CRPL-F122

FOR OFFICIAL USE

IONOSPHERIC DATA

ISSUED
OCTOBER 1954

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		15	33	53	86	108	114	126	85	38
November		16	38	52	87	112	115	124	83	36
October		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

University of Sao Paulo:
Sao Paulo, Brazil

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

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

French Ministry of National Defense (Section for Scientific Research):
Dakar, French West Africa
Fribourg, Germany
Tananarive, Madagascar

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

Icelandic Post and Telegraph Administration:
Reykjavik. Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee:
Calcutta, India

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

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

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

Manila Observatory:
Baguio, P. I.

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Fairbanks, Alaska (Geophysical Institute of the University of Alaska)
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
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 September 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 August 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 August 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.

OBSERVATIONS OF THE SOLAR CORONA

Tables 88 through 90 give the observations of the solar corona during September 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 September 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 September 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 September 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.

RELATIVE SUNSPOT NUMBERS

Table 94 lists the daily provisional Zürich relative sunspot number, R_Z, for September 1954, as communicated by the Swiss Federal Observatory. Table 95 contains the daily American relative sunspot number, R_A', for August 1954, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 96 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

Tables 97 and 98 list 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 squares 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 99 shows that no sudden ionosphere disturbances were observed at Ft. Belvoir, Virginia, during the month of September 1954.

ERRATUM

CRPL-F120, p. 70, fig. 75: Label on right-hand side should read "(M2000)F2."

TABLES OF IONOSPHERIC DATA

Table 1

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	2.2						3.1
01	(300)	2.3						3.0
02	(290)	2.2						3.1
03	290	2.2						3.1
04	(270)	2.1						3.2
05	(280)	(1.9)						3.2
06	250	3.2	---	---			2.4	3.4
07	260	4.2	230	3.5	110	2.0	3.6	3.4
08	300	4.6	210	3.7	110	2.4	3.3	3.3
09	300	4.8	200	3.9	110	2.7	3.8	3.3
10	320	5.0	200	4.0	110	2.9	3.8	3.2
11	330	5.2	190	4.1	100	3.0	3.8	3.1
12	360	5.0	200	4.2	100	3.0		3.0
13	350	5.1	200	4.1	100	3.0	3.2	3.1
14	330	5.2	200	4.1	100	3.0		3.1
15	330	5.0	210	3.9	110	2.8		3.1
16	310	5.0	220	3.7	110	2.5		3.2
17	280	4.9	240	3.4	120	2.1	2.9	3.2
18	240	4.9	240	---			1.8	3.3
19	240	4.8						3.2
20	240	4.3						3.2
21	240	3.4						3.2
22	280	2.8						3.1
23	(290)	2.4						3.1

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

Table 2

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	(3.1)					4.2	(3.0)
01	(280)	(3.0)					2.9	(3.0)
02	280	(3.0)					2.7	(3.0)
03	270	(3.0)					2.6	(3.0)
04	270	(2.9)					2.9	(3.0)
05	(270)	(2.8)					2.8	(3.2)
06	280	3.5	240	3.0	---	---	3.0	3.2
07	340	3.9	230	(3.4)	120	(2.2)	3.8	3.1
08	400	4.4	220	3.7	110	(2.5)	4.3	2.9
09	400	4.7	220	3.9	110	(2.8)	4.4	2.9
10	380	4.9	200	4.0	110	(2.8)	4.6	2.9
11	410	4.9	210	4.1	110	(3.0)	4.3	2.9
12	400	4.9	(220)	4.1	(110)	(3.2)	4.6	2.9
13	400	5.0	220	4.1	(110)	(3.2)	4.4	2.85
14	380	4.9	230	4.1	(110)	(3.1)	4.0	3.0
15	370	4.9	230	4.0	110	(3.0)	4.0	3.0
16	360	4.8	230	(3.9)	(110)	(2.8)	4.2	3.0
17	330	4.8	240	(3.6)	120	(2.4)	3.9	3.1
18	290	4.8	240	(3.2)	130	---	3.6	3.2
19	260	4.7					3.8	3.2
20	250	4.8					3.5	3.1
21	250	4.5					3.8	3.15
22	250	(3.7)					3.8	(3.2)
23	260	(3.3)					4.7	(3.1)

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

Table 3

Okinawa I. (26.3°N, 127.8°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(3.1)					4.0	(2.9)
01	300	(3.3)					3.4	---
02	290	(3.0)					3.9	(3.0)
03	260	(3.0)					3.7	(3.2)
04	(250)	(2.6)					3.7	---
05	250	(2.5)					3.2	---
06	230	4.4	230	---			3.0	3.5
07	240	5.2	220	---	110	---	4.0	3.65
08	260	5.0	210	---	110	2.7	4.8	3.5
09	320	5.0	200	4.0	110	---	4.7	3.2
10	340	5.4	200	4.3	110	---	5.4	3.1
11	360	5.7	---	4.3	110	---	5.5	3.0
12	380	5.8	190	4.3	---	---	5.5	2.9
13	370	6.4	210	---	---	---	5.5	2.9
14	350	7.0	---	---	(110)	---	5.2	2.9
15	320	7.5	230	4.0	110	3.0	5.4	3.0
16	300	7.8	---	3.8	110	2.8	5.2	3.1
17	300	7.4	---	---	110	---	5.4	3.1
18	260	7.3	---	---			4.6	3.2
19	230	(7.3)					4.8	(3.45)
20	220	5.4					4.0	(3.3)
21	240	(4.2)					3.9	(3.2)
22	(280)	(3.3)					4.4	---
23	(310)	(3.4)					4.5	(2.95)

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

Table 4

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.9					3.4	2.8
01	310	3.7					4.0	2.85
02	280	3.5					2.6	3.05
03	280	3.3					2.6	3.05
04	280	3.0					2.8	3.0
05	280	2.8					1.8	3.05
06	280	3.2	---	---	---	---	2.4	3.2
07	300	4.5	240	3.5	120	2.1	4.0	3.1
08	330	5.2	230	3.9	120	2.6	5.8	3.1
09	380	5.1	220	4.2	110	2.9	6.2	2.8
10	440	5.2	220	4.2	110	3.1	6.4	2.6
11	490	5.6	220	4.3	110	3.3	6.6	2.5
12	480	6.2	220	4.3	110	3.4	5.6	2.5
13	440	6.9	230	4.3	110	3.4	5.0	2.5
14	400	8.1	230	4.2	110	3.3	4.9	2.6
15	370	8.8	240	4.1	110	3.2	5.5	2.8
16	340	9.4	250	4.0	120	2.9	5.0	2.9
17	310	9.6	250	3.8	120	2.5	4.8	3.0
18	280	9.1	250	3.3	---	1.8	4.5	3.2
19	240	8.0					4.5	3.3
20	250	5.6					3.8	3.1
21	270	4.9					3.9	2.9
22	300	4.4					4.0	2.9
23	310	4.1					4.0	2.8

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

Table 5

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2					2.8	2.95
01	290	(3.2)					2.7	(3.0)
02	270	3.3					2.6	(3.1)
03	240	3.0					2.8	3.2
04	280	2.6					2.4	3.2
05	260	2.5					2.2	3.2
06	250	2.7					2.5	3.3
07	260	4.4	230	---	120	1.9	2.8	3.5
08	270	5.0	220	3.8	(110)	2.4	3.9	3.4
09	320	4.9	210	4.1	110	2.9	3.6	3.2
10	370	5.0	210	4.2	110	3.1	4.2	3.1
11	420	5.1	210	4.3	110	3.3	3.4	2.8
12	370	6.0	220	4.3	110	3.3	3.1	2.9
13	340	7.1	230	4.3	110	3.3	3.0	2.9
14	330	7.6	220	4.2	110	3.3	4.7	3.0
15	310	7.8	220	4.2	110	3.1	4.8	3.0
16	290	7.8	220	4.0	110	2.9	4.3	3.2
17	270	7.4	230	3.7	110	2.6	4.2	3.2
18	250	7.2	220	3.3	120	---	3.7	3.3
19	230	6.4	---	---			3.2	3.5
20	230	5.1					3.0	3.3
21	250	3.6					3.0	3.1
22	280	3.3					2.4	3.0
23	300	3.2					2.5	2.95

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

Table 6

Guam I. (13.6°N, 144.9°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.2					1.6	2.9
01	320	2.2					2.3	3.0
02	310	2.0					2.1	3.0
03	290	1.8					2.4	3.2
04	280	1.6					2.3	3.2
05	300	1.7					2.1	3.2
06	250	2.5			---	E	2.0	3.35
07	250	5.2	220	---	110	1.8	2.7	3.5
08	280	6.0	210	3.8	110	(2.5)	3.1	3.3
09	320	6.2	200	4.0	110	(2.9)	4.8	3.0
10	360	6.5	200	4.2	---	---	4.9	2.8
11	390	6.7	200	4.2	---	---	4.7	2.6
12	410	6.9	200	4.2	---	---	4.5	2.6
13	410	7.4	200	4.2	---	---	4.6	2.6
14	390	7.8	210	4.2	---	---	4.6	2.7
15	360	8.0	210	4.1	110	3.1	5.2	2.8
16	340	8.3	220	3.9	110	2.8	4.5	2.9
17	330	8.6	220	3.8	110	2.5	4.5	3.0
18	290	8.7	230	---	---	---	4.3	3.1
19	250	8.4					3.3	3.2
20	220	6.9					3.7	3.4
21	240	4.8					2.8	3.4
22	250	3.8					2.3	3.2
23	300	2.8					2.0	3.0

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

Table 7

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.5						3.0
01	270	3.7						3.2
02	260	3.4					2.0	3.2
03	260	3.0					2.9	3.2
04	250	2.8					2.0	3.25
05	250	2.6					2.2	3.25
06	250	2.8					3.1	3.25
07	250	4.5	230	---	130	2.0	3.6	3.4
08	310	4.8	220	3.9	120	2.6	3.9	3.3
09	420	4.8	220	4.1	110	3.0	4.0	2.8
10	470	5.0	220	4.2	110	3.2	4.4	2.6
11	440	6.0	210	4.2	110	3.3	4.6	2.6
12	420	7.0	220	4.2	110	3.4	4.7	2.6
13	400	8.2	220	4.2	110	3.4	4.6	2.7
14	360	9.0	220	4.2	110	3.3	4.7	2.8
15	330	10.0	220	4.1	110	3.1	4.6	3.0
16	310	10.3	230	4.0	110	2.9	4.3	3.0
17	280	10.3	230	3.8	120	2.5	4.1	3.2
18	240	9.5	230	3.2	---	---	3.7	3.4
19	230	7.2					>3.2	3.35
20	240	5.3					2.7	3.1
21	260	4.4					2.2	3.0
22	280	4.0					1.8	3.0
23	290	3.8						3.0

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

Table 8

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.3					5.8	3.1
01	280	(3.1)					7.0	(3.2)
02	260	3.2	---	---	---	---	6.6	3.1
03	320	(3.5)	230	---	---	---	6.4	3.0
04	350	(3.6)	240	(3.0)	140	(1.8)	5.9	(3.05)
05	<380	3.8	220	3.2	120	(2.0)	6.0	2.8
06	430	(3.8)	210	3.4	110	(2.2)	6.8	(2.8)
07	430	3.8	200	3.5	110	(2.4)	6.8	(2.8)
08	(500)	3.8	200	3.6	100	(2.6)	7.0	(2.6)
09	(480)	4.0	200	3.7	100	2.7	8.0	(2.6)
10	(500)	4.0	190	3.8	100	(2.8)	6.6	(2.6)
11	480	4.1	190	3.8	100	2.8	7.0	(2.7)
12	0	3.9	200	3.8	100	(2.8)	6.8	0
13	(520)	4.0	200	3.8	100	(2.8)	6.6	(2.5)
14	(460)	4.1	200	3.8	100	(2.8)	6.0	(2.7)
15	(480)	(4.1)	200	3.8	100	(2.7)	4.6	(2.6)
16	440	(4.0)	210	3.7	100	(2.6)	4.4	(2.8)
17	410	4.0	210	3.6	110	(2.4)	3.6	2.8
18	340	4.0	220	3.5	110	(2.2)	5.3	3.1
19	(300)	3.9	220	(3.3)	120	(1.9)	5.5	3.2
20	270	3.9	230	---	130	(1.7)	4.6	3.3
21	250	3.7	230	---	---	---	4.5	3.3
22	240	3.5	---	---	---	---	4.9	3.25
23	250	(3.4)					4.4	(3.2)

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

Table 9

Anchorage, Alaska (61.2°N, 149.9°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.0)					3.8	(3.2)
01	280	(2.6)					3.2	(3.0)
02	280	2.5			---	---	3.0	3.05
03	270	2.8	250	---	130	(1.2)	2.5	3.1
04	390	3.3	230	2.7	110	1.6	3.0	3.0
05	410	3.5	220	3.0	110	1.9	2.9	2.8
06	430	3.7	210	3.3	110	2.2	2.8	2.7
07	470	3.8	200	3.5	110	2.4	2.8	2.7
08	500	3.8	200	3.6	100	2.6	2.8	2.6
09	(600)	(3.8)	200	3.7	100	2.7	3.4	2.4
10	0	(3.9)	200	3.8	100	2.8	3.8	0
11	550	4.0	190	3.9	100	2.8	4.3	2.5
12	0	(4.0)	200	3.9	100	2.8	3.5	0
13	0	(4.0)	200	3.9	100	2.8	3.5	0
14	620	4.1	200	3.9	100	2.8	3.1	2.4
15	580	4.1	200	3.8	100	2.7	3.0	2.4
16	480	4.0	210	3.7	100	2.6	2.8	2.7
17	420	4.0	210	3.6	110	2.4	3.1	2.9
18	370	3.9	210	3.4	110	2.2	3.5	3.05
19	300	4.0	220	3.2	120	1.9	3.7	3.2
20	260	4.0	230	---	130	1.6	2.2	3.3
21	240	3.9					3.2	3.3
22	240	(3.8)					3.7	3.2
23	250	3.4					3.2	3.2

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

Table 10

Adak, Alaska (51.9°N, 176.6°W) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.8					3.2	3.2
01	260	3.5					2.7	3.1
02	260	3.4					2.7	3.1
03	260	3.1					2.6	3.0
04	<320	3.3	250	2.4	130	1.4	2.5	3.1
05	380	3.6	230	3.0	120	1.8	3.2	2.95
06	410	3.9	240	3.4	110	2.2	3.7	2.8
07	400	4.2	220	3.6	110	2.5	6.2	2.9
08	400	4.3	220	3.7	100	2.7	6.2	2.9
09	420	4.4	220	3.9	100	2.9	6.9	2.85
10	450	4.4	210	4.0	100	3.0	6.9	2.8
11	450	4.4	210	4.0	100	3.0	6.0	2.8
12	540	4.3	200	4.1	100	3.0	6.1	2.5
13	560	4.2	200	4.0	100	3.0	6.2	2.5
14	0	4.1	200	4.0	100	2.9	4.6	0
15	470	4.2	210	3.9	110	2.8	4.9	2.7
16	410	4.2	220	3.8	110	2.7	3.9	2.9
17	380	4.2	220	3.6	110	2.5	5.6	3.0
18	330	4.2	230	3.4	110	2.1	5.6	3.1
19	290	4.3	250	---	120	(1.6)	4.8	3.1
20	270	4.8					3.8	3.2
21	260	5.3					4.3	3.2
22	250	4.8					3.6	3.2
23	240	4.1					3.3	3.2

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

Table 11

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	(3.2)					4.2	(3.0)
01	(280)	(3.0)					4.0	(3.0)
02	(270)	(2.9)					4.1	(3.0)
03	(280)	(2.9)					3.6	(2.9)
04	(280)	(2.8)					3.6	(3.0)
05	(280)	(2.9)	---	---	---	---	2.9	(3.0)
06	320	(3.6)	230	3.1	---	---	4.0	3.1
07	380	4.0	220	3.5	110	(2.4)	4.0	2.95
08	360	4.4	220	(3.7)	110	(2.7)	4.9	2.85
09	380	4.7	210	(3.9)	110	(3.0)	5.4	2.9
10	390	5.0	200	(4.0)	(110)	---	5.4	2.9
11	360	5.0	200	(4.1)	(110)	(3.1)	5.3	2.9
12	420	4.8	(210)	4.2	(110)	---	5.0	2.8
13	420	4.9	(220)	(4.2)	(110)	---	5.0	2.8
14	420	4.8	220	4.0	(110)	---	5.1	2.8
15	400	4.6	(230)	(4.0)	(110)	---	4.4	2.9
16	400	4.5	230	(3.9)	110	(2.9)	4.6	2.8
17	360	4.5	230	3.7	110	(2.5)	4.8	3.0
18	320	4.6	240	3.4	(110)	---	4.3	3.0
19	280	4.8	---	---			5.6	3.1
20	250	5.4					4.3	3.1
21	(250)	(4.9)					4.4	(3.1)
22	(250)	(4.0)					4.9	(3.1)
23	(250)	(3.4)					5.0	(3.1)

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

Table 12

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.2					4.3	3.3
01	250	3.2					3.9	3.2
02	250	3.1					3.8	3.2
03	250	3.2					3.7	3.2
04	240	3.0					3.1	3.3
05	240	2.9					3.8	3.4
06	280	3.8	220	3.3	110	1.8	4.8	3.4
07	320	4.4	200	3.6	100	2.3	5.1	3.2
08	320	4.6	200	3.8	100	2.7	6.5	3.25
09	340	4.8	190	4.0	100	2.9	6.2	3.1
10	340	4.8	180	4.1	100	3.0	6.3	3.0
11	350	5.1	180	4.2	100	3.1	6.8	3.1
12	360	5.0	180	4.2	100	3.2	6.8	3.1
13	360	5.0	180	4.2	100	3.2	5.3	3.1
14	340	5.0	200	4.2	100	3.1	6.2	3.1
15	330	5.0	200	4.1	110	3.0	4.9	3.2
16	320	4.8	200	3.9	100	2.8	4.9	3.2
17	300	4.8	200	3.7	100	2.5	4.7	3.2
18	270	4.9	210	3.3	110	2.0	4.8	3.4
19	230	5.3					4.4	3.4
20	220	5.6					4.3	3.4
21	220	4.8					4.8	3.4
22	240	3.9					4.8	3.3
23	240	3.4					4.6	3.3

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

Table 13

Okinawa I. (26.3°N, 127.8°E) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(3.3)					4.1	(2.9)
01	280	(3.2)					3.4	(3.2)
02	260	(3.5)					3.4	(3.1)
03	270	(3.6)					3.1	3.1
04	(270)	(3.1)					3.3	(3.0)
05	240	(2.7)					3.4	(3.4)
06	250	4.1	220	---	---	---	3.7	3.4
07	270	5.2	220	---	110	(2.3)	4.8	3.5
08	280	5.0	220	3.9	110	2.8	6.3	3.4
09	320	5.0	200	4.0	110	3.1	7.4	(3.2)
10	380	4.8	200	4.2	110	---	7.6	3.1
11	(420)	(5.0)	200	---	110	---	7.0	(2.6)
12	440	5.3	200	---	110	3.2	6.7	(2.7)
13	400	6.0	200	---	110	---	6.3	2.9
14	360	6.5	---	(4.0)	110	---	5.2	2.9
15	330	6.8	220	4.0	110	---	5.3	2.9
16	320	7.4	220	3.8	110	2.8	5.4	3.0
17	300	7.8	220	3.6	110	---	4.8	3.1
18	260	7.6	---	---	---	---	5.1	3.2
19	240	7.0					4.6	3.3
20	240	5.6					3.8	3.3
21	240	4.5					3.1	3.1
22	270	3.6					3.7	3.0
23	300	3.6					3.5	(3.0)

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

Table 14

Guam I. (13.6°N, 144.9°E) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.0					2.5	2.9
01	320	(1.8)					2.2	(2.8)
02	330	1.5					2.2	(3.1)
03	350	1.3					2.0	(3.0)
04	320	1.2					2.4	3.3
05	300	1.2					2.5	3.5
06	240	2.9	230	---	---	---	2.4	3.4
07	260	5.1	220	---	110	1.8	3.9	3.4
08	280	5.5	210	3.8	110	2.5	3.8	3.4
09	340	5.8	200	4.0	110	2.9	4.6	3.1
10	380	5.8	200	4.1	110	3.1	4.8	2.8
11	430	6.0	190	4.2	110	3.2	4.8	2.6
12	440	6.2	200	4.2	110	3.3	4.9	2.6
13	420	6.4	200	4.2	110	3.2	4.7	2.5
14	430	6.6	200	4.1	110	3.2	4.7	2.5
15	400	7.0	200	4.0	110	3.0	4.8	2.7
16	370	7.3	210	3.8	110	2.8	5.0	2.8
17	340	7.2	210	3.7	110	2.4	5.0	2.9
18	300	7.6	230	---	120	---	4.6	3.0
19	240	7.8					4.0	3.2
20	230	6.6					3.5	3.4
21	240	4.6					3.0	3.3
22	260	3.3					2.1	3.2
23	280	2.6					2.2	3.05

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

Table 15

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.4					4.0	3.2
01	270	3.4			---	E	4.5	3.1
02	280	3.5	240	---	---	E	4.6	3.1
03	310	3.8	230	(2.8)	---	---	5.9	3.1
04	340	3.9	220	3.0	120	(1.8)	5.8	3.0
05	360	4.0	210	3.2	110	(2.0)	6.0	2.9
06	370	4.0	200	3.4	110	2.3	6.8	2.9
07	380	4.2	200	3.6	110	2.5	7.0	2.9
08	400	4.2	200	3.7	100	2.6	7.0	2.8
09	410	4.2	200	3.8	100	2.8	7.8	2.8
10	400	4.3	200	3.9	100	2.8	7.8	2.8
11	400	4.3	200	3.9	100	(2.9)	8.4	2.8
12	420	4.4	200	4.0	100	(2.9)	7.8	2.85
13	400	4.3	200	3.9	100	(2.9)	7.5	2.8
14	420	4.3	200	3.9	110	(2.8)	7.8	2.8
15	410	4.2	200	3.9	110	(2.7)	6.8	2.8
16	390	4.2	200	3.8	110	2.6	7.0	2.9
17	360	4.2	210	3.7	110	2.4	5.0	3.0
18	350	4.2	220	3.5	110	2.3	4.6	3.1
19	300	4.2	220	(3.3)	110	2.0	4.7	3.2
20	270	4.1	220	(3.0)	120	1.6	4.0	3.2
21	250	4.0	230	---	---	E	4.4	3.3
22	240	3.8	---	---	---	E	4.5	3.3
23	250	3.6					4.2	3.3

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

Table 16

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	(4.0)					4.4	---
01	290	(3.5)			---	---	4.6	(3.0)
02	300	(3.3)	---	---	---	---	4.0	(3.1)
03	300	(3.3)	(240)	---	---	---	4.0	(3.1)
04	310	3.3	230	---	110	1.7		3.1
05	320	3.6	220	(3.2)	100	2.0	2.8	3.1
06	400	3.7	220	3.4	100	2.2	2.6	3.0
07	400	3.9	210	3.5	100	2.4		2.9
08	400	4.0	210	3.7	100	2.6	2.9	3.05
09	400	(4.2)	200	3.8	100	2.7		3.0
10	380	4.3	200	3.8	100	(2.8)	3.2	3.1
11	370	4.3	200	3.9	100	2.8	3.4	3.0
12	380	4.3	200	3.9	100	(2.9)		3.0
13	370	4.3	200	3.9	100	2.9		3.1
14	390	4.3	200	3.9	100	(2.9)		2.9
15	400	4.3	200	3.8	100	2.8		3.0
16	370	4.3	210	3.8	100	(2.8)		3.1
17	350	4.4	210	3.7	100	2.6	3.0	3.2
18	350	4.2	220	3.6	100	2.4	3.6	3.1
19	320	4.2	220	3.4	110	2.2	3.8	3.2
20	300	(4.1)	250	---	110	(2.1)	3.9	(3.2)
21	300	(4.0)	---	---	120	---	3.8	(3.1)
22	(300)	(4.0)			120	---	5.0	(3.1)
23	(290)	---			---	---	4.8	---

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

Table 17

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.8	220	---	110	1.7		3.3
01	240	3.8	220	---	120	1.7		3.3
02	250	3.7	220	2.9	110	1.7		3.3
03	270	3.7	220	3.0	120	1.9		3.3
04	300	3.8	220	3.0	110	2.0		3.25
05	330	3.8	220	3.2	110	2.0		3.1
06	350	3.8	210	3.3	100	2.1		3.1
07	340	3.8	210	3.3	100	2.3		3.2
08	400	3.8	210	3.4	100	2.4		3.0
09	400	3.9	210	3.5	100	2.5		3.0
10	400	4.0	210	3.6	100	2.7		3.1
11	400	4.0	210	3.7	100	2.8		3.0
12	400	4.0	200	3.7	100	2.8		3.0
13	400	4.0	200	3.7	100	2.8		2.8
14	400	4.0	200	3.7	100	2.7		2.85
15	400	4.1	200	3.6	100	2.5		3.0
16	370	4.1	200	3.5	100	2.4		3.1
17	360	4.0	200	3.4	100	2.3		3.1
18	330	4.1	210	3.3	100	2.1		3.1
19	310	4.1	210	3.2	110	2.0		3.2
20	300	4.0	210	3.0	110	2.0		3.3
21	270	4.0	220	2.9	120	1.9		3.4
22	260	3.9	220	---	110	1.8		3.3
23	250	3.9	230	---	110	1.7		3.3

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

Table 18

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5	---	---	110	---	6.0	3.3
01	270	3.5	220	---	110	1.2	7.0	3.3
02	280	3.4	220	---	110	1.3	4.7	3.3
03	290	3.5	220	2.6	110	(1.4)	4.2	3.25
04	(300)	3.5	220	3.0	110	1.6	4.2	3.2
05	(350)	3.7	230	3.2	110	1.9	3.8	3.1
06	390	3.8	240	3.4	100	2.1	4.0	2.9
07	410	4.0	230	3.6	100	2.4	4.8	2.8
08	460	4.0	230	3.6	100	2.4	4.9	2.7
09	490	4.0	210	3.7	100	2.6	4.2	2.6
10	510	4.0	220	3.7	100	2.7	3.0	2.6
11	520	4.1	210	3.7	100	2.7	3.4	2.5
12	470	4.2	210	3.8	100	2.7	3.0	2.7
13	470	4.1	210	3.8	100	2.8	2.9	2.6
14	430	4.2	210	3.8	100	2.8		2.8
15	410	4.2	210	3.8	100	2.6		2.8
16	380	4.3	220	3.7	100	2.5		3.0
17	370	4.3	220	3.6	110	2.4	2.9	3.0
18	360	4.2	220	3.5	110	2.2	2.9	3.0
19	320	3.9	240	3.4	110	2.0	3.6	3.2
20	330	3.8	250	3.2	110	1.8	4.1	3.1
21	310	3.8	240	2.9	110	1.5	4.5	3.2
22	310	3.7	---	---	110	1.3	4.7	3.2
23	300	3.5	---	---	110	1.2	4.3	3.2

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

Table 19

Tromeo, Norway (69.7°N, 19.0°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(240)	3.8	---	---			4.3	3.1
01	(265)	3.8	---	---			5.0	(3.0)
02	(290)	4.0	---	---	---	---	4.0	3.0
03	300	4.0	250	---	---	---	4.5	3.1
04	330	3.9	250	3.2	100	1.9	3.7	3.05
05	360	3.8	235	3.4	110	2.1	2.8	3.0
06	410	3.9	225	3.5	105	2.2	2.6	2.9
07	410	4.1	210	3.6	105	2.4	2.7	2.9
08	400	4.2	215	3.7	105	2.6	2.8	2.9
09	400	4.4	210	3.8	110	2.6	2.7	2.95
10	400	4.3	210	3.8	105	2.6	2.8	3.0
11	415	4.3	210	3.9	105	2.7	2.7	2.9
12	400	4.3	205	3.9	105	2.7	3.0	2.95
13	390	4.4	205	3.9	105	2.7	3.0	3.0
14	385	4.3	210	3.8	105	2.6	2.7	3.0
15	345	4.3	210	3.8	105	2.5	2.9	3.1
16	350	4.2	210	3.7	105	2.4	2.7	3.1
17	330	4.3	220	3.6	105	2.2	2.8	3.1
18	305	4.2	240	3.5	110	2.0	3.1	3.4
19	(290)	4.0	230	---	105	1.9	3.8	3.2
20	(245)	4.0	---	---	105	1.7	3.8	3.25
21	(260)	3.8	---	---	---	---	4.2	3.1
22	(255)	(3.9)	---	---			3.8	(3.1)
23	(260)	(3.8)					4.0	(3.0)

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

Table 20

Kiruna, Sweden (67.8°N, 20.3°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(265)	(3.7)						(3.5)
01	(280)	(3.8)						(3.4)
02	(290)	(3.9)	---	---	---	---		(3.35)
03	(260)	(4.0)	---	---	---	---		(3.5)
04	(310)	(3.8)	---	---	105	2.0		(3.25)
05	(380)	(3.9)	210	3.2	100	2.2		(3.3)
06	---	---	210	3.3	100	2.3		---
07	---	---	200	3.6	100	2.4		---
08	(400)	---	200	3.7	100	2.7		(3.0)
09	(350)	---	210	3.8	100	2.8		(3.1)
10	---	---	205	3.9	105	2.9		---
11	(370)	---	200	3.9	105	2.9		(3.2)
12	---	---	200	3.9	105	3.0		---
13	(350)	(4.8)	210	3.9	100	2.9		(3.3)
14	---	---	200	3.8	100	2.8		---
15	---	---	210	3.7	100	2.7		---
16	(350)	(4.1)	210	3.6	100	2.5		(3.5)
17	(320)	(4.1)	220	3.3	105	2.2		(3.4)
18	(290)	(4.1)	220	3.2	115	2.1		(3.5)
19	265	4.0	225	3.0	120	2.0		3.4
20	250	3.9	---	---	---	---		3.45
21	260	3.7	---	---				3.5
22	(250)	(3.8)						(3.4)
23	(250)	(3.6)						(3.5)

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

Table 21

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(3.0)					4.5	3.0
01	300	3.1					4.8	2.9
02	300	3.1					4.5	2.9
03	320	3.5	240	2.7			4.5	2.9
04	340	3.7	220	3.0	---	---	4.0	2.9
05	380	3.8	220	3.2	120	(2.0)	4.5	2.8
06	400	4.0	200	3.3	110	2.2	5.0	2.7
07	410	4.0	200	3.5	110	2.3	5.0	2.7
08	420	4.1	200	3.6	110	2.6	5.8	2.7
09	470	4.1	200	3.7	110	2.7	5.0	2.6
10	450	4.2	200	3.8	110	2.8	6.0	2.7
11	410	4.3	200	3.9	110	2.8	5.8	2.8
12	440	4.3	200	3.9	110	2.8	5.0	2.7
13	420	4.3	200	3.9	110	2.8	5.0	2.7
14	420	4.2	200	3.9	110	2.8	4.7	2.7
15	410	4.3	210	3.8	110	(2.6)	4.0	2.7
16	380	4.2	210	3.7	110	(2.5)	3.7	2.9
17	340	4.2	210	3.6	110	2.3	4.0	3.0
18	320	4.2	220	3.5	110	2.1	4.4	3.1
19	280	4.1	230	---	120	(1.8)	3.8	3.1
20	250	4.0	230	---	---	---	3.2	3.1
21	250	(3.6)	---	---			3.8	3.2
22	250	(3.1)					3.9	3.2
23	260	(3.3)					4.0	3.2

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

Table 22

Baker Lake, Canada (64.3°N, 96.0°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	3.3			---	E	3.0	3.1
01	230	3.2			---	E	2.9	3.15
02	230	3.1			---	E	2.6	3.2
03	240	3.2	---	---	120	1.3	3.0	3.2
04	240	3.3	230	2.4	120	1.7	3.0	3.2
05	300	3.4	200	3.2	100	2.0	4.0	3.0
06	300	3.6	200	3.3	100	2.2		2.7
07	400	3.8	190	3.5	100	2.3		2.8
08	400	4.0	200	3.7	100	2.7		2.9
09	460	4.0	200	3.8	100	3.0		2.5
10	440	4.2	210	3.9	100	3.0		2.75
11	450	4.2	220	3.9	100	3.1		2.7
12	460	4.3	210	3.9	100	3.0		2.8
13	430	4.3	200	3.9	100	3.0		2.8
14	390	4.5	210	3.9	100	3.0		2.9
15	360	4.6	200	3.8	100	3.0		2.9
16	360	4.5	210	3.7	100	2.9		3.0
17	330	4.4	210	3.6	100	2.7		3.0
18	320	4.5	210	3.5	110	2.4		3.0
19	290	4.3	220	3.2	110	2.3	5.2	3.1
20	250	4.2	220	---	120	2.0	6.0	3.2
21	240	4.0	---	---	120	1.6	5.5	3.15
22	230	4.0	---	---	---	1.2	4.9	3.2
23	230	3.6			---	E	4.0	3.1

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

Table 23

Oslo, Norway (60.0°N, 11.1°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(3.0)						3.0
01	260	2.6					2.0	2.9
02	265	2.2					2.5	2.95
03	260	2.5			---	---	2.2	3.0
04	275	3.0	240	---	125	(1.4)	2.8	3.05
05	(345)	3.5	235	---	115	1.8	3.1	(3.0)
06	385	3.8	225	3.4	110	2.0	3.2	2.95
07	400	4.0	220	3.6	105	2.4	3.2	2.9
08	375	4.3	215	3.8	105	2.6	3.2	3.0
09	400	4.4	205	3.9	105	2.7	3.2	2.9
10	360	4.4	210	4.0	100	2.8	3.2	3.0
11	370	4.6	210	4.0	100	2.8	3.3	3.05
12	350	4.6	200	4.0	105	2.9	3.2	3.1
13	365	4.6	205	4.0	105	2.9	3.4	3.1
14	360	4.6	215	4.0	100	2.9	3.3	3.0
15	375	4.5	210	4.0	105	2.8	3.2	2.95
16	350	4.6	215	3.9	105	2.6	3.3	3.0
17	335	4.6	225	3.8	110	2.4	3.5	3.1
18	305	4.7	230	3.6	110	2.2	3.6	3.15
19	285	4.6	235	---	115	1.8	3.2	3.2
20	250	4.5	250	---	130	(1.6)	2.9	3.2
21	250	4.7	---	---			1.4	3.1
22	245	4.4						3.1
23	250	3.7						3.1

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

Table 24

Churchill, Canada (58.8°N, 94.2°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.0			---	---	7.8	3.2
01	280	3.0			---	---	7.0	3.1
02	300	2.9			---	---	7.0	3.25
03	300	2.9			---	---	7.0	3.0
04	280	3.1			---	(1.8)	5.0	3.3
05	300	3.5	---	(3.0)	130	2.6	5.0	3.2
06	400	3.9	270	< 3.5	110	3.0	5.5	3.0
07	450	4.0	250	3.7	110	3.0	5.7	2.8
08	500	4.1	230	3.8	110	2.9	6.0	2.7
09	480	4.2	210	3.9	110	2.9	6.4	2.7
10	440	4.3	210	3.9	110	3.0	7.0	2.7
11	420	4.4	200	3.9	110	3.0	7.0	2.9
12	440	4.3	210	4.0	110	3.0	7.0	2.8
13	420	4.4	210	4.0	110	3.0	6.2	2.8
14	420	4.5	230	4.0	110	3.0	6.0	2.9
15	380	4.6	220	3.9	110	3.0	5.6	2.9
16	370	4.6	240	3.8	110	2.9	5.3	2.9
17	360	4.6	240	3.7	110	2.7	4.3	3.0
18	340	4.5	260	3.6	110	2.6	4.5	3.0
19	320	4.2	260	3.0	120	2.7	4.7	3.1
20	310	4.0	---	---	120	2.6	5.4	3.1
21	310	3.6			130	2.1	8.0	3.1
22	270	3.7			---	---	D	3.1
23	270	3.5			---	---	8.0	3.2

Time: 90.0°W.
Sweep: 0.6 Mc to 10.0 Mc in 16 seconds.

Table 25

Fort Chimo, Canada (58.1°N, 68.3°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(260)	(3.0)					6.1	
01	(250)	(2.9)			---	---	4.8	
02	(250)	(2.8)			---	---	4.2	
03	---	(3.1)			100	2.8	4.2	
04	---	(3.2)			100	3.9	4.4	---
05	(260)	3.6			100	3.7	4.3	---
06	360	3.8	240	3.5	100	2.9	4.3	(3.1)
07	380	4.0	220	3.7	100	2.7	3.6	(2.9)
08	400	4.1	220	3.7	100	2.8	3.7	2.95
09	400	4.2	200	3.8	100	3.0		2.9
10	420	4.2	200	3.8	100	3.0		3.0
11	440	4.2	200	3.9	100	3.0	2.4	2.8
12	430	4.2	200	3.9	100	3.0		2.8
13	420	4.3	200	3.9	100	3.0		3.0
14	380	4.5	200	3.8	100	3.0		3.0
15	380	4.6	210	3.8	100	2.8		3.0
16	360	4.6	220	3.6	100	2.7		(3.0)
17	330	4.5	240	3.4	100	2.6		(3.2)
18	300	4.2	240	3.3	100	2.5	4.0	---
19	280	4.0	---	---	100	2.6	5.4	---
20	250	3.8			---	---	7.0	
21	(250)	3.4					6.6	
22	(240)	3.0					8.0	
23	240	(3.0)					5.2	

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

Table 26

Prince Rupert, Canada (54.3°N, 130.3°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.6					2.5	3.2
01	280	2.0					1.8	3.0
02	290	1.7			---	---	2.3	3.0
03	300	1.6			---	---	2.2	2.9
04	280	2.0			---	---	2.6	3.05
05	260	2.6	240	---	110	1.4	2.5	3.2
06	430	3.4	210	3.1	100	1.8	3.2	2.9
07	500	3.7	210	3.4	100	2.3	3.4	2.7
08	530	3.8	200	3.6	100	2.6	3.4	0
09	460	4.1	200	3.7	100	2.7		2.7
10	430	4.3	200	3.9	100	2.9	4.0	2.8
11	420	4.5	200	4.0	100	3.0	4.0	2.9
12	450	4.4	200	4.0	100	3.0	3.5	2.8
13	450	4.4	200	4.0	100	3.0	3.5	2.8
14	460	4.4	210	4.0	100	3.0		2.8
15	450	4.4	210	4.0	100	3.0		2.85
16	440	4.2	200	3.9	100	2.8	3.6	2.8
17	400	4.2	210	3.7	100	2.6		3.0
18	340	4.2	220	3.6	100	2.5	3.0	3.2
19	300	4.1	240	3.3	100	2.0	3.4	3.3
20	260	4.1	---	---	110	1.6	3.4	3.3
21	250	4.0			---	---	4.0	3.3
22	250	3.8					4.0	3.3
23	260	3.2					3.2	3.2

Time: 120.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 27

Winnipeg, Canada (49.9°N, 97.4°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.6					2.4	3.1
01	320	2.4					3.0	(3.0)
02	320	2.4					2.9	(3.0)
03	330	2.5					4.0	(2.95)
04	320	2.3					3.8	2.9
05	240	2.7			120	1.4	4.0	3.3
06	0	3.3	220	3.2	120	1.9	3.8	0
07	0	(3.5)	210	3.5	110	2.3	4.5	0
08	0	3.9	200	3.7	110	2.7	5.2	0
09	470	4.0	200	3.9	110	2.8	5.0	2.6
10	440	4.2	200	3.9	110	2.9	4.6	2.8
11	440	4.4	190	4.0	100	3.0	4.3	2.8
12	420	4.4	200	4.0	100	3.0	5.0	2.8
13	400	4.6	200	4.0	110	3.1	5.0	2.9
14	420	4.6	200	4.0	110	3.0	5.0	2.8
15	400	4.6	210	3.9	110	3.0	4.3	2.9
16	380	4.5	210	3.9	110	2.9		2.9
17	360	4.5	210	3.7	110	2.7		3.0
18	330	4.4	220	3.5	110	2.3	3.6	3.1
19	280	4.6	230	3.1	120	1.9	2.9	3.2
20	250	4.6	---	---	---	---	2.6	3.3
21	250	4.1					3.0	3.2
22	260	3.3					2.0	3.1
23	300	2.6					2.2	3.1

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 16 seconds.

Table 28

St. John's, Newfoundland (47.6°N, 52.7°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						3.0
01	300	2.1					2.6	2.95
02	300	1.9					2.6	2.9
03	300	1.7					2.8	3.0
04	250	2.6	---	---	120	1.5	1.9	3.2
05	260	3.4	240	2.9	120	2.0	3.2	3.3
06	300	4.0	230	3.5	110	2.4	3.4	3.3
07	320	4.4	220	3.8	110	2.7	4.0	3.3
08	340	4.5	210	4.0	110	2.9	4.2	3.2
09	370	4.5	200	4.0	110	3.0	4.5	3.1
10	390	4.6	200	4.1	110	3.2	4.3	3.0
11	390	4.6	200	4.2	110	3.2	4.0	3.0
12	390	4.6	210	4.2	110	3.3	4.3	3.0
13	370	4.8	200	4.1	110	3.2	4.0	3.0
14	380	4.6	220	4.0	110	3.2	3.8	3.0
15	380	4.7	220	4.0	110	3.0	3.7	3.0
16	340	4.9	220	3.8	110	2.7		3.15
17	310	5.1	240	3.4	110	2.3	3.4	3.2
18	290	5.4	240	2.9	120	1.9	2.9	3.2
19	250	5.8	---	---	---	---	1.5	3.2
20	230	5.1					0.9	3.3
21	240	4.0						3.2
22	260	3.3						3.0
23	280	2.7					2.2	3.15

Time: 60.0°W.
Sweep: 0.9 Mc to 10.0 Mc in 18 seconds.

Table 29

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	3.7						
01	265	3.4						
02	270	3.3						
03	---	3.0						
04	(285)	3.2						
05	260	3.7	---	3.0				
06	250	4.3	220	3.4			3.5	
07	270	4.6	225	3.8			4.0	
08	280	5.0	200	3.9			4.0	
09	300	5.2	200	4.0	---	3.0	4.2	
10	300	5.2	200	4.1	---	3.0	4.3	
11	300	5.4	200	4.2	110	3.1	4.0	
12	300	5.1	200	4.1	---	3.2	3.8	
13	300	5.3	200	4.2	---	3.1	3.8	
14	315	5.1	200	4.1	---	3.1	3.5	
15	300	5.1	200	4.0	110	3.0	4.0	
16	300	5.3	210	3.9	---	2.8	4.6	
17	290	5.3	225	3.7			4.0	
18	260	5.7	(250)	(3.2)			4.0	
19	250	6.0					3.6	
20	240	6.0						
21	240	5.8						
22	230	5.0						
23	250	4.2						

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

Table 30

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.6						3.3
01	290	3.5						3.3
02	290	3.2						3.3
03	290	3.1						3.3
04	290	3.0						3.3
05	240	3.2			---	---		3.4
06	210	3.9	200	3.2	100	2.0		3.5
07	300	4.1	200	3.5	100	2.2		3.4
08	300	4.5	200	3.6	100	2.6		3.45
09	300	4.8	200	3.9	100	2.8		3.6
10	300	5.0	200	4.0	100	2.9	4.5	3.5
11	300	5.0	200	4.0	100	3.0		3.4
12	310	4.9	200	4.1	100	3.0	4.1	3.4
13	320	5.0	200	4.0	100	3.0		3.3
14	325	5.0	200	4.0	100	3.0		3.3
15	300	5.0	200	4.0	100	3.0	4.1	3.3
16	300	4.9	200	3.8	100	2.8	4.0	3.4
17	300	5.0	200	3.7	100	2.6	4.2	3.4
18	290	5.0	---	---	100	2.2	4.2	3.4
19	260	5.4			100	1.8	3.8	3.5
20	225	6.0					3.2	3.5
21	210	5.8						3.5
22	205	5.2						3.6
23	210	4.4						3.5

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

Table 31

Ottawa, Canada (45.4°N, 75.9°W) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.0						3.0
01	320	1.9					2.2	3.0
02	370	1.8					2.5	---
03	380	1.7					3.0	---
04	300	2.0					2.6	3.0
05	240	2.9	---	---	130	1.7		3.3
06	300	3.6	220	3.3	120	2.1	3.0	3.3
07	370	3.9	220	3.6	110	2.5	3.0	3.1
08	380	4.2	220	3.8	110	2.8	3.4	3.0
09	390	4.4	200	3.9	110	3.0	3.2	3.0
10	380	4.5	200	4.0	110	3.1	3.7	2.95
11	400	4.6	200	4.1	110	3.3	3.9	2.9
12	390	4.8	200	4.1	100	3.3		3.0
13	400	4.7	200	4.1	110	3.3	3.3	2.9
14	410	4.7	210	4.0	110	3.3		2.9
15	380	4.8	220	4.0	110	3.0		2.9
16	360	4.8	220	3.8	110	2.8		3.0
17	330	4.9	230	3.6	110	2.5	3.8	3.05
18	300	5.1	240	3.2	120	2.0	4.3	3.1
19	260	5.3	250	---	---	1.7	5.1	3.2
20	240	4.9					2.5	3.2
21	250	4.2						3.2
22	260	3.2						3.1
23	290	2.5						3.0

Time: 75.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 32

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.1					3.5	
01	280	4.0					2.7	
02	270	3.9					2.7	
03	260	3.7					2.8	
04	250	4.0					2.5	
05	260	4.4					3.4	
06	290	4.9					4.5	
07	290	5.0					5.2	
08	310	5.5					5.8	
09	320	5.4					5.8	
10	340	5.2					6.1	
11	350	5.3					5.0	
12	360	5.2					5.0	
13	360	5.0					4.4	
14	360	5.2					4.8	
15	350	5.3					5.3	
16	320	5.5					4.9	
17	330	5.4					6.2	
18	290	5.6					5.0	
19	270	6.1					4.2	
20	260	6.1					3.8	
21	270	6.0					4.0	
22	250	5.2					3.5	
23	260	4.6					4.0	

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

Table 33

Akita, Japan (39.7°N, 140.1°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.0					4.1	
01	280	3.7					4.3	
02	280	3.6					3.4	
03	260	3.5					3.4	
04	250	3.4					3.1	
05	250	4.0					3.0	
06	260	4.9					4.1	
07	270	5.4					5.4	
08	290	5.4					6.2	
09	300	5.4					6.5	
10	340	5.4					6.0	
11	340	5.5					5.9	
12	340	5.5					5.0	
13	340	5.4					5.1	
14	340	5.7					4.6	
15	330	5.7					4.4	
16	300	6.1					5.8	
17	280	5.8					6.8	
18	270	5.8					5.5	
19	250	6.4					5.1	
20	250	6.2					6.0	
21	250	5.5					4.5	
22	260	4.9					5.1	
23	260	4.2					4.3	

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 34

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.0					5.2	2.9
01	280	4.0					4.5	2.9
02	270	3.7					4.5	3.0
03	270	3.6					4.5	3.0
04	260	3.2					4.0	3.1
05	250	3.9	---	---	140	1.5	3.2	3.3
06	250	5.0	240	3.4	110	2.2	4.1	3.4
07	260	5.6	240	3.8	110	2.5	5.1	3.4
08	270	5.4	240	4.0	110	2.9	6.5	3.4
09	300	5.5	220	4.2	110	3.0	7.0	3.2
10	320	5.6	200	4.3	110	3.1	7.0	3.1
11	340	5.6	210	4.4	110	3.2	6.0	3.0
12	340	6.0	210	4.3	110	3.2	5.5	3.0
13	330	6.0	220	4.3	110	3.2	6.6	3.0
14	330	6.3	220	4.2	110	3.2	5.7	3.0
15	310	6.8	240	4.0	110	3.0	5.8	3.0
16	290	7.1	250	3.9	110	2.7	6.0	3.1
17	280	6.8	240	3.5	120	2.3	7.0	3.2
18	260	6.5	250	---	120	1.6	7.0	3.2
19	240	7.0					6.6	3.2
20	240	6.2					6.5	3.2
21	250	5.0					6.0	3.1
22	270	4.6					5.5	3.0
23	280	4.2					5.5	3.0

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

Table 35

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.5					5.8	
01	300	4.0					3.6	
02	280	3.9					3.7	
03	260	3.5					3.5	
04	280	3.3					3.4	
05	260	3.2					3.0	
06	250	4.5					3.2	
07	250	5.6					4.7	
08	260	5.6					5.5	
09	290	5.7					6.2	
10	320	5.8					6.8	
11	360	5.9					7.8	
12	350	6.5					6.4	
13	350	7.0					6.0	
14	340	7.6					5.4	
15	320	8.2					4.6	
16	300	8.5					5.6	
17	290	8.4					6.0	
18	260	7.7					5.9	
19	260	7.3					5.8	
20	260	6.2					5.9	
21	270	5.4					5.5	
22	300	4.4					5.8	
23	300	4.3					5.8	

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

Table 36

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.0					4.0	2.9
01	260	(4.0)					4.0	(3.1)
02	220	(3.5)					4.0	(3.4
03	220	2.8					4.0	3.45
04	240	2.1					3.6	3.4
05	240	(1.9)					4.0	3.2
06	230	4.6					4.6	3.4
07	220	5.6			110	2.4	5.6	3.2
08	300	6.4	210	---	110	2.5	6.8	3.0
09	360	6.6	210	4.1	110	---	7.1	2.7
10	400	7.5	200	4.2	110	---	6.8	2.55
11	410	8.1	190	4.2	110	---	6.8	2.5
12	400	8.3	200	4.2	110	---	6.0	2.5
13	380	8.5	200	4.2	110	---	6.2	2.6
14	340	8.7	200	4.1	110	3.2	5.0	2.75
15	320	9.0	210	4.0	110	3.0	4.6	2.9
16	300	9.0	220	---	110	2.6	5.0	3.0
17	260	9.3	220	---	---	---	4.2	3.1
18	240	9.1					4.0	3.2
19	220	8.4					3.8	3.3
20	230	6.5					3.4	3.1
21	250	5.4					3.0	3.1
22	280	4.8					2.3	3.0
23	310	4.1					3.2	2.8

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

Table 37

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	3.9						3.4
01	230	3.6						3.4
02	230	3.5						3.4
03	250	2.8						3.3
04	240	2.6						3.3
05	260	2.1						3.4
06	260	2.5			---	E	2.0	3.1
07	240	5.3	230	---	110	2.0	6.1	3.3
08	290	6.4	210	3.7	110	2.5	10.3	3.1
09	330	6.8	200	4.1	100	---	11.1	2.8
10	360	6.3	200	4.2	100	---	11.5	2.7
11	380	6.1	190	4.2	100	---	11.9	2.7
12	390	6.0	190	4.2	100	---	12.0	2.7
13	380	5.9	190	4.1	100	---	11.5	2.7
14	370	5.9	190	4.1	100	---	11.4	2.7
15	340	6.2	190	3.9	100	---	10.8	2.7
16	290	6.7	200	---	100	---	9.4	2.8
17	230	6.8	220	---	110	2.0	5.7	2.9
18	250	6.8			---	E		3.0
19	260	5.8						3.0
20	250	5.5						3.1
21	230	6.2						3.3
22	210	5.7						3.5
23	220	4.4						3.5

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

Table 38

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.8						3.1
01	300	2.8						3.1
02	280	2.9						3.25
03	270	2.8						3.4
04	230	2.9						3.5
05	210	2.4						3.5
06	260	2.2						3.35
07	220	4.2						3.6
08	230	5.0	210	---	---	---	2.8	3.6
09	250	5.4	220	---	110	2.8	3.6	3.5
10	260	6.2	210	4.0	110	3.0	3.8	3.5
11	250	6.6	200	4.1	110	3.0	4.0	3.5
12	240	6.2	200	4.0	110	3.1	3.8	3.6
13	260	6.4	200	4.0	110	3.1	3.9	3.4
14	260	6.8	200	3.8	100	2.9	3.9	3.5
15	230	7.4	200	---	---	---	4.4	3.5
16	210	6.0	---	---			3.7	3.6
17	210	5.3					3.6	3.6
18	200	4.0						3.55
19	250	3.4						3.35
20	260	3.3						3.4
21	270	3.0						3.5
22	270	2.9						3.4
23	310	2.7						3.1

