CRPL-F86

IONOSPHERIC DATA

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

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

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

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, the following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

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 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						
	1951	1950	1949	1948	1947	1946	1945
December		86	108	114	126	85	38
November		87	112	115	124	83	36
October		90	114	116	119	81	23
September	54	91	115	117	121	79	22
August	57	96	112	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	78	103	111	133	105	51	
February	82	103	113	133	90	46	
January	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 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:

Republica Argentina, Ministerio de Marina:
- Buenos Aires, Argentina

British Department of Scientific and Industrial Research, Radio Research Board:
- Falkland Is.
- Fraserburgh, Scotland
- Singapore, British Malaya
- Slough, England

Defence Research Board, Canada:
- Churchill, Canada
- Fort Chimo, Canada
- Ottawa, Canada
- Prince Rupert, 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)
Dakar, French West Africa
Fribourg, Germany

National Laboratory of Radio-Electricity (French Ionospheric Bureau)
Domont, France
Poitiers, France

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Icelandic Post & Telegraph Administration:
Reykjavik, Iceland

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

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

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.
White Sands, New Mexico

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 to 84 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 85 presents ionosphere character figures for Washington, D. C., during September 1951, 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 86 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, August 1951, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

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

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

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during September 1951 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 90 through 95 list the coronal observations obtained at Sacramento Peak, New Mexico, during August and September 1951, 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 87 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 88 gives similarly the intensities of the first red (6374A) coronal line; and table 89, the intensities of the second red (6702A) coronal line; all observed at Climax in September 1951.

Tables 90 and 93 give the intensities of the green (5303A) coronal line; tables 91 and 94, the intensities of the first red (6374A) coronal line; and tables 92 and 95, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in August and September 1951.

The following symbols are used in tables 87 through 95: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 96 lists the daily provisional Zürich relative sunspot numbers, R_Z, as communicated by the Swiss Federal Observatory. The American sunspot numbers which in the past were included in this table are now being prepared on a slower schedule and therefore do not appear in this issue.

OBSERVATIONS OF SOLAR FLARES

Table 97 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 98 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary mean 3-hourly K-indices, Kw; (2) preliminary international character-figures, C; (3) geomagnetic planetary three-hour-range indices, Kp; (4) magnetically selected quiet and disturbed days.

Kw is the arithmetic mean of the K-indices from all reporting observatories for each three hours of the Greenwich day, on a scale 0 (very quiet) to 9 (extremely disturbed). 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 to 9, 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 Kw, C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

Tables 99 through 104 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, September 1951; in England, August and September 1951; at Lindau, Harz, Germany, August 1951; at Riverhead, New York, September 1951; at Hong Kong, China, April, May, and June 1951; and at Point Reyes, California, September 1951.

ERRATUM

CRPL-F85, p. 20, table 57 and p. 72, fig. 113: In both table and figure, the foE data presented for hours 16 through 19 should be 3.3, 2.9, 2.4, and 2.1, respectively. Dashes in the table for hours 21 through 23 should be omitted.

Table 1

Washington, D. C. (38.7°N, 77.1°W) — September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.8
01	300	3.5						2.7
02	290	3.1						2.8
03	300	2.9						2.8
04	300	2.6						(2.8)
05	300	2.5						2.8
06	260	3.6	—	—	130	—		3.1
07	270	4.8	230	—	110	2.3		3.2
08	300	5.7	220	4.0	110	2.8		3.1
09	320	6.2	210	4.2	110	3.1		3.0
10	320	6.4	210	4.5	110	3.3		3.0
11	330	6.8	200	4.6	110	3.4		3.0
12	330	7.0	210	4.7	110	3.4		3.0
13	330	7.0	220	4.6	110	3.4		3.0
14	320	7.0	220	4.5	110	3.2		2.9
15	310	7.0	230	4.4	110	3.1		3.0
16	290	7.1	230	4.1	110	2.9		3.0
17	270	7.0	240	3.6	110	2.4		3.0
18	250	7.0	—	—	(130)	1.8		3.0
19	240	6.8						3.0
20	240	5.8						3.0
21	250	5.0						2.9
22	280	4.4						2.8
23	280	4.0						2.8

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

Table 2

Tromso, Norway (69.7°N, 19.0°E) — August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(4.5)					(5.2)	---
01	---	---						---
02	---	---						---
03	---	---						---
04	---	---						---
05	---	---	---	---	---	---		---
06	(400)	(5.4)	225	---	---	---	(5.4)	(2.8)
07	390	5.1	210	4.1	100	2.7	5.4	2.8
08	370	5.4	225	4.2	100	2.8	5.4	2.8
09	375	5.4	220	4.4	100	2.9	5.5	2.9
10	350	5.6	210	4.4	100	3.0	5.5	3.0
11	355	5.6	210	4.4	100	(3.0)	5.5	3.0
12	380	5.7	215	4.4	105	(3.0)	5.5	2.9
13	380	5.6	210	4.4	100	3.0	5.4	2.9
14	370	5.5	215	4.3	105	(2.9)	5.3	3.0
15	395	5.1	220	4.3	105	2.9	5.4	3.0
16	(360)	5.0	230	(4.2)	105	2.8	4.6	3.0
17	330	5.0	250	(4.0)	105	2.6	4.9	3.1
18	300	5.0	---	---	105	(2.3)	5.1	3.0
19	300	4.7	---	---	105	---	5.1	3.1
20	300	4.7	---	---	105	---	4.4	3.0
21	330	4.7					4.5	2.9
22	(335)	4.6					5.6	(2.9)
23	---	(4.2)					5.3	---

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

Table 3

Anchorage, Alaska (61.2°N, 149.9°W) — August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.2						2.8
01	320	3.1					2.2	2.7
02	330	3.1					3.0	2.7
03	320	3.3						2.8
04	340	3.4	280	---	---	---		2.8
05	400	3.8	250	3.2	---	---		2.7
06	420	4.2	240	3.5	110	2.3		2.7
07	500	4.5	230	3.8	110	2.7		2.6
08	500	4.7	220	4.0	110	2.9		2.5
09	460	5.0	220	4.1	100	3.0		2.7
10	430	5.1	210	4.2	100	3.1		2.8
11	480	4.9	210	4.3	110	3.2		2.6
12	460	5.0	220	4.3	110	3.2		2.7
13	470	5.1	210	4.3	110	3.2		2.7
14	440	5.0	220	4.3	100	3.2		2.8
15	440	5.0	220	4.3	110	3.0		2.8
16	400	5.0	230	4.2	110	2.8		2.8
17	340	5.0	240	3.9	---	---		3.0
18	300	5.0	250	---	---	---		3.0
19	270	5.0	---	---	---	---		3.1
20	260	4.8						3.0
21	270	4.7						3.0
22	280	3.8						3.0
23	280	3.4						3.0

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

Table 4

Oslo, Norway (60.0°N, 11.0°E) — August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2			---	---		2.8
01	310	3.1			---	---		2.8
02	310	2.8			---	---		2.8
03	305	2.6			---	---	2.6	2.8
04	300	2.7	---	---	---	E		2.9
05	280	3.3	265	2.3	---	1.6	1.7	2.9
06	320	3.9	240	3.3	120	2.1	2.1	3.0
07	370	4.4	225	3.6	120	2.3	3.2	2.9
08	350	5.0	220	3.8	115	2.5	3.5	2.9
09	350	5.1	210	4.0	110	2.7	3.5	3.0
10	350	5.2	205	4.1	110	2.8	3.6	3.0
11	360	5.4	210	4.2	105	3.0	4.3	3.0
12	370	5.4	210	4.2	105	3.0	3.5	2.9
13	355	5.4	205	4.2	105	3.0	3.5	3.0
14	355	5.3	210	4.2	105	3.0	3.2	3.0
15	350	5.4	210	4.1	110	2.8	2.8	2.9
16	330	5.5	220	4.0	110	2.8	2.6	3.0
17	310	5.6	230	3.9	120	2.6	3.2	3.0
18	300	5.6	240	3.4	120	2.3	3.2	3.0
19	260	5.6	250	---	125	2.0	2.5	3.0
20	250	5.5	---	---	---	---		3.0
21	255	5.4	---	---	---	---		(3.0)
22	260	5.0			---	---		(2.9)
23	275	(3.4)			---	---		(2.8)

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

Table 5

San Francisco, California (37.4°N, 122.2°W) — August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	(4.0)					3.7	(2.8)
01	(300)	(4.0)					3.7	(2.8)
02	(290)	(3.7)					3.2	(2.8)
03	(290)	(3.6)					2.5	(2.8)
04	(290)	(3.3)					2.4	(2.8)
05	300	(3.3)					2.4	(2.8)
06	340	4.1	260	3.2	(120)	(2.0)	3.7	3.0
07	400	5.0	230	4.0	110	(2.5)	3.8	2.8
08	380	5.4	210	4.2	110	(2.8)	4.1	2.9
09	420	5.6	200	(4.4)	110	(3.1)	4.3	2.8
10	420	5.6	200	(4.5)	110	(3.3)	5.4	2.7
11	420	6.1	200	4.6	110	(3.4)	4.6	2.8
12	400	5.9	200	4.7	110	3.5	4.0	2.8
13	380	6.1	210	4.7	110	(3.5)	4.2	2.8
14	360	6.4	220	4.6	110	3.4	4.0	2.9
15	360	6.3	220	4.6	110	3.3	3.9	2.8
16	340	6.1	220	4.4	110	3.1	3.9	2.9
17	310	6.2	230	4.1	110	2.8	4.0	3.1
18	280	6.1	240	3.6	110	(2.2)	3.7	3.1
19	250	6.1					3.8	3.1
20	(240)	5.9					3.7	3.0
21	(250)	(5.5)					4.0	(3.1)
22	(260)	(4.9)					4.3	(3.0)
23	(290)	(4.3)					3.1	(2.8)

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

Table 6

White Sands, New Mexico (32.3°N, 106.5°W) — August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.2					3.1	2.8
01	280	4.2					2.9	2.8
02	270	4.0					2.5	3.0
03	270	3.6					2.1	3.0
04	280	3.5					2.2	2.9
05	280	3.4					2.4	3.0
06	270	4.4	250	---	110	(1 .)	3.0	3.2
07	310	5.1	220	3.9	100	(2.5)	3.6	3.0
08	350	5.5	210	4.3	100	2.9	4.0	2.9
09	380	5.4	200	4.5	100	3.2	4.2	2.8
10	390	6.0	190	4.7	100	3.4	4.5	2.8
11	420	6.2	190	4.7	100	(3.5)	4.3	2.7
12	380	6.7	200	4.8	100	3.6	4.5	2.8
13	350	7.0	200	4.7	100	3.6	4.4	2.8
14	340	7.1	210	4.7	100	3.5	4.0	2.9
15	320	7.3	220	4.6	100	3.4	3.8	3.0
16	310	6.9	220	4.3	100	3.1	3.9	3.0
17	300	7.0	230	4.1	100	2.6	4.0	3.1
18	260	7.0	240	---	110	(2.0)	4.5	3.2
19	230	6.6					4.0	3.1
20	230	6.3					3.2	3.1
21	240	5.4					3.4	3.1
22	260	4.9					3.5	3.0
23	270	4.4					3.5	2.9

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

Table 7

Maui, Hawaii (20.8°N, 156.5°W) August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.5					3.6	2.7
01	280	5.3					2.7	2.8
02	270	5.7					2.4	2.9
03	240	5.1					1.6	3.1
04	250	4.6					1.6	3.0
05	260	3.8					2.1	3.0
06	270	4.1	---	---	---	---	2.4	3.0
07	250	5.8	230	---	120	2.2	3.0	3.2
08	280	6.2	220	4.1	110	2.8	4.0	3.1
09	370	6.5	210	4.7	110	3.2	4.3	2.7
10	420	6.9	200	5.0	110	3.4	4.5	2.4
11	440	7.9	200	5.0	110	3.4	5.0	2.4
12	410	9.0	220	5.0	110	3.6	4.6	2.5
13	380	9.9	220	4.9	110	3.6	4.4	2.6
14	360	10.1	210	4.8	110	3.5	4.7	2.7
15	330	10.6	220	4.8	110	3.4	4.8	2.8
16	310	10.9	230	4.5	110	3.2	4.7	3.0
17	280	11.0	230	(4.2)	100	2.8	4.8	3.1
18	260	10.7	240	---	120	2.3	4.6	3.2
19	240	9.4					4.1	3.2
20	240	8.0					4.4	3.0
21	250	7.0					3.8	2.8
22	280	7.0					4.0	2.7
23	300	5.9					2.8	2.8

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

Table 8

Puerto Rico, W.I. (18.5°N, 67.2°W) August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.6						2.8
01	260	5.8					2.5	3.0
02	(260)	5.8					2.0	3.0
03	240	5.0					2.3	3.0
04	260	4.6					2.3	2.9
05	250	4.2					2.1	3.0
06	260	4.2	---	---	---	---	2.4	3.1
07	230	5.6	220	---	110	2.2	2.8	3.4
08	300	6.1	210	4.1	100	2.8	4.5	3.2
09	310	6.9	200	4.4	100	3.2	4.4	3.0
10	340	7.1	200	4.8	100	3.4		2.9
11	340	7.7	210	4.9	100	3.6		2.8
12	350	8.7	200	5.0	100	3.7		2.8
13	340	9.3	220	4.9	100	3.7	4.6	2.8
14	320	9.9	210	4.8	100	3.6	4.8	2.9
15	320	9.4	210	4.6	100	3.5		2.9
16	300	9.4	220	4.5	100	3.2	3.9	2.9
17	300	9.4	220	4.2	100	2.8	4.1	3.0
18	260	9.4	230	---	110	(2.2)	3.3	3.1
19	240	8.6					2.9	3.1
20	230	7.3					2.8	3.0
21	240	6.7						2.9
22	(270)	6.0						2.8
23	280	6.0					2.2	2.8

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

Table 9

Guam I. (13.6°N, 144.9°E) August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.0					2.4	2.8
01	280	6.2						2.9
02	270	5.8						3.0
03	260	5.2						3.0
04	260	5.0						3.0
05	240	5.0						3.3
06	250	4.4			---	---		3.2
07	230	6.2			120	2.2	2.7	3.2
08	(270)	7.8	210	---	110	2.8	4.8	3.0
09	300	8.6	210	---	110	(3.1)	4.8	2.8
10	330	9.2	200	(4.8)	110	3.4	5.0	2.7
11	350	9.6	200	(4.8)	110	3.6	5.4	2.6
12	370	9.9	210	(4.9)	110	(3.7)	5.2	2.5
13	370	10.1	200	(4.9)	110	3.7	4.9	2.5
14	360	10.2	200	(4.9)	110	3.6	4.7	2.6
15	360	10.8	210	(4.8)	110	(3.5)	4.4	2.6
16	340	11.1	210	4.6	110	3.2	4.9	2.7
17	(300)	11.2	220	---	110	2.7	4.8	2.8
18	250	11.4	---	---	120	---	4.8	2.8
19	260	11.2					4.8	2.9
20	260	10.2					3.5	2.8
21	260	9.4					2.8	2.8
22	270	8.4					2.8	2.9
23	290	7.6					2.5	2.7

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

Table 10

Huancayo, Peru (12.0°S, 75.3°W) August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	6.8						3.2
01	230	6.4					2.5	3.2
02	240	6.0					2.5	3.2
03	260	5.4						3.2
04	280	4.4						3.2
05	300	3.9					2.6	3.1
06	280	4.4			110	---	3.1	3.0
07	240	6.9	---	---	100	2.4	4.7	3.1
08	280	8.4	220	---	100	2.9	4.7	3.0
09	300	8.3	210	4.6	100	3.2	4.8	2.7
10	320	8.8	210	4.7	100	---	8.0	2.6
11	340	8.7	200	4.8	100	---	8.0	2.5
12	350	8.4	200	4.8	100	---	8.0	2.5
13	360	8.4	200	4.8	100	---	8.0	2.5
14	340	8.7	200	4.7	100	---	8.0	2.5
15	310	8.5	200	4.5	100	3.0	8.0	2.5
16	260	8.4	210	---	100	2.8	4.8	2.5
17	260	8.4			100	2.2	4.7	2.5
18	300	8.1			100	---	4.1	2.5
19	300	8.0						2.5
20	300	7.9						2.6
21	260	7.7						2.9
22	240	7.8						3.1
23	230	7.3						3.1

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

Table 11

De Bilt, Holland (52.1°N, 5.2°E) July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.2						2.8
01	280	4.6					2.3	2.8
02	280	4.2						2.8
03	290	4.0			---	E	2.8	2.9
04	270	4.3	270	---	---	1.6	3.6	2.8
05	310	4.8	235	3.5	105	2.2	4.0	2.9
06	320	5.6	220	4.0	100	2.6	4.2	3.1
07	340	5.7	210	4.2	100	2.9	4.6	3.0
08	320	6.2	210	4.5	100	3.1	4.8	2.9
09	335	6.0	205	4.6	100	3.2	4.9	3.0
10	360	6.2	210	4.8	100	3.4	4.9	2.9
11	320	6.2	200	4.8	100	3.5	4.7	3.0
12	340	6.0	200	4.8	100	3.5	4.8	3.0
13	345	6.2	205	4.8	100	3.4	4.6	3.0
14	360	6.2	205	4.7	100	3.4	4.3	3.0
15	325	6.0	205	4.6	100	3.2	4.2	3.0
16	310	6.0	210	4.4	100	3.0	4.2	3.0
17	305	6.5	220	4.2	100	2.8	3.9	3.0
18	295	6.6	230	3.7	100	2.4	4.3	3.1
19	270	6.9	(245)	---	110	1.9	3.8	3.1
20	250	7.2			---	E	3.0	3.0
21	250	(7.4)					3.0	(3.0)
22	245	6.2					2.4	2.9
23	260	5.5					2.2	2.9

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 7 minutes, automatic operation.

Table 12

Schwarzenburg, Switzerland (46.8°N, 7.3°E) July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.9						
01	290	5.4						
02	300	5.2						
03	300	4.8						
04	290	4.4						
05	295	4.4	---	---	120	1.8		
06	250	5.2	250	3.3	110	2.1		
07	300	5.9	230	4.0	100	2.5		
08	320	6.1	215	4.3	100	2.9		
09	300	6.8	205	4.5	100	3.1	5.0	
10	330	6.9	200	4.6	100	3.2		
11	340	7.0	200	4.8	100	3.4	5.4	
12	355	6.8	200	4.8	100	3.5	5.9	
13	350	6.5	200	4.8	100	3.5		
14	340	6.5	200	4.8	100	3.5		
15	340	6.4	210	4.8	100	3.4		
16	340	6.2	210	4.5	100	3.1		
17	320	6.4	220	4.4	100	3.0		
18	300	6.3	240	4.1	100	2.6	4.2	
19	270	6.9	---	---	100	2.1	4.2	
20	250	7.2			---	---	3.6	
21	250	7.1					4.5	
22	260	7.1					4.5	
23	270	6.5						

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

Table 13

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	7.5						3.0
01	240	7.2						3.0
02	250	6.6						3.0
03	250	6.1					1.7	3.0
04	250	5.4					2.0	3.1
05	250	4.7					1.1	3.1
06	260	4.5	---	---	---	---	2.7	3.0
07	(250)	5.9	220	(3.4)	110	2.3	4.0	3.1
08	300	6.8	220	4.5	110	2.9	4.1	3.0
09	380	6.8	210	4.9	100	3.3	4.2	2.6
10	400	8.0	220	5.0	110	3.5	4.0	2.5
11	420	9.0	210	5.0	110	3.7	4.2	2.5
12	420	9.8	200	5.0	100	3.8	4.3	2.5
13	400	10.2	210	4.9	100	3.7	5.0	2.6
14	380	10.6	210	4.9	100	3.7	4.5	2.7
15	360	10.7	210	4.8	100	3.5	4.6	2.7
16	340	11.0	220	4.6	110	3.2	4.9	2.8
17	310	10.6	230	4.3	110	(2.8)	4.2	2.8
18	280	(10.6)	240	(3.9)	110	(2.2)	3.4	(2.9)
19	240	(9.6)					2.4	(2.9)
20	260	8.8						2.8
21	260	(8.5)						(2.8)
22	260	(8.3)						(2.9)
23	270	7.8						2.9

Time: 75.0°W.
Sweep: 2.0 Mc to 25.0 Mc in 15 seconds.

Table 14

Huancayo, Peru (12.0°S, 75.3°W) July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	5.9					2.5	3.2
01	230	5.8					2.6	3.2
02	230	5.6					2.5	3.3
03	240	4.9					2.6	3.2
04	250	4.4					2.5	3.2
05	260	4.2					2.6	3.1
06	290	4.4			100	---	2.7	2.8
07	240	6.0	---	---	100	2.2	4.8	3.0
08	280	7.8	220	---	100	2.7	8.0	2.8
09	310	8.0	210	4.5	100	3.1	8.2	2.6
10	320	8.2	210	4.7	100	---	8.2	2.5
11	340	8.0	200	4.8	100	---	10.2	2.5
12	370	7.9	200	4.8	100	---	10.4	2.5
13	360	8.0	200	4.8	100	---	8.8	2.5
14	350	8.0	210	4.7	100	3.2	8.0	2.4
15	320	7.9	210	4.6	100	3.1	8.0	2.4
16	280	8.1	210	---	100	2.7	8.0	2.5
17	250	8.1			100	2.1	4.9	2.5
18	290	8.0			---	---		2.6
19	300	7.6						2.6
20	280	7.7						2.7
21	250	7.5					2.2	2.9
22	240	7.1						3.0
23	230	6.0					2.3	3.1

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

Table 15

Reykjavik, Iceland (64.1°N, 21.8°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(4.4)					4.5	(2.6)
01	---	(4.3)					4.8	(2.5)
02	(395)	(4.6)					4.8	(2.6)
03	360	4.1	---	---			4.7	2.6
04	360	4.5	---	---	---	---	4.9	2.6
05	360	4.5	280	3.4	---	---	4.0	2.8
06	405	4.6	260	3.7	110	(2.6)		2.6
07	400	4.7	250	3.9	110	2.8		2.6
08	420	4.9	240	4.0	120	2.8		2.7
09	430	5.0	240	4.2	110	3.1		2.7
10	420	5.1	240	4.3	110	3.2		2.7
11	430	5.4	230	4.3	110	3.2		2.7
12	445	5.3	240	4.3	110	3.2		2.7
13	450	5.4	240	4.4	120	3.2		2.6
14	410	5.6	240	4.4	110	3.2		2.7
15	420	5.5	240	4.4	110	3.1		2.7
16	420	5.4	240	4.3	110	3.0		2.7
17	405	5.4	260	4.2	120	(2.9)		2.7
18	390	5.3	280	4.0	120	---	4.1	2.7
19	365	5.0	280	4.0	---	---	4.3	2.8
20	370	5.0	---	---	---	---	4.8	2
21	355	(5.0)			---	---	5.6	(2.7)
22	330	(4.5)			---	---	5.4	2.7
23	330	(4.1)					4.0	(2.7)

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 20 seconds.

Table 16

Narsarssuak, Greenland (61.2°N, 45.4°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	(4.2)			---	---	4.4	(2.6)
01	320	(3.6)			---	---	4.4	(2.6)
02	<340	(3.6)			---	---	4.0	2.6
03	(340)	(3.9)			---	---	4.0	(2.7)
04	(320)	(4.0)	---	---	---	---	4.2	(2.8)
05	(340)	(4.3)	270	3.7	(110)	---	4.3	(2.9)
06	370	(4.5)	270	3.9	110	(3.1)	4.0	2.8
07	400	4.8	250	4.0	110	(2.9)	3.7	2.7
08	400	5.0	250	4.1	110	3.1		2.7
09	410	5.0	230	4.3	110	(3.2)		2.8
10	410	5.3	230	4.3	110	(3.3)		2.7
11	430	5.4	230	4.4	110	(3.2)		2.6
12	430	5.5	230	4.4	110	(3.3)		2.6
13	420	5.6	230	4.4	(110)	3.2		2.6
14	420	5.7	230	4.4	(110)	(3.3)		2.7
15	410	5.6	240	4.3	(110)	(3.2)		2.7
16	380	5.6	<250	4.2	110	3.0		2.7
17	400	5.4	260	4.2	(110)	(2.9)		2.6
18	340	5.1	270	4.0	110	(2.7)	4.4	2.7
19	(340)	(5.0)	(260)	(3.9)	120	(2.5)	4.2	2.6
20	340	(5.0)	(260)	(3.4)	120	(2.4)	5.7	(2.8)
21	320	(4.5)			---	---	6.4	(2.9)
22	(300)	(>4.3)			---	---	6.6	(2.7)
23	(320)	(4.2)			---	---	4.0	(2.6)

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

Table 17

Churchill, Canada (58.8°N, 94.2°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.3			---	---	7.7	2.8
01	270	4.0			---	---	6.0	(3.0)
02	260	4.4			120	1.8	4.0	2.8
03	290	4.8			110	2.0	3.5	3.1
04	290	3.9	---	---	120	2.0	2.9	2.9
05	300	4.2	---	---	110	2.5		2.8
06	390	4.6	230	3.6	110	3.0		2.6
07	440	4.5	240	4.0	100	3.2		2.4
08	430	4.7	230	4.0	100	3.3		2.5
09	420	5.0	220	4.3	100	3.3		2.8
10	(420)	5.1	220	4.4	100	3.4		(2.6)
11	390	5.1	210	4.4	100	3.3		2.7
12	430	5.3	220	4.4	100	3.2	3.2	2.6
13	400	5.8	210	4.4	100	3.4		2.8
14	400	5.4	220	4.4	100	3.0		2.7
15	400	5.8	220	4.4	100	3.0		2.7
16	360	6.0	220	4.4	100	3.0		2.8
17	350	5.8	230	4.2	110	3.0		2.8
18	350	5.7	270	4.0	110	3.0		2.8
19	320	5.0	270	3.8	110	3.0		2.8
20	310	4.9	---	---	120	3.0	5.0	2.8
21	300	4.4			130	2.4	5.2	2.8
22	290	4.8			120	2.4	7.5	2.9
23	290	4.5			---	---	8.0	2.9

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

Table 18

Fort Chimo, Canada (58.1°N, 68.3°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.9			---	---	4.4	---
01	300	4.0			120	---	3.8	---
02	290	3.8			100	2.2	3.1	(2.8)
03	290	4.0			110	2.8	4.2	(2.8)
04	310	4.0	---	---	100	3.4	3.4	(2.9)
05	300	4.2	260	3.7	100	3.5		2.7
06	440	4.2	270	4.0	100	3.4	3.6	(>2.7)
07	390	5.0	260	4.2	100	3.6		2.8
08	400	4.9	230	4.3	100	3.6		2.6
09	400	5.2	220	4.4	100	3.3		2.7
10	430	5.2	220	4.5	100	3.4		2.7
11	400	5.3	210	4.5	100	3.6		2.8
12	390	5.5	210	4.5	100	3.5		2.6
13	380	5.6	200	4.5	100	3.5		2.7
14	400	5.8	210	4.5	100	3.5		2.6
15	380	5.8	220	4.3	100	3.2		2.7
16	370	5.7	240	4.3	100	3.3	3.2	2.6
17	370	5.2	270	4.0	100	3.5	2.8	2.7
18	350	5.0	250	3.9	100	2.8	4.2	2.6
19	300	4.8	---	---	110	2.8	4.8	2.8
20	280	4.5			120	2.3	7.2	(2.9)
21	280	4.4			110	2.2	6.0	(2.6)
22	300	4.3			---	---	4.3	2.6
23	280	3.9			110	---	4.9	(2.6)

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

Table 19

Prince Rupert, Canada (54.3°N, 130.3°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.0					2.4	2.8
01	290	3.5					1.1	2.7
02	300	3.0					1.5	2.7
03	305	3.0					2.7	2.8
04	300	3.2	---	---	110	---	1.8	2.8
05	400	4.0	260	3.0	110	2.0	2.0	2.6
06	400	4.4	240	3.5	100	2.4	2.2	2.6
07	440	4.8	220	3.8	100	2.8		2.6
08	440	5.0	210	4.0	100	3.0		2.6
09	420	5.0	210	4.2	100	3.1	3.7	2.6
10	450	5.2	210	4.4	100	3.2	4.3	2.6
11	430	5.3	210	4.5	100	3.3	4.5	2.7
12	405	5.5	210	4.6	100	3.4	4.6	2.7
13	440	5.5	220	4.7	100	3.4	4.9	2.6
14	420	5.5	210	4.6	100	3.4	4.0	2.7
15	410	5.6	210	4.6	100	3.4	3.8	2.7
16	410	5.5	210	4.5	100	3.2	4.0	2.7
17	370	5.4	220	4.3	100	3.0		2.8
18	340	5.5	230	4.1	100	2.9	3.2	2.9
19	300	5.4	250	3.8	110	2.5	4.0	3.0
20	230	5.4	250	3.1	115	2.0	4.7	3.0
21	260	5.6	---	---	---	1.8	4.2	3.0
22	260	5.4			---	---	3.2	2.9
23	280	4.8			---	---	3.0	2.9

Time: 120.0°W.
Sweep: 0.6 Mc to 20.0 Mc, automatic operation.

Table 20

Winnipeg, Canada (49.9°N, 97.4°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.8					3.3	(2.6)
01	290	3.6					3.5	---
02	300	3.4					3.5	(2.7)
03	300	3.4					3.8	(2.9)
04	300	3.4					4.0	(2.7)
05	320	4.0	240	3.2	120	(2.6)	3.7	3.0
06	380	4.5	240	3.5	110	2.4	1.7	2.7
07	420	4.8	230	3.9	110	2.8		2.6
08	420	5.0	220	4.0	110	3.0		2.7
09	410	5.0	220	4.2	110	3.3		2.7
10	430	5.4	210	4.3	110	3.4	3.4	2.6
11	420	5.4	210	4.5	110	3.5	3.1	2.6
12	420	5.6	210	4.5	110	3.5	3.9	2.6
13	420	5.8	210	4.5	110	3.7	4.5	2.5
14	400	5.6	220	4.5	110	3.5	3.6	2.6
15	410	5.8	220	4.5	110	3.4	3.4	2.6
16	390	5.8	220	4.5	110	3.3	3.4	2.6
17	360	6.0	230	4.3	110	3.0		2.6
18	330	6.0	240	4.0	110	2.8	1.4	2.7
19	300	6.0	240	3.5	110	2.2	2.6	2.8
20	270	6.0	---	---	---	---	2.2	2.9
21	260	5.5	---	---	---	---	1.7	2.9
22	260	5.0					1.9	2.8
23	270	3.9					1.8	2.8

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

Table 21

St. John's, Newfoundland (47.6°N, 52.7°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.0					3.0	2.9
01	280	4.5					3.3	2.8
02	280	4.5					4.0	2.8
03	290	4.0					3.6	2.9
04	270	3.7			---	---	3.5	2.9
05	260	4.5	240	3.4	100	2.3	4.0	3.1
06	340	4.9	230	4.0	100	2.8	4.4	3.0
07	360	5.0	220	4.2	100	3.0	5.0	3.0
08	360	5.3	210	4.4	100	3.2	5.2	3.0
09	380	5.5	210	4.6	100	3.4	5.0	2.9
10	380	5.8	210	4.6	100	3.5	6.0	2.9
11	370	5.8	210	4.7	100	3.6	5.2	2.9
12	380	6.0	210	4.7	100	3.6	5.0	2.8
13	370	6.0	210	4.6	100	3.5	5.0	2.9
14	370	6.2	210	4.5	100	3.5	5.6	2.8
15	360	6.0	220	4.5	100	3.3	5.0	2.8
16	340	6.4	220	4.3	100	3.1	5.0	2.9
17	310	6.6	240	4.0	100	2.8	4.2	2.9
18	290	7.0	250	3.5	110	2.3	4.0	2.9
19	260	7.0	---	---	---	---	3.5	2.9
20	260	7.0					3.2	2.8
21	260	6.4					4.1	2.8
22	270	6.0					3.2	2.8
23	290	5.2					2.6	2.8

Time: 60.0°W.
Sweep: 0.6 Mc to 20.0 Mc, automatic operation.

Table 22

Schwarzenburg, Switzerland (46.8°N, 7.3°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.1						
01	300	6.0					2.5	
02	300	5.6					2.2	
03	300	5.5					2.9	
04	300	5.0			---	---	3.0	
05	300	5.2	---	---	120	2.0		
06	295	5.9	270	3.6	110	2.4	4.2	
07	330	6.4	260	4.4	110	2.9	4.2	
08	330	6.8	260	4.6	100	3.1	5.7	
09	330	7.0	240	4.6	100	3.4	5.0	
10	345	7.1	230	4.8	100	3.5	4.9	
11	335	7.7	225	4.8	100	3.5	4.5	
12	335	7.4	220	4.9	100	3.5	4.8	
13	365	6.6	220	4.9	100	3.5		
14	390	7.0	220	4.9	100	3.5		
15	370	6.9	220	4.8	100	3.5	4.4	
16	350	7.5	225	4.6	100	3.3	4.8	
17	320	7.0	250	4.5	100	3.1		
18	300	7.1	---	---	100	2.8	4.8	
19	285	7.4			110	2.4	5.0	
20	275	7.5			---	---	5.5	
21	260	7.1					5.5	
22	290	6.7					3.2	
23	300	6.4						

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

Table 23

Ottawa, Canada (45.4°N, 75.7°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.1					1.8	2.9
01	280	3.6					1.8	2.9
02	290	3.3					1.8	2.9
03	280	3.2	---	---			2.0	2.9
04	280	3.1	---	---	---	---	2.0	3.0
05	280	3.8	230	3.0	110	2.0	1.6	3.1
06	290	4.3	220	3.8	100	2.6	1.9	3.0
07	360	4.6	210	4.0	100	3.0		2.8
08	400	4.8	210	4.2	100	3.1		2.8
09	380	5.1	200	4.3	100	3.2	3.6	2.8
10	370	5.4	200	4.7	100	3.4	3.2	2.8
11	360	5.7	200	4.7	100	3.4	4.0	2.9
12	370	5.7	210	4.6	100	3.6	3.8	2.9
13	390	5.5	200	4.7	100	3.5		2.8
14	390	5.5	210	4.6	100	3.5		2.8
15	360	5.9	200	4.5	100	3.3		2.8
16	350	6.1	200	4.3	100	3.2		2.9
17	320	6.3	220	4.0	100	3.0		2.8
18	290	6.4	220	3.8	100	2.7		2.9
19	260	6.5	220	3.0	110	2.2	3.1	3.0
20	240	6.2	---	---	---	---	2.3	3.0
21	250	6.1					2.0	2.9
22	250	5.4					3.0	2.8
23	260	4.8					1.9	2.9

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

Table 24

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.4					3.4	2.7
01	300	6.0					3.2	2.7
02	300	5.8					2.2	2.7
03	300	5.6					3.2	2.7
04	300	5.3					2.8	2.7
05	300	6.0	280	3.6	120	2.2	3.5	2.8
06	320	6.4	280	4.3	120	2.7	5.2	2.8
07	340	6.4	280	4.4	110	3.0	6.2	2.8
08	360	6.6	---	4.6	110	3.2	7.0	2.9
09	(320)	6.6	---	---	110	3.3	7.2	(2.9)
10	(380)	6.6	300	5.0	110	3.4	7.3	(2.9)
11	400	6.5	---	5.0	110	---	6.7	2.7
12	420	6.2	300	5.0	110	---	6.0	2.6
13	400	6.5	250	4.8	110	---	5.2	2.8
14	400	6.2	270	4.6	120	---	5.7	2.7
15	400	6.3	280	4.6	110	---	4.9	2.7
16	380	6.3	280	4.5	110	3.1	3.4	2.7
17	360	6.4	290	4.2	110	2.7	5.7	2.8
18	320	6.6	300	3.8	110	2.4	6.0	2.8
19	300	7.2					5.8	2.9
20	300	7.3					5.0	2.8
21	300	7.0					4.4	2.7
22	310	6.7					4.7	2.7
23	300	6.6					3.8	2.6

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

Table 25

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.2					4.4	2.9
01	280	6.0					4.1	2.9
02	270	6.0					3.9	2.9
03	280	5.6					3.6	2.9
04	280	5.4					3.4	2.9
05	280	5.7	---	---	110	2.0	4.0	3.0
06	290	6.6	250	---	110	2.6	5.9	3.1
07	280	7.1	240	---	110	2.9	5.9	3.1
08	300	6.9	---	---	110	3.2	6.9	3.1
09	310	6.7	---	4.8	110	3.4	6.9	3.0
10	320	6.8	260	4.8	110	3.3	7.0	2.9
11	350	7.0	260	4.8	110	---	7.0	2.9
12	340	7.0	220	4.7	110	---	6.4	2.9
13	320	7.3	240	4.8	110	---	6.4	3.0
14	340	7.4	250	4.7	110	3.3	6.2	2.9
15	330	7.0	270	4.6	110	3.4	5.6	3.0
16	320	7.0	290	4.3	110	3.1	5.0	3.0
17	300	7.4	---	---	110	2.8	6.2	2.9
18	300	7.1	---	---	110	2.2	5.9	3.0
19	280	7.5					6.0	3.1
20	270	7.0					6.8	3.0
21	300	6.5					6.4	2.9
22	300	6.8					6.4	2.9
23	300	6.6					5.6	2.8

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

Table 26

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.7					5.7	2.8
01	260	6.2					5.2	(2.8)
02	260	5.9					4.6	2.9
03	270	5.6					3.7	2.9
04	270	5.4					3.5	2.9
05	250	5.8	---	---	120	1.8	3.4	3.0
06	270	6.8	240	---	100	2.4	5.4	3.0
07	290	7.0	---	---	100	2.9	7.0	3.1
08	290	7.0	---	---	100	3.2	6.8	3.1
09	300	6.6	---	---	100	3.3	6.8	3.0
10	330	7.0	---	---	100	3.5	7.8	2.9
11	350	7.2	---	4.9	100	3.5	7.5	2.8
12	330	7.6	---	---	100	---	6.9	2.9
13	330	8.4	---	---	100	3.4	6.7	2.8
14	340	8.2	---	---	100	3.4	6.4	2.9
15	320	8.2	---	---	100	3.3	6.8	2.9
16	300	7.8	260	---	100	3.2	5.6	3.0
17	310	7.7	250	---	100	2.7	6.0	2.9
18	280	7.7	260	---	110	2.0	5.9	3.0
19	260	7.8					6.6	3.1
20	260	7.0					5.2	3.0
21	280	6.4					5.8	2.8
22	300	6.4					5.8	2.7
23	310	6.6					5.4	(2.7)

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

Table 27

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	6.8					4.9	2.8
01	300	7.1					5.6	2.8
02	290	7.0					4.6	3.0
03	290	6.7					4.6	3.0
04	300	5.8					3.9	2.9
05	280	5.8					3.8	3.0
06	260	6.2	---	---	110	2.0	3.6	3.1
07	280	6.8	260	---	110	2.6	5.5	3.1
08	280	7.4	240	---	100	3.0	8.0	3.2
09	310	7.2	240	---	100	3.4	8.7	3.0
10	310	7.8	---	---	100	3.5	9.2	3.0
11	400	7.4	---	---	100	3.5	9.4	2.7
12	360	8.1	---	---	100	3.5	8.9	2.8
13	350	8.2	220	---	100	3.6	7.3	2.8
14	340	9.1	220	4.8	100	3.7	7.2	2.8
15	350	8.8	250	4.6	100	3.6	6.4	2.8
16	330	9.0	260	4.6	100	3.4	6.0	2.8
17	300	9.4	270	4.5	110	3.0	5.0	2.9
18	300	8.7	260	---	110	2.5	6.2	3.0
19	280	8.2					6.0	3.1
20	280	7.9					5.8	3.1
21	280	7.2					5.8	2.9
22	330	7.0					5.6	2.8
23	320	6.7					5.5	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 28

Formosa, China (25.0°N, 121.0°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	8.2					6.8	2.9
01	285	8.0					6.9	3.3
02	270	7.0	---	---			6.2	3.2
03	280	6.0	---	---			4.6	3.2
04	280	6.0	---	---			3.7	3.2
05	290	5.8	---	---	---	---	3.8	3.1
06	275	6.8	240	4.3	120	3.0	4.6	3.5
07	275	7.0	240	4.4	120	3.4	5.8	3.6
08	300	7.5	230	4.6	120	3.4	7.1	3.4
09	325	7.9	240	4.9	120	3.8	7.2	3.2
10	360	7.8	220	5.0	120	4.0	6.8	2.9
11	390	9.6	240	5.2	120	4.3	6.5	2.9
12	360	10.8	235	5.3	120	4.2	6.1	2.8
13	360	11.2	230	---	120	4.5	6.2	2.9
14	340	11.4	---	---	120	---	6.0	3.0
15	325	11.5	---	5.4	120	4.2	6.8	3.2
16	320	11.5	240	5.2	120	3.6	6.2	3.2
17	300	12.0	240	4.9	120	3.2	6.4	3.3
18	290	11.2	250	4.4	120	3.0	6.2	3.2
19	280	10.2	245	---	120	3.4	6.6	3.3
20	310	8.2			---	---	7.2	3.1
21	315	7.4					6.8	3.0
22	330	7.8					6.4	2.9
23	360	7.8					6.6	2.8

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

Table 29

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.8					1.6	2.9
01	270	2.8						2.9
02	270	3.0						2.9
03	260	3.0						3.0
04	240	3.0					2.0	3.2
05	250	2.6						3.1
06	250	2.5					3.6	3.0
07	230	4.8			---	1.8	2.5	3.3
08	230	6.6	230	---	120	2.5		3.4
09	250	7.2	220	4.0	110	3.0		3.4
10	250	8.0	220	4.4	110	3.3		3.3
11	250	8.0	210	4.5	110	(3.4)		3.3
12	260	8.1	210	4.5	110	3.5		3.2
13	260	8.3	210	(4.5)	110	3.5	3.7	3.3
14	260	7.7	220	4.4	120	3.3	4.0	3.2
15	260	7.8	220	4.0	110	3.0	3.8	3.2
16	240	8.0	230	3.3	110	2.7	3.6	3.3
17	230	7.2	---	---	110	(2.0)	3.2	3.3
18	220	5.6			---	---	2.7	3.4
19	220	3.5					2.3	3.3
20	230	3.0					2.3	3.3
21	240	2.9					1.8	3.2
22	250	3.0						3.1
23	260	2.9						2.9

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

Table 30

Capetown, Union of S.Africa (34.2°S, 18.3°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.6					2.0	2.9
01	290	2.7					1.7	2.9
02	270	2.8					1.4	2.9
03	270	2.8						3.0
04	260	2.8						3.0
05	260	2.8						3.1
06	250	2.4						3.0
07	250	2.4			---	E		3.0
08	230	4.9			---	1.9		3.3
09	230	6.2	---	---	120	2.5		3.4
10	250	7.1	240	3.6	120	2.9		3.4
11	250	7.1	230	4.1	110	3.1		3.3
12	260	7.6	230	4.4	110	3.3		3.2
13	260	8.2	230	4.4	110	3.3		3.2
14	260	8.2	220	4.2	110	3.2	4.0	3.2
15	260	8.2	230	4.0	110	3.0	4.0	3.2
16	250	8.4	240	3.6	120	2.7	3.4	3.2
17	230	7.6	---	---	110	2.1	2.8	3.3
18	220	5.7			---	---	2.2	3.3
19	230	3.4					2.1	3.2
20	240	2.8					2.0	3.2
21	240	2.5					1.8	3.2
22	250	2.3					1.7	3.2
23	280	2.4					1.8	2.9

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

Table 31

Delhi, India (28.6°N, 77.1°E) April 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.5						(3.3)
01	---	(3.0)						
02	---	---						
03	---	---						
04	300	4.1						(3.4)
05	290	4.9						
06	280	6.4						
07	270	7.8						
08	280	8.5						(3.4)
09	290	9.4						
10	300	10.4						
11	320	11.7						
12	320	12.8						(3.3)
13	300	13.1						
14	300	13.5						
15	290	13.0						
16	280	12.2						(3.4)
17	300	11.2						
18	290	9.4						
19	280	7.9						
20	300	6.9						(3.4)
21	300	5.8						
22	310	4.7						
23	320	3.8						

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

Table 32

Bombay, India (19.0°N, 73.0°E) April 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	300	7.3						
08	330	9.2						2.9
09	360	10.2						
10	390	11.4						
11	420	12.5						
12	440	13.6						2.8
13	450	14.0						
14	450	14.8						
15	(450)	(14.7)						
16	(420)	(14.9)						(2.9)
17	(390)	(15.0)						
18	390	(14.4)						
19	390	13.6						
20	390	13.0						2.9
21	380	12.1						
22	360	10.9						3.1
23	360	10.0						

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

Table 33

Puerto Rico, W.I. (18.5°N, 67.2°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.0					2.3	2.8
01	270	7.0						2.9
02	260	6.6						3.0
03	250	5.8						3.0
04	250	5.3						3.0
05	250	5.3						3.0
06	240	5.0			---	---	2.4	3.0
07	240	6.4	---	---	110	2.1	3.0	3.2
08	250	7.3	220	---	100	(2.7)	3.6	3.2
09	290	8.0	210	4.4	100	3.2	3.9	3.1
10	300	8.6	210	4.7	100	(3.5)	4.2	2.9
11	320	9.4	220	4.8	100	3.6		2.8
12	310	10.4	220	4.9	100	3.7	4.2	2.9
13	310	11.0	220	4.9	100	3.8		2.9
14	300	11.0	220	4.8	100	3.7	4.6	3.0
15	300	10.7	230	4.6	100	3.5		3.0
16	290	10.6	220	4.3	110	3.2	4.4	3.0
17	270	11.0	230	4.0	110	2.8	4.1	3.0
18	250	10.4			110	(2.2)	3.8	3.2
19	220	9.2					2.9	3.0
20	240	7.8					2.2	2.8
21	270	7.4						2.8
22	280	7.0						2.8
23	300	6.9						2.7

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

Table 34

Madras, India (13.0°N, 80.2°E) April 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	7.8						
08	390	9.1						(2.7)
09	420	9.9						
10	420	9.9						
11	450	9.9						
12	480	10.4						(2.4)
13	480	10.8						
14	510	11.6						
15	510	12.1						
16	510	12.6						(2.4)
17	510	13.0						
18	510	12.8						
19	480	12.4						
20	450	(11.4)						(2.5)
21	(420)	(10.4)						
22	---	(10.0)						
23								

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

Table 35

Tiruchy, India (10.8°N, 78.8°E) April 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	6.4						
07	390	8.5						
08	450	10.2						(2.6)
09	480	10.4						
10	480	10.2						
11	510	9.8						
12	510	10.2						(2.3)
13	540	10.1						
14	540	10.5						
15	(540)	(11.8)						
16	(540)	(11.9)						(2.5)
17	510	11.4						
18	510	11.4						
19	500	11.2						
20	510	11.0						(2.4)
21	480	10.4						
22	480	10.4						(2.8)
23								

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

Table 36

Buenos Aires, Argentina (34.5°S, 58.5°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.6						2.8
01	300	5.6					3.5	2.8
02	300	5.7					3.7	2.8
03	280	6.2					3.8	3.1
04	220	5.2					2.2	3.4
05	260	4.0					2.2	3.0
06	260	4.6			---	---		3.0
07	230	7.0						3.4
08	230	8.2	230	---				3.4
09	250	9.0	230	---			3.8	3.4
10	250	9.3	230	---			4.7	3.3
11	260	10.2	220	---			5.0	3.2
12	270	10.9	230	---			5.2	3.1
13	280	11.5	240	---			5.2	3.1
14	270	12.0	250	---			5.0	3.1
15	260	13.0	250	---			4.6	3.2
16	240	13.0	240	---			4.5	3.4
17	230	11.0					3.9	3.5
18	210	9.6					4.0	3.4
19	220	(7.4)					3.2	(3.1)
20	250	(8.4)						(3.0)
21	240	(8.0)						3.2
22	270	6.8						3.0
23	280	6.4						3.0

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 37

Reykjavik, Iceland (64.1°N, 21.8°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(3.0)					4.8	2.6
01	(380)	(2.9)					4.0	(2.5)
02	(390)	(2.8)			---	---	4.2	(2.6)
03	(370)	(3.0)			---	---	4.8	(2.5)
04	---	(2.3)			---	---	4.4	(2.6)
05	(350)	(3.2)			---	---	4.2	(2.6)
06	320	2.7			---	---	3.4	2.7
07	280	3.8			---	---		3.0
08	270	4.3	(<255)	---	110	2.3		3.1
09	280	4.8	240	---	110	2.4		3.0
10	320	5.0	240	3.8	100	(2.6)		3.0
11	320	5.8	240	4.0	110	2.8		2.9
12	350	6.0	220	4.0	100	2.8		2.9
13	330	6.0	240	4.0	105	---		2.9
14	320	6.0	235	4.0	110	2.8		2.9
15	320	5.8	240	3.7	110	2.8		2.8
16	290	5.8	250	---	100	---		2.9
17	280	5.6	250	---	110	2.2	2.1	2.9
18	280	5.1	---	---	---	---	3.0	3.0
19	270	4.3			---	---	3.8	2.9
20	300	4.2					3.5	2.9
21	280	(4.0)					4.8	(2.9)
22	(350)	(3.8)					5.6	(2.7)
23	---	---					5.0	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 38*

Fraserburgh, Scotland (57.6°N, 2.1°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	---						
01	325	---						
02	320	---					3.4	(2.6)
03	315	---					1.0	
04	315	---						2.4
05	300	(1.8)						(2.6)
06	290	2.8			(170)	(1.7)		2.9
07	250	3.9			135	2.0		3.1
08	245	4.9			125	2.2		3.1
09	270	5.6	230	3.8	120	2.5		3.1
10	300	5.8	225	4.0	120	2.7		3.1
11	305	6.3	220	4.1	120	2.8		3.0
12	295	6.5	225	4.2	120	2.9		3.0
13	290	6.4	220	4.1	120	2.9		3.0
14	285	6.9	230	4.0	120	2.8		3.1
15	275	6.8	230	3.8	125	2.6		3.1
16	255	6.7	235	(3.3)	125	2.4		3.1
17	250	6.6			140	2.1		3.1
18	245	6.5			155	1.8		3.1
19	255	(6.3)						3.0
20	265	(5.6)						2.9
21	285	(4.5)						2.9
22	300	3.7						2.9
23	320	(2.8)						2.7

Time: 0.0°.
Sweep: 0.67 Mc to 15.0 Mc in 4 minutes.
*Average values except foF2 and fEs, which are median values.

