CRPL-F 92

IONOSPHERIC DATA

ISSUED

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, 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 Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

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.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T 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.

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 foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (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 E or G (and B when applied to the daytime E region only) 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 F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

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

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

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 or less than the corresponding values of foE. 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 Number							
	1952	1951	1950	1949	1948	1947	1946	1945
December		53	86	108	114	126	85	38
November		52	87	112	115	124	83	36
October		52	90	114	116	119	81	23
September		54	91	115	117	121	79	22
August		57	96	111	123	122	77	20
July		60	101	108	125	116	73	
June		63	103	108	129	112	67	
May		68	102	108	130	109	67	
April		74	101	109	133	107	62	
March	52	78	103	111	133	105	51	
February	51	82	103	113	133	90	46	
January	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 56 and figures 1 to 112 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
- Brisbane, Australia
- Canberra, Australia
- Hobart, Tasmania

University of Graz:
- Graz, Austria

Defence Research Board, Canada:
    Baker Lake, Canada
    Churchill, Canada
    Fort Chimo, Canada
    Ottawa, Canada
    Prince Rupert, Canada
    Resolute Bay, Canada
    St. John's, Newfoundland
    Winnipeg, Canada

Radio Wave Research Laboratories, National Taiman University, Taipeh, Formosa, China:
    Formosa, China

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

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
    Lindau/Harz, Germany

Radio Regulatory Commission, Tokyo, Japan:
    Akita, Japan
    Tokyo (Kokubunji), Japan
    Wakkanai, Japan
    Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
    Christchurch, New Zealand
    Rarotonga, Cook Is.

Norwegian Defense Research Establishment, Kjeller per Lillestrom, Norway:
    Oslo, Norway
    Tromso, Norway

Research Laboratory of Electronics, Chalmers University of Technology, Gothenburg, Sweden:
    Kiruna, Sweden

Research Institute of National Defence, Stockholm, Sweden:
    Upsala, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
    Schwarzenburg, Switzerland

United States Air Force:
Cocoa, Florida

United States Army Signal Corps:
Adak, Alaska
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Batavia, Ohio (mobile unit)
Baton Rouge, Louisiana (Louisiana State University)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 57 to 68 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, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 69 presents ionosphere character figures for Washington, D. C., during March 1952, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 70 gives provisional radio propagation quality figures for the North Atlantic area, for 01 to 12 and for 13 to 24 GCT, for each day in February 1952. Also indicated in the table are: (1) CRPL radio disturbance warnings for North Atlantic paths, (2) CRPL semi-weekly advance forecasts of probable disturbed periods, and (3) half-day averages of geomagnetic K-indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to CRPL by a method similar to that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," now out of print. The reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day indices are then adjusted to the 1 to 9 quality figure scale. The conversion table was prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution originally determined from analysis of many reports in 1946 made on the 1 to 9 quality figure scale. 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 figures, beginning January 1948, is the weighted mean of the reports received for that period.

These quality figures are, in effect, a consensus of reported radio propagation conditions in the North Atlantic area. The reasons for low quality are not necessarily known and may not be ionospheric storminess alone. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported, frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

Note. The North Pacific quality figures which have been published through October 1951 have been temporarily discontinued. Since the establishment of the North Pacific Radio Warning Service at Anchorage, Alaska, a larger number of reports are being received than were previously available in Washington. The preparation of the quality figures will be resumed when sufficient data have been accumulated for determination of conversion tables for these new reports.

OBSERVATIONS OF THE SOLAR CORONA

Tables 71 through 73 give the observations of the solar corona during March 1952 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 74 through 79 list the coronal observations obtained at Sacramento Peak, New Mexico, during February and March 1952, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 71 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 72 gives similarly the intensities of the first red (6374A) coronal line; and table 73, the intensities of the second red (6702A) coronal line; all observed at Climax in March 1952.

Tables 74 and 77 give the intensities of the green (5303A) coronal line; tables 75 and 78, the intensities of the first red (6374A) coronal line; and tables 76 and 79, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in February and March 1952, respectively.

The following symbols are used in tables 71 through 79: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 80 lists the daily provisional Zürich relative sunspot number, R_Z, as communicated by the Swiss Federal Observatory. Table 81 continues the new series of American relative sunspot numbers, $R_{A'}$. Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into $R_{A'}$. Observatory coefficients for each of the 28 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated $R_{A'}$ rather than R_A. The American relative sunspot numbers appear monthly in these pages, as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

Table 82 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris), and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 83 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

No sudden ionosphere disturbances were observed during the month of March 1952 at Washington, D. C., as shown by table 84.

Table 1

Washington, D. C. (38.7°N, 77.1°W) — March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	3.0						2.9
01	(290)	2.6						2.9
02	280	2.6						2.9
03	280	2.5						3.0
04	280	2.2						3.0
05	(290)	2.2						3.0
06	260	2.5			---	---		3.1
07	240	4.0	230	---	120	1.9		3.3
08	270	4.8	220	3.5	110	2.4		3.4
09	280	5.4	200	3.8	110	2.6		3.1
10	300	5.6	200	4.1	110	2.9		3.1
11	300	6.3	200	4.2	110	3.0		3.1
12	300	6.5	210	4.2	110	3.1		3.1
13	300	6.6	210	4.2	110	3.1		3.1
14	290	7.0	220	4.2	110	3.1		3.1
15	290	6.6	220	4.0	110	2.9		3.2
16	270	6.5	230	3.6	110	2.6		3.1
17	260	6.4	240	---	120	2.2		3.2
18	240	6.1	---	---	---	1.7		3.2
19	230	5.4						3.1
20	240	4.5						3.1
21	250	3.9						3.0
22	270	3.6						2.9
23	280	3.2						2.9

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

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					7.0	---
01	---	---					7.8	---
02	---	(>3.0)					5.8	---
03	---	---					5.2	---
04	---	---					4.4	---
05	---	---					4.2	---
06	---	---					4.9	---
07	---	---					4.8	---
08	---	---					4.6	---
09	---	(3.7)					5.0	(3.2)
10	(240)	4.0					4.7	3.2
11	(250)	4.5					4.4	3.3
12	(260)	4.8					3.2	3.3
13	250	4.8						3.3
14	240	4.9						3.3
15	<250	5.2						3.1
16	240	4.9						3.2
17	250	4.0					1.3	3.2
18	(250)	3.3					2.8	3.2
19	---	(2.5)					4.0	(3.1)
20	---	---					4.4	---
21	---	---					4.6	---
22	---	---					5.3	---
23	---	---					7.1	---

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 3

Tromso, Norway (69.7°N, 19.0°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.8	---
01	---	---					4.3	---
02	(400)	(2.8)					4.0	(2.7)
03	(365)	2.8					4.2	2.8
04	340	2.6					3.2	3.0
05	(310)	2.8					3.2	(3.0)
06	(310)	2.4			---	---	3.0	3.0
07	280	2.5			---	---	2.6	3.1
08	260	3.1			---	---	2.5	3.2
09	240	4.2			110	(1.8)	2.0	3.4
10	250	4.8	---	---	105	(1.9)		3.4
11	240	5.4	245	---	---	2.0		3.4
12	240	5.4	245	---	---	---		3.3
13	245	5.2	250	---	---	---		3.3
14	245	4.8	---	---	---	(1.9)		3.4
15	245	4.1	---	---	110	1.8	2.5	3.3
16	240	3.9			115	1.6	2.6	3.4
17	245	3.4			---	(1.3)	3.4	3.3
18	(280)	2.9			---	---	4.2	3.2
19	(345)	(2.5)					4.3	(3.0)
20	(290)	(2.5)					4.0	(3.0)
21	---	---					4.6	---
22	---	---					3.9	---
23	---	---					4.4	---

Time: 15.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Anchorage, Alaska (61.2°N, 149.9°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.6					2.6	3.0
01	330	2.2					2.0	3.0
02	320	2.4					2.9	(2.9)
03	360	2.5					2.5	2.8
04	330	2.4					2.9	2.8
05	360	2.6					2.1	(2.8)
06	340	2.3					1.5	(2.7)
07	280	2.6						3.0
08	260	3.4	---	---	---	---		3.3
09	250	4.3	230	---	---	---		3.3
10	250	4.9	220	---	---	---		3.3
11	250	5.5	230	3.5	---	---		3.3
12	260	5.5	220	(3.5)	110	2.5		3.4
13	260	5.8	230	3.6	110	2.4		3.3
14	240	6.0	230	---	110	2.3		3.3
15	240	5.9	230	---	---	---		3.4
16	230	5.6	---	---	---	---		3.4
17	230	5.4			---	---		3.4
18	230	4.4						3.4
19	250	2.6						3.3
20	270	2.2						3.2
21	300	2.2					1.8	3.1
22	(300)	2.0					4.3	(3.2)
23	<310	2.4					2.4	3.1

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 5

Narsarssuak, Greenland (61.2°N, 45.4°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.4	---
01	---	---					5.0	---
02	---	---					4.8	---
03	---	---					4.6	---
04	---	---					4.5	---
05	(<400)	(2.8)					4.0	(2.7)
06	(370)	(2.3)					3.4	(2.8)
07	(340)	(2.5)					(1.5)	(2.8)
08	310	3.8						3.0
09	310	4.7	---	---	---	---		3.0
10	320	4.9	300	---	---	---		3.0
11	320	5.2	270	---	140	(2.5)		3.0
12	380	5.2	300	3.4	(150)	---		2.8
13	370	5.0	(300)	(3.4)	---	---		2.8
14	350	(4.6)	(300)	(3.3)	(150)	---		(2.9)
15	310	4.4	300	---	(150)	(2.1)		2.8
16	(320)	(4.0)	---	---	---	---	2.8	(2.9)
17	(320)	(3.5)			---	---	4.0	(2.9)
18	340	(3.1)					5.1	(2.7)
19	(360)	(2.8)					4.8	(2.7)
20	(340)	(3.2)					4.8	(2.8)
21	(320)	---					4.6	---
22	(350)	(2.6)					5.8	(3.0)
23	---	---					6.4	---

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 6

Oslo, Norway (60.0°N, 11.1°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	2.3						2.9
01	330	2.6						2.9
02	330	2.6					2.2	(2.9)
03	330	2.4					1.3	3.0
04	325	2.2						3.0
05	310	2.2						3.0
06	300	2.1						3.1
07	275	2.4			---	E		3.1
08	240	3.5			125	1.5		3.2
09	235	4.4	225	---	125	1.8	1.9	3.4
10	240	5.3	225	3.2	125	2.1	3.2	3.4
11	240	5.6	225	3.4	110	2.2		3.4
12	240	5.8	220	3.5	125	2.3	3.0	3.4
13	230	6.0	220	3.3	125	2.3	2.1	3.4
14	230	6.0	220	3.4	125	2.2		3.4
15	230	5.8	225	---	130	2.0		3.4
16	225	5.6	---	---	140	1.8		3.4
17	220	4.9			---	E		3.4
18	225	4.2			---	E		3.2
19	250	3.0						3.1
20	300	2.3						3.0
21	325	2.3						3.0
22	325	2.3						2.9
23	325	2.3						2.8

Time: 15.0°E.
Sweep: 1.3 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 7

Upsala, Sweden (59.8°N, 17.6°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.0					2.4	(2.6)
01	340	2.0					2.3	(2.6)
02	340	2.0					2.4	---
03	315	2.1					2.6	(2.7)
04	310	2.0					2.3	2.7
05	300	2.0					2.5	(2.6)
06	300	1.9					2.4	(2.7)
07	275	2.6			---	E	2.4	2.8
08	250	4.0	---	---	---	E		3.2
09	250	5.0	230	3.1	120	2.0		3.3
10	250	5.3	230	3.4	120	2.2		3.3
11	245	6.0	230	3.5	120	2.4		3.3
12	250	6.2	230	3.5	125	2.3		3.3
13	240	6.1	225	3.4	130	2.3		3.3
14	240	6.2	230	3.3	125	2.2		3.3
15	235	5.6	225	2.9	---	2.0		3.3
16	230	5.3	---	---	---	1.8		3.3
17	230	4.6	---	---	---	E		3.2
18	250	4.0						3.1
19	255	2.4						2.9
20	300	2.0						(2.9)
21	340	2.1						(2.8)
22	350	2.0						(2.8)
23	330	2.0						---

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 8

Adak, Alaska (51.9°N, 176.6°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(2.9)						(3.0)
01	290	(2.8)						(2.9)
02	290	(2.8)						(2.9)
03	280	(2.9)					1.8	(3.0)
04	280	(2.8)						(3.0)
05	260	(2.7)						(3.0)
06	260	(2.6)					2.0	(3.0)
07	240	3.5	---	---	130	(1.6)	1.8	3.2
08	230	5.2	250	---	120	2.0	2.3	3.4
09	240	6.0	230	3.6	120	(2.3)	2.4	3.3
10	250	7.0	230	3.8	120	(2.6)	1.5	3.3
11	260	7.4	230	(3.9)	120	2.6		3.3
12	250	7.4	220	(3.9)	120	2.8	2.0	3.3
13	250	7.4	230	(4.0)	110	(2.7)	1.4	3.3
14	240	7.6	230	---	120	(2.5)	1.3	3.4
15	240	7.0	240	---	120	(2.4)		3.4
16	230	6.6	---	---	130	2.0		3.4
17	220	5.8			---	E	1.7	3.4
18	220	4.2					1.7	3.5
19	230	3.1						3.4
20	250	2.6						3.2
21	270	2.5						3.1
22	280	(2.5)						(3.0)
23	280	(2.8)						(3.0)

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 9

Graz, Austria (47.1°N, 15.5°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)							
01	(300)							
02	(300)							
03	(300)							
04	290	3.0						
05	(285)	2.7						
06	(280)	2.3						
07	250	3.6						
08	210	5.3		3.3		E		
09	220	6.0	210	3.6		2.7		
10	230	6.9	200	3.7		2.9		
11	240	7.0	200	3.9	(110)	3.0		
12	240	7.0	200	4.0	110	3.0		
13	245	6.6	200	3.9	110	3.0		
14	230	6.9	210	3.9		3.0		
15	230	6.8	220	3.7		2.8		
16	210	6.2				E		
17	210	5.9						
18	240	5.0						
19	250	4.2						
20	260	3.6						
21	290	3.4						
22	(270)							
23	(300)							

Time: 15.0°E.
Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 10

Batavia, Ohio (39.1°N, 84.1°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	2.8						2.9
01	(300)	2.7						2.8
02	(270)	2.7						2.9
03	(260)	2.7						2.9
04	(270)	2.6						2.9
05	(260)	2.4						(2.9)
06	---	2.5						(2.9)
07	---	2.6						3.0
08	230	4.6			---	---		3.3
09	240	5.4	210	---	120	(2.3)		3.4
10	260	6.2	210	(3.8)	(110)	2.6		3.2
11	270	7.0	200	4.0	(110)	(2.8)		3.2
12	270	7.6	200	4.2	110	(2.9)		3.2
13	270	7.5	200	4.2	110	(2.9)		3.2
14	270	7.6	210	(4.2)	110	(3.0)		3.1
15	270	7.7	220	4.0	110	2.8		3.2
16	250	7.5	220	(3.6)	120	2.6		3.3
17	230	7.0	230	---	(120)	2.2		3.3
18	220	6.0			---	---		3.3
19	210	5.1						3.2
20	(230)	4.4						3.2
21	(240)	3.4						3.1
22	(260)	3.2						3.0
23	(280)	2.8						3.0

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

Table 11

San Francisco, California (37.4°N, 122.2°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(260)	3.2						3.0
01	250	3.2						3.0
02	270	3.2						3.0
03	250	3.2						3.1
04	260	3.2						3.1
05	260	3.0						3.0
06	260	3.0						3.0
07	250	4.1					2.9	3.2
08	230	6.0	220	---	---	2.0	2.6	3.4
09	250	6.6	220	3.8	120	2.6		3.4
10	270	7.5	220	4.2	110	2.9	3.6	3.2
11	270	8.6	210	4.3	120	3.1	2.6	3.2
12	270	8.8	210	4.4	110	3.2	3.1	3.2
13	260	8.6	210	4.3	120	3.2	3.2	3.2
14	260	8.6	210	4.2	120	3.0	2.7	3.2
15	250	8.3	220	4.0	120	2.9	3.4	3.3
16	230	7.4	220	---	120	2.6	3.6	3.4
17	220	6.7			---	2.0	2.6	3.4
18	220	5.4					2.6	3.4
19	220	4.0					2.5	3.4
20	240	3.1					2.6	3.3
21	(260)	2.9						3.0
22	270	3.0						3.0
23	270	3.2						3.0

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 12

White Sands, New Mexico (32.3°N, 106.5°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.4					2.0	3.0
01	260	3.4						3.0
02	250	3.6						3.1
03	240	3.6						3.2
04	250	3.3						3.2
05	250	3.0						3.0
06	270	3.1						3.0
07	240	4.7					2.3	3.3
08	230	6.2	230	---	110	2.2	2.2	3.6
09	250	7.0	220	---	100	2.7	3.0	3.4
10	260	7.8	210	4.1	110	2.9	3.4	3.3
11	270	8.5	220	4.4	110	3.1	3.4	3.1
12	270	9.0	210	4.4	110	3.2	3.5	3.2
13	270	8.6	210	4.3	110	3.2	3.4	3.2
14	260	8.7	220	4.2	110	3.1	3.8	3.2
15	250	8.3	220	4.0	110	3.0	3.1	3.3
16	240	8.0	220	---	110	2.6	3.5	3.4
17	220	7.2	---	---	110	2.0	2.9	3.4
18	210	5.6					2.6	3.4
19	220	4.2					2.3	3.4
20	240	3.2						3.2
21	260	3.0						3.0
22	270	3.2						3.0
23	270	3.3						3.0

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 13

Baton Rouge, Louisiana (30.5°N, 91.2°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.9
01	290	3.5						3.0
02	270	3.6						3.0
03	270	3.6						3.0
04	250	3.5						3.1
05	260	3.2						3.0
06	300	3.2						2.9
07	250	5.0					2.3	3.3
08	250	6.5	240	---	130	2.2	3.7	3.4
09	260	7.0	240	---	120	2.7	4.8	3.3
10	280	7.8	220	4.3	120	(2.9)	5.1	3.1
11	290	8.4	220	4.4	120	3.1	5.6	3.1
12	290	8.5	230	4.5	120	3.2	4.2	3.1
13	290	8.7	230	4.5	120	3.2	3.9	3.1
14	280	8.7	230	4.4	120	3.1	4.1	3.1
15	280	8.4	230	(4.3)	120	2.9	4.0	3.1
16	260	8.1	240	---	120	2.6	3.4	3.2
17	240	7.5	---	---	---	---	3.3	3.3
18	230	6.2					2.8	3.3
19	240	4.2						3.1
20	260	3.4					1.8	3.0
21	280	3.0					2.2	3.0
22	300	3.3						2.9
23	290	3.5					2.0	3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 14

Cocoa, Florida (28.2°N, 80.6°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.7						2.8
01	280	3.7						2.9
02	280	3.8						2.9
03	260	3.9						3.0
04	260	3.8						3.0
05	260	3.4						2.9
06	290	3.3						2.8
07	260	4.2					2.7	3.1
08	250	6.2	250	---	130	2.0		3.3
09	260	7.2	240	3.6	120	2.5		3.2
10	280	7.6	230	4.0	120	(2.8)		3.1
11	300	8.2	220	4.4	120	3.1		3.0
12	290	9.1	220	4.4	120	(3.2)		3.1
13	290	8.7	230	(4.4)	120	3.2		3.0
14	290	9.0	230	(4.3)	120	3.1		3.0
15	290	8.6	230	(4.2)	120	3.0		3.1
16	270	8.2	240	---	120	2.7	3.1	3.1
17	250	8.0	240	---	130	2.3	2.[illegible]	3.2
18	230	7.0					2.8	3.3
19	230	5.2					2.7	3.2
20	240	3.8						3.0
21	270	3.6						2.9
22	290	3.5					1.8	2.8
23	290	3.7						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 15

Okinawa I. (26.3°N, 127.8°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.8						2.8
01	280	3.4						2.9
02	(290)	3.6						3.0
03	260	3.4						3.2
04	260	2.6					1.6	3.0
05	(300)	2.4						2.8
06	(340)	2.5						2.8
07	270	5.2	---	---	---	---		3.2
08	260	7.1	260	---	120	2.3		3.2
09	280	8.0	250	---	120	2.9	3.3	3.2
10	310	9.6	250	---	120	3.1	3.7	3.1
11	300	10.0	240	---	120	3.3	4.5	3.0
12	310	10.9	240	(4.5)	120	3.3	4.5	3.0
13	300	11.7	240	(4.6)	120	3.3	4.2	3.1
14	280	11.5	240	---	120	3.2	4.1	3.1
15	270	10.2	240	---	120	3.1	3.8	3.1
16	270	8.9	240	---	120	(2.6)	3.5	3.1
17	250	8.0	---	---	130	2.0	2.2	3.2
18	240	7.2						3.2
19	240	6.1						3.0
20	250	5.5						2.9
21	260	5.0						3.0
22	270	(4.6)						2.9
23	(320)	4.1						2.8

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Maui, Hawaii (20.8°N, 156.5°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.9					1.7	2.8
01	270	3.1						3.0
02	270	3.2					1.6	3.1
03	250	3.4						3.4
04	250	2.5						3.2
05	250	2.1					1.4	3.1
06	300	1.9					1.4	2.8
07	270	4.1						3.0
08	260	6.4	240	---	120	2.3		3.2
09	(290)	7.9	240	---	120	2.7		3.0
10	300	9.7	230	(4.6)	120	3.1	4.5	3.0
11	300	10.8	220	(4.7)	120	3.2	4.2	3.0
12	300	12.0	220	4.7	120	3.3	4.1	3.0
13	310	12.7	220	4.7	120	3.4	4.0	3.0
14	290	13.4	230	4.5	120	3.3	4.2	3.0
15	270	12.5	230	4.5	120	3.1	4.4	3.1
16	250	11.3	230	4.1	120	2.8	3.6	3.1
17	240	10.0	230	---	120	2.4	3.7	3.3
18	230	7.8			---	---	2.8	3.5
19	220	5.4					2.7	3.4
20	240	3.9					2.4	3.2
21	260	3.6					2.1	3.0
22	270	3.6					2.4	3.1
23	270	3.1					1.8	2.9

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 17

Puerto Rico, W.I. (18.5°N, 67.2°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.9						3.0
01	250	4.0						3.1
02	230	4.3					2.0	3.3
03	230	4.2					2.6	3.3
04	230	3.6					2.4	3.2
05	280	3.4					2.1	2.9
06	260	3.3					2.2	3.0
07	230	4.4						3.4
08	230	6.4	230	---	110	2.2		3.4
09	250	7.4	220	---	100	2.7		3.4
10	260	8.1	220	(4.4)	100	3.1		3.3
11	270	9.1	210	(4.5)	100	3.2		3.3
12	270	9.3	200	4.6	100	3.3	4.5	3.3
13	270	9.2	210	(4.5)	100	3.4		3.2
14	270	9.1	210	(4.5)	100	3.3		3.2
15	260	8.7	210	(4.4)	100	3.1	4.1	3.2
16	260	8.4	210	---	100	2.9	3.5	3.1
17	250	8.2	220	---	100	2.5	3.2	3.2
18	220	8.7	240	---	110	---	2.8	3.4
19	210	6.8					2.5	3.4
20	200	4.5					1.9	3.4
21	250	3.6						3.0
22	290	3.6						2.9
23	280	3.9						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 18

Huancayo, Peru (12.0°S, 75.3°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	8.2					4.8	3.1
01	240	6.8					4.7	3.2
02	240	5.2					3.9	3.2
03	240	4.4					4.5	3.3
04	240	4.3					3.3	3.3
05	250	3.9						3.4
06	260	4.6			---	---	4.0	3.2
07	230	7.2			110	2.3	5.8	3.3
08	260	8.7	220	---	110	2.8	8.5	3.1
09	290	9.3	210	4.4	110	---	10.4	2.8
10	310	9.5	200	4.7	100	---	12.0	2.6
11	330	9.0	200	4.7	100	---	12.0	2.5
12	340	8.8	190	4.7	100	---	12.1	2.5
13	340	8.9	190	4.7	100	---	11.9	2.5
14	330	9.1	190	4.6	100	---	11.8	2.6
15	290	9.5	190	---	110	---	10.7	2.6
16	230	10.0	200	---	110	3.1	9.8	2.7
17	220	10.3			110	2.6	7.1	2.7
18	250	10.1			120	---	5.5	2.8
19	270	10.1						2.8
20	270	9.5						2.8
21	270	9.1						3.0
22	260	8.8						3.0
23	270	9.2						3.0

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

Table 19

Resolute Bay, Canada (74.7°N, 94.9°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.8						2.9
01	260	3.0						2.9
02	280	2.8						2.9
03	270	2.8						2.8
04	270	2.8						3.0
05	(300)	3.0						3.0
06	270	3.0						3.0
07	280	2.7						3.0
08	260	3.7						2.8
09	250	3.6						2.8
10	270	3.7						2.9
11	260	3.7						2.9
12	270	3.8						2.9
13	250	3.8						2.9
14	250	3.8						2.8
15	250	3.7						2.9
16	240	3.8						2.8
17	270	3.6						2.8
18	270	3.8						2.8
19	280	3.6						2.8
20	260	3.7						2.8
21	250	3.5						2.8
22	270	3.3						2.9
23	260	3.0						2.8

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 20

Point Barrow, Alaska (71.3°N, 156.8°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					0.9	---
01	---	---					6.6	---
02	---	---					6.0	---
03	---	---					5.0	---
04	---	---					5.2	---
05	---	---					3.8	---
06	---	---					4.3	---
07	---	---					4.6	---
08	---	---					4.5	---
09	---	---					4.3	---
10	---	(3.4)					4.7	---
11	---	3.8					4.0	(3.2)
12	(250)	4.2						3.2
13	(250)	4.4						3.1
14	(250)	4.3						3.2
15	(260)	4.5						3.0
16	260	4.2						3.1
17	(260)	3.4						3.0
18	---	(2.6)					3.2	(3.0)
19	---	---					3.9	---
20	---	---					3.9	---
21	---	(3.0)					4.5	(3.1)
22	---	(3.3)					4.6	(3.0)
23	---	---					5.0	---

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 21

Kiruna, Sweden (67.8°N, 20.5°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.5)					3.8	
01	(330)	(2.6)					4.2	
02	---	---					3.2	
03	---	(2.7)					3.2	
04	---	(2.9)					2.6	
05	(300)	2.2					2.0	
06	---	(2.1)						
07	---	(2.2)						
08	(270)	2.2					1.0	
09	245	3.6						
10	230	4.3						
11	230	5.1						
12	220	5.2						
13	225	5.2						
14	230	4.6						
15	230	3.7						
16	245	3.1						
17	(250)	(2.6)					3.2	
18	---	---					4.3	
19	---	---					4.0	
20	---	---					4.2	
21	---	---					4.2	
22	---	---					4.2	
23	---	---					3.9	

Time: 15.0°E.
Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 22

Baker Lake, Canada (64.3°N, 96.0°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.7					5.7	2.8
01	300	2.6					5.0	2.7
02	300	2.6					5.2	2.7
03	310	2.2					4.4	2.8
04	310	2.7			---	---	5.0	2.8
05	320	2.6			---	---	5.1	2.8
06	300	(2.6)			120	(1.9)	5.0	(2.8)
07	310	2.8			120	2.0	5.3	2.7
08	300	(3.0)			110	2.4	5.0	(2.8)
09	320	3.5			120	(2.5)	1.5	2.8
10	300	4.0	---	---	110	2.5		2.8
11	300	4.6	---	---	110	2.7		2.9
12	300	5.0	---	---	110	2.8		2.8
13	300	5.9	---	---	120	2.8		2.8
14	300	6.8	---	---	120	2.6		2.8
15	290	5.0	---	---	120	2.2		2.8
16	300	4.0			120	2.5		2.7
17	300	3.9			120	(2.0)	6.3	2.7
18	300	3.8			130	2.2	4.8	2.7
19	300	3.6			130	2.0	6.2	2.8
20	300	3.3			---	---	6.0	2.7
21	290	3.0			---	---	5.2	2.8
22	300	2.8			---	---	5.5	2.8
23	300	3.0			---	---	6.3	2.8

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 23

Churchill, Canada (58.8°N, 94.2°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	2.8			130	2.3	7.4	(3.2)
01	(300)	(2.6)			---	---	6.0	(3.2)
02	(290)	3.1			110	3.0	5.8	(3.0)
03	300	(2.8)			---	---	6.0	(3.0)
04	(300)	(2.8)			120	3.1	5.2	---
05	---	(3.5)			110	3.0	5.0	---
06	(380)	(4.0)			120	---	5.0	---
07	(380)	(3.9)			140	3.2	5.0	(2.8)
08	(340)	(3.2)			120	3.0	5.5	(2.9)
09	300	4.0			120	3.0	5.1	3.1
10	280	5.0			110	3.1	2.4	3.2
11	260	5.4			---	---		3.2
12	280	6.0			110	---		3.1
13	260	6.3			120	---		3.2
14	260	6.5			---	2.6		3.1
15	250	6.7			120	2.3		3.1
16	280	6.0			120	2.4		3.0
17	280	5.0			120	3.0		3.0
18	320	4.0			120	2.8	3.0	2.9
19	340	3.8			120	3.0	3.7	2.9
20	350	3.5			120	3.0	5.2	2.8
21	320	(3.6)			120	3.1	5.9	3.0
22	300	3.2			110	2.5	6.1	(3.0)
23	(300)	(3.1)			---	---	7.5	---

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 24

Fort Chimo, Canada (58.1°N, 68.3°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.0)			---	---	5.0	---
01	---	(2.8)			---	---	4.5	---
02	320	2.7			100	2.4	3.9	---
03	---	2.6			100	2.7	4.1	---
04	---	(3.4)			100	3.2	4.0	---
05	---	(2.9)			100	3.1	4.4	---
06	---	(2.9)			100	2.7	4.6	---
07	---	(3.0)			---	---	4.5	---
08	240	4.0			110	2.6	3.7	3.2
09	260	4.7			---	---		3.2
10	250	5.8	---	---	---	---		3.1
11	250	6.5	---	---	100	2.7		3.1
12	250	7.0	---	---	100	2.6		3.0
13	260	6.4			110	2.9		3.0
14	260	5.8			110	2.4		3.0
15	250	4.4			100	2.4		(3.0)
16	270	3.4			100	2.6		(3.0)
17	320	3.2			100	2.6	3.5	(2.6)
18	340	3.2			100	3.0	3.9	---
19	300	3.2			100	2.7	4.8	(2.9)
20	300	2.8			---	---	4.8	---
21	270	2.6			---	---	4.9	(3.0)
22	300	2.5			---	---	6.0	---
23	320	2.5					5.8	---

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

Table 25

Prince Rupert, Canada (54.3°N, 130.3°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	1.5					1.2	3.0
01	300	1.6					1.6	3.0
02	300	1.6					1.2	3.0
03	300	1.5					2.0	3.0
04	330	1.4					2.2	3.0
05	340	1.4					3.8	2.9
06	320	1.8					2.3	3.0
07	300	1.8			---	---	2.2	3.0
08	290	2.0			---	E	1.8	2.9
09	250	3.4			110	1.8	2.0	3.0
10	250	4.6	---	---	110	2.2	2.2	3.2
11	240	5.8	240	---	110	2.3		3.2
12	250	6.0	240	---	110	2.4	2.0	3.2
13	250	6.5	240	---	120	2.5	2.6	3.1
14	250	6.8	240	---	110	2.4	2.5	3.2
15	240	6.4	250	---	120	2.3	2.3	3.3
16	230	6.0	---	---	120	2.1	2.0	3.2
17	230	5.3			---	1.6	2.0	3.1
18	220	4.1			---	E	1.5	3.1
19	220	3.4					1.5	3.1
20	240	2.0					1.5	3.0
21	270	1.9					1.4	3.0
22	280	1.8					1.5	3.0
23	300	1.6					1.4	3.0

Time: 120.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 26

Adak, Alaska (51.9°N, 176.6°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.8					1.5	3.0
01	280	2.7					2.3	3.0
02	290	2.7					1.2	(2.9)
03	290	2.8					1.8	2.8
04	280	2.8						3.0
05	250	(2.8)						(3.1)
06	240	(2.3)						3.1
07	250	2.4						3.2
08	230	4.5	---	---	120	1.8	1.9	3.4
09	230	6.2	---	---	120	2.1	2.7	3.4
10	230	6.8	240	---	120	2.3		3.4
11	230	6.9	230	---	120	(2.3)		3.4
12	230	7.0	220	---	120	---		3.3
13	230	7.4	240	---	---	---		3.4
14	230	7.0	240	---	---	---		3.4
15	220	6.2	---	---	---	---		3.5
16	220	5.1	---	---	---	---	1.2	3.4
17	220	4.3					1.4	3.2
18	220	3.1						3.4
19	230	2.3						3.4
20	<250	2.0						3.2
21	260	2.2						3.0
22	<280	2.4						2.9
23	290	(2.6)						(2.9)

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 27

Lindau/Harz, Germany (51.6°N, 10.1°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.7					2.6	2.8
01	280	2.8					2.7	2.8
02	280	2.6					2.8	2.8
03	280	2.4					2.9	2.8
04	270	2.1					2.8	2.9
05	280	1.9					3.4	3.0
06	290	2.0					3.2	3.0
07	280	1.9					3.1	3.0
08	230	3.7					2.7	3.2
09	210	5.6			130	1.8	3.5	3.4
10	210	6.6			110	2.3	3.9	3.4
11	210	>6.6			120	2.4	3.8	3.5
12	210	7.0			110	2.6	2.8	3.5
13	220	7.0			<120	2.6	2.8	3.4
14	220	7.1			110	2.5	2.8	3.4
15	210	6.6			110	2.2	3.7	3.5
16	210	5.8			130	1.7	3.2	3.4
17	210	5.5					3.1	3.3
18	220	4.2					2.7	3.3
19	240	3.0					2.3	3.1
20	270	2.5					2.5	2.9
21	300	2.5					2.5	2.8
22	300	2.6					2.4	2.8
23	310	2.6					2.4	2.8

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 28

Winnipeg, Canada (49.9°N, 97.4°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(2.5)						(2.8)
01	310	(2.3)					2.3	(2.8)
02	(290)	(2.3)					3.0	(2.7)
03	300	2.5					3.0	2.8
04	(300)	2.4					3.2	(2.9)
05	300	2.2					2.9	(2.9)
06	(310)	(2.1)					3.2	---
07	(310)	(2.3)						---
08	280	3.0						3.0
09	240	4.6	---	---	---	---		3.2
10	250	5.6	210	---	120	2.3		3.2
11	260	6.4	220	---	120	2.6		3.2
12	260	7.0	220	---	120	2.6		3.2
13	260	7.2	220	---	---	---		3.2
14	260	7.3	230	---	---	---		3.1
15	250	7.3	230	---	---	---		3.2
16	230	6.8	---	---	---	---		3.3
17	230	6.2						3.1
18	240	5.2						3.0
19	240	4.1						3.1
20	260	3.0						3.0
21	280	2.7						3.0
22	(290)	2.5						2.9
23	300	2.5						3.0

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 29

St. John's, Newfoundland (47.6°N, 52.7°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						2.9
01	300	2.3						2.8
02	300	2.3						2.8
03	290	2.2						2.9
04	280	2.0					3.1	2.8
05	300	1.8					3.5	3.0
06	300	1.8					2.8	3.0
07	250	3.1			120	---	1.6	3.3
08	230	5.0			110	2.0	2.1	3.4
09	230	6.0	210	3.0	110	2.3		3.3
10	240	6.9	210	3.6	120	2.7		3.3
11	250	7.1	210	3.8	120	2.8		3.4
12	250	7.3	210	3.7	120	2.8		3.3
13	250	7.4	210	3.6	120	2.7		3.3
14	240	7.3	230	3.0	120	2.5		3.3
15	230	6.9	220	---	120	2.2		3.3
16	230	6.7	---	---	130	1.7		3.3
17	220	5.9	---	---				3.2
18	240	5.0						3.1
19	240	3.9						3.1
20	280	3.3						3.0
21	290	2.8						2.9
22	300	2.5						2.8
23	300	2.4						2.8

Time: 60.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 30

Schwarzenburg, Switzerland (46.8°N, 7.3°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	3.2						3.2
01	260	3.3						3.3
02	270	3.1						3.3
03	260	3.2						3.2
04	250	3.0						3.4
05	240	2.6						3.4
06	230	2.5						3.6
07	260	2.3						3.6
08	210	3.8			---	---		3.8
09	200	5.7			130	2.1		3.9
10	205	7.1			115	2.4		4.0
11	200	7.0			100	2.6		4.0
12	200	7.3			100	2.7		3.9
13	200	6.8			100	2.8		3.9
14	210	7.3			100	2.6		3.8
15	210	7.0			100	2.5		3.9
16	200	6.4			100	2.2		3.9
17	200	5.8			---	---		3.8
18	200	4.8						3.7
19	200	4.0						3.8
20	230	3.0						3.7
21	255	3.0						3.4
22	290	3.1						3.3
23	290	3.0						3.2

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 31

Ottawa, Canada (45.4°N, 75.7°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.3						2.9
01	290	2.3						2.9
02	290	2.3					2.4	2.9
03	290	2.2					2.9	2.9
04	270	2.0					2.2	2.9
05	280	2.0					3.2	3.0
06	270	1.8						3.0
07	300	2.1						3.0
08	230	4.2			120	1.8		3.3
09	230	5.6	220	---	120	2.2		3.3
10	240	6.3	210	3.5	110	2.5		3.3
11	250	7.0	220	3.7	120	2.7		3.2
12	250	7.3	210	3.8	110	2.8		3.2
13	250	7.4	220	3.6	120	2.8		3.2
14	250	7.3	220	3.5	120	2.7		3.2
15	240	7.0	230	3.2	120	2.5		3.3
16	230	6.6	---	---	110	2.0	2.2	3.2
17	220	5.9	---	---				3.1
18	230	5.1						3.0
19	230	4.2						3.1
20	240	3.5						3.0
21	260	2.8						2.9
22	270	2.6						2.9
23	290	2.5						2.9

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

Table 32

Baton Rouge, Louisiana (30.5°N, 91.2°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.3					2.4	3.0
01	280	3.5						3.0
02	260	3.7					2.3	3.0
03	260	3.6						3.0
04	250	3.5						3.1
05	270	3.1					3.1	3.0
06	280	3.2						3.0
07	250	4.5					3.4	3.2
08	240	6.2	---	---	140	2.1	3.7	3.4
09	260	6.8	240	---	120	2.5	5.4	3.3
10	270	7.0	230	---	120	(2.8)	5.6	3.2
11	280	7.9	220	(4.4)	120	3.0	5.7	3.2
12	280	9.0	220	(4.5)	120	3.2	6.5	3.1
13	280	8.7	220	(4.4)	120	3.1	5.6	3.1
14	270	8.7	230	(4.3)	120	3.0	5.6	3.2
15	260	8.0	240	---	120	2.8	4.0	3.2
16	250	7.6	250	---	130	2.5	3.6	3.3
17	240	6.8						3.3
18	230	5.0						3.2
19	250	3.8					2.1	3.1
20	260	3.4						3.1
21	280	3.2						3.1
22	290	3.0						3.0
23	290	3.2						3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 33

Okinawa I. (26.3°N, 127.8°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(320)	3.1						2.8
01	(300)	3.2						2.9
02	(260)	3.1						3.2
03	(260)	2.7					1.6	3.2
04	260	2.0						2.8
05	(310)	2.0						2.7
06	(280)	2.3						(3.0)
07	270	4.8			---	---		3.1
08	260	7.1	260	---	120	(2.2)		3.3
09	270	8.4	250	---	120	(2.7)	3.4	3.2
10	280	9.2	240	---	110	---	4.0	3.1
11	290	9.9	240	---	120	---	4.6	3.0
12	290	10.8	230	---	120	---	4.2	3.0
13	290	11.3	240	---	110	---	4.2	3.0
14	280	11.2	240	---	120	---	3.8	3.0
15	270	9.9	250	---	120	---	3.6	3.0
16	260	9.4	260	---	(120)	---	2.8	3.1
17	240	8.4			---	---	2.5	3.2
18	220	5.7					2.5	3.2
19	(260)	5.2					2.2	2.9
20	250	5.5						3.1
21	240	5.1						3.1
22	(260)	(3.9)						2.9
23	(310)	3.3						2.7

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 34

Huancayo, Peru (12.0°S, 75.3°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(6.4)						(2.9)
01	300	4.6						3.3
02	260	3.6						3.3
03	250	3.7						3.2
04	270	2.6						3.2
05	270	2.4						3.1
06	270	4.7			120	---	1.7	3.0
07	240	7.4	---	---	110	2.5	6.0	3.1
08	280	8.9	220	4.3	110	3.0	8.7	2.9
09	310	9.6	210	4.6	110	3.3	10.5	2.7
10	340	9.5	210	4.8	110	---	11.1	2.4
11	340	9.2	200	4.8	110	---	11.4	2.4
12	360	9.0	200	4.8	110	---	11.2	2.4
13	360	9.3	200	4.8	110	---	11.5	2.4
14	370	9.5	200	4.7	110	3.4	10.2	2.5
15	340	9.8	190	4.6	110	3.1	10.1	2.6
16	270	10.0	200	---	110	2.9	8.7	2.6
17	230	10.0			110	2.7	7.2	2.6
18	260	10.0			120	1.9	5.6	2.6
19	270	9.7						2.7
20	300	9.0						2.6
21	340	8.6						2.5
22	330	(8.7)						(2.9)
23	320	(7.3)						(3.0)

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

Table 35

Kiruna, Sweden (67.8°N, 20.5°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.8					4.0	
01	300	(3.9)					3.4	
02	300	3.6					3.3	
03	290	3.6					3.2	
04	290	3.1					1.9	
05	300	2.8					1.9	
06	(270)	2.2						
07	(280)	2.0					1.8	
08	260	2.2					1.7	
09	240	3.3						
10	230	4.2					1.6	
11	230	4.8						
12	220	5.5						
13	225	5.2						
14	225	4.1					1.1	
15	230	3.2					1.1	
16	250	2.6					1.8	
17	255	2.7					3.3	
18	(255)	2.8					3.7	
19	(260)	(2.7)					4.0	
20	(290)	2.2					4.2	
21	(340)	2.8					4.1	
22	(360)	(3.1)					4.0	
23	(325)	(3.4)					4.2	

Time: 15.0°E.
Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 36

Wakkanai, Japan (45.4°N, 141.7°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.2						2.8
01	350	3.2						2.7
02	330	3.2						2.7
03	330	3.2						2.8
04	320	3.3						2.7
05	300	3.1					1.6	3.0
06	280	3.0					2.4	3.1
07	280	4.6			---	---		3.0
08	260	6.4			130	2.0		3.2
09	260	7.6	---	---	120	2.5		3.2
10	270	8.8	---	---	120	2.7		3.2
11	270	8.2	---	---	120	2.7		3.1
12	260	7.6	---	---	120	2.8		3.1
13	270	8.0	---	---	120	2.6		3.2
14	270	7.4	---	---	130	2.5		3.1
15	260	6.5			130	2.2		3.2
16	260	5.7			---	E		3.2
17	270	4.5						3.0
18	280	3.8						3.0
19	300	3.3						2.9
20	300	3.0						2.9
21	310	3.1						2.8
22	340	3.2					2.2	2.8
23	320	3.2						2.8

Time: 135.0°E.
Sweep: 1.5 Mc to 15.5 Mc in 2 minutes.

