IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

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

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

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

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

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

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

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

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

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

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit 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									
	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945
December	11	15	33	53	86	108	114	126	85	38
November	10	16	38	52	87	112	115	124	83	36
October	10	17	43	52	90	114	116	119	81	23
September	8	18	46	54	91	115	117	121	79	22
August	8	18	49	57	96	111	123	122	77	20
July	8	20	51	60	101	108	125	116	73	
June	9	21	52	63	103	108	129	112	67	
May	10	22	52	68	102	108	130	109	67	
April	10	24	52	74	101	109	133	107	62	
March	11	27	52	78	103	111	133	105	51	
February	12	29	51	82	103	113	133	90	46	
January	14	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
- Buenos Aires, Argentina
- Decepcion I.

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

University of Graz:
- Graz, Austria

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Leopoldville, Belgian Congo

British Department of Scientific and Industrial Research, Radio Research Board:
Ibadan, Nigeria (University College of Ibadan)
Port Lockroy
Singapore, British Malaya
Slough, England

Defence Research Board, Canada:
Resolute Bay, Canada

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

Danish National Committee of URSI:
Godhavn, Greenland

French Ministry of National Defense (Section for Scientific Research):
Djibouti, French Somaliland

National Laboratory of Radio-Electricity (French Ionospheric Bureau):
Casablanca, Morocco
Poitiers, France

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

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

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

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

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway

Manila Observatory:
Baguio, P. I.

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

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

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Fairbanks, Alaska (Geophysical Institute of the
University of Alaska)
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 through 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C. during December 1954, 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

Tables 87a and 87b give for November 1954 the radio propagation quality figures for the North Atlantic area, the relevant CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qa, separately for each 6-hour interval of the Greenwich day, viz., 00-06, 06-12, 12-18, 18-24 hours UT (Universal Time or GCT).
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the four quarter-day Qa-figures, before rounding off, with half weight given to quality grades 5 and 6. This procedure tends to give whole-day indices suitable for comparison with whole-day advance forecasts which designate whenever possible the days when significant disturbance or unusually quiet conditions will occur.
(c) short-term forecasts, issued by CRPL every six hours (nominally one hour before 00^h, 06^h, 12^h, 18^h UT) and applicable to the period 1 to 13 (especially 1 to 7) hours ahead. Note that new scoring rules have been adopted beginning with October 1952 data.
(d) advance forecasts, issued semiweekly (CRPL-J reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole-day quality indices.
(e) half-day averages of the geomagnetic K indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.
(f) illustration of the comparison of short-term forecasts with Qa-figures and also with estimates of radio quality based on CRPL observations only.
(g) illustration of the outcome of advance forecasts (1 to 3 or 4 days ahead) and, for comparison, the outcome of a type of "blind" forecast. For the latter the frequency for each quality grade, as determined from the distribution of quality grades in the four most recent months of the current season, is partitioned among the grades observed in the current month in proportion to the frequencies observed in the current month.

These radio propagation quality figures, Qa, are prepared from radio traffic data reported to CRPL by American Telephone and Telegraph Company, Mackay Radio and Telegraph Company, RCA Communications, Inc., Marconi Company, British Admiralty Signal and Radar Establishment, and the following agencies of the U. S. Government:- Coast Guard, Navy, Army Signal Corps, and U. S. Information Agency. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality.

The original reports are submitted on various scales and for various time intervals. The observations for each 6-hour interval are averaged on the quality scale of the original reports. These 6-hour indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. The 6-hourly quality figures are (subjectively) weighted means of the reports received for that period. These 6-hourly quality figures replace, beginning January 1953, the half-daily quality figures which formerly appeared in this table. (These forecasts and quality indices are prepared by the North Atlantic Radio Warning Service, the CRPL forecasting center at Ft. Belvoir, Virginia.)

Table 86 gives for November 1954, the radio propagation quality figures for the North Pacific area, the relevant CRPL advance and short-term forecasts, and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qp, separately for each of three 9-hour intervals of the Greenwich day, viz., 03-12, 09-18 and 18-03 UT (Universal Time or GCT).
(b) whole-day radio quality indices for each Greenwich day. These are derived from the same basic data as the 9-hour indices, separately reduced.
(c) short-term forecasts, issued daily at 02, 09 and 18 hours UT.
(d) advance forecasts, issued semiweekly (CRPL-Jp reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole day quality indices.

These radio quality indices, Qp, refer to radio propagation on optimum frequencies over moderately long transmission paths in the North Pacific area. Typical paths are Anchorage (Alaska) to Seattle, or Anchorage to Tokyo. The indices are derived from reports submitted regularly by communications agencies of the U. S. Army and Air Force, and by Aeronautical Radio, Inc. The method of derivation of Qp differs from that of Qa. For data prior to June 1954, the reported quality ratings were reduced to a Q-scale with assumed mean and standard deviation for each of the periods of the day; the Qp published was the average converted rating for each date. Beginning with the data for June 1954 a ranking method has been used with the Q-scale bound statistically to magnetic character figures, as follows:

The original reports from the various contributors are used only to rank the days of the month in order of degree of disturbance. The numerical value of Qp assigned to each day is taken from a table which gives the Qp that corresponds in a statistical sense to the magnetic activity observed during the month, it being assumed that the one-month sample is large enough that the distribution of quiet and disturbance will be the same for magnetic and radio quality indices. This table comes from equating the expected distributions of magnetic activity indices and Qp (for the former, the years 1952-53 of K-Cheltenham were used; for the latter the distribution was arbitrary but strongly influenced by experience with Qa and the previous Qp). In order to avoid the statistic "average rank," the raw scores for each reporter-period are first converted to the 1-9 scale by ranking and the use of the same table. Mean quality indices for each day-period are then computed and these means ranked and converted by the table to give Qp.

The expected distributions adopted for Qp differ slightly for the different periods of the day for which quality figures are derived. For the 03-12, 18-03 and 00-24 periods 23% of the quality figures are 4 or less and for the 09-18 period 25% are. In the periods 18-03 and 00-24, indices of seven or greater are expected 25% of the time; in the 03-12 period 22% and in the 09-18 period 16%. (These forecasts and quality indices are prepared by the North Pacific Radio Warning Service, the CRPL forecasting center at Anchorage, Alaska.)

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

Tables 88 through 90 give the observations of the solar corona during December 1954, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 91 through 93 list the coronal observations obtained at Sacramento Peak, New Mexico, during December 1954, derived by Harvard College Observatory as a part of its performance of a research contract with the Upper Air Research Observatory, Geophysical Research Directorate, Air Force Cambridge Research Center. 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 88 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 89 gives similarly the intensities of the first red (6374A) coronal line; and table 90, the intensities of the second red (6702A) coronal line; all observed at Climax in December 1954.

Table 91 gives the intensities of the green (5303A) coronal line; table 92, the intensities of the first red (6374A) coronal line; and table 93, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in December 1954.

The following symbols are used in tables 88 through 93: a, observation of low weight for whole limb (if in date column) or for portion of limb indicated; -, corona not visible; and X, no observation for whole limb (if in date column) or for portion of limb indicated.

Tables 94 and 95 give details of the Climax, Colorado, and Sacramento Peak, New Mexico, observations, respectively, from July through December 1954. The columns list in order the Greenwich date of observation; the threshold or lowest observable intensity of 5303A for each spectrum plate centered at the astronomical position angle indicated, the observer, and person responsible for the intensity estimates of the observation. These tables continue the presentation of coronal data in the manner of table 1 of CRPL-1-4 and appear in the F series regularly at intervals of six months.

RELATIVE SUNSPOT NUMBERS

Table 96 lists the daily provisional Zürich relative sunspot number, R_Z, for December 1954, as communicated by the Swiss Federal Observatory. Table 97 contains the daily American relative sunspot number, R_A', for November 1954, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 98 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

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

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

INDICES OF GEOMAGNETIC ACTIVITY

Table 99 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following three criteria: (1) the sum of the eight Kp's; (2) the greatest Kp; and (3) the sum of the square of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Kp is available from 1937 to date as noted in F108.

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

SUDDEN IONOSPHERE DISTURBANCES

Table 100 shows that no sudden ionosphere disturbances were observed at Ft. Belvoir, Virginia, during the month of December 1954.

ERRATA

CRPL-F124, p. 12, Index, Part I: opposite Leopoldville, under 1954, March, footnote reference symbol should be *.

p. 13, Index, Part II: opposite Djibouti, under 1952, Jy, number of F issue should be 123.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) — December 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.4						3.15
01	270	(2.7)					2.3	(3.2)
02	260	3.2						3.2
03	250	3.4						3.2
04	240	3.5						3.3
05	240	3.2						3.3
06	240	3.0					2.2	3.3
07	230	3.1					2.8	3.4
08	220	4.7	---	---	(120)	1.8	3.1	3.6
09	230	5.3	220	---	110	2.2	3.1	3.6
10	240	5.8	210	3.6	110	2.5	3.4	3.6
11	240	6.2	210	(3.8)	110	2.7	3.3	3.5
12	240	6.2	210	(3.8)	110	2.7	3.0	3.5
13	250	6.2	220	(3.7)	110	2.7	3.7	3.5
14	240	6.0	220	(3.6)	110	2.5	3.4	3.5
15	230	5.6	220	---	110	2.2	3.5	3.5
16	220	5.4	220	---	(120)	1.8	2.4	3.5
17	220	4.6					2.7	3.5
18	230	3.6					2.5	3.4
19	240	3.0					2.9	3.3
20	250	2.6					2.9	3.3
21	(260)	2.4					2.7	3.2
22	(280)	2.3					2.5	3.2
23	280	2.3					2.5	3.1

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) — November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					6.3	---
01	---	---					6.5	
02	---	---					5.2	---
03	---	---					4.8	---
04	---	---					4.6	
05	---	---					4.6	---
06	---	---					4.8	
07	---	---					4.8	
08	---	---					4.8	---
09	(290)	(2.9)					4.6	(3.1)
10	250	(3.5)					4.8	(3.2)
11	250	4.0	---	---	---	---	3.7	3.2
12	250	3.9	---	---			3.4	3.3
13	240	(4.1)					3.5	(3.2)
14	250	(4.2)					(2.5)	(3.2)
15	250	(4.0)					2.8	3.2
16	260	(3.1)					2.8	(3.2)
17	270	(2.6)					3.5	(3.2)
18	(280)	(1.8)					3.9	(3.15)
19	---	---					4.4	---
20	---	---					4.4	
21	---	---					4.1	---
22							4.6	
23							5.0	

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

Table 3

Fairbanks, Alaska (64.9°N, 147.8°W) — November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	(3.2)					5.0	(3.15)
01	(320)	(3.1)					5.0	(3.0)
02	(340)	(2.6)					5.8	(2.9)
03	---	(2.6)					5.2	---
04	(340)	(2.4)					4.7	(2.9)
05	320	(2.3)					4.0	(2.9)
06	300	(1.8)					4.4	(3.0)
07	310	(2.2)					2.9	(3.0)
08	270	2.9					2.3	3.2
09	250	3.7	---	---	---	---	2.1	3.4
10	240	4.4	240	---	---	---	2.0	3.5
11	240	4.5	220	---	---	---	2.0	3.4
12	230	4.6	220	---	---	(1.7)	1.6	3.5
13	230	4.6	210	---	---	---	2.2	3.4
14	230	4.7	---	---	---	---	1.6	3.5
15	220	4.1	---	---	---	---	2.0	3.4
16	230	3.5					1.4	3.3
17	240	2.4					1.7	3.3
18	260	2.0						3.1
19	300	(1.8)					2.4	(3.1)
20	(320)	(2.0)					3.5	(2.9)
21	(300)	(2.9)					4.1	(3.1)
22	(300)	(2.0)					4.5	(3.1)
23	(320)	(1.8)					4.0	(3.0)

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

Table 4

Narsarssuak, Greenland (61.2°N, 45.4°W) — November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.1)					4.6	---
01	---	---					4.8	---
02	---	---					4.8	---
03	(310)	(2.2)					4.7	(3.1)
04	310	2.3					4.8	(3.1)
05	300	2.1					3.8	3.3
06	300	2.0					3.1	(3.2)
07	(280)	1.9					3.3	3.1
08	240	3.2			---	---		3.45
09	230	4.0	220	---	---	---		3.5
10	240	4.6	230	---	120	2.0		3.5
11	250	4.8	230	---	120	2.1		3.5
12	250	4.9	220	---	120	(2.0)		3.5
13	240	4.8	220	---	130	1.9		3.5
14	240	4.6	230	---	120	1.9		3.5
15	240	4.2			---	---		3.4
16	240	4.0					3.7	3.3
17	260	(3.6)					3.6	(3.2)
18	300	(3.0)					4.3	(3.15)
19	(320)	(3.2)					4.4	(3.1)
20	(330)	(2.9)					5.0	(3.1)
21	(330)	(2.4)					6.0	---
22	(280)	(3.0)					6.2	(3.4)
23	(270)	(2.9)					4.8	---

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

Table 5

Adak, Alaska (51.9°N, 176.6°W) — November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.1					2.5	3.1
01	250	3.1					2.2	3.0
02	250	3.0					2.4	3.1
03	250	3.0					2.3	3.1
04	250	3.0					2.0	3.1
05	250	3.1					2.0	3.15
06	220	2.9					2.9	3.3
07	220	3.6			---	---	2.6	3.5
08	220	5.0	--	---	120	1.7	1.8	3.6
09	220	5.7	220	(3.3)	120	2.1	3.2	3.6
10	230	6.4	220	(3.5)	120	2.3	3.6	3.5
11	230	6.5	210	3.6	120	2.4	2.0	3.55
12	230	6.4	210	3.4	110	2.4	2.2	3.6
13	220	6.3	220	---	120	2.3	2.4	3.6
14	220	6.2	230	---	120	2.0	1.6	3.6
15	210	5.6			130	1.8	2.5	3.7
16	210	4.9			130	1.4	2.8	3.7
17	210	3.6			---	---	2.8	3.5
18	220	2.8					3.0	3.45
19	230	2.6					2.8	3.4
20	230	2.4					3.0	3.4
21	250	2.7					3.4	3.1
22	250	3.0					3.2	3.1
23	250	2.9					2.8	3.1

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 6

San Francisco, California (37.4°N, 122.2°W) — November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	(3.2)					(3.0)	(3.1)
01	260	(3.0)					(3.2)	(3.1)
02	260	(3.0)					(2.9)	(3.1)
03	260	(3.1)					(2.5)	(3.0)
04	(250)	(3.0)					(2.5)	(3.0)
05	(270)	3.2					(2.6)	3.0
06	(260)	(3.2)					(2.6)	(3.0)
07	240	(4.6)	---	---			(3.0)	3.4
08	240	5.9	230	---	(130)	(2.0)	(3.0)	3.5
09	250	6.2	220	(3.7)	(120)	(2.5)	3.5	3.4
10	260	6.4	220	(3.9)	120	(2.8)	3.6	3.4
11	260	6.7	230	(4.0)	(120)	(2.9)	3.6	3.35
12	260	6.9	230	(4.0)	(120)	2.9	3.6	3.3
13	270	6.9	240	(4.0)	(120)	(2.9)	3.8	3.3
14	260	6.4	240	(3.8)	(120)	(2.8)	3.9	3.3
15	250	6.3	230	(3.2)	(130)	(2.5)	3.8	3.4
16	240	5.8	---	---	---	---	3.5	3.4
17	220	5.0					3.6	3.5
18	(230)	(3.2)					3.4	(3.3)
19	240	(2.8)					2.7	(3.3)
20	250	(2.8)					3.6	(3.3)
21	(250)	(2.8)					3.6	(3.15)
22	(260)	(2.8)					3.3	3.05
23	(240)	(3.2)					(3.2)	(3.1)

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

Table 7

White Sands, New Mexico (32.3°N, 106.5°W) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.3					2.4	3.3
01	230	3.3					2.6	3.3
02	220	3.4					2.1	3.3
03	230	3.4						3.3
04	220	3.2						3.4
05	240	3.2						3.2
06	240	3.1					(2.2)	3.3
07	220	5.0	---	---	120	(1.7)	(2.4)	3.6
08	220	6.2	200	---	110	2.3	3.1	3.7
09	230	6.6	200	(3.8)	110	2.6	3.6	3.7
10	230	6.4	200	(4.0)	110	2.8	3.9	3.65
11	240	6.7	200	(4.0)	110	2.9	3.8	3.6
12	240	6.9	200	(4.1)	110	3.0	4.0	3.55
13	240	7.0	200	(4.0)	110	2.9	3.8	3.5
14	240	6.8	210	(4.0)	110	2.8	3.8	3.5
15	230	6.4	210	---	110	(2.5)	4.1	3.65
16	220	5.8	---	---	110	2.1	3.5	3.6
17	200	5.4					2.8	3.65
18	200	3.5					2.4	3.6
19	210	3.0					3.2	3.5
20	(230)	2.9					3.3	3.4
21	230	2.8					3.2	3.4
22	240	3.2					3.0	3.25
23	240	3.3					2.8	3.3

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

Table 8

Maui, Hawaii (20.8°N, 156.5°W) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.6						3.0
01	280	2.8						3.05
02	260	2.8						3.25
03	250	2.4						3.3
04	280	2.0						3.1
05	320	1.9						2.8
06	320	2.1						2.8
07	260	4.7	---	---	140	1.6	1.8	3.3
08	290	6.0	250	---	120	2.4	3.1	3.2
09	320	7.1	240	4.3	120	2.8	4.8	3.0
10	320	8.7	230	4.4	120	3.0	4.6	3.0
11	300	9.2	220	4.4	120	3.2	4.6	2.9
12	320	10.0	220	4.5	120	3.2	4.6	2.9
13	310	11.0	220	4.4	120	3.2	4.9	3.0
14	300	11.2	230	4.3	120	3.0	4.2	3.0
15	270	10.8	240	4.2	120	2.8	4.1	3.2
16	250	8.8	250	---	120	2.5	3.8	3.3
17	240	6.6	---	---	130	1.8	4.6	3.4
18	230	4.6					4.0	3.5
19	240	3.2					3.8	3.3
20	300	2.9					2.2	2.9
21	280	3.0					2.2	3.0
22	280	2.8					1.7	3.1
23	260	2.7					2.1	3.15

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

Table 9

Puerto Rico, W. I. (18.5°N, 67.2°W) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.9						3.1
01	240	4.0						3.2
02	240	4.2						3.3
03	220	4.0						3.45
04	230	3.3						3.3
05	240	3.0					2.0	3.2
06	250	2.8						3.1
07	230	4.8	---	---				3.5
08	240	5.9	230	---	110	2.3		3.5
09	260	6.8	220	---	110	2.8	2.2	3.5
10	260	7.5	220	4.2	110	3.0		3.4
11	250	7.6	220	4.3	110	3.1		3.5
12	270	6.8	210	4.4	110	3.2	2.6	3.45
13	270	6.8	210	4.3	110	3.2	3.1	3.45
14	270	6.6	220	4.2	110	3.1	3.4	3.4
15	250	6.7	220	4.0	110	2.9	3.2	3.5
16	240	6.5	230	---	110	2.5	3.9	3.5
17	230	6.3	230	---	120	2.0	3.3	3.5
18	210	5.2					2.8	3.55
19	220	4.2					2.6	3.4
20	240	3.2						3.2
21	270	3.4						3.0
22	270	3.8					2.2	3.1
23	260	3.8						3.05

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

Table 10

Guam I. (13.6°N, 144.9°E) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	5.0					1.8	3.3
01	240	4.8						3.4
02	240	4.6						3.4
03	220	3.9						3.5
04	220	3.0						3.4
05	230	2.2						3.3
06	260	2.4					1.5	3.1
07	230	5.4	230	---	120	1.8	2.6	3.6
08	260	6.8	220	---	110	2.4	3.6	3.4
09	290	8.2	220	4.1	110	2.9	4.2	3.15
10	300	9.0	210	4.3	110	3.1	4.2	2.9
11	320	9.0	200	4.4	110	3.2	3.6	2.6
12	320	8.4	200	4.4	110	3.2	3.6	2.6
13	320	8.4	200	4.4	110	(3.2)	4.0	2.7
14	310	8.8	210	4.3	110	3.1	4.0	2.9
15	290	9.4	210	4.1	110	2.9	4.5	3.0
16	270	10.0	220	---	110	2.6	4.1	3.2
17	240	9.4	230	---	120	2.0	4.2	3.4
18	230	9.1					3.8	3.4
19	220	8.2					3.0	3.45
20	220	7.2					3.0	3.4
21	220	6.2					2.8	3.2
22	240	5.7					2.8	3.3
23	240	5.2					2.4	3.3

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

Table 11

Panama Canal Zone (9.4°N, 79.9°W) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.2					1.8	3.25
01	240	2.8						3.45
02	240	2.5					2.4	3.4
03	240	2.4					3.2	3.3
04	260	2.2					2.9	3.0
05	300	2.4					3.2	2.9
06	280	3.0					4.2	3.1
07	250	5.6	250	---	130	2.0	4.0	3.4
08	280	6.8	240	(4.2)	120	2.6	4.0	3.3
09	280	8.1	230	4.4	110	3.0	4.3	3.3
10	270	8.6	220	4.4	110	3.2	4.6	3.3
11	290	8.4	220	4.5	110	3.3	4.2	3.2
12	280	8.2	230	4.5	110	3.4	4.8	3.3
13	290	7.4	220	4.5	110	3.3	4.8	3.2
14	290	7.4	230	4.4	110	3.2	5.3	3.2
15	290	7.4	230	4.4	110	3.0	5.0	3.2
16	270	7.3	240	(4.0)	110	2.6	5.4	3.3
17	250	7.4	240	---	120	---	4.4	3.4
18	230	6.4					3.8	3.5
19	230	4.3					3.0	3.4
20	230	3.5					2.8	3.4
21	250	2.7					2.0	3.1
22	290	2.9						3.0
23	260	3.1						3.2

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

Table 12

Point Barrow, Alaska (71.3°N, 156.8°W) October 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	(2.4)					5.8	---
01	(300)	(2.8)					6.4	(2.95)
02	(280)	(2.8)					5.6	(3.1)
03	(300)	(2.4)					4.8	(2.95)
04	(320)	(2.6)					3.6	(2.9)
05	(310)	(2.6)					4.6	---
06	(370)	(2.6)					4.6	(2.9)
07	(320)	(2.7)					4.6	(3.1)
08	(290)	3.0	---	---	---	---	4.6	3.1
09	300	3.5	---	---	---	---	4.4	3.2
10	300	3.7	260	---	---	---	3.8	3.1
11	280	4.0	240	---	---	---	3.1	3.0
12	290	4.2	250	(3.2)	120	2.0	2.5	3.2
13	290	4.2	250	(3.2)	---	---	(2.2)	3.2
14	280	4.3	240	(3.2)	---	---	2.0	3.2
15	270	4.0	250	---	---	---		3.2
16	260	4.1	---	---	---	---		3.2
17	250	3.5	---	---	---	---	3.0	3.2
18	280	(3.4)			---	---	3.5	3.15
19	(300)	(2.9)					3.6	(3.1)
20	(280)	(2.2)					4.4	(3.15)
21	---	(2.4)					5.0	(3.1)
22	---	---					5.2	---
23	---	---					6.6	---

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

Table 13

Fairbanks, Alaska (64.9°N, 147.8°W) October 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(2.4)					4.8	(2.8)
01	(320)	(2.0)					5.0	(2.95)
02	(380)	(2.3)					5.6	(2.7)
03	(400)	(2.6)					5.7	(2.6)
04	380	(2.3)					5.0	(2.7)
05	(340)	(2.4)					5.2	(2.8)
06	290	(2.1)					4.0	(3.0)
07	250	3.0	---	---	---	---	3.0	3.3
08	260	3.6	220	---	120	(1.8)	2.4	3.3
09	(280)	3.9	240	---	120	(2.0)	2.0	3.3
10	310	3.8	230	(3.5)	120	(2.2)	2.1	3.2
11	310	4.1	230	(3.5)	120	(2.2)	2.0	3.1
12	290	4.4	230	(3.5)	120	(2.3)		3.2
13	270	4.6	230	---	120	(2.2)	1.6	3.3
14	250	4.6	230	---	120	2.1		3.35
15	240	4.3	240	---	130	(1.8)		3.4
16	240	4.0	---	---	140	(1.4)	1.4	3.3
17	240	3.8	---	---			1.6	3.3
18	250	3.0					2.2	3.2
19	280	2.3					4.0	3.1
20	300	(2.0)					4.0	(3.0)
21	300	(1.8)					3.7	(3.0)
22	(300)	(2.0)					4.5	(3.1)
23	(300)	(2.2)					4.5	---

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

Table 14

Reykjavik, Iceland (64.1°N, 21.8°W) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.5	---
01	---	---					5.1	---
02	---	---					4.7	---
03	---	---					4.4	---
04	---	---					5.0	---
05	---	---			---	---	3.0	---
06	---	---	---	---	---	---		---
07	---	(3.0)	240	---	---	---		(3.3)
08	---	---	---	---	---	---		---
09	(370)	(3.7)	220	3.4	---	---		(3.05)
10	(340)	(4.0)	210	3.5	---	---		(3.25)
11	400	4.2	230	3.6	---	---		3.0
12	360	4.2	220	3.6	---	---		3.1
13	410	4.2	220	3.6	---	---		2.95
14	400	4.1	230	3.5	---	---		3.0
15	400	4.0	220	3.5	---	---		3.0
16	350	4.0	240	3.3	---	---		3.0
17	320	3.9	250	---	---	---		3.25
18	290	3.6	260	---			(2.5)	3.2
19	280	3.2					3.8	(3.3)
20	---	---					4.0	---
21	---	---					4.3	---
22	---	---					5.0	---
23	---	---					4.6	---

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

Table 15

Lindau/Harz, Germany (51.6°N, 10.1°E) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<280	2.8					2.6	3.2
01	265	2.6					2.7	3.1
02	260	2.6					2.6	3.1
03	265	2.6			---	E	2.7	3.1
04	260	2.5			---	E	2.6	3.2
05	255	2.3			---	E	2.8	3.2
06	240	2.8	---	---	---	E	3.1	3.5
07	250	3.5	225	3.0	---	1.8	3.3	3.5
08	310	3.8	220	3.5	110	2.2	3.6	3.4
09	360	4.2	210	3.8	105	2.4	3.5	3.2
10	350	4.5	205	3.8	105	2.6	3.8	3.3
11	310	4.7	200	4.0	105	2.8	4.3	3.3
12	315	4.7	200	4.0	105	2.8	4.1	3.4
13	330	4.6	200	4.0	105	2.8	4.2	3.4
14	300	4.9	210	3.9	105	2.8	4.0	3.5
15	300	4.7	215	3.9	105	2.7	3.6	3.4
16	290	4.6	225	3.7	105	2.4	3.2	3.5
17	260	4.6	230	---	115	2.1	3.2	3.4
18	250	4.8	240	---	---	E	3.0	3.4
19	250	5.2			---	E	3.4	3.3
20	250	5.0			---	E	2.9	3.3
21	240	4.6					3.3	3.4
22	250	3.6					3.0	3.3
23	270	3.8					3.0	3.2

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

Table 16

Graz, Austria (47.1°N, 15.5°E) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.1						
01	300	3.2						
02	295	3.0						
03	(300)	2.9						
04	(295)	2.7						
05	(300)	2.5						
06	250	3.3						
07	250	3.9	235	3.4				
08	250	4.5	210	3.8			2.8	
09	300	4.8	210	4.0			4.1	
10	285	5.1	205	4.0			3.6	
11	290	5.2	200	4.1			3.6	
12	290	5.1	200	4.1			3.3	
13	300	5.0	200	4.1				
14	290	5.0	200	4.0				
15	280	5.0	210	3.9				
16	260	5.0	240	3.9				
17	250	5.0		3.2				
18	250	5.2						
19	260	5.2						
20	260	5.0					2.8	
21	250	4.2						
22	265	3.9						
23	280	3.4						

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

Table 17

Schwarzenburg, Switzerland (46.8°N, 7.3°E) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0						3.3
01	300	2.9						3.2
02	290	2.9						3.2
03	280	2.8						3.3
04	260	2.7						3.3
05	260	2.4						3.3
06	215	2.6						3.6
07	200	3.5		---		1.8		3.8
08	300	3.9		3.5		2.2		3.5
09	300	4.4		3.7		2.5		3.35
10	300	4.6		3.9		2.8		3.3
11	300	5.0		4.0		2.9		3.5
12	300	5.0		4.0		3.0		3.5
13	300	5.0		4.1		3.0		3.6
14	300	4.9		4.0		2.9		3.5
15	300	5.0		4.0		2.8		3.5
16	250	4.8		3.8		2.6		3.5
17	230	5.0		3.4		2.3		3.5
18	210	5.0		---		1.8		3.6
19	210	5.4						3.5
20	220	5.0						3.4
21	210	4.8						3.6
22	215	3.9						3.5
23	240	3.1						3.4

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

Table 18

Yamagawa, Japan (31.2°N, 130.6°E) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.3					2.4	
01	290	3.3					2.4	
02	280	3.2					2.4	
03	250	3.0					2.4	
04	260	2.6					2.4	
05	300	2.6					2.3	
06	260	3.4					2.4	
07	250	5.3					3.1	
08	250	5.5					3.5	
09	270	5.8					4.2	
10	290	6.5					4.6	
11	320	6.0					3.7	
12	310	6.4						
13	320	6.4						
14	310	6.8						
15	290	6.4						
16	300	6.1					3.4	
17	280	6.4					3.4	
18	250	7.2					3.2	
19	240	6.4					2.8	
20	230	4.8					3.0	
21	280	3.4					3.0	
22	300	3.3					2.9	
23	320	3.3					3.6	

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 19

Huancayo, Peru (12.0°S, 75.3°W) — September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	5.8						3.35
01	230	5.5						3.25
02	240	4.6						3.4
03	250	3.8						3.4
04	260	3.2						3.3
05	280	2.8						(3.3)
06	250	3.5			130	1.3		3.2
07	(280)	6.0	230	---	110	2.3	6.8	3.3
08	320	6.8	220	4.0	110	---	10.7	3.0
09	340	7.0	200	4.2	100	---	11.5	2.7
10	360	6.8	200	4.3	100	---	12.2	2.6
11	390	6.4	200	4.3	100	---	12.3	2.6
12	400	6.4	200	4.4	100	---	12.2	2.6
13	370	6.6	200	4.3	100	---	12.2	2.6
14	370	6.9	190	4.2	100	---	11.4	2.6
15	340	7.0	190	4.1	100	---	11.2	2.6
16	(310)	7.0	190	---	110	---	9.4	2.7
17	(280)	7.0	230	---	110	---	7.1	2.75
18	270	7.0						2.9
19	280	6.8						2.9
20	270	6.6						3.0
21	240	6.6						3.2
22	230	6.5						3.3
23	230	6.2						3.4

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

Table 20

Buenos Aires, Argentina (34.5°S, 58.5°W) — September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(3.0)						(3.1)
01	300	2.9						3.0
02	280	(3.2)						(3.1)
03	240	3.4						(3.5)
04	220	(2.8)					1.3	(3.5)
05	250	2.3						3.3
06	220	3.8			---	---	1.8	3.5
07	220	4.6	---	---	---	---	2.8	3.5
08	270	5.3	220	---	110	2.6	3.4	3.5
09	280	6.0	210	---	110	2.9	3.6	3.4
10	300	6.5	210	4.1	110	3.0	3.9	3.35
11	310	7.4	200	4.2	110	(3.1)	4.3	3.1
12	290	8.7	200	4.2	110	(3.2)	4.4	3.3
13	280	9.2	200	4.2	110	3.2	4.2	3.4
14	260	9.2	200	4.0	110	3.1	3.8	3.5
15	260	8.2	210	---	110	2.8	3.5	3.4
16	240	7.5	210	---			3.0	3.5
17	220	7.2	220	---			2.6	3.5
18	210	5.9						3.5
19	230	4.3						3.2
20	280	3.6						3.0
21	280	3.6						3.1
22	300	3.4						3.2
23	300	3.2						(3.0)

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

Table 21

Oslo, Norway (60.0°N, 11.1°E) — August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	2.4						3.1
01	270	2.2					2.8	3.0
02	270	1.8					2.6	3.0
03	280	1.8					2.6	3.0
04	275	2.2	---	---	---	---	2.6	3.1
05	260	2.8	235	---	115	1.4	1.9	3.3
06	(320)	3.4	215	3.2	100	1.9	3.0	(3.2)
07	420	3.8	210	3.5	100	2.1	3.3	2.85
08	450	4.0	205	3.7	100	2.4	3.7	2.85
09	390	4.3	205	3.8	100	2.6	3.9	3.0
10	370	4.5	205	3.9	100	2.7	4.0	3.05
11	350	4.6	210	4.0	100	2.8	3.9	3.15
12	350	4.6	200	4.1	100	2.8	3.9	3.15
13	350	4.6	200	4.0	100	(2.9)	4.1	3.15
14	350	4.5	200	4.0	100	2.8	3.6	3.1
15	365	4.4	210	4.0	100	2.7	3.0	3.1
16	360	4.4	210	3.9	100	2.6	3.5	3.1
17	325	4.4	225	3.7	100	2.4	3.6	3.15
18	310	4.5	230	3.6	110	2.0	3.6	3.15
19	260	4.6	230	---	115	1.8	3.6	3.2
20	250	4.8	---	---	125	1.5	2.0	3.2
21	230	4.5	---	---			2.4	3.25
22	240	4.0					3.1	3.15
23	250	3.1					2.5	3.15

Time: 15.0°E.
Sweep: 0.6 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 22

De Bilt, Holland (52.1°N, 5.2°E) — August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0						3.0
01	<280	2.9						3.0
02	<280	2.8						3.0
03	<290	2.6					2.2	3.0
04	260	2.7					2.1	3.0
05	220	3.1	220	2.9	---	E	2.2	3.4
06	G	<3.7	210	3.4	100	2.0	3.0	2.9
07	400	4.2	200	3.7	100	2.4	3.7	3.0
08	360	4.6	200	3.9	100	2.6	4.0	3.0
09	330	4.8	200	4.0	100	2.8	3.5	3.4
10	310	5.0	200	4.1	100	3.0	3.7	3.4
11	310	5.0	200	4.2	100	3.0	3.7	3.3
12	320	4.8	200	4.2	100	3.0	3.8	3.5
13	340	4.8	200	4.2	100	3.0	3.2	3.25
14	350	4.7	200	4.0	100	3.0	3.3	3.25
15	360	4.8	210	4.0	100	2.8	3.4	3.1
16	330	4.6	210	3.9	100	2.6	3.3	3.3
17	310	4.7	210	3.5	100	2.3	3.4	3.4
18	280	4.9	220	3.1	100	1.9	3.2	3.4
19	240	5.4					3.2	3.4
20	230	(5.3)					3.0	(3.5)
21	220	4.5					3.4	3.5
22	230	3.8					1.9	3.4
23	250	3.3						3.2

Time: 0.0°.
Sweep: 1.4 Mc to 11.2 Mc in 6 minutes, automatic operation.

Table 23

Graz, Austria (47.1°N, 15.5°E) — August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	3.5					3.4	
01	300	3.3					3.2	
02	285	3.1					3.0	
03	---	2.9						
04	---	2.9						
05	275	3.0						
06	250	3.7		3.3			3.3	
07	300	4.1	220	3.6			4.2	
08	290	5.0	210	3.8			3.9	
09	290	5.2	210	4.0	---	2.8	4.0	
10	295	5.3	200	4.1			3.9	
11	295	5.2	200	4.2			3.8	
12	310	5.2	200	4.2			3.6	
13	300	5.0	200	4.2			3.4	
14	300	5.2	210	4.1			3.7	
15	330	4.9	200	4.0	---	3.0	3.2	
16	325	4.8	205	3.9	---	2.8	3.3	
17	300	4.9	225	3.7				
18	275	5.0		3.4			3.7	
19	260	5.7		(2.3)			3.2	
20	250	6.1					3.6	
21	240	5.6					3.7	
22	240	4.5					3.5	
23	250	3.9					3.4	

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

Table 24

Schwarzenburg, Switzerland (46.8°N, 7.3°E) — August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.2						3.4
01	300	3.1						3.3
02	280	3.0						3.3
03	230	2.9						3.3
04	280	2.8						3.3
05	260	2.8						3.4
06	210	3.2	---	---	---	---		3.5
07	200	4.0	200	3.4	100	2.1		3.7
08	300	4.4	200	3.7	100	2.5		3.5
09	300	4.6	200	3.8	100	2.7	5.0	3.45
10	300	5.0	200	4.0	100	3.0	5.2	3.4
11	300	5.0	200	4.1	100	3.0	4.6	3.5
12	300	5.1	200	4.2	100	3.0	4.9	3.4
13	310	4.9	200	4.2	100	3.0	4.7	3.3
14	340	4.8	200	4.1	100	3.0		3.35
15	320	4.6	200	4.0	100	2.9		3.3
16	320	4.8	200	3.9	100	2.8		3.3
17	300	4.8	200	3.8	100	2.6		3.4
18	300	4.8	200	3.5	100	2.2		3.4
19	260	5.2	---	---	100	2.0		3.4
20	220	6.0	---	---				3.5
21	200	6.0						3.6
22	200	4.9						3.6
23	200	3.9						3.4

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

Table 25

Wakkanai, Japan (45.4°N, 141.7°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5					4.5	
01	290	3.4					4.2	
02	280	3.3					3.5	
03	270	3.3					3.8	
04	280	(3.3)					3.5	
05	260	3.6					3.4	
06	300	4.2					4.0	
07	330	4.5					5.0	
08	340	4.7					6.0	
09	300	5.2					5.9	
10	330	5.0					6.1	
11	390	4.8					5.9	
12	390	4.7					4.8	
13	400	4.8					4.7	
14	360	4.8					5.2	
15	380	4.7					4.4	
16	350	4.6					4.2	
17	320	4.7					5.4	
18	300	4.8					5.3	
19	270	5.5					5.6	
20	280	5.3					4.3	
21	260	5.3					4.4	
22	260	4.5					4.5	
23	270	3.6					4.5	

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 26

Tokyo, Japan (35.7°N, 139.5°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3					4.5	3.0
01	290	3.2					3.9	3.0
02	300	3.2					4.5	3.0
03	270	3.3					4.2	3.0
04	260	3.1					3.2	3.05
05	260	3.2	---	---	---	---	3.2	3.1
06	280	4.2	240	3.4	120	2.0	4.1	3.1
07	280	5.1	220	3.7	110	2.4	5.0	3.2
08	280	5.5	220	4.0	110	2.5	6.5	3.3
09	300	5.4	210	4.1	110	2.9	6.5	3.3
10	320	5.0	200	4.2	110	3.0	6.5	3.2
11	350	5.1	210	4.3	110	3.2	5.7	3.0
12	380	5.1	210	4.3	110	3.1	5.0	3.0
13	360	5.3	220	4.2	110	3.2	5.3	3.0
14	340	5.5	230	4.2	110	3.1	5.5	3.0
15	330	5.3	230	4.0	110	3.0	4.6	3.1
16	300	5.6	240	3.9	110	2.7	5.4	3.2
17	300	5.5	240	3.5	120	2.3	5.1	3.1
18	280	5.7	250	---	---	---	5.4	3.1
19	250	6.0					4.5	3.1
20	250	5.7					5.0	3.1
21	240	4.9					5.2	3.1
22	280	4.3					5.0	3.0
23	270	4.0					4.5	3.0

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

Table 27

Yamagawa, Japan (31.2°N, 130.6°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4					5.6	
01	300	3.2					5.7	
02	290	3.2					3.6	
03	290	3.1					3.3	
04	290	2.9					3.5	
05	280	2.8					3.3	
06	250	3.6					3.0	
07	260	5.3					3.7	
08	250	5.7					5.2	
09	300	5.2					5.4	
10	340	5.0					5.9	
11	350	5.4					5.9	
12	380	5.2					5.7	
13	390	5.3					5.5	
14	360	5.9					5.3	
15	340	6.2					4.8	
16	310	6.3					4.8	
17	300	6.3					4.9	
18	290	6.0					4.0	
19	250	6.4					3.9	
20	250	6.1					4.3	
21	250	4.9					4.2	
22	290	3.9					5.7	
23	300	3.6					4.2	

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 28

Formosa, China (25.0°N, 121.5°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.5					3.6	2.95
01	280	4.1					5.5	3.2
02	280	4.5					5.2	3.2
03	260	4.4					4.6	3.3
04	260	3.7					3.6	3.2
05	240	3.2					2.9	3.5
06	220	4.2					3.0	3.5
07	240	5.3	210	3.5	110	2.3	4.0	3.7
08	280	5.6	210	3.9	110	2.8	5.8	3.4
09	290	5.2	210	4.2	110	3.1	6.2	3.4
10	320	5.6	210	4.3	110	3.3	6.4	3.15
11	340	6.6	---	---	100	---	6.0	2.95
12	360	6.8	---	---	100	---	5.4	2.8
13	350	7.6	---	---	100	3.4	5.6	2.95
14	320	8.2	---	---	100	3.2	5.0	3.0
15	310	9.0	---	---	110	3.1	5.8	3.1
16	280	8.2	230	4.0	110	---	4.7	3.15
17	280	8.1	230	3.8	---	---	4.3	3.3
18	240	8.2	240	(3.6)			4.8	3.4
19	200	7.6					4.1	3.5
20	200	5.8					3.2	3.4
21	260	4.2					3.3	3.3
22	310	3.2					3.1	3.0
23	320	3.3					2.8	2.95

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 29

Baguio, P. I. (16.4°N, 120.6°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	(2.7)					5.8	(2.7)
01	300	(2.4)					4.0	(2.8)
02	250	2.8					5.0	3.1
03	240	2.6					4.0	3.3
04	230	2.3					4.1	3.4
05	240	2.1					5.0	3.4
06	240	3.9					4.7	3.5
07	220	5.3			110	2.3	6.4	3.4
08	300	5.8	200	---	110	2.7	7.0	3.1
09	350	6.5	200	4.1	---	---	7.7	2.8
10	400	7.1	200	4.1	110	---	8.4	2.6
11	430	7.3	200	4.2	110	3.2	8.1	2.5
12	420	7.7	200	4.2	110	(3.4)	8.4	2.5
13	410	7.9	190	4.1	110	3.3	7.4	2.5
14	400	8.2	200	4.1	110	3.3	7.2	2.7
15	370	8.4	210	4.0	110	3.0	6.8	2.8
16	340	8.6	220	3.8	110	2.7	5.4	2.9
17	280	9.6	220	---	110	2.2	6.0	3.1
18	240	9.6					4.2	3.2
19	220	9.0					4.0	3.4
20	220	6.1					3.7	3.4
21	260	4.4					3.7	3.0
22	300	4.0					4.0	3.0
23	320	3.1					4.2	2.8

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

Table 30

Leopoldville, Belgian Congo (4.3°S, 15.3°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	215	2.9						2.7
01	(245)	--						---
02	(260)	(3.0)					1.6	(2.55)
03	---	(2.2)					2.4	(2.4)
04	(255)	2.2					2.6	(2.7)
05	240	3.1					2.3	2.7
06	250	5.2	230	---	120	2.1	3.0	2.9
07	275	6.0	230	4.0	110	2.7	3.2	2.7
08	280	6.6	220	4.1	110	3.0	3.2	2.7
09	290	7.0	---	4.2	110	3.2		< 2.7
10	290	7.2	---	4.2	110	3.2		2.6
11	290	7.8	---	4.3	110	3.3	3.2	2.55
12	300	8.6	---	4.3	110	3.3		2.4
13	310	7.8	--	4.2	110	3.2	3.2	2.4
14	295	8.0	---	4.1	110	3.0	3.0	2.3
15	295	8.5	230	4.0	110	2.6	3.2	2.4
16	275	8.4	240	---	120	2.1	3.0	2.4
17	240	7.8					3.0	2.5
18	240	7.5					3.1	2.6
19	225	6.6					2.8	2.8
20	210	5.2					2.6	2.9
21	210	3.2					2.2	2.9
22	230	3.2					1.6	2.5
23	230	3.0						2.7

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 31

Huancayo, Peru (12.0°S, 75.3°W) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	220	4.4						3.4
01	230	4.1						3.4
02	230	4.1						3.4
03	240	3.4						3.4
04	240	2.9						3.4
05	270	2.2						3.2
06	270	2.2			---	E		3.0
07	(290)	4.7	220	---	110	2.0	5.8	3.3
08	(330)	5.7	210	3.8	110	2.6	9.1	3.0
09	350	6.0	200	4.1	110	---	10.8	2.8
10	390	6.0	190	4.1	110	---	11.3	2.65
11	410	5.8	190	4.2	110	---	11.4	2.6
12	420	5.8	190	4.2	110	---	11.5	2.6
13	400	5.9	180	4.2	110	---	11.4	2.6
14	400	6.0	180	4.1	110	---	11.4	2.6
15	380	6.0	180	4.0	110	---	10.2	2.6
16	(310)	6.2	180	---	110	---	9.2	2.7
17	(280)	6.4	210	---	110	2.1	5.8	2.8
18	250	6.5			100	---	4.5	3.0
19	260	5.9						3.0
20	270	5.5						3.1
21	240	5.3						3.2
22	220	5.4						3.4
23	220	4.9						3.4

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

Table 32

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	220	2.9						3.3
01	230	2.7						3.2
02	230	2.7						3.3
03	230	2.8						3.3
04	220	2.5					3.8	3.25
05	220	2.5						3.2
06	<240	2.6						3.2
07	220	4.0	---	---	120	1.9		3.6
08	240	4.7	220	3.3	120	2.3		3.6
09	280	4.9	220	3.9	110	2.7		3.4
10	300	5.2	220	4.1	110	3.0		3.3
11	300	5.4	210	4.2	110	3.1		3.3
12	300	5.6	210	4.2	110	3.1		3.3
13	300	5.8	210	4.2	110	3.1	3.8	3.3
14	280	5.7	200	4.1	110	3.0	3.9	3.3
15	270	5.8	200	3.9	110	2.8	3.4	3.4
16	250	5.3	210	3.5	110	2.5	3.1	3.5
17	230	5.0	220	2.7	120	2.1		3.5
18	220	4.6					2.1	3.4
19	220	3.7					1.9	3.4
20	<230	3.0						3.4
21	<240	3.1						3.3
22	240	3.1						3.3
23	230	3.0						3.3

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

Table 33

Capetown, Union of S. Africa (34.2°S, 18.3°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	<250	2.7						3.2
01	250	2.7						3.1
02	250	2.7						3.1
03	250	2.7						3.1
04	240	2.8						3.2
05	<240	2.7						3.2
06	<240	2.7						3.2
07	<240	2.9						3.3
08	230	4.1	210	2.4	130	1.7		3.6
09	240	4.7	230	3.4	120	2.3		3.5
10	270	4.9	220	3.8	120	2.7		3.4
11	310	5.0	220	4.0	120	2.9		3.3
12	320	5.1	220	4.1	110	3.0		3.3
13	310	5.4	220	4.1	110	3.0		3.2
14	290	5.7	220	4.1	110	3.0		3.3
15	280	5.8	220	4.0	110	2.8	3.6	3.3
16	270	5.7	220	3.6	120	2.6	3.3	3.4
17	240	5.0	220	3.0	120	2.2	2.7	3.5
18	230	4.9	---	---	---	1.8		3.5
19	220	3.7					1.7	3.5
20	230	2.8					1.9	3.3
21	240	2.9						3.3
22	<240	2.9						3.3
23	<240	2.8						3.3

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

Table 34

Buenos Aires, Argentina (34.5°S, 58.5°W) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	300	2.3						3.1
01	300	(2.4)						(3.1)
02	280	(2.5)						(3.3)
03	240	2.4						3.4
04	220	2.4						3.5
05	260	1.9						3.4
06	250	2.3						3.4
07	220	3.9						3.6
08	230	4.4	200	---	---	---	3.0	3.6
09	250	4.5	210	---	110	2.7	3.6	3.5
10	300	5.1	210	3.9	110	2.8	3.8	3.4
11	290	5.7	200	4.0	110	3.0	3.8	3.4
12	280	6.4	200	4.0	110	3.0	4.2	3.45
13	280	7.2	200	4.0	110	3.0	4.1	3.45
14	260	6.5	200	3.9	110	2.7	4.2	3.5
15	240	6.4	200	---	110	2.7	3.4	3.5
16	220	5.9	210	---			3.0	3.5
17	220	5.0						3.6
18	210	4.2						3.5
19	220	3.5						3.5
20	270	3.0						3.4
21	280	2.9						3.4
22	280	2.6						(3.3)
23	300	2.4						(3.25)

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

Table 35

Christchurch, New Zealand (43.6°S, 172.8°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	(280)	2.5						3.2
01	280	2.5						3.1
02	280	2.4					2.5	3.1
03	280	2.3					2.4	3.15
04	250	2.2					2.7	3.3
05	250	1.8					2.4	3.3
06	270	1.8				---	2.3	3.2
07	250	2.8				(1.3)		3.45
08	240	3.8	230	2.8		1.8	2.1	3.5
09	260	4.2	220	3.3		2.2		3.5
10	290	4.3	220	3.7		2.4		3.4
11	300	4.6	230	3.8		2.6		3.4
12	310	4.8	220	3.8		2.7		3.3
13	300	5.0	220	3.8		2.7		3.3
14	280	4.9	230	3.8		2.5		3.4
15	280	4.8	220	3.5		2.3		3.4
16	260	4.7	230	3.2		1.8		3.4
17	240	4.2	240	2.3		1.4		3.5
18	250	3.3						3.1
19	270	3.0						3.1
20	270	2.8						3.1
21	280	2.6						3.1
22	(280)	2.5						3.1
23	280	2.4						3.1

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

Table 36

Decepcion I. (63.0°S, 60.7°W) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEe	(M3000)F2
00	300	2.4						3.1
01	300	2.5						3.1
02	300	2.5						(3.1)
03	300	2.4						(3.1)
04	290	2.5						(3.2)
05	280	2.5						(3.2)
06	250	2.8						(3.2)
07	260	3.1						(3.3)
08	220	3.3						(3.4)
09	230	3.8					2.8	(3.5)
10	220	4.1					3.5	(3.55)
11	230	4.2					4.0	(3.5)
12	220	4.1					4.0	(3.55)
13	220	4.3					3.8	(3.5)
14	220	4.0					3.3	(3.55)
15	220	3.8					2.6	(3.5)
16	220	3.6					1.8	(3.5)
17	240	3.2					2.0	(3.4)
18	230	3.2					2.0	(3.4)
19	240	2.8						(3.4)
20	250	2.3						(3.4)
21	270	2.4						(3.3)
22	300	2.3						3.2
23	300	2.4						(3.15)

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 37

Resolute Bay, Canada (74.7°N, 94.9°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.8	220	---	120	1.8		3.3
01	270	3.8	220	---	120	1.8		3.3
02	280	3.8	220	2.9	110	1.9		3.3
03	290	3.8	220	3.0	110	1.9		3.3
04	310	3.8	220	3.2	110	2.0		3.2
05	320	3.8	220	3.2	110	2.1		3.2
06	360	3.9	210	3.3	100	2.2		3.1
07	380	4.0	210	3.4	100	2.4		3.1
08	380	4.1	210	3.6	110	2.7		3.0
09	400	4.0	210	3.6	100	2.8		3.0
10	420	4.1	200	3.7	100	2.8		3.0
11	390	4.2	210	3.8	100	2.9		3.0
12	400	4.2	200	3.8	100	2.9		3.0
13	380	4.2	200	3.8	100	2.8		3.0
14	400	4.1	200	3.8	100	2.8		2.9
15	410	4.1	200	3.7	100	2.8		2.8
16	390	4.1	200	3.7	110	2.7		3.0
17	390	4.1	210	3.5	100	2.6		3.0
18	360	4.1	210	3.4	110	2.3		3.0
19	360	4.0	210	3.3	110	2.2		3.05
20	310	4.0	220	3.2	110	2.1		3.1
21	300	4.0	220	3.1	110	2.0		3.2
22	280	3.9	220	3.0	120	1.9		3.3
23	270	3.8	230	---	120	1.9		3.2

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

Table 38

Godhavn, Greenland (69.2°N, 53.5°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(3.4)					(1.4)	(3.2)
01		(3.5)					(1.4)	(3.3)
02		(3.5)						(3.2)
03		(3.6)					1.9	(3.2)
04		(3.5)						(3.2)
05		(3.6)					3.5	(3.15)
06		(3.7)					4.0	(3.4)
07		(3.8)					4.0	@
08		(4.0)					3.8	(2.85)
09		(4.2)					(2.8)	(3.0)
10		(4.3)					3.9	(3.0)
11		(4.4)					3.5	(2.95)
12		(4.4)					3.7	(2.9)
13		(4.5)					3.6	(2.9)
14		(4.6)					4.2	(3.0)
15		(4.4)					6.5	(3.0)
16		(4.5)					6.6	(3.2)
17		(4.3)					5.8	(3.0)
18		(4.2)					8.0	(3.0)
19		(4.2)					>6.4	(3.1)
20		(4.0)					5.6	(3.25)
21		3.8					3.9	3.2
22		(3.7)					3.5	(3.3)
23		3.6					2.0	3.2

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 39

Upsala, Sweden (59.8°N, 17.6°E) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.1					2.3	3.05
01	265	2.8					2.3	3.0
02	265	2.6					2.3	3.0
03	260	2.9	---	---	---	E	2.3	3.1
04	340	3.4	240	2.8	150	1.6	3.3	3.0
05	365	3.8	220	3.2	120	1.9	3.4	2.95
06	400	4.0	220	3.4	115	2.2	3.5	2.9
07	380	4.2	215	3.7	110	2.4	4.2	2.9
08	410	4.1	205	3.8	110	2.6	4.4	2.9
09	375	4.4	205	3.9	105	2.7	5.3	3.0
10	370	4.5	200	4.0	105	2.8	4.5	2.9
11	400	4.5	205	4.0	105	2.9	5.2	3.0
12	390	4.6	205	4.1	105	3.0	5.2	2.95
13	400	4.5	200	4.1	105	2.9	4.9	3.0
14	390	4.4	205	4.0	105	2.8	4.2	3.0
15	370	4.5	210	4.0	105	2.8	5.2	3.0
16	380	4.3	205	3.9	110	2.6	3.7	2.95
17	350	4.2	220	3.7	110	2.4	4.3	3.1
18	325	4.4	230	3.5	115	2.2	4.3	3.1
19	280	4.5	235	3.1	125	1.8	4.0	3.2
20	260	4.5	240	---	---	E	3.6	3.2
21	240	4.6			---	E	2.6	3.2
22	240	4.3					2.4	3.2
23	240	3.7					2.1	3.2

