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IONOSPHERIC DATA

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

CRPL-F 124

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CENTRAL RADIO PROPAGATION LABORATORY
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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	10	16	38	52	87	112	115	124	83	36
October	10	17	43	52	90	114	116	119	81	23
September	8	18	46	54	91	115	117	121	79	22
August	8	18	49	57	96	111	123	122	77	20
July	8	20	51	60	101	108	125	116	73	
June	9	21	52	63	103	108	129	112	67	
May	10	22	52	68	102	108	130	109	67	
April	10	24	52	74	101	109	133	107	62	
March	11	27	52	78	103	111	133	105	51	
February	12	29	51	82	103	113	133	90	46	
January	14	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

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

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

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

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

University of Graz:
Graz, Austria

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

British Department of Scientific and Industrial Research, Radio Research Board:
Falkland Is.
Inverness, Scotland
Slough, England

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Ottawa, Canada
Winnipeg, Canada

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

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

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

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

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

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

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

Manila Observatory:
Baguio, P. I.

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa
Nairobi, Kenya (East African Meteorological Department)

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

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
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 November 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 October 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 October 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 November 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 November 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 November 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 November 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 November 1954, as communicated by the Swiss Federal Observatory. Table 95 contains the daily American relative sunspot number, R_A', for October 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

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

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

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

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

SUDDEN IONOSPHERE DISTURBANCES

Table 98 shows that no sudden ionosphere disturbances were observed at Ft. Belvoir, Virginia, during the month of November 1954.

ERRATUM

CRPL-F123, p. 18, table 38: fEs column at 0900 should read >4.0.

INDEX OF IONOSPHERIC DATA PUBLISHED IN 1954
(CRPL-F 113THROUGH F124)

The following index of tables and graphs of ionospheric data published in the CRPL-F series in 1953 is divided into two parts. Part I is an index of data observed in 1953 and 1954. Part II is an index of data observed prior to 1953.

In general, both table and graphs for a given station for a given month appear in the same issue.

Indexes of ionospheric data published prior to 1954 are in IRPL-F17, CRPL-F28, -F40, -F52, -F64, -F76, -F88, -F100, and -F112.

PART I

Index of Tables and Graphs of Ionospheric Data Observed in 1953 and 1954 and Published in 1954 (CRPL-F113 through F124)

Station	1953												1954											
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N
Adak, Alaska									113	113	113	115	119	118	118	119	120	120	122	123	123	124		
Akita, Japan							116	116	113	114	116	118	119	119	121	121	122	123	124					
Anchorage, Alaska											113	114	115	116	118	120	120	121	122	123	124	124		
Baguio, P. I.									116	116	115	116	119	119	120	121	122	124	124					
Baker Lake, Canada									116	114	115	118	118	120	120	121	122	123	124					
Bombay, India						119	119	118	118	118	118	119	120	121	123	124								
Brisbane, Australia				117	117		119	119	120	122	124		122	122	123									
Buenos Aires, Argentina										113	114	116	116	119	121	121	122	124	124					
Calcutta, India								119	118	118	118	118	122	122										
Canberra, Australia				117	117	117	119	119	120	121	124		122	122	123	124								
Capetown, Union of S.Africa					116				113	114	115	116	118	118	120	121	123	124						
Casablanca, Morocco	117	117	117				120	120																
Christchurch, New Zealand							117	117	115	115	119	119	119	119	121	121	123	124	124					
Churchill, Canada					117		117		113	114	115	115	118	120	120	121	122	123	124					
Dakar, French West Africa				124	124	124	122	122	124	124	123	124												
De Bilt, Holland										114#	114	115	116	119	120	121	123	124	124					
Decepcion I.										113	114	116	116	119	121	121	122	124	124					
Delhi, India						119	119	118	118	118	118	119	120	121	123	124								
Djibouti, French Somaliland	123	120	120		123																			
Fairbanks, Alaska											114	114	118	118	118	121	122	122	122	123	123			
Falkland Is.			117	117	117	117	117	117	118	118	120	119	121	121	122	123	124							
Formosa, China										113	114	115	116	116	118	121	123	124	124					
Fort Chimo, Canada									113	115	115	115	118	119	120	121	122	123						
Fribourg, Germany						123	122	122	123	123	123	123												
Godhavn, Greenland								113	113	119*					121	121								
Graz, Austria											113	114	115	116	118	121	122	123	124					
Guam I.											113	114	116	118	118	120	120	121	122	122	123	124		
Hobart, Tasmania				117	117	117	119	119	120	122	124		122	122	123									
Huancayo, Peru											113	114	116	116	120	121	122	123	124					
Ibadan, Nigeria											121	122	123											
Inverness, Scotland				117	117	117	117	117	115	118	118	120	119	121	121	122	123	124						
Johannesburg, Union of S.Africa					116				113	114	115	116	118	118	120	121	123	124	124					
Khartoum, Sudan			117					117	115	118	120	119		121										
Kiruna, Sweden										113	114	115	116	118	120	121	122#	124	124					
Leopoldville, Belgian Congo										113	114	115	116	118	120*	122	123	124						
Lindau/Harz, Germany							117		113	113	114	115	119	119	120	122	123@	124	124					
Lulea, Sweden										113	114	115	119		120									
Madras, India						119	119	118	118	118	118	119	120	121	123	124								
Maui, Hawaii											113	114	115	116	118	119	120	121	121	122	123	124		
Nairobi, Kenya										118	116		124						124					

PART I (CONTINUED)

Station	1953 J	F	M	A	M	J	Jy	A	S	O	N	D	1954 J	F	M	A	M	J	Jy	A	S	O	N
Narsarssuak, Greenland										113	113	114	119	119	120	120	120	121	123	123	124	124	
Okinawa I.											113	114	115	116	119	121	121	121	122	122	123	124	
Oslo, Norway											113	114	115	116	120	121	122						
Ottawa, Canada									113	114	115	115	118	119	120	121	122	123	124				
Panama Canal Zone											113	114	115	116	119	120	120	121	123	122	123	124	
Point Barrow, Alaska							113	114	114	114	114	115	116	119	121	122	122	123	123	124	124		
Poitiers, France	117	117	117				120	120															
Port Lockroy			116	116	116	116	116	118	118	118	120	119	121	121	122	123							
Prince Rupert, Canada									113	114	115	115	118	119	120	121	122						
Puerto Rico, W. I.											113	114	115	116	118	120	120	121	121	122	123	124	
Rarotonga I.							117	117	115	115	118	118	119	120	122	122	123	124					
Resolute Bay, Canada									113	114	115	115	118'	119	120	121	122	123					
Reykjavik, Iceland						113	113	114	114	114	114	118	119	119	120	121	121	122	123	123			
St. John's, Newfoundland									113	114	115	115	119	119	120	121	122	123					
San Francisco, California											113	114	116	116	118	120	120	120	122	122	124	124	
Sao Paulo, Brazil								118	118	118	120	120	120	122	122	122							
Schwarzenburg, Switzerland										113	114	115	116	120	120	121	122	124	124				
Singapore, British Malaya				117	117	117	117	117	115	118	118	120	119	121	121	122	123						
Slough, England				117	117	117	117	117	115	118	118	120	119	121	121	122	123	124					
Tananarive, Madagascar	120	120	120	120	120	120	120	119	119	122	122	122											
Tiruchy, India						119	119	118	118	118	118	119	120	121	123	124							
Tokyo, Japan							116	116	113	114	116	118	119	119	121	121	122	123	124				
Townsville, Australia				117	117	117	119	119	120	121	124		122	122	123								
Tromso, Norway											113	114	116	116	120	121	122	124					
Upsala, Sweden											113	114	115	116	119	121	123	124			123		
Wakkanai, Japan							116	116	113	114	116	118	119	119	121	121	122	123	124				
Washington, D. C.												113	114*115		116	117	118	119	120	121	122	123	124
Watheroo, Western Australia									113	113	115	115	119	119	120	121	123	123	124				
White Sands, New Mexico											113	114	115	116	118	120	120	121	122	123	123	124	
Winnipeg, Canada									113	114	115	115	118	119	120	121	122	124					
Yamagawa, Japan							116	116	113	114	116	118	119	119	121	121	122	123	124				

#De Bilt, Holland, Jan. through Oct. 1953. See Erratum in F114, p. 11. (This refers to F104 through F113.)

"See Erratum 2 in F120, p. 11.

/See Erratum 3 in F120, p. 11.

#See Erratum in F123, p. 11.

/See Erratum in F122, p. 11.

@See Erratum in F124, p. 11.

'See Erratum 1 in F120, p. 11.

*See Erratum in F118, p. 11.

PART II

Index of Tables and Graphs of Ionospheric Data Observed Prior to 1953 and Published in 1954 (CRPL-F113 through F124)

Station	1947 J	F	M	A	M	J	Jy	A	S	O	N	D	1952 J	F	M	A	M	J	Jy	A	S	O	N	D
Djibouti, French Somaliland																			23	123	123	123	123	123
Tokyo, Japan					120																			

TABLES OF IONOSPHERIC DATA

Table 1

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.6						3.1
01	260	2.8						3.1
02	260	3.0						3.2
03	250	3.2						3.2
04	240	3.1						3.3
05	240	2.8						3.3
06	240	2.6					2.4	3.3
07	230	4.0					2.4	3.5
08	230	5.2	220	---	120	2.0	3.1	3.6
09	230	5.6	210	3.4	110	2.4	3.2	3.6
10	240	6.0	200	3.7	110	2.6	3.2	3.6
11	250	6.4	200	(3.8)	100	2.8	3.6	3.4
12	250	6.8	200	4.0	100	2.8	3.4	3.5
13	250	6.6	210	3.8	110	2.8	3.2	3.5
14	240	6.4	220	---	110	2.6	3.2	3.5
15	240	6.0	220	---	110	2.4	2.7	3.5
16	220	6.0	220	---	(120)	1.8	3.0	3.6
17	210	5.2					2.2	3.5
18	220	3.7					2.6	3.35
19	230	3.2						3.3
20	250	2.8						3.3
21	270	2.5						3.1
22	270	2.4						3.1
23	(270)	2.4					2.5	3.2

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

Table 2

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	1.4					2.6	(2.9)
01	(350)	1.8					2.4	(2.9)
02	350	2.0					3.6	(2.8)
03	(340)	2.1					3.0	(2.9)
04	< 340	2.0					2.5	(2.8)
05	(350)	2.0					2.3	(2.9)
06	280	1.8					1.3	3.0
07	260	3.0	230	---	---	---		3.2
08	(270)	3.7	240	---	120	1.8		3.25
09	(300)	4.1	240	3.2	120	2.0		3.15
10	290	4.4	220	3.4	120	2.2		3.2
11	300	4.7	220	3.5	120	2.3		3.1
12	280	4.9	220	3.5	110	2.4		3.3
13	270	4.9	220	3.4	110	2.3		3.3
14	260	4.8	230	---	120	2.2		3.4
15	250	4.5	230	---	130	2.0		3.4
16	240	4.3	240	---	120	---		3.4
17	230	4.0	---	---				3.3
18	240	3.1					1.1	3.2
19	250	2.4					1.1	3.1
20	260	1.9					2.2	3.2
21	(280)	(1.5)					2.0	(3.1)
22	---	1.1					2.6	3.1
23	---	E					2.4	(3.0)

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

Table 3

Narsarsuak, Greenland (61.2°N, 45.4°W) October 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.7)					4.4	---
01	---	---					4.2	---
02	---	---					4.4	---
03	---	---					4.8	---
04	---	---					5.0	---
05	---	---					4.8	---
06	---	---			---	---	3.7	---
07	(250)	(3.4)			---	---	3.8	(3.5)
08	240	3.7	---	---	120	(2.1)		3.5
09	270	4.3	220	---	120	(2.3)		3.4
10	270	4.5	220	3.5	120	(2.3)		3.4
11	290	4.9	220	3.6	120	2.4		3.5
12	300	4.8	230	(3.5)	120	(2.6)		3.3
13	300	4.9	230	3.4	120	2.4		3.5
14	270	4.8	240	3.3	120	2.2		3.4
15	270	4.4	240	---	120	(2.0)		3.4
16	270	4.1	---	---	120	2.0	(1.4)	3.3
17	280	3.6			120	(2.0)	3.9	3.3
18	260	(3.4)					4.2	(3.3)
19	(280)	(3.1)					6.1	(3.2)
20	(270)	(3.0)					7.4	(3.2)
21	(270)	(2.8)					6.4	(3.3)
22	(270)	(2.8)					6.0	---
23	---	(3.2)					5.4	---

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

Table 4

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.7					2.7	3.0
01	270	2.7					2.5	3.0
02	260	2.8					2.6	3.0
03	270	2.7					2.6	3.1
04	260	2.8					2.7	3.1
05	250	2.8					3.4	3.2
06	240	3.2					4.4	3.3
07	230	4.3	240	---	120	1.7	4.4	3.4
08	240	5.1	220	3.2	110	2.2	5.5	3.5
09	250	5.7	220	3.6	110	2.4	6.2	3.4
10	260	6.1	210	3.8	110	2.5	4.9	3.4
11	260	6.1	210	3.9	110	2.6	3.8	3.4
12	250	6.6	200	3.9	110	2.6	4.1	3.4
13	240	6.2	210	3.7	110	2.6	5.1	3.4
14	240	6.1	220	3.6	110	2.3	5.5	3.5
15	230	5.8	220	---	120	2.2	3.4	3.5
16	220	5.2	---	---	120	1.8	2.3	3.6
17	220	4.4			140	1.6	2.7	3.5
18	230	3.6					2.6	3.3
19	230	3.2					3.0	3.4
20	240	2.7					2.6	3.3
21	240	2.8					2.6	3.2
22	250	2.8					2.5	3.1
23	260	2.8					2.5	3.0

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

Table 5

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.3)					(3.0)	(3.0)
01	(280)	(3.2)					(3.0)	(3.0)
02	(280)	(3.1)					(2.7)	(3.0)
03	(280)	(3.3)					(2.6)	(3.0)
04	(260)	(3.2)					(2.5)	(3.0)
05	(260)	(3.3)					(3.1)	(3.0)
06	260	(3.5)					(3.6)	(3.2)
07	250	5.0	240	---	(130)	(1.9)	(3.0)	3.45
08	260	5.6	230	(3.7)	120	2.4	3.4	3.3
09	280	5.8	220	(4.0)	110	(2.7)	3.6	3.3
10	280	5.8	220	(4.1)	110	(2.8)	3.9	3.2
11	300	6.3	210	(4.2)	110	(3.0)	3.8	3.1
12	300	6.6	220	(4.2)	110	(3.0)	3.4	3.1
13	290	6.6	230	(4.2)	110	(3.0)	3.8	3.2
14	290	6.4	240	(4.0)	110	(2.9)	(3.6)	3.2
15	270	5.8	240	(4.0)	110	(2.7)	3.4	3.2
16	250	5.8	240	(3.4)	120	(2.4)	(3.6)	3.4
17	240	5.5	250	---	---	---	(2.8)	3.5
18	220	(4.6)					(3.4)	3.4
19	220	(3.2)					(2.9)	(3.4)
20	(240)	(3.0)					(3.5)	(3.25)
21	(260)	(2.8)					(2.9)	(3.0)
22	260	(2.9)					(2.1)	(3.0)
23	260	(3.1)					(2.9)	(3.05)

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

Table 6

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.3						3.2
01	240	3.3						3.2
02	250	3.4						3.2
03	240	3.2						3.2
04	240	3.2						3.2
05	250	3.2						3.2
06	230	3.7						3.4
07	220	5.0	210	---	120	(1.9)	2.6	3.6
08	230	5.6	200	3.6	110	(2.4)	3.2	3.6
09	250	6.0	200	4.0	100	2.6	3.3	3.5
10	250	6.0	190	4.1	100	2.9	3.3	3.4
11	280	6.2	180	4.2	100	3.0	3.3	3.3
12	280	6.5	190	4.2	100	3.0	2.8	3.3
13	270	6.8	200	4.2	100	3.0	2.5	3.3
14	260	6.8	220	4.1	100	2.9	2.5	3.4
15	250	6.6	210	3.8	110	2.6	2.6	3.4
16	240	6.6	220	---	110	2.3	2.5	3.6
17	210	6.2	---	---	---	---	2.5	3.7
18	200	4.8					(2.7)	3.7
19	200	3.2						3.6
20	(230)	2.8						3.3
21	240	2.9						3.25
22	250	3.1						3.2
23	250	3.2						3.2

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

Table 7

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.6						3.0
01	270	3.6						3.1
02	260	3.3						3.2
03	240	3.3						3.4
04	220	3.1						3.5
05	240	2.4						3.25
06	240	3.9						3.3
07	230	6.0	240	---	110	2.1	2.4	3.6
08	250	6.9	230	---	100	2.6	3.6	3.5
09	270	7.3	220	---	100	2.8	3.7	3.35
10	270	9.1	220	(4.5)	110	3.0	3.7	3.3
11	280	9.5	200	(4.5)	(110)	(3.1)	3.7	3.2
12	280	9.8	200	(4.5)	110	3.1	3.5	3.1
13	280	10.1	220	(4.4)	110	3.2	3.5	3.1
14	270	10.7	230	---	110	3.0	3.4	3.3
15	250	10.0	240	---	110	2.8	3.8	3.4
16	250	8.9	240	---	110	2.4	4.0	3.4
17	230	8.5	---	---	---	---	3.5	3.5
18	220	6.2					2.9	3.5
19	210	(4.8)					3.4	(3.2)
20	260	(4.1)					2.4	(3.0)
21	260	4.0					2.4	3.0
22	270	3.7					2.2	3.0
23	280	3.5					1.9	2.9

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

Table 8

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.2						3.0
01	270	3.3						3.2
02	260	2.9						3.2
03	260	2.8						3.2
04	260	2.3					2.0	3.3
05	320	2.2					1.8	2.8
06	310	2.6						2.8
07	260	5.5	260	---	130	2.0	2.8	3.25
08	280	6.8	250	---	120	2.5	3.6	3.2
09	310	7.8	230	4.3	120	2.9	4.4	3.0
10	330	8.5	220	4.5	120	3.1	5.0	2.8
11	320	9.8	220	4.7	120	3.2	4.5	2.9
12	320	10.3	220	4.6	120	3.3	5.2	2.9
13	340	10.2	220	4.6	120	3.3	4.8	2.8
14	320	11.2	220	4.4	120	3.2	4.9	2.9
15	290	11.6	230	4.3	120	3.0	4.0	3.1
16	270	11.0	250	4.1	120	2.6	4.1	3.2
17	250	8.7	250	---	130	2.0	4.2	3.4
18	240	6.3					4.4	3.4
19	250	4.5					4.2	3.2
20	250	4.2					2.9	3.0
21	300	3.1					2.2	2.8
22	300	3.2						2.9
23	280	3.3						3.0

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

Table 9

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4						3.0
01	270	3.6						3.1
02	250	3.8						3.3
03	220	3.8						3.4
04	230	3.0						3.25
05	260	2.8						3.1
06	260	2.7						3.1
07	220	4.9	220	---	120	(1.9)		3.6
08	250	5.9	210	---	110	2.4		3.5
09	260	6.1	210	4.3	110	2.8	2.4	3.4
10	280	7.0	200	4.4	110	3.1		3.3
11	280	7.8	200	4.4	110	3.2		3.2
12	280	8.0	210	4.5	110	3.3		3.2
13	290	8.4	220	4.4	110	3.3		3.1
14	280	9.0	220	4.3	110	3.2	2.9	3.2
15	260	9.2	220	4.2	110	3.0	3.4	3.3
16	250	9.2	230	4.0	110	2.7	4.1	3.4
17	230	8.0	230	---	110	2.1	3.5	3.5
18	210	6.4					3.0	3.6
19	220	4.4					2.4	3.4
20	240	3.4					2.1	3.2
21	290	3.2						3.0
22	290	3.3						3.0
23	290	3.4						3.0

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

Table 10

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.9					2.7	3.1
01	250	5.6					2.1	3.25
02	230	5.6					1.7	3.5
03	210	4.8						3.6
04	220	3.3					1.1	3.5
05	240	2.2					1.6	3.4
06	250	2.9					2.0	3.2
07	240	6.2	230	---	120	1.8	3.0	3.5
08	270	7.7	220	---	110	2.5	3.5	3.3
09	300	8.7	210	(4.3)	110	2.9	3.5	2.9
10	310	9.0	200	4.4	110	3.1	3.6	2.6
11	320	8.4	200	4.5	110	3.2	3.7	2.6
12	330	8.2	210	4.5	110	(3.3)	3.8	2.6
13	320	9.0	210	4.5	110	3.3	3.5	2.8
14	300	10.0	210	4.4	110	3.2	3.6	3.0
15	290	10.5	220	4.3	110	3.0	4.0	3.1
16	270	10.9	230	4.2	110	2.7	4.3	3.3
17	260	10.5	240	---	120	2.2	3.8	3.4
18	250	9.8	---	---	---	---	3.4	3.2
19	250	10.0					2.0	3.15
20	230	9.0					1.9	3.25
21	230	7.7					2.5	3.2
22	240	7.2					2.3	3.1
23	250	6.1					3.0	3.1

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

Table 11

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.4					3.0	3.3
01	240	3.3					3.8	3.4
02	230	2.9					3.1	3.5
03	240	2.4					3.8	3.2
04	250	2.4					> 2.8	3.1
05	280	2.3					4.3	3.0
06	280	3.0					4.0	3.1
07	250	5.4	240	---	120	2.1	4.3	3.4
08	280	6.4	240	(4.3)	120	2.6	4.3	3.2
09	320	7.3	230	4.5	110	(3.0)	4.3	3.1
10	310	8.6	210	4.5	110	3.2	4.4	3.0
11	320	9.1	220	4.6	110	3.3	5.0	3.0
12	320	9.8	220	4.6	110	3.4	4.9	3.0
13	320	10.5	230	4.5	110	3.4	5.0	3.0
14	290	10.9	220	4.4	110	3.2	5.0	3.1
15	290	11.2	220	4.3	110	3.1	5.0	3.1
16	270	11.0	240	4.2	110	2.7	4.6	3.2
17	250	10.7	240	---	120	2.2	4.3	3.4
18	220	8.2					3.8	3.45
19	230	5.4					3.4	3.3
20	240	4.3					3.0	3.3
21	260	3.3					3.1	3.2
22	290	3.0					2.5	2.9
23	300	3.0					2.6	3.0