Table 39*

Slough, England (51.5°N, 0.6°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.4					2.3	2.6
01	310	3.3					2.6	2.6
02	300	3.0					2.6	2.6
03	295	2.5					2.6	2.6
04	295	2.6					3.8	2.7
05	290	2.3					3.8	2.8
06	275	2.9				(1.9)#	3.9	3.0
07	260	4.5	240	3.2	130	2.0	3.9	3.2
08	265	5.4	235	3.6	125	2.4	3.9	3.2
09	290	6.3	230	4.1	120	2.7	3.9	3.2
10	295	6.8	225	4.3	120	2.9	4.0	3.1
11	290	7.0	215	4.4	120	3.0	4.0	3.2
12	290	7.2	220	4.5	120	3.1	4.0	3.1
13	290	7.1	220	4.4	120	3.1	4.0	3.1
14	280	7.3	230	4.3	120	3.0	4.0	3.1
15	275	7.2	230	4.2	120	2.9	4.2	3.1
16	260	7.1	240	3.9	125	2.6	3.8	3.2
17	250	7.0	250	3.4	125	2.2	2.7	3.2
18	240	7.0			140	1.8	2.4	3.2
19	245	6.3					2.0	3.0
20	245	5.9						3.0
21	260	4.4					1.7	3.0
22	290	3.9						2.7
23	310	3.5					1.8	2.6

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 40

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.7
01	300	3.6						2.7
02	290	3.6						2.7
03	290	3.4						2.8
04	280	3.2						2.8
05	280	2.4						2.9
06	270	3.7			---	1.4		3.0
07	245	5.1	---	---	121	1.9		3.3
08	245	6.1	240	3.8	118	2.4	2.2	3.3
09	280	6.4	230	4.1	115	2.8	3.3	3.2
10	290	7.2	230	4.4	113	2.9	2.8	3.2
11	290	7.4	228	4.5	114	3.0	3.9	3.0
12	290	7.6	230	4.4	115	3.1	3.0	3.1
13	290	7.4	230	4.3	113	3.1		3.1
14	290	7.4	230	4.3	115	3.0		3.1
15	275	7.2	240	4.2	115	2.8		3.2
16	260	7.6	240	---	119	2.5		3.2
17	250	7.1	250	---	123	2.0		3.2
18	245	7.1					2.0	3.2
19	235	6.3						3.1
20	240	5.6						3.0
21	250	4.4						2.9
22	280	4.0						2.8
23	295	3.7						2.8

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

Table 41

Delhi, India (28.6°N, 77.1°E) March 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00	290	(3.0)						(3.5)
01	(300)	3.0						
02	---	---						
03	---	---						
04	290	3.2						(3.7)
05	290	3.8						
06	280	4.6						
07	260	6.8						
08	270	8.1						(3.5)
09	280	9.4						
10	280	10.2						
11	290	11.2						
12	290	12.2						(3.4)
13	300	12.3						
14	300	11.8						
15	280	11.2						
16	280	10.2						(3.4)
17	280	9.8						
18	280	8.9						
19	280	6.2						
20	280	5.2						(3.5)
21	280	4.5						
22	290	3.8						
23	300	3.2						

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

Table 42

Bombay, India (19.0°N, 73.0°E) March 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	300	7.0						
08	330	9.7						3.1
09	330	10.6						
10	360	11.9						
11	390	12.8						
12	420	13.5						(2.7)
13	450	14.1						
14	420	14.2						
15	390	14.4						
16	360	14.1						(2.9)
17	360	13.8						
18	360	13.2						
19	360	12.6						
20	330	11.6						2.6
21	330	10.2						
22	330	9.6						3.1
23	330	9.0						

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

Table 43

Dakar, French West Africa (14.6°N, 17.4°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	11.8						3.2
01	250	(>10.2)						(3.2)
02	228	(9.6)						3.4
03	215	(>7.0)						3.1
04	220	5.0						3.3
05	245	3.8					2.0	3.0
06	270	4.2			---	E	2.8	3.2
07	240	7.8	245	---	113	2.3	3.3	3.4
08	265	9.4	230	---	111	2.9	4.4	3.4
09	280	11.0	218	---	111	3.3	3.8	3.2
10	290	12.4	210	---	110	3.5	4.0	3.1
11	300	13.2	210	5.1	109	3.7		3.0
12	302	13.3	205	5.1	109	3.8		2.8
13	(310)	13.6	200	5.1	109	3.7		2.8
14	(300)	13.8	210	4.8	112	3.6		2.7
15	300	>14.0	225	---	111	3.4	4.0	(2.9)
16	(290)	>14.0	225	---	111	3.0	3.8	2.9
17	(250)	13.6	240	---	111	2.5	3.8	2.9
18	250	13.1	---	---	---	1.7	3.4	2.9
19	295	13.0					3.4	2.6
20	300	12.2						2.7
21	292	12.8					2.4	2.9
22	290	11.8						(2.8)
23	295	11.9						(2.8)

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

Table 44

Madras, India (13.0°N, 80.2°E) March 1951 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	7.1						
08	390	8.5						(2.8)
09	420	9.8						
10	420	9.6						
11	420	9.6						
12	440	9.9						(2.6)
13	450	10.2						
14	450	10.4						
15	450	11.0						
16	480	11.4						(2.6)
17	480	11.4						
18	480	10.9						
19	480	10.7						
20	460	10.4						(2.7)
21	400	(10.0)						
22	(390)	(9.5)						
23								

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

Table 45

Tiruchy, India (10.8°N, 78.8°E) March 1951 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04	---	---						
05	---	---						
06	360	4.9						
07	390	7.3						
08	450	9.7						(2.5)
09	480	9.8						
10	480	9.5						
11	480	9.3						
12	510	9.3						(2.3)
13	510	9.7						
14	510	10.2						
15	510	10.2						
16	510	11.1						(2.8)
17	510	10.9						
18	510	10.8						
19	510	10.4						
20	510	10.4						(2.7)
21	480	10.0						
22	480	10.1						(2.8)
23	---	---						

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

Table 46*

Singapore, British Malaya (1.3°N, 103.8°E) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	205	8.7						3.2
01	230	6.6						2.9
02	245	5.8						2.9
03	240	5.7						2.9
04	240	5.2						3.2
05	230	4.1						3.2
06	245	4.0						3.0
07	235	7.5			125	2.5	3.2	3.2
08	225	8.6	220		120	3.0	3.9	2.9
09	280	9.7	210		125	3.4	4.2	2.5
10	320	(10.2)	205	(4.8)	125	3.6	4.2	2.3
11	325	(9.8)	200	(4.9)	125	3.7	4.3	2.3
12	340	9.8	195	(5.2)#	125	3.7	4.3	2.2
13	325	10.5	200	(4.8)#	125	3.7	4.2	2.3
14	315	10.5	200	(5.3)#	120	3.6	4.0	2.5
15	295	11.0	200		125	3.5	4.0	2.5
16	260	11.2	200		125	3.1	3.7	2.5
17	235	11.3	215		130	2.5	3.2	2.6
18	255	(11.3)						2.5
19	300	(11.1)						(2.4)#
20	280	(11.3)						
21	245	(11.2)						2.8
22	215	(10.4)						3.0
23	205	(10.9)						3.2

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 47

Buenos Aires, Argentina (34.5°S, 58.5°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.8						2.8
01	300	5.7						2.8
02	290	5.6					2.2	2.8
03	270	5.9						3.0
04	260	4.9						3.1
05	270	4.2						2.9
06	230	5.3						3.3
07	230	6.7	---	---	---	---		3.5
08	240	7.1	220	---	---	---	3.3	3.4
09	270	7.8	210	---	100	3.1	3.8	3.2
10	290	8.9	210	---	100	3.3	4.5	3.0
11	300	9.8	220	---	---	---	4.8	3.0
12	300	11.0	210	---	---	---	5.2	3.0
13	300	11.5	210	---	---	---	5.0	3.1
14	290	12.5	220	---	---	---	4.8	3.1
15	280	12.2	220	---			4.6	3.2
16	270	12.2	250	---			4.4	3.3
17	260	12.4	250	---			3.6	3.4
18	230	11.5					3.6	3.4
19	220	9.5						3.3
20	220	8.5						3.1
21	260	8.0						2.9
22	270	7.4						2.8
23	290	6.5						2.8

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 48*

Fraserburgh, Scotland (57.6°N, 2.1°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	335	---						(2.7)#
01	340	(2.2)						(2.5)#
02	335	---						(2.6)#
03	335	(1.8)						(2.4)#
04	340	(1.8)						2.7
05	325	(1.7)						
06	310	(2.4)						
07	295	(2.3)			145#	(1.7)#		(2.8)#
08	250	4.2			125	1.9		3.0
09	245	5.1			135	2.0	3.0	3.2
10	240	6.0	240		130	2.4	3.0	3.2
11	250	6.3	220	(3.9)#	130	2.5		3.2
12	265	6.7	230	3.9	130	2.6		3.2
13	260	6.9	230	(4.0)	130	2.6		3.2
14	250	7.0	235	(3.8)	135	2.5		3.2
15	245	6.9	250	(3.7)#	135	2.3	3.0	3.2
16	240	6.5			140	2.0	3.0	3.3
17	235	6.3			150	1.8		3.2
18	240	5.0						3.1
19	255	(4.1)						3.1
20	280	(3.2)						(2.9)
21	290	(3.0)						(2.9)
22	315	(2.6)						(2.9)#
23	330	(2.4)						(2.8)#

Time: 0.0°.
Sweep: 0.67 Mc to 15.0 Mc in 4 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 49*

Slough, England (51.5°N, 0.6°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	2.8					2.4	2.6
01	300	2.6					3.4	2.6
02	310	2.7					3.5	2.6
03	310	2.4					3.4	2.6
04	310	2.1					3.8	2.6
05	305	2.0					3.8	2.8
06	305	2.0					3.8	2.8
07	270	3.1			125#	1.8	3.7	3.0
08	240	4.8	260#	3.2#	130	2.0	4.0	3.3
09	245	5.9	240	3.6	125	2.4	4.5	3.3
10	260	6.6	230	3.9	125	2.7	4.2	3.3
11	255	7.0	225	4.1	125	2.8	4.6	3.3
12	260	7.2	220	4.1	125	2.9	4.8	3.2
13	255	7.2	225	4.1	125	2.9	4.6	3.2
14	250	7.2	225	3.9	125	2.7	4.4	3.2
15	245	7.4	230	3.7	125	2.6	4.2	3.2
16	235	7.2	255	3.5	125	2.3	4.0	3.4
17	225	6.3			140	1.8	3.4	3.2
18	230	5.8					2.4	3.2
19	245	5.0						3.0
20	265	3.9						3.0
21	290	3.2						2.8
22	305	3.1						2.7
23	310	2.9					2.4	2.6

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 50

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2						2.7
01	285	3.2						2.7
02	280	3.2						2.7
03	290	2.9						2.7
04	285	2.8						2.8
05	270	2.3						2.7
06	260	2.2						2.9
07	255	3.8			---	---	2.2	3.1
08	240	5.9			119	2.0	2.0	3.4
09	240	6.7	228	3.5	124	2.4		3.3
10	240	6.8	230	3.9	113	2.6		3.3
11	250	7.3	225	4.1	115	2.8		3.3
12	258	7.6	220	4.0	115	2.9		3.3
13	260	7.6	228	4.0	119	2.9		3.4
14	245	7.4	230	4.0	118	2.8		3.3
15	245	7.4	230	3.8	121	2.5		3.3
16	235	7.2	240	---	121	2.2		3.4
17	225	6.5			141	1.8	1.6	3.3
18	220	5.4						3.2
19	230	5.0						3.1
20	240	4.0						3.0
21	270	3.2						2.9
22	280	3.2						2.7
23	290	3.2						2.8

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

Table 51

Dakar, French West Africa (14.6°N, 17.4°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(>7.0)						---
01	245	7.0						---
02	225	(>7.0)						---
03	215	6.2						3.4
04	232	4.0						3.2
05	262	2.9					2.6	3.0
06	280	3.0					2.5	3.0
07	250	6.8			121	2.2	3.2	3.3
08	260	9.5	235	---	111	2.8	4.2	3.3
09	288	11.5	220	---	111	3.2	4.2	3.3
10	290	13.0	218	5.0	111	3.5	4.3	3.1
11	305	13.8	208	5.0	111	3.6	4.4	2.8
12	305	13.8	210	5.1	111	3.7		2.8
13	298	13.3	210	5.0	111	3.6	4.0	2.7
14	292	13.0	210	---	111	3.5		2.8
15	(290)	12.8	220	---	111	3.4		2.9
16	270	12.9	230	---	111	3.1	3.5	3.0
17	---	12.7	240	---	116	2.4	3.4	2.9
18	260	12.0			141	1.7	3.2	2.8
19	290	11.8					2.4	2.7
20	285	12.5						---
21	275	11.2						---
22	270	10.4						---
23	260	9.0						---

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

Table 52*

Singapore, British Malaya (1.3°N, 103.8°E) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	5.7						3.1
01	250	4.7						2.9
02	250	4.9						3.0
03	245	4.1						2.9
04	260	3.8						3.0
05	245	3.4						3.1
06	250	3.4						2.8
07	235	6.9			120	2.4	3.2	3.1
08	235	8.1	215		115	3.0	3.8	2.8
09	285	8.9	205	(4.8)#	120	3.4	4.1	2.4
10	330	9.0	200	(4.8)#	120	3.6	4.4	2.1
11	360	(8.8)	200	(5.3)	120	3.8	4.4	2.1
12	360	9.6	200	(4.9)	120	3.8	4.3	2.1
13	350	9.7	190	(5.0)	125	3.8	3.8	2.3
14	345	10.0	200	(4.8)#	120	3.6	4.4	2.2
15	330	10.2	205		120	3.5	3.9	2.3
16	285	10.7	210		120	3.2	3.6	2.5
17	240	10.8	230		125	2.6	3.3	2.5
18	245	10.6			130#	2.4	2.6	2.7
19	275	(10.0)						(2.6)
20	290	(9.6)						(2.6)
21	255	9.6						2.9
22	235	9.8						3.1
23	220	9.3						3.2

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 53

Buenos Aires, Argentina (34.5°S, 58.5°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	6.5						2.8
01	290	6.5					2.6	2.9
02	290	6.3						3.1
03	280	5.8					2.4	3.0
04	280	5.3					1.9	3.0
05	300	5.0						2.9
06	250	5.6			---	---	2.7	3.3
07	240	(6.0)	240	---				(3.2)
08	300	(7.0)	230	---				(3.1)
09	310	(8.0)	(230)	---				(2.8)
10	340	9.2	220	---				2.8
11	350	10.2	---	(4.8)				2.8
12	340	11.0	---	---				2.9
13	320	11.9	220	(4.8)				3.0
14	300	12.0	(220)	---				3.1
15	290	11.7	(230)	---				3.2
16	280	10.0	(220)	---				3.2
17	270	9.0	250	---				3.2
18	270	9.0	---	---				3.2
19	260	(8.4)						(3.2)
20	270	(7.4)						(2.9)
21	310	(7.0)						(2.8)
22	330	(7.0)						(2.8)
23	330	(6.6)						(2.8)

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 54*

Falkland Is. (51.7°S, 57.8°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	6.0					2.7	2.5
01	320	6.0						2.6
02	320	5.8						2.6
03	320	5.5	260#	2.6#			2.8	2.6
04	330	4.9						2.5
05	310	4.8	270#	3.2				2.6
06	320	5.7	270	3.7	150	2.4		2.7
07	310	6.0	260	4.2	130	2.6		2.9
08	320	6.3	250	4.6	130	2.9	4.1	2.8
09	330	6.8	240	4.7	120	3.1	4.8	2.8
10	320	7.6	250	4.8	110	3.3	5.0	2.9
11	320	8.3	240	4.8	120	3.4	4.8	2.9
12	310	8.3	230	4.8	110	3.3	5.1	2.9
13	310	7.9	220	4.8	120	3.3	5.2	3.0
14	290	7.6	230	4.7	110	3.2	4.4	3.1
15	300	7.2	230	4.6	110	3.2	4.5	3.0
16	290	7.2	230	4.4	120	3.0	4.2	3.1
17	270	7.0	240	4.1	130	2.7	4.1	3.1
18	260	6.7	260	3.9#	140	2.3	3.0	3.1
19	260	6.8					3.7	3.0
20	280	6.8					3.0	2.8
21	300	6.6					3.2	2.7
22	310	6.6					3.3	2.6
23	330	6.4					3.2	2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 55*

Fraserburgh, Scotland (57.6°N, 2.1°W) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	345	---						(2.4)#
01	315	(1.8)						
02	320	---						(2.7)#
03	325	---						2.7#
04	315	(1.8)						
05	295	(1.8)						2.8#
06	310	(2.0)						
07	290	(2.1)						(2.9)#
08	255	(3.2)						3.2#
09	230	5.0			130	(1.8)	2.8	3.3
10	230	6.0			135	2.0	3.1	3.4
11	235	6.4	270#	3.6#	135	2.2	3.1	3.4
12	235	6.7	260#	(3.6)#	130	2.3	3.1	3.4
13	225	6.8			140	2.3	3.1	3.4
14	230	6.8			135	2.1	3.1	3.5
15	225	6.3			(145)	(2.2)		3.4
16	225	5.8			(160)#	1.7#		3.3
17	230	5.3						3.2
18	245	3.6						3.1
19	270	(2.6)						2.9
20	335	(2.6)						2.9
21	385	(2.1)						2.9#
22	350	(1.8)						(2.9)#
23	330	---						

Time: 0.0°.
Sweep: 0.67 Mc to 15.0 Mc in 4 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 56

Slough, England ([illegible].5°N, [illegible]°W) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.9					2.3	2.8
01	29[illegible]	2.9					2.6	2.9
02	280	3.0					2.6	2.7
03	250	2.6					2.6	2.8
04	27[illegible]	2.8					3.8	2.8
05	265	2.3					3.6	3.0
06	280	2.2					3.0	3.0
07	280	2.2					3.5	3.0
08	230	4.3			100	1.6	3.6	3.3
09	225	6.2			135	2.[illegible]	3.8	3.4
10	230	7.1	235#	3.7#	130	2.4	3.9	3.4
11	230	7.6	225	3.7	130	2.5	4.0	3.4
12	230	7.5	225	3.7	130	2.6	4.0	3.4
13	235	7.2	220	3.6	130	2.6	4.5	3.4
14	230	6.9	220#	3.4#	130	2.5	4.4	3.4
15	235	6.8			135	2.2	4.2	3.4
16	225	6.3			140	1.8	3.5	3.4
17	225	5.5					2.6	3.2
18	230	4.0						3.2
19	250	3.3					2.0	3.0
20	275	2.9						2.9
21	295	2.9						2.8
22	305	2.9						2.8
23	300	2.9					2.3	2.8

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 57

Domont, France (49.0°N, 2.3°E) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(<230)	3.0						3.0
01	(<240)	3.1						3.0
02	(<240)	3.1						3.0
03	(<230)	2.7						3.1
04	(<230)	2.5						3.2
05	(<200)	2.2						3.2
06	(<210)	2.2						3.2
07	(<210)	2.8	---	---				3.2
08	200	5.7	190	---	120	1.7		3.7
09	200	7.0	190	---	100	2.1		3.7
10	210	7.6	190	---	100	2.3		3.8
11	200	7.7	180	3.6	100	2.5		3.7
12	210	7.6	190	3.7	100	2.6		3.8
13	220	7.1	190	---	100	2.5		3.7
14	220	7.0	200	---	100	2.4		3.7
15	210	6.6	200	---	100	2.1		3.7
16	200	6.2	190	---	100	1.8		3.6
17	200	5.1	190	---	---	---	2.2	3.6
18	(<200)	4.0					2.1	3.5
19	(<200)	3.4						3.3
20	(<220)	3.0						3.1
21	(<220)	2.9						3.0
22	(<240)	3.0						3.0
23	(<230)	3.2						3.0

Time: 0.0°.
Sweep: 1.5 Mc to 16.0 Mc in 1 minute 30 seconds.

Table 58

Fribourg, Germany (48.1°N, 7.8°E) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4						2.9
01	280	3.3						2.8
02	285	3.5						2.8
03	280	3.4						2.8
04	265	2.9						3.0
05	250	2.7						3.1
06	255	2.4					2.0	3.0
07	260	2.7						2.9
08	230	5.2			---	<1.6	2.5	3.3
09	232	6.9			128	2.0	2.1	3.3
10	240	7.6			127	2.4	2.0	3.3
11	235	7.4			125	2.7		3.4
12	235	7.3			121	2.8		3.4
13	235	6.9			121	2.8		3.4
14	240	6.9			123	2.4	2.2	3.4
15	240	6.6			129	2.2		3.3
16	230	6.2			134	1.8	2.2	3.3
17	225	5.3						3.3
18	225	4.5					2.3	3.1
19	240	3.6					2.2	3.1
20	270	3.2						2.9
21	282	3.2					2.0	2.8
22	290	3.2						2.7
23	285	3.4						2.8

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

Table 59

Poitiers, France (46.6°N, 0.3°E) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(<330)	3.4						---
01	(<220)	3.4						---
02	(<320)	3.5						---
03	---	3.4						---
04	(<350)	3.2						---
05	---	E						---
06	---	E						---
07	---	3.0						---
08	225	5.4	---	---				---
09	230	6.8	225	---				(3.6)
10	230	7.5	225	---				3.6
11	230	7.6	225	---				3.6
12	230	7.4	225	---				3.6
13	230	6.9	225	---				3.5
14	230	6.8	230	---				3.4
15	235	6.8	230	---				3.5
16	230	6.4	225	---				3.6
17	230	5.4	---	---				3.4
18	240	4.6						(3.4)
19	260	4.0						(3.4)
20	(<325)	3.4						---
21	(<350)	3.5						---
22	(<330)	3.6						---
23	(<310)	3.6						---

Time: 0.0°.
Sweep: 3.1 Mc to 11.8 Mc in 1 minute 15 seconds.

Table 60*

Singapore, British Malaya (1.3°N, 103.8°E) — January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1						2.7
01	275	3.9						3.0
02	280	3.6						2.9
03	290	3.0						2.9
04	290	3.[illegible]						3.0
05	270	2.8						3.2
06	275	3.5						2.9
07	240	6.2			130	2.4	3.3	3.0
08	240	7.8	210		120	2.9	4.0	2.8
09	[illegible]	9.[illegible]	210	(4.8)#	115	3.4	4.2	2.5
10	[illegible]	9.3	205	4.9	115	3.7	4.5	2.2
11	43[illegible]	(9.0)	[illegible]	4.9	120	3.7	4.6	1.9
12	400	9.9	200	4.8	115	3.9	4.4	2.1
13	390	(9.2)	300	4.9	120	3.9	4.2	2.1
14	410	9.2	300	4.8#	115	3.7	4.[illegible]	[illegible].2
15	360	9.3	205		115	3.5	4.0	2.1
16	255	9.3	205		[illegible]	3.1	3.8	2.3
17	260	9.2	245		115	2.6	3.3	2.3
18	250	9.3	250#				2.6	2.3
19	325	(9.0)						2.5
20	305	(9.1)						2.6
21	260	(8.8)						2.9
22	230	8.2						2.9
23	235	4.6						3.0

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 61

Buenos Aires, Argentina (34.5°S, 58.5°W) January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.9					3.5	2.8
01	290	6.5					2.8	2.9
02	260	6.2					3.0	2.9
03	270	6.0					2.3	2.8
04	290	5.3					2.2	2.7
05	280	5.0	---	---	140	(1.8)		2.8
06	260	6.0	260	---	110	2.4	3.2	3.1
07	270	6.6	230	---	---	---	3.6	3.1
08	300	6.7	230	---	---	---	4.0	(2.9)
09	380	7.6	220	(4.6)	---	---	4.6	2.6
10	390	8.5	210	(4.6)	---	---	4.5	2.6
11	400	9.1	200	---	---	---		2.6
12	380	9.9	200	(5.0)	---	---		2.7
13	350	10.9	220	(4.9)	---	---		2.8
14	320	10.8	220	(4.8)	---	---		3.0
15	300	10.7	220	(4.6)	---	---		3.0
16	300	10.4	220	(4.6)	---	---		3.2
17	290	9.6	230	---	---	---		3.2
18	270	8.3	250	---			3.7	3.2
19	270	7.3						3.0
20	290	6.9						2.8
21	320	7.0						2.6
22	320	6.9					3.0	2.6
23	320	7.2						2.7

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 62*

Falkland Is. (51.7°S, 57.8°W) January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	7.4					2.4	2.6
01	310	7.4					2.3	2.6
02	300	7.0						2.6
03	300	6.5						2.6
04	320	6.4	280	3.0				2.5
05	300	6.7	260	3.9	150	2.2		2.6
06	310	6.8	260	4.1	140	2.5		2.7
07	370	6.9	250	4.4	130	2.9	4.0	2.6
08	380	6.7	240	4.5	120	3.1	4.8	2.6
09	380	7.2	240	4.7	120	3.3	5.0	2.6
10	370	7.6	230	4.8	120	3.4	4.8	2.7
11	350	8.0	230	4.8	120	3.5	4.8	2.7
12	350	8.0	230	4.9	120	3.5	4.4	2.8
13	350	7.3	210	4.8	120	3.5	4.1	2.8
14	350	6.8	240	4.8	120	3.4	4.4	2.8
15	350	6.4	230	4.7	120	3.3	4.8	2.9
16	340	6.6	240	4.6	120	3.1	4.7	2.9
17	330	6.8	250	4.3	120	2.9	4.3	2.9
18	300	6.9	250	4.0	140	2.6	5.1	2.9
19	290	6.7	270#	3.6#	---	2.3#	4.8	2.9
20	290	6.8					4.7	2.8
21	310	7.0					3.0	2.7
22	320	7.5					3.4	2.6
23	310	7.6					3.4	2.6

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 63*

Fraserburgh, Scotland (57.6°N, 2.1°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	(1.9)					2.3	(2.5)#
01	315	(1.9)						(2.8)#
02	305	1.7					3.0	(2.5)
03	310	1.7					3.0	(2.8)
04	305	(1.7)					2.9	2.6
05	305	(1.7)					2.9	2.7
06	290	(1.8)					2.9	(3.0)
07	290	(1.8)						(2.8)#
08	260	(3.3)					2.9	(3.5)#
09	235	4.4			125	1.8	3.0	3.3
10	230	5.4			150	(2.0)	3.1	3.4
11	230	6.2			135	2.1	3.1	3.5
12	230	6.6			145	2.2	3.3	3.5
13	225	6.5			150	2.2	3.2	3.5
14	225	6.5			160	2.1	3.1	(3.4)
15	220	6.2				1.8	3.0	3.4
16	220	(5.0)				(1.9)#		3.3
17	230	(4.2)						3.2
18	245	(3.7)						3.2#
19	290	2.5						(2.8)
20	305	(2.4)						(3.1)#
21	275	(2.4)						(3.4)#
22	325	---						
23	365	---						

Time: 0.0°.
Sweep: 0.67 Mc to 15.0 Mc in 4 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 64*

Slough, England (51.5°N, 0.6°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	288	2.9					2.6	2.7
01	277	3.0					3.4	2.8
02	286	2.8					3.1	2.7
03	282	2.6					3.8	2.7
04	280	2.3					4.0	2.8
05	267	2.3					4.0	2.8
06	272	2.2					4.0	2.9
07	273	2.2					4.0	2.9
08	230	4.2			135	1.4	3.7	3.3
09	226	5.9			138	2.0	4.3	3.5
10	226	6.6	235	3.4	129	2.3	4.5	3.4
11	231	7.2	223	3.4	130	2.5	4.3	3.4
12	225	7.3	221	3.5	127	2.5	4.7	3.4
13	225	7.1	228	3.8	130	2.4	4.6	3.4
14	227	7.0	223#	3.2#	130	2.3	4.6	3.4
15	221	6.7			136	2.0	4.3	3.5
16	220	5.8					3.5	3.4
17	229	4.5	210#	3.3#			3.3	3.2
18	248	3.6					2.3	3.1
19	264	3.1					2.2	3.0
20	284	3.0						2.8
21	292	2.7						2.8
22	309	2.8					2.3	2.7
23	299	2.9					2.5	2.7

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 65*

Singapore, British Malaya (1.3°N, 103.8°E) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.2						2.9
01	260	5.0						2.8
02	275	4.8						2.8
03	270	4.2						2.8
04	265	4.0						3.0
05	255	3.6						3.0
06	255	4.6						3.1
07	240	6.6			130	2.5	3.2	3.1
08	265	7.8	225		125	3.1	3.6	2.9
09	325	8.5	220		130	3.4	3.8	2.4
10	365	8.9	210	4.8	135	3.6	4.0	2.3
11	395	8.9	205	4.9	130#	3.6#	3.8	2.2
12	380	9.0	205	4.9	130	3.7	4.0	2.1
13	375	9.2	200	4.9	130	3.6		2.2
14	365	9.6	200	4.8	125	3.5	4.0	2.2
15	340	9.6	205	(5.0)#	125	3.3	3.7	2.3
16	340	9.6	235		125	2.9	3.5	2.3
17	270	(9.7)	240		145	2.6	3.1	2.4
18	275	(9.6)						2.4
19	325	9.0						---
20	315	8.9						2.5
21	265	9.3						2.6
22	230	9.2						3.3
23	240	5.6						3.1

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 66*

Falkland Is. (51.7°S, 57.8°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	7.4					3.2	2.5
01	310	7.4					2.7	2.6
02	300	7.2					2.2	2.6
03	310	6.9						2.6
04	300	6.9	280	3.3	---	1.8#		2.5
05	310	7.3	260	3.9	150	2.3		2.6
06	360	7.6	250	4.4	130	2.6		2.5
07	350	7.8	250	4.5	130	3.0	4.6	2.5
08	390	7.2	240	4.7	120	3.2	4.9	2.5
09	370	8.2	240	4.7	120	3.3	5.4	2.6
10	350	8.4	230	4.8	120	3.4	4.9	2.7
11	360	8.3	240	4.9	120	3.5	5.6	2.6
12	350	8.1	230	4.8	120	3.5	4.5	2.7
13	350	7.8	220	4.9	120	3.5	4.2	2.7
14	340	7.8	230	4.9	120	3.4	4.0	2.8
15	330	7.5	230	4.7	120	3.3	4.1	2.8
16	330	7.7	240	4.6	120	3.1	4.4	2.9
17	310	7.7	240	4.3	130	2.8	4.6	2.9
18	290	7.8	250	4.1	140	2.4	4.5	2.9
19	290	7.4	250	3.5	150#	2.2	3.4	2.8
20	280	7.2					3.2	2.7
21	300	7.3					3.2	2.6
22	310	7.6					2.8	2.5
23	320	7.5					2.9	2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 67*

Fraserburgh, Scotland (67.6°N, 2.1°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	365	(2.1)						
01	355	(2.0)						
02	340	(2.0)					2.8	(2.5)#
03	320	(1.9)					2.8	2.6
04	315	(1.8)						2.6
05	305	(1.8)						(2.8)#
06	300	(1.8)					2.5	3.2#
07	290	2.0						
08	240	4.1			125	(1.7)		3.2
09	230	5.6			145	2.0	2.0	3.3
10	235	6.6			130	2.1	3.1	3.4
11	235	6.9	215	(3.4)#	125	2.3	3.1	3.4
12	230	7.4	240#	(3.6)#	130	2.4	3.1	3.4
13	230	7.5	250#		135	2.4	3.1	3.3
14	230	7.4	220#	2.9#	145	2.2	3.1	3.3
15	230	6.8			160	2.0		3.3
16	230	6.6					3.0	3.3
17	240	5.9						3.2
18	245	5.4						3.2
19	260	3.7						3.1
20	280	(3.0)						(3.0)#
21	350	(2.2)						(2.7)#
22	385	(2.2)						
23	380	(2.2)						

Time: 0.0°.
Sweep: 0.67 Mc to 15.0 Mc in 4 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 68*

Slough, England (51.5°N, 0.6°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0					2.6	3.6
01	295	3.0					3.8	2.6
02	[illegible]	3.0					3.2	2.7
03	286	2.6					4.0	2.7
04	277	2.2					4.2	2.8
05	277	2.1					4.0	2.9
06	230	2.2					4.0	2.9
07	251	3.4					3.9	3.0
08	231	5.8	250#	3.3#	136	1.9	4.1	3.4
09	230	6.6	237	3.3	125	2.2	4.0	3.4
10	234	7.2	221	3.7	123	2.5	4.4	3.3
11	231	7.8	226	3.8	122	2.7	4.5	3.4
12	233	7.8	221	3.8	124	2.7	4.4	3.4
13	231	8.1	229	3.7	125	2.6	4.5	3.3
14	230	7.9	245#	3.4#	126	2.4	4.5	3.4
15	226	7.4			133	2.1	4.4	3.4
16	223	6.8			145	1.8	4.0	3.3
17	228	6.2					3.6	3.2
18	230	5.6					2.6	3.2
19	245	4.2					2.4	3.1
20	263	3.2					2.6	2.9
21	306	3.0					2.4	2.7
22	320	3.0					2.6	2.7
23	310	3.0					2.6	2.6

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 69*

Singapore, British Malaya (1.3°N, 103.8°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.0						2.7
01	270	5.7						2.7
02	275	5.2						2.8
03	270	4.8						2.9
04	270	4.3						2.9
05	255	4.0						3.1
06	250	5.6			130#	2.6#	2.4	3.0
07	245	8.0			130	2.7	3.3	3.1
08	235	8.8	225		125	3.2	3.9	2.6
09	280	9.0	215		130	3.4	3.6	2.4
10	340	(9.3)	215	(4.9)	135	3.6	3.4	2.3
11	350	(9.4)	205	(4.9)	130#	3.7#	3.6	(2.3)
12	345	9.8	205	(4.9)	130	3.8		2.2
13	350	9.7	205	(4.8)	130	3.7		2.2
14	345	(9.9)	210	(4.4)#	130	3.6	3.4	2.1
15	315	10.3	220	(5.0)#	125	3.2	3.6	2.3
16	270	(10.4)	230	(3.9)#	125	2.9	3.4	2.3
17	250	(10.3)	250#		145	2.5	2.8	2.5
18	280	(10.4)						(2.5)
19	325	(10.0)						2.5#
20	300	(10.1)						2.6
21	255	(10.4)						3.0
22	215	10.1						3.3
23	220	6.6						2.9

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 70*

Falkland Is. (51.7°S, 57.8°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	7.6					3.0	2.5
01	320	7.3					2.4	2.5
02	310	7.2						2.6
03	300	7.0						2.6
04	300	6.9	310	3.1				2.6
05	310	7.0	260	4.0	—	2.0		2.6
06	310	7.1	250	4.1	140	2.5		2.7
07	320	7.6	240	4.6	120	2.8	2.6	2.8
08	340	7.9	250	4.7	130	3.1	4.6	2.6
09	330	8.4	240	4.6	120	3.3	5.0	2.7
10	330	8.3	230	4.8	120	3.3	5.0	2.7
11	320	8.6	240	4.8	120	3.4	5.0	2.7
12	330	8.6	240	4.9	120	3.4	4.8	2.8
13	310	8.8	240	4.8	120	3.4	6.2	2.9
14	300	8.6	240	4.8	120	3.3	4.7	3.0
15	300	8.0	240	4.7	120	3.2	4.6	2.9
16	300	7.9	240	4.5	120	2.9	4.7	3.0
17	290	7.9	250	4.3	130	2.6	4.4	3.0
18	280	8.0	250	4.2	140	2.2	4.5	3.0
19	270	7.6					4.7	2.9
20	290	7.6					2.8	2.7
21	300	7.6					2.9	2.6
22	310	7.6					2.4	2.5
23	320	7.5					2.5	2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.

Table 71

Fribourg, Germany (48.1°N, 7.8°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	3.8					2.2	2.7
01	305	3.6					2.3	2.6
02	310	3.8					2.3	2.6
03	310	3.4					2.4	2.6
04	292	3.4					2.4	2.7
05	280	2.7						2.8
06	275	3.3			---	---	2.4	2.9
07	250	5.4	---	---	137	1.8	2.1	3.1
08	255	6.1	245	3.0	121	2.2	3.3	3.2
09	262	7.0	240	4.0	120	2.6	3.7	3.2
10	270	7.2	230	3.9	121	2.8	3.9	3.1
11	268	8.1	225	4.3	115	2.9	3.9	3.1
12	290	8.2	225	4.3	119	2.9	3.9	3.1
13	275	8.8	235	4.0	117	3.0	3.3	3.1
14	270	8.2	240	4.2	113	2.8	3.6	3.1
15	260	8.4	250	3.8	121	2.6	2.8	3.1
16	250	8.0	250	---	129	2.2	2.5	(3.2)
17	245	6.9			---	(<1.8)	2.4	3.2
18	250	6.0					2.5	3.1
19	252	5.4					2.4	3.0
20	260	4.7					2.4	3.0
21	265	3.9					2.3	2.7
22	290	3.9					2.2	2.7
23	312	3.5					2.1	2.6

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

Table 72*

Falkland Is. (51.7°S, 57.8°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	6.4						2.5
01	330	6.4						2.5
02	310	6.3						2.6
03	290	6.0						2.7
04	390	4.9						2.7
05	260	5.8			—	2.0#		2.8
06	240	6.8			150	2.2		3.0
07	250	6.8	250	4.5	130	2.6		3.0
08	270	8.0	240	4.5	120	2.9		2.9
09	280	8.8	230	4.7	120	3.1		2.9
10	290	9.8	230	4.9	120	3.2	4.6	2.9
11	280	10.0	220	4.7	120	3.3	4.1	3.0
12	280	10.3	220	4.7	120	3.3	4.0	3.0
13	270	10.1	230	4.7	120	3.3		3.0
14	270	9.0	220	4.5	120	3.2	3.6	3.1
15	260	8.8	230	4.5	120	3.0		3.1
16	250	8.5	310	4.0	130	2.7		3.1
17	250	8.0	240	3.3#	140	2.3		3.1
18	250	8.2					2.7	3.1
19	250	7.5						3.0
20	270	7.3						2.8
21	290	7.0						2.6
22	300	6.8						2.6
23	320	6.8						2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Form adopted June 1946

TABLE 73

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

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), September (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C.

Calculated by: Mc C.

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	260	260	300	(320)S	(300)S	300	280	300	270	270	300	300	320	310	330	320	300	290	260	250	220	250	250	280
2	260	280	290	280	280	260	(260)L	300	300	310	340	340	340	340	330	330	300	300	280	240	240	250	250	(260)S
3	290	290	280	290	270	280	240	[260]L	(290)B	320	290	320	350	330	340	310	290	310L	340	250	240	230	250	270
4	300	310	300	290	280	300	260	290L	320	330	370	340	340	340	320	340	330	290	280	250	240	250	270	250
5	(300)S	(300)S	290	280	290	280	250	290	300	350	410	390	380	360	300H	350	320	300	260	250	240	(250)B	260	(280)S
6	290	(290)S	(290)S	320	(350)S	[300]S	260H	310	360	400	370	380	390	C	C	C	C	C	C	210	230	240	280	250
7	230	250	[280]B	(310)B	B	B	210	(300)L	360H	280H	300	310	300	320	330	320	310	270	250	230	230	260	(300)A	300
8	310	310	280	280	280	250	240	260	260	270	290	310	310	320	320	310	280	260	250	240	240	260	290	300
9	290	290	270	270	250	250	250	240	240H	280	280H	320	320	300H	320	310	290	270	260	220	260	230	270	(290)S
10	(390)S	300	(280)S	310	300	(300)S	260	250H	300	290	300	320	300	320	310	310	310	290	270	250	260	270	290	280
11	300	300	280	280	320	210	250	260	260	(340)H	320	340	390	350	380	350	350	360K	290K	230K	240K	260K	300K	340K
12	330SK	330HK	310K	290K	300K	300K	280K	300K	310K	300K	380HK	310HK	300HK	390HK	390K	450K	360K	330K	290K	300K	280K	240K	(270)SK	320K
13	(320)SK	S K	S K	350SK	[300]SK	(250)S	270	260	(270)L	330H	330	340	360	320	310	300	320	300	290	280	260	270	290	280
14	260	310H	290	290	(350)F	(300)F	260	250	290	300	300	300	330	330	310	[300]C	280	260	250	250	250	(250)S	280	290
15	280	290	270	(300)S	S	S	270H	310	320	320	300	320	310	320	300	300	290	270	250	250	290	270	300	300
16	300	350	310	300	300K	[300]BK	270K	G K	G K	610K	440K	490HK	410K	370HK	380K	340K	350K	330K	300K	280K	260K	310K	300K	300K
17	340HK	(390)SH	(380)SK	360K	(360)SK	(350)S	260	230	300	260	280H	320	310	320	300	270	270	260	240	240	280	260	280	290
18	300	300	300	270	260	[260]S	270	300	250	250	270	280H	300	300	310	280	270	250	230	240	(260)B	250	280	300
19	300	280	290	280	310	(300)S	280	270	270	270H	280	[300]LK	(320)LK	330HK	290K	290K	280K	260K	240K	250K	250K	260K	290K	270K
20	B K	(350)BK	[380]BK	(400)BK	[350]BK	(300)BK	(330)BK	(270)BK	G K	G K	G K	G K	G K	G K	G K	500K	400K	(350)LK	270SK	260K	300K	B K	B K	B K
21	B K	B K	B K	B K	B K	S K	310K	270K	G K	G K	G K	G K	G K	G K	G K	600K	480K	(380)LK	300K	260K	280K	[300]SK	320K	[360]SK
22	390HK	360K	(360)SK	(350)SK	(320)SK	S K	S K	230	300	380	390	350	310	300	300	310	280	250	240K	220K	220K	250K	310K	(320)SK
23	320K	350K	360FK	350FK	330FK	300K	270K	300K	[320]LK	340K	360K	340K	360K	340K	320K	300K	260K	240K	220K	250K	270K	270K	310K	320K
24	[330]SK	(340)FK	300K	300K	(220)SK	[240]SK	270K	[350]LK	440K	450K	480K	420K	380K	350K	370K	350K	280K	(250)LK	240K	220K	230K	260K	310K	320K
25	320K	320K	310K	300K	320K	360K	270K	[350]LK	440K	G K	G K	G K	490K	380HK	320K	320K	330K	400K	(350)BK	(220)BK	N K	B K	B K	(200)BK
26	[300]BK	(400)BK	(360)BK	(360)BK	B K	B K	A K	L K	340K	330K	350K	350K	340K	330K	310K	300K	290K	250K	220K	210K	220K	310K	S K	S K
27	B K	S K	(320)SK	B K	B K	B K	300K	250K	370K	430K	370K	370K	370K	420K	400HK	400K	310K	280K	230K	220K	270K	(250)SK	(290)SK	260SK
28	(250)SK	(290)SK	270K	E K	E K	E K	250	240	(250)L	260	300	290H	290	300	[300]L	300	280	250	230	210	230	240S	(260)S	280S
29	280	270	(250)S	280	(260)S	(290)S	230	210	240	250	240	300	300	300	260	250	240	230	200	230	230	220	240	240
30	(250)S	(260)S	240	240	250	220	200	210	220	250	250	260	270	270	250	280	230	230	200	200	210	220	250	270
31																								
Median	300	300	290	300	300	300	260	270	300	320	320	330	330	330	320	310	290	270	250	240	240	250	280	280
Count	27	27	28	27	25	24	28	29	30	30	30	30	30	29	29	29	29	29	29	30	29	28	27	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 74

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

IONOSPHERIC DATA

Form adopted June 1946

fo F2 (Characteristic), Mc (Unit), September (Month), 1951

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., H.C.C.

Calculated by: Mc C.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	4.7S	3.8	3.4	3.1H	3.1	3.0	3.3	4.9	6.0	6.6	6.8	6.8	7.0	6.8	7.0	7.0	7.1	7.4	7.8	8.4	7.0S	6.4	5.4	5.0		
2	4.5	4.1S	3.7	3.5S	3.1	3.1S	4.1	5.0	5.8	6.0	6.0	6.2	(6.0)B	6.6	6.6	6.5	6.4	6.5	6.6	7.3	6.8	6.2JS	5.6	4.9		
3	4.5	4.3S	(4.0)S	(3.7)JS	(3.4)JS	[3.3]F	(4.4)FS	5.2	6.1	7.3	7.0V	6.9	(7.8)J	7.0	7.0	7.1	7.2	7.0	(7.5)S	7.3	7.5	(6.5)S	(5.0)S	(4.2)FS		
4	FS	FS	FS	(3.0)FS	(2.7)FS	(2.6)FS	3.8	4.8	5.4	5.6	5.7	6.4	6.6	6.8	6.8	6.4	6.6	6.8S	6.8	6.8	6.3S	6.0F	4.3F	4.0		
5	3.1SF	3.1	3.1F	2.9	(2.9)F	2.5F	4.0	4.7F	5.3	5.2F	5.4	5.8	6.2	6.5	6.4H	6.8	6.8F	6.2	6.4	6.8	6.4	5.8F	(4.7)SF	4.2F		
6	3.6F	3.5F	3.1	2.8	(2.4)S	(2.2)JS	3.4FH	4.5H	5.0	5.6	6.2	6.0	6.0	C	C	C	C	C	C	(6.2)JP	5.2	5.0J	4.7	4.7		
7	4.2J	3.7J	(3.4)B	(3.4)B	(2.6)B	2.3P	2.8P	4.5	5.5H	6.5H	7.8	7.9	7.8	8.0	7.7	7.5	8.0	8.3	8.0	7.0	5.8	5.0	4.6	4.4		
8	4.0	4.0	4.0	3.8S	3.4	3.3	5.0	6.4	7.2	7.3	7.6	8.0	8.1	8.6	8.3	8.0	8.0	7.4	7.0	7.4	6.8	6.0	5.7	5.5		
9	(5.2)S	5.0	4.7	4.3	3.6	3.0	4.9	6.6	8.0H	8.4V	7.6H	8.6	8.6	8.9H	8.0	8.4	8.6	8.1	8.2	7.8	7.0	6.4JS	5.4	5.0		
10	5.0	5.0	4.8	(3.3)JF	(3.4)JF	3.0F	4.2	(5.2)H	6.3	7.3	7.3	7.5	7.6	7.6	7.3	6.9	6.8	6.8	7.1	7.0	6.1S	5.4	4.8	4.6		
11	4.1	3.8F	3.5FS	(3.1)SF	(2.5)SF	(2.8)SF	4.3	6.4	6.4	(6.2)H	7.2F	6.8F	7.0F	6.8	6.6	6.9	7.1	7.0K	(8.2)FK	8.0SK	6.6SK	(4.0)SK	(3.3)SK	F(2.5)SK		
12	2.7K	J3.6HK	3.5VK	(3.2)HK	3.2FK	3.0FK	3.8JK	5.6FK	6.0SK	6.2K	J6.2HK	F6.2HK	H6.0VK	5.8HK	5.6FK	5.4FK	5.8K	5.8K	V(5.8)HK	5.4SK	5.8K	4.3K	3.4K	2.6K		
13	2.3K	2.1HK	F(1.9)SK	2.1K	2.3K	2.5	4.1	5.3	6.0	6.6H	7.4	7.0	8.0	8.2	8.2	7.8	6.8	6.8	6.4	6.0	5.8	4.9	4.3	3.9		
14	3.1	3.1VH	2.8	2.0	[1.9]F	[3.3]F	(4.7)F	6.0	7.0	7.0	7.0	7.4	7.0	7.0	7.3	[7.5]C	7.8	7.1	7.2	7.4	7.0	5.6	5.0JS	4.8SF		
15	4.5F	(3.9)JS	3.4F	1.9	[2.1]S	(2.4)SF	3.2F	4.4F	5.2F	6.1	6.4	6.8	7.6	7.4	7.6	7.4	7.5	7.2	7.4S	6.8	6.2	5.8	5.7	5.2		
16	4.6F	3.1JF	3.0JF	2.9	J2.4FK	[1.9]BK	3.1K	<3.7GK	<4.1GK	5.0K	5.8K	J5.4HK	5.4K	5.8HK	5.7K	5.8K	5.8K	6.2K	5.8K	5.6K	5.0K	3.9FK	J(3.9)FK	3.5FK		
17	F2.9HK	F(2.5)HK	F(2.0)HK	2.4K	(1.7)FK	(2.1)JF	3.7	4.8	5.9	7.1	6.5H	7.2	7.8	8.3	8.4	8.0	7.8	7.6	8.6	7.6	6.8	6.4	5.2F	4.9		
18	4.8	3.6F	3.8	3.5	3.0	2.1S	3.6F	6.0	7.0	7.4	7.8	7.5JH	8.0	8.0	8.8	9.4	8.5	8.2	8.0	7.8	6.4	5.8	5.0	4.7		
19	4.2F	4.4SF	3.8	3.2F	2.4F	2.7S	3.6	4.8	5.8	6.4H	7.4	7.1K	9.4K	10.0HK	10.5K	10.0FK	10.1FK	8.0FK	7.0FK	6.0K	5.6FK	5.0K	F(4.0)K	(3.4)FK		
20	FBK	FBK	FBK	FBK	FBK	FBK	BK	(3.2)BK	<3.4GK	<3.8GK	<4.1GK	<4.1GK	<4.2GK	<4.2GK	<4.1GK	4.7K	5.0K	4.7K	4.7K	4.5SK	3.0K	BK	BK	BK		
21	(2.5)BK	BK	BK	BK	BK	B(1.7)SK	(2.8)BK	3.5K	<3.8GK	<4.0GK	<4.2GK	<4.2GK	<4.2GK	<4.2GK	<4.2GK	4.5K	4.6K	4.7K	4.8K	J4.0SK	3.6K	3.0K	S2.9FK	2.8FK		
22	(3.0)HK	J2.6FK	J2.6FK	2.3FK	2.2FK	(2.0)FK	S(2.0)FK	4.5	5.0	5.8	5.8S	6.5	7.4	7.5	7.6	8.1	8.5	7.8	8.0K	7.0K	4.8K	3.6SS	3.1K	3.0K		
23	2.9K	3.0K	[2.8]FK	(2.5)FK	(2.0)FK	(2.0)FK	3.0K	4.2K	4.6K	5.2K	5.8K	5.9K	6.0K	6.3K	6.1K	6.1K	7.0K	6.6SK	6.0SK	(5.0)SK	(4.1)SK	3.2K	F(3.6)SK	J(3.5)FK		
24	J(3.2)OFK	J(3.2)FK	3.0K	F(2.2)SK	FK	FSK	3.0K	4.0K	4.2K	4.6K	4.7K	5.3K	5.5K	5.4K	5.6K	6.0K	6.3SK	6.5SK	6.5K	(5.5)SK	(4.0)SK	(3.2)SK	(3.1)SK	(3.0)SK		
25	2.9SK	3.0SK	2.9SK	2.4K	FSK	FSK	F3.4SK	4.5K	5.0K	<4.0GK	<4.0GK	<4.0GK	(6.0)FK	J(7.6)HK	8.8K	10.2K	7.6K	(4.6)FK	BFK	BK	NBK	BK	BK	BK		
26	B(1.9)SK	S(1.9)FK	F(1.8)SK	B(1.6)FK	BK	BK	F(2.6)BK	4.0K	4.4FK	4.9K	5.2K	5.2K	5.5K	5.6FK	6.1FK	6.4K	6.6K	6.8K	7.0SK	6.6SK	J(4.2)SK	F3.0SK	2.3SK	J2.1SK		
27	[1.9]BK	(1.8)BK	(1.6)BK	BK	BK	BK	2.5K	3.5K	4.4K	4.8K	5.1K	5.2K	5.3K	5.2K	5.5HK	5.4K	6.0K	6.0K	F5.6SK	5.3K	S4.2FK	4.0K	(4.0)SK	3.7SK		
28	2.8K	2.4K	1.8K	(1.4)SK	EK	EK	3.2	5.2	5.6	6.1	6.8	6.8H	7.0	6.8	(6.6)H	6.8JS	7.0	7.2	6.8	6.0	5.0S	4.4	(4.2)S	3.8S		
29	3.6	3.1F	3.1	2.6F	(2.6)FS	2.4	3.6	6.0	6.8	7.2	7.0	7.4	7.8	8.5	9.4	8.6	8.0	8.0	7.3	6.2S	5.6	5.0	4.9	4.2		
30	3.8JS	3.9	3.9	3.6	3.2	3.0	4.2	6.4	6.6	7.7	8.3	7.8	8.2	8.6	9.4	8.4	8.0	8.0	7.6	6.8	5.4	4.6	4.2	4.0JS		
31																										
Median	3.6	3.5	3.1	2.9	2.6	2.5	3.6	4.8	5.7	6.2	6.4	6.8	7.0	7.0	7.0	7.0	7.1	7.0	7.0	6.8	5.8	5.0	4.4	4.0		
Count	28	27	27	27	24	25	29	30	30	30	30	30	30	29	29	29	29	29	28	29	29	28	28	28		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), September (Month), 19 51

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C.

Calculated by: Mc C.

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	3.6	3.3	3.1	3.0	3.0	3.1	3.6	6.0	6.6	6.4	7.0	7.0	7.1	6.8	7.1	7.2	7.2	7.5	8.0	7.8	6.7 S	5.8 S	5.0	4.9
2	4.2	(3.9) S	3.8	3.3	3.1	3.3	4.6	5.3	5.8	5.9	6.0	6.4	6.3	6.6	6.4	6.8	6.4	6.3	7.0	7.0	6.4	5.8	5.2	4.5
3	4.2	4.0 JS	F (3.6) JS	(3.1) S	F 3.2 JS	(3.4) F	5.2	6.2	6.4	7.6	(7.0) S	6.8	7.0	7.0	7.0	7.4	7.0	7.1	7.4	(7.6) S	(7.5) S	(5.6) S	(4.8) S	S F
4	F S	F S	F S	(3.2) FS	[3.1] F	(3.0) FS	4.4	5.2	5.6	5.6 F	6.0	6.5	6.8	6.8	6.5	6.4	6.8	6.4 S	7.0 S	6.4 S	5.8	4.3 F	4.0 JS	3.4 F
5	3.1 F	3.3 F	3.0 JS	(3.0) S	(2.4) SF	(3.1) S	4.5	5.2 F	5.2 F	5.3	5.8	5.8	6.4	6.6	6.6	6.6	6.7	6.6	6.3	6.9	6.0 S	5.2	5.0 JS	4.0 F
6	(3.5) F	3.2	2.8 JS	[2.6] B	2.4	(2.7) S	4.2 H	5.0	5.2	6.0	6.3	6.0	C	C	C	C	C	C	(6.2) J	(5.3) S	5.2	4.7	4.7	(4.3) B
7	4.0	4.8 J	(3.7) B	(2.6) B	[2.4] B	2.9	4.2	5.0	6.2	7.0 H	7.8	8.0	7.8	7.9	7.8	8.0	8.3	8.0	8.0	6.4	5.4	4.8	4.5	4.2
8	4.2	4.0	3.9	3.6	3.2	3.6	5.7	7.1	7.1	7.6	7.8	8.1	8.1	8.3	8.2	8.0	7.7	7.2	7.2	7.0	6.2	5.8	5.8	5.5 S
9	5.0	4.9	4.4	4.0	3.2	3.5	5.8	7.2	7.4 H	8.2	8.4	9.0	9.0	8.2	8.1	8.5	8.4	7.8	8.9	7.0 S	6.9 JS	5.8	5.2 JS	5.0
10	5.0	4.9	4.2 JF	(3.4) JF	3.1 VH	3.1 JF	5.6 JH	(6.0) H	7.3	7.0	7.4	7.8	7.6	7.7	7.0	6.9	6.9	7.0	7.2	6.2	5.7	5.0	5.0	4.3
11	2.9	3.5 F	3.3 SF	S (2.8) FV	2.7	3.3	5.5	5.8 F	6.6	6.8	6.5 F	6.8 JH	7.2	7.1	7.0	7.0	7.0 F	7.2 K	9.0 FK	(7.5) SK	(6.0) SK	(4.0) SK	K [2.9] FS	K (2.5) FS
12	K (3.0) VH	K 3.6 JH	3.5 K	3.1 K	3.0 K	3.3 FK	4.3 FK	5.7 K	6.0 SK	6.4 K	5.9 K	6.0 K	(6.0) HK	5.7 K	5.6 K	5.6 K	6.0 K	(5.4) HK	5.4 SK	6.0 K	5.4 K	3.7 K	3.0 K	2.4 K
13	K (2.2) JH	(2.0) HK	1.9 SK	2.3 K	K 2.6 JS	2.9	5.0	5.6 S	5.6	7.2	7.3	7.4	8.1	8.2	7.8	7.0	7.0 S	7.0	6.0	5.9	5.4	4.7	4.2	4.0
14	3.0	3.0	2.5 F	2.0	(1.7) F	(2.5) F	5.3	6.8	6.8	7.3	7.2	7.3	[7.2] C	7.2	C	C	7.6	7.0	7.2 S	7.0	6.4	5.4	5.0 F	S (4.6) JF
15	4.1	3.6	(2.8) JS	(2.6) SF	[2.5] S	2.4	3.8 S	4.5 F	5.4 F	6.2 F	6.4	7.0 S	7.5	7.6	7.2	7.2	7.4	7.3	6.8 S	6.6	5.8	5.6	5.3	5.0
16	3.8	3.0 JF	3.1	2.8 JS	K (1.8) JF	2.3 FK	3.5 K	<4.2 GK	5.2 K	5.3 K	5.8 K	5.7 HK	5.7 K	5.8 K	5.7 K	5.7 K	5.5 K	6.0 K	5.8 K	K 6.0 JS	4.1 K	3.7 K	HK 3.7 JF	K 3.4 JF
17	K (2.5) FH	K (2.4) FS	K (2.3) FH	2.1 FK	K (1.7) FS	2.5	4.4	5.0	6.4	7.0	6.8	7.6	8.2	8.4	8.2	7.8	7.8	8.2	7.9	6.8	6.6	5.8	5.0 F	4.9
18	4.1 F	3.8 FS	3.7	3.2	2.5	2.3 F	4.5 F	6.2	7.2	7.5	7.9	7.8	8.0	8.4	9.2	8.9	8.4	8.0	7.8	7.2	6.1	5.2	4.8	4.5
19	4.3	4.2 F	3.5	2.5	(2.5) JS	2.9	4.4	5.3	6.2 H	6.9	7.2	8.5 K	9.0 K	10.0 K	10.1 K	9.8 FK	9.4 FK	7.8 K	6.0 K	5.8 K	5.6 FK	5.0 K	(5.0) FK	(3.5) FK
20	[2.9] BK	(2.6) BK	F BK	F BK	F BK	K F BS	3.0 K	<3.4 GK	<3.7 GK	<4.0 GK	<4.1 GK	<4.1 GK	<4.1 GK	<4.2 GK	4.5 K	4.9 K	4.9 K	5.0 K	4.7 SK	4.0 K	B K	B K	B K	(2.8) BK
21	B K	B K	B K	B K	K (1.9) BS	(2.1) BK	(3.8) BK	<3.8 GK	<3.9 GK	<4.1 GK	K <(4.2) BG	<4.2 GK	<4.2 GK	<4.5 GK	<4.2 GK	4.6 K	4.7 K	4.8 K	4.6 K	K 5.6 VS	3.6 K	3.0 K	2.7 K	2.6 FK
22	3.0 FK	FK 2.6 JS	K (2.0) JS	2.5 FK	[2.1] FK	[2.0] FK	4.0 K	4.1	5.4	5.6	6.2 F	7.2	7.5	7.6	7.0	8.4	8.2	8.2	7.6 SK	5.8 K	K 4.0 JS	3.3 SK	3.1 K	3.0 K
23	3.0 K	2.4 FK	F K	[2.2] FK	[2.5] FK	(3.0) FK	3.7 K	4.6 K	5.0 K	5.2 K	6.0 K	6.0 K	6.2 K	6.5 K	6.3 K	6.8 K	(6.6) SK	6.9 K	5.0 K	4.4 K	3.7 K	(3.6) FK	K (3.4) PF	[3.3] FK
24	[3.2] FK	3.0 K	K (2.8) FS	F SK	F SK	F K	3.6 K	4.1 K	4.4 K	4.8 K	(5.0) SK	5.4 K	5.8 K	5.5 K	5.8 K	6.2 K	6.9 K	6.5 K	(6.1) SK	4.7 K	2.8 K	(3.2) SK	(3.2) SK	(3.3) SK
25	(3.1) SK	(3.0) SK	2.8 K	F SK	F SK	F SK	4.1 K	5.0 K	4.8 K	<4.0 GK	<4.0 GK	5.1 K	K (7.8) HF	8.3 K	7.1 K	11.0 K	(5.2) FK	4.5 FK	B K	B K	B K	(2.7) BK	[2.3] BK	K 1.9 BS
26	K (1.8) SF	K (1.9) FS	K (1.7) BF	B K	B K	K (2.0) FB	3.5 K	4.2 FK	4.8 K	4.8 K	5.2 K	5.3 K	5.6 K	5.8 K	6.0 K	6.4 K	6.8 K	6.8 K	6.8 K	5.6 SK	3.5 FK	K 2.5 SF	N K	N K
27	B K	1.7 K	B K	B K	B K	B K	3.2 K	3.8 K	4.5 HK	4.7 K	5.0 K	5.2 K	5.6 K	5.6 K	5.5 K	5.9 K	6.0 K	5.8 K	5.4 K	4.6 K	4.2 K	4.0 K	3.7 K	3.4 K
28	2.4 K	2.0 K	1.6 K	(1.3) SK	E K	(1.9) SK	4.4	5.3	5.6	6.3	6.6	6.4 H	6.4	7.0	6.8	6.8	7.4	6.8	6.8	5.4	4.9	4.4	3.8 JS	3.7
29	3.5 S	3.2 F	2.9	2.7 F	2.5 F	2.5	5.0	6.8	7.2	6.6	7.0	7.4	8.0	9.3	9.0	8.4	7.8	8.0	6.2	6.0	5.3	4.7	4.5	4.2
30	3.9	3.9	3.7	3.1	3.2	3.3	5.3	6.9	7.2	8.0	7.8	8.2	8.2	9.0	8.1	8.2	8.0	8.0	7.2	6.0	4.9	4.3	4.0 JS	4.1
31																								
Median	3.5	3.2	3.1	2.8	2.5	2.9	4.4	5.2	5.7	6.4	6.4	6.8	7.2	7.1	7.0	7.0	7.0	7.0	6.8	6.0	5.5	4.7	4.5	4.0
Count	27	28	25	24	25	26	30	30	30	30	30	30	29	29	28	28	29	29	29	29	28	29	28	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 76

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

Form adopted June 1946

IONOSPHERIC DATA

h' F1 (Characteristic), Km (Unit) September (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

Calculated by: Mc C.

