CRPL-F84

IONOSPHERIC DATA

ISSUED

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

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 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		91	115	117	121	79	22
August		96	111	123	122	77	20
July	60	101	108	125	116	73	
June	63	103	108	129	112	67	
May	68	102	108	130	109	67	
April	74	101	109	133	107	62	
March	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 60 and figures 1 120 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:

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
Graz, Austria

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Prince Rupert, Canada

Radio Wave Research Laboratories, National Taiwan 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

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

Icelandic Post and Telegraph Administration:
- Reykjavik, Iceland

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

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

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

United States Army Signal Corps:
- Adak, Alaska
- Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
- Anchorage, Alaska
- Baton Rouge, Louisiana (Louisiana State University)
- Boston, Massachusetts (Harvard University)
- Fairbanks, Alaska
- Guam I.
- Huancayo, Peru (Instituto Geofisico de Huancayo)
- Maui, Hawaii
- Panama Canal Zone
- Point Barrow, Alaska
- San Francisco, California (Stanford University)
- San Juan, Puerto Rico (University of Puerto Rico)
- Trinidad, British West Indies
- Washington, D. C.
- White Sands, New Mexico

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 61 to 72 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 73 presents ionosphere character figures for Washington, D. C., during July 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 74 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, June 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 75 through 77 give the observations of the solar corona during July 1951 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 78 through 80 list the coronal observations obtained at Sacramento Peak, New Mexico, during July 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 75 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 76 gives similarly the intensities of the first red (6374A) coronal line; and table 77, the intensities of the second red (6702A) coronal line; all observed at Climax in July 1951.

Table 78 gives the intensities of the green (5303A) coronal line; table 79, the intensities of the first red (6374A) coronal line; and table 80, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in July 1951.

The following symbols are used in tables 75 through 80: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

OBSERVATIONS OF SOLAR FLARES

Table 81 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).

RELATIVE SUNSPOT NUMBERS

Table 82 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.

INDICES OF GEOMAGNETIC ACTIVITY

Table 83 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary 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 84, 85, 86, 87, 88, 89, and 90 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, July 1951; in England, June and July 1951; at Lindau, Harz, Germany, June 1951; in Barbados, British West Indies, June 1951; at Colombo, Ceylon, May and June 1951; at Platanos, Argentina, June 1951; and at Point Reyes, California, July 1951.

Table 1

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.8						2.8
01	270	4.7					2.7	2.9
02	270	4.2					2.7	2.9
03	270	3.6					2.7	2.9
04	260	3.2					3.5	(2.9)
05	270	3.3			—	—	1.6	3.0
06	310	4.2	230	3.6	100	2.2	3.6	3.0
07	370	5.0	220	3.9	100	2.6	4.3	2.9
08	400	5.4	220	4.2	100	3.0	5.0	2.8
09	390	5.6	200	4.4	100	3.2	4.7	2.8
10	400	5.6	200	4.6	100	3.3	5.3	2.6
11	410	5.6	200	4.6	100	3.4	4.4	2.8
12	440	5.6	200	4.7	100	3.5		2.8
13	410	5.7	200	4.7	100	3.5		2.8
14	400	5.8	200	4.6	100	3.4		2.8
15	400	6.0	200	4.4	100	3.3		2.8
16	350	6.1	220	4.3	100	3.2		2.8
17	320	6.2	210	4.1	100	2.9		2.9
18	290	6.4	230	3.7	100	2.5	3.2	3.0
19	260	6.4	240	—	110	1.8	3.4	3.0
20	240	6.4					3.0	3.0
21	250	6.1					2.7	2.9
22	260	5.6					3.0	2.9
23	270	5.0					2.7	2.9

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

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) June 195

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)
00	300	4.7	---	---	---	---	6.2	3.1
01	280	4.7	---	---	---	---	7.0	3.0
02	300	4.6	---	---	---	---	4.9	3.1
03	320	4.4	250	(3.4)	110	---	5.9	3.0
04	390	4.4	240	3.5	110	2.4	4.0	3.0
05	410	4.4	220	3.8	100	2.6	3.8	2.8
06	400	4.7	230	3.8	100	2.6	4.2	2.8
07	460	4.7	230	4.0	100	3.0	4.9	2.7
08	450	5.0	230	4.1	100	---	4.9	2.7
09	450	4.9	240	4.2	100	3.3	5.0	2.6
10	500	4.9	220	4.2	100	3.3	4.4	2.5
11	500	4.8	220	4.3	100	3.3		2.6
12	440	5.0	220	4.3	100	3.3		2.7
13	430	5.2	220	4.3	100	3.3		2.7
14	440	5.3	220	4.3	100	3.3		2.7
15	400	5.4	220	4.4	100	3.2		2.8
16	400	5.3	220	4.3	100	3.1		2.8
17	390	5.2	220	4.2	100	2.9		2.9
18	370	5.2	(<230)	4.0	100	2.8		3.0
19	340	5.1	250	3.8	110	2.8		3.0
20	340	4.9	240	3.6	120	2.8	4.0	3.0
21	310	4.8	260	---	120	---	4.9	3.1
22	310	4.8	---	---	---	---	4.1	3.0
23	310	4.5	---	---	---	---	4.8	3.0

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

Table 3

Tromso, Norway (69.7°N, 19.0°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07								
08	380	5.6	230	4.4	100	---	4.6	2.8
09	375	5.6	230	4.3	100	3.1	4.7	2.8
10	360	5.7	225	4.[illegible]	100	3.2	5.5	2.9
11	380	5.7	215	4.5	105	3.2	5.2	2.9
12	370	5.6	210	4.5	105	3.2	5.3	2.8
13	390	5.5	215	4.4	105	3.0	3.6	2.8
14	380	5.5	215	4.4	100	3.0	5.3	2.8
15	375	5.3	225	4.3	110	3.0	3.2	2.8
16	350	5.2	220	4.2	110	2.9	3.8	3.0
17	350	5.2	240	4.0	110	2.8	5.1	3.0
18	330	5.5	245	3.9	110	2.6	4.8	3.0
19	335	5.2	255	---	110	---	4.4	3.0
20	335	5.0	---	---	110	---	4.4	2.9
21	310	4.9	---	---	110	---	4.4	3.0
22	(320)	(4.8)	---	---	100	---	5.6	2.8
23	---	(5.2)			---	---	(5.6)	---

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

Table 4

Fairbanks, Alaska (64.9°N, 147.8°W) June 195

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000
00	400	(4.4)					3.6	(2.4)
01	(430)	(4.7)					4.7	(2.4)
02	(440)	(4.8)					5.6	(2.5)
03	(460)	(5.0)					4.3	(2.4)
04	460	(5.1)	---	---	---	---		(2.4)
05	460	(5.2)	---	3.6	---	---	4.8	(2.3)
06	500	5.0	(320)	3.7	---	---		2.3
07	520	5.5	(290)	3.8	---	---		2.3
08	530	5.4	280	(4.0)	---	---		2.3
09	560	5.3	280	(4.1)	---	---		2.3
10	560	5.3	(300)	4.2	---	---		2.3
11	580	5.4	290	4.2	---	---		2.2
12	540	5.4	(300)	4.2	---	---		2.3
13	560	5.3	(280)	4.2	---	---		2.3
14	550	(5.3)	(280)	4.2	---	---		2.3
15	540	(5.4)	300	4.2	---	---		(2.3)
16	500	5.4	280	(4.2)	---	---		2.4
17	460	5.3	300	(4.0)	---	---		2.4
18	440	5.2	(300)	3.7				2.5
19	400	(5.2)	---	---				2.5
20	360	5.2	---	---				2.6
21	360	5.2						2.6
22	380	(4.8)						(2.5)
23	380	(4.6)						(2.6)

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

Table 5

Anchorage, Alaska (61.2°N, 149.9°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.9
01	325	3.6					1.2	2.7
02	310	3.7					1.4	2.8
03	350	4.1	290	2.8	---	---	1.7	2.8
04	400	4.5	260	3.2	110	2.0	2.3	2.7
05	400	4.8	250	3.5	100	2.3	3.0	2.7
06	420	5.0	235	3.8	100	2.6		2.7
07	420	5.2	220	4.0	100	2.8		2.7
08	420	5.3	(<220)	4.1	100	3.0		2.7
09	460	5.2	210	4.3	100	3.2		2.7
10	450	5.4	210	4.4	100	3.1	3.3	2.7
11	490	5.2	220	4.5	100	3.2	3.8	2.6
12	470	5.4	(<220)	4.5	100	3.3		2.6
13	450	5.3	220	4.5	100	3.2	3.4	2.6
14	440	5.3	220	4.5	100	3.1		2.7
15	430	5.4	220	4.4	100	3.1		2.8
16	405	5.3	225	4.3	100	3.0		2.8
17	380	5.3	(<240)	4.2	100	2.8		2.9
18	350	5.3	(<250)	4.0	110	2.6	3.1	2.9
19	310	5.4	260	3.5	110	2.4	3.2	3.0
20	280	5.3	260	---			2.1	3.0
21	275	5.2						3.0
22	270	4.6						3.0
23	280	3.8						3.0

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

Table 6

Oslo, Norway (60.0°N, 11.0°E) June 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M300
00	270	5.4			---	---		(2.8)
01	265	5.2	---	---	---	---		(2.8)
02	275	4.9	---	---	---	---	2.7	2.8
03	290	4.5	295	---	---	E	2.9	2.8
04	325	4.6	250	2.9	150	(1.7)	3.0	(2.8)
05	350	4.8	230	3.3	125	2.0	3.0	2.8
06	355	5.3	230	3.7	115	2.4	3.4	2.8
07	360	5.5	220	4.0	105	2.7	3.4	2.9
08	350	5.7	215	4.1	105	2.9	3.5	2.9
09	350	6.0	210	4.2	105	3.1	3.6	2.9
10	350	5.9	210	4.3	100	3.2	3.8	2.9
11	345	5.9	210	4.4	100	3.2	3.8	3.0
12	350	5.8	205	4.5	100	3.3	3.7	3.0
13	375	5.7	205	4.6	100	3.2	3.6	2.9
14	355	5.9	210	4.4	100	3.2	3.5	2.9
15	350	5.7	210	4.3	100	3.1	3.4	2.9
16	350	5.8	210	4.2	105	3.0	3.3	3.0
17	330	5.8	225	4.0	105	2.8	3.3	2.9
18	305	6.0	240	3.8	110	2.6	3.7	3.0
19	290	5.8	245	3.5	120	2.2	3.7	3.1
20	265	5.8	250	---	135	1.9	3.4	3.0
21	255	5.8	270	---	---	---	2.9	3.0
22	260	5.8	---	---	---	---	1.7	2.9
23	265	5.8			---	---		2.9

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

Table 7

Adak, Alaska (51.9°N, 176.6°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.0					2.8	2.2
01	290	4.7					2.7	2.0
02	300	4.4					2.7	2.0
03	320	4.2	340	---	130	---	2.7	2.2
04	380	4.3	270	2.8	120	---	2.6	2.8
05	390	5.2	260	3.5	110	2.3	2.6	3.3
06	380	5.6	240	3.8	110	2.4	2.7	4.3
07	390	5.8	220	4.1	110	2.8	2.6	4.8
08	380	6.0	230	(4.3)	100	(3.0)	2.7	5.2
09	370	6.0	230	(4.4)	100	3.4	2.8	5.8
10	380	6.0	210	4.4	100	3.4	2.8	6.6
11	400	5.8	210	4.6	100	3.5	2.7	5.9
12	410	5.6	210	4.6	100	3.5	2.7	6.0
13	420	5.6	210	4.6	100	---	2.7	5.4
14	390	5.5	210	4.5	100	3.3	2.8	5.4
15	380	5.4	220	4.4	100	---	2.8	4.0
16	370	5.4	220	4.3	110	---	2.9	4.2
17	340	5.5	240	4.1	110	---	2.9	3.8
18	320	5.6	240	---	110	2.5	2.9	4.3
19	300	6.2	270	---	110	---	2.9	4.4
20	260	6.6	---	---	---	---	3.0	3.8
21	260	7.0					2.9	4.0
22	260	6.4					2.9	3.2
23	250	5.8					2.8	2.6

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 8

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	5.0					3.9	2.7
01	(290)	4.8					3.9	2.7
02	290	4.5					2.7	2.7
03	280	4.4					2.5	2.7
04	(290)	4.1					2.5	2.7
05	290	4.0	300	---	---	---		2.8
06	360	4.9	240	3.6	120	2.1	3.7	2.8
07	370	5.3	230	4.0	110	2.7	4.3	2.7
08	380	5.6	220	4.3	110	3.1	4.8	2.7
09	380	6.2	220	4.5	110	3.2	5.3	2.8
10	370	6.6	(220)	4.7	110	3.4	5.8	2.8
11	380	6.2	220	4.8	110	3.4	4.8	2.7
12	390	6.3	220	(4.8)	110	(3.4)	4.8	2.7
13	380	6.3	220	4.8	110	(3.5)	4.3	2.7
14	380	6.6	220	(4.7)	110	3.4	3.8	2.7
15	370	6.8	230	4.6	110	(3.3)		2.8
16	340	6.7	230	4.5	110	3.2	4.2	2.8
17	330	6.4	240	4.2	110	2.9	4.3	2.9
18	300	6.4	240	3.7	120	2.5	4.1	3.0
19	260	6.4	---	---			4.4	3.0
20	250	6.5					4.0	3.0
21	(260)	6.2					5.0	2.9
22	(290)	5.7					4.5	2.8
23	(300)	5.2					4.6	2.7

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

Table 9

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.8					3.2	2.7
01	300	4.9					3.1	2.7
02	300	4.7					3.2	2.8
03	280	4.4					2.9	2.8
04	280	4.0					3.1	2.8
05	280	4.1	---	---	---	---	3.1	3.0
06	290	5.0	250	3.4	120	2.3	3.8	3.0
07	370	5.7	250	4.1	120	2.7	5.2	2.8
08	400	5.8	230	4.4	120	3.1	4.6	2.7
09	380	6.4	230	4.6	120	3.3	5.6	2.6
10	420	6.5	220	4.7	120	3.4	5.8	2.6
11	410	6.6	210	4.7	120	3.6	5.8	2.6
12	380	7.0	220	4.8	110	3.7	4.7	2.7
13	400	7.0	220	4.8	120	3.7	4.4	2.6
14	390	7.1	230	4.7	110	3.6	5.0	2.7
15	380	7.2	250	4.6	120	3.5	4.2	2.7
16	360	7.3	250	4.4	120	3.3	4.2	2.7
17	340	7.4	240	4.2	120	2.9	4.5	2.8
18	300	7.4	240	3.5	120	2.3	4.4	2.8
19	270	7.6			---	---	4.0	3.0
20	260	7.0					3.6	2.9
21	260	6.0					3.4	2.9
22	290	5.2					4.0	2.8
23	310	5.0					3.2	2.6

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

Table 10

Okinawa I. (26.3°N, 127.8°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(7.2)					6.6	(2.8)
01	280	7.8					5.6	3.0
02	260	(7.0)					4.8	3.1
03	270	5.8					3.9	3.0
04	260	(5.2)					3.3	2.9
05	260	(5.4)					2.4	3.0
06	250	6.2			(110)	---	3.6	3.1
07	270	6.8	240	---	110	2.9	5.7	3.2
08	300	6.8	(220)	---	110	3.2	7.2	3.0
09	340	7.5	(230)	4.6	110	3.5	7.9	2.9
10	380	7.4	240	(4.8)	110	3.6	7.2	2.6
11	400	8.4	(240)	(5.0)	110	(3.6)	7.5	2.6
12	380	9.6	(240)	(4.9)	(110)	---	8.4	2.7
13	340	10.1	(230)	(4.9)	110	3.6	6.2	2.8
14	350	10.0	(240)	4.9	110	(3.6)	7.0	2.7
15	340	10.2	250	(4.7)	110	3.5	5.8	2.8
16	320	10.4	240	(4.5)	110	3.3	6.2	2.9
17	300	10.3	250	---	(110)	(2.8)	5.6	3.0
18	280	10.2	---	---	120	2.2	5.8	3.0
19	260	9.4					6.4	3.0
20	(280)	7.5					6.3	2.7
21	(320)	7.3					5.4	2.6
22	330	(7.6)					5.0	2.6
23	330	(7.7)					5.8	(2.6)

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

Table 11

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.8					3.7	2.8
01	270	6.6					2.5	3.0
02	260	6.1					2.4	3.0
03	280	5.9					3.0	2.8
04	280	5.4					2.4	2.8
05	280	5.1					2.0	2.8
06	270	5.4	280	---	130	1.6	3.6	3.0
07	290	6.2	240	3.8	120	2.5	4.2	2.9
08	340	6.7	230	4.4	110	3.0	5.0	2.8
09	400	7.6	220	4.8	110	3.3	7.3	2.5
10	440	8.3	220	4.9	110	3.5	8.2	2.4
11	430	9.0	210	5.0	110	3.7	7.5	2.5
12	410	9.7	220	5.0	110	3.8	7.4	2.6
13	390	10.0	210	4.9	110	3.8	5.6	2.6
14	370	10.2	220	4.9	110	3.7	5.8	2.7
15	350	10.6	220	4.7	110	3.5	5.8	2.8
16	330	11.0	230	4.6	110	3.3	6.6	2.8
17	300	11.2	240	4.2	120	2.9	4.5	3.0
18	270	11.0	240	3.7	120	2.3	4.0	3.1
19	260	10.0					3.7	3.0
20	260	8.8					3.4	2.9
21	260	7.8					2.9	2.8
22	300	7.4					3.6	2.7
23	300	7.2					3.1	2.7

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

Table 12

Puerto Rico (18.5°N, 67.15°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	7.2					2.1	2.9
01	260	7.1					2.9	3.0
02	240	6.6					2.5	3.0
03	(260)	5.9					2.4	2.9
04	(260)	5.3					2.1	2.9
05	(270)	5.2						2.9
06	270	5.2	---	---	---	---	3.1	3.0
07	280	6.2	240	---	110	2.4	4.3	3.1
08	300	6.8	230	4.4	100	3.0	4.7	3.0
09	320	7.4	220	4.6	100	3.3	4.3	2.8
10	360	7.4	220	4.7	100	3.5	4.7	2.7
11	380	8.2	210	4.9	100	3.6	5.4	2.6
12	360	9.2	220	5.0	100	3.8	4.6	2.7
13	350	9.6	220	4.8	100	3.7	5.2	2.8
14	330	9.9	220	4.8	100	3.6	5.2	2.8
15	320	9.9	240	4.6	100	3.5	5.0	2.9
16	320	9.6	220	4.5	110	3.3	5.2	2.8
17	310	9.5	230	4.4	110	2.9	4.6	2.8
18	280	9.5	240	---	110	---	4.3	2.9
19	260	9.1					4.2	2.9
20	(260)	8.6					2.8	2.9
21	(260)	7.7						2.9
22	(280)	7.4						2.8
23	(290)	7.0						2.8

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

Table 13

Trinidad, British West Indies (10.7°N, 61.6°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	9.6						3.0
01	240	8.4						3.1
02	250	7.8						3.0
03	240	7.4						3.1
04	240	6.4						3.1
05	250	6.0						3.0
06	250	6.0			---	---	2.6	3.0
07	230	6.9	---	---	110	2.7	3.6	3.2
08	270	7.5	220	4.6	100	3.2	4.0	3.0
09	320	8.1	210	4.9	100	3.5	4.3	2.7
10	350	9.2	200	5.0	100	3.7	4.4	2.7
11	350	10.0	210	5.2	100	3.8	4.7	2.7
12	350	10.7	200	5.1	100	3.9	4.4	2.8
13	330	11.4	200	5.0	100	3.8	4.6	2.8
14	310	11.5	210	4.9	100	3.8	4.8	2.9
15	300	11.4	210	4.8	100	3.6	4.9	2.9
16	300	11.0	210	4.7	100	3.3	4.6	2.9
17	280	10.8	230	4.2	100	2.7	4.7	2.8
18	250	10.6			---	---	3.6	2.9
19	250	10.4					3.6	2.8
20	270	9.8					3.6	2.8
21	270	10.0					2.6	2.9
22	260	10.1					2.4	2.9
23	260	10.2					2.1	3.0

Time: 60.0°W.
Sweep: 1.2 Mc to 19.5 Mc, manual operation.

Table 14

Panama Canal Zone (9.4°N, 79.9°W) June 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M300
00	270	7.8					1.8	3.0
01	260	7.5					1.4	2.9
02	260	7.4					1.8	3.0
03	260	6.4					1.8	3.0
04	260	6.1					1.9	3.0
05	260	6.0					2.4	3.0
06	270	5.7	---	---	---	---	3.8	3.0
07	240	5.9	230	---	120	2.3	3.6	3.1
08	320	6.5	220	4.5	110	(2.9)	3.7	2.9
09	390	7.3	220	4.9	110	3.2	4.0	2.6
10	410	8.2	220	5.0	120	3.5	3.6	2.5
11	420	9.2	220	5.0	110	3.6	4.5	2.5
12	400	10.1	220	4.9	110	3.7	4.6	2.6
13	390	10.6	220	5.0	110	3.8	4.9	2.6
14	380	11.0	220	4.9	110	3.6	5.0	2.7
15	360	11.2	220	4.8	110	3.5	4.7	2.7
16	340	11.2	220	4.6	110	3.2	4.2	2.8
17	320	11.2	230	4.4	110	2.7	3.7	2.8
18	280	(11.0)	250	(3.5)	---	---	3.6	2.8
19	260	(9.9)					3.3	(2.8)
20	270	(9.5)					3.2	(2.8)
21	270	(9.2)					3.0	(2.8)
22	280	(9.0)						(2.8)
23	270	(8.6)						(2.9)

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

Table 15

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	6.1					2.5	3.2
01	230	5.8						3.2
02	250	5.5						3.2
03	280	5.0					2.1	3.2
04	280	4.8					2.1	3.1
05	280	4.4					2.6	3.0
06	290	4.1			110	---	3.2	2.9
07	250	6.3			100	2.4	4.4	3.1
08	280	8.0	230	---	110	2.9	5.2	2.9
09	300	8.5	220	4.3	110	3.2	7.4	2.7
10	320	8.9	210	4.7	110	3.2	8.0	2.6
11	330	8.4	210	4.7	110	---	8.9	2.5
12	350	8.2	210	4.8	110	---	10.2	2.6
13	350	8.4	210	4.8	110	---	10.1	2.5
14	330	8.2	210	(4.5)	110	3.2	10.2	2.4
15	300	8.0	210	---	110	(3.1)	8.0	2.5
16	240	8.1	230	---	110	2.7	7.8	2.5
17	270	8.1			110	2.1	3.9	2.6
18	300	7.8			---	---		2.7
19	300	7.4					2.1	2.6
20	290	7.4						2.8
21	260	7.6						3.0
22	230	7.0						3.1
23	230	6.6						3.2

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

Table 16

Fairbanks, Alaska (64.9°N, 147.8°W) May 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M300
00	---	(4.0)					3.5	---
01	---	(4.1)					4.0	(2.9)
02	---	(4.2)						(2.9)
03	(340)	(4.3)						(3.0)
04	(380)	5.1	---	---	---	---		2.9
05	400	5.2	---	3.5	---	---		(2.8)
06	400	5.0	---	3.8	---	---		2.9
07	430	5.0	230	4.0	---	---		2.7
08	420	5.1	240	(4.0)	---	---		2.8
09	420	5.2	220	(4.1)	---	---		2.8
10	460	5.2	(220)	4.2	---	---		2.7
11	450	5.2	(250)	4.5	---	---		2.8
12	440	5.5	240	(4.2)	---	---		2.7
13	440	5.4	220	(4.2)	---	---		2.8
14	440	5.3	240	4.2	---	---		2.8
15	430	5.2	230	4.2	---	---		2.8
16	430	5.2	240	4.0	---	---		2.8
17	360	5.4	260	---				3.0
18	(320)	5.2	---	---				3.1
19	(300)	5.0	---	---				3.1
20	(290)	4.8						3.1
21	300	(4.4)						3.1
22	(300)	(4.0)					3.5	(3.0)
23	---	(4.0)					4.0	(2.9)

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

Table 17

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.0			---	---	7.0	2.8
01	270	3.6			---	---	5.6	(2.8)
02	280	3.6			---	---	5.0	(2.7)
03	300	3.8			120	2.0	4.0	3.0
04	280	3.4			120	2.1	3.0	2.9
05	300	4.0	---	---	110	2.4		3.0
06	330	4.7	250	3.8	100	3.0		2.8
07	420	4.5	220	4.0	100	3.0		2.7
08	440	5.0	220	4.3	100	3.2		2.6
09	420	5.2	220	4.4	100	3.2		2.6
10	440	5.3	230	4.3	100	3.3		2.5
11	450	5.4	220	4.4	100	3.4		2.6
12	420	5.8	220	4.4	100	3.3		2.6
13	400	5.9	220	4.4	100	3.2		2.6
14	420	5.9	230	4.4	100	3.2		2.6
15	380	6.4	220	4.3	100	3.0		2.7
16	380	6.0	240	4.2	100	3.0		2.7
17	350	5.8	230	4.0	110	3.0		2.8
18	320	5.8	250	4.0	110	3.0		2.8
19	320	5.2	250	---	110	3.0	3.0	2.8
20	310	5.0			120	3.0	3.8	2.8
21	290	4.4			120	2.3	6.0	2.8
22	280	4.2			120	2.0	8.0	2.7
23	290	4.2			---	---	7.6	2.7

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc, automatic operation.

Table 18

Prince Rupert, Canada (54.3°N, 130.3°W) May 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M300
00	290	3.5					3.3	3.0
01	310	3.0					2.2	2.7
02	320	3.0					3.0	2.7
03	330	3.0					3.0	2.6
04	310	3.0	---	---	---	1.4	3.4	2.6
05	310	3.6	280	3.0	110	1.9	2.6	2.6
06	400	4.4	260	3.5	110	2.2	2.4	2.7
07	400	4.8	240	3.8	100	2.6	3.1	2.6
08	420	5.0	220	4.0	100	3.0	4.1	2.6
09	460	5.0	220	4.2	100	3.0	4.9	2.6
10	480	5.2	210	4.4	100	3.2	4.0	2.7
11	460	5.3	210	4.5	100	3.4	5.0	2.6
12	480	5.4	210	4.5	100	3.4	5.0	2.5
13	450	5.5	220	4.5	100	3.5	4.7	2.7
14	400	5.6	220	4.6	100	3.4	3.2	2.7
15	400	5.7	220	4.5	100	3.2		2.7
16	400	5.6	220	4.4	100	3.1	2.0	2.8
17	360	5.8	220	4.3	100	3.0	2.6	2.8
18	320	5.6	230	4.0	100	2.8	3.0	2.8
19	300	5.5	250	3.7	110	2.3	2.6	3.0
20	270	5.6			130	2.0	3.0	3.0
21	260	5.0			---	---	3.0	3.0
22	260	5.0					3.6	2.9
23	270	4.5					4.0	2.9

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

Table 19

Lindau/Harz, Germany (51.6°N, 10.1°E) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.4					2.1	2.6
01	290	5.0					2.0	2.6
02	290	4.7					2.3	2.6
03	280	4.4					2.6	2.6
04	290	4.0	---	---	---	E	2.5	2.7
05	280	4.3	265	---	100	1.8	2.8	2.9
06	280	4.9	250	3.6	100	2.3	3.7	3.0
07	325	5.3	230	4.0	100	2.7	4.9	2.8
08	350	5.9	220	4.3	100	3.0	4.8	2.8
09	350	6.3	210	4.4	100	3.2	4.9	2.8
10	350	6.4	220	4.6	100	3.3	4.7	2.8
11	(<330)	6.6	210	4.7	100	3.4	4.6	2.8
12	350	6.5	215	4.8	100	3.5	5.5	2.8
13	340	6.6	215	4.8	100	3.4	5.4	2.8
14	340	6.6	(<230)	4.6	100	3.4	5.4	2.8
15	330	6.4	230	4.6	100	3.3	5.2	2.9
16	315	6.6	230	4.4	100	3.2	4.3	2.8
17	300	6.8	230	4.2	100	2.9	4.5	2.9
18	290	6.9	260	---	100	2.6	4.6	2.9
19	270	7.0	260	---	100	2.0	4.2	2.9
20	260	6.8					3.0	2.9
21	250	6.9					2.3	2.8
22	260	6.2					2.4	2.8
23	260	5.8					2.1	2.7

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

Table 20

Graz, Austria (47.1°N, 15.5°E) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04	290	4.3						
05	260	5.0		(3.2)			(4.3)	
06	250	5.1		3.5	(120)	2.7	4.5	
07	290	6.0	230	4.2	100	3.0	4.5	
08	310	6.9	210	4.9	100	3.1	4.1	
09	310	7.1	200	5.0	100	3.4	4.1	
10	320	7.1	200	5.0	100	3.5	4.1	
11	310	7.6	(200)	5.0	110	3.8	5.0	
12	300	7.2	(200)	5.0	110	3.8	4.9	
13	310	7.4	(200)	5.0	105	3.6	4.4	
14	300	7.5	200	5.0	100	3.5	4.3	
15	300	7.3	210	4.9	110	3.4	4.1	
16	300	7.3	220	4.9	100	3.1	4.1	
17	290	7.4	240	(4.7)	110	3.0	4.7	
18	260	7.9				(2.6)	4.5	
19	250	8.2					4.7	
20	250	7.6					4.0	
21	250	7.1					(4.7)	
22								
23								

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

Table 21

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	5.2						
01	320	5.0						
02	320	4.9						
03	310	4.8						
04	310	4.4			---	---		
05	310	4.2			130	1.8		
06	300	4.8	---	---	125	2.2		
07	300	5.0	300	4.1	110	2.6		
08	350	5.7	260	4.2	110	2.9	3.8	
09	350	6.4	260	4.4	110	3.0	4.2	
10	395	7.0	235	4.6	110	3.2	4.4	
11	380	6.6	240	4.7	110	3.2	4.3	
12	400	6.9	240	5.1	110	3.4		
13	400	7.0	255	5.0	110	3.4		
14	395	7.4	260	4.8	110	3.4		
15	355	7.1	275	4.6	110	3.2		
16	400	7.1	270	4.6	110	3.1		
17	300	7.4	280	4.4	110	3.0		
18	300	7.2			110	2.6	3.7	
19	300	7.0			118	2.0	4.8	
20	300	7.0			---	---	4.0	
21	(300)	(6.2)					3.5	
22	(300)	(6.0)					3.5	
23	(300)	(5.8)						

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

Table 22

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.1						2.6
01	310	5.9						2.6
02	300	5.9					1.4	2.6
03	300	5.7						2.7
04	300	5.4						2.7
05	300	5.8	280	3.3	110	1.9		2.8
06	300	6.2	280	4.0	110	2.6		2.9
07	320	6.8	270	4.4	110	3.0	4.5	2.9
08	310	7.2	260	4.5	110	3.2	4.9	2.9
09	320	7.3	260	4.7	110	3.4	5.0	2.9
10	330	7.2	280	4.9	110	3.5	4.6	2.9
11	370	7.0	290	4.8	110	---	5.0	2.8
12	350	7.1	260	5.0	110	---	4.0	2.7
13	360	7.3	290	4.8	110	---	4.0	2.8
14	360	7.2	270	4.8	110	---	3.2	2.8
15	330	7.5	260	4.6	110	3.2		2.8
16	310	7.3	270	4.4	110	2.9		2.9
17	300	7.2	280	4.0	110	2.6	3.4	2.9
18	300	7.2	---	---	120	2.1	3.4	2.9
19	300	7.4					3.3	2.8
20	290	7.3					3.3	2.8
21	290	7.1					3.0	2.8
22	300	6.8						2.7
23	300	6.6					2.1	2.7

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

Table 23

Boston, Massachusetts (42.4°N, 71.2°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.4						2.9
01	270	4.0						2.8
02	275	3.5						2.9
03	270	3.3						2.9
04	270	3.2						2.9
05	240	4.0	---	---	110	2.1		3.1
06	260	4.7	210	3.8	110	2.6		3.2
07	310	5.3	200	4.0	105	2.8		3.1
08	320	5.6	200	4.2	100	3.1		3.0
09	320	5.9	200	4.5	100	3.2	3.1	3.1
10	345	6.0	200	4.6	100	3.2		(3.1)
11	360	5.7	200	4.6	100	3.3		3.0
12	360	(6.0)	200	4.6	100	3.3		(2.9)
13	350	6.0	200	4.7	100	3.3		3.0
14	360	5.7	210	4.4	100	3.2		2.9
15	330	6.2	210	4.4	100	3.1		2.9
16	310	6.8	210	4.1	110	3.0		3.0
17	300	6.7	225	3.8	110	2.7		3.0
18	250	6.7	225	---	110	2.3		3.1
19	230	6.4						3.1
20	230	5.7						3.0
21	250	5.5						2.9
22	255	5.2						2.9
23	260	4.7						2.9

Time: 75.0°W.
Sweep: 0.8 Mc to 15.0 Mc in 1 minute.

Table 24

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.2					2.6	2.8
01	290	6.1					2.4	2.8
02	280	6.3					2.4	2.9
03	270	6.0					2.2	2.9
04	280	5.8					2.0	2.9
05	250	6.3	230	---	120	1.8	2.4	3.1
06	260	6.8	240	3.6	110	2.5	3.1	3.2
07	260	7.5	240	---	110	2.9	4.6	3.1
08	280	7.6	240	4.5	110	3.2	5.0	3.2
09	300	7.4	230	4.8	110	3.3	4.7	3.1
10	300	7.4	220	4.9	110	3.4	5.0	3.0
11	320	7.6	210	4.9	110	3.4	4.6	3.0
12	320	8.1	230	4.8	110	---	4.7	2.9
13	320	8.4	240	4.8	110	---	4.6	3.0
14	300	8.5	240	4.8	110	3.4	4.5	3.0
15	300	8.5	260	4.6	110	3.1	4.3	3.1
16	290	8.2	250	4.3	110	3.0	4.6	3.1
17	280	8.0	260	---	110	2.7	4.8	3.1
18	260	7.9	---	---	110	2.2	4.4	3.1
19	250	8.2					4.3	3.1
20	250	7.1					3.6	3.0
21	260	7.0					3.4	2.9
22	280	6.4					3.2	2.8
23	290	6.4					3.0	2.9

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

Table 25

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.6					3.1	2.8
01	270	6.4					2.6	2.8
02	250	6.4					2.3	2.9
03	250	6.2					2.4	2.9
04	250	5.7					2.3	2.8
05	240	6.0					2.4	3.1
06	250	7.1	230	---	100	2.4	2.8	3.2
07	250	7.6	220	---	100	2.9	4.7	3.2
08	260	7.8	230	---	100	3.1	5.6	3.2
09	280	7.6	230	4.6	100	3.4	5.6	3.0
10	300	7.6	220	---	100	3.4	5.6	3.0
11	310	8.5	220	4.9	100	3.6	5.0	3.0
12	320	8.9	240	4.9	100	3.6	5.4	2.9
13	310	9.4	220	4.9	100	3.5	6.0	2.9
14	310	9.6	240	4.6	100	3.4	4.2	3.0
15	290	9.4	230	5.1	100	3.2	4.6	3.1
16	280	9.2	220	---	100	3.0	5.0	3.1
17	270	8.7	250	---	100	2.6	5.5	3.1
18	250	8.4	---	---	110	2.0	5.3	3.1
19	250	8.1					5.0	3.0
20	260	7.3					5.6	3.0
21	280	7.1					3.8	2.8
22	280	7.0					3.7	2.8
23	290	6.7					3.6	2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 18.5 Mc in 2 minutes.

Table 26

Yamagawa, Japan (31.2°N, 130.6°E) May 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000
00	300	7.1					4.1	2.8
01	300	7.1					3.2	2.8
02	290	7.0					3.4	3.0
03	280	6.6					2.8	2.9
04	280	6.1					2.6	3.0
05	290	5.8					2.4	3.0
06	260	6.9	---	---	110	1.8	2.6	3.2
07	270	7.4	250	---	110	2.6	3.4	3.2
08	270	7.6	240	---	110	3.0	5.1	3.2
09	290	7.8	230	---	110	3.4	6.1	3.0
10	340	8.5	240	4.8	110	3.6	5.8	2.8
11	360	9.0	280	5.0	110	3.6	6.0	2.8
12	350	9.8	280	5.1	110	3.8	6.4	2.9
13	340	10.0	260	5.1	110	3.7	5.4	2.8
14	340	10.2	260	5.0	110	3.4	5.4	2.8
15	330	11.0	280	4.8	110	3.4	5.1	2.9
16	310	10.5	260	4.6	110	3.3	5.7	2.9
17	300	10.6	270	---	110	3.0	5.0	2.9
18	280	10.2	250	---	110	2.6	6.0	3.1
19	260	9.3					4.7	3.1
20	260	8.4					6.4	3.2
21	300	7.4					5.0	2.8
22	300	7.0					4.5	2.8
23	320	7.0					4.1	2.7

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

Table 27

Baton Rouge, Louisiana (30.5°N, 91.2°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.2					2.8	2.8
01	290	4.7						2.8
02	270	4.7						2.9
03	270	4.5					2.2	2.9
04	270	4.2					2.4	2.9
05	280	4.4	---	---	120	1.8	2.5	3.1
06	270	5.2	240	---	120	2.1	3.2	3.2
07	300	5.6	230	4.1	110	2.6	3.6	3.1
08	350	6.0	220	4.4	110	3.0	3.9	2.9
09	360	6.8	220	4.8	110	3.3	3.6	2.9
10	360	6.6	230	4.9	100	3.4		2.8
11	380	7.2	230	4.9	100	3.3		2.7
12	360	7.7	---	5.0	100	3.3		2.8
13	350	7.8	240	5.0	100	3.4		2.8
14	340	8.0	240	4.8	100	3.4		2.9
15	330	8.1	230	4.8	100	3.3		2.9
16	300	8.0	220	4.4	110	3.1		3.0
17	290	8.1	230	4.1	110	2.8	3.4	3.0
18	270	7.8	250	---	110	2.2	3.6	3.1
19	240	7.3					3.3	3.1
20	230	6.6					2.4	3.0
21	240	5.8					2.5	2.9
22	280	4.9					3.2	2.8
23	290	5.0					2.8	2.8

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

Table 28

Guam I. (13.6°N, 144.9°E) May 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000
00	320	8.6						2.8
01	300	8.5						3.0
02	290	7.7						3.1
03	(270)	7.1						(3.1)
04	250	6.2						3.2
05	220	5.6						3.3
06	250	5.6			---	---		3.3
07	240	7.2	---	---	---	---		3.2
08	(250)	8.4	(230)	---	---	---		3.0
09	(300)	9.0	230	---	---	---	3.6	2.8
10	320	9.6	(220)	(4.6)	---	---		2.6
11	340	10.1	(230)	4.8	---	---		2.4
12	(360)	10.8	(220)	(4.8)	---	---		2.4
13	340	11.3	(210)	4.8	---	---		2.5
14	(340)	11.6	---	(4.8)	---	---		2.6
15	340	11.8	(220)	(4.8)	(120)	---		2.6
16	330	12.5	(230)	---	---	---		2.6
17	310	12.8	(240)	---	---	---	3.7	2.6
18	(260)	12.7			---	---	3.9	2.7
19	(280)	(11.5)						(2.8)
20	(330)	(10.3)						2.7
21	(360)	9.6						2.5
22	(350)	9.0						2.6
23	(350)	8.6						2.6

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

Table 29

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.0						2.8
01	280	3.0						2.9
02	280	3.0					2.1	3.0
03	260	3.1						3.0
04	260	3.0						3.0
05	260	3.0						3.0
06	250	2.9					1.7	3.0
07	230	5.9			110	2.1		3.4
08	230	7.7	230	3.6	110	2.6	3.1	3.4
09	240	8.6	220	4.1	110	3.0		3.3
10	250	9.8	220	4.4	110	3.3	3.6	3.2
11	260	10.0	210	4.5	110	3.4	3.6	3.2
12	260	9.7	210	4.6	110	3.4	3.8	3.2
13	260	9.8	210	4.6	110	3.4	3.6	3.1
14	270	9.9	210	(4.5)	110	3.4	3.7	3.0
15	250	10.3	230	4.2	110	3.1	3.6	3.1
16	240	9.8	230	---	120	2.8	3.4	3.2
17	220	8.6			110	(2.1)		3.2
18	220	7.2			---	---	2.3	3.3
19	220	4.8					2.1	3.3
20	240	3.6					1.6	3.2
21	240	3.4						3.2
22	250	3.0						3.1
23	260	3.0					1.6	3.0

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) May 19

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000
00	280	2.9						2.9
01	280	3.0						2.8
02	290	2.9						2.9
03	280	3.0						2.9
04	280	3.0						2.9
05	260	3.1						3.0
06	250	3.0						3.1
07	250	3.0			---	E		3.0
08	230	5.9			130	2.1		3.4
09	230	7.7	230	3.0	120	2.6		3.4
10	250	8.6	230	3.9	110	3.0		3.3
11	250	9.4	220	4.3	110	3.2		3.2
12	260	10.0	220	4.5	110	3.3		3.1
13	250	10.0	220	4.4	110	3.4	3.7	3.0
14	260	10.6	220	4.5	110	3.3	3.4	3.0
15	260	10.9	240	4.1	110	3.1		3.1
16	250	10.5	240	3.5	120	2.9		3.2
17	230	9.5	---	---	110	2.3		3.3
18	220	7.8			110	---	1.5	3.3
19	220	5.1						3.3
20	240	4.0						3.2
21	240	3.1					1.7	3.3
22	250	2.7						3.2
23	(270)	2.7						2.9

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

Table 31

er Lake, Canada (64.3°N, 96.0°W) April 1951

e	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
	300	4.8						2.7
	300	4.8						2.7
	310	4.8						2.7
	330	3.9						2.8
	320	3.8			---	---		2.8
	340	3.9	---	---	140	---		2.9
	320	3.8	---	---	140	---		2.9
	300	4.6	280	3.7	130	2.5		2.8
	420	4.6	280	3.8	120	3.0		2.8
	(440)	4.8	250	3.9	120	3.2		2.7
	510	5.0	230	3.9	120	3.1		(2.7)
	480	5.2	270	4.0	120	3.3		2.7
	500	5.4	280	4.1	120	3.3		2.6
	500	5.1	280	4.0	120	3.2		2.7
	440	5.8	260	4.0	120	3.1		2.7
	460	5.6	260	4.0	120	3.0		2.7
	430	5.3	270	4.0	120	3.0		2.6
	400	5.1	270	3.8	130	2.6		2.7
	310	5.3	300	3.7	130	2.4		2.8
	310	5.0	280	---	150	2.2		2.8
	310	4.8	---	---	---	---	4.0	2.8
	300	5.0						2.7
	300	5.0						2.8
	300	4.9						2.7

me: 90.0°W.
eep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 32

Lindau/Harz, Germany (51.6°N, 10.1°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.1					1.8	2.7
01	300	3.3					2.0	2.6
02	300	3.6					2.0	2.7
03	300	3.4					2.4	2.6
04	290	2.9					2.3	2.7
05	280	3.2	---	---	---	E	2.5	2.8
06	260	4.2	---	---	100	1.8	2.8	3.0
07	260	4.6	240	---	100	2.4	3.4	3.7
08	310	5.3	230	4.2	100	2.8	3.5	3.0
09	320	5.5	220	4.4	100	3.0	3.4	2.9
10	310	6.0	210	4.5	100	3.2	3.7	2.9
11	310	6.4	210	4.6	100	3.3	3.7	3.0
12	310	7.0	210	4.7	100	3.3	3.6	3.0
13	300	7.0	210	4.6	100	3.3	3.7	2.9
14	300	7.2	220	4.6	100	3.2	3.6	3.0
15	300	7.0	220	4.5	100	3.1		3.0
16	290	7.1	220	4.3	100	3.0	3.5	3.0
17	270	7.3	230	---	100	2.6	3.4	3.0
18	260	7.2	240	---	100	2.2	2.8	3.0
19	250	7.0			---	E	2.8	3.0
20	240	6.7					2.4	3.0
21	250	6.0					2.4	2.9
22	260	5.2					2.0	2.9
23	280	4.4					2.0	2.7

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

Table 33

noea, China (25.0°N, 121.0°E) April 1951

e	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
	280	9.1					3.5	3.0
	280	8.8					3.1	3.2
	240	7.4						3.5
	260	6.5						3.3
	260	5.5						3.2
	260	4.8			---	---		3.4
	240	6.2	---	---	140	2.8	2.7	3.6
	240	8.6	220	4.1	120	2.9	3.9	3.5
	270	9.8	240	4.8	120	3.3	4.6	3.5
	270	10.7	220	4.5	120	3.4	4.7	3.2
	300	11.2	240	5.2	120	3.9	4.9	3.1
	310	12.7	220	5.8	110	3.9	4.9	3.0
	320	14.0	230	5.4	110	4.0	4.8	3.0
	300	14.3	240	5.6	110	3.4	4.6	3.3
	290	14.4	230	5.6	100	3.3		3.3
	280	14.3	240	5.0	100	3.2		3.4
	280	14.3	240	4.9	110	3.0	3.4	3.4
	270	13.9	240	4.5	110	2.9	3.3	3.5
	260	14.0	220	4.5	120	---	3.1	3.5
	220	11.9	---	---	---	---	3.2	3.6
	240	11.4	---	---			3.9	3.2
	280	10.6					3.9	3.0
	320	9.8					3.7	3.0
	300	9.6					3.2	3.0

e: 120.0°E.
ep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 34

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.4					2.2	3.0
01	280	3.4					2.0	2.9
02	270	3.4					2.0	3.0
03	250	3.3					2.0	3.1
04	260	3.0						3.0
05	260	2.8						3.0
06	260	3.2						3.0
07	230	6.5	---	---	110	2.2		3.4
08	240	8.0	230	---	110	2.7		3.4
09	260	9.0	220	4.4	110	3.1		3.2
10	260	10.1	220	4.6	110	3.4	3.8	3.2
11	260	10.4	210	4.6	110	3.5	4.0	3.1
12	260	9.8	200	4.8	110	3.5	4.0	3.0
13	280	10.3	200	4.7	110	3.5	3.8	2.9
14	280	11.0	220	4.7	110	3.5	3.8	3.0
15	270	11.1	230	4.4	110	3.3	4.0	3.0
16	250	11.0	230	3.9	120	3.0	3.8	3.2
17	230	10.0	230	---	120	2.4	3.4	3.2
18	220	8.6			110	---	2.4	3.2
19	220	6.4					1.8	3.3
20	220	4.6					1.6	3.2
21	250	4.0					2.0	3.1
22	260	3.6					2.0	3.0
23	260	3.4					2.0	3.0