Table 37

Akita, Japan (39.7°N, 140.1°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2					1.6	2.8
01	300	3.2					1.4	2.8
02	290	3.3						2.8
03	280	3.2						2.9
04	270	3.4						2.9
05	260	3.2						3.0
06	250	3.0						3.2
07	230	4.6	---	---	---	1.8		3.3
08	220	6.6	---	---	120	2.1		3.4
09	220	7.4	220	---	110	2.5		3.4
10	230	8.9	220	---	110	2.8		3.4
11	240	9.0	220	---	110	2.9		3.4
12	230	8.0	220	---	110	2.9		3.5
13	240	7.4	220	---	110	2.8		3.4
14	230	7.6	---	---	110	2.6		3.4
15	220	7.0			110	2.3		3.5
16	220	5.8			---	1.8	2.6	3.4
17	220	4.6					2.4	3.3
18	230	4.0					2.4	3.3
19	240	3.4					2.2	3.2
20	240	3.1					2.3	3.1
21	280	3.0					2.0	3.0
22	300	3.1					2.0	2.9
23	300	3.1					1.9	2.9

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

Table 38

Tokyo, Japan (35.7°N, 139.5°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0					1.8	2.7
01	300	3.0					2.0	2.8
02	300	3.1					1.6	2.8
03	280	3.0					1.6	2.8
04	270	3.0						2.9
05	270	3.0					1.6	2.9
06	260	3.2					1.6	3.0
07	240	5.5	---	---	120	1.7		3.3
08	230	6.8	---	---	120	2.2		3.4
09	230	7.6	220	---	110	2.7		3.4
10	250	8.9	220	---	110	3.0		3.3
11	250	9.2	220	---	110	3.1		3.4
12	240	8.7	220	---	110	3.0		3.4
13	250	7.8	230	---	110	3.0		3.3
14	240	7.6	220	---	110	2.8		3.4
15	240	7.6	220	---	110	2.5		3.4
16	220	6.0	---	---	110	2.0	2.4	3.5
17	220	4.9					2.6	3.3
18	240	4.1					2.2	3.2
19	240	3.6					2.2	3.2
20	240	3.1					2.0	3.1
21	280	2.7					1.7	2.8
22	300	2.8						2.8
23	290	3.0						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 39

Yamagawa, Japan (31.2°N, 130.6°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.0					2.3	2.9
01	300	3.0						2.8
02	290	3.1						2.8
03	270	3.3					2.2	3.0
04	250	3.4						3.1
05	260	2.9					2.2	2.8
06	270	3.0					2.0	3.0
07	250	4.1			---	---	2.4	3.2
08	230	6.6			120	2.0		3.5
09	230	7.2	220	---	110	2.6	3.3	3.5
10	240	7.5	210	---	100	2.9	4.1	3.4
11	250	9.0	220	4.5	100	3.1	4.0	3.4
12	250	9.8	220	4.5	100	3.1	4.0	3.3
13	250	8.6	220	4.5	100	3.2	4.0	3.3
14	250	8.1	230	---	100	3.0	4.0	3.4
15	240	7.9	220	---	100	2.8	4.0	3.3
16	220	8.0			100	2.4	3.2	3.4
17	210	6.5			100	1.8	3.0	3.4
18	210	5.2					2.5	3.3
19	220	4.5					2.6	3.2
20	230	4.0					2.5	3.1
21	240	3.3					2.5	3.1
22	260	2.8					2.3	3.0
23	290	2.9						2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 2 minutes.

Table 40

Formosa, China (25.0°N, 121.5°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	3.2						3.0
01	320	3.3						3.2
02	280	3.4						3.4
03	285	3.6						3.5
04	240	3.0						3.8
05	300	2.9						3.2
06	330	2.7						3.2
07	240	5.6	---	---	---	---		3.7
08	260	7.8	240	4.2	130	3.2		3.7
09	260	9.0	240	4.3	120	3.1	3.4	3.8
10	250	9.4	230	4.6	120	3.8	3.8	3.8
11	250	9.9	210	4.6	120	---	4.2	3.6
12	280	11.0	220	4.6	120	---	3.9	3.6
13	280	11.5	220	4.6	120	3.6	4.3	<3.7
14	275	11.5	220	4.7	120	---	4.2	3.6
15	255	11.2	230	4.4	120	2.8	3.7	3.6
16	240	10.6	240	4.4	120	---	3.3	3.7
17	230	9.8	210	3.4	120	---	3.0	3.8
18	200	7.4	---	---	120	---	2.8	3.7
19	230	6.4	---	---	---	---		3.5
20	240	6.9						3.6
21	240	5.3						3.6
22	260	3.6						3.5
23	325	3.3						3.0

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

Table 41

Rarotonga I. (21.3°S, 159.8°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	9.4					5.0	3.0
01	250	8.7					4.2	2.9
02	290	7.5					4.0	2.8
03	300	7.4					3.5	2.8
04	300	7.3					3.5	2.8
05	300	7.1					3.4	2.8
06	250	6.5			---	1.9	3.7	2.9
07	250	7.7	---	---	115	2.6	4.0	3.0
08	300	8.4	230	4.6	110	3.1	4.8	2.9
09	300	9.2	240	4.9	110	3.3	4.7	2.8
10	350	10.2	220	5.2	110	3.5	5.1	2.8
11	350	11.2	230	5.0	110	3.6	5.0	2.8
12	350	11.9	250	5.1	110	3.7	4.5	2.8
13	340	12.5	220	5.0	110	3.6	4.4	2.8
14	340	12.9	240	5.1	110	3.6	4.1	2.9
15	310	12.6	240	4.9	110	3.5	4.0	2.9
16	300	12.5	250	4.6	110	3.2	4.6	3.0
17	280	11.2	250	4.3	110	2.8	4.9	3.0
18	280	9.9	---	---	---	2.1	5.1	2.9
19	290	8.8			---	E	4.2	2.6
20	340	9.0					5.0	2.6
21	320	9.2					5.2	2.6
22	320	9.6					4.9	2.7
23	300	9.4					4.3	2.7

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

Table 42

Brisbane, Australia (27.5°S, 153.0°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	8.0					4.3	3.0
01	250	7.3					4.0	3.0
02	265	5.9					3.8	2.9
03	260	5.1					3.5	2.9
04	270	4.8			---	---	2.4	2.9
05	250	4.8	---	---	130	1.8		3.1
06	250	5.6	230	3.5	110	---		3.1
07	280	6.1	230	4.2	110	3.0		3.0
08	315	7.0	220	4.7	100	---	4.4	3.0
09	320	7.5	210	4.8	100	---	4.4	2.9
10	300	8.2	210	5.0	100	3.6	4.4	2.8
11	330	8.3	200	5.0	100	3.8	4.1	2.8
12	320	8.6	215	5.0	100	3.8	4.5	2.9
13	330	8.8	220	5.0	100	3.8	3.4	2.8
14	320	9.0	230	4.8	100	3.7		2.9
15	320	9.0	225	4.7	100	3.4		2.9
16	290	9.1	240	4.5	110	3.0		3.0
17	280	8.5	235	4.0	110	2.8		3.0
18	270	8.0	---	---			4.4	2.9
19	270	7.9					4.2	2.8
20	285	7.6					4.4	2.8
21	300	7.8					4.2	2.8
22	300	7.6					4.2	2.8
23	290	8.0					4.2	2.8

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

Table 43

Canberra, Australia (35.3°S, 149.0°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(6.8)					3.7	3.1
01	240	6.4					4.3	3.2
02	230	5.2					3.1	3.1
03	240	4.4					3.1	3.0
04	250	3.9					2.6	3.0
05	250	4.0			115	1.4	2.8	3.1
06	240	4.8	220	---	100	2.4	3.0	3.3
07	285	6.0	225	4.2	100	2.8	4.8	3.3
08	(310)	6.0	---	---	100	3.2	5.5	3.2
09	(290)	6.6	---	---	100	3.4	6.7	3.4
10	300	7.0	---	---	100	(3.4)	6.9	3.2
11	340	7.0	---	---	100	(3.5)	7.0	3.1
12	310	7.5	---	---	100	(3.5)	5.8	3.2
13	330	7.3	---	---	100	(3.5)	5.9	3.1
14	305	7.2	---	---	100	3.5	3.8	3.2
15	310	7.0	(220)	---	100	3.4		3.2
16	290	7.4	220	4.4	100	3.3	3.5	3.2
17	280	7.2	220	(4.3)	100	2.9	3.6	3.2
18	250	7.2	240	---	100	2.4	5.0	3.2
19	250	7.0			---	E	5.5	3.2
20	250	(6.7)					5.6	(3.1)
21	255	(6.5)					5.6	(3.1)
22	270	(6.5)					4.3	(2.9)
23	280	(6.5)					4.6	3.0

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

Table 44

Hobart, Tasmania (42.8°S, 147.4°E) December 1951*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.0						2.7
01	250	5.2						2.8
02	250	4.5						2.8
03	270	3.8					2.6	2.8
04	280	3.6			---	E	2.4	2.8
05	250	4.2			115	2.0	2.6	3.0
06	250	5.0			100	2.5		3.0
07	320	5.5	230	4.4	100	3.0		2.9
08	350	6.0	235	4.5	100	3.2		2.9
09	350	6.2	230	4.6	100	3.5		2.9
10	365	6.5	200	4.7	100	3.5	4.0	2.8
11	350	7.0	200	5.0	100	3.5	5.1	2.8
12	350	7.0	210	5.0	---	---	5.2	2.8
13	350	7.0	200	5.0	---	---	4.4	2.8
14	350	7.0	210	4.8	100	3.5	4.0	2.8
15	335	7.0	210	4.6	100	3.5	3.5	2.8
16	330	7.0	220	4.5	100	3.3		2.8
17	305	7.1	230	4.5	100	3.0		2.9
18	270	7.3			100	2.6		2.9
19	250	7.3	---	---	120	1.9	5.0	2.9
20	250	7.3					5.9	2.9
21	270	6.8					6.1	2.7
22	265	6.3					4.0	2.8
23	260	6.0					3.5	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.
*No record 16th through 20th.

Table 45

Christchurch, New Zealand (43.6°S, 172.7°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.1					3.4	2.7
01	270	5.7					3.2	2.8
02	270	5.0					3.3	2.8
03	270	4.6					3.3	2.8
04	270	4.1				1.1	3.5	2.9
05	280	4.7	260	3.0		1.6	3.0	3.1
06	280	5.3	250	3.8		2.4	4.0	3.1
07	310	5.8	230	4.2		2.8	5.1	3.0
08	350	6.1	240	4.5		3.1	6.2	3.0
09	340	6.8	---	4.6		3.3	6.5	3.0
10	340	7.2	220	4.8		3.4	6.6	2.9
11	350	7.2	210	4.8		3.5	6.4	2.9
12	350	7.2	220	4.8		3.5	6.4	2.9
13	340	7.4	230	4.8		3.5	6.1	3.0
14	340	7.0	220	4.8		3.5	4.5	2.9
15	340	6.9	230	4.7		3.3	4.5	2.9
16	330	7.2	240	4.5		3.1		2.9
17	310	7.6	240	4.2		2.8	3.7	2.9
18	290	7.7	250	3.8		2.4	4.4	3.0
19	270	7.7	---	2.8		1.7	5.2	2.9
20	260	7.6				---	4.5	2.9
21	280	7.3				---	4.0	2.7
22	280	7.0					4.2	2.7
23	280	6.6					3.5	2.7

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 46

Batavia, Ohio (39.1°N, 84.1°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	3.2						3.0
01	(260)	3.2						2.9
02	(250)	3.2						3.0
03	260	3.2						3.0
04	(250)	2.9						3.0
05	240	2.9						3.0
06	(250)	2.9						3.0
07	250	3.6			---	---		3.1
08	230	6.0	---	---	120	2.1		3.4
09	230	6.9	220	3.1	110	2.4	2.0	3.4
10	240	7.6	200	(3.7)	(110)	2.7	2.2	3.3
11	250	8.4	210	(4.0)	110	2.9	1.9	3.2
12	250	9.1	220	4.1	110	3.0	2.1	3.2
13	250	9.2	210	(4.1)	110	3.0	2.0	3.2
14	250	9.2	220	4.0	110	3.0	2.1	3.2
15	240	9.0	220	---	110	2.7		3.2
16	230	9.0	230	---	110	2.3		3.2
17	220	8.2			120	1.8		3.2
18	220	7.0					1.7	3.2
19	220	5.6					1.8	3.1
20	(230)	4.8						3.2
21	(240)	3.9						3.1
22	(250)	3.6						3.0
23	(250)	3.5						3.0

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

Table 47

Rarotonga I. (21.3°S, 159.8°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	9.2					4.0	3.0
01	270	8.5					3.8	3.0
02	280	8.0					3.5	2.9
03	300	7.9					3.2	2.9
04	280	6.6					3.0	2.9
05	270	7.0					2.7	2.9
06	250	8.0			---	2.0	3.0	3.1
07	250	8.9	240	4.0	115	2.6	4.0	3.2
08	270	9.0	230	4.8	110	3.0	4.6	3.0
09	300	9.9	220	4.9	110	3.5	4.8	2.9
10	320	10.6	220	5.1	110	3.6	4.8	2.8
11	330	11.0	210	5.2	110	3.7	5.0	2.8
12	340	13.2	210	5.2	110	3.7	4.2	2.8
13	330	13.6	230	5.3	110	3.8	4.9	2.9
14	320	13.4	220	5.2	110	3.6	4.1	2.9
15	310	12.6	250	5.0	110	3.5	4.6	2.9
16	300	12.0	240	4.9	110	3.1	4.6	2.9
17	290	11.4	250	4.4	110	2.7	4.7	2.9
18	270	11.1			---	2.0	4.6	2.9
19	270	10.0					4.1	2.8
20	310	9.2					4.6	2.7
21	310	9.5					4.2	2.6
22	300	9.6					4.0	2.7
23	300	9.5					3.8	2.8

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

Table 48

Canberra, Australia (35.3°S, 149.0°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	6.5					4.0	3.0
01	255	5.9					3.4	3.0
02	250	5.2					3.1	3.0
03	250	4.6					2.9	3.1
04	250	4.2					2.7	3.1
05	250	4.4	250	---	100	1.6	2.4	3.2
06	250	5.0	230	3.8	100	2.3	2.7	3.3
07	295	5.9	220	4.2	100	2.8	3.5	3.3
08	305	6.6	220	4.6	100	3.2	4.4	3.2
09	320	6.6	215	4.8	100	3.4	5.4	3.1
10	320	7.1	210	4.9	100	3.4	5.2	3.1
11	310	7.3	200	4.9	100	(3.5)	5.4	(3.2)
12	310	(7.5)	---	4.9	100	3.5	4.7	(3.2)
13	300	(7.0)	210	4.9	100	3.5	4.0	(3.1)
14	300	7.4	215	4.8	100	(3.6)	3.8	3.1
15	300	7.2	215	4.7	100	3.4	3.8	3.2
16	295	7.7	225	4.5	100	3.2	3.4	3.2
17	280	7.0	230	4.0	100	2.7	4.0	3.2
18	250	7.2	---	---	100	2.2	4.0	3.2
19	240	7.2					4.0	3.1
20	250	6.8					3.9	3.0
21	260	6.7					3.9	2.9
22	280	6.7					5.2	3.0
23	290	6.8					3.9	3.0

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

Table 49

Christchurch, New Zealand (43.6°S, 172.7°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.0					3.0	2.7
01	280	5.8					3.0	2.8
02	270	5.3					2.7	2.8
03	280	4.7					2.8	2.8
04	290	4.3				---	3.0	2.8
05	260	4.6	---	---		1.5	2.8	3.0
06	260	5.2	250	3.8		2.4		3.1
07	320	5.9	230	4.3		2.8	4.4	3.0
08	330	6.8	230	4.5		3.1	5.0	3.0
09	320	7.0	220	4.7		3.3	4.8	3.0
10	330	7.2	220	4.8		3.4	5.4	3.0
11	320	7.7	220	4.9		3.5	5.8	2.9
12	310	7.8	210	4.9		3.5		3.0
13	330	7.5	220	4.9		3.5		2.9
14	320	7.7	220	4.8		3.4		2.9
15	310	7.5	230	4.6		3.3		3.0
16	300	7.2	240	4.5		3.0		3.0
17	290	7.5	240	4.0		2.6		3.0
18	260	7.7	260	3.2		2.1	3.2	3.0
19	260	7.8				1.4	3.9	2.9
20	260	7.8					4.0	2.9
21	260	7.2					4.4	2.8
22	280	6.8					3.7	2.7
23	280	6.4					3.0	2.7

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50

Fribourg, Germany (48.1°N, 7.8°E) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.7					2.4	2.6
01	<300	3.5					2.9	2.6
02	290	3.5					2.3	2.7
03	290	3.5					2.4	2.7
04	275	3.3					2.0	2.8
05	<260	2.8					2.5	2.9
06	260	3.3			---	---	2.0	2.8
07	240	5.2	255	---	<125	1.8	2.0	3.2
08	240	6.1	235	3.6	118	2.4	2.4	3.2
09	<255	7.0	235	4.0	113	2.8	3.9	3.3
10	265	8.0	230	4.2	112	3.0	4.2	3.2
11	260	8.3	220	4.4	109	3.0	3.6	3.2
12	260	8.4	230	4.4	109	3.1	3.7	3.2
13	260	8.0	220	4.3	111	3.0	3.3	3.2
14	260	7.9	230	4.1	111	2.9	3.3	3.2
15	250	8.2	240	---	115	2.6	3.2	3.2
16	240	7.8	245	---	120	2.2	3.1	3.2
17	235	7.2			129	1.8	3.0	3.2
18	235	6.8					2.8	3.2
19	230	5.8					2.9	3.1
20	245	4.4					2.2	3.0
21	265	4.1					2.2	2.8
22	290	3.6					2.3	2.7
23	305	3.7					2.2	2.7

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 51

Batavia, Ohio (39.1°N, 84.1°W) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	3.7						2.9
01	(270)	3.5						2.9
02	(270)	3.2						2.9
03	270	3.2						2.9
04	(260)	3.0						2.9
05	(260)	2.9						2.9
06	(260)	2.7						3.0
07	230	4.3			---	---		3.2
08	230	6.3	220	---	110	2.2	2.0	3.4
09	240	7.0	220	(4.2)	100	2.6	2.6	3.3
10	250	7.8	200	4.3	100	3.0	2.8	3.2
11	250	8.0	200	4.5	100	3.1	2.6	3.1
12	270	8.4	200	4.5	100	3.1	2.4	3.1
13	270	8.6	210	4.6	100	3.1	2.3	3.1
14	270	8.7	220	4.6	100	3.0	2.2	3.1
15	250	9.0	220	---	100	3.0		3.1
16	250	8.9	220	---	100	2.7	1.9	3.2
17	230	8.4	230	---	110	2.1		3.2
18	220	7.7						3.2
19	220	6.7					2.0	3.2
20	220	5.4						3.1
21	(240)	4.5						3.0
22	(250)	4.1						3.0
23	(260)	3.8						2.9

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

Table 52

Panama Canal Zone (9.4°N, 79.9°W) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.9						3.2
01	240	4.0						3.2
02	220	3.2						3.3
03	240	2.7						2.9
04	260	2.6						2.8
05	290	2.7					3.0	2.8
06	280	3.8					2.7	2.9
07	250	7.0	---	---	120	2.2	4.0	3.3
08	260	8.6	230	---	110	2.6	4.0	3.1
09	280	10.3	220	(5.0)	110	3.3	4.2	3.0
10	290	11.0	220	5.1	110	3.5	4.2	3.0
11	300	11.6	220	5.1	110	3.7	4.1	2.9
12	310	12.1	210	5.1	110	3.7	4.4	2.8
13	310	12.7	220	5.1	110	3.7	5.2	2.9
14	300	13.5	220	5.0	110	3.5	4.8	2.9
15	280	12.8	230	4.9	110	3.3	4.5	2.9
16	270	12.5	230	---	110	3.0	5.0	3.0
17	250	12.5	230	---	110	2.4	4.6	3.0
18	230	11.1					4.2	3.1
19	230	9.2					3.3	3.1
20	220	7.4					2.8	3.0
21	230	6.4					2.1	3.0
22	250	5.1						2.8
23	270	5.1						3.0

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

Table 53

Batavia, Ohio (39.1°N, 84.1°W) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	3.8						2.9
01	(290)	3.5						2.8
02	(280)	3.2						2.8
03	(290)	3.0						2.8
04	(280)	2.5						2.8
05	(300)	2.6						(2.8)
06	(280)	2.9			---	---		(3.0)
07	240	4.2	240	---	100	2.1		3.2
08	280	5.1	220	3.8	100	2.5	2.4	3.2
09	300	5.7	200	4.2	100	2.9		3.1
10	300	6.0	200	4.4	100	3.1		3.0
11	310	6.4	190	4.5	100	3.3		3.0
12	330	6.8	190	4.7	100	3.4		2.9
13	320	7.2	200	4.7	100	3.4		3.0
14	310	7.0	200	4.6	100	3.3		3.0
15	300	7.3	210	4.5	100	3.1		3.0
16	300	7.0	220	4.3	100	3.0		3.0
17	270	6.9	220	3.9	100	2.6		3.0
18	240	7.0	240	---	110	2.1		3.1
19	230	6.6						3.1
20	230	6.0						3.0
21	(240)	5.0						2.9
22	(260)	4.5						2.9
23	(260)	4.0						2.9

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

Table 54

San Francisco, California (37.4°N, 122.2°W) August 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	5.6	220	4.0	115	2.9	3.6	3.0
01	310	5.8	230	3.8	120	2.4	3.6	3.0
02	260	5.4	240	3.2	120	2.2	3.4	3.2
03	250	5.2					3.1	3.0
04	240	5.0					3.4	3.0
05	260	4.4					3.3	3.1
06	280	3.7					3.4	3.0
07	290	3.6					3.6	3.0
08	290	3.4					3.2	3.0
09	280	3.4					3.0	2.8
10	290	3.4					2.5	2.8
11	280	3.4					2.5	2.8
12	280	3.2					3.0	3.0
13	280	3.2	---	---			2.9	3.0
14	310	3.8	240	3.1	---	2.0	3.6	3.0
15	360	4.6	220	3.6	120	2.4	3.6	3.0
16	350	5.1	210	3.9	120	2.8	3.4	3.0
17	380	5.0	210	4.0	115	3.0	3.4	2.8
18	400	5.4	200	4.2	115	3.2	3.4	2.8
19	380	5.6	200	4.4	110	3.2	3.8	2.8
20	400	5.4	200	4.3	115	3.3	3.7	2.8
21	390	5.5	210	4.4	110	3.2	3.4	2.8
22	380	5.6	220	4.2	115	3.2	3.6	2.8
23	360	5.6	220	4.2	115	3.2	3.6	2.8

Time: 0.0°.

Table 55

San Francisco, California (37.4°N, 122.2°W) July 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	5.4	230	4.0	120	3.0	3.4	3.0
01	340	5.3	240	4.0	120	2.7	3.4	3.0
02	320	5.4	240	3.4	130	2.2	3.4	3.2
03	260	5.4	---	---	---	---	3.4	3.2
04	250	5.4	---	---	---	---	3.4	3.2
05	260	4.8					3.6	3.2
06	280	4.2					4.0	3.0
07	290	3.7					3.7	3.0
08	300	3.6					3.6	2.8
09	300	3.4					3.5	3.0
10	300	3.3					3.0	3.0
11	300	3.3					2.9	3.0
12	300	3.2					2.8	3.0
13	280	3.2	270	2.4			2.8	3.0
14	350	4.0	240	3.4	120	2.2	3.3	3.0
15	340	4.5	220	3.6	120	2.5	4.0	3.2
16	370	5.0	220	4.0	115	2.8	4.0	(3.0)
17	400	5.6	200	4.0	115	3.1	4.1	3.0
18	340	5.7	200	4.4	110	3.2	4.0	3.2
19	380	5.7	200	4.4	115	3.2	3.7	(2.9)
20	380	5.7	200	4.4	110	3.2	3.6	2.9
21	370	5.9	220	4.4	110	3.2	3.5	3.0
22	390	5.7	220	4.3	110	3.1	3.4	3.0
23	360	5.6	220	4.2	115	3.0	3.3	3.0

Time: 0.0°.

Table 56

San Francisco, California (37.4°N, 122.2°W) June 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	5.8	230	4.3	120	3.0	4.4	2.9
01	320	5.8	240	4.0	120	2.8	4.4	3.0
02	300	5.6	240	3.5	120	2.2	4.4	3.0
03	260	5.6	---	---			3.6	3.0
04	250	6.4					5.3	3.0
05	250	5.8					4.8	3.0
06	255	5.0					3.5	3.0
07	280	4.5					3.6	3.0
08	300	4.2					3.6	3.0
09	300	4.4					3.6	2.8
10	300	4.0					3.4	2.8
11	310	3.7					3.2	2.8
12	310	3.5					3.0	2.8
13	290	3.7	275	2.8	---	---	3.0	2.8
14	335	4.6	250	3.5	130	2.2	3.5	3.0
15	360	5.0	240	4.0	120	2.6	3.5	3.0
16	340	5.4	220	4.2	120	3.0	4.0	2.8
17	380	5.5	210	4.4	115	3.1	5.4	2.8
18	380	5.6	200	4.4	110	3.3	5.6	2.8
19	360	5.9	210	4.6	110	3.3	4.1	2.8
20	380	5.8	210	4.6	110	3.3	4.4	2.8
21	365	5.8	220	4.5	115	3.3	4.0	2.8
22	360	6.0	220	4.5	110	3.2	4.2	2.8
23	350	6.0	220	4.4	115	3.2	3.9	2.8

Time: 0.0°.

Form adopted June 1946

TABLE 57

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

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), March (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270 S	270 S	280 S	300 S	280 S	(320) S	(310) S	240	280	290	310	320	360	310	300	290	260	240	230	210 S	240 S	(260) S	(280) S	290 S
2	300 S	300 S	(280) S	260 S	270 S	270 S	250 S	240	250	300	280	280	300 H	280	280	280	260	240	220	220	230	240 S	250	280 S
3	280 S	290 S	270 S	260	250	260 S	(280) S	230	240	270	[290] L	310	300	320	320 K	300 K	280 K	270 K	270 K	250 K	210 K	230 K	240 K	300 K
4	S K	E K	F K	E K	F K	E K	E K	300 K	G K	650 K	470 K	470 K	530 K	490 K	450 K	480 HK	330 K	280 K	280 K	230 SK	290 K	(360) SK	S K	E K
5	E K	E K	E K	E K	E K	E K	E K	270 K	[340] LK	400 K	740 K	520 HK	500 K	430 K	350 K	(350) LK	300 K	260 K	230 K	300 K	(370) SK	S K	S K	S K
6	(380) SK	[400] SK	(430) SK	E K	E K	E K	S K	290 K	280 K	(520) SK	430 HK	320 HK	300 K	350 HK	360 HK	300 K	300 HK	310 K	260 K	230 K	(290) AK	S K	E K	E K
7	E K	E K	E K	E K	E K	E K	S K	250 K	G K	400 HK	470 HK	380 K	340 K	380 K	330 K	[330] MK	280 K	270 K	240	220 S	220 S	270 S	280 S	270
8	280 S	(300) S	(350) S	S	E	S	S	240	260	270 H	280 H	270 H	300	270	290	300	260	260	230	240 S	220	270 S	(300) S	320 S
9	(300) S	300 S	280 S	(300) S	E	E	S	250	280 H	320	360 H	350	320	330	340 H	300	290	280	250	220	260 S	260 S	270 SK	300 SK
10	[310] SK	(320) SK	(320) SK	S K	E K	S K	(310) S	240 H	250 H	260 H	290 H	260	290	280	280	270	270	250	240	210	230 S	(250) S	(270) S	270 S
11	270 S	280 S	300 S	290 S	270 S	(330) S	270 S	240	230	250	270	300	280	290	280	260	250	240	220	(260) A	220	(250) S	(280) S	(290) S
12	290	(270) S	250	270	250	(280) S	270	230 H	240	250	270	280	280	270	270	280	260	240	230	220	240	230	240	(270) S
13	(270) S	300 S	300 S	300 S	270 S	(270) S	250 S	230	230	260	250	280 H	270	280 H	260	270	260	250	240	220	210	240 S	250 S	250 S
14	240 S	260 S	250	270	260 S	(260) S	(260) S	250	250	240	250	270	280	290	270	280	260	240	230	230	230 S	250 S	270 S	260 S
15	270 S	280 S	270 S	270 S	260	280 S	250 S	240	250	270	300	290	290	300	280	300	270	250	230	220 S	220 S	250 S	300 S	300 S
16	[300] A	(310) S	(290) S	(260) S	(270) S	(280) S	290 SK	240 K	390 K	(550) SK	520 K	370 K	500 K	360 K	370 K	340 K	380 K	280 K	250 K	240 K	250 SK	270 SK	280 SK	(320) SK
17	(240) AK	(290) S	(300) S	(260) S	250 H	260 S	(260) S	230 H	250 H	270 H	280	290 H	270	280	260	260	260	250	250	230	240	(260) S	(270) S	(270) S
18	(270) S	(280) S	280 S	280 S	300	(310) S	(260) S	230	230 H	280	310	290	300	270	280	260	250	250	230	220	220	(270) S	250 S	(270) S
19	(280) S	(290) S	(280) S	280	260	(270) S	250	240	240	250	270	290	270	300	280	280	270	250	230	220	240	250	260	260
20	250	(280) S	(270) S	(280) S	280	(270) S	240	240	250 H	260 H	270 H	300 H	290	280	280	270	270	250	230	230	230	250	(250) S	(260) S
21	(280) S	(290) S	300 S	(310) S	320	[320] S	310 S	270 K	280 K	330 K	430 K	570 K	390 K	380 K	390 K	350 K	330 K	270 K	260 K	260 SK	250 SK	270 SK	300 SK	300 S
22	310 S	(310) S	(310) S	250	(270) S	(250) S	260	260	260 H	300 H	300 H	300	300 H	300	300	300	300 K	270 K	260 K	(260) SK	230 SK	(230) SK	(300) SK	(340) SK
23	(300) SK	(320) SK	S K	S K	(410) SK	(390) SK	(300) SK	[330] LK	360 HK	G K	G K	550 HK	480 HK	420 HK	460 HK	390 HK	330 HK	320 K	260 K	250 SK	290 SK	(290) SK	(320) SK	(340) SK
24	S K	S K	320 SK	E K	E K	E K	(310) SK	260 K	G K	480 HK	380 HK	410 HK	360 K	330 HK	310 K	310 HK	(260) LK	280 K	250 K	230	(240) S	(260) S	(270) S	(280) S
25	(280) S	(280) S	290 S	260 S	280 S	[290] S	270 S	240	G	340 H	370 H	310	310	310	280	280	260	(250) L	260	230	240	280	300	280
26	280	260	260	260	260 S	(320) S	260	260	270	250	300	300	290	280	280	270	290	260	230	230	230	240	250	270
27	280	270	270	270	260	270	250	250 H	290 H	[310] L	330	340	300	320	280	270	280 H	250	240	220	240	250 S	(260) S	(270) S
28	(280) S	(280) S	260	250	250 S	260 S	240	240	260	280	280	280	290	280	280	280	270	270	250	230 S	(240) S	(250) S	(270) S	(280) S
29	(280) S	(280) S	270 S	260 S	260 S	(270) S	250	240 H	270 H	270	290	290	300	300	290	280	280	260	240	240 S	250 S	250 S	270 S	(270) S
30	(260) S	(260) S	(270) S	260 S	290 S	300	260	290	280 H	260 H	300	300	310 K	290 K	290 K	300 K	280 K	300 K	250 K	240 K	260 K	330 K	340 K	340 K
31	(320) SK	(400) SK	[380] SK	(360) SK	E K	(400) SK	300 K	G K	G K	G K	G K	G K	G K	580 K	450 K	430 K	420 KH	300 HK	310 K	(250) SK	(260) SK	290 SK	(320) SK	S 290 HK
Median	(280)	(290)	280	280	280	(290)	260	240	270	280	300	300	300	300	290	290	270	260	240	230	240	250	270	280
Count	29	30	29	28	30	29	27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	29	30

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 58

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (Month), 1952

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.0	2.5F	2.3	2.1	2.0S	1.9	2.1	3.7S	4.3	4.4	5.0	5.0	5.4	6.0	5.9	6.0	6.0	5.9	5.3	4.4	3.3	2.9	2.7S	2.6
2	2.5	2.5	2.5F	2.5F	2.4F	2.4SF	2.5F	2.8	4.3	4.6	5.2	5.7	5.9H	6.3	6.2	6.3	6.3	6.2	6.0	4.8	4.3	3.5S	3.0F	2.9F
3	2.8F	2.6F	(2.8)F	(2.6)F	(2.5)F	(2.5)F	(2.3)F	4.2S	5.3	5.4	5.2	6.4	6.7	6.8	7.0K	7.8K	7.2K	8.5K	8.2K	7.2K	7.4K	6.6K	5.1SK	3.4SK
4	K(1.8)PS	EK	FK	EK	FSK	EK	EK	3.0K	<3.3GK	3.7K	4.2K	4.3K	4.4K	4.7K	4.4K	4.2HK	5.0K	4.5SK	4.4K	4.0K	3.0K	(2.1)BK	K(1.6)JB	EK
5	EK	EK	EK	EK	EK	EK	EK	3.0K	3.7SK	4.6K	4.0K	4.3HK	4.5K	4.5K	4.8K	4.8HK	6.5K	7.6SK	(5.8)SK	(4.2)FK	K(2.4)SF	FSK	FSK	FSK
6	FK	FK	K(2.0)SF	EK	EK	EK	SFK	3.1K	3.8SK	3.9K	4.4HK	5.3HK	5.6K	5.5HK	5.4HK	6.0K	6.3HK	5.7K	6.0SK	4.3SK	3.1K	1.9SK	EK	EK
7	EK	EK	EK	EK	EK	EK	FSK	3.1K	<3.5GK	4.3HK	4.2HK	4.7K	5.2K	5.2K	6.0K	[5.7]MK	6.0K	5.8K	5.9	5.3	3.6S	3.9S	4.1S	3.7S
8	3.5	(2.5)F	(1.9)FS	FS	E	F	(1.9)FS	3.8S	4.6	5.6H	6.4H	7.2H	7.2	7.5	7.5	7.4	8.2	7.4	7.4	6.9S	(5.0)S	4.2S	3.1	2.8F
9	(3.1)JH	2.8H	2.4H	1.8JS	E	E	(1.9)FS	3.4	4.2H	4.5	4.9H	5.5	5.7	6.2	6.4H	6.5	6.6	6.4	6.1	4.9S	4.1	3.5S	3.0VK	2.2FK
10	K(2.0)SF	1.8K	K(1.6)SJ	SK	EK	K(1.6)SJ	2.2FS	4.3H	5.4HS	6.0H	6.8H	6.8	8.0	8.2	8.0	8.1	8.3	7.8S	8.1S	6.6S	4.4S	(3.9)S	3.8S	3.8S
11	3.6S	3.2F	(3.0)FS	(2.7)F	(2.2)F	2.1F	2.5FS	5.6S	6.4S	6.1	6.7	7.3	8.6	8.6	8.6	8.7	8.0	6.6	7.2	6.0	5.0S	3.8	3.5	3.2JS
12	3.2S	3.3JS	3.2JF	2.3F	2.6	2.3	2.4F	5.0H	5.6	6.5	7.2	8.0	7.9	7.6	7.2	7.2	7.4	6.4	6.5	5.6	5.2	4.9S	3.7S	3.0F
13	3.0F	2.8F	2.5F	2.3F	2.2F	(2.2)FS	(2.7)F	5.0	5.5	6.4	6.9	7.2H	7.4	7.3H	6.9	7.1	7.3	6.5	7.3	6.8	5.3S	4.9S	4.3S	3.9S
14	3.5	3.0	2.8S	2.5	2.5	2.5S	2.8	5.3	6.6	7.2	6.8	7.4	7.6	7.5	7.0	7.5	7.4	7.0	6.8	5.9	5.2S	4.5S	4.2S	4.0S
15	3.8	3.5S	3.4S	3.2	2.8F	2.7F	3.0	4.7F	6.2	6.5	6.8S	7.7	7.5	7.6	7.4	8.0	8.2	7.9	7.5S	6.5	4.6S	3.6	(3.1)JS	2.9
16	2.4SF	2.5F	2.6F	2.6F	2.3	2.3F	2.5K	3.4K	4.0K	4.1K	4.5K	5.0K	4.6K	5.1K	5.0K	5.2K	4.9K	4.9K	4.6K	4.3SK	3.5SK	3.2SK	2.8FK	2.4FK
17	2.4FK	2.6F	2.7	2.7	2.4H	2.5H	2.6H	4.6H	6.4H	7.2H	7.7	8.2H	9.5	8.8	8.0	7.4	6.9	6.5	6.2S	6.1S	4.9FS	(4.8)FS	(4.0)FS	(3.9)FS
18	(3.2)F	(3.0)F	(2.7)F	(2.5)F	(2.2)F	[2.5]F	(2.8)F	4.4F	5.0H	5.5	6.4	7.0	7.4	8.1	7.6	7.4	6.8	6.6	6.8	5.4	4.4	3.7JS	3.6S	3.1
19	2.9	2.7	2.7	2.6	2.4	2.2	2.9	4.8	5.4	5.4V	6.5	6.2	7.2	7.0	7.0	7.0	7.0	6.8	7.1	6.0	4.5	4.2	3.7	3.5S
20	3.1	2.7	2.7	2.6	2.7	2.7	3.3	5.0	5.6H	6.0H	6.0H	6.3H	6.5	6.8	6.9	6.6	6.5	6.3	6.1	5.8	4.7	4.1S	3.8	3.3
21	3.3	3.0	(2.4)F	1.9FS	1.7S	(1.8)F	3.0	4.0SK	3.8SK	4.4K	(4.2)SK	4.5K	5.2K	5.2	5.0K	5.0K	4.9SK	4.6FK	4.3SK	4.0SK	(3.7)SK	(3.4)SK	3.0K	3.2S
22	(2.8)SF	(2.4)SF	(2.3)SF	(2.5)FS	(2.4)SF	(2.2)F	(2.5)S	3.9S	4.8H	5.2H	5.7H	6.4	6.5H	6.5	6.1	5.7	5.8K	6.2K	6.2SK	6.2SK	5.8K	(3.6)SK	K3.0FS	2.6K
23	(2.5)FK	2.3FK	FK	FK	FK	FK	2.5K	3.5HK	3.8HK	<3.8GK	<3.8GK	4.2HK	4.4HK	4.6HK	4.6HK	5.1HK	4.7HK	4.6K	4.4SK	3.9SK	(3.2)SK	3.1FK	2.7FK	2.4FK
24	1.9SK	1.7K	K1.5SJ	EK	EK	EK	2.1SK	3.1K	<3.4GK	4.2HK	4.6HK	5.0HK	5.3K	(5.5)HK	5.3K	5.4HK	4.7HK	5.4K	5.6K	5.1S	4.5	3.9S	3.1S	2.9
25	2.6S	2.4F	(2.1)F	(2.2)F	(2.0)F	1.6JS	2.6S	3.6F	<3.7G	4.4FH	4.6H	5.8	5.8S	6.4	7.0	6.6	6.0	4.8	5.6	5.4S	(4.4)JS	(3.9)JS	(3.6)SJ	(3.2)F
26	(3.0)S	3.2	2.7F	2.4F	2.0F	2.0F	2.7F	5.0	5.4	6.0	5.6	6.4	6.8	6.8	7.3	7.0	7.1	7.4	7.0	5.6	5.2	4.5	4.1	3.4SJ
27	3.0F	(3.0)F	3.0F	(2.8)F	2.7F	2.5	3.0	3.9SJ	4.6H	5.0	5.6	6.4	7.0	6.4	7.0	6.6	6.1H	6.0	5.5S	5.1	4.7S	4.2S	3.8S	3.4S
28	3.2	3.0	2.9F	2.7F	2.3F	(2.2)F	3.4	5.0	5.3	5.8	6.4	6.6	7.1	7.1	7.2	6.8	6.5	5.9	5.7	5.3S	4.5S	(4.0)S	(3.8)S	(3.5)S
29	3.4S	(3.0)F	(2.8)F	(2.9)F	2.7F	2.6F	3.2	4.1H	5.1H	5.4F	5.5	6.1	6.2	6.6	7.0	7.0	6.9	6.4	6.0	5.8S	5.3S	(4.9)S	(4.5)S	(4.2)S
30	(4.0)S	3.8S	3.2F	2.7F	2.3F	2.4FS	3.4	4.7	5.3H	5.8H	6.2	7.1	6.9K	8.4K	7.8K	7.6K	8.3K	7.6K	8.6K	8.8K	7.2K	(4.8)SK	4.5K	Y(3.0)SF
31	[2.3]FK	K(2.2)JF	[2.2]FK	K(2.1)SF	EK	FK	(2.5)SK	<3.2GK	<3.9GK	<3.8GK	<4.0GK	<4.0GK	<4.0GK	4.4K	4.5K	4.6K	4.5HK	4.7HK	4.3SK	4.1SK	(3.9)SK	3.4SK	3.0K	2.7HK
Median	3.0	2.6	2.6	2.5	2.2	2.2	2.5	4.0	4.8	5.4	5.6	6.3	6.5	6.6	7.0	6.6	6.5	6.4	6.1	5.4	4.5	3.9	3.6	3.2
Count	30	30	29	28	29	28	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 59

