CRPL-F3.7

IONOSPHERIC DATA

ISSUED

SEPTEMBER 1947

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

CRPL-F 37

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

Issued
22 Sept. 1947

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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^oE, or equal to or less than the lower frequency count of the recorder.
Values of fEs missing for any other reason, and values of hEs missing for any reason at all are omitted from the median count.

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

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

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

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

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

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

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

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

MONTHLY AVERAGE AND MEDIAN VALUES OF WORLD-WIDE IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 64 and figures 1 to 120 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

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

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

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

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

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.
Manila, Philippine Is.
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

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

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

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

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

It must be emphasized that 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 when spread echoes are present.

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

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

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

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

Month	Predicted Sunspot No.	Month	Predicted Sunspot No.
August 1947	122	August 1946	77
July 1947	116	July 1946	73
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

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

The data given in tables 65 to 76 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."

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 77 presents ionosphere character figures for Washington, D.C., during August 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 78 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 August 1947.

Table 79 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 July 23 to August 22, 1947.

Table 80 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Barbados, B.W.I., receiving station of Cable and Wireless Ltd. from July 23 to July 31, 1947.

Table 81 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, July 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 ZURICH PROVISIONAL RELATIVE SUNSPOT NUMBERS

Table 82 presents the daily median values of relative sunspot numbers as reported by American observers for August 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 82 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 83 the intensities of the green (λ 5303A), first red (λ 6374A), and second red (λ 6704A) lines of the solar corona as observed during August 1947, by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, are given for every 5° measured from astronomical north positively through the east 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.

ERRATA

1. CRPL-F35, table 49, page 22: In the table of data for Fribourg, Germany, July 1946, fEs for the hours 03, 08, 09, 11, 13, 14, 16, 17, and 18 should be 2.4, 5.1, 5.3, 4.8, 4.3, 4.6, 4.0, 4.3, and 5.0, respectively.

2. CRPL-7-1: Symbol "U" (forked record) should be replaced by symbol "V."

Table 1

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	(6.2)						(2.6)
01	280	(5.9)						(2.6)
02	280	5.7						(2.6)
03	280	(5.3)						(2.6)
04	280	4.9						2.7
05	280	4.7						2.8
06	250	5.6			100	2.1		3.1
07	270	6.5	230	4.4	100	2.9	3.3	2.9
08	360	6.6	220	4.8	100	3.3	3.6	2.8
09	340	7.6	200	5.4	100	3.6		2.8
10	340	7.9	200	5.5	100	3.8		2.8
11	400	(7.6)	200	(5.5)	100	(4.0)		2.6
12	415	7.7	210	5.5	100	(4.0)		2.6
13	430	7.9	210	(5.6)	100	(4.0)		2.6
14	390	7.9	210	5.4	100	3.9		2.8
15	390	8.1	220	5.4	100	3.8		2.8
16	380	7.6	220	5.2	100	3.6		2.7
17	350	7.5	220	4.8	100	3.2	3.6	2.7
18	295	7.4	235		100	2.6	2.7	2.8
19	265	7.2			100	(1.8)	2.4	2.8
20	250	7.5						2.8
21	260	(7.1)						(2.7)
22	280	(7.0)						(2.8)
23	280	(6.6)						(2.6)

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

Table 2

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	335	5.2				1.8	4.6	2.6
01	338	5.4				1.7	4.2	2.4
02	352	5.6				2.0	5.3	2.5
03	400	5.6	305	3.6		2.2	5.5	2.4
04	428	5.8	270	4.0		2.5	5.5	2.4
05	408	6.2	250	4.2		2.9	5.5	2.4
06	448	6.3	250	4.5		3.1	5.4	2.4
07	500	6.2	248	4.8		3.3	5.5	2.3
08	485	6.5	240	4.9		3.4	4.9	2.4
09	508	6.6	228	5.0		3.5	5.5	2.4
10	505	6.6	220	5.1		3.6	3.4	2.3
11	510	6.5	230	5.2		3.7	5.2	2.3
12	535	6.6	230	5.2		3.7	4.1	2.4
13	535	6.5	230	5.2		3.6	3.6	2.3
14	545	6.4	230	5.2		3.6		2.3
15	500	6.4	232	5.2		3.4		2.4
16	462	6.4	238	5.0		3.3		2.4
17	445	6.4	240	4.8		3.2		2.5
18	402	6.3	255	4.4		3.0		2.6
19	325	6.1	270	4.0		2.7		2.6
20	290	5.8				2.1	3.2	2.7
21	298	5.5				2.0	2.8	2.7
22	280	5.6				1.9	3.6	2.7
23	318	5.2				1.7	4.1	2.6

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

Table 3

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.4					3.0	2.7
01	310	4.7					3.0	2.6
02	320	4.2					3.9	2.6
03	320	4.2					2.9	2.6
04	330	4.6					3.9	2.6
05	380	5.0	290	3.6	130	2.0	4.0	2.5
06	430	5.7	260	4.1	120	2.5	4.0	2.5
07	495	6.0	240	4.5	110	3.0	4.1	2.4
08	485	6.2	230	4.8	110	3.3	4.1	2.4
09	485	6.4	220	5.0	110	3.5	4.2	2.4
10	500	6.8	220	5.1	110	3.7	4.4	2.4
11	495	6.9	220	5.3	110	3.8	4.4	2.4
12	500	7.0	220	5.3	110	3.9	4.4	2.4
13	520	6.7	220	5.4	110	3.9	4.4	2.4
14	515	6.6	220	5.3	110	3.9	4.3	2.4
15	500	6.7	230	5.3	110	3.8	4.1	2.4
16	480	6.7	230	5.3	110	3.7	4.1	2.4
17	450	6.5	235	5.1	110	3.4	4.1	2.5
18	405	6.4	240	5.0	110	3.2	4.0	2.5
19	360	6.5	260	4.4	120	2.8	4.1	2.7
20	285	6.4	265	3.6	120	2.3	3.7	2.8
21	280	6.4			120	1.8	3.2	2.7
22	280	6.2					3.6	2.7
23	290	6.0					3.2	2.6

Time: 120.0°W.
Sweep: Manual operation.

Table 4

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	6.7					2.4	2.6
01	300	6.2					2.4	2.6
02								
03								
04								
05	410	6.8	250	4.3	110	2.5	3.4	2.5
06	410	7.7	245	4.6	100	2.9	4.1	2.5
07	405	8.3	240	4.8	100	3.2	4.9	2.5
08	400	8.0	240	5.0	100	3.5	5.4	2.5
09	420	7.8	(230)	5.3	100	3.7	5.1	2.5
10	470	7.5	230	5.5	100	3.8	4.9	2.5
11	[430]	[7.8]	[220]	[5.6]	[100]			
12	435	7.4	230	5.6	100	3.9	4.6	2.6
13	460	7.1	230	5.4	100	(4.0)	4.9	2.5
14	470	7.0	250	5.4	100	4.0	4.1	2.6
15	435	6.7	220	5.4	100	3.8	4.1	2.6
16	420	6.6	225	5.3	100	3.6	4.1	2.6
17	[370]	[6.8]	[245]	[4.9]	[100]	[3.3]		
18	320	6.8	240	(4.6)	100	2.7	4.1	2.8
19	290	6.7	260		110	2.3	4.0	2.8
20	280	7.0			100		4.1	2.8
21	275	7.3					4.0	2.7
22	280	7.2					2.8	2.7
23	285	6.6					2.5	2.6

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

Table 5

Portage la Prairie, Canada (49.9°N, 98.3°W) July 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	5.0						2.4
01	320	4.8					2.0	2.4
02	320	4.4					3.1	2.4
03	320	4.3					3.8	2.4
04	320	4.0					3.1	2.5
05	270	4.8			110	2.0	2.3	2.5
06	350	5.4	250	4.0	110	2.6		2.6
07	400	5.8	230	4.6	100	3.0		2.6
08	450	6.3	220	4.9	100	3.3		2.4
09	450	6.4	210	5.1	100	3.5		2.5
10	450	6.4	210	5.2	100	3.7		2.4
11	500	6.6	200	5.3	100	3.8		2.4
12	500	6.8	200	5.4	100	3.9		2.4
13	500	7.0	210	5.4	100	3.9		2.3
14	510	6.7	210	5.4	100	3.9		2.3
15	500	6.8	210	5.2	100	3.8		2.3
16	460	6.6	220	5.2	100	3.7		2.4
17	450	6.8	220	5.1	100	3.4		2.5
18	400	6.8	240	4.8	100	3.1		2.5
19	280	7.1	(240)	4.2	110	2.6		2.6
20	270	7.2			120	2.1		2.7
21	270	7.2						2.6
22	280	6.5					1.8	2.6
23	300	5.8						2.5

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

Table 6

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	5.9						2.7
01	325	5.0						2.7
02	325	4.7						2.7
03	320	4.4						2.7
04	320	4.7						2.7
05	280	5.6						2.7
06	300	6.0	240	4.2	120	2.8		2.7
07	345	6.5	230	4.6	120	3.0		2.6
08	350	6.8	220	5.0	110	3.3		2.7
09	400	6.8	220	5.2	110	3.5		2.5
10	440	7.0	210	5.5	110	3.7		2.5
11	400	6.4	200	5.5	110	3.7		2.6
12	460	6.1	210	5.5	110	3.6		2.5
13	405	6.8	220	5.7	110	3.8		2.5
14	390	6.8	220	5.4	110	3.8		2.6
15	400	6.9	220	5.4	110	3.6		2.5
16	410	6.9	230	5.2	110	3.5		2.5
17	390	6.8	230	5.0	110	3.2		2.5
18	330	7.0	250	4.4	130	2.8		2.6
19	300	7.0	250	3.7	120	2.5		2.7
20	290	7.2						2.6
21	300	7.3						2.6
22	300	6.9						2.7
23	300	6.3						2.6

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

Table 7

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.5					1.2	2.5
01	300	6.4					1.6	2.5
02	310	5.7					1.6	2.5
03	310	5.4					1.5	2.5
04	310	5.4			130	1.6	1.8	2.6
05	300	5.6					2.0	2.7
06	350	6.6			122	2.6		2.7
07	350	7.2	280	5.0	120	3.1		2.6
08	400	7.3						2.7
09	430	7.4						2.6
10	450	7.5						(2.5)
11	490	7.4						2.4
12	530	7.8						2.5
13	500	7.7						2.5
14	500	7.6						2.5
15	460	7.5						2.6
16	430	7.4						2.6
17	400	7.5						2.7
18	350	7.4						2.7
19	330	7.4					2.3	2.7
20	300	7.5					3.0	2.6
21	300	7.4					2.5	2.7
22	300	7.0						2.6
23	300	6.7					1.9	2.6

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

Table 8

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.0					3.0	2.5
01	285	6.1					2.5	2.6
02	280	5.8					2.5	2.6
03	280	5.8					2.6	2.6
04	285	5.4					2.6	2.5
05	280	5.4					2.6	2.6
06	255	6.1	240	4.0	110	2.4	3.0	2.7
07	380	7.0	220	4.6	100	3.0	4.0	2.5
08	380	7.5	200	5.2	100	3.3	5.2	2.5
09	400	7.7	200	5.5	100	3.6	5.2	2.5
10	390	8.3	200	5.6	100	3.7	5.7	2.5
11	410	8.0	200	5.7	100	3.7	5.0	2.5
12	410	8.3	180	5.6	100	3.7	5.1	2.5
13	400	8.0	200	5.7	100	3.8	4.5	2.5
14	400	8.1	200	5.6	100	3.7	4.3	2.5
15	400	7.8	205	5.6	100	3.7	4.6	2.6
16	370	7.8	200	5.4	100	3.6	4.3	2.6
17	340	7.4	215	5.1	100	3.2	4.2	2.7
18	260	7.4	240	4.5	100	2.8	3.7	2.8
19	240	7.2			120	2.2	2.6	2.9
20	240	7.0					2.6	2.8
21	260	6.8					3.8	2.7
22	260	6.4					4.8	2.7
23	280	6.3					3.7	2.6

Time: 120.0°W.
Sweep: 1.5 Mc to 18.5 Mc in 4 minutes 30 seconds.

Table 9

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	335	6.6					4.4	2.4
01	320	6.6					3.6	2.5
02	300	6.4					3.0	2.5
03	310	6.2					3.4	2.5
04	300	5.9					3.3	2.5
05	300	5.8					3.3	2.6
06	300	6.7	250	4.3			4.6	2.6
07	370	7.4	235	5.1	110	(3.1)	5.0	2.6
08	400	8.2	220	5.3	110	3.3	5.2	2.5
09	400	8.8	220	5.7	110	3.8	5.7	2.5
10	420	9.0	220	5.8	110	3.9	4.9	2.5
11	410	9.5	220	5.8			4.9	2.4
12	420	9.5	220	5.8	115	4.2	4.8	2.5
13	(420)	9.4	220	5.9			4.9	2.4
14	400	9.3	220	5.7	110	(4.0)	4.7	2.5
15	420	8.8	220	5.6	110	3.9	4.8	2.5
16	390	8.6	230	5.3	110	3.7	5.0	2.5
17	370	8.0	230	5.1	110	3.3	4.8	2.6
18	320	8.0	240		120	2.7	4.4	2.7
19	290	7.6					3.2	2.7
20	270	7.2					2.8	2.6
21	290	7.0					3.1	2.6
22	300	6.8					3.8	2.6
23	320	6.6					4.6	2.4

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

Table 10

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	9.0					4.0	2.8
01	290	8.8					4.0	2.8
02	280	8.6					3.6	2.8
03	280	7.8					3.2	2.8
04	290	7.4					3.4	2.6
05	290	7.2					2.6	2.6
06	255	8.1			108	2.5	2.1	2.8
07	240	8.6			105	3.0	3.8	2.9
08	250	8.9	230	6.2	100	3.5	5.1	2.9
09	358	9.0	242	6.2	110	3.8	6.0	2.7
10	380	9.0	230	6.2	100	4.0	6.2	2.6
11	380	9.6	240	6.2	100	4.2	5.6	2.6
12	400	10.0	238	6.2	100	4.2		2.7
13	390	10.0	250	6.2	100	4.2		2.7
14	380	10.4	245	6.0	102	4.2		2.8
15	370	10.5	232	6.0	100	4.1	4.7	2.7
16	360	11.0	245	5.8	100	3.8		2.8
17	330	10.5	240	5.5	100	3.5	4.8	2.8
18	302	9.9	240	5.2	100	2.9	4.9	2.9
19	275	9.4			100	2.0	4.4	2.9
20	280	9.0					3.6	2.9
21	290	8.7					3.3	2.7
22	300	8.8					3.4	2.7
23	310	8.8					3.2	2.7

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

Table 11

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	350	6.7					4.4	2.5
01	340	6.6						2.6
02	340	6.2						2.6
03	350	6.0						2.5
04	350	5.7						2.5
05	320	5.9						2.7
06	345	6.6	270	4.0	120	2.5	3.7	2.7
07	340	7.2	250	4.3	120	3.2	4.3	2.6
08	400	7.6	250	5.0	120	3.6	4.3	2.6
09	470	7.9	250	5.4	120	3.7	4.2	2.5
10	460	8.0	250	5.5	120	3.7		2.4
11	460	8.6	250	5.5	120	3.8	4.3	2.4
12	460	9.4	250	5.7	120	3.8		2.5
13	460	10.0	250	5.7	120	3.8		2.5
14	460	9.5	250	5.7	120	3.8		2.5
15	450	9.2	250	5.4	120	3.8		2.5
16	440	9.0	260	5.3	120	3.6		2.6
17	400	8.2	260	4.7	120	3.1	4.0	2.6
18	350	7.9	270	4.0	130	2.5	4.0	2.6
19	310	7.8						2.7
20	300	7.5					2.5	2.7
21	300	7.2						2.6
22	330	7.0						2.5
23	350	6.7					3.3	2.6

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

Table 12

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	340	9.4					5.2	2.5
01	320	9.0					6.0	2.6
02	315	8.2					4.9	2.6
03	320	7.8					4.1	2.4
04	320	7.0					4.0	2.4
05	320	7.4					5.0	2.5
06	285	8.1					5.4	2.7
07	280	9.4					7.5	2.7
08	300	9.2	245				8.0	2.6
09	360	9.3	240	6.4			8.9	2.4
10	400	10.3	230	6.3	/		8.8	2.3
11	420	11.2	240	6.4	100		7.6	2.4
12	420	11.5	240	6.4	100	4.5	7.2	2.4
13	410	12.3	240	6.2	100	4.4	6.4	2.4
14	400	12.7	250	6.1	100	4.4	6.4	2.4
15	390	13.1	250	6.0	100	4.1	5.8	2.4
16	370	12.3	240	5.8	100	3.8	5.6	2.5
17	360	12.0	280		100	3.4	5.0	2.5
18	320	11.5					5.4	2.6
19	310	10.4					4.4	2.6
20	310	9.8					4.2	2.5
21	330	9.4					3.6	2.4
22	360	9.4					4.0	2.4
23	360	9.4					5.2	2.4

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

Table 13

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	9.6					3.8	2.7
01								
02								
03								
04								
05								
06	260	7.0			110	1.8	3.2	2.7
07	230	8.0			100	2.8	3.6	2.9
08	220	8.6	215	5.8	100	3.4	4.1	2.6
09	335	9.6	210	6.0	100	3.7	4.8	2.4
10	420	10.2	210	6.2	100	4.0		2.3
11	430	11.0	210	6.2	100	4.2		2.4
12	400	11.8	210	6.1	100	4.3		2.5
13	400	12.1	215	6.1	100	4.3		2.6
14	380	12.1	220	6.0	100	4.2		2.6
15	370	12.2	220	5.9	105	4.1		2.6
16	350	12.2	220	5.7	100	3.8	4.6	2.7
17	330	11.9	230	5.5	100	3.5	4.8	2.7
18	300	11.2	240	5.1	100	2.8	4.5	2.8
19	260	11.2					4.0	2.8
20	280	10.6					4.2	2.7
21	290	10.0					4.0	2.6
22	285	10.2					3.7	2.6
23	290	9.4					3.8	2.6

Time: 150°W.
Sweep: 1.2 Mc to 18.0 Mc. Manual operation.

Table 14

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		10.0						2.6
01		9.6						2.6
02		8.9						2.6
03		8.3						2.6
04		8.0						2.6
05		7.4						2.7
06		7.6						2.7
07	310	8.9						2.7
08	310	9.4				3.3		2.7
09	330	9.4		5.2		3.6		2.5
10	390	10.4		5.7		3.9		2.5
11	400	10.5		5.8		4.0		2.4
12	430	11.0		5.9		4.1		2.4
13	420	11.2		5.8		4.2		2.4
14	415	11.0		5.5		4.0		2.5
15	415	10.8		5.5		3.9		2.5
16	400	10.5		5.3		3.6	4.9	2.5
17	395	10.5		4.7			4.2	2.5
18	360	10.2					3.7	2.5
19	340	10.0						2.5
20		9.8						2.5
21		9.9						2.5
22		9.7						2.5
23		9.9						2.5

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

Table 15

Guam I. (13.5°N, 144.8°E) July 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	345	(9.6)					4.4	(2.5)
01	330	(9.5)					4.6	(2.5)
02	290	(9.2)					4.5	(2.6)
03	280	9.0					3.5	2.8
04	250	8.6					2.5	3.0
05	235	7.9					2.8	3.0
06	252	7.9					3.1	3.0
07	250	9.0				(2.7)	5.4	2.9
08	235	9.5			110	3.3	7.4	2.7
09	220	10.2			110	3.7	7.5	2.4
10	230	10.8	220		110	4.0	6.8	2.2
11	(420)	11.4	220			4.2	7.0	2.3
12	(420)	12.2	210		105	4.3	6.5	2.3
13	455	12.8	210	(6.5)			6.0	2.3
14	460	13.0	215	(6.3)			6.0	2.3
15	480	13.3	220				6.5	2.2
16	425	13.6	225				6.0	2.2
17	405	13.4					6.0	2.2
18	265	13.4					6.0	2.2
19	300	12.0					5.2	2.3
20	395	10.9					2.9	2.2
21	380	(10.4)					2.4	2.2
22	380	(11.0)					2.8	2.3
23	370	(10.6)					3.2	2.3

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

Table 16

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	10.4						2.7
01	270	9.7						2.8
02	275	9.2						2.7
03	280	8.7						2.7
04	270	8.2						2.7
05	270	7.6						2.7
06	280	7.4					2.4	2.8
07	250	8.4			120	2.8	3.2	2.9
08	240	9.2	230		120	3.4	4.0	2.8
09	320	9.7	225	6.0	120	3.8	4.2	2.6
10	380	10.7	220	6.1	120	4.0	4.8	2.4
11	410	11.2	220	6.2	120	4.2	4.6	2.4
12	410	11.8	230	6.2	120	4.3	5.0	2.4
13	410	12.0	230	6.2	120	4.3	5.0	2.4
14	400	12.1	220	6.2	120	4.2	5.1	2.5
15	400	11.8	230	6.0	120	4.0	5.0	2.5
16	400	11.1	230	5.6	120	3.6	5.1	2.5
17	370	10.7	250	5.6	120	3.1	4.4	2.5
18	280	10.6			110	2.4	4.4	2.5
19	300	10.4					3.5	2.5
20	320	10.6					3.3	2.4
21	330	11.0					2.8	2.4
22	310	11.0					2.4	2.6
23	300	10.8						2.6

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

Table 25

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	7.0					1.9	2.9
01	240	6.1						3.0
02	250	5.8					2.0	3.0
03	250	5.5					1.9	3.0
04	250	4.7					2.7	2.8
05	250	4.4					2.5	2.8
06	250	4.9					2.5	3.0
07	245	9.2				2.4	2.8	3.2
08	240	(11.5)			100	3.1	2.7	
09	245	D	230		100	3.6	2.8	
10	250	D	230			3.8	3.7	
11	290	(12.0)	222	7.0	100	3.9		
12	295	(12.0)	228	7.0	100	4.0	2.5	(2.7)
13	295	(11.5)	220	7.0	100	4.0		(2.7)
14	300	(11.5)	222	7.0	100	3.8	3.8	2.6
15	305	(11.0)	235	6.5	100	3.8	3.8	2.6
16	265	(11.0)	240			3.4	3.6	2.7
17	250	(11.0)				2.6	3.0	2.7
18	250	11.0					3.0	2.8
19	242	10.3					2.9	2.8
20	250	9.2					2.6	2.8
21	250	9.0					2.2	2.8
22	230	8.7					2.5	3.0
23	230	8.0					2.0	3.0

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

Table 26

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	6.7						2.8
01	290	6.3						2.8
02	300	6.0						2.8
03	290	6.0						2.8
04	295	5.3						2.7
05	280	5.1						2.8
06	260	5.9						2.9
07	230	10.0						3.1
08	230	12.0			120	3.0		3.2
09	230	D			115	3.5	4.0	(3.1)
10	230	(12.5)			110	3.7	4.5	(3.1)
11	230	(12.5)	230		110	3.8	4.0	(2.9)
12	295	12.5	220		105	3.9	4.0	(2.8)
13	300	12.3	225		105	3.9	4.5	(2.8)
14	285	12.2	220		110	3.6	4.7	2.8
15	240	11.8	230		115	3.3	4.3	2.8
16	240	11.5				2.8	4.0	2.8
17	240	11.2					3.8	2.8
18	240	10.0					4.2	2.8
19	250	9.0						2.7
20	260	8.5						2.8
21	260	7.9						2.8
22	260	7.4						2.8
23	270	7.0						2.8

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

Table 27

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	6.0						2.6
01	260	6.0						2.7
02	280	5.8						2.7
03	280	5.6						2.7
04	250	5.6						2.7
05	240	5.0						2.8
06	250	4.8						2.8
07	250	7.5						3.0
08	240	10.6			110	2.6		3.2
09	240	12.5			105	3.2		3.2
10	240	13.6			100	3.4		3.1
11	240	13.9			100	3.5		3.0
12	240	13.5			100	3.5		2.8
13	250	13.6			100	3.5		2.8
14	250	13.5			110	3.5		2.8
15	250	13.0			110	3.2		2.8
16	240	12.0			110	2.5		2.9
17	250	11.1						3.0
18	240	10.0						2.9
19	250	9.0						2.9
20	250	8.0						2.9
21	250	7.5						2.8
22	250	7.0						2.8
23	250	6.5						2.8

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

Table 28

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	265	5.9					3.2	2.7
01	275	5.8					2.6	2.7
02	282	6.0						2.7
03	272	(5.5)						(2.7)
04	260	5.5						2.8
05	250	5.4						2.8
06	250	5.0						2.8
07	250	5.6						3.0
08	215	8.8			110	2.5	2.1	3.3
09	218	(9.6)			100	2.8		3.6
10	210	(10.0)			100	3.2	2.6	(3.6)
11	215	(10.2)			100	3.4	3.2	(3.5)
12	215				100	3.5		
13	225	9.6			98	3.5	2.1	3.6
14	215	(9.9)			100	3.3	3.1	(3.5)
15	220	(9.8)			100	2.9	2.9	(3.4)
16	215	9.9			100	2.4	2.7	3.5
17	215	9.5						3.5
18	230	9.5						3.2
19	240	8.5						3.1
20	240	7.5						2.9
21	250	7.0						2.8
22	255	6.4						2.8
23	255	6.1						2.7

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

Table 29

Christchurch, N.Z. (43.5°S, 172.7°E) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	6.0					2.8	2.6
01	280	5.8					2.7	2.6
02	285	5.9					2.6	2.6
03	280	5.8					2.6	2.7
04	260	5.5					2.6	2.7
05	250	5.3					2.6	2.8
06	250	5.0					2.5	2.9
07	245	6.5				1.4	3.0	3.0
08	230	10.5				2.4		3.1
09	230	12.7				2.8		3.1
10	230	D				3.2	4.4	(3.0)
11	230	D				3.4	4.4	(3.0)
12	230	D	220	7.2		3.5	4.4	(3.1)
13	230	D				3.4	4.0	(2.9)
14	240	D				3.2	4.1	2.9
15	240	D				2.8		2.9
16	230	12.5				2.3	2.7	2.9
17	230	12.0				1.6	2.7	2.8
18	230	10.3					2.5	2.8
19	240	9.2					2.6	2.8
20	240	7.8					2.6	2.8
21	250	7.1					2.7	2.7
22	260	6.5					2.7	2.7
23	270	6.2					2.9	2.6

Time: 172.5°E.
Sweep: 1.0 Mc to 13 Mc.

Table 30

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

Time	*	foF2	h'F1	foF1	h'E	foE **	fEs	F2-M3000 ***
00								
01								
02								
03								
04								
05								
06								
07	300	8.6						
08	300	10.0						2.8
09	(360)	10.0						
10		(9.7)						
11		(12.3)						
12		(11.3)						
13		(12.1)						
14		11.5						
15		(12.1)						
16		(12.2)						
17	360	12.1						
18								
19	360	10.7				3.6		
20	360	9.8				3.7		2.8
21	360	9.3				3.4		
22	(360)	(9.2)				3.2		
2230	360	8.3				3.3		

Time: Local.
Sweep: 1.8 Mc to 16 Mc in 5 minutes. Manual operation.
*Height at 0.83 foF2.
**Both normal and abnormal values of E.
***M3000, average values; other columns, median values.

Table 31

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000 **
00	420	10.4						2.7
01	(420)	(10.0)						
02	420	9.6						
03	390	9.0						
04	420	8.3						2.7
05	390	8.3						
06	360	9.1						
07	360	11.2						
08	360	11.6						2.9
09	390	12.5						
10	420	13.2						
11	420	14.3						
12	420	(14.8)						2.7
13	420	(15.0)						
14	420	(15.0)						
15	420	(15.0)						
16	420	(14.5)						
17	420	(14.0)						
18								
19		(12.5)						
20	390	12.2						2.6
21	420	11.6						
22	420	11.4						
23	420	11.0						

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 32

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000 **
00								
01		(14.9)						
02								
03	(390)	(11.9)						
04	(420)	(9.7)						2.6
05								
06	(360)	8.4						
07	360	10.2						
08	360	11.8						2.8
09	390	13.2						
10		(14.2)						
11		(14.5)						
12		(14.7)						
13		(15.0)						
14		(15.0)						
15		(15.2)						
16		(15.3)						
17		(15.1)						
18		(15.1)						
19		(15.0)						
20		(15.0)						
21		(14.8)						
22		(14.7)						
23		(14.8)						

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 33

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

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	** F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	420	10.8						
08	495	12.6						2.6
09	585	13.3						
10	600	12.7						
11	630	12.8						
12	660	12.9						2.2
13	660	12.9						
14	660	13.4						
15	690	13.8						
16	690	14.2						2.2
17	660	(14.2)						
18	(690)	(14.2)						
19	(660)	(13.2)						
20		(12.9)						
21								
22		(13.5)						
23								

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

Table 34

Leyte, Philippine Is. (11.0°N, 125.0°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		11.2						2.9
01		9.7						2.9
02		9.7						2.9
03		8.6						2.9
04		7.4					3.1	3.0
05		6.8					3.1	3.0
06		9.2				2.4	3.7	2.9
07		11.6				3.0	4.8	2.8
08		13.2				3.7	5.5	2.5
09		13.2				4.0	5.4	2.4
10		12.3				4.6	7.6	2.3
11		12.0				4.3	6.9	2.2
12		12.2				4.6	<6.0	2.2
13		12.3				4.6	<5.5	2.2
14		13.0				4.2	<4.9	2.2
15		13.2				4.0	5.0	2.2
16		13.1				3.5	4.6	2.2
17		12.9				2.8	3.9	2.2
18		11.6					3.0	2.1
19		9.9						2.0
20		10.2						2.1
21		(11.5)						(2.4)
22		(11.6)					2.0	(2.6)
23		12.2						2.8

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

Table 25

Fiji Is. (18.0°S, 178.2°E) April 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	(215)	(8.3)					(2.6)	
01	245	(8.6)					(2.6)	
02	240	(8.8)					(2.5)	
03	220	(7.6)					(2.7)	
04		(6.9)					(2.6)	
05	250	(6.2)					(2.6)	
06	235	(6.0)					(2.6)	
07	220	(9.2)				2.3	(3.2)	
08	225	(11.6)				3.0	(4.6)	
09	220	D					(3.8)	
10	215	D			102	3.5	(4.8)	
11	250	D	210	5.5	100	3.8		
12	275	D		7.2	102	3.8	(4.6)	
13	(230)	D			100	3.7	(4.5)	
14		D					(5.1)	
15	(220)	D			100	3.4	(4.8)	
16	(230)	D					(4.9)	
17	(230)	D					(3.8)	
18	(240)	D					(4.3)	
19	(240)	(12.2)					(4.8)	
20	(255)	(11.4)					(2.8)	
21	(245)	(11.3)					(2.8)	
22	(250)	(10.7)					(2.5)	
23	(230)	(11.0)					(2.5)	

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

Table 36

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.2						
01		9.3						
02		9.0						
03		7.9						
04		7.1						
05		7.0						
06		7.5						
07		11.3						
08		12.6						
09		13.3						
10		14.7						
11		15.2						
12		15.3						
13		15.5						
14		15.4						
15		15.2						
16		15.3						
17		15.0						
18		15.1						
19		14.6						
20		14.4						
21		13.4						
22		11.8						
23		10.8						

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

Table 37

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

Time	*	f°F2	h'F1	f°F1	h'E	foE **	fEs	F2-M3000 ***
00								
01								
02								
03								
04								
05								
06								
07	(315)	(10.6)						
08	300	10.5				2.8		3.0
09	330	11.7				3.0		
10	360	12.2				3.2		
11	(360)	12.4				3.4		
12	(360)	(12.4)				3.4		2.9
13	(360)	(12.0)						
14		(11.6)						
15		(12.1)						
16	330	11.9						2.9
17	330	11.8						
18	(360)	(11.2)						
19	330	10.1						
20	360	9.3						2.6
21	360	8.6						
22	360	8.1						
2230	360	8.0						

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.
*** F2-M3000, average values; other columns, median values.

Table 38

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

Time	*	f°F2	h'F1	f°F1	h'E	foE	fEs	F2-M3000 **
00	420	9.1						2.6
01	(420)	(7.8)						
02	420	7.3						
03	(420)	7.2						
04	420	6.1						2.6
05	420	5.8						
06	390	6.6						
07	360	9.4						
08	390	12.1						2.7
09	390	13.2						
10	390	13.8						
11	420	14.3						
12	420	14.8						2.6
13	420	(14.7)						
14	420	(14.5)						
15	420	(14.4)						
16	420	(14.0)						
17	420	(13.5)						
18								
19		(12.0)						
20	420	(12.0)						2.6
21	420	11.5						
22	420	10.9						
23	420	10.3						

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

Table 39

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

Time	*	f°F2	h'F1	f°F1	h'E	foE	fEs	F2-M3000 **
00								
01								
02								
03								
04		(6.2)						2.8
05	(360)	(6.5)						
06	(360)	(7.3)						
07	360	9.8						
08	360	12.5						2.9
09	390	13.9						
10	390	(14.9)						
11		(15.0)						
12		(15.2)						
13		(15.3)						
14		(15.3)						
15		(15.3)						
16		(15.3)						
17		(15.3)						
18		(15.1)						
19		(14.9)						
20		(15.1)						
21		(14.8)						
22		(14.7)						
23								

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

Table 40

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

Time	*	f°F2	h'F1	f°F1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	480	10.0						
08	540	12.5						
09	600	13.8						
10	600	13.8						
11	660	13.5						
12	660	13.3						
13	660	13.0						
14	720	13.5						
15	720	13.5						
16	660	13.0						
17	660	13.0						
18	660	12.3						
19	660	12.0						
20		(11.3)						
21		(11.1)						
22		(11.0)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes. Manual operation.
*Height at 0.83 f°F2.

Table 41

Leyte, Philippine Is. (11.0°N, 125.0°E) March 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		11.0					2.0	2.9
01		9.6						2.9
02		8.4						2.9
03		7.7						2.8
04		7.4					2.3	2.8
05		5.8					3.0	2.9
06		8.3				2.1	3.5	2.8
07		11.5				2.9	4.3	2.8
08		13.6				3.6	4.9	2.6
09		14.2				4.1	5.6	2.4
10		13.8					5.6	2.3
11		13.0				4.4	<6.5	2.2
12		12.5				4.4	<6.0	2.2
13		13.2					<7.0	2.2
14		13.4				4.5	5.5	2.2
15		13.6				3.6	5.2	2.2
16		13.6				3.0	4.6	2.1
17		12.8				2.8	4.6	2.1
18		11.7					3.2	2.0
19		10.6						2.0
20		10.8						2.1
21		11.0						2.4
22		11.4					2.0	2.6
23		11.0					2.6	2.8

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

Table 42

Fiji Is. (18.0°S, 178.2°E) March 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	(275)	(12.4)					(2.6)	
01	(250)	D					(2.6)	
02	(240)	(10.1)					(2.6)	
03	(250)	(9.3)					(2.5)	
04	(270)	(9.4)					(2.5)	
05	(270)	(8.9)					(2.5)	
06	(265)	(9.7)					(2.9)	
07	(245)	(11.1)				2.4	(3.7)	
08	220	(12.0)			98	3.2	(5.0)	
09	(210)	D			95	3.7	(4.9)	
10	215	D			98	4.0	(5.0)	
11	(310)	D	210	7.3			(5.3)	
12	(330)	D	210	7.6	100	4.3	(5.0)	
13	(340)	D	215	7.6	100	4.5	(5.3)	
14	(340)	D	230	7.6	105	4.3	(4.9)	
15	(350)	D	230	7.2	105	4.0	(4.0)	
16	(340)	D		7.1	100	3.7	(5.1)	
17	(280)	D				3.1	(5.4)	
18		D					(5.5)	
19		(12.5)					(5.1)	
20	(300)	(12.6)					(5.0)	
21	(290)	(12.0)					(3.1)	
22	(290)	(11.5)					(2.7)	
23	(300)	(11.6)					(2.5)	

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

Table 43

Leyte, Philippine Is. (11.0°N, 125.0°E) February 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.2					2.7	2.9
01		8.0						2.8
02		7.4						2.9
03		6.0						2.9
04		6.5						2.8
05		5.4						3.0
06		7.0					2.8	2.8
07		10.7				2.8	3.5	2.8
08		12.8				3.5	4.6	2.7
09		13.6				3.8	8.0	2.4
10		12.6				4.0	8.7	2.3
11		11.8				4.2	8.6	2.2
12		11.7				4.3	9.6	2.1
13		11.8				4.2	8.2	2.1
14		11.8				4.0	5.1	2.1
15		12.0				3.7	5.2	2.1
16		12.2				3.0	4.6	2.2
17		11.6				2.5	4.0	2.2
18		10.7					3.0	2.1
19		9.2						2.0
20		(9.4)						2.1
21		10.0						2.4
22		8.8						2.7
23		9.4					2.7	2.7

Time: 120.0°E.
Sweep: Lower limit of frequency, 1.6 Mc. Manual operation.

Table 44

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	275	2.7						2.9
01	290	2.6						2.9
02	300	2.6						2.8
03	310	2.4						2.8
04	320	2.4						2.8
05	320	2.5						2.8
06	310	2.3						2.8
07	310	2.4						2.8
08	290	3.1			E	E		2.8
09	250	6.5			E	1.8		3.0
10	240	9.4			120	2.3		3.1
11	240	10.5			120	2.6		3.1
12	240	11.4			120	2.7		3.1
13	240	12.4			130	2.8		3.0
14	240	12.5			130	2.7		3.0
15	230	12.0			130	2.5		3.0
16	220	10.9			130	2.2		3.0
17	230	10.1			E	1.7		3.0
18	220	9.2			E	E		3.1
19	220	7.1						3.1
20	240	5.2						3.1
21	250	3.8						3.0
22	260	3.2						3.0
23	260	2.8						3.0

Time: 120.0°W.
Sweep: Manual operation.

Table 45

Leyte, Philippine Is. (11.0°N, 125.0°E) January 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.5						2.9
01		9.0						2.9
02		7.8						3.0
03		6.5						3.0
04		5.1						3.0
05		4.5						3.0
06		3.9						3.0
07		6.6				2.2	2.4	2.7
08		10.4				2.9	3.7	2.8
09		11.6				3.5	4.7	2.6
10		10.9				3.8	5.0	2.4
11		10.2		5.8		4.0	5.6	2.3
12		10.5					5.4	2.2
13		10.8					5.3	2.2
14		11.2				4.0	5.1	2.2
15		11.7				3.8	<4.7	2.2
16		11.9				3.6	4.4	2.3
17		11.9				3.0	<4.0	2.4
18		11.6				2.2	3.1	2.4
19		11.2					2.1	2.4
20		10.8						2.2
21		9.8						2.3
22		9.8					1.8	2.5
23		9.7					2.0	2.7

Time: 135.0°E.
Sweep: Manual operation. Lower limit of frequency, 1.6 Mc.

Table 46

Fiji Is. (18.0°S, 178.2°E) January 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	265	(11.2)					2.6	
01	270	10.2					2.5	
02	270	9.6					2.5	
03	290	(9.5)					2.4	
04	280	8.6					2.6	
05	270	8.4					2.6	
06	250	8.7				2.0	2.4	
07	(230)	(10.3)				2.6	(5.0)	
08	250	10.7	220	4.8	100	3.4	5.3	
09	285	11.1	200	5.4	100	3.6	5.2	
10	325	12.9	200	6.4	100	3.8	5.2	
11	365	D	200	6.5	100	3.8	5.4	
12	355	D		6.5	100		5.2	
13	(350)	D	215	6.2	100		(5.8)	
14	340	D	200	6.2	100		5.6	
15	350	D	220	6.4	100	3.9	5.4	
16	350	(12.7)	210	6.1	100	3.6	5.2	
17	(360)	(10.2)				3.2	(3.8)	
18	(370)	(11.4)				2.5	(5.0)	
19	(305)						(2.6)	
20	(320)	(10.9)					(2.8)	
21	(300)						(2.6)	
22	280	(11.2)					(2.8)	
23	275	(11.0)					2.6	

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

Table 47

Leyte, Philippine Is. (11.0°N, 125.0°E) December 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		8.7					2.9	2.9
01		8.5					2.4	3.1
02		7.4					2.2	3.1
03		6.7						3.1
04		5.9						3.1
05		5.3						3.1
06		4.6						3.1
07		7.6					2.7	2.9
08		10.9				2.9	3.7	2.9
09		12.9				3.6	5.5	2.8
10		12.8				3.9	7.6	2.5
11		12.0					7.5	2.4
12		11.6					8.6	2.3
13		11.4					8.6	2.2
14		11.3				4.0	9.4	2.2
15		11.6				3.9	8.0	2.3
16		11.8				3.6	5.3	2.3
17		11.8				2.9	4.7	2.3
18		11.2					4.1	2.4
19		10.6					3.3	2.4
20		10.4					2.9	2.3
21		10.4					2.2	2.4
22		10.1					2.8	2.5
23		9.2					2.9	2.7

Time: 135.0°E.
Sweep: Lower limit of frequency, 1.6 Mc. Manual operation.

Table 48

Fiji Is. (18.0°S, 178.2°E) November 1946*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	270	(11.3)						
01	(250)	(10.4)					(2.6)	
02	(250)	(10.4)					(2.3)	
03	(270)	(10.1)					(2.7)	
04	(260)	(9.4)					(2.5)	
05	(245)	(8.6)					(2.4)	
06	(235)	(9.8)				2.0	(2.9)	
07	(220)	(10.6)			90	2.9		
08					95			
09								
10								
11								
12	(340)							
13					95			
14	(320)	D						
15								
16	(300)	D			100	3.4		
17	(320)	D			100		(4.7)	
18	(260)				100			
19	(270)	(12.6)					(3.7)	
20	(280)						(2.7)	
21	(290)						(2.6)	
22	(280)	(12.1)						
23	280							

Time: 180.0°E.
Sweep: Upper limit 13.0 Mc.
*November 1 through 14, only.

Table 49

Bukhta Tikhaya, U.S.S.R. (80.3°N, 52.7°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	6.2						
01	300	5.6						
02								
03								
04	300	4.4						
05								
06								
07								
08								
09								
10	300	7.3						
11								
12	290	6.8						
13								
14	280	6.2						
15								
16								
17								
18								
19	300	7.2						
20								
21								
22	300	7.2						
23								

Time: 60.0°E.
Sweep: 1.5 Mc to 9.5 Mc in 5 to 10 minutes. Manual operation.

Table 50

Leningrad (WETKAS), U.S.S.R. (60.0°N, 30.3°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	330	4.5						
01	360	4.2						
02	350	4.2						
03	360	4.1						
04	360	4.2						
05	360	4.1						
06	300	4.6						
07	260	5.5						
08	250	7.0			(120)			
09	240	8.0			120	2.6		
10	240	8.3			120	2.6		
11	230	8.4			120	2.8		
12	240	8.5			120	2.8		
13	240	9.0			120	2.8		
14	240	8.1			120	2.7		
15	240	8.2			120	2.4		
16	230	8.5						
17	230	8.3						
18	240	8.4						
19	240	7.4						
20	250	6.4						
21	260	5.4						
22	280	5.2						
23	330	4.6						

Time: 30.0°E.
Sweep: Manual operation.