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

Table 35

heroo, W. Australia (30.3°S, 115.9°E) April 1951

e	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
	270	4.0					3.1	2.9
	265	3.8					3.2	2.9
	270	3.7					3.0	2.8
	350	3.7					2.9	2.9
	260	3.4					2.8	3.0
	260	3.0					3.0	2.8
	270	3.2	---	---		---	2.8	2.9
	250	5.6	---	---		2.0	2.2	3.5
	250	7.3	230	3.8		2.5	3.2	3.4
	265	8.3	240	4.4		2.9	3.3	3.3
	270	8.8	230	4.7		3.2	3.6	3.2
	280	9.5	230	4.8		3.2	3.6	3.2
	275	9.8	225	4.7		3.3	3.7	3.1
	280	10.2	230	4.7		3.3	3.5	3.1
	280	10.0	240	4.6		3.2	3.5	3.1
	270	9.8	240	4.2		3.0	3.3	3.2
	250	8.8	240	3.6		2.7	3.1	3.2
	250	8.0				2.2	3.2	3.3
	230	7.1					3.0	3.3
	240	5.3					3.0	3.1
	250	5.0					2.7	3.0
	255	4.5					2.8	3.0
	265	4.3					2.6	2.9
	270	4.2					3.2	2.8

me: 120.0°E.
eep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 36

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0					2.1	2.9
01	280	3.0					2.0	2.9
02	280	3.2						2.8
03	290	3.2					1.6	2.9
04	260	3.1						3.0
05	250	3.0						3.0
06	260	3.0						2.9
07	250	4.0			---	---		3.1
08	230	6.7	---	---	120	2.3		3.4
09	250	7.9	230	---	110	2.8		3.3
10	260	9.0	230	4.3	110	3.1		3.2
11	260	9.8	220	4.5	110	3.3	3.6	3.1
12	260	9.8	210	4.5	110	3.4	3.6	3.0
13	280	10.8	200	4.6	110	3.4	4.0	2.9
14	280	11.2	220	4.6	110	3.4	3.4	3.0
15	270	11.2	240	4.4	110	3.3	3 4	3.0
16	260	11.3	240	4.0	120	3.0		3.1
17	240	10.7	230	3.4	120	2.6	3.1	3.2
18	230	9.6			120	1.9	2.4	3.2
19	220	7.4					2.2	3.2
20	230	5.0						3.2
21	250	4.0					1.6	3.1
22	260	3.2					2.0	3.1
23	260	3.1						3.0

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

Table 37

Christchurch, New Zealand (43.5°S, 172.7°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.3					2.6	2.8
01	280	4.0					2.5	2.8
02	290	3.7					2.4	2.8
03	280	3.5					2.4	2.9
04	270	3.1					2.7	3.0
05	260	2.3					2.8	2.9
06	290	2.6				---	2.8	2.9
07	260	4.7	---	---		1.5	2.9	3.2
08	250	6.0	250	3.6		2.3	2.8	3.2
09	260	6.8	240	4.0		2.7		3.2
10	270	7.9	240	4.3		2.9		3.2
11	270	8.2	240	4.4		3.1		3.2
12	280	8.2	240	4.4		3.2	4.2	3.1
13	270	8.4	240	4.4		3.1	3.8	3.1
14	270	8.4	240	4.3		3.0	4.2	3.1
15	260	8.2	250	3.9		2.8	3.3	3.1
16	250	8.2	250	3.5		2.4	2.8	3.2
17	250	7.8	---	---		1.8	2.7	3.1
18	240	7.3					2.8	3.0
19	250	6.5					2.7	2.9
20	250	5.6					2.8	2.8
21	270	5.0					2.9	2.8
22	280	4.8					2.4	2.8
23	290	4.3					2.5	2.7

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

Table 38

Barotongo I. (21.3°S, 159.8°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)
00	260	6.9					2.9	3.1
01	250	6.8					3.0	3.1
02	280	6.1					2.9	3.1
03	300	5.9					2.7	3.1
04	290	6.3						3.2
05	300	6.7					2.3	3.0
06	260	6.2						3.2
07	250	7.9	240	4.2	120	2.2	3.2	3.3
08	250	9.6	220	4.7	110	2.8	4.0	3.3
09	280	10.0	220	5.2	110	3.3	4.2	3.2
10	300	10.0	210	5.3	105	3.4	4.2	3.2
11	300	10.8	220	5.4	110	3.4	4.5	3.2
12	300	10.0	210	5.1	110	3.5	4.2	3.2
13	300	11.0	220	5.6	110	3.6	4.5	3.1
14	300	10.4	220	5.3	110	3.6	4.2	3.2
15	300	10.3	230	5.0	110	3.2	4.3	3.1
16	300	10.0	250	5.0	110	3.1	4.0	3.2
17	260	9.6	250	4.4	110	2.8	4.4	3.2
18	250	9.5					3.8	3.2
19	250	9.0					3.3	3.1
20	250	8.6					3.1	3.0
21	280	7.6					3.1	3.0
22	300	7.1					3.0	2.9
23	300	7.0					3.0	2.9

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

Table 39

Christchurch, New Zealand (43.5°S, 172.7°E) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.7					2.4	2.8
01	280	4.4					2.4	2.8
02	280	4.0					2.6	2.8
03	280	3.8					2.6	2.8
04	270	3.2					2.9	2.9
05	280	2.6				---	2.9	3.0
06	260	3.4	---	---		1.3	2.8	3.2
07	260	5.2	250	3.2		2.1	2.7	3.2
08	290	5.5	240	4.0		2.6	3.7	3.1
09	310	6.4	230	4.2		2.9	4.2	3.1
10	310	6.5	220	4.5		3.1	4.0	3.2
11	320	6.7	220	4.5		3.3	4.0	3.1
12	310	7.0	230	4.6		3.3	4.0	3.1
13	300	7.0	230	4.6		3.3	3.8	3.1
14	300	7.2	230	4.5		3.2	3.8	3.1
15	280	7.0	230	4.2		3.0	4.2	3.1
16	280	6.7	240	3.9		2.7	3.6	3.1
17	260	6.6	260	3.3		2.2	2.8	3.1
18	270	7.0	---	---		1.5	2.7	3.0
19	260	7.2					2.6	2.9
20	260	6.6					2.6	2.9
21	260	5.9					2.8	2.8
22	280	5.3					2.5	2.8
23	280	5.0					2.6	2.8

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

Table 40

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.4					2.8	3.1
01	250	6.9						3.2
02	260	6.7						3.2
03	280	6.9						3.0
04	280	6.2						3.1
05	270	6.5						3.0
06	290	6.8						3.0
07	260	7.7	250	4.4	110	2.6	3.7	3.1
08	300	8.9	250	5.1	110	3.2	4.4	3.2
09	300	9.2	240	5.0	110	3.4	4.4	3.1
10	310	10.5	210	5.1	105	3.5	4.7	3.0
11	320	11.2	220	5.4	110	3.7	4.6	2.9
12	310	12.1	210	5.4	105	3.8	4.7	2.9
13	300	12.3	210	5.0	105	3.7	4.6	3.0
14	300	12.4	210	5.2	105	3.6	4.8	3.1
15	300	10.5	240	4.9	110	3.5	4.4	3.0
16	300	9.8	220	5.0	110	3.2	4.5	3.1
17	260	9.8	250	4.7	110	3.0	4.3	3.1
18	250	9.4					4.0	3.0
19	260	9.0					4.4	3.0
20	290	8.6					4.3	2.9
21	300	7.7					3.6	2.9
22	300	7.2					3.0	2.9
23	280	7.2					3.0	3.0

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

Table 41

Christchurch, New Zealand (43.5°S, 172.7°E) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.2					3.2	2.8
01	270	4.8					3.8	2.8
02	270	4.2					2.9	2.8
03	280	3.5					3.3	3.9
04	280	3.1				---	3.0	2.9
05	280	3.0				1.2	3.4	2.9
06	270	4.2	---	3.4		1.6	3.2	3.2
07	310	5.1	250	4.0		2.4	4.0	3.1
08	300	6.2	240	4.3		2.8	4.9	3.1
09	300	6.9	230	4.5		3.1	5.3	3.2
10	310	7.0	230	4.7		3.3	5.7	3.1
11	330	7.2	220	4.8		3.5	4.9	3.0
12	320	7.0	230	4.8		3.5	4.8	3.0
13	310	7.4	230	4.8		3.5	4.5	3.1
14	320	7.0	240	4.7		3.4	4.4	3.0
15	310	7.1	230	4.6		3.3	4.6	3.0
16	310	7.2	230	4.4		3.0	3.6	3.0
17	290	7.3	250	4.0		2.7	3.8	3.0
18	270	7.2	250	3.4		2.0	2.8	3.0
19	260	7.3				1.4	3.3	3.0
20	260	7.1					3.7	2.8
21	270	6.6					3.8	2.8
22	280	6.0					4.8	2.8
23	280	5.6					3.6	2.7

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

Table 42

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	(>9.0)						---
01	255	10.0						---
02	225	(>9.0)						---
03	218	4.6						3.4
04	255	3.6						3.0
05	285	2.8					2.4	3.1
06	275	2.8						2.9
07	250	6.6			---	2.0	2.6	3.3
08	272	9.1	235	---	111	2.8	4.2	3.3
09	280	11.4	220	4.5	111	3.2	4.2	3.3
10	290	11.6	210	4.8	111	3.5	4.4	3.2
11	292	11.5	205	4.9	111	3.6	4.2	3.0
12	320	11.2	205	4.9	111	3.6	4.7	2.8
13	322	12.2	210	5.0	111	3.6	4.5	2.9
14	295	11.6	220	4.8	111	3.5	4.2	3.0
15	290	11.0	225	---	111	3.3	3.4	2.9
16	280	10.8	235	---	113	3.0	4.2	3.0
17	258	11.4	248	---	118	2.4	3.8	3.1
18	260	11.2			---	(<1.5)	3.6	3.1
19	275	11.2					3.0	(3.1)
20	245	11.6					3.0	---
21	252	(10.2)					2.8	---
22	265	(>9.5)						---
23	265	7.6						---

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

Table 43

eykjavik, Iceland (64.1°N, 21.8°W) — December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(390)	(2.9)					4.4	(2.6)
01	410	3.4					4.9	(2.5)
02	360	3.1					4.9	2.6
03	360	3.3					4.8	2.5
04	350	3.3					4.7	2.6
05	340	(3.6)					3.9	(2.7)
06	340	3.2					3.5	2.8
07	330	2.6					2.1	2.7
08	320	2.2			---	---	2.6	2.8
09	300	3.0			130	---	1.9	2.9
10	280	4.2			(130)	1.6	1.8	3.0
11	270	5.3			(120)	---		3.1
12	270	5.7			(140)	---		3.1
13	270	5.9			---	---		3.2
14	270	5.6			---	---		3.2
15	270	5.3			(110)	---		3.0
16	280	4.5			(110)	---	1.8	2.8
17	300	(3.9)					3.4	2.8
18	340	3.2					4.1	(2.8)
19	340	(2.6)					4.4	---
20	(340)	(3.6)					4.8	(2.6)
21	(340)	(3.6)					5.1	(2.6)
22	(390)	(3.9)					5.4	(2.6)
23	(380)	(3.0)					5.0	(2.5)

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

Table 44

Domont, France (49.0°N, 2.3°E) — December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(<260)	(3.0)						(2.9)
01	(<230)	(3.2)						(2.9)
02	(<240)	(3.1)						(2.9)
03	(<240)	(2.9)						(3.0)
04	(<240)	(2.4)					2.1	(3.0)
05	(<230)	(2.6)						(3.2)
06	(200)	(2.2)						(3.2)
07	215	(2.7)	210	---	---	1.1		(3.2)
08	210	5.2	200	---	120	1.7		3.6
09	215	6.2	200	---	100	2.1		3.7
10	220	7.0	200	---	100	2.3		3.6
11	220	7.4	200	---	100	2.5		3.6
12	220	7.5	190	---	100	2.5		3.6
13	220	7.0	200	---	100	2.5		3.6
14	220	7.2	200	---	100	2.3		3.7
15	220	6.8	200	---	110	2.1		3.6
16	210	5.8	190	---	100	1.7	2.2	3.6
17	200	4.5	---	---	---	---	2.2	3.6
18	(<200)	3.6					2.2	3.5
19	(<220)	3.2						3.2
20	(<220)	(2.9)					2.1	(3.2)
21	(<230)	(2.8)						(3.0)
22	(<220)	(2.8)						(3.0)
23	(<230)	(3.0)						(2.9)

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

Table 45

oitiers, France (46.6°N, 0.3°E) — December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.4						---
01	(<315)	3.4						---
02	(<320)	3.4						---
03	(<325)	3.2						---
04	---	2.9						---
05	---	3.0						---
06	---	2.6						---
07	(<280)	3.2	---	---				---
08	230	5.5	225	---				(3.4)
09	230	6.6	220	---				3.5
10	230	7.3	230	---				3.4
11	230	7.4	225	---				3.6
12	230	7.1	220	---				3.6
13	230	7.0	225	---				3.5
14	230	7.1	230	---				3.6
15	230	6.8	225	---				3.4
16	230	6.0	225	---				(3.5)
17	230	4.9	---	---				(3.3)
18	260	4.1						(3.2)
19	(<260)	3.6						---
20	(<280)	3.4						---
21	(<300)	3.2						---
22	(<300)	3.7						---
23	(<300)	3.4						---

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

Table 46

Reykjavik, Iceland (67.1°N, 21.8°W) — November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(470)	(4.3)					4.9	(2.4)
01	(400)	(3.7)					5.0	(2.5)
02	(380)	(4.1)					5.0	(2.5)
03	370	(4.0)					4.7	(2.6)
04	330	3.9					4.2	2.6
05	310	3.4					3.9	2.8
06	300	3.0					1.7	2.8
07	300	2.7					2.8	2.8
08	280	3.2						2.9
09	270	4.5			---	---		3.0
10	270	5.3			---	---		3.1
11	280	6.2	---	---	---	---		3.0
12	270	6.2	280	---	---	---		3.0
13	270	6.4	---	---	---	---		3.0
14	280	6.0	---	---	---	---		3.0
15	270	5.8			---	---		3.0
16	280	5.1			---	---	3.2	2.9
17	300	(4.1)			---	---	3.8	2.8
18	320	(4.0)					4.2	2.8
19	(350)	(3.7)					5.1	2.6
20	(370)	(4.2)					5.9	(2.6)
21	---	(3.9)					6.2	(2.6)
22	(370)	(4.3)					5.8	(2.5)
23	---	(4.3)					5.6	(2.6)

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

Table 47

omont, France (49.0°N, 2.3°E) — November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(230)	(3.4)						(3.0)
01	(260)	(3.2)						2.8
02	(<240)	(3.1)						(2.9)
03	(<240)	(2.6)					2.2	(3.0)
04	(<210)	(2.5)						(3.1)
05	---	(2.3)						3.2
06	(<205)	(2.5)			---	---		(3.1)
07	210	4.8	200	---	---	1.7	2.5	3.4
08	210	6.7	200	---	100	2.0		3.7
09	220	7.2	200	---	100	2.2		3.6
10	220	7.9	200	---	100	2.6		3.6
11	220	8.4	200	---	100	2.6		3.6
12	220	8.2	200	---	100	2.7		3.6
13	220	7.9	200	---	90	2.6		3.4
14	220	8.1	200	---	100	2.4		3.5
15	220	7.8	200	---	100	2.1		3.4
16	220	6.6	200	---	100	1.8	2.2	3.5
17	210	5.8	200	---	---	---	2.2	3.4
18	(<200)	5.2					2.2	3.4
19	200	4.0						3.5
20	(200)	(3.4)						3.1
21	(<230)	(3.0)						(2.9)
22	(<230)	(3.1)						(2.9)
23	(<230)	(3.2)						(3.0)

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

Table 48

Poitiers, France (46.6°N, 0.3°E) — November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(<330)	3.6						---
01	(<330)	3.4						---
02	(<330)	3.4						---
03	(<330)	3.4						---
04	(<320)	3.2						---
05	(<320)	2.8						---
06	---	2.6						---
07	230	4.8	---	---				3.6
08	230	6.4	225	---				3.8
09	235	7.3	230	---				3.9
10	230	7.7	225	---				3.8
11	240	8.1	230	---				3.8
12	240	8.1	230	---				3.8
13	240	7.6	230	---				3.8
14	240	8.1	230	---				3.8
15	240	8.0	230	---				3.8
16	230	7.1	225	---				3.6
17	230	5.9	230	---				3.6
18	240	5.4						3.5
19	240	4.6						3.6
20	260	4.0						---
21	(<300)	3.4						---
22	(<330)	3.5						---
23	(330)	3.4						---

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

Table 49

Reykjavik, Iceland (64.1°N, 21.8°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(3.3)					5.3	(2.6)
01	(410)	(3.3)					4.9	(2.5)
02	(400)	(3.4)					5.4	---
03	(360)	3.3					4.9	(2.5)
04	(340)	3.0					4.7	2.5
05	340	3.1					4.0	2.6
06	320	2.8					3.6	2.7
07	310	3.2			---	---	2.0	2.8
08	290	4.3	---	---	140	---		2.9
09	300	5.2	---	---	150	---		2.9
10	300	5.7	280	---	140	---		3.0
11	320	6.0	280	3.6	140	---		2.8
12	320	6.2	270	3.7	140	---		2.8
13	290	6.1	270	---	150	---		2.9
14	300	5.9	280	3.6	140	---		2.9
15	280	5.9	280	---	150	---		2.8
16	280	5.4	---	---	180	---	2.5	2.8
17	310	(4.6)			160	---	4.3	2.8
18	330	(4.0)					4.8	2.7
19	340	(3.7)					5.6	2.5
20	(360)	(3.6)					5.0	---
21	(400)	(3.5)					6.1	(2.5)
22	(390)	(3.8)					6.8	(2.4)
23	(410)	(3.5)					5.6	(2.4)

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

Table 50

Domont, France (49.0°N, 2.3°E) October 195

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000
00	290	3.5						2.9
01	290	3.4					2.7	2.9
02	290	3.3					2.7	2.9
03	300	3.0					2.6	2.9
04	290	(2.8)					2.7	3.0
05	270	(2.5)					2.7	3.1
06	240	3.3	260	---	---	1.2		3.1
07	230	4.9	210	---	100	1.8		3.4
08	220	5.8	200	---	100	2.2		3.5
09	230	6.4	200	3.9	100	2.6		3.4
10	230	7.0	190	4.0	100	2.7		3.1
11	260	7.1	195	4.2	100	2.8		3.2
12	250	7.4	190	4.1	100	2.8		3.4
13	235	7.6	200	4.1	90	2.8		3.4
14	230	7.4	200	---	100	2.7		3.4
15	225	7.3	200	---	100	2.5		3.3
16	210	7.0	210	---	100	2.0	2.7	3.4
17	200	6.7	200	---	100	1.8	2.6	3.4
18	205	5.8			---	---	2.7	3.2
19	200	5.5					2.5	3.3
20	210	4.5						3.1
21	230	3.7						3.0
22	280	3.6						2.9
23	280	3.4					1.7	2.9

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

Table 51

Poitiers, France (46.6°N, 0.3°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	3.8						(2.7)
01	(≤340)	3.5						(2.8)
02	340	3.6						(2.7)
03	340	3.6						(2.8)
04	(330)	3.3						---
05	---	2.7						---
06	320	3.3						---
07	270	5.0	230	---				(3.1)
08	255	6.2	230	---				---
09	255	6.4	230	4.0				(3.3)
10	260	6.9	225	4.2			3.4	(3.2)
11	280	7.6	225	4.2				(3.2)
12	260	8.5	225	4.2				(3.3)
13	260	8.3	230	4.3				(3.2)
14	260	7.9	230	---				(3.2)
15	260	8.0	230	---				3.4
16	250	7.6	230	---				(3.4)
17	240	7.0	230	---				3.4
18	245	6.3						(3.2)
19	250	5.5						(3.2)
20	260	4.7						---
21	280	4.0						(3.0)
22	330	3.8						(2.8)
23	(<340)	3.8						---

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

Table 52

Reykjavik, Iceland (64.1°N, 21.8°W) September 195

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)
00	(360)	(4.0)					4.6	(2.4)
01	(380)	(3.3)					5.0	(2.7)
02	(370)	(3.4)					4.7	(2.6)
03	(360)	3.6					4.6	(2.5)
04	(310)	(3.2)					4.8	2.7
05	(310)	2.9	---	---	---	---	4.3	2.8
06	300	3.4	---	---	---	---	3.4	2.9
07	280	4.4	---	---	140	---	2.0	3.1
08	280	5.0	260	---	130	---		3.1
09	320	5.0	260	3.9	130	---		3.0
10	320	5.2	260	4.0	140	---		3.0
11	370	5.4	260	4.0	130	2.8		2.8
12	360	5.2	250	4.1	130	3.0		2.9
13	380	5.3	260	4.1	130	2.8		2.9
14	400	5.2	260	4.0	140	---		2.8
15	360	5.0	260	3.9	130	---		2.9
16	360	4.9	270	3.8	130	---		2.8
17	350	5.0	280	---	140	---	3.2	2.8
18	310	4.7	270	---	140	---	4.4	2.9
19	320	4.4			---	---	4.8	2.8
20	330	(3.9)			---	---	5.0	2.8
21	340	(3.8)					4.9	(2.7)
22	360	(4.1)					5.2	(2.6)
23	(350)	(3.4)					5.1	(2.6)

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

Table 53

Poitiere, France (46.6°N, 0.3°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	3.8						---
01	340	3.7						(2.7)
02	330	3.8						---
03	340	3.6						---
04	340	3.4						---
05	320	3.2						---
06	280	4.0	---	---				(3.2)
07	275	4.8	230	---				3.2
08	300	5.2	230	4.0				3.0
09	290	5.8	230	4.2			4.1	---
10	300	6.3	225	4.3			4.2	3.0
11	300	6.8	220	4.4			3.6	(3.2)
12	280	6.8	220	4.5			3.2	3.2
13	300	6.8	220	4.5				3.2
14	280	6.5	230	4.5				3.1
15	290	6.8	230	---				3.2
16	280	6.6	240	---				3.1
17	280	7.2	---	---				3.0
18	250	7.5	---	---				---
19	250	7.4						---
20	250	6.6						---
21	260	5.2						---
22	300	4.3						(2.9)
23	315	4.1						(2.8)

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

Table 54

Reykjavik, Iceland (64.1°N, 21.8°W) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F
00	(420)	(3.6)					5.4	2.5
01	(420)	(3.6)					5.7	(2.4)
02	(390)	(3.6)					5.4	(2.5)
03	(440)	(3.9)					4.9	(2.5)
04	(360)	3.8					4.7	2.6
05	(300)	3.9	---	---	---	---	3.6	2.8
06	320	4.5	280	3.3	140	---		2.9
07	340	4.8	260	3.5	130	---		2.9
08	380	5.1	260	4.0	130	---		2.9
09	400	5.3	250	4.2	120	---		2.8
10	360	5.5	240	4.4	120	---		2.8
11	370	5.7	240	4.5	120	---		2.8
12	380	5.8	240	4.5	120	---		2.8
13	400	5.7	240	4.4	120	---		2.7
14	400	5.8	240	4.5	130	---		2.7
15	390	5.8	250	4.4	130	---		2.8
16	380	5.8	250	4.3	120	---		2.8
17	370	5.5	260	4.0	130	---		2.8
18	340	5.5	270	---	130	---	3.8	2.9
19	300	5.2	290	---	140	---	4.2	2.8
20	320	4.8	---	---	---	---	4.7	2.8
21	350	4.7	---	---	---	---	5.0	(2.8)
22	360	(4.4)			---	---	6.4	2.6
23	(350)	(4.2)			---	---	5.8	(2.5)

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

Table 55

Reykjavik, Iceland (67.1°N, 21.8°W) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	4.6			---	---	5.6	2.7
01	(430)	4.5			---	---	5.0	2.5
02	(420)	4.3			---	---	5.0	2.5
03	370	4.5			---	---	4.6	2.6
04	350	4.4	320	---	130	---	4.6	2.6
05	390	4.8	280	3.6	120	---	4.1	2.7
06	360	4.9	270	3.8	120	---	3.4	2.8
07	380	5.2	250	4.1	120	---		2.8
08	400	5.4	250	4.3	120	---		2.8
09	410	5.5	250	4.4	130	---		2.7
10	420	5.7	240	4.5	120	---		2.7
11	420	5.8	240	4.6	120	---		2.7
12	420	5.8	230	4.7	120	---		2.7
13	430	6.0	240	4.6	120	---		2.7
14	430	6.0	240	4.6	120	---		2.7
15	410	6.0	240	4.6	120	---		2.7
16	400	6.0	250	4.5	120	---		2.7
17	380	6.0	260	4.4	120	---		2.7
18	370	5.7	260	4.2	120	---	4.2	2.7
18	340	5.7	280	---	130	2.6	4.1	2.8
20	340	5.4	280	---	140	---	4.2	2.8
21	330	5.2	---	---	140	---	4.7	2.8
22	340	4.9			130	---	5.0	2.7
23	360	4.7			---	---	5.2	2.6

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

Table 56

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	6.0					2.9	2.8
01	290	5.8					2.1	2.8
02	272	5.6					2.4	2.7
03	280	5.2					2.2	2.8
04	285	5.0	---	---			2.5	2.8
05	305	5.5	265	3.2	137	1.9	2.6	2.9
06	325	5.9	252	3.9	113	2.4	3.8	2.9
07	330	6.2	250	4.3	111	2.8	4.2	3.0
08	315	6.5	242	4.5	107	3.1	4.6	2.9
09	335	6.9	220	4.9	106	3.3	5.3	2.9
10	330	7.2	220	5.0	105	3.4	5.5	3.0
11	340	7.1	215	5.0	107	3.5	4.3	3.0
12	350	6.8	220	5.0	107	3.5	5.2	2.9
13	352	6.9	210	5.2	108	3.5	4.4	2.9
14	360	7.0	228	5.0	107	3.4	4.4	3.0
15	348	6.7	220	4.9	108	3.4	4.0	3.0
16	335	6.8	235	4.6	109	3.2	4.2	3.0
17	330	7.0	240	4.4	111	2.9	4.3	2.9
18	310	7.3	245	(4.0)	112	2.6	4.0	3.0
19	275	(7.6)	270	---	121	1.9	4.0	3.0
20	265	7.7					4.2	3.0
21	265	7.6					3.4	2.9
22	270	7.0					3.2	2.8
23	280	6.4					3.0	2.9

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

Table 57

Reykjavik, Iceland (64.1°N, 21.8°W) June 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	(5.0)			---	---	4.9	2.6
01	320	4.7			---	---	4.8	2.6
02	300	5.4	---	---	---	---	4.9	2.8
03	300	5.0	---	---	---	---	4.6	2.7
04	360	4.8	270	3.4	110	---	4.2	2.6
05	370	5.2	260	3.7	120	---	3.4	2.7
06	370	5.4	250	4.1	110	2.6		2.8
07	380	5.6	240	4.2	110	2.8		2.8
08	360	6.0	230	4.4	110	3.0		2.8
09	390	6.0	230	4.6	110	---		2.7
10	390	6.4	230	4.7	110	---		2.8
11	400	6.2	230	4.8	110	---		2.8
12	400	6.2	220	4.8	110	---		2.7
13	400	6.3	230	4.8	110	---		2.7
14	410	6.2	220	4.7	110	---		2.7
15	400	6.3	230	4.7	110	3.4		2.8
16	400	6.1	230	4.6	110	3.2		2.7
17	360	6.0	250	4.6	110	3.2		2.8
18	350	6.0	250	4.4	110	---	4.3	2.8
19	320	5.9	260	4.0	110	2.6	4.3	2.8
20	330	5.9	280	---	120	---	4.3	2.8
21	340	5.6	---	---	---	---	4.1	2.8
22	320	5.4	---	---	---	---	5.4	2.8
23	320	5.3			---	---	4.3	2.7

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

Table 58

Reykjavik, Iceland (64.1°N, 21.8°W) May 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	370	5.2					4.7	(2.6)
01	370	(5.3)					5.2	(2.4)
02	(340)	5.0			---	---	5.1	(2.5)
03	(340)	4.8			---	---	5.4	(2.5)
04	(330)	5.1	300	---	120	---	5.0	2.6
05	(320)	5.1	270	---	120	---	4.2	2.7
06	360	5.5	260	3.9	120	2.6	2.2	2.8
07	410	5.6	250	4.1	110	2.8		2.7
08	400	5.9	250	4.4	110	3.1		2.6
09	410	6.0	240	4.6	110	---		2.6
10	420	6.3	250	4.7	110	3.4		2.6
11	400	6.3	230	4.8	110	---		2.6
12	420	6.5	230	4.7	110	---		2.6
13	440	6.4	240	4.8	110	---		2.7
14	420	6.7	230	4.8	110	3.3		2.6
15	400	6.4	240	4.7	110	3.2		2.6
16	380	6.7	240	4.6	110	---		2.6
17	380	6.4	260	4.5	110	---		2.8
18	340	6.2	270	---	120	---	4.3	2.7
19	300	6.0	270	---	130	---	4.1	2.8
20	320	6.0	---	---	---	---	4.5	2.7
21	330	6.0					4.8	(2.7)
22	340	(5.4)					4.9	(2.7)
23	380	(5.2)					5.8	(2.5)

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

Table 59

Reykjavik, Iceland (64.1°N, 21.8°W) April 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	(5.6)					6.1	(2.4)
01	(370)	(5.3)					5.2	(2.4)
02	(350)	(5.1)					5.4	(2.4)
03	(350)	(5.0)					4.8	(2.6)
04	300	(4.1)					4.7	(2.6)
05	300	(4.4)			---	---	4.8	2.7
06	270	5.0	---	---	120	---	3.0	2.9
07	260	5.4	260	---	120	(2.5)		2.9
08	300	6.2	250	---	120	2.8		3.0
09	330	6.6	240	4.4	120	3.0		2.9
10	340	6.8	240	4.4	120	3.2		2.8
11	330	7.2	230	4.6	120	3.3		2.7
12	350	7.5	240	4.6	120	3.3		2.7
13	360	7.8	240	4.6	120	---		2.7
14	370	7.7	240	4.5	130	---		2.7
15	340	7.4	240	4.4	120	---		2.8
16	320	7.2	250	---	120	---		2.9
17	290	6.8	250	---	120	---	3.3	2.8
18	290	6.6	260	---	---	---	4.4	2.8
19	290	5.7					4.4	2.8
20	300	(5.4)					4.0	(2.7)
21	340	(5.5)					5.7	(2.5)
22	300	(5.8)					4.5	---
23	360	(5.4)					5.0	---

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

Table 60

Reykjavik, Iceland (67.1°N, 21.8°W) March 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	(4.2)					4.6	(2.4)
01	380	(4.3)					4.7	(2.5)
02	380	(4.5)					4.4	(2.4)
03	380	(4.0)					4.7	(2.5)
04	340	(3.7)					3.9	(2.5)
05	340	(3.7)					3.5	(2.6)
06	300	3.8					2.2	2.7
07	290	4.6					1.7	2.9
08	280	5.5	---	---	140	---		3.0
09	280	6.6	260	---	140	---		3.0
10	290	7.0	250	---	140	---		2.9
11	300	7.8	250	---	140	---		2.9
12	280	8.2	250	4.3	140	(3.0)		2.9
13	280	8.2	250	4.3	130	(2.9)		2.8
14	280	8.2	250	---	130	2.9		2.8
15	280	8.2	260	---	140	2.7		2.8
16	280	8.0	260	---	140	2.6		2.9
17	280	7.5	270	---	140	---		2.9
18	270	(7.2)	---	---	---	---	3.0	(2.9)
19	280	(6.0)					3.6	(2.8)
20	300	(5.5)					3.9	(2.7)
21	310	(5.1)					4.2	(2.6)
22	340	(4.7)					4.7	(2.6)
23	360	(4.5)					4.6	(2.5)

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

Form adopted June 1946

TABLE 61

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

IONOSPHERIC DATA

h' F2 (Characteristic), Km (Unit), July (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., W.A.P., J.S.N., H.E.P.

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(300)A	270	(280)A	(230)A	[250]A	280H	A	G	A	A	400	420H	(400)A	400	560	360H	[340]A	330	300K	340K	280FK	330K	(190)KH	[300]KS
2	(400)KS	AK	BK	SK	SK	360K	GK	GK	GK	GK	GK	GK	GK	GK	GK	GKA	GK	600K	320K	260K	240K	260K	280K	(290)KA
3	AK	AK	AK	(300)KB	[280]KB	260K	GK	GK	GK	MK	MK	MK	410K	GK	500K	410K	330K	400K	340K	280	220	220	280	280
4	280	(300)S	(280)S	240	(260)S	230H	G	380H	400H	390H	530	380	370H	450H	520	410	350	380	320	270	230	250	220	[240]A
5	260	260	280	220	250	240	G	280	M	A	360	320	300	300	(360)H	370	310	300	280	240	220	A	A	A
6	A	A	240	260	260	220	230	L	M	330	320	330	340	370	360	410	320	310	280	250	240	230	230	260
7	260	280	(290)A	270	(260)A	240	310	(280)H	340	330H	310	340	440	410	400	340	350	300	290	260	210	(200)S	240	(280)A
8	270	250	260	240	(220)S	200H	230	400	310A	300	300	410	(450)H	450	380H	340	340	320	280	260	220	220	(250)S	290
9	[260]A	(230)S	[260]A	(280)A	250	300	[310]A	320	340	A	A	400	[450]A	(490)A	(480)A	A	A	320	A	A	(200)A	(260)A	250	270
10	(270)S	250	[260]A	260	A	A	A	370	380	360H	G	G	470	[450]A	420	400	370	320	310	(240)A	[260]A	(280)A	(310)A	260
11	260	[250]A	260	300	(260)A	300	280	(300)L	400H	320	500	500	450	410	460	430	390	340	320	(260)A	260	(270)A	260	270
12	240	270	220	220	280	270	310	[340]L	360	360	300H	370	350	[360]M	370	330	[320]M	300	(280)L	M	M	290	220	M
13	M	310	M	M	M	M	M	M	420	450	360	390	390H	380	330	350	350	310	290	260	240	220	240	250
14	280	260	250	280	270	260	(280)L	340	340	360	340	330	370	370	390H	340H	330	310H	(270)L	270	(290)A	240	230	260
15	250	270	270	(250)S	230	220H	[280]L	350	320	430	340	410	360	380	380	390	340	320	300	220	210	230	230	270
16	260H	270	280	260	220	290	350H	(430)H	380	(390)A	250H	370	350	380	370	360H	320	310H	280	250	240	280	270	270
17	260	260	250	240	[250]A	270	(290)L	360H	400H	380H	480H	G	G	460	490	420	400	330	310	270	260	250	270	270
18	290	250	(300)A	280	310	220	230	[360]A	500	410H	500	350H	380H	350	[360]A	370	400	350	330	210	240	250	250	270
19	280	270	250	(270)S	(280)S	(270)A	(300)L	370	350	500	570	470	(520)S	[460]S	390S	(480)S	380	330	310	260	250	240	(280)A	280
20	270	260	230	240	230	(240)A	(230)A	310	300	300	290H	330	(400)H	C	C	C	330	300	280	260	(230)A	(250)A	260	290
21	(290)B	280	280	270	260	250	240	[270]L	300H	300	320	350H	300	400	380	400	300	290	280	250	260	250	270	(300)A
22	390	280	250	280	220K	270K	GK	440KH	430KH	GK	GK	GK	GK	590K	380K	420K	380K	400K	320K	260K	280K	270K	250K	270K
23	220K	(310)KS	260K	250KH	[260]KA	280K	GK	330K	GK	490K	510K	GK	GK	GK	GK	430K	360K	370K	(270)KL	220K	260	250	260A	260
24	250	(300)A	(270)S	260F	230	230	260L	G	440H	[420]A	410	G	500	430	430	420	390	330H	(270)L	270	270A	(260)A	240	220H
25	(280)A	280A	270	240	240S	250	G	410	450H	440H	320	470	450	490	440	330	320	290	280	240	230	A	A	270
26	280K	(300)KA	280K	250K	300K	280K	GK	GK	GK	GK	GK	470K	GK	(400)KA	410K	400K	(550)KA	370K	290K	290K	250K	250K	240K	240K
27	260K	230K	(290)KA	290K	290K	290K	GK	GK	420K	480K	470KH	GK	GK	460K	390K	380K	340K	310K	280K	240K	250K	260K	280K	260K
28	250K	230K	(300)KS	250K	(300)KS	(300)KS	(260)KH	GK	GK	GK	GK	GK	GK	GK	420K	410K	500KH	360KH	(320)KS	250K	240K	250K	(250)KA	(280)KA
29	(310)KA	280K	(270)KS	(280)KS	300KA	(290)KS	(230)A	320H	320H	290	320	300	400	370	340	[330]A	320	300	(280)A	(250)A	(230)A	240H	(270)A	(240)H
30	280	(290)A	(270)A	280	(280)A	240	A	A	A	(300)A	[320]A	350	400	400H	360H	370	350	320	290	260	240	[260]A	280	300
31	290	300	280K	310K	[300]KS	300K	GK	GK	GK	GK	GK	GK	580K	GK	530K	GK	600K	460K	480K	300	[310]A	(330)A	300H	290S
Median	270	270	270	270	260	270	310	320	400	390	400	410	440	410	400	400	350	320	290	260	240	250	260	270
Count	28	28	28	29	28	29	27	28	27	27	29	30	31	30	30	29	30	31	30	29	30	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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

Form adopted June 1946

TABLE 62

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

IONOSPHERIC DATA

fo F2 (Characteristic), Mc (Unit), July (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., W.A.P., J.S.N., H.E.P.

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	4.3F	4.4F	3.5F	3.3	[3.2]A	3.1H	3.4	<4.2G	A	A	5.6	5.5H	4.9	5.6	5.8H	5.8JH	6.0	6.2	6.6K	8.2K	8.4K	5.0FK	(6.0)HK	[3.8]SK		
2	2.5K	AK	BK	2.0FK	1.7K	2.6K	<3.0GK	<3.3GK	<3.6GK	<3.9GK	<4.1GK	<4.3GK	<4.3GK	<4.3GK	<4.2GK	[4.1G]A	<4.0GK	4.5K	K(4.9)AP	5.7PK	5.0PK	K4.4PS	4.2K	3.7VK		
3	3.3PK	AK	AK	K(1.6)JB	[2.2]BK	2.9K	<3.7GK	<3.7GK	<4.0GK	MK	MK	MK	5.2K	<4.5GK	5.2K	5.5K	5.5K	5.4K	5.7K	6.2	5.7F	5.3F	(4.2)S	(4.2)S		
4	(4.3)S	(3.8)S	3.9	(3.7)JS	(3.1)JS	(3.5)H	<3.7G	(4.7)H	5.1H	5.4H	5.2	5.5	5.6H	(5.2)H	5.1	5.4	5.7	5.6	6.0	6.3	6.5	6.6	5.6	5.0		
5	4.7F	4.3	4.1	4.0	3.4	3.3	<3.6G	5.2	[5.4]M	(5.6)A	6.0	6.8	6.6	6.8	6.1H	6.2	6.8	6.6P	7.2	7.8P	7.2	[6.5]A	5.8P	5.6F		
6	5.4F	[5.4]AF	(4.4)AF	4.0F	3.6F	3.5	4.0P	5.0	[5.5]M	6.0V	6.7	6.4V	(7.2)P	6.2	6.0	6.0	6.8	7.2	7.6	7.4	7.8	6.8	5.6S	5.1		
7	(4.7)S	4.7F	4.3	3.9	3.7	3.8	4.7	(5.0)JH	5.6	6.3H	6.9	6.4	6.1	6.1	6.4	6.7	6.8	7.2	7.8	8.3	7.7	6.7	6.2JS	5.8		
8	5.1	(4.8)JS	4.4	4.3	(3.2)S	3.4H	4.5V	5.0	6.1	6.4	6.0	6.8	6.1H	6.6	6.4H	6.8	7.0	7.2	7.8	7.4	7.7	6.6JS	(6.6)JS	6.8		
9	(5.4)JS	(6.0)JS	(4.3)JS	(4.3)S	(4.2)JS	4.0	(4.5)SH	5.5	6.0	A	A	5.6	[5.8]A	6.0P	5.9	[6.2]A	(6.4)A	6.8	(6.5)PA	[6.4]A	6.3	6.2P	6.0P	(5.7)PS		
10	(5.2)JS	5.0S	4.3P	(3.2)JS	A	A	4.3	5.0	5.2	5.5H	<4.7G	<4.8G	5.4	[5.6]A	5.8	6.2	6.4	6.8	7.0	7.0JA	(6.6)A	6.8	6.2	6.0		
11	5.6	[5.4]A	5.1	4.6	4.5JA	4.1	5.0	(5.5)H	5.4H	6.2JP	5.6	5.6	6.0	5.8	5.9	6.0	6.2	6.4	6.6	(6.8)S	(7.2)S	7.2	(6.4)S	5.7		
12	5.7Z	4.5	4.0	3.2	3.1	3.8	4.9	5.3	5.6	6.3	(6.7)H	6.6	6.9	[7.0]M	7.3	7.4	M	M	M	M	M	6.6	[6.3]M	6.0		
13	M	M	M	M	M	M	M	M	5.4	5.8	6.3	6.5	6.8H	7.0	7.0	6.7	6.8	7.0	7.0	7.2	7.4	(6.8)S	6.0JS	5.8		
14	5.4	5.5	4.7	4.3	4.2S	(4.3)S	5.1	5.7	6.0JS	6.6	6.8	(7.2)S	7.3	7.0JS	(6.7)H	6.9H	7.0JS	7.7H	(7.3)S	7.3	7.4	7.3	6.6	5.8		
15	5.2	4.7	4.5	4.2	3.6	3.6H	4.5	5.2	5.8JS	5.8	6.5	6.4	6.6	6.6	6.6	6.9	7.6	8.0	9.0	(9.0)S	8.2	7.3	6.3	6.0		
16	5.8H	5.6	5.2	4.7	4.0JS	4.0	5.1H	(5.5)JH	6.0	6.2JH	(6.5)H	6.2	(6.0)JH	6.2	6.4	(6.4)H	6.2	6.8H	6.6	6.4JS	6.2JS	6.3	5.8	5.5		
17	5.4	5.0	4.6	3.6	[2.9]A	3.3	4.8	(5.2)H	(6.1)H	(6.2)H	5.4H	<4.9G	<4.9G	5.8	5.8	6.2	6.2	6.2	6.0JS	6.2	6.0JS	6.0JS	5.9JS	5.6		
18	5.3	4.7	4.7F	(4.3)S	(4.1)S	3.6	4.2	(4.8)HA	4.8	(5.4)JH	5.4	6.2H	(6.0)JH	6.2	[6.2]A	6.1	5.8	6.0	6.2	(6.2)S	6.1	5.9	5.0	4.4		
19	4.2	4.0JS	3.7JS	3.2	(2.8)S	(3.4)S	4.6	4.7	5.2	4.7	4.9	5.2	(5.5)S	[5.2]S	5.5S	(5.2)S	5.6S	5.4	5.6SF	6.0S	6.4S	(6.0)SF	5.8	5.4		
20	5.4	5.1	4.7	4.3	(4.0)S	3.8	4.6	5.7	6.4	6.8	7.2JH	6.4	6.6H	C	C	C	6.6	6.8	7.2	7.3S	7.0	6.1	5.4	5.0		
21	5.0	4.7	4.6F	4.1	3.6	3.6	4.2	(5.1)JH	(5.6)JH	6.4	6.2	6.3H	6.0	5.9	6.4	6.0	6.3	6.2	6.0JA	5.8	6.2JB	6.1	5.4	5.0F		
22	5.0F	4.7F	4.1	4.1V	K(3.3)VF	K(3.0)JF	<3.3GK	4.4HK	4.7HK	<4.4GK	<4.4GK	<4.5GK	<4.5GK	5.0K	5.4K	5.2K	(5.3)FK	K5.0JS	5.7K	5.8K	6.0K	5.9FK	K5.2JF	5.2FK		
23	4.8K	K2.7JS	2.7FK	K2.1JH	[2.5]AK	2.9K	<3.6GK	4.5K	<4.0GK	4.6K	4.5K	<4.5GK	<4.6GK	<4.6GK	<4.5GK	5.0K	(5.0)FK	K5.0FS	(4.8)SK	4.7SK	(5.6)F	5.5F	(4.8)F	4.6F		
24	3.9F	3.6F	3.7	3.6F	3.2JF	(3.2)S	4.1V	<3.9G	4.5FH	4.9	5.2	<4.5G	5.0	5.3	5.3	5.4	5.4	5.6H	(5.6)S	5.4	5.0F	5.2	4.7F	(4.2)JH		
25	4.2JB	4.0F	3.6	3.5	3.2S	3.0JS	<3.6G	4.5	4.6JH	5.2H	6.0	5.3	5.3	5.2	5.5	6.3	6.2	6.5	6.4	6.3	6.0	5.2	[4.9]A	4.5		
26	4.2K	3.5FK	3.0FK	K(3.0)SF	K(2.5)SF	K(2.5)HF	<3.1GK	<3.4GK	<3.9GK	<4.1GK	K<4.4G	4.8K	<4.5GK	5.2K	4.9K	5.0K	K(4.6)FH	5.3FK	5.3K	5.3K	5.6K	5.6K	5.0K	K4.6JF		
27	4.2SK	K3.5SF	K3.1SF	2.8FK	2.6FK	K2.9JS	<3.8GK	<4.0GK	4.6K	4.7K	K4.6H	<4.6GK	<4.6GK	5.0K	5.4K	5.4K	5.4K	5.2K	5.2K	5.0K	5.6SK	K5.4FS	5.3K	4.8SK		
28	K(4.5)JS	4.4K	3.4K	K(2.8)JS	K(2.8)JS	2.4K	K(3.2)SH	<3.6GK	<3.8GK	<4.1GK	<4.2GK	<4.4GK	<4.4GK	<4.3GK	K5.0PS	5.1K	4.6HK	4.8HK	4.9K	5.0K	K4.2JS	4.1K	3.7SK	3.3SK		
29	K3.0SH	3.0FK	K(2.4)SF	K2.2SF	1.8K	K2.8SF	4.2	5.4H	6.0JH	6.4	6.6	6.2	5.8	(6.0)B	6.4	[6.5]A	6.6	6.8	(7.1)A	(6.8)JS	7.0	(6.4)SH	(6.0)SA	(4.9)SH		
30	(4.4)JS	5.2ZS	4.2JS	(3.6)FS	(3.2)FS	3.2	A	A	A	5.2	[5.7]A	5.7	5.4	5.6H	5.7H	6.0F	6.0F	6.0	6.4	6.4	6.6	5.4F	4.8SF	5.0S		
31	4.9	4.2JS	3.7K	K(2.5)VF	K(2.2)SF	(2.5)SK	<3.1GK	<3.6GK	<3.9GK	<4.0GK	<4.2GK	<4.3GK	4.7K	<4.3GK	4.7K	<4.2GK	(4.7)BK	4.7K	4.9K	5.8	(6.2)S	5.6S	4.5H	4.7		
Median	4.8	4.7	4.2	3.6	3.2	3.3	4.2	5.0	5.4	5.6	5.6	5.6	5.6	5.7	5.8	6.0	6.1	6.2	6.4	6.4	6.4	6.1	5.6	5.0		
Count	30	28	28	30	29	29	29	29	29	28	29	30	31	30	30	30	30	30	30	30	30	31	31	31		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 — 702519

Form adopted June 1946

TABLE 63

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), July (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., W.A.P., J.S.N., H.E.P.