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: McC., A.C.K., E.J.W.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: McC., A.C.K., E.J.W.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330		
1	2.7F	2.4S	2.2	2.1	1.9	(1.8)S	2.7	3.9F	4.4H	4.5H	4.8	5.2	5.8	6.1	5.8	6.1	5.8	5.8	4.7S	(3.6)S	3.0	2.7S	2.7S	2.6		
2	2.6	2.4	(2.6)F	(2.4)F	(2.4)F	2.4F	3.0F	4.2	4.6	5.0	5.5	5.8H	6.3	6.2	6.4	6.4	6.1	6.2	5.5	4.6	3.7S	3.2F	3.0F	2.8F		
3	2.7F	(2.6)F	2.9F	(2.6)F	(2.7)F	(2.5)F	3.1F	4.8	5.1H	5.3	6.0	6.8	6.2	7.1	6.8K	7.4K	7.2SK	8.0K	8.0K	8.0K	6.6K	5.8K	(3.4)SK	(3.2)PK		
4	EK	EK	K(2.2)PB	(1.7)SK	K(1.4)PS	EK	2.4K	3.3K	3.6K	3.8SK	4.4K	<3.8GK	4.5K	4.5K	4.3K	4.4K	5.0K	4.3K	4.5SK	3.5K	2.1K	K(1.8)BS	K(1.5)SJ	EK		
5	EK	EK	EK	EK	EK	EK	2.3SK	3.4K	3.9SK	4.0K	4.1K	4.2K	4.8HK	4.9K	4.8K	5.6K	7.2K	7.0SK	(5.4)SK	K(3.4)FS	K(1.7)SF	K[1.8]FS	K(1.9)SF	FK		
6	FK	(2.0)FK	EK	EK	EK	EK	2.5SK	3.5K	3.9SK	4.1K	4.6HK	5.4HK	5.3K	5.8SK	5.6K	5.4K	5.6K	5.6K	5.4SK	3.3SK	2.5SK	EK	EK	EK		
7	EK	EK	EK	EK	EK	EK	2.5FK	3.4K	4.1H-K	4.6K	4.6K	5.0K	4.9K	5.2K	5.8K	6.0K	5.6K	6.4K	6.1	4.9	4.0	4.0	3.8S	3.7S		
8	(2.9)F	(2.2)FJ	[2.0]FS	E	F(1.6)JS	[1.8]FS	3.0F	4.6	5.3H	6.3H	7.2	7.1H	7.5	7.2	7.1	8.1	8.0	7.7	7.5S	6.3S	4.2S	3.6S	3.0	2.9		
9	3.0	2.7	2.0	(1.6)JB	E	E	2.7F	3.8S	4.5	4.8H	5.1	5.6	5.8	6.5H	6.6	6.5	6.5	6.4	6.6S	4.3S	3.8S	3.3S	K2.6SH	2.2K		
10	K2.0SJ	1.8K	SFK	SFK	SK	K(1.6)JS	3.4S	4.8S	6.3	6.0H	6.9H	7.2H	8.2	8.2	8.0	8.0	8.2	7.6S	8.2	5.4S	4.1JS	3.7S	3.8S	3.7S		
11	3.7F	3.1F	2.8F	(2.5)F	2.1F	2.0F	4.0S	5.8S	6.1	6.8	7.0	9.2	9.3	8.8	8.0	8.4	7.3	6.6	6.3	5.9	4.3	3.7	3.2	3.2F		
12	3.1F	3.2	2.2F	2.3F	2.3	2.1JS	3.6	5.7	5.9	6.5	7.4	7.5	8.0	7.8	7.2	7.3	6.9	6.4	6.0	5.4	5.2S	4.2S	3.3S	3.0F		
13	2.9F	2.7F	2.4F	2.2F	(2.2)F	(2.3)SF	3.9S	5.7S	6.2	6.8	7.1	7.6	7.2	7.6	[6.9]C	7.2	6.9	6.8	7.0	6.4S	5.0S	4.5S	4.0	3.8S		
14	3.2	[2.8]C	[2.6]C	[2.6]C	[2.5]C	[2.4]C	[4.0]C	[6.1]C	6.8	6.8	7.2	7.0	7.5	7.6	6.9	7.4	7.2	6.4	5.5	4.7S	4.2S	4.2S	4.2S	3.9S		
15	3.7S	3.4S	3.3	3.1S	2.6F	2.6F	3.7S	5.8	6.0	6.4	7.3	7.8	7.8	7.6	7.0	8.3	8.1	7.5S	7.1	5.7	3.9	3.3S	3.0	2.7		
16	2.5F	2.5F	2.5F	2.5F	2.2F	2.3	3.1K	3.8SK	4.0K	4.4K	4.7HK	5.0K	4.7K	5.0K	5.0K	4.7K	5.1K	4.7K	4.5K	3.8SK	3.4SK	3.0K	2.5FK	2.5FK		
17	2.5FK	2.5F	2.7	2.6	2.5JH	2.0JS	3.8	5.2	5.9H	7.2H	8.1	8.6	9.4	8.3	7.7	6.8	6.6	6.2F	6.3S	5.5F	(4.8)S	(4.3)S	(4.0)FS	3.6FS		
18	(3.1)F	(2.9)F	(2.7)F	(2.2)F	(2.1)F	[2.6]F	3.8S	5.0H	5.1	5.8	6.6	7.0	7.8	7.8	7.8	7.2	6.6	6.7	6.0	5.1	4.0	3.7S	3.3	3.1		
19	2.7	2.7	2.5SF	2.5JS	2.3JS	2.3	4.0	5.2	5.2	6.0H	6.2	6.8	7.0	7.0	6.8	7.3	6.8	7.2	6.3	5.2	4.4S	(3.7)S	3.7	3.2		
20	2.9	2.6	2.6	2.7	2.8	2.8	4.2S	5.8	5.7H	6.0H	6.3	6.5	6.9	6.7	7.2	6.6	6.5	6.3	5.8	5.2	4.2S	4.0	3.5	3.3		
21	3.1F	2.8FJ	2.0F	1.8F	1.7F	(2.0)F	3.6	4.3K	4.1K	4.5K	(4.2)SK	4.7K	5.2HK	5.1K	5.0K	4.8K	4.9SK	4.5K	4.4SK	(3.8)FK	(3.7)SK	3.0K	3.0K	3.0		
22	(2.8)FS	(2.4)FS	(2.6)F	2.4FS	2.0FS	[2.3]FS	3.4	(4.3)S	5.2H	5.6H	6.0	6.4	6.2H	6.2	5.9	5.8	6.1K	6.2K	7.0K	6.5K	4.5SK	(3.0)FK	3.0K	(2.6)FK		
23	(2.5)FK	FK	FK	FK	FK	1.9SK	3.0FK	3.8HK	3.8HK	<3.8GK	<3.8GK	4.3HK	4.5K	4.6K	4.6SK	5.1K	4.4K	4.5K	4.4K	3.5FK	K(3.3)SF	2.8FK	2.6FK	2.1K		
24	1.8K	1.7K	K1.4JS	EK	EK	EK	2.8K	3.3HK	(4.1)SK	4.5HK	4.8HK	5.1HK	5.5HK	[5.4]MK	5.3HK	4.8K	5.3K	5.5K	5.4K	4.9	4.2	3.4	3.0	2.7		
25	2.5F	(2.2)F	2.2F	(2.0)F	1.8F	(1.7)SF	3.3	3.6F	4.2H	4.4F	5.4	5.6	6.1	6.4	7.0S	6.4	5.4	5.2	6.0	(4.8)S	4.1SJ	3.8SJ	(3.7)SJ	3.0F		
26	3.5SJ	2.8F	2.5SF	2.2F	2.0F	2.2FJ	3.1S	5.1	6.0H	5.6H	6.0	6.5	6.8	7.2	7.1	6.6	7.2	7.4S	6.0	5.4S	4.8	4.2	3.7SJ	3.2		
27	3.0F	(2.7)F	3.1F	2.8F	2.8F	2.3F	3.5	4.5	4.7	5.5	5.6	7.0	6.5	6.8	6.8	6.4	6.2S	5.1S	5.5S	5.0S	4.5S	3.9S	3.6S	3.3		
28	3.1F	3.0	2.8F	2.5F	2.3F	2.4F	4.2	4.9	5.4	[6.1]M	6.6	6.9	7.3	7.2	7.0	6.5	6.3	5.9	5.5	(4.8)S	(4.0)S	(3.9)S	(3.5)S	3.4S		
29	(3.1)F	(2.8)F	(2.7)F	2.9F	2.7F	2.7F	3.9S	5.0	5.4H	5.5	6.0	6.2H	6.5	6.8	6.9	7.0	6.5	6.2S	5.8S	5.7S	5.3S	(4.5)SF	(4.1)FS	(4.0)S		
30	(3.9)S	(3.5)S	3.0F	2.5F	2.3F	2.7F	3.7S	4.7H	5.4	5.8	6.8	7.0	7.5K	8.4K	7.8K	7.4K	8.0K	8.4K	9.0K	7.9SK	(6.0)SK	4.6SJ	(3.0)SK	K(2.2)JF		
31	2.4FK	FK	FK	1.7SK	EK	(1.7)SK	3.1K	<3.8GK	<3.8GK	[<3.9G]MK	<4.0GK	<4.0GK	<4.0GK	4.6K	4.5K	4.6K	4.5K	4.4K	4.2K	3.8SK	(3.7)SK	3.1FK	(2.8)FK	(2.6)SK		
Median	2.8	2.6	2.5	2.3	2.1	2.1	3.4	4.6	5.1	5.5	6.0	6.5	6.5	6.8	6.8	6.5	6.5	6.3	6.0	5.0	4.1	3.7	3.2	3.0		
Count	30	29	28	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 60

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

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), March (Month), 1952

Observed at Washington, D. C.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 61

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

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), March (Month), 1952

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								Q	L H	L	3.9 H	4.0 H	4.2 H	4.0	4.1	4.0 H	L	Q						
2								L	L	L	3.9 H	4.1 H	4.2 H	4.1 H	4.1	L	L	L H						
3								Q	L	L H	L	4.2 H	4.2 H	4.1	4.0 K	3.9 K	L K	L K						
4								2.4 K	3.3 HK	3.5 HK	K(3.7) SH	3.8 K	3.9 SK	3.9 HK	3.8 K	3.8 HK	3.6 HK	L K						
5								Q K	L K	3.6 K	3.7 K	3.8 HK	3.8 HK	4.0 HK	4.0 K	[3.8] LK	3.6 K	L K	L K					
6								Q K	L K	3.7 K	3.8 HK	4.0 K	4.0 K	4.1 K	4.0 K	3.8 K	3.5 K	3.1 K						
7								Q K	3.5 HK	3.7 K	3.9 HK	4.0 K	4.0 HK	4.1 K	4.1 K	[4.0] MK	3.6 K	L K						
8								Q	L	L	4.0	4.3 H	4.3 H	4.2 H	4.2 H	4.1	L	L						
9								Q	3.4 H	3.7	4.0 H	4.2 H	4.2	4.1 H	4.1	4.0	3.7	L						
10								L H	L	L H	4.2 H	[4.2] HL	4.3 H	4.4 H	4.2	4.1	L	L						
11								Q	L H	L H	L H	4.2 H	4.4	4.1	4.3	4.0	L	Q						
12								Q	L	L	4.2	4.4	4.4	4.3	4.2	4.1	L	Q						
13								Q	L	L H	L H	L	4.3	4.4	4.2	4.0	L	Q						
14								L	L	3.8	[4.1] L	4.4 H	4.2 H	4.5 H	4.3	4.1 H	3.6	Q						
15								Q	L	3.9	4.2 H	4.4 H	4.5	4.5	4.2	4.1 H	L	L						
16								Q K	3.6 K	(3.8) SK	4.0 HK	4.1 HK	4.1 HK	4.1 K	4.1 HK	4.0 K	3.7 K	L K						
17								Q	L	L	4.3 H	4.3 H	4.3 H	[4.3] L	4.3	4.0	L	L						
18								Q	L	L	4.2	4.3 H	4.4 H	4.2	4.2 H	4.1 H	3.6	L H						
19								L	L	3.7	4.0 H	4.2 H	4.2	4.4	4.1 H	3.8 H	L	L						
20								L	L	4.0	4.1	4.3 H	4.3	4.3 H	4.2 H	4.0	L	L						
21								L K	(3.5) LK	3.7 K	4.0 K	4.0 HK	4.1 HK	4.1 K	4.0 K	4.0 K	3.6 K	L K						
22								Q	L	L	L H	4.2 H	4.3 H	4.3 H	4.2	4.0	L K	L K						
23								L K	3.5 HK	3.8 HK	K3.8 SH	K(3.8) SH	K3.9 SH	3.9 HK	3.9 K	3.8 SK	3.7 K	3.3 K	L K					
24								Q K	3.4 HK	3.7 K	4.1 HK	4.1 HK	K(4.1) SH	4.2 HK	4.2 HK	4.0 K	L K	L K	Q K					
25								Q	3.7 F	3.9 F	4.2 H	4.2 H	4.3	4.2	4.2 H	4.1 H	L	L	Q					
26								L H	L H	L H	4.2	4.3	4.3 H	4.2	4.2 H	[4.0] L	3.9	L	Q					
27								Q	3.7 H	[4.0] LH	4.2 H	4.3	4.3	4.4	4.2	4.1 H	3.6 H	L	Q					
28								L	L	4.1 H	(4.2) H	4.3 H	4.3	4.3	4.3	4.1	L	L	Q					
29								Q	L	4.0	4.2 H	4.4	4.5 H	4.6 H	4.3	L	L	L	Q					
30								L	L	L	4.2 H	4.2 H	4.2 K	4.4 K	4.3 K	4.1 K	L K	L K	Q K					
31								3.2 K	3.9 SK	3.8 HK	4.0 HK	4.0 HK	4.0 HK	4.0 K	4.0 HK	3.9 HK	3.7 HK	3.4 HK	L K					
Median								—	3.5	3.8	4.1	4.2	4.2	4.2	4.2	4.0	3.6	—	—					
Count								2	10	18	27	30	31	31	31	29	13	3						

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

Manual ☐ Automatic ☒

TABLE 62

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

IONOSPHERIC DATA

Form adopted June 1946

h'E (Characteristic), Km (Unit), March (Month), 1952

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1								S	110	(120)B	120B	120B	120B	110B	120B	110	110	110								
2								(110)S	120	110	110	100	100	110	100	100	120	120								
3								S	110	110	110	120	110	110	110K	110K	110K	120K								
4								120SK	120K	110K	110K	110K	110K	[110]AK	110K	110K	110K	K120SH								
5								110SK	120K	110K	110K	110K	100K	100K	100K	110K	120K	120SK	SK							
6								120SK	110HK	110K	110K	110K	100K	110HK	110K	110K	110K	120K								
7								110K	110K	110K	(110)AK	110K	110K	100K	110K	[110]MK	110K	120K								
8								140	110	100	100	100	100	100	100	110	100	110								
9								(130)S	110	110	110	100	100	100	110	110	110	120								
10								(130)S	110	110	110H	110H	110H	100H	110	110H	110	120								
11								130	110	110H	110	110	100	110	110	110H	110	(120)B								
12								A	130	110	110	110	100	100H	100	110	110	120								
13								A	110	110	110	100	100	100	100	110	110	110S								
14								120	110	110	(110)A	(110)A	110	100H	100	110	110	120								
15								(130)SH	120	110	110	110	110	110	100	110	110	120								
16								K(120)SH	110K	110K	100K	100K	110K	110K	110K	110K	110K	120SK								
17								(120)SH	110	110	100	110	110	110	110	110	110S	120	S							
18								(120)S	110	110	100H	110	110	110	110	110	110	110	S							
19								130	110H	110	110	110	100	110	110	110	110	110H	S							
20								(150)SH	110H	100	100	110	100	110	110	110	110	120	A							
21								(120)SK	110K	110K	100K	100K	100K	100K	110K	110K	110K	110K	SK							
22								(120)S	110	110	100H	100	100	100	(100)A	(110)A	110K	(120)SK	SK							
23								(120)SK	110K	110K	100K	100HK	100K	100K	110K	110K	110K	110SK	SK							
24								AK	110K	110K	100K	100K	100K	100K	110K	110K	110K	(120)SK	SK							
25								(120)S	110	110H	100	100	100	100	110	110	110	110	S							
26								110	110	110H	110	110	110	110	110	110	110	110	S							
27								120	110	110	110	110	110	100	100	110	110	120	S							
28								120	110	110	110	110	110	100	100	110	110	110	S							
29								120	110	110	110	110	110	110	110	110	110	120	S							
30							130	(110)SH	110	110	110	100	110K	110K	100K	110K	110K	110K	160K							
31							SK	120K	110K	110K	110K	110K	110K	110K	110K	110K	110K	110K	(140)SK							
Median							—	120	110	110	110	110	110	110	110	110	110	120	—							
Count							1	26	31	31	31	31	31	31	31	31	31	31	2							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 63

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

IONOSPHERIC DATA

fo E (Characteristic), Mc (Unit), March (Month), 1952

Observed at Washington, D.C.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	2.1	(2.5)P	2.8	2.9B	3.0B	3.0B	2.9B	2.8	[2.5]A	2.1						
2								S	A	2.5	2.8	3.0	3.2	3.1	3.0	2.8	2.5	B						
3								S	2.3	2.6	2.7	[2.9]A	3.1	3.1	3.0K	2.8K	2.6K	2.0K						
4								(1.8)PK	(2.2)PK	[2.5]BK	(2.8)PK	(2.9)PK	3.0K	2.9K	2.9K	2.6K	2.4K	2.1HK						
5								1.8K	(2.1)PK	2.5K	(2.7)PK	(2.9)PK	3.1K	(3.0)PK	2.9K	2.7K	2.5K	2.0K	SK					
6								1.8K	2.2HK	2.6K	2.7K	2.9K	3.0K	3.1HK	2.9K	2.7K	2.4K	2.0K						
7								AK	AK	2.6K	2.8K	3.0K	3.1K	3.0K	2.9K	[2.8]MK	2.5K	2.1K						
8								1.8	2.4	2.6	2.9	3.0	3.1	3.1	3.1	2.8	2.6	B						
9								1.7	2.3	2.5	(2.8)P	3.0	3.1	3.0	2.9	2.8	2.6	2.2						
10								1.8	2.3	2.6	[2.8]HA	3.2H	3.2H	3.3H	3.2	3.1H	2.6	2.2						
11								1.9	2.3	2.6H	2.9	3.1	3.2	3.2	3.1	2.9H	2.6	(2.2)B						
12								A	2.4	2.7	[2.8]A	3.0	3.1	3.3H	3.1	3.0	2.7	2.2						
13								A	2.5	[2.8]B	3.0	3.1	3.4	3.2	3.1	3.0	2.7	2.2						
14								1.9	2.4	2.8	3.0	(3.1)P	(3.1)P	3.3H	3.1	2.9	2.7	2.3						
15								2.1H	2.5	[2.8]A	3.0	3.1	3.3	3.2	3.1	2.9	2.5	2.2						
16								2.0HK	2.3K	[2.6]AK	(2.9)PK	3.0K	3.1K	3.2K	3.0K	2.9K	2.6K	2.2K						
17								1.9H	2.4	2.7	(2.9)P	(3.1)P	3.2	3.3	3.1	3.0	2.7	2.2	S					
18								1.9	2.4	[2.6]A	(2.9)H	3.0	3.1	3.1	3.1	3.0	2.7	2.2	1.6S					
19								1.8	2.5H	[2.8]A	(3.0)P	3.1	3.2	3.1	3.1	3.0	2.7	2.3H	S					
20								2.0H	2.5H	2.8	3.0	3.1	3.1	3.2	3.1	3.0	2.7	2.3	A					
21								1.8K	2.4K	2.6K	2.8K	(3.0)PK	3.1K	3.1K	2.9K	2.8K	2.6K	2.2K	1.7K					
22								2.1	2.4	2.6	2.8H	(3.1)P	3.1	3.1	3.0	2.9	2.6K	2.2K	1.7K					
23								2.1K	2.4K	(2.6)PK	(2.7)PK	2.9HK	3.1K	3.0K	2.9K	(2.7)PK	2.5K	2.2K	SK					
24								AK	2.4K	2.6K	2.8K	2.9K	3.0K	3.1K	3.0K	2.8K	2.6K	2.3K	BK					
25								2.0	2.4	2.7H	2.9	3.0	3.2	3.1	3.0	2.9	2.7	2.2	1.7					
26								2.1	2.5	2.7H	[2.9]A	3.1	3.2	3.1	3.1	3.0	2.7	A	A					
27								1.9	2.5	2.8	3.0	(3.1)P	3.1	3.1	3.1	2.9	2.7	2.4	S					
28								A	2.4	2.8	3.0	3.1	(3.2)P	3.2	3.1	3.0	2.7	2.3	(1.7)P					
29								2.0	2.5	2.8	3.0	3.1	3.2	3.2	3.2	3.1	2.7	2.3	A					
30							(1.5)S	2.1H	2.6	2.6	3.0	[3.1]B	(3.2)PK	(3.2)PK	3.2K	3.0K	2.8K	2.4K	1.8K					
31							SK	2.1K	2.5K	2.8K	2.9K	(3.1)PK	(3.2)PK	3.1K	3.0K	2.9K	2.7K	2.3K	1.8K					
Median							–	1.9	2.4	2.6	2.9	3.0	3.1	3.1	3.1	2.9	2.6	2.2	1.7					
Count							1	23	29	31	31	31	31	31	31	31	31	28	7					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 64

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

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit), March (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: McC., A.C.K., E.J.W.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	S	G	G	G	G	G	G	G	G	3.1/120	G	E	E	E	E	E	E
2	E	E	E	E	E	E	E	G	25/120	27/120	G	G	G	G	G	G	G	G	2.6Y/100	E	E	E	E	E
3	E	E	E	E	E	E	E	S	G	G	G	31/120	G	G	G	G	G	G	E	E	E	E	E	E
4	E	E	E	2.3/130	E	E	E	G	G	G	G	G	G	2.7/100	G	G	G	G	E	E	E	E	E	E
5	E	E	E	E	E	E	E	G	G	G	G	G	G	90/130	G	G	G	G	S	E	E	E	E	E
6	E	E	E	E	E	E	E	G	G	G	G	3.3Y/110	G	G	G	G	33/130	G	17/120S	E	31/110	25/120	27/110	E
7	E	E	2.3/110	2.9/110	26/110	E	23/110	20Y/120	32/110	G	26/110	G	G	65/110	G	M	G	G	E	E	E	E	E	E
8	E	E	E	E	40H/150	E	11.5/120	G	3.8S/120	28/110	43/100	G	G	47Y/100	G	G	G	G	E	E	E	E	E	E
9	E	E	E	E	E	36H/110	3.5/100	G	G	G	G	G	G	G	73/110	G	G	G	E	E	E	E	E	E
10	E	E	E	E	7.0/110	E	E	G	G	G	31/110	G	G	G	G	G	G	G	E	E	E	E	E	E
11	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	46/110	E	E	E	E
12	E	E	E	E	E	E	25/110	18/110	30/110	G	100/110	G	G	G	G	G	1.9/100	G	E	1.4/110	E	E	E	E
13	E	E	E	E	E	E	E	2.7/110	G	G	G	G	G	G	G	1.9/100	G	28/110	E	E	E	E	E	E
14	E	E	E	E	E	E	E	G	G	2.7/110	26/110	34Y/110	G	G	G	2.4/110	G	G	E	E	E	E	E	E
15	E	E	E	E	E	E	E	G	32/120	37/120	G	G	G	G	G	G	G	G	18/120	E	E	E	3.0/120	E
16	34/130	E	E	E	E	E	E	G	G	33Y/110	G	G	G	G	G	G	G	G	1.7/120	E	2.9Y/120	E	2.7/110	E
17	34S/110	E	E	E	E	E	E	G	G	5.2Y/110	G	G	G	G	G	G	G	G	G	E	28/110	60/110	31/110	3.1/110
18	2.3/110	2.6/110	22/110	E	30Y/110	E	2.1/120	G	31/110	35/110	34/110	G	G	G	96Y/110	G	G	G	G	E	E	E	E	E
19	E	E	E	E	36Y/120	E	44/130	G	G	36/110	35/110	G	G	32/100	G	G	G	G	G	E	E	E	E	E
20	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	35/130	32/120	E	E	E	E	E
21	E	E	E	E	E	E	E	G	G	G	G	G	G	G	31/110	G	G	G	G	E	E	E	E	E
22	E	E	E	E	E	E	75/120	G	G	G	G	G	G	G	25/100	20/100	G	G	G	E	E	E	E	E
23	E	E	E	E	E	E	25Y/120	G	G	G	G	G	G	G	G	G	27/120	G	G	E	27Y/120	E	E	E
24	E	E	E	E	E	E	23/140	30/120	44Y/120	G	G	G	G	G	G	G	G	G	S	29/110	24/110	E	E	E
25	E	E	E	E	E	E	E	G	G	G	82/110	G	G	G	G	G	G	G	G	E	E	E	E	E
26	E	E	E	84/120	64Y/120	E	E	G	G	G	40/110	G	G	85Y/150	G	40/120	46/120	38/110	3.0Y/110	E	E	E	E	E
27	E	2.2/110	E	E	E	E	E	G	G	G	G	G	G	G	G	2.0/100	G	G	S	E	E	E	24/110	E
28	E	E	E	E	E	E	E	30Y/120	34Y/120	G	G	G	94Y/120	G	G	G	G	G	G	E	E	E	E	E
29	E	E	E	E	E	E	E	G	84/110	G	G	G	3.9Y/110	G	G	G	41/120	56/120	2.9/130	23/110	E	E	E	E
30	E	E	E	E	E	24/110	G	30/120	7.0/110	G	G	G	G	G	G	60Y/100	10.0/100	G	G	E	E	E	E	E
31	E	E	E	E	1.7Y/130	E	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	31	31	31	31	31	31	31	29	31	31	31	31	31	31	31	30	31	31	28	31	31	31	31	31

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 65

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

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), March (Month), 1952

Observed at Washington, D.C.

Lat 38.7° N, Long 77.1° W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.0	2.2 F	1.9	2.0	2.0 S	1.9	1.9	2.4 S	2.3	2.3	2.2	2.0	2.0	2.1	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.0	1.9 S	1.9
2	2.0	2.0	1.9 F	2.2 F	2.0 F	2.0 SF	2.0 F	2.4	2.4	2.3	2.3	2.2	2.1 H	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3 S	2.3 S	2.1 F	2.0 F
3	2.0 F	2.0 F	(2.0) F	(2.2) F	(2.3) F	(2.1) F	(2.1) F	2.4 S	2.4	2.1	1.9	2.1	2.1	2.0	2.0 K	2.0 K	2.0 K	2.0 K	2.0 K	1.9 K	2.2 K	2.2 K	2.3 SK	1.9 SK
4	K(1.8) FS	E K	F K	E K	F SK	E K	E K	2.2 K	G K	1.4 K	1.7 K	1.7 K	1.6 K	1.7 K	1.8 K	1.7 HK	2.1 K	2.1 SK	1.9 K	2.1 K	1.9 K	(1.8) BK	K(1.6) JB	E K
5	E K	E K	E K	E K	E K	E K	E K	2.0 K	2.1 SK	1.9 K	1.4 K	1.7 HK	1.7 K	1.9 K	2.1 K	1.9 HK	2.0 K	2.2 SK	(1.7) SK	(1.8) FK	K(1.7) SF	F SK	F SK	F SK
6	F K	F K	K(1.7) SF	E K	E K	E K	S FK	2.0 K	2.1 SK	1.7 K	1.8 HK	2.1 HK	2.2 K	2.0 HK	1.9 HK	2.1 K	2.1 HK	2.0 K	2.1 SK	2.1 SK	2.1 K	1.8 SK	E K	E K
7	E K	E K	E K	E K	E K	E K	F SK	2.1 K	G K	2.0 HK	1.8 HK	1.9 K	2.1 K	1.9 K	2.0 K	M K	2.2 K	2.1 K	2.2	2.1	2.1 S	1.9 S	1.9 S	1.9 S
8	1.9	(1.9) F	(1.8) FS	F S	E	F	(1.9) FS	2.3 S	2.4	2.1 H	2.1 H	2.0 H	2.1	2.2	2.1	1.9	2.1	2.0	2.2	2.0 S	(2.2) S	2.0 S	1.7	1.7 F
9	(1.9) JH	1.8 H	2.0 H	(1.8) JS	E	E	(1.8) FS	2.3	2.2 H	2.1	2.0 H	1.9	2.1	2.0	1.9 H	2.0	2.0	2.0	2.1	2.2 S	2.0	2.0 S	2.0 VK	2.0 FK
10	K(1.8) SF	1.8 K	K(1.9) SJ	S K	E K	K(1.9) SJ	1.9 FS	2.3 H	2.1 HS	2.3 H	2.1 H	2.2	2.1	2.1	2.1	2.1	2.1	2.2 S	2.1 S	2.4 S	2.0 S	(2.0) S	1.9 S	1.9 S
11	1.9 S	1.9 F	(1.9) FS	(1.9) F	(2.1) F	1.9 F	2.1 FS	2.4 S	2.5 S	2.2	2.1	2.1	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.2	2.2 S	1.9	1.8	(1.9) JS
12	2.0 S	(1.9) JS	(2.0) JF	2.0 F	2.1	2.0	2.1 F	2.4 H	2.4	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.1	2.1	2.2 S	2.1 S	2.0 F
13	2.0 F	1.9 F	2.0 F	1.9 F	2.1 F	(2.0) FS	(2.1) F	2.4	2.4	2.4	2.2	2.1 H	2.2	2.1 H	2.3	2.2	2.3	2.2	2.2	2.2	2.1 S	2.1 S	2.1 S	2.0 S
14	2.1	2.1	2.1 S	2.0	2.0	2.0 S	2.0	2.4	2.4	2.4	2.2	2.3	2.2	2.1	2.3	2.3	2.3	2.3	2.3	2.2	2.1 S	2.0 S	2.0 S	2.0 S
15	2.0	1.8 S	1.9 S	1.9	1.9 F	2.0 F	2.2	2.3 F	2.4	2.2	2.1 S	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2 S	2.2	2.2 S	2.0	(1.9) JS	1.8
16	1.8 SF	1.9 F	1.9 F	2.1 F	2.0	1.9 F	2.1 K	2.2 K	1.9 K	1.6 K	1.6 K	2.0 K	1.6 K	2.0 K	2.0 K	2.0 K	1.9 K	2.1 K	2.2 K	2.0 SK	2.0 SK	1.9 SK	2.0 FK	1.9 FK
17	1.9 FK	2.0 F	1.9	2.0	2.2 H	2.4 H	2.1 H	2.4 H	2.1 H	2.1 H	2.1	2.0 H	2.2	2.1	2.3	2.4	2.3	2.3	2.2 S	2.1 S	2.1 FS	(2.0) FS	(2.0) FS	(2.0) FS
18	(2.0) F	(1.9) F	(1.9) F	(1.9) F	(1.9) F	F	(2.2) F	2.3 F	2.4 H	2.2	2.1	2.1	2.0	2.2	2.2	2.3	2.3	2.2	2.3	2.2	2.0	(1.9) JS	2.0 S	1.9
19	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.4	2.4	2.1 V	2.3	2.2	2.3	2.1	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.0	2.1 SP
20	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.3	2.3 H	2.4 H	2.4 H	2.1 H	2.2	2.2	2.1	2.3	2.3	2.3	2.3	2.3	2.2	2.0 S	2.0	2.1
21	2.0	1.9	(1.9) F	1.9 FS	1.7 S	(1.7) F	1.7	2.3 SK	2.4 SK	2.1 K	(1.9) SK	1.6 K	1.9 K	1.9 K	1.9 K	2.0 K	2.1 SK	2.1 FK	2.0 SK	2.0 SK	(2.1) SK	(2.0) SK	1.9 K	1.9 S
22	(1.9) SF	(1.9) SF	(1.9) SF	(2.0) SF	(2.0) SF	(2.1) F	(2.4) S	2.3 S	2.3 H	2.2 H	2.2 H	2.2	2.2 H	2.2	2.2	2.2	2.1 K	2.2 K	2.2 SK	2.0 SK	2.0 K	(2.2) SK	K1.8 FS	1.7 K
23	(1.8) FK	1.8 FK	F K	F K	F K	F K	2.0 K	2.2 HK	2.0 HK	G K	G K	1.6 HK	1.7 HK	1.9 HK	1.7 HK	1.9 HK	2.1 HK	2.1 K	2.1 SK	2.1 SK	(1.9) SK	1.9 FK	1.9 FK	1.8 FK
24	1.7 SK	1.8 K	K(2.0) SJ	E K	E K	E K	2.0 SK	2.2 K	G K	1.7 HK	2.0 HK	1.9 HK	1.9 K	(2.2) HK	2.2 K	2.2 HK	2.1 HK	2.2 K	2.2 K	2.1 S	2.1	2.0 S	2.0 S	2.0
25	2.0 S	2.0 F	(1.9) F	(1.9) F	(1.9) F	(1.7) SJ	2.1 S	2.1 F	G	2.2 FH	1.9 H	2.1	2.1 S	2.0	2.2	2.2	2.3	2.2	2.2	2.2 S	(2.0) JS	(1.9) SJ	(1.9) SJ	(2.0) F
26	(2.0) S	2.1	2.1 F	2.1 F	2.2 F	2.5 F	2.2 F	2.3	2.3	2.4	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.3	2.2	2.1	2.1	2.1	(2.0) SJ
27	2.0 F	(2.0) F	2.0 F	(2.0) F	2.0 F	2.0	2.1	(2.1) SJ	2.3 H	2.0	2.1	2.0	2.1	2.1	2.2	2.3	2.3 H	2.3	2.3 S	2.1	2.1 S	2.0 S	2.0 S	1.9 S
28	1.9	1.9	2.0 F	2.1 F	2.0 F	(2.0) F	2.3	2.3	2.4	2.3	2.1	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3 S	2.1 S	(2.0) S	(2.0) S	(2.0) S
29	1.9 S	(2.0) F	(1.9) F	(2.0) F	2.0	2.0 F	2.3	2.3 H	2.2 H	2.3 F	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.2 S	2.0 S	(2.0) S	(2.0) S	(1.9) S
30	(2.0) S	1.9 S	2.0 F	2.0 F	1.9 F	1.9 SF	2.2	2.3	2.3 H	2.1 H	2.1	2.1	2.0 K	2.0 K	2.0 K	2.0 K	2.0 K	2.0 K	1.9 K	2.1 K	1.8 K	(1.6) SK	1.6 K	K(1.7) SF
31	F K	K(1.7) JF	F K	K(1.7) SF	E K	F K	(1.9) SK	G K	G K	G K	G K	G K	G K	1.5 K	1.8 K	1.8 K	1.8 HK	2.1 K	2.0 HK	2.0 SK	(2.0) SK	1.7 SK	1.8 K	1.9 HK
Median	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.0	2.0	1.9
Count	27	27	26	23	21	21	27	31	31	31	31	31	31	31	31	30	31	31	31	31	31	30	29	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 66

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

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ______ (Unit), March (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., A.C.K., E.J.W.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	32F	29	30	30S	29	28	34S	34	33	33	30	30	31	32	32	32	33	35	33	32	30	29S	29
2	29	29	29F	32F	30F	30FS	30F	35	35	33	33	32	31H	33	33	32	33	33	33	33	33S	33S	31F	30F
3	30F	29F	(30)F	(32)F	(33)F	(31)F	(30)F	35S	35	31	28	31	31	30	29K	30K	30K	30K	30K	28K	32K	32K	33SK	29SK
4	K(27)FS	EK	FK	EK	FSK	EK	EK	32K	GK	22K	26K	26K	24K	26K	27K	26HK	31K	31SK	29K	31K	28K	(27)BK	K(25)JB	EK
5	EK	EK	EK	EK	EK	EK	EK	30K	31SK	29K	21K	25HK	25K	28K	31K	29HK	30K	32SK	(26)SK	(27)FK	K(25)SF	FSK	FSK	FSK
6	FK	FK	K(25)SF	EK	EK	EK	SK	30K	30SK	26K	27HK	31HK	32K	30HK	29HK	31K	30HK	30K	31SK	31SK	31K	27SK	EK	EK
7	EK	EK	EK	EK	EK	EK	FSK	31K	GK	30HK	27HK	29K	31K	29K	30K	MK	32K	31K	32	31	31S	29S	28S	28S
8	28	(28)F	(27)FS	FS	E	F	(28)FS	33S	34	31H	31H	30H	31	32	31	29	31	30	32	30S	(32)S	29S	25	26F
9	(29)JH	27H	30H	(27)JS	E	E	(27)FS	33	32H	31	30H	29	31	29	29H	29	30	30	31	32S	29	30S	30SK	29FK
10	K(27)SF	27K	K(28)SJ	SK	EK	K(28)SJ	28FS	33H	31HS	34H	31H	32	31	31	31	31	31	32S	31S	34S	30S	(29)S	29S	29S
11	29S	28F	(28)FS	(29)F	(31)F	28F	31FS	35S	36S	32	31	31	30	30	30	32	33	33	34	32	32S	29	28	(29)JS
12	30S	(29)JS	(30)JF	30F	31	30	31F	34H	35	32	32	32	32	31	32	32	32	32	33	31	31	32S	31S	30F
13	30F	28F	30F	28F	31F	(30)FS	(31)F	35	34	34	32	31H	32	31H	33	32	33	32	32	32	31S	31S	30S	30S
14	31	31	30S	30	30	29S	30	34	35	34	32	33	32	31	33	33	33	33	34	32	31S	30S	30S	30S
15	30	28S	28S	29	29F	30F	32	33F	35	32	31S	31	31	31	32	31	31	32	32S	32	32S	30	(28)JS	28
16	28SF	28F	29F	31F	30	29F	31K	32K	29K	25K	25K	30K	25K	30K	29K	30K	28K	31K	32K	30K	30K	29K	30FK	28FK
17	29FK	30F	28	30	32H	34H	31H	34H	31H	31H	31	30H	32	31	33	34	33	34	32S	31	31S	(30)FS	(29)FS	(30)FS
18	(29)F	(29)F	(28)F	(28)F	(28)F	F	(32)F	34F	34H	32	31	31	30	32	32	33	33	32	33	32	30	(29)JS	30	27
19	28	29	29	30	31	31	31	34	35	31V	33	32	33	31	32	31	31	32	34	32	31	31	30	31
20	30	30	29	29	29	30	31	34	34H	35H	34H	31H	32	32	31	33	33	33	33	33	32	30S	30	30
21	29	29	(28)F	28SS	26S	(26)F	26	34SK	34SK	31K	(28)SK	24K	28K	29K	28K	30K	31SK	31FK	30SK	30SK	(31)SK	(30)SK	28K	29S
22	(28)SF	(28)SF	(29)SF	(30)SS	(30)SF	(31)F	(34)S	34S	34H	32H	32H	32	32H	32	32	32	31K	32K	32SK	29SK	30K	(32)K	K27FS	26K
23	(27)FK	28FK	FK	FK	FK	FK	30K	32HK	30HK	GK	GK	25HK	26HK	28HK	26HK	28HK	30HK	31K	31SK	31SK	(28)SK	28FK	28FK	27FK
24	26SK	27K	K(30)SJ	EK	EK	EK	30SK	32K	GK	26HK	30HK	28HK	29K	(32)HK	32K	32HK	31HK	32K	32K	31S	30	29S	29S	29
25	30S	30F	(29)F	(29)F	(29)F	(26)SJ	31S	31F	G	32FH	29H	31	31S	30	32	32	33	32	32	32S	(32)SJ	(29)SJ	(28)SJ	(30)F
26	(30)S	31	31F	31F	32F	34F	32F	34	33	35	32	32	32	31	31	32	31	32	34	32	31	31	31	(30)SJ
27	29F	(30)F	30F	(30)F	29F	30	31	(31)SJ	34H	30	31	30	31	31	32	33	32H	34	33S	31	31	30S	30S	29S
28	29	28	30F	31F	30F	(30)F	33	33	34	34	31	33	31	32	32	32	32	32	33	33S	31S	(30)S	(30)S	(29)S
29	29S	(29)F	(29)F	(30)F	30F	29F	33	33H	32H	33F	32	32	32	31	32	32	32	33	33	32	29	(30)S	(30)S	(29)S
30	(30)S	29S	30F	30F	28F	28FS	32	33	33H	31H	31	31	30K	30K	30K	30K	30K	29K	29K	31K	27K	(25)SK	25K	K(25)SF
31	FK	K(26)JF	FK	K(26)SF	EK	FK	(29)SK	GK	GK	GK	GK	GK	GK	23K	27K	27K	27HK	31HK	27K	29SK	[illegible]	26K	27H	28HK
Median	29	29	29	30	30	30	31	33	34	31	31	31	31	31	31	32	31	32	32	31	31	30	29	29
Count	27	27	26	23	21	21	27	31	31	31	31	31	31	31	31	30	31	31	31	31	31	30	29	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 67

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

IONOSPHERIC DATA

(M3000)F1, ______ (Characteristic) (Unit) March (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., A.C.K., E.J.W.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								Q	L H	L	3.6 H	3.7 H	3.5 H	3.6	3.6	3.6 H	L	Q						
2								L	L	L	3.8 H	3.8 H	3.8 H	3.8 H	3.7	L	L	L H						
3								Q	L	L H	L	3.6 H	3.7 H	3.5	3.7 K	3.6 K	L K	L K						
4								3.5 K	3.6 HK	3.6 HK	K (3.5) HS	3.5 K	3.5 KS	3.6 HK	3.6 K	3.5 HK	3.5 HK	L K						
5								Q K	L K	3.5 K	3.8 K	3.7 HK	3.6 HK	3.5 HK	3.6 K	L K	3.4 K	L K	L K					
6								Q K	L K	3.5 K	3.7 HA	3.5 K	3.6 K	3.5 K	3.5 K	3.4 K	3.4 K	3.5 K						
7								Q K	3.4 HK	3.5 K	3.6 HA	3.6 K	3.7 HK	3.7 K	3.5 K	M K	3.7 K	L K						
8								Q	L	L	3.8	3.7 H	3.6 H	3.4 H	3.7 H	3.6	L	L						
9								Q	3.5 H	3.7	3.7 H	3.5 H	3.6	3.6 H	3.5	3.5	3.6	L						
10								L H	L	L H	3.8 H	L H	3.7 H	3.6 H	3.7	3.6	L	L						
11								Q	L H	L H	L H	3.6 H	3.6	3.7	3.6	3.7	L	Q						
12								Q	L	L	3.6	3.6	3.5	3.7	3.7	3.7	L	Q						
13								Q	L	L H	L H	L	3.6	3.7	3.8	3.7	L	Q						
14								L	L	3.4	L	3.7 H	3.8	3.7 H	3.7	3.6 H	3.8	Q						
15								Q	L	3.8	3.8 H	3.7 H	3.6	3.5	3.7	3.5 H	L	L						
16								Q K	3.4 K	(3.6) SK	3.7 HK	3.9 HK	3.7 HK	3.7 K	3.5 HK	3.5 K	3.4 K	L K						
17								Q	L	L	3.6 H	3.8 H	3.4 H	L	3.6	3.7	L	L						
18								Q	L	L	3.6	3.7 H	3.7 H	3.9	3.6 H	3.7 H	3.4	L H						
19								L	L	4.0	3.4 H	3.7 H	3.8	3.7	3.7 H	3.8 H	L	L						
20								L	L	3.8	3.9	3.4 H	3.7	3.7 H	3.7 H	3.7	L	L						
21								L K	(3.7) LK	3.7 K	3.7 K	4.0 HK	3.5 HK	3.7 K	3.6 K	3.5 K	3.5 K	L K						
22								Q	L	L	L	3.8 H	3.7 H	3.5 H	3.5	3.6	L K	L K						
23								L K	3.6 HK	4.0 HK	K 4.0 HS	K (4.0) HS	K 3.4 HS	3.7 HK	3.5 K	3.5 SK	3.4 K	3.5 K	L K					
24								Q K	3.5 HK	3.6 K	3.8 KH	4.0 HK	K (3.7) HS	3.6 HK	3.5 HK	3.7 K	L K	L K	Q K					
25								Q	3.6 F	3.6 F	3.7 H	3.7 H	3.6	3.9	3.5 H	3.6 H	L	L	Q					
26								L H	L H	L H	3.7	3.9	3.7 H	3.7	3.6 H	L	3.7	L	Q					
27								Q	3.4 H	L H	3.6 H	3.6	3.6	3.5	3.6	3.6 H	3.8	L	Q					
28								L	L	3.6 H	(3.8) H	3.6 H	3.8	3.7	3.7	3.7	L	L	Q					
29								Q	L	3.9	3.8 H	3.7	3.7 H	3.6 H	3.7	L	L	L	Q					
30								L	L	L	3.9 H	4.1 H	4.0 K	3.5 K	3.5 K	3.5 K	L K	L K	Q K					
31								3.2 K	3.3 SK	3.7 HK	3.6 HK	4.1 HK	3.8 HK	3.6 K	3.6 HK	3.7 HK	3.6 HK	3.6 HK	L K					
Median								—	3.5	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	—	—					
Count								2	10	17	26	24	31	30	31	26	13	3						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 68

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

IONOSPHERIC DATA

(M1500)E , ______ (Characteristic) (Unit) — March (Month), 1952

Observed at Washington, D.C.

Lat. 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., E.J.W.

