CRPL-F56

IONOSPHERIC DATA

ISSUED

APRIL 1949

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

CRPL-F56 CENTRAL RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
WASHINGTON, D.C.
Issued 26 Apr. 1949

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CONTENTS

SYMBOLS AND TERMINOLOGY; CONVENTIONS FOR DETERMINING MEDIAN VALUES

Beginning with data reported for January 1949, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948, and given in detail on pages 2 to 10 of the report CRPL-F53, "Ionospheric Data," issued January 1949.

For symbols and terminology used with data prior to January 1949, see report IRPL-C61, "Report of International Radio Propagation Conference, Washington, 17 April to 5 May, 1944," previous issues of the F series, in particular, IRPL-F5, CRPL-F24, F33, F50, and report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

Following the recommendations of the Washington (1944) and Stockholm (1948) conferences, beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, 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 on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

Values missing because of A, B, C, F, L, M, N, Q, R, S, or T (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count. See CRPL-F38, page 9.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:
1. For foF2, as equal to or less than foFl.
2. For h'F2, as equal to or greater than the median.

Values missing because of W are counted:
1. For foF2, as equal to or less than the median.
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 or W 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 of G (no Es reflections observed, the equipment functioning normally otherwise) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es 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 Fl 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.

MONTHLY AVERAGE AND MEDIAN VALUES OF WORLD-WIDE IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 47 and figures 1 to 94 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL predictions of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

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

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:
    Falkland Is.
    Fraserburgh, Scotland
    Lindau/Harz, Germany
    Singapore, British Malaya
    Slough, England

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

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

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

Japanese Physical Institute for Radio Waves (under supervision of
  Supreme Commander, Allied Powers):
    Fukaura, Japan
    Shibata, Japan
    Tokyo (Kokubunji), Japan
    Wakkanai, Japan
    Yamakawa, Japan

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

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

United States Army Signal Corps:
  Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
  Baton Rouge, Louisiana (Louisiana State University)
  Boston, Massachusetts (Harvard University)
  Huancayo, Peru (Instituto Geofisico de Huancayo)
  Maui, Hawaii
  Palmyra I.
  San Francisco, California (Stanford University)
  San Juan, Puerto Rico (University of Puerto Rico)
  Trinidad, British West Indies
  Washington, D. C.
  White Sands, New Mexico
  Wuchang, China

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 the errors are due to:

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

b. Omission of values when foF2 is less than or equal to foF1, 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.

Ordinarily a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

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

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

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot No.				
	1949	1948	1947	1946	1945
December		114	126	85	38
November		115	124	83	36
October		116	119	81	23
September		117	121	79	22
August		123	122	77	20
July		125	116	73	
June		129	112	67	
May		130	109	67	
April		133	107	62	
March	111	133	105	51	
February	113	133	90	46	
January	112	130	88	42	

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

The data given in tables 48 to 59 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 "Symbols and Terminology; Conventions for Determining Median Values."

IONOSPHERE DISTURBANCES

Table 60 presents ionosphere character figures for Washington, D. C., during March 1949, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

Table 61 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 March 1949.

Table 62 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Brentwood, England, receiving station of Cable and Wireless, Ltd., for February 20 and March 9, 1949.

Table 63 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Point Reyes, California, receiving station of RCA Communications, Inc., for March 9, 1949.

Table 64 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Riverhead, New York, receiving station of RCA Communications, Inc., for various days in March and April 1949.

Table 65 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, February 1949, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

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

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

AMERICAN AND ZÜRICH PROVISIONAL RELATIVE SUNSPOT NUMBERS

Table 66 presents the daily American relative sunspot number, R_A, computed from observations communicated to CRPL by observers in America and abroad. Beginning with the observations for January 1948, a new method of reduction of observations is employed such that each observer is assigned a scale-determining "observatory coefficient," ultimately referred to Zürich observations in a standard period, December 1944 to September 1945, and a statistical weight, the reciprocal of the variance of the observatory coefficient. The daily numbers listed in the table are the weighted means of <u>all</u> observations received for each day. Details of the procedure are given in the Publication of the Astronomical Society of the Pacific, issued February 1949, in an article entitled "Reduction of Sunspot-Number Observations." The American relative sunspot number computed in this way is designated R_A. It is noted that a number of observatories abroad, including the Zürich observatory, are included in R_A. The scale of R_A was referred specifically to that of the Zürich relative sunspot numbers in the standard comparison period; since that time, R_A is influenced by the Zürich observations only in that Zürich proves to be a consistent observer and receives a high statistical weight. In addition, this table lists the daily provisional Zürich sunspot numbers, R_Z.

SOLAR CORONAL INTENSITIES OBSERVED AT CLIMAX, COLORADO

In tables 67a and 67b are listed the intensities of green (5303A) line of the emission spectrum of the solar corona as observed during March 1949 by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, for east and west limbs, respectively, at 5-degree intervals of position angle north and south of the solar equator at the limb. Beginning January 11, 1949, the actual measurements are on <u>solar rotation</u> coordinates rather than astronomical coordinates; thus values of the correction P given in previous coronal tables are omitted. The time of observation is given to the nearest tenth of a day, GCT. The tables of coronal observations in CRPL-F29 to F41 listed the data on <u>astronomical</u> coordinates; the present format on <u>solar rotation</u> coordinates is in conformity with the tables of CRPL-1-4, "Observations of the Solar Corona at Climax, 1944-46."

Tables 68a and 68b give similarly the intensities of the first red (6374A) coronal line; tables 69a and 69b list the intensities of the second red (6704A) coronal line. The following symbols are used in tables 67, 68, and 69: a, observation of low weight; -, corona not visible; and x, position angle not included in plate estimates.

Table 1

Washington, D.C. (39.0°N, 77.5°W) — March 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	255	7.0						2.8
01	260	6.8						2.7
02	260	6.6						2.7
03	250	6.2						2.7
04	250	5.8						2.8
05	270	5.5						2.8
06	250	5.5						2.8
07	230	7.8			110	2.3		3.1
08	230	9.6	---	---	100	2.8	2.7	3.2
09	230	11.2	215	---	100	3.2	3.9	3.0
10	230	12.0	205	---	100	3.5		3.0
11	230	12.6	200	---	100	3.7		2.9
12	240	12.5	200	5.2	100	3.7		2.8
13	230	12.4	210	---	100	3.8		2.9
14	230	12.4	210	---	100	3.7		2.8
15	230	12.2	220	---	100	3.5		2.9
16	230	12.0	---	---	100	3.2		2.9
17	230	11.6	---	---	100	2.7	2.7	2.9
18	230	11.3			120	2.0		3.0
19	225	(10.3)						3.0
20	230	9.3						2.9
21	240	8.5						2.9
22	250	7.9						2.8
23	250	7.4						2.8

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

Table 2

Boston, Massachusetts (42.4°N, 71.2°W) — February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	265	6.3						2.6
01	262	6.0						2.6
02	260	5.9						2.6
03	265	5.6						2.6
04	250	5.3						2.6
05	250	4.6			---	---		2.7
06	265	4.8			---	---		2.7
07	248	8.0			162	2.2		3.1
08	240	9.9			---	---		3.1
09	245	10.8			---	---		3.1
10	250	10.9			---	---		3.1
11	260	11.3			---	---		3.0
12	258	11.2			---	---		3.0
13	250	11.1			---	---		3.0
14	260	11.2			---	---		3.0
15	255	11.2			---	---		3.0
16	240	10.8			155	2.4		3.0
17	238	10.7			150	1.9		3.0
18	235	10.0			---	---		2.9
19	235	9.5			---	---		2.9
20	240	8.2			---	---		2.9
21	250	7.4						2.8
22	255	7.2						2.8
23	260	6.9						2.7

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

Table 3

San Francisco, California (37.4°N, 122.2°W) — February 1949

Time	h'F2	f°F2	h'F1	f°F1	h	f°E	fEs	F2-M3000
00	280	4.4						2.5
01	280	4.2						2.6
02	280	4.4						2.6
03	280	4.5						2.5
04	280	4.2						2.5
05	280	4.3						2.5
06	280	4.4						2.5
07	240	6.4	---	---	160	2.0		2.8
08	230	9.6	---	---	120	2.7		3.1
09	230	11.0	---	---	120	3.3		2.9
10	220	12.0	---	---	120	3.5		2.8
11	220	12.5	---	---	120	3.6		2.8
12	335	12.8	220	---	120	3.9		2.7
13	225	12.8	220	---	120	3.8		2.7
14	230	12.5	---	---	120	3.6		2.7
15	230	12.0	---	---	120	3.6		2.6
16	240	11.6	---	---	120	3.2		2.7
17	220	11.0	---	---	120	2.5		2.8
18	220	10.5						2.8
19	220	8.8						2.8
20	220	7.6						2.8
21	220	5.9						2.8
22	240	4.8						2.7
23	260	4.4						2.5

Time: 120.0°W.
Sweep: 1.3 Mc to 18.0 Mc in 4 minutes 30 seconds.

Table 4

White Sands, New Mexico (32.3°N, 106.5°W) — February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	5.0						2.6
01	280	5.0					2.3	2.6
02	280	5.0						2.7
03	260	4.8						2.7
04	240	4.7					2.3	2.6
05	280	4.2					2.4	2.5
06	290	4.2					2.4	2.6
07	255	7.1			130	2.0	2.7	2.8
08	240	10.3			120	2.7	3.5	3.1
09	240	11.5			120	3.2	3.9	3.1
10	230	12.5			110	3.6	4.4	2.9
11	230	12.6			115	3.8		2.8
12	230	13.0			120	3.9		2.8
13	230	12.9			120	3.9		2.7
14	230	12.6			120	3.8	4.8	2.6
15	230	12.2			120	3.5	4.3	2.6
16	240	12.0			120	3.1	4.1	2.7
17	240	11.3			120	2.4	3.6	2.8
18	230	10.6			---	---	2.6	2.8
19	220	9.2					2.4	2.8
20	230	(7.4)					2.4	(2.8)
21	240	6.7					2.4	3.0
22	260	5.5					2.4	2.7
23	270	5.1					2.3	2.6

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

Table 5

Wuchang, China (30.6°N, 114.4°E) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	7.4						2.8
01	250	7.1						2.9
02	250	6.8						2.9
03	242	6.6						3.0
04	220	5.4						3.3
05	208	3.8						3.0
06	252	3.4						2.8
07	262	6.0			150	1.6		3.0
08	225	10.0			105	2.5		3.3
09	220	11.5	---	---	100	3.1		3.2
10	225	12.5	220	6.0	100	3.5		3.1
11	235	13.7	210	5.2	100	3.7		3.1
12	240	14.0	215	5.2	100	3.8		2.9
13	250	15.0	210	6.0	100	3.8		2.9
14	268	15.0	210	6.4	100	3.8		2.9
15	245	15.0	220	6.4	100	3.6		2.9
16	225	15.0	220	5.3	100	3.3		2.9
17	222	14.8	---	---	100	2.8		2.9
18	230	13.7	---		110	2.0		3.0
19	220	13.5					2.0	3.0
20	220	13.4						2.9
21	220	11.4						3.0
22	220	10.0						3.0
23	230	8.4						2.9

Time: 120.0°E.
Sweep: 1.2 Mc to 19.0 Mc, manual operation.

Table 6

Baton Rouge, Louisiana (30.5°N, 91.2°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	5.7						2.8
01	290	5.4						2.8
02	290	5.6						2.8
03	290	5.3						2.9
04	285	4.9						2.9
05	300	4.3						2.7
06	300	4.7						2.8
07	270	7.2				---		3.1
08	280	10.1	235	---	120	2.8		3.1
09	280	11.8	240	---	120	3.3		3.1
10	290	12.0	230	---	120	3.5		3.0
11	290	12.4	220	---	120	3.6		2.9
12	300	12.7	230	---	(120)	(3.7)		2.9
13	300	12.5	230	---	120	3.7		2.9
14	310	12.4	230	---	120	3.6		2.9
15	310	12.0	230	---	120	3.5		2.8
16	300	11.9	230	---	120	3.2		2.8
17	290	11.6			130	2.6		2.9
18	240	10.8						2.9
19	230	8.7						2.9
20	260	7.8						2.9
21	260	7.1						2.9
22	270	6.4						2.9
23	290	6.0						2.8

Time: 90.0°W.
Sweep: 2.12 Mc to 15.3 Mc in 8 minutes 30 seconds, automatic operation.

Table 7

Okinawa I. (26.3°N, 127.7°E) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.8						2.9
01		9.8						3.0
02		8.7						3.0
03		7.8						3.0
04		6.5						3.2
05		4.3						3.0
06		3.8						2.9
07		5.6		---		E		2.8
08		10.2		---		E		3.2
09		12.8		---		E	3.6	3.2
10		14.0		---		---	4.0	3.1
11		14.6		---		---	4.3	3.0
12		15.1		---		---	4.4	2.9
13		16.0		---		---	4.6	2.8
14		16.7		---		---	4.6	2.8
15		17.2		---		---	4.4	2.8
16		17.3		---		---	4.0	2.7
17		16.7		---		E	3.4	2.8
18		16.9		---		E		2.9
19		(16.7)						(2.9)
20		17.1						2.9
21		(17.1)						(3.0)
22		(14.7)						(3.1)
23		12.5						3.0

Time: 135.0°E.
Sweep: 3.2 Mc to 18.0 Mc in 15 minutes, manual operation.

Table 8

Maui, Hawaii (20.8°N, 156.5°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	230	7.6						3.2
01	230	7.0						3.2
02	230	5.6						(3.2)
03	230	4.4						(3.2)
04	280	3.6						(2.8)
05	300	3.1						2.8
06	310	3.0						2.7
07	255	6.0				E		(3.0)
08	240	10.3	---	---	110	2.8		3.3
09	230	12.6	220	---	100	3.4		3.2
10	240	13.8	210	---	100	3.7		(3.0)
11	260	14.4	210	6.0	100	3.9		(2.8)
12	300	14.8	200	6.6	100	4.0		2.8
13	330	15.6	210	6.4	100	3.9		(2.8)
14	330	15.8	220	6.4	100	3.7		2.8
15	320	16.0	230	6.3	100	3.6		(2.8)
16	300	15.5	230	6.2	100	3.5		2.8
17	250	14.8	240	---	100	3.0	3.4	(2.8)
18	250	14.2			110	2.4	3.0	(2.9)
19	240	13.7			---	---	3.0	(3.0)
20	230	12.8					2.5	(3.0)
21	230	11.8						(3.0)
22	230	10.6						(3.1)
23	330	9.0						3.0

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

Table 9

San Juan, Puerto Rico (18.4°N, 66.1°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		9.2						2.9
01		8.0						2.9
02		6.7						3.0
03		6.0						3.0
04		5.0						2.8
05		4.5						2.7
06		4.6						2.8
07	250	7.7		3.0				2.9
08	240	10.5		3.8		E		3.1
09	250	12.2		---		3.4		3.0
10	260	13.5		---		3.7		3.0
11	260	13.5		---		3.8		2.9
12	275	13.0		---		4.0		2.8
13	300	(12.4)		---		4.0		(2.7)
14	305	12.5		6.0		---		2.7
15	300	12.5		5.5		3.7		2.7
16	300	11.9		5.5		3.4		2.6
17	270	11.4		(4.1)		3.0		2.7
18	250	11.5		3.0				2.7
19	250	10.6						2.8
20		9.4						2.8
21		9.1						2.7
22		9.0						2.7
23		8.8						2.7

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

Table 10

Trinidad, Brit. West Indies (10.6°N. 61.2°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	10.0						3.0
01	250	8.8						3.0
02	240	7.2						3.2
03	235	5.3						3.0
04	270	4.3						3.0
05	280	4.0					2.2	2.8
06	270	4.4					2.4	2.8
07	250	8.7			120	2.3	2.8	3.2
08	240	11.6	---	---	120	3.1	4.0	3.2
09	250	13.4	230	(4.8)	120	3.6	4.4	3.1
10	260	13.8	230	5.1	120	3.9	4.6	3.0
11	260	13.2	220	5.2	120	4.1	4.6	2.9
12	260	13.4	220	5.3	120	4.2	4.7	2.8
13	270	13.4	220	5.2	120	4.1	4.7	2.7
14	265	13.0	220	5.2	120	3.9	4.6	2.7
15	270	13.1	230	5.1	120	3.8	4.6	2.7
16	280	13.1	240	(5.0)	120	3.5	4.4	2.7
17	255	12.8	250	---	120	3.1	4.0	2.7
18	260	12.4			120	2.2	3.1	2.8
19	260	11.9					3.4	2.8
20	260	11.7					2.7	2.8
21	260	11.6					2.6	2.8
22	270	10.9					2.4	2.8
23	250	11.4						3.0

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

Table 11

Palmyra I. (5.9°N, 162.1°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	12.8					3.8	2.8
01	250	12.0					3.4	2.9
02	250	(9.8)					3.6	(2.8)
03	240	8.2					3.6	(2.9)
04	240	7.7					3.4	2.9
05	250	6.6					3.6	2.9
06	250	5.7					3.3	3.0
07	290	8.2			140	2.2	3.6	2.9
08	250	11.4			120	3.2	3.9	2.7
09	240	12.6	240	---	120	3.7	4.3	2.4
10	270	12.6	240	---	120	3.9	4.2	2.3
11	270	12.1	230	---	120	4.2	4.2	2.2
12	280	11.8	230	---	120	---		2.1
13	275	12.0	230	---	120	---		2.2
14	270	12.6	225	---	120	4.2	4.2	2.2
15	260	13.2	220	---	120	4.0	4.3	2.2
16	250	13.7	200	3.8	120	3.6	4.1	2.3
17	260	13.8			120	3.3	4.0	2.4
18	280	13.8			140	2.5	4.0	2.4
19	330	13.8					3.7	2.3
20	380	13.8					2.8	2.2
21	340	13.8					2.1	(2.4)
22	290	14.4					3.6	(2.5)
23	270	14.1					3.6	(2.7)

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

Table 12

Huancayo, Peru (12.0°S, 75.3°W) February 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	9.0						2.8
01	235	8.5						2.8
02	230	7.8						3.0
03	230	7.2						3.1
04	230	5.7						3.0
05	240	4.0						3.0
06	270	6.5				1.9	2.7	2.9
07	250	10.2				2.9		3.0
08	240	12.5				3.5		2.8
09	---	13.9	230	---		3.9	11.0	2.6
10	(265)	14.3	215	5.4		4.0	11.9	2.3
11	250	14.0	210	5.4		---	11.9	2.2
12	260	13.2	210	5.4		---	11.9	2.2
13	250	12.9	210	5.4		---	11.9	2.1
14	280	12.7	205	5.4		---	11.9	2.1
15	260	12.2	210	5.4		3.9	11.8	2.1
16	230	12.2				3.5	11.2	2.1
17	260	12.0				3.0	10.6	2.0
18	290	11.8				2.1	3.7	2.1
19	380	11.3						2.1
20	430	9.5						2.0
21	405	9.8						2.1
22	360	9.4						2.2
23	310	(9.6)						(2.4)

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

Table 13

Lindau/Harz, Germany (51.6°N, 10.1°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	2.8					2.0	
01	310	2.8					2.4	
02	320	2.9						
03	310	2.8						
04	305	2.5						
05	300	2.5						
06	300	2.8						
07	290	2.5						
08	215	4.9			130	1.7		
09	205	8.0			110	2.2	2.8	
10	210	10.4			105	2.5	2.8	
11	210	10.4			105	2.8	3.0	
12	215	10.1			105	2.9	3.2	
13	215	10.5			105	2.8	3.4	
14	215	10.5			105	2.7	3.2	
15	205	9.9			105	2.4	3.0	
16	205	9.2			110	2.1	2.8	
17	210	8.4					2.8	
18	205	6.7					2.8	
19	205	5.0					2.4	
20	240	3.7					2.1	
21	300	3.3					2.0	
22	305	3.0						
23	310	2.8						

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

Table 14

Chungking, China (29.4°N, 106.8°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	4.7						2.6
01	260	4.5						2.8
02	260	4.5						2.9
03	240	4.1						3.0
04	240	3.4						3.0
05	300	3.0					1.8	2.5
06	265	3.2						2.7
07	240	5.9					3.4	3.0
08	230	10.2	205		100	3.0	4.0	3.2
09	235	11.1	210		100	3.1	4.1	3.2
10	240	12.3	210	---	90	3.4	4.6	3.0
11	250	12.6	210	---	---	---	4.6	2.9
12	260	13.3	210	8.3	95	3.6	4.4	2.8
13	260	14.2	220	5.8	100	3.6	4.6	2.7
14	270	14.0	220	---	100	3.8	4.5	2.7
15	240	14.1	200	---	80	3.2	4.3	2.8
18	230	14.0	200		90	3.0	4.0	2.8
17	200	13.4	200		95	2.3	4.0	2.9
18	210	12.5					2.8	2.9
19	220	11.3					2.2	2.9
20	205	9.3						3.0
21	210	7.8						3.0
22	220	5.2						2.7
23	240	4.8						2.7

Time: 105.0°E.
Sweep: 1.5 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 15

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	8.9					2.0	2.7
01	270	6.6					2.3	2.8
02	280	6.0					2.1	2.8
03	280	5.8					2.1	2.8
04	280	5.3					2.0	2.7
05	280	5.1			---	---	1.8	2.8
06	260	6.4	---	---	110	2.1		2.9
07	275	7.7	230	---	110	2.9	3.5	2.8
08	310	8.9	230	5.1	110	3.3	3.9	2.7
09	330	9.9	222	5.4	110	3.6		2.7
10	340	10.6	210	5.6	110	3.9	4.1	2.6
11	370	10.9	210	5.6	110	4.0	4.1	2.8
12	370	11.0	210	5.9	110	(4.1)	4.3	2.6
13	370	11.0	210	5.7	110	(4.0)	4.3	2.6
14	370	10.8	210	5.7	110	(4.0)	4.3	2.6
15	360	10.5	220	5.5	110	3.9	4.3	2.6
16	340	10.2	220	5.1	110	3.6	4.1	2.7
17	320	9.5	225	5.0	110	3.2	3.9	2.7
18	300	9.0	250	---	110	2.6	3.8	2.7
19	260	9.1			---	(1.8)	3.0	2.8
20	260	9.1					2.5	2.8
21	260	8.7					2.2	2.8
22	260	7.8						2.8
23	280	7.2					1.8	2.7

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 18

Watheroo, W. Australia (30.3°S, 115.9°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	7.0					4.4	2.6
01	270	6.8					5.4	2.6
02	285	6.5					3.8	2.6
03	280	6.0					3.4	2.6
04	290	5.5					3.2	2.6
05	290	5.4					3.2	2.7
08	280	6.0	---			2.1	3.2	3.0
07	270	6.7	230	4.4		2.8	3.4	2.8
08	400	7.1	240	5.2		3.2	4.7	2.6
09	400	7.9	245	5.3		3.5	4.9	2.6
10	360	8.5	240	5.5		3.8	5.6	2.6
11	385	9.1	220	5.6		3.9	5.5	2.6
12	400	9.4	230	5.6		4.0	5.3	2.6
13	400	9.6	230	5.6		4.0	5.0	2.6
14	380	9.8	230	5.6		4.0	4.8	2.8
15	380	9.8	240	5.6		3.8	4.6	2.6
16	360	9.0	240	5.4		3.6	4.3	2.6
17	335	8.4	250	5.2		3.2	5.1	2.7
18	270	8.2	---	---		2.8	4.4	2.7
19	270	8.0					3.7	2.7
20	270	8.0					3.3	2.7
21	280	7.8					3.2	2.8
22	290	7.5					3.3	2.6
23	290	7.2					4.4	2.6

Time: 120.0°E.
Sweep: 0.5 Mc to 16.0 Mc in 15 minutes, automatic operation.

Table 17

Capetown, Union of S. Africa (34.2°S, 18.3°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	(290)	5.5					2.0	2.7
01	(305)	5.1					1.9	2.6
02	(300)	5.1					2.5	2.6
03	(300)	5.1					2.1	2.7
04	(285)	4.9					2.1	2.8
05	(300)	4.2						2.7
06	270	5.4			---	1.7	2.0	2.8
07	(280)	6.9	250	---	110	2.6	3.0	2.8
08	320	7.9	240	4.7	110	3.0	3.6	2.7
09	355	9.0	225	5.2	100	3.4	3.5	2.6
10	355	9.6	---	5.6	100	(3.6)	4.1	2.6
11	360	10.2	---	6.0	110	---		2.6
12	380	10.4	---	6.0	110	---		2.5
13	380	10.2	---	6.0	110	---		2.5
14	380	10.3	---	5.9	110	---		2.6
15	370	10.1	---	5.6	110	---		2.6
16	360	9.8	220	5.4	110	---	3.8	2.6
17	350	9.2	230	5.1	100	3.4	3.4	2.7
18	320	8.9	230	4.7	110	3.0	3.6	2.7
19	(290)	8.6	250	---	110	2.3	3.0	2.8
20	260	8.1			110	---	2.2	2.9
21	250	7.8					2.1	2.8
22	250	7.0					1.9	2.8
23	260	6.1					1.9	2.8

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 18

Christchurch, New Zealand (43.5°S, 172.7°E) January 1949

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	7.6					3.5	2.6
01	290	7.1					4.1	2.6
02	280	6.5					4.3	2.6
03	285	6.2					3.7	2.6
04	280	5.8					3.0	2.7
05	270	5.7				1.5	3.5	2.8
06	280	6.4	250	4.2		2.5	4.4	2.9
07	305	7.4	250	4.7		3.0	4.9	2.8
08	345	7.2	230	5.0		3.4	6.0	2.8
09	330	7.6	225	5.3		3.6	6.6	2.8
10	415	7.9	235	5.6		3.7	6.5	2.7
11	400	8.0	230	5.8		3.8	6.8	2.7
12	410	8.0	225	5.8		3.8	6.4	2.6
13	410	8.1	240	5.7		3.8	6.7	2.6
14	430	7.9	230	5.7		3.7	5.5	2.6
15	400	8.1	230	5.6		3.7	4.8	2.6
16	380	7.9	240	5.3		3.5	4.7	2.6
17	350	8.3	240	5.0		3.2	4.4	2.7
18	280	8.4	245	4.3		2.7	4.4	2.7
19	270	8.1	---	---		1.9	4.2	2.7
20	280	8.0				1.2	4.2	2.6
21	290	8.1					4.8	2.5
22	295	8.0					3.9	2.5
23	290	8.0					4.0	2.5

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

Table 19

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	3.2					1.8	2.7
01	300	3.3					(2.1)	2.7
02	300	3.3					1.8	2.6
03	300	3.3					1.4	2.8
04	300	3.5					1.6	2.6
05	250	3.5					2.0	3.0
06	220	3.4				E		3.0
07	(210)	(6.4)						(3.4)
08	(220)	(8.6)			100	2.2		(3.4)
09	210	9.7			100	2.7	2.7	3.3
10	220	11.0			100	2.9	3.0	3.3
11	220	10.6			100	3.0		3.3
12	210	10.6			100	3.0	3.3	3.3
13	220	9.6			100	2.9	3.2	3.3
14	220	8.9			100	2.7	3.0	3.2
15	210	8.6			100	2.3	2.7	3.4
16	210	7.0			105	1.6	2.1	3.3
17	200	6.2				E	2.4	3.2
18	220	4.8					2.2	3.2
19	220	4.2					2.2	3.2
20	220	3.3					2.2	3.2
21	255	3.0					2.2	2.9
22	280	3.1					2.0	2.7
23	300	3.2					1.8	2.7

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

Table 20

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	3.[illegible]					2.0	2.7
01	320	3.2					1.8	2.6
02	320	3.2					2.1	2.7
03	310	3.4					1.8	2.7
04	290	3.4					1.8	2.7
05	280	3.4					1.5	2.7
06	260	3.7				E	2.4	3.0
07	245	6.4				1.7	2.2	3.2
08	(220)	(8.5)			115	2.[illegible]	(2.8)	(3.4)
09								
10								
11								
12	230	10.2			110		3.2	3.2
13	240	9.8			120	3.7	(3.2)	3.3
14	(235)	(9.4)			110	2.8		(3.2)
15	(230)	(9.2)			115	2.6	(3.2)	(3.2)
16	(230)							
17								
18								
19								
20								
21								
22	310	3.0					2.0	2.6
23	310	3.2					2.0	2.6

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

Table 21

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	3.3					2.1	2.8
01	290	3.3					2.3	2.7
02	300	3.4					2.2	2.8
03	280	3.4					2.4	2.9
04	250	3.4					2.4	3.0
05	240	3.2					2.2	2.8
06	245	3.2					2.4	3.0
07	220	6.6				(1.8)	2.5	3.4
08	200	8.8			100	(2.6)	2.9	3.5
09	200	9.9			100	2.9	3.6	3.5
10	205	10.2			100	3.3	3.6	3.4
11	220	11.0			100	3.4	3.7	3.3
12	210	10.5			100	3.4	3.8	3.3
13	220	10.1	210		100	3.4	3.8	3.3
14	210	9.8			100	3.1	3.8	3.3
15	210	9.5			100	2.7	3.4	3.3
16	200	8.8			110	(2.2)	3.3	3.4
17	200	8.9					2.7	3.4
18	210	5.6				E	2.8	3.3
19	210	4.9					2.5	3.4
20	215	4.0					2.3	3.2
21	245	3.2					2.0	3.2
22	270	3.0					2.1	2.9
23	290	3.2					1.9	2.7

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

Table 22

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	450	3.4						2.3
01	440	3.6						2.3
02	420	3.6						2.3
03	380	3.8						2.5
04	380	3.8						2.4
05	340	3.6						2.5
06	400	3.4						2.4
07	340	4.7	320					2.5
08	310	(9.6)	280				3.0	(2.8)
09	300	9.5	280				3.7	2.6
10	320	11.0	280		140	3.4	3.8	2.7
11	310	12.0	280		140	3.5	3.9	2.6
12	320	13.5	280		140	3.7	4.3	2.6
13	320	13.2	280		140	3.6	4.1	2.6
14	320	13.0	280		135	3.6	4.1	2.5
15	300	12.2	280		135	3.4	4.1	2.6
16	320	12.2	280				3.2	2.6
17	320	(9.4)	270					(2.6)
18	(290)	(7.2)	260					(2.7)
19								
20	300	6.2						2.6
21	300	4.2						2.6
22	360	3.6						2.4
23	440	3.2						2.2

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

Table 23

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	3.2						2.9
01	280	3.2						2.8
02	290	3.2						2.8
03	280	3.4						2.9
04	260	3.3						3.0
05	270	3.1						2.9
06	260	3.2						3.0
07	220	7.0	225		150	2.0		3.4
08	220	9.3	200		100	2.4		3.6
09	210	10.3	225		100	3.0	3.4	3.5
10	220	10.5	210		100	3.3		3.4
11	230	11.4	220		100	3.4		3.3
12	240	11.0	220		100	3.5	3.6	3.3
13	230	10.2	210		100	3.4	3.8	3.3
14	230	10.0	210		100	3.2	3.6	3.3
15	230	9.9	220		100	2.8	3.2	3.4
16	210	8.9	205		100	2.3	3.0	3.5
17	200	7.2	200		130	1.6	2.6	3.4
18	220	5.9					2.8	3.3
19	210	5.2					2.2	3.3
20	210	4.2						3.3
21	240	3.6					2.0	3.2
22	270	3.1						2.9
23	300	3.2						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 24

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	280	5.8	240				1.7	2.8
08	260	10.0	240		140	2.5	2.3	3.0
09	260	11.0	240		120	2.9	3.0	3.0
10	260	11.5	240		120	3.4	3.5	2.9
11	260	11.5	230		120	3.5	3.6	2.9
12	285	12.4	220	5.8	120	3.6	3.6	2.7
13	280	12.7	240	5.6	120	3.6		2.8
14	280	12.5	240		120	3.5	3.3	2.8
15	275	12.3	240		120	3.4	3.5	2.8
16	260	11.5	240		120	2.7		2.8
17	240	10.2			130	2.0	2.3	2.9
18	220	8.0					1.8	2.8
19	220	7.7						2.8
20	220	6.4						2.8
21	240	5.6						2.8
22	250	4.8						2.6
23								

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

Table 25

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	4.0						2.8
01	310	3.7						2.7
02	300	3.7						2.7
03	310	3.6						2.7
04	290	3.6						2.9
05	260	3.3						2.8
06	310	3.2				E		2.7
07	290	5.1	245			1.6		2.9
08	240	9.2	230		110	2.4		3.3
09	240	10.7			110	2.9		3.3
10	240	11.6	230		110	3.3	3.4	3.2
11	240	11.2	230		110	3.5		3.1
12	280	12.0	230		110	3.6	(4.0)	3.2
13	280	11.6	240		110	3.6		3.1
14	280	11.5	230		110	3.4	3.6	3.0
15	260	11.2	230		110	3.2	3.6	3.1
16	240	10.9	230		110	2.7		3.2
17	240	9.7	210		145	2.2		3.2
18	210	8.5				E	2.4	3.2
19	220	7.2						3.2
20	220	6.6						3.2
21	230	6.0						3.1
22	240	4.8						3.0
23	290	4.2						2.8

Time: 135.0°E.
Sweep: 1.2 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 26

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	4.1						2.4
01	300	4.0						2.5
02	270	4.1						2.7
03	250	3.9						2.8
04	240	3.3						3.1
05	255	3.1						2.8
06	260	3.2						2.8
07	240	6.4	230					3.0
08	220	11.0	200		100	2.7	3.8	3.2
09	230	12.2	220		90	3.0	3.9	3.2
10	240	12.1	210		90	3.5	3.9	3.0
11	240	12.5	200	5.7	90	3.8	4.2	2.8
12	260	13.7	200	4.9	90	3.7	4.2	2.8
13	275	14.8	215	5.3	110	3.6	4.2	2.7
14	260	14.5	215	5.0	100	3.4	4.0	2.7
15	240	14.5	200		90	3.2	4.0	2.8
16	220	13.5	200		90	2.7	4.0	2.9
17	200	12.5	200		100	2.0	3.4	3.0
18	200	11.2					2.6	2.8
19	210	9.5						2.9
20	200	9.0						2.9
21	210	7.8						2.9
22	215	5.6						2.9
23	255	4.7						2.6

Time: 105.0°E.
Sweep: 1.5 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 27

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	270	9.9				2.3	3.6	2.8
07	250	10.6	250		110	2.9	5.1	2.9
08	250	10.5		(6.4)	110	3.3	5.4	2.8
09	295	10.8	250	8.4	110	3.6	5.6	2.6
10	350	11.8	230	6.4	110	3.8	5.6	2.5
11	360	12.2	250	6.5	110	4.0	5.4	2.5
12	380	13.2	250	6.5	110	4.0	5.2	2.5
13	390	13.8	250	6.4	110	4.0	5.0	2.5
14	380	14.5	240	6.4	110	4.0	5.3	2.6
15	350	14.4	250	6.2	110	3.8	5.7	2.6
16	340	14.5	250	5.8	110	3.5	5.2	2.7
17	330	13.0	250	5.9	110	3.1	5.5	2.7
18	300	12.0			120	2.5	5.8	2.7
19	300	11.3				1.7	5.1	2.5
20	365	10.8					5.6	2.5
21	340	11.1					5.0	2.4
22								
23								

