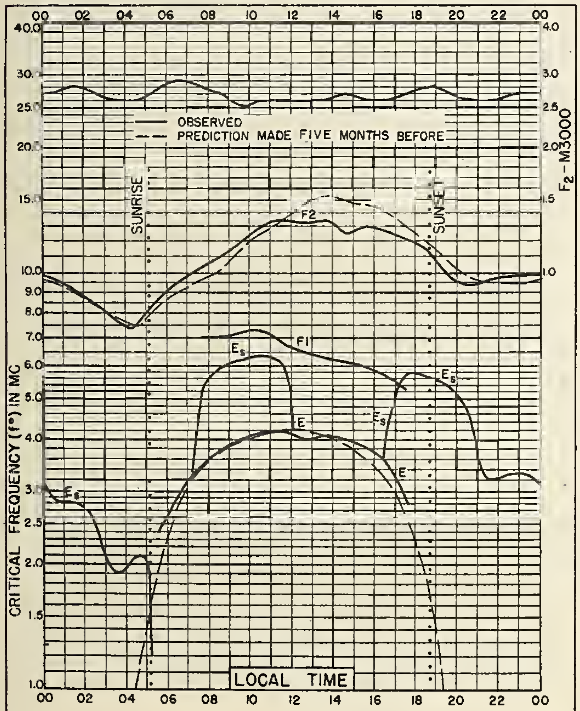


Fig. 23. WUCHANG, CHINA
30.6°N, 114.4°E MAY 1947

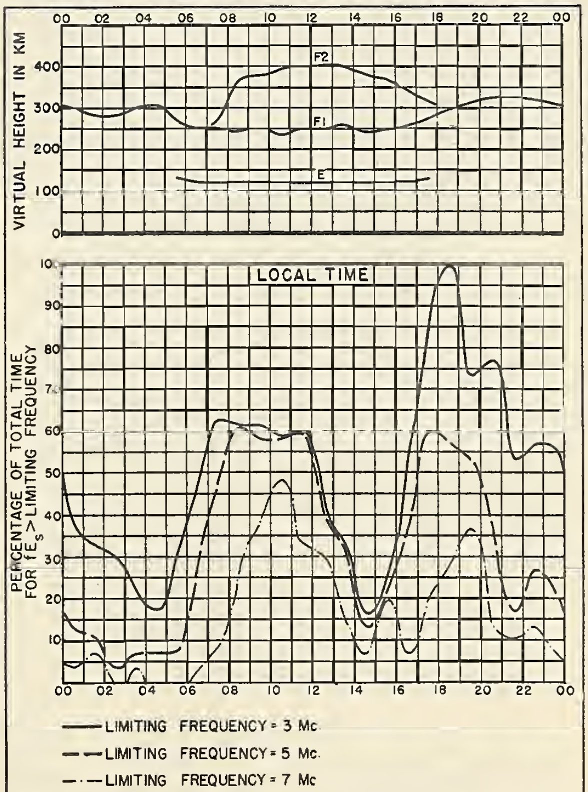


Fig. 24. WUCHANG, CHINA MAY 1947

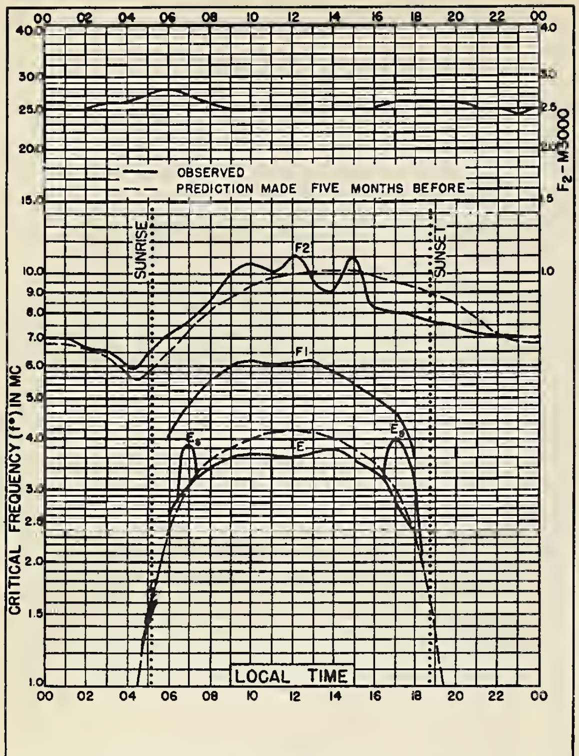


Fig. 25. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W MAY 1947

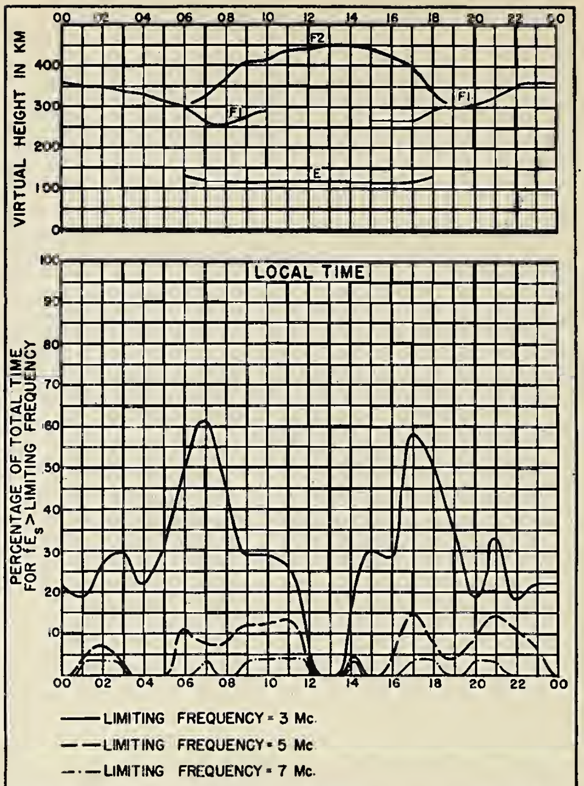


Fig. 26. BATON ROUGE, LOUISIANA MAY 1947

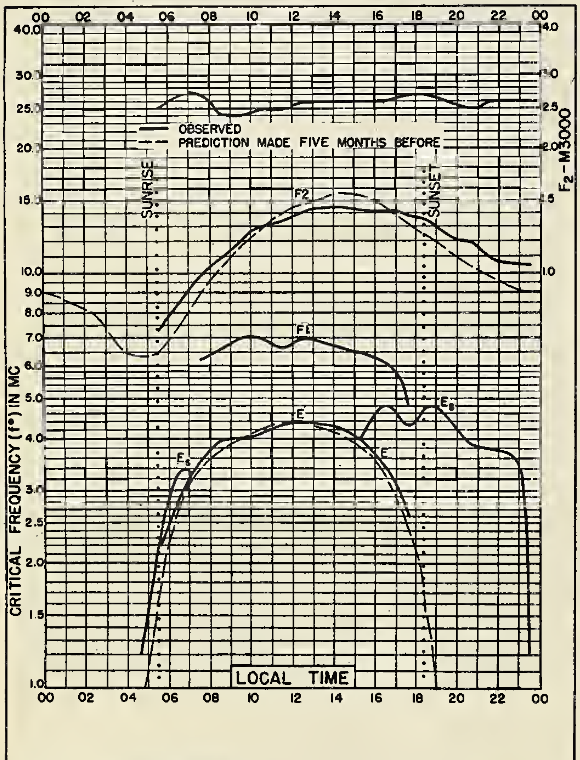


Fig. 27. MAUI, HAWAII
20.8°N, 156.5°W MAY 1947

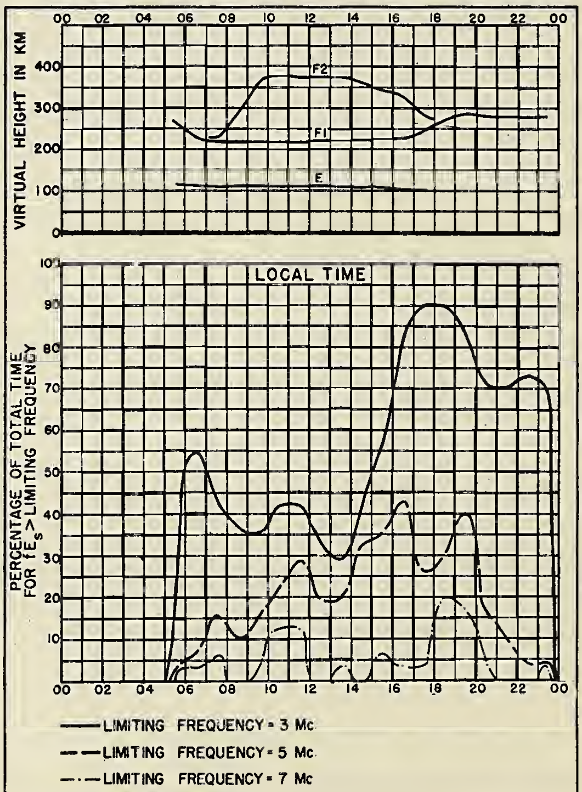


Fig. 28. MAUI, HAWAII MAY 1947

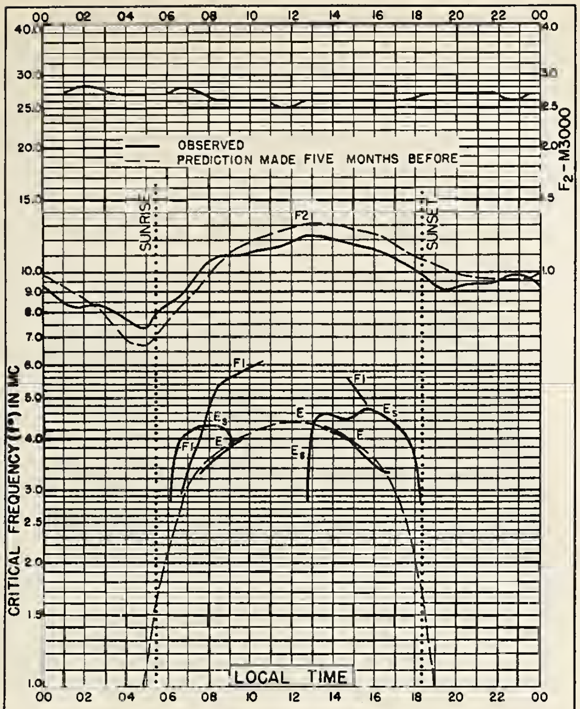


Fig. 29. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W MAY 1947

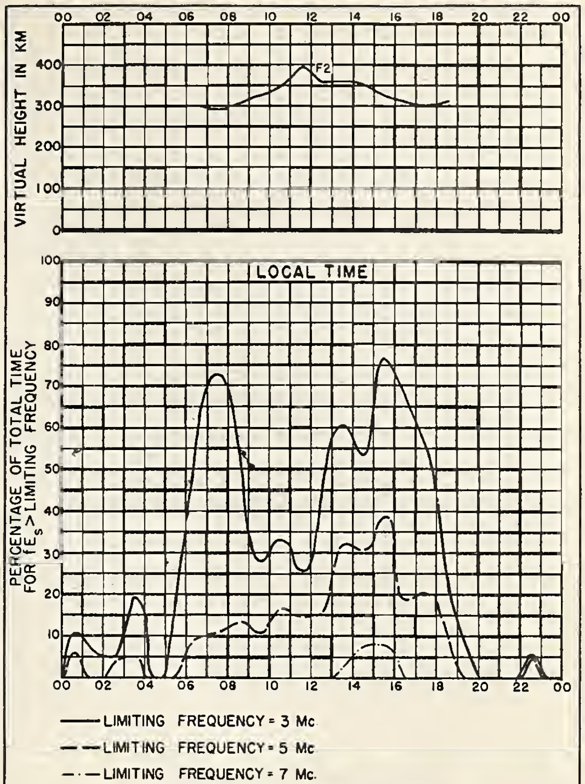


Fig. 30. SAN JUAN, PUERTO RICO MAY 1947

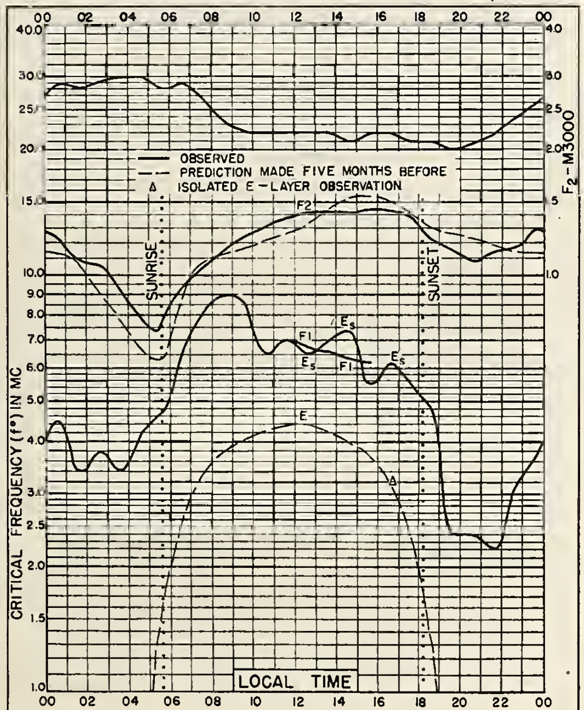


Fig. 31. GUAM I.
13.5°N, 144.8°E MAY 1947

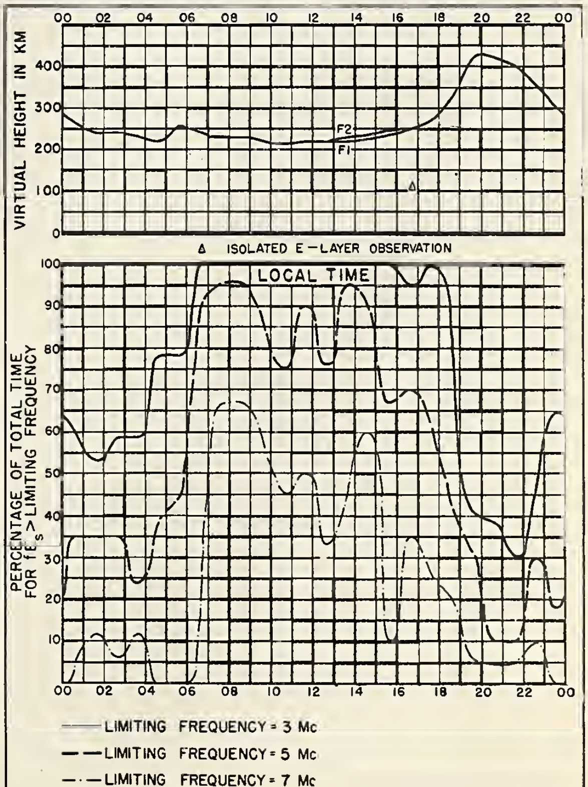