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

Table 12

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(2.3)					5.1	3.1
01	310	2.4					6.8	3.2
02	(320)	(2.4)					4.8	(3.0)
03	310	2.5					4.3	3.1
04	310	2.5					3.8	3.1
05	300	2.8	---	---			3.9	3.05
06	320	3.0	---	---			3.9	3.05
07	---	(3.3)	---	---			4.6	---
08	---	(3.3)	---	---			4.4	---
09	(440)	(3.6)	250	3.2	---	---	4.0	(2.9)
10	(520)	(3.6)	240	3.4	100	2.1	3.8	(2.4)
11	G	< 3.6	240	3.4	(110)	(2.4)	3.3	G
12	(570)	3.6	240	3.4	100	2.4	2.5	2.4
13	440	3.7	260	3.4	100	2.3		2.7
14	410	3.8	240	3.4	120	2.2	2.5	2.75
15	380	3.8	250	3.4	120	2.2		2.85
16	380	3.8	260	3.3	120	2.0		2.95
17	330	3.6	240	3.1	120	1.8	2.4	3.1
18	280	3.4	240	2.7	(120)	(1.5)	2.6	3.2
19	300	3.0	---	---	---	---	3.5	3.2
20	(320)	2.8					4.7	3.15
21	320	2.6					6.5	(3.0)
22	310	(2.6)					6.3	(3.25)
23	300	2.4					6.8	(3.05)

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

Table 13

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	(2.1)					2.6	(3.1)
01	320	(2.1)					3.0	(3.05)
02	340	(2.0)					3.1	(2.95)
03	360	(2.0)					2.6	(2.9)
04	340	(1.8)					2.5	(2.9)
05	390	(2.0)	280	2.3	---	---	2.4	(2.7)
06	G	< 2.8	260	2.7	120	(1.7)		G
07	G	< 3.1	230	3.1	120	(2.0)		G
08	G	< 3.4	220	3.3	120	2.3		G
09	G	< 3.5	210	3.5	< 120	(2.4)		G
10	G	< 3.6	210	3.5	110	2.5		G
11	G	(3.7)	210	3.6	110	2.5		G
12	520	3.9	200	3.6	110	2.6		2.4
13	530	(3.9)	210	3.7	120	2.6		(2.5)
14	440	(3.8)	220	3.6	120	2.5		(2.9)
15	520	3.8	220	3.5	120	2.4		2.95
16	290	3.8	230	3.5	120	2.2		3.3
17	250	3.8	240	3.2	120	(2.0)		3.2
18	250	3.6	250	---	---	---		3.2
19	250	3.1						3.2
20	270	2.5						3.1
21	280	(2.2)						(3.0)
22	320	(2.2)						(2.95)
23	340	(2.3)					1.5	(2.9)

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

Table 14

Narsarssuak, Greenland (61.2°N, 45.4°W) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	(2.4)					4.9	(3.5)
01	---	---					4.4	---
02	---	---					4.6	
03	---	---					5.6	---
04	---	---					5.0	
05	---	---					5.8	---
06	---	---	---	---	---	---	4.7	---
07	(300)	(3.4)	230	---	---	---		(3.5)
08	(470)	3.5	230	3.2	---	---		(2.8)
09	G	(3.7)	220	3.4	---	---		G
10	420	3.9	210	3.5	---	---		3.0
11	420	4.0	220	3.6	110	2.7		3.05
12	400	4.0	220	3.6	110	2.8		3.0
13	(430)	4.0	220	3.6	110	2.7		2.9
14	380	4.0	220	3.5	110	2.7		3.1
15	380	4.0	230	3.5	110	2.5		3.1
16	380	3.8	240	3.3	120	2.3		3.1
17	310	3.8	250	3.2	120	2.1	4.2	3.3
18	(300)	(3.4)	---	---	120	2.3	5.3	3.3
19	310	(3.1)			120	1.6	6.2	(3.4)
20	(300)	(3.0)					6.8	(3.35)
21	(280)	(3.0)					6.3	(3.3)
22	---	---					6.4	---
23	(300)	(2.6)					4.9	(3.3)

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

Table 15

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	3.0						3.0
01	280	(3.0)						(3.0)
02	280	(3.0)						(3.0)
03	270	3.0						3.0
04	280	3.0						3.0
05	(280)	(2.9)					(1.9)	3.0
06	270	(3.3)	260	---	---	---	(2.6)	(3.2)
07	310	4.1	240	(3.4)	(120)	(2.0)	(3.0)	3.1
08	320	4.9	230	(3.7)	110	(2.5)	(2.7)	3.15
09	320	5.0	220	(3.9)	110	(2.7)	3.7	3.0
10	350	5.2	210	(4.0)	110	(2.8)	3.7	3.0
11	380	5.4	210	(4.2)	(110)	(3.1)	(3.6)	2.9
12	360	5.8	210	4.2	(110)	(3.1)	(3.3)	2.9
13	340	5.8	220	(4.2)	(110)	(3.1)	(3.0)	3.0
14	330	5.6	230	(4.1)	(110)	(3.0)	(3.2)	3.1
15	320	5.4	230	(4.0)	(120)	(2.9)	(2.9)	3.1
16	300	5.1	240	(3.8)	(120)	(2.6)	(3.0)	3.2
17	270	4.9	250	(3.5)	(120)	(2.1)	(3.0)	3.3
18	250	4.5	250	---	---	---	(2.8)	3.3
19	240	4.1					(3.5)	3.2
20	250	(3.4)					(3.2)	(3.2)
21	260	(3.4)					(3.1)	3.0
22	(270)	3.0					(3.0)	3.0
23	270	3.0					(2.0)	3.0

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

Table 16

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(310)	3.0					6.6	3.2
01	300	3.0	---	---			6.2	3.2
02	(300)	3.2	---	---	---	---	6.6	3.2
03	290	3.1	---	---	---	---	5.2	3.2
04	290	3.2	210	2.4	100	1.4	3.9	3.3
05	300	3.3	210	2.7	100	---	3.7	3.2
06	330	3.6	220	3.1	100	1.6	4.0	3.1
07	(380)	(3.8)	260	3.5	---	---	4.8	3.0
08	500	< 3.7	260	3.5	---	---	4.8	2.6
09	G	(3.6)	240	3.5	100	2.3	4.4	G
10	G	< 3.6	240	3.6	100	2.4	4.2	G
11	G	< 3.7	210	3.6	100	2.6	3.5	G
12	720	3.8	220	3.7	100	2.6	2.8	2.1
13	520	4.0	210	3.7	110	2.6	2.9	2.5
14	530	3.9	220	3.7	110	2.5	2.5	2.5
15	470	4.0	220	3.7	110	2.4	2.5	2.7
16	410	4.0	230	3.6	110	2.3	2.5	2.9
17	370	4.0	230	3.5	110	2.1	2.4	3.0
18	350	3.9	230	3.3	110	2.0	2.8	3.1
19	320	3.8	230	3.2	110	1.8	3.8	3.2
20	300	3.6	240	2.6	110	1.6	3.6	3.2
21	330	3.4	---	---	---	---	4.4	3.2
22	330	3.4			---	---	6.0	3.15
23	300	3.2			---	---	5.4	3.2

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

Table 17

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	3.2					3.8	3.2
01	275	3.4	---	---			3.1	3.2
02	300	3.6	230	2.4	---	1.7	2.7	3.1
03	330	3.7	230	2.8	110	1.8	2.0	3.0
04	355	3.6	210	3.0	105	1.9		3.0
05	380	3.7	205	3.1	105	2.0		3.0
06	420	3.8	200	3.2	105	2.2		2.9
07	415	3.9	210	3.3	105	2.3		2.9
08	410	4.0	210	3.4	100	2.5		3.0
09	(430)	(4.0)	205	3.7	100	2.7		(3.0)
10	(375)	(4.2)	200	3.8	100	2.8		(3.0)
11	---	---	200	3.8	100	2.9		---
12	(390)	(4.2)	200	3.8	100	3.0		(3.1)
13	---	---	200	3.8	100	2.9		---
14	(400)	(4.0)	200	3.8	100	2.9		(3.1)
15	(420)	(4.0)	200	3.7	105	2.8		(3.0)
16	390	4.0	205	3.5	105	2.6		3.1
17	340	4.0	220	3.3	105	2.3	2.7	3.3
18	310	3.9	225	3.2	110	2.1	2.8	3.2
19	300	3.9	230	3.0	120	2.0	2.2	3.2
20	270	3.8	230	2.8	120	1.8	2.2	3.2
21	275	3.8	240	2.5	---	---	2.6	3.3
22	260	3.6	---	---			2.8	3.2
23	260	3.3					2.9	3.2

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

Table 18

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	3.4			130	1.1	6.0	3.2
01	240	3.4			140	1.3	4.1	3.1
02	230	3.4			< 120	1.2	3.9	3.2
03	240	3.3	200	---	100	1.5	2.8	3.3
04	260	3.3	200	2.9	100	1.8	2.1	3.2
05	300	3.5	200	3.0	100	2.0		3.15
06	380	3.7	200	3.2	100	2.2		3.0
07	440	3.7	200	3.4	100	2.4		G
08	480	4.0	200	3.7	100	2.7		2.7
09	(560)	(3.9)	200	3.8	100	3.0		G
10	500	4.1	200	3.9	100	3.1	2.6	G
11	(690)	(4.0)	210	3.9	100	3.3	4.0	G
12	G	< 4.0	200	3.9	100	3.1		G
13	490	4.1	200	3.9	100	3.1		2.6
14	420	4.3	200	3.9	100	3.1		2.8
15	390	4.3	200	3.8	100	3.0		2.9
16	380	4.5	200	3.8	100	2.8		3.0
17	350	4.5	200	3.7	100	2.9		3.0
18	340	4.4	200	3.6	100	2.6		3.0
19	290	4.4	200	3.4	100	2.3	5.1	3.2
20	290	4.3	200	3.0	100	2.0	7.0	3.2
21	250	4.0	220	---	110	1.9	9.0	3.3
22	240	3.7			120	1.6	7.1	3.3
23	230	3.6			120	1.3	7.0	3.2

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

Table 19

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.3			---	---	8.4	(3.15)
01	270	3.0			---	---	9.0	(3.15)
02	280	3.0			---	---	8.0	(3.15)
03	290	3.0			---	---	7.0	(3.1)
04	290	3.2	---	---	110	2.3	6.0	3.25
05	260	3.4	---	---	120	2.6	7.0	(3.2)
06	300	3.8	230	3.6	110	3.0	8.0	3.0
07	480	(3.9)	220	3.6	110	3.0	8.0	G
08	G	< 3.9	230	3.8	110	3.0	8.0	G
09	G	< 3.9	220	3.8	110	3.0	8.0	G
10	G	(3.9)	210	3.9	110	3.0	7.5	G
11	540	4.1	210	4.0	110	3.1	7.0	2.55
12	650	4.1	200	4.0	110	3.1	6.0	2.2
13	530	4.1	200	4.0	110	3.0	5.0	2.55
14	550	4.1	210	4.0	110	3.0	5.3	2.5
15	520	4.1	210	3.9	110	3.0	5.0	2.6
16	400	4.4	220	3.8	110	3.0	4.5	3.0
17	380	4.5	230	3.8	110	2.8	4.1	3.1
18	350	4.4	240	3.6	110	2.8		3.1
19	310	4.3	250	3.3	120	2.8	3.7	3.1
20	310	4.0	---	---	120	2.7	4.3	3.2
21	300	3.7			120	2.5	4.7	3.1
22	270	3.5			---	2.0	>10.0	(3.4)
23	260	3.2			---	---	>10.0	(3.3)

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

Table 20

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<250	3.4					3.0	3.1
01	250	3.2					2.8	3.0
02	260	3.0					2.5	3.0
03	250	3.0					2.6	3.0
04	250	3.2	230	2.6	120	1.3	2.3	3.0
05	340	3.7	220	3.2	110	1.8	3.0	3.0
06	340	4.0	220	3.4	105	2.2	3.5	3.0
07	330	4.2	200	3.7	100	2.6	3.8	3.2
08	400	4.3	200	3.8	100	2.8	3.8	2.9
09	330	4.7	200	4.0	100	2.9	3.7	3.1
10	330	4.8	200	4.1	100	3.0	4.0	3.2
11	340	4.8	200	4.2	100	3.1	3.6	3.2
12	380	4.8	200	4.2	100	3.2	3.6	3.0
13	380	4.6	200	4.1	100	3.2	3.3	3.0
14	380	4.6	200	4.0	100	3.1	3.5	2.9
15	370	4.5	200	4.0	100	2.9	3.3	3.0
16	350	4.5	210	3.8	100	2.7	3.4	3.0
17	320	4.6	210	3.6	105	2.5	3.7	3.0
18	300	4.6	220	3.3	110	2.1	3.8	3.1
19	250	5.0	220	2.8	---	---	3.3	3.2
20	230	5.1					3.1	3.2
21	230	5.0					3.2	3.2
22	230	4.5					3.0	3.2
23	250	3.8					2.6	3.0

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

Table 21

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.7					3.8	3.2
01	250	3.4					3.3	3.2
02	250	3.2					3.2	3.2
03	260	3.0			---	E	3.3	3.2
04	255	3.0	--	---	---	E	3.4	3.2
05	310	3.4	230	2.7	---	E	3.9	3.2
06	350	3.8	220	3.3	115	2.0	3.8	3.2
07	340	4.2	215	3.6	105	2.4	4.9	3.2
08	360	4.4	210	3.8	105	2.6	4.8	3.1
09	365	4.6	205	3.9	100	2.8	5.2	3.0
10	340	4.8	200	4.0	100	2.9	5.6	3.2
11	340	4.9	200	4.1	100	3.0	5.2	3.2
12	370	4.8	200	4.2	100	3.0	5.4	3.1
13	390	4.6	200	4.2	100	3.1	5.5	3.0
14	430	4.6	210	4.1	100	3.0	5.3	2.9
15	390	4.6	200	4.0	100	3.0	5.2	3.0
16	365	4.4	210	3.9	100	2.8	4.8	3.1
17	360	4.4	210	3.8	105	2.6	4.7	3.1
18	310	4.6	220	3.5	105	2.3	5.2	3.3
19	290	4.8	240	3.2	120	1.8	4.7	3.3
20	<250	5.2	---	---	---	E	3.9	3.4
21	230	5.3					3.7	3.4
22	230	4.9					3.8	3.3
23	240	4.2					4.3	3.3

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

Table 22

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.7						
01	290	3.5					3.1	
02	280	3.2						
03	285	3.0						
04	280	3.0						
05	275	3.6		2.8				
06	330	4.2	240	3.4			3.6	
07	300	4.8	230	3.8			5.0	
08	300	4.8	200	3.9			5.0	
09	310	5.0	200	4.0			4.8	
10	280	5.2	200	4.1			5.0	
11	(300)	(5.2)	(200)	(4.2)			5.0	
12	345	(5.1)	(200)	(4.1)			4.0	
13	350	(5.0)	(200)	(4.2)			3.8	
14	(305)	(5.0)	200	4.2			4.1	
15	(350)	5.0	200	4.0			4.9	
16	345	5.0	210	4.0			4.1	
17	320	4.6	210	3.8			4.0	
18	300	4.8	250	3.5			4.7	
19	270	5.2					4.4	
20	240	5.8					3.8	
21	250	5.3					3.6	
22	250	4.8					3.9	
23	260	4.1					3.9	

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

Table 23

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	4.0						3.5
01	260	3.4						3.4
02	280	3.1						3.3
03	290	3.0						3.3
04	280	2.8					3.4	3.35
05	250	3.0		---				3.4
06	300	3.8		3.2		2.0		3.4
07	300	4.4		3.5		2.3	4.2	3.5
08	320	4.5		3.8		2.6	5.0	3.3
09	300	4.9		3.9		2.8	5.2	3.5
10	300	5.0		4.0		3.0	4.6	3.4
11	310	5.0		4.1		3.0	5.0	3.3
12	320	4.9		4.1		3.0	4.6	3.4
13	330	4.8		4.1		3.0	5.2	3.3
14	350	4.8		4.0		3.0		3.3
15	380	4.8		4.0		3.0		3.2
16	340	4.6		4.0		2.9		3.3
17	330	4.6		3.8		2.7	4.5	3.3
18	300	4.6		3.6		2.4	4.0	3.4
19	290	5.0		3.2		2.0	4.6	3.45
20	230	5.8					3.8	3.6
21	210	5.4					3.8	3.6
22	220	5.0					3.8	3.5
23	220	4.4						3.5

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

Table 24

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.3					2.4	3.0
01	300	2.0						3.0
02	300	1.8					2.3	3.0
03	310	2.0					3.0	3.0
04	300	2.0					2.2	3.1
05	240	2.9	220	3.0	120	1.8	2.9	3.2
06	400	< 3.3	210	3.2	110	2.1	3.1	2.9
07	(520)	3.8	210	3.5	110	2.5	4.1	2.85
08	470	4.1	210	3.7	110	2.7	4.3	2.55
09	420	4.2	200	3.9	110	2.9	3.2	2.9
10	430	4.4	200	4.0	110	3.1	4.4	2.85
11	480	4.3	200	4.1	110	3.2	4.5	2.7
12	450	4.5	200	4.1	110	3.2	4.1	2.7
13	G	(4.2)	200	4.1	110	3.2	3.9	G
14	500	4.3	210	4.0	110	3.3		G
15	400	4.4	200	4.0	110	3.1		2.9
16	400	4.3	210	3.8	110	2.9		2.9
17	360	4.4	220	3.6	110	2.6		3.0
18	320	4.5	220	3.4	120	2.3	4.2	3.0
19	270	4.6	240	---	120	1.7	4.3	3.1
20	240	4.8					3.6	3.1
21	240	4.3					4.0	3.1
22	250	3.6					2.7	3.1
23	270	2.7					2.5	3.0

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

Table 25

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.8					5.7	
01	290	3.8					4.8	
02	270	(3.5)					4.0	
03	270	(3.5)					4.0	
04	270	(3.6)					3.5	
05	320	4.0					4.2	
06	360	4.5					5.9	
07	360	4.6					6.5	
08	360	4.7					6.5	
09	(300)	5.1					7.6	
10	(340)	5.2					7.1	
11	(400)	4.9					6.5	
12	(360)	(4.9)					6.9	
13	(370)	(4.8)					6.2	
14	360	4.8					6.2	
15	360	4.7					6.3	
16	360	4.6					6.0	
17	320	4.7					6.5	
18	330	4.8					5.8	
19	280	5.3					6.0	
20	270	5.8					6.1	
21	270	5.5					5.3	
22	270	4.4					5.8	
23	270	4.2					4.9	

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

Table 26

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.1					5.5	
01	260	3.8					4.3	
02	250	3.5					4.2	
03	250	3.2					4.1	
04	250	3.3					3.5	
05	250	3.6					3.3	
06	270	4.2					5.0	
07	300	5.0					5.7	
08	290	5.3					6.6	
09	300	5.4					8.6	
10	320	4.8					7.4	
11	(330)	(5.2)					9.3	
12	(350)	(5.0)					7.2	
13	(360)	(5.0)					7.9	
14	370	5.0					6.1	
15	350	5.1					6.6	
16	300	5.0					5.2	
17	300	4.7					6.6	
18	280	5.0					6.5	
19	260	5.3					5.7	
20	250	5.6					6.4	
21	250	5.0					4.9	
22	250	4.7					5.4	
23	250	4.2					5.4	

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

Table 27

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.1					4.8	2.9
01	290	4.1					4.6	3.0
02	270	3.8					4.8	3.0
03	260	3.4					3.5	3.0
04	270	3.2					3.4	3.0
05	250	3.3	---	---	---	---	3.2	3.15
06	280	4.3	220	3.4	110	2.1	4.4	3.1
07	300	5.0	220	3.8	110	2.5	5.5	3.15
08	290	5.2	220	4.0	110	2.8	6.0	3.2
09	300	5.5	---	4.2	110	3.0	6.8	3.2
10	(300)	(5.7)	---	---	110	3.1	7.3	(3.35)
11	(360)	(5.1)	---	---	110	3.2	8.2	(3.1)
12	(450)	(5.1)	220	4.3	110	3.2	7.2	(2.95)
13	(360)	(5.2)	220	4.2	110	3.2	7.1	(2.9)
14	380	5.2	220	4.1	110	3.2	6.8	2.9
15	340	5.4	220	4.0	110	3.0	5.6	3.0
16	340	5.2	230	3.9	110	2.8	5.7	3.05
17	330	5.0	230	3.6	120	2.5	6.7	3.0
18	300	5.3	250	---	---	---	5.1	3.0
19	260	5.8					5.0	3.1
20	250	5.5					4.8	3.2
21	260	4.9					5.4	3.1
22	260	4.5					4.5	3.0
23	280	4.2					4.5	3.0

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

Table 28

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.7					4.7	
01	300	(3.5)					4.2	
02	280	(3.2)					4.4	
03	300	3.2					3.5	
04	290	2.8					3.3	
05	270	2.6					3.2	
06	250	3.8					3.4	
07	280	4.8					4.6	
08	280	5.5					5.9	
09	310	5.0					6.2	
10	350	4.9					6.2	
11	400	5.2					7.5	
12	440	5.2					6.6	
13	410	5.4					6.6	
14	380	5.6					6.2	
15	360	6.0					6.7	
16	340	5.9					6.6	
17	330	5.7					6.3	
18	300	6.3					5.4	
19	260	6.0					5.0	
20	260	5.8					5.2	
21	250	4.9					5.0	
22	290	4.1					4.4	
23	300	3.8					4.8	

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

Table 29

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.7					3.8	3.1
01	260	4.4					5.1	3.3
02	260	4.6					4.6	3.4
03	250	4.2					4.2	3.4
04	260	3.8					3.9	3.3
05	250	3.2					3.2	3.45
06	240	4.1			---	---	3.5	3.4
07	280	5.0	220	3.7	110	2.4	6.3	3.4
08	300	5.4	220	4.0	110	2.8	6.8	3.2
09	320	5.1	210	---	110	3.1	7.4	3.4
10	370	5.4	---	---	---	---	6.6	2.8
11	380	6.2	---	---	---	---	7.5	2.8
12	400	6.5	---	---	---	---	6.9	2.7
13	380	7.3	---	---	---	---	5.8	2.8
14	360	7.6	---	---	---	---	6.6	2.85
15	320	7.9	---	---	110	3.1	6.4	3.0
16	320	8.2	---	---	110	2.9	6.7	3.0
17	280	7.9	230	3.8	---	---	4.8	3.2
18	270	7.9	240	3.4	---	---	4.9	3.4
19	220	6.8					4.1	3.5
20	240	5.3					3.4	3.2
21	240	4.6					3.3	3.3
22	280	4.0					3.2	3.1
23	280	3.3					2.6	3.0

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

Table 30

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.1					2.4	2.9
01	290	(2.8)					4.0	(3.0)
02	270	2.4					3.7	3.05
03	260	2.6					3.8	3.2
04	240	(2.5)					3.2	3.3
05	240	2.0					3.4	3.4
06	230	3.9					4.0	3.3
07	220	5.0	220	---	110	2.4	5.2	3.2
08	320	5.6	210	3.8	110	---	8.0	3.1
09	390	6.0	200	4.0	110	---	8.1	2.7
10	420	6.5	200	4.0	110	---	8.2	2.6
11	460	6.6	200	4.1	110	3.3	8.2	2.5
12	460	7.0	200	4.1	110	---	8.2	2.5
13	460	7.1	200	4.1	110	3.3	7.6	2.5
14	440	7.2	200	4.0	110	3.2	7.4	2.6
15	400	7.5	200	3.9	110	---	7.0	2.7
16	350	7.9	210	3.7	110	2.7	6.4	2.8
17	300	8.4	220	(3.5)	110	---	6.0	3.0
18	240	8.3					5.4	3.2
19	210	7.3					4.5	3.5
20	240	5.5					4.0	3.25
21	280	4.2					4.0	3.1
22	300	3.4					3.3	2.95
23	310	2.9					3.5	2.8

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

Table 31*

Nairobi, Kenya (1.3°S, 36.8°E) — July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	3.4						3.5
01	200	3.0					2.3	3.5
02	210	(3.1)					2.6	(3.4)
03	< 260	(2.7)						---
04	---	---					3.2	---
05	---	---					3.3	---
06	---	---					3.4	---
07	240	4.1	---	---	---	---	3.1	3.5
08	280	5.7	240	3.8	110	2.3	3.5	3.45
09	260	7.0	220	4.0	110	2.9	4.4	3.5
10	280	6.6	210	4.2	100	3.1	4.9	3.4
11	280	6.7	---	4.2	100	3.3	5.1	3.4
12	290	6.7	200	4.4	100	3.4	5.0	3.3
13	300	7.1	---	---	110	3.4	3.8	3.3
14	290	6.9	---	---	110	3.3	5.7	3.3
15	300	6.3	---	4.2	110	3.1	5.1	3.2
16	300	5.8	---	4.0	110	3.0	4.9	3.1
17	280	5.9	---	3.7	110	2.5	4.0	3.2
18	250	6.2	240	---	---	---	4.0	3.2
19	240	5.9					3.2	3.3
20	240	5.8					3.0	3.4
21	220	4.9					3.0	3.5
22	220	3.6					2.6	3.5
23	220	2.9						3.4

Time: 45.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.
*Records started 0840 on 13th July.