Calculated by: McC., A.C.K., E.J.W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	4.1	(4.2) P	4.2	4.2 B	4.1 B	4.2 B	4.2 B	4.2	A	4.0						
2								S	A	4.1	4.2	4.2	4.0	4.1	4.2	4.2	4.2	B						
3								S	4.0	4.3	4.1	A	4.2	4.4	4.2 K	4.2 K	4.3 K	4.2 K						
4								(4.4) PK	(4.3) PK	B K	(4.1) PK	(4.1) PK	4.0 K	4.2 K	4.1 K	4.2 K	4.1 K	4.0 HK						
5								4.0 K	(4.2) PK	4.1 K	(4.2) PK	(4.1) PK	3.4 K	(4.1) PK	4.1 K	4.2 K	4.1 K	3.8 K	S K					
6								4.3 K	4.3 HK	4.0 K	4.1 K	4.0 K	4.0 K	3.9 HK	4.2 K	3.9 K	4.1 K	4.0 K						
7								A K	A K	4.0 K	4.1 K	4.0 K	4.0 K	4.2 K	4.2 K	M K	4.3 K	4.1 K						
8								4.2	4.0	4.1	4.1	4.2	4.1	4.2	4.1	4.2	4.1	B						
9								4.2	4.1	4.2	(4.2) P	4.1	4.2	4.3	4.2	4.1	4.0	3.8						
10								4.1	4.2	4.3	A	4.1 H	4.2 H	4.1 H	4.0	4.0 H	4.1	4.0						
11								4.1	4.2	4.2 H	4.2	4.0	4.1	4.0	4.1	4.1 H	4.2	(4.1) B						
12								A	4.2	[illegible]	A	4.3	4.1	3.7 H	4.1	4.1	4.1	4.3						
13								A	4.0	B	4.1	4.1	4.1	4.1	4.2	[illegible]	4.1	4.2						
14								4.1	4.3	4.1	4.2	(4.0) P	(4.2) P	4.0 H	4.1	4.1	4.1	4.0						
15								3.7 H	4.1	A	4.2	4.2	4.1	[illegible]	4.1	4.1	4.1	4.1						
16								3.4 HK	4.2 K	A K	(4.2) PK	4.1 K	4.2 K	4.0 K	4.1 K	4.1 K	4.1 K	4.1 K						
17								4.0 H	4.2	4.3	(4.2) P	(4.2) P	4.1	4.0	4.1	4.1	4.2	4.2	S					
18								3.9	4.0	A	(4.2) H	4.0	4.1	4.1	4.2	4.1	4.3	4.2	3.7 S					
19								4.0	4.1 H	A	(4.1) P	3.8	4.0	4.1	4.2	4.1	4.3	4.2 H	S					
20								3.6 H	4.1 H	3.4	4.0	4.1	4.2	4.3	4.2	4.1	4.0	4.3	A					
21								4.1 K	4.1 K	4.2 K	4.2 K	(4.3) PK	4.1 K	4.4 K	4.4 K	4.2 K	4.2 K	4.2 K	3.5 K					
22								3.9	4.1	4.4	4.2 H	(4.0)	4.1	4.3	4.2	4.2	4.4 K	4.3 K	3.4 K					
23								4.3 K	4.3 K	(4.3) PK	(4.3) PK	4.2 K	4.1 K	4.2 K	4.3 K	(4.2) PK	4.2 K	4.1 K	S K					
24								A K	4.2 K	4.2 K	4.2 K	4.2 K	4.3 K	4.2 K	4.2 K	4.4 K	4.3 K	4.2 K	B K					
25								4.0	4.0	4.2 H	4.2	4.2	4.0	4.0	4.1	4.2	4.1	4.3	4.0					
26								4.1	4.2	4.2 H	A	4.3	4.1	4.2	4.0	4.2	4.3	H	A					
27								4.3	4.0	4.2	4.0	(4.1) P	4.2	4.2	4.1	4.1	4.1	4.0	S					
28								A	4.2	4.2	4.2	4.2	(4.1) P	4.3	4.2	4.2	4.2	4.3	(4.1) P					
29								4.2	4.2	4.3	4.2	4.1	4.3	4.2	4.1	4.1	4.3	4.2	A					
30							(3.7) S	3.9 H	4.2	4.3	4.2	B	(4.0) PK	(4.0) PK	4.0 K	4.0 K	4.2 K	4.0 K	3.7 K					
31							S K	4.0 K	3.8 K	4.2 K	4.1 K	(4.2) PK	(4.0) PK	4.0 K	4.1 K	4.1 K	4.1 K	4.3 K	3.5 K					
Median							—	4.1	4.2	4.2	4.2	4.1	4.1	4.2	4.1	4.1	4.2	4.2	3.7					
Count							1	23	29	25	28	24	31	31	31	30	30	28	7					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 69

Ionospheric Storminess at Washington, D. C.

March 1952

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	3			4	2
2	1	3			1	1
3	1	3	1900	----	1	5
4	5	6	----	----	5	4
5	6	6	----	----	5	5
6	6	4	----	----	6	
7	6	4	----	2300	4	4
8	6	1			4	4
9	3	3			4	4
10	3	3	0300	1100	4	4
11	4	3			4	3
12	2	3			3	3
13	1	1			3	3
14	2	2			2	2
15	1	2			2	3
16	1	5	1100	----	3	3
17	2	3	----	0600	4	3
18	4	3			4	2
19	1	2			1	2
20	1	2			2	1
21	0	5	1200	----	4	5
22	2	3	----	0400	4	3
			2100	----		
23	2	5	----	----	5	4
24	4	4	----	2400	5	4
25	4	3			4	4
26	3	2			3	3
27	1	1			3	3
28	1	2			1	2
29	1	2			1	2
30	1	4	1700	----	3	5
31	4	6	----	----	6	4

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

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

----Dashes indicate continuing storm.

Table 70

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
February 1952

Day	North Atlantic quality figure Half day GCT (1)	(2)	CRPL* Warning Half day GCT (1)	(2)	CRPL** Forecasts (J-Reports)	Geomagnetic K_{Ch} Half day GCT (1)	(2)
1	(3)	(3)		W	X	3	3
2	(4)	(4)	W	W	X	(4)	2
3	(4)	5				2	2
4	5	5				1	1
5	5	6				1	1
6	5	(4)				3	(4)
7	(3)	(4)	U	U	X	(5)	3
8	(3)	(4)	W	W	X	(4)	(4)
9	(3)	(4)	W	W	X	(4)	(4)
10	(3)	(4)	W	W	X	3	(4)
11	(3)	(3)	W	W	X	(4)	(4)
12	(3)	(3)	W	W		(4)	(4)
13	(3)	(4)	W	W	X	(4)	(4)
14	(3)	5	W			3	3
15	(3)	5				3	2
16	(3)	(3)		U		(5)	(4)
17	(3)	5	W	W		3	2
18	(4)	(4)				3	3
19	(4)	(4)	U		X	(4)	3
20	(4)	(3)				3	1
21	(4)	6				1	1
22	6	5				1	1
23	7	7				2	2
24	(4)	(3)	W	W		(5)	(4)
25	(3)	(4)	W	W		3	2
26	5	(4)	U	U		(4)	(4)
27	(4)	(4)	U	U		(5)	3
28	(3)	(3)	W	W	X	(5)	3
29	(3)	(3)	W	U	X	3	3
Score:			Warning		Forecast		
H			30		22		
(M)			3		0		
M			11		21		
G			13		15		
O			1		0		

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.
( ) broadcast for one-quarter day. Blanks signify N.

**In addition to dates marked X, the following were designated as probable disturbed days on forecast more than three or four days in advance of said dates: February 3, 6, 20.

Scales:
Quality Figures
(1)- Useless
(2)- Very poor
(3)- Poor
(4)- Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

Geomagnetic K_{Ch} - 0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis.

Symbols:
W Disturbed conditions expected
U Unstable conditions expected
N No disturbance expected
X Probable disturbed date

Scoring:
H Storm ($Q \leq 4$) hit
(M) Storm severer than predicted
M Storm missed
G Good day forecast
O Overwarning

Scoring by half day according to following table:

	Quality Figure ≤3	4	5	≥6
W	H	H	O	O
U	(M)	H	H	O
N	M	M	G	G
X	H	H	O	O

Table 71a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	-	-	-	-	-	-	-	-	3	3	4	3	4	6	8	12	6	5	6	4	2	3	3	3	4	3	3	3	3	3	3	4	3	2	2	-	-	-
8.8	-	-	-	-	-	3	2	2	3	3	5	6	4	4	3	3	3	3	5	12	17	16	14	12	5	4	3	3	3	3	4	4	2	-	-	-	-
10.9a	-	-	-	-	-	-	3	3	3	5	6	3	3	3	3	4	3	4	5	10	12	15	12	5	4	4	3	3	4	5	5	-	-	-	-	-	-
13.7	X	X	X	X	-	3	3	5	4	3	4	4	3	4	4	5	5	6	7	5	6	5	5	4	4	4	4	4	5	4	4	3	-	-	-	-	-
15.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	2	2	2	3	5	6	5	4	4	3	3	3	3	4	2	2	X	X	X	X	X	X
16.7	-	-	-	-	-	2	3	3	3	2	-	-	-	-	-	-	-	2	3	4	6	6	6	5	3	4	5	3	3	3	3	-	-	-	-	-	-
17.7a	X	-	-	-	-	3	3	4	4	3	3	3	3	3	2	2	2	3	3	4	5	4	5	5	7	5	4	7	6	5	4	-	-	-	-	-	-
18.7a	-	-	-	-	-	-	-	3	3	3	3	4	4	4	3	3	3	3	5	6	6	5	4	4	4	4	4	5	5	4	4	3	3	-	-	-	-
27.9a	-	-	-	-	-	-	3	3	3	6	6	3	3	9	6	5	5	9	10	9	9	16	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	3	3	5	6	6	7	6	7	8	15	16	16	14	19	17	14	12	12	9	5	3	3	-	-	-	-	-	-	-	-	-	-	-

Table 72a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	3	2	2	3	3	3	3	3	2	-	-	-	2	2	2	3	7	5	5	6	4	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2
8.8	3	2	2	2	2	2	-	-	-	-	-	2	3	3	3	4	6	7	4	10	20	12	3	3	-	-	-	-	-	-	2	2	2	2	3	2	2
10.9a	3	3	3	3	2	2	-	-	-	-	-	-	-	3	4	4	5	3	6	6	6	9	6	3	-	-	-	2	2	2	2	2	2	2	2	2	3
13.7	X	X	X	X	-	-	-	-	-	-	2	3	3	3	3	2	2	2	2	2	3	5	3	3	2	3	4	3	2	3	2	2	2	3	2	2	2
15.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	3	3	3	3	10	2	-	2	2	3	2	3	3	3	3	X	X	X	X	X	X
16.7	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
17.7a	X	2	2	2	2	2	2	2	2	2	2	3	2	3	3	3	2	2	2	2	2	2	-	-	-	-	-	2	2	3	3	3	2	3	3	3	4
18.7a	3	3	4	3	3	3	3	3	3	3	3	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4
27.9a	3	4	5	4	3	3	-	-	-	-	-	-	-	-	2	6	4	3	3	2	3	18	5	4	5	4	3	3	3	3	3	3	3	3	3	3	3
28.7a	4	4	4	5	2	2	2	2	2	2	-	-	-	-	5	4	6	3	3	3	15	10	4	3	8	5	3	3	4	4	4	3	4	3	5	3	4

Table 73a

Coronal observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
10.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
13.7	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7a	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
18.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 71b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	-	-	-	-	-	3	6	5	6	4	3	4	5	5	5	6	5	5	5	7	9	10	8	5	4	4	5	5	6	5	5	3	3	-	-	-	-
8.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	5	6	10	15	12	6	5	4	4	4	4	5	4	2	-	-	-	-	-
10.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	10	4	5	5	5	3	4	5	5	5	5	5	5	3	2	-	-	-	-
13.7	-	-	-	-	X	X	X	X	X	X	X	X	X	X	5	6	6	6	8	10	10	11	10	9	5	5	5	6	8	8	6	4	3	X	X	X	X
15.6	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
16.7	-	-	-	-	-	-	-	-	3	3	3	3	3	4	6	7	9	12	18	26	21	21	25	18	12	8	6	8	6	4	3	-	-	-	-	-	-
17.7a	-	-	-	-	-	-	-	-	3	3	4	4	5	4	5	5	6	10	15	15	14	15	9	6	4	4	4	4	4	4	4	X	X	X	X	X	X
18.7	-	-	-	-	-	3	3	3	5	5	5	4	3	5	5	5	6	8	18	17	18	22	27	15	11	13	5	6	5	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	3	4	4	4	4	3	3	6	9	9	9	10	11	10	6	4	4	5	5	4	5	6	6	5	6	8	4	3	3	-	-	-
28.7	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	3[a]	3[a]	3[a]	3[a]	3[a]	3[a]	3[a]	5[a]	4[a]	4[a]	5	5	3	3	3	3	3	3	3	4	4	4	4	5	5	3[a]	-[a]	-[a]	-[a]	-[a]	-[a]

Table 72b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	2	2	2	3	3	3	2	2	2	-	-	-	2	3	3	2	2	2	2	2	3	2	2	2	2	2	2	3	2	2	3	3	3	3	4	4	3
8.8a	2	2	3	3	3	3	-	-	-	-	-	-	-	-	3	3	3	5	-	2	3	2	6	2	2	-	-	-	-	-	2	2	2	2	3	3	3
10.9a	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6	2	2	2	2	2	-	-	-	-	-	-	-	2	3	3	3	4	3
13.7	2	2	3	3	4	3	X	X	X	X	X	X	X	X	4	8	12	4	6	4	5	-	-	-	-	-	-	-	-	-	2	2	X	X	X	X	X
15.6	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
16.7	3	3	2	2	2	2	2	2	3	4	3	3	2	2	-	-	-	-	3	4	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-
17.7a	4	3	4	3	3	4	3	3	3	3	3	2	2	2	2	3	3	2	3	-	-	-	-	-	-	-	-	-	3	3	3	X	X	X	X	X	X
18.7	4	4	3	3	3	3	2	3	2	2	2	-	-	3	3	4	4	4	5	3	3	3	3	2	2	2	2	3	3	3	3	2	3	3	3	3	3
27.9	3	3	3	3	3	3	3	3	4	6	3	4	3	4	3	4	5	4	3	3	3	3	4	2	3	6	4	3	2	2	2	3	3	3	3	3	3
28.7	4[a]	3[a]	4[a]	3[a]	3[a]	3[a]	2[a]	2[a]	2[a]	2[a]	3[a]	4[a]	2[a]	-[a]	-[a]	2[a]	2	3	4	3	2	2	2	2	2	2	2	-	-	-	2	3[a]	3[a]	3[a]	4[a]	4[a]	4[a]

Table 73b

Coronal observations at Climax, Colorado (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-
13.7	-	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	X	X	X	X
15.6	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
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
17.7a	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	-	-	X	X	X	X	X	X
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2[a]	2[a]	-[a]	-[a]	-[a]	-[a]

Table 74a

Coronal observations at Sacramento Peak, New Mexico (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
1952																																					
Feb. 1.7	-	-	-	-	-	2	2	5	8	8	9	10	8	10	11	12	13	11	6	6	5	3	2	2	2	-	-	-	-	-	-	3	2	2	2	2	2
2.7	-	-	-	-	-	2	3	5	6	6	6	6	6	5	11	14	11	8	5	8	11	5	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	2	4	7	8	7	7	6	5	6	16	20	23	25	22	16	11	6	6	2	2	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	5	8	10	8	5	3	5	11	20	28	28	26	24	20	10	5	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	4	4	4	4	3	3	3	4	3	4	5	5	5	4	5	5	5	4	5	5	5	5	6	5	4	4	5	5	6	6	6	6	5	3	3	3
7.8	-	-	-	-	-	-	6	8	11	10	8	10	12	20	22	22	23	23	26	16	11	3	2	2	4	3	3	4	5	6	5	2	2	2	2	2	2
8.8	2	-	-	-	2	2	3	4	5	4	4	6	8	11	6	8	7	6	8	7	8	7	4	4	4	4	4	3	3	3	4	4	3	3	2	3	2
12.8	2	2	2	2	2	2	4	4	5	3	3	4	4	3	4	5	5	4	3	4	10	11	8	5	3	2	2	2	3	3	3	3	3	4	4	4	3
13.7	2	2	2	3	3	6	8	8	4	3	3	4	5	12	12	10	5	5	5	5	8	7	5	3	3	2	2	2	3	2	2	2	2	2	2	2	2
16.7	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	4	4	3	3	3	4	5	5	4	3	3	2	2	2	3	3	3	3	3	2	2	2
19.7a	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	5	7	7	4	4	3	2	2	3	4	3	2	2	-	-	-	-
24.8	2	2	2	-	-	-	2	2	3	3	3	4	4	4	5	11	30	23	14	10	9	8	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-
26.8	-	-	-	-	-	-	-	2	2	3	5	5	5	7	8	11	13	8	6	9	6	8	5	4	3	-	-	-	-	-	-	-	-	-	-	-	-
29.8	-	-	2	2	2	3	3	3	3	3	4	4	4	4	5	6	8	6	8	10	8	8	6	4	3	3	3	2	2	-	-	-	-	-	-	-	-

Table 75a

Coronal observations at Sacramento Peak, New Mexico (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
1952																																					
Feb. 1.7	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	10	8	8	4	5	5	4	5	6	6	3	-	2	-	3	3	2	2	2	2	2
2.7	2	3	2	2	3	2	2	2	2	2	-	2	-	-	3	5	8	10	7	7	6	5	5	7	7	6	3	4	2	2	3	3	3	2	2	3	4
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	11	8	5	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	2	2	2	2	2	2	2	-	-	-	-	-	-	-	3	14	11	5	6	-	-	-	-	3	3	4	5	3	2	2	-	-	-	-	-	-	-
6.7a	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2
7.8	2	2	2	3	2	2	2	-	-	-	-	-	-	-	-	-	3	-	11	16	5	4	4	4	5	3	2	-	-	-	-	-	2	2	2	2	2
8.8	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	8	15	11	-	-	2	-	2	2	-	-	-	-	-	-	-	-	-	-	-
12.8	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	2	2	3	2	2	3	4	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-
16.7	2	2	2	2	2	2	2	-	-	-	-	-	-	-	2	2	2	2	2	-	-	3	2	-	-	2	2	2	2	-	-	-	2	2	2	2	2
19.7a	2	2	2	2	2	-	-	-	-	-	-	-	-	-	4	4	4	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2
24.8	2	2	2	2	2	2	2	2	3	2	2	3	-	2	2	2	12	13	2	-	-	-	-	2	5	2	-	-	-	-	-	-	-	-	2	2	2
26.8	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	3	4	2	-	2	3	2	2	2	4	3	2	-	-	2	2	2	2	2	2	2	2
29.8	-	-	2	-	-	-	-	2	2	-	-	-	-	-	-	-	4	3	5	5	2	2	2	4	4	4	4	3	-	-	-	-	-	-	-	-	-

Table 76a

Coronal observations at Sacramento Peak, New Mexico (6702A), 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
1952																																					
Feb. 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 74b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7	2	2	2	2	2	2	-	-	2	2	3	3	3	5	6	5	4	8	8	10	8	8	5	5	3	3	3	3	3	4	4	2	2	-	-	-	-
2.7	-	-	-	-	-	-	-	2	2	3	4	4	3	4	5	5	8	12	13	14	16	14	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	8	5	5	5	4	3	3	3	4	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	2	2	2	3	3	3	4	4	5	5	5	5	5	8	8	8	7	6	6	5	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	3	3	3	2	2	2	3	4	5	5	7	7	6	5	5	6	7	8	10	10	10	8	5	4	4	4	4	2	3	3	2	2	5	5	5	5	4
7.8	2	-	-	-	-	-	5	6	5	5	8	5	5	6	4	5	8	10	11	11	11	10	5	5	5	4	3	3	3	3	3	3	2	2	2	-	-
8.8	2	2	3	3	3	3	4	4	4	3	3	4	4	3	3	4	4	4	4	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	2	2	2
12.8	3	3	3	3	3	4	4	4	3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	3	3	3	2	2
13.7	2	2	2	2	2	2	2	2	2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	3	3	2	2	2
16.7	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	-	-	3	8	9	9	7	5	5	5	3	3	3	4	2	2	3	3	3	3
19.7a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	4	20	23	16	14	12	5	5	4	2	2	2	2	2	2	3	3	3	2
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	15	16	11	5	4	4	4	6	6	6	5	5	5	6	5	3	3	3	3	2	2
26.8	-	-	-	-	-	2	2	2	2	-	-	-	2	3	5	13	11	12	5	3	5	5	5	6	5	5	5	5	5	5	5	5	3	3	2	2	-
29.8	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	4	4	4	3	3	3	4	4	3	3	3	4	4	-	-	-	-	-	3	3	-

Table 75b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7	2	2	2	2	2	2	2	2	-	-	-	2	4	3	5	3	4	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
2.7	4	4	2	2	2	2	2	2	2	2	2	3	9	8	6	2	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	3	3	3	4	2	2
4.8	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	2	2	2	2	2
6.7	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7.8	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2
8.8	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	-	-	-	-	-	-	-	-	-	2	2	2	3	3
12.8	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-	-	-
13.7	-	2	2	2	2	2	2	2	2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2	2	2	2	2
16.7	2	2	2	2	2	2	2	2	2	2	2	2	2	5	6	4	3	2	-	3	4	3	2	3	-	-	-	-	-	-	-	-	-	2	2	2	2
19.7a	2	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	5	2	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
24.8	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	3	6	6	5	3	3	4	5	6	5	2	-	-	-	-	-	-	-	-	2	2	2
26.8	2	2	-	-	2	2	2	2	-	-	-	2	-	2	3	4	5	6	2	-	2	3	3	3	2	-	2	-	-	-	-	-	2	-	2	2	2
29.8	-	-	-	-	-	-	-	-	-	-	-	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-

Table 76b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.8	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 77a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8	3	2	2	2	2	3	3	3	6	12	5	4	5	12	14	16	14	15	11	5	6	4	3	3	2	2	3	2	2	3	4	3	3	3	3	3	2
6.7	-	-	-	-	-	-	2	2	4	4	4	3	5	7	11	13	11	7	5	3	5	4	4	4	3	3	3	3	2	2	3	3	2	-	-	-	-
7.8	2	2	2	2	2	3	3	4	4	5	4	5	8	9	8	8	5	3	3	2	11	14	15	16	11	8	4	3	2	3	8	9	8	3	2	3	2
8.7	2	2	2	2	2	2	2	2	2	3	3	4	5	5	5	4	4	4	4	8	20	23	20	16	14	8	4	3	2	2	3	5	6	2	2	-	-
10.9a	2	2	2	3	3	3	3	4	4	5	4	4	4	4	5	5	5	4	5	5	8	14	18	20	14	5	3	3	3	4	4	4	3	3	2	2	2
11.7	-	-	-	2	2	2	2	3	8	7	8	8	7	5	5	5	3	6	5	7	8	14	14	15	6	5	4	3	3	3	5	5	4	4	3	2	-
12.9	2	2	2	2	2	2	3	4	5	4	3	4	3	3	3	3	3	2	3	2	3	4	4	4	4	3	4	4	4	5	5	4	4	-	-	2	2
14.8	2	2	2	2	2	2	3	5	7	8	4	5	4	5	6	7	8	7	5	5	20	20	14	10	8	5	5	3	5	6	4	3	2	2	2	3	2
18.8a	2	2	3	3	3	3	3	3	3	5	3	3	3	5	5	4	3	3	3	3	3	3	3	4	4	3	3	3	3	3	4	3	4	4	3	3	2
19.7	-	-	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	6	6	8	7	6	5	5	4	5	5	5	5	5	3	2	2	-
20.7	-	-	-	-	-	-	-	2	4	5	4	4	5	4	5	6	10	11	8	8	6	10	10	5	4	8	6	4	4	5	6	7	7	3	3	2	-
24.7	-	-	-	-	2	2	3	3	7	6	5	4	4	5	5	5	12	12	17	17	15	11	10	5	2	2	2	-	-	-	-	-	-	-	-	-	-
26.7	-	-	2	2	2	2	2	3	4	5	5	3	3	3	3	3	5	3	4	5	4	4	6	3	2	-	-	2	-	-	-	-	-	-	-	2	-
28.7	-	-	-	-	2	3	3	6	7	8	8	8	5	10	14	16	18	18	16	15	13	12	11	7	4	3	3	2	2	2	2	2	-	-	-	-	-
30.7	2	-	-	-	2	2	3	5	8	8	8	7	7	11	14	38	32	20	18	14	12	7	5	4	3	3	3	3	2	2	2	-	-	-	-	3	2
31.9	2	2	2	3	3	3	3	4	8	9	8	7	7	8	14	16	16	28	23	11	8	3	4	3	2	3	4	3	3	3	2	2	2	-	-	3	3

Table 78a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8	2	2	2	2	3	2	2	2	-	-	-	-	-	-	-	5	8	4	-	-	6	2	2	2	2	2	-	-	-	-	-	-	-	-	2	3	2
6.7	2	2	2	2	2	-	-	3	2	2	-	-	-	-	-	3	3	4	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.8	2	2	2	2	3	2	2	2	2	-	2	-	-	2	2	3	6	8	8	5	6	7	6	2	2	2	2	2	-	-	2	2	2	2	2	2	2
8.7	2	2	2	2	2	2	2	-	-	-	-	-	2	2	3	4	8	8	5	3	10	16	15	4	-	-	-	-	-	-	2	2	2	2	2	2	2
10.9a	2	2	2	2	2	2	2	2	2	2	-	2	2	2	2	2	2	3	2	2	3	5	5	6	-	-	-	-	-	2	2	2	2	2	2	2	2
11.7	3	3	2	3	3	4	2	2	2	2	-	-	2	3	3	4	5	5	3	2	2	3	2	2	2	-	3	2	2	2	2	2	2	-	-	-	-
12.9	2	2	2	2	-	-	-	2	-	2	-	2	2	3	3	3	2	2	2	2	3	2	2	2	2	2	3	3	2	-	-	-	-	-	-	2	2
14.8	3	4	3	4	3	2	2	2	2	2	2	3	3	3	4	2	2	2	2	2	4	14	4	-	2	3	5	3	2	2	4	2	2	-	2	2	2
18.8a	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	3	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	2	2	2
19.7	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	-	-	-	-	-	2	-	-	2	-	-	-	-	-	2	-	-	-	-	2	-
20.7	2	2	3	2	2	2	2	2	3	4	4	5	4	2	2	2	2	3	3	2	4	4	3	4	4	3	4	3	4	4	2	2	2	2	2	3	2
24.7	3	2	3	3	3	2	2	-	-	2	2	2	2	2	2	3	3	2	3	10	9	4	4	4	3	2	2	2	2	-	-	2	2	2	2	2	2
26.7	3	3	2	2	2	3	-	-	-	2	2	2	2	2	3	4	5	4	4	3	3	5	5	8	5	2	2	3	-	-	2	2	2	2	2	-	-
28.7	3	4	2	3	2	2	2	-	2	3	2	-	-	2	-	5	2	4	3	2	3	13	14	3	2	7	4	3	2	2	3	2	2	3	2	2	2
30.7	3	3	4	3	3	2	2	2	2	3	2	-	-	-	2	7	2	3	8	4	2	2	2	2	3	2	4	4	3	2	2	2	2	2	3	2	2
31.9	2	2	2	2	2	2	-	2	2	2	-	-	2	-	-	-	2	14	17	11	7	6	5	4	4	4	4	4	2	2	2	2	-	-	-	2	2

Table 79a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
10.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	2	2	2	2	2	3	2	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.9	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 77b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8a	2	2	2	3	2	3	3	2	2	2	2	3	4	5	4	4	5	5	4	4	3	3	5	4	4	4	4	4	4	3	3	2	3	3	4	4	3
6.7a	–	–	–	–	–	–	–	3	4	4	3	3	5	6	5	4	5	4	5	4	5	6	7	4	3	3	4	3	3	4	5	5	4	2	2	2	–
7.8	2	2	2	2	2	2	3	4	5	5	3	3	5	6	5	4	3	3	3	4	5	11	13	12	5	3	3	3	2	3	3	3	3	2	3	3	2
8.7	–	–	2	2	2	3	3	3	4	3	3	3	3	3	3	3	3	3	3	4	5	13	13	11	4	3	3	2	2	3	6	5	2	2	–	3	2
10.9a	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	3	3	5	11	10	6	8	8	6	3	3	3	3	5	5	8	5	5	5	3	2	2
11.7	–	–	–	2	3	3	3	3	2	3	3	2	2	3	2	2	3	8	12	6	6	6	9	5	4	4	4	4	4	5	4	3	2	2	3	2	–
12.9	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	2	4	9	11	4	5	5	6	5	4	3	3	2	2	3	3	3	2	2	–	–	2
14.8	2	2	2	2	2	2	–	–	–	–	–	2	2	3	3	3	3	5	8	11	16	15	16	16	14	8	4	4	5	7	7	5	3	–	–	–	2
18.8	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	7	11	14	16	15	10	5	5	5	4	4	3	3	3	2	2	2	2
19.7	–	–	–	–	–	–	–	2	3	3	3	3	3	3	3	3	4	5	6	8	8	8	9	5	4	3	3	3	3	2	2	2	–	–	–	–	–
20.7	–	–	–	–	–	2	2	2	3	4	3	3	4	4	4	4	5	5	7	8	7	8	8	5	5	5	4	4	3	3	2	2	2	–	–	–	–
24.7	–	–	–	–	–	2	2	3	3	3	2	2	5	7	8	14	16	16	8	5	4	5	5	4	4	3	4	4	4	5	4	3	2	2	2	–	–
26.7a	–	–	–	2	2	2	3	3	3	2	2	2	3	3	4	5	3	3	3	4	3	4	3	3	3	3	3	3	3	3	3	2	2	–	–	–	–
28.7	–	–	–	–	2	2	3	3	3	4	3	3	4	6	7	5	6	6	4	3	3	4	5	6	5	4	5	5	5	6	5	3	2	2	–	–	–
30.7	2	–	–	–	3	2	5	7	7	5	3	5	8	6	7	8	5	7	6	5	4	4	3	3	3	3	3	3	3	3	3	2	2	–	–	2	2
31.9	3	2	2	2	2	2	3	4	5	4	5	5	5	5	6	6	5	6	7	5	7	5	3	3	2	2	3	3	3	3	3	3	3	2	2	2	2

Table 78b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8a	2	2	2	2	–	–	2	2	3	2	–	–	–	–	–	–	–	–	–	2	2	2	2	3	3	2	–	–	–	–	–	–	–	–	2	3	2
6.7a	–	–	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	–	–	–	–	–	2	2	2
7.8	2	2	2	2	2	–	–	2	2	–	–	–	–	–	–	6	2	–	4	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	3	2	2
8.7	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	2	2	2	3	2	2	–	–	–	–	–	–	–	–	–	2	2	2	–	2	2	2
10.9a	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	4	4	5	5	2	–	2	2	–	–	–	–	–	–	–	–	–	–	–	–	2
11.7	–	2	2	2	3	2	3	4	3	3	3	3	4	4	2	4	5	14	15	14	3	5	2	3	2	3	2	–	–	–	2	2	2	2	2	3	3
12.9	2	2	2	–	2	2	–	2	2	–	–	–	2	2	2	2	6	11	11	5	3	5	5	2	–	–	–	–	–	–	–	–	–	–	–	2	2
14.8	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	3	4	4	3	4	3	2	2	2	–	–	–	–	–	2	2	2	2	2	3	3	3
18.8a	2	2	2	2	–	–	–	2	2	2	2	–	–	–	–	2	2	2	2	2	–	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–
19.7	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	3	3	3	–	–	–	–	–	–	–	–	–	–	–	2	2
20.7	2	3	2	3	2	2	2	3	3	2	2	2	2	3	5	4	3	3	2	2	3	2	2	2	2	2	2	–	–	–	–	–	–	–	3	2	2
24.7	2	–	2	2	–	2	2	2	2	2	2	3	3	2	2	2	2	3	2	2	2	4	3	3	–	2	2	–	–	–	–	–	2	2	2	2	3
26.7a	–	–	2	2	2	2	2	2	2	2	2	3	–	–	2	2	3	3	2	2	2	2	2	3	2	4	4	2	2	–	–	2	–	2	2	2	3
28.7	2	2	2	2	2	2	2	2	2	2	2	3	3	2	–	–	3	3	3	3	3	2	2	2	–	3	3	2	2	–	–	–	–	2	2	2	3
30.7	2	2	2	2	2	–	–	–	2	2	3	3	2	2	2	2	3	3	2	2	2	3	3	3	3	3	2	2	2	2	2	–	–	–	–	3	3
31.9	2	2	2	2	2	2	–	–	2	–	–	–	2	2	–	–	2	5	8	2	3	7	3	3	2	2	2	–	–	–	–	–	–	–	–	2	2

Table 79b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Mar. 5.8a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6.7a	–	–	–	–	–	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7.8	–	–	–	–	–	–	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10.9a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–
19.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26.7a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	–	–	–	–	–	–	–	–	–	–	–
31.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Note: Calibration of new standard intensity wedges allows all Sacramento Peak coronal intensities, beginning on 1 March, to be reported on the same scale as those from Climax. However, instrumental constants of the Climax and Sacramento Peak coronagraphs are not exactly the same so that data will still exhibit differences that are not simply accidental.

Table 80

Zürich Provisional Relative Sunspot Numbers

March 1952

Date	R_z*	Date	R_z*
1	0	17	20
2	0	18	15
3	0	19	9
4	0	20	0
5	9	21	0
6	10	22	0
7	10	23	0
8	23	24	0
9	20	25	23
10	22	26	29
11	38	27	44
12	28	28	44
13	35	29	71
14	25	30	75
15	22	31	66
16	18	Mean:	21.2

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

Table 81

American Relative Sunspot Numbers

February 1952

Date	R_A,*	Date	R_A,*
1	13	16	39
2	12	17	45
3	0	18	47
4	14	19	39
5	41	20	37
6	38	21	29
7	31	22	25
8	25	23	28
9	28	24	15
10	17	25	0
11	0	26	0
12	15	27	0
13	22	28	0
14	33	29	0
15	40	Mean:	21.8

*Combination of reports from 28 observers; see page 10.

Table 82

Solar Flares, February 1952

Observatory	Date 1951	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Latitude (Deg)	Position Longitude Diff (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac.Peak	Feb. 4	1850	2005	75	74	S25	E39	1922	8	.2	1 -	
Sac.Peak	5	1645	1720	35	65	S19	E19	1655	9	.6	1 -	
...ath	11	1845				S26	W53	-			1	
...ath	13	1535				S10	E65	-			1 -	
Sac.Peak	16	1555Q	1630	35	29	N20	E41	1605	7	.6	1 -	
Sac.Peak	16	1835	1905	30	234	S10	E22	1850	18	.7	1	Yes

Sac.Peak = Sacramento Peak.

B Flare started before given time.
A Flare ended after given time.
Q Time reported as questionable.

Table 83

Indices of Geomagnetic Activity for February 1952
also Kp for January 1952

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1952	C	Values Kp		Sum	Final Sel. Days	Values Kp January		Sum
1	1.4	3+2o4+6-	5-4o5o4+	33+	Five	5o4-4o4o	3+3o3o3-	29-
2	0.5	3+4+3o2+	2+3o2o2o	22+	Quiet	2+3-2o1+	1+2-3-1+	15+
3	0.1	2-2+2-2-	2-1+2o1o	13+		2-2+2-1+	2+1o3+3o	17-
4	0.1	2o2-1o1-	2o1-1o0+	9+	3	4o2o2-2+	3o3+3o5-	24o
5	0.0	0+1+1-1-	1o0+0+1-	5+	4 5	4-6o6o5-	5o4+3o4+	37o
6	1.6	2o4-4-4+	4+6-6o6+	36o	21	5-5-5-4o	3o4+3o2+	31-
7	1.3	5-4+5+5+	4o4o4+5-	37-	22	3o3o3-3-	4+4+3+4o	27+
8	1.4	5+4+6o4o	4+5o5-4+	38o		3+4o2+3o	3o3o2o1o	22-
9	1.2	4o4+3-3+	4+5-4+4o	32-		0+3o3+2-	2o3o4-3-	20-
10	1.4	3o3o3o4-	3-4+5+7-	32-		3o5+5-3+	3+5-4-5-	33-
11	1.3	6o5-3+5-	3+3+4+5+	35o	Five	4o4-4-3o	4o5-4-4-	30+
12	1.4	5+5o4-4+	5-4-4+5o	36o	Dist.	5-5+4o4o	4o5-4+5o	36o
13	1.2	5-4-3+3+	4+5-4o5o	33o		4o4+4-5o	6-5-5-5+	37+
14	0.9	4o3-3-3+	3o3+4-3o	26-	6	4+5o5-4+	5-5o5-5o	38-
15	0.4	2o3o4-3-	1+2o1-3-	18o	8 16	4-4+4+4-	6o5o4o2+	33+
16	1.6	4-6-6+6-	5+4o5o5o	41-	24	3+2+3-3+	3-3o3o3o	23+
17	0.8	5-3-1+3o	3o2+2o2-	21-	27	2o3-2o2-	1-1+2+2o	15-
18	0.9	4-3-2o4-	3-2o3+4o	24o		2o2-1-1o	1-1o1o1o	9o
19	1.3	5o4+5-4-	4o4-5o5o	35+		1-1o1-1o	2o2-2+2-	11o
20	0.5	3o4-4+3o	2o2+1+1+	21o		0+2-1+1+	1-1+2o2o	11-
21	0.0	2o2o1o0+	2+2-2-1+	12-	Ten	2+2-2-2o	1+1+1+2-	13+
22	0.2	1-1o2o1+	1+1+3o2-	12+	Quiet	2o2+2o2-	2-2o2+3o	17o
23	0.6	2+2-2o1o	1+1+1+4+	15+		3o2o3-3+	4+4+4+4-	28-
24	1.7	7-7o4-6o	6-5o6o4+	44+	2	4-2+2o2-	3o4-3o3o	22+
25	1.0	5-3-2o3+	5-2o2+2-	23+	3 4	3+1+2+3o	3o3o3-2o	21-
26	1.2	3+3+4+4+	3-4+4o5o	31+	5	0o0+1+3-	3-2o1o1-	11-
27	1.4	4+6-6+4o	3-4o4+5o	36+	15	1+4-4o4+	6-5+4-4-	32-
28	1.2	5-5+6-5o	4o5-4+2o	36-	17	3+5o4-4-	4o4-2o3o	28+
29	1.0	2o4+4-4o	4o4-2o4-	27+	20	2o1o3-4-	4o5o6+6-	30+
30					21	4-4o4o2+	3o1o3-2+	23o
31					22 23	1+1+2-1+	4-4-2o3-	18-
Mean	0.95							

Table 84

Sudden Ionosphere Disturbances Observed at Washington, D. C.

March 1952

No sudden ionosphere disturbances were observed during the month of March 1952.