Table 51

Sverdlovsk, U.S.S.R. (56.7°N, 61.1°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	310	4.2						2.5
01	320	4.1						2.5
02	320	4.0						2.5
03	330	3.8						2.5
04	320	3.6						2.4
05	320	3.4						2.5
06	280	4.3						2.7
07	240	6.3			(140)	2.0		3.0
08	240	8.7			140	2.3		3.1
09	230	10.8			130	2.8		3.1
10	230	11.4			120	2.9		3.1
11	230	12.1			120	3.0		3.1
12	230	11.9			120	3.0		3.0
13	230	12.0			120	3.0		3.0
14	230	11.8			120	2.8		3.0
15	240	11.6			130	2.5		3.0
16	240	10.2			130	2.2		3.0
17	240	9.6				(2.0)		3.1
18	240	8.4						3.0
19	250	7.1						2.9
20	250	5.8						2.9
21	270	5.4						2.8
22	280	4.9						2.8
23	290	4.4						2.6

Time: 60.0°E.
Sweep: 1.5 Mc to 14.0 Mc in 5 to 13 minutes. Manual operation.

Table 52

Tomsk, U.S.S.R. (56.5°N, 84.9°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	4.6						
01	300	4.6						
02	320	4.2						
03	300	4.1						
04	300	4.2						
05	280	4.2						
06	270	4.1						
07	250	5.9			100	1.7		
08	240	8.2			100	2.2		
09	(250)	9.9			100	2.7		
10		12.3						
11		13.6						
12		13.7						
13	(240)	13.8			100	2.9		
14	(240)	13.6			100	2.8		
15	(240)	13.4			100	2.7		
16	(250)	12.4			100	2.4		
17	240	10.2			100	2.0		
18	230	9.1				1.5		
19	230	7.8						
20	240	6.8						
21	250	5.8						
22	280	5.2						
23	300	4.8						

Time: 90.0°E.
Sweep: 1.2 Mc to 10.0 Mc in 5 to 10 minutes. Manual operation.

Table 53

Moscow, (Krasnaja Pakhra), U.S.S.R. (55.5°N, 37.3°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	4.2						2.6
01	(320)	3.9						2.6
02	(300)	3.8						2.6
03	(310)	3.7						2.6
04		3.2						2.7
05	(270)	3.4						2.8
06	230	5.2						3.0
07	220	7.4			100	2.4		3.1
08	220	9.0	210		100	2.6		3.2
09	220	10.1	210		100	2.7	3.0	3.2
10	220	11.0	200	4.1	100	3.0	2.8	3.2
11	220	10.8	200		90	3.1		3.1
12	210	11.3	200		90	3.0		3.1
13	210	11.0	210		100	3.0		3.1
14	220	10.7			100	2.8		3.1
15	210	10.5			100	2.5		3.2
16	210	10.0						3.1
17	210	9.4						3.1
18	210	8.2						3.1
19	210	6.8						3.1
20	220	5.9						3.1
21	240	5.0						2.9
22	260	4.5						2.7
23	280	4.2						2.6

Time: 30.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 50 seconds.

Table 54

Alma Ata, U.S.S.R. (43.2°N, 76.9°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	240	5.6						
01	240	5.6						
02	240	5.2						
03	240	5.2						
04	(250)	(5.2)					(5.0)	
05	(240)	(4.8)					4.8	
06	A	A					6.2	
07	A	A					6.4	
08	A	A					7.4	
09	A	A					7.6	
10	A	A					8.3	
11	A	A					8.7	
12	A	A					8.5	
13	A	A					8.5	
14	A	A					8.4	
15	A	A					8.3	
16	A	A					8.1	
17	A	A					8.0	
18	A	A					7.7	
19	A	A					7.0	
20	(200)	(6.6)						
21	(220)	(6.3)						
22	(240)	(6.1)						
23	(250)	(5.8)						

Time: 75.0°E.
Sweep: 2.0 Mc to 14.0 Mc in 10 to 20 minutes. Manual operation.

Table 55

Fiji Is. (18.0°S, 178.2°E) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	245	10.7					2.5	
01	230	9.6					2.5	
02	230	8.8					2.6	
03	250	7.1					2.6	
04	260	7.0					2.5	
05	255	7.1					2.6	
06	230	8.6			100	1.8	2.6	
07	220	10.5			100	2.7	5.5	
08	230	13.0	220	5.0	100	3.2		
09	250	12.7	210	5.0	100	3.6		
10	280	D	200	5.4	100	3.7	5.4	
11	270	D	200	5.8	100	3.8		
12	285	D	190	5.7	100	3.8		
13	310	D	210	6.2	100	3.8		
14	320	D	210	6.4	100	3.7	5.2	
15	300	D	220	6.0	100	3.5	4.9	
16	290	D	225	6.2	100	3.2	3.7	
17	240	D			100	2.6	4.0	
18	250	D			100	1.8	3.0	
19	260	12.6					3.0	
20	270	12.0					2.6	
21	260	11.1					2.5	
22	270	10.9					2.5	
23	260	11.0					2.5	

Time: 180.0°E.
Sweep: Upper Limit 13.0 Mc.

Table 56

Bukhta Tikhaya, U.S.S.R. (80.3°N, 52.7°E) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	250	5.6						
01	230	5.6						
02								
03								
04	260	4.6						
05								
06								
07								
08								
09								
10	250	5.8						
11								
12	250	5.9						
13								
14	250	5.7						
15								
16								
17								
18								
19	250	5.7						
20								
21								
22	250	5.8						
23								

Time: 60.0°E.
Sweep: 1.5 Mc to 9.5 Mc in 5 to 10 minutes. Manual operation.

Table 57

Leningrad (WETKAS), U.S.S.R. (60.0°N, 30.3°E) September 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	4.8						
01	300	4.2						
02	320	4.0						
03	300	4.1						
04	320	4.0						
05	290	4.4						
06	260	4.8			120	2.0		
07	260	5.8			120	2.4		
08	260	6.4	250	4.6	120	2.8		
09	280	6.5	240	4.6	120	3.0		
10	300	7.0	250	4.8	120	3.0	3.0	
11	300	7.4	250	4.8	A	A	3.2	
12	290	7.8	250	4.9	A	A	3.0	
13	280	6.9	250	4.8	A	A	3.0	
14	270	8.4	240	4.8	120	3.0	2.5	
15	260	7.9	250	4.9	120	3.0		
16	250	7.6			120	2.8		
17	250	7.7			120	2.4		
18	250	7.8			120	1.9		
19	250	8.0						
20	250	6.8						
21	250	6.6						
22	260	5.8						
23	270	5.5						

Time: 30.0°E.
Sweep: Manual operation.

Table 58

Sverdlovsk, U.S.S.R. (56.7°N, 61.1°E) September 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	4.3						2.5
01	320	4.3						2.5
02	330	4.1						2.5
03	350	3.8						2.5
04	350	3.7						2.5
05	320	3.9						2.6
06	270	5.2				2.0		2.8
07	260	6.2	250		140	2.4		2.8
08	270	6.9	230	4.4	120	2.8		2.8
09	280	8.0	230	4.6	120	3.0		2.8
10	280	8.2	220	4.7	120	3.2		2.8
11	290	8.4	230	4.8	120	3.4		2.8
12	290	8.8	230	4.8	(110)	3.4		2.9
13	280	8.6	230	4.8	(120)	3.2		2.9
14	260	8.9	230	(4.5)	120	3.2		2.9
15	260	8.6	230		120	3.0		3.0
16	250	8.2	230		130	2.8		2.9
17	250	7.9	(230)		(140)	2.3		3.0
18	250	7.8				(2.0)		3.0
19	260	7.4						2.8
20	270	6.8						2.8
21	280	6.1						2.7
22	300	5.0						2.5
23	320	4.6						2.6

Time: 60.0°E.
Sweep: 1.5 Mc to 14.0 Mc in 5 to 13 minutes. Manual operation.

Table 59

Tomsk, U.S.S.R. (56.5°N, 84.9°E) September 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	4.6						
01	300	4.2						
02	300	4.0						
03	310	4.0						
04	320	3.8						
05	320	3.9						
06	280	4.8			110	1.8		
07	260	5.8			110	2.2		
08	260	6.5	240	3.8	110	2.6		
09	280	7.2	240	4.2	100	2.8		
10	300	7.9	250	4.4	100	3.2		
11	300	8.4	240	4.6	100	3.2		
12	300	8.5	240	4.6				
13	300	8.9						
14	300	9.1	220	4.5				
15	280	9.0	230	4.2	100	3.0		
16	260	8.6	230	4.0	100	2.8		
17	260	8.4		3.8	100	2.5		
18	240	8.0			100	2.2		
19	240	7.6			100	1.6		
20	240	7.0						
21	240	6.3						
22	260	5.5						
23	280	5.0						

Time: 90.0°E.
Sweep: 1.2 Mc to 10.0 Mc in 5 to 10 minutes. Manual operation.

Table 60

Moscow (Krasnaja Pakhra), U.S.S.R. (55.5°N, 37.3°E) September 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	4.6						2.7
01	(290)	4.3						2.7
02	(400)	4.1						2.6
03	(380)	4.0						2.7
04	270	3.6						2.8
05	240	4.3						3.0
06	220	5.7	210	3.6	100	2.4		3.1
07	250	6.6	220	3.8	90	2.6	2.8	3.1
08	260	7.0	210	4.2	90	2.9	3.2	3.1
09	260	7.8	210	4.5	90	3.1	3.4	3.1
10	260	8.6	210	4.5	90	3.3	3.3	3.0
11	260	8.8	210	4.4	90	3.3		3.0
12	270	8.9	200	4.5	90	3.3		3.0
13	260	8.9	200	4.5	90	3.3		3.1
14	260	8.6	210	4.4	90	3.1		3.1
15	230	8.4	210	4.2	90	2.9		3.2
16	230	8.3	230		100	2.6		3.2
17	220	8.1			100	2.3		3.1
18	220	8.3						3.1
19	210	7.9						3.1
20	220	6.8						3.0
21	230	6.0						3.0
22	260	5.3						2.8
23	260	4.9						2.8

Time: 30.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 50 seconds.

Table 61

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		5.3						
01		5.1					2.2	
02		4.8					2.3	
03		4.6					2.3	
04		4.3						
05		4.1						
06		5.7		3.2		1.8	3.5	
07		6.5		3.5		2.4	4.3	
08		7.3		4.5		2.9	5.1	
09		7.9		4.5		3.0	5.2	
10		8.2		4.6		3.3	5.4	
11		8.5		4.6		3.4	5.7	
12		8.5		4.8			5.3	
13		9.0		4.7			5.4	
14		8.9		4.6		3.3	5.2	
15		9.4		4.7		3.1	4.5	
16		9.1		4.5		3.0	4.3	
17		8.7		3.9		2.3	3.5	
18		9.3		3.0			3.3	
19		8.4					3.0	
20		7.3					3.1	
21		6.3					2.4	
22		5.8					2.4	
23		5.5					3.0	

Time: Local.
Sweep: 2.0 to 11.5 Mc, Sept. 1-20, manual operation;
1.4 to 16.6 Mc, Sept. 21-30, automatic operation.

Table 62

Alma Ata, U.S.S.R. (43.2°N, 76.9°E) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	(240)	5.5					5.0	
01	240	5.7					4.6	
02	260	5.6						
03	240	5.1						
04	250	5.3					4.6	
05	240	6.0					5.5	
06	200	6.1			100	2.6	4.1	
07	200	7.0			100	2.8	4.4	
08	200	8.0			A	A	5.8	
09	(200)	8.0			A	A	6.9	
10	200	8.8			A	A	8.4	
11	(200)	9.6			A	A	8.5	
12	(200)	9.2			A	A	8.8	
13	200	9.2			A	A	8.6	
14	A	(8.9)			A	A	7.6	
15	(210)	8.8			A	A	8.0	
16	(240)	8.5			A	A	8.0	
17	(200)	8.1			A	A	8.0	
18	A	A			A	A	7.6	
19	(200)	7.2					5.2	
20	(200)	6.6						
21	(220)	6.3						
22	220	6.0					5.4	
23	240	5.4					5.6	

Time: 75.0°E.
Sweep: 2.0 Mc to 14.0 Mc in 10 to 20 minutes. Manual operation.

Table 63

Fiji Is. (18.0°S, 178.2°E) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	250	8.2					2.4	
01	240	7.4					2.5	
02	230	6.0					2.4	
03	240	5.1					2.5	
04	255	4.8					2.5	
05	265	4.3					2.5	
06	260	5.4				1.3	2.6	
07	230	9.2			100	2.4		
08	240	10.7	210	4.8	100	3.1	3.4	
09	250	11.6	220	5.2	100	3.4	5.0	
10	260	D	200	5.3	100	3.6		
11	270	12.5	200	5.4	100	3.7		
12	270	12.5	200	5.5	100	3.7		
13	300	(13.8)	210	5.8	100	3.7		
14	300	12.7	220	5.8	100	3.7		
15	295	12.5	220	5.5	100	3.5		
16	275	12.4	230	5.4	100	3.1	3.8	
17	240	12.4			100	2.6		
18	250	11.6			100	1.5	2.8	
19	250	10.6					2.9	
20	250	10.0					2.6	
21	250	9.8					2.5	
22	260	8.9					2.5	
23	250	8.0					2.4	

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

Table 64

Fiji Is. (18.0°S, 178.2°E) August 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	230	6.8					2.5	
01	220	5.6						
02	220	5.0						
03	220	4.0						
04	240	3.4						
05	280	3.2						
06	285	3.5						
07	240	6.9			110	1.6		
08	235	10.3	225	4.8	100	2.7		
09	240	11.7	210	5.0	100	3.3		
10	250	12.6	210	5.2	100	3.6		
11	260	12.0	200	5.2	100	3.7		
12	270	10.8	200	5.3	100	3.7		
13	280	10.7	215	5.6	100	3.7		
14	300	10.7	200	5.5	100	3.6	5.6	
15	300	10.9	240	5.4	100	3.4	4.1	
16	280	11.0	230	5.4	100	3.1		
17	250	10.8			100	2.4	5.0	
18	245	11.0				1.7	4.1	
19	230	10.7					3.5	
20	230	9.4					2.8	
21	240	8.6					3.4	
22	240	7.1					2.8	
23	230	6.9					2.5	

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

Form adopted June 1946

TABLE 65

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

IONOSPHERIC DATA

h'F2 (Characteristic), km (Unit), August (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., J. L. S.

Calculated by: M. S. 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	(300)	(360)	N	(350)	(320)	B	400	400	380	400	380	320	230	230	230	270	280	280
2	280	250	(250)^A	280	270	280	250	240	(390)^B	B	B	B	B	B	B	B	B	B	350	300	240	(240)^S	270	280
3	[330]^A	(300)^A	A	A	A	A	(240)^A	C	C	A	A	G	(450)^B	430	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	(430)^C	[460]^C	(500)	(490)	[480]^C S	C	(390)^C	300	260	240	(270)^A	300	300
5	330	280	270	240	250	270	250	240	240	(330)	330	440	380	370	380	400	380	330	280	270	280	270	280	250
6	240	(300)	270	240	260	250	290	300	360	420	410	420	400	430	430	460	390	390	310	310	240	270	280	250
7	[260]^C	290	260	250	240	280	240	250	330	480	500	(380)^B N	470	480	[480]^C	(410)	430	390	(320)	270	250	(270)^S	280	270
8	260	250	280	290	260	280	280	360	G	490	460	B	480	480	480	C	430	410	440	330	300	260	270	290
9	290	270	300	290	280	290	250	270	250	310	430	320	430	[430]^C	440	400	400	370	320	260	(280)	(260)	260	260
10	280	280	300	280	260	270	250	250	A	440	G	B	B	500	490	480	480	420	A	300	270	(300)^A	A	(280)^A
11	280	280	280	280	280	270	270	230	340	C	C	510	500	510	530	520	520	480	380	280	(280)	(300)^A	300	290
12	(340)^S	(340)^S	(330)^S K	350^F K	330^K	(340)^S K	280^F K	(480)^S K	(540)^S K	S^K	610^K	B^K	B^K	B^K	B^K	600^K	C	C	C	C	C	230	(240)	290
13	300	C	C	C	C	C	C	C	C	550^F K	B^K	B^K	B^K	B^K	C^K	C^K	550^K	500^K	440^K	270^K	280^K	290^K	300^K	300^K
14	270	C	C	C	(270)	(340)	C	C	520	C	C	(590)^A	B	B	C	C	C	C	C	290	C	270	270	270
15	280	270	270	270	260	280^K	250^K	C^K	550^K	C^K	C^K	C^K	B^K	B^K	B^K	B^K	500^K	390^K	300^K	B^K	300^K	300^K	300^K	370^K
16	(420)^F K	(410)^F K	430^K	420^K	390^K	330^K	270^K	G^K	G^K	C^K	C^K	(570)^K	C^K	C^K	C^K	C^K	C^K	450^K	C^K	270^K	250^K	240^K	300^K	320^K
17	300^K	330^K	330^F K	400^K	410^K	410^K	600^K	B^K	B^K	B^K	B^K	B^K	B^K	B^K	B^K	B^K	G^K	C^K	380^K	C^K	250^K	290^K	290^K	340^K
18	290^K	(340)^K	450	330^K	300^K	320^K	C^K	(350)^K	G^K	C^K	C^K	G^K	G^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K
19	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	G^K	(500)^K	C^K	G^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	250^K	(280)^C K	C^K
20	C^K	C^K	C^K	C^K	C^K	C^K	250^K	(340)^K	G^K	G^K	G^K	G^K	G^K	700^K	G^K	B^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K
21	C^K	C^K	C^K	C^K	C^K	C^K	C^K	C^K	680^K	510^K	G^K	(520)^K	440^K	(440)^K	400^K	(310)^K	350^K	290	290	230	240	(280)^F	(290)^A	(270)^A
22	240	270	(370)^A K	(280)^C K	C^K	C^K	310^K	G^K	G^K	G^K	C^K	C^K	G^K	G^K	G^K	G^K	G^K	(430)^K	(330)^A K	290^K	310^K	310^K	300^K	340^K
23	350^K	340^K	C^K	330^F K	300^K	230^K	210	290	260	180	300	C	300	290	330	270	(250)	(250)	230	230	220	230	240	240
24	250	C	280	270	300	250	230	(250)	C	(250)	300	280	300	300	330	(380)	300	230	220^F	230	220	230	250	250
25	250	250	250	250	260	270	250	220	350	290	300	(340)	320	330	320	320	290	250	240	220	230	220	240	260
26	C	C	C	C	280	(310)	260	(270)	(260)	(260)	290	300	(330)	[330]^C	330	330	240	240	240	250	230	250	(270)	(280)^S
27	280	240	250	260	280	280	270	270	270	280	[290]^C	300	290	290	320	230	(280)	230	240	C	C	(230)^C	(240)^C	240
28	C	C	C	C	C	C	(230)^C	C	C	210	350	280	350	320	330	300	320	C	C	C	C	260	260	(280)^S
29	(290)^S	(290)^S	(290)^S	270	270	(290)^S	270	270	(280)	240	240	330	370	300	(290)	290	240	(240)	250	240	(250)	(260)	(280)	270
30	280	290	280	280	290	280	250	250	240	230	290	290	C	C	300	300	230	240	250	250	250	250	250	270
31	280	280	260	C	280	290	250	240	C	C	270	320	340	340	390	350	(340)	230	250	250	240	250	(270)	270
Median	280	280	280	280	280	280	250	270	360	340	340	400	415	430	390	390	380	350	295	265	250	260	280	280
Count	24	21	20	20	22	22	25	22	21	20	20	20	22	21	21	20	22	22	22	22	23	28	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 66

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

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), August (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., J. L. S.

Calculated by: E. J. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	5.8	6.8	(7.0)	8.3	8.6	B	(8.0)J	(8.4)	(7.7)	7.8	8.2	8.8	(8.4)	(8.0)S	7.6	(7.6)J	(7.8)S	(7.2)JS
2	(6.8)J	6.5	(5.8)S	(5.0)	4.9	4.7	5.0	(5.8)B	(6.1)B	B	B	B	B	B	B	B	(7.2)B	(7.0)B	(7.5)J	7.2	(7.2)S	(7.0)JS	(6.5)S	(6.2)S
3	[5.7]A	(5.3)S	(5.1)S	(5.0)JS	(4.1)A	(4.7)A	5.6	C	C	(6.9)JA	6.9	G	(7.2)S	(7.4)S	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	(7.0)C	[6.8]C	(6.5)	(6.6)	[6.8]C	[6.8]C	(6.9)C	(6.8)J	6.9	(6.8)	(7.0)C	(6.5)JS	(6.7)JC
5	(6.8)J	(6.6)J	(6.2)J	(5.6)	4.8	4.8	(5.6)	(6.5)J	7.0	(7.6)	(8.0)JS	8.0	8.4	8.2	(8.3)	(8.3)	8.1	7.8	7.6	7.6	7.8	(7.5)S	(7.6)S	(7.6)
6	6.9	6.0	6.7	6.0	5.6	(5.5)C	(6.2)	6.9	7.7	7.4	(7.6)	(7.8)	(7.7)	(7.6)S	7.9	7.9	7.5	(7.7)JS	7.4	7.4	(7.5)S	(7.4)S	(7.2)JS	(6.7)JS
7	[6.3]C	6.3	6.4	(6.4)J	5.4	5.0	(6.2)JS	(6.9)SJ	7.3	7.4	(7.2)SB	(7.5)N	7.5	7.2	[6.8]C	7.4	7.3	7.4	7.2	7.0	6.9	7.1	(7.0)S	7.2
8	(6.8)	6.1	[5.9]C	(6.0)J	[5.5]C	5.1	5.9	(6.3)J	G	(6.4)J	7.0	(7.0)	7.4	7.4	7.1	(7.0)J	7.0	6.8	7.0	7.0	7.0	7.0	7.0	6.6
9	6.8	6.3	6.0	6.2	5.8	5.7	6.3	7.2	7.8	8.1	(8.1)J	8.7	8.8	8.9	8.8	8.6	8.4	8.0	8.1	7.9	7.7	7.8	7.2	7.2
10	6.9	(6.6)	6.2	6.6	(6.2)	5.5	(6.4)J	6.8	A	7.3	(7.1)	7.4	(7.5)B	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.2	7.1	(6.5)J	(6.0)J
11	(5.8)	(5.7)J	(5.2)	(5.3)	5.3	5.4	6.8	7.3	7.5	7.6	[7.5]C	7.4	7.5	(7.2)	7.0	7.2	6.8	6.8	7.0	7.1	7.2	(7.4)J	(6.8)	[6.1]SJ
12	5.8	(5.4)S	N K	(4.1)FZ	4.0 FK	(4.6)FK	5.6 K	5.7 FK	(6.0)SK	S K	(6.0)K	B K	B K	B K	(6.4)K	6.4 K	C	C	C	C	C	7.0	(7.0)J	(6.6)J
13	(6.2)J	(5.7)F	5.4 F	C	C	C	5.4	(5.1)JS	(5.7)	(6.0)K	B K	B K	B K	B K	C K	C K	6.2 K	6.4 K	(6.4)JS	6.8 K	(6.6)JK	(6.9)JK	(6.4)JK	6.6 K
14	6.8	C	C	C	4.8	4.5	C	C	(6.0)C	(5.9)	C	(6.3)C	B	B	C	C	C	C	C	(6.2)	C	6.7	(5.4)C	(5.8)
15	(5.5)	5.4	5.3	5.3	5.0	4.9 K	5.7 K	5.8 K	5.8 K	C K	C K	C K	B K	B K	B K	B K	(7.6)K	7.0 K	B K	B K	(7.9)K	C K	C K	R K
16	(3.4)RK	(3.3)RK	F K	F K	(3.2)RK	3.2 K	4.4 K	G K	G K	C K	C K	B K	C K	C K	C K	C K	C K	(6.0)JK	C K	C K	C K	(5.8)CK	C K	(6.2)JK
17	6.0 K	(5.8)C	4.6 ZK	3.6 K	N SK	(3.1)FK	4.1 K	B K	B K	B K	B K	B K	B K	B K	B K	B K	G K	C K	6.0 K	C K	5.5 K	(4.4)JS	(4.2)SK	(3.6)K
18	(3.4)K	(3.1)FK	(2.1)SK	F K	(2.2)FK	3.2 K	(4.3)CK	4.8 K	G K	C K	C K	G K	G K	C K	C K	C K	C K	(5.8)CK	(6.0)CK	(6.2)CK	(5.8)CK	C K	C K	C K
19	(5.8)CK	(5.8)CK	C K	C K	C K	(3.6)K	(4.9)CK	(5.0)CK	(5.6)CK	G K	(6.0)CK	(6.3)CK	G K	(6.8)JK	(6.9)CK	(7.3)CK	(6.9)K	6.8 K	(6.4)JK	C K	C K	C K	(6.0)CK	(6.2)JK
20	(3.4)CK	(5.1)JK	3.6 FK	(2.6)FK	(2.6)CK	(2.9)JK	(4.5)K	(5.6)SK	(5.0)K	G K	G K	G K	G K	(5.6)CK	G K	B K	C K	C K	C K	(5.8)K	C K	C K	C K	(5.2)K
21	(5.0)CK	(5.5)K	C K	C K	(3.9)K	(4.1)K	C K	C K	5.0 K	5.6 K	G K	6.2 K	7.0 K	7.0 K	(7.6)K	7.2 K	7.6 K	7.5	(7.4)J	7.2	(7.0)J	(6.2)J	(6.1)J	(6.0)J
22	(5.4)J	5.0	4.4 K	(4.4)CK	C K	C K	2.9 FK	G K	G K	G K	C K	C K	G K	G K	G K	G K	G K	(5.2)JK	(5.0)K	4.7 K	4.4 K	(4.4)K	(4.7)JK	N K
23	N K	N K	2.3 FK	1.9 FK	2.0 FK	4.8 K	(6.0)C	7.0	8.0	7.8	7.8	C	9.5	9.4	(9.2)	9.2	8.9	(9.5)	(9.5)	(9.2)	(8.4)	7.9	(7.2)J	(7.0)J
24	(6.4)J	C	(6.0)	(5.0)	(4.7)F	4.0 ZF	4.8 F	5.4 F	C	7.8 F	8.2	(8.6)	8.6	9.2	8.8	8.6	9.0	9.2	9.2	(9.2)	8.6	(8.0)	(6.9)C	(6.3)
25	(5.8)	(6.0)J	(5.4)	(4.7)C	(3.1)F	F	4.7	5.7	(6.6)J	7.7	8.3U	8.1	8.6	8.7	8.9	8.6	9.5	(8.8)	(9.4)	9.7	8.5	(7.8)	7.0	(6.7)
26	C	C	C	C	C	(4.1)	(5.8)	(7.9)J	(8.2)F	8.6	9.2	9.2	9.5	9.5	9.2	(9.0)C	9.1	9.3	9.4	(9.0)S	(7.9)J	(7.1)JS	(6.8)	6.8
27	7.0	6.9	6.0	5.3	4.9	(4.0)F	5.5	(7.9)U	8.8	8.4	8.7	(9.1)	(9.5)	(9.6)S	9.8	(9.6)	(9.4)	9.3	9.2	C	C	(7.0)C	(7.0)JC	(6.7)JC
28	(6.2)JC	C	C	C	C	C	(4.9)C	C	6.6	7.9	8.7	9.0	9.4	9.5	9.3	9.7	9.6	C	C	C	C	8.2	(7.7)S	(7.0)JS
29	6.8	(6.8)	(6.1)J	6.0	5.4	(5.1)J	5.7	(6.7)JS	7.8	8.8	9.1	10.0	(10.1)	10.4	10.2	(9.8)	(9.6)	(9.3)	9.3	9.0	8.2	7.9	(7.1)J	(6.1)J
30	(6.2)	6.0	5.6	5.4	5.1	4.9	5.7	7.0	7.6	8.9	(9.5)J	10.0	C	C	(9.7)J	(9.5)	9.4	9.3	9.1	8.5	8.9	8.0	7.6	(7.2)J
31	(7.0)	7.1	(6.8)	C	(5.6)	(5.6)	6.8	8.4	[9.7]C	[9.8]C	(9.8)	(9.8)	(10.6)	10.4	10.4	(10.4)J	(9.8)	10.2	(9.8)C	(9.2)	8.8	8.0	(7.3)	(6.4)J
Median	(6.2)	(5.9)	5.7	(5.3)	4.9	4.7	5.6	6.5	6.6	7.6	7.9	(7.6)	7.7	7.9	7.9	8.1	7.6	7.5	7.4	7.2	7.5	(7.1)	(7.0)	(6.6)
Count	27	24	22	20	23	25	28	25	26	24	22	22	23	22	23	22	25	25	24	23	23	26	26	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1949 O - 103319

Form adopted June 1946

TABLE 67

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

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), August (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., J.L.S.

Calculated by: M.S.L.

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	C	C	C	C	C	C	C	C	(8.0)	8.4	C	7.8	8.4	8.0	(7.9)	(8.2)J	(8.2)J	8.0	(8.4)	7.8	(7.6)	(7.6)S	(7.4)S	(6.6)
2	(6.6)	6.2	(5.4)S	4.9	(4.8)	4.8	5.4	(6.1)B	B	B	B	B	B	B	(7.5)C	(7.3)JB	[7.1]B	(7.0)JB	7.2	(7.2)JS	7.2S	(6.8)JS	(6.5)S	(5.8)A
3	(5.4)S	(5.3)S	(5.0)S	(4.7)A	(4.2)S	5.1	(5.8)S	C	(6.9)	(7.0)	(6.8)	(6.9)	7.5	C	C	C	C	C	C	C	(8.6)JC	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	6.9	6.6	(6.8)JS	(6.8)JC	(6.9)J	(6.7)JC	(6.6)S	6.9	(6.5)SC	(6.6)JC	(6.8)J
5	(7.0)JC	(6.4)J	(6.1)J	5.2	4.8	(5.1)	(5.9)	(7.0)J	7.2	7.8	7.8	8.2	(8.3)	8.2	8.4	8.2	8.0	7.8	7.6	8.0	7.7	7.6	7.6	(7.4)S
6	(6.8)	6.7	(6.3)J	5.8	5.6	(5.6)C	(6.2)J	(6.7)	(7.2)J	(7.6)	(7.5)	(7.8)	(7.5)J	(7.7)C	7.6	7.8	7.6	(7.7)JS	7.7	7.4	(7.2)SJ	[7.2]JC	6.9	(6.8)JS
7	(6.4)SJ	6.6	6.4	(6.0)JS	4.9	5.5	(6.5)JS	7.1	7.1	(7.3)SB	(7.5)	7.4	7.4	7.4	[7.1]C	7.2	7.4	7.2	7.0	7.0	7.0	(7.0)S	(7.2)	7.2
8	(6.6)J	(6.1)J	(5.6)J	[5.9]S	(5.2)	5.6	6.1	[6.4]C	(6.6)J	6.8	(7.2)	7.1	(7.4)	(7.1)	7.0	7.0	6.9	6.9	7.1	7.1	7.2	7.0	6.7	6.9
9	6.8	6.3	6.2	6.0	(5.7)J	5.8	7.1	6.9	(8.0)J	(8.0)	8.4	8.7	8.9	8.8	8.6	8.5	8.4	8.0	8.0	7.6	7.8	(7.4)	[7.2]S	7.0
10	6.9	(6.2)J	(6.6)J	6.7	5.7	5.9	6.6	7.1	7.1	(6.9)C	7.5	(7.4)B	7.5	7.2	7.2	(7.2)	7.1	7.1	7.1	7.1	7.4	(7.0)	(6.0)	(6.2)J
11	(5.5)C	5.6	(5.3)	5.3	5.2	6.1	7.3	7.3	[7.5]C	[7.5]C	7.5	7.4	7.6	(7.0)B	7.2	7.1	7.0	6.9	7.2	(7.0)J	(7.2)S	(7.4)S	(6.8)J	6.0
12	(5.7)S	(5.6)J	(4.0)FK	(4.0)FK	(4.3)FK	5.2FK	(5.7)FK	(6.0)SK	(5.9)SK	CK	BK	BK	BK	BK	BK	BK	C	C	C	C	(7.0)	(7.0)J	(6.6)J	6.6
13	(5.6)F	(5.6)F	(5.0)F	C	C	(4.8)F	5.5F	C	(5.9)FK	BK	CK	BK	BK	(6.6)K	CK	CK	(6.5)SK	(6.3)SK	6.6K	6.6K	(6.1)FK	(6.1)FK	(6.6)JC	6.7K
14	C	C	C	C	4.8	(4.7)C	C	C	C	(5.5)	C	B	B	B	C	C	C	C	A	C	C	C	C	(5.0)J
15	5.2	5.4	[5.3]C	[5.2]C	[5.0]C	5.4K	[5.8]CK	[5.8]CK	CK	CK	CK	CK	BK	BK	BK	BK	(6.0)K	7.0K	RK	BCK	(7.1)JK	CK	(5.6)K	RK
16	(3.4)RK	(3.1)RK	FCK	CK	CK	(4.2)UK	4.6K	GK	GK	CK	CK	CK	CK	CK	CK	BK	CK	(5.9)CK	CK	CK	CK	CK	CK	5.9K
17	5.9K	(5.0)JK	3.8ZK	(3.5)ZK	(2.5)FK	3.7FK	4.8K	BK	BK	BK	BK	BK	BK	BK	BK	(5.8)BK	(5.7)CK	CK	CK	(5.8)K	(5.1)K	4.4K	(3.7)K	(3.6)K
18	(3.3)FK	FK	(2.6)CK	(2.3)FK	2.5K	3.9K	4.6K	5.0K	CK	CK	CK	CK	CK	CK	CK	CK	(5.7)CK	(5.6)CK	CK	CK	(5.7)CK	(5.7)CK	(5.6)CK	(5.8)CK
19	(6.0)CK	CK	(5.9)CK	(4.5)CK	(3.6)CK	(3.7)CK	(6.4)CK	GK	CK	CK	CK	(6.0)CK	CK	CK	CK	7.0K	(6.8)JK	(6.8)JK	CK	(6.6)JK	(6.5)JK	(5.9)CK	CK	(6.2)JK
20	NCK	3.8FK	3.6FK	(2.6)K	(2.7)UK	3.8FK	K(5.0)JU	CK	GK	CK	5.2K	(5.5)K	(5.5)K	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	(5.0)K
21	CK	CK	CK	CK	CK	(4.0)K	CK	CK	GK	(5.7)K	6.1K	(6.9)JK	7.2K	7.3K	7.4K	7.0K	7.5K	(7.4)	7.3	(7.0)J	(6.7)J	(6.2)	(6.2)	(5.6)J
22	(5.1)	(4.6)	(4.3)CK	CK	CK	CK	3.4FK	CK	GK	GK	CK	CK	GK	GK	5.4K	GK	(5.1)K	(5.2)K	4.6K	(4.4)CK	(4.3)JK	CK	(4.2)JK	CK
23	FK	FK	(2.2)FK	2.0FK	3.9FK	5.3K	6.5	7.4U	8.0	7.8	C	C	9.7	8.7	9.0	9.2	9.4	(9.6)	(9.0)	(9.2)	(8.4)	(7.6)J	7.2	(6.6)J
24	C	C	(5.5)J	(4.6)F	(4.9)F	3.7F	(5.3)	7.0	(7.0)	7.8	8.6	8.6	9.0	9.1	8.6	8.7	9.0	9.2	9.5	[9.0]C	8.0	(7.0)J	(6.8)J	(6.1)J
25	(6.0)	(5.8)J	(5.3)F	N	(3.0)F	4.0F	5.6	(6.2)	6.8	8.2	(8.4)	(8.4)J	8.6	9.0	(8.7)	9.2	(9.4)S	(9.2)	(9.5)	8.4	(8.0)	(7.1)J	(6.8)J	(6.7)J
26	C	C	C	C	(4.8)JC	4.5F	(7.2)	[8.0]C	[8.2]C	(8.3)	(9.2)	9.1	9.7	9.4	9.1	9.1	(9.2)	9.5	(9.3)	(7.8)S	(7.1)JS	(7.1)J	6.9	6.8
27	(7.2)JS	6.7	5.7	5.2	(4.2)F	(4.6)	(7.6)M	(7.7)JC	(8.7)J	9.4	8.9	9.0	(9.5)S	9.6	(9.6)	(9.6)	(9.4)	(9.3)	9.2	C	C	(6.8)C	C	C
28	C	C	C	C	C	C	C	C	C	8.3	8.9	9.2	9.4	9.7	(9.4)	(9.7)J	(9.5)S	C	C	C	8.2	(7.7)S	(7.0)S	(6.8)JS
29	(6.8)	(6.7)J	(6.2)	(6.0)J	5.2	5.1	(6.2)JS	7.1	8.4	9.0	9.5	(10.1)	10.1	10.5	10.1	(9.7)	(9.4)	9.4	9.3	8.5	8.0	7.7	7.2	6.0
30	6.2	5.7	5.6	5.2	5.0	4.9	6.4	7.1	8.4	9.2	9.6	(10.0)C	C	(10.2)	9.8	9.4	9.3	9.1	9.1	9.0	8.1	8.0	(7.4)J	(6.9)C
31	7.0	7.0	C	C	(5.5)	(5.5)	7.3	9.0	C	10.0	10.0	(10.8)	10.4	10.2	(10.0)	(10.0)	10.2	(10.0)C	(9.7)C	(8.8)	(8.4)J	(7.6)J	(6.8)J	(6.4)J
Median	(6.1)	(5.8)	(5.4)	(5.2)	(4.8)	4.9	5.8	7.0	(7.1)	7.8	8.1	8.0	8.4	8.2	8.4	8.2	(7.6)	(7.4)	7.7	7.3	(7.2)	(7.0)	(6.8)	(6.6)
Count	22	21	23	20	24	27	26	21	22	21	18	20	20	21	21	23	26	25	21	22	27	25	25	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 68

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

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), km (Unit), August (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., J.L.S.

Calculated by: M.S.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								(250)	220	C	(210)^{H}	B	200	200	200	220	(220)^{S}	220	Q					
2								Q	230	B	B	B	B	B	B	B	B	B	250	(240)^{A}				
3								C	C	A	A	190	200^{H}	200	C	C	C	C	C					
4								C	C	C	C	(200)^{C}	C	200	220	[210]^{C}	[200]^{C}	(210)$^{H}_{C}$	210					
5									Q	200	200	210	200	(230)^{H}	190	210	220	230	220					
6							240	220	220	220	200	200	200	210	200	210	230	230	220					
7								Q	240	210	210	200	200	220	[220]^{C}	200^{H}	220^{H}	220	220					
8							240	220	220	200	220	B	210	220	200	220	220	220	200					
9								220	A	190^{H}	210	210	210	230	C	A	(240)^{A}	220	230					
10						220	Q	Q	A	(200)	190^{H}	B	B	(210)	A	230	A	(230)^{A}	A					
11								Q	200	210	C	B	230	210	210	230	230	220	240					
12							260$^{F}_{K}$	260^{K}	230^{K}	200^{K}	230^{K}	(240)^{K}	220^{K}	210^{K}	220^{K}	220^{K}	C	C	C					
13							C	C	C	200^{K}	210^{K}	(200)^{K}	(220)$^{B}_{K}$	(210)^{K}	C^{K}	C^{K}	200^{K}	190^{K}	240^{K}					
14								C	190	C	C	180^{A}	B	B	C	C	C	C	C					
15								230^{K}	(230)^{K}	C^{K}	C^{K}	C^{K}	B^{K}	B^{K}	B^{K}	230^{K}	220^{K}	240^{K}						
16								250^{K}	240^{K}	C^{K}	C^{K}	B^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	230^{K}	260^{K}					
17							300^{K}	250^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	240^{K}	B^{K}	240^{K}	C^{K}	260^{K}					
18								230^{K}	230^{K}	C^{K}	C^{K}	(230)$^{C}_{K}$	230^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}					
19							C^{K}	C^{K}	C^{K}	C^{K}	(190)$^{C}_{K}$	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	Q^{K}					
20								220^{K}	200^{K}	(200)$^{C}_{K}$	(190)$^{C}_{K}$	(170)$^{C}_{K}$	(200)$^{C}_{K}$	(230)^{K}	(210)^{K}	B^{K}	C^{K}	C^{K}	C^{K}					
21								C^{K}	240^{K}	200^{K}	220^{K}	220^{K}	230^{K}	(230)$^{A}_{K}$	(200)$^{A}_{K}$	200^{K}	210^{K}	210	240					
22								(220)$^{C}_{K}$	180$^{F}_{K}$	200^{K}	190^{K}	180^{K}	230^{K}	230^{K}	210^{K}	C^{K}	220^{K}	220^{K}	A^{K}					
23								200	200	Q	180	C	(230)^{B}	210	200	200	200	200	Q					
24								220	C	B	190	190	190	200	190	220	220	Q						
25								Q	190	180	190	190	200	190	200	200	210	210	Q					
26								240	230	210	200	190	200	[210]^{C}	220	230	Q							
27								240	220	200	[210]^{C}	230	B	(210)^{B}	220	Q	240	Q						
28								C	C	Q	190	200	220	210	200	210	220	C	C					
29								230	220	210	210	210	(210)^{B}	210	210	220	210	(220)	Q					
30										Q	220	220	C	C	220	210	Q							
31									Q	C	200	200	220	220	220	220	220	Q						
Median								230	220	200	200	200	210	210	210	220	220	220	235					
Count								16	19	16	22	21	21	23	21	19	20	17	12					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 69

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

IONOSPHERIC DATA

f°F1 (Characteristic), Mc (Unit), August (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., J.L.S.