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	4.3 JF	3.7 F	(3.8) S	[3.1] A	2.4	3.6	<4.1 G	A	5.2	[5.4] A	5.6	5.3	5.4 H	5.8 H	6.0	6.0	6.0	6.0	7.0 K	8.2 FK	K 6.6 JF	6.0 FK	B K	A K
2	A K	B K	B K	1.6 FK	2.2 FK	2.8 K	<3.2 GK	<3.5 GK	<3.8 GK	<3.9 GK	<4.3 GK	<4.3 GK	<4.3 GK	K <4.2 GH	[<4.1] AK	<4.0 GK	<3.9 GK	5.0 K	5.1 K	5.1 K	4.5 K	4.3 K	3.7 PK	3.7 K
3	A K	A K	A K	B K	B K	3.3 PK	<3.7 GK	<3.9 GK	<4.1 GK	M K	M K	5.2 K	<4.6 GK	5.0 K	5.5 K	5.8 K	5.3 K	5.5 K	6.1 K	(6.6) S	5.7 SF	(4.5) S	(4.2) JS	(4.2) JS
4	(4.1) JS	3.9 JS	(3.7) S	(4.0) JS	(2.9) JS	3.8	<3.9 G	4.7	5.2	5.5 H	5.5	5.4	5.5	[5.4] B	5.2	5.5 JS	5.6	5.8	6.2	6.4	6.8	6.3 H	5.0 S	5.2 S
5	4.5 S	4.3	4.0 F	3.7	3.2	<3.5 G	4.6	A	M	5.7 JA	6.2	6.4 H	6.5	6.4	6.0	6.6	6.7	6.8 V	7.6	7.8	7.0	6.0	5.8	5.6
6	(5.3) A	5.4	4.4 F	4.0	3.4	4.1	4.9	[5.7] M	6.4	6.4	6.6	6.3	6.0 H	6.2	4.9	6.4	7.2	7.2	7.8	7.6	7.4	6.2 JS	(5.4) S	4.8 F
7	4.4 PS	4.2 JA	3.9 FS	4.1 S	3.6	4.0	5.0	5.1	5.7	6.4	6.4	6.4	6.4	6.3	6.6	6.8	7.0	7.0	8.0	8.2	7.2	6.7	5.8 S	5.2
8	(4.0) S	(4.5) S	4.3 S	3.7	3.0 JS	4.0	4.0 H	5.6	(6.4) A	6.4	5.8	6.0 P	6.4	6.7	6.5	6.8	7.0	7.2	7.6 H	7.8	7.4 JS	7.0	6.2 JS	(6.0) JS
9	(6.2) JS	(5.8) S	[4.3] S	(4.3) SF	(4.0) SH	[4.5] A	5.0	5.8	6.0	A	A	5.6	6.0	(6.0) B	A	A	A	6.6	(6.8) JA	(6.5) A	6.8 P	6.0	6.0	5.5 PS
10	5.0	[4.3] S	3.5 F	A	A	4.0	4.7	5.2	5.2	A	A	A	A	5.9	5.8 H	6.3	6.8	6.7	7.2	(7.0) A	(6.6) JA	6.6	5.8	5.8
11	5.3	5.4	4.7	4.5 JA	(3.7) A	4.6	5.9 JH	5.2	6.4	5.4	5.8	5.6	5.9	5.9	6.0	6.2	6.4	6.5	6.6	(7.0) S	(7.2) S	(6.6) S	5.8	5.8
12	(4.8) S	4.2	3.5	3.1	3.2	4.4	5.4	5.4	(6.0) H	7.0	6.8	(7.0) H	M	M	7.4	7.4	M	M	M	M	M	M	M	M
13	M	M	M	M	M	M	M	5.4	5.6	6.4	6.2	6.8	6.9	7.0	6.8	6.8	6.9	7.0	7.2	(7.3) S	7.2	6.4	6.0	5.6
14	5.5	5.0	4.4	4.3	(4.2) S	4.9	5.4	6.1	6.1 JS	6.6	6.8	7.0 JS	(7.4) S	6.9	6.9	7.0 JS	7.1 JS	7.7	(7.3) S	(7.4) S	(7.4) S	6.9	6.2 JS	5.3
15	4.8	4.5	4.4 PS	4.2	3.4	4.4	4.8	5.7	5.6	6.4	6.3	7.0	6.6	6.4	6.7	7.2	7.8	8.4	9.4 JS	8.8	7.2	6.8	6.2	6.0
16	5.5 S	5.6	5.0	4.7	3.8	4.3	5.4	5.9	[6.2] A	(6.4) H	6.4	(6.6) H	(6.0) H	6.7	6.5	6.6	[6.5] N	6.8	6.2	6.4	6.2 JS	(6.0) S	5.7 JS	5.4
17	5.2 S	4.8 JS	(4.4) S	(2.9) JS	(2.9) S	(4.0) SH	5.3	5.6	(5.6) H	(5.4) H	(5.3) H	5.4	5.6	(5.8) S	6.1	6.4	6.5 S	6.2 JS	6.1	5.8	(6.4) S	6.0 JS	5.9 S	5.7
18	(5.3) S	(4.6) S	(4.4) S	(3.9) S	3.7 H	3.9 JS	(4.3) A	<4.2 G	5.4 H	5.6	5.5	6.2	6.2 H	6.0	[6.0] A	6.1	5.8 JS	5.9 JS	(6.3) S	6.0 JS	5.9	5.6	(4.7) SA	4.3
19	(4.2) S	(3.9) SH	(3.3) S	(2.9) S	2.9	3.9 JS	4.6 H	4.8	4.9	5.3	5.2 JA	<4.7 G	(5.3) S	5.2	(5.4) S	(5.3) S	(5.8) S	5.4 SF	6.0	6.4	6.1 PS	(6.0) SF	5.6	5.6
20	5.2	5.0 F	4.5	4.3	3.6 H	4.2	5.0	6.2	6.1 JS	6.9	6.6	6.4	C	C	C	6.6 H	6.9 JS	7.0 S	7.2	7.1	6.4	5.7	5.2	5.0
21	5.0	4.7	4.1	3.8	3.6	4.0	4.9	(5.4) JH	5.9	6.2	6.0	6.4 H	(5.6) H	6.2	6.4	6.2	6.3	(6.0) HA	6.0	6.2	6.3	5.8	5.4	5.0
22	5.0	4.6	4.0 JS	(2.9) F	(3.0) SK	3.7 VK	4.0 K	4.3 HK	K 5.0 JH	K <4.4 GB	<4.5 GK	<4.7 GK	<4.7 GK	5.3 FK	5.3 K	5.4 K	(5.1) FK	5.4 K	6.0 SK	5.8 K	K 6.4 JH	5.6 FK	5.0 FK	5.2 FK
23	[3.8] SK	2.8 K	2.6 FK	(1.8) SK	K 2.2 JS	3.5 SK	<3.7 GK	<3.8 GK	4.9 K	<4.2 GK	4.8 K	<4.5 GK	<4.6 GK	K <4.5 GH	<4.2 GK	5.0 K	K 5.0 FS	K 5.0 SF	4.9 SK	K (5.0) SF	(6.2) F	(5.2) SF	4.7 F	4.2
24	3.6 F	3.6 F	3.4 F	3.0 F	3.2 FH	3.2 FH	4.0 JH	4.5	4.8 JF	5.2 H	4.9 H	<4.6 G	(5.3) S	5.3 H	5.6	5.5	5.6	5.4 S	5.4 S	5.2	5.4	5.0	4.5	4.2
25	4.2	3.8	3.6	3.3	3.1 S	3.3	4.0	<4.2 G	4.6 F	5.6	5.4	5.6	5.2	5.2	5.8	6.2	6.5	6.4 S	6.3	6.1	5.6	4.4	(4.4) A	4.4 JS
26	4.0 FK	3.2 K	3.0 FK	K (2.9) SF	[2.5] FK	3.1 K	<3.6 GK	4.1 K	<4.1 GK	4.7 K	4.9 K	4.8 K	5.0 K	5.0 K	5.0 K	4.8 K	5.0 K	5.6 K	5.2 K	5.5 K	5.7 K	5.4 K	(5.0) SK	4.3 K
27	K 3.8 SF	3.3 FK	3.0 HK	2.5 FK	K 2.4 FS	3.4 FK	4.2 HK	4.5 FK	4.7 K	<4.5 GK	<4.6 GK	<4.6 GK	<4.6 GK	5.1 K	5.3 K	5.3 K	5.3 K	5.0 HK	5.0 K	5.3 K	(5.6) KS	(5.1) SK	5.1 K	4.7 SK
28	4.3 SK	3.5 K	K (3.6) JS	2.8 SK	K (2.2) SH	2.9 K	<3.4 GK	K <3.6 GS	<4.0 GK	<4.3 GK	<4.2 GK	<4.4 GK	<4.4 GK	[<4.3] SK	<4.2 GK	K 4.8 JS	K 4.8 TS	4.8 PK	5.0 K	4.6 K	4.4 K	4.1 K	3.6 SK	K 3.2 JS
29	K 3.0 JS	K (3.0) SH	2.3 FK	(1.8) SK	K (1.8) SA	3.6 FK	4.8	6.0	6.5	6.4	6.7	6.1	[6.3] B	6.4	6.2	[6.6] A	6.7	7.2 JA	6.8	(7.3) S	(7.0) S	(6.1) SA	[5.0] SA	(4.5) F
30	(4.0) JS	(4.4) JS	(3.6) F	3.5 F	(3.1) S	3.4	A	A	5.3	[5.7] A	5.7	5.4	5.6	5.5	5.7 F	6.0 F	6.0	6.4	6.4	6.6	6.0 F	5.2 F	4.6 JF	4.8 S
31	4.7 S	3.8 FS	K 2.7 JH	(2.6) SK	(2.1) SK	K 2.8 FS	<3.4 GK	<3.7 GK	<4.0 GK	<4.2 GK	<4.2 GK	<4.3 GK	<4.5 GK	<4.4 GK	4.8 HK	<4.7 GK	K 5.0 JS	(4.3) SK	5.4 K	5.0 S	(5.6) SF	6.0 S	5.1	4.6
Median	4.6	4.3	3.8	3.4	3.1	3.8	4.6	5.2	5.4	5.6	5.6	5.6	5.6	5.8	5.8	6.2	6.3	6.3	6.3	6.4	6.4	6.0	5.3	5.0
Count	28	28	28	28	28	30	29	28	30	28	28	30	28	29	29	30	29	30	30	30	30	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 64

Form adopted June 1946

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

IONOSPHERIC DATA

h' F1 (Characteristic), Km (Unit), July (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., W.A.P., J.S.N., H.E.P.

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 65

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

IONOSPHERIC DATA

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

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C., W.A.P., J.S.N., H.E.P.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	4.2	A	A	4.4	4.5H	[4.5]A	4.5	4.5	4.4H	[4.3]A	4.1	3.5K	3.0K				
2							3.0K	3.3K	3.6K	3.9K	4.1K	4.3K	4.3K	4.3K	4.2K	[4.1]AK	4.0K	3.9HK	AK	LK				
3							3.7K	3.7PK	4.0K	MK	MK	MK	4.5K	4.5K	4.3K	4.2K	4.2K	4.0K	3.7K	L				
4							(3.7)H	(4.0)H	(4.2)H	4.3H	4.5	4.6H	4.7	4.7	4.6	4.4	4.2	4.1H	3.7	L				
5						Q	3.6	3.9	M	A	4.6	4.7	[4.7]A	4.7H	[4.6]N	4.4P	4.3	4.1P	3.9P					
6							Q	L	M	(4.5)A	(4.6)A	4.7	4.7	4.8	4.7	4.6	4.5	4.2	A					
7							3.6	3.9	(4.2)H	4.4H	4.7	4.9	5.0	4.9	4.9H	4.8	4.5	4.3H	3.9					
8							L	4.2H	[4.4]A	(4.6)A	4.8	4.9	5.0H	5.0H	(4.9)H	4.8	4.7H	B	L					
9							A	4.1A	4.2	A	A	A	A	A	A	A	A	4.5P	A					
10							Q	4.0	4.4	4.5F	4.7	4.8	4.8	[4.7]A	4.6	4.5	4.5	4.4	(4.1)L					
11							L	L	4.5	4.7	4.8	4.9	[4.9]A	4.9	4.8	4.7	4.5	(4.3)L	(4.0)L					
12							L	L	4.5	4.7	(4.8)H	(4.9)H	5.0H	[5.0]M	4.9	M	M	(4.5)L	L					
13							M	M	4.6	4.8	4.9	5.0	5.1H	5.1H	5.0	4.9H	4.5H	(4.4)L	L	Q				
14							L	(4.5)L	(4.7)L	4.8	(4.8)H	4.9	A	A	5.1	[4.9]A	4.7	(4.5)H	L	Q				
15							(3.3)L	4.0H	4.4	4.7	4.8	5.0	5.0	5.0H	4.8H	5.0	4.7H	4.4H	3.9					
16							3.5H	[4.0]N	4.5	(4.6)A	4.8H	(4.8)A	[4.8]B	4.8	A	A	4.5	A	L					
17							L	(4.1)L	4.4	4.5	4.7	4.9H	4.9J	4.8	4.7	[4.6]A	4.5	(4.3)H	(3.8)L					
18							Q	A	4.2	4.5	4.7	4.8H	(4.8)H	4.7	[4.6]A	(4.6)S	4.5	[4.4]A	(4.2)L					
19							(3.5)L	(4.2)L	4.4	4.4	4.5	4.6	(4.7)S	(4.7)S	(4.5)S	(4.4)S	4.4	4.2	L					
20							A	3.9	4.3	4.4	(4.5)H	4.6	4.6H	C	C	C	4.4H	4.1	(3.6)L					
21							A	[3.8]L	4.2H	4.6	(4.7)H	4.8H	4.8H	(4.8)H	4.7H	4.5H	4.3	4.1	L					
22							3.3K	3.6HK	(4.1)HK	4.4HK	(4.4)HK	(4.5)HK	(4.5)HK	(4.4)AK	4.3BK	4.2K	4.2K	3.9HK	(3.4)LK	LK				
23							3.6K	3.8K	4.0K	4.1K	4.2HK	4.5K	4.6K	4.6HK	4.4K	4.3K	4.1HK	4.0K	LK					
24							L	3.9H	4.1H	[4.2]A	4.4H	4.5	4.5H	4.5	4.4H	4.3	(4.2)H	4.1	L					
25							3.6H	3.9	4.2	4.3H	4.4H	4.5	4.6	4.6	4.4A	4.3	4.2	3.8H	3.3H					
26							3.1K	3.4K	3.9K	4.1K	4.4HK	4.4HK	4.5K	4.4K	4.4K	4.2HK	(4.1)AK	4.0HK	3.3K	2.7K				
27							3.8HK	4.0HK	4.2K	4.3K	4.4HK	4.6K	4.6HK	4.5HK	4.4HK	4.3HK	4.2K	4.0K	LK					
28							QK	3.6K	3.8K	4.1K	4.2K	4.4HK	4.4SK	4.3K	4.2K	4.1HK	(4.0)SK	(3.8)HK	3.4K					
29							Q	4.0	[4.2]L	4.3	4.5	4.6H	[4.6]B	(4.6)B	(4.5)B	[4.4]A	4.3	4.1H	A					
30							A	A	A	A	A	4.6	4.6	4.7H	4.5	4.4	4.2	4.0	3.5					
31							3.1FK	3.6K	3.9K	4.0K	4.2K	4.3SK	4.3K	(4.3)PK	4.3K	4.2K	4.1K	4.0K	3.7K					
Median							3.6	3.9	4.2	4.4	4.6	4.6	4.7	4.7	4.6	4.4	4.3	4.1	3.7					
Count							14	25	27	26	28	29	29	28	28	27	29	29	12	2				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 66

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

IONOSPHERIC DATA

Form adopted June 1946

h'E (Characteristic), Km (Unit), July (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: McC., W.A.P., J.S.N., H.E.P.

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							100	100	100	100	100	100	(100)B	100	(100)A	(100)B	100	100	(100)BK	BK				
2							100K	100K	100K	100K	100K	100K	100AK	100K	100K	100K	100K	100K	100K	100K				
3							100K	100K	100K	MK	MK	MK	BK	(100)BK	100K	(100)BK	110K	100K	(110)BK	B				
4							110	100	100	100	100	110	100	100	100	100	110	100	100	120				
5						120	100	100	M	A	100	100	[100]A	100A	100	100	100	100	B					
6							100	100	[100]M	100	100	100	[100]B	100	(100)B	[100]B	100	100	100					
7							100	100	100	100	100	100	100	100	100	(100)B	100	100	100					
8						100	100	100	100	100	(100)A	100	100	100	100	100	100	100	100					
9							(100)A	100	100	100	(100)A	(100)A	100	100	100	[100]B	100	(100)B	100					
10							A	A	(100)A	(100)A	(100)A	(100)A	(100)A	(100)A	(100)A	100	100	100	100					
11							100	100	100	(100)A	(100)A	100	(100)B	100	(100)B	100	100	100	100					
12							110	100	100	100	100	100	100	[100]M	100	100	[100]M	100	100					
13							M	M	100	100	100	100	100	100	100	100	100	100	100	(110)S				
14							100	100	100	100	100	100	100	100	100	100	100	100	100	(110)S				
15							100	100	100	100	100	100	100	100	100	100	100	100	100					
16							100	100	100	100	100	100	100	100	100	100	100	100	100					
17							110	100	100	100	100	100	100	100	100	100	100	100	100					
18							110	100	100	100	100	100	100	100	[100]A	100	100	100	100					
19							100	100	100	100	100	100	100	100	100	100	100	100	110					
20							100	100	100	100	100	100	100	C	C	C	100	100	110					
21							100	100	100	100	(100)A	(100)A	100	100	100	100	100	100	100					
22							110K	100K	100K	100K	100K	100K	110K	100K	100K	100K	100K	100K	110K	110K				
23							(110)AK	100K	100K	100K	100K	100K	100K	100K	90K	100K	100K	100K	100K					
24							100	100	100	100	100	100	100	100	100	100	100	(100)A	100					
25							A	100	100	100	100	100	100	100	100	(100)A	100	100	110					
26							AK	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	110K					
27							100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	110K	100K	110K					
28							100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	100K	(100)BK					
29							100	100	100	100	(100)A	100	B	B	B	B	(100)B	100	100					
30							100	A	B	(100)B	[100]B	100	100	[100]A	100	100	110	110	110					
31							110K	110K	110K	110K	100K	110K	100K	110K	100K	110K	110K	110K	110K					
Median						—	100	100	100	100	100	100	100	100	100	100	100	100	100	110				
Count						2	27	28	29	29	30	30	29	29	29	29	31	31	30	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O 702519

Form adopted June 1946

TABLE 67

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

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), July (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., W.A.P., J.S.N., H.E.P.

Calculated by: Mc C., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							2.2	2.7	2.9	3.1	3.1	3.3P	B	A	A	3.3	3.1	2.8	(2.3)BK	BK				
2							2.1K	2.4K	3.0K	3.1K	3.2K	3.3K	[3.4]AK	(3.3)PK	3.3K	3.2PK	3.1PK	2.9PK	2.4PK	1.8K				
3							(1.9)PK	2.6PK	3.0K	MK	MK	MK	BK	(3.4)BK	3.3K	[3.2]BK	3.1K	3.0K	2.5K	B				
4							2.2	2.7	3.6	3.2	3.4	[3.5]B	3.5P	(3.5)P	3.4P	3.3P	3.2	2.9	2.5	2.0				
5						1.7	[2.2]A	2.7	M	A	3.2	A	A	A	3.4P	3.2P	3.1	3.0P	B					
6							2.2P	2.6P	M	A	A	3.5P	[3.5]P	3.5	B	B	3.4P	3.0	2.6					
7							2.3	2.7	(3.1)P	3.2	3.4	A	B	3.6	3.6	[3.5]B	(3.3)P	3.1	2.8					
8						1.6	2.3	3.0	3.2	(3.3)A	A	A	(3.9)P	4.0	3.9	3.6	3.2	3.0	2.5					
9							A	2.9	3.2	3.2	A	A	A	3.4P	3.5P	[3.4]B	(3.2)P	3.1P	(2.5)P					
10							A	A	A	A	A	A	A	A	A	3.5	3.3P	3.2	2.5					
11							2.2	3.0	3.2	A	A	3.7P	3.7	(3.7)B	[3.6]B	(3.5)B	3.4	3.1	2.8					
12							2.3	3.0	3.3	3.4	3.5	3.6	3.6P	M	A	B	M	3.0	2.6					
13							M	M	3.1	3.3	3.4	3.5	3.5	3.6	3.5	3.4	3.3	3.1	2.6	1.7				
14							2.3	2.8	3.2	3.3	3.5	3.6	3.6P	3.6	3.4	3.2	3.0	A	A	2.0				
15							2.1	2.9	3.1	3.2	[3.5]A	3.7P	3.7P	3.7P	3.6	3.5	3.2	3.0	2.6					
16							2.3	2.8	[3.1]A	3.4	3.6	3.7	3.7P	3.6	(3.6)A	3.5	3.3	3.1	2.6					
17							2.2	2.8	3.2	3.4	3.5P	3.6	[3.6]S	3.6	3.5	[3.4]A	3.2	2.9	2.5					
18							2.3	2.6	2.9	[3.1]A	3.3	3.4	3.6	A	A	(3.4)S	3.2	2.9	(2.4)A					
19							2.1	2.6	3.1P	A	A	A	3.7	(3.6)P	3.4	[3.3]S	(3.2)S	3.1	2.5					
20							(2.1)A	(2.6)A	3.0	3.1	3.3	3.5	3.5	C	C	C	3.2	3.0	2.5					
21							(2.1)A	2.5	3.0	3.2	A	A	3.5P	3.5	3.4	3.3	3.2	2.9	2.5					
22							2.2K	[2.6]AK	3.0K	3.2K	(3.4)PK	[3.4]BK	3.4K	3.4PK	3.3K	3.2K	3.1K	2.9K	[2.4]AK	1.8K				
23							AK	2.5K	2.9K	3.1PK	3.3K	3.3PK	3.3K	(3.3)PK	(3.3)PK	3.2K	3.0K	2.8K	2.3SK					
24							2.1P	2.5	2.9	3.0	3.1	(3.2)S	3.2	3.2	3.1	(3.0)B	2.9	[2.6]A	2.3					
25							A	2.5	2.8	3.1	3.3	3.4	3.4	3.4	3.3	3.2	3.1	2.8	2.3					
26							AK	2.4K	2.7K	3.0K	3.3PK	3.4K	3.4K	3.4PK	3.3K	3.2PK	3.0K	2.7K	2.3K					
27							(2.1)AK	2.4K	2.7K	3.1K	3.2K	(3.3)PK	3.3K	3.3K	3.2K	[3.1]AK	3.0K	2.7HK	2.3HK					
28							2.1K	2.7K	3.0K	3.2K	3.3K	3.4K	3.4PK	3.4K	3.3K	3.1K	3.0K	(2.7)SK	2.4K					
29							2.1	2.5	2.9	A	A	A	B	B	B	B	(3.1)B	(2.6)A	(2.4)A					
30							A	A	A	(2.7)A	[3.0]B	3.3	A	A	3.3	3.2	3.1	2.8	2.3					
31							2.2K	2.6K	3.0K	3.0K	3.1K	3.3K	3.4K	3.4K	3.4K	3.3K	3.0PK	2.7K	2.3K					
Median						—	2.2	2.6	3.0	3.2	3.3	3.4	3.5	3.5	3.4	3.3	3.2	2.9	2.5	1.8				
Count						2	24	28	27	24	22	22	23	23	24	27	30	30	29	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 68

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

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), July (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: McC., W. A. P., J.S.N., H.E.P.

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.6/100	58/100	4.5Y/100	70Y/100	4.5S/100	2.0/100	45/130	4.8/110	10.4/110	7.4/100	60/100	G	6.4/100	7.2/100	56/100	4.6Y/110	72/100	81/100	G	E	E	E	E	7.2Y/140
2	E	34Y/100	B	E	8.2Y/100	E	G	G	G	G	7.6Y/140	G	92/100	G	G	44/120	G	40Y/120	8.5/110	3.4/120	E	E	3.2/120	38/120
3	4.0/120	38/110	38/120	E	B	2.0/110	2.5/120	G	G	M	M	M	B	G	G	G	G	G	G	B	E	E	E	E
4	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	3.5/120	G	E	E	E	4.1/100
5	E	E	30Y/110	E	26S/110	G	3.8/100	4.9/110	M	11.8/100	7.4/110	8.0Y/100	10.0/100	4.7/100	G	G	G	G	G	34Y/110	4.3/110	7.0/100	51/100	66/100
6	7.0/100	7.0/100	3.8/100	4.0/100	3.0/100	E	3.6Y/120	4.5Y/110	M	8.2/100	66/100	G	G	G	G	B	5.3/120	4.9/120	64/110	11.8Y/100	9.0Y/100	64S/100	3.4/100	E
7	E	30Y/110	39/110	3.0/100	29/100	64Y/100	G	114/100	10.4/100	88Y/120	4.9Y/100	4.2/100	G	G	G	G	G	G	G	3.6/100	37/100	E	E	4.1/100
8	3.1/100	E	36Y/100	70/110	E	G	34Y/110	11.6/110	64/100	10.2/100	5.0/100	4.7/100	G	G	G	54/110	5.2Y/120	G	G	2.1/110	E	E	E	E
9	6.2/100	E	64/100	4.9/100	68Y/100	9.8/100	5.6/100	6.4/100	106/100	12.8/100	11.4/100	10.0/100	70/100	58/100	7.1/120	90/110	12.0/100	11.0/110	13.0/100	10.8Y/100	7.8/100	4.8/100	7.2/100	5.5/100
10	3.8/100	4.0/100	7.4/100	8.4/100	9.4/100	6.8/100	6.0/100	4.8/100	7.8/100	4.8/100	104/100	86/100	76Y/100	58/100	4.0/100	G	4.2/100	48/100	4.9/100	10.0/100	92/100	65/100	6.6/100	2.6/100
11	E	6.0/100	3.5/100	6.3/100	48/100	5.5/100	G	G	50Y/100	68Y/100	56Y/100	4.9/150	65/100	54Y/100	G	G	G	7.8/120	46/120	4.6/120	E	4.5/100	35/100	E
12	E	E	E	68Y/100	E	E	G	G	G	6.4/100	48Y/110	52/110	4.4/100	M	60/100	G	M	G	45/110	M	M	E	E	E
13	M	E	M	M	M	M	M	M	56/100	4.6/100	8.0Y/110	G	G	G	G	G	G	G	G	3.0Y/120	E	E	24/110	E
14	E	2.6/100	26/100	2.5/100	E	E	G	G	G	54/100	58/100	61/110	64/100	6.0/100	5.6/100	66/100	48/100	41/100	3.4/100	42/110	6.4/110	54/100	E	E
15	E	E	E	E	50/120	2.1/110	3.5/110	3.9/110	G	G	48Y/110	98Y/90	G	G	G	G	G	G	G	3.3Y/110	E	E	E	2.7/120
16	E	2.7/100	E	28/100	E	E	10.2Y/110	5.0/110	54/110	70/110	88Y/90	66/100	G	G	5.5/120	6.0/110	5.2/110	47/120	G	3.0/110	E	E	E	E
17	E	E	25/130	27S/120	11.2/110	E	G	3.7/110	52Y/110	G	G	70/100	G	G	G	66/100	G	4.5/110	56/120	68/110	3.1/100	46/100	3.0/110	2.7/100
18	26/100	4.8/100	44/100	36/100	38/100	E	3.7/120	5.4/100	54Y/100	4.5/100	G	50/100	G	64/110	119/100	98/110	G	5.5/110	60/100	25/110	2.9/110	2.7/110	38/100	3.6/100
19	3.2/100	E	E	E	E	2.9/110	3.7/110	58/100	66Y/100	43/100	88/100	50/100	G	G	G	G	G	5.0/110	G	4.2/100	3.2/100	19/100	4.7/100	3.5/100
20	E	E	E	E	48Y/110	54/110	5.2/100	46/100	66/100	55/100	75/100	68/120	G	C	C	C	G	G	4.4/120	4.2/100	4.1/100	40/100	37/110	35/100
21	E	2.7/100	E	E	E	54Y/110	49/110	58/100	G	G	34/100	41/100	G	G	G	G	49/120	49/120	66/110	68Y/110	E	E	45Y/110	5.2/100
22	32Y/100	2.9/100	E	48Y/110	E	14/110	3.1/110	35/110	49/100	G	3.7/130	G	G	5.3/120	4.4/110	3.7/110	G	G	5.0Y/110	G	E	E	E	E
23	E	E	E	2.4/110	34/100	50/120	3.2/120	3.7/120	4.3/110	G	G	51/120	5.8/100	G	G	5.5/110	G	G	G	2.2/110	3.2/110	60/110	60Y/100	4.9/100
24	35/100	30/100	29/100	E	E	11.0/100	G	37/110	G	5.8/100	46Y/100	G	G	G	G	G	G	2.9/100	G	58Y/100	9.0/100	65/110	E	E
25	4.3/110	4.0/110	E	E	4.0Y/110	E	7.0Y/100	47/110	69/100	45/100	G	G	G	G	5.1/100	68/100	G	G	2.0/100	E	31/110	7.8/100	58/100	92/100
26	E	30/120	E	E	60/90	E	76Y/100	4.7/100	38/110	37Y/100	56/140	G	G	G	G	4.8/110	50/100	G	G	E	E	E	E	E
27	E	E	180Y/100	30/110	19.8Y/100	7.4Y/100	3.8Y/100	G	G	G	G	G	G	G	G	3.1/100	25/100	G	G	19/120	E	E	E	E
28	E	E	E	E	E	E	G	G	G	56Y/100	G	G	G	G	G	G	G	48/130	32/120	60/110	42/120	35S/100	38/100	42/100
29	58Y/100	116Y/100	40/100	2.7Y/120	(4.0)S/110	82/130	64/110	4.7/110	5.6/90	44/100	36/100	4.2Y/100	B	B	B	98Y/110	18.0Y/100	11.0Y/100	(10.9)S/100	75Y/100	5.7Y/100	82Y/100	14.0/100	8.5/100
30	4.7Y/100	4.3/100	45/100	59Y/100	35/100	E	5.0/100	99/100	8.6/100	126/100	10.3/100	5.0Y/100	64Y/100	3.6/100	G	G	40Y/130	G	36/130	E	E	5.4/110	E	E
31	21/110	E	2.7/130	56Y/110	12.0/100	1.8/130	18.0Y/120	E	G	G	56Y/110	G	G	G	G	G	G	G	G	36/130	66/110	68/120	60/110	32/110
Median	* *	27	27	2.7	3.5	1.6	3.6	43	50	4.7	5.3	4.4	* *	* *	* *	* *	* *	* *	32	34	3.0	2.7	30	2.7
Count	30	31	29	30	29	30	30	30	29	30	30	30	31	29	30	30	30	31	31	30	30	31	31	31

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 69

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

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), July (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: McC., W.A.P., J.S.N., H.E.P.

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.9F	2.1F	2.0F	2.5	A	2.1H	2.2	G	A	A	1.9	1.8H	1.9	1.9	1.5H	J(2.0)H	1.8	1.9	1.8K	1.7K	1.7K	1.7FK	(1.6)HK	.5K
2	1.7K	AK	BK	1.8FK	1.6K	1.8K	GK	GK	GK	GK	GK	GK	GK	GK	GK	GK	GK	1.5K	A(2.1)PK	2.1PK	2.1P	P1.9SK	2.0K	2.0VK
3	1.9PK	AK	AK	J(1.9)BK	BK	2.1K	GK	GK	GK	MK	MK	MK	1.9K	GK	1.7K	1.8K	2.0K	1.8K	1.9K	2.0	2.1F	2.1F	(1.9)S	(1.9)S
4	(1.9)S	(1.8)S	1.9	(2.0)JS	(1.9)JS	(2.1)H	G	(2.0)H	1.9H	1.8H	1.7	2.0	2.0H	(1.8)H	1.7	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.1	1.9
5	1.9F	1.9	1.9	2.0	2.0	2.0	G	2.3	M	(1.9)A	2.0	2.1	2.1	2.2	1.9H	1.9	2.1	1.9P	2.0	2.1P	2.0	A	2.0P	2.0F
6	2.0F	A	(2.0)AF	1.9F	2.1F	2.0	2.4P	2.0	M	2.0V	1.8	2.0V	(2.0)P	2.0	1.9	1.8	2.0	1.9	2.0	2.0	2.1	2.0	2.0S	1.9
7	(1.9)S	2.0F	1.9	1.9	2.0	2.1	2.1	(2.4)JH	2.1	2.0H	2.0	2.0	1.7	1.8	1.8	2.0	1.9	2.0	2.0	2.1	2.1	1.9	(2.0)JS	1.9
8	1.9	(1.9)JS	1.9	2.1	(1.9)S	2.0H	2.0	1.9	2.1	2.1	2.1	1.9	1.7H	2.0	1.8H	2.0	1.9	1.9	1.9	2.0	2.0	(1.9)JS	(1.9)JS	1.8
9	(1.7)JS	(1.9)JS	(1.9)JS	(1.9)S	(2.0)JS	1.7	(1.8)SH	2.0	2.0	A	A	1.9	A	2.0P	1.7	A	(1.8)A	2.0	(1.5)PA	A	1.9	1.9P	1.9P	(1.9)PS
10	(1.9)JS	1.8S	2.0P	(2.0)JS	A	A	1.9	2.0	2.0	2.0H	G	G	1.8	A	1.9	1.7	1.8	1.9	1.9	(2.2)JA	(2.1)A	2.0	2.0	2.0
11	1.9	A	2.0	1.9	(2.0)JA	2.1	2.2	(2.0)H	1.9H	(2.1)JP	1.7	1.6	1.8	1.9	1.8	1.7	1.8	1.9	1.9	(1.9)S	(1.9)S	1.9	(2.0)S	1.9
12	2.0Z	1.9	2.1	1.9	1.9	2.1	2.0	1.9	1.9	1.9	(2.1)H	1.9	2.0	M	1.4	1.9	M	M	M	M	M	2.0	M	1.9
13	M	M	M	M	M	M	M	M	1.8	1.7	2.0	1.9	1.8H	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	(1.9)S	(1.9)JS	1.9
14	1.9	2.0	1.9	1.8	1.9S	(2.1)S	2.2	2.0	(2.0)JS	1.9	2.0	(1.9)S	1.9	(1.9)JS	(1.9)H	2.0H	(1.9)JS	2.0H	(1.9)S	2.0	2.0	1.9	1.9	1.9
15	1.9	1.8	1.9	1.9	2.0	1.9H	2.0	2.0	(2.0)JS	1.8	2.1	1.7	1.9	1.9	1.9	1.8	1.9	1.9	1.9	(1.9)S	2.0	1.9	1.9	1.9
16	1.9H	1.9	2.0	1.9	(1.9)JS	2.0	2.0H	(1.7)JH	1.9	(1.7)JH	(2.5)H	2.0	(2.1)JH	1.9	1.9	(2.0)H	2.0	2.0H	2.0	(2.0)JS	(1.9)JS	1.9	1.8	1.8
17	1.9	1.9	1.9	2.1	A	2.0	2.0	(1.9)H	(1.8)H	(2.0)H	1.7H	G	G	1.7	1.6	1.7	1.8	1.9	(1.7)JS	2.0	(1.9)JS	(1.9)JS	(1.9)JS	1.9
18	1.8	1.9	1.9F	(1.9)S	(1.8)S	1.9	2.1	HA	1.7	(1.9)JH	1.7	2.0H	(1.9)JH	2.0	A	1.9	1.9	1.9	1.9	(1.9)S	2.0	1.9	1.9	1.9
19	1.9	(2.0)JS	(2.2)JS	1.9	(1.9)S	(2.0)S	2.2	2.0	2.1	1.8	1.6	1.8	(1.7)S	S	1.9S	(1.7)S	1.9S	2.0	2.0SF	2.0S	2.0S	(2.0)SF	1.9	1.9
20	1.9	2.0	2.0	2.0	(2.1)S	2.1	2.3	2.1	2.1	2.0	(2.1)JH	2.1	1.8H	C	C	C	2.0	2.0	2.1	2.1S	2.2	2.0	1.9	1.8
21	1.9	1.9	2.0F	1.9	1.9	2.2	2.3	(2.1)JH	(2.0)JH	2.2	2.0	1.9H	2.1	1.9	1.9	1.8	2.0	2.1	(2.0)JA	2.0	(2.0)JB	2.1	1.9	1.9F
22	1.9F	1.9F	1.9	1.8V	V(1.7)FK	J(1.8)FK	GK	1.8HK	1.7HK	GK	GK	GK	GK	1.5K	2.0K	1.8K	(1.9)FK	J(1.7)SK	1.9K	1.9K	1.8K	1.9FK	J(1.9)FK	2.0FK
23	2.2K	J(1.8)SK	1.9FK	J(2.1)HK	AK	2.0K	GK	2.1K	GK	1.7K	1.7K	GK	GK	GK	GK	1.8K	(1.9)FK	F2.0SK	(1.9)SK	2.0SK	(2.0)F	2.0F	(2.0)F	1.9F
24	1.9F	1.9F	2.0	2.0F	(2.0)JF	(2.3)S	2.2V	G	1.9FH	1.9	1.8	G	1.7	1.8	1.8	1.8	1.9	2.0H	(2.0)S	2.1	2.0F	2.0	2.0F	(2.0)JH
25	(1.9)JB	2.0F	2.0	1.9	2.0S	(2.1)JS	G	1.9	(1.7)JH	1.8H	2.2	1.8	1.8	1.7	1.7	2.0	2.0	2.0	2.0	2.2	2.0	2.0	A	2.0
26	2.0K	1.9FK	1.9FK	S(2.0)FK	S(1.9)FK	H(1.9)FK	GK	GK	GK	GK	GK	1.7K	GK	2.0K	2.0K	1.9K	F(1.6)HK	1.9FK	2.1K	2.0K	1.9K	1.8K	1.9K	J(2.1)FK
27	2.0SK	S2.1FK	S1.9FK	1.9FK	1.9FK	J(2.0)SK	GK	GK	1.9K	1.8K	1.8HK	GK	GK	1.8K	2.0K	1.9K	2.0K	2.0K	2.2K	2.0K	2.0SK	F1.9SK	1.9K	1.9SK
28	J(1.9)SK	2.1K	1.9K	J(2.0)SK	J(1.9)SK	1.9K	S(2.3)HK	GK	GK	GK	GK	GK	GK	GK	P1.9SK	1.8K	1.7HK	2.1HK	2.0K	2.1K	J(2.0)SK	1.9K	1.9SK	1.9SK
29	S1.8HK	2.0FK	S(2.0)FK	S1.9FK	1.9K	F2.1SK	2.3	2.0H	(2.0)JH	2.2	2.1	2.1	1.9	(2.0)B	2.0	A	2.0	2.0	(2.1)A	(2.0)JS	2.0	(2.1)SH	(2.0)SA	(2.1)SH
30	(2.0)JS	1.7ZS	J(2.0)S	(2.0)FS	(2.3)FS	2.3	A	A	A	2.2	A	2.0	1.9	1.9H	2.0H	1.9F	2.0F	1.9	2.0	2.0	2.1	1.9F	1.9SF	1.8S
31	1.9	(1.9)JS	2.0K	V(1.8)FK	S(1.7)FK	(1.9)SK	GK	GK	GK	GK	GK	GK	1.5K	GK	1.6K	GK	(1.5)BK	2.0K	1.5K	1.9	(1.9)S	1.7S	1.8H	1.7
Median	1.9	1.9	2.0	1.9	(1.9)	2.0	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.8	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9
Count	30	26	28	30	25	29	29	28	27	28	28	30	30	27	29	28	30	30	30	29	30	30	29	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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

TABLE 70

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2, ____ (Characteristic), (Unit), July (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., W.A.P., J.S.N., H.E.P.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28F	31F	30F	36	A	31H	32	G	A	A	28	28H	28	28	23H	(30)JH	28	29	27K	26K	26K	25FK	(25)HK	5K
2	25K	AK	BK	27FK	25K	27K	GK	GK	GK	GK	GK	GK	GK	GK	GK	GAK	GK	23K	K(31)AF	31PK	31PK	K28FS	30K	30VK
3	28PK	AK	AK	K(29)JB	BK	31K	GK	GK	GK	MK	MK	MK	29K	GK	25K	27K	29K	28K	28K	30	31F	31F	(28)S	(29)S
4	(28)S	(27)S	28	(30)JS	(29)JS	(30)H	G	(30)H	29H	28H	25	30	30H	(27)H	25	28	30	28	29	30	29	30	31	29
5	29F	28	28	30	30	30	G	34	M	(29)A	30	31	31	32	29H	28	31	28P	30	31P	30	A	29P	29F
6	30F	AF	(30)AF	28F	31F	30	35P	30	M	30V	27	30V	(30)P	29	29	28	30	29	30	30	31	30	29S	29
7	(28)S	29F	29	29	30	31	31	(34)JH	31	30H	30	30	26	27	27	30	29	30	30	31	31	29	(30)JS	29
8	29	(29)JS	29	31	(29)S	30H	30V	29	31	32	31	29	26H	30	27H	29	28	29	29	30	30	(28)JS	(29)JS	27
9	(26)JS	(29)JS	(28)JS	(29)S	(27)JS	26	(27)SH	30	30	A	A	29	A	30P	25	A	(27)A	29	(23)PA	A	29	28P	29P	(28)FS
10	(28)JS	28S	30P	(30)JS	A	A	28	30	29	30H	G	G	28	A	28	26	27	28	29	(31)JA	(31)A	30	29	29
11	29	A	30	29	(30)JA	31	32	(30)H	29H	(31)JP	26	25	27	28	27	26	27	29	29	(29)S	(29)S	29	(30)S	28
12	30Z	29	31	29	29	31	30	28	29	29	(31)H	28	30	M	29	29	M	M	M	M	M	30	M	28
13	M	M	M	M	M	M	M	M	27	26	29	28	27H	28	30	28	28	30	30	30	30	(29)S	(29)JS	28
14	28	30	28	27	28S	(31)S	32	30	(29)JS	28	29	(29)S	28	(28)JS	(28)H	30H	(28)JS	29H	(28)S	30	29	29	29	29
15	28	28	28	28	29	28H	30	30	(30)JS	27	31	26	28	29	28	27	28	28	28	(29)S	30	28	28	29
16	29H	28	30	29	(28)JS	29	30H	(26)JH	28	(26)JH	(25)H	29	(31)JH	29	28	(29)H	30	30H	30	(30)JS	(29)JS	29	28	27
17	29	29	29	31	A	30	30	(28)H	(27)H	(30)H	26H	G	G	26	25	26	27	29	(26)JS	30	(28)JS	(28)JS	(28)JS	28
18	28	28	29F	(29)S	(27)S	28	30	HA	26	(28)JH	25	30H	(28)JH	30	A	28	28	29	29	(29)S	30	29	29	28
19	28	(30)JS	(32)JS	29	(28)S	(30)S	32	29	31	27	24	27	(25)S	S	29S	(26)S	28S	30	30SF	30S	30S	(30)SF	29	28
20	29	30	30	30	(31)S	31	33	31	31	30	(31)JH	31	28H	C	C	C	30	29	31	31S	32	30	29	28
21	28	28	29F	29	29	32	34	(31)JH	(30)JH	32	30	29H	31	28	28	27	30	31	(30)JA	29	(30)JB	31	29	28F
22	29F	28F	29	28V	K(26)VF	K(27)JF	GK	27HK	25HK	GK	GK	GK	GK	23K	29K	27K	(29)FK	K(26)JS	29K	29K	27K	28FK	K(29)JF	30FK
23	33K	K(27)JS	28FK	K(31)JH	AK	30K	GK	31K	GK	26K	25K	GK	GK	GK	GK	27K	(30)FK	K29SF	(29)SK	30SK	(30)F	30F	(29)F	29F
24	29F	29F	30	30F	(30)JF	(33)S	32V	G	28FH	28	28	G	26	28	27	27	28	30H	(30)S	31	30F	30	30F	(30)JH
25	(28)JB	30F	29	29	30S	(31)JS	G	28	(25)JH	27H	33	28	27	26	26	30	30	30	30	32	30	30	A	30
26	29K	28FK	28FK	K(30)SF	K(28)SF	K(29)HF	GK	GK	GK	GK	GK	26K	GK	30K	30K	29K	K(24)FH	29FK	31K	29K	29K	28K	28K	(31)JF
27	30SK	K31SF	K29SF	29FK	29FK	K(30)JS	GK	GK	28K	27K	26HK	GK	GK	27K	30K	29K	30K	30K	32K	30K	30SK	K29FS	28K	29K
28	K(28)JS	31K	28K	K(30)JS	K(28)JS	29K	K(33)SH	GK	GK	GK	GK	GK	GK	GK	K28PS	27K	25HK	31HK	30K	31K	K(30)JS	28K	29SK	29SK
29	K27SH	30FK	K(30)SF	K29SF	29K	K31SF	33	30H	(30)JH	32	31	31	28	(29)B	30	A	30	30	(31)A	(30)JS	29	(31)SH	(30)SA	(31)SH
30	(30)JS	26ZS	K(30)JS	(30)FS	(33)FS	33	A	A	A	32	A	30	29	29H	30H	29F	30F	29	30	30	31	29F	28FS	27S
31	29	(29)JS	30K	K(28)VF	K(26)JF	(29)SK	GK	GK	GK	GK	GK	GK	23A	GK	24K	GK	(23)BK	29K	23K	29	(28)S	26S	27H	26
Median	28	29	29	29	(29)	30	30	29	28	28	26	28	28	28	28	28	28	29	30	30	30	29	29	29
Count	30	26	28	30	25	24	29	28	27	28	28	30	30	27	29	28	30	30	30	29	30	30	29	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O 702518

Form adopted June 1946

TABLE 71

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

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), July (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: McC., W.A.P., J.S.N., H.E.P.