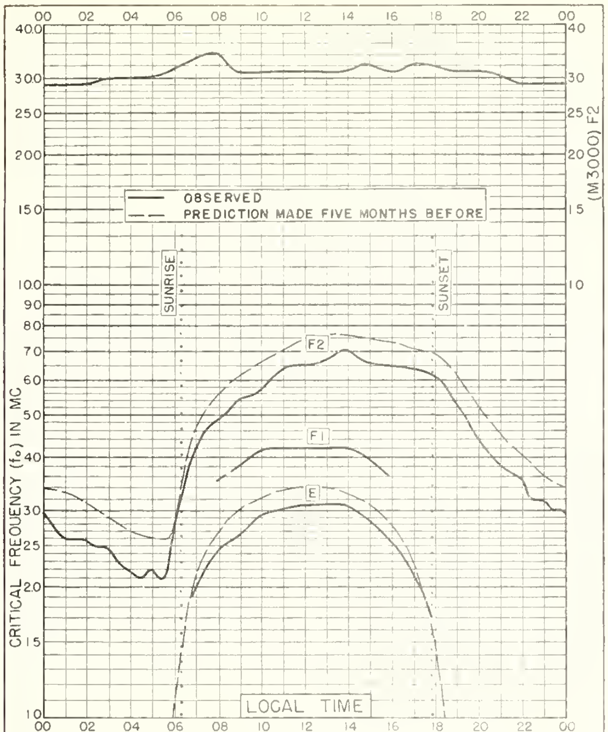


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W MARCH 1952

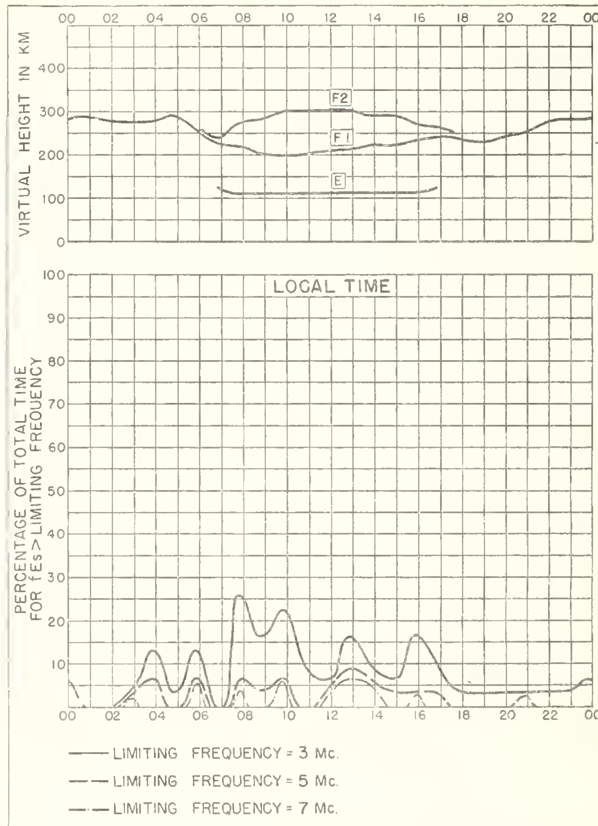


Fig. 2. WASHINGTON, D. C. MARCH 1952

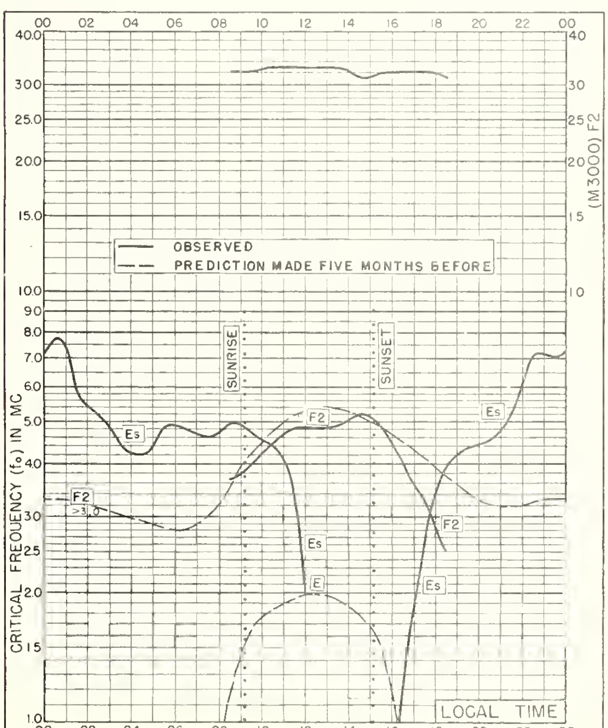


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W FEBRUARY 1952

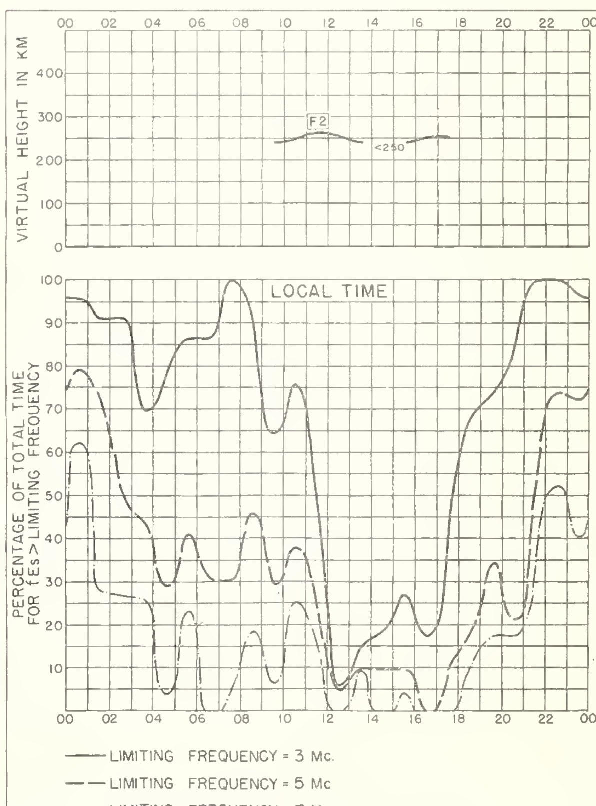


Fig. 4. POINT BARROW, ALASKA FEBRUARY 1952

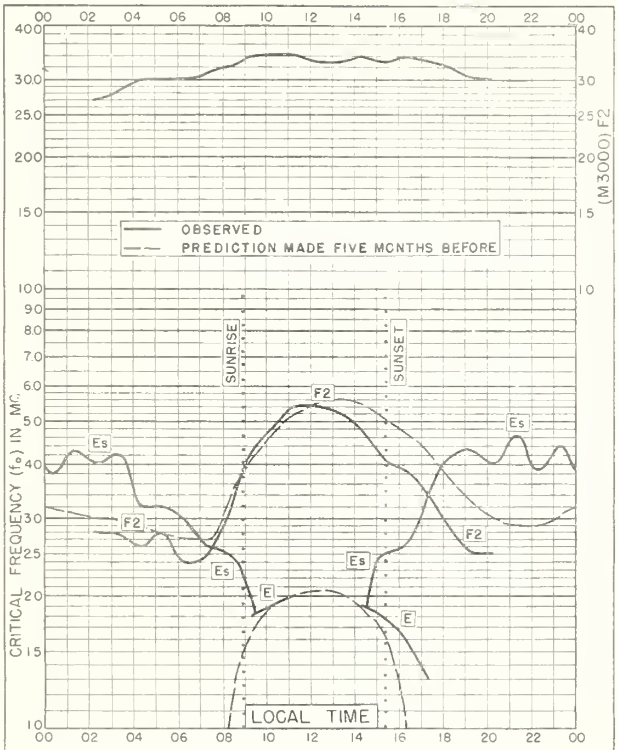


Fig. 5. TROMSO, NORWAY
69.7°N, 19.0°E FEBRUARY 1952

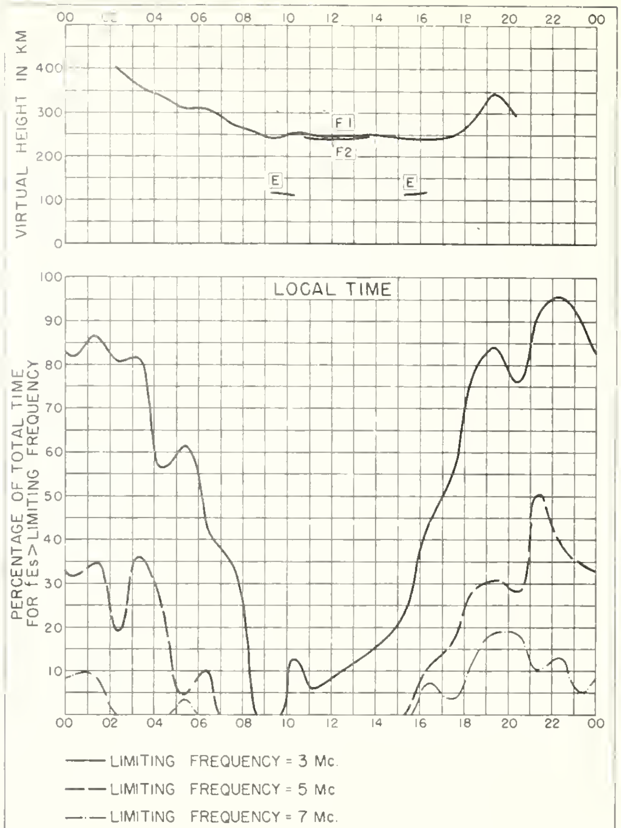


Fig. 6. TROMSO, NORWAY FEBRUARY 1952

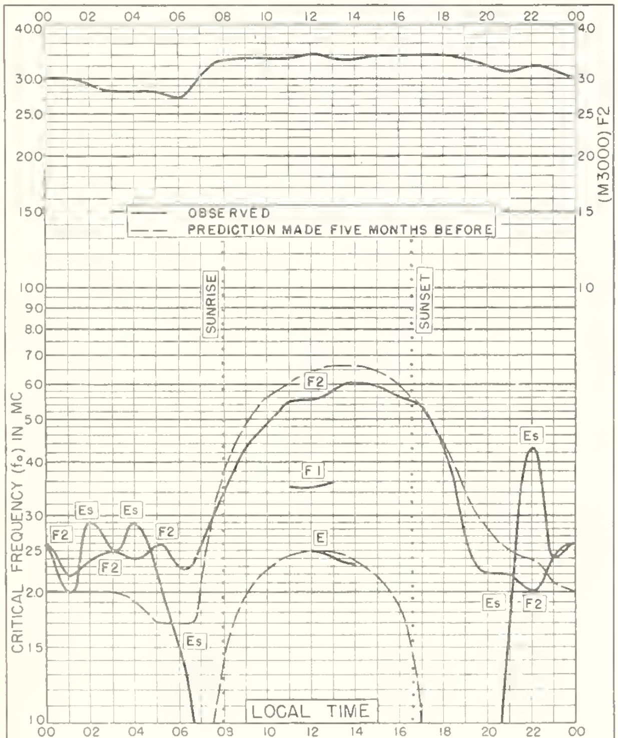


Fig. 7. ANCHORAGE, ALASKA
61.2°N, 149.9°W FEBRUARY 1952

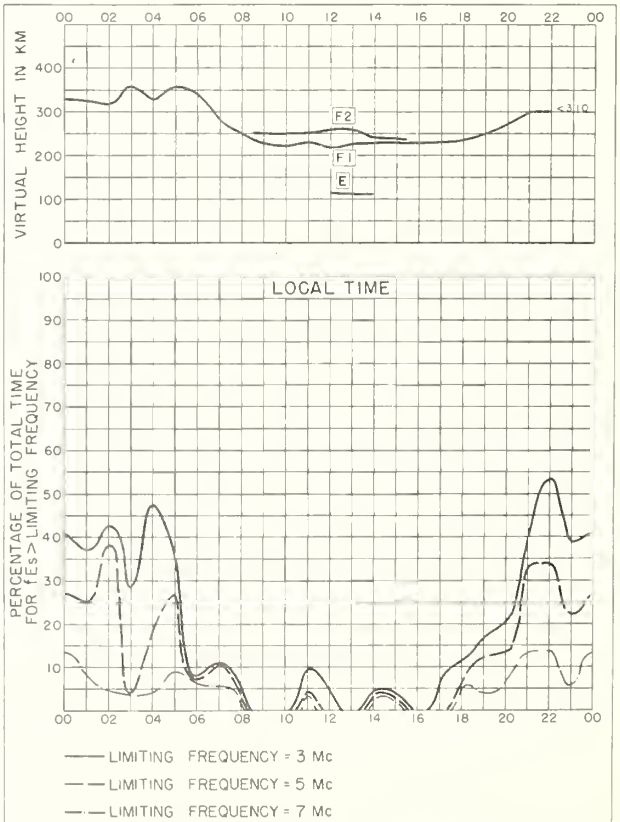


Fig. 8. ANCHORAGE, ALASKA FEBRUARY 1952

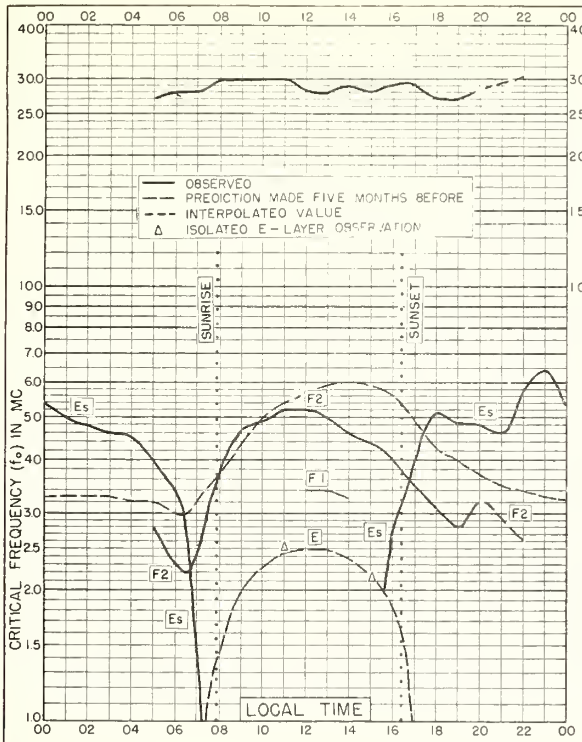


Fig. 9. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W FEBRUARY 1952

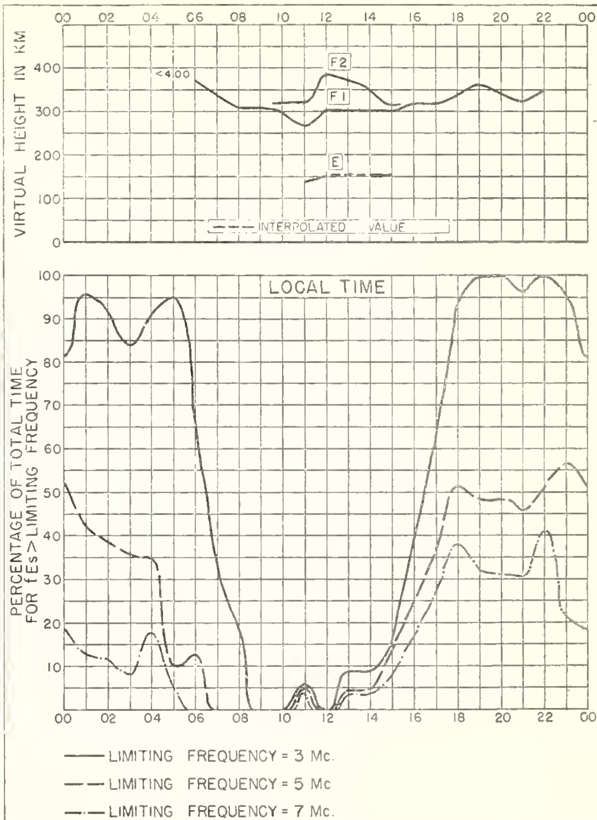


Fig. 10. NARSARSSUAK GREENLAND FEBRUARY 1952

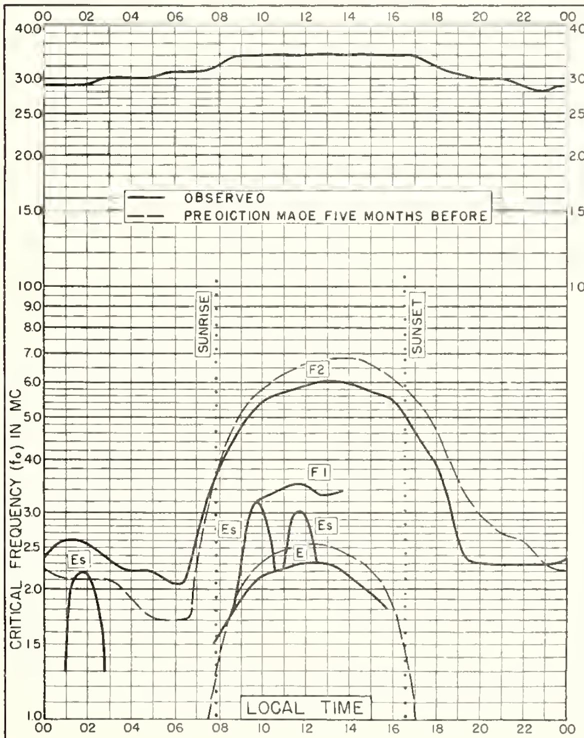


Fig. 11. OSLO, NORWAY
60.0°N, 11.1°E FEBRUARY 1952

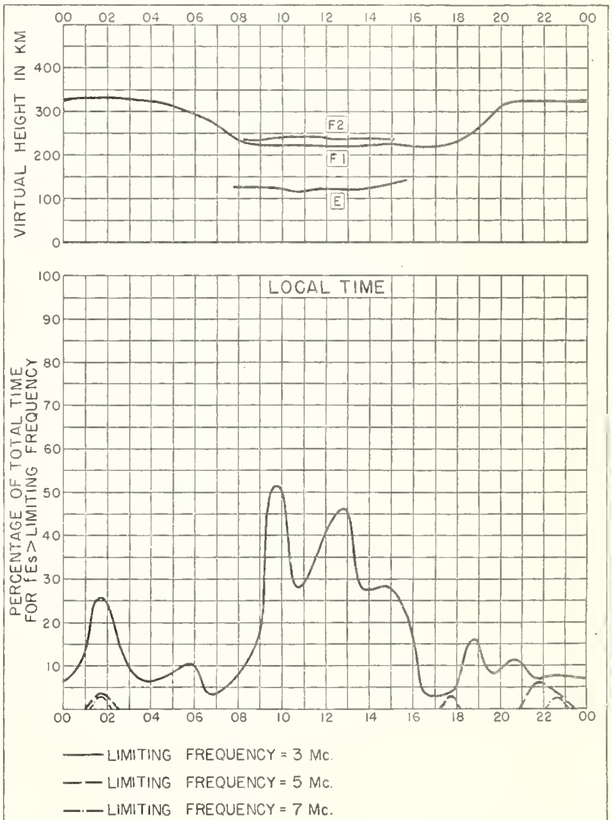


Fig. 12. OSLO, NORWAY FEBRUARY 1952

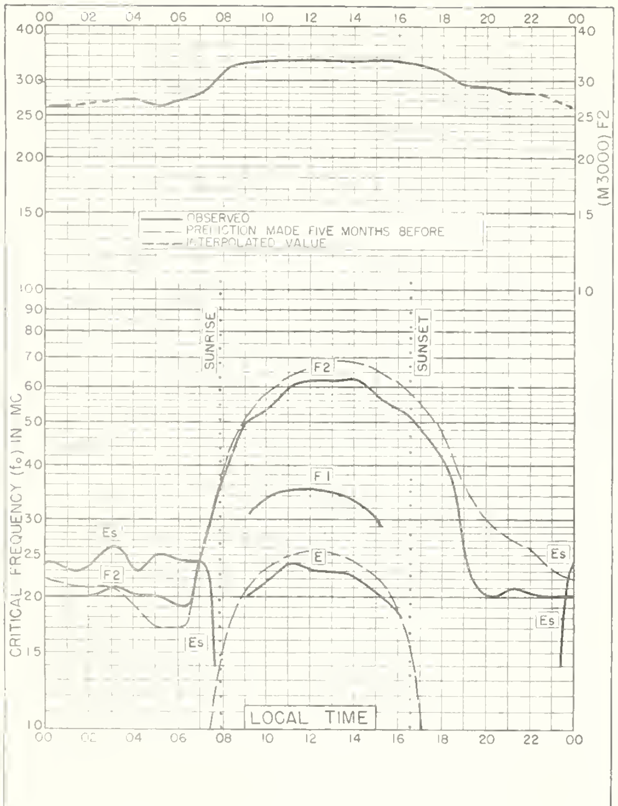


Fig. 13. UPSALA, SWEDEN
59.8°N, 17.6°E FEBRUARY 1952

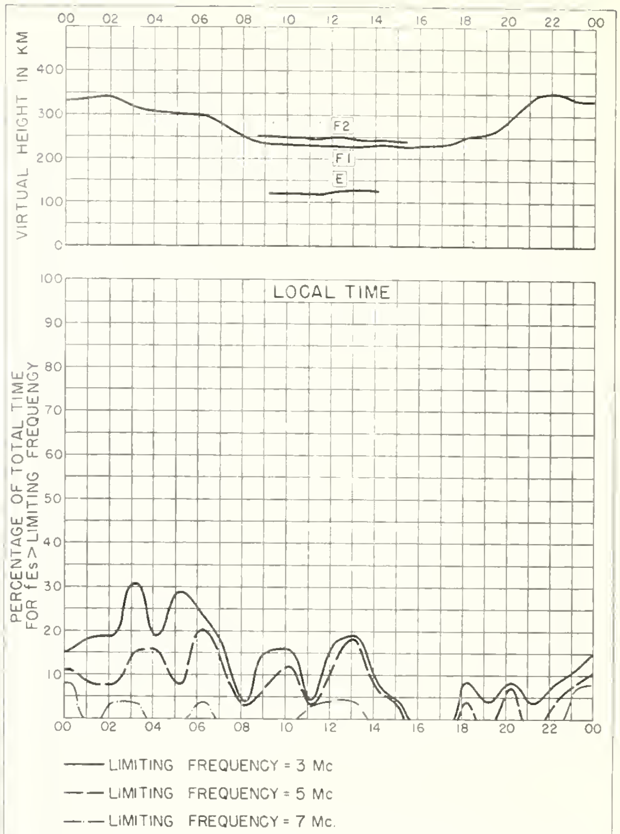


Fig. 14. UPSALA, SWEDEN FEBRUARY 1952

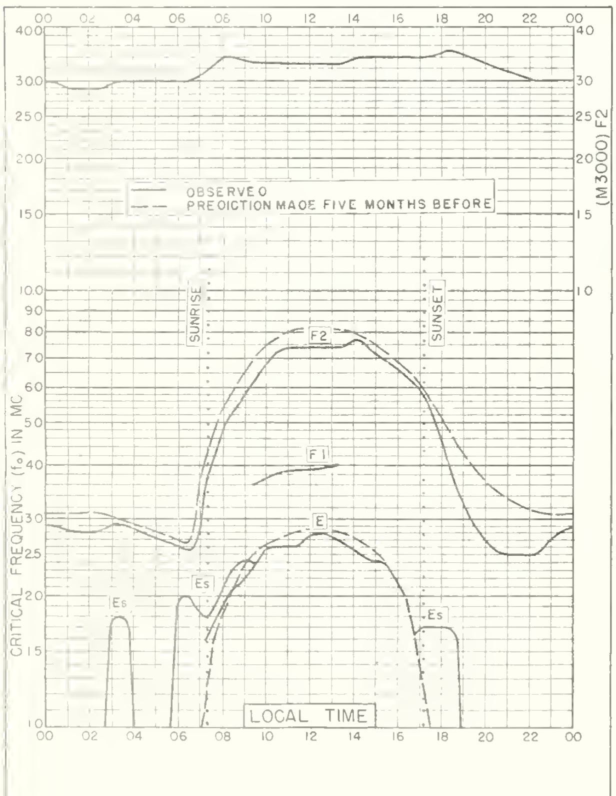


Fig. 15. ADAK, ALASKA
51.9°N, 176.6°W FEBRUARY 1952

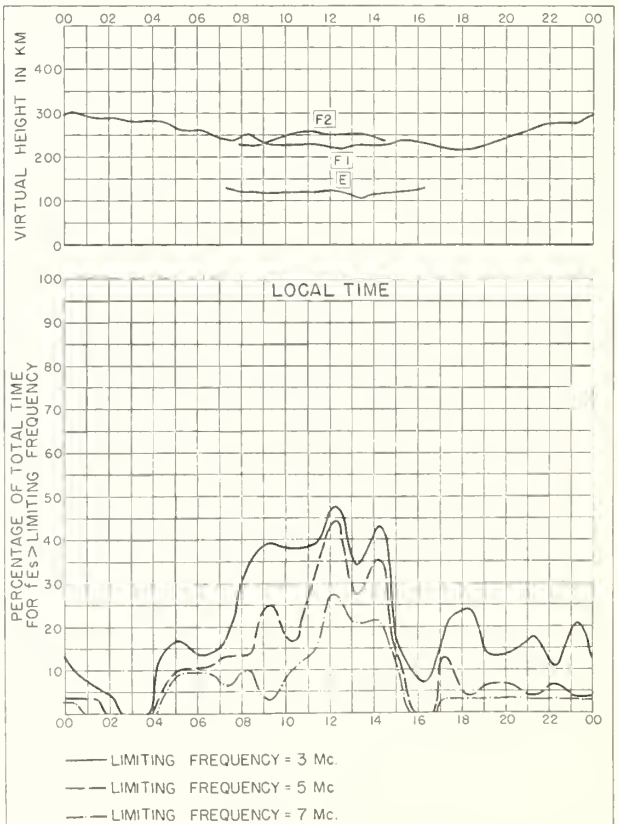


Fig. 16. ADAK, ALASKA FEBRUARY 1952

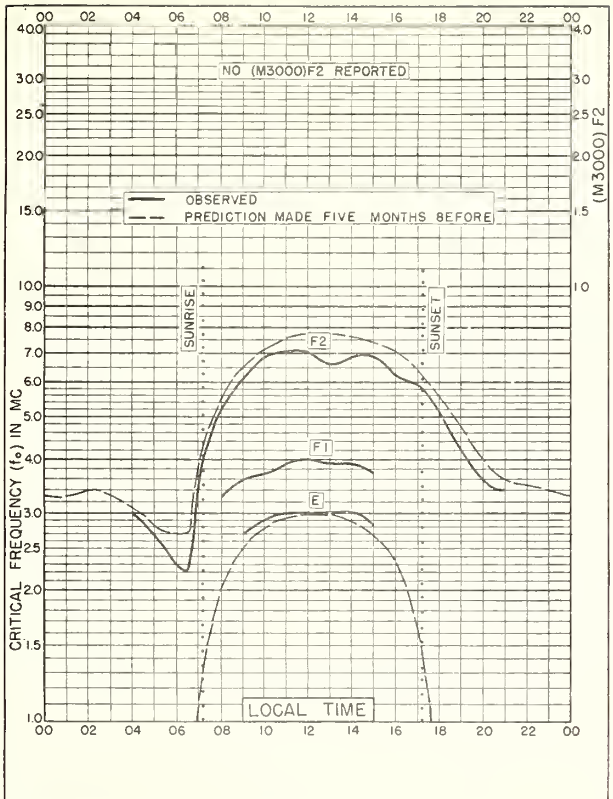


Fig. 17. GRAZ, AUSTRIA
47.1°N, 15.5°E FEBRUARY 1952

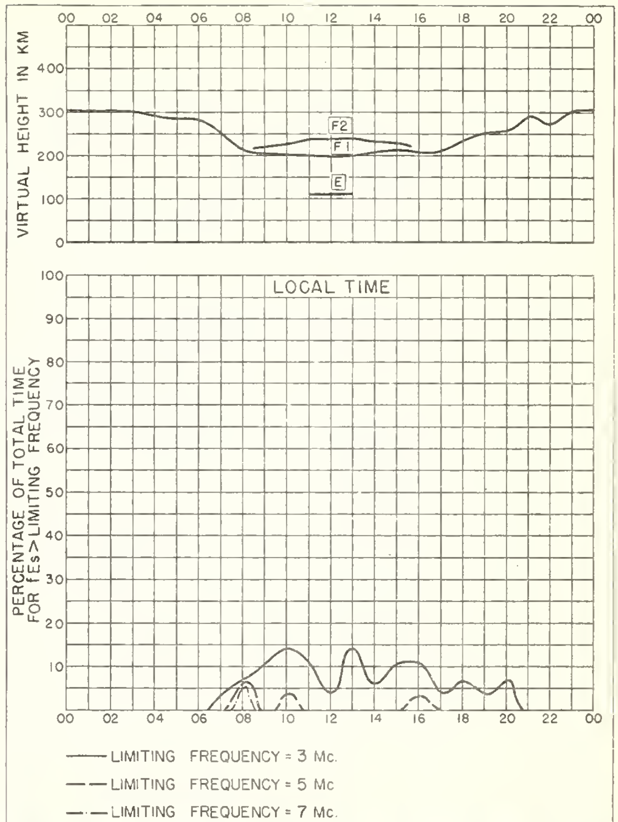


Fig. 18. GRAZ, AUSTRIA FEBRUARY 1952

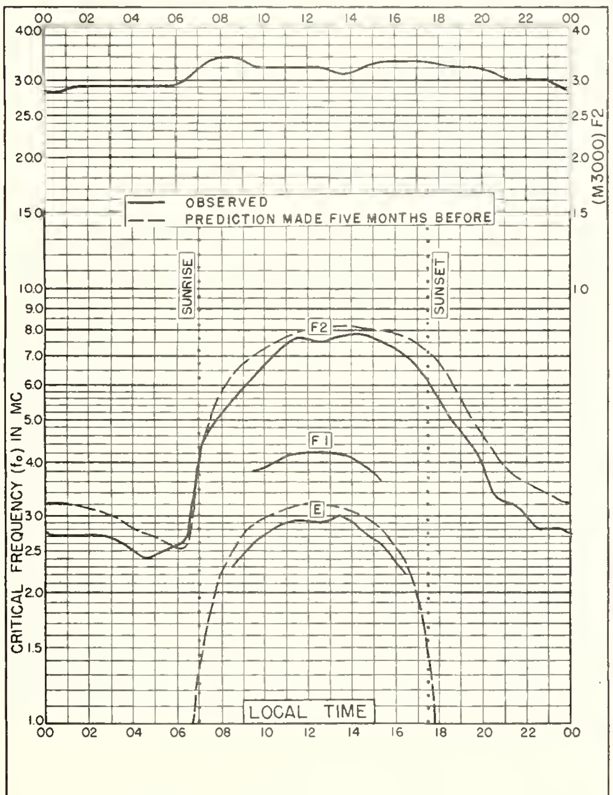


Fig. 19. BATAVIA, OHIO
39.1°N, 84.1°W FEBRUARY 1952

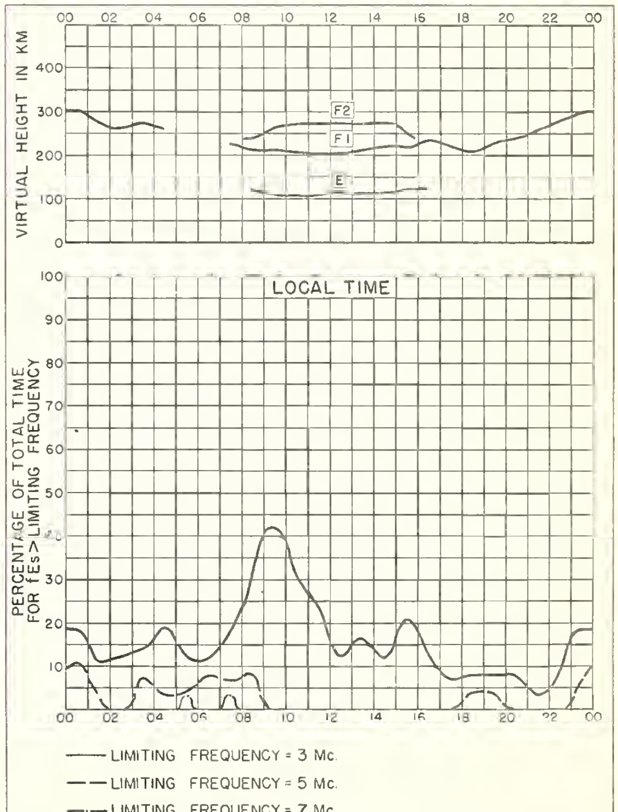


Fig. 20. BATAVIA, OHIO FEBRUARY 1952

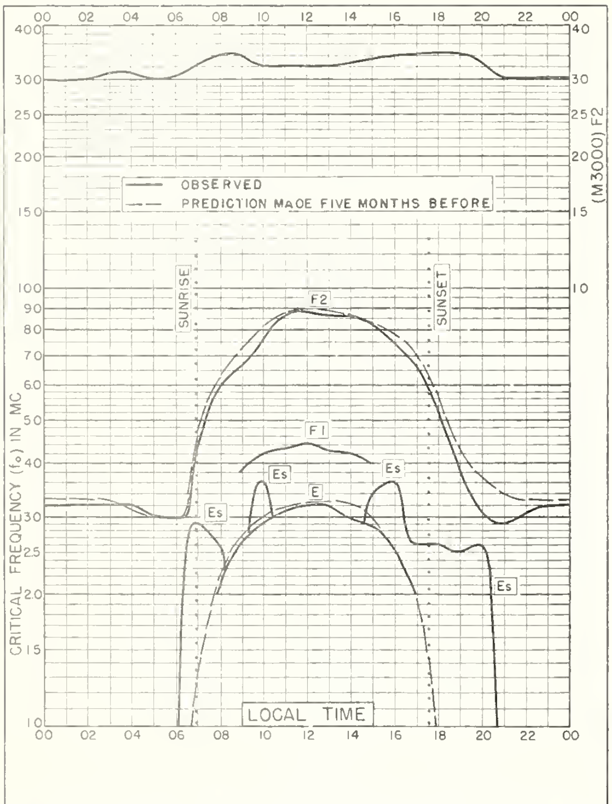


Fig. 21. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W FEBRUARY 1952

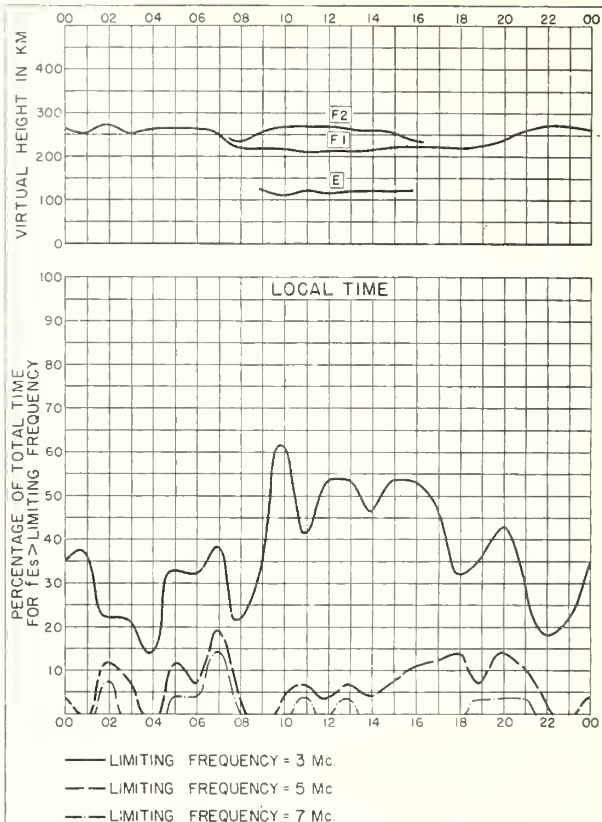


Fig. 22. SAN FRANCISCO, CALIFORNIA FEBRUARY 1952

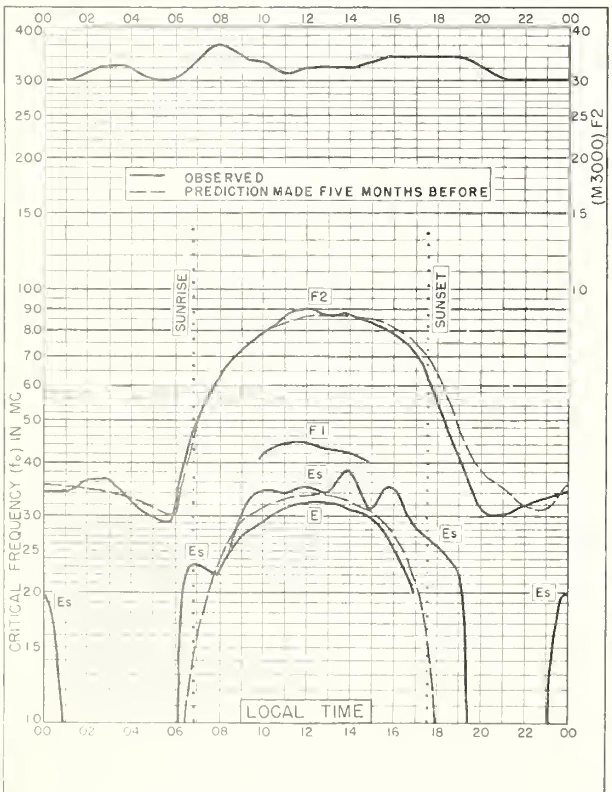


Fig. 23. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W FEBRUARY 1952

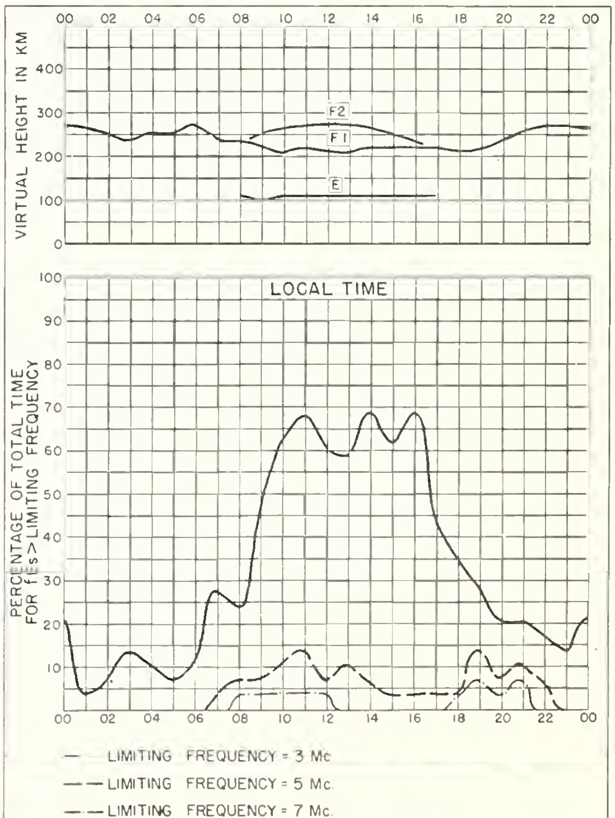


Fig. 24. WHITE SANDS, NEW MEXICO FEBRUARY 1952

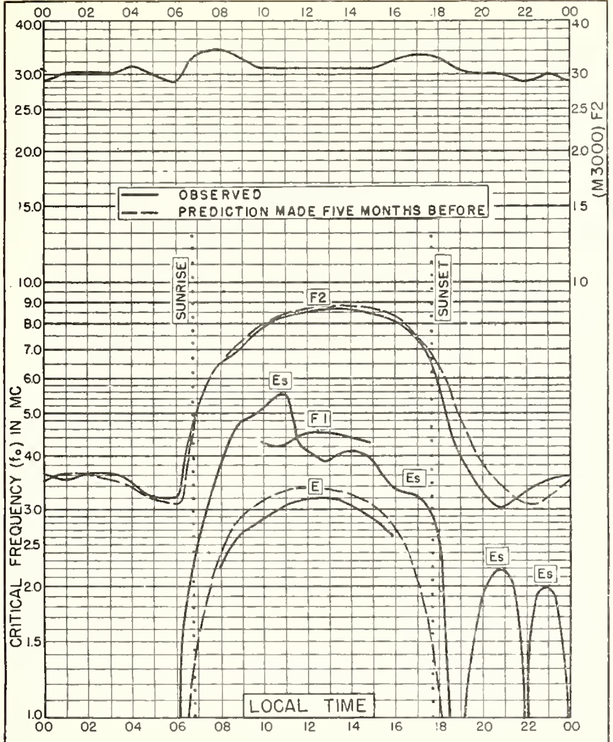


Fig. 25. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W FEBRUARY 1952

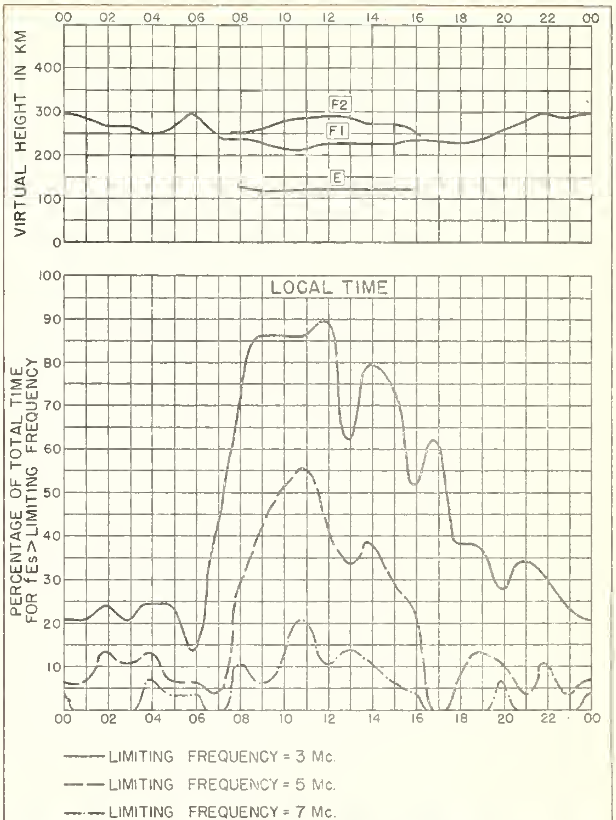


Fig. 26. BATON ROUGE, LOUISIANA FEBRUARY 1952

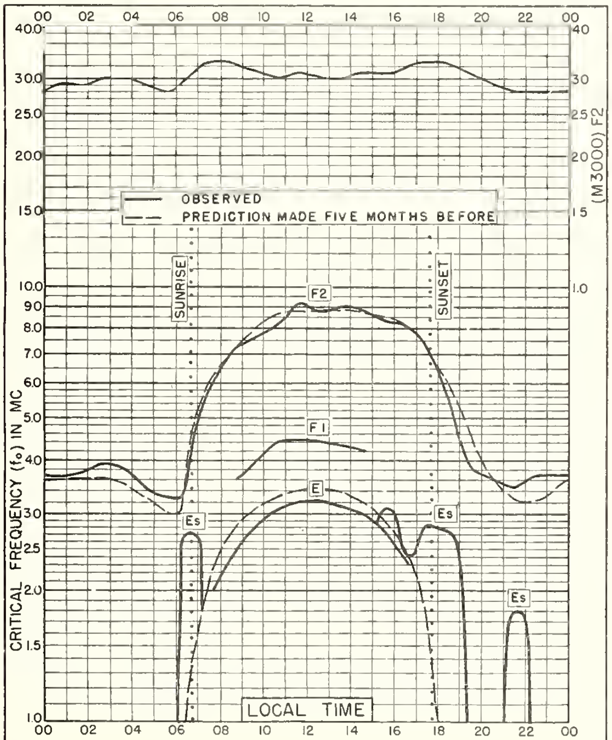


Fig. 27. COCOA, FLORIDA
28.2°N, 80.6°W FEBRUARY 1952

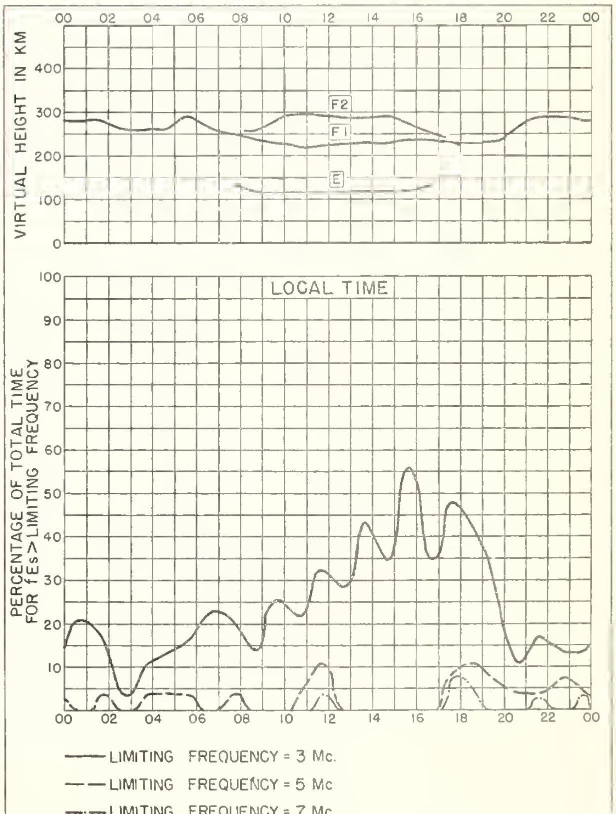


Fig. 28. COCOA, FLORIDA FEBRUARY 1952