Calculated by: M.S.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								L	N	(5.4)	5.6^{H}	B	5.6	(5.4)	$[5.4]^{H}$	5.7	L	L	Q					
2								Q	$(4.8)^{B}$	B	B	B	B	B	B	B	B	B	$(4.8)^{B}$	L				
3								C	C	A	A	(5.1)	$(5.4)^{D}_{H}$	(5.6)	C	C	C	C	C					
4								C	C	C	C	$(5.4)^{C}$	C	(5.4)	5.4	$[5.3]^{C}$	$[5.2]^{C}$	$(5.0)^{C}$	(3.4)					
5								Q	Q	5.4	(5.5)	$[5.8]^{L}$	5.8	5.6^{H}	(5.5)	$(5.4)^{H}$	(5.2)	L	L					
6							L	L	(5.2)	5.6	(5.6)	$(5.8)^{H}$	$(5.9)^{H}$	$(5.8)^{H}$	$(5.7)^{H}$	5.8^{S}	5.5	L	L					
7								Q	5.0	(5.7)	B	$(5.7)^{B}$	5.7	5.8	$[5.0]^{C}$	5.2^{H}	5.4^{H}	L	L					
8							L	4.9	5.7	5.5	5.6	B	(5.8)	(5.8)	5.6	5.5	5.2	4.8	L					
9								L	Q	$(5.5)^{H}$	6.0	(5.7)	5.8	C	C	A	(5.7)	L	L					
10						1.6	Q	Q	A	5.6	$(5.8)^{H}$	B	B	(5.7)	5.7	5.5	5.4	4.9	A					
11								Q	L	5.6	C	B	B	B	5.5	5.5	5.3	5.0^{F}	L					
12							L^{F}_{K}	4.7^{F}_{K}	5.0^{K}	5.2^{K}	5.5^{K}	5.5^{K}	5.5^{K}	5.5^{K}	5.6^{K}	5.5^{K}	C	C	C					
13							L	L	L	5.0^{K}	5.3^{K}	5.5^{K}	$(5.5)^{B}_{K}$	5.6^{K}	C^{K}	C^{K}	4.9^{F}_{K}	5.0^{K}	4.2^{K}					
14								C	C	5.3	C	5.5	5.5	5.6	C	C	C	C	C					
15								4.4^{K}	4.3^{K}	C^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	$(5.3)^{B}_{K}$	5.1^{K}	4.6^{K}						
16								4.4^{K}	5.0^{K}	C^{K}	C^{K}	$(5.5)^{B}_{K}$	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	$(4.5)^{C}_{K}$	$(4.0)^{C}_{K}$					
17							3.7^{K}	$(4.2)^{B}_{K}$	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	$(5.2)^{K}$	B^{K}	4.8^{K}	C^{K}	L^{K}					
18								$(4.2)^{K}$	$(4.7)^{K}$	C^{K}	C^{K}	$(5.0)^{C}_{K}$	5.2^{K}	C^{K}	C^{K}	C^{K}	C^{K}	$(4.4)^{C}_{K}$	L^{K}					
19							L^{K}	$(4.4)^{C}_{K}$	$(4.8)^{C}_{K}$	$(4.8)^{C}_{K}$	$(5.0)^{C}_{K}$	$(5.0)^{C}_{K}$	$(5.2)^{C}_{K}$	$(5.2)^{K}$	$(5.2)^{S}_{K}$	C^{K}	L^{K}	L^{K}	Q^{K}					
20								L^{K}	4.8^{U}_{K}	5.0^{K}	$(5.2)^{K}$	$(5.2)^{C}_{K}$	$(5.0)^{C}_{K}$	$(5.2)^{C}_{K}$	5.0^{K}	B^{K}	C^{K}	C^{K}	C^{K}					
21								C^{K}	4.7	5.0^{K}	5.0^{K}	5.6^{K}	(5.5)	$(5.5)^{K}$	$(5.2)^{H}_{K}$	$(5.1)^{H}$	5.1^{K}	L	L					
22								3.8^{F}_{K}	$(4.2)^{F}_{K}$	$(4.6)^{F}_{K}$	C^{K}	C	4.6	4.7^{K}	4.6^{K}	4.7^{F}_{K}	4.4^{K}	$(4.0)^{S}_{K}$	A^{K}					
23								L	L	Q	L	C	L	L	L	L	L	L	Q					
24								L	C	B	L	L	L	L	L	L	L	Q						
25								Q	L	L	L	L	L	L	L	L	L	L	Q					
26								L	L	L	L	L	L	L	L	L	Q							
27								L	L	L	L	L	B	L	L	Q	L	Q						
28								C	C	Q	L	L	L	L	L	L	L	C	C					
29								L	L	L	L	L	L	L	L	L	L	L	Q					
30										Q	L	L	C	C	L^{H}	L	Q							
31									Q	C	L	L	L	L	6.3	L	L	Q						
Median								4.4	4.8	5.4	5.5	(5.5)	5.5	(5.6)	5.4	5.4	5.2	4.8						
Count								8	12	15	11	14	15	15	15	12	13	9						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 7[illegible]

TABLE 70

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

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), km (Unit), August (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., J. L. S.

Calculated by: M. S. 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	B	90	100	100	90	90	90	90	110				
2						S	100	100	100	B	B	B	B	B	B	B	B	B	100B	100	100			
3							A	C	C	100	A	100	100	100	100	100	100	100	100F					
4							C	C	C	C	C	100	C	100	100	[100]C	C	100	100	S				
5							110	100	90	100	100	100	90	100	100	100	100	90	90	100				
6							100	100	100	100	100	100	100	100	100	100	100	100	110					
7							(100)S	100	100	100	100	100	100	90	C	90	90	90	90F	S				
8							110	100	100	100	100	B	100	90	100	100	100	100	100					
9							100	100	100	100	90	90	90	100	100	100	100	100	100	100				
10							90	100	100	100	100	100	100	100	100	100	100	100	100					
11							110	100	100	C	C	100	100	100	100	100	100	100	100	100				
12							(110)SK	(100)SK	100K	100K	100K	100K	100K	100K	100K	100K	C	C	C					
13							C	C	C	90K	100K	100K	100K	100K	CK	CK	100K	100K	100K					
14							C	C	100	C	C	100	100	(100)B	C	C	C	C	C					
15							90K	100K	100K	CK	CK	CK	(100)B	(100)BK	(100)BK	90K	90K	90K	110K	130K				
16							110K	110K	110K	CK	CK	BK	CK	CK	CK	CK	CK	100K	100K	100K				
17							120K	BK	BK	BK	110K	110K	BK	BK	110K	110K	110K	CK	110K					
18							CK	100K	120K	CK	CK	100K	100K	CK	CK	CK	CK	CK	CK					
19							CK	CK	CK	CK	90K	CK	CK	CK	CK	CK	CK	CK	CK					
20							100K	100K	90K	(90)CK	(100)CK	(90)CK	(80)CK	90K	100K	BK	CK	CK	CK					
21							CK	CK	90K	90K	100K	120K	90K	90K	90K	90K	90K	100						
22								(90)K	100K	100K	100K	100K	100K	90K	100K	CK	90K	100K	100K	100K				
23							100	90	100	100	90	C	B	90	90	90	90	100	100					
24								100	C	B	90	90	100	100	100	100	100	100	100					
25							100S	100	100	100	100	90	90	100	90	100	100	100	100					
26							S	(110)	110	100	100	100	110	[100]C	100	110	130	100	(100)S					
27							(100)S	100	100	90	C	100	100	100	100	100	110	110	110					
28							C	C	C	100	100	100	100	100	100	100	110	C	C					
29							(110)S	100	100	100	100	100	100	100	100	100	110	100	(100)					
30							(100)C	100	100	100	100	100	C	C	100	100	90	90						
31						110	100	100	[100]C	C	100	100	100	100	100	100	100	100	100					
Median							100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Count							19	22	23	19	21	24	24	25	24	23	23	23	23	8				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 71

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

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), August (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., J.L.S.

Calculated by: M.S.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	B	(4.0)	A	(4.0)	(3.6)	(3.5)	3.3	2.8	(1.8)						
2						$(1.7)^S$	(2.5)	2.9	$(3.9)^F$	B	B	B	B	B	B	B	B	B	$(3.2)^B$	$(2.8)^B$	1.7^F					
3							A	C	C	$(3.1)^A$	A	A	A	$(4.1)^F$	$(4.0)^F$	$(3.9)^F$	$(3.8)^F$	$(3.2)^F$	$(3.0)^F$							
4							C	C	C	C	C	$(4.0)^C$	C	(4.0)	(3.8)	$[3.8]^C$	C	$(3.3)^C$	2.7	1.8						
5							2.1	3.0	3.3	3.7	3.8	A	A	(4.0)	(4.0)	A	(3.7)	3.3	2.8	1.7						
6							2.3	3.1	A	3.9^F	4.0	4.1	(4.2)	(4.3)	4.3	(4.1)	3.8	$(3.2)^F$	$(3.6)^S$							
7							2.4	3.1	3.8	3.7	$(3.8)^B$	$(4.3)^B$	A	A	C	(3.9)	3.8	3.4^F	3.0^F	(1.9)						
8							$(2.1)^S$	2.9	3.7	3.8	4.1	B	4.5	4.4	(4.2)	CS	$(3.7)^C$	3.3	2.8							
9							A	A	A	A	$(3.8)^J$	(4.3)	(4.4)	(4.5)	4.4	4.1	3.8	3.4	A	A						
10							1.8	$(2.9)^A$	3.1	A	$(3.7)^A$	A	(4.4)	(4.8)	4.3	4.3	3.9	3.5	2.8							
11							(2.1)	2.8	3.1	C	C	B	$(4.1)^B$	$(3.8)^B$	$(3.8)^B$	$(3.6)^B$	3.4	3.2	2.9	1.8						
12							$(2.2)^S_K$	$^K3.1^H_E$	3.6^K	$(3.7)^K$	4.2^K	B^K	4.3^K	B^K	$(4.3)^K$	$(4.0)^K$	C	C	C							
13							C	2.8	C	3.7^K	$(3.9)^K$	$(4.0)^K$	$(3.9)^K$	3.9^K	C^K	C^K	3.8^K	3.6^K	2.7^K							
14							C	C	(3.6)	(3.8)	A	(4.0)	4.0	B	C	C	C	C	C							
15							2.1^K	2.9^K	$(3.5)^K$	C^K	C^K	C^K	B^K	B^K	B^K	B^K	3.7^K	3.2^K	$(2.6)^B_K$	$(2.5)^B_K$						
16							2.2^K	$(2.9)^C_K$	$(3.2)^B_K$	C^K	C^K	B^K	C^K	C^K	C^K	C^K	C^K	3.2^K	C^K	$(2.0)^C_K$						
17							$(2.0)^K$	B^K	B^K	B^K	$(3.7)^B_K$	$(3.9)^B_K$	B^K	B^K	$(3.9)^B_K$	$(3.9)^B_K$	3.6^K	C^K	2.4^K							
18							$(2.2)^C_K$	2.9^K	3.3^K	C^K	C^K	$(3.8)^C_K$	$^K(4.0)^H$	C^K	C^K	C^K	C^K	$(3.2)^C_K$	$(2.6)^C_K$							
19							$(1.9)^C_K$	$(3.0)^C_K$	$(3.4)^C_K$	$(3.6)^C_K$	$(4.0)^C_K$	$(3.9)^C_K$	$(3.8)^C_K$	$(4.0)^K$	C^K	3.8^K	3.6^K	3.0^K	2.6^H_K							
20							2.1^H_K	2.8^K	3.2^F_K	$(3.6)^C_K$	$(3.8)^C_K$	$(3.9)^C_K$	$(4.0)^C_K$	4.0^K	3.8^K	B^K	C^K	C^K	C^K							
21							C^K	C^K	3.5^K	$(3.6)^K$	3.8^K	4.0^K	3.9^K	3.9^K	3.8^K	3.7^K	3.3^K	2.9^F								
22								$(2.7)^F_K$	$(3.1)^K$	3.4^K	3.6^K	$(3.6)^C_K$	C^K	$(3.8)^K$	$(3.6)^K$	3.5^K	$(3.3)^F_K$	3.0^K	2.3^F_K	$(1.5)^Y_K$						
23							2.9	3.2	3.6	3.8	3.8	C	B	3.9	3.8	3.5	3.3^H	3.0	(2.3)							
24								(2.7)	C	B	(3.8)	3.9	4.0	3.9	3.8	3.7	3.3	3.0	2.4							
25							(2.0)	2.7	3.3^H	3.6	3.7	3.8	(4.2)	3.4	3.9	3.8	3.3	$(2.8)^F$	2.1							
26							1.9	(2.4)	(3.1)	3.6	3.7	3.7	(3.9)	(3.8)	(3.6)	(3.5)	3.4	3.0^F	$(2.1)^S$							
27							2.1^H	2.8^H	3.3^F	(3.5)	(3.7)	(4.0)	B	$(3.9)^B$	3.9	3.7	(3.5)	3.0	2.1							
28							C	C	C	A	A	4.0	4.1	4.0	3.9	3.7	3.5	C	C							
29							2.1^H_F	2.8	3.2	3.5	3.6	4.0^F	B	4.0	3.9	3.7	3.4	3.0	$(2.2)^F$							
30							1.8	$(2.6)^A$	(2.8)	(3.8)	3.9	4.1	C	C	4.1	3.9	3.6	$(3.1)^F$								
31						1.1	1.8	$(2.3)^A$	[3.1]E	C	4.0^F	4.1	(4.2)	4.2	4.1	3.9	3.7	3.2	2.2							
Median							2.1	2.9	3.3	3.6	3.8	(4.0)	(4.0)	(4.0)	3.9	3.8	3.6	3.2	2.6	(1.8)						
Count							21	23	22	18	21	20	18	21	23	22	24	23	23	9						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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

TABLE 72

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

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc,km (Unit), August (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., J. L. S.

Calculated by: M. S. 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	4.1 100	C	C	C	B		4.2 110		(3.8) 100			3.3 110	2.4 110	3.1 90	3.2 100	(4.6)S 90	2.8 100
2			3.6 100	1.9 100	3.8 100			3.2 110	(4.4)F 100	B	B	B	B	B	B	B	B	B	B	4.5 110	3.4 110	(5.0)S 100	8.7 100	(6.0)F 100F
3	(6.4)C 100	3.4 100	7.6 100	7.4 100	5.9 100	5.8 100	(3.7) 100F	C	C	7.8 100	7.85 100	(5.5) 100	5.3 100						4.7F 100F	2.2 100	3.6 100	4.2 100	(3.5)C 100	C
4	C	C	C	C	C	C	C	C	C	C	C	5.4 100	C			C	C			(2.5) 140		4.0 100	3.7 100	(4.0) 100
5	2.9 100	3.4 100	3.7 100	2.7 100				3.4 110	3.7 110	4.1 110	(4.1) 100	4.0 100	4.1 90			(5.3) 100	(3.9) 110	3.6 110		4.2 100	5.8 100	(4.0)S 100	(3.2)S 100	
6							2.2 110		3.6 100									(4.6) 100	(2.8)C 110	1.9 110				
7			1.6 90		(3.3)S 100	3.4 100		3.9 120	(3.4)S 110	(4.1)S 100	(4.4)B 100		5.5 100	6.4 90	C	4.3 100	4.6 90	(4.4) 100	3.7 100		2.0 110			
8		2.8 100			(2.1) 100			(4.4) 100		5.3 100	4.8 100	B	4.7 100				4.2 100	4.0 100		3.5 110	3.4 110			
9			3.7 100	3.9 100		3.3 100	4.2 100	3.8 100	4.6 100	4.2 100	5.0 90	5.3 110	5.2 110	5.8 110	5.7 110	6.7 110	5.9 100	6.2 100	(5.4)S 100	5.6 100	5.5 100	(3.8) 100		1.9 100
10				3.7 100			3.5 100	(7.6) 100	7.9 100	7.0 100	5.5 100	5.4 100	(5.3)B 100		4.9 100	5.8 110	5.4 110	(5.0) 100	(6.0) 100	5.1 100	4.0 100	5.7 100	6.0 100	(4.0) 100
11	(4.8) 90	3.4 100					C 100	4.0 100	4.5 100	6.2 100	C							5.1 110		(2.4)S 100	4.0 100	3.7 100		
12								3.7 120									C	C	C	C	C	5.2 100		3.4 100
13	3.9 100	3.3 100	1.8 100	C	C	C	C		C	5.0 100					C	C				1.9 90		3.3 100		
14		C	C	C	C	3.6 100	C	C							C	C	C	C	C	5.8 100	C	1.8 100		
15							2.5 100	3.1 100	3.8 100	C	C	C	B	B	B	B								
16										C	C	B	C	C	C	C	C							
17								B	B	B	B	B	B	B	B	B		C		C				
18										C	C			C	C	C	C	(3.7)C C				C	C	C
19			C	C	(1.6)C C						(4.8) 120									C	C			
20									3.6F 80								C	C	C		C	C	C	
21			C	C			C	C						5.6 100	4.5 110	4.3 110	3.9 110	5.6 100	5.6 100	3.2 100		4.7 100	3.9 100	(4.7) 100
22	4.0 100	2.9 100	5.0 100	(6.0)C (100)C	C	C	3.1 100	(3.6)F (90)								3.7 C			5.4 110	3.8 100				
23												C	B							2.4 100				
24		C							C	B								5.4 110	(3.9) 100	4.0 100				
25												(4.0) 100						3.6 100						
26	C	C	C	C	C		4.4 100	3.9 (110)	4.0 (110)						(4.2) 130		4.5 120		(2.8)S (100)S	(2.1)S (120)S				
27																		3.3 120	2.7 120	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	4.5 100	4.4 100						3.9 120	C	C	C	C			
29								(3.9)S 110	3.6 110	4.2 110	4.3 110	4.4 120						3.8 (120)	C					
30							2.1 120	3.8 110	5.3 100				C	C				4.2 110F	3.4 100					
31				C		1.4 110	(3.8) 110	4.1 100	C	C				4.5 110	4.3 130	4.3 120	(4.0) 120		(6.0) 100	3.7 100				
Median								3.3	3.6									3.6	2.7	2.4				
Count	27	25	24	22	24	26	24	26	23	22	23	24	24	25	23	23	24	25	25	26	25	28	28	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 70.

Form adopted June 1946

TABLE 73

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

IONOSPHERIC DATA

F2-M1500 (Characteristic), ____ (Unit), August (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., J. L. S.

Calculated by: E. J. W.,

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	1.9	1.9	2.0	1.9	2.0	B	(1.8)^{J}	(1.7)	(1.9)	1.8	1.8	2.0	(2.0)	(2.0)^{J}	1.8	(1.8)^{J}	(1.8)^{S}	(2.0)$^{J}_{S}$
2	(2.0)^{J}	1.8	(1.8)^{S}	(1.6)	1.8	2.0	2.1	(1.9)^{B}	(1.8)^{B}	B	B	B	B	B	B	B	(1.8)^{B}	(1.8)$^{B}_{J}$	(1.8)	1.8	(1.8)^{S}	(1.9)$^{J}_{S}$	(2.0)^{S}	(2.0)^{S}
3	[1.8]^{A}	(1.8)^{S}	(1.8)^{S}	(1.8)$^{J}_{S}$	(2.0)^{A}	(2.0)^{A}	2.2	C	C	(1.8)$^{J}_{A}$	1.6	G	(1.7)^{S}	(1.6)^{S}	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	(1.8)^{C}	C	(1.6)	(1.4)	[1.6]^{C}	[1.8]^{C}	(1.8)^{C}	(2.0)^{J}	2.0	(1.8)	(1.8)^{C}	(1.8)$^{J}_{S}$	(1.8)$^{J}_{C}$
5	(1.8)^{J}	(1.8)^{J}	(2.0)^{J}	(1.8)	1.8	2.0	(2.1)	(2.0)^{J}	1.9	(1.8)	(2.0)$^{J}_{S}$	1.8	1.8	1.8	(1.8)	(1.8)	1.8	2.0	2.0	2.0	2.0	(1.8)^{S}	(1.8)^{S}	(1.8)
6	1.8	1.6	1.8	1.8	1.8	(2.0)^{C}	(2.1)	2.1	2.0	1.8	(1.8)	(1.4)	(1.8)	(1.8)^{S}	1.8	1.8	1.8	(1.8)$^{J}_{S}$	2.0	2.0	(1.8)^{S}	(1.8)^{S}	(1.9)$^{J}_{S}$	(1.8)$^{J}_{S}$
7	[1.8]^{C}	1.6	1.8	(1.8)^{J}	1.8	1.8	(2.0)$^{J}_{S}$	(1.8)$^{S}_{J}$	2.0	1.6	(1.6)$^{S}_{B}$	(1.8)^{N}	1.6	1.6	[1.8]^{C}	1.6	1.6	1.7	1.8	1.8	(1.8)^{J}	1.6	(1.8)^{S}	1.8
8	(1.7)	1.8	[1.7]^{C}	(1.6)^{J}	[1.8]$^{C}_{J}$	3.0	2.2	(1.6)^{J}	G	(1.6)^{J}	1.6	(1.6)	1.6	1.6	1.6	(1.6)^{J}	1.6	(1.6)^{J}	1.6	1.8	1.8	1.8	1.8	1.6
9	1.6	1.8	1.6	1.6	1.8	1.8	2.0	2.1	2.2	2.1	(1.6)^{J}	1.7	1.6	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
10	1.6	(1.6)	1.6	1.7	(1.8)	1.9	(1.9)^{J}	1.9	A	1.7	(1.6)	1.6	(1.5)^{B}	1.6	1.6	1.6	1.6	1.8	1.8	1.8	1.8	1.8	(1.6)^{J}	(1.8)^{J}
11	(1.6)	(1.6)^{J}	(1.6)	(1.8)	1.8	2.0	2.3	2.0	1.8	1.8	C	1.6	1.6	(1.6)	1.6	1.6	1.6	1.6	1.6	1.8	1.8	(1.7)^{J}	(1.7)^{J}	[1.6]$^{S}_{J}$
12	1.4	(1.4)^{S}	N^{K}	^{K}(1.6)$^{F}_{Z}$	(1.6)$^{F}_{K}$	(1.6)^{K}	2.0^{K}	1.6$^{F}_{K}$	(1.6)$^{S}_{K}$	S^{K}	(1.5)^{K}	B^{K}	B^{K}	B^{K}	(1.4)^{K}	1.6^{K}	C	C	C	C	C	1.8	(1.8)^{J}	(1.6)^{J}
13	(1.7)^{J}	(1.6)^{F}	(1.8)^{F}	C	C	C	C	C	C	(1.6)^{K}	B^{K}	B^{K}	B^{K}	B^{K}	C^{K}	C^{K}	1.6^{K}	1.6^{K}	^{K}(1.6)$^{J}_{S}$	1.7^{K}	(1.8)$^{J}_{K}$	(1.6)$^{J}_{K}$	(1.6)$^{J}_{K}$	1.8^{K}
14	1.8	C	C	C	1.6	1.8	C	C	(1.6)^{C}	C	C	(1.6)^{C}	B	B	C	C	C	C	C	(2.0)^{C}	C	1.6	(1.8)^{C}	(1.8)
15	(1.8)	(1.8)	1.8	1.7	1.8	1.8^{K}	1.8^{K}	1.8^{K}	1.6^{K}	C^{K}	C^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	(1.6)^{K}	1.6^{K}	B^{K}	B^{K}	1.6^{K}	C^{K}	C^{K}	R^{K}
16	(1.4)$^{R}_{K}$	(1.6)$^{R}_{K}$	F$^{C}_{K}$	F$^{C}_{K}$	(1.6)$^{R}_{K}$	[1.7]$^{C}_{K}$	1.8^{K}	G^{K}	G^{K}	C^{K}	C^{K}	B^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	(1.8)$^{J}_{K}$	C^{K}	C^{K}	C^{K}	(1.8)$^{C}_{K}$	C^{K}	(1.7)$^{J}_{K}$
17	1.6^{K}	(1.6)^{K}	1.7$^{Z}_{K}$	1.4^{K}	N$^{S}_{A}$	(1.4)$^{F}_{K}$	1.4^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	B^{K}	G^{K}	C^{K}	1.8^{K}	C^{K}	1.6^{K}	^{K}(1.8)$^{J}_{S}$	(1.6)$^{C}_{K}$	1.6^{K}
18	(1.6)^{K}	(1.6)$^{F}_{K}$	(1.2)$^{S}_{K}$	F^{K}	(1.6)$^{F}_{K}$	1.6^{K}	C^{K}	(2.0)^{K}	G^{K}	C^{K}	C^{K}	G^{K}	G^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}
19	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	(3.2)^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	(1.6)$^{C}_{K}$	C^{K}
20	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	(2.2)^{K}	(1.8)$^{S}_{K}$	(1.4)^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(1.4)$^{C}_{K}$	G^{K}	B^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}
21	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	2.2^{K}	1.6^{K}	G^{K}	1.6^{K}	1.8^{K}	1.8^{K}	(2.0)^{K}	1.8^{K}	2.0^{K}	2.0	(2.0)^{J}	2.0	(1.8)^{J}	(1.8)^{J}	(1.8)^{J}	(2.0)^{J}
22	(2.0)^{J}	1.8	1.7^{K}	(1.7)$^{C}_{K}$	C^{K}	C^{K}	2.2$^{F}_{K}$	G^{K}	G^{K}	G^{K}	C^{K}	C^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(1.7)$^{J}_{K}$	(2.0)^{K}	1.9^{K}	1.6^{K}	(1.7)^{K}	(1.7)$^{J}_{K}$	N^{K}
23	N^{K}	N^{K}	C^{K}	1.8$^{F}_{K}$	2.8$^{F}_{K}$	2.4^{K}	(2.4)^{C}	2.3	2.2	2.0	2.2	C	1.9	2.0	(1.8)	1.9	2.0	(2.0)	(1.9)	(2.0)	(2.0)	1.9	(1.8)^{J}	(1.9)^{J}
24	(1.8)^{J}	C	(1.8)	(1.7)	(1.8)^{F}	1.8$^{Z}_{F}$	2.4^{F}	2.3^{F}	C	2.1^{F}	2.1	(2.1)	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	(2.0)^{J}	(2.0)^{C}	(1.8)
25	(1.8)	(1.7)^{J}	(1.8)	(1.9)^{C}	(2.0)^{F}	F	2.2	2.1	(2.0)^{J}	2.1	1.9^{U}	1.8	2.0	2.0	2.0	2.0	2.0	(2.0)	(2.0)	1.9	2.0	(2.0)	2.0	(1.9)
26	C	C	C	C	C	(1.8)	(1.9)	(2.2)^{J}	(2.3)^{F}	2.1	2.2	2.0	1.8	[1.8]^{C}	1.9	(1.9)^{C}	2.0	1.9	1.9	(2.0)^{J}	(2.0)$^{J}_{S}$	(1.8)$^{J}_{S}$	(1.8)	1.8
27	1.8	2.0	1.8	1.7	1.8	(1.8)^{F}	2.0	(2.2)^{U}	2.4	2.2	C	(2.0)	(1.8)	(2.0)	1.8	(1.9)	(2.0)	2.0	2.0	C	C	(1.8)^{C}	(2.0)$^{J}_{C}$	C
28	C	C	C	C	C	C	(2.1)^{C}	C	C	1.9	1.8	1.9	1.7	2.0	1.9	1.9	1.9	C	C	C	C	1.8	(1.8)^{S}	(1.7)$^{J}_{S}$
29	1.6	(1.6)	(1.7)^{J}	1.8	1.8	(1.7)^{J}	1.8	(2.1)$^{J}_{S}$	2.0	1.9	1.9	1.8	(1.8)	1.8	1.8	(1.9)	(1.9)	(1.9)	2.0	1.8	2.0	1.9	(2.0)^{J}	(1.8)^{J}
30	(1.8)	1.6	1.8	1.5	1.6	1.8	2.1	2.1	2.3	1.9	(1.9)^{J}	1.9	C	C	(1.9)^{J}	(1.8)	1.8	1.9	1.9	2.0	1.9	1.9	1.7	(1.8)^{J}
31	(1.6)	1.7	(1.7)	C	(1.7)	(1.7)	2.1	2.1	[2.0]^{C}	C	(1.9)	(1.9)	(1.8)	1.8	1.7	(1.6)^{J}	(1.7)	1.8	(1.9)^{C}	(1.8)	1.9	1.8	(1.8)	(1.7)^{J}
Median	(1.8)	(1.6)	(1.8)	(1.7)	1.8	1.8	2.1	2.0	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	(1.8)	(1.8)	(1.8)
Count	23	21	20	19	21	22	25	23	23	21	20	21	21	21	22	21	24	23	22	21	22	26	26	24

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702319

TABLE 74

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

IONOSPHERIC DATA

Form adopted June 1946

F2-M3000 (Characteristic), ____ (Unit), August (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., J. L. S.

Calculated by: M. S. 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	2.8	2.9	(3.0)	2.9	2.9	B	(2.6)J	(2.6)	(3.0)	2.7	2.8	2.8	(3.0)	(3.0)S	2.9	(2.8)J	(2.7)S	(3.0)JS
2	(2.9)J	2.8	(2.6)S	(2.6)	2.8	3.0	3.0	(2.6)B	(2.8)B	B	B	B	B	B	B	B	(2.8)B	(2.8)GJ	(2.8)	2.7	(2.7)S	(2.8)JS	(2.8)S	(2.9)S
3	[2.7]A	(2.8)S	(2.8)S	(2.8)JS	(3.0)A	(3.0)A	3.2	C	C	(2.8)JA	2.5	G	(2.6)S	(2.6)S	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	(2.6)C	C	(2.6)	(2.6)	[2.6]C	[2.6]C	(2.6)A	(2.8)J	2.8	(2.8)	(2.6)C	(2.6)JS	(2.6)JC
5	(2.5)J	(2.7)J	(3.0)J	(2.8)	2.7	3.0	(3.2)	(3.0)J	2.9	(2.7)	(3.0)JS	2.6	2.7	2.8	(2.8)	(2.7)	2.8	2.8	2.9	2.9	2.8	(2.6)S	(2.7)S	(2.7)
6	2.8	2.6	2.8	2.8	2.6	(2.8)C	(3.0)	3.0	2.8	2.7	(2.7)	(2.6)	(2.8)	(2.7)S	2.6	2.7	2.6	(2.4)JS	2.7	2.8	(2.8)S	(2.7)S	(2.8)JS	(2.6)JS
7	[2.8]C	2.6	2.7	(2.8)J	2.8	2.8	(3.0)JS	(2.8)JS	2.8	2.4	(2.5)SB	(2.8)W	2.5	2.6	[2.6]C	2.6	2.6	2.6	2.7	2.8	(2.7)J	2.6	(2.6)S	2.6
8	(2.8)	2.8	[2.6]C	(2.6)J	[2.8]C	3.0	3.2	(2.3)J	G	(2.4)J	2.6	(2.5)	2.5	2.5	2.5	(2.4)J	2.6	2.4	2.6	2.6	(2.8)J	2.6	2.6	2.6
9	2.6	2.6	2.4	2.6	2.8	2.8	3.0	3.2	3.2	3.0	(2.6)J	2.6	2.6	2.6	2.6	2.6	2.6	2.8	2.8	2.8	2.6	2.6	2.8	2.8
10	2.3	(2.5)	2.5	2.6	(2.7)	2.7	(2.9)J	2.8	A	2.6	(2.4)	2.4	(2.3)B	2.5	2.6	2.5	2.4	2.6	2.6	2.6	2.7	2.8	(2.6)J	(3.0)J
11	(2.5)	(2.6)J	(2.6)	(2.6)	2.6	2.8	3.4	2.8	2.8	2.7	C	2.4	2.2	2.4	(2.4)	2.4	2.4	2.4	2.6	2.8	(2.6)J	(2.6)J	(2.6)	[2.4]JS
12	2.2	(2.4)S	N K	K(2.4)FZ	2.5 FK	(2.4)FK	3.0 K	2.4 FK	(2.4)SK	S K	(2.2)K	B K	B K	B K	(2.2)K	2.3 K	C	C	C	C	C	2.7	(2.7)J	(2.8)J
13	(2.6)J	(2.6)F	(2.8)F	C	C	C	C	C	C	(2.4)K	B K	B K	B K	B K	C K	C K	2.4 K	2.4 K	K(2.4)JS	2.6 K	(2.8)JK	(2.4)JK	(2.4)JK	2.6 K
14	2.8	C	C	C	2.4	2.6	C	C	(2.6)C	C	C	(2.4)C	B	B	C	C	C	C	C	(2.9)C	C	2.6	(2.8)C	(2.6)
15	(2.6)	2.6	2.6	2.6	2.7	2.6 K	2.8 K	2.6 K	2.4 K	C K	C K	C K	B K	B K	B K	B K	(2.4)K	2.6 K	B K	B K	2.4 K	C K	C K	R K
16	(2.2)RK	(2.2)RA	F CK	F CK	(2.4)RK	[2.5]KK	2.6 K	G K	G K	C K	C K	B K	C K	C K	C K	C K	C K	(2.6)JK	C K	C K	C K	(2.8)CK	C K	(2.6)JK
17	2.5 K	(2.3)K	2.6 ZK	2.2 K	N SK	(2.2)YK	2.2 K	B K	B K	B K	B K	B K	B K	B K	B K	B K	G K	C K	2.6 K	C K	(2.6)CK	K(2.8)JS	(2.5)SK	(2.6)K
18	(2.4)K	(2.6)FK	(2.4)SK	F K	(2.8)FK	2.6 K	C K	3.0 K	G K	C K	C K	G K	G K	C K	C K	C K	C K	C K	C K	C K	C K	C K	C K	C K
19	C K	C K	C K	C K	C K	C K	C K	C K	C K	G KC	(2.5)CK	C K	G K	C K	C K	C K	C K	C K	C K	C K	C K	C K	(3.0)CK	C K
20	C K	C K	C K	C K	C K	C K	(3.2)K	(2.9)SK	(2.2)K	G K	G K	G K	G K	(2.2)CK	G K	B K	C K	C K	C K	C K	C K	C K	C K	C K
21	C K	C K	C K	C K	C K	C K	C K	C K	2.3 K	2.4 K	G K	2.4 K	2.8 K	2.6 K	(2.7)K	2.8 K	2.9 K	3.0	(3.0)J	3.0	(2.8)J	(2.8)J	(2.8)J	(3.0)J
22	(3.0)J	2.8	2.6 K	(2.5)CK	C K	C K	3.2 FK	G K	G K	G K	C K	C K	G K	G K	G K	G K	G K	(2.6)JK	(3.0)M	2.8 K	2.5 K	(2.6)K	(2.6)JK	N K
23	N K	N K	C K	3.0 FK	[3.2]CK	3.4 K	(3.5)C	3.4	3.3	3.0	3.3	C	2.9	3.0	(2.8)	2.8	2.9	(2.9)	(2.9)	(3.0)	(3.0)	2.9	(2.8)J	(2.9)J
24	(2.6)J	C	(2.7)	(2.6)	(2.5)F	2.8 ZF	3.5 F	3.3 F	C	3.0 F	3.2	(3.0)	2.9	3.0	2.9	2.8	2.8	2.8	2.8	(3.0)	3.0	(3.0)	(2.9)C	(2.8)
25	(2.7)	(2.6)J	(2.7)	(2.8)C	(3.0)F	F	3.2	3.2	(2.9)J	3.1	2.9 U	2.8	2.9	2.8	3.0	3.0	2.9	(3.1)	(3.0)	2.8	3.0	(3.0)	2.9	(2.9)J
26	C	C	C	C	C	(2.6)	(3.1)	(3.2)J	(3.2)F	3.0	3.2	2.8	2.7	[2.8]C	2.8	(2.8)C	2.8	2.7	2.8	(3.0)S	(3.0)JS	(2.8)JS	(2.6)	2.6
27	2.6	2.8	2.6	2.6	2.6	(2.8)F	2.9	(3.2)U	3.2	3.1	C	(3.0)	(2.6)	(2.8)S	2.8	(2.8)	(3.0)	3.0	3.0	C	C	(3.0)C	(2.8)JC	C
28	C	C	C	C	C	C	(3.2)C	C	C	2.8	2.8	2.8	2.8	2.0	2.8	2.8	2.9	C	C	C	C	2.7	(2.9)S	(2.6)JS
29	2.6	(2.6)	(2.5)J	2.8	2.8	(2.6)J	2.8	(3.1)JS	3.0	2.9	2.8	2.6	(2.6)	2.7	2.7	(2.8)	(3.1)	(2.9)	3.0	2.8	2.9	2.7	(2.8)J	(2.8)J
30	(2.8)	2.5	2.7	2.2	2.5	2.9	3.1	3.1	3.0	2.9	(2.9)J	2.8	C	C	(2.8)J	(2.8)	2.8	2.8	2.3	2.9	3.4	2.9	2.9	(2.9)J
31	(2.6)	2.6	(2.6)	C	(2.6)	(2.7)	3.1	2.9	[3.0]C	C	(2.8)	(2.8)	(2.6)	2.6	2.9	(2.9)J	(2.6)	2.6	(2.8)C	(2.8)	2.8	2.4	(2.7)	(2.6)J
Median	(2.6)	(2.6)	(2.6)	(2.6)	2.7	2.8	3.1	2.9	2.8	2.8	2.8	2.6	2.6	2.6	2.8	2.8	2.7	2.7	2.8	2.8	2.8	(2.7)	(2.8)	(2.6)
Count	23	21	20	19	21	22	25	23	23	22	20	21	22	21	22	21	24	23	22	21	22	26	26	24

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946

Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

F1-M3000 (Characteristic), ____ (Unit), August (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., J.L.S.

Calculated by: M.S.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	L	N	(3.5)	3.7H	B	3.6	(3.8)	[3.7]H	3.6	L	L	Q					
2								Q	(3.6)B	B	B	B	B	B	B	B	B	B	(3.4)B	L				
3								C	C	A	A	(4.2)	(3.8)BK	(3.6)	C	C	C	C	C					
4								C	C	C	C	(3.7)C	C	(3.8)	3.6	[3.6]C	[3.6]C	(3.5)C	(4.0)					
5									Q	3.7	(3.8)	[3.6]L	3.5	4.0H	(4.0)	(3.8)H	(3.6)	L	L					
6							L	L	(3.4)	3.6	(3.6)	(3.6)H	(3.4)H	(3.6)H	(3.6)H	3.4S	3.4	L	L					
7								Q	3.6	(3.5)	B	(3.8)B	3.8	3.7	[4.2]C	3.8H	3.6H	L	L					
8							L	3.4	3.4	3.6	3.7	B	(3.6)	(3.6)	3.8	4.0	3.6	3.6	L					
9								L	Q	(3.8)H	3.6	(3.6)	3.7	C	C	A	(3.6)	L	L					
10						3.8	Q	Q	A	3.6	(3.4)H	B	B	(3.6)	3.5	3.8	3.6	3.6	A					
11								Q	L	3.4	C	B	B	B	3.8	3.6	3.6	3.5F	L					
12							LFK	3.2FK	3.4K	3.6K	3.6K	3.8K	3.8K	3.8K	3.6K	3.6K	C	C	C					
13							L	L	L	3.9K	3.8K	3.8K	(3.8)BK	3.6K	CK	CK	3.8FK	3.4K	3.4K					
14								C	N	C	C	3.9	3.5	(3.8)B	C	C	C	C	C					
15								(3.6)K	(3.6)K	CK	CK	CK	BK	BK	BK	(3.6)BK	3.6K	3.4K						
16								3.4K	3.5K	CK	CK	(3.6)BK	CK	CK	CK	CK	C	(3.4)K	3.2K					
17							3.0K	(4.0)BK	BK	BK	BK	BK	BK	BK	(3.8)BK	BK	3.6K	CK	LK					
18								(3.6)K	(3.6)K	CK	CK	(3.2)CK	3.8K	CK	CK	CK	CK	CK	CK					
19							LK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	QK					
20								LK	3.6UK	CK	CK	CK	CK	(3.6)KK	4.0K	BK	CK	CK	CK					
21								CK	3.8K	3.6K	3.2K	3.0K	3.6K	(3.6)K	(3.8)HK	(4.0)K	3.5K	L	L					
22								3.8FK	(3.6)FK	(3.9)FK	CK	CK	3.7K	3.9K	4.1K	CK	3.9K	(3.8)SK	AK					
23								L	L	Q	L	C	L	L	L	L	L	L	Q					
24								L	C	B	L	L	L	L	L	L	L	Q						
25								Q	L	L	L	L	L	L	L	L	L	L	Q					
26								L	L	L	L	L	L	L	L	L	Q							
27								L	L	L	C	L	B	L	L	Q	L	Q						
28								C	C	Q	L	L	L	L	L	L	L	C	C					
29								L	L	L	L	L	L	L	L	L	L	L	Q					
30										Q	L	L	C	C	L	L	Q							
31									Q	C	L	L	L	L	3.7	L	L	Q						
Median								3.6	3.6	3.6	3.6	(3.6)	3.7	(3.6)	3.8	3.6	3.6	3.5						
Count								7	11	12	9	12	13	14	14	11	13	8						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 702910

Form adopted June 1946

TABLE 76

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

IONOSPHERIC DATA

E-M1500 (Characteristic), ____ (Unit), August (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., J. L. S.

Calculated by: M. S. 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	B	(5.0)	A	(4.2)	(4.6)	(4.8)	4.6	4.8	(4.8)				
2						S	(4.2)	4.6	$(4.6)^{F}$	B	B	B	B	B	B	B	B	B	$(4.8)^{B}$	$(4.6)^{B}$	$(5.0)^{F}$			
3							A	C	C	$(4.8)^{A}$	A	A	A	$(3.9)^{F}$	$(4.4)^{F}$	$(4.4)^{F}$	$(4.4)^{F}$	$(4.4)^{F}$	$(4.0)^{F}$					
4							C	C	C	C	C	$(5.0)^{C}$	C	(4.5)	(4.6)	$[4.6]^{C}$	C	$(4.6)^{C}$	4.6	3.8				
5							4.6	4.7	4.6	4.6	4.8	A	A	(5.0)	(5.0)	A	(4.8)	4.7	4.4	5.0				
6							4.8	4.6	A	4.6^{F}	4.8	4.8	(4.8)	(4.6)	4.6	(4.8)	4.4	$(4.8)^{F}$	$(3.6)^{S}$					
7							4.6	4.8	4.6	4.8	$(4.8)^{B}$	$(4.6)^{B}$	A	A	C	(4.6)	4.4	4.6^{F}	4.6^{F}	(4.4)				
8							$(4.6)^{S}$	5.2	5.2	4.8	4.9	B	4.6	4.5	(4.8)	C^{S}	$(4.1)^{C}$	4.4	4.2					
9							A	A	A	A	$(4.8)^{J}$	(4.6)	(4.6)	(4.4)	4.4	4.4	4.6	4.6	A	A				
10							4.7	$(5.0)^{A}$	4.8	A	$(4.8)^{A}$	A	(4.9)	(4.8)	4.8	4.7	4.5	4.6	4.5					
11							(5.0)	4.6	5.0	A	C	B	$(5.2)^{B}$	$(4.7)^{B}$	$(4.7)^{B}$	$(4.9)^{B}$	4.8	4.5	4.5	5.0				
12							$(4.6)^{S}_{K}$	$^{K}4.5^{H}_{F}$	4.8^{H}_{K}	$(4.8)^{K}$	4.8^{K}	B^{K}	4.6^{K}	B^{K}	$(4.6)^{K}$	$(4.5)^{K}$	C	C	C					
13							C	C	C	4.8^{K}	$(4.8)^{K}$	$(5.0)^{K}$	$(4.8)^{K}$	5.2^{K}	C^{K}	C^{K}	4.8^{K}	4.8^{K}	4.8^{K}					
14							C	C	(4.8)	C	C	(5.0)	5.0	B	C	C	C	C	C					
15							5.0^{K}	5.2^{K}	$(5.0)^{K}$	C^{K}	C^{K}	C^{K}	B^{K}	B^{K}	B^{K}	B^{K}	4.8^{K}	4.8^{K}	$(4.6)^{B}_{K}$	$(3.4)^{B}_{K}$				
16							4.8^{K}	$(5.0)^{C}_{K}$	$(5.0)^{B}_{K}$	C^{K}	C^{K}	B^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C	4.6^{K}	C^{K}	$(4.8)^{C}_{K}$				
17							$(4.8)^{K}$	B^{K}	B^{K}	B^{K}	$(4.6)^{B}_{K}$	$(4.6)^{B}_{K}$	B^{K}	B^{K}	$(4.8)^{B}_{K}$	$(4.7)^{B}_{K}$	4.8^{K}	C^{K}	4.6^{K}					
18							C^{K}	4.5^{K}	4.6^{K}	C^{K}	C^{K}	$(4.4)^{C}_{K}$	$^{K}(4.5)^{C}_{H}$	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}					
19							C^{K}	C^{K}	C^{K}	C^{K}	$(5.0)^{C}_{K}$	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}					
20							$(4.9)^{H}_{K}$	4.8^{K}	4.8^{F}_{K}	C^{K}	C^{K}	C^{K}	C^{K}	5.0^{K}	4.8^{K}	B^{K}	C^{K}	C^{K}	C^{K}					
21							C^{K}	C^{K}	3.6^{K}	$(4.6)^{K}$	4.7^{K}	3.8^{K}	4.6^{K}	4.7^{K}	4.6^{K}	4.6^{K}	4.8^{K}	4.7						
22								$(4.4)^{F}_{K}$	$(4.8)^{K}$	4.5^{K}	4.7^{K}	C^{K}	C^{K}	$(4.7)^{K}$	$(4.7)^{K}$	C^{K}	$(4.5)^{F}_{K}$	4.6^{K}	4.6^{F}_{K}	$(4.4)^{J}_{K}$				
23							4.5	5.3	4.4	4.4	4.6	C	B	4.6	4.6	4.8	4.5^{H}	4.6	(4.6)					
24								(4.8)	C	B	(4.7)	4.6	5.0	4.6	4.6	4.6	4.8	4.3	4.8					
25							(4.4)	4.8	5.0^{H}	4.7	4.8	4.7	(4.7)	4.3	4.2	4.6	4.7	$(4.8)^{F}$	4.9					
26								(4.2)	(4.7)	4.9	4.9	4.9	(4.8)	$[4.6]^{C}$	(4.4)	(4.3)	4.4	4.3	$(4.8)^{S}$					
27							4.6^{H}	4.2^{H}	4.2^{F}	(5.0)	C	(5.0)	B	$(4.5)^{B}$	4.5	4.8	(4.8)	4.5	4.8					
28							C	C	C	A	A	4.4	4.5	4.5	4.5	4.3	4.4	C	C					
29							4.3^{H}_{F}	4.5	4.7	4.3	4.3	4.5	B	4.5	4.5	4.6	4.7	4.0	$(4.5)^{F}$					
30							4.6	$(4.6)^{A}$	(5.0)	(4.7)	4.6	4.5	C	C	4.4	4.6	5.2	$(4.5)^{F}$						
31						5.2	4.2	$(4.8)^{A}$	$[4.8]^{F}_{C}$	C	4.8^{F}	4.8	(4.8)	4.2	4.3	4.5	4.6	4.8	4.8					
Median							4.6	4.7	4.8	4.7	4.8	4.6	(4.8)	4.6	4.6	4.6	4.7	4.6	4.6	(4.6)				
Count							18	21	21	15	19	17	16	20	23	20	23	23	21	9				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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Table 77

Ionospheric Storminess at Washington, D.C.