Table 32

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	2.8						3.5
01	230	2.7						3.4
02	240	2.6						3.3
03	250	2.4						3.35
04	270	2.0						(3.3)
05	< 280	E						(3.5)
06	290	1.6			---	E		3.0
07	230	4.3	210	---	110	1.8	5.9	3.3
08	300	5.3	200	3.7	100	2.5	10.0	3.1
09	350	5.7	190	4.0	100	---	11.2	2.8
10	380	5.6	180	4.0	100	---	11.6	2.8
11	400	5.4	180	4.1	100	---	11.9	2.7
12	430	5.3	170	4.1	100	---	11.8	2.6
13	410	5.5	180	4.1	100	---	11.6	2.6
14	390	5.6	180	4.0	100	---	11.2	2.7
15	380	5.6	180	4.0	100	---	10.5	2.7
16	320	6.0	190	3.6	100	---	9.4	2.7
17	(260)	5.8	200	---	100	2.1	5.5	2.9
18	230	5.8			100	---		3.1
19	240	5.2						3.1
20	230	4.8						3.3
21	220	4.6						3.4
22	220	4.0						3.6
23	220	3.3						3.5

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

Table 33

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	2.5					1.8	3.4
01	220	2.3					2.0	3.2
02	240	2.3					3.2	3.2
03	< 240	2.3					3.0	3.2
04	220	2.2						3.4
05	(220)	2.1					3.1	3.3
06	< 220	2.0					3.0	3.3
07	220	3.3			---	---		3.5
08	230	4.4	210	2.9	120	2.1		3.6
09	260	4.7	220	3.6	110	2.6		3.5
10	290	5.0	220	4.0	110	2.8		3.4
11	280	5.2	210	4.0	110	3.0	3.5	3.4
12	300	5.1	200	4.1	110	3.1	3.6	3.3
13	300	5.1	200	4.0	110	3.0	4.0	3.4
14	300	5.2	200	4.0	110	2.9	3.6	3.3
15	270	5.2	210	3.8	110	2.7	3.6	3.4
16	250	5.0	220	3.4	110	2.4	3.1	3.5
17	230	4.6	---	---	---	1.9	2.7	3.5
18	< 220	4.0						3.5
19	< < 220	2.6						3.4
20	< < 230	2.6						3.3
21	< 230	2.8						3.3
22	230	2.9						3.3
23	220	2.8						3.4

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

Table 34

Watheroo, W. Australia (30.3°S, 115.9°E) — July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.0						3.2
01	250	3.0						3.2
02	250	3.0						3.2
03	250	3.0						3.2
04	240	2.9						3.35
05	240	2.6						3.3
06	250	2.5						3.3
07	230	3.0				1.4		3.4
08	230	4.4	220	2.6		2.4		3.6
09	250	4.5	230	3.5		2.8		3.6
10	260	4.8	230	3.8		3.0	2.8	3.5
11	290	5.0	220	4.0		3.2	3.6	3.4
12	300	5.0	220	4.1		3.4	3.7	3.4
13	290	4.9	220	4.1		3.2	3.8	3.5
14	290	5.3	240	3.9		2.9	3.7	3.4
15	270	5.1	220	3.8		2.7	3.9	3.5
16	250	5.2	220	3.4		2.5	2.7	3.5
17	240	4.6	220	2.5		2.0	2.4	3.5
18	220	3.7					2.6	3.4
19	220	2.8					2.3	3.4
20	250	2.7					2.6	3.3
21	250	2.7						3.2
22	250	2.8						3.2
23	250	2.9						3.1

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes.

Table 35

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						3.3
01	290	2.3						3.15
02	260	2.3						3.35
03	220	2.2						3.4
04	220	2.2						3.6
05	220	2.0						3.5
06	230	2.0						(3.55)
07	230	3.3						3.6
08	220	4.2	---	---			2.9	3.6
09	230	4.4	210	---	110	2.5	3.5	3.5
10	250	4.8	210	3.7	110	2.7	3.8	3.6
11	270	5.2	200	3.9	110	2.8	3.8	3.5
12	280	5.6	200	3.9	110	2.9	4.0	3.4
13	280	5.8	200	3.9	110	2.8	4.0	3.5
14	250	5.4	200	3.8	100	2.7	3.5	3.5
15	240	5.7	210	---	---	---	3.6	3.5
16	220	5.4	220	---			2.8	3.55
17	210	4.8						3.6
18	200	3.6						3.5
19	230	(3.3)						(3.5)
20	240	3.1						3.4
21	240	3.0						3.5
22	260	2.6						3.5
23	290	2.5						(3.4)

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

Table 36

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.5						3.2
01	270	2.7					2.4	3.2
02	270	2.6					3.2	3.2
03	270	2.4					2.3	3.2
04	250	2.0					3.1	3.2
05	250	1.7					3.0	3.3
06	240	1.6					2.8	3.25
07	260	2.2				E	2.5	3.2
08	230	3.4	---	---		1.5		3.6
09	250	4.0	230	3.2		2.0		3.6
10	270	4.2	220	3.5		2.2		3.6
11	280	4.4	230	3.6		2.4		3.55
12	280	4.6	220	3.7		2.6	4.4	3.6
13	280	4.6	220	3.7		2.5	4.4	3.4
14	270	4.8	230	3.6		2.3	4.4	3.6
15	250	4.5	220	3.2		2.1	4.0	3.6
16	230	4.3	230	2.4		1.6	3.4	3.6
17	240	3.4	---	---		---		3.3
18	260	2.7					3.0	3.2
19	270	2.3					3.2	3.1
20	270	2.3					2.4	3.1
21	270	2.5						3.1
22	(270)	2.5						3.1
23	270	2.4						3.2

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

Table 37

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						(3.2)
01	290	2.4						(3.2)
02	290	2.4						(3.2)
03	290	2.5						(3.2)
04	280	2.6						(3.2)
05	280	2.5						(3.3)
06	270	2.5						(3.3)
07	250	2.6					2.2	(3.4)
08	250	2.6					2.1	(3.4)
09	230	3.0					2.6	(3.6)
10	230	3.6					3.1	(3.65)
11	210	3.8					3.6	(3.8)
12	220	3.8					3.8	(3.7)
13	220	3.5					4.0	(3.85)
14	220	3.3					3.6	(3.7)
15	230	3.2					2.8	(3.7)
16	230	3.0					2.4	(3.6)
17	240	2.7					2.2	(3.4)
18	250	2.6					2.0	(3.35)
19	270	2.4						(3.3)
20	280	2.3						(3.3)
21	290	2.2						(3.3)
22	290	2.3						(3.2)
23	290	2.4						(3.2)

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

Table 38

Tromso, Norway (69.7°N, 19.0°E) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(295)	4.0	---	---			4.4	3.0
01	280	4.2	---	---	---	---	4.4	3.1
02	290	4.1	235	---	---	---	4.4	3.1
03	315	4.1	220	3.0	105	1.7	3.3	3.1
04	350	4.0	220	3.2	100	2.0	3.2	3.1
05	370	4.0	220	3.4	100	2.1	3.2	3.0
06	370	4.2	215	3.5	100	2.3	3.1	3.0
07	365	4.3	210	3.6	100	2.4	3.8	3.0
08	360	4.4	200	3.8	100	2.6	3.6	3.05
09	360	4.5	200	3.8	100	2.6	3.0	3.1
10	360	4.4	200	4.0	100	2.7	3.2	3.1
11	370	4.4	200	4.0	100	2.8	3.2	3.1
12	375	4.5	200	4.0	100	2.8	3.2	3.1
13	370	4.4	200	4.0	100	2.7	3.2	3.1
14	360	4.4	200	3.9	100	2.7	3.4	3.1
15	360	4.4	200	3.8	100	2.7	3.4	3.1
16	370	4.3	205	3.8	100	2.6	3.0	3.1
17	340	4.3	210	3.7	100	2.4	3.0	3.1
18	315	4.3	220	3.6	105	2.2	3.7	3.25
19	315	4.2	225	3.4	105	2.1	3.4	3.2
20	(320)	4.1	230	3.2	110	1.9	3.7	3.2
21	(295)	4.0	230	---	110	1.7	4.1	3.1
22	(290)	4.0	260	---	---	---	4.0	3.1
23	(305)	4.0	---	---	---	---	4.6	3.1

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

Table 39

Kiruna, Sweden (67.8°N, 20.3°E) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.7	---	---			3.2	3.4
01	280	3.8	250	2.2	---	---	2.8	3.3
02	290	3.9	215	2.5	110	1.8	2.1	3.2
03	310	3.8	210	2.9	105	1.9		3.1
04	350	3.9	220	3.1	105	2.0		3.2
05	360	3.9	210	3.1	100	2.1		3.1
06	380	4.0	210	3.3	100	2.2		3.05
07	400	4.1	205	3.5	100	2.5		3.1
08	365	4.2	205	3.7	100	2.7	3.1	3.2
09	(340)	(4.8)	205	3.8	100	2.8		(3.25)
10	---	---	200	3.9	100	2.9		---
11	---	---	200	3.9	100	3.0		---
12	---	---	200	3.9	100	3.0		---
13	---	---	200	3.9	100	3.0		---
14	(375)	(4.2)	200	3.8	100	2.9		(3.15)
15	345	(4.4)	200	3.8	100	2.8		(3.25)
16	355	4.2	210	3.7	100	2.6		3.2
17	340	4.1	220	3.5	105	2.4	3.2	3.3
18	310	4.0	220	3.2	110	2.1	3.0	3.4
19	290	4.0	230	3.1	115	2.0	3.0	3.35
20	280	4.0	230	2.9	120	1.9	2.9	3.3
21	260	3.9	240	2.6	125	1.6	3.2	3.3
22	260	3.8	250	2.2	---	---	3.0	3.3
23	280	3.8	---	---			3.2	3.3

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

Table 40

Upsala, Sweden (59.8°N, 17.6°E) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.0					2.0	3.1
01	240	3.6					2.0	3.1
02	255	3.3	---	---			2.2	3.1
03	(290)	3.4	250	---	---	E		3.1
04	335	3.8	230	3.0	140	1.6	2.8	3.05
05	335	4.2	225	3.3	115	2.0	3.1	3.1
06	360	4.3	220	3.6	110	2.3	3.4	3.0
07	390	4.3	210	3.8	110	2.6	4.0	3.05
08	365	4.6	210	3.9	105	2.7	4.1	3.1
09	375	4.7	205	4.0	105	2.8	4.4	3.1
10	340	4.7	205	4.0	105	2.9	4.4	3.2
11	355	4.8	200	4.1	105	2.9	4.0	3.1
12	355	4.7	200	4.1	105	3.0	4.1	3.1
13	400	4.5	200	4.1	105	3.0	4.2	3.0
14	380	4.6	200	4.0	105	2.9	3.6	3.0
15	365	4.5	205	4.0	105	2.8	3.6	3.1
16	360	4.3	205	3.9	105	2.7	3.0	3.1
17	340	4.4	215	3.7	110	2.5	4.1	3.1
18	315	4.5	235	3.5	110	2.2	4.2	3.2
19	280	4.6	230	3.2	120	1.9	4.4	3.2
20	260	4.7	230	---	---	E	4.5	3.2
21	245	4.8	---	---	---	E	2.8	3.2
22	240	4.9					3.2	3.2
23	240	4.5					2.2	3.2

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

Table 41*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	4.0						3.1
01	245	3.5					2.2	3.1
02	245	3.1					2.4	3.0
03	265	3.0					2.2	3.0
04	315	3.4	245	2.6	130	(1.4)	2.5	2.9
05	335	3.8	230	3.1	115	1.8	2.8	3.0
06	355	4.1	215	3.4	105	2.1	3.0	3.0
07	375	4.3	215	3.6	110	2.4	3.4	3.0
08	375	4.1	225	3.8	105	2.6	3.9	3.0
09	375	4.6	220	3.9	105	2.8	4.3	3.1
10	385	4.5	205	4.0	100	2.8	4.4	3.1
11	425	4.6	205	4.1	100	2.9	4.6	3.0
12	405	4.6	210	4.1	100	2.9	3.9	3.0
13	395	4.6	205	4.1	100	2.9	4.2	3.0
14	410	4.5	205	4.1	105	2.9	3.2	3.0
15	400	4.5	210	4.0	105	2.8	3.4	2.9
16	385	4.5	220	3.9	105	2.8	3.4	2.9
17	375	4.5	230	3.8	105	2.6	4.1	3.1
18	325	4.6	225	3.6	110	2.3	4.0	3.1
19	305	4.6	235	3.4	120	2.0	3.4	3.1
20	265	4.8	(225)	(2.9)	140	1.7	3.0	3.2
21	250	5.0					2.6	3.2
22	240	5.0						3.3
23	235	4.6						3.2

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

Table 42

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	3.8					2.0	3.2
01	245	3.4						3.0
02	<250	3.2					2.0	3.0
03	<260	3.2					2.1	3.0
04	340	3.6	240	2.8	130	1.5	2.0	3.1
05	300	4.1	230	3.3	110	2.0	3.0	3.2
06	340	4.4	220	3.6	110	2.4	3.4	3.2
07	340	4.5	220	3.8	110	2.7	4.3	3.2
08	330	4.8	215	4.0	110	2.9	4.2	3.3
09	335	5.0	210	4.1	105	3.0	4.6	3.2
10	370	4.8	210	4.2	105	3.1	4.2	3.2
11	365	4.6	220	4.2	105	3.2	4.0	3.1
12	375	4.8	210	4.3	110	3.3	3.7	3.0
13	375	4.7	220	4.2	105	3.2	4.2	3.0
14	370	4.6	220	4.1	105	3.2	3.6	3.2
15	400	4.5	220	4.0	105	3.0	4.0	3.0
16	340	4.7	220	3.9	110	2.8	4.2	3.2
17	340	4.8	230	3.7	110	2.6	4.2	3.1
18	310	5.1	225	3.4	115	2.2	4.4	3.2
19	270	5.4	240	2.9	---	E	3.4	3.2
20	250	5.8					3.0	3.3
21	240	5.6					2.4	3.3
22	230	5.1					2.2	3.3
23	230	4.3					2.0	3.2

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

Table 43

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.2					2.7	3.3
01	240	3.7					2.3	3.2
02	250	3.4					2.4	3.2
03	250	3.2			---	E	2.4	3.2
04	265	3.2	250	---	---	E	2.4	3.2
05	305	3.8	230	3.0	---	1.6	3.1	3.25
06	330	4.2	< 230	3.4	115	2.2	4.2	3.2
07	330	4.5	220	3.6	105	2.4	4.7	3.2
08	325	4.6	220	3.8	100	2.7	5.2	3.2
09	345	4.8	215	4.0	100	2.9	5.3	3.2
10	325	4.9	205	4.0	100	3.0	5.1	3.2
11	350	4.8	200	4.1	100	3.0	5.4	3.2
12	350	4.8	200	4.2	100	3.0	5.1	3.15
13	375	4.6	200	4.2	100	3.0	5.6	3.05
14	375	4.6	205	4.1	100	3.0	5.2	3.15
15	370	4.6	205	4.0	100	3.0	4.6	3.1
16	370	4.6	210	3.9	100	2.8	4.6	3.05
17	330	4.6	215	3.8	105	2.6	4.4	3.2
18	315	4.8	220	3.6	110	2.3	4.9	3.2
19	290	5.0	230	3.2	120	2.0	4.8	3.3
20	250	5.6	---	---	---	E	3.6	3.4
21	230	5.8					3.4	3.4
22	225	5.4					3.0	3.3
23	230	4.8					3.1	3.3

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

Table 44*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.0					2.6	3.05
01	255	3.5					2.6	3.0
02	260	3.3					2.8	3.0
03	265	3.1					3.0	3.0
04	280	3.4	260	2.3	(130)	(1.3)	3.5	3.0
05	320	3.9	235	3.1	120	1.8	4.0	3.0
06	355	4.3	240	3.5	115	2.2	4.8	3.0
07	355	4.5	240	3.8	115	2.5	5.0	3.05
08	385	4.6	235	3.9	115	2.8	5.0	3.1
09	350	4.9	235	4.1	115	2.9	5.0	3.15
10	370	4.8	220	4.2	115	3.0	5.0	3.1
11	405	4.8	215	4.2	115	3.1	5.0	3.15
12	400	4.7	225	4.2	115	3.1	5.0	3.05
13	395	4.8	220	4.2	115	3.0	5.0	3.05
14	385	4.8	215	4.2	115	3.0	5.0	3.05
15	405	4.6	225	4.1	115	3.0	4.9	3.0
16	370	4.8	230	4.0	115	2.8	4.9	3.0
17	340	4.9	235	3.8	115	2.6	4.6	3.0
18	320	5.0	240	3.6	115	2.3	5.0	3.05
19	290	5.3	240	3.1	125	1.9	4.4	3.1
20	255	5.7					3.2	3.15
21	245	5.8					3.2	3.15
22	240	5.2					2.8	3.2
23	245	4.5					2.6	3.1

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 45

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.3						3.2
01	330	1.9						3.2
02	330	2.4					3.2	(3.0)
03	350	2.3					3.4	(3.1)
04	280	2.7					3.4	3.15
05	240	3.0	220	3.0	130	1.7	3.6	3.3
06	0	(3.5)	210	3.3	120	2.1	3.3	0
07	(520)	3.7	200	3.5	110	2.5	3.7	(2.6)
08	450	4.0	200	3.8	110	2.7	4.6	2.8
09	420	4.1	200	3.9	110	2.9	5.0	3.0
10	390	4.4	200	4.0	110	3.0	5.0	2.9
11	400	4.5	200	4.0	100	3.0	5.0	2.9
12	400	4.6	190	4.0	100	3.1	4.6	2.9
13	400	4.6	190	4.0	100	3.1	4.2	3.0
14	420	4.5	200	4.0	100	3.1	5.1	2.9
15	400	4.5	200	4.0	110	3.1	4.3	3.0
16	380	4.5	200	3.9	110	3.0	4.2	3.0
17	360	4.5	210	3.8	110	2.8	4.6	3.1
18	340	4.5	220	3.7	110	2.5		3.1
19	290	4.5	220	3.2	120	2.1	3.6	3.25
20	250	4.5	240	---	130	1.8	4.6	3.3
21	240	4.5					3.7	3.3
22	240	4.0					3.2	3.3
23	250	2.9						3.3

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

Table 46

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	3.9						3.5
01	250	3.6						3.4
02	260	3.4						3.4
03	280	3.2						3.3
04	280	3.0						3.4
05	270	3.4	225	2.6	100	1.7		3.4
06	300	4.2	200	3.2	100	1.9	3.6	3.5
07	290	4.6	200	3.6	100	2.4	4.6	3.5
08	300	4.9	200	3.8	100	2.7	5.0	3.5
09	300	5.2	200	4.0	100	2.8	4.8	3.6
10	300	5.1	200	4.0	100	3.0	5.2	3.5
11	300	5.0	200	4.1	100	3.0	4.6	3.4
12	350	4.8	200	4.2	100	3.1	5.0	3.3
13	360	4.8	200	4.2	100	3.2	4.9	3.3
14	380	4.6	200	4.1	100	3.0	4.7	3.2
15	370	4.7	200	4.0	100	3.0	4.2	3.2
16	330	4.7	200	4.0	100	2.8	4.2	3.4
17	310	4.7	200	3.8	100	2.7		3.4
18	300	4.9	200	3.5	100	2.4	4.8	3.4
19	300	5.3	200	3.2	100	2.0	5.2	3.4
20	240	6.0					4.2	3.5
21	210	6.1					3.9	3.6
22	200	5.4						3.6
23	220	4.8						3.6

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

Table 47

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.1					4.6	2.9
01	270	4.4					4.6	3.2
02	260	4.7					4.2	(3.4)
03	240	4.4					4.1	3.5
04	260	3.7					3.0	3.2
05	260	3.3					3.2	3.2
06	240	4.4			100	(2.0)	3.9	3.45
07	280	5.2	240	3.8	110	2.4	7.4	3.3
08	290	5.4	---	---	110	2.9	8.4	3.2
09	(340)	5.6	---	---	110	(3.1)	8.4	(3.15)
10	(380)	(6.1)	---	---	110	3.2	8.2	(2.95)
11	360	7.1	---	---	---	---	8.4	2.9
12	360	7.4	---	---	---	---	6.8	2.8
13	360	7.6	---	---	---	---	6.7	2.85
14	350	8.4	---	---	100	3.4	6.3	2.9
15	320	8.9	---	---	110	(3.1)	5.6	3.1
16	300	9.2	---	---	110	2.8	5.8	3.1
17	290	8.6	---	---	---	---	7.6	3.2
18	280	8.4	---	---	---	---	6.3	3.3
19	240	6.8	---	---			4.9	3.5
20	240	5.7					4.4	3.1
21	280	4.8					4.4	3.1
22	300	4.2					5.2	2.9
23	300	(3.7)					4.9	(3.0)