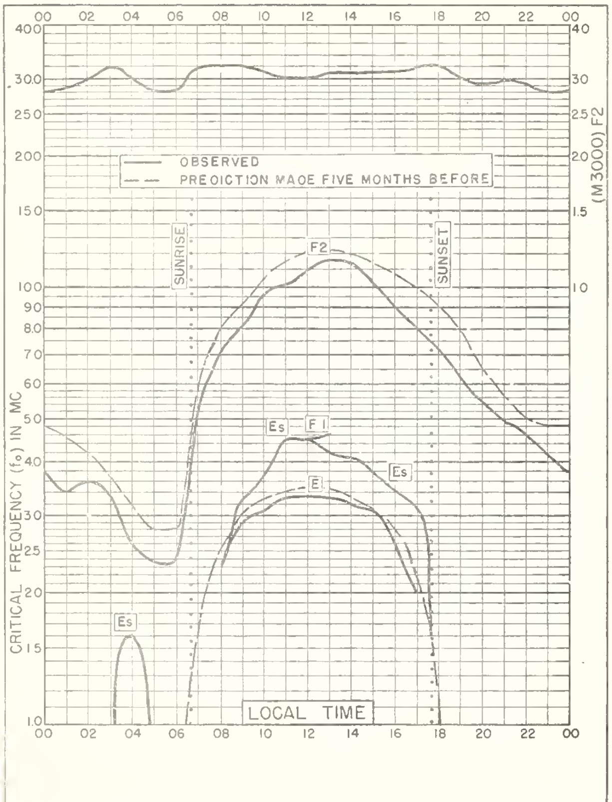


Fig. 29. OKINAWA I.
26.3°N, 127. 8°E FEBRUARY 1952

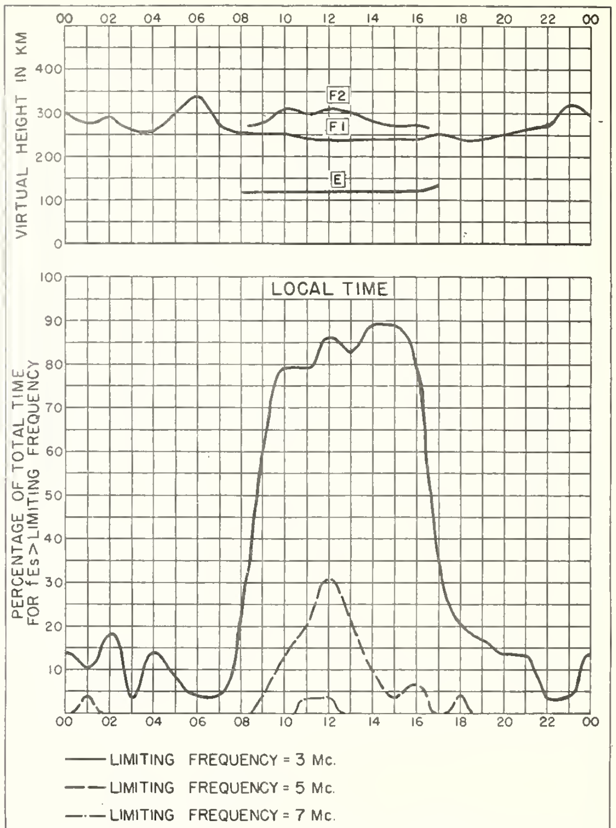


Fig. 30. OKINAWA I. FEBRUARY 1952

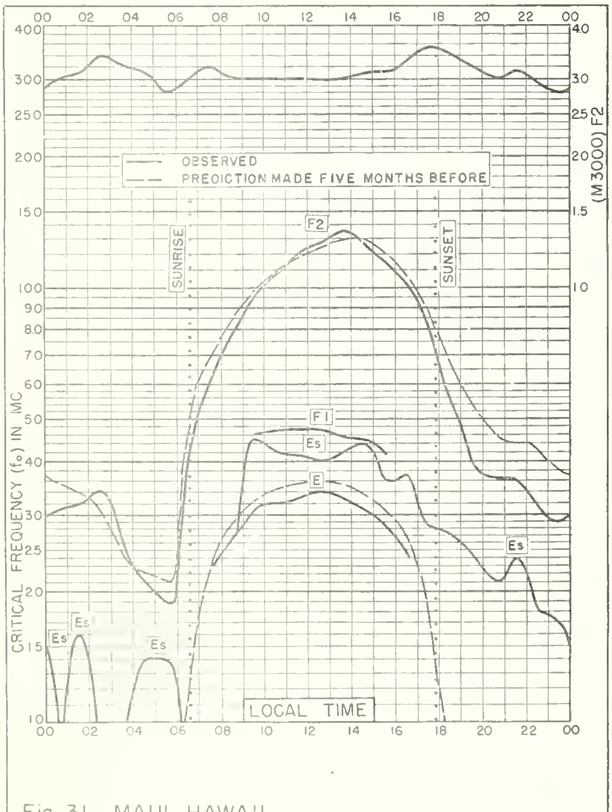


Fig. 31. MAUI, HAWAII
20.8°N, 156.5°W FEBRUARY 1952

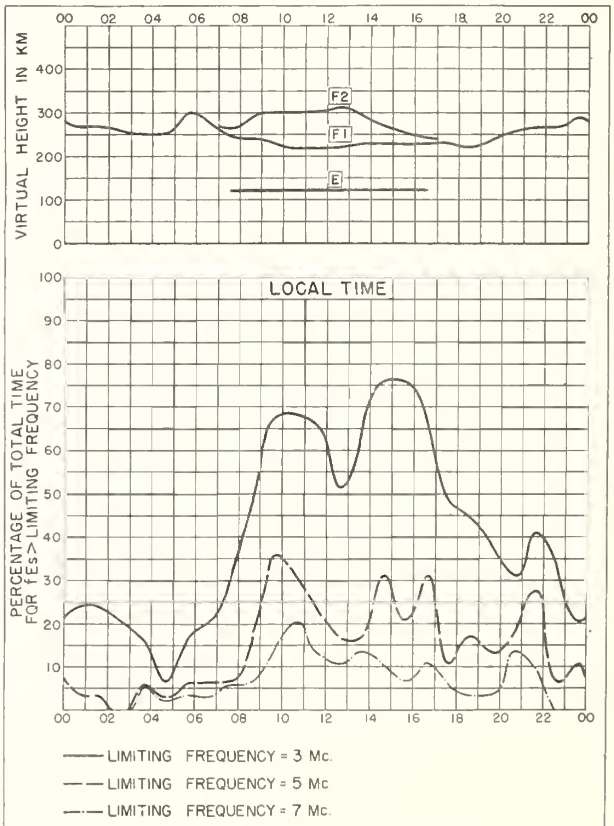


Fig. 32. MAUI, HAWAII FEBRUARY 1952

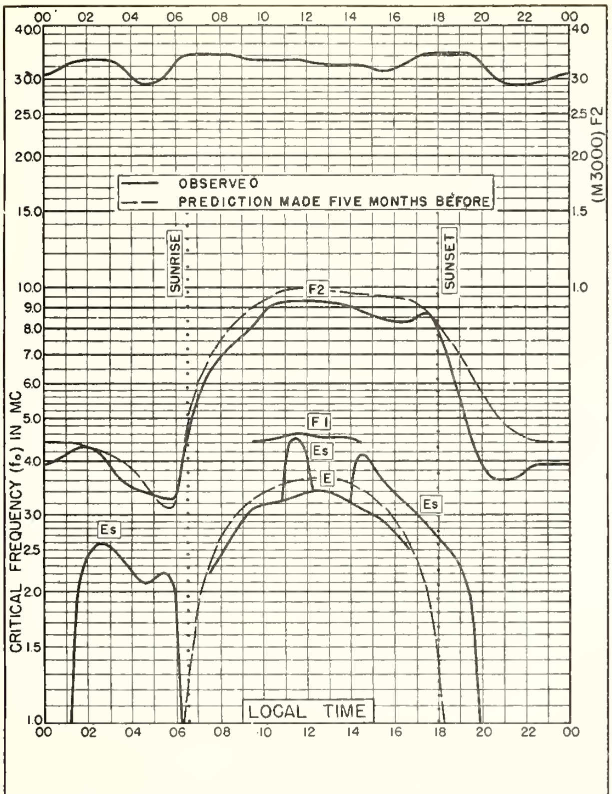


Fig. 33. PUERTO RICO, W. I.
18.5°N, 67.2°W FEBRUARY 1952

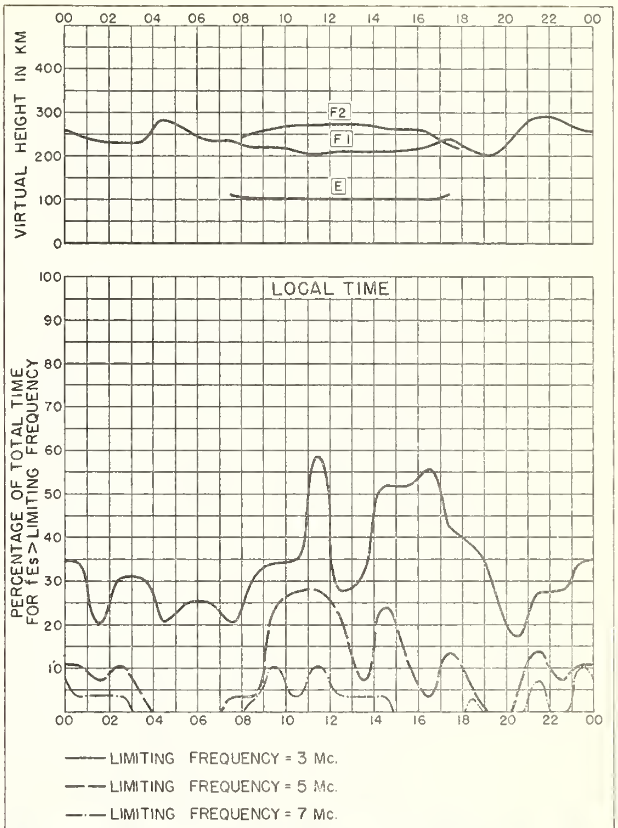


Fig. 34. PUERTO RICO, W. I. FEBRUARY 1952

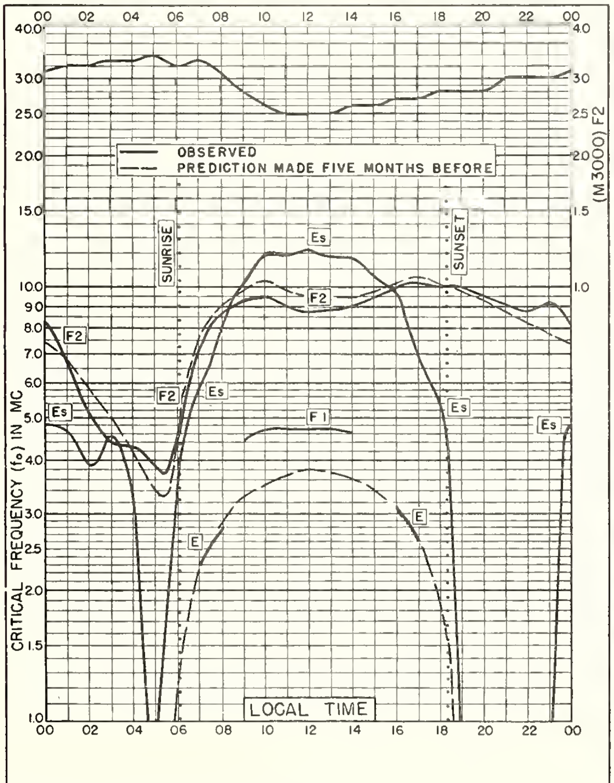


Fig. 35. HUANCAYO, PERU
12.0°S, 75.3°W FEBRUARY 1952

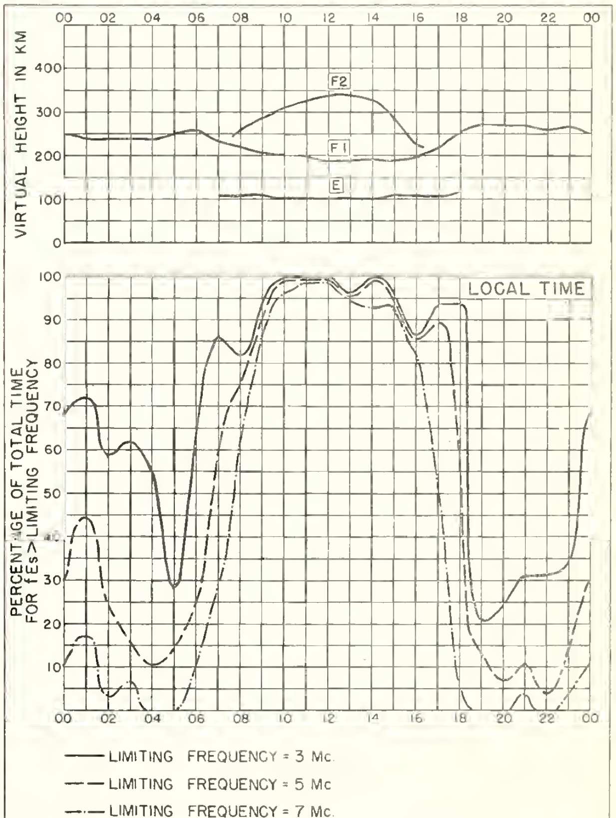


Fig. 36. HUANCAYO, PERU FEBRUARY 1952

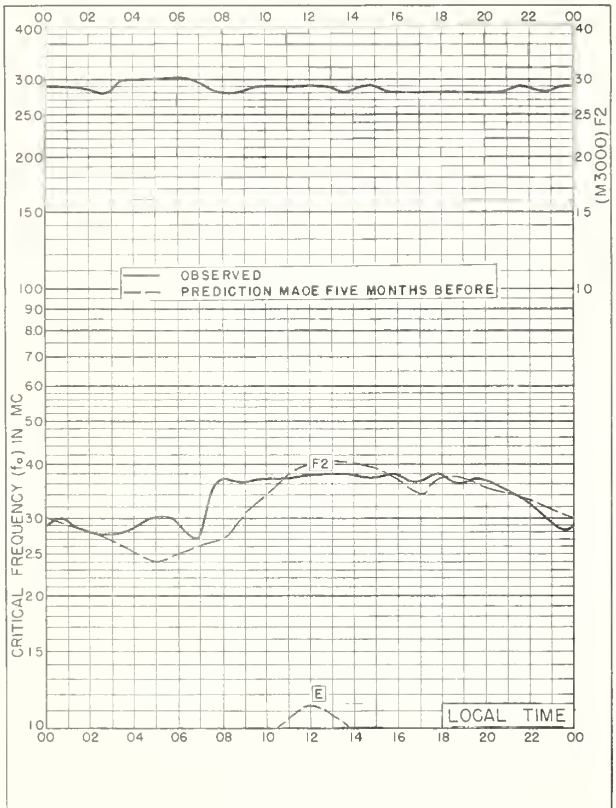


Fig. 37. RESOLUTE BAY, CANADA
74.7°N, 94.9°W JANUARY 1952

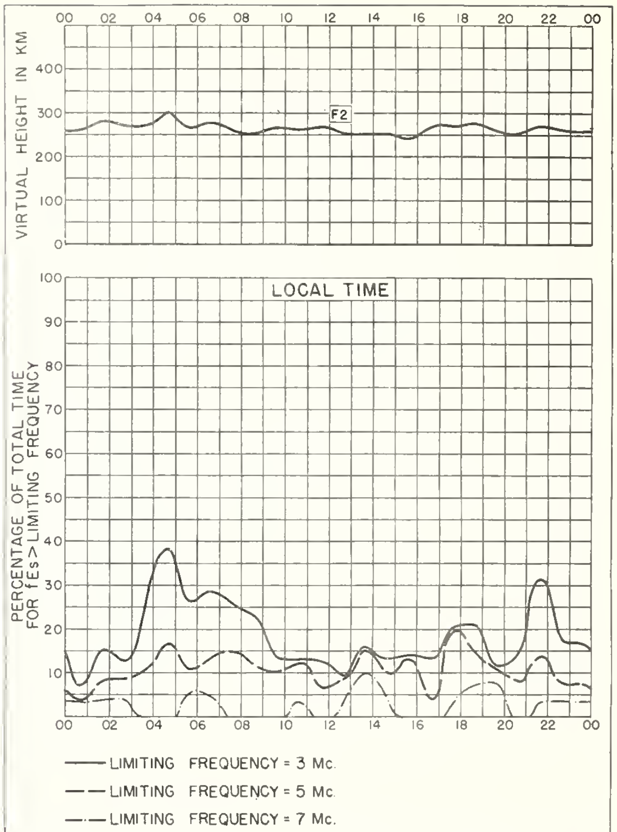


Fig. 38. RESOLUTE BAY, CANADA JANUARY 1952

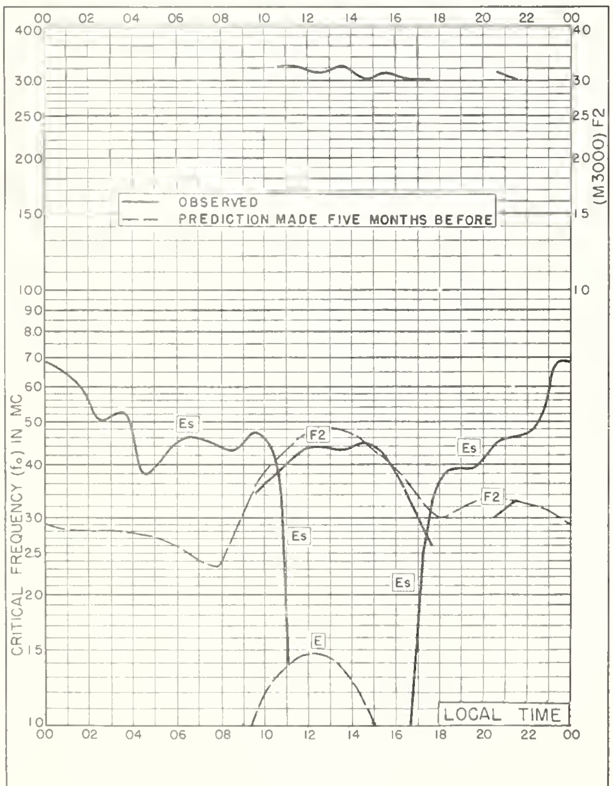


Fig. 39. POINT BARROW, ALASKA
71.3°N, 156.8°W JANUARY 1952

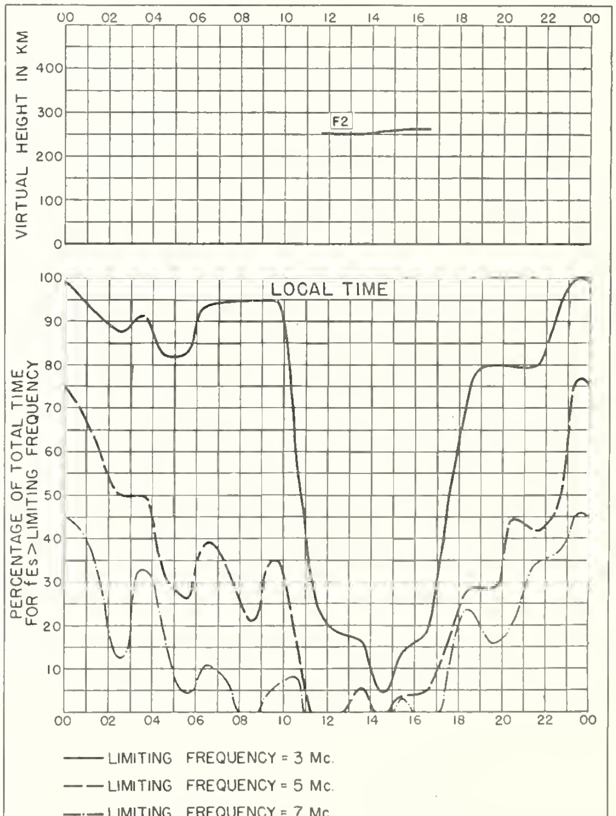


Fig. 40. POINT BARROW, ALASKA JANUARY 1952

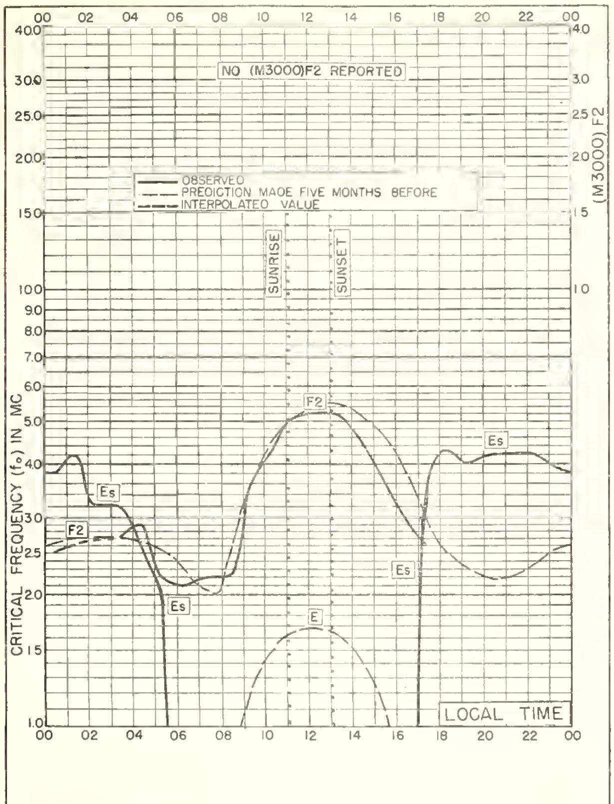


Fig. 41. KIRUNA, SWEDEN
67. 8°N, 20. 5°E JANUARY 1952

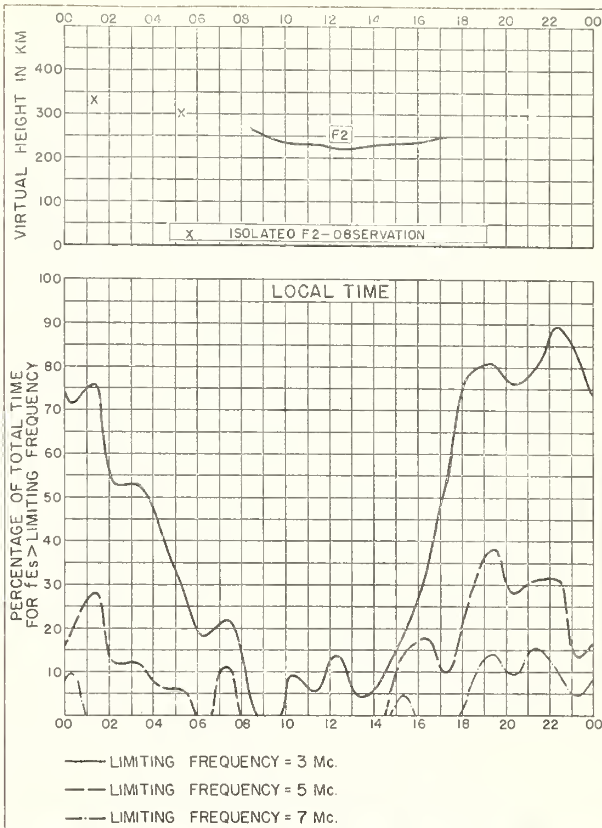


Fig. 42. KIRUNA, SWEDEN JANUARY 1952

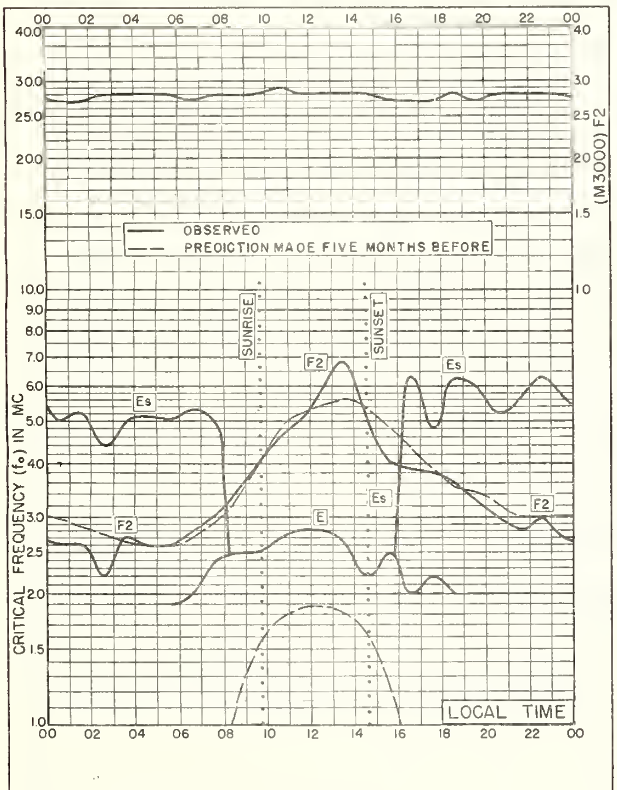


Fig. 43. BAKER LAKE, CANADA
64.3°N, 96.0°W JANUARY 1952

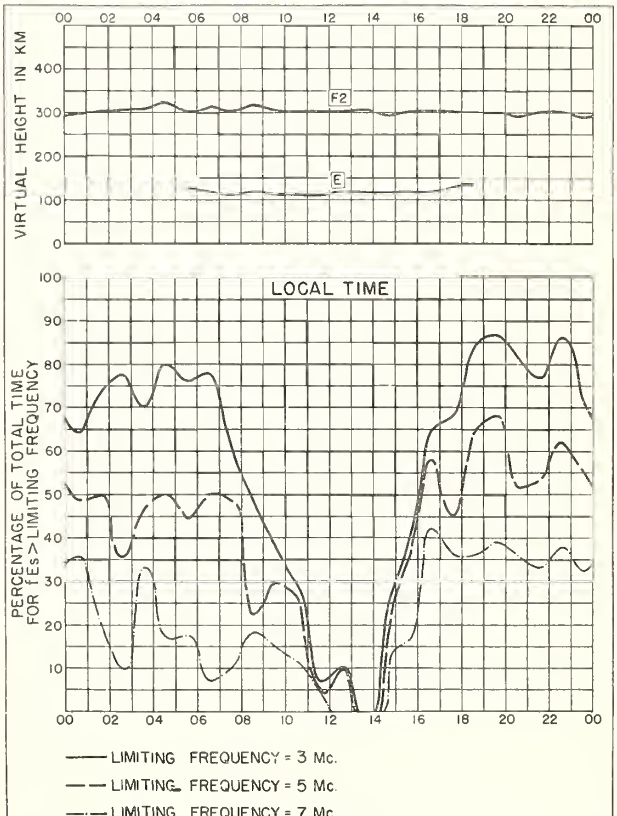


Fig. 44. BAKER LAKE, CANADA JANUARY 1952

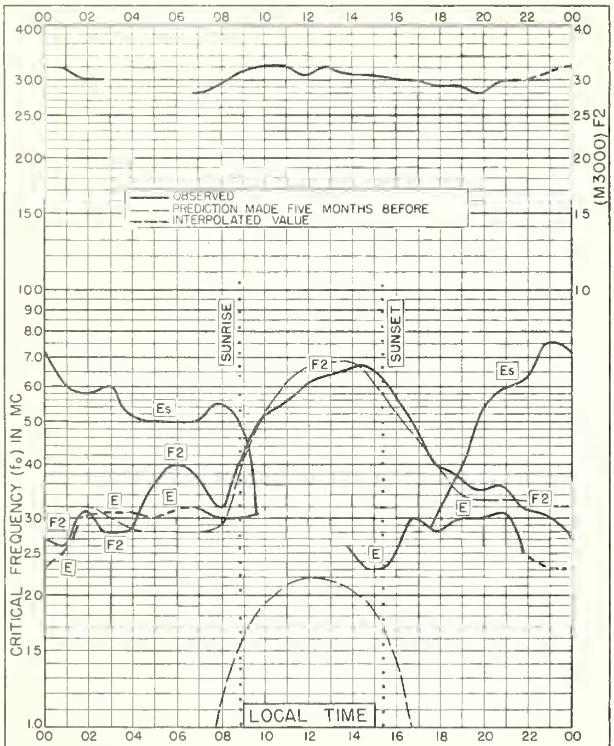


Fig. 45. CHURCHILL, CANADA
58. 8°N, 94. 2°W JANUARY 1952

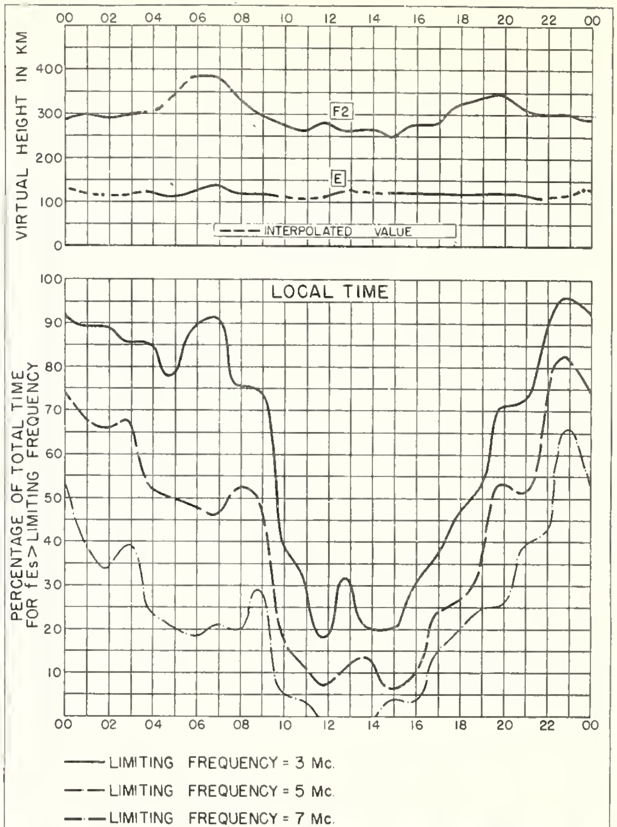


Fig. 46. CHURCHILL, CANADA JANUARY 1952

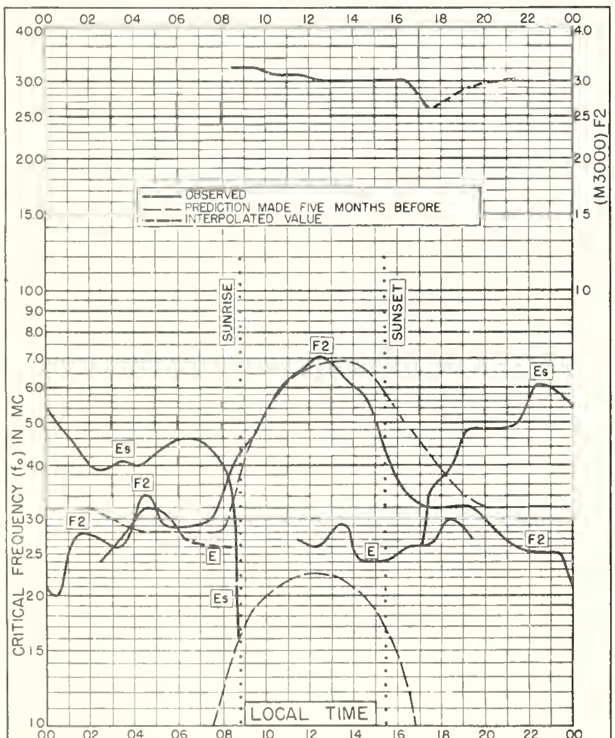


Fig. 47. FORT CHIMO, CANADA
58.1°N, 68. 3°W JANUARY 1952

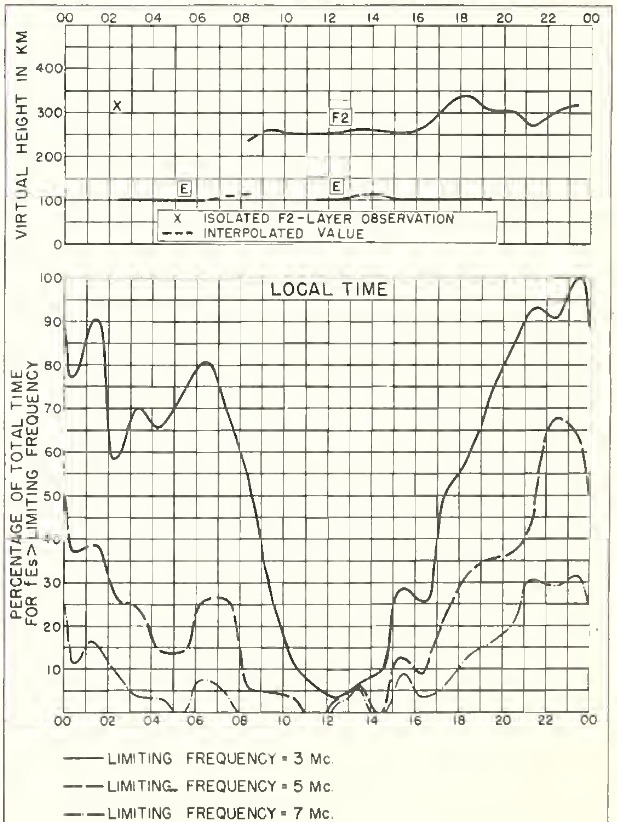


Fig. 48. FORT CHIMO, CANADA JANUARY 1952

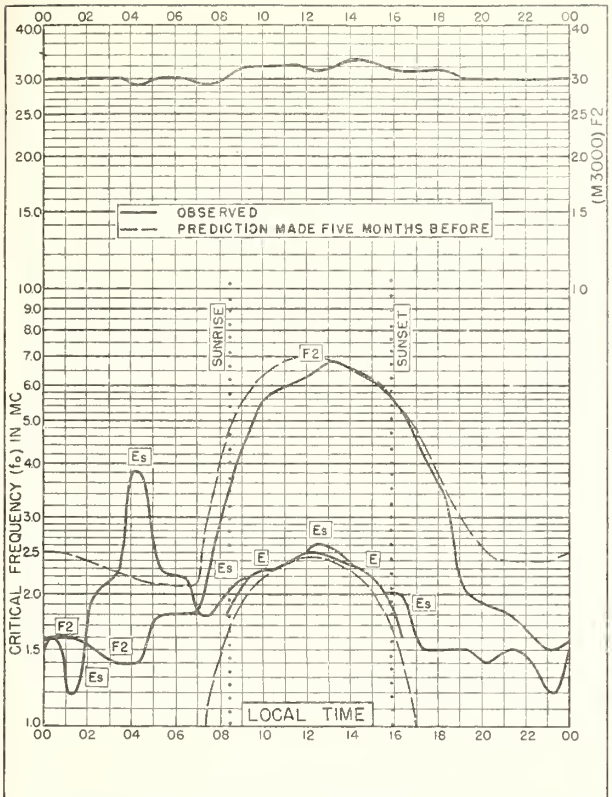


Fig. 49. PRINCE RUPERT, CANADA
54.3°N, 130.3°W JANUARY 1952

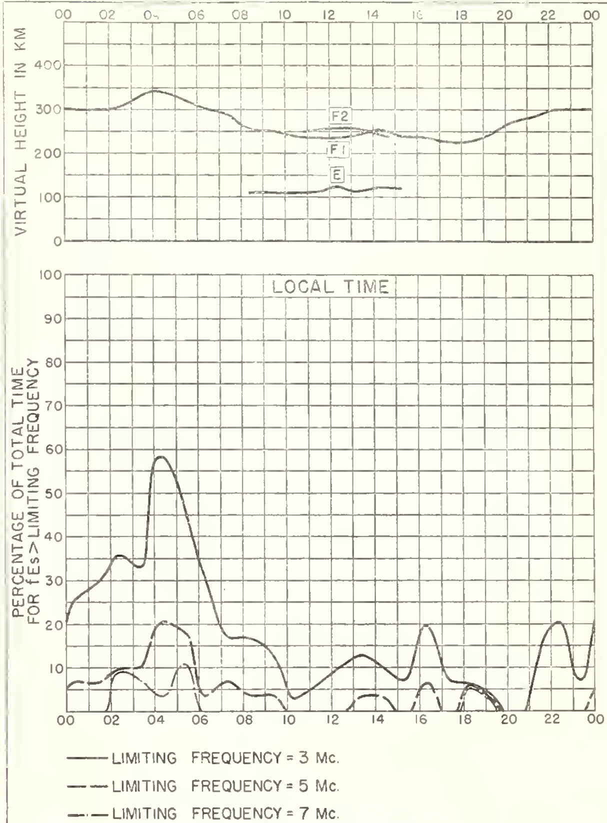


Fig. 50. PRINCE RUPERT, CANADA JANUARY 1952

NBS 490

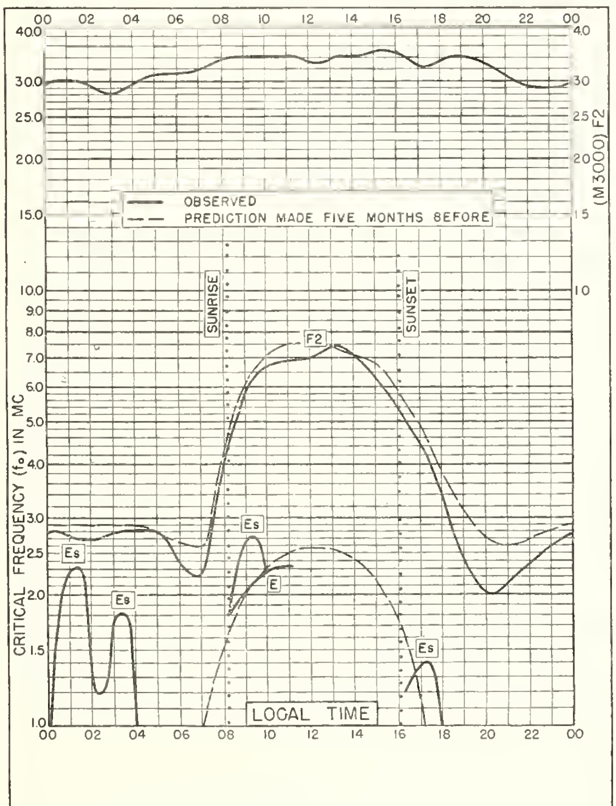


Fig. 51. ADAK, ALASKA
51.9°N, 176.6°W JANUARY 1952

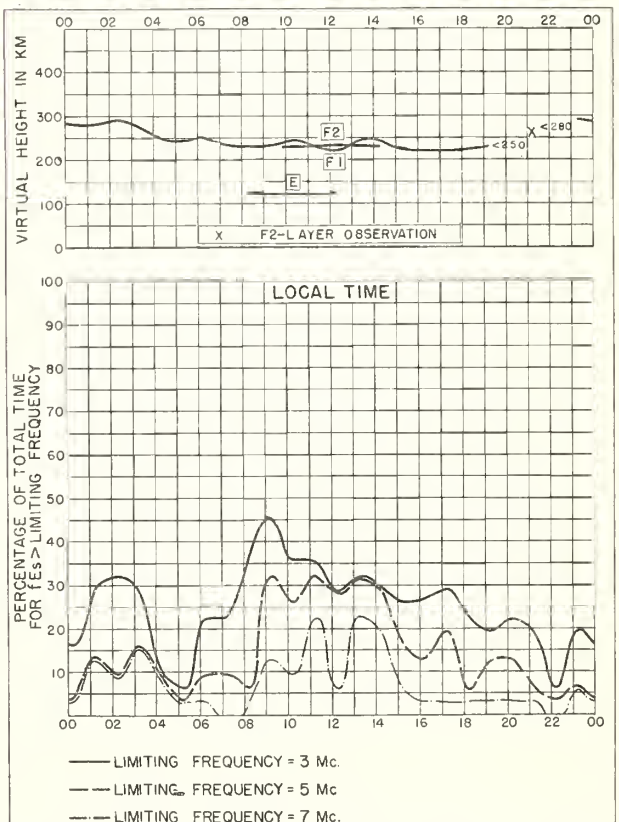


Fig. 52. ADAK, ALASKA JANUARY 1952

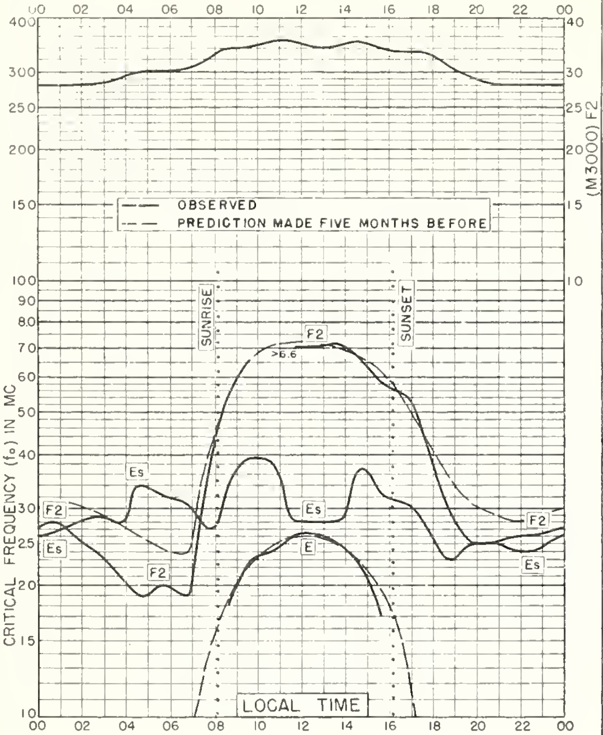


Fig. 53. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JANUARY 1952

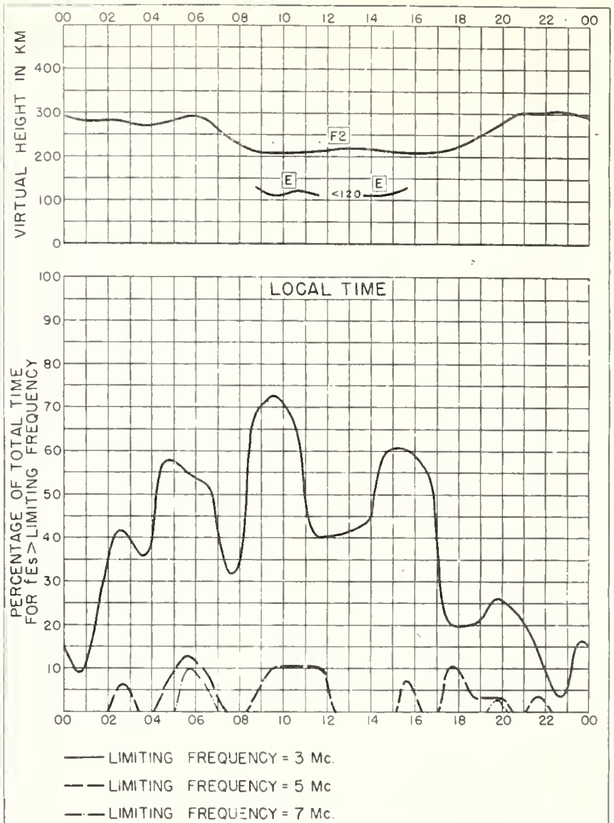


Fig. 54. LINDAU/HARZ, GERMANY JANUARY 1952

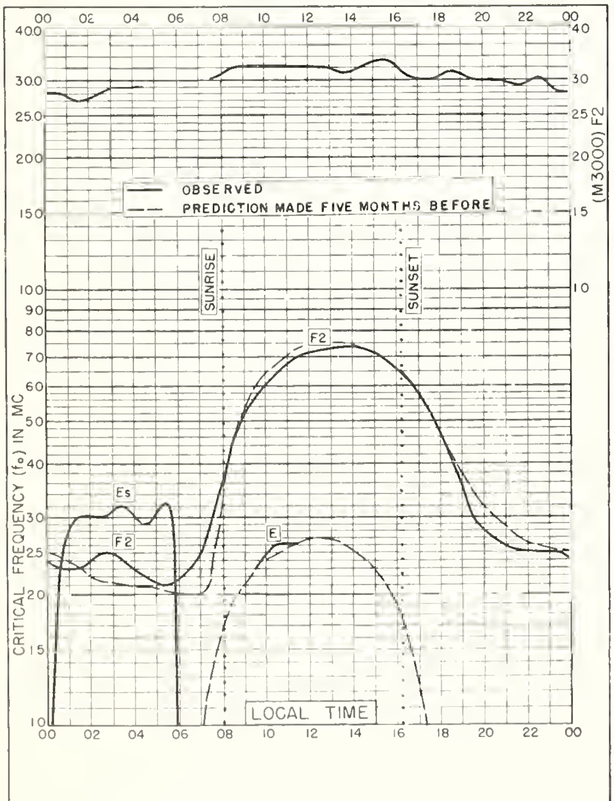


Fig. 55. WINNIPEG, CANADA
49.9°N, 97.4°W JANUARY 1952

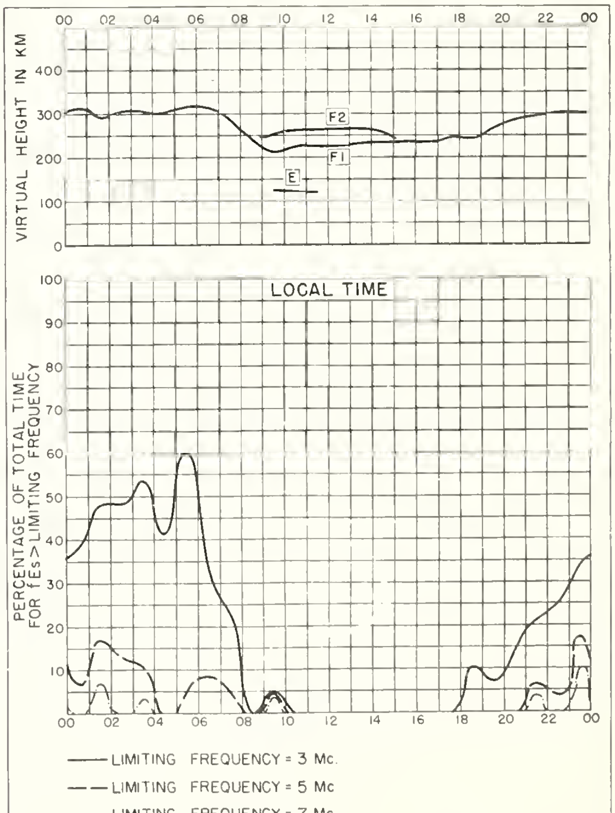


Fig. 56. WINNIPEG, CANADA JANUARY 1952

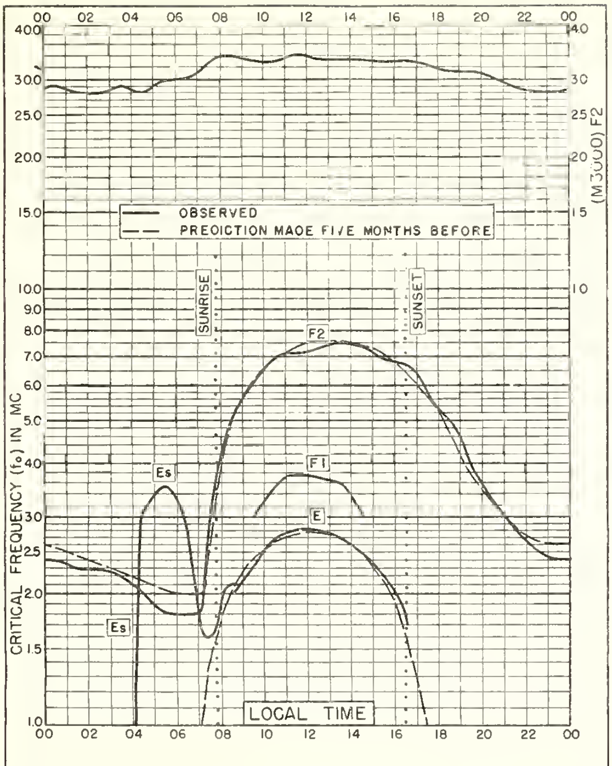


Fig. 57. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JANUARY 1952