Fig. 32. GUAM I. MAY 1947

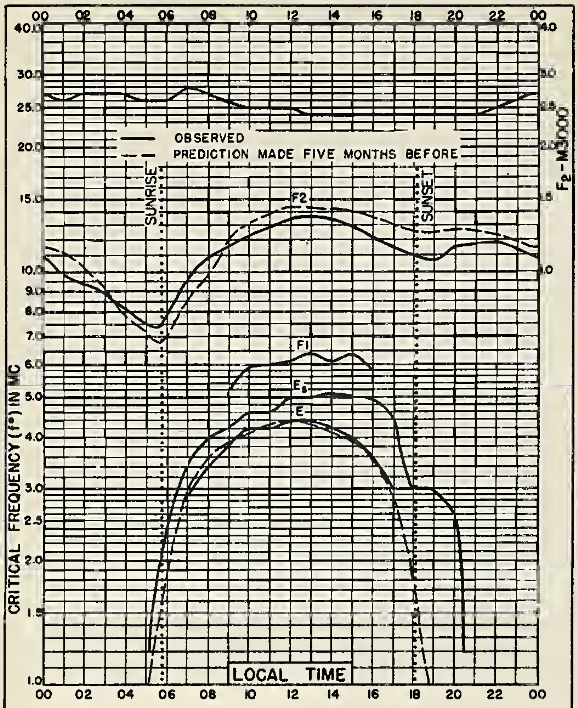


Fig. 33. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W MAY 1947

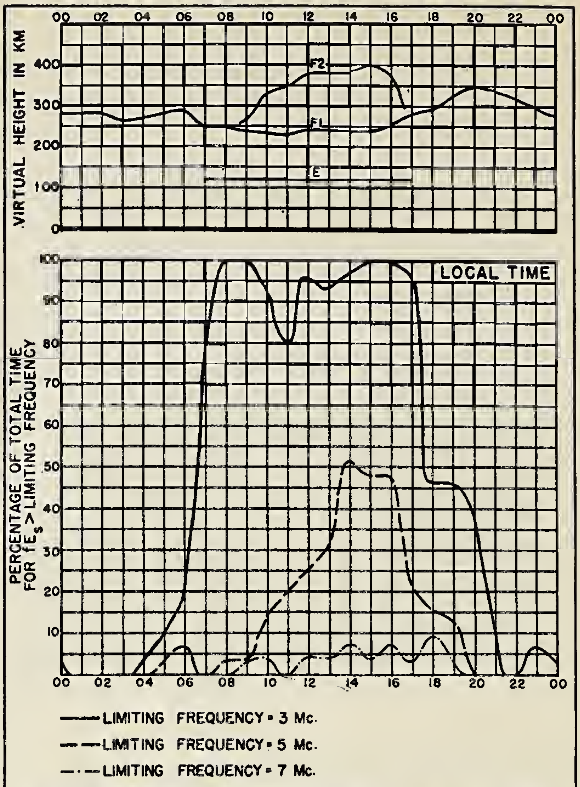


Fig. 34. TRINIDAD, BRIT. WEST INDIES MAY 1947

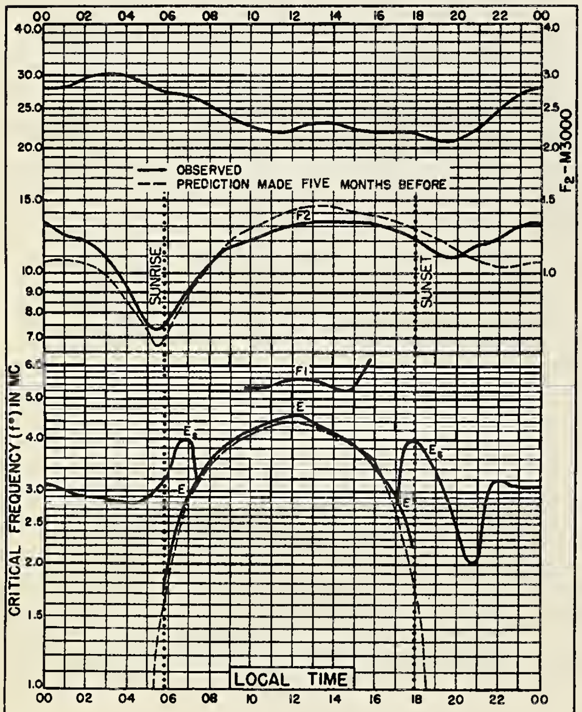


Fig. 35. PALMYRA I.
5.9°N, 162.1°W MAY 1947

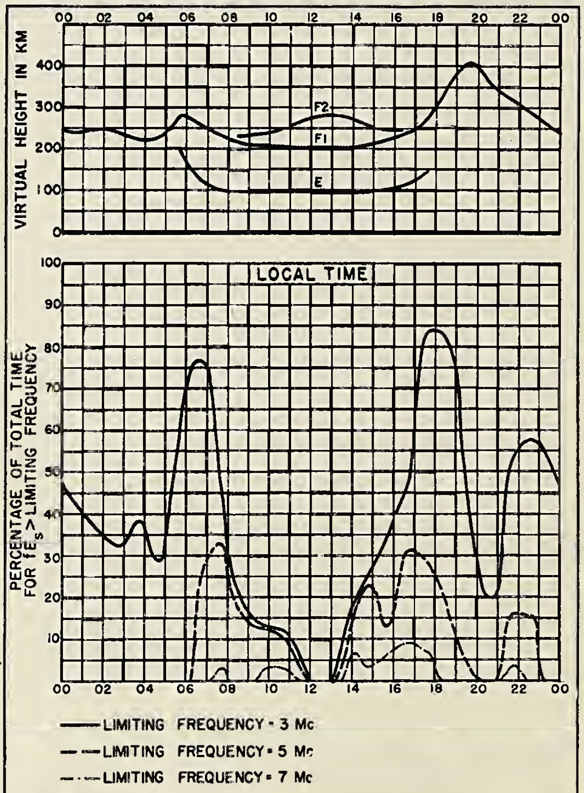


Fig. 36. PALMYRA I. MAY 1947

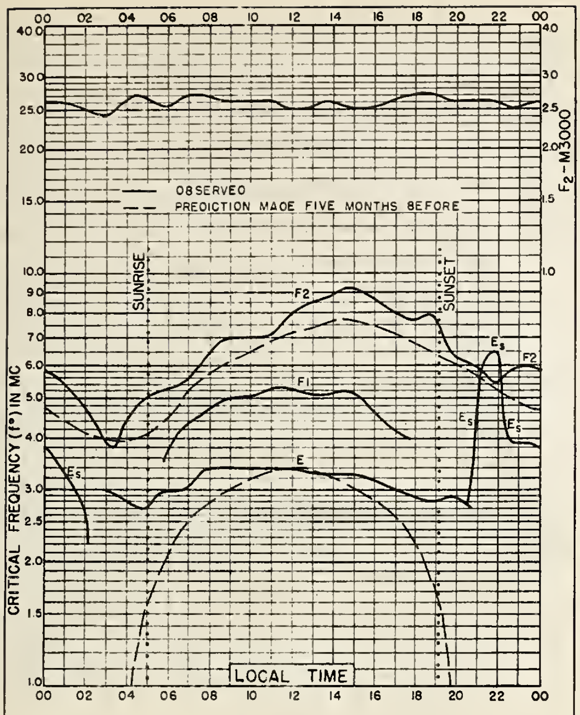


Fig. 37. CHURCHILL, CANADA
58.8°N, 94.2°W APRIL 1947

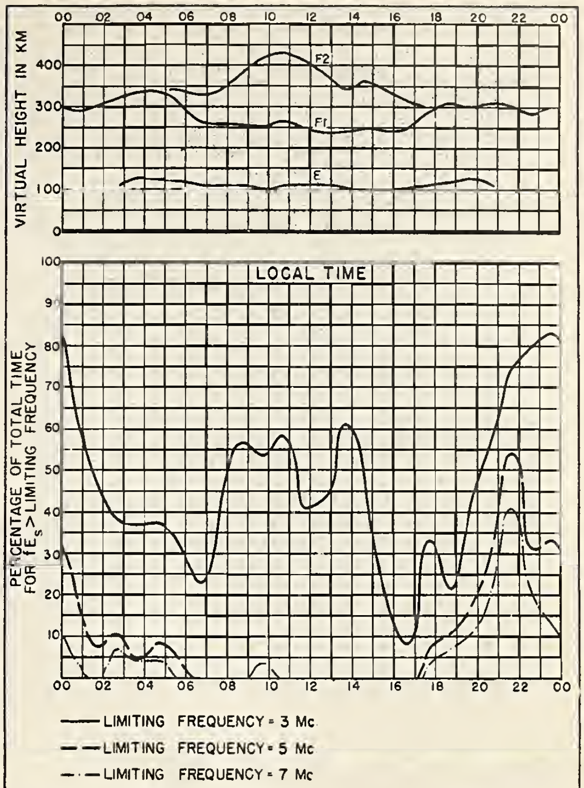


Fig. 38. CHURCHILL, CANADA APRIL 1947

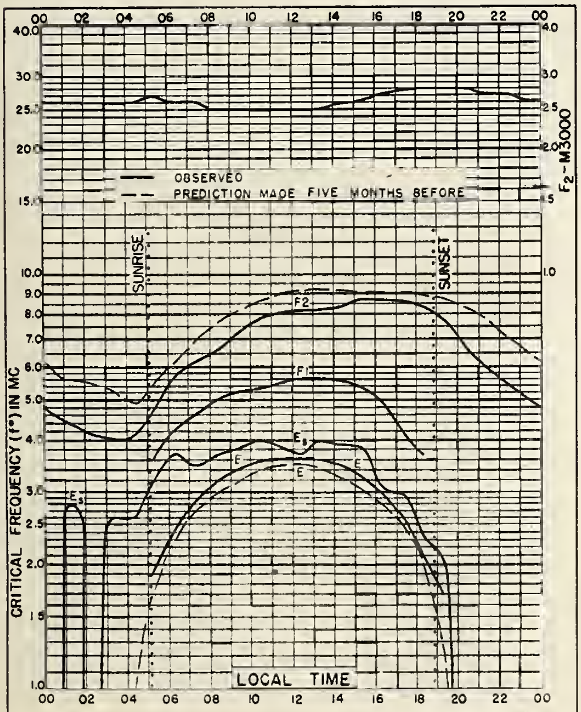


Fig. 39. PRINCE RUPERT, CANADA
54.3°N, 130.3°W APRIL 1947

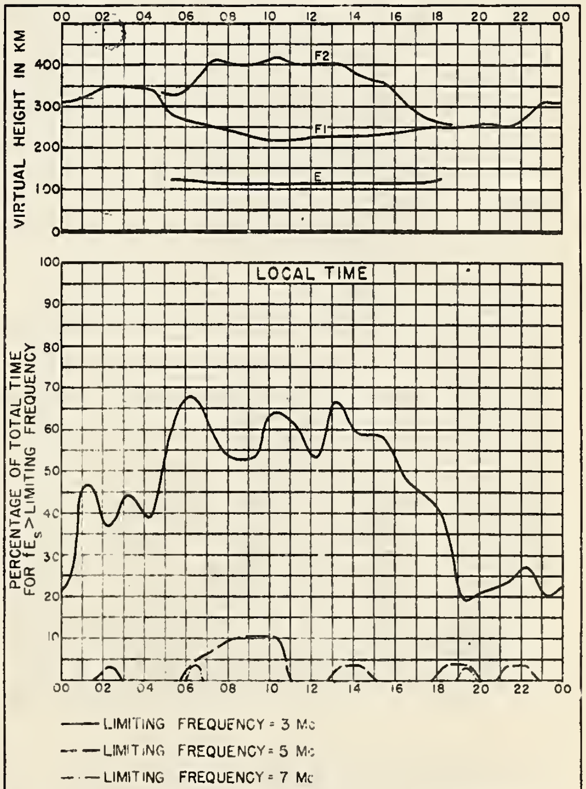


Fig. 40. PRINCE RUPERT, CANADA APRIL 1947

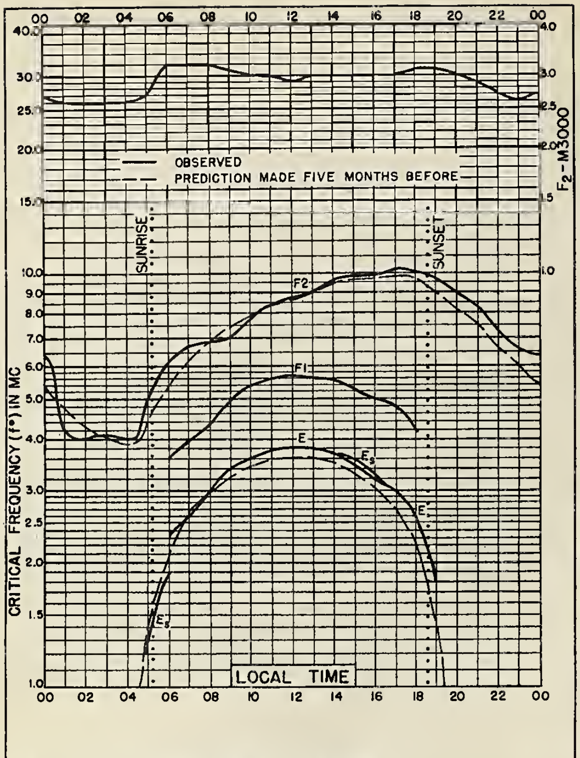


Fig. 41. ST. JOHN'S, NEWFOUNDLAND 47.6°N, 52.7°W APRIL 1947