August 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	***	3			3	3
2	0	***			3	3
3	2	3			2	3
4	***	1			3	2
5	1	3			2	2
6	1	1			3	3
7	0	1			2	2
8	2	1			2	2
9	1	3			2	2
10	2	2			2	2
11	1	3			2	3
12	4	6	0700	---#	5	3
13	0	***	1400	---≠	3	4
14	1	***	----	0500	3	2
15	2	***	1500	----	3	5
16	6	***	----	----	4	5
17	4	***	----	----	5	4
18	5	***	----	----	5	4
19	***	4	----	----	4	5
20	4	6	----	----	4	4
21	4	3	----	2200	5	4
22	3	7	0700	----	5	5
23	5	1	----	1100	5	4
24	1	2			4	3
25	1	2			5	3
26	***	2			3	2
27	0	2			4	1
28	***	2			2	3
29	1	2			2	3
30	1	1			2	1
31	0	2			2	4

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

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

***No readable record. Refer to Table 66 for detailed explanation.

#Time of ending unknown because of loss of record.

≠Dashes indicate continuing storm.

Table 78

Sudden Ionosphere Disturbances Observed at Washington, D. C.

1947 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
August					
1	1518	1645	Ohio, D.C., England, New Brunswick, Ontario	0.0	Terr.mag.pulse** 1518-1525
1	2013	2020	Ohio, D.C., Mexico, Ontario	0.2	
1	2228	2305	Ohio, D.C., Mexico, Ontario	0.2	
1-2	2352	0010	Ohio, Mexico, Ontario	0.2	
2	1409	1440	Ohio, D.C., England, Mexico, New Brunswick, Ontario	0.03	
2	1640	1730	Ohio, D.C., Ontario	0.1	
2	1937	2010	Ohio, D.C., Ontario	0.1	
2	2148	2215	Ohio, D.C., Mexico, Ontario	0.2	
2-3	2346	0010	Ohio, Mexico, Ontario	0.3	
7	1247	1305	Ohio, D.C., England, Ontario	0.03	
8	1545	1620	Ohio, D.C., England, Ontario	0.05	
9	2130	2145	Ohio, Mexico, New Brunswick, Ontario	0.2	
9	2315	2335	Mexico	0.5	
10	1603	1725	Ohio, D.C., England, New Brunswick, Ontario	0.0	
12	1402	1430	Ohio, D.C., England, New Brunswick, Ontario	0.1	
13	1405	1420	Ohio, D.C., England, Mexico, New Brunswick, Ontario	0.05	
14	1616	1700	Ohio, D.C., Ontario	0.1	
14	1741	1805	Ohio, D.C., Ontario	0.1	
17	1715	1855	Ohio, D.C., England, New Brunswick, Ontario	0.1	
23	1634	1740	Ohio, D.C., England, New Brunswick, Ontario	0.0	
24	1342	1425	Ohio, D.C., England, Ontario	0.0	Terr.mag.pulse** 1340-1400
24	2156	2230	Mexico	0.3	
25	1800	1830	Ohio, D.C., England, New Brunswick	0.05	
25	1932	1950	Ohio, D.C., Ontario	0.1	
29	1625	1710	Ohio, D.C., England, New Brunswick, Ontario	0.0	
30	1625	1710	Ohio, D.C., England, Ontario	0.03	
31	1451	1540	Ohio, D.C., England, Mexico, New Brunswick, Ontario	0.0	Terr.mag.pulse** 1452-1515

*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 XEWW, 9500 kilocycles, 3000 kilometers distant was used for the SID on August 9 at 2315 and on August 24 at 2156.

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

Table 79

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
July 23	1430	1500	Brentwood	Austria, Belgian Congo, Canary Is., Colombia, India, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, U.S.S.R., Yugoslavia
24	1225	1250	Brentwood	Canary Is., Chile, Colombia, Palestine, Portugal, Spain, Switzerland, Thailand, U.S.S.R., Yugoslavia
25	0850	0945	Brentwood	Afghanistan, Canary Is., Greece, India, Kenya, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
29	1035	1055	Brentwood	Austria, Bahrein I., Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
29	1040	1100	Somerton	Argentina, Australia, Brazil, Ceylon, China, Egypt, India, Malay States, Union of S. Africa
29	1110	1145	Brentwood	Austria, Bahrein I., Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, Uruguay, U.S.S.R., Yugoslavia, Zanzibar
29	1110	1140	Somerton	Argentina, Australia, Brazil, Ceylon, China, Egypt, India, New York, Union of S. Africa
30	0740	0800	Brentwood	Afghanistan, Austria, Belgian Congo, Bulgaria, Greece, India, Kenya, Southern Rhodesia, U.S.S.R., Yugoslavia, Zanzibar
30	1200	1230	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Greece, Iran, Kenya, Madagascar, Palestine, Southern Rhodesia, Spain, Switzerland, Syria, U.S.S.R., Zanzibar
30	1200	1220	Somerton	Argentina, Brazil, Ceylon, India, Union of S. Africa
31	0700	0720	Brentwood	Austria, Belgian Congo, Bulgaria, Greece, India, Iran, Kenya, Portugal, Southern Rhodesia, Syria, Turkey, U.S.S.R., Zanzibar
July 31	0700	0720	Somerton	Ceylon, China, India, Malay States
31	1205	1230	Brentwood	Austria, Belgian Congo, Bulgaria, Colombia, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Turkey
31	1405	1415	Brentwood	Belgian Congo, Colombia, Kenya, Southern Rhodesia, Spain, Turkey, Uruguay
31	1440	1510	Brentwood	Austria, Belgian Congo, French Equatorial Africa, Kenya, Portugal, Southern Rhodesia, Spain, Switzerland
31	1445	1515	Somerton	Argentina, Brazil, Canada, Gold Coast, New York, Nigeria, Union of S. Africa
31	1840	1855	Brentwood	Austria, Canary Is., Chile, Colombia, Iran, Palestine, Portugal, Surinam, Turkey, Venezuela
31	1845	1905	Somerton	Argentina, Barbados, Brazil, Canada, New York
August 1	0745	0830	Brentwood	Afghanistan, Austria, Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, U.S.S.R., Yugoslavia, Zanzibar
1	0745	0830	Somerton	Ceylon, China, Egypt, Gold Coast, India, Malay States, Nigeria, Union of S. Africa
1	0920	0940	Brentwood	Belgian Congo, Kenya, Southern Rhodesia, Syria
1	1515	1540	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Chile, Colombia, French Equatorial Africa, Greece, India, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Turkey, Uruguay, U.S.S.R., Yugoslavia, Zanzibar
1	1517	1545	Somerton	Argentina, Australia, Barbados, Brazil, Canada, Ceylon, China, Egypt, Gold Coast, India, New York, Nigeria, Union of S. Africa
2	0825	0905	Brentwood	Greece, Kenya, Madagascar, Portugal, Southern Rhodesia, Spain, Syria, Turkey, Yugoslavia

Table 79 (Continued)

1947 Day	GCT Beginning	End	Receiving station	Location of transmitters
August 2	0955	1015	Brentwood	Belgian Congo, Canary Is., India, Kenya, Southern Rhodesia, Spain, Turkey, U.S.S.R., Zanzibar
2	1410	1435	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Iran, Palestine, Spain, Switzerland, Syria, Turkey, Zanzibar
2	1412	1435	Somerton	Argentina, Brazil, Canada, Ceylon, Gold Coast, New York, Nigeria, Union of S. Africa
7	1250	1305	Brentwood	Austria, Belgian Congo, Bulgaria, Canary Is., Chile, Greece, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Turkey, U.S.S.R., Yugoslavia
7	1250	1310	Somerton	Argentina, Barbados, Brazil, Canada, Gold Coast, New York, Nigeria, Union of S. Africa
11	1055	1120	Brentwood	Belgian Congo, Canary Is., India, Iran, Kenya, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, U.S.S.R.
12	1225	1300	Brentwood	Austria, Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Malta, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Turkey, U.S.S.R., Yugoslavia
12	1405	1430	Brentwood	Belgian Congo, Bulgaria, Canary Is., Chile, Colombia, India, Kenya, Madagascar, Malta, Palestine, Portugal, Spain, Switzerland, Syria, Thailand, Turkey, Uruguay, U.S.S.R., Zanzibar
12	1405	1430	Somerton	Argentina, Barbados, Brazil, Canada, Gold Coast, New York, Nigeria
13	0845	0915	Brentwood	India, Kenya, Madagascar, Palestine, Southern Rhodesia, Spain, U.S.S.R., Yugoslavia, Zanzibar
13	1040	1130	Brentwood	Bahrein I., Belgian Congo, Canary Is., Greece, India, Iran, Kenya, Portugal, Southern Rhodesia, Spain, Switzerland, Turkey, Zanzibar
14	0915	1045	Brentwood	Belgian Congo, Kenya, Madagascar, Southern Rhodesia, Spain, Switzerland, Turkey, U.S.S.R., Zanzibar
22	0955	1100	Brentwood	Bahrein I., Greece, India, Kenya, Palestine, Southern Rhodesia, Syria, Turkey, U.S.S.R., Yugoslavia

Table 80

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed in Barbados, B.W.I.

1947 Day	GCT Beginning	End	Receiving station	Location of transmitters
July 23	1430	1800	Barbados	Canada, England
24	1230	1245	Barbados	Canada, England
25	1220	1245	Barbados	Canada, England
25	1615	1630	Barbados	Canada, England
31	1845	1905	Barbados	Canada, England

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 81

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and CRPL Probable Disturbed Period Forecasts)
July 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	6	6				3	3	8	7				3	3
2	6	5				3	3	8	6				3	3
3	6	6			X	2	2	7	8			X	2	2
4	6	6			X	1	1	8	7			X	1	1
5	6	6				1	1	7	6				1	1
6	6	6				2	2	8	7				2	2
7	7	6				2	2	7	7				2	2
8	6	6				2	3	8	7				2	3
9	6	6				2	3	7	5				2	3
10	6	6				3	3	8	5				3	3
11	6	6			X	2	3	7	5			X	2	3
12	6	6				2	3	8	5				2	3
13	5	6				3	2	7	7				3	2
14	6	6				1	2	8	6				1	2
15	6	6				2	2	6	8				2	2
16	6	6				2	1	8	7				2	1
17	6	(4)				1	5	6	7				1	5
18	(3)	(2)	X	X		5	5	5	5	X	X		5	5
19	(3)	(3)	X	X	X	4	3	5	7	X	X	X	4	3
20	(3)	(4)	X	X	X	4	4	(4)	7	X	X	X	4	4
21	5	5	X	X	X	3	2	(4)	7	X	X	X	3	2
22	6	5	X			2	3	(4)	5	X			2	3
23	(4)	5				4	4	5	8				4	4
24	5	5				3	3	6	7				3	3
25	5	6				3	3	8	5				3	3
26	5	5				4	3	6	5				4	3
27	5	6				3	3	7	6				3	3
28	6	6				3	2	8	6				3	2
29	5	5				3	2	6	7				3	2
30	5	6				2	2	7	7				2	2
31	6	5				2	3	6	7				2	3
Score:														
H			3		2					3		2		
M			2		3					0		1		
G			24		22					26		24		
(S)			1		1					2		2		
S			1		3					0		2		

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.

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

**In addition to dates marked X, the following was designated as a probable disturbed day on forecasts more than 8 days in advance of said date: July 12.

Table 82

American and Zürich Provisional Relative Sunspot Numbers

August 1947

Date	American* number	Zürich** number	Date	American* number	Zürich** number
1	159	138	16	235	262
2	190	155	17	190	215
3	206	210	18	160	186
4	202	220	19	135	150
5	227	192	20	118	126
6	238	204	21	108	103
7	299	257	22	99	90
8	319	251	23	77	80
9	327	299	24	114	82
10	318	313	25	103	104
11	312	320	26	111	92
12	284	298	27	139	124
13	318	295	28	152	151
14	322	286	29	186	181
15	280	271	30	206	208
			31	226	217
No. of Days: 31			Monthly means:	205.2	196.1

*Median of data from 21 observers.
**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 83

CORONAL OBSERVATIONS AT CLIMAX, COLORADO

August 1947

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

Date	Time of observation GCT	Degrees from astronomical north 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
1	1408-1447	-	-	--	--	--	--	--	--	--	--	--	--	9	8	9	10	11	11	12	10	8	9	11	13	11	10	9	9	8	--	--	--	--	--	--	--
											2	2	2	2	1	1	1	1	1	4	3	3	4	3	2	2	1										
																				1	1	1	2	2	2	1	1	1	1	1							
2	1630-1651	4	5	5	4	--	--	--	--	--	--	--	9	9	9	9	10	10	13	14	15	12	10	9	13	15	11	8	7	5	--	--	--	--	--	--	--
															1	2	2	1	1	1	2	2	1	2	1	1	1										
														1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
3	1451-1540	-	-	6	8	7	5	--	--	--	--	--	7	8	8	8	5	10	25	23	27	11	10	11	11	11	10	10	9	9	--	--	--	--	--	--	--
																2	9	4	1	1					1	1	1	1	1								
																		1	1	1	1																
4	1451-1540	7	8	7	7	5	--	--	--	--	--	--	6	7	9	13	18	15	22	19	20	16	11	12	13	13	13	12	10	7	6	6	--	--	--	--	--
													1	1	1	2	8	3	1	3	3	1	1	1	2	1	1		1	1	1					
															1	1	1	1	2	2	1	1	1													
6	1443-1526	7	8	8	8	6	--	--	--	--	--	6	7	8	11	18	23	22	16	20	30	15	10	5	--	--	5	11	13	13	14	11	8	--	--	--	--
														1	2	4	4	4	10	12	4	3		1	7	6	8	1	3	1	2	2				
													1	1	2	3	3	3	3	4	4	2	1		1	1	1	1	1	1	1					
7	1510-1615	-	-	--	--	--	--	--	--	--	--	--	7	8	9	14	18	23	23	12	30	14	10	5	--	--	--	9	14	13	11	9	8	--	--	--	--
														1	2	4	3	4	4	5	1	1	1			1	3	3	2	1	1					
													1	2	3	4	5	5	3	5	4	2	2	1			1	2	2	1	1					
8	1431-1539	-	-	--	--	--	4	8	9	10	13	11	10	9	7	10	12	18	14	22	23	27	18	12	9	5	--	--	--	--	--	--	--	4	4	5	--
													1	1	3	2	2	2	2	2	3	2	2	1	1	4	5	5	1	1						
														1	1	2	3	3	2	3	3	2	2	1												
9	1456-1524	-	-	5	5	6	5	--	--	5	5	5	5	7	9	14	19	19	16	14	13	14	12	8	8	8	7	11	11	9	--	--	--	--	--	--	--
															1	3	2	1	3	2	2	2	2	2	2	2	4	5	3	1						
													1	1	2	2	3	2	2	2	2	1	1	1	1											
10	1456-1521	-	-	--	--	--	--	--	--	--	--	8	9	10	11	12	13	15	14	14	14	11	15	12	8	--	8	12	11	9	7	--	--	--	--	--	--
													1	2	2	1			3	1	1	1	2	2	4	5	5	4	4	4	2	1				
														1	2	2	2	2	2	2	1															
11	1443-1510	-	-	5	7	7	6	5	--	--	--	6	10	12	14	14	14	15	12	10	9	9	9	10	8	5	11	8	7	6	5	5	--	--	--	--	--
													1	2	1	1		1	3	1	1	1	1	4	8	9	7	4	2	2	1	1	1			
													1	2	3	2	2	2	1	1	1	2	1	1												
12	2022-2129	-	-	7	8	8	6	--	--	--	--	7	9	11	15	19	17	15	13	10	8	8	8	10	11	10	10	8	8	8	--	--	--	--	--	--	--
													1	2	2	2	1	3	2	1	1		1	3	8	12	13	5	1	1						
													1	2	2	1	1				1	1	1													
14	1549-1755	6	8	10	10	9	8	6	6	5	6	8	9	11	15	21	23	25	19	14	9	6	10	14	19	22	19	12	6	6	8	6	5	5	5	5	5
										1	1	1		1	2	5	4	2	2	4	2	1	1	3	9	3	4	8	6	4	2	2	1	1	1	
												1	1	1	2	3	2	1	1	1	1	1	1	1	2	3	2	1	1	1	1					
20	1423-1502	4	5	5	4	3	4	4	3	--	--	--	--	--	5	6	9	11	10	18	13	9	6	5	5	7	12	15	10	6	5	7	9	7	3	3	4
													1	1				2	9	1	1	1		1	2	2	2	1	1	1						
																	1	1	1	1																
21	1852-1917	8	9	9	7	5	5	4	--	--	4	5	4	4	6	8	11	15	11	28	27	18	11	9	10	15	18	20	19	9	5	6	12	12	10	5	3
					1	1	1						1	2	4	3	2	1	1	10	3	1		1	2	2	3	4	2	2	5	2	1	1			
																	1	1	1							1	1	1	1							
22	2019	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	21	20	18	15	13	12	15	17	19	19	11	6	3	7	13	11	6	5
																			3	2	2	1		1	3	3	1	1	1	2	1	1	1			
																		1	2	1	1				1	1	1	1	1	1						
23	1410-1502	6	7	10	10	7	5	--	--	--	--	--	--	--	--	8	11	13	15	16	12	10	8	8	8	12	17	18	19	13	13	--	6	7	8	6	--
																1	1	4	5	3	2	1		1	2	1	1	1			1	1				
																1	1	1	1	1	1				1	1	2	3	3	2	1					
24	1518-1547	5	9	10	10	5	3	--	--	--	--	--	--	--	--	--	3	14	18	19	13	11	10	9	11	13	14	25	23	14	11	12	--	6	6	5	3
															1	2	3	4	4	2	2	1			1	3	4	1								
																	1	2	2	2	1				1	1	2	2	1	1						
25	1457-1558	4	9	10	10	9	8	5	3	--	--	--	--	--	--	--	7	11	14	17	15	13	14	14	15	22	30	30	27	14	12	10	--	6	5	4	--
															1	1	2	3	4	4	1	1	1	2	2	2	2	1								
																	1	1	1	1	1	1	2	2	1	2	1	1								
26	1522-1603	4	5	7	7	6	4	--	--	--	--	--	--	--	--	4	6	10	14	19	21	20	17	16	19	24	25	20	22	18	13	8	6	5	5	4	--
												1	1	1	1	1	1	1	3	8	11	3	2	5	3	2	2	2	1	1						
																1	1	1	1	2	3	3	2	2	3	3	3	2	1	1	1					
27	1814-1845	-	4	4	5	4	3	--	--	--	--	--	--	--	--	3	5	11	14	16	27	20	14	14	15	18	16	15	15	13	13	11	3	3	--	--	--
																			5	4	4		2	9	2	1										
																		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
29	1454-1511	4	-	4	6	6	4	4	--	--	--	--	--	--	--	4	6	8	14	20	24	28	30	18	17	24	28	26	20	19	18	15	15	15	14	12	10
																1	1	2	3	5	6	5	1	1	8	10										
																	1	1	1	2	1	1	1	1	2	3	2	1	1							
31	1531-1551	4	4	4	5	4	4	4	--	--	--	--	4	5	6	8	10	12	12	13	30	38	36	33	25	20	28	25	15	14	13	12	15	15	13	12	10
																		1	1	2	5	3	1	3	6	9	4	2	1							
																			1	3	4	3	2	1	1	2	1	1	1							

Table 83 (continued)

Date 1947 August	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	1408-1447	--	--	--	--	--	--	--	--	--	--	--	--	8 1	11 1	13 1	14 1	17 5	17 3	19 10	15	8	6 1	6 1	10 4	12 7	13 15	15 10	13 6	10 3	7 2	5	--	--	--	--	--
2	1630-1651	--	--	--	--	--	--	--	--	--	1 8	1 8	1 7	1 9	1 13	1 22 1	1 14 1	1 14 2	1 27 2	1 25 8	1 11 1	1 9	1 9 1	1 10 1	1 10 2	1 9 12	1 14 7	1 13 11	1 12 9	1 10 7	6 1	--	--	--	--	--	--
3	1451-1540	--	8	8	8	7	6	--	--	--	1 --	1 --	1 --	1 9	1 10 1	1 13 1	1 13 1	1 11 1	1 14 1	1 13 1	1 11	1 --	1 8	1 10 1	1 11 3	1 10 2	1 8 3	1 8 1	1 8	8	7	7	--	--	--	--	--
4	1451-1540	6	8	9	8	7	7	6	6	--	6	1 6	2 8	2 10	1 15 1	1 14 1	3 12 2	2 13 3	2 15 2	1 13 1	1 6 1	1 --	1 6	1 8 1	2 13 2	2 14 3	1 13 5	1 7 5	1 -- 1	1 --	--	6	6	6	--	--	6
6	1443-1526	5	6	7	8	8	10	8	5	--	5	5	1 7 1	1 10 1	1 11 2	1 10 3	1 10 3	2 13 7	1 11 10	1 10 8	1 9 8	1 6 1	1 6	1 9 1	1 12 6	18 2	27 10	10 2	9 10	5 1	5	--	--	--	--	--	--
7	1510-1615	-- --	-- 7	-- 8	-- 9	-- 10	-- 11	-- --	-- --	-- --	-- --	-- 5	-- 6 1	-- 7 2	-- 14 8	-- 11 10	-- 11 4	-- 13 2	-- 13 2	-- 11 1	-- 8 1	-- 7	-- 9	-- 11	-- 12 2	-- 14 3	-- 17 4	-- 13 4	-- 13 3	-- 9 1	-- 5	-- --	-- --	-- --	-- --	-- --	-- --
8	1431-1539	--	--	4	4	4	--	--	--	--	5	8	--	-- 1	5 3	15 9	13 5	15 2	15 1	13	9	6	5	8	10	11	12 1	13 2	13 3	12 2	10 1	8	--	--	--	--	--
9	1456-1524	--	4	5	4	--	4	4	--	--	5	10	8 1	-- 1	1 8 2	1 14 4	1 16 4	1 19 4	1 19 3	1 16 2	1 10 2	8 1	10 1	11 1	13 2	15 1	16 1	14 2	13 1	11	7 1	-- 1	--	--	--	--	--
10	1456-1521	--	--	--	8	8	8	1 8	1 --	1 --	1 8	1 10 1	1 11 1	1 12 2	1 15 1	2 18 1	2 20 1	2 23 3	1 24 8	1 21 2	1 17 1	1 11	1 10	1 15	1 17 1	1 19 1	1 20 2	1 18 3	1 15 1	1 11 1	1 7	1 --	--	--	--	--	--
11	1443-1510	--	--	--	8	8	8	8	--	--	--	9	14	1 16	1 17	1 18 1	2 22 1	3 24 2	3 24 3	2 23 4	1 X X	1 X X	1 X X	1 X X	1 X X	1 X X	1 X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
12	2022-2129	--	--	8	8	8	8	--	--	--	--	8	10	1 15	1 16 1	1 20 1	2 26 1	3 28 3	2 28 3	1 26 1	30 4	31 6	28 3	25 4	23 4	21 2	21 1	15	10	8 1	-- 1	-- 1	--	--	--	--	--
14	1549-1755	6	7	8	9	9	8	8	7	6	5	5	7	1 9 1	1 10 1	1 13	2 20 1	3 24 1	1 28 6	1 28 10	3 25 4	2 22 2	2 23 3	2 24 2	1 26 12	1 24 4	1 23 1	20 1	13 1	8 2	5 1	4 1	-- 1	-- 1	--	--	4
20	1423-1502	6	7 1	8 2	3 2	5 1	3 1	3	3	--	3 1	6 1	9 2	13 1	1 14 2	1 18 1	2 15 1	2 19 4	3 10 1	3 3 2	4 3 1	5 -- 1	4 5 1	3 14 2	4 38 9	4 40 2	2 35 9	2 42 1	1 33 4	1 22	15	5	5	10	7	3	3
21 L.W.	1852-1917	6	X	X	X	X	X	X	X	X	8	10	12 1	14 1	1 18	2 21	1 20 1	1 22 3	11 2	3 1	-- 1	--	3 1	1 8 1	2 14 1	4 16 1	3 17 1	2 18	1 19	21	X	X	X	X	X	X	X
22	2019	5	X	X	X	X	X	X	X	X	X	X	X	1 X	1 X	2 X	2 X	2 X	1 X	X	X	X	X	X	X	X	1 X	1 X	1 X	X	X	X	X	X	X	X	X
23	1410-1502	5	7	8	8	6	5	--	--	--	--	--	--	--	--	5 1	12 1	13 2	14 8	15 2	5 13	9 10	9 2	13 1	19 3	23 3	23 5	23 2	25 1	27 1	20	13	8	5	6	6	6
24	1518-1547	--	8	12	10	10	4	--	--	--	--	1 --	1 --	1 -- 1	1 -- 3	1 4 5	1 12 5	1 16 5	1 18 7	1 16 15	1 14 3	1 5 1	1 9 1	1 10	2 13	2 16 1	2 17 3	2 28 2	2 25 1	2 22	1 18 1	1 12	1 10	1 5	1 5	3	3
25	1457-1558	--	5	10	11	8	3	--	--	--	--	--	-- 1	3 1	5 2	8 3	1 12 3	1 16 7	1 17 9	1 8 9	1 8 4	1 9 1	1 10	1 11	1 10	1 6 1	1 15 5	1 19 5	1 17 1	1 18	1 12	1 8	12	4	3	3	3
26	1522-1603	--	--	9	12	9	--	--	--	--	7	8	17	10 1	7 1	1 -- 1	1 -- 2	1 -- 3	-- 3	-- 9	-- 4	-- 1	1 -- 1	1 --	1 --	1 8	1 10	1 15 1	2 15 2	1 14 1	14	11	9	--	--	--	--
27	1814-1845	--	4	5	9	8	7	6	5	3	--	--	--	--	--	-- 1	-- 2	-- 2	15 3	22 3	14 3	13	7	5	8	7	8	12	13 1	14 1	13	11	--	--	4	7	3
29	1454-1511	8	8	9	8	7	--	--	--	4	4	4	6	5	6 1	7 1	8 1	12	13	17 1	18 3	16 1	14	8	6	5	5	5	6	13 1	17 3	13 1	12 1	9	6	6	5
31	1531-1551	7	7	7	7	6	6	5	5	3	2	3	3	4	6	10 1	12 1	12 1 1	12 1 1	11 1 1	1 14 1	1 12 1	1 8	5	4 1	4 1	7 1 1	11 1	6 1	4	4	6	9	9	8	8	6