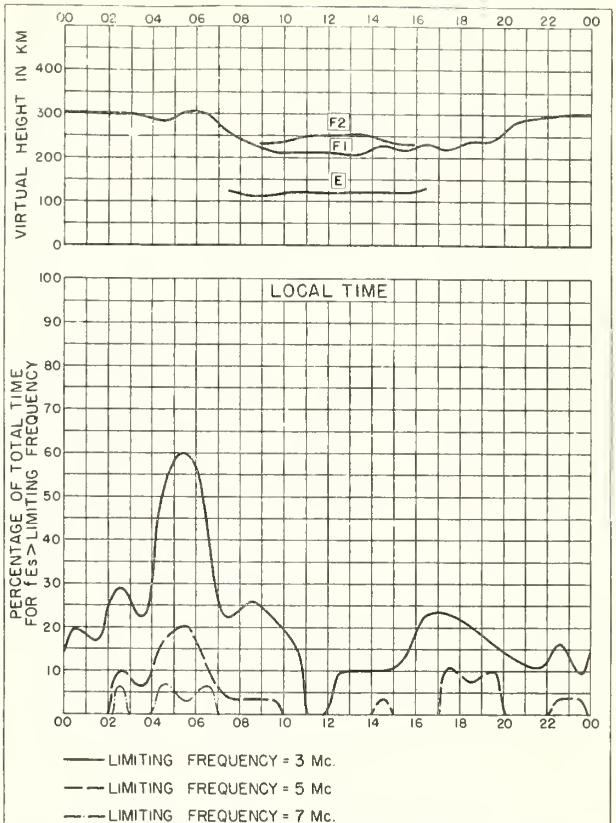


Fig. 58. ST. JOHN'S, NEWFOUNDLAND JANUARY 1952

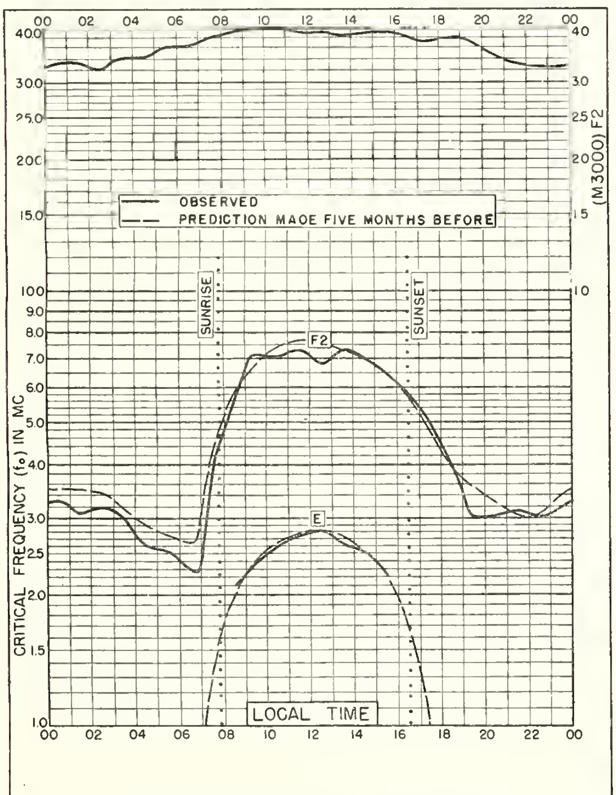


Fig. 59. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JANUARY 1952

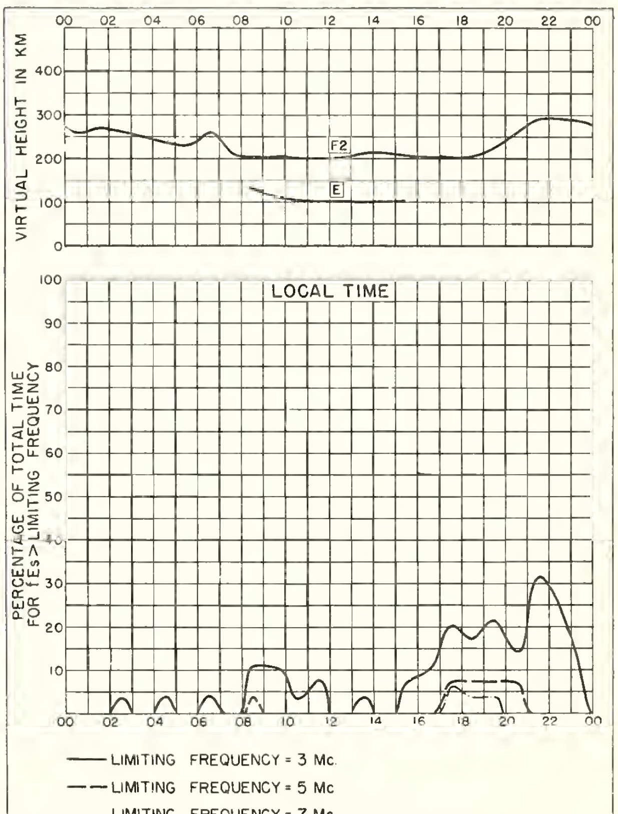


Fig. 60. SCHWARZENBURG, SWITZERLAND JANUARY 1952

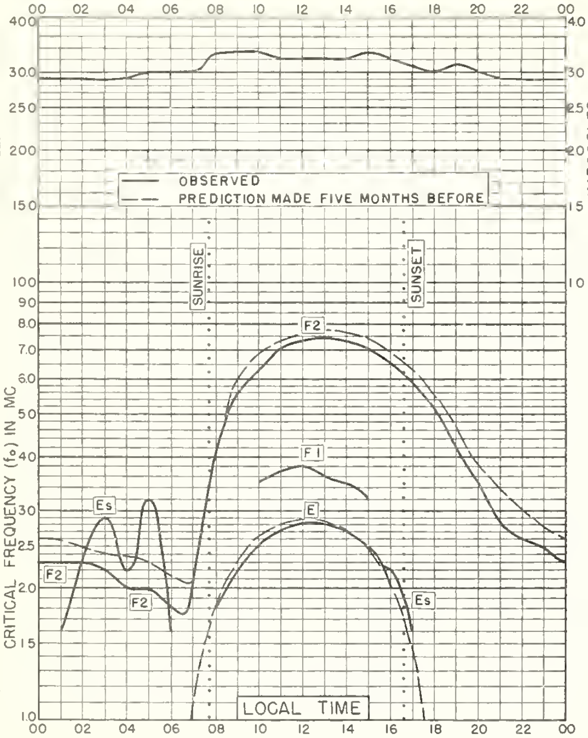


Fig. 61. OTTAWA, CANADA
45. 4°N, 75.7°W JANUARY 1952

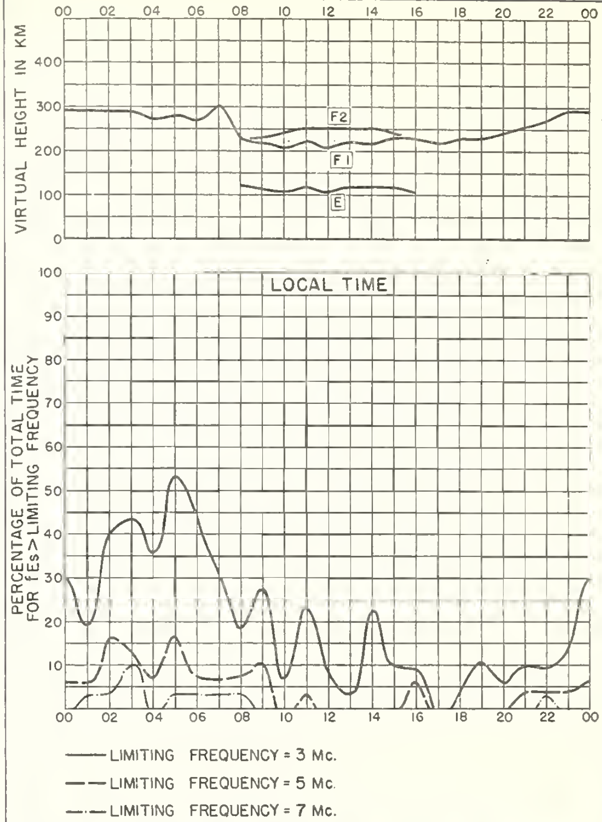


Fig. 62. OTTAWA, CANADA JANUARY 1952

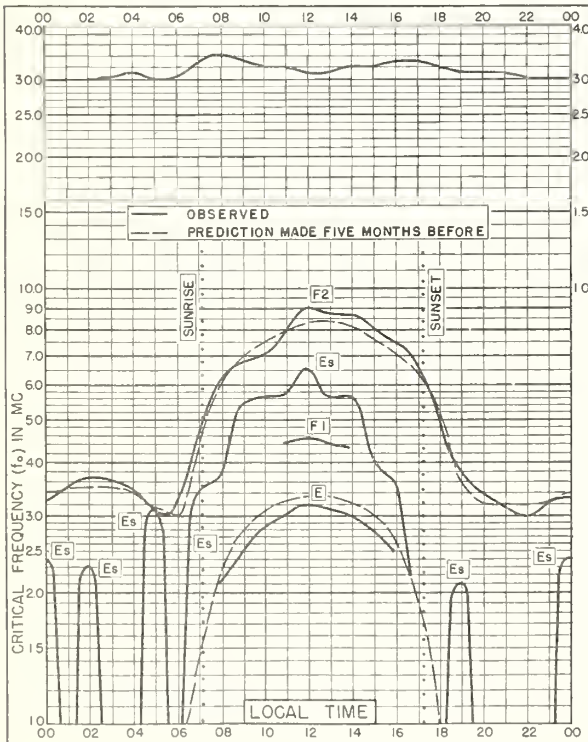


Fig. 63. BATON ROUGE, LOUISIANA
30.5°N, 91.2° W JANUARY 1952

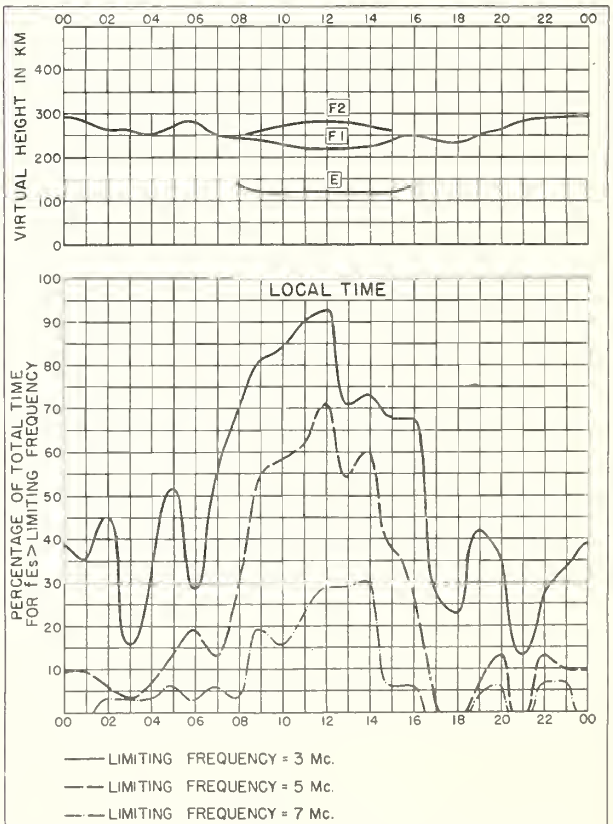


Fig. 64. BATON ROUGE, LOUISIANA JANUARY 1952

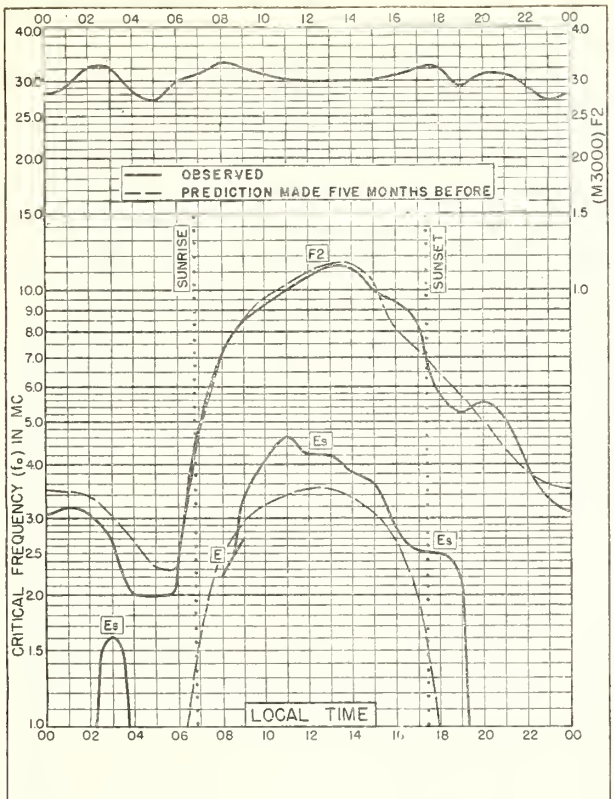


Fig. 65. OKINAWA I.
26.3°N, 127.8°E JANUARY 1952

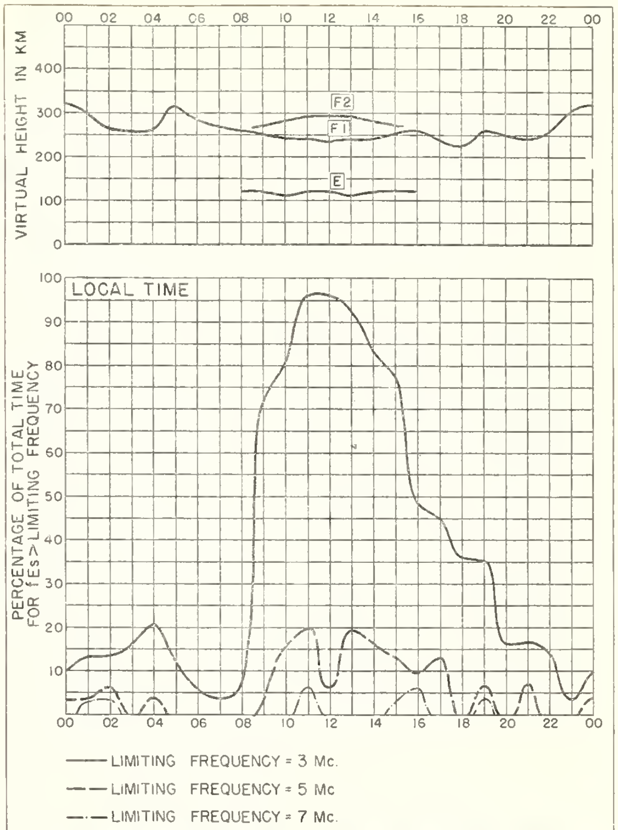


Fig. 66. OKINAWA I. JANUARY 1952

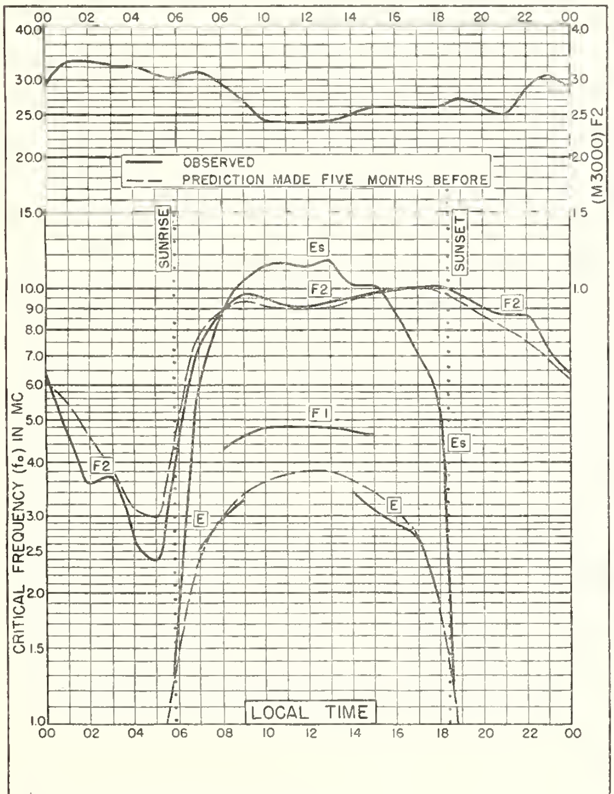


Fig. 67. HUANCAYO, PERU
12.0°S, 75.3°W JANUARY 1952

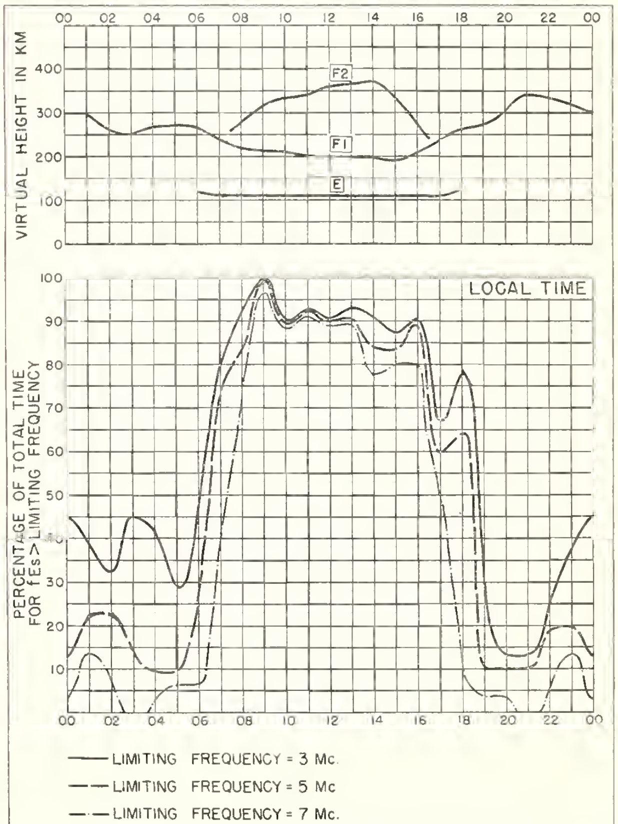


Fig. 68. HUANCAYO, PERU JANUARY 1952

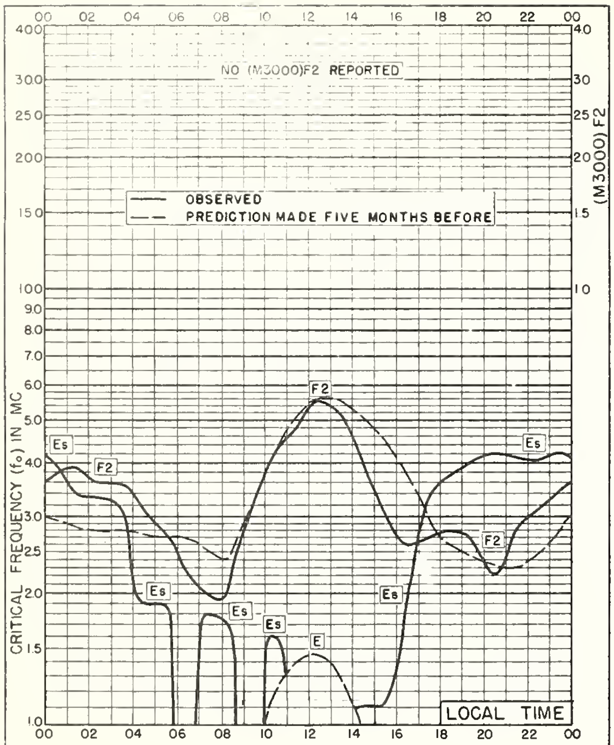


Fig. 69. KIRUNA, SWEDEN
67.8°N, 20.5°E DECEMBER 1951

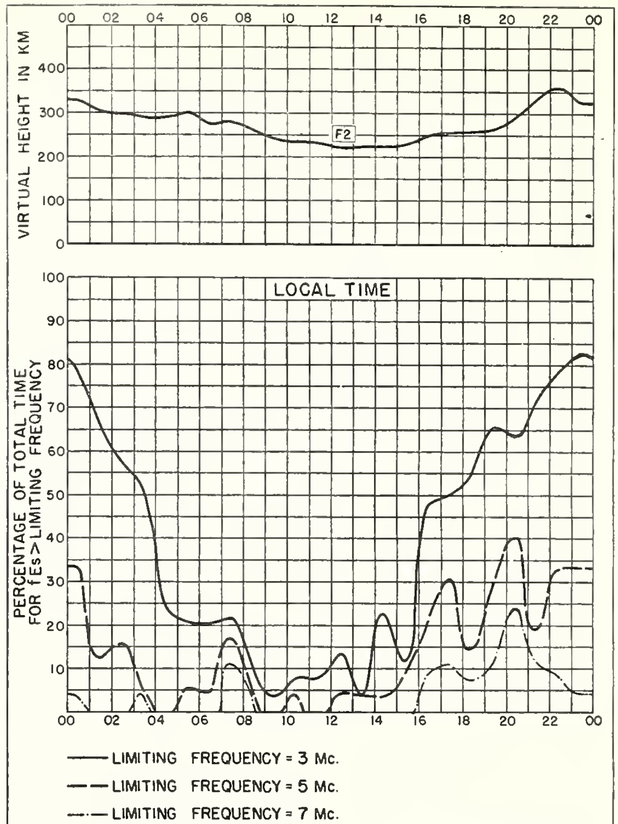


Fig. 70. KIRUNA, SWEDEN DECEMBER 1951

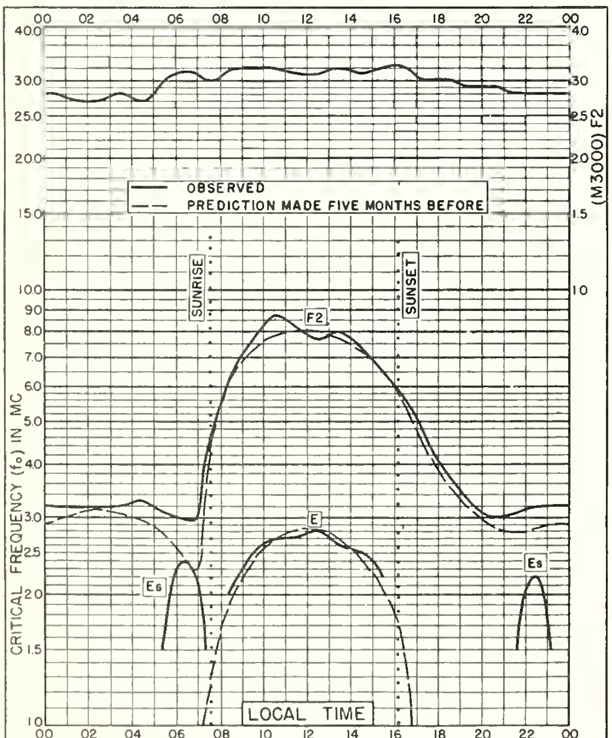


Fig. 71. WAKKANAI, JAPAN
45.4°N, 141.7°E DECEMBER 1951

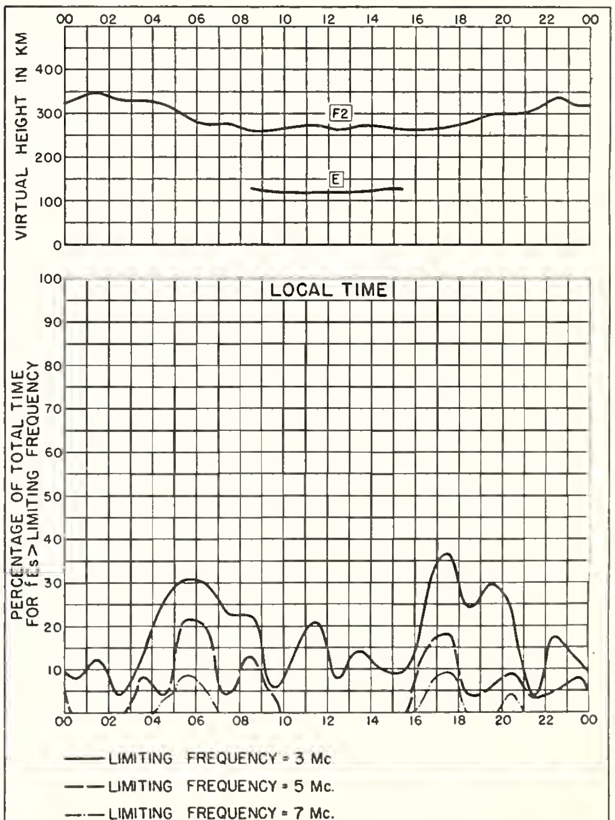


Fig. 72. WAKKANAI, JAPAN DECEMBER 1951

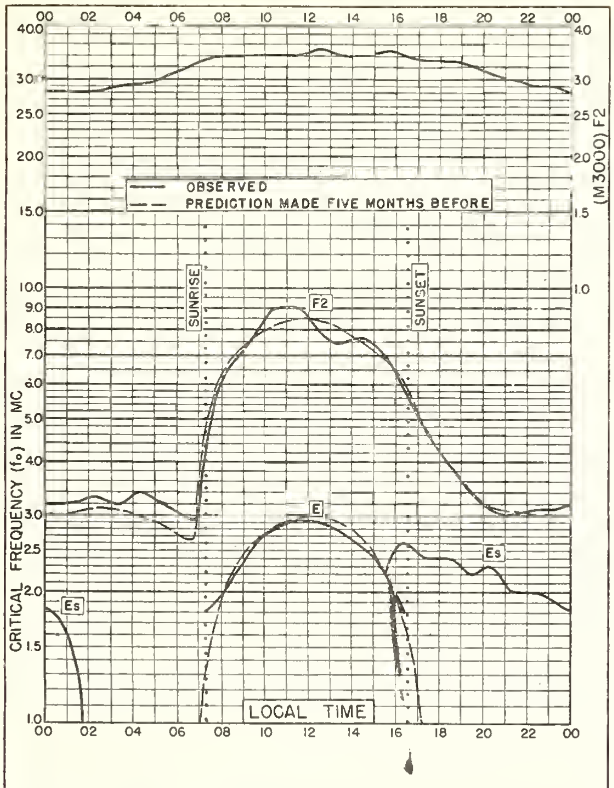


Fig. 73. AKITA, JAPAN
39.7°N, 140.1°E DECEMBER 1951

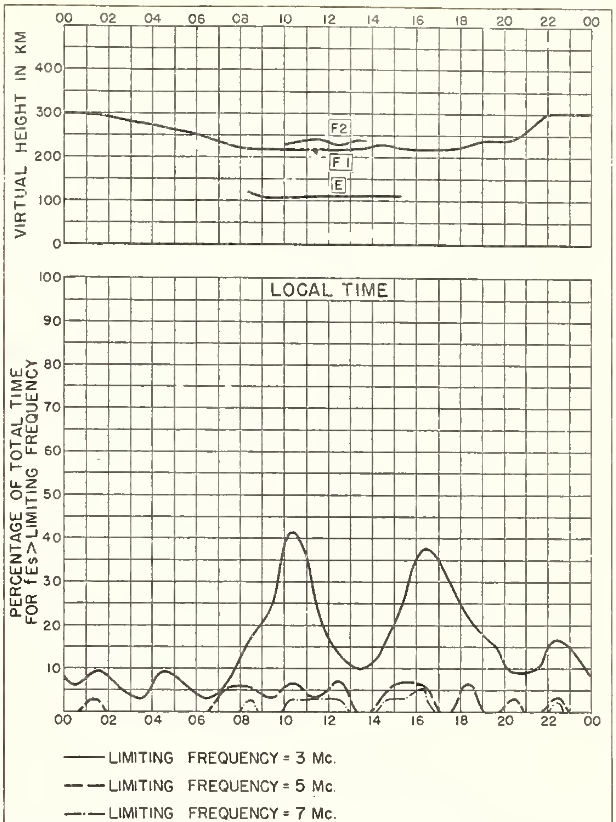


Fig. 74. AKITA, JAPAN DECEMBER 1951

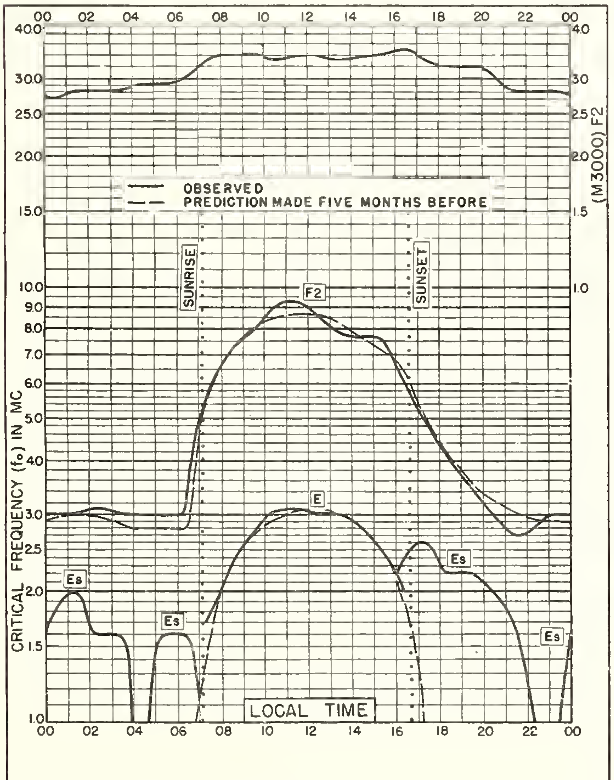


Fig. 75. TOKYO, JAPAN
35.7°N, 139.5°E DECEMBER 1951

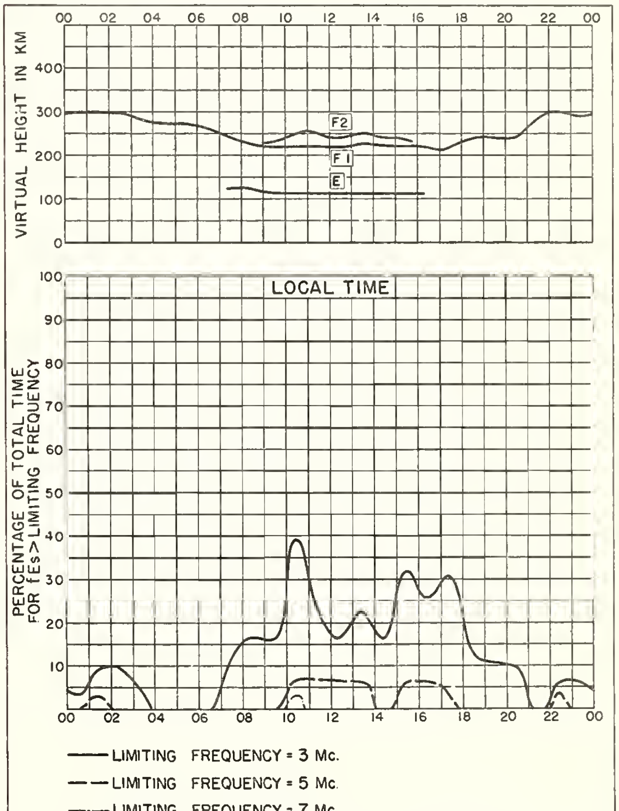


Fig. 76. TOKYO, JAPAN DECEMBER 1951

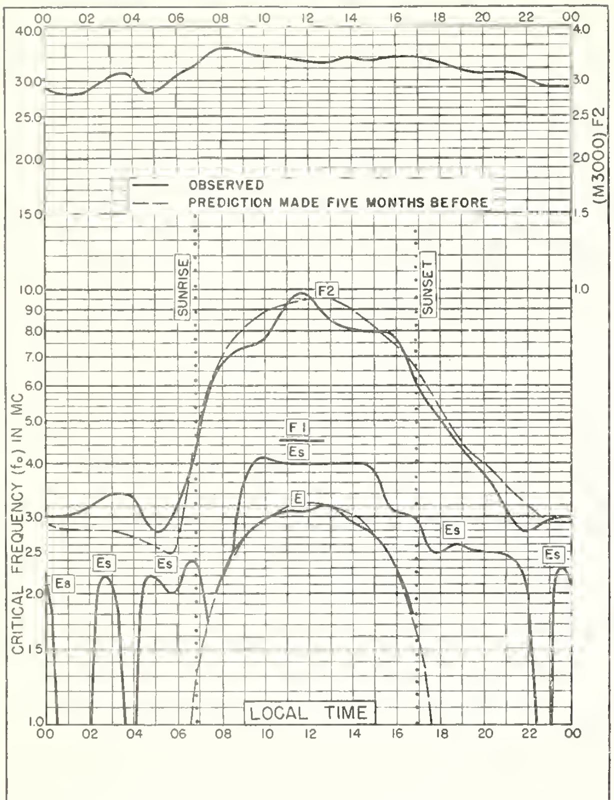


Fig. 77. YAMAGAWA, JAPAN
31. 2°N, 130. 6°E DECEMBER 1951

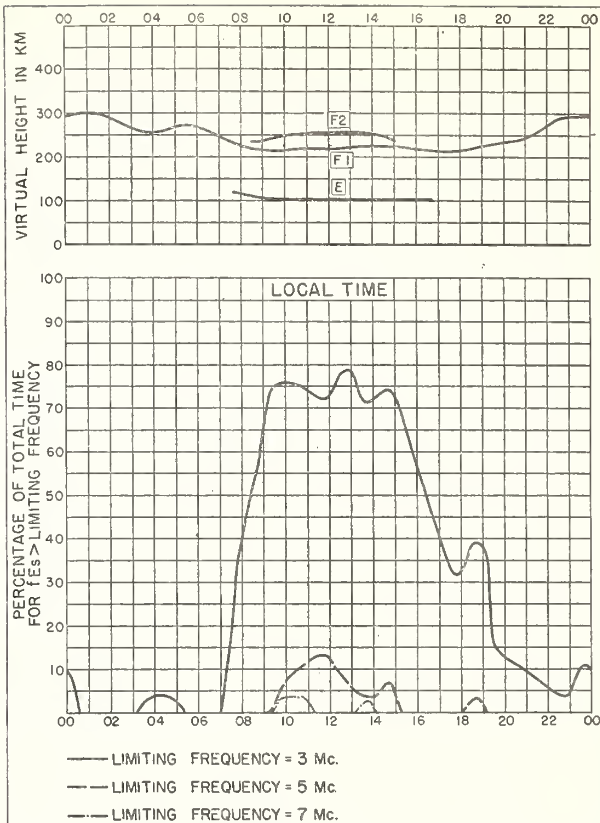


Fig. 78. YAMAGAWA, JAPAN DECEMBER 1951

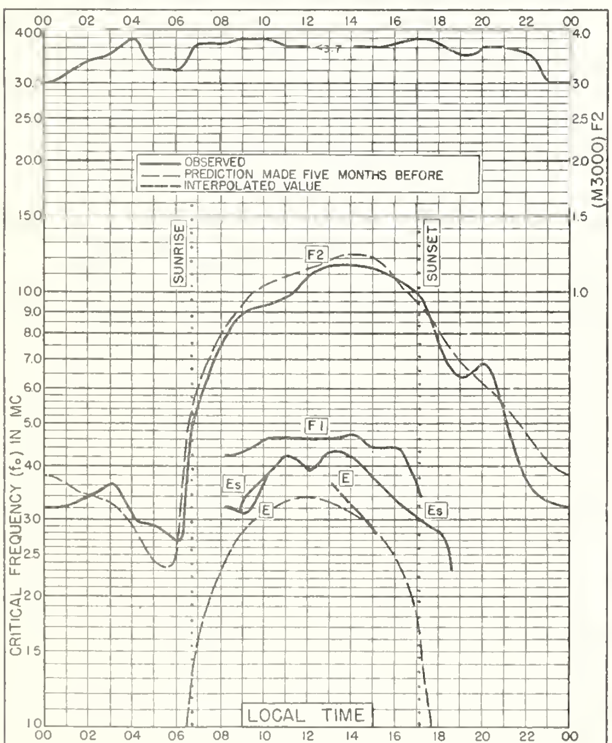


Fig. 79. FORMOSA, CHINA
25.0°N, 121.5°E DECEMBER 1951

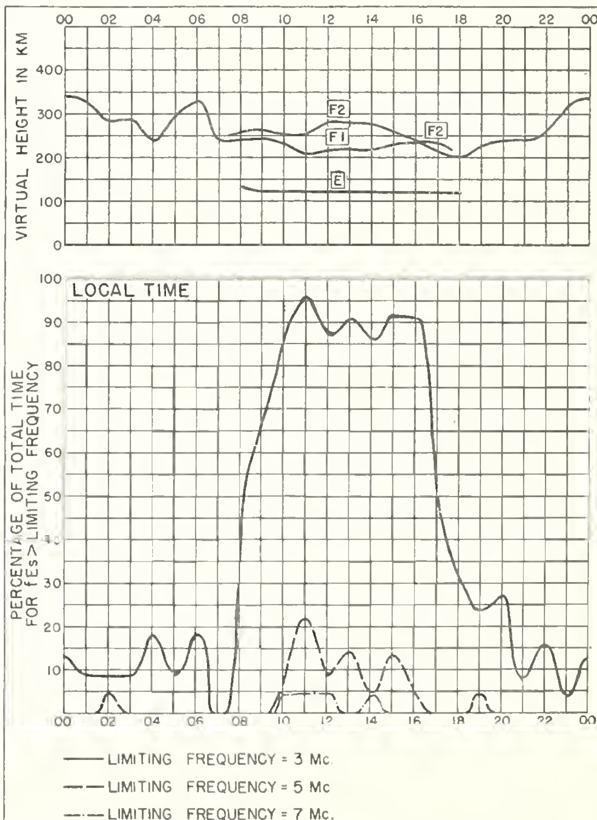


Fig. 80. FORMOSA, CHINA DECEMBER 1951

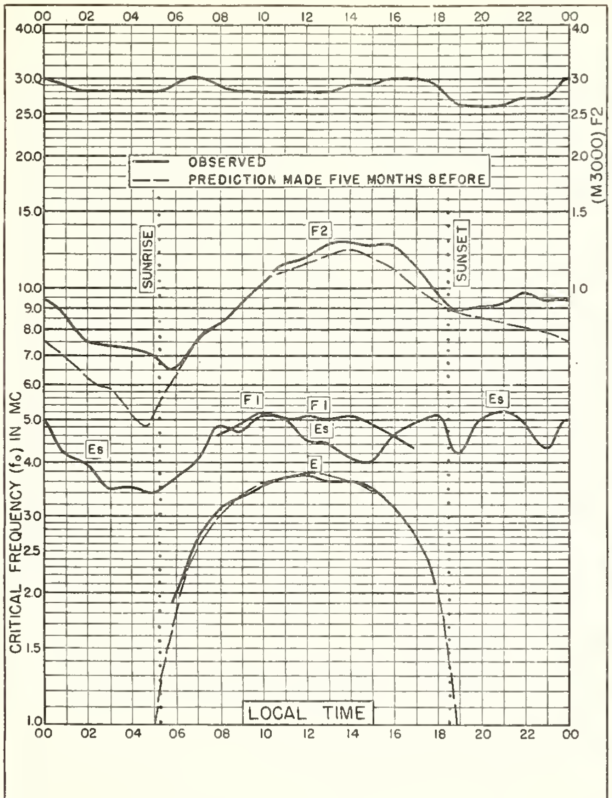


Fig. 81. RAROTONGA I.
21.3°S, 159.8°W DECEMBER 1951

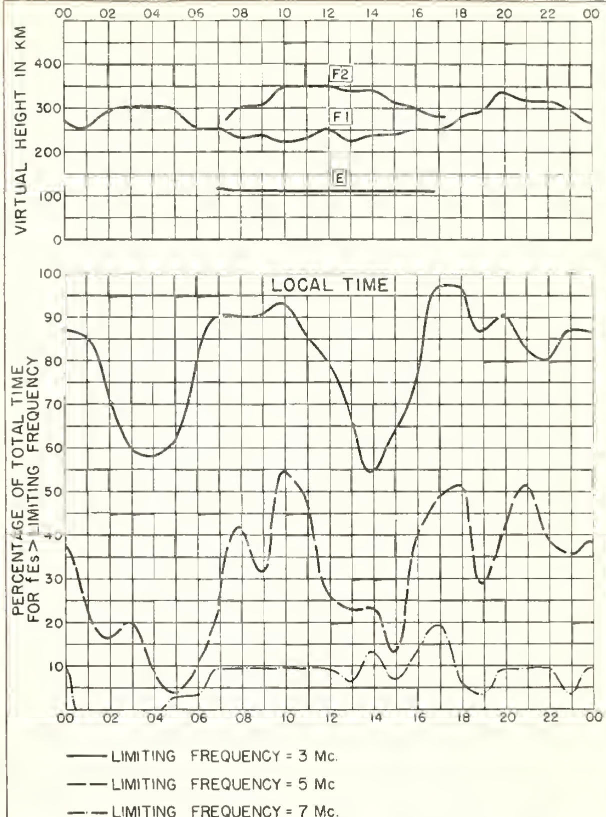


Fig. 82. RAROTONGA I. DECEMBER 1951

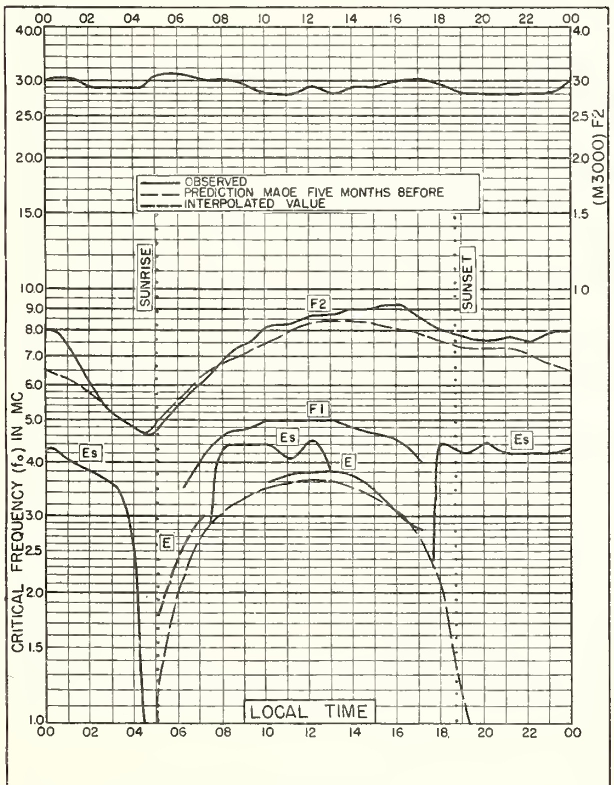


Fig. 83. BRISBANE, AUSTRALIA
27.5°S, 153.0°E DECEMBER 1951

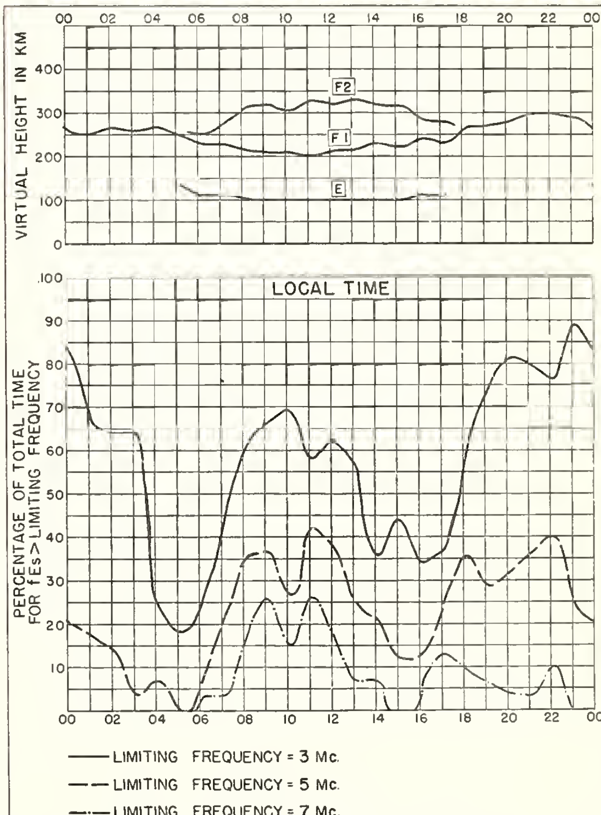


Fig. 84. BRISBANE, AUSTRALIA DECEMBER 1951

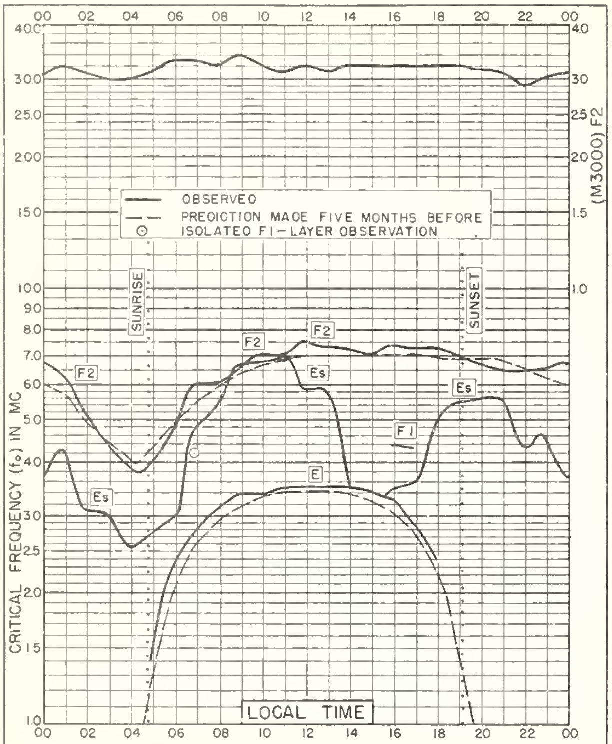


Fig. 85. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1951

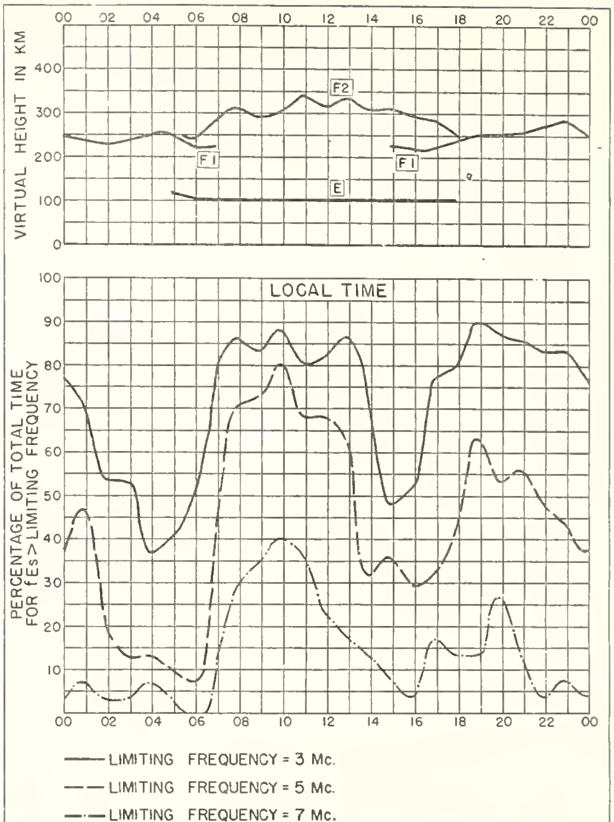
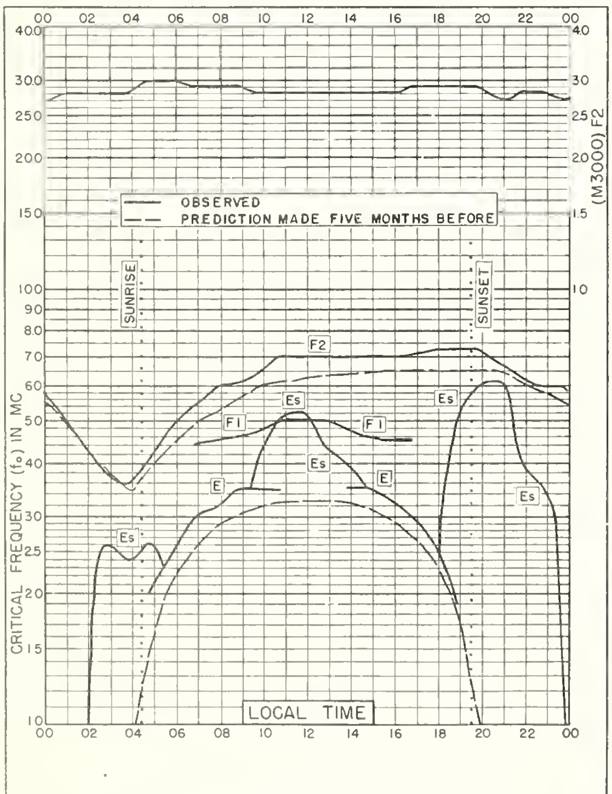