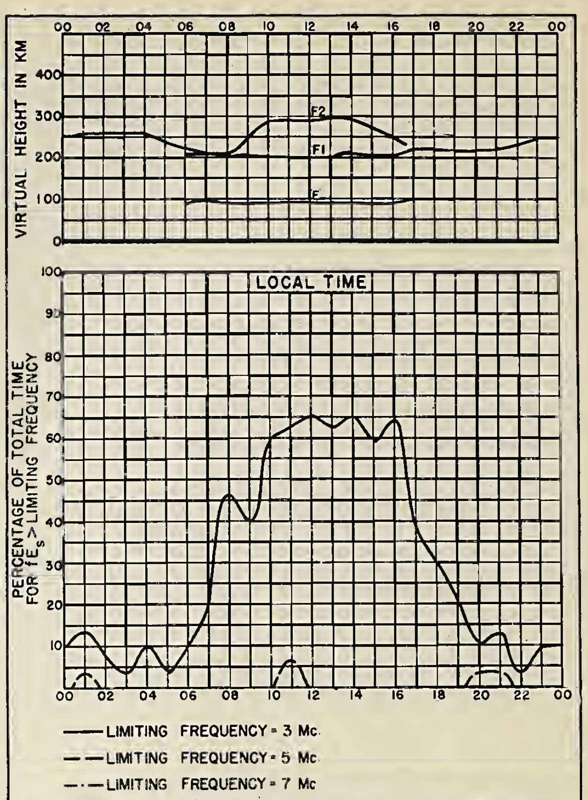


Fig. 42. ST. JOHN'S NEWFOUNDLAND APRIL 1947

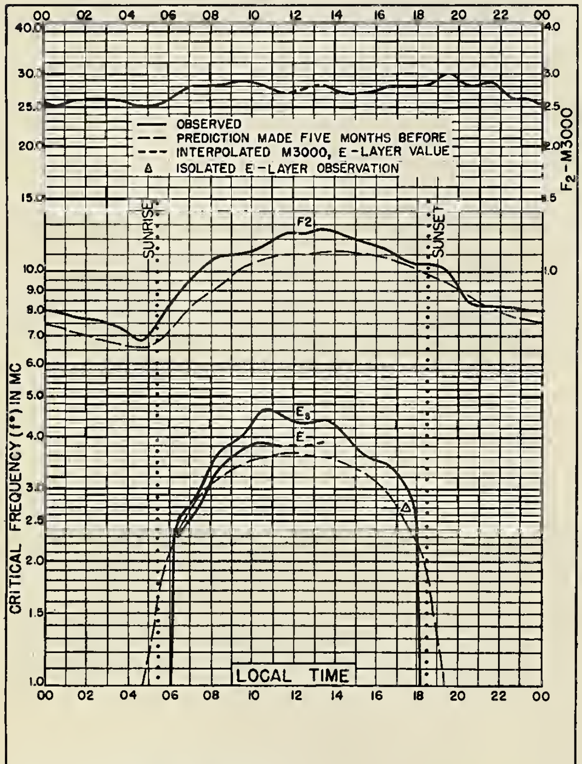


Fig. 43. WAKKANAI, JAPAN 45.4°N, 141.7°E APRIL 1947

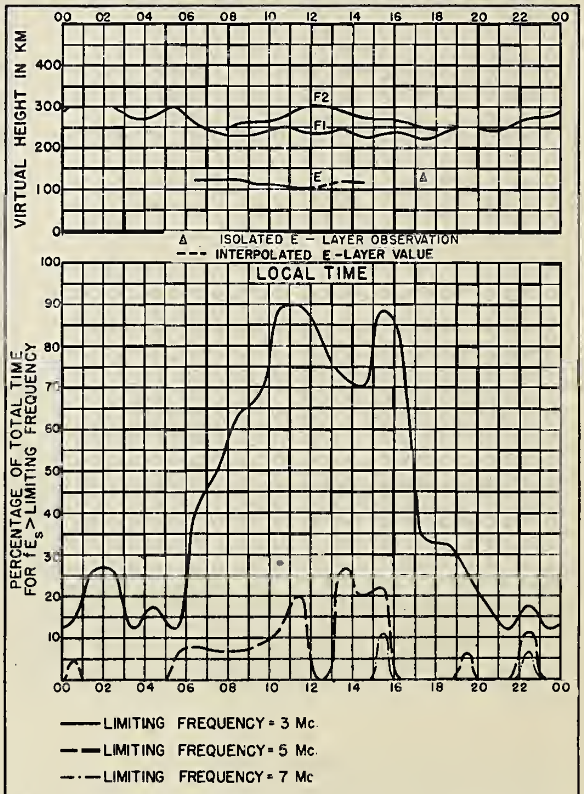


Fig. 44. WAKKANAI, JAPAN APRIL 1947

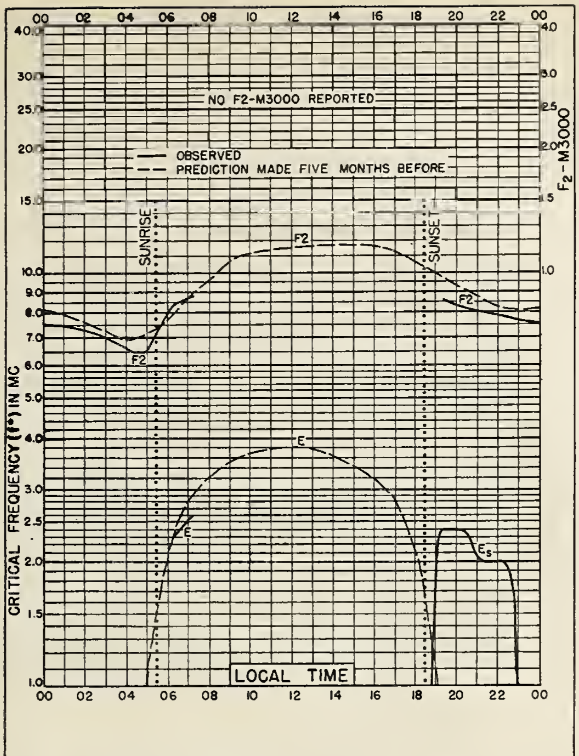


Fig. 45. FUKAURA, JAPAN
40.6°N, 139.9°E APRIL 1947

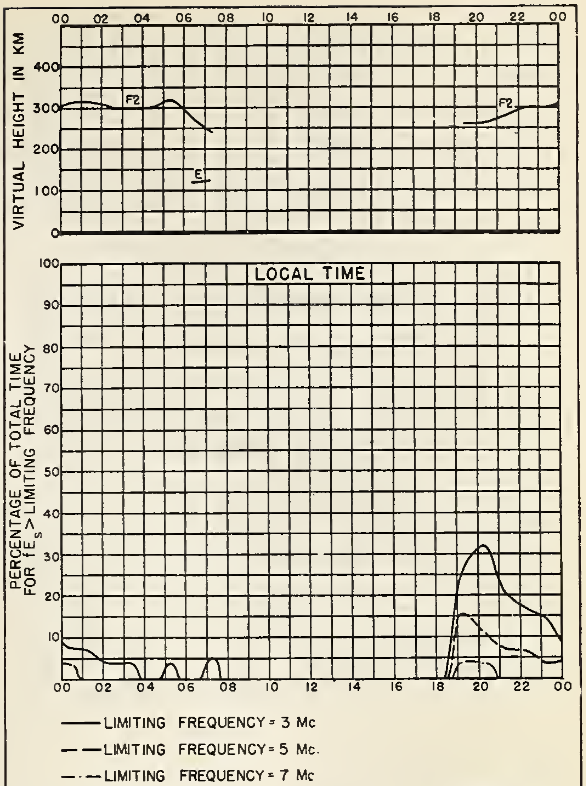


Fig. 46. FUKAURA, JAPAN APRIL 1947

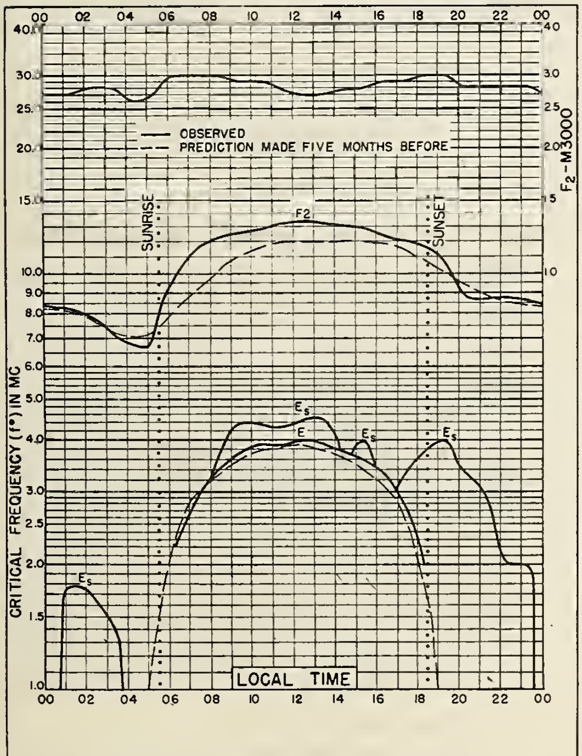


Fig. 47. SHIBATA, JAPAN
37.9°N, 139.3°E APRIL 1947

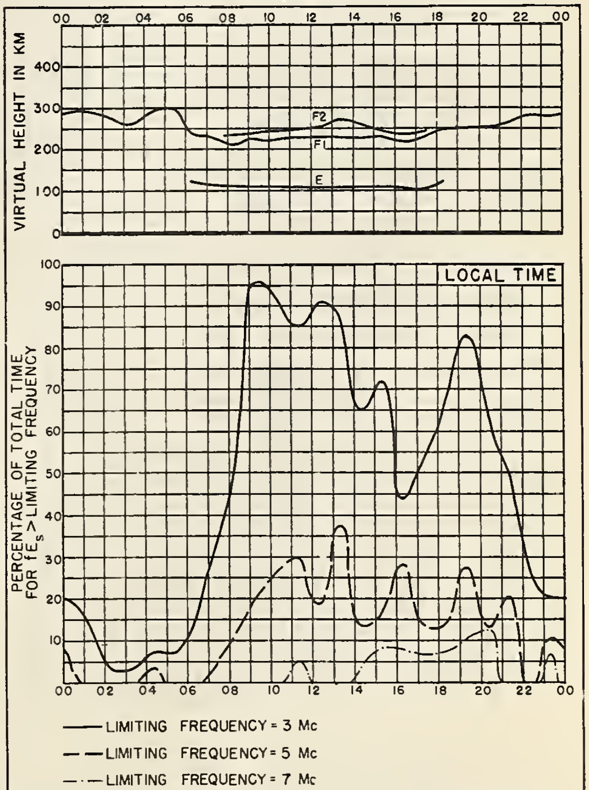


Fig. 48. SHIBATA, JAPAN APRIL 1947

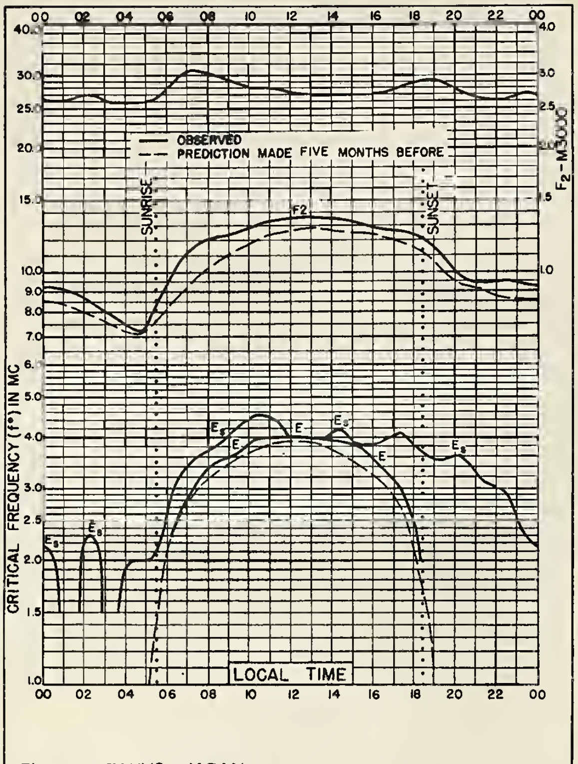


Fig. 49. TOKYO, JAPAN
35.7°N, 139.5°E APRIL 1947

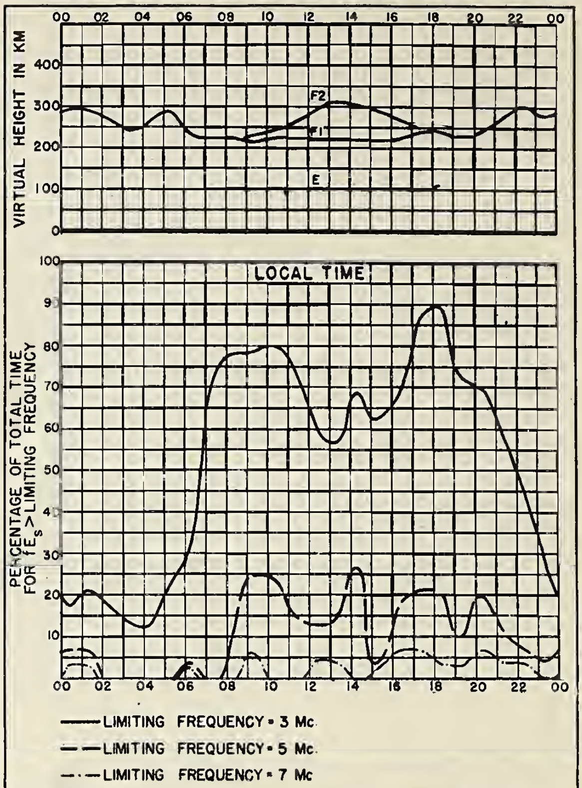


Fig. 50. TOKYO, JAPAN APRIL 1947

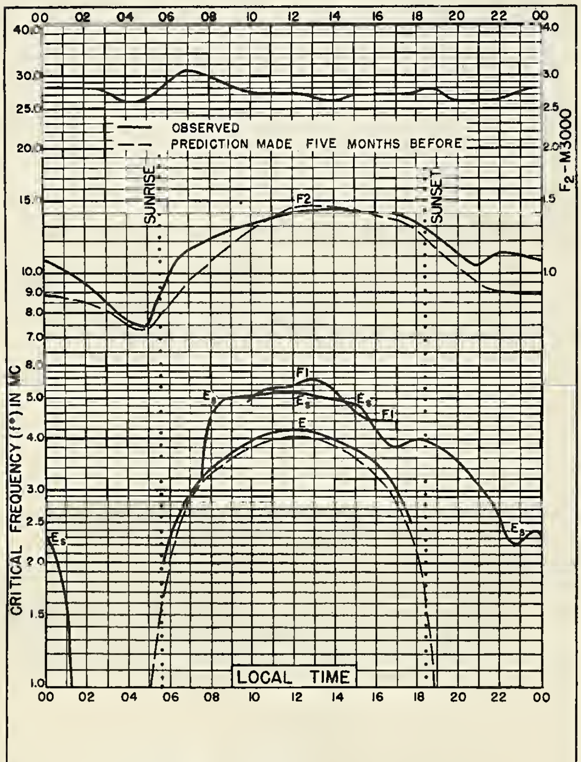


Fig. 51. YAMAKAWA, JAPAN
32.2°N, 130.6°E APRIL 1947