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	3.3	A	A	A	4.0H	A	3.4	3.5	3.6H	A	3.5	3.7K	3.2K				
2							3.4K	3.5K	3.6K	3.8K	3.7K	3.8K	3.9K	3.8K	3.8K	AK	3.8K	3.4HK	AK	LK				
3							3.1K	3.4PK	3.6K	MK	MK	MK	3.8K	3.9K	3.7K	3.7K	3.6K	3.8K	3.6K	L				
4							(3.1)H	(3.7)H	(3.7)H	3.8H	3.7	3.3H	3.9	4.0	3.6	3.8	3.6	3.5H	3.7	L				
5						Q	3.4	A	M	A	A	4.0	A	3.6H	N	3.9P	3.7	3.5P	3.5P					
6							Q	L	M	(3.8)A	(3.4)A	3.8	3.9	3.9	3.8	3.7	3.6	3.6	A					
7							3.7	3.7	(3.7)H	3.9H	4.1	4.0	3.7	3.9	3.9H	3.6	3.6	3.5H	3.5					
8							L	3.3H	A	(3.8)A	3.9	4.0	3.9H	3.7H	(3.6)H	3.2	3.6H	B	L					
9							A	A	3.3	A	A	A	A	A	A	A	A	3.4P	A					
10							Q	3.5	3.8	4.1F	4.1	A	3.8	A	4.1	3.9	3.6	3.4	(3.4)L					
11							L	L	3.6	3.7	4.1	4.1	A	3.5	3.6	3.6	3.6	(3.6)L	(3.4)L					
12							L	L	3.6	3.8	(3.9)H	(3.9)H	4.0H	M	3.5	M	M	(3.4)L	L					
13							M	M	3.5	3.7	3.8	4.1	3.9H	3.8H	3.9	3.7H	3.7H	(3.5)L	L	Q				
14							L	(3.3)L	(3.4)L	3.5	(3.6)H	4.0	A	A	3.4	A	3.6	(3.6)H	L	Q				
15							(3.4)L	3.6H	3.5	3.6	3.9	3.8	3.9	4.1H	4.0H	3.5	3.4H	3.3H	3.6					
16							3.6H	N	3.5	A	4.1H	A	B	3.7	A	A	3.3	A	L					
17							L	(3.5)L	4.0	3.8	4.1	3.8H	3.6J	3.7	3.8	A	3.6	(3.3)H	(3.4)L					
18							Q	A	3.8	3.6	3.9	3.6H	(3.5)H	3.7	A	(3.4)S	3.6	A	(3.2)L					
19							(3.5)L	(3.5)L	3.6	4.0	4.1	3.9	(4.0)S	(4.0)S	(3.9)S	(3.6)S	3.5	3.6	L					
20							A	3.7	3.8	4.0	(3.9)H	4.2	4.0H	C	C	C	3.5H	3.7	(3.7)L					
21							A	L	3.6H	3.6	(4.0)H	4.0H	4.0H	(3.8)H	3.7H	3.6H	3.7	3.6	L					
22							3.6K	3.7HK	(4.1)HK	4.2HK	(4.1)HK	(4.2)HK	(4.0)HK	AK	4.3BK	3.7K	3.7K	3.2HK	(3.4)LK	LK				
23							3.2K	3.6K	3.7K	4.1K	4.1HK	3.8K	4.0K	4.3HK	4.0K	3.9K	3.8HK	3.8K	LK					
24							L	3.5H	3.8H	A	3.7H	4.0	4.0H	3.8	4.0H	3.7	(3.7)H	3.6	L					
25							3.2H	3.5	3.8	3.8H	3.9H	4.0	4.1	4.1	A	3.7	3.6	3.5H	3.7H					
26							3.4K	3.7K	4.4K	4.1K	3.8HK	4.1HK	3.9K	4.1K	3.7K	4.2HK	(4.1)AK	3.4HK	3.7K	3.6K				
27							3.0HK	3.5HK	3.9K	4.0K	4.2HK	4.2K	3.9HK	4.0HK	4.2HK	4.0HK	3.8K	3.7K	LK					
28							QK	3.7K	3.9K	3.9K	4.0K	3.9HK	4.0SK	3.8K	3.9K	4.1HK	(3.8)SK	(3.8)HK	3.5K					
29							Q	3.6	L	4.0	4.1	3.9H	B	(3.8)B	(3.8)B	A	3.7	3.9H	A					
30							A	A	A	A	A	4.1	4.0	3.9H	3.9	3.7	3.7	3.7	3.6					
31							3.5FK	3.6K	3.9K	4.2K	4.2K	4.0SK	3.7K	(3.8)FK	3.8K	3.8K	3.5K	3.4K	3.2K					
Median							3.4	3.5	3.7	3.8	4.0	4.0	3.9	3.8	3.8	3.7	3.6	3.5	3.5	—				
Count							14	21	25	24	26	27	24	25	25	23	28	28	17	2				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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

TABLE 72

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)E (Characteristic) ____ (Unit) July (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: McC., W.A.P., J.S.N., H.E.P.

Calculated by: McC., W.A.P., J.S.N., H.E.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							4.1	4.1	4.2	4.4	4.5	4.3^{P}	B	A	A	4.3	4.3	4.4	(4.1)$^{B}_{K}$	B^{K}				
2							4.2^{K}	4.3^{K}	4.3^{K}	4.2^{K}	4.3^{K}	4.3^{K}	A^{K}	(4.5)$^{P}_{K}$	4.5^{K}	4.3$^{P}_{K}$	4.5$^{P}_{K}$	4.3$^{P}_{K}$	4.3$^{P}_{K}$	4.5^{K}				
3							(4.6)$^{P}_{K}$	4.4$^{P}_{K}$	4.3^{K}	M^{K}	M^{K}	M^{K}	B^{K}	(4.4)$^{B}_{K}$	4.4^{K}	B^{K}	4.5^{K}	4.3^{K}	4.4^{K}	B				
4							4.3	4.5	4.3	4.3	4.6	B	4.3^{P}	(4.3)^{P}	4.3^{P}	4.5^{P}	4.2	4.2	4.2	4.1				
5						4.2	A	4.3	M	A	4.5	A	A	A	4.5^{P}	4.5^{P}	4.5	4.7^{P}	B					
6							4.2^{P}	4.4^{P}	M	A	A	4.6^{P}	B	4.3	B	B	4.2^{P}	4.4	4.1					
7							4.3	4.4	(4.3)^{P}	4.5	4.4	A	B	4.5	4.4	B	(4.3)^{P}	4.2	4.2					
8						4.4	4.2	4.2	4.3	(4.3)^{A}	A	A	(4.4)^{P}	4.3	4.3	4.2	4.4	4.4	4.0					
9							A	4.3	4.3	4.5	A	A	A	4.5^{P}	4.5^{P}	B	(4.3)^{P}	4.2^{P}	(4.2)^{P}					
10							A	A	A	A	A	A	A	A	A	4.6	4.5^{P}	4.2	4.5					
11							4.6	4.7	4.4	A	A	4.4^{P}	4.4	(4.4)^{B}	B	(4.3)^{B}	4.2	4.2	4.2					
12							4.3	4.3	4.3	4.5	4.5	4.6	4.6^{P}	M	A	B	M	4.6	4.4					
13							M	A	4.3	4.3	4.5	4.4	4.5	4.4	4.4	4.5	4.3	4.4	4.2	4.4				
14							4.2	4.5	4.4	4.4	4.5	4.4	4.5^{P}	4.4	4.5	4.6	4.5	A	A	4.3				
15							4.2	4.2	4.3	4.3	A	4.4^{F}	4.4^{P}	4.3^{P}	4.4	4.4	4.3	4.2	4.2					
16							4.3	4.2	A	4.3	4.2	4.4	4.3^{P}	4.5	(4.7)^{A}	4.5	4.5	4.4	4.5					
17							4.3	4.3	4.1	4.3	4.3^{P}	4.3	S	4.6	4.5	A	4.4	4.5	4.3					
18							4.3	4.4	4.5	A	4.3	4.3	4.3	A	A	(4.4)^{S}	4.2	4.4	(4.5)^{A}					
19							4.3	4.4	4.3^{P}	A	A	A	4.2	(4.2)^{P}	4.2	S	(4.5)^{S}	4.2	4.4					
20							(4.4)^{A}	(4.3)^{A}	4.4	4.4	4.6	4.5	4.3	C	C	C	4.2	4.1	4.1					
21							(4.3)^{A}	4.5	4.2	4.3	A	A	4.5^{F}	4.2	4.3	4.2	4.1	4.3	4.3					
22							4.1^{K}	A^{K}	4.4^{K}	4.4^{K}	(4.5)$^{P}_{K}$	B^{K}	4.4^{K}	4.4$^{P}_{K}$	4.5^{K}	4.4^{K}	4.2^{K}	4.1^{K}	A^{K}	4.3^{K}				
23							A^{K}	4.2^{K}	4.1^{K}	4.3$^{P}_{K}$	4.2^{K}	4.2$^{P}_{K}$	4.2^{K}	(4.6)$^{P}_{K}$	(4.3)$^{P}_{K}$	4.4^{K}	4.6^{K}	4.3^{K}	4.5$^{S}_{K}$					
24							4.2^{P}	4.2	4.3	4.3	4.5	(4.2)^{S}	4.3	4.4	4.4	(4.3)^{B}	4.5	A	4.1					
25							A	4.4	4.6	4.5	4.6	4.6	4.7	4.2	4.4	4.4	4.3	4.2	4.4					
26							A^{K}	4.3^{K}	4.5^{K}	4.6^{K}	4.4$^{P}_{K}$	4.3^{K}	4.3^{K}	4.1$^{P}_{K}$	4.1^{K}	4.4$^{P}_{K}$	4.4^{K}	4.4^{K}	4.3^{K}					
27							4.4^{K}	4.3^{K}	4.4^{K}	4.5^{K}	4.5^{K}	(4.5)$^{P}_{K}$	4.6^{K}	4.3^{K}	4.6^{K}	A^{K}	4.3^{K}	4.4$^{H}_{K}$	4.2$^{H}_{K}$					
28							4.1^{K}	4.3^{K}	4.2^{K}	4.3^{K}	4.3^{K}	4.4^{K}	4.4$^{P}_{K}$	4.3^{K}	4.3^{K}	4.3^{K}	4.4^{K}	(4.2)$^{S}_{K}$	4.4^{K}					
29							4.3	4.4	4.3	A	A	A	B	B	B	B	(4.4)^{B}	(4.5)^{A}	(4.4)^{A}					
30							A	A	A	(4.6)^{A}	B	4.3	A	A	4.4	4.2	4.3	4.2	4.3					
31							4.4^{K}	4.1^{K}	4.1^{K}	4.2^{K}	4.3^{K}	4.2^{K}	4.1^{K}	4.3^{K}	4.2^{K}	4.3^{K}	4.3$^{P}_{K}$	4.0^{K}	4.1^{K}					
Median							4.3	4.3	4.3	4.3	4.5	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3				
Count						2	23	27	26	23	20	20	20	23	23	21	30	27	29	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 73

Ionospheric Storminess at Washington, D. C.

July 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	2	3	2300	----	2	4
2	5	6	----	----	6	4
3	4	4	----	2400	4	5
4	2	3			4	3
5	1	1			3	2
6	1	1			3	3
7	2	0			2	3
8	1	1			2	3
9	1	3			3	3
10	1	3			3	2
11	1	2			2	2
12	0	3			2	3
13	***	3			2	2
14	1	3			2	2
15	1	3			2	4
16	1	1			3	3
17	1	3			4	4
18	2	2			4	4
19	2	3			3	3
20	1	2			3	2
21	2	2			4	1
22	2	5	0900	----	4	4
23	4	5	----	----	4	3
24	2	3	----	0100	3	2
25	2	3			2	3
26	4	4	0500	----	4	4
27	4	4	----	----	4	3
28	4	4	----	----	5	4
29	4	1	----	1100	4	2
30	2	2			2	3
31	3	5	0700	2400	5	4

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

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

***No readable record. Refer to table 62 for detailed explanation.

----Dashes indicate continuing storm.

Table 74

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
June 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)	Geo-magnetic K_{Ch}, Half day GCT (1)	(2)
1	7	6				8	7	3	(4)
2	5	6				8	6	3	(4)
3	5	7				8	6	3	2
4	7	6				8	7	3	2
5	6	6				7	8	3	3
6	5	(4)		U	X	7	7	(4)	3
7	5	5	U		X	6	7	3	3
8	6	5				5	7	(4)	3
9	7	6				6	6	3	2
10	8	7				6	9	2	2
11	7	6				7	8	2	3
12	6	5	W	U		7	8	3	3
13	6	6	U			6	8	3	3
14	6	5		(U)		7	7	1	(4)
15	(4)	(4)	U	U		7	7	(4)	(4)
16	5	(4)	U	U		7	7	3	3
17	6	5	W	U		6	8	2	(4)
18	(2)	(3)	W	W		7	6	(6)	3
19	(3)	(3)	W	W	X	(4)	5	(5)	3
20	6	5	W		X	6	7	2	2
21	6	7				7	8	3	2
22	7	5				6	8	2	2
23	8	7				7	7	2	2
24	8	7				7	7	3	2
25	6	5		(W)		8	7	(4)	(4)
26	5	5	W			6	7	3	3
27	5	6				6	6	2	3
28	6	6				6	8	3	3
29	7	6				6	6	2	3
30	6	6				7	6	3	2

Score:	Warning N.A.	Warning N.P.	Forecast N.A.	Forecast N.P.
H	13	1	3	1
(M)	0	0	0	0
M	0	0	5	0
G	41	41	47	52
O	6	18	5	7

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

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; $K_{Ch} > 4$ 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 ≤ 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 75a

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																																					
Jul 1.6	-	-	-	3	5	8	8	3	3	3	3	5	8	10	12	12	12	15	17	10	8	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-	
2.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	8	8	12	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.6	-	-	-	-	-	-	-	-	-	-	-	3	8	8	8	8	8	8	10	8	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	
4.7	-	-	-	3	3	3	3	3	3	3	3	3	3	3	5	5	8	8	10	8	8	5	3	3	3	3	-	-	-	-	-	-	-	-	-	-	
5.6	-	-	-	-	-	-	-	3	3	3	3	3	5	5	5	5	8	8	5	5	12	8	3	2	2	2	2	X	X	X	X	X	X	X	X	X	
6.6	-	-	-	-	-	3	3	3	3	3	3	3	5	5	5	8	10	5	8	8	12	17	10	5	3	3	3	-	-	-	-	-	-	-	-	-	
7.6	-	-	-	-	-	-	-	-	3	3	3	5	5	5	5	8	8	5	5	8	12	18	15	5	3	3	3	-	-	-	-	-	-	-	-	-	
8.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	8	10	15	10	8	5	3	2	-	-	-	-	-	-	-	-	-	
9.7	-	-	-	-	-	-	-	-	-	-	3	3	5	5	5	5	3	3	3	8	12	12	12	10	5	3	3	3	-	-	-	-	-	-	-	-	
11.9	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	3	3	3	3	3	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	
13.6	-	-	-	-	-	-	-	-	-	2	2	3	3	8	10	12	8	5	5	3	3	2	3	3	3	2	3	2	2	2	2	2	-	-	-	-	
14.6a	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	-	-	-	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	
16.6	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	5	5	5	5	8	8	8	10	10	8	3	-	-	-	-	-	-	-	-	-	-	
18.7	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	3	3	3	5	5	2	2	-	-	-	-	-	-	-	-	-	-	-	
19.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-	-	
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	5	5	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
22.9	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	15	12	12	12	12	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	8	12	12	8	8	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	5	5	5	8	8	5	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
25.6	-	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	3	3	5	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	3	5	5	3	2	2	2	3	5	5	8	5	3	5	8	8	2	2	3	5	5	3	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	3	8	5	5	5	3	3	3	3	3	5	5	8	10	10	10	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	5	8	8	5	5	3	3	3	3	8	10	15	12	15	25	15	8	5	3	3	3	5	3	-	-	-	-	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	5	5	5	5	8	10	8	10	10	5	3	3	2	2	3	3	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	3	3	3	5	5	10	13	12	13	12	12	12	10	8	12	8	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X

Table 76a

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																																					
Jul 1.6	-	-	-	-	-	-	-	2	2	2	-	-	-	-	2	5	5	8	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	5	2	2	2	2	2	2	2	2	2	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	8	5	3	-	-	-	-	X	X	X	X	X	X	X	X	X	X
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	12	15	3	2	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	3	3	3	5	8	10	3	3	3	2	-	-	-	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	2	2	2	2	2	2	2	2	2	-	-	-	-	-
11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	5	2	2	2	2	2	3	3	3	3	2	2	2	-	-	-
14.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	10	12	5	15	5	3	3	3	2	2	2	2	2	2	2	2	2	-	-	-
18.7	2	2	2	2	2	2	2	-	-	-	-	-	2	2	2	3	5	12	10	8	12	15	3	2	3	2	3	2	2	2	2	2	2	2	2	2	2
19.6	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	5	8	8	8	10	12	8	5	5	5	3	3	3	3	2	2	2	2	2	2	2
20.7	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	12	8	12	15	17	12	8	8	8	5	5	5	3	3	3	3	3	3	2	2	2
21.6	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	8	8	5	8	10	5	3	3	5	3	2	2	-	-	-	-	-	-	-	-	2
22.9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	12	20	12	12	15	12	12	12	10	3	3	2	2	2	2	2	2	2	2	2	2
23.6	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	5	3	8	10	10	12	12	10	8	5	3	3	3	3	3	3	2	2	2	2	2	2
24.6	2	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	3	5	5	5	5	8	5	5	5	3	3	3	3	2	2	2	2	2	2	2	2
25.6	-	X	X	X	X	X	X	X	X	X	X	-	-	-	2	2	2	2	2	5	8	5	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	8	5	2	2	2	8	8	3	3	2	2	2	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	12	10	15	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	8	8	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	5	15	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	-	-	-	-	2	2	2	2	-	-	2	2	12	5	3	8	5	3	3	3	3	X	X	X	X	X	X	X	X	X	X

Table 75b

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																																					
Jul 1.6	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	12	8	5	5	5	5	8	10	12	8	8	5	5	5	5	3	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	5	8	8	5	5	3	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	8	5	3	3	8	10	12	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-
5.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	10	8	8	8	8	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-
11.9a	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	8	8	8	-	-	-	-	-	X	X	X	X	X	X	X	X	-
13.6	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	5	5	5	8	8	8	5	8	5	5	3	3	2	3	3	5	3	3	2	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	5	5	3	3	5	5	5	3	3	2	2	3	3	3	3	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	12	12	8	8	8	5	5	3	3	-	-	-	-	-	-	-	-	-
16.6	-	X	X	X	X	X	-	-	-	-	-	3	3	3	5	5	5	5	10	15	20	15	12	12	12	12	8	X	X	X	X	X	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	3	8	20	12	8	5	10	3	5	8	10	12	8	5	2	2	3	3	5	10	5	-	-
19.6	-	-	-	-	-	3	3	3	3	3	3	3	3	5	8	10	12	15	8	5	8	8	3	5	5	8	5	5	5	3	3	3	3	3	-	-	-
20.7	-	-	-	-	-	-	3	3	3	3	3	3	3	5	12	17	22	20	17	10	12	12	8	8	8	5	5	5	5	3	3	3	3	3	-	-	-
21.6	-	-	-	-	-	-	-	-	3	3	3	3	5	8	12	15	17	17	8	5	5	5	5	3	3	8	5	5	3	3	3	3	3	3	3	-	-
22.9	-	-	-	-	-	-	-	3	3	3	3	5	8	12	12	20	17	15	15	10	10	10	10	8	8	8	8	5	5	3	3	3	3	3	-	-	-
23.6	-	-	-	-	-	-	-	3	3	3	5	8	8	8	8	12	8	10	8	5	5	8	8	5	5	5	5	5	3	3	-	-	-	-	-	-	-
24.6	-	-	-	-	-	3	3	3	3	3	3	3	5	5	5	8	8	8	5	5	8	12	12	12	10	8	8	5	5	3	3	3	3	3	-	-	-
25.6	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	5	5	5	5	5	8	8	10	8	8	5	3	3	3	3	3	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	5	5	5	8	10	8	8	5	5	3	3	3	3	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	3	3	3	3	3	3	5	5	5	5	5	3	3	3	5	8	10	10	8	5	3	3	3	3	3	3	-	-	-	-	-
28.6	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
29.7	-	-	-	-	-	-	-	3	3	3	3	3	5	10	15	12	12	8	5	5	5	8	8	8	5	5	5	3	3	3	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	8	12	10	8	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 76b

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																																					
Jul 1.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	10	10	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	8	2	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	5	5	8	2	2	8	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	2	2	2	3	3	2	-	-	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	8	10	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	8	10	12	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
11.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	8	10	3	3	5	-	-	-	-	-	-	-	-	-	-	-	-
14.6	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	5	5	2	-	-	-	-	-	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	X	X	X	X	X	2	2	2	2	2	2	-	-	-	-	-	-	2	5	3	3	2	2	2	2	2	X	X	X	X	X	-	-	-	-	-
18.7	2	2	2	2	2	2	2	2	2	2	3	5	5	5	8	15	12	8	8	3	10	15	5	3	3	3	2	2	2	2	2	2	2	2	2	2	2
19.6	2	2	2	2	2	2	2	2	2	2	2	3	3	3	8	12	17	12	10	2	-	12	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
20.7	2	2	2	2	2	-	-	-	-	-	-	-	-	2	12	10	18	15	12	-	8	12	2	-	-	-	-	2	2	2	2	2	2	2	2	2	2
21.6	2	2	2	2	2	2	2	2	2	2	-	-	-	2	10	12	15	12	10	-	-	2	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-
22.9	2	-	-	-	-	-	-	-	2	2	2	2	2	3	3	5	8	10	5	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2
23.6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2
25.6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6	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	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	12	8	8	5	8	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	-	3	5	8	3	5	12	5	13	12	12	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 77a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jul 1.6	-	-	-	-	2	2	2	2	2	3	3	3	3	5	5	5	5	3	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	2	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	-	-	-	-	-	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	X	X	X	X	X	X	X	X	X	X
6.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	5	2	2	2	2	2	2	2	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	5	5	5	5	3	3	3	2	2	2	2	2	2	-	-	-	-	-
11.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.6	-	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	5	5	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X

Table 77b

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																																					
Jul 1.6	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	2	2	2	2	3	3	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
5.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
6.6	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
16.6	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	5	5	5	3	5	3	X	X	X	X	X	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	3	5	5	3	3	3	2	2	2	2	2	-	-	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	5	3	3	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	5	5	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
22.9	-	-	-	-	-	-	-	-	-	-	2	3	3	3	5	5	5	3	3	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
25.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 78a

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																																					
Jul. 1.8	-	-	-	3	8	12	12	8	5	5	8	8	10	12	25	25	20	25	28	15	12	10	10	5	3	3	3	3	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	3	8	5	5	5	8	8	10	12	15	15	15	15	25	15	10	8	8	5	5	5	3	3	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	3	3	3	5	5	8	8	8	8	10	12	13	15	12	10	12	17	13	10	5	3	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	3	8	8	5	5	8	8	8	8	10	12	15	17	15	12	12	17	33	20	8	5	5	5	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	3	3	5	8	8	8	8	8	8	10	12	15	12	12	12	8	8	5	5	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	3	5	10	13	13	12	10	8	5	8	5	10	12	8	5	5	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5	5	8	8	8	8	10	8	8	5	X	X	X	X	X	X	X	X	X	X	X	X	X
17.9	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	10	12	10	10	10	12	10	12	8	8	8	5	3	-	-	-	-	-	-	-	-	-
19.7	3	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	8	8	8	8	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	10	10	10	15	8	3	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	3	3	3	3	3	3	3	5	5	8	8	5	5	5	8	10	10	12	12	12	12	12	12	10	8	5	3	-	-	-	-	-	-	-	-	-	-
26.6a	X	X	X	X	X	X	X	X	X	8	8	8	8	10	10	10	10	12	8	5	8	10	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.0	-	-	-	-	3	15	12	12	8	8	8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
28.7	-	3	5	8	15	14	14	12	8	5	8	8	10	22	20	28	25	31	28	15	12	8	10	8	10	8	5	3	-	-	-	-	-	-	-	-	-

Table 79a

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																																					
Jul 1.8	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2	5	5	8	8	2	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2
2.7	2	2	2	-	-	-	-	-	-	-	-	-	-	-	2	5	5	2	5	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	3	3	3	15	5	10	3	3	3	3	3	3	3	-	-	-	-	-	-
6.7	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	3	3	3	5	13	15	5	2	3	3	3	3	3	2	2	2	2	2	2	2
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	2	2	2	3	3	2	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	8	10	5	10	5	2	3	X	X	X	X	X	X	X	X	X	X	X	X	X
17.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	15	15	8	15	5	3	3	2	2	2	2	2	2	2	-	-	-	-	-
19.7	2	2	2	2	2	2	2	2	2	2	2	3	3	3	5	2	3	5	8	8	8	8	10	5	3	2	2	2	2	-	-	-	-	-	-	-	-
20.7	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5	5	8	10	8	8	15	18	12	8	2	2	2	2	2	2	2	2	2	2	2	2	2
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	12	10	10	12	8	5	5	8	5	5	2	2	2	2	2	2	2	2	2	2
25.7	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	3	5	5	2	3	3	12	10	3	3	8	5	5	5	5	5	3	2	3	2	2	2
26.6a	X	X	X	X	X	X	X	X	X	-	-	-	-	3	3	5	8	12	8	3	3	3	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.0	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	X	X	X	2	2	2	2	2	2	2	2	2
28.7	2	2	2	2	2	2	2	2	-	-	-	-	-	-	2	12	8	12	12	5	2	2	2	2	2	2	2	3	5	5	3	3	3	3	2	2	2

Table 80a

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																																					
Jul. 1.8	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	5	5	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	2	2	2	2	3	3	3	5	5	5	5	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
17.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6a	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
28.0	-	-	-	2	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
28.7	-	-	-	2	2	2	2	2	2	2	2	2	3	3	5	5	5	5	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 78b

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																																					
Jul 1.8a	-	-	-	-	-	-	-	-	-	3	3	3	5	12	25	12	8	8	8	10	12	12	15	15	12	12	8	8	5	3	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	12	8	8	8	8	8	10	10	12	10	8	8	5	5	5	3	3	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	8	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	3	3	3	3	3	5	8	8	10	12	12	17	15	12	13	15	13	12	5	5	5	8	8	8	10	10	3	-	-
16.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8	8	5	3	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	8	10	12	8	10	14	15	14	12	15	15	8	8	3	3	5	5	5	5	3	-	-
19.7	-	-	-	-	-	-	-	-	3	3	3	3	3	8	12	18	23	20	15	12	12	15	12	12	12	15	12	8	5	3	3	3	3	3	3	3	3
20.7	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8	8	10	8	8	8	8	5	5	3	3	-	-	-	-	-
21.6a	-	-	-	-	-	3	3	3	3	5	5	5	8	15	15	31	33	35	33	20	12	12	14	12	12	15	15	10	5	5	3	3	3	3	-	-	-
25.7	-	-	-	-	-	3	3	3	3	3	3	5	8	5	8	10	10	12	12	10	10	12	18	20	15	12	10	8	8	5	3	-	-	3	3	3	3
26.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.0	-	-	-	-	-	-	-	-	-	3	3	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	3	3	5	5	5	8	15	12	10	8	5	5	5	8	12	15	12	10	10	5	3	3	3	-	-	-	-	-	-

Table 79b

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																																					
Jul 1.8a	2	2	2	2	2	2	3	3	3	2	2	2	2	2	12	12	3	5	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.7	-	-	-	-	-	2	2	2	2	2	-	-	-	3	8	5	5	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2	2	2	2	2
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	10	5	3	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	2	2	2	2	2	2	2	2	2	2	3	3	3	5	3	3	8	8	8	5	8	5	5	2	2	2	2	2	-	-	-	-	2	2	2	2	2
8.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	15	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	12	8	3	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	2	2	2	3	2	2	3	3	3	5	2	3	5	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	2	8	5	8	14	8	10	2	2	12	8	2	2	2	-	-	-	-	-	-	-	-	-	-	2
20.7	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2
21.6a	2	2	2	2	2	2	2	2	2	2	-	-	-	-	3	12	8	12	15	12	2	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-
25.7	2	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	8	5	3	3	3	2	3	3	3	2	2	2	3	3	3	3	3	3	3	2
26.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.0	2	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	2	2	2	2	2	2	2	2	2
28.7	2	2	2	2	2	2	2	2	2	5	2	2	2	2	3	5	5	8	3	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Table 80b

Coronal observations at Sacramento Peak, New Mexico (6702A), 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																																					
Jul 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-
16.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	2	2	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-
20.7	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	2	2	2	3	5	5	8	8	5	5	3	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.0	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-

Table 81

Solar Flares, June 1951

Observatory	Date 1951	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill of Visible Hemisph)	Position Longitude Diff (Deg)	Position Latitude (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac.Peak	Jun. 1	1925	1942	17	29	E61	S06	1934	6	10		
McMath	" 5	1726				E65	N10				1	
"	" 5	1800				E30	S09				1	
"	" 5	1930				E30	S09				1	
Sac.Peak	" 5	1955	2045	50	206	E77	N18	2004	11	3		Yes
McMath	" 5	2000				E65	N10				1+	
Meudon	" 6	0720				E15	S05				1	
McMath	" 6	1220				E15	S09				1	
"	" 7	1245				W0[illegible]	S07				1-	
"	" 7	1300				E48	N07				1-	
"	" 7	1320				E54	N10				1-	
Schauins.	" 7	1540				E50	N10					
Meudon	" 7	1625				E55	N05				1	
Sac.Peak	" 7	1710	1730	20	35	E44	N12	1718	6	8		
"	" 7	1828	1855	27	150	E43	N07	1834	18	6		Yes
"	" 8	1503	1600	57	235	E51	N14	1512:15	20	2		Yes
"	" 8	1522	1537	15	35	E42	N17	1524:15	7	9		
"	" 8	1539	1605	26	85	E30	N06	1542	18	7		
"	" 9	1320	1330	10	82	E57	N10	1322	7	3		
"	" 9	1327	1332	5	35	E21	N12	1327:30	5	7		
"	" 9	1328	1335	7	58	E20	N07	1331	6	8		
"	" 9	1335	1353	18	30	E62	N12	1336	10	5		
"	" 9	1424	1435	11	30	W39	S09	1426	11	5		
"	" 9	1520	1540	20	35	E24	N11	1525	22	4		
"	" 9	1543	1615	32	30	E16	N07	1547	11	8		
"	" 9	2327	2350	23	93	E12	N07	2332	23	4		
"	" 10	1775	1820	25	35	E14	N08	1805	10	7		
"	" 11	1455	1504	9	26	W07	N09	1458	6	7		
Schauins.	" 11	1610		20		W00	N10					
Sac.Peak	" 11	2022	2050	28	35	W00	N13	2026	8	8		Yes
"	" 11	2110	2150	40	93	W05	N17	2120	10	5		
Stockholm	" 13	0642				W15	N15				3	
Meudon	" 13	0710				E65	S15				2	

Table 81 (Continued)

Solar Flares, June 1951

Observatory	Date 1951	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Longitude Diff (Deg)	Position Latitude	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac.Peak	Jun. 13	--	1630	--	25	W14	N21	1530	6	9		
Wendelst.	" 15	0719	0951	--	824	W42	N11	0814			2+	
Sac.Peak	" 15	1705	1855	110	146	E45	N15	1751	18	6		
"	" 15	1724	1820	56	40	E46	N23	1751	7	5		
"	" 15	2325	--	--	107	E31	S12	2404	18	5		
"	" 15	2402	--	--	70	W29	N09	2409	8	4		
Schauins.	" 16	1420		34		E30	S10					Yes
Sac.Peak	" 16	1435	1530	55	110	E26	S11	1446	15	2		"
McMath	" 16	1450				E25	S14				2	"
Sac.Peak	" 17	1710	1830	80	47	E10	S12	1715	15	2		
"	" 17	1740	1805	25	30	W69	N15	1744	10	8		
"	" 17	1810	1855	45	59	E18	S11	1825	8	6		
"	" 17	2140	2315	95	118	E07	S12	2235	12	2		
"	" 17	2200	2215	15	82	W72	N15	2205	10	4		
Wendelst.	" 18	0842	0907	--	291	E12	S14	0856			2-	
"	" 18	1044	1059	--	340	W04	S14	1042			2	
McMath	" 19	1305				W13	S12				1	Yes
Sac.Peak	" 19	--	1432	--	59	W11	S15	1418	8	7		
"	" 19	1620	1655	35	70	W18	S11	1628	18	3		Yes
"	" 19	1745	1757	12	29	W90	N16	1750	10	3		Yes
"	" 19	2340	--	--	106	W23	S11	2348	15	2		Yes
"	" 20	1855	1925	30	128	E29	N17	1904	12	3		
McMath	" 20	1910				E27	N15				1	
Wendelst.	" 21	0838	0941	--	291	W46	S14	0846			2	
McMath	" 21	1300				W40	S14				1-	
Wendelst.	" 21	--	1325	--	291	W34	S11	1312			2-	
Sac.Peak	" 22	1650	1730	40	53	W68	S08	1700	8	6		Yes
Wendelst.	" 23	0748	0834	--	388	W57	S12	0759			2	
Sac.Peak	" 23	1550	1625	35	115	W15	N16	1601	20	4		
"	" 24	1402	1500	58	221	W80	S18	1405	14	4		Yes
"	" 24	2125	2230	65	267	W81	S15	2126	18	4		Yes
"	" 28	2024	2255	151	274	W17	N15	2055	10	5		
"	" 28	2315	2330	15	21	W85	N16	2320	6	4		

Sac.Peak = Sacramento Peak; Wendelst. = Wendelstein; Schauins. = Schauinsland.

Table 82

Zürich Provisional Relative Sunspot Numbers

July 1951

Date	R_Z*	Date	R_Z*
1	17	17	45
2	16	18	48
3	36	19	40
4	50	20	33
5	32	21	26
6	56	22	28
7	69	23	70
8	86	24	78
9	105	25	61
10	109	26	52
11	112	27	60
12	96	28	79
13	95	29	61
14	92	30	66
15	90	31	58
16	40	Mean:	61.5

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

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

Table 83

Indices of Geomagnetic Activity for June 1951

Preliminary values of mean K-indices, Kw, from 37 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	Final Sel. Days
1	2.4 2.7 2.6 2.7 3.6 3.6 3.5 2.9	24.0	1.0	2+3+3o3- 4-4+4o3o	26+	Five
2	2.1 3.4 3.1 3.1 3.6 3.2 3.6 3.2	25.3	1.0	2o4-4-3o 4-4-4+4-	28-	Quiet
3	4.2 2.3 1.8 1.8 3.1 1.2 1.6 1.5	17.5	0.8	4+2+2+2o 3+1-1o2-	18-	
4	1.5 1.6 2.0 1.6 2.5 3.0 2.0 2.8	17.0	0.6	1+2-2+2- 3-3-2o3o	17+	10
5	2.8 2.7 1.8 1.4 2.1 2.5 2.3 2.3	17.9	0.6	3o2+2+1o 2o3-2+3-	18+	20
						22
6	2.2 2.8 4.6 4.2 3.8 2.9 2.2 1.8	24.5	1.1	2+3o6-5o 4+3o2+2-	27+	23
7	2.5 3.5 2.5 1.7 3.4 1.9 1.7 2.2	19.4	0.6	3-4-3o2- 4-2-2o2+	21-	24
8	3.1 3.6 2.5 1.9 2.9 3.7 2.9 2.7	23.3	1.0	3+4+3o2o 3+4+3o3o	26+	
9	3.5 2.6 1.7 2.3 3.1 3.4 0.4 0.8	17.8	0.7	4o3o2o3- 3+3+0+1o	20-	
10	1.0 0.7 0.8 2.4 3.1 2.5 2.1 1.4	14.0	0.5	1-0+0+2+ 3+2+2o1+	13-	
11	2.1 2.5 1.7 2.3 2.2 3.1 3.0 2.8	19.7	0.7	2o3-2o3- 2+4-3+3o	22-	Five
12	3.3 2.4 3.0 2.6 2.5 2.3 3.0 2.5	21.6	0.7	4o3-3+3o 3-2o3o3-	23+	Dist.
13	2.5 1.6 3.0 2.8 3.4 1.7 1.8 2.2	19.0	0.7	3-2o3o3+ 4o2-2-2+	21-	
14	0.9 1.1 0.4 1.2 0.9 3.8 4.6 4.6	17.5	1.3	1o1+0o1+ 1o4o6-6-	20o	6
15	3.6 2.9 3.3 2.8 3.3 3.4 3.5 3.0	26.3	1.1	4o4-4o3+ 5-4+4o4-	32-	17
						18
16	3.5 2.3 2.7 2.9 2.7 3.0 2.8 2.5	22.4	0.8	4o2o3o3o 3+3o3+3-	24+	19
17	2.3 1.5 1.3 1.0 0.9 4.3 3.6 6.3	21.2	1.4	2+1+2-1o 1-5-4+8o	24o	25
18	5.3 5.2 5.1 3.7 3.3 3.5 2.1 3.2	31.9	1.6	7+7-6-4+ 3o4-2+4-	37-	
19	3.1 5.1 4.1 4.0 2.8 4.3 2.3 2.0	27.7	1.3	3+6o5o5+ 3o5+3-2+	33o	
20	2.8 1.4 1.1 1.8 1.6 1.2 0.9 3.3	14.1	0.4	3+1+1o2- 1+1-1-4-	14-	Ten
						Quiet
21	2.1 2.4 3.3 1.7 2.6 2.7 1.5 1.9	18.2	0.6	2o3-4o2+ 3-3o1+2o	20o	
22	1.9 1.8 1.6 2.4 2.5 2.0 2.1 2.3	16.6	0.3	2+2-2-3- 3o2+2+2+	18+	4
23	2.8 1.9 1.7 1.0 1.2 1.3 1.3 1.6	12.8	0.2	3o2-2o1- 1-1+1+2o	13-	5
24	1.5 1.3 1.1 2.4 2.1 1.1 2.1 2.3	13.9	0.2	2-1+1+3- 2+1o2+3-	15+	10
25	2.4 3.4 3.4 3.7 4.6 4.6 4.0 3.4	29.5	1.4	3o4o4+4+ 6-5+5-4o	35+	20
						21
26	3.1 3.2 2.7 2.5 2.4 1.9 2.3 1.8	19.9	0.6	3o4-4-3- 2+2-3o2o	22o	22
27	2.0 2.5 3.4 1.6 2.3 3.8 2.1 2.7	20.4	0.8	2o3-4o2- 2+4+3-3o	23-	23
28	2.6 2.6 2.9 2.6 2.9 2.3 2.2 2.9	21.0	0.8	3-3o3o3- 3o2o2o3+	22-	24
29	2.7 2.2 1.3 1.8 2.9 2.3 3.2 2.4	18.8	0.7	3-2+1+1+ 3+3-3+3-	20-	29
30	2.5 2.6 2.6 2.5 2.0 1.8 2.8 1.4	18.2	0.6	3-3o3o3- 2+2o3o1+	20o	30
Mean	2.63 2.53 2.44 2.35 2.69 2.74 2.45 2.56	2.55	0.80			

Table 84

Sudden Ionosphere Disturbances Observed at Washington, D. C.

July 1951

1951 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
July 4	1402	1430	Ohio, D. C., Colombia, England, Mexico	0.05	
15	2315	2335	Ohio, D. C., Mexico	0.1	Terr.mag.pulse** 2315-2330
28	1708	1715	Ohio, D. C., Colombia	0.2	Solar flare*** 1700

*Ratio of received field intensity during SID to average field intensity before and after, for station KQ2XAU (formerly W8XAL), 6080 kilocycles, 600 kilometers distant.

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

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

Table 85

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed in England

1951 Day	GCT		Receiving station	Location of transmitters	Other phenomena
	Beginning	End			
June 16	1450	1500	Brentwood	Belgian Congo, Bulgaria, Canary Is., Greece, Malta, Portugal, Spain, Turkey	Solar flare 1435* 1450** 1420***
16	1448	1515	Somerton	Canada, Egypt, New York	Solar flare 1435* 1450** 1420***
18	0830	0855	Brentwood	Canary Is., Eritrea, Iran, Palestine, Portugal, Southern Rhodesia, Spain, Thailand, Trans-Jordan, Turkey, Zanzibar	Solar flare**** 0840
19	0945	1000	Brentwood	Canary Is., Greece, Southern Rhodesia, Thailand, Trans-Jordan, Yugoslavia, Zanzibar	
19	1310	1330	Brentwood	Barbados, Canary Is., Chile, Colombia, India, Iran, Spain	Solar flare** 1305
19	1305	1340	Somerton	Aden, Argentina, Brazil, Canada, Ceylon, Cyprus, Formosa, India, New York, Union of S. Africa	Solar flare** 1305
July 4	1408	1440	Somerton	Canada, New York	

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

Table 86

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
June					
7	1016	1021	München**, Lindau***, Wiesbaden I#	0.2	Terr.mag.pulse 1012-1030###
8	1506	1515	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.1	
11	0830	0840	München**, Lindau***, Wiesbaden I#	0.3	
13	0550	1110	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.0	
15	0813	0900	München**, Lindau***, Wiesbaden I#		
16	1441	1457	München**, Lindau***, Wiesbaden I#	0.1	
18	0822	0837	München**, Lindau***, Wiesbaden I#		
18	1043	1046	München**, Lindau***, Wiesbaden I#		
19	0948	0957	München**, Lindau***, Wiesbaden I#	0.3	
19	1300	1350	München**, Lindau***, Wiesbaden I#	0.06	
23	0541	0554	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.15	
24	1419	1441	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.1	
26	0552	0610	München**, Lindau***, Wiesbaden I#	0.01	

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

**Station Munchen, 6160 kilocycles.

***Station Lindau, 1780 kilocycles, pulse, transmitter and receiver at Lindau.

#Station Wiesbaden I, 2985 kilocycles.

##Station Wiesbaden II, 4760 kilocycles.

###As observed at Lindau.

Table 87

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

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

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
June 19	1254	----	British Guiana, England, Grenada, Jamaica, St. Lucia, St. Vincent, Trinidad	Solar flare* 1305

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

Table 88

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed at Colombo, Ceylon

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
May 10	1005	1040	England	Terr.mag.pulse* 0951-1020
18	1035	1220	England	Terr.mag.pulse* 1025-1130
21	0150	0200	China, India, Japan	
June 13	0555	0800	China, England, India, Japan	

*As observed at Lindau, Harz, Germany.