Fig. 86. CANBERRA, AUSTRALIA DECEMBER 1951



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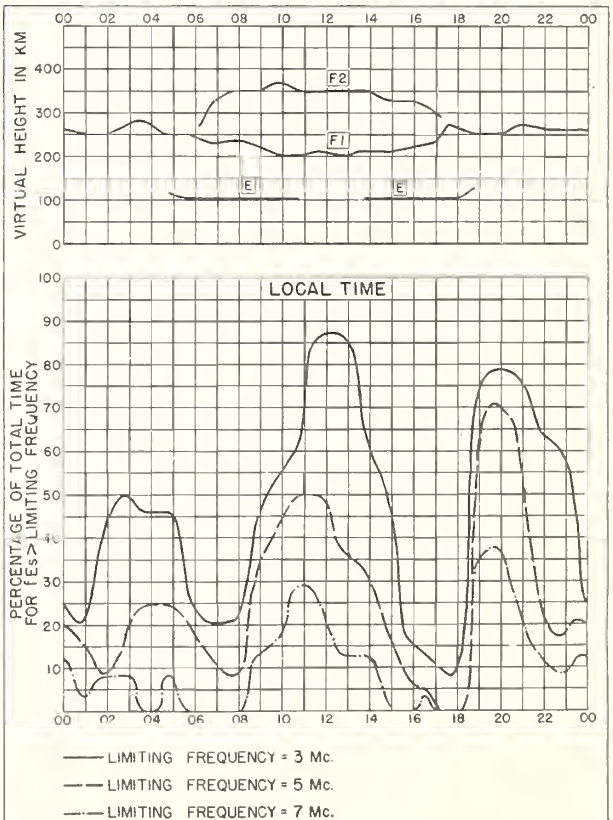

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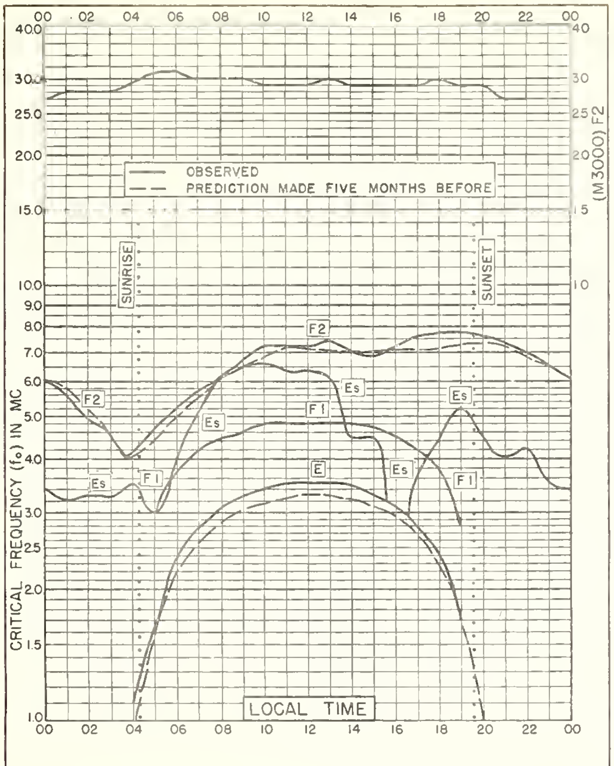

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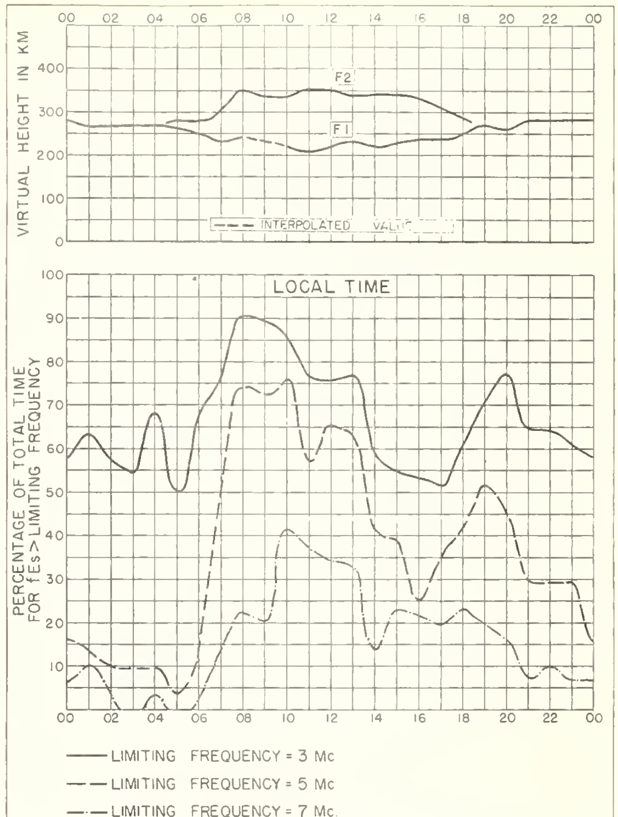

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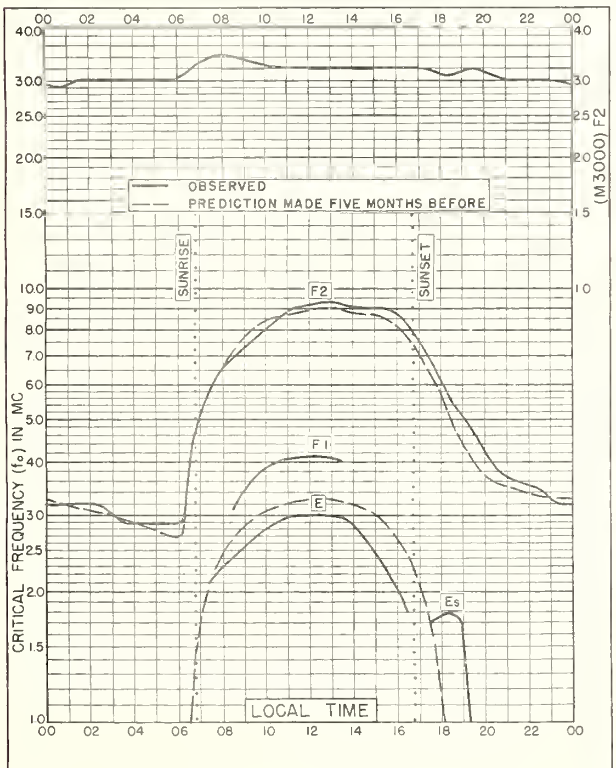

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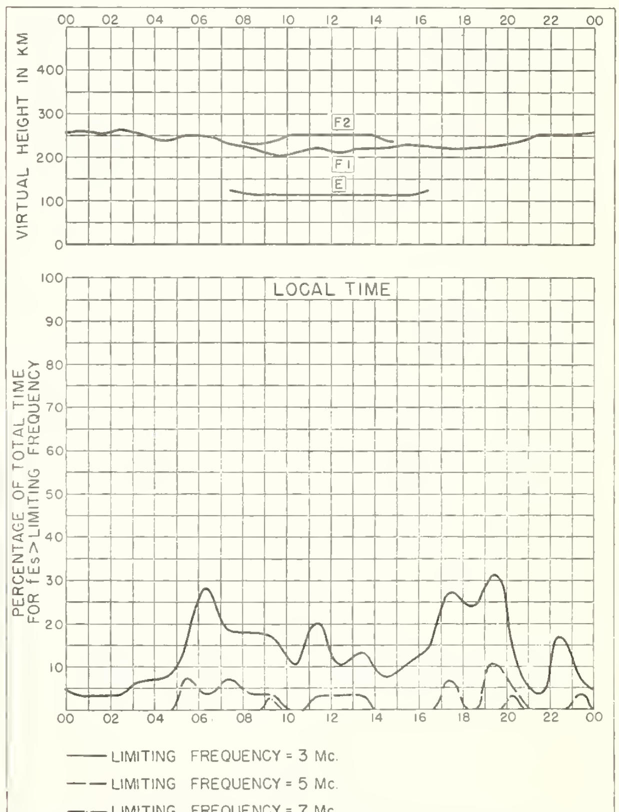

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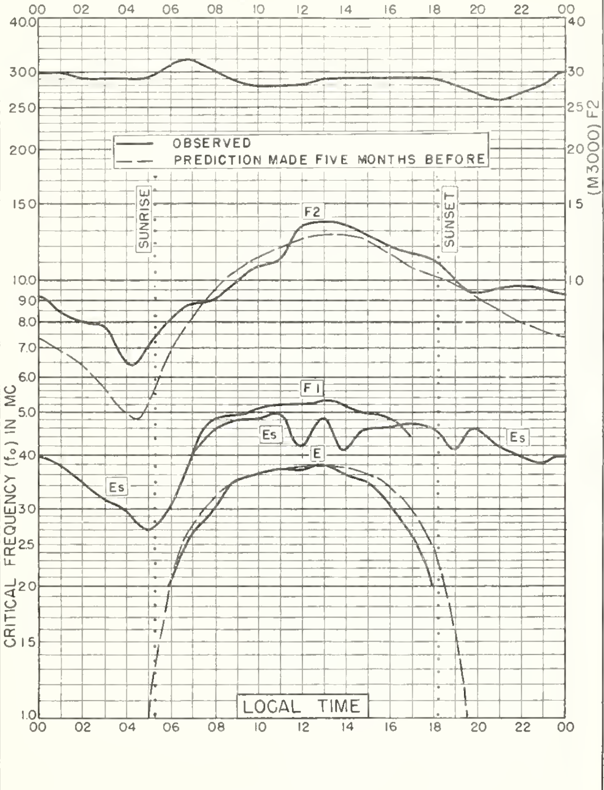

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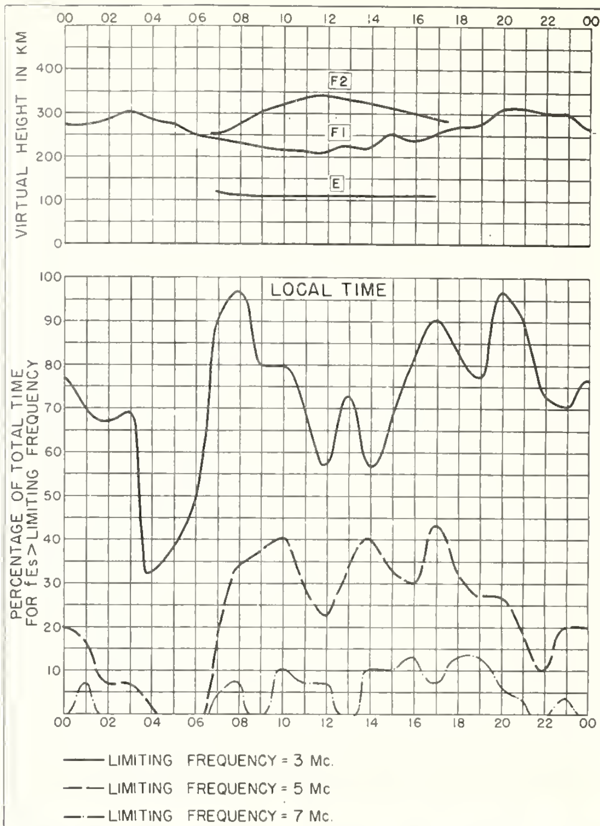

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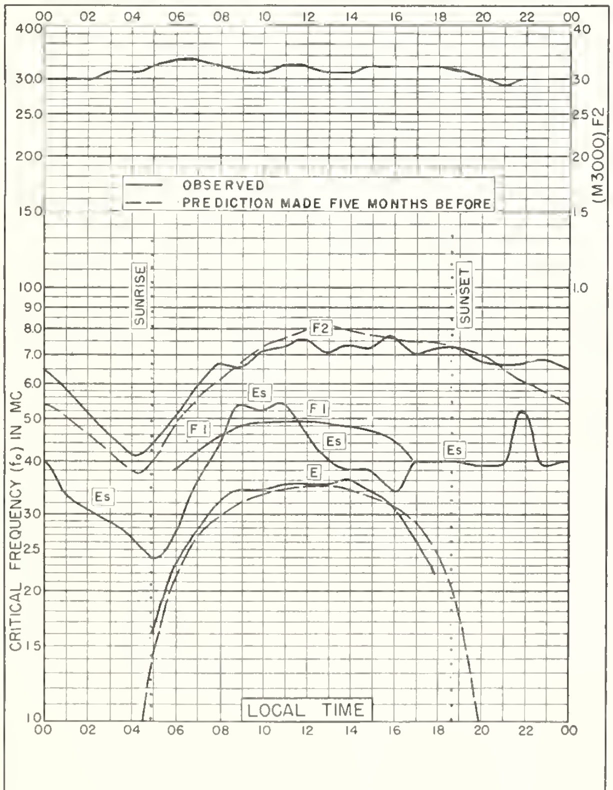

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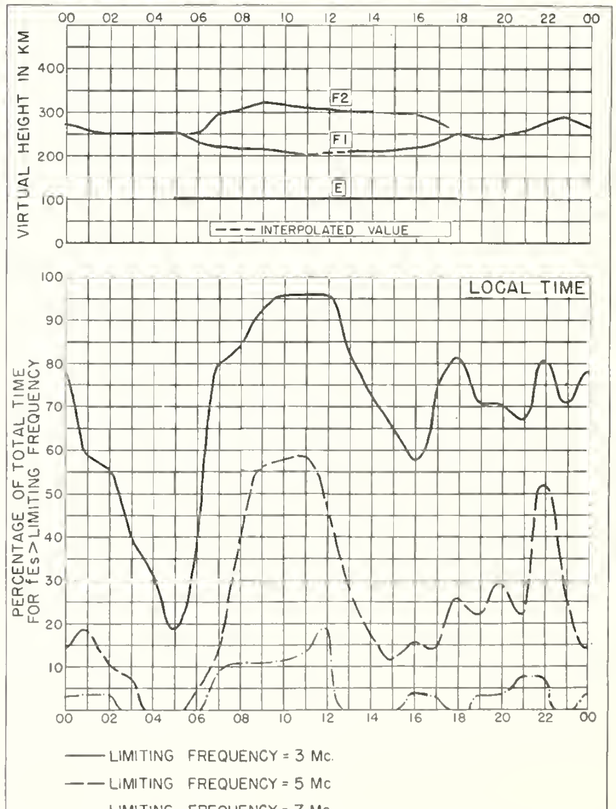

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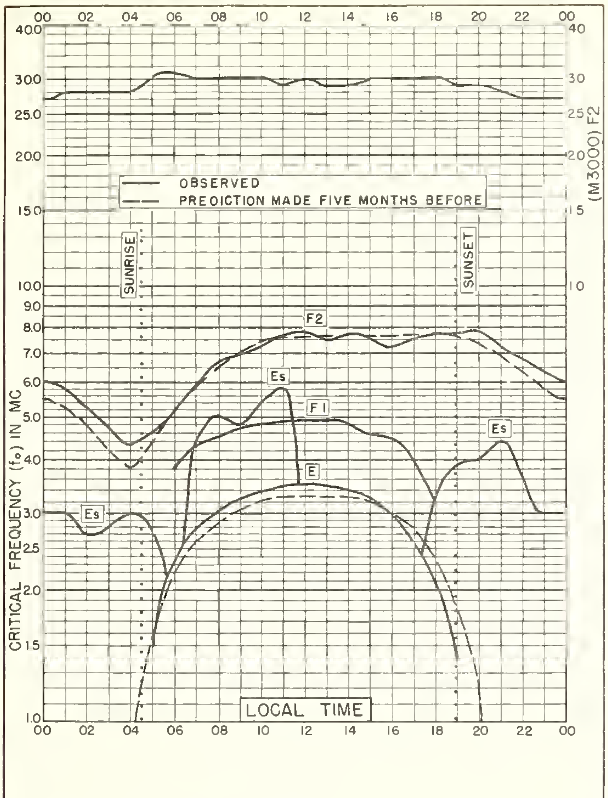

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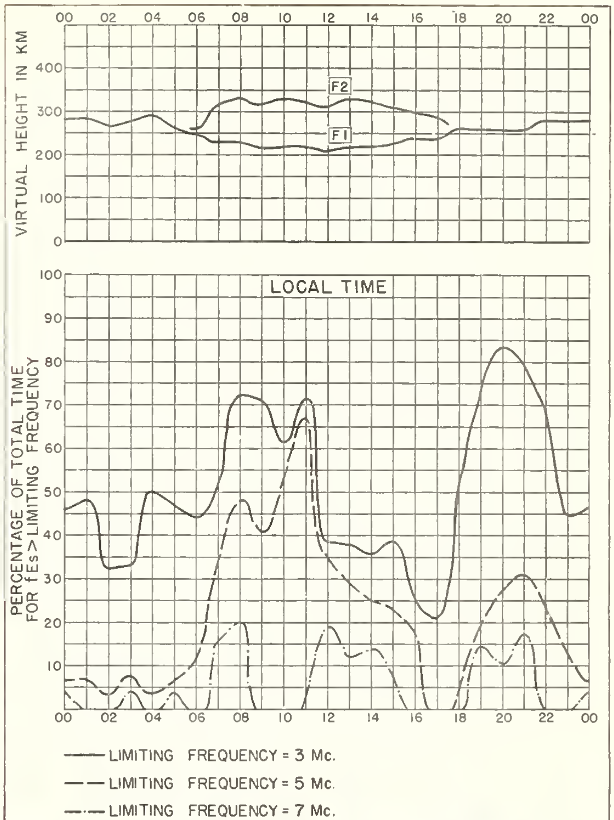

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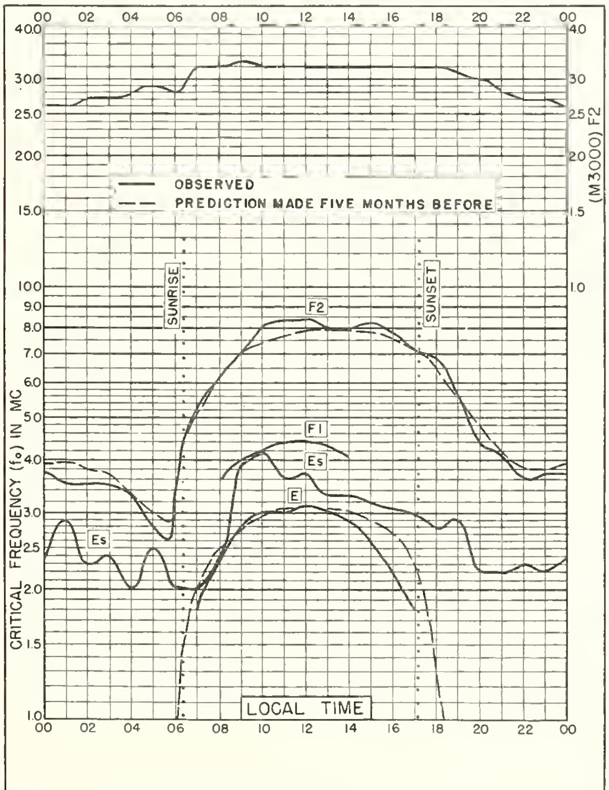

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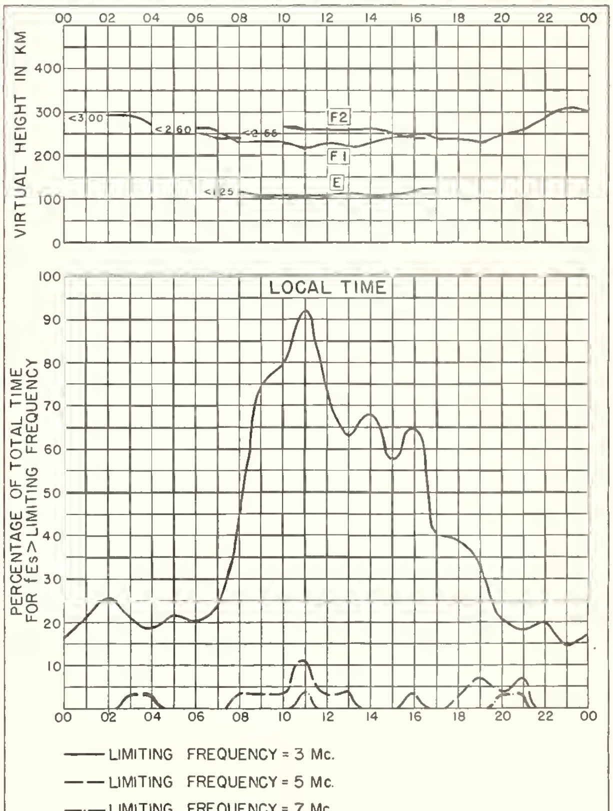

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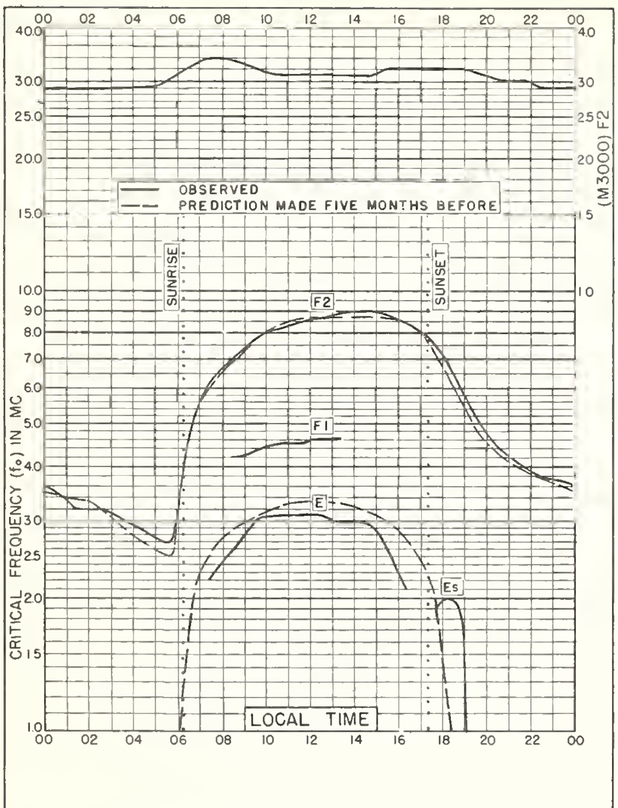

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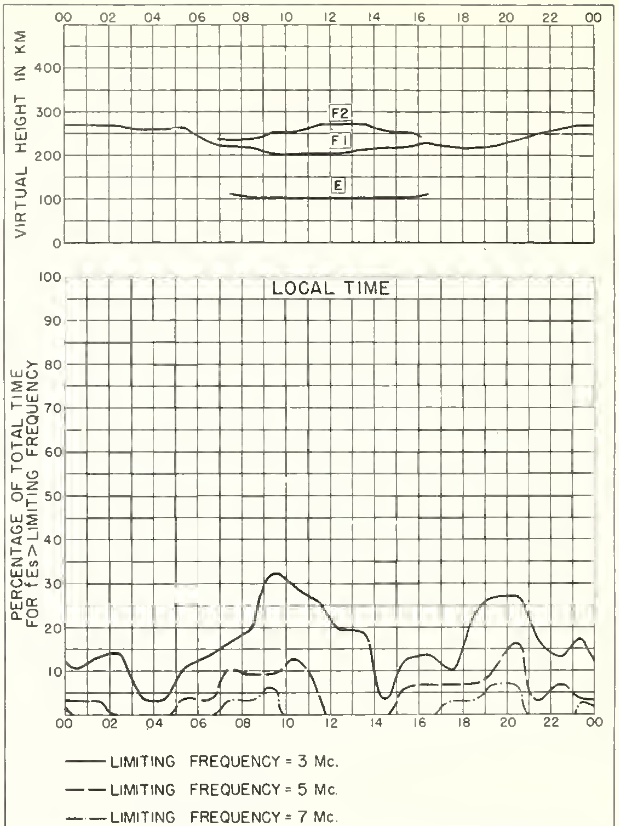

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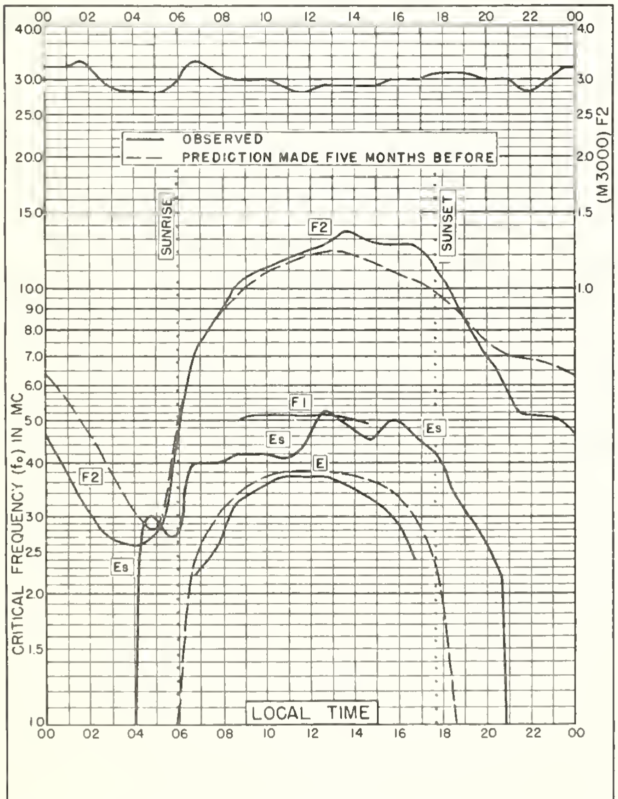

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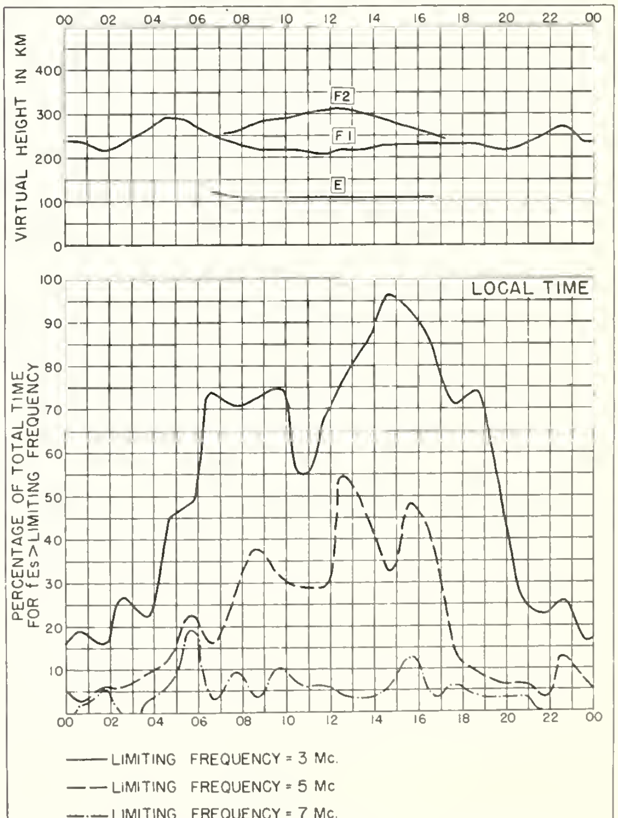

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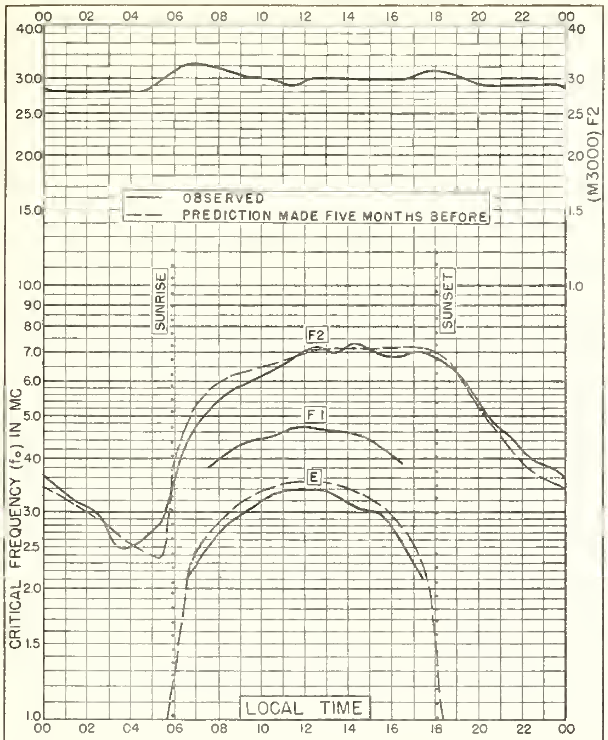

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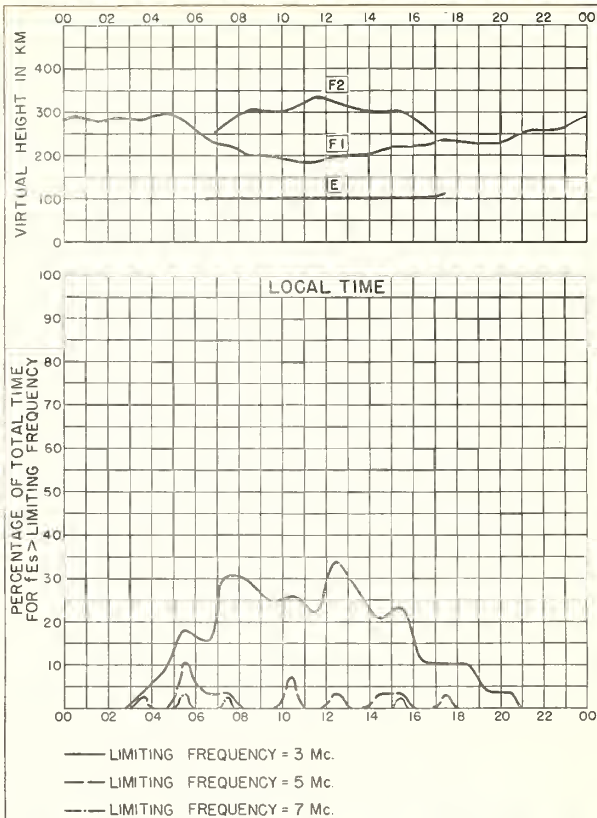

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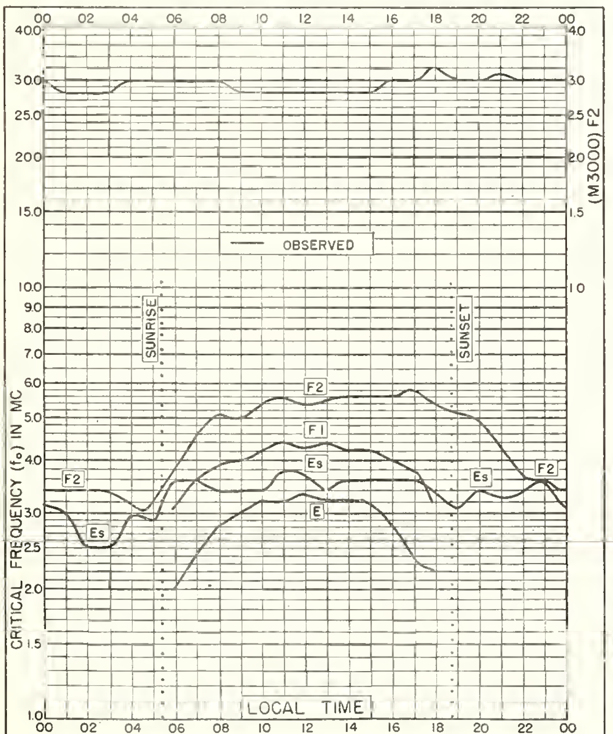

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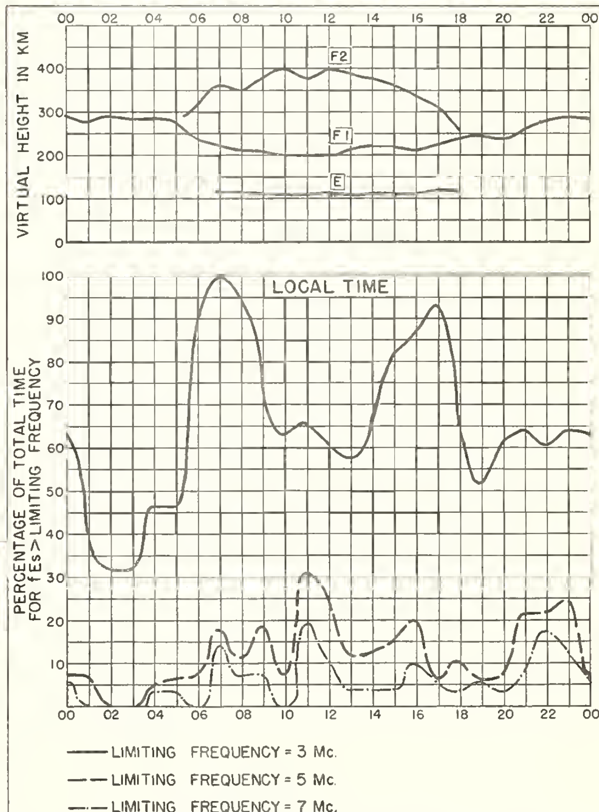

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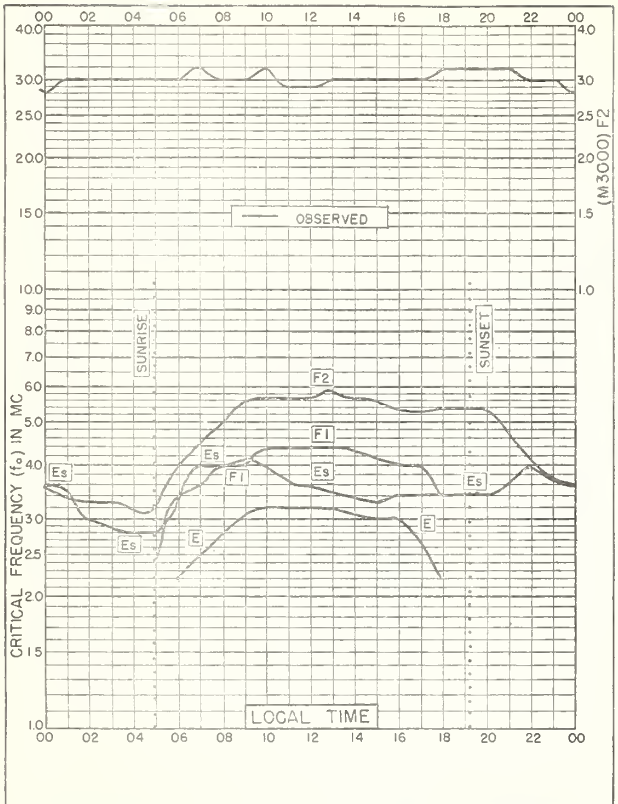

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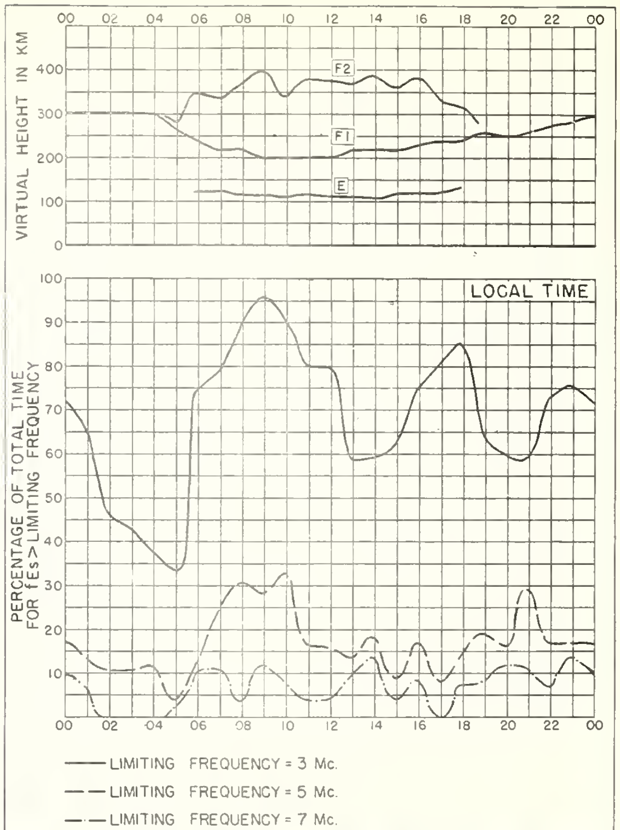

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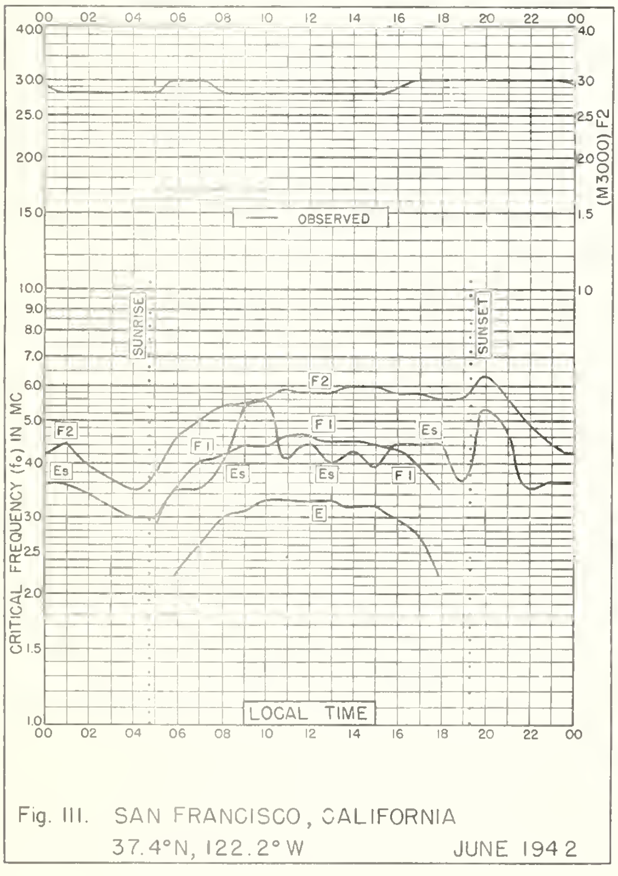

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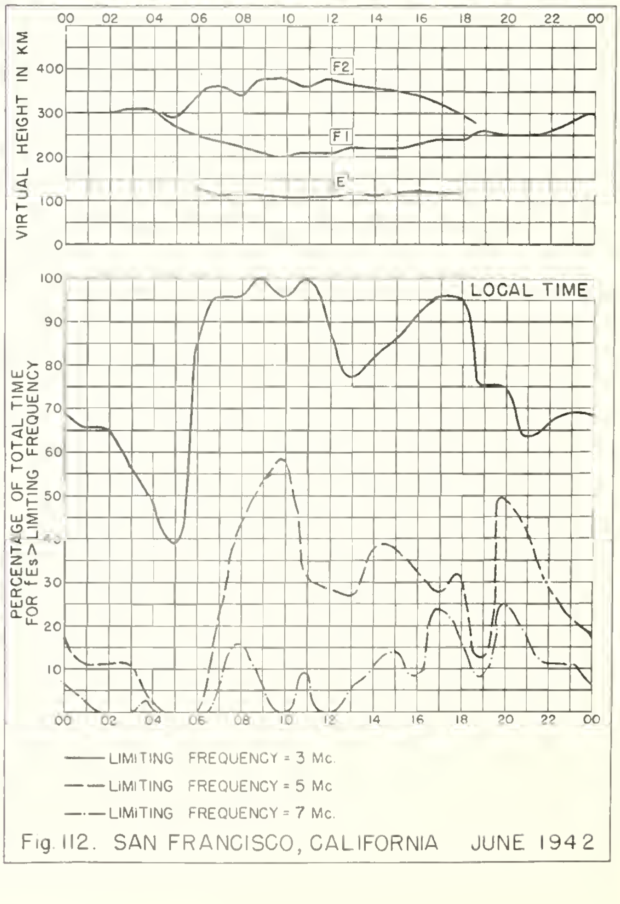

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Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) series; Dept. of the Air Force, TO 16-1B-2 series.)
CRPL—F. Ionospheric Data.
*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.
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