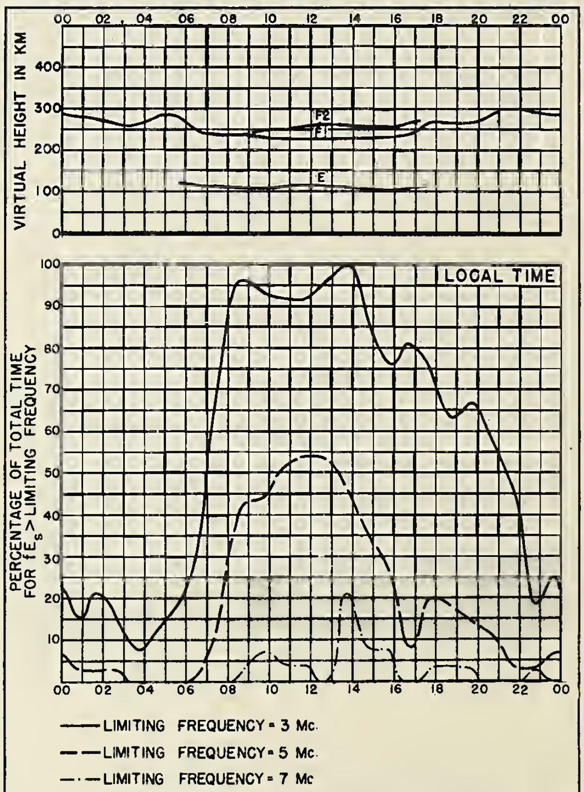


Fig. 52. YAMAKAWA, JAPAN APRIL 1947

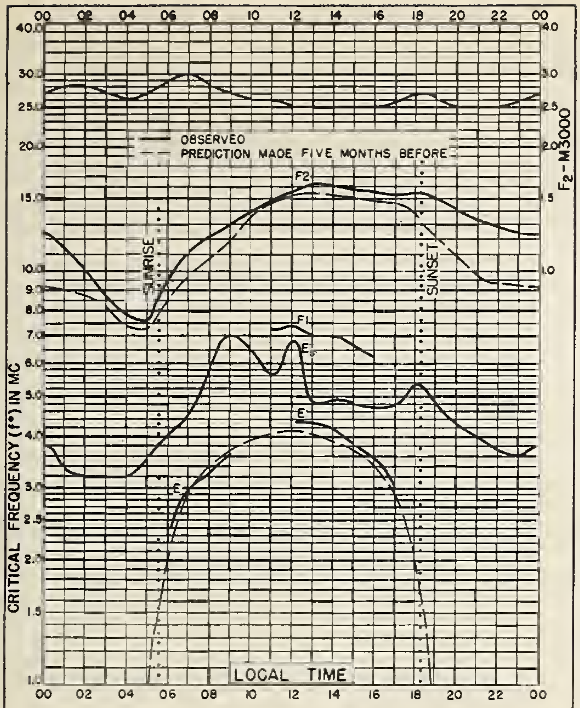


Fig. 53. CHUNGKING, CHINA
29.4°N, 106.8°E APRIL 1947

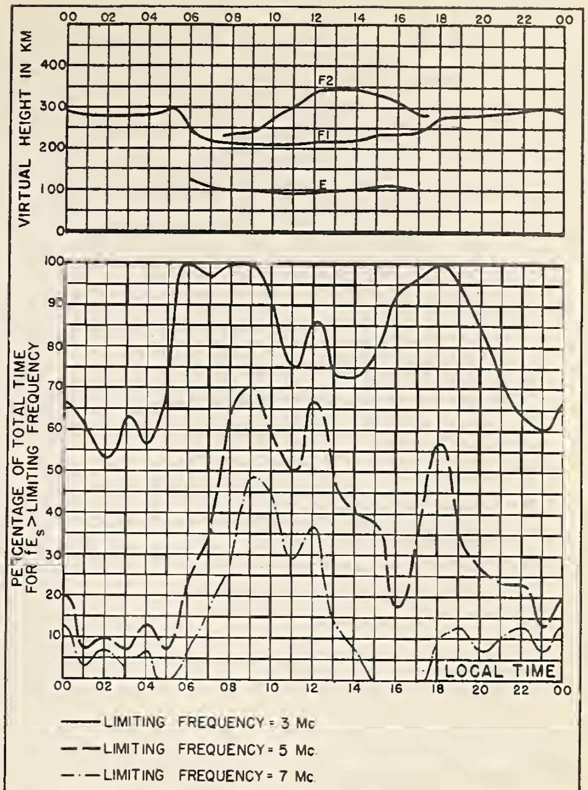


Fig. 54. CHUNGKING, CHINA APRIL 1947

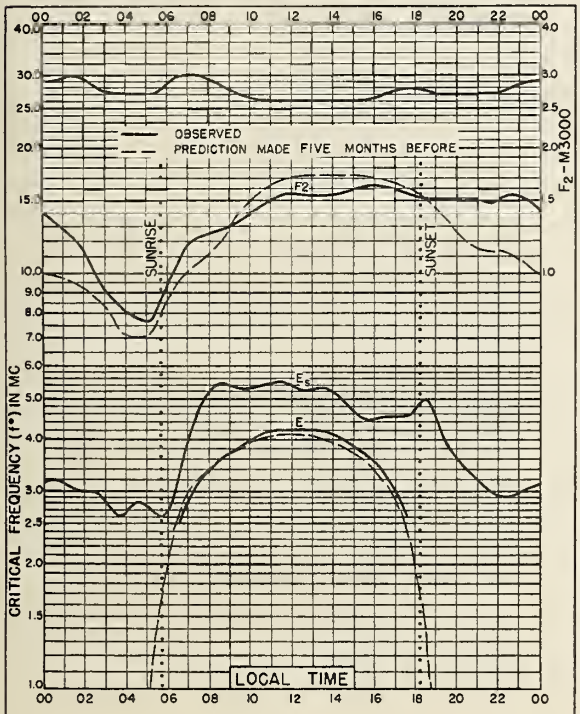


Fig. 55. OKINAWA I.
26.3°N, 127.8°E APRIL 1947

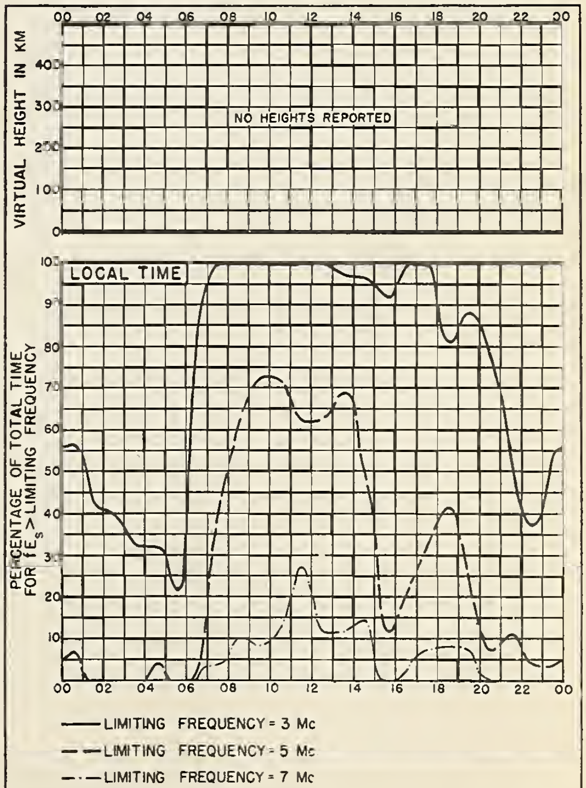


Fig. 56. OKINAWA I. APRIL 1947

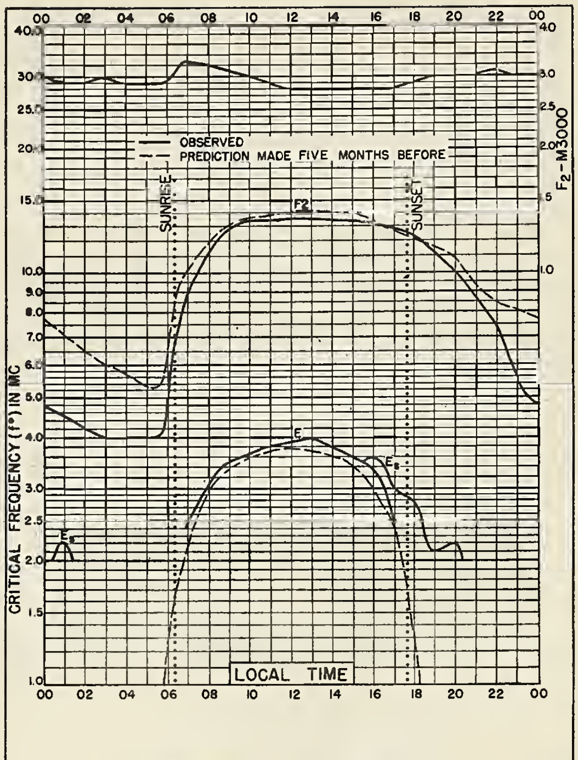


Fig. 57. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E APRIL 1947

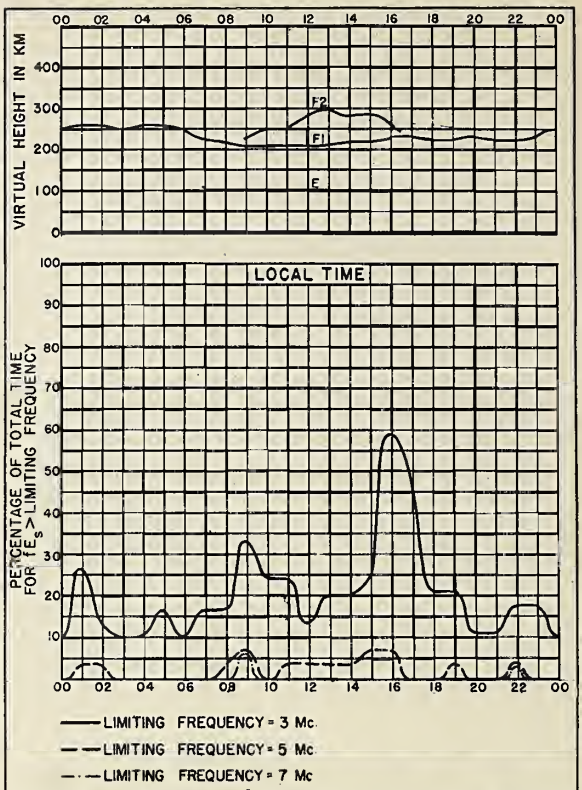


Fig. 58. JOHANNESBURG, U. OF S. AFRICA APRIL 1947

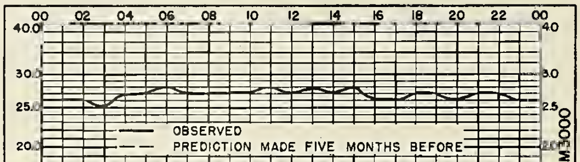


Fig. 59. RAROTONGA I.
21.3°S, 159.8°W MARCH 1947

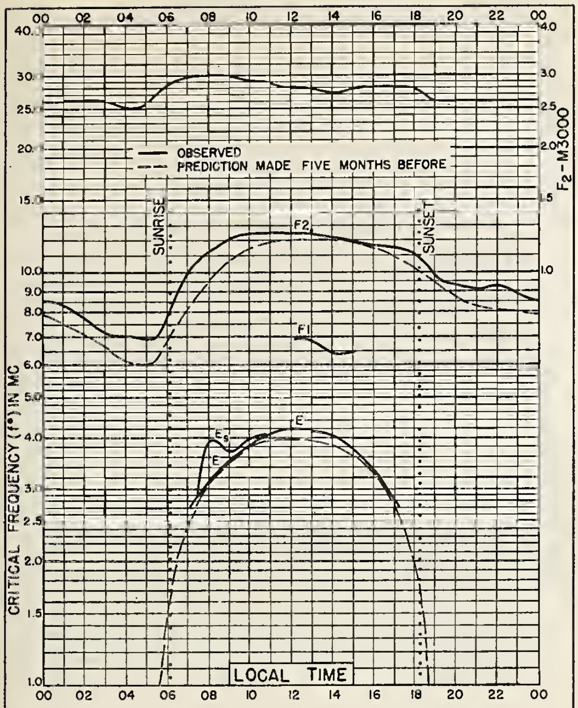


Fig. 60. BRISBANE, AUSTRALIA
27.5°S, 153.0°E MARCH 1947

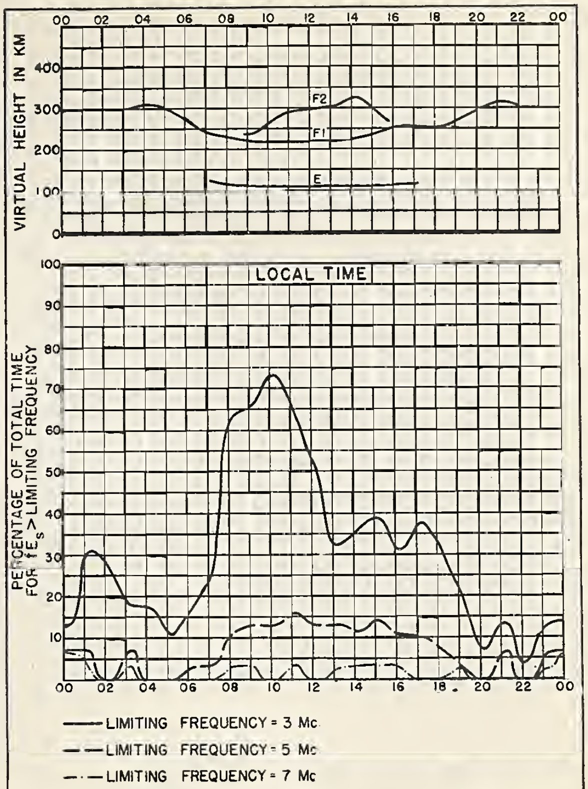