Table 89

Sudden Ionosphere Disturbances Reported by International Telephone and Telegraph Corporation, as Observed at Platanos, Argentina

1951 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
June				
6	1250	1350	New York	Solar flare* 1220
8	1508	1530	Bolivia, Brazil, Cuba, France, New York	Solar flare** 1503
19	1305	1340	Bolivia, Brazil, Cuba, Denmark, England, Germany, Italy, New York, Switzerland	Solar flare* 1305

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

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

Table 90

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc., as Observed at Point Reyes, California

1951 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
July				
15	2320	2345	Australia, China, French Indo-China, Hawaii, Japan, Korea, Philippine Is.	Terr.mag.pulse* 2315-2330

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

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

GRAPHS OF IONOSPHERIC DATA

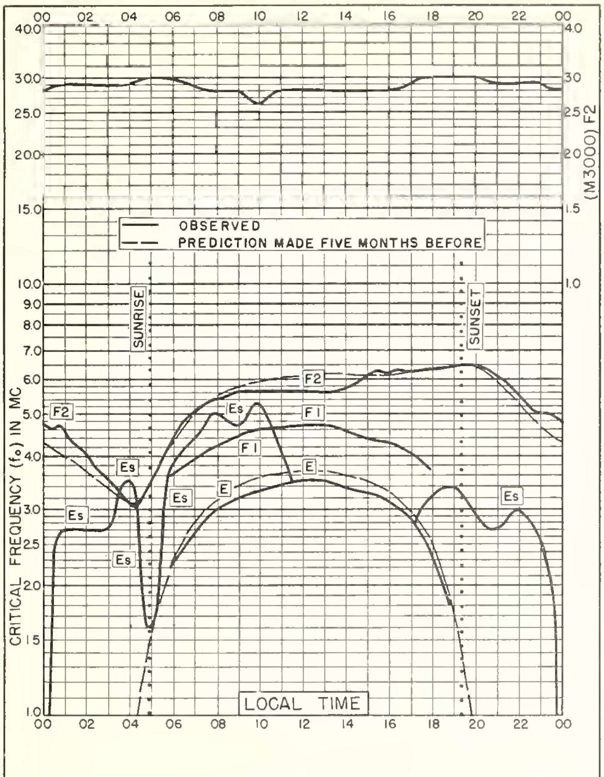

Fig. 1. WASHINGTON, D.C.
38.7°N, 77.1°W JULY 1951

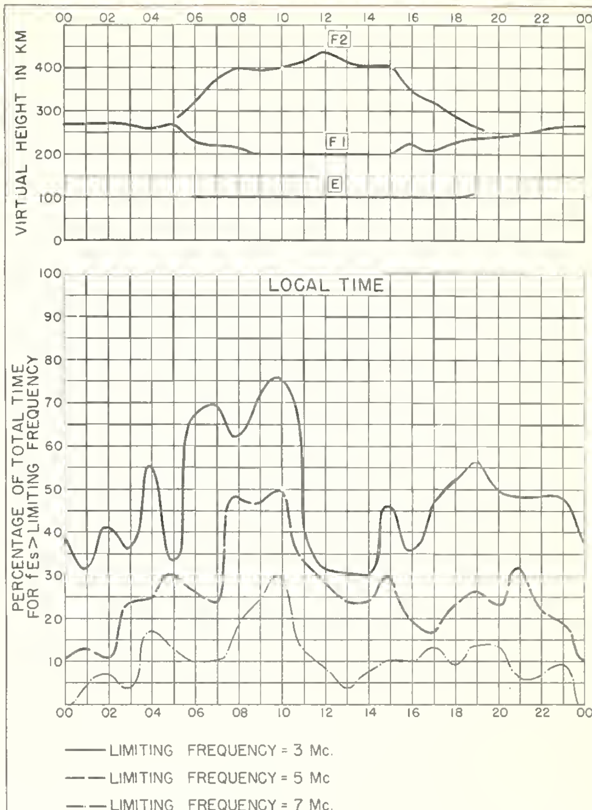

Fig. 2. WASHINGTON, D.C. JULY 1951

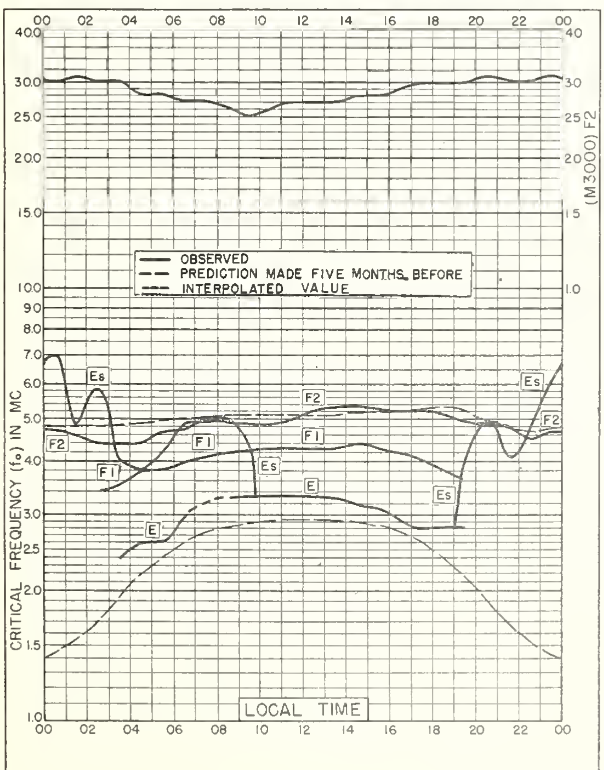

Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W JUNE 1951

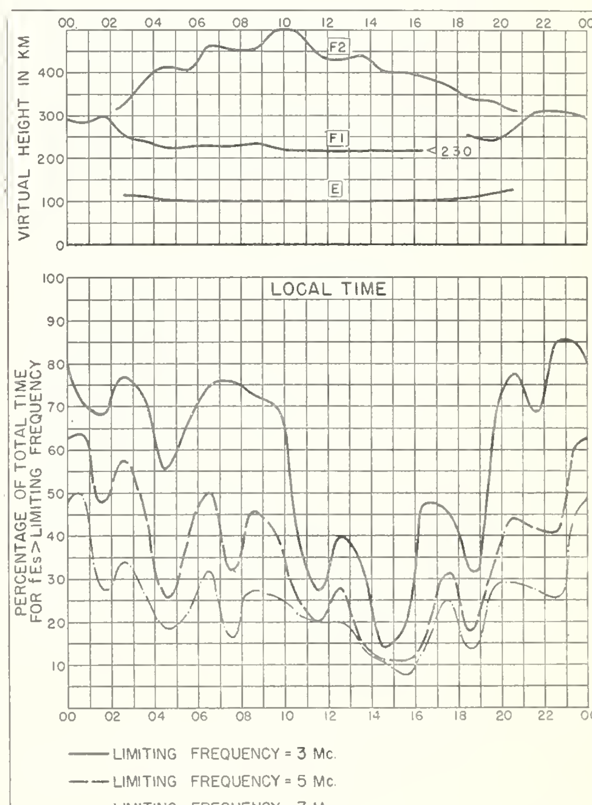

Fig. 4. POINT BARROW, ALASKA JUNE 1951

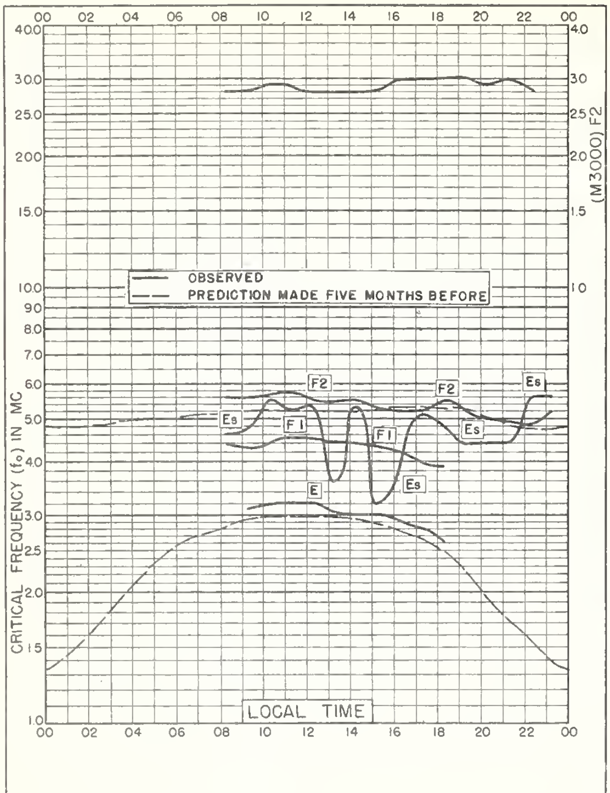

Fig. 5. TROMSO, NORWAY
69.7°N, 19.0°E JUNE 1951

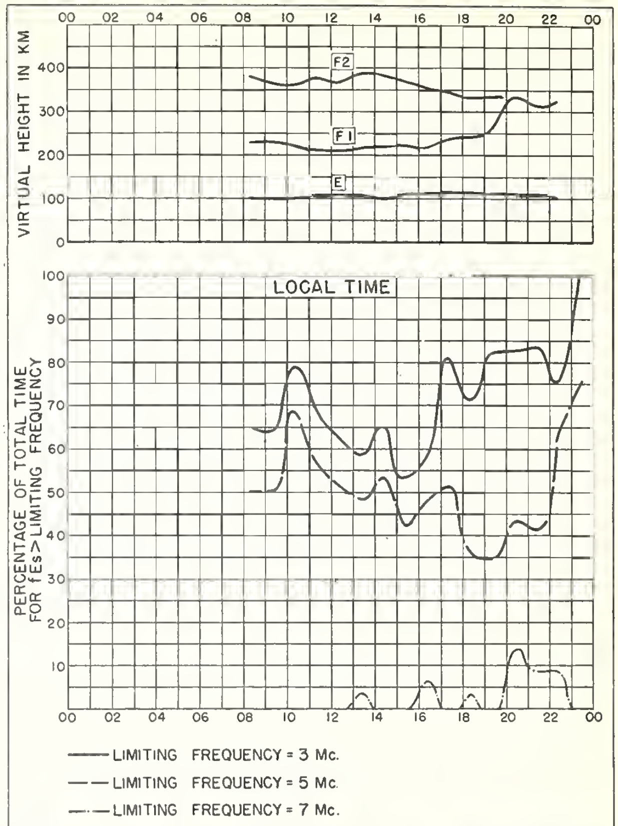

Fig. 6. TROMSO, NORWAY JUNE 1951

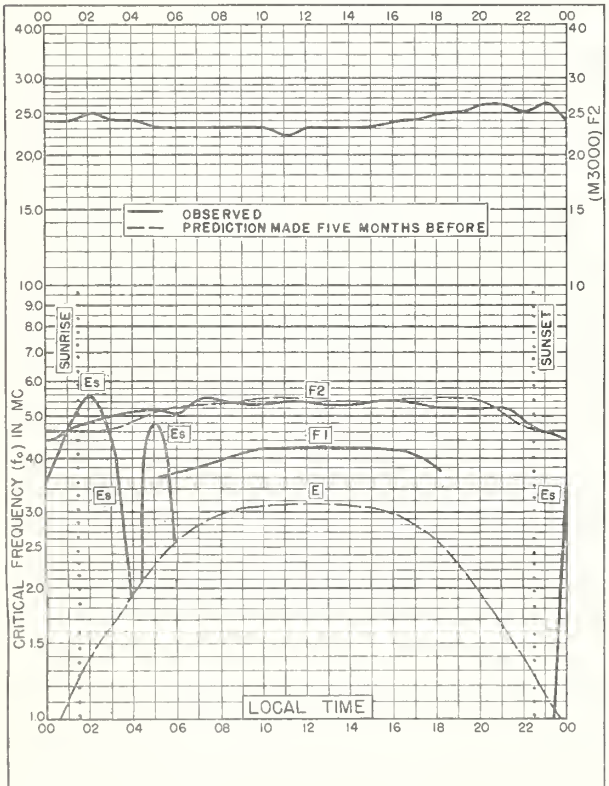

Fig. 7. FAIRBANKS, ALASKA
64.9°N, 147.8° W JUNE 1951

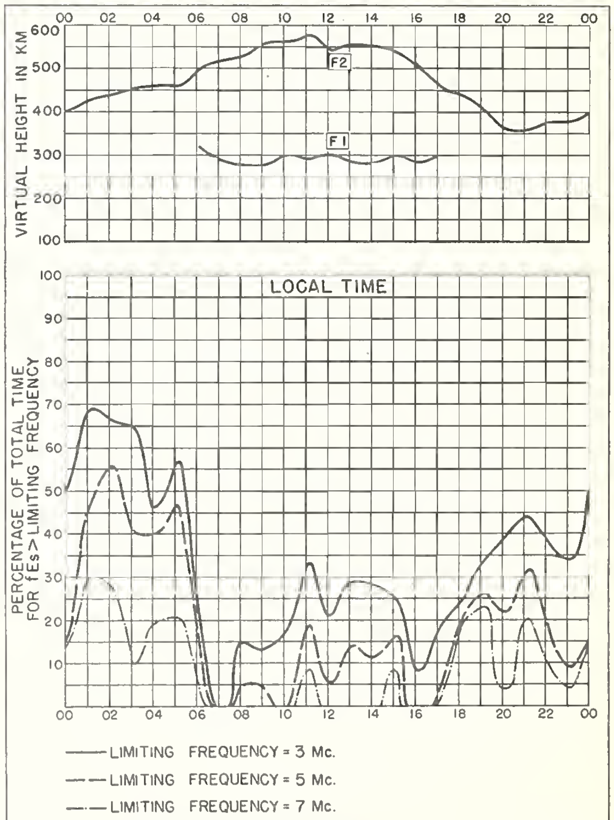

Fig. 8. FAIRBANKS, ALASKA JUNE 1951

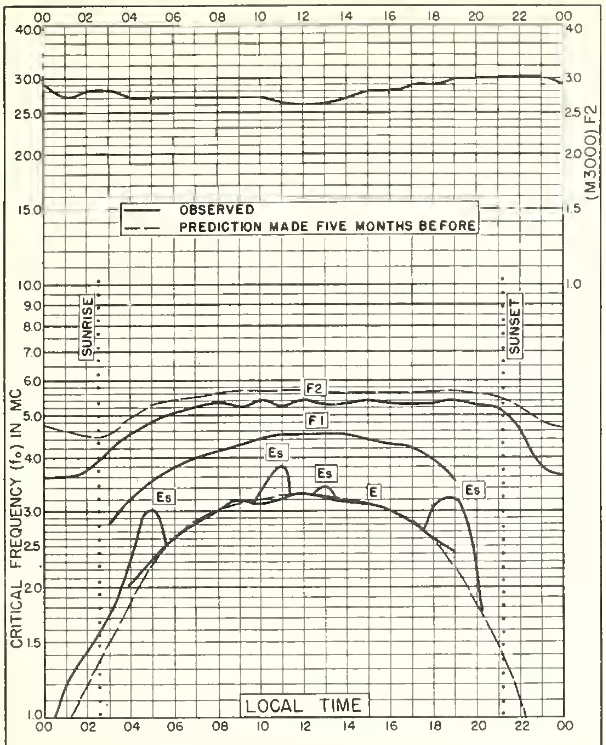

Fig. 9. ANCHORAGE, ALASKA
61.2°N, 149.9°W JUNE 1951

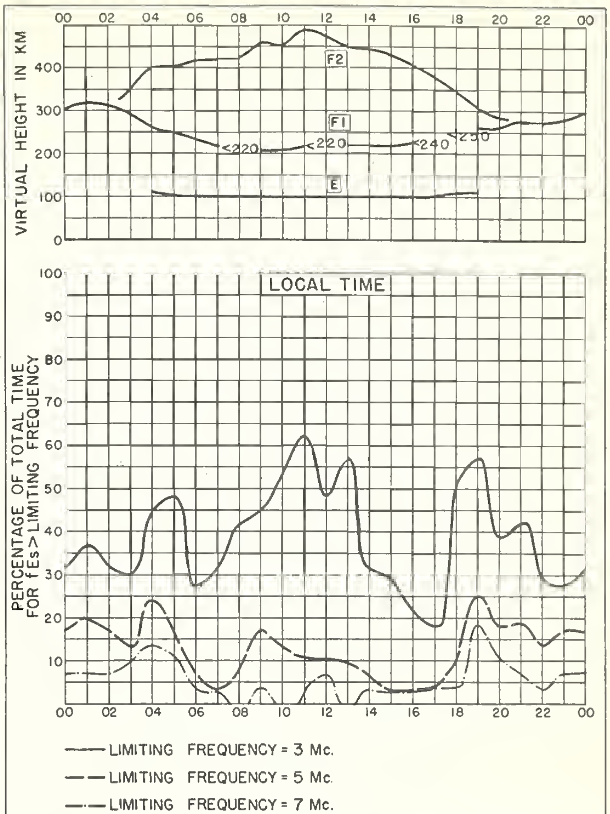

Fig. 10. ANCHORAGE, ALASKA JUNE 1951

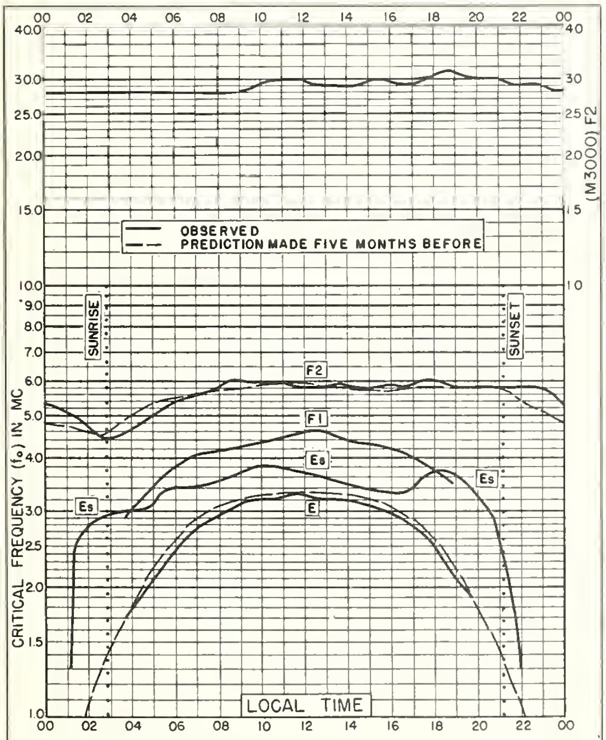

Fig. 11. OSLO, NORWAY
60.0°N, 11.0°E JUNE 1951

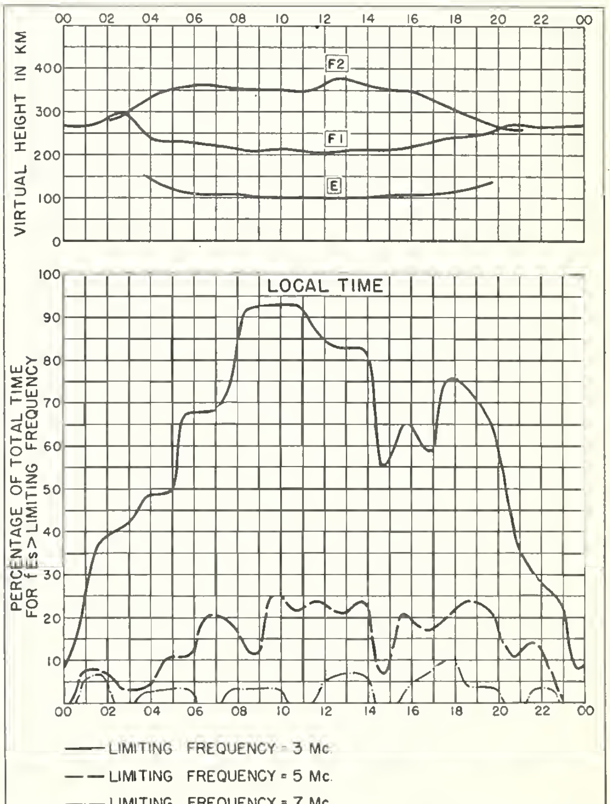

Fig. 12. OSLO, NORWAY JUNE 1951

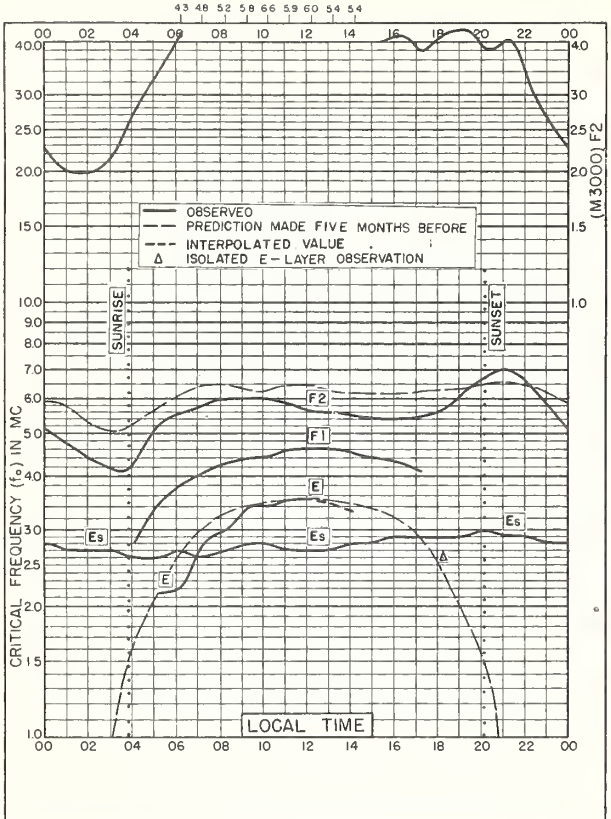

Fig. 13. ADAK, ALASKA
51.9°N, 176.6°W JUNE 1951

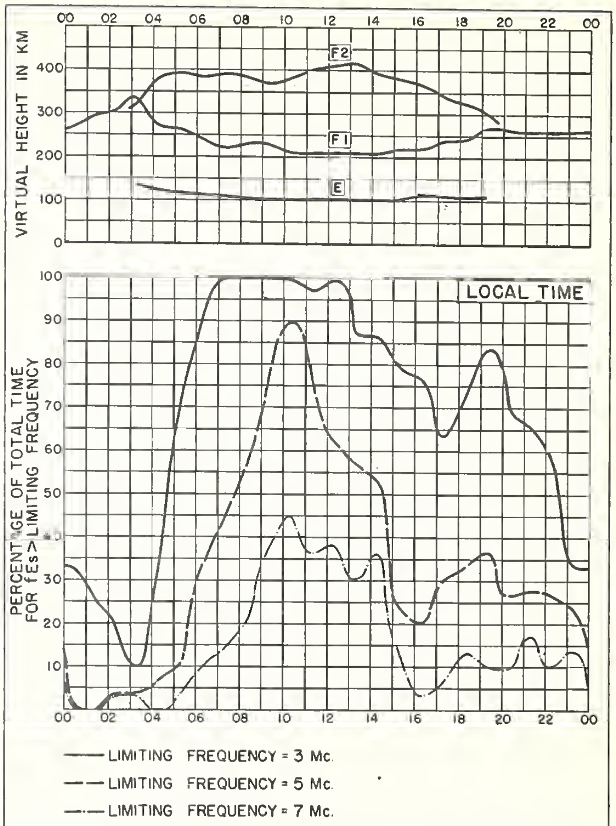

Fig. 14. ADAK, ALASKA JUNE 1951

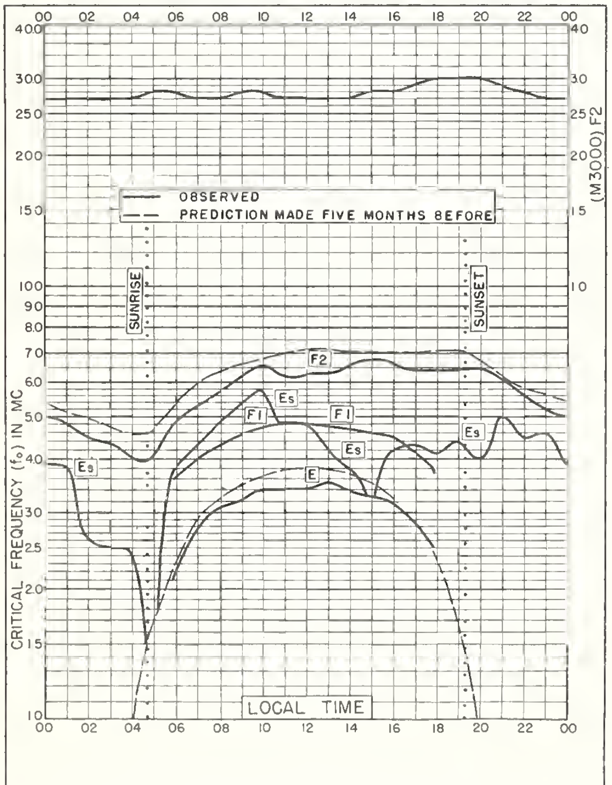

Fig. 15. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JUNE 1951

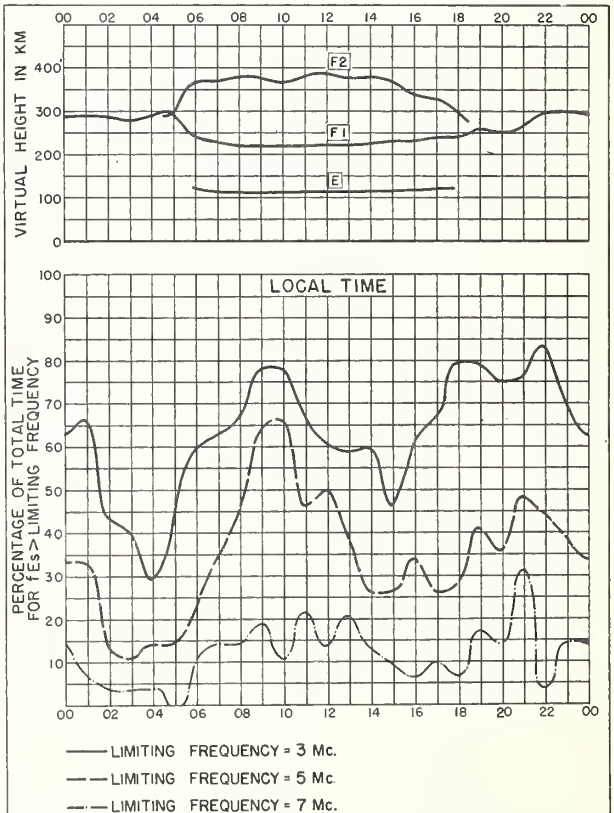

Fig. 16. SAN FRANCISCO, CALIFORNIA JUNE 1951

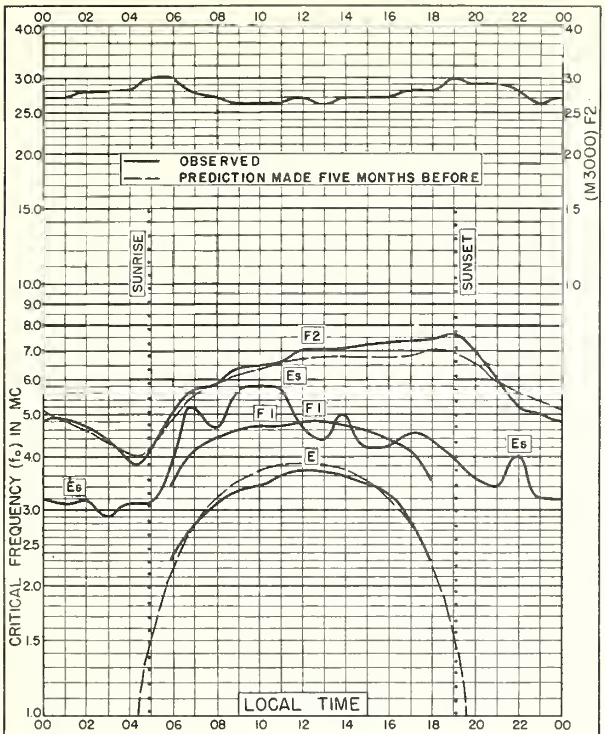

Fig. 17. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JUNE 1951

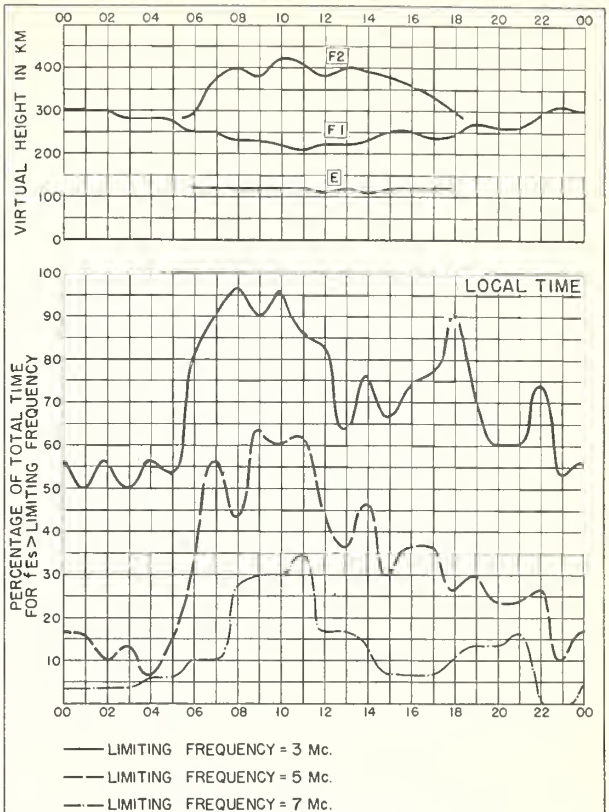

Fig. 18. WHITE SANDS, NEW MEXICO JUNE 1951

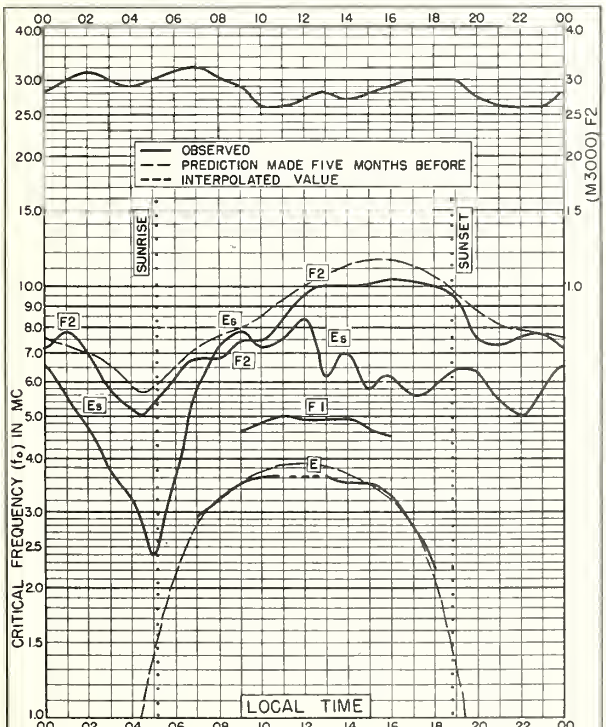

Fig. 19. OKINAWA I.
26.3°N, 127.8°E JUNE 1951

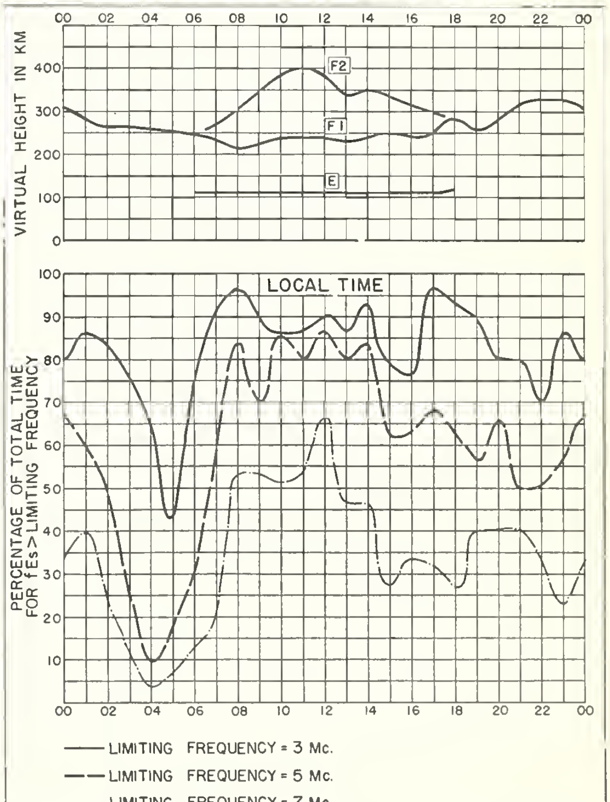

Fig. 20. OKINAWA I JUNE 1951

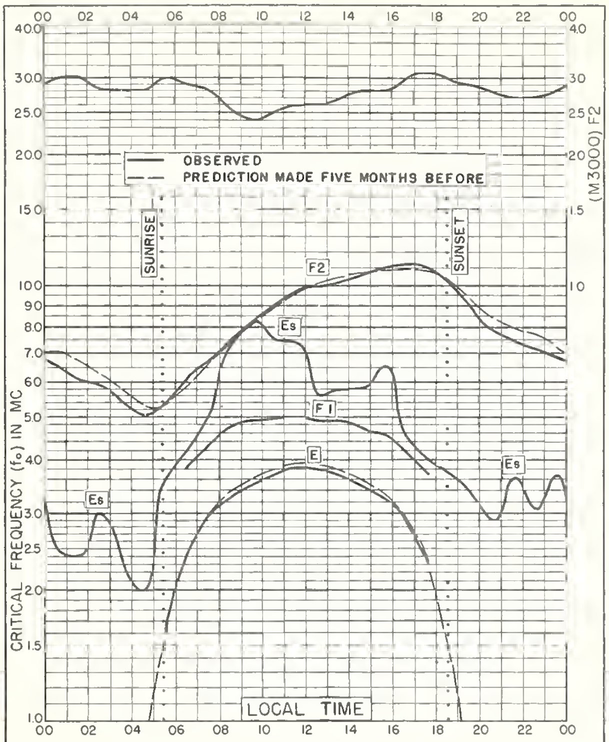

Fig. 21. MAUI, HAWAII
20.8°N, 156.5°W JUNE 1951

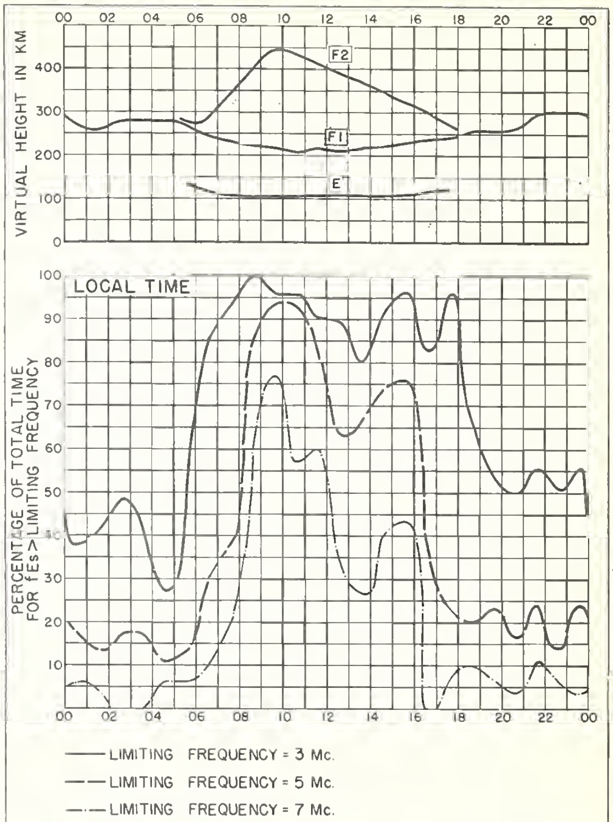

Fig. 22. MAUI, HAWAII JUNE 1951

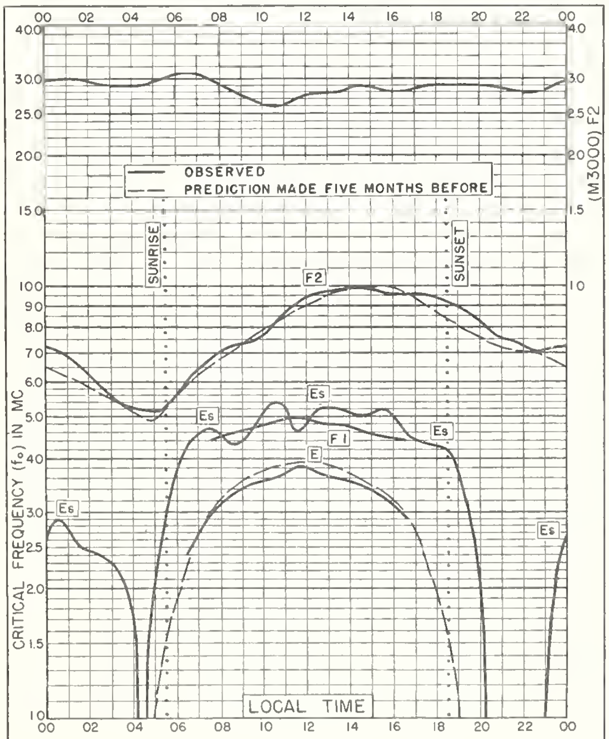

Fig. 23. PUERTO RICO
18.5°N, 67.15°W JUNE 1951

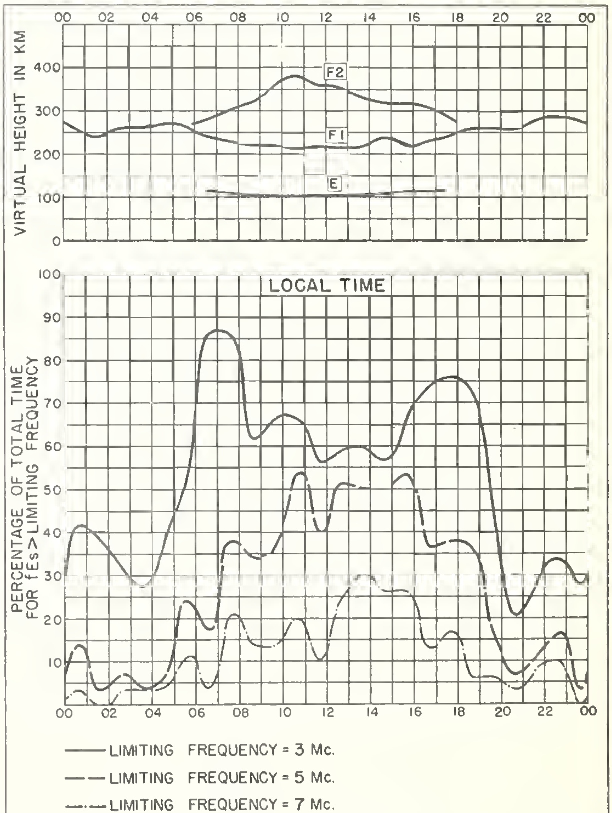