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

Table 40*

Slough, England (51.5°N, 0.6°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	3.6					2.8	3.0
01	270	3.2					3.3	3.0
02	280	3.1					3.2	2.95
03	275	2.9					3.2	2.9
04	285	3.0	(255)	(2.2)			3.6	3.0
05	330	3.6	240	3.0	120	1.7	3.6	3.05
06	390	4.1	235	3.4	120	2.1	4.8	3.0
07	385	4.2	230	3.7	115	2.4	4.8	3.0
08	415	4.4	230	3.9	115	2.7	4.9	3.05
09	380	4.7	215	4.0	115	2.9	5.0	3.15
10	385	4.8	220	4.1	115	3.0	5.0	3.15
11	385	4.8	210	4.2	115	3.1	5.0	3.1
12	435	4.6	220	4.2	115	3.1	4.8	3.0
13	410	4.7	220	4.2	115	3.1	4.8	3.15
14	395	4.7	215	4.1	115	3.0	4.9	3.05
15	405	4.6	220	4.1	115	3.0	4.7	3.0
16	400	4.6	230	4.0	115	2.8	4.9	3.0
17	345	4.6	230	3.8	115	2.6	4.7	3.0
18	325	4.8	235	3.5	120	2.2	5.0	2.95
19	280	5.2	245	3.1	125	1.8	4.8	3.15
20	250	5.4					3.7	3.2
21	245	5.2					3.5	3.2
22	245	4.6					2.8	3.1
23	255	4.0					3.1	3.0

Time: 0.0°.
Sweep: 0.5 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 41

Leopoldville, Belgian Congo (4.3°S, 15.3°E) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(220)	---					3.1	---
01	---	---					3.0	---
02	---	---					3.0	---
03	---	---					3.0	---
04	---	---					3.0	
05	250	2.7					2.0	2.6
06	245	4.8	240	---	120	2.0	3.0	2.8
07	280	5.4	230	4.0	110	2.6	3.8	2.7
08	290	5.8	220	4.0	110	3.0	4.4	2.6
09	290	6.0	210	4.1	110	3.1	4.0	2.6
10	310	6.2	200	4.2	110	3.2	3.7	2.5
11	300	7.7	210	4.2	110	3.3	3.6	2.45
12	290	7.6	200	4.2	110	3.2	4.0	2.45
13	320	8.5	210	4.1	110	3.1	3.8	2.3
14	300	8.3	240	4.0	110	3.0	4.6	2.3
15	280	8.0	240	3.8	110	2.6	3.5	2.5
16	250	7.1	230	---	120	2.0	3.3	2.5
17	240	7.0					4.1	2.5
18	230	7.0					4.0	2.75
19	220	5.4					3.0	2.9
20	210	3.4					3.0	3.0
21	(225)	2.4					2.9	2.7
22	(230)	2.4					2.9	2.5
23	250	2.6					3.0	2.55

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 42

Rarotonga I. (21.3°S, 159.8°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.9						3.2
01	290	2.7						3.0
02	280	2.7						3.1
03	270	2.8						3.35
04	250	2.6					2.0	3.4
05	240	2.5						3.3
06	270	2.5						3.2
07	250	3.6	240	---	---	E		3.5
08	250	4.9	220	3.4	120	2.0	2.8	3.6
09	280	4.9	210	3.8	110	2.5	3.1	3.5
10	280	5.6	210	4.0	110	2.8	3.4	3.5
11	270	5.4	200	4.1	105	3.0	3.7	3.6
12	280	5.2	200	4.1	105	3.0	3.9	3.5
13	280	5.1	200	4.1	105	3.0	4.2	3.45
14	300	5.3	210	4.0	105	2.9	4.2	3.4
15	270	5.3	200	3.9	110	2.8	4.1	3.4
16	260	5.1	220	3.6	115	2.5	3.8	3.5
17	250	5.1	240	3.0	---	2.0	3.7	3.5
18	240	5.2					3.7	3.5
19	220	4.3					3.0	3.55
20	230	3.2					2.8	3.3
21	260	3.0					2.4	3.1
22	270	3.0					2.3	3.2
23	260	2.9					2.3	3.2

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 43

Capstown, Union of S. Africa (34.2°S, 18.3°E) — July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	2.4						3.3
01	<250	2.4						3.2
02	250	2.5						3.2
03	<250	2.4						3.2
04	<250	2.4						3.2
05	230	2.4						3.3
06	<230	2.1						3.3
07	<230	2.0					2.6	3.2
08	220	3.5	---	---				3.6
09	230	4.2	220	2.8	130	2.1		3.6
10	260	4.5	240	3.6	120	2.5		3.5
11	280	4.6	230	3.8	120	2.7		3.45
12	300	4.8	230	4.0	120	2.9		3.3
13	320	4.8	220	4.0	110	2.9		3.2
14	290	5.1	220	3.9	120	2.8	3.8	3.3
15	280	5.2	220	3.7	120	2.7	3.7	3.3
16	260	5.2	220	3.5	120	2.3	3.4	3.4
17	240	4.7	230	2.6	120	2.0	2.6	3.4
18	220	3.9					2.2	3.55
19	220	2.6					2.7	3.5
20	<230	2.4					2.9	3.2
21	<230	2.4						3.35
22	230	2.5						3.4
23	230	2.4						3.3

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

Table 44

Godhavn, Greenland (69.2°N, 53.5°W) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(3.9)						(3.3)
01		(3.9)						(3.3)
02		(3.9)						(3.3)
03		(4.0)						(3.2)
04		(4.0)					3.2	(3.3)
05		(4.0)					3.6	(3.3)
06		(4.1)					4.0	(3.4)
07		(4.4)					3.8	(3.2)
08		(4.5)					3.8	(3.2)
09		(4.4)					3.3	(3.1)
10		(4.4)					4.2	(2.9)
11		(4.5)					4.3	(3.0)
12		(4.6)					3.6	(3.0)
13		(4.5)					3.4	(3.0)
14		(4.6)					5.4	(3.0)
15		(4.6)					5.0	(3.1)
16		(4.5)					4.8	(3.2)
17		(4.5)					4.8	(3.1)
18		(4.4)					5.0	(3.1)
19		(4.3)					4.1	(3.2)
20		(4.0)					3.6	3.2
21		(3.9)					3.3	(3.2)
22		3.8					3.0	3.2
23		(3.7)					2.0	3.3

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 45

Oslo, Norway (60.0°N, 11.1°E) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.2						3.1
01	245	3.7						3.1
02	245	3.4					2.6	3.1
03	250	3.4	250	---	---	---	1.4	3.1
04	300	3.7	240	2.8	130	1.5	2.7	3.1
05	330	4.1	230	3.2	110	1.9	3.0	3.05
06	350	4.2	220	3.4	105	2.2	3.7	3.05
07	375	4.3	210	3.6	100	2.4	3.9	3.05
08	355	4.4	210	3.8	100	2.6	4.2	3.05
09	355	4.6	210	3.9	100	2.7	4.2	3.05
10	370	4.6	205	4.0	100	2.8	4.2	3.05
11	365	4.6	210	4.0	100	2.8	4.4	3.1
12	390	4.6	200	4.1	100	2.9	4.2	3.05
13	390	4.5	200	4.1	100	2.8	4.3	3.0
14	380	4.5	200	4.0	100	2.8	4.0	3.0
15	385	4.4	205	4.0	100	2.8	3.7	3.0
16	390	4.4	200	3.9	100	2.7	3.7	3.0
17	370	4.4	210	3.8	105	2.6	3.8	3.05
18	325	4.5	225	3.6	105	2.4	4.2	3.1
19	300	4.6	230	3.4	110	2.0	4.0	3.2
20	275	4.6	240	---	125	1.7	3.6	3.2
21	250	4.6	250	---	---	---	3.0	3.2
22	245	4.7					2.8	3.2
23	240	4.6					2.7	3.15

Time: 15.0°E.
Sweep: 0.6 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 46*

Singapore, British Malaya (1.3°N, 103.8°E) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	(2.3)					3.4	---
01	265	2.3					3.2	---
02	255	(1.8)					3.1	---
03	255	(1.6)					3.0	---
04	255	(1.4)					3.0	---
05	---	(1.2)					3.1	---
06	245	2.9			(165)	1.2	3.0	3.3
07	255	5.1	235		120	2.2	3.6	3.1
08	310	6.4	220	3.9	115	2.7	5.6	2.9
09	330	7.5	210	4.1	110	3.0	6.0	2.8
10	330	8.6	205	4.3	110	3.1	11.1	2.8
11	330	8.2	205	4.3	110	3.3	10.6	2.8
12	345	8.2	200	4.3	110	3.3	6.6	2.7
13	345	8.2	200	4.3	110	3.3	6.0	2.7
14	325	8.1	200	4.2	110	3.2	6.3	2.8
15	315	8.1	205	4.1	115	3.0	5.2	2.8
16	290	8.1	225	3.9	115	2.6	4.6	3.0
17	255	7.9	230	3.5	120	2.2	5.6	3.2
18	230	6.8			(140)	1.7	3.2	3.4
19	230	5.8					4.2	3.3
20	225	4.6					3.6	3.4
21	230	3.0					3.8	(3.6)
22	230	2.4					3.8	(3.4)
23	265	2.3					3.8	---

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 47

Godhavn, Greenland (69.2°N, 53.5°W) — May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(3.4)						(3.3)
01		(3.4)						(3.2)
02		(3.5)					(1.2)	(3.25)
03		(3.5)						(3.25)
04		(3.5)						(3.3)
05		(3.6)					3.5	(3.2)
06		(3.8)					4.0	Q
07		(4.0)					4.1	Q
08		(4.3)					4.4	(3.0)
09		(4.3)					3.4	(3.0)
10		(4.3)					(3.4)	(3.0)
11		(4.3)						2.9
12		(4.4)						(2.9)
13		(4.5)						(2.8)
14		(4.5)					6.0	3.0
15		(4.5)					5.4	(3.1)
16		(4.4)					4.6	(3.0)
17		(4.4)					4.3	(3.1)
18		(4.3)					(4.4)	(3.1)
19		(4.1)					(3.7)	(3.1)
20		3.9					(3.2)	3.2
21		3.8					(1.8)	3.3
22		3.7						3.3
23		3.5					(1.6)	3.3

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 48

Delhi, India (28.6°N, 77.1°E) — May 1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---						3.15
01	---	---						3.25
02	---	---						3.25
03	---	---						3.25
04	---	---						3.4
05	(260)	(4.1)						3.35
06	260	4.9						3.35
07	270	5.8						3.35
08	280	6.5						3.35
09	280	6.4						3.2
10	320	6.4						3.0
11	320	>7.0						2.95
12	330	8.1						2.9
13	330	>8.0						2.9
14	320	>8.9						3.0
15	280	>9.0						3.15
16	260	8.8						3.3
17	260	>7.6						3.35
18	240	7.2						3.4
19	240	6.9						3.5
20	240	5.9						3.5
21	260	>4.8						3.35
22	(290)	(4.2)						3.2
23	---	(3.9)						3.2

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 49

Bombay, India (19.0°N, 73.0°E) May 1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06:30	270	4.7						3.25
07	300	5.4						3.1
08	330	6.4						2.9
09	360	6.9						2.85
10	360	7.4						2.75
11	390	8.4						2.6
12	420	9.6						2.5
13	420	10.1						2.55
14	420	>10.6						2.6
15	390	>10.9						2.6
16	390	>10.4						2.65
17	360	9.6						2.75
18	360	8.9						2.8
19	330	7.8						2.9
20	330	6.2						3.0
21	300	5.0						3.1
22	270	4.3						3.2
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 50

Madras, India (13.0°N, 80.2°E) May 1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	330	5.4						2.9
07	390	6.5						2.7
08	420	7.4						2.5
09	450	7.3						2.4
10	460	7.4						2.4
11	480	7.1						2.35
12	480	7.2						2.3
13	480	7.6						2.3
14	480	8.1						2.3
15	460	8.5						2.35
16	440	>9.0						2.4
17	420	>9.0						2.5
18	400	8.4						2.55
19	390	>7.2						2.65
20	380	>6.0						2.7
21	360	>5.5						2.85
22	---	---						
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 51

Tiruchy, India (10.8°N, 78.8°E) May 1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	5.3						2.7
07	420	6.5						2.5
08	460	7.2						2.35
09	480	7.0						2.3
10	510	6.8						2.25
11	510	6.9						2.2
12	510	6.7						2.2
13	510	6.8						2.2
14	510	7.4						2.2
15	500	8.0						2.25
16	480	8.3						2.3
17	480	8.0						2.3
18	450	7.8						2.4
19	420	7.2						2.6
20	420	6.8						
21								
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 52

Townsville, Australia (19.3°S, 146.7°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(2.9)						(3.15)
01	250	(3.0)						---
02	250	(3.1)						---
03	240	(3.0)						(3.2)
04	240	(2.8)						(3.2)
05	(250)	(2.5)					2.7	(3.2)
06	(250)	2.6					3.0	(3.15)
07	220	4.6			130	2.0	3.0	3.65
08	240	5.4	220	3.1	110	2.2	3.7	3.6
09	250	5.8	220	3.9	110	2.7	3.5	3.5
10	250	6.5	210	4.0	110	3.0	3.7	3.6
11	270	6.0	200	4.2	110	3.1	3.6	3.45
12	280	5.9	200	4.2	110	3.2	4.0	3.4
13	260	6.4	210	4.1	110	3.2	4.1	3.4
14	260	6.5	210	4.0	110	3.1	5.1	3.5
15	250	6.2	210	3.8	110	2.9	3.9	3.45
16	240	6.1	210	3.4	---	---	3.8	3.4
17	220	5.6			---	---	4.0	3.6
18	230	4.2					3.5	3.5
19	230	3.5					3.3	3.35
20	<230	3.3						3.3
21	250	3.0						3.1
22	250	3.0						(3.2)
23	260	(3.0)						(3.1)

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

Table 53

Brisbane, Australia (27.5°S, 153.0°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.7					2.1	3.1
01	250	3.8					2.2	3.1
02	250	3.8					1.9	3.05
03	250	3.8					2.5	3.2
04	230	3.8						3.3
05	230	3.2						3.3
06	240	3.2						3.3
07	230	4.8			160	1.9		3.7
08	240	5.0	230	3.5	120	2.5		3.55
09	270	5.3	240	4.0	110	2.9		3.6
10	260	5.8	230	4.0	110	3.0		3.55
11	260	5.6	220	4.1	110	3.1	4.2	3.6
12	290	5.4	210	4.2	110	3.1	4.2	3.5
13	280	5.7	205	4.1	110	3.0	4.2	3.4
14	260	6.1	200	4.0	--	3.0	4.2	3.5
15	250	6.2	225	3.7	110	2.8	4.2	3.5
16	240	5.8	---	3.2	120	2.2	4.2	3.6
17	220	4.8			---	1.7	4.0	3.6
18	230	3.8					3.2	3.4
19	250	3.5						3.2
20	250	3.7						3.2
21	250	3.8						3.2
22	240	3.7						3.2
23	250	3.7						3.2

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

Table 54

Canberra, Australia (35.3°S, 149.0°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(3.6)					2.9	3.2
01	---	3.5					2.9	3.2
02	(255)	3.7					2.8	3.1
03	(265)	3.8					1.8	3.1
04	(250)	4.0						3.2
05	(210)	3.8						3.5
06	---	2.9						3.3
07	230	3.9			---	---		3.6
08	225	4.7	---	---	110	2.0		3.6
09	250	5.1	230	(3.6)	110	2.5	3.2	3.6
10	260	5.4	230	3.9	110	2.8	3.5	3.55
11	260	5.5	210	4.0	110	3.0	3.6	3.5
12	260	5.5	205	4.0	110	2.9	3.6	3.5
13	270	5.6	210	4.0	110	2.9	3.6	3.4
14	270	6.0	220	3.9	110	2.7	3.6	3.4
15	240	6.5	220	(3.6)	110	2.5	3.6	3.6
16	220	5.9	220	(3.0)	110	3.0	3.3	3.6
17	220	4.9					3.2	3.5
18	(210)	3.6					2.8	3.4
19	---	3.1					2.4	3.2
20	---	3.5						3.2
21	---	3.5						3.2
22	---	(3.4)						3.3
23	---	3.5						3.2

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

Table 55

Hobart, Tasmania (42.9°S, 147.3°E) — May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.0						3.0
01	295	2.1						3.0
02	290	2.2						3.0
03	285	2.5						3.0
04	270	2.3						3.0
05	270	2.2						3.0
06	270	2.1						3.1
07	250	2.5			---	E		3.1
08	230	4.0			105	1.9		3.2
09	220	4.5			100	2.2		3.25
10	220	4.7			100	2.5		3.2
11	210	5.0			100	2.5		3.2
12	210	5.5			100	2.6	3.2	3.2
13	210	5.5			100	2.6	3.2	3.2
14	220	5.5			100	2.5	3.2	3.2
15	230	5.6			100	2.3		3.2
16	230	5.5			100	2.0		3.3
17	220	4.6						3.3
18	240	3.5						3.0
19	250	2.7						3.1
20	270	2.4						3.1
21	270	2.2						3.0
22	270	2.2						3.1
23	280	2.0						3.1

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

Table 56*

Port Lockroy (64.8°S, 63.5°W) — May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.2					1.0	2.8
01	280	2.2					1.0	2.8
02	270	2.[illegible]						2.8
03	270	2.[illegible]						2.9
04	260	2.3						2.9
05	240	2.1					1.3	2.9
06	235	2.0					1.1	3.1
07	225	1.8						3.2
08	235	1.9					2.0	3.2
09	210	3.7					2.5	3.4
10	210	4.1					3.2	3.6
11	205	4.6					3.1	3.6
12	210	4.7					2.4	3.6
13	210	4.7					2.1	3.6
14	205	4.4					1.9	3.6
15	210	3.8					1.8	3.5
16	220	3.2					2.4	3.3
17	230	3.0					1.4	3.3
18	225	2.5					1.4	3.3
19	240	1.9						3.3
20	265	1.8						3.0
21	295	1.8						2.8
22	305	2.0						2.8
23	295	2.1						2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 57

Townsville, Australia (19.3°S, 146.7°E) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<280	3.1						(3.1)
01	<260	3.0					2.5	(3.1)
02	250	3.1					2.0	(3.2)
03	230	3.2					2.7	(3.5)
04	240	2.8					3.0	(3.1)
05	(250)	2.3					2.8	(3.05)
06	250	2.6					3.0	3.1
07	240	4.8			140	2.0	3.1	3.6
08	250	5.9	230	3.8	110	2.4	3.2	3.4
09	250	6.7	220	4.0	110	2.8	3.7	3.4
10	250	(7.9)	210	4.2	100	3.1	3.7	3.4
11	250	8.2	200	4.3	100	3.2	3.8	3.5
12	250	6.9	200	4.3	100	3.2	3.8	3.5
13	290	6.8	200	4.2	100	3.2	4.0	3.2
14	270	7.5	220	4.2	110	3.1	4.3	3.3
15	250	7.8	220	4.0	110	3.0	4.7	3.4
16	240	7.0	220	3.7	120	2.7	4.0	3.5
17	230	6.4	---	3.1	100	2.1	4.0	3.6
18	220	5.4					3.9	3.6
19	240	4.2					3.4	3.3
20	240	3.5					3.3	3.3
21	250	3.2					2.4	3.0
22	260	3.3						3.0
23	<260	3.2						(3.0)

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

Table 58

Brisbane, Australia (27.5°S, 153.0°E) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.8					2.8	3.1
01	290	3.7					3.6	3.1
02	270	3.7					3.8	3.1
03	240	4.0						3.5
04	230	3.6					3.2	3.45
05	240	3.0						3.2
06	240	3.3						3.4
07	240	4.8	---	---	120	2.2		3.5
08	250	5.7	240	3.9	110	2.5		3.5
09	270	6.3	230	4.1	110	3.0	3.5	3.4
10	270	6.9	230	4.2	110	3.1		3.5
11	280	6.9	220	4.2	110	3.2	4.1	3.4
12	280	6.9	200	4.2	110	3.2	4.2	3.4
13	280	6.9	200	4.2	100	3.2	4.2	3.35
14	280	6.9	220	4.1	110	3.2	4.0	3.35
15	260	7.0	230	4.0	100	2.9	4.2	3.5
16	240	6.4	230	3.5	---	(2.4)	4.4	3.6
17	230	5.6	---	---	---	---	4.1	3.6
18	230	4.7						3.4
19	240	4.1					2.8	3.3
20	250	3.9						3.2
21	250	4.0						3.15
22	250	3.8					2.2	3.1
23	270	3.7						3.1

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

Table 59

Hobart, Tasmania (42.9°S, 147.3°E) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.2						3.0
01	280	2.4					2.8	3.0
02	290	2.3					3.2	3.0
03	270	2.2					3.2	3.0
04	280	2.2					3.1	3.0
05	260	2.2					2.7	3.05
06	---	E						3.0
07	250	3.5			130	1.5		3.2
08	230	4.2			100	2.1		3.2
09	220	4.6	---	---	100	2.4		3.2
10	220	5.0	200	4.0	100	2.6		3.1
11	260	5.5	200	4.0	100	2.8	3.0	3.2
12	220	6.0	200	4.0	100	2.9	3.5	3.2
13	230	6.0	200	4.0	100	2.8		3.2
14	220	6.0	200	4.0	100	2.8	3.2	3.2
15	220	6.0	---	---	100	2.6	3.4	3.2
16	230	5.6			100	2.4	3.5	3.2
17	230	5.5			100	1.9	2.8	3.3
18	230	5.0						3.15
19	250	4.0						3.1
20	250	3.4						3.0
21	250	3.0						3.0
22	270	2.6						3.0
23	280	2.5						3.0

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

Table 60

Lulea, Sweden (65.6°N, 22.1°E) — February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	(2.0)					2.4	
01								
02	(335)	---					2.4	
03								
04	(355)	---						
05								
06	---	---						
07								
08	240	3.1			---	1.6		
09								
10	230	4.0	190	2.3	120	2.0		
11								
12	235	4.4	205	2.6	130	2.1		
13								
14	225	4.2	190	2.3	135	1.9		
15								
16	230	3.5			---	---		
17								
18	260	2.1						
19								
20	(310)	---						
21								
22	(305)	---					2.5	
23								

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes.

Table 61*

Ibadan, Nigeria (7.4°N, 4.0°E) — February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	5.6					1.2	3.1
01	255	5.3					1.3	3.2
02	250	4.6					1.3	3.2
03	255	3.8						3.3
04	250	3.9						3.3
05	240	2.0						---
06	255	3.3	---	---	---	(1.3)		---
07	---	6.1	240	---	112	2.1	3.5	3.4
08	290	6.9	225	---	110	2.8	4.0	3.2
09	320	7.0	215	4.1	108	3.1	5.0	---
10	360	7.0	210	4.3	106	3.3	6.8	2.6
11	375	6.8	205	4.3	105	3.4	6.8	2.5
12	370	6.8	205	4.3	105	3.5	6.8	2.6
13	370	7.0	205	4.4	107	3.4	6.6	2.5
14	345	(8.1)	205	4.2	108	3.3	6.6	2.6
15	325	(8.1)	210	4.0	108	3.1	5.5	2.6
16	(310)	(8.4)	215	---	109	2.8	5.5	---
17	---	(8.3)	245	---	109	2.2	4.9	---
18	260	7.0	---	---	---	(1.4)	1.9	---
19	280	7.0					1.6	---
20	285	7.0						2.8
21	270	6.8						---
22	240	6.8						---
23	245	6.4						3.2

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 62

Godhavn, Greenland (69.2°N, 53.5°W) — January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(2.0)					5.4	(3.0)
01		(2.0)					4.2	(3.1)
02		(2.1)					4.1	(3.0)
03		(2.5)					3.8	(3.0)
04		(2.6)					3.2	(3.1)
05		(2.7)					3.6	(3.05)
06		(2.9)					3.9	(3.3)
07		(3.2)					6.3	(3.4)
08		(3.5)					6.0	(3.4)
09		(3.6)					4.5	(3.4)
10		(3.6)					3.8	(3.3)
11		(3.8)					4.6	(3.3)
12		(4.0)					5.0	(3.35)
13		(4.2)					5.4	(3.35)
14		(4.0)					6.8	(3.4)
15		(3.8)					5.4	(3.3)
16		(3.5)					7.1	(3.3)
17		(3.4)					6.8	(3.2)
18		(3.3)					4.9	(3.2)
19		(3.1)					5.0	(3.2)
20		(3.0)					5.2	(3.2)
21		(2.9)					4.2	(3.2)
22		(2.5)					4.9	(3.2)
23		(2.2)					5.3	(3.2)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 63

Godhaven, Greenland (69.2°N, 53.5°W) — December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(2.1)					(4.9)	(3.2)
01		(2.0)					(4.6)	(3.2)
02		(2.2)					(4.9)	(3.0)
03		(2.4)					(5.2)	(3.1)
04		(2.7)					(5.8)	(3.15)
05		(2.8)					5.0	(3.3)
06		(3.0)					(4.5)	(3.4)
07		(3.2)					4.2	(3.5)
08		(3.4)					4.4	---
09		(3.4)					4.3	(3.3)
10		(3.4)					(4.0)	(3.3)
11		(3.6)					(3.8)	(3.3)
12		(3.6)					(6.2)	(3.35)
13		(3.6)					(7.0)	(3.4)
14		(3.6)					(6.8)	(3.4)
15		(3.5)					(5.8)	(3.3)
16		(3.4)					(6.2)	(3.2)
17		(3.2)					(5.8)	(3.2)
18		(3.0)					(5.6)	(3.2)
19		(3.2)					(5.4)	(3.2)
20		(3.2)					(5.1)	(3.2)
21		(2.8)					(5.2)	(3.3)
22		(2.6)					(6.2)	(3.2)
23		(2.6)					(4.2)	(3.3)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 64

Townsville, Australia (19.3°S, 146.8°E) — December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(4.8)					4.1	(3.2)
01	240	>4.8					4.0	---
02	250	4.6					4.2	3.2
03	250	(3.5)					3.9	3.15
04	240	3.8					3.0	3.2
05	230	2.8					3.0	3.35
06	230	4.2			120	1.6	3.4	3.5
07	250	4.5	230	3.5	100	2.4	4.4	3.4
08	(280)	(5.4)	230	4.0	100	2.8	5.8	(3.3)
09	(330)	5.8	200	4.1	100	3.0	5.5	(3.1)
10	350	6.4	---	4.2	100	3.2	5.4	3.0
11	350	7.1	200	4.3	110	3.3	5.0	2.8
12	340	8.6	---	4.3	110	3.3	>4.4	---
13	320	>9.0	---	4.3	100	3.3	>4.6	---
14	300	10.2	---	4.2	100	3.2	5.0	(3.2)
15	280	9.5	210	4.1	110	3.1	4.7	---
16	280	(9.0)	---	4.0	110	2.9	5.4	---
17	(270)	---	---	3.7	100	2.5	4.8	---
18	260	(7.1)	---	---	---	---	5.0	(3.1)
19	(250)	7.0					4.0	(3.1)
20	260	(6.6)					4.1	(3.0)
21	270	---					3.8	---
22	270	(5.4)					3.8	(3.0)
23	270	>4.7					3.7	(3.05)

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

Table 65

Brisbane, Australia (27.5°S, 153.0°E) — December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<260	5.5					5.5	3.2
01	(240)	5.0					4.7	(3.3)
02	<250	4.1					4.1	3.2
03	(250)	3.8					4.1	3.2
04	250	3.6					3.7	3.2
05	250	3.8			150	1.7	2.7	3.5
06	240	4.7			110	2.1	4.0	3.5
07	(295)	5.2	---	4.1	110	2.6	4.2	3.2
08	(330)	5.8	---	---	100	3.0	4.9	3.15
09	(320)	5.8	---	---	100	3.3	6.6	3.0
10	(350)	6.4	---	---	110	3.4	8.0	3.0
11	330	6.6	---	---	110	3.4	7.7	3.1
12	320	7.4	---	---	110	3.4	7.5	3.0
13	320	7.0	---	4.6	110	3.4	6.8	3.0
14	300	7.5	230	4.3	110	3.3	6.8	3.0
15	290	7.4	---	4.2	110	3.1	6.4	3.1
16	290	7.2	230	4.0	110	2.8	4.2	3.2
17	260	7.0	---	3.6	110	2.3	4.2	3.2
18	250	6.3			---	---	4.7	3.2
19	<240	5.9					4.2	3.1
20	(250)	5.8					4.7	3.0
21	---	5.3					5.6	3.0
22	280	5.2					5.4	3.0
23	(280)	(5.5)					5.2	(3.0)

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

Table 66

Canberra, Australia (35.3°S, 149.0°E) — December 1953*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(4.3)					4.2	---
01	---	(4.0)					(4.4)	---
02	---	(3.9)					(4.9)	---
03	---	(3.6)					(3.8)	---
04	---	(3.6)					(3.5)	---
05	---	(3.6)					(3.6)	(3.2)
06	---	(4.4)	---	---	110	2.1	(3.6)	(3.2)
07	---	(4.8)	---	---	100	2.6	(4.8)	(3.1)
08	---	(5.2)	---	---	100	2.9	(5.0)	(3.1)
09	---	---	---	---	100	3.1	(6.2)	
10	---	---	---	---	110	(3.3)	(6.3)	---
11	---	(6.6)	---	---	100	3.4	(7.0)	---
12	(335)	(6.2)	---	---	110	3.4	(7.1)	(3.0)
13	(340)	(6.1)	---	4.2	110	3.4	5.2	(3.0)
14	(320)	(7.0)	---	---	110	3.4	5.0	(3.0)
15	(300)	(6.4)	---	4.1	110	3.2	4.5	(3.2)
16	(305)	(6.5)	---	4.0	110	3.0	4.5	(3.2)
17	280	(6.0)	210	3.8	110	2.7	4.1	(3.1)
18	(260)	(6.5)	240	(3.3)	-	2.2	3.6	(3.2)
19	(240)	(4.6)					3.5	---
20	--	--					3.1	---
21	---	(4.8)					3.3	(3.0)
22	--	(4.6)					4.2	(3.0)
23	--	(4.5)					3.9	---

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*Observations 16th through 31st only.

Table 67

Hobart, Tasmania (42.9°S, 147.3°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.2					4.0	3.0
01	250	3.7					3.3	3.0
02	250	3.2					3.2	3.0
03	250	3.0					3.5	3.0
04	250	3.0					2.3	3.0
05	240	3.5			120	1.8	2.1	3.1
06	220	4.0			100	2.1		3.1
07	250	4.4	---	---	100	2.6		3.05
08	340	5.0	200	4.0	100	2.9	2.5	3.0
09	350	5.2	210	4.0	100	3.0	5.0	2.9
10	320	5.5	200	4.2	100	3.2	3.7	3.05
11	310	5.6	200	4.3	100	3.2	4.0	3.1
12	330	5.6	200	4.4	100	3.3	4.2	3.0
13	320	5.6	200	4.4	100	3.2	4.2	3.0
14	330	5.6	200	4.4	100	3.2	3.6	3.0
15	300	5.6	200	4.2	100	3.1	3.6	3.0
16	300	5.6	200	4.0	100	3.0	3.5	3.0
17	270	5.6	200	3.8	100	2.6	3.2	3.1
18	250	5.5	---	---	100	2.2	4.0	3.1
19	240	5.6			---	---	4.2	3.1
20	230	5.5					3.8	3.1
21	250	5.2					4.2	3.0
22	250	5.0					4.2	3.0
23	250	4.5					4.0	3.0

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

Table 68

Godhavn, Greenland (69.2°N, 53.5°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	(2.1)					4.6	(3.2)
01	< 270	(2.2)					4.1	(3.1)
02	(260)	(2.0)					4.4	(3.1)
03	< 270	(2.4)					3.4	(3.1)
04	(270)	(2.6)					3.7	(3.1)
05	(250)	(2.6)					3.7	(3.3)
06	< 240	(2.7)					3.7	---
07	(240)	(2.8)					4.3	(3.4)
08	(240)	(3.0)					5.0	(3.3)
09	(240)	(3.2)					4.2	(3.3)
10	250	(3.4)	---	---			3.6	(3.3)
11	(250)	(3.7)	---	---			2.3	(3.3)
12	(250)	(4.0)	---	---	---	---	3.5	(3.3)
13	(250)	(3.6)	---	---			3.5	(3.4)
14	(250)	(3.6)	---	---			5.2	(3.3)
15	(240)	(3.5)	---	---			5.7	(3.4)
16	(240)	(3.4)					6.6	(3.3)
17	(240)	(3.3)					5.0	(3.2)
18	(240)	(3.2)					(6.6)	(3.2)
19	< 240	(3.1)					(5.6)	(3.2)
20	< 240	(3.2)					>5.0	(3.3)
21	< 240	(2.9)					(4.8)	(3.2)
22	< 250	(2.5)					4.2	(3.2)
23	< 260	(2.2)					4.0	(3.2)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 69

Poitiers, France (46.6°N, 0.3°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<275	3.4					2.3	2.9
01	280	3.3					2.2	2.9
02	<280	3.2					2.1	2.9
03	265	3.0					2.0	2.95
04	260	2.7					2.2	2.9
05	<250	2.5					2.2	3.05
06	245	3.5	210	---	---	E	2.5	3.3
07	265	4.2	225	3.4	120	2.1	2.9	3.4
08	290	5.0	220	3.8	110	2.5	3.0	---
09	295	5.2	205	4.0	105	2.8	3.3	(3.4)
10	290	5.4	205	4.1	105	2.9	3.5	(3.4)
11	295	5.6	205	4.2	105	3.0	3.6	3.5
12	300	5.4	200	4.2	105	3.0	3.6	3.3
13	300	5.4	200	4.2	105	3.0	3.4	3.35
14	290	5.5	220	4.0	110	2.9	3.3	3.3
15	295	5.3	220	4.0	110	2.7	3.1	3.35
16	290	5.3	235	3.8	110	2.4	3.0	3.25
17	270	5.4	245	3.5	120	2.1	2.8	3.2
18	250	5.6	250	---	---	E	2.6	3.15
19	240	5.4					2.4	(3.1)
20	245	4.7					2.7	(3.2)
21	250	4.6					2.7	3.2
22	250	3.8					2.4	3.0
23	265	3.4					2.4	2.9

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 70

Casablanca, Morocco (33.6°N, 7.6°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.2					2.6	2.9
01	---	3.1					2.3	2.9
02	---	3.2					2.1	2.9
03	---	3.1					2.0	3.0
04	---	2.9					2.0	3.1
05	---	2.7					2.2	3.2
06	---	2.8					2.8	3.35
07	225	4.4	210	2.9	115	1.9	3.5	3.6
08	245	5.2	220	3.6	110	2.4	3.6	3.6
09	250	5.6	215	4.0	105	2.7	3.5	3.7
10	285	5.5	200	4.2	100	3.0	3.7	3.45
11	300	5.9	200	4.4	100	3.2		3.3
12	300	6.0	195	4.4	100	3.3		3.3
13	300	6.0	200	4.4	100	3.2		3.3
14	300	6.5	220	4.3	100	3.2		3.3
15	300	6.4	235	4.3	100	3.0		3.3
16	295	6.4	225	4.0	100	2.8	3.5	3.3
17	265	7.1	240	3.7	105	2.4	3.8	3.3
18	255	7.4	250	3.1	115	1.8	3.7	3.3
19	240	(7.2)	---	---			3.5	3.4
20	<225	6.6					3.4	3.35
21	205	4.5					3.1	3.25
22	---	4.0					3.0	3.0
23	--	3.5					2.8	2.95

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

Table 71

Djibouti, French Somaliland (11.5°N, 43.1°E) June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	332	---						---
01	335	(3.2)						---
02	350	(2.2)						---
03	330	(2.1)						---
04	270	(2.7)						---
05	270	2.8						3.1
06	250	5.7	242	---	---	2.0	3.5	3.25
07	295	6.6	235	4.0	116	2.7	3.8	3.1
08	345	7.0	228	4.3	113	3.0	3.8	2.8
09	390	6.8	222	4.4	---	3.2	4.3	2.6
10	400	6.8	220	4.5	115	3.4	4.3	2.45
11	420	6.7	212	4.6	114	(3.5)	6.0	2.45
12	418	6.8	215	4.5	121	(3.5)	4.4	2.5
13	390	7.2	220	4.4	119	3.4	4.4	2.55
14	392	7.7	220	4.4	116	3.3	4.0	2.65
15	360	8.4	222	4.2	120	3.2	4.0	2.75
16	342	8.6	230	4.1	121	2.8	4.2	2.8
17	300	8.6	238	---	---	---	3.8	2.85
18	255	8.7					3.2	3.0
19	250	8.6					3.4	3.15
20	260	(6.2)					2.1	2.95
21	290	5.0					2.8	2.8
22	330	>4.0					2.8	2.8
23	340	>4.0						(2.8)

Time: 35.6°E.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 72

Leopoldville, Belgian Congo (4.3°S, 15.3°E) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	255	6.0						2.2
01	250	5.8						2.2
02	240	5.4						2.4
03	230	4.2						2.4
04	225	3.8						2.5
05	250	5.2	---	---	130	1.8	2.0	2.6
06	255	6.5	235	---	120	2.4	2.9	2.5
07	295	6.9	230	4.4	115	3.0	3.3	2.2
08	340	7.8	220	4.5	115	3.2	3.3	2.0
09	410	8.7	210	4.6	115	3.4		1.9
10	400	9.8	210	4.6	115	3.5	2.5	1.9
11	410	10.6	210	4.6	110	3.6		1.9
12	400	10.9	210	4.6	115	3.5	4.1	1.9
13	380	11.2	210	4.5	115	3.4	3.7	1.9
14	370	11.4	230	4.4	115	3.1	3.7	2.0
15	350	11.4	235	4.3	115	2.7	3.6	2.05
16	330	11.6	245	---	120	---	2.7	2.1
17	25:	11.1			---	---	2.6	2.1
18	250	10.9					2.3	2.1
19	270	10.8						2.1
20	250	11.0						2.3
21	225	11.4						2.6
22	220	9.2						2.5
23	220	7.0						2.2

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

TABLE 73

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic) Km (Unit) December (Month) 19 54

Observed at Washington, D.C.
Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by E.J.W., J.W.P., J.J.S.

Calculated by E.J.W., J.W.P., J.J.S.

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
	A	250	240	230	250	240	240	220	220	210	240	300 H	230	240	260	230	220	210	250	250	240	(240) A	270	240
	300	230	250	250	(240) S	240	220	230	220	230	240	230	230	240	250	230	220	210	220	250	240	250	250	320
3	240	250	250	250	240	250	230	220	220	220	220	230	240	260	230	230	230	210	220	250	260	(230) H	A	S
4	220	(230) A	(230) A	230	250	230	(230) S	220	220	220	230	250	230 H	250	240	230	230	210	(240) A	250 A	A	A	A	(240) A
5		270	250	250	230	230	230	230	230	220	230	240 H	250	250	240	220	220	210	260	230	250	250	(240) S	270
6																								
7	A	A	(240) S	(230) S	270	230	240	220	240	210	(250) H	250	250	270 H	250 H	230 H	230	210	230	220	240	250	230	230
8					230	220	250	230	230	220	250	270	250	240	240	240	230	220	250	240	250	270	260	260
9			(240) A	240	250	260	240	240	230	230	240	240	230	240	240	230	220	210	250	230	A	A	(330) S	(300) S
0					240	240	250	240	210	230	240	240	240	240	240	230	220	220	240	(230) S	(270) S	(270) S	240 S	(280) S
					250	260	250	240	(220) A	230	(220) H	240	240	240	(240) L	230	220	220	250	(250) S	(270) S	(240) S	(300) S	(280) S
2					260	250	240	240	220	230	230	240	250	250	250	240	230	230	230	240	270	240	(280) S	300
3		250			240	230	240	230	220	230	240	230	230	240	240	240	220	210	250	250	260	(240) S	210	270
4		(260) F			240	240	240	240	210	220	(230) H	240	240	240	240	(220) L	210	210	220	230	(240) S	(270) S	(300) S	A
5		(A			240	240	230	240	210	(230) H	(230) H	240	230	220	230	250	210	210	240	240	240	230	(310) S	(240) S
					240	220	230	210	220	220	280	270	240	230	230	(250) L	200	230	220	220	(230) S	(280) S	(260) S	(310) S
7		(230) S	(230) S	(230) S	(220) S	(280) S	240	230	(210) H	240	(250) L	240	350	240	250	250	240	220	240	240	250	250	(280) S	280 S
8					250	(230) S	240	250	240	230	250 S	250	250	250	230	230	230	230	230	240	(240) S	(310) S	S	S
9			(300) S	(300) S	(240) S	(250) S	250	210	220	230	240	270	250	260	230	250 A	220	210	240	240	(270) S	(260) S	260	(280) S
					230	230	230	240	220	240	250	250	230	260	230	230	230	210	220	220	260 S	240	(280) S	(300) S
					270	240	240	240	210	230	(220) L	270	230	250 A	250	240	220	220	230	(270) S	(280) S	S	A	A
	A				230	230	220	230	240	220	270	230	(250) L	250	250	240	210	220	220	230	(310) S	(280) S	230	240
23					250	230	230	240	220	220	(240) L	250	260	250	250	230	240	220	200	(240) S	(250) S	(240) S	(270) S	(260) S
24					(250) A	240	240	240	210	(230) L	240	250	250	250	230	220	220	220	220	220	(240) S	(270) S	(250) S	(280) S
					240	240	230	240	210	240	240	250	250	250	230	230	220	220	220	A	A	A	A	(280) S
26				230	230	210	240	240	230	(250) A	240	230 H	240	250	250	240	220	220	220	250	310	280	280	240
27					(240) A	230	250	240	230	250	240	240	240	240	230	230	240	220	200	250	230	240	(260) A	270
28					240	240	240	230	230	240	240	230	240	240	250	240	220	220	240	220	220	310	(210) S	(320) S
29				(260) A	230	240	240	230	230	240	250	230 H	220 H	240	260	250	230	230	230	230	A	A	260	270
30					230	240	240	240	230	(240) L	230	230	240	240	240	240	220	220	210	230	230	(250) S	(240) S	240
31					240	240	240	240	230	240	230	230	250	240	250	240	230	220	(230) A	(250) A	250	(260) S	260	280 A
Mean	240	240	240	250	240	240	240	230	220	230	240	240	240	250	240	230	220	220	230	240	250	(260)	(280)	280
	31	30	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	27	26	25	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 81-46049

TABLE 74

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

NBS - D - 3
Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), December (Month), 19 54

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W, J.W.P., J.J.S

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	(2.4)$^{I}_{A}$	(3.2)^{F}	3.2^{F}	3.2^{F}	3.2^{F}	3.4^{F}	3.5$^{F}_{H}$	4.2	5.8	5.3	6.4	6.6^{H}	7.0	5.7^{F}	6.6	6.5	5.7	4.3	3.2^{F}	3.2	2.9	2.6^{F}	2.5^{F}	2.1^{F}
2	2.2^{F}	2.8^{F}	3.2^{F}	3.5^{F}	3.6^{F}	3.7^{F}	3.5	(3.6)^{3}	(5.4)$^{P}_{S}$	5.3	6.6	6.6	6.1	6.2	6.3	6.0	5.7	4.6	3.4^{F}	3.2	3.2^{F}	2.3^{F}	2.5	2.2^{F}
3	2.4^{F}	3.2^{F}	3.3^{F}	3.3^{F}	3.5	3.2^{F}	3.2$^{F}_{S}$	3.8^{F}	5.4	5.6	5.4^{F}	7.1	6.4	6.8	(6.3)$^{F}_{S}$	6.1	5.7	4.5^{F}	3.5	2.7^{F}	(2.7)^{A}	(2.4)^{A}	[2.1]^{A}	(1.3)^{A}
4	1.4^{F}	(2.5)$^{A}_{F}$	2.4^{F}	(3.4)^{F}	3.5^{F}	3.6^{F}	(3.0)$^{F}_{S}$	3.6^{F}	5.4	5.2	6.4	6.8	6.2^{H}	6.8	7.4	5.7	6.3	5.2	4.1^{F}	3.7^{F}	A	A	A	2.5^{F}
5	3.0^{F}	3.2	3.5	3.7	3.5	(3.4)$^{F}_{S}$	(3.0)^{F}	3.5^{F}	5.4	5.4	5.7	5.8^{H}	5.4	7.0	6.3	5.9	5.7	4.8^{F}	3.5^{F}	3.5^{F}	2.8^{F}	2.5^{F}	2.3^{F}	2.5^{F}
6	2.4^{F}	2.7^{F}	2.7^{F}	3.5^{F}	3.7^{F}	4.0	3.7	3.8	5.3	5.5	6.0	(6.0)$^{M}_{S}$	6.4	6.4	6.4	5.8	(5.5)$^{P}_{S}$	(5.0)$^{P}_{S}$	(3.8)$^{P}_{S}$	2.8^{F}	2.8^{F}	2.5^{S}	A	A
7	(2.4)^{P}	(2.4)^{A}	2.3^{F}	3.0^{F}	3.5	3.7^{F}	3.4^{F}	4.3^{F}	(5.2)$^{P}_{S}$	4.8	5.4)^{H}	6.5	7.1^{H}	6.9^{H}	7.0^{H}	6.2$^{J}_{S}$	6.4	5.6	4.7	3.4^{F}	2.7	2.6	2.3^{F}	2.7^{F}
8	(2.8)$^{P}_{F}$	(3.5)$^{P}_{F}$	(4.2)$^{P}_{S}$	(4.1)^{3}	4.4	3.8	3.0	3.2	4.7	5.4	6.3	6.2	6.3	6.4	6.3^{H}	5.8	5.3	4.7	3.7	3.5^{F}	3.3^{F}	2.6^{F}	2.7^{F}	(2.7)^{F}
9	(2.4)^{F}	(2.2)^{F}	(2.3)^{F}	2.1^{F}	(3.1)^{F}	3.0^{F}	3.4^{F}	4.2	5.2	5.7	5.6	5.8	6.2	6.1	6.2	5.8	5.3	5.2	3.1^{F}	2.7^{F}	A	A	2.0	2.0)$^{P}_{S}$
10	(2.4)^{2}	2.6^{F}	3.1^{F}	3.4^{F}	3.4^{F}	3.1^{F}	3.3^{F}	3.8^{F}	(5.1^{3}	5.0	6.0$^{P}_{S}$	5.0	6.8	5.7	5.8	5.2	5.4	4.5	3.4	2.7^{F}	2.2	(2.4)$^{P}_{F}$	(2.2)$^{P}_{F}$	(2.2)$^{P}_{F}$
11	(2.6)$^{F}_{E}$	(2.4)^{F}	(2.1)^{F}	2.3^{F}	3.0^{F}	2.7^{F}	(2.7)^{F}	3.5^{F}	5.0	(5.3)$^{P}_{F}$	5.2)^{H}	5.0	6.8	6.5	5.8^{F}	5.4^{F}	5.4^{F}	(4.3)$^{P}_{S}$	2.8^{F}	2.1	2.1	(2.1)^{F}	2.2^{F}	2.1
12	2.2^{F}	2.3	(2.2)^{F}	(2.4)$^{P}_{S}$	2.3	(2.8)$^{P}_{F}$	2.4^{F}	(3.0)^{F}	4.8	5.2	6.2	6.4	6.8	6.4	7.0	7.2	6.4	5.3	3.3^{F}	3.2^{F}	2.7^{F}	2.7^{F}	2.4^{F}	2.3^{F}
13	(2.8)^{F}	(2.4)^{F}	(2.4)^{F}	3.7^{F}	4.2^{F}	4.3^{F}	3.9^{F}	4.1^{F}	5.6	5.6	5.3	7.1	6.6	6.2	6.0	6.3	5.8	4.6$^{F}_{S}$	3.7^{F}	3.1^{F}	2.3^{F}	2.2^{F}	2.1^{F}	2.2^{F}
14	2.4^{F}	2.6^{F}	3.2^{F}	3.2^{F}	3.5^{F}	3.4^{F}	3.2	3.1^{F}	4.1	5.2	5.3^{H}	7.2	6.3^{F}	5.8	6.1^{F}	(5.5)^{3}	(5.0)$^{F}_{S}$	4.4^{F}	3.4$^{F}_{S}$	(2.6)^{F}	(2.2)^{F}	2.1^{F}	2.2^{F}	[2.6]^{A}
15	2.4	2.7^{F}	3.2^{F}	(3.4)$^{P}_{F}$	3.4	3.2^{F}	2.8^{F}	3.1^{F}	4.6	5.7^{H}	5.4^{H}	5.5	7.0	5.8	5.7	5.8	5.0	4.7	3.2	2.7	2.7	(2.4)$^{P}_{S}$	2.0	2.3^{F}
16	2.5^{F}	(2.3)^{F}	3.2^{F}	3.4^{F}	3.1^{F}	3.8	3.1^{F}	3.5	4.1	4.1	5.1^{P}	5.3	(5.8)$^{P}_{S}$	(6.2)$^{P}_{S}$	5.6	5.0	(4.5)$^{P}_{S}$	4.2	3.7)$^{P}_{S}$	2.4	2.3^{F}	2.2^{F}	2.2^{F}	2.1
17	2.3^{F}	(2.5)^{F}	2.6^{F}	1.8^{F}	1.7^{F}	2.0^{F}	2.1^{F}	3.3^{F}	4.3^{H}	4.7	4.3	5.8	5.6	6.4	6.5	5.4	(5.2)$^{P}_{S}$	4.5	(3.6)$^{P}_{S}$	(3.3)$^{P}_{F}$	2.7)$^{P}_{F}$	(3.0)$^{F}_{S}$	(2.7)$^{P}_{F}$	2.6)$^{J}_{F}$
18	2.7)$^{P}_{F}$	(3.7)$^{P}_{S}$	4.5	4.4	3.7^{F}	3.2^{F}	3.1	3.1	4.3	4.7	5.2	5.7	6.3	6.7	5.7	(5.0)^{3}	(5.4)^{3}	5.0	4.5	2.7	2.2	2.0	S	S
19	3	(1.4)$^{P}_{S}$	(1.7)$^{P}_{F}$	[2.2]$^{F}_{S}$	(2.2)$^{3}_{F}$	(3.0)$^{F}_{E}$	(3.2)^{F}	3.4^{F}	4.7	5.2	5.2	6.0	(6.0)$^{P}_{S}$	6.2	5.8	5.8	5.7	4.2^{F}	(3.5)^{F}	2.7^{F}	2.1^{F}	2.3^{F}	2.4^{F}	(2.3)^{F}
20	2.2^{F}	(2.7)^{F}	3.5^{F}	3.6^{F}	3.7^{F}	4.3^{F}	3.4^{F}	2.8	4.1	5.1	5.6	6.6	5.8	6.1^{3}	5.3	5.3	5.3	4.3	3.9^{F}	3.0^{F}	2.3^{F}	2.2^{F}	1.7^{F}	2.2^{F}
21	2.5^{F}	(2.6)^{F}	(2.3)^{F}	(1.4)^{F}	2.5^{F}	2.3^{F}	3.3^{F}	3.0^{F}	4.6	5.1^{F}	4.3^{F}	6.8	6.4	5.8^{F}	6.1^{3}	6.3^{3}	5.6$^{F}_{S}$	4.2$^{F}_{S}$	(3.2)$^{F}_{S}$	2.4)$^{F}_{S}$	2.0)^{F}	(1.9)^{F}	A	A
22	A	(2.0)^{F}	(3.0)^{F}	3.5^{F}	3.8^{F}	3.3	(2.8)^{F}	2.7^{F}	4.2	4.7	5.4	6.8	5.9)^{H}	5.6	5.8	5.5	4.4	4.8	3.5	2.0	2.1	2.3	2.5	2.8^{F}
23	2.4	(2.4)^{A}	2.7^{F}	3.1^{F}	3.1^{F}	3.1^{F}	2.5$^{F}_{S}$	2.4^{F}	4.2	4.8	5.4^{H}	5.5	5.6	6.4^{F}	5.7^{3}	5.3	5.2^{3}	5.2^{3}	(3.7)$^{F}_{S}$	2.3^{F}	2.2	2.3	2.2	2.2
24	2.2^{F}	2.4^{F}	(2.6)^{F}	(2.4)^{F}	(2.5)$^{F}_{A}$	(2.7)^{F}	(2.5)^{F}	(2.4)^{F}	4.1^{F}	5.1^{F}	5.2	5.3	5.6^{F}	6.2	5.6	4.7	4.7	4.4^{F}	(3.7)$^{F}_{S}$	(3.0)^{F}	(2.2)^{F}	2.1^{F}	2.3^{F}	2.2^{F}
25	(2.2)^{F}	(2.3)^{F}	2.5^{F}	2.8^{F}	2.5^{F}	2.3^{F}	2.4^{F}	2.6	4.2	4.3	5.4	5.6	5.4	6.3	6.4	5.2	4.8	4.3	4.1)$^{F}_{S}$	A	A	A	A	2.1)^{F}
26	(2.4)^{F}	(2.6)^{F}	3.4^{F}	(3.3)^{F}	3.8^{F}	3.7^{F}	3.0^{F}	3.1^{F}	4.7	(6.3)^{A}	6.0	(5.4)^{H}	5.8	5.8	5.4	5.2	4.5	3.7	3.5	2.7	2.3	2.7^{F}	2.6^{F}	3.0^{F}
27	3.6^{F}	4.0	4.2	3.6	2.5	2.4^{F}	2.3$^{F}_{H}$	2.3	4.4	6.0	7.4	8.4	7.2	6.0	6.2	5.3	5.5	5.1	4.8	4.7	3.6	3.3	(3.1)^{A}	3.1
28	3.2^{F}	3.4	4.1	4.2	3.4	2.8	2.2^{F}	2.8	4.7	6.0	7.0	7.0	6.8	5.8	(5.7)$^{P}_{S}$	5.4	4.7	4.1^{F}	4.0	3.5	2.5^{F}	(1.7)^{F}	1.7^{F}	1.9^{F}
29	1.8	(1.7)$^{P}_{S}$	2.0^{F}	2.6^{A}	2.6	2.0^{S}	1.7)$^{P}_{S}$	2.3)$^{P}_{S}$	4.2	5.4	6.3^{H}	6.3	5.6^{H}	5.6	5.4	5.4	5.1	4.4	4.3	3.3	2.9	(2.8)$^{A}_{F}$	3.5^{F}	3.1^{F}
30	3.0^{F}	3.1^{F}	3.4^{F}	3.3^{F}	3.7^{F}	2.9^{F}	2.6^{F}	2.4^{F}	4.2	5.4	7.4	5.7	6.0	6.0	5.7	5.5	5.2	4.8	3.5^{F}	2.7^{F}	2.3	2.2^{F}	2.1^{F}	2.4^{F}
31	2.8^{F}	3.0^{F}	3.2^{F}	3.4^{F}	3.5^{F}	3.0	2.5^{F}	2.5^{F}	4.1	5.0	6.3	6.3	5.7	6.0	6.4	5.2	5.0	4.8	(4.0)$^{P}_{S}$	3.1$^{F}_{S}$	2.7^{F}	2.7^{F}	2.8^{F}	2.7^{F}
Median	2.4	(2.7)	3.2	3.4	3.5	3.2	3.0	3.1	4.7	5.3	5.8	6.2	6.2	6.2	6.0	5.6	5.4	4.6	3.6	3.0	2.6	2.4	2.3	2.3
Count	24	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	28	28	26	28

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS D 3
Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

foF2 (Characteristic) Mc (unit) December (Month) 1954

National Bureau of Standards (Institution)

Observed at Washington, D C

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by E.J.W., J.W.P., J.J.S.