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							(260)S	230	220	210	200	200	210	220	220	220	[240]B	(250)A						
2							240	[230]A	220	210	210	210	(220)B	200	(220)B	[220]S	230	240						
3								230	[220]B	220	200H	B	B	B	B	230	240	240						
4								(220)B	210	190H	220	220H	200H	210	220	220H	230	260	270					
5								230	220	210H	210H	200	200	220	200H	240	230	230	240					
6								250	240	220	200H	210	220	C	C	C	C	C						
7								210	210	220	210	200H	190	220H	210H	220	250	240						
8								240	230	210	200	200	210	210	[230]B	(250)B	B	Q						
9								230	230	200	[220]B	(230)B	B	B	240	[230]B	230	250						
10								Q	240	230	240	230	200	230	(240)A	A	A	A						
11								A	220	220	210	230H	220	230	250	240	230	260K						
12								230K	220K	210K	210HK	230HK	250K	230K	230K	230K	250K	250K						
13								240	230	220H	210H	230	210	230	250	230	240	260						
14								230	210	260	230	200	220	220	210	[220]C	240	240						
15								220	220	210	200H	230	220	230	230	230	260	240						
16								250K	250K	(220)HK	220HK	200HK	220HK	250K	230K	240K	240K	280K						
17								Q	230	220	200	200	220	230	210	230	230	240						
18								220	220	220	210	200H	200	210	250	230	220	Q						
19								250	240	210H	200H	250K	210K	240HK	220K	220K	230K	240K						
20								BK	250K	210K	200K	190K	220K	220K	230K	230K	240K	260K						
21								QK	210HK	220K	220K	210K	190HK	210HK	240K	220K	230K	240K	280K					
22								Q	220	210H	200H	200	200	210	[230]B	(250)B	240	240						
23								250K	220K	220K	220K	210K	210K	220K	220HK	230K	240K	QK						
24								250K	240K	230K	190K	190K	210K	210K	210K	210K	220K	240K						
25								250K	240K	220K	210K	210K	220K	260K	250K	240K	240K	290K						
26								250K	210K	190K	200K	190K	190K	200HK	210HK	230K	220K	230K						
27								QK	210K	200K	210K	220HK	170K	220HK	200HK	230K	200HK	240K						
28								220	210	200	200H	(180)H	200	230	220	220	210	Q						
29								Q	200	190	190	200H	(220)B	200	200	200	200	Q						
30								Q	Q	200	200	200	200	190H	210	200	200	Q						
31																								
Median							—	230	220	210	210	200	210	220	220	230	230	240	—					
Count							2	21	29	30	30	29	28	27	28	28	27	22	3					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 77

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

Form adopted June 1946

IONOSPHERIC DATA

foFl (Characteristic), Mc (Unit), September (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

Calculated by: Mc C.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	4.3	4.4	4.5	4.8	4.7	4.7	4.6	4.0^B	L						
2							L	A	4.2	4.4	4.5	4.6	4.7	4.7	4.6	4.5	S	L						
3								L	B	4.7	4.7^H	4.9	(5.0)^B	[5.0]^B	4.9^H	4.5	L	L						
4								L	(4.0)^P	4.0^H	4.6	4.7^H	4.8^H	4.6	4.5	4.5^H	4.3	L						
5								L	4.1	4.3^H	4.6^H	4.7	4.8	4.7	[4.6]^N	4.5	4.2	3.5						
6								3.5	4.1	4.5	4.7^H	4.8	4.8	C	C	C	C	C						
7								L	L	4.2^P	4.5	4.7^H	4.9	(5.0)^H	(4.9)^H	(4.7)^P	(4.5)^P	L						
8								L	L	4.3^P	4.6	4.9	5.0	5.0	4.9	4.7	L	Q						
9								L	L	4.5	[4.7]^B	4.9	(5.0)^B	[5.0]^B	4.9	[4.6]^B	4.1	L						
10								Q	L	4.4	4.7	4.8	4.9	4.9	[4.6]^L	4.4	L	L						
11								L	L	L	4.4	4.7^H	5.0	4.9	4.7	4.5	(4.3)^L	(3.6)^L_K						
12								L^K	4.2^K	4.3^K	4.5^H_K	4.6^H_K	4.6^K	4.5^K	4.5^K	4.4^K	4.1^K	3.7^K						
13								L	L	4.5^H	4.5^H	4.8	4.9	4.6	4.5	4.3	4.1	L						
14								L	4.2	[4.4]^L	4.5	4.6	4.7	4.7	4.6	C	L	L						
15								3.5^L	4.0	4.3	4.4^H	4.6	4.7	4.7	4.5	L	L	L						
16								3.7^K	4.1^K	(4.3)^H_K	4.5^H_K	4.5^H_K	(4.5)^H_K	4.4^K	4.4^K	4.2^K	4.2^K	L^K						
17								Q	L	4.1	4.2	[4.3]^N	4.4	4.4	4.3	L	L	L						
18								L	L	L	(4.3)^L	[4.6]^L	4.8	4.8	L	L	L	Q						
19								L	L	L	L	L^K	L^K	(4.8)^L_K	4.6^K	4.4^K	L^K	L^K						
20								B^K	3.4^K	3.8^K	4.1^K	4.1^K	4.2^K	4.2^K	4.1^K	4.0^K	3.9^K	(3.4)^L_K						
21								Q^K	3.8^H_K	4.0^K	(4.2)^S_K	4.2^K	4.2^H_K	4.2^H_K	4.2^K	4.1^K	4.0^K	(3.6)^L_K						
22								Q	(3.7)^L	(4.0)^H	4.6^H	4.7	4.6	4.4	L	L	L	L						
23								L^K	L^K	4.2^K	4.4^K	4.4^K	4.5^K	4.5^K	4.3^H_K	(3.8)^P_K	L^K	Q^K						
24								L^K	3.6^K	4.1^K	4.3^K	4.3^K	4.4^K	4.4^K	4.4^K	4.3^K	L^K	L^K						
25								L^K	4.1^K	4.0^K	4.0^K	4.0^K	4.1^K	4.2^K	4.2^K	4.1^K	3.7^K	3.3^K						
26								L^K	3.7^P_K	[4.0]^L_K	4.2^K	4.3^K	4.4^K	4.4^H_K	4.3^H_K	4.2^K	L^K	L^K						
27								Q^K	4.0^K	4.1^K	4.3^K	4.4^H_K	4.4^K	4.4^H_K	4.2^H_K	4.2^K	L^K	L^K						
28								L	L	4.1	4.5^H	(4.5)^H	4.5	4.6	[4.6]^L	(4.5)^L	3.5	Q						
29								Q	L	4.2	[4.4]^L	(4.7)^H	4.7	4.7	4.3^P	L	L	Q						
30								Q	Q	L	4.4	4.5	[4.4]^L	(4.3)^H	L	L	L	Q						
31																								
Median							–	–	4.0	4.2	4.5	4.6	4.7	4.6	4.5	4.4	4.1	3.6	–					
Count								3	15	26	29	29	29	29	26	22	13	6						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 78

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

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), September (Month), 1951

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C.

Calculated by: Mc C.

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	120A	110	110	110	120	110	110	110	110	[120]B	120	(120)A					
2							130	A	A	110H	110	110	100	B	B	B	110	120	(120)S					
3							A	A	B	120	110	B	B	B	B	110	120B	110	130					
4							A	120	110	110	110	110	110	110	110	110	110	110	(130)S					
5							S	120	(110)A	110	110	110	110	110	110	110	120	120	(130)S					
6								120	110	120	110	110	120	C	C	C	C	C	C					
7								110	110	120	110	110H	110	110	110	110	110	110						
8							100H	110A	110	110	110	110	110	110	B	B	B	B						
9								120	110	100	B	B	B	B	(120)B	[120]B	120	120	(130)S					
10								110B	110	110	[110]B	110	110	110	110	110	110	120	(120)A					
11							130	(110)A	120	110	110	110	110	110	110	110	110	110K	130 B K					
12								120K	110K	110K	110K	110K	110K	110K	110K	110K	110K	110 H K	140K					
13								130	120	110	(100)A	100	110	110	110	110	120	120	150					
14							130	130	110	110B	110	120	110	110	110	[110]C	110	110	140					
15								120	110	110	110	110	110	110	110	110	110	120	S					
16								120K	110K	110K	120K	110K	120K	110K	110K	110K	110K	130K						
17								120	120	110	110	110	110	110	110	100	100	120						
18								110	110H	120	110	110	110	110	110	110	120	(120)B						
19								120	110H	110	110	110K	110K	110K	100K	100K	100K	110K						
20								B K	110K	110K	110K	110K	110K	100K	100K	100K	110K	110K						
21								B K	B K	110K	110K	100K	110K	100K	100K	100K	110K	110K	(130) S K					
22								110	100	100	100	100	110	100	100	100	110	(110)B	B K					
23								110K	100K	110K	100K	110K	100K	100K	100K	110K	110K	B K						
24								110K	110K	110K	110K	100K	110K	110K	110K	110K	110K	B K						
25							110K	110K	110K	110K	110K	110K	110K	110K	100K	110K	100K	110K						
26									100K	100K	100K	100K	[100] B K	100K	100K	100K	100K	100K						
27								100 H K	100K	110K	100K	110K	100K	100K	100K	100K	100K	100K						
28								110	100	110	100	100	100	100	100	100	100	110						
29								(100)S	100	100	100	100	[100]B	100	100	100	100	B						
30								100	100	100	100	100	100	100	100	100	100	100						
31																								
Median							130	110	110	110	110	110	110	110	110	110	110	110	(130)					
Count							5	25	27	30	29	28	28	26	26	27	28	25	12					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 79

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

IONOSPHERIC DATA

fo E (Characteristic), Mc (Unit), September (Month), 1951

Observed at Washington, D.C.

Lat. 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C.

Calculated by: Mc C.

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	A	2.6	[3.0]A	3.3	3.5	3.6	3.5	3.5	3.3	[3.0]B	2.6	A					
2							1.8	[1.9]A	3.0	3.2H	3.4	B	B	B	B	B	(2.9)B	2.5	1.7					
3							A	A	B	3.4	3.5P	B	B	B	B	B	(3.0)P	2.6P	1.8					
4							A	(2.3)B	3.0	3.3	[3.4]B	3.5	(3.6)P	3.5	3.3	3.1	2.9	2.5	1.9					
5							S	2.1	[2.6]A	(3.2)P	(3.4)B	3.6	3.6	3.4	3.4	3.2	3.0	2.6	1.9					
6								A	2.9P	[3.1]B	3.3	3.4	3.5P	C	C	C	C	C	C					
7								2.5	3.0	(3.3)P	3.5P	3.6H	3.6	3.6P	3.4	3.3	3.0	2.6						
8							1.8H	2.5A	2.9	3.2	3.5	3.6	[3.6]B	(3.5)P	B	B	B	B						
9								2.4P	3.0	3.2	B	B	B	B	3.4	[3.2]B	3.0	2.5	1.8					
10								2.4	B	B	B	(3.5)P	3.5P	3.4	3.3	3.2	2.9	2.4	A					
11							1.8	[2.4]A	3.0	3.1	3.4	3.5P	3.6	3.5	3.4	3.2	2.9	2.4K	1.8K					
12								2.4K	2.9K	3.1K	(3.2)PK	[3.4]BK	(3.4)BK	3.4K	3.3K	3.2K	3.0PK	2.4HK	1.8K					
13								(2.3)P	2.8	3.1	3.3	3.4	3.4	3.4	3.2	3.0	2.8	2.5	1.8					
14							1.8	2.3	2.9	3.2B	3.3	3.5	3.5P	3.5P	3.3	[3.0]C	2.8	2.2	1.8					
15								2.5	2.9	3.2	3.4	3.5	3.6	3.5	3.3	3.2	2.9	2.4	1.7					
16								2.3K	2.9K	3.2K	3.3K	3.4K	3.4K	3.4K	3.3K	3.1K	2.7K	2.3K						
17								2.3	2.8	3.0	3.2	3.3	3.3	3.3	3.2	3.1	3.0	2.3						
18								2.2	2.8H	3.1	3.3	3.5	[3.4]B	3.3	3.2	3.1	2.9	2.2						
19								2.3	2.7H	3.0	3.2	3.4K	3.4K	(3.3)BK	3.3K	3.1K	2.8K	2.2K						
20								BK	2.5K	2.9K	3.2K	3.3K	3.3K	3.3K	3.2K	3.0K	2.7K	2.2K						
21								BK	BK	3.1K	3.3K	3.4K	3.4K	3.3K	3.1K	3.0K	2.9K	2.6K	1.8K					
22								2.4	2.8	3.1	3.2	3.3	3.3	3.2P	3.1	[3.0]B	2.8	[2.2]B	1.6K					
23								2.2K	2.6	3.0K	3.2K	(3.3)PK	(3.4)PK	[3.2]BK	3.0K	2.7K	BK	BK						
24								2.2K	2.7K	2.9K	3.1K	(3.2)PK	[3.1]BK	(3.1)BK	[3.0]BK	3.0K	2.6K	BK						
25							BK	2.2K	2.6K	2.8K	3.2K	3.3K	3.3K	(3.2)PK	BK	BK	2.8K	2.4PK						
26									2.5K	2.8K	3.0PK	3.1K	[3.2]BK	3.3K	[3.2]AK	3.0K	2.7K	2.2K						
27								2.2HK	2.6K	BK	BK	BK	(3.2)PK	3.2K	3.2K	3.0K	2.7K	2.2K						
28								2.2P	2.8	3.0	3.1	3.3	3.3	3.4	3.2	3.1	2.8	2.1						
29								2.3	2.7	3.0	3.2P	3.3	[3.3]B	3.3	3.2	3.0	2.7	B						
30								2.3	2.7	3.0	[3.1]B	3.2	3.4	3.3	3.2	2.9P	2.5P	1.9						
31																								
Median							-	2.3	2.8	3.1	3.3	3.4	3.4	3.4	3.2	3.1	2.9	2.4	1.8					
Count							4	24	27	28	27	26	27	26	25	25	27	25	12					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 80

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

IONOSPHERIC DATA

Es (Characteristic), Mc,km (Unit), September (Month), 1951

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C.

Calculated by: McC.

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	G	33Y/130	4.0Y/100	4.2Y/100	G	G	G	G	G	G	B	42/130	35/120	5.6/120	2.3Y/120	E	E	E
2	E	E	E	E	E	E	G	56/110	35/110	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
3	E	E	E	E	E	E	30Y/130	35/130	B	G	G	G	G	G	B	G	G	G	G	E	E	E	E	E
4	E	E	E	3.0S/120	2.8Y/120	E	4.0/110	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
5	E	E	40S/100	68Y/100	6.8Y/100	E	(9.8)S/100	72Y/120	36Y/110	G	G	G	5.8Y/110	G	8.8/120	G	G	G	G	E	E	E	E	E
6	E	E	E	E	E	E	10.4/100	32/130	86Y/120	G	G	G	G	C	C	C	C	C	C	E	E	E	E	E
7	E	E	B	B	B	B	E	G	G	G	G	G	G	G	G	G	10.0/100	G	E	E	E	E	37/120	E
8	E	E	E	E	2.4/120	E	G	G	G	G	G	G	G	G	B	B	B	G	E	E	28/120	E	E	E
9	E	E	E	E	E	E	E	G	G	G	B	B	B	B	G	B	G	G	G	E	E	E	E	E
10	E	E	E	E	E	E	E	G	G	G	G	G	G	G	4.1/120	49/110	44Y/120	4.3/120	3.2/120	58/120	E	E	E	E
11	E	E	E	E	E	E	G	38/110	66/140	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
12	E	E	E	23/120	E	E	2.8Y/120	G	G	G	G	G	G	G	G	G	4.0/130	3.3Y/120	G	32Y/100	E	E	E	E
13	E	E	E	E	29Y/110	35/120	2.0/120	G	G	G	30/100	G	G	G	G	G	G	G	G	E	E	E	E	E
14	E	E	E	E	E	E	G	G	G	G	10.8/110	G	G	G	G	C	G	50Y/120	G	E	E	E	E	E
15	E	E	E	E	E	25/110	2.7/120	35/120	G	G	G	G	G	G	5.8Y/110	G	G	G	G	E	E	E	E	E
16	E	E	E	E	E	B	1.8/130	86Y/100	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
17	E	E	E	E	E	E	2.3Y/120	G	G	G	58Y/130	G	G	4.6/120	G	G	G	G	G	E	E	E	E	E
18	E	E	E	E	E	E	3.0/110	G	G	G	G	G	G	8.2/100	G	G	G	G	2.0/120	22/110	E	E	E	E
19	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	33/110	22/110	24/110	E	E	E
20	B	E	B	E	B	E	E	B	G	5.5Y/110	65Y/110	G	G	58/110	G	G	G	G	E	E	E	B	B	B
21	E	B	B	B	B	B	B	G	G	90Y/110	G	85Y/110	G	6.2Y/120	G	G	G	G	G	E	E	E	E	E
22	E	E	E	E	E	E	E	G	G	62/140	G	G	G	G	G	G	G	G	G	E	48/120	E	E	E
23	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E
24	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E
25	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	B	B	B	B	B	B
26	B	E	E	E	B	B	4.0/100	32/100	G	G	G	47Y/120	7.0Y/90	G	7.0Y/110	G	G	G	E	E	E	E	E	43/140
27	B	14/100	E	B	42/100	64/110	1.8/120	9.2/100	G	G	G	G	G	G	G	G	G	G	20/130	E	E	E	E	E
28	E	E	E	E	E	72/110	24Y/120	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E
29	E	E	E	E	E	E	E	G	G	G	G	G	B	G	G	G	G	G	E	E	E	E	E	E
30	E	E	E	E	E	E	E	G	G	G	G	6.0Y/90	8.4Y/120	82/100	G	G	G	G	E	E	28/100	E	E	E
31																								
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	27	29	28	28	27	28	30	30	30	30	30	30	30	29	29	28	29	29	29	30	29	28	28	29

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 81

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500) F2 (Characteristic), ____ (Unit), September (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat. 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: Mc C.

Calculated by: Mc C.

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 S	1.9	1.8	1.8 H	1.9	1.9	2.1	2.3	2.3	2.3	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1 S	2.0	1.9	1.9
2	1.9	2.0 S	1.9	2.0 S	1.9	1.9 S	2.1	2.1	2.1	2.1	2.0	2.0	(2.0) B	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	(2.0) JS	1.9	1.9
3	1.8	1.9 S	(1.9) S	(1.8) JS	(2.0) JS	F	(2.2) FS	2.1	2.3	2.1	2.0 V	2.1	(2.0) J	1.8	1.7	1.7	2.1	2.0	(2.0) S	1.9	1.7	(2.1) S	(2.0) S	(1.9) FS
4	F S	F S	F S	(2.0) FS	(2.1) FS	(1.9) FS	2.1	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0 S	2.0	2.0	2.0 S	2.1 F	2.0	2.0
5	1.8 SF	1.8	1.9 F	1.9	(1.9) F	2.0 F	2.1	2.2 F	2.2	2.1 F	1.9	1.9	1.9	1.9	1.9 H	1.9	2.0 F	2.0	2.0	2.0	2.0	2.0 F	(1.9) SF	1.9 F
6	1.9 F	1.9 F	1.9	1.7	(1.7) S	(1.8) JS	2.0 FH	2.1 H	1.9	1.9	1.9	2.0	1.9	C	C	C	C	C	C	(2.1) JP	1.9	(2.0) J	1.9	2.0
7	(2.1) J	(2.1) J	(2.1) B	(1.9) B	(2.1) B	1.9 P	2.1 P	2.1	1.9 H	2.0 H	2.1	2.1	2.1	2.0	2.0	1.9	2.0	2.1	2.1	2.1	2.0	1.9	1.8	1.9
8	1.9	1.8	1.8	1.9 S	2.0	2.1	2.2	2.1	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	1.9	1.7	1.8
9	(1.8) S	1.8	1.9	2.0	2.0	2.0	2.1	2.3	2.3 H	2.2 V	2.0 H	2.0	2.0	2.1 H	1.9	1.9	2.0	2.0	2.0	2.0	1.9	(1.8) JS	1.9	1.8
10	1.8	1.8	1.9	(1.7) JF	(1.8) JF	1.8 F	2.1	(2.3) H	2.0	2.1	2.0	1.9	1.9	2.0	2.0	1.9	2.1	2.1	1.9	2.0	1.9 S	1.8	1.8	1.8
11	1.8	1.9 F	1.8 FS	(1.9) FS	(1.7) SF	(1.9) SF	2.2	2.3	2.2	(1.9) H	2.0 F	1.9 F	1.9 F	1.9	1.9	1.9	1.7	1.7 K	(1.9) FK	2.0 SK	2.0 SK	(1.7) SK	(1.7) SK	[illegible]
12	[illegible] K	J(1.6) HK	1.7 VK	(1.8) H	1.8 FK	1.9 FK	(1.9) JK	2.0 FK	2.1 SK	2.1 K	J(1.8) HK	F1.6 HK	V1.8 HK	1.9 HK	2.0 FK	1.8 FK	1.9 K	2.0 K	V(1.9) HK	1.7 SK	1.8 K	[illegible] K	[illegible]	1.7 K
13	1.9 K	1.7	J(1.[illegible]) SK	1.7 K	1.7 K	2.0 K	2.2	2.2	2.2	2.0 H	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.8	[illegible]
14	1.9	1.8 VH	1.8	1.9	F	F	(2.1) F	2.2	2.2	2.0	2.0	2.1	2.0	2.0	2.0	C	2.1	2.1	2.1	2.0	2.0	1.9	(1.9) JS	[illegible]
15	1.9 F	(1.9) JS	2.0 F	1.8	S	(1.6) SF	2.0 F	2.0 F	2.1 F	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0 S	1.9	1.9	1.9	1.8	[illegible]
16	1.8 F	(1.7) JF	(1.8) JF	1.7	J(1.8) FK	B K	2.0 K	G K	G K	1.5 K	1.7 K	J(1.7) HK	1.8 K	1.9 HK	1.9 K	2.0 K	1.9 K	1.9 K	1.9 K	1.8 K	1.8 K	1.8 FK	J(1.8) FK	[illegible]
17	F1.8 HK	F(1.8) HK	F(1.6) HK	1.7 K	(1.8) FK	(1.8) JF	2.1	2.4	2.1	2.2	2.0 H	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	2.0	1.9	2.0	1.9 F	1.8
18	1.8	1.8 F	1.7	1.9	1.9	1.8 S	2.1 F	2.1	2.1	2.1	2.1	(2.1) JH	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	1.9	1.9	1.9	[illegible]
19	1.9 F	1.9 F	2.0	1.9 F	1.9 F	1.9 S	2.0	2.1	2.2	2.0 H	2.0	1.6 K	1.8 K	1.8 HK	1.9 K	1.9 FK	1.9 FK	2.0 FK	2.0 FK	1.9 K	2.0 FK	1.8 K	(1.8) FK	(1.7) FK
20	F BK	F BK	F BK	F BK	F BK	F BK	B K	(2.3) BK	G K	G K	G K	G K	G K	G K	G K	1.6 K	1.9 K	1.8 K	2.0 K	1.9 SK	1.7 K	B K	B K	B K
21	B(1.7) K	B K	B K	B K	B K	B(1.8) SK	(2.0) BK	2.2 K	G K	G K	G K	G K	G K	G K	G K	1.5 K	1.7 K	1.8 K	2.0 K	S(1.9) JK	1.9 K	1.7 K	K1.7 SF	1.8 FK
22	(1.7) HK	J(1.7) FK	J(1.7) FK	1.9 FK	1.8 FK	(1.7) FK	S(1.8) PK	2.1	2.2	1.8	1.9 S	1.9	2.0	2.0	2.1	2.1	2.0	1.9	2.1 K	2.2 K	2.0 K	2.0 SK	1.8 K	1.7 K
23	1.8 K	1.8 K	F K	(1.7) FK	(1.9) FK	(1.9) FK	2.1 K	2.0 K	2.0 K	2.0 K	1.9 K	2.0 K	2.0 K	2.0 K	2.1 K	2.0 K	2.1 K	2.1 SK	2.2 SK	(2.0) SK	(2.0) F	1.9 K	S(1.8) FK	J(1.8) FK
24	J(1.7) FK	J(1.7) FK	1.8 K	F(1.7) SK	F K	F SK	2.0 K	2.1	1.8 K	1.7 K	1.7 K	1.8 K	1.9 K	2.0 K	1.9 K	2.1 K	2.1 SK	2.1 SK	2.2 K	(2.2) SK	(2.1) SK	(2.0) SK	(1.9) SK	(1.8) SK
25	1.8 SK	1.8 SK	1.8 SK	1.9 K	F SK	F SK	F2.2 SK	2.2 K	1.8 K	G K	G K	G K	(1.6) FK	J(1.5) HK	1.8 K	1.9 K	1.8 K	(1.8) FK	B FK	B K	N BK	B K	B K	B K
26	B SK	S(1.6) FK	F(1.7) SK	B(1.7) FK	B K	B K	F(1.9) BK	2.0 K	2.1 FK	2.1 K	2.1 K	2.1 K	2.0 K	2.0 FK	2.1 FK	2.0 K	2.1 K	2.1 K	2.2 SK	2.3 SK	J(2.0) SK	F1.8 SK	1.6 SK	J(1.6) SK
27	B K	(1.8) BK	(1.9) BK	B K	B K	B K	2.0 K	2.1 K	2.1 K	1.9 K	1.9 K	1.9 K	1.9 K	1.8 K	1.8 HK	1.8 K	2.0 K	2.1 K	F2.0 SK	2.1 K	F2.0 SK	1.8 K	(1.9) SK	2.0 SK
28	1.9 K	2.0 K	2.0 K	S K	E K	E K	2.2	2.4	2.3	2.3	2.1	2.2 H	2.3	2.1	(1.9) H	(2.0) JS	2.1	2.3	2.1	2.2	2.0 S	1.9	(1.9) S	1.9 S
29	2.0	2.0 F	2.0	2.0 F	(1.9) FS	1.9	2.0	2.3	2.5	2.4	2.2	2.1	2.0	2.0	2.1	2.2	2.2	2.3	2.3	2.0 S	2.0	1.9	2.0	2.0
30	(1.9) JS	1.9	2.0	1.9	1.9	2.1	2.3	2.4	2.4	2.3	2.4	2.2	2.1	2.1	2.2	2.1	2.2	2.3	2.3	2.3	2.2	2.0	1.9	(2.0) JS
31																								
Median	1.8	1.8	1.8	1.9	(1.9)	1.9	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.8
Count	26	27	26	26	21	21	29	30	30	30	30	30	30	29	29	28	29	29	28	29	29	28	28	28

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

Manual ☐ Automatic ☒

TABLE 82

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000) F2 (Characteristic), ______ (Unit), September (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: Mc C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C.

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	2.9 S	2.8	2.7	2.7 H	2.8	28	3.2	3.3	34	33	32	30	30	31	3.0	30	30	3.1	31	3.1	31 S	30	2.9	29
2	2.9	2.9 S	28	2.8 S	2.8	29 S	32	31	31	31	30	30	(30) B	30	30	30	30	30	30	30	30	30 JS	29	29
3	2.8	2.8 S	(28) S	(27) JS	(3.0) JS	F	(3.2) FS	31	3.3	3.1	3.0 V	3.1	(30) J	2.7	26	26	3.1	30	(3.0) S	29	26	(31) S	(3.0) S	(2.9) FS
4	F S	F S	F S	(30) FS	(31) FS	(28) FS	32	32	30	31	3.0	30	30	30	30	2.9	29	30 S	30	3.0	3.0 S	31 F	30 F	3.0
5	2.7 SF	2.7	2.9 F	28	(2.8) F	2.9 F	31	32 F	33	30 F	2.9	2.8	29	2.9	28 H	29	30 F	30	29	30	30	30 F	(2.8) FS	2.8 F
6	29 F	2.8 F	2.8	27	(2.6) S	(27) JS	3.0 FH	3.1 H	29	28	2.9	3.0	28	C	C	C	C	C	C	(31) JP	2.9	(3.0) J	29	30
7	(31) J	(31) J	(31) B	(29) B	(30) B	28 P	30 P	32	2.8 H	30 H	31	3.1	3.1	30	30	29	3.0	31	31	31	30	28	27	2.8
8	28	2.7	2.7	28 S	30	3.1	3.2	31	3.3	33	31	3.0	3.0	3.0	3.0	30	30	31	30	3.1	30	2.9	26	2.7
9	(27) S	2.8	29	30	30	2.9	3.1	33	34 H	32 V	30 H	29	2.9	31 H	2.9	29	30	30	30	30	28	(2.9) JS	2.8	27
10	27	27	2.8	(26) JF	(2.7) JF	2.8 F	3.1	(33) H	3.0	32	3.0	29	28	3.0	3.0	2.9	31	31	29	30	28 S	2.7	2.7	28
11	2.7	2.8 F	28 FS	(29) FS	(2.6) FS	(2.8) SF	32	3.3	3.2	(2.9) H	30 F	2.9 F	28 F	2.8	28	28	26	26 K	(27) FK	30 SK	30 SK	(2.6) SK	(2.6) SK	K(26) FS
12	27 K	K(25) JH	26 VK	(27) HK	2.7 FK	2.8 FK	(2.8) JK	3.0 FK	31 SK	31 K	K(27) JH	K 24 FH	K 2.7 HV	28 HK	30 FK	27 FK	28 K	2.9 K	K(29) VH	26 SK	27 K	30 K	2.8 K	26 K
13	2.8 K	26 HK	K(24) JS	26 K	26 K	3.0	3.2	32	32	3.0 H	29	2.9	28	28	2.9	30	29	2.9	29	27	2.8	27	27	28
14	28	2.7 VH	2.7	29	F	F	(3.1) F	3.2	33	30	30	31	30	3.0	29	C	31	31	3.1	30	30	2.8	(2.9) JS	28 SF
15	2.8 F	(27) JS	3.0 F	27	S	(25) SF	30 F	30 F	3.1 F	3.0	31	29	31	3.0	30	30	30	30	30 S	2.9	2.9	2.8	2.7	27
16	2.7 F	(26) JF	(27) JF	2.6	K(27) JF	B K	30 K	G K	G K	22 K	26 K	K(26) JH	27 K	2.9 HK	29 K	30 K	28 K	29 K	28 K	27 K	27 K	28 FK	K(27) JF	27 FK
17	K 2.7 FH	K(27) FH	K(25) FH	26 K	(27) FK	(27) FJ	31	34	31	32	30 H	30	3.0	3.0	30	31	32	30	30	30	28	30	29 F	27
18	2.7	27 F	2.6	2.8	28	2.7 S	3.1 F	31	31	31	31	(3.1) JH	31	30	29	30	30	30	30	31	29	2.9	28	27
19	28 F	28 SF	30	29 F	28 F	2.8 S	3.0	31	3.2	30 H	30	2.4 K	27 K	2.7 HK	29 K	2.8 FK	28 FK	30 FK	30 FK	2.9 K	30 FK	27 K	(27) FK	(26) FK
20	F BK	F BK	F BK	F BK	F BK	F BK	B K	(3.3) BK	G K	G K	G K	G K	G K	G K	G K	24 K	28 K	27 K	30 K	29 SK	2.6 K	B K	B K	B K
21	(2.6) BK	B K	B K	B K	B K	K(2.7) BS	(3.0) BK	3.2 K	G K	G K	G K	G K	G K	G K	G K	23 K	26 K	27 K	30 K	K(28) JS	2.9 K	26 K	K 26 SF	27 FK
22	(26) HK	K(26) JF	K(26) JF	2.8 FK	28 FK	(26) FK	K(28) SF	31	3.2	27	28 S	29	30	3.0	31	30	30	29	3.1 K	31 K	30 K	30 SK	27 K	26 K
23	2.7 K	2.7 K	F K	(26) FK	(28) FK	(28) FK	3.1 K	30 K	3.0 K	30 K	28 K	30 K	3.0 K	30 K	31 K	30 K	31 K	32 SK	32 SK	(30) SK	(3.0) SK	28 K	K(27) FS	K(27) JF
24	K(26) JF	K(25) JF	27 K	K(26) FS	F K	F SK	30 K	31 K	2.7 K	26 K	25 K	27 K	29 K	3.0 K	29 K	31 K	31 SK	32 SK	32 K	(32) SK	(31) SK	(3.0) SK	(28) SK	(27) SK
25	27 SK	27 SK	27 SK	2.9 K	F SK	F SK	K 32 FS	3.2 K	27 K	G K	G K	G K	(23) FK	K(23) JH	27 K	28 K	27 K	(27) FK	B FK	B K	N BK	B K	B K	B K
26	B SK	K(25) SF	K(25) FS	K(26) BF	B K	B K	K(28) FB	30 K	3.1 FK	31 K	3.1 K	31 K	3.0 K	30 FK	31 FK	30 K	31 K	31 K	32 SK	33 SK	K(30) JS	K 27 FS	25 SK	K(24) JS
27	B K	(27) BK	(28) BK	B K	B K	B K	30 K	31 K	31 K	28 K	29 K	2.9 K	29 K	27 K	27 HK	27 K	30 K	31 K	K 30 FS	3.1 K	K 30 SF	28 K	(28) SK	30 SK
28	2.9 K	3.0 K	30 K	S K	E K	E K	3.2	35	33	33	3.1	3.2 H	34	31	(2.9) H	(30) JS	31	33	31	32	3.0 S	2.8	(29) S	29 S
29	29	30 F	30	30 F	(29) FS	2.9	3.0	34	3.5	35	32	31	3.0	30	31	3.2	32	33	34	30 S	30	2.9	30	2.9
30	(28) JS	29	3.0	29	29	31	3.3	34	35	33	34	32	31	31	3.2	3.1	32	3.3	3.4	33	32	30	2.9	(3.0) JS
31																								
Median	2.8	2.7	2.8	28	(28)	2.8	31	3.2	3.1	3.0	30	3.0	30	30	2.9	30	30	30	3.0	30	30	2.9	28	28
Count	26	27	26	26	21	21	29	30	30	30	30	30	30	29	29	28	29	29	28	29	29	28	28	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min.

Manual ☐ Automatic ☒

TABLE 83

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

Form adopted June 1946

(M 3000)F1, ______ (Unit), September, 1951 (Month)

(Characteristic)

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by Mc C.

Calculated by Mc C.

34

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	38	38	37	36	36	35	35	B	L						
2							L	A	36	36	37	37	36	36	37	S	S	L						
3								L	B	37	36^{H}	B	B	B	B	35	L	L						
4								L	$(36)^{P}$	39^{H}	36	35^{H}	37^{H}	37	35	36^{H}	35	L	L					
5								L	35	40^{H}	37^{H}	37	37	37	N	35	34	31	L					
6								35	34	36	36^{H}	36	35	C	C	C	C	C	C					
7								L	L	37^{P}	37	37^{H}	35	$(39)^{H}$	$(37)^{H}$	$(36)^{P}$	$(35)^{P}$	L						
8								L	L	39^{P}	37	35	35	35	B	35	L	Q						
9								L	L	40	B	35	B	B	35	B	36	L						
10								Q	L	38	38	35	35	35	L	36	L	L						
11								L	L	L	37	35^{H}	35	34	33	34	$(34)^{L}$	$(34)^{K}$						
12								L^{K}	35^{K}	36^{K}	36^{H}_{K}	37^{H}_{K}	35^{K}	35^{K}	35^{K}	34^{K}	34^{K}	35^{K}						
13								L	L	36^{H}	37^{H}	36	35	34	34	35	35	L						
14								L	36	L	38	37	35	35	36	C	L	L						
15								35^{L}	35	36	37^{H}	37	35	36	36	L	L	–						
16								33^{K}	34^{K}	$(35)^{H}_{K}$	34^{H}_{K}	37^{H}_{K}	$(35)^{H}_{K}$	35^{K}	33^{K}	34^{K}	35^{K}	L^{K}						
17								Q	L	38	40	N	37	36	36	L	L	L						
18								L	L	L	$(40)^{L}$	L	37	36	L	L	L	Q						
19								L	L	L	L	L^{K}	L^{K}	$(33)^{L}_{K}$	35^{K}	44^{K}	L^{K}	L^{K}						
20								B^{K}	35^{K}	38^{K}	40^{K}	41^{K}	38^{K}	36^{K}	36^{K}	35^{K}	34^{K}	$(34)^{L}_{K}$						
21								Q^{K}	35^{H}_{K}	37^{K}	$(40)^{J}_{K}$	39^{K}	40^{H}_{K}	36^{H}_{K}	36^{K}	35^{K}	35^{K}	$(33)^{L}_{K}$	L^{K}					
22								Q	$(37)^{L}$	$(38)^{H}$	34^{H}	36	35	36	L	L	L	L						
23								L^{K}	L^{K}	35^{K}	36^{K}	37^{K}	36^{K}	36^{K}	35^{H}_{K}	$(36)^{P}_{K}$	L^{K}	Q^{K}						
24								L^{K}	35^{K}	35^{K}	36^{K}	40^{K}	37^{K}	35^{K}	35^{K}	35^{K}	L^{K}	L^{K}						
25								L^{K}	47^{K}	38^{K}	39^{K}	39^{K}	38^{K}	34^{K}	34^{K}	32^{K}	32^{K}	32^{K}						
26								L^{K}	38^{P}_{K}	L^{K}	40^{K}	38^{K}	37^{K}	37^{H}_{K}	35^{H}_{K}	35^{K}	L^{K}	L^{K}						
27								Q^{K}	36^{K}	38^{K}	38^{K}	37^{H}_{K}	39^{K}	36^{H}_{K}	37^{H}_{K}	34^{K}	L^{K}	L^{K}						
28								L	L	38	37^{H}	$(40)^{H}$	38	36	L	$(35)^{L}$	40	Q						
29								Q	L	40	L	$(36)^{H}$	37	37	39^{P}	L	L	Q						
30								Q	Q	L	39	39	L	$(38)^{H}$	L	L	L	Q						
31																								
Median							–	—	35	38	37	37	36	36	35	35	34	34	–					
Count								3	15	24	27	26	26	27	21	20	12	6						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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U. S. GOVERNMENT PRINTING OFFICE 1946 70231

TABLE 84

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

Form adopted June 1946

IONOSPHERIC DATA

(M 1500)E (Characteristic), ____ (Unit), September (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C.

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	A	4.3	A	4.3	4.1	4.2	4.3	4.2	4.2	B	4.3	A					
2							4.1	A	4.0	4.1^{H}	4.2	B	B	B	B	B	$(4.1)^{B}$	4.1	4.4					
3							A	A	B	4.6	4.1^{P}	B	B	B	B	B	$(4.1)^{P}$	4.0^{P}	4.1					
4							A	$(4.4)^{B}$	4.6	4.5	B	4.3	$(4.3)^{P}$	4.3	4.3	4.2	4.1	4.0	3.9					
5							S	4.3	A	$(4.6)^{P}$	$(4.4)^{B}$	4.4	4.3	4.1	4.3	4.1	4.0	4.1	3.9					
6								A	4.2^{P}	B	4.3	4.0	4.2^{P}	C	C	C	C	C	C					
7								4.6	4.3	$(4.2)^{P}$	4.4^{P}	4.3^{H}	4.3	4.4^{P}	4.3	4.3	4.2	4.0						
8							4.1^{H}	3.9^{A}	4.3	4.2	4.1	4.4	B	$(4.2)^{P}$	B	B	B	B						
9								4.0^{P}	4.2	4.2	B	B	B	B	4.2	B	4.2	4.0	4.0					
10								4.1	B	B	B	$(4.3)^{P}$	4.2^{P}	4.3	4.1	4.1	4.2	4.1	A					
11							4.0	A	4.0	4.1	4.1	4.0^{P}	4.1	4.2	4.3	4.4	4.3	4.0^{K}	3.6^{K}					
12								4.1^{K}	4.3^{K}	4.3^{K}	$(4.5)^{P}_{K}$	B^{K}	$(4.3)^{B}_{K}$	4.1^{K}	4.2^{K}	4.1^{K}	4.1^{P}_{K}	4.2^{H}_{K}	4.0^{K}					
13								$(4.1)^{P}$	4.1	4.1	4.2	4.1	4.0	4.1	4.3	4.2	4.1	4.0	4.0					
14							4.0	3.1	4.0	B	4.1	4.1	4.2^{P}	4.2^{P}	4.2	C	4.3	4.2	4.3					
15								3.8	3.8	3.8	4.0	3.9	4.0	4.1	4.2	4.0	4.1	4.0	S					
16								4.1^{K}	4.0^{K}	4.0^{K}	4.1^{K}	4.2^{K}	4.1^{K}	4.1^{K}	4.1^{K}	4.2^{K}	4.2^{K}	4.1^{K}						
17								4.0	4.1	4.3	4.2	4.2	4.3	4.2	4.1	4.2	4.2	4.3						
18								4.0	4.1^{H}	4.2	4.2	4.1	B	4.2	4.1	4.0	4.1	4.2						
19								4.0	3.9^{H}	4.1	4.2	4.0^{K}	4.1^{K}	$(4.4)^{B}_{K}$	4.2^{K}	4.5^{K}	4.5^{K}	4.5^{K}						
20								B^{K}	4.2^{K}	4.3^{K}	4.5^{K}	4.2^{K}	4.1^{K}	4.2^{K}	4.3^{K}	4.3^{K}	4.1^{K}	4.0^{K}						
21								B^{K}	B^{K}	4.2^{K}	4.1^{K}	4.2^{K}	4.4^{K}	4.2^{K}	4.2^{K}	4.0^{K}	4.2^{K}	3.9^{K}	4.0^{K}					
22								4.1	4.1	4.2	4.3	4.2	4.3	4.4^{P}	4.3	B	4.2	B	B^{K}					
23								4.6^{K}	4.5^{K}	4.5^{K}	4.3^{K}	$(4.5)^{P}_{K}$	$(4.4)^{P}_{K}$	B^{K}	4.1^{K}	4.2^{K}	B^{K}	B^{K}						
24								4.2^{K}	4.1^{K}	4.2^{K}	4.4^{K}	$(4.2)^{P}_{K}$	B^{K}	$(4.4)^{B}_{K}$	B^{K}	4.4^{K}	4.1^{K}	B^{K}						
25							B^{K}	4.2^{K}	4.2^{K}	4.5^{K}	4.3^{K}	4.3^{K}	4.2^{K}	$(4.2)^{P}_{K}$	B^{K}	B^{K}	4.0^{K}	4.[illegible] $^{P}_{K}$						
26									4.4^{K}	4.3^{K}	4.4^{P}_{K}	4.5^{K}	B^{K}	4.2^{K}	A^{K}	4.3^{K}	4.0^{K}	4.3^{K}						
27								4.0^{H}_{K}	4.2^{K}	B^{K}	B^{K}	B^{K}	$(4.4)^{P}_{K}$	4.1^{K}	4.2^{K}	4.2^{K}	4.1^{K}	4.2^{K}						
28								4.1^{P}	4.3	4.2	4.2	4.1	4.1	4.0	4.2	4.0	4.2	4.4						
29								4.0	4.4	4.4	4.3^{P}	4.3	B	4.3	4.3	4.4	4.4	B						
30								4.5	4.3	4.3	B	4.3	4.2	4.3	4.5	4.4^{P}	4.4^{P}	4.4						
31																								
Median							—	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.1	4.0					
Count							4	22	26	25	25	25	22	25	23	22	26	24	10					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 85

Ionospheric Storminess at Washington, D. C.

September 1951

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	2			2	2
2	1	2			2	2
3	1	0			3	2
4	1	2			2	2
5	1	2			3	3
6	1	3			3	3
7	1	2			2	2
8	2	3			2	2
9	2	3			2	3
10	2	1			5	2
11	1	3	2200	----	3	4
12	4	4	----	----	4	4
13	4	1	----	1000	4	5
14	2	1			4	3
15	1	1			5	4
16	3	5	0900	----	5	5
17	4	2	----	1000	5	4
18	1	3			4	3
19	1	4	1600	----	3	5
20	4	7	----	----	6	5
21	5	7	----	----	5	4
22	5	2	----	1200	6	5
			2300	----		
23	4	4	----	----	5	4
24	4	5	----	----	5	4
25	4	6	----	----	4	6
26	6	5	----	----	5	2
27	6	6	----	----	5	3
28	4	3	----	1100	3	2
29	1	1			3	3
30	2	2			3	1

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

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

----Dashes indicate continuing storm.

Table 86

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
August 1951

Day	North Atlantic quality figure, Half day GCT (1)	(2)	CRPL* Warning, Half day GCT (1)	(2)	CRPL** Forecasts (J_reports)	North*** Pacific quality figure, Half day GCT (1)	(2)	Geomagnetic K_{Ch}, Half day GCT (1)	(2)
1	(4)	5	W	U	X	5	6	3	(4)
2	(3)	5	W	U		6	8	(4)	3
3	5	5	(U)			6	8	2	2
4	7	6				6	8	2	(4)
5	6	6				6	7	2	3
6	7	6				6	7	2	3
7	7	6				6	7	3	3
8	7	7				7	8	2	2
9	7	6				6	8	2	3
10	6	7				8	7	2	3
11	7	6				8	8	(4)	(4)
12	5	5	U	U		7	5	(4)	3
13	5	(4)				6	7	(4)	(4)
14	6	6				6	7	1	3
15	6	6		(W)		6	5	3	(4)
16	5	5	W	W		(4)	7	(4)	3
17	5	6	W			6	7	3	3
18	6	6			X	7	7	3	1
19	7	6			X	6	7	2	3
20	(4)	(3)	W	W		5	8	(5)	3
21	(2)	(3)	W	W		5	(4)	(5)	(4)
22	(1)	(3)	W	W	X	5	6	(5)	3
23	(4)	5	W	U	X	5	6	3	3
24	(3)	(4)	W	W	X	6	7	(4)	3
25	(3)	(4)	W	W		6	7	(5)	3
26	(4)	5	W	W		5	6	(5)	(4)
27	(4)	5	W	W	X	6	5	(4)	3
28	(4)	5	U	U	X	5	5	3	3
29	5	5	(U)			6	5	(4)	3
30	6	6				6	5	2	3
31	6	5				5	5	3	3

Score:	Warning N.A.	Warning N.P.	Forecast N.A.	Forecast N.P.
H	24	5	8	0
(M)	0	0	0	0
M	1	0	9	2
G	31	32	37	44
O	6	25	8	16

*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 eight days in advance of said dates: August 25, 26 and 29.

***Low weight.

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 87a

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
1951																																					
Sep. 1.6	-	-	-	-	-	-	-	-	3	3	5	5	5	8	12	13	12	12	12	15	20	25	28	15	12	5	3	3	2	2	3	3	3	3	-	-	-
2.6	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	8	10	10	12	15	22	20	22	12	12	8	5	3	2	2	3	3	3	3	-	-	-
3.6	-	-	-	-	-	-	-	-	-	3	5	5	5	8	8	8	10	8	12	15	20	20	15	12	12	12	8	5	3	2	2	3	3	3	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	8	8	8	8	10	10	8	5	3	3	3	3	-	-	-	-	-	-	3	3	3	3
5.6	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	5	8	8	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.9a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	3	12	8	5	5	5	5	5	3	3	3	-	-	-	-	-	-	-	-	X	X	X
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	3	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	5	5	5	5	10	12	13	5	3	3	3	3	3	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	12	12	10	12	12	14	10	5	3	2	2	3	3	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	[illegible]	5	3	5	8	8	10	8	3	-	-	-	-	-	-	-	-	-	-	-
12.7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	[illegible]	12	12	10	10	8	5	10	8	3	2	3	3	3	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	3	5	5	8	5	5	3	3	3	5	5	3	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	8	8	10	8	8	10	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12	15	5	3	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	3	3	3	3	3	5	5	3	3	3	3	12	15	20	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	5	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	3	3	3	3	3	3	3	3	3	5	5	8	10	15	12	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	X	X	X
24.7	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	5	5	5	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
25.6	-	-	-	-	-	-	-	-	3	3	5	5	8	8	8	12	10	12	10	10	12	8	5	3	3	3	-	-	-	-	-	3	3	3	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	8	5	8	5	8	10	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	3	3	3	3	5	5	8	8	10	10	13	12	12	12	10	8	10	5	3	2	2	2	3	3	3	3	-	-	-
30.6	-	-	-	-	-	-	-	-	-	3	5	8	10	10	10	10	8	8	10	12	15	12	8	5	5	3	3	3	2	2	2	3	3	3	3	-	-

Table 88a

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
1951																																					
Sep. 1.6	3	3	3	3	3	3	3	3	3	3	3	2	-	-	-	-	-	3	3	3	3	15	10	5	2	3	3	3	3	3	2	2	2	2	2	3	3
2.6	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	2	12	5	15	3	3	2	2	-	-	-	2	2	2	2	2	2	2	2
3.6	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	5	15	10	10	15	5	3	3	2	2	2	2	2	2	2	2	2	2	2
4.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	2	10	13	12	13	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.6	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	10	8	3	2	2	3	2	2	2	2	-	-	-	-	-	-	-	-	-
7.9a	-	-	-	-	-	-	-	2	2	2	-	-	-	-	2	2	3	5	12	3	5	10	8	3	-	-	-	-	-	-	-	-	-	-	X	X	X
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	3	3	3	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	5	3	3	3	8	5	10	14	8	-	-	-	-	3	3	2	-	-	-	-	-
10.7	2	2	2	2	2	2	2	2	2	3	3	8	5	5	10	8	12	10	12	8	10	10	12	15	8	2	2	2	3	5	5	3	3	3	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	5	5	3	3	3	2	10	3	8	2	2	2	2	2	2	2	-	-	-	-	-
12.7	2	2	2	2	2	2	2	2	2	2	3	3	3	5	2	3	5	10	10	8	5	4	15	8	10	12	8	5	5	5	5	5	3	3	3	3	2
13.6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	3	3	3	5	4	4	3	2	2	2	2	2	2	2	2	2
14.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	4	3	3	2	3	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	12	15	3	2	2	2	3	3	2	2	2	2	2	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	12	15	25	15	3	2	2	2	3	3	2	3	2	2	2	2	2	2	2	2	2
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	8	10	8	3	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-
18.6	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	2	8	5	3	3	2	2	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	5	5	3	3	2	2	3	3	3	2	2	2
20.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	X	X	X
24.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	5	5	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-
25.6	2	2	2	2	2	2	-	-	-	-	-	-	-	2	3	3	3	3	2	8	15	8	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2
26.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	8	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-
28.7	2	2	2	2	2	2	2	2	-	2	2	3	3	3	2	2	2	8	10	12	3	5	3	4	2	2	3	5	3	2	2	3	3	3	-	-	-
30.6	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3	10	15	8	8	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Table 87b

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

Date	Degrees south of the solar equator																	0°	Degrees north 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
1951																																					
Sep. 1.6	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	3	5	8	8	10	8	3	3	2	2	2	3	3	2	2	2	–	–	–	–	–
2.6	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	8	10	10	12	13	13	8	4	3	4	3	3	3	3	3	3	3	–	–	–	–
3.6	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	5	5	8	8	12	13	12	8	3	3	3	3	3	3	5	3	3	–	–	–	–	–
4.7	3	3	3	3	3	3	3	3	3	3	5	5	5	3	3	3	5	5	5	5	5	5	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5.6	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	5	5	5	5	3	–	–	–	–	–	–	–	–	–	–	–	–	–
7.9	X	X	X	X	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	3	X	X	X	X	X	X	–	–	–	–	–	–
8.7	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	5	8	8	5	5	3	3	3	3	3	–	–	–	–	–	–	–	–	–
9.6	–	3	3	3	3	3	3	3	3	3	3	3	3	5	5	3	3	5	10	12	15	13	12	12	8	5	5	3	3	3	3	5	5	5	3	3	3
10.7	–	–	–	–	3	3	3	3	3	3	3	3	3	3	3	5	5	8	8	10	12	12	8	8	5	5	5	5	3	2	2	3	3	3	3	3	–
11.7	–	–	–	–	–	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	–	–	–	–	–	–	–
12.7	–	–	–	–	–	–	–	–	–	–	–	–	3	3	5	12	12	10	10	12	15	8	5	5	2	3	8	5	5	5	3	5	5	8	3	3	3
13.6	–	–	–	–	–	–	–	3	3	3	3	3	3	3	5	10	12	12	12	12	15	12	5	3	3	3	3	5	3	3	3	3	–	–	–	–	–
14.6	–	–	–	–	–	–	–	3	3	3	3	3	3	3	3	8	10	8	5	5	3	5	5	3	3	3	3	3	3	3	3	–	–	–	–	–	–
15.7	–	–	–	–	–	–	3	3	3	3	5	5	5	5	8	10	12	10	8	5	5	5	5	5	5	5	3	3	–	–	–	–	–	–	–	–	–
16.6	–	–	–	–	–	–	–	–	3	3	3	3	3	3	5	5	8	10	5	5	3	3	5	5	3	3	3	3	–	–	–	–	–	–	–	–	–
17.7	–	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	8	8	8	5	5	5	5	5	8	8	3	3	–	–	–	–	–	–	–	–	–
18.6	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	5	5	3	5	5	5	3	3	5	3	–	–	–	–	–	–	–	–	–
19.6	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	8	8	8	10	8	5	5	5	3	3	3	3	3	–	–	–	–	–	–
20.6	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	8	5	8	5	5	5	3	3	3	3	–	–	–	–	–	–	–	–	–
22.7	–	–	–	–	–	3	3	3	3	3	3	3	5	8	10	12	12	10	12	15	15	12	10	8	5	3	3	3	3	3	–	–	–	–	–	–	–
23.9	X	X	–	–	–	–	–	–	–	3	3	3	3	3	8	5	8	8	3	2	3	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–
24.7	–	–	–	–	–	–	–	–	–	–	–	3	3	5	5	5	10	5	5	5	5	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–
25.6	–	–	–	–	–	–	–	–	3	3	3	3	5	5	8	8	12	15	15	12	10	12	10	5	5	3	3	3	3	3	–	–	–	–	–	–	–
26.7	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	5	5	5	8	5	5	5	3	–	–	–	–	–	–	–	–	–	–	–	–
28.7	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	5	5	10	12	13	12	13	8	5	5	5	5	3	–	–	–	–	–	–	–	–
*30.6a	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	5	8	14	12	20	22	28	28	12	8	8	12	8	5	3	3	3	–	–	–	–	–

*Note: Yellow line (5694A): September 30.6, suggestion of yellow line at N15 west limb, intensity 2.