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

Table 48

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(3.2)					3.5	(2.9)
01	270	(2.9)					3.9	(3.1)
02	260	2.3					3.8	3.1
03	260	(2.0)					4.0	(3.2)
04	260	(2.0)					4.0	(3.4)
05	240	2.0					4.8	3.3
06	230	4.3					4.8	3.4
07	220	5.4	---	---	110	---	6.8	3.2
08	330	5.7	210	3.9	110	---	7.4	3.0
09	380	6.2	200	4.0	110	---	8.0	2.7
10	440	6.6	200	4.1	110	---	7.6	2.6
11	460	6.8	180	4.1	110	---	8.2	2.5
12	450	7.0	190	4.1	110	---	8.4	2.5
13	420	7.3	200	4.1	110	3.2	8.2	2.6
14	400	7.5	200	4.0	110	---	7.3	2.6
15	380	7.8	200	4.0	110	---	8.0	2.7
16	330	8.1	220	(3.8)	110	2.7	6.6	2.9
17	300	8.4	220	---	110	2.3	6.4	3.1
18	240	8.1					6.0	3.2
19	220	7.4					4.8	3.3
20	230	5.8					4.0	3.2
21	250	4.7					4.4	3.1
22	290	3.6					3.4	3.0
23	300	3.1					3.4	2.8

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

Table 49

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	---	(2.5)					2.4	(2.4)
01	(240)	(2.8)					2.9	(2.65)
02	(220)	(2.2)					2.3	(2.85)
03	---	(2.0)					1.6	(2.9)
04	---	---					2.8	---
05	240	2.9					2.0	2.7
06	240	4.8	225	---	120	2.1	2.6	2.85
07	275	5.6	225	3.9	110	2.6	2.8	2.7
08	285	5.9	220	4.0	110	3.0	3.6	2.7
09	285	6.8	210	4.1	105	3.1	4.0	2.6
10	285	6.7	210	4.2	105	3.2	4.0	2.5
11	290	7.6	200	4.2	105	3.2	4.1	2.5
12	295	8.0	200	4.2	105	3.2	4.1	2.4
13	285	8.2	210	4.1	105	3.1	3.4	2.5
14	290	7.4	230	4.0	110	3.0	3.5	2.5
15	265	7.0	230	3.7	110	2.5	3.4	2.6
16	245	7.1	240	---	120	2.0	3.4	2.7
17	230	5.9					3.7	2.7
18	220	5.9					3.0	2.8
19	210	4.2					3.0	2.9
20	210	2.4					3.0	2.75
21	---	2.2					3.0	2.6
22	(250)	2.0					2.8	2.6
23	(250)	(2.4)					2.4	(2.5)

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

Table 50

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.9						3.3
01	280	2.8						3.2
02	280	2.8						3.2
03	280	3.1						3.2
04	250	2.9						3.4
05	260	2.6						3.3
06	230	2.5					2.0	3.3
07	250	3.8	230	---	---	E		3.4
08	250	5.0	200	3.3	115	2.1	2.7	3.6
09	270	5.2	200	3.8	110	2.6	3.1	3.5
10	260	5.7	200	3.9	105	2.8	3.3	3.6
11	280	5.2	200	4.1	110	2.9	3.5	3.5
12	290	5.5	200	4.1	105	3.0	3.7	3.5
13	270	5.2	210	4.1	105	3.0	3.8	3.6
14	300	5.2	210	4.0	105	2.9	4.0	3.4
15	260	5.4	210	3.9	105	2.8	3.7	3.4
16	250	5.2	220	3.5	110	2.5	3.3	3.5
17	250	5.2	240	---	---	2.0	3.9	3.5
18	230	4.9					3.2	3.5
19	220	4.2					2.9	3.55
20	240	3.2					2.4	3.25
21	260	3.1					2.2	3.2
22	260	3.0					2.0	3.2
23	270	2.9						3.2

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

Table 51

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 220	2.6						3.3
01	(230)	2.5						3.2
02	< 250	2.6						3.1
03	< 230	2.6						3.2
04	220	2.4						3.35
05	< 230	2.2					3.2	3.3
06	< 240	2.2						3.3
07	220	3.7			---	---		3.6
08	220	4.6	210	3.1	120	2.1		3.7
09	250	4.8	220	3.6	110	2.6		3.6
10	270	5.0	200	3.9	110	2.9		3.45
11	270	5.1	210	4.0	110	3.0		3.4
12	290	5.1	210	4.1	110	3.1		3.4
13	280	5.0	210	4.0	110	3.0	3.4	3.4
14	270	5.1	210	3.9	110	2.9	3.6	3.4
15	270	5.0	210	3.7	110	2.7	3.6	3.4
16	240	5.0	210	3.2	110	2.3	3.2	3.5
17	220	4.6			---	---	2.5	3.6
18	210	3.6					1.9	3.6
19	< 220	2.7						3.4
20	220	2.8						3.4
21	220	2.7						3.4
22	< 230	3.0						3.3
23	220	3.0						3.5

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

Table 52

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 230	2.5						3.2
01	< 250	2.5						3.2
02	< 250	2.5						3.2
03	< 250	2.6						3.2
04	< < 250	2.5						3.2
05	< 250	2.6						3.25
06	240	2.5						3.25
07	< 240	2.4						3.3
08	220	3.7	---	---	---	1.5		3.6
09	230	4.4	220	2.8	120	2.1		3.7
10	250	4.6	230	3.5	120	2.5		3.6
11	270	4.8	220	3.8	110	2.7		3.5
12	270	4.9	210	3.9	110	2.9		3.4
13	280	5.0	220	3.9	110	2.9	3.6	3.5
14	280	5.0	220	3.8	110	2.8	3.4	3.4
15	280	5.3	220	3.6	120	2.6	3.5	3.4
16	250	5.0	220	3.3	120	2.3	3.1	3.5
17	230	5.0	220	---	120	1.8	2.7	3.5
18	210	3.8						3.6
19	< 220	2.4					1.9	3.35
20	(220)	2.2						3 3
21	< 230	2.5						3.3
22	220	2.7						3.4
23	230	2.6						3.4

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

Table 53

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.2						3.25
01	300	2.2						3.2
02	280	2.3						3.5
03	270	2.3						3.5
04	220	2.2						3.6
05	210	2.1						3.7
06	240	2.0						(3.5)
07	220	3.2						3.6
08	210	4.2	---	---			2.9	3.7
09	230	4.5	200	---	110	2.6	3.5	3.6
10	250	4.9	210	---	110	2.8	3.7	3.5
11	240	5.3	200	3.8	110	2.9	3.9	3.6
12	260	5.2	200	3.8	100	3.0	4.0	3.5
13	250	5.4	200	3.8	100	2.9	3.8	3.6
14	250	5.5	200	---	110	2.7	3.8	3.5
15	230	6.0	200	---	---	2.6	3.4	3.6
16	210	5.8	---	---			2.8	---
17	200	4.8						3.6
18	210	3.7						3.5
19	240	3.1						3.5
20	270	2.9						3.5
21	260	2.7						(3.5)
22	(280)	(2.5)						(3.5)
23	300	(2.2)						(3.4)

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

Table 54

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0					2.7	3.15
01	260	3.1					2.5	3.2
02	260	3.0					2.3	3.2
03	260	3.2					2.7	3.2
04	250	3.0					2.3	3.3
05	250	2.7					2.8	3.3
06	230	2.3				---	2.5	3.3
07	250	2.5				---	3.1	3.4
08	230	3.8	230	2.3		1.4	3.2	3.6
09	240	4.3	230	3.0		1.9	3.5	3.7
10	240	4.4	220	3.4		2.2	4.2	3.6
11	260	4.6	220	3.6		2.4	4.1	3.5
12	250	4.8	230	3.7		2.5	4.8	3.5
13	250	4.8	220	3.6		2.4	4.7	3.5
14	260	4.8	230	3.4		2.2	4.2	3.5
15	240	4.8	220	3.1		2.0	3.6	3.6
16	230	4.6	230	2.2		1.5	3.0	3.65
17	220	3.3					3.4	3.4
18	250	2.6						3.2
19	260	2.6						3.2
20	250	2.7						3.2
21	240	2.7						3.3
22	250	2.8						3.1
23	260	2.9					2.4	3.2

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

Table 55

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.5						3.1
01	290	2.5						3.1
02	290	2.6						3.1
03	290	2.6						3.2
04	290	2.6						3.2
05	260	2.6						3.2
06	250	2.6						3.3
07	250	2.7						(3.3)
08	230	2.8					2.3	(3.4)
09	220	3.1					2.5	(3.5)
10	220	3.5					3.2	(3.6)
11	210	3.6					3.6	(3.7)
12	210	4.1					3.9	(3.7)
13	220	4.2					3.9	(3.7)
14	220	4.0					3.6	(3.75)
15	220	3.5					2.8	3.7
16	240	3.1					1.8	(3.5)
17	250	2.7						(3.4)
18	250	2.6						(3.4)
19	270	2.4						(3.4)
20	280	2.3						(3.3)
21	290	2.2						(3.2)
22	290	2.4						(3.2)
23	280	2.5						3.2

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

Table 56*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.4					2.2	2.9
01	295	2.5					2.8	3.0
02	280	2.4					2.9	3.0
03	280	2.4					2.8	3.0
04	270	2.4					1.8	3.0
05	245	2.4					1.8	3.3
06	220	2.3					2.1	3.6
07	230	2.6			175	(1.3)		3.4
08	210	4.1			(140)	(1.6)	3.0	3.8
09	215	4.6			120	2.0	3.2	3.8
10	210	4.7	210	(3.0)	110	2.3	3.1	3.7
11	(230)	5.5	220	(3.5)	115	(2.5)	3.4	3.7
12	230	5.5	220	(3.7)	110	(2.5)	3.1	3.7
13	215	5.4	220	(3.5)	115	(2.4)	2.9	3.8
14	220	4.9	210	(3.0)	125	(2.2)	3.0	3.7
15	220	4.8			145	2.0	2.8	3.7
16	210	4.4				(1.6)	2.9	3.8
17	215	2.9					2.9	3.6
18	240	2.6					2.9	3.4
19	235	2.4					2.1	3.5
20	255	2.3						3.3
21	275	2.4					1.9	3.3
22	280	2.5					1.6	3.1
23	300	2.6					2.2	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 57

Delhi, India (28.5°N, 77.1°E) April **1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.4						3.15
01	300	3.4						3.1
02	(280)	(3.1)						3.2
03		---						
04	280	3.2						3.25
05	260	3.6						3.35
06	240	4.8						3.6
07	240	5.9						3.55
08	250	> 6.2						3.45
09	280	6.9						3.2
10	280	7.6						3.15
11	320	> 8.3						3.0
12	320	> 9.5						3.1
13	300	> 9.6						3.15
14	(280)	> 9.8						3.25
15	(260)	> 9.4						3.35
16	260	> 8.9						3.45
17	240	> 8.2						3.55
18	240	8.2						3.55
19	230	6.5						3.6
20	280	5.0						3.3
21	280	4.0						3.2
22	320	3.5						3.05
23	320	3.6						3.1

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

Table 58

Bombay, India (19.0°N, 73.0°E) April **1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06:30	270	4.6						3.3
07	300	5.6						3.1
08:30	330	7.1						3.0
09	330	7.9						2.9
10	360	8.6						2.8
11	390	9.5						2.7
12	390	10.7						2.65
13	390	>11.6						2.6
14	---	>12.4						2.65
15	---	>12.6						2.5
16	390	11.6						2.65
17	390	10.8						2.65
18	350	10.1						2.75
19	360	8.8						2.8
20	330	7.4						2.95
21	300	6.2						3.05
22	300	5.1						3.15
23								

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

Table 59

Madras, India (13.0°N, 80.2°E) April **1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	5.8						2.8
07	390	6.7						2.65
08	420	7.3						2.55
09	420	7.5						2.45
10	420	7.4						2.45
11	450*	7.6						2.35
12	480	7.8						2.35
13	450	8.4						2.4
14	450	9.5						2.4
15	450	9.6						2.45
16	450	10.2						2.45
17	450	10.4						2.45
18	420	> 9.5						2.55
19	400	> 8.0						2.6
20	390	7.5						2.65
21	390	7.2						2.65
22	360	> 6.0						2.75
23								

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

Table 60

Tiruchy, India (10.8°N, 78.8°E) April **1954

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	> 4.8						2.85
07	420	6.9						2.55
08	450	7.5						2.35
09	480	7.0						2.3
10	480	7.0						2.25
11	500	7.2						2.25
12	510	7.4						2.25
13	510	7.6						2.25
14	510	8.2						2.25
15	480	> 8.9						2.25
16	480	> 9.1						2.3
17	480	8.9						2.35
18	450	8.8						2.4
19	420	> 8.3						2.45
20	420	8.0						2.5
21	420	7.0						2.5
22								
23								

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

Table 61

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.6					3.6	3.0
01	280	3.6					3.7	3.0
02	260	3.7					3.2	3.1
03	250	3.8					2.6	3.2
04	230	3.8					2.6	3.4
05	200	3.2					2.8	3.4
06	230	2.7			---	---	2.5	3.25
07	230	4.3	---	---	---	1.9		3.6
08	240	4.8	220	3.5	110	2.3	3.2	3.5
09	260	5.3	220	3.9	100	2.6	3.2	3.5
10	270	5.7	200	4.0	100	2.9	3.7	3.4
11	290	6.1	200	4.2	100	3.0	3.7	3.2
12	270	6.7	200	4.1	100	3.1	3.8	3.5
13	270	6.6	200	4.1	100	3.0	3.7	3.4
14	270	6.4	200	4.0	100	3.0	3.7	3.3
15	260	6.3	220	3.9	110	2.8	3.7	3.45
16	240	6.1	230	3.5	100	2.5	3.4	3.6
17	230	5.6	---	---	---	(1.9)	3.2	3.5
18	220	4.8			---	---	3.2	3.4
19	230	3.8					3.0	3.3
20	250	3.8					2.4	3.3
21	250	3.5					2.8	3.2
22	250	3.4					3.0	3.2
23	250	3.3					3.5	3.1

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

Table 62

Nairobi, Kenya (1.3°S. 36.8°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	200	3.2						3.1
01	< 260	3.1						3.1
02	< 240	3.0						3.2
03	240	2.9						3.2
04	(230)	2.6					1.5	3.2
05	< 250	2.2					1.6	3.3
06	(220)	2.2					2.6	3.4
07	240	3.9	---	---	130	---	2.6	3.4
08	280	5.0	220	3.9	110	2.3	2.9	3.2
09	350	5.9	210	4.1	110	2.8		3.0
10	360	6.8	210	4.2	110	3.0		2.8
11	430	7.0	200	4.4	110	---		2.7
12	440	7.8	---	4.4	110	---		2.6
13	400	8.7	---	4.5	110	---		2.8
14	340	9.4	---	4.3	110	---		2.9
15	320	9.0	200	4.3	110	---		2.95
16	340	8.2	200	4.2	110	2.9		2.8
17	350	7.9	200	4.0	110	2.7		2.9
18	310	7.9	240	3.6	120	2.2	2.9	2.9
19	260	7.3					2.6	3.0
20	290	6.3						2.9
21	290	6.3						2.9
22	250	7.0						3.2
23	210	< 7.0						3.65

Time: 45.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 63

Dakar, French W. Africa (14.6°N, 17.3°W) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	5.6					3.2	3.05
01	245	5.7					3.2	3.4
02	235	4.8					2.4	3.35
03	220	3.9					3.3	3.45
04	220	3.0					2.5	3.2
05	240	2.4					3.4	3.1
06	270	2.5					3.2	3.05
07	245	5.5	232	---	120	2.1	3.5	3.45
08	282	7.4	225	4.0	110	2.5	4.2	3.3
09	280	9.6	220	4.2	109	2.8	4.2	3.4
10	280	10.2	210	4.3	105	3.2	4.6	3.35
11	280	10.0	210	4.4	105	3.2	4.8	3.25
12	300	9.1	210	4.4	103	3.4	4.0	3.05
13	300	9.2	212	4.4	104	3.2	4.2	3.05
14	280	9.6	220	4.3	105	3.1	4.2	3.2
15	272	9.4	225	4.1	109	2.8	4.4	3.25
16	265	9.0	230	3.8	109	2.5	3.5	3.25
17	250	9.1	242	---	---	1.9	3.5	3.3
18	240	8.5			---	---	4.6	3.2
19	240	8.0					4.1	3.15
20	230	7.8					3.5	3.1
21	245	7.2					3.5	3.2
22	245	6.8					3.4	3.2
23	260	5.8					3.3	3.15

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

Table 64

Townsville, Australia (19.3°S. 146.8°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	5.4					4.0	(3.1)
01	250	5.4					3.5	(3.25)
02	260	4.2					3.8	(3.15)
03	260	4.5					3.2	3.2
04	250	3.9					3.0	3.4
05	250	3.4					2.4	3.2
06	240	4.2			120	1.8	3.0	3.5
07	240	5.3	230	3.6	110	2.3	4.0	3.4
08	320	5.6	220	4.0	110	2.8	4.9	3.2
09	320	6.4	---	4.2	110	3.0	5.4	3.1
10	340	7.2	210	4.4	120	3.3	5.5	3.0
11	340	8.0	200	4.4	120	3.3	4.7	3.0
12	320	8.9	200	4.4	120	3.3	4.6	3.0
13	300	9.2	230	4.4	120	3.3	4.2	(3.0)
14	300	8.8	---	4.3	120	3.3	4.5	3.0
15	280	8.6	230	4.1	120	3.1	4.6	3.1
16	280	8.3	---	4.0	120	2.8	5.0	(3.1)
17	280	7.2	240	3.6	110	2.3	6.0	3.3
18	250	7.1			130	1.6	4.3	(3.1)
19	270	6.4					4.0	(3.1)
20	280	6.0					4.0	---
21	300	6.0					4.0	(2.95)
22	300	(6.3)					3.9	---
23	290	(6.2)					3.8	(2.95)

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

Table 65

Brisbane, Australia (27.5°S, 153.0°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.1					4.2	3.1
01	250	5.0					4.0	3.3
02	240	4.3					4.0	3.25
03	260	4.0					3.5	3.15
04	270	3.8					3.4	3.1
05	240	4.4					2.8	3.4
06	230	5.0	230	3.5	120	2.1		3.6
07	280	5.2	220	4.1	110	2.7		3.4
08	330	5.3	---	4.4	100	---		3.2
09	325	6.0	---	4.5	100	---		3.2
10	310	6.9	190	4.6	100	---		3.1
11	300	6.9	200	4.6	100	---		3.1
12	320	7.5	190	4.6	100	3.5		3.0
13	300	7.6	200	4.6	100	3.5		3.1
14	295	7.4	220	4.5	110	3.4		3.1
15	280	7.0	220	4.3	110	---		3.2
16	280	6.8	230	4.1	110	2.8		3.15
17	270	6.8	---	3.6	120	---		3.2
18	250	6.9					5.2	3.1
19	250	7.0					4.8	3.1
20	260	6.0					5.3	3.1
21	290	5.4					4.8	3.0
22	290	5.4					4.8	3.0
23	280	5.3					4.8	3.1

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

Table 66*

Canberra, Australia (35.3°S, 149.0°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	4.6					3.6	3.0
01	---	(4.4)					2.6	3.1
02	---	4.0					2.6	3.1
03	---	3.3					2.8	3.1
04	---	3.0					2.8	(3.1)
05	(240)	3.4			---	---	3.0	3.2
06	230	4.4			100	1.8	3.2	3.35
07	300	4.8	230	3.8	100	2.5	3.5	3.3
08	340	5.2	220	4.0	100	2.8	3.5	3.1
09	320	5.5	---	4.2	100	3.0	6.0	3.2
10	320	5.9	---	4.2	100	3.2	5.0	3.1
11	300	5.9	---	4.3	100	3.3	4.6	3.1
12	315	6.1	190	4.3	100	3.3	3.9	3.2
13	310	6.2	---	4.2	100	3.2	4.0	3.1
14	295	6.5	230	4.2	100	3.2	5.0	3.2
15	290	6.0	210	4.1	100	3.1	3.9	3.2
16	295	6.0	220	4.0	100	2.8	3.3	3.2
17	280	6.1	240	(3.6)	110	2.5		3.2
18	(260)	6.0			---	1.7	3.4	3.1
19	---	6.3					3.9	3.1
20	---	6.0					3.9	3.1
21	---	(5.4)					3.9	3.0
22	---	(5.1)					3.5	2.9
23	---	(4.8)					3.3	3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*No observations made, 18 through 30th, inclusive.