Calculated by E.J.W., J.W.P., J.J.S.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	2.3	3.2 F	3.2 F	3.2 F	3.2 F	3.5 F	3.5	5	5.1	5.4	6.0	6.7	6.7	6.2 H	6.0	6.2	4.4	4.7	3.1 F	3.3 F	2.8 F	2.5	2.1 F	2.3
2	2.2 F	3.0 F	3.0 F	3.6	3.7 F	3.7	3.8	4.7	5.8	6.0	7.2	5.8	6.8	6.3	6.4	5.7	5.1	4.2 F	3.3	3.2 F	3.0 F	2.7 F	2.2 F	2.2 F
3	2.2 F	3.3 F	3.3 F	3.2 F	3.1 F	3.4 F	3.2 F	4.8 F	5.4 F	5.6	6.2	6.5	6.2	6.6 F	6.6	5.8	5.4	4.2	3.2	2.7 F	2.4	2.2	A	(1.8) A
4	2.2 F	2.8 F	2.8	2.5	3.5 F	3.3 F	3.2 F	4.5	6.6	5.7	(6.0)	7.4	6.5 H	7.4	6.4	5.7	5.6	4.4	4.1 F	3.8	A	A	A	2.7 F
5	2.4	3.0	3.6	5	4.5	2.4 F	2.7 F	4.4	6.0	5.6	5.4 H	6.0	6.5 H	6.5	6.3	5.8	5.1	4.6 F	3.3 F	2.2 F	2.2 F	2.3 F	2.3 F	2.8 F
6	2.0	2.0 F	3.1	3.4	3.4 F	4	3.4	4.8 F	5.2	5.8	6.0 F	7.1	6.4 F	6.4	6.6	5.8	(5.3) P	4.4	3.1 F	2.7 F	2.7 F	(2.4) F	(2.4) A	(2.3) A
7	(2.5) F	2.2 F	2.8 F	2.2 F	3.8 F	3.6 F	3.6 F	4.1	5.2	4.4	6.2	7.2	6.7	6.7	6.4	6	6.1	4.5	3.8	2.8	2.5	2.6	2.1	3.0
8	2.8 F	4.2 F	4.2 F	4.1	4.1	3.3	2.8 F	4.4	5.2	5.7	5.8	6.8 H	6.4 H	6.2 H	6.0	5.7	5.7	4.2	3.6 F	3.4 F	2.8 F	2.7 F	2.7 F	(2.4) F
9	2.1	2.2 F	2.5 F	2.8 F	3.0 F	3.4 F	3.5 F	4.6 F	6.2	5.6	6.0	6.5	6.4	6.0	6.6	5.6	5.5 F	4.3 F	3.0 F	A	A	(2.1) P	2.1	2.1
10	2.1	2.4 F	3.2 F	3.5 F	3.4 F	3.2 F	3.3 F	4.1	5.4	5.5	(6.1) P	6.4	6.4 F	6.2	5.6	5.1	4.7	3.2 F	3.2 F	2.4	(2.3) F	2.2 F	(2.1) F	(2.4) P
11	2.4 F	2.5 F	2.4 F	2.4 F	2.8 F	2.8 F	(3.0) F	4.7 F	5.6	6.2	(5.5) F	6.2	6.4	6.0 P	5.6 F	5.0 F	5.2	(3.2) F	2.5 P F	2.1	(2.1) F	(2.1) F	(2.1) F	2.1
12	2.3	2.2 F	2.2 F	2.3 P	2.2 P F	2.4 F	2.1 F	3.9	5.0 F	5.4	5.4	6.5	7.0	6.4	6.4	5.6	6.6	3.1 F	3.3 F	2.4 F	2.7 F	2.4 F	2.3 F	2.4 F
13	2.6 F	2.6 F	3.0 F	3.7 F	4.4	4.0 F	4.0	4.7	5.2	5.5	6.4	6.6	6.6	5.8	6.3	6.3	5.0	3.4	3.5 F	2.8 F	2.7 F	2.0 F	2.2 F	2.4 F
14	2.2 F	3.2 F	2.4	3.4 F	3.6 F	(3.3)	2.4 F	4.0	5.1	4.4	6.4 F	6.8	6.0 F	6.2	6.4 F	5.4 F	4.1 F	3.0 F	(3.0) F	2.4 F	(2.2) A	(2.2) A	A	A
15	2.4 F	3.6 F	3.5 F	3.4 F	3.4 F	3.6 F	2.7 F	4.2 F	5.3	5.6 H	5.6	6.4	6.8 H	6.7	5.6	5.8	5.1 H	3.9	3.2	2.1	2.2	2.1	2.1	2.5 F
16	2.8 F	2.7 F	3.6 F	3.8 F	4.0	3.7 F	3.1	4.2	5.2	5.2	6.2	5.8	5.4	5.4	5.4	5.4	5.6	4.6	3.2	2.3	2.2 F	2.2 F	2.2 F	2.2 F
17	2.7	2.8 F	3.1 F	3.7 F	2.0 F	2.5 F	3.1 F	3.6	4.3	4.6	4.7	5.4	6.4	6.5	5.7	5.2	4.5	3.4 F	3.5 F	(3.3) F	(2.4) F	[2.8] F	2.7 P	(2.6) F T
18	2.1 P	4.4	4.4	4	(3.6) F	3.1 F	2.4 F	3.8	5.2	5.0	5.3	6	5.8	5.8 H	5.6	5.5	5.0	4.5	3.6	2.8 F	2.1	(2.0) H	3	3
19	F	2.1 F	2.5 F	(2.4) F P	(2.4) F P	(3.3) F P	3.3 F	4.3	5.5	5.5	4.7 H	6.8	6.3 H	6.4	6.0	5.5	5.1	4.6 F	3.0 F	2.4 F	2.2 F	2.3 F	2.3 F	2.4 F
20	2.1	2.4 F	2.7 F	2.7 F	3.6 F	3.6 F	3.0 F	3.7	4.7	5.2	5.6	7.2	5.4	5.7 H	5.4	5.2	4.4 F	4.1 F	3.5 F	2.5 F	2.1 F	2.1 F	1.7 F	(2.0) F
21	2.6 F	2.7 F	3.1 F	3.2 F	2.6 F	2.7 F	2.7 F	4.3 F	5.6 F	6	5.6 F	7.2	6.4	6.2	5.6 F	5.2	5.4	(3.3) F	(2.8) A	(2.6) F	1.4 F	F	A	A
22	2.3 F	2.6 F	3.2 F	3.6 F	3.6	3.2 F	2.4	3.7	4.4	4.6	5.2	5.4	5.7 H	5.8	5.5	5.4	4.5	3.8	3.1	2.2	2.2	2.4	2.8 F	2.6
23	2.4 A	2.7 F	2.7 F	2.1 F	2.1 F	3.0 F	2.2 F	3.4	(4.6) F	5.3	5.5	5.5	6.0	6.3	5.2	4.4	5.2 F	5.0 F	3.8 F	2.3	2.3	2.2	2.2	2.2
24	2.3 F	2.5 F	2.2 F	2.4 F	(2.2) F	(2.2) F	(2.1) F	3.4 F	4.6	5.2	5.3 F	5.2	5.7	6.4 F	5.2 F	4.8 F	4.6	4.0 F	3.6 F	(2.6) A	2.1 F	2.3 F	2.2 F	(2.0) F
25	2.2 F	2.1 F	2.4 F	2.4 F	2.6 F	2.7 F	2.1	3.3	4.0	4.2	5.4	5.5	5.6	6.3	5.8	5.2	4.6	4.2 F	(3.6) F	A	A	A	(2.0) F	2.2 F
26	2.4 F	2.2 F	2.4 F	2.1 F	4.0	3.4 F	2.4	3.1	4.4	4.6	5.8	5.7 H	5.4	5.3	5.3	4.4	4.3	(3.4) F	3.0	2.7	2.4	2.8 F	2.4	3.5
27	4.0	3.4 F	3.6 F	2.4	2.4	2.4	2.1 F	3.5	5.2	6.4	6.0	6.0	6.5	5.8	5.4	5.4	(5.2) F	4.4	5.0	4.3	3.5	3.0	3.1 F	3.3 F
28	3.7	4	4.2 F	4.1	3.2	(2.2) P	2.3	3.4	5.5	6.8	7.0	6.8	6.3	6.2 H	5.4	5.2	4.7 F	3.6 F	3.4	3.3	2.3 F	1.1 F	1.4 F	1.8
29	3	2.6	2.5 F	2.7 F	2.2	(2.0) P	(1.8) F	3.5	4.7	5.6	6.6	6.7	5.4	5.8	5.4	5.0	4.7	4.5	3.8	3.2	2.7	2.1 F	2.7 F	3.2 F
30	2.3	2.2 F	2.3 F	4.6	3.3 F	2.7 F	2.3 F	3.5 F	4.3	6.8	6.6	6.0	6.0	6.0	5.7	5.2	4.4	4.2	3.6 F	2.5 F	2.1	2.1 F	2.2 F	2.6 F
31	2.4 F	3.2 F	3.3 F	3.4 F	3.4	2.7 F	2.3	3.6 F	5.4	6.2	7.0	5.7	6.0	6.2	6.0	4.4	4.1	4.1 F	(3.3) R	2.4 F	2.7 F	2.8	2.7 F	2.8 F
Median	2.4	2.9	3.2	3.4	3.4	3.2	2.4	4.0	5.2	5.6	5.7	6.4	6.3	6.2	5.8	5.7	5.0	4.4	3.3	2.7	2.4	2.3	2.2	2.4
Count	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

04.6b

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 831-460.49

TABLE 76

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), December (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	A	220	200 H	[200] A	210	210	230	Q							
2									Q	200 H	200	220	210	210	220	230	Q							
3									Q	Q	Q	220 H	210	230	220	200 H	(220) A							
4									(210) S	210	210 H	(200) H	200	240	(210) A	(210) A	Q							
5									A	200	180 H	200	200	230	230	220	Q							
6									Q	Q	220	(220) A	220	220	230	A	A							
7									Q	Q	210 H	240	220	200	200 H	220	230							
8									Q	220	220	200 H	230	230	230	220	Q							
9									Q	230	200 H	220	220	210	220	220	220							
10									Q	Q	220	220	210	220	230	A	Q							
11									A	200	210	180 H	180 H	220	200	220	Q							
12									Q	A	210	(230) A	220	A	A	A	Q							
13									Q	230	200	220 H	200 H	200	210	230	Q							
14									Q	A	170	190 H	200	220	210	200	Q							
15									A	Q	210	230	240	230	240	230	Q							
16									Q	200 H	210 H	240	210	230	220	210	Q							
17									Q	Q	230	230	200 H	220 H	230	220	(230) A							
18									Q	210	190 H	190 H	220	220	200 H	200	210							
19									220	210	180 H	180 H	230	240	220	A	Q							
20									Q	230	220	240	210	190 H	200 H	200	Q							
21									Q	Q	200	(200) A	A	A	200	220	Q							
22									Q	220 H	180 H	200 H	210	200	230	230	220							
23									Q	210 H	210 H	210	210	240	220	(220) A	230							
24									Q	220	220	210	210	210 H	200	200	Q							
25									Q	220	220	200	200	220	220	220	Q							
26									Q	A	220	210	210	200	200 H	210	220							
27									Q	240	220	220 H	200 H	210 H	220	230	230							
28									Q	230	220	140	200 H	210	(230) A	230	Q							
29									Q	230	230 H	210 H	140	180 H	230	230	Q							
30									Q	220	220	200	200	200	230	210	Q							
31									Q	220	210 H	200	180	210	220	220	Q							
Median									—	220	210	210	210	220	220	220	220							
Count									2	20	30	31	30	24	30	27	9							

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 77

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

NBS - D - 3
Form adopted June 1946

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), December (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D C

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by E.J.W, J.W.P, J.J.S.

Calculated by E.J.W, J.W.P, J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	A	L	L	A	L	L	L	Q							
2									Q	L	L	L	(3.4)^{L}	L	L	L	Q							
3									Q	Q	Q	L	L	L	L	L	L							
4									L	L	L	L	L	L	(3.6)^{L}	L	Q							
5									A	L	3.4^{H}	3.7	3.7	[3.6]^{L}	(3.6)^{L}	L	Q							
6									Q	Q	L	A	L	(3.9)^{L}	L	L	A							
7									Q	Q	4.2^{H}	L	L	3.7	3.6^{H}	L	L							
8									Q	L	L	L	L	L	L	L	Q							
9									Q	L	L	L	L	L	L	L	L							
10									Q	Q	L	L	L	L	L	A	Q							
11									A	L	L	3.7^{H}	L	L	L	L	Q							
12									Q	A	L	L	L	A	L	A	Q							
13									Q	L	L	(3.8)^{L}	L	L	L	L	Q							
14									Q	A	3.4	3.6^{H}	A	L	L	L	Q							
15									A	Q	L	L	L	L	L	L	Q							
16									Q	L	3.7^{H}	4.2	L	L	L	L	Q							
17									Q	Q	L	(3.8)^{L}	(3.9)^{L}	3.7^{H}	3.6	L	L							
18									Q	L	L	L	L	L	L	L	L							
19									L	2.7	[3.0]^{L}	(3.4)^{L}	L	L	L	A	Q							
20									Q	L	L	L	L	(3.6)^{L}	3.3^{H}	L	Q							
21									Q	Q	L	(3.7)^{F}	L	A	(3.7)^{L}	L	Q							
22									Q	L	L	L	L	L	L	L	L							
23									Q	L	L	3.8	L	L	L	L	L							
24									Q	L	L	(3.8)^{L}	L	L	L	L	Q							
25									Q	L	L	(3.8)^{L}	L	L	L	L	Q							
26									Q	A	(3.6)^{L}	[3.7]^{L}	(3.8)^{L}	(3.5)^{L}	L	L	L							
27									Q	L	(3.7)^{L}	3.8^{H}	L	L	L	L	L							
28									Q	L	L	(3.6)^{L}	3.7)^{L}	L	L	L	Q							
29									Q	L	L	3.8^{H}	3.7	(3.7)^{L}	L	L	Q							
30									Q	L	(3.8)^{L}	(3.9)^{L}	L	L	L	L	Q							
31									Q	L	L	(3.8)^{L}	L	L	L	L	Q							
Median									—	—	3.6	(3.8)	(3.8)	(3.7)	(3.6)	—	—							
Count										1	9	17	6	7	6									

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 78

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), December (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

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

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 79

NBS - D - 3
Form adopted June 1946

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

IONOSPHERIC DATA

fo E (characteristic) , Mc (unit) December (Month) 1954

Observed at Washington, D.C

Lat 38.7° N , Long 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by E.J.W., J.W.P., J.J.S.

Calculated by E.J.W., J.W.P., J.J.S.

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									1.7	2.1 H	2.5 H	2.4	A	A	2.7 H	2.4 H	(1.8) P							
2									1.8 H	2.3	2.5 H	2.7 H	(2.7) A	2.1	2.5 H	2.4	1.7							
3									1.9	2.4	2.5	2.7	2.9 H	2.7	2.5	B	A							
4									(1.8) S	(2.2) S	A	A	A	A	A	A	A							
5									A	2.3 H	2.6	2.8 H	2.7	2.7 H	2.5	2.1	S							
6									1.7 H	(2.4) P	2.6	2.7 H	A	A	A	A	A							
7									A	A	A	2.7	2.8 H	2.7	2.5	A	A							
8									S	2.3 H	2.6 H	2.7 H	2.7 H	2.7 H	2.5 H	2.2 H	1.8 H							
9									S	A	2.5	2.7	2.7	2.6	2.5	2.1	S							
10									S	A	(2.5) A	2.8 F	(2.8) A	2.8	(2.6) A	A	A							
11									A	(2.3) A	2.5	2.7 H	2.7 H	2.8 H	2.7 H	A	F							
12									A	2.3	2.5 H	2.7	2.7 H	2.7 H	2.5	2.3	S							
13									S	A	2.5	2.6 F	2.7	2.7	2.5	2.2	S							
14									A	2.2	(2.5) A	(2.8) A	(2.6) A	(2.5) A	A	A	S							
15									S	A	A	2.6 H	2.7 H	2.7 H	2.5 H	2.2	(1.7) S							
16									S	2.2	2.5	2.9 H	(2.7) A	2.6	2.5	2.0	1.7							
17									S	(2.1) A	2.5 H	2.6	A	A	2.5	2.2 H	A							
18									S	2.2	2.5 H	2.6	2.8 H	2.5	2.4 H	2.2 H	(1.4) H							
19									S	2.0 H	2.2	2.3	2.7	2.6	2.5	2.1	(1.7) S							
20									S	2.0 H	2.3	2.4	2.6	2.5	2.4	A	S							
21									S	2.1	A	A	2.6	2.5	A	A	A							
22									1.8 H	A	A	2.7 H	2.7 H	2.6 H	2.2	(2.1) P	S							
23									S	2.1 H	2.4	(2.6) P	2.8	2.6	2.4 H	2.2 H	S							
24									S	A	2.5	2.6	2.7	2.7	2.5	(2.2) A	1.9							
25									S	A	2.5	2.6	2.7	(2.6) A	2.5	2.4 H	A							
26									S	A	A	2.1 H	2.7 H	2.7 H	(2.5) A	2.3 H	1.9							
27									A	2.2 H	(2.5) A	(2.6) P	(2.7) P	(2.5) P	(2.3) P	(2.0) A	1.7							
28									S	1.7 H	2.1 H	(2.3) P	(2.3) P	2.5 H	(2.4) P	A	A							
29									S	2.2 H	(2.3) P	2.4 H	2.8 H	2.7 H	(2.5) A	2.3 H	1.8 H							
30									S	2.2	2.6	2.7	2.7	2.7 H	2.6 H	(2.4) S	1.8							
31									1.8	(2.3) P	2.6 H	2.8	2.9 H	(2.8) A	(2.6) H	A	A							
Median									1.8	2.2	2.5	2.7	2.7	2.7	2.5	2.2	1.8							
Count									7	22	25	24	27	27	27	20	12							

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 80

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit) December (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W., J.W.P., J.J.S.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: E.J.W., J.W.P., J.J.S.

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	90 110 H	40 140	E	E	E	23 100	36 110	E	30 130	38 130	38 120	30 120 H	57 100	39 100	G	25 130	18 100	E	E	E	28 110	32 110	25 110	31 110
2	28 100	E	E	E	E	E	E	E	30 110 H	G	30 110	34 110 H	36 100 H	33 100	39 110	G	G	(54)S 110	23 110	22 100	E	E	28 120	21 110
3	E	E	21 110	E	E	E	58 110	21 100	G	G	29 130	28 120	G	29 130	G	(21)B 110	22 110	29Y 110	E	29Y 110	38Y 110	42 110	47 110	35 110
4	40 110	34 110	34 110	25 110	31 110 H	7.2 120	47Y 110 H	43 110	G	G	46 110	42 110	43 100	45 100	43 100	44 100	31 100	32 110	31 100	47 100	47 100	41 100	44Y 100	29 100
5	28 100	E	E	E	30Y 120 H	30 120	E	E	48 110	G	34 100	34 100	36 100	38 100 H	28 130	43 110	24 100	32 100 H	45 120	38 110	35 110	(37)S 110	31 110 H	37F 110
6	E	E	E	E	E	E	E	E	42 100 H	34 130 H	42 130	47 130	39 100	70 100 H	27 100	36 100	66Y 100	(40)S 100 H	36 100	E	(25)S 100	37Y 100	36Y 100	48 100
7	32Y 100	43 100	24Y 100	28Y 100	E	28 120 H	70Y 110	30 100	18 120	34Y 110 H	36Y 120	G	G	G	19 100	51Y 100 H	29Y 120 H	E	34 110	31 110	32Y 100	E	E	30 100
8	E	E	E	E	E	E	E	31Y 110	G	G	G	G	G	39 140	40 140	35 120	(26)S 120	59 110	E	E	30 110	E	E	E
9	E	E	E	E	E	E	24 110	23 120	37Y 110 H	30 120	G	36 100	62Y 110	40 130	38 120	37 110	30 110	E	43 100	75 100 H	56 100	40 100	25 100	24 100
10	25 100	26 100	28 100	E	19 100	18 100	E	36 100 H	31 100	32 100	78Y 100	31 130	40Y 100	G	34 120	39 120	24 130	E	23 120	31 110	E	E	E	E
11	E	E	23 100	19 100	30Y 110	31 100	36Y 100	34 100	120Y 100	32 120	68Y 120	32 100	G	49 100	G	48 120 H	G	E	E	E	22 120	24 130	24Y 120	24 120
12	35Y 110	30 100 H	30Y 100 H	E	E	E	E	40Y 110	48Y 110	41 130	29 130	41 120	43 120	62 110	49 120	47 120	56 110	27 110	E	31 150	37 130	38 140	E	35 110
13	E	23 100	E	E	E	40 120 H	30 110	70 110 H	39 110 H	45 110	35 110	G	G	G	G	G	30 120	28 100	29 100	E	29 110	24 110	24 110	30 100
14	30 100	27 100	28 120	28 100	E	E	E	41 100 H	30 110	38 110	34Y 110	40 100	36 110	46 110	62 100	50Y 110 H	94 110	41Y 120	85 110	93 110	50Y 110 H	49Y 110	5 110	64 100
15	44 110	29Y 100 H	60Y 110	44Y 100	E	23Y 130	E	42Y 110	66 110	37 110	43H F 100	48 100 H	45 100	37 90	35 140	G	G	43 100	28 100	E	E	E	21 100	E
16	E	E	E	E	E	E	E	E	26 130	31 100 H	G	33 110	40F 110	28 120 F	G	27 140	G	48Y 120	E	E	E	39 120	E	E
17	E	E	E	E	E	30 110	33 100	25 100	G	27 130	G	70Y 140	31 110	25 110	G	G	21 100	E	E	32 110 H	29 110	27 110	21 110	E
18	E	E	E	E	E	E	24Y 110	25 110	82Y 110	31Y 120 H	48Y 120	G	G	34 130	G	23 130	6.6Y 120	29Y 110	34 120	24 110	E	28Y 110	29Y 100	E
19	29Y 110 H	28Y 120	E	E	E	E	32 110 H	46Y 110	G	G	G	G	G	49 110	36 120	61 110	31 100	(38)S 100	E	E	E	E	E	E
20	E	40Y 110	24 110	E	23 120	24 110	29 110 H	31 100	33 110	29 110 H	40 130	40 110 H	38 120	37 120	38 120	45 100 H	17 120	24 110 H	E	E	E	24 140	(28)S 30	E
21	E	24 120	E	E	E	E	E	E	G	45Y 130	37 100	39 100	41 100 H	76Y 100 H	37 110	22 110	31 100	20 120	45 100	58 110	E	25 100	30 100 H	38 110
22	32 110	E	E	E	29 110	29 110	22 110	24 110	72Y 110 H	31 110	32 100	47 100	28 140	36 120	34 110	94Y 100	18 110	23 100	E	E	E	E	27 100	25 100
23	24 100	32 100	27 110	E	22 120	E	47 120 H	E	50 110	G	G	72Y 100	G	G	29 130	36Y 110	18 110	24 100	25 100	37 100 H	E	E	E	E
24	E	E	31Y 120	E	49 110	49 110	22 110	31 100	41 100	48 100	G	G	G	33 130	44Y 120	25 110	G	E	24Y 130	38 110	36Y 100 H	34 110	33 110	33 110
25	41 110	31 110 H	23 110	29 110	23 110	23 110	31Y 110	E	38Y 110 H	22 100 H	33Y 130	29 130	25 110	27 110	24 110	G	22 110	22Y 110 H	44 100	41 100	48 100	38 100	38 100	E
26	E	E	E	E	30Y 110	31 110	27 110	48 100	76Y 100 H	92 100	40 110 H	20 100 H	G	G	35 100	G	G	E	37 110	27 110	35 110	E	25 110	E
27	E	23 110	23 110	E	E	E	E	E	37 110	G	25 110	27 120	29 120	28 110	32 110	27 110	20 120	32 110	50 110	49F 110 H	39 110	35 110	44 110	30 120
28	E	E	E	E	21 110	28 110	24 110	30 110	29 100	38 110	39 110	39 110	30 110	27 120	40 110	36 110	30 110	23 130	E	E	E	E	E	28 110
29	E	E	E	45 120	E	E	22 110	30 110	G	29 120 H	(40)S 110	34 110	27 110	49 120 H	50 110	G	G	E	33 110	E	74 110	49 110	33 100	30 110
30	E	29 110	32 110	29 110	28 110	E	E	E	G	37 100	G	G	42Y 100	40 100	45 120	49 110	32 120	E	E	40 110	40 110	28 110	30 110	E
31	29 110	24 110	23 110	E	E	E	E	28 110	G	70Y 110	30Y 110	31 100	G	52 110	29 120	33Y 100	50Y 110	44 100	45 100	37 100	33Y 100	26Y 100	25Y 100	33 100
Median	* *	23	* *	* *	* *	* *	22	28	31	31	34	33	30	37	34	35	24	27	25	29	29	27	25	25
Count	31	31	3	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	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 ☒

GPO 83-460 49

TABLE 81

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2 (Characteristic) , ____ (Unit) December (Month) , 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N Long 77.1°W

75° W Mean Time

Scaled by E.J.W., J.W.P., J.J.S.

Calculated by E.J.W., J.W.P., J.J.S.

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	J A	22	2- F	2- F	23 F	22 F	22 F H	23	27	26	26	23 H	20	2- F	2-	25	26	23	22 F	23	23	23 F	22 F	22 F
2	20 F	2- F	22 F	22 F	22 F	22 F	24	(22) S	26) P S	26	25	26	23	24	2-	25	25	24	23 F	22	23 F	23 F	23	20 F
3	2- F	22 F	22 F	22 F	23	2- F	23 F S	25 F	26	26	24 F	25	20	22	2- F S	24	24	25 F	23	22 F	(22) A	(24) A	A	(19) A
4	26 F	A F	2- F	22 F	23 F	24 F	(24) F S	25 F	26	26	25	2-	24 H	24	25	24	24	24	21 F	23 F	A	A	A	21 F
5	- F	2-	2-	2-	22	25) F	24) F	25 F	25	2-	26	23 H	23	24	25	23	2-	2- F	23 F	25 F	23 F	23 F	22 F	22 F
6	2- F	2-	22 F	21 F	22 F	22	23	24	25	2-	25	22) H S	24	24	25	25	23) P S	20) P S	25) P S	22 F	22 F	24 S	A	A
7	- F	A	23 F	26 F	26	22 F	21 F	2- C	20) P S	21	2- H	24	21 H	23 H	24 H	23) S	23	2-	23	26 F	23	22	21 F	22 F
8	- F	22 F	21) P S	22) S	23	2-	21	23	25	24	25	24	25	25	- 3 H	2-	24	24	22	22 F	22 F	22 F	22 F	(22) F
9	- F	F	22 F	21 F	22) F S	22 F	22 F	23	23	25	26	25	25	25	23	25	24	25	21 F	22 F	A	A	20	(21) P S
10	-	- F	22 F	24 F	22	22 F	22 F	23 F	26) S	26	25) P S	23	24	24	25	24	25	24	22	23 F	21	(20) P F	(20) P F	(20) P F
11	- P F	2- F	2- F	21 F	22 F	20 F	21) F	21 F	27	25) P F	23) H	25	25	20	24 F	26 F	25 F	24) P F	23 F	22	21	(19) F	19 F	21
12	- F	2- F	2- F	20 F S	22	(21) P F	23 F	22) F	25	25	23	25	23	23	23	2-	25	26	23 F	23 F	23 F	22 F	22 F	21 F
13	- 21) F	22 F	- F	23 F	22 F	23 F	23 F	23 F	25	25	25	25	26	25	23	25	24	25 F S	22 F	22 F	22 F	22 F	21 F	22 F
14	- F S	- F	23 F	2- F	22 F	22 F	23	24 F	26	27	24 H	25	24 F	25	23 F	25) S	24) F S	26 F	23 F S	23) F	22) F	22 F	21 F	A
15	24	22 F	2 F	22) P F	22	23 F	23 F	24 F	2	23 H	25 H	25	26	28	25	24	25	24	23	23	23	(24) P S	22	22 F
16	22 F	2- F	2- F	2 F	23	2- F	- F	2-	24	23	24) P S	24	2- P S	2- S	25	24	23) P S	23	24) P S	23	23 F	20 F	21 F	20
17	2 F	- F	2- F	2 F	2- F	22 F	23 F	23 F	2- H	2-	23	22	20	22	23	23	24) P S	23	2-) P S	(22) P F	(23) P F	(20) F S	20) P F	20) J F
18	2 F	2- P	2(	24	24 F	23 F	22	24	26	26	25	24	24	24	25	25) S	(25) S	23	25	22	23	20	S	-
19	-	- P	23) P F	F S	J F	22 F	22 F	24 F	25	24	25	23	(23) P S	23	26	23	24	25 F	(24) F	24 F	22 F	22 F	23 F	(21) F
20	22 F	2- F	21 F	22 F	23 F	2- F	24 F	24	25	24	23	23	24	24 S	26	22	24	24	23 F	25 F	22 F	22 F	22 F	2- F
21	- F	22 F	- F	22) F	22 F	23 F	24 F	23 F	26	25 F	26 F	23	25	24 F	25) S	24 S	24 F S	26 F S	25) F S	(21) F S	20) F	(20) F	A	A
22	A	- F	2- F	22 F	23 F	23	23 F	23 F	26	27	23	26	24 H	23	2-	25	26	25	24	24	20	21	21	22 F
23	23	A	22 F	22 F	22 F	23 F	24 F S	22 F	26	25	23 H	25	24	23 F	24 S	25	23 S	24 S	(25) F S	22 F	22	23	21	21
24	- F	2 F	2 F	22 F	22 A	24) F	24 F	22) F	25 F	25 F	26	26	24 F	25	25	25	25	24 F	24) F S	24) F	(22) F	21 F	23 F	21 F
25	- F	2 F	2 F	- F	21 F	23 F	25 F	23	2	24	25	24	24	24	26	24	25	23	24 F S	A	A	A	A	20) F
26	- F	24 F	- F	2- F	23 F	23 F	23 F	22 F	24	A	25	24 H	24	24	24	25	25	23	24	22	20	21 F	22 F	20 F
27	- F	24	24	24	21	21 F	21 F H	20	22	22	21	23	23	24	24	24	23	24	21	23	23	24	(22) A	21
28	2- C	22	24	22	24	22	21 F	21	24	24	24	25	25	25	25) P S	25	25	23 F	22	24	25 F	(22) F	22 F	21 F
29	-	2	22 F	23 A	24	22 S	22) P S	22) P S	25	24	23 H	26	26 H	24	24	23	24	23	24	24	23	23) A F	22 F	21 F
30	- F	22 F	22 F	23 F	23 F	23 F	23 F	22 F	24	24	25	26	25	25	25	24	25	24	25 F	24 F	21	20 F	21 F	21 F
31	22 F	2 F	2 F	22 F	23 F	23	21 F	22 F	25	25	25	26	25	24	24	25	25	24	24) P S	23 S F	22 F	21 F	21 F	21 F
Median	22	22)	22	22	22	23	23	23	25	25	25	24	24	24	24	24	24	24	23	23	22	22	22	21
Count	-	28	31	30	30	31	31	4	31	30	31	31	31	31	31	31	3	31	31	35	29	25	25	27

J4.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83 460 49

TABLE 82

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic) , ____ (Unit) December (Month) , 1954

Observed at Washington, D.C.

Lat 38.7°N , Long 77.1°W 75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

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	J A	(3.3) F	3.4 F	3.5 F	3.4 F	3.3 F	3.3 F H	3.4	3.8	3.7	3.7	3.4 N	3.7	3.5 F	3.4	3.6	3.7	3.4	3.3 F	3.3	3.4	3.3 F	3.2 F	3.3 F
2	3.0 F	3.0 F	3.2 F	3.3 F	3.2 F	3.3 F	3.4	(3.3) S	(3.7) P S	3.7	3.6	3.7	3.4	3.4	3.5	3.6	3.5	3.5	3.3 F	3.3	3.3 F	3.4 F	3.3	3.0 F
3	3.1 F	(3.3) F	3.3 F	3.3 F	3.4	3.4 F	3.4 F S	3.6 F	3.6	3.7	3.5 F	3.5	3.7	3.3	(3.5) F S	3.4	3.5	3.6 F	3.4	3.3 F	(3.2) A	(3.5) A	A	(2.9) A
4	3.0 F	A F	3.2 F	(3.2) F	3.5 F	3.4 F	(3.5) F S	3.6 F	3.7	3.7	3.6	3.5	3.4 H	3.5	3.6	3.5	3.5	3.5	3.1 F	3.4 F	A	A	A	3.1 F
5	3.1 F	3.2	3.2	3.2	3.3	(3.6) F S	(3.5) F	3.6 F	3.6	3.5	3.7	3.3 H	3.4	3.5	3.6	3.3	3.4	3.5 F	3.3 F	3.6 F	3.4 F	3.4 F	3.2 F	3.2 F
6	3.2 F	3.2 F	3.2 F	3.1 F	3.2 F	3.2	3.3	3.4	3.6	3.5	3.6	(3.2) H S	3.5	3.5	3.6	3.6	(3.3) P S	(3.7) P S	(3.6) P S	3.3 F	3.2 F	3.4 S	A	A
7	(3.1) P S	A	3.0 F	3.0 F	3.0	3.3 F	3.1 F	3.4 F	(3.7) P S	3.8	(3.5) H	3.5	3.1 H	3.4 H	3.5 H	(3.3) J S	3.4	3.5	3.4	3.7 F	3.3	3.3	3.1 F	3.2 F
8	(3.2) P F	(3.2) P F	(3.2) P S	(3.2) S	3.4	3.5	3.1	3.4	3.6	3.5	3.6	3.4	3.6	3.5	3.3 H	3.5	3.4	3.4	3.3	3.3 G	3.2 F	3.2 F	3.2 F	(3.2) F
9	(3.2) P F	(2.9) F	(3.2) P F	3.1 F	(3.3) F	3.2 F	3.2 F	3.4	3.4	3.6	3.7	3.6	3.6	3.6	3.4	3.5	3.5	3.6	3.2 F	3.2 F	A	A	3.0	(3.1) P S
10	(3.0) S	3.1 F	3.2 F	3.4 F	3.3 F	3.3 F	3.2 F	3.3 F	(3.7) S	3.7	(3.6) P S	3.4	3.5	3.5	3.6	3.5	3.6	3.5	3.2	3.4 F	3.1	(3.0) P F	(3.0) P F	(3.0) P F
11	(3.2) P F	(3.1) F	(3.1) F	3.1 F	3.2 F	3.0 F	(3.1) F	3.2 F	3.8	(3.6) P F	(3.4) H	3.6	3.6	3.7	3.5 F	3.7 F	3.6 F	(3.5) P F	3.3 F	3.3	3.1	(2.9) F	2.9 F	3.1
12	3.2 F	3.2	(3.0) F	(3.0) P S	3.3	(3.1) P F	3.4 F	(3.2) F	3.6	3.6	3.4	3.6	3.4	3.4	3.4	3.5	3.6	3.7	3.3 F	3.3 F	3.3 F	3.2 F	3.2 F	3.1 F
13	(3.2) F	(3.2) F	(3.2) F	3.3 F	3.3 F	3.4 F	3.3 F	3.4 F	3.6	3.6	3.6	3.6	3.7	3.6	3.4	3.6	3.5	3.6 F S	3.3 F	3.3 F	3.3 F	3.2 F	3.1 F	3.2 F
14	3.4 F S	3.2 F	3.3 F	3.1 F	3.2 F	3.3 F	3.3	3.4 F	3.7	3.8	3.5 H	3.6	3.4 F	3.6	3.4 F	(3.6) S	(3.4) F S	3.7 F	3.4 F S	(3.4) F	(3.2) F	3.2 F	3.1 F	A
15	3.2	3.2 F	3.1 F	(3.2) P F	3.2	3.3 F	3.4 F	3.4 F	3.8	3.4 H	3.5 H	3.6	3.7	3.4	3.6	3.5	3.6	3.5	3.3	3.3	3.4	(3.5) P S	3.2	3.3 F
16	3.2 F	(3.2) F	3.2 F	3.1 F	3.3 F	3.6	3.5 F	3.6	3.5	3.4	(3.5) P S	3.5	(3.7) P S	(3.5) P S	3.6	3.5	(3.4) P S	3.4	(3.5) P S	3.3	3.3 F	3.0 F	3.1 F	3.0
17	3.1 F	(3.1) F	3.2 F	3.1 F	3.0 F	3.2 F	3.4 F	3.4 F	3.4 H	3.5	3.3	3.2	2.9	3.2	3.3	3.4	(3.4) P S	3.4	(3.1) P S	(3.2) P F	(3.3) P F	(3.0) P S F	(3.0) P F	(3.0) J F
18	(3.1) P F	(3.0) P S	3.0	3.2	3.4 F	3.4 F	3.2	3.2	3.5	3.7	3.6	3.5	3.5	3.5	3.6	(3.5) S	(3.6) S	3.4	3.5	3.3	3.3	3.0	S	S
19	S	(2.8) P S	(3.0) P F	F S	J F	(3.2) P F	(3.2) F	3.5 F	3.6	3.5	3.6	3.3	(3.4) P S	3.3	3.7	3.3	3.5	3.6 F	(3.5) F	3.5 F	3.3 F	3.3 F	3.4 F	(3.1) F
20	3.3 F	(3.2) F	3.1 F	3.3 F	3.4 F	3.4 F	3.5 F	3.4	3.6	3.5	3.4	3.4	3.5	3.5 S	3.7	3.3	3.5	3.5	3.4 F	3.6 F	3.3 F	3.3 F	3.3 F	3.0 F
21	3.2 F	(3.2) F	(2.9) F	(3.3) F	3.2 F	3.3 F	3.5 F	3.4 F	3.7	3.6 F	3.1 F	3.4	3.6	3.5 F	(3.6) S	3.5 S	3.5 F S	3.7 F S	(3.6) F S	(3.1) F S	(3.0) F	(2.9) F	A	A
22	A	(3.0) F	(3.1) F	3.2 F	3.4 F	3.4	(3.3) F	3.4 F	3.7	3.8	3.4	3.7	3.4 H	3.4	3.4	3.6	3.7	3.6	3.5	3.5	3.0	3.1	3.1	3.3 F
23	3.3	A	3.2 F	3.4 F	3.2 F	3.4 F	3.5 F S	3.3 F	3.7	3.6	3.3 H	3.5	3.5	3.4 F	3.5 S	3.6	3.4 S	3.5 S	(3.5) F S	3.2 F	3.2	3.3	3.1	3.1
24	3.0 F	3.1 F	(3.1) F	(3.2) F	(3.2) F A	(3.2) F	(3.5) F	(3.2) F	3.6 F	3.6 F	3.7	3.7	3.5 F	3.6	3.6	3.6	3.6	3.5 F	(3.5) F S	(3.5) F	(3.3) F	3.1 F	3.3 F	3.1 F
25	(3.0) F	(3.1) F	(3.1) F	3.3 F	3.1 F	3.3 F	3.6 F	3.4	3.8	3.5	3.6	3.5	3.5	3.5	3.7	3.5	3.6	3.4	3.5 F S	A	A	A	A	(3.0) F
26	(3.0) F	(3.2) F	3.2 F	(3.3) F	3.4 F	3.4 F	3.3 F	3.3 F	3.5	A	3.6	(3.4) H	3.5	3.5	3.5	3.6	3.6	3.4	3.5	3.2	3.0	3.1 F	3.2 F	3.0 F
27	3.1 F	3.2	3.5	3.4	3.1	3.1 F	3.1 F H	3.2	3.2	3.3	3.1	3.4	3.4	3.5	3.5	3.5	3.4	3.5	3.1	3.4	3.4	3.4	(3.3) A	3.1
28	3.0 F	3.2	3.2	3.3	3.5	3.2	3.1 F	3.1	3.4	3.5	3.5	3.6	3.6	3.6	(3.6) P S	3.6	3.6	3.3 F	3.2	3.5	3.6 F	(3.2) F	3.2 F	3.1 F
29	3.1	(3.1) P S	3.2 F	3.3 A	3.5	3.2 S	(3.2) P S	(3.2) P S	3.5	3.5	3.4 H	3.7	3.7 H	3.5	3.4	3.4	3.5	3.3	3.5	3.5	3.4	(3.4) A F	3.3 F	3.1 F
30	3.2 F	3.3 F	3.3 F	3.4 F	3.3 F	3.3 F	3.4 F	3.2 F	3.4	3.5	3.6	3.7	3.6	3.6	3.6	3.5	3.6	3.4	3.6 F	3.5 F	3.1	3.0 F	3.1 F	3.1 F
31	3.2 F	3.1 F	3.1 F	3.2 F	3.3 F	3.3	3.1 F	3.2 F	3.6	3.6	3.6	3.7	3.6	3.5	3.5	3.6	3.5	3.5	(3.5) P S	3.3 S F	3.2 F	3.1 F	3.1 F	3.1 F
Median	3.15	(3.2)	3.2	3.2	3.3	3.3	3.3	3.4	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.3	3.3	3.2	3.2	3.1
Count	28	28	31	30	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	30	28	28	25	27

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 83

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

IONOSPHERIC DATA

(M3000)F1 (Characteristic) , (Unit) December (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	A	L	L	A	L	L	L	Q							
2									Q	L	L	L	(4.0)L	L	L	L	Q							
3									Q	Q	Q	L	L	L	L	L	L							
4									L	L	L	L	L	L	(3.8)L	L	Q							
5									A	L	4.1H	4.0	4.0	L	(3.9)L	L	Q							
6									Q	Q	L	A	L	(3.8)L	L	L	A							
7									Q	Q	3.7H	L	L	4.1	(3.8)H	L	L							
8									Q	L	L	L	L	L	L	L	Q							
9									Q	L	L	L	L	L	L	L	L							
10									Q	Q	L	L	L	L	L	A	Q							
11									A	L	L	3.4H	L	L	L	L	Q							
12									Q	A	L	L	L	A	L	A	Q							
13									Q	L	L	(3.8)L	L	L	L	L	Q							
14									Q	A	4.2	(3.9)H	A	L	L	L	Q							
15									A	Q	L	L	L	L	L	L	Q							
16									Q	L	3.7H	3.7	L	L	L	L	Q							
17									Q	Q	L	(3.8)L	(3.9)L	3.7H	3.6	L	L							
18									Q	L	L	L	L	L	L	L	L							
19									L	4.1	L	(4.0)L	L	L	L	A	Q							
20									Q	L	L	L	L	(3.9)L	3.9H	L	Q							
21									Q	Q	L	(3.8)F	L	A	(3.9)L	L	Q							
22									Q	L	L	L	L	L	L	L	L							
23									Q	L	L	3.8	L	L	L	L	L							
24									Q	L	L	(3.9)L	L	L	L	L	Q							
25									Q	L	L	(3.9)L	L	L	L	L	Q							
26									Q	A	(3.7)L	L	(3.9)L	(4.0)L	L	L	L							
27									Q	L	(3.7)L	3.7H	L	L	L	L	L							
28									Q	L	L	(3.9)L	(3.9)L	L	L	L	Q							
29									Q	L	L	3.9H	4.1	(4.0)L	L	L	Q							
30									Q	L	(3.8)L	(3.9)L	L	L	L	L	Q							
31									Q	L	L	(3.9)L	L	L	L	L	Q							
Median									—	—	3.7	(3.9)	(4.0)	(4.0)	(3.8)	—	—							
Count										1	7	16	6	6	6									

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 84

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

(M1500) E , ____ December , 1954
(Characteristic) (Unit) (Month)

Observed at Washington, D.C.
Lat 38.7°N , Long 77.1°W

75° W Mean Time

National Bureau of Standards
(Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

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									43	44 H	4.4 H	43	A	A	43 H	44 H	(44) F							
2									43 H	42	44 H	44 H	(44) A	44	45 H	45	45							
3									42	43	45	44	42 H	44	44	B	A							
4									(42) S	(45) S	A	A	A	A	A	A	A							
5									A	42 H	43	42 H	43	42 H	43	44	S							
6									43 H	(43) P	43	43 H	A	A	A	A	A							
7									A	A	A	44	43 H	44	43	A	A							
8									S	43 H	43 H	43 H	43 H	43 H	43 H	44 H	44 H							
9									S	A	43	44	44	44	44	44	S							
10									S	A	(42) A	42 F	A	42	(43) A	A	A							
11									A	(42) A	44	44 H	43 H	44 H	44 H	A	F							
12									A	41	41 H	42	42 H	42 H	42	42	S							
13									S	A	45	45 F	45	43	44	44	S							
14									A	44	A	(41) A	A	(44) A	A	A	S							
15									S	A	A	44 H	44 H	43 H	45 H	45	(43) S							
16									S	44	44	43 H	A	43	44	44	44							
17									S	(42) A	43 H	44	A	A	41	43 H	A							
18									S	42	42 H	42	41 H	43	43 H	42 H	(42) H							
19									S	44 H	44	45	43	44	44	44	(45) S							
20									S	44 H	44	43	43	44	44	A	S							
21									S	44	A	A	44	44	A	A	A							
22									42 H	A	A	42 H	42 H	43 H	44	(43) P	S							
23									S	43 H	43	(43) P	43	43	44 H	43 H	S							
24									S	A	43	44	43	43	43	A	43							
25									S	A	43	44	43	A	42	42 H	A							
26									S	A	A	44 H	43 H	44 H	A	43 H	44							
27									A	44 H	(43) A	(44) P	(44) P	(44) P	(44) P	A	45							
28									S	46 H	45 H	(44) P	(45) P	45 H	(44) P	A	A							
29									S	44 H	43 P	44 H	43 H	44 H	A	45 H	43 H							
30									S	42	42	43	44	44 H	42 H	(43) S	44							
31									42	(43) P	42 H	42	42 H	A	42) P	A	A							
Median									42	43	43	44	43	44	44	44	44							
Count									7	22	24	29	31	25	25	18	12							

04.60

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

Table 85

Ionospheric Storminess at Washington, D. C.

December 1954

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character** 00-12 GCT	12-24 GCT
1	1	2			2	1
2	2	2			2	2
3	2	1			2	1
4	3	1			1	1
5	1	2			1	1
6	1	2			2	1
7	2	2			3	2
8	1	2			2	1
9	3	2			2	1
10	2	2			2	1
11	1	2			0	1
12	3	1			2	2
13	1	1			2	1
14	1	2			1	1
15	2	1			0	0
16	2	2			0	0
17	3	3			3	3
18	1	2			3	2
19	3	2			2	2
20	2	2			3	3
21	3	1			1	2
22	2	2			2	0
23	2	3			2	1
24	2	2			1	1
25	2	2			1	1
26	1	2			1	1
27	0	3			3	4
28	1	1			2	1
29	3	2			2	1
30	2	2			2	1
31	2	2			2	1

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

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

Table 86

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

November 1954

Day	North Pacific 9-hourly quality figures			Short-term forecasts issued at			Whole day quality index	Advance forecasts (Jp reports) for whole day; issued in advance by:		
	03 to 12	09 to 18	18 to 03	02	09	18		1-4 days	4-7 days	8-25 days
1	6	5	5	5	5	6	6	6	5	
2	(4)	(4)	6	(4)	(4)	5	5	5	5	
3	5	(4)	7	5	(4)	6	5	5	5	
4	5	5	7	5	5	6	6	6	6	
5	6	5	6	5	5	7	6	7	6	
6	6	5	7	5	5	6	6	7	7	
7	5	5	6	5	5	6	6	6	6	
8	5	5	6	6	5	6	6	6	6	
9	5	5	(4)	5	5	7	5	6	6	
10	6	5	6	6	5	7	6	7	7	
11	6	5	7	6	6	7	6	7	7	
12	6	6	6	7	6	7	6	6	6	
13	6	6	6	6	5	6	6	6	6	
14	6	6	6	6	5	6	6	5	5	
15	6	6	7	6	6	7	7	5	5	
16	6	6	6	6	6	7	6	6	5	
17	7	6	7	7	6	7	7	6	6	
18	6	6	7	6	6	7	6	6	5	
19	5	5	6	6	6	5	6	5	5	
20	6	5	6	5	5	6	6	5	(4)	X
21	6	6	6	5	5	6	6	(4)	(4)	X
22	6	7	7	6	5	6	7	(4)	(4)	X
23	6	5	6	6	5	6	6	5	5	
24	6	5	6	6	5	6	6	6	6	
25	5	5	5	6	5	6	6	6	6	
26	5	5	7	6	5	6	5	5	5	
27	6	6	6	6	6	6	7	5	5	
28	7	5	6	6	6	7	6	(4)	(4)	
29	5	6	6	6	6	6	6	(4)	(4)	
30	6	5	6	6	6	6	6	5	5	
Score:										
Quiet Periods			P	17	20	16		14	12	
			S	12	7	13		10	11	
			U	0	1	0		2	2	
			F	0	0	0		4	5	
Disturbed Periods			P	1	2	0		0	0	
			S	0	0	0		0	0	
			U	0	0	0		0	0	
			F	0	0	1		0	0	

Scales.