Table 88b

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

Date	Degrees south of the solar equator																	0°	Degrees north 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
1951																																					
Sep. 1.6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	12	10	10	15	5	12	3	2	3	8	5	3	3	3	3	3	3	3	3	3	3
2.6	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	3	3	8	3	3	15	2	8	–	–	–	–	–	–	–	–	–	–	–	–	–	2
3.6	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	3	10	5	5	3	20	3	3	2	2	2	2	3	3	2	2	3	3	3	2	2	2
4.7	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
5.6	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7.9	X	X	X	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	X	X	X	X	X	–	–	–	–	–	–
8.7	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9.6	–	–	–	–	–	–	–	–	–	2	2	2	–	–	–	–	–	–	2	3	3	3	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
10.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	5	5	3	3	2	–	–	–	–	–	–	–	–	–	–	–	–	–	2
11.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3	2	2	3	3	3	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–
12.7	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	10	8	2	3	15	3	2	2	2	2	–	–	–	–	–	–	–	–	–	2	2
13.6	2	2	2	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	3	2	3	10	3	2	2	2	2	2	–	–	–	–	–	2	2	2	2
14.6	2	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15.7	–	–	–	–	–	–	–	–	–	–	–	–	2	2	3	5	3	3	3	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
16.6	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17.7	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	3	5	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
19.6	2	2	2	2	2	2	2	2	3	3	3	3	2	3	3	5	3	8	5	10	3	2	2	2	–	–	–	–	–	2	2	2	3	2	–	–	–
20.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–
22.7	–	–	–	–	–	–	–	–	–	–	–	–	–	2	15	10	5	2	2	12	17	12	8	3	–	–	–	–	–	–	–	–	–	–	–	–	–
23.9	X	X	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	3	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–
24.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	3	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25.6	2	2	2	2	2	2	2	2	3	3	2	2	3	5	3	2	12	3	2	2	8	15	3	2	3	3	3	2	2	2	2	3	2	2	2	2	2
26.7	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
28.7	–	–	–	–	–	–	–	2	2	2	3	3	3	3	3	3	2	2	5	15	8	8	12	10	5	3	3	3	–	–	–	–	2	2	2	2	2
30.6a	2	2	2	2	3	2	2	2	3	3	3	4	4	4	4	5	3	3	3	14	15	14	8	10	5	3	2	2	2	3	3	3	2	2	2	2	2

Table 89a

Coronal observations at Climax, Colorado (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
1951																																					
Sep 1.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	5	5	3	3	3	2	2	2	2	-	-	-	-	-	-	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	5	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.9a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	X	X	X
8.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	4	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
20.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
24.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-
25.6	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-

Table 90a

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
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12	12	15	20	15	8	5	3	-	-	-	-	-	X	X	X	X	X	X
4.8	3	-	-	-	-	-	-	-	3	3	3	5	8	3	3	3	3	3	8	12	35	35	38	25	15	10	5	5	5	5	8	8	5	5	3	-	-
5.6	3	-	-	-	-	-	-	3	3	3	5	8	8	12	13	12	12	8	8	8	12	35	35	38	20	15	8	5	5	5	8	5	5	5	3	3	-
6.7	-	-	-	-	-	-	-	-	3	3	5	8	10	12	15	15	14	12	5	12	15	20	18	22	22	14	8	5	3	3	3	3	3	3	3	-	-
9.9	-	-	-	-	-	-	-	-	-	-	3	3	8	10	13	15	12	8	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	5	5	5	8	10	12	10	5	5	5	8	8	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	3	8	10	12	12	12	10	10	8	12	15	14	13	12	8	5	3	3	3	3	-	-	-	-	-	-	-
13.7	3	-	-	-	-	-	-	-	-	-	3	3	3	3	5	8	8	10	10	13	15	25	28	28	14	8	5	3	3	3	-	-	-	-	-	-	-
14.7	5	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	10	15	12	12	14	18	28	20	17	10	5	3	3	3	3	-	-	-	-	-	-
15.7	3	3	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17.6	3	3	3	-	-	-	-	-	-	-	-	-	-	3	5	5	8	8	8	12	15	13	10	8	3	3	-	-	-	-	-	-	-	-	-	-	-
18.7	3	3	3	3	3	3	-	-	3	3	3	3	3	5	8	10	14	15	12	14	15	15	12	8	5	3	3	-	-	-	-	-	-	-	-	-	-
19.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12	15	15	12	12	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
20.7	3	3	3	3	3	3	3	5	5	5	5	5	5	8	8	8	12	20	28	15	13	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
21.6	3	3	3	3	3	5	8	12	10	10	5	8	8	12	12	12	12	15	14	10	15	18	10	8	5	3	3	3	-	-	-	-	-	-	-	-	-
22.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
24.6	3	5	5	8	8	10	12	13	12	5	5	10	10	10	12	15	25	28	31	28	12	10	10	8	5	5	3	3	3	-	-	-	-	-	-	-	-
29.6	-	-	-	-	5	8	12	8	5	5	8	12	15	15	15	38	38	35	41	28	25	17	28	25	15	8	5	5	3	3	5	3	3	-	-	-	-
30.9	-	-	-	-	-	3	3	3	10	8	8	12	13	13	15	33	38	41	38	33	33	33	35	38	28	8	5	5	5	5	5	5	5	3	-	-	-
31.7	-	-	-	-	3	3	5	3	3	3	10	12	12	12	12	18	25	28	31	22	31	33	31	33	33	10	5	5	3	3	3	5	5	3	3	-	-

Table 89b

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
1951																																					
Sep. 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
7.9	X	X	X	X	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	X	X	X	X	X	X	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	5	3	3	2	2	3	3	3	3	3	3	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	5	3	3	3	2	2	2	2	2	2	2	-	-	-	-	-
14.6	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-
20.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
23.9	X	X	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-
30.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	5	5	5	3	2	2	2	2	2	2	2	2	-	-	-	-	-

Table 90b

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
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	-	-	-	-	3	5	8	12	12	12	8	8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	10	12	15	28	31	15	15	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	8	12	15	25	28	18	15	12	8	5	5	3	3	3	3	3	3	3	3	3	3	3
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	12	12	15	15	20	22	12	8	5	3	3	3	3	5	5	5	5	3	3	3	-
9.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	10	12	13	15	15	8	3	3	3	5	8	10	10	8	5	3	3	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	10	12	15	17	17	12	12	8	5	5	5	12	12	15	15	12	8	5	-
11.7	-	-	-	-	3	3	3	3	3	3	3	3	3	5	5	8	8	8	10	20	41	38	35	27	20	15	12	8	5	5	12	15	17	15	10	3	-
13.7	-	-	-	3	3	3	3	3	3	3	3	5	8	10	12	12	12	5	5	20	43	40	33	35	35	25	15	12	5	5	8	12	13	14	13	8	3
14.7	-	-	-	3	3	3	5	5	3	3	3	3	5	8	10	12	12	14	12	12	25	38	40	35	28	30	22	15	12	5	5	12	13	15	12	10	5
15.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5	5	5	8	8	10	5	5	3
17.6	-	-	-	-	3	3	3	3	3	3	3	5	10	13	20	31	33	31	25	14	14	31	28	20	10	10	12	5	8	8	5	5	5	8	8	5	3
18.7	-	-	-	3	3	3	5	5	3	3	3	3	5	8	12	25	28	20	12	10	8	X	X	X	X	X	X	X	5	5	5	5	8	8	8	5	3
19.9.	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	14	20	20	12	8	10	12	12	14	12	10	5	5	3	3	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	12	20	28	12	8	8	8	10	10	10	10	8	8	5	3	3	3	3	3	3	3	3
21.6	-	-	-	-	-	-	-	-	-	3	3	5	5	3	3	3	5	5	5	3	5	8	12	13	8	5	5	3	5	5	3	3	3	3	3	3	3
22.7	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	8	5	5	5	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24.6	-	-	-	-	-	-	3	3	3	3	5	8	10	12	17	15	22	15	5	5	12	8	10	12	15	15	12	3	-	-	-	-	-	-	-	3	3
29.6	-	-	-	-	-	-	-	-	3	3	3	3	5	8	12	15	20	22	20	15	15	12	5	3	5	5	3	3	3	-	-	-	-	-	-	-	-
30.9	-	-	-	-	-	-	-	-	-	-	3	5	5	5	8	10	12	15	20	35	15	12	10	8	5	5	3	3	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	10	13	15	20	15	15	12	8	5	3	3	3	3	3	-	-	-	-	-	-	-

Table 91a

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
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	5	10	12	10	3	3	3	3	3	3	3	3	X	X	X	X	X	X
4.8	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	8	12	15	8	14	3	3	3	2	2	2	2	2	2	2	2	2	2
5.6	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	2	8	15	12	12	5	3	2	2	3	3	2	2	2	2	2	2	2
6.7	2	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	2	3	12	8	10	3	5	2	2	3	3	3	3	4	3	3	3	3
9.9	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
10.7	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
11.7	2	3	3	3	2	2	2	2	2	2	2	3	2	3	2	2	3	8	5	5	3	3	3	3	3	3	3	3	3	5	3	3	3	2	2	2	3
13.7	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	5	10	3	3	2	10	15	10	15	8	3	2	3	3	3	5	3	3	3	3	3	2
14.7	2	2	2	2	2	2	2	2	2	2	2	2	3	5	5	3	5	8	3	4	5	8	20	22	15	5	3	3	3	5	3	3	3	2	2	2	2
15.7	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	X	X	X	X	X	X	X	X	X	X	X
17.6	2	2	2	2	2	2	2	2	2	2	2	3	5	8	8	8	8	5	2	8	15	12	5	5	8	10	8	8	5	3	3	3	3	3	3	3	3
18.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	10	10	8	8	3	5	5	5	2	3	3	3	2	2	2	2	2	2	2	2	2
20.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	10	5	12	3	12	3	2	2	3	3	3	3	2	2	2	2	2	2	2	2
21.6	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	2	3	5	5	2	2	3	12	5	3	5	5	3	3	2	2	2	2	2	2	2	2
22.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8	5	3	3	3	2	2	2	2	2	2
24.6	2	3	3	3	2	2	2	2	2	2	-	-	-	3	3	3	8	5	8	3	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	3
29.6	2	2	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3	8	12	13	12	5	5	5	3	3	8	8	5	5	3	5	3	3	3	3	3
30.9	2	3	3	3	3	3	3	3	2	2	2	2	2	3	3	2	3	12	15	12	8	5	3	5	3	3	3	10	12	5	3	3	3	2	2	2	2
31.7	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3	2	5	3	5	2	5	4	5	2	2	2	3	5	3	2	3	2	2	2	3	3

Table 92a

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
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	3	2	2	2	2	2	2	X	X	X	X	X	X
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	8	8	5	5	3	2	2	2	2	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	5	5	5	3	3	2	2	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	5	3	2	2	2	-	-	-	-	-	-	-	-	-
9.9	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	X	X	X	X	X	X	2	2	2	2	2	2	2	X	X	X	X	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
18.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
30.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-

Table 92a

Coronal observations at Sacramento Peak, New Mexico (5374A), west limb

Date	Degrees south of the solar equator																			Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	8	10	15	15	3	3	X	X	X	X	X	X	X	X	X	X	[illegible]	[illegible]	[illegible]	X	[illegible]
4.8	2	2	2	2	2	2	2	2	2	2	2	5	8	5	8	5	10	12	12	15	10	8	5	5	8	8	5	3	2	2	2	2	[illegible]	[illegible]	2	[illegible]	2
5.6	2	2	2	3	3	2	2	2	2	3	3	3	5	8	8	8	8	8	3	5	14	12	8	12	8	8	5	5	3	2	2	2	2	[illegible]	2	[illegible]	2
6.7	3	3	3	2	2	2	2	2	2	3	3	3	3	3	2	3	[illegible]	3	[illegible]	3	4	3	3	2	3	3	5	3	3	3	2	2	2	2	[illegible]	2	2
9.9a	–	–	2	2	2	–	–	–	–	–	–	–	2	2	2	2	[illegible]	2	2	2	3	3	3	2	–	–	–	–	–	–	–	–	–	2	[illegible]	2	2
10.7	3	3	2	2	2	2	2	2	2	3	3	5	5	5	5	3	[illegible]	5	3	4	4	10	12	12	–	–	–	–	–	–	–	–	2	2	[illegible]	2	2
11.7	3	3	3	3	3	2	2	2	2	2	2	3	3	3	2	[illegible]	[illegible]	[illegible]	[illegible]	8	15	5	8	12	–	–	–	–	–	–	–	–	–	2	[illegible]	[illegible]	2
13.7	2	2	2	2	2	3	3	2	2	2	2	5	8	5	3	–	–	[illegible]	[illegible]	12	20	12	8	8	3	2	–	–	–	–	–	–	–	–	2	[illegible]	2
14.7	2	3	2	2	2	2	2	3	3	2	2	3	[illegible]	5	[illegible]	[illegible]	–	[illegible]	3	5	10	15	[illegible]	15	3	3	3	2	–	–	–	–	2	2	2	[illegible]	2
15.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[illegible]	X	X	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	–	–	–	–	–	–	2	2	2
17.6	3	3	3	2	3	3	2	2	2	2	2	2	8	5	5	[illegible]	12	[illegible]	[illegible]	10	[illegible]	15	12	[illegible]	[illegible]	[illegible]	3	[illegible]	2	2	2	2	2	2	2	2	2
18.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[illegible]	[illegible]	[illegible]	X	X	X	X	X	X	X	X	X	X
19.9	2	2	2	2	–	–	–	–	–	–	–	2	2	2	2	8	10	20	8	3	2	2	2	2	[illegible]	[illegible]	–	–	–	–	–	–	–	–	–	–	–
20.7	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	5	12	18	8	10	2	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	3	[illegible]	3	3	2	2	2	2	2
21.6	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	10	12	12	5	[illegible]	2	[illegible]	2	[illegible]	2	[illegible]	2	3	3	3	2	2	2	2	2	2
22.7	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	8	10	8	8	8	3	X	X	[illegible]	[illegible]	X	X	X	X	X	X	X	X	X	X	X	X
24.6	3	3	2	2	3	3	2	2	2	2	3	3	2	2	10	12	12	8	10	5	[illegible]	3	[illegible]	2	[illegible]	2	[illegible]	2	2	2	3	3	3	3	3	3	2
29.6	3	3	2	3	2	2	3	3	5	3	3	8	8	10	15	8	5	10	12	2	[illegible]	5	10	12	10	12	[illegible]	3	2	2	2	2	2	3	3	3	2
30.9	2	2	3	3	3	2	2	2	2	2	3	2	5	8	8	5	3	2	3	3	8	5	5	8	10	[illegible]	10	5	3	[illegible]	[illegible]	[illegible]	3	3	3	3	2
31.7	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	3	15	4	3	3	3	2	[illegible]	5	[illegible]	3	3	2	[illegible]	3	2	2	2	2	2

Table 92b

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

Date	Degrees south of the solar equator																			Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Aug. 3.0	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	2	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	3	3	3	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
5.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	3	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–
6.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
9.9a	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–
10.7	–	–	X	X	X	–	–	–	–	–	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	–	–
11.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	3	5	5	3	3	3	2	2	2	2	2	2	2	2	2	–	–
13.7	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	3	8	8	5	5	5	3	3	3	2	2	2	2	2	2	2	–	–
14.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	3	3	5	5	5	5	3	3	2	2	2	2	2	2	2	2	–
15.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	–	–	–	–	–	–	–	–
17.6	–	–	–	–	–	2	2	2	2	2	2	2	2	2	3	3	5	3	2	2	2	3	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–
18.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19.9	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–
20.7	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
21.6	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
22.7	–	–	–	–	–	–	–	–	–	–	–	–	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
24.6	–	–	–	–	–	–	–	–	–	–	2	2	2	2	3	3	3	3	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
29.6	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
31.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 93a

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
1951																																					
Sep. 1.6	-	-	-	-	-	3	3	3	3	3	8	12	10	12	12	15	17	15	17	18	25	35	38	35	33	15	10	8	3	2	3	3	5	3	-	-	-
2.7	-	-	-	-	-	-	-	-	3	8	12	10	10	12	12	15	15	20	31	41	38	43	41	28	25	15	10	8	3	3	3	8	5	3	3	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	3	5	8	10	10	12	13	12	12	15	20	13	12	8	8	10	8	5	3	3	3	3	3	3	3	-	-
5.7	-	-	-	-	-	-	-	-	-	5	8	8	10	15	12	12	12	15	20	25	12	12	8	5	5	5	5	5	3	3	3	3	3	3	3	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	3	8	10	12	13	15	17	15	15	12	12	10	8	5	3	3	3	3	3	3	-	-	-	-	-	-
9.8	3	-	-	-	-	-	-	-	-	-	3	3	5	8	8	8	10	12	15	20	25	31	35	38	15	10	5	5	3	3	-	-	-	-	-	-	-
10.7	3	3	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	12	15	20	23	25	15	8	3	3	3	3	-	-	-	-	-	-	-
11.9a	5	5	3	-	-	-	-	-	-	-	-	-	3	3	3	3	3	10	15	20	22	20	20	22	20	17	8	3	3	3	3	-	-	-	-	-	-
12.6	5	3	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	8	15	15	15	15	12	12	12	10	5	3	3	-	-	-	-	-	-	-	-
13.7	5	3	3	-	-	-	-	-	-	-	-	-	-	3	5	5	5	5	5	8	12	13	12	8	5	5	5	5	3	-	-	-	-	-	-	-	-
15.7	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12	15	20	22	12	8	10	8	5	3	3	3	3	-	-	-	-	-	-	-	-
17.7	3	10	10	8	8	10	10	10	8	8	8	10	12	10	10	12	15	33	35	15	10	15	8	5	3	3	3	3	3	3	-	-	-	-	-	-	-
18.7	3	3	3	3	3	5	8	10	10	8	8	10	10	8	8	10	10	12	20	10	8	8	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	3	3	3	5	8	8	8	8	8	8	8	10	8	8	8	10	10	12	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	3	3	3	3	3	3	5	5	5	8	8	8	8	10	8	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8	-	-	-	3	5	8	8	8	5	5	3	8	12	10	10	12	12	17	15	8	5	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
22.7 a	-	-	3	3	3	5	5	5	5	5	5	8	12	12	12	15	12	17	15	10	5	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-
23.8	-	-	3	5	8	8	8	8	8	5	10	12	15	15	15	17	15	17	12	10	8	5	5	5	5	5	3	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	3	5	8	8	5	5	5	8	12	15	15	18	20	15	15	15	12	14	10	8	5	5	5	3	3	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	3	5	5	3	3	8	10	12	13	12	12	15	14	17	15	17	17	15	13	10	8	5	3	3	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	3	3	5	3	5	5	8	8	8	8	10	12	13	15	14	15	15	15	12	13	12	5	3	3	3	3	3	3	3	3	-	-	-
27.7	-	-	-	3	5	8	10	10	8	5	8	12	8	8	10	12	13	15	17	25	20	20	20	15	15	10	5	3	3	3	5	8	5	5	3	-	-
28.8	-	-	-	3	5	8	8	5	5	3	5	8	5	8	10	10	12	12	12	12	12	12	12	13	12	12	8	5	5	5	3	5	3	-	-	-	-
30.9	-	-	-	-	-	-	-	-	3	5	8	10	12	12	15	13	12	12	12	20	25	20	12	12	10	10	10	8	3	3	5	8	8	5	3	3	-

Table 94a

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
1951																																					
Sep. 1.6	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	5	12	3	5	5	2	2	3	5	8	5	3	3	3	2	2	2	2
2.7	3	3	3	3	3	3	3	2	3	3	2	2	2	3	2	2	2	2	12	15	5	20	5	3	4	3	2	2	3	3	3	3	3	3	2	2	2
4.7a	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	12	15	10	3	5	3	3	3	3	3	2	2	2	2	2	2	2	2
5.7	2	3	3	2	3	3	3	2	2	2	2	2	2	2	2	2	3	2	3	15	10	8	5	3	3	2	2	2	3	3	2	2	3	3	2	2	2
6.7a	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	10	15	10	10	5	3	2	2	2	2	3	4	3	2	2	2	2	2	2
9.8	2	2	2	2	2	2	3	3	3	2	2	3	3	3	5	8	10	10	10	5	15	12	20	12	20	3	2	2	3	5	3	3	3	2	2	2	2
10.7	2	2	2	2	2	2	2	2	2	2	3	3	5	5	8	8	12	10	10	3	5	8	12	15	15	5	2	2	3	5	4	3	2	2	2	-	-
11.9a	3	2	2	2	3	3	2	3	2	2	2	3	3	8	10	5	5	8	12	5	5	3	2	15	12	15	5	2	5	3	3	3	2	2	2	2	2
12.6	3	2	2	2	2	2	2	2	2	2	3	3	3	5	5	3	3	12	8	3	8	2	3	8	5	8	5	3	3	3	3	3	3	2	2	2	2
13.7	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	3	3	3	3	2	3	3	5	3	5	3	3	3	3	2	2	2	2	2
15.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	5	15	5	3	5	3	3	2	2	5	5	3	2	2	2	2	2	2	2	2
17.7	3	3	3	3	3	3	3	2	2	2	2	2	2	2	3	8	10	15	20	15	12	5	5	8	8	10	5	3	3	3	3	3	3	3	3	3	5
18.7	5	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	2	12	8	8	5	3	3	5	5	5	5	5	5	5	3	3	2	2	2	2	3
19.7a	2	2	2	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	5	3	3	2	2	2	2	2	2	2	2
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2
21.8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2
22.7	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2
23.8	2	2	2	2	2	2	2	2	-	-	-	-	2	3	3	3	3	5	3	3	2	2	2	2	2	3	3	2	2	-	-	-	-	-	-	-	2
24.7	2	3	3	3	3	2	2	2	2	2	2	2	2	5	3	3	3	5	3	5	12	12	3	2	2	3	5	2	2	2	2	-	-	-	-	-	-
25.7	2	3	3	3	2	2	2	2	2	2	2	2	3	3	5	3	3	8	3	8	17	12	3	4	3	5	8	8	5	3	3	3	3	3	3	3	3
26.9	3	2	2	2	2	2	2	2	2	2	2	2	2	5	3	2	2	2	2	2	15	15	5	3	3	3	4	3	2	2	2	2	2	2	2	2	2
27.7	3	3	3	3	3	3	2	2	2	2	2	3	3	5	3	3	5	3	3	3	8	10	3	4	2	3	8	5	3	3	2	2	2	2	2	2	2
28.8	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	8	10	5	2	3	3	5	2	2	5	3	2	2	2	2	2	2	2	2	2
30.9	3	3	3	3	3	3	3	3	3	3	3	4	3	3	5	3	3	3	15	20	5	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3

Table 93b

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

Date	Degrees south of the solar equator																		0°	Degrees north 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
1951																																					
Sep. 1.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	12	13	18	25	28	15	10	8	5	3	3	5	3	3	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	12	15	15	20	25	33	15	12	8	8	5	3	5	5	3	2	2	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	8	10	12	10	15	20	15	13	10	8	5	5	5	8	10	8	5	5	3	3	-
5.7	-	-	-	-	-	-	-	-	3	3	3	5	5	8	8	8	8	8	10	12	13	12	15	13	10	8	5	5	8	10	10	10	10	5	3	3	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	8	15	15	15	18	15	12	10	8	5	5	5	8	10	10	10	5	3	-
9.8	-	-	-	-	3	3	3	3	3	3	5	8	8	10	12	12	10	8	10	15	28	33	33	31	25	15	15	12	8	5	8	10	12	15	15	12	3
10.7	-	-	3	3	3	3	3	5	3	3	3	3	5	8	8	8	10	8	10	15	18	20	25	13	15	12	12	12	8	5	5	8	8	10	12	5	3
11.9a	-	-	-	3	3	3	5	5	5	5	5	5	8	12	13	12	13	13	15	12	20	28	25	20	28	10	12	13	10	5	3	5	5	8	12	8	5
12.6	-	-	-	-	3	3	5	5	5	5	5	5	8	12	15	17	15	15	22	20	25	28	15	17	8	5	15	12	12	8	5	8	10	12	8	8	5
13.7	-	-	-	-	-	-	-	3	3	3	3	3	3	8	10	15	20	20	15	17	18	25	18	10	5	3	2	5	5	5	5	5	5	5	5	5	5
15.7	-	-	-	-	-	-	-	-	-	3	3	5	8	8	13	20	28	31	15	17	12	12	15	13	12	8	8	3	5	5	5	5	8	5	3	3	3
17.7	-	-	3	3	5	5	5	5	3	8	8	12	12	12	12	12	12	15	25	25	13	13	15	13	12	10	5	5	8	-	-	3	3	5	5	3	3
18.7	-	-	-	-	3	3	3	3	3	3	5	8	10	8	8	8	8	10	12	20	17	15	15	15	15	12	12	8	5	-	-	-	-	-	3	3	3
19.7	-	-	-	-	-	3	3	3	3	3	5	5	5	8	8	10	10	10	10	12	15	15	15	15	13	12	12	8	5	3	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	10	10	8	8	12	15	12	15	15	10	8	8	5	3	-	-	-	-	-	-	-	-
21.8	-	-	-	-	-	-	-	3	3	5	8	8	5	8	10	12	15	12	10	15	20	28	14	15	12	8	8	5	3	3	-	-	-	-	-	-	-
22.7a	-	-	-	-	-	-	-	3	5	5	5	8	8	10	12	15	15	12	10	18	22	18	15	12	10	8	3	3	3	-	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	-	-	3	5	5	5	10	12	12	15	18	18	12	12	13	12	8	5	5	3	3	3	3	3	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	5	5	8	8	10	10	12	15	12	10	12	8	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	3	3	3	8	8	10	12	13	15	20	20	15	15	18	12	13	12	5	3	3	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	12	15	15	15	15	17	15	10	5	3	3	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	10	12	15	22	20	28	28	15	13	12	5	3	3	3	-	-	-	-	-	-	-
28.8	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	10	12	12	17	17	17	1[illegible]	10	8	5	3	-	-	-	-	-	-	-	-	-
30.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	13	17	25	28	22	30	8	5	3	3	3	3	3	3	3	-	-	-	-

Table 94b

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

Date	Degrees south of the solar equator																		0°	Degrees north 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
1951																																					
Sep. 1.6	2	3	3	3	3	3	2	3	2	2	3	5	3	3	4	3	2	3	8	15	5	12	2	2	3	3	5	3	2	2	2	2	3	3	3	3	3
2.7	2	2	2	2	2	2	2	2	2	2	3	5	3	3	3	3	3	8	10	3	18	2	12	2	2	3	3	3	3	3	3	3	3	3	3	3	3
4.7a	2	2	2	2	2	2	2	2	2	2	3	5	5	3	3	2	2	2	3	3	5	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
5.7	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	3	3	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
6.7a	2	2	2	2	2	2	2	2	2	2	3	3	5	4	4	3	3	3	3	3	3	3	5	12	3	-	-	-	-	-	-	-	-	2	2	2	2
9.8	2	2	2	2	2	2	2	2	2	2	8	5	5	5	3	2	2	2	2	3	3	8	14	3	3	2	2	2	2	2	2	2	2	2	2	2	2
10.7	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	2	2	2	2	2	3	4	3	3	2	2	-	-	-	-	-	-	-	-	-	2	2
11.9a	2	2	2	2	2	2	2	2	2	2	3	5	5	5	5	2	2	2	15	10	5	10	3	3	2	3	3	2	-	-	-	-	2	2	2	2	3
12.6	2	2	2	2	2	2	2	2	2	2	3	5	3	3	5	5	2	2	15	2	3	12	3	2	2	3	-	-	-	-	-	-	2	2	2	3	3
13.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	3	2	10	2	2	10	5	2	2	3	3	3	2	2	2	2	2	2	2	2	2
15.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	3	12	3	12	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17.7	5	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5	3	3	2	2	2	2	3	3	3	3	5	3	5	5	3	3	3	3	3
18.7	3	3	3	2	2	2	3	3	5	3	3	3	3	3	3	3	5	8	5	12	5	3	2	3	3	5	3	3	5	3	3	3	3	3	3	3	5
19.7	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	8	12	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2
20.7	2	2	2	2	2	2	-	-	-	-	-	-	-	2	3	5	3	2	2	8	5	3	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-
21.8	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	20	12	5	2	8	15	17	10	8	2	2	2	2	2	2	2	2	2	2	2	2	2
22.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	18	13	8	3	5	12	18	10	5	3	2	2	2	2	2	2	2	2	2	2	2	2
23.8	2	2	2	2	2	2	2	2	2	2	2	2	3	3	10	5	14	10	5	8	10	12	15	5	3	2	2	2	2	2	2	2	2	2	2	2	2
24.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	5	3	3	8	10	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2
25.7	3	3	3	3	3	3	3	3	3	5	5	5	8	8	8	3	3	10	8	3	10	18	12	5	5	5	3	2	2	2	2	2	2	2	2	2	2
26.9	2	2	2	2	2	2	2	2	2	3	5	5	5	5	8	5	3	3	5	3	3	12	12	10	8	5	8	2	2	2	2	2	3	3	3	3	3
27.7	2	2	2	2	3	3	3	3	2	2	8	8	8	10	8	5	3	3	3	12	3	12	5	10	5	8	3	2	3	2	2	2	3	3	3	3	3
28.8	2	2	2	2	2	2	2	2	3	3	5	5	5	8	5	5	3	3	2	15	20	13	12	15	10	3	5	3	2	2	2	2	3	3	3	3	3
30.9	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	8	3	2	15	13	8	8	3	3	5	8	5	3	2	2	2	2	3	3	3

Table 95a

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
1951																																					
Sep. 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	4	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	4	4	4	3	5	3	2	2	2	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
11.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7 a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
21.8	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7 a	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-
28.8	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
30.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-

Table 95b

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
1951																																					
Sep. 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	-	-
9.8	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	4	4	3	3	2	2	2	2	2	2	2	2	2	2	-	-
11.9a	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-
21.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-
22.7a	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-
28.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
30.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-

Table 96

Zürich Provisional Relative Sunspot Numbers

September 1951

Date	R_Z*	Date	R_Z*
1	46	17	93
2	47	18	98
3	48	19	89
4	55	20	91
5	64	21	104
6	84	22	109
7	77	23	104
8	91	24	80
9	108	25	76
10	118	26	70
11	129	27	63
12	123	28	58
13	114	29	23
14	107	30	31
15	100		
16	89	Mean:	83.0

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

Note: The American sunspot numbers for September will appear in a later issue of this bulletin.

Table 97

Solar Flares, August 1951

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	Aug. 5	1401	—	App.25	110	S03	E74	—	14	8		
"		1710	1740	30	180	N09	E03	1720	15	5		
"		2255	2310	15	90	N08	W03	2300	11	4		
"	7	1330	1505	95	60	S09	E28	1350	7	2		
"		1334	1544	130	120	S15	E88	1446	8	2		
"		1600	1720	80	70	S15	E88	1640	8	4		
McMath	10	1250				S09	W08				2	
"		1430				N08	W50				1	
Sac.Peak	11	1630	1820	110	80	N08	W13	1802	7	5		
"	11	1715	—	App.70	150	S01	W11	1755	12	3		
Kanzel	12	0845		25		N08	W75	—			2	
McMath	13	1318				S12	E02				1	
"		2030				W10	W35				1	
Sac.Peak		2350	—	App.20	90	W12	W49	2353	10	4		
McMath	14	1026				S15	W15				2	
Sac.Peak		1420	1515	55	20	N08	W62	1430	9	8		
		1805	1840	35	70	S10	E5)	1820	8	2		
McMath	16	2150				N10	W70				1 +	
Kanzel	19	1215		25		S17	E21				2	
McMath		1340				S17	E22				1	
Sac.Peak	21	1440	1540	55	110	S16	W34	1518	8	1		
McMath		1455				S18	W29			1 –		

Table 98

Indices of Geomagnetic Activity for August 1951

Preliminary values of mean K-indices, Kw, from 36 observatories;
Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1951	Values Kw								Sum	C	Values Kp	Sum	Fi l Se Da
1	3.7	2.5	1.7	3.1	2.6	5.0	4.8	5.1	28.5	1.5	4o3-2-3o 2+6o6-6o	31+	Fiv
2	4.6	4.6	3.2	2.7	2.5	2.7	2.4	2.6	25.3	1.1	6-5o4-3- 3-2+3o2+	27+	Qui t
3	2.6	1.9	1.8	2.7	2.7	1.6	1.6	2.3	17.2	0.5	3-2-2o3o 3-1+1+2+	17o	
4	3.2	3.2	1.5	1.6	3.1	2.9	3.2	3.5	22.2	0.8	3+3+2-1+ 3+3+4o4-	24o	3
5	3.9	2.6	1.8	1.7	2.4	3.1	2.5	2.5	20.5	0.7	4+2+2-1+ 2+3+2+3-	20+	8 10
6	2.8	0.6	1.6	1.5	2.8	3.3	1.8	2.6	17.0	0.6	3+1-2o1+ 3-4-2-3o	18+	18
7	1.6	2.9	2.0	2.7	1.6	2.1	2.6	3.1	18.6	0.5	1+3+2-3o 2-2+3-3+	19+	30
8	2.1	2.1	1.8	1.4	1.6	1.4	1.8	2.1	14.3	0.2	2+2+2+1+ 1+1o2-2+	15-	
9	1.5	1.6	2.3	2.8	3.0	2.3	2.2	3.0	18.7	0.6	2-2-2+3o 3+2o2+3+	20-	
10	1.6	1.9	2.4	2.5	3.1	1.5	2.0	2.3	17.3	0.5	1+2-3-2+ 3+2-2o3-	18-	
11	2.2	2.3	2.5	2.9	3.6	2.9	2.9	3.3	22.6	0.8	2+2+3o3+ 4-3o3o4o	25-	Fiv
12	3.3	2.8	3.1	3.1	3.3	2.8	3.2	3.5	25.1	0.9	4o3+3+3+ 4-3o4-4-	28o	Dis.
13	2.4	4.6	4.6	3.8	4.4	4.6	4.7	2.2	31.3	1.5	2+6-5+4+ 5o5+6-2+	36o	
14	1.4	1.2	1.1	2.8	2.4	2.5	2.6	3.1	17.1	0.6	1+1o1o3o 2+3-3o3+	18-	1
15	3.2	2.2	3.0	1.6	2.5	2.9	4.4	3.3	23.1	1.0	4-2+3+1+ 3-3+5o4o	26-	13 20
16	1.7	2.8	4.6	5.0	3.1	2.7	1.9	3.1	24.9	1.3	1+3o6-6+ 3o3o2o3+	28-	21
17	3.2	2.1	2.8	1.6	2.6	4.0	2.9	2.9	22.1	1.0	3+2o3o1+ 3-5-3-3-	22+	25
18	2.4	2.0	2.2	0.8	1.1	1.1	0.8	1.2	11.6	0.2	3-3-3-1- 1o1-0+1o	12-	
19	0.9	1.6	2.7	2.9	3.2	3.2	2.7	2.1	19.3	0.6	1o1+3+3o 4-3+3-2o	20+	
20	4.8	4.4	4.4	3.7	3.4	3.2	4.1	3.9	31.9	1.3	6-5+5+4+ 4o3+5-5-	37+	Ten Qui
21	5.1	3.7	3.9	4.1	4.3	4.9	4.2	4.6	34.8	1.6	6+4+5-5o 5o6-5o5+	41+	
22	4.8	4.4	4.5	3.4	4.1	2.7	3.5	2.6	30.0	1.3	5+5+5+4- 5o3o4-3-	34o	3
23	3.0	2.1	2.7	3.0	3.0	3.9	3.4	5.2	26.3	1.1	3+2-3-3+ 3+5-3+6o	28+	6
24	3.7	3.9	3.5	3.6	3.2	2.4	3.1	3.3	26.7	1.0	4+5-4o4o 3+3-3o3+	29+	7
25	3.1	4.6	4.8	4.4	3.1	4.5	4.6	2.2	31.3	1.4	4-6-6-5o 3+5o5+3-	36+	8 9
26	3.9	3.6	4.4	3.8	3.4	3.3	3.9	4.2	30.5	1.2	5-4+6o5- 4-4-4o4+	35+	10
27	2.4	3.1	3.4	3.2	3.2	3.9	4.3	4.2	27.7	1.2	2+4-4o3+ 3+4+5o5-	31-	14
28	2.6	2.9	2.7	3.4	3.0	2.4	3.6	3.7	24.3	1.0	3o3+3o4- 3+3-4o4o	27o	18
29	3.1	2.7	2.5	3.0	3.1	3.1	1.8	2.5	21.8	0.8	4-3+3+3+ 3+3+2-3-	25-	19
30	1.1	1.3	0.8	1.8	2.6	2.9	2.9	2.8	16.2	0.6	1o1+1-2o 3-3o3o3-	16+	30
31	2.0	1.4	3.1	2.7	3.8	3.3	2.5	3.7	22.5	0.9	2+2-4-3+ 4o4-3-4o	25+	
Mean	2.83	2.70	2.82	2.82	2.96	3.00	3.00	3.12	2.91	0.91			

Table 99

Sudden Ionosphere Disturbances Observed at Washington, D. C.

September 1951

1951 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
September					
3	1224	----	Ohio, D. C., Colombia, England	---	
3	1240	1410	Ohio, D. C., Colombia, England	---	Solar flare** 1320 Solar flare*** 1330
5	1715	1750	Ohio, D. C., Colombia, England	---	Solar flare** 1715
7	1055	1255	England	0.02	
9	1957	2040	Ohio, D. C., Colombia, England, Mexico	0.0	Solar flare*** 2002
14	1352	1425	Ohio, D. C., Colombia, Mexico	0.0	Solar flare** 1345 Solar flare*** 1330 Solar flare**** 1400
15	1510	1600	Ohio, D. C., Colombia, England, Mexico	0.0	Terr.mag.pulse***** 1510-1530 Solar flare** 1510 Solar flare*** 1500
17	2058	2125	Ohio, D. C., Colombia, Mexico	0.0	Solar flare** 2100 Solar flare*** 2055
19	1533	1600	Ohio, D. C.	---	Solar flare*** 1505
20	1530	1550	Ohio, D. C., Mexico	0.1	Solar flare** 1540 Solar flare*** 1525
29	1450	1540	Ohio, D. C.	0.0	

*Ratio of received field intensity during SID to average field intensity before and after, for station KQ2XAU (formerly W8XAL), 6080 kilocycles, 600 kilometers distant for all SID except the following: Station GLH, 13525 kilocycles, received in New York, 5340 kilometers distant, was used for the SID on September 7.

**Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

***Time of observation at Sacramento Peak, New Mexico.

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

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

---Insufficient data.

+---Incomplete recovery of SID.

Table 100

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief, Cable and Wireless, Ltd., as Observed in England

1951 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters	Other phenomena
August 14	1028	1045	Brentwood	Austria, Belgian Congo, Brazil, Canary Is., Greece, Palestine, Portugal, Spain, Switzerland, Trans-Jordan, Turkey, Yugoslavia, Zanzibar	Solar flare* 1026
September 3	1255	1335	Brentwood	Barbados, Brazil, Chile, Colombia, Greece, India, Palestine, Southern Rhodesia, Spain, Syria, Thailand, Turkey, Uruguay, U.S.S.R., Venezuela	Solar flare* 1320 Solar flare** 1330
3	1255	1330	Somerton	Argentina, Canada, Ceylon, Cyprus, Egypt, Gold Coast, India, Iraq, Malay States, New York, Union of S. Africa	Solar flare* 1320 Solar flare** 1330
7	1057	1120	Brentwood	Afghanistan, Bahrein I., Belgian Congo, Brazil, Canary Is., Chile, Greece, India, Palestine, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Trans-Jordan, Turkey, Uruguay, U.S.S.R.	
7	1058	1130	Somerton	Argentina, Australia, Ceylon, India, Iraq, Malay States, Union of S. Africa	
14	1355	1420	Brentwood	Barbados, Brazil, Canary Is., Chile, Colombia, Portugal, Venezuela	Solar flare* 1345 Solar flare** 1330 Solar flare*** 1400
September 14	1353	1430	Somerton	Argentina	Solar flare* 1345 Solar flare** 1330 Solar flare*** 1400
15	1510	1615	Brentwood	Canary Is., Chile, Colombia, Uruguay, Venezuela	Terr.mag. pulse**** 1510-1530 Solar flare* 1510 Solar flare** 1500
15	1510	1620	Somerton	Argentina, Canada	Terr.mag. pulse**** 1510-1530 Solar flare* 1510 Solar flare** 1500
25	1510	1530	Brentwood	New York	
25	1510	1520	Somerton	Canada, New York	

*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.
**Time of observations at Sacramento Peak, New Mexico.
***Time of observation at Meudon Observatory, France.
****As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

Table 101

Sudden Ionosphere Disturbances Reported by Institut für Ionosphärenforschung, as Observed at Lindau, Harz, Germany

1951 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
August					
10	1304	1310	München**, Lindau***	0.3	
12	0838	0846	München**, Lindau***, Wiesbaden#	0.05	
14	1025	1038	München**, Lindau***, Wiesbaden#	0.1	

*Ratio of received field intensity during SID to average field intensity before and after, for station München, 6160 kilocycles, 400 kilometers distant.

**Station München, 6160 kilocycles.

***Station Lindau, 1850 kilocycles, pulse, transmitter and receiver at Lindau.

#Station Wiesbaden, 2985 kilocycles.

Table 102

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc., as Observed at Riverhead, New York

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
September				
3	1300	1400	Argentina, England, France, Italy, Netherlands, Tangier	Solar flare* 1320 Solar flare** 1330

*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

**Time of observation at Sacramento Peak, New Mexico.

Table 103

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed at Hong Kong, China

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
April 19	0535	0620	China, Formosa, French Indo-China, Japan, Korea, Malay States, Philippine Is., Thailand	
20	0152	0220	California, Ceylon, China, Formosa, Japan, Korea, Malay States, Philippine Is., Thailand	
May 21	0154	0215	California, China, Formosa, French Indo-China, Japan, Korea, Philippine Is., Thailand	
22	0052	0130	California, China, Formosa, French Indo-China, Japan, Korea, Philippine Is., Thailand	
23	0120	0215	California, China, Japan, Korea, Thailand	
June 13	0555	0725	China, England, Formosa, French Indo-China, Japan, Malay States, Philippine Is., Thailand	
19	0250	0305	Australia, China, Formosa, French Indo-China, Japan, Philippine Is., Thailand	
19	2342	2400	China, Formosa, Japan, Philippine Is.	Solar flare* 2340
26	0556	0615	China, Formosa, French Indo-China, Japan, Philippine Is., Thailand	

*Time of observation at Sacramento Peak, New Mexico.

Table 104

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Point Reyes, California

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
September 17	2102	2200	China, Hawaii, Japan, Philippine Is.	Solar flare* 2050 Solar flare** 2100

*Time of observation at Sacramento Peak, New Mexico.
**Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