Fig. 24. PUERTO RICO JUNE 1951

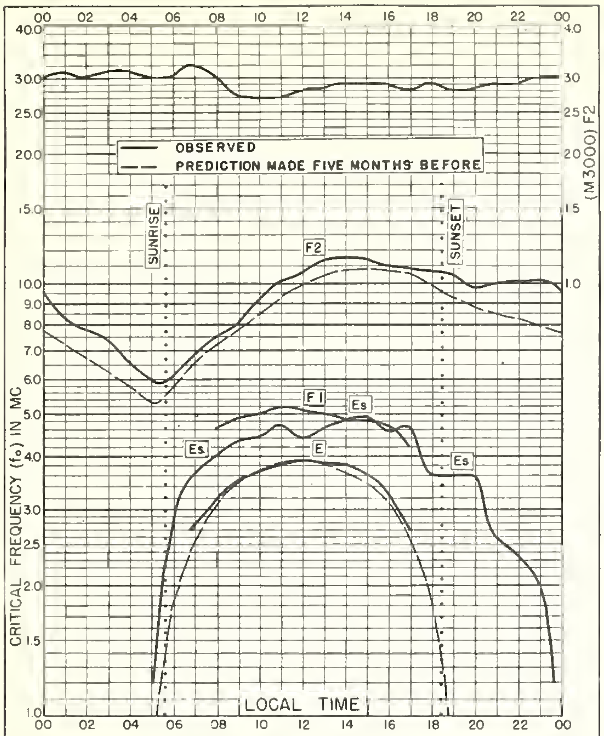

Fig. 25. TRINIDAD, BRIT. W. INDIES
10.7°N, 61.6°W JUNE 1951

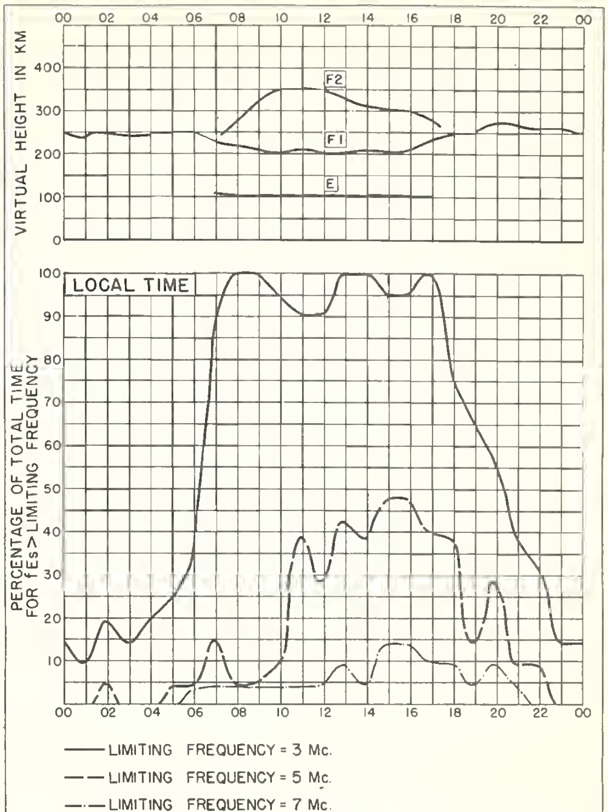

Fig. 26. TRINIDAD, BRIT. W. INDIES JUNE 1951

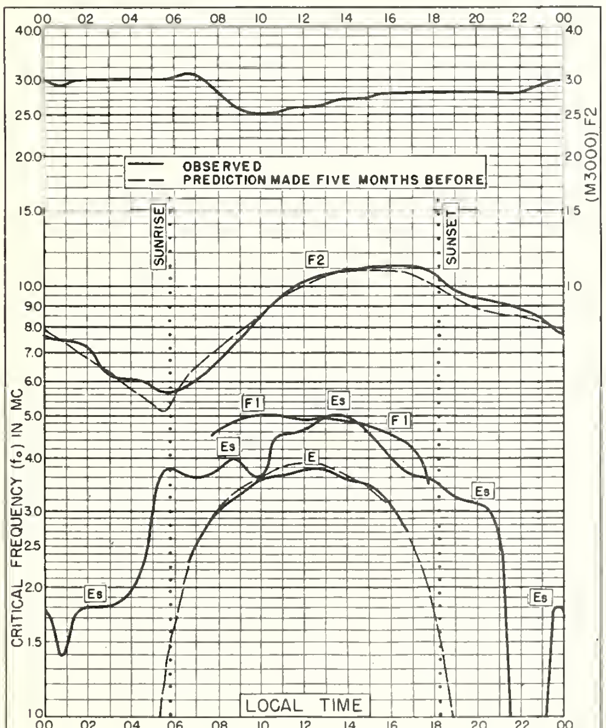

Fig. 27. PANAMA CANAL ZONE
9.4°N, 79.9°W JUNE 1951

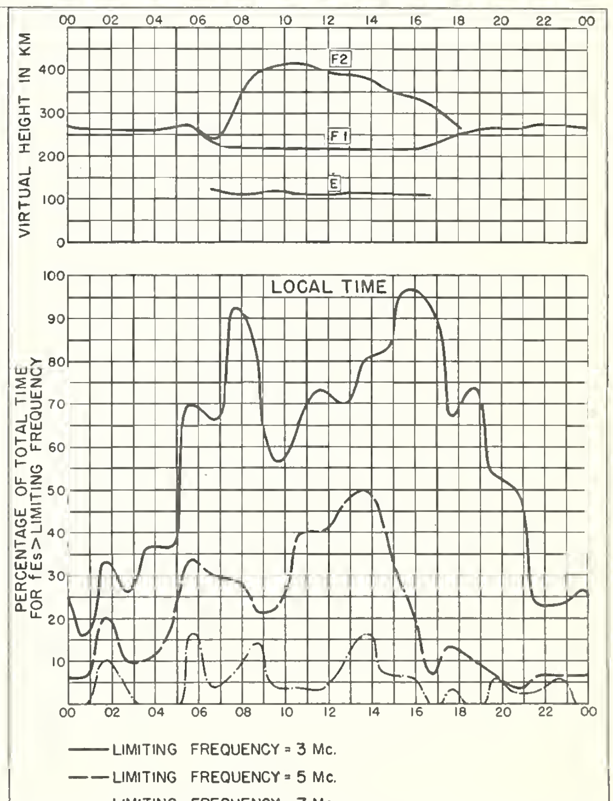

Fig. 28. PANAMA CANAL ZONE JUNE 1951

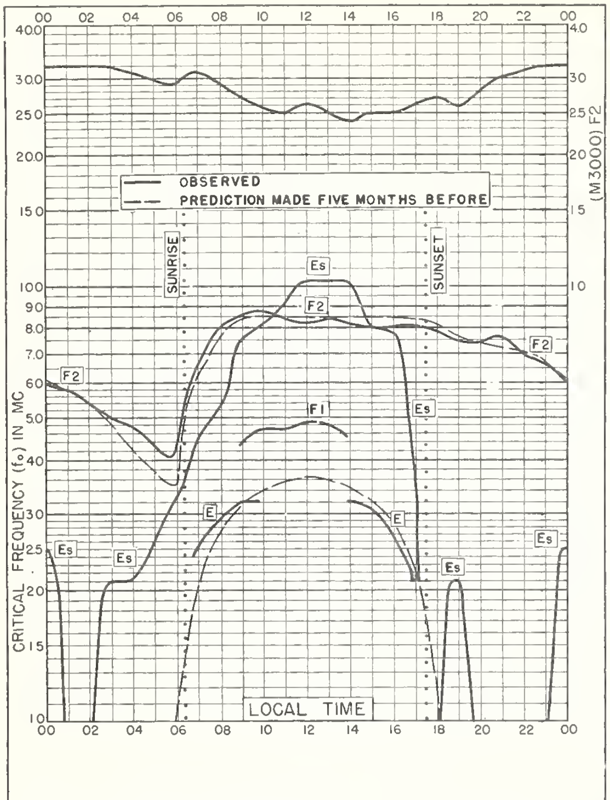

Fig. 29 HUANCAYO, PERU
12.0°S, 75.3°W JUNE 1951

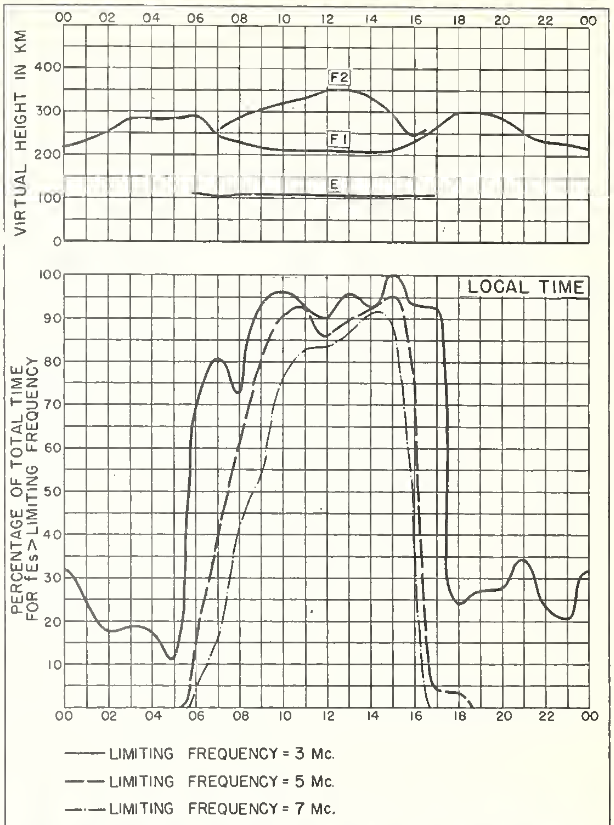

Fig. 30. HUANCAYO, PERU JUNE 1951

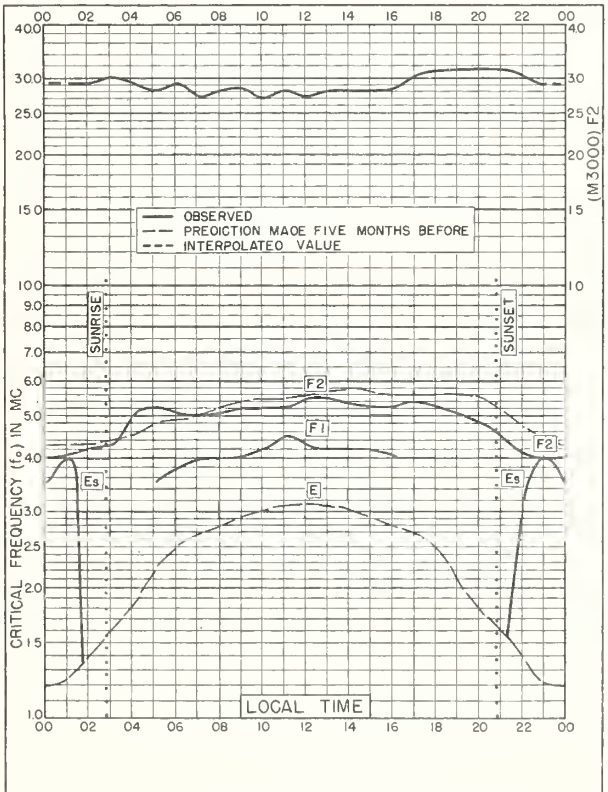

Fig. 31. FAIRBANKS, ALASKA
64.9°N, 147.8°W MAY 1951

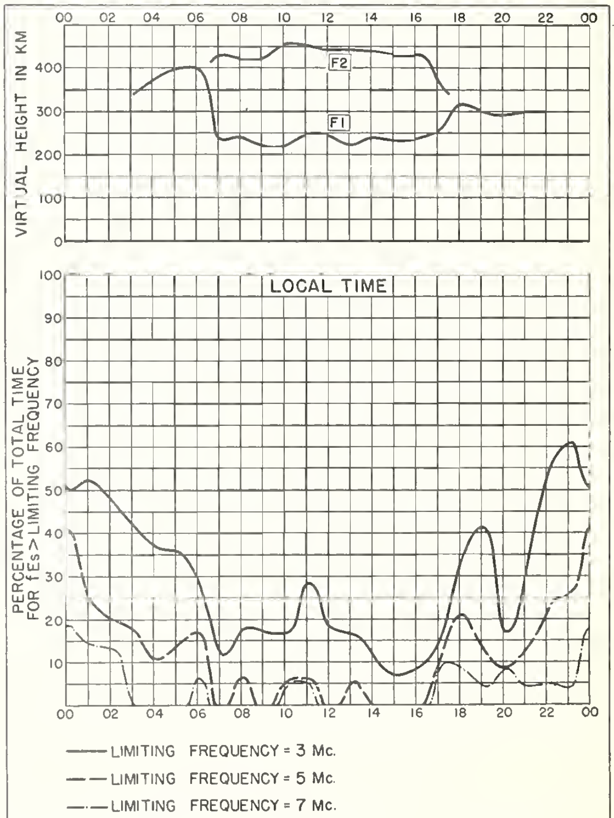

Fig. 32. FAIRBANKS, ALASKA MAY 1951

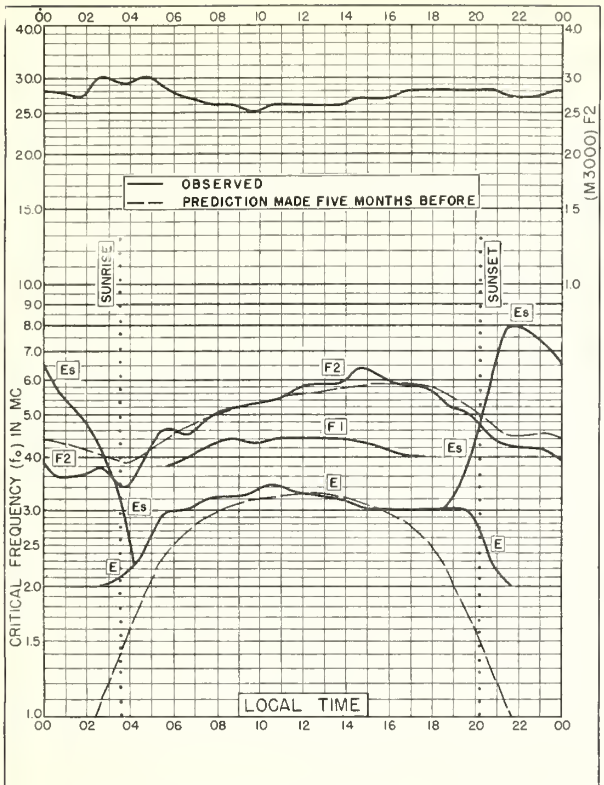

Fig. 33. CHURCHILL, CANADA
58.8°N, 94.2°W MAY 1951

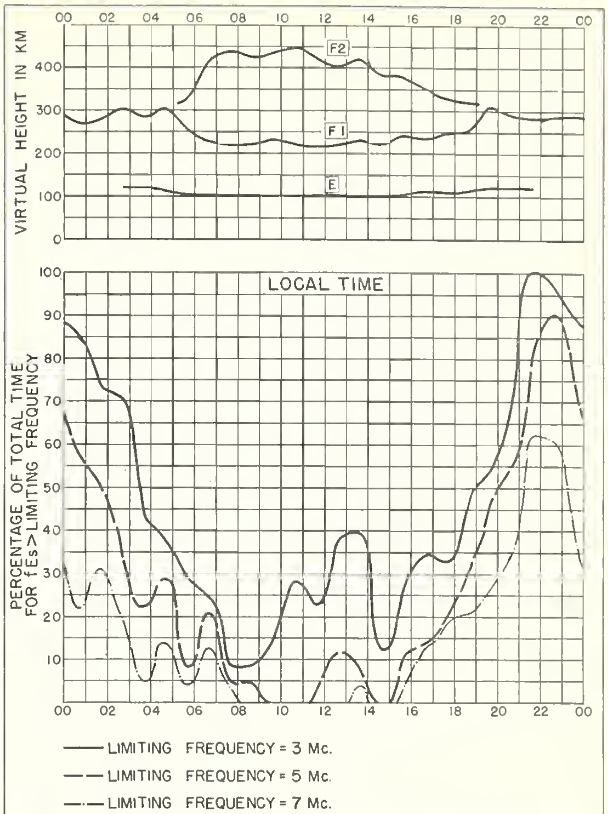

Fig. 34. CHURCHILL, CANADA MAY 1951

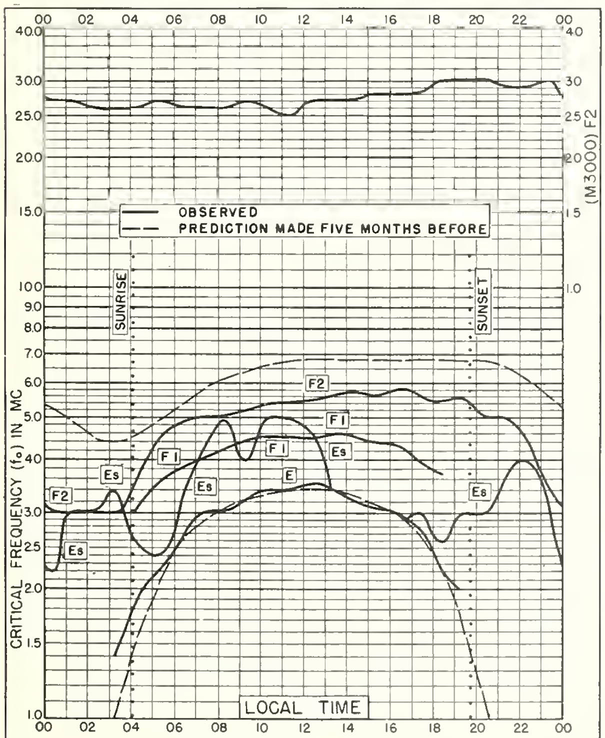

Fig. 35 PRINCE RUPERT, CANADA
54.3°N, 130.3°W MAY 1951

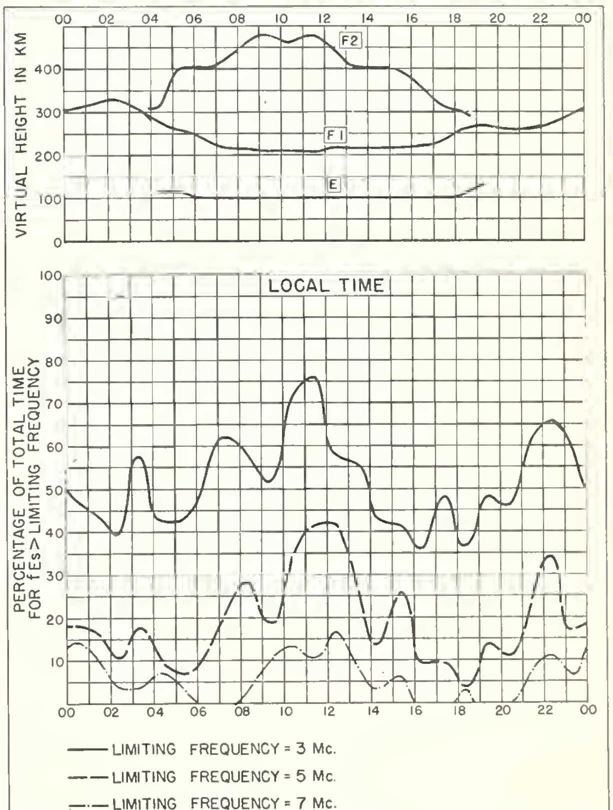

Fig. 36. PRINCE RUPERT, CANADA MAY 1951

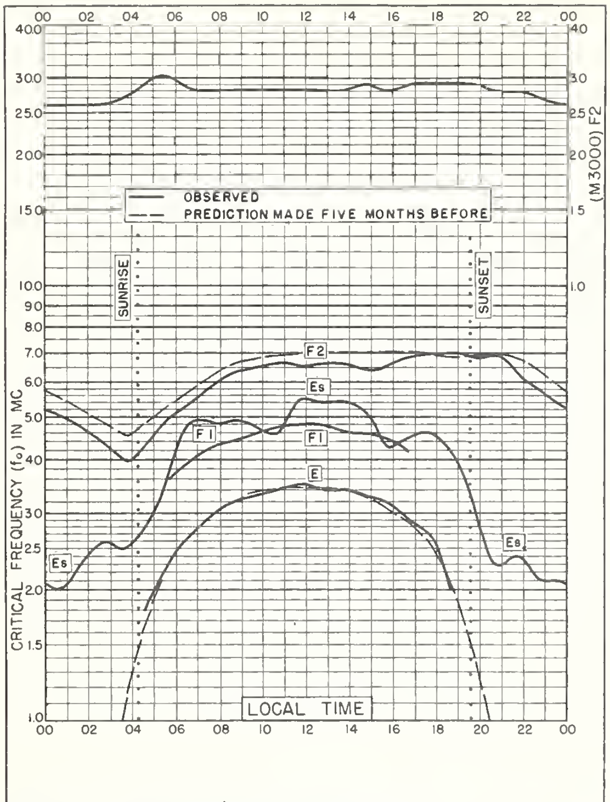

Fig. 37. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E MAY 1951

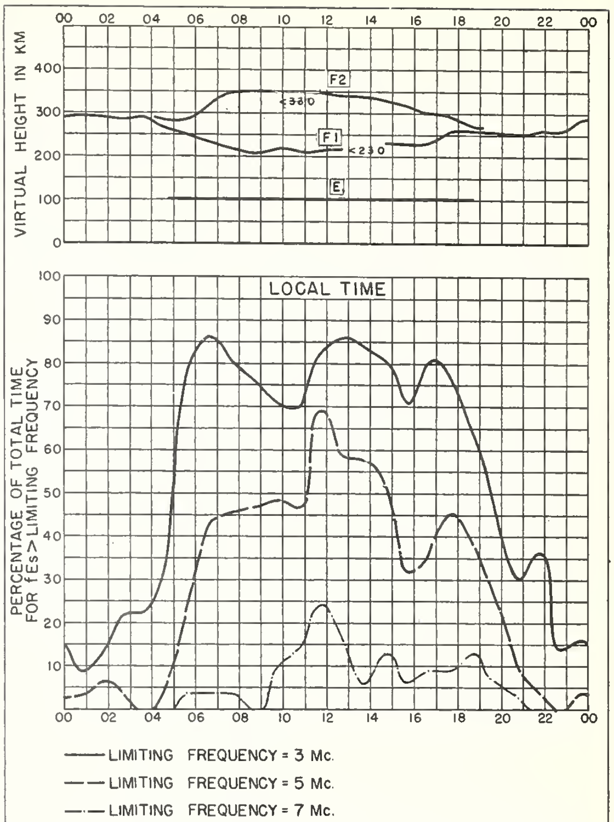

Fig. 38. LINDAU/HARZ, GERMANY MAY 1951

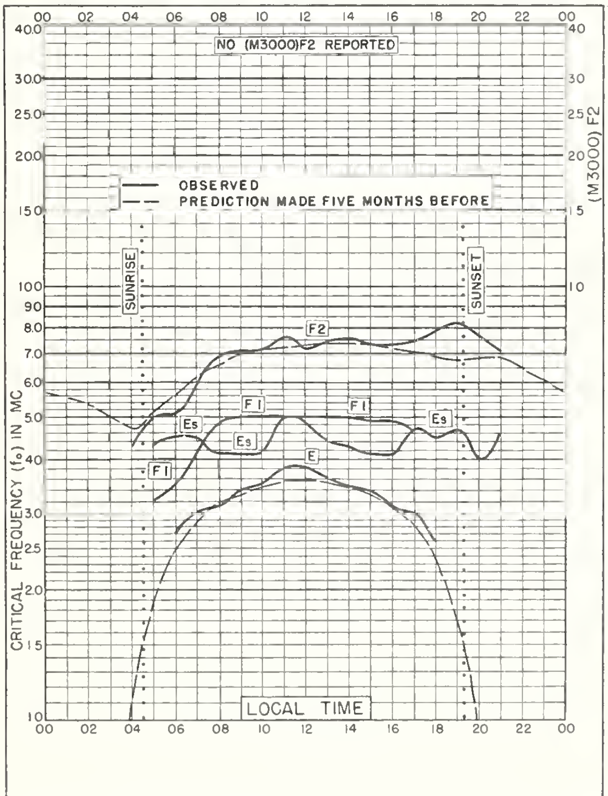

Fig. 39. GRAZ, AUSTRIA
47.1°N, 15.5°E MAY 1951

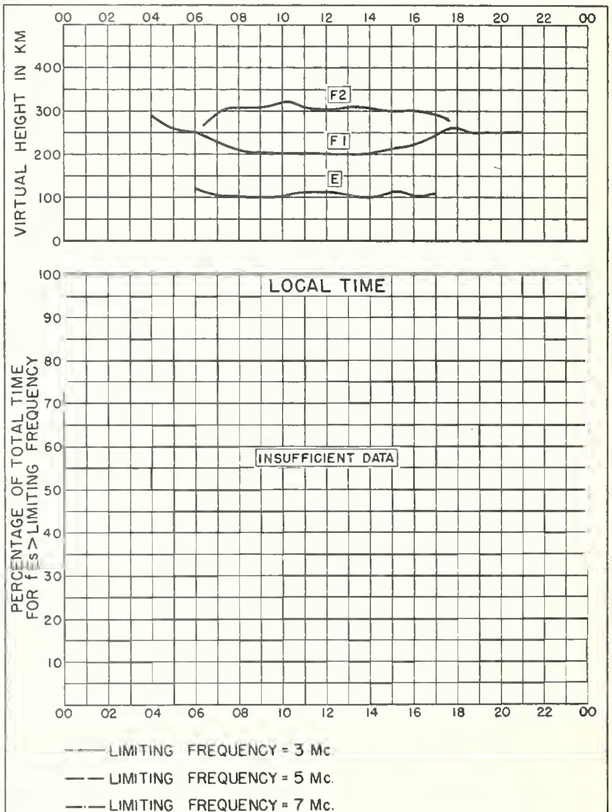

Fig. 40. GRAZ, AUSTRIA MAY 1951

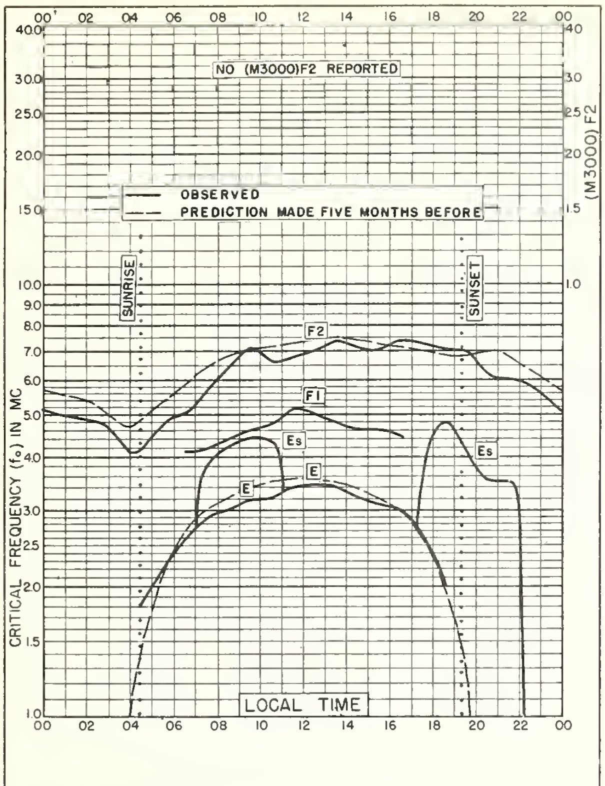

Fig. 41. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MAY 1951

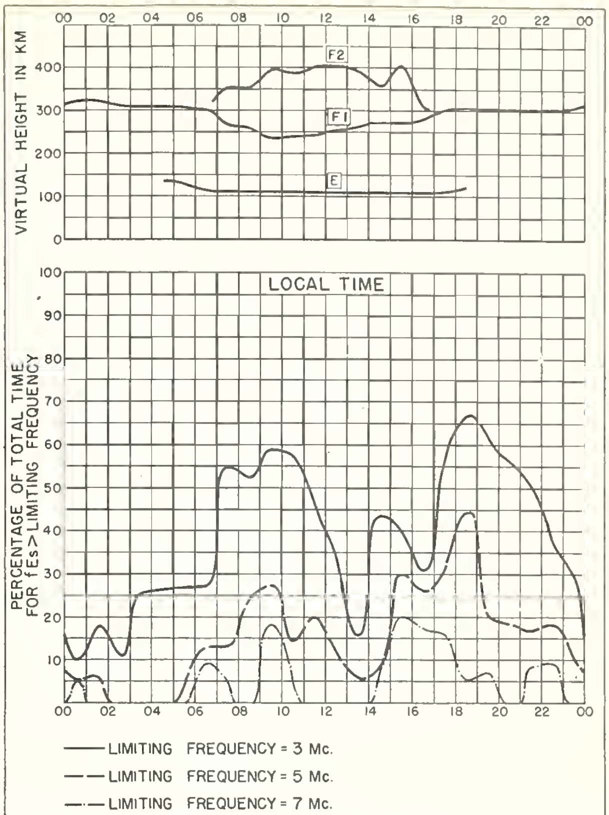

Fig. 42. SCHWARZENBURG, SWITZERLAND MAY 1951

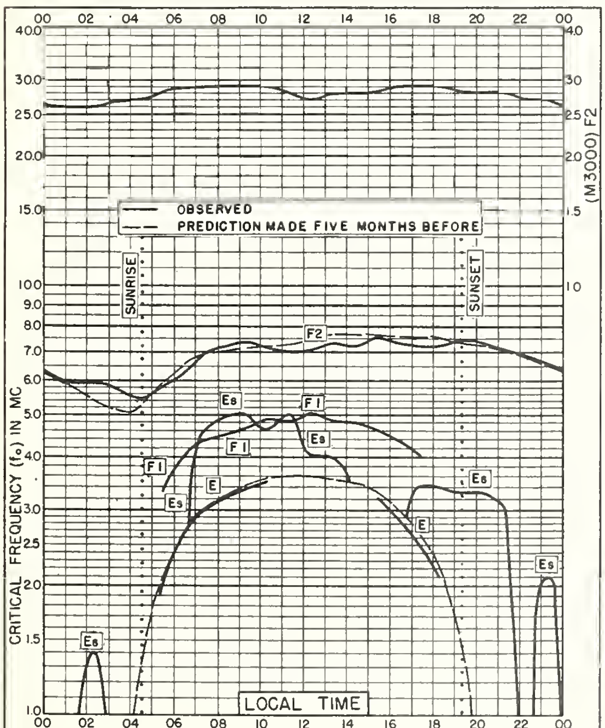

Fig. 43. WAKKANAI, JAPAN
45.4°N, 141 7°E MAY 1951

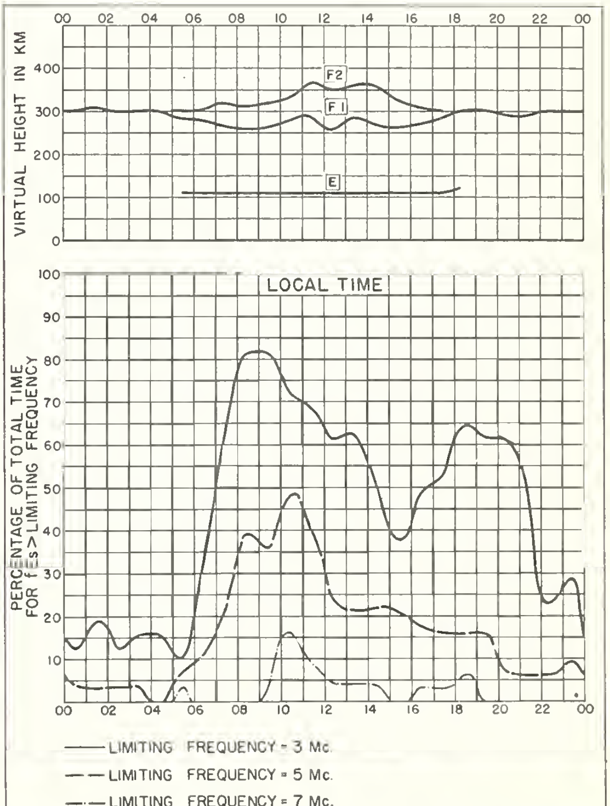

Fig. 44. WAKKANAI, JAPAN MAY 1951

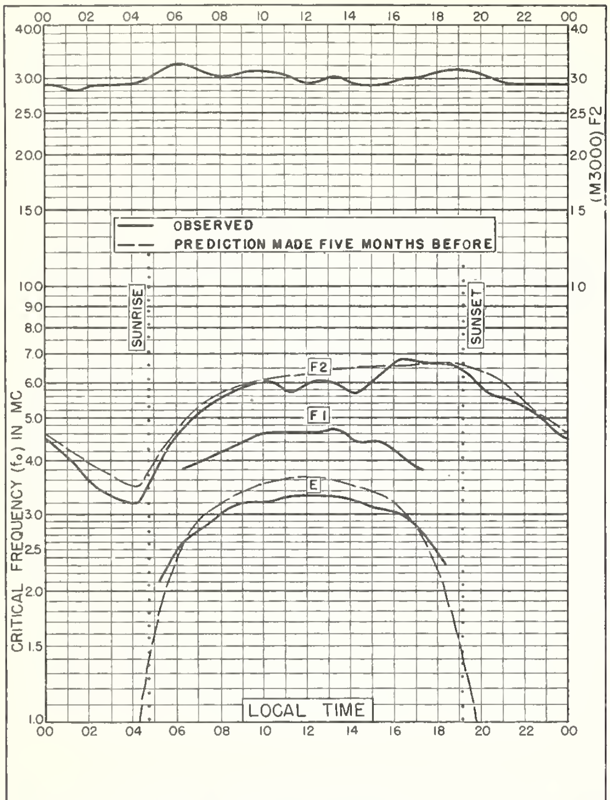

Fig. 45. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W MAY 1951

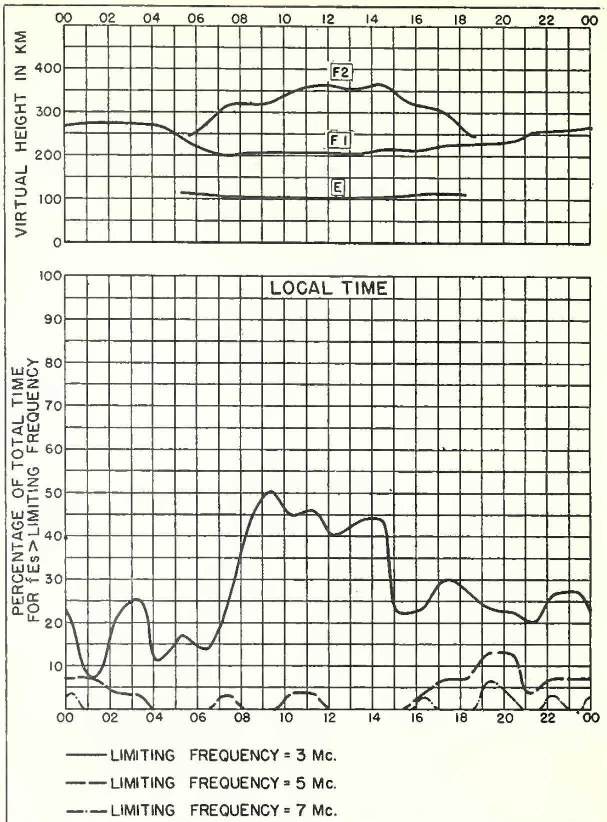

Fig. 46. BOSTON, MASSACHUSETTS MAY 1951

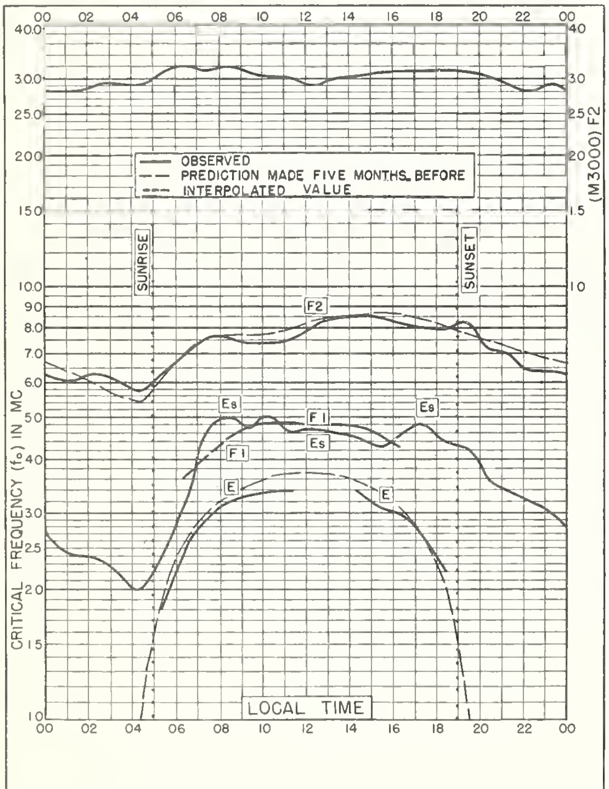

Fig. 47. AKITA, JAPAN
39.7°N, 140.1°E MAY 1951

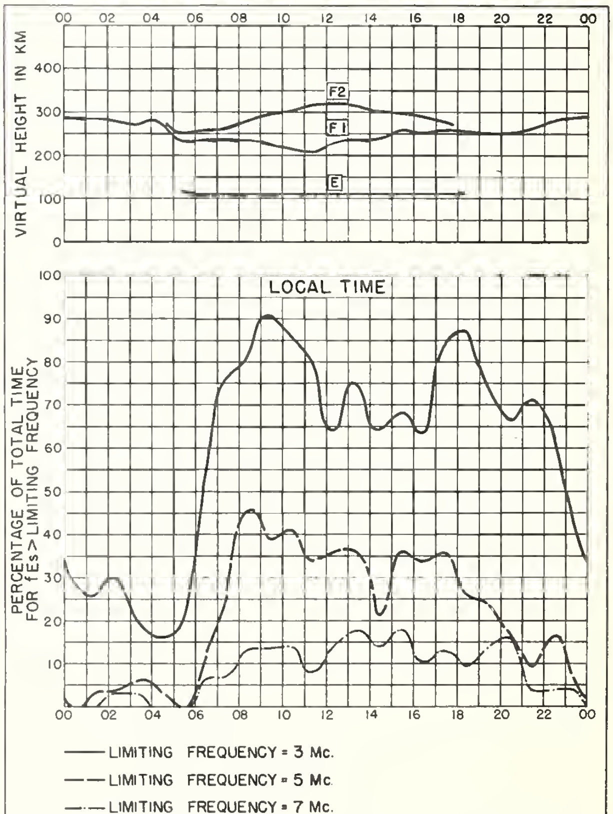

Fig. 48. AKITA, JAPAN MAY 1951

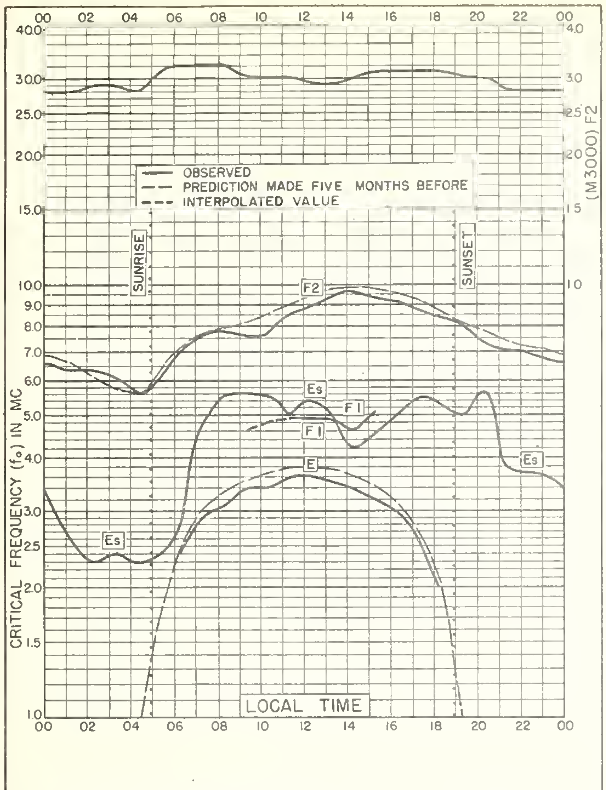

Fig. 49. TOKYO, JAPAN
35.7°N, 139.5°E MAY 1951

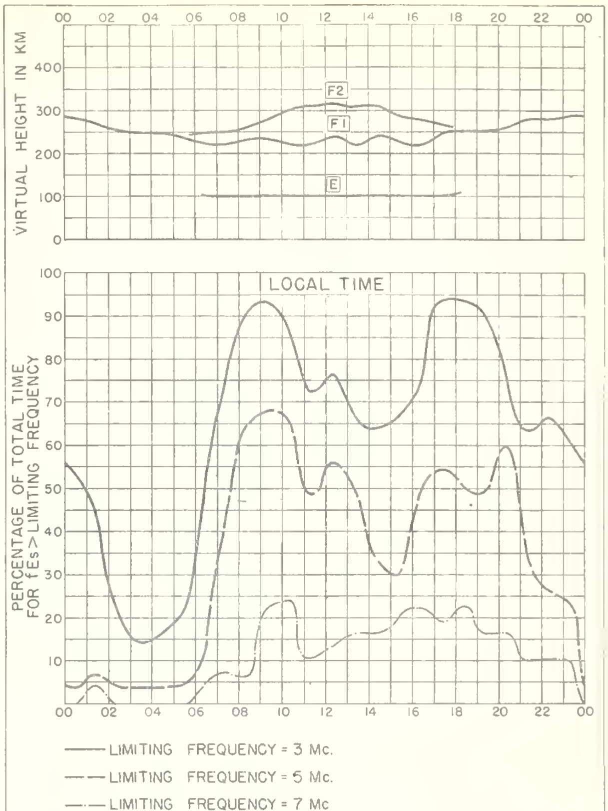

Fig. 50. TOKYO, JAPAN MAY 1951

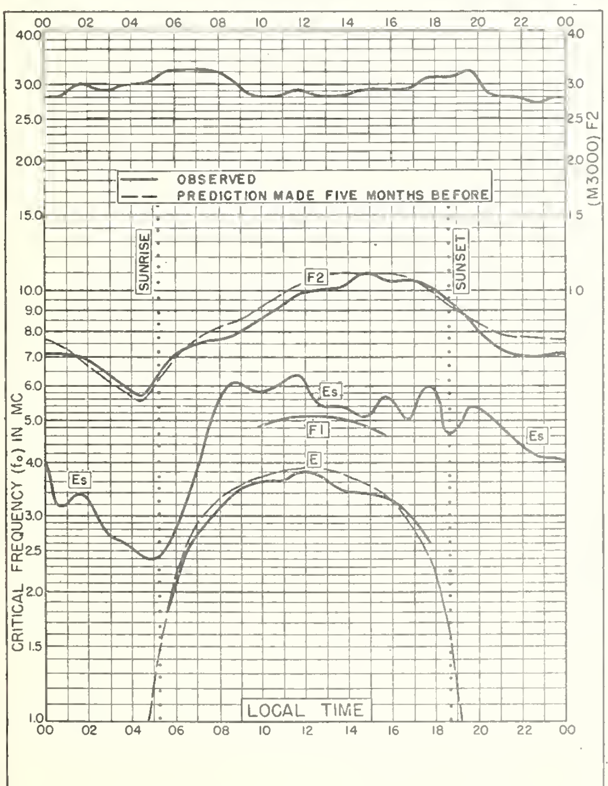

Fig. 51. YAMAGAWA, JAPAN
31.2°N, 130.6°E MAY 1951

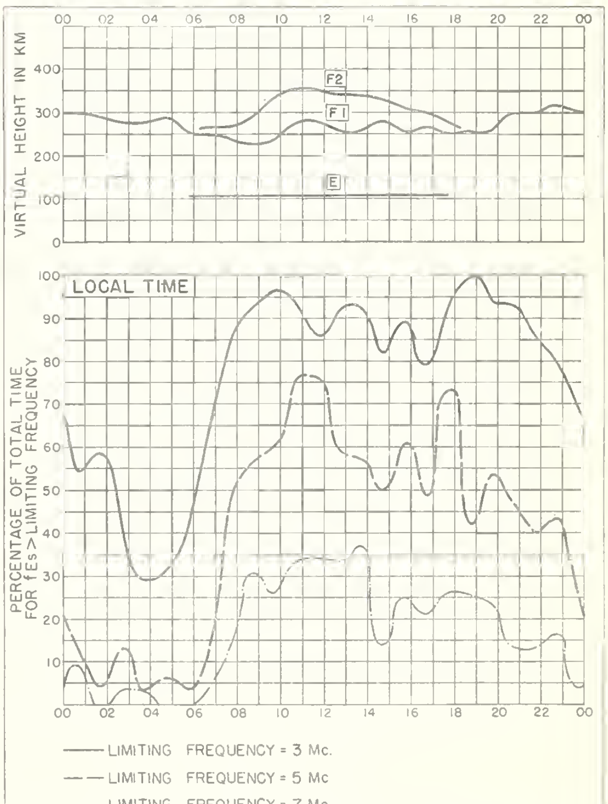

Fig. 52. YAMAGAWA, JAPAN MAY 1951

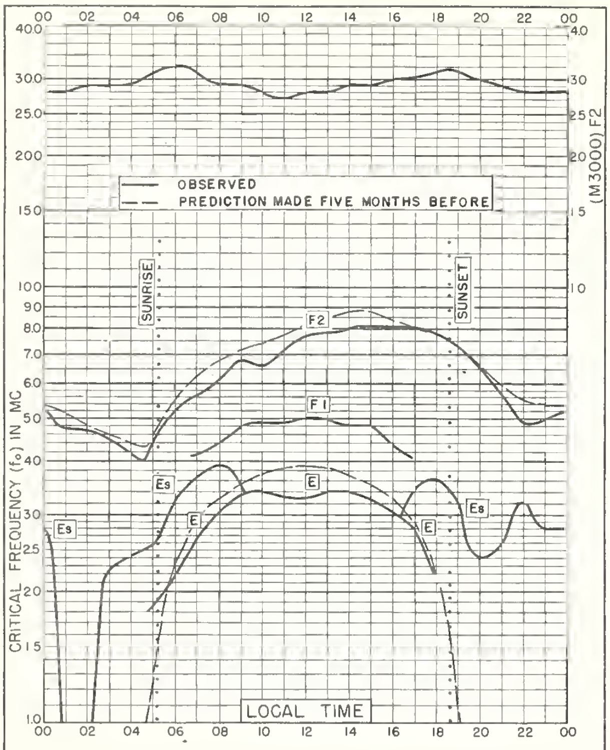

Fig. 53. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W MAY 1951

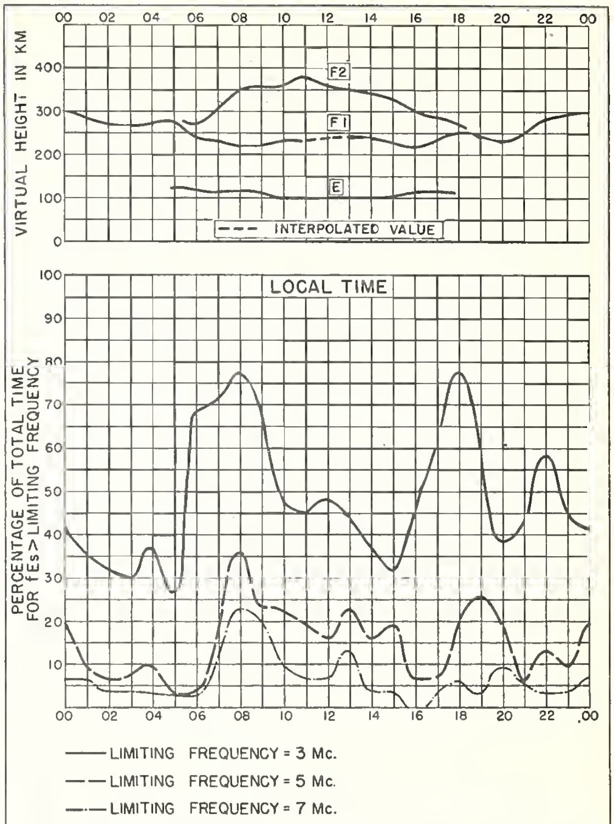

Fig. 54. BATON ROUGE, LOUISIANA MAY 1951

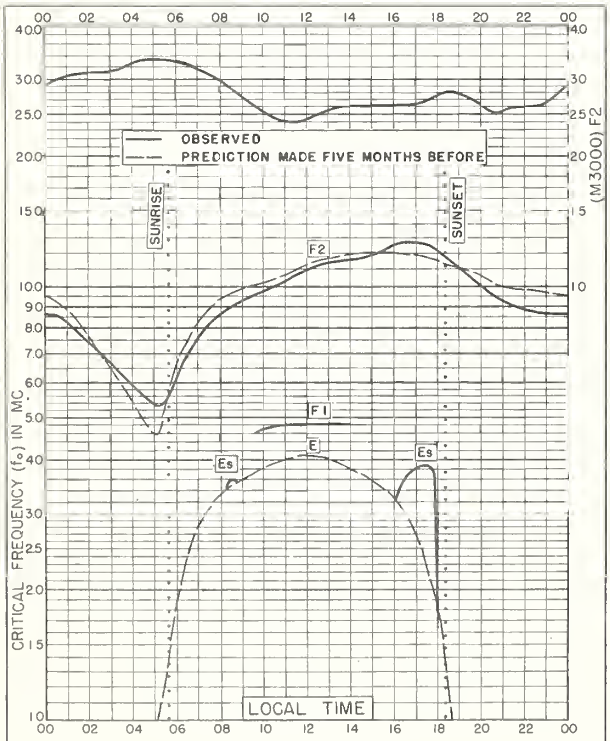

Fig. 55. GUAM I.
13.6°N, 144.9°E MAY 1951

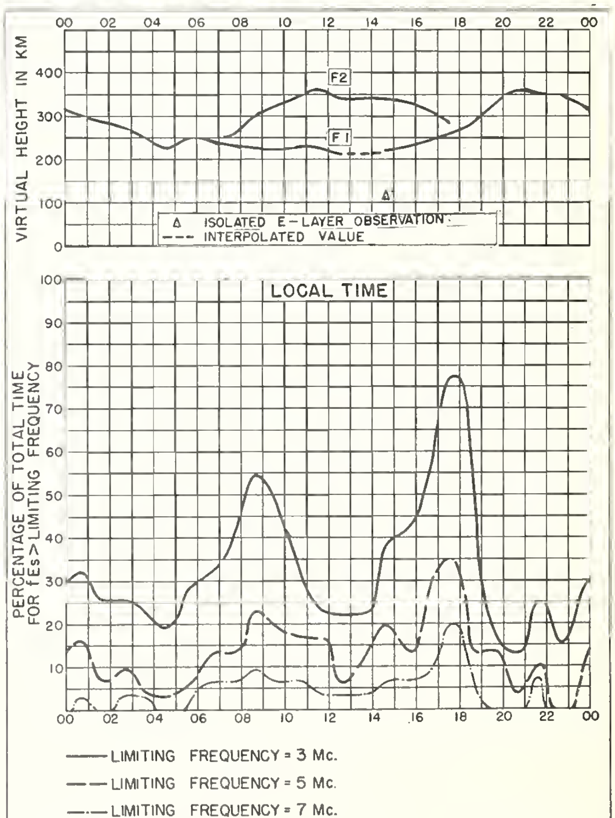

Fig. 56. GUAM I. MAY 1951

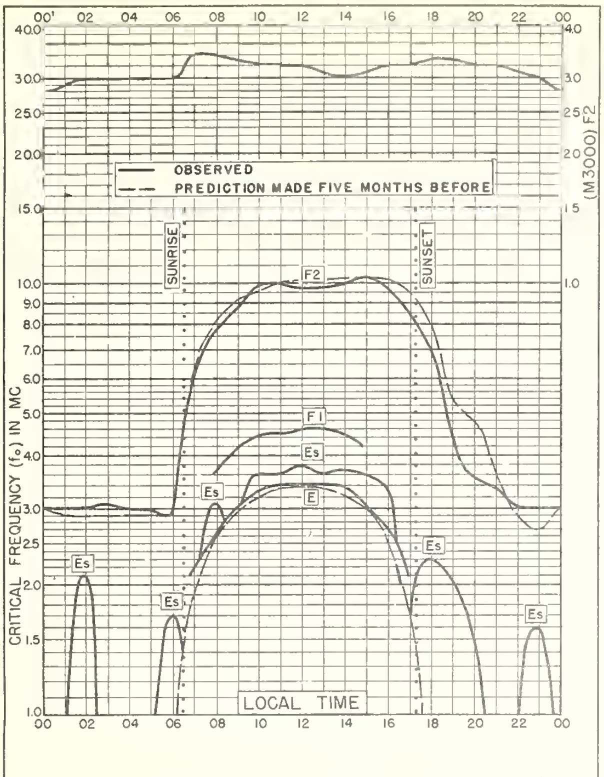

Fig. 57. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E MAY 1951

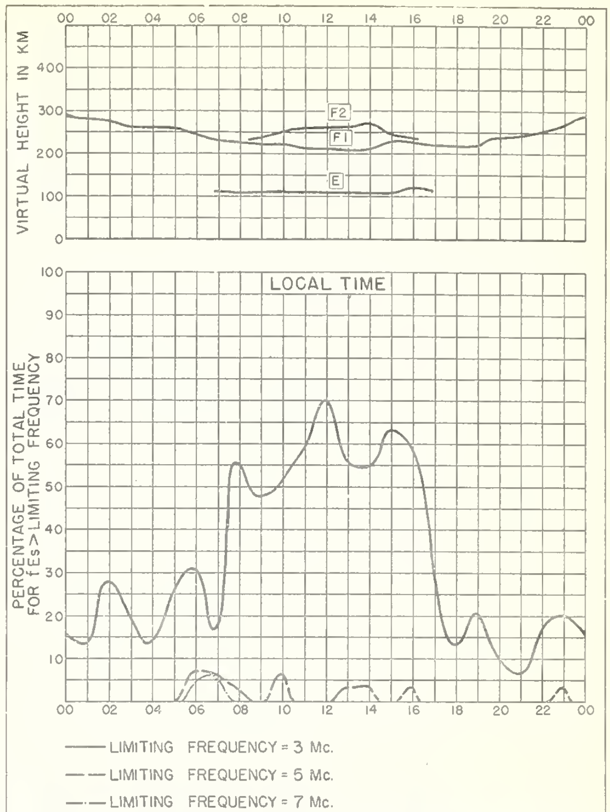