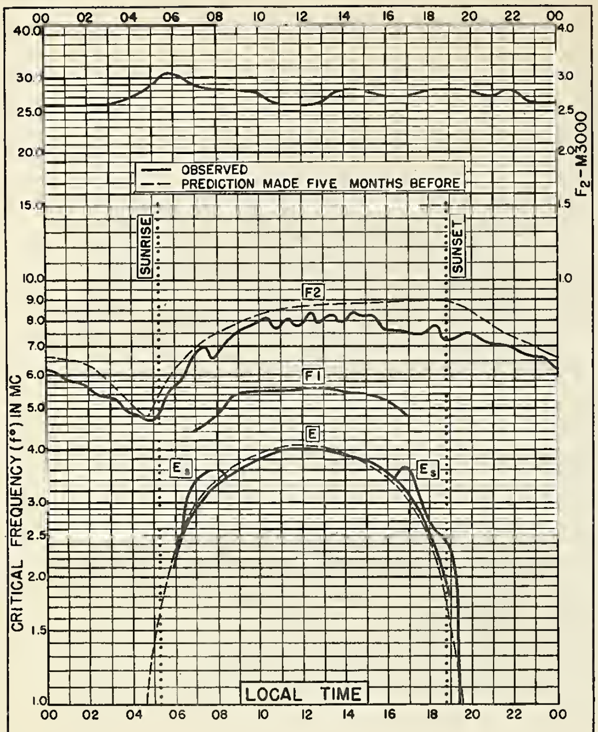


Fig. 1. WASHINGTON, D.C.
39.0°N, 77.5°W AUGUST 1947

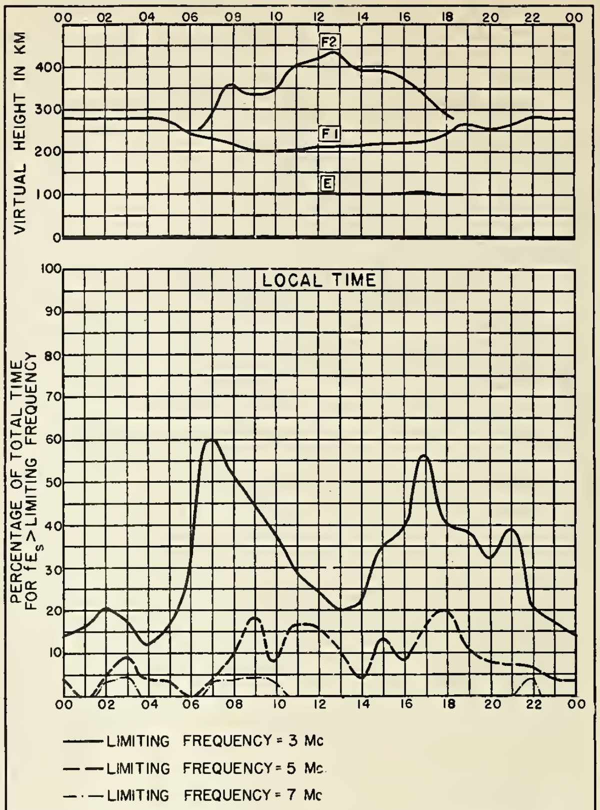


Fig. 2. WASHINGTON, D.C. AUGUST 1947

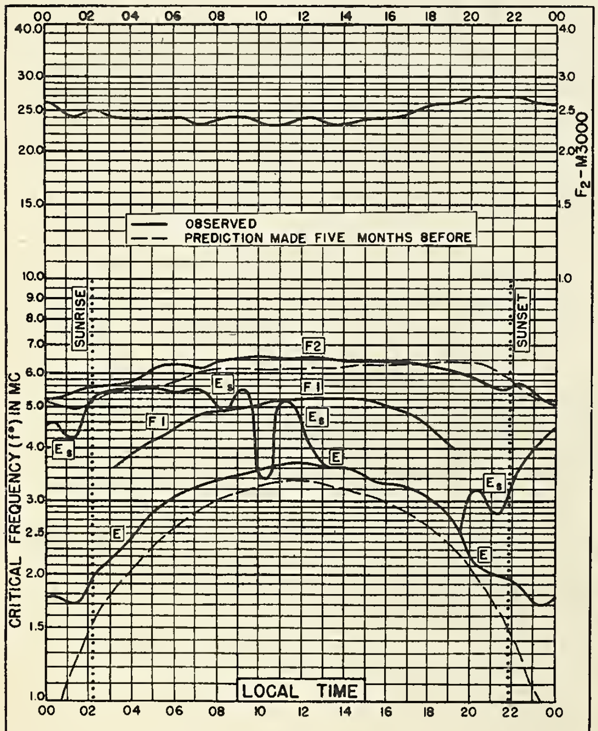


Fig. 3. FAIRBANKS, ALASKA
64.9°N, 147.8°W JULY 1947

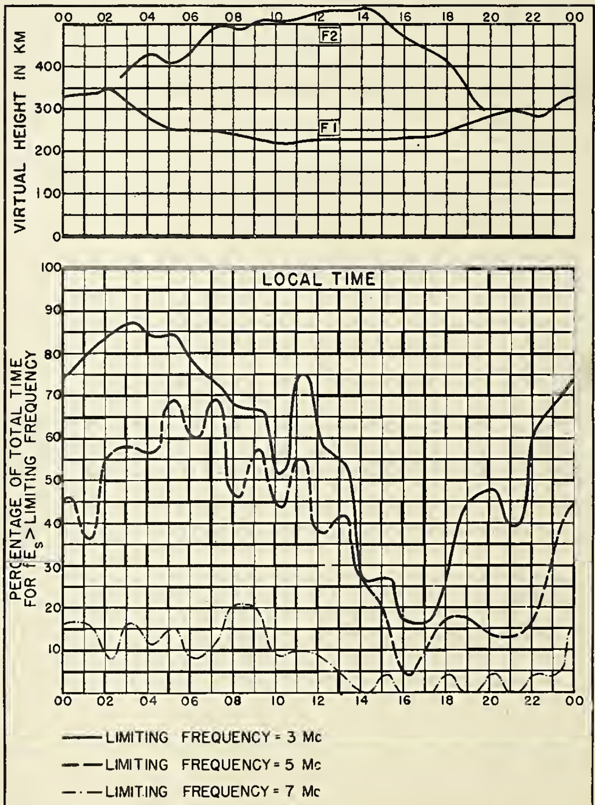


Fig. 4. FAIRBANKS, ALASKA JULY 1947

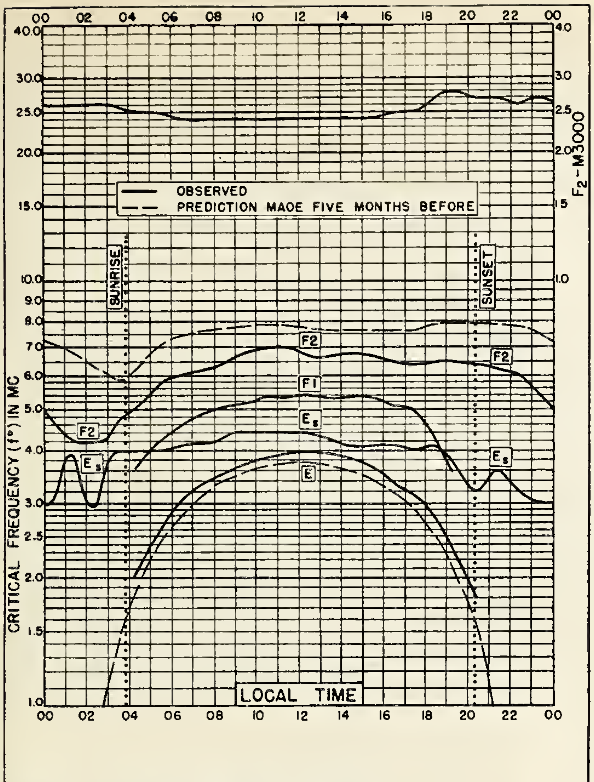


Fig. 5. PRINCE RUPERT, CANADA
54.3°N, 130.3°W JULY 1947

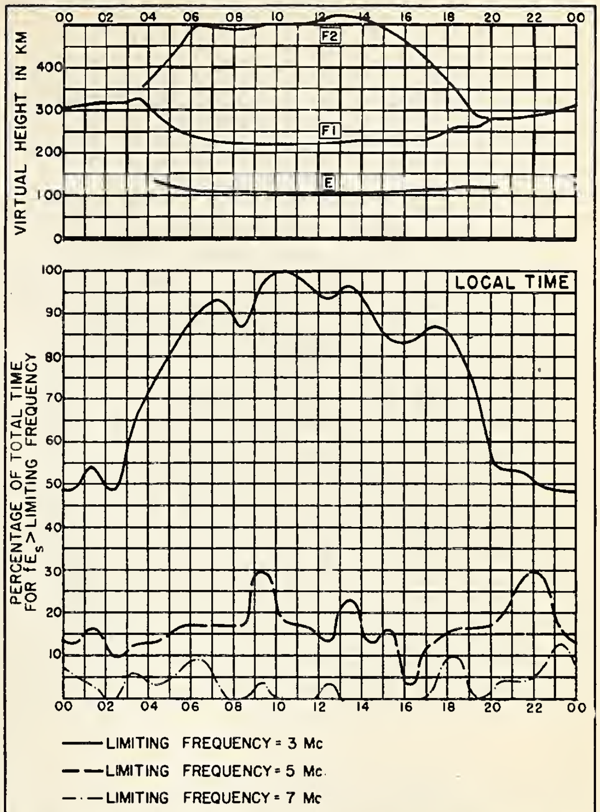


Fig. 6. PRINCE RUPERT, CANADA JULY 1947

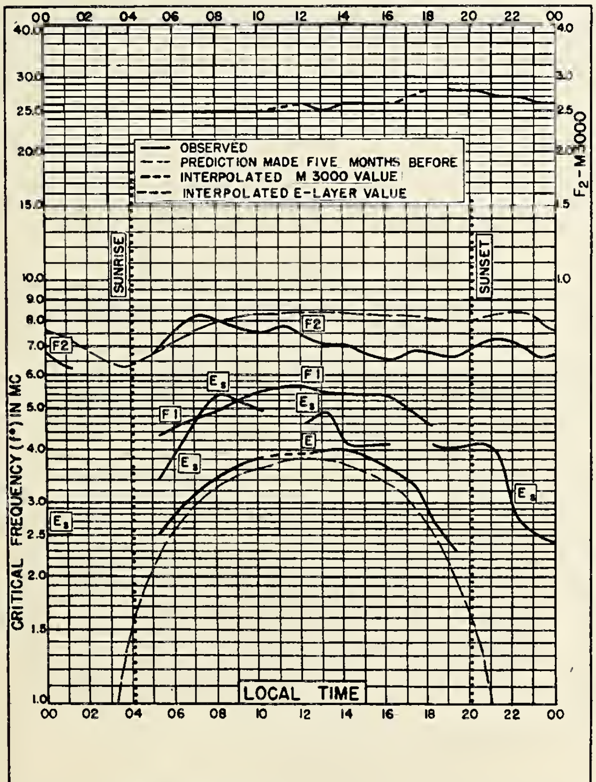


Fig. 7. ADAK, ALASKA
51.9°N, 176.6°W JULY 1947

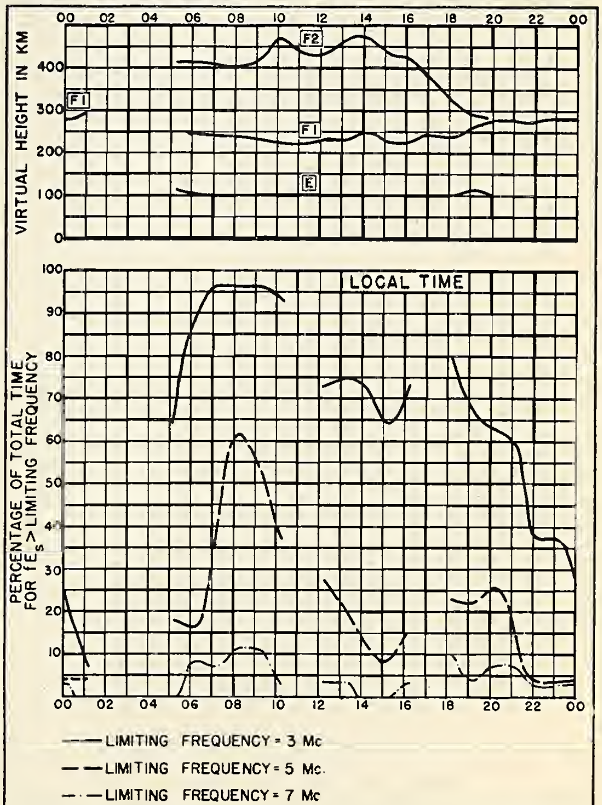


Fig. 8. ADAK, ALASKA JULY 1947

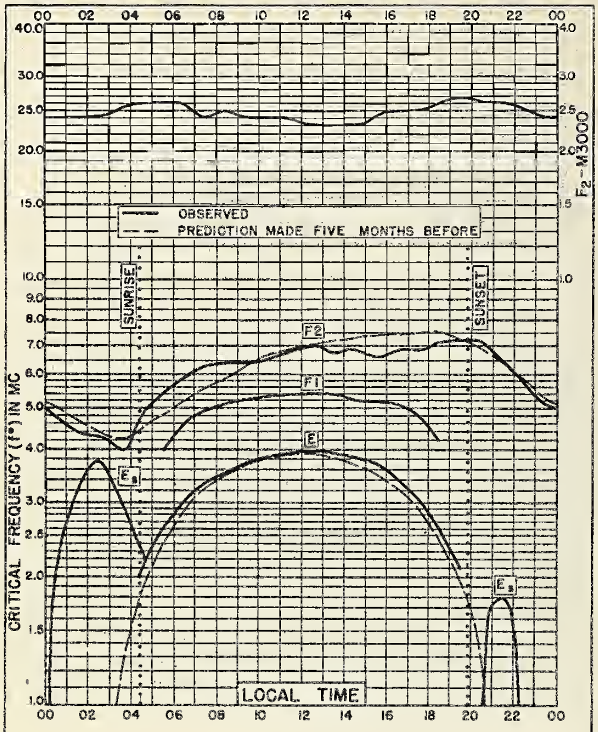


Fig. 9. PORTAGE la PRAIRIE, CANADA
49.9°N, 98.3°W JULY 1947

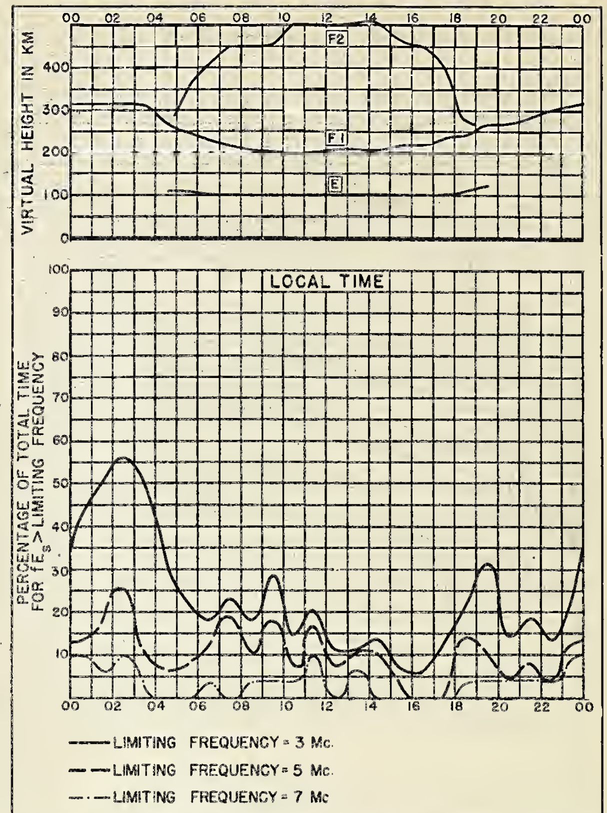


Fig. 10. PORTAGE la PRAIRIE, CANADA JULY 1947

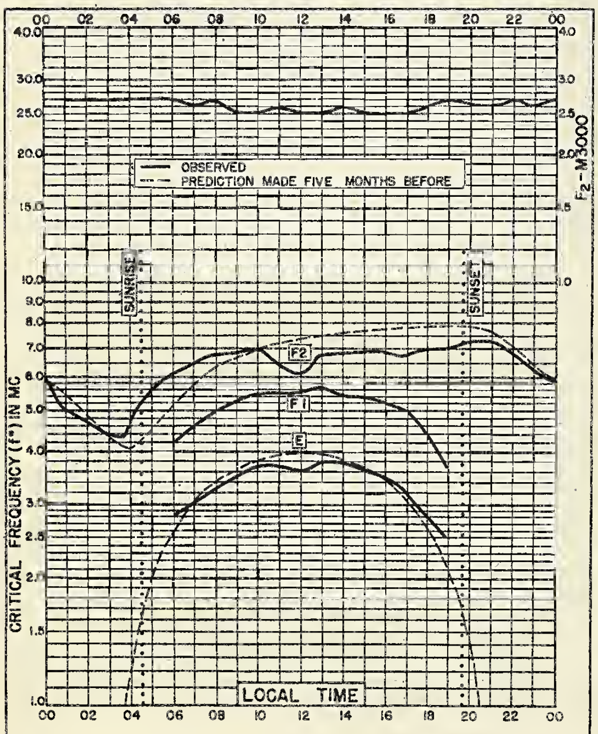


Fig. 11. OTTAWA, CANADA
45.5°N, 75.8°W JULY 1947

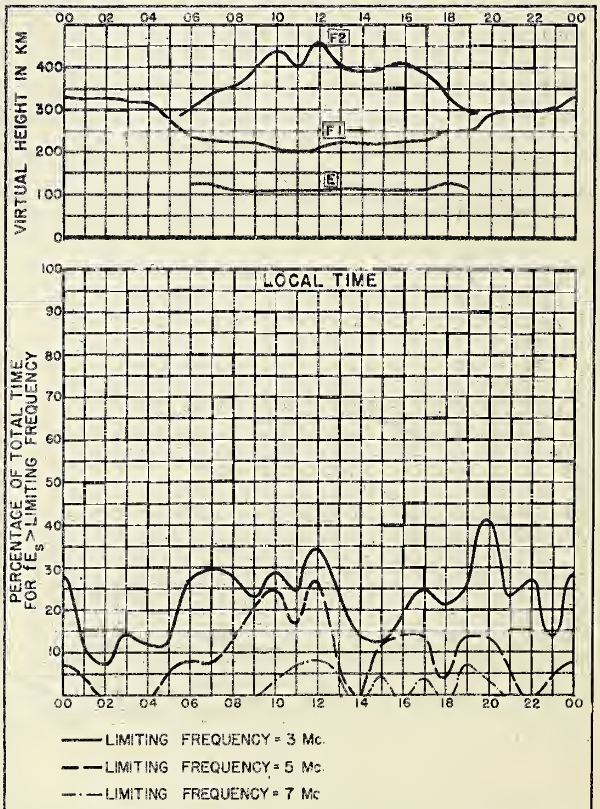


Fig. 12. OTTAWA, CANADA JULY 1947

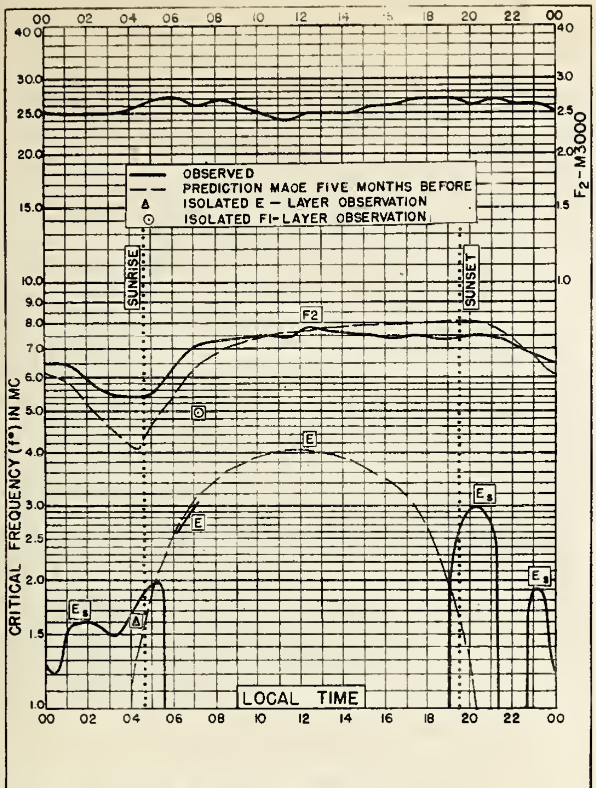


Fig. 13. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W JULY 1947

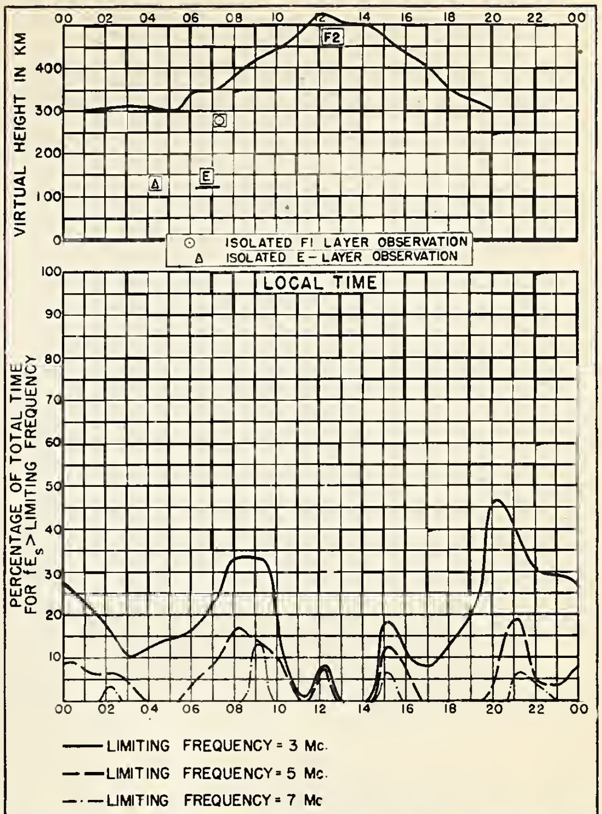


Fig. 14. BOSTON, MASSACHUSETTS JULY 1947

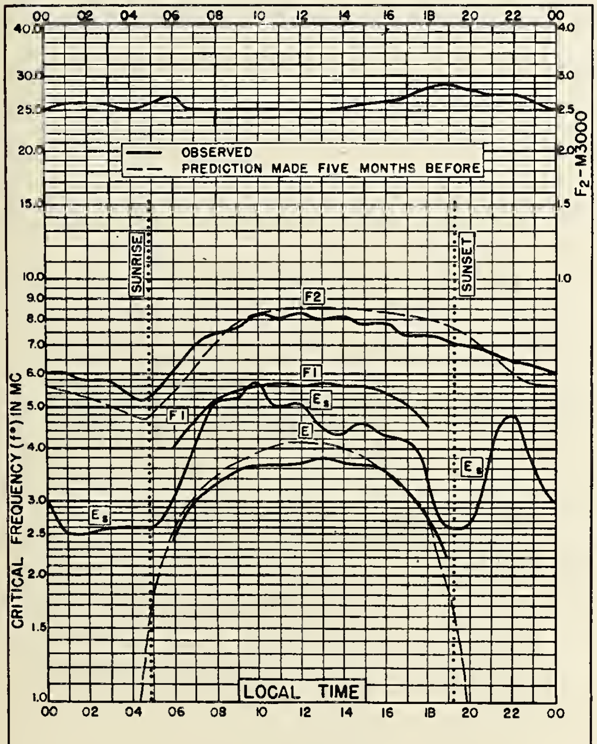


Fig. 15. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JULY 1947

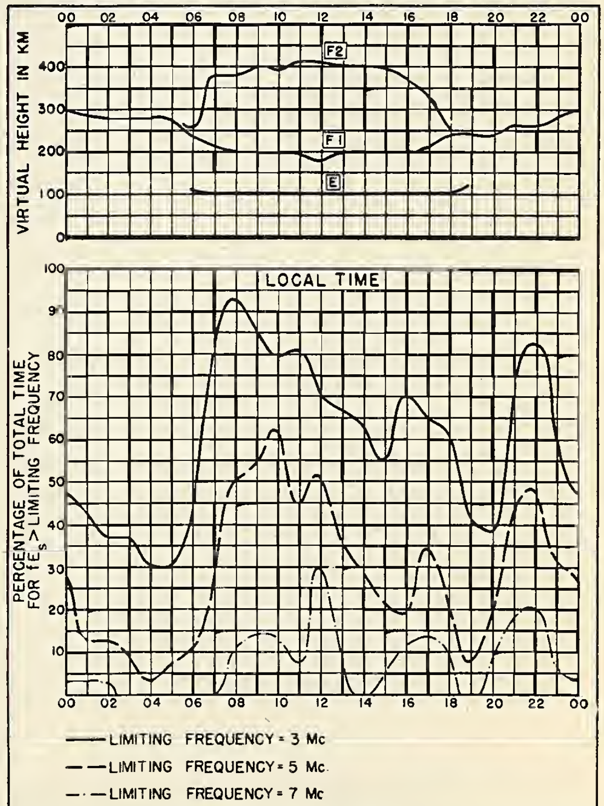


Fig. 16. SAN FRANCISCO, CALIFORNIA JULY 1947

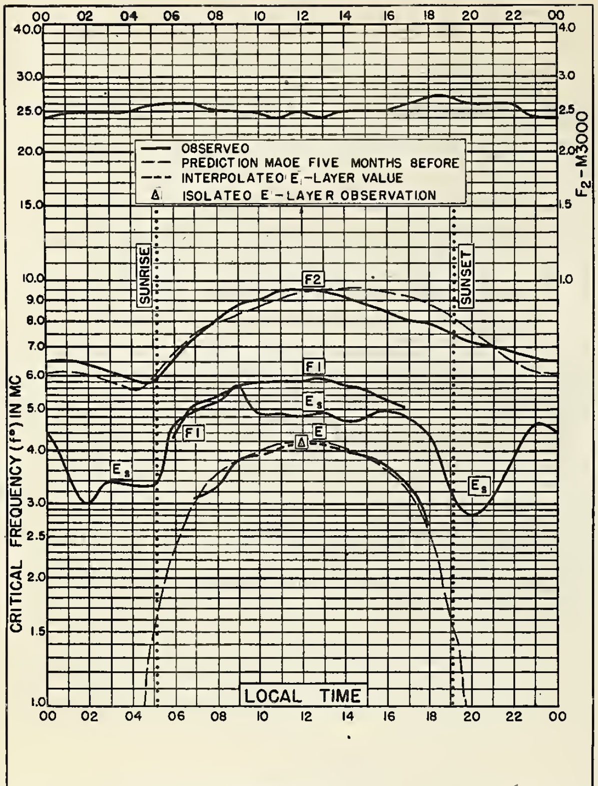


Fig. 17. WHITE SANDS, NEW MEXICO
32.6°N, 106.5°W JULY 1947

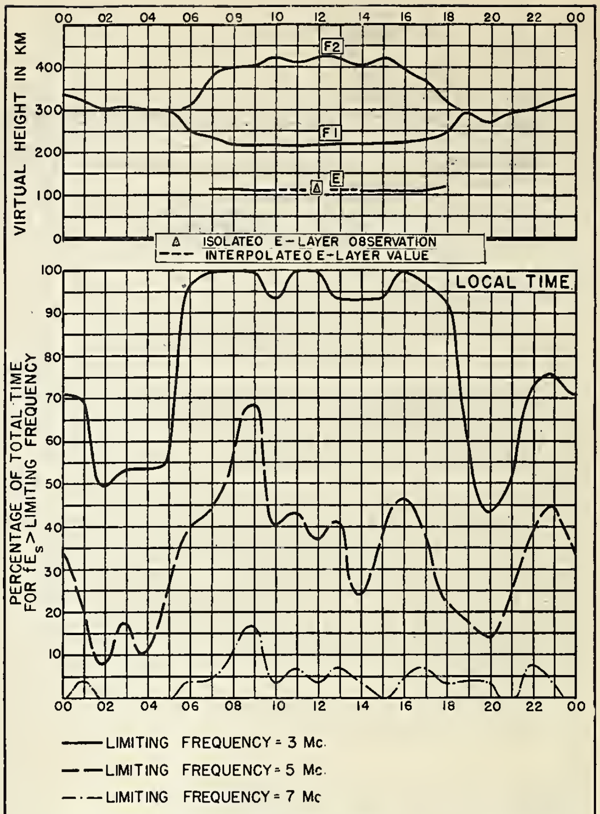


Fig. 18. WHITE SANDS, NEW MEXICO JULY 1947

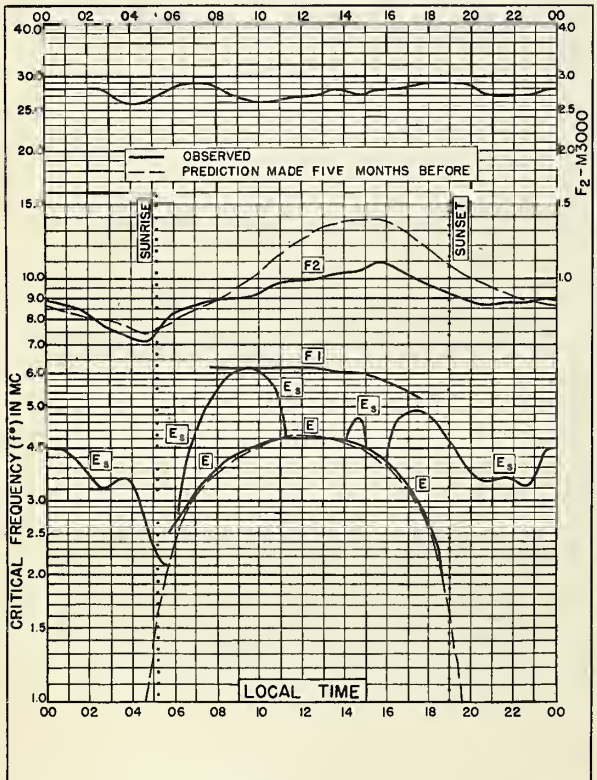


Fig. 19. WUCHANG, CHINA
30.6°N, 114.4°E JULY 1947

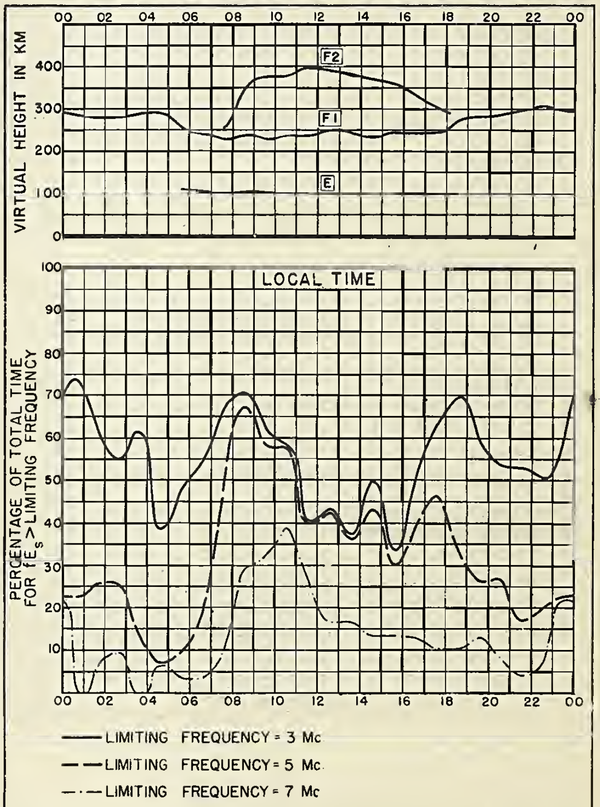


Fig. 20. WUCHANG, CHINA JULY 1947

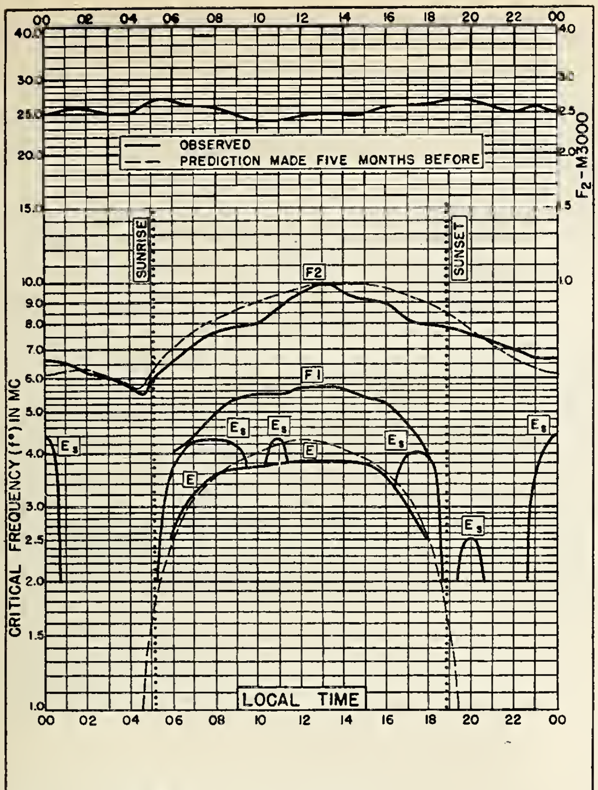


Fig. 21. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W JULY 1947

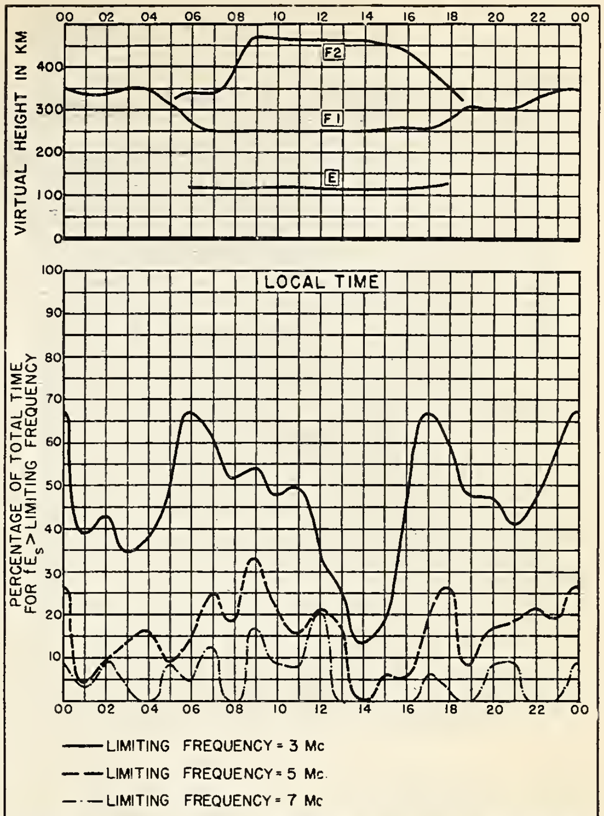


Fig. 22. BATON ROUGE, LOUISIANA JULY 1947

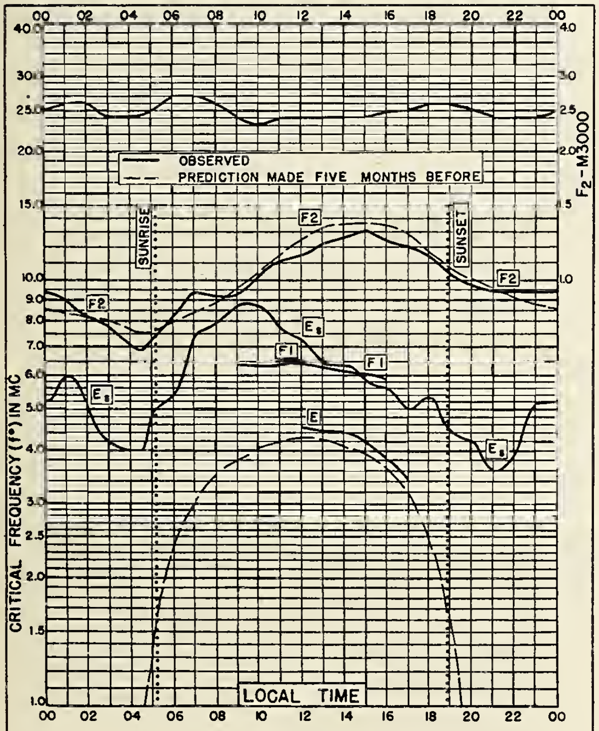


Fig. 23. CHUNGKING, CHINA
29.4°N, 106.8°E JULY 1947

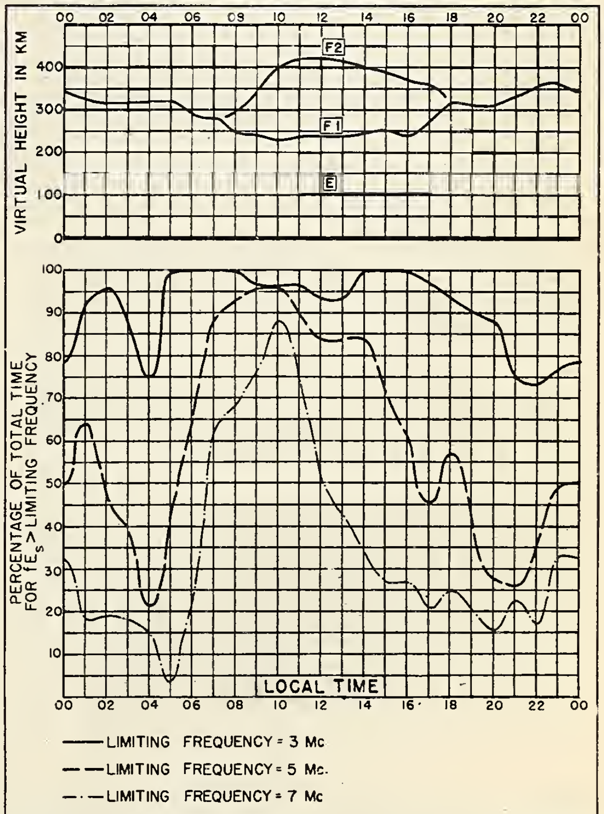


Fig. 24. CHUNGKING, CHINA JULY 1947

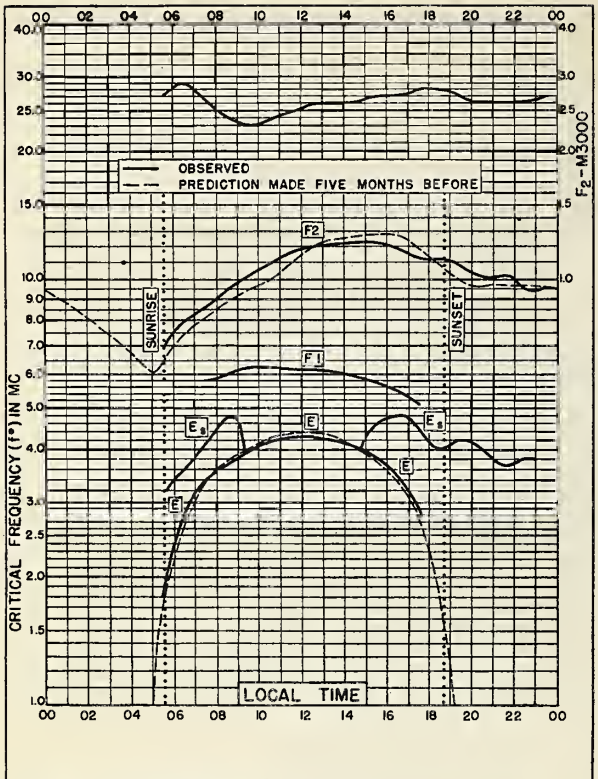


Fig. 25. MAUI, HAWAII
20.8°N, 156.5°W JULY 1947

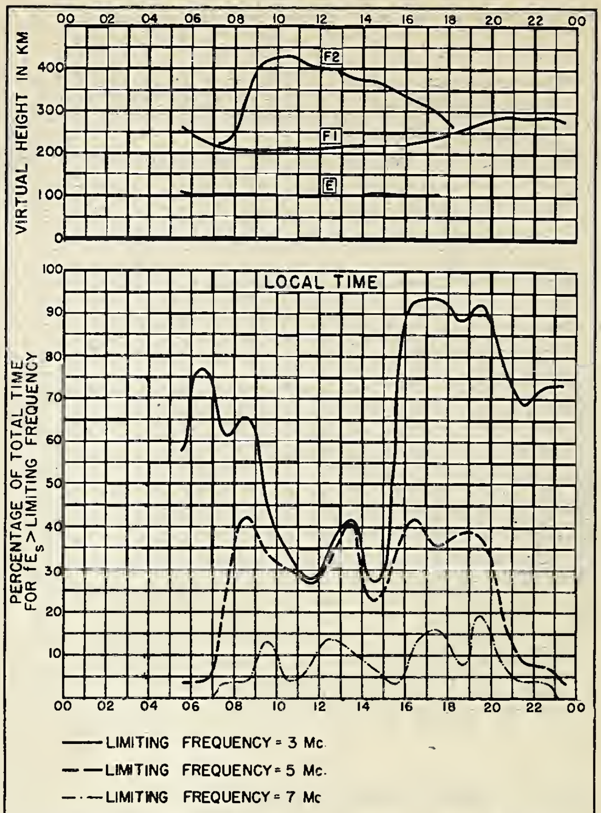


Fig. 26. MAUI, HAWAII JULY 1947

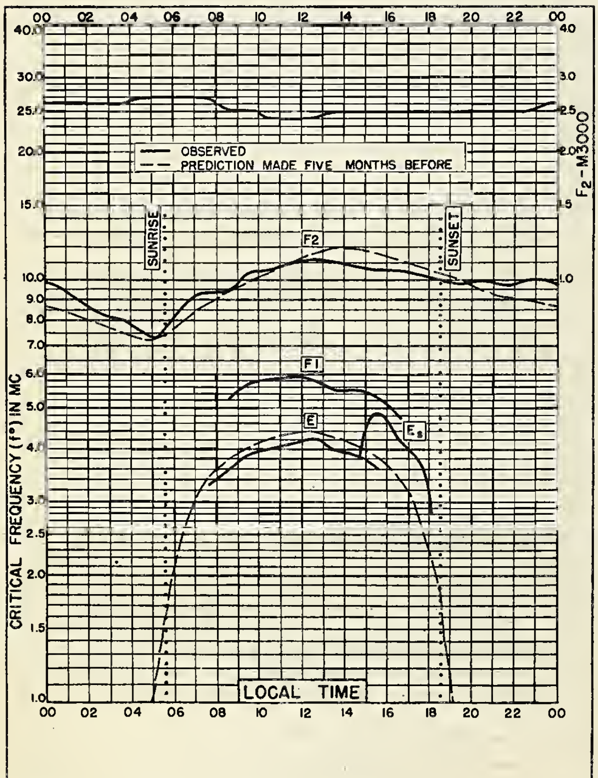


Fig. 27. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W JULY 1947

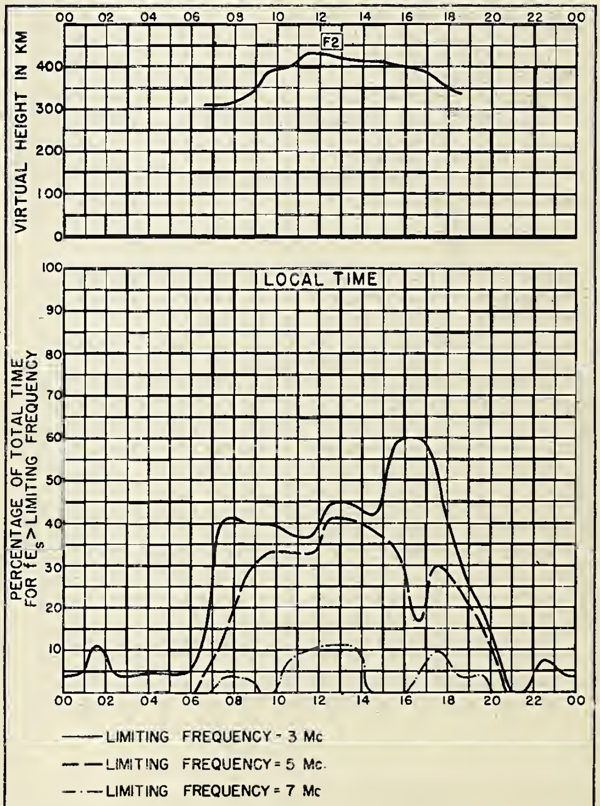


Fig. 28. SAN JUAN, PUERTO RICO JULY 1947

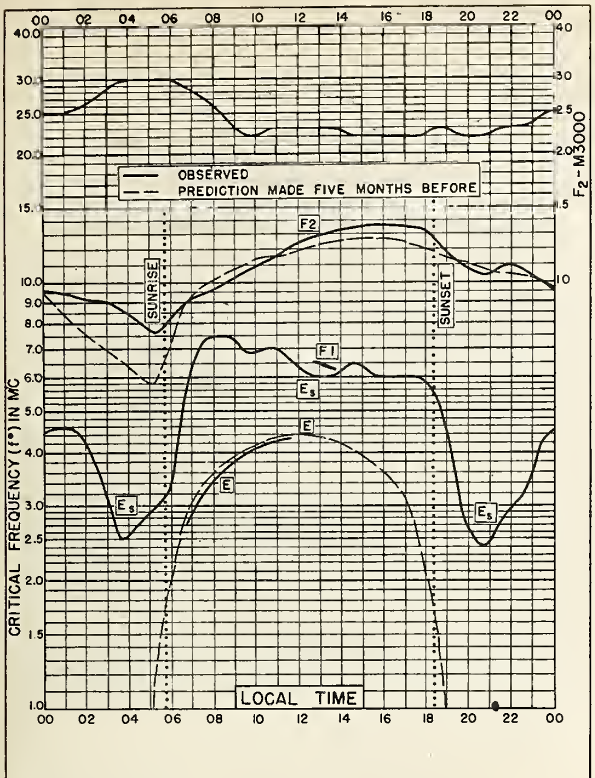


Fig. 29. GUAM I.
13.5°N, 144.8°E JULY 1947

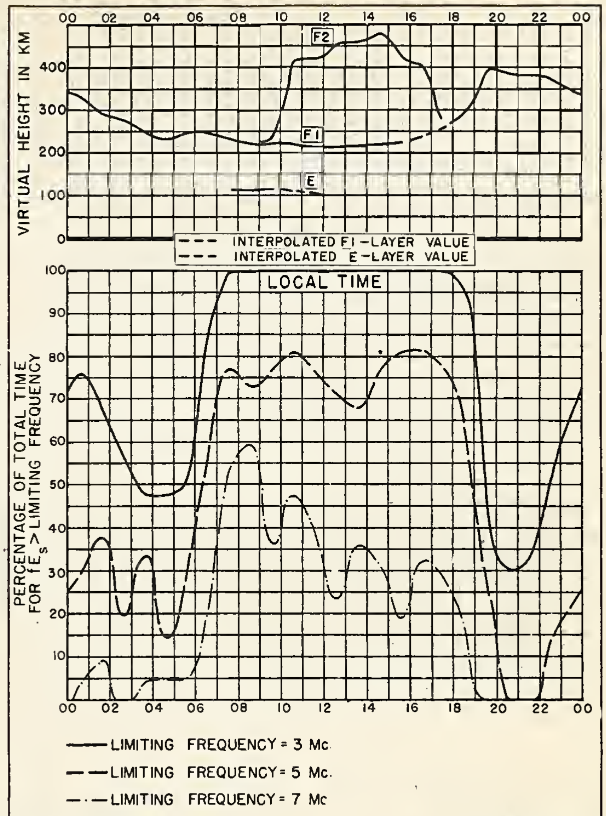


Fig. 30. GUAM I. JULY 1947

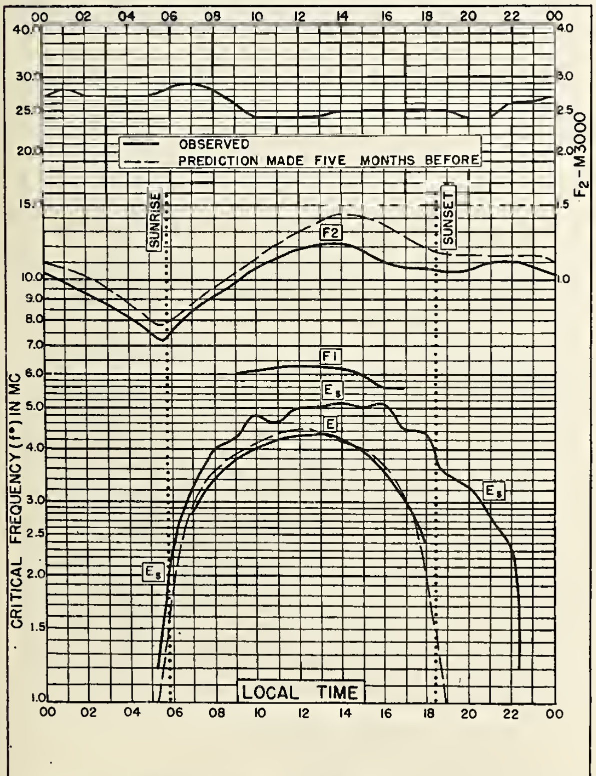


Fig. 31. TRINIDAD, BRIT. WEST INDIES
10.6N, 61.2°W JULY 1947

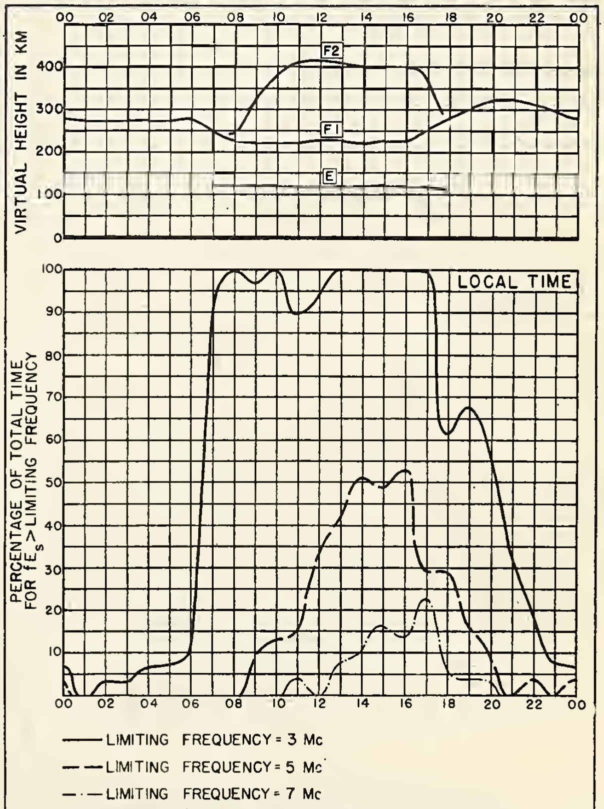


Fig. 32. TRINIDAD, BRIT. WEST INDIES JULY 1947

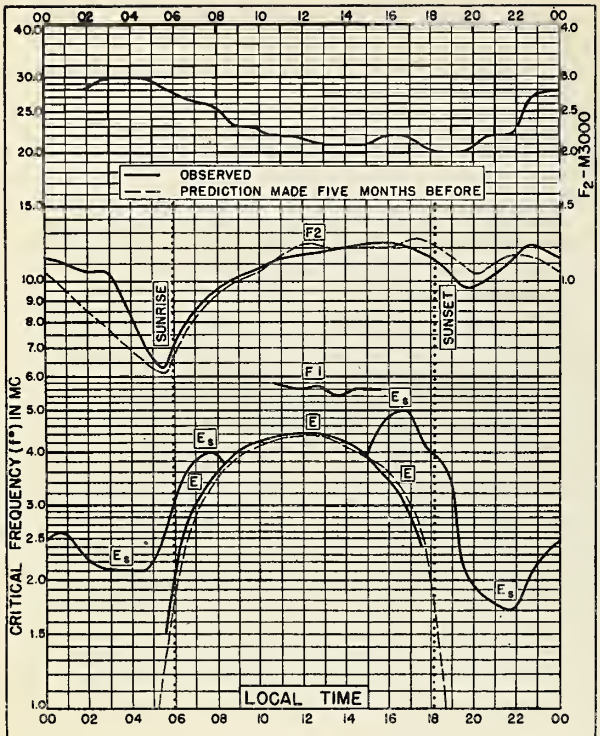


Fig. 33. PALMYRA I.
5.9°N, 162.1°W JULY 1947

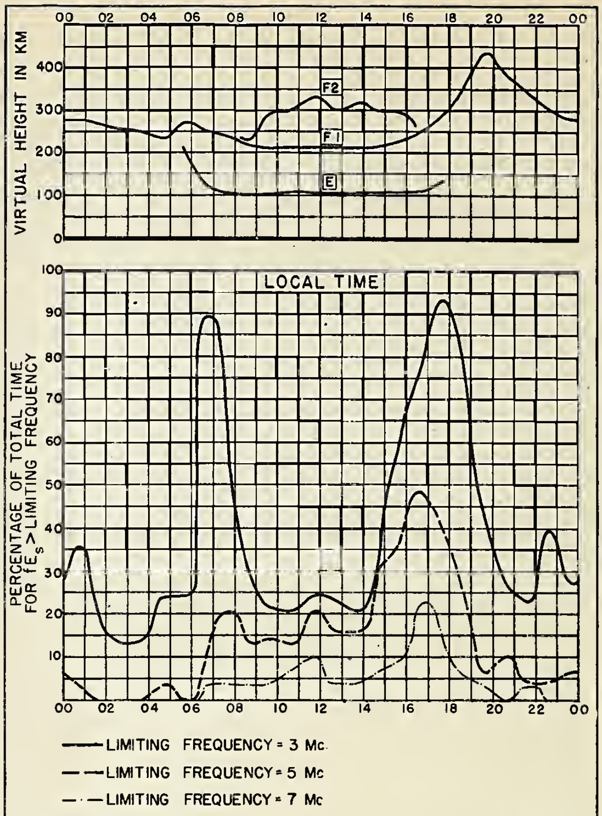


Fig. 34. PALMYRA I. JULY 1947