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

Table 28

Brisbane, Australia (27.5°S, 153.0°E) December 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	10.0					4.1	2.8
01	260	9.3					4.4	2.8
02	270	8.4					4.0	2.7
03	280	7.8					3.5	2.6
04	270	7.5					2.8	2.7
05	260	7.8			120	1.8	2.2	2.8
06	240	8.0	250	4.3	110	2.7	3.5	2.8
07	280	8.5	250	4.9	110	3.2	4.5	2.8
08	330	9.5	220	5.3	110	3.5	4.3	2.7
09	345	9.8	210	5.5	100	3.8	4.6	2.6
10	365	10.1	210	5.9		4.1	5.2	2.5
11	340	11.0	210	8.0	100	4.2	4.5	2.8
12	350	11.2	205	5.8	100		4.6	2.6
13	350	11.0	230	5.9	100	4.1		2.8
14	350	10.8	230	5.8	105	4.0		2.8
15	350	10.8	230	5.5	110	3.8		2.6
16	330	10.3	240	5.1	110	3.5		2.7
17	290	9.8	240	4.6	110	3.0		2.7
18	270	9.5					4.0	2.7
19	280	9.0					3.7	2.6
20	300	9.0					3.5	2.6
21	310	9.2					3.6	2.5
22	310	9.5					4.8	2.6
23	300	9.8					4.5	2.6

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

Table 29

Watheroo, W. Australia (30.3°S, 115.9°E) December 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	7.0					3.8	2.7
01	290	6.8					3.8	2.7
02	300	6.4					3.6	2.7
03	285	6.1					3.4	2.6
04	280	5.8					3.2	2.7
05	280	5.8				1.8	2.9	2.7
06	280	6.2	252	3.8		2.5	3.3	2.8
07	325	6.8	235	4.7		3.1	4.2	2.8
08	330	7.5	230	5.2		3.3	5.2	2.7
09	390	7.5	250	5.4		3.6	4.6	2.7
10	380	8.5	230	5.4		3.7	5.0	2.6
11	395	9.0	220	5.4		3.8	4.6	2.6
12	392	8.8	230	5.3		3.8	4.3	2.5
13	380	9.2	230	5.4		3.8	4.7	2.6
14	385	8.6	230	5.4		3.8	4.3	2.6
15	370	9.1	230	5.3		3.7	4.3	2.6
16	350	8.8	235	5.3		3.6	4.0	2.6
17	330	8.5	235	5.0		3.2	3.8	2.7
18	290	8.6	255	4.3		2.5	3.7	2.7
19	265	8.5				1.9	3.0	2.8
20	270	8.0					2.8	2.8
21	295	7.6					3.2	2.7
22	298	7.2					3.4	2.7
23	295	7.0					3.9	2.7

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 30

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	8.5					3.5	2.8
01	260	7.8					4.0	2.7
02	260	7.3					3.0	2.6
03	260	6.9					2.6	2.6
04	270	6.4					2.6	2.6
05	260	6.2			100	1.6	3.4	2.8
06	250	6.7	240	4.0	100	2.5	3.7	2.9
07	300	7.3	225	4.6	100	3.1	3.9	2.9
08	350	7.6	235	5.1	100	3.5	6.3	2.8
09	360	8.2	210	5.3	100	3.6	6.0	2.8
10	340	8.2	200	5.5	100	3.8	6.5	2.7
11	350	8.6	200	5.6	100	4.0	6.2	2.6
12	360	8.6	200	5.7	100	(4.0)	6.4	2.7
13	370	8.7	210	5.6	100	4.0	4.7	2.6
14	365	8.1	210	5.5	100	3.8	4.2	2.7
15	352	8.4	220	5.5	100	3.6	3.8	2.7
16	350	8.3	230	5.2	100	3.5	3.9	2.8
17	310	8.5	240	4.9	100	3.1	5.0	2.8
18	260	8.5			100	2.5	5.1	2.8
19	260	8.2					5.6	2.8
20	260	8.2					5.1	2.7
21	290	8.5					4.9	2.6
22	290	8.5					3.6	2.7
23	280	8.5					3.8	2.7

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

Table 31

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	7.3					2.0	2.7
01	280	6.7					2.4	2.7
02	290	6.1					2.5	2.7
03	270	5.5					2.1	2.6
04	290	5.0				1.3	2.2	2.8
05	270	5.4	270	3.4	100	2.0		2.8
06	315	5.8	240	4.0	100	2.7		2.9
07	350	6.3	240	4.5	100	3.1		2.9
08	370	6.7	230	5.0	100	3.5		2.8
09	390	7.0	230	5.1	100	3.6		2.7
10	400	7.2	225	5.4	100	3.8		2.7
11	430	7.4		5.5	100	3.8		2.7
12	430	7.6	230	5.5	100	3.9		2.6
13	400	7.5	(220)	5.5	100	3.8		2.6
14	400	7.8	230	5.4	100	3.8		2.7
15	390	7.7	230	5.3	100	3.8		2.7
16	370	7.6	230	5.1	100	3.5		2.7
17	350	8.0	240	4.8	100	3.2		2.8
18	300	8.1	250	4.5	100	2.7		2.8
19	270	8.0			100	2.0		2.8
20	270	8.2				1.4	6.4	2.8
21	270	8.3					4.8	2.7
22	260	8.0					3.0	2.7
23	280	8.0					1.8	2.7

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

Table 32*

Fraserburgh, Scotland (57.6°N, 2.1°W) November 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	370	2.9						2.4#
01	370	2.8						2.2#
02	360	2.6						2.5
03	370	2.7						2.4
04	360	2.8						2.3
05	340	2.8						2.6
06	340	2.8						2.8
07	320	3.8						2.7#
08	260	6.4	350	3.0#				2.7
09	245	8.8	280	3.7#	120	2.5#		2.8
10	240	10.2	280	3.5#				2.8
11	245	10.6	260	4.1#	140	2.6#		2.8
12	240	11.1			120	(2.8)#		2.6
13	235	(11.2)			145	2.6		2.5
14	230	(10.7)						3.0#
15	230	(10.6)						2.8#
16	230	9.8						2.5#
17	240	8.8						3.0#
18	260	7.0						2.9
19	300	4.8						3.3#
20	325	4.0						2.7
21	345	3.2						2.4#
22	375	3.3						2.4#
23	380	3.3						2.4

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2, which are median values.
#One or two observations only.

Table 33*

Slough, England (51.5°N, 0.6°W) November 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	311	3.7					2.6	2.7
01	310	3.6					2.6	2.7
02	305	3.6					2.6	2.7
03	291	3.3					2.6	2.8
04	279	3.0					2.6	2.8
05	270	3.0					3.2	2.9
06	275	2.9					2.6	2.9
07	256	5.0				1.6	3.6	3.1
08	227	7.6			126	2.0	4.5	3.3
09	228	9.9	275	4.1	120	2.4	4.7	3.3
10	231	11.1	250	4.3	119	2.8	4.8	3.3
11	232	12.2	232	4.4	118	3.0	4.4	3.2
12	234	12.2	233	4.6	118	3.0	4.8	3.2
13	229	12.2	255	4.5	115	2.9	4.8	3.2
14	231	12.3	245	4.1	119	2.7	4.8	3.2
15	227	11.7			123	2.3	4.7	3.2
16	223	10.8			138	1.8	4.0	3.3
17	220	9.4			125	1.4	2.8	3.3
18	228	7.9					2.6	3.2
19	235	5.8					2.6	3.1
20	251	4.5						3.0
21	303	4.2						2.7
22	311	4.1						2.7
23	315	3.8					2.5	2.7

Time: Local.
Sweep: 0.5 Mc to 16.5 Mc in 5 minutes.
*Average values except for foF2 and fEs, which are median values.

Table 34

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	400	4.7						2.3
01	390	4.6						2.3
02	380	4.5						2.4
03	360	4.4						2.3
04	360	4.2						2.5
05	360	4.2						2.3
06	320	4.0						2.4
07	300	7.4	300				3.1	2.6
08	(320)	(11.5)	290				3.5	(2.6)
09	(320)	(12.4)	280				3.9	(2.5)
10	(320)	(13.0)	280				4.0	(2.6)
11	300	13.2	280				3.5	2.5
12	305	14.0	280				4.1	2.4
13	325	(14.3)	280				4.3	(2.5)
14	325	13.6	300				4.2	2.5
15	320	13.5	285				4.1	2.4
16	320	(12.2)	280				3.6	(2.5)
17	300	(11.6)						(2.4)
18								
19								
20	(280)							
21	305	6.6						(2.6)
22	350	4.8						2.3
23	390	4.6						2.3

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

Table 35

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	280	3.8					1.7	2.7
07	270	8.6	250		140	1.9	2.0	3.0
08	250	10.7	240		130	2.7	2.9	3.0
09	260	11.5	240		120	3.1	3.6	2.9
10	280	13.0	230	6.0	120	3.5	3.8	2.8
11	280	13.5	240		120	3.6	3.8	2.8
12	280	14.1	240	6.0	120	3.9	4.0	2.7
13	280	14.5	240	6.1	120	3.8	3.8	2.7
14	280	14.5	240				4.0	2.7
15	260	14.0	240		120	3.1	3.6	2.8
16	260	13.1	240		120	2.7	3.0	2.7
17	240	12.5	240		130	2.2	2.1	2.8
18	220	10.8					2.1	2.8
19	240	9.3					1.9	2.8
20	240	8.6					1.9	2.8
21	220	7.6					1.7	2.8
22	255	5.9						2.6
23								

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

Table 36

Delhi, India (28.6°N, 77.1°E) November 1948

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000**
00	440	4.9						2.4
01	440	4.5						
02	430	4.0						
03								
04	(440)	(4.2)						2.7
05	440	4.0						
06	400	5.5						
07	360	9.5						
08	380	12.0						2.8
09	400	12.8						
10	400	13.3						
11	420	(13.6)						
12	440	(14.0)						2.6
13	(460)	(14.5)						
14	460	(14.2)						
15	(440)	(14.3)						
16	420	(14.3)						2.7
17	400	13.6						
18								
19								
20	400	10.7						2.6
21	400	8.4						
22	440	6.8						
23	440	5.6						

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

Table 37

Bombay, India (19.0°N, 73.0°E) November 1948

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	** F2-M3000
00								2.9
01								
02								
03								
04								
05								
06								
07	330	10.5						
08	390	12.6						2.7
09	480	14.0						
10		(14.2)						
11		(14.6)						
12		(14.7)						2.7
13		(15.1)						
14		(15.1)						
15		(15.1)						
16		(15.3)						
17		(15.1)						
18		(15.1)						
19		(15.0)						
20		(14.9)						
21	(480)	14.6						
22	(420)	(13.6)						
23								

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

Table 38

Madras, India (13.0°N, 80.2°E) November 1948

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	** F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	420	10.2						
08	480	12.3						2.5
09	480	13.0						
10	540	13.5						
11	540	13.8						
12	540	13.6						2.3
13	570	13.8						
14	570	13.8						
15	570	13.8						
16	570	14.0						2.3
17	555	13.4						
18	540	13.0						
19	540	12.8						
20	540	(12.5)						2.4
21	525	(12.1)						
22	495	(12.1)						
23								

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

Table 39*

Singapore, British Malaya (1.3°N, 103.8°E) November 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290							2.6
01	295							2.6
02	295							2.6
03	300							2.8
04	290							2.9
05	290							2.9
06	300							2.7
07	250	(8.6)						3.0
08	230	10.4					4.1	2.7
09	225	10.9					4.5	2.2
10	220	11.7					4.6	2.2
11	220	12.0					4.6	2.2
12	220	12.2					4.5	2.2
13								
14	240	12.2					5.0	2.1
15	225	(12.5)					4.9	2.1
16	245	(12.6)					(4.1)	2.2
17	270	(12.5)						2.1
18	340#							2.0
19								
20								
21	270							2.6
22	230							3.0
23	250							2.7

Time: 112.5°E.
Sweep: 4.0 Mc to 15.0 Mc in 10 to 15 minutes, manual operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 40

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.9					2.5	2.7
01	290	6.3					2.0	2.7
02	290	5.6					2.6	2.7
03	300	5.3					2.7	2.7
04	300	5.0				E	2.1	2.7
05	280	5.3			100	1.9		2.8
06	250	6.0	240	4.0	100	2.6		3.0
07	350	6.5	250	4.5	100	3.0		2.8
08	350	7.0	240	4.9	100	3.3		2.8
09	400	7.0	230	5.0	100	3.6		2.7
10	430	7.3	225	5.3	100	3.7		2.6
11	400	7.5	222	5.3	100	3.8	5.0	2.7
12	420	7.6	220	5.5	100	3.8		2.6
13	400	7.8	230	5.3	100	3.8		2.6
14	380	8.0	228	5.4	100	3.8		2.7
15	380	8.0	230	5.3	100	3.6		2.7
16	370	8.0	240	5.3	100	3.4		2.7
17	330	8.4	248	4.8	100	3.0		2.8
18	270	6.6			100	2.5		2.8
19	270	8.6			130	1.9	3.3	2.8
20	270	8.3					3.7	(2.8)
21	280	8.0					4.0	(2.7)
22	290	7.8					3.1	2.7
23	300	7.1					2.1	2.7

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

Table 41*

Fraserburgh, Scotland (57.6°N, 2.1°W) October 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	360	3.2						
01	380	3.2						2.5
02	360	3.0						
03	360	2.8						
04	360	3.1						
05	340	3.0						2.9
06	340	3.5						2.8
07	270	5.6	300	3.4	120	2.4		2.9
08	260	6.6	260	4.1	130	2.5	(3.6)	3.0
09	260	7.7	250	4.4	120	2.7	(3.0)	2.9
10	270	8.4	240	4.4	130	2.9	(3.0)	2.9
11	260	8.2	210	4.4	120	3.0		2.9
12	260	7.8	250	4.5	120	3.0		2.6
13	270	7.8	250	4.6	120	3.0		2.9
14	250	9.0	180	4.9	120	2.9		2.8
15	250	8.4			130	2.7		2.7
16	250	9.1			140	2.5		2.8
17	270	8.5						2.9
18	270	8.2						3.2
19	270	6.7						2.8
20	300	5.5						
21	320	3.6						2.9
22	340	3.6						
23	360	3.4						

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except for foF2 and fEs, which are median values.

Table 42*

Slough, England (51.5°N, 0.6°W) October 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	327	4.2					2.4	2.5
01	320	4.0					2.6	2.5
02	320	3.9					2.6	2.5
03	306	3.6					2.6	2.5
04	288	3.2					2.6	2.6
05	290	3.2					2.6	2.7
06	286	4.0	300#	2.7#	135#	1.6	3.6	2.7
07	253	5.9	266	3.4	125	2.0	4.4	3.1
08	251	7.9	256	4.3	117	2.5	3.9	3.1
09	255	9.2	240	4.3	116	2.8	3.9	3.0
10	262	10.6	228	4.6	113	3.1		3.0
11	256	10.8	228	4.6	113	3.2	3.9	2.9
12	246	10.8	234	4.7	113	3.2	3.8	2.9
13	254	11.0	233	4.7	112	3.2		2.9
14	246	11.2	234	4.6	112	3.1		2.9
15	240	11.0	245#	4.4#	113	2.8	3.5	2.9
16	237	11.0	275#	4.5#	116	2.3	3.8	3.0
17	234	10.6			118	1.9	3.8	3.1
18	233	9.0					3.0	3.0
19	233	7.0					2.6	2.9
20	246	5.6					2.6	2.8
21	273	5.3						2.7
22	303	4.5						2.5
23	322	4.2						2.5

Time: Local.
Sweep: 0.5 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 43*

Falkland Is. (51.7°S, 57.8°W) October 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	333	7.7						2.4
01	320	8.1						2.5
02	311	7.8						2.5
03	306	7.6						2.5
04	307	7.3						2.4
05	267	(7.7)						2.5
06	245	(9.2)			125	2.4		2.9
07	239	9.6			115	2.8		3.0
08	239	(10.1)			114	3.2		2.8
09	253	11.6	245#	6.6#	112	3.4		2.8
10	248	12.4	240#	5.6#	111	3.6	4.4	2.8
11	261	13.0	240#	6.4	111	3.7	4.5	2.7
12	263	13.4	230	5.6	112	3.7	4.1	2.8
13	245	13.3	240#	6.0#	111	3.7		2.8
14	255	11.8	240#	5.8#	114	3.4		2.9
15	247	11.2			112	3.2		2.9
16	252	10.4			118	2.9		3.0
17	254	10.7			123	2.4		2.9
18	254	(10.0)			138			3.0
19	261	8.9						2.8
20	271	8.4						2.7
21	279	8.1						2.6
22	304	8.2						2.4
23	327	8.2						2.4

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 44*

Falkland Is. (51.7°S, 57.8°W) September 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	357	5.2						2.4
01	349	5.5						2.5
02	349	5.6						2.5
03	333	5.4						2.5
04	312	5.4						2.6
05	291	5.5						2.6
06	239	7.4						3.0
07	229	(9.1)			128	2.6		3.0
08	230	(11.2)			125	2.7		3.0
09	231	(11.6)			122	2.8		3.1
10	233	(11.2)			110#	2.9#		3.1
11	238#	(11.5)	200#	(5.0)#	113#	3.1#		3.0
12	234	11.6			111	3.2		3.0
13	258#	11.4	210#	(5.3)#	115#	3.3#		2.9
14	242	11.0			116	3.0		3.0
15	244	10.2			122	2.8		2.9
16	247	9.6			133	2.6		2.9
17	247	9.0						3.0
18	247	7.5						3.0
19	256	6.7						2.9
20	268	(5.6)						2.8
21	293	(5.5)						2.6
22	327	(5.7)						2.5
23	348	(5.4)						2.4

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2, which are median values.
#One or two observations only.

Table 45*

Bagneux, France (48.8°N, 2.3°E) July 1948

Time	h'F2	f°F2*	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	300	(6.8)	275					(2.8)
07	330	7.2	260				4.4	(2.7)
08	350	(8.1)	250				5.0	(2.7)
09	340	(8.4)	230				4.2	(2.8)
10	360	(8.0)	240				4.7	
11	360	8.2	250				4.9	(2.9)
12	360	(7.8)	230				4.4	
13	(385)	(8.0)	270				4.3	
14	(360)	(8.3)	240				4.4	
15	350	(8.4)	240					
16	350	(7.7)	250					
17	330	(8.1)	290					(2.8)
18	305	(7.8)						
19	295	(7.4)						(2.9)
20	290	(6.8)						
21	310	(8.1)						
22	340	(7.7)						
23								

Time: 0.0°.
Sweep: 3.9 Mc to 6.8 Mc, and 7.8 Mc to 13.5 Mc in 12 minutes, manual operation.
*Medians in this column were obtained from observed values of foF2 and values derived from fxF2.

Table 46

Poitiers, France (46.6°N, 2.0°W) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	(320)	7.7					4.8	2.6
01								
02	(320)	7.0						(2.6)
03	(320)	6.5					(3.6)	2.6
04	(310)	6.2						2.6
05	285	6.5						2.8
06	262	7.2	240				(3.8)	2.8
07	295	7.3	240				(4.8)	2.9
08	310	7.7	220				5.8	(2.8)
09	380	8.2	210				5.5	2.7
10	358	8.4	220				5.4	2.7
11	370	8.4	235	5.5			5.2	2.8
12	380	8.3	210	5.6			5.4	2.7
13	380	8.3	220	5.5			5.2	2.7
14	375	8.3	225	5.4			4.8	2.8
15	375	8.0	230	5.2			4.8	2.8
16	350	8.0	230				5.4	2.7
17	330	8.0	230				6.0	2.8
18	290	8.4	255				5.0	2.9
19	270	8.2	260				(6.0)	(2.9)
20	270	8.1					(5.5)	2.9
21	290	8.0					(5.8)	2.7
22	310	7.9					(5.2)	2.6
23	(320)	7.8					4.1	2.6

Time: 0.0°.
Sweep: 3.1 Mc to 11.8 Mc in 6 minutes, automatic operation.

Table 47

Bagneux, France (48.8°N, 2.3°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	300	8.6	225				4.0	2.9
07	310	8.7	240				4.4	2.8
08	330	8.8	210				4.3	2.8
09	350	8.8	220				4.4	2.8
10	370	9.0	225				4.6	2.8
11	385	8.8	250				4.6	2.8
12	370	8.7	210				4.3	2.7
13	360	8.4	230				4.4	2.6
14	390	8.6	220				4.2	2.7
15	380	8.5	230				4.2	2.8
16	370	8.4	250				4.0	2.7
17	330	8.5	250				4.5	2.8
18	290	8.4						2.8
19	290	8.7						3.0
20	285	(8.5)						(2.9)
21	300	(8.4)						
22	310	(8.6)						(2.7)
23								

Time: 0.0°.
Sweep: 3.9 Mc to 6.8 Mc, and 7.8 Mc to 13.5 Mc in 12 minutes, manual operation.

Form adopted June 1946

TABLE 48

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

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), March (Month), 1949

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 39.0°N, Long 77.5°W — 75°W Mean Time

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

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	250	250	240	250	250	250	240	230	230	230	C	C	230	C	C	240	230	230	220	230	230	250	260F
2	260	250	270	250	240	240	230	250F	220F	220	250	250H	250	220	200	240	[230]C	220	220	230	230	230	250	250
3	260F	250F	250F	250	230	240	250	230	230	240	200H	210H	[220]K	220	280H	C	C	230	230	220	220	230	250	250
4	250	250	250	250	250	280	250	240	200	220	250	240	220	210	250	240	230	220	230	210	230	220	230	250
5	270	300	270	270	240	230	230	230	210	230	230	240	230H	230	230	230	230	230	210	210	230	210	220	250
6	240	250	260	270	260	260	(250)S	220	(210)S	210	210	(210)S	C	C	220	240	230	230	230	(220)S	250	230	250	250
7	(250)S	250	250	240	250	270	270	230	220	210	210	230	240H	210H	210	220	230	[220]C	210	200	230	220	250	240
8	240	240	230	250	(270)S	(280)S	250	220	230	230	220	[230]L	240	230	230	230	230H	230	230	230	230	230	250	260
9	270	270	250	230	230	250	250	230	230	230	200	220	(220)B	(230)B	220	230	210H	230	240	210	220	230	240	250
10	250	260	260	240	250	250	250	230	250H	220	220	[230]L	230	210	220	240	230	230	230	220	230	250	240	250
11	250	250	250	(260)S	250	250	230	230	230	220	220	210	200	220	(220)S	220	220	220	240	220	230	230	230	250
12	250	250	230	250	250	250	250	230	230	220	230	230	250	210	240	220	230	240	230	230	250	270	270	280
13	290	280	270	250	270	280	250	230	230	230	220	200H	250	220	230	230	240	250	240K	230K	250K	250K	270K	230K
14	240H	250K	250K	280K	300K	360FK	370K	290K	370K	380K	550K	550K	560K	600K	550K	500FK	420HK	[330]KL	270FK	260K	270K	280K	300K	270FK
15	260FK	260K	260K	250K	MK	MK	MK	MK	MK	260HK	[300]LK	350K	420K	350HK	420K	370K	230K	250K	250K	250K	250K	250K	250K	250K
16	260K	260K	260K	270K	280K	300K	270	230	230	220	210	200	230	240H	230	220	230	220	230	230	250	270	260	230
17	230	250	240	250	260	280	280	240	230	220	230	200	230	210	230	210	230	230	230K	230K	270K	320K	330K	300K
18	(350)SK	350K	300K	370FK	350FK	320K	290K	240	220	220H	220H	240	200	230	250	230H	230	220	230	220	220	230	250	250
19	250	280	280	280	260	270	250	230	230	200	250	250	230	250	220	230	230	230	230	220	230	230	250	240
20	250	250	270	280	(230)S	240	250	230	220	230	230	230	240	250	230	(230)A	240	230	220	(230)A	210	230	(290)A	270
21	270	270	270	250	230	250	260	230	220	220	250	230	250	270	220	220	230	240K	250K	240K	250K	390K	310K	300K
22	420K	450FK	410FK	400FK	300FK	300K	310K	270K	260K	240K	GK	460K	380HK	380K	450K	380K	260K	250K	260K	250K	250K	250K	280K	350K
23	400FK	410FK	330K	350FK	350FK	300K	270K	250K	240K	380K	[300]LK	210K	280K	250K	240K	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	230	240	250	230H	230	200	230	230	230	230	220	220	230	230	250
25	260	300	300	(260)S	250	230	250	240	230	200H	C	C	250	300	280	230	230	240	230	220	250	250	250	240
26	250	280	300K	330K	300K	(270)SK	270K	250K	230HK	320K	310K	340K	350K	380K	350K	330K	[280]LK	240K	250K	250	250	250	250	250
27	260	(270)S	(280)S	270	240	250	250	230	230	230	210H	210	300	210	260	230	230	240	230	230	220	250	250	250
28	280	280	(240)S	230	250	(280)S	300	230	220	210H	200	210	220	220	230	230	230	240	230	210	(230)S	240	260	250
29	250	250	250	240	260	280	250	240	230	220	250	250	260	210	220	270	230	230	230	230	230	240	250	260
30	300	300	300	(300)S	300F	(270)S	280	250	230	250	200	210	290H	250H	270	220	230	240	240	230	230	250	260	270
31	(250)S	260	260	250	250	250	250	230	230	230H	200	200	200	230	210	220	230	220	250	220	220	240	250	250
Median	255	260	260	250	250	270	250	230	230	230	230	230	240	230	230	230	230	230	230	225	230	240	250	250
Count	30	30	30	30	29	29	29	29	29	31	30	29	29	30	30	28	29	30	30	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 49

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	7.4	6.9	6.8	5.2 F	5.6 F	5.4 F	5.2	6.8	9.4	11.2	11.5	[11.7] C	11.6	13.5	C	C	12.6	11.8	11.7	10.8	9.7	8.8	8.3	7.3
2	7.6	7.3	7.1	7.0	6.4	5.8	4.5 F V	6.3	9.0 F	11.4	12.4	(13.2) S	12.7	12.4	12.8	12.0	[12.0] C	11.6	11.1	(10.3) S P	9.0	8.3	7.9	7.2
3	(7.1) J F	7.1	6.7 F	(6.6) J F	(6.1) J F	5.9	5.3	7.1 F	9.7	11.8	(12.2) J S	13.0	[12.8] C	12.6	12.5	C	C	12.0	11.8	10.2	9.3	8.5	7.8	7.3
4	7.2	6.7	6.2	5.7	4.9 V	4.3 F	(4.7) J S	7.3	9.7	11.0	12.4	12.3	(13.4) P	12.8	12.6	12.6 S	11.8	11.4	(11.4) J	10.4 S	9.0	7.9	(7.5) J	7.0
5	6.3	6.4	6.8	6.6	6.8	6.0	5.2	7.2	9.3	11.2	12.0	12.4	(12.5) S	12.6	12.6	12.4	12.0	(11.9) J P	(11.8) J	(9.6) S	(10.2) S	8.9	7.9	7.4
6	6.5	6.4	6.0	5.8	5.5	5.4	(5.4) J	7.8	(10.2) J	11.5	12.0	(13.0) S	C	C	12.6	(12.6) S	12.6	12.4	11.5	(10.8) J	(9.5) P	(8.8) P	7.7	7.5
7	(7.3) S	7.2	6.6	6.3	(5.8) J	4.9	5.2	8.0	10.8	12.0	12.0	[12.9] C	(13.0) S	12.6	12.6	12.5	(12.0) S P	[11.8] C	11.5	(10.5) S	(9.5) S	8.8	8.4	8.2
8	7.9	7.7	6.9	6.3	(5.9) J S	(5.8) J S	6.1	8.9	10.8	12.0	12.2	(12.6) S	13.0	12.8	12.3	12.5	12.0	(11.6) S	(11.0) S	(10.0) S P	9.3	8.7	8.1	8.1
9	7.9	8.1	8.3	7.7	6.9	6.2	5.6	8.5	10.7	12.4	12.3	(13.0) J	(13.0) S P	[12.2] B	12.3	11.7	11.6	11.2	(11.3) S P	(10.5) S P	(9.6) S P	8.7	7.9	7.5
10	7.0	6.9	6.8	6.4 F	5.8 F	5.5	5.9	8.4	10.7	(11.0) J S	12.4	13.2	(12.8) S	12.8	12.8	12.2	(12.0) S P	(12.3) S P	11.8	10.8	(9.6) S P	9.1	8.4	7.6
1	7.6	7.1	6.8	6.5	6.3	5.8	5.7	8.5	10.6	12.0	12.5	(12.9) S	13.0	12.5	(12.4) S P	12.3	(12.1) S P	11.3	11.5	(10.3) S P	(10.0) S	8.9	8.4	7.7
12	7.3	7.4	6.9	6.4	6.5	5.9	(6.3) S	9.2	11.2	(12.2) S	13.0	(13.0) S	12.8	13.3	13.4	(12.0) S	12.5	11.8	(11.5) S P	10.7	9.6	8.9	8.6	8.6
13	8.6	8.5	8.0	7.7	6.7	6.5	(7.1) J	8.4	(10.4) S	11.3	12.4	(13.3) S P	12.8	12.4	(12.8) S	(12.1) S P	12.3	12.0	K (11.8) S P	K (10.0) S P	9.3 K	8.9 K	8.8 K	8.2 K
14	7.6 K	K (8.0) J S	6.8 K	5.9 K	5.3 K	K (4.1) J F	3.8 K	5.7 K	6.2 K	6.3 K	5.9 K	6.1 K	6.1 K	6.1 K	6.4 K	6.6 K	6.7 K	6.8 K	6.8 K	6.8 K	6.8 K	6.3 K	6.3 K	6.5 K
15	6.9 K	5.5 K	5.9 K	5.2 K	M K	M K	M K	M K	M K	7.5 K	7.4 K	7.9 K	7.7 K	8.2 K	8.0 K	8.5 K	8.6 K	8.8 K	9.0 K	8.6 K	7.6 K	7.0 K	6.6 K	6.2 K
16	5.4 K	4.8 F K	K (4.9) J S	3.7 K	3.1 K	3.0 K	(4.1) S	7.4	9.6	11.1	(12.3) P	12.6	12.6	11.8	12.6	12.5	12.2	11.5	10.9	(10.0) J S	8.8	8.5	8.7	8.2
17	7.3	6.6	6.4 F	6.2	(5.7) S	5.5	5.6 F	7.9	(10.4) S P	11.5	12.3	12.7	12.6	12.5	13.0	13.0	12.6	12.4	11.4 K	(9.2) S K	K (7.0) J S	K (6.2) J S	K (4.9) J S	(4.9) S K
18	(5.3) S K	K (5.2) J S	[4.6] S M	K (4.3) F S	K (4.2) F S	[4.8] S K	K (4.9) J S	8.7	10.0	11.3 F	11.4	13.0	13.4	12.6	12.8	12.3	12.0	(12.3) P	(11.3) S P	(10.6) J S	9.0	(8.2) J	(7.0) J S	(6.8) J S
19	(6.6) J S	(6.1) J S	(6.0) J S	(5.8) J S	(5.0) S	4.4	4.9 F	7.7	9.6	11.0	12.0	12.8	13.2	(13.3) S P	13.3	(12.5) S	12.4	12.0	12.0	10.7	9.5	9.0	8.5	8.4
20	7.3	6.9	6.3 F	6.4	6.3	(5.5) J S	6.1 F	8.9	10.5	12.0	12.9	12.6	12.5	12.4	12.6	12.6	12.5	11.8	12.0	(10.8) S P	9.0	7.7	7.6	7.1
21	6.9	6.7	6.9	(7.0) S P	6.4	5.5	5.5	7.7	(9.6) S	11.5	11.8	12.5	12.3	12.0	12.0	11.4	(11.4) S P	10.9 K	8.6 K	8.6 K	K (7.4) J S	6.0 K	6.5 K	(4.8) S K
22	3.9 K	K (3.1) J F	3.5 F K	3.1 F K	F K	F K	4.6 F K	4.5 F K	4.8 F K	5.5 F K	<5.1 G K	5.8 K	6.4 K	6.7 K	6.8 K	7.5 K	7.7 K	K (9.6) J S	7.4 K	6.9 K	6.6 K	5.9 K	5.8 K	5.2 K
23	K (3.1) F S	[2.5] F K	3.1 F K	K (3.9) J F	K (3.9) F S	K [4.6] F S	4.4 F K	5.7 F K	6.3 K	6.5 K	8.1 K	8.9 K	10.3 K	10.3 K	10.2 K	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	10.1	11.3	12.2	12.3	11.6	11.5	(11.5) S	11.3	(11.3) S	11.0	(10.5) J S	9.7	8.8	8.1	7.8
25	6.8	6.5	6.6	6.7	6.5	(5.9) J S	5.7	7.7	9.1	10.5	[11.2] C	[11.8] C	12.0	12.0	11.5	11.4	11.4	11.0	11.0	(9.6) S P	9.1	8.7	8.5	7.9
26	6.8	6.6	(5.9) S	5.9 K	5.9 K	K (5.9) J S	K (5.8) F S	7.0 K	7.7 K	8.1 K	8.6 K	8.5 K	8.5 K	8.4 K	8.4 K	8.5 K	8.5 K	8.6 K	8.6 K	8.3	8.2	7.7	7.1	(6.7) S
27	(6.0) J S	(5.9) J S	(5.9) J S	(5.8) J S	(5.7) J S	(4.9) J S	(5.7) S	8.0	9.6	10.6	11.3	11.6	11.6	12.0	12.0	11.7	(11.5) S	(11.5) S	(11.3) S	(10.8) J S	9.5	8.7	8.0	8.0
28	7.1	(7.1) J S	(7.1) S P	(6.9) F S	5.7 F	(5.3) F	(6.0) F S	8.3	9.3	10.2	11.0	12.0	(12.2)	(12.3) S	(12.3) S	12.3	11.6	11.5	11.5	(10.5) J S	(9.4) S P	8.4	7.7	(8.0) J S
29	(7.8) J S	(7.3) J S	7.0	(5.9) F	5.5	(5.6) J F	6.3 F	8.4	10.3	11.5	12.0	12.7	12.5	(12.4) S	(12.2) S	12.5	(12.1) S P	11.9	11.3	(10.5) J S	9.3	8.5	7.7	7.4
30	6.5	6.0	5.7	(5.5) J F	(5.3) F S	(4.9) S	(5.4) J F	(6.4) F S	8.1	9.3	9.7	11.0	11.2	11.0	10.6	10.4	(10.1) J S	(9.8) J S	(9.4) S P	9.1	(8.0) S	7.7	(7.1) J S	(7.3) J S
31	(7.0) J S	(6.8) S	(6.6) S	(6.1) J S	(5.6) J S	(5.5) J F	(5.9) J F	7.9	9.0	10.0	10.5	10.9	11.3	11.5	11.5	11.4	11.2	(11.0) S P	(10.7) J S	(10.3) J P	8.6	8.5	(8.2) J S	(7.7) J S
Median	7.0	6.8	6.6	6.2	5.8	5.5	5.5	7.8	9.6	11.2	12.0	12.6	12.5	12.4	12.4	12.2	12.0	11.6	11.3	(10.3)	9.3	8.5	7.9	7.4
Count	30	30	30	30	28	28	29	29	29	31	31	31	30	30	30	28	29	30	30	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 50