Fig. 58. JOHANNESBURG, U. OF S. AFRICA MAY 1951

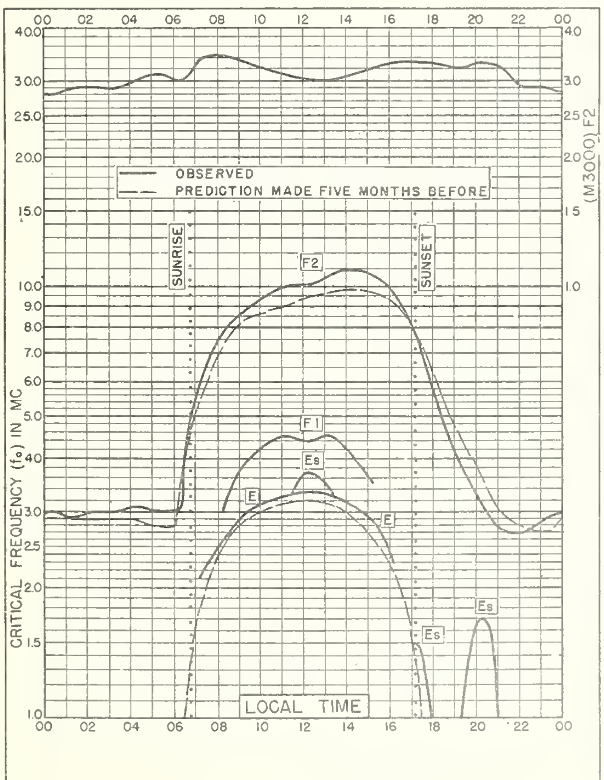

Fig. 59 CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E MAY 1951

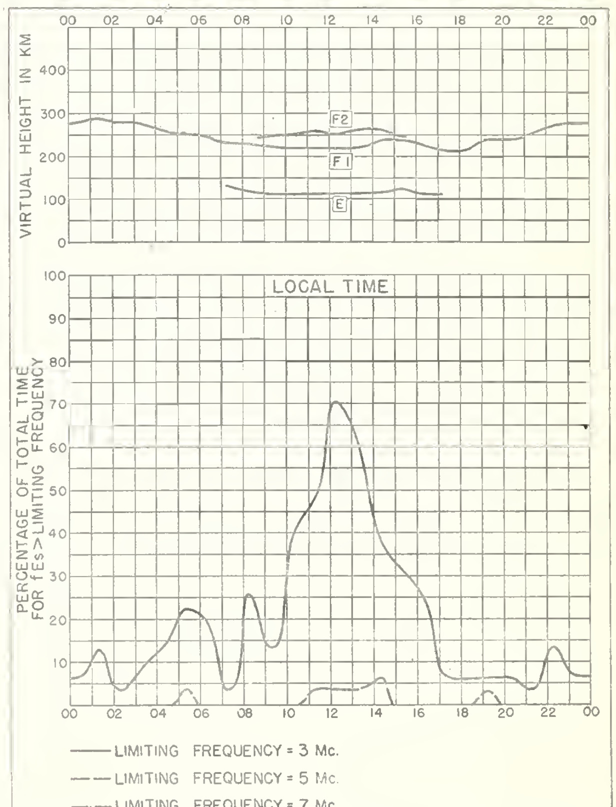

Fig. 60. CAPETOWN, U. OF S. AFRICA MAY 1951

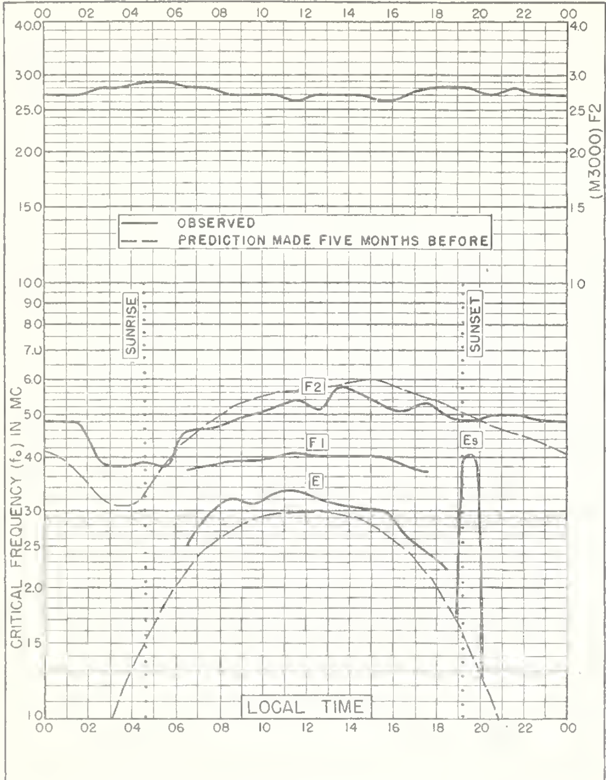

Fig. 61. BAKER LAKE, CANADA
64.3°N, 96.0°W APRIL 1951

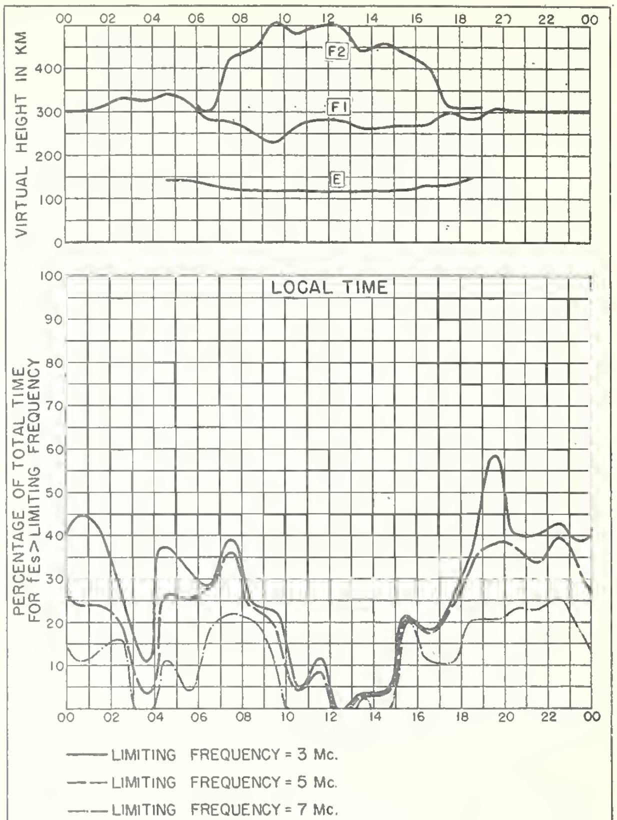

Fig. 62. BAKER LAKE, CANADA APRIL 1951

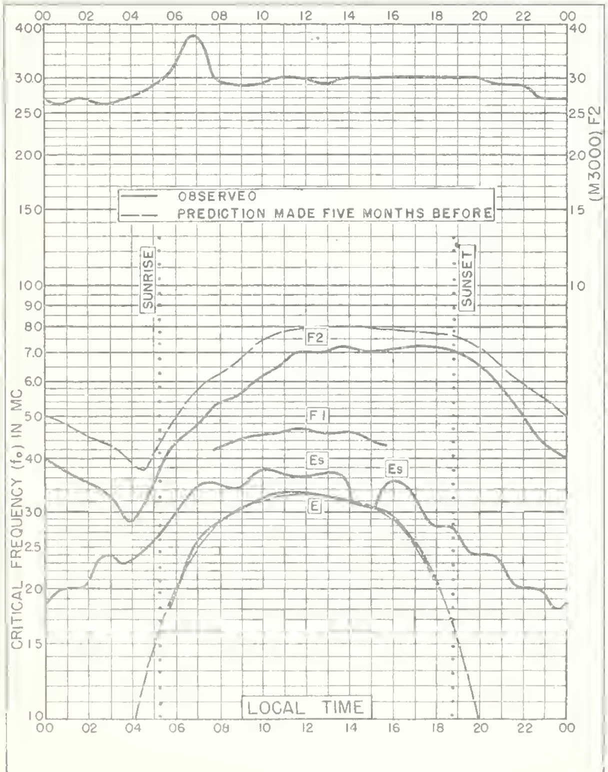

Fig. 63. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E APRIL 1951

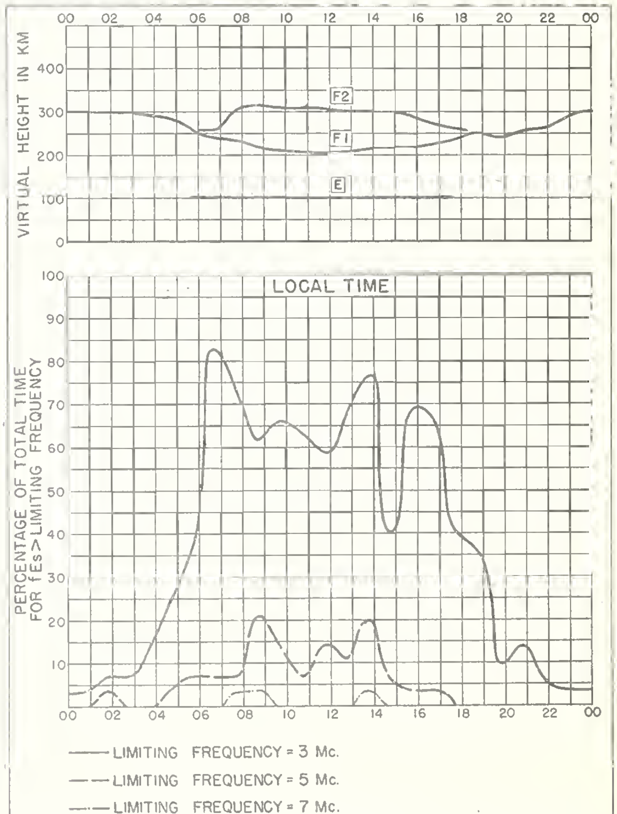

Fig. 64. LINDAU/HARZ, GERMANY APRIL 1951

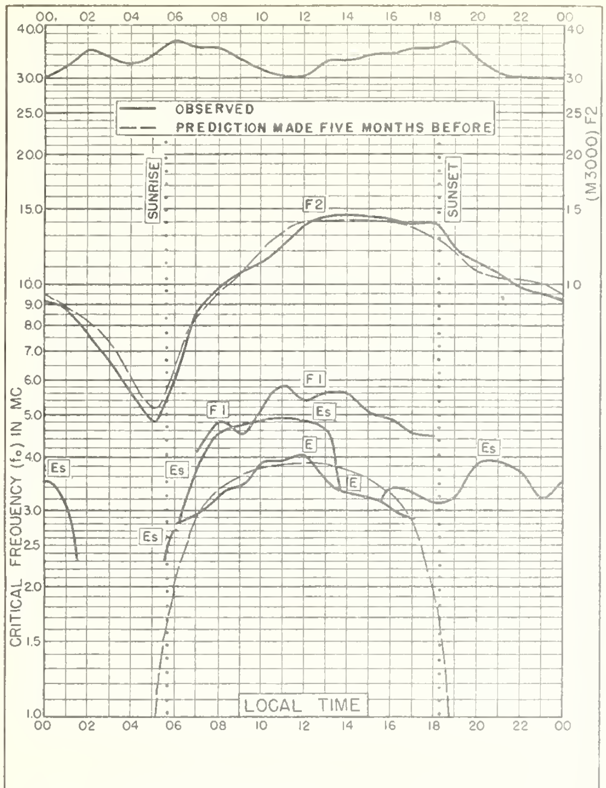

Fig. 65. FORMOSA, CHINA
25.0°N, 121.0°E APRIL 1951

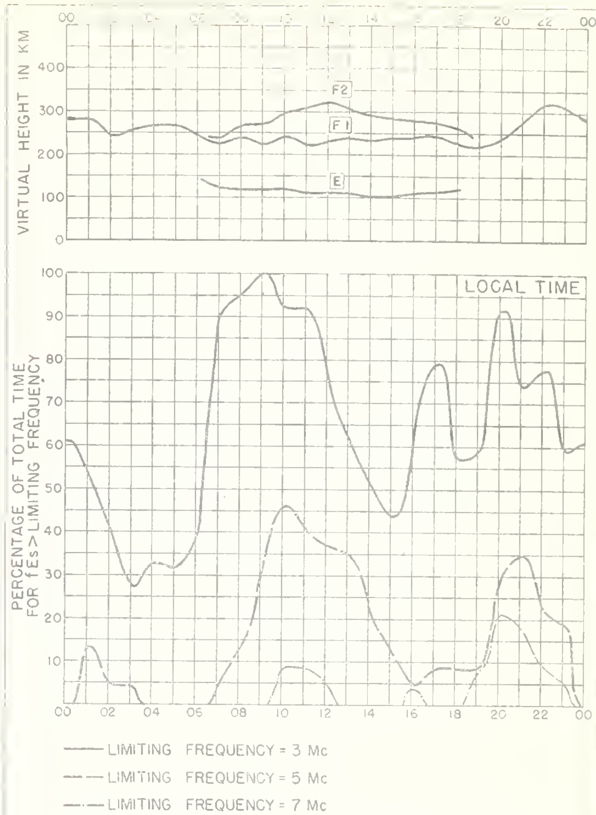

Fig. 66. FORMOSA, CHINA APRIL 1951

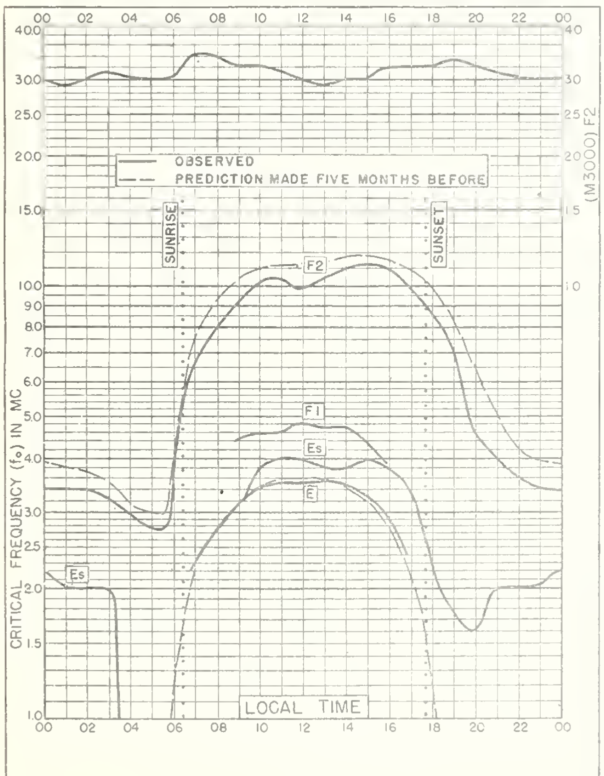

Fig. 67. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E APRIL 1951

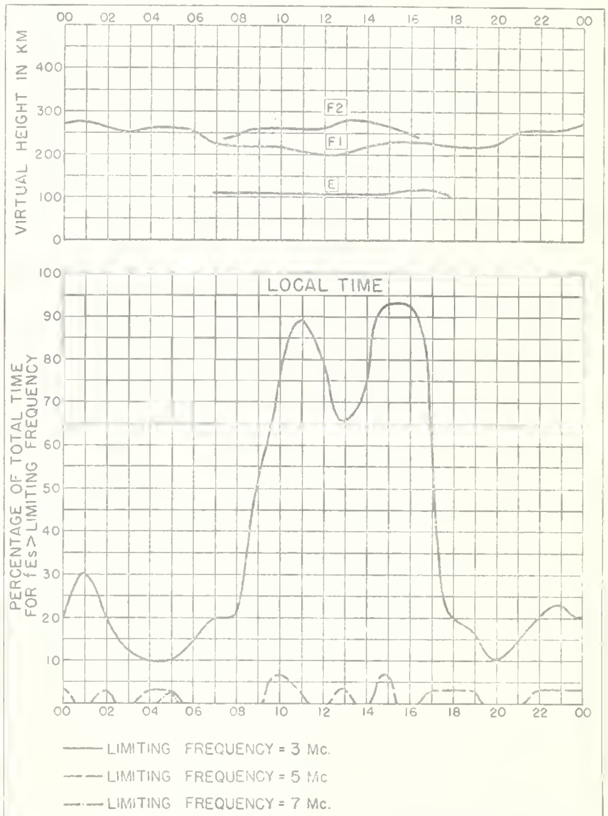

Fig. 68. JOHANNESBURG, U. OF S. AFRICA APRIL 1951

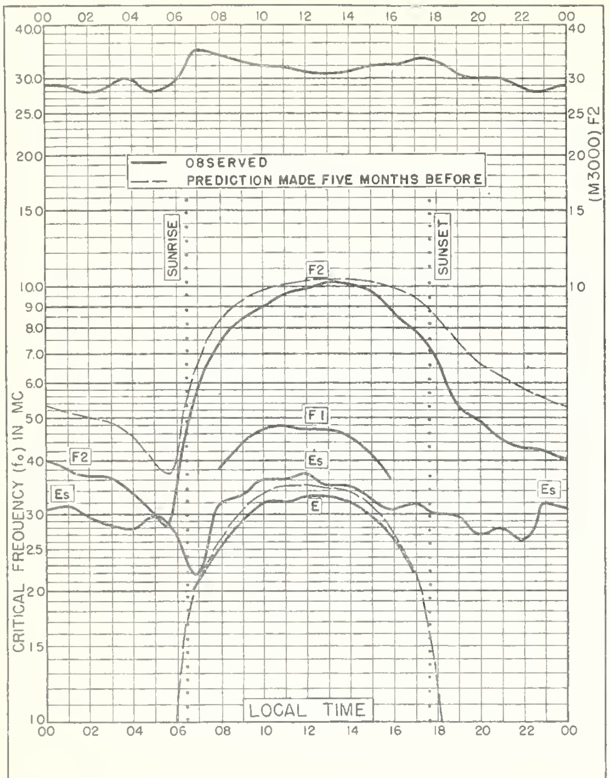

Fig. 69. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E APRIL 1951

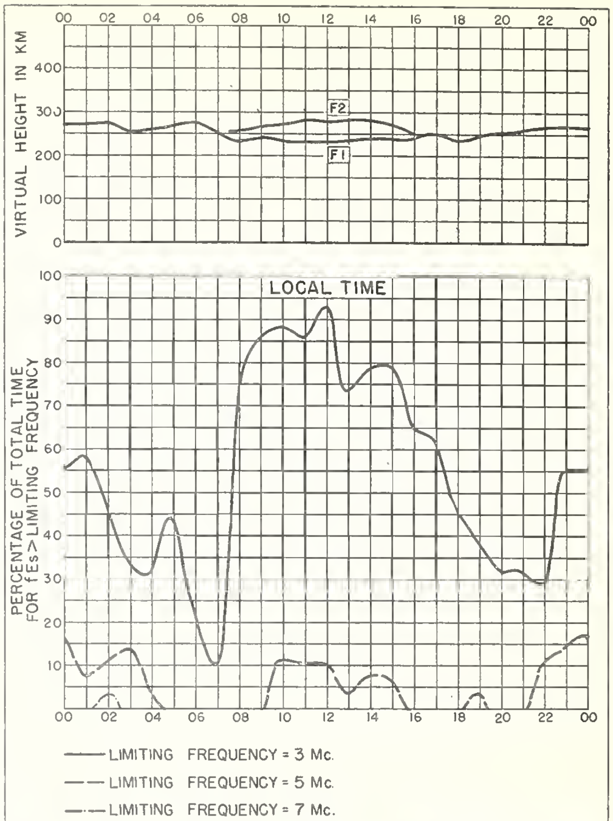

Fig. 70. WATHEROO, W. AUSTRALIA APRIL 1951

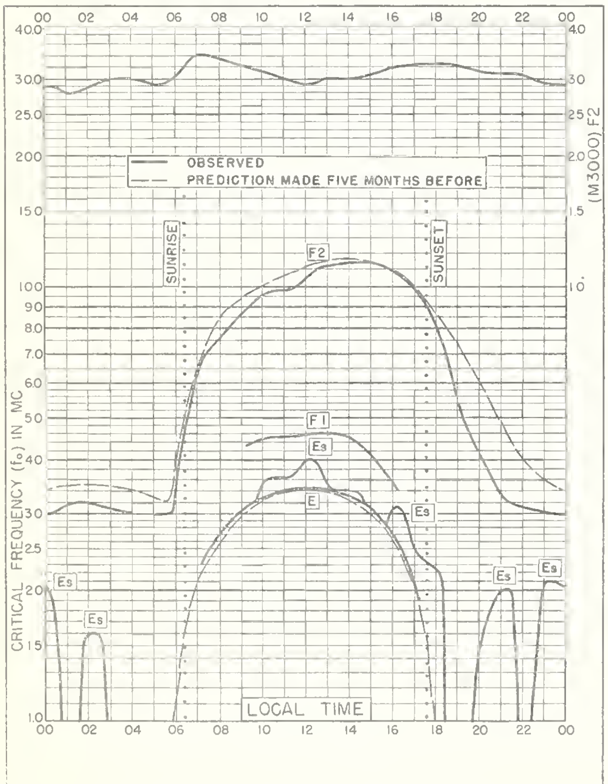

Fig. 71. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E APRIL 1951

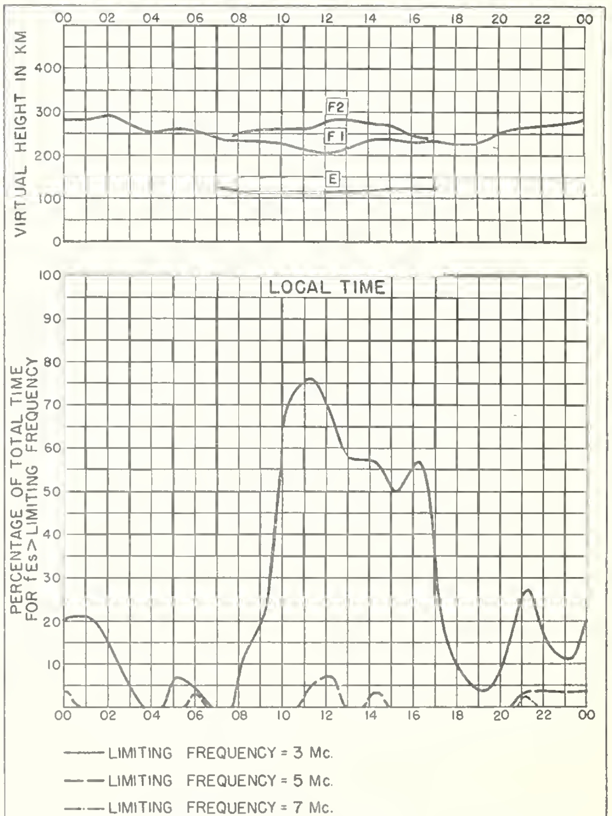

Fig. 72. CAPETOWN, U. OF S. AFRICA APRIL 1951

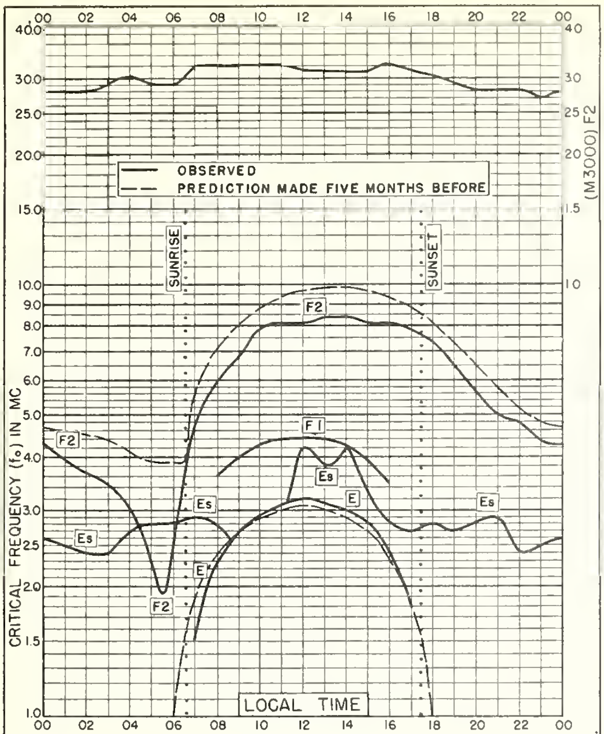

Fig. 73. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E APRIL 1951

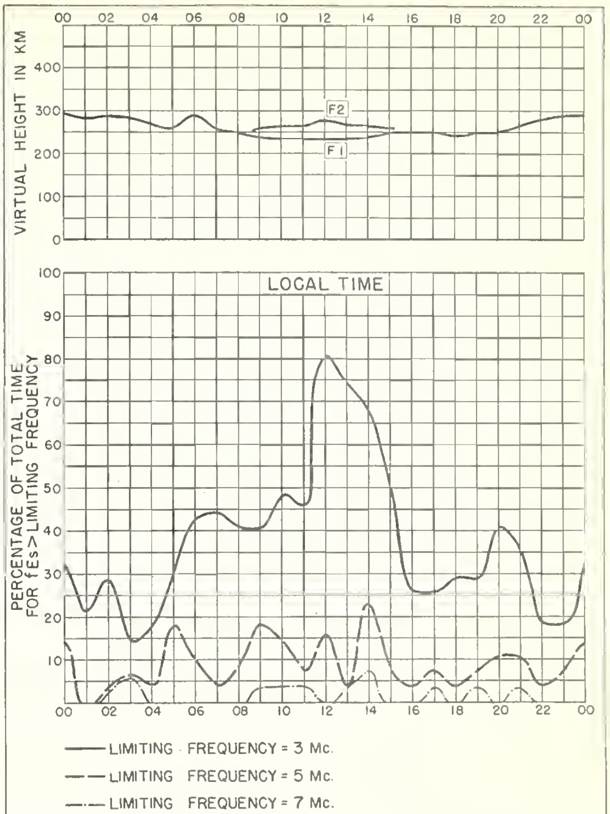

Fig. 74. CHRISTCHURCH, N. Z. APRIL 1951

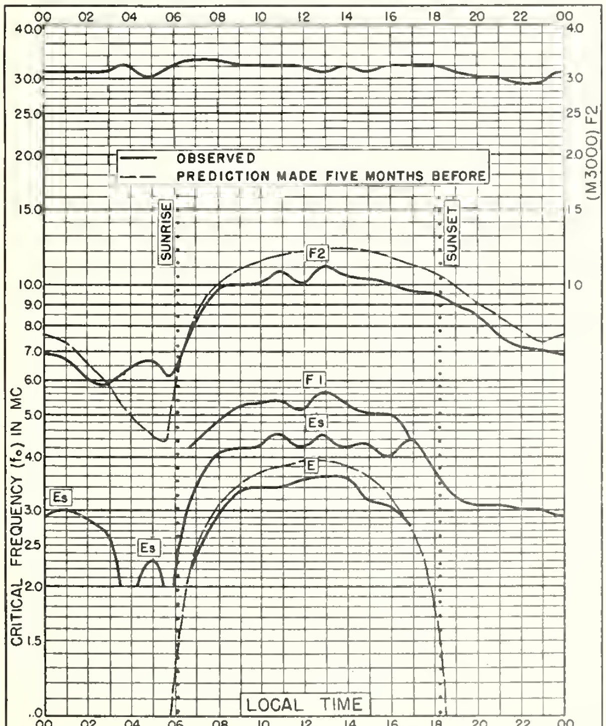

Fig. 75. RAROTONGA I.
21.3°S, 159.8°W MARCH 1951

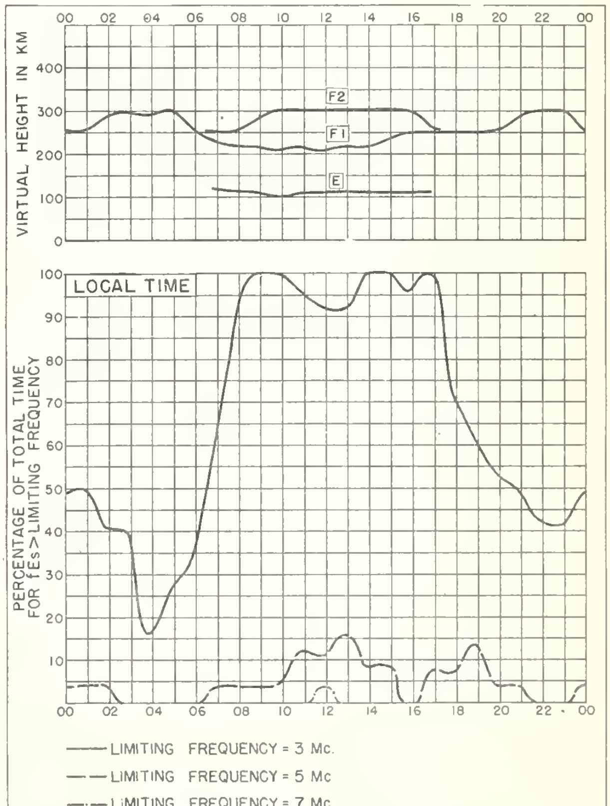

Fig. 76. RAROTONGA I. MARCH 1951

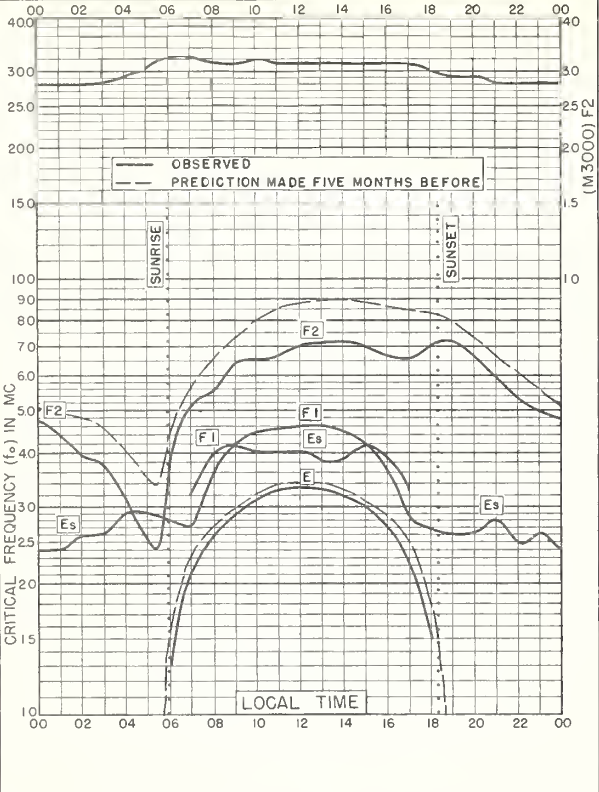

Fig. 77. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E MARCH 1951

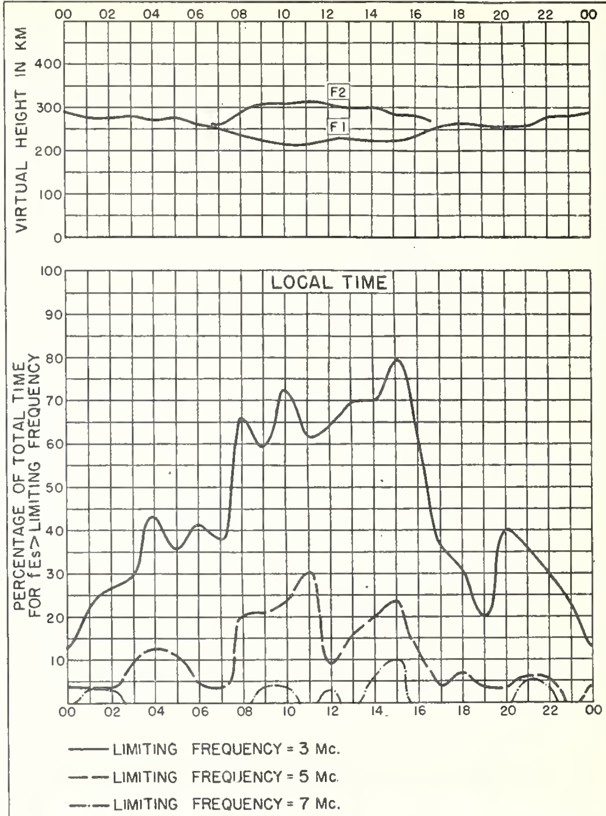

Fig. 78. CHRISTCHURCH, N. Z. MARCH 1951

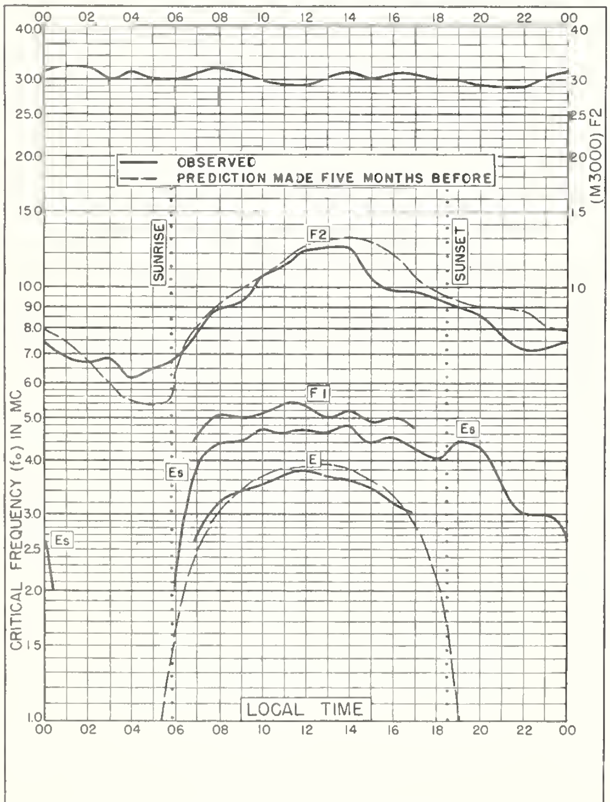

Fig. 79. RAROTONGA I.
21.3°S, 159.8°W FEBRUARY 1951

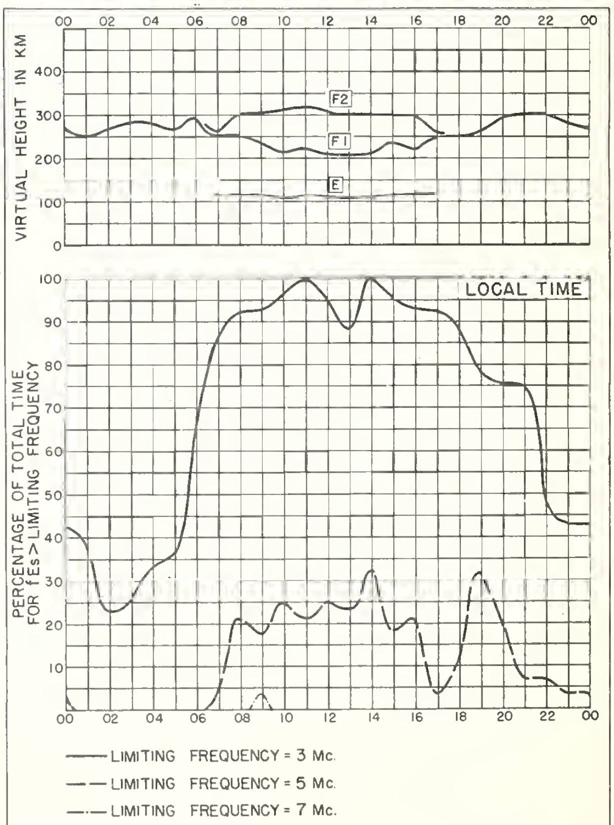

Fig. 80. RAROTONGA I FEBRUARY 1951

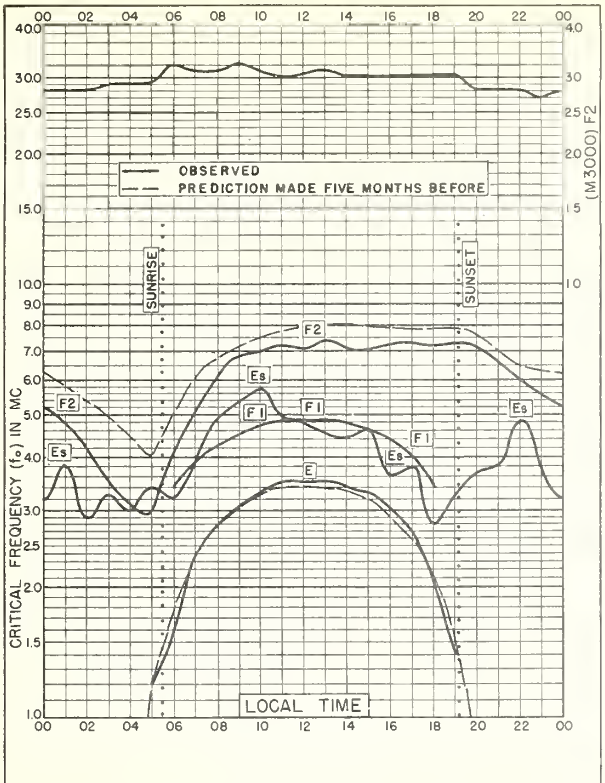

Fig. 81. CHRISTCHURCH, N. Z. 43. 5°S, 172. 7°E FEBRUARY 1951

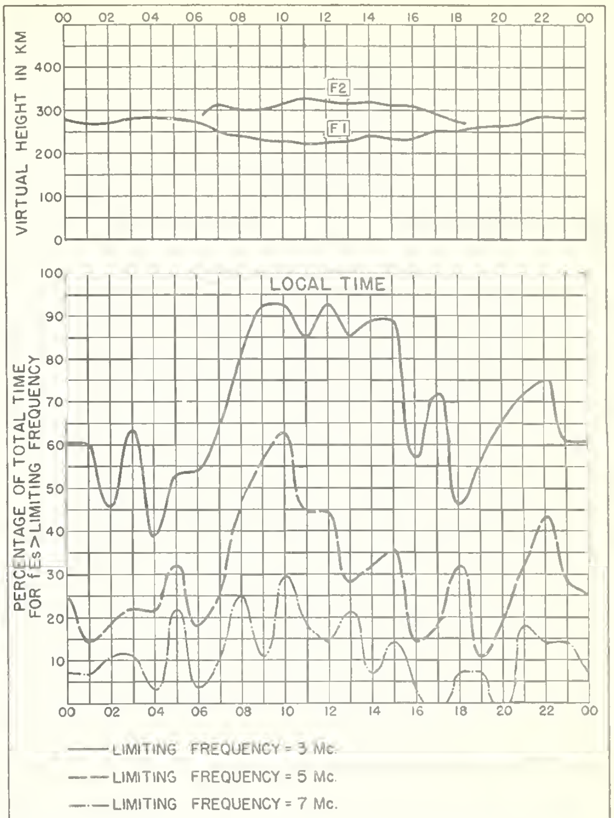

Fig. 82. CHRISTCHURCH, N. Z. FEBRUARY 1951

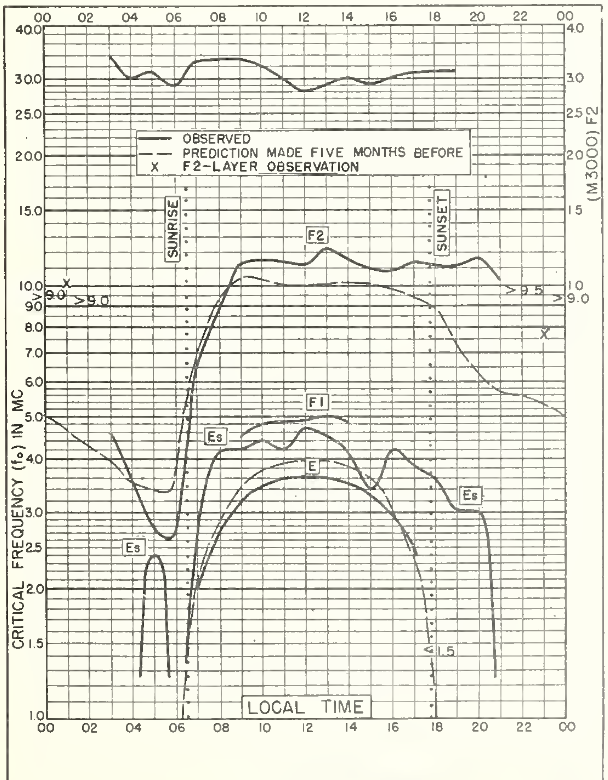

Fig. 83. DAKAR FRENCH W. AFRICA 14. 6°N, 17. 4°W JANUARY 1951

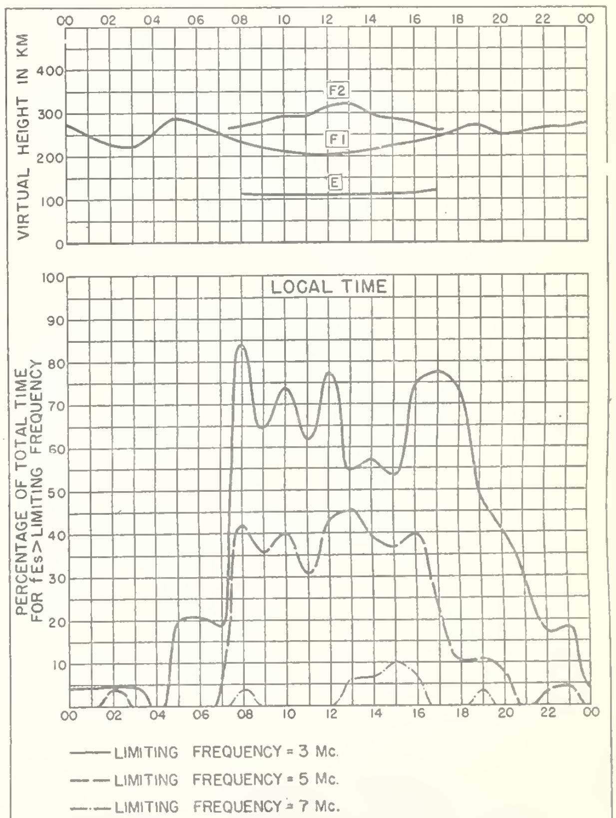

Fig. 84. DAKAR, FRENCH W. AFRICA JANUARY 1951

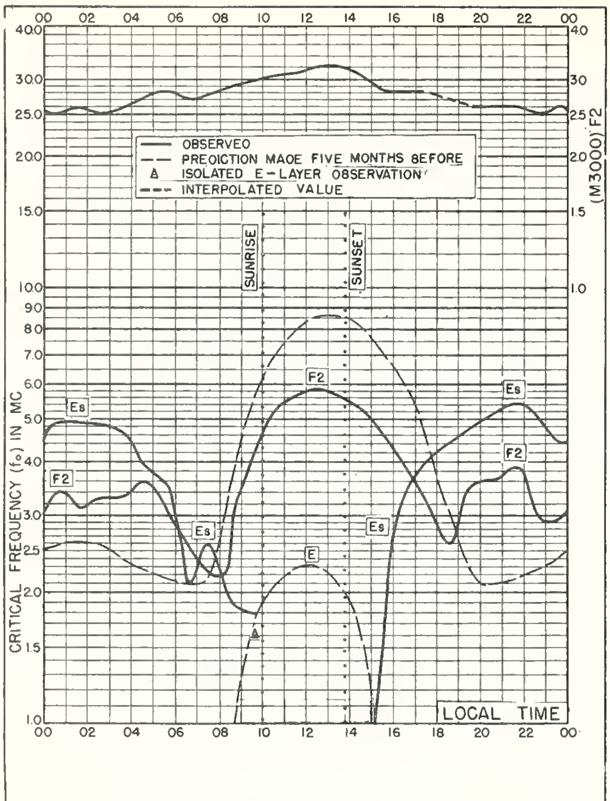

Fig. 85. REYKJAVIK, ICELAND
64.1°N, 21.8°W DECEMBER 1950

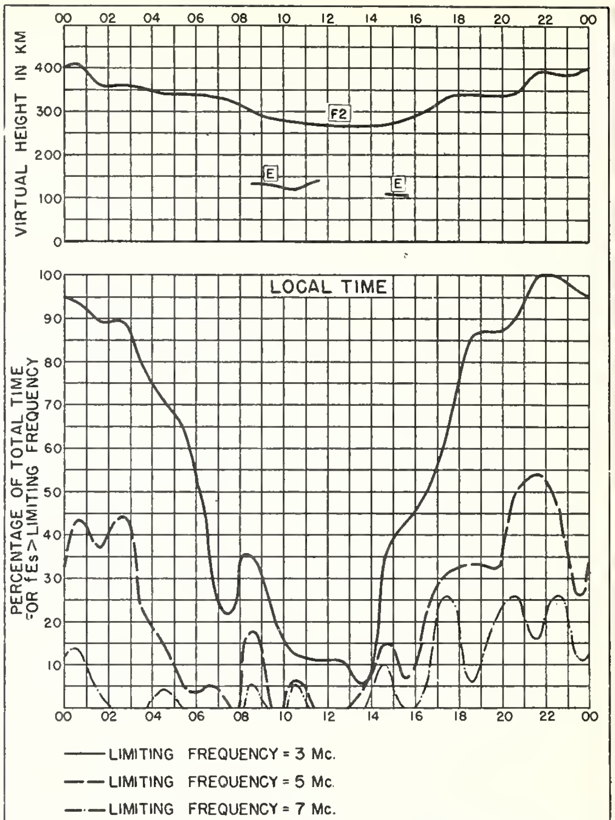

Fig. 86. REYKJAVIK, ICELAND DECEMBER 1950

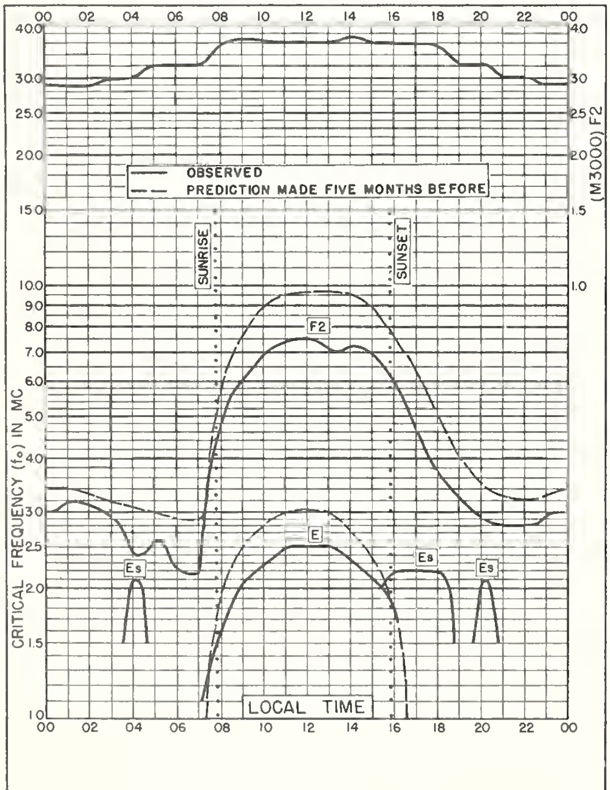

Fig. 87. DOMONT, FRANCE
49.0°N, 2.3°E DECEMBER 1950

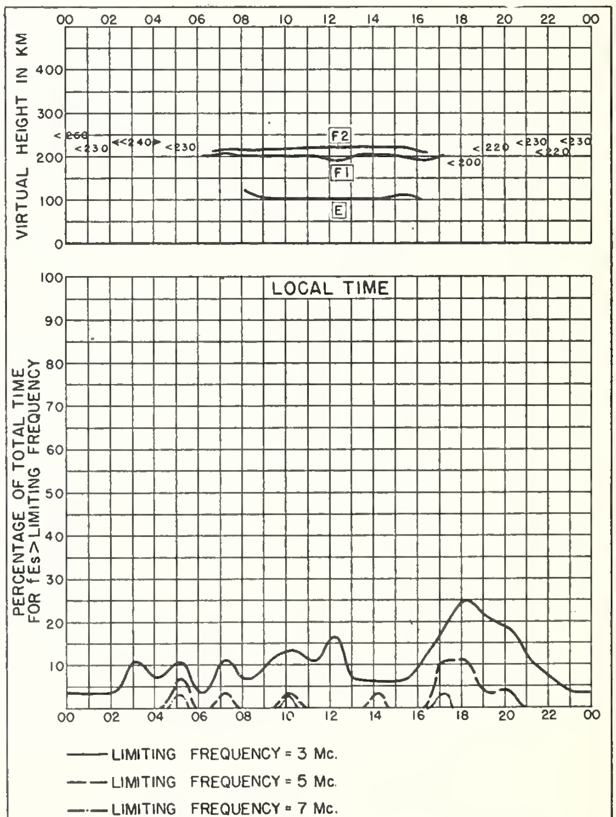

Fig. 88. DOMONT, FRANCE DECEMBER 1950

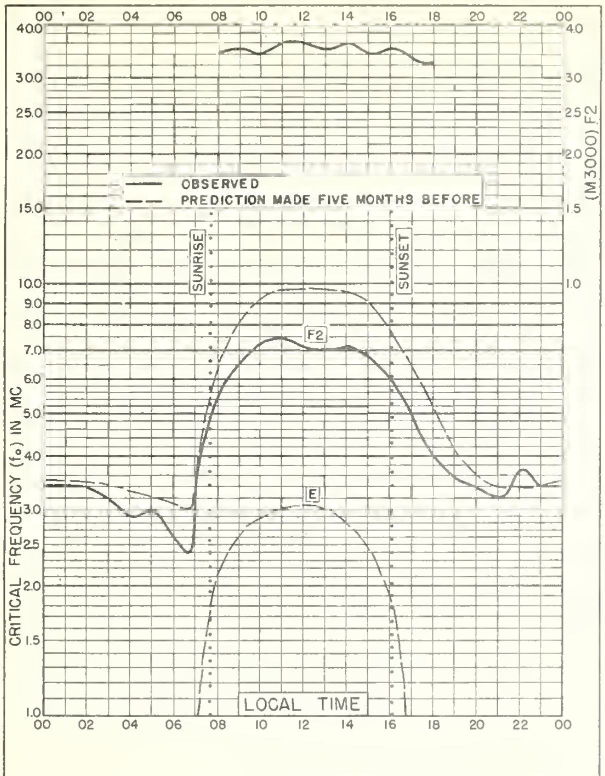

Fig. 89. POITIERS, FRANCE
46.6°N, 0.3°E DECEMBER 1950

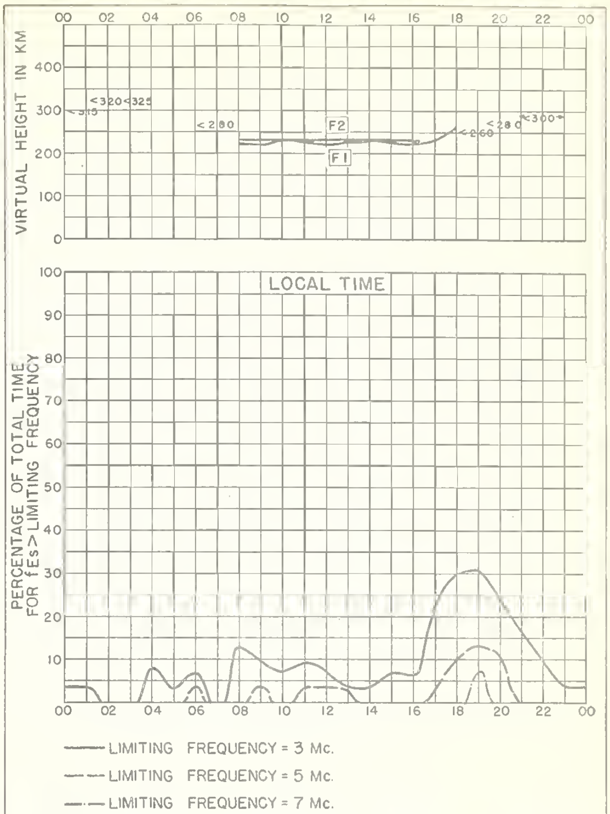

Fig. 90. POITIERS, FRANCE DECEMBER 1950