GRAPHS OF IONOSPHERIC DATA

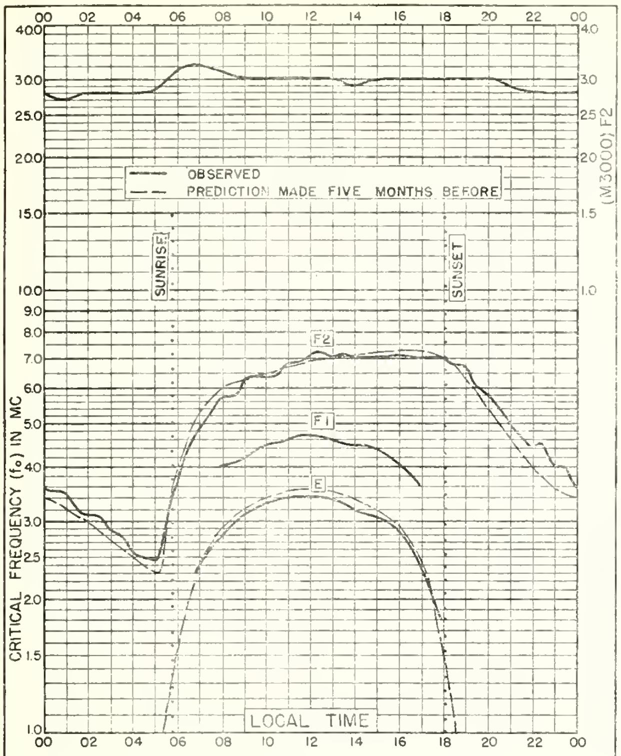

Fig. 1. WASHINGTON, D. C.
38. 7°N, 77. 1° W SEPTEMBER 1951

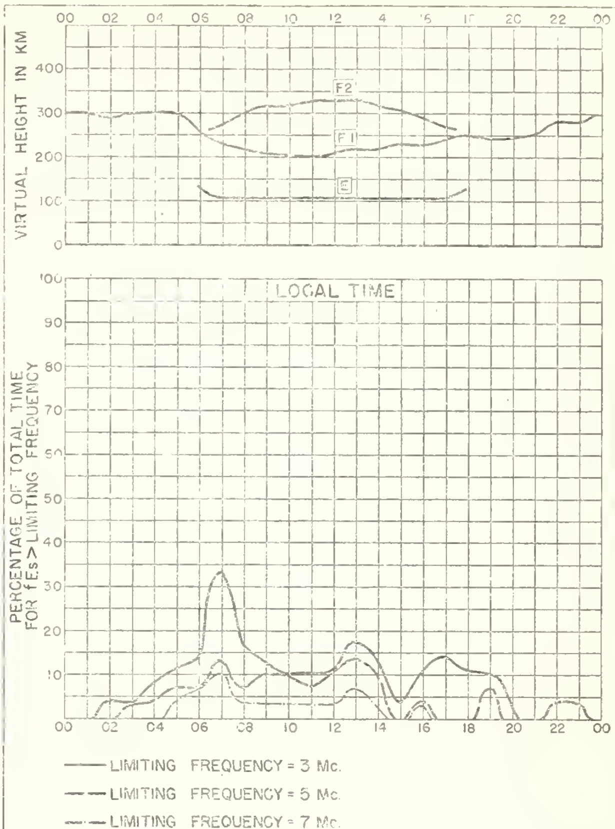

Fig. 2. WASHINGTON, D. C. SEPTEMBER 1951

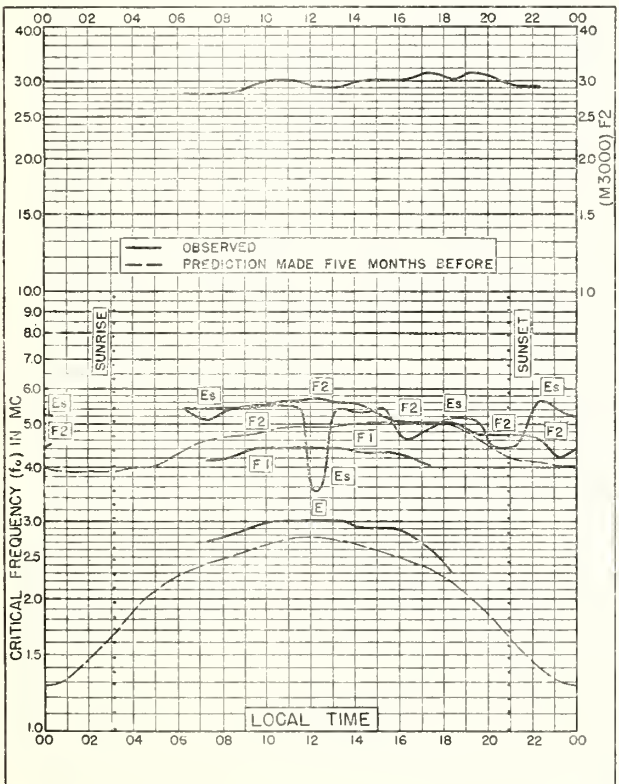

Fig. 3. TROMSO, NORWAY
69. 7° N, 19. 0° E AUGUST 1951

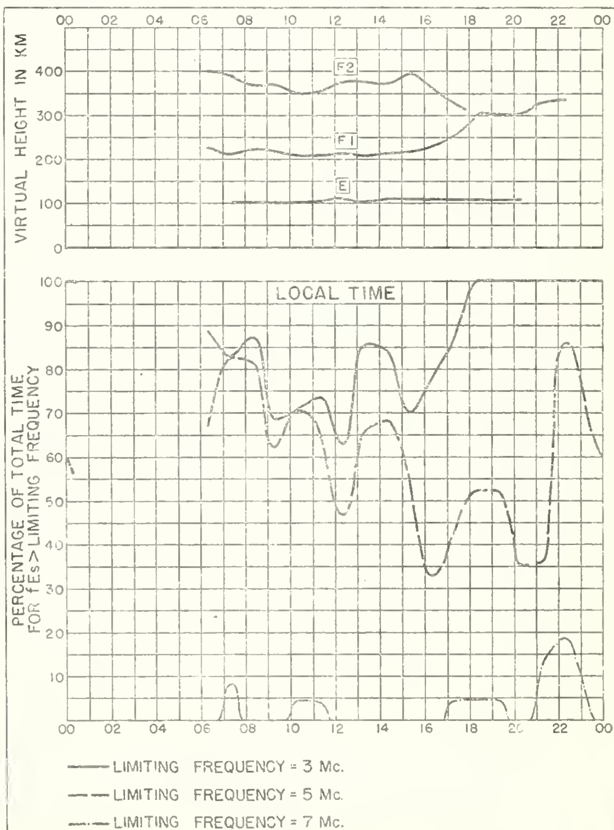

Fig. 4. TROMSO, NORWAY AUGUST 1951

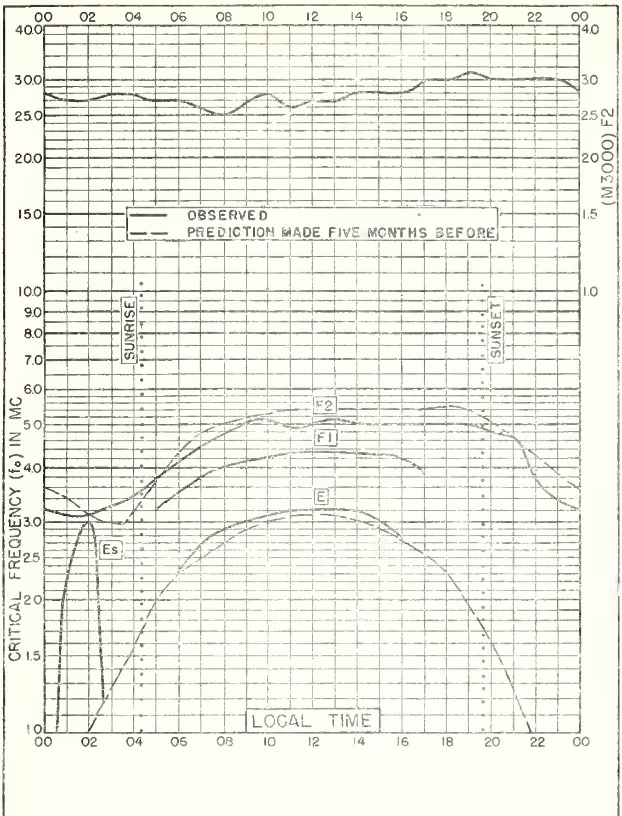

Fig. 5. ANCHORAGE, ALASKA
61.2°N, 149.9°W AUGUST 1951

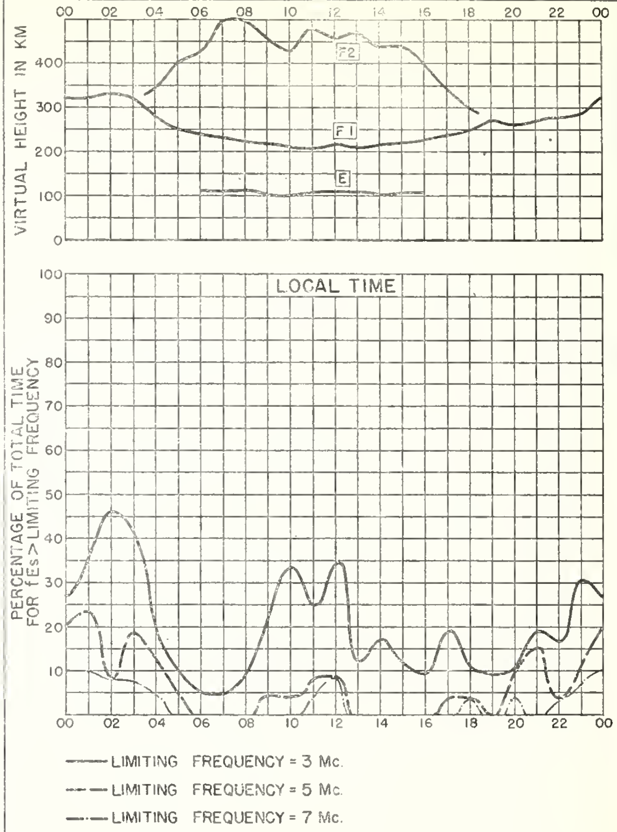

Fig. 6. ANCHORAGE, ALASKA AUGUST 1951

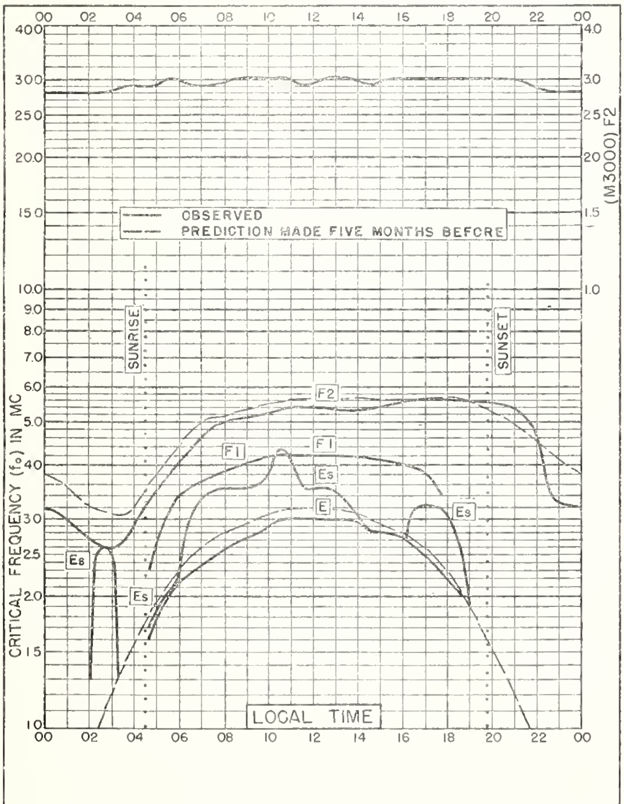

Fig. 7. OSLO, NORWAY
60.0°N, 11.0°E AUGUST 1951

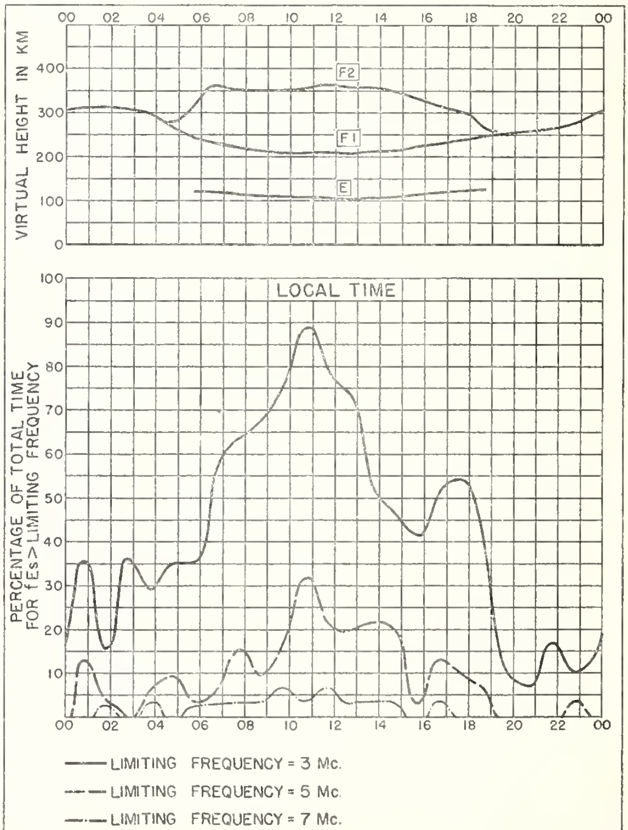

Fig. 8. OSLO, NORWAY AUGUST 1951

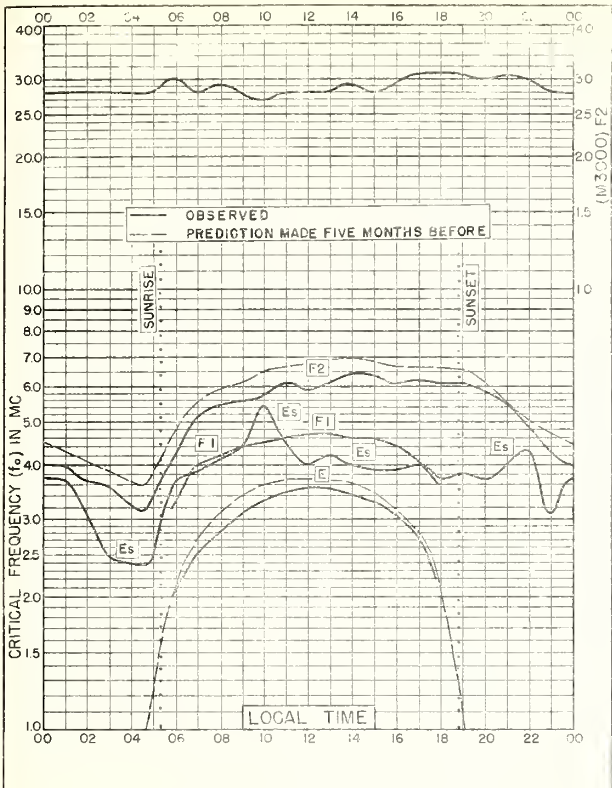

Fig. 9. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W AUGUST 1951

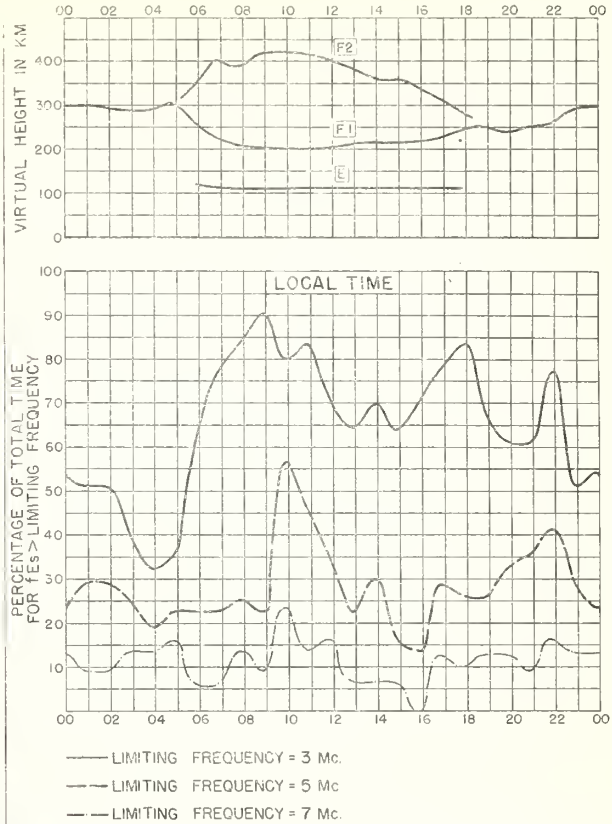

Fig. 10. SAN FRANCISCO, CALIFORNIA AUGUST 1951

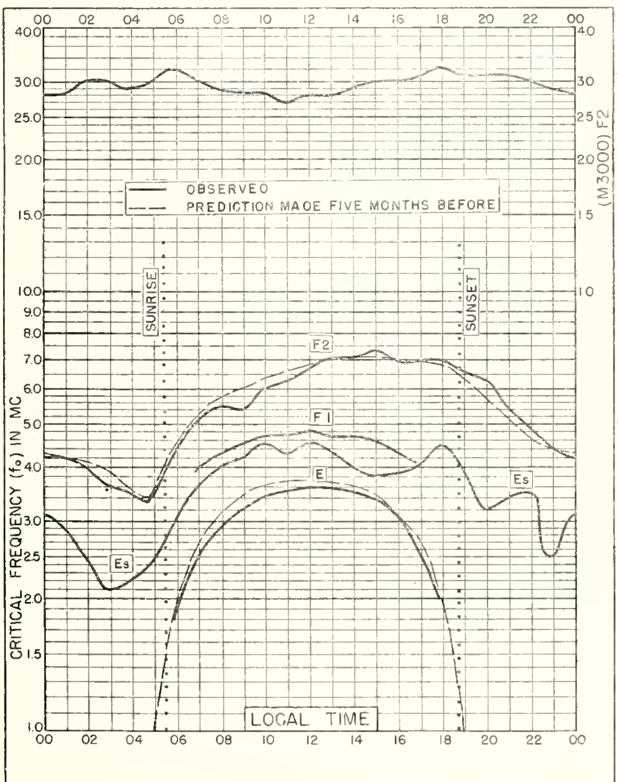

Fig. 11. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W AUGUST 1951

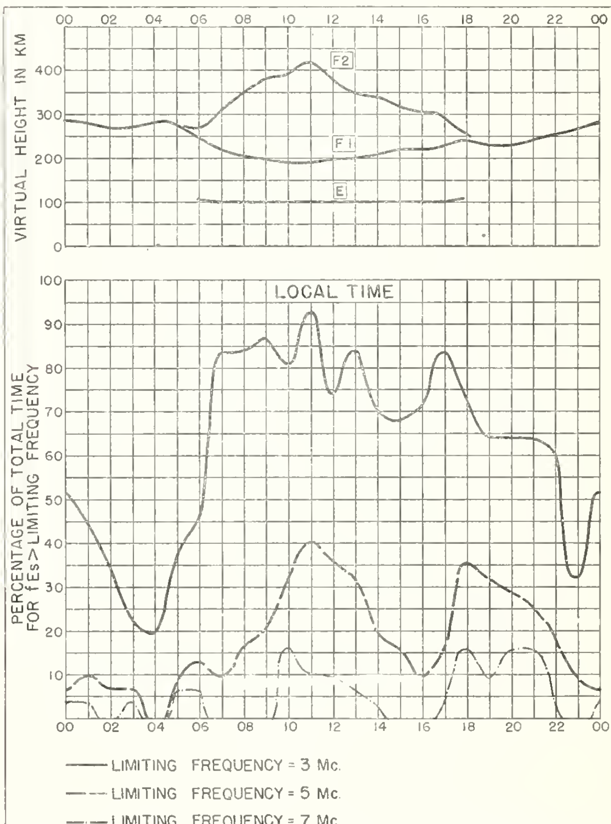

Fig. 12. WHITE SANDS, NEW MEXICO AUGUST 1951

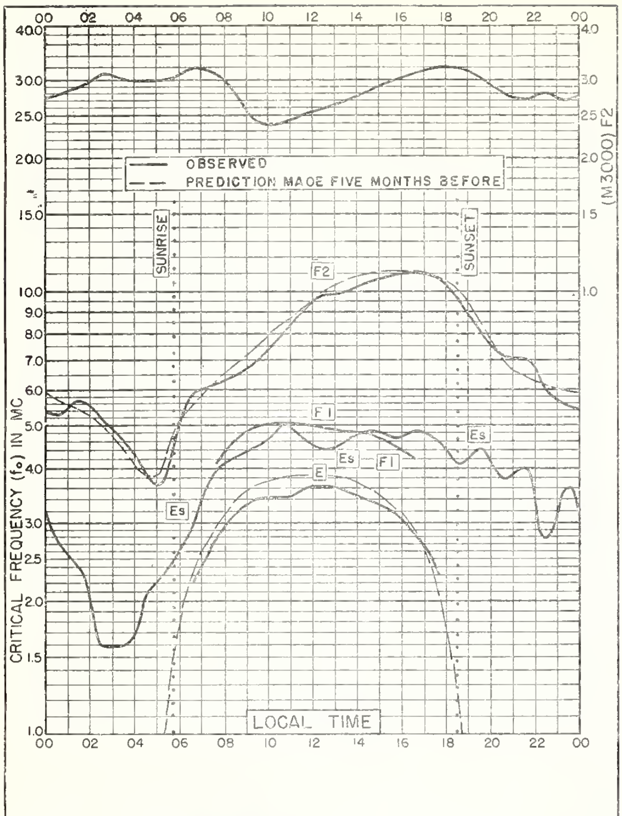

Fig. 13. MAUI, HAWAII
20.8°N, 156.5°W AUGUST 1951

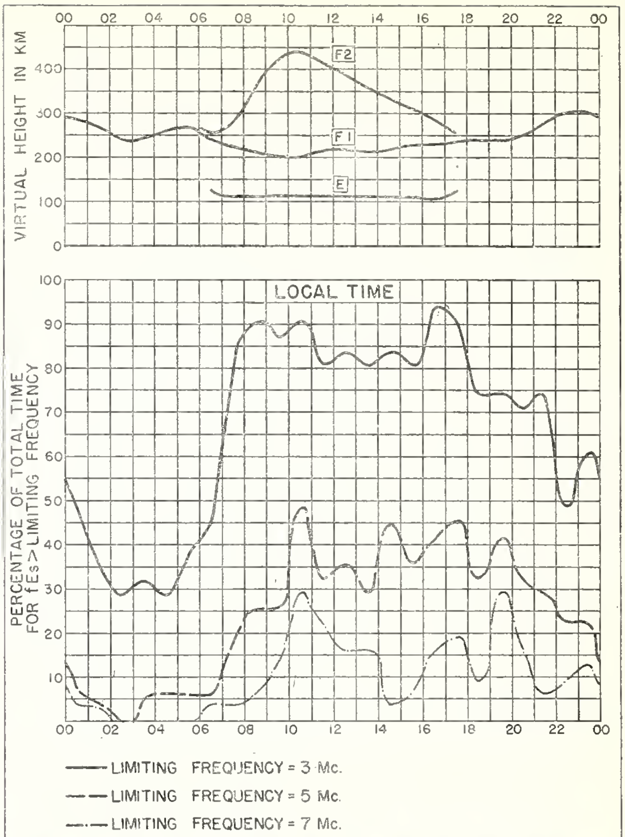

Fig. 14. MAUI, HAWAII AUGUST 1951

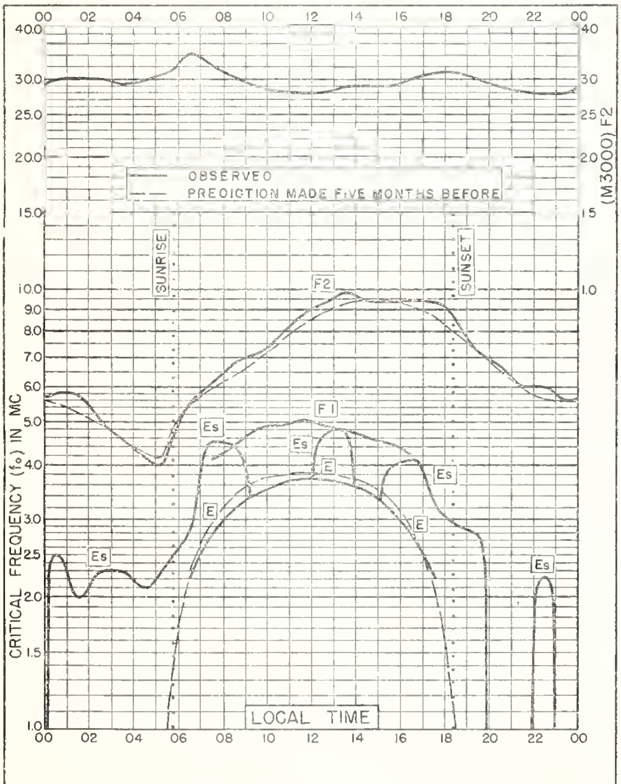

Fig. 15. PUERTO RICO, W. I.
18.5°N, 67.2°W AUGUST 1951

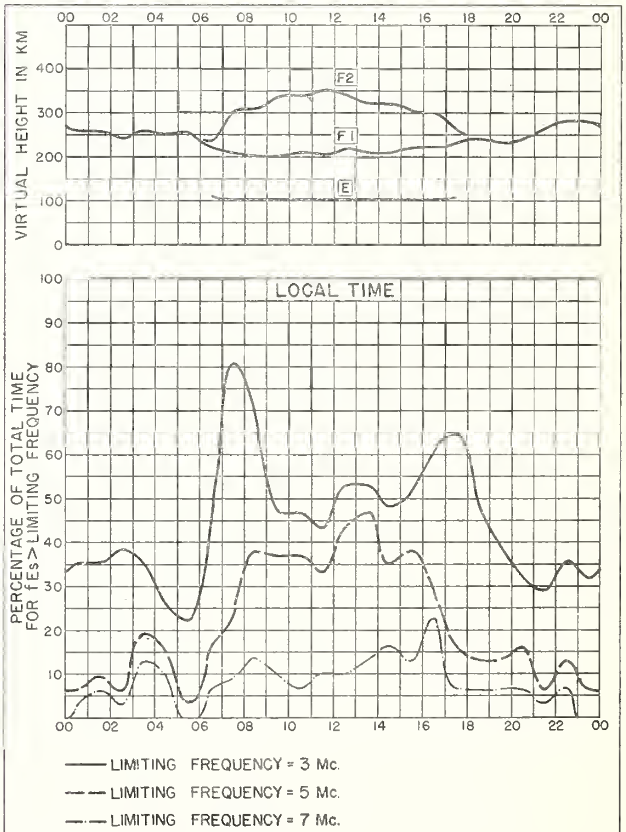

Fig. 16. PUERTO RICO, W. I. AUGUST 1951

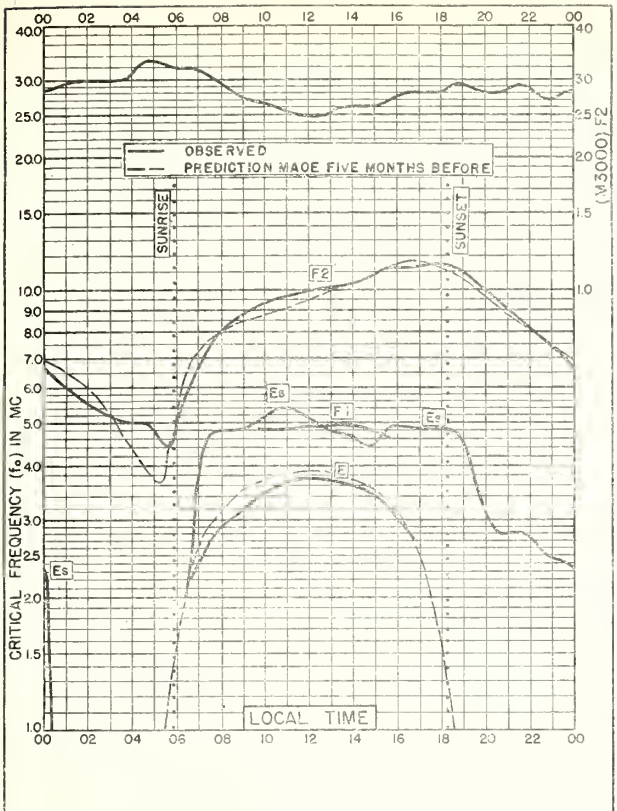

Fig. 17. GUAM I.
13.6°N, 144.9°E AUGUST 1951

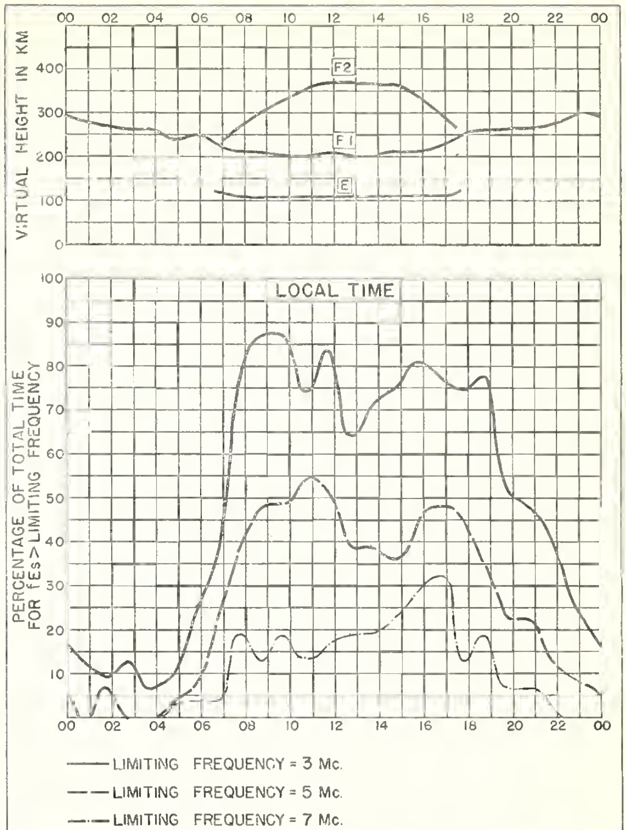

Fig. 18. GUAM I. AUGUST 1951

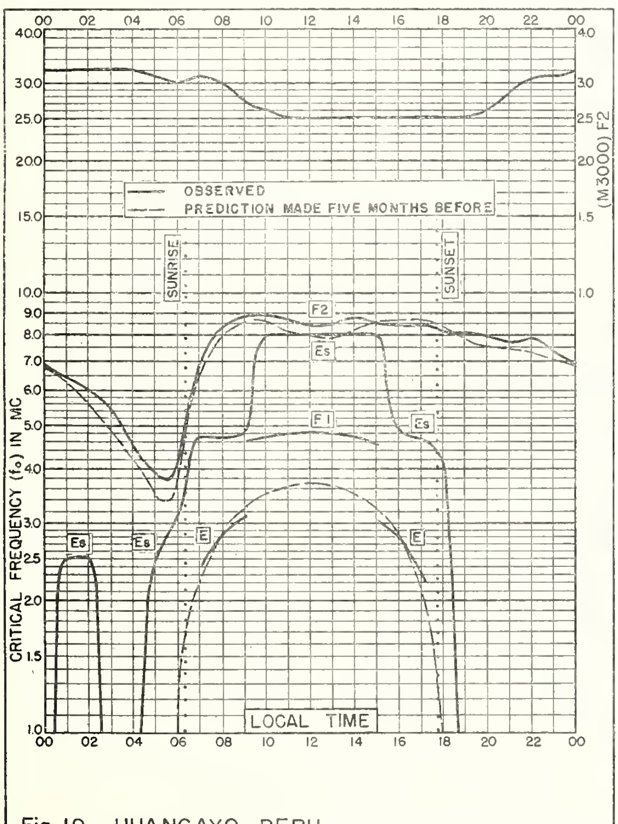

Fig. 19. HUANCAYO, PERU
12.0°S, 75.3°W AUGUST 1951

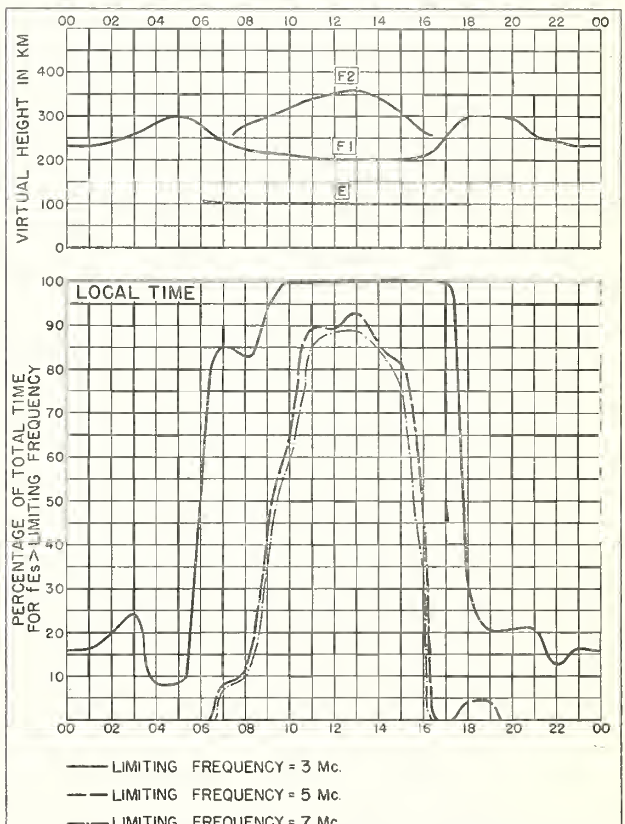

Fig. 20. HUANCAYO, PERU AUGUST 1951

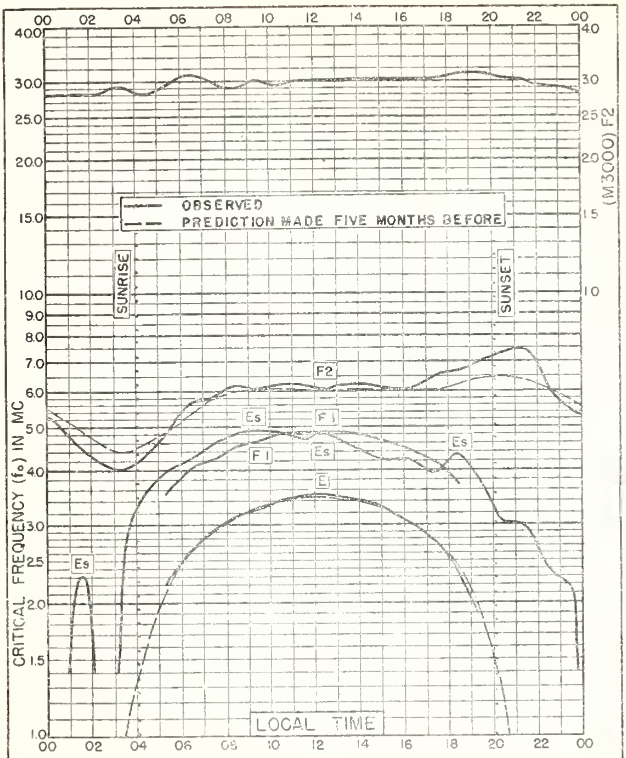

Fig. 21. De BILT, HOLLAND
52.1°N, 5.2°E JULY 1951

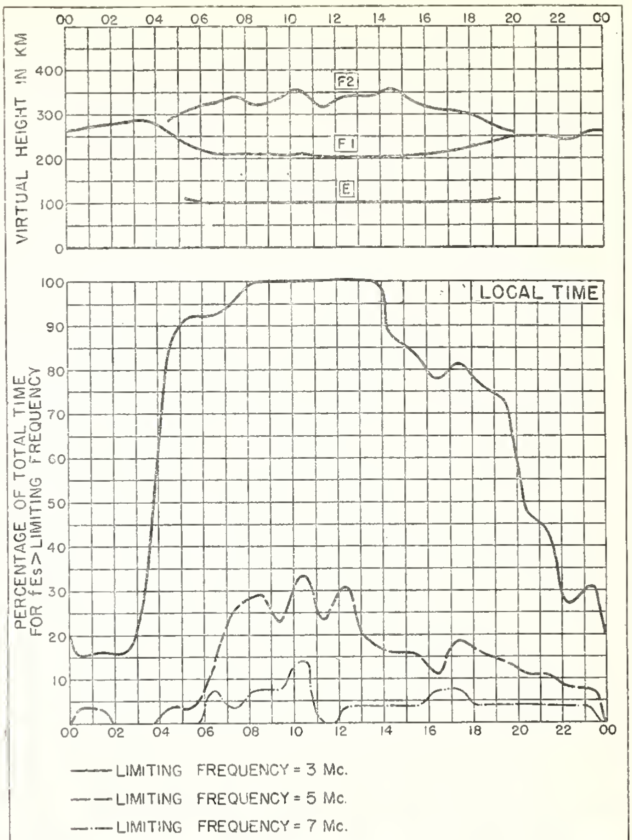

Fig. 22. De BILT, HOLLAND JULY 1951

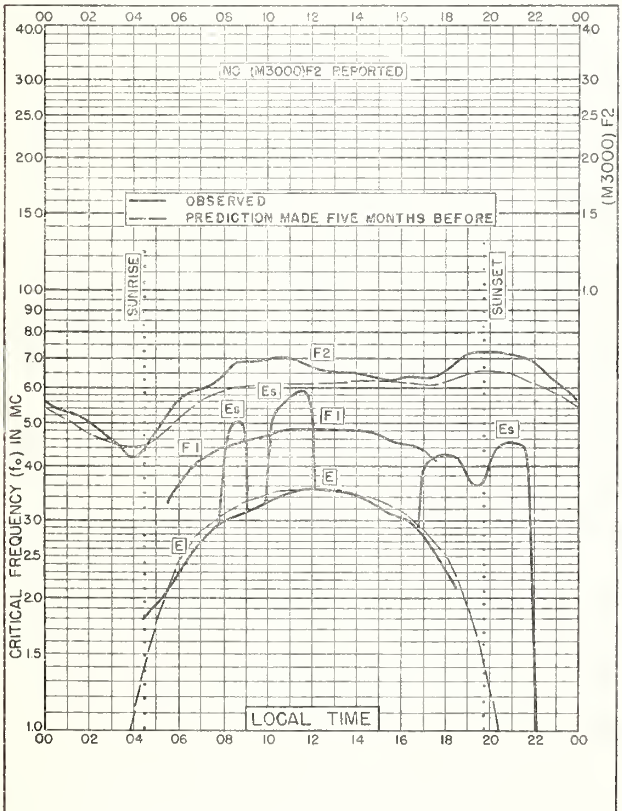

Fig. 23. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JULY 1951

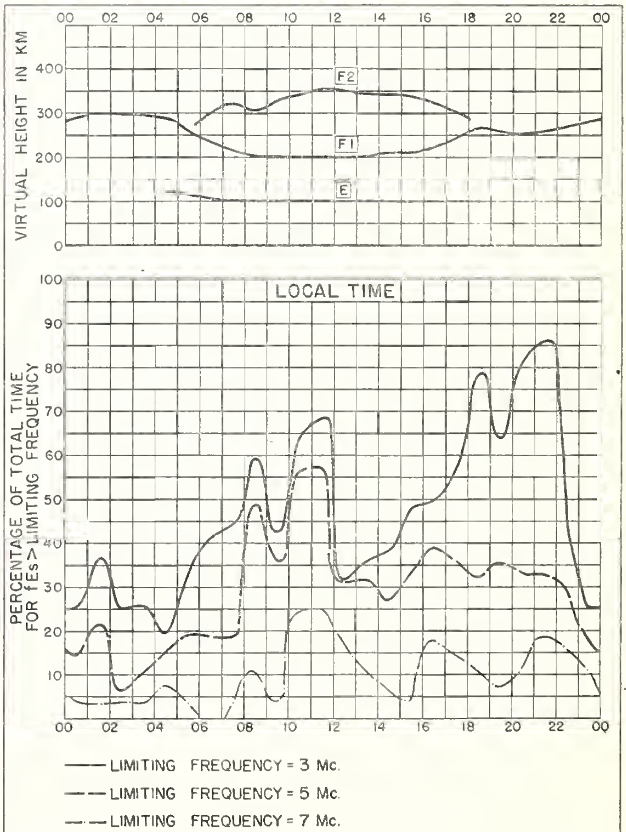

Fig. 24. SCHWARZENBURG, SWITZERLAND JULY 1951

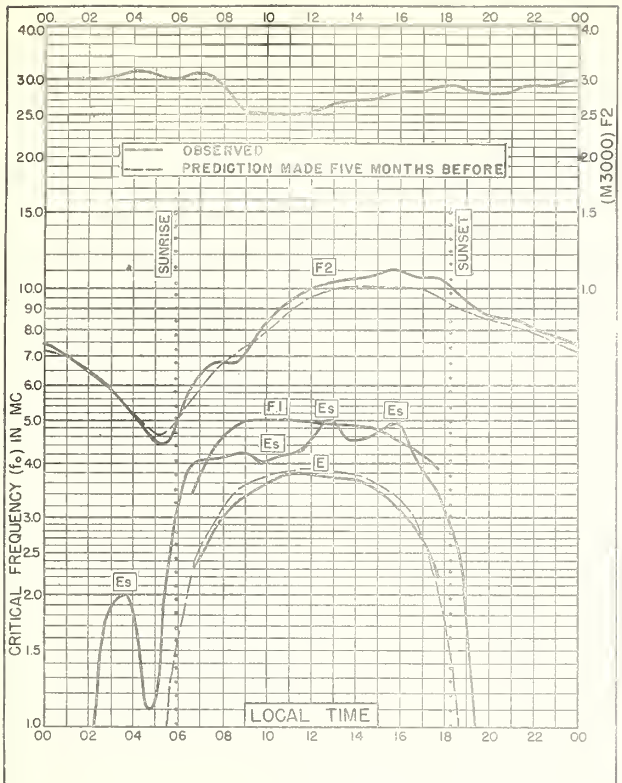

Fig. 25. PANAMA CANAL ZONE
9.4°N, 79.9°W JULY 1951

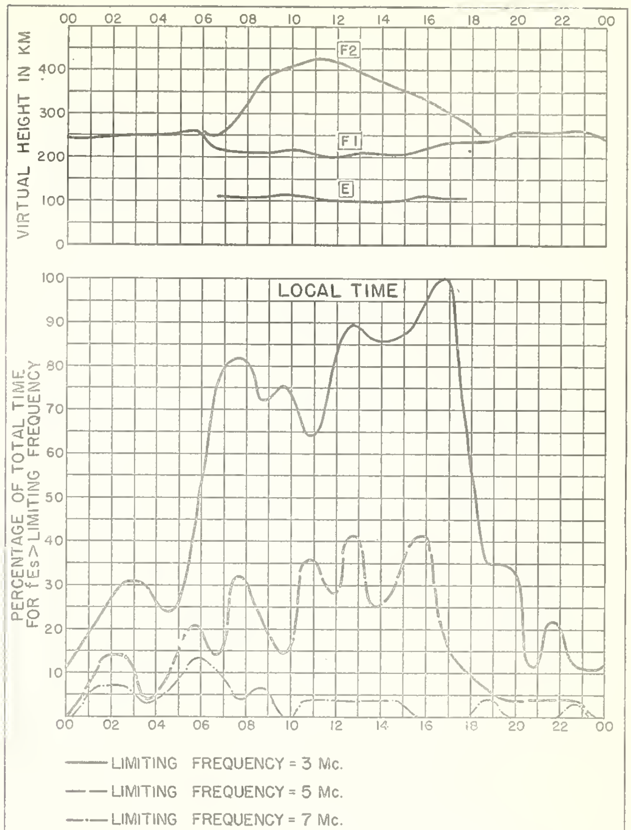

Fig. 26. PANAMA CANAL ZONE JULY 1951

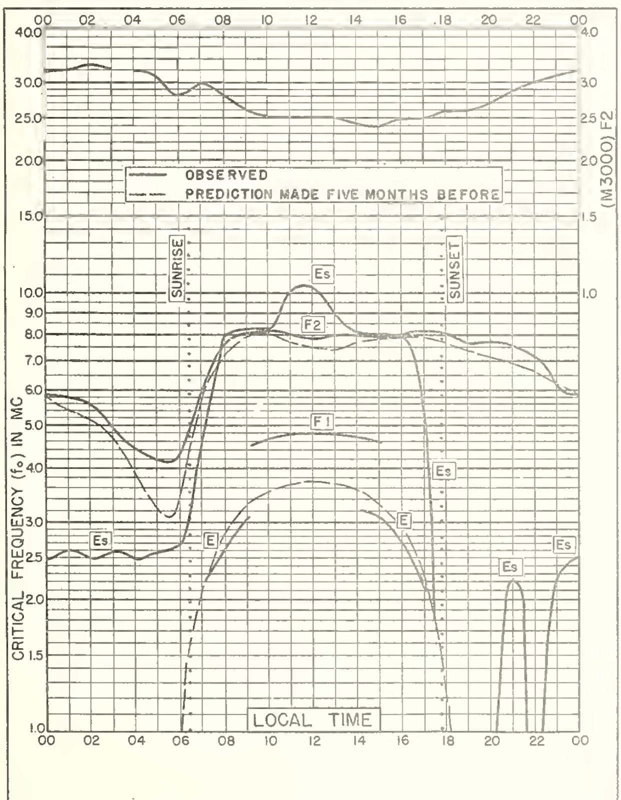

Fig. 27. HUANCAYO, PERU
12.0°S, 75.3°W JULY 1951

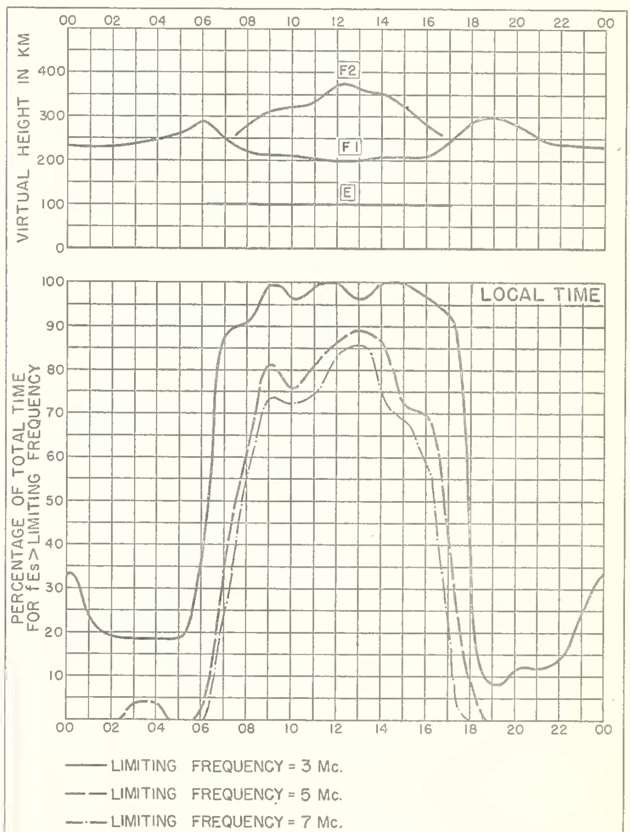

Fig. 28. HUANCAYO, PERU JULY 1951

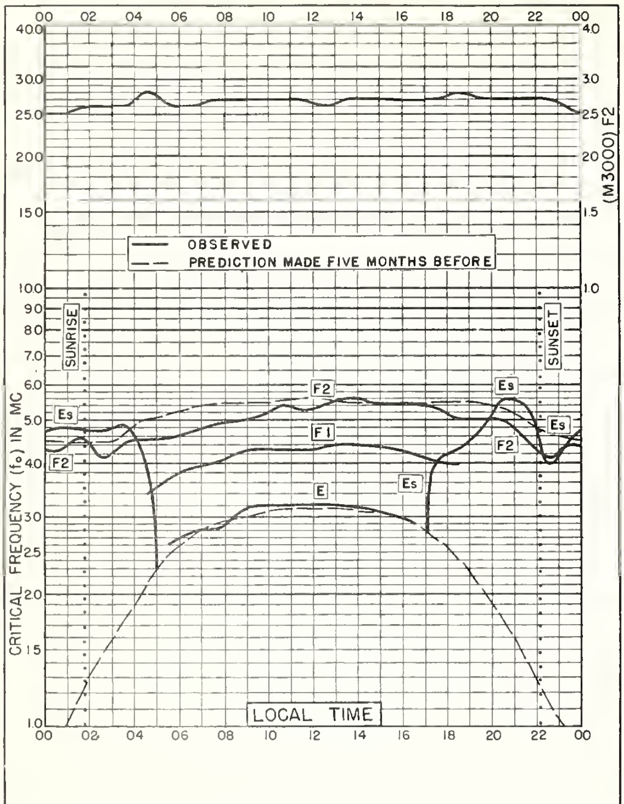

Fig. 29. REYKJAVIK, ICELAND 64.1°N, 21.8°W JUNE 1951

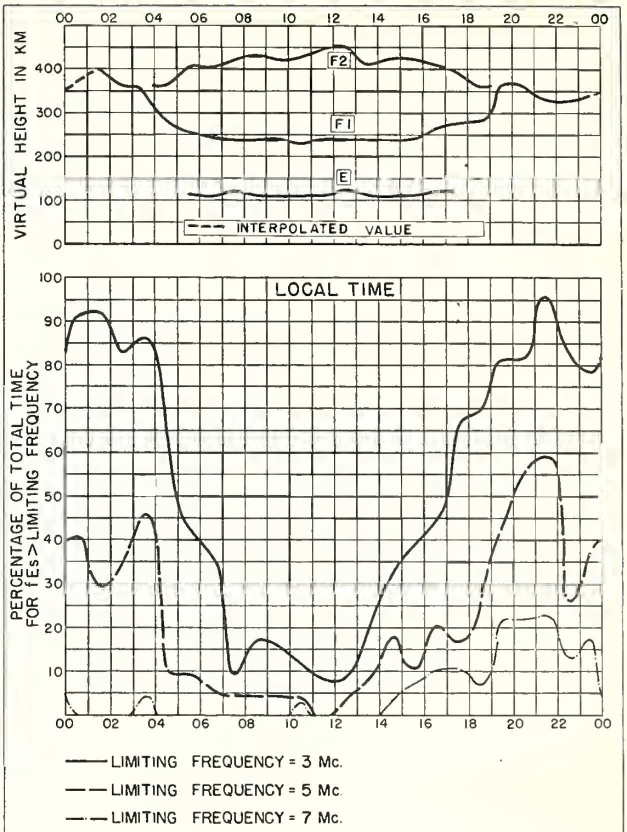

Fig. 30. REYKJAVIK, ICELAND JUNE 1951

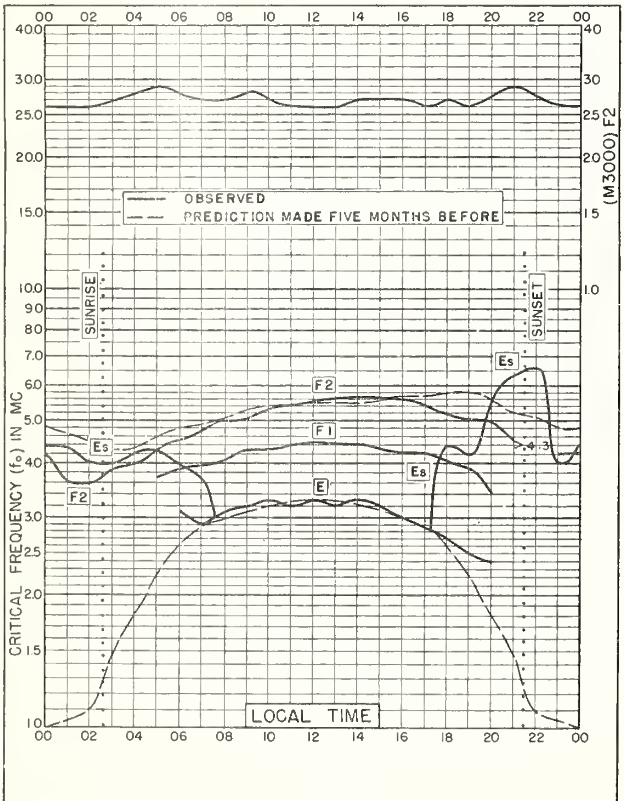

Fig. 31. NARSARSSUAK, GREENLAND 61.2°N, 45.4°W JUNE 1951

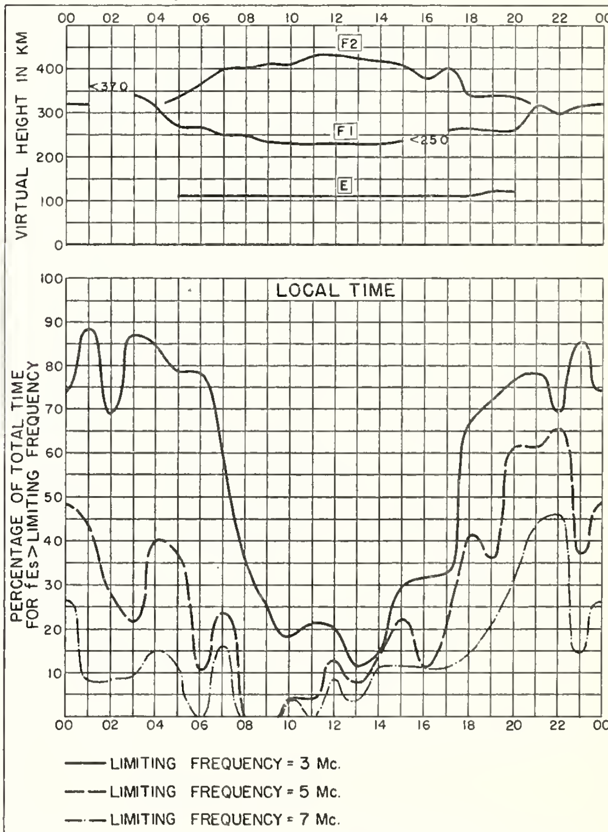

Fig. 32. NARSARSSUAK, GREENLAND JUNE 1951

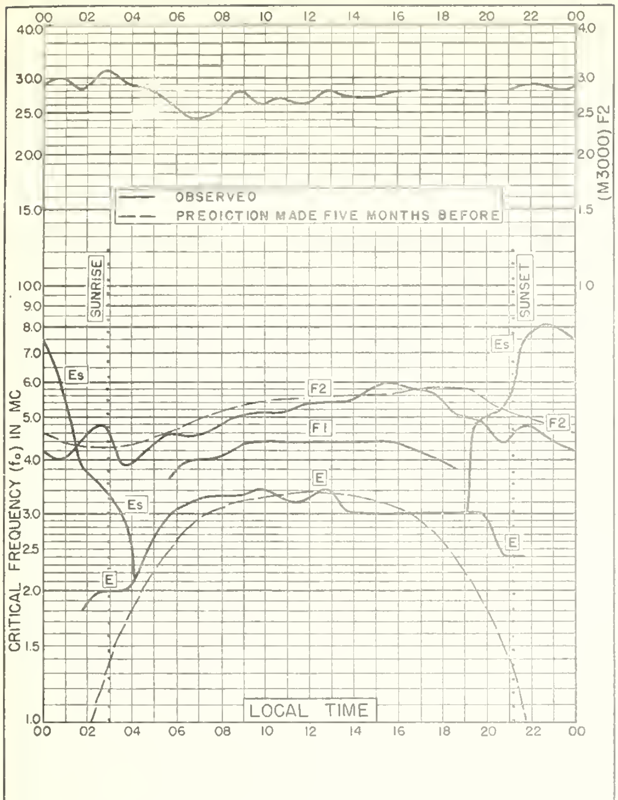

Fig. 33. CHURCHILL, CANADA
58.8°N, 94.2°W JUNE 1951

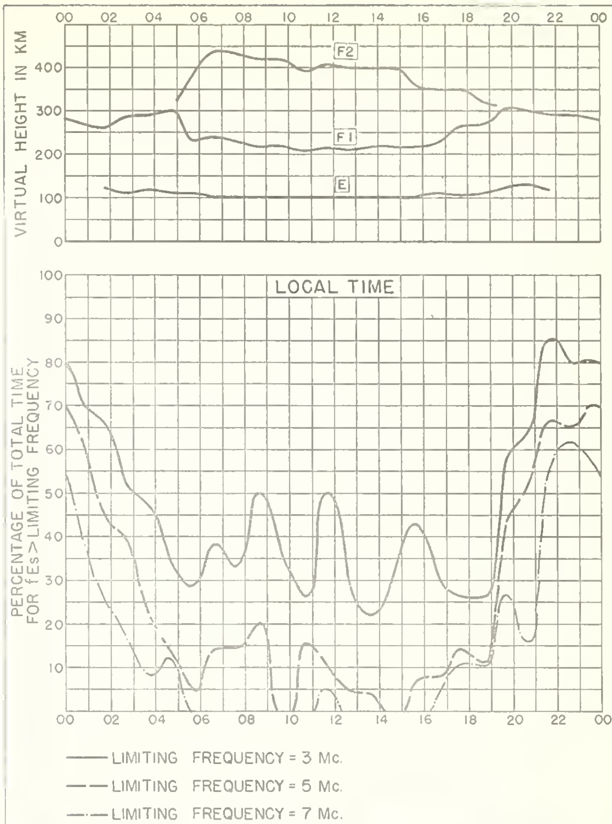

Fig. 34. CHURCHILL, CANADA JUNE 1951

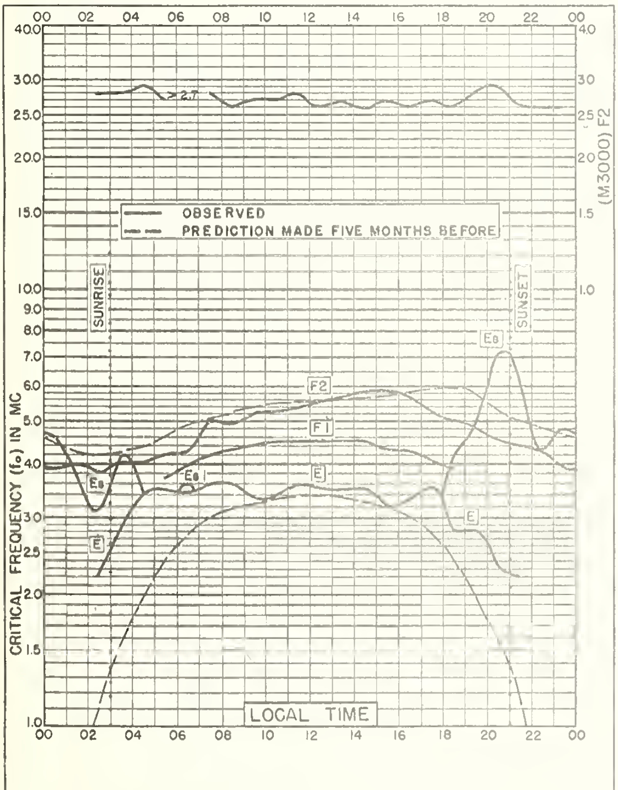

Fig. 35. FORT CHIMO, CANADA
58.1°N, 68.3°W JUNE 1951

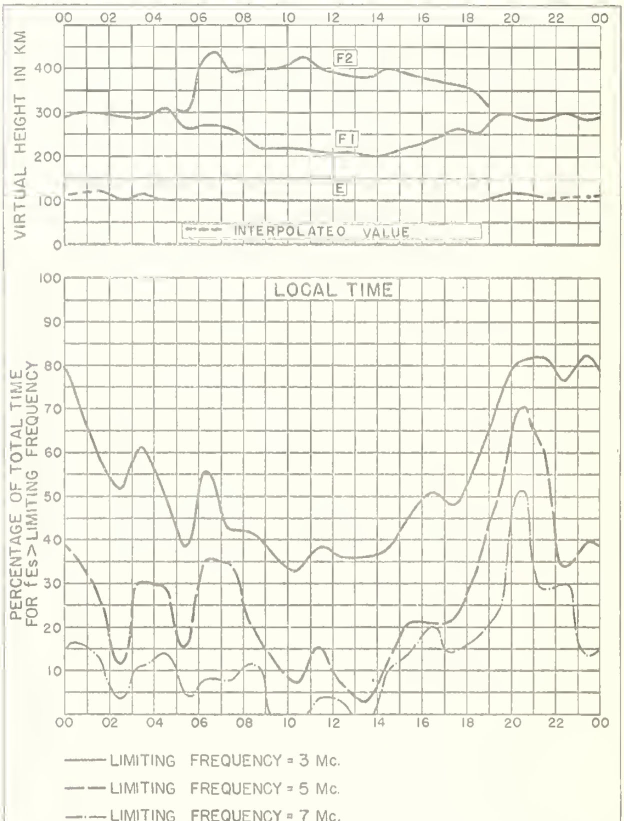

Fig. 36. FORT CHIMO, CANADA JUNE 1951

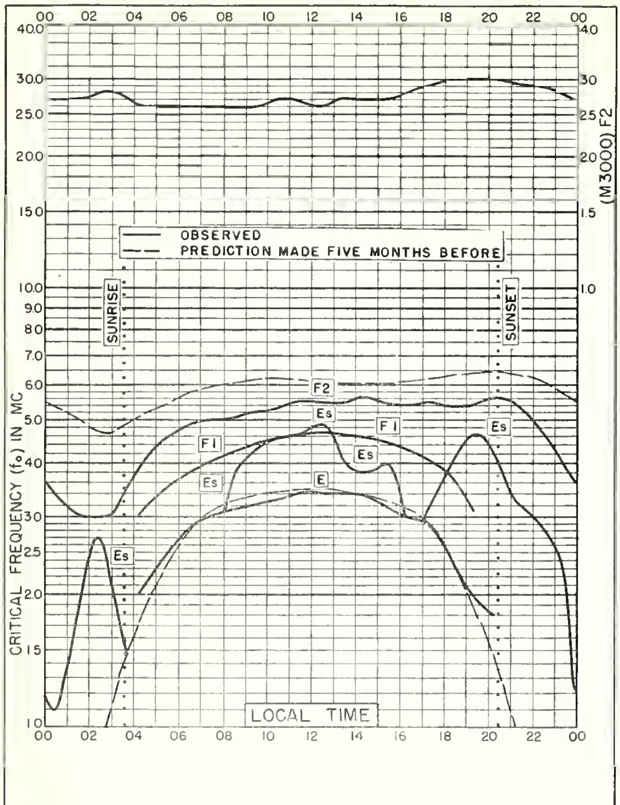

Fig. 37. PRINCE RUPERT, CANADA
54.3°N, 130.3°W JUNE 1951

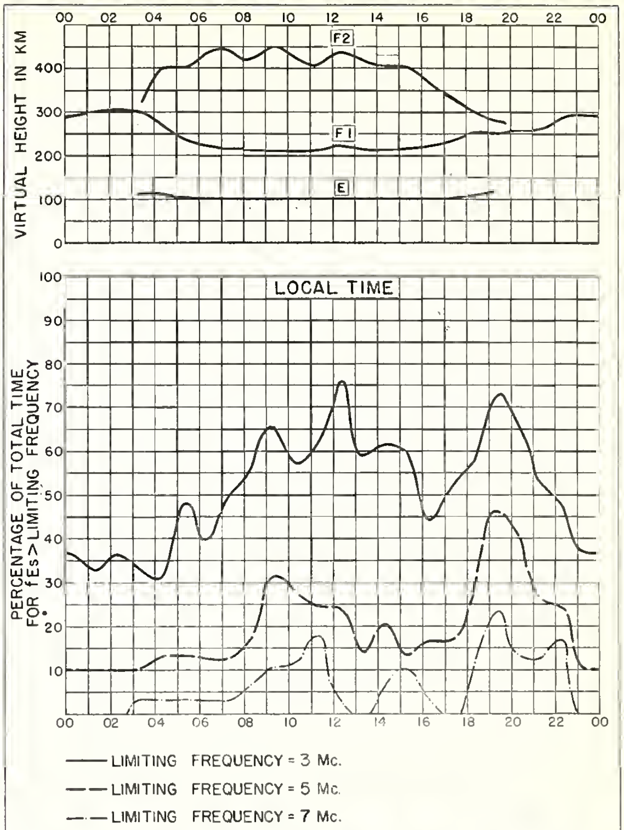

Fig. 38. PRINCE RUPERT, CANADA JUNE 1951

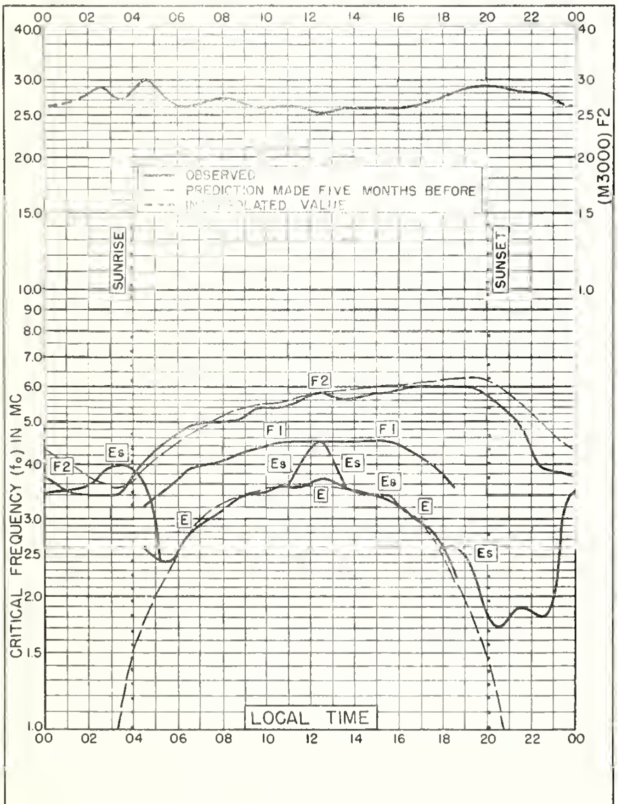

Fig. 39. WINNIPEG, CANADA
49.9°N, 97.4°W JUNE 1951

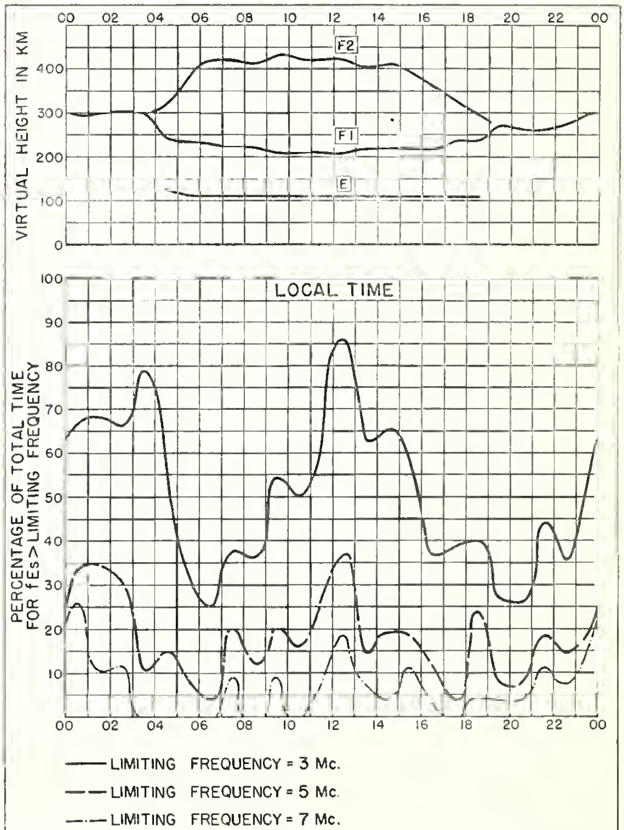

Fig. 40. WINNIPEG, CANADA JUNE 1951

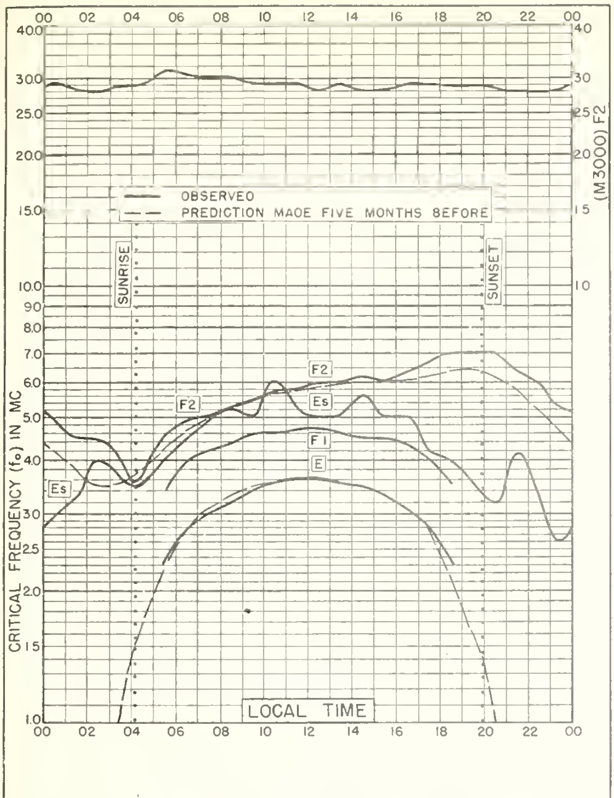