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (Month), 1949

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	7.1	6.8	5.7 F	5.6 F	5.4 F	5.4	5.4	8.4	10.4	10.8	(11.6)S	11.6	C	C	C	12.7	12.4	11.7	11.7	(10.0)JS	9.4	8.5	7.7 F	(7.2)JF
2	(7.4)JS	(7.3)JS	7.2	6.8	6.1	5.7	5.1 F	7.7 F	9.8	11.9	12.5	12.5	12.4	13.0	12.3	(12.0)S	(11.8)S	11.7	10.3	9.4	8.7	8.0	7.0	7.3
3	7.0	(6.7)JS	6.6 F	6.4 F	6.1 F	5.5	5.8 F	8.8	11.3	11.9	12.4	13.0	[12.7]C	12.4	13.0	C	C	11.8	11.5	9.8	8.8	8.1	7.6	(7.1)JS
4	6.9	6.3	5.9	5.3	4.5 V	4.4	5.4	9.3	11.2	11.5	11.8	13.0	12.0	12.8	12.6	12.4	11.6	11.4	[10.9]S	(9.5)S	(8.8)J	8.0	(7.4)J	6.5
5	6.3	6.5	6.6	6.8	6.1	5.4	5.9	8.3	10.4	12.0	12.5	12.5	12.5	12.8	[12.5]S	12.4	12.0	S	S	10.0	9.0	(8.2)J	7.7	6.9
6	6.5	6.3	6.0	5.6	5.2	5.4	6.6	9.5	10.6	11.6	(12.5)S	C	C	C	(13.0)F	12.8	12.5	12.2	[11.2]S	9.5	(9.0)P	(8.4)P	(7.4)J	(7.2)J
7	6.9	6.8	6.2	6.2	5.2	5.0	6.3	[9.4]S	(11.5)C	12.5	12.8	13.0	(12.5)S	12.4	12.5	12.6	11.8	[11.6]C	(11.3)SP	(9.8)SP	9.3	8.7	8.2	8.1
8	7.8	7.4	6.5	5.9	(5.9)S	5.9	7.4	10.3	11.6	12.2	12.8	[12.4]C	12.8	(12.3)C	12.7	(11.8)SP	(11.8)S	(11.7)S	(11.0)S	(9.8)SP	9.3	8.5	8.2	7.9
9	7.9	8.1	8.2	7.4	6.4	5.7	6.9	10.0	11.7	12.5	12.8	13.5	(12.3)SP	(12.0)SB	12.5	11.7	11.3	11.0	11.2	(9.6)JS	9.0	8.4	(7.5)J	7.1
10	7.2	6.9	6.6 F	6.1	5.6	5.6	6.8	9.2	11.5	12.0	12.6	13.0	13.2	12.8	12.3	(12.0)SP	(12.2)SP	(11.8)S	11.3	(10.0)SP	9.5	8.7	7.9	7.7
11	(7.4)S	6.9	6.5	6.5	6.1	5.7	(6.7)S	(9.7)S	(11.5)SP	12.0	(12.7)S	13.1	13.2	12.7	12.4	[12.2]M	[11.7]C	[11.3]C	(11.0)S	(10.4)JS	9.4	8.8	8.0	7.5
12	7.6	7.3	6.7	6.5	6.1	5.8	7.1	10.6	12.0	12.4	12.5	13.2	12.8	13.0	(12.3)SP	11.8	(12.2)SP	11.7	(11.0)S	10.0	9.3	8.7	8.7	8.6
13	8.6	8.5	8.0	7.1	6.5	6.6	7.3	9.6	11.0	12.0	13.4	13.3	12.5	12.3	12.6	(12.5)S	12.2	(12.0)SP	(10.7)SK	(9.7)SK	8.9 K	(8.9)SK	8.5 K	7.7 K
14	K(7.7)JS	(7.1)SK	(6.5)SK	5.8 K	K(4.4)JS	K(3.4)JF	4.9 K	6.0 K	6.3 K	6.1 K	5.9 K	6.3 K	6.0 K	6.3 K	6.5 K	6.9 K	6.7 K	6.7 K	6.9 K	K(6.8)JS	K 6.8 JS	[6.3]SK	K(6.5)JS	K(6.5)JS
15	(6.5)SK	K(5.0)FS	5.7 K	M K	M K	M K	M K	M K	M K	7.2 SK	7.7 K	7.6 K	8.1 K	8.0 K	8.2 K	8.6 K	8.6 K	9.0 K	8.6 K	8.0 K	7.2 K	6.8 K	6.0 K	5.8 K
16	5.0 K	4.6 K	3.8 K	3.7 FK	3.2 K	3.2 K	5.8 K	8.5	11.0	12.2	12.5	(12.5)P	11.5	12.0	13.0	12.4	(11.5)S	11.2	(10.4)JS	8.8	8.5	8.6	8.6	(7.8)JS
17	(6.8)JS	6.4	6.3 F	(6.0)S	5.5 F	5.7 F	(6.3)S	9.7	11.0	(12.5)S	12.4	12.8	12.7	12.7	12.6	12.7	12.5	12.4	K(10.6)JS	8.3 K	(6.5)SK	K(5.9)JS	K(5.0)SP	[5.1]SK
18	K(5.3)JS	(4.9)SK	(4.2)SK	K(4.3)SF	K(4.4)SS	K[4.9]FS	(6.3)SK	9.7	10.8	11.8	(11.8)S	12.8	13.0	12.9	12.4	12.4	(12.3)S	(11.7)S	10.9	9.3	8.5	(7.6)S	(7.0)JS	(7.0)JS
19	(6.2)JS	(6.0)JS	(6.1)JS	(5.0)S	(4.5)SF	(4.1)S	6.2	8.6	10.7	12.0	12.7	13.0	13.5	13.2	(13.0)S	12.5	12.3	(12.0)S	(11.3)S	(9.5)SP	(9.3)S	8.8	8.5	(8.1)JS
20	7.1	6.5	6.4 F	6.5 F	(6.0)JF	5.4 F	7.4	(10.2)JS	11.2	12.0	12.6	13.0	13.0	12.7	12.6	12.5	12.2	12.3	11.6	(9.8)JS	8.5	7.5	7.6	7.1
21	6.9	7.0	(7.1)SP	6.8	6.0	(5.3)S	6.3	8.9	10.8	12.0	11.8	12.4	12.3	12.0	11.4	(11.4)SP	11.3	K(10.0)JS	8.7 K	(7.9)SK	6.3 K	(6.3)SK	K(6.1)JS	[4.4]SK
22	(3.1)FK	[3.3]SK	2.5 FK	3.1 FK	4.1 FK	K(4.0)FS	4.6 FK	K(4.7)JF	5.0 K	5.7 FK	5.3 FK	6.2 K	(6.6)FK	6.6 K	7.3 K	7.7 K	K(7.4)JS	(7.5)SK	7.2 K	6.7 K	(6.1)SK	5.7 K	5.8 K	K(4.8)FS
23	2.7 FK	2.3 FK	3.2 FK	K(4.1)JF	(4.8)FK	K(4.5)JS	5.2 FK	6.1 K	5.9 K	7.4 K	8.5 K	9.9 K	10.2 K	(10.2)CK	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	10.8	11.5	12.2	12.2	11.6	11.5	11.3	11.3	11.2	(11.0)SP	(9.9)SP	9.1	8.2	7.9	(7.8)JS
25	6.5	6.4	6.8	6.8	6.3	5.7	6.6	8.4	(9.5)S	(10.8)C	11.6	12.0	12.0	11.5	11.5	11.4	11.2	(11.0)SP	(10.0)JS	9.2	(8.5)S	8.6	8.5	7.1 F
26	6.7	6.5	K(5.7)JF	K(5.9)SF	(5.9)SK	K(5.8)JS	6.1 K	7.2 K	8.0 K	8.5 K	8.7 K	8.6 K	8.4 K	8.5 K	8.5 K	8.5 K	8.5 K	8.6 K	8.4 K	8.2	7.9	7.4	(7.1)S	(6.1)S
27	(6.1)JS	(5.9)JS	(5.9)JS	(5.8)JS	(5.5)JS	(5.5)JS	(6.7)S	9.1	10.5	11.3	11.6	11.7	12.0	12.0	11.6	11.5	(11.5)S	(11.5)S	11.2	(10.3)SP	9.1	8.6	8.2	(7.4)S
28	(6.8)S	(7.1)JS	(7.2)S	(6.1)SS	(5.3)JF	(5.7)F	7.1	8.7	9.7	10.6	11.6	12.0	12.3	12.1	[12.3]C	(11.8)SP	11.4	11.5	11.4	9.5	8.7	(7.6)S	(7.8)S	(8.1)S
29	(7.6)S	7.1	6.7	6.0 F	(3.8)JF	(5.9)JS	7.5 F	8.9	10.9	11.8	12.0	12.5	(12.3)S	(12.3)S	(12.4)SP	12.2	[12.0]C	11.5	(10.7)JS	(9.5)JS	(9.0)S	8.2	(7.7)JS	(6.9)JV
30	6.1	5.9	5.4 F	(5.3)FS	(5.1)FS	(4.7)FS	(5.8)JF	7.3	8.8	9.2	10.5	11.0	11.1	10.7	10.5	10.3	(10.0)JS	9.6	9.4	8.5	7.9	(7.0)JS	(7.0)JS	(7.2)JS
31	(7.0)JS	6.6	(6.2)JS	(5.9)S	(5.5)FF	(5.5)FF	(7.0)S	8.7 F	(10.0)S	10.4	11.0	10.8	11.4	11.4	11.5	11.4	11.0	11.0 SP	(10.7)JS	(10.2)S	8.6	8.4	(7.3)JS	(7.2)JS
Median	6.9	6.6	6.4	6.0	5.5	5.5	6.3	8.9	10.8	11.8	12.0	12.5	12.3	12.3	12.4	12.0	11.7	11.5	10.9	(9.5)	8.8	8.2	7.6	(7.2)
Count	30	30	30	29	29	29	29	29	29	31	31	30	29	29	29	29	29	29	29	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702518

Form adopted June 1946

TABLE 51

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

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
2									Q	Q	220	190	200	Q	Q	200	210	Q						
3									Q	220	Q	Q	Q	Q	200	C	C	Q						
4									Q	Q	200	210	Q	Q	200	200	Q	Q						
5									Q	200	Q	220	Q	200	Q	Q	Q	Q						
6									Q	Q	Q	Q	Q	Q	Q	220	Q	Q						
7									Q	Q	Q	C	Q	Q	Q	Q	Q	Q						
8									Q	Q	Q	(210)S	200	190	210	210	Q	Q						
9									Q	210	Q	Q	Q	Q	Q	200	Q	Q						
10									220	Q	Q	200	200	Q	Q	220	Q	Q						
11									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
12									Q	Q	200	210	200	Q	200	Q	Q	Q						
13									Q	220	Q	Q	Q	Q	Q	Q	Q	Q						
14									250 HK	230 HK	230 HK	200 K	220 K	250 K	220 K	220 FK	230 HK	250 K						
15									M K	210 K	210 K	200 K	200 K	(250) BK	230 HK	230 LK	Q K	Q K						
16									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
17									Q	Q	220	Q	200	Q	Q	Q	Q	Q						
18									Q	Q	Q	200	Q	200 H	200	200	Q	Q						
19									Q	Q	210	200	200	210	Q	210	Q	Q						
20									Q	(210) A	200	200	200	220	Q	A	Q	Q						
21									Q	Q	200	Q	230	210	Q	Q	Q	Q K						
22									230 K	Q K	210 K	190 HK	220 K	230 K	230 K	230 K	230 K	Q K						
23									Q K	230 K	200 K	Q K	200 K	220 K	200 K	C	C	C						
24									C	200	200	200	190	Q	Q	Q	Q	Q						
25									Q	Q	C	C	200	210	210	Q	Q	Q						
26									Q K	220 HK	220 K	220 HK	220 K	220 K	230 K	230 K	230 K	Q K						
27									Q	210	Q	Q	230	Q	210	Q	Q	Q						
28									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
29									Q	Q	200	200	200	Q	Q	220	Q	Q						
30									Q	220	Q	Q	210	200	220	Q	Q	Q						
31									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
Median									–	215	205	200	200	210	210	220	–	–						
Count									3	12	14	15	18	13	13	13	4	1						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1949 O - 702519

Form adopted June 1946

TABLE 52

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

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
2									Q	Q	L	L	5.1	Q	Q	L	L	Q						
3									Q	L	Q	Q	Q	Q	L	C	C	Q						
4									Q	Q	L	L	Q	Q	L	L	Q	Q						
5									Q	L	Q	L	Q	L	Q	Q	Q	Q						
6									Q	Q	Q	Q	Q	Q	Q	L	Q	Q						
7									Q	Q	Q	C	Q	Q	Q	Q	Q	Q						
8									Q	Q	Q	L	L	L	L	L	Q	Q						
9									Q	L	Q	Q	Q	Q	Q	L	Q	Q						
10									L	Q	Q	L	L	Q	Q	L	Q	Q						
11									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
12									Q	Q	L	L	L	Q	L	Q	Q	Q						
13									Q	L	Q	Q	Q	Q	Q	Q	Q	Q						
14									4.6 K	4.7 K	4.9 HK	5.0 K	5.1 K	5.2 K	5.2 K	5.0 K	5.1 HK	L K						
15									M K	4.5 K	L K	5.1 K	5.2 K	5.8 K	5.6 K	L K	Q K	Q K						
16									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
17									Q	Q	L	Q	L	Q	Q	Q	Q	Q						
18									Q	Q	Q	L	Q	L	L	L	Q	Q						
19									Q	Q	L	L	L	L	Q	L	Q	Q						
20									Q	L	L	L	L	L	Q	A	Q	Q						
21									Q	Q	L	Q	L	L	Q	Q	Q	Q K						
22									3.1 K	Q K	5.1 K	5.0 K	5.4 K	5.2 K	5.3 K	5.3 K	3.8 K	Q K						
23									Q K	5.1 K	L K	Q K	L K	L K	L K	C	C	Q						
24									C	L	L	L	L	Q	Q	Q	Q	Q						
25									Q	Q	C	C	L	L	L	Q	Q	Q						
26									Q K	L K	L K	5.6 K	5.5 K	5.5 K	L K	L K	L K	Q K						
27									Q	L	Q	Q	L	Q	L	Q	Q	Q						
28									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
29									Q	Q	L	L	L	Q	Q	L	Q	Q						
30									Q	L	Q	Q	L	L	L	Q	Q	Q						
31									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
Median									—	—	—	—	5.2	—	—	—	—	—						
Count									2	3	2	4	5	4	3	2	2							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703316

TABLE 53

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

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), March (Month), 1949

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 39.0°N, Long 77.5°W

75°W Mean Time

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

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									110	100	100	C	C	100	C	C	100	110						
2									100	100	100	(100)^{A}	100	100	100	100	C	130						
3								180	100	100	100	100	C	100	100	C	C	100						
4								130	(110)^{A}	(110)^{A}	100	90	100	100	100	100	100	110						
5								110	100	100	100	100	100	100	100	100	100	(150)^{S}						
6								120	100	100	100	100	C	C	100	100	100	100						
7								(130)^{S}	100	100	100	100	110	110	100	100	100^{H}	C						
8								(120)^{A}	100	100	100	90	90	90	100	100	100	100	150					
9								120	100	100	90	100	B	100	100	90	100	100	110					
10								120	100	100	100	100	100	100	100	100	100	100	130					
11								120	100	100	100	100	100	90	100	100	100	100	120					
12								120	100	100	100	100	100	100	100	100	100	100	160					
13								120	100	100	100	100	100	100	100	100	100	100	130^{K}					
14								110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110^{K}					
15								M^{K}	M^{K}	100^{K}	100^{K}	100^{K}	100^{K}	B^{K}	100^{K}	100^{K}	100^{K}	100^{K}	120^{K}					
16								110	100	100	100	100	100	100	110	100	100	100	130					
17								100	100	100	100	100	100	100	100	90	110	100	130^{K}					
18								100	100	100	100	90	90	100	100	100	90	100	150					
19								(100)^{A}	100	100	100	100	100	90	90	90	90	100	A					
20								110	100	100	100	100	100	100	100	100	100	100	110					
21								(120)^{A}	100	100	100	(130)^{A}	(130)^{A}	(110)^{A}	100	100	100	100^{K}	110^{K}					
22								110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	120^{K}					
23								100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	C	C	C	C					
24								C	C	100	100	100	100	90	90	100	100	100	110					
25								100	100	100	C	C	100	100	100	100	100	100	130					
26								110^{K}	100^{K}	A^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	120^{K}					
27								110	100	100	A	100	(120)^{A}	100	100	100	100	(120)^{A}	120					
28								100	100	100	100	100	100	100	100	100	(100)^{A}	100	100					
29								110	100	120	100	(100)^{A}	(120)^{A}	(110)^{A}	100	100	100	100	120					
30								100	100	100	100	A	100	100	100	100	100	100	120					
31								100	100	100	100	100	100	110	100	100	100	100	100					
Median								110	100	100	100	100	100	100	100	100	100	100	120					
Count								27	29	30	29	28	27	29	30	28	28	29	22					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1948 O - 702518

TABLE 54

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

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), March (Month), 1949

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 39.0°N, Long 77.5°W

75°W Mean Time

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									2.8	3.2	3.5	C	C	3.8	C	C	3.3 F	2.7 F						
2									2.8	3.3	3.5 H	3.8	3.9	3.9	3.8	3.6	[2.9] C	2.7						
3								2.3 H	2.8	3.3	3.6	3.8	[3.8] C	3.9	3.9	C	C	2.8						
4								2.3 H	3.0 F	3.5	3.8	3.9	4.0	3.8	3.0 H	3.7	3.3	2.7						
5								(2.2) H	2.7 F	3.2	3.8	3.8	4.0	4.1	3.9	3.6	3.4	2.5	2.0					
6								2.2 H	2.8	3.4	3.6	3.5	C	C	4.1	3.8	3.4	2.8						
7								2.1	2.9	3.2	3.6	[3.6] C	3.9	3.9	3.9	3.8	3.4	C						
8								2.3 F	3.0	3.4	[3.6] A	3.9	3.9 H	4.1	3.9	3.9	3.5	2.8	2.1 H					
9								2.2 H	3.0	3.3	3.9	3.9	B	B	3.9	3.7	3.3	2.9	1.9					
10								2.4 H	3.0	3.4	3.5	(3.8) A	3.9	3.8	3.8	3.5	3.2	2.7	1.9					
11								2.1	2.8	[3.2] A	3.5	3.5	3.6	(3.7) A	3.7	3.4	(3.2) A	3.0 F	2.0 H					
12								(2.1) A	(2.8) A	3.2	[3.5] A	3.8	3.9	3.9	3.9 F	3.7	3.3	2.7	2.0					
13								2.2 H	2.8	3.2	3.5	3.7	3.9	3.9	3.9	3.6	3.3	2.7	1.9 HK					
14								2.1 K	[2.6] AK	3.2 K	3.3 K	(3.6) SK	[3.6] SK	3.7 K	3.7 HK	3.5 K	3.2 K	(2.6) SK	2.1 FK					
15								M K	M K	3.1 K	3.4 K	3.5 K	3.6 K	[3.6] BK	3.7 K	3.4 K	3.1 K	2.6 K	1.9 K					
16								2.3	2.6	A	A	A	3.7	3.7	3.9	3.5	3.2	2.5	1.8					
17								2.2 H	2.8	3.3	3.6	3.8	3.8	3.7	3.6	3.3	3.1	2.6	2.1 K					
18								2.2 H	2.8	3.1	3.5	3.6	(3.7) S	3.7	3.6	[3.4] A	3.2	2.6	1.9					
19								2.2	(2.9) A	A	A	3.7	3.7	(3.7) S	3.7	3.4	3.1	2.6	A					
20								A	2.8	A	A	3.7	3.7	A	A	A	(3.1) A	(2.6) A	A					
21								2.2	2.6	2.9	3.4 H	3.5	3.7	3.7	3.7	3.5	3.2	2.6 K	2.0 HK					
22								2.4 K	2.8 K	3.2 K	3.4 K	3.5 K	3.5 K	(3.5) AK	(3.5) FK	3.3 K	3.1 K	2.7 K	2.0 K					
23								2.3 K	2.8 K	3.1 K	3.3 K	3.5 K	3.5 K	3.3 K	3.5 K	C	C	C	C					
24								C	C	3.2	3.4 H	3.5	3.2	3.8 H	3.7 F	3.5	A	A	2.0					
25								2.3	3.0	3.3	C	[3.7] C	3.8	3.8	3.6	3.5	3.1	2.5	2.0					
26								2.3 K	2.9 K	3.3 K	3.6 K	3.6 K	3.7 K	3.7 K	3.7 K	3.5 K	3.1 K	2.6 K	2.0 HK					
27								2.3 H	2.6	[3.0] A	(3.5) A	3.8 F	(3.8) S	3.8	3.7	3.6	3.3	2.7	1.9 H					
28								2.3	2.9	3.3	3.5	3.6	3.9	A	A	A	3.3	2.7	A					
29								2.3	2.9 H	3.3	[3.5] A	3.7	3.7	3.7	3.6	3.5	3.1 H	2.7 H	1.9					
30								2.3 H	[2.7] A	3.1	[3.4] A	(3.6) A	3.7	[3.7] A	3.7 F	3.5	3.1	2.5	2.1					
31								(2.3) S	2.9	3.1	3.3	3.6 H	3.6 H	3.8	3.6	3.6	3.1	2.6	2.3					
Median								2.3	2.8	3.2	3.5	3.7	3.7	3.8	3.7	3.5	3.2	2.7	2.0					
Count								26	29	28	27	29	28	27	28	26	28	28	21					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1946 O - 703510

Form adopted June 1946

TABLE 55

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

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	G	G	G	3.9/130	G	G	G	29Y/110	1.8Y/100	G	G	G	G	2.9Y/120
2	G	G	G	G	G	G	G	47Y/90	35/110	40/110	42/110	35/100	G	G	G	G	G	25/100	G	G	G	G	G	G
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	C	G	G	38Y/100	G	G	G	G	G
4	G	26/100	G	30Y/100	G	G	G	G	27/100	32/100	G	G	42/90	G	G	G	G	23/100	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	43/130	G	G	G	G	G	G	G	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	36Y/130	39/100	G	40/110	C	C	G	4.7/130	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	36/110	G	G	G	26/100	G	G	G	G	G	24Y/90	G	G	G	G
8	G	G	G	G	42/90	G	23Y/90	30Y/100	38/120	63Y/100	41/100	G	G	G	G	G	G	37/120	G	G	G	G	G	G
9	G	G	3.1Y/90	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26Y/100	G
10	G	30Y/90	1.7/100	G	G	G	G	G	G	G	G	39/100	G	G	G	G	3.9/120	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	45/100	G	38/120	39/110	39/100	38/110	49/100	55Y/90	39Y/100	1.9/100	G	G	21/100	G	G
12	G	32Y/90	G	G	22Y/90	37Y/90	G	3.0Y/130	38/120	44/110	47/100	G	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	35/110	38/100	G	G	G	G	G	G	G	3.6Y/110	G	G	G	G	G	G
14	G	G	G	23/130	38Y/100	G	G	G	3.5/100	39/110	G	G	G	G	G	40/120	40/120	34/120	G	G	G	G	G	G
15	2.3/100	G	G	G	M	M	M	M	M	G	G	G	G	G	G	G	G	35/110	G	G	G	G	G	G
16	G	G	G	G	2.0Y/100	G	G	31/120	3.8/110	37/110	37/110	4.7/100	G	G	G	G	40/120	G	2.0/130	2.3/130	35/100	3.0Y/100	G	G
17	G	G	G	G	G	3.9Y/90	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	3.9/100	G	G	G	G	G	G	G	45Y/100	G	1.9/90	18/90	G	2.0/100	1.8/100	34/100	G
19	41Y/100	G	G	G	G	G	3.1/120	32Y/120	38/90	47/100	44/100	3.6/100	31/90	G	4.2/120	36/120	4.5Y/110	4.0/110	2.2/90	2.2/90	G	1.8/100	31/100	G
20	G	G	22/100	34/90	69Y/100	22/100	36Y/120	2.3/110	G	42Y/100	3.6/100	25/100	G	4.6/100	54Y/100	54/100	4.2Y/110	34/120	3.1Y/110	47Y/90	2.9Y/100	3.2/100	8.2Y/100	3.1/100
21	G	G	G	G	G	G	3.7Y/100	19/100	42/100	46Y/100	42/100	41/100	37/100	3.1/90	G	36/120	4.0/90	3.4/100	G	G	G	G	G	G
22	2.5Y/110	1.9/130	36Y/100	G	2.6Y/100	19/130	19/120	G	36/120	36Y/100	G	G	1.9/90	38/100	G	G	G	35/130	G	G	G	G	23/100	G
23	G	G	1.9/120	22F/110	21Y/100	G	2.4Y/130	G	36/120	G	G	G	26/90	G	G	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	44Y/100	34/100	G	G	40/90	G	G	41/110	37/110	G	G	G	G	G	G
25	G	G	G	G	G	G	3.0Y/120	37/90	G	42/120	C	C	G	G	G	4.5/120	4.2/120	3.7/110	G	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	37/100	G	G	G	G	37/100	42/120	G	34/130	G	G	G	G	G	2.2/100
27	2.2/100	G	G	36Y/120	G	G	G	G	36/120	42Y/110	38/100	G	33/100	G	G	G	G	49Y/100	1.7/100	G	G	3.6/100	2.8Y/100	3.3Y/100
28	2.2/100	19/100	2.3/100	23Y/90	G	36Y/120	G	G	.G	G	46Y/110	3.7/110	G	45/100	4.0/110	47/120	2.3/100	37/120	3.5/100	G	G	G	G	G
29	G	23/100	G	37Y/100	G	G	3.2Y/120	G	G	69/100	34/110	3.3/100	3.2/100	3.0/100	G	G	39/100	24/90	G	G	G	G	G	G
30	G	G	G	G	1.7/100	G	G	3.1/120	38/120	4.1Y/110	42Y/100	44Y/100	G	42/100	G	42/110	3.7Y/120	G	G	27Y/130	2.1/120	2.3Y/100	G	G
31	G	G	G	G	G	G	G	40/90	40/110	4.1/110	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Median	**	**	**	**	**	**	**	**	2.7	3.9	**	**	**	**	**	**	**	27	**	**	**	**	**	**
Count	30	30	30	30	29	29	29	29	29	3.1	30	30	30	30	31	29	29	30	30	30	30	30	30	30

** MEDIAN fEs LESS THAN MEDIAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER.

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 56

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ______ (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.0	2.0	1.9	2.2F	1.9F	1.9F	1.9	2.2	2.2	2.2	2.2	C	C	2.0	C	C	2.0	2.0	2.0	2.1	1.9	2.0	2.0	1.8
2	1.8	1.8	1.8	1.8	1.9	1.8	1.9FV	2.1	2.2F	2.2	2.2	(2.3)S	2.0	2.0	2.0	2.1	C	2.0	2.1	(2.0)SP	2.0	1.9	1.9	1.8
3	(1.9)JF	1.8	1.9F	(1.8)JF	(1.9)JF	2.0	2.0	2.1F	2.1	2.4	(2.2)JS	2.1	C	2.0	1.9	C	C	2.1	2.0	2.1	2.0	2.0	1.9	1.9
4	1.9	1.9	1.9	2.0	1.7Y	1.7F	(1.9)JS	2.2	2.3	2.3	2.1	2.2	(2.0)P	2.1	2.1	(2.1)S	2.1	2.1	(2.1)J	(2.0)S	2.0	2.0	(2.1)J	1.9
5	1.7	1.8	1.8	1.9	2.0	2.1	2.0	2.2	2.3	2.2	2.1	2.2	(2.0)S	2.0	2.0	2.0	1.9	(1.9)JP	(2.0)J	(2.0)S	(2.0)S	2.0	2.0	2.0
6	1.9	1.9	1.9	1.9	1.9	1.8	(2.0)J	2.0	(2.3)J	2.2	2.2	(2.1)S	C	C	2.0	(1.9)S	2.0	1.9	1.9	(1.9)J	(2.1)P	(2.0)P	2.0	2.0
7	(2.1)S	1.9	2.0	2.0	(2.0)J	1.8	1.8	2.2	2.3	2.2	2.1	C	(1.9)S	1.9	2.0	2.0	(2.0)SP	C	2.0	(2.0)S	(2.0)S	2.0	2.0	2.0
8	2.0	2.0	1.9	1.8	(1.8)JS	(1.7)JS	1.9	2.1	2.3	2.2	2.2	(2.0)S	2.0	2.0	2.0	1.9	2.0	(2.0)S	(2.0)S	(2.2)SP	2.0	1.9	1.9	1.9
9	1.8	1.8	2.0	2.1	1.9	1.9	2.0	2.1	2.3	2.2	2.1	(2.1)J	(2.0)SP	B	2.0	2.0	2.0	2.0	(2.0)SP	(1.9)SP	(1.9)SP	1.9	1.9	1.8
10	1.8	1.8	1.9	1.9F	1.9F	1.8	1.8	2.1	2.2	(2.1)JS	2.0	2.0	(1.9)S	2.0	1.8	1.8	(1.9)SP	(1.9)SP	2.0	2.0	(2.0)SP	2.0	2.0	1.9
11	1.9	1.8	1.9	1.8	1.8	1.9	2.0	2.2	2.2	2.1	2.1	(1.9)S	2.0	2.0	(2.0)SP	1.9	(1.8)SP	2.1	2.0	(1.9)SP	(2.0)S	2.0	1.9	1.8
12	1.9	1.9	2.0	1.8	1.8	1.9	(1.9)S	2.2	2.1	(2.1)S	2.1	(2.0)S	1.9	1.9	1.8	(1.9)S	1.9	1.9	(2.0)SP	1.9	2.0	1.8	1.7	1.7
13	1.7	1.7	1.7	1.8	1.6	1.7	(1.8)J	2.0	(2.2)S	2.0	2.0	(2.0)SP	1.9	1.8	(1.8)S	(1.8)SP	1.8	1.9	K(2.0)SP	K(1.9)SP	1.9K	1.8K	1.7K	(1.8)K
14	1.7K	K(1.9)JS	1.7K	1.7K	1.6K	K(1.5)JF	1.6K	1.9K	1.8K	1.8K	1.6K	1.6K	1.6K	1.5K	1.6K	1.6K	1.6K	1.7K	1.7FK	1.7K	K(1.8)JS	K(1.8)JS	K(1.7)JS	K(1.8)JS
15	K(1.8)JS	K(1.7)FS	1.8K	K(1.7)FS	MK	MK	MK	MK	MK	1.9K	1.8K	1.8K	1.8K	1.6K	1.7K	1.6K	1.6K	1.8K	1.9K	1.8K	1.7K	1.9K	1.8K	1.7K
16	1.8K	1.8FK	K(1.6)JS	1.7K	1.9K	1.9K	(2.0)S	2.2	2.2	2.1	(2.0)P	2.0	1.8	1.7	1.7	1.8	1.9	2.0	1.9	(1.9)JS	1.8	1.8	1.8	1.8
17	1.9	1.9	1.7F	1.7	(1.7)S	1.6	1.8F	2.0	(2.3)SP	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.9	1.9	2.0K	(2.0)SK	K(1.7)JS	K(1.6)JS	K(1.6)JS	(1.6)SK
18	(1.6)SK	K(1.6)JS	SK	K(1.5)FS	K(1.7)FS	SK	K(1.9)JS	2.0	2.1	2.1F	2.0	1.7	1.9	2.0	1.9	1.9	2.0	(2.0)P	(2.1)SP	(2.0)JS	2.0	(1.9)J	(1.9)JS	(1.9)JS
19	(1.9)JS	(1.8)JS	(1.7)JS	(1.7)JS	(1.8)S	1.8	2.0F	2.2	2.1	2.1	2.1	2.0	1.9	(1.9)SP	1.9	(1.9)S	1.9	2.0	2.0	2.1	1.9	2.0	1.9	1.9
20	1.9	1.8	1.7F	1.7	1.9	(1.7)JS	1.9F	2.0	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.9	2.0	2.0	(1.9)SP	1.9	1.8	1.7	1.7
21	1.7	1.8	1.8	(1.9)SP	1.9	1.8	1.9	2.1	(2.1)S	2.1	2.0	1.9	1.9	1.9	1.8	1.9	(1.9)SP	1.9K	1.9K	1.8KK	K(1.7)JS	1.5K	1.5K	(1.7)SK
22	1.4K	K(1.9)JF	1.6FK	1.4FK	FK	FK	1.7FK	2.0FK	2.0FK	2.0FK	GK	1.6K	1.9K	1.9K	1.6K	1.7K	1.8KK	K(1.9)JS	1.9K	1.9K	1.8K	1.8K	1.8K	1.6K
23	K(1.5)FS	FK	1.6FK	K(1.6)JF	K(1.7)FS	FSK	1.9FK	2.1FK	2.0K	1.8K	1.9K	1.8K	1.9K	1.9K	1.9K	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	2.1	2.0	2.0	2.0	2.0	2.0	(2.0)S	1.9	(2.0)S	2.0	(2.0)JS	1.9	2.0	1.9	1.9
25	1.8	1.7	1.7	1.8	1.8	(1.9)JS	2.1	2.2	2.2	2.1	C	C	1.9	2.0	1.9	1.9	1.9	2.0	2.0	(1.9)SP	1.9	1.9	2.0	2.0
26	1.8	1.8	(1.6)SK	1.6K	1.7K	K(1.7)JS	K(1.9)FS	2.0K	1.9K	1.9K	1.9K	1.8K	1.8K	1.7K	1.8K	1.8K	1.8K	1.8K	1.9K	1.8	1.8	1.9	1.9	(1.9)S
27	(1.8)JS	(1.8)JS	(1.9)JS	(1.8)JS	(1.8)JS	(1.9)JS	(2.0)S	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	(2.0)S	(2.0)S	(2.0)S	(2.0)JS	2.0	2.0	2.0	1.8
28	1.8	(1.8)JS	(1.8)SP	(1.9)FS	1.8F	(1.7)F	(1.9)FS	2.0	2.1	2.0	2.0	2.0	(1.9)S	(1.9)S	(1.9)S	1.9	2.0	2.0	2.0	(2.0)JS	(1.9)SP	1.8	1.8	(1.8)JS
29	(1.9)JS	(1.9)JS	1.8	(1.9)F	1.7	(1.8)JF	1.9F	2.1	2.0	2.0	2.1	1.9	1.9	(2.0)S	(1.9)S	1.9	(2.0)SP	2.0	2.1	(2.0)JS	1.9	2.0	1.9	1.9
30	1.7	1.7	1.7	(1.6)JF	(1.7)FS	(1.8)S	(1.8)JF	(2.0)FS	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	(1.9)JS	(1.9)JS	(1.9)SP	2.0	(1.9)S	1.9	(1.8)JS	(1.9)JS
31	(1.9)JS	(1.8)S	(1.8)S	(1.8)JS	(1.9)JS	(1.9)JF	(2.1)JF	2.2	2.1	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	(1.9)SP	(2.1)JS	(2.1)JP	2.0	1.9	(1.9)JS	(2.0)JS
Median	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.8
Count	30	29	29	30	28	26	29	29	29	31	30	28	28	29	30	28	28	29	30	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 57