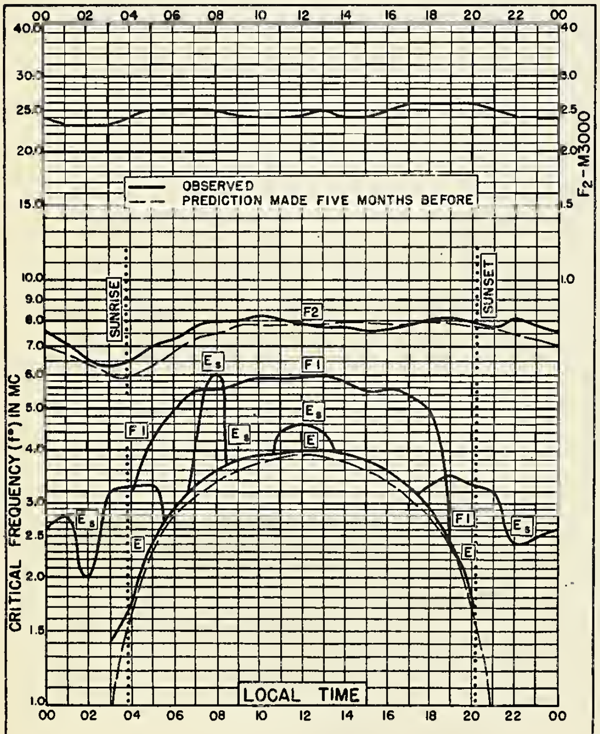


Fig. 35. SLOUGH, ENGLAND
51.5°N, 0.6°W JUNE 1947

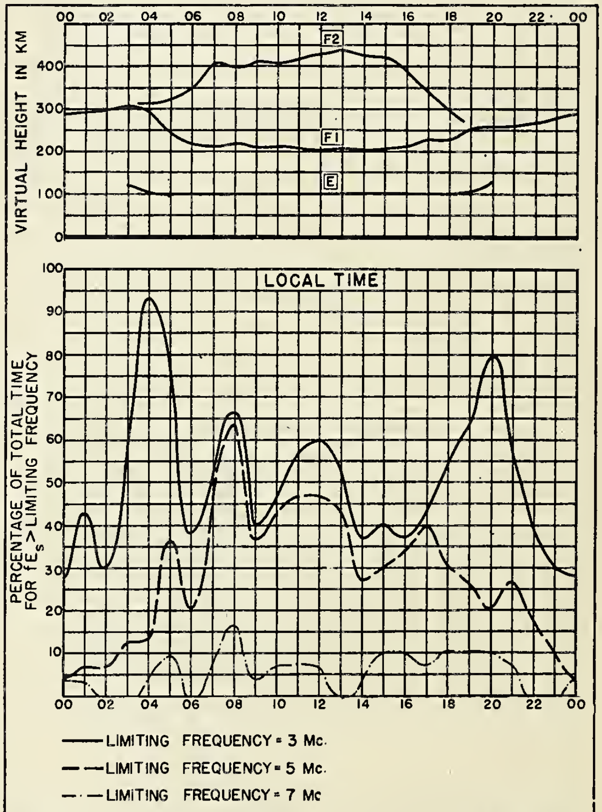


Fig. 36. SLOUGH, ENGLAND JUNE 1947

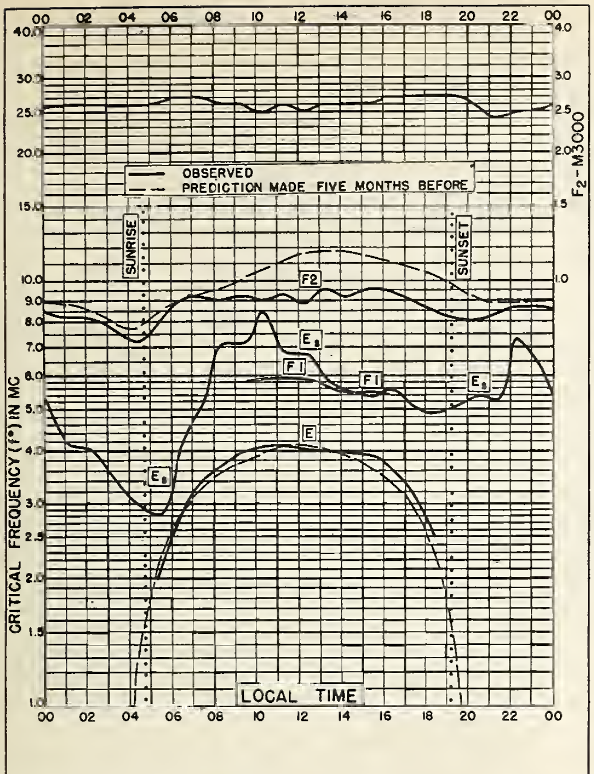


Fig. 37. TOKYO, JAPAN
35.7°N, 139.5°E JUNE 1947

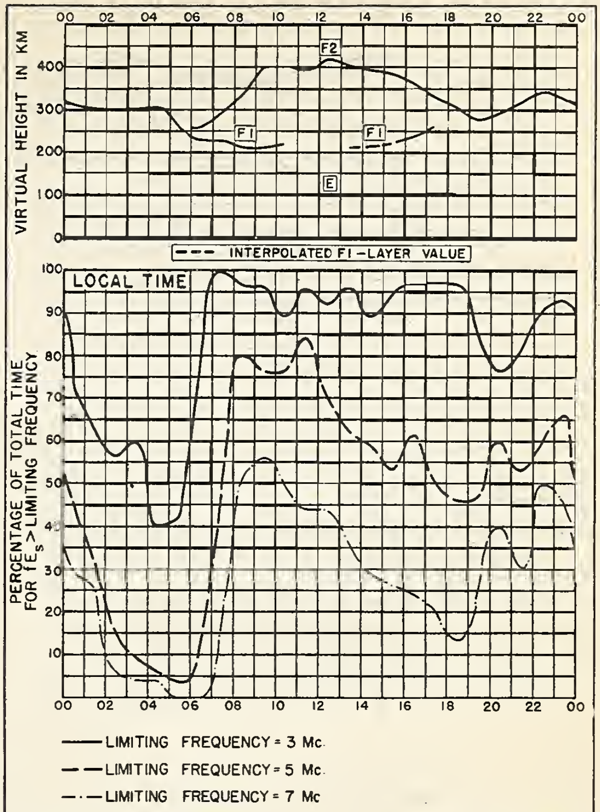


Fig. 38. TOKYO, JAPAN JUNE 1947

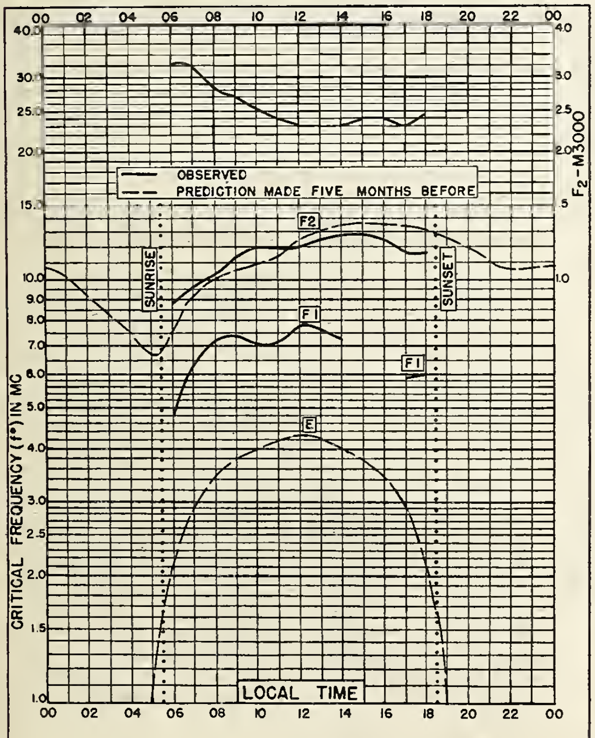


Fig. 39. MANILA, PHILIPPINE IS.
14.6°N, 120.0°E JUNE 1947

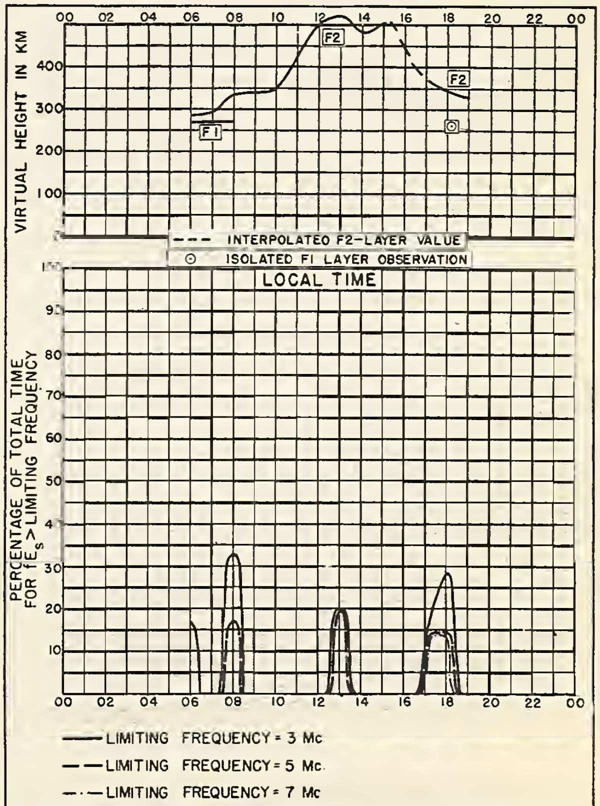


Fig. 40. MANILA, PHILIPPINE IS. JUNE 1947

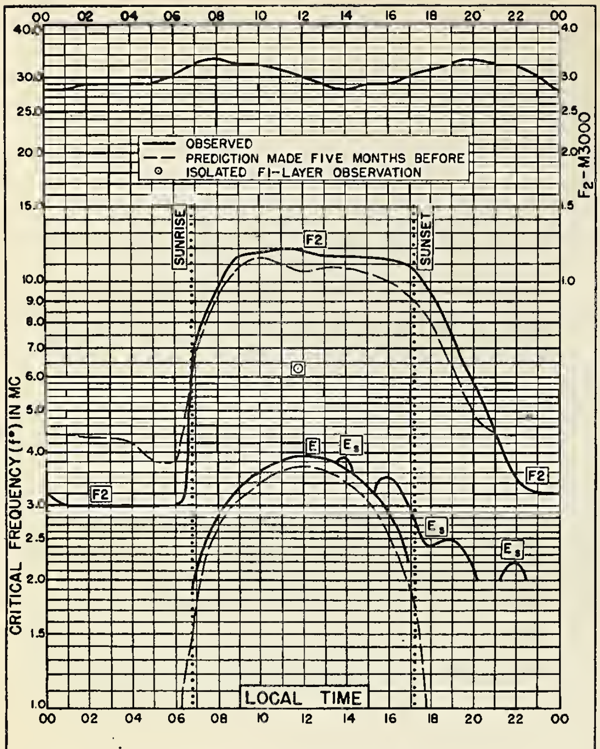


Fig. 41. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E JUNE 1947

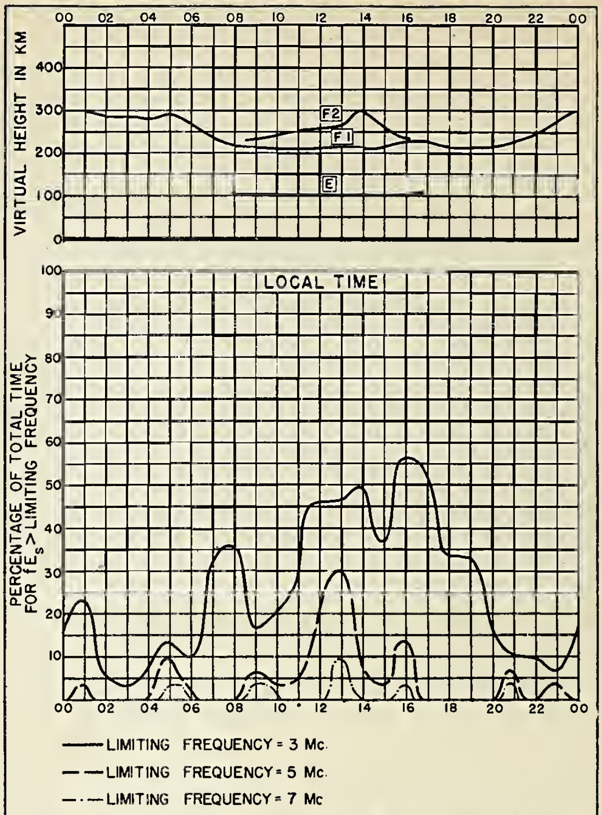


Fig. 42. JOHANNESBURG, U. OF S. AFRICA JUNE 1947

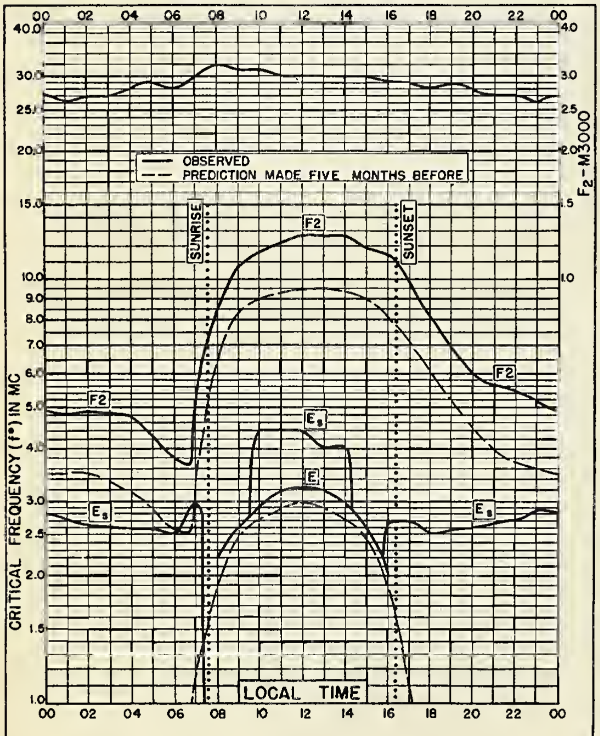


Fig. 43. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E JUNE 1947

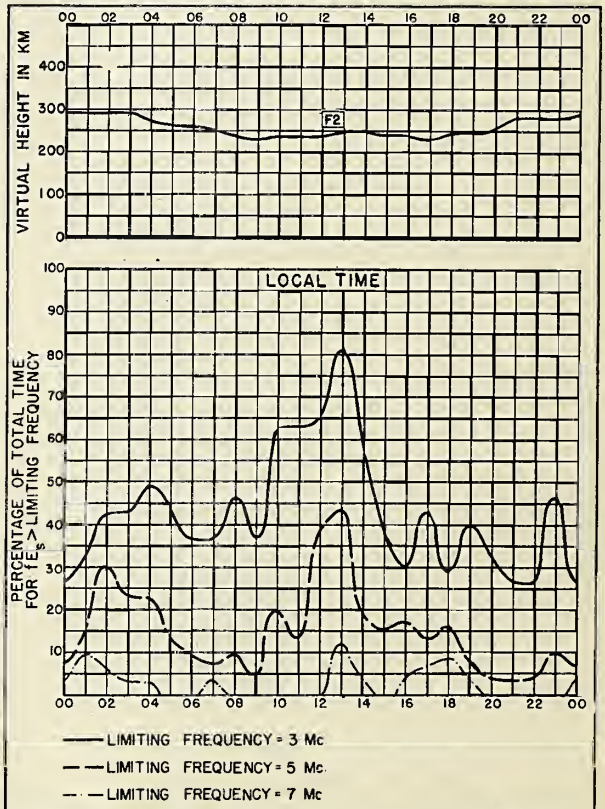


Fig. 44. CHRISTCHURCH, N. Z. JUNE 1947

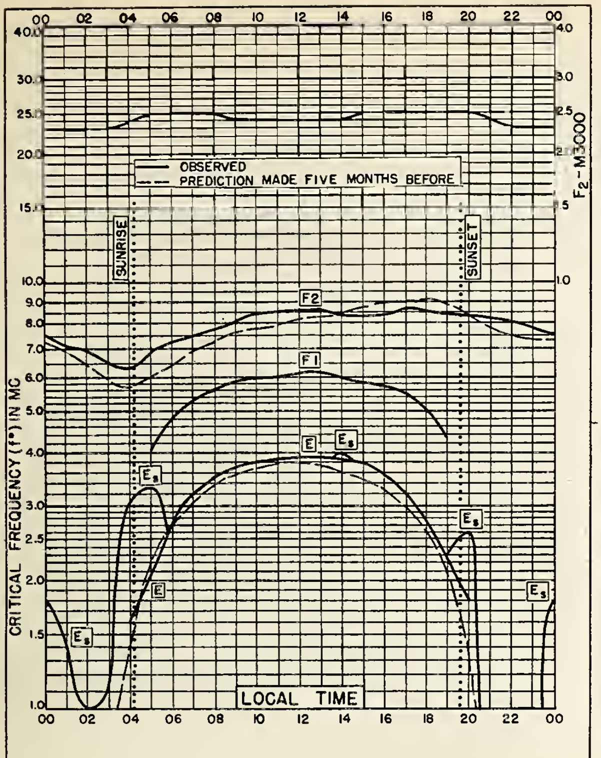


Fig. 45. SLOUGH, ENGLAND
51.5°N, 0.6°W MAY 1947

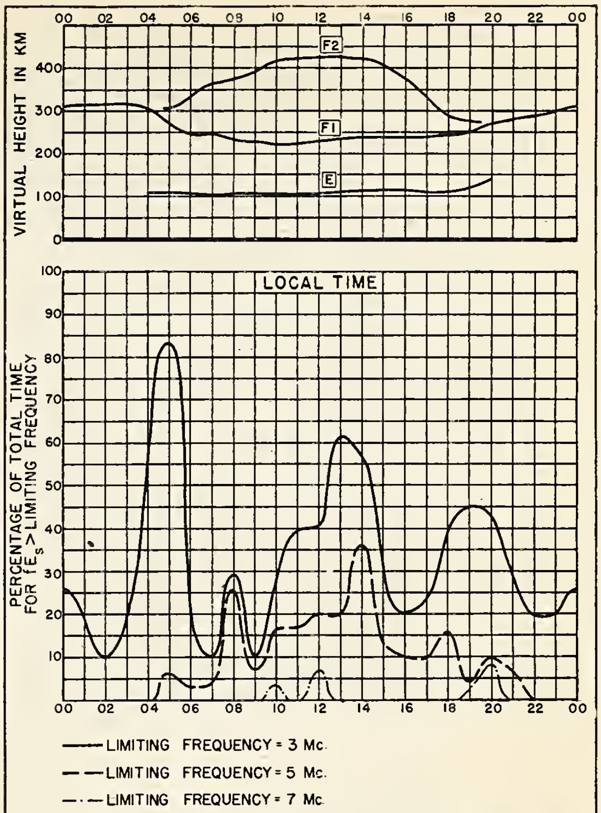


Fig. 46. SLOUGH, ENGLAND MAY 1947

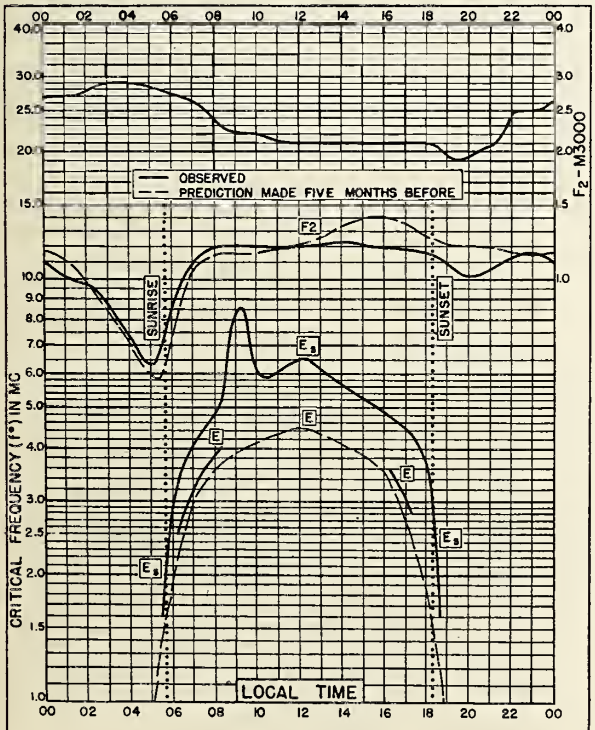


Fig. 47. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E MAY 1947

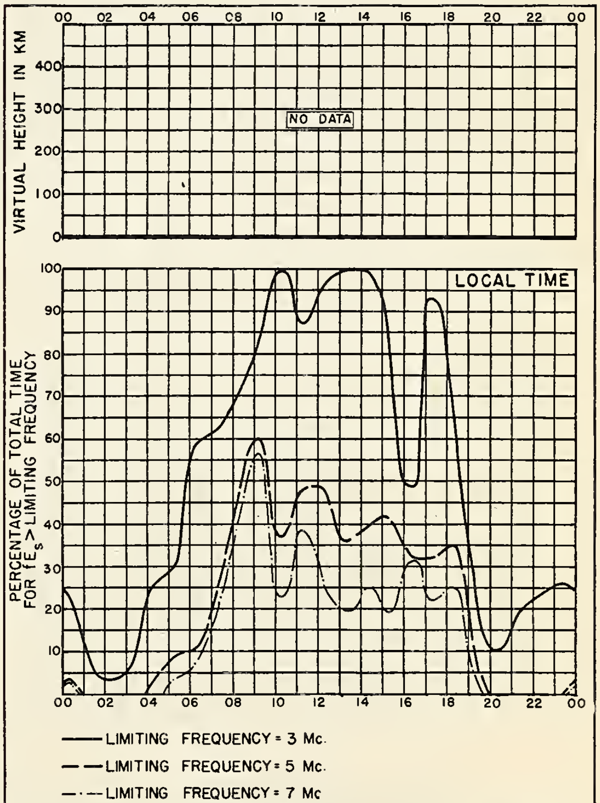


Fig. 48. LEYTE, PHILIPPINE IS. MAY 1947

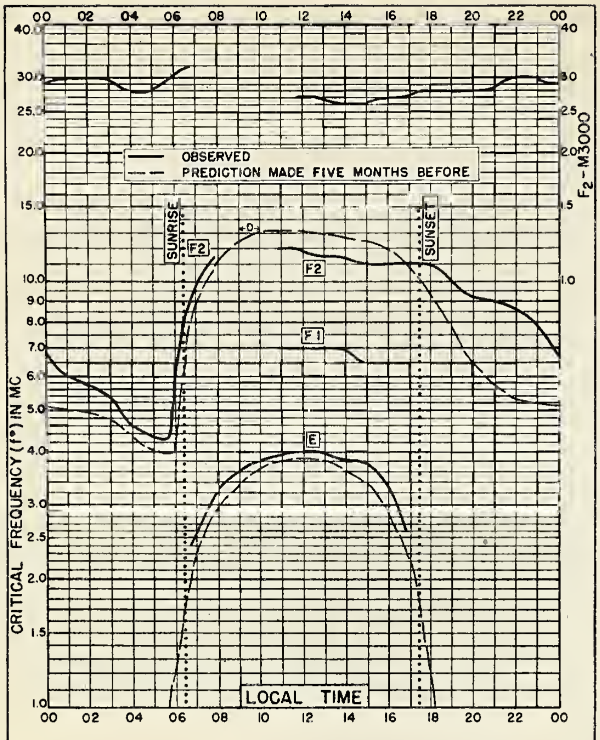


Fig. 49. TOWNSVILLE, AUSTRALIA
19.4°S, 146.5°E MAY 1947

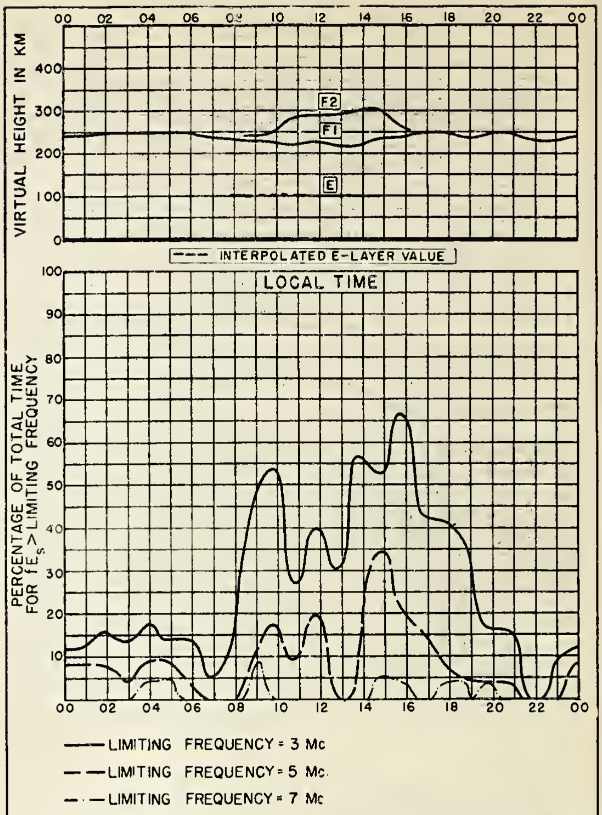


Fig. 50. TOWNSVILLE, AUSTRALIA MAY 1947

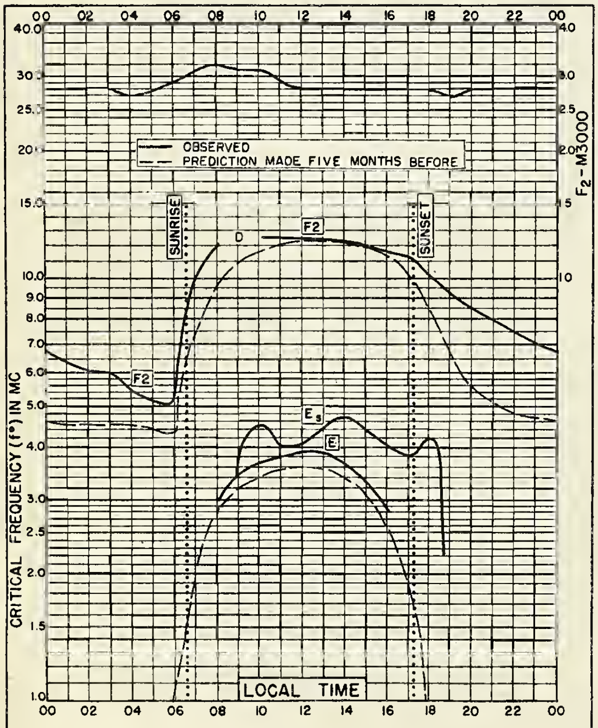


Fig 51. BRISBANE, AUSTRALIA
27.5°S, 153.0°E MAY 1947

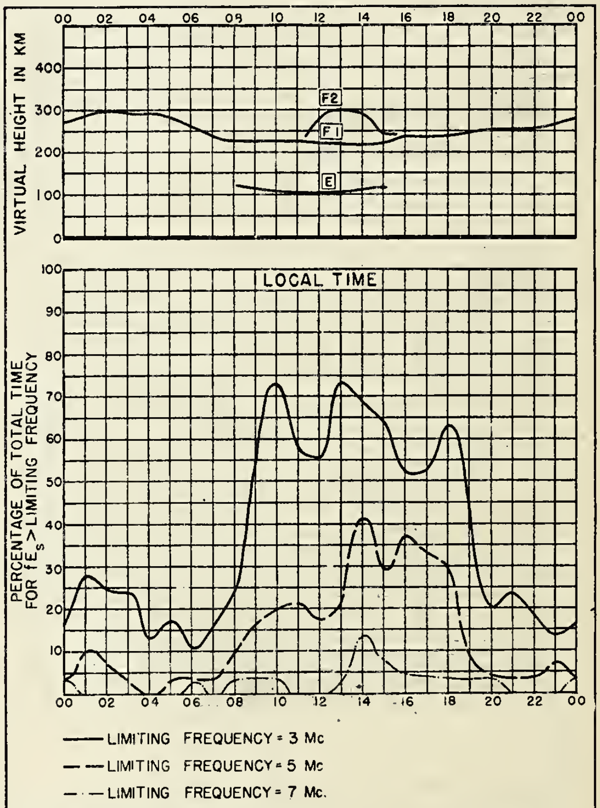


Fig. 52. BRISBANE, AUSTRALIA MAY 1947

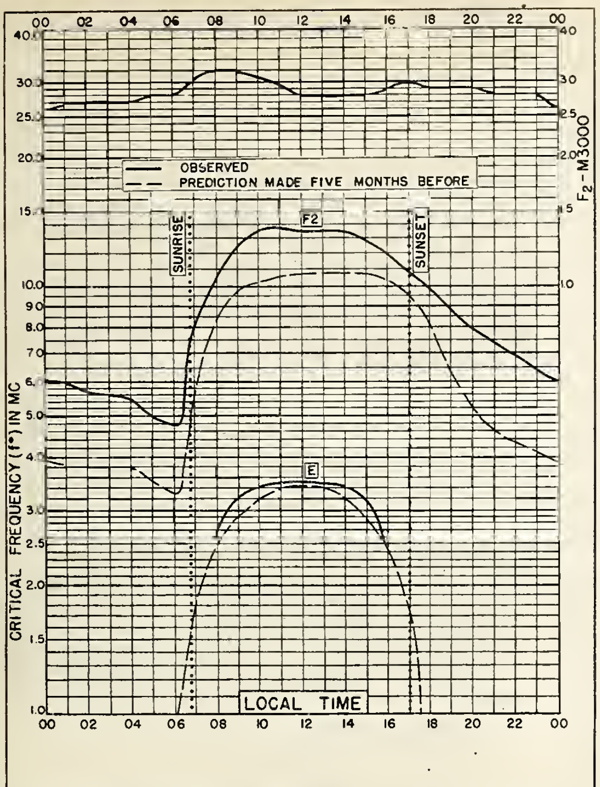


Fig. 53. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MAY 1947

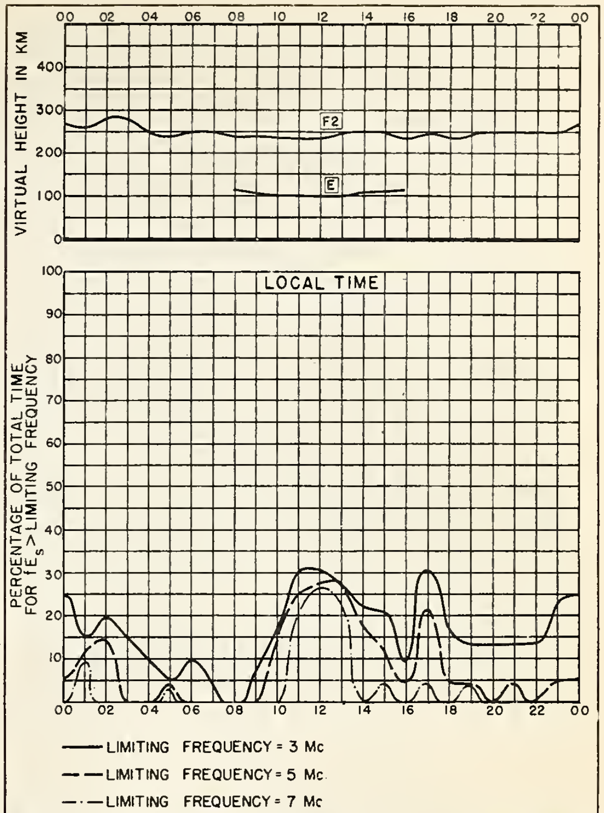


Fig. 54. CANBERRA, AUSTRALIA MAY 1947

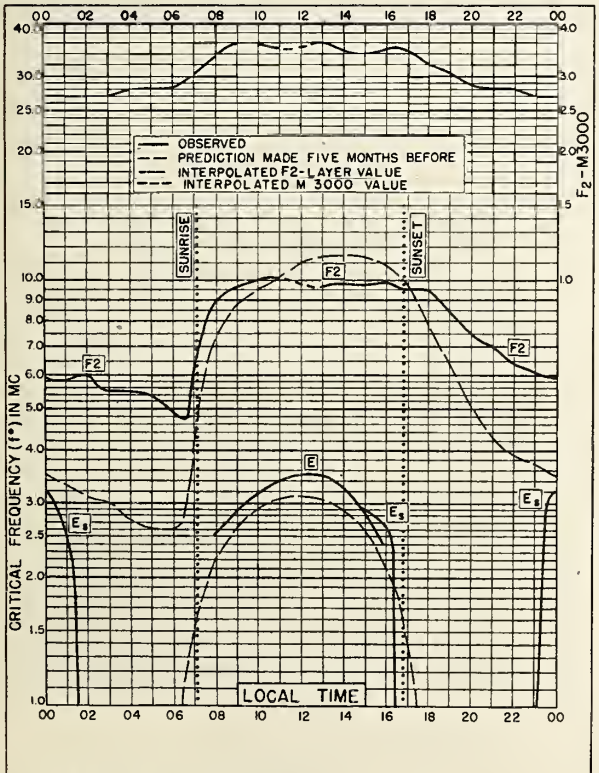


Fig. 55. HOBART, TASMANIA
42.8°S, 147.4°E MAY 1947

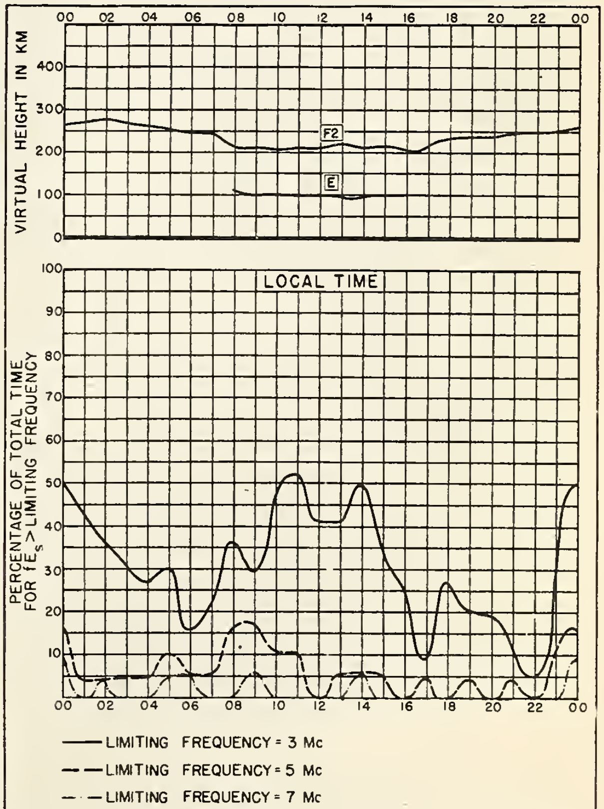


Fig 56. HOBART, TASMANIA MAY 1947

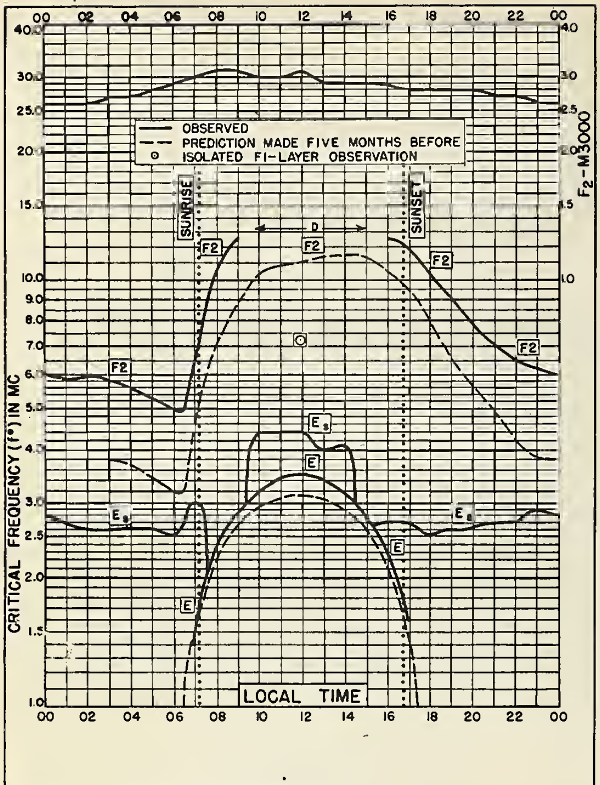


Fig. 57 CHRISTCHURCH, N. Z.
43. 5°S, 172. 7°E MAY 1947

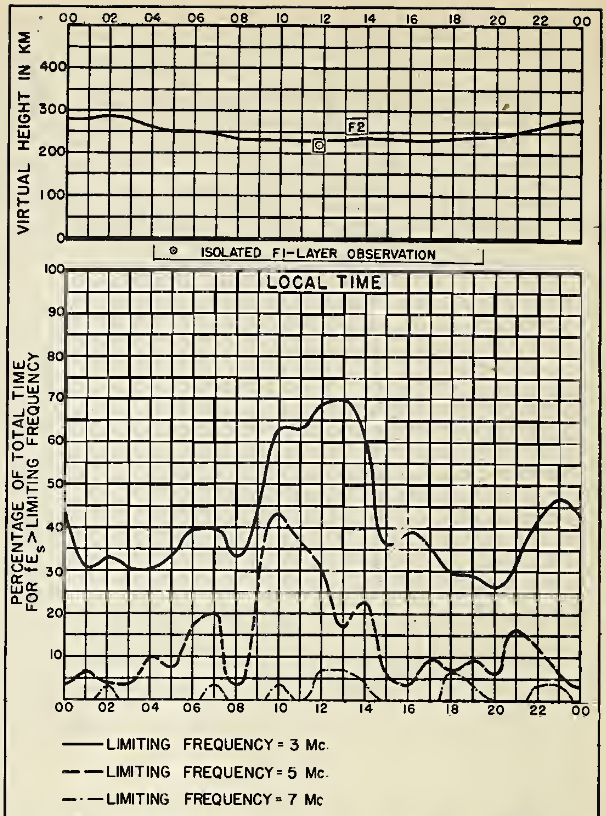


Fig. 58. CHRISTCHURCH, N.Z. MAY 1947

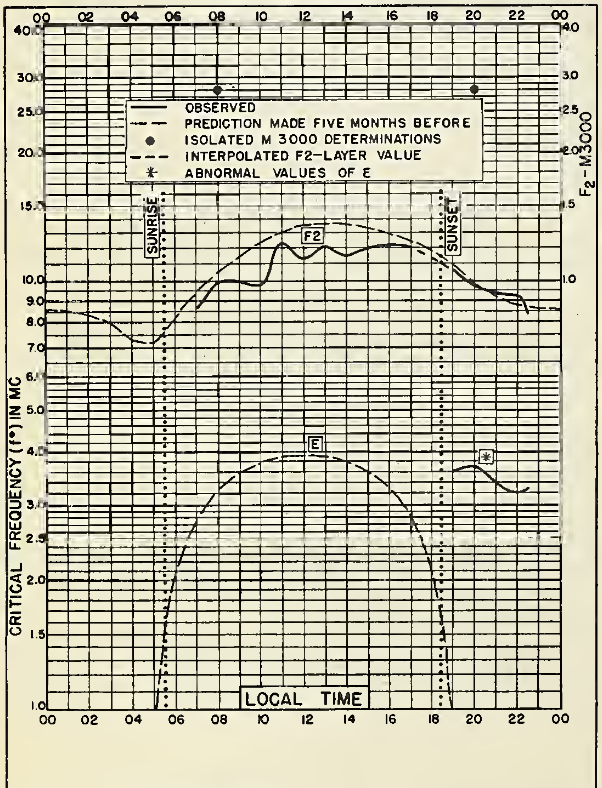


Fig. 59 PESHAWAR, INDIA
34.0°N, 71.5°E APRIL 1947

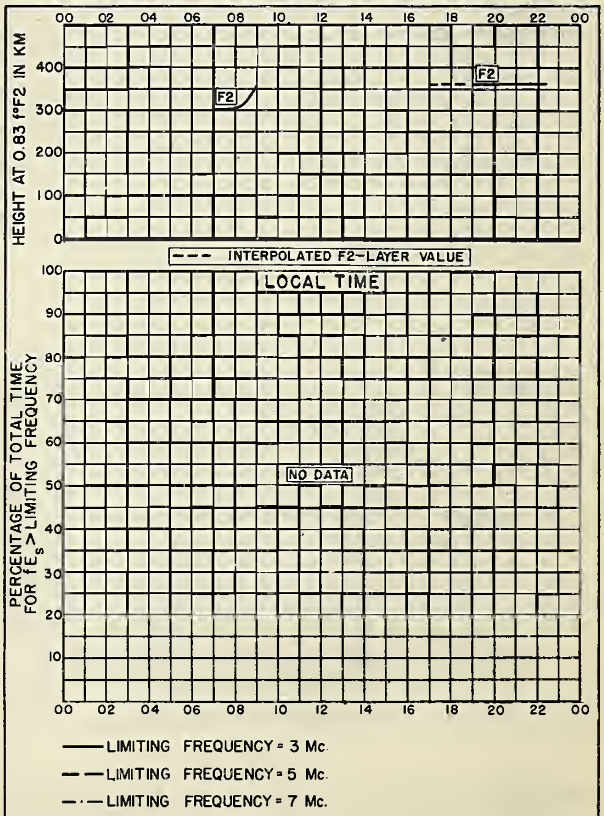


Fig. 60. PESHAWAR, INDIA APRIL 1947

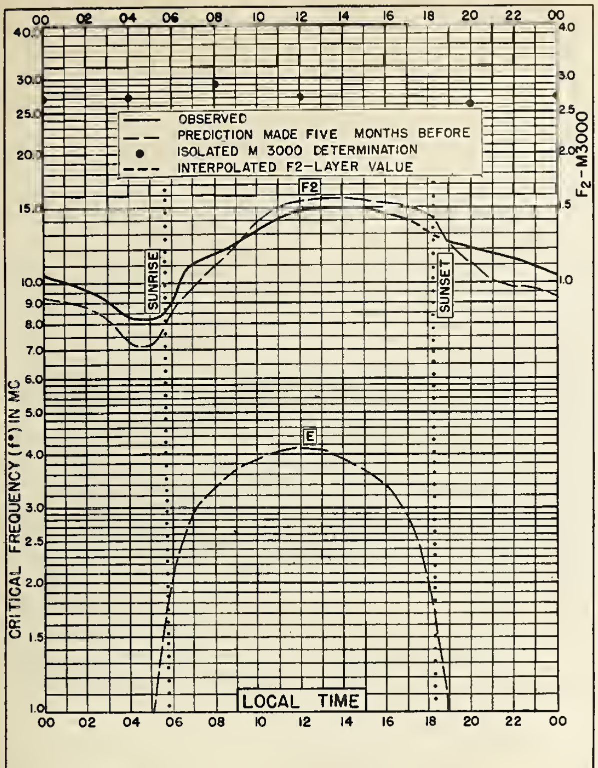


Fig. 61. DELHI, INDIA
28.6°N, 77.1°E APRIL 1947

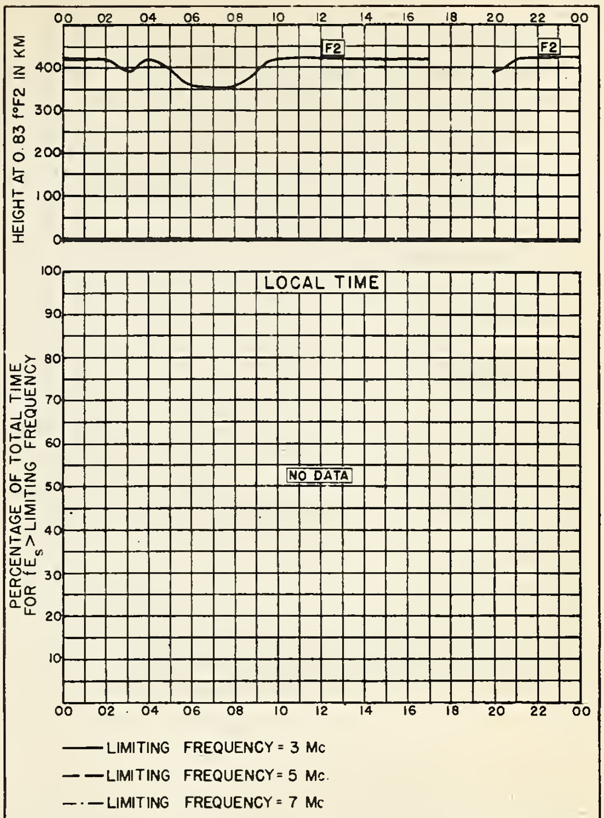


Fig. 62. DELHI, INDIA APRIL 1947

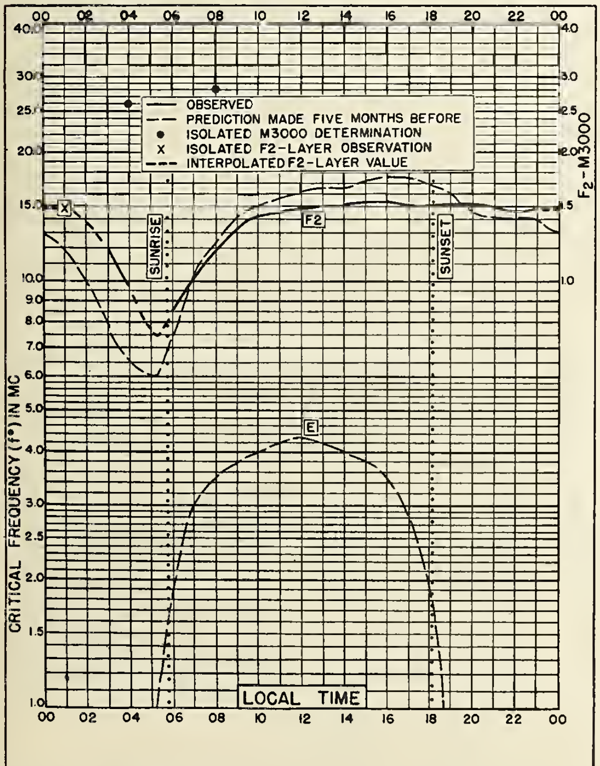


Fig. 63. BOMBAY, INDIA
19.0°N, 73.0°E APRIL 1947

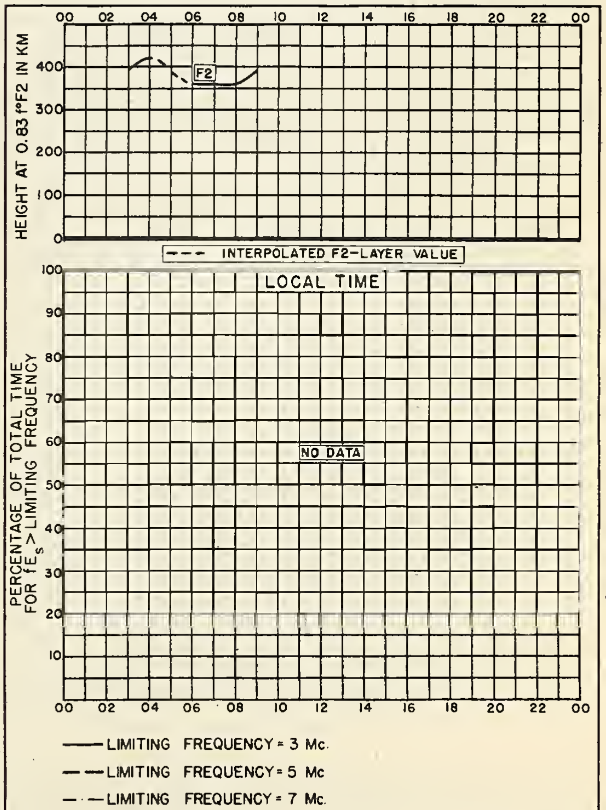


Fig. 64. BOMBAY, INDIA APRIL 1947

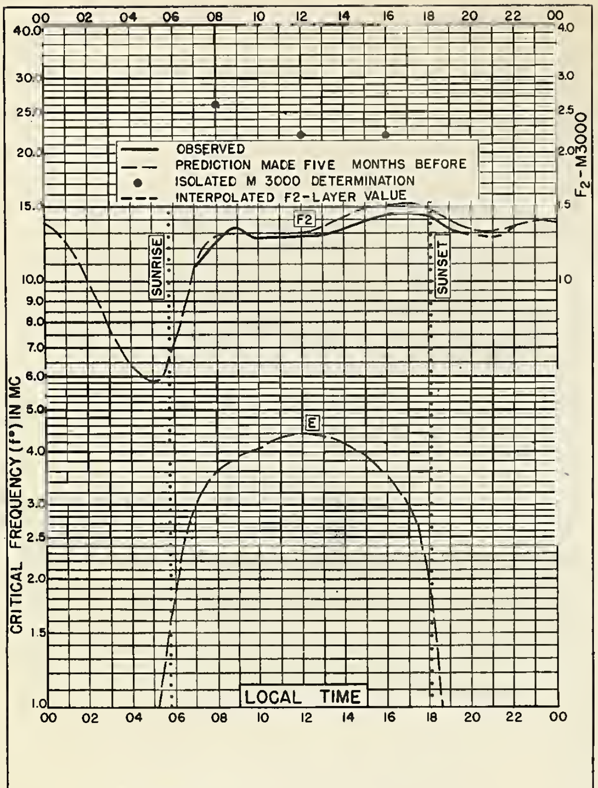


Fig. 65. MADRAS, INDIA
13.0°N, 80.2°E APRIL 1947

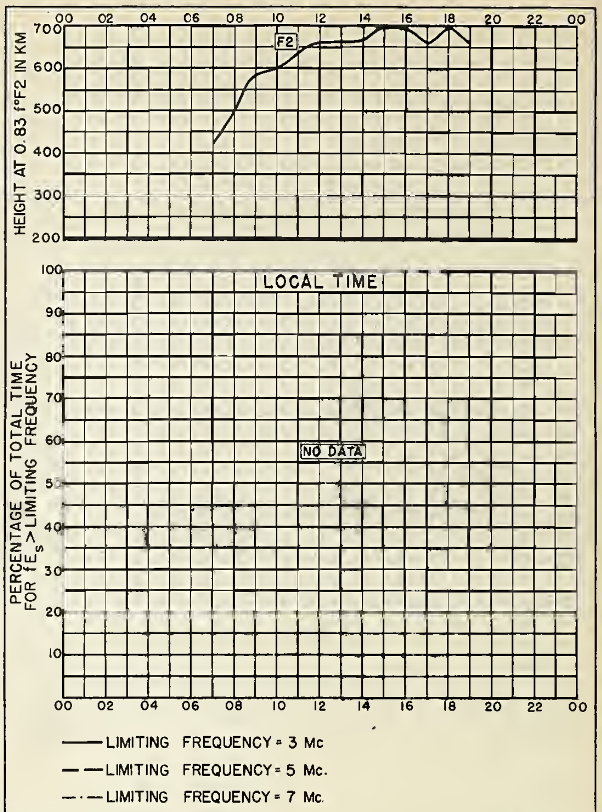


Fig. 66. MADRAS, INDIA APRIL 1947

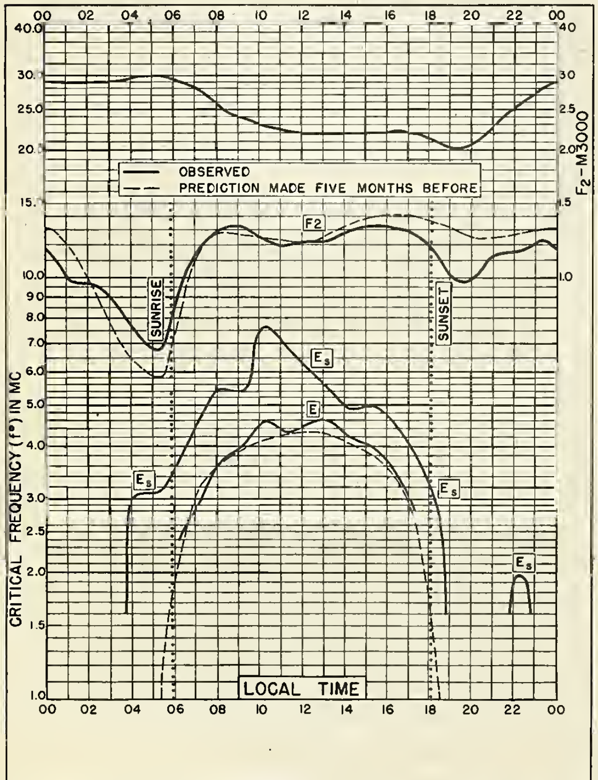


Fig. 67. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E APRIL 1947

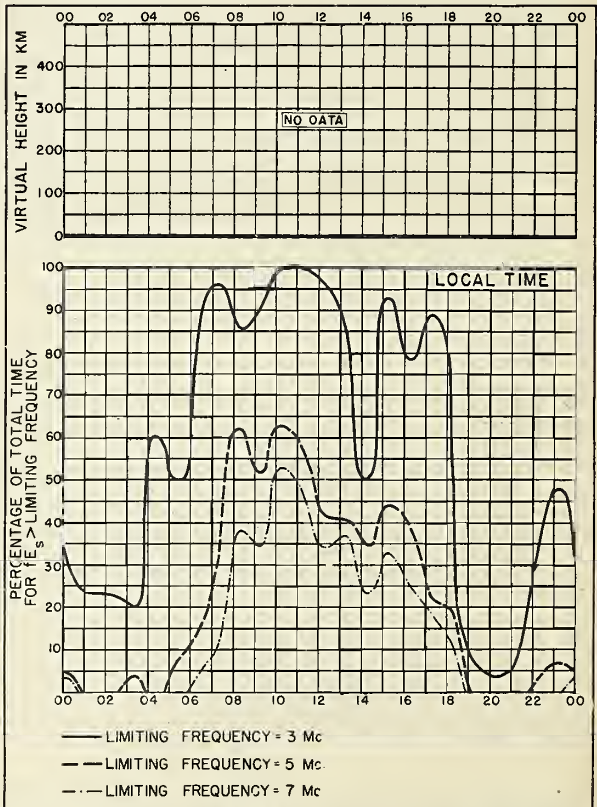


Fig. 68. LEYTE, PHILIPPINE IS. APRIL 1947