Table 67

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.5						2.9
01	250	3.1						2.9
02	250	2.7						3.0
03	250	2.5						3.0
04	255	2.5						3.0
05	250	3.1			130	1.5	2.1	3.1
06	230	3.8			100	2.0		3.1
07	230	4.5	220	3.8	100	2.5		3.0
08	350	4.6	210	4.0	100	2.8	3.5	3.0
09	350	5.0	200	4.1	100	3.0	4.0	3.0
10	350	5.2	200	4.2	100	3.1	3.7	2.95
11	350	5.2	200	4.3	100	3.2	4.0	2.9
12	350	5.4	200	4.3	100	3.2	3.6	3.0
13	350	5.4	200	4.3	100	3.2	3.5	2.9
14	320	5.5	200	4.3	100	3.1	3.4	3.0
15	310	5.5	200	4.1	100	3.0	3.3	3.1
16	320	5.3	200	4.0	100	2.8		3.0
17	220	5.5	---	---	100	2.5		3.1
18	250	5.4	---	---	100	2.0	2.6	3.1
19	230	5.5			120	1.5	3.5	3.1
20	250	5.5					3.6	3.0
21	250	5.0						3.0
22	260	4.3						2.9
23	250	3.8						3.0

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

Table 68

Dakar, French W. Africa (14.6°N, 17.3°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	6.6					3.2	3.1
01	255	7.0					2.6	3.3
02	230	6.2					3.1	3.55
03	230	4.0					3.2	3.4
04	240	3.1					3.2	3.25
05	< 260	2.4					3.4	3.15
06	250	4.3					3.0	3.35
07	245	7.0	230	4.0	---	2.2	3.4	3.6
08	265	8.4	225	4.2	---	2.8	3.5	3.5
09	280	9.6	218	4.4	---	3.1	3.5	3.3
10	285	11.4	215	4.6	---	3.3	3.6	3.3
11	290	11.9	205	4.6	---	3.4	3.6	3.1
12	300	11.6	205	4.6	---	3.4	3.5	2.95
13	315	11.9	210	4.6	---	3.4	3.6	2.95
14	305	12.4	215	4.5	---	3.2	3.6	3.05
15	285	11.8	215	4.4	---	3.0	3.6	3.15
16	275	12.0	< 230	4.2	---	2.6	3.6	3.2
17	260	11.8	240	---	---	2.1	3.5	3.15
18	250	11.2					4.2	3.15
19	262	10.8					3.5	3.05
20	245	10.8					3.2	3.15
21	240	9.6					2.6	3.05
22	< 260	8.3					3.0	3.05
23	280	7.4					2.9	3.0

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

Table 69

Dakar, French W. Africa (14.6°N, 17.3°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.3					3.4	2.85
01	270	4.3					3.4	3.1
02	245	3.8					3.3	3.2
03	260	3.2					3.4	3.1
04	< 270	2.5					3.2	3.05
05	240	2.4					3.3	3.4
06	235	4.4			---	---	2.7	3.55
07	245	6.0	225	3.7	---	2.4	3.8	3.6
08	272	6.5	222	4.3	---	2.8	4.8	3.4
09	310	7.4	220	4.5	---	3.2	4.8	3.2
10	315	8.9	210	4.6	---	3.4	4.6	2.9
11	325	10.1	205	4.7	---	3.5	4.5	2.85
12	350	10.6	212	4.7	---	3.6	3.8	2.9
13	335	10.8	220	4.7	---	3.5	3.7	2.85
14	335	11.2	220	4.6	---	3.4	4.2	2.95
15	310	12.0	225	4.5	---	3.2	3.8	3.05
16	282	12.7	230	4.2	---	2.8	3.7	3.25
17	255	12.0	232	3.8	---	2.3	4.3	3.35
18	245	10.4	---	---	---	---	3.6	3.25
19	245	8.2					3.5	3.05
20	265	6.7					3.1	2.9
21	285	5.4					1.9	2.85
22	320	4.7					3.0	2.75
23	325	4.2					3.2	2.75

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

Table 70

Dakar, French W. Africa (14.6°N, 17.3°W) June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 335	3.2					3.2	2.7
01	< 300	2.9					3.4	2.75
02	< 300	2.6					4.0	2.8
03	< 285	2.8					4.5	2.8
04	< 275	2.9					3.8	3.05
05	< 290	2.4					4.4	3.0
06	240	4.6	---	---	---	1.9	3.4	3.6
07	250	5.5	230	---	---	2.4	4.7	3.55
08	282	5.5	225	4.1	107	2.8	5.6	3.3
09	352	5.6	< 230	4.4	105	3.2	5.0	3.05
10	390	6.3	220	4.5	105	3.3	5.0	2.8
11	412	6.8	210	4.5	101	3.5	4.8	2.7
12	450	7.8	215	4.5	109	3.6	4.3	2.7
13	410	8.7	210	4.5	103	3.5	4.8	2.75
14	380	9.7	210	4.4	103	3.4	4.7	2.85
15	355	9.9	220	4.2	103	3.2	4.4	2.85
16	342	10.4	230	4.1	109	2.8	4.3	3.0
17	310	9.8	230	---	113	2.5	4.5	3.05
18	255	9.3	245	---	---	2.0	4.4	3.2
19	240	7.4					4.5	3.2
20	< 260	5.3					4.2	2.95
21	< 300	4.4					3.7	2.7
22	330	3.9					3.4	2.55
23	330	3.6					3.9	2.6

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

Table 71

Dakar, French W. Africa (14.6°N, 17.3°W) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.2					3.4	2.6
01	320	3.1					4.0	2.65
02	310	2.9					4.0	2.7
03	280	2.6					4.0	2.85
04	250	2.8					4.1	3.25
05	< 240	2.3					4.3	3.3
06	230	4.7	---	---	---	---	4.0	3.6
07	250	5.3	225	---	111	2.4	4.4	3.5
08	292	5.6	222	---	109	2.9	4.8	3.2
09	330	6.1	220	4.4	102	3.2	4.8	3.0
10	380	6.8	220	4.5	105	3.4	4.5	2.75
11	415	7.6	205	4.5	103	3.5	4.5	2.6
12	415	8.6	210	4.5	108	3.5	4.3	2.65
13	390	9.8	210	4.4	103	3.4	4.6	2.7
14	355	10.9	220	4.4	105	3.3	4.6	2.85
15	330	11.0	225	4.3	105	3.1	4.5	2.8
16	315	11.1	230	---	(111)	2.8	4.3	2.95
17	280	11.0	230	---	112	2.4	4.2	< 3.1
18	240	9.7	245	---	---	---	4.4	3.1
19	235	7.2					4.3	3.0
20	> 260	5.2					3.4	2.75
21	< 325	4.0					3.3	2.65
22	340	3.6					4.0	2.55
23	330	3.5					3.5	2.5

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

Table 72

Dakar, French W. Africa (14.6°N, 17.3°W) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	4.0					3.3	2.7
01	295	4.4					3.3	2.95
02	240	4.2					3.3	3.4
03	240	3.6					3.3	3.4
04	230	2.7					3.3	3.25
05	< 240	2.0					3.3	3.25
06	245	4.0			---	---	3.4	3.4
07	245	5.7	235	---	115	2.2	3.5	3.45
08	280	6.7	230	---	111	2.8	3.5	3.25
09	320	7.7	230	4.3	109	3.2	3.5	3.0
10	380	8.7	220	4.5	106	3.4	3.5	2.8
11	400	9.8	210	4.6	105	3.6		2.75
12	350	11.1	205	4.5	109	(3.5)		2.7
13	350	11.8	210	4.5	106	3.6		2.75
14	355	12.0	220	4.4	106	3.4	3.3	2.7
15	330	12.4	230	4.3	109	3.2	3.4	2.85
16	295	12.8	230	---	111	2.8	3.4	3.05
17	265	12.4	235	---	113	2.4	3.3	3.15
18	245	10.8	---	---			3.5	3.05
19	250	9.0					3.5	2.85
20	300	7.7						2.7
21	320	6.6					3.0	2.7
22	< 335	5.7					3.2	2.65
23	330	5.2					2.6	2.6

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

NBS-D-3
Form adopted June 1946

TABLE 73

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

IONOSPHERIC DATA

h'F2 (Charocteristic), Km (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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	310	270	(300)A	250	240	250	250	240H	230H	250	280	260	260	250	260	250	240	220	220	230	320	320	300	300
2	300	300	240	270	260	(280)S	(320)S	240	230	250	(250)L	260	250	230H	240	250	230	220	230	230	250	270	(260)S	[280]S
3	300	(270)S	(300)S	(260)S	A	A	A	230	230	240	250H	240H	270	250	240	250H	220	210	220H	250	240	240	300	(310)A
4	300	300	(320)A	(200)A	(240)A	(280)A	250	230	230	250	260	270	260	270	260	250	230	210	220	220	250	(280)S	S	A
5	(300)S	(280)S	(270)S	240	(230)S	(260)S	(270)S	230	230	230	240H	250H	230H	230	250H	250	230	210	220	250	(260)S	(280)S	(300)S	S
6	A	310A	(300)A	260	250	250	(250)S	220	240	240	240	270	260	270	260	250	230	210	220	220	240	260	(250)S	(250)S
7	(300)S	(270)S	(270)S	250	240	230	240	220	230	240H	240	240H	240H	260	240	250	240	210	230H	220	250	280	280	260
8	270	250	250	260	270	260	240	230	230	230	230	250H	260	260	250	250	230	200	200	260	260	260	250	260
9	250	240	250	250	250	240	240	220	240	240	230	240H	260	250	250	240	220	200	(220)S	230	260	260	260	250
10	270	280	260	260	250	250	250	230	220	230	240	250	240	250	250	240	220	210	(210)S	(220)S	(240)S	[260]A	(270)S	(270)S
11	(260)S	(260)S	250	250	240	240	(250)S	220	230	230H	230	240	230	240	250	230	220	210	220	230	250	260	280	270
12	310	280	260	250	240	240	(270)S	230	230H	240	250	260	240	240	240	230	220	220	230	220	220	250	(250)S	(250)S
13	(270)S	(260)S	(250)S	240	220	(240)S	(240)S	220	230	230	240	240	240	240	230	230	220	210	230	230	230	(270)S	(270)S	(270)S
14	(280)S	(270)S	(250)S	250	250	250	(230)S	230	210	230	250	250	270	270	250	230	220	200	210	240	220	(310)S	(300)S	280
15	280	260	250	240	240	240	240	220	230	220	240	250	240	230	240	240	220	200	220	240	270	(280)S	(270)S	(300)S
16	280	270	260	250	240	240	230	210	210	230	230H	240H	250	240	220	(240)A	220	210	220	240	240	(270)S	(280)S	270
17	270	260	260	270	240	230	220	220	220	230	240H	240H	250H	270	240	230	220	200	240	(240)A	250	250	250	(260)S
18	(270)S	270	250	270	250	230	230	220	220	230	230	(230)S	240	260	230H	230	[230]C	230	220	240	(240)A	[240]A	250	260
19	(250)A	240	250	230	230	230	230	230	230	240	250	(260)L	250	250	240	240	220	210	230	230	240	[270]A	280	270
20	280	250	250	250	280	(310)S	A	250	(250)L	280	260	250	270	250	250	240	230	210	230	240	250	(270)S	(240)S	(280)S
21	280	260	(280)A	250	250	250	250	230	220	260	240	250	250	230	240	230	220	210	220	230	260	240	280	250
22	260	260	260	260	270	(270)S	240	230	230	260	250	260	240	250H	240	230	220	220	250	230	(250)A	270	260	(270)A
23	250F	(300)A	270	250	240F	210	240	220	220	230	240H	250	260	250	240	230	210	230	220	(230)A	(300)A	270	270	240
24	260	240	250	250	250	240	250	230	230	230	230	240	230	240	230	230	220	210	220	230	(240)S	[255]A	(260)A	(260)A
25	(280)A	250	(250)S	(260)S	250	240	250	230	220	240	240	250	240	250	230	240	230	210	230	270	260	250	240	(240)S
26	280	250F	250F	250	240	230	240	220	220	240	250	240	240	240	240	230	220	220	220	(250)S	250	230	(250)S	(260)S
27	(240)S	250	260	250	230	220	(230)S	220	220	220H	250	230	250	250	230	[220]L	220	200	240	(230)S	(250)A	(270)S	A	A
28	(280)S	(280)S	(270)S	250	(240)S	220	240	220	210	230	240	260	240	250	240	220	220	210	230	230	260	(270)S	(240)S	[280]A
29	270	260	260	260	240	230	220	220	210	230	240	240	240	250	240	220	220	220	250	250	240	(240)S	250	250
30	(260)S	(260)S	240	250	250	220	(240)S	(240)S	230	230	240	250	250H	250	250	230	220	220	250	270	240	(260)S	A	A
31																								
Median	280	260	260	250	240	240	240	230	230	230	240	250	250	250	240	240	220	210	220	230	250	270	270	(270)
Count	29	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 74

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.4	3.0	3.2	3.3	3.1 F	2.5 F	2.3	4.6 H	4.5 F H	5.8	6.7	7.3	7.2	7.2	7.0	7.6	6.7	6.2	4.6	3.1 F	2.4 F	2.8	2.9	2.8 F S
2	3.1	3.1	(3.2) S	2.4	2.3	2.1 J S	(2.1) P S	4.2	5.0	5.6	5.6 H	7.0	7.2	6.4 H	6.4	6.7	(6.8) S	5.5	5.0	(3.8) P S	3.6	3.1	(2.5) F S	(2.0) S
3	2.3	(2.4) J F	(2.2) P S	(2.2) P F	A	A	A	(4.0) P F	(5.4) P S	6.3	6.3 H	6.0 H	7.8	7.8	7.0	6.7 H	6.3 H	5.5 H	4.3 H	3.3 F	2.8 F	2.3 F	2.0 F	2.2 F
4	2.2 F	2.2 F	(2.5) F S	(2.3) J N	2.7 F	2.5 F S	2.2 F	3.8	5.0	5.3	5.3 F	5.5 F	5.9	5.8	6.1	5.9	5.7	4.8	3.8 F	3.5 F	2.5 F	(2.2) F S	(1.8) F	(2.3) P A
5	(2.8) P A	(3.3) P F	(3.3) P F	3.3 F	(2.8) P F	(2.6) P F	(2.6) F S	4.2 F	4.7 F	6.1 F	6.2 H	(6.2) H	6.6 H	6.3	6.2 H	6.7	6.4	5.5	3.2 F	(2.8) F S	2.2	(2.2) P F	2.2 F S	(2.1) P F
6	(2.1) A S	[2.4] A	2.4	2.6 F	2.6 F	2.3	2.1	4.3	5.5	6.3	6.2	6.4	6.4	6.3	6.0	6.9	6.7	5.3	4.0	3.6 F S	2.8 F	2.4	2.2	2.1 J S
7	2.0	2.2	2.5	2.8	2.9	2.7	2.3 F	4.6	5.6	6.3 H	6.8	6.4 H	6.7 H	6.4	6.4	5.8	6.2	4.6 F	3.9 H	3.1	2.7	2.3	2.4	2.4 F
8	2.5 F	2.8 F	(2.6) S	(2.5) S	2.5	2.8	2.8 F	4.5	5.7	6.3	6.3	6.3 H	7.0	7.1	6.9	7.1	6.3	5.1	3.6	3.4	3.0	3.1	3.2	3.0
9	2.9	2.8	2.7	2.9	3.0	2.8	2.6	4.2	5.8	6.3	6.4	7.0 H	7.2	7.3	7.1	7.0	6.4	5.0	3.7	3.2	2.9	2.8	2.9	2.8
10	2.7	2.9 J S	2.8	3.0	3.0	2.8	2.5 S	4.3	5.6	5.6	6.1	6.5	6.9	6.8	6.4	6.6	5.8	5.2 S	3.4	2.9	2.7	[2.4] A	2.4	2.4
11	2.7	2.9	2.9	2.9	3.0	2.7	2.3 S	4.1	5.4	5.8 H	6.3	6.1	7.2	6.6	6.3	6.3	6.1	5.2	3.7	3.1	2.8	2.6	2.7	2.9
12	2.9	3.2	3.4	3.5	3.1 F	2.8 F	(2.2) S	3.8	5.4 H	5.6	6.0 S	7.0	7.6	6.6	6.2	5.8	5.8	5.6	5.0	4.3	3.4	2.7	2.5	2.4
13	2.4	2.8	(3.3) P S	3.3	3.4	2.6	2.4	4.0 S	5.4	5.6	6.0	7.2	6.8	6.4	6.1	5.8	5.8	4.8	3.8	3.4	2.9	2.4	2.4	2.3
14	2.3	2.6	2.8	3.1	3.2	3.1	2.5	4.0 S	5.0	5.8	6.0	6.2	7.2	6.9	7.6	7.4	6.7	5.2	3.4	3.1 F	2.6	2.1	2.2	2.3
15	2.7	2.7	2.9	3.2	3.0	2.8	2.6	4.3	5.6	5.7	6.0	(5.9) P S	7.1	6.8	6.3	6.3	6.3	5.8	3.6	2.8	(2.5) P S	2.4	2.3	2.4
16	2.4	(2.5) P S	2.8	3.2	3.3	3.1	3.0	4.3	5.8	5.7	5.9 H	6.5 H	6.9	6.6	6.8	6.7	5.9	5.3	3.3 S	2.8	2.4	2.3	2.3	2.3
17	2.4	2.8 F	3.0	3.2	3.2	3.3	2.6	3.9	5.0	5.8	5.6 H	5.7 H	7.0 H	6.0	6.3	5.8	5.6	5.6	3.5	3.0	(2.5) P S	(2.5) S	2.4	2.3
18	(2.1) S	(2.7) F S	3.2	3.7 F	3.7 F	4.0	3.6	4.3	(5.4) S	5.8	5.7	6.1	6.8	6.5	6.6 H	6.0	[5.8] C	4.9	3.6	3.4	3.5 S	3.4 S	3.3 S	3.3 S
19	3.6 S	3.9	3.9 S	4.2	(3.9) P S	3.4 F	(3.4) P S	(4.1) P S	(4.9) P F	(5.5) P F	6.0 F S	5.7	7.1	6.5	6.0	6.0	6.0	5.2	3.8 F	(3.8) S	3.1	(2.8) P A	(2.9) F S	(2.9) F S
20	(3.2) F S	(3.4) F S	(3.3) F S	(2.9) P F	[2.4] F	(1.9) F	A	(3.2) S	(4.0) P F	4.7 F	5.8	6.1 F	5.8	6.6	6.3	6.0	6.4	5.0	3.0	(3.0) F S	(2.4) F S	2.2 F	(2.1) P F	(2.2) P F
21	(2.3) P F	(2.6) J F	2.4	(2.7) P F	(2.7) P F	(2.7) P F	2.8 F	3.8	5.2 F	6.2	7.0	6.6	7.4	6.7 F	5.8	5.7 F	6.0	5.0 F	4.3 F	3.5	3.4 F	3.2 F	2.9 F	3.0
22	3.0	3.1	3.1	3.1	2.8	2.4 F	2.7 F	3.8	5.0	5.3	5.6	6.6	6.7	6.4 H	6.4	5.8	5.5	4.9	3.5	3.5	2.9	2.7	2.7	2.9 F
23	(2.9) F	(3.2) F	(3.3) F	(3.4) F	(3.5) P F	(3.2) J F	(2.7) F	3.7 F	5.8	5.8	6.2 H	6.4	7.2	7.0 F	8.0	7.2	6.0	5.1	4.6 F	3.4	2.7 F	2.6 F	3.0	3.4
24	3.0 F	3.2	3.2	3.2 F	3.2 F	3.0 F	3.0	3.6 F	5.2	5.2	6.2	6.3 F	6.8	6.4	6.0	5.4	5.3	4.8 F	3.8 S	3.7	2.9 F	2.7 F	2.5 S	2.8
25	2.5 F	2.7 F	(2.6) F	(2.8) P F	(3.2) P F	(3.2) P F	3.2 F	4.2	5.1	5.5	5.7	6.0	6.3	6.3	5.8	5.6	6.0	5.2	3.7 F	3.1 F	2.8 F	2.5	2.1	2.0 F
26	2.3 F	2.6 F	(3.3) F	3.5 F	3.7 F	3.5 F	3.4 F	4.0	4.9	5.5	5.9	6.0	5.9	6.0	6.2	5.7	5.1	5.2 F	3.3	3.0 F	3.1 F	2.9 F	2.5 F	[2.4] F
27	(3.1) F	3.3 F	3.2	3.8	3.7	3.5	2.7 F S	3.8	(5.0) P S	5.2 H	6.5	6.4	6.2	6.7	6.8	5.7	6.4 S	5.4 S	(3.9) P F	3.0 F	2.4	2.3	[2.2] A	(2.1) A
28	2.1	2.3	2.6 F	(3.0) P F	3.1 F S	3.0 F	(2.7) P F	(3.6) P F	4.9	5.5	5.3	6.9	6.8	6.6	6.4	5.8	5.7	5.2	(4.0) P S	3.7	2.4	(2.1) S P	2.1	2.2
29	2.6	3.2 F	3.5 F	3.5	3.6	3.3	3.0 F	3.4 F	4.7	5.2	6.0	6.4	6.5	6.6	(6.4) P S	5.5	5.6	4.9	4.4 F S	(3.9) P S	3.5	2.8	(3.0) P F	3.3 F S
30	3.3 F S	3.8 F S	(3.9) P S	4.0	4.0	3.5	(2.9) F	(3.2) F	4.7 S	5.4 F	5.6	6.9	6.8 H	6.0	6.3	6.4	5.5	4.5	3.0 F	2.6 F	2.7 F	2.3 F	A	A
31																								
Median	2.6	2.8	3.0	3.2	3.1	2.8	2.6	4.0	5.2	5.6	6.0	6.4	6.8	6.6	6.4	6.0	6.0	5.2	3.7	3.2	2.8	2.5	2.4	2.4
Count	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 75