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

IONOSPHERIC DATA

(M3000)F2 (Characteristic) ____ (Unit) March (Month) 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.0	3.0	2.8	3.1 F	2.9 F	2.8 F	2.9	3.2	3.2	3.3	3.1	C	C	2.9	C	C	2.9	3.0	3.0	3.1	3.0	2.9	2.9	2.7
2	2.7	2.7	2.7	2.7	2.8	2.7	2.8 FV	3.0	3.2 F	3.1	3.1	(3.2)S	2.9	3.0	3.0	3.0	C	3.0	3.1	(3.1)SP	3.0	2.9	2.9	2.7
3	(2.9)JF	2.8	2.8 F	(2.7)JF	(2.9)JF	3.0	3.0	3.2 F	3.1	3.3	(3.1)JS	3.0	C	3.0	2.9	C	C	3.1	3.0	3.1	2.9	2.9	2.9	2.9
4	2.8	2.8	2.8	2.9	2.7 V	2.6 F	(2.8)JS	3.3	3.2	3.4	3.1	3.2	(2.9)P	3.0	3.0	(3.0)S	2.9	3.1	(3.2)J	(3.1)S	3.0	3.0	(3.0)J	2.9
5	2.6	2.6	2.7	2.8	2.9	3.0	3.0	3.2	3.2	3.3	3.0	3.1	(3.0)S	3.0	2.9	2.9	3.0	(2.8)JP	(2.9)J	(3.0)S	(2.9)S	3.1	3.0	3.1
6	2.8	2.8	2.8	2.8	2.8	2.8	(3.0)J	3.3	(3.3)J	3.1	3.1	(3.0)S	C	C	2.9	(2.9)S	2.9	2.8	3.0	(2.9)J	(3.2)P	(3.0)P	3.0	2.9
7	(3.1)S	2.8	2.9	3.0	(2.9)J	2.9	2.7	3.1	3.2	3.1	3.0	C	(2.8)S	2.9	3.0	2.9	(2.9)SP	C	3.0	(3.0)S	(3.0)S	2.9	2.9	2.9
8	3.0	3.0	2.8	2.7	(2.7)JS	(2.7)JS	2.8	3.1	3.2	3.1	3.1	(2.9)S	2.9	2.9	2.9	2.9	2.9	(2.9)S	(3.0)S	(3.2)SP	3.0	2.9	2.8	2.8
9	2.8	2.8	3.0	3.0	2.9	2.9	2.9	3.2	3.3	3.1	3.1	(3.0)J	(2.9)SP	B	2.9	3.0	3.0	2.9	(2.9)SP	(2.9)SP	(2.9)SP	2.9	2.9	2.7
10	2.7	2.6	2.8	2.8 F	2.8 F	2.7	2.9	3.1	3.3	(3.0)JS	2.9	2.8	(2.8)S	2.9	2.7	2.8	(2.9)SP	(2.8)SP	2.9	3.0	(3.0)SP	2.9	2.9	2.9
11	2.9	2.7	2.8	2.8	2.7	2.9	3.0	3.2	3.2	3.1	3.0	(2.9)S	2.9	2.9	(2.9)SP	2.8	(2.8)SP	3.1	3.0	(2.9)SP	(3.0)S	2.9	2.8	2.8
12	2.8	2.9	3.0	3.1	2.8	2.8	(2.8)S	3.2	3.1	(3.0)S	3.1	(2.9)S	2.8	2.8	2.7	(2.9)S	2.8	2.9	(3.0)SP	2.8	3.0	2.7	2.7	2.6
13	2.6	2.6	2.6	2.7	2.5	2.5	(2.7)J	3.0	(3.2)S	3.0	3.0	(2.9)SP	2.8	2.7	(2.7)S	(2.8)SP	2.8	2.9	K(3.0)SP	K(2.9)SP	2.8 K	2.7 K	2.6 K	(2.7)K
14	2.5 K	J(2.8)SK	2.5 K	2.5 K	2.5 K	J(2.2)FK	2.6 K	2.8 K	2.7 K	2.7 K	2.4 K	2.4 K	2.4 K	2.3 K	2.4 K	2.4 K	2.4 K	2.6 K	2.5 FK	2.6 K	K(2.8)JS	J(2.6)SK	J(2.6)SK	J(2.7)SK
15	J(2.8)SK	F(2.6)SK	2.7 K	F(2.6)SK	M K	M K	M K	M K	M K	2.8 K	2.7 K	2.8 K	2.7 K	2.6 K	2.6 K	2.6 K	2.6 K	2.6 K	2.8 K	2.8 K	2.7 K	2.9 K	2.7 K	2.6 K
16	2.7 K	2.8 FK	J(2.4)SK	2.7 K	2.8 K	2.8 K	(2.9)S	3.2	3.3	3.0	(3.0)P	3.0	2.8	2.5	2.6	2.7	2.8	2.9	2.9	(2.8)JS	2.7	2.7	2.7	2.7
17	2.9	2.8	2.6 F	2.6	(2.6)S	2.5	2.7 F	3.0	(3.3)SP	3.0	2.9	2.9	2.8	2.8	2.7	2.8	2.8	2.8	2.9 K	(3.0)SK	J(2.7)SK	J(2.4)SK	K(2.5)JS	(2.4)SK
18	(2.4)SK	J(2.4)SK	S K	K(2.3)FS	F(2.5)SK	S K	J(2.8)SK	2.9	3.1	3.1 F	3.0	2.8	2.8	2.9	2.8	2.8	2.9	(3.0)P	(3.1)SP	(3.0)JS	3.0	(2.9)J	(2.9)JS	(2.8)JS
19	(2.8)JS	(2.7)JS	(2.9)JS	(2.6)JS	(2.6)S	2.6	3.0 F	3.2	3.1	3.2	3.0	3.0	2.9	(2.9)SP	2.9	(2.9)S	2.8	2.9	2.9	3.0	2.9	3.0	2.8	2.9
20	2.8	2.8	2.6 F	2.7	2.8	J(2.6)S	2.9 F	3.3	3.1	3.0	2.9	3.0	2.9	2.8	2.8	2.8	2.8	3.0	2.9	(3.0)SP	2.9	2.8	2.6	2.6
21	2.6	2.7	2.7	(2.9)SP	2.8	2.7	2.8	3.1	(3.2)S	3.1	3.0	2.8	2.8	2.8	2.7	2.9	(2.9)SP	2.9 K	2.9 K	2.7 K	J(2.5)SK	2.2 K	2.3 K	(2.7)SK
22	2.2 K	J(3.0)FK	2.3 FK	2.1 FK	F K	F K	2.6 FK	3.1 FK	3.0 FK	2.9 FK	G K	2.5 K	2.8 K	2.8 K	2.5 K	2.5 K	2.7 K	J(2.4)SK	2.9 K	2.8 K	2.7 K	2.7 K	2.7 K	2.4 K
23	F(2.2)SK	F K	2.6 FK	J(2.4)FK	F(2.5)SK	F SK	2.8 FK	3.1 FK	3.0 K	2.7 K	2.8 K	2.7 K	2.8 K	2.9 K	2.9 K	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	3.0	2.9	2.9	2.9	3.0	3.0	(3.0)S	2.9	(3.0)S	3.0	(3.0)JS	2.9	3.0	2.8	2.9
25	2.8	2.5	2.6	2.7	2.8	(2.8)JS	3.2	3.2	3.3	3.1	C	C	2.9	2.9	2.9	2.9	2.8	2.9	2.9	(2.9)SP	2.8	2.9	2.9	3.0
26	2.8	2.7	(2.5)SK	2.4 K	2.5 K	J(2.6)SK	F(2.8)SK	3.0 K	2.9 K	2.9 K	2.8 K	2.7 K	2.8 K	2.6 K	2.7 K	2.7 K	2.7 K	2.8 K	2.9 K	2.8	2.8	2.9	2.8	(2.9)S
27	(2.8)JS	(2.7)JS	(2.7)JS	(2.7)JS	(2.9)JS	(2.9)JS	(2.9)S	3.1	3.1	3.1	3.0	3.0	3.0	2.8	2.8	2.9	(3.0)S	(3.0)S	(3.0)S	(3.0)JS	2.9	2.9	3.0	2.8
28	2.7	J(2.7)S	(2.8)SP	(2.9)FS	2.6 F	(2.6)F	(2.8)FS	3.0	3.1	3.0	3.1	2.9	(2.9)S	(2.8)S	(2.8)S	2.8	2.9	3.0	3.0	(3.0)JS	(2.9)JP	2.7	2.7	(2.7)JS
29	(2.8)JS	(2.8)JS	2.8	(2.8)F	2.7	(2.7)FJ	2.8 F	3.1	3.0	3.0	3.0	2.8	2.8	(2.9)S	(2.8)S	2.9	(3.0)SP	2.9	3.1	(3.0)JS	2.9	2.9	2.9	2.8
30	2.6	2.6	2.6	(2.4)JF	(2.5)FS	(2.8)S	(2.7)JF	(2.9)FS	3.0	3.0	3.0	2.9	2.9	2.8	2.8	2.8	(2.9)JS	(2.9)JS	(3.0)SP	2.9	(2.9)S	2.8	(2.8)JS	(2.8)JS
31	(2.8)JS	(2.7)S	(2.8)S	(2.8)JS	(2.8)JS	(2.8)JF	(3.1)JF	3.2	3.1	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	(2.9)SP	(3.1)JS	(3.1)JP	3.0	2.8	(2.8)JS	(2.9)JS
Median	2.8	2.7	2.7	2.7	2.8	2.8	2.8	3.1	3.2	3.0	3.0	2.9	2.8	2.9	2.8	2.9	2.9	2.9	3.0	3.0	2.9	2.9	2.8	2.8
Count	30	29	29	30	28	26	29	29	29	31	30	28	28	29	30	28	28	29	30	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 58

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

IONOSPHERIC DATA

(M3000)F1 (Characteristic) , ____ (Unit) , March (Month) , 1949

Observed at Washington, D.C.

Lat 39.0°N , Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
2									Q	Q	L	L	4.0	Q	Q	L	L	Q						
3									Q	L	Q	Q	Q	Q	L	C	C	Q						
4									Q	Q	L	L	Q	Q	L	L	Q	Q						
5									Q	L	Q	L	Q	L	Q	Q	Q	Q						
6									Q	Q	Q	Q	Q	Q	Q	L	Q	Q						
7									Q	Q	Q	C	Q	Q	Q	Q	Q	Q						
8									Q	Q	Q	L	L	L	L	L	Q	Q						
9									Q	L	Q	Q	Q	Q	Q	L	Q	Q						
10									L	Q	Q	L	L	Q	Q	L	Q	Q						
11									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
12									Q	Q	L	L	L	Q	L	Q	Q	Q						
13									Q	L	Q	Q	Q	Q	Q	Q	Q	Q						
14									3.3 K	3.4 K	3.1 HK	3.2 K	3.6 K	3.3 K	3.5 K	3.4 K	3.3 HK	L K						
15									M K	3.8 K	L K	3.6 K	3.5 K	3.2 K	3.3 K	Q K	Q K	Q K						
16									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
17									Q	Q	L	Q	L	Q	Q	Q	Q	Q						
18									Q	Q	Q	L	Q	L	L	L	Q	Q						
19									Q	Q	L	L	L	L	Q	L	Q	Q						
20									Q	L	L	L	L	L	Q	A	Q	Q						
21									Q	Q	L	Q	L	L	Q	Q	Q	Q K						
22									3.9 K	Q K	3.5 K	3.4 K	3.3 K	3.4 K	3.2 K	3.1 K	3.8 K	Q K						
23									Q K	3.3 K	L K	Q	L K	L K	L K	C	C	C						
24									C	L	L	L	L	Q	Q	Q	Q	Q						
25									Q	Q	C	C	L	L	L	Q	Q	Q						
26									Q K	L K	L K	3.4 K	3.3 K	3.3 K	L K	L K	L K	Q K						
27									Q	L	Q	Q	L	Q	L	Q	Q	Q						
28									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
29									Q	Q	L	L	L	Q	Q	L	Q	Q						
30									Q	L	Q	Q	L	L	L	Q	Q	Q						
31									Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
Median									-	-	-	-	3.5	-	-	-	-	-						
Count									2	3	2	4	5	4	3	2	2							

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 59

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

IONOSPHERIC DATA

(M1500)E (Characteristic), ____ (Unit), March (Month), 1949

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75°W Mean Time

National Bureau of Standards (Institution)

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

Calculated by: A.G.J., J.J.S., J.M.C., G.P.G.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									4.2	4.3	4.3	C	C	4.3	C	C	4.4F	4.3F						
2									4.2	4.5	4.3H	4.1	4.1	4.4	4.5	4.4	C	3.7						
3								3.3H	4.2	4.2	4.2	4.1	C	4.2	4.3	C	C	4.0						
4								3.8H	4.3F	4.0	4.2	4.1	4.3	4.2	4.2H	4.3	4.2	4.4						
5								(3.5)H	4.1F	4.4	4.2	4.3	4.4	4.0	4.1	4.4	3.8	4.3	3.9					
6								3.3H	4.6	4.4	4.4	4.5	C	C	3.9	4.0	4.4	4.3						
7								3.8	4.1	4.4	4.2	C	4.1	4.1	4.2	4.3	4.3	C						
8								3.9F	4.0	4.3	A	4.0	4.5H	4.3	4.4	4.1	4.2	4.4	3.8H					
9								4.0H	4.3	4.2	4.2	4.5	B	B	4.4	4.3	4.5	4.5	4.6					
10								3.8H	4.3	4.4	4.5	(4.3)HA	4.2	4.1	4.1	4.2	4.0	4.1	4.1					
11								3.8	4.1	A	4.3	4.3	4.3	(4.3)A	4.1	4.4	(4.3)A	4.3F	4.0H					
12								(4.8)A	(4.3)A	4.4	A	4.1	4.1	4.2	4.2F	4.2	4.2	4.4	3.6					
13								4.2H	3.9	4.1	4.3	4.2	4.1	4.1	4.0	4.2	4.5	4.2	4.1K					
14								4.3K	AK	4.1K	4.5K	(4.2)SK	SK	4.1K	4.1HK	4.3K	4.4K	4.2SK	3.8FK					
15								MK	MK	4.5K	4.1K	4.3K	4.4K	BK	4.1K	4.3K	4.1K	4.2K	4.2K					
16								4.3	4.5	A	A	A	(4.3)A	4.1	4.1	4.3	4.3	4.5	4.2					
17								4.0H	4.3	4.2	4.3	4.2	4.2	4.3	4.2	4.5	4.1	4.2	4.2K					
18								4.5H	4.3	4.5	4.3	4.4	(4.3)S	4.3	4.2	A	4.4	4.2	3.9					
19								3.9	(4.5)A	A	A	4.3	4.3	(4.3)S	4.2	4.4	4.2	4.3	A					
20								A	4.2	A	A	4.1	4.3	A	A	A	(4.2)A	(4.3)A	A					
21								4.5	4.2	4.5	4.6H	4.0	4.1	4.1	4.1	4.0	4.2	4.5K	4.2HK					
22								4.2K	4.3K	4.1K	4.4K	4.3K	4.3K	AK	(4.3)FK	4.3K	4.1K	4.2K	3.9K					
23								4.4K	4.3K	4.3K	4.5K	4.3K	4.3K	4.6K	4.0K	C	C	C	C					
24								C	C	4.7	4.4H	4.6	4.6	4.3H	4.3F	4.1	A	A	4.4					
25								4.3	4.0	4.5	C	C	4.3	4.4	4.3	4.3	4.2	4.6	3.8					
26								3.9K	4.1K	4.2K	4.2K	4.3K	4.2K	4.3K	4.2K	4.3K	4.5K	4.5K	4.0HK					
27								4.3H	4.5	A	(4.1)A	4.2F	(4.2)S	4.4	4.1	4.2	4.2	4.4	4.4H					
28								4.3	4.2	4.2	4.3	4.4	4.4	A	A	A	4.2	4.4	A					
29								4.4	4.1H	4.2	A	4.1	4.3	4.3	4.2	4.3	4.3H	4.1H	4.2					
30								4.3H	A	4.2	A	(4.2)A	4.3	A	4.3F	4.3	4.2	4.4	4.6					
31								(4.3)S	4.3	4.5	4.5	4.2H	4.3H	4.2	4.2	3.9	4.2	4.3	4.4					
Median								4.2	4.2	4.3	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.1					
Count								26	27	26	23	27	26	24	28	25	27	28	21					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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U. S. GOVERNMENT PRINTING OFFICE, 1946 O - 702310

Table 60

Ionospheric Storminess at Washington, D.C.

March 1949

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	1	1			2	3
2	2	1			4	2
3	1	1			4	3
4	1	1			2	2
5	2	1			3	1
6	1	2			1	1
7	1	2			1	1
8	0	1			1	2
9	1	1			2	3
10	1	1			0	1
11	1	2			1	1
12	1	1			1	2
13	1	2	2300	----	3	4
14	4	7	----	----	5	3
15	4	6	----	----	4	2
16	4	2	----	1100	2	4
17	1	1	2300	----	3	4
18	5	1	----	1200	4	3
19	2	1			3	3
20	2	0			2	2
21	2	1	2200	----	3	3
22	7	7	----	----	6	4
23	6	4#	----	##	5	2
24	***	2			2	2
25	2	1			2	2
26	4	5	0700	2400	4	1
27	2	3			0	1
28	1	1			3	3
29	1	0			3	2
30	3	2			3	1
31	2	3			2	1

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

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

***No readable record. Refer to table 49 for detailed explanation.

----Dashes indicate continuing storm.

#Value uncertain owing to insufficient data.

##Time of ending unknown because of loss of record.

Table 61

Sudden Ionosphere Disturbances Observed at Washington, D. C.

March 1949

1949 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
March 8	1500	1515	D.C., England	0.2	
9	1553	1705	Ohio, D.C., England, New Brunswick	0.0	
9	2145	2205	Ohio, D.C., England	0.03	
13	1442	1500	Ohio, D.C., England	0.05	
14	2027	2050	Ohio, D.C.	0.05	
16	1340	1400	Ohio, D.C., England	0.3	
26	1420	1450	Ohio, D.C., England	0.0	Terr.mag.pulse** 1421-1430 Solar flare*** 1424 Solar flare**** 1427
28	1739	1800	Ohio, D.C., England	0.2	
31	1639	1700	Ohio, D.C., England	0.1	Terr.mag.pulse** 1640-1655
31	1733	1825	Ohio, D.C., England	0.0	Terr.mag.pulse** 1734-1800

*Ratio of received field intensity during SID to average field intensity before and after, for station W8XAL, 6080 kilocycles, 600 kilometers distant, for all SID except the following: Station GLH, 13525 kilocycles, 5800 kilometers distant, was used for the SID on March 8.

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

***Time of observation at Prague Observatory, Czechoslovakia.

****Time of observation at Meudon Observatory, France.

Table 62

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed in England

1949 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters	Other phenomena
February 20	0810	0830	Brentwood	Bahrein I., Eritrea, India, Iran, Kenya, Malta, Southern Rhodesia, Syria, U.S.S.R.	Solar flare* 0808
March 9	1610	1640	Brentwood	Barbados, Colombia, Venezuela	

*Time of observation at Prague Observatory, Czechoslovakia.

Table 63

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Point Reyes, California

1949 Day	GCT Beginning	GCT End	Location of transmitters
March 9	2145	2205	Australia, China, Hawaii, Japan, Java, New York, Philippine Is.

Table 64

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Riverhead, New York

1949 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
March 9	1610	1645	Argentina, Canada, England, Italy, Panama	
26	1425	1445	Argentina, Canada, England, Italy, Morocco	Solar flare* 1424 Solar flare** 1427
31	1735	1750	Argentina, Canada, England, Italy, Morocco, Panama	
April 5	1638	1700	Argentina, Canada, England, Italy, Morocco, Panama	

*Time of observation at Prague Observatory, Czechoslovakia.
**Time of observation at Meudon Observatory, France.

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 65

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and CRPL Probable Disturbed Period Forecasts)
February 1949

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

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

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

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

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

Table 66

American and Zürich Provisional Relative Sunspot Numbers

March 1949

Date	R_A*	R_Z**	Date	R_A*	R_Z**
1	190	150	17	248	182
2	187	170	18	228	199
3	202	144	19	239	200
4	199	158	20	251	210
5	219	169	21	257	221
6	203	174	22	213	169
7	192	186	23	189	153
8	216	172	24	174	126
9	230	160	25	151	112
10	200	152	26	150	109
11	202	154	27	132	114
12	199	185	28	124	112
13	214	178	29	133	90
14	242	164	30	150	122
15	224	175	31	179	120
16	226	172	Mean:	198.8	158.1

*Combination of reports from 50 observers; see page 8.
**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 67a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	-	-	-	-	-	-	-	-	-	-	-	5	9	12	16	15	33	30	25	23	17	19	22	25	12	10	8	5	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	3	4	10	14	13	18	17	15	14	17	23	25	22	15	16	12	-	-	-	-	-	-	-	-	-	-
4.8	X	-	-	-	-	-	-	-	-	-	4	6	13	16	15	18	20	15	13	13	16	25	31	30	19	15	11	8	5	-	-	-	-	-	-	-	-
5.6	X	-	-	-	-	-	-	-	-	-	3	5	8	10	13	13	14	10	5	4	8	15	17	19	14	13	6	3	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	3	3	3	4	8	9	12	26	25	25	27	18	10	12	28	38	35	30	20	15	11	3	3	2	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	3	8	9	10	11	13	16	14	15	12	12	13	15	16	13	5	3	-	-	-	-	-	-	-	-	-	-	-
12.9	-	-	-	-	-	-	-	3	4	5	8	13	13	14	14	27	27	15	12	11	12	13	13	13	11	8	5	5	5	X	X	X	X	X	X	X	X
14.0	X	-	-	-	-	-	-	2	3	5	5	10	13	11	12	15	22	12	10	13	18	18	19	20	20	13	12	7	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	4	5	10	8	5	11	12	13	12	9	11	12	13	13	15	10	7	4	X	X	X	X	X	X	X	X	X	X
16.8	X	-	-	-	-	4	4	4	4	5	8	9	11	12	11	12	13	13	13	14	13	12	13	13	12	9	5	6	6	5	-	-	-	-	-	-	X
18.0	X	-	-	-	9	10	10	11	10	11	11	8	5	-	-	-	-	-	-	-	-	7	8	10	11	12	12	10	11	10	9	9	7	X	X	X	X
21.8	-	-	-	-	-	-	-	-	-	5	7	8	9	10	12	18	22	22	22	22	21	18	12	8	8	6	5	5	3	-	-	-	-	-	-	-	-

Table 68a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	3	3	3	3	2	1	1	1	-	-	1	3	2	14	14	2	14	12	13	2	1	4	8	13	9	3	3	1	1	1	1	1	-	-	-	-	-
3.6	2	2	2	2	1	-	-	-	-	-	-	-	1	8	10	11	11	3	1	7	10	12	9	9	2	2	2	3	1	1	1	1	1	1	1	1	1
4.8	X	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	4	1	-	8	10	10	12	3	4	3	1	1	1	1	-	-	-	-	-	-	X
5.6	X	-	-	-	-	-	-	-	-	-	-	1	2	3	4	4	1	-	-	2	3	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	1	1	3	4	3	8	9	11	11	14	15	1	3	4	11	10	6	6	5	1	2	2	1	1	1	-	-	-	-	-
9.8	1	2	2	2	1	1	1	-	-	-	-	-	-	1	10	13	10	4	3	1	1	1	1	1	1	-	-	1	1	-	-	-	-	-	-	-	-
12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	6	2	10	13	10	2	3	1	1	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
14.0	X	-	-	2	2	2	1	1	1	-	-	-	-	1	2	5	11	11	3	3	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	5	12	9	1	1	2	3	4	4	1	-	-	X	X	X	X	X	X	X	X	X	X
16.8	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	X
18.0	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
21.8	1	1	1	1	1	-	-	-	-	-	-	-	-	1	2	2	2	2	10	1	1	4	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-

Table 69a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	4	4	4	3	2	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	4	4	3	2	2	2	2	2	1	1	1	1	1	-	-	-	-	-	-	-	-
4.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.6	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	3	4	4	4	4	3	2	1	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-
12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
14.0	X	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X
16.8	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
18.0	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 67b

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

Date GCT	S 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	N 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	-	-	-	-	-	2	2	3	3	3	4	6	13	18	14	13	13	13	13	14	15	18	17	19	20	14	7	5	2	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	3	6	9	12	9	7	5	8	13	12	15	17	13	13	10	8	3	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	2	2	2	3	3	4	5	8	11	13	11	10	13	24	23	22	23	19	18	13	12	4	X	X	X	X	X	X	X	X	X	X
5.6	-	-	-	-	-	-	-	-	-	3	4	5	4	4	4	3	7	15	16	15	15	13	15	13	12	9	5	3	X	X	X	X	X	X	X	X	X
6.7	-	-	-	-	2	3	5	6	8	9	9	10	10	8	6	5	20	32	26	26	26	27	18	10	9	8	7	6	4	7	7	5	3	-	-	-	-
9.8	-	-	-	-	-	-	-	2	3	3	4	5	8	12	14	24	28	23	20	19	19	16	16	14	11	10	7	5	3	2	-	-	-	-	-	-	-
12.9	X	X	X	X	X	X	X	X	X	X	X	X	[illegible]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
14.0	-	-	-	-	-	-	-	-	-	3	3	7	8	12	15	27	26	26	23	22	21	22	23	23	18	13	12	9	7	4	-	-	-	X	X	X	X
14.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
16.8	X	X	X	X	X	X	X	X	X	X	X	X	8	13	18	17	16	15	15	16	18	18	19	20	15	7	-	-	X	X	X	X	X	X	X	X	X
18.0	X	-	-	-	-	-	-	-	-	-	-	-	7	8	10	9	9	-	-	-	6	8	9	10	10	7	5	-	-	-	X	X	X	X	X	X	X
21.8	-	-	-	-	-	-	3	5	7	8	9	11	13	15	30	30	27	25	22	13	18	30	29	25	13	14	13	8	-	-	-	-	-	-	-	-	-

Table 68b

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

Date GCT	S 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	N 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	-	-	1	2	1	1	1	1	1	1	1	1	-	1	-	1	1	1	1	1	1	3	7	2	3	9	-	1	1	1	1	1	1	1	1	2	3
3.6	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	1	3	3	1	-	3	2	1	1	1	1	-	-	-	-	-	-	-	-	1	1	2
4.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	5	1	8	7	6	-	-	-	-	-	X	X	X	X	X	X	X	X	X
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	11	9	3	13	11	10	1	-	1	1	1	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	3	5	11	2	1	-	-	-	-	-	-	-	-	1	2	2	1	1	1	1
12.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
14.0	-	-	-	-	-	-	-	-	-	-	-	-	1	2	14	13	15	1	3	1	2	3	4	1	1	1	1	1	-	-	-	-	-	X	X	X	X
14.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
16.8	X	X	X	X	X	X	X	X	X	X	X	X	3	5	6	6	10	8	3	1	1	1	8	11	5	1	-	-	X	X	X	X	X	X	X	X	X
18.0	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9	5	-	-	-	-	1	3	1	-	-	-	-	-	X	X	X	X	X	X	X
21.8	-	-	-	1	1	1	1	1	1	1	1	1	1	9	10	9	12	1	2	10	10	5	1	-	-	-	-	-	-	-	-	-	1	1	1	1	1

Table 69b

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

Date GCT	S 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	N 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1949																																					
Mar. 2.7	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	2	3	3	1	1	2	2	2	1	1	1	1	-	-	-	-	-	-	-	-	-	-
4.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	1	1	1	1	1	1	-	X	X	X	X	X	X	X	X	X
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	2	3	3	3	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
12.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
14.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	2	2	2	1	1	1	1	1	1	-	-	-	-	-	X	X	X	X
14.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
16.8	X	X	X	X	X	X	X	X	X	X	X	X	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	X	X	X	X	X	X	X	X	X
18.0	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X
21.8	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-