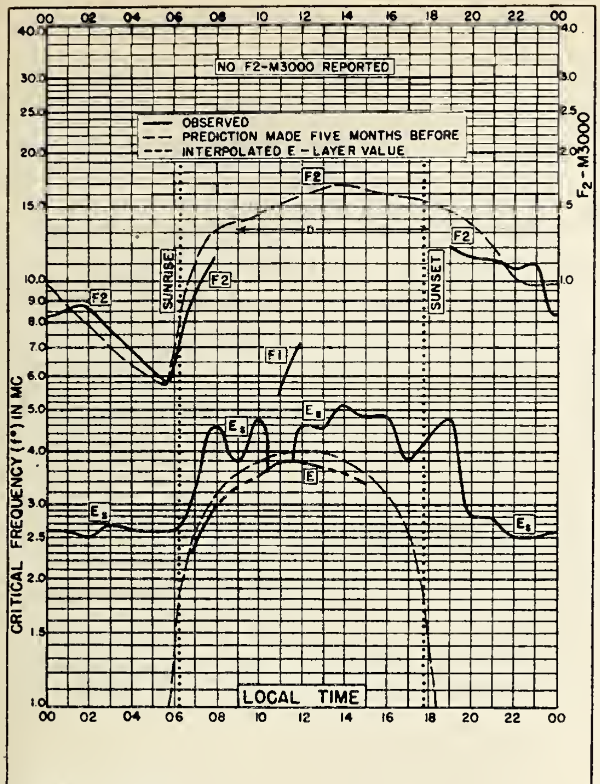


Fig. 69. FIJI IS.
18.0° S, 178.2°E APRIL 1947

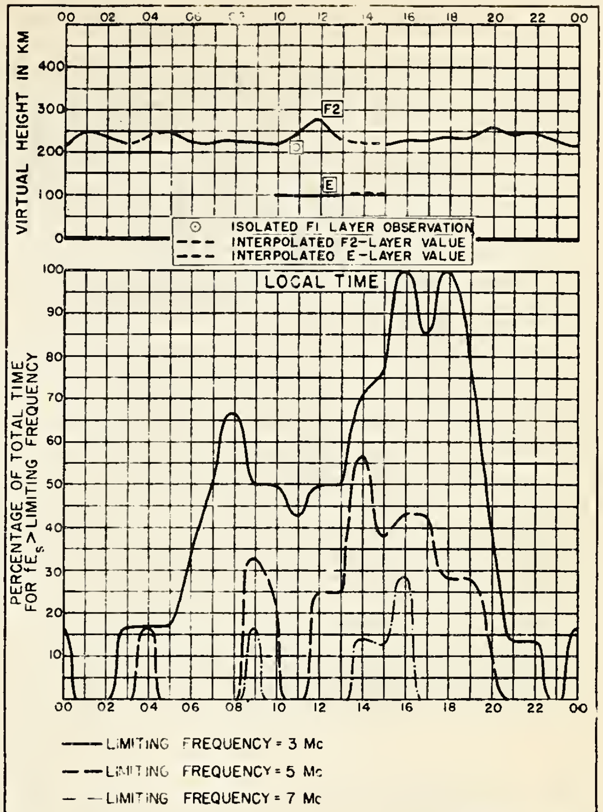


Fig. 70. FIJI IS. APRIL 1947

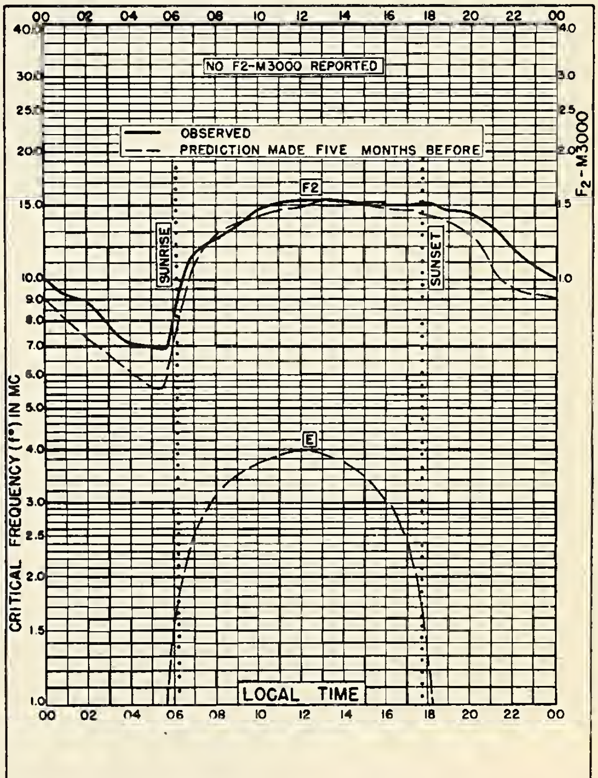


Fig. 71. RAROTONGA I.
21.3°S, 159.8°W APRIL 1947

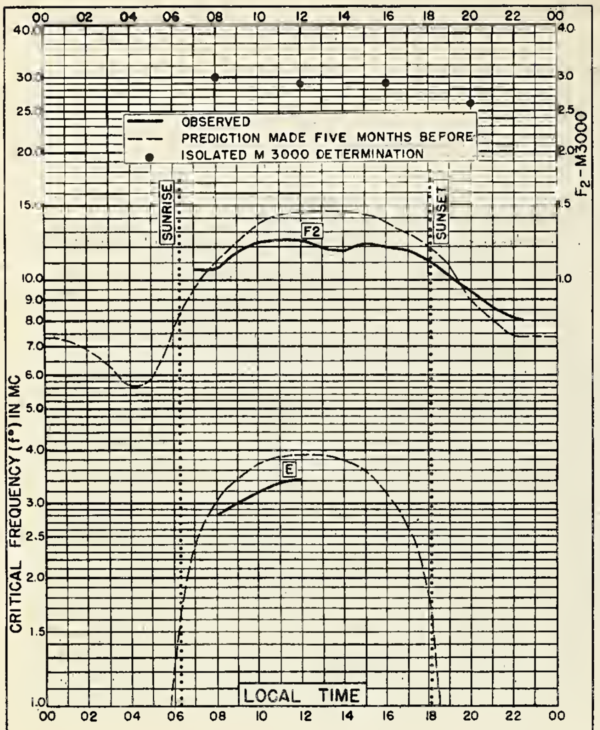


Fig. 72. PESHAWAR, INDIA
34.0°N, 71.5°E MARCH 1947

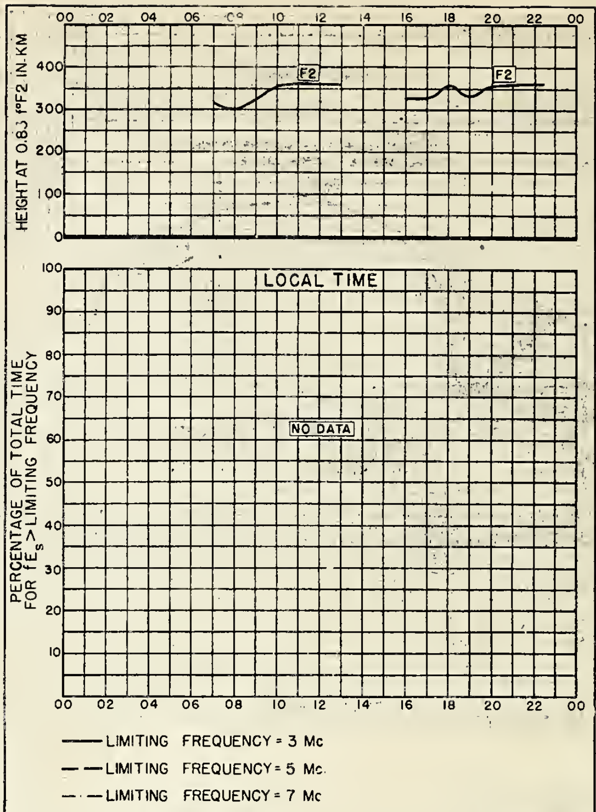


Fig. 73. PESHAWAR, INDIA MARCH 1947

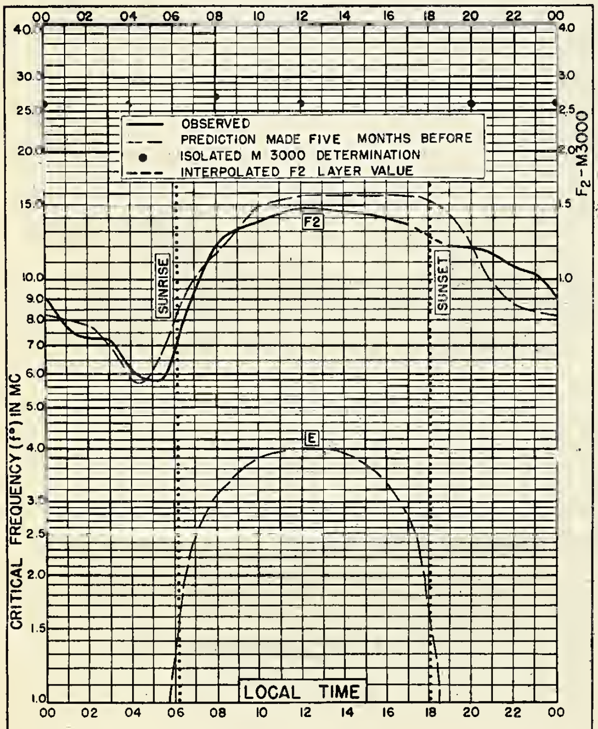


Fig. 74. DELHI, INDIA
28.6°N, 77.1°E MARCH 1947

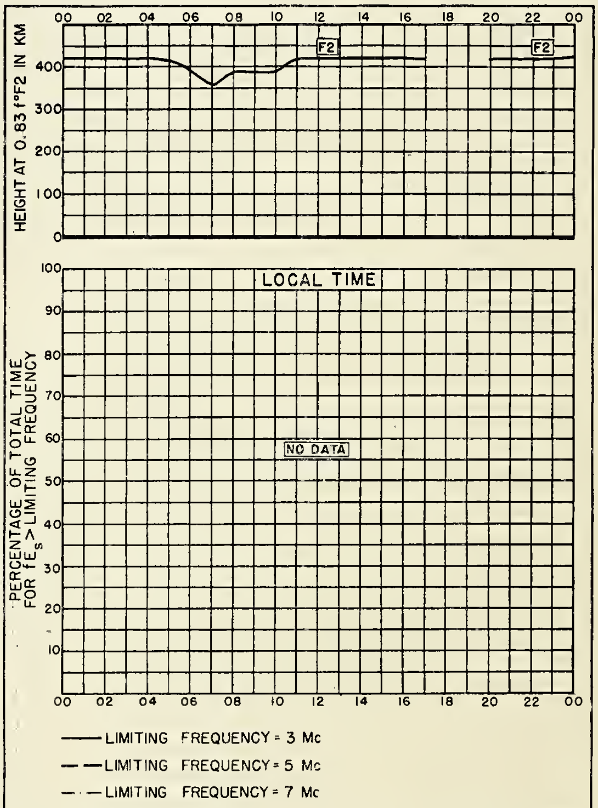


Fig. 75. DELHI, INDIA MARCH 1947

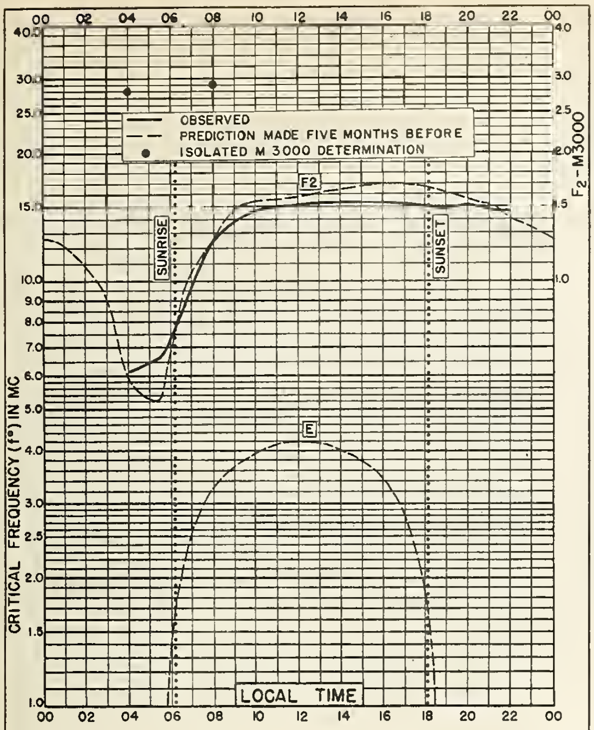


Fig. 76. BOMBAY, INDIA
19.0°N, 73.0°E MARCH 1947

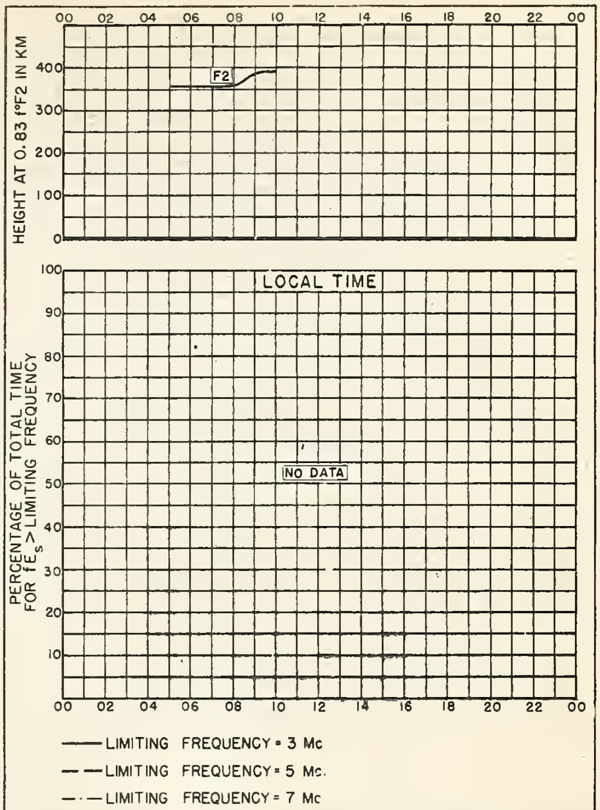


Fig. 77. BOMBAY, INDIA MARCH 1947

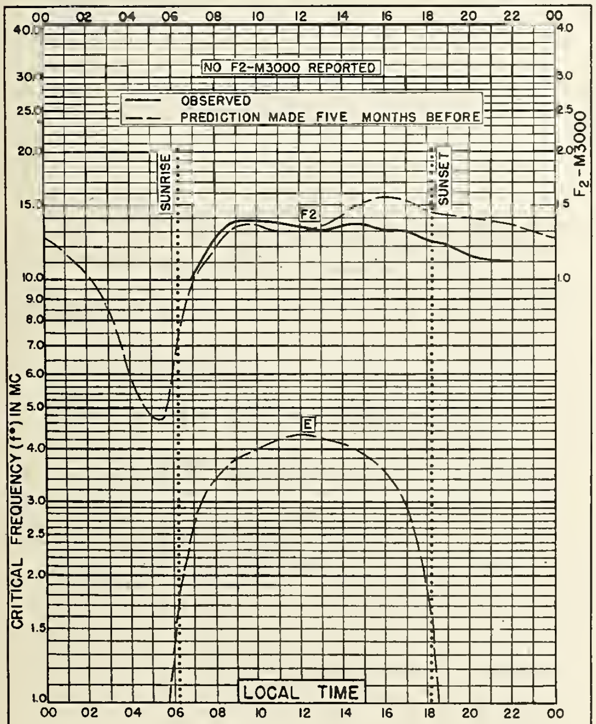


Fig. 78. MADRAS, INDIA
13.0°N, 80.2°E MARCH 1947

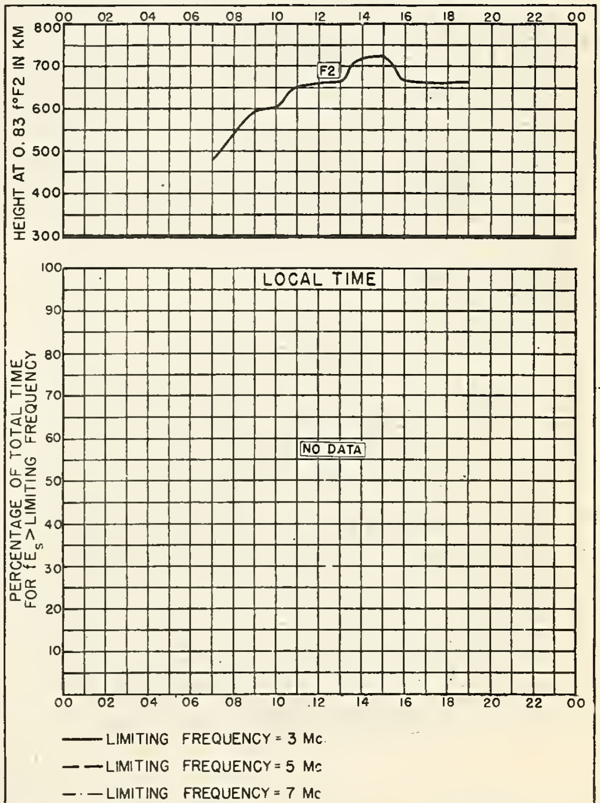


Fig. 79. MADRAS, INDIA MARCH 1947

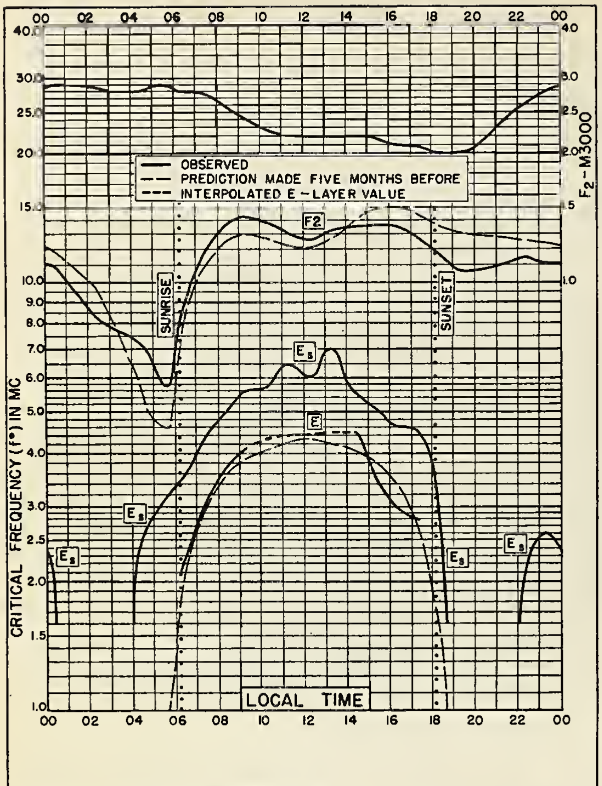


Fig. 80. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E MARCH 1947

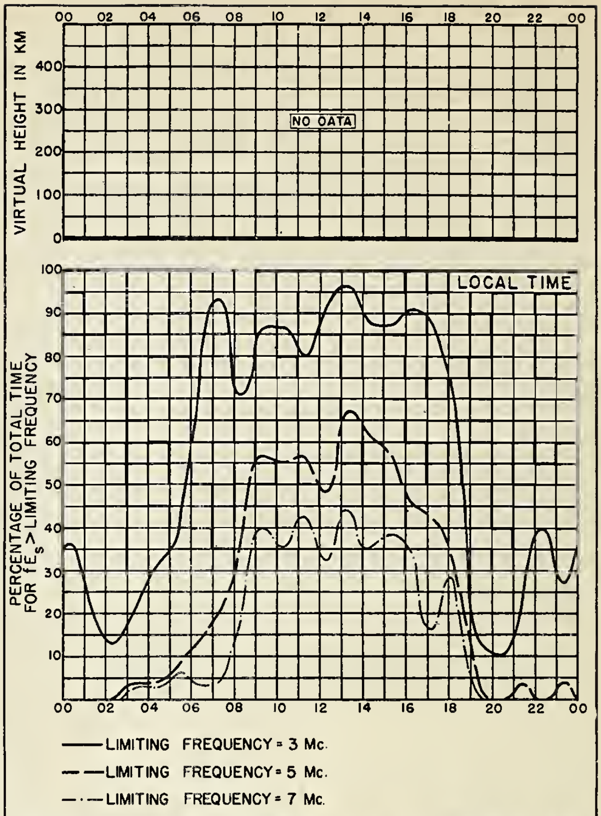


Fig. 81. LEYTE, PHILIPPINE IS. MARCH 1947

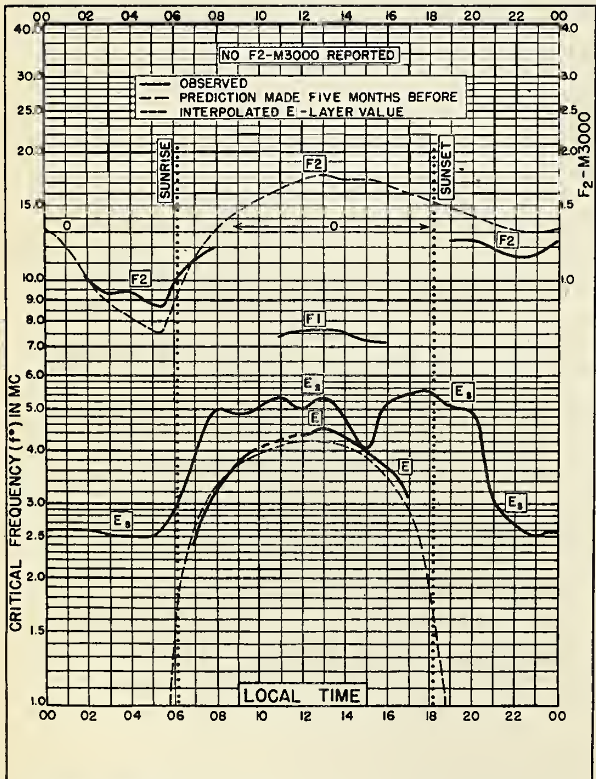


Fig. 82. FIJI IS.
18.0°S, 178.2°E MARCH 1947

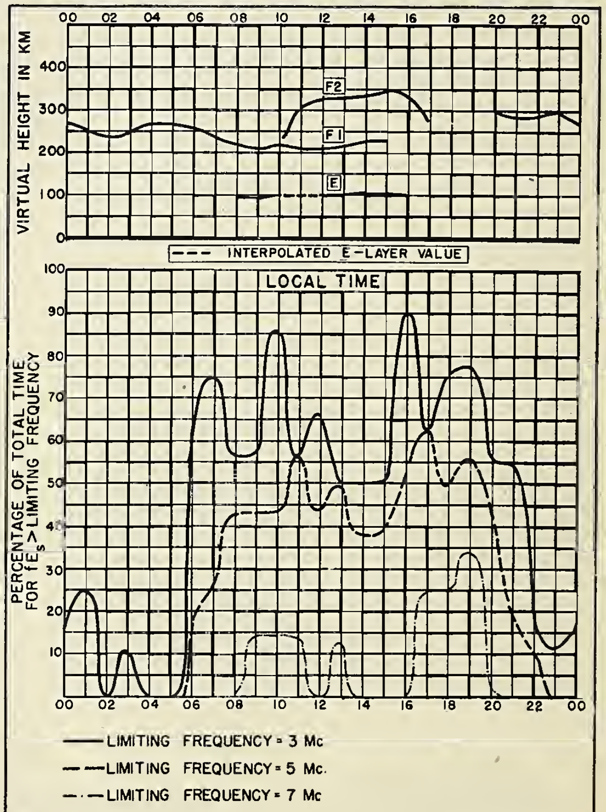


Fig. 83. FIJI IS. MARCH 1947

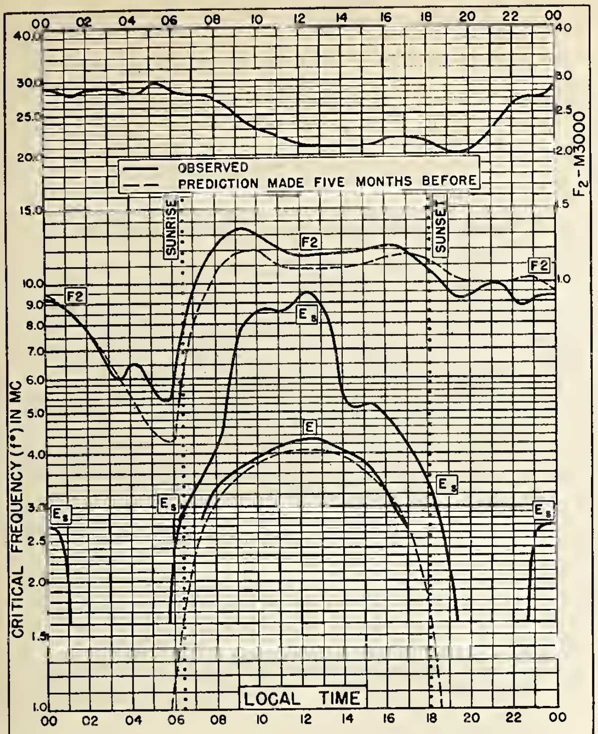


Fig. 84. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E FEBRUARY 1947

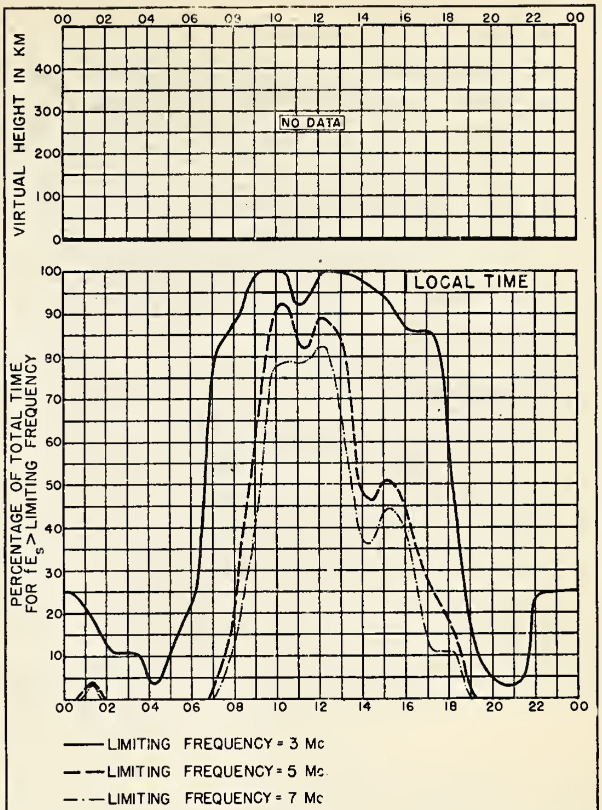


Fig. 85. LEYTE, PHILIPPINE IS. FEBRUARY 1947

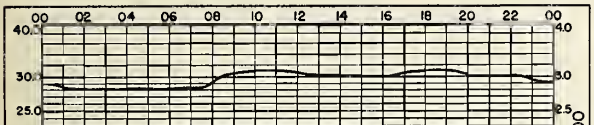


Fig. 86. PRINCE RUPERT, CANADA
54.3°N, 130.3°W JANUARY 1947

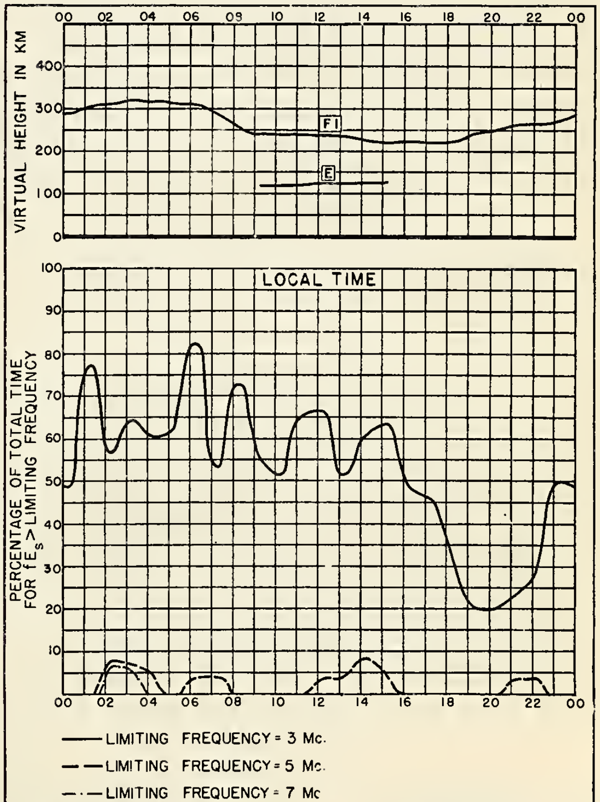


Fig. 87. PRINCE RUPERT, CANADA JANUARY 1947

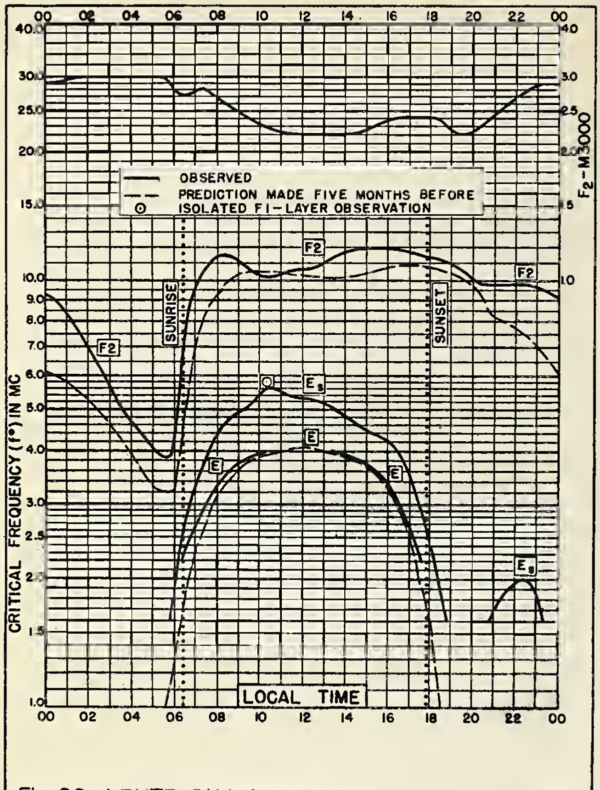


Fig. 88. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E JANUARY 1947

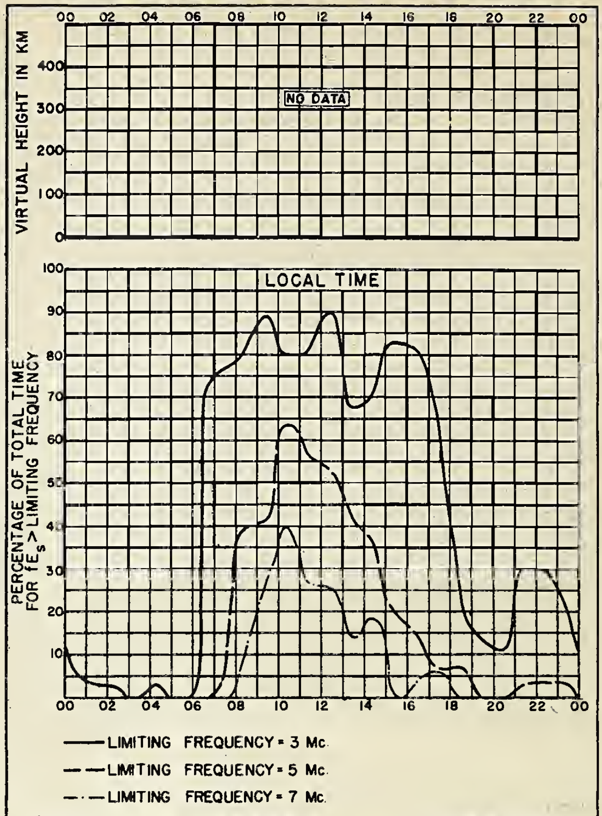


Fig. 89. LEYTE, PHILIPPINE IS. JANUARY 1947

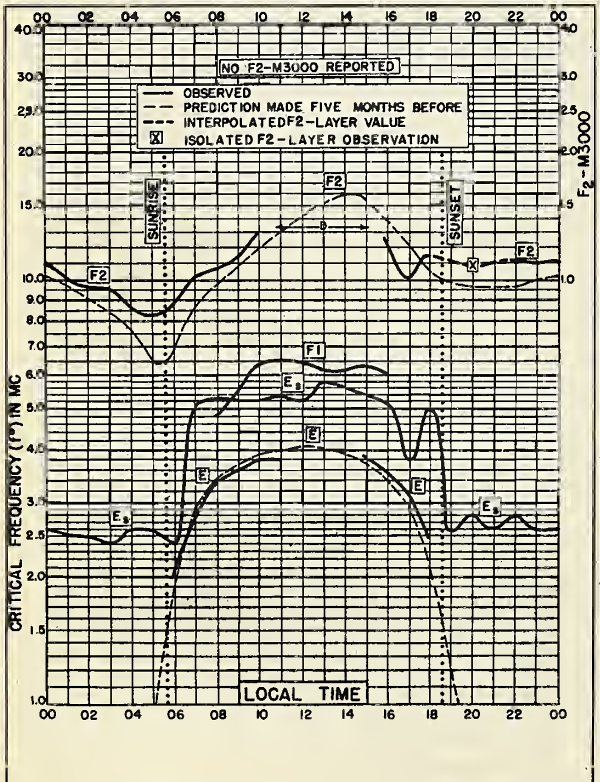


Fig. 90. FIJI IS.
18.0°S, 178.2°E JANUARY 1947

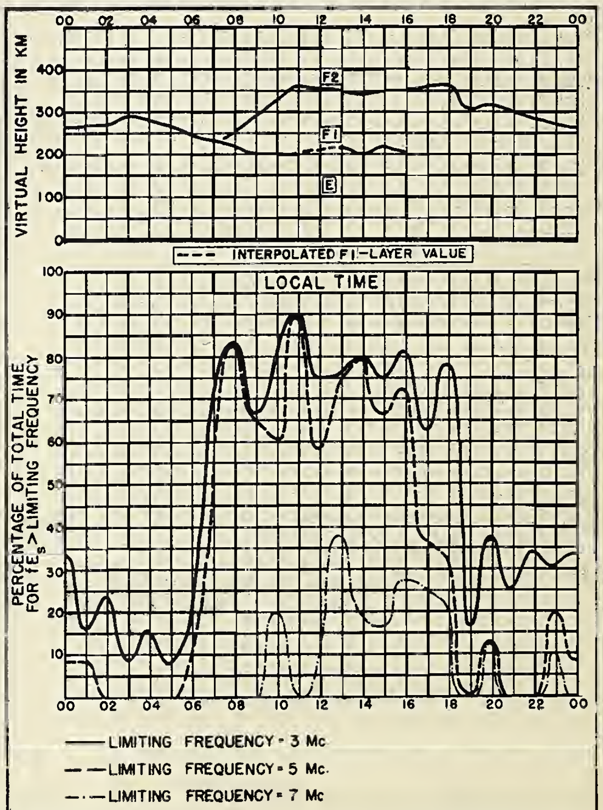


Fig. 91. FIJI IS. JANUARY 1947

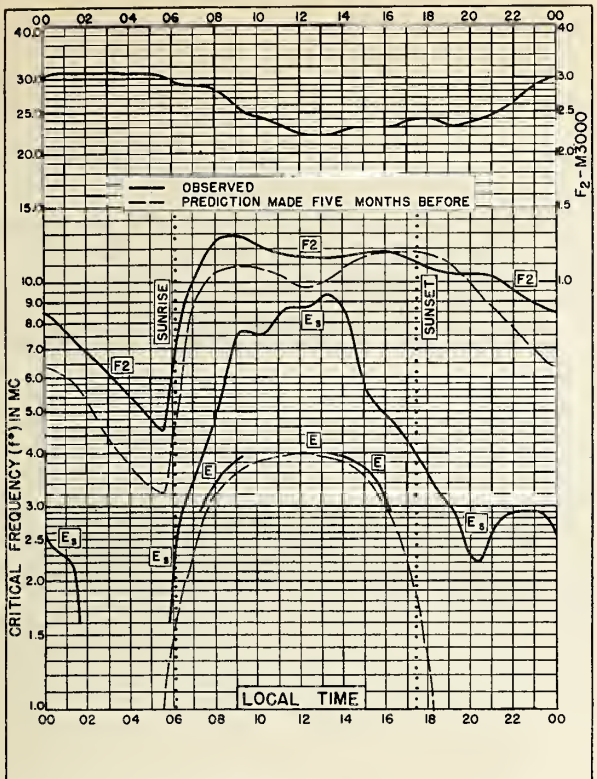


Fig. 92. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E DECEMBER 1946

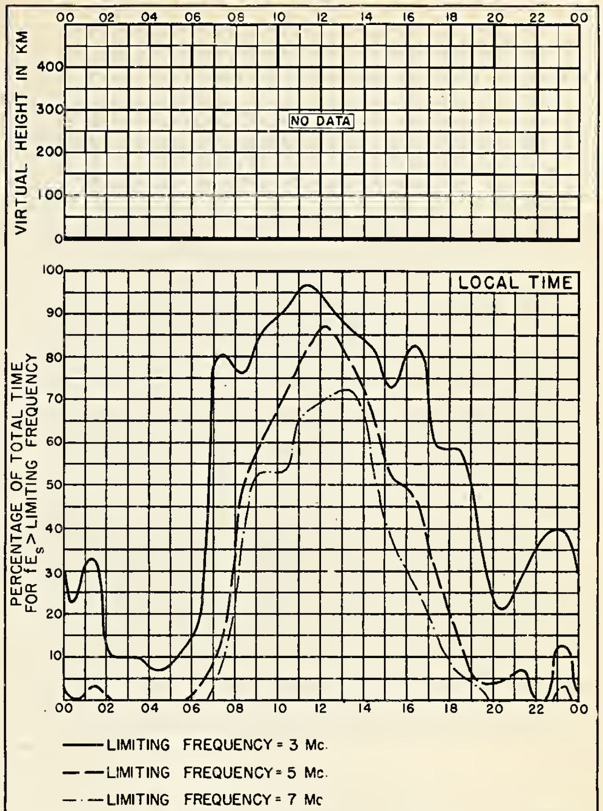


Fig. 93. LEYTE, PHILIPPINE IS. DECEMBER 1946

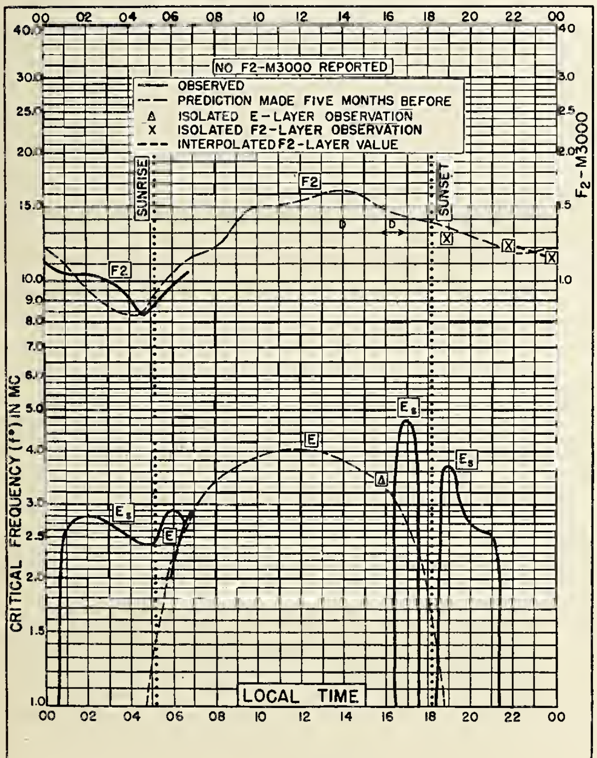


Fig. 94. FIJI IS.
18.0°S, 178.2°E NOVEMBER 1946

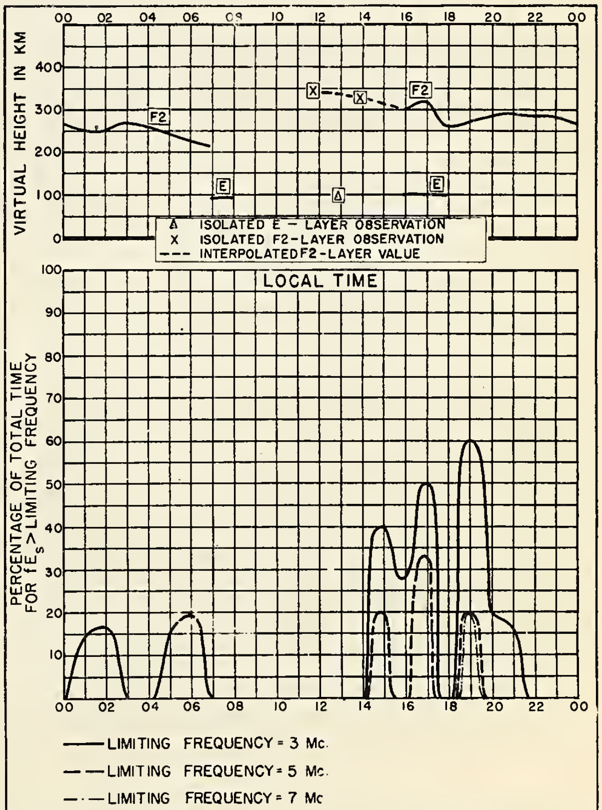


Fig. 95. FIJI IS. NOVEMBER 1946

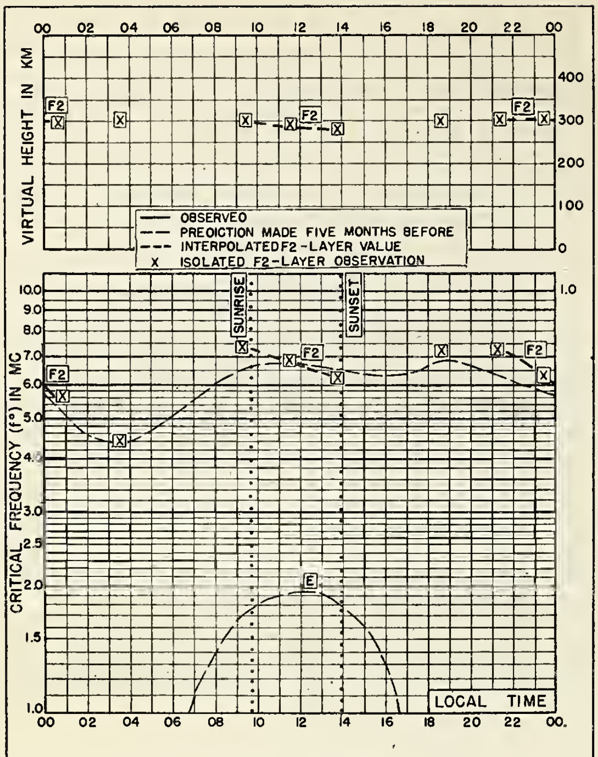


Fig. 96. BUKHTA TIKHAYA. U. S. S. R.
80.3°N, 52.7°E OCTOBER 1946

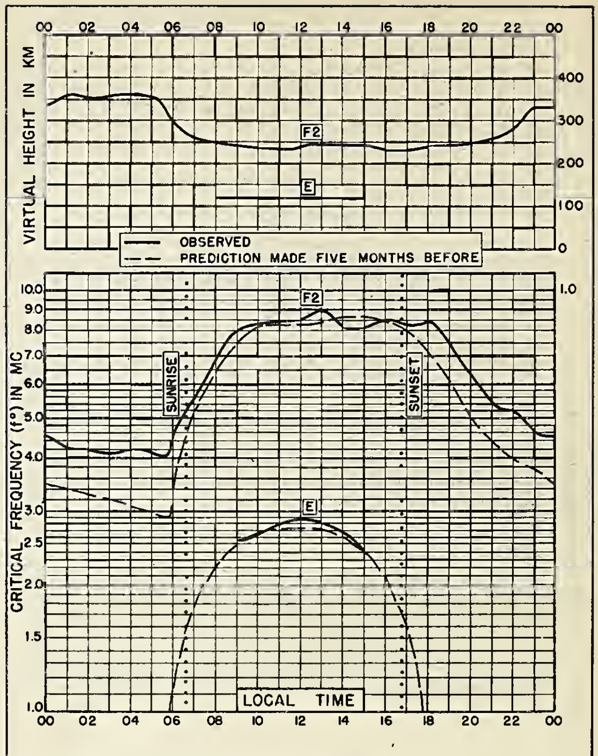
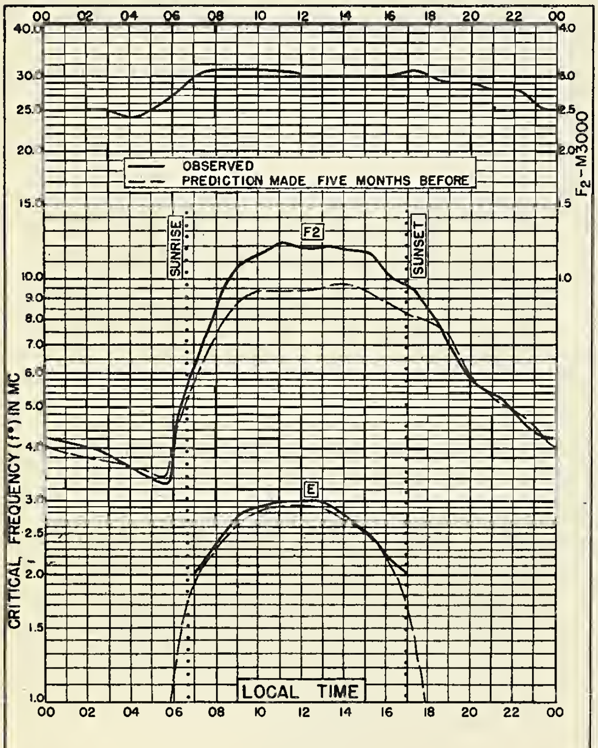


Fig. 97 LENINGRAD (WETKAS), U. S. S. R.
60.0°N, 30.3°E OCTOBER 1946



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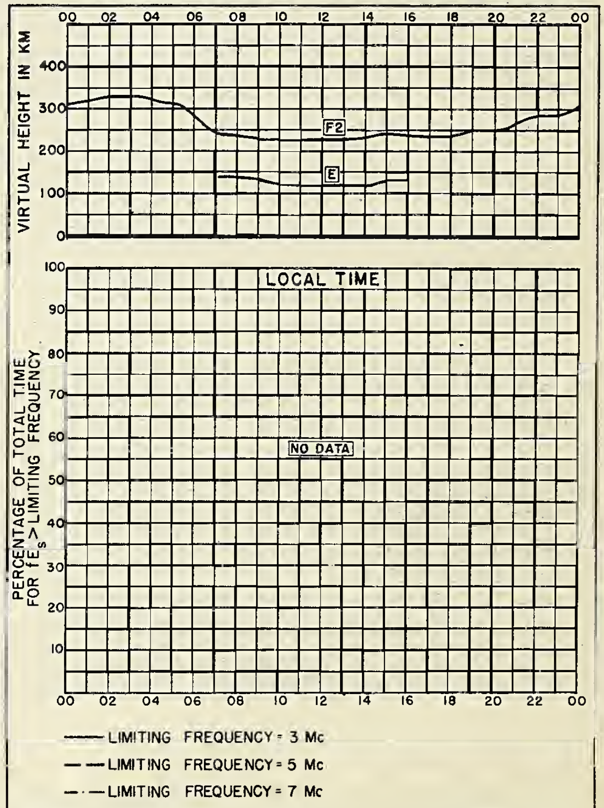

Fig. 99. SVERDLOVSK, U. S. S. R. OCTOBER 1946

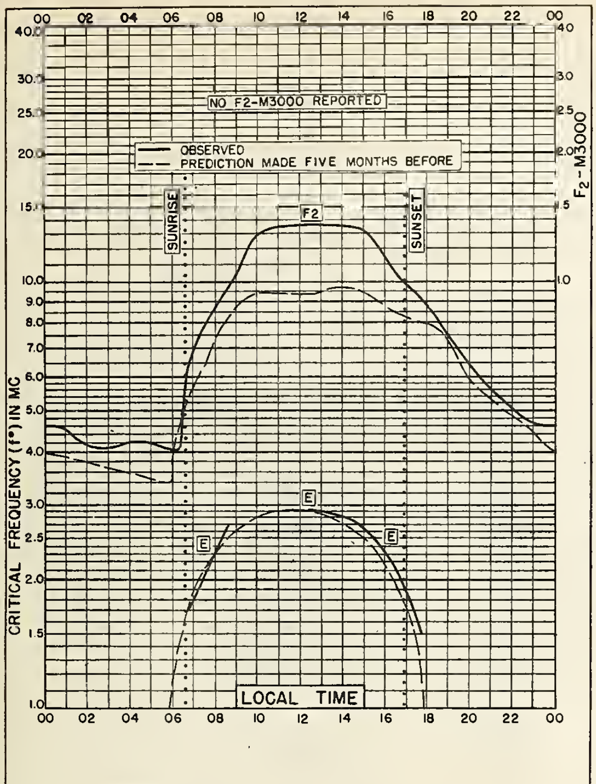

Fig. 100. TOMSK, U. S. S. R.
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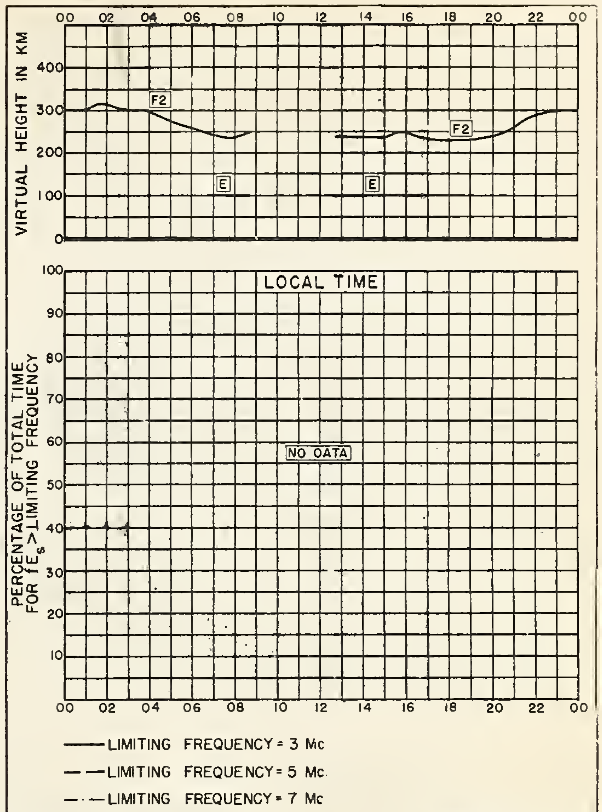

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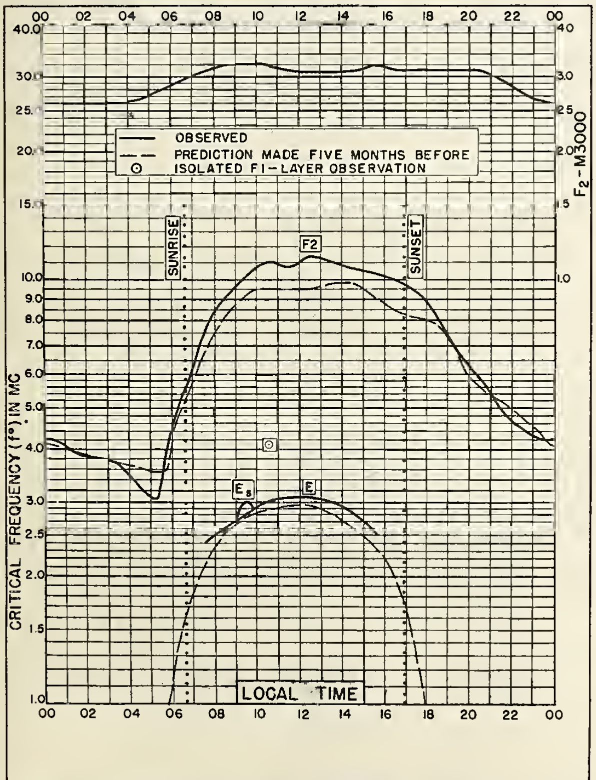