Fig. 61. BRISBANE, AUSTRALIA MARCH 1947

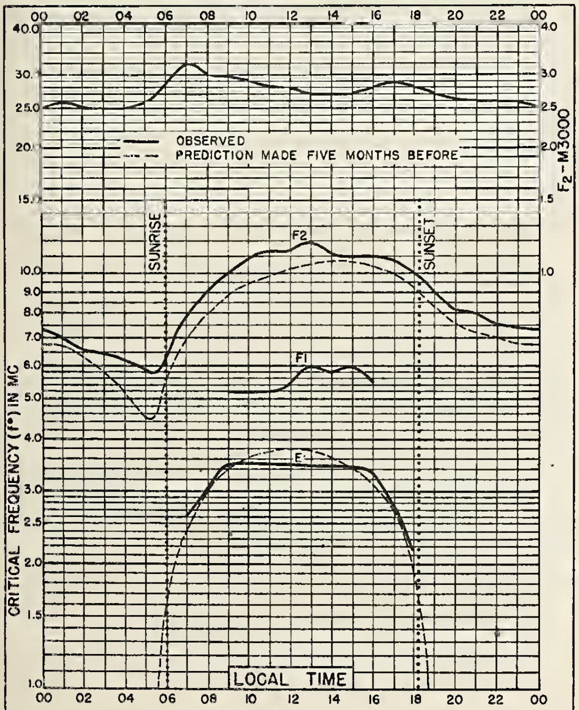


Fig. 62. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MARCH 1947

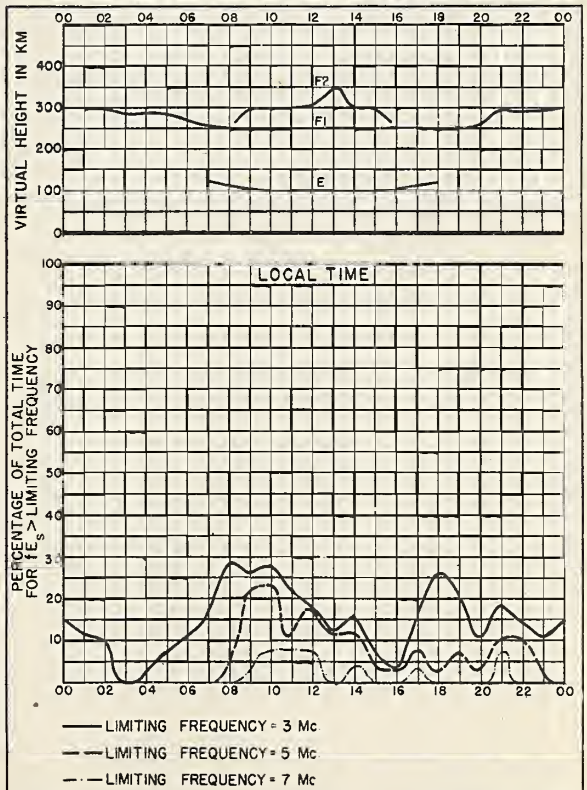


Fig. 63. CANBERRA, AUSTRALIA MARCH 1947

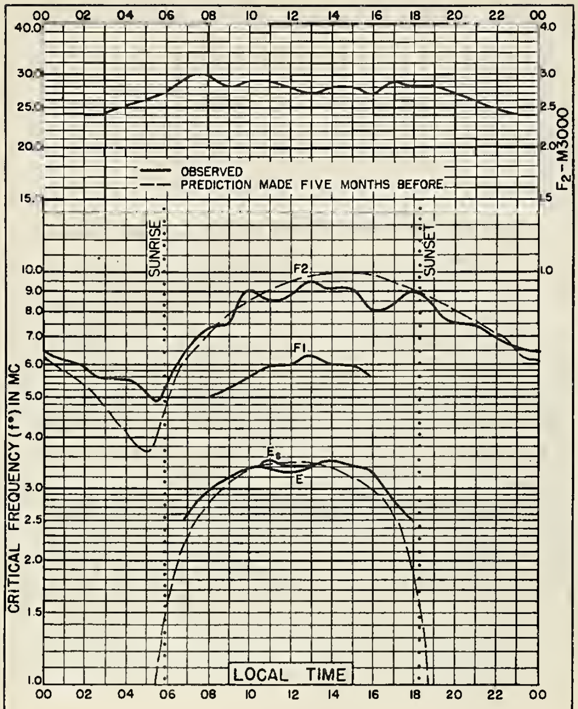


Fig. 64. HOBART, TASMANIA
42.8°S, 147.4°E MARCH 1947

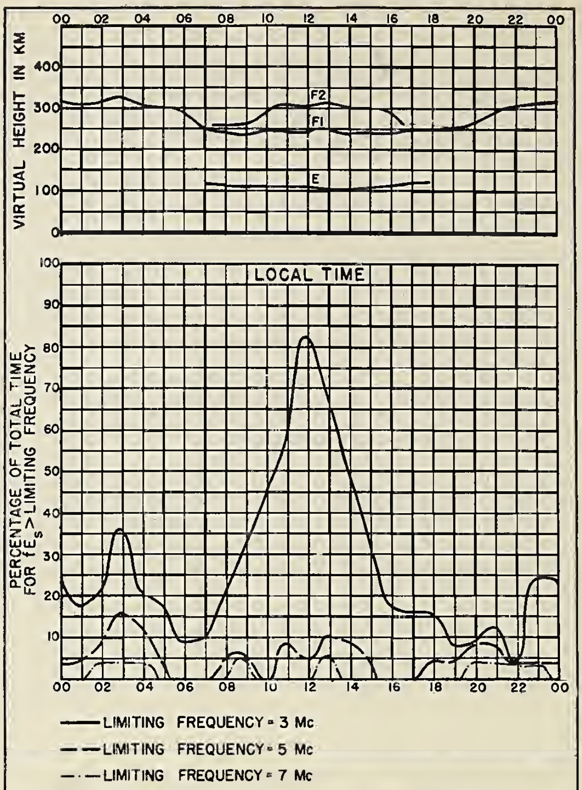


Fig. 65. HOBART, TASMANIA MARCH 1947

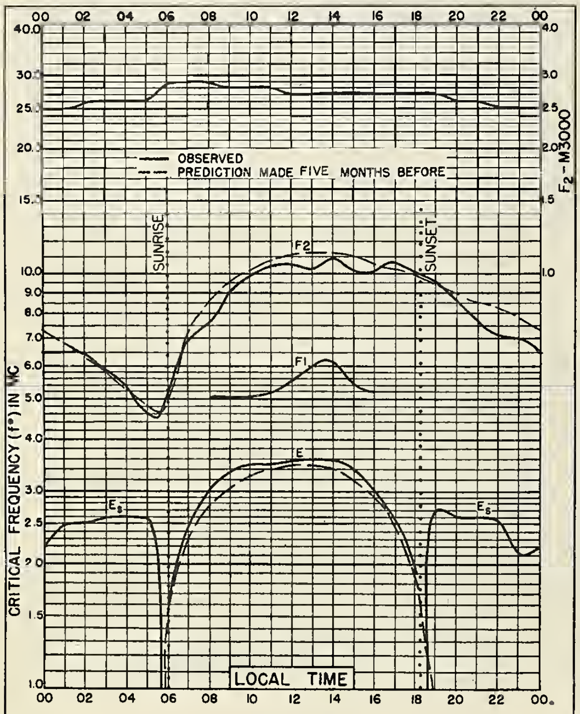


Fig. 66. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E MARCH 1947

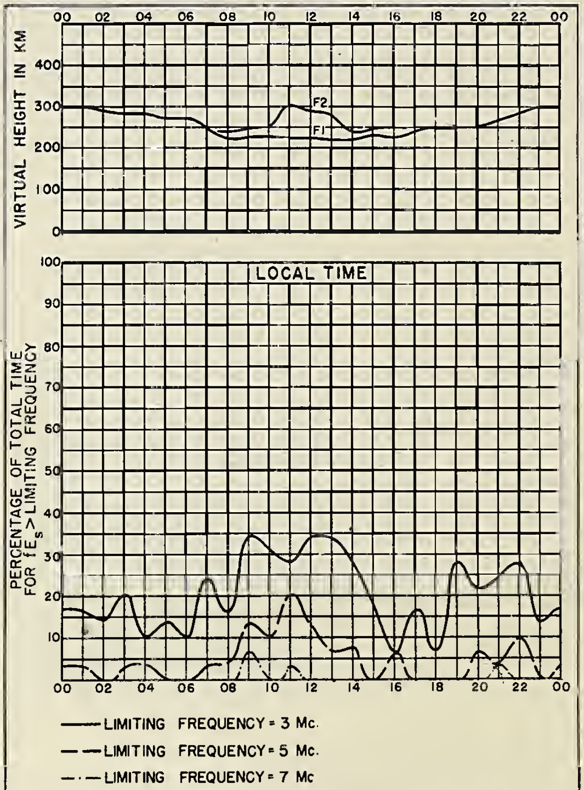


Fig. 67. CHRISTCHURCH, N. Z. MARCH 1947

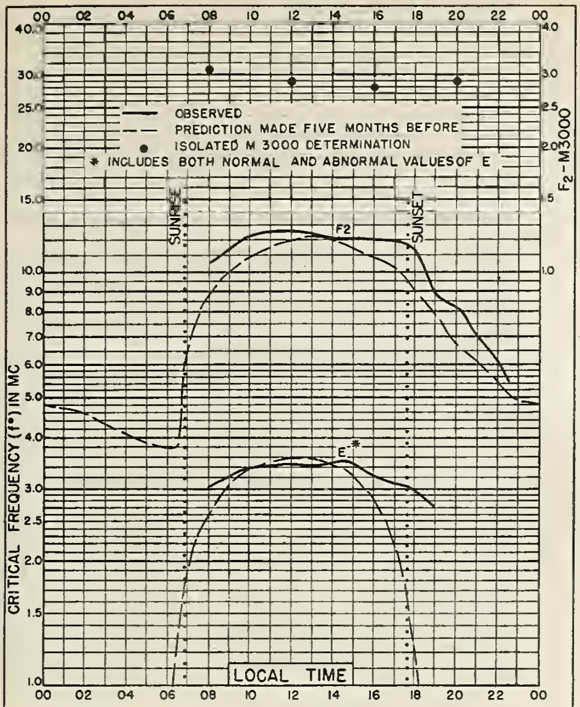


Fig. 68. PESHAWAR, INDIA
34.0°N, 71.5°E FEBRUARY 1947

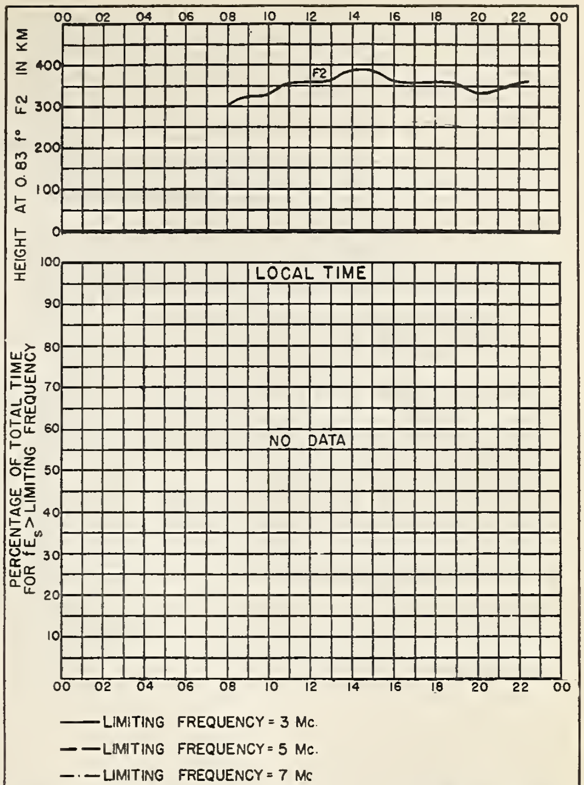


Fig. 69. PESHAWAR, INDIA FEBRUARY 1947

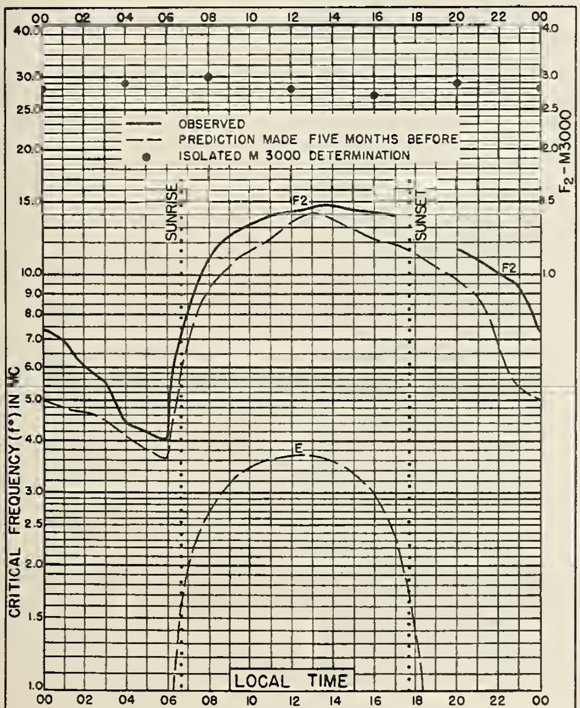


Fig. 70. DELHI, INDIA
28.6°N, 77.1°E FEBRUARY 1947