Fig. 41. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JUNE 1951

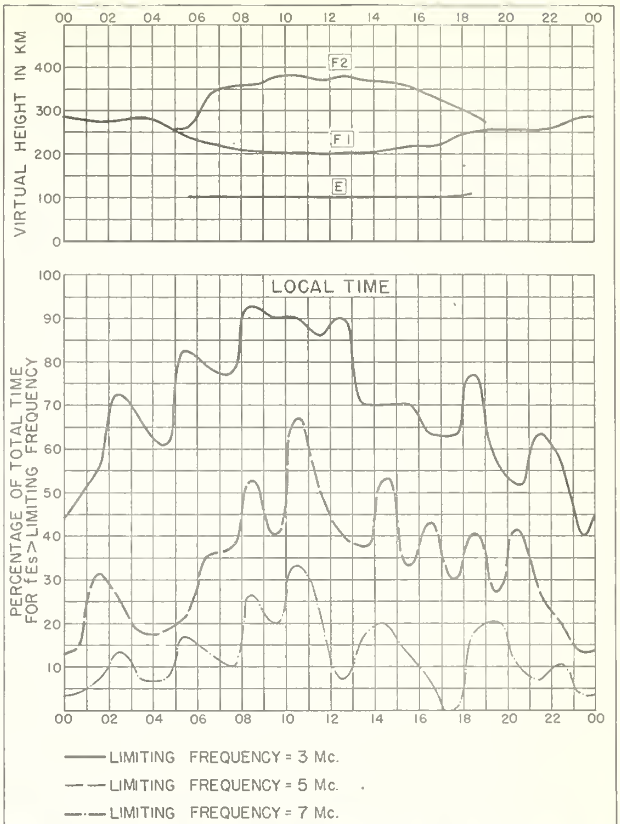

Fig. 42. ST. JOHN'S, NEWFOUNDLAND JUNE 1951

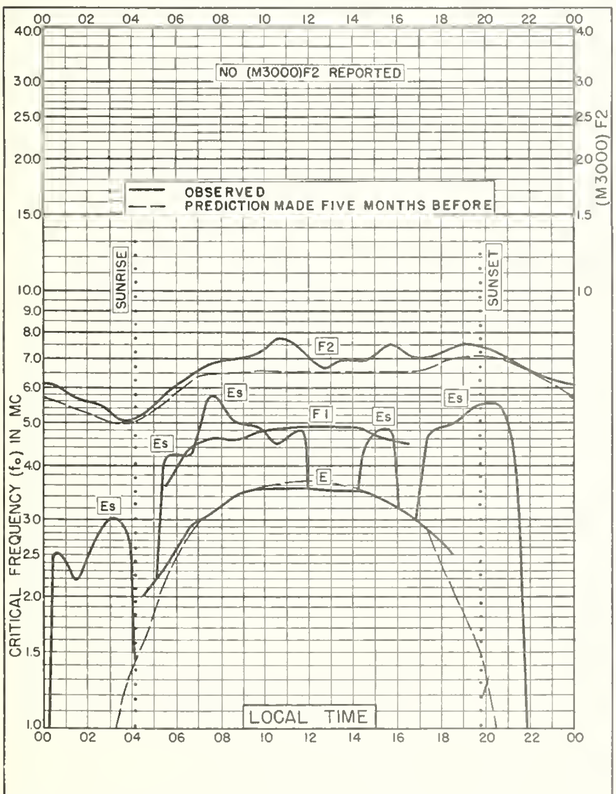

Fig. 43. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JUNE 1951

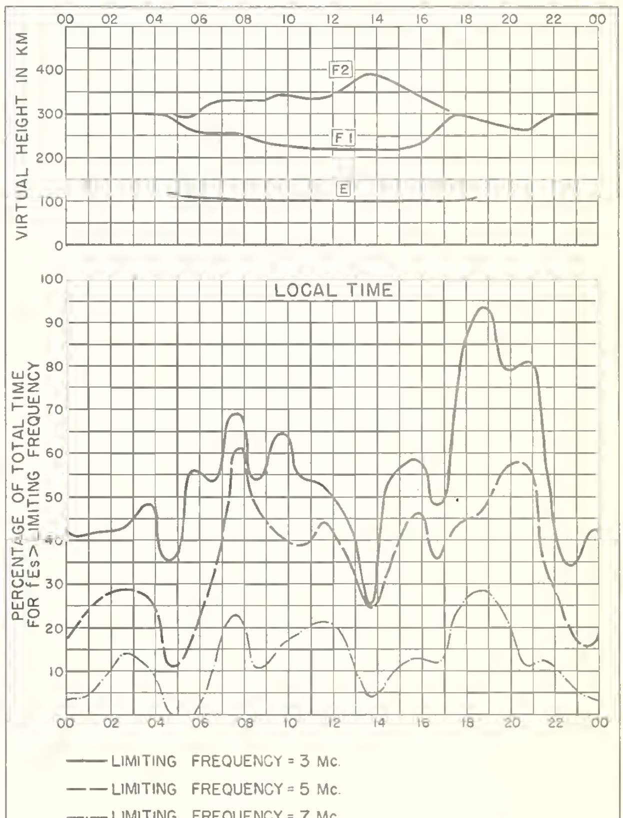

Fig. 44. SCHWARZENBURG, SWITZERLAND JUNE 1951

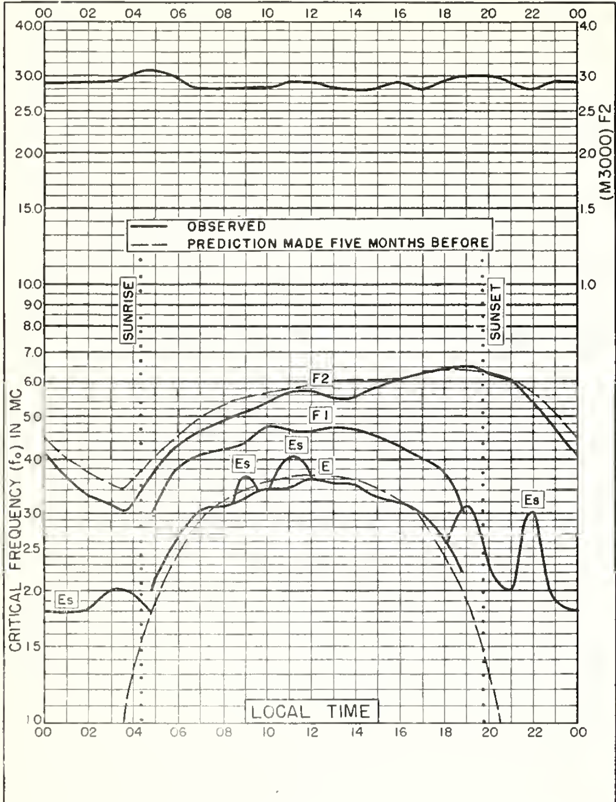

Fig. 45. OTTAWA, CANADA
45.4°N, 75.7°W JUNE 1951

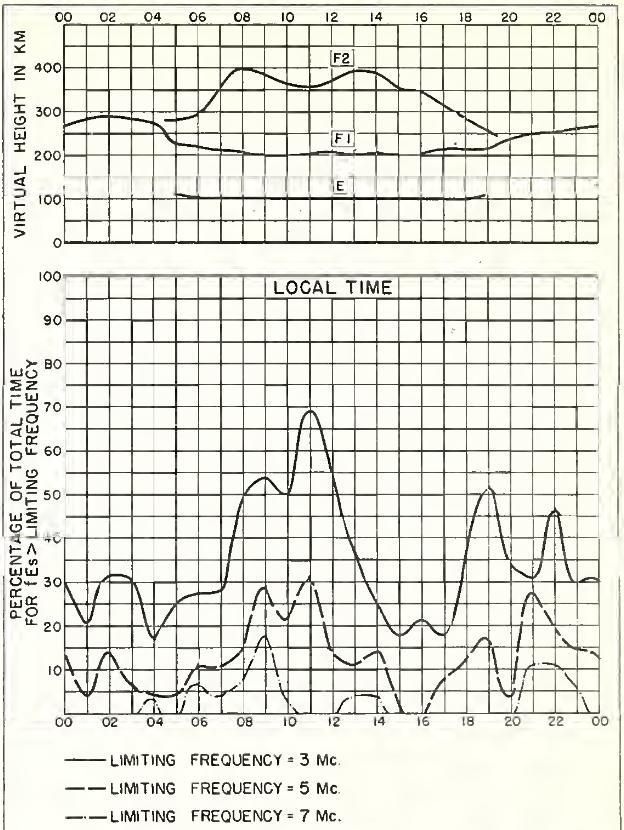

Fig. 46. OTTAWA, CANADA JUNE 1951

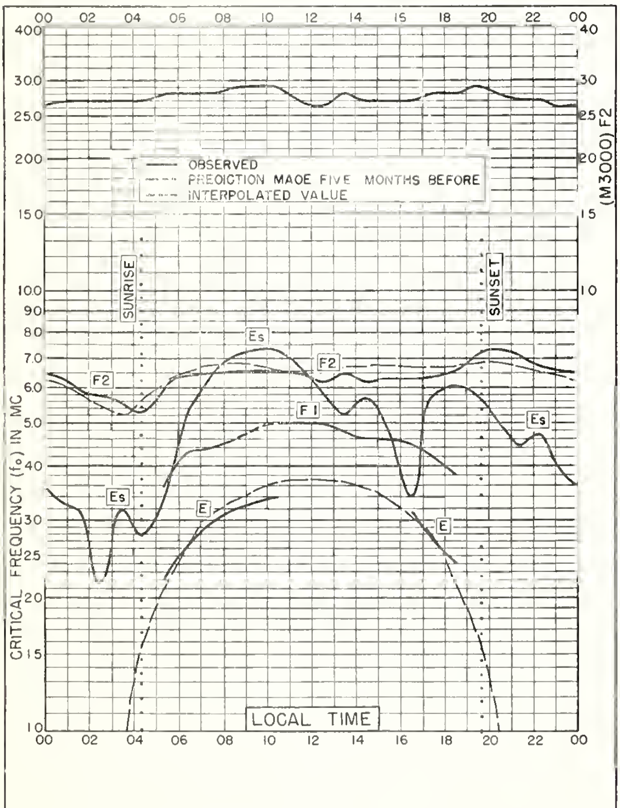

Fig. 47. WAKKANAI, JAPAN
45.4°N, 141.7°E JUNE 1951

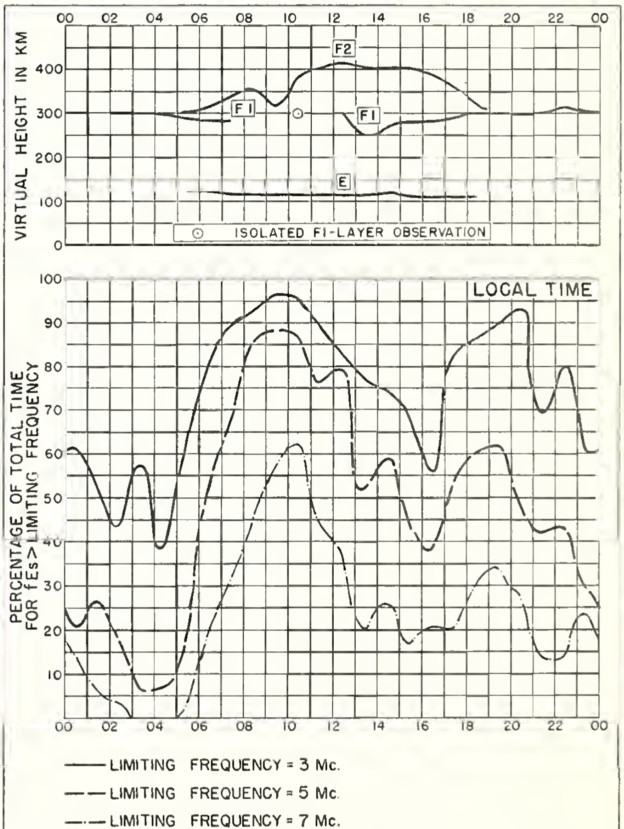

Fig. 48. WAKKANAI, JAPAN JUNE 1951

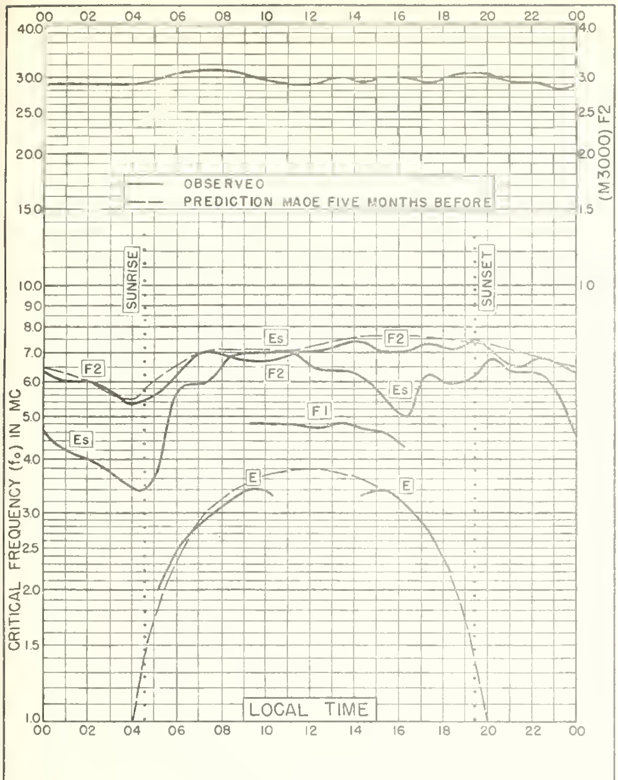

Fig. 49. AKITA, JAPAN
39.7°N, 140.1°E JUNE 1951

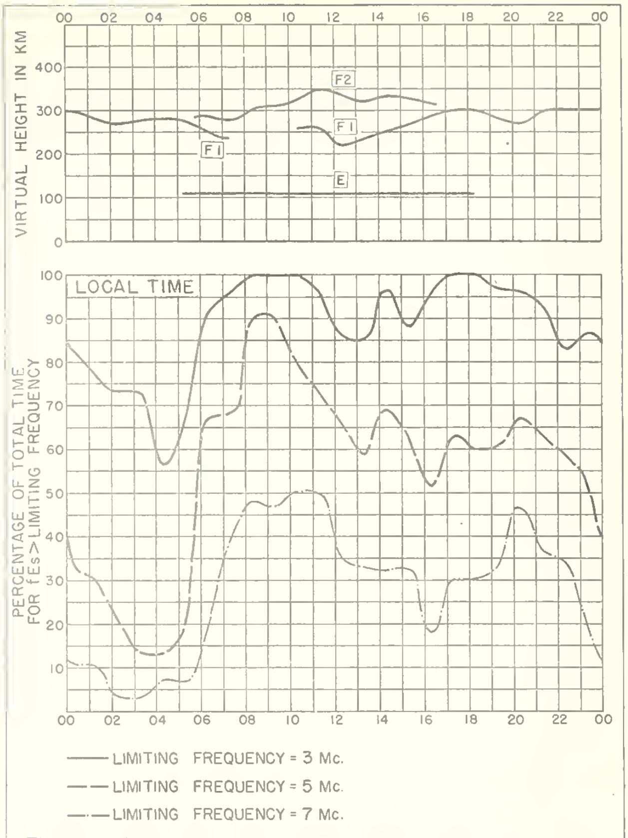

Fig. 50. AKITA, JAPAN JUNE 1951

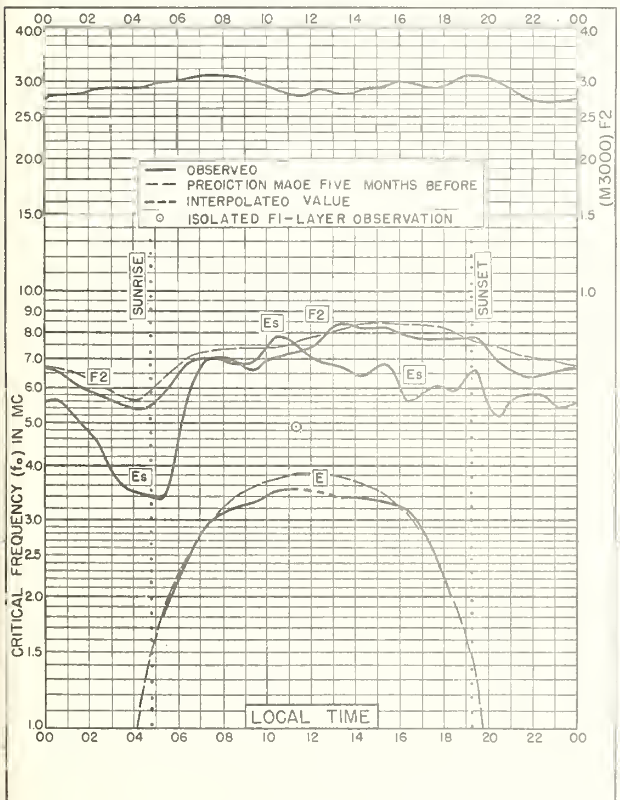

Fig. 51. TOKYO, JAPAN
35.7°N, 139.5°E JUNE 1951

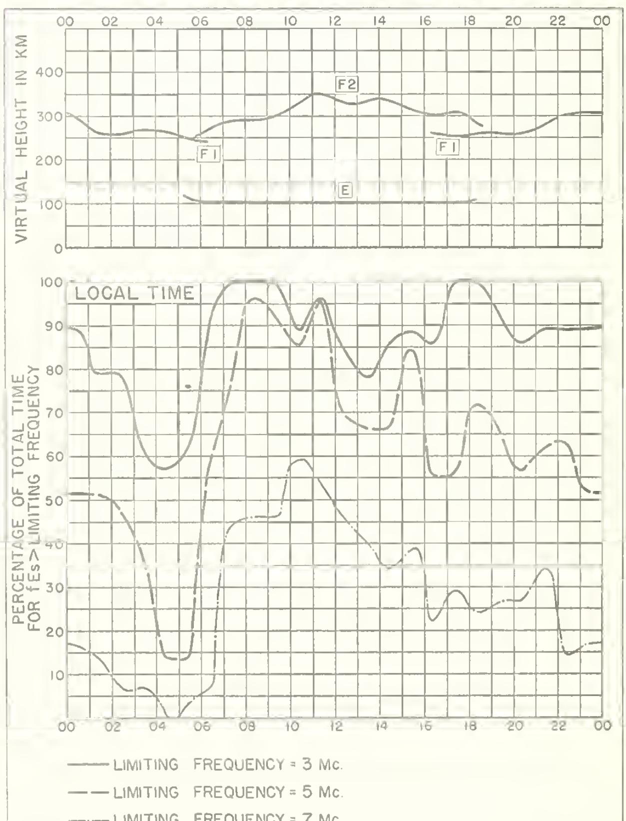

Fig. 52. TOKYO, JAPAN JUNE 1951

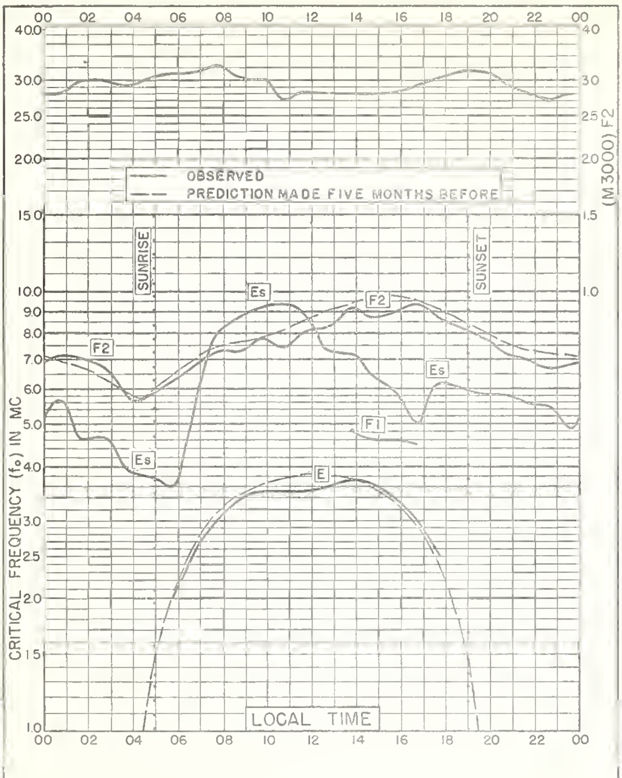

Fig. 53. YAMAGAWA, JAPAN
31.2°N, 130.6°E JUNE 1951

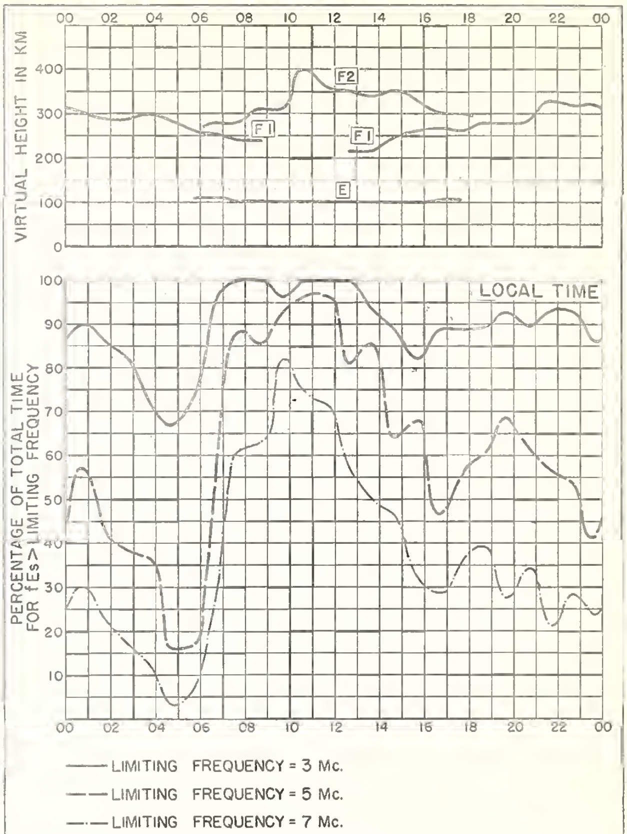

Fig. 54. YAMAGAWA, JAPAN JUNE 1951

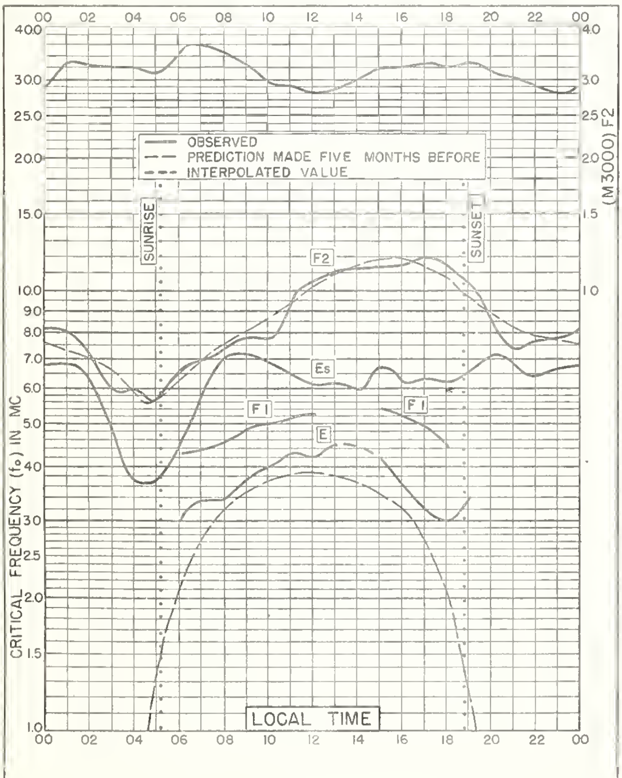

Fig. 55. FORMOSA, CHINA
25.0°N, 121.0°E JUNE 1951

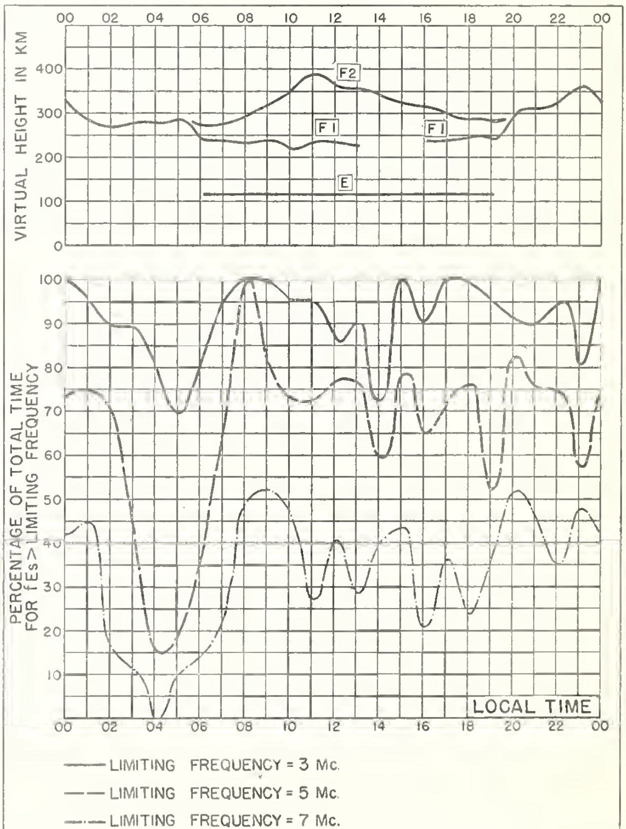

Fig. 56. FORMOSA, CHINA JUNE 1951

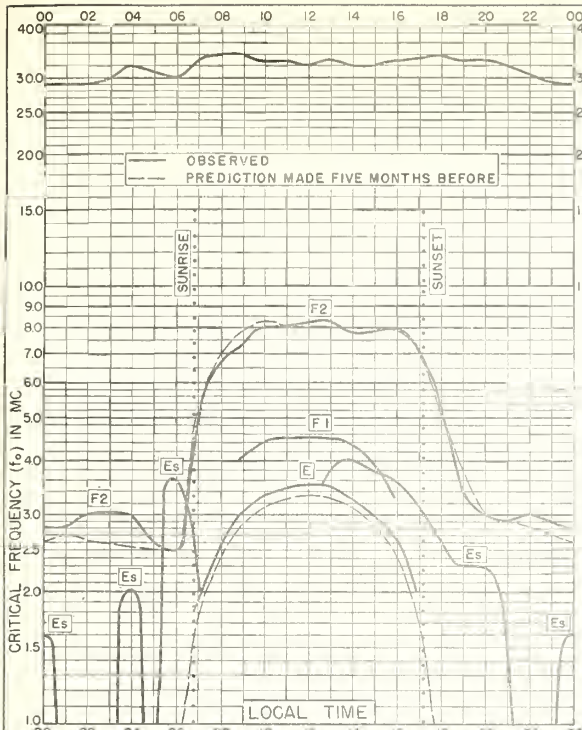

Fig. 57. JOHANNESBURG, U. OF S. AFRICA
26.2° S, 28.1°E JUNE 1951

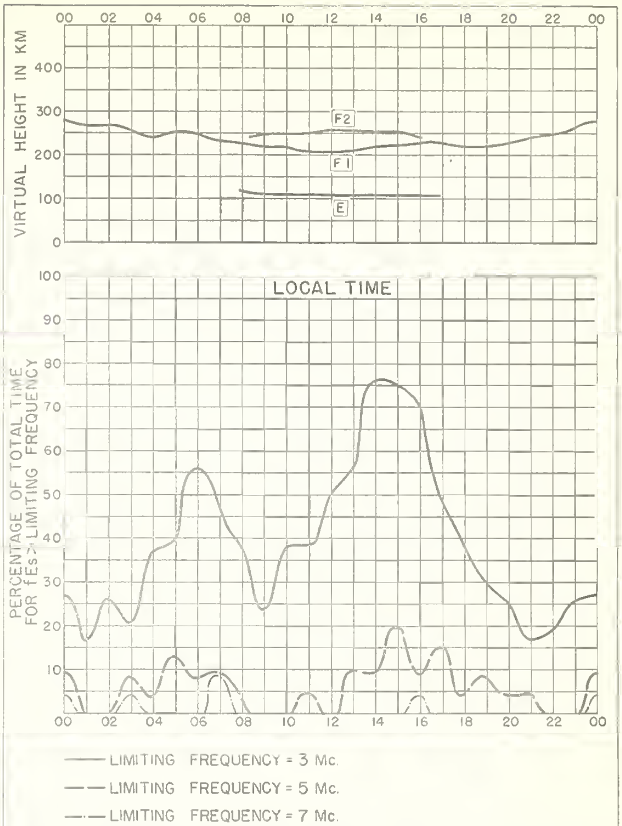

Fig. 58. JOHANNESBURG, U. OF S. AFRICA JUNE 1951

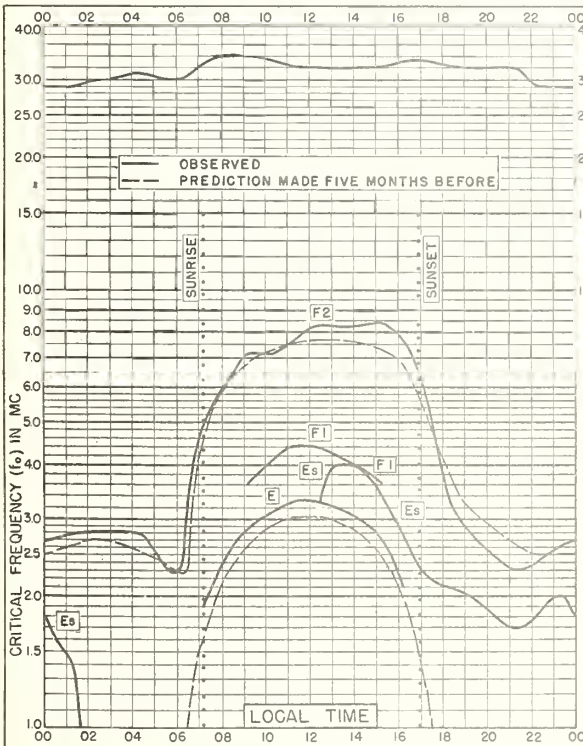

Fig. 59. CAPETOWN, U. OF S. AFRICA
34. 2°S, 18. 3°E JUNE 1951

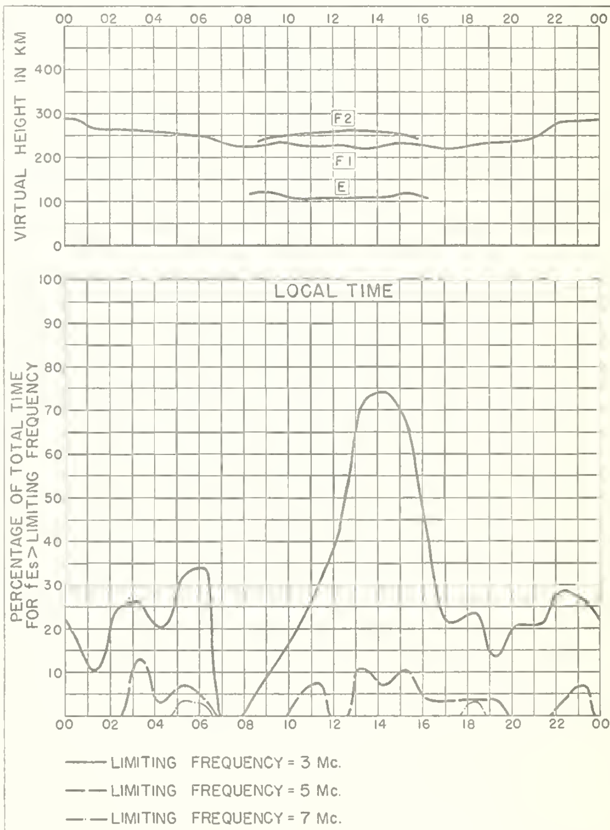

Fig. 60. CAPETOWN, U. OF S. AFRICA JUNE 1951

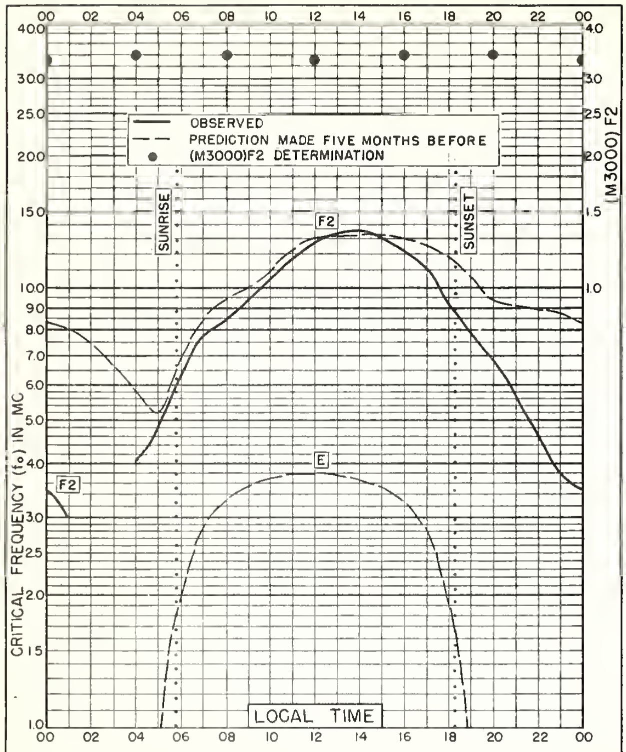

Fig. 61. DELHI, INDIA
28.6°N, 77.1°E APRIL 1951

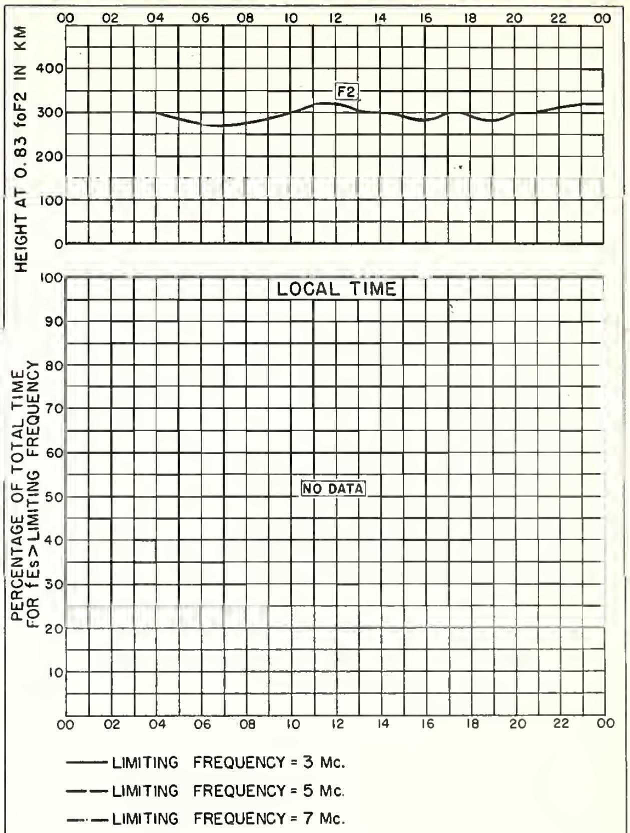

Fig. 62. DELHI, INDIA APRIL 1951

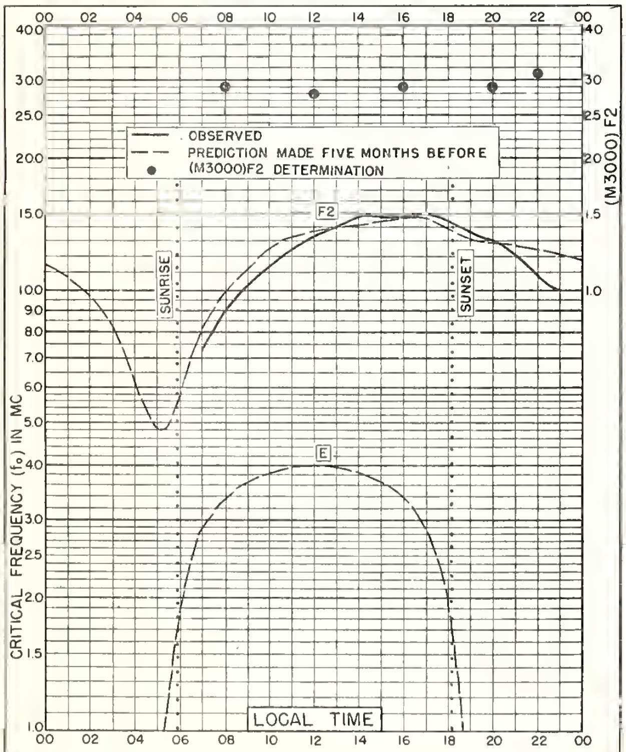

Fig. 63. BOMBAY, INDIA
19.0°N, 73.0°E APRIL 1951

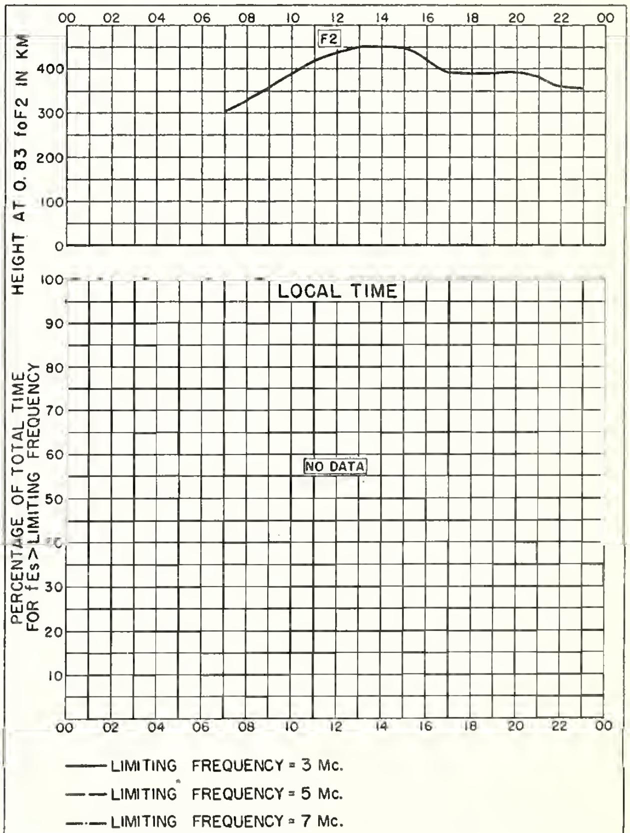

Fig. 64. BOMBAY, INDIA APRIL 1951

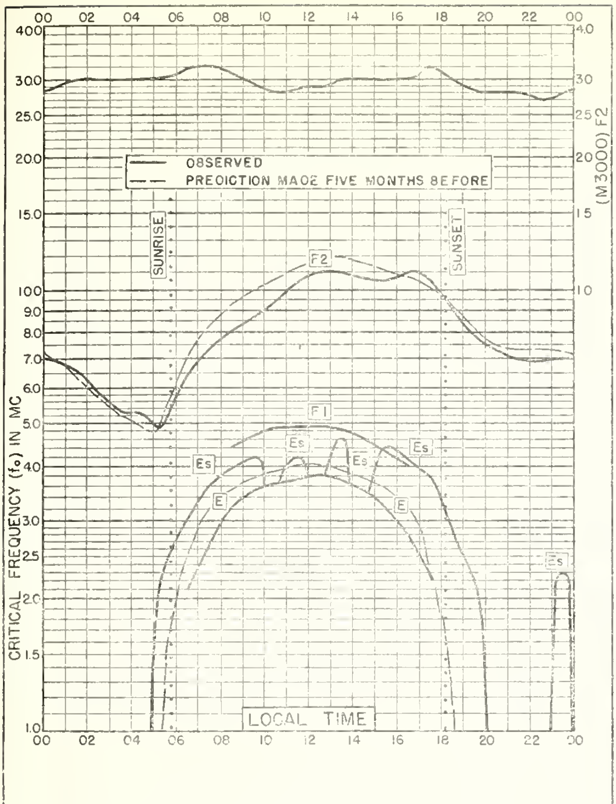

Fig. 65. PUERTO RICO, W. I.
18.5°N, 67.2°W APRIL 1951

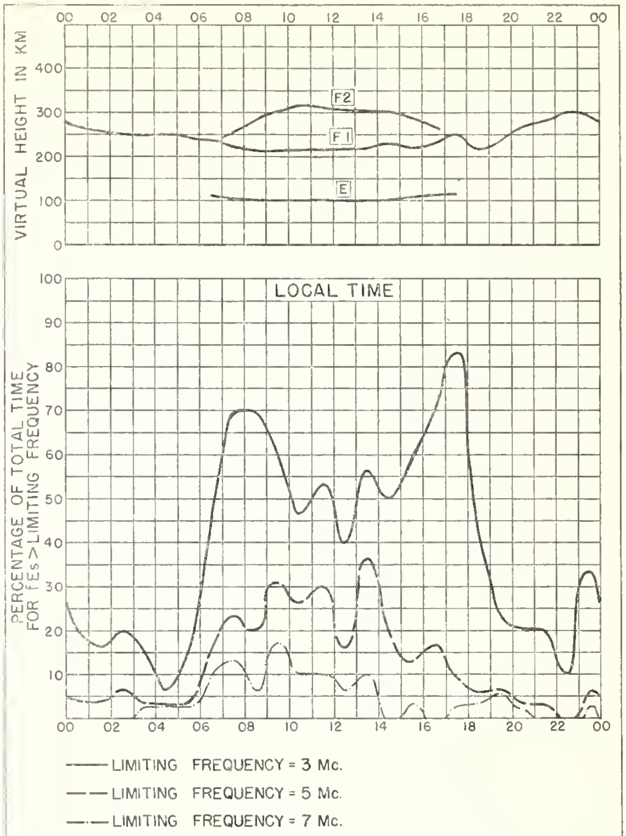

Fig. 66. PUERTO RICO, W. I. APRIL 1951

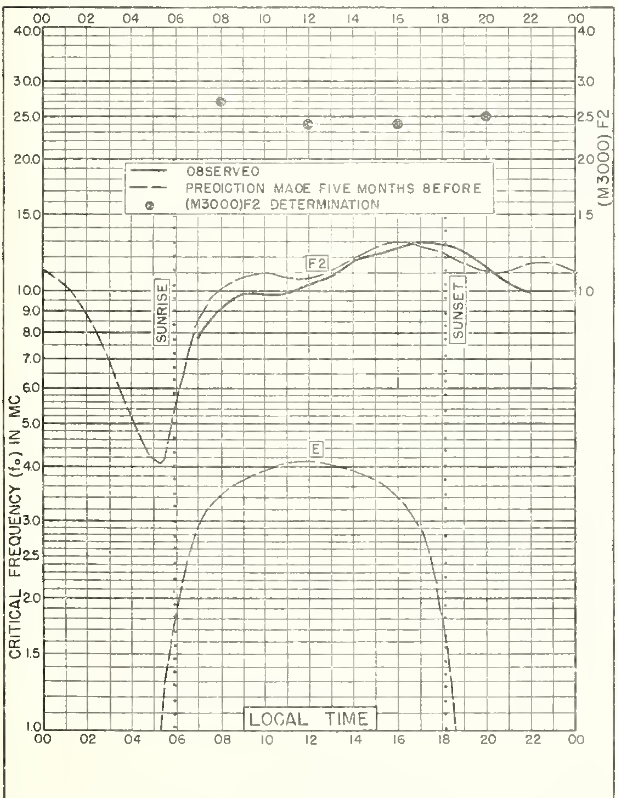

Fig. 67. MADRAS, INDIA
13.0°N, 80.2°E APRIL 1951

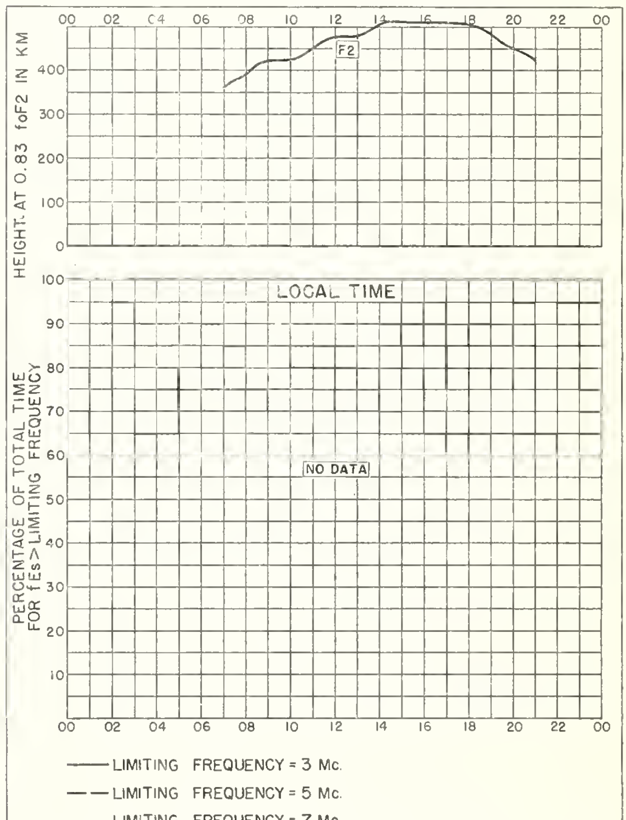

Fig. 68. MADRAS, INDIA APRIL 1951

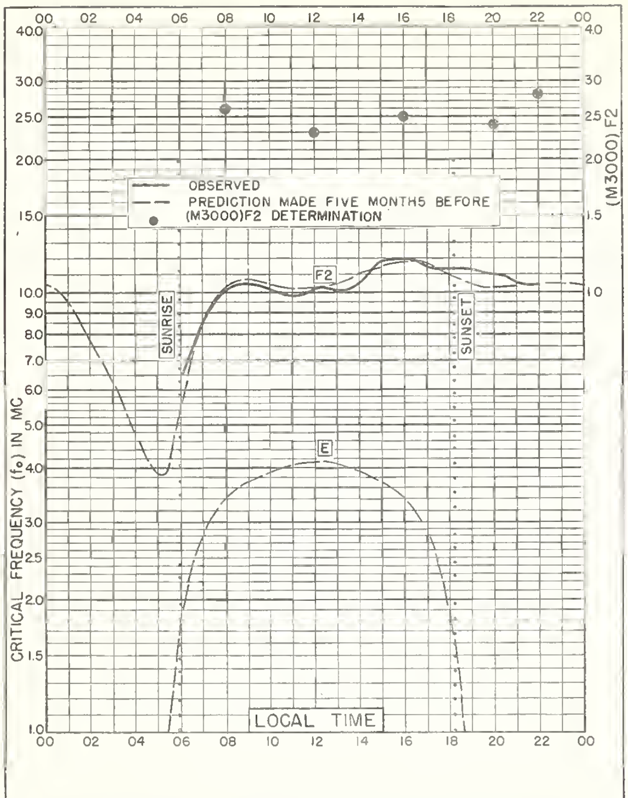

Fig. 69. TIRUCHY, INDIA
10.8°N, 78.8°E APRIL 1951

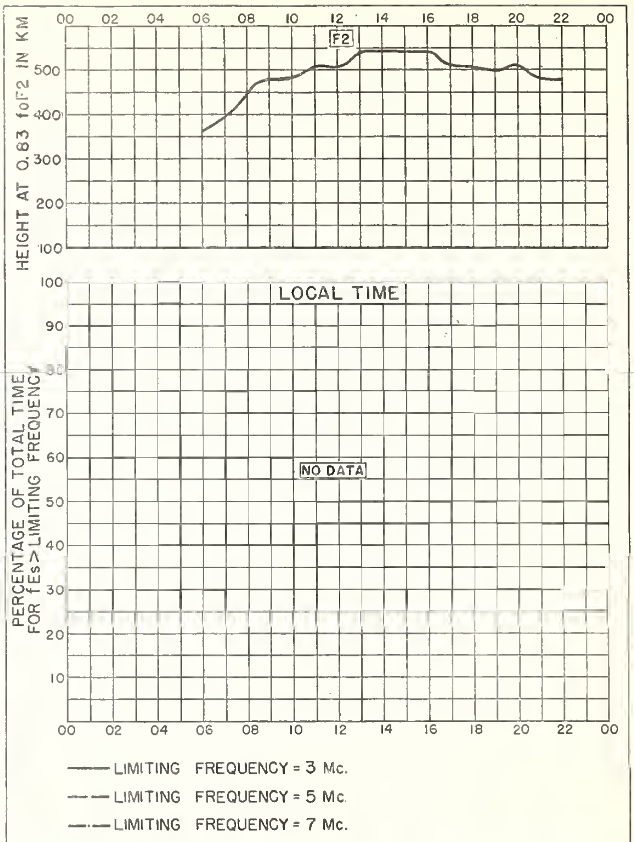

Fig. 70. TIRUCHY, INDIA APRIL 1951

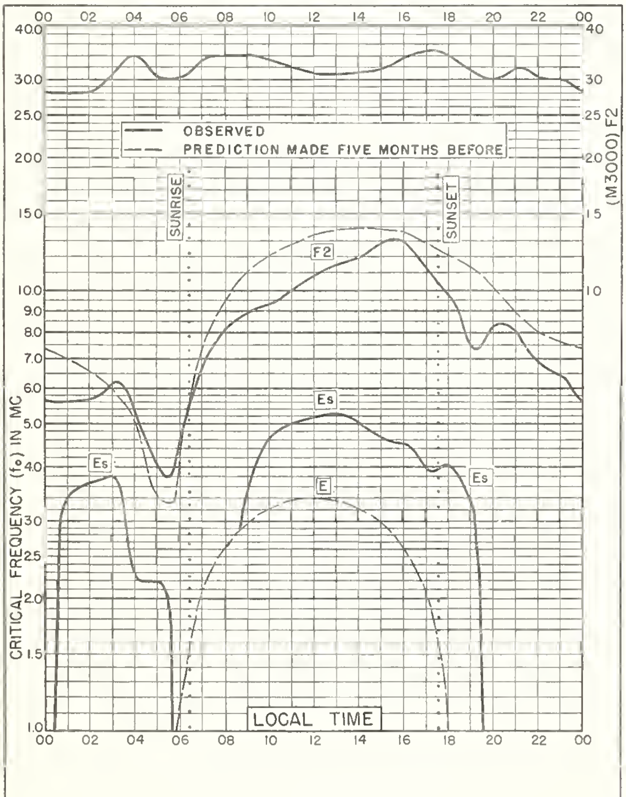

Fig. 71. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W APRIL 1951

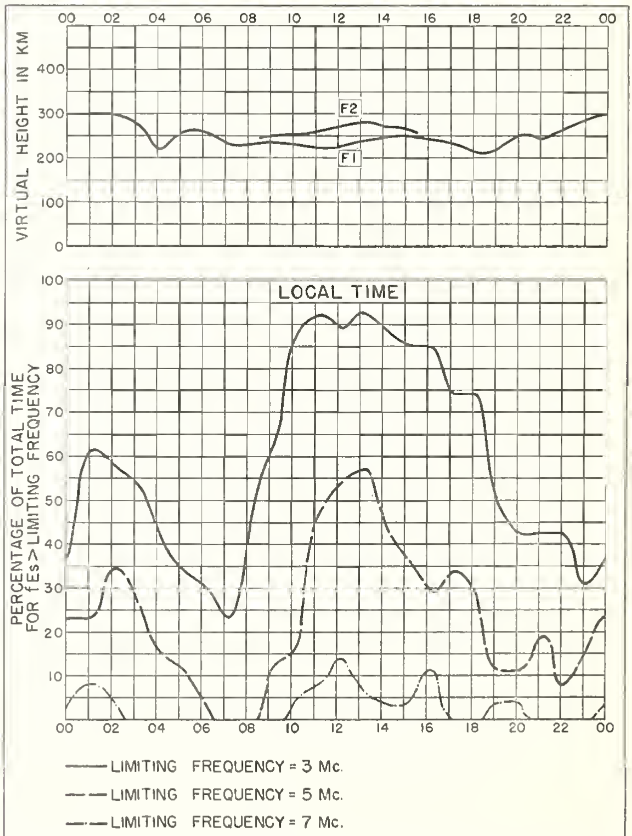

Fig. 72. BUENOS AIRES, ARGENTINA APRIL 1951

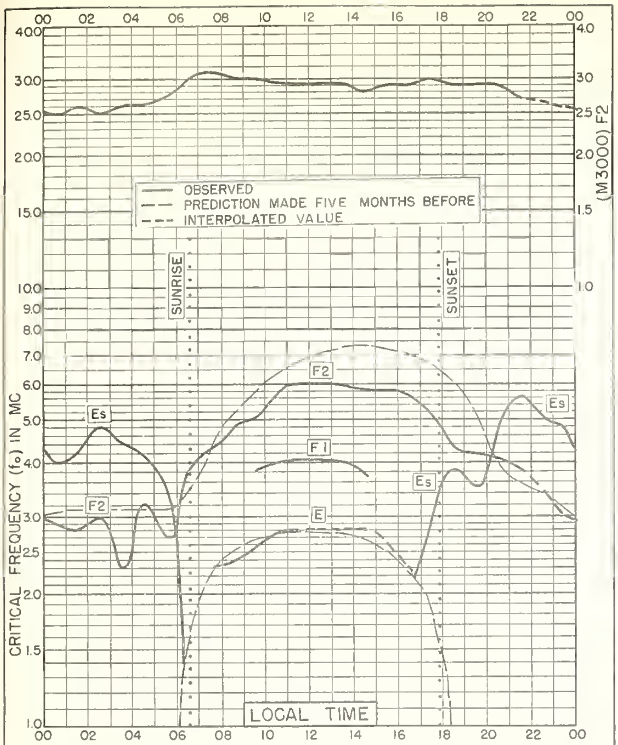

Fig. 73. REYKJAVIK, ICELAND
64.1°N, 21.8°W MARCH 1951

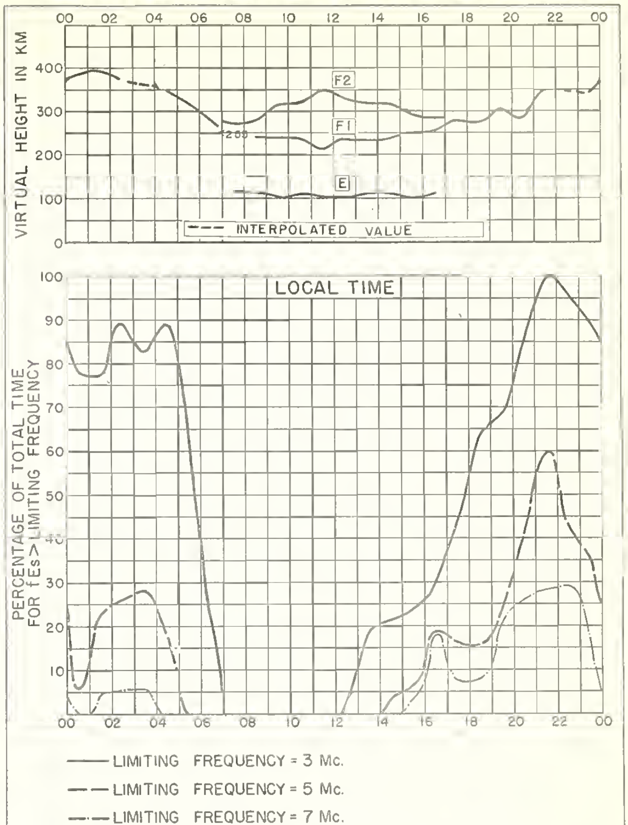

Fig. 74. REYKJAVIK, ICELAND MARCH 1951

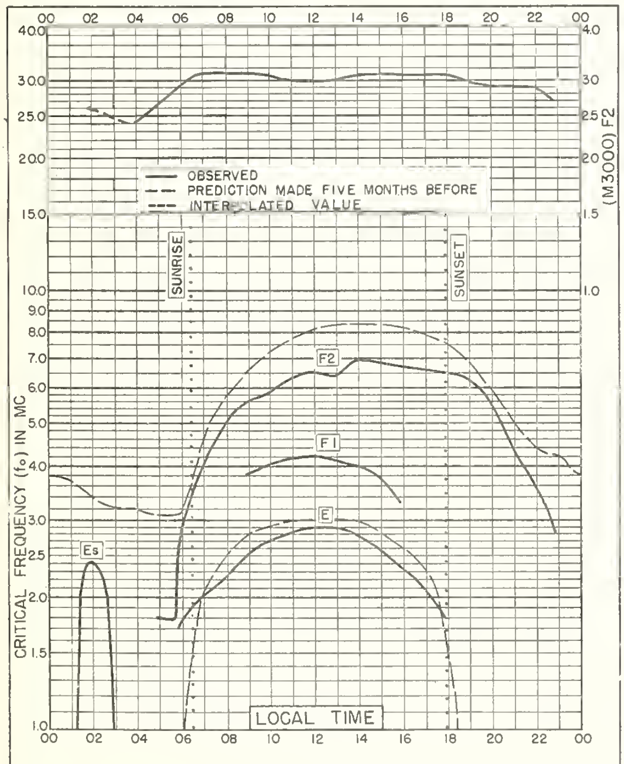

Fig. 75. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W MARCH 1951

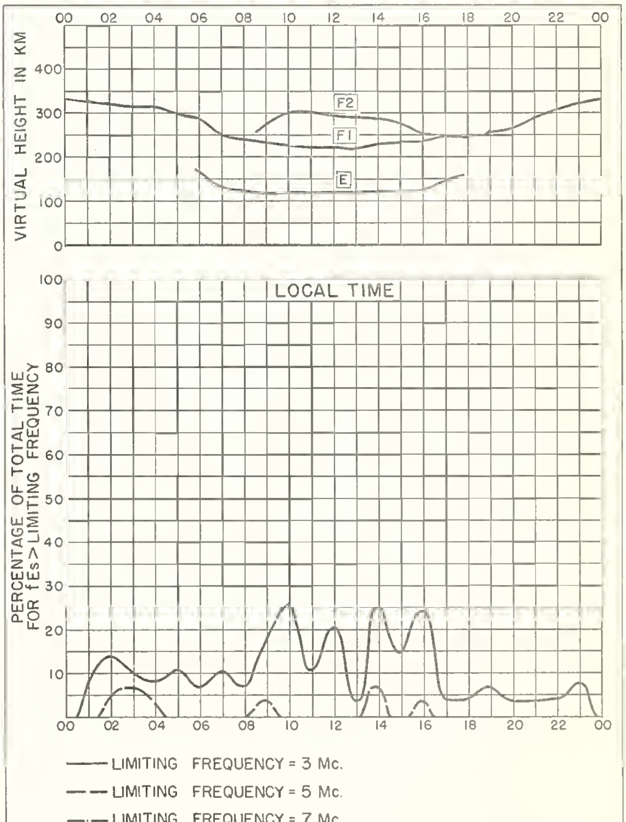

Fig. 76. FRASERBURGH, SCOTLAND MARCH 1951

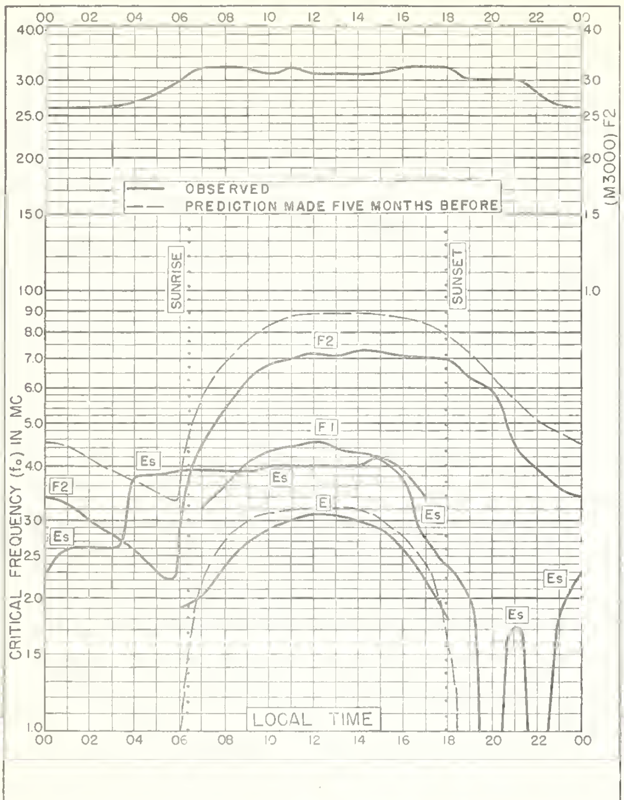

Fig. 77. SLOUGH, ENGLAND
51.5°N, 0.6°W
MARCH 1951

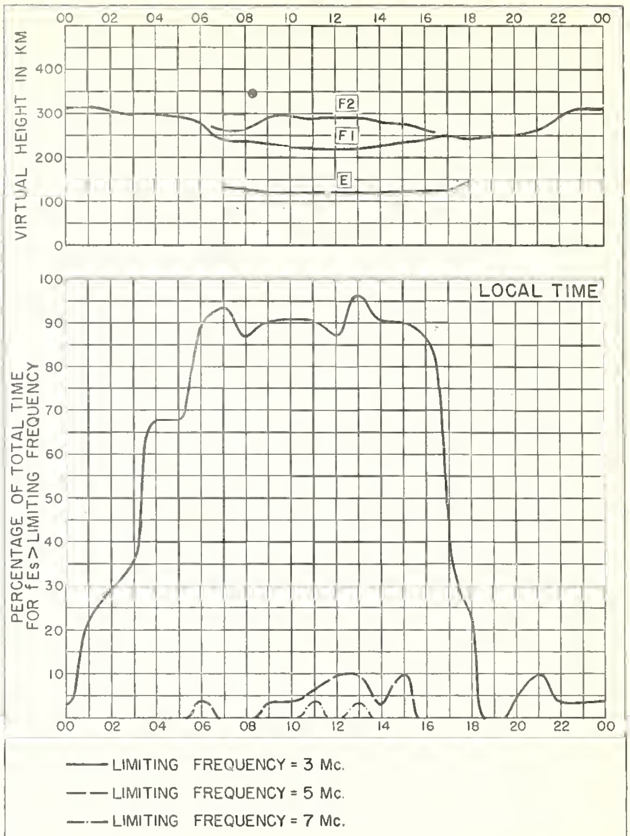

Fig. 78. SLOUGH, ENGLAND
MARCH 1951

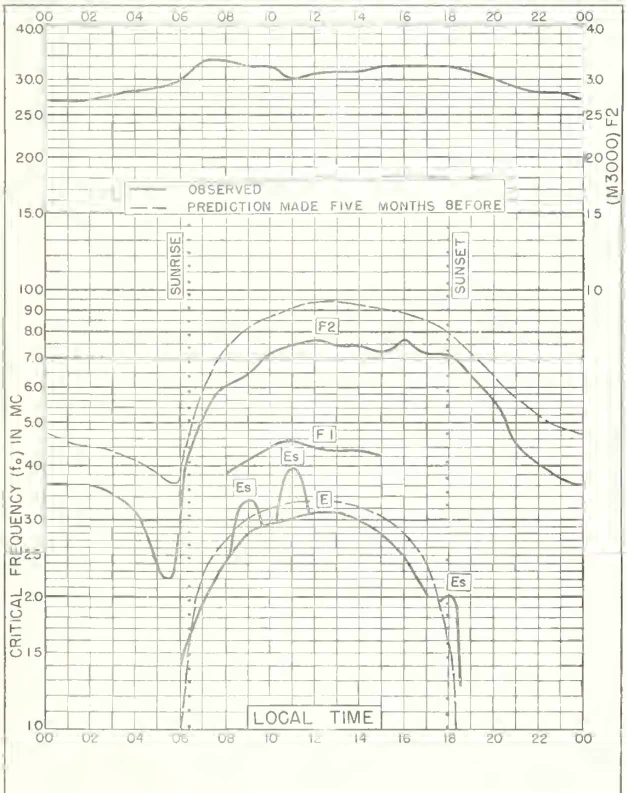

Fig. 79. FRIBOURG, GERMANY
48.1°N, 7.8°E
MARCH 1951

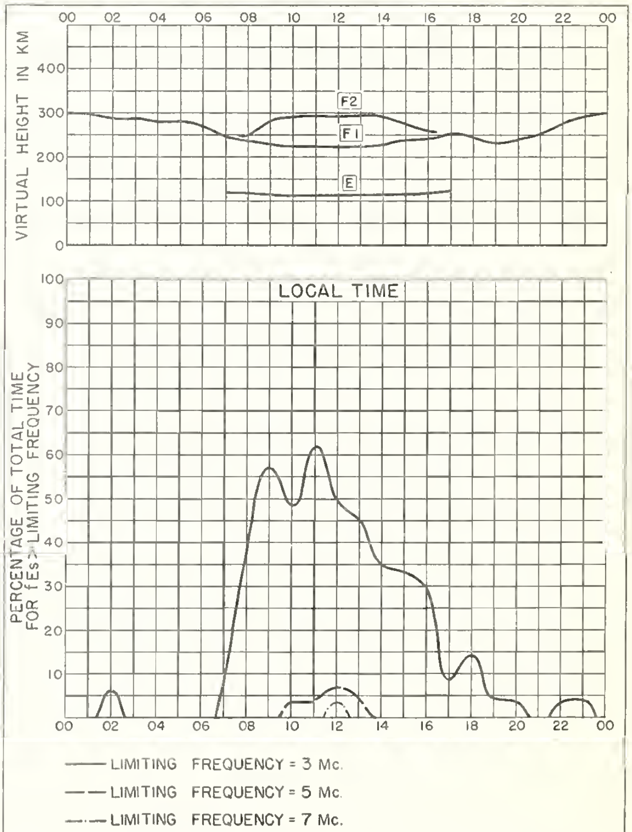

Fig. 80. FRIBOURG, GERMANY
MARCH 1951

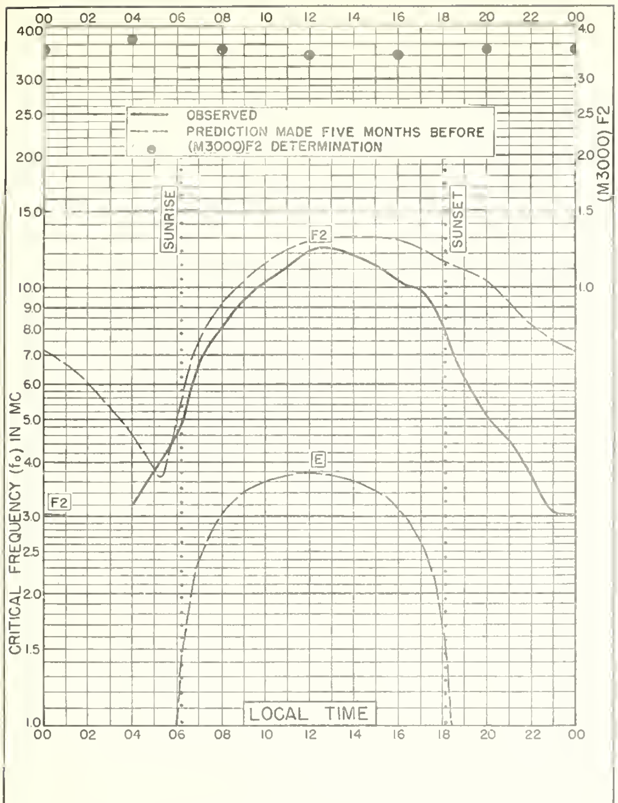

Fig. 81. DELHI, INDIA
28.6°N, 77.1°E MARCH 1951