Fig. 102. MOSCOW (KRASNAJA PAKHRA), U. S. S. R.
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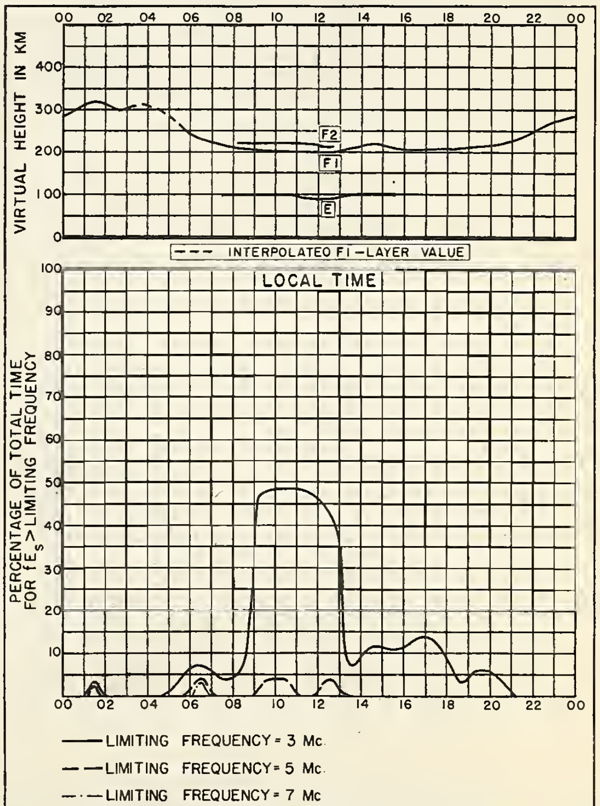

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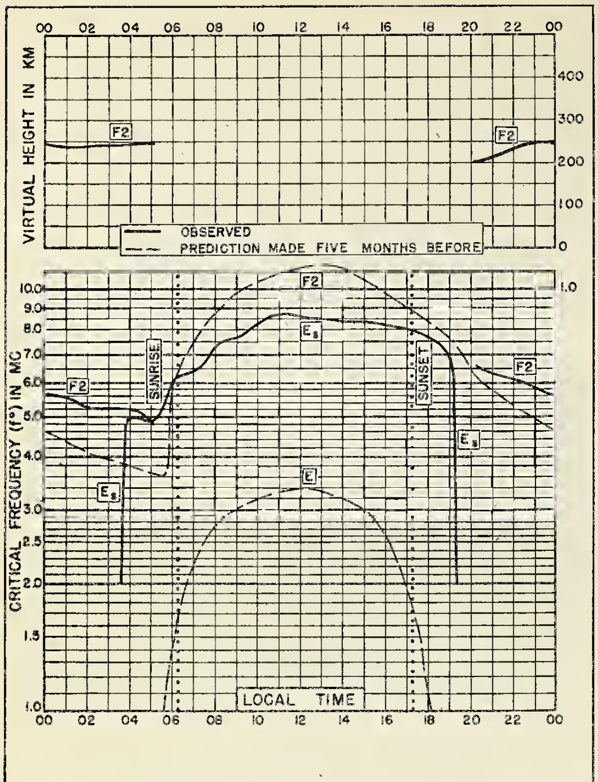

Fig. 104. ALMA ATA, U. S. S. R.
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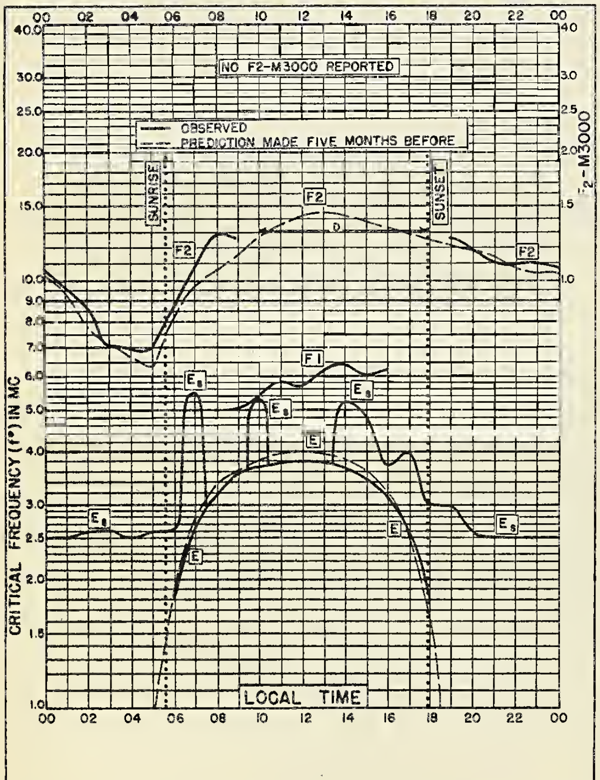

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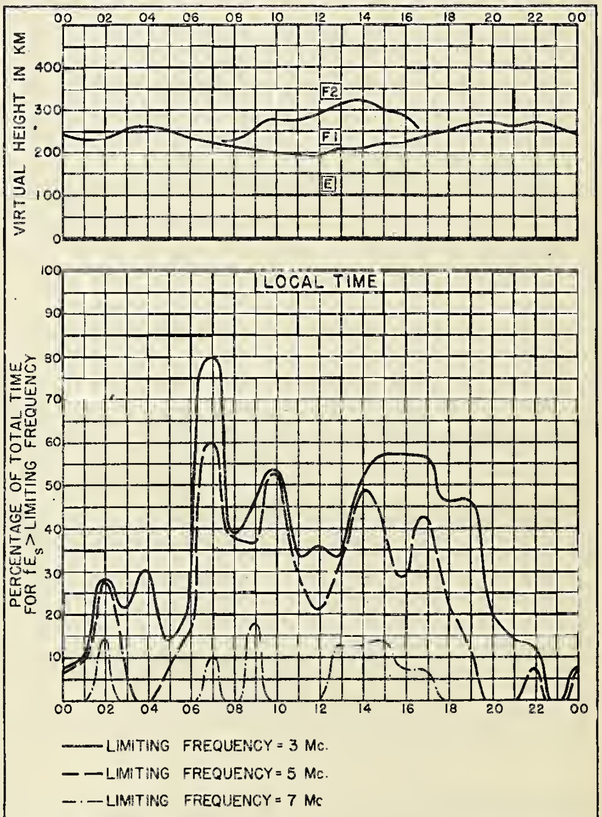

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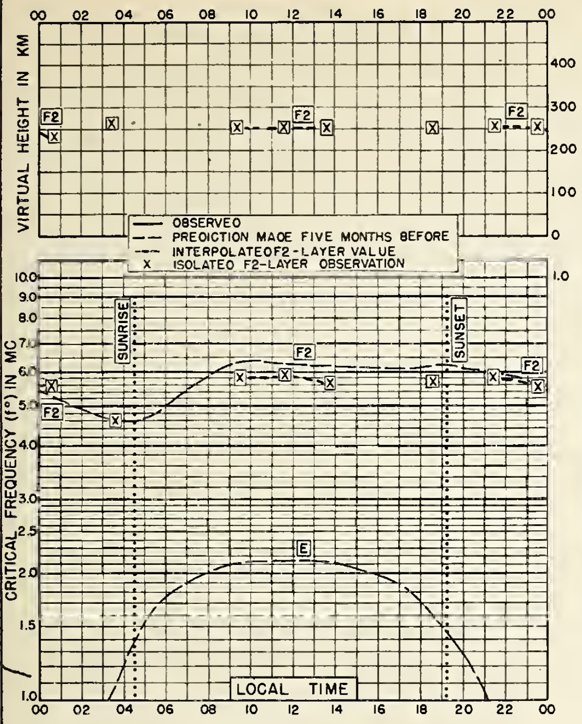

Fig. 107. BUKHTA TIKHAYA, U. S. S. R.
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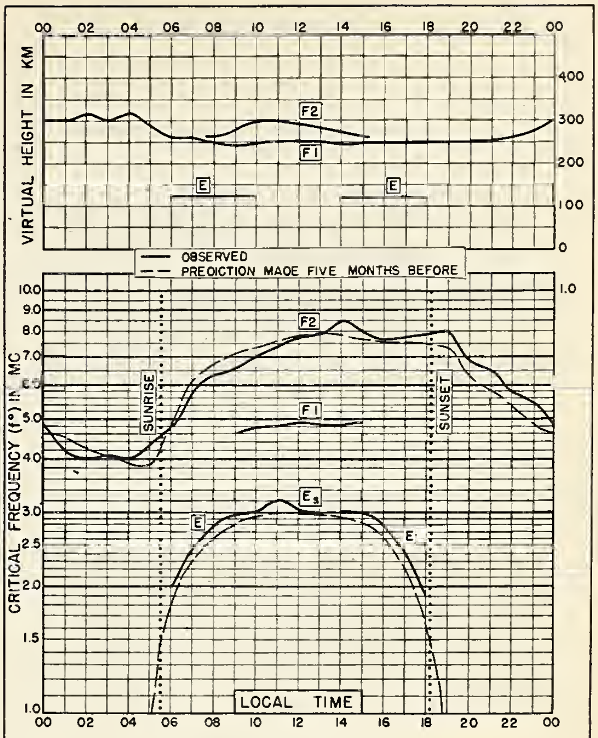

Fig. 108. LENINGRAD (WETKAS), U. S. S. R.
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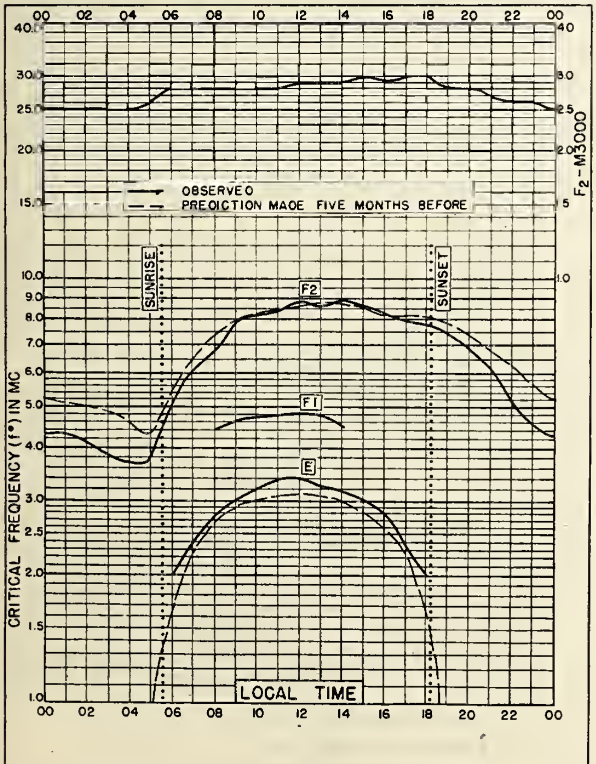

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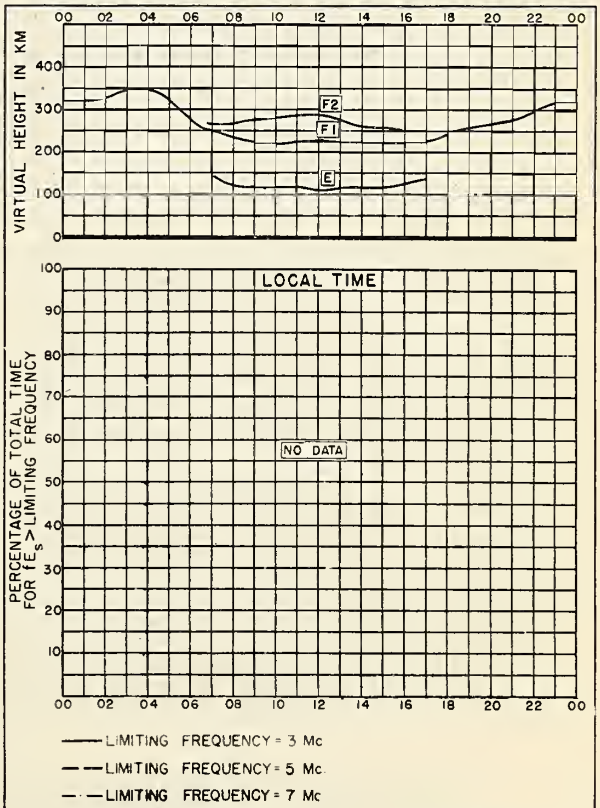

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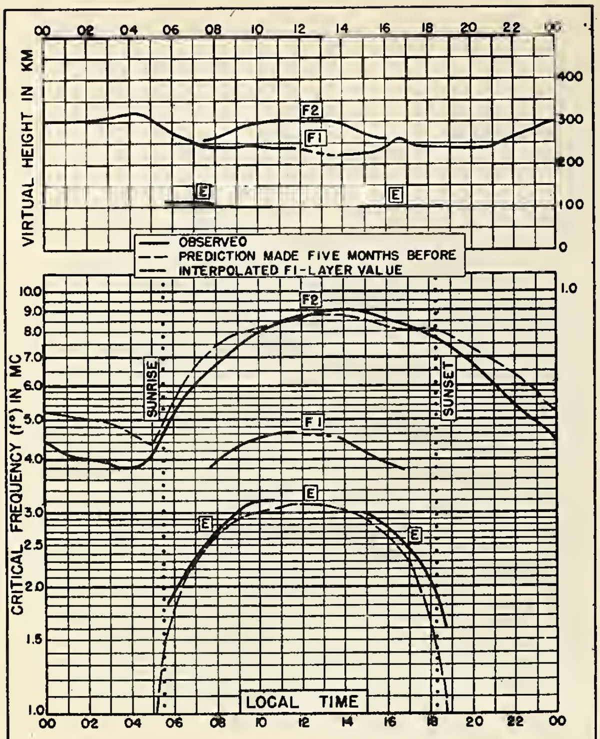

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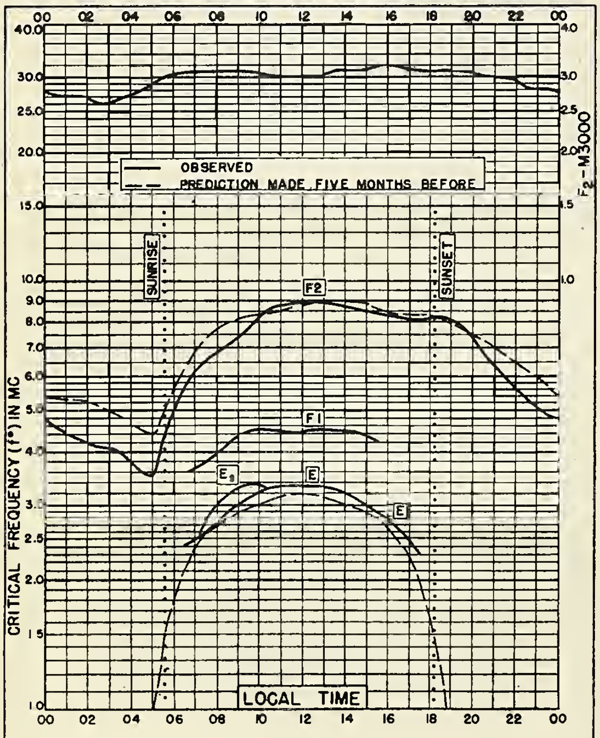

Fig. 112 MOSCOW (KRASNAJA PAKHRA), U. S. S. R
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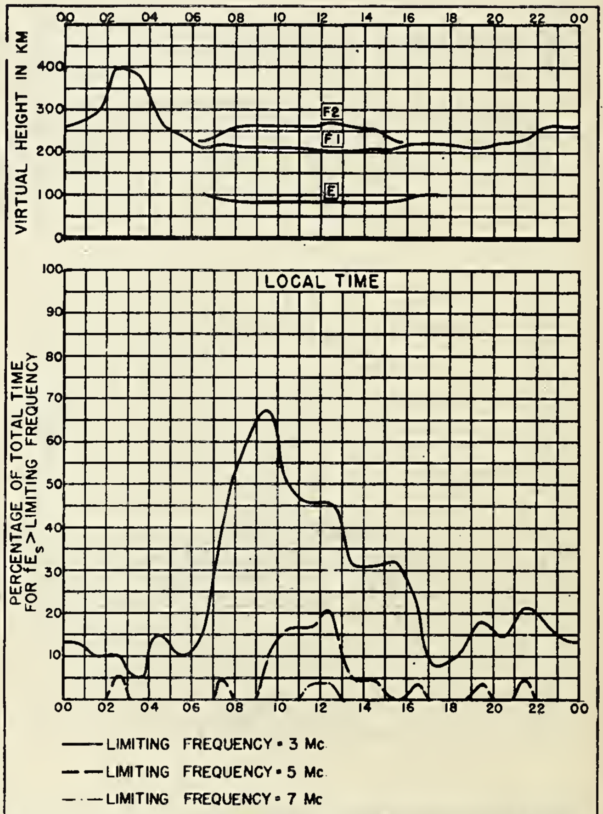

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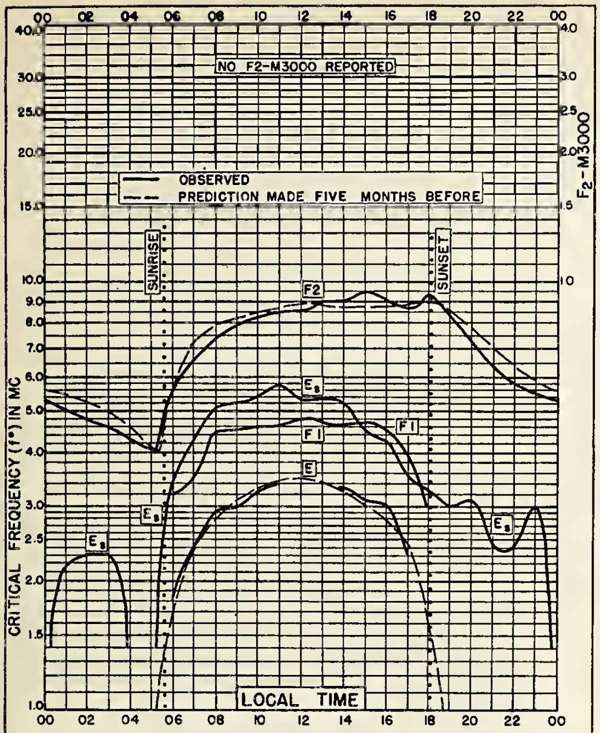

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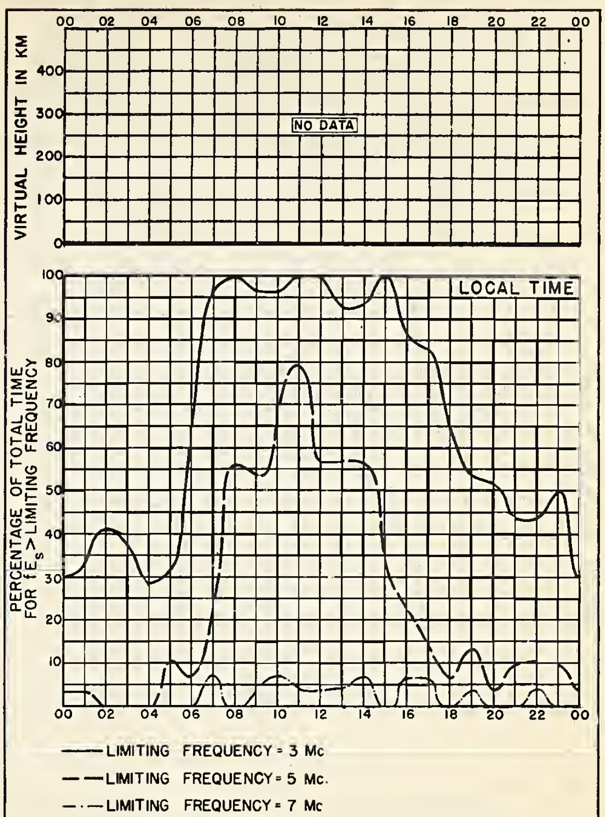

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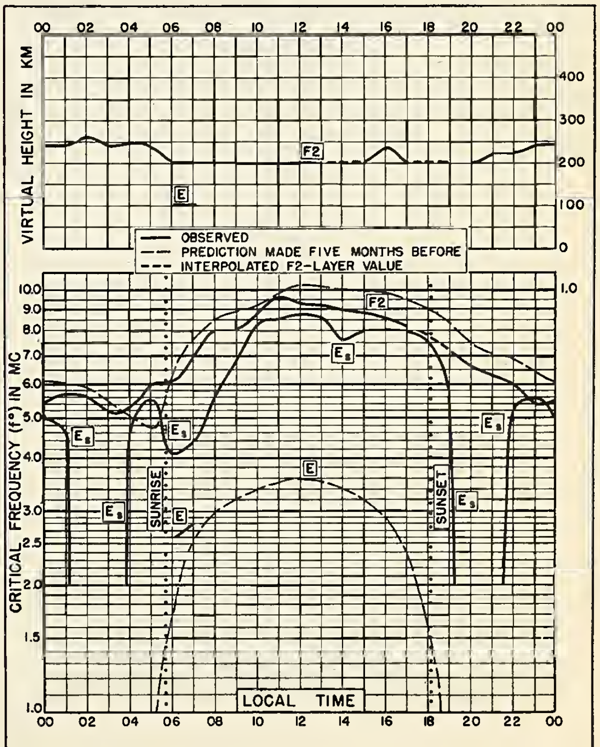

Fig. 116. ALMA ATA, U. S. S. R.
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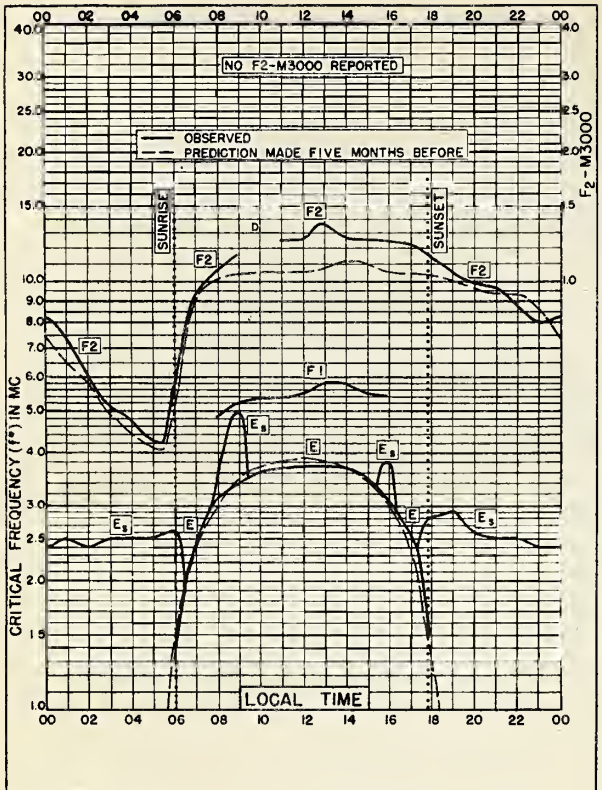

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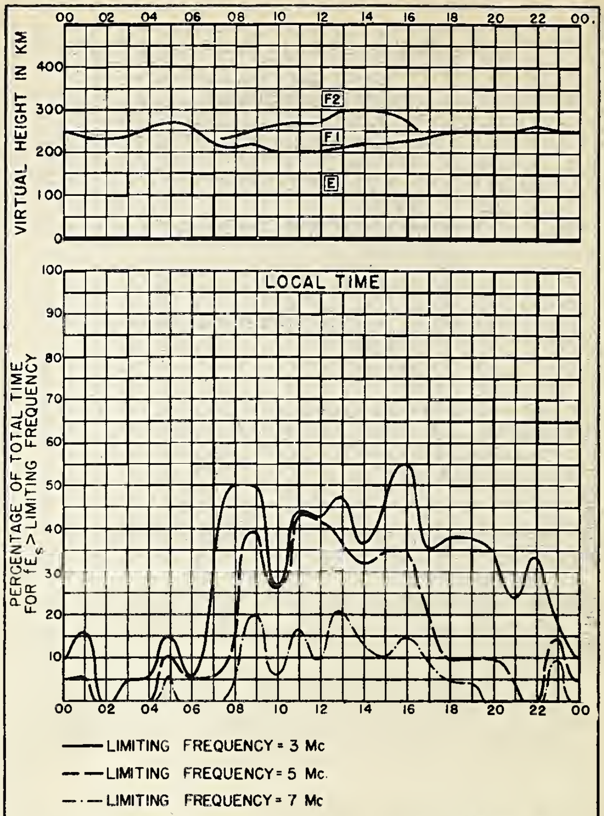

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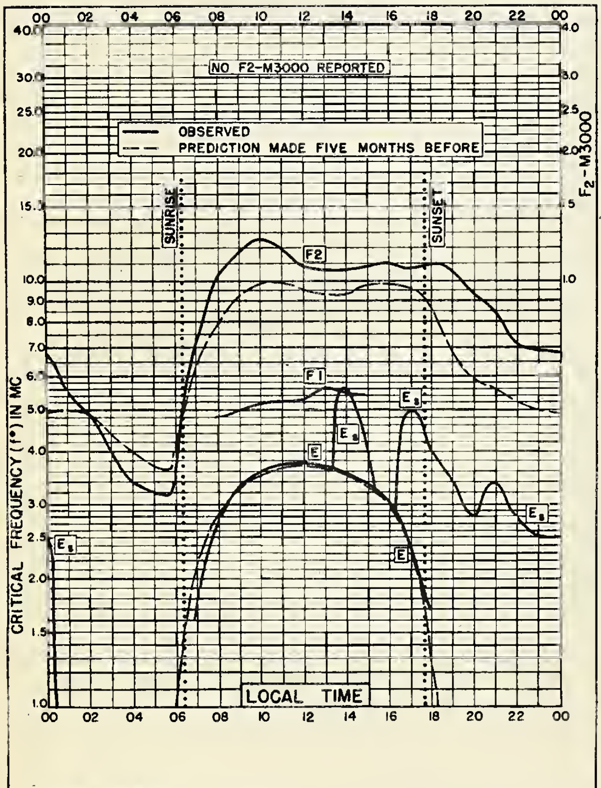

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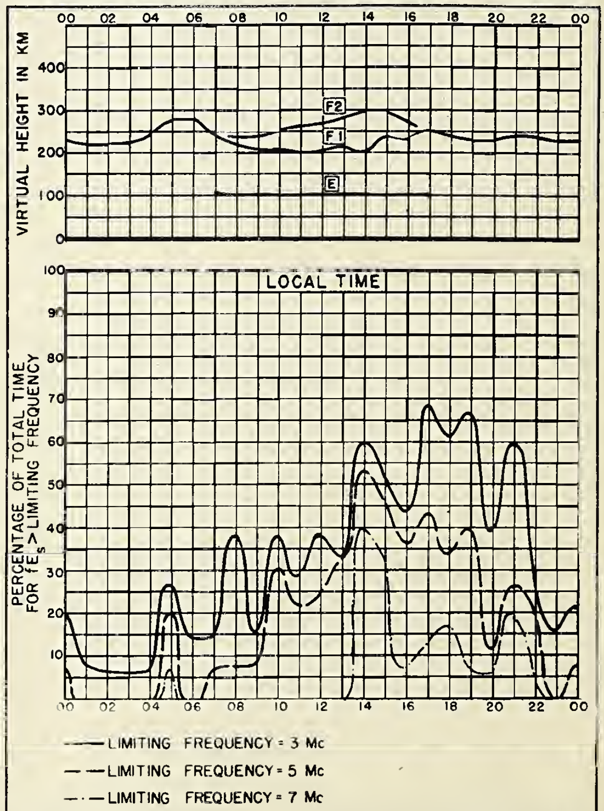

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Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards.
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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

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

Monthly:
CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (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.

Quarterly:
*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL–H. Frequency Guide for Operating Personnel.
Reports on high-frequency standards.
Reports on microwave standards.

Nonscheduled reports:
CRPL–1–1. Prediction of Annual Sunspot Numbers.
CRPL–7–1. Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:
IRPL Radio Propagation Handbook, Part 1. (War Dept. TM 11–499; Navy Dept. DNC–13–1.)
IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL–R. Nonscheduled reports:
- R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
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CRPL–T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG–5.)

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