Q-scale of Radio Propagation Quality
- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

Table 87a

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

November 1954

Day	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day quality index	Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-4 days	4-7 days	8-25 days	Half (1)	Day (2)
1	5	(4)	6	5	5	(4)	6	6	5	5	5		(4)	(4)
2	(3)	(4)	6	5	(4)	(3)	6	5	(4)	5	6		(4)	3
3	(4)	(4)	7	6	(3)	(4)	6	6	5	6	6		(4)	2
4	(4)	5	6	5	5	(4)	7	6	5	6	6		2	1
5	5	(4)	6	6	5	5	7	6	5	6	6		3	1
6	6	5	6	6	5	5	7	6	6	6	6		2	1
7	6	5	7	6	3	5	7	7	6	7	7		2	1
8	6	6	7	6	6	5	7	6	6	7	7		1	1
9	6	5	7	6	6	6	7	7	6	7	7		2	2
10	6	6	7	6	6	5	6	7	6	7	7		1	0
11	5	6	7	7	6	5	7	7	6	7	6		2	1
12	5	6	7	7	6	5	7	7	6	6	6		2	2
13	6	6	7	7	5	6	7	7	6	6	6		1	2
14	6	6	7	7	6	6	7	7	6	6	6		2	2
15	6	6	7	6	6	6	7	7	6	6	6		0	0
16	6	6	7	7	6	6	7	7	7	7	6		0	0
17	7	6	7	7	6	6	7	7	7	7	6		1	1
18	7	6	7	7	6	6	7	7	7	7	6		1	2
19	7	6	7	6	6	6	7	7	7	6	6		2	2
20	7	6	7	6	6	6	7	6	7	(4)	(4)	X	3	2
21	6	6	7	6	6	5	6	6	6	(4)	(4)	X	3	2
22	6	5	6	6	6	6	5	6	6	(4)	(4)	X	3	1
23	5	5	6	6	(4)	(3)	6	6	6	6	(4)	X	2	3
24	5	5	6	6	5	(4)	7	6	6	6	5		2	1
25	5	6	6	6	5	5	7	6	6	5	5		2	2
26	6	6	7	7	6	6	7	6	6	6	5		2	2
27	6	5	7	6	5	5	6	6	6	(4)	(4)	X	2	2
28	6	6	7	6	5	5	7	6	6	(4)	(4)	X	1	2
29	7	6	7	7	6	6	7	6	7	(4)	(4)	X	1	3
30	6	5	7	6	5	(4)	7	6	6	6	5		3	2

Score:

Quiet Periods	P	13	13	20	21	13	7
	S	14	12	10	9	10	15
	U	0	1	0	0	0	0
	F	0	0	0	0	6	7
Disturbed Periods	P	0	2	0	0	0	0
	S	3	2	0	0	1	0
	U	0	0	0	0	0	0
	F	0	0	0	0	0	1

Scales:

Q-scale of Radio Propagation Quality
- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

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

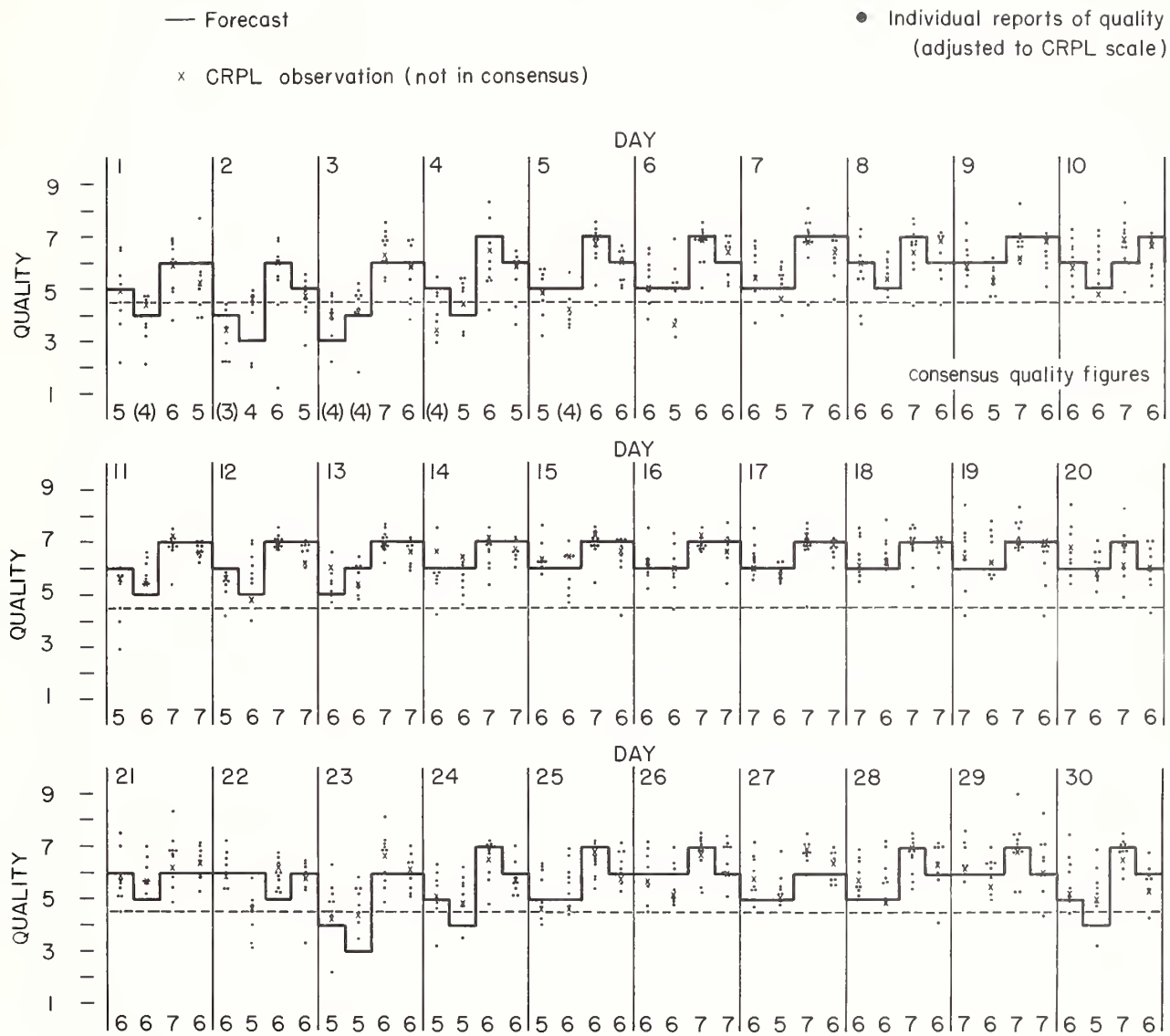
Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

Table 87 b

Short-Term Forecasts — November 1954



Outcome of Advance Forecasts (1 to 4 Days Ahead) - November 1954

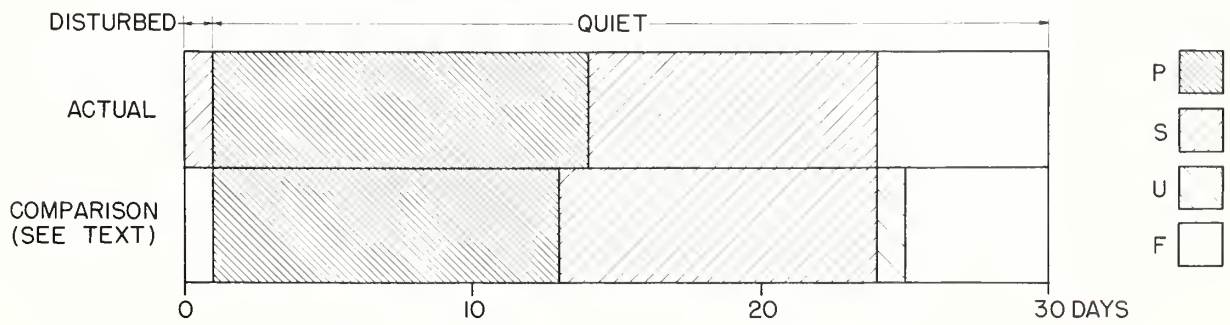


Table 88a

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

Date UT	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
1954																																					
Dec 1.9a	-	-	-	-	-	1	1	2	2	4	3	2	2	1	-	-	-	-	-	-	-	-	-	-	1	2	3	10	4	1	-	-	-	-	-	-	-
2.9	-	-	-	-	-	-	1	4	4	5	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	15	2	1	-	-	-	-	-	-
3.x																																					
4.x																																					
5.7	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	1	1	1	2	1	2	1	-	-	-	-
6.x																																					
7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	1	1	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-
10.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-
13.x																																					
14.9	-	-	-	-	-	-	-	-	1	1	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.x																																					
16.x																																					
17.x																																					
18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-
19.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	1	1	1	2	1	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	1	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.x																																					
27.x																																					
28.7	-	-	-	-	-	-	-	-	-	2	3	4	1	1	-	-	-	-	-	-	-	-	-	1	2	3	7	4	1	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	2	2	2	1	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30.7	-	-	-	-	-	-	-	-	-	1	2	1	1	1	1	1	1	1	1	-	-	-	1	1	2	4	7	5	2	1	-	-	-	-	-	-	-
31.x																																					

Table 89a

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

Date UT	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
1954																																					
Dec 1.9a	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	2	3	2	2	2	2	2	1	1	1	6	5	1	1	1	1	1	1	1	1	1	1
2.9	3	2	1	1	1	1	1	1	1	1	1	2	3	5	3	1	1	3	4	4	3	3	3	2	2	12	12	12	1	1	1	1	2	2	2	2	2
3.x																																					
4.x																																					
5.7	2	1	1	1	1	1	1	1	1	1	1	4	6	8	5	5	4	5	5	5	6	5	4	3	2	2	1	1	1	1	1	1	1	2	2	2
6.x																																					
7.8	2	2	1	1	1	1	1	2	2	3	3	3	4	5	5	6	6	6	5	5	4	3	2	2	3	3	3	3	2	1	1	1	1	1	2	2	2
8.8	1	1	2	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1
9.7	2	2	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5	4	4	4	4	3	2	2	2	2	2	2	1	1	1	1	1	1	2	2
10.7a	2	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
11.7a	1	-	-	-	-	-	-	-	-	1	2	2	2	2	2	2	3	3	3	2	2	3	3	2	1	1	3	2	1	1	1	1	1	1	1	1	2
12.7	1	2	2	1	1	1	1	1	1	1	2	2	1	3	3	4	4	5	5	3	4	4	3	2	3	2	2	2	1	1	1	1	1	1	1	1	2
13.x																																					
14.9	2	2	2	2	1	1	1	1	1	2	2	2	3	3	4	5	5	4	4	4	5	5	5	5	4	3	2	1	1	1	1	1	1	2	2	2
15.x																																					
16.x																																					
17.x																																					
18.8	2	2	1	1	1	1	1	1	1	1	2	3	3	3	5	6	2	3	3	4	5	5	3	3	2	3	3	2	2	2	1	1	1	1	2	2	2
19.8a	2	1	1	1	1	1	1	1	1	1	1	1	1	2	5	6	6	5	6	5	4	5	4	3	2	3	3	2	1	1	1	1	1	1	2	2	2
20.7	2	2	2	1	1	1	1	1	1	2	3	3	3	4	6	6	9	10	9	8	7	5	5	4	3	3	3	2	1	1	1	1	1	2	2	2	2
21.7	2	2	2	2	1	1	1	1	1	1	1	2	3	4	5	6	7	6	5	5	6	6	5	3	3	4	4	3	2	1	1	1	1	1	2	2	2
22.7	2	2	2	2	1	1	1	1	1	1	2	2	3	5	6	6	6	6	6	6	7	7	5	3	3	3	2	2	1	1	1	1	1	2	3	3	3
23.9	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	5	5	5	5	3	3	2	1	1	1	1	1	1	1	1	1	1	1	2
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	4	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	2	1	1	1	1	1	1	1	1	3	3	3	3	4	4	4	5	5	5	6	6	6	5	3	3	3	3	3	2	2	1	2	2	2	2	2	2
26.x																																					
27.x																																					
28.7	2	2	1	1	1	1	1	1	1	1	1	3	5	5	5	4	3	3	3	3	4	4	2	1	1	3	2	1	1	1	1	1	1	1	1	2
29.7a	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	2	2	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30.7	2	2	2	1	1	1	1	1	1	1	1	1	4	3	2	3	2	2	3	3	3	2	2	1	1	1	1	1	1	1	1	1	2	1	2	2	2
31.x																																					

Table 88b

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

Date UT	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
1954																																						
Dec 1.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.x																																						
4.x																																						
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.x																																						
7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	3	1	1	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	1	2	1	1	-	-	-	-	-	-	-	-	-	-	1	2	2	2	2	1	1	-	-	-	-	-	-	-
10.7a	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
11.7	-	-	-	-	-	-	-	-	1	1	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	1	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	2	2	1	1	-	-	-	-	-
13.x																																						
14.9	-	-	-	-	-	-	-	1	1	2	3	4	6	4	3	1	1	1	1	1	1	1	1	2	4	5	11	10	8	5	3	1	1	-	-	-	-	-
15.x																																						
16.x																																						
17.x																																						
18.8	-	-	-	-	-	-	-	1	3	6	8	5	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	3	3	3	3	1	-	-	-	-
19.8	-	-	-	-	1	2	2	3	3	6	2	3	1	1	1	-	-	-	-	-	-	-	-	-	1	1	1	1	2	3	2	3	2	1	-	-	-	-
20.7	-	-	-	-	1	2	3	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	5	5	5	6	5	3	1	-	-	-	-
21.7	-	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	5	5	3	4	3	1	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	1	2	2	2	1	-	-	-	-	-	-	-	-	-	1	4	8	15	10	12	2	4	4	1	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	6	8	5	1	2	2	1	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-
25.7a	-	-	-	-	-	-	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	4	2	-	-	-	-	-	-
26.x																																						
27.x																																						
28.7	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	4	3	2	1	1	2	1	1	1	-	-	-	-	-
29.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	6	2	1	-	-	-	-	-	-	-	-	-	-
31.x																																						

Table 89b

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

Date UT	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
1954																																						
Dec 1.9a	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	4	5	5	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	
2.9	2	2	1	1	1	1	1	1	2	3	3	2	1	1	3	4	5	5	6	5	4	2	3	3	3	2	2	2	1	1	1	1	1	1	3	3	3	
3.x																																						
4.x																																						
5.7	2	2	2	1	1	1	1	1	2	3	4	5	2	3	3	4	5	5	2	4	5	5	5	3	2	1	1	1	1	1	1	1	1	2	3	3	2	
6.x																																						
7.8	2	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4	4	3	3	3	3	4	2	3	2	2	1	1	1	1	1	1	1	2	2	2		
8.8	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	5	4	4	3	3	3	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1		
9.7	2	2	2	2	1	2	3	2	2	1	2	5	3	4	5	5	6	6	6	6	5	5	4	3	4	2	1	2	2	2	2	2	1	1	1	2	2	
10.7a	2	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	5	5	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2
11.7	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	5	4	4	3	4	3	2	1	1	1	1	1	1	1	1	1	1	1	
12.7	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	5	6	5	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	
13.x																																						
14.9	2	2	2	2	1	1	1	1	1	1	1	6	4	2	1	2	2	4	6	5	4	4	4	3	2	1	1	1	1	1	1	1	1	1	2	2		
15.x																																						
16.x																																						
17.x																																						
18.8	2	1	1	1	1	1	1	1	1	1	3	5	4	4	4	5	6	6	5	5	5	4	4	3	2	1	1	1	1	1	1	1	1	2	2			
19.8	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	4	5	5	4	4	4	4	4	3	3	3	1	1	1	1	1	1	1	1	2	2		
20.7	2	2	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	5	5	4	4	3	8	9	8	2	2	1	1	1	1	1	1	2	2	
21.7	2	1	1	1	1	1	1	1	1	1	1	2	4	3	3	3	3	2	3	4	5	5	5	4	9	11	9	1	1	1	1	1	1	1	1	2	2	
22.7	3	2	2	2	1	1	1	1	1	1	2	2	2	2	3	4	3	4	5	5	4	5	5	3	13	8	13	1	1	1	1	1	1	1	1	2	2	
23.9	2	2	1	2	1	1	1	1	1	1	1	2	3	2	7	7	6	7	6	6	6	4	2	7	7	4	3	2	1	1	1	1	1	2	2	2		
24.9a	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	5	5	5	5	3	3	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	-	
25.7a	2	2	1	1	1	1	1	1	1	1	1	3	3	4	4	6	5	5	4	4	4	5	3	3	2	1	2	1	2	1	1	1	1	1	2	2	2	
26.x																																						
27.x																																						
28.7	2	1	1	1	1	1	1	1	1	2	2	3	4	4	5	6	5	5	4	4	4	6	7	5	11	2	1	1	1	1	1	1	1	1	1	2		
29.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	
30.7	2	2	2	1	1	1	1	1	1	2	2	6	6	6	6	5	5	4	4	4	4	4	4	4	13	3	1	1	1	1	1	1	1	1	1	2		
31.x																																						

Table 30

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

Date UT	Degrees north of the solar equator 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5	0°	Degrees south of the solar equator 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
1954			
Dec 1.9a			
2.9			
3.x			
4.x			
5.7			
6.x			
7.8			
8.8	The 6702A coronal line was not visible at the east limb on any of the observation dates in December;		
9.7	the position angles observed were the same as for the 5303A coronal line.		
10.7a			
11.7a			
12.7			
13.x			
14.9			
15.x			
16.x			
17.x			
18.8			
19.8a			
20.7			
21.7			
22.7			
23.9			
24.9a			
25.7			
26.x			
27.x			
28.7			
29.7a			
30.7			
31.x			

Table 31

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

Date UT	Degrees north of the solar equator 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5	0°	Degrees south of the solar equator 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
1954			
Dec 1.8a	- - - - 2 3 4 5 6 8 12 14 16 14 11 6 5 3	3	2 2 3 4 5 11 14 28 32 20 3 2 2 - - - - -
2.8	- - - - - 3 5 6 6 8 10 11 7 5 4 4 4 3	2	2 - 2 2 3 4 5 13 22 18 3 - - - - - - -
3.x			
4.x			
5.7	- - - - 2 3 5 6 5 4 3 2 2 2 - - 2 3	2	2 2 2 3 5 8 6 7 8 7 6 5 3 2 - - - -
6.7	- - - - - 3 5 4 3 2 2 2 3 3 2 3 2 -	-	- - 2 3 7 7 8 7 7 6 5 4 3 2 2 - - -
7.7a	- - - - - 2 3 3 4 3 2 2 2 2 2 2 - -	-	- - 2 3 3 3 2 2 2 - - - - - - - - -
8.7	- - - 2 3 3 2 2 2 2 2 - 3 3 2 2 2 -	-	- - 2 2 3 3 4 5 3 3 3 2 2 - - - - -
9.x			
10.x			
11.x			
12.7	- - - - - 2 2 3 3 3 4 3 2 2 - - - 2	2	2 2 - - 2 2 2 3 4 3 2 2 2 - - - - -
13.9	- - - - - - - 2 2 3 4 5 3 2 2 2 3 2	2	- - - 2 2 3 3 3 4 3 4 3 2 - - - - -
14.7	- - - - - - - 2 3 3 4 5 2 2 - - 2 2	2	2 3 2 2 - - 2 3 4 4 3 2 - - - - - -
15.7	- - - - - - - 2 3 4 5 6 3 2 2 - - -	-	2 2 2 2 - - - 2 3 2 2 2 2 - - - - -
16.x			
17.7	- - - - - 2 2 2 3 4 5 4 3 5 8 4 3 3	2	2 3 2 2 2 3 2 3 4 3 2 2 2 - - - - -
18.7	- - - - - 2 2 2 3 3 4 2 3 3 4 3 2 2	2	2 - 2 2 3 2 2 3 4 4 3 2 2 - - - - -
19.7	- - - - - - - 2 2 3 3 2 2 2 2 - 2 -	2	3 2 2 2 3 2 2 3 2 2 3 2 2 - - - - -
20.7	- - - - - - - - 2 2 3 2 2 3 3 2 - -	-	2 2 2 2 3 3 2 3 3 2 2 - - - - - - -
21.7	- - - - - - - - 2 2 3 3 4 3 2 2 2 -	-	- - - 2 2 - 2 2 - - - - - - - - -
22.7	- - - - - - 2 2 2 3 3 4 4 5 4 3 3 3	-	- - 2 2 2 3 3 2 2 - - - - - - - - -
23.8	- - - - - - - - 2 3 3 4 4 3 3 2 2 -	-	- - 2 3 3 4 3 4 3 2 2 - - - - - - -
24.7	- - - - - - - 2 2 3 5 5 7 5 3 3 2 2	-	- - 2 3 3 4 4 3 3 2 2 - - - - - - -
25.7	- - - - - - - 2 3 3 5 7 5 3 2 2 - -	-	- - - 2 2 3 3 2 2 2 2 - - - - - - -
26.7	- - - - - - - 2 3 4 5 8 5 4 3 2 - -	-	- - - 2 2 3 5 4 5 6 4 2 - - - - - -
27.x			
28.x			
29.8	- - - - - - - 2 3 4 8 9 8 5 4 3 4 4	3	2 2 3 4 5 8 18 22 16 11 8 5 4 3 2 - - -
30.7	- - - - - 2 3 4 5 5 7 8 6 3 3 4 4 3	3	3 4 4 3 5 7 13 20 19 12 8 5 4 3 2 - - -
31.7	- - - - 2 3 3 4 4 5 6 7 5 3 3 3 3 4	4	2 2 2 3 5 8 14 15 17 10 7 4 3 3 2 - - -

Table 90b

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

Date UT	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
1954																																						
Dec 1.9a																																						
2.9																																						
3.x																																						
4.x																																						
5.7																																						
6.x																																						
7.8																																						
8.8	The 6702A coronal line was not visible at the west limb on any of the observation dates in December;																																						
9.7	the position angles observed were the same as for the 5303A coronal line.																																						
10.7a																																						
11.7																																						
12.7																																						
13.x																																						
14.9																																						
15.x																																						
16.x																																						
17.x																																						
18.8																																						
19.8																																						
20.7																																						
21.7																																						
22.7																																						
23.9																																						
24.9a																																						
25.7a																																						
26.x																																						
27.x																																						
28.7																																						
29.7a																																						
30.7																																						
31.x																																						

Table 91b

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

Date UT	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
1954																																							
Dec 1.8a	-	-	-	-	-	-	-	2	3	3	3	4	3	3	2	2	3	-	-	-	-	-	-	-	-	3	3	4	5	3	2	2	-	-	-	-	-	-
2.8	-	-	-	-	-	-	2	2	2	2	3	3	3	3	2	3	3	2	2	3	2	3	3	3	2	3	2	3	3	3	2	-	-	-	-	-	-	-
3.x																																							
4.x																																							
5.7	-	-	-	-	-	-	-	-	2	2	3	4	3	3	2	2	2	-	-	-	-	2	2	2	3	3	2	2	3	3	2	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	2	3	4	5	4	3	3	3	2	2	-	-	-	-	-	-
7.7a	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	-	-	-	-	2	3	3	2	3	4	3	3	3	2	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	2	2	3	3	3	3	4	5	4	3	2	2	-	-	-	-	2	3	3	5	7	8	9	5	3	2	2	-	-	-	-	-	-
9.x																																							
10.x																																							
11.x																																							
12.7a	-	-	-	-	-	2	2	2	3	3	4	4	4	4	3	3	3	3	4	2	2	3	3	4	5	10	13	10	8	4	3	2	-	-	-	-	-	-
13.9	-	-	-	-	-	-	2	2	4	6	12	14	10	9	8	5	3	3	2	-	-	2	3	7	11	16	20	17	10	4	3	3	2	-	-	-	-	-
14.7	-	-	-	-	-	-	-	2	3	6	14	16	15	14	11	8	7	5	3	4	3	3	4	6	8	14	18	17	14	5	3	3	3	2	-	-	-	-
15.7	-	-	-	-	-	2	5	8	7	8	14	20	19	16	6	4	3	2	2	2	3	4	5	6	7	11	15	14	14	13	4	3	2	-	-	-	-	-
16.x																																							
17.7	-	-	-	-	-	2	5	5	6	7	13	18	16	11	4	3	2	2	3	2	3	5	4	3	3	3	8	9	8	6	5	4	3	2	2	-	-	-
18.7	2	2	2	-	-	-	4	6	7	8	15	18	14	10	5	4	3	2	-	2	3	2	2	2	3	3	5	8	11	10	5	7	6	3	2	-	-	-
19.7	-	-	-	-	-	2	5	5	7	8	11	14	8	5	4	4	3	2	2	3	2	2	2	2	3	3	3	4	5	7	8	11	6	3	2	-	-	-
20.7	-	-	-	-	2	3	4	5	5	8	9	6	4	3	2	2	-	-	-	-	-	2	2	2	3	4	7	12	14	12	12	11	6	3	2	-	-	-
21.7	-	-	-	-	-	2	3	3	4	5	5	5	4	3	2	2	2	2	-	-	-	2	2	3	4	8	11	18	14	6	8	11	8	2	2	-	-	-
22.7	-	-	-	-	-	2	2	3	4	4	5	6	4	3	2	2	2	-	-	2	2	2	2	5	14	16	17	23	20	10	14	9	3	3	2	-	-	-
23.8	-	-	-	2	2	3	4	3	4	5	6	7	5	3	2	3	2	-	-	-	-	2	2	4	5	14	17	16	14	11	8	7	2	3	2	-	-	-
24.7a	-	-	-	-	-	2	2	3	4	5	5	7	3	2	2	-	-	-	-	-	2	3	3	4	5	7	14	13	12	8	9	7	2	2	-	-	-	-
25.7	-	-	-	-	-	-	-	2	3	4	5	5	3	2	2	2	-	-	-	-	-	-	-	2	3	4	5	6	8	10	9	5	3	2	-	-	-	-
26.7	-	-	-	-	-	-	2	3	4	4	5	4	3	2	2	2	-	-	-	-	-	-	-	2	3	3	4	5	6	5	6	8	9	4	2	-	-	-
27.x																																							
28.x																																							
29.8	-	-	-	-	-	-	-	2	2	3	3	4	3	2	2	2	3	2	-	-	-	2	3	18	28	20	13	11	12	11	4	3	2	2	-	-	-
30.7	-	-	-	-	-	-	-	2	2	3	3	4	3	2	3	2	2	-	-	-	2	2	2	3	4	14	20	16	7	5	5	2	2	2	-	-	-
31.7	-	-	-	-	-	2	3	3	3	4	3	4	3	2	3	3	2	2	2	3	2	2	3	5	8	14	10	7	7	6	5	2	-	-	-	-	-

Table 93.

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

Date UT	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
1954																																						
Dec 1.8a	4	4	4	3	3	2	2	3	3	2	3	4	7	8	14	11	12	13	14	13	14	12	11	10	4	8	28	26	2	3	-	-	-	-	-	-	-	-
2.8	4	5	3	2	2	3	2	-	-	3	4	4	6	14	11	8	9	11	12	12	11	5	5	6	5	6	18	19	5	3	2	-	2	2	2	3	3
3.x																																						
4.x																																						
5.7	5	4	4	5	3	3	2	3	3	4	5	6	8	14	15	13	13	14	14	15	16	15	13	11	8	7	9	6	4	3	2	2	3	2	3	3	4
6.7	4	3	4	4	3	3	2	3	3	4	5	7	10	10	11	12	12	14	13	13	12	11	7	4	3	4	4	5	4	3	4	4	3	4	3	3	4
7.7a	2	2	3	2	2	2	2	2	3	3	4	3	6	7	6	7	8	9	10	9	8	5	5	3	4	3	4	4	3	3	3	-	-	2	3	2	3
8.7	5	6	5	3	2	2	2	3	5	4	5	6	6	7	9	14	13	14	16	17	14	8	7	5	4	3	7	8	6	4	3	2	3	3	4	5	4
9.x																																						
10.x																																						
11.x																																						
12.7	3	4	5	3	4	3	2	-	2	3	4	5	4	3	3	4	5	6	7	8	8	9	8	8	7	5	5	5	4	3	3	2	2	3	2	3	4
13.9	5	3	4	4	3	2	3	2	3	4	5	8	7	8	11	12	13	14	15	17	16	15	14	14	13	12	12	10	8	5	3	2	3	3	2	4	4
14.7	5	5	4	4	3	2	2	3	3	3	4	5	6	7	9	12	13	13	14	14	15	14	14	13	12	11	8	4	3	5	3	4	2	4	3	4	5
15.7	5	4	5	5	4	3	2	3	4	5	4	5	8	11	13	11	14	16	13	14	12	13	14	10	11	8	5	3	4	3	3	2	3	2	4	4	4
16.x																																						
17.7	6	5	4	4	6	4	3	3	4	5	8	14	13	13	14	14	13	14	15	16	16	14	12	12	11	11	10	8	5	4	3	4	3	3	4	4	5
18.7	6	4	5	4	4	4	3	4	4	5	8	12	13	14	13	15	15	13	13	14	14	15	14	12	11	10	13	10	10	8	3	4	2	2	3	4	4
19.7	5	4	5	5	5	4	3	2	3	4	5	7	7	6	8	12	13	14	16	14	15	14	12	10	7	6	8	8	6	5	3	3	3	4	4	4	4
20.7	4	3	3	3	4	3	2	3	3	4	5	10	8	8	9	10	12	15	16	15	15	11	10	8	7	5	6	5	4	3	3	3	2	3	3	4	4
21.7	5	4	4	5	4	5	3	3	3	3	4	5	4	5	8	11	13	14	13	12	14	11	12	11	10	4	5	8	6	4	2	2	2	3	3	4	3
22.7	6	5	5	6	5	5	3	4	4	5	8	7	8	12	13	14	13	14	14	15	16	13	10	8	6	5	6	4	4	3	3	3	3	4	3	3	4
23.8	5	5	6	5	4	3	4	2	3	3	5	3	4	8	11	12	13	14	13	14	15	14	12	10	7	5	6	8	4	3	2	2	2	2	3	3	3
24.7	4	4	3	4	3	2	2	3	3	4	5	4	5	6	7	8	12	13	14	14	15	10	8	7	6	5	6	5	4	3	2	2	2	2	3	3	4
25.7	5	5	3	4	3	3	2	4	2	3	4	5	5	7	8	8	9	11	14	15	16	13	10	5	5	4	5	6	4	4	3	4	4	3	3	3	4
26.7	4	3	4	3	3	2	2	2	2	3	4	4	5	6	8	9	8	11	14	13	12	8	7	6	5	6	6	5	6	4	2	2	3	3	2	3	4
27.x																																						
28.x																																						
29.8	2	3	3	3	2	2	2	3	-	-	-	3	5	5	6	5	4	4	6	7	12	10	6	5	3	3	6	5	4	3	4	5	3	3	2	2	2
30.7	3	4	3	2	3	3	2	2	2	-	2	2	3	8	7	7	6	5	5	8	8	7	5	6	4	3	3	2	3	2	2	3	2	2	3	4	3	3
31.7	4	6	5	4	3	4	3	3	3	4	4	5	8	11	11	11	12	14	13	14	14	13	13	11	5	4	5	3	-	2	3	3	3	4	4	4	4

Table 93.

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

Date UT	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
1954																																						
Dec 1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	4	3	-	-	-	-	-	-	-	-
2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	3	-	-	-	-	-	-	-	-
3.x																																						
4.x																																						
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.x																																						
10.x																																						
11.x																																						
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.																																						
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																						
28.x																																						
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-

Table 95a

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																
UT	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
1954																																					
Dec 1.8	-	-	-	-	-	-	-	-	2	2	3	2	4	4	5	6	14	13	13	12	11	9	8	8	7	4	7	4	3	4	3	2	2	3	4	4	4
2.8	3	3	2	3	3	3	2	2	3	3	4	4	3	4	6	10	11	11	12	12	11	10	8	7	9	8	5	4	3	4	2	3	3	2	3	4	4
3.x																																					
4.x																																					
5.7	4	4	3	3	3	3	2	3	3	3	5	8	7	6	8	8	9	11	12	11	10	11	10	7	6	5	5	6	5	4	2	3	3	4	3	5	5
6.7	4	5	4	3	4	5	3	2	3	4	5	7	8	7	7	8	8	9	12	13	14	15	14	12	11	10	8	7	6	3	2	2	3	3	3	3	4
7.7a	3	4	3	3	2	3	2	2	-	-	3	4	4	5	3	4	5	6	7	5	6	5	4	4	3	2	4	3	2	3	3	2	2	2	3	3	2
8.7	4	3	3	3	3	2	3	2	3	3	4	5	7	8	10	11	14	14	13	13	14	15	14	12	11	8	3	3	4	5	3	4	3	3	4	4	5
9.x																																					
10.x																																					
11.x																																					
12.7a	4	3	5	3	4	2	3	3	3	3	3	4	5	5	4	5	6	6	8	11	10	9	8	7	5	4	2	2	3	3	2	2	2	2	3	4	3
13.9	4	5	5	3	2	2	2	4	3	3	5	6	7	6	5	7	5	8	14	15	16	14	12	10	8	5	3	2	5	6	4	3	2	3	4	5	5
14.7	5	4	5	4	4	2	3	3	4	4	3	4	8	7	5	6	5	7	9	12	14	13	12	11	6	5	3	2	3	5	4	3	3	2	3	4	5
15.7	4	4	5	5	4	3	2	3	3	4	3	20	21	12	10	8	7	7	14	16	13	12	11	10	8	6	4	3	2	3	3	3	2	2	3	6	5
16.x																																					
17.7	5	4	5	3	3	2	2	3	3	2	2	11	10	9	10	11	12	13	18	15	14	11	12	13	14	11	10	9	5	2	3	3	3	2	3	4	6
18.7	4	5	4	3	5	2	3	4	3	2	4	10	11	12	12	13	14	15	16	16	17	15	14	14	13	12	11	7	5	3	2	4	3	3	2	5	6
19.7	4	4	5	4	3	3	2	3	3	3	3	4	5	6	7	8	10	13	14	15	14	13	13	12	12	11	12	11	10	6	3	3	2	2	3	4	5
20.7	4	3	3	3	3	2	3	4	3	4	4	4	5	6	5	7	8	8	14	14	13	11	11	10	11	14	16	14	11	8	4	3	2	2	3	3	4
21.7	3	4	3	2	2	2	-	2	2	3	4	5	8	7	6	6	8	9	12	14	15	14	13	13	11	15	20	19	14	5	4	3	2	2	4	5	5
22.7	4	5	5	4	2	3	2	3	4	5	5	7	6	7	11	14	13	14	15	16	18	16	15	12	16	23	22	18	5	6	6	4	3	3	5	6	6
23.8	3	3	4	4	4	3	3	2	3	3	2	4	5	8	10	13	14	14	13	14	15	14	12	11	8	14	16	11	8	4	5	5	2	3	5	4	5
24.7a	4	4	5	3	4	4	2	3	3	3	2	4	5	6	7	8	11	12	13	12	13	14	11	7	5	6	12	6	5	3	5	4	3	4	4	4	4
25.7	4	4	5	4	3	2	2	3	3	4	3	4	6	8	11	11	12	13	11	12	13	13	11	8	5	6	4	5	8	5	3	2	3	3	4	4	5
26.7	4	5	4	3	3	3	2	3	2	2	4	5	7	8	9	10	12	13	13	11	11	12	11	10	8	7	6	5	5	4	2	3	3	2	5	4	4
27.x																																					
28.x																																					
29.8	2	2	3	3	2	-	-	3	3	3	5	4	6	8	11	10	8	7	7	8	13	12	11	16	22	20	6	4	4	5	6	7	3	3	2	2	2
30.7	3	2	3	3	4	4	2	2	3	3	4	4	6	12	13	13	12	11	11	12	14	13	11	12	15	11	7	4	3	4	4	3	2	2	2	3	3
31.7	4	3	4	5	4	3	3	3	4	3	5	4	6	14	13	16	15	13	12	11	13	14	15	15	16	13	11	8	6	5	4	3	3	3	4	5	4

Table 95b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																
UT	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
1954																																					
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.x																																					
4.x																																					
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.x																																					
10.x																																					
11.x																																					
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	2	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	2	3	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.x																																					
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	-	-	-	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																					
28.x																																					
29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 94

Particulars of Observations, Climax, Colorado

July - December 1954

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1954								
Jul. 1.6	7	8	6	7	8	8	H	B
2.7	6	7	6	7	8	8	H	B
3.6	6	7	6	7	7	8	H	B
4.7	10	13	10	11	11	10	H	B
5.6	5	5	4	5	5	5	H	B
6.7	8	8	10	10	7	8	H	B
10.7	7	8	8	6	6	5	H	B
12.7	7	6	6	6	4	6	H	B
13.6	7	7	7	8	8	-	H	B
19.6	5	4	4	6	6	6	H	B
20.7	7	6	4	6	4	5	H	B
21.6	6	6	11	4	5	5	H	B
24.0	5	6	5	4	3	5	H	B
25.6	-	4	4	-	3	5	H	B
26.6	6	5	5	4	5	5	H	B
27.8	5	5	6	5	4	-	H	B
28.7	5	5	5	6	6	5	H	B
29.7	6	5	4	7	6	6	H	B
30.7	6	6	7	7	6	6	H	B
31.9	7	9	8	7	8	6	H	B
Aug. 1.6	10	10	9	13	13	13	H	B
2.6	5	6	6	5	5	5	H	B
7.6	7	7	6	8	9	10	H	B
8.6	7	7	6	5	5	6	H	B
9.6	7	7	6	7	-	7	H	B
10.6	15	>15	-	-	-	-	H	B
11.9	5	4	-	-	-	-	H	B
12.6	-	6	5	-	-	-	H	B
13.8	3	3	3	3	3	3	H	B
14.6	5	5	6	4	4	3	H	B
15.6	-	-	-	-	-	9	H	B
16.6	4	4	4	4	4	4	H	B
17.6	7	7	7	6	6	5	H	B
18.6	8	7	6	7	8	8	H	B
19.6	8	9	9	7	8	7	D	B
20.6	7	7	5	6	6	7	D	B
21.6	8	8	8	6	6	5	D	B
22.7	5	5	5	6	6	3	D	B
23.6	5	5	6	5	5	5	D	B
25.6	6	6	6	5	5	4	D	B
26.7	5	5	4	6	5	7	D/H	B
27.6	8	7	6	9	9	9	H	B
28.7	8	8	8	8	8	8	H	B
29.7	9	9	11	9	8	8	H	B
30.7	10	8	10	10	10	10	H	B
31.7	9	9	9	8	8	7	H	B
Sep. 1.7	9	9	8	11	11	14	H	B
2.7	10	8	11	11	13	12	D/H	B
3.6	7	9	13	15	-	-	H	B
6.6	6	6	6	7	10	-	H	B
9.0	-	4	9	-	4	4	H	B
9.6	3	5	5	4	4	4	H	B
10.6	5	5	6	5	5	5	H	B
11.6	6	-	6	7	8	8	H	B
13.8	-	3	-	-	-	-	H	B
14.6	4	4	3	4	5	5	H	B
15.6	5	5	5	5	5	5	H	B
16.8	8	8	8	9	8	8	D	B
17.6	-	8	8	7	8	7	H	B
18.7	5	6	6	8	10	9	D	B
19.7	6	6	5	5	3	4	H	B
20.7	7	9	13	13	13	9	D	B
21.7	6	7	7	9	8	11	H	B
22.6	8	10	9	7	7	8	D	B
25.7	5	5	5	5	5	5	H	B
28.7	5	5	4	6	5	5	H/D	B

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1954								
Sep. 29.6	8	9	8	7	8	8	D	B
30.7	7	8	9	9	8	7	H	B
Oct. 1.6	6	6	6	6	7	7	H	B
2.6	15	11	15	8	9	-	H	B
4.6	6	6	6	6	7	7	H	B
5.6	6	7	7	7	7	7	H	B
6.7	6	5	5	7	8	9	I	B
7.7	5	5	6	7	6	7	H	B
9.0	4	4	4	6	4	5	H	B
10.7	4	4	5	5	5	5	H	B
11.6	2	2	2	3	3	4	H	B
12.8	5	5	5	5	5	5	H	B
14.6	2	3	3	3	4	3	H	B
15.7	2	2	2	2	2	2	H	B
16.3	2	3	2	2	2	2	H	B
17.7	1	2	2	2	2	2	H	B
19.7	4	4	3	7	7	7	D	B
20.8	5	5	5	-	-	-	D	B
21.7	4	4	5	5	5	4	D	B
22.7	2	2	2	1	1	2	D	B
23.8	4	6	6	5	5	5	H	B
27.7	2	2	2	3	3	3	H	B
28.7	2	2	2	4	3	3	H	B
29.7	2	3	3	2	2	2	H	B
30.7	5	4	3	4	3	4	H	B
31.7	4	4	4	4	4	3	H	B
Nov. 1.7	2	3	4	3	3	3	H	B
3.7	3	4	4	7	7	6	D	B
4.7	5	8	7	3	7	3	D	B
6.7	3	4	4	2	3	2	D	B
7.7	3	4	4	3	3	3	H	B
9.3	4	6	8	8	9	9	H	B
10.7	5	6	6	4	5	3	H	B
12.7	6	6	6	5	5	5	H	B
14.6	2	3	2	2	3	3	H	B
15.7	3	3	3	3	3	3	H	B
17.9	-	-	-	-	-	4	H	B
19.8	-	7	8	-	7	7	D	B
20.7	3	4	4	3	3	3	H	B
21.8	4	-	5	4	4	3	H	B
22.7	4	4	4	4	4	4	H	B
23.7	2	3	3	3	3	3	H	B
25.7	3	3	4	3	4	3	H	B
26.8	9	9	10	7	8	9	D	B
Dec. 1.9	6	-	7	7	7	6	D	B
2.9	6	6	6	5	6	6	H	B
5.7	3	3	3	3	4	4	H	B
7.8	5	5	4	5	5	5	D	B
8.8	6	8	6	6	7	8	D	B
9.7	2	1	2	3	3	3	D	B
10.7	5	5	7	7	-	-	D	B
11.7	7	5	5	5	4	5	D	B
12.7	3	3	4	4	4	4	D	B
14.9	3	4	3	3	4	3	√D	B
18.8	4	4	4	4	4	4	D	B
19.8	4	2	2	3	3	3	A	B
20.7	3	4	4	3	3	4	D	B
21.7	3	3	2	2	3	2	A	B
23.7	4	5	5	4	4	4	D	B
23.9	5	5	5	5	5	5	A	B
24.9	11	9	-	11	8	10	D	B
25.7	4	4	4	5	4	4	D	B
28.7	1	1	2	2	2	2	A	B
29.7	7	-	-	-	-	-	D	B
30.7	2	2	2	3	4	3	A	B

- No observation taken at position angle indicated.

A = Ray
B = Billings
D = Dodgen
J = Jensen

Particulars of Observations, Sacramento Peak, New Mexico

July - December 1954

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1954										
Jul. 3.7	10	9	10	11	-	-	-	-	T	Y
4.6	7	7	7	7	6	6	7	6	R	Y
6.6	9	9	10	11	11	10	9	8	M	Y
7.6	8	8	8	9	8	8	8	8	R	Y
8.7	7	6	7	7	7	7	7	7	R	Y
9.6	6	6	6	7	7	7	7	7	R	Y
10.6	6	6	6	6	6	6	6	6	R	Y
11.6	5	5	4	5	5	5	4	5	R	Y
12.6	7	7	6	6	7	7	9	9	S	Y
13.7	8	8	8	7	9	8	8	-	S	Y
14.7	10	10	10	9	9	9	8	7	S	Y
15.6	5	5	4	5	5	5	6	6	M	Y
18.6	5	5	5	5	4	4	3	3	M	Y
17.9	10	9	8	10	9	9	8	9	R	Y
18.6	5	5	5	5	7	6	5	5	R	Y
19.6	8	8	8	8	7	8	8	8	R	Y
20.7	9	9	10	9	10	10	9	9	S	Y
22.7	9	9	9	9	9	8	8	15	S	Y
23.9	4	5	5	9	6	5	4	4	M	Y
24.9	8	7	7	7	8	7	9	10	M	Y
26.8	10	9	9	9	10	9	9	8	R	Y
27.7	11	11	11	11	11	11	11	11	R	Y
Aug. 1.7	9	9	9	9	9	9	9	8	S	Y
5.7	3	2	3	2	3	3	3	3	R	Y
9.0	6	10	11	10	8	7	7	6	R	Y
10.8	4	4	5	4	4	3	4	3	R	Y
11.7	9	9	9	9	9	7	7	8	R	Y
12.9	10	11	11	11	11	11	11	12	R	Y
13.7	3	3	4	5	3	3	2	2	DeM	Y
14.8	9	9	8	8	9	9	9	9	S	Y
16.6	8	8	8	8	8	7	8	8	DeM	Y
18.7	5	5	6	5	8	8	7	5	DeM	Y
20.6	10	10	10	10	11	10	10	11	M	Y
25.9	3	3	3	3	2	2	2	1	DeM	Y
26.6	8	8	11	8	4	4	5	5	DeM	Y
27.7	5	5	5	5	5	5	5	5	R	Y
28.7	7	6	7	6	6	5	6	5	M	Y
29.6	8	7	8	8	8	8	8	8	R	Y
30.6	5	5	5	4	5	5	4	4	DeM	Y
Sep. 1.6	5	4	5	5	4	4	5	4	S	Y
2.6	8	8	8	8	8	8	8	8	S	Y
3.6	6	6	6	7	6	6	7	6	R	Y
4.6	6	6	6	7	6	6	6	6	R	Y
5.7	7	6	6	6	8	11	10	9	DeM	Y
6.6	8	8	8	8	8	8	8	8	DeM	Y
7.7	7	7	8	8	8	8	8	9	S	Y
8.7	10	9	9	9	10	10	10	10	S	Y
9.6	10	10	10	11	11	10	11	10	R	Y
11.7	10	9	9	9	10	10	10	10	DeM	Y
12.7	9	10	9	9	10	9	9	9	DeM	Y
13.8	7	7	7	7	9	7	7	7	DeM	Y
14.7	9	9	9	9	11	10	11	10	R	Y
15.8	7	8	7	7	8	8	8	8	DeM	Y
16.7	8	7	7	8	9	7	7	7	R	Y
17.7	8	7	7	8	9	7	7	7	M	Y
18.7	10	9	9	10	11	10	10	10	M	Y
19.7	9	8	8	9	10	8	9	9	M	Y
20.7	11	11	12	13	14	14	13	12	DeM	Y
22.7	9	8	7	7	8	7	8	8	R	Y
27.7	8	8	8	8	8	8	7	8	R	Y
28.7	5	5	5	5	5	5	5	5	S	Y
29.7	8	9	9	8	9	10	14	8	S	Y
30.6	5	5	5	5	5	5	5	5	DeM	Y
Oct. 1.7	7	7	6	7	6	6	6	7	DeM	Y
3.7	5	5	5	5	6	5	6	6	R	Y
9.7	5	5	5	5	5	5	5	5	S	Y
10.7	6	6	5	5	5	6	6	6	S	Y
11.7	5	6	6	6	6	6	6	7	S	Y

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
Oct. 13.7	6	5	6	6	6	6	6	6	S	Y
13.8	4	4	5	4	4	5	5	5	DeM	Y
14.7	7	5	5	6	7	6	6	6	R	Y
15.6	6	6	5	6	6	6	6	6	S	Y
16.6	5	4	4	5	5	4	4	3	DeM	Y
17.7	7	6	7	6	7	6	6	6	S	Y
18.7	5	4	5	5	6	5	5	5	R	Y
19.7	7	7	6	6	7	7	7	7	R	Y
20.6	5	5	5	5	5	5	5	5	R	Y
21.7	6	6	6	6	6	5	5	5	S	Y
22.7	8	8	8	9	9	8	9	8	S	Y
23.7	9	8	8	8	9	8	9	8	S	Y
24.7	9	9	-	8	8	9	9	11	DeM	Y
26.7	3	3	3	3	3	4	3	3	DeM	Y
28.7	4	4	4	4	4	4	4	4	R	Y
30.7	4	4	4	5	5	5	5	5	R	Y
31.7	7	7	7	8	7	7	7	7	S	Y
Nov. 1.8	4	4	5	4	-	-	-	-	S	Y
2.7	8	7	8	6	6	6	-	-	DeM	Y
4.7	5	6	7	5	7	6	6	6	DeM	Y
4.7	6	6	6	6	6	6	6	6	DeM	Y
5.7	6	7	6	6	6	6	6	5	R	Y
6.8	4	5	5	5	5	5	5	5	S	Y
7.7	6	6	7	7	6	7	6	6	R	Y
8.7	10	11	10	10	10	9	9	8	S	Y
9.7	11	9	9	9	9	8	9	10	S	Y
10.7	8	8	8	9	8	9	9	8	S	Y
12.7	3	3	3	2	3	3	3	3	DeM	Y
13.8	10	9	8	8	9	9	8	9	S	Y
15.7	5	5	5	5	5	4	4	4	R	Y
16.7	3	3	3	3	3	3	3	3	R	Y
17.7	7	6	6	6	6	6	6	7	S	Y
18.7	6	7	5	5	5	4	4	4	S	Y
19.7	5	4	5	5	5	4	4	4	S	Y
20.7	3	3	3	3	3	3	3	3	DeM	Y
21.8	-	5	-	5	10	11	9	5	DeM	Y
22.7	4	4	4	4	4	4	4	5	DeM	Y
24.7	5	5	5	5	5	4	4	4	R	Y
25.8	3	4	5	5	4	4	4	5	S	Y
26.6	5	5	5	6	5	6	6	6	S	Y
27.7	5	5	5	4	5	5	5	5	S	Y
28.7	6	7	6	7	6	6	6	5	DeM	Y
29.7	5	5	5	5	5	5	5	5	S	Y
30.7	6	5	6	6	5	5	5	5	R	Y
Dec. 1.8	4	4	4	4	6	3	3	3	R	Y
2.8	5	5	4	5	4	4	3	3	R	Y
5.7	2	2	2	2	3	2	2	2	R	Y
6.7	4	4	5	3	3	3	3	3	R	Y
7.7	7	8	8	9	8	8	9	10	S	Y
8.7	5	4	5	5	5	5	5	5	S	Y
12.7	3	3	4	3	3	4	4	3	DeM	Y
13.9	3	3	3	3	3	3	3	3	R	Y
14.7	2	2	2	3	4	3	3	3	R	Y
15.7	3	3	3	3	3	3	3	3	R	Y
17.7	5	4	4	4	5	6	5	4	S	Y
18.7	2	2	3	2	2	2	3	2	DeM	Y
19.7	2	3	3	2	3	3	2	2	DeM	Y
20.7	4	3	4	3	4	5	4	4	S	Y
21.7	5	5	5	6	5	5	7	7	DeM	Y
22.7	3	3	3	3	3	3	3	3	R	Y
23.8	4	3	4	4	5	5	4	4	S	Y
24.7	2	2	2	2	2	2	2	2	R	Y
25.7	3	6	5	3	5	5	5	5	S	Y
26.7	5	5	5	5	5	5	5	4	R	Y
29.8	8	5	5	6	7	5	5	5	R	Y
30.7	4	3	3	4	4	4	4	4	DeM	Y
31.7	2	3	2	3	3	3	3	3	DeM	Y

- No observation taken at position angle indicated.

DeM = DeMastus
M = Mitchell
R = Ramsey
S = Schnable
Y = Yes

Table 96

Zürich Provisional Relative Sunspot Numbers

December 1954

Date	R_Z*	Date	R_Z*
1	0	17	17
2	0	18	14
3	0	19	19
4	0	20	19
5	0	21	14
6	0	22	7
7	0	23	7
8	0	24	15
9	0	25	10
10	0	26	7
11	0	27	0
12	0	28	0
13	0	29	13
14	0	30	29
15	11	31	25
16	18	Mean:	7.3

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

Table 97

American Relative Sunspot Numbers

November 1954

Date	$R_{A'}$	Date	$R_{A'}$
1	1	17	0
2	1	18	0
3	0	19	2
4	0	20	0
5	5	21	0
6	7	22	0
7	8	23	0
8	7	24	0
9	24	25	2
10	40	26	0
11	35	27	0
12	42	28	0
13	32	29	0
14	19	30	0
15	12	Mean:	8.0
16	2		

Table 98

Solar Flares, December 1954

No solar flares were reported for the month of December.

Table 99

Indices of Geomagnetic Activity for November 1954

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

Gr. Day 1954	C	Values Kp Three-hour interval 1 2 3 4	5 6 7 8	Sum	Final Selected Days
1	1.5	4- 4- 3o 3o	5- 5- 5- 4+	32-	Five
2	1.3	6o 4+ 3- 3-	4o 3o 3+ 3o	29o	Quiet
3	1.0	4o 4o 4o 2+	3- 4- 3- 1+	25-	
4	0.3	1o 2o 1+ 2+	1+ 2+ 1o 2-	13o	9
5	0.5	3o 2+ 4- 3-	2o 1o 1+ 0o	16o	10
					15
6	0.8	3- 2+ 2+ 1+	2- 2o 3- 2o	17o	16
7	0.2	3- 1+ 1o 1o	0+ 1o 1- 1-	9-	17
8	0.4	2- 1o 1o 1+	1o 2- 2o 1o	11-	
9	0.1	0+ 2- 1- 1o	1- 2o 2- 1-	9-	
10	0.0	2- 1- 0+ 1-	0o 0o 0o 0+	4-	
11	0.4	0+ 2o 1- 2o	2o 1o 2o 1-	11-	Five
12	0.6	2- 4- 2- 2+	3- 1o 2o 1+	16+	Disturbed
13	0.3	2- 1+ 1o 1-	1- 2- 2- 1+	10o	
14	0.3	2o 2- 1+ 1-	1o 2- 2- 2o	12o	1
15	0.0	2- 0+ 0o 0o	0+ 0+ 1- 0+	4-	2
					3
16	0.0	1- 0o 0+ 0o	0o 0o 0o 0o	1o	20
17	0.1	0o 0+ 1+ 1+	1o 0+ 0o 1-	5o	30
18	0.4	1+ 1- 1o 1+	2o 2+ 2- 2-	12o	
19	0.8	1+ 4+ 2o 2-	1o 3- 3- 3o	19-	
20	0.9	2+ 3- 4o 3o	4o 4- 2o 1+	23o	
					Ten
21	0.6	2+ 2- 2+ 2+	3- 2- 1o 3-	17-	Quiet
22	0.4	2o 2+ 4- 1+	0+ 1- 1+ 1+	13o	
23	1.2	1o 3o 1o 2o	2- 5- 3+ 2+	19o	
24	0.5	2o 2+ 2+ 2o	1o 2o 2o 0+	14o	7
25	0.6	1- 2o 2o 2+	2o 1- 1o 3-	13+	8
					9
26	0.4	2o 2- 2- 1+	2o 1+ 2- 2-	13+	10
27	0.7	2o 3o 2+ 2+	1o 2+ 3- 0+	16o	11
28	0.4	1o 0+ 0+ 2-	3- 1o 1o 2+	10+	13
29	0.8	1- 1- 1+ 2+	4- 4- 2+ 3-	17+	15
30	0.8	3o 5- 2o 1+	2o 3- 2+ 2+	20+	16
					17
Mean:	0.54				28

Table 100

Sudden Ionosphere Disturbances Observed at Washington, D. C.

December 1954

No sudden ionosphere disturbances were observed during the month of December.

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, Boulder, Colorado: Attention: Mr. Vaughn Agy.