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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	2.9	3.1	3.3	3.2	3.0	2.4	3.1	5.0	(5.4)^{S}	6.0	7.1	7.8	7.4	6.9	7.6	7.3	6.9	5.5	4.3	(2.5)^{F}	2.7$^{F}_{S}$	2.8	3.0	2.9
2	3.1	3.3	(2.8)$^{F}_{S}$	2.4	2.3	2.0	3.1	4.5	5.6	6.6	6.1	7.1	6.9	6.4	6.2	7.0	6.3	5.0	4.7	3.7	3.2	3.1	(2.2)$^{J}_{F}$	(2.2)$^{P}_{S}$
3	(2.3)$^{P}_{S}$	(2.1)$^{J}_{F}$	(2.3)$^{F}_{E}$	A^{S}	A	A	2.9	(4.9)$^{F}_{S}$	5.5^{F}	5.8$^{H}_{F}$	6.1^{H}	7.0^{H}	(7.4)$^{P}_{S}$	7.5	6.6^{H}	7.0	6.2^{H}	4.9$^{F}_{H}$	3.4^{H}	2.9^{F}	2.3^{F}	2.2^{F}	(2.1)^{F}	2.1^{F}
4	(2.1)$^{F}_{S}$	2.4^{F}	2.6^{F}	(2.8)$^{F}_{S}$	2.6^{F}	(2.3)$^{J}_{A}$	2.8	4.3	5.0	5.5^{F}	5.5^{F}	(5.9)$^{J}_{S}$	6.0	6.1	6.1	5.9	5.4^{F}	4.5^{F}	3.6	3.2$^{P}_{F}$	(2.3)$^{P}_{F}$	(2.5)^{F}	[2.0]^{A}	[2.6]^{A}
5	(3.2)$^{P}_{F}$	3.4^{F}	3.4^{F}	3.4^{F}	2.5$^{P}_{F}$	2.7^{F}	3.3^{F}	[4.6]^{F}	6.2	5.9^{F}	6.8	6.4	7.1	5.6	6.0^{H}	6.5	6.2	3.9^{F}	2.8^{F}	2.3	2.1	(2.1)$^{P}_{F}$	2.3^{F}	[2.1]$^{F}_{A}$
6	[2.3]^{A}	(2.5)$^{J}_{A}$	2.6	2.6^{F}	2.4	2.2	3.0	5.0	5.7	6.6	6.1	6.2	6.4	6.0	6.2	6.9	6.0	4.9	4.0	3.0^{F}	2.7^{F}	2.3	(2.2)$^{J}_{S}$	2.1
7	2.1	2.3	2.5	2.9	2.9	2.6	3.1^{F}	5.2	5.6	6.4	5.9	7.1	6.7	6.4	5.8	6.0	5.9	4.2^{F}	3.6	2.8	(2.4)$^{F}_{S}$	2.3	2.3$^{F}_{S}$	(2.4)$^{J}_{F}$
8	2.6$^{F}_{S}$	2.8^{F}	2.4	2.4	2.1	2.8^{F}	3.2	5.5	6.4	6.3^{H}	6.4	7.0	6.8	6.7	7.1	6.7	6.0	4.2	3.1	3.0	3.1	3.1	3.0	3.0
9	2.9	2.7	2.9	2.9^{F}	2.9	2.8	3.1	5.3	6.3	6.8	6.6^{H}	6.6^{H}	7.2	7.4	7.0	6.6	6.7	4.3	3.6	3.0	2.8	2.9	2.9	2.7
10	(2.8)^{S}	2.8	2.9	3.1	2.9	2.7	3.1	5.4	5.7	6.2	6.2	7.0	6.8	6.5	6.6	6.3	5.6	3.9	3.2	3.0	(2.5)$^{J}_{A}$	2.4	2.4	2.6
11	2.9	2.9	3.0	3.0	3.0	2.4	3.0	(4.9)$^{F}_{S}$	5.6	5.9^{H}	6.3	6.8	6.6	6.3	6.7	6.3	5.8	4.5	3.4	2.9	2.7	2.7	2.8	2.8
12	3.1	3.3	3.5	3.4	3.0	2.4	(2.6)$^{P}_{S}$	4.9	5.7	6.6	6.5	7.4	6.8	6.3	6.1	6.3	5.8	4.9	4.7	3.6	2.9	2.6	2.5	2.4
13	2.4	2.9	(3.2)$^{P}_{S}$	3.5	2.9	2.5	3.0	4.7	5.4	6.1	6.6	7.2	6.8	6.4	6.4	5.8	5.1	4.2	3.5	3.3	2.8	2.4	2.3	2.3
14	2.4	2.7	3.0	3.1	3.1	2.8	2.8	4.9	5.4	5.8	6.2	6.8	7.0	7.6	7.4	7.0	6.3	4.2	3.2	3.1^{F}	(2.3)^{S}	2.1	2.2	2.5
15	2.7	2.9	3.1	3.2	2.9	2.7	3.1	5.0	5.6	5.9	5.8	6.9	7.0	6.3^{H}	6.3	6.3	6.2	4.3	3.2	2.7	(2.5)$^{P}_{S}$	2.2	2.2	2.4
16	(2.4)$^{J}_{S}$	(2.6)$^{J}_{S}$	3.0	(3.3)$^{F}_{S}$	3.2	3.1	3.4	(5.2)^{S}	6.2	6.2	6.0	[6.7]^{C}	6.7	6.8^{H}	6.4	6.1	6.0	4.2^{H}	3.0	2.8	(2.3)^{S}	(2.3)$^{J}_{S}$	2.3	2.4
17	2.8	3.0^{F}	3.0	3.2	(3.3)^{S}	3.1	2.9	4.9	5.0	5.8^{H}	5.7	6.6^{H}	6.9	6.6	5.8	5.8	5.7	4.1	3.2	(2.8)^{S}	2.5	2.4	(2.4)^{S}	2.3$^{F}_{S}$
18	(2.5)$^{F}_{S}$	2.9$^{F}_{S}$	3.4	3.9^{F}	4.1	3.9	3.7^{F}	(5.1)$^{P}_{S}$	5.8	5.8	6.3	6.2	6.4	6.6	6.4	6.3	5.2	4.2	3.4	3.4	[3.4]^{A}	[3.4]^{A}	3.4	3.4^{F}
19	3.9	4.0^{F}	4.2	4.0	3.8	3.2$^{P}_{S}$	(3.4)$^{P}_{S}$	4.8	5.6	(5.6)$^{J}_{S}$	5.8	6.4^{F}	7.0	6.5	5.8	6.0	5.7	4.6	3.9	3.5	2.7	2.9	(3.2)$^{A}_{S}$	(2.8)$^{F}_{S}$
20	(3.3)$^{P}_{E}$	(3.5)$^{P}_{E}$	(3.1)$^{P}_{E}$	(2.8)$^{P}_{E}$	(2.0)^{F}	F^{A}	A	3.6^{F}	(4.6)$^{P}_{E}$	(5.6)^{F}	6.0^{F}	6.1	6.4	6.3	6.2	6.2	6.2	4.0	(3.2)$^{P}_{S}$	(3.0)$^{P}_{S}$	(2.4)$^{F}_{A}$	(2.0)$^{P}_{F}$	[2.2]$^{F}_{A}$	(2.3)$^{P}_{E}$
21	[2.4]$^{F}_{S}$	(2.5)$^{F}_{S}$	(2.5)$^{P}_{S}$	2.8^{F}	2.8^{F}	2.8^{F}	(3.3)^{S}	4.4	(5.4)$^{F}_{S}$	6.9	6.4	6.9	7.2^{F}	6.1^{F}	5.5	(6.1)^{S}	(5.8)^{S}	4.9	3.9	3.4^{F}	3.5^{F}	3.1^{F}	2.9^{F}	3.0
22	3.1	3.1	3.1	2.9	2.4	2.7^{F}	2.9^{F}	4.8	(5.1)^{S}	5.5	5.8^{H}	6.8	6.4	6.4	6.2	5.6	5.4	3.9	3.5	3.2	[2.8]^{A}	2.8	2.9^{F}	3.0^{F}
23	(3.1)^{F}	(3.2)^{F}	(3.2)^{F}	(3.4)$^{F}_{P}$	(3.5)$^{J}_{E}$	(3.0)^{F}	(2.9)^{F}	5.0	5.6	5.8^{H}	6.5	7.0	7.0	7.6	7.5	6.4	5.2	4.9^{F}	4.0	2.9	2.6^{F}	2.7^{F}	3.2^{F}	3.1^{F}
24	3.1^{F}	3.1	3.1^{F}	3.2^{F}	3.2^{F}	3.0	3.0	4.5^{S}	5.2	6.3	6.2	6.7^{F}	7.0	6.2	6.1	5.7^{F}	5.2	4.3^{F}	3.2^{F}	3.2^{F}	2.7^{F}	2.7	2.6	2.7
25	2.7^{F}	2.7^{F}	(2.5)^{F}	(3.0)$^{F}_{H}$	(3.3)^{F}	(3.2)^{F}	3.6^{F}	4.7	5.1	5.3	5.9	6.6	6.3	6.0	5.6	5.8	5.8	4.1^{F}	3.5^{F}	3.0	2.7^{F}	2.2	2.0^{F}	2.2^{F}
26	2.2^{F}	(3.2)^{F}	3.6^{F}	3.7^{F}	3.5^{F}	3.4^{F}	3.5^{F}	4.8	5.2	5.6	6.4	6.5	6.4	6.2	5.7	5.5	5.1	4.2$^{F}_{S}$	3.0^{F}	3.2^{F}	2.9^{F}	2.6^{F}	(2.3)^{F}	(2.6)^{F}
27	(3.4)^{F}	3.1^{F}	3.4	3.8	3.7^{F}	3.2	2.7	5.1	(5.6)^{S}	5.5^{H}	6.4	6.2	6.2	6.4	5.6$^{F}_{S}$	6.4^{S}	(6.1)^{S}	(4.9)$^{F}_{S}$	3.1$^{F}_{S}$	[2.7]^{A}	2.4	2.3	[2.2]^{A}	2.1
28	2.2	2.5	3.0	3.2	(3.2)$^{P}_{E}$	2.7^{F}	2.7^{F}	4.5	5.2	5.4	6.0	6.7^{H}	6.8	6.2^{H}	6.1	5.6	5.9	4.4	3.6	3.1	2.4	2.1	2.2	(2.3)$^{P}_{S}$
29	3.0^{F}	3.4^{F}	3.6	3.5^{F}	3.5	3.2^{F}	2.7	4.2	4.7	(6.0)$^{P}_{S}$	6.0	6.2	6.2	6.5	6.0	5.7	5.4	4.8	(3.9)$^{P}_{S}$	3.7	3.3	2.9^{F}	3.1^{F}	3.3$^{F}_{S}$
30	3.4^{S}	3.9^{S}	3.9	3.9^{F}	4.0^{F}	(3.2)$^{P}_{E}$	2.9	4.2^{F}	5.1	5.8	5.8	7.0	6.2$^{F}_{H}$	6.9	6.2	5.9	4.9	3.6^{F}	2.8^{F}	2.6^{F}	2.6^{F}	(2.4)^{S}	A	A
31																								
Median	2.8	2.9	3.0	3.2	3.0	2.8	3.0	4.9	5.6	5.9	6.2	6.8	6.8	6.4	6.2	6.2	5.8	4.3	3.4	3.0	2.7	2.4	2.3	2.5
Count	30	30	30	29	29	28	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 93-46049

NBS-D-3
Form adopted June 1946

TABLE 76

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

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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									210	200^{H}	190^{H}	200^{H}	210	210	220^{H}	240	230							
2									Q	220	200	190^{H}	(230)^{A}	(220)^{A}	[220]^{A}	230	Q							
3									220	210	190	220^{H}	(200)^{A}	210^{H}	230	230	Q							
4									220	180	180	170^{H}	200	190^{H}	240	220	220							
5									220	210	190^{H}	200	190^{H}	220^{H}	210^{H}	210	(230)^{S}							
6									210	210	190	190	190^{H}	200^{H}	230	240	230							
7									220	180	180	180^{H}	180^{H}	210^{H}	230	220	240							
8									220	210	180^{H}	190^{H}	200	190	200^{H}	220^{H}	230							
9									200^{H}	230	190^{H}	200^{H}	190^{H}	210^{H}	220	220	220							
10									Q	210	200	210	(210)^{A}	190	200	220	Q							
11									210	200	200^{H}	190^{H}	180	210	220	220	Q							
12									220	200	200^{H}	180^{H}	180^{H}	180^{H}	230	220	220							
13									220	200	200	180^{H}	210	190	200	210	220							
14									Q	200^{H}	210^{H}	220^{H}	220	200	210	220	220							
15									210	200	220^{H}	200	220	200^{H}	200^{H}	220	Q							
16									Q	210	200	210	200^{H}	200	A	A	Q							
17									Q	230	210^{H}	220	200	200	230	220	Q							
18									Q	220	210	200	200^{H}	200	210	200	C							
19									A	210	190	190	(200)^{A}	210	220	230	Q							
20									240	220	190	210	200^{H}	220	210^{H}	220	A							
21									Q	220	220	200	170	220	210	230	Q							
22									210	200^{H}	200^{H}	180^{H}	180^{H}	210	200^{H}	230	Q							
23									Q	200	180^{H}	200	210	230	(230)^{A}	230^{H}	Q							
24									230	210	220	210	230	210	(220)^{A}	220	Q							
25									210	210^{H}	200	200	210	230	230	A	Q							
26									(220)^{A}	200	220	220	210	230	200^{H}	210	210							
27									220	180	220	200	190	180	230	210	Q							
28									Q	220	200	210^{H}	210	(230)^{A}	A	A	Q							
29									220^{H}	[230]^{A}	(230)^{A}	220	220	220	200	A	Q							
30									210	190^{H}	180^{H}	200^{H}	220	200	230	200^{H}	Q							
31																								
Median									220	210	200	200	200	210	220	220	220							
Count									20	30	30	30	30	30	28	26	11							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

TABLE 77

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

NBS-D-3
Form adopted June 1946

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	4.0^{H}	4.0^{H}	4.1	4.0	3.8^{H}	L	L								
2									Q	L	L	L	(4.0)^{A}	(3.8)^{A}	A	L	Q								
3									L	L	L	3.8^{H}	[3.8]^{L}	3.7^{H}	L	L	Q								
4									L	3.5^{F}	3.7^{F}	4.1^{F}	4.0	4.0^{H}	L	L	L								
5									L	L	(3.6)^{H}	(3.9)^{L}	(4.0)^{H}	L	L	3.4	L								
6									L	L	L	3.7	(3.8)^{L}	(3.8)^{L}	L	L	L								
7									L	(3.4)^{L}	L	L	L	L	L	L	L								
8									L	L	L	L	4.1	3.9	L	L	L								
9									L	L	(3.8)^{H}	[3.8]^{L}	3.8^{H}	L	L	L	L								
10									Q	L	3.9	4.0	4.2	3.9	3.8	L	Q								
11									L	L	4.1^{H}	[3.9]^{L}	3.7	L	L	L	Q								
12									L	3.7	3.9^{H}	(4.0)^{L}	4.1^{H}	3.9^{H}	L	L	L								
13									L	3.3	L	L	(4.1)^{L}	L	L	L	L								
14									Q	L	L	L	4.3	[4.0]^{L}	(3.8)^{L}	L	L								
15									L	L	L	L	L	L	L	L	Q								
16									Q	L	L	L	L	3.8	L	A	Q								
17									Q	L	L	L	3.8	L	L	L	Q								
18									Q	L	L	(3.6)^{L}	(3.8)^{L}	L	L	L	C								
19									L	L	(3.6)^{L}	(3.8)^{L}	(3.8)^{L}	3.7	L	L	Q								
20									L	(3.4)^{L}	(3.5)^{L}	3.7	(3.8)^{L}	(3.6)^{L}	L	L	A								
21									Q	L	L	3.7	L	L	L	L	Q								
22									L	3.3^{H}	3.7^{H}	(4.0)^{L}	4.0^{H}	3.8	L	L	Q								
23									Q	L	3.6^{H}	L	L	L	L	L	Q								
24									L	L	L	L	L	(3.8)^{L}	L	L	Q								
25									L	L	L	L	L	L	L	A	Q								
26									L	L	L	(3.8)^{L}	L	L	L	L	L								
27									L	L	3.6	L	L	L	L	L	Q								
28									Q	L	L	L	L	L	L	L	Q								
29									L	A	L	L	(3.9)^{L}	(3.8)^{L}	L	L	Q								
30									L	L	L	L	3.9	L	L	L	Q								
31																									
Median									—	3.4	3.7	(3.8)	4.0	3.8	—	—	—								
Count										6	12	15	20	15	3	1									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 78

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

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), November (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: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 79

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

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), November (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-46049

NBS-D-3
Form adopted June 1946

TABLE 80

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

IONOSPHERIC DATA

Es (Characteristic), Mc-Km (Unit), November (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: EJW, JWP, JJR

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

Calculated by: EJW, JWP, JJR

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	3.7 110	3.9 110	4.4 100	3.2 100	3.1 100	3.6Y 100	2.4 100	3.1 110	4.9 110	3.3 110	3.9 110	3.9 110	6.9Y 110	3.0 120	3.4 120	(2.7)S H 110	2.0 100	2.4 100	3.6 100	3.4 H 100	E	E	E	E
2	2.1 120	2.6 110	(3.9)S 110	E	3.6Y 100	E	4.8Y H 100	E	6.6Y H 100	3.6Y 120	3.1 140	G	4.8 110	5.1 110	4.2 110	G	G	2.4 150	E	E	E	E	E	E
3	E	4.4Y 110	E	E	5.6 120	6.2 120	7.3 120	3.1Y H 120	4.7Y 110	3.2F H 110	3.9 110	4.4 140	4.1 130	4.5 100	2.1OY 100	3.8 H 100	4.8 H 100	4.2 120	4.3 110	(3.7) S (1.30)	E	6.4 100	3.8 100	4.2 100
4	E	2.4 110	3.8 130	4.4 100	3.8 100	4.2 100	(3.0)S 110	3.7 120	G	4.6 100	3.7 100	G	4.9Y H 100	3.2 100	G	3.6 100	3.5 100	3.2 100	E	E	4.0 110	3.2 110	3.6Y 110	4.8 110
5	4.7 100	10.0Y 100	E	E	E	6.6Y 120	4.9Y 110	E	(3.1) S 120	6.3Y 130	3.5Y 110	4.8Y 110	G	G	G	2.8Y 130	G	1.8 100	4.7Y 100	E	E	E	E	2.8Y 110
6	2.9Y 110	4.3 110	3.4Y 110	2.4Y 110	E	E	E	3.1Y 110	G	G	G	3.4 H 110	G	7.0Y 110	G	G	G	E	E	E	E	E	E	E
7	E	E	E	E	E	3.0Y 130	3.8Y H 120	3.6Y 110	3.3Y 120	3.7 110	3.2 110	4.4 H 100	3.6 100	3.7 100	G	G	3.2 110	3.2 100	3.4 H 100	3.4 100	E	3.0Y 100	E	E
8	E	E	E	E	E	E	E	E	(2.2) S H 120	3.2 H 100	2.9 110	3.7 110	3.7 100	G	2.4 100	G	3.1 100	3.1 110	E	3.1 100	E	E	2.4 120	2.4 120
9	3.1 100	E	E	2.9Y 110	E	(3.6) S 110	E	E	G	G	3.0 120	G	G	3.2 130	3.7Y 120	2.6 110	2.0 120	3.6Y 100	E	E	E	E	E	E
10	E	E	2.4Y 120	E	E	E	2.3Y 110	E	G	G	3.6 H 110	3.2 130	3.5 110	3.5Y 100	3.0 120	2.7 120	3.0Y 110	E	E	E	3.0Y 110	4.8 100	E	E
11	E	E	E	E	E	4.7Y 120	2.1 110	2.4 110	3.2Y 120	4.8Y 110	3.2 120	G	G	4.2 100 H	2.3 100	3.6 H 100	3.5 120	E	3.4 110	E	E	E	E	2.9 110
12	E	E	E	E	E	3.7 H 120	3.7 100 H	(3.0)S 130	2.0 130	G	G	G	G	G	3.9Y 100	G	1.7 100	3.0Y 100	E	E	3.0 110	2.4 110	E	E
13	E	2.4 110	2.9 110	E	2.5 100	4.1Y 110	E	E	3.1 110	G	2.8 120	6.2Y 110	G	G	4.3Y 110	G	G	E	E	E	2.4 100	E	2.3 100	2.6 100
14	E	2.4Y 100	E	2.7Y 100	3.4Y 100	3.0 100	2.4 110	E	4.6Y 110	G	G	4.8Y 120	3.0 110	2.9 120	3.5 110	3.1 110	1.9 110	E	E	E	E	E	2.4 110	E
15	E	E	E	E	E	E	2.3 100	3.1 110	3.7 H 110	(3.1) S (1.40)	G	3.6 120	3.7 120	3.6 120	3.2Y 90	3.3 110	3.6 90	2.3 100	2.3 100	2.9Y 110	3.1 110	2.4 110	2.4 110	2.7 100
16	(2.3) S 100	3.1 100	2.1 110	2.9 110	E	2.9 110	E	2.3 110	G	3.5 140	3.9 H 100	3.8 110	3.8 120	3.1 130	3.9 120	5.2 H 100	3.1 100	2.8 100	2.9Y 90	E	E	E	E	E
17	E	E	E	2.3 100	E	E	E	E	G	3.7 H 110	G	4.0 130	3.7 120	G	3.6 120	3.8 110	(3.0) S 120	E	2.8 110	3.3 100	2.4 100	E	E	(3.1) S F 100
18	4.8 100	3.9 100	3.7 100	2.4 100	E	(3.8) S (1.00)	3.6 100	E	5.2 H 110	3.0 H 100	3.1Y 100	G	G	G	G	3.4Y 120	C	E	3.0Y 110	3.2Y H 110	3.1 100	4.4 100	2.5 100	2.3 100
19	3.3 100	2.3 110	2.5 100	3.0 100	2.3 100	E	E	3.7 130	2.9Y H 100	6.4Y H 110	3.7 H 100	4.6Y 110	5.6Y 100	3.6Y 110	G	G	3.1 110	3.1Y H 110	2.3Y 110	2.3 110	3.6 120	4.8 120	3.0Y H 120	3.7Y H 110
20	4.2Y 110	E	4.0 110	3.5Y 110	3.6Y 100	2.9Y H 110	4.6 120	3.7 110	G	G	G	G	G	G	G	G	3.4 100	7.8Y H 110	4.3Y 110	E	3.2 110	3.0Y 110	2.9 110	2.9 110
21	E	3.2 100	3.4 100	1.9 110	E	E	E	E	4.7Y 110	G	3.9Y 100	4.3 100	G	G	G	G	G	E	3.7Y 100	E	2.9 110	E	4.5 100	4.5 H 100
22	3.3 100	E	1.3 100	2.9 100	2.8Y 100	E	4.4Y 120	E	2.0 120	4.0 110	G	2.7 100	2.5 100	3.7 100	4.3 100	4.9 100	4.1 100	3.1 100	(2.0) S 110	E	4.1 110	2.2 100	E	3.3 100
23	2.8 110	3.1 110	E	2.5 110	E	E	E	2.5 120	2.0 H 110	2.7 120	2.2 100	7.0 H 100	3.7 100	2.9 100	4.2 100	2.4 130	2.0 120	1.7 100	3.0 H 120	4.4 100	3.1 100	5.0 100	E	E
24	E	E	E	E	E	E	2.4 120	2.5 120	3.3 H 140	2.4 120	G	4.5Y 100	G	G	2.9 130	G	3.8 120	2.0 110	3.1Y H 110	E	E	3.9 100	3.1 H 100	3.0 100
25	3.3 100	3.1 100	E	E	E	E	E	E	G	G	3.8 100	5.0 100	4.2 100	3.4 100	3.7 100	4.0 100	4.2 100	E	1.8 110	6.2 110	7.6 110	1.7 110	E	E
26	E	E	E	2.4 100	E	2.8 110	3.9 110	2.8Y 110	3.8 100	3.2 100	4.4Y 100	G	2.7 100	G	G	G	1.8 100	1.8 100	E	E	E	E	E	E
27	E	E	E	E	E	E	2.4 110	E	2.0 120	3.3Y 100	3.2 110	3.5 100	G	3.4Y 110	G	G	G	E	E	E	4.9Y 100	2.4 100	4.9 100	4.5 100
28	E	E	2.6 100	E	2.1 100	E	E	E	5.2 110	6.4 100	2.2 100	3.2 100	3.4 H 100	5.4 H 100	4.4 H 100	3.8 H 100	3.2 120	1.8 110	3.0 120	E	E	E	E	3.1 100
29	3.0 100	3.0 100	E	1.4 110	2.7 110	E	E	3.7 100	3.1 110	5.6 100	7.2 H 100	6.6 100	5.8 100	4.7 100	4.3 100	3.5 100	2.0 100	3.3 H 100	3.0 H 100	E	E	E	E	E
30	4.8 100	E	E	E	E	E	6.0Y 100	2.9 100	11.5 120	3.0 120	5.7 H 110	3.2 140	4.3 130	3.0 130	3.3 H 100	2.7 100	3.7 100	3.9 100	3.5 100	2.7 100	E	4.9 110	9.2 110	7.6 110
31																								
Median	**	**	**	**	**	**	2.4	2.4	3.1	3.2	3.2	3.6	3.4	3.2	3.2	2.7	3.0	2.2	2.6	**	**	**	**	2.5
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	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 ☒

GPO 83-460 49

NBS - D-3
Form adopted June 1946

TABLE 81

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

IONOSPHERIC DATA

(M 1500) F2 (Characteristic) _____ (Unit) November (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by EJW, JWP, JJS

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: EJW, JWP, JJS

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 mic

Manual ☐ Automatic ☒

GPO *83 - 460 49

NBS-D-3
Form adopted June 1946

TABLE 82

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

IONOSPHERIC DATA

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

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

National Bureau of Standards
(Institution)