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

Table 39

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.6						3.2
01	300	2.7						3.2
02	290	2.7						3.2
03	280	2.8						(3.2)
04	280	2.9						3.3
05	260	2.8						(3.4)
06	250	2.9						(3.4)
07	240	3.1						(3.5)
08	240	3.1						(3.6)
09	210	3.8					2.2	(3.8)
10	210	4.1					2.5	(3.8)
11	220	4.1					3.0	(3.7)
12	220	4.1					3.0	(3.8)
13	220	4.1					2.5	(3.85)
14	220	4.1						(3.8)
15	210	4.1						(3.7)
16	220	3.8						(3.6)
17	230	3.6						3.6
18	230	3.1						(3.6)
19	230	2.8						(3.5)
20	250	2.7						(3.4)
21	260	2.6						(3.4)
22	300	2.5						(3.3)
23	300	2.7						3.2

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

Table 40

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(3.0)					7.3	3.1
01	(290)	(2.9)					6.6	3.2
02	320	(2.8)					4.8	3.1
03	320	(2.9)			---	---	4.3	3.1
04	320	3.0	---	---	---	---	4.0	3.1
05	320	3.2	280	---	---	---	3.9	3.1
06	330	(3.4)	240	3.0	110	1.8	4.4	3.2
07	520	(3.5)	(250)	3.3	120	2.1	4.4	2.4
08	450	3.6	250	3.3	110	2.2	4.0	2.75
09	540	3.7	250	3.4	110	2.5	4.3	2.6
10	590	3.7	230	3.5	100	2.4	3.9	2.6
11	550	3.8	240	3.5	110	2.5	3.1	2.4
12	480	3.9	230	3.6	110	2.6	3.4	2.5
13	500	3.9	220	3.6	110	2.6		2.6
14	460	4.0	240	3.6	110	2.5		2.7
15	430	4.0	240	3.6	120	2.5		2.8
16	410	4.0	240	3.5	120	2.3		2.9
17	360	4.0	250	3.3	110	2.2	2.4	3.05
18	320	4.0	240	3.2	120	2.0	2.5	3.1
19	310	3.7	250	3.0	110	1.6	3.0	3.15
20	310	3.0	---	---	120	1.6	3.8	3.1
21	300	3.1			110	---	4.5	3.2
22	(340)	(3.1)			---	---	5.8	3.1
23	320	3.1					6.4	3.1

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

Table 41*

Inverness, Scotland (57.4°N, 4.2°W) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	(2.0)						2.8
01	305	(1.8)						2.8
02	310	(1.6)						2.8
03	320	(1.5)					1.1	2.7
04	305	(1.7)					1.1	2.8
05	270	2.5			(160)	(1.5)	1.4	3.1
06	245	3.3	(230)		130	1.7	2.2	3.3
07	280	3.6	220	3.2	120	2.0	2.4	3.3
08	385	3.9	215	3.5	115	2.3	2.4	3.3
09	380	4.2	210	3.8	110	2.5	2.8	3.0
10	370	4.4	210	3.9	110	2.7	2.9	3.0
11	370	4.6	205	3.9	105	2.8	2.8	3.1
12	380	4.5	205	4.0	105	2.8		3.0
13	370	4.6	210	4.0	105	2.8		3.0
14	375	4.6	215	4.0	105	2.8		3.1
15	360	4.6	220	3.9	105	2.6		3.0
16	335	4.6	225	3.8	110	2.5	2.5	3.1
17	310	4.6	230	3.5	115	2.2	2.3	3.2
18	275	4.6	245	3.2	135	1.8		3.1
19	260	4.7	(250)	(2.7)	(160)	1.6		3.1
20	250	4.6						3.1
21	255	4.0						3.1
22	270	3.0						3.1
23	280	(2.4)						2.9

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 42

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0					2.0	3.1
01	275	2.9					2.0	3.05
02	270	2.8					2.0	3.1
03	260	2.6					2.0	3.1
04	260	2.5					2.0	3.1
05	255	2.8	---	---			2.0	3.3
06	240	3.4	230	---	---	E	2.4	3.4
07	275	3.8	220	3.4	115	2.0	2.7	3.45
08	360	4.2	215	3.6	110	2.4	3.0	3.1
09	360	4.5	215	3.3	105	2.6	2.9	3.15
10	320	4.8	210	3.9	105	2.8	3.3	3.3
11	330	5.0	210	4.0	105	2.8	3.5	3.3
12	330	5.0	205	4.1	105	2.9	3.8	3.2
13	315	4.8	210	4.0	105	3.0	3.5	3.2
14	300	5.0	220	4.0	105	2.8	3.6	3.4
15	320	5.0	220	3.9	105	2.8	3.4	3.2
16	305	5.0	220	3.7	105	2.6	3.1	3.3
17	280	5.0	230	3.5	115	2.2	2.6	3.3
18	270	5.0	230	---	120	1.8	2.4	3.3
19	250	5.2	---	---			2.4	3.3
20	240	5.5					2.2	3.3
21	230	4.8					2.0	3.3
22	230	4.0					1.9	3.3
23	260	3.3						3.2

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

Table 43*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	3.0					2.4	2.8
01	280	2.8					2.6	2.85
02	280	2.7					2.6	2.85
03	270	2.5					2.6	2.85
04	275	2.5					2.7	2.9
05	260	2.9			(140)	(1.3)	3.1	3.1
06	260	3.6	225	2.8	130	1.7	3.3	3.3
07	305	4.0	225	3.4	120	2.2	4.0	3.15
08	355	4.4	220	3.7	120	2.5	4.0	3.1
09	360	4.6	220	3.9	115	2.7	4.2	3.1
10	350	4.9	215	4.0	115	2.9	4.2	3.15
11	345	4.9	215	4.1	115	3.0	4.2	3.15
12	340	5.0	215	4.1	115	3.1	4.4	3.2
13	345	5.0	220	4.1	115	3.0	4.5	3.1
14	345	5.0	220	4.1	115	2.9	4.2	3.15
15	340	5.0	220	4.0	115	2.8	4.3	3.1
16	310	5.1	230	3.8	120	2.6	3.5	3.2
17	295	5.0	235	3.4	120	2.2	3.2	3.1
18	270	5.1	240	3.0	130	1.8	2.8	3.15
19	250	5.4					2.5	3.15
20	245	5.2					2.5	3.1
21	240	4.5					2.1	3.15
22	255	3.6					2.0	3.1
23	270	3.0					2.0	2.9

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 44*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	4.7					3.0	3.0
01	235	4.2					3.1	3.3
02	245	3.0					3.2	3.1
03	250	2.5					3.1	3.2
04	250	2.2					3.0	3.3
05	255	1.8					3.1	3.3
06	255	3.2					3.0	3.2
07	245	6.2	235		125	2.2	3.6	3.2
08	290	7.7	220	(4.1)	120	2.7	4.2	2.9
09	310	8.7	210	4.3	115	3.0	4.2	2.7
10	330	9.3	205	4.4	110	3.2	4.8	2.4
11	350	9.6	200	4.4	110	3.4	5.6	2.2
12	350	9.4	200	4.5	110	3.4	5.6	2.3
13	325	9.3	200	4.4	110	3.4	5.4	2.6
14	320	9.2	200	4.4	110	3.3	5.4	2.5
15	320	9.4	205	4.3	110	3.0	4.3	2.5
16	290	9.7	220	(4.1)	115	2.8	4.0	2.6
17	270	9.9	235		120	2.3	4.3	2.8
18	245	10.0				(1.5)	3.2	3.0
19	240	9.4					3.5	3.1
20	230	8.8					3.2	3.2
21	220	7.5					3.0	3.4
22	220	6.0					3.0	3.4
23	225	5.2					2.9	3.2

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 45

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	230	4.3						2.5
01	225	3.6						2.6
02	230	2.8					1.6	2.6
03	240	2.0					1.8	2.7
04	(250)	2.0					2.5	(2.7)
05	240	3.5					3.0	2.7
06	240	5.6	230	---	120	2.2	3.2	2.9
07	280	6.0	220	---	110	2.7	4.0	2.6
08	300	7.0	210	4.2	110	3.0	4.0	2.4
09	300	7.7	210	4.3	110	3.2	4.1	2.2
10	360	8.6	200	4.3	110	3.3	3.4	2.1
11	335	10.3	200	4.3	110	3.4	3.2	2.2
12	300	>11.0	200	4.3	110	3.4	3.3	2.4
13	290	11.0	210	4.2	110	3.2	3.4	2.3
14	310	10.4	230	4.2	110	3.0	3.5	2.2
15	295	>11.1	230	---	110	2.6	3.6	2.3
16	260	>11.3	245	---	---	---	3.8	2.5
17	230	>10.9			---	---	2.9	2.6
18	220	9.3					2.4	2.7
19	215	7.7					2.4	2.8
20	210	5.4					1.8	2.6
21	230	4.5						2.2
22	250	4.4						2.2
23	240	4.8						2.4

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

Table 46

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2						3.0
01	280	3.0						3.0
02	290	3.2						3.0
03	280	3.1						3.1
04	290	2.9						3.1
05	300	2.7					2.1	3.0
06	300	2.6					2.4	2.9
07	250	5.4	---	---	---	E	2.5	3.35
08	250	7.2	230	3.8	120	2.4	3.1	3.5
09	260	7.4	220	4.1	115	2.8	3.4	3.45
10	270	7.9	210	4.3	110	3.0	3.6	3.4
11	260	8.5	210	4.3	110	3.2	4.0	3.4
12	260	7.2	200	4.4	110	3.2	4.0	3.4
13	290	7.0	200	4.4	110	3.2	4.1	3.2
14	300	7.6	200	4.3	110	3.2	4.6	3.1
15	270	8.7	210	4.2	110	2.9	4.4	3.4
16	260	7.8	200	4.1	110	2.7	4.0	3.35
17	250	7.0	240	3.2	---	2.2	3.5	3.35
18	250	6.6					3.9	3.4
19	240	5.5					3.2	3.3
20	260	4.4					3.0	3.1
21	290	3.8					2.5	2.9
22	270	3.8						3.1
23	260	3.5						3.1

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

Table 47

Sao Paulo, Brazil (23.5°S, 46.5°W) April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.6						3.3
01	240	4.6					3.1	3.3
02	230	5.2					3.4	3.5
03	220	4.6					3.2	3.75
04	250	2.7						3.5
05	(340)	2.2						3.35
06	260	2.8						3.3
07	230	5.3						3.6
08	240	6.4	---	---	110	2.4	2.6	3.5
09	270	7.2	210	4.0	100	2.8	3.2	3.3
10	300	8.4	200	4.4	105	3.0		3.2
11	300	9.6	200	4.4	100	3.1	3.5	3.15
12	280	10.3	190	4.4	100	3.2	3.4	2.95
13	310	10.8	180	4.3	105	---	4.1	2.9
14	300	11.4	190	4.2	110	3.0	4.0	3.0
15	260	>12.0	200	4.1	105	3.0	3.5	3.4
16	230	11.0	---	---	100	---	3.5	3.5
17	220	9.6	---	---			3.5	3.6
18	200	8.4					3.4	3.75
19	200	6.5					3.2	(3.6)
20	210	5.6					3.1	3.4
21	240	5.8					3.4	3.3
22	220	5.7						3.4
23	220	5.3						3.5

Time: Local.
Sweep: 1.75 Mc to 20.0 Mc in 7.3 minutes.

Table 48

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.4					2.7	2.9
01	280	4.3					2.6	3.0
02	260	4.0					2.5	3.2
03	250	3.4					1.8	3.2
04	290	3.0					1.8	2.9
05	300	2.8						3.0
06	260	3.1					2.0	3.1
07	250	5.8	230	3.2	---	2.0	2.7	3.5
08	250	7.3	220	4.0	110	2.5	3.4	3.5
09	250	7.5	220	4.1	105	2.9	3.9	3.5
10	270	7.8	200	4.3	105	3.1	4.3	3.3
11	280	9.1	200	4.4	105	3.2	4.4	3.2
12	270	9.3	200	4.5	105	3.3	4.4	3.3
13	270	9.4	200	4.5	105	3.3	4.2	3.4
14	280	8.8	200	4.3	105	3.3	4.1	3.2
15	280	8.2	210	4.3	105	3.1	4.0	3.2
16	260	8.1	230	4.0	110	(2.8)	4.0	3.3
17	250	7.9	230	3.5	110	2.4	3.9	3.3
18	250	7.1			---	E	4.3	3.4
19	250	6.4					3.6	3.3
20	260	5.8					4.0	3.2
21	280	4.8					3.5	3.0
22	290	4.2					3.0	2.9
23	300	4.6					3.0	2.95

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

Table 49

Sao Paulo, Brazil (23.5°S, 46.5°W) March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	5.9						3.1
01	230	6.4						3.15
02	220	6.8						3.6
03	210	4.9						3.5
04	240	3.8						3.3
05	240	3.8						(3.4)
06	240	3.6						3.3
07	220	5.6						3.6
08	250	6.6						3.45
09	270	7.3						3.3
10	300	7.6						3.0
11	360	8.8						2.8
12	360	9.4						2.8
13	320	10.3						2.85
14	300	11.0						3.1
15	280	11.3						3.2
16	260	11.8						3.3
17	240	11.8						3.4
18	220	12.1						3.55
19	210	10.4						3.5
20	210	9.2						3.4
21	220	(8.0)						3.3
22	230	8.2						3.4
23	230	6.9						3.1

Time: Local.
Sweep: 2.5 Mc to 20.0 Mc in 6 minutes.

Table 50*

Falkland Is. (51.7°S, 57.8°W) March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	3.7					4.1	(2.8)
01	305	3.6					4.2	(2.8)
02	300	3.5					3.4	(2.8)
03	290	3.4					3.4	(2.9)
04	270	3.4					2.8	(3.0)
05	270	3.1					3.1	3.0
06	240	4.0			150	1.4	3.2	3.2
07	240	4.6	(210)		125	1.9	3.0	3.5
08	255	5.2	(240)	(3.7)	115	2.4	4.3	3.5
09	275	5.6	(220)	3.8	110	2.7	5.3	3.3
10	265	5.8	(210)	4.0	105	2.8	5.7	3.4
11	270	6.0	(220)	4.1	105	2.9	5.7	3.3
12	265	6.6	(225)	4.2	105	2.9	6.0	3.4
13	260	6.6	(215)	4.1	105	2.9	5.8	3.4
14	260	6.0	(220)	4.0	110	2.8	5.9	3.5
15	245	5.8	(220)	3.8	110	2.6	5.6	3.5
16	250	5.6	(230)	(3.7)	110	2.4	4.3	3.5
17	240	5.8			115	2.1	5.3	3.5
18	240	5.6					3.8	3.4
19	250	5.6					3.6	3.2
20	255	4.8					3.7	3.1
21	270	4.6					4.0	3.0
22	280	3.9					3.8	3.0
23	295	3.7					3.2	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 51*

Port Lockroy (64.8°S, 63.5°W) March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4					1.4	2.8
01	290	3.2					2.0	2.8
02	300	3.1					2.0	2.8
03	280	2.8					2.2	2.8
04	280	2.8					1.9	2.8
05	280	2.7					2.4	2.9
06	260	3.1					2.3	3.1
07	260	3.6	(230)		(115)	1.8	2.5	3.2
08	260	4.2	220		105	2.0		3.4
09	265	4.5	220	(3.4)	105	2.2	3.2	3.3
10	265	4.8	220	(3.6)	100	2.4	4.3	3.4
11	270	4.9	225	(3.6)	100	2.4	3.6	3.4
12	270	5.3	230	(3.8)	100	2.5	3.8	3.4
13	260	5.2	230	(3.7)	100	2.4	3.5	3.4
14	260	5.0	230	(3.7)	100	2.4	2.9	3.4
15	250	5.0	225		100	2.3		3.5
16	240	4.7	(225)		105	2.2		3.5
17	245	4.8			(110)	(1.9)	1.7	3.4
18	245	4.8					1.6	3.2
19	250	5.0					2.4	3.0
20	260	5.2						3.0
21	255	4.9						3.0
22	275	4.2						(2.9)
23	290	3.8						(2.9)

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 52

Calcutta, India (22.6°N, 88.4°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(240)	(3.4)						(3.0)
01	(240)	(3.8)						
02	(210)	(4.0)						
03	(220)	(3.3)						(3.2)
04	(210)	(2.8)						
05	(210)	(2.6)						
06	(240)	(3.0)						(3.0)
07	(220)	(5.2)				---		
08	(210)	(6.5)				2.4		
09	(210)	(7.2)				2.7		(3.2)
10	(210)	(8.7)				3.0		
11	(210)	(10.1)				3.2		
12	210	11.0				3.2		(3.3)
13	210	10.8				3.2		
14	210	10.4				3.0		
15	210	10.6				2.8		(3.25)
16	210	9.4				2.5		
17	(210)	(8.7)				---		
18	(210)	(7.8)						(3.05)
19	(210)	(7.8)						
20	(210)	(5.4)						
21	(210)	(4.9)						(3.25)
22	(210)	(4.2)						
23	(210)	(3.9)						

Time: 90.0°E.
Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 53

Townsville, Australia (19.3°S, 146.8°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.9					2.8	3.0
01	260	3.9					2.8	3.1
02	240	3.8					3.0	3.1
03	240	2.9					3.1	3.1
04	260	2.6					2.3	3.15
05	250	2.5					2.4	3.1
06	240	3.4			---	E	3.0	3.3
07	240	4.5	---	---	110	2.0	3.6	3.4
08	320	5.3	230	3.9	110	2.6	4.1	3.2
09	320	5.7	220	4.1	100	2.9	4.8	3.1
10	330	6.7	200	4.2	110	3.2	4.3	3.1
11	320	7.0	200	4.3	110	3.2	4.4	3.0
12	300	8.0	200	4.3	110	3.3	4.5	3.1
13	300	8.3	200	4.3	100	3.3	4.0	3.1
14	290	>8.5	200	4.2	120	3.3	4.0	(3.1)
15	280	7.8	200	4.0	120	3.1	3.7	3.25
16	270	7.6	220	3.9	120	2.8	4.2	3.3
17	250	6.3	230	3.7	120	2.4	4.2	3.4
18	240	5.4	---	---	120	2.0	4.1	3.5
19	240	4.8					3.1	3.2
20	260	4.2					3.0	3.0
21	280	4.0					3.0	3.0
22	300	4.1					2.2	3.0
23	300	4.0					2.5	3.0

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

Table 54

Sao Paulo, Brazil (23.5°S, 46.5°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(5.7)						(3.1)
01	250	5.2						3.05
02	240	4.4						(3.4)
03	240	4.7						3.45
04	240	3.6						3.3
05	240	3.8						(3.2)
06	220	4.4						3.6
07	220	6.0						3.5
08	260	6.2						3.4
09	300	6.5						3.3
10	(320)	6.7						2.9
11	(330)	7.4						2.9
12	400	7.8						2.8
13	360	9.1						2.9
14	320	9.8						3.05
15	300	10.4						3.15
16	280	11.1						3.3
17	260	11.0						3.4
18	240	10.1						3.45
19	220	9.3						3.45
20	230	8.4						3.3
21	240	6.8						3.2
22	240	7.1						3.1
23	260	(6.6)						(3.1)

Time: Local.
Sweep: 2.5 Mc to 20.0 Mc in 6 minutes.

Table 55

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	290	4.2					4.1	3.0
01	260	4.0					4.0	3.2
02	240	3.5					3.8	3.3
03	(250)	3.0					3.4	(3.2)
04	(260)	2.8						(3.1)
05	(260)	2.6						(3.2)
06	240	4.0			---	---		3.55
07	300	4.6	240	3.9	---	---	4.2	3.3
08	300	5.0	---	4.1	110	2.8	5.0	3.35
09	(320)	(5.5)	---	4.2	110	3.1	5.8	(3.15)
10	340	5.6	---	---	110	3.2	5.6	3.1
11	330	6.0	200	4.3	110	3.4	5.1	3.0
12	330	6.4	200	4.4	---	---	5.7	3.0
13	300	6.7	200	4.4	---	3.5	4.8	3.2
14	330	6.1	220	4.4	110	3.3	4.0	3.1
15	300	6.2	225	4.3	120	3.2	4.0	3.2
16	280	6.1	230	4.0	120	2.9	3.9	3.3
17	260	5.8	230	3.7	---	---	4.0	3.4
18	250	5.2					4.2	3.4
19	240	5.0					4.1	3.3
20	(260)	4.3					3.3	3.0
21	(290)	4.1					3.4	2.9
22	300	4.2					3.7	2.85
23	300	4.2					3.8	2.9

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

Table 56

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	---	4.0					3.7	3.0
01	---	3.9					3.6	3.0
02	---	3.3					3.5	3.1
03	---	3.1					3.1	3.0
04	---	2.6					3.0	3.0
05	---	2.4						3.0
06	240	3.4			---	1.6		3.3
07	260	4.1	240	3.6	110	2.2		3.3
08	450	4.2	220	3.8	110	2.7	3.5	(3.1)
09	350	4.9	230	4.0	110	2.9	4.3	3.1
10	350	5.1	210	4.1	100	3.1	5.4	3.05
11	(350)	5.2	---	4.1	100	3.1	5.4	(3.15)
12	370	5.5	200	4.2	100	3.2	5.7	3.0
13	350	5.2	200	4.1	100	3.2	4.9	3.0
14	360	5.1	220	4.1	100	3.2	4.1	3.1
15	320	5.4	220	4.1	100	3.1	3.8	3.1
16	320	5.1	220	4.0	100	2.9	3.5	3.1
17	300	5.2	230	(3.7)	110	2.6		3.2
18	270	4.9	240	(3.2)	---	2.0	3.6	3.3
19	(250)	4.8					3.5	3.2
20	---	5.0					3.7	3.1
21	---	4.2					3.6	3.0
22	---	4.0					3.7	3.0
23	---	4.2					3.9	2.9

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

Table 57

Hobart, Tasmania (42.9°S, 147.3°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	270	3.0					3.4	2.9
01	270	2.5					3.1	3.0
02	250	2.4					3.0	3.0
03	250	2.1					3.0	3.0
04	260	2.0					3.0	3.1
05	250	3.0			110	1.5	3.5	3.0
06	220	3.3			100	2.0	3.2	3.2
07	220	<3.6	220	3.6	100	2.5	3.3	3.0
08	G	<4.0	200	3.8	---	---	3.6	G
09	G	<4.0	200	4.0	---	---	4.0	0
10	390	4.6	200	4.0	---	---	4.0	2.9
11	400	4.6	200	4.0	---	---	4.0	2.8
12	370	4.7	200	4.1	---	---	3.9	2.9
13	400	5.0	200	4.1	---	---	3.7	2.8
14	370	5.0	200	4.1	---	---	3.8	2.85
15	350	4.7	200	4.0	100	2.9	3.6	3.0
16	330	4.8	210	3.9	100	2.7	3.5	2.95
17	240	4.8	210	3.6	100	2.4	3.0	3.0
18	230	5.0			100	2.1	3.0	3.1
19	230	5.0			---	E	3.7	3.1
20	250	4.7					4.0	3.1
21	250	4.1					3.8	3.0
22	250	3.5					4.1	2.9
23	270	3.3					4.0	2.9

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

Table 58

Calcutta, India (22.6°E, 88.4°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	(240)	(3.9)						(3.0)
01	(250)	(3.8)						
02	(240)	(3.7)						
03	(240)	(3.2)						(3.1)
04	(270)	(2.8)						
05	(270)	(2.3)						
06	(270)	(2.8)						(2.75)
07	(240)	(4.7)						
08	210	6.8				2.4		
09	210	8.2				2.7		3.05
10	210	8.6				2.8	3.6	
11	(220)	(9.5)				---	(3.7)	
12	(210)	(9.9)				3.2		(3.0)
13	(210)	(10.6)				3.1		
14	210	10.5				3.1		
15	(180)	8.5				---	(3.1)	(3.1)
16	210	8.5				---		
17	210	7.8					3.9	
18	200	7.0					3.4	(3.25)
19	(210)	(5.2)						
20	(220)	(4.9)					(3.6)	
21	(210)	(5.3)						(3.3)
22	(210)	(4.7)						
23	(260)	(3.8)						

Time: 90.0°E.
Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 59

Townsville, Australia (19.3°S, 146.8°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	260	(4.3)					3.8	(3.2)
01	250	(4.2)					4.1	---
02	240	3.4					3.1	(3.25)
03	240	3.2					3.1	(3.2)
04	250	2.8					3.0	3.2
05	250	2.4					2.2	3.35
06	240	3.4			140	1.3	2.9	3.5
07	240	4.2	210	3.3	110	2.1	3.9	3.4
08	(360)	(4.7)	220	3.9	110	2.7	>4.2	(3.3)
09	(350)	5.4	210	4.0	100	3.0	>4.4	3.0
10	340	6.2	200	4.2	100	3.2	>4.4	2.95
11	320	7.0	200	4.3	100	3.3	>4.4	(3.0)
12	320	8.0	200	4.4	100	3.3	>4.3	3.0
13	320	8.0	200	4.3	100	3.3	>4.3	3.0
14	(320)	(7.9)	200	4.2	100	3.3	>4.3	(3.1)
15	(300)	(8.0)	210	4.1	100	3.3	>4.3	(3.2)
16	(270)	(7.6)	220	4.0	100	2.9	>4.3	(3.35)
17	(260)	(6.8)	210	3.8	100	2.6	>4.3	(3.4)
18	240	(5.2)	---	---	110	2.0	4.1	(3.5)
19	240	4.2					4.0	3.1
20	280	4.4					3.8	(2.9)
21	270	(4.2)					3.4	(3.0)
22	280	(4.2)					3.8	(3.1)
23	280	(4.2)					4.0	(2.9)

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

Table 60

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	'(M3000)F2
00	260	4.1					4.0	3.2
01	<250	4.1					3.8	(3.2)
02	<240	3.5					3.5	3.4
03	260	3.0					3.6	3.1
04	260	3.0					3.8	3.2
05	250	3.2					2.0	3.4
06	250	4.2	---	3.5	---	---	4.0	3.5
07	300	4.6	220	3.9	110	(2.4)	5.4	3.3
08	(320)	5.0	200	4.1	100	3.0	6.7	(3.1)
09	330	5.5	---	4.1	100	3.2	6.5	3.05
10	320	6.3	---	---	100	3.4	6.0	3.1
11	330	6.1	---	4.4	100	3.5	6.6	3.1
12	340	6.0	---	---	110	3.5	5.2	3.1
13	330	6.5	---	---	100	3.5	5.8	3.0
14	330	6.3	---	(4.3)	100	3.4	5.5	3.0
15	280	6.6	---	---	100	3.2	5.6	3.25
16	280	6.3	220	4.0	110	2.9	5.5	3.2
17	270	6.0	230	3.8	110	(2.5)	4.8	3.3
18	250	5.6	---	---	---	---	4.8	3.3
19	230	5.5					4.7	3.15
20	230	5.2					5.4	3.0
21	290	4.5					4.0	3.0
22	280	4.2					3.9	3.0
23	300	4.3					3.8	3.1

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

Table 61

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	4.1					3.6	3.0
01	---	3.8					3.7	3.2
02	---	(3.4)					3.5	(3.1)
03	---	(2.8)					3.1	(3.05)
04	---	2.6					2.5	(3.1)
05	---	3.0					2.8	(3.3)
06	(230)	3.9			110	2.0	3.7	3.4
07	(290)	4.2	---	3.7	100	2.5	4.8	(3.4)
08	(370)	4.6	---	3.9	100	2.8	5.7	(3.1)
09	(340)	4.8	---	4.0	100	3.0	6.2	(3.1)
10	(330)	5.2	---	4.1	100	3.2	6.3	(3.2)
11	320	5.6	200	4.2	100	3.3	4.8	3.2
12	320	6.0	190	4.2	100	3.3	5.8	3.1
13	330	6.0	200	4.2	100	3.3	4.6	3.1
14	330	5.6	210	4.2	100	3.3	4.0	3.1
15	330	5.4	210	4.1	100	3.2		3.1
16	310	5.3	210	4.0	100	3.0	3.5	3.2
17	300	5.4	220	3.8	110	2.7		3.2
18	260	5.6	230	3.4	110	2.2	4.0	3.2
19	(240)	5.6					4.0	3.25
20	---	5.2					3.3	3.2
21	---	(4.6)					4.1	3.05
22	---	4.4					3.4	3.1
23	---	4.0					3.6	3.0

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

Table 62

Hobart, Tasmania (42.9°S, 147.3°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.5					2.9	3.0
01	250	3.0					3.1	3.1
02	250	2.5						3.1
03	260	2.1						3.0
04	250	2.1						3.1
05	250	3.0			120	1.5	2.6	3.2
06	220	3.5			100	2.0	2.5	3.2
07	220	4.0	200	3.6	100	2.4	3.6	3.05
08	400	4.5	200	3.9	100	2.7	4.0	2.85
09	350	5.0	200	4.1	100	3.0	5.0	2.85
10	350	5.0	200	4.1	100	3.0	5.4	2.9
11	340	5.2	200	4.2	100	3.2	4.5	3.0
12	340	5.4	200	4.3	100	3.2	4.1	3.0
13	320	5.5	200	4.3	100	3.3	3.7	3.1
14	340	5.4	200	4.2	100	3.2	3.5	3.0
15	340	5.1	200	4.1	100	3.0	3.6	3.0
16	320	5.1	200	4.0	100	2.9	3.5	3.0
17	300	5.0	200	3.8	100	2.6	3.5	3.05
18	220	5.0	---	---	100	2.2	3.6	3.1
19	230	5.3			---	---	5.9	3.2
20	220	5.0					5.0	3.2
21	250	5.0					4.6	3.1
22	250	4.5					4.0	3.0
23	250	3.9					3.7	3.0

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

Table 63*

Ibadan, Nigeria (7.4°N, 4.0°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.4						
01	255	5.0					0.9	
02	260	4.2						
03	255	3.8						
04	235	3.0						
05	235	1.8						
06	250	3.7			140	1.4	1.3	
07	---	6.2	235		120	2.1	4.5	
08	(310)	7.1	220	(4.1)	120	2.8	5.1	
09	335	6.8	210	4.2	(120)	3.1	9.1	
10	370	6.4	205	4.3	(115)	3.3	10.6	
11	380	6.3	195	4.4	(110)	3.4	10.6	
12	385	6.5	195	4.3	(115)	3.4	10.2	
13	370	6.8	195	4.3	(110)	3.3	10.4	
14	350	7.2	200	4.2	115	3.2	9.1	
15	320	7.3	210	4.1	115	2.9	6.4	
16	(300)	7.2	225	(3.8)	115	2.5	4.8	
17	245	7.2	235	(1.9)	125	1.8	4.8	
18	265	7.2				(0.9)	2.3	
19	285	6.6					2.1	
20	285	6.5					2.0	
21	270	6.1						
22	245	5.8						
23	240	(5.6)						

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 64

Tananarive, Madagascar (18.8°S, 47.8°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.7						3.1
01	242	4.4						3.2
02	242	3.9						3.2
03	250	3.6						3.2
04	260	3.2					1.7	3.15
05	250	3.0					2.5	3.2
06	242	4.5	228	---	127	1.9	3.2	3.4
07	285	5.3	225	4.0	119	2.5	3.4	3.3
08	358	5.5	220	4.2	115	2.9	3.5	3.0
09	348	6.6	220	4.3	115	3.2	3.5	3.0
10	340	7.2	220	4.4	115	3.4	3.6	2.95
11	340	7.8	220	4.5	113	3.4	3.5	2.9
12	330	8.3	220	4.5	115	3.5	3.6	3.0
13	310	9.0	210	4.5	115	3.4	4.0	3.1
14	308	8.8	220	4.4	115	3.3	3.6	3.1
15	300	8.0	220	4.3	115	3.2	3.5	3.1
16	302	7.6	215	4.0	118	2.9	3.4	3.1
17	280	7.5	228	3.8	119	2.5	3.2	3.25
18	255	7.3	230	---	131	1.8	3.2	3.25
19	235	7.0					2.9	3.2
20	240	6.4					2.7	3.2
21	235	5.9					2.0	3.2
22	235	5.2					2.0	3.2
23	255	4.8					1.8	3.1

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

Table 65

Tananarive, Madagascar (18.8°S, 47.8°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.8					1.8	3.1
01	240	4.7						3.2
02	245	4.1						3.1
03	255	3.7						3.1
04	240	3.4						3.25
05	240	3.2						3.3
06	240	4.8	230	---	124	1.9	2.5	3.4
07	280	5.4	220	---	119	2.5	3.2	3.2
08	320	6.0	225	4.2	115	2.9	3.4	3.15
09	310	6.8	215	4.4	115	3.2	3.5	3.05
10	325	7.3	220	4.5	115	3.4	3.4	3.0
11	330	7.7	220	4.5	114	3.4	3.4	3.0
12	320	8.0	215	4.5	117	3.5		3.0
13	320	8.2	220	4.5	115	3.4		3.0
14	300	8.3	225	4.4	115	3.3		3.05
15	295	8.4	230	4.3	117	3.1		3.1
16	295	8.3	225	4.1	119	2.8		3.05
17	290	8.1	<235	---	121	2.3	3.6	3.0
18	250	8.6	<240	---	---	---	3.1	3.2
19	230	7.9					2.8	3.2
20	230	6.9					2.8	3.2
21	235	5.9					3.0	3.2
22	235	5.4					2.5	3.1
23	260	4.8					2.2	3.1

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

Table 66

Tananarive, Madagascar (18.8°S, 47.8°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.6					2.4	3.15
01	240	4.3					1.4	3.3
02	235	3.6						3.2
03	260	3.0					1.5	3.1
04	260	2.8					1.5	3.1
05	260	2.8						3.1
06	240	4.8	---	---	143	1.9		3.5
07	272	5.7	235	---	121	2.4		3.35
08	290	6.7	235	4.3	119	2.8		3.3
09	295	7.3	230	4.5	117	3.1		3.15
10	305	7.9	215	4.6	117	3.3		3.15
11	290	8.0	220	4.6	117	3.4		3.15
12	300	8.0	215	4.6	115	3.4		3.1
13	300	8.1	215	4.6	119	3.4		3.05
14	300	7.5	220	4.5	119	3.2		3.1
15	295	7.6	222	4.3	119	3.0		3.1
16	285	7.6	230	4.1	119	2.7	2.6	3.15
17	270	8.0	235	---	123	2.2	3.3	3.15
18	242	7.7			---	---	3.0	3.25
19	240	7.0					2.8	3.2
20	238	6.0					2.2	3.2
21	250	5.2					2.2	3.15
22	260	4.6					1.9	3.1
23	268	4.5						3.05

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

Table 67

Brisbane, Auetralia (27.5°S, 153.0°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.4					3.2	3.1
01	250	4.2						3.2
02	245	3.9					2.2	3.2
03	255	3.4						3.1
04	270	3.2						3.0
05	270	3.4						3.1
06	250	4.7			135	2.1		3.4
07	290	5.4	230	4.0	110	2.6		3.3
08	300	5.9	230	4.3	110	3.0		3.2
09	300	6.5	220	4.5	110	3.2		3.2
10	300	7.0	200	4.6	100	3.4		3.2
11	280	7.0	200	4.5	100	3.5		3.3
12	290	6.7	200	4.6	100	3.4		3.2
13	290	6.6	200	4.5	110	3.4		3.2
14	300	6.2	215	4.4	110	3.3		3.2
15	300	6.0	220	4.3	110	3.0		3.2
16	270	6.0	240	4.0	110	2.7		3.3
17	250	6.2	245	3.3	120	---		3.3
18	240	6.0					3.5	3.2
19	250	5.5					3.3	3.1
20	260	5.0					3.8	3.0
21	280	4.9					2.6	3.0
22	280	4.7					2.9	3.0
23	270	4.4					2.6	3.1

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

Table 68

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.7						2.9
01	275	2.3						2.9
02	250	2.3						2.9
03	270	2.1						3.0
04	270	2.2						2.9
05	255	2.3			---	---		3.0
06	250	3.5			120	1.7		3.1
07	225	4.0			100	2.2		3.1
08	330	4.3	210	3.8	100	2.6		2.9
09	400	4.6	210	4.0	100	2.8		2.8
10	350	5.0	200	4.1	100	3.0		2.9
11	350	5.0	200	4.1	100	3.1		2.8
12	340	5.5	200	4.2	100	3.1		2.9
13	310	5.4	200	4.3	100	3.1		3.0
14	320	5.5	200	4.1	100	3.0		3.0
15	300	5.3	200	4.0	100	2.9		3.0
16	220	5.0	210	3.9	100	2.6		3.0
17	230	5.0			100	2.2		3.0
18	240	5.0			115	1.7		3.0
19	230	5.0						3.0
20	250	4.5						3.0
21	250	3.9						2.9
22	270	3.1						2.9
23	290	3.0						2.9

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

Table 69

Fribourg, Germany (48.1°N, 7.8°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<270	3.3					2.6	2.95
01	270	3.1					2.6	2.9
02	285	2.9					2.2	2.85
03	282	2.7					2.6	2.9
04	285	2.6						2.9
05	278	3.1	260	---	---	E	2.6	2.95
06	280	4.0	250	3.2	126	(1.8)	3.4	3.15
07	330	4.4	240	3.6	117	(2.4)	3.9	3.2
08	340	4.7	225	3.9	113	(2.7)	4.4	3.15
09	330	4.9	210	4.1	111	(2.9)	4.4	3.15
10	330	5.0	210	4.2	111	3.1	4.2	3.2
11	370	4.9	208	4.2	109	3.2	4.5	3.05
12	372	5.0	212	4.3	111	3.2	4.4	3.1
13	362	5.0	220	4.2	109	3.2	4.0	3.05
14	370	4.8	220	4.2	109	3.2	3.8	3.0
15	370	4.9	225	4.1	111	3.0	3.8	3.0
16	345	4.8	225	3.9	111	2.8	3.7	3.05
17	340	5.0	242	3.7	115	2.5	3.6	3.1
18	305	5.1	252	3.2	121	2.0	3.7	3.05
19	270	5.6	258	---	130	1.6	3.5	3.05
20	255	5.8					3.7	3.15
21	248	5.4					3.6	3.1
22	250	4.6					3.1	3.1
23	258	3.6					3.0	3.05

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

Table 70

Dakar, French W. Africa (14.6°N, 17.4°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	2.4					3.5	2.6
01	320	2.4					3.4	2.8
02	290	2.2					3.9	2.9
03	310	2.2					3.4	2.85
04	302	2.0					3.4	(2.95)
05	280	2.0					3.4	2.95
06	235	4.2	---	---	---	1.6	3.0	3.65
07	240	5.3	220	3.6	109	2.2	4.2	3.7
08	295	5.4	220	4.2	---	2.8	4.3	3.3
09	335	5.9	210	4.3	---	3.1	4.5	3.0
10	380	6.5	208	4.5	105	3.4	4.8	2.8
11	430	7.8	200	4.5	---	3.5	4.5	2.65
12	428	9.3	208	4.5	---	3.6	4.0	2.65
13	400	10.0	212	4.5	---	3.5	3.7	2.7
14	360	10.3	210	4.4	---	3.4	4.1	2.8
15	330	10.6	225	4.3	---	3.2	4.0	2.95
16	310	10.7	230	4.2	---	2.9	3.6	3.1
17	285	11.2	235	4.0	111	2.5	3.6	3.2
18	255	10.0	240	---	---	1.9	3.5	3.25
19	225	7.2					3.2	3.3
20	240	4.8					3.4	3.0
21	280	3.7					3.4	2.85
22	<320	3.1					3.4	2.65
23	360	2.8					3.5	2.6

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

Table 71

Fribourg, Germany (48.1°N, 7.8°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.8					2.6	2.95
01	270	3.5					2.4	2.95
02	<275	3.2					2.4	2.9
03	<265	3.0					2.1	2.95
04	272	2.9					2.4	2.95
05	(270)	3.5	252	---	<133	1.6	2.8	3.0
06	418	3.9	240	3.4	115	2.1	3.3	2.8
07	408	4.3	230	3.6	111	2.5	3.9	2.85
08	410	4.4	<230	3.9	109	2.8	4.4	2.9
09	390	4.7	215	4.0	107	2.9	4.2	2.85
10	368	4.9	<220	4.1	107	3.0	4.6	3.0
11	390	4.8	222	4.2	105	3.1	4.8	2.9
12	415	4.8	220	4.2	105	3.2	4.3	2.85
13	410	4.9	222	4.2	105	3.2	4.5	2.85
14	390	4.7	220	4.1	109	3.1	3.9	2.95
15	380	4.8	225	4.0	109	3.0	3.7	2.95
16	380	4.6	228	3.9	109	2.8	3.5	2.95
17	358	4.8	238	3.7	111	2.5	3.3	3.0
18	320	4.8	245	3.4	115	2.2	4.1	3.05
19	<290	5.0	248	---	129	---	3.6	3.1
20	260	5.7					3.1	3.15
21	250	5.4					2.9	3.05
22	255	4.6					2.4	3.05
23	265	4.1					2.5	2.95

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

Table 72

Dakar, French W. Africa (14.6°N, 17.4°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(2.6)					3.5	(2.65)
01	330	2.5					3.4	2.7
02	310	(2.3)					4.2	2.9
03	<340	(2.2)					4.0	2.85
04	<290	(2.1)					4.2	2.9
05	<290	2.2					4.2	3.1
06	240	4.2	---	---	---	1.8	3.3	3.5
07	255	5.2	225	3.6	---	2.4	4.3	3.5
08	305	5.4	215	4.1	107	2.8	4.8	3.25
09	355	5.6	220	4.3	---	3.1	5.8	2.85
10	410	6.1	210	4.4	---	3.4	4.8	2.6
11	450	7.4	220	4.5	105	3.5	4.7	2.65
12	435	8.4	200	4.5	---	(3.6)	4.2	2.65
13	420	9.2	215	4.4	107	3.4	4.7	2.7
14	400	9.6	210	4.3	108	3.3	4.6	2.75
15	340	10.0	220	4.3	109	3.2	4.6	2.85
16	325	10.1	230	4.2	110	2.9	3.5	3.05
17	295	10.0	225	4.0	111	2.5	4.2	3.1
18	260	9.1	245	3.2	---	1.8	4.3	3.15
19	230	6.8					3.6	3.25
20	<270	4.8					4.0	2.95
21	315	3.9					3.3	2.75
22	340	3.4					3.5	2.65
23	<350	3.0					3.8	2.65

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

TABLE 73

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

Form adopted June 1946

IONOSPHERIC DATA

h' F2 (Characteristic), Km (Unit), September (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
1	(280)^{S}	(310)^{A}	(270)^{S}	S	S	S	260^{H}	300	250	300	370	350	320	300	300	390	310	320	270	270	240	240	240	(230)^{S}
2	(270)^{S}	A	A	A	S	(320)^{S}	250	(250)^{A}	G	G	G	G^{K}	G^{K}	G^{K}	G^{K}	450^{K}	390^{K}	370$^{H}_{K}$	300^{K}	230^{K}	230^{K}	260^{K}	(320)$^{S}_{K}$	[320]$^{S}_{K}$
3	(310)$^{S}_{K}$	(300)^{S}	(280)^{S}	S	S	S	230	260	560	400^{H}	320	350	500	420	350	400	390	320	260	240	210	240	(260)^{S}	(309)^{S}
4	S	S	(310)^{S}	(290)^{S}	S	S	250	230	360	[400]^{S}	(430)^{S}	(450)^{H}	450	350	330	380	340	310	270	240	250	260	250	270
5	320	(320)^{S}	S	S	S	S	280	420	350	310	270	370	400	370	310	320	330	280	250	240	240	230	260	300
6	(310)^{S}	300	(320)^{S}	260	270	[240]^{S}	210	320	300	270	320	350	340	350	320	350	260	250	250	220	220	280	290	(300)^{S}
7	(330)^{S}	(300)^{S}	260	300	S	S	250	250^{H}	330^{H}	300	310	280^{H}	420^{H}	390	380	320	290	290	270	240	230	240	290	290
8	280	(300)^{S}	(290)^{S}	(300)^{S}	A	S	240	300	[300]^{M}	300	300	320	470	400	400	380	320	300	260	230	220	220	(290)^{S}	(300)^{S}
9	(320)^{S}	(300)^{S}	(290)^{S}	310	(290)^{S}	(250)^{S}	(250)^{L}	280	400	290	330	390	410	370	330	310	350	300	240	240	250	240	230	(300)^{S}
10	(350)^{S}	(300)^{S}	(290)^{S}	(300)^{S}	(300)^{S}	(290)^{S}	250	260	280	250	280^{H}	(400)^{L}	400	360	320	350	330	290	250	(230)^{A}	220	240	250	(280)^{S}
11	(280)^{S}	(290)^{S}	(280)^{S}	S	S	(310)^{S}	240	230	280	340	330	320	360	330	390	330	310	280	(250)^{A}	(260)^{A}	230	230	(240)^{S}	(280)^{S}
12	[280]^{S}	(280)^{S}	(270)^{S}	(270)^{S}	A	A	230	250	290	280	310	300	360	310	310	330	300	280	250	230	230	240	250	270
13	270	280	(270)^{S}	260	(280)^{S}	(280)^{S}	260	290	250	280	310	330	360	360	320	320	330	280	260	250	240	230	230	260
14	300	(320)^{S}	310	290	(300)^{S}	[280]^{S}	270	[300]^{L}	(320)^{L}	540	G	G^{K}	G^{K}	G^{K}	G^{K}	(490)$^{L}_{K}$	(500)$^{L}_{K}$	400$^{H}_{K}$	310^{K}	(240)$^{S}_{K}$	250^{K}	(240)$^{S}_{K}$	(309)$^{S}_{K}$	S^{K}
15	S$^{S}_{K}$	S^{K}	S	S	S	S	(230)^{S}	370^{H}	380	300	340	310^{H}	340	350	350	330	300	270	240	240	250	270	270	280
16	280	(270)^{S}	(280)^{S}	270	(320)^{S}	[300]^{S}	240	260	260	280	330	330	310	320	320	280	300	270	240	230	260	260	250	(290)^{S}
17	280	300	290	250	260	[260]^{S}	260^{H}	(290)^{L}	280	270	280^{H}	290^{H}	320	350	350	300	(320)^{L}	290	240	240	240	220	260	260
18	290	300	(290)^{S}	(300)^{S}	(300)^{S}	(300)^{S}	270	310	330^{H}	310^{H}	390^{H}	360	[380]^{L}	410	390	350	350	290	240	230	240	280	310	(320)^{S}
19	(310)^{S}	300	(290)^{S}	290	270	270	230	280	280	300	350^{H}	330^{H}	330	350	350	310	310	300	240	240	230	220	[340]^{S}	(330)^{S}
20	(340)^{S}	320	300	(300)^{S}	260	[260]^{S}	250	290	320	300	310	320	(350)^{A}	330	330	330	300	(280)^{L}	240	230	220	250	300	(330)^{S}
21	(330)^{S}	300	300	290	250	250	220	280	(390)^{S}	370	380	370	320	340	380	330	300	270	240	240	240	250	300	290
22	(300)^{S}	290	270	250	(270)^{S}	[240]^{A}	220	250	280	290	270	320	360	300	290	300	280	270	230	330	220	240	280	280
23	(290)^{S}	(290)^{S}	290	(290)^{S}	S	S	270	250	(240)^{L}	300	270	320	350	310	300	290	280	250	230	220	220	(240)^{S}	300	(290)^{S}
24	(290)^{S}	(280)^{S}	(270)^{S}	(260)^{S}	(250)^{S}	(250)^{S}	230	230	290	310^{H}	280	270	290^{H}	280	300	280	280	270	250	220	230	250	250	270
25	280	(300)^{S}	S	S	S	S	250	(260)^{L}	290	350	330	300	350	300	310^{H}	300	310	270	250	240	240	250	280	(300)^{S}
26	300	290	(290)^{S}	(310)^{S}	(300)^{S}	310	250	240	320	320	310	310	330	320	330	340	290	260	220	240	250	260	290	290
27	300^{F}	(300)^{S}	270	270	270	280	250	250	260	300^{H}	300	290	340	290	330	300	280	270	230	240	250	290	270	280
28	270	280	250	280	250	(220)^{B}	270	240	280	340	340	380	330	340	370	340	310	250	230	(250)^{S}	(250)^{S}	(280)^{S}	(300)^{S}	(300)^{S}
29	(300)^{F}	S	S	(300)^{S}	(270)^{S}	[280]^{S}	(280)^{S}	250	330^{F}	310^{H}	420^{H}	370	350	350	320	370	370	290	230	240	230	(290)^{A}	(320)^{S}	(310)^{S}
30	(300)^{S}	[310]^{A}	(320)^{S}	280	240	250	230^{H}	220	300	310	350	340	420	360	320^{H}	300^{H}	280	250	220	250	240	270	300	300
31																								
Median	(300)	(300)	(290)	290	(270)	(280)	250	260	300	300	320	330	360	350	330	330	310	280	240	240	240	240	280	(290)
Count	28	26	25	23	18	20	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 703319