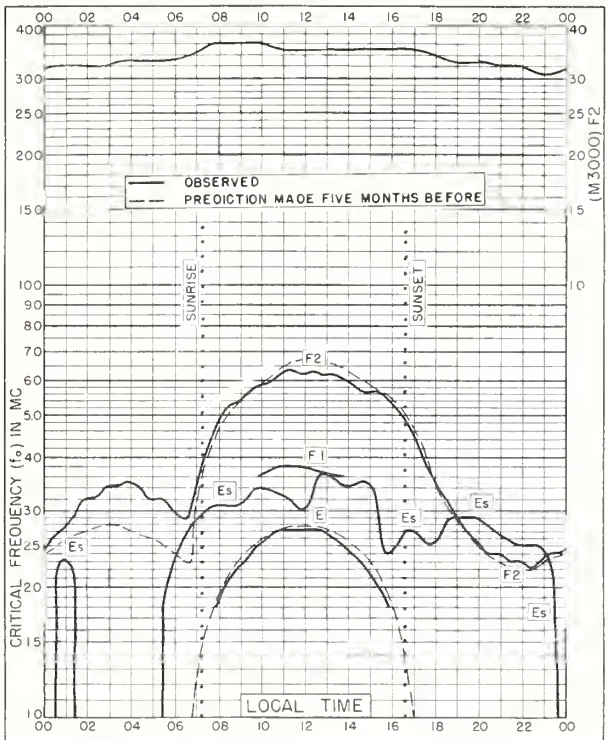


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W DECEMBER 1954

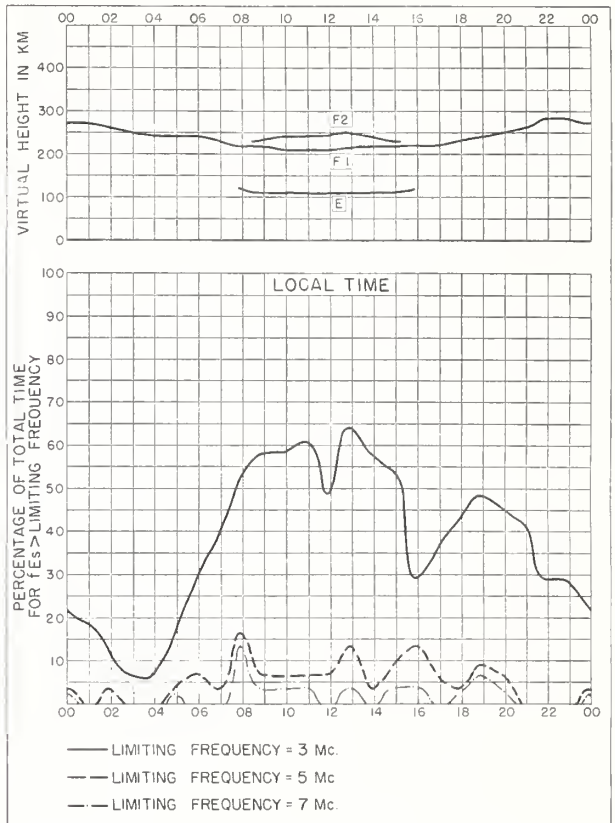


Fig. 2. WASHINGTON, D. C. DECEMBER 1954

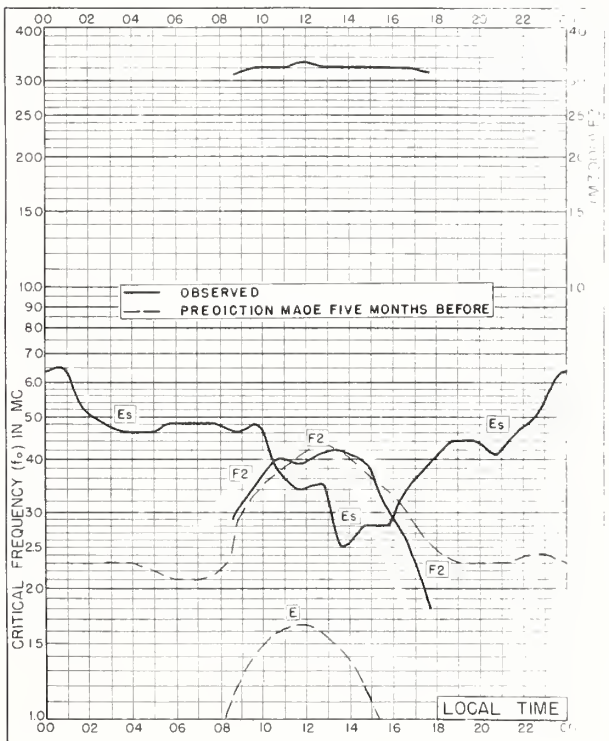
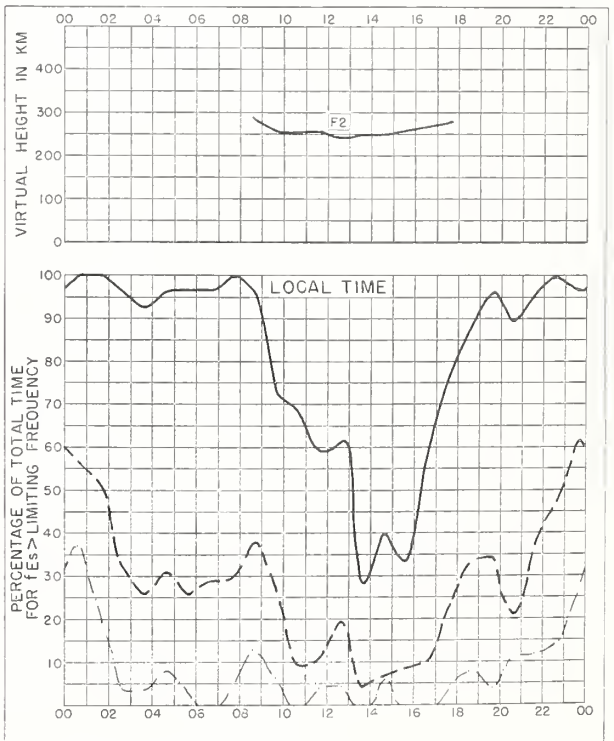


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W NOVEMBER 1954



NOVEMBER 1954

Fig. 4. POINT BARROW, ALASKA

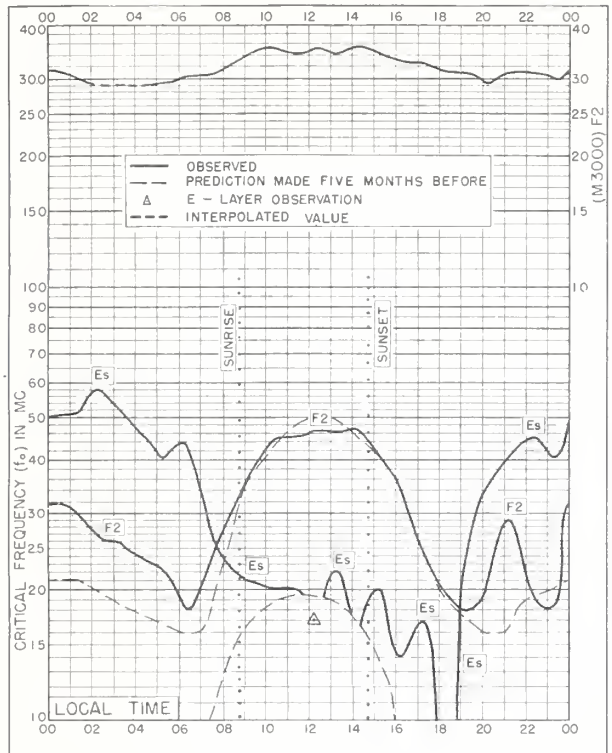


Fig. 5. FAIRBANKS, ALASKA
64.9°N, 147.8°W NOVEMBER 1954

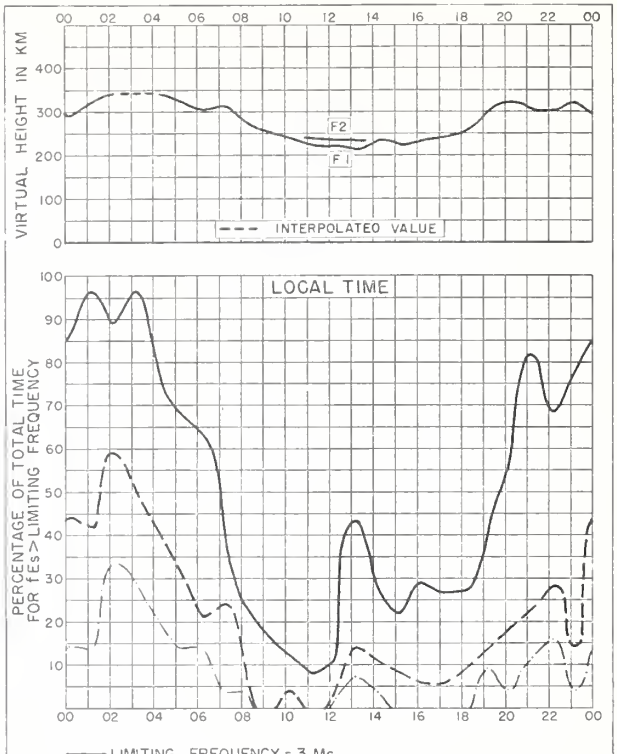


Fig. 6. FAIRBANKS, ALASKA NOVEMBER 1954

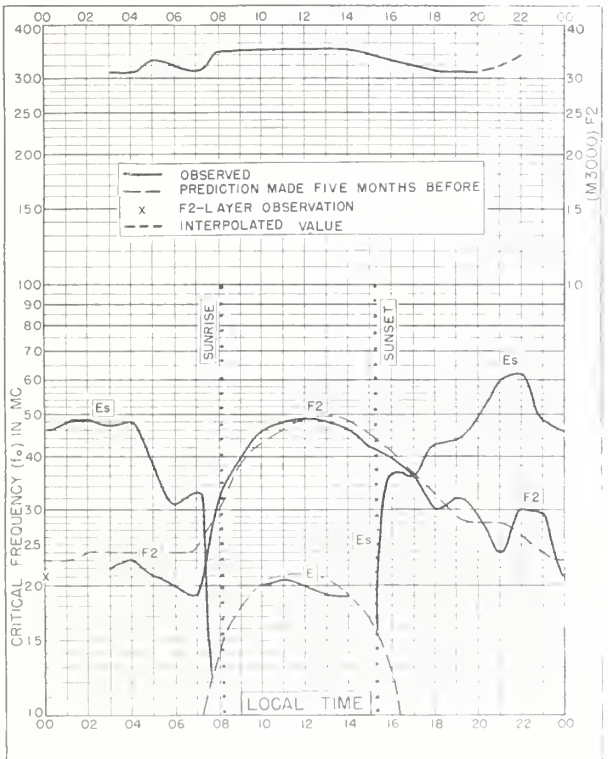


Fig. 7. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W NOVEMBER 1954

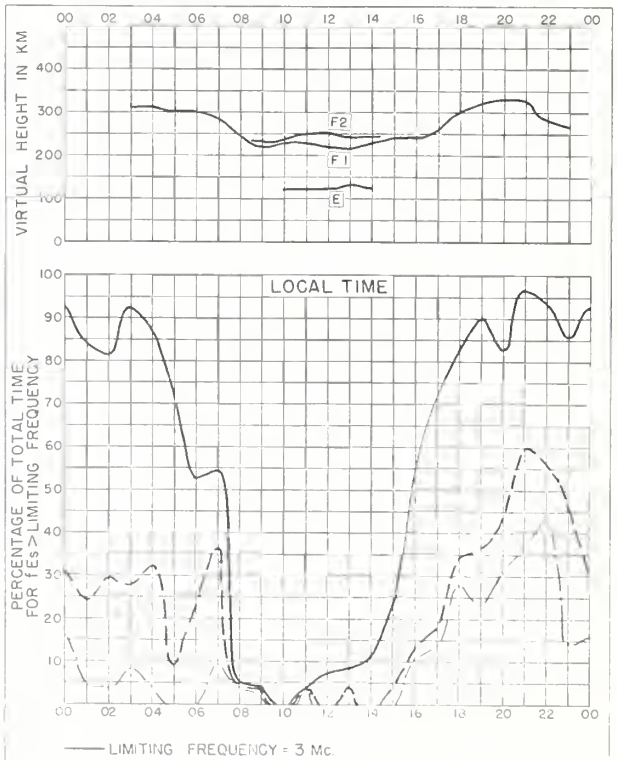


Fig. 8. NARSARSSUAK, GREENLAND NOVEMBER 1954

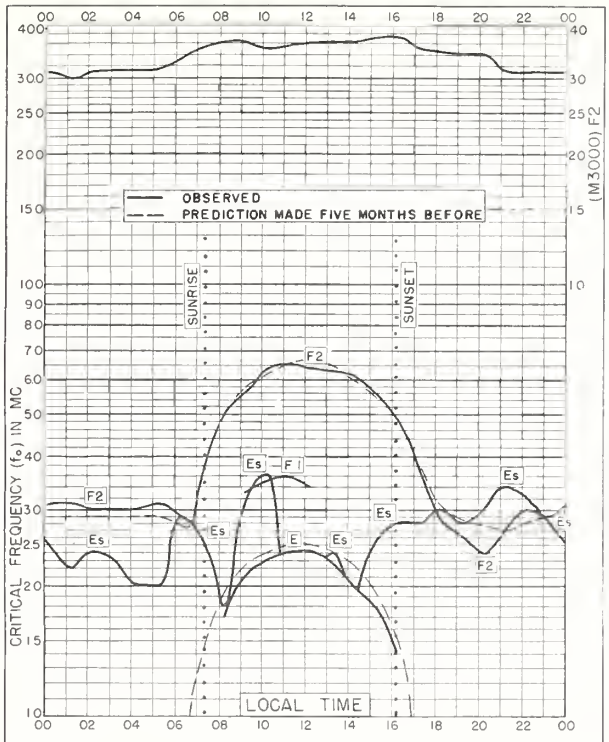


Fig. 9. ADAK, ALASKA
51.9°N, 176.6°W NOVEMBER 1954

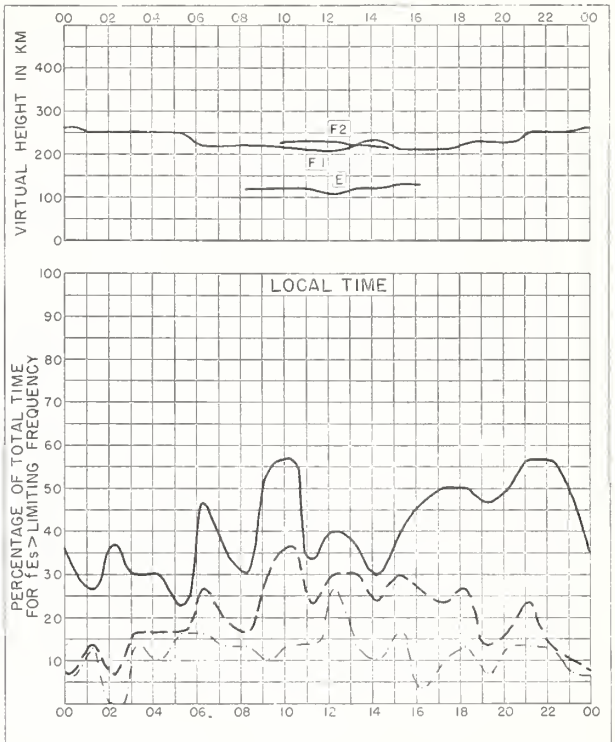


Fig. 10. ADAK, ALASKA NOVEMBER 1954

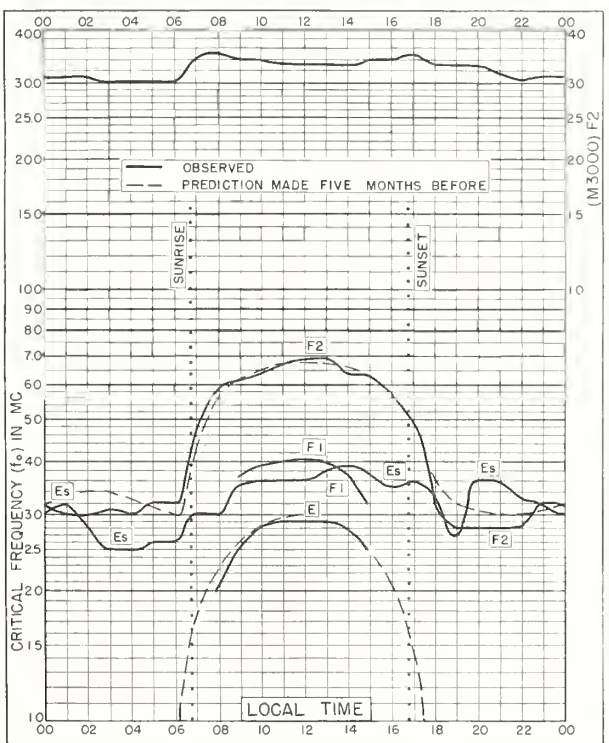


Fig. 11. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W NOVEMBER 1954

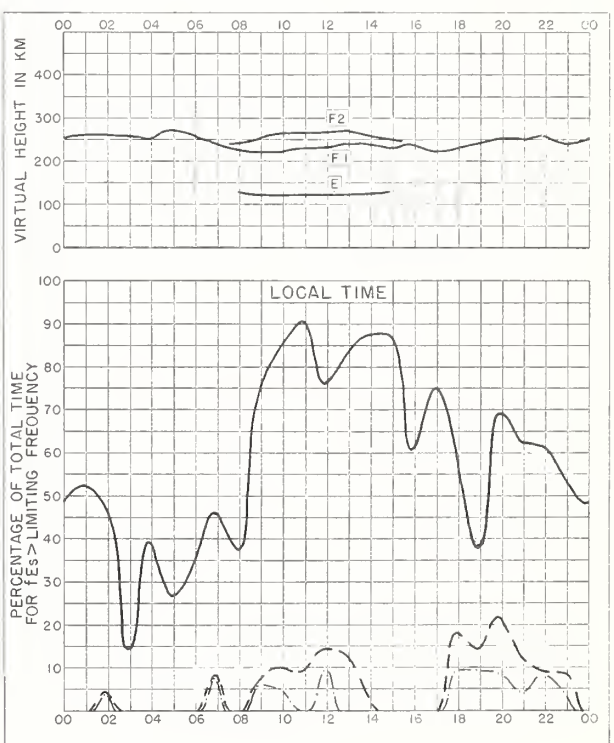


Fig. 12. SAN FRANCISCO, CALIFORNIA NOVEMBER 1954

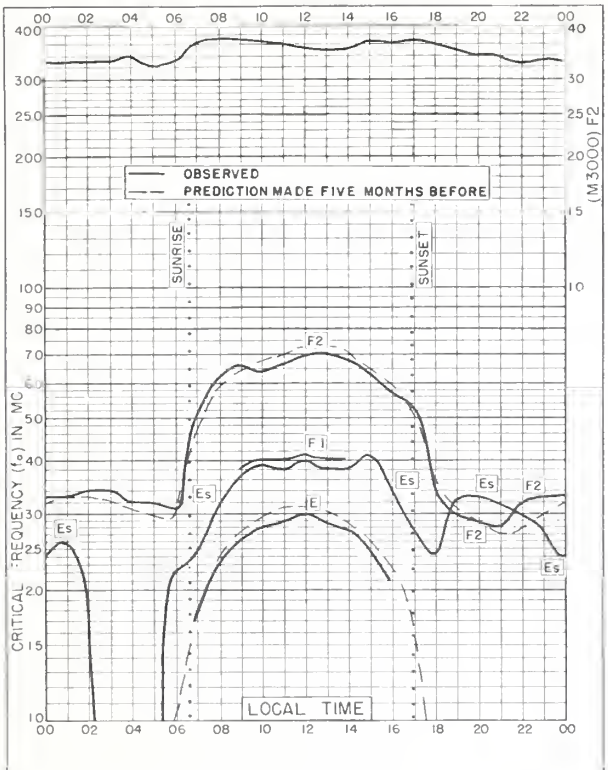
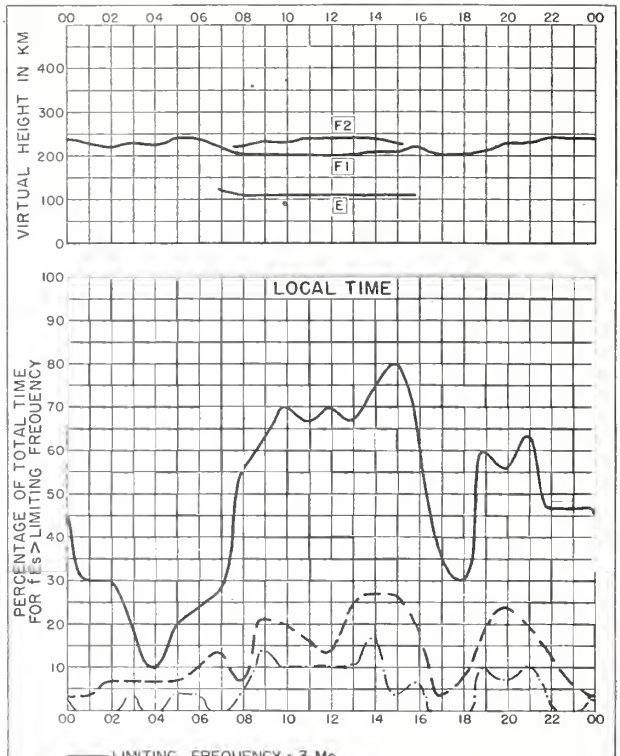