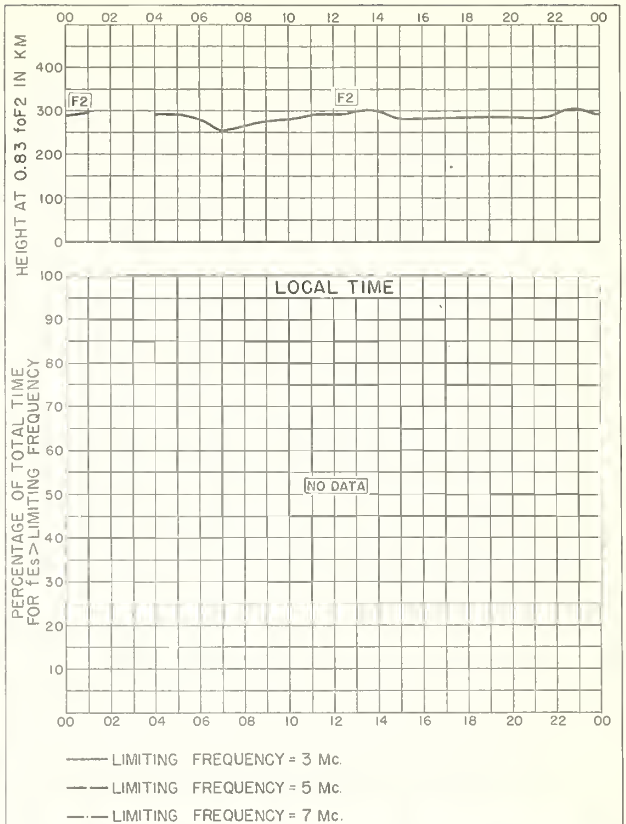

Fig. 82. DELHI, INDIA MARCH 1951

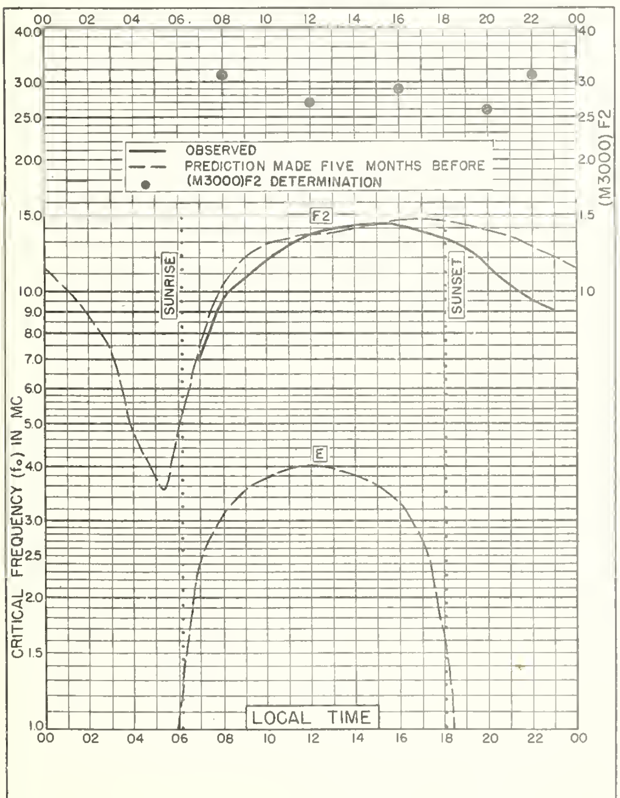

Fig. 83. BOMBAY, INDIA
19.0°N, 73.0°E MARCH 1951

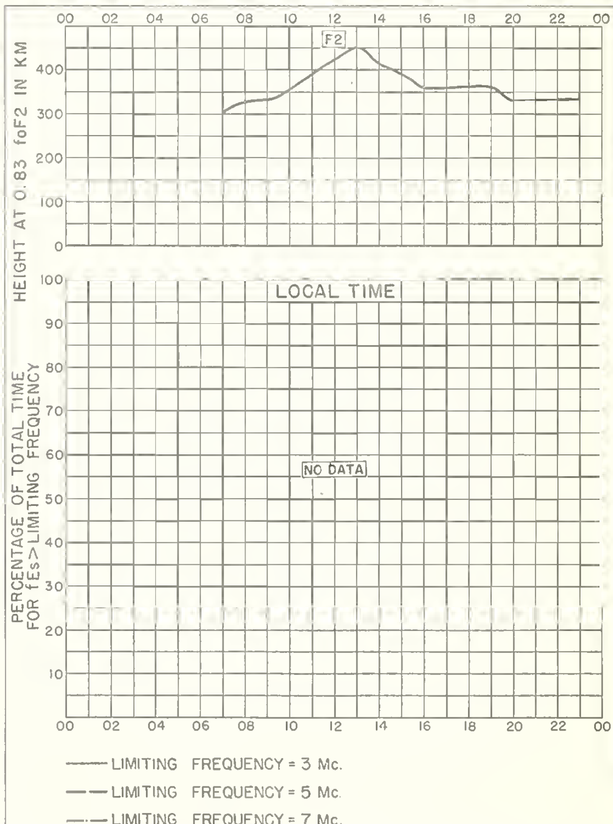

Fig. 84. BOMBAY, INDIA MARCH 1951

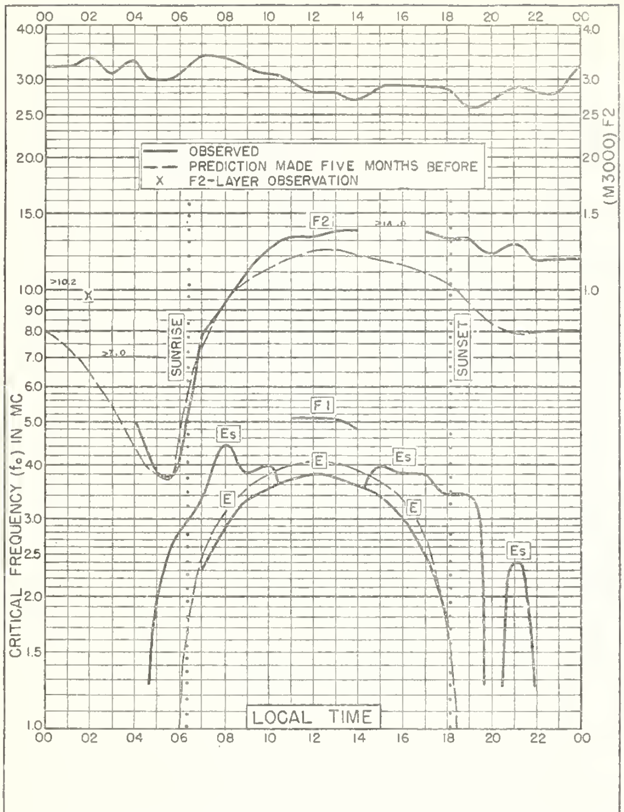

Fig. 85. DAKAR, FRENCH W. AFRICA
14.6°N, 17.4°W MARCH 1951

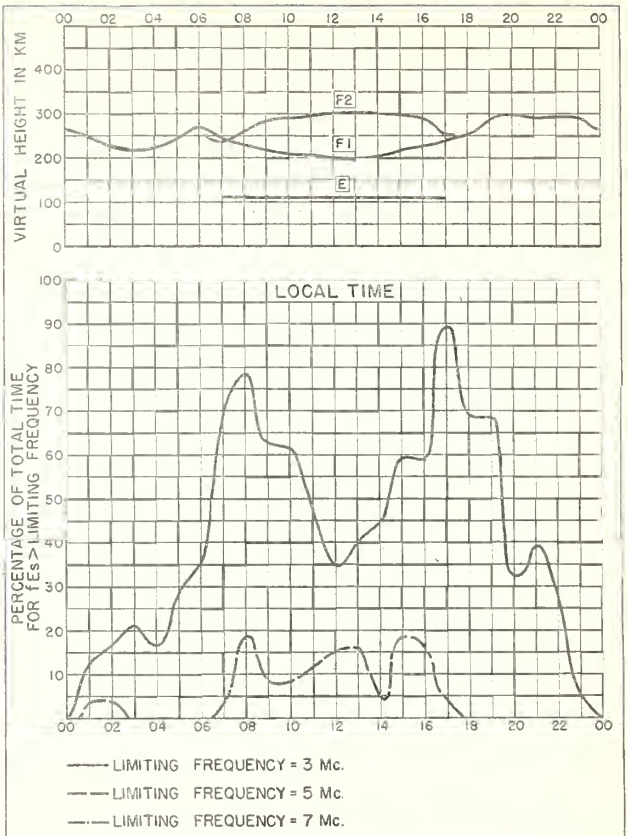

Fig. 86. DAKAR, FRENCH W. AFRICA MARCH 1951

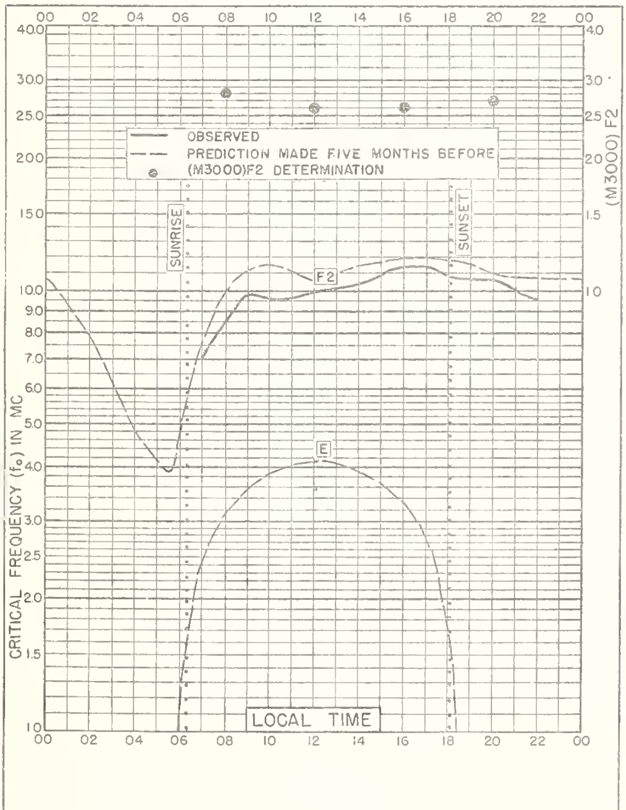

Fig. 87. MADRAS, INDIA
13.0°N, 80.2°E MARCH 1951

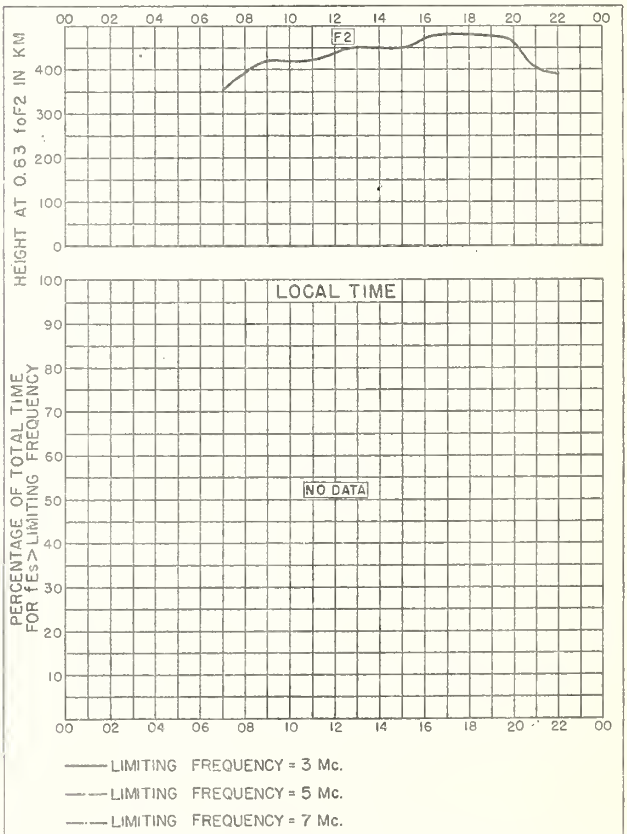

Fig. 88. MADRAS, INDIA MARCH 1951

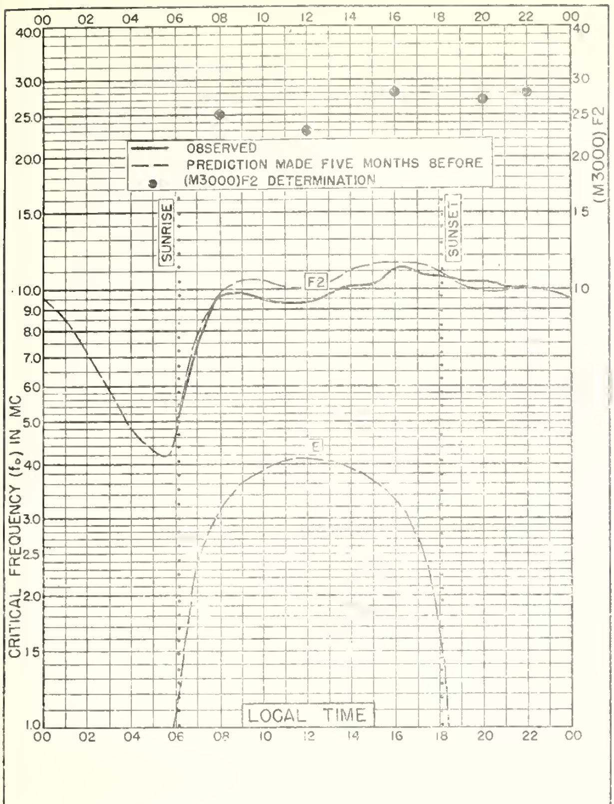

Fig. 89. TIRUCHY, INDIA
10.8°N, 78.8°E MARCH 1951

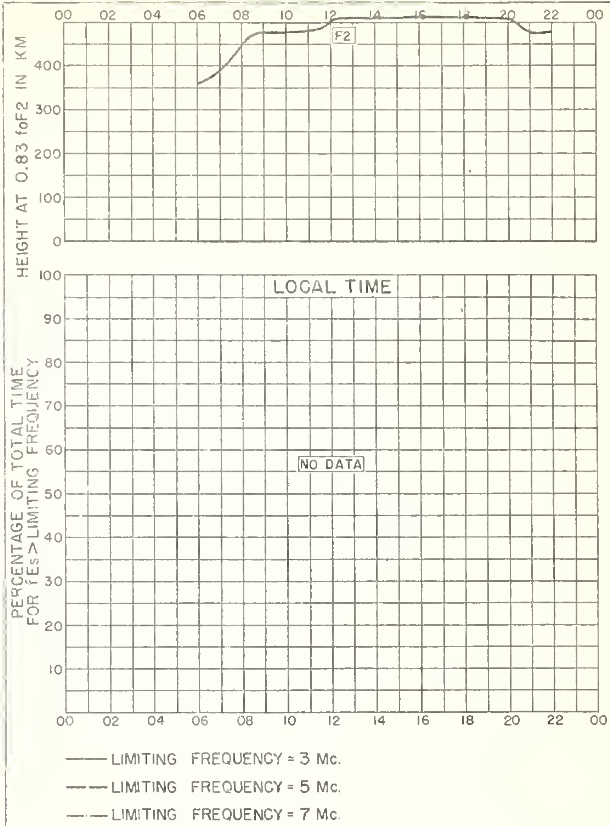

Fig. 90. TIRUCHY, INDIA MARCH 1951

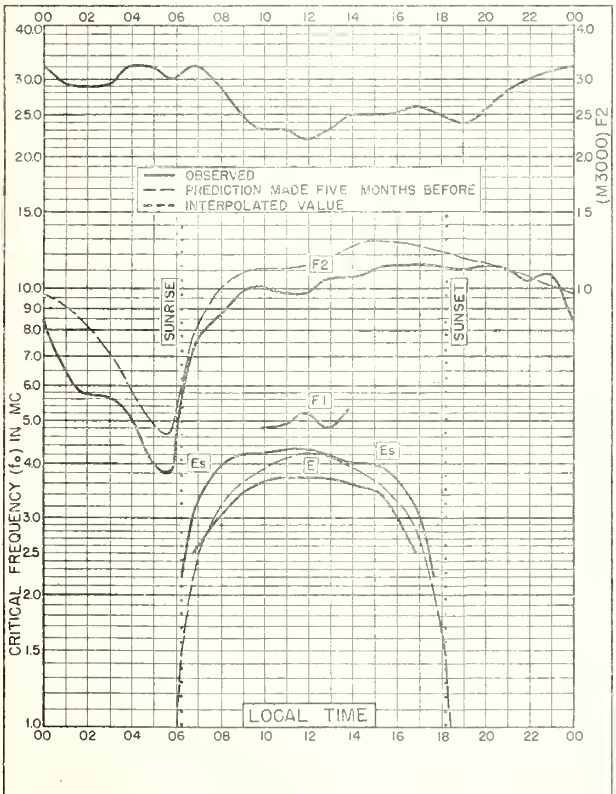

Fig. 91. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E MARCH 1951

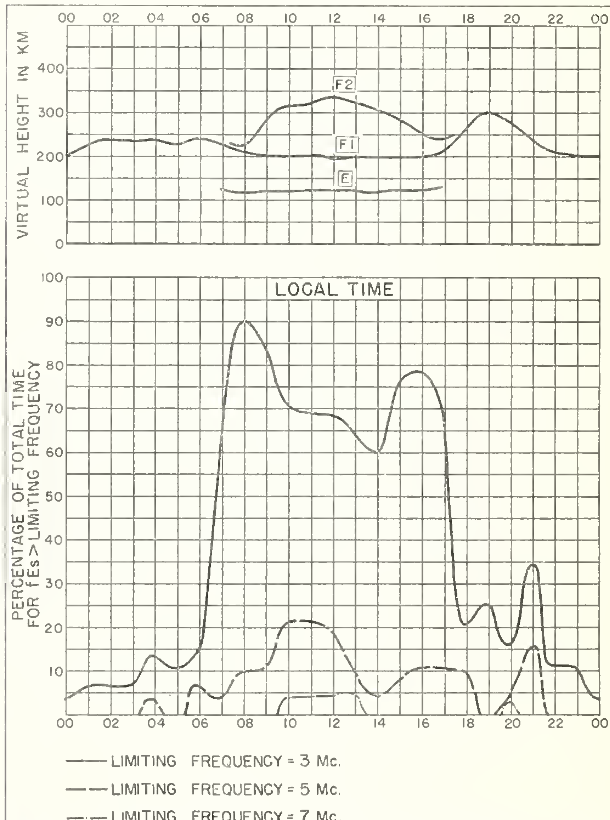

Fig. 92. SINGAPORE, BRIT. MALAYA MARCH 1951

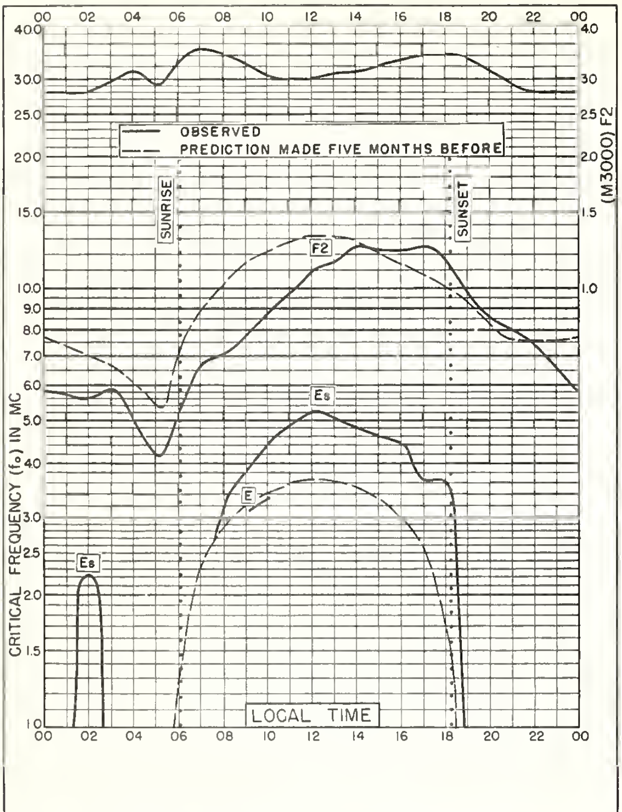

Fig. 93. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W MARCH 1951

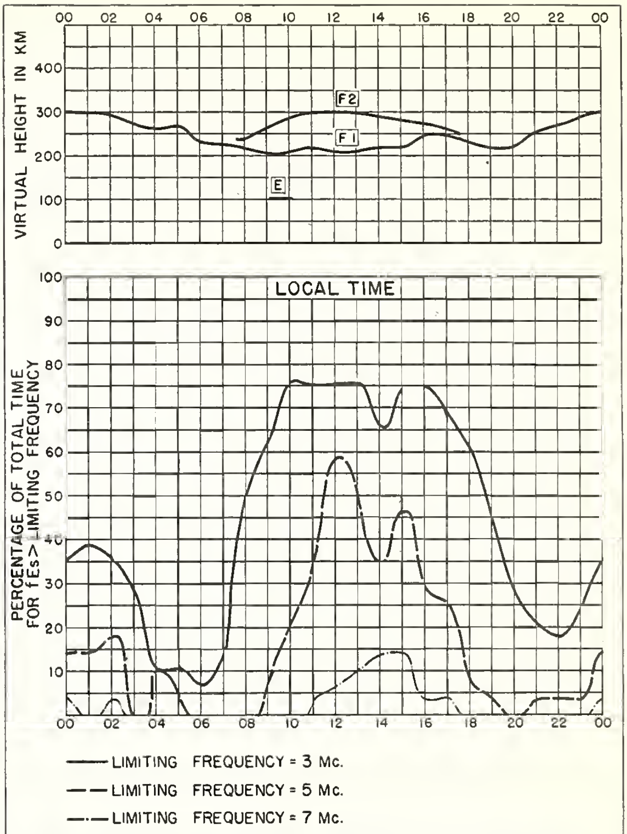

Fig. 94. BUENOS AIRES, ARGENTINA MARCH 1951

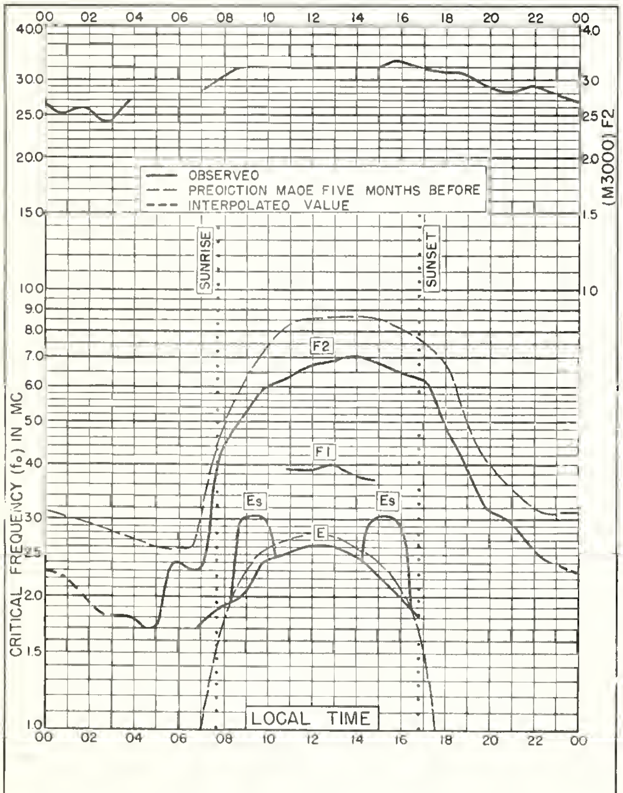

Fig. 95. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W FEBRUARY 1951

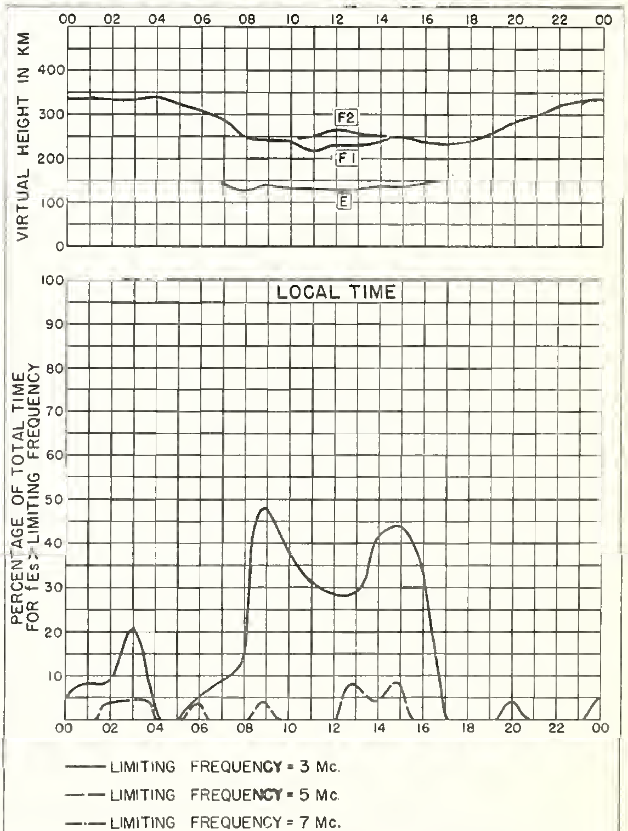

Fig. 96. FRASERBURGH, SCOTLAND FEBRUARY 1951

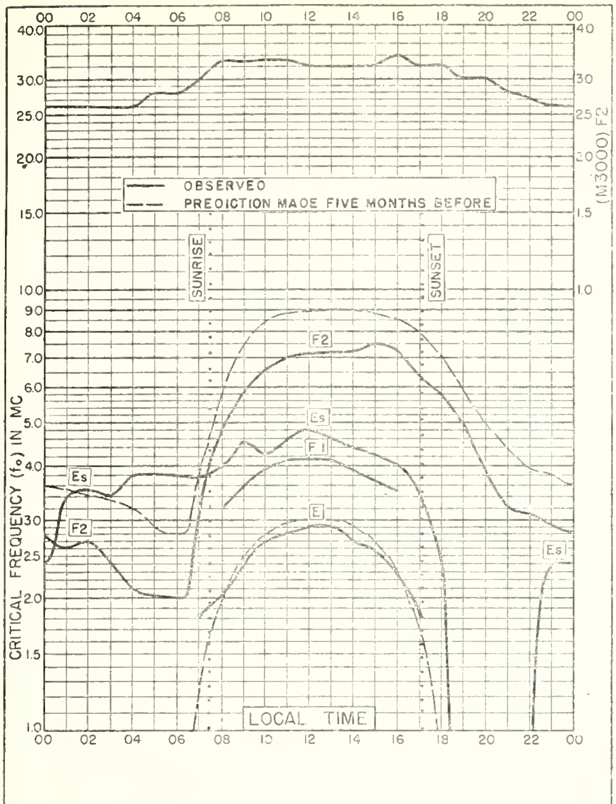

Fig. 97. SLOUGH, ENGLAND
51.5°N, 0.6°W FEBRUARY 1951

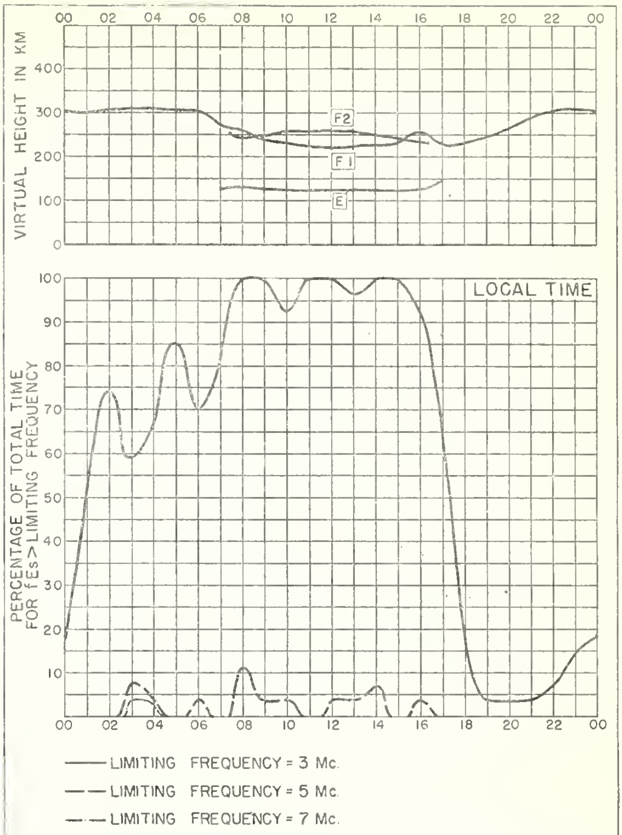

Fig. 98. SLOUGH, ENGLAND FEBRUARY 1951

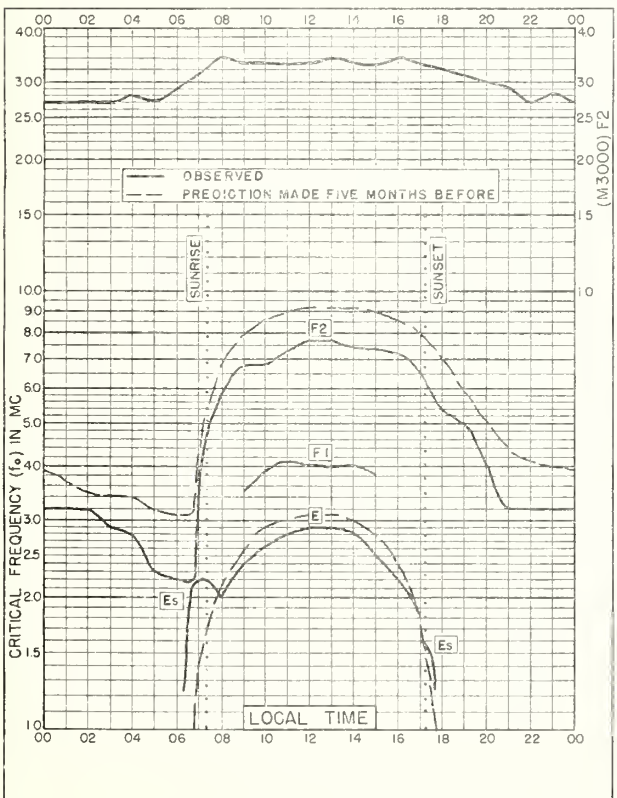

Fig. 99. FRIBOURG, GERMANY
48.1°N, 7.8°E FEBRUARY 1951

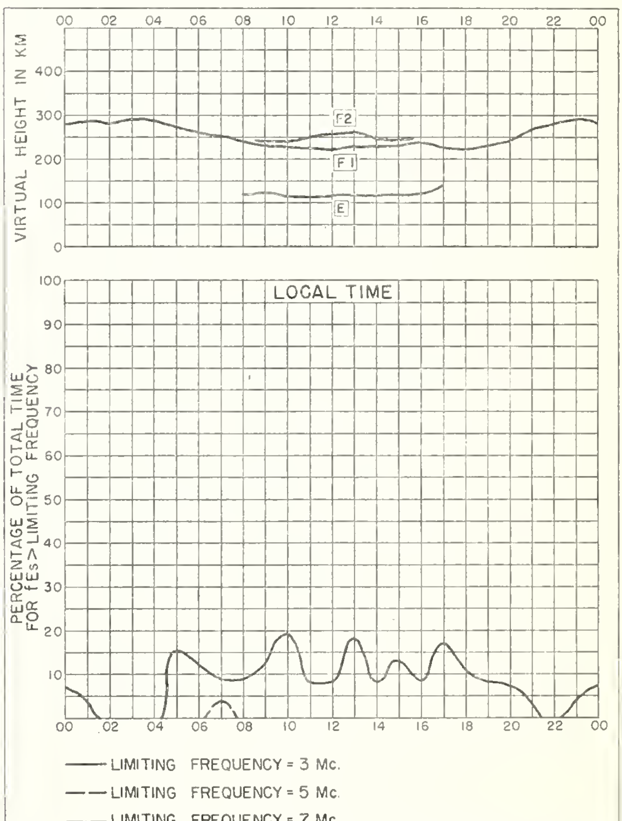

Fig. 100. FRIBOURG, GERMANY FEBRUARY 1951

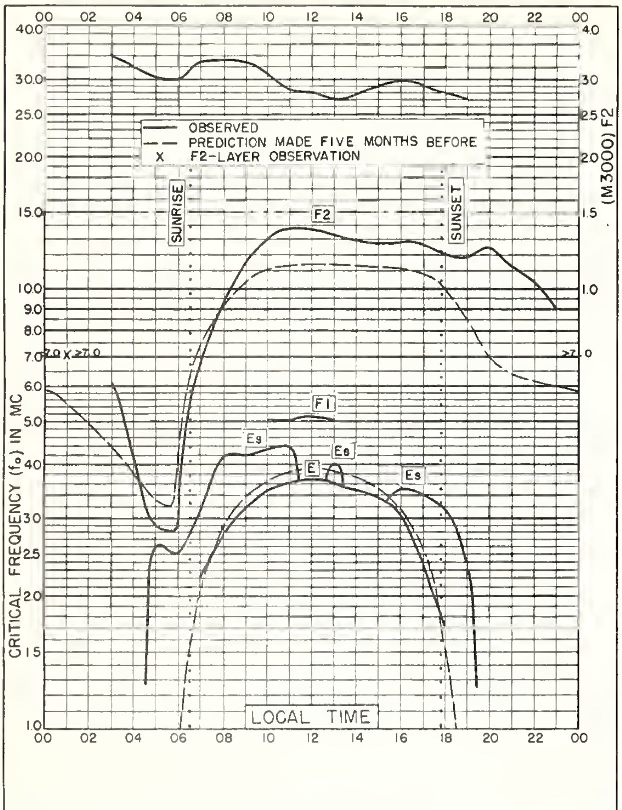

Fig. 101. DAKAR, FRENCH W. AFRICA
14.6°N, 17.4°W FEBRUARY 1951

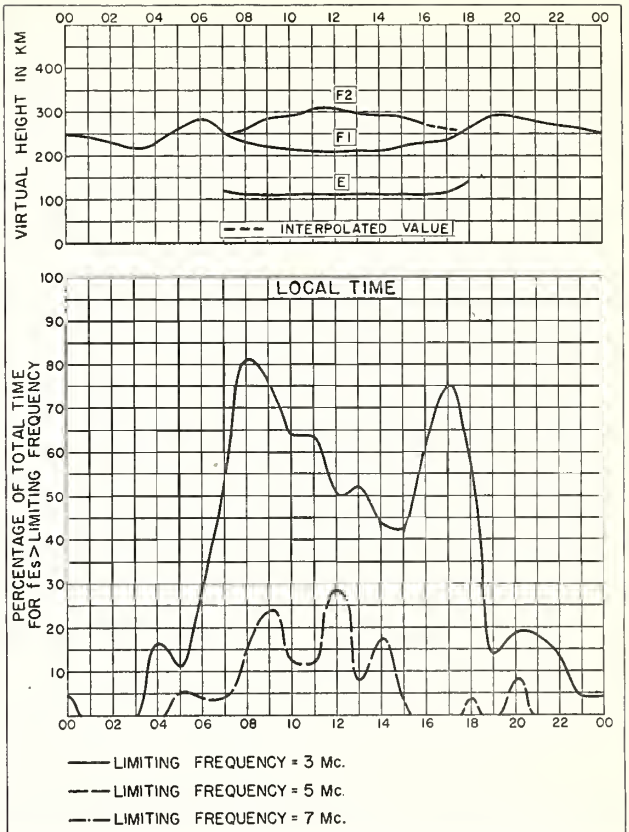

Fig. 102. DAKAR, FRENCH W. AFRICA FEBRUARY 1951

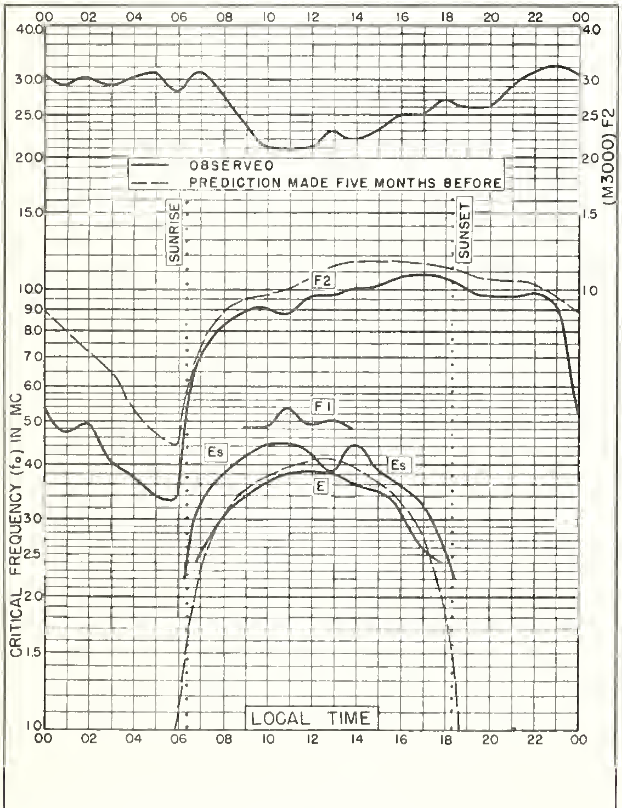

Fig. 103. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E FEBRUARY 1951

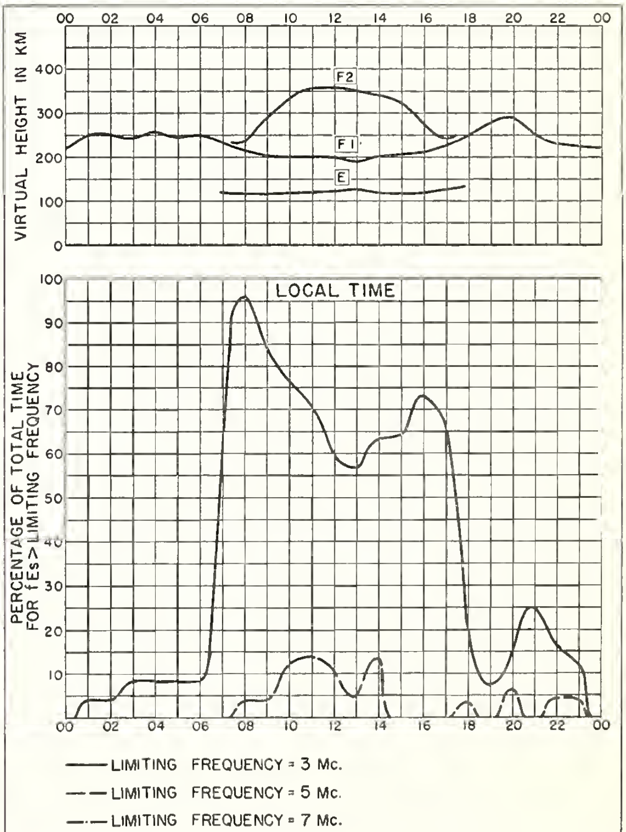

Fig. 104. SINGAPORE, BRIT. MALAYA FEBRUARY 1951

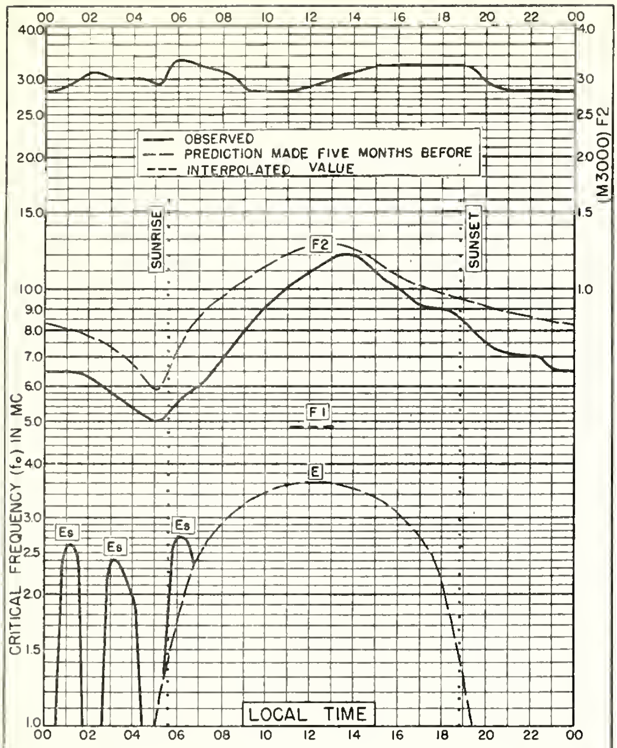

Fig. 105. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W FEBRUARY 1951

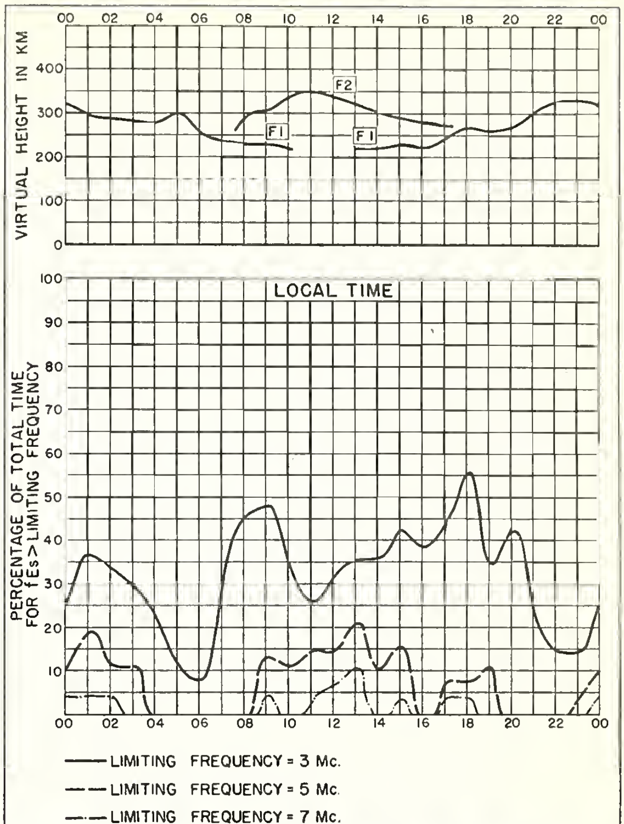

Fig. 106. BUENOS AIRES, ARGENTINA FEBRUARY 1951

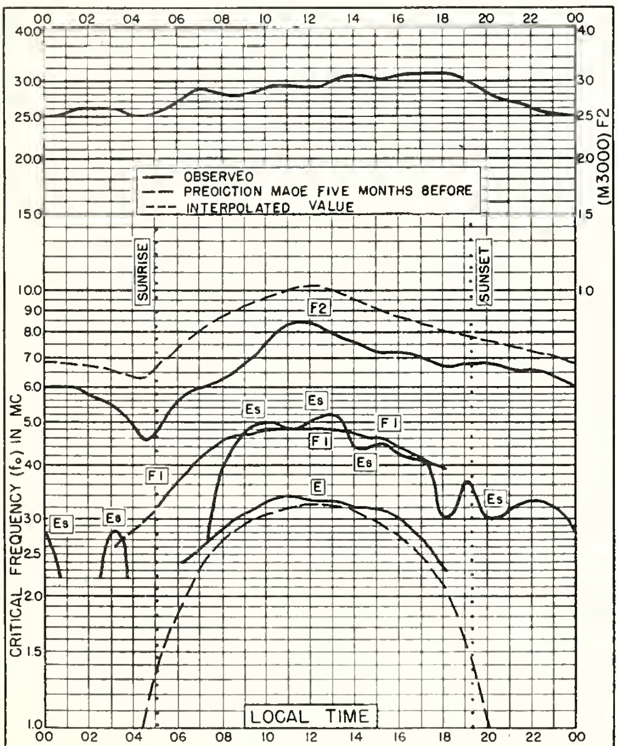

Fig. 107. FALKLAND IS.
51.7°S, 57.8°W FEBRUARY 1951

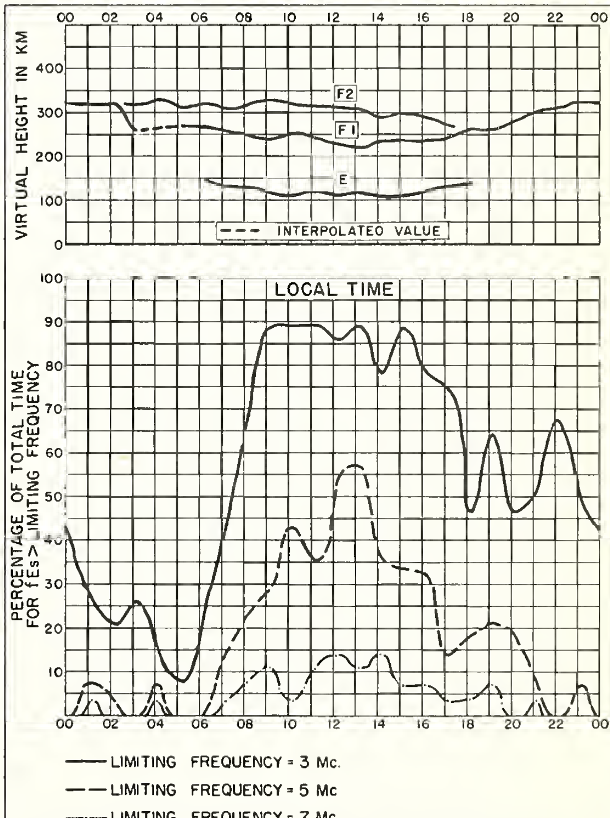

Fig. 108. FALKLAND IS. FEBRUARY 1951

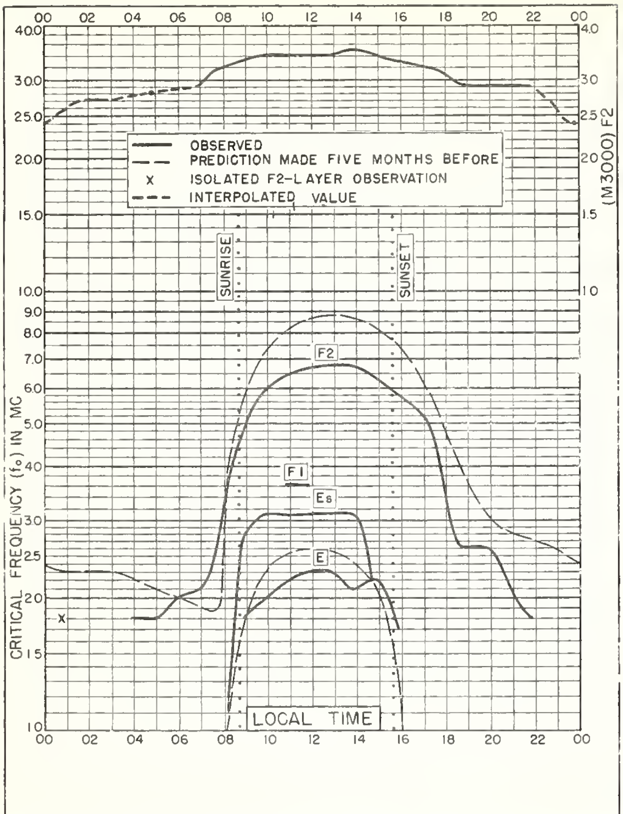

Fig. 109. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W JANUARY 1951

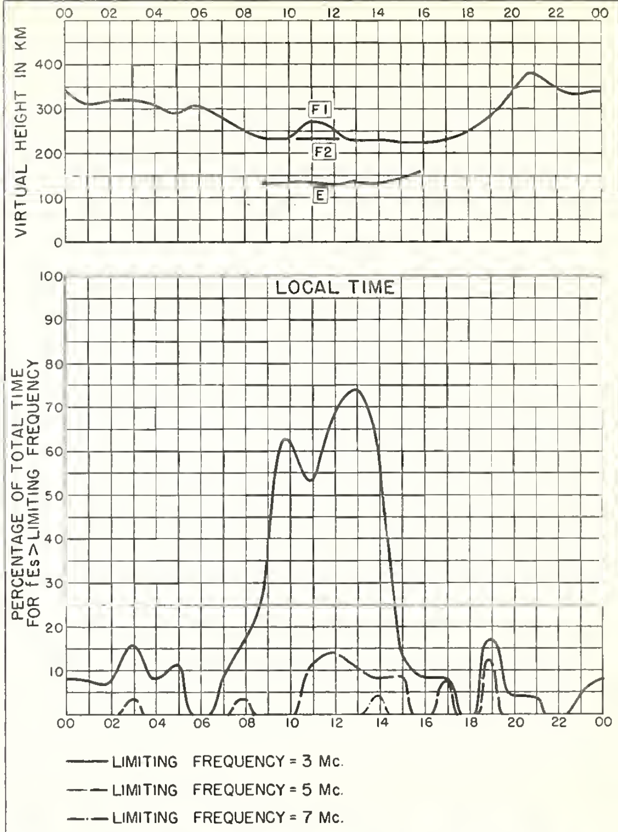

Fig. 110. FRASERBURGH, SCOTLAND JANUARY 1951

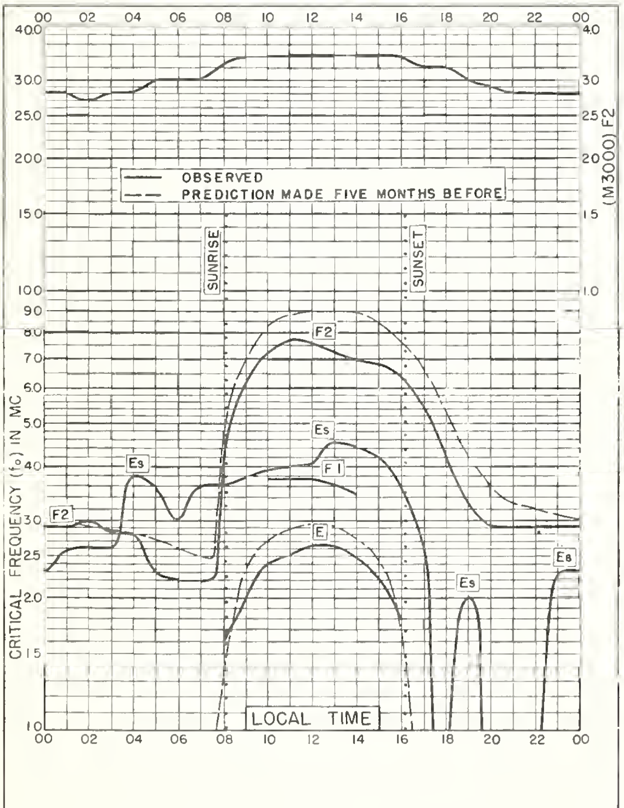

Fig. 111. SLOUGH, ENGLAND
51.5°N, 0.6°W JANUARY 1951

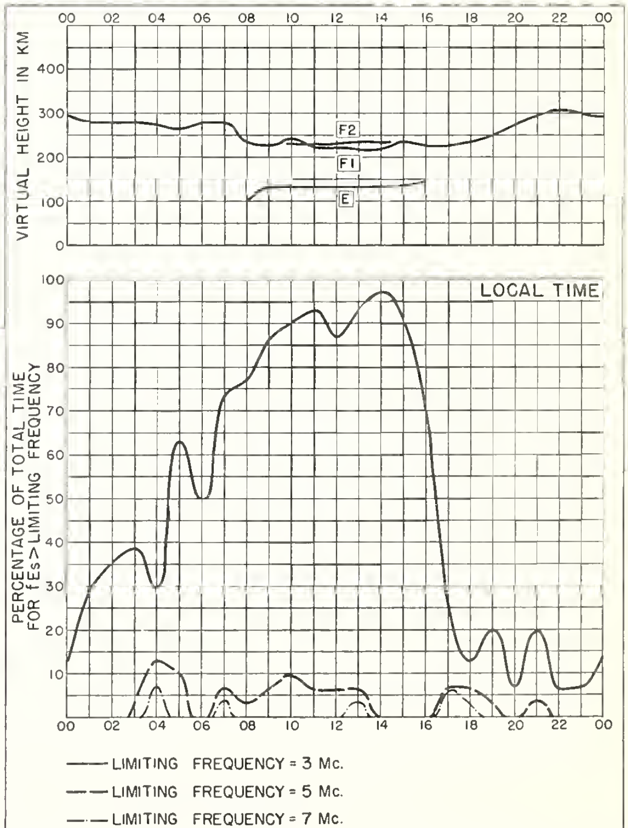

Fig. 112. SLOUGH, ENGLAND JANUARY 1951

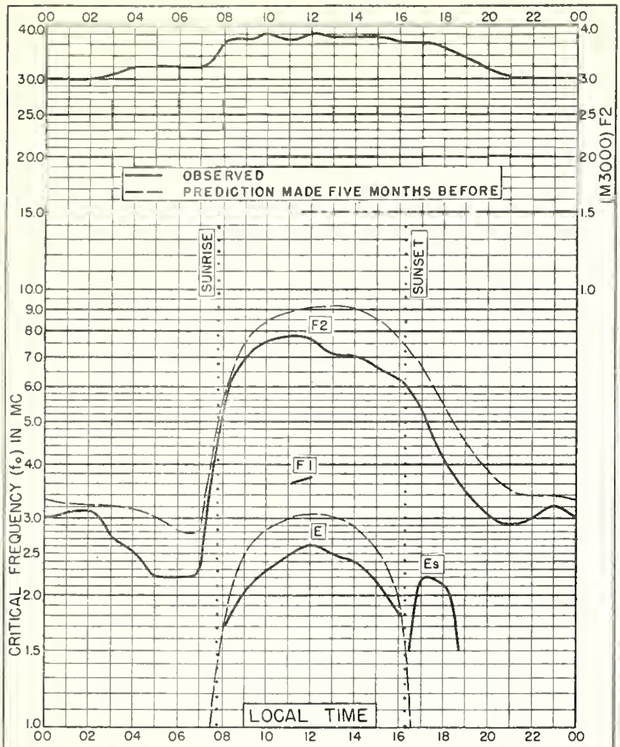

Fig. 113. DOMONT, FRANCE
49. 0°N, 2. 3°E JANUARY 1951

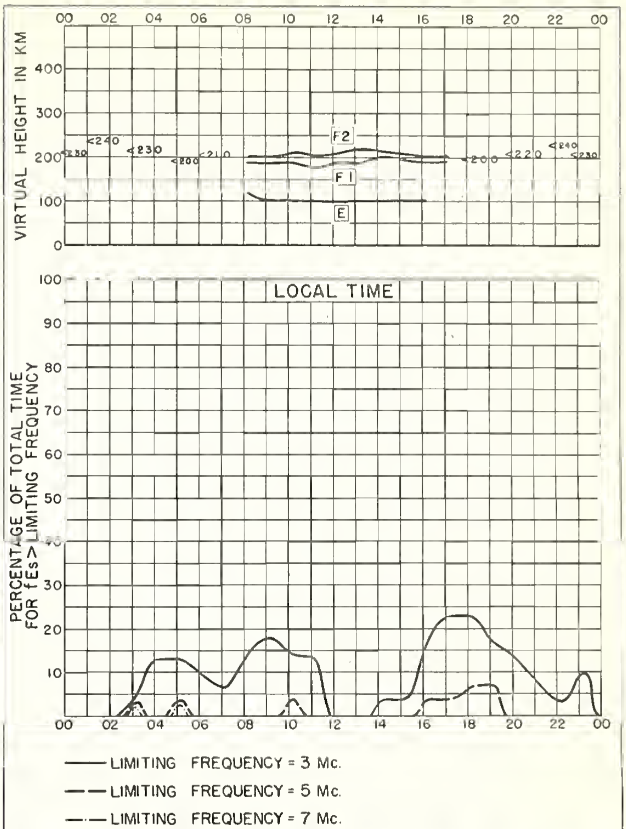

Fig. 114. DOMONT, FRANCE JANUARY 1951

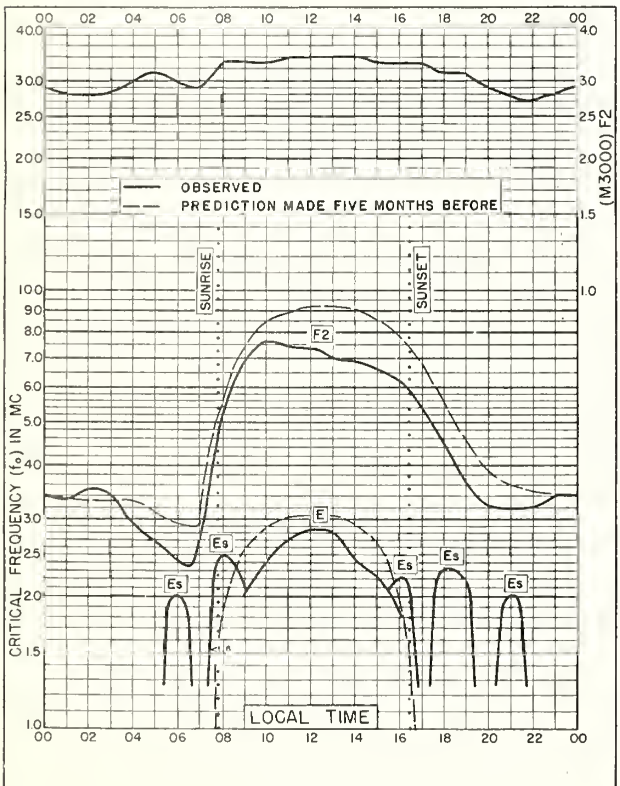

Fig. 115. FRIBOURG, GERMANY
48. 1°N, 7. 8°E JANUARY 1951

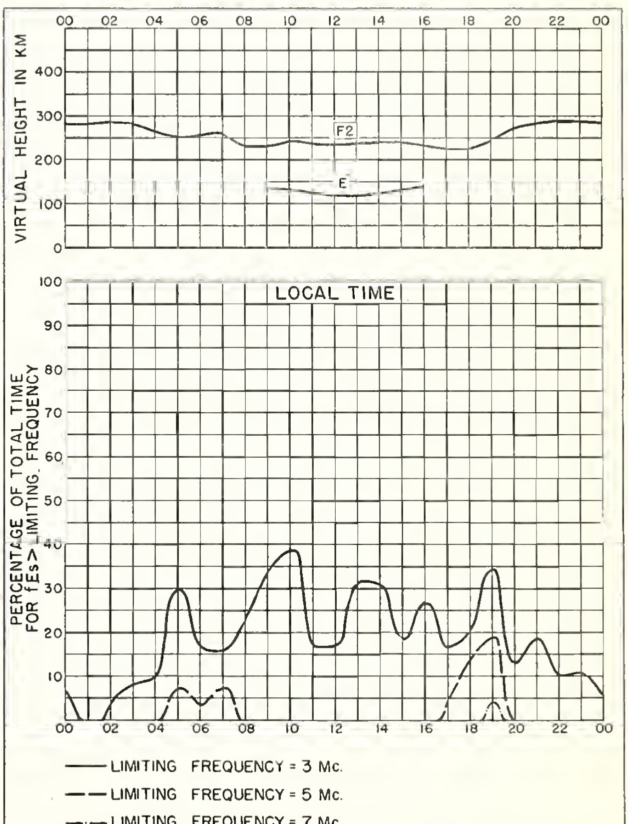

Fig. 116. FRIBOURG, GERMANY JANUARY 1951

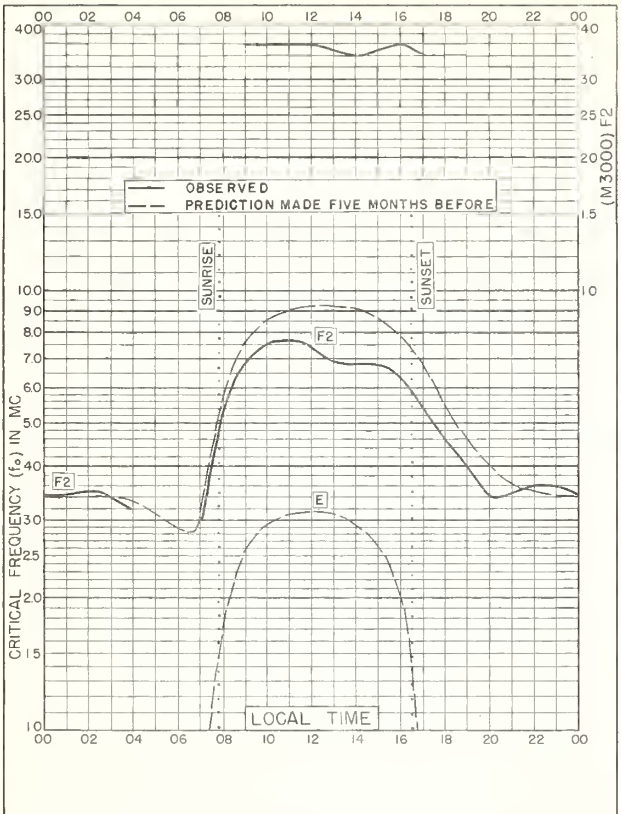

Fig. 117. POITIERS, FRANCE
46.6°N, 0.3°E JANUARY 1951

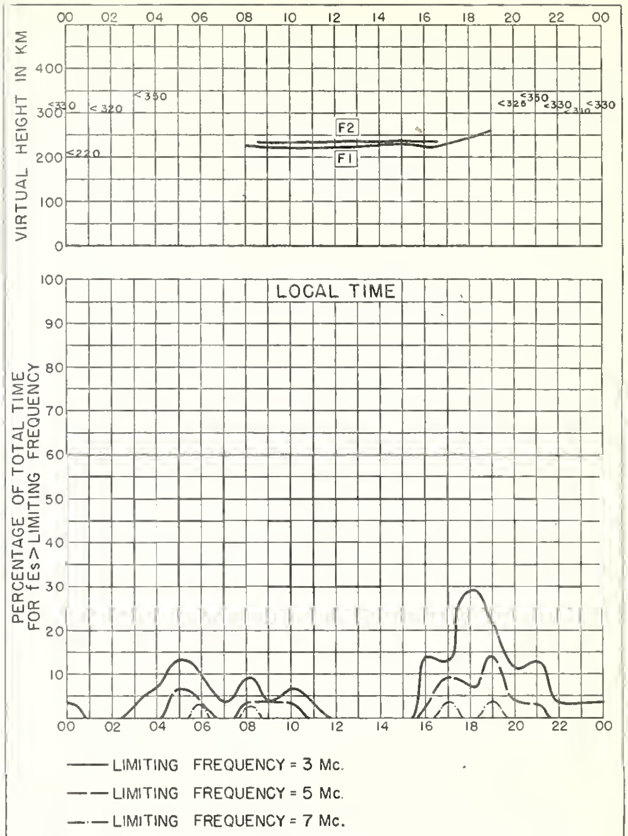

Fig. 118. POITIERS, FRANCE JANUARY 1951

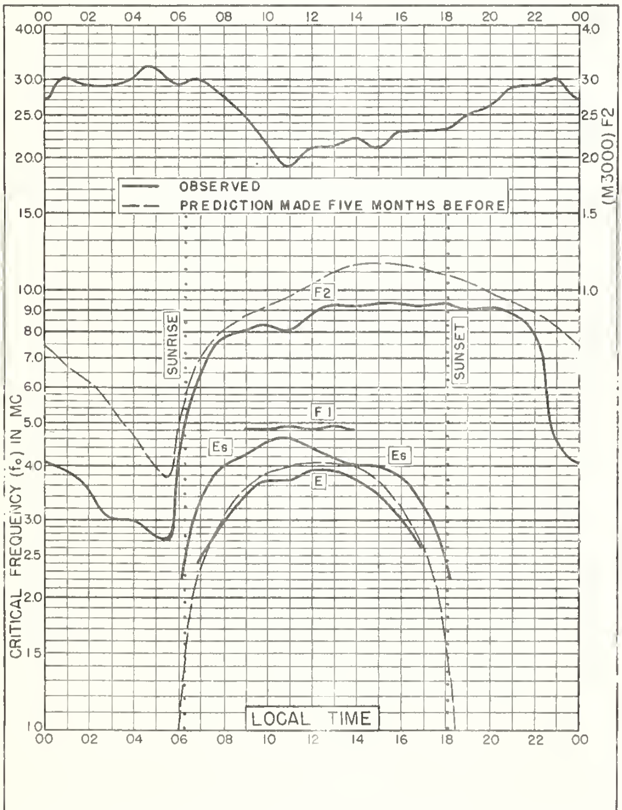

Fig. 119. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E JANUARY 1951

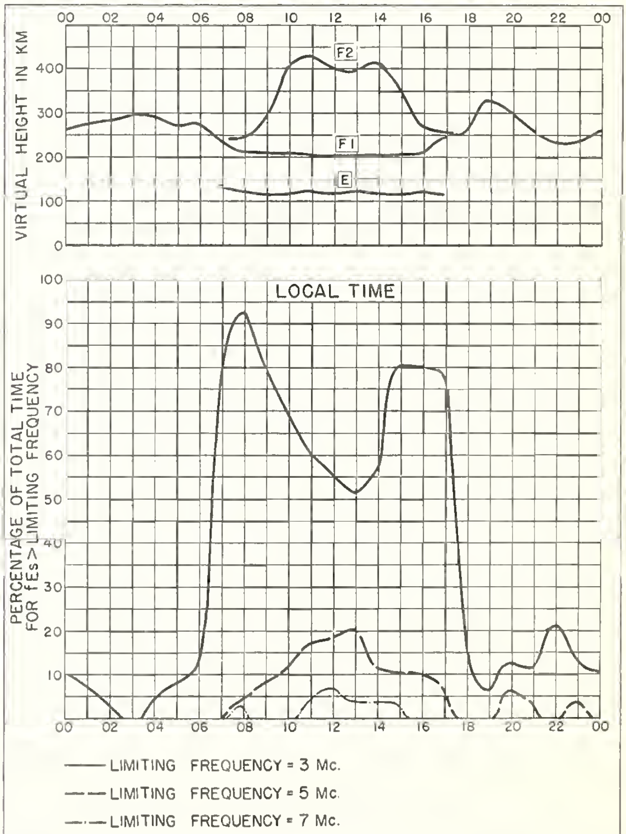

Fig. 120. SINGAPORE, BRIT. MALAYA JANUARY 1951