TABLE 74

Form adopted June 1946

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

IONOSPHERIC DATA

fo F2 (Characteristic), Mc (Unit), September (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	2.7	2.5	2.3	(2.3) J S	(1.9) J S	(1.9) J S	(3.8) H	4.2	5.0	5.4	5.0	5.4	5.8	6.0	5.7	4.9	5.5	4.8	5.3	5.9	5.6	(5.0) P S	4.2	(3.5) P S
2	(2.3) A S	A	A	[1.8] A	(1.7) P S	(2.0) A S	3.0	3.3	< 3.5 G	< 3.7 G	< 3.9 G	< 3.9 G K	< 4.0 G K	< 4.0 G K	< 3.9 G K	4.2 K	4.1 K	3.9 H K	4.1 K	4.2 K	3.7 K	2.8 K	2.1 K	(1.9) S K
3	2.0 K	2.0	(2.0) J S	(1.8) J S	(1.8) J S	1.8 S	(3.4) S P	4.0	4.1	(4.4) H	5.3	5.0	4.5	4.7	5.0	4.6	4.4	4.6	4.9	(4.9) P S	4.3	3.2	2.3	(2.1) P S
4	(1.7) J S	1.8	2.0	1.9	(1.9) P S	(1.5) J S	3.0	3.4	4.2	(4.1) J S	(4.4) S H	(4.6) H	4.5	4.9	4.7	4.3	4.4	4.3	4.1	4.2	4.2	3.6	3.3	2.6
5	2.2	2.1	(1.8) S	1.7	1.6 J S	1.6 J S	2.9	4.2	4.3	4.8	5.2	5.0	4.8	5.0	5.1	4.9	4.8	4.8	4.5	4.5	4.4	(3.9) S P	2.9 F S	2.3 F S
6	2.2	2.2	(2.1) S	2.1	1.9	(1.9) S	3.4	4.0	4.5	5.1	5.0	5.1	5.4	5.8	6.3	6.5	7.4	6.3	5.5	(5.2) S P	3.8	2.9	2.5	2.3
7	2.2	2.3	(2.3) S	(2.1) S	(1.7) J S	1.8 S	3.5	4.0 N	4.6 H	5.2	5.4	5.8 H	4.8 H	4.9	5.2	5.4	5.2	5.3	(4.9) S	5.3	5.0	3.5	2.8 F	(2.5) S P
8	2.5	2.4	(2.2) P S	1.8	A	A S	3.2	4.2	[4.7] M	5.2	5.0	4.9	4.6	4.9	4.8	4.9	4.9	4.9	5.0	5.4	5.3	3.4	(2.3) P S	2.2
9	2.2	2.2	2.2	2.2	2.3	2.2	3.1	4.2	(4.2) P S	4.7	4.7	4.7	4.9	5.0	5.0	4.8	4.6	4.3	4.1	4.4	4.7	4.3	2.8	2.2
10	(2.0) P S	(2.1) P S	2.1	2.1	2.1	2.2	3.6	4.6	4.9	5.1	5.0 H	4.8	4.9	5.2	5.3	4.9	4.9	4.9	5.0	5.3	4.7	3.6	3.0	2.4
11	2.4	2.3	2.3	(1.9) P S	(2.1) J S	(2.0) P S	3.3	4.4	5.1	5.0	5.6	5.4	5.1	5.3	4.5	5.0	5.0	4.5	4.5	5.2	(4.8) P S	4.0	2.9	(2.1) P S
12	(2.0) P S	(2.2) P S	(2.2) P S	(2.0) P S	A	A	3.6	4.5	4.8	5.5	5.5	5.4	5.0	5.6	5.4	5.1	5.0	5.0	5.4	5.6	4.9	4.1	3.4 F	3.0 F
13	2.7 F	2.6	2.4	2.4	2.2	(2.2) S P	3.3	4.8	5.7	5.0	5.4	5.2	5.0	5.0	5.5	5.2	(4.9) P S	5.1	5.5	(5.9) S P	(6.0) P S	4.4	3.7	3.1
14	2.4	2.5	2.4	2.3	(1.8) P S	(1.7) J S	2.7	3.6	3.8	3.8	< 3.8 G	< 3.9 G K	< 3.9 G K	< 3.9 G K	(4.2) P S	< 3.9 G K	3.9 K	3.8 K	3.7 H K	3.7 K	3.9 K	3.7 K	2.9 K	K (2.2) F S	F S K
15	F S K	F S K	(2.0) J F	F S	F S	(1.5) J S	3.0	3.7 H	(3.9) S	4.2	4.8 H	5.3 H	5.1	4.9	4.8	4.9	4.9	5.0	4.8	(5.0) J S	(4.4) J S	3.8	3.5	(3.3) S
16	(3.3) F S	(3.0) F S	(2.6) J S	2.3	(2.1) P S	(2.2) P S	(3.2) J S	4.5	5.0	4.8 H	5.3	5.7	5.8	5.5	5.5	5.6	5.1	5.2	4.8	4.3 S	4.3	3.6	3.2	2.7
17	2.5	2.4	2.3 F	2.2 F	2.1 F	(1.7) J S	(3.4) S T	4.4	5.3	5.7	5.8 H	5.8 H	5.4 H	5.3	4.9	5.1	5.1	5.6	5.8	5.3	5.1	(3.9) P S	3.2	2.7
18	2.4	2.3	2.4	(2.1) F S	2.1 F S	(2.0) S	3.0	(3.4) S	4.1 H	4.4 H	(4.4) P S	4.6	4.4	4.6	4.7	4.9	4.8	4.9	4.8	4.2	(3.1) S P	(2.4) F S	2.3 F	2.3 F
19	2.2 F	2.3 F	2.3 F	2.2	2.3	2.2	3.2	4.0	4.3 H	4.7 H	5.0 H	5.1 H	5.2	5.0	4.9	5.1	4.8	4.9	5.5	5.0	4.8	3.1	[1.9] S	2.1 F S
20	(2.1) S	(2.2) P S	(2.2) S	(2.2) S	2.2 S	1.8 S	3.0	4.0	4.6	5.5	5.4	5.5	5.8	6.3	6.2	5.8	6.4	6.6	6.8	6.2	4.3	3.0	2.2	2.1 F
21	2.2 F	(2.6) S	2.3	2.3 F S	(2.5) S	2.1	(3.6) J S	4.1	(4.2) F S	4.6 H	(4.8) F	4.8	5.0	5.1	4.9	[5.1] S F	5.1	4.4	4.7	4.5	(3.8) J S	(2.7) J S	(2.1) F S	2.1 F S
22	(2.1) F S	2.4 F	2.7 J F	2.5 F	2.2 F	[2.7] A	3.2	4.4	5.0	5.6	5.7	5.5	5.6	5.7	5.8	5.2	5.3	5.3	4.9	5.7	4.4	3.0	2.5	2.5
23	2.3	2.2	2.2	2.0	(1.8) S	(1.9) S	3.0	4.2	4.4	4.8	5.2	4.9	5.0	5.4	5.6	5.4	5.2	5.2	4.9	4.6	3.3	2.6	2.3	2.3
24	2.4	2.3	2.3	2.3	2.2	2.1	3.3	4.4	4.7	5.4 H	6.0	6.1 H	5.8 H	6.5	5.8	5.7	5.3	5.3	5.8	5.8	4.2	3.5	3.2	2.9
25	2.6	2.1	(1.6) J S	[1.6] S	(1.5) J S	(1.6) J S	(2.5) S	3.7	4.5	4.5	5.3	5.9	5.6	5.7	5.6 H	5.2	4.9	4.8	4.3	4.4	(3.8) S P	(3.4) J S	2.7 F	2.2 F
26	(2.1) J E	2.2 F	2.1 F	1.9 F	1.9 F S	(1.9) F S	2.8 F	3.8	4.4	4.6	5.0	5.2	5.0	5.1	5.2	4.9	5.1	4.9	4.5	3.4	3.2	2.6 F	2.5 F	2.4 F
27	2.2 F	(2.1) F S	(2.2) J S	2.2	2.3	2.4	3.3	4.4	4.7	5.0 H	5.3	5.3	5.0	5.8	5.6	5.7	6.0	5.5	5.2	4.5	4.2	3.5	3.4	3.2
28	3.0	2.9	2.7	(2.5) S	(2.4) S	(1.9) B	2.9	4.2	4.6	4.7	4.9	4.9	5.0	5.0	4.6	4.6	4.7	4.7	4.3	3.8 F S	(3.5) P S	(2.9) J S	(2.6) J E	(2.5) F S
29	F S	F A	F S	(2.5) F S	(2.1) P F	(1.8) J S	(2.5) P S	3.6 F	4.3 F	4.5 F H	4.5 H	4.9	5.0	5.0	5.0	4.8	4.8	5.0	5.5	4.7	3.7	(2.4) P S	2.1 S	2.2
30	2.2	[2.3] A	2.4	2.6 F	2.8	2.6	3.1 H	4.3	4.6	5.4	5.0	5.4	5.0	5.2	5.4 H	5.4 H	5.3	5.5	4.7	4.3	3.5	3.3	3.1	2.8
31																								
Median	2.2	2.3	2.2	2.2	2.1	(1.9)	3.2	4.2	4.6	4.8	5.0	5.2	5.0	5.1	5.2	5.0	5.0	4.9	4.9	4.8	4.3	3.4	2.8	2.4
Count	28	27	28	29	27	28	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29

Sweep 10 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1948 O - 702519

TABLE 75

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

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), September (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	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	2.6 J A	2.4	2.2	(2.2) P S	[1.8] S	2.3	3.9 H	4.9	5.0 H	5.2	5.4	6.0	5.8	5.7	4.9 H	5.3	4.9	4.8	5.5	6.2	5.6	4.7	(4.2) P S	(2.5) J S
2	A	A	(1.8) P A	1.7	[1.8] A	(2.4) P A	3.3	3.4	< 3.6 G	< 3.8 G	< 3.9 G	< 4.0 G K	< 4.0 G K	< 4.0 G K	4.2 K	4.3 H K	(3.9) S K	4.0 K	4.3 K	4.0 K	3.2 K	2.3 K	(2.1) S K	(2.0) S K
3	2.0	(2.1) J S	2.1	(1.8) J S	(1.8) J S	2.5	3.8	4.2 H	< 3.8 G	5.0	5.2	4.8	4.4	5.0	[4.8] C	4.5	4.6	5.0	4.9	4.9 J S	3.5	2.5	2.1	(1.9) J S
4	(1.8) J S	2.0 J S	2.1 J S	[1.9] A	1.8 J S	2.2 P S	3.4	3.7 H	(4.2) P S	4.2	[4.5] S	4.6	4.5	4.8	4.4	4.3	4.3	4.2	4.2	4.3	(3.9) S	3.6	3.0	2.5
5	2.2	(2.0) J S	(1.7) J S	[1.6] A	1.7 S	(2.2) S P	3.6	4.2	4.3	5.3	4.9	(4.6) J S	5.0	5.2	5.0 H	4.9	4.9	4.6	4.5	(4.7) S	4.5	3.5	(2.4) S	2.4 F S
6	2.3 F S	2.1	(2.2) J S	(1.9) S	1.9	2.5	3.9	4.4	(4.9) J H	5.0	4.9	5.0	5.3	6.2	6.4	7.2 H	6.7	5.8	5.3	5.0	3.7	2.8	2.3	2.1
7	(2.2) J S	(2.3) J S	(2.1) J S	2.1 J S	(1.7) J S	2.4	4.0	4.3	5.4	5.6	5.7	4.9 H	5.0	5.0	5.2	5.4	4.8	5.4	5.5	5.4	4.2	3.2	2.5	2.3
8	2.4	2.3	2.0	(1.8) J S	A S	A S	3.8	(4.6) J S	[4.8] M	5.1	5.0	4.7	4.6	4.9	5.0	4.9	4.9	4.8	5.0	5.5	4.3	2.7	2.2	2.3
9	2.3	2.2	2.2	2.2	2.2	2.5	3.6	4.3	4.7	4.7	4.6	4.8	5.0	5.0	4.9	4.4	4.4	4.2	4.3	4.6	4.4	3.7	2.3	2.0
10	(2.1) J S	(2.2) J S	2.1	2.2	2.2	2.6	4.2	4.9	4.9	5.2	4.8 H	4.8 H	5.3	5.4	4.9	4.9	4.9	5.1	5.3	5.2 J S	4.1	3.3	(2.7) P S	2.3
11	2.3	2.3 J S	(2.2) P S	2.1 J S	(1.8) P S	(2.6) P S	4.9	4.8	4.5	5.2	5.8	5.1	5.1	5.0	5.4	5.0	4.9	4.5	4.5	5.2	4.4	3.3	2.4	2.0
12	2.1	[2.2] A	(2.1) J S	A	A	(2.5) P A	4.3	4.7	5.0	5.6	5.3	5.3	5.4	5.5	5.2	5.0	4.9	5.2	(5.8) S	5.4	4.3	3.6	3.1 F	2.8
13	2.6	2.5	2.4	2.3	2.2	(2.4) P S	4.3 H	5.3	5.2	5.4	5.3	5.0	4.9	5.3	5.2	5.2	5.2	5.3	5.8	5.8	5.0	4.4	3.4	2.7
14	2.4	2.7	2.4	2.1	(1.7) J S	2.0	3.3	3.7	< 3.6 G	4.2 H	< 3.8 G	< 3.9 G K	< 3.9 G K	< 3.9 G K	4.1 K	3.9 K	3.8 K	3.8 K	4.1 K	3.8 K	3.5 K	2.5 K	1.8 K	F S K
15	F S K	(2.2) J F	(1.6) J F	[2.3] F S	(2.2) J F	(2.2) P S	3.5	4.2	4.5	(4.4) S	4.9	5.0	5.0	4.7	4.8	5.1	5.0	4.9	(4.7) J S	(4.5) J S	(3.8) J S	3.6	3.1	3.5
16	3.0 F S	(2.8) F S	2.7	2.3	(2.1) J S	2.3	4.1	4.8	4.7	5.0	5.2	6.0	5.8	5.8	5.4	5.1	5.2	4.8	4.6	4.2	4.2	3.2	2.6	2.7
17	2.4	2.3	2.2	2.1 F	1.8 S	(2.0) J S	4.1	5.0	5.7	5.8	5.8 H	5.6	5.4 H	5.1	5.1	4.9	5.4	5.8	6.0	5.2	4.9	3.7	3.0	2.5
18	2.4	2.4	2.2 J S	2.1 J S	2.2 J S	2.2	3.8	3.9	4.3	4.6	4.6	4.6	4.6	4.6	4.8	5.0	4.9	4.9	4.6	(3.9) J S	2.8 F	2.4	2.3	2.2 F
19	2.2 F	2.3	2.4	2.4	2.3	2.4	3.6	4.3	4.5	(4.8) H	5.1 H	5.2	5.3	5.2	5.0	4.8	4.9	5.1	5.0	(5.2) P S	4.1	2.1	1.9	(2.1) P S
20	2.1	(2.2) J S	2.2	2.2	1.9	(2.0) J S	3.7	4.4	5.0 J S	5.6 H	5.4	5.2 H	6.0	6.6	6.2	5.7	6.6	6.6	6.7	(5.0) J S	3.9	2.5	2.1	(2.1) F S
21	2.3 F	2.3 F S	(2.4) J S	(2.3) F S	(2.5) S	2.3 F S	3.7 F S	(4.3) J S	4.4 H	4.6 F	4.8	5.0	5.0	5.0	5.1	5.1	(5.0) S	4.8	4.7	(4.1) J S	(3.5) J S	2.3	(2.2) F S	1.9 F S
22	2.1 F	(2.7) J S	2.6 F S	2.3	2.2	[2.4] A	3.8	4.6	5.3	5.6	5.6	5.5	5.7	5.7	5.5	5.1	5.5	5.3	5.5	5.5	3.7	2.7	2.5	2.3
23	2.2	2.2	(2.2) P S	(1.8) S	1.8	(2.1) S	3.7	4.3	4.7	5.0	5.0	5.1	5.4	5.7	5.6	5.2	5.0	5.0	4.9	4.1	3.0	2.5	2.4	2.3
24	2.3	2.3	2.3	2.3	2.1	2.3	4.2	4.5	4.9	5.8	5.8	6.0 H	6.0	6.3	5.9	5.4	5.3	5.3	6.4	5.2	3.9	3.4	3.0	2.6
25	2.3	(1.9) J S	[1.6] S	A S	1.7 J S	(1.8) J S	3.2	4.1	4.4	4.9	5.4	5.8 H	5.8	5.6	5.5	4.9	4.9	4.5	4.3	(4.2) J S	(3.5) J S	(2.8) J S	2.3 F	(2.2) F
26	(2.2) F	(2.1) F	2.0 F	(1.9) F S	1.8 F S	(2.2) J F	3.4 F	4.1	4.7	4.9	5.2	5.0 H	5.1	5.2	4.9 H	5.1	5.2	5.1	3.7	3.2	3.0	2.6 F	2.5 F S	2.4 F S
27	2.2 F	2.3 F	2.2 F	2.3	(2.2) S	2.5	3.9	4.8	4.7 H	5.0	5.3	5.0	5.4	5.2	5.6	5.9	5.2	5.3	4.6	4.3	3.8	3.4	3.2	3.1
28	3.0	2.8	2.5	2.3	2.1	(2.2) S	3.9	4.5	4.7	4.9	4.9	5.0	5.0	4.8	4.7	4.7	4.7	4.5	3.9	(3.5) P S	(3.1) J S	(2.9) P S	(2.5) P S	F S
29	F S	F S	(2.4) P S	2.2 F	2.0	(1.9) S	3.6	(4.0) J S	(4.6) F	4.5	4.5 H	5.0	5.2	5.0	5.0	4.9	5.1	5.5	4.9	4.2 F	3.0	2.0	2.1	2.1 J S
30	[2.2] A	2.3	2.8	3.0	(2.6) J S	2.2	(3.8) H S	4.7	4.9	4.4	5.4	5.2	5.3	5.4	(5.2) S P	5.3	5.2	5.3	4.3	4.0	3.3	3.1	3.0	2.6
31																								
Median	2.3	2.3	2.2	2.2	2.0	2.3	3.8	4.4	4.7	5.0	5.2	5.0	5.2	5.2	5.0	5.0	4.9	5.0	4.8	4.6	3.8	3.0	2.4	2.3
Count	27	28	30	28	28	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 76

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

Form accepted June 1946

IONOSPHERIC DATA

h' F1 (Characteristic), Km (Unit), September (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	(240)A	220	200	180H	180H	180H	210H	200H	210H	220	220	250					
2							Q	(230)A	220	200H	200	180HK	180HK	210K	200HK	210K	220K	210HK	250K					
3							Q	230	180H	200	200H	190H	180H	220H	210	220	230	220	(250)S					
4							Q	A	220	200	200H	200H	200	210H	200	210	210	240	240					
5							220	200H	220H	200H	180H	180H	170H	180H	200	200H	200H	200H	210					
6							Q	210	200	200H	210	190	210H	180H	210H	220H	220	(200)A	230					
7							210	200	220	220	200	180H	200H	A	A	A	(220)A	240	240					
8							240	210	[200]m	190H	220	200	190	180	230	210	200H	220	240					
9							210	250	210H	210H	200	170H	190H	190H	210H	200	210	220	Q					
10							Q	230	210H	210	200	180H	210	200H	200H	190H	210H	240	(240)S					
11							Q	240	210H	220	210H	200	200	200H	220	230	220	220	(240)A					
12							Q	210	210	(200)A	210	190H	190H	190H	200	230	220	240H	240					
13							Q	230	220H	200H	200H	180H	210	190H	190H	210	200H	240	240					
14							Q	250	210H	220	200H	190HK	210K	210K	210HK	210K	240K	240HK	260K					
15	•						Q	230	230	230	200H	200H	200H	210	190	200	220	240	Q					
16							Q	A	210	190H	190H	190H	210H	200H	200H	200	210	250	Q					
17							Q	240H	220	220	220H	200H	200H	180	180	200H	210	240	240					
18							Q	220	200H	200H	190H	190H	180H	200	210	200H	230	240	Q					
19							Q	220H	210H	200	190	180H	190H	200H	200H	230	220	250	Q					
20							Q	240	230H	200H	200H	200H	[200]A	210H	250	220	220H	210	Q					
21							Q	230	210	200	200H	190H	200	200	210H	220	220	220	Q					
22							Q	230	200	200H	200H	200H	190H	180H	210	210	240	230	Q					
23							Q	230	200	200	190H	190H	200	180H	240	220	220	240	Q					
24							Q	210	200H	220H	200H	180H	180H	200H	230	230	220	230	Q					
25							Q	210H	200H	210	180H	190H	200H	190H	200	220	230	230	Q					
26							Q	220	210H	230	200H	190H	200	180H	190	200	240	220	Q					
27							Q	210	230	210H	200H	210	190H	200H	200	200	250	250	Q					
28							Q	Q	220H	210H	210H	190H	200H	200H	190H	210H	230	240	Q					
29							Q	Q	210F	210H	210H	200H	170H	190H	210H	200	240	240	Q					
30							Q	Q	240	210	200	190	200H	190H	180H	240	220	240	Q					
31																								
Median							—	230	210	200	200	190	200	200	200	210	220	240	240					
Count							4	25	30	30	30	30	30	29	29	29	30	30	14					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 792519

TABLE 77

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

Form adopted June 1946

IONOSPHERIC DATA

fo F1 (Characteristic), Mc (Unit), September (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	L	L	3.7 H	4.1 H	4.1 H	4.1 H	4.1 H	4.0 H	3.9 H	3.6	3.3	L						
2							Q	L	3.5	3.7 H	3.9	3.9 H_K	4.0 H_K	4.0 K	3.9 H_K	3.8 K	3.7 H_K	3.4 H_K	L K						
3							Q	L	3.9 S	3.9 H	3.9 H	4.0 H	4.0 H	4.0 H	4.0	3.9	3.7	3.4	L						
4							Q	A	3.6	3.7	3.9 H	4.0 H	4.0	4.0 H	4.1	3.9	3.7	3.5	L						
5							L	3.7 H	3.7 H	4.0 H	4.2 H	4.2 H	4.1 H	4.1 H	4.1 H	3.9 H	3.8 H	L	L						
6							Q	(3.6) L	3.8	4.0 H	4.1	4.2	4.2 H	4.2 H	4.1 H	4.0 H	3.7	3.3	L						
7							L	L	3.9	4.0	4.1	4.2 H	4.4 H	A	A	3.9	3.8	3.4	L						
8							L	L	M	3.9 H	4.1	4.1	4.2	4.2	4.1	3.9	3.7 H	3.1	L						
9							L	L	4.0 H	4.0 H	4.0	4.1 H	4.0 H	4.2 H	4.1 H	3.9	3.7	(3.4) L	Q						
10							Q	(3.7) L	3.8 H	4.0	4.1	4.2 H	4.3	4.2 H	4.1 H	4.0 H	3.9 H	L	L						
11							Q	L	(3.7) L	3.9	4.1 H	4.1	4.2	4.1 H	4.1	3.9	3.7	(3.3) L	L						
12							Q	L	(3.6) L	3.8 H	4.0	4.2 H	4.2 H	4.2 H	4.1	4.0	3.8	3.4 H	L						
13							Q	L	3.6 H	4.0 H	4.2 H	4.2 H	4.2	4.3 H	4.1 H	4.0	3.9	3.4	L						
14							Q	3.3	3.3 H	3.6	3.8 H	3.9 H_K	3.9 K	3.9 K	3.9 H_K	3.7 K	3.5 H_K	3.3 H_K	L K						
15							Q	3.3	3.6	3.8	4.0 H	4.1 H	4.2 H	4.2	4.0	3.9	3.7	3.3	Q						
16							Q	L	(3.7) L	4.0 H	4.0 H	4.2 H	4.2 H	4.2 H	4.2 H	4.0	3.6	L	Q						
17							Q	L	3.7	4.0	4.3 H	4.1 H	4.2	4.3	4.2	4.0 H	(3.9) L	L	L						
18							Q	3.5	3.6 H	3.7 H	4.0 H	4.0 H	4.2	4.1	4.1	3.9 H	3.8	3.2	Q						
19							Q	L	3.7 H	4.0	4.0	4.1 H	4.1 H	4.2 H	4.2 H	3.9	3.7	3.4	Q						
20							Q	L	3.8 H	3.9 H	4.0 H	4.0 H	[4.0] A	4.1 H	4.1	4.0	3.8 H	L	Q						
21							Q	L	3.9	3.7	(3.7) F	4.1 H	4.1	4.0	4.0 H	3.8	3.6	L	Q						
22							Q	L	3.7	3.9 H	4.2 H	4.2 H	4.3 H	4.2 H	4.0	4.0	3.7	L	Q						
23							Q	L	L	4.0	4.1 H	4.1 H	4.2	4.1 H	4.1	3.9	(3.6) L	L	Q						
24							Q	2.7	L	4.1 H	4.2 H	4.2 H	4.2 H	4.1 H	4.0	4.0	L	L	Q						
25							Q	L	3.5 H	4.0	4.0 H	4.2 H	4.1 H	4.2 H	4.0	3.8	3.5	L	Q						
26							Q	L	3.7 F	3.9	4.0 H	4.2 H	4.2	4.2 H	4.1	3.9	3.7	L	Q						
27							Q	L	3.5	4.1 H	4.1 H	4.2	4.3 H	4.1 H	4.1	4.0	3.6	L	Q						
28							Q	Q	3.6 H	3.8 H	3.9 H	4.1 H	4.1 H	4.1 H	4.1 H	(3.8) L	(3.5) L	L	Q						
29							Q	Q	(3.5) F	3.9 F	3.9 H	4.0 H	4.0 H	4.0 H	4.0 H	3.8	3.7	L	Q						
30							Q	Q	(3.6) L	4.0 H	4.0	4.2	4.3 H	4.2 H	4.2 H	4.0	3.5	L	Q						
31																									
Median							—	3.5	3.7	3.9	4.0	4.1	4.2	4.1	4.1	3.9	3.7	3.4	—						
Count								7	26	30	30	30	30	29	29	30	29	15							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 78

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

Form accepted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit) September (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							A	A	110 H	110	110	100	100	100	100	100	100 H	110	S					
2							S	A	100	100	100	100 K	100 K	100 K	100 H K	110 H K	100 K	110 K	S K					
3							S	110	110	110	100	100	100 H	100 H	100	110	110	110	S					
4							S	(120) S	110 H	110	[100] A	100	100	100	100	100	100	110	S					
5							S	110 H	110	100	100	100	110	100	100	100	100	110	S					
6							S	110 H	100	100	100	100	100	100	100 H	110 H	110	110	S					
7							S	(100) A	100	100	(100) A	(100) A	100 H	100	(100) A	(100) A	100	100	S					
8							S	(110) A	[100] H	100	100	100	100	100	100	110	110	110	S					
9							S	(120) H S	100	110	100	100	110 H	110	110 H	100	110	110	S					
10							S	110	110	110	110 H	110	110	110	110	110	110	(120) S	S					
11							S	(120) S	110	110	110	110	100	100	100	110	110	110	S					
12							S	(110) A	110 H	A	A	(100) A	110	110	110	110	110	110 H	S					
13							S	110	110	110	110 H	110	110	100 H	110 H	110 H	110	120 H	S					
14							S	120	110 H	110 H	110	110 K H	100 H K	100 K	100 K	110 H K	110 H K	120 H K	S K					
15							S	120	110	100	110	110 H	100 H	110	100	100	110 H	120	S					
16							S	110	110	110	110	110	110	110 H	100	110	110	120 H	S					
17							S	110	[110] A	110	(110) A	110	110	110 H	110	110	110	(120) A	S					
18							S	120	110	110	110	100 H	110	110 H	110 H	110	110	120 H	S					
19							S	110	110 H	110 H	110	100	100	110 H	110 H	110	120	(120) S	S					
20							S	120 H	(110) A	(110) A	(110) A	(110) A	110	110	110	110	100	120	S					
21							S	110 H	110 H	110	110	110 H	100 H	110	100	100	110	(120) S	S					
22							S	120 H	110	100	100	100	100	100	100	100	100	120 H	S					
23							S	(110) A	110	100	100	100	100	100	110	110	110 H	110	S					
24							S	110	110	110	110	110	110	100	100	110	110	120	S					
25							S	130	110	110	110	100	100	100	100 H	100	110	120	S					
26							S	110 H	110	110	(110) A	110	110	110	100	110 H	110 H	(120) S	S					
27							S	120	110 H	110	110	100 H	100	100	110 H	110	110	120	S					
28							S	120	110 H	110	110	110 H	110 H	100 H	100 H	110	110	(120) S	S					
29							S	(130) A	110	110	100	100	100	100 H	100 A	100	(110) H A	120	S					
30							S	(120) S	110	110	110	100	100	110	110 H	110 H	110 H	120	S					
31																								
Median								110	110	110	110	100	100	100	100	110	110	120						
Count								29	30	24	24	30	30	30	30	30	30	30						

Sweep 1.0 Mc to 25.0 Mc in .025 min

Manual ☐ Automatic ☒

TABLE 79

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

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), September (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							A	A	2.5 H	(2.8) F	3.0 F	3.1	(3.1) A	(3.1) A	3.0	2.9	2.6 H	2.2	S					
2							S	A	A	2.7	A	A K	2.9 K	3.0 K	2.9 H K	2.7 H K	2.7 K	(2.4) P K	S K					
3							S	A	(2.7) P	(2.6) A	A	A	3.1 H	3.0 H	3.0	2.9	(2.6) P	2.2 F	S					
4							S	1.8	(2.5) H	(2.5) A	(3.0) A	(3.0) A	3.1	(3.2) A	3.1	(2.7) A	2.6	2.3	S					
5							S	2.2 H	2.3	2.7	[3.0] A	(3.2) A	3.1	3.0	3.0	2.8	2.5	2.3	S					
6							S	2.0 H	(2.3) P	(2.7) A	A	A	3.2	3.1	3.0 H	2.8 H	2.6	2.3	S					
7							S	A	A	A	A	A	3.2 H	3.1	3.0	[2.8] A	2.6	(2.3) A	S					
8							S	A	M	A	3.0	3.2	3.2	3.2	3.0	2.9	2.6	2.1	S					
9							S	2.2 H	2.5	2.7	3.0	3.1	3.1 H	3.1	3.0 H	2.9	2.6	A	S					
10							S	A	A	A	3.0 H	(3.1) A	3.1	3.0	3.0	2.9	2.5	2.1	S					
11							S	A	2.5	(2.5) A	(2.9) A	(3.1) A	3.1	3.1	3.0	[2.8] A	2.5	(2.2) A	A					
12							S	A	2.4 H	A	A	(3.1) A	(3.1) A	3.1	3.0	2.9	2.5	2.2 H	S					
13							S	(2.4) S	2.6	2.8	3.1 H	3.1	3.1	3.0 H	3.0 H	2.8 H	2.5	2.2 H	S					
14							S	2.0	2.3 H	2.8 H	2.9	3.0 H K	3.0 H K	(3.0) A K	2.9 K	2.8 H K	2.5 H K	2.1 H K	S K					
15							S	(2.0) S	2.4	2.6	2.9	3.0 H	3.0 H	3.1	2.9	2.7	2.3 H	2.1	S					
16							S	A	A	A	2.9	2.9	(3.1) P	3.0 H	3.0	2.8	2.4	2.1 H	S					
17							S	1.9	[2.3] A	(2.7) A	(2.9) A	(3.1) A	3.0	2.9 H	3.0	2.7	2.3	A	S					
18							S	1.8	2.2	2.3	2.5	3.0 H	3.0	3.1 K	3.0 H	2.6	2.4	2.1 H	S					
19							S	1.9	2.4	2.8 H	2.9	(3.0) P	3.0	3.0 H	2.7 H	2.5	A	S	S					
20							S	2.0 H	A	A	A	A	3.0	3.0	3.0	2.8	2.5	(2.0) S	S					
21							S	1.8 H	2.2 H	(2.5) S	2.8	2.8 H	3.0 H	3.0 H	2.8	2.6	2.2	(1.9) S	S					
22							S	2.0 H	2.4	2.7	(3.0) P	3.0	2.9	3.0	3.0	2.7	2.4	1.9 H	S					
23							S	2.0	2.4	2.7	2.9	(3.1) A	3.1	3.1	3.0	2.8	2.5 H	A	S					
24							S	2.0	2.4	2.7	2.9	(3.0) A	3.0	[3.0] A	2.9	2.6	2.4	1.9	S					
25							S	1.9	A	A	2.7	3.0	3.0	3.1	2.9 H	2.7	2.4	1.9	S					
26							S	(2.0) S	A	A	3.0	[3.0] A	3.0	2.9	2.9	2.7 H	2.1 H	1.9	S					
27							S	1.9	2.5 H	2.7	[3.0] A	3.2 H	[3.0] A	(2.9) P	2.8 H	2.4	1.9	1.9	S					
28							S	1.9	2.4 H	2.8	[2.9] A	3.0 H	3.1 H	3.0 H	2.9 H	(2.7) S	2.4	2.0	S					
29							S	(1.9) A	2.4	2.6	2.7	2.8	2.8	2.9 H	2.8	(2.6) P	2.4 H	1.8	S					
30							S	1.7	[2.2] A	(2.6) P	(2.7) P	(2.8) P	2.9	3.0	2.9 H	2.7 H	2.3 H	1.9	S					
31																								
Median								2.0	2.4	2.7	2.9	3.0	3.0	3.0	3.0	2.8	2.5	2.1						
Count								2.	22	22	24	25	30	30	30	30	29	26						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

TABLE 80

Form adopted June 1946

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

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit) September (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	3.5Y 100	3.1 100	E	2.3 110	E	E	3.2 110	3.1 110	4.5Y 120	3.9Y 110	3.7 120	G	3.2 110	3.3 120	G	G	3.8 120	G	1.9 130	E	E	E	E	E
2	3.7Y 120	5.0 110	6.7 110	4.7Y 120	3.8Y 120	4.7 110	3.3Y 110	5.5Y 100	7.2 H 110	3.4 110	4.9 100	4.5 100	G	4.5 100	3.0 120	4.6Y 100	G	G	3.0 130	2.4 120	2.9 110	E	E	2.8 100
3	3.8 110	E	E	E	E	E	5.2 110	(3.7)S 110	3.2 110	3.6Y 110	3.6Y 100	3.8 100	G	G	G	G	G	G	G	E	E	E	E	E
4	2.3 110	E	E	E	2.4 120	E	2.4 120	3.0Y 120	4.7Y 110	6.0Y 110	5.7Y 100 H	3.7Y 110	G	3.1 110	3.0 110	3.1 100	3.0 130	3.3 120	2.9 120	2.4 100	E	E	E	E
5	2.3 110	2.4 110	E	E	E	E	2.4 120	2.9 110	3.3 110	3.8 120	4.8Y 100	3.6 110	G	3.3 130	G	3.0 130	4.7Y 110	3.2 120	1.8 130	2.5 120	2.1 120	2.3 110	2.7 110	E
6	E	(2.3)S 110	2.4 110	2.4 100	3.0 110	3.1 100	G	3.1 130	3.3 110	3.8 110	3.9 100	4.7 100	4.5Y 100	3.3 120	G	G	G	3.5 120	1.7 110	E	E	2.4 110	E	E
7	2.4 100	1.8 100	E	(3.3) S (100)	E	2.5 100	3.2 H 110	4.0 110	3.3 H 100	3.8 110	4.7 100	4.2 100	2.7 100	6.4 120	5.4 90 H	4.7 100 H	6.0Y 100 H	8.6 100	4.4 100	3.3 H 100	3.0 100	E	(2.8)S 100	E
8	3.5 100	2.5 100	E	E	2.8 110	3.0 110	3.7 110	3.8 110	M	3.2 110	3.2 110	G	G	3.6Y 110	G	G	G	G	E	E	E	3.5 110	E	E
9	E	E	E	E	E	E	G	G	G	3.0 100	G	G	G	5.0Y 110	4.7Y 130	G	G	4.0 120	E	E	E	E	E	E
10	E	E	E	E	E	E	G	1.8.0 140	3.2 110	3.9Y 110	3.1Y 110	3.7Y 120	G	G	G	G	G	3.2 130	G	3.2 120	2.9 110	E	E	E
11	E	2.6Y 100	E	E	E	E	G	3.5Y 120 H	3.7Y 120	3.2 120	3.1 120	4.2Y 110	G	G	G	3.7 110	3.6 120	3.2 120	3.2 110	5.0Y 110	3.1Y 120	E	E	E
12	E	E	E	3.0Y 120	3.1 120	4.1 110	3.5 110	3.6 H 110	3.0Y 110	3.8 100	4.8 100	3.2 100	4.3Y 100	G	4.2Y 110	G	G	G	G	E	E	E	E	E
13	E	E	E	E	E	E	2.0 110	G	4.3Y 120	8.6Y 130	G	G	G	G	3.8 130	4.0 130	3.2 120	(2.9)S (120)	1.7 130	E	E	E	E	E
14	E	E	E	E	E	4.4H (100)S	3.8 110	5.0 H 100	G	G	G	G	3.4Y 120	3.1 120	G	G	G	G	G	E	E	E	E	E
15	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	2.8 120	3.9 110	3.0 110	E	E	(2.2) S (100)
16	E	E	E	E	E	2.5 110	G	3.3 120	3.9 110	3.7 110	3.5 110	4.3 H 140	4.2 150	3.3 130	G	3.5 120	5.4 110	4.3 110	G	E	E	E	(2.3) S (110)	E
17	E	E	(2.6) S (110)	3.7 110	(3.5) S (120)	5.4H 110	3.2 110	4.8 100 H	3.8 H 110	3.8 H 110	6.2 H 110	4.4 110	5.0 100	4.7 120	G	3.8 120	G	3.2Y 120	G	E	E	E	E	E
18	E	E	(2.3)S 140	E	4.9 100	E	G	4.7 110	3.2 110	4.7 110	3.3 120	G	7.0 140	G	G	3.8 120	G	3.0 120	2.6 130	3.1 120	2.8 120	2.9 110	2.9 120	2.4 120
19	2.2 120	E	2.9Y 110	E	(2.2)S 110	4.5 120	3.6Y 130	7.0Y 110	3.5 H 110	4.0 H 110	7.0 120	3.9 H 100	3.0 H 100	4.9 120	G	G	(3.2) (130) S	(2.9) (120) S	(3.0) (120) S	E	E	E	3.0 120	(3.9) (130) S
20	E	E	4.0 130	(3.1)S 130	3.0 120	4.1 100 H	7.4 H 110	G	4.5 H 110	3.8 H 120	4.0 110	3.9 110	8.5 120	3.2 120	3.3 130	G	G	3.8Y 110	3.5 120	4.1 110	E	E	E	4.4 140
21	3.8 140	2.4 160	E	E	2.8 120	5.0 120	(3.6)S 130	G	2.4 130	G	3.0 120	3.7Y 120	4.8 120	G	G	3.0 110	(3.3)S 130	3.2 120	4.2 120 H	4.7 110 H	2.3 120	E	2.9 120	3.2 110
22	E	E	E	2.3Y 120	2.6Y 120	3.1Y 120	3.4 110	G	G	3.0 120	3.5 120	(7.0)S 110	G	G	8.0 H 100	3.8 H 100	3.5 120	2.1 120	2.0 110	1.7 110	E	3.0 110	3.0 110	E
23	E	2.6 110	E	E	E	E	3.0 110	4.6 110 H	G	5.2Y 130	7.0 110	4.5 100	G	G	G	G	G	3.9 120	1.7 120	2.4 120	E	2.4 100	E	E
24	E	E	E	E	4.3 100	E	G	4.4 110	3.7 110	3.5 120	4.9 120	4.5Y 110	3.3 120	3.9 110	G	G	3.2 120	3.0 130	2.6 120	E	E	2.5 110	E	2.8 110
25	E	2.1 110	E	2.2 120	2.7 110	E	2.3 110	2.5 110	3.1 120	(3.9)S 110	G	G	G	3.7 130	G	G	G	G	G	E	E	2.3 100	E	(2.3) (110) S
26	E	1.7 100	E	E	E	2.8 100	G	4.6Y 110	7.4 H 120	4.6 110	6.2Y 110	6.4Y 11.5 S	G	3.3 140	G	G	G	G	2.4Y 110	3.0 100	2.3 100	2.3 100	2.4 100	E
27	E	E	E	E	E	E	(3.3)S (110)	3.8 100	G	4.4 120	4.1 H 130	3.7 120	3.3 110	G	G	G	2.4 130	G	G	E	E	E	E	E
28	E	E	4.9Y 140	E	E	2.5 110	2.3 110	4.1 100	G	(4.0)S 130	3.8 110	G	G	4.6Y 120	G	G	G	G	G	1.8 100	E	E	E	E
29	2.2 110	2.9 110	2.5Y 110	3.0 110	2.7 110	2.8Y 110	2.5Y 110	2.0 130	5.5Y 130 H	G	7.0 130	5.4 120 H	7.6 120	4.8 H 110	19.4Y 100 **	3.8 100	3.1 110	G	2.3 100	2.2 100	E	2.9 110	E	2.9 110
30	3.7 110	4.2 100	3.5 100	2.1 110	4.4 130	E	(2.4) (110) S	3.6Y 100	3.0Y 110	3.6 110	3.8 120	7.0 100	7.0 H 110	G	G	(4.8) S 110	2.6 120	2.9 120	G	E	E	E	E	E
31																								
Median	**	**	**	**	**	**	2.4	3.6	3.3	3.8	3.8	3.8	**	3.2	**	**	**	2.9	1.8	**	**	**	**	**
Count	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702510

TABLE 81

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500) F2, ____ (Characteristic) (Unit) September, 1954 (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	2.0	2.0	2.1	J S	J S	J S	2.1 H	2.3	2.5	2.2	2.0	2.0	2.1	2.2	2.2	1.9	2.2	2.0	2.1	1.9	2.0	(2.1) P S	2.2	(2.3) P S
2	(2.1) A S	A	A	A	(2.2) P S	(2.1) A S	2.2	2.4	G	G	G	G K	G K	G K	G K	1.8 K	2.0 K	2.1 H K	2.1 K	2.2 K	2.2 K	2.2 K	2.1 K	(2.1) S K
3	2.1 K	2	(2.3) J S	J S	J S	S	(2.5) S P	2.4	1.6	(1.9) H	2.2	2.1	1.7	1.9	2.0	1.9	2.0	2.1	2.2	(2.3) P S	2.3	2.2	2.1	(2.0) P S
4	J S	2.0	2.0	2.2	(2.2) P S	J S	2.4	2.5	2.1	J S	(1.9) S H	(1.8) H	1.8	2.1	2.2	2.1	2.1	2.2	2.2	2.1	2.1	1.9	2.2	2.1
5	1.9	1.9	(1.9) S	2.0	J S	J S	2.2	1.9	2.1	2.3	2.4	2.0	1.9	2.0	2.3	2.2	2.1	2.2	2.2	2.2	2.3	(2.3) S P	2.2 F S	2.1 F S
6	1.9	2.0	(2.0) S	2.1	2.2	(2.1) S	2.6	2.3	2.2	2.4	2.2	2.1	2.1	2.0	2.0	1.9	2.2	2.3	2.1	(2.2) S P	2.2	2.0	2.1	2.1
7	1.9	2.1	(2.2) S	(2.1) S	J S	2.2 S	2.3	2.3 H	2.1 H	2.2	2.2	2.3 H	1.9 H	2.0	1.9	2.1	2.2	2.1	(2.3) S	2.1	2.3	2.2	2.0 F	(2.1) S P
8	2.1	2.0	(2.0) S	2.2	A	A S	2.4	2.3	M	2.5	2.4	2.2	1.8	2.0	1.9	2.0	2.1	2.2	2.2	2.2	2.4	2.3	(2.0) P S	2.0
9	1.9	2.0	2.0	2.0	2.0	2.3	2.3	2.3	(2.0) P S	2.4	2.2	2.0	1.9	2.1	2.2	2.2	2.0	2.2	2.2	2.1	2.1	2.3	2.3	2.1
10	(1.8) S	(1.9) S	2.0	2.0	2.0	2.0	2.4	2.5	2.3	2.5	2.4 H	1.9	2.0	2.0	2.2	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.0
11	2.1	2.0	2.1	(2.0) P S	J S	(2.0) P S	2.4	2.4	2.4	2.1	2.1	2.2	2.0	2.1	1.9	2.1	2.2	2.2	2.1	2.1	(2.3) P S	2.2	2.2	(2.0) P S
12	(2.0) P S	(2.0) P S	(2.1) P S	(2.2) S	A	A	2.4	2.5	2.3	2.4	2.2	2.3	2.1	2.2	2.2	2.1	2.3	2.2	2.2	2.3	2.3	2.2	2.2 F	2.2 F
13	2.2 F	2.1	2.1	2.2	2.1	(2.1) S P	2.3	2.2	2.4	2.3	2.1	2.1	2.0	2.0	2.1	2.1	(2.2) F S	2.3	2.1	(2.0) S P	(2.2) F S	2.3	2.0	2.1
14	2.0	1.9	2.0	2.1	(2.2) P S	J S	2.3	2.2	2.1	1.8	G	G K	G K	K (1.8) P S	G K	1.7 K	1.7 K	1.9 H K	2.0 K	2.0 K	2.1 K	2.0 K	K (1.9) F S	F S K
15	F S K	F S K	J F	F S	F S	J S	2.2	2.2 H	(2.0) S	2.0	2.1 H	2.3 H	2.1	2.1	2.1	2.2	2.3	2.3	2.2	J S	J S	2.1	2.1	(2.0) S
16	(2.0) F S	(2.1) F S	(2.0) J S	2.0	(2.0) P S	(2.0) P S	(2.2) S	2.3	2.5	2.3 H	2.1	2.0	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3 S	2.1	2.1	2.2	2.0
17	2.1	2.0	2.2 F	2.3 F	2.3 F	J S	(2.3) S P	2.3	2.3	2.3	2.3 H	2.2 H	2.0 H	2.1	2.1	2.2	2.0	2.1	2.2	2.2	2.2	(2.3) P S	2.0	2.1
18	2.1	2.0	2.0	(2.1) F S	2.1 F S	(2.1) S	2.3	(2.2) S	2.3 H	2.2 H	(2.0) P S	2.1	1.8	1.9	1.9	2.1	2.0	2.2	2.3	2.3	(2.2) S P	(2.2) F S	2.1 F	2.1 F
19	2.1 F	2.2 F	2.2 F	2.2	2.3	2.3	2.4	2.3	2.4 H	2.2 H	2.0 H	2.2 H	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.2	2.4	2.4	S	1.9 F S
20	(1.9) S	(2.0) P S	(2.1) S	(2.0) S P	2.3 S	S	2.4	2.3	2.2	2.2	2.2	2.1	1.9	2.0	2.0	2.0	2.1	2.0	2.3	2.1	2.2	2.2	2.0	1.9 F
21	1.9 F	(1.9) S	2.0	2.1 F S	(2.3) S	2.4	J S	2.3	(2.0) F S	2.0 H	(2.0) F	2.0	2.2	2.1	2.0	(2.1) S P	2.2	2.2	2.3	2.2	J S	J S	(2.1) F S	2.2 F S
22	(2.1) F S	2.1 F	2.0 F S	2.2 F	2.2 F	A	2.4	2.4	2.3	2.2	2.4	2.1	1.9	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.1
23	2.1	2.1	2.1	2.2	(2.1) S	S	2.3	2.5	2.4	2.3	2.4	2.2	2.1	2.3	2.2	2.2	2.4	2.4	2.4	2.4	2.3	2.1	2.1	2.1
24	2.1	2.1	2.2	2.2	2.3	2.4	2.5	2.4	2.2	2.1 H	2.2	2.1 H	2.2 H	2.3	2.3	2.3	2.2	2.2	2.2	2.4	2.2	2.1	2.1	2.1
25	2.0	2.0	J S	S	J S	J S	(2.3) S	2.4	2.3	2.1	2.1	2.2	2.0	2.2	2.0 H	2.3	2.1	2.2	2.2	2.2	(2.1) S P	J S	2.2 F	2.2 F
26	(2.1) J E	2.0 F	2.1 F	2.1 F	2.1 F S	(2.2) F S	2.3 F	2.4	2.2	2.1	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.4	2.2	2.2	2.2 F	2.2 F	2.1 F
27	2.1 F	(2.2) F S	(2.2) J S	2.1	2.1	2.2	2.3	2.4	2.4	2.3 H	2.3	2.3	2.1	2.2	2.0	2.1	2.2	2.2	2.3	2.1	2.0	1.9	1.9	2.0
28	2.1	2.0	2.2	(2.2) S	(2.3) S	B	2.1	2.3	2.3	2.1	2.1	2.0	2.2	2.2	2.1	2.1	2.2	2.3	2.3	2.2 F S	(2.2) P S	J S	J F	(2.0) F S
29	F S	F A	F S	(2.1) F S	(2.3) P F	J S	(2.3) P S	2.3 F	2.2 F	2.3 F H	1.9 H	2.0	2.1	2.1	2.2	2.0	1.9	2.1	2.3	2.1	2.3	(2.4) P S	1.9 S	1.9
30	2.0	A	2.0	2.1 F	2.3	2.4	2.4 H	2.5	2.3	2.0	2.1	2.1	1.8	2.0	2.0 H	2.1 H	2.2	2.3	2.3	2.0	2.2	2.1	1.9	1.9
31																								
Median	2.1	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1
Count	27	26	26	25	21	15	29	30	29	29	30	30	30	30	30	30	30	30	30	29	28	27	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 82

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

Form accepted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), September (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	3.0	3.0	3.1	J S	J S	J S	(3.1) H	3.4	3.6	3.3	3.0	3.0	3.1	3.2	3.3	2.9	3.2	3.0	3.2	2.9	3.0	(3.1) P S	3.2	(3.4) P S
2	(3.1) A S	A	A	A	(3.2) P S	(3.1) A S	3.2	3.5	G	G	G	G K	G K	G K	G K	2.8 K	3.0 K	3.1 H K	3.1 K	3.2 K	3.2 K	3.2 K	3.1 K	(3.1) S K
3	3.1 K	3.1	(3.3) J S	J S	J S	S	(3.6) S P	3.5	2.5	(2.8) H	3.2	3.1	2.6	2.8	3.0	2.9	3.0	3.1	3.2	(3.3) P S	3.3	3.2	3.1	(3.0) P S
4	J S	2.9	3.0	3.3	(3.2) P S	J S	3.4	3.6	3.1	J S	(2.8) S H	(2.8) H	2.8	3.1	3.2	3.1	3.1	3.3	3.2	3.1	3.1	2.9	3.3	3.1
5	2.8	2.9	(2.9) S	3.0	J S	J S	3.2	2.9	3.2	3.3	3.5	3.0	2.9	3.0	3.4	3.2	3.1	3.2	3.3	3.2	3.3	(3.3) S P	3.2 F S	3.1 F S
6	2.9	3.0	(3.0) S	3.1	3.2	(3.2) S	3.7	3.3	3.2	3.4	3.3	3.1	3.1	3.0	3.0	2.8	3.2	3.3	3.1	(3.2) S P	3.3	3.0	3.1	3.1
7	2.8	3.1	(3.3) S	(3.1) S	J S	3.2 S	3.4	3.3 H	3.1 H	3.2	3.2	3.4 H	2.8 H	3.0	2.9	3.1	3.2	3.1	(3.3) S	3.1	3.4	3.2	3.0 F	(3.1) S P
8	3.1	3.0	(3.0) P	3.2	A	A S	3.4	3.3	M	3.5	3.4	3.3	2.7	3.0	2.9	3.0	3.2	3.3	3.3	3.2	3.4	3.4	(3.0) P S	3.0
9	2.8	3.0	3.0	2.9	3.0	3.3	3.4	3.4	(3.0) P S	3.5	3.2	3.0	2.9	3.1	3.3	3.3	3.0	3.2	3.2	3.1	3.1	3.4	3.3	3.1
10	(2.7) P S	(2.9) P S	3.0	3.0	3.0	3.1	3.5	3.5	3.4	3.5	3.5 H	2.8	2.9	3.0	3.3	3.0	3.1	3.1	3.3	3.2	3.3	3.2	3.1	3.0
11	3.1	3.0	3.1	(3.0) P S	J S	(3.0) P S	3.5	3.5	3.4	3.1	3.1	3.2	3.0	3.1	2.9	3.1	3.2	3.3	3.2	3.1	(3.3) P S	3.3	3.3	(3.0) P S
12	(3.0) P S	(3.0) P S	(3.1) P S	(3.2) P S	A	A	3.5	3.5	3.3	3.5	3.3	3.4	3.1	3.2	3.3	3.1	3.3	3.2	3.2	3.3	3.3	3.2	3.2 F	3.2 F
13	3.2 F	3.1	3.1	3.2	3.1	(3.1) S P	3.3	3.2	3.5	3.4	3.1	3.1	3.0	3.0	3.1	3.1	(3.2) P S	3.3	3.1	(3.0) S P	(3.2) P S	3.3	3.0	3.1
14	3.0	2.9	3.0	3.1	(3.2) P S	J S	3.3	3.0	3.1	2.5	G	G K	G K	K (2.7) P S	G K	2.6 K	2.6 K	2.9 H K	3.0 K	3.0 K	3.1 K	3.0 K K	(2.9) F S	F S K
15	F S K	F S K	J F	F S	F S	J S	3.2	3.0 H	(3.0) S	3.0	3.1 H	3.3 H	3.1	3.1	3.1	3.2	3.3	3.3	3.3	J S	J S	3.1	3.1	(3.0) S
16	(3.0) F S	(3.2) F S	(3.0) J S	3.0	(3.0) P S	(3.0) P S	(3.3) J S	3.4	3.5	3.3 H	3.2	3.0	3.2	3.2	3.2	3.4	3.2	3.3	3.3	3.3 S	3.1	3.1	3.2	3.0
17	3.1	3.0	3.2 F	3.3 F	3.3 F	J S	(3.3) S D	3.3	3.3	3.3	3.3 H	3.2 H	3.0 H	3.1	3.1	3.3	3.0	3.1	3.2	3.2	3.2	(3.3) P S	3.0	3.1
18	3.1	3.0	3.0	(3.1) F S	3.1 F S	(3.1) S	3.3	(3.3) S	3.4 H	3.3 H	(3.0) P S	3.1	2.7	2.9	2.9	3.1	3.0	3.2	3.4	3.4	(3.2) S P	(3.3) F S	3.1 F	3.1 F
19	3.2 F	3.2 F	3.2 F	3.2	3.3	3.4	3.4	3.4	3.4 H	3.3 H	3.0 H	3.2 H	3.1	3.1	3.1	3.2	3.2	3.1	3.3	3.2	3.5	3.5	S	2.9 F S
20	(2.9) S	(3.0) P S	(3.1)	(3.0) S P	3.4 S	S	3.5	3.4	3.2	3.2	3.2	3.1	2.9	3.0	3.0	3.0	3.1	2.9	3.3	3.1	3.2	3.2	3.0	2.9 F
21	2.9 F	(2.9) S	3.0	3.1 F S	(3.3) S	3.4	J S	3.3	(3.0) F S	3.0 H	(3.0) F	3.0	3.3	3.2	3.0	(3.1) S P	3.2	3.2	3.3	3.2	J S	J S	(3.2) F S	3.2 F S
22	(3.1) F S	3.1 F	(3.0) F J	3.2 F	3.3 F	A	3.4	3.4	3.4	3.2	3.5	3.1	2.9	3.2	3.3	3.2	3.2	3.2	3.3	3.3	3.4	3.2	3.1	3.1
23	3.1	3.1	3.2	3.2	(3.1)	S	3.3	3.5	3.5	3.4	3.5	3.3	3.1	3.3	3.3	3.3	3.4	3.5	3.5	3.5	3.4	3.2	3.1	3.1
24	3.1	3.1	3.2	3.2	3.3	3.4	3.6	3.5	3.2	3.1 H	3.2	3.1 H	3.2 H	3.3	3.3	3.4	2.3	3.2	3.2	3.4	3.3	2.1	3.1	3.1
25	3.0	3.0	J S	S	J S	J S	(3.3) S	3.4	3.4	3.1	3.1	3.2	3.0	3.2	3.0 H	3.3	3.1	3.2	3.2	3.2	(3.2) S P	J S	3.2 F	3.2 F
26	(3.1) J E	3.0 F	3.1 F	3.1 F	3.1 F S	(3.2) F S	3.4 F	3.4	3.2	3.1	3.3	3.2	3.2	3.2	3.1	3.1	3.2	3.4	2.5	3.3	3.2	3.2 F	3.2 F	3.1 F
27	3.1 F	(3.2) F S	(3.2) J S	3.2	3.1	3.2	3.3	3.4	3.4	3.4 H	3.4	3.4	3.1	3.3	3.0	3.1	3.2	3.2	3.3	3.1	3.0	2.9	2.9	3.0
28	3.1	3.0	3.2	(3.2) S	(3.3) S	B	3.1	3.4	3.4	3.2	3.1	3.0	3.2	3.2	3.1	3.1	3.3	3.4	3.3	3.2 F S	(3.2) P S	J S	J F	(3.0) F S
29	F S	F A	F S	(3.1) F S	(3.3) P F	J S	(3.4) P S	3.4 F	3.2 F	3.3 F H	2.8 H	3.0	3.1	3.1	3.2	3.0	2.8	3.1	3.3	3.1	3.4	(3.4) P S	2.4 S	2.9
30	3.0	A	3.0	3.1 F	3.4	3.5	3.5 H	3.5	3.3	3.0	3.1	3.1	2.7	3.0	3.0 H	3.1 H	3.2	3.3	3.3	3.0	3.2	3.1	2.4	2.4
31																								
Median	3.1	3.0	3.1	3.1	3.2	3.2	3.4	3.4	3.3	3.3	3.2	3.1	3.0	3.1	3.1	3.1	3.2	3.2	3.3	3.2	3.2	3.2	3.1	3.1
Count	27	26	26	25	21	15	24	30	29	29	30	30	30	30	30	30	30	30	30	29	28	27	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 83