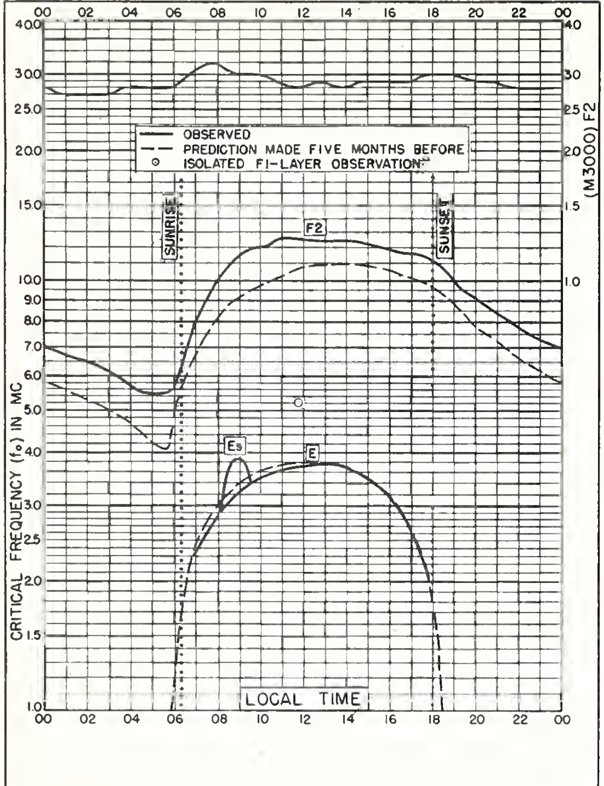


Fig. 1. WASHINGTON, D. C.
39.0°N, 77.5°W MARCH 1949

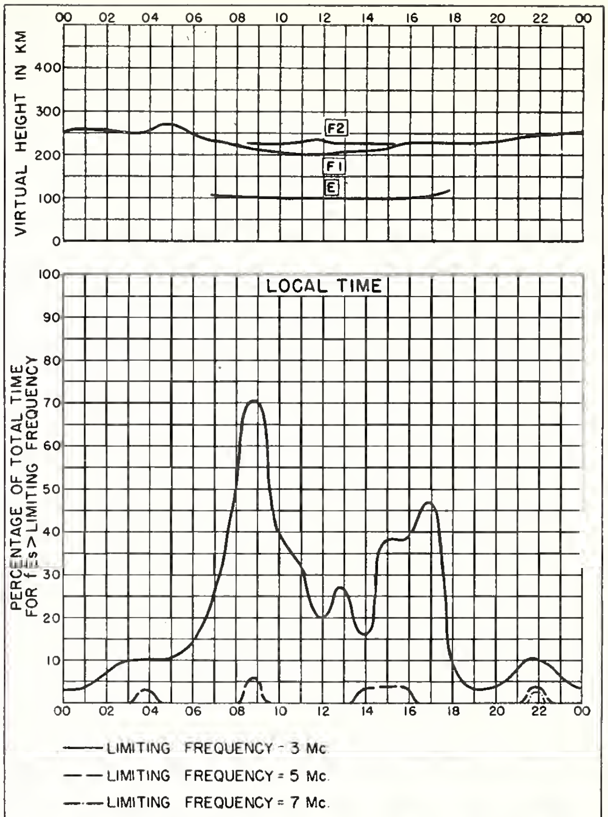


Fig. 2. WASHINGTON, D. C. MARCH 1949

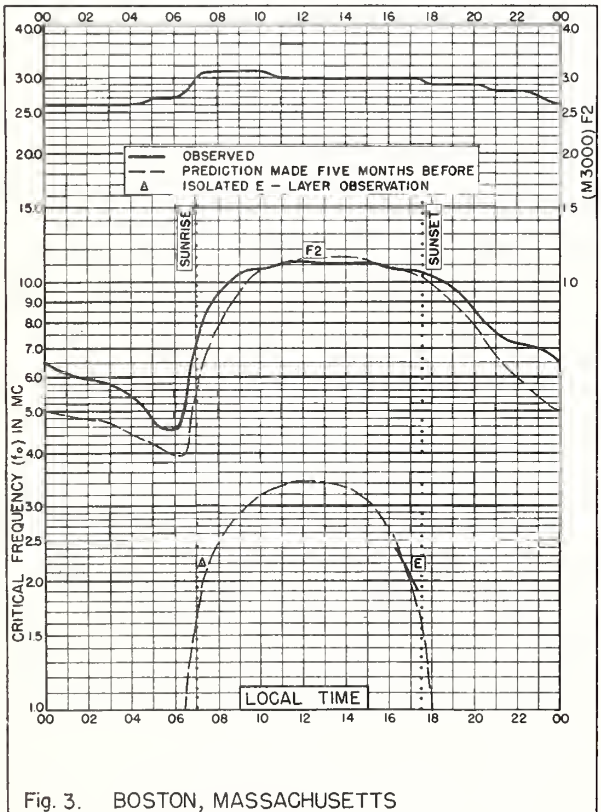


Fig. 3. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W FEBRUARY 1949

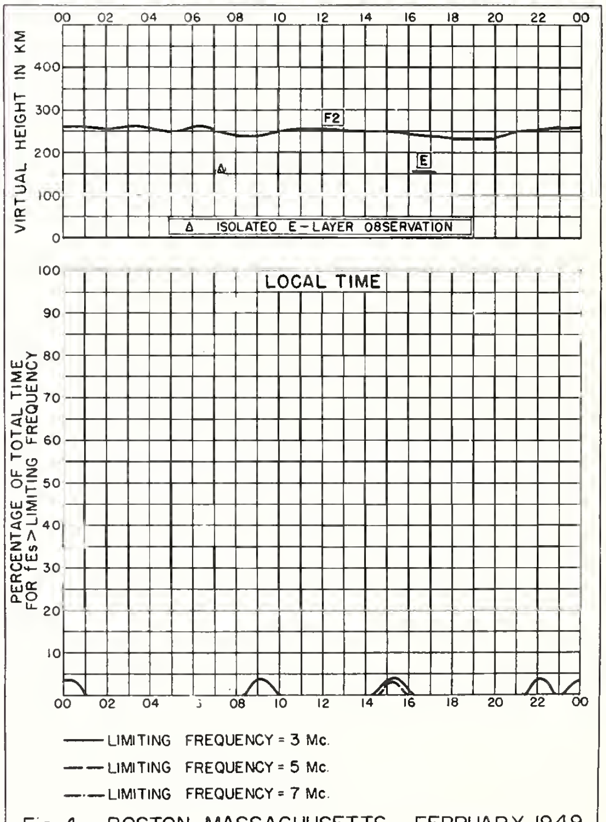


Fig. 4. BOSTON, MASSACHUSETTS FEBRUARY 1949

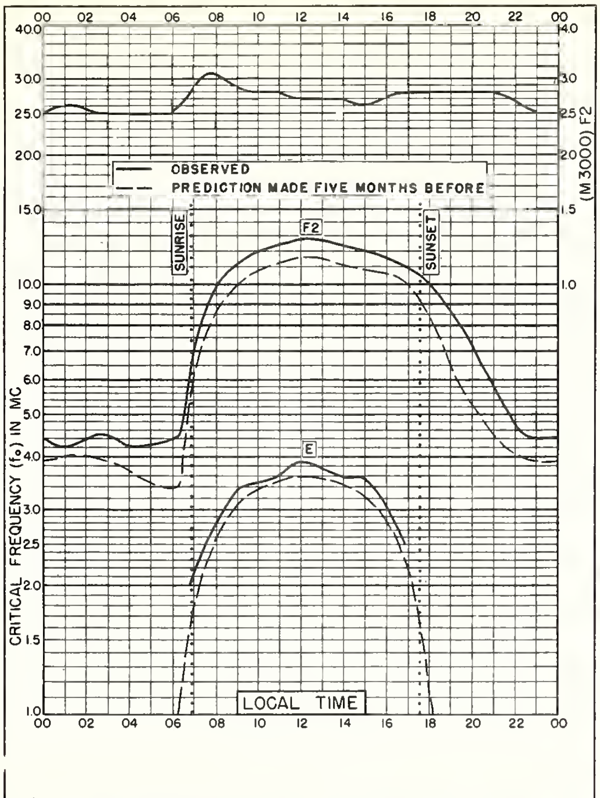


Fig. 5. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W FEBRUARY 1949

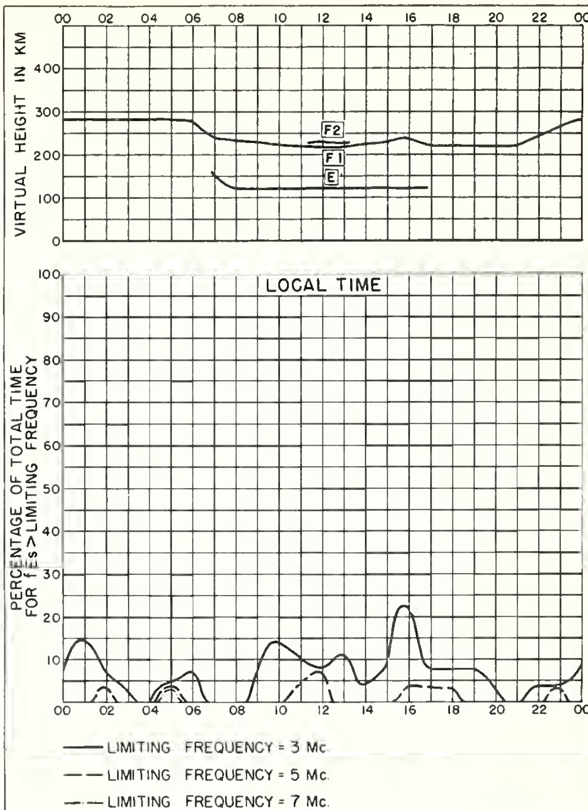


Fig. 6. SAN FRANCISCO, CALIFORNIA FEBRUARY 1949

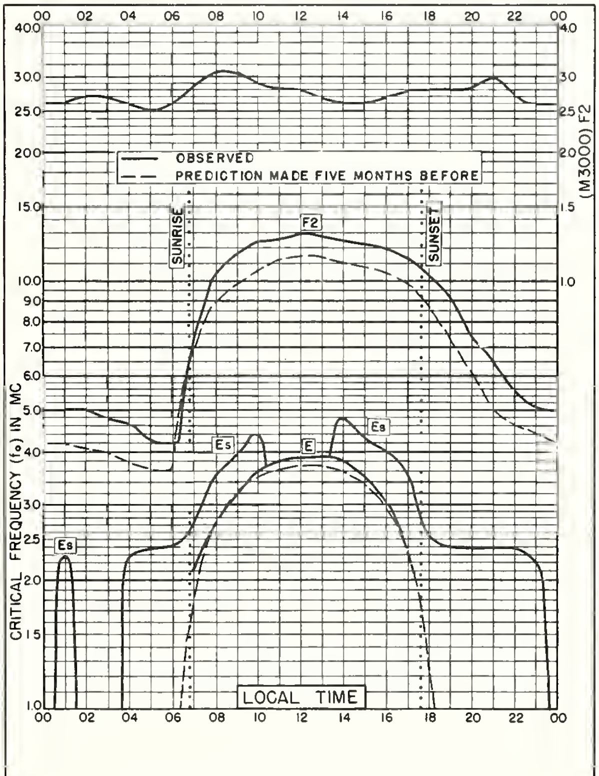


Fig. 7. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W FEBRUARY 1949

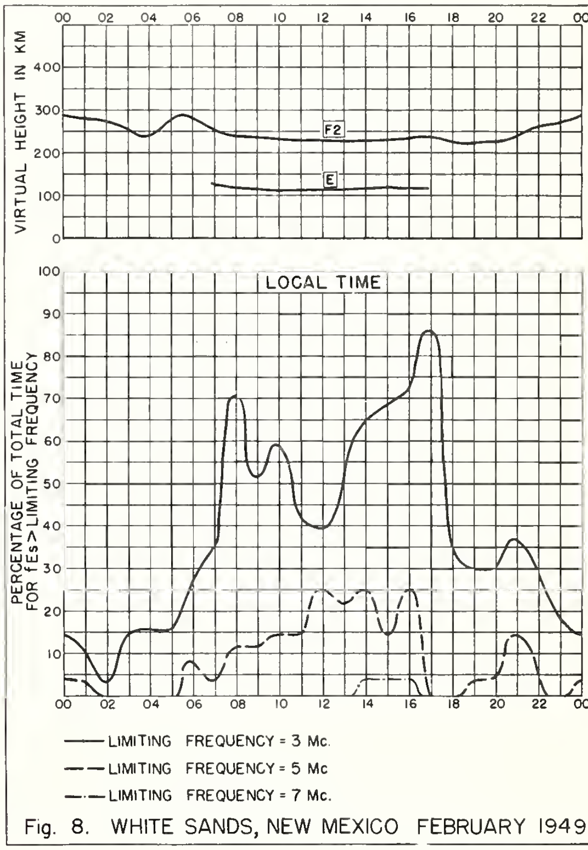


Fig. 8. WHITE SANDS, NEW MEXICO FEBRUARY 1949

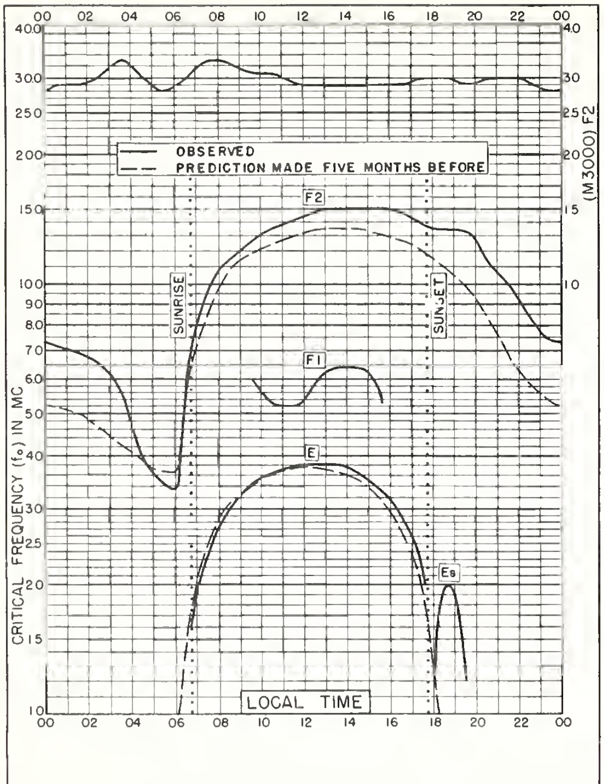


Fig. 9. WUCHANG, CHINA
30.6°N, 114.4°E FEBRUARY 1949

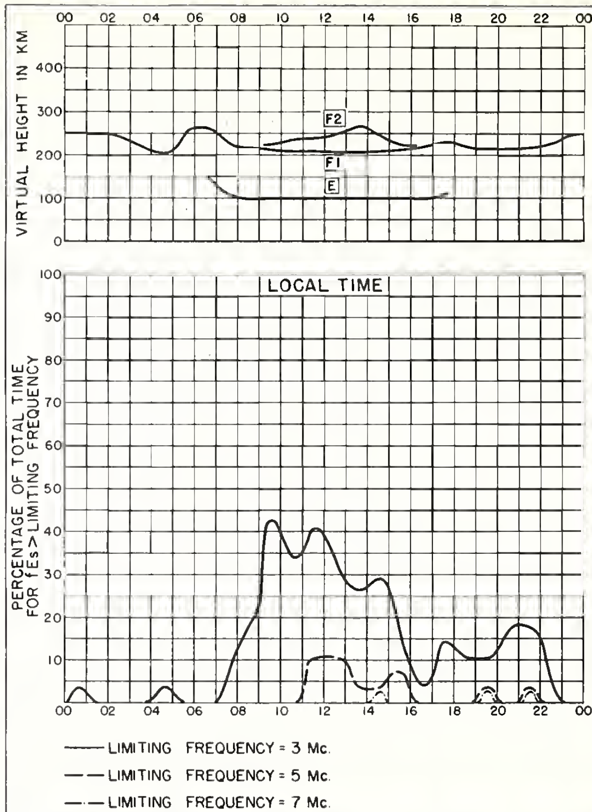


Fig. 10. WUCHANG, CHINA FEBRUARY 1949

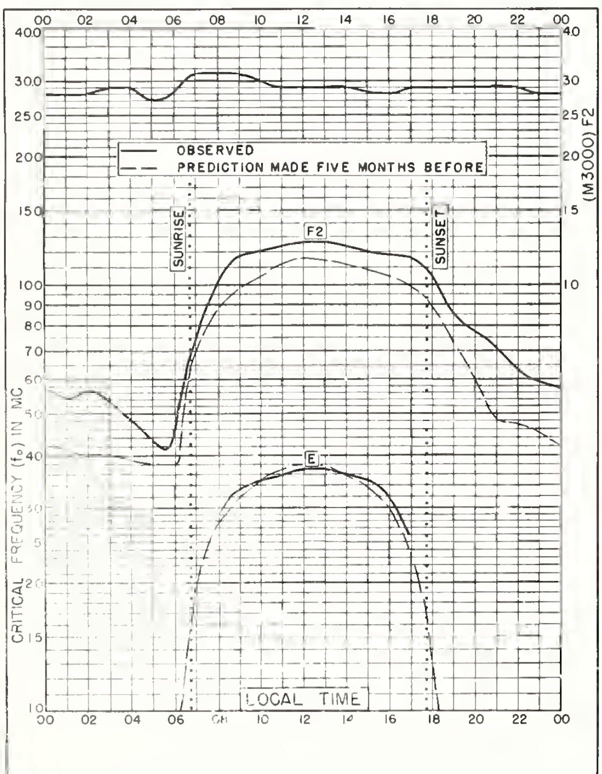


Fig. 11. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W FEBRUARY 1949

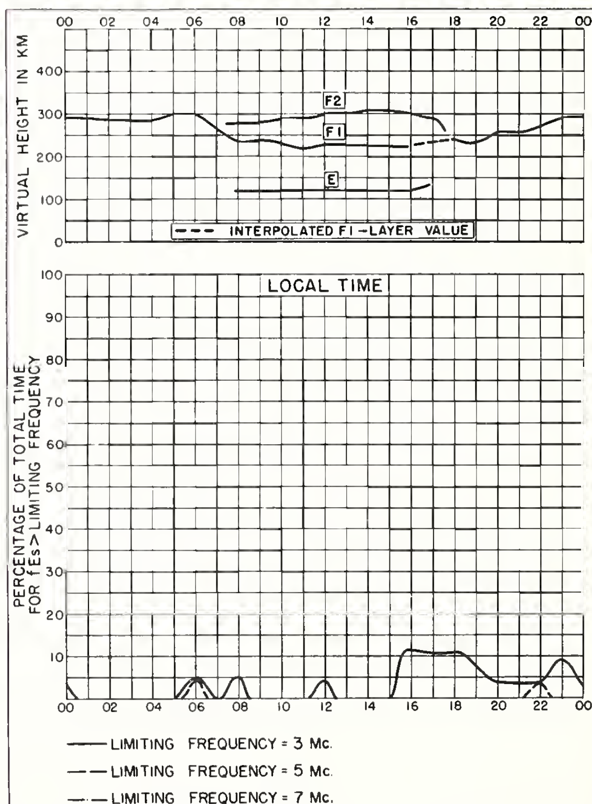


Fig. 12. BATON ROUGE, LOUISIANA FEBRUARY 1949

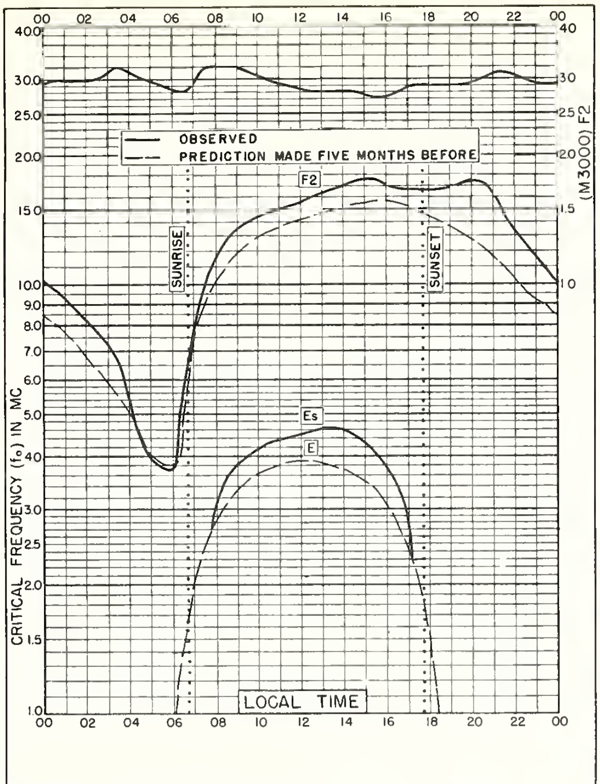


Fig. 13. OKINAWA I.
26.3°N, 127.7°E FEBRUARY 1949

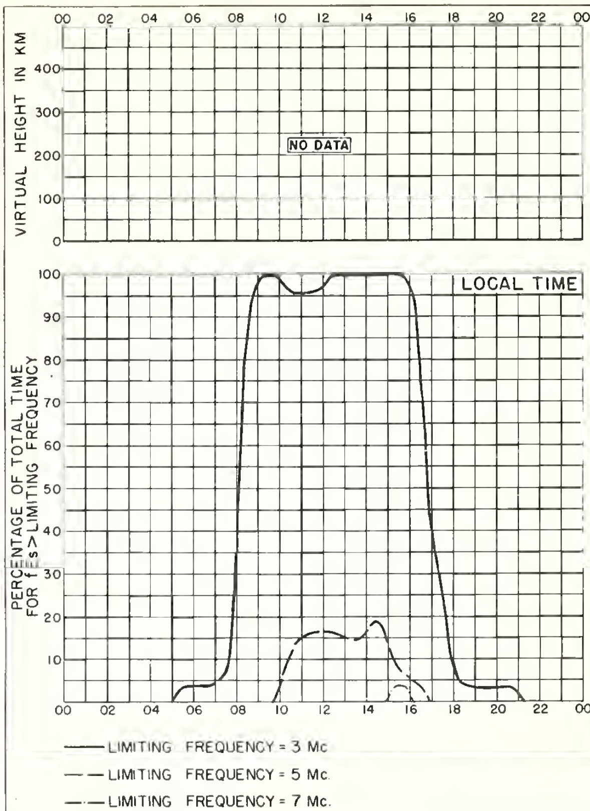


Fig. 14. OKINAWA I. FEBRUARY 1949

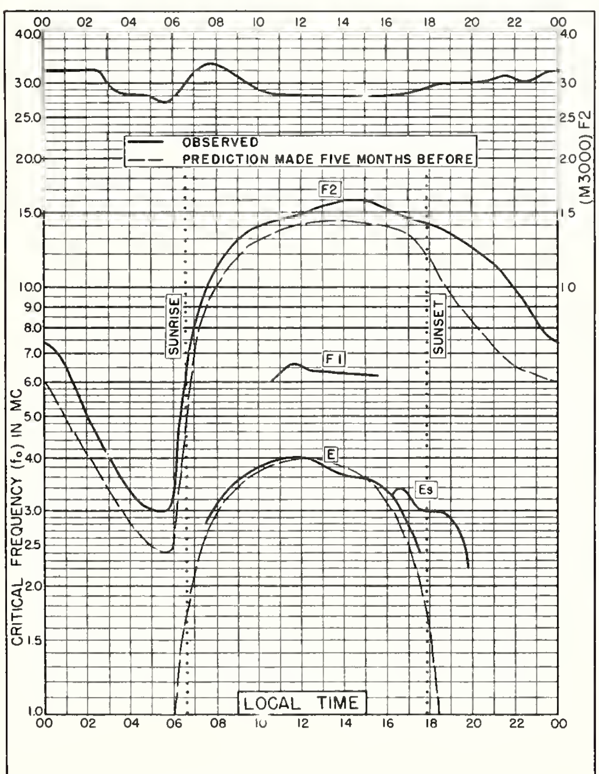


Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W FEBRUARY 1949

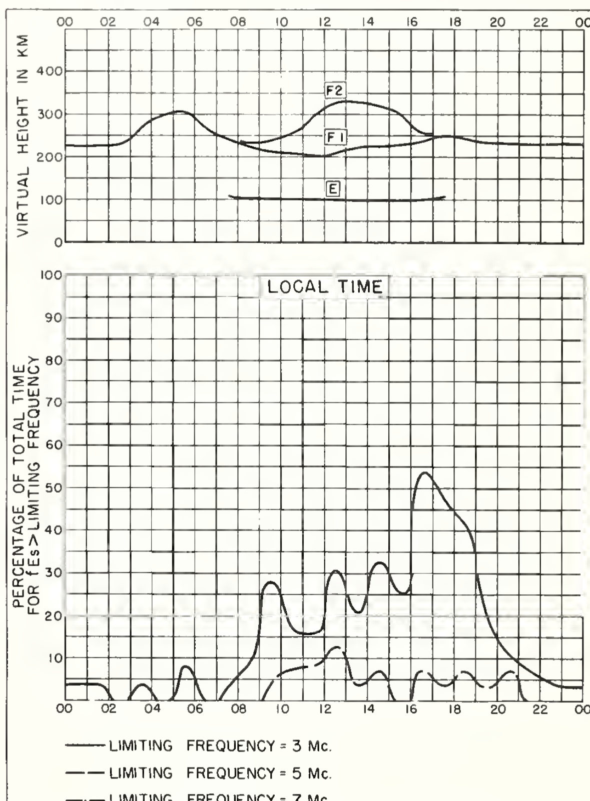


Fig. 16. MAUI, HAWAII FEBRUARY 1949

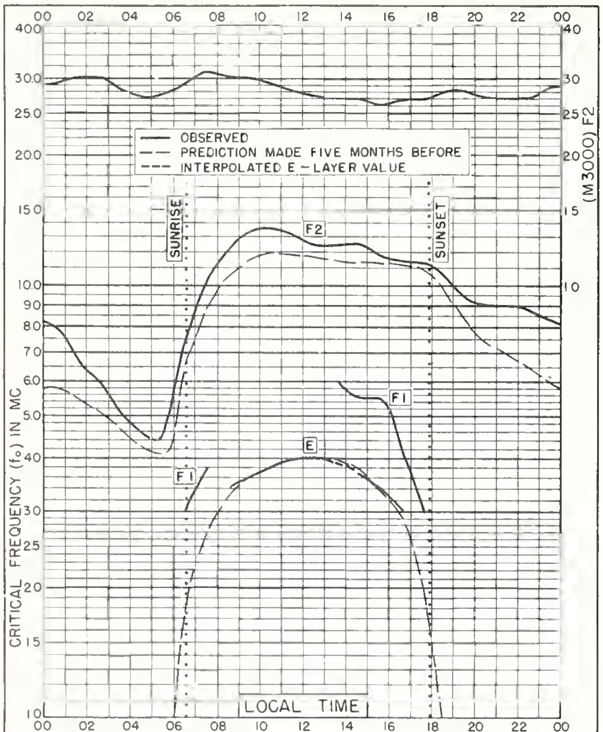


Fig. 17. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W FEBRUARY 1949

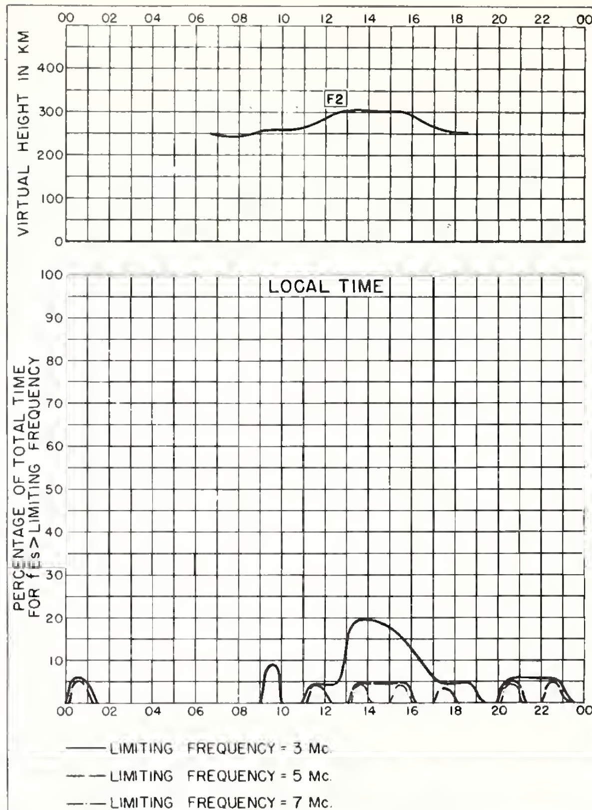


Fig. 18. SAN JUAN, PUERTO RICO FEBRUARY 1949

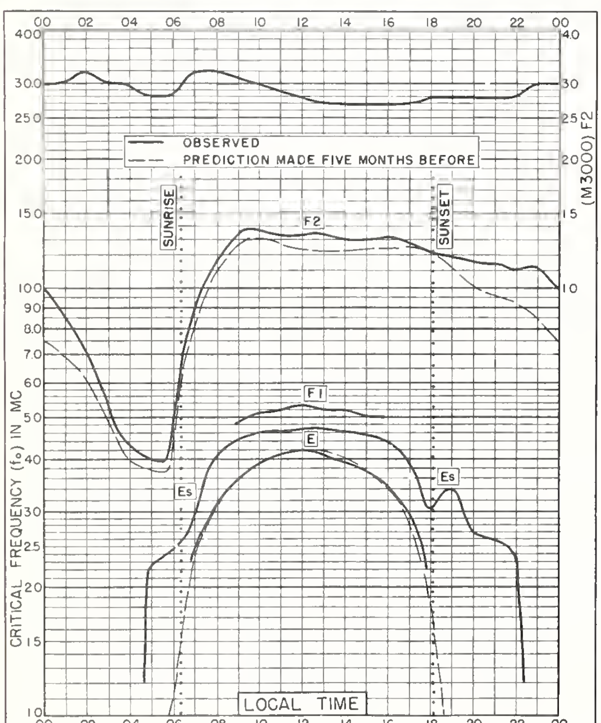


Fig. 19. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W FEBRUARY 1949

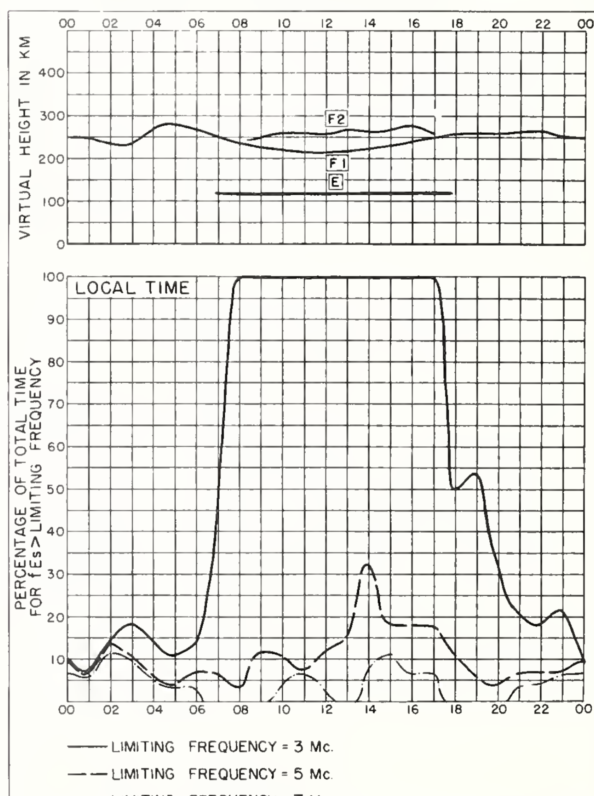


Fig. 20. TRINIDAD, BRIT. WEST INDIES FEBRUARY 1949

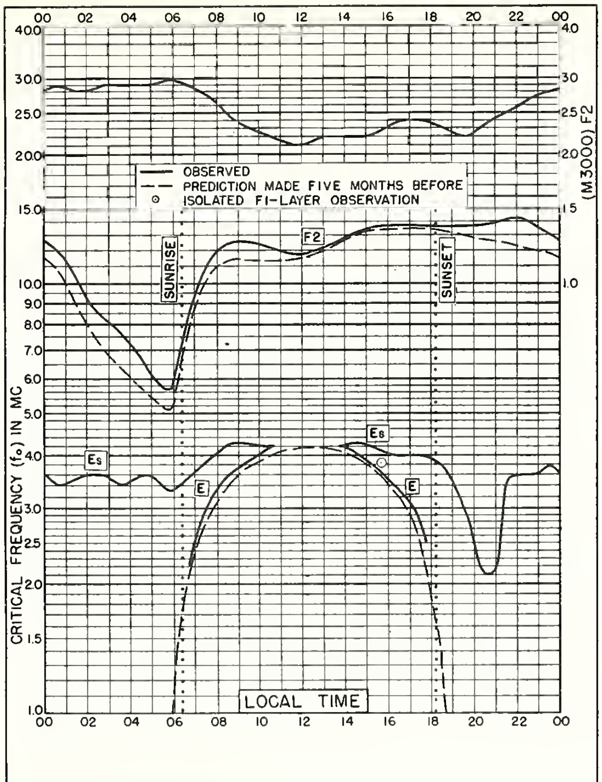


Fig. 21. PALMYRA I.
5.9°N, 162.1°W FEBRUARY 1949

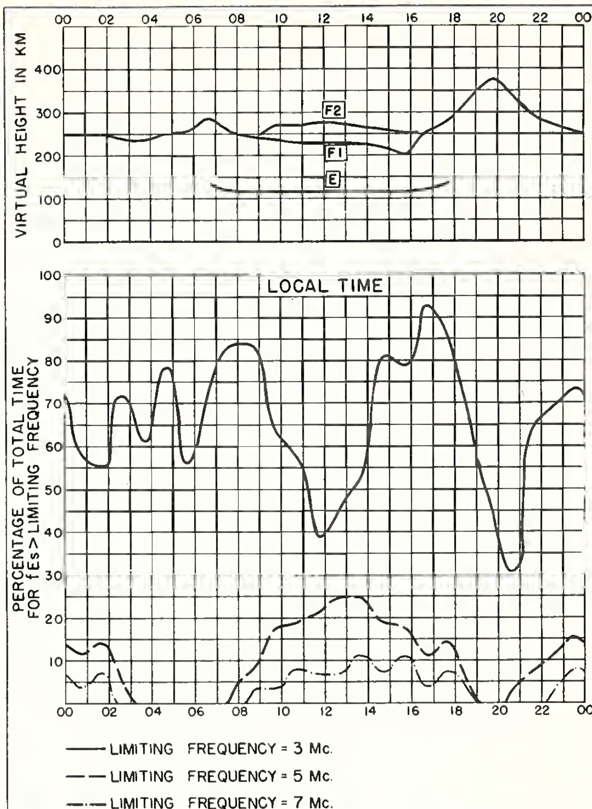


Fig. 22. PALMYRA I. FEBRUARY 1949

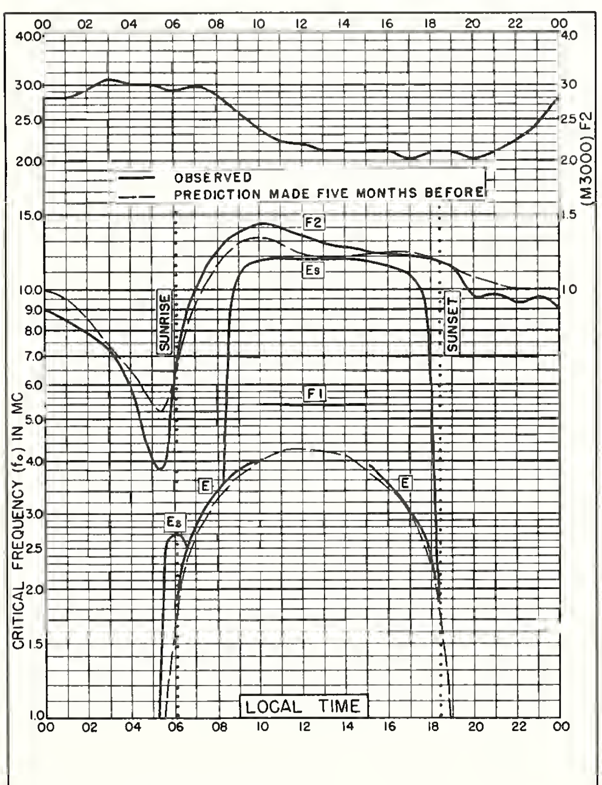


Fig. 23. HUANCAYO, PERU
12.0°S, 75.3°W FEBRUARY 1949

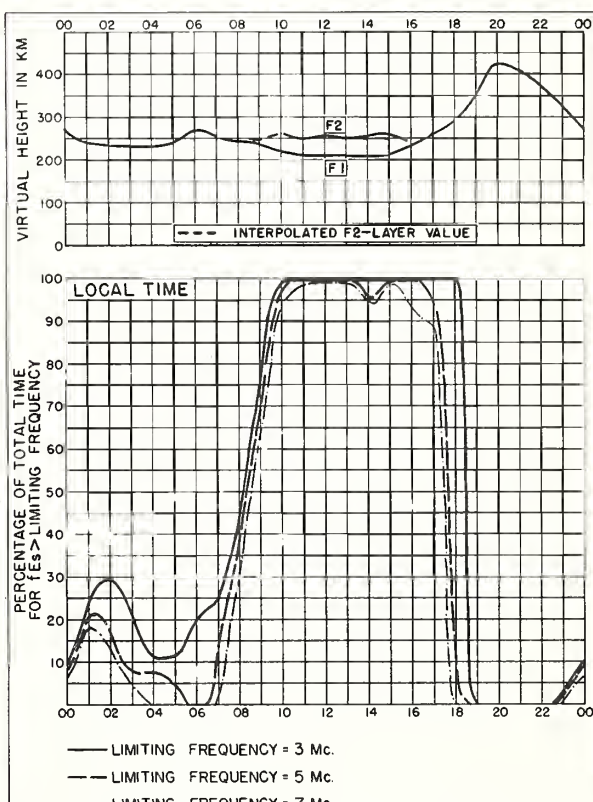


Fig. 24. HUANCAYO, PERU FEBRUARY 1949

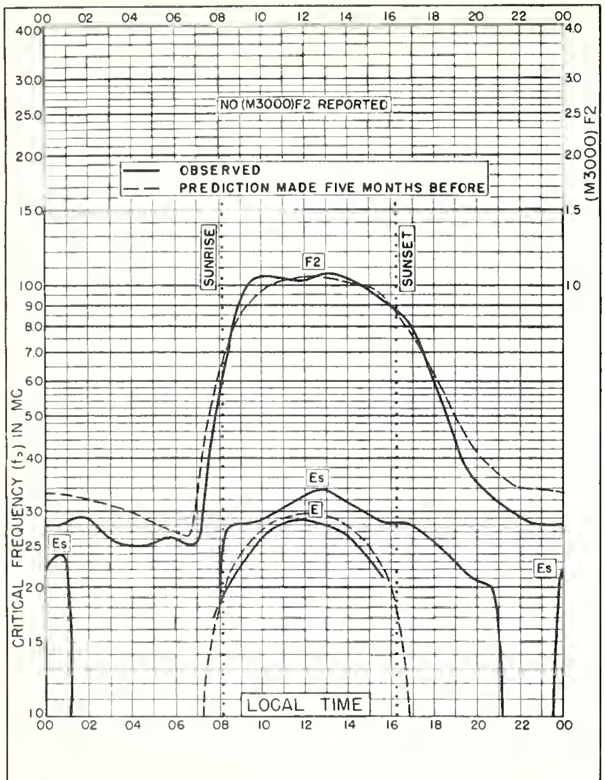


Fig. 25. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JANUARY 1949

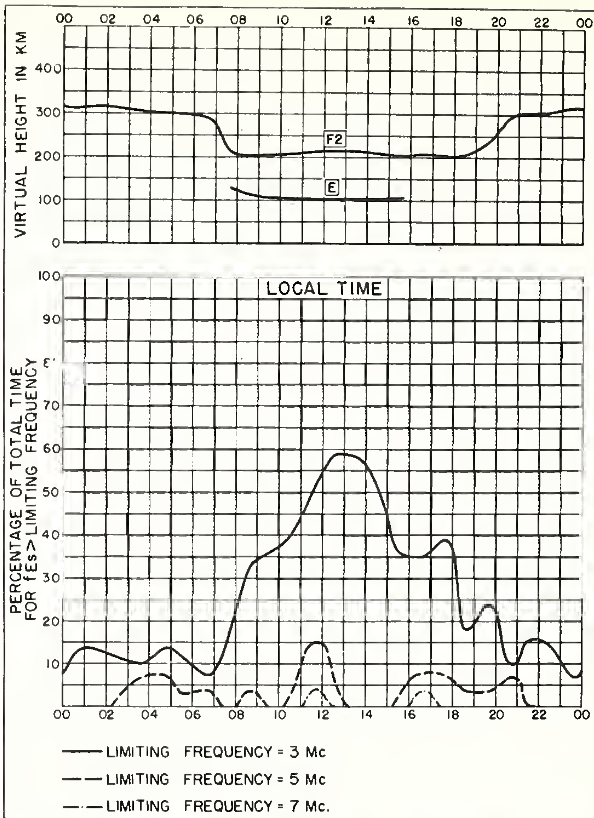


Fig. 26. LINDAU/HARZ, GERMANY JANUARY 1949

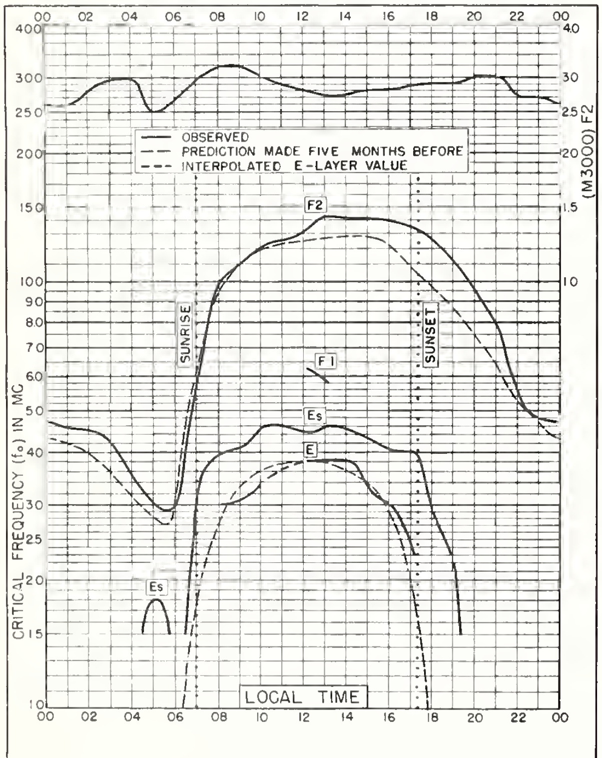