Scaled by: EJW, JWP, JJS

75° W Mean Time

Calculated by: EJW, JWP, JJS

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	3.1	3.1	3.1	3.1	3.4 F	3.4 F	3.1	3.6 H	3.4 F H	3.6	3.3	3.4	3.3	3.4	3.3	3.3	3.2	3.5	3.3	3.5 F	3.0 F	2.8	2.8	2.4 F S
2	2.8	2.9	(3.2) S	3.2	3.2	(3.0) J S	3.0) P S	3.6	3.5	3.3	3.4	3.4	3.4	3.5 H	3.4	3.5	(3.5) S	3.5	3.3	3.3) P S	3.2	3.1	3.2) F S	(2.1) S
3	3.0	J F	(3.0) P S	(3.3) P F	A	A	A	(3.6) P F	(3.7) P S	3.7	3.6 H	3.1 H	3.4	3.4	3.4	3.4 H	3.0 H	3.5 H	3.5 H	3.5 F	3.3 F	3.2 F	3.2 F	3.2 F
4	3.1 F	3.1 F	(3.1) F S	J A	3.2 F	3.3 F S	3.4 F	3.7	3.6	3.5	3.5 F	3.3 F	3.4	3.4	3.4	3.5	3.6	3.5	3.4 F	3.5 F	3.4 F	(3.1) F S	F	2.7) P A
5	(3.1) F A	(3.0) P F	(3.2) P F	3.3 F	(3.3) P F	(3.2) P F	(3.2) F S	3.7 F	3.5 F	3.7 F	3.3 H	3.3) H	3.7 H	3.6	3.4 H	3.5	3.6	3.6	3.4 F	(3.3) F S	3.3	3.0) P F	2.5 F S	3.0) P F
6	A S	A	3.1	3.2 F	3.4 F	3.3	3.2	3.4	3.6	3.6	3.6	3.5	3.4	3.4	3.4	3.4	3.6	3.5	3.2	3.6 F S	3.3 F	3.2	3.3	3.1) J S
7	3.0	3.0	3.0	3.2	3.3	3.4	3.5 F	3.5	3.7	3.6 H	3.6	3.2 H	3.3 H	3.5	3.6	3.5	3.6	3.6 F	3.0 H	3.4	3.2	3.1	3.1	3.3 F
8	3.2 F	3.2 F	(3.3) S	(3.3) S	3.1	3.1	3.2 F	3.6	3.6	3.7	3.7	3.3 H	3.4	3.4	3.3	3.6	3.6	3.7	3.6	3.1	3.1	3.1	3.2	3.1
9	3.1	3.2	3.1	3.2	3.2	3.3	3.4	3.4	3.7	3.4	3.8	3.3 H	3.4	3.4	3.5	3.5	3.5	3.6	3.2	3.2	3.1	3.1	3.2	3.3
10	3.2	(3.1) J S	3.1	3.1	3.2	3.2	3.3 S	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6 S	3.2	3.4	3.4	A	3.2	3.3
11	3.2	3.0	3.3	3.2	3.3	3.4	3.3 S	3.6	3.7	3.6 H	3.6	3.5	3.6	3.4	3.4	3.4	3.5	3.5	3.4	3.3	3.1	3.1	2.1	2.7
12	2.9	3.0	3.1	3.1	3.2 F	3.2 F	(3.4) S	3.4	3.4 H	3.5	3.5 S	3.4	3.6	3.5	3.6	3.7	3.6	3.5	3.3	3.4	3.6	3.2	3.3	3.2
13	3.0	3.1	(3.1) P S	3.3	3.5	3.3	3.3	3.5 S	3.7	3.7	3.5	3.6	3.5	3.5	3.6	3.6	3.4	3.5	3.4	3.4	3.4	3.1	3.1	3.2
14	3.1	3.1	3.1	3.3	3.3	3.4	3.3	3.6 S	3.7	3.7	3.6	3.6	3.4	3.2	3.5	3.5	3.5	3.6	3.2	3.3 F	3.5	2.1	3.0	3.2
15	3.1	3.2	3.2	3.3	3.3	3.2	3.3	3.6	3.6	3.7	3.6	(3.5) P S	3.5	3.4	3.5	3.5	3.6	3.8	3.3	3.3	(3.4) P S	3.0	3.0	3.0
16	3.1	(3.2) P S	3.2	3.3	3.4	3.4	3.4	3.4	3.7	3.6	3.6 H	3.2 H	3.4	3.6	3.6	3.5	3.6	3.7	3.4 S	3.3	3.4	3.1	3.1	3.2
17	3.2	3.3 F	3.2	3.1	3.3	3.4	3.4	3.5	3.7	3.7	3.4 H	3.3 H	3.3 H	3.4	3.6	3.7	3.5	3.5	3.4	3.2	(3.2) P S	3.3) S	3.2	3.2
18	(3.2) S	(3.1) F S	3.3	3.1 F	3.1 F	3.4	3.3	3.5	(3.6) S	3.7	3.5	3.6	3.5	3.5	3.4 H	3.7	C	3.5	3.4	3.3	3.3 S	3.2 S	3.3 S	3.2 S
19	3.1 S	3.4	3.3 S	3.3	(3.2) P S	3.3 F	(3.3) P S	(3.4) P S	(3.6) P F	(3.5) P F	3.5 F S	3.2	3.5	3.5	3.5	3.5	3.7	3.6	3.4 F	(3.4) S	3.4	(3.0) P A	(3.1) F S	3.1) F S
20	(3.0) F S	(3.1) F S	(3.2) F S	(3.2) P F	F	(3.2) F	A	(3.3) S	(3.4) P F	3.4 F	3.5	3.5 F	3.3	3.5	3.5	3.5	3.4	3.6	3.3	(3.3) F S	(3.4) F S	3.1 F	(3.1) P F	(3.2) P F
21	(3.3) P F	J F	3.1	(3.4) P F	(3.4) P F	(3.3) P F	3.4 F	3.5	3.6 F	3.4	3.6	3.2	3.5	3.6 F	3.6	3.5 F	3.6	3.3 F	3.4 F	3.4	3.2 F	3.3 F	3.3 F	3.3
22	3.2	3.1	3.2	3.1	3.1	3.2 F	3.3 F	3.3	3.6	3.5	3.6	3.4	3.6	3.5 H	3.6	3.6	3.5	3.3	3.2	3.3	3.3	3.1	3.1	3.2 F
23	(3.3) F	(3.1) F	(3.1) F	(3.2) F	(3.4) P F	J F	(3.3) F	3.5 F	3.7	3.7	3.3 H	3.4	3.4	3.2 F	3.3	3.6	3.6	3.4	3.5 F	3.3	3.1 F	2.7 F	3.1	3.3
24	3.1 F	3.3	3.1	3.2 F	3.1 F	3.3 F	3.2	3.4 F	3.6	3.6	3.7	3.4 F	3.6	3.7	3.6	3.4	3.6	3.5 F	3.3 S	3.4	3.3 F	3.3 F	3.3 S	3.3
25	3.1 F	3.2 F	(3.2) F	(3.1) P F	(3.2) P F	(3.2) P F	3.2 F	3.5	3.7	3.6	3.5	3.5	3.5	3.5	3.6	3.4	3.5	3.5	3.3 F	3.2 F	3.4 F	3.4	3.2	3.1 F
26	3.1 F	3.4 F	(3.3) F	3.2 F	3.3 F	3.3 F	3.5 F	3.5	3.6	3.4	3.5	3.6	3.5	3.5	3.5	3.5	3.5	3.5 F	3.3	3.2 F	3.4 F	3.3 F	3.1 F	F
27	(3.3) F	3.2 F	3.1	3.1	3.3	3.4	3.1 F S	3.5	(3.8) P S	3.5 H	3.6	3.5	3.5	3.6	3.7	3.3	3.5 S	3.7 S	3.5) P F	3.4 F	3.1	3.2	A	(3.1) A
28	3.2	3.0	3.2 F	(3.1) P F	3.2 F S	3.5 F	(3.3) P F	(3.4) P F	3.8	3.6	3.6	3.4	3.5	3.5	3.6	3.5	3.5	3.5	3.4) P S	3.4	3.2	(3.2) J P	3.1	3.2
29	3.1	3.3 F	3.2 F	3.1	3.3	3.4	3.4 F	3.5 F	3.7	3.6	3.6	3.4	3.6	3.6	(3.7) P S	3.7	3.5	3.4	3.3 F S	(3.5) P S	3.4	3.1	(3.2) P F	3.2 F S
30	3.1 F S	3.0 F S	(3.2) P S	3.1	3.1	3.4	(3.2) F	(3.2) F	3.7 S	3.4 F	3.7	3.5	3.4 H	3.4	3.5	3.6	3.6	3.5	3.4 F	3.1 F	3.4 F	3.1 F	A	A
31																								
Medion	3.1	3.1	3.2	3.2	3.3	3.3	3.3	3.5	3.6	3.6	3.6	3.4	3.5	3.5	3.5	3.5	3.6	3.5	3.35	3.3	3.3	3.1	3.1	3.2
Count	29	27	30	29	28	28	28	30	30	30	30	30	30	30	30	30	24	30	30	30	30	27	27	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 83

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

IONOSPHERIC DATA

(M 3000) F1, ____ November, 19 54
(Characteristic) (Unit) (Month)

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

National Bureau of Standards
(Institution)

Scaled by: EJW, JWP, JJS

75° W Mean Time

Calculated by: EJW, JWP, JJS

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

NBS-D-3
Form adopted June 1946

TABLE 84

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

IONOSPHERIC DATA

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

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards
(Institution)

Scaled by: EJW, JWP, JJS

Calculated by: EJW, JWP, JJS

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	45	A	A	44 H	(43) P	44	44 H	A							
2									A	(42) A	45	43 H	A	A	44	(43) S	42							
3									(44) A	45	(44) A	42 H	42 H	43 H	44	43	A							
4									43 H	45 H	(44) S	44 H	42 H	44 H	43	43	S							
5									43 H	(45) S	A	44 H	41	41	43	(42) S	(42) P							
6									44	45	43	(43) A	42 H	42	42	40 H	41 H							
7									(44) S	A	43 H	42 H	43 H	43 H	43 H	45	(45) S							
8									45	A	44 H	44 H	A	44 H	S	43 H	44							
9									(44) P	40	42 H	44	43 H	(42) A	(43) A	(45) A	A							
10									(42) H	(44) H	(43) P	(43) A	A	(43) A	42	43	A							
11									(44) P	45 H	(44) H	43 H	44 H	A	44	43	44							
12									44	43	42 H	42	43	43 H	(43) S	44 H	45							
13									A	(43) S	(43) S	43	43 H	43	(43) A	43	43							
14									S	42 H	43	44	43 H	A	(44) P	A	A							
15									A	43 H	43 H	44	(45) P	45	44	44	A							
16									43	43	43 H	43 H	43 H	43	43 S	43 H	A							
17									41 H	43 H	43 H	43	44 H	44	44	45	(44) P							
18									A	43 H	43	44	42	43	(42) S	(43) P	C							
19									A	A	(42) S	(44) S	A	A	43	43	A							
20									(43) S	(43) S	(43) S	43	42	43	45	43 H	A							
21									S	44	A	A	46	44 H	(44) P	44	44							
22									(43) P	45	44 H	44 H	43 H	43 H	A	A	A							
23									45 H	44 H	42 H	43	A	A	(44) P	44	S							
24									41 H	43 H	42	43	43	43	43	43	43							
25									42 H	42 H	(44) A	A	A	42 H	A	A	A							
26									A	A	A	42 H	42	43	42	43	S							
27									(43) S	43	(43) A	42	41	43	44 H	44 H	(44) S							
28									41	A	43 H	43 H	43	42	44	A	44							
29									43	A	A	A	A	A	A	A	A							
30									A	44	44 H	(44) S	43 H	(43) H	B	A	A							
31																								
Median									43	43	43	43	43	43	43	43	44							
Count									20	24	25	26	23	24	25	24	13							

Sweep 1.0 Mc to 25.0 0.25 min

Manual ☐ Automatic ☒

GPO 83-460 49

Table 85

Ionospheric Storminess at Washington, D. C.

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

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

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

Table 86

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

October 1954

Day	North Pacific 9-hourly quality figures			Short-term forecasts issued at			Whole day quality index	Advance forecasts (Jp reports) for whole day; issued in advance by:		
	03 to 12	09 to 18	18 to 03	02	09	18		1-4 days	4-7 days	8-25 days
1	5	(4)	(3)	6	(3)	(4)	(4)	(4)	(4)	X
2	6	5	5	(3)	(4)	6	5	(4)	5	
3	6	5	5	5	5	6	6	5	5	
4	(4)	(4)	6	(4)	5	6	(4)	5	5	
5	5	5	5	5	5	6	5	5	6	
6	6	5	(4)	5	5	5	5	5	5	
7	(4)	(4)	6	5	5	6	(4)	6	6	
8	6	5	5	5	5	6	5	6	6	
9	6	6	6	6	5	6	6	6	5	
10	7	7	7	6	6	7	7	6	5	
11	6	6	6	6	5	6	7	5	5	
12	6	6	6	6	6	6	6	5	5	
13	5	6	6	6	5	6	6	6	5	
14	6	6	7	6	6	6	6	6	5	
15	7	7	7	6	5	7	7	6	6	
16	6	6	6	6	5	6	7	6	6	
17	6	6	6	6	5	6	6	(4)	(4)	X
18	5	5	5	6	(4)	5	5	(4)	(4)	X
19	5	(4)	5	5	(4)	6	5	(4)	(4)	X
20	(4)	(4)	6	5	5	6	5	5	5	
21	5	6	6	5	5	7	6	5	5	
22	6	6	5	6	5	6	6	5	5	
23	(4)	5	5	5	5	5	5	5	6	
24	(4)	(3)	(4)	(4)	(4)	(4)	(5)	6	6	
25	(4)	(4)	(4)	5	(4)	5	(4)	6	5	
26	(3)	(4)	6	5	(4)	5	(4)	(4)	(4)	X
27	(4)	5	6	5	(4)	6	5	(4)	(4)	X
28	5	6	6	(4)	5	6	5	(4)	(4)	X
29	5	5	7	5	5	6	5	(4)	(4)	X
30	5	6	7	5	5	6	6	5	5	
31	5	5	7	5	5	5	6	6	5	
Score:										
Quiet Periods			P	13	9	15		8	3	
			S	9	13	11		15	19	
			U	0	1	1		1	2	
			F	1	0	0		1	1	
Disturbed Periods			P	2	3	1		2	2	
			S	5	5	3		1	2	
			U	1	0	0		0	0	
			F	0	0	0		3	2	

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)

October 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:			Geomag-netic 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	(4)	(3)	6	5	5	(3)	5	6	(4)	(4)	(4)	X	(5)	3
2	5	(4)	6	6	(4)	(4)	6	6	5	(4)	(4)	X	2	1
3	5	(4)	7	6	6	(4)	6	6	5	(4)	5		(4)	3
4	(3)	(3)	6	6	5	(3)	6	6	(4)	5	5		(4)	2
5	(4)	(4)	6	6	(4)	(4)	6	6	5	5	5		2	2
6	(4)	5	7	6	5	5	7	6	6	5	6		3	3
7	(4)	5	7	6	5	(4)	7	7	6	6	6		2	2
8	5	5	7	6	6	6	7	6	6	6	6		3	3
9	6	6	7	7	6	6	7	7	6	6	6		2	1
10	5	6	7	7	6	5	7	7	6	6	6		2	1
11	6	5	7	6	6	6	7	7	6	5	5		2	1
12	6	5	7	7	6	6	7	7	6	6	5		0	0
13	7	6	7	7	6	6	7	7	7	6	6		1	1
14	6	6	7	7	7	6	7	7	7	7	6		1	1
15	6	6	7	6	7	6	7	7	6	7	7		2	1
16	6	5	7	7	6	6	7	6	6	6	6		1	2
17	6	6	7	6	6	5	7	6	7	(4)	(4)	X	2	2
18	5	6	7	6	6	(4)	6	5	6	(4)	(4)	X	(5)	3
19	5	5	7	6	5	(3)	6	5	6	(4)	(4)	X	3	3
20	5	5	6	6	5	(4)	6	6	6	(4)	5		3	2
21	5	5	7	7	6	(4)	6	6	6	5	6		2	1
22	6	5	7	6	6	5	7	7	6	6	5		2	3
23	(4)	6	6	5	6	5	6	6	5	6	6		3	3
24	(3)	(3)	(4)	(4)	5	(4)	6	5	(4)	6	6		(5)	(4)
25	(3)	(3)	6	6	(4)	(3)	5	6	(4)	6	6		(4)	2
26	(4)	(3)	6	6	5	(3)	6	6	(4)	(4)	(4)	X	3	2
27	(4)	(3)	6	6	5	(3)	6	5	5	5	(4)	X	3	2
28	5	(4)	7	7	(4)	(3)	6	7	6	5	(4)	X	2	1
29	5	(4)	6	6	5	(4)	6	6	5	6	(4)		1	1
30	(4)	(4)	6	6	5	(4)	6	6	5	(4)	(4)		3	2
31	(4)	5	7	6	5	5	7	7	5	(4)	5		2	3

Score:

Quiet Periods	P	9	7	23	18	10	10	
	S	10	10	7	12	12	12	
	U	0	1	0	0	0	0	
	F	0	1	0	0	4	4	
Disturbed Periods	P	1	10	0	0	2	2	
	S	8	2	0	1	1	1	
	U	2	0	0	0	0	0	
	F	1	0	1	0	2	2	

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)

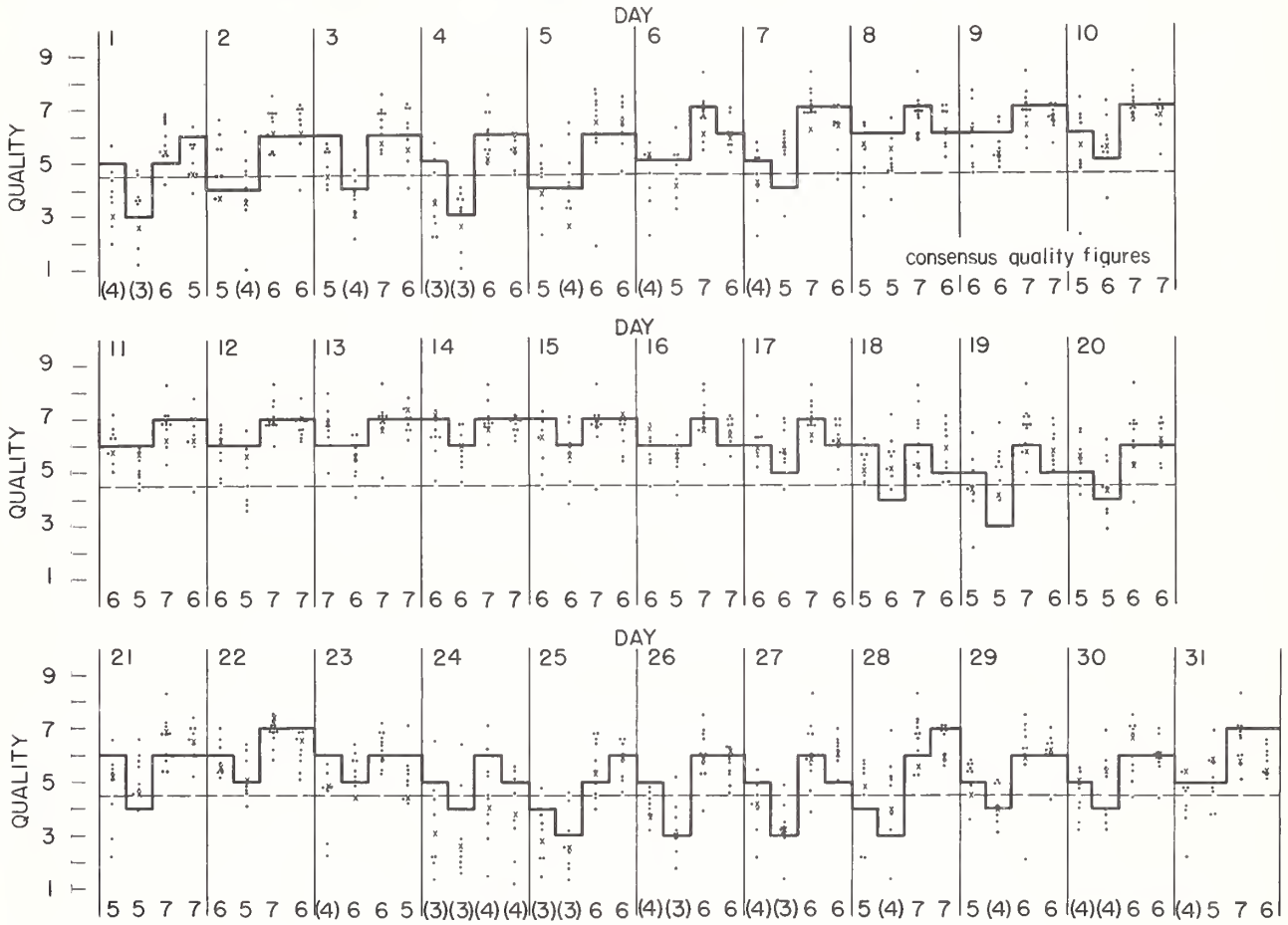
Table 87b

Short-Term Forecast--- October 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) --- October 1954

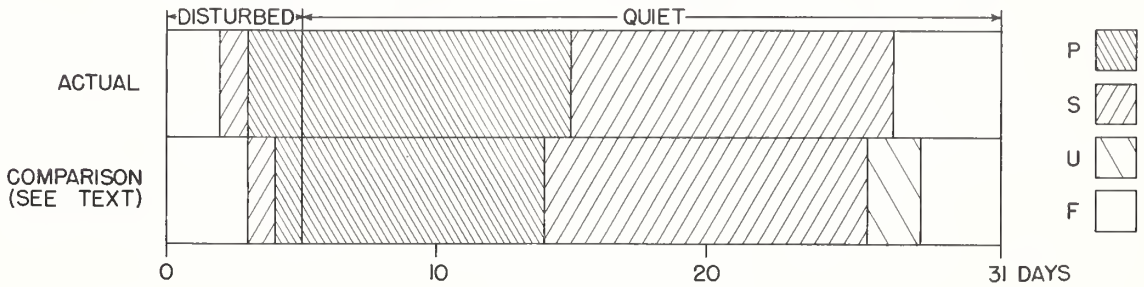


Table 88a

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																																				
Nov 1.7	-	-	-	-	1	2	4	1	1	5	10	10	8	4	1	-	-	-	-	-	-	-	-	-	1	2	2	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	1	3	4	2	2	5	5	3	2	1	1	-	-	-	-	-	-	-	1	2	3	1	2	1	-	-	-	-	-	-	-	-
3.x																																				
4.7	-	-	-	-	-	1	4	2	3	1	1	1	1	1	1	1	1	-	-	-	-	-	-	2	2	2	1	-	-	-	-	-	-	-	-	-
5.x																																				
6.7	-	-	-	-	1	2	1	-	-	-	-	-	-	-	3	7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	1	1	1	1	-	-	-	-	-	1	2	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.x																																				
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	3	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-	-	-	-	1	8	15	5	3	1	-	-	-	-	-	-	-	-	-	-	-
11.x																																				
12.7	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	-	-	-	-	-	-
13.x																																				
14.6	-	-	-	-	-	-	-	-	-	1	1	3	1	1	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	1	2	1	1	3	2	1	1	1	1	1	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-
16.x																																				
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18.x																																				
19.8	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
20.7	-	-	-	-	-	-	1	1	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	1	2	3	5	5	5	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	1	1	1	5	9	16	14	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.x																																				
25.7	-	-	-	-	-	-	-	1	1	2	6	6	6	3	2	1	-	-	-	-	-	-	-	-	-	1	2	1	1	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	2	2	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																				
28.x																																				
29.x																																				
30.x																																				