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic), _____ (Unit), September (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							Q	L	L	4.1 H	3.9 H	3.9 H	3.8 H	3.8 H	3.7 H	3.7 H	3.7	3.6	L					
2							Q	L	3.8	3.8 H	3.9	4.1 H K	4.0 H K	3.8 K	3.7 H K	3.7 K	3.7 H K	3.7 H K	L K					
3							Q	L	3.8 S	3.7 H	4.0 H	3.9 H	3.9 H	3.8 H	3.6	3.7	3.6	3.6	L					
4							Q	A	3.6	3.8	3.9 H	3.9 H	4.0	3.8 H	3.7	3.7	3.5	3.7	L					
5							L	3.3 H	3.5 H	3.6 H	3.9 H	3.9 H	3.8 H	3.6 H	3.8 H	3.9 H	3.7 H	L	L					
6							Q	(3.6) L	3.6	3.7 H	3.9	3.9	3.9 H	3.7 H	3.6 H	3.5 H	3.7	3.8	L					
7							L	L	3.5	3.7	3.9	3.8 H	3.8 H	A	A	3.7	3.6	3.6	L					
8							L	L	M	3.8 H	3.8	3.9	3.9	3.9	3.7	3.8	3.7 H	3.9	L					
9							L	L	3.7 H	3.7 H	4.1	4.1 H	3.9 H	3.6 H	3.6 H	3.6	3.6	(3.6) L	Q					
10							Q	(3.8) L	3.6 H	3.8	3.9	3.8 H	3.8	3.7 H	3.8 H	3.7 H	3.6 H	L	L					
11							Q	L	(3.6) L	3.6	3.7 H	3.7	3.7	3.6 H	3.5	3.7	3.6	(3.7) L	L					
12							Q	L	(3.8) L	3.7 H	4.1	3.9 H	3.9 H	3.8 H	3.6	3.6	3.5	3.6 H	L					
13							Q	L	3.8 H	3.8 H	3.8 H	3.8 H	3.9	3.6 H	3.6 H	3.5	3.5 H	3.6	L					
14							Q	3.3	3.9 H	4.0	4.2 H	3.9 H K	4.0 K	3.8 K	3.7 H K	3.6 K	3.6 K	3.4 H K	L K					
15							Q	3.5	3.6	3.8	3.9 H	3.7 H	3.7 H	3.7	3.9	3.8	3.7	3.7	Q					
16							Q	L	(3.7) L	3.8 H	3.9 H	3.7 H	3.9 H	3.7 H	3.7 H	3.5	3.7	L	Q					
17							Q	L	3.6	3.7	3.7 H	4.0 H	3.9	3.8	3.6	3.6 H	(3.5) L	L	L					
18							Q	3.6	3.6 H	3.9 H	4.1 H	4.1 H	3.8	3.8	3.7	3.6 H	3.4	3.7	Q					
19							Q	L	3.7 H	3.8	3.9	3.9 H	3.9 H	3.8 H	3.6 H	3.6	3.5	3.5	Q					
20							Q	L	3.5 H	3.8 H	4.0 H	4.0 H	A	3.6 H	3.4	3.5	3.3 H	L	Q					
21							Q	L	3.6	4.0	(4.2) F	3.9 H	3.7	3.8	3.7 H	3.6	3.6	L	Q					
22							Q	L	3.6	3.6 H	3.7 H	3.8 H	3.6 H	3.6 H	3.7	3.6	3.6	L	Q					
23							Q	L	L	3.5	3.7 H	3.8 H	3.8	3.7 H	3.6	3.6	(3.7) L	L	Q					
24							Q	4.0	L	3.7 H	3.8 H	3.9 H	3.9 H	3.7 H	3.6	3.7	L	L	Q					
25							Q	L	3.8 H	3.8	3.8 H	3.7 H	3.8 H	3.7 H	3.6	3.7	3.6	L	Q					
26							Q	L	3.7 F	3.6	3.7 H	3.7 H	3.8	3.7 H	3.6	3.7	3.7	L	Q					
27							Q	L	3.7	3.6 H	3.8 H	3.7	3.7 H	3.8 H	3.7	3.9	3.6	L	Q					
28							Q	Q	3.6 H	3.9 H	3.9 H	3.8 H	3.9 H	3.8 H	3.8 H	(3.7) L	(3.7) L	L	Q					
29							Q	Q	(3.7) F	3.7 F	3.9 H	4.0 H	3.9 H	3.8 H	3.6 H	3.6	3.5	L	Q					
30							Q	Q	(3.6) L	3.6 H	4.0	3.9	3.6 H	3.7 H	3.5 H	3.6	3.6	L	Q					
31																								
Median							—	3.6	3.6	3.8	3.9	3.9	3.9	3.7	3.6	3.6	3.6	3.6	—					
Count								7	2.6	3.0	30	30	2.9	29	2.9	30	2.9	15						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 84

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

Form accepted June 1946

IONOSPHERIC DATA

(M1500)E (Characteristic), (Unit) September (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							R	R	4.4 H	(4.3) F	4.5 F	4.2	(4.3) R	(4.1) R	4.4	4.4	4.2 H	4.3	S					
2							S	R	R	4.5	R	R K	4.5 K	4.4 K	4.4 H K	4.4 H K	4.5 K	(4.4) P K	S K					
3							S	R	(4.4) P	(4.5) R	R	R	4.3 H	4.4 H	4.4	4.3	(4.4) P	4.4 F	S					
4							S	4.5	(4.3) H	(4.4) R	(4.5) R	(4.6) R	4.4	(4.4) R	4.3	(4.4) R	4.3	4.4	S					
5							S	4.4 H	4.5	4.5	R	(4.4) R	4.5	4.5	4.4	4.4	4.4	4.4	S					
6							S	4.5 H	(4.5) P	(4.5) R	R	R	4.5	4.5	4.4 H	4.4 H	4.4	4.3	S					
7							S	R	R	R	R	R	4.4 H	4.4	4.4	R	4.4	(4.4) R	S					
8							S	R	M	R	4.3	4.1	4.3	4.3	4.3	4.2	4.2	4.3	S					
9							S	4.2 H	4.3	4.3	4.3	4.2	4.2 H	4.4	4.2 H	4.3	4.3	R	S					
10							S	R	R	R	4.2 H	(4.3) R	4.4	4.3	4.2	4.2	4.3	4.3	S					
11							S	R	4.3	(4.3) R	(4.2) R	(4.1) R	4.2	4.2	4.1	R	4.4	(4.3) R	R					
12							S	R	4.4 H	R	R	(4.4) R	(4.3) R	4.3	4.3	4.3	4.4	4.4 H	S					
13							S	(4.3) S	4.3	4.4	4.4 H	4.5	4.4	4.3 H	4.4 H	4.5 H	4.4	4.2 H	S					
14							S	4.4	4.5 H	4.3 H	4.5	4.3 H K	4.5 H K	(4.4) R K	4.4 K	4.4 H K	4.3 H K	4.3 H K	S K					
15							S	(4.3) S	4.4	4.4	4.5	4.3 H	4.4 H	4.4	4.4	4.4	4.4 H	4.2	S					
16							S	R	R	R	4.4	4.4	(4.4) P	4.4 H	4.4	4.4	4.3	4.4 H	S					
17							S	4.4	R	(4.4) R	(4.4) R	(4.5) R	4.5	4.3 H	4.4	4.4	4.4	R	S					
18							S	4.5	4.5	4.5	4.5	4.3 H	4.4	4.3 H	4.4 H	4.5	4.4	4.4 H	S					
19							S	4.4	4.5	4.4 H	4.4	(4.4) P	4.3	4.2 H	4.4 H	4.4	R	S	S					
20							S	4.3 H	R	R	R	R	4.4	4.4	4.3	4.2	4.3	(4.3) S	S					
21							S	4.4 H	4.5 H	(4.4) S	4.5	4.5 H	4.4 H	4.4 H	4.4	4.4	4.4	(4.3) S	S					
22							S	4.3 H	4.4	4.4	(4.3) P	4.4	4.4	4.3	4.3	4.4	4.4	4.4 H	S					
23							S	4.4	4.3	4.4	4.3	(4.3) R	4.3	4.3	4.3	4.3	4.2 H	R	S					
24							S	4.4	4.3	4.4	4.4	(4.4) R	4.4	R	4.4	4.4	4.4	4.3	S					
25							S	4.2	R	R	4.4	4.4	4.4	4.4	4.4 H	4.4	4.4	4.3	S					
26							S	(4.4) S	R	R	4.3	R	4.4	4.4	4.4	4.4 H	4.4 H	4.4	S					
27							S	4.4	4.4 H	4.5	R	4.4 H	R	(4.4) P	4.4 H	4.5	4.4	4.4	S					
28							S	4.4	4.4 H	4.5	R	4.4 H	4.3 H	4.4 H	4.4 H	(4.4) S	4.2	4.2	S					
29							S	(4.2) R	4.2	4.3	4.4	4.4	4.5	4.3 H	4.3	(4.3) P	4.3 H	4.4	S					
30							S	4.4	R	(4.4) P	(4.4) P	(4.4) P	4.4	4.5	4.4 H	4.4 H	4.4 H	4.4	S					
31																								
Median								4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4						
Count								21	24	22	21	24	29	29	30	28	29	26						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 85

Ionospheric Storminess at Washington, D. C.

September 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	1			3	4
2	2	5	1100	----	5	2
3	2	2	----	0000	3	4
4	3	3			4	3
5	2	2			4	2
6	2	2			3	3
7	2	1			3	3
8	2	3			2	2
9	2	2			3	2
10	3	2			3	2
11	1	1			3	2
12	1	1			2	1
13	1	1			2	2
14	2	6	1100	----	4	3
15	3	2	----	0100	3	3
16	1	1			4	2
17	1	1			3	2
18	1	3			3	2
19	2	1			2	2
20	3	1			4	5
21	3	3			4	3
22	1	1			2	2
23	1	2			3	1
24	1	2			2	2
25	1	1			3	3
26	2	3			3	2
27	1	1			2	3
28	1	3			4	2
29	2	3			4	3
30	2	3			3	2

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

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

----Dashes indicate continuing storm.

Table 86

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

August 1954

Day	North Pacific 9-hourly quality figures			Short-term forecasts issued at			Whole day quality index	Advance forecasts (J_p 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	6	6	6	6	6	6	6	6	
2	6	6	6	6	5	6	6	5	6	
3	6	7	7	6	6	6	7	5	6	
4	6	6	6	7	6	6	7	6	6	
5	5	6	7	7	6	7	6	6	6	
6	6	6	6	7	5	6	6	6	6	
7	6	6	6	6	5	6	6	5	5	
8	6	6	6	6	6	6	7	5	5	
9	5	5	6	7	6	6	6	6	6	
10	6	5	6	6	6	7	6	6	6	
11	6	6	6	6	6	7	6	6	6	
12	6	6	6	7	6	7	6	6	6	
13	6	6	7	6	6	7	7	6	6	
14	6	6	7	6	6	7	7	7	6	
15	6	6	6	6	6	7	6	7	6	
16	5	6	6	6	6	6	6	7	6	
17	7	6	6	6	5	7	6	6	6	
18	6	6	5	6	6	7	6	7	6	
19	6	6	6	7	6	7	6	7	6	
20	5	6	6	6	6	6	6	6	6	
21	6	6	6	6	5	6	6	6	6	
22	6	6	6	6	6	7	5	6	6	
23	6	5	5	6	6	6	5	6	6	
24	5	5	6	6	5	6	5	5	5	
25	6	5	5	5	5	6	5	5	5	
26	6	5	5	6	6	6	5	6	6	
27	6	6	5	6	6	6	6	6	6	
28	6	6	6	6	6	7	6	6	6	
29	5	6	6	5	(4)	6	5	6	6	
30	5	6	5	6	5	6	6	6	6	
31	5	5	6	6	5	6	5	6	6	
Score: Quiet Periods			P	18	19	16		16	20	
			S	11	11	14		13	10	
			U	2	0	1		2	1	
			F	0	1	0		0	0	
Disturbed Periods			P	0	0	0		0	0	
			S	0	0	0		0	0	
			U	0	0	0		0	0	
			F	0	0	0		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)

August 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 day (1)	day (2)
1	6	6	7	7	7	6	6	7	7	7	7		3	2
2	7	5	7	6	6	6	7	7	7	7	7		3	1
3	7	7	7	7	7	6	7	7	7	7	7		1	2
4	6	6	7	7	7	7	6	7	7	7	7		2	2
5	7	5	7	7	7	6	7	7	7	7	7		2	2
6	7	6	7	7	7	6	6	7	7	7	7		3	3
7	7	7	7	7	6	5	7	7	7	7	7		2	(4)
8	7	7	7	7	7	6	7	7	7	6	6		3	2
9	7	6	7	7	7	7	7	7	7	6	6		2	3
10	7	6	7	7	6	5	6	6	7	6	6		3	2
11	7	6	7	7	7	6	7	7	7	6	6		3	1
12	7	6	6	7	7	6	7	7	6	7	7		3	2
13	7	6	7	7	7	6	7	7	7	7	7		2	2
14	7	6	7	7	7	7	7	7	7	7	7		2	2
15	7	6	7	7	7	6	7	7	7	7	7		2	2
16	7	7	7	6	7	6	7	7	7	7	7		3	2
17	6	5	7	7	7	6	7	7	6	7	7		3	2
18	7	(4)	7	7	7	6	7	7	6	7	7		3	2
19	7	6	7	7	6	5	7	7	7	7	7		2	2
20	6	5	7	7	6	6	6	7	7	6	7		2	1
21	7	5	7	7	7	6	6	7	6	6	7		(4)	2
22	6	5	7	7	7	5	6	7	6	6	7		3	2
23	7	6	7	7	6	5	6	7	7	6	7		2	2
24	7	5	6	6	7	5	7	6	6	6	6		(4)	3
25	6	(4)	7	7	6	(4)	6	7	6	7	7		3	1
26	7	5	7	7	6	6	6	7	7	7	7		3	3
27	6	5	7	7	7	5	7	7	6	6	7		3	2
28	6	5	7	7	7	5	7	7	6	6	7		3	3
29	6	(4)	7	7	6	5	6	7	6	6	7		(4)	3
30	6	(4)	7	6	6	(4)	7	6	6	7	7		3	2
31	6	5	7	7	6	(4)	7	6	6	6	7		2	2

Score:

Quiet Periods	P	19	10	18	27	20	16	
	S	12	16	13	4	11	15	
	U	0	1	0	0	0	0	
	F	0	0	0	0	0	0	
Disturbed Periods	P	0	2	0	0	0	0	
	S	0	1	0	0	0	0	
	U	0	0	0	0	0	0	
	F	0	1	0	0	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

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)

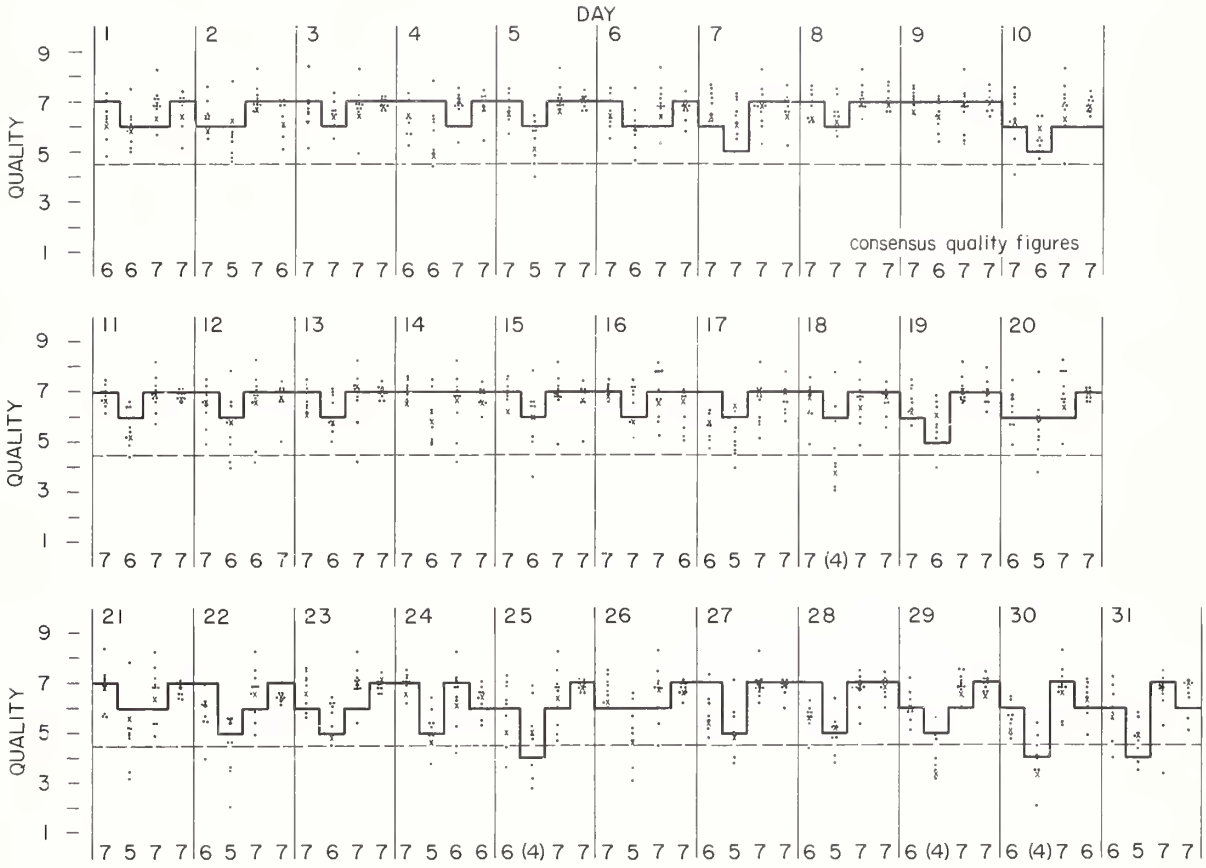
Table 87b

Short-Term Forecasts--- August 1954

— forecast

x CRPL observation (not in consensus)

• individual reports of quality (adjusted to CRPL scale)



Outcome of Advance Forecasts (1 to 4 days ahead) --- August 1954

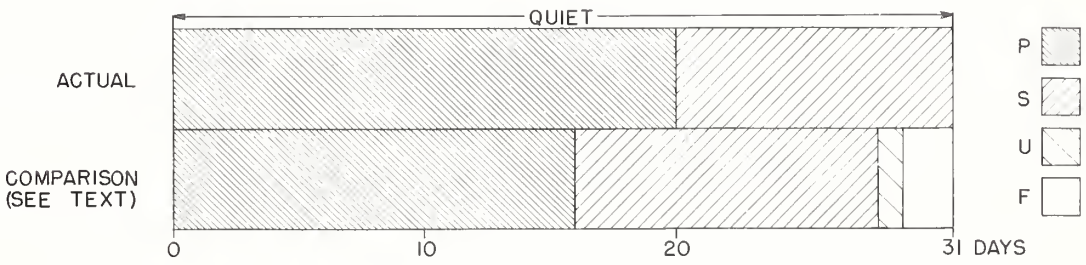


Table 88a

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																																					
Sep 1.7a	-	-	-	-	-	-	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6a	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.x																																					
5.x																																					
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.x																																					
9.0	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
9.6	-	-	-	-	-	-	-	-	1	2	3	2	1	3	4	2	1	1	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
10.6	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	2	-	-	-	-	-	-	-	-	-	3	5	3	-	-	-	-	-	-	-	-	-
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	4	1	-	-	-	-	-	-	-	-	-	-	-	-
12.x																																					
13.8	X	X	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X
14.6	-	-	-	-	-	-	-	-	1	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	1	2	4	6	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	1	4	4	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.x																																					
24.x																																					
25.7	-	-	-	-	-	-	-	1	1	2	2	2	2	1	1	1	1	1	-	-	-	-	1	2	2	2	2	1	-	-	-	-	-	-	-	-	-
26.x																																					
27.x																																					
28.6	-	-	-	-	1	3	2	2	2	2	3	3	1	-	-	-	-	-	-	-	-	-	-	1	2	8	11	3	1	-	-	-	-	-	-	-	-
29.6a	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	2	4	2	2	2	4	15	4	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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																																					
Sep 1.7a	2	2	1	1	1	1	1	1	1	2	2	2	3	3	3	5	5	3	5	5	5	3	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2
2.7	1	1	1	1	1	1	1	1	1	2	3	4	5	4	4	4	3	4	4	4	4	3	5	9	6	2	2	-	-	-	-	-	-	-	-	2	1
3.6a	2	2	2	1	1	1	1	1	1	1	1	4	4	3	3	4	4	4	4	4	5	5	6	6	16	8	1	1	1	1	1	1	1	1	1	1	1
4.x																																					
5.x																																					
6.6	2	2	1	1	1	1	1	2	1	1	2	4	5	3	5	5	5	5	5	4	4	4	5	5	5	2	2	2	2	2	1	1	1	1	1	2	2
7.x																																					
9.0	2	2	2	2	2	2	1	1	1	1	2	2	3	5	6	4	5	5	5	4	4	3	4	4	3	3	3	3	3	3	3	X	X	X	X	X	X
9.6	2	2	2	1	1	1	1	1	1	2	2	2	4	4	6	15	6	9	6	6	6	5	5	6	5	4	4	3	2	2	2	2	2	2	3	2	2
10.6	2	2	2	1	1	1	1	1	1	1	2	2	1	3	9	6	5	5	5	4	3	3	3	4	2	7	5	1	1	1	1	1	1	1	2	2	1
11.6	2	2	1	1	1	1	1	1	1	1	1	1	2	3	4	4	5	5	6	6	5	3	3	3	2	1	1	1	1	1	1	1	2	2	2	2	2
12.x																																					
13.8	X	X	2	2	1	1	1	1	1	1	1	1	2	3	3	3	3	2	5	4	4	4	4	4	4	4	3	X	X	X	X	X	X	X	X	X	X
14.6	2	2	2	1	1	1	1	1	1	1	1	2	4	6	4	4	4	5	6	6	5	5	5	3	3	2	1	1	1	1	1	2	2	2	2	2	2
15.6	2	1	1	1	1	1	1	1	1	1	1	1	2	3	3	4	4	4	4	4	4	4	4	3	2	2	1	1	1	1	1	2	2	2	2	2	2
16.8	2	2	1	2	1	1	2	2	2	2	2	3	2	3	3	4	6	5	5	4	4	3	3	3	3	2	1	1	1	1	1	1	1	2	2	2	1
17.6	2	2	1	1	1	1	1	1	1	2	2	4	5	6	5	5	6	8	7	6	5	4	4	3	3	3	2	2	1	1	1	1	1	1	1	2	2
18.7	2	2	2	1	1	1	1	1	1	2	4	8	8	6	15	6	8	9	9	6	6	5	4	3	3	3	2	2	2	1	1	1	1	1	1	2	2
19.7	2	1	1	1	1	1	1	1	1	2	3	6	12	6	10	6	7	8	8	7	7	6	5	5	4	4	3	1	1	1	1	1	2	2	2	2	2
20.7a	2	1	1	1	1	1	1	1	1	1	3	8	2	2	3	3	4	4	3	4	4	4	3	3	2	1	-	-	-	-	-	-	-	-	-	-	-
21.7	2	1	1	1	1	1	1	1	2	2	2	2	3	2	3	2	4	4	3	3	3	3	3	3	3	1	1	1	1	1	2	2	2	2	2	2	2
22.6a	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	4	4	4	3	2	1	1	1	1	1	1	2	2	2	2	2	2	2
23.x																																					
24.x																																					
25.7	2	2	2	1	1	1	1	1	2	2	2	1	1	1	2	3	6	6	6	5	3	2	2	3	4	5	5	3	1	1	1	1	1	2	2	2	2
26.x																																					
27.x																																					
28.6	3	2	1	1	1	1	1	1	3	2	1	2	3	4	4	6	5	5	5	6	6	6	6	6	8	10	18	3	3	3	2	2	2	2	2	2	2
29.6a	-	-	-	-	-	-	-	-	1	3	4	3	5	3	3	4	3	3	3	3	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2
30.7	1	1	1	1	1	1	1	1	2	2	14	16	14	2	2	2	4	5	5	4	4	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2

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																																						
Sep 1.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-
4.x																																						
5.x																																						
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.x																																						
9.0	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	1	2	1	-	-	-	-	X	X	X	X
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	2	2	1	1	-	-	-	-	-	-	-	-	-	-
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1	3	3	3	1	1	-	-	-	-	-	-	-	-	-
11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	1	1	4	5	4	1	-	-	-	-	-	-	-	-	-	-
12.x																																						
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14.6	-	-	-	-	-	-	-	-	-	1	1	1	2	4	1	1	-	-		-	-	-	-	-	-	-	4	5	6	1	2	2	1	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	2	5	1	-	-	-		-	-	-	-	1	1	1	2	1	2	1	1	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	-	-	-	-	1	2	6	2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	1	2	4	3	2	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	1	3	1	-	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.x																																						
24.x																																						
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.x																																						
27.x																																						
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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																																						
Sep 1.7a	2	2	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	3		3	4	3	3	3	3	3	3	1	1	1	1	1	1	2	2	3	2	2
2.7a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5		5	4	5	3	3	3	3	3	2	1	1	1	1	2	3	3	3	2	1
3.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		X	X	X	X	X	X	X	X	X	X	X	-	-	-	2	2	2	2	2
4.x																																						
5.x																																						
6.6	2	2	1	1	1	1	2	2	2	2	2	3	3	3	3	2	4	4		4	4	6	5	5	8	11	9	2	2	2	2	2	2	1	1	1	2	2
7.x																																						
9.0	X	X	X	X	X	1	1	1	1	1	3	2	2	2	4	4	6	5		5	5	5	6	5	5	5	5	3	1	1	1	1	1	1	X	X	X	X
9.6	2	2	1	1	1	1	1	1	1	3	3	2	1	3	5	6	6	5		4	5	6	6	5	5	5	5	5	2	1	1	1	1	2	2	2	1	2
10.6	1	1	1	1	1	1	1	1	1	1	2	2	2	2	4	6	4	4		3	3	3	3	3	2	2	2	2	3	2	1	1	1	1	1	1	1	2
11.6	2	2	2	1	1	1	1	1	1	3	3	2	3	2	2	3	4	4		3	4	4	4	3	2	2	1	1	1	1	1	1	1	1	1	1	2	2
12.x																																						
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14.6	2	1	1	1	1	1	1	2	2	2	2	2	3	4	3	3	5	5		5	4	4	4	4	3	2	2	1	1	1	1	1	2	2	2	2	3	2
15.6	2	2	1	1	1	1	1	1	1	2	2	2	2	3	3	4	4	2		2	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	2
16.8	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	8	8	2		3	5	5	5	3	3	2	2	2	2	1	1	1	1	1	1	1	2	2
17.6	2	2	2	1	1	1	1	1	1	2	2	1	1	3	4	4	4	4		4	4	4	3	3	2	4	5	5	2	1	1	1	1	1	1	1	1	2
18.7	2	2	1	1	1	1	1	1	1	1	1	1	2	3	5	5	5	5		5	4	3	3	3	3	3	3	2	2	1	1	1	1	1	1	2	2	2
19.7	2	2	2	1	1	1	1	1	2	2	2	2	3	4	4	4	5	5		5	6	5	4	5	5	4	4	6	4	2	1	1	1	1	1	2	1	2
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	4	4	2	2	4	4		4	5	3	3	5	4	3	3	2	1	1	1	1	1	1	1	1	1	2
21.7a	2	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	3	3		3	2	2	2	3	3	3	3	2	1	1	1	1	1	1	2	2	2	2
22.6	2	2	1	1	2	1	1	1	1	1	1	1	2	2	3	4	3	3		6	5	2	3	3	3	3	3	3	2	1	1	1	1	1	1	1	2	1
23.x																																						
24.x																																						
25.7	2	2	1	1	1	1	1	1	1	2	2	2	3	3	3	4	4	4		5	4	4	4	4	4	2	2	2	1	1	1	1	1	1	2	1	2	2
26.x																																						
27.x																																						
28.6	2	2	2	2	2	2	2	2	2	2	2	3	3	2	4	4	5	4		3	3	2	3	3	3	2	2	1	1	1	1	2	2	2	2	1	2	3
29.6	2	2	1	1	1	1	1	1	2	2	2	3	3	3	4	4	3	3		3	3	3	3	2	2	2	2	1	1	1	-	-	-	-	-	-	-	-
30.7a	2	2	3	2	2	2	2	2	2	2	2	2	2	2	4	4	5	5		5	3	3	3	3	3	2	2	1	1	1	1	1	1	1	2	2	2	1

Table 90a

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			
Sep 1.7a	The 6702 coronal line was not visible at the east limb on any of the observation dates in September; the position angles observed were the same as for the 5303A coronal line.		
2.7			
3.6a			
4.x			
5.x			
6.6			
7.x			
9.0			
9.6			
10.6			
11.6			
12.x			
13.8			
14.6			
15.6			
16.8			
17.6			
18.7			
19.7			
20.7a			
21.7			
22.6a			
23.x			
24.x			
25.7			
26.x			
27.x			
28.6			
29.6a			
30.7			

Table 91a

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			
Sep 1.6	- - - - - - 3 5 8 7 8 3 4 3 3 2 - -	-	- - - - - 2 2 3 2 2 - - - - - - - -
2.6	- - - - - - 2 3 6 7 5 3 2 2 2 2 - -	-	- - - - 3 5 8 4 3 2 - - - - - - - -
3.6	- - - - - - - 2 3 3 4 4 3 2 2 - - -	-	- - - 3 13 11 7 5 3 - - - - - - - -
4.6	- - - - - - - 2 2 3 4 5 4 3 2 2 - -	-	- - - 2 3 4 5 4 2 - - - - - - - -
5.7a	- - - - - - - - - 3. 3 2 2 2 - - - -	-	- - - - - 3 2 2 - - - - - - - - -
6.6	- - - - - - - - - - 2 2 3 3 2 2 3 2	2	- - - - - - - - - - - - - - - - -
7.7	- - - - - - 2 3 3 2 3 3 3 4 4 5 5 3	3	2 - - - - - - - 2 2 - - - - - - -
8.7a	- - - - - - - - 2 2 3 3 4 5 6 4 3 2	2	- - - - - - - - 2 2 2 - - - - - -
9.6a	- - - - - - - - - 2 3 3 4 3 5 8 7 4	3	4 3 2 2 2 - - - - - - - - - - - -
10.x			
11.7a	- - - - - - - - - - 2 3 3 3 2 - - -	-	- 2 3 3 4 5 11 14 11 5 3 2 - - - - - -
12.7a	- - - - - - - - - 2 3 2 2 2 2 - - -	-	- - 2 2 3 3 4 4 12 8 5 3 2 - - - - -
13.8a	- - - - - - - - 2. 2 4 3 2 2 2 2 3 2	2	- - - - 2 3 3 2 2 5 4 3 2 2 - - -
14.7a	- - - - - 2 2 3 3 4 3 2 2 2 3 2 2 -	-	- - - - - - - 2 2 3 2 2 - - - - - -
15.8	- - - - - - 2 3 3 2 3 3 4 3 3 2 3 2	3	2 2 - - 2 3 4 3 2 3 4 3 2 - - - - -
16.7	- - - - - - - 2 3 2 2 3 3 2 2 - - -	-	- - 2 3 2 3 4 3 2 5 4 3 2 - - - - -
17.7	- - - - - - - - 2 2 3 5 4 8 7 4 3 2	-	- - - - - - - 2 3 4 5 3 2 2 - - -
18.7	- - - - - - 2 3 2 3 4 5 14 13 13 11 6 5	3	2 2 3 3 3 3 2 3 2 - - - - - - - -
19.7	- - - - - - - 2 2 2 3 4 5 12 11 11 8 3	2	3 - - - 2 2 - - 2 2 3 3 3 2 - - -
20.7a	- - - - - - - - - - 2 2 3 2 4 5 5 4	3	4 3 4 5 4 3 - - - - - - - - - - - -
21.x			
22.7	- - - - - - - - 2 3 4 5 5 5 6 5 4 3	2	2 3 3 2 2 2 2 2 3 4 3 2 - - - - - -
23.x			
24.x			
25.x			
26.x			
27.7a	- - - - - 2 3 4 5 4 6 7 8 7 5 4 3 3	3	2 2 2 3 5 16 28 30 11 4 2 3 2 2 - - - -
28.7	- - - 2 3 5 6 8 11 12 8 8 7 6 5 4 3 2	2	2 - 2 3 5 11 20 24 12 11 5 3 2 - - - - -
29.7a	- - - - - 3 5 6 8 12 14 15 11 5 4 4 3 2	3	2 3 2 3 5 7 8 11 16 11 5 3 2 - - - - -
30.6	2 2 3 2 2 4 5 5 6 5 11 20 36 7 5 3 2 -	-	- - - 3 4 5 4 3 3 5 4 4 3 2 - - - -

Table 90b

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

Date UT	Degrees south of the solar equator 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5	0°	Degrees north of the solar equator 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
1954			
Sep 1.7a			
2.7a			
3.6a			
4.x			
5.x			
6.6			
7.x	The 6702 coronal line was not visible at the west limb on any of the observation dates in September;		
9.0	the position angles observed were the same as for the 5303A coronal line.		
9.6			
10.6			
11.6			
12.x			
13.8			
14.6			
15.6			
16.8			
17.6			
18.7			
19.7			
20.7a			
21.7a			
22.6			
23.x			
24.x			
25.7			
26.x			
27.x			
28.6			
29.6			
30.7a			

Table 91b

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

Date UT	Degrees south of the solar equator 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5	0°	Degrees north of the solar equator 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
1954			
Sep 1.6	- - - - - - - - 2 2 3 3 2 3 2 2 - -	-	- - - - - - - 2 3 3 2 2 2 - - - - -
2.6	- - - - - - - - 2 2 2 3 2 - - - - -	-	- - - - - - - 3 2 - - - - - - - - -
3.6	- - - - - - 2 2 3 4 5 4 3 2 2 2 2 2	2	- - - 2 3 3 4 4 3 3 2 - - - - - - -
4.6	- - - - - - - - - - 2 2 3 2 2 2 3 2	2	- - - - - - 2 3 3 2 2 2 - - - - - -
5.7a	- - - - - - - - - - - - - - - - - -	-	2 2 2 3 3 16 8 4 3 2 2 2 - - - - - -
6.6	- - - - - - - - - - - - 2 2 3 3 2 -	-	- 2 2 3 6 11 5 3 3 3 3 2 2 - - - - -
7.7	- - - - - - - - - - - - - - - - - -	-	3 2 2 2 2 2 2 3 3 3 2 - - - - - - -
8.7a	- - - - - - - - - - - - - - - - - -	-	- - 2 2 2 3 2 3 4 3 2 - - - - - - -
9.6a	- - - - - 2 3 2 - 2 3 2 3 4 5 3 2 2	2	2 3 - - 2 2 3 3 3 3 2 - - - - X - -
10.x			
11.7a	- - - - - - - - - - - 2 3 3 3 2 2 -	-	- 2 3 2 5 14 13 11 4 4 4 3 - - - - - -
12.7a	- - - - - - - - - - - - - - 2 3 2 3	2	2 2 2 3 4 8 12 14 8 5 5 4 3 2 - - - -
13.8a	- - - - - - - - - - - - - - 2 2 2 -	-	- 2 2 2 3 5 11 14 12 4 4 4 5 3 2 - - -
14.7a	- - - - - - - - 2 2 3 2 3 4 5 4 4 3	2	2 2 3 3 3 4 5 7 8 5 4 4 2 2 - - - -
15.8	- - - - - - - - 2 2 3 3 2 4 11 8 5 4	4	2 2 2 2 2 2 2 3 5 6 5 4 4 3 2 - - -
16.7	- - - - - - - - - - - - 2 5 14 10 5 3	2	- - - 2 2 2 3 4 4 3 4 2 3 2 - - - -
17.7	- - - - - - - - 2 2 3 4 3 5 6 5 4 3	2	2 2 - - 2 3 4 4 5 5 3 3 3 3 2 - - -
18.7a	- - - - - - - - - - - 2 3 3 3 2 2 3	2	- - - - 2 2 3 5 4 4 3 2 3 2 - - - -
19.7a	- - - - - - - - 2 2 2 3 2 2 2 3 3 3	2	3 3 3 2 2 3 3 5 4 3 3 2 - - - - - -
20.7a	- - - - - - - - - - - - - - - - - -	-	3 4 4 3 3 4 4 5 5 6 5 4 3 2 2 - - -
21.x			
22.7a	- - - - - - - - 2 2 3 3 5 5 4 3 2 2	2	3 3 2 2 3 4 5 4 3 3 2 2 2 - - - - -
23.x			
24.x			
25.x			
26.x			
27.7a	- - - - - - - - 2 2 - 2 2 3 3 - - -	-	3 2 2 2 2 3 3 4 3 4 3 3 2 - - - - -
28.7	- - - - - - - 2 2 3 5 4 4 4 3 2 2 -	-	2 4 3 3 3 3 4 3 3 3 3 2 - - - - - -
29.7a	- - - - - - - - 2 3 2 2 - - - - - 2	3	2 3 3 4 5 5 3 3 2 2 - - - - - - - -
30.6	- - - - - - - - 2 2 2 2 3 3 2 3 3 2	-	- 3 3 4 3 3 3 3 2 2 - - - - - - - -

Table 92a

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																																				
Sep 1.6	4	4	4	3	3	3	2	3	2	4	5	8	11	10	11	14	16	17	19	17	14	10	11	14	11	9	8	7	6	2	2	2	2	3	4	3	3
2.6	3	4	4	3	3	2	2	2	3	4	5	11	12	11	11	13	14	15	15	14	13	13	18	27	28	11	7	5	4	3	3	3	2	3	5	4	4
3.6	3	3	4	4	3	3	2	2	4	4	5	14	10	8	12	14	13	12	12	14	14	15	14	23	36	16	11	10	6	5	3	2	3	2	2	3	3
4.6	4	4	4	5	4	3	2	3	4	5	7	14	15	12	14	15	13	13	14	15	14	13	12	14	20	16	13	11	3	3	2	3	2	3	2	3	4
5.7a	3	3	2	4	3	2	2	2	2	3	4	8	12	14	11	12	12	13	14	11	12	11	10	11	11	12	12	5	4	3	3	2	2	2	2	2	2
6.6	3	3	4	4	3	3	2	2	3	3	4	5	11	10	10	9	12	11	11	10	9	7	7	8	10	11	5	5	6	5	3	3	2	2	3	3	4
7.7	3	3	4	5	2	4	2	3	4	3	5	10	11	12	14	13	14	18	19	14	15	15	14	12	12	11	9	8	4	3	3	3	3	2	3	4	5
8.7a	3	3	3	2	3	2	3	2	4	4	3	5	8	9	11	14	13	14	13	12	11	11	10	11	10	9	8	7	3	3	2	2	2	-	2	3	3
9.6a	3	3	2	2	-	-	2	3	2	3	2	3	5	5	8	15	11	12	13	11	9	8	8	9	8	11	7	8	2	3	2	3	3	3	4	4	4
10.x																																				
11.7a	5	4	4	3	4	3	4	5	3	4	4	4	5	5	8	12	14	13	11	12	10	7	6	8	9	6	6	4	3	2	2	2	3	5	5	5	5
12.7a	3	3	3	3	4	3	3	2	2	3	3	5	5	5	11	12	13	13	12	12	13	13	12	11	10	8	8	6	3	2	3	-	2	3	2	2	3
13.8a	3	2	3	2	2	2	-	-	2	2	2	3	4	5	8	9	11	8	8	12	10	8	7	7	5	4	4	3	2	2	-	-	2	2	2	2	3
14.7a	4	4	3	3	2	3	3	2	2	3	3	4	5	10	12	11	10	11	14	13	11	11	10	9	9	8	7	4	3	3	2	2	2	4	4	4	5
15.8	3	4	3	3	2	4	2	3	3	5	4	5	5	6	8	13	14	13	13	12	11	13	11	8	7	8	9	8	3	2	2	2	-	3	3	4	4
16.7	4	4	4	3	4	4	4	4	4	3	5	5	5	8	9	10	11	12	14	13	11	10	9	9	8	8	7	6	6	3	2	2	2	3	3	4	3	3
17.7	3	4	4	4	3	2	2	3	4	7	6	7	12	13	17	14	15	16	15	14	12	11	9	8	7	6	6	5	3	2	2	2	3	2	2	2	3
18.7	4	3	4	3	4	3	2	3	3	4	5	8	12	16	18	13	11	12	14	13	10	8	7	6	5	5	6	5	4	4	4	2	3	3	3	4	3
19.7	3	3	2	2	3	3	3	3	4	8	7	7	11	20	13	14	11	12	12	13	14	11	9	10	9	8	7	6	2	3	3	2	2	3	3	4	4
20.7a	3	3	2	3	4	3	3	3	3	4	6	6	11	14	8	8	11	10	10	9	8	8	7	5	4	5	4	3	4	3	4	-	-	-	-	-	3
21.x																																				
22.7	2	3	2	2	2	2	3	3	2	5	4	5	6	7	8	8	11	12	9	8	9	9	8	9	7	6	4	4	4	3	2	2	2	3	3	3	2
23.x																																				
24.x																																				
25.x																																				
26.x																																				
27.7a	5	3	2	3	2	3	3	4	6	2	4	5	5	6	8	9	12	14	11	10	9	9	11	14	16	30	26	6	5	3	3	2	3	4	5	5	5
28.7	5	5	5	3	4	3	3	2	3	9	6	5	5	12	11	12	14	12	13	14	14	14	15	16	23	32	18	5	6	5	3	3	6	5	5	4	4
29.7a	4	4	3	3	3	2	2	2	5	12	13	12	12	12	11	8	8	9	10	11	12	12	11	8	9	12	14	11	5	3	2	2	2	3	2	2	3
30.6	3	3	2	2	3	3	2	3	2	4	11	16	20	26	11	10	12	14	13	14	13	13	12	10	8	9	10	11	7	5	4	3	2	4	3	4	4

Table 93a

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																																					
Sep 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.x																																					
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.x																																					
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.x																																					
24.x																																					
25.x																																					
26.x																																					
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5	4	2	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	4	2	-	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	-	2	3	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 92b

Coronal observations at Sacramento Peak, New Mexico, (6374A), 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																																					
Sep 1.6	3	3	3	4	3	2	2	2	4	3	4	5	8	7	8	11	12	13	11	8	11	10	7	8	14	13	10	6	4	3	2	3	3	2	4	5	4
2.6	4	3	2	3	2	3	2	3	4	3	5	8	7	6	7	8	11	14	12	13	11	8	8	9	8	7	5	4	3	2	3	2	2	3	4	4	3
3.6	3	3	2	2	2	2	2	2	3	3	5	4	7	8	8	8	10	11	12	14	13	12	11	8	5	5	5	4	3	2	2	**2**	2	2	3	3	3
4.6	4	3	4	3	2	3	2	3	3	5	6	8	7	5	8	11	12	13	14	14	14	14	13	11	7	8	6	5	2	3	2	2	3	2	3	5	4
5.7a	2	2	2	3	3	2	2	2	3	3	2	3	5	4	3	4	5	8	6	8	11	12	11	14	15	11	3	2	2	2	2	2	2	3	2	3	3
6.6	4	3	2	3	3	3	3	2	3	3	3	4	4	2	3	5	6	7	7	6	8	8	9	11	16	15	3	4	4	3	2	2	2	3	3	2	3
7.7	5	5	5	4	4	3	2	2	3	4	5	4	5	6	8	7	8	11	14	13	13	12	13	16	21	22	8	3	4	3	2	2	3	3	3	2	3
8.7a	3	3	2	2	2	3	2	2	3	4	5	4	4	5	8	8	9	11	10	11	12	11	10	11	13	12	11	5	3	3	2	2	2	3	3	2	3
9.6a	4	3	3	2	2	3	3	3	3	3	3	3	3	3	5	8	9	8	6	5	6	7	8	6	5	6	5	3	3	2	2	3	X	2	2	3	3
10.x																																					
11.7a	5	4	3	2	3	3	2	3	3	5	5	6	7	8	7	8	10	11	8	10	11	11	12	8	5	4	4	4	3	3	2	2	2	3	4	5	5
12.7a	3	3	4	3	2	3	3	2	2	3	5	6	8	9	5	6	7	8	8	7	7	7	6	4	3	2	2	2	2	3	2	2	2	2	3	3	3
13.8a	3	3	3	2	2	3	3	2	2	3	3	4	5	8	6	7	5	6	8	7	7	5	6	5	5	4	3	5	3	4	2	2	2	2	2	2	3
14.7a	5	3	4	4	3	3	2	2	-	3	4	5	8	7	8	11	12	13	11	12	8	9	8	6	5	4	3	2	2	2	3	2	2	2	2	3	4
15.8	4	4	3	4	2	3	3	2	3	4	5	6	8	9	11	11	12	11	10	10	11	12	11	10	9	8	5	4	4	4	2	3	2	3	3	2	3
16.7	3	3	2	2	2	2	3	3	3	4	6	5	4	4	8	10	12	13	11	12	11	10	9	5	6	10	7	5	4	3	2	-	2	2	2	3	4
17.7	3	4	3	2	3	2	3	2	3	4	5	5	4	4	8	9	5	7	8	10	11	10	8	5	6	11	12	7	4	2	2	3	2	3	2	2	3
18.7a	3	3	3	3	2	3	3	2	2	3	6	3	4	5	6	8	7	8	8	9	8	7	6	7	8	5	5	3	3	3	3	2	2	3	2	4	4
19.7a	4	3	2	3	3	2	3	3	3	2	5	4	4	5	8	7	7	7	6	8	9	7	5	6	5	8	7	4	3	2	-	-	3	3	2	3	3
20.7a	3	3	4	3	3	3	-	-	-	3	4	5	6	5	5	6	6	6	5	5	6	8	7	6	6	5	5	4	3	4	3	2	3	3	3	4	3
21.x																																					
22.7a	2	3	2	3	2	2	-	-	2	2	4	3	5	3	5	5	4	6	5	6	5	5	4	5	6	4	3	3	3	2	-	2	3	3	3	2	2
23.x																																					
24.x																																					
25.x																																					
26.x																																					
27.7a	5	4	3	2	2	2	3	3	2	3	6	7	7	8	12	13	11	11	8	9	10	11	8	7	8	8	7	6	4	3	3	3	2	2	2	5	5
28.7	4	4	5	3	3	2	2	3	3	4	5	6	7	8	10	11	14	13	12	10	11	12	8	7	5	4	4	3	3	2	3	3	2	3	3	4	5
29.7a	3	4	3	2	3	-	2	3	3	3	4	4	3	3	4	11	14	12	13	12	11	12	11	11	10	5	11	12	3	2	3	3	2	3	4	4	4
30.6	4	4	3	3	4	3	2	2	2	5	7	6	6	5	6	8	12	13	14	13	11	10	8	8	8	7	6	5	3	2	2	2	-	2	3	3	3

Table 93b

Coronal observations at Sacramento Peak, New Mexico, (6702A), 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																																					
Sep 1.6																																					
2.6																																					
3.6																																					
4.6																																					
5.7a																																					
6.6																																					
7.7																																					
8.7a	The 6702A coronal line was not visible at the west limb on any of the observation dates in September;																																				
9.6a	the position angles observed were the same as for the 6374A coronal line.																																				
10.x																																					
11.7a																																					
12.7a																																					
13.8a																																					
14.7a																																					
15.8																																					
16.7																																					
17.7																																					
18.7a																																					
19.7a																																					
20.7a																																					
21.x																																					
22.7a																																					
23.x																																					
24.x																																					
25.x																																					
26.x																																					
27.7a																																					
28.7																																					
29.7a																																					
30.6																																					

Table 94

Zürich Provisional Relative Sunspot Numbers

September 1954

Date	R_Z*	Date	R_Z*
1	0	17	0
2	0	18	0
3	0	19	0
4	7	20	7
5	0	21	0
6	0	22	0
7	0	23	0
8	0	24	0
9	0	25	0
10	0	26	0
11	0	27	0
12	0	28	0
13	0	29	0
14	0	30	6
15	7	Mean:	1.2
16	9		

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

Table 95

American Relative Sunspot Numbers

August 1954

Date	R_A'	Date	R_A'
1	5	17	0
2	12	18	0
3	13	19	0
4	12	20	1
5	15	21	16
6	20	22	19
7	16	23	19
8	4	24	15
9	15	25	10
10	17	26	1
11	17	27	2
12	13	28	0
13	8	29	0
14	1	30	0
15	0	31	0
16	0	Mean:	8.1

Table 96

Solar Flares, September 1954

No solar flares were reported for the month of September.