Fig. 27. CHUNGKING, CHINA
29.4°N, 106.8°E JANUARY 1949

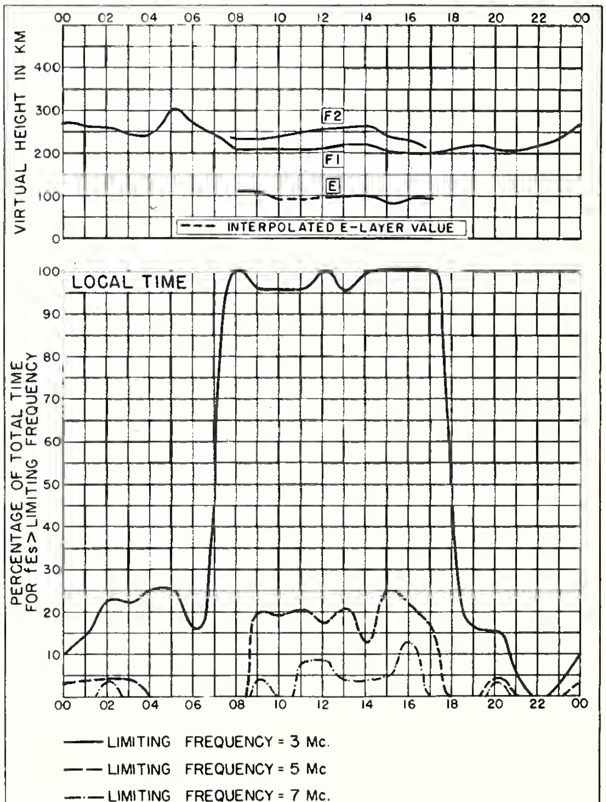


Fig. 28. CHUNGKING, CHINA JANUARY 1949

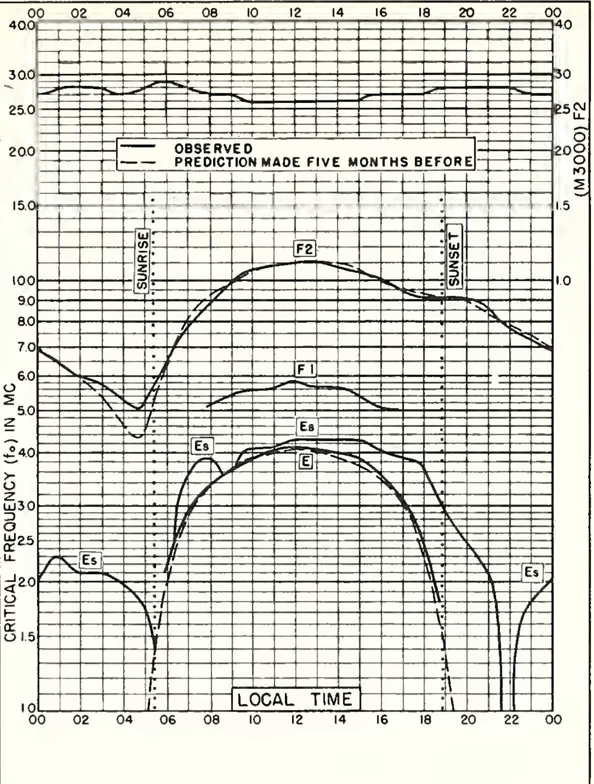


Fig. 29. JOHANNESBURG, U. OF S. AFRICA
26. 2°S, 28. 0°E JANUARY 1949

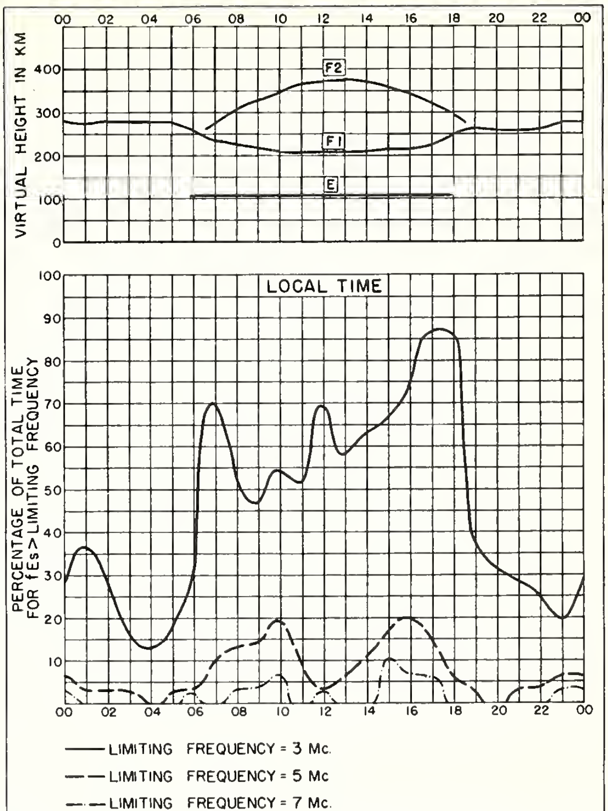


Fig. 30. JOHANNESBURG, U. OF S. AFRICA JANUARY 1949

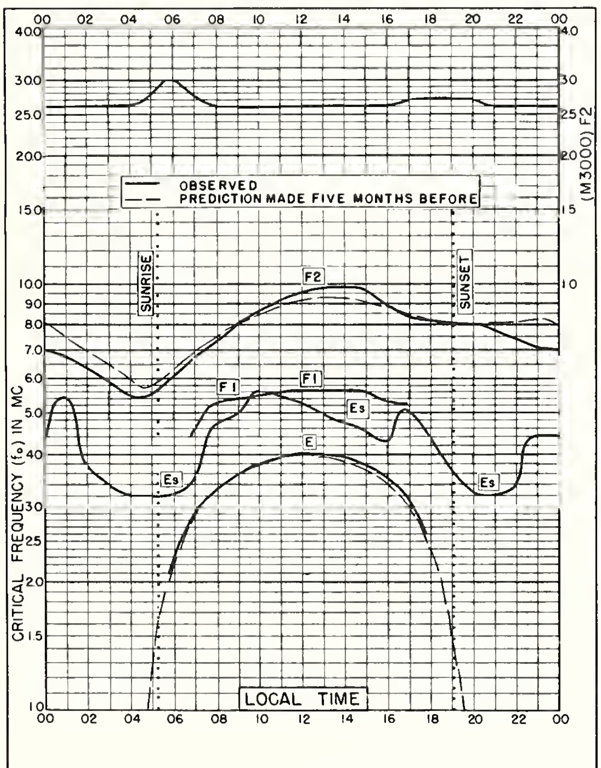


Fig. 31. WATHEROO, W. AUSTRALIA
30.3°S, 115. 9°E JANUARY 1949

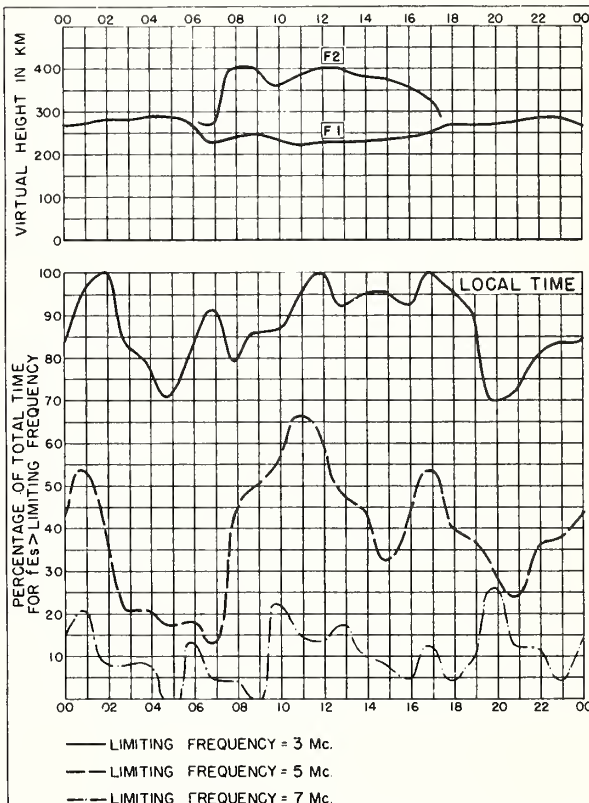


Fig. 32. WATHEROO, W. AUSTRALIA JANUARY 1949

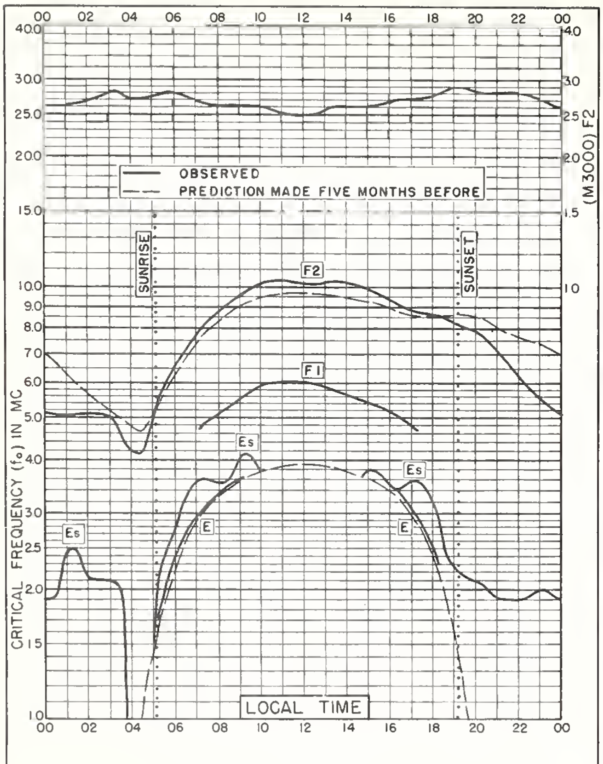


Fig. 33. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E JANUARY 1949

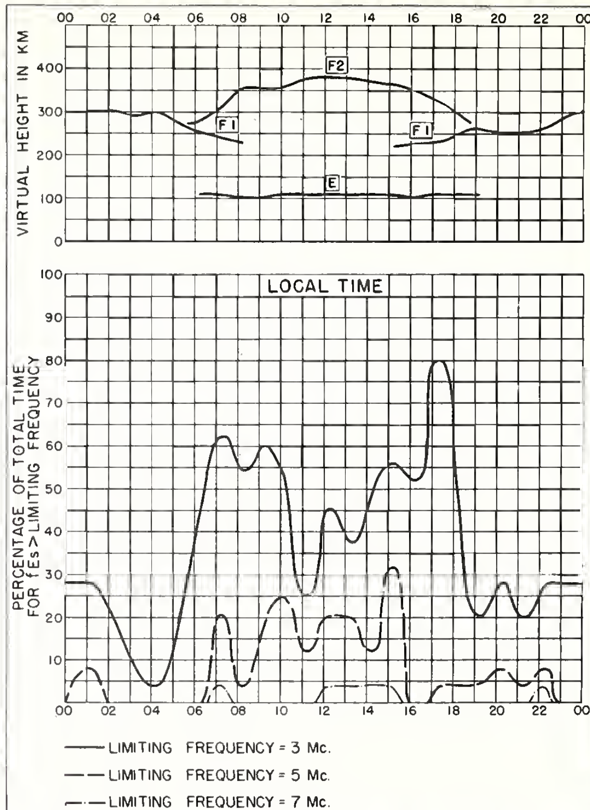


Fig. 34. CAPETOWN, U. OF S. AFRICA JANUARY 1949

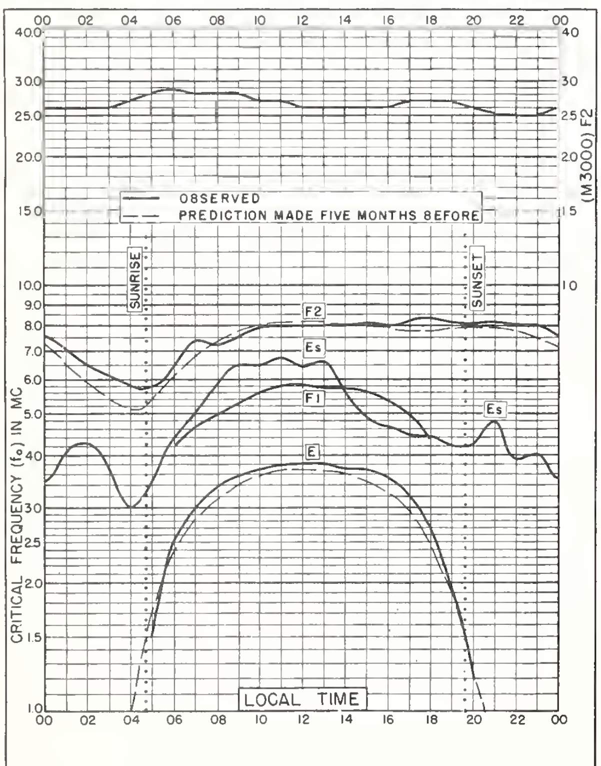


Fig. 35. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E JANUARY 1949

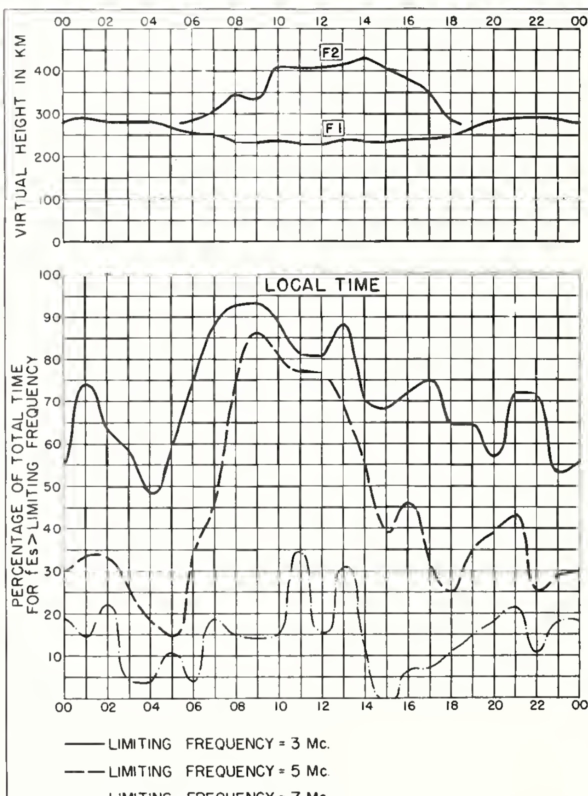


Fig. 36. CHRISTCHURCH, N. Z. JANUARY 1949

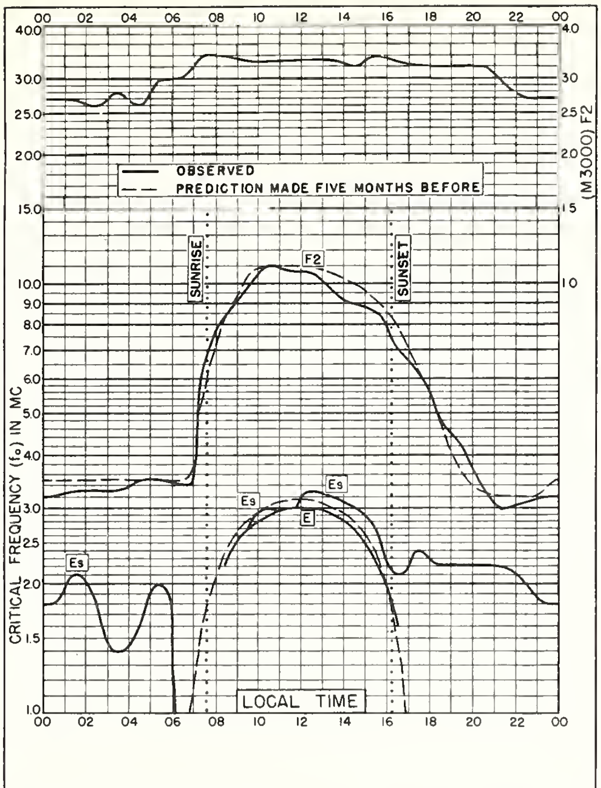


Fig. 37. WAKKANAI, JAPAN
45.4°N, 141.7°E DECEMBER 1948

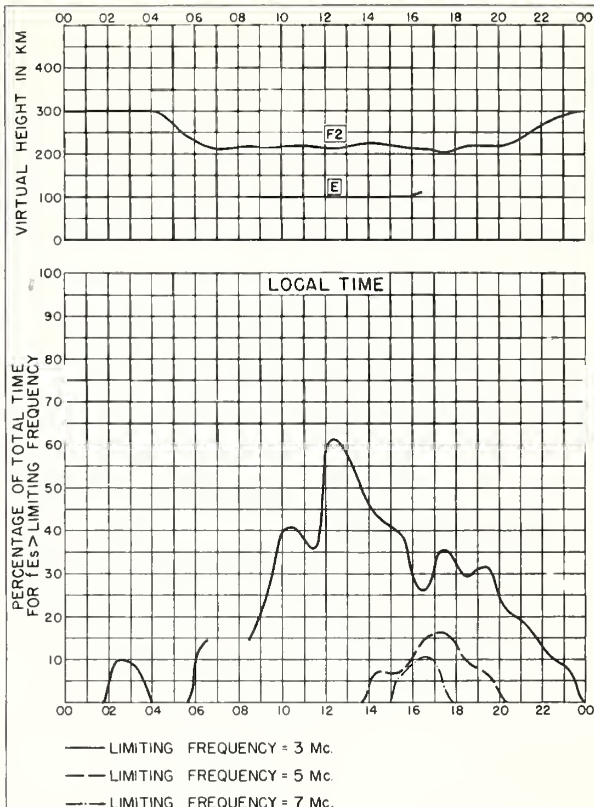


Fig. 38. WAKKANAI, JAPAN DECEMBER 1948

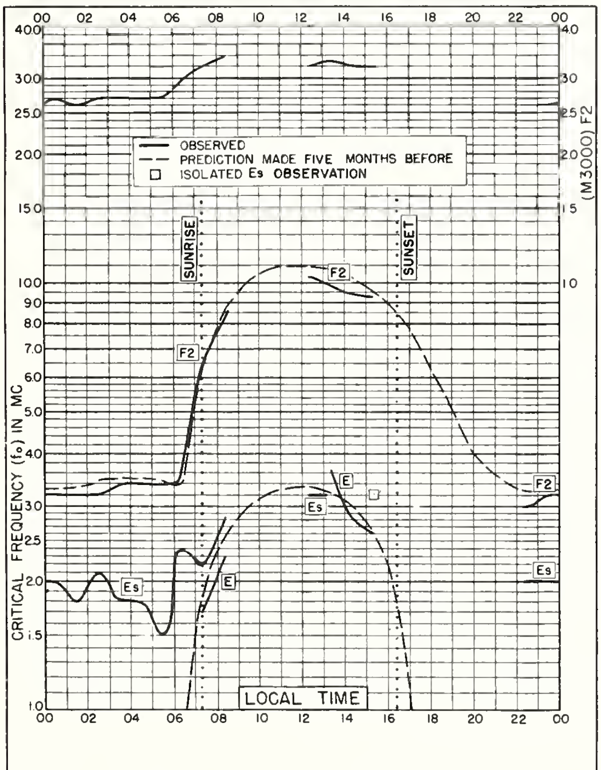


Fig. 39. FUKAURA, JAPAN
40.6°N, 139.9°E DECEMBER 1948

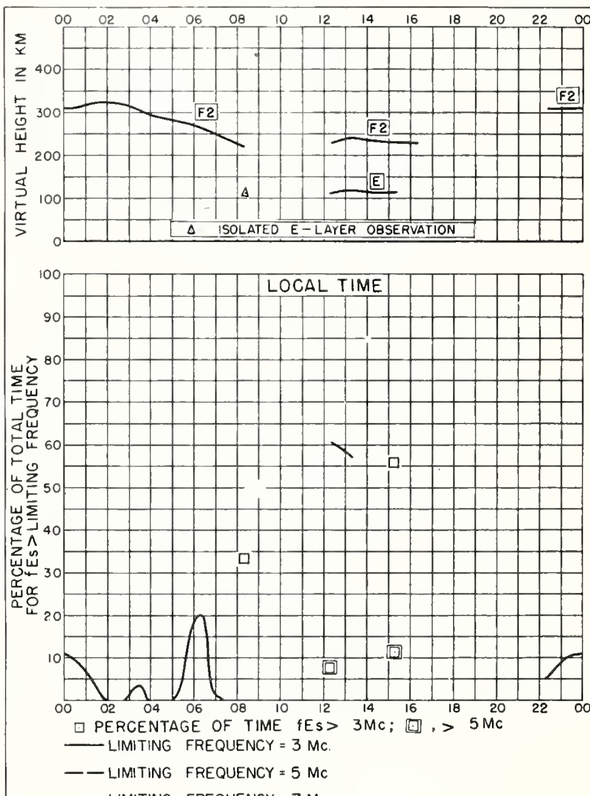


Fig. 40. FUKAURA, JAPAN DECEMBER 1948

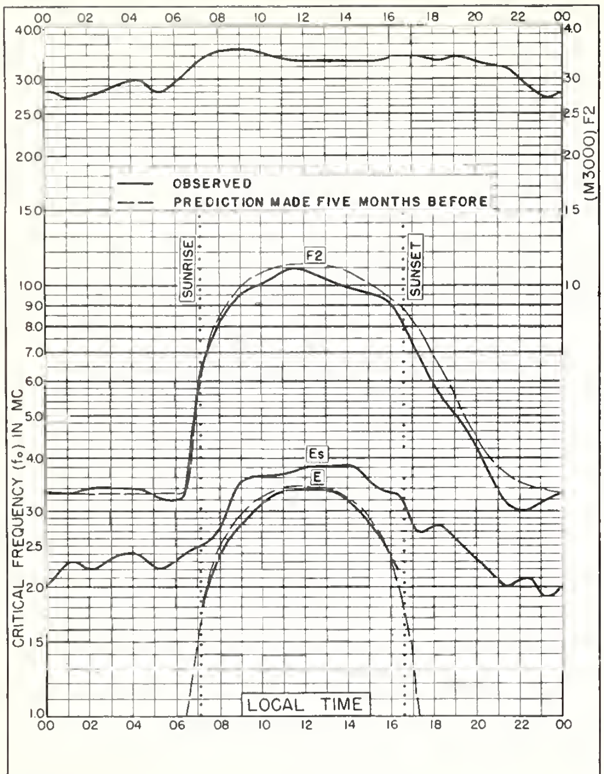


Fig. 41. SHIBATA, JAPAN
37.9°N, 139.3°E DECEMBER 1948

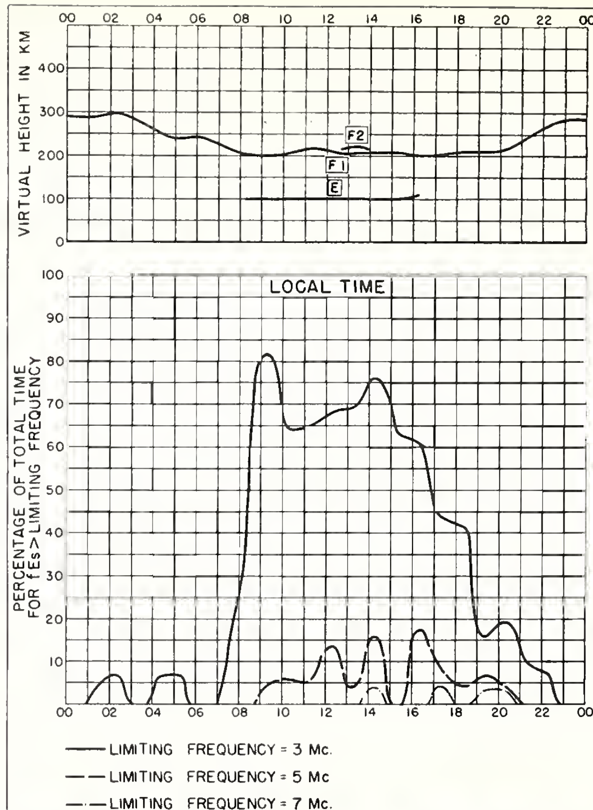


Fig. 42. SHIBATA, JAPAN DECEMBER 1948

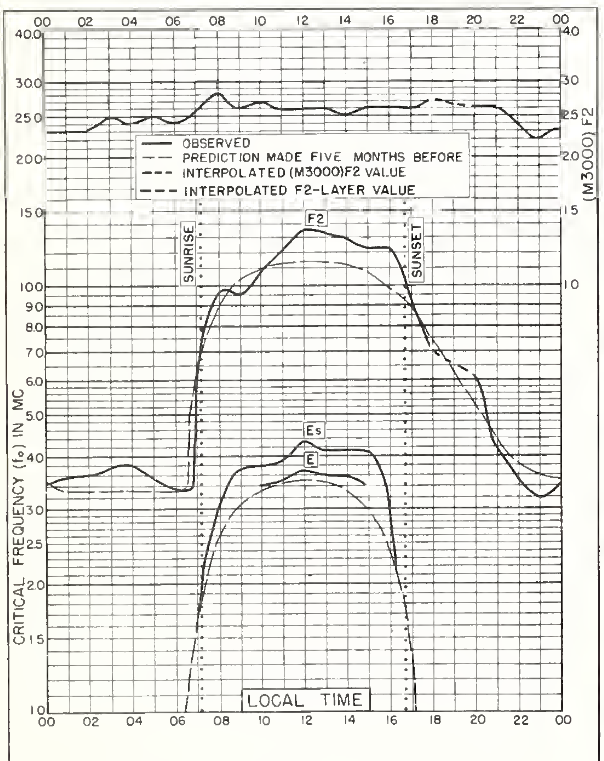


Fig. 43. LANCHOW, CHINA
36.1°N, 103.8°E DECEMBER 1948

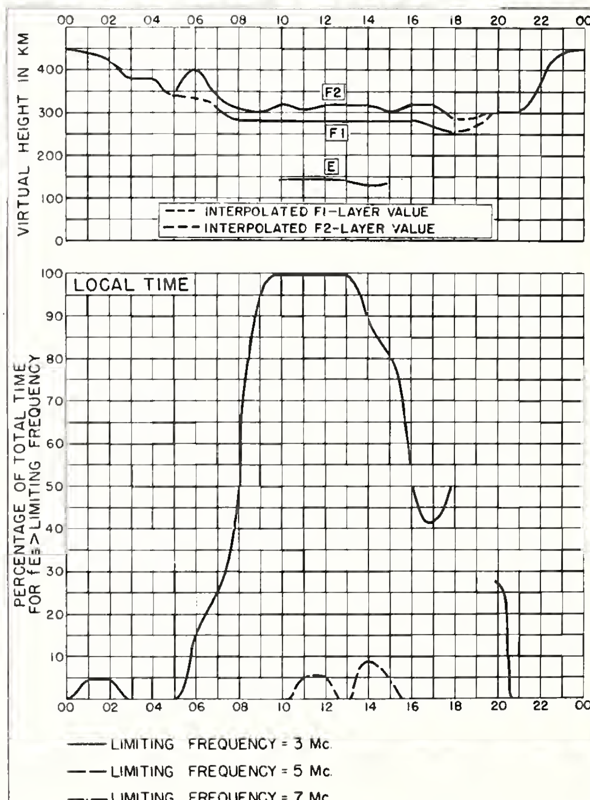


Fig. 44. LANCHOW, CHINA DECEMBER 1948

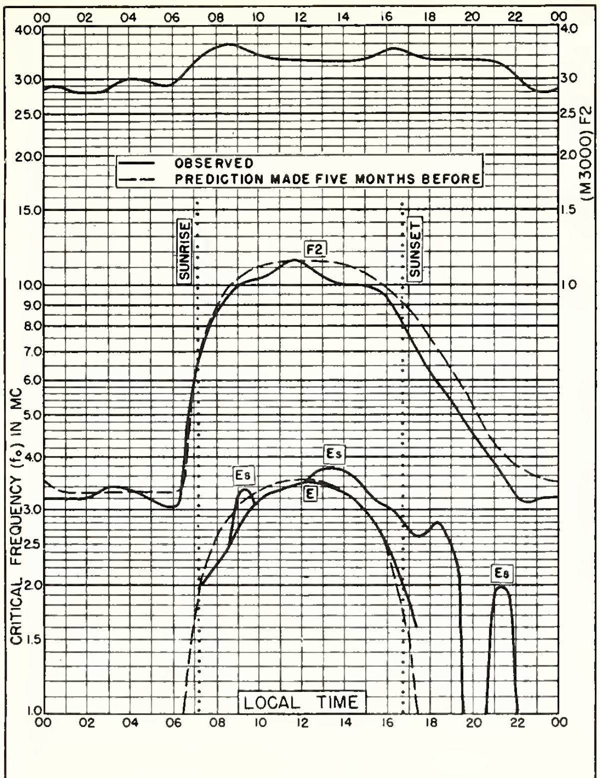


Fig. 45. TOKYO, JAPAN
35.7°N, 139.5°E DECEMBER 1948

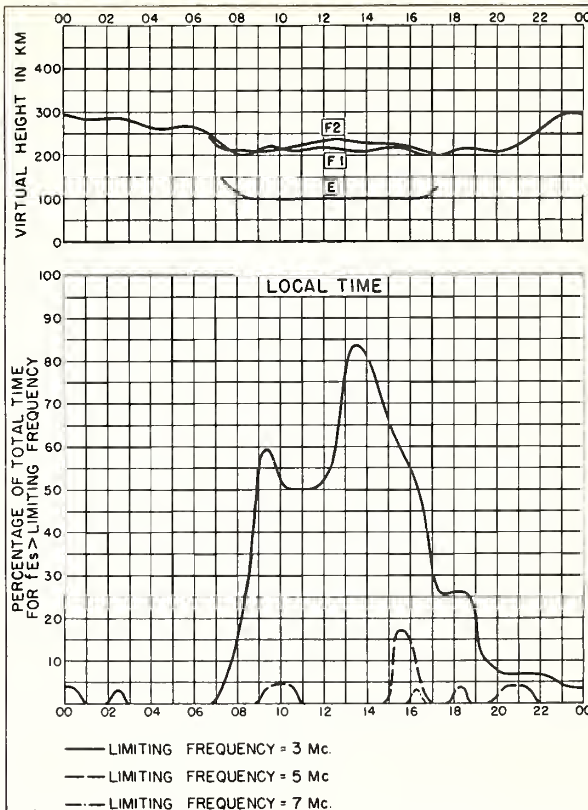


Fig. 46. TOKYO, JAPAN DECEMBER 1948

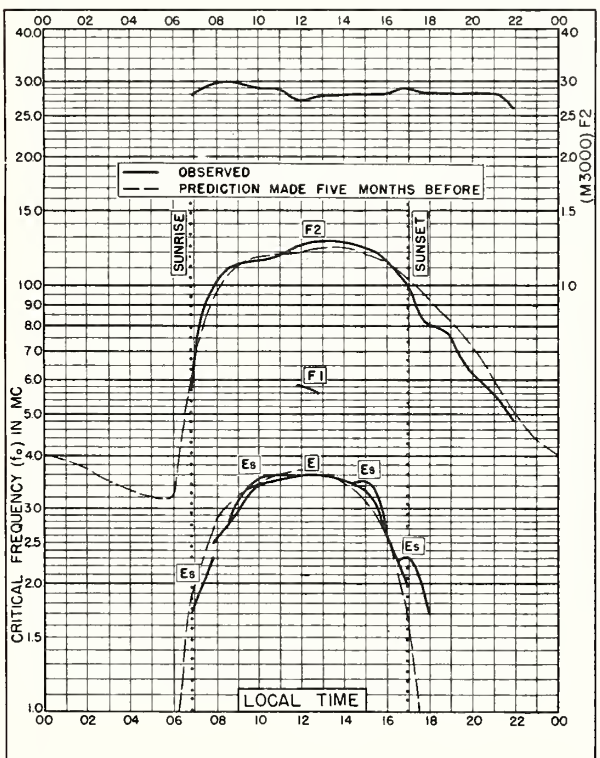


Fig. 47. NANKING, CHINA
32.1°N, 119.0°E DECEMBER 1948

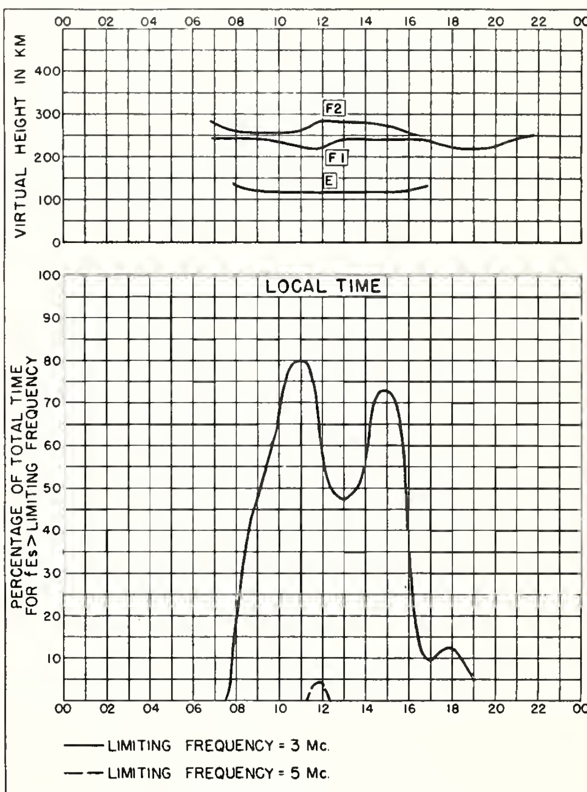


Fig. 48. NANKING, CHINA DECEMBER 1948

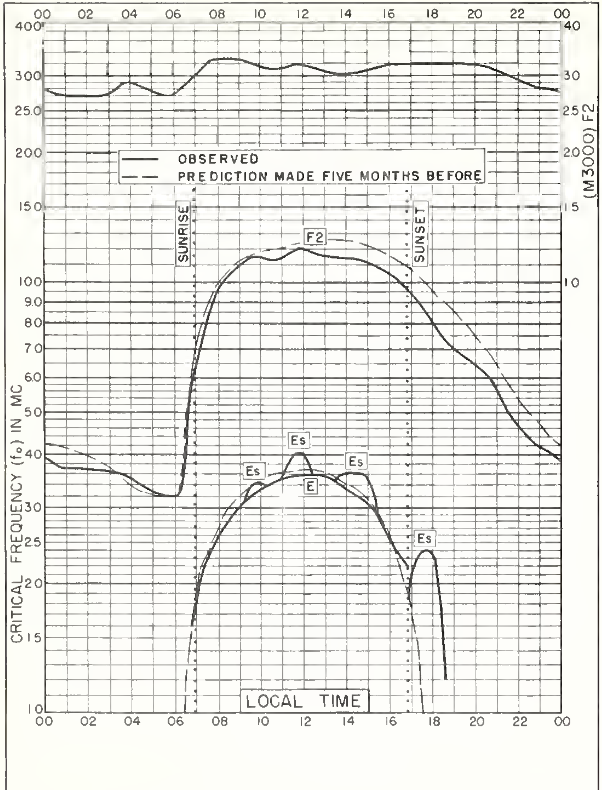


Fig. 49. YAMAKAWA, JAPAN
31.2°N, 130.6°E DECEMBER 1948

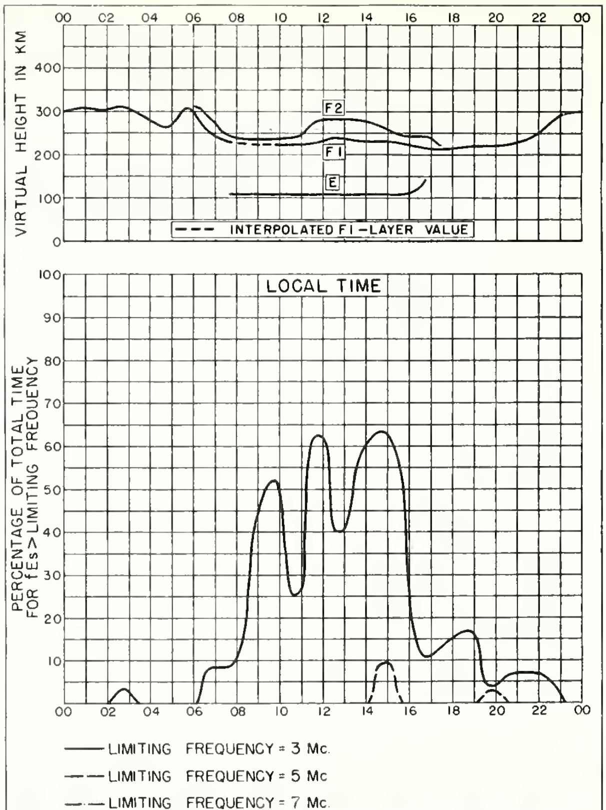


Fig. 50. YAMAKAWA, JAPAN DECEMBER 1948

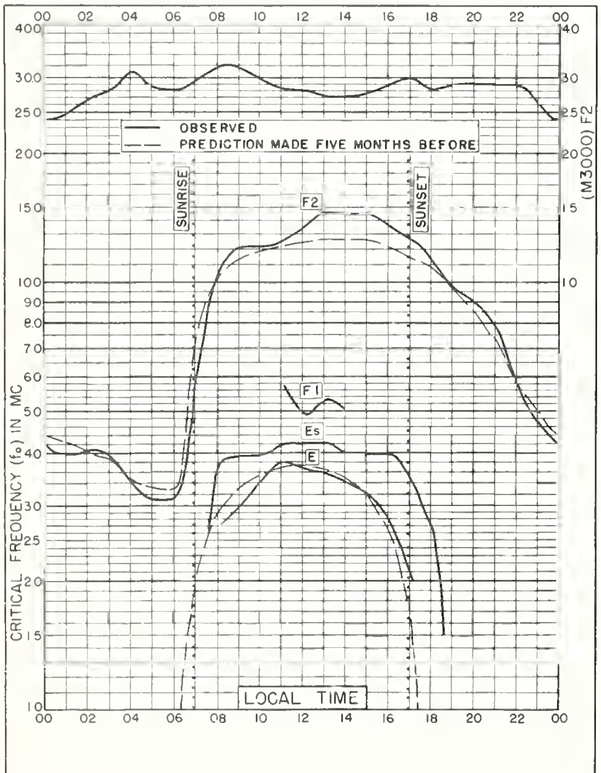


Fig. 51. CHUNGKING, CHINA
29.4°N, 106.8°E DECEMBER 1948

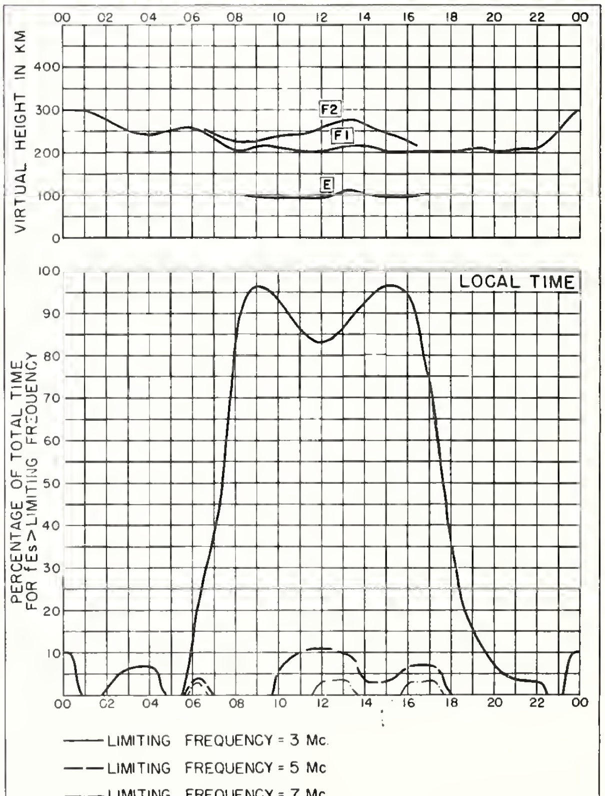


Fig. 52. CHUNGKING, CHINA DECEMBER 1948

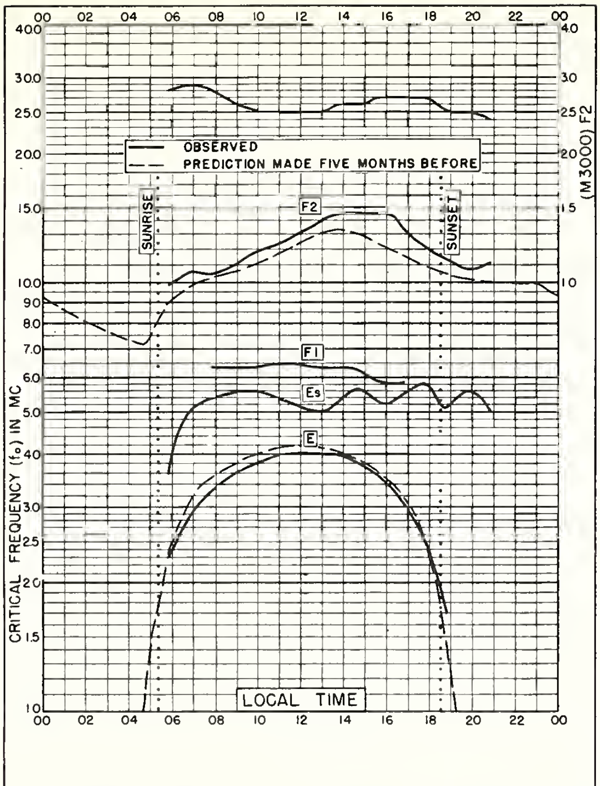


Fig. 53. RAROTONGA I.
21.3°S, 159.8°W DECEMBER 1948

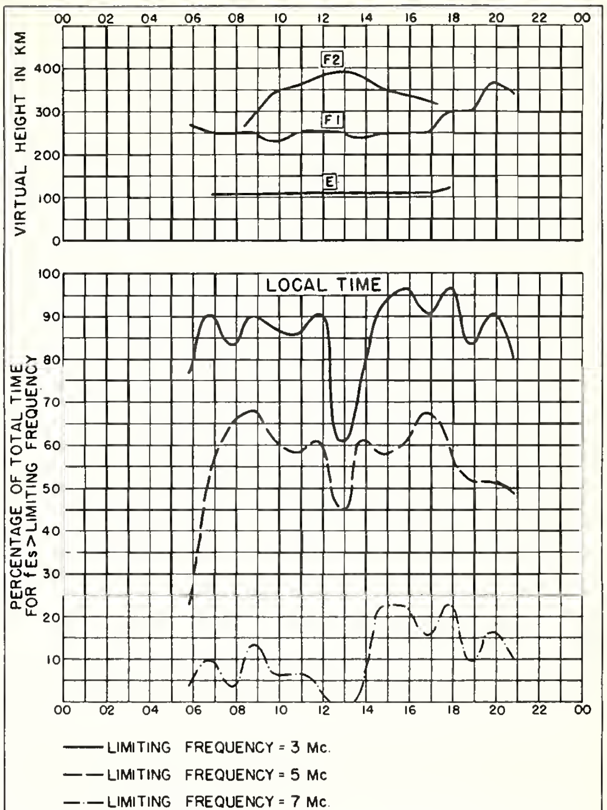


Fig. 54. RAROTONGA I. DECEMBER 1948