Fig. 13. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W NOVEMBER 1954



NOVEMBER 1954

Fig. 14. WHITE SANDS, NEW MEXICO

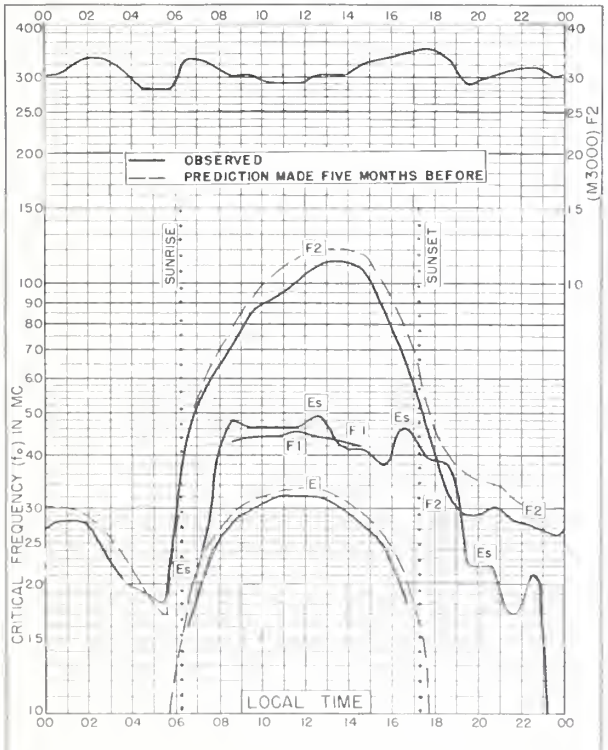


Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W NOVEMBER 1954

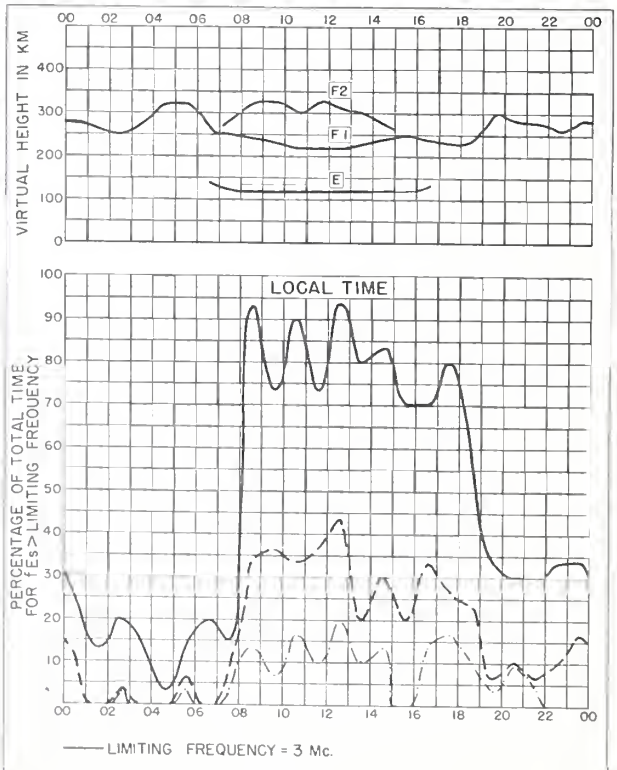


Fig. 16. MAUI, HAWAII NOVEMBER 1954

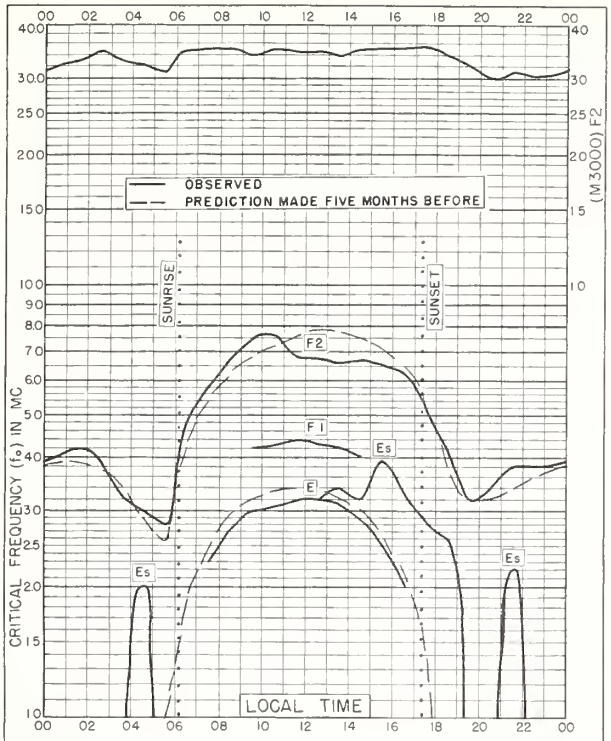


Fig. 17. PUERTO RICO, W. I.
18.5°N, 67.2°W NOVEMBER 1954

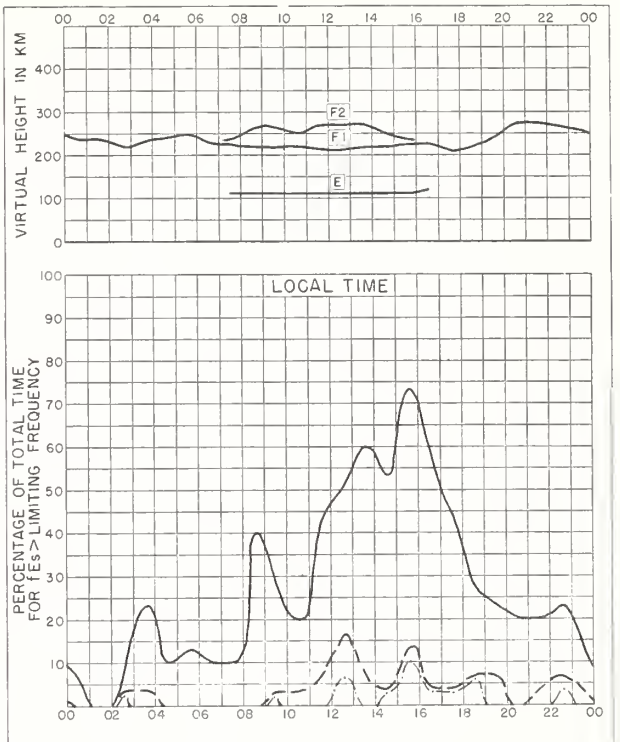


Fig. 18. PUERTO RICO, W. I. NOVEMBER 1954

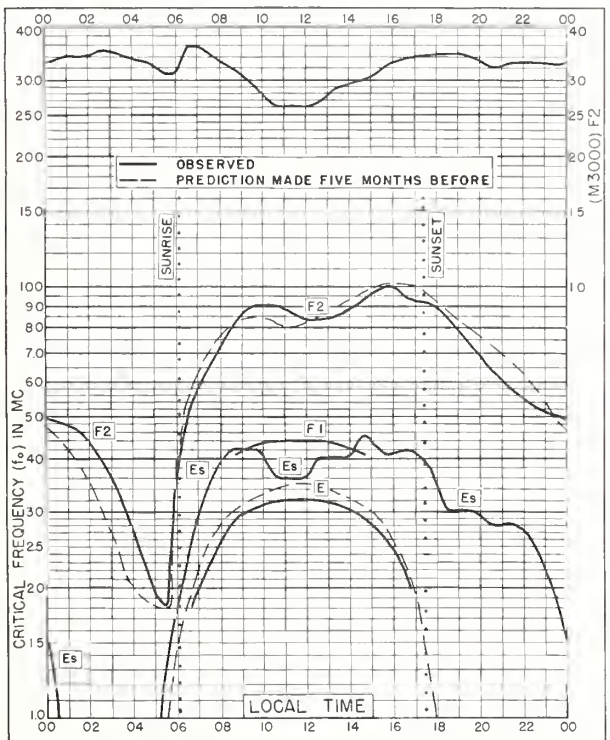


Fig. 19. GUAM I.
13.6°N, 144.9°E NOVEMBER 1954

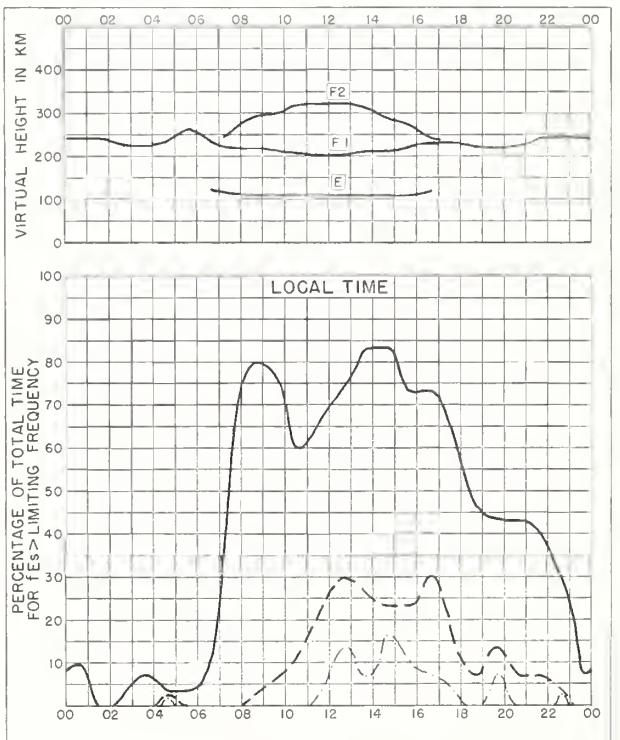


Fig. 20. GUAM I. NOVEMBER 1954

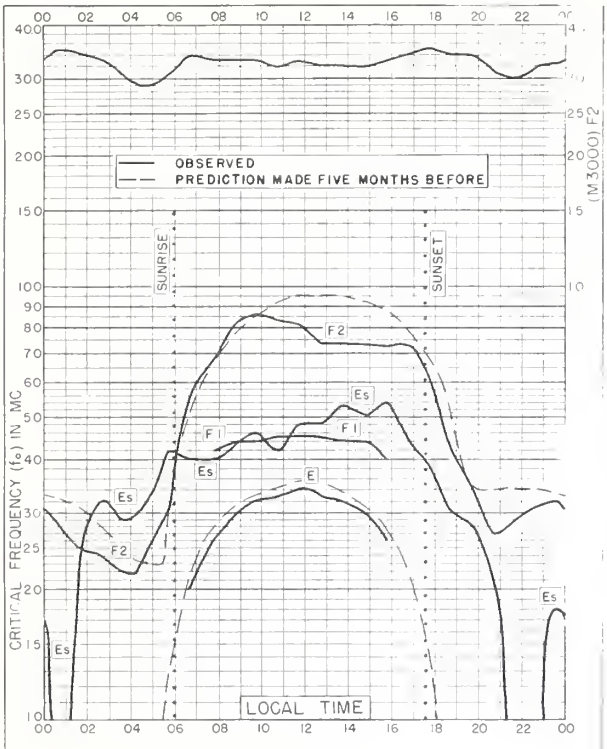


Fig. 21. PANAMA CANAL ZONE
9.4°N, 79.9°W NOVEMBER 1954

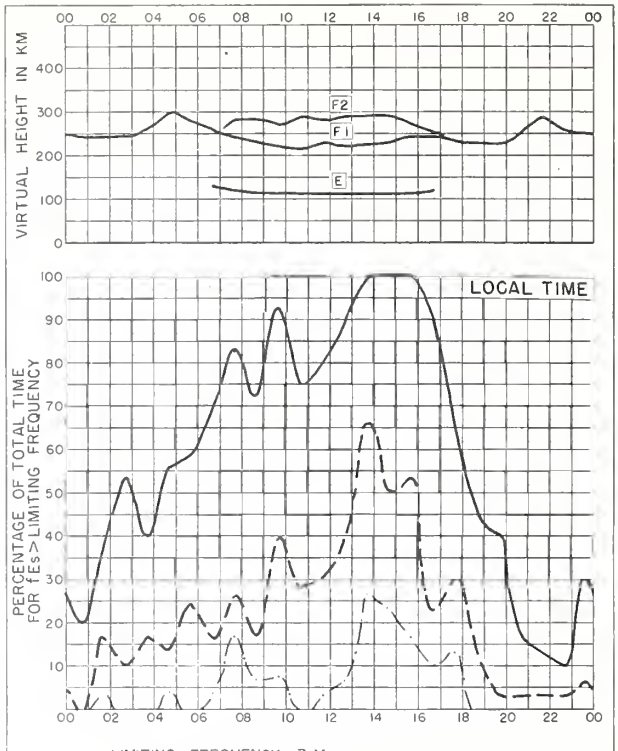


Fig. 22. PANAMA CANAL ZONE NOVEMBER 1954

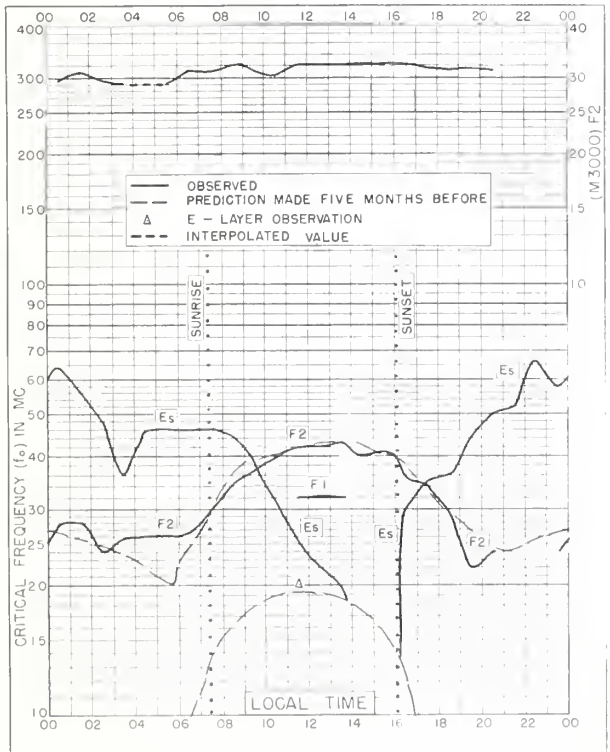


Fig. 23. POINT BARROW, ALASKA
71.3°N, 156.8°W OCTOBER 1954

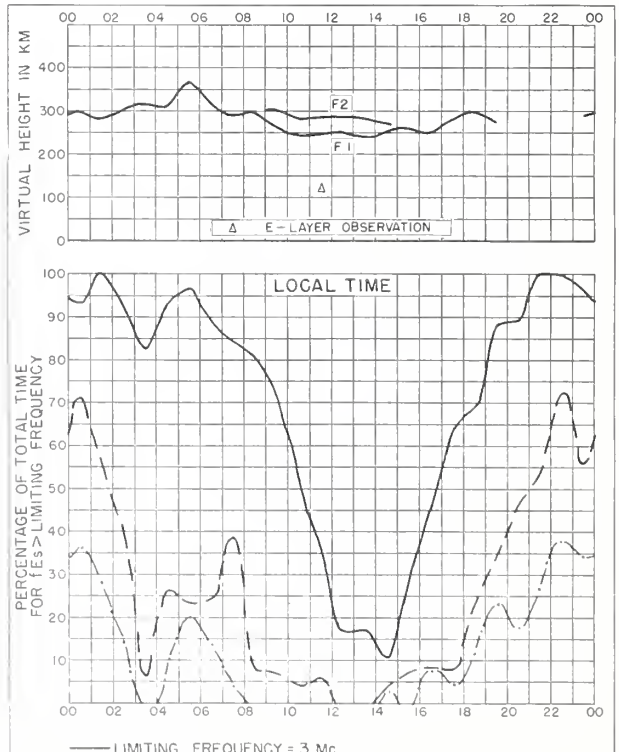


Fig. 24. POINT BARROW, ALASKA OCTOBER 1954

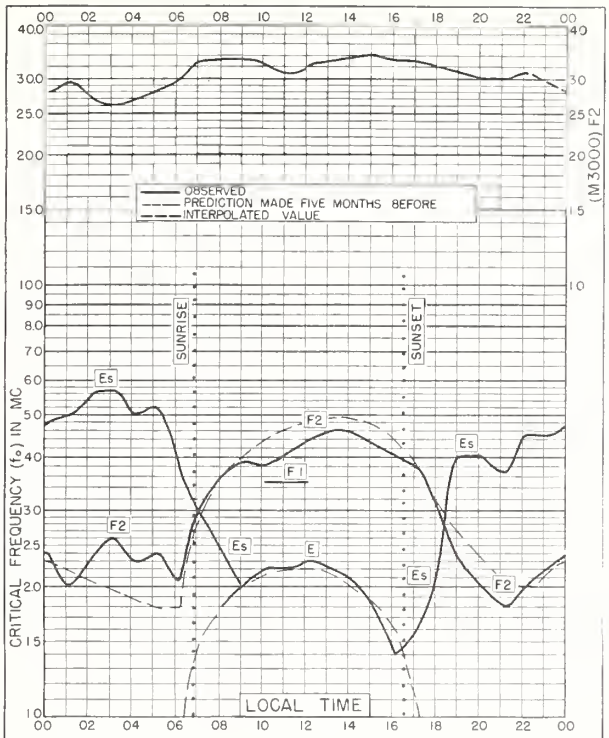


Fig. 25. FAIRBANKS, ALASKA
64.9°N, 147.8° W OCTOBER 1954

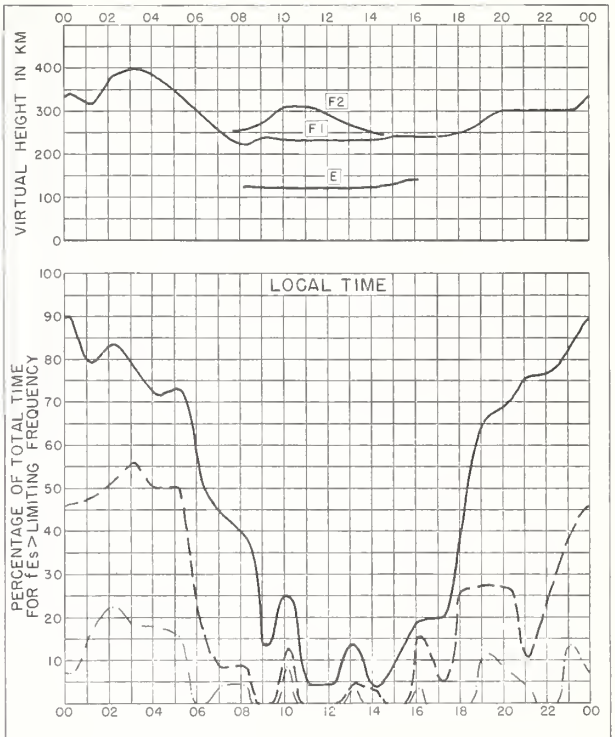


Fig. 26. FAIRBANKS, ALASKA OCTOBER 1954

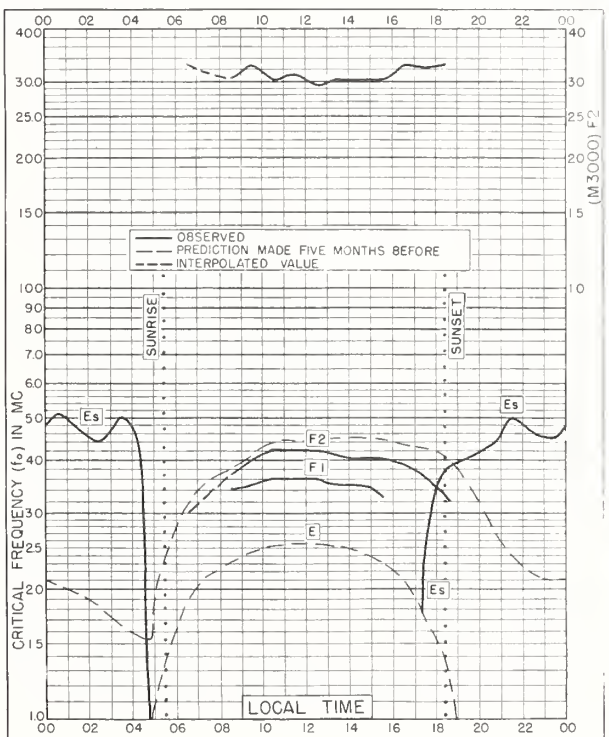


Fig. 27. REYKJAVIK, ICELAND
64.1°N, 21.8° W SEPTEMBER 1954

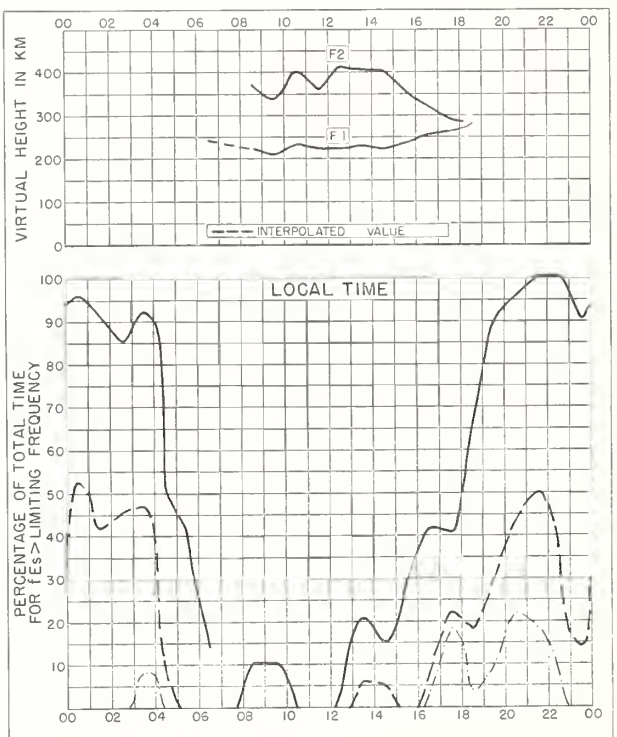


Fig. 28. REYKJAVIK, ICELAND SEPTEMBER 1954

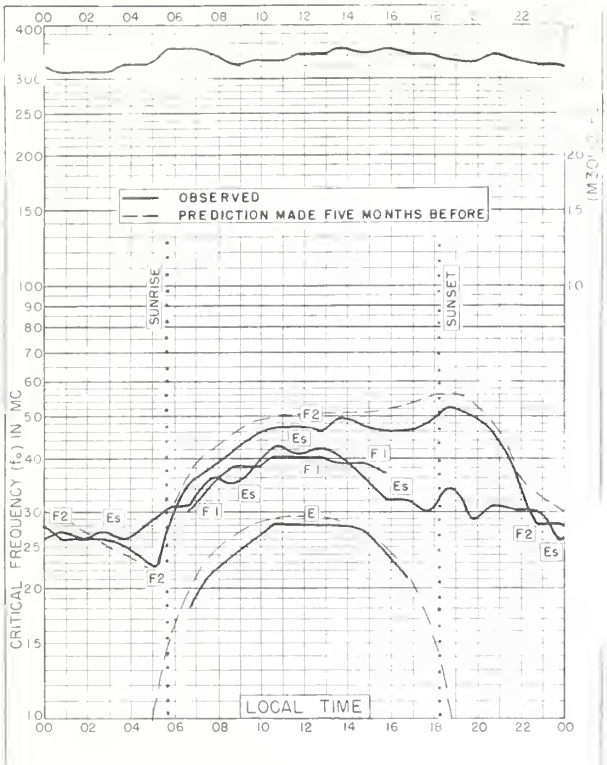


Fig. 29. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E SEPTEMBER 1954

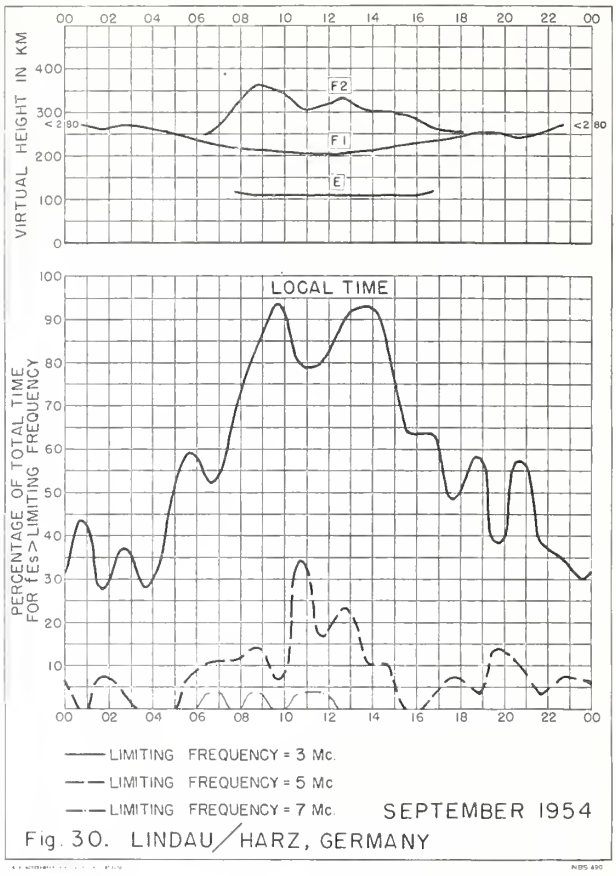


Fig. 30. LINDAU/HARZ, GERMANY SEPTEMBER 1954

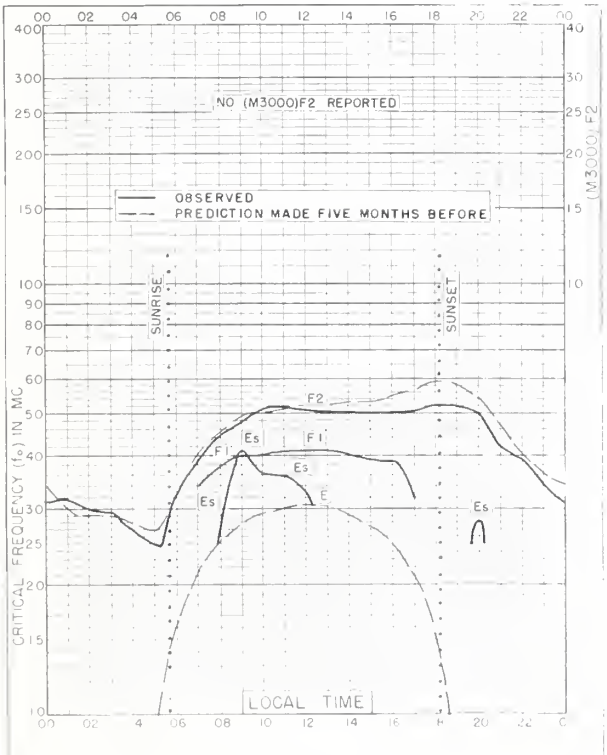


Fig 31. GRAZ, AUSTRIA
47.1°N, 15.5°E SEPTEMBER 1954

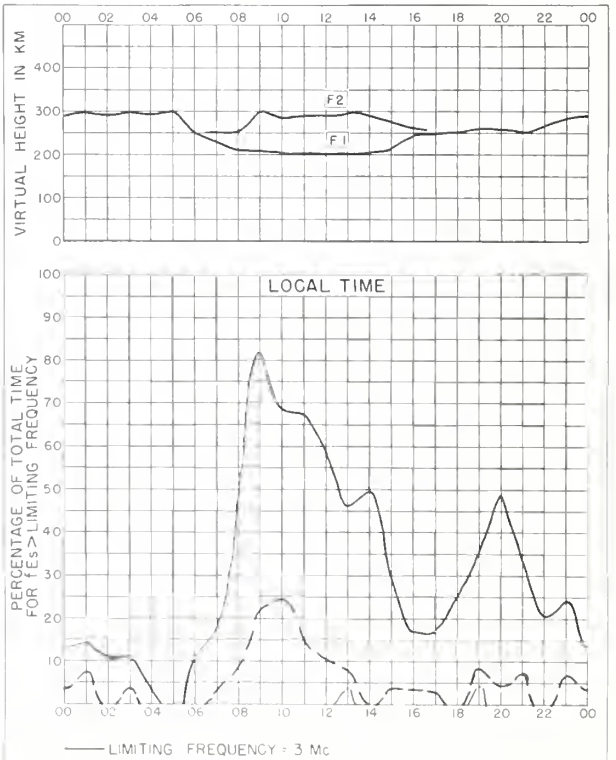


Fig. 32. GRAZ, AUSTRIA SEPTEMBER 1954

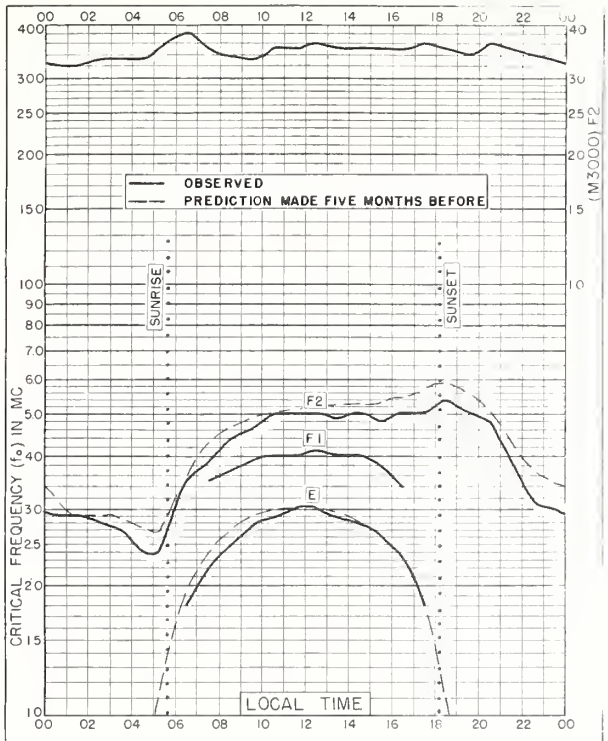


Fig. 33. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E SEPTEMBER 1954

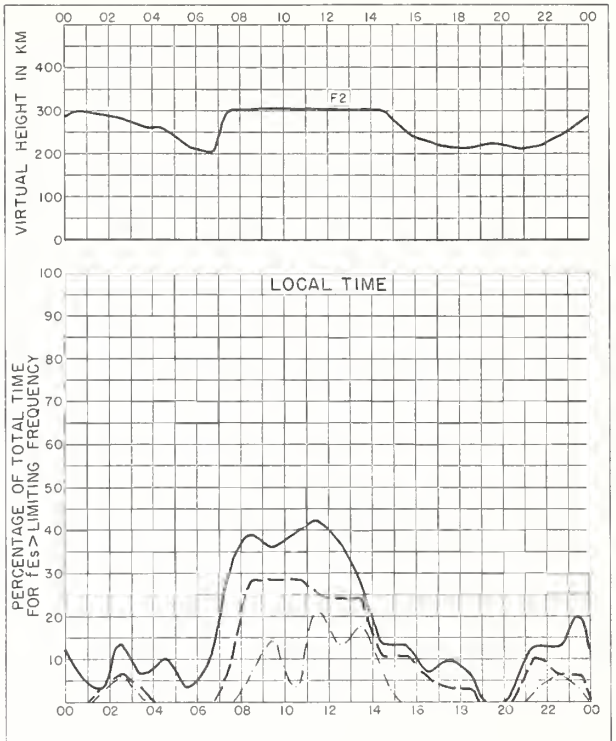


Fig. 34. SCHWARZENBURG, SWITZERLAND SEPTEMBER 1954

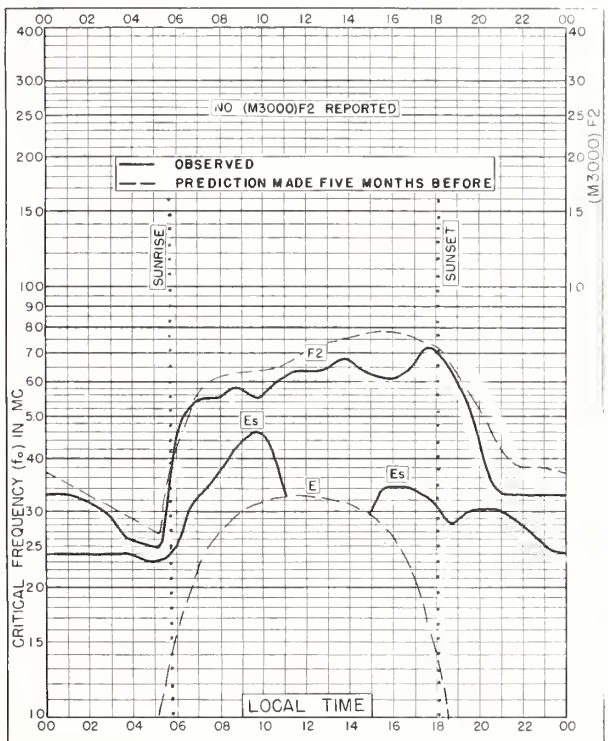


Fig. 35. YAMAGAWA, JAPAN
31.2°N, 130.6°E SEPTEMBER 1954

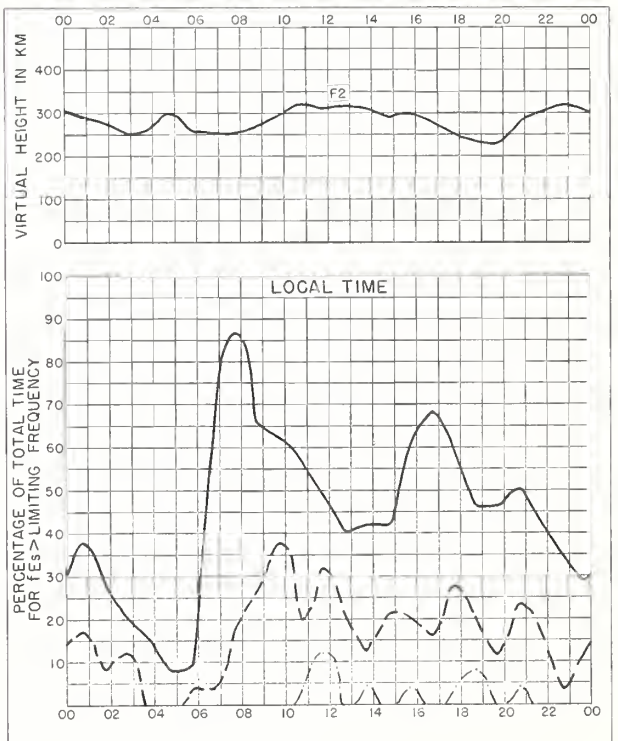


Fig. 36. YAMAGAWA, JAPAN SEPTEMBER 1954

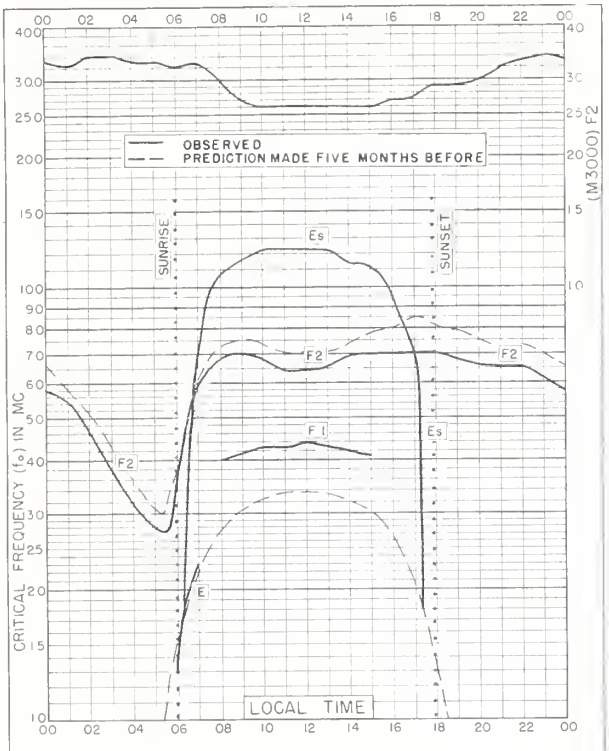


Fig. 37. HUANCAYO, PERU
12.0°S, 75.3°W SEPTEMBER 1954

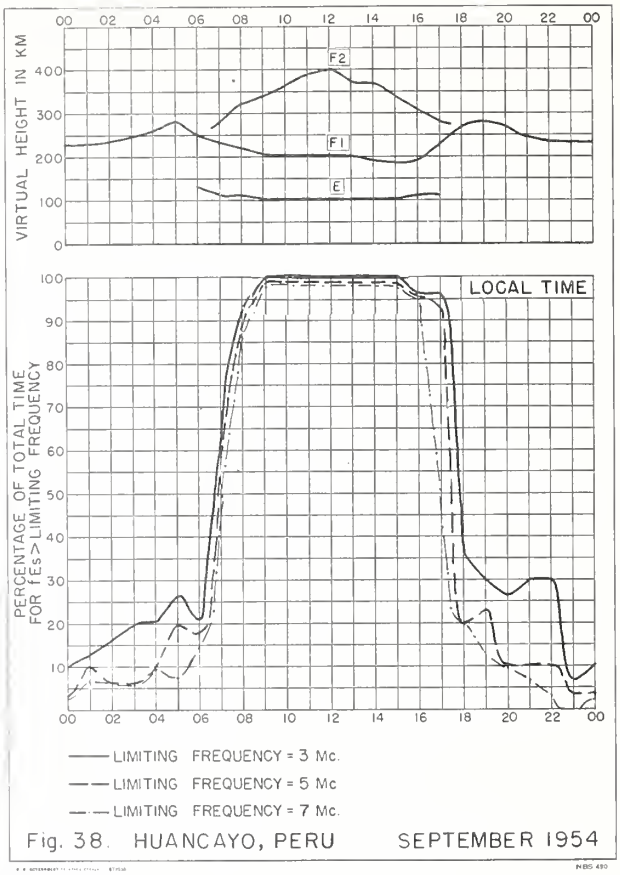


Fig. 38. HUANCAYO, PERU SEPTEMBER 1954

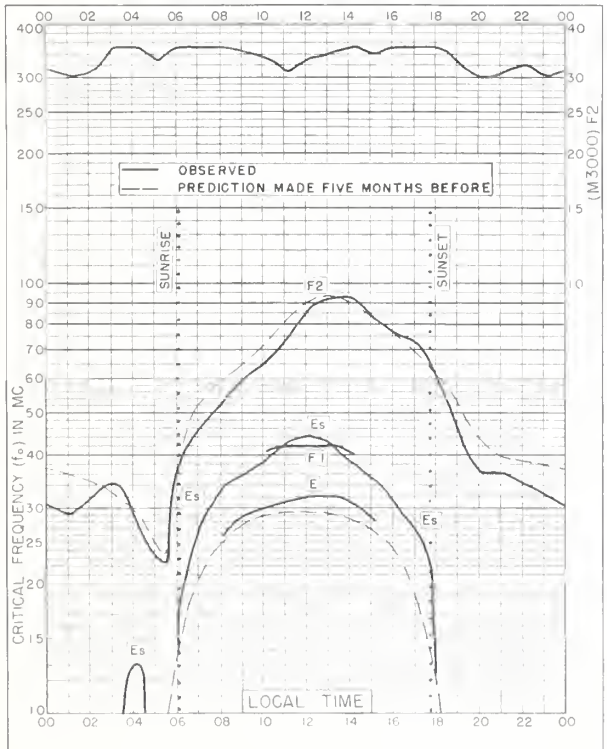


Fig. 39. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W SEPTEMBER 1954

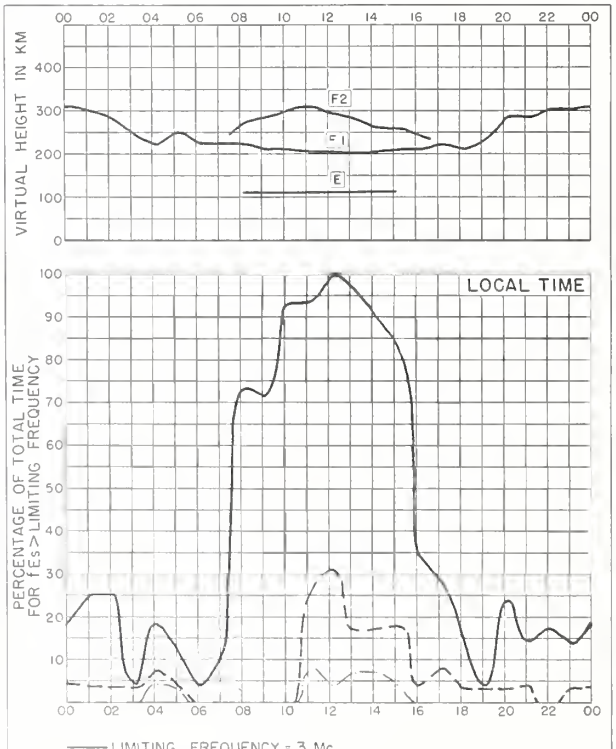


Fig. 40. BUENOS AIRES, ARGENTINA SEPTEMBER 1954

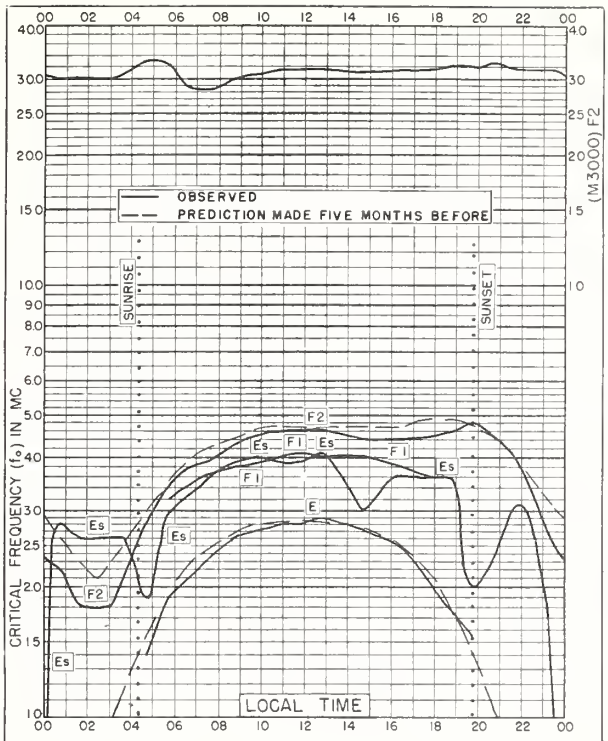


Fig. 41. OSLO, NORWAY
60.0°N, 11.1°E AUGUST 1954

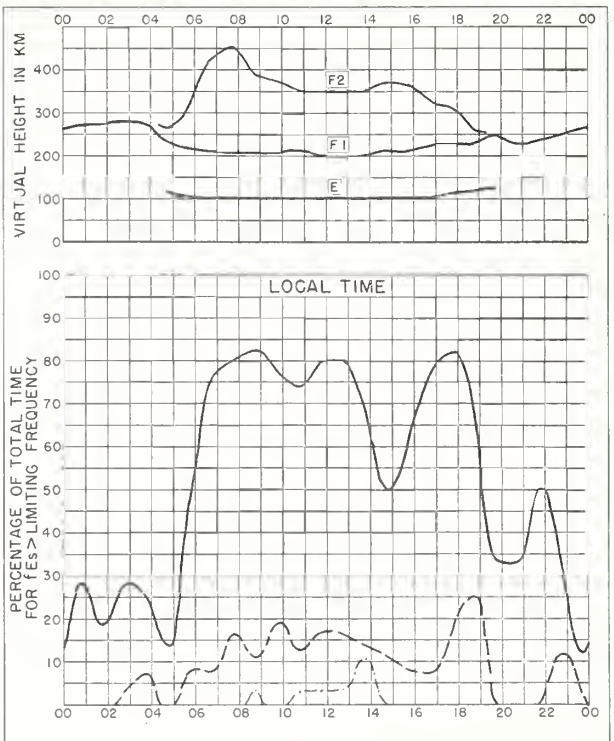


Fig. 42. OSLO, NORWAY AUGUST 1954

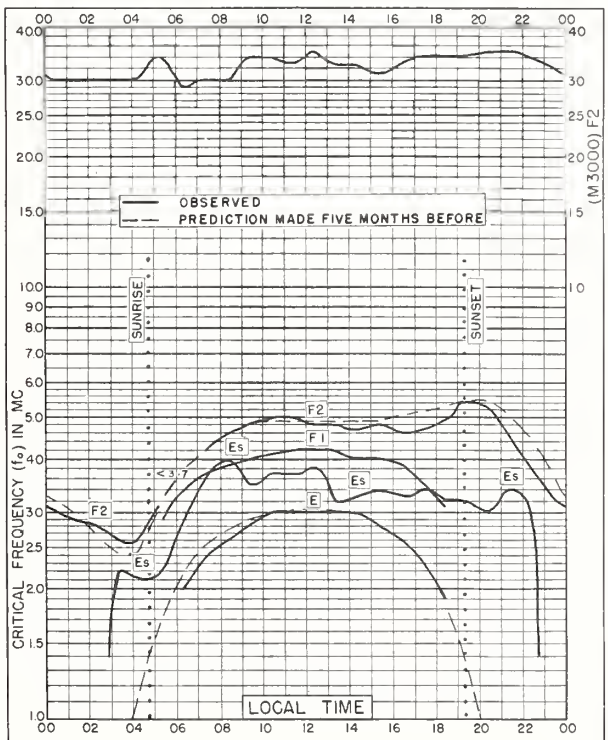


Fig. 43. De BILT, HOLLAND
52.1°N, 5.2°E AUGUST 1954

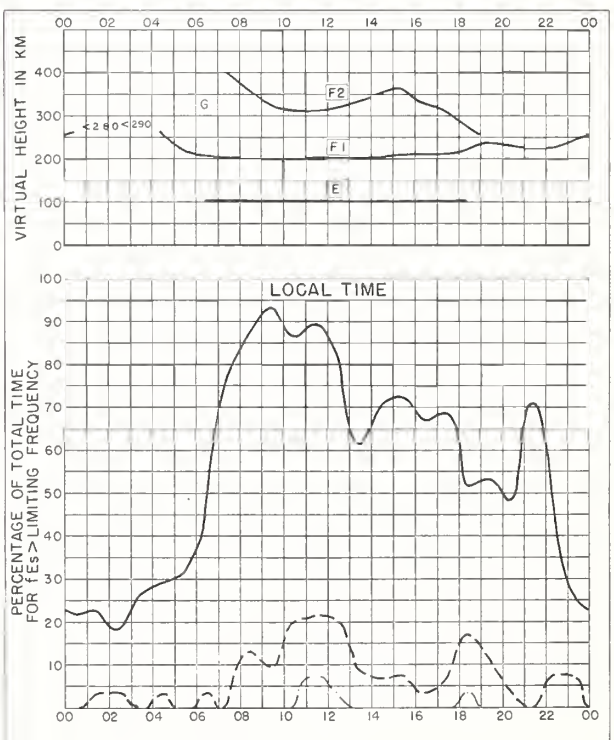


Fig. 44. De BILT, HOLLAND AUGUST 1954

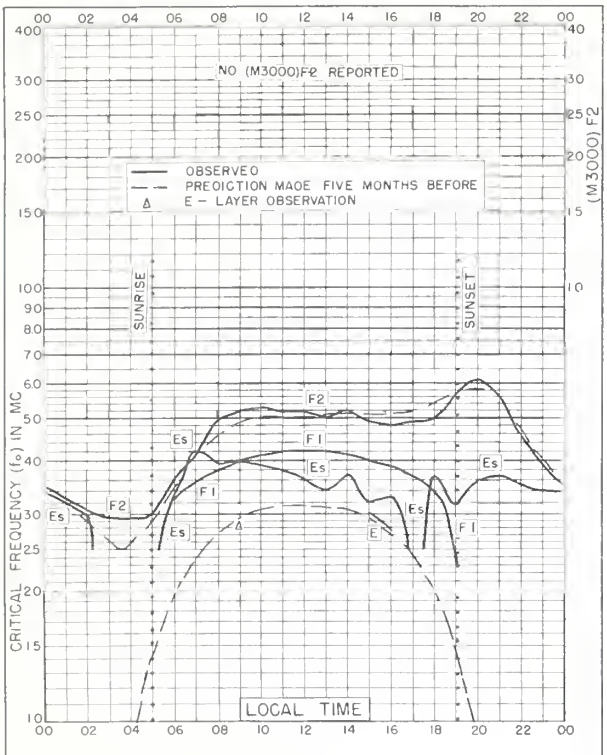


Fig. 45. GRAZ, AUSTRIA
47.1°N, 15.5°E AUGUST 1954

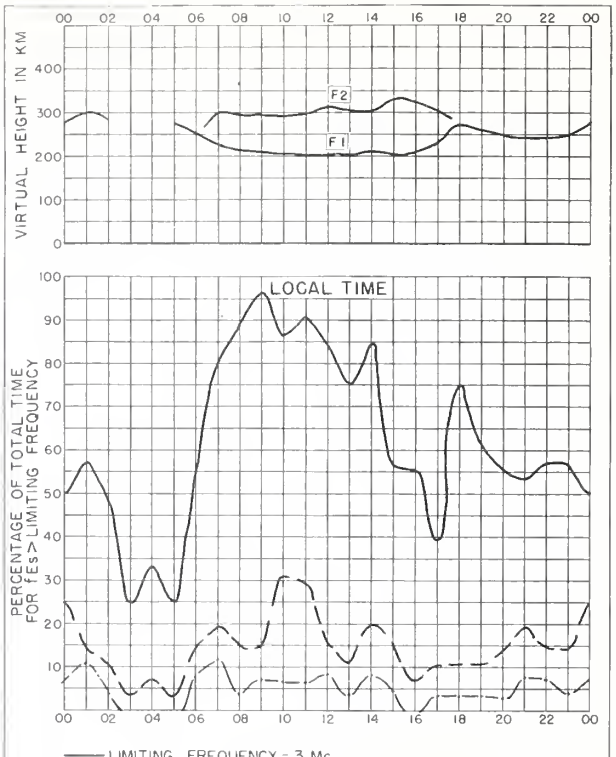


Fig. 46. GRAZ, AUSTRIA AUGUST 1954

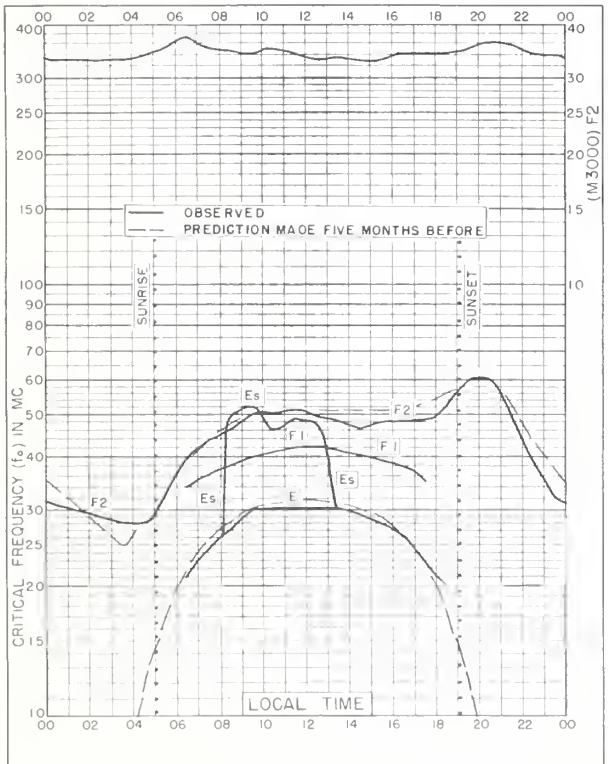


Fig 47. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E AUGUST 1954

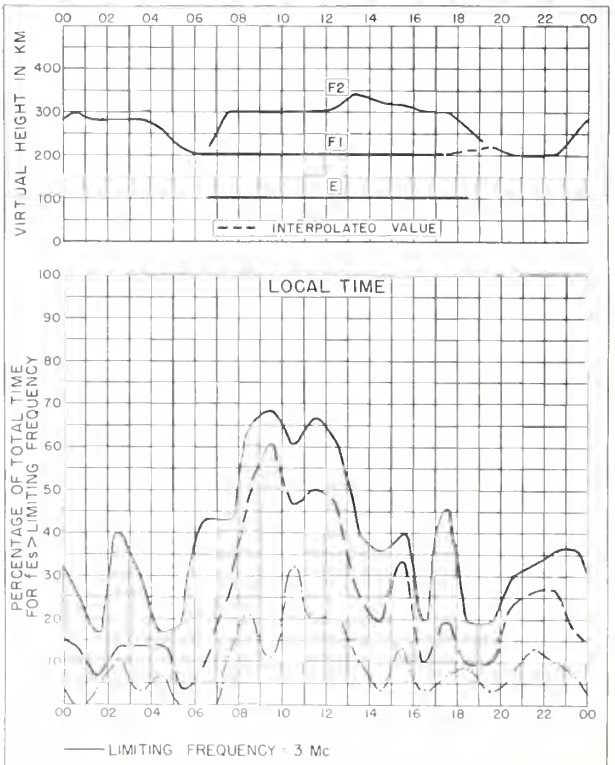


Fig. 48. SCHWARZENBURG, SWITZERLAND AUGUST 1954

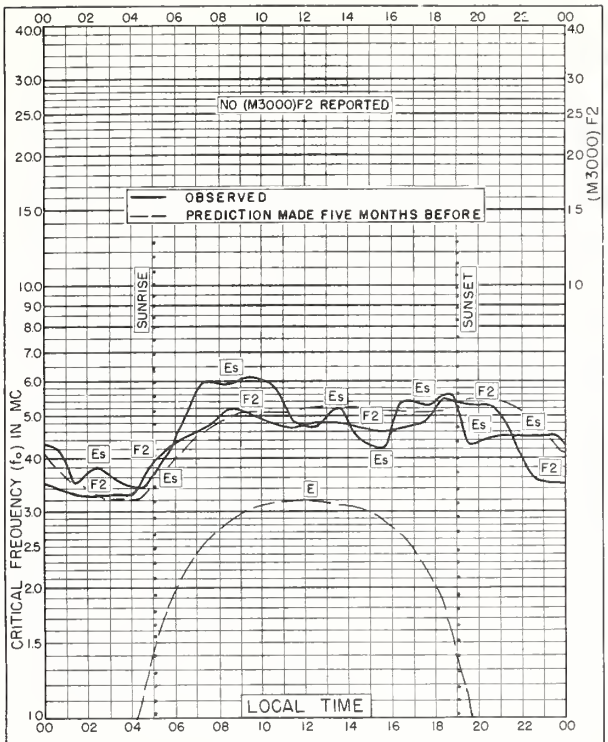


Fig. 49. WAKKANAI, JAPAN
45.4°N, 141.7°E AUGUST 1954

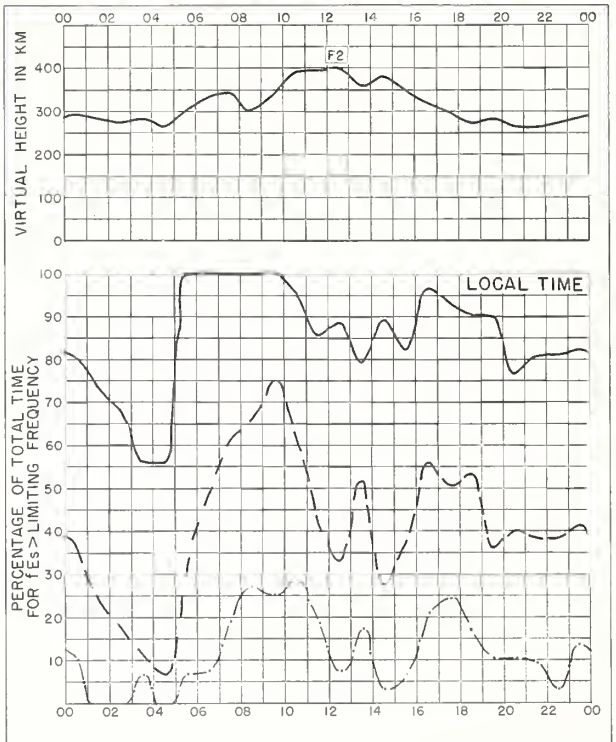


Fig. 50. WAKKANAI, JAPAN AUGUST 1954

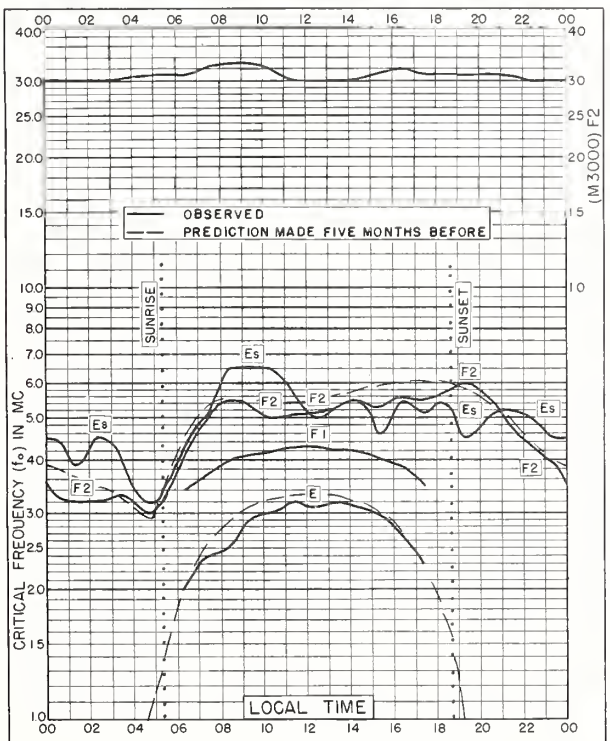


Fig. 51. TOKYO, JAPAN
35.7°N, 139.5°E AUGUST 1954

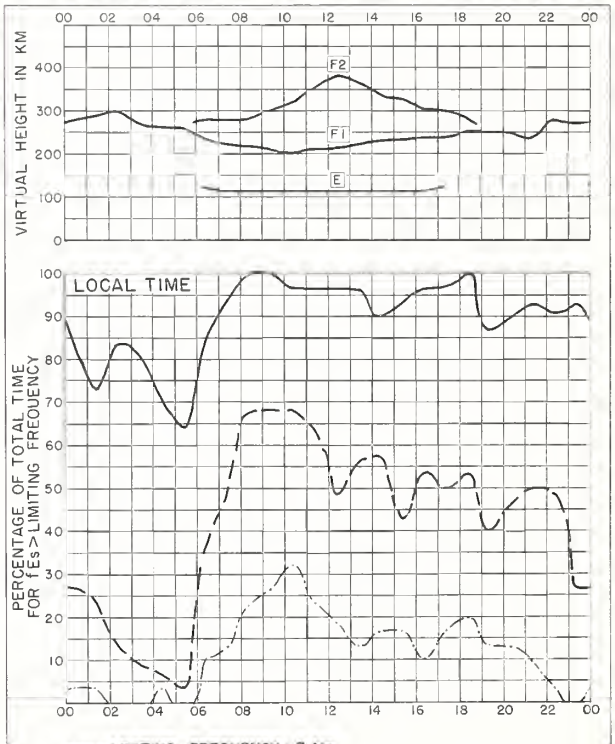


Fig. 52. TOKYO, JAPAN AUGUST 1954

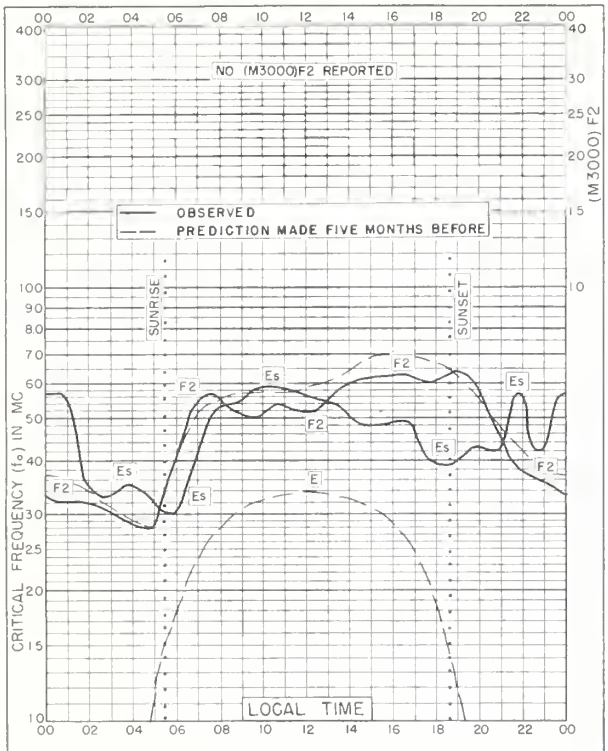


Fig. 53. YAMAGAWA, JAPAN
31.2°N, 130.6°E AUGUST 1954

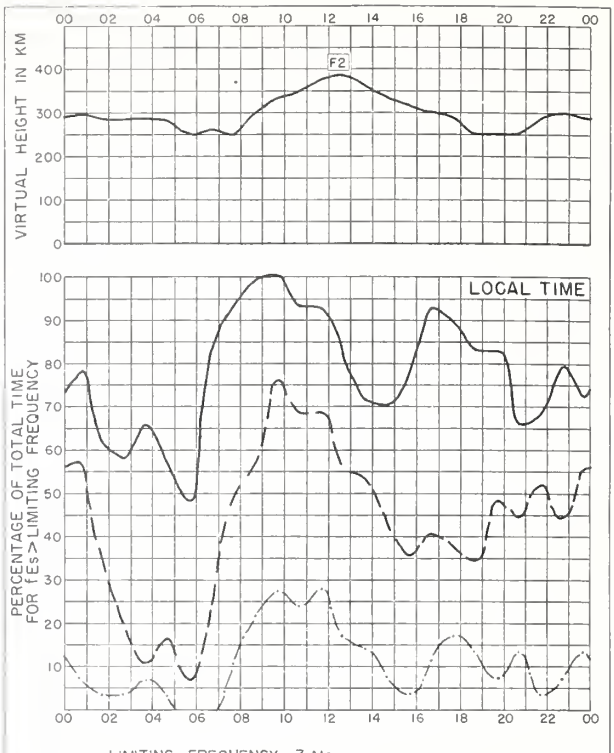


Fig. 54. YAMAGAWA, JAPAN AUGUST 1954

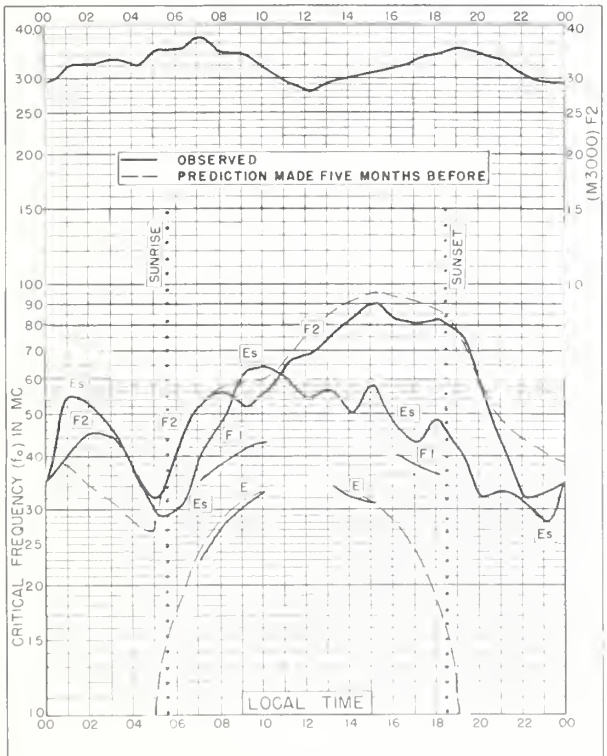


Fig. 55. FORMOSA, CHINA
25.0°N, 121.5°E AUGUST 1954

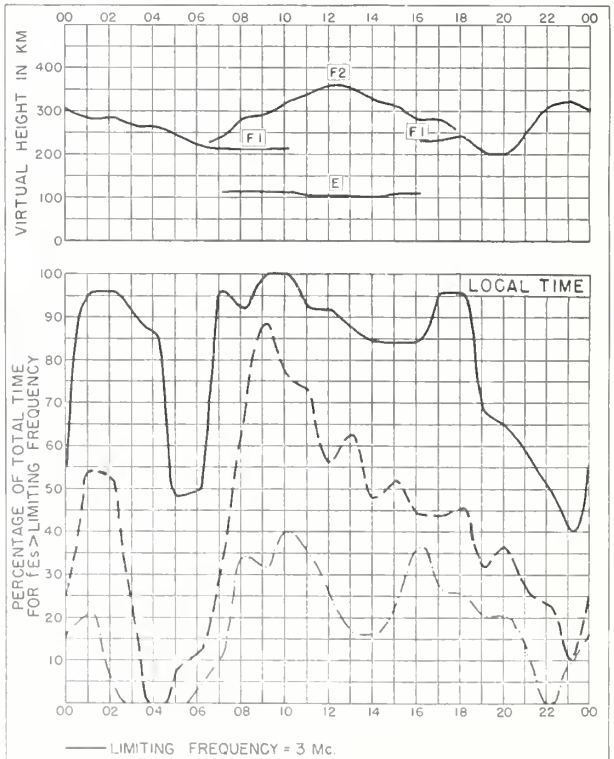


Fig. 56. FORMOSA, CHINA AUGUST 1954

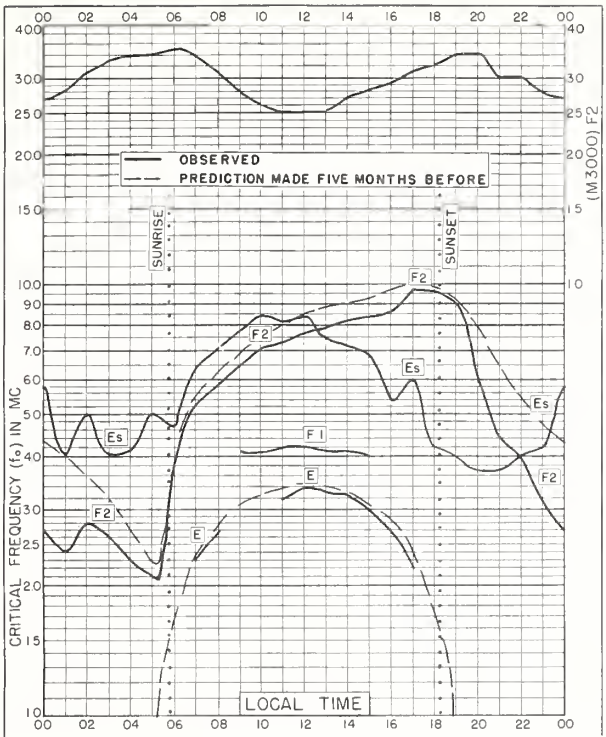


Fig. 57. BAGUIO, P. I.
16.4°N, 120.6°E AUGUST 1954

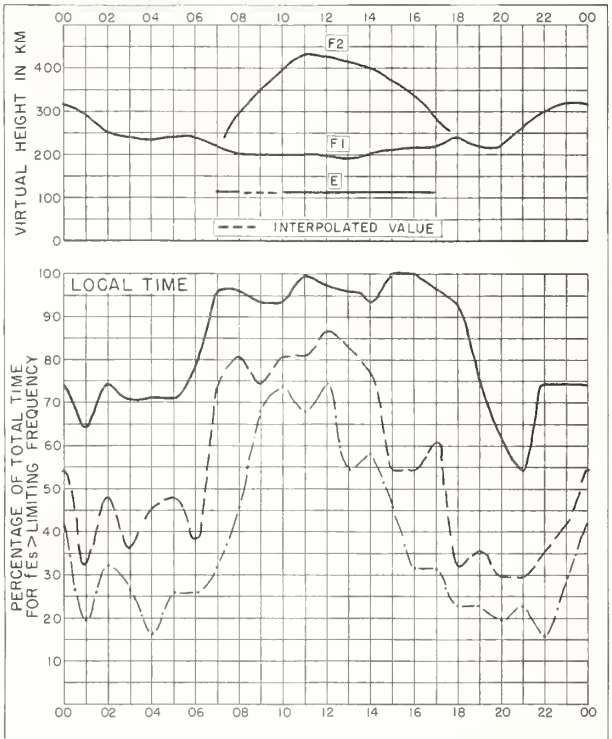


Fig. 58. BAGUIO, P. I. AUGUST 1954

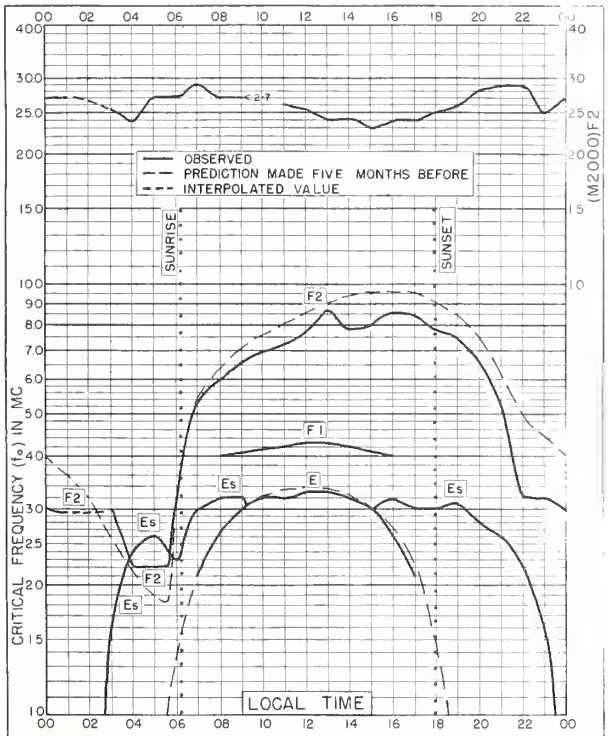


Fig. 59. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E AUGUST 1954

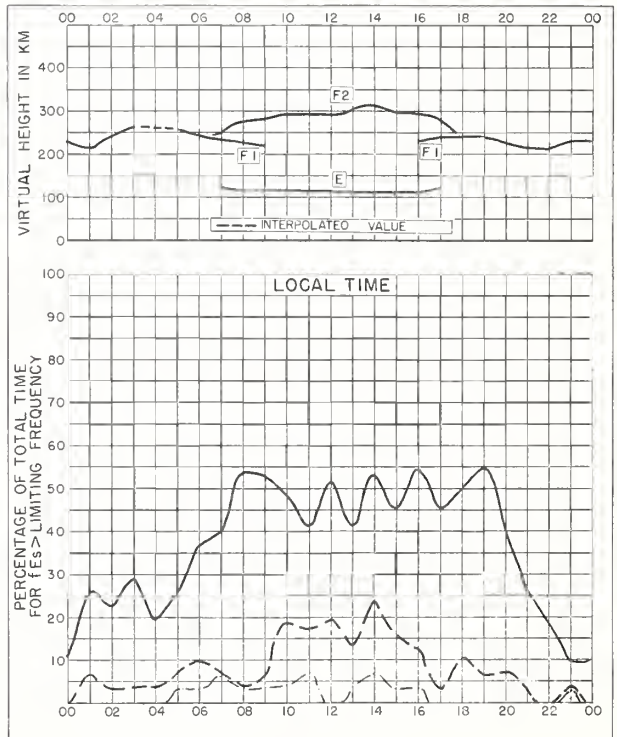


Fig. 60. LEOPOLDVILLE, BELGIAN CONGO AUGUST 1954

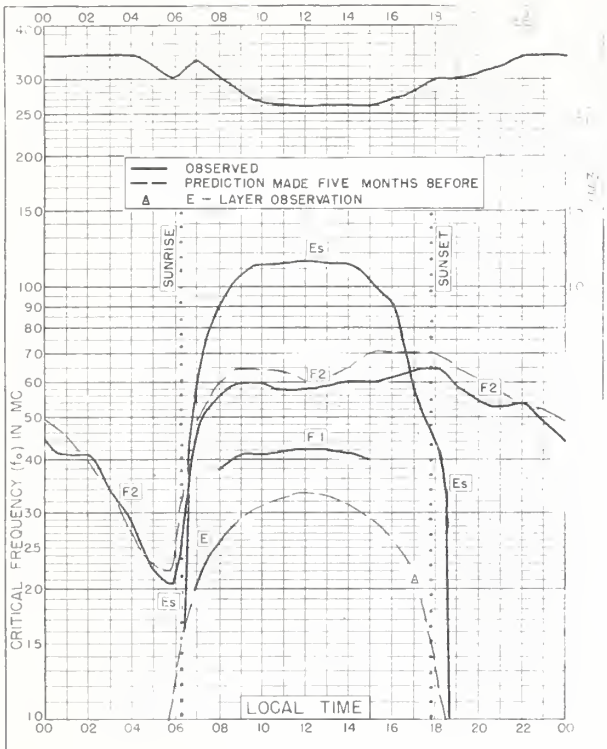


Fig. 61. HUANCAYO, PERU
12.0°S, 75.3°W AUGUST 1954

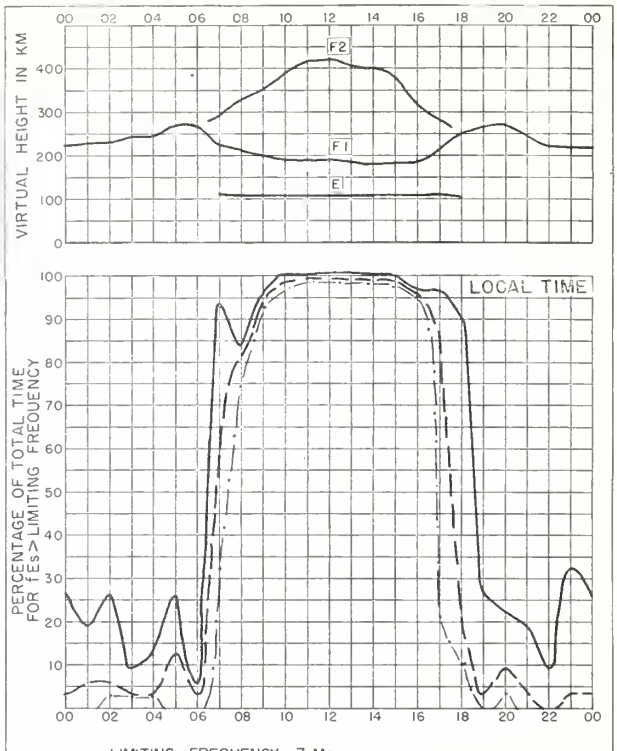


Fig. 62. HUANCAYO, PERU AUGUST 1954

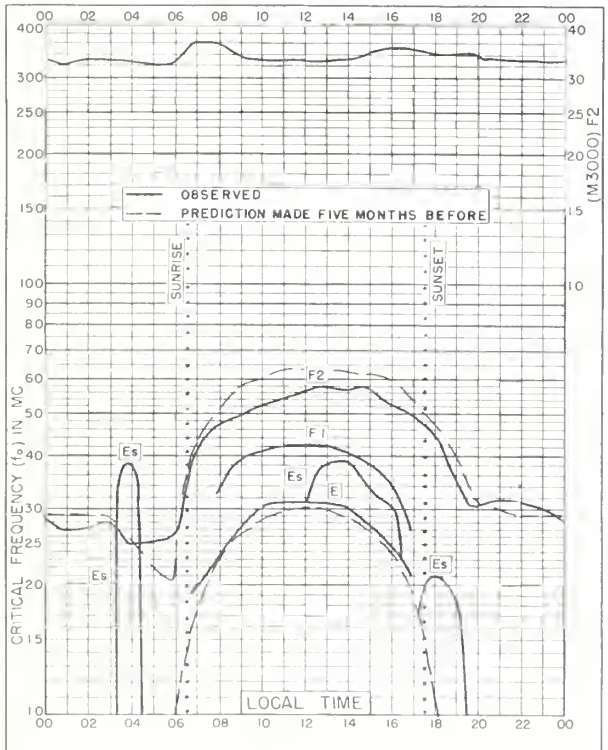


Fig. 63. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E AUGUST 1954

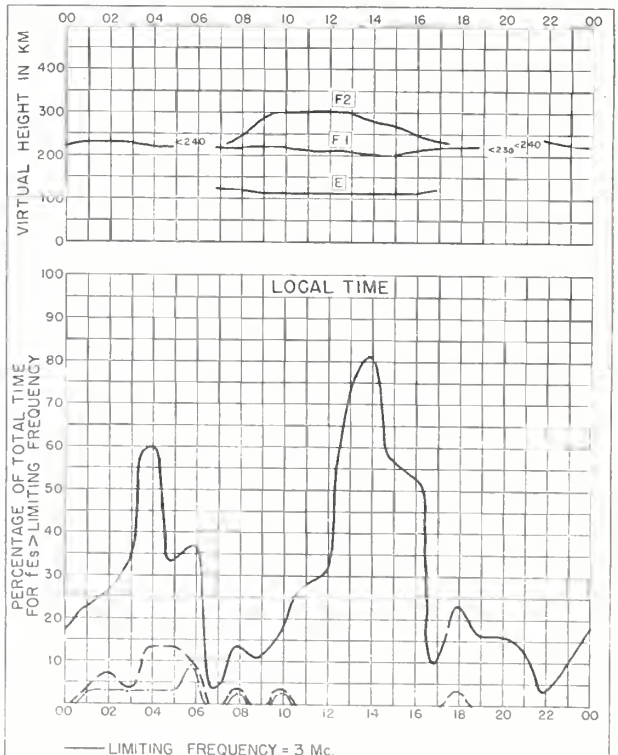


Fig. 64. JOHANNESBURG, UNION OF S. AFRICA AUGUST 1954

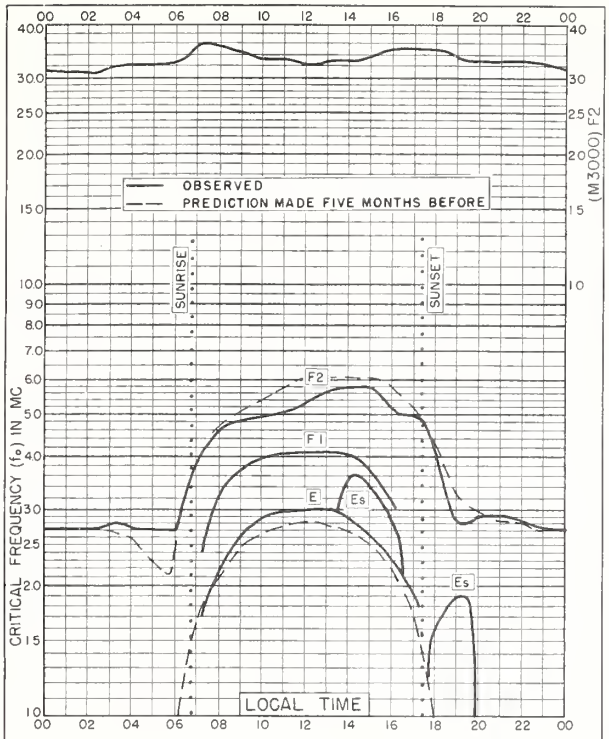


Fig. 65. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E AUGUST 1954

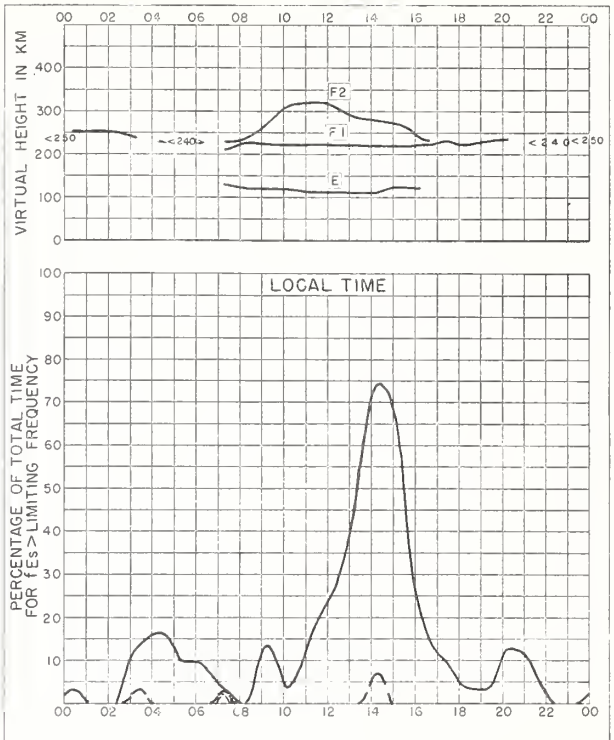


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Fig. 66. CAPETOWN, UNION OF S. AFRICA

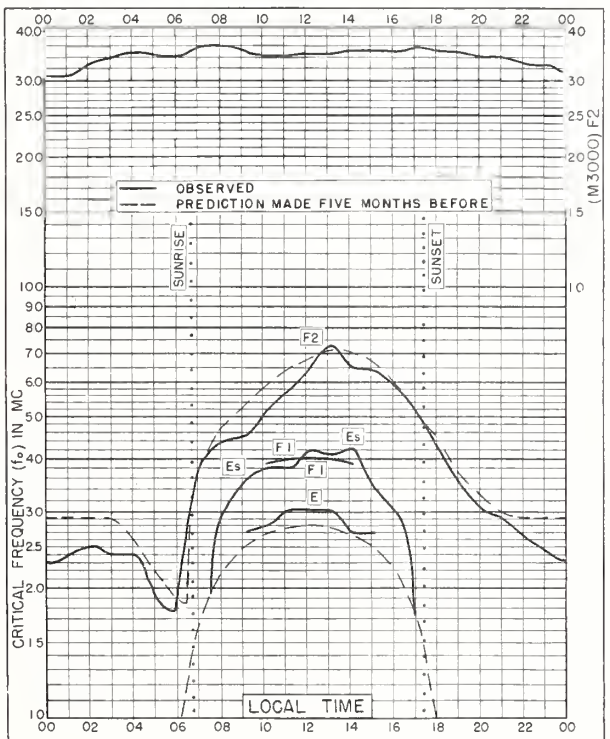
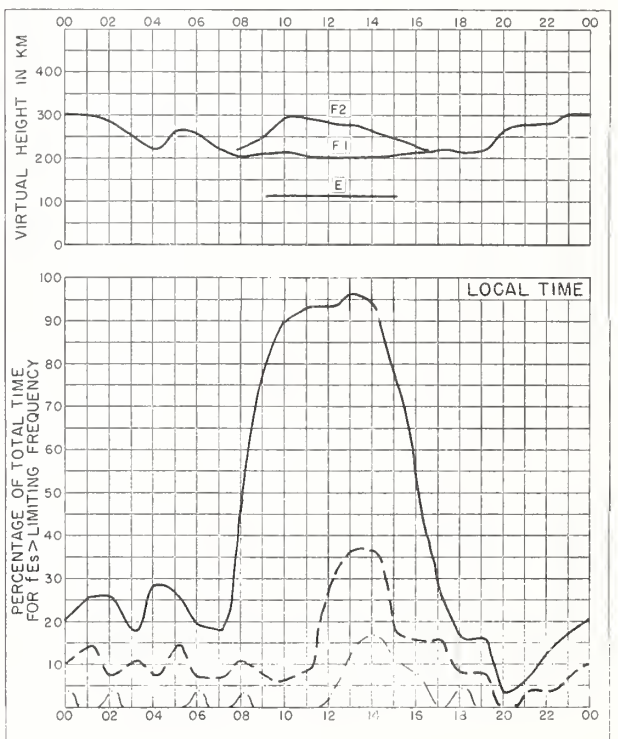


Fig. 67. BUENOS AIRES, ARGENTINA
34.5°S, 58.5° W AUGUST 1954



AUGUST 1954

Fig. 68. BUENOS AIRES, ARGENTINA

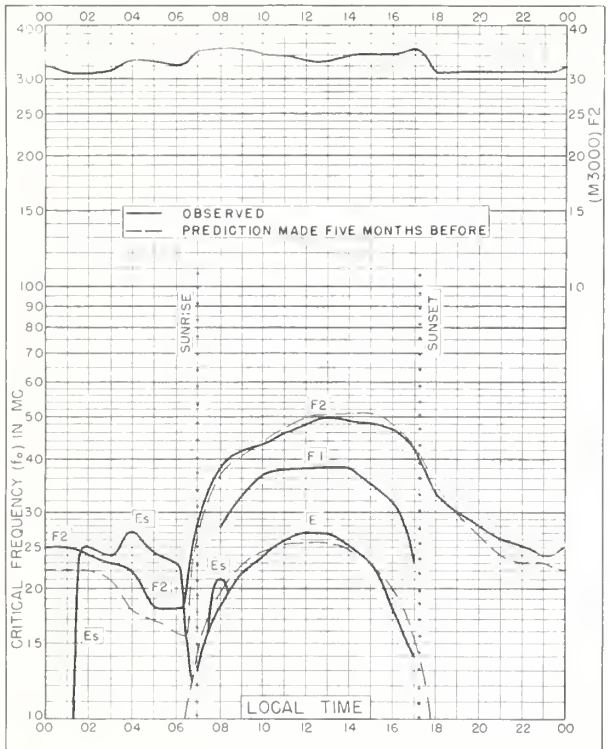
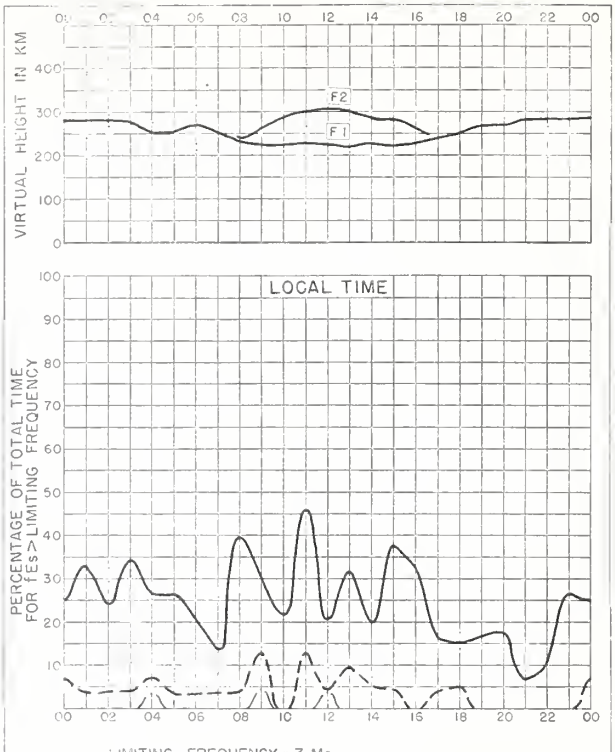