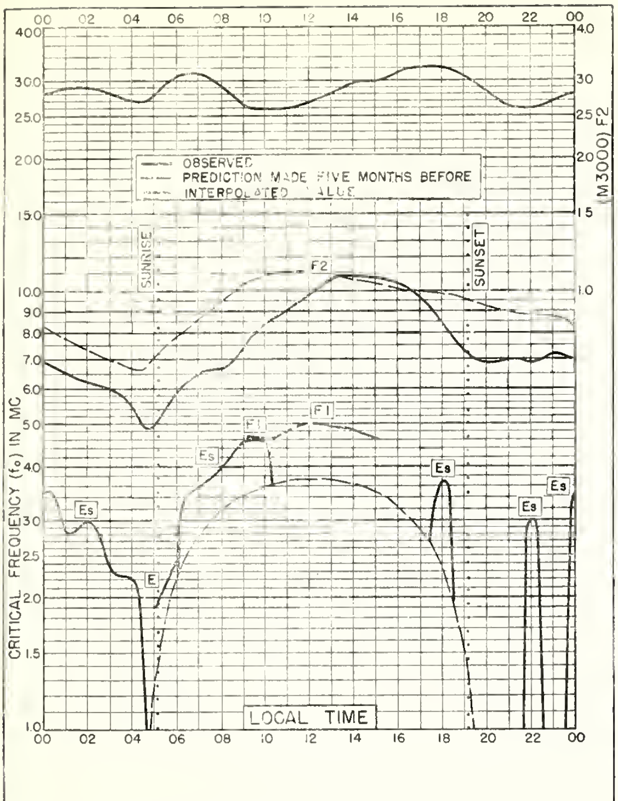

Fig. 121. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JANUARY 1951

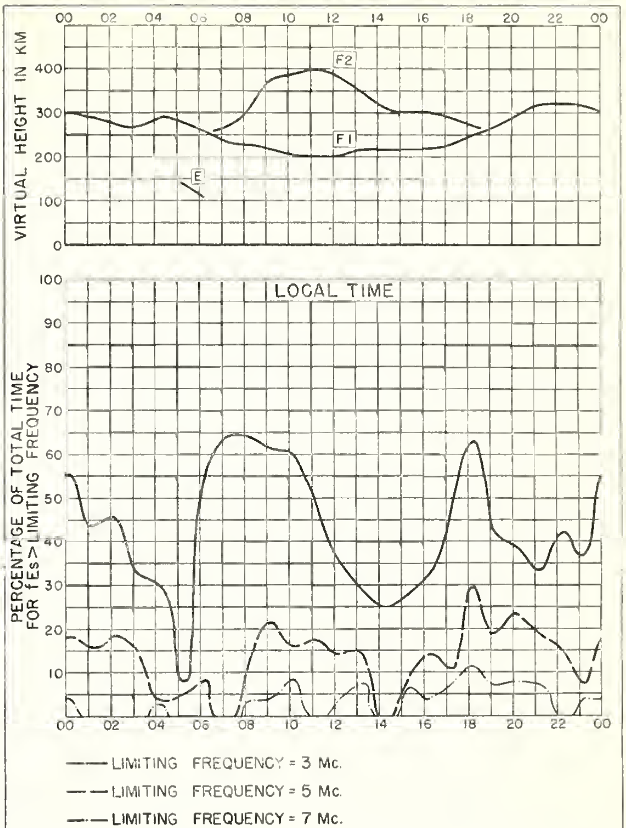

Fig. 122. BUENOS AIRES, ARGENTINA JANUARY 1951

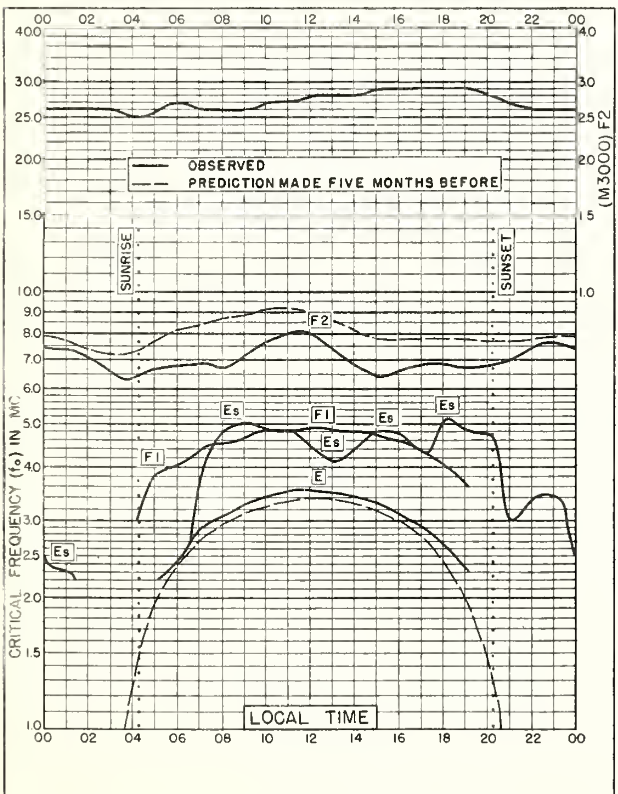

Fig. 123. FALKLAND IS.
51.7°S, 57.8°W JANUARY 1951

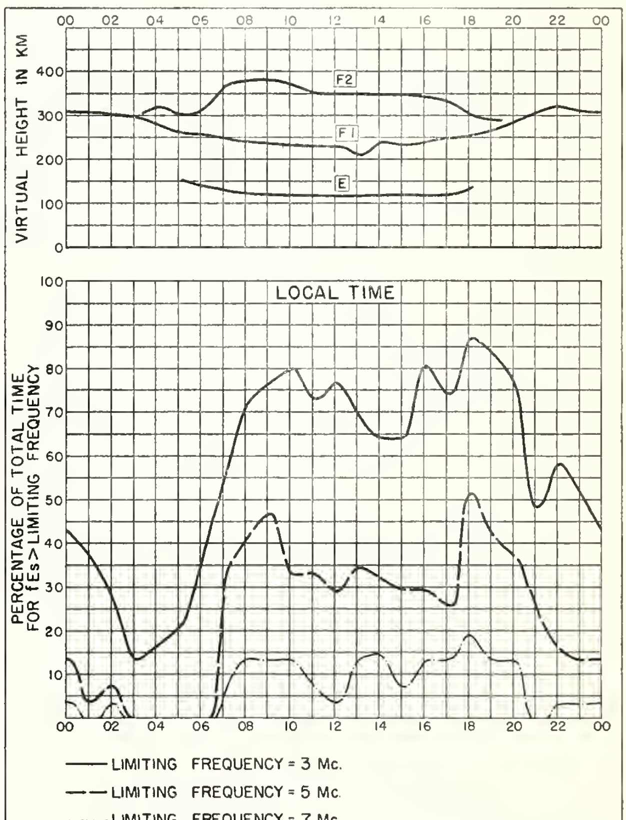

Fig. 124. FALKLAND IS. JANUARY 1951

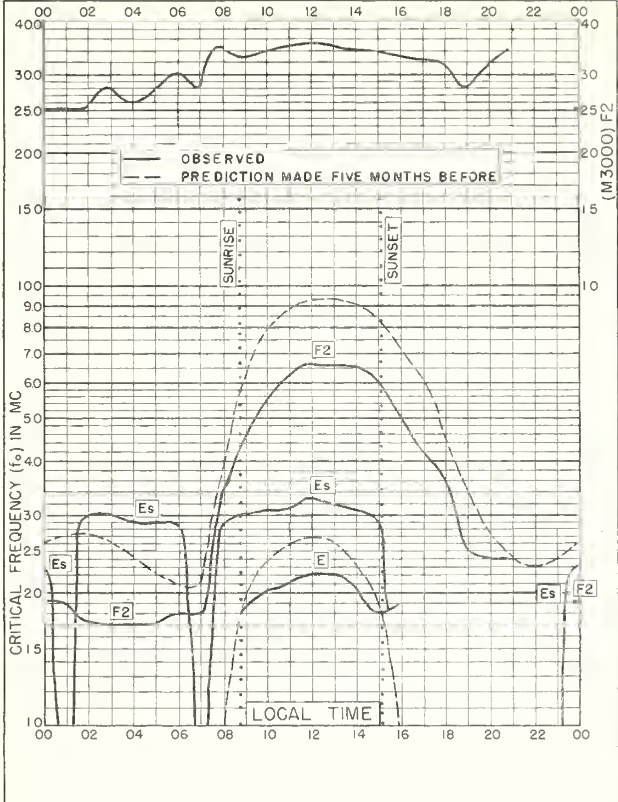

Fig. 125. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W DECEMBER 1950

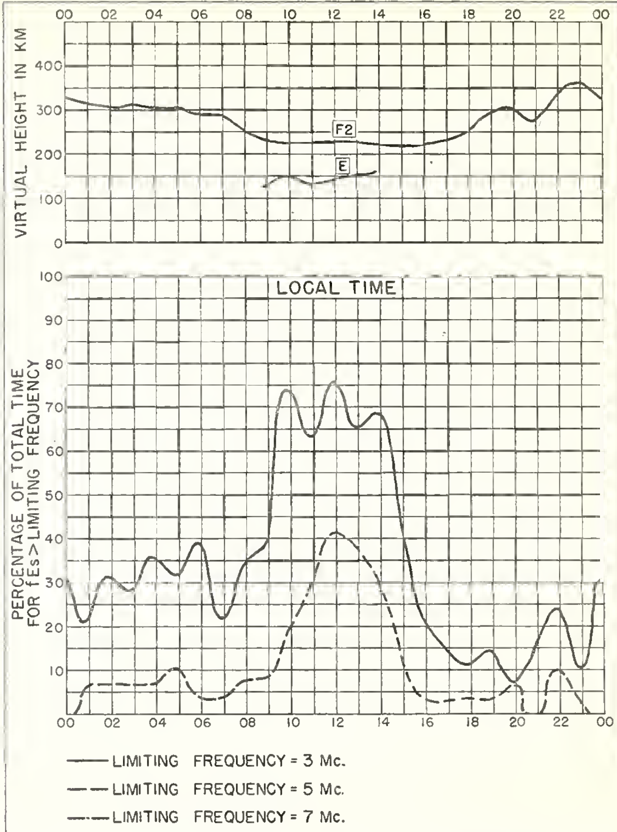

Fig. 126. FRASERBURGH, SCOTLAND DECEMBER 1950

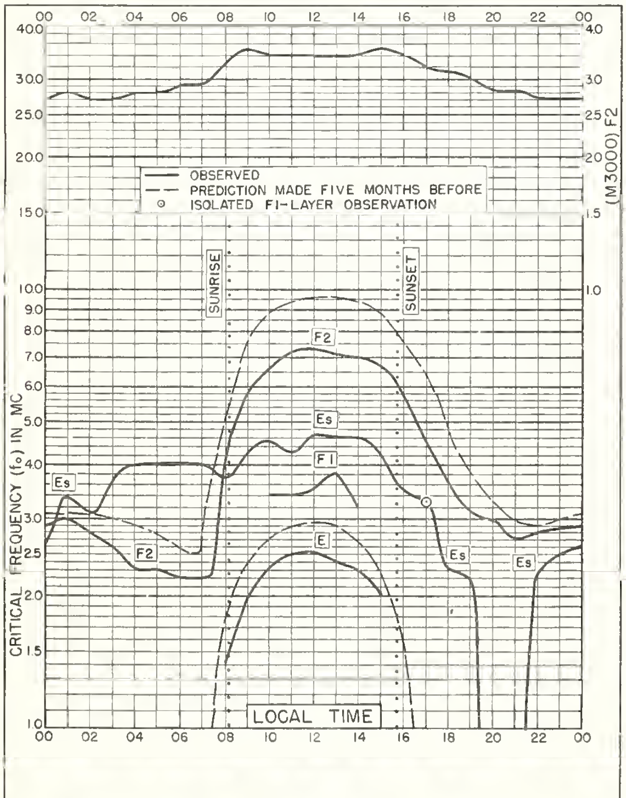

Fig. 127. SLOUGH, ENGLAND
51.5°N, 0.6°W DECEMBER 1950

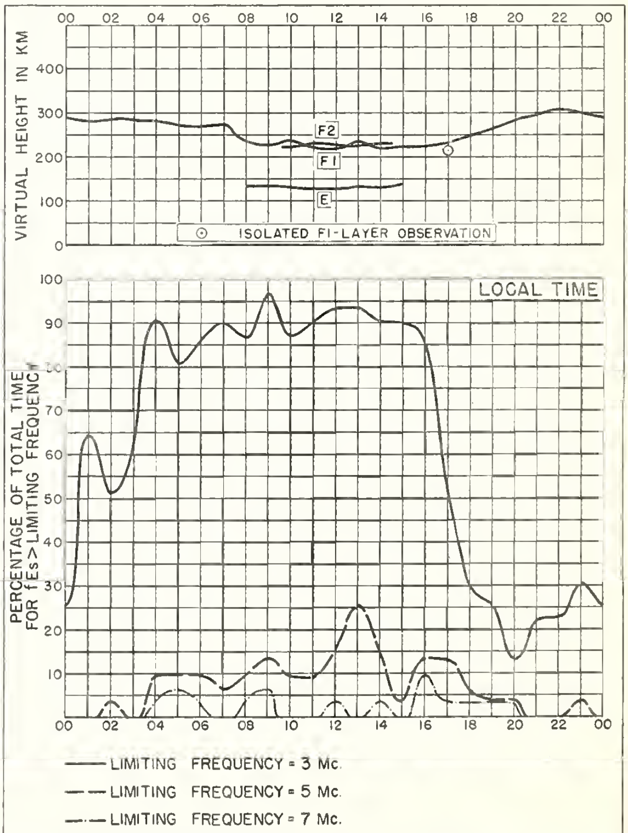

Fig. 128. SLOUGH, ENGLAND DECEMBER 1950

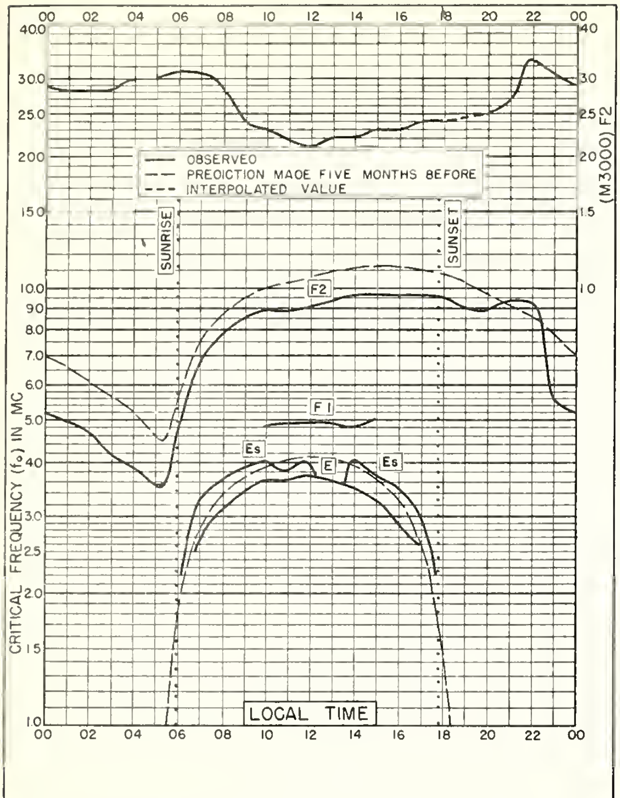

Fig. 129. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E DECEMBER 1950

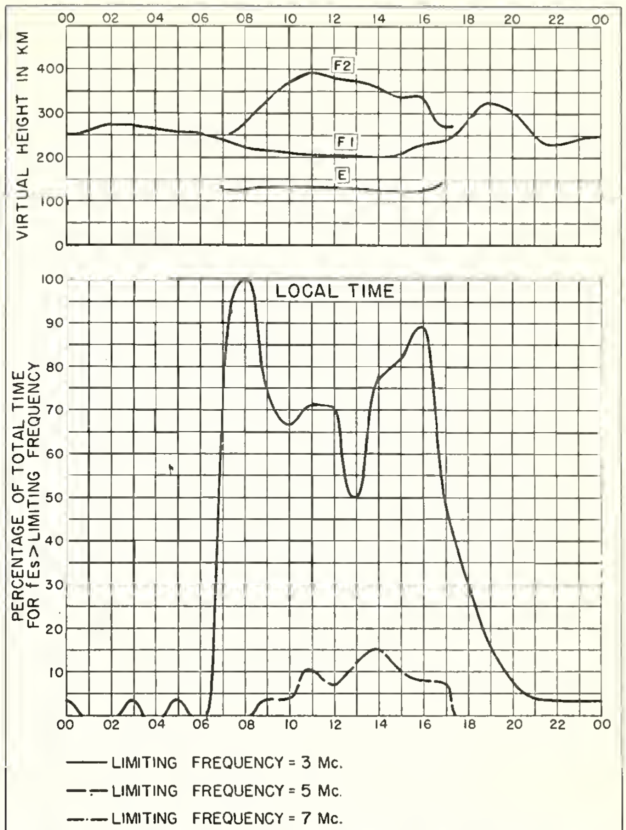

Fig. 130. SINGAPORE, BRIT. MALAYA DECEMBER 1950

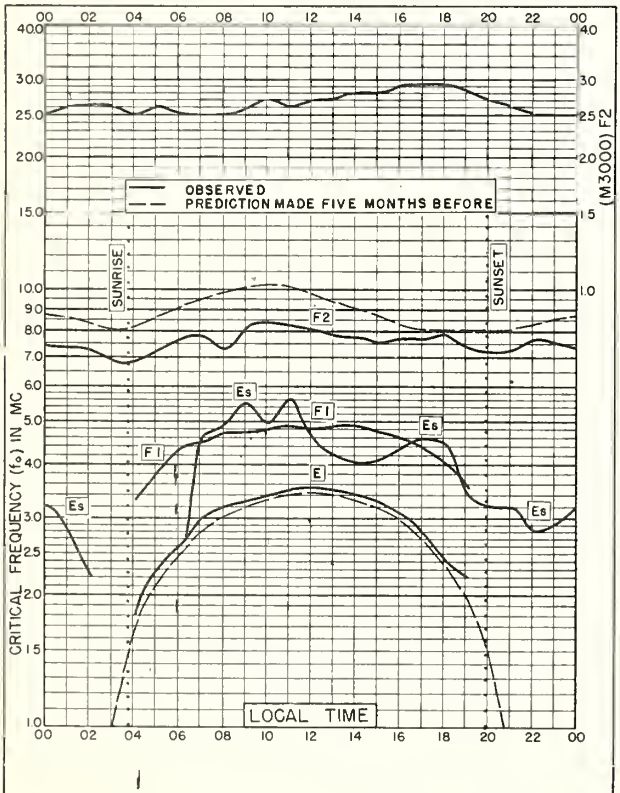

Fig. 131. FALKLAND IS.
51.7°S, 57.8°W DECEMBER 1950

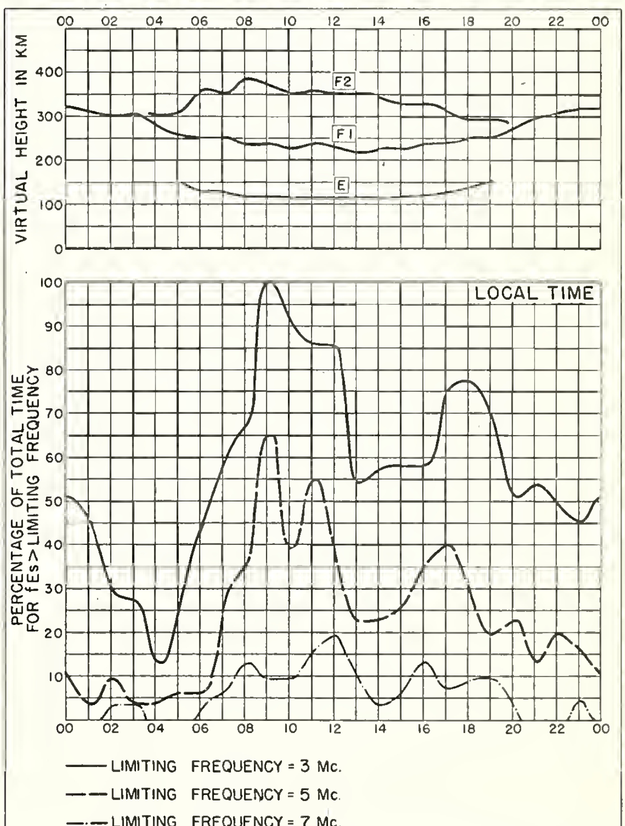

Fig. 132. FALKLAND IS. DECEMBER 1950

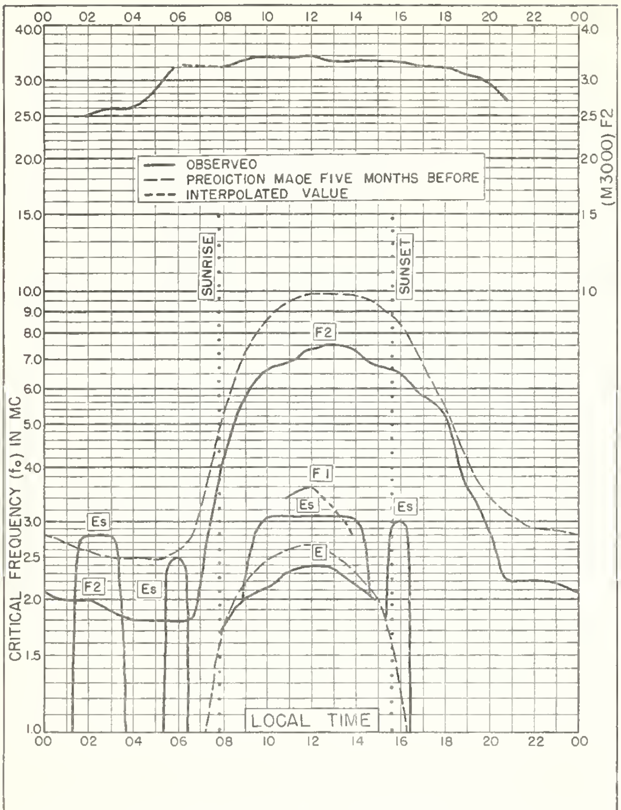

Fig. 133. FRASERBURGH, SCOTLAND
57.6°N, 2.1°W NOVEMBER 1950

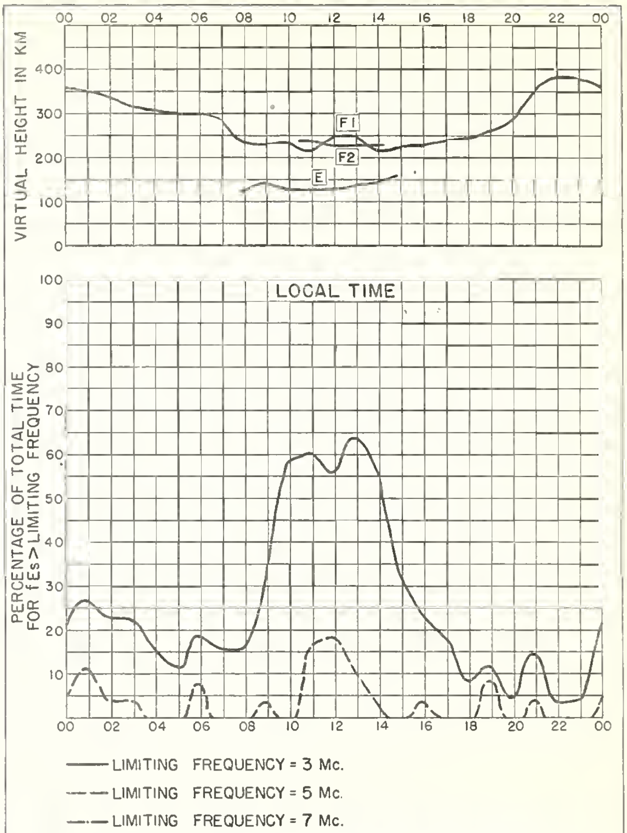

Fig. 134. FRASERBURGH, SCOTLAND NOVEMBER 1950

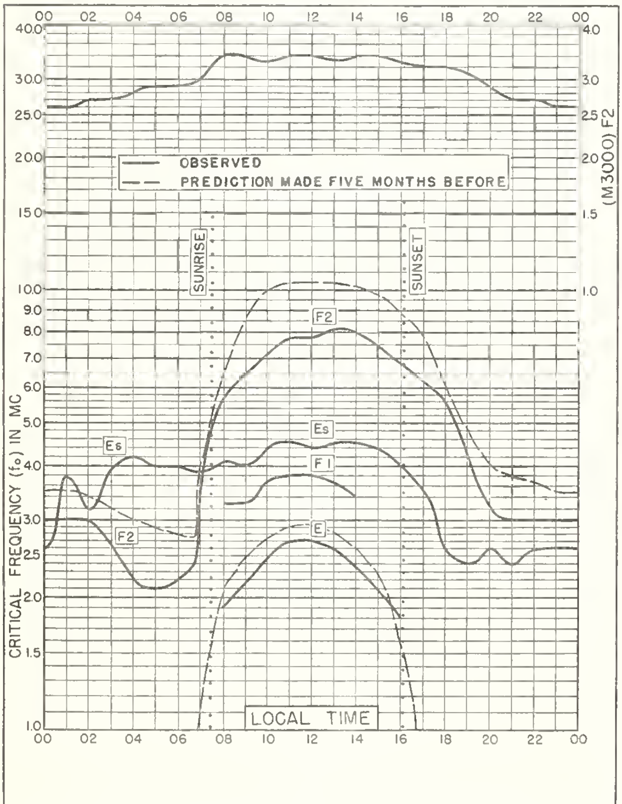

Fig. 135. SLOUGH, ENGLAND
51.5°N, 0.6°W NOVEMBER 1950

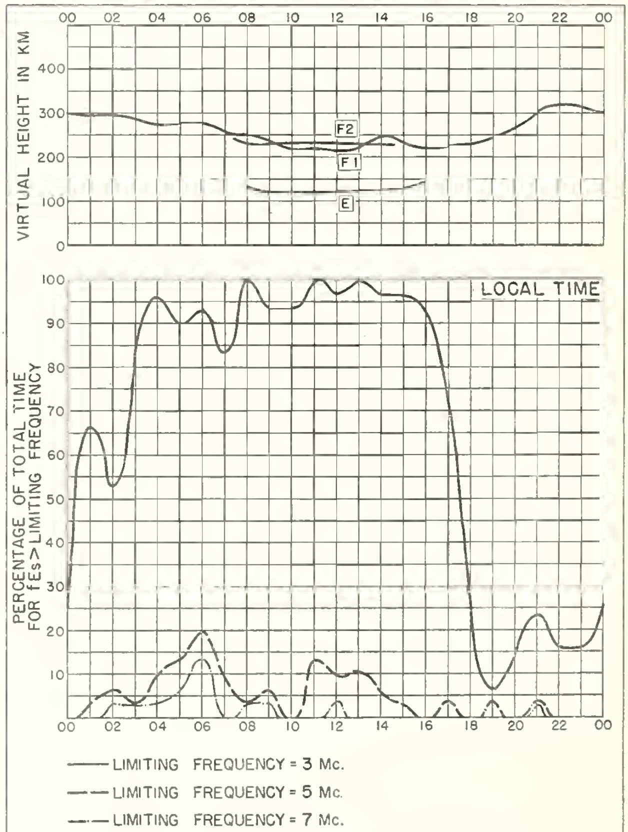

Fig. 136. SLOUGH, ENGLAND NOVEMBER 1950

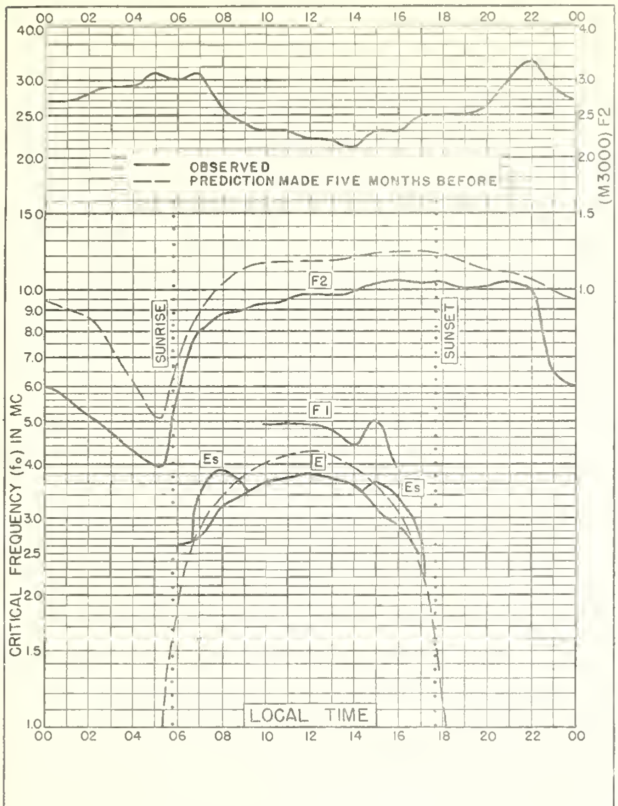

Fig. 137. SINGAPORE, BRIT. MALAYA
1. 3°N, 103.8°E NOVEMBER 1950

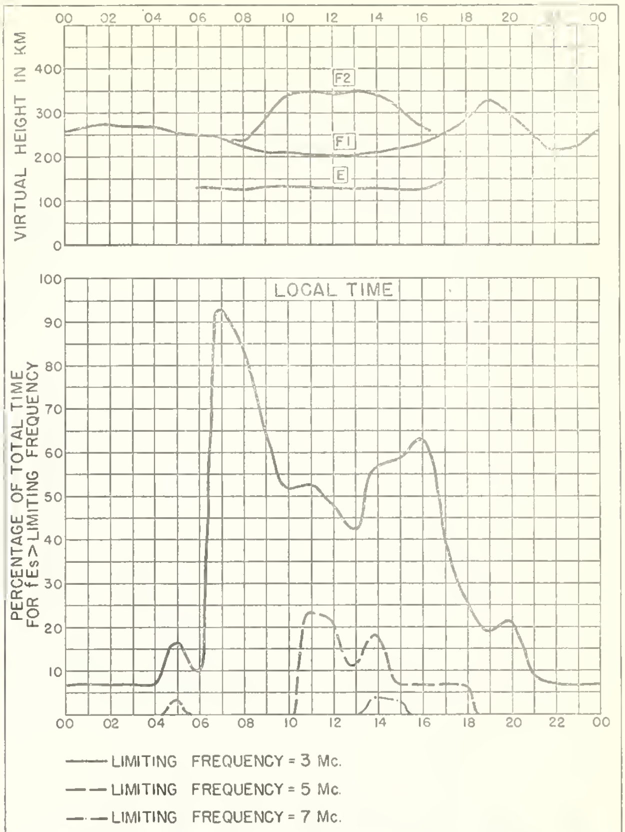

Fig. 138. SINGAPORE, BRIT. MALAYA NOVEMBER 1950

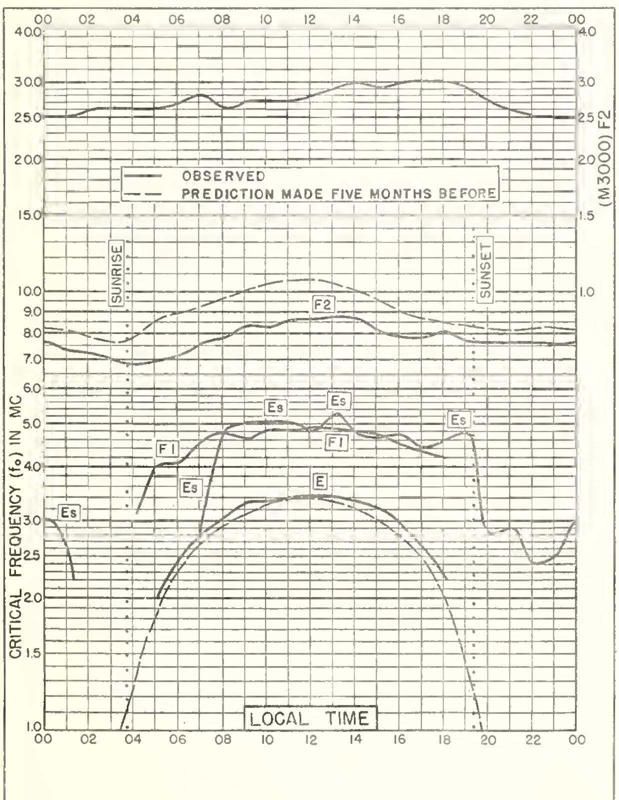

Fig. 139. FALKLAND IS.
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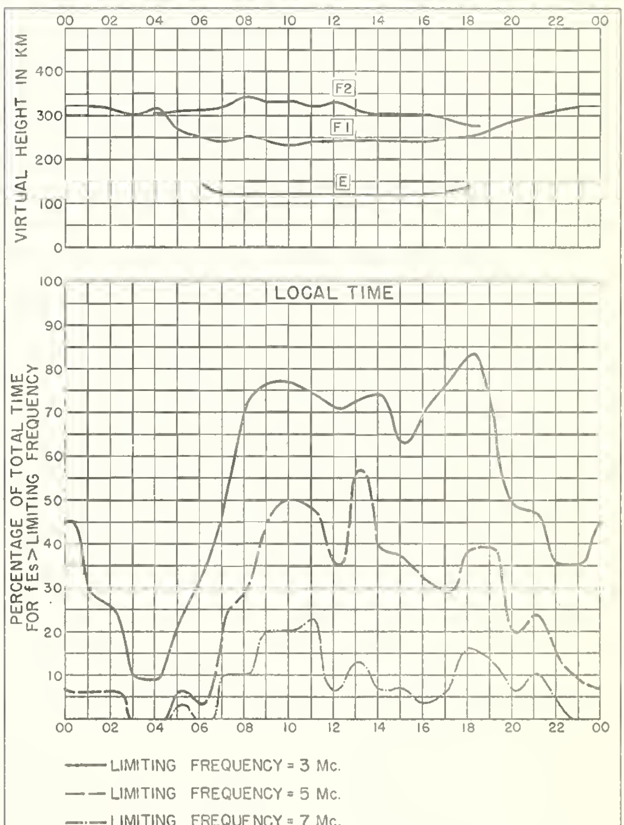


Fig. 140. FALKLAND IS. NOVEMBER 1950

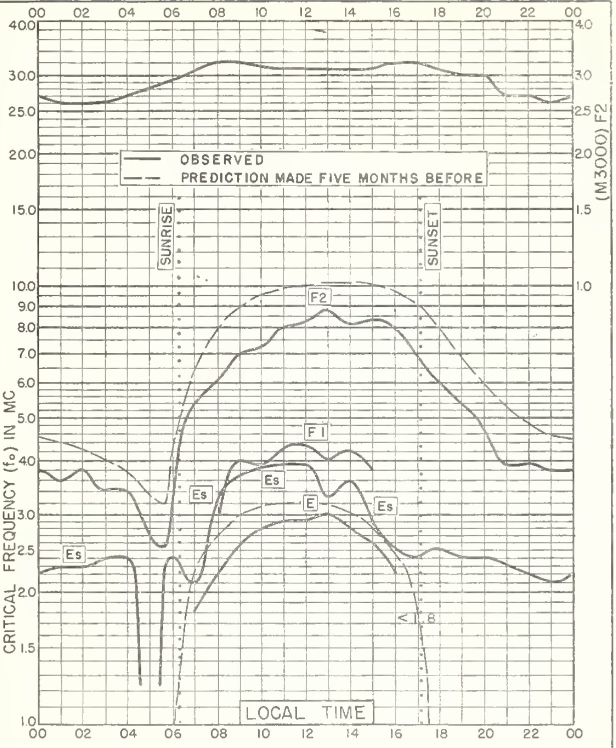


Fig. 141. FRIBOURG, GERMANY
48.1°N, 7.8°E OCTOBER 1950

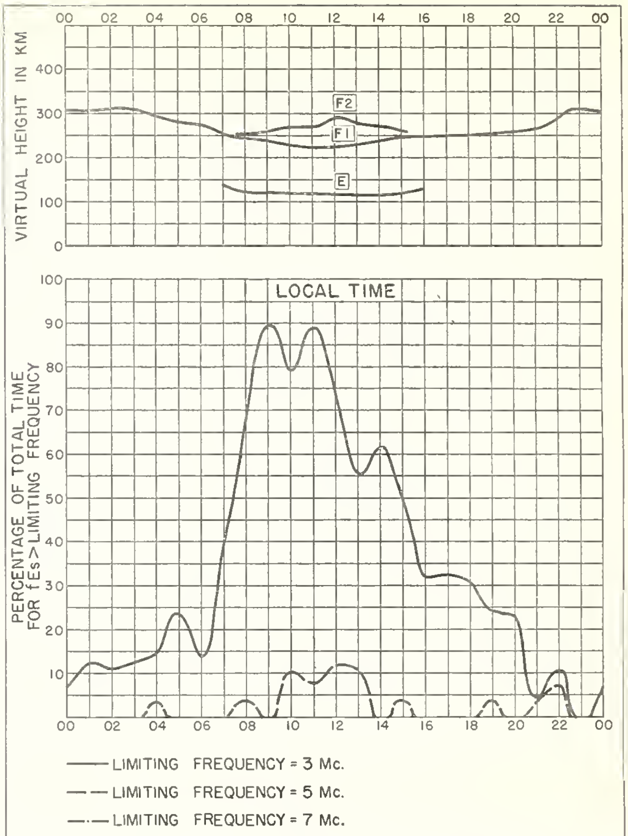


Fig. 142. FRIBOURG, GERMANY OCTOBER 1950

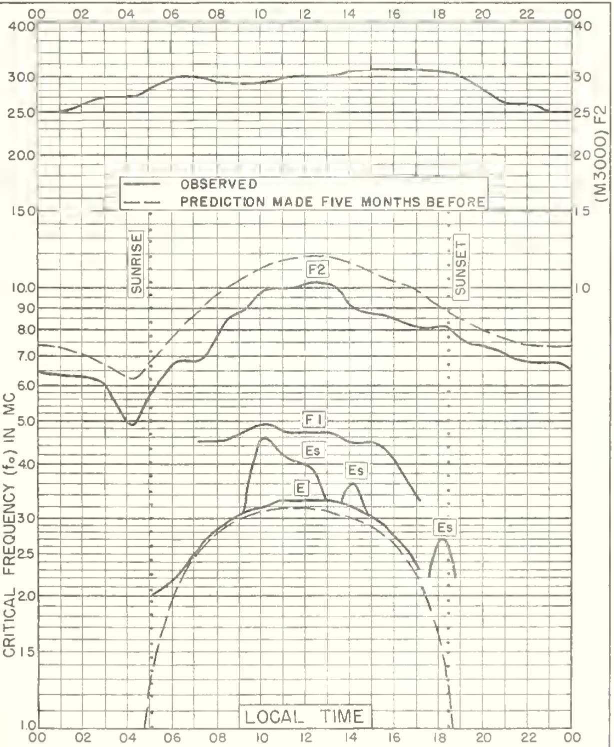
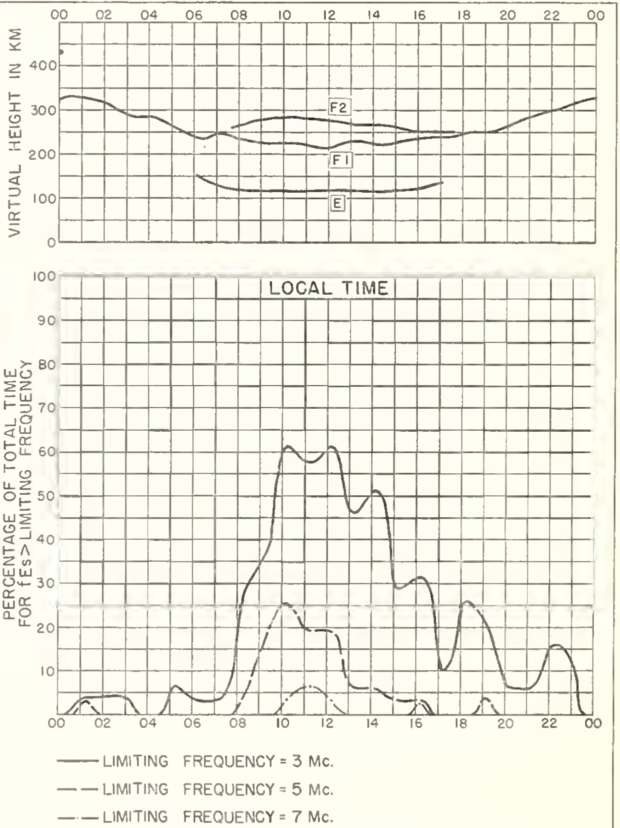


Fig. 143. FALKLAND IS.
51.7°S, 57.8°W OCTOBER 1950



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CRPL and IRPL Reports

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

Daily:

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

Weekly:

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

Semimonthly:

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

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) 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.
IRPL—R. Nonscheduled reports:
R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
R5. Criteria for Ionospheric Storminess.
**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
**R12. Short Time Variations in Ionospheric Characteristics.
R14. A Graphical Method for Calculating Ground Reflection Coefficients.
**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.
**R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
R26. The Ionosphere as a Measure of Solar Activity.
R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
**R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
**R33. Ionospheric Data on File at IRPL.
**R34. The Interpretation of Recorded Values of *fEs*.
R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.
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T1. Radar operation and weather. (Superseded by JANP 101.)
T2. Radar coverage and weather. (Superseded by JANP 102.)
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