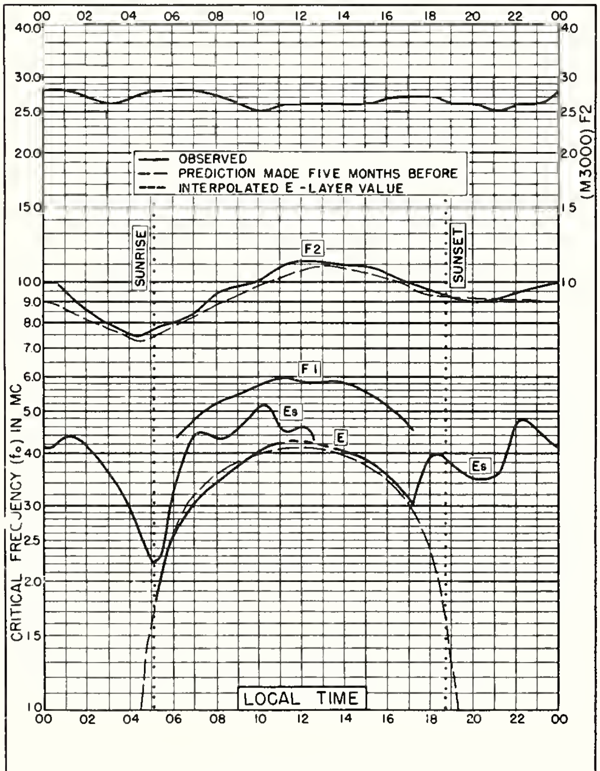


Fig. 55. BRISBANE, AUSTRALIA
27.5°S, 153.0°E DECEMBER 1948

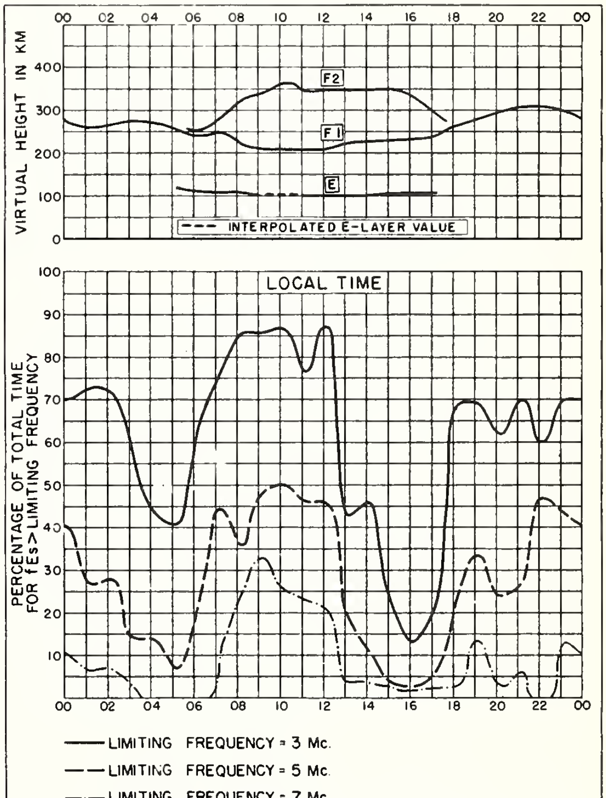


Fig. 56. BRISBANE, AUSTRALIA DECEMBER 1948

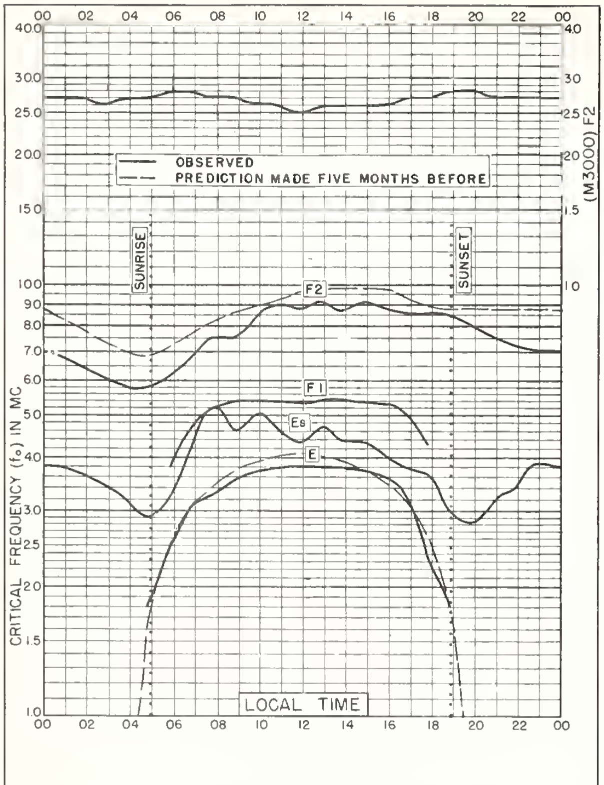


Fig. 57. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E DECEMBER 1948

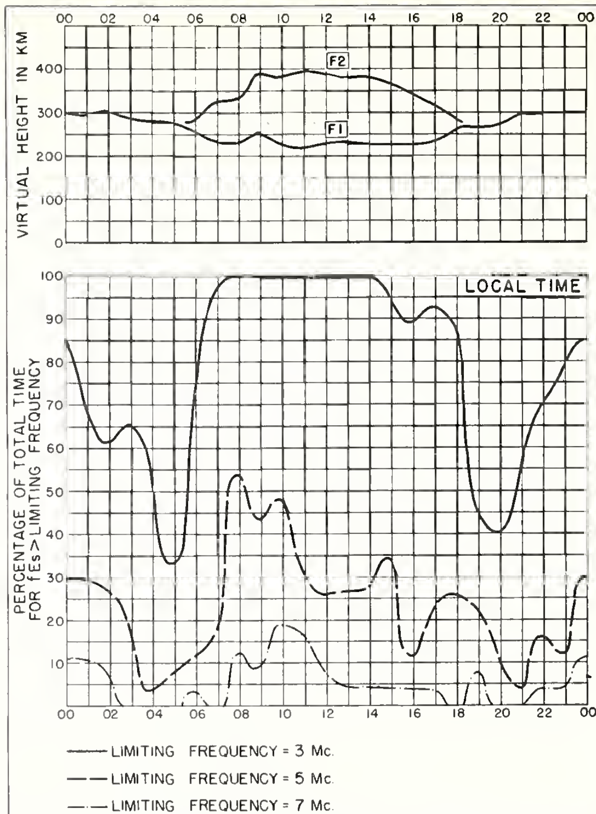


Fig. 58. WATHEROO, W. AUSTRALIA DECEMBER 1948

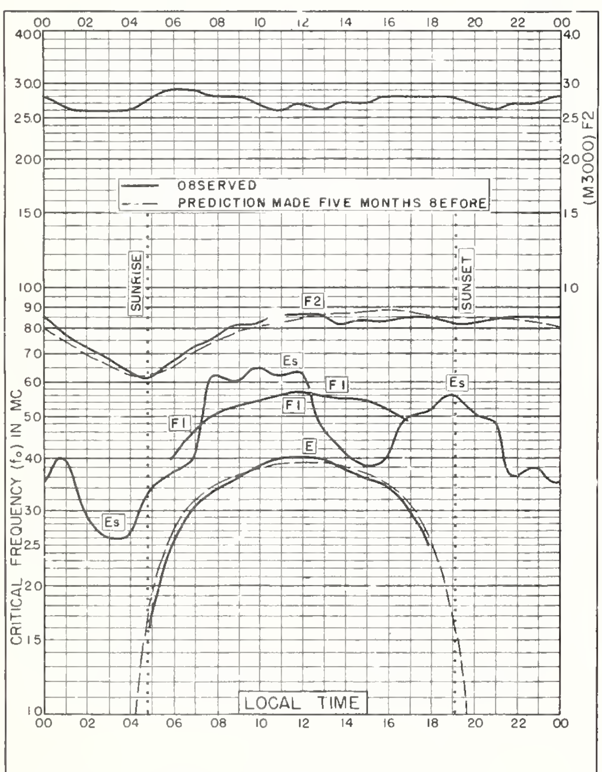


Fig. 59. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1948

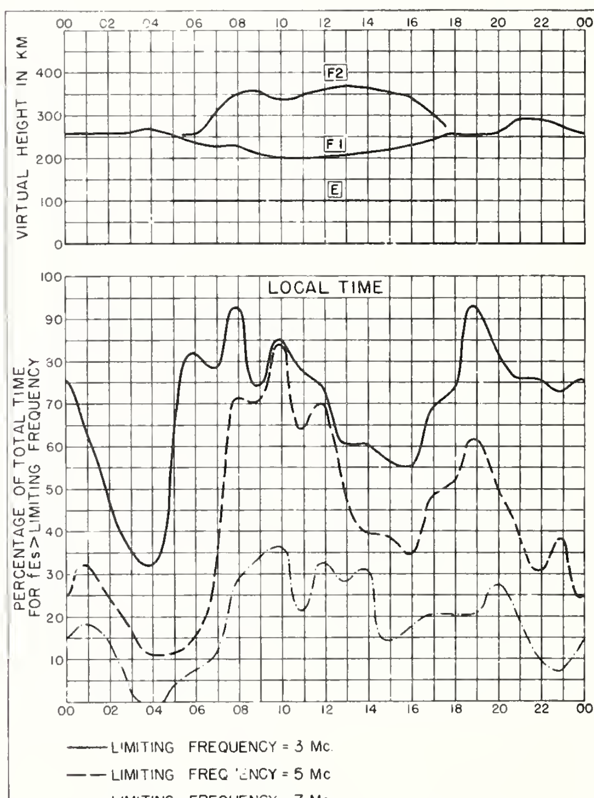


Fig. 60 CANBERRA, AUSTRALIA DECEMBER 1948

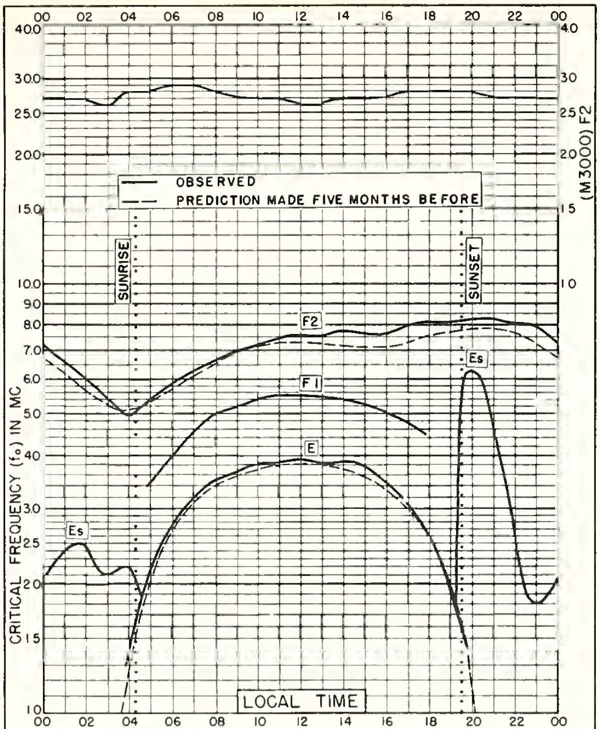


Fig. 61. HOBART, TASMANIA
42.8°S, 147.4°E DECEMBER 1948

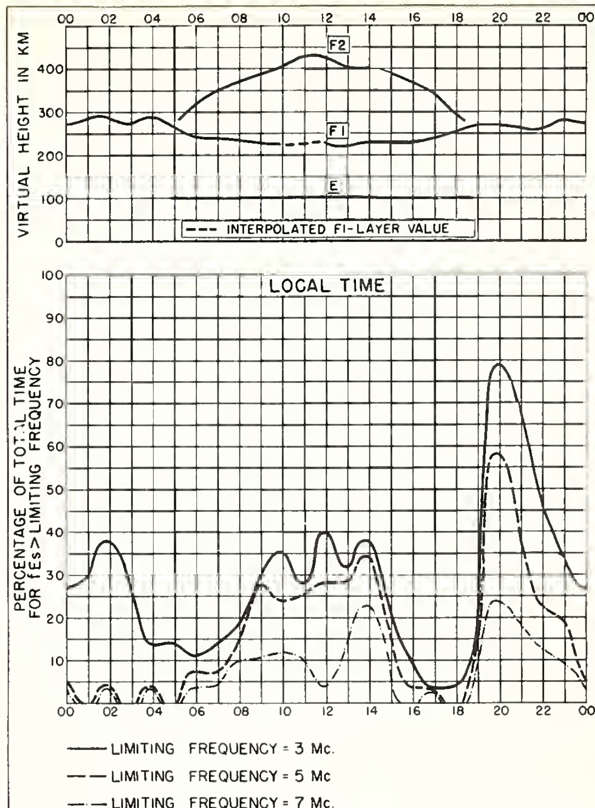


Fig. 62. HOBART, TASMANIA DECEMBER 1948

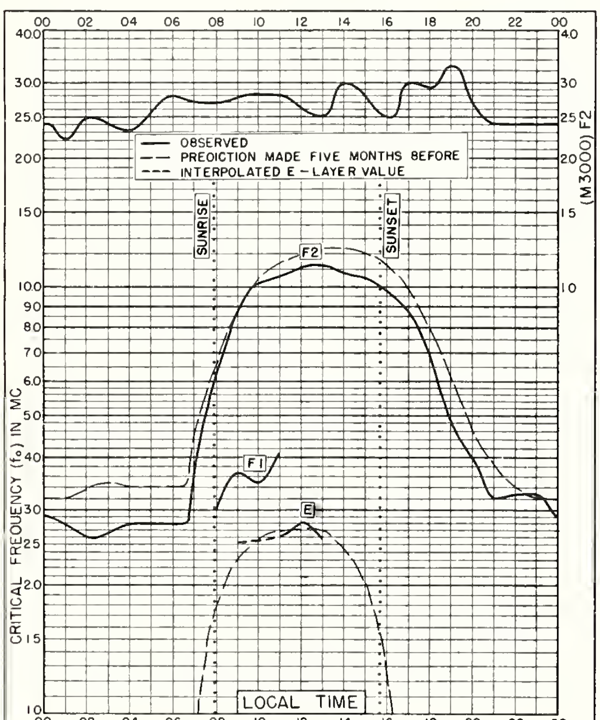


Fig 63. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W NOVEMBER 1948

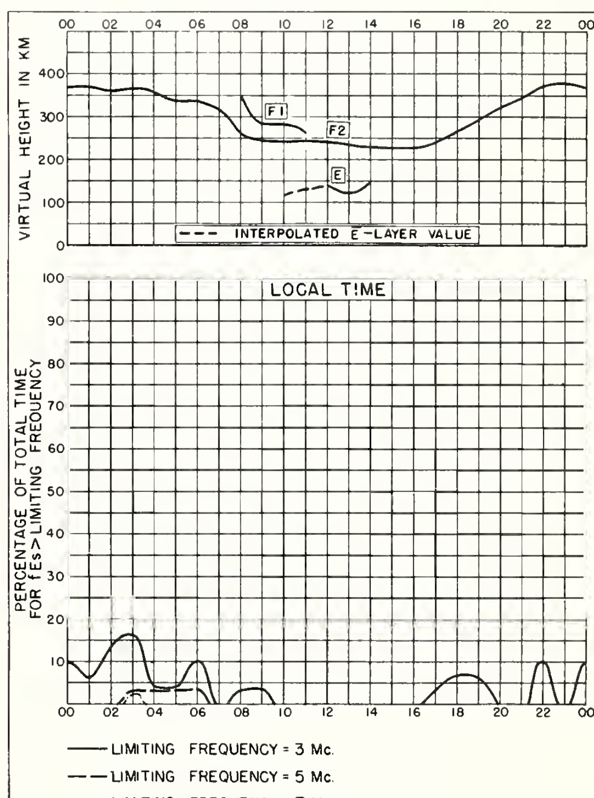


Fig. 64. FRASERBURGH, SCOTLAND NOVEMBER 1948

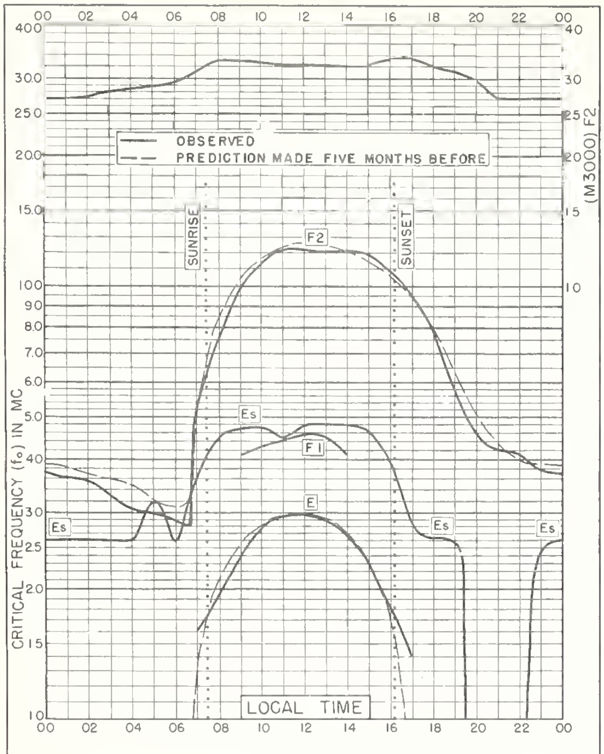


Fig. 65. SLOUGH, ENGLAND
51. 5°N, 0. 6°W NOVEMBER 1948

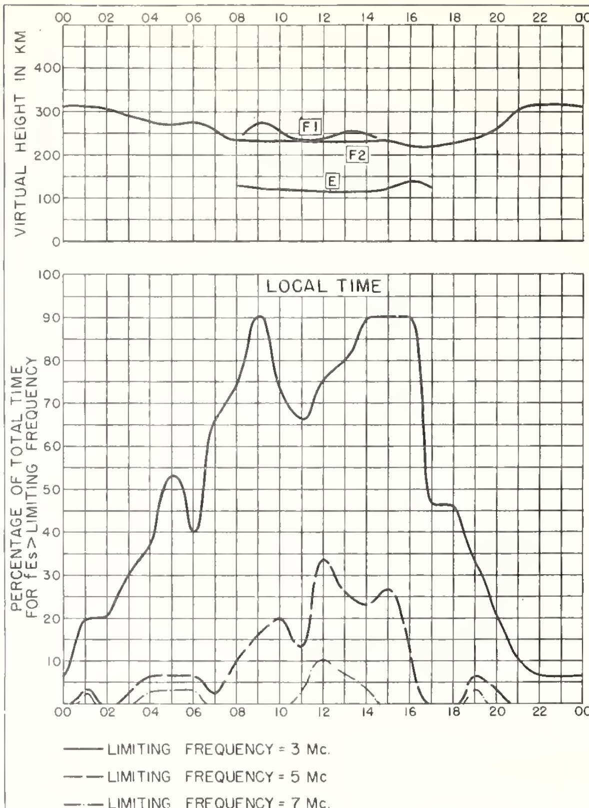


Fig. 66. SLOUGH, ENGLAND NOVEMBER 1948

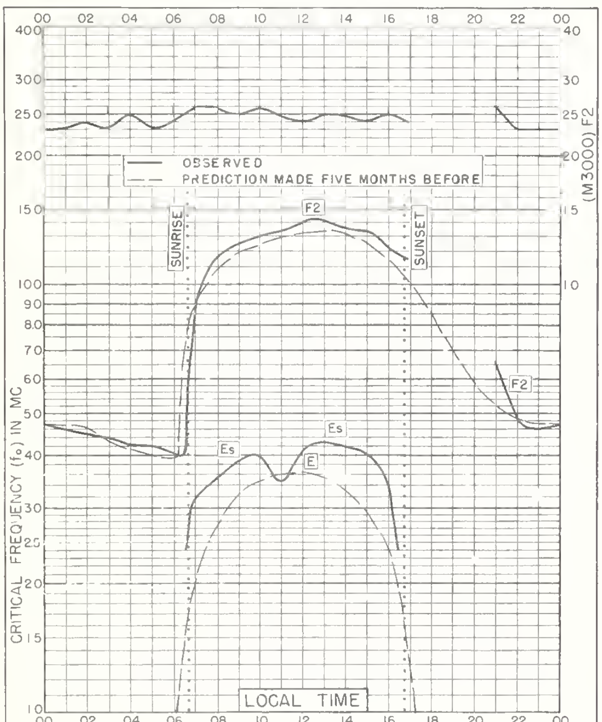


Fig. 67. LANCHOW, CHINA
36. 1°N, 103. 8°E NOVEMBER 1948

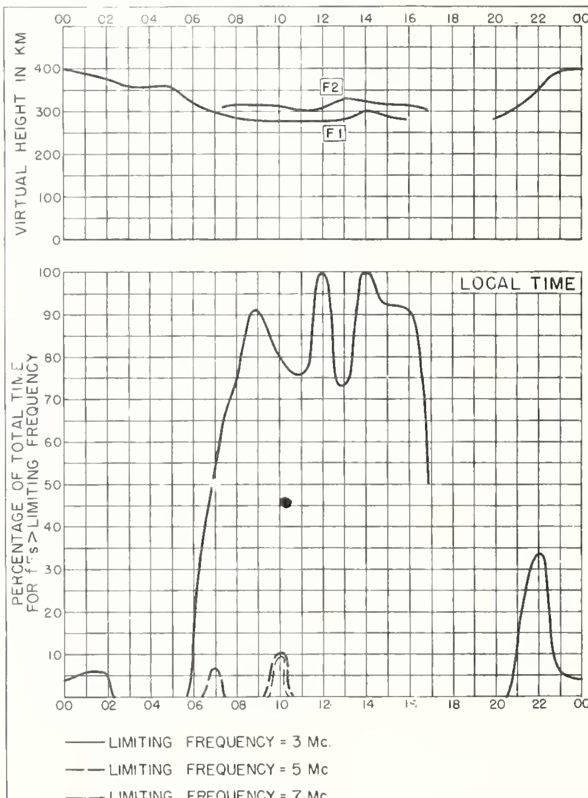


Fig. 68. LANCHOW, CHINA NOVEMBER 1948

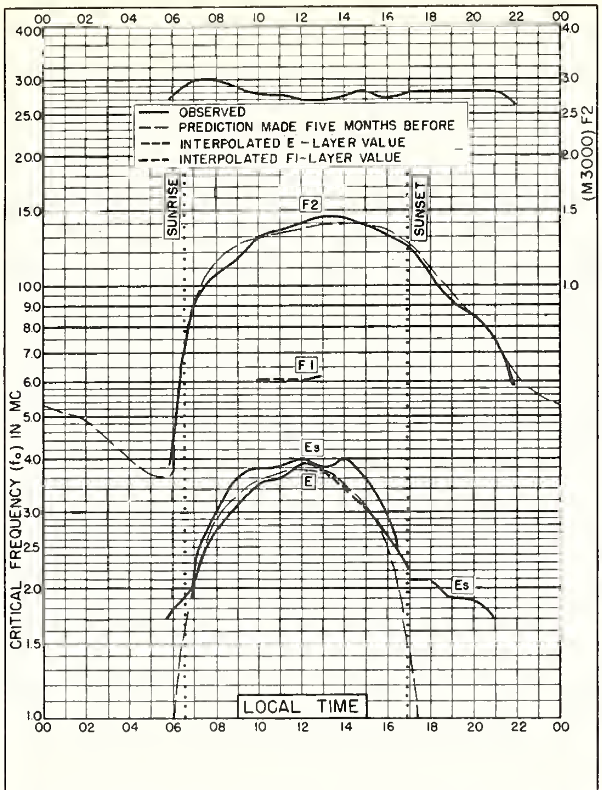


Fig. 69. NANKING, CHINA
32. 1°N, 119. 0°E NOVEMBER 1948

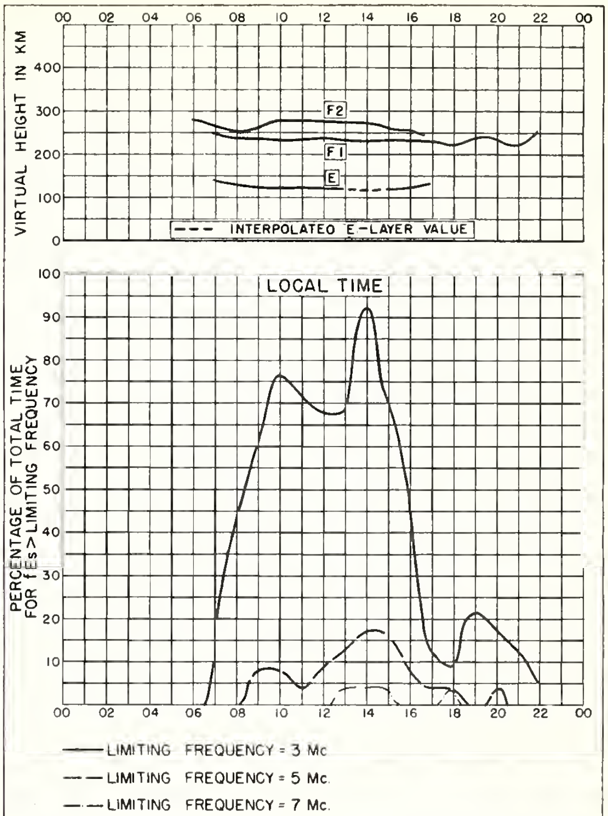


Fig. 70. NANKING, CHINA NOVEMBER 1948

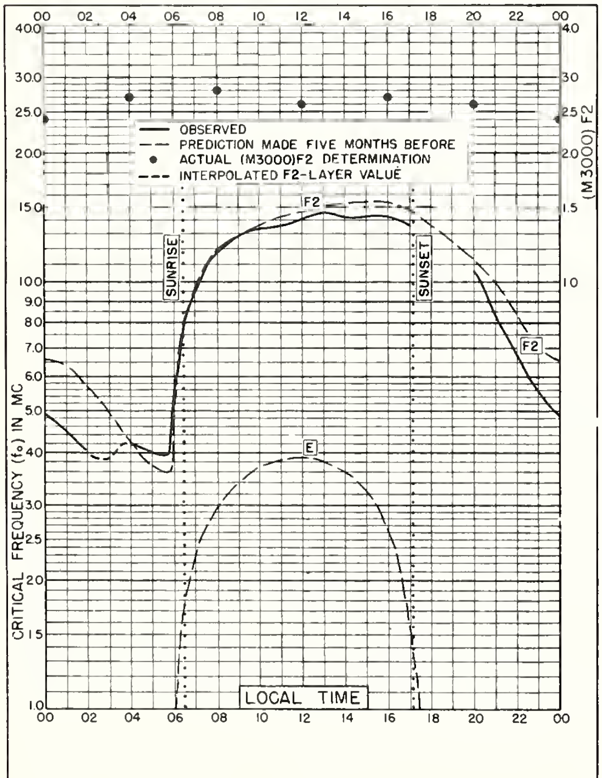


Fig 71. DELHI, INDIA
28. 6°N, 77.1°E NOVEMBER 1948

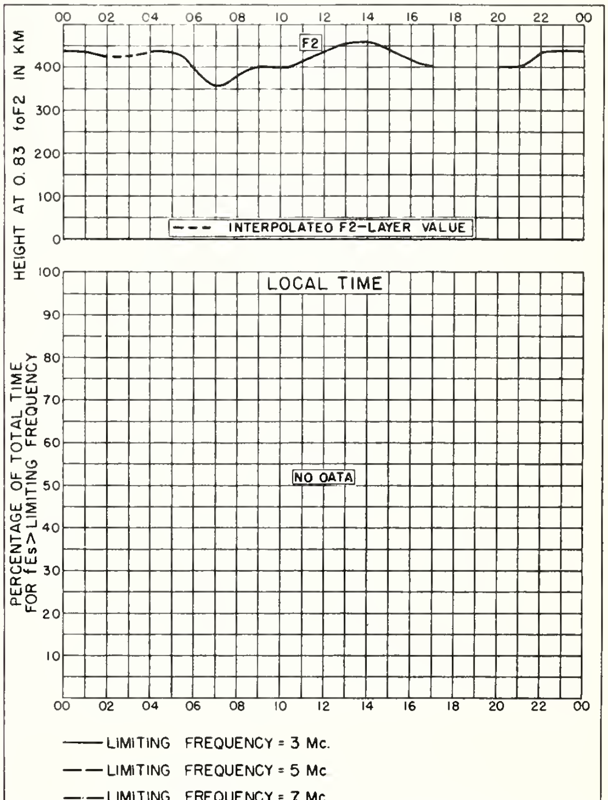


Fig. 72. DELHI, INDIA NOVEMBER 1948

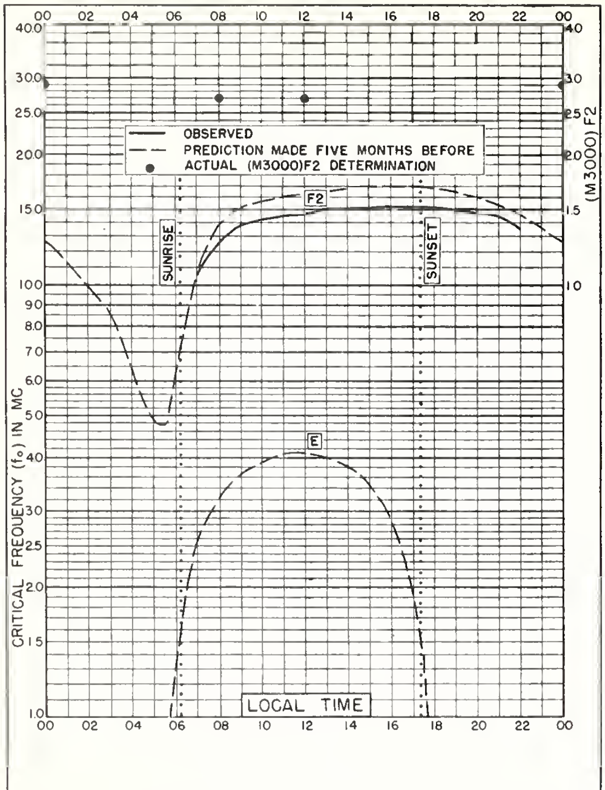


Fig. 73. BOMBAY, INDIA
19.0°N, 73.0°E NOVEMBER 1948

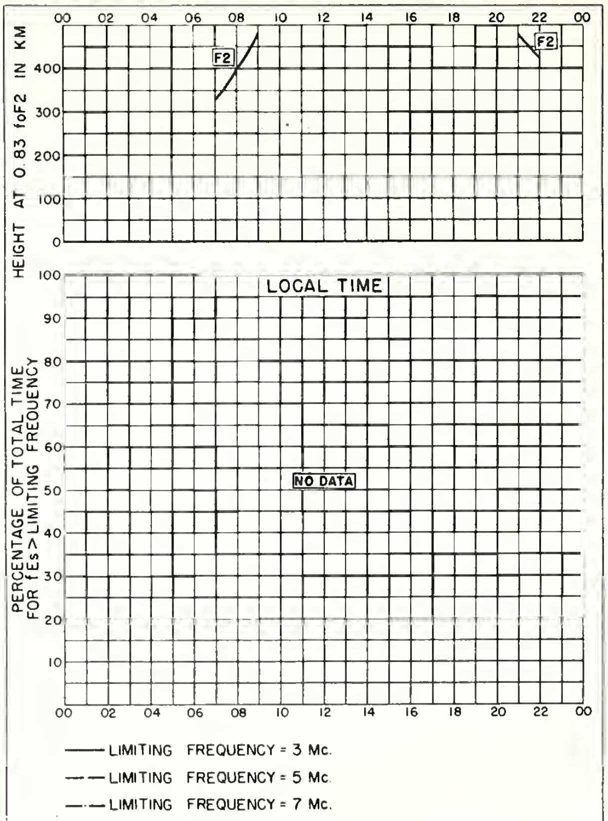


Fig. 74. BOMBAY, INDIA NOVEMBER 1948

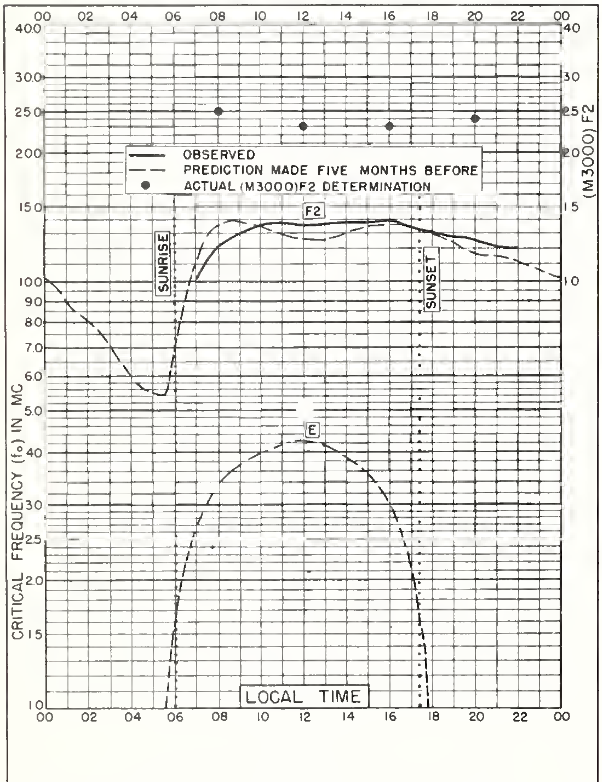


Fig. 75. MADRAS, INDIA
13.0°N, 80.2°E NOVEMBER 1948

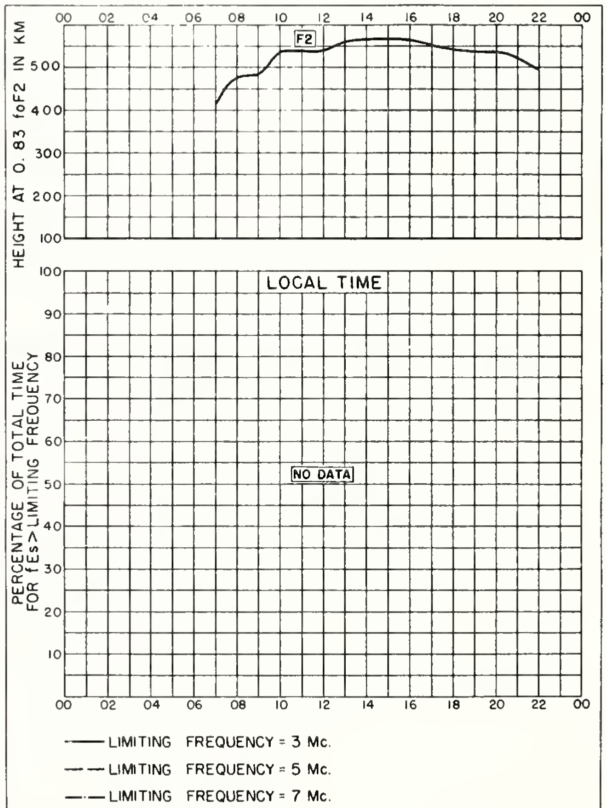


Fig. 76. MADRAS, INDIA NOVEMBER 1948

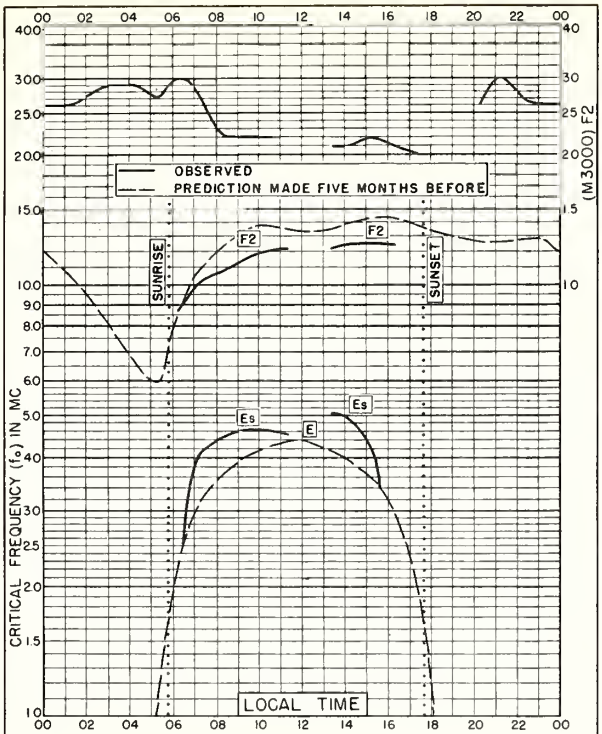


Fig. 77. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E NOVEMBER 1948

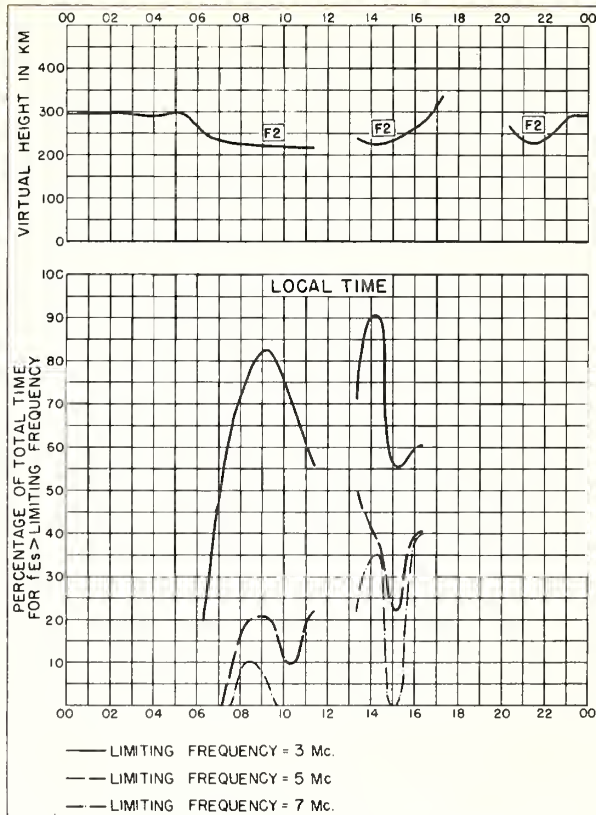


Fig. 78. SINGAPORE, BRITISH MALAYA NOVEMBER 1948

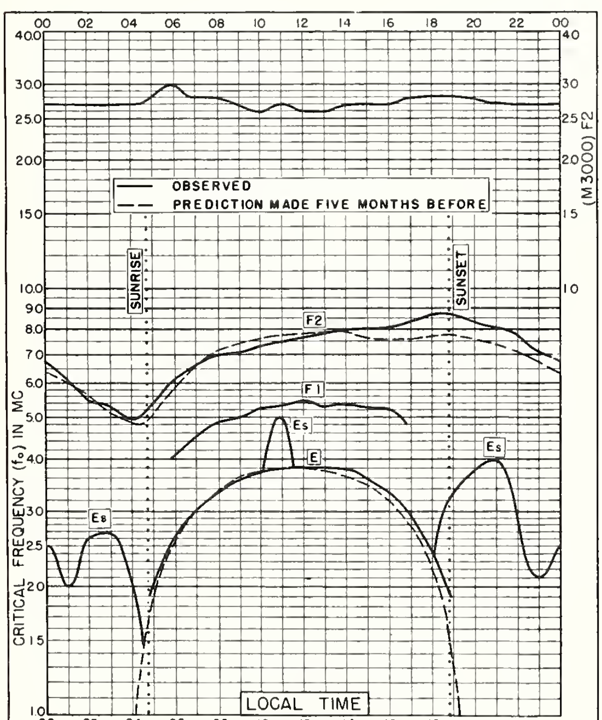


Fig. 79. HOBART, TASMANIA
42.8°S, 147.4°E NOVEMBER 1948

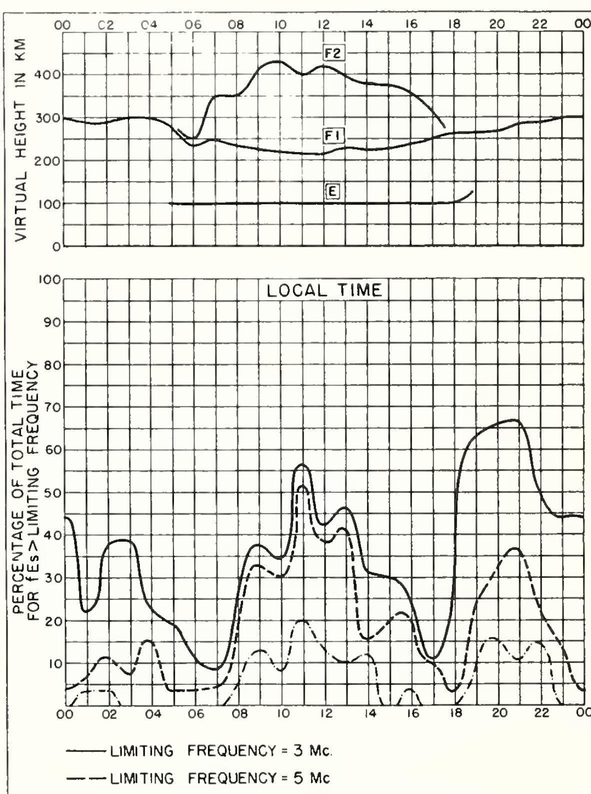


Fig. 80. HOBART, TASMANIA NOVEMBER 1948

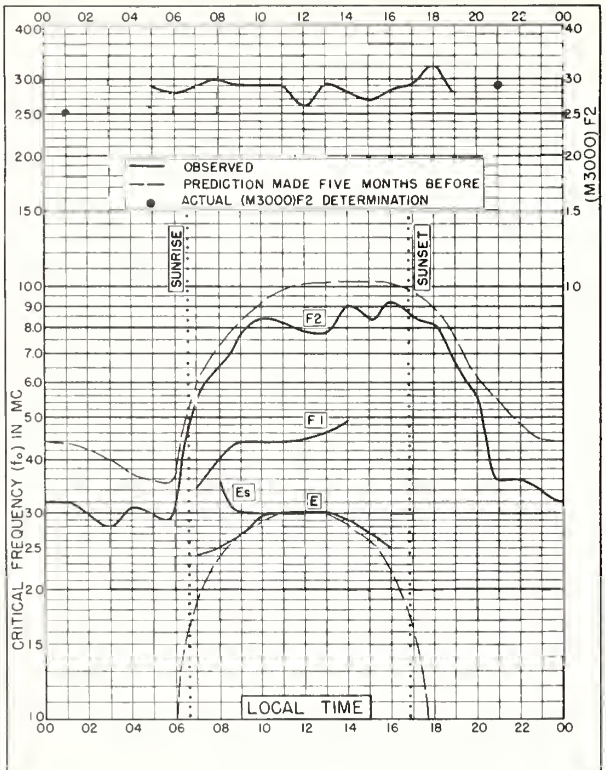


Fig 81. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W OCTOBER 1948

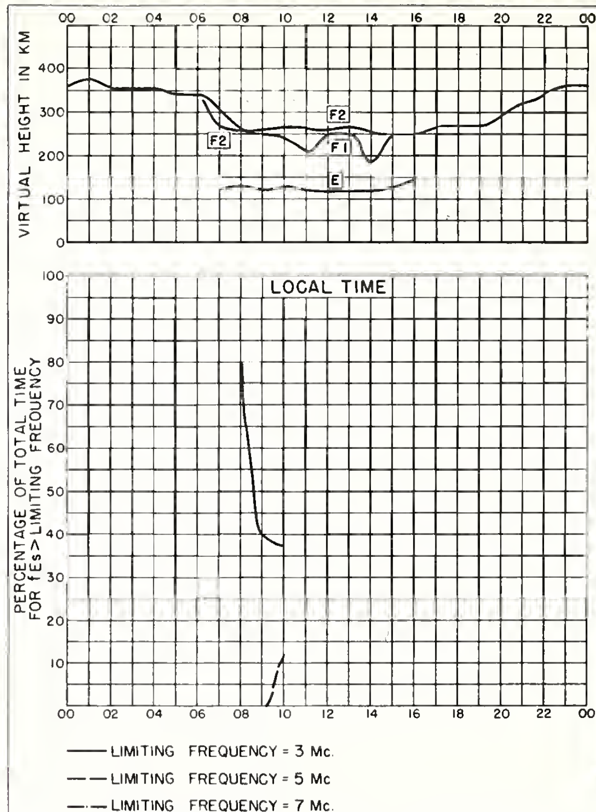