Fig. 69. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E AUGUST 1954



AUGUST 1954

Fig. 70. CHRISTCHURCH, NEW ZEALAND

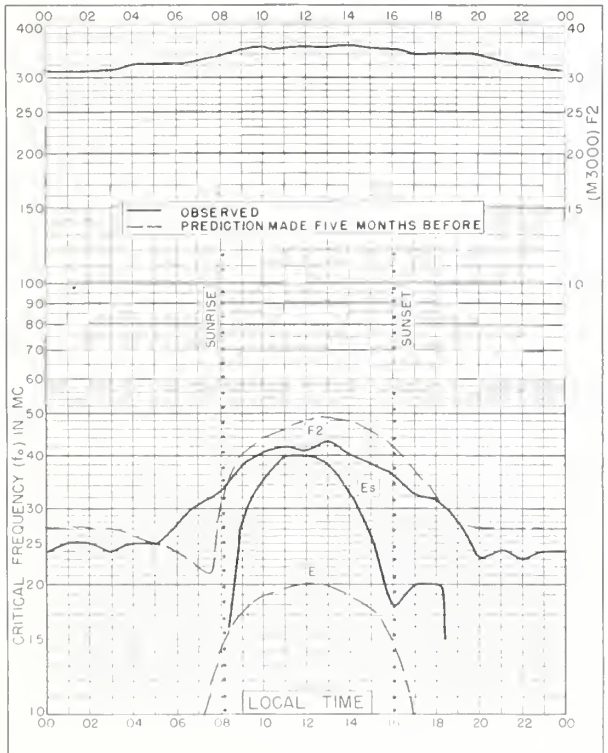


Fig. 71. DECEPCION I.
63.0°S, 60.7°W AUGUST 1954

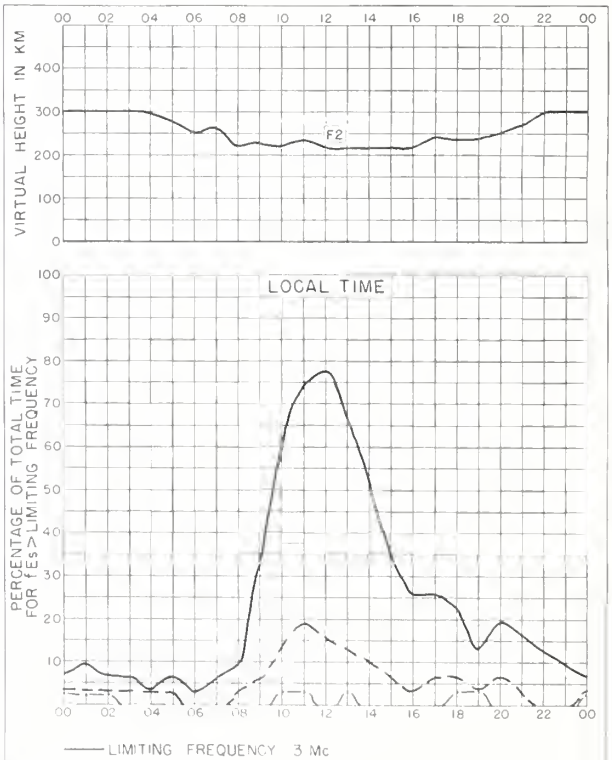


Fig. 72. DECEPCION I. AUGUST 1954

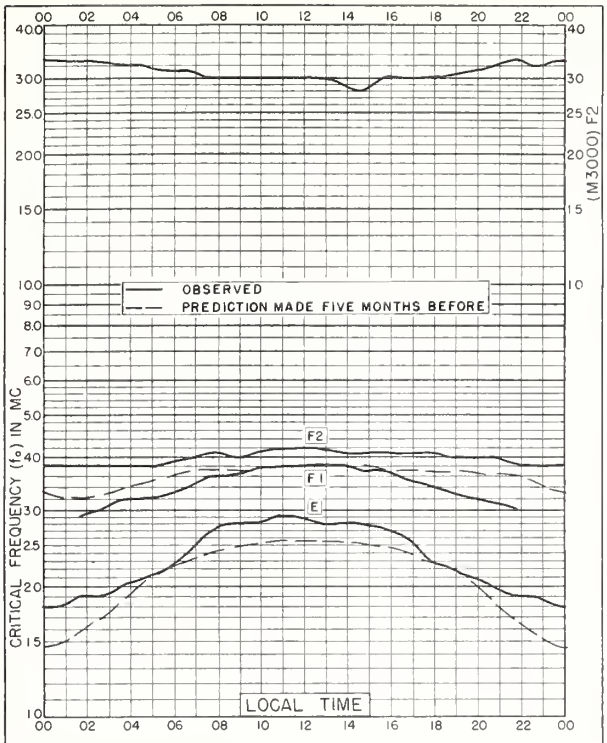


Fig. 73. RESOLUTE BAY, CANADA
74.7°N, 94.9°W JULY 1954

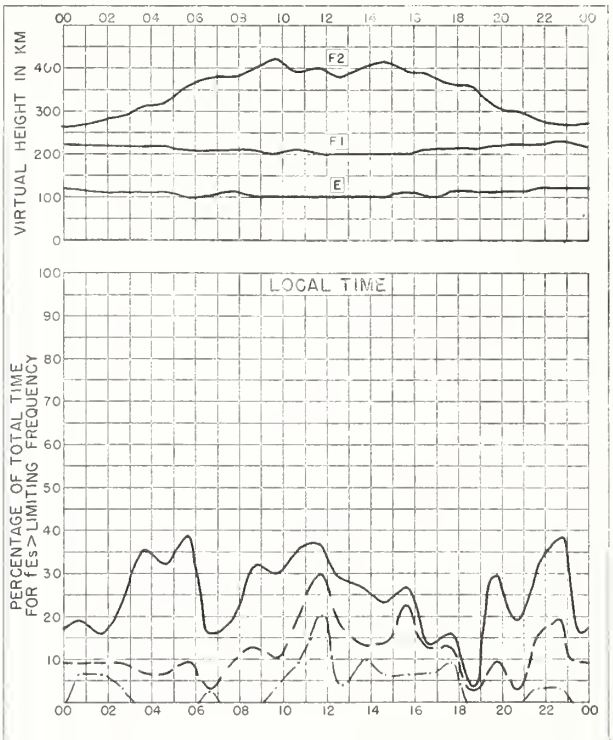


Fig. 74. RESOLUTE BAY, CANADA JULY 1954

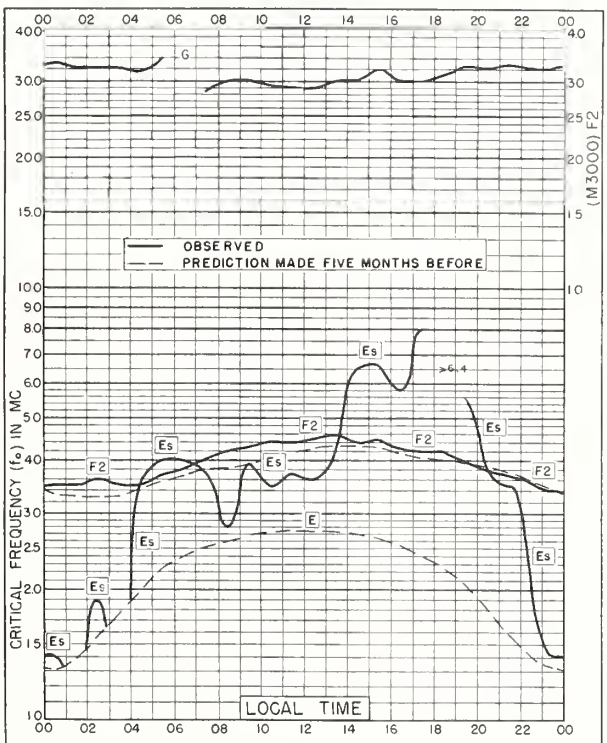


Fig. 75. GODHAVN, GREENLAND
69.2°N, 53.5°W JULY 1954

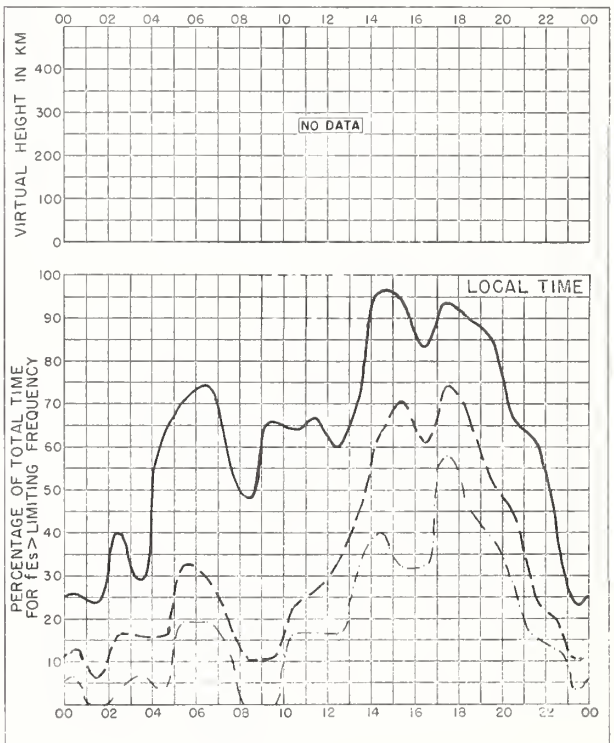


Fig. 76. GODHAVN, GREENLAND JULY 1954

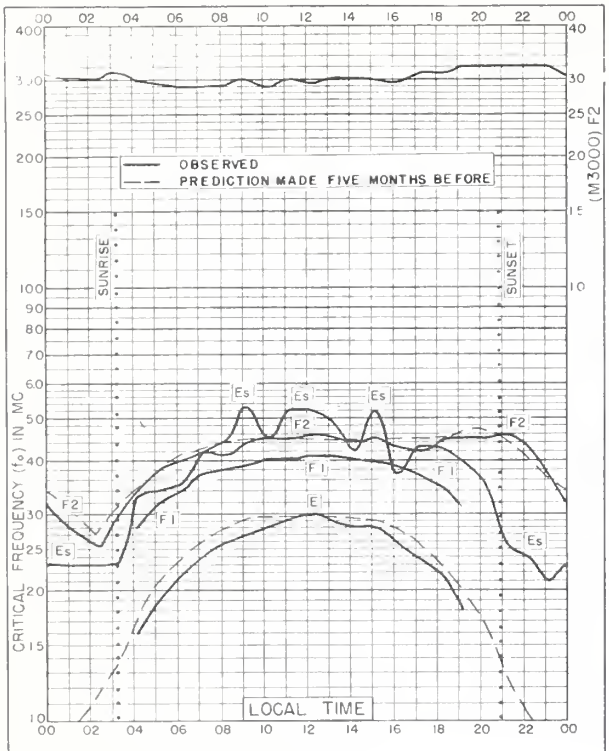


Fig. 77. UPSALA, SWEDEN
59.8°N, 17.6°E JULY 1954

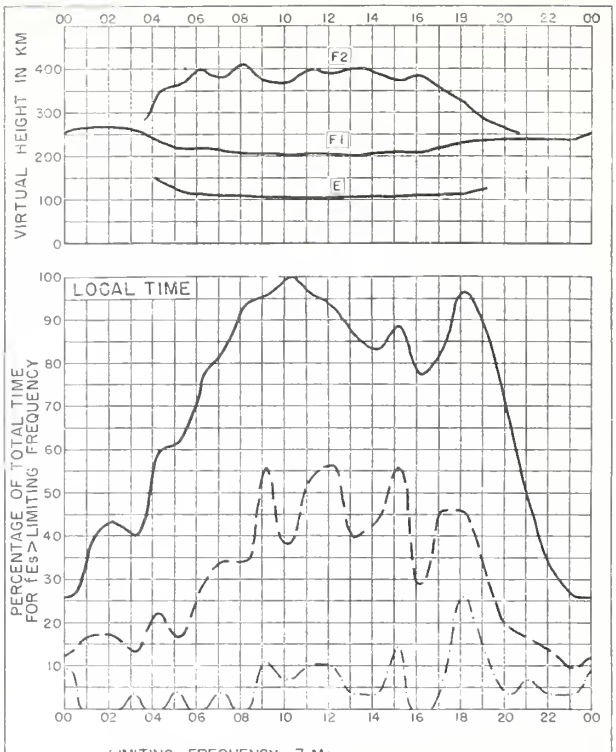


Fig. 78. UPSALA, SWEDEN JULY 1954

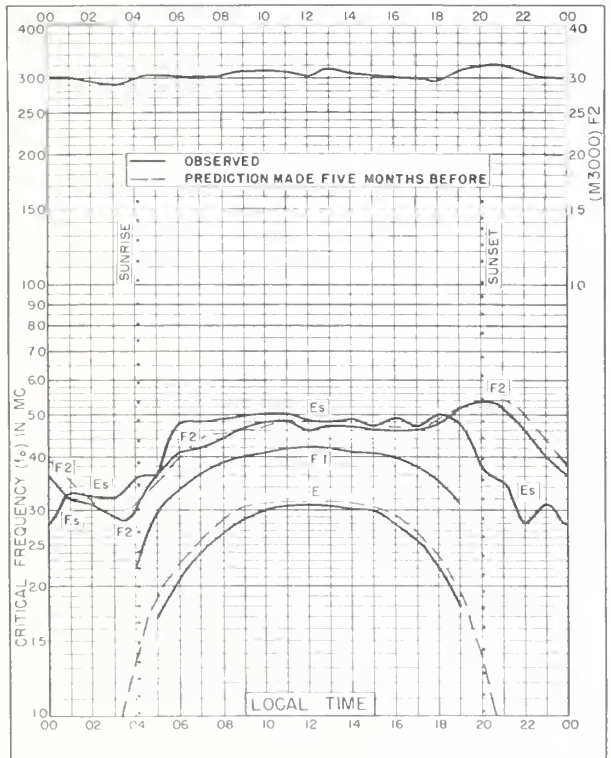


Fig. 79. SLOUGH, ENGLAND
51.5°N, 0.6°W JULY 1954

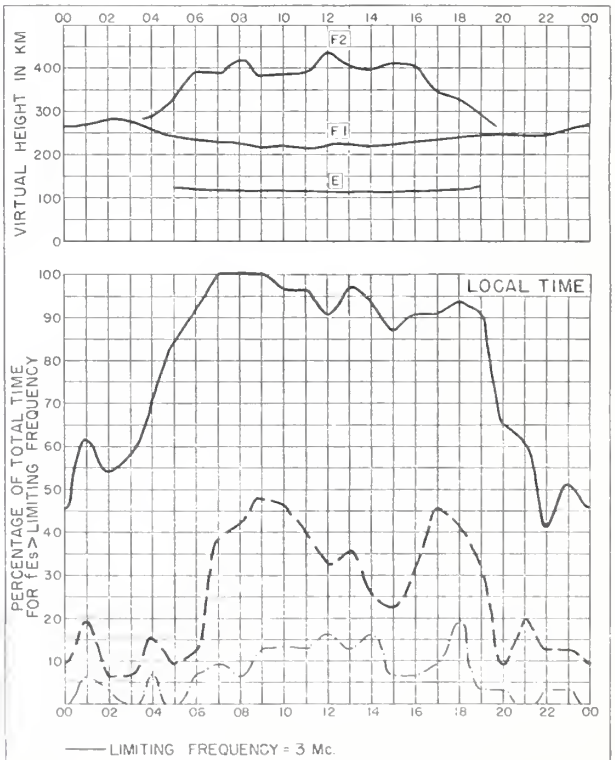


Fig. 80. SLOUGH, ENGLAND JULY 1954

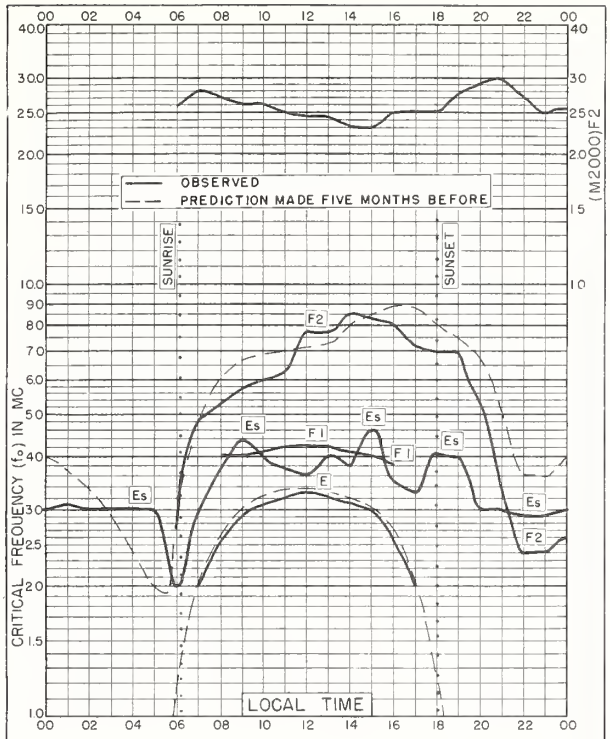


Fig. 81. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E JULY 1954

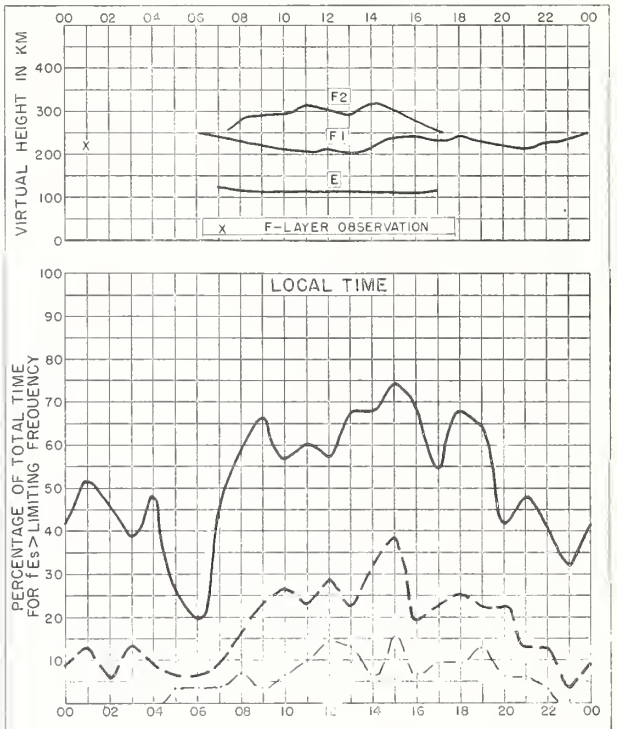


Fig. 82. LEOPOLDVILLE, BELGIAN CONGO JULY 1954

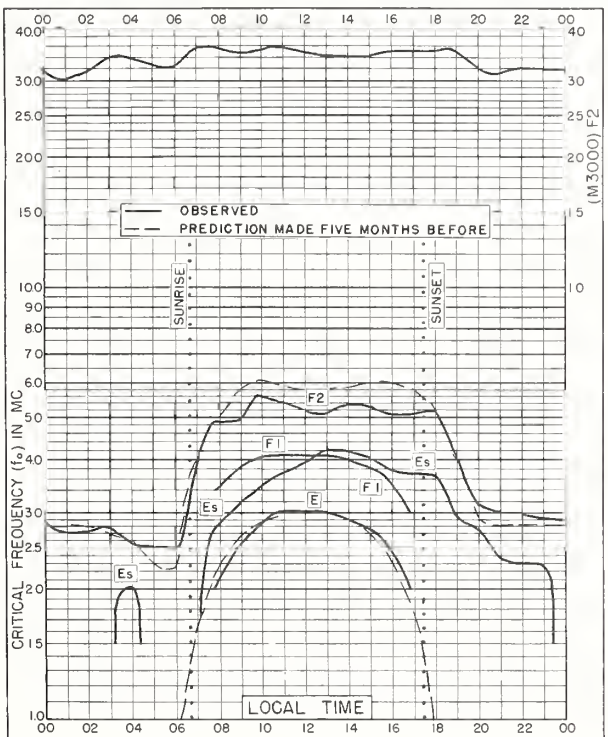


Fig. 83. RAROTONGA I.
21.3°S, 159.8°W JULY 1954

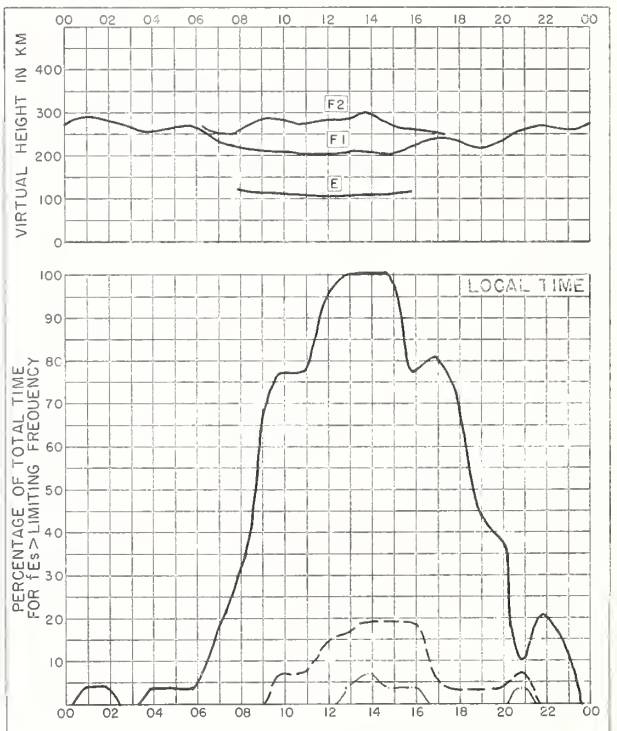


Fig. 84. RAROTONGA I. JULY 1954

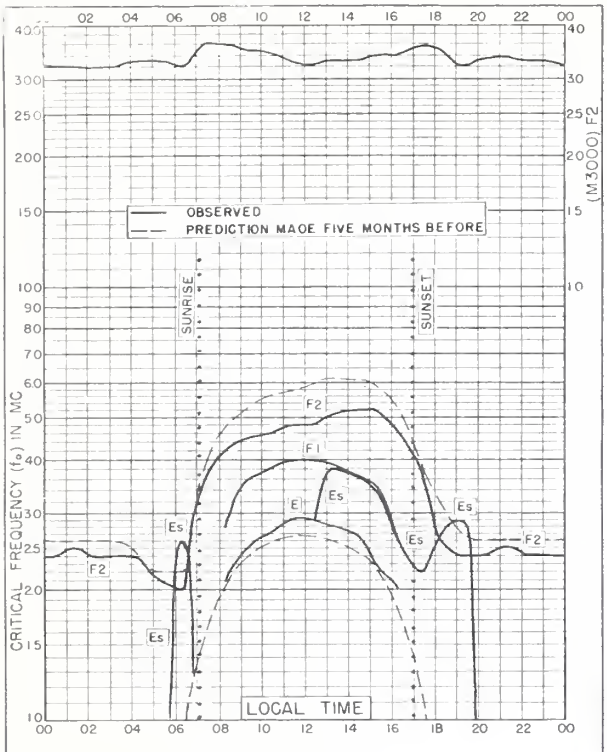
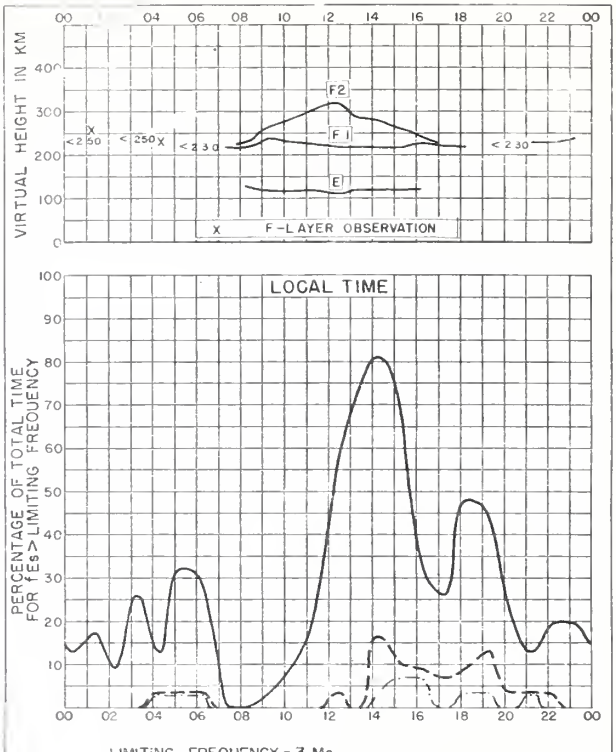