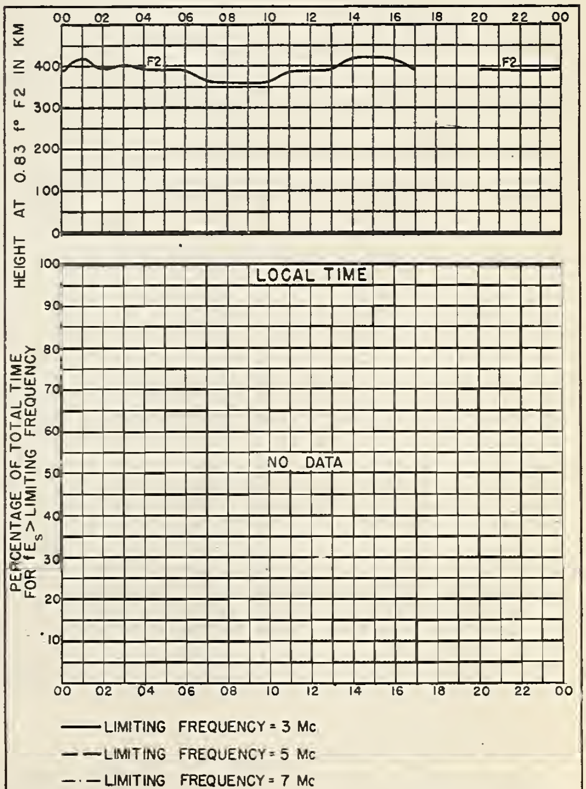


Fig. 71. DELHI, INDIA FEBRUARY 1947

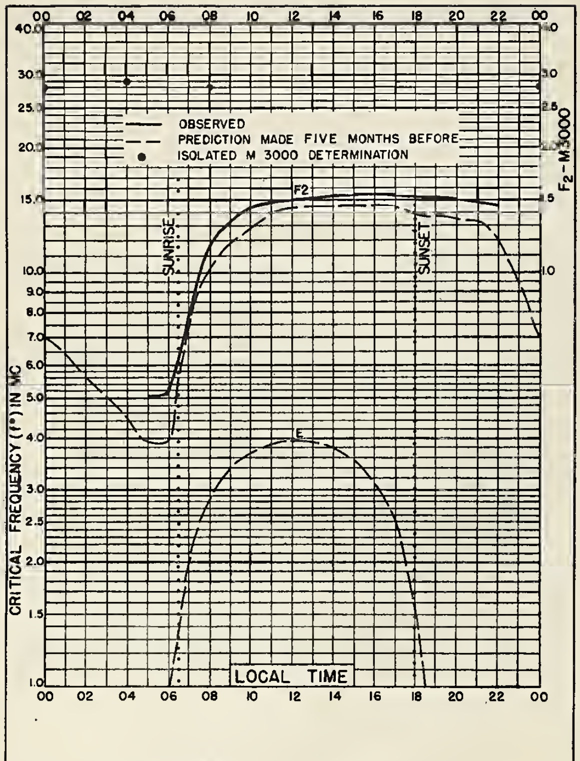


Fig. 72. BOMBAY, INDIA
19.0°N, 73.0°E FEBRUARY 1947

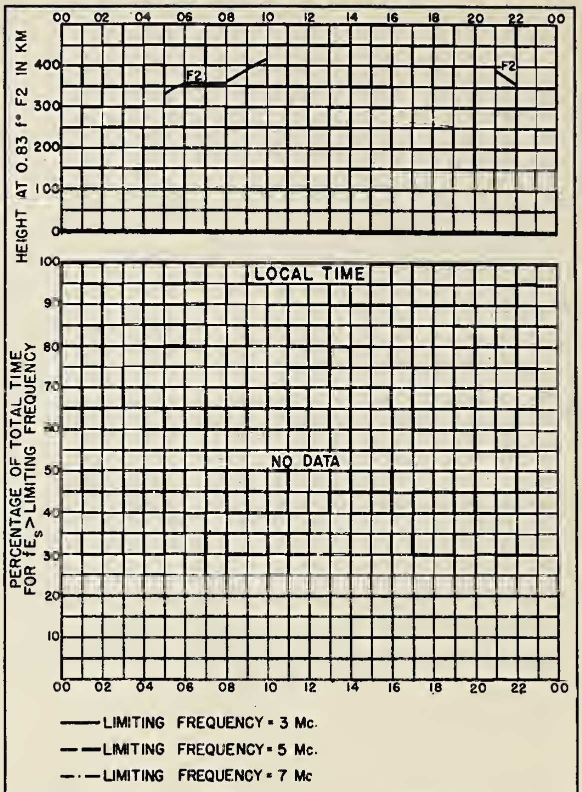
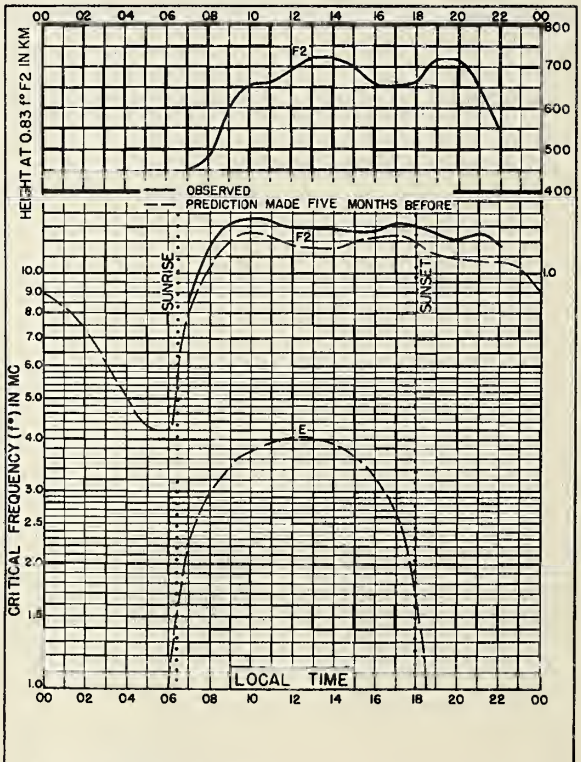


Fig. 73. BOMBAY, INDIA FEBRUARY 1947



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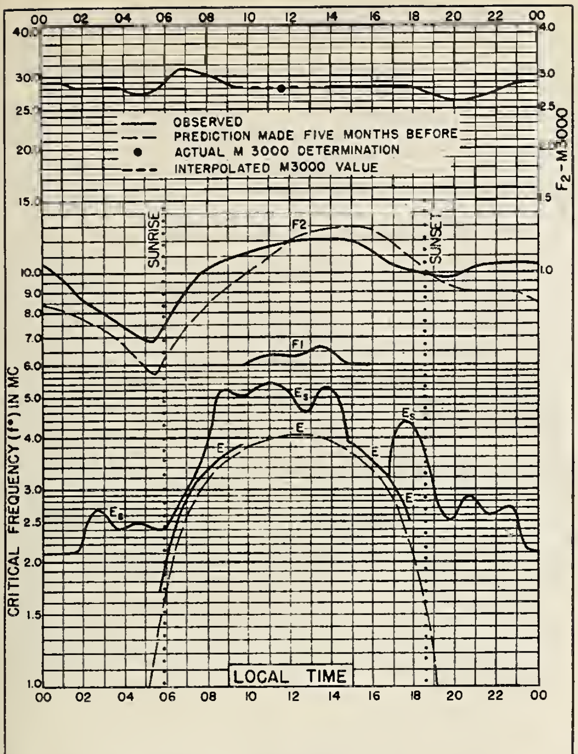

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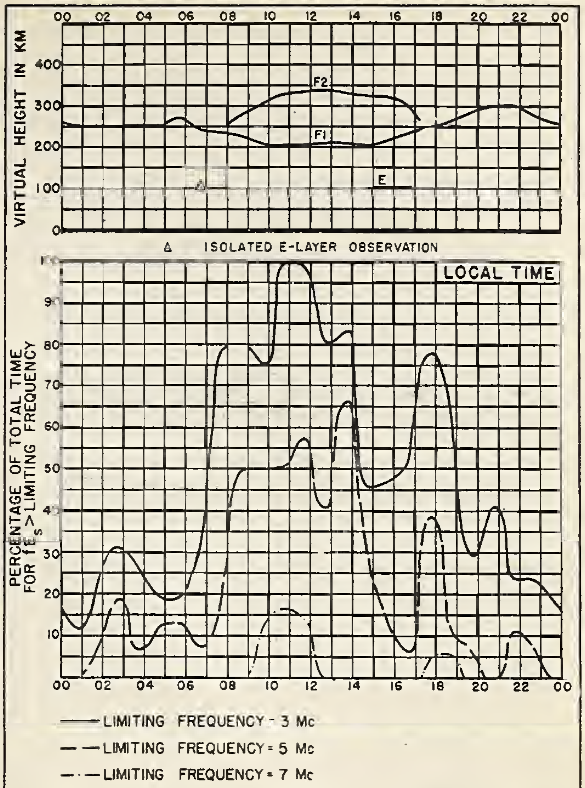

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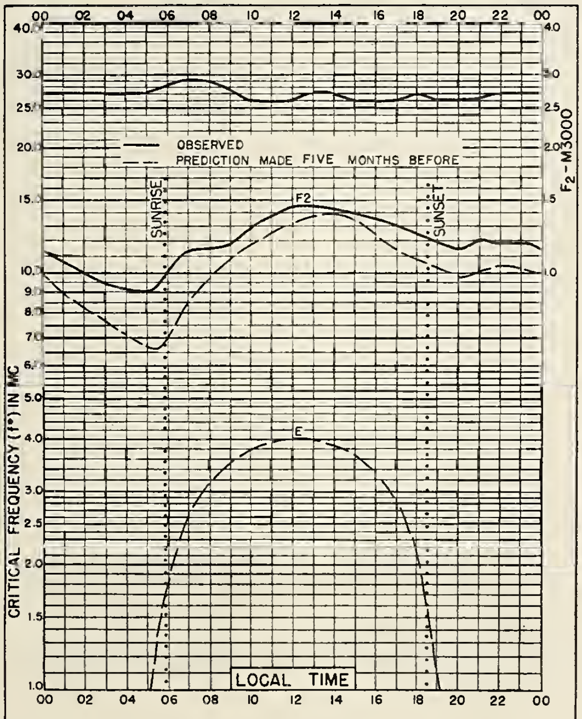

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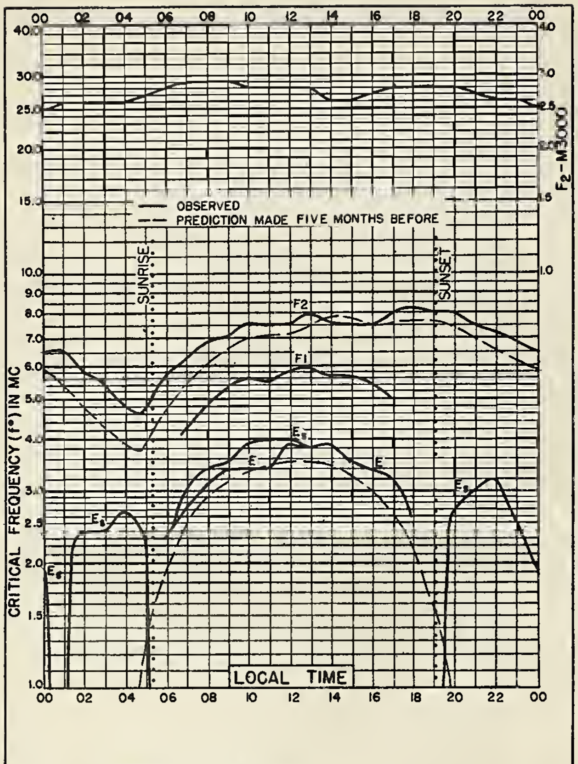

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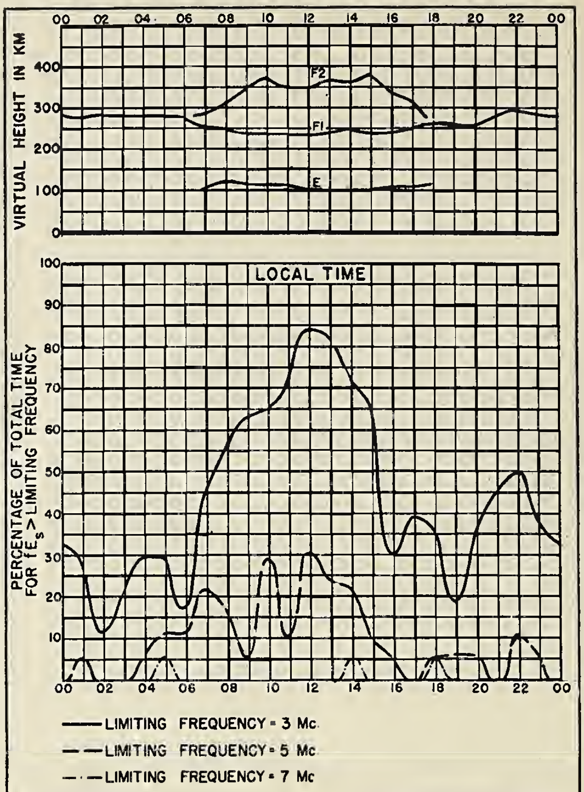

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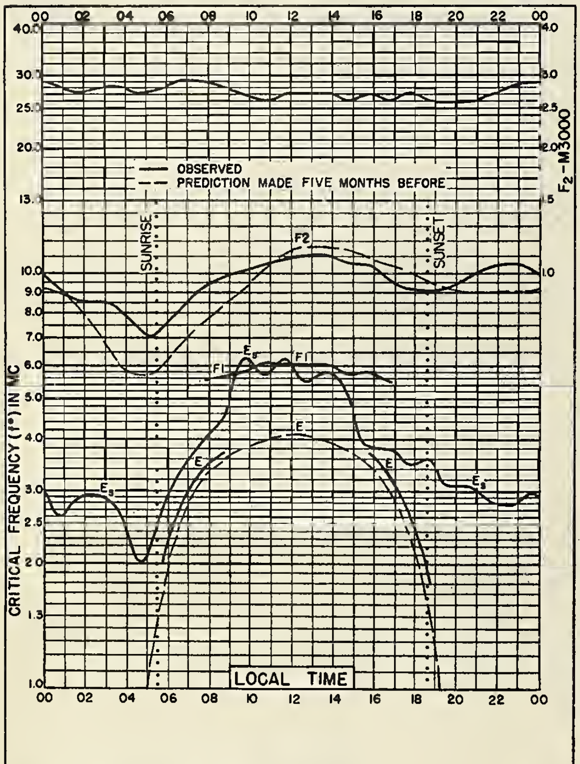