Table 97

Indices of Geomagnetic Activity for July 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	0.7	4-	4-	3+	2-	2+	1o	1o	1-	17+	Five
2	0.2	0o	1+	1o	0o	2o	1-	1+	2-	8o	Quiet
3	0.1	1-	2-	1+	0+	1-	1-	0+	2-	7+	
4	0.1	1-	1-	1-	1-	2-	0+	0+	0+	5+	2
5	0.3	0+	1o	1+	1o	1+	2o	2-	1+	10o	3
											4
6	0.8	2-	2o	3o	2+	2o	2o	2+	3-	18o	9
7	0.4	2+	1o	1+	3+	1+	1o	1o	1+	13-	10
8	0.3	1o	1-	1-	2o	2-	1+	2o	1o	10+	
9	0.1	2o	1o	1-	0+	1-	0+	1-	1o	7-	
10	0.1	1o	1o	2-	1o	1o	1o	1-	2-	9o	
11	0.2	1+	2o	2-	1o	1-	1-	1-	1o	9o	Five
12	0.7	2o	1+	1+	1+	2+	3o	2-	3+	16+	Disturbed
13	0.3	2-	1o	1+	2-	1+	1o	1o	2-	11-	
14	0.8	2o	4-	3o	3-	3-	3-	1+	2o	20o	1
15	0.7	1o	1+	3+	4-	3+	2o	1o	1o	17-	14
											25
16	0.6	1o	1-	1+	2-	2o	2o	4-	2+	15-	27
17	0.7	1+	3o	3+	1o	0+	0+	1-	4-	14-	28
18	1.0	5-	3+	2o	1o	1+	1+	1+	2-	17-	
19	0.7	2+	1+	1o	2-	2+	3-	4-	2o	17o	
20	0.4	3-	3-	3-	2o	1+	1+	0+	1-	14-	
21	0.4	1o	2-	2o	1o	1+	3-	2+	2+	14+	Ten
22	0.2	1+	1-	2o	1+	2-	1-	1o	0+	9o	Quiet
23	0.3	0o	1+	1+	3-	1+	1+	1+	1+	11-	
24	0.6	3+	3o	2+	2-	2c	1-	1+	1o	15+	2
25	0.8	2+	3o	4-	3+	3-	2o	1+	2-	20o	3
											4
26	0.6	2-	2-	2+	2+	3+	2o	1o	2-	16o	5
27	0.8	3o	3+	2-	2o	2+	2o	2o	3o	19+	8
28	1.1	2o	4o	2+	4-	4o	4o	2+	2+	25-	9
29	0.7	3o	3-	3-	3o	2+	2-	2o	1-	18o	10
30	0.4	3o	1-	1-	2-	2o	2o	1-	2-	12+	11
31	0.6	1+	2-	3o	2-	3-	1+	2-	2+	16-	13
Mean:	0.51										22

Table 98

Indices of Geomagnetic Activity for August 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	0.6	1+	1+	2-	4-	3+	2+	2o	1+	17o	Five
2	0.3	2+	3+	2o	2+	1-	1+	2-	1-	14+	Quiet
3	0.2	1-	1o	1-	3-	1o	1-	2o	2-	10+	
4	0.4	1o	2-	3o	1-	2o	1+	2o	1-	12+	3
5	0.3	2-	2-	1-	1-	1+	2-	2o	3-	12+	4
											5
6	1.1	2+	3-	4-	2+	3o	2-	4+	4o	24o	8
7	0.8	3-	0+	1+	3o	3o	3+	3o	2+	19o	13
8	0.2	2o	1o	2o	2+	2o	1+	0+	1o	12o	
9	0.8	2-	1o	2+	1-	4-	3-	2o	3-	17-	
10	0.4	3-	1+	3-	1o	1-	2o	1o	2o	13+	
11	0.3	3o	2o	2+	2-	1+	2-	1+	1o	14+	Five
12	0.3	3-	2o	2o	2+	1+	1-	1+	1+	14-	Disturbed
13	0.4	0+	2-	2o	2o	2-	2+	2-	1o	13-	
14	0.5	3o	1+	2+	2o	1o	1o	2-	2+	15-	6
15	0.6	2+	1-	1+	1o	1o	1o	3+	3-	13+	22
											24
16	0.8	1+	2-	3o	3+	4-	2+	2-	2o	19o	26
17	0.4	2-	2o	3+	3o	2o	1+	2-	1+	16+	29
18	0.6	2-	2+	2+	3o	3-	3o	2+	2-	18o	
19	0.6	4-	2+	2o	1+	1+	2-	2o	3-	17o	
20	0.3	2+	3-	2o	1o	2-	2o	1o	1o	14-	
21	0.9	1+	3o	4o	4+	2+	1+	2-	1+	19+	Ten
22	1.0	4+	5o	3+	2-	2-	1+	1o	3o	21+	Quiet
23	0.6	3-	1o	0+	2-	2-	2-	3o	3-	15-	
24	1.2	3+	3-	4-	3o	5o	3o	3+	3+	27+	3
25	0.3	4-	2o	2+	2-	1o	1o	1o	1+	14o	4
											5
26	0.3	1+	5-	4+	2+	2+	2+	3-	3-	23-	8
27	0.9	3o	3+	2+	3o	1o	2-	3-	3-	21-	10
28	0.9	3o	4o	2o	2-	1o	3+	2-	4-	23+	11
29	1.0	3+	4-	4-	4-	2+	2-	3-	3+	23+	12
30	0.3	3-	1o	2-	3o	3-	3-	2o	1+	18o	13
31	0.4	1o	3o	3o	1o	1+	1+	3o	3o	17-	15
											20
[illegible]	.21										

Table 99

Sudden Ionosphere Disturbances Observed at Washington, D. C.

September 1954

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

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.