Fig. 85. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E JULY 1954



JULY 1954
Fig. 86. CAPETOWN, UNION OF S. AFRICA

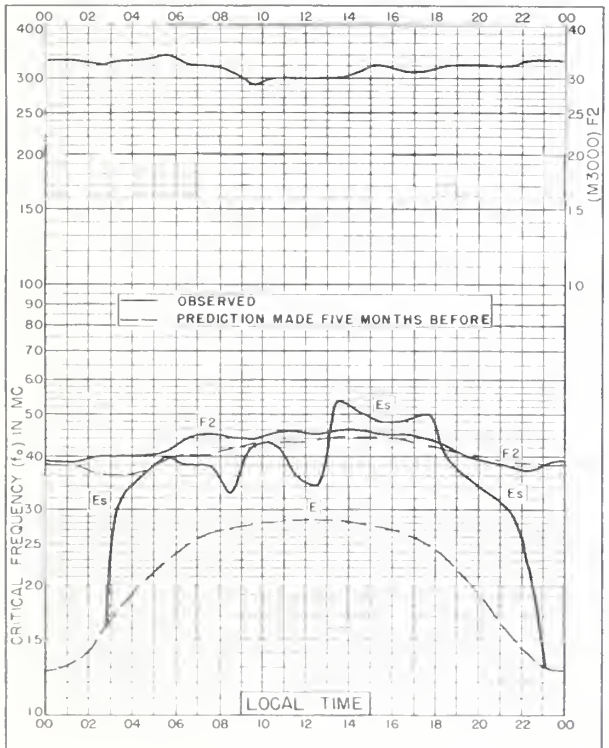


Fig. 87. GODHAVN, GREENLAND
69 2°N, 53. 5°W JUNE 1954

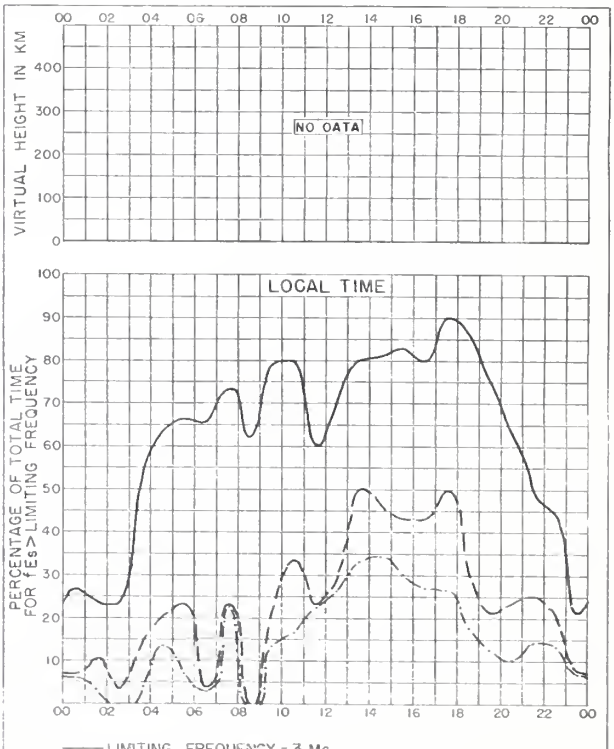


Fig. 88. GODHAVN, GREENLAND JUNE 1954

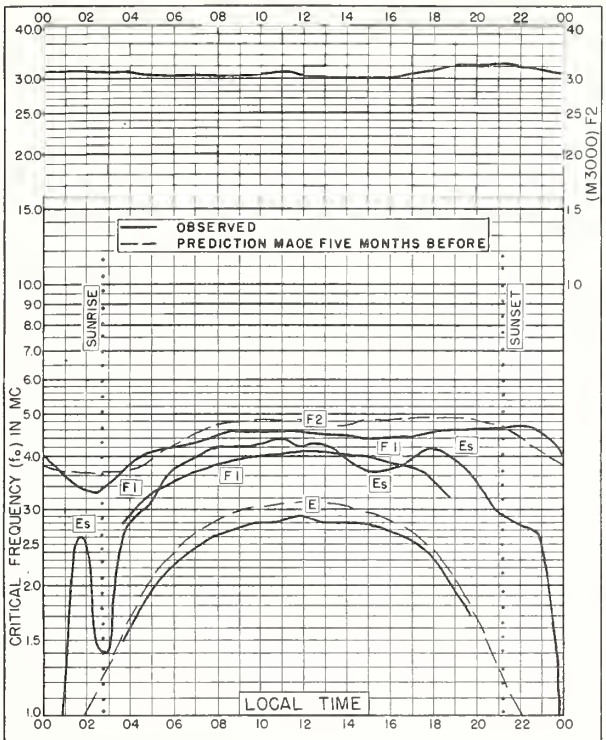


Fig. 89. OSLO, NORWAY
60.0°N, 11.1°E JUNE 1954

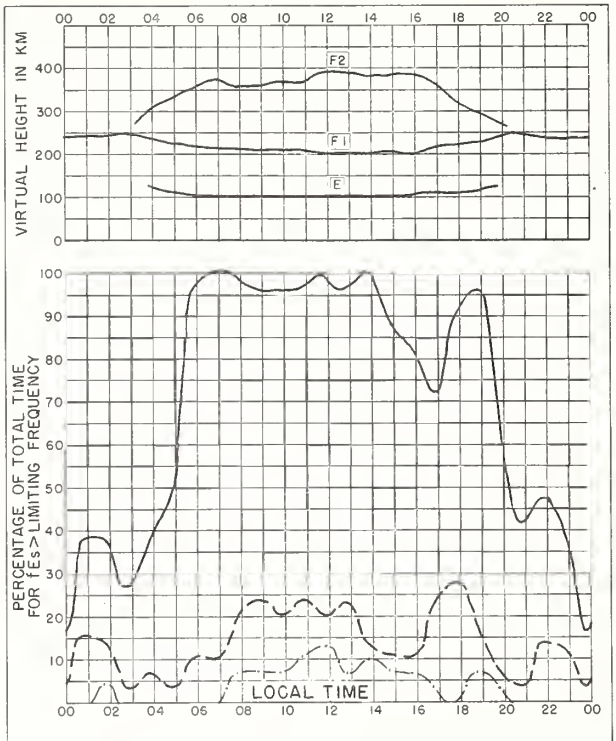


Fig. 90. OSLO, NORWAY JUNE 1954

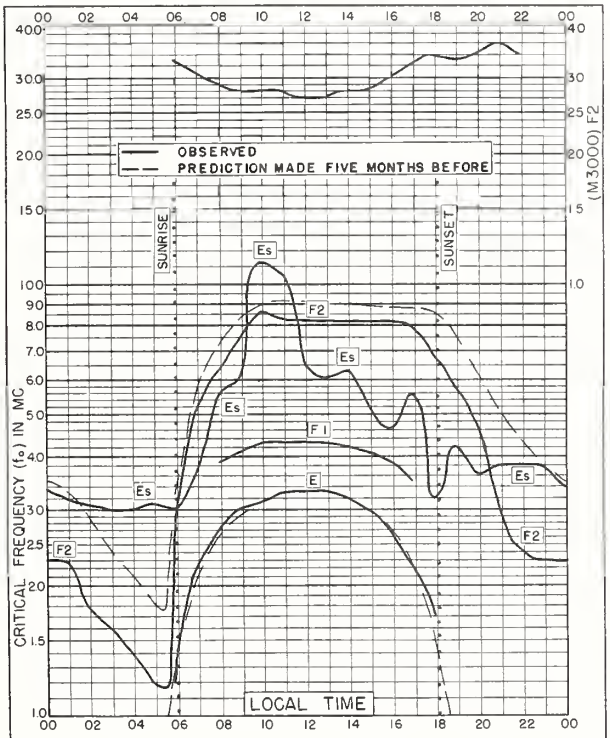


Fig. 91. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JUNE 1954

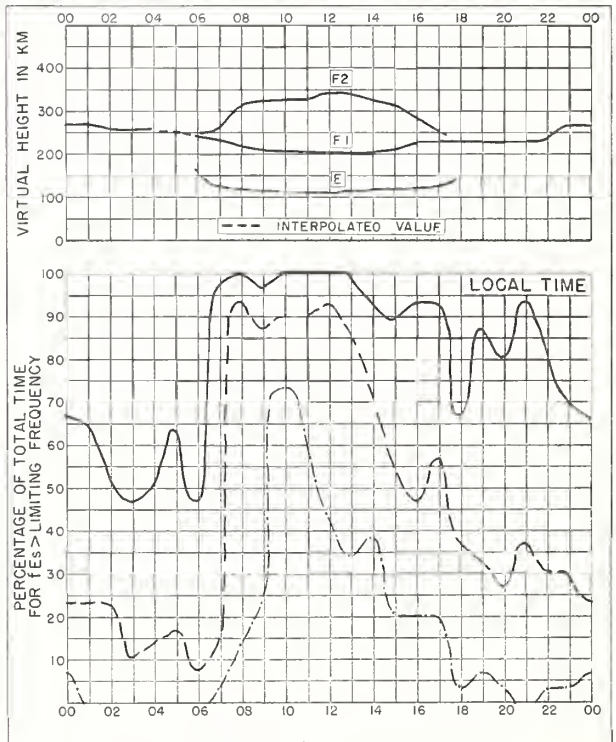


Fig. 92. SINGAPORE, BRITISH MALAYA JUNE 1954

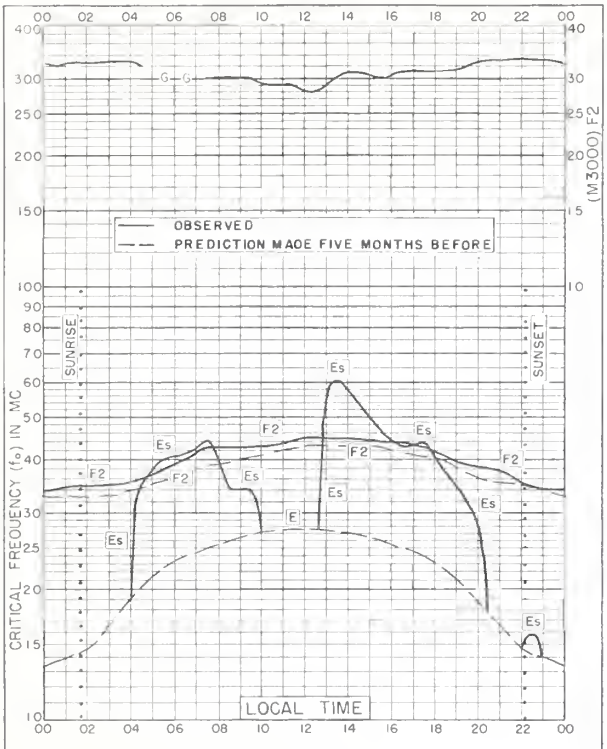


Fig. 93. GODHAVN, GREENLAND
69.2°N, 53.5°W MAY 1954

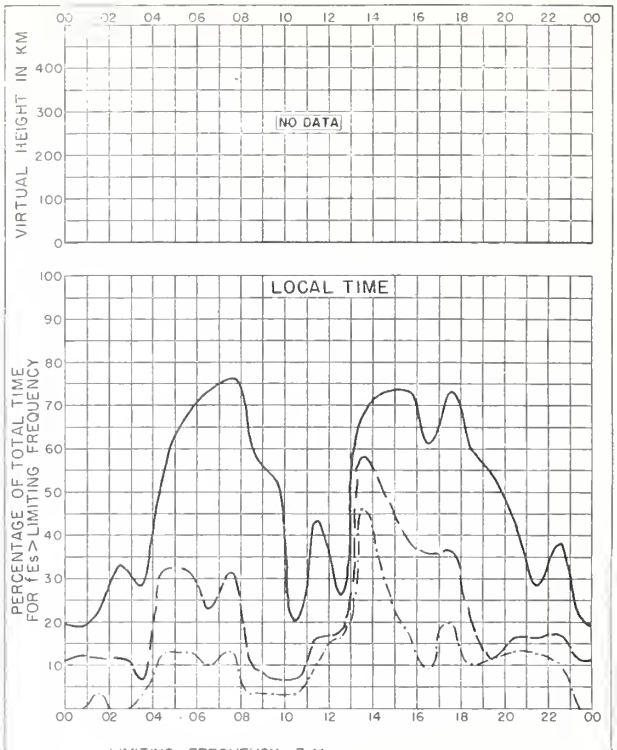


Fig. 94. GODHAVN, GREENLAND MAY 1954

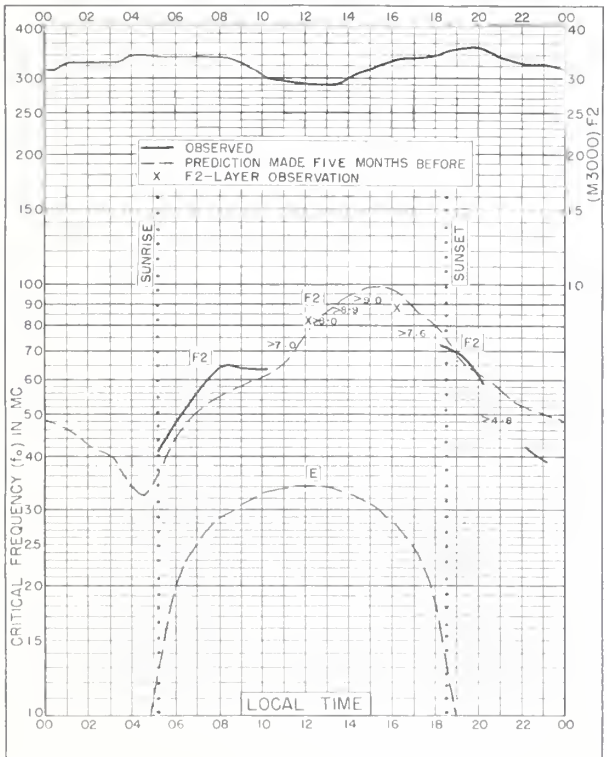


Fig. 95. DELHI, INDIA
28.6°N, 77.1°E MAY 1954

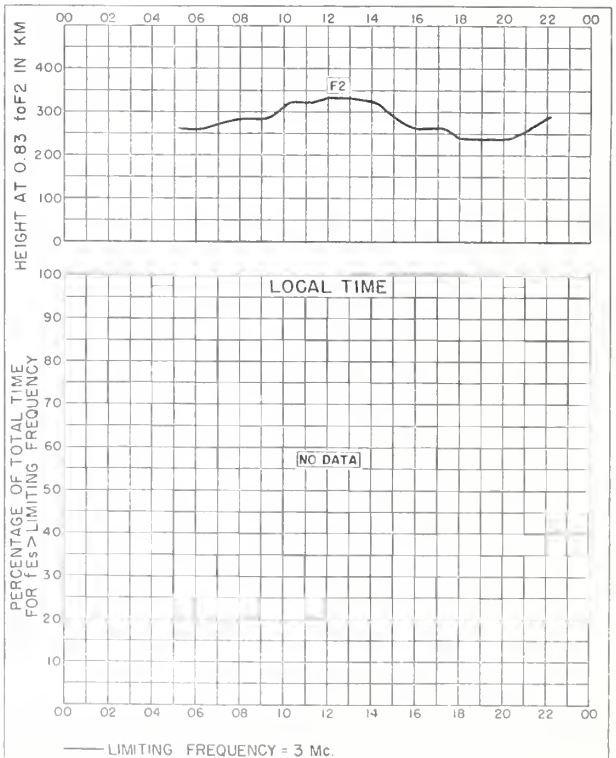


Fig. 96. DELHI, INDIA MAY 1954

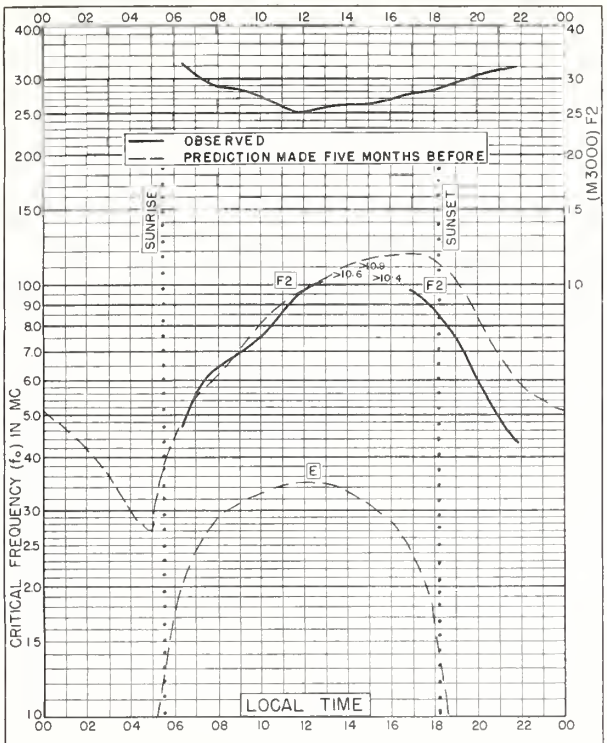


Fig. 97. BOMBAY, INDIA
19.0°N, 73.0°E MAY 1954

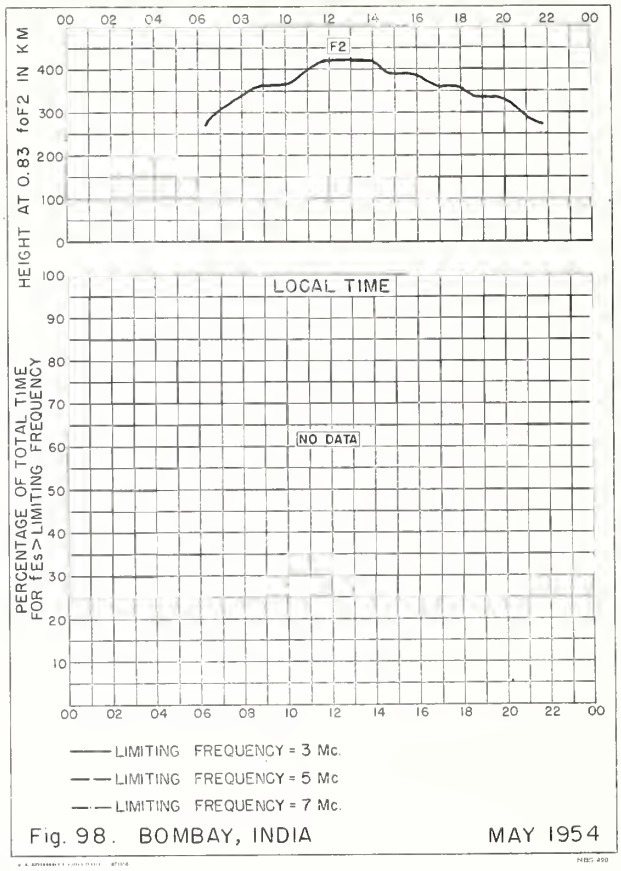


Fig. 98. BOMBAY, INDIA MAY 1954

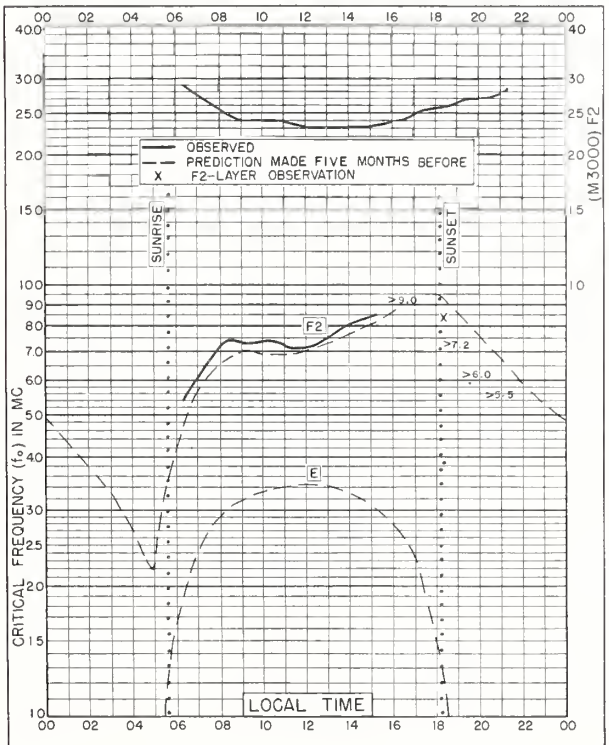


Fig. 99. MADRAS, INDIA
13.0°N, 80.2°E MAY 1954

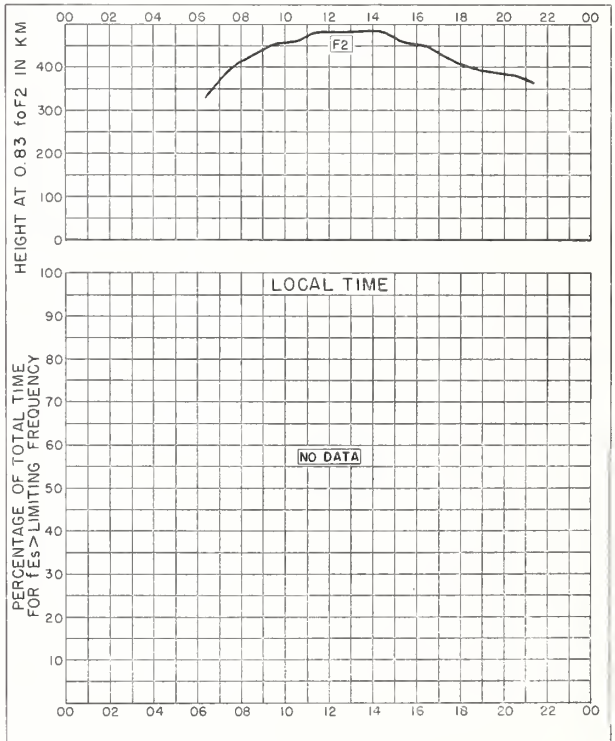


Fig. 100. MADRAS, INDIA MAY 1954

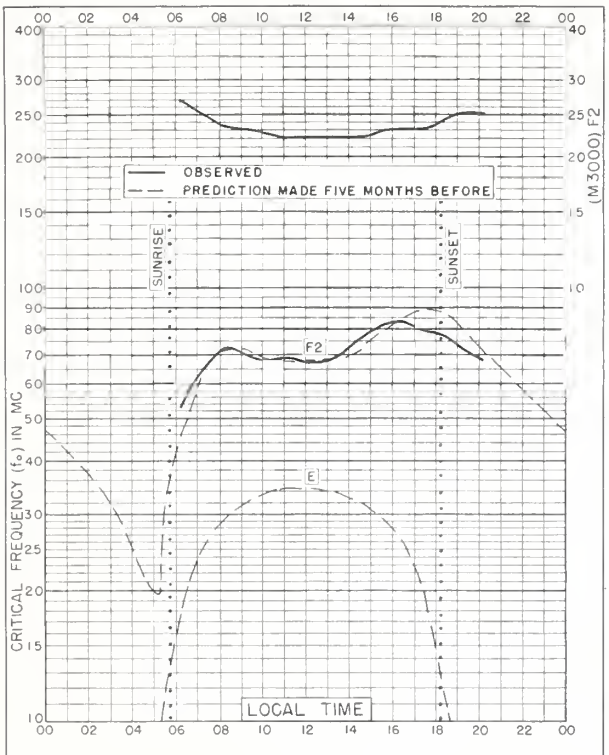


Fig. 101. TIRUCHY, INDIA
10.8°N, 78.8°E MAY 1954

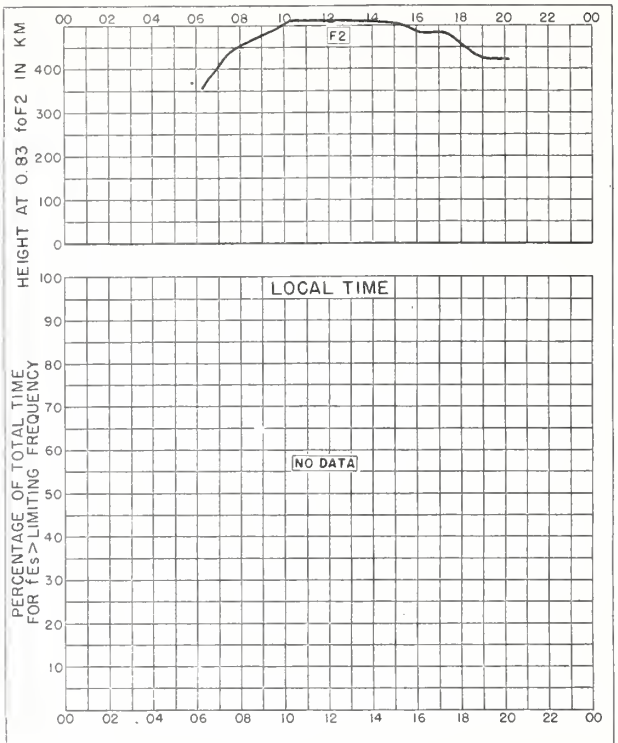


Fig. 102. TIRUCHY, INDIA MAY 1954

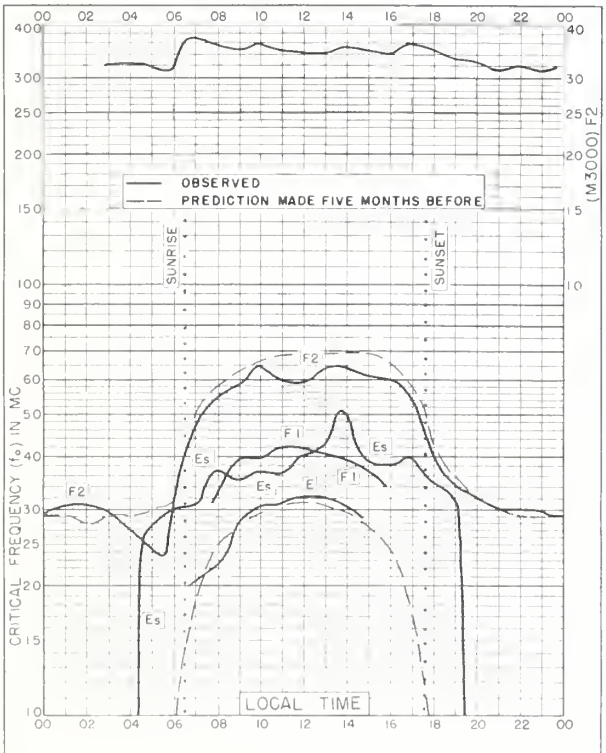


Fig. 103. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MAY 1954

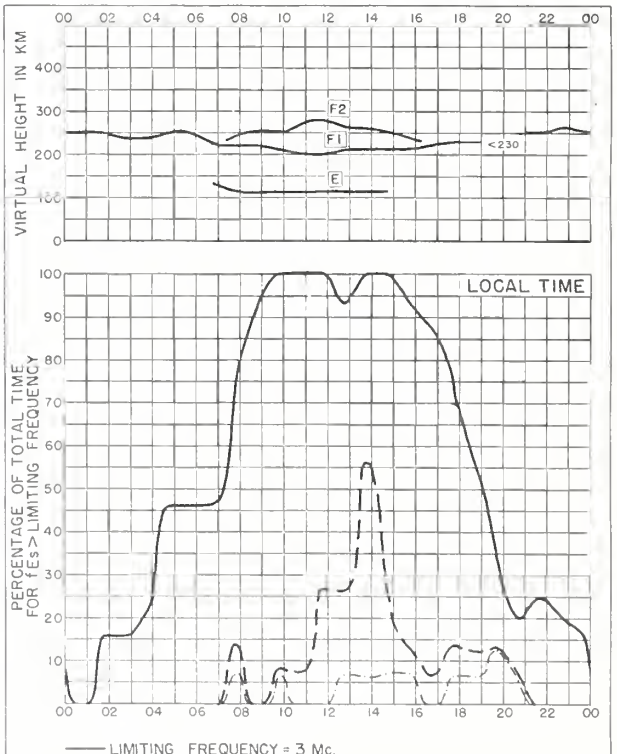


Fig. 104. TOWNSVILLE, AUSTRALIA MAY 1954

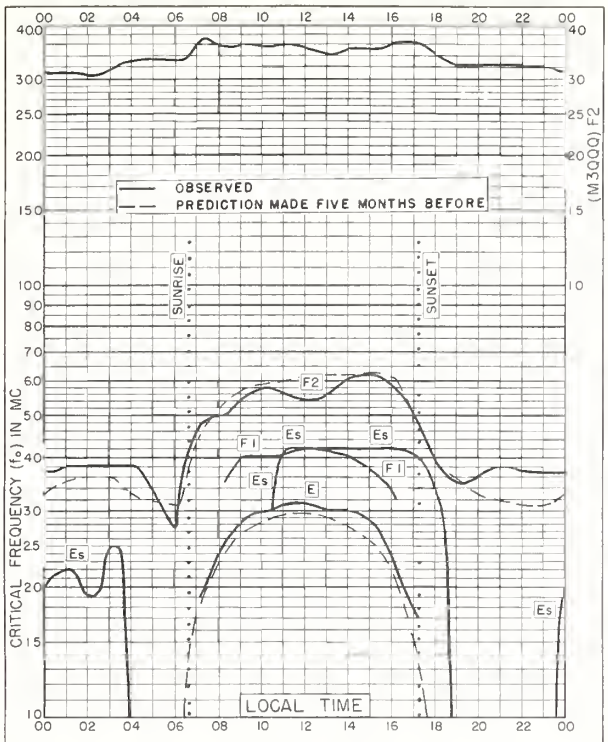


Fig. 105. BRISBANE, AUSTRALIA
27.5°S, 153.0°E MAY 1954

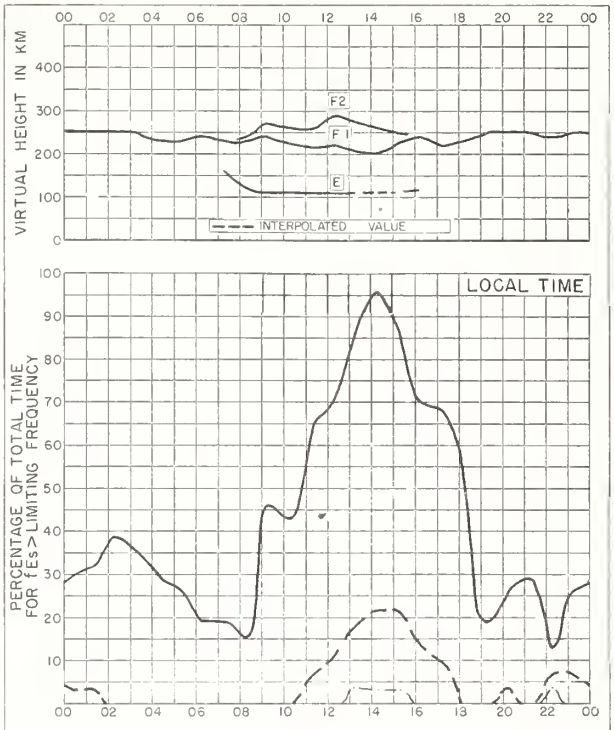


Fig. 106. BRISBANE, AUSTRALIA MAY 1954

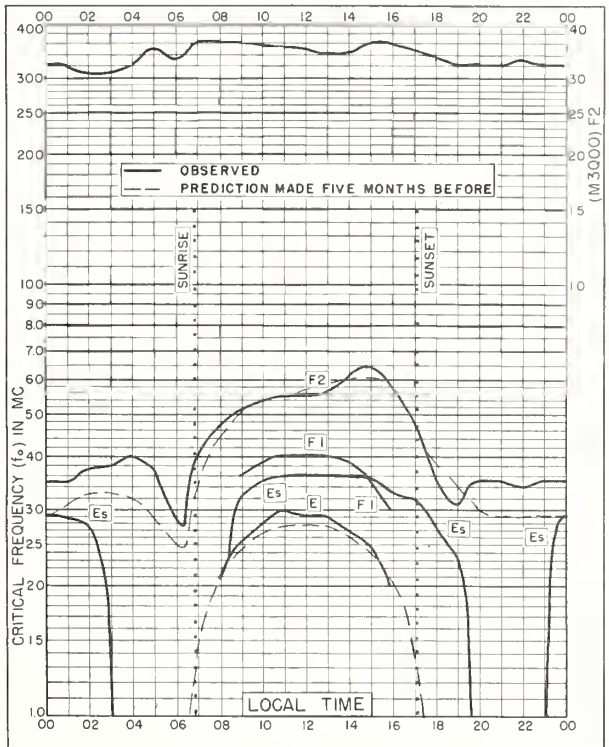


Fig. 107. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MAY 1954

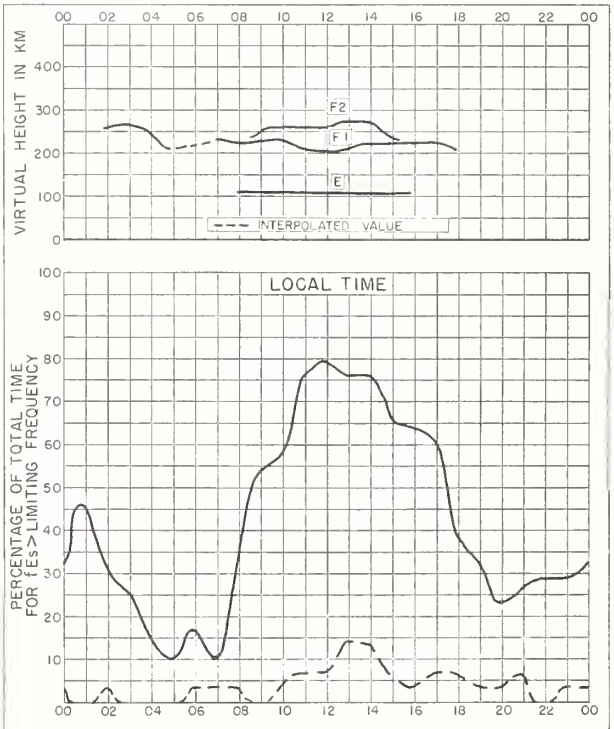


Fig. 108. CANBERRA, AUSTRALIA MAY 1954

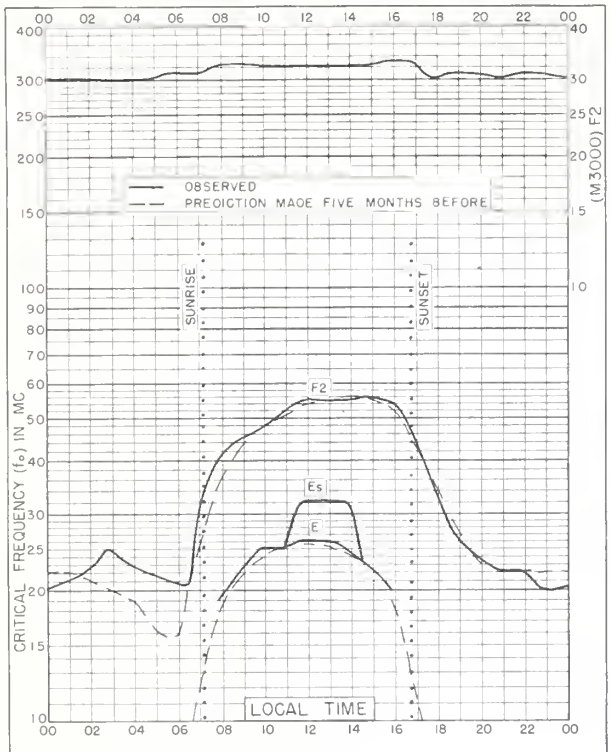


Fig. 109. HOBART, TASMANIA
42.9°S, 147.3°E MAY 1954

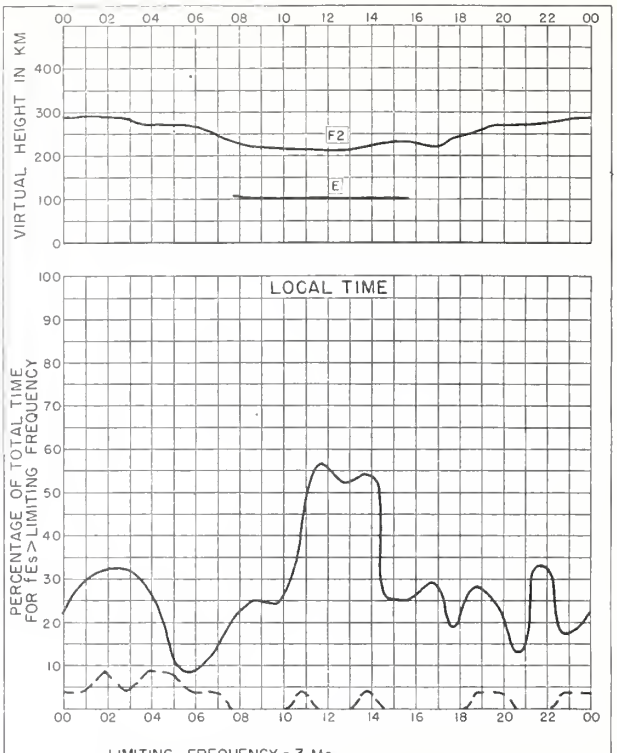


Fig. 110. HOBART, TASMANIA MAY 1954

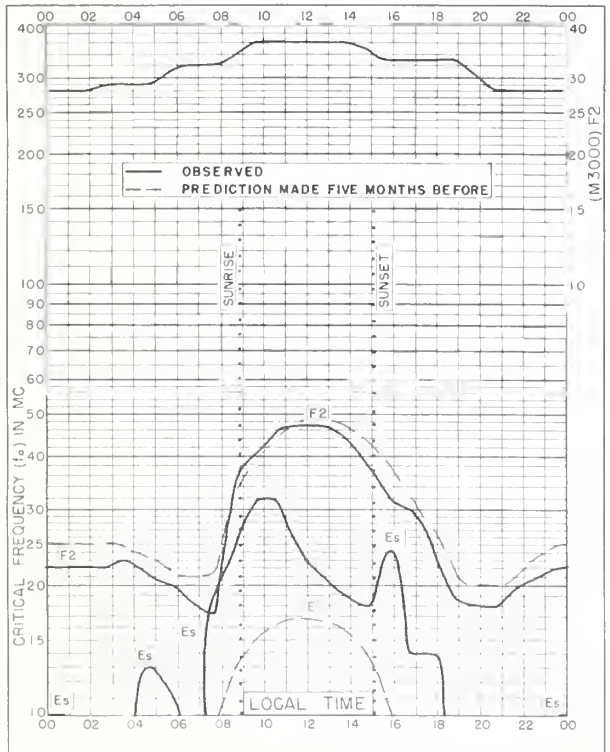


Fig 111. PORT LOCKROY
64.8°S, 63.5°W MAY 1954

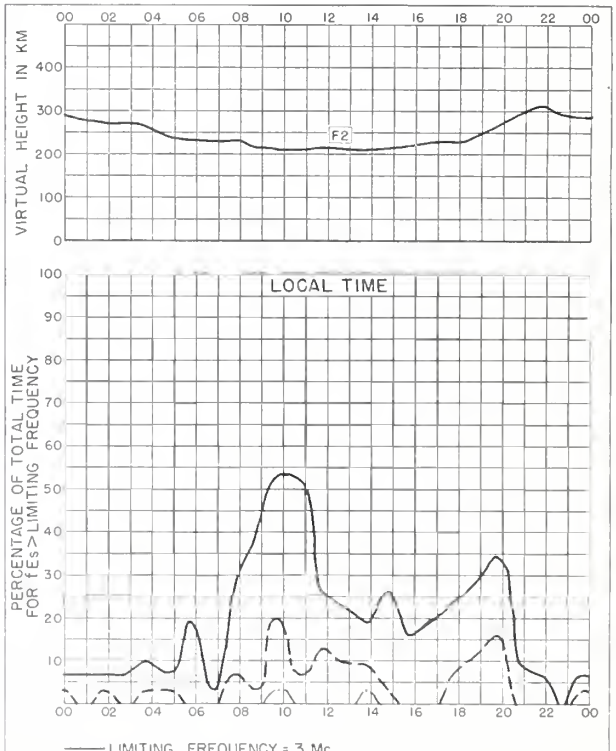


Fig. 112. PORT LOCKROY MAY 1954

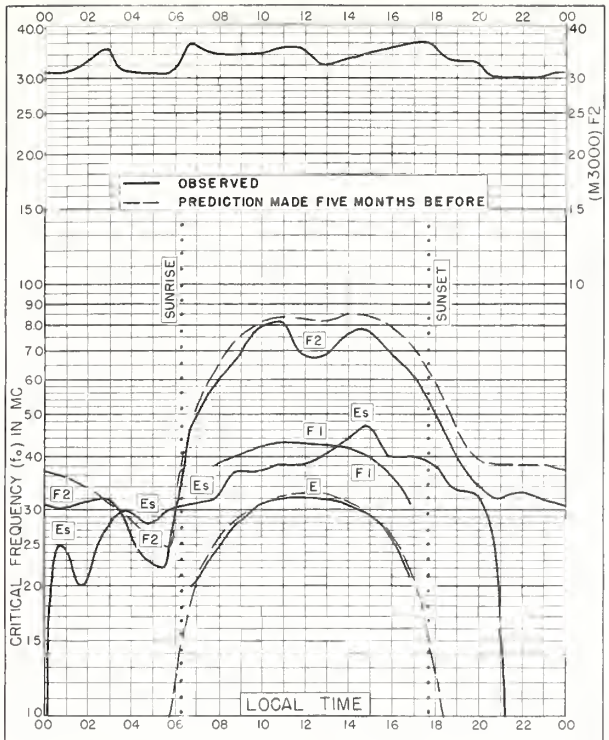


Fig. 113. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E APRIL 1954

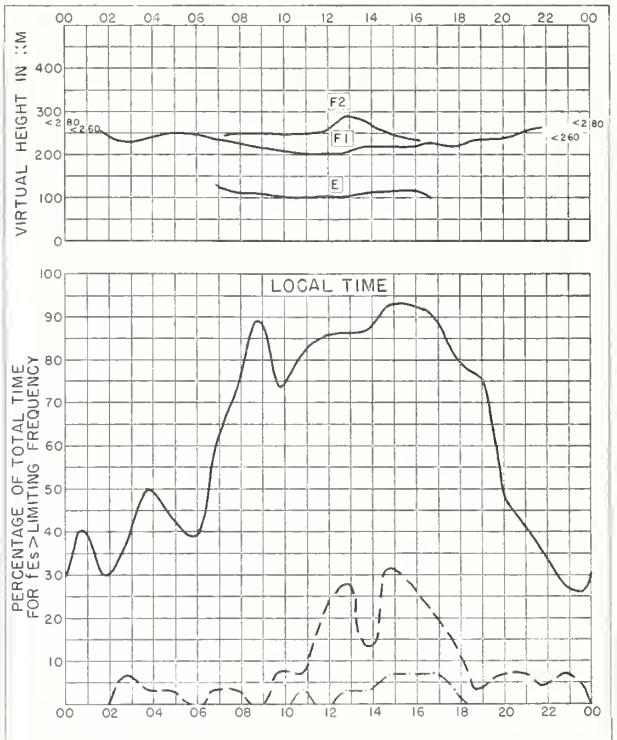


Fig. 114. TOWNSVILLE, AUSTRALIA APRIL 1954

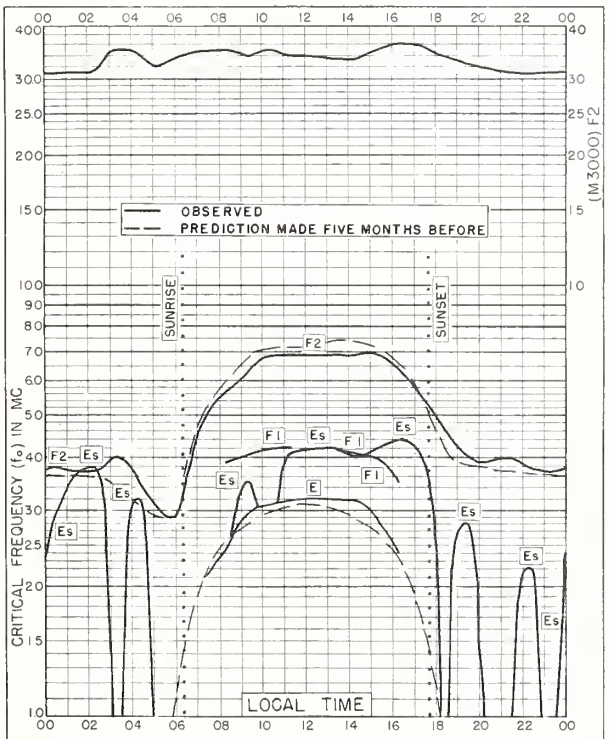


Fig. 115. BRISBANE, AUSTRALIA
27.5°S, 153.0°E APRIL 1954

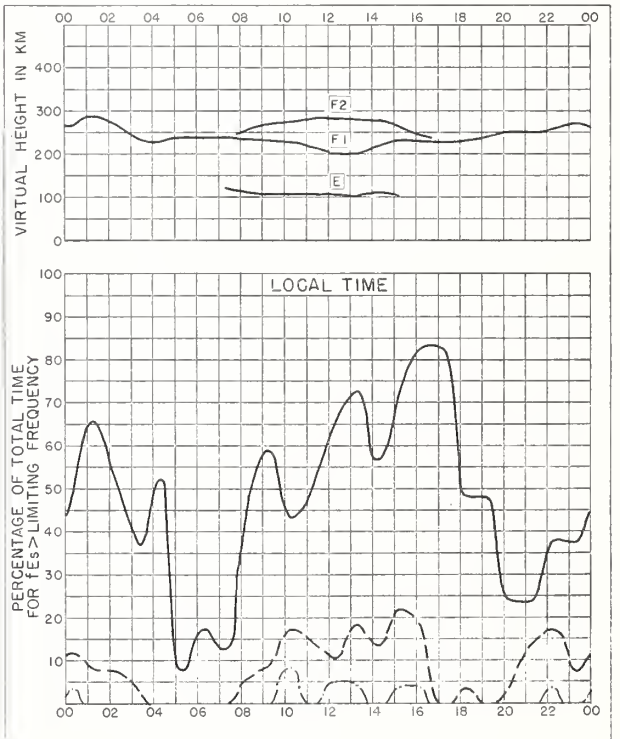


Fig. 116. BRISBANE, AUSTRALIA APRIL 1954

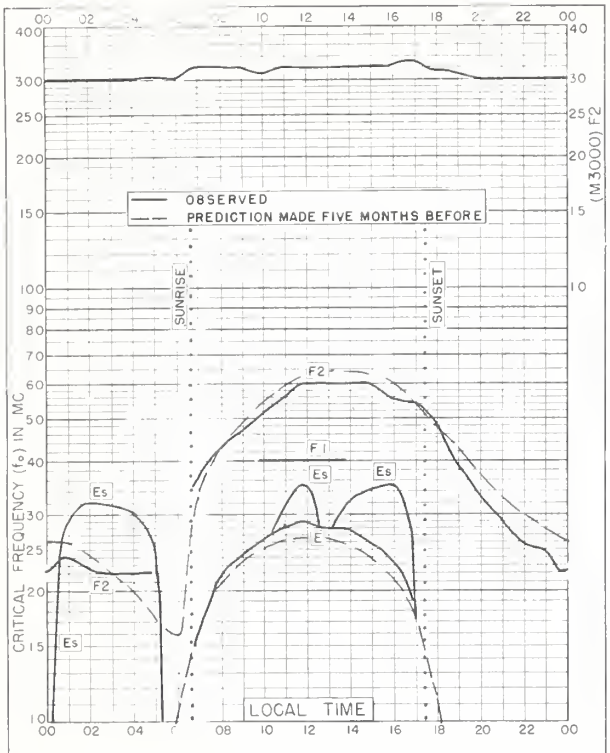


Fig. 117. HOBART, TASMANIA
42.9°S, 147.3°E APRIL 1954

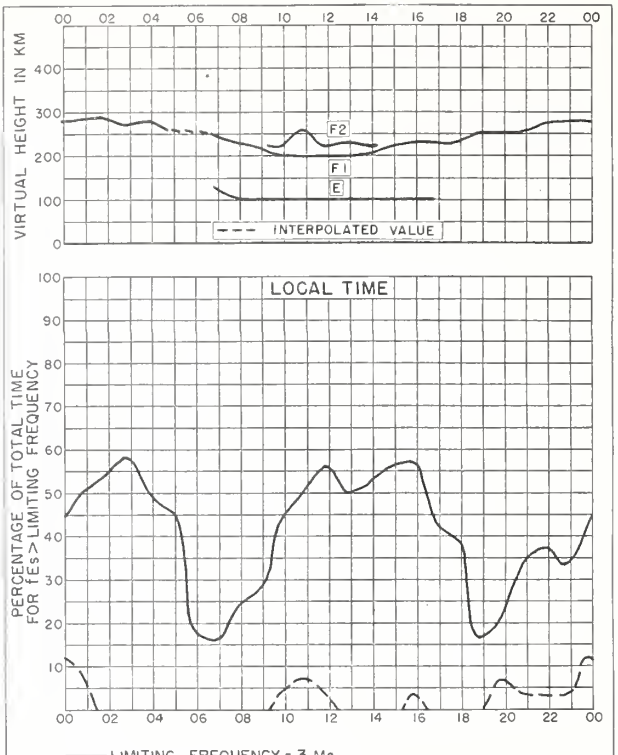


Fig. 118. HOBART, TASMANIA APRIL 1954

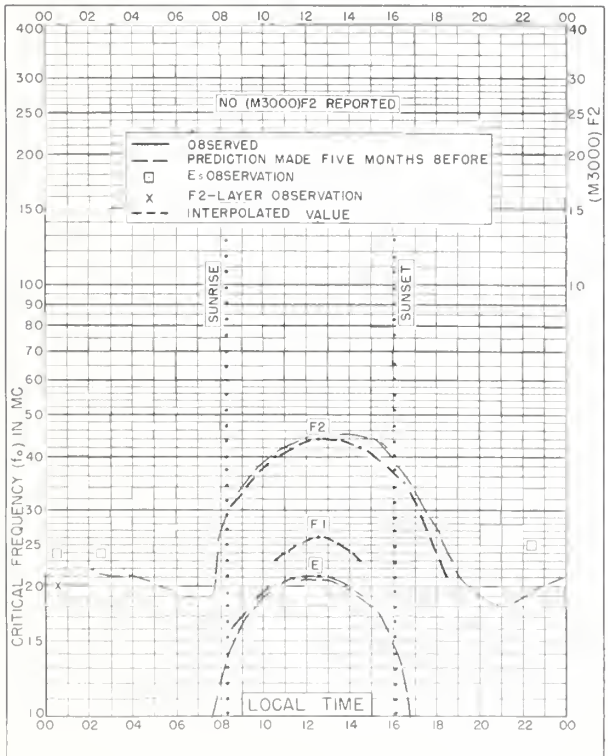


Fig. 119. LULEA, SWEDEN
65.6°N, 22.1°E FEBRUARY 1954

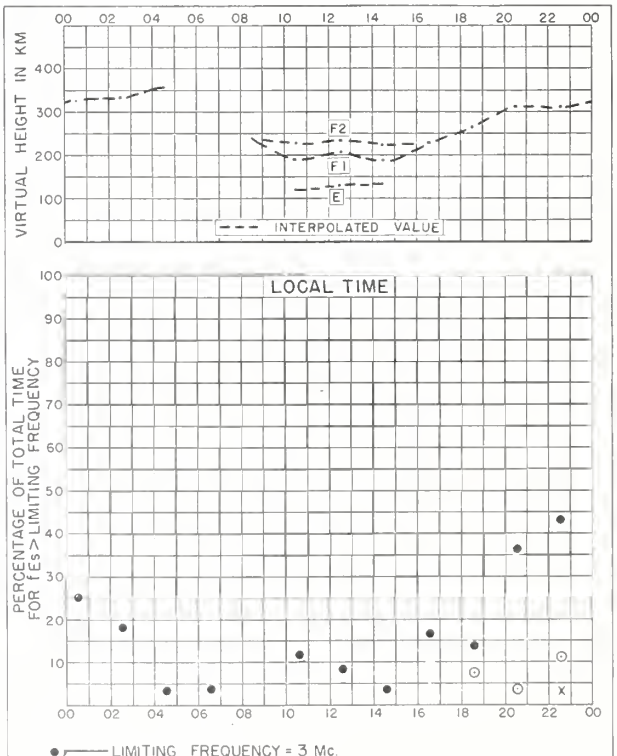


Fig. 120. LULEA, SWEDEN FEBRUARY 1954

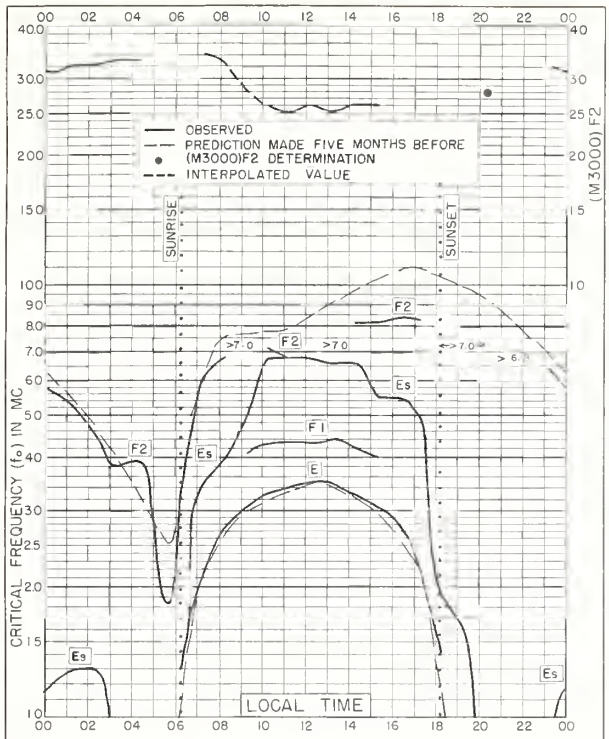


Fig. 121. IBADAN, NIGERIA
7.4°N, 4.0°E FEBRUARY 1954

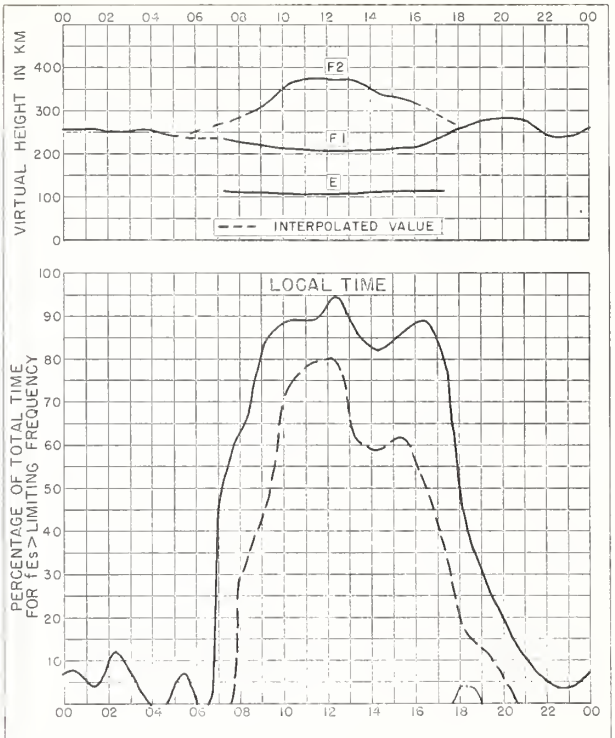


Fig. 122. IBADAN, NIGERIA FEBRUARY 1954

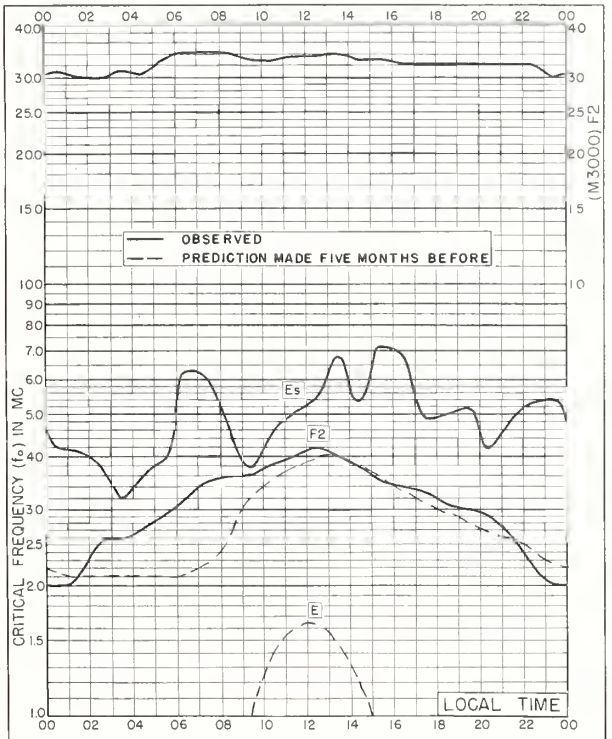


Fig. 123. GODHAVN, GREENLAND
69.2°N, 53.5°W JANUARY 1954

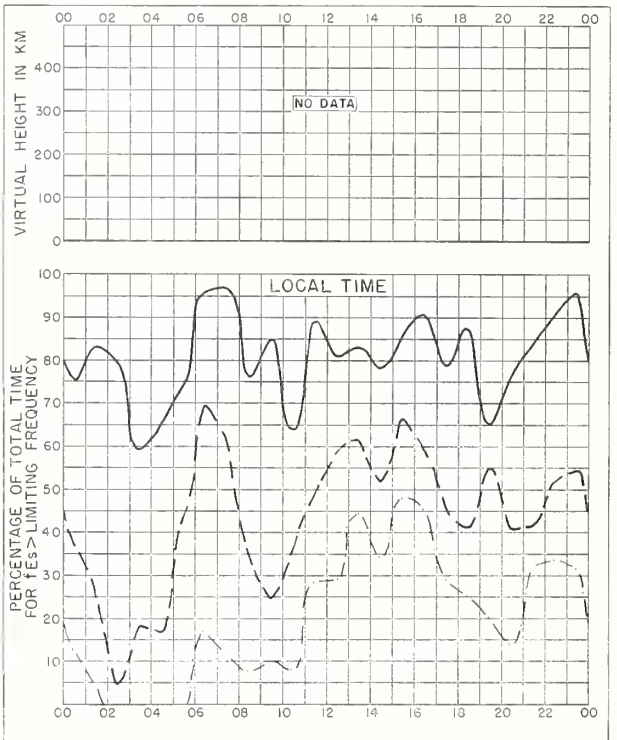


Fig. 124. GODHAVN, GREENLAND JANUARY 1954

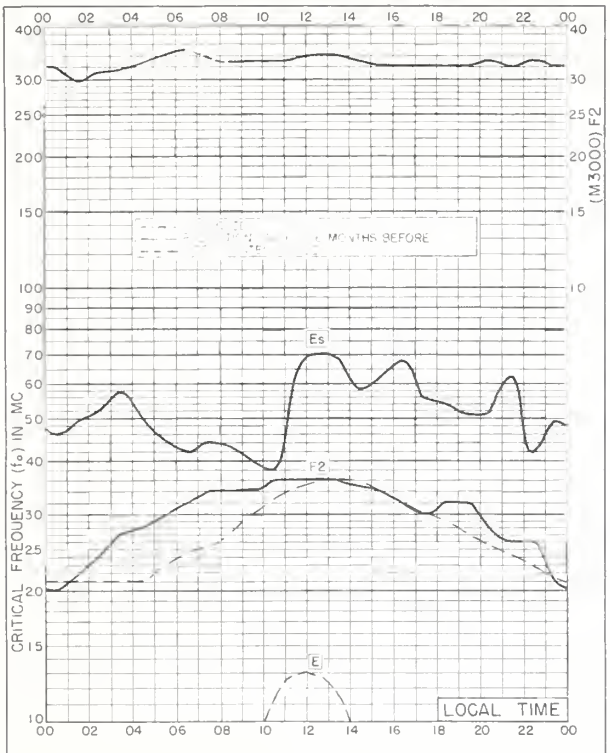
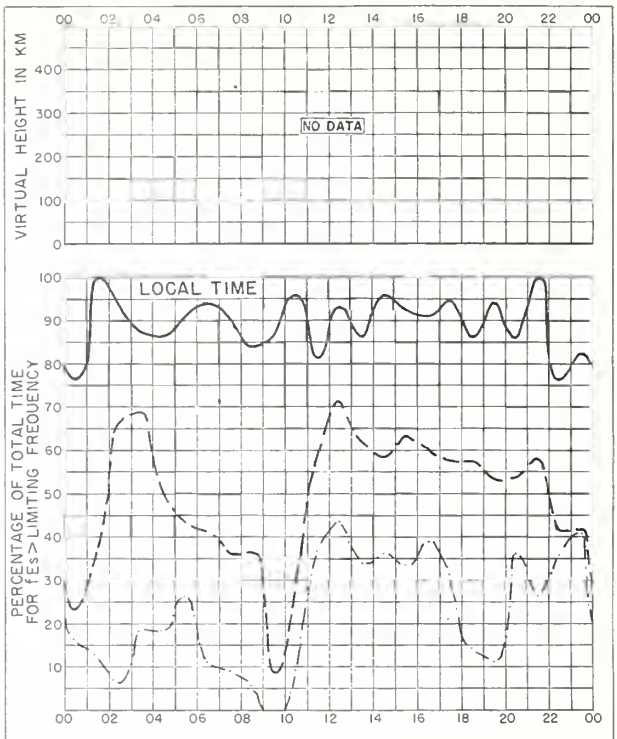


Fig. 125. GODHAVN, GREENLAND
69.2°N, 53.5°W DECEMBER 1953



DECEMBER 1953

Fig. 126. GODHAVN, GREENLAND

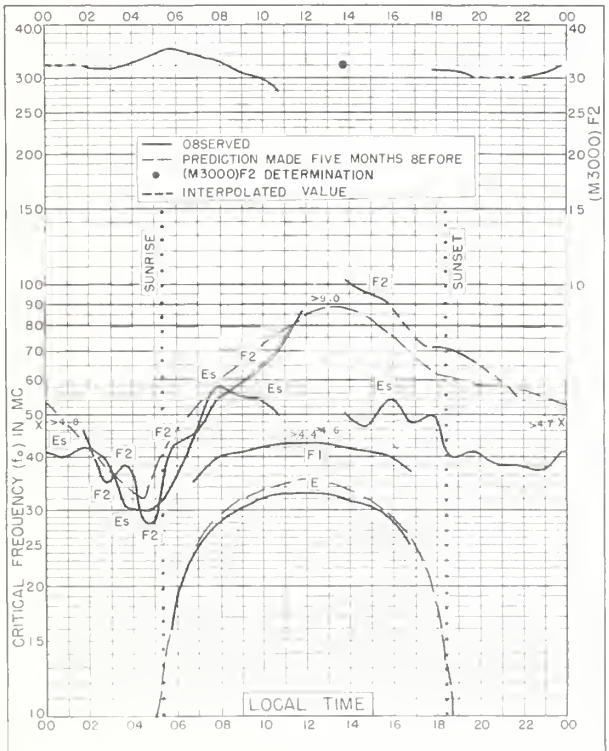
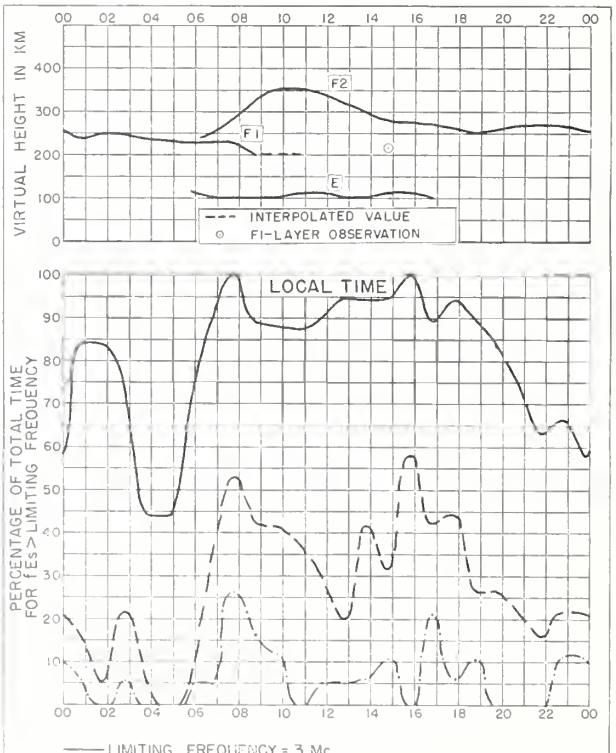


Fig. 127. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E DECEMBER 1953



DECEMBER 1953

Fig. 128. TOWNSVILLE, AUSTRALIA

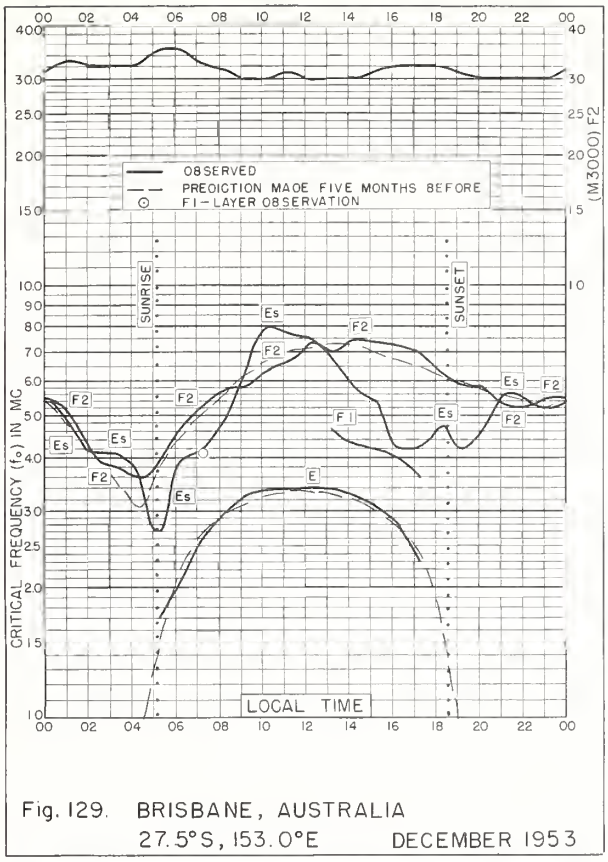
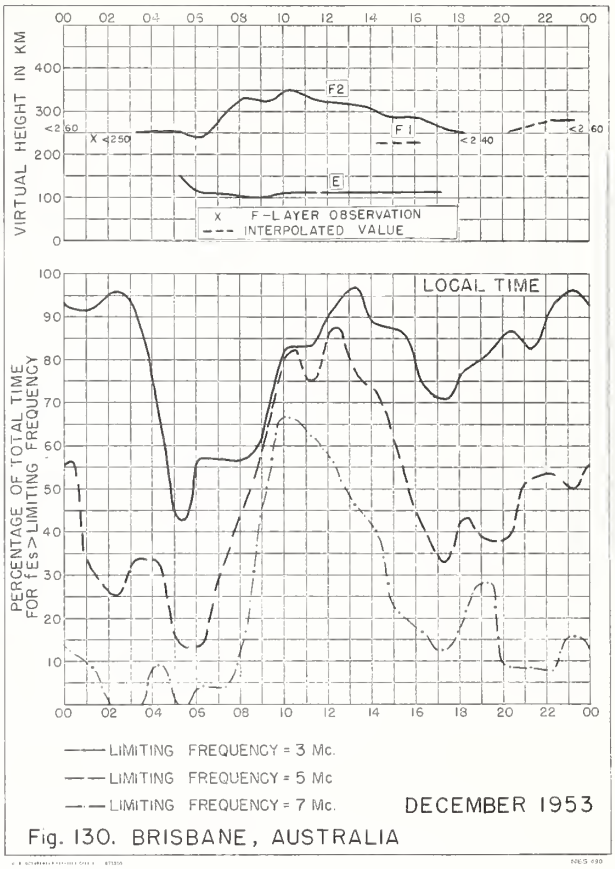


Fig. 129. BRISBANE, AUSTRALIA
27.5°S, 153.0°E DECEMBER 1953



DECEMBER 1953

Fig. 130. BRISBANE, AUSTRALIA

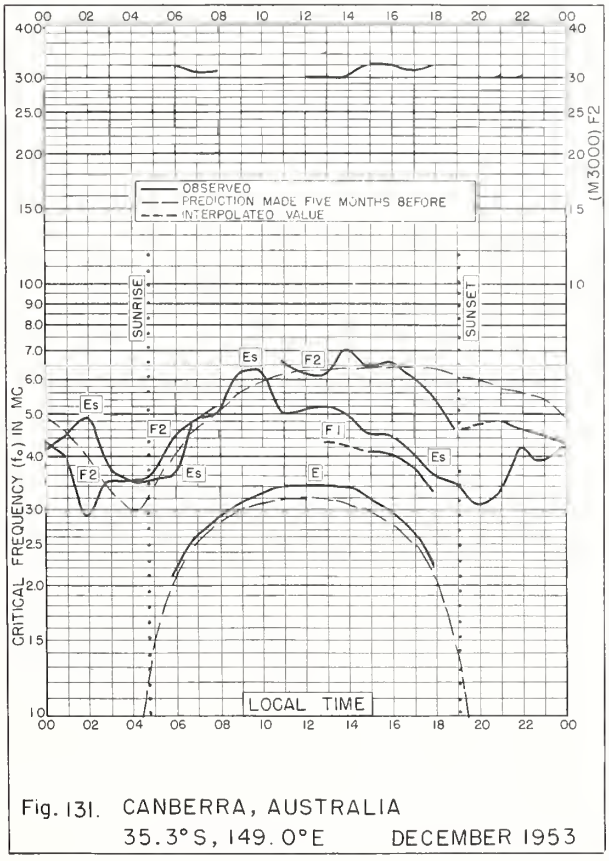
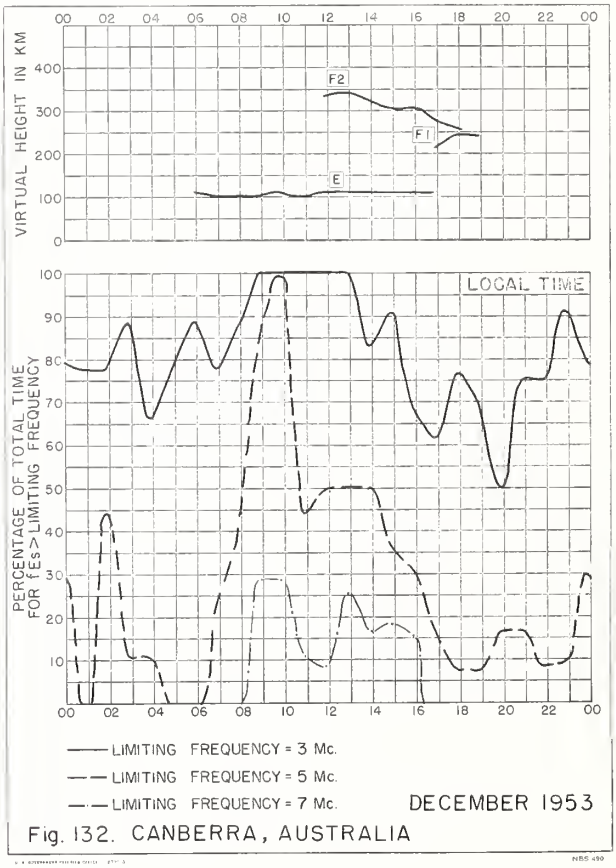


Fig. 131. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1953



DECEMBER 1953

Fig. 132. CANBERRA, AUSTRALIA

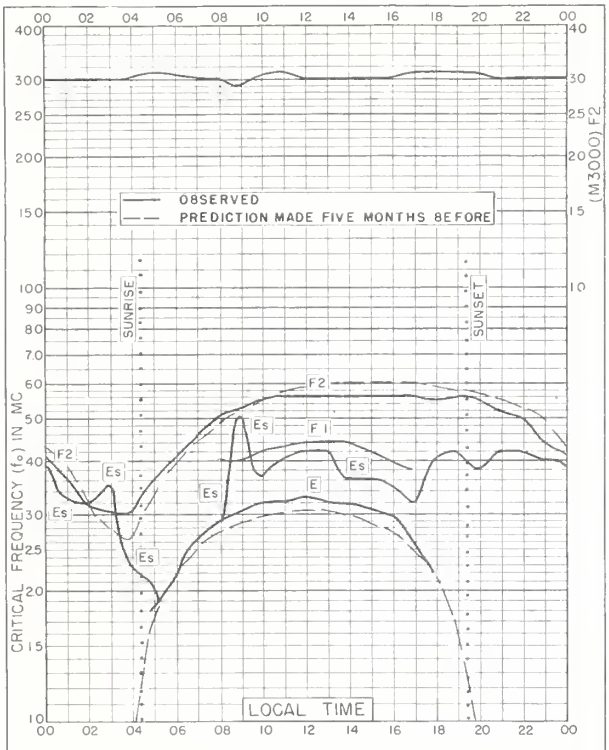


Fig. 133. HOBART, TASMANIA
42.9°S, 147.3°E DECEMBER 1953

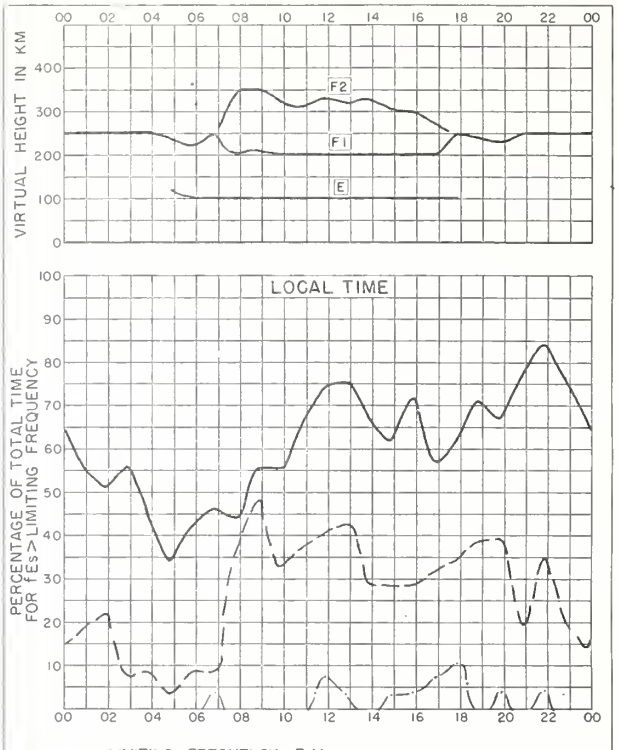


Fig. 134. HOBART, TASMANIA DECEMBER 1953

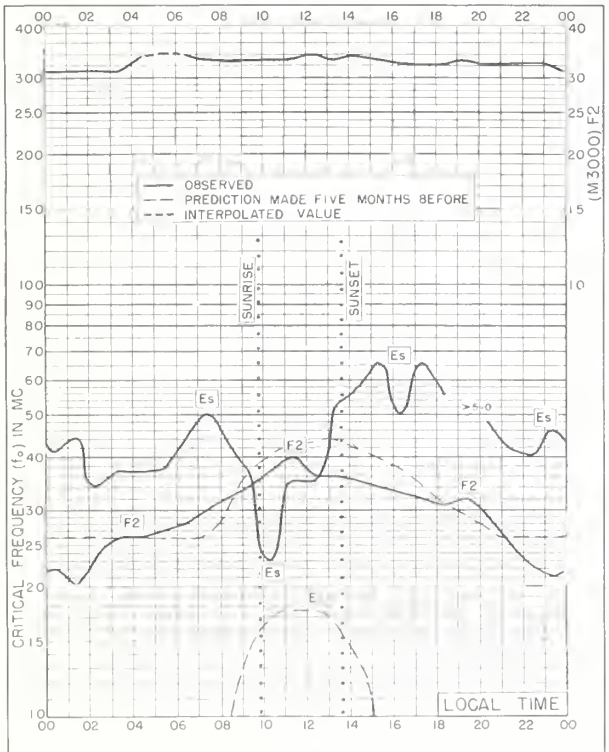


Fig. 135. GODHAVN, GREENLAND
69.2°N, 53.5°W NOVEMBER 1953

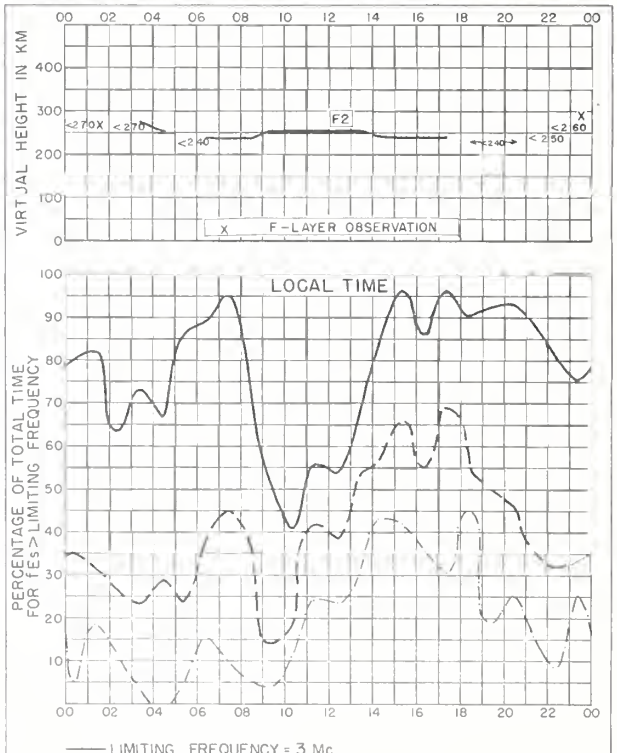


Fig. 136. GODHAVN, GREENLAND NOVEMBER 1953

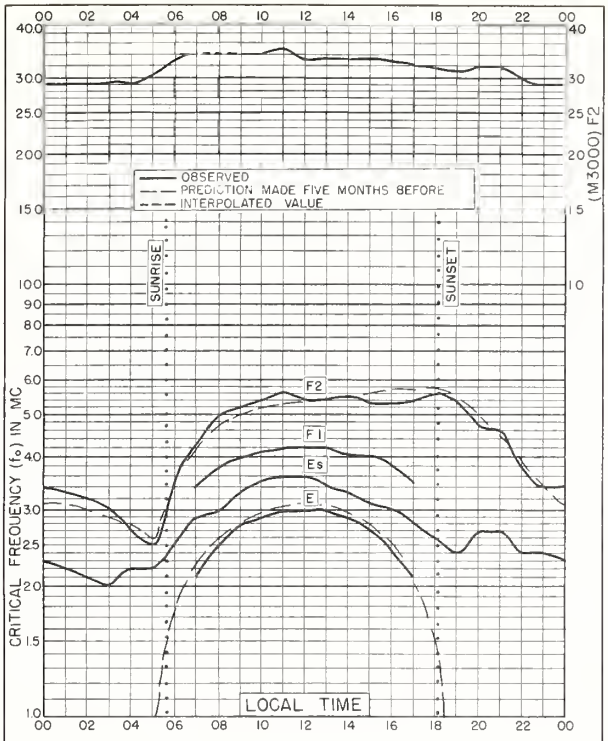


Fig. 137. POITIERS, FRANCE
46.6°N, 0.3°E SEPTEMBER 1953

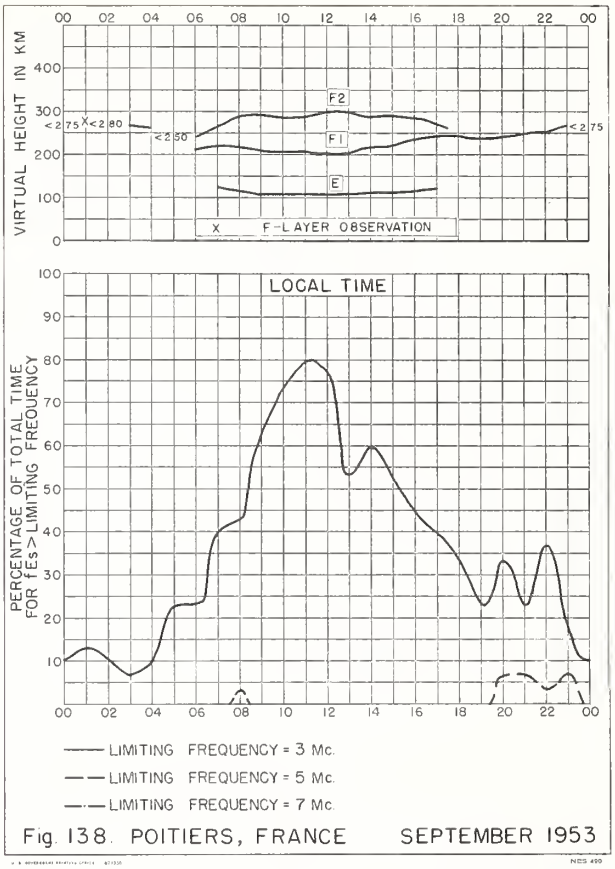


Fig. 138. POITIERS, FRANCE SEPTEMBER 1953

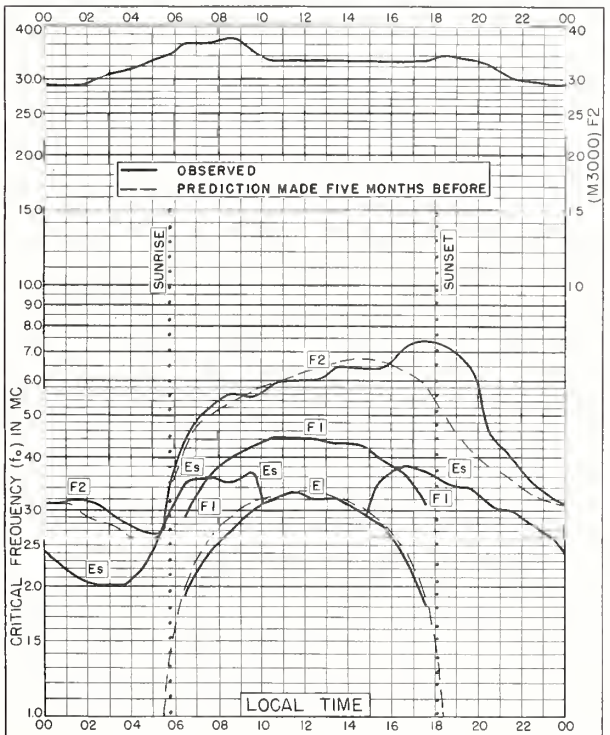


Fig. 139. CASABLANCA, MOROCCO
33.6°N, 7.6°W SEPTEMBER 1953

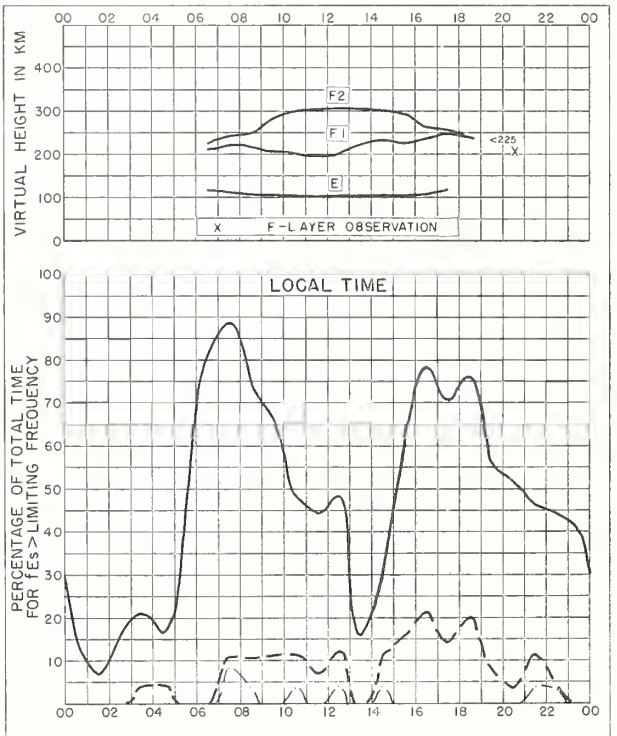


Fig. 140. CASABLANCA, MOROCCO SEPTEMBER 1953

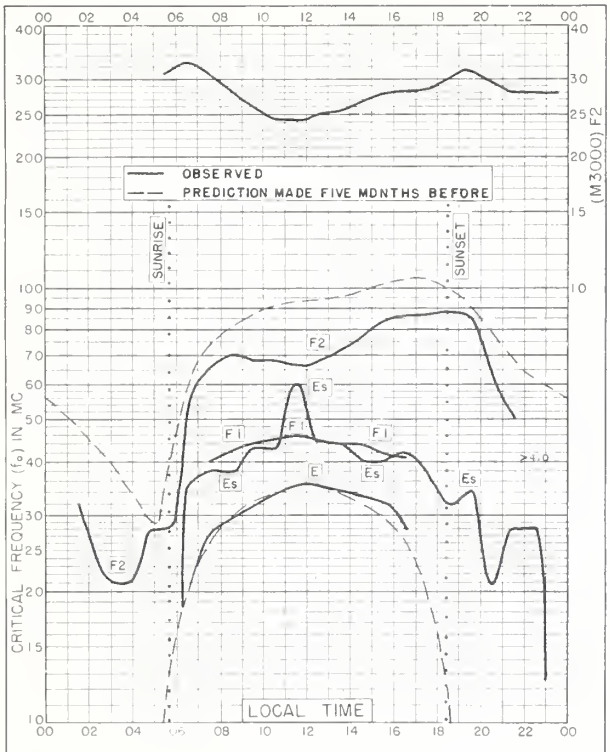
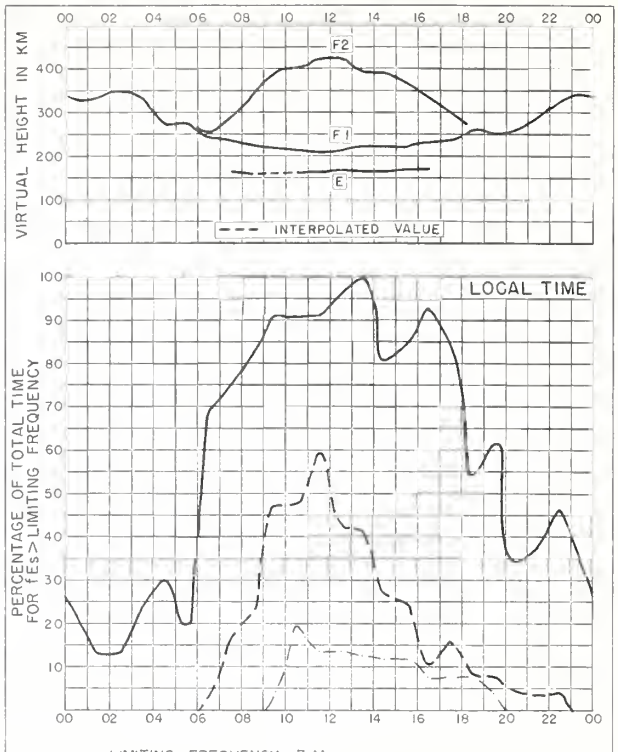


Fig. 141. DJIBOUTI, FRENCH SOMALILAND
11.5°N, 43.1°E JUNE 1953



JUNE 1953
Fig. 142. DJIBOUTI, FRENCH SOMALILAND

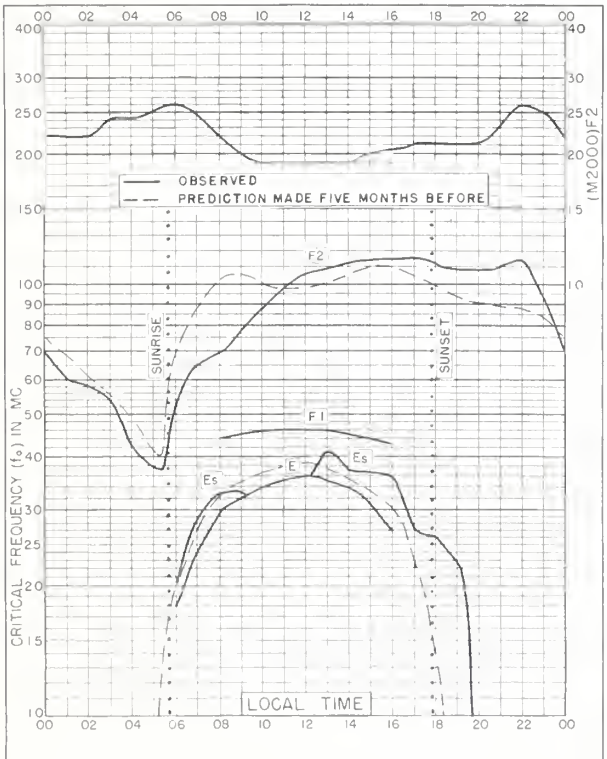
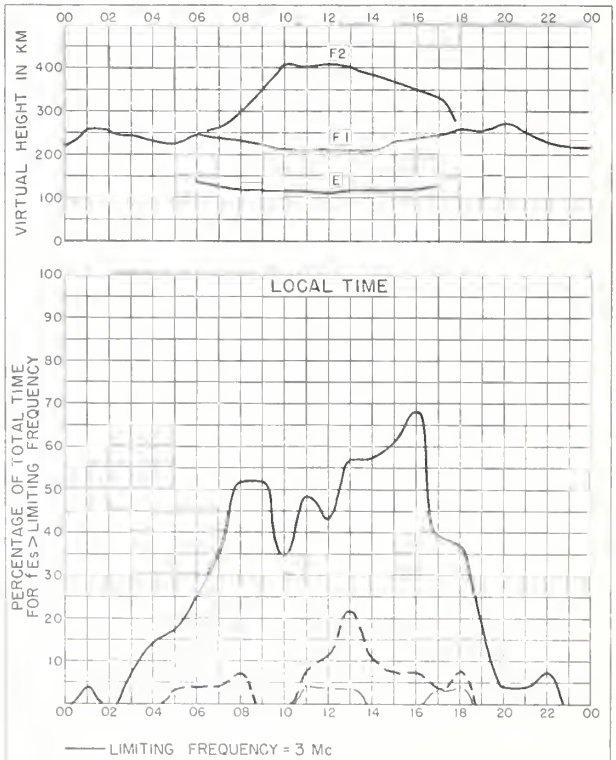


Fig. 143. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E NOVEMBER 1952



NOVEMBER 1952
Fig. 144. LEOPOLDVILLE, BELGIAN CONGO

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