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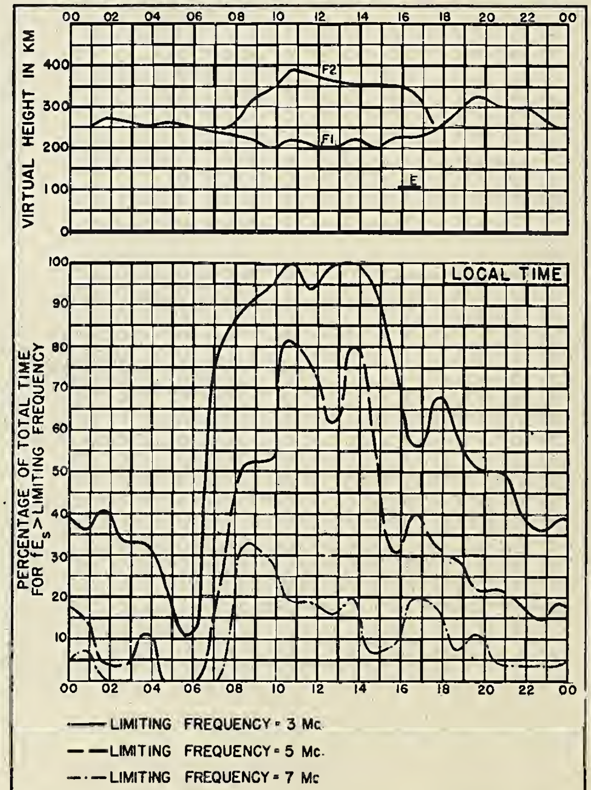

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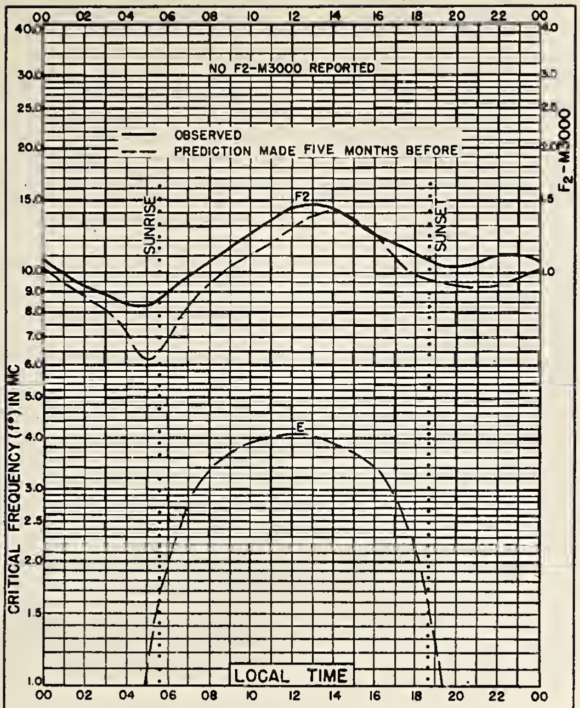

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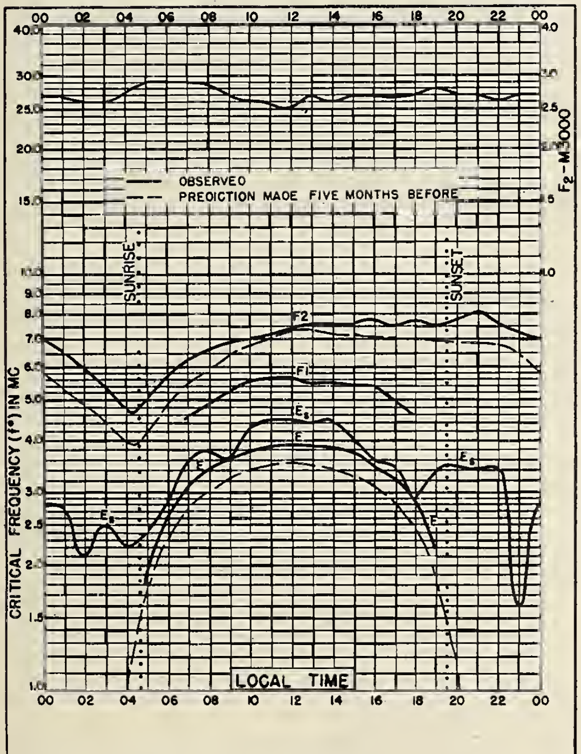

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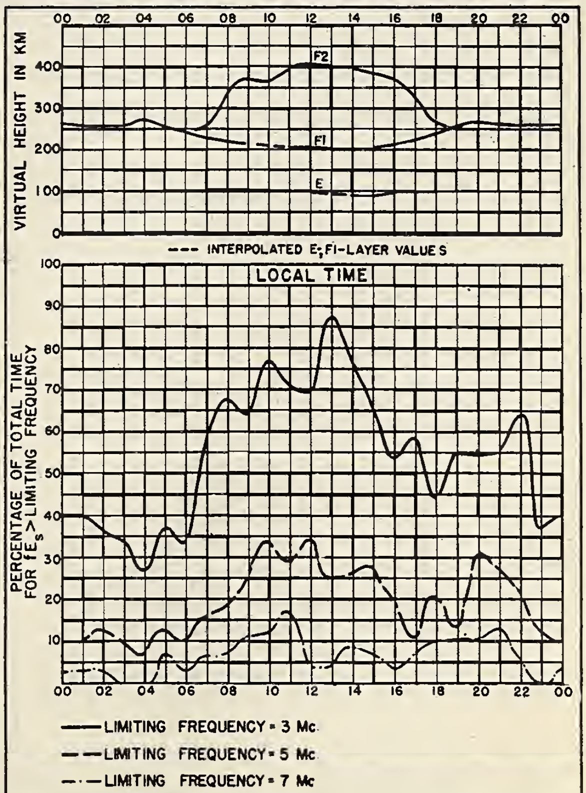

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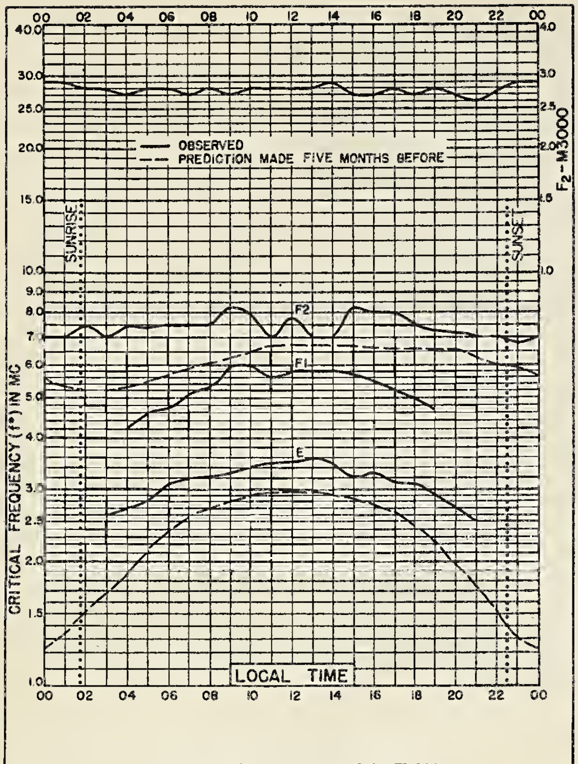

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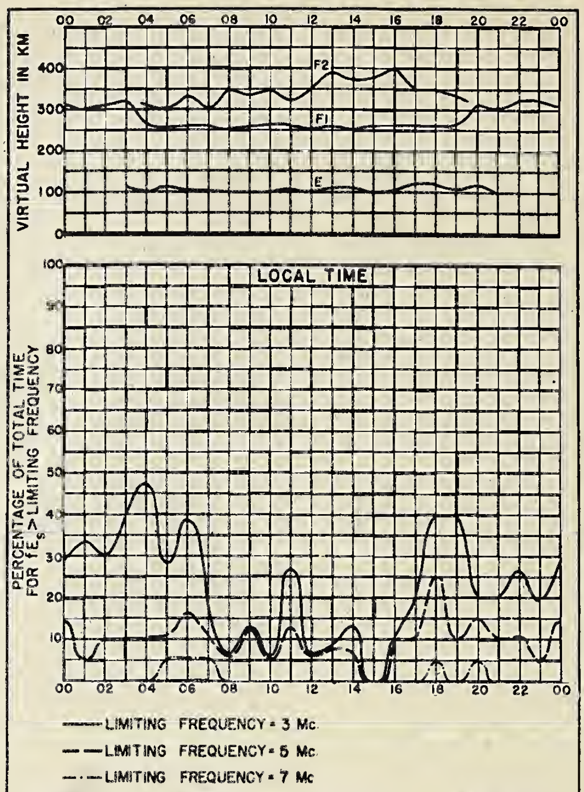

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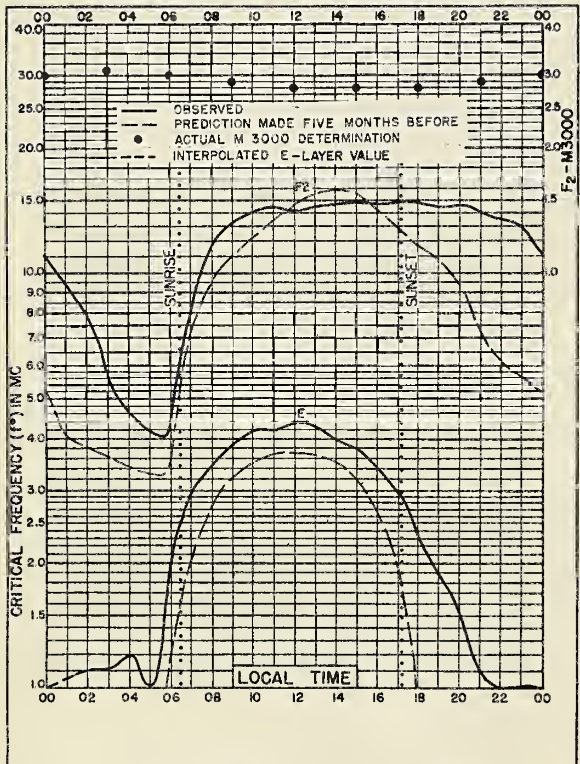

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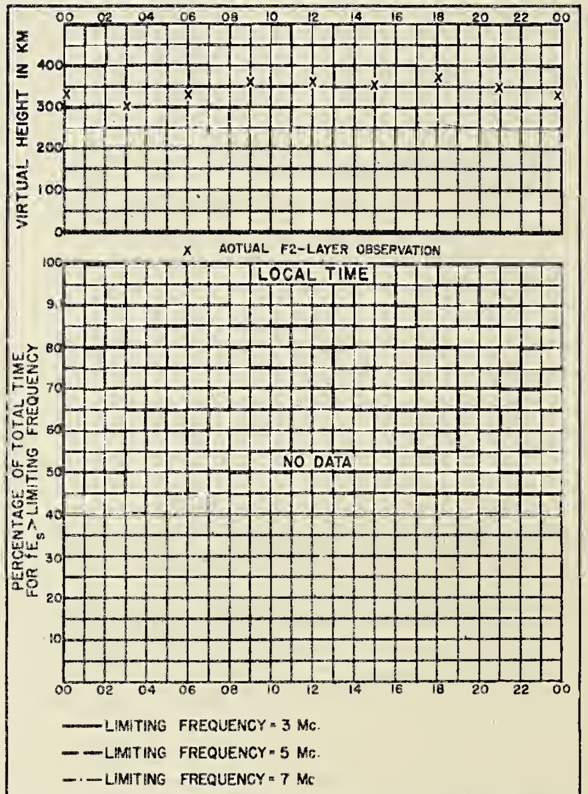

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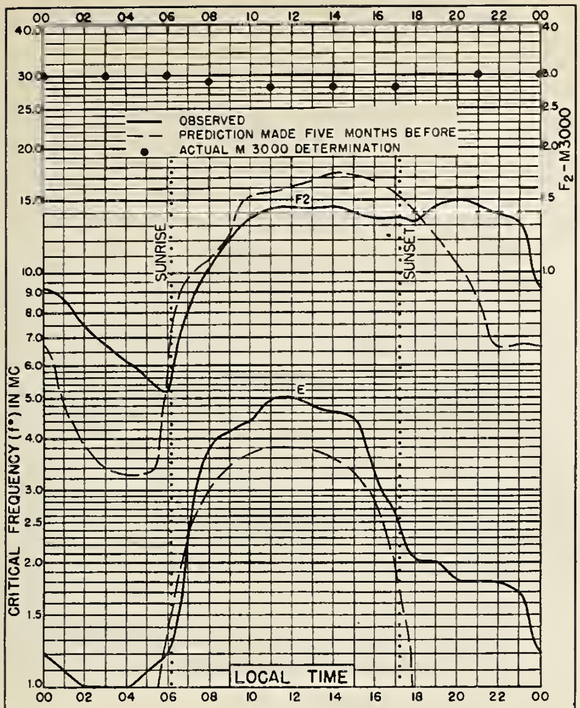

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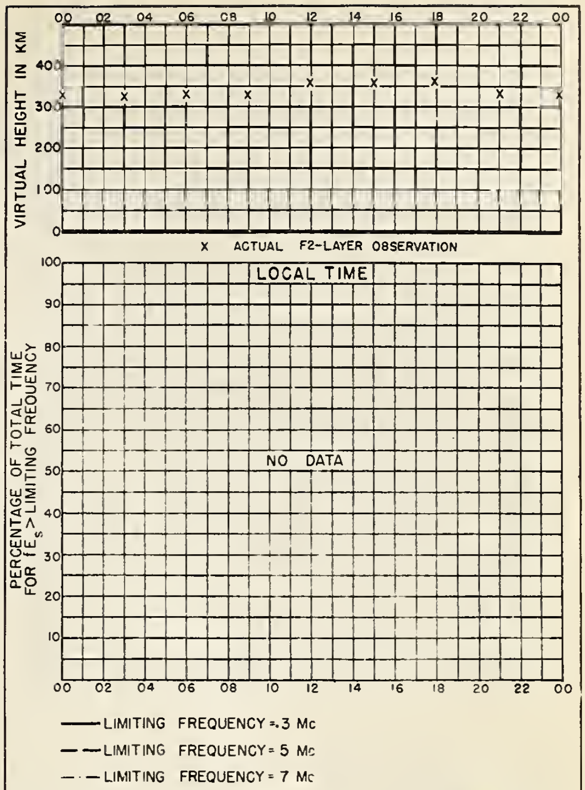