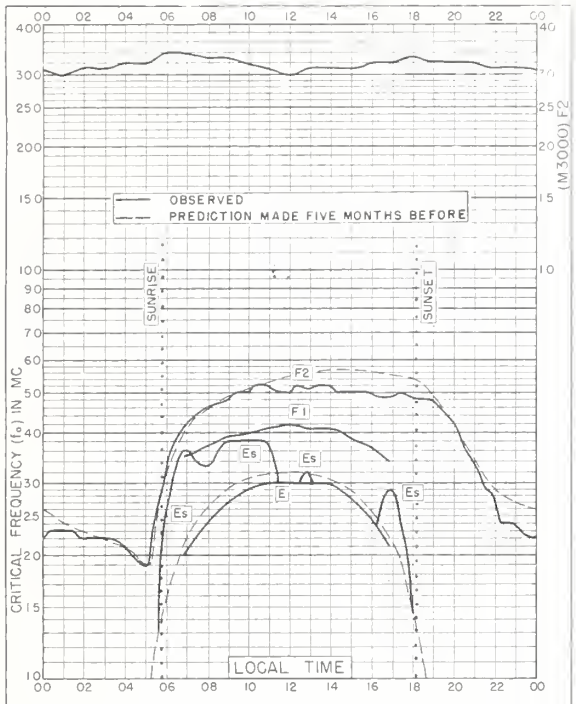


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W SEPTEMBER 1954

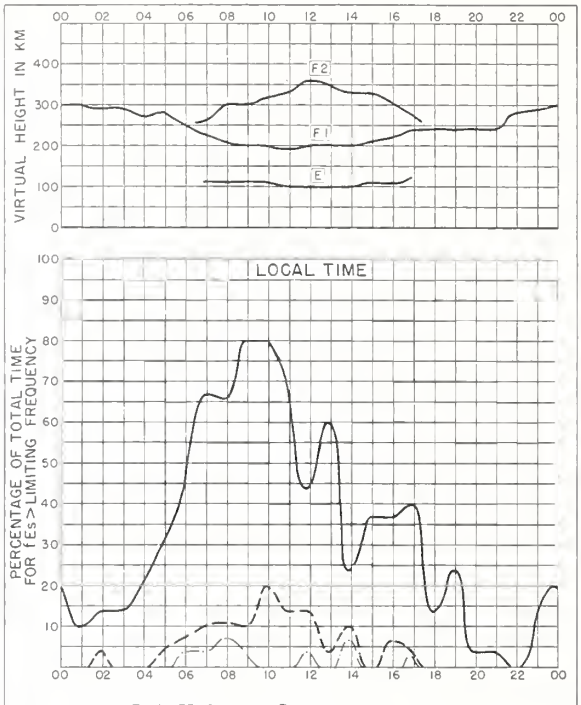


Fig. 2. WASHINGTON, D. C. SEPTEMBER 1954

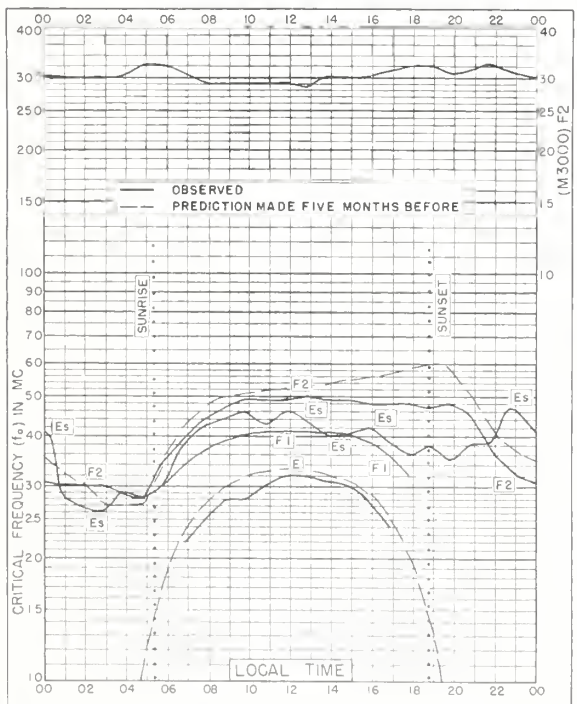


Fig. 3. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W AUGUST 1954

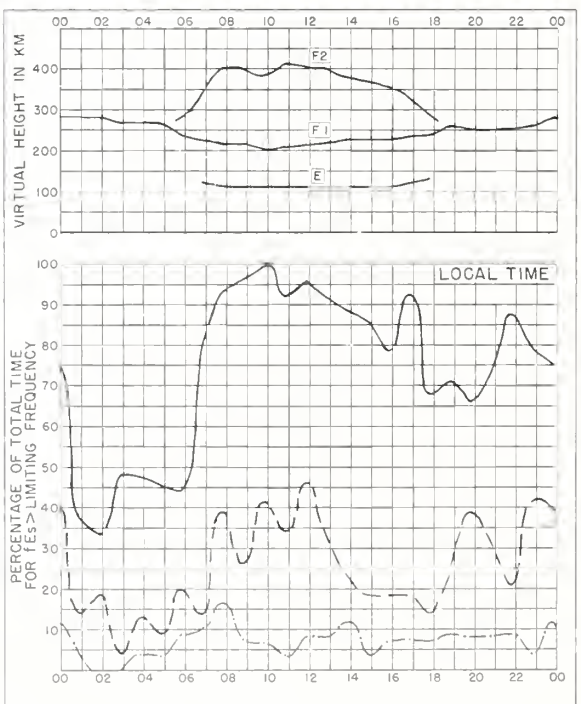


Fig. 4. SAN FRANCISCO, CALIFORNIA AUGUST 1954

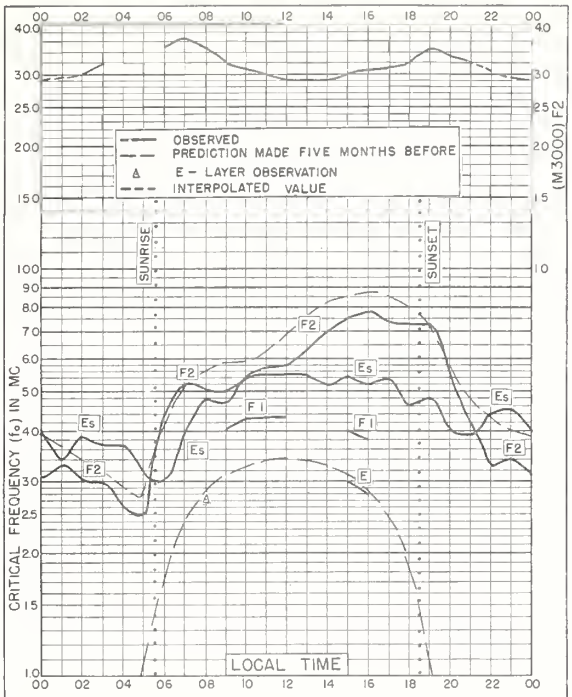


Fig. 5. OKINAWA I.
26.3°N, 127.8°E AUGUST 1954

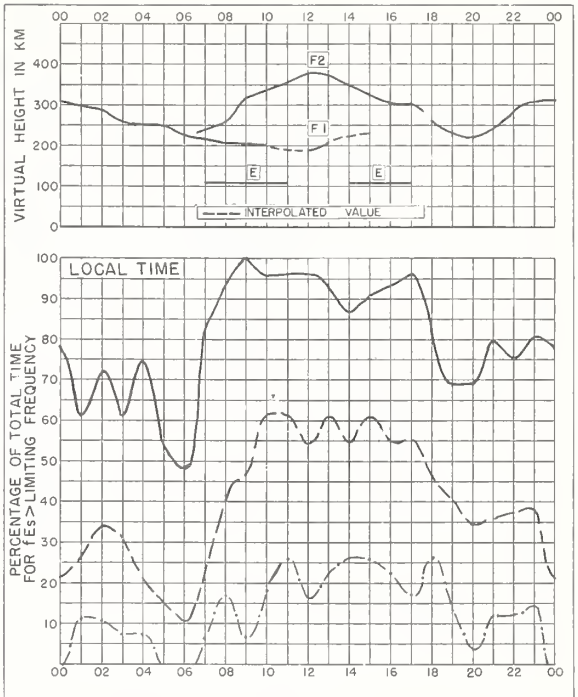


Fig. 6. OKINAWA I. AUGUST 1954

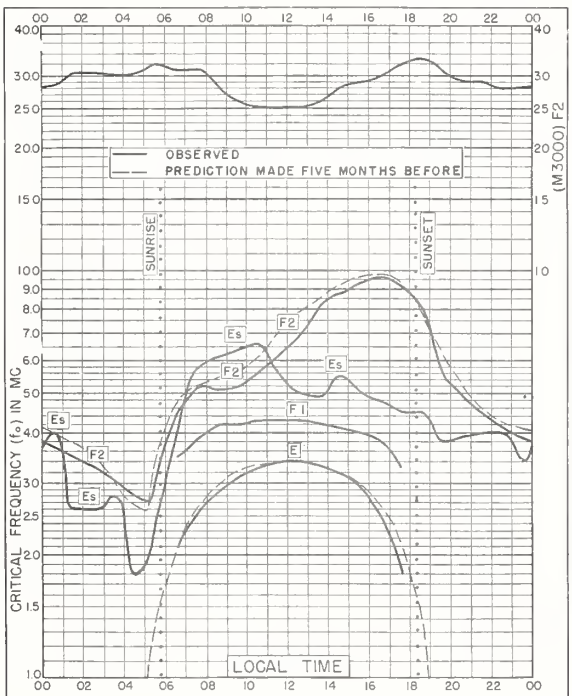


Fig. 7. MAUI, HAWAII
20.8°N, 156.5°W AUGUST 1954

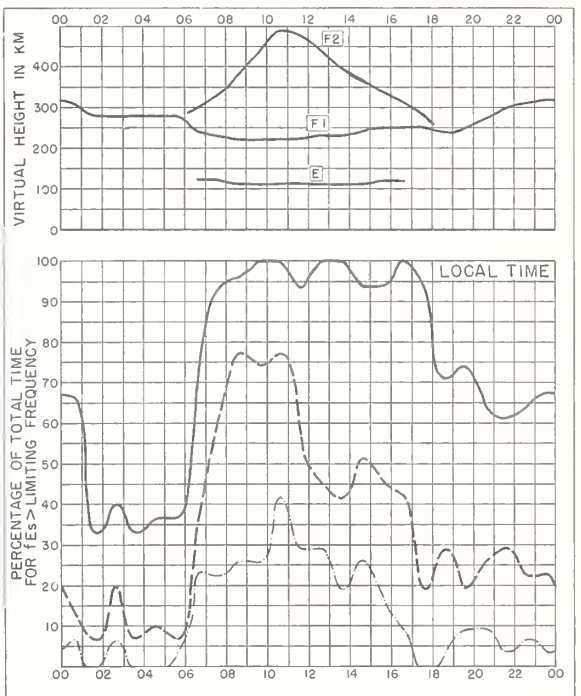


Fig. 8. MAUI, HAWAII AUGUST 1954

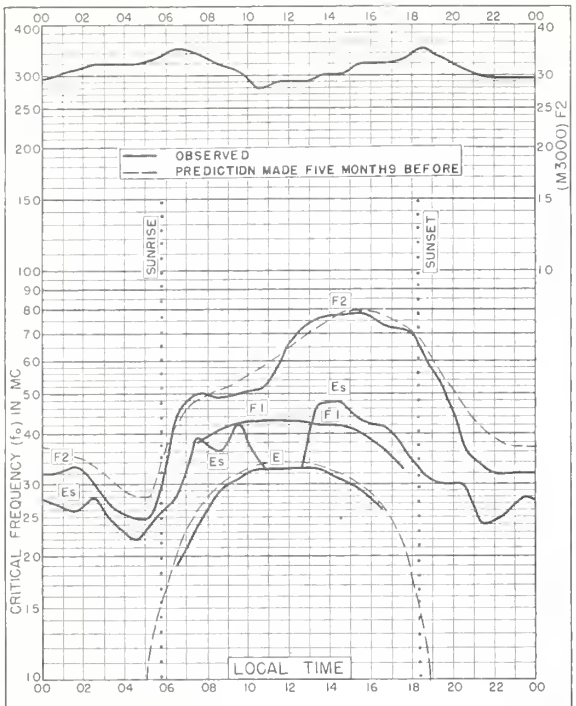


Fig. 9. PUERTO RICO, W. I.
18.5°N, 67.2°W AUGUST 1954

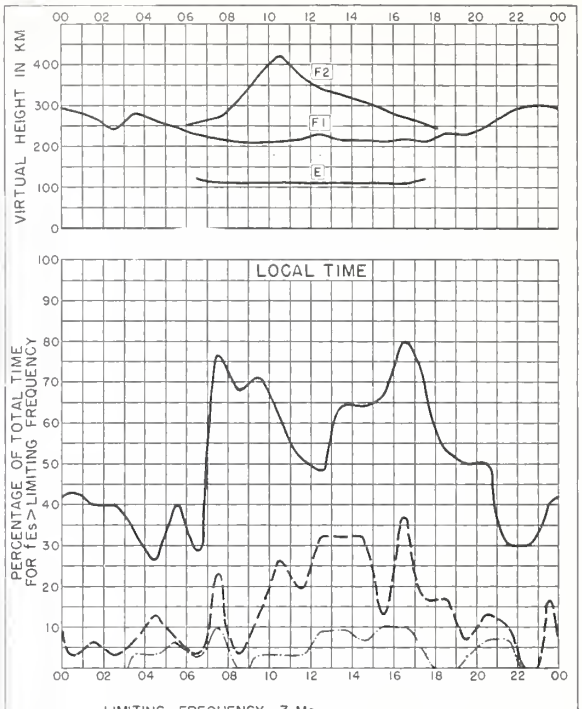


Fig. 10. PUERTO RICO, W. I. AUGUST 1954

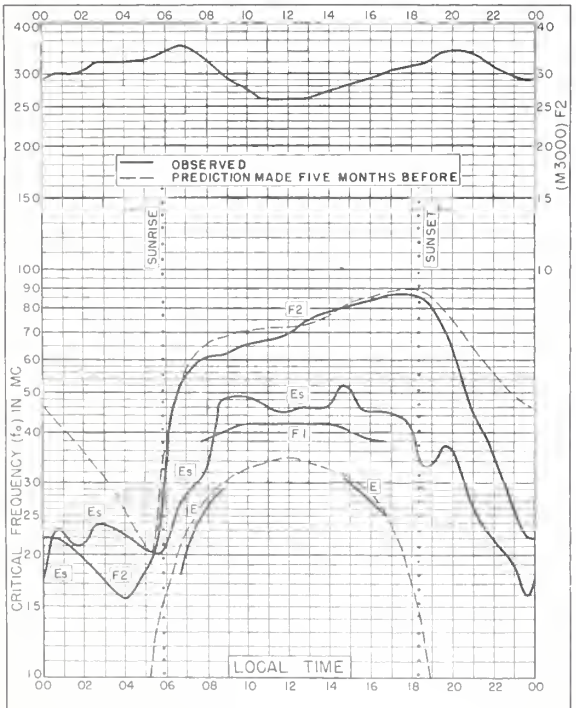


Fig. 11. GUAM I.
13.6°N, 144.9°E AUGUST 1954

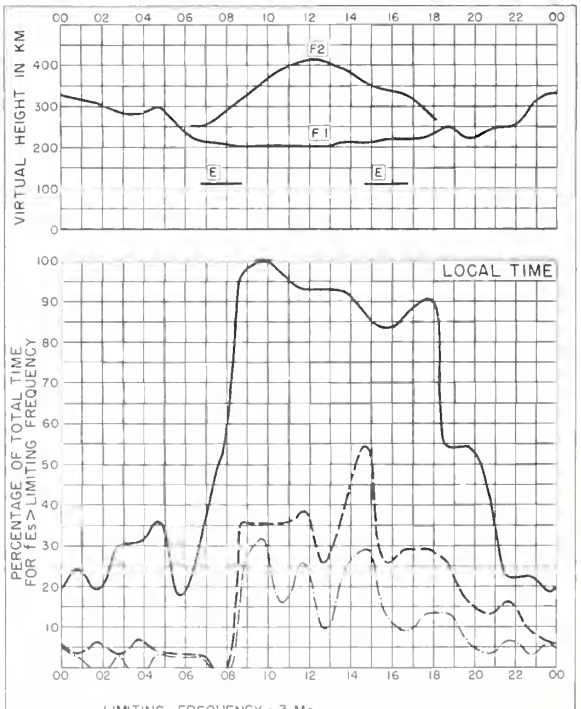


Fig. 12. GUAM I. AUGUST 1954

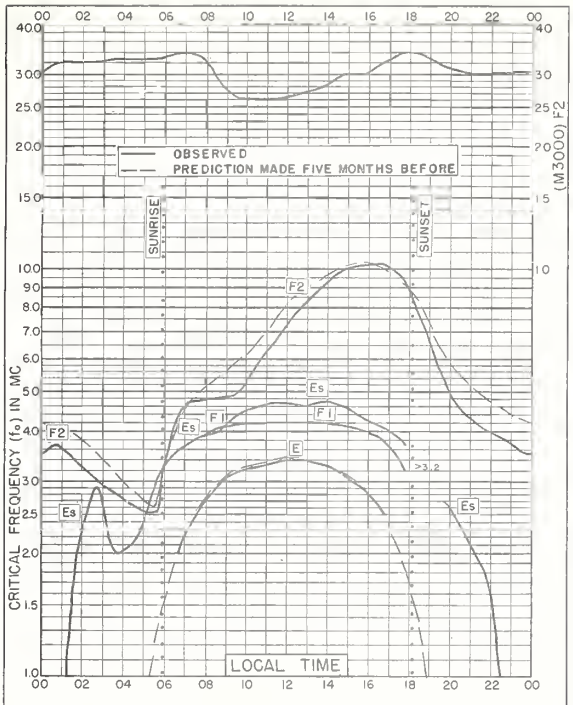


Fig. 13. PANAMA CANAL ZONE
9.4°N, 79.9°W AUGUST 1954

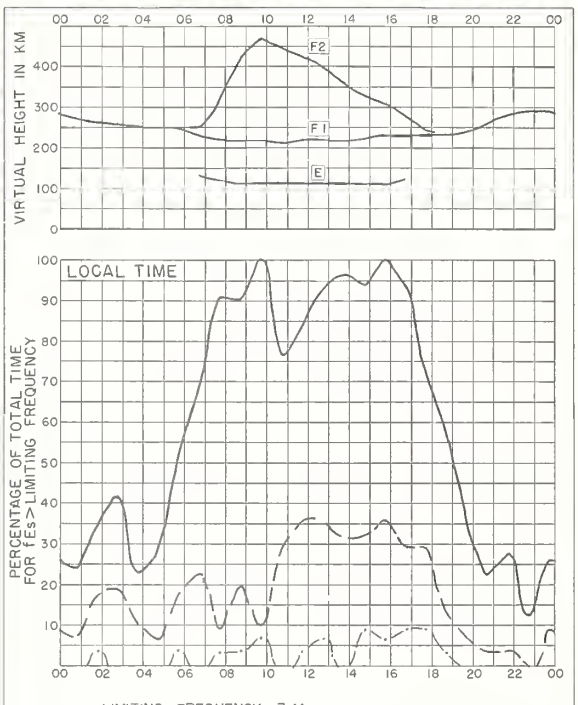


Fig. 14. PANAMA CANAL ZONE AUGUST 1954

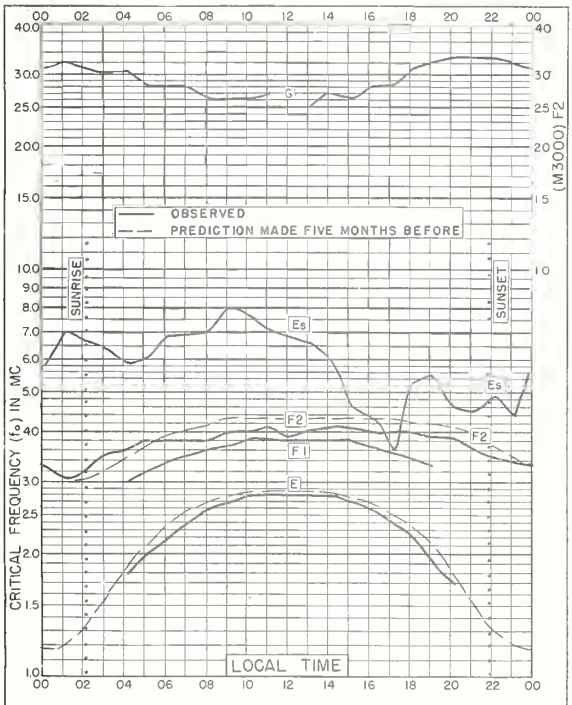


Fig. 15. FAIRBANKS, ALASKA
64.9°N, 147.8°W JULY 1954

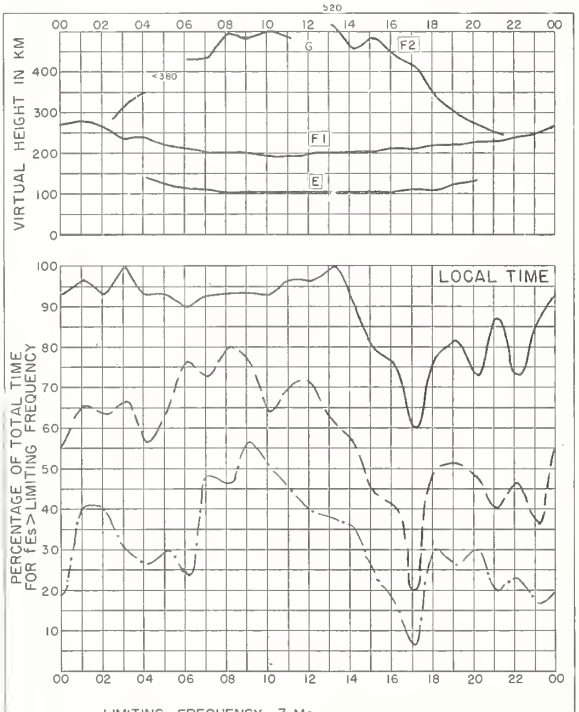


Fig. 16. FAIRBANKS, ALASKA JULY 1954

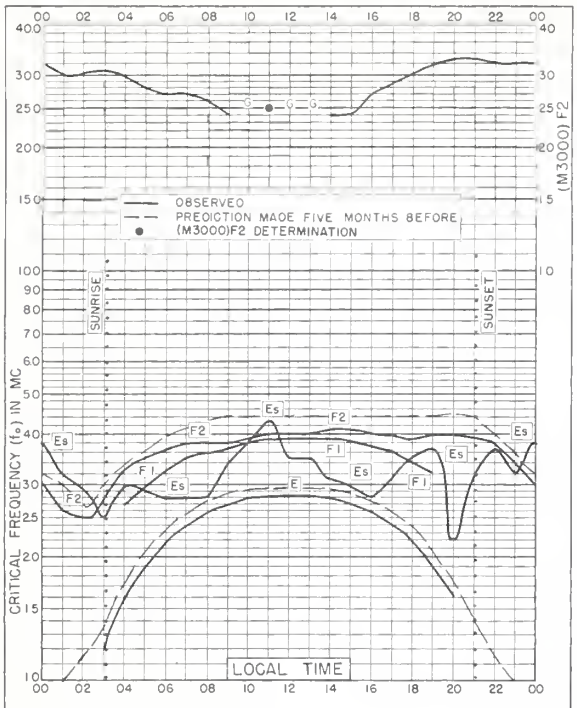


Fig. 17. ANCHORAGE, ALASKA
61.2°N, 149.9°W JULY 1954

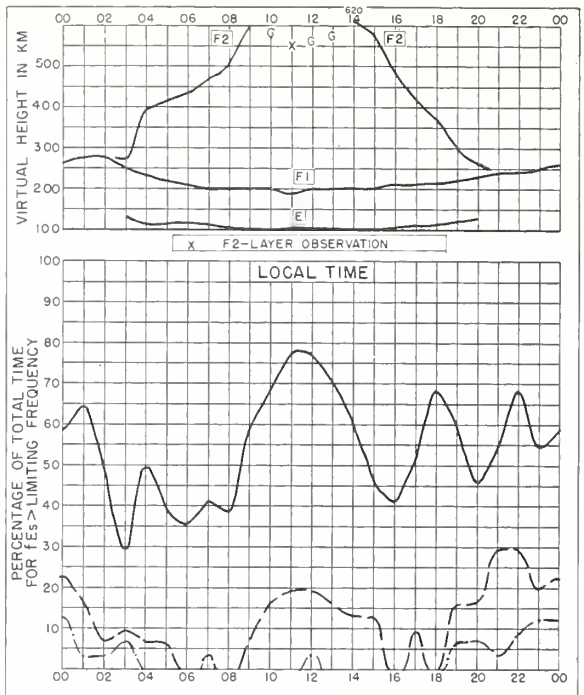


Fig. 18. ANCHORAGE, ALASKA JULY 1954

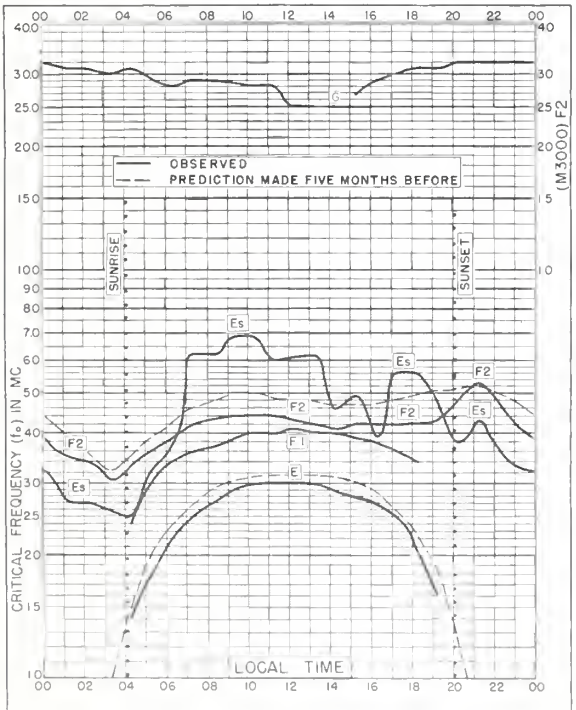


Fig. 19. ADAK, ALASKA
51.9°N, 176.6°W JULY 1954

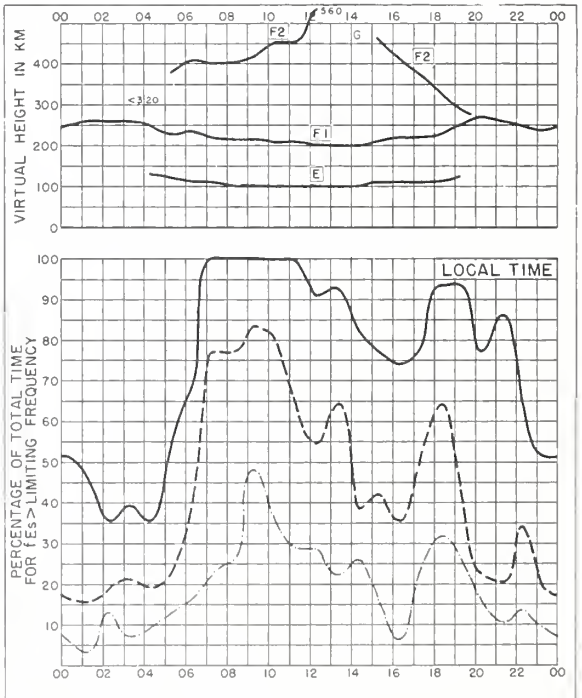


Fig. 20. ADAK, ALASKA JULY 1954

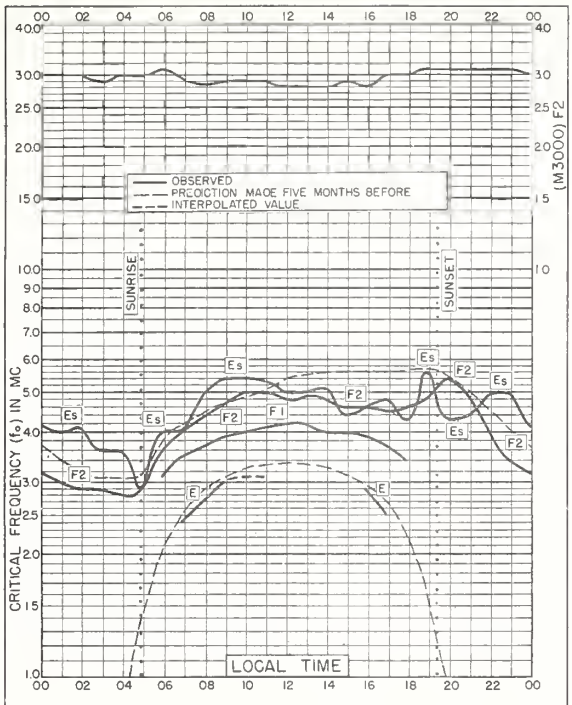


Fig. 21. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JULY 1954

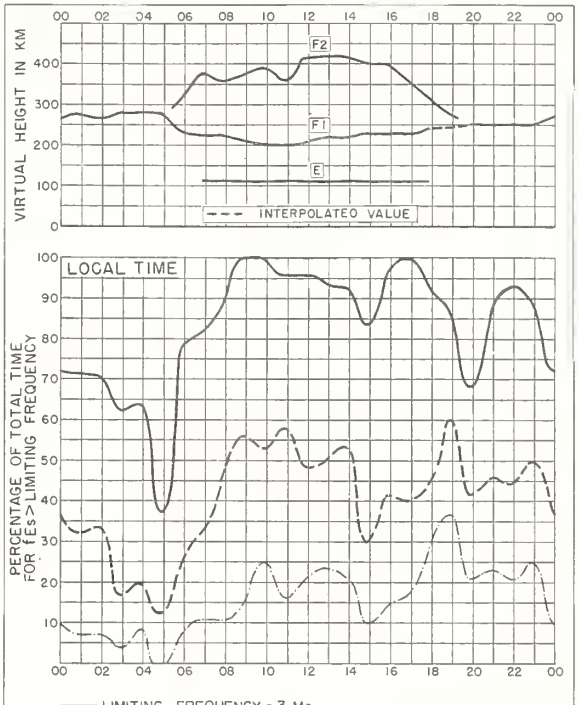


Fig. 22. SAN FRANCISCO, CALIFORNIA JULY 1954

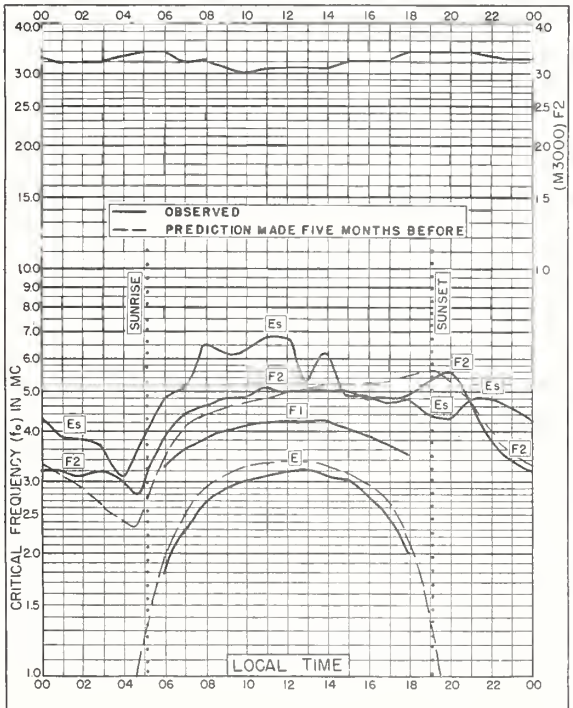


Fig. 23. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JULY 1954

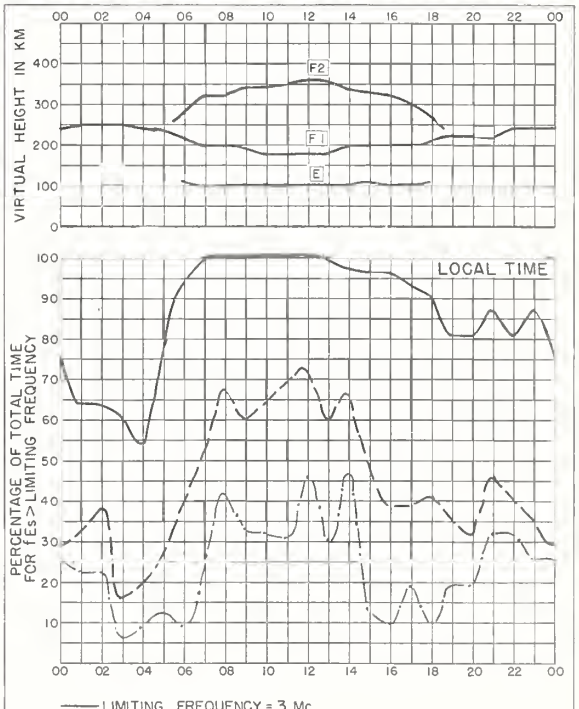


Fig. 24. WHITE SANDS, NEW MEXICO JULY 1954

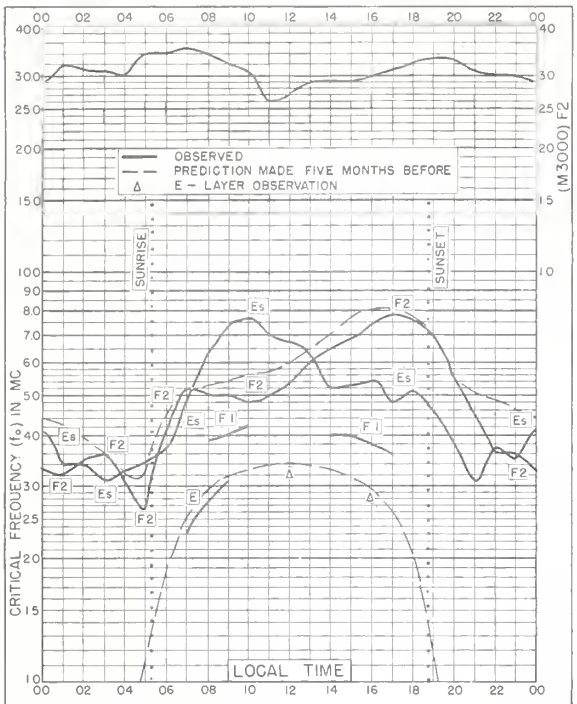


Fig. 25. OKINAWA I.
26.3°N, 127.8°E JULY 1954

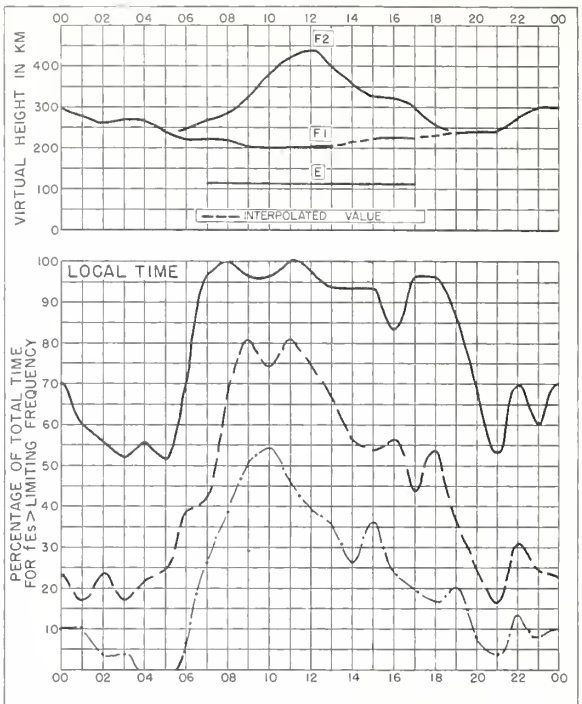


Fig. 26. OKINAWA I. JULY 1954

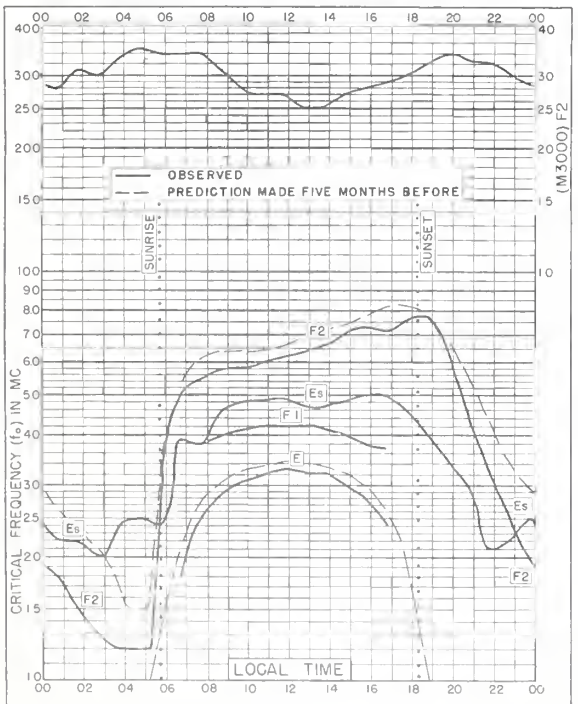


Fig. 27. GUAM I.
13.6°N, 144.9°E JULY 1954

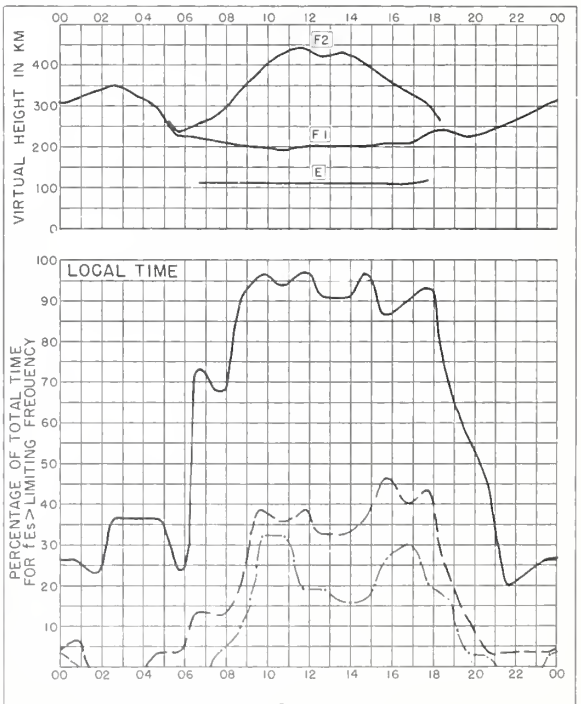


Fig. 28. GUAM I. JULY 1954

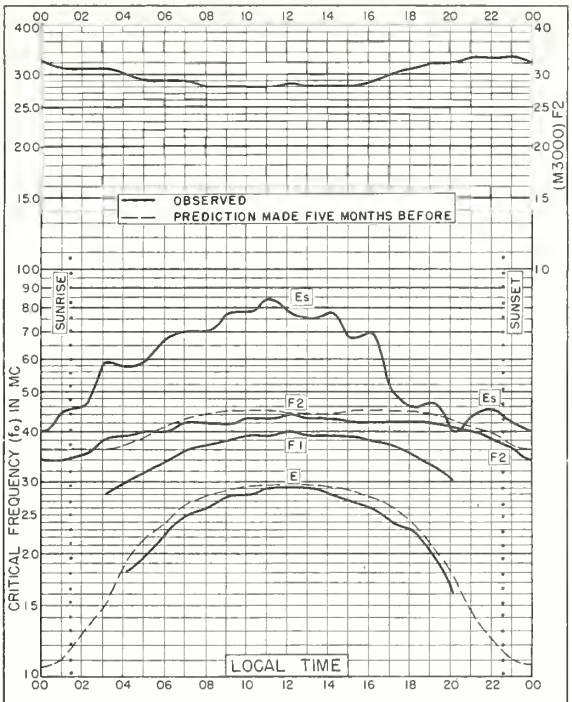


Fig. 29. FAIRBANKS, ALASKA
64.9°N, 147.8°W JUNE 1954

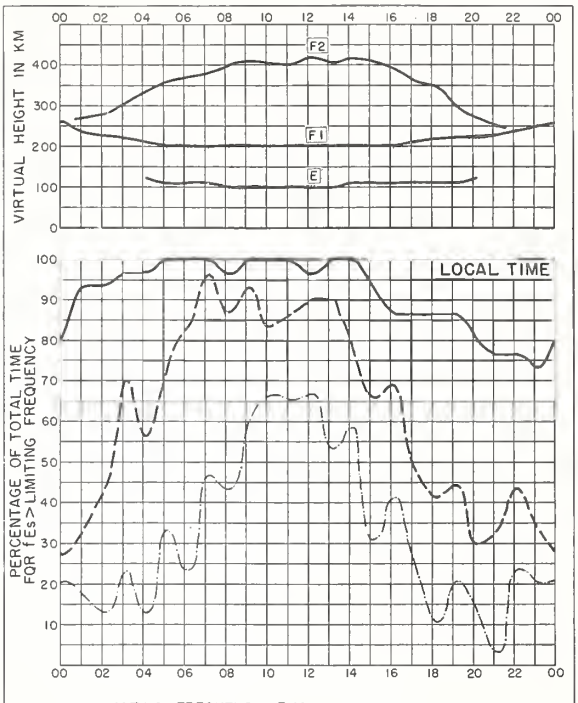


Fig. 30. FAIRBANKS, ALASKA JUNE 1954

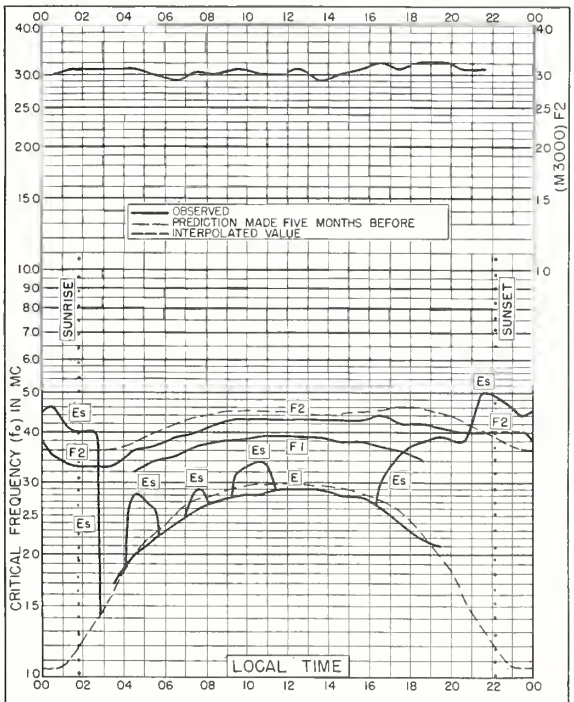


Fig. 31. REYKJAVIK, ICELAND
64.1°N, 21.8°W JUNE 1954

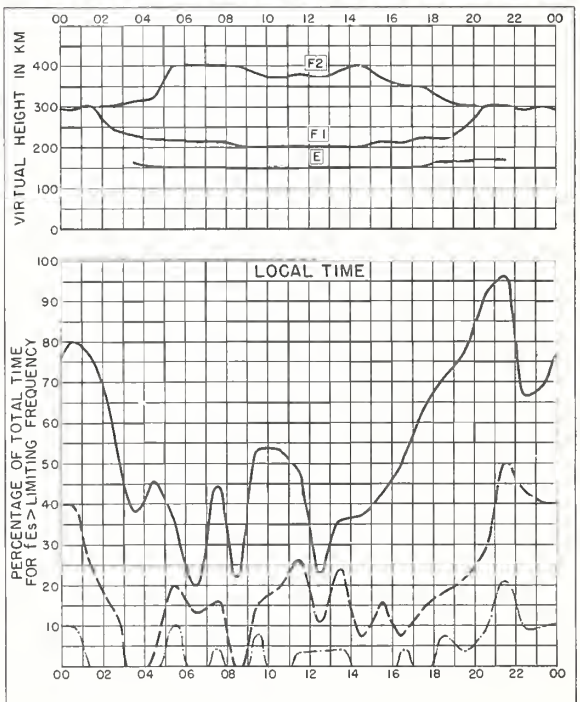


Fig. 32. REYKJAVIK, ICELAND JUNE 1954

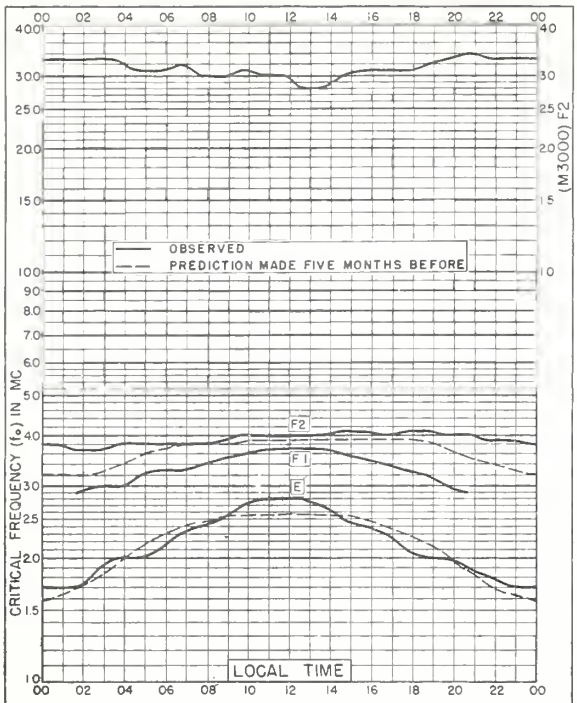


Fig. 33. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MAY 1954

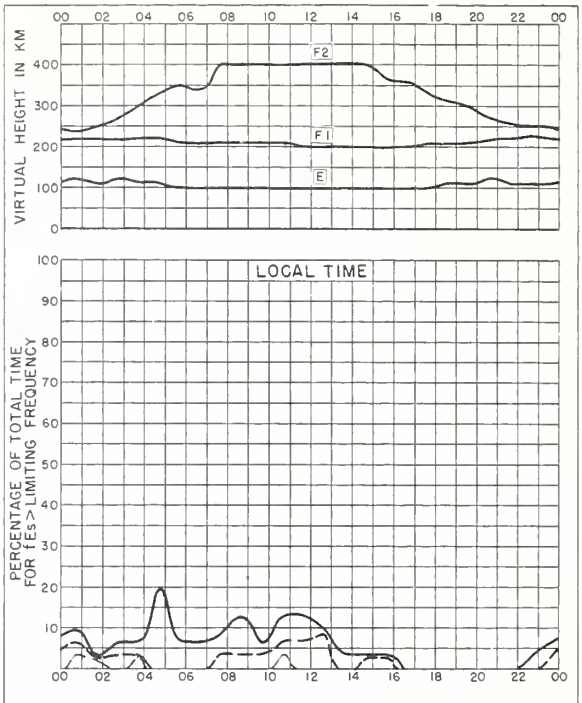


Fig. 34. RESOLUTE BAY, CANADA MAY 1954

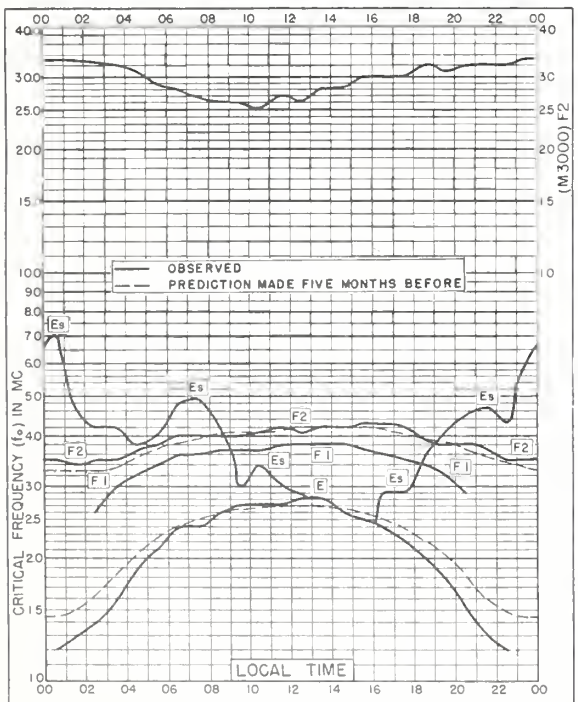


Fig. 35. POINT BARROW, ALASKA
71.3°N, 156.8°W MAY 1954

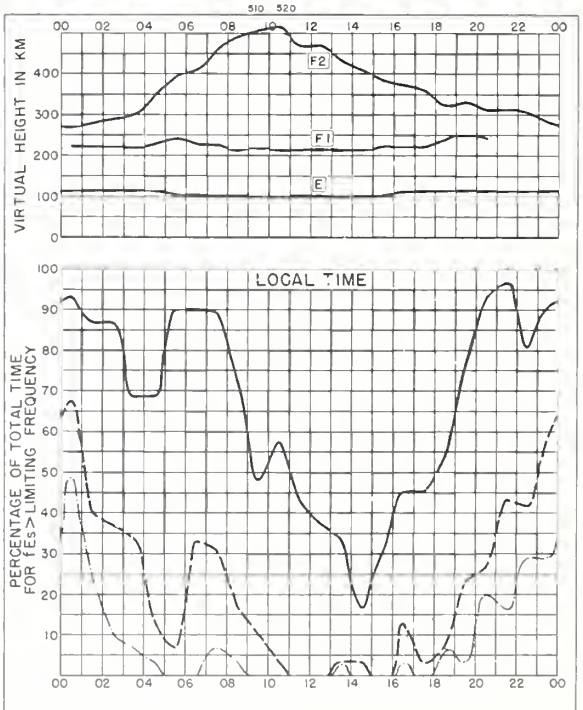


Fig. 36. POINT BARROW, ALASKA MAY 1954

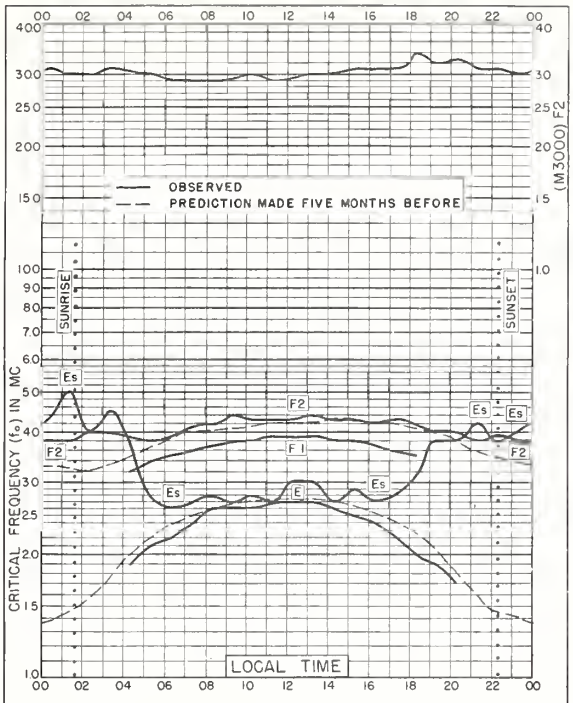


Fig. 37. TROMSO, NORWAY
69.7°N, 19.0°E MAY 1954

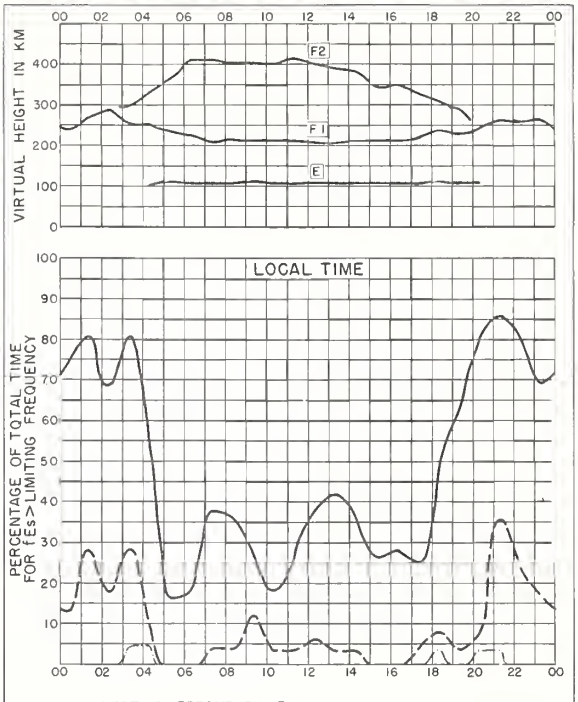


Fig. 38. TROMSO, NORWAY MAY 1954

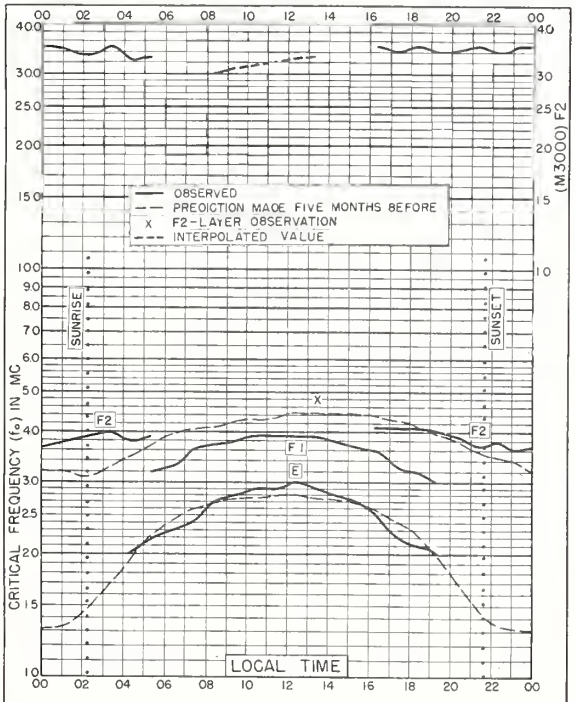


Fig. 39. KIRUNA, SWEDEN
67.8°N, 20.3°E MAY 1954

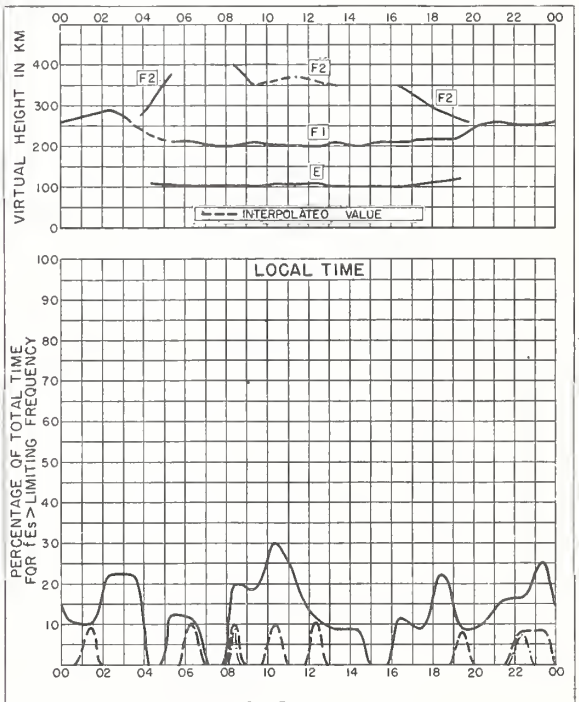


Fig. 40. KIRUNA, SWEDEN MAY 1954

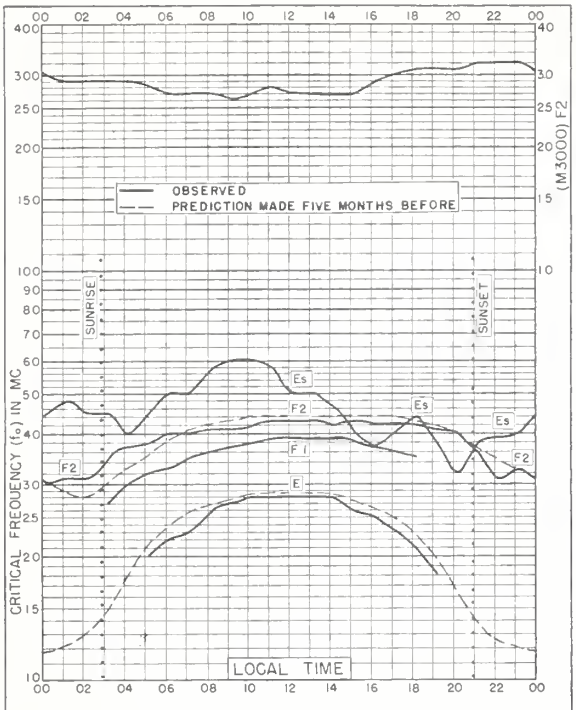


Fig. 41. FAIRBANKS, ALASKA
64.9°N, 147.8°W MAY 1954

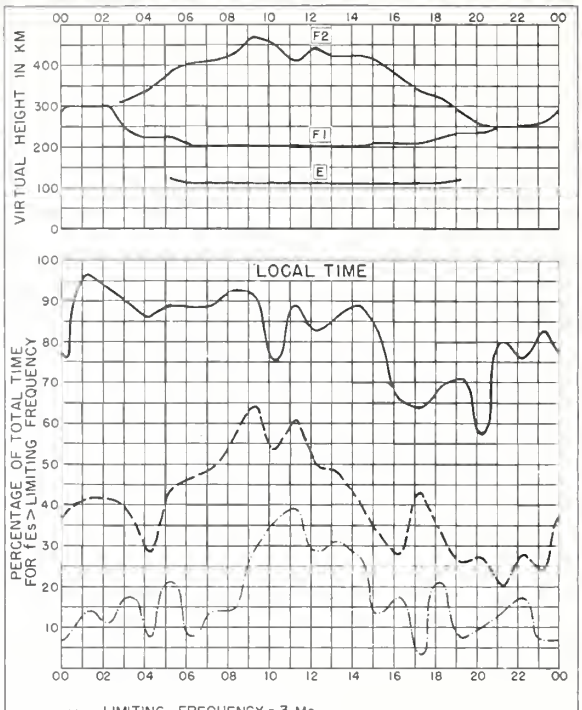


Fig. 42. FAIRBANKS, ALASKA MAY 1954

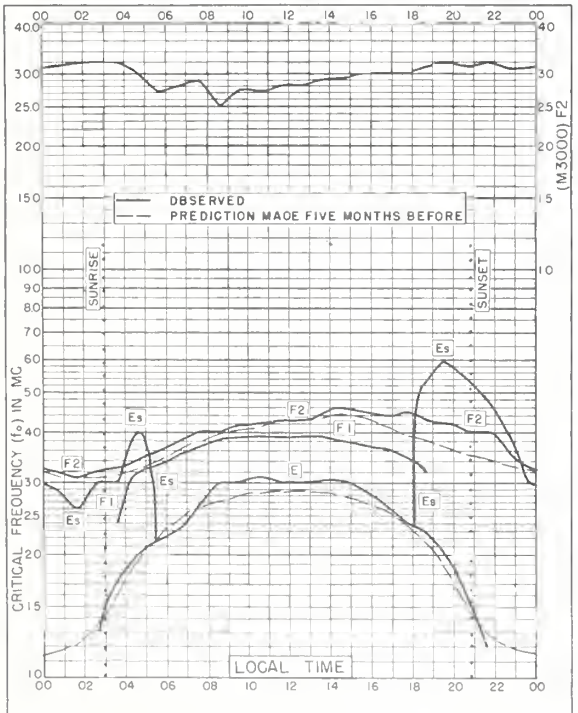


Fig. 43. BAKER LAKE, CANADA
64.3°N, 96.0°W MAY 1954

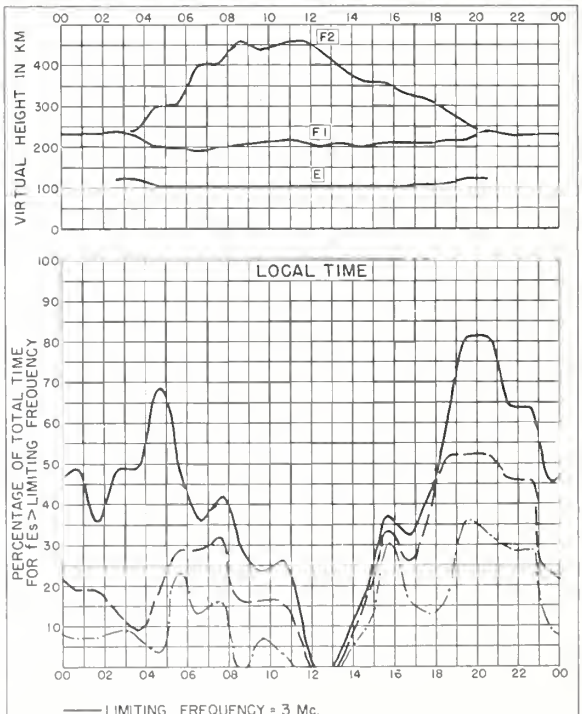


Fig. 44. BAKER LAKE, CANADA MAY 1954

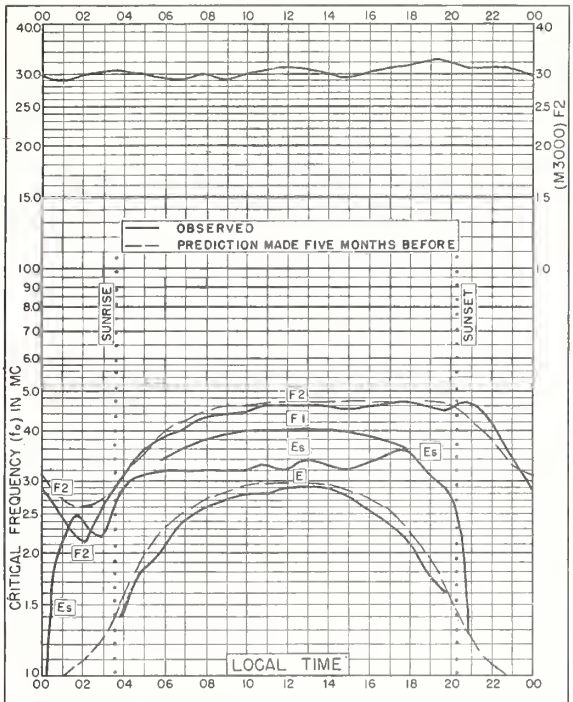


Fig. 45. OSLO, NORWAY
60.0°N, 11.1°E MAY 1954

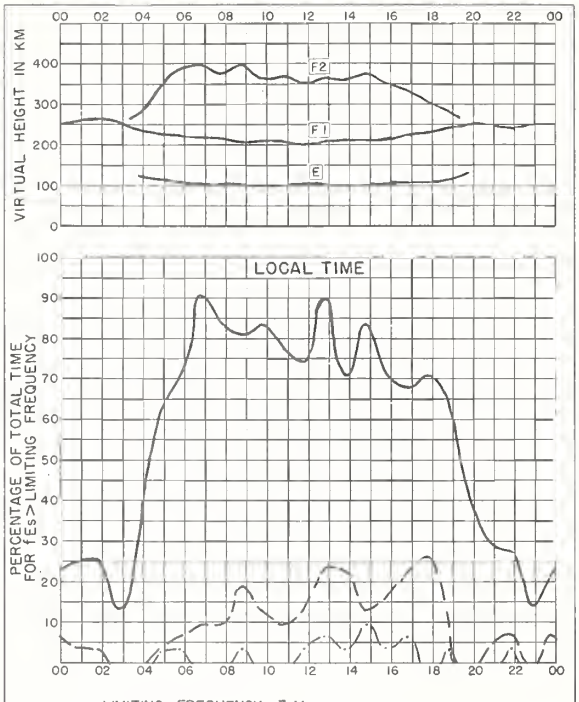


Fig. 46. OSLO, NORWAY MAY 1954

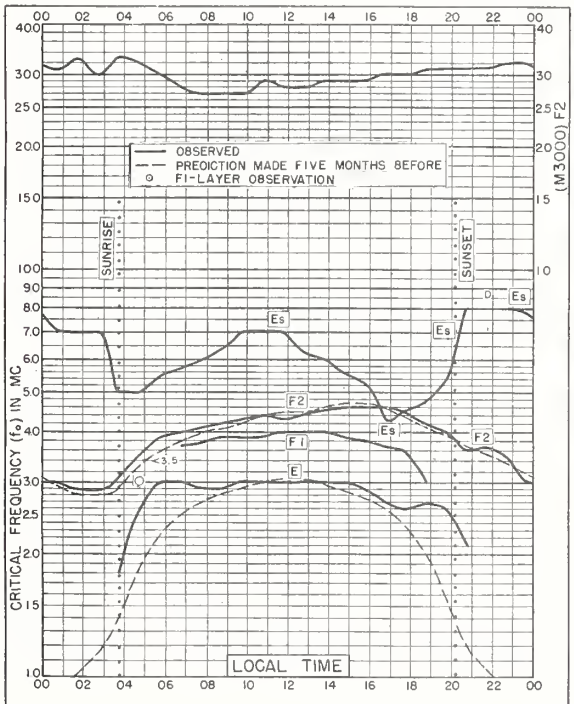


Fig. 47. CHURCHILL, CANADA
58.8°N, 94.2°W MAY 1954

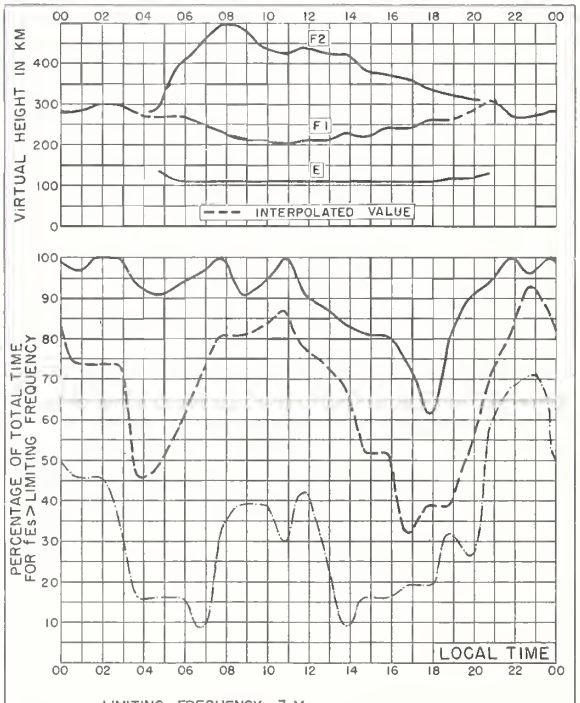


Fig. 48. CHURCHILL, CANADA MAY 1954

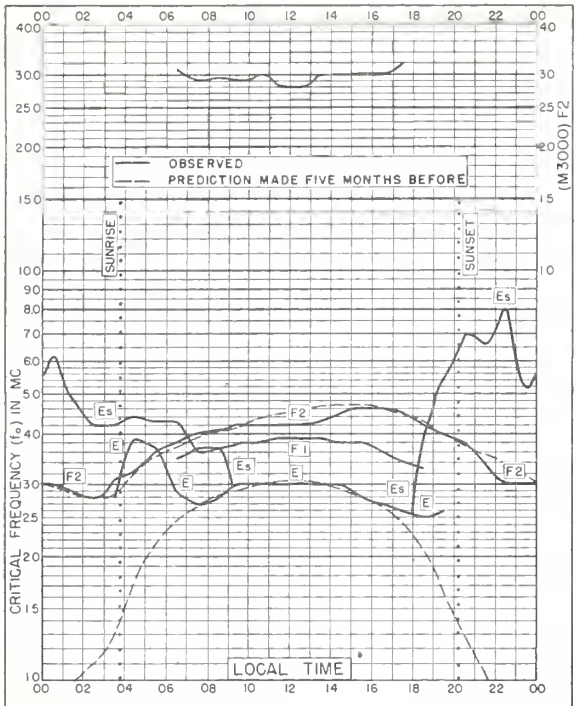


Fig. 49. FORT CHIMO, CANADA
58.1°N, 68.3° W MAY 1954

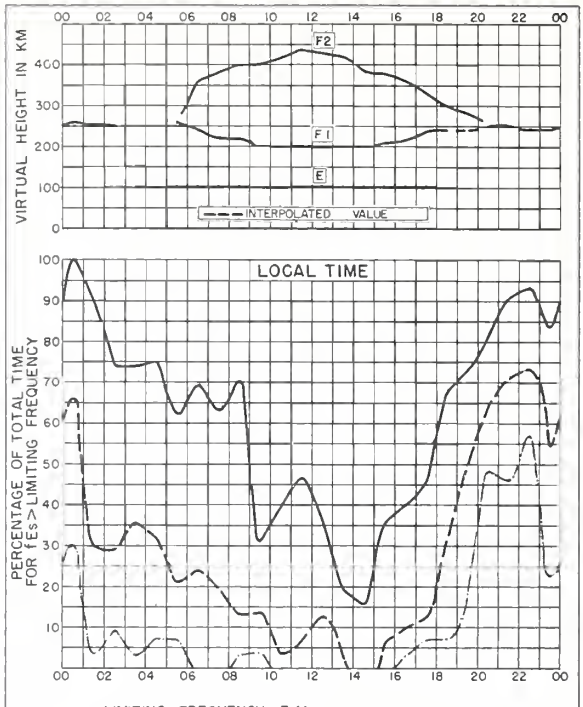


Fig. 50. FORT CHIMO, CANADA MAY 1954

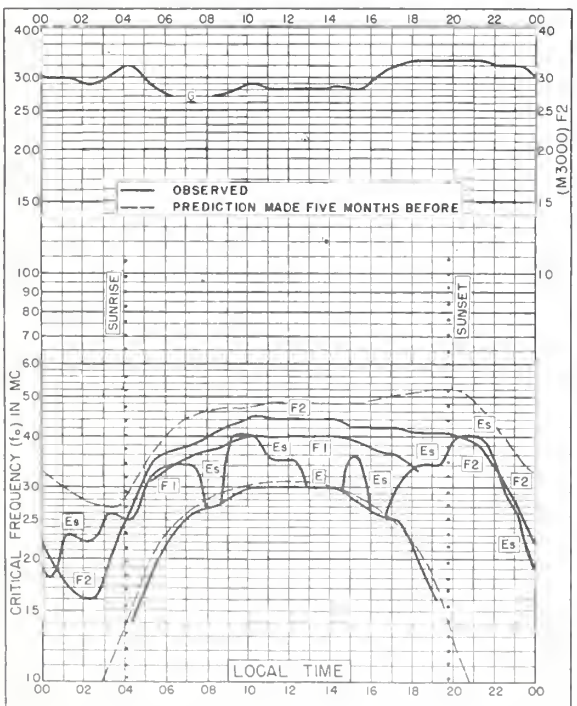


Fig. 51. PRINCE RUPERT, CANADA
54.3°N, 130.3° W MAY 1954

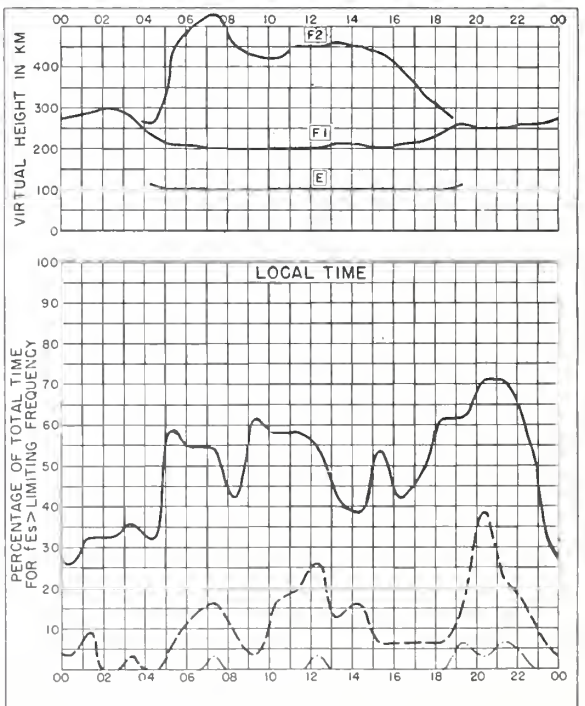


Fig. 52. PRINCE RUPERT, CANADA MAY 1954

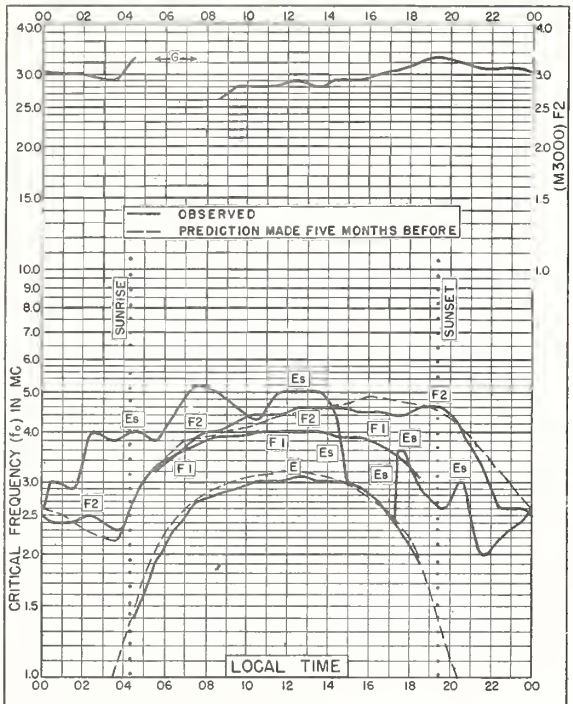


Fig. 53. WINNIPEG, CANADA