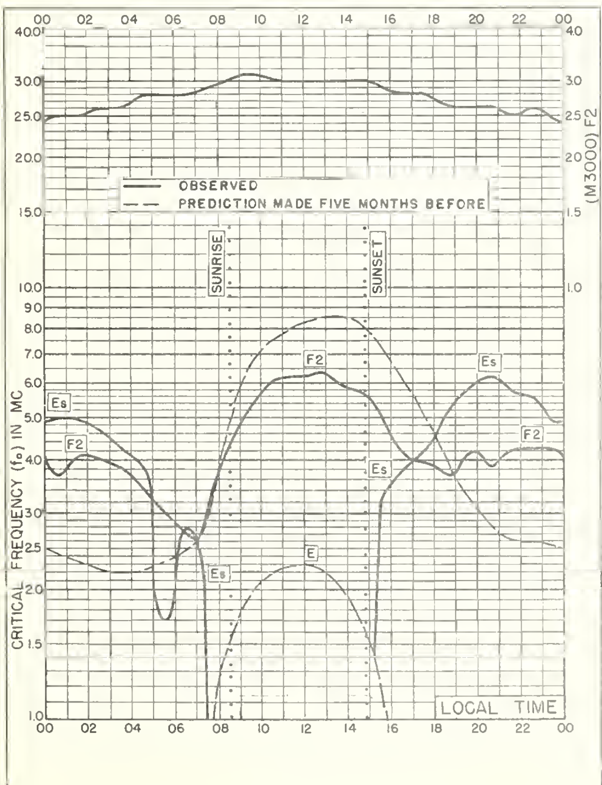

Fig. 91. REYKJAVIK, ICELAND
64.1°N, 21.8°W NOVEMBER 1950

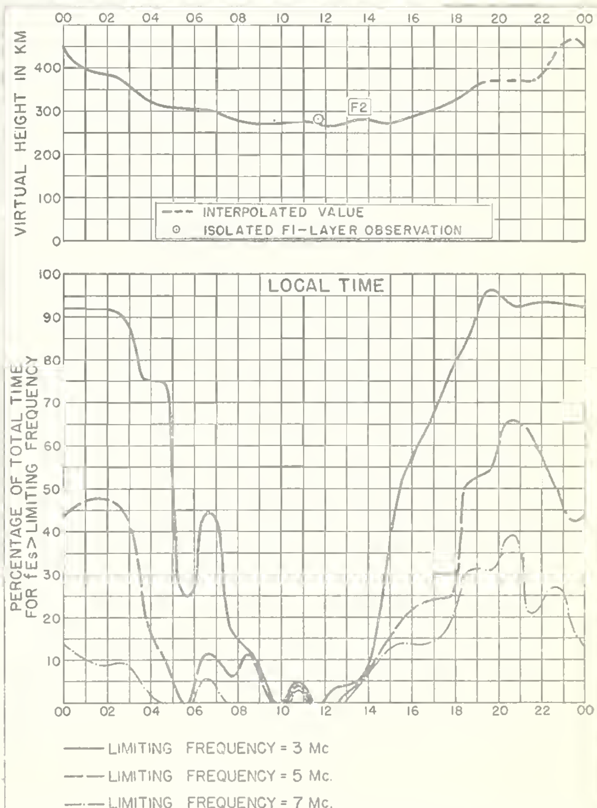

Fig. 92. REYKJAVIK, ICELAND NOVEMBER 1950

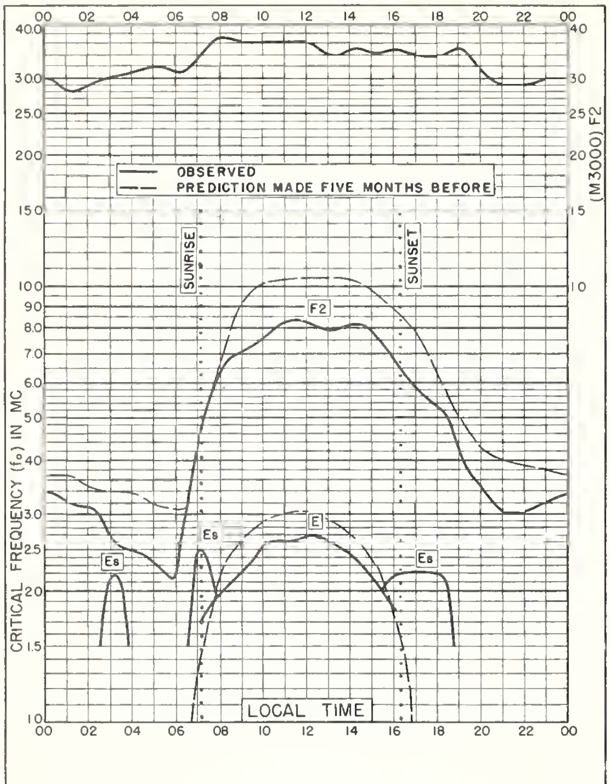

Fig. 93. DOMONT, FRANCE
49.0°N, 2.3°E NOVEMBER 1950

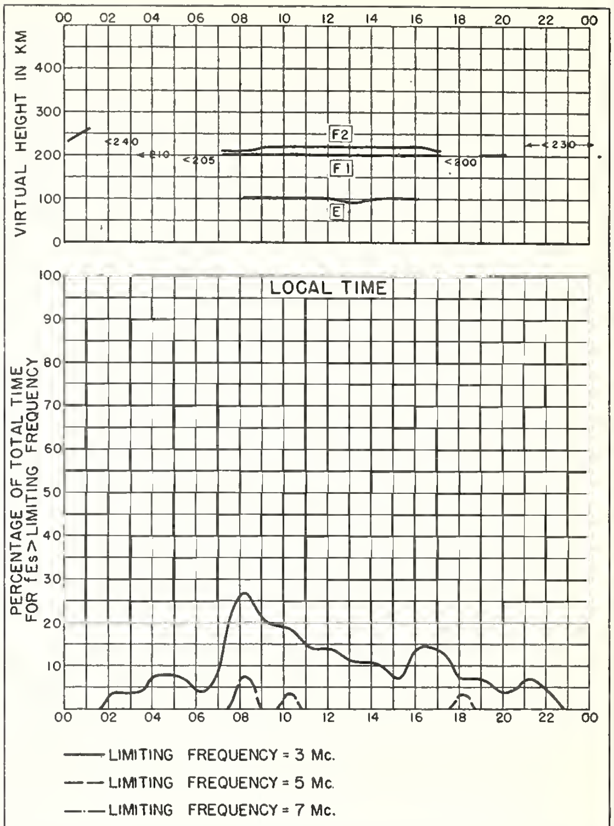

Fig. 94. DOMONT, FRANCE NOVEMBER 1950

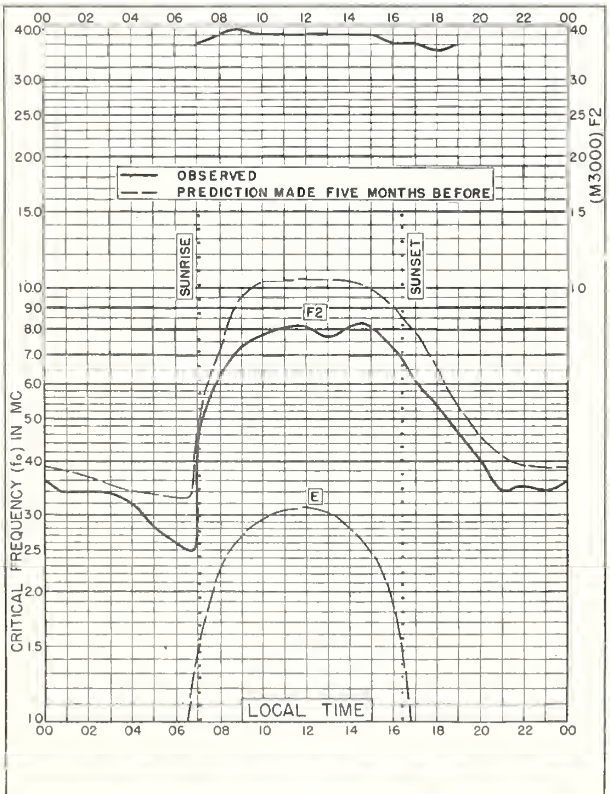

Fig. 95. POITIERS, FRANCE
46.6°N, 0.3°E NOVEMBER 1950

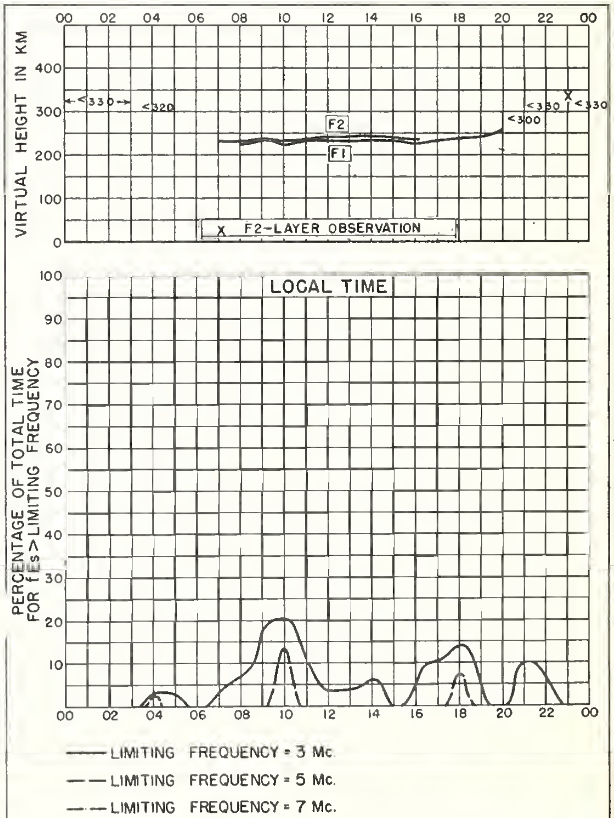

Fig. 96. POITIERS, FRANCE NOVEMBER 1950

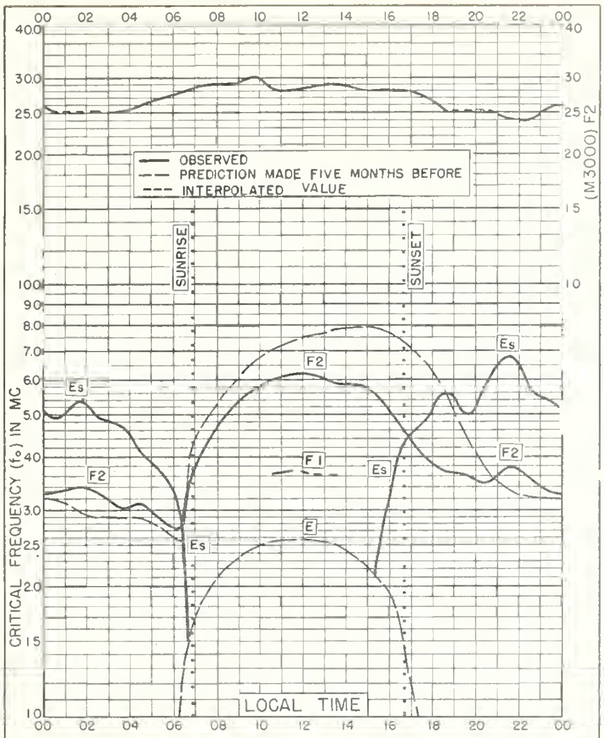

Fig. 97. REYKJAVIK, ICELAND
64.1°N, 21.8°W OCTOBER 1950

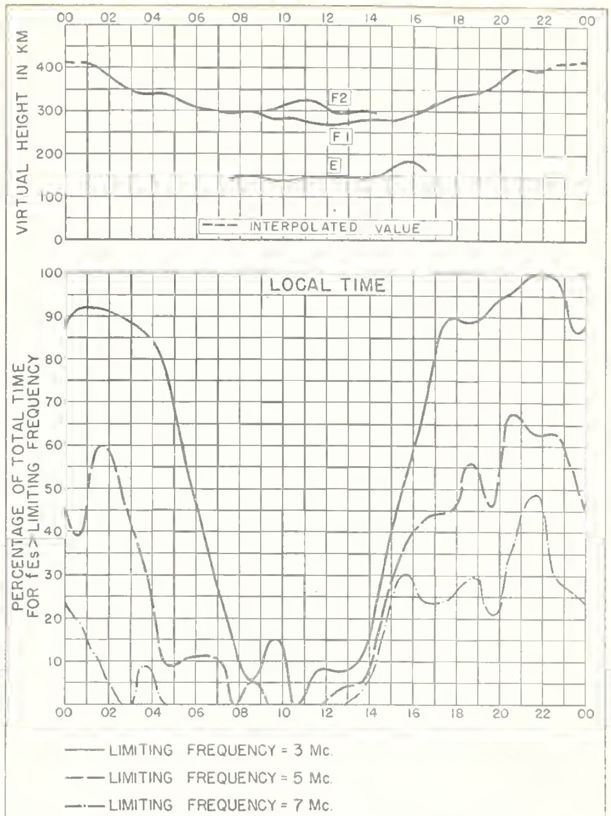

Fig. 98. REYKJAVIK, ICELAND OCTOBER 1950

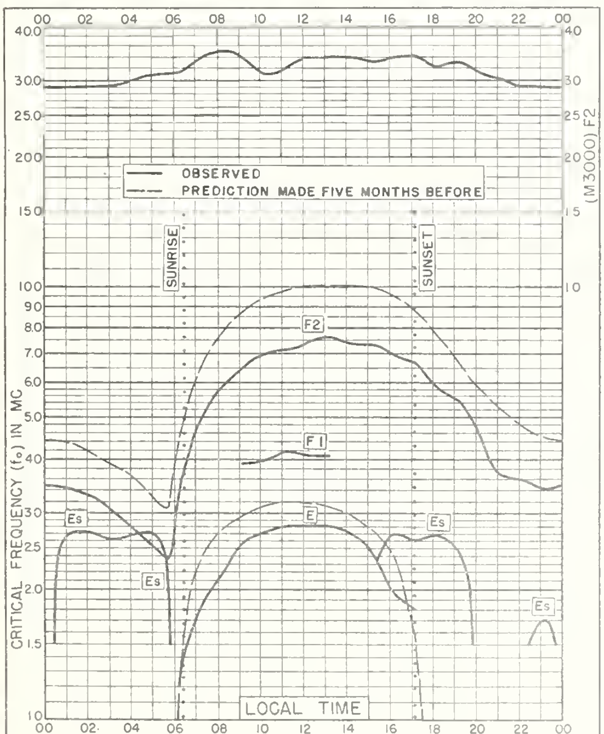

Fig. 99. DOMONT, FRANCE
49.0°N, 2.3°E OCTOBER 1950

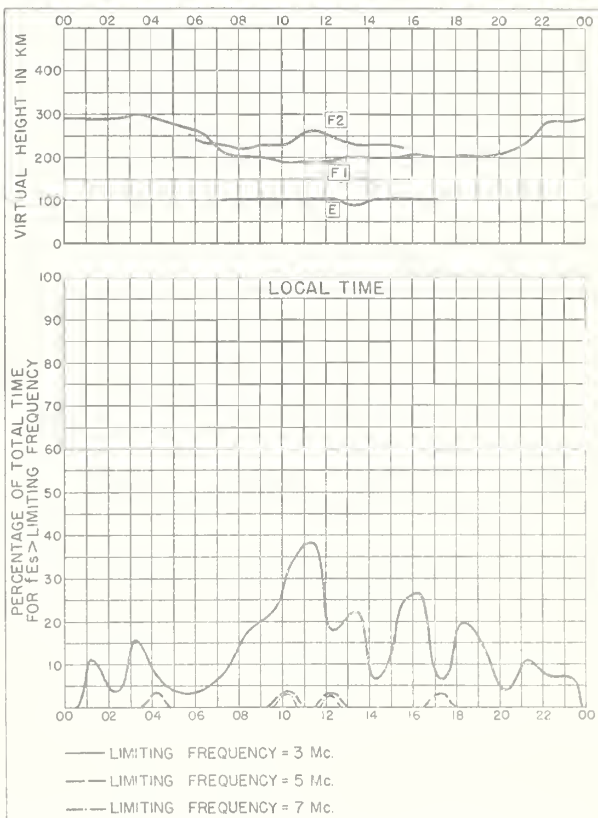

Fig. 100. DOMONT, FRANCE OCTOBER 1950

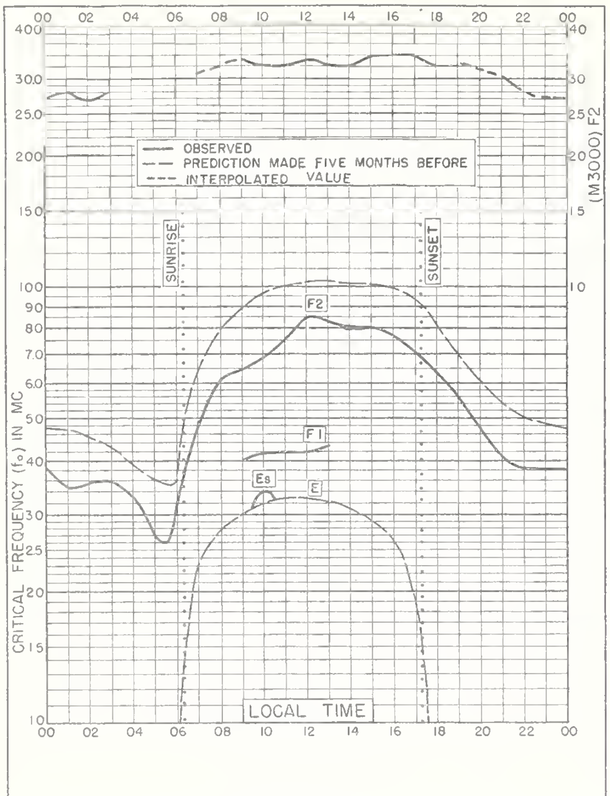

Fig. 101. POITIERS, FRANCE
46.6°N, 0.3°E OCTOBER 1950

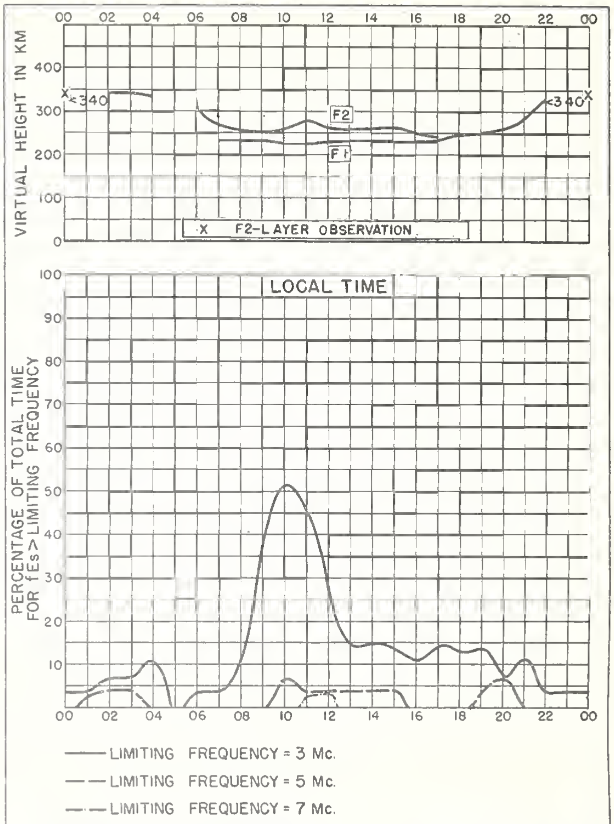

Fig. 102. POITIERS, FRANCE OCTOBER 1950

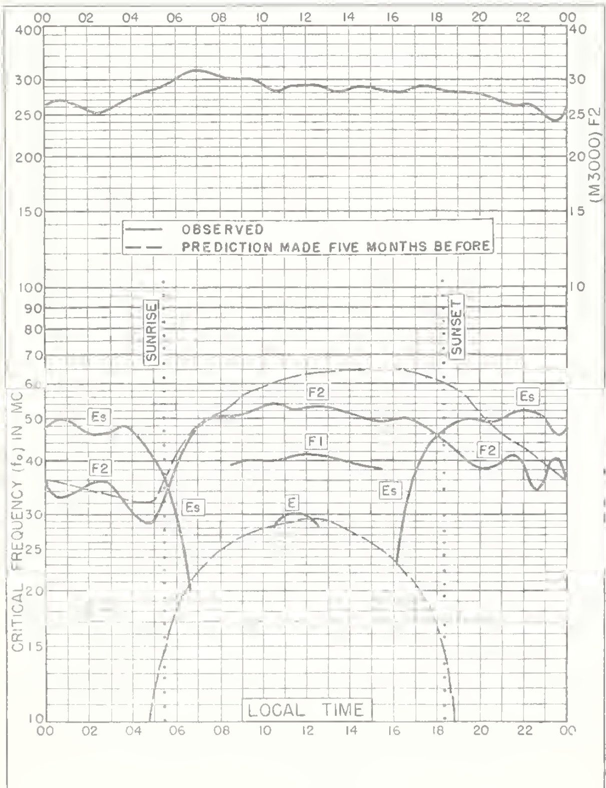

Fig. 103. REYKJAVIK, ICELAND
64.1°N, 21.8°W SEPTEMBER 1950

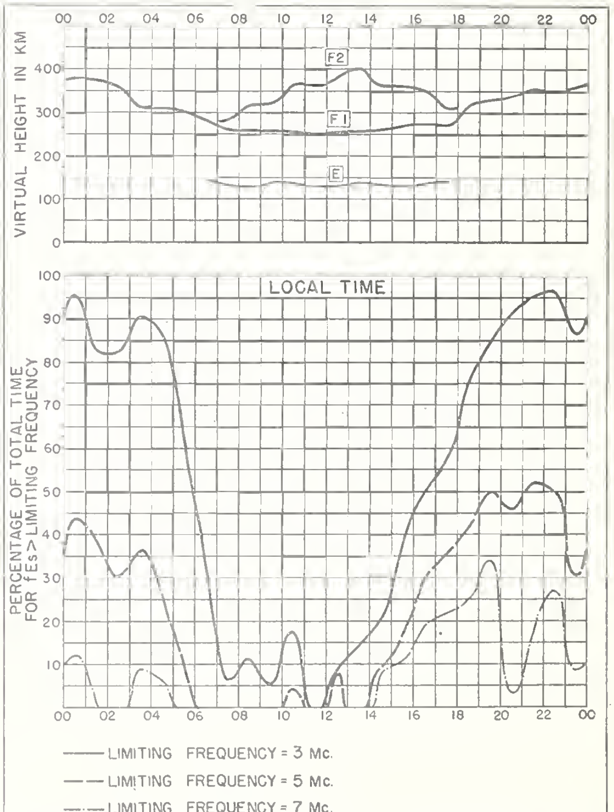

Fig. 104. REYKJAVIK, ICELAND SEPTEMBER 1950

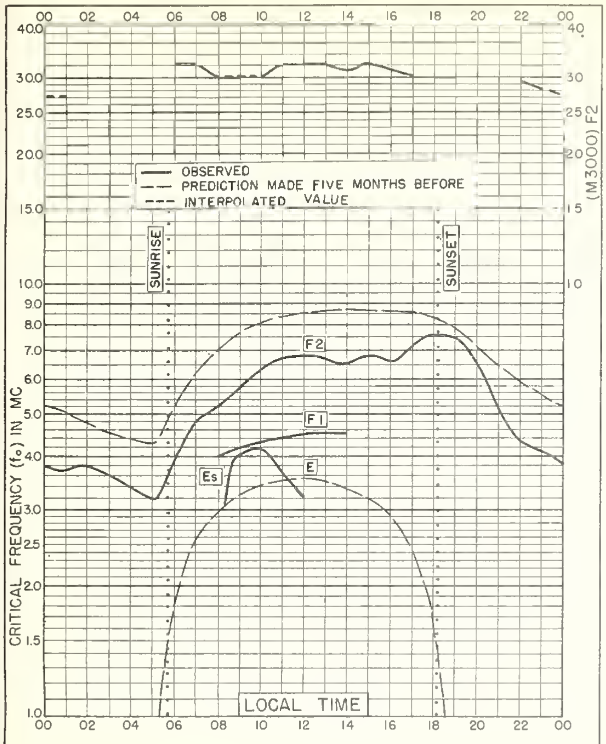

Fig: 105. POITIERS, FRANCE
46.6°N, 0.3°E SEPTEMBER 1950

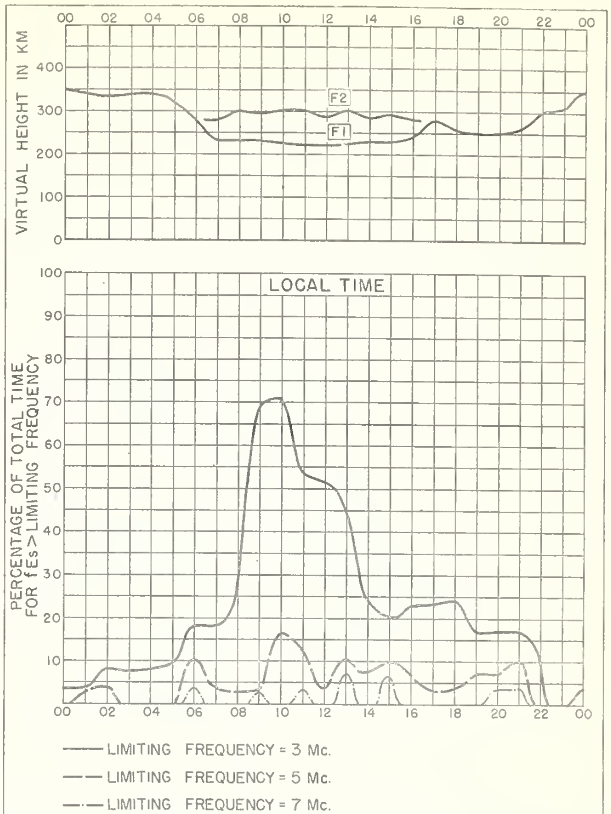

Fig. 106. POITIERS, FRANCE SEPTEMBER 1950

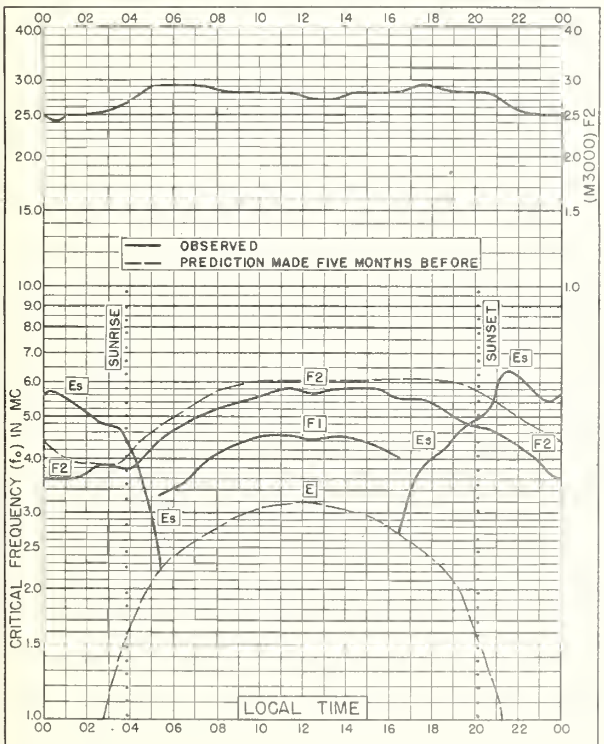

Fig. 107. REYKJAVIK, ICELAND
64.1°N, 21.8°W AUGUST 1950

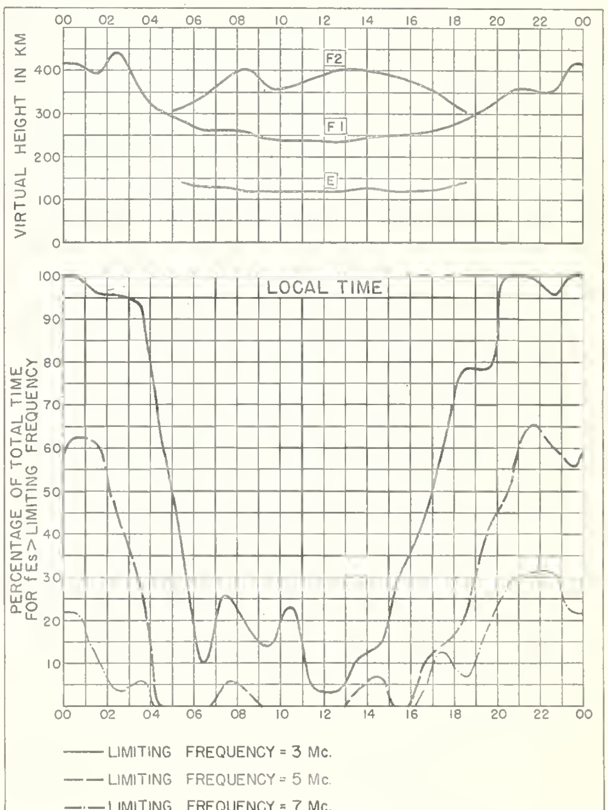

Fig. 108. REYKJAVIK, ICELAND AUGUST 1950

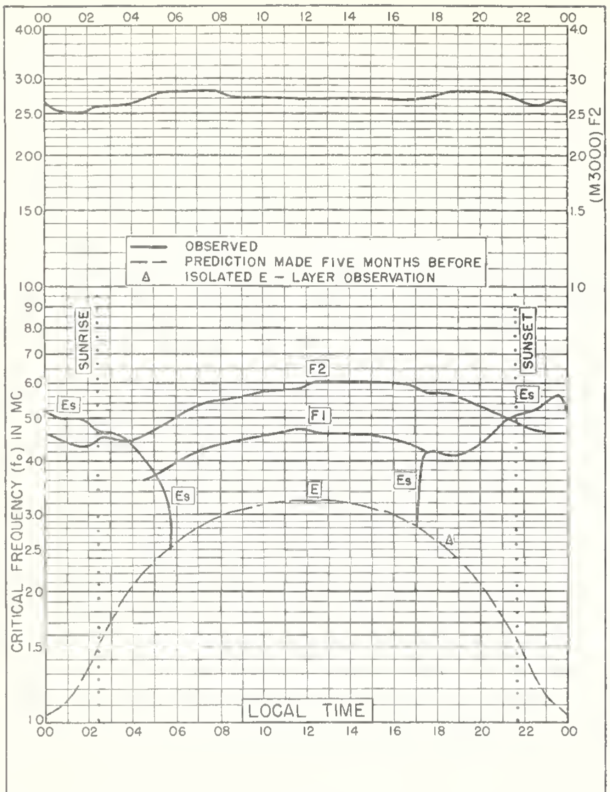

Fig. 109. REYKJAVIK, ICELAND
64.1°N, 21.8°W JULY 1950

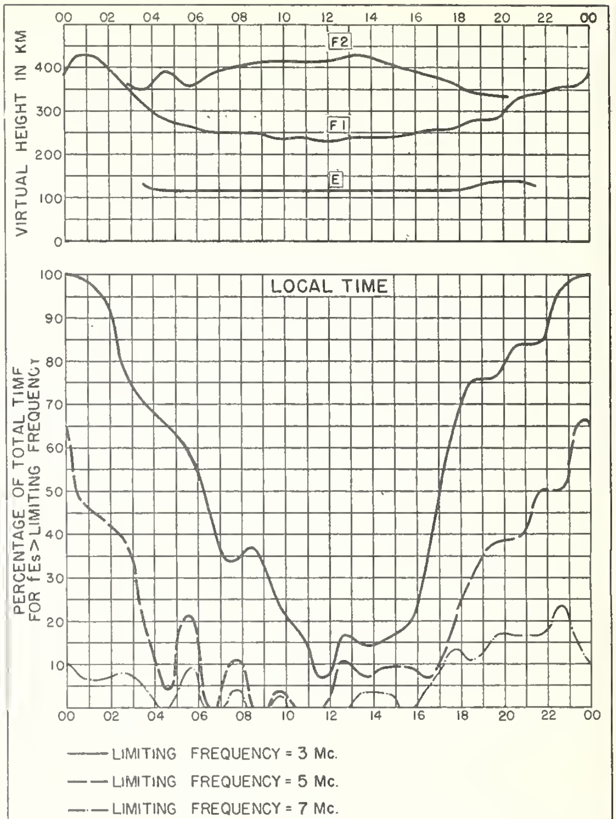

Fig. 110. REYKJAVIK, ICELAND JULY 1950

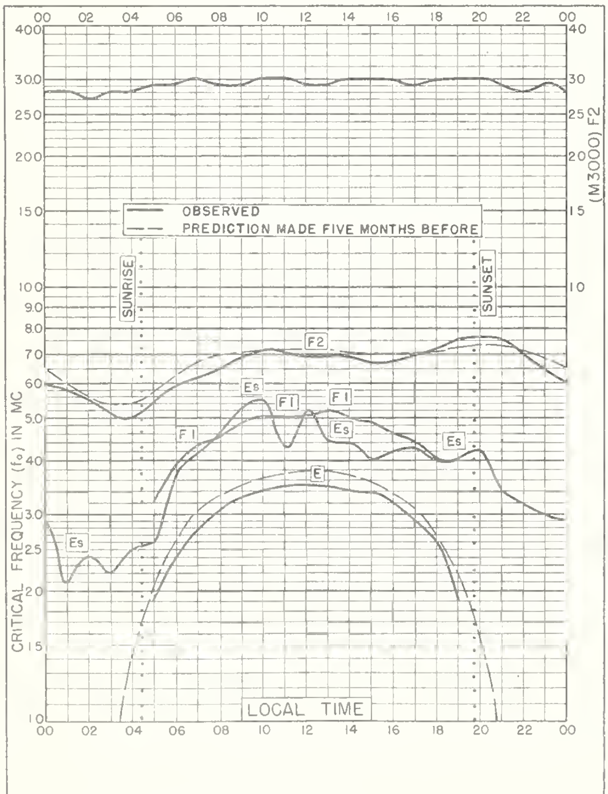

Fig. 111. FRIBOURG, GERMANY
48.1°N, 7.8°E JULY 1950

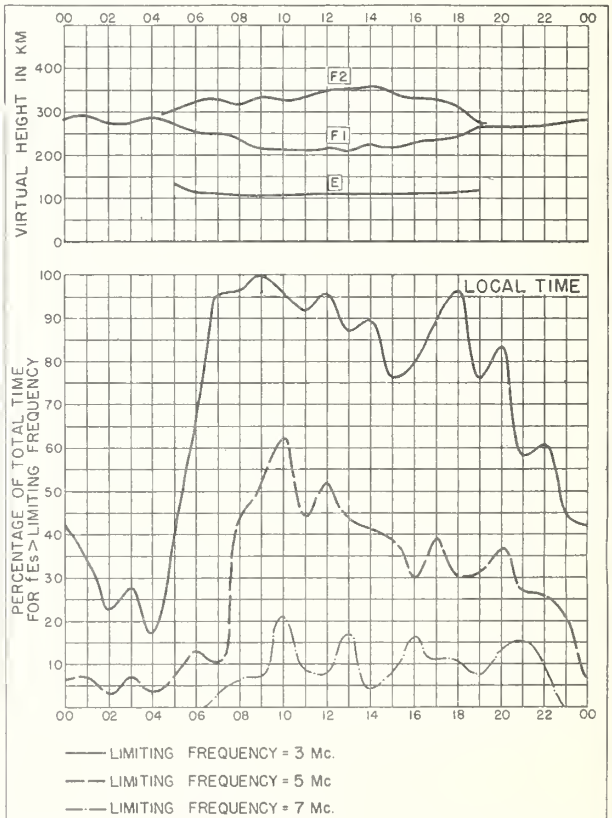

Fig. 112. FRIBOURG, GERMANY JULY 1950

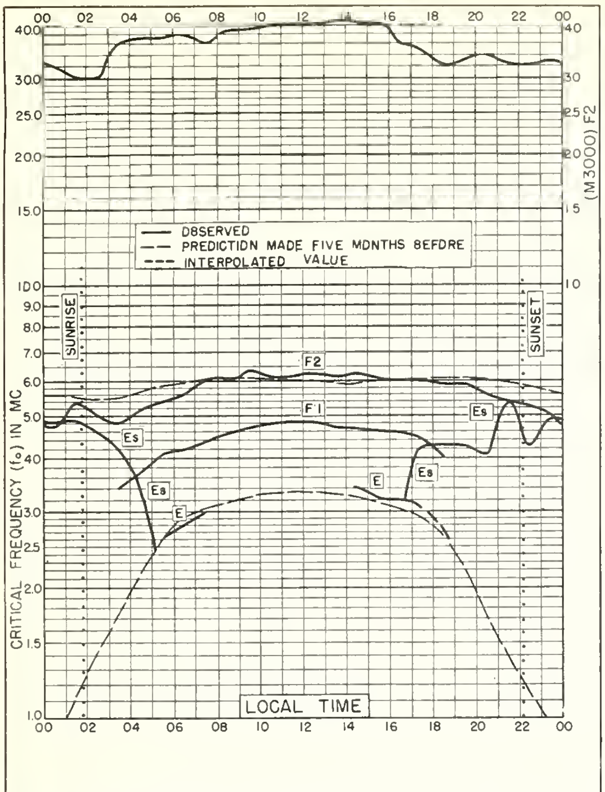

Fig. 113 REYKJAVIK, ICELAND
64.1°N, 21.8°W JUNE 1950

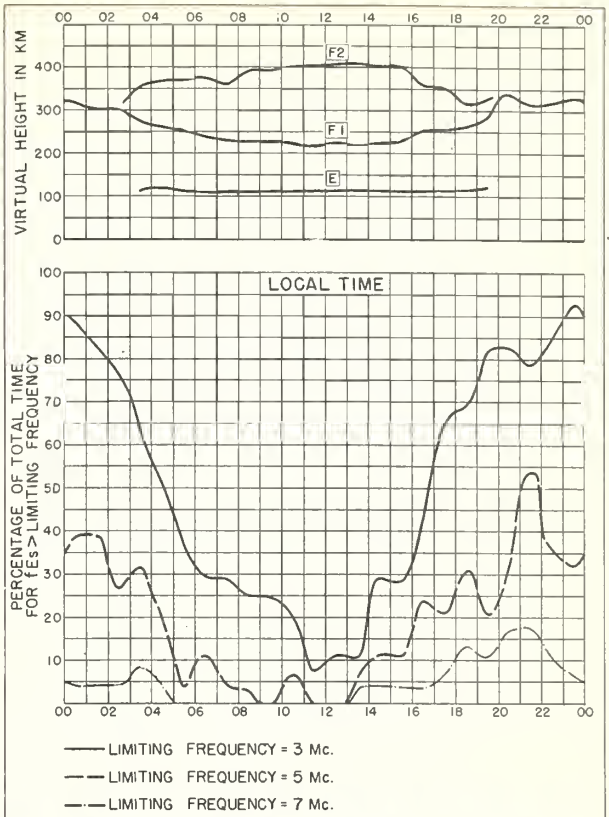

Fig. 114. REYKJAVIK, ICELAND JUNE 1950

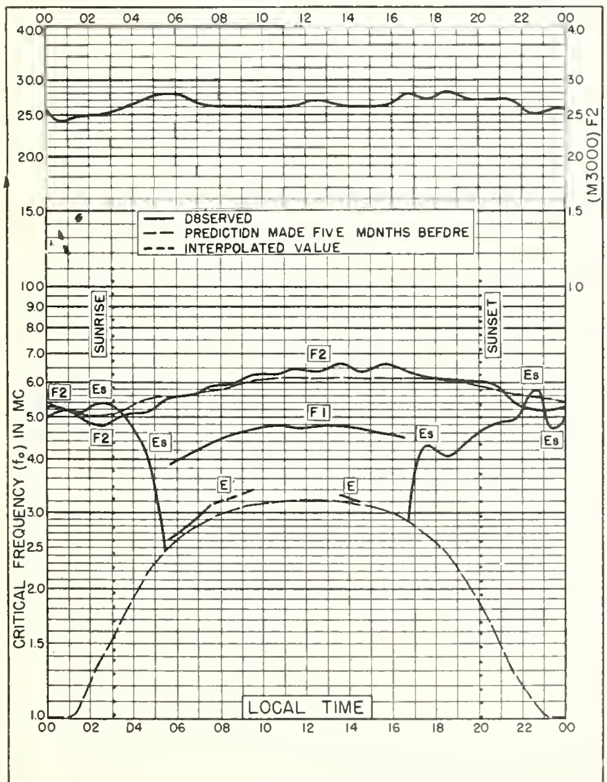

Fig. 115. REYKJAVIK, ICELAND
64.1°N, 21.8°W MAY 1950

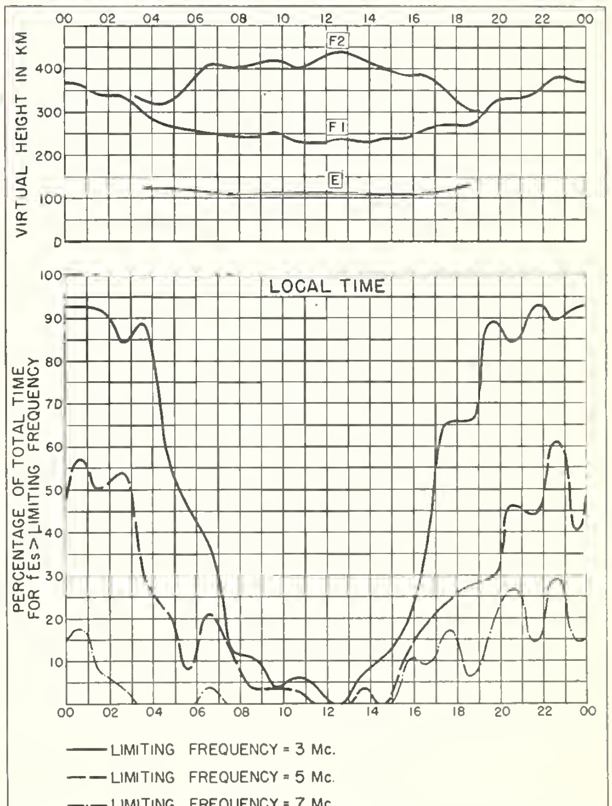

Fig. 116. REYKJAVIK, ICELAND MAY 1950

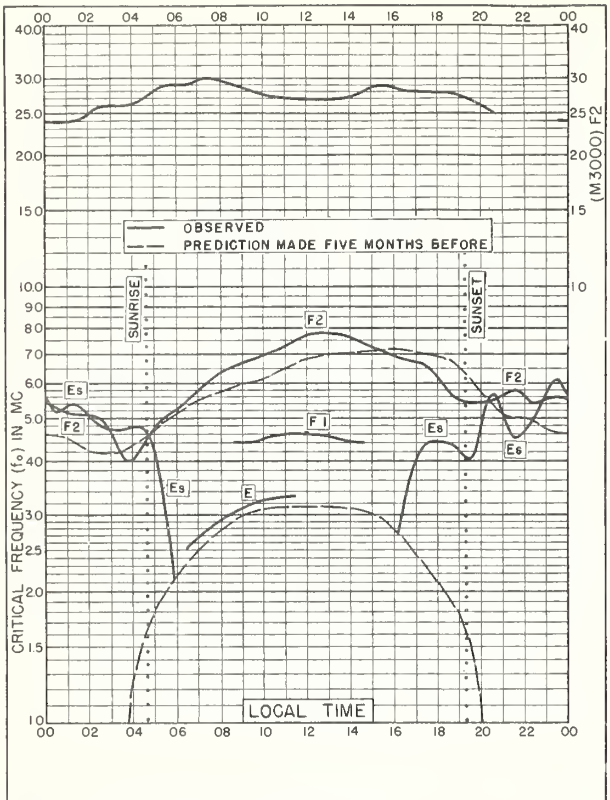

Fig. 117. REYKJAVIK, ICELAND
64.1°N, 21.8°W APRIL 1950

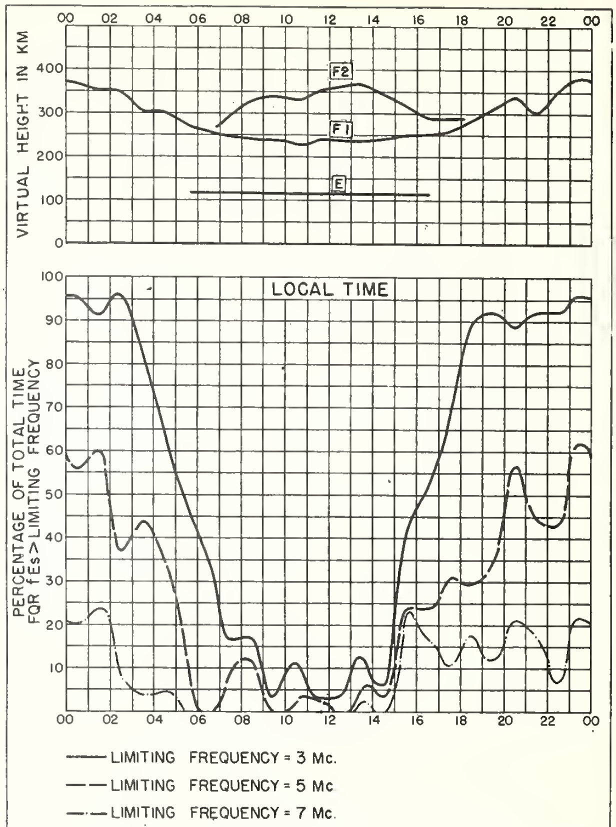

Fig. 118. REYKJAVIK, ICELAND APRIL 1950

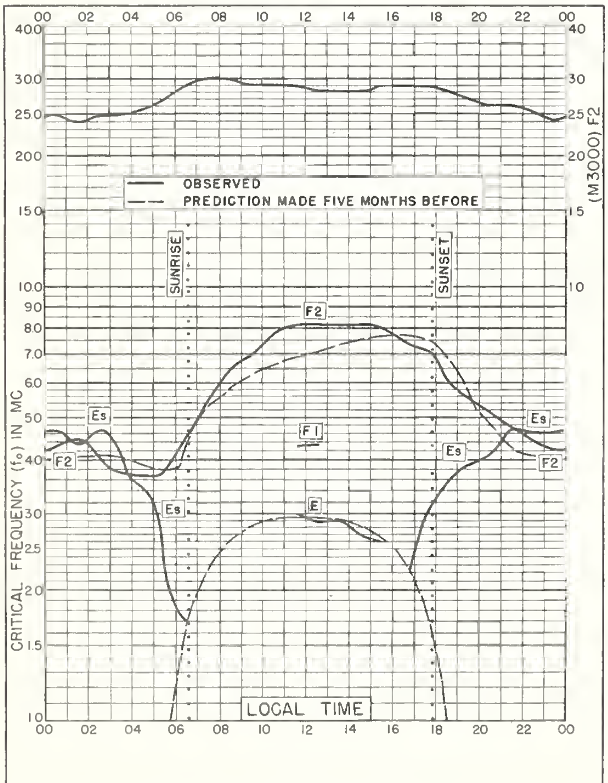

Fig. 119. REYKJAVIK, ICELAND
64.1°N, 21.8°W MARCH 1950

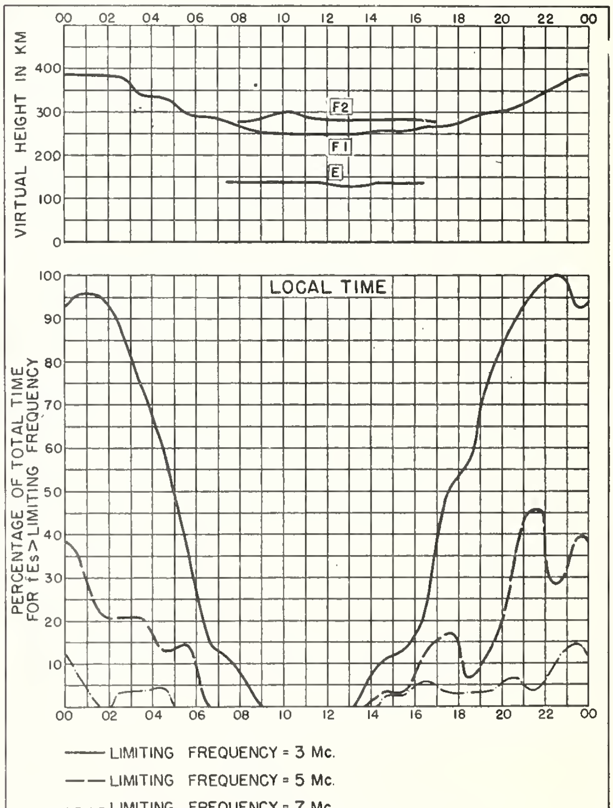

Fig. 120 REYKJAVIK, ICELAND MARCH 1950

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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.)
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.
IRPL–T. Reports on tropospheric propagation:
T1. Radar operation and weather. (Superseded by JANP 101.)
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