Fig. 82. FRASERBURGH, SCOTLAND OCTOBER 1948

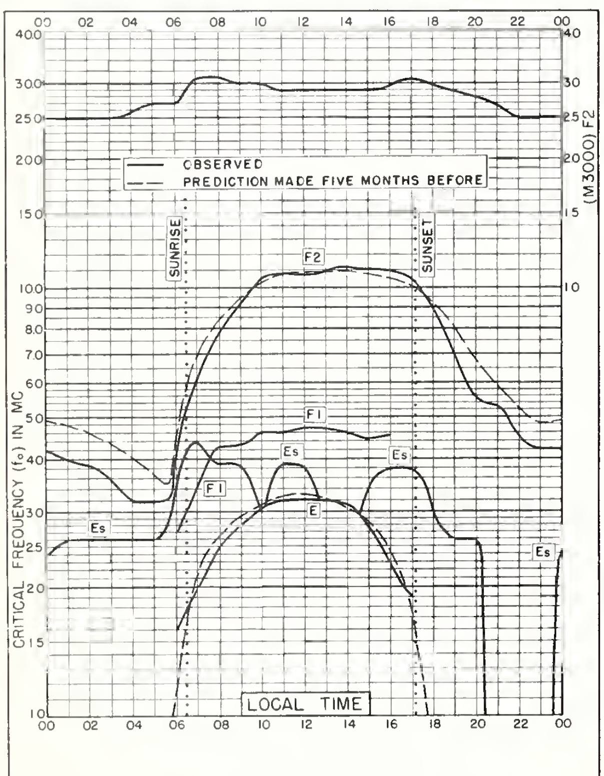
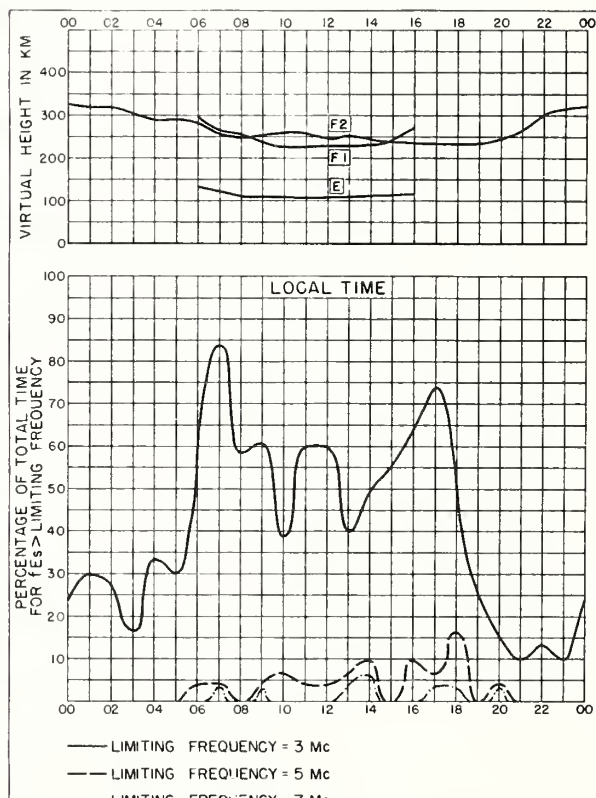


Fig. 83. SLOUGH, ENGLAND
51.5°N, 0.6°W OCTOBER 1948



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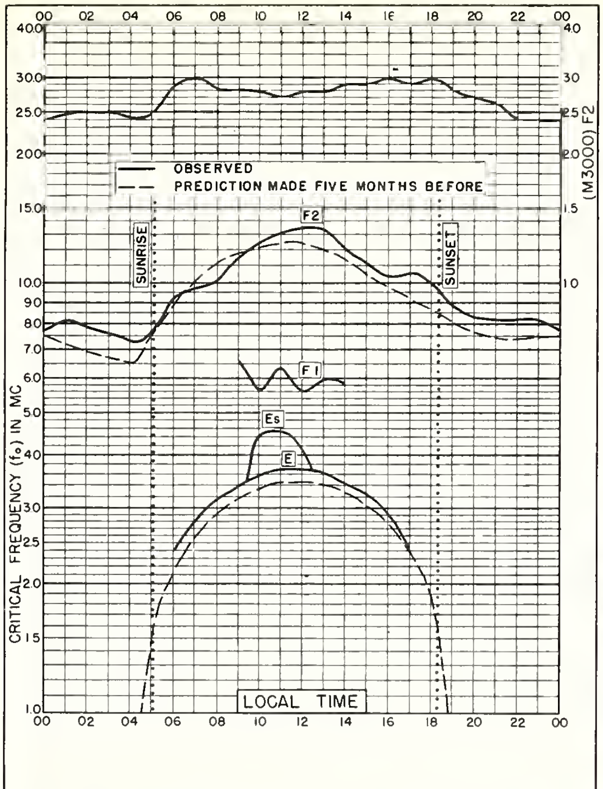

Fig. 85. FALKLAND IS.
51.7°S, 57.8°W OCTOBER 1948

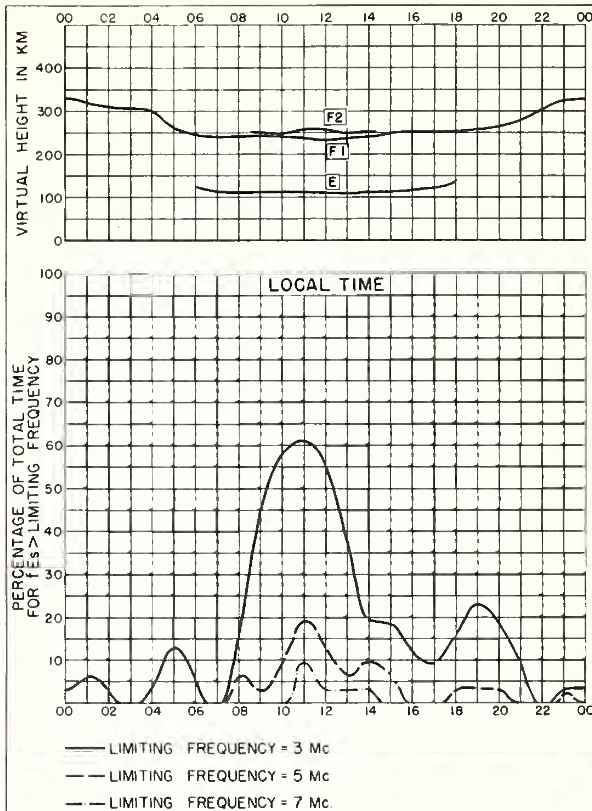

Fig. 86. FALKLAND IS. OCTOBER 1948

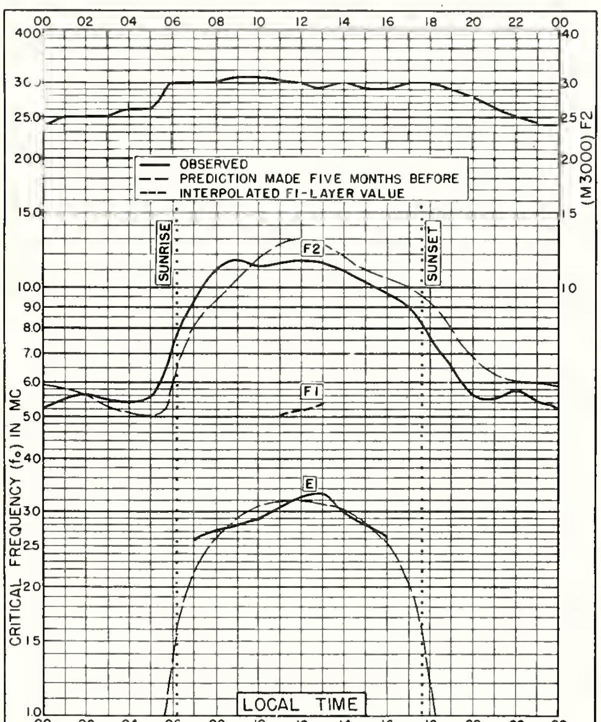

Fig. 87. FALKLAND IS.
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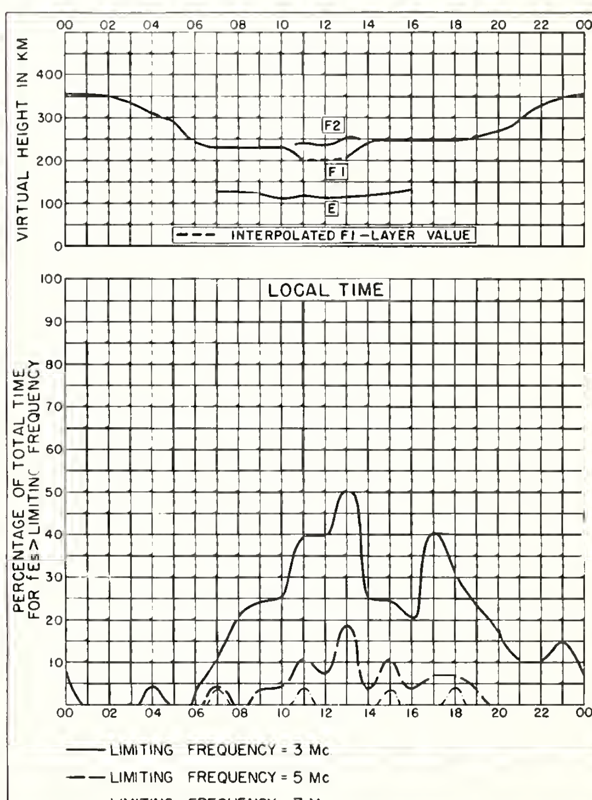


Fig. 88. FALKLAND IS. SEPTEMBER 1948

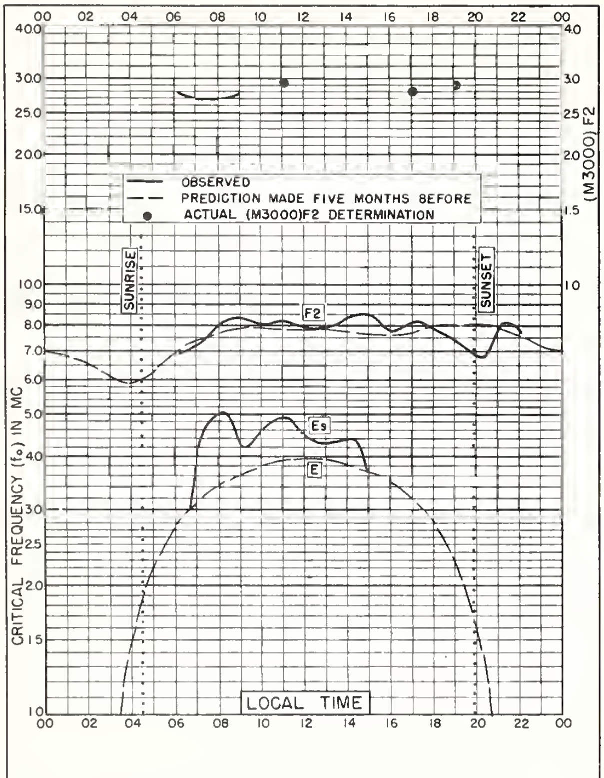


Fig. 89. BAGNEUX, FRANCE
48.8°N, 2.3°E JULY 1948

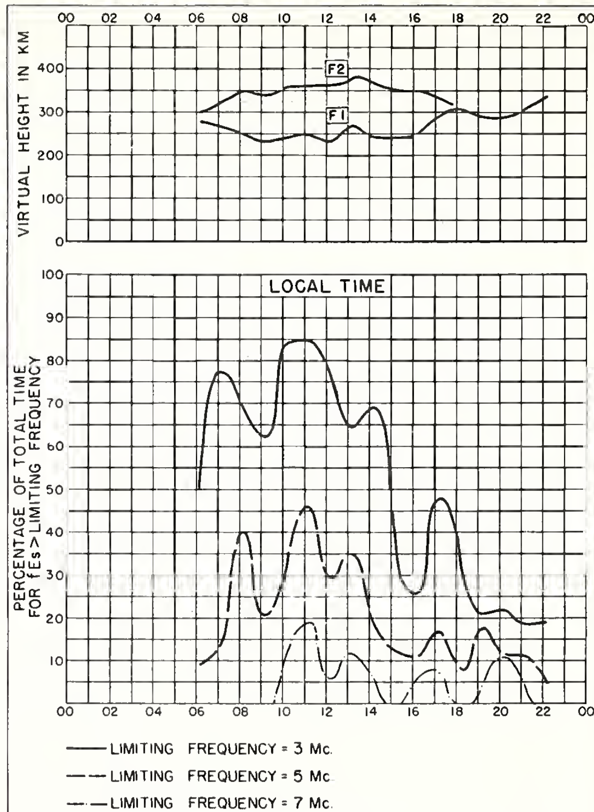
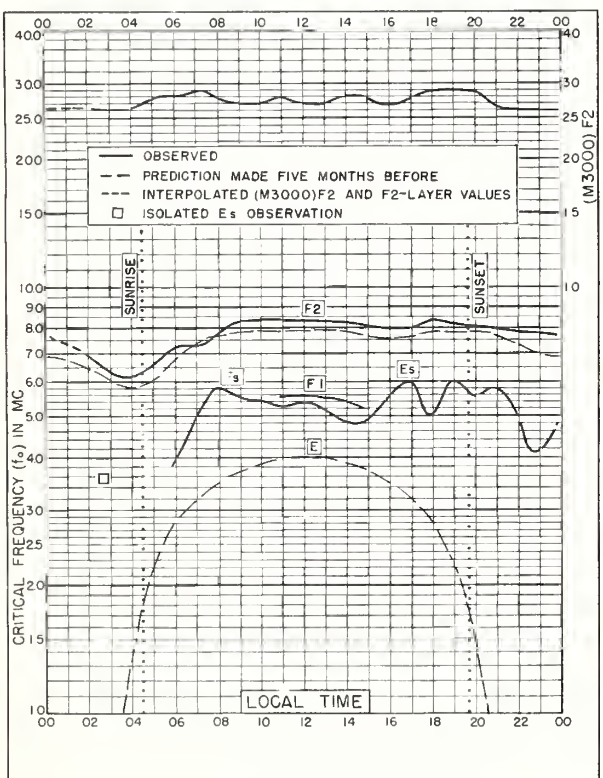


Fig. 90. BAGNEUX, FRANCE JULY 1948



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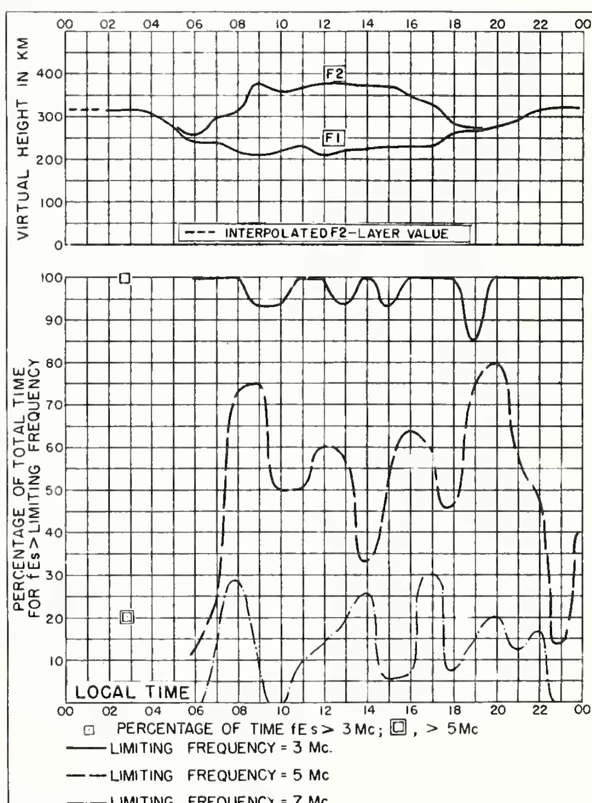

Fig. 92. POITIERS, FRANCE JULY 1948

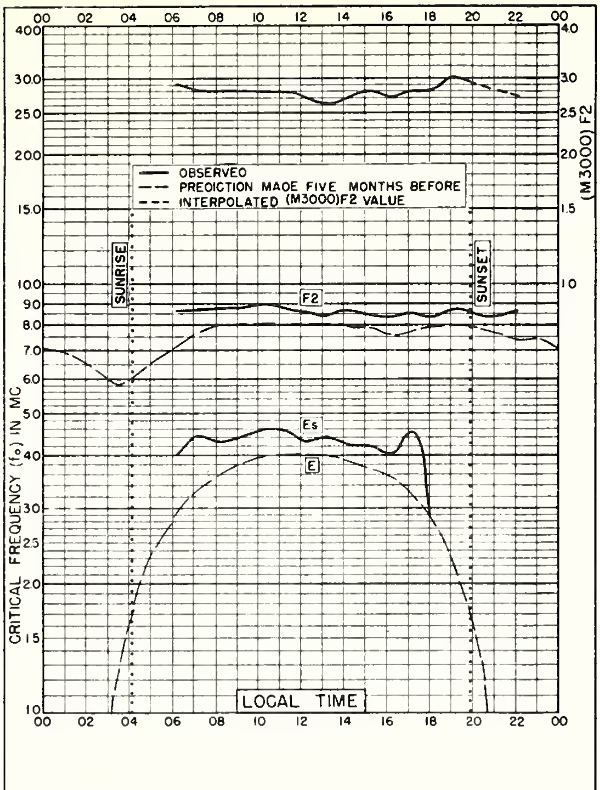

Fig. 93. BAGNEUX, FRANCE
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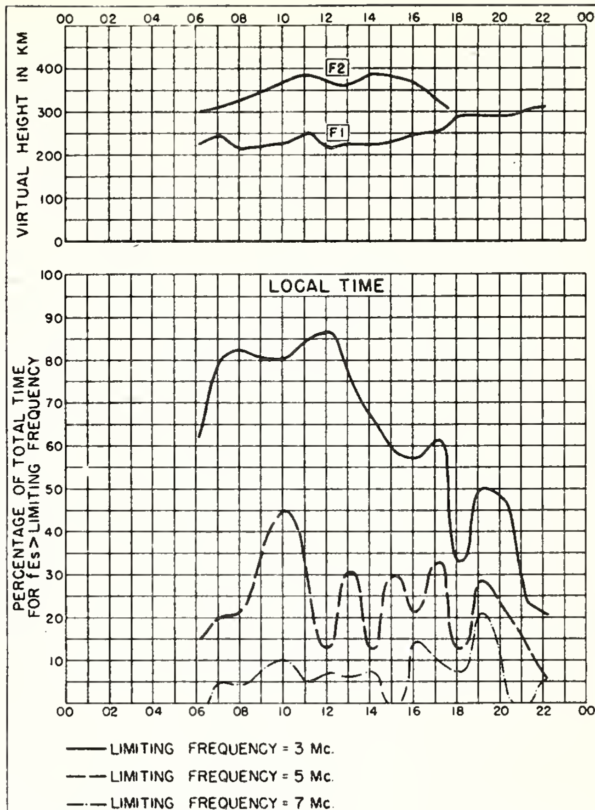

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CRPL and IRPL Reports

[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

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

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

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

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

Quarterly:
*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL–H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:
NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:
IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL–R. Nonscheduled reports:
- R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
- R5. Criteria for Ionospheric Storminess.
- R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
- R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
- R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.
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- R14. A Graphical Method for Calculating Ground Reflection Coefficients.
- R15. Predicted Limits for *F*2-layer Radio Transmission Throughout the Solar Cycle.
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- R17. Japanese Ionospheric Data—1943.
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IRPL–T. Reports on tropospheric propagation:
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- T2. Radar coverage and weather. (Superseded by JANP 102.)

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