49.9°N, 97.4° W MAY 1954

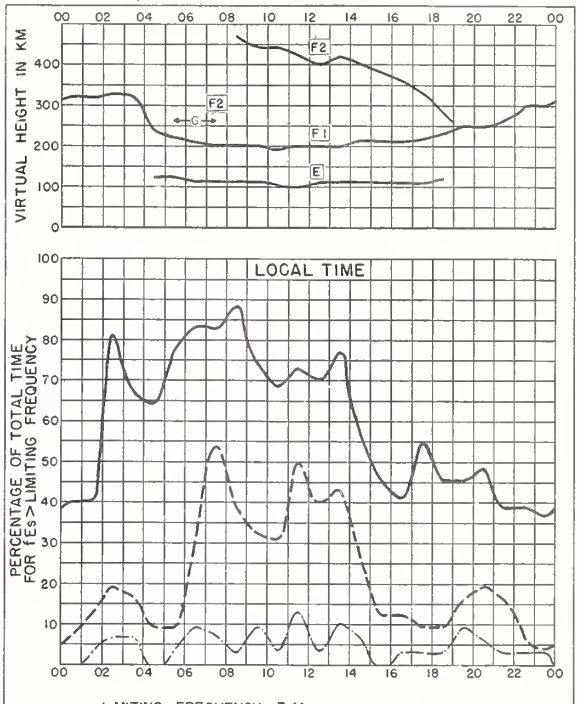


Fig. 54. WINNIPEG, CANADA MAY 1954

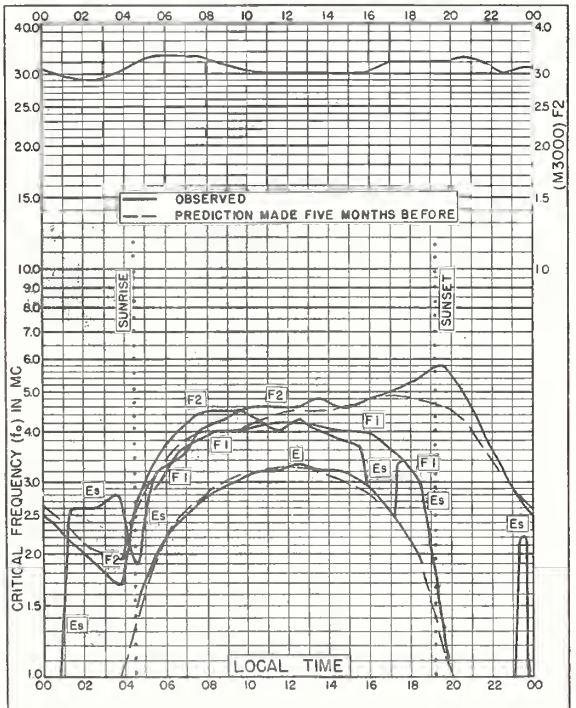


Fig. 55. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W MAY 1954

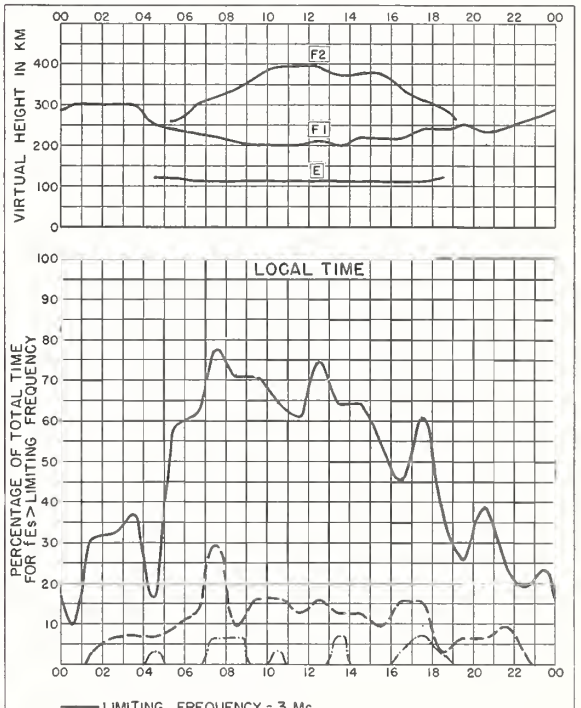


Fig. 56. ST. JOHN'S, NEWFOUNDLAND MAY 1954

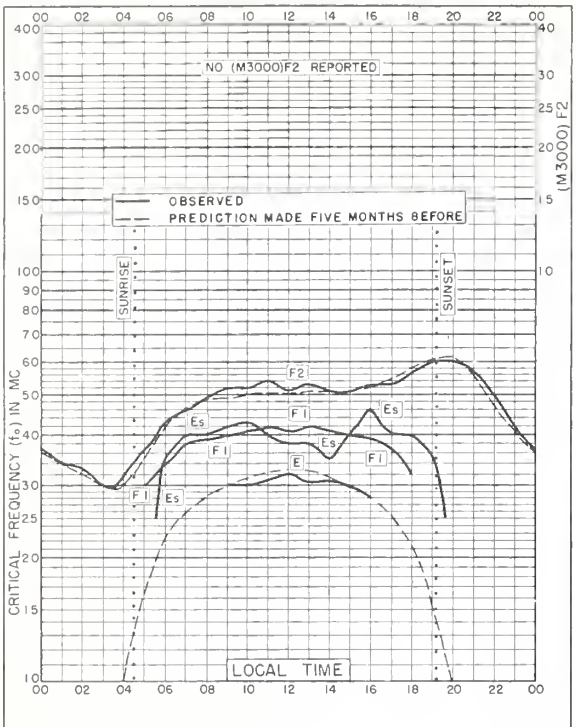


Fig. 57. GRAZ, AUSTRIA
47.1°N, 15.5°E MAY 1954

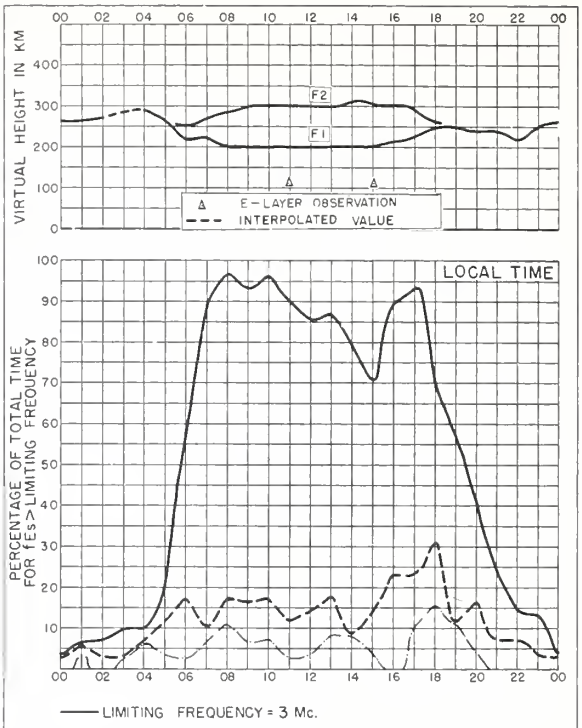


Fig. 58. GRAZ, AUSTRIA MAY 1954

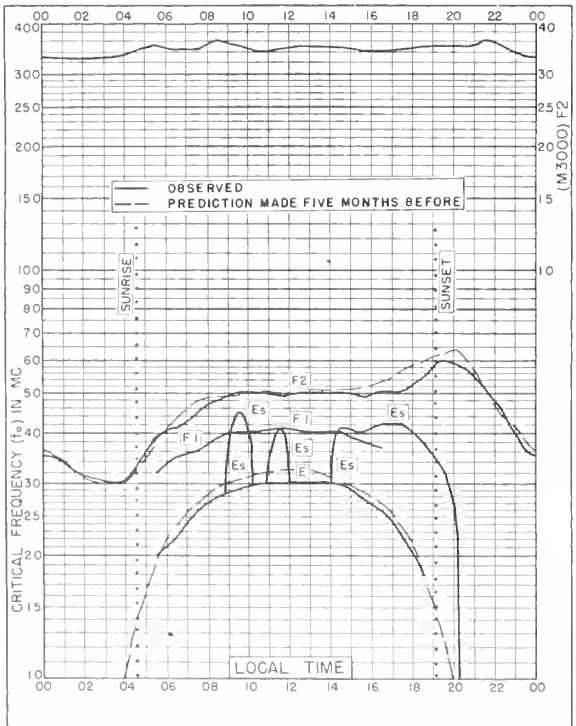


Fig. 59. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MAY 1954

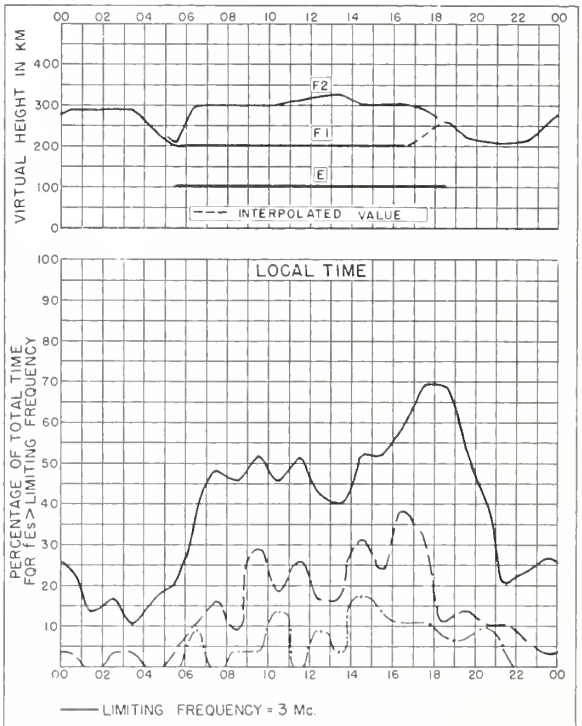


Fig. 60. SCHWARZENBURG, SWITZERLAND MAY 1954

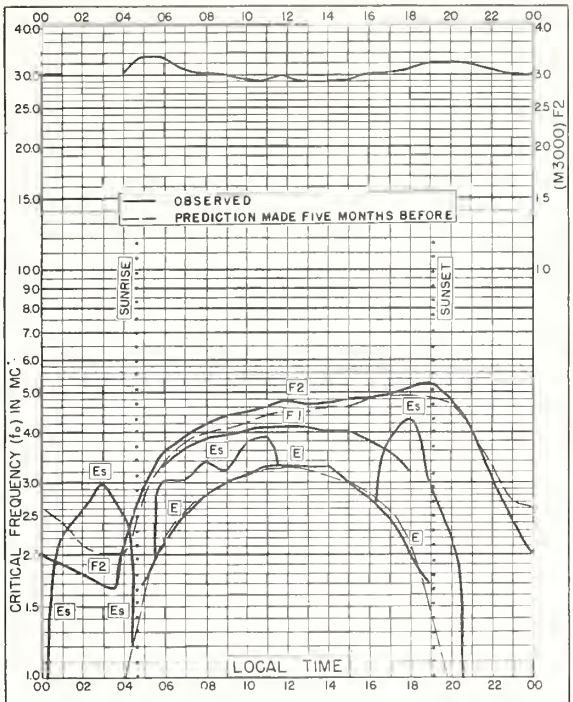


Fig. 61. OTTAWA, CANADA
45.4°N, 75.9°W MAY 1954

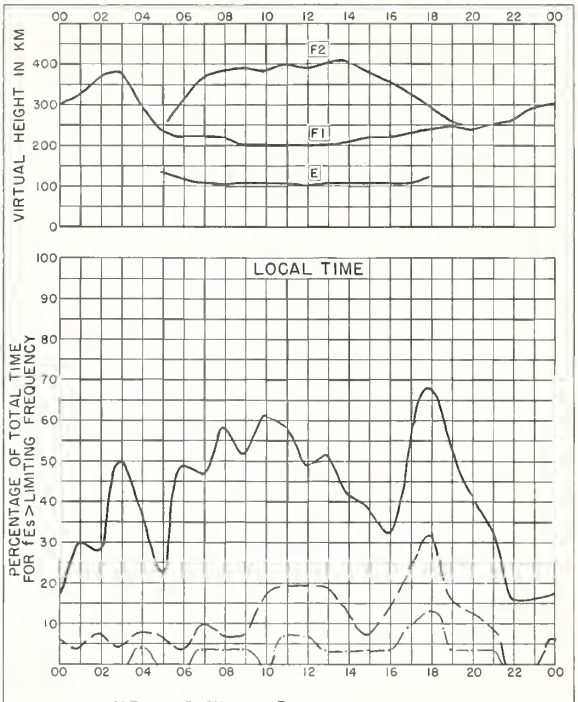


Fig. 62. OTTAWA, CANADA MAY 1954

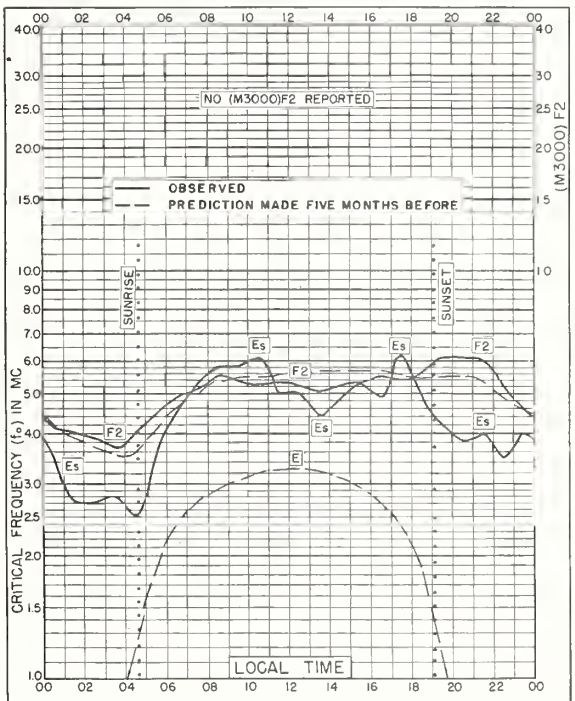


Fig. 63. WAKKANAI, JAPAN
45.4°N, 141.7°E MAY 1954

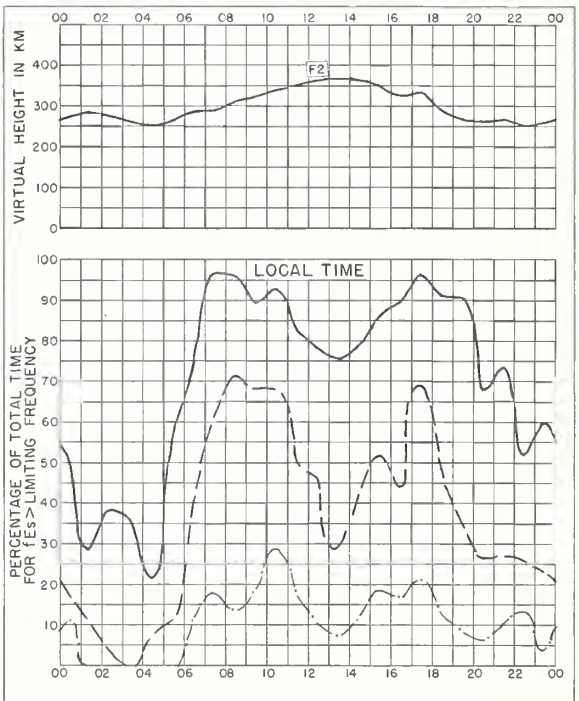


Fig. 64. WAKKANAI, JAPAN MAY 1954

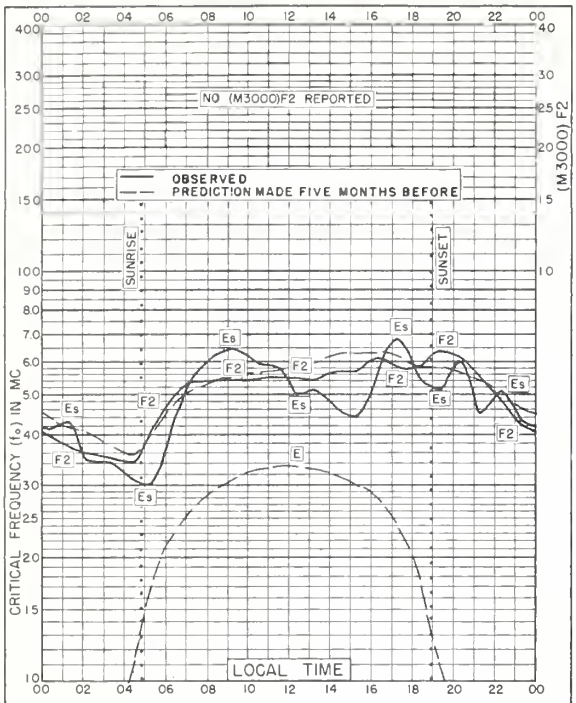


Fig. 65. AKITA, JAPAN
39.7°N, 140.1°E MAY 1954

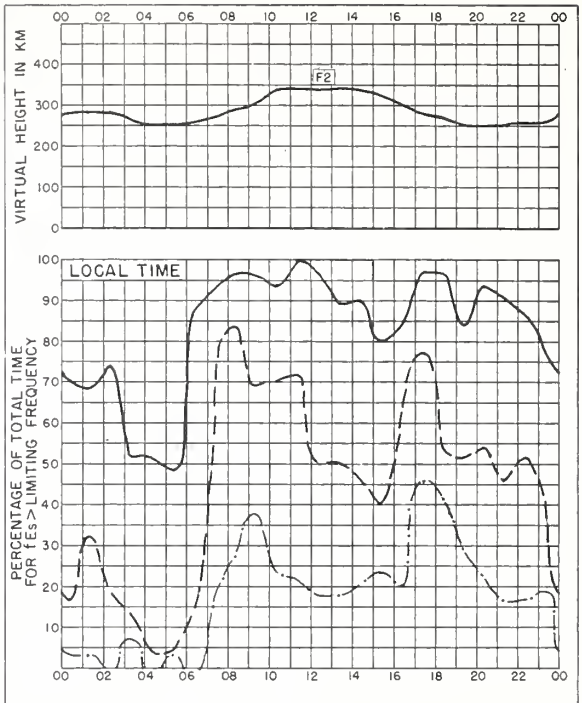


Fig. 66. AKITA, JAPAN MAY 1954

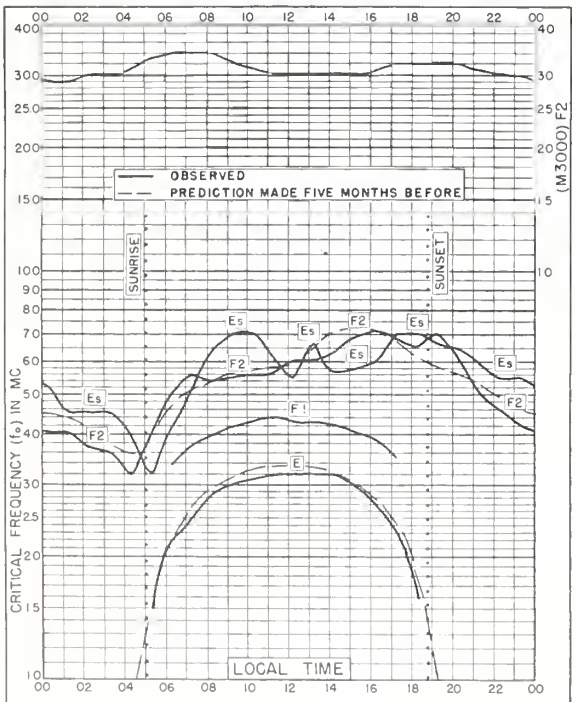


Fig. 67. TOKYO, JAPAN
35.7°N, 139.5°E MAY 1954

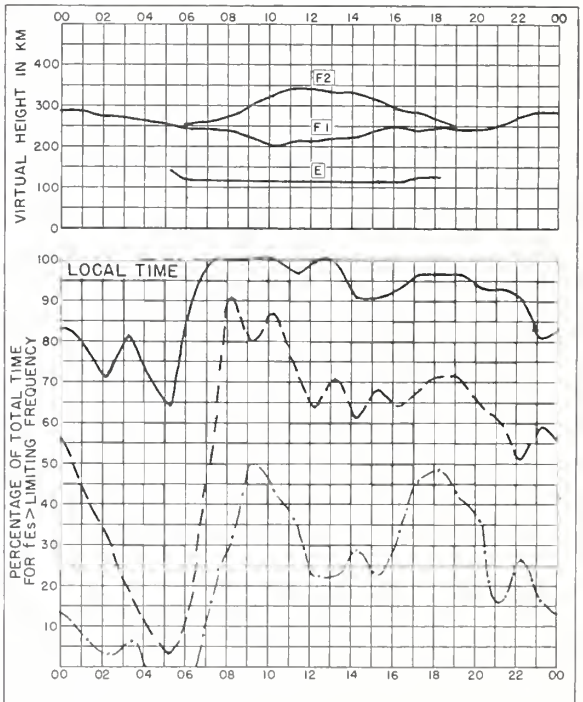


Fig. 68. TOKYO, JAPAN MAY 1954

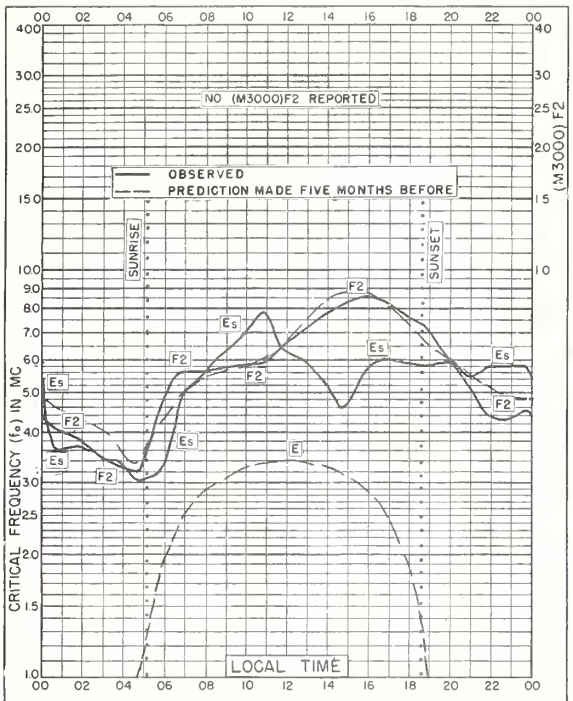


Fig. 69. YAMAGAWA, JAPAN
31.2°N, 130.6°E MAY 1954

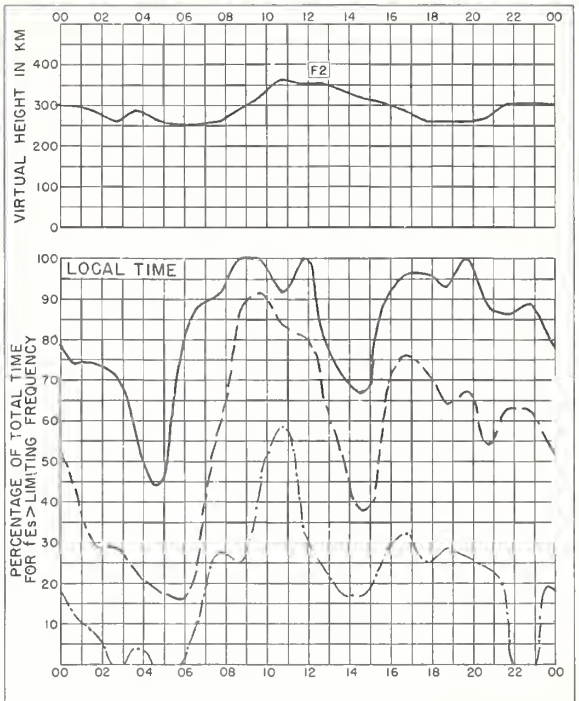


Fig. 70. YAMAGAWA, JAPAN MAY 1954

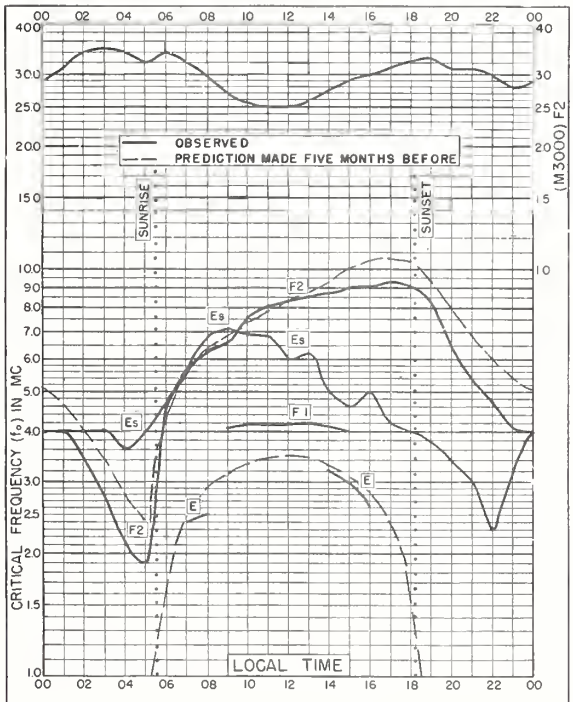


Fig. 71. BAGUIO, P. I.
16.4°N, 120.6°E MAY 1954

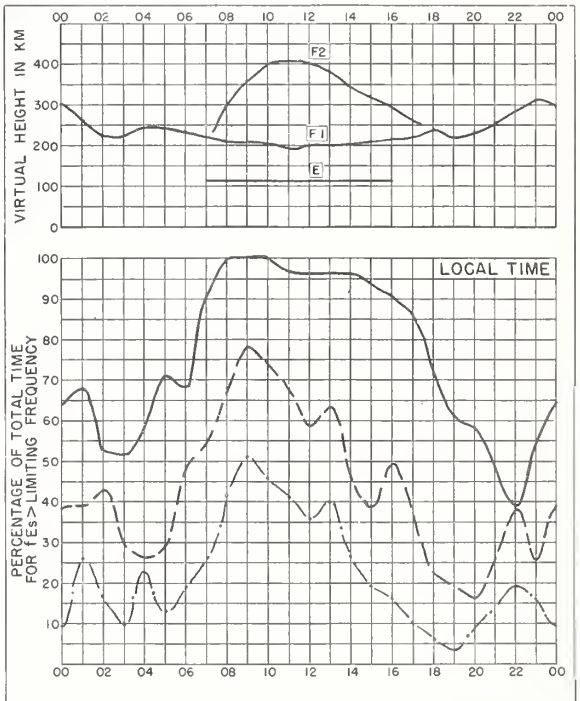


Fig. 72. BAGUIO, P. I. MAY 1954

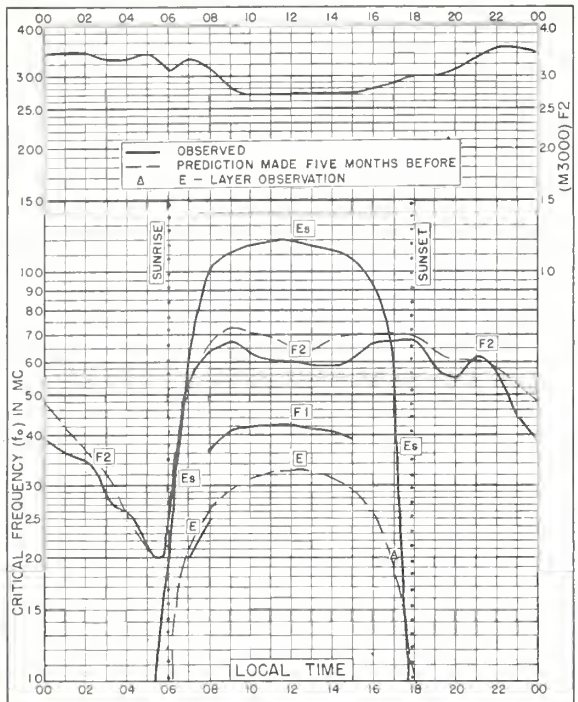


Fig. 73. HUANCAYO, PERU
12.0°S, 75.3°W MAY 1954

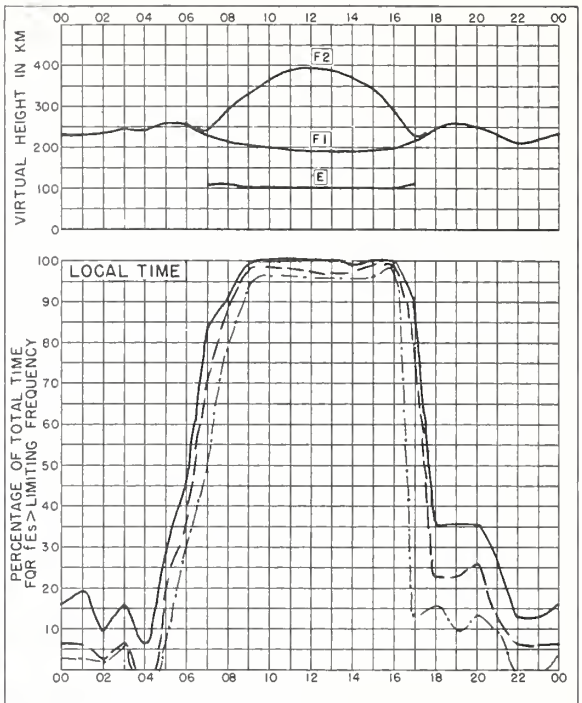


Fig. 74. HUANCAYO, PERU MAY 1954

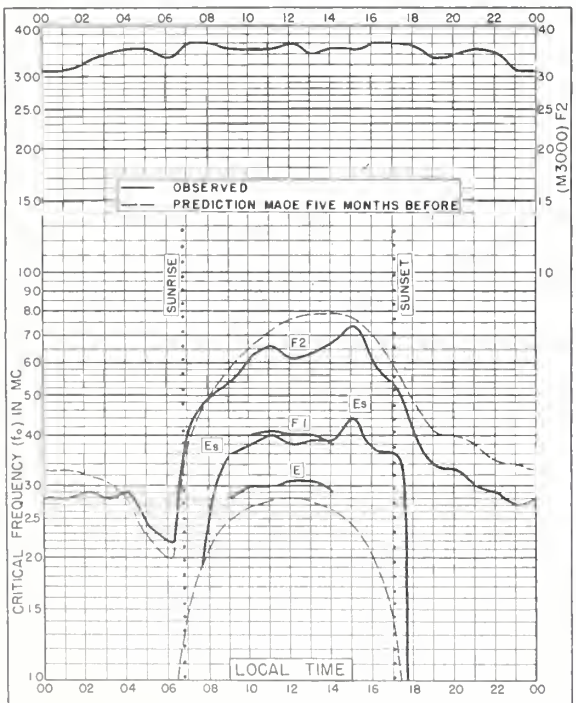


Fig. 75. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°N MAY 1954

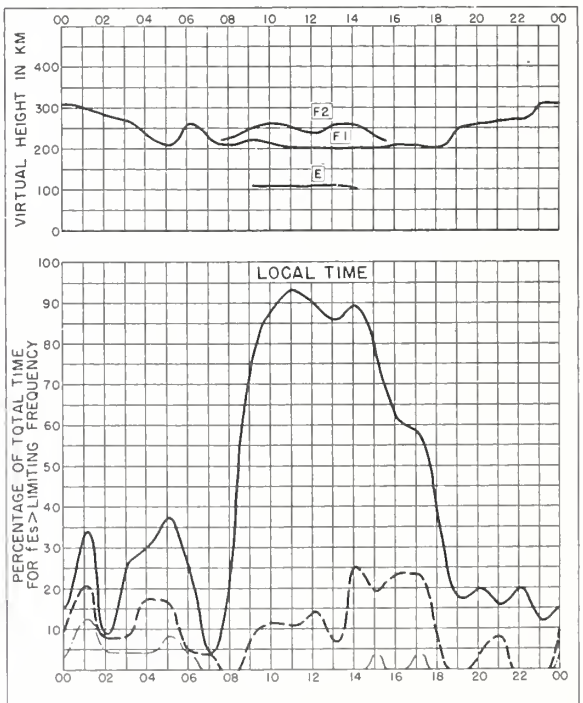


Fig. 76. BUENOS AIRES, ARGENTINA MAY 1954

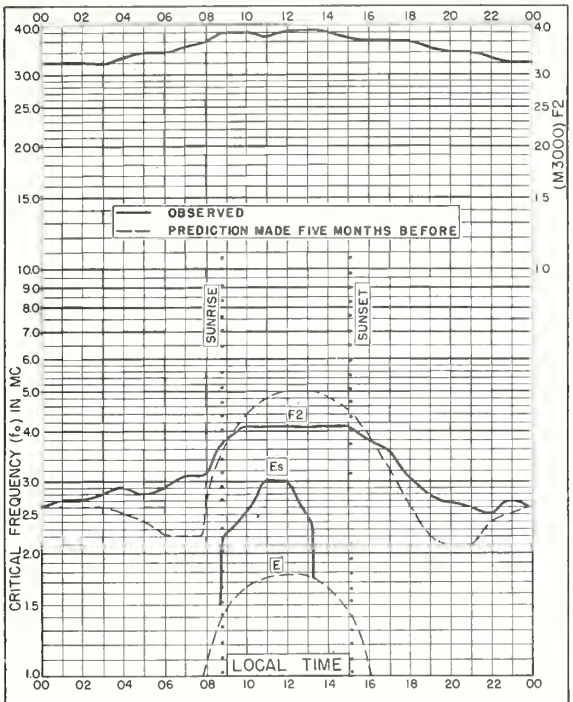


Fig. 77. DECEPCION I.
63.0°S, 60.7°W MAY 1954

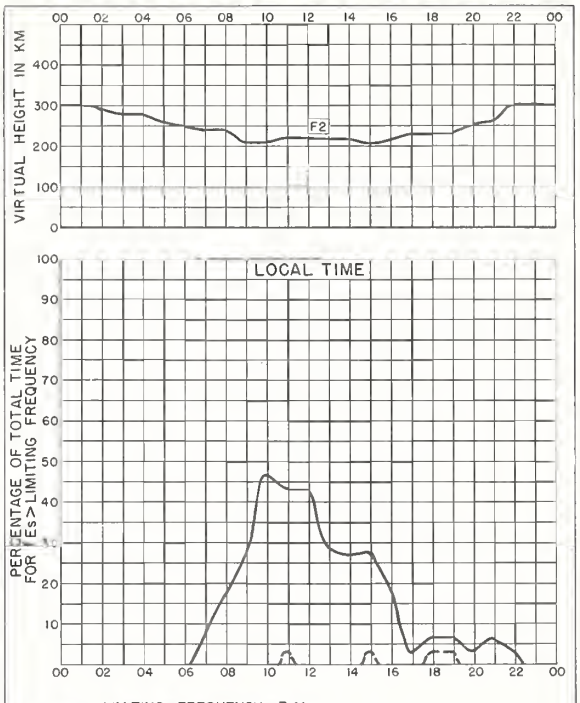


Fig. 78. DECEPCION I. MAY 1954

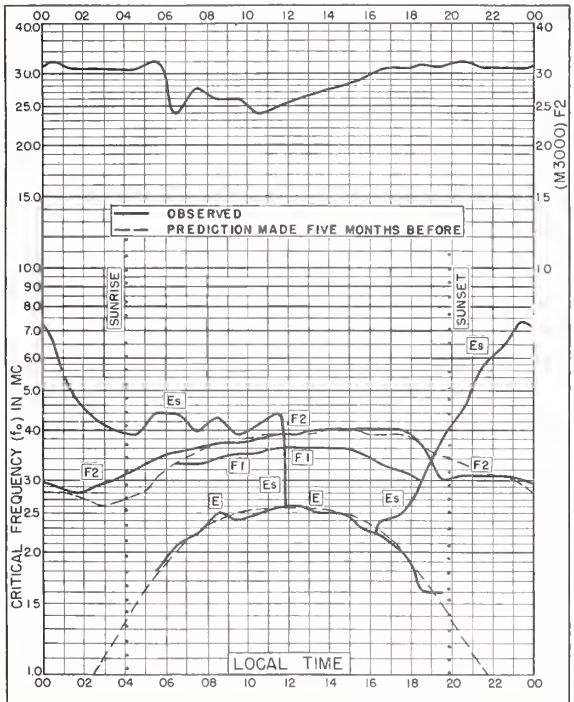


Fig. 79. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1954

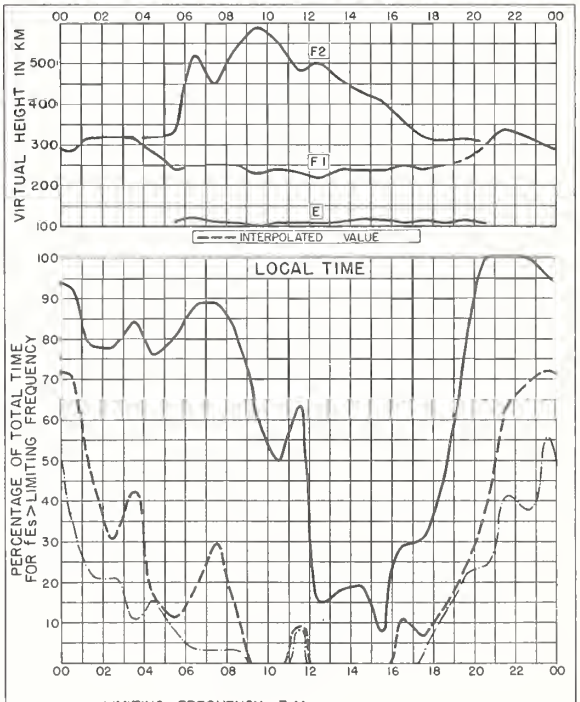


Fig. 80. POINT BARROW, ALASKA APRIL 1954

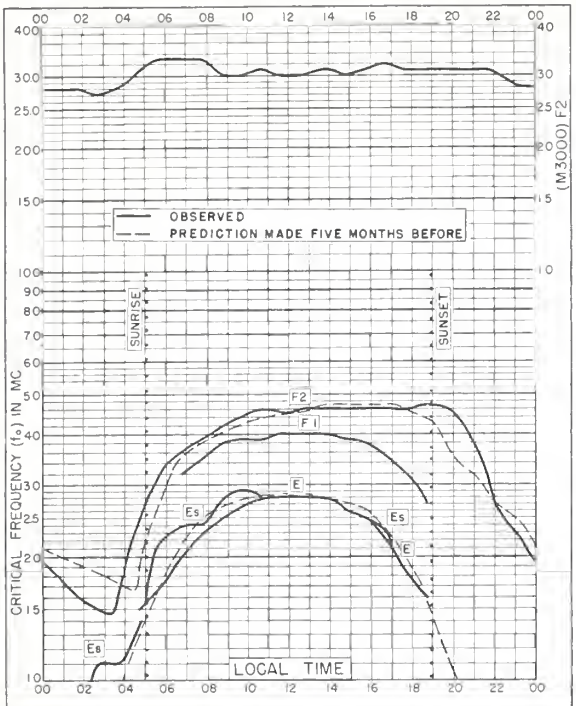


Fig. 81. INVERNESS, SCOTLAND
57.4°N, 4.2°W APRIL 1954

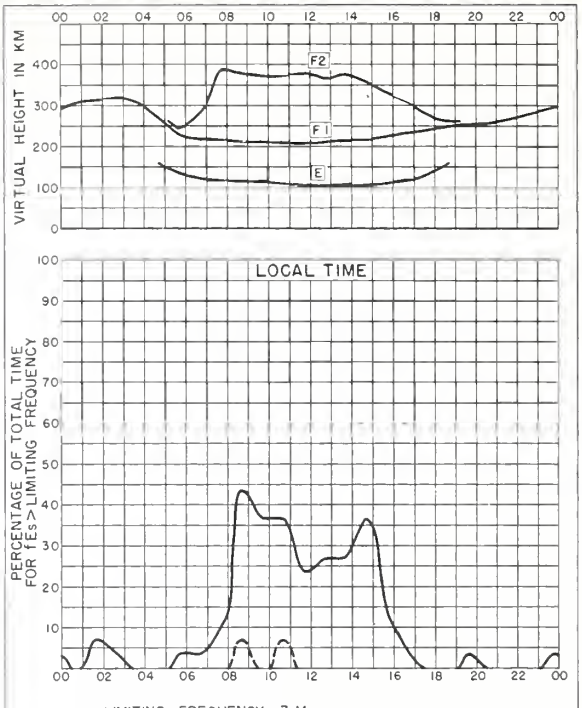


Fig. 82. INVERNESS, SCOTLAND APRIL 1954

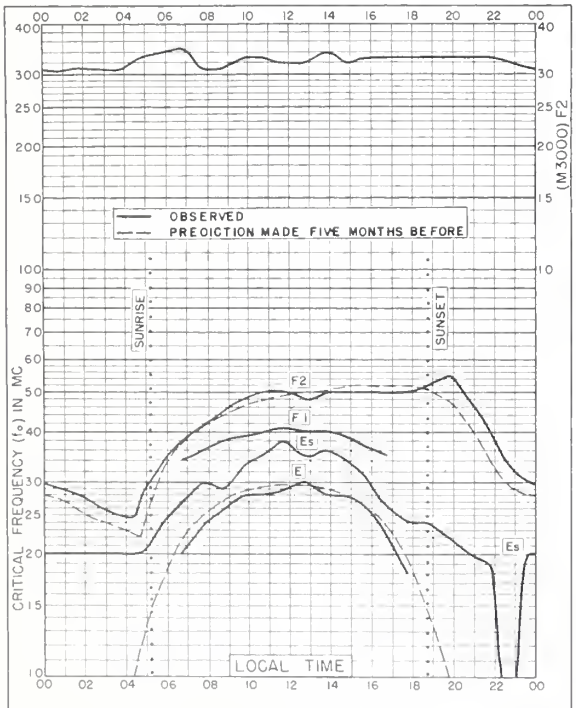


Fig. 83. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E APRIL 1954

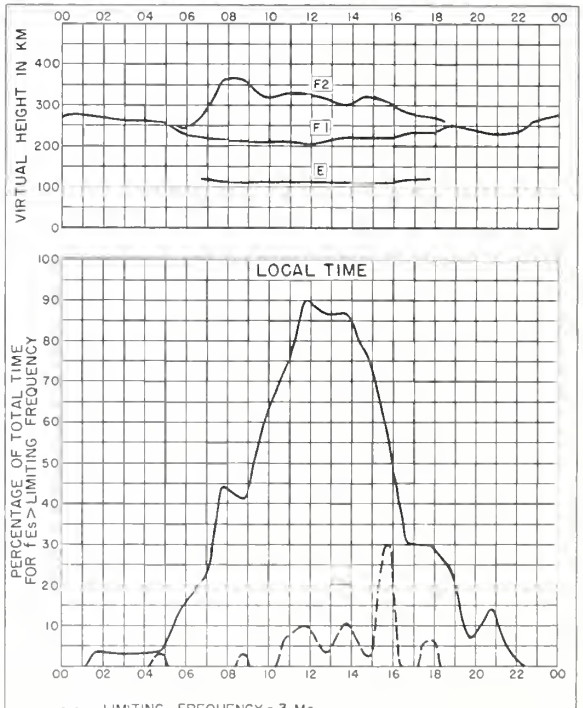


Fig. 84. LINDAU/HARZ, GERMANY APRIL 1954

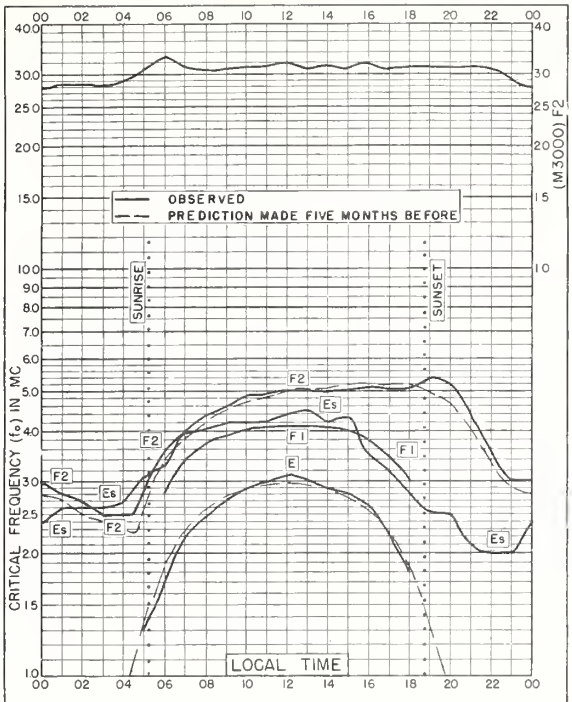


Fig. 85. SLOUGH, ENGLAND
51.5°N, 0.6°W APRIL 1954

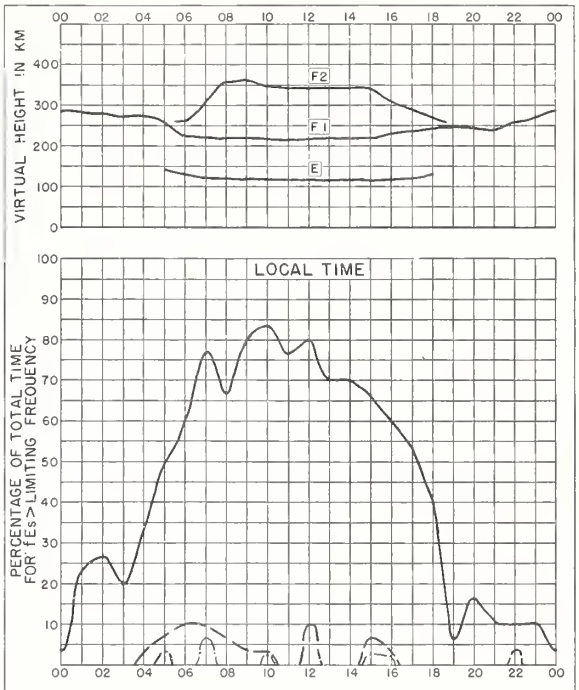


Fig. 86. SLOUGH, ENGLAND APRIL 1954

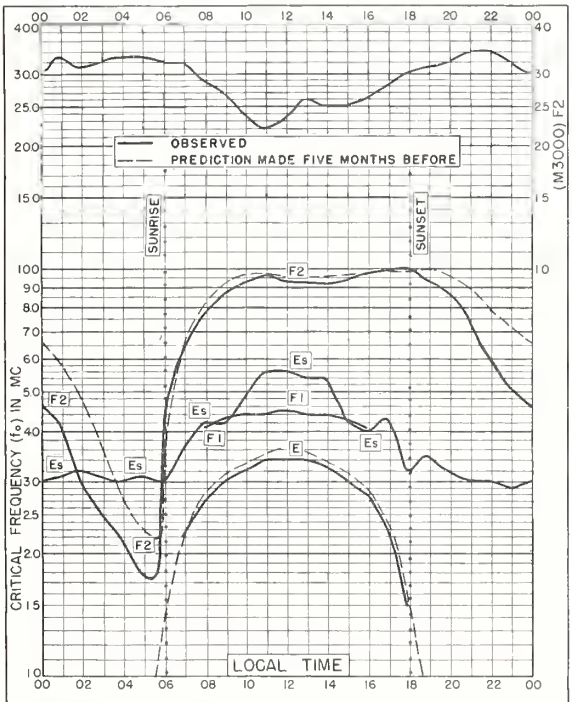


Fig. 87. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E APRIL 1954

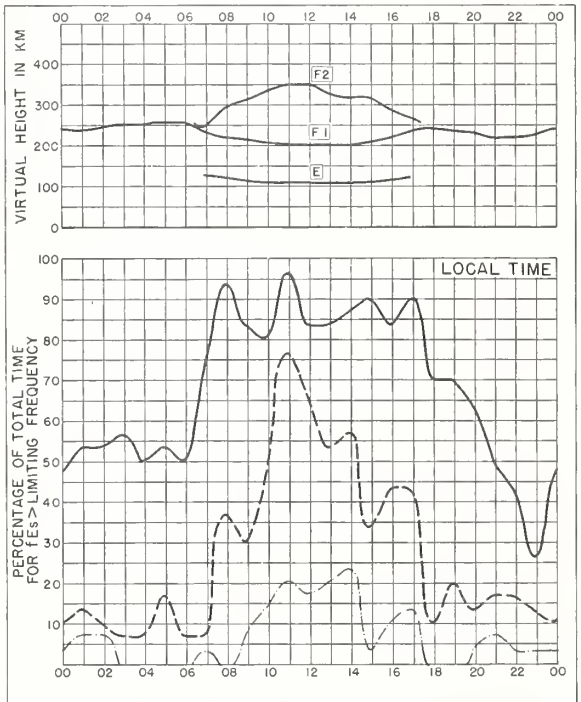


Fig. 88. SINGAPORE, BRITISH MALAYA APRIL 1954

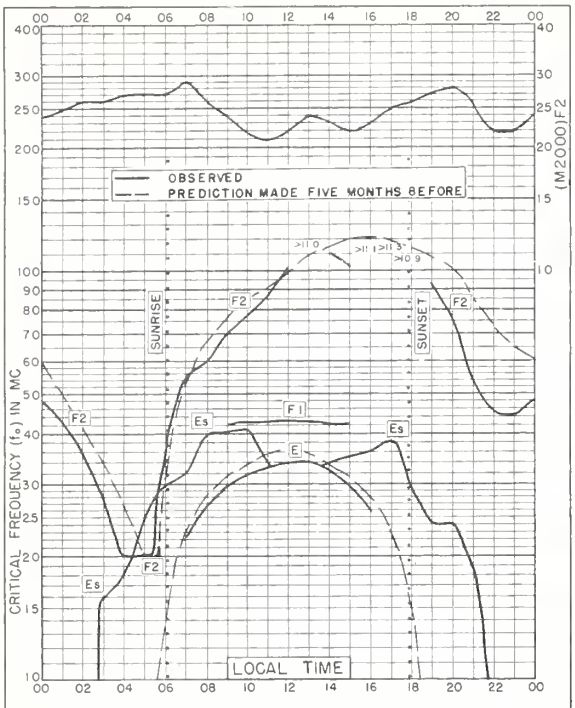
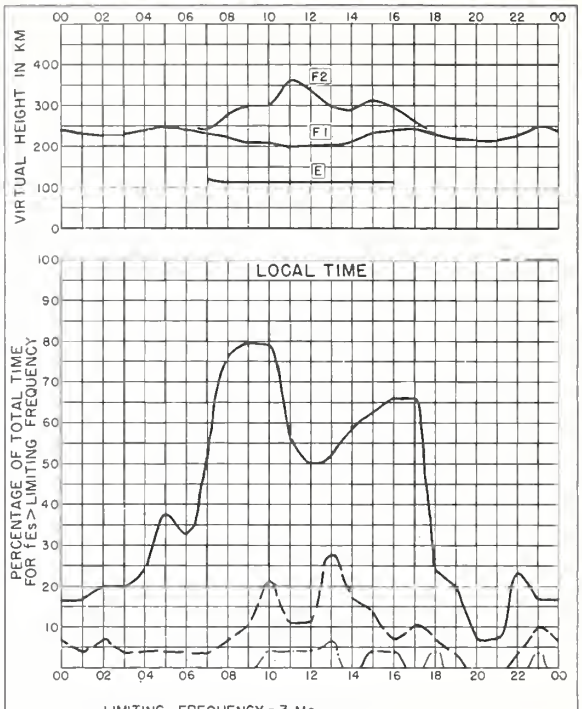


Fig. 89. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E APRIL 1954



APRIL 1954

Fig. 90. LEOPOLDVILLE, BELGIAN CONGO

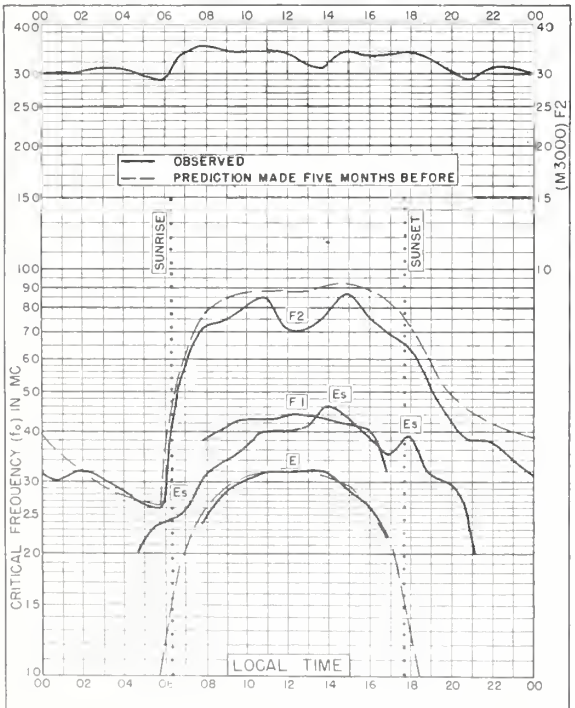


Fig. 91. RAROTONGA I.
21.3°S, 159.8°W APRIL 1954

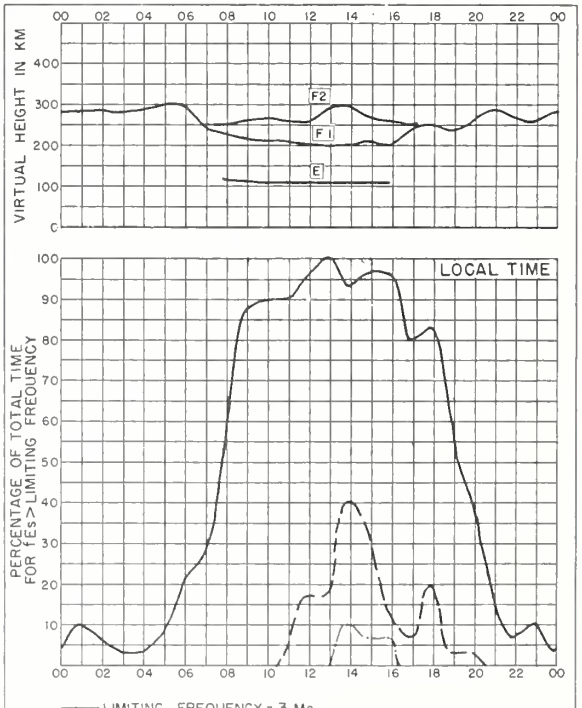


Fig. 92. RAROTONGA I. APRIL 1954

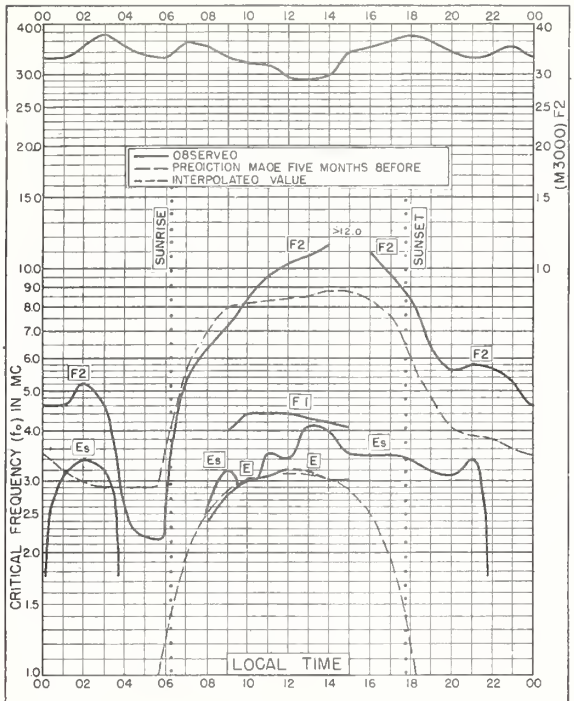


Fig. 93. SAO PAULO, BRAZIL
23.5°S, 46.5°W APRIL 1954

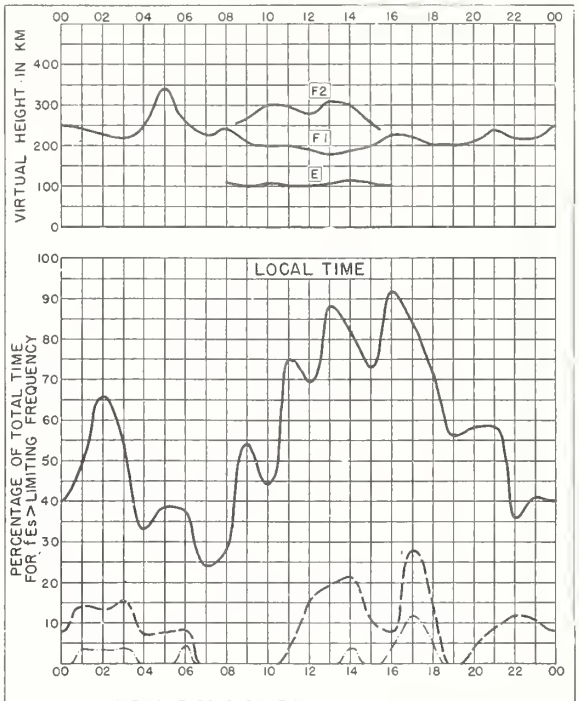


Fig. 94. SAO PAULO, BRAZIL APRIL 1954

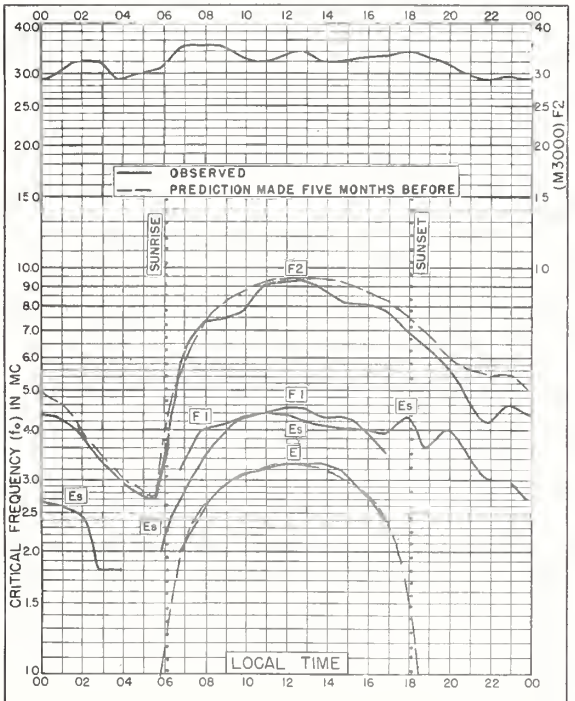


Fig. 95. RAROTONGA I.
21.3°S, 159.8°W MARCH 1954

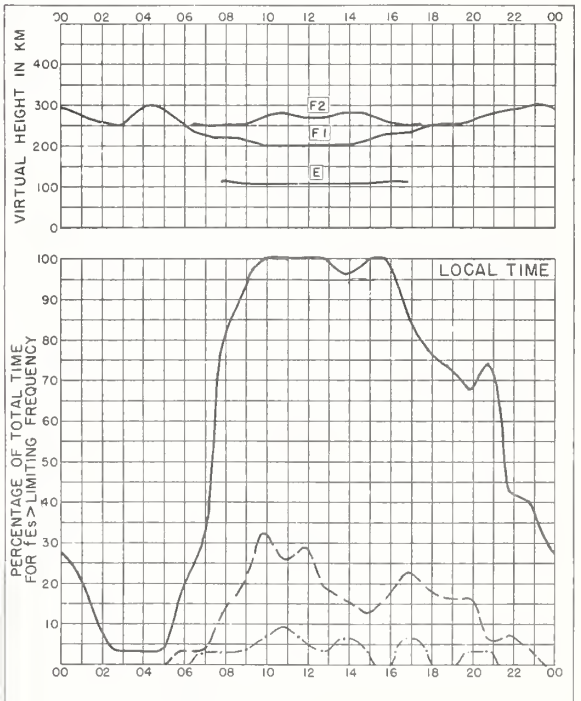


Fig. 96. RAROTONGA I. MARCH 1954

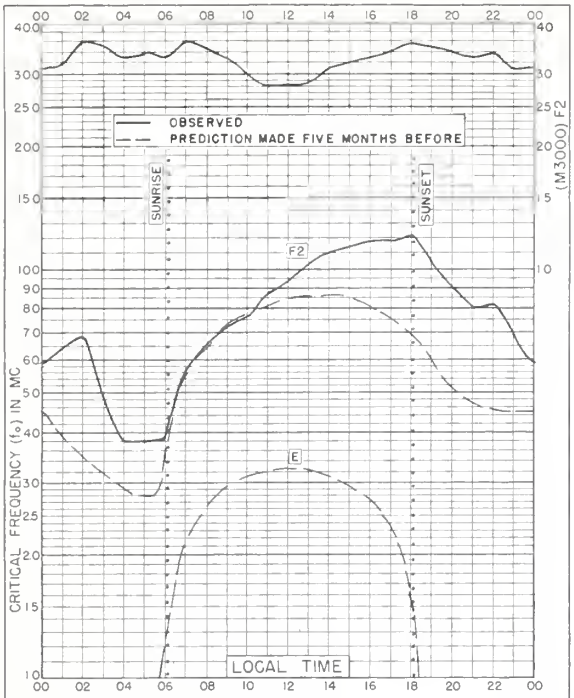


Fig. 97. SAO PAULO, BRAZIL
23.5°S, 46.5°W MARCH 1954

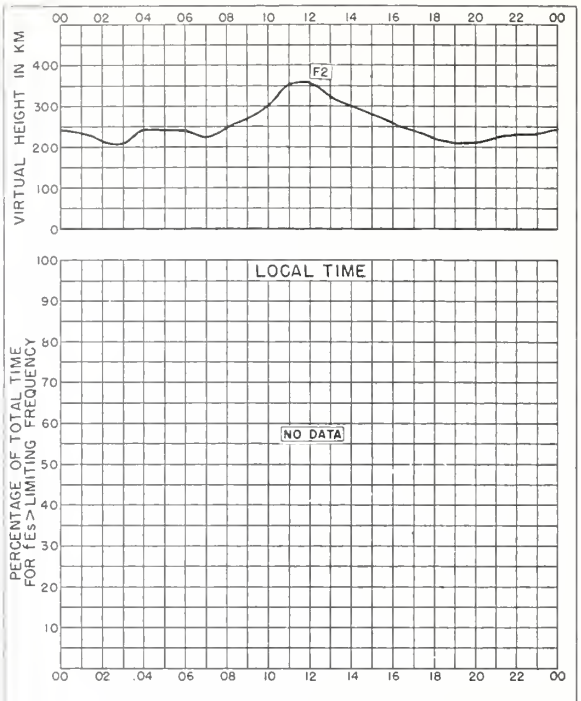


Fig. 98 SAO PAULO, BRAZIL MARCH 1954

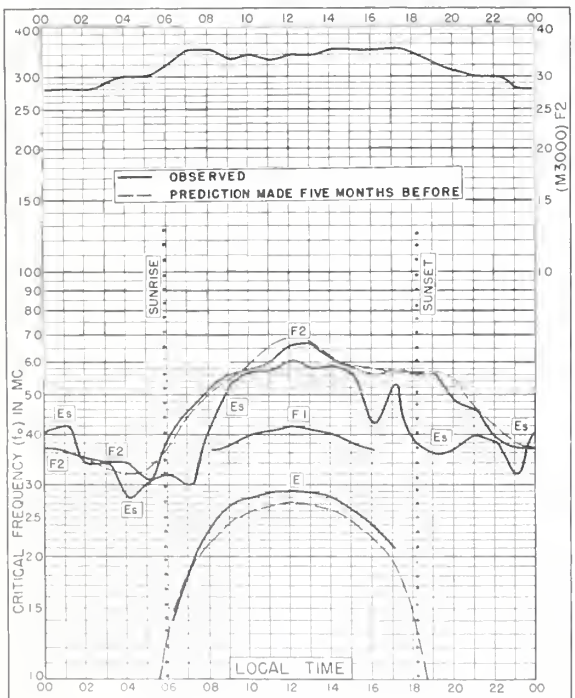


Fig. 99. FALKLAND IS.
51.7°S, 57.8°W MARCH 1954

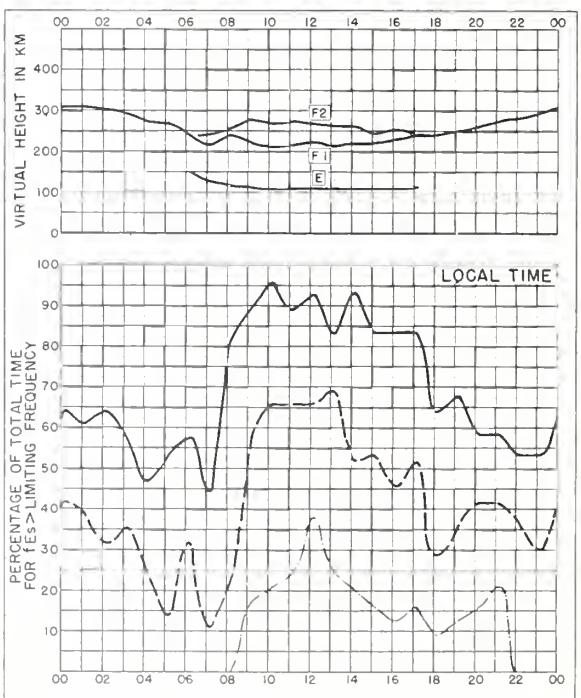


Fig. 100. FALKLAND IS. MARCH 1954

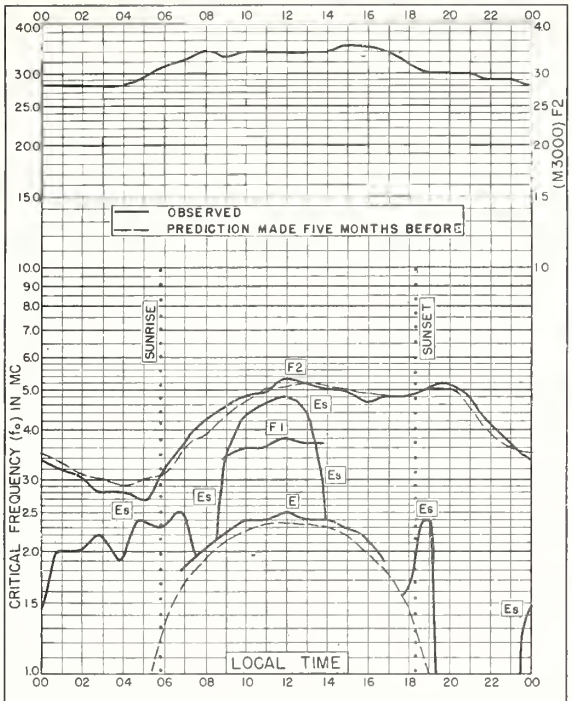


Fig. 101. PORT LOCKROY
64.8°S, 63.5°W MARCH 1954

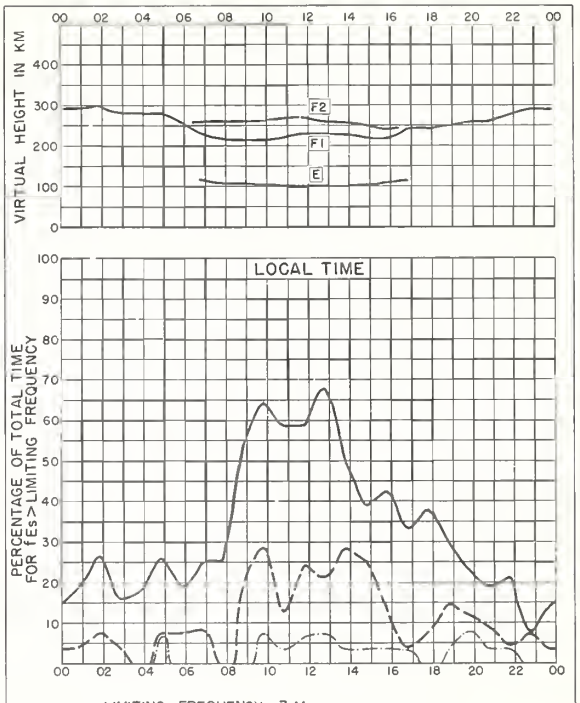


Fig. 102. PORT LOCKROY MARCH 1954

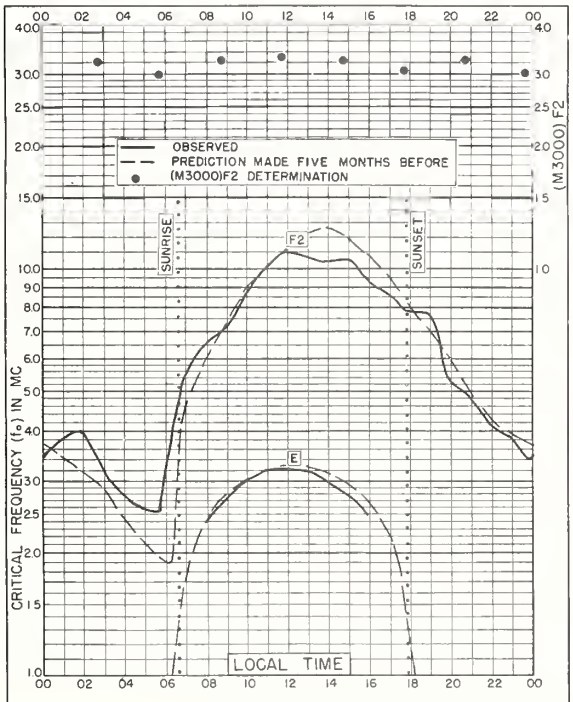


Fig. 103. CALCUTTA, INDIA
22.6°N, 88.4°E FEBRUARY 1954

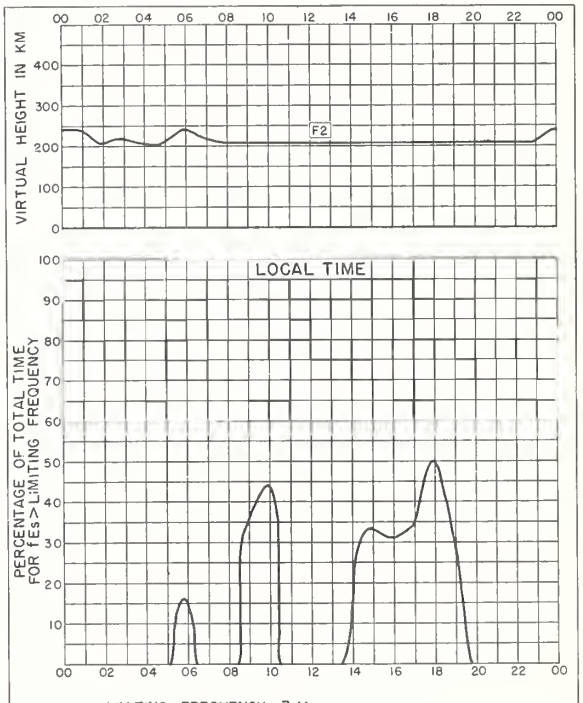


Fig. 104. CALCUTTA, INDIA FEBRUARY 1954

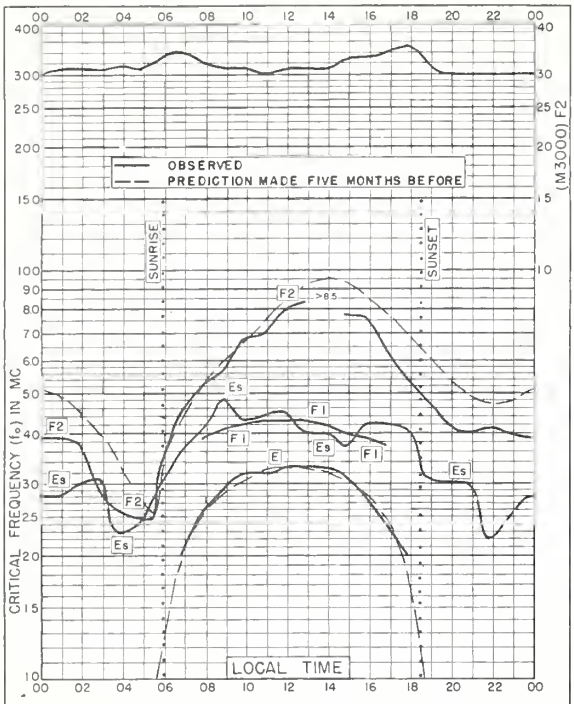
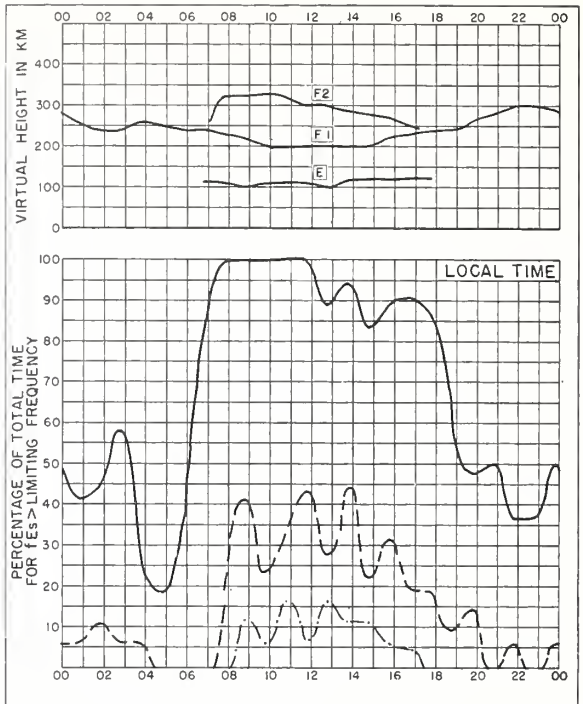