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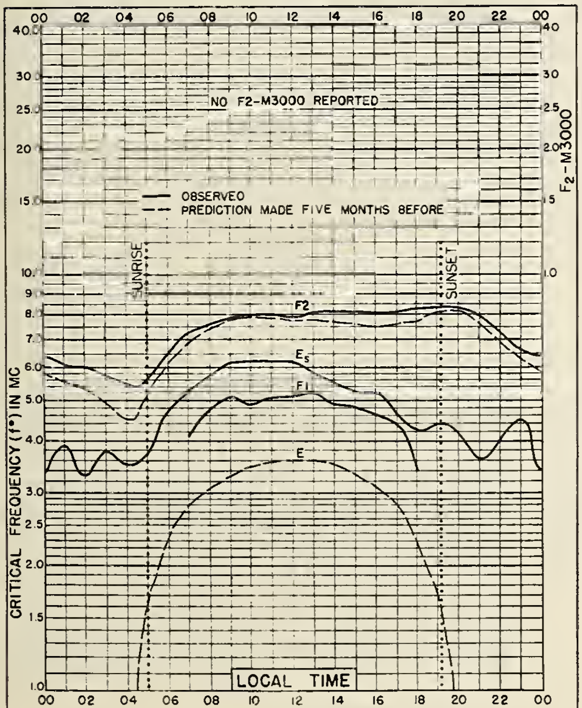

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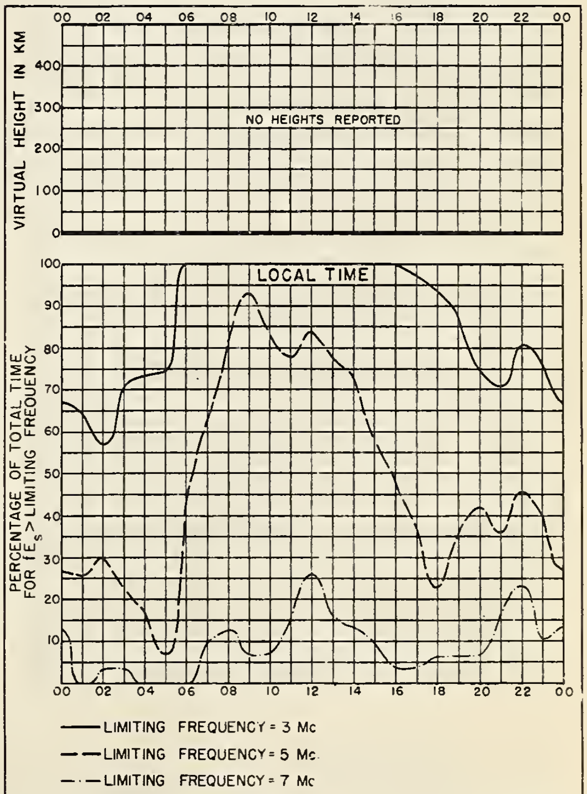

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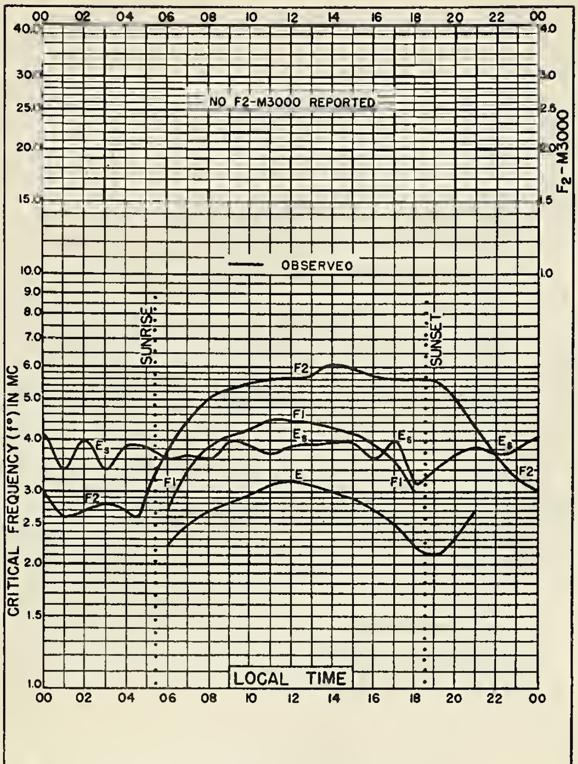

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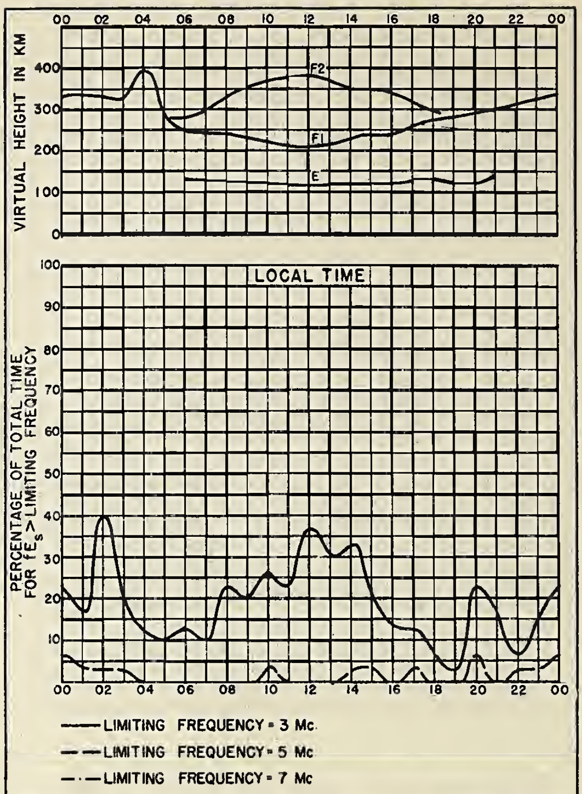

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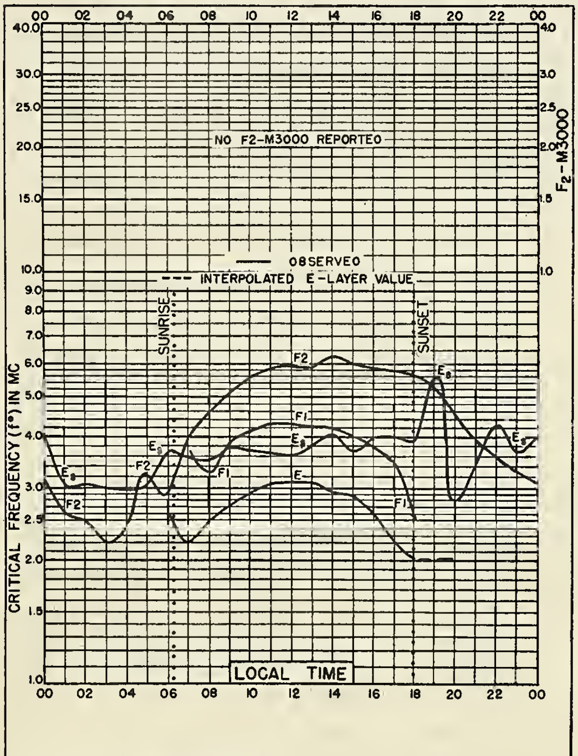

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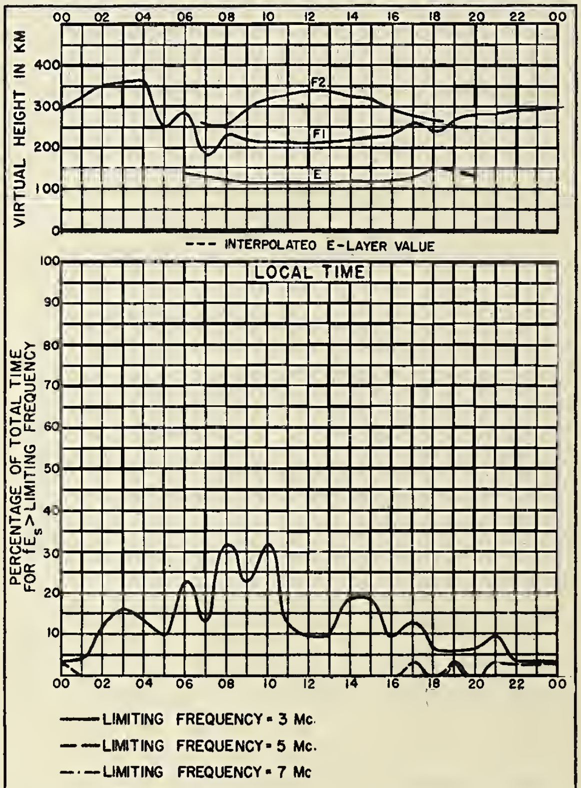

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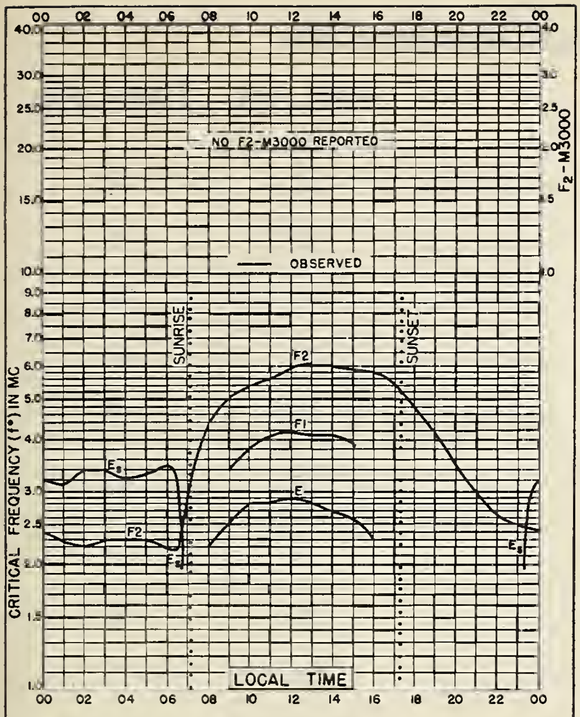

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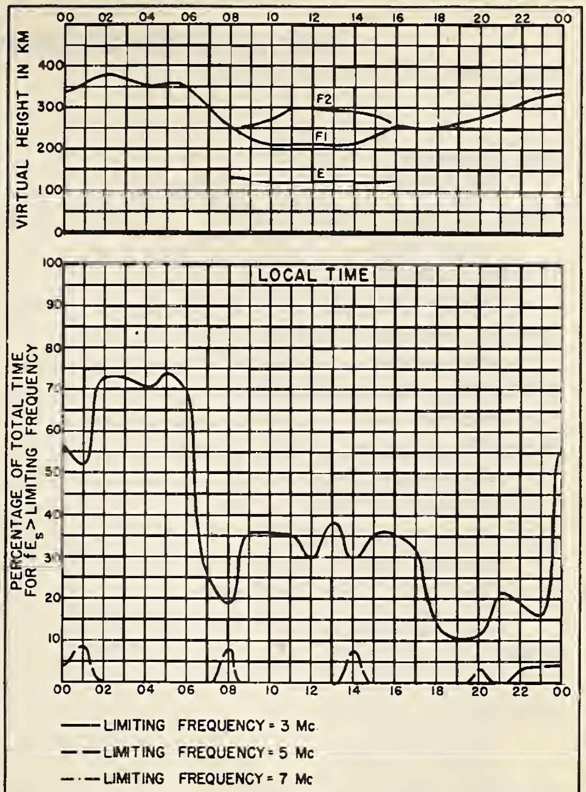

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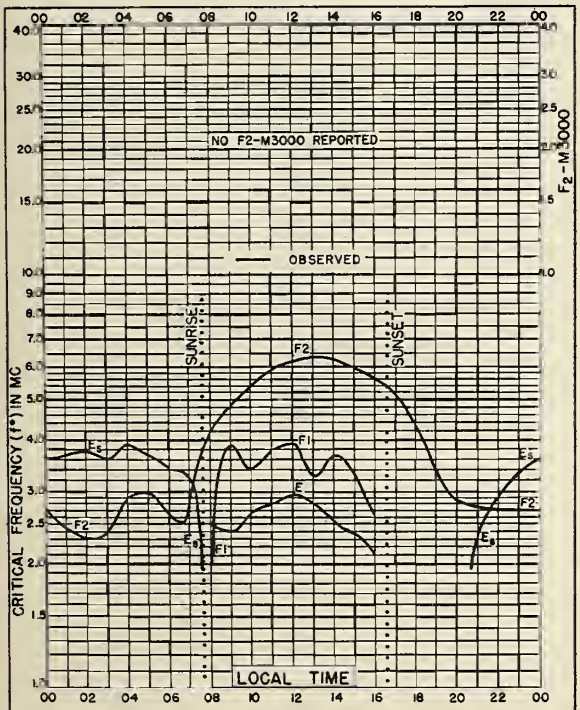

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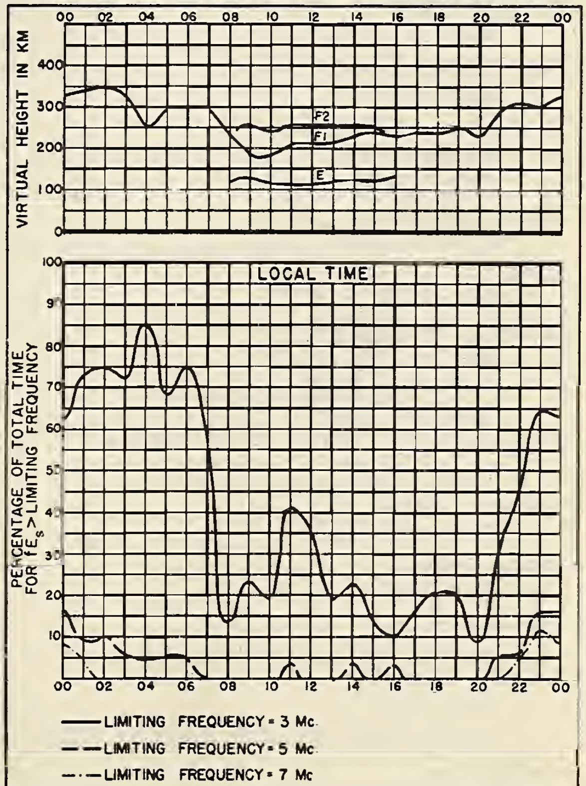

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Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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

Monthly:

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

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*IRPL–H. Frequency Guide for Operating Personnel.
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CRPL–7–1. Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records.

Reports issued in past:

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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.
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