Fig. 105. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E FEBRUARY 1954



FEBRUARY 1954

Fig. 106. TOWNSVILLE, AUSTRALIA

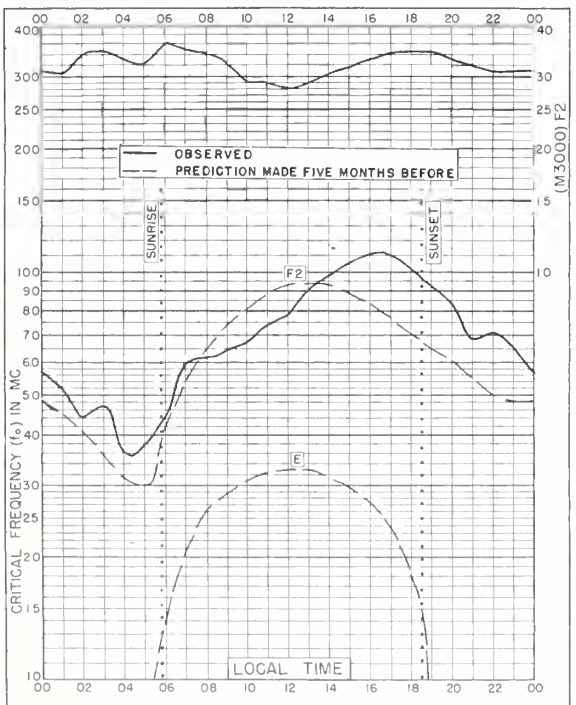


Fig. 107. SAO PAULO, BRAZIL
23.5°S, 46.5°W FEBRUARY 1954

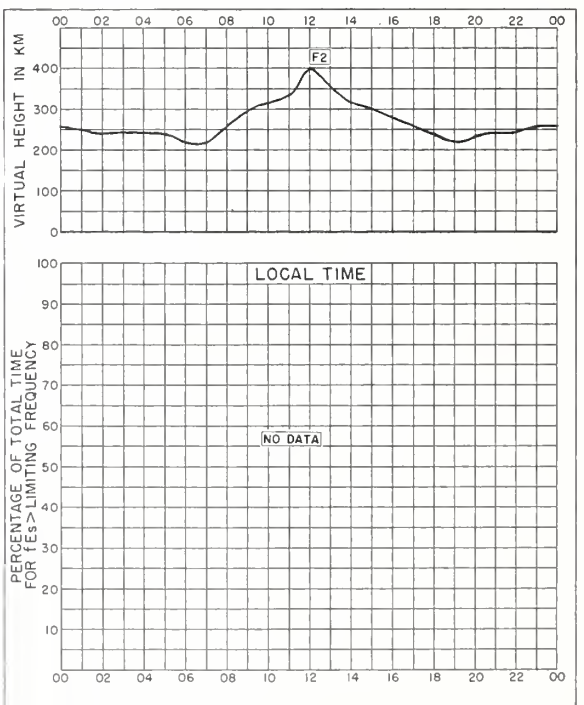


Fig. 108. SAO PAULO, BRAZIL FEBRUARY 1954

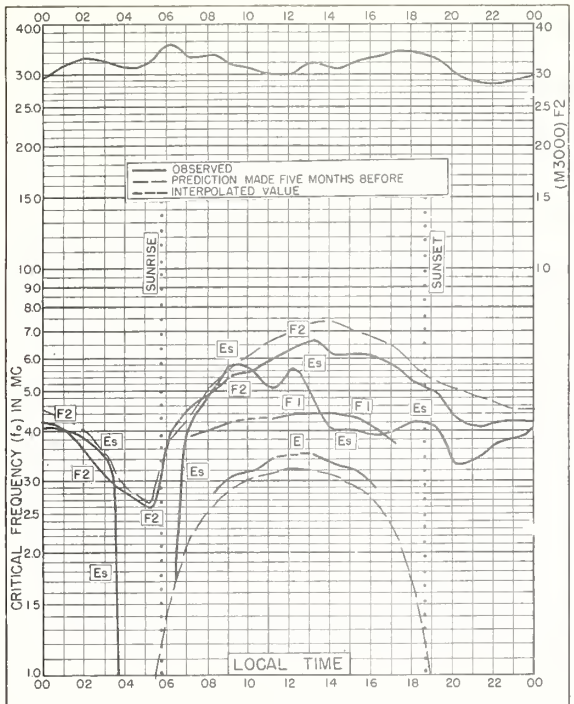


Fig. 109. BRISBANE, AUSTRALIA
27.5°S, 153.0°E FEBRUARY 1954

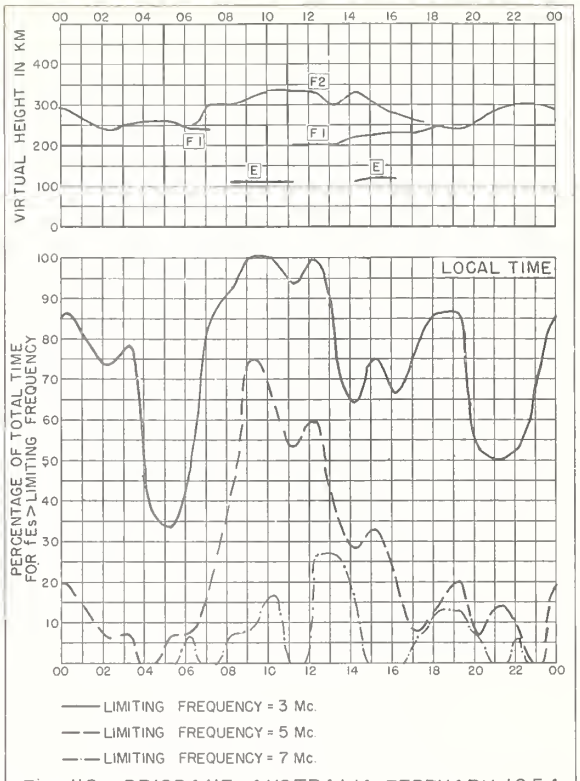


Fig. 110. BRISBANE, AUSTRALIA FEBRUARY 1954

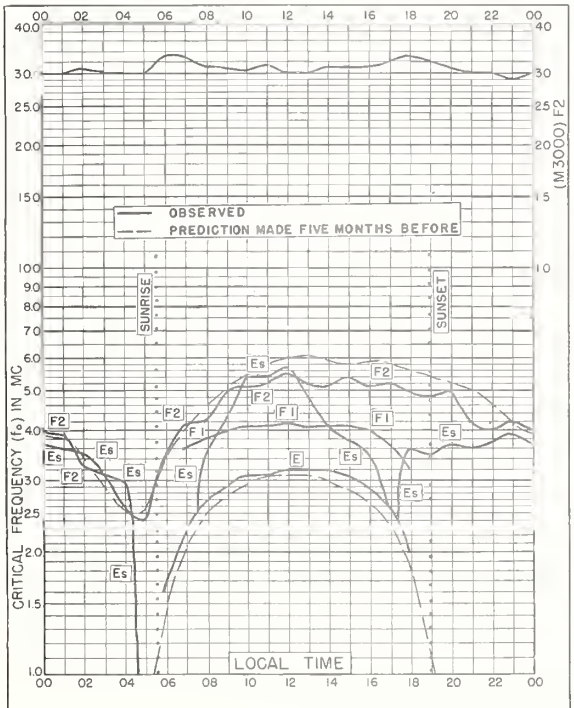


Fig. 111. CANBERRA, AUSTRALIA
35.3°S, 149.0°E FEBRUARY 1954

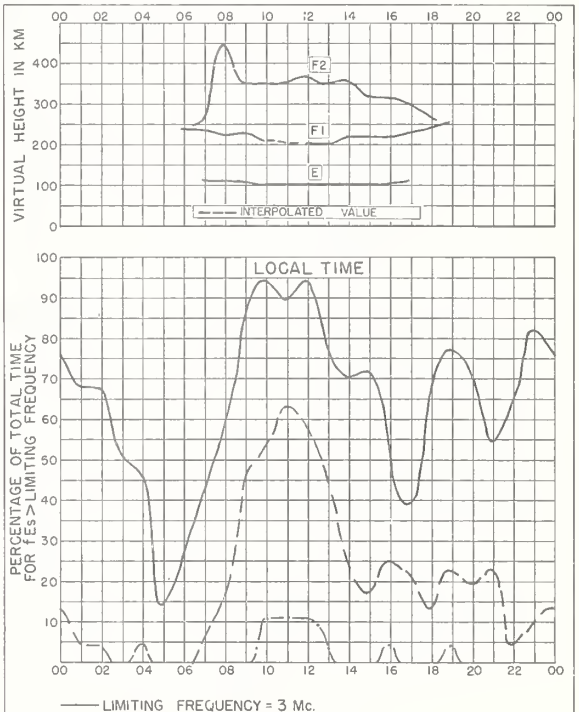


Fig. 112. CANBERRA, AUSTRALIA FEBRUARY 1954

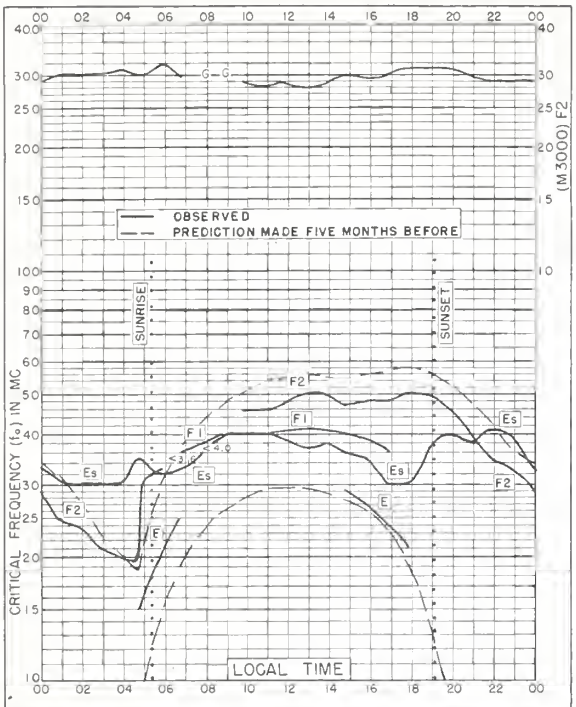


Fig. 113. HOBART, TASMANIA
42.9°S, 147.3°E FERUARY 1954

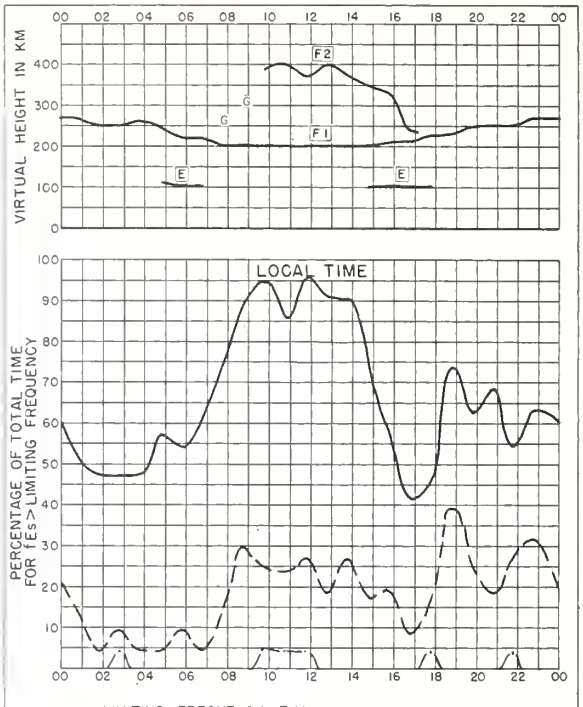


Fig. 114. HOBART, TASMANIA FERUARY 1954

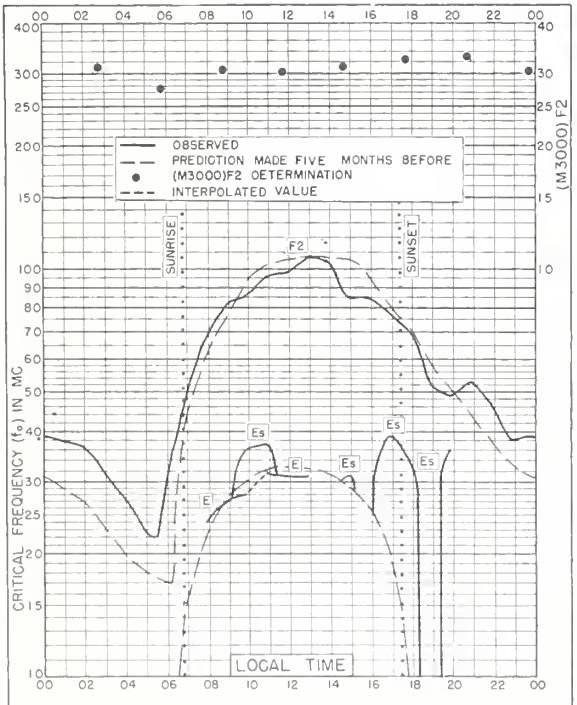


Fig. 115. CALCUTTA, INDIA
22.6°N, 88.4°E JANUARY 1954

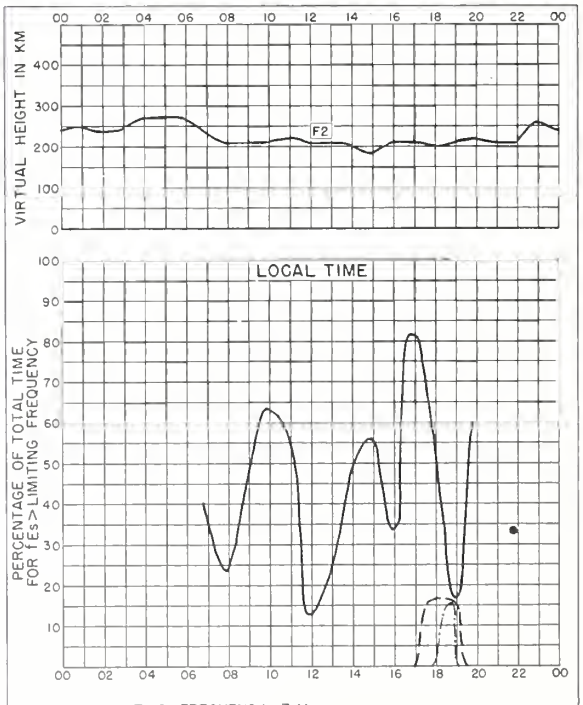


Fig. 116. CALCUTTA, INDIA JANUARY 1954

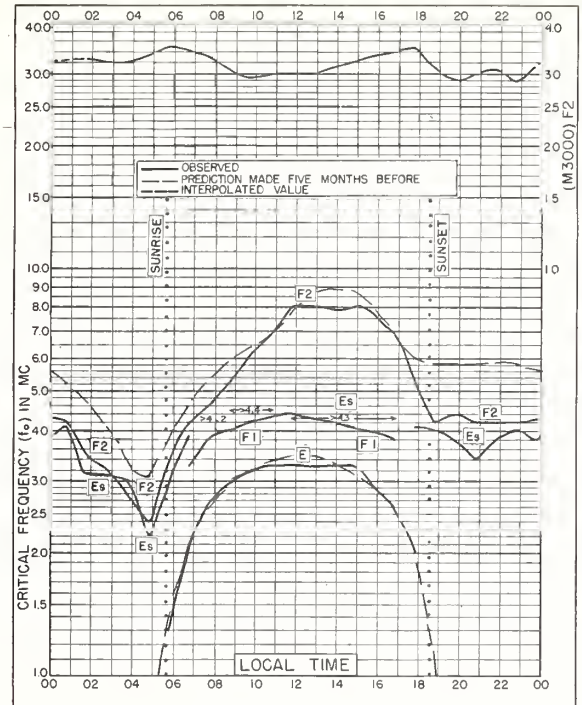
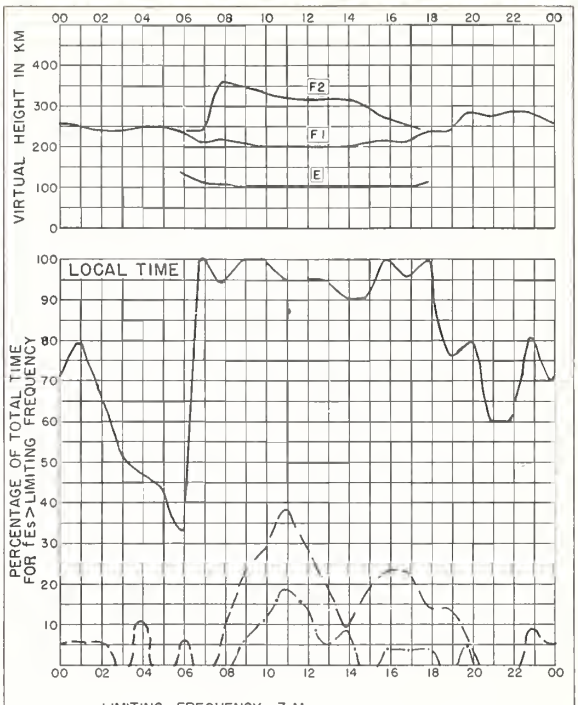


Fig. 117. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E JANUARY 1954



JANUARY 1954
Fig. 118. TOWNSVILLE, AUSTRALIA

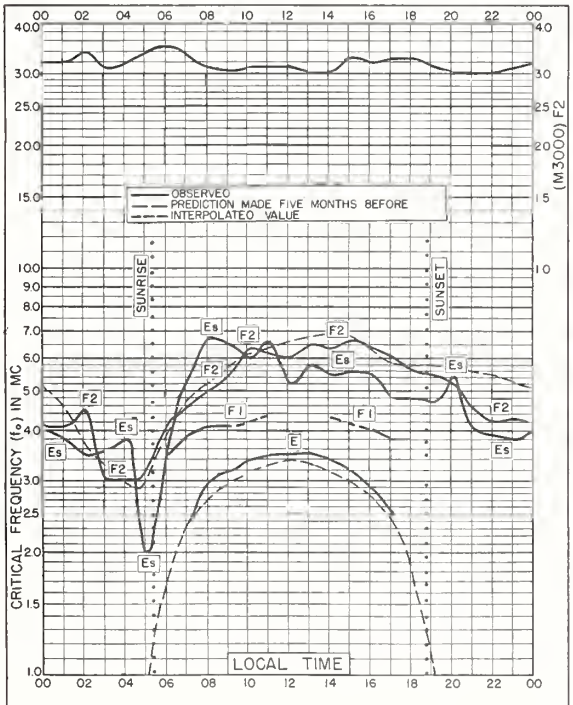


Fig. 119. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JANUARY 1954

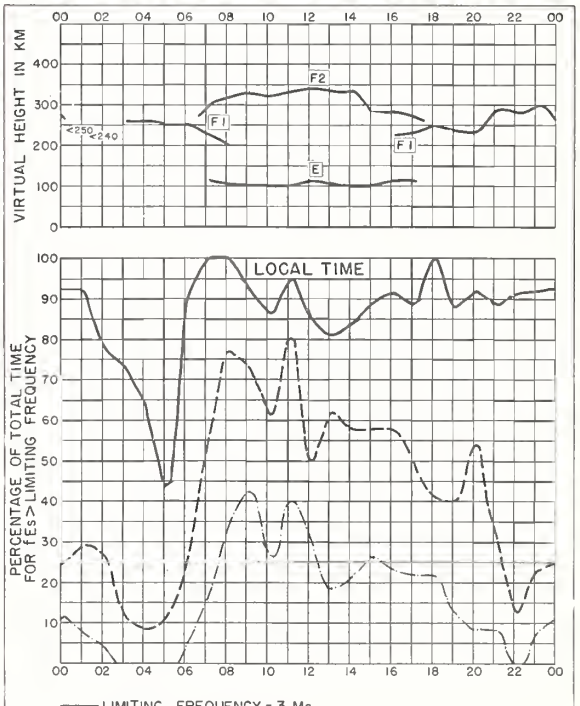


Fig. 120. BRISBANE, AUSTRALIA JANUARY 1954

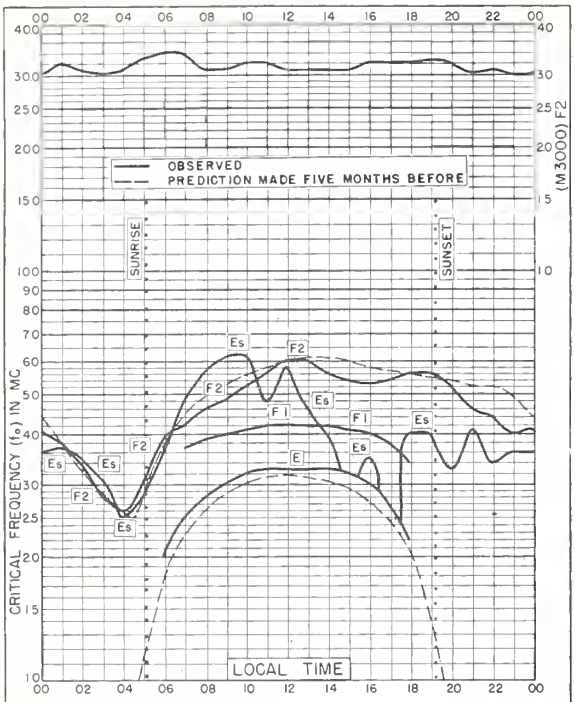
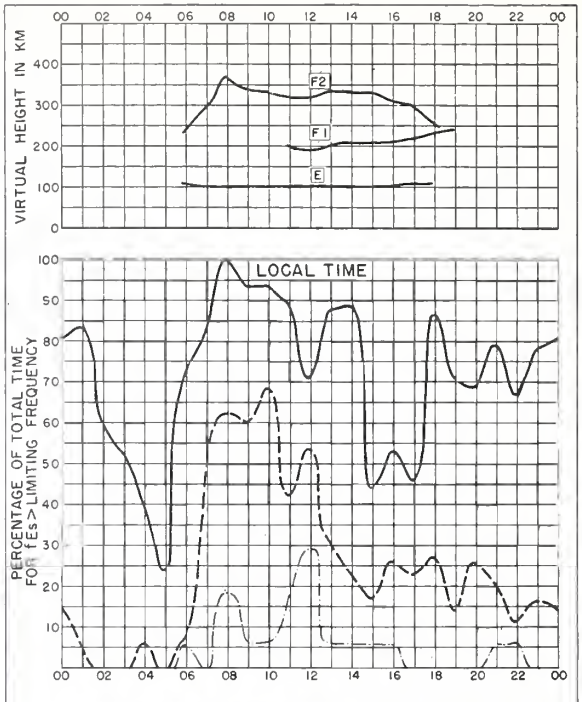


Fig. 121. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JANUARY 1954



JANUARY 1954
Fig. 122. CANBERRA, AUSTRALIA

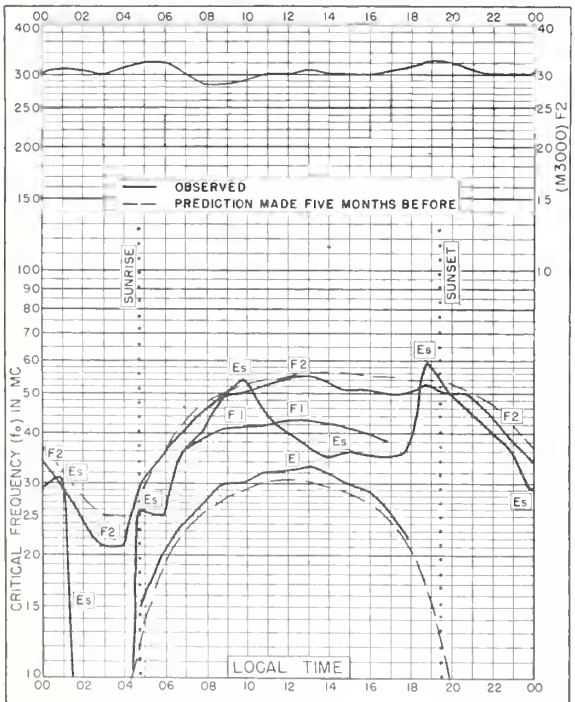


Fig. 123. HOBART, TASMANIA
42.9°S, 147.3°E JANUARY 1954

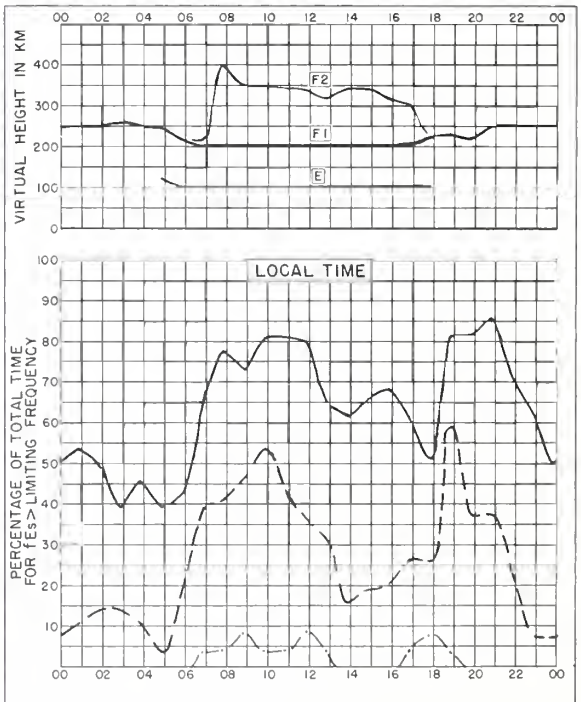


Fig. 124. HOBART, TASMANIA JANUARY 1954

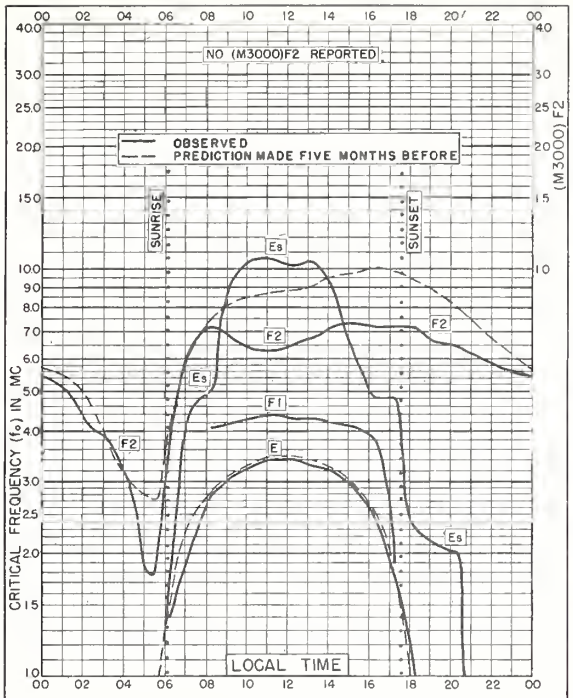


Fig. 125. IBADAN, NIGERIA
7.4°N, 4.0°E DECEMBER 1953

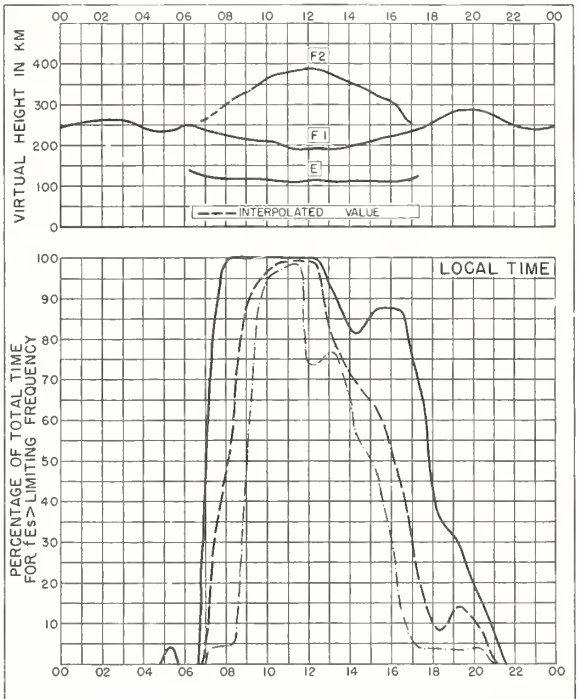


Fig. 126. IBADAN, NIGERIA DECEMBER 1953

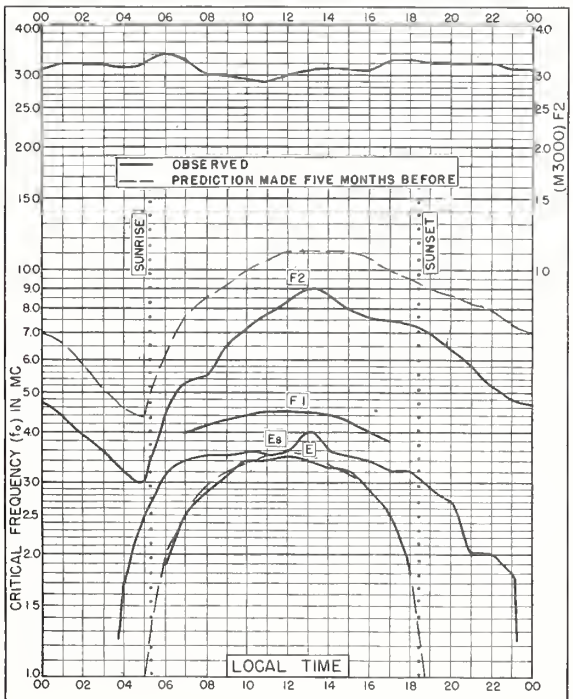


Fig. 127. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E DECEMBER 1953

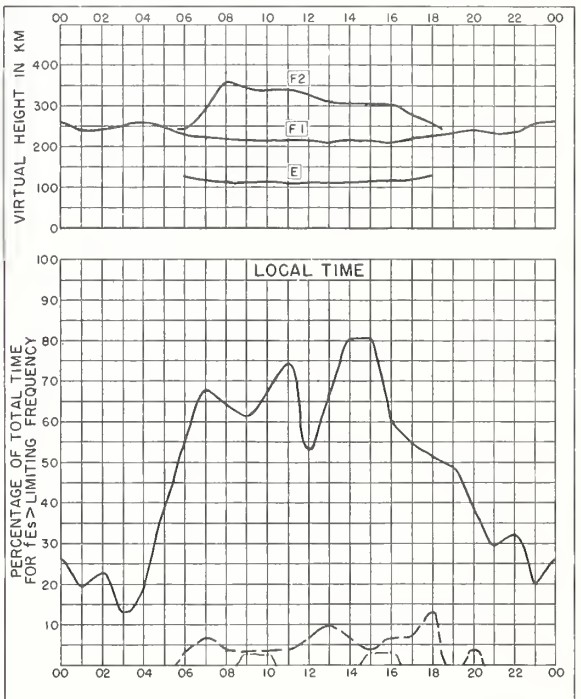


Fig. 128. TANANARIVE, MADAGASCAR DECEMBER 1953

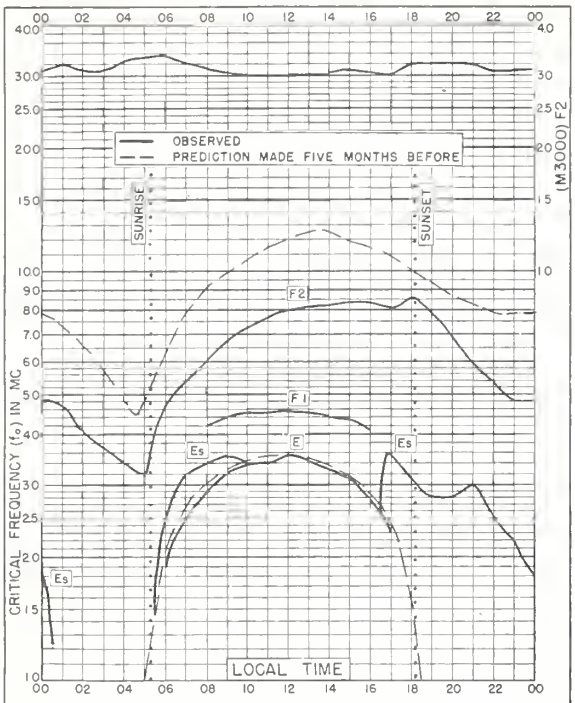
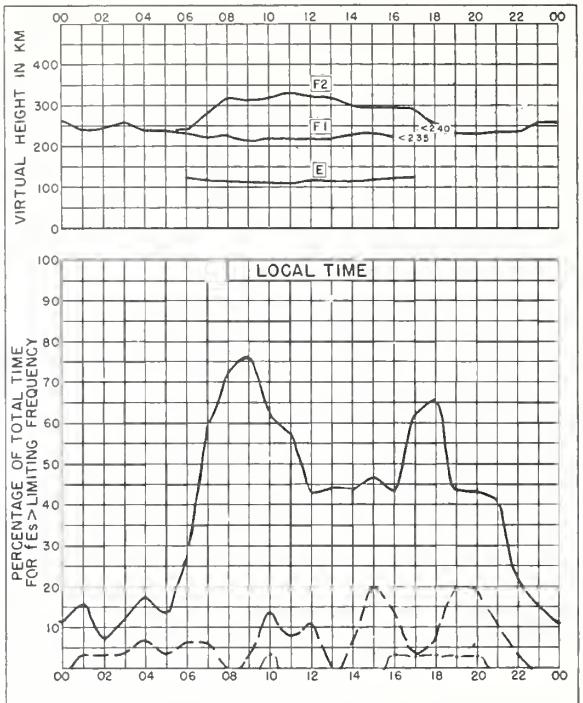


Fig. 129. TANANARIVE, MADAGASCAR
18.8° S, 47.8° E NOVEMBER 1953



NOVEMBER 1953
Fig. 130. TANANARIVE, MADAGASCAR

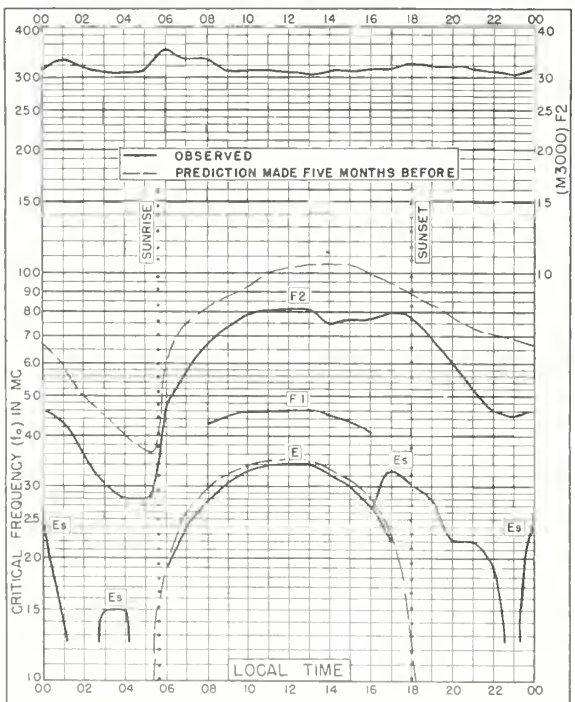


Fig. 131. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E OCTOBER 1953

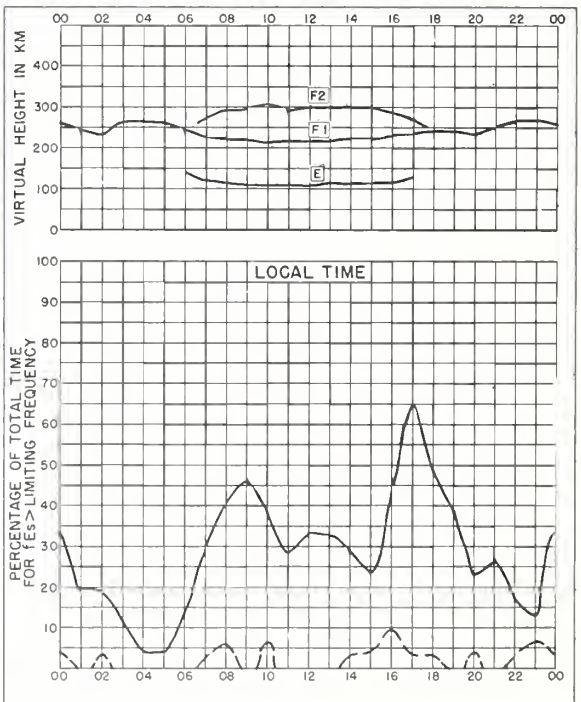


Fig. 132. TANANARIVE, MADAGASCAR OCTOBER 1953

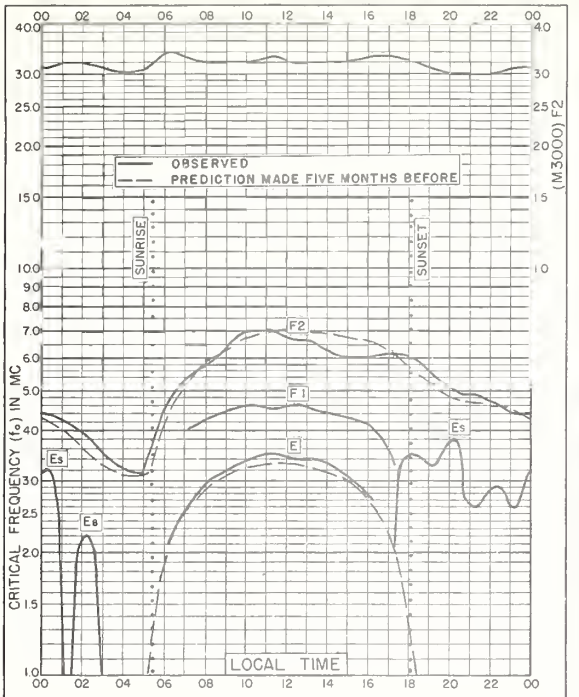


Fig. 133. BRISBANE, AUSTRALIA
27.5°S, 153.0°E OCTOBER 1953

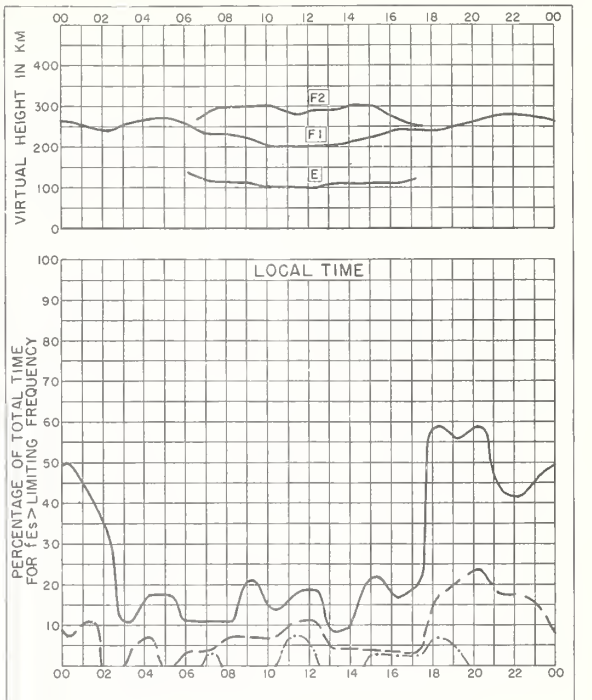


Fig. 134. BRISBANE, AUSTRALIA OCTOBER 1953

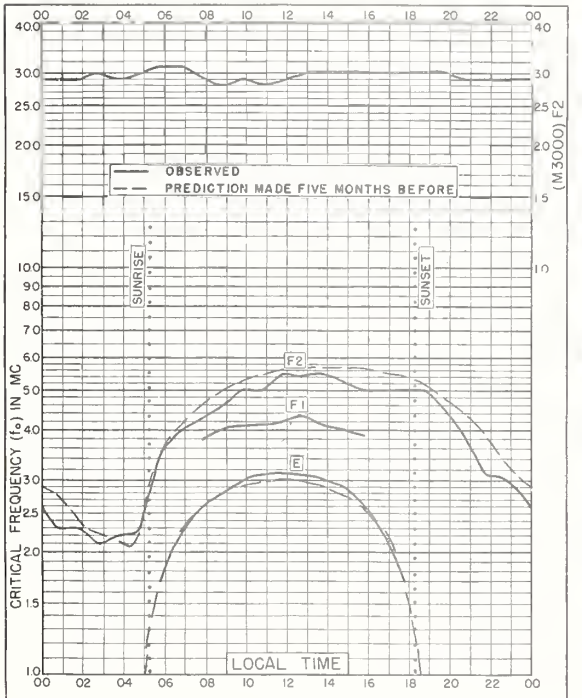


Fig. 135. HOBART, TASMANIA
42.9°S, 147.3°E OCTOBER 1953

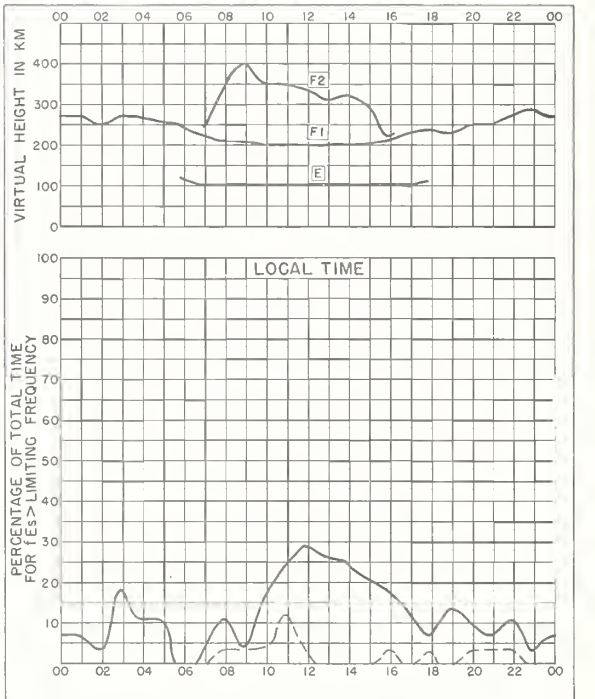


Fig. 136. HOBART, TASMANIA OCTOBER 1953

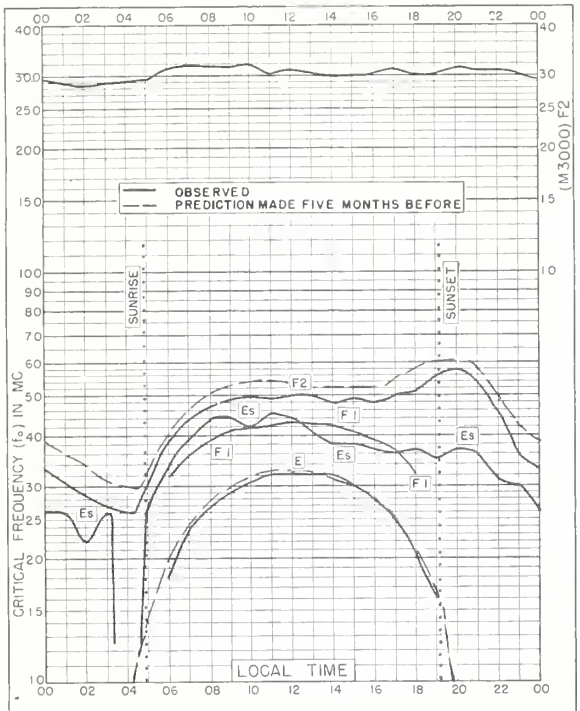


Fig. 137. FRIBOURG, GERMANY
48.1°N, 7.8°E AUGUST 1953

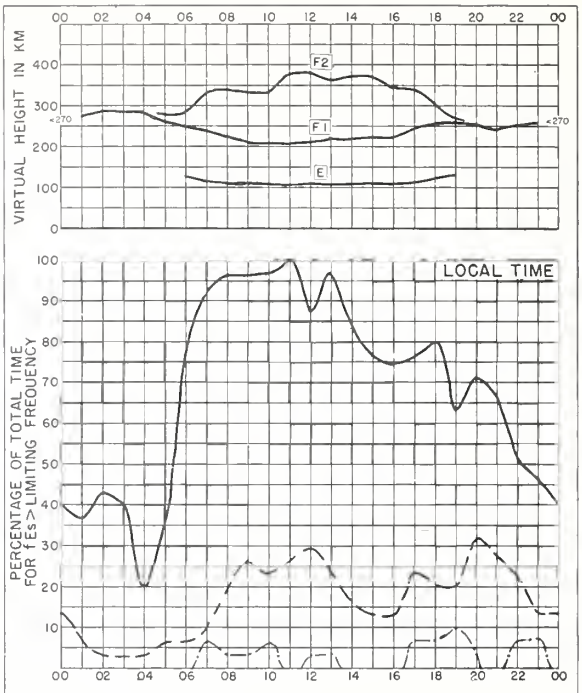


Fig. 138. FRIBOURG, GERMANY AUGUST 1953

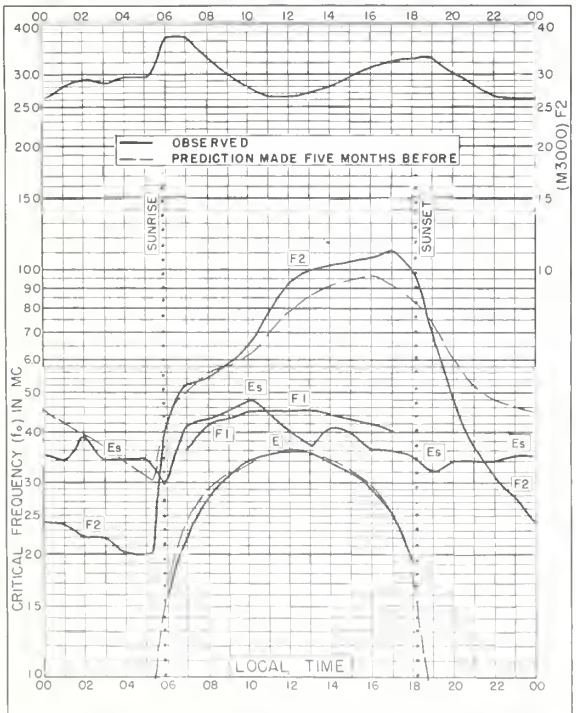


Fig. 139. DAKAR, FRENCH W. AFRICA
14.6°N, 17.4°W AUGUST 1953

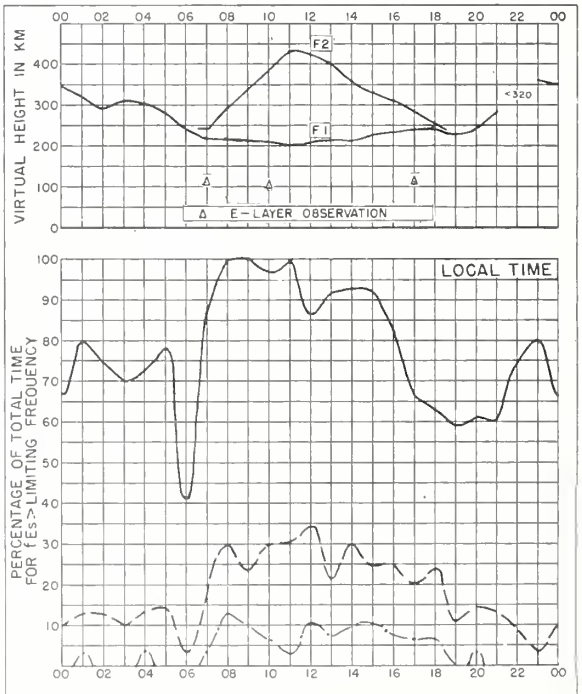


Fig. 140. DAKAR, FRENCH W. AFRICA AUGUST 1953

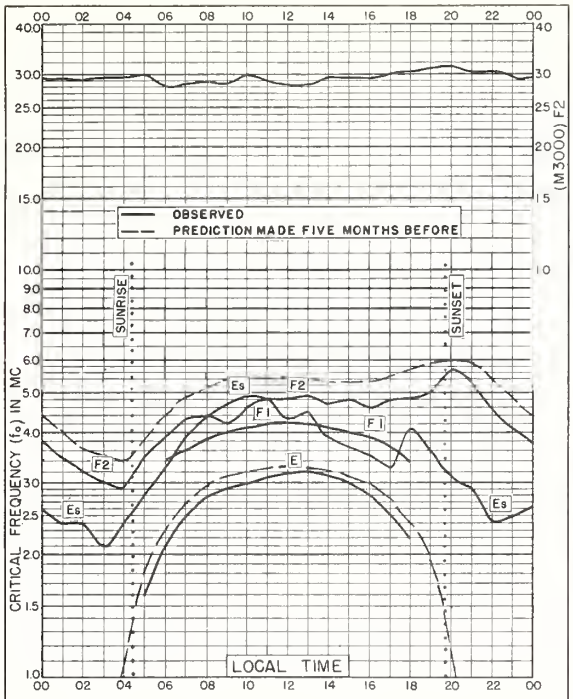


Fig. 141. FRIBOURG, GERMANY
48.1°N, 7.8°E JULY 1953

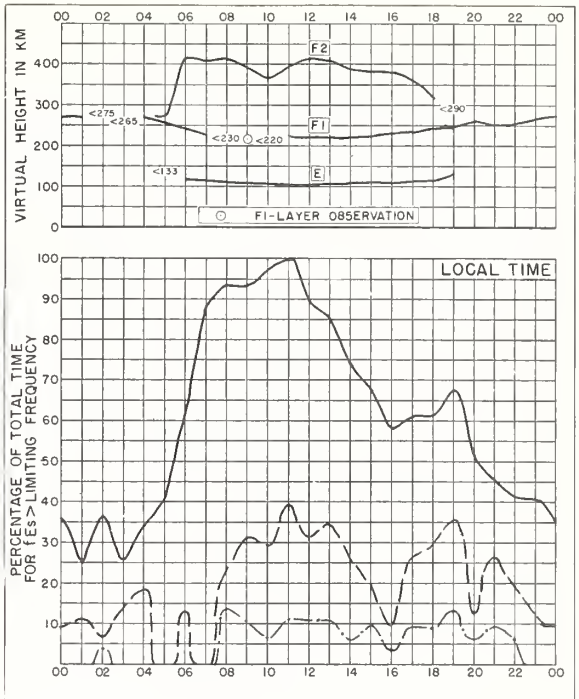


Fig. 142. FRIBOURG, GERMANY JULY 1953

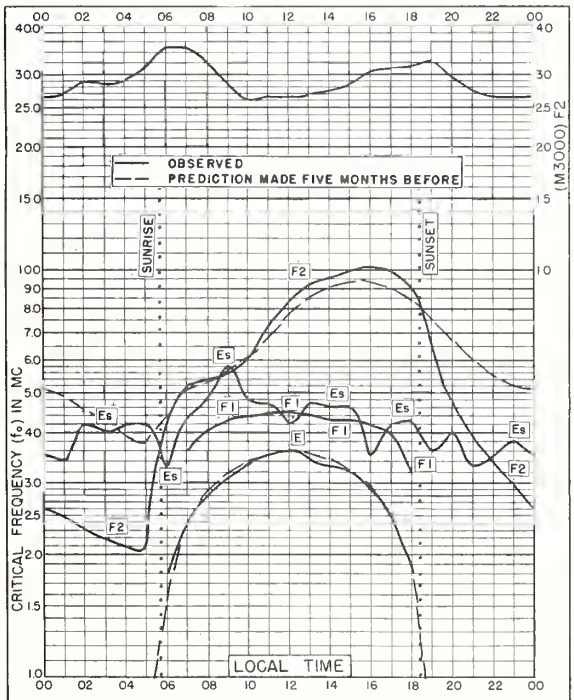


Fig. 143. DAKAR, FRENCH W. AFRICA
14.6°N, 17.4°W JULY 1953

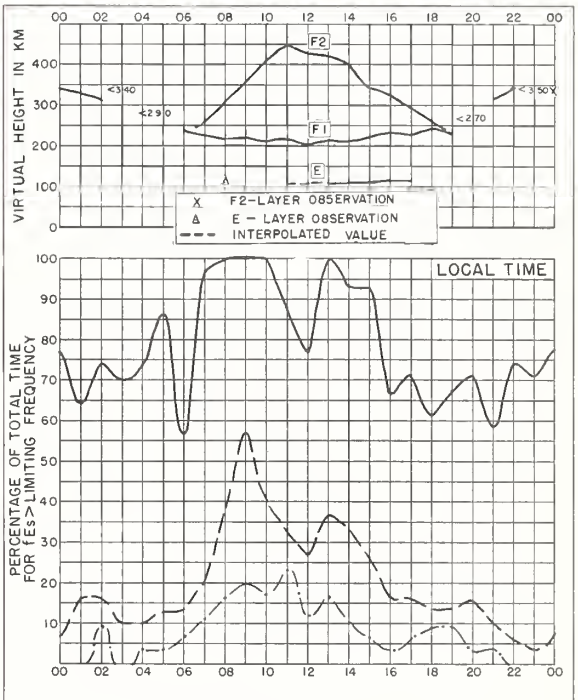


Fig. 144. DAKAR, FRENCH W. AFRICA JULY 1953

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