Table 89a

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

Date UT	Degrees north of the solar equator																		0°	Degrees south of the solar equator															
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																				
Nov 1.7	3	2	2	1	1	1	1	1	1	1	1	1	6	6	3	3	5	5	5	5	5	4	8	10	10	8	3	3	1	1	1	1	2	3	2	3	3
2.7	2	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	3	5	4	4	7	7	6	6	12	7	7	2	1	1	1	1	2	2	1	1	1
3.x																																				
4.7	2	2	2	2	1	1	1	1	1	1	2	1	2	3	3	3	4	5	4	4	4	4	4	4	5	5	1	1	1	1	1	1	1	1	2	2
5.x																																				
6.7	2	1	1	1	1	1	1	1	1	2	2	1	1	3	4	12	3	3	1	2	4	5	4	4	2	3	3	2	1	1	1	1	2	2	2	2	2
7.7	2	1	1	1	1	1	1	1	2	3	4	3	3	3	8	7	5	5	3	4	4	7	7	7	5	3	2	3	3	2	2	2	3	3	2	1	1
8.x																																				
9.6	1	1	1	1	1	1	1	1	2	2	2	2	3	4	7	8	7	6	6	6	7	13	14	12	4	3	2	2	2	2	1	1	2	2	2	4	2
10.7	1	1	1	1	1	1	1	1	1	1	1	2	3	4	6	8	8	7	7	3	3	14	14	16	17	2	2	3	2	2	2	2	2	2	2	2	2
11.x																																				
12.7	2	3	1	1	1	1	1	1	1	1	2	3	2	2	3	3	5	4	5	5	4	4	3	3	2	3	1	1	1	1	1	1	1	2	2	2	2
13.x																																				
14.6	2	2	1	1	1	1	1	1	1	2	3	2	2	3	5	5	4	4	5	5	4	4	4	4	4	3	3	2	1	1	1	1	2	2	3	2	2
15.7	2	2	2	2	2	2	2	1	1	2	2	2	1	5	6	9	9	9	8	7	9	8	9	8	6	6	3	3	3	2	1	2	2	2	3	3	1
16.x																																				
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18.x																																				
19.8	X	X	1	1	1	1	1	1	3	3	3	2	3	3	2	3	4	6	5	3	3	4	5	5	4	5	4	2	1	1	1	1	1	1	1	X	X
20.7	3	3	1	1	1	1	1	1	2	2	2	3	3	3	3	4	5	6	5	5	4	4	4	3	2	3	3	1	1	1	1	2	2	2	2	3	2
21.8a	3	2	1	1	1	1	1	2	2	3	3	2	9	3	5	6	6	5	5	4	3	4	4	3	3	3	2	2	1	1	2	2	2	2	2	2	2
22.7	2	2	2	2	1	1	1	1	3	4	3	11	6	3	4	6	5	5	6	11	8	7	6	4	4	4	3	3	3	3	2	2	2	3	3	3	2
23.7	2	2	2	1	1	1	1	1	1	2	1	8	17	6	4	4	6	8	10	12	10	9	9	6	6	5	4	3	2	2	2	2	3	3	3	3	3
24.x																																				
25.7	2	2	1	1	1	1	1	1	3	2	1	1	13	6	2	2	4	5	5	5	6	6	5	5	6	6	2	2	2	1	1	1	2	2	2	2	2
26.8a	2	2	1	1	1	1	1	1	1	1	2	2	2	3	2	3	4	3	4	4	4	3	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2
27.x																																				
28.x																																				
29.x																																				
30.x																																				

Table 89b

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																																					
Nov 1.7a	-	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	-		-	-	-	-	-	1	5	3	1	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	3	3	3	1	1	-	-	-	-	-	-	-	-
3.x																																						
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	1	1	1	2	1	-	-	-	-	-	-	-	-
5.x																																						
6.7	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-		-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	1	2	3	2	1	1	1	1	1		1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
8.x																																						
9.6a	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	1	1	1	1	1	1	2	1	-	-	-	-	-		-	-	-	-	1	5	6	3	1	1	-	-	-	-	-	-	-	-	-
11.x																																						
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	2	4	6	5	4	4	3	3	1	-	-	-	-	-	-
13.x																																						
14.6	-	-	-	-	-	-	-	-	1	1	3	2	1	2	1	-	-	-		-	-	-	1	3	6	8	10	6	3	1	1	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	1	2	3	3	16	6	2	1	-	-	-	-		-	-	-	-	1	3	5	12	12	6	3	2	1	-	-	-	-	-	-
16.x																																						
17.9	X	X	X	X	X	X	X	X	X	6	8	9	5	3	2	-	-	-		-	-	-	-	1	5	10	6	6	7	4	3	4	3	-	-	-	X	X
18.x																																						
19.8	X	X	X	-	-	-	-	1	3	2	2	1	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
20.7	-	-	-	-	-	-	-	1	2	2	1	-	-	-	-	-	-	-		-	1	3	2	1	-	-	-	-	-	1	1	1	-	-	-	-	-	-
21.8	-	-	-	-	-	-	1	2	1	1	1	2	3	3	1	-	-	-		-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-
22.7a	-	-	-	-	-	-	-	1	1	1	1	2	9	8	3	1	1	-		-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
23.7	-	-	-	-	-	1	1	1	1	1	1	1	15	15	5	-	-	-		-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
24.x																																						
25.7	-	-	-	-	-	-	-	-	1	1	1	1	3	2	2	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																						
28.x																																						
29.x																																						
30.x																																						

Table 89b

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

Date UT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																						
Nov 1.7a	3	1	1	4	2	2	2	4	3	5	4	3	5	7	7	8	6	5		8	5	4	5	8	5	1	3	2	2	1	1	2	3	3	3	3	3	3
2.7	1	1	1	1	1	1	1	1	1	1	1	2	3	4	4	6	6	6		6	6	5	5	4	4	2	2	2	1	1	1	1	2	2	2	2	2	2
3.x																																						
4.7	2	3	2	1	1	1	1	1	1	2	3	4	4	6	5	5	5	6		7	6	5	5	4	4	4	2	3	3	1	1	1	1	1	1	2	2
5.x																																						
6.7	2	1	3	2	1	1	3	3	2	2	3	3	3	2	4	8	8	7		6	5	5	5	2	3	2	2	1	1	1	1	2	2	2	2	3	2	2
7.7	1	1	4	2	1	1	3	2	3	1	2	2	1	1	3	3	5	5		7	7	7	6	4	4	4	2	3	2	2	1	2	2	2	2	2	2	2
8.x																																						
9.6a	2	2	1	1	1	1	1	1	2	2	2	2	2	2	3	3	4	5		5	4	4	4	3	6	3	2	1	1	1	1	1	1	1	3	2	1
10.7	2	3	2	1	1	1	1	1	1	1	2	3	3	4	9	6	6	6		8	8	5	4	5	15	13	2	1	2	1	1	1	1	2	2	3	2	1
11.x																																						
12.7	2	1	1	1	1	1	1	1	2	2	2	1	1	2	4	6	5	6		3	4	4	3	2	2	1	1	1	1	1	1	1	2	2	2	1	2	2
13.x																																						
14.6	2	2	1	2	1	1	1	1	3	5	7	6	6	5	5	4	4	3		6	5	4	4	3	2	2	1	2	2	1	1	1	2	3	3	2	2	2
15.7	1	2	1	1	1	1	1	2	3	3	24	7	19	5	6	6	6	7		8	6	6	5	4	5	11	1	2	3	3	1	1	1	3	4	2	2	2
16.x																																						
17.9	X	X	X	X	X	X	X	X	X	3	12	15	13	11	5	6	6	6		6	5	7	6	5	6	9	2	1	1	1	1	2	2	2	2	2	X	X
18.x																																						
19.8	X	X	X	2	2	2	2	2	2	3	5	5	9	8	8	6	6	7		5	3	5	4	3	7	8	5	1	1	1	1	1	1	1	2	2	X	X
20.7	2	2	2	1	1	1	2	3	2	2	3	4	6	6	6	5	6	5		4	4	2	4	3	4	3	3	2	1	1	1	1	2	2	3	3	3	3
21.8	2	2	2	1	1	1	1	1	1	2	3	8	9	12	6	8	8	7		5	5	3	3	3	2	2	2	1	1	1	1	1	1	1	1	2	2	3
22.7a	2	1	1	1	1	1	1	1	2	2	2	9	8	12	6	8	7	8		8	7	6	6	5	3	3	3	3	3	1	1	2	2	2	2	2	2	2
23.7	3	3	2	1	1	1	1	2	3	3	3	10	12	11	7	5	6	7		8	8	7	7	5	4	2	2	3	3	2	2	2	3	2	2	2	2	2
24.x																																						
25.7	2	2	1	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4		4	4	5	4	4	3	2	1	1	1	1	1	1	1	2	2	2	3	2
26.8a	2	2	1	1	1	1	1	1	1	2	2	2	2	3	3	4	4	4		3	3	3	3	2	4	2	2	2	2	1	1	1	1	1	2	2	2	2
27.x																																						
28.x																																						
29.x																																						
30.x																																						

Table 90a

Coronal observations at Climax, Colorado, (6702Å), 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																																						
Nov 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.x																																						
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.x																																						
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.x																																						
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.x																																						
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.x																																						
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.x																																						
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18.x																																						
19.8	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.x																																						
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																						
28.x																																						
29.x																																						
30.x																																						

Table 91a

Coronal observations at Sacramento Peak, New Mexico, (5303Å), 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																																						
Nov 1.8	-	-	-	-	2	3	4	9	7	8	12	14	13	11	7	3	2	2		2	-	-	-	2	2	3	5	6	7	4	3	2	X	X	X	X	X	X
2.7	-	-	-	2	2	3	4	8	7	4	5	7	8	7	5	3	2	-		-	-	-	2	2	3	4	13	11	10	5	3	2	-	-	-	-	-	-
3.7a	-	-	-	-	2	3	4	5	4	3	4	5	4	2	2	3	2	-		-	2	2	2	3	3	4	5	7	3	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	2	3	4	4	3	2	3	3	4	3	2	2	-	-		-	-	2	-	2	2	3	4	4	6	5	3	3	2	-	-	-	-	-
5.7	-	-	-	-	-	2	4	5	4	3	3	3	3	3	2	4	5	13		8	3	2	-	-	-	3	2	12	11	5	4	3	2	-	-	-	-	-
6.6	-	-	-	-	2	3	5	4	3	2	3	3	4	2	2	5	14	23		8	3	2	-	-	-	2	3	5	6	5	4	3	2	-	-	-	-	-
7.7	-	-	-	2	3	3	4	5	3	2	2	2	-	2	3	4	5	16		3	2	-	-	2	3	3	2	3	3	3	4	3	2	3	-	-	-	-
8.7a	-	-	-	-	-	2	2	2	-	2	3	2	3	3	2	2	2	2		-	2	3	4	5	8	6	3	3	2	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	2	3	2	3	4	3	2	-	-		-	2	3	3	13	12	10	7	4	2	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	-	-	-		-	-	3	3	3	8	14	11	7	5	3	2	2	-	-	-	-	-	-
11.x																																							
12.7	-	-	-	-	2	2	3	2	2	3	4	4	5	4	5	4	3	2		-	2	2	3	3	4	4	6	8	10	4	3	2	2	-	-	-	-	-
13.8a	-	-	-	-	-	-	-	-	2	3	4	4	4	3	4	3	2	-		-	-	-	-	2	3	4	4	3	3	2	2	-	-	-	-	-	-	-	-
14.x																																							
15.7	-	-	-	-	-	-	-	2	3	3	3	4	4	5	3	2	-	-		-	-	-	-	2	2	2	3	4	3	2	2	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	3	4	5	5	4	3	3	2	-		-	2	2	3	2	2	3	4	4	3	2	2	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	2	3	3	2	3	4	3	2	-		-	-	-	-	-	2	2	3	2	3	2	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	2	2	3	3	3	4	3	3	2		-	-	-	-	-	-	2	3	3	4	3	3	2	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	2	2	2	3	2	3	3	4	3	2		-	-	-	-	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	2	2	3	4	5	4	3	3	3	3	2	2	-		-	-	-	2	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	2	2	X	X	X	X	X	X	X	X		3	4	4	4	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	2	3	4	3	4	4	6	17	6	4	3	2	-	2	2	3	3	3	3	4	3	2	-	-	-	-	-	-	-	-	-	-
23.x																																							
24.7a	-	-	-	-	-	-	-	2	3	3	4	7	13	23	21	5	4	3		2	2	3	2	3	2	3	4	6	5	3	2	-	-	-	-	-	-	-	-
25.8	-	-	2	-	2	3	2	-	5	6	8	14	17	20	12	8	5	3		2	2	3	3	2	4	5	5	11	10	5	3	2	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	2	2	3	4	5	11	12	16	8	5	2		-	-	-	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	2	2	3	3	4	5	6	12	14	13	11	7	4	3	2		-	-	-	2	3	3	4	4	5	5	4	3	2	-	-	-	-	-	-
28.7a	-	-	-	-	-	2	2	3	2	3	5	7	10	7	5	3	2	-		-	-	-	-	2	3	4	5	5	4	3	2	-	-	-	-	-	-	-	-
29.7	-	-	-	-	2	3	4	4	5	9	11	20	15	13	11	5	3	2		-	-	2	2	3	5	11	13	16	19	10	5	3	2	-	-	-	-	-
30.7	-	-	-	2	3	4	5	5	6	7	8	11	12	10	9	5	4	3		-	2	3	2	4	5	9	13	19	16	11	3	2	-	-	-	-	-	-

Table 90b

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

Date UT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																						
Nov 1.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.x																																						
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.x																																						
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.x																																						
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.x																																						
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.x																																						
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.x																																						
17.9	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
18.x																																						
19.8	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.x																																						
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.x																																						
28.x																																						
29.x																																						
30.x																																						

Table 91b

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

Date UT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																						
Nov 1.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	6	10	8	4	3	2	-	-	-	-	-	-
2.7	-	-	-	-	-	2	2	2	2	3	2	2	3	3	X	X	X	X		X	X	X	X	X	X	X	5	3	2	2	2	-	-	-	-	-	-
3.7	-	X	X	X	-	-	2	2	2	2	2	3	3	2	2	-	-	-		-	-	-	-	2	3	4	3	4	5	2	2	2	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	2	3	2	2	2	-	-	-	-		-	-	-	2	3	3	3	2	3	4	2	2	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	2	3	2	3	3	3	3	2	3	2		2	-	-	-	2	3	3	3	4	3	2	2	-	-	-	-	-	-	-
6.6	-	-	-	-	-	-	-	-	2	3	4	4	5	3	3	2	2	-		-	-	2	2	3	3	3	3	2	3	2	2	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	2	3	4	5	6	5	4	4	3		2	2	2	-	2	3	4	3	3	3	2	2	2	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	2	3	4	5	4	3	2	2		-	2	2	3	4	5	5	6	5	3	3	2	2	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	4	3	-		-	-	-	2	3	3	5	8	7	5	3	3	2	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	2	3	4	4	3	2	-	-		-	-	2	2	3	4	11	7	5	4	3	3	3	2	-	-	-	-	-
11.x																																						
12.7a	-	-	-	-	-	2	2	-	-	2	3	3	3	2	3	2	3	2		-	2	3	4	5	12	23	20	18	14	10	5	4	3	2	2	2	-	-
13.8a	-	-	-	-	-	-	-	-	-	2	3	3	4	4	3	2	2	-		-	-	2	3	4	5	10	14	13	12	6	3	3	2	-	-	-	-	-
14.x																																						
15.7	-	-	-	-	-	2	2	3	4	4	6	14	22	14	8	3	2	-		-	-	-	2	3	6	13	16	20	16	8	5	4	4	3	2	-	-	-
16.7	-	-	-	-	-	-	2	3	5	8	14	35	40	23	11	3	2	2		-	2	2	3	5	11	28	32	30	23	15	10	7	8	5	3	2	-	-
17.7	-	-	-	-	-	-	2	3	4	5	5	11	18	16	14	5	4	3		-	-	2	3	3	4	14	8	8	7	8	6	5	8	4	3	2	-	-
18.7	-	-	-	-	-	-	2	3	5	8	11	14	13	10	5	4	3	2		2	2	3	5	4	5	10	11	12	11	10	6	5	8	7	3	2	-	-
19.7	-	-	-	-	-	-	-	3	5	8	9	8	6	4	3	2	2	3		2	3	4	12	4	3	2	4	5	4	4	5	8	9	8	3	2	-	-
20.7	-	-	-	-	-	2	3	4	5	7	8	8	5	3	2	-	-	2		3	3	4	8	9	3	2	3	4	3	4	5	5	6	5	3	2	-	-
21.8a	-	-	-	-	-	-	-	-	2	2	3	3	2	4	5	7	6	5		3	3	2	3	3	4	3	4	4	3	3	4	5	X	X	X	X	X	-
22.7	-	-	-	-	-	-	2	3	4	5	5	5	5	16	19	15	3	2		-	-	-	2	2	3	3	4	3	2	2	3	4	3	4	5	4	3	-
23.x																																						
24.7a	-	-	-	-	-	-	2	3	3	4	3	4	4	11	15	6	5	3		2	-	-	-	2	2	3	4	5	3	2	2	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	2	4	5	4	5	6	8	7	5	4	3		2	2	2	2	2	3	4	5	4	3	4	3	2	2	-	-	-	-	-
26.6	-	-	-	-	-	-	-	2	3	3	4	4	5	4	3	3	2	2		-	-	2	3	3	3	3	2	2	2	3	3	2	2	-	-	-	-	-
27.7	-	-	-	-	-	2	2	2	3	3	4	5	5	4	3	3	2	2		-	-	-	-	2	3	3	3	4	5	4	3	2	2	-	-	-	-	-
28.7a	-	-	-	-	-	-	2	2	3	3	3	4	5	5	3	2	-	-		-	-	-	-	-	2	2	3	4	3	3	3	2	2	-	-	-	-	-
29.7	-	-	-	-	-	-	2	3	3	2	4	5	4	3	2	2	-	-		-	-	-	-	-	2	2	3	4	5	4	3	3	2	-	-	-	-	-
30.7	-	-	-	-	-	-	-	2	3	2	3	4	4	3	3	2	-	-		-	-	2	2	3	3	3	4	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																																					
Nov 1.8	5	3	3	4	3	4	4	3	2	4	3	3	13	14	16	11	12	14	15	15	16	12	11	13	14	15	13	8	5	4	X	X	X	X	X	X	X
2.7	4	4	3	3	3	2	2	2	2	3	2	3	5	7	7	7	8	9	10	9	10	11	11	11	12	14	13	8	4	5	3	2	2	3	2	3	3
3.7a	3	2	2	3	2	2	3	2	3	2	2	2	3	2	2	2	3	4	5	6	5	6	7	8	10	16	11	5	3	3	2	2	2	3	3	3	3
4.7	3	4	3	2	2	2	2	2	3	2	3	4	3	5	8	7	7	8	8	8	7	7	8	7	11	12	13	5	3	3	2	2	2	3	3	2	3
5.7	4	4	3	4	4	3	4	4	3	4	4	5	4	5	8	13	16	17	16	14	13	11	11	12	14	13	13	7	5	4	4	3	2	5	4	5	4
6.6	4	4	4	4	3	4	3	3	4	4	5	7	4	5	10	11	12	16	11	10	8	9	11	12	12	11	8	7	6	5	4	4	3	4	4	5	4
7.7	4	4	3	4	3	3	3	4	3	4	6	7	8	10	11	14	16	15	13	11	11	12	13	13	12	11	8	6	5	3	4	3	2	3	4	4	4
8.7a	4	3	3	4	2	3	2	2	3	4	5	8	9	7	8	10	14	15	13	14	15	16	18	16	13	11	8	6	3	3	2	2	3	3	4	3	4
9.7a	3	2	3	4	5	-	3	2	2	3	4	4	5	6	8	11	13	14	14	12	11	11	13	14	12	5	6	4	3	2	3	3	2	2	3	3	4
10.7	4	3	4	3	2	3	3	2	2	3	2	4	5	7	8	12	13	14	15	12	11	11	13	14	18	5	4	5	5	5	4	3	3	3	2	2	3
11.x																																					
12.7	4	5	5	4	5	6	3	2	2	3	5	8	7	8	10	11	13	14	15	14	13	12	14	13	12	11	12	5	4	4	4	3	4	2	3	3	6
13.8a	4	3	3	3	2	3	3	3	4	3	4	5	4	4	5	5	7	8	9	10	11	11	12	11	7	6	5	4	3	2	2	2	3	2	2	2	3
14.x																																					
15.7	5	4	4	3	3	3	3	4	3	5	5	6	5	5	9	10	12	13	14	13	11	11	11	10	8	7	8	6	4	5	4	2	3	2	3	4	5
16.7	4	5	4	4	4	3	3	2	4	4	5	4	3	4	6	11	14	16	14	12	11	13	14	14	15	14	10	6	5	5	4	2	3	2	3	4	4
17.7	4	5	3	3	4	3	3	2	3	4	5	4	5	6	6	8	10	12	13	11	10	8	9	11	12	11	5	3	3	3	4	2	3	4	4	5	3
18.7	4	3	3	4	4	4	4	4	3	4	5	5	6	8	9	11	12	14	13	13	13	12	11	10	11	11	6	4	3	4	3	2	3	4	4	4	3
19.7	4	5	4	5	3	4	3	4	3	5	6	6	7	8	8	9	11	13	16	14	13	12	11	11	10	8	7	8	7	5	4	3	3	4	4	3	3
20.7	4	4	5	5	3	4	4	4	4	4	4	4	5	7	8	8	10	14	15	14	13	12	12	11	8	9	10	8	5	4	4	2	3	4	4	4	4
21.8a	5	4	3	4	5	3	3	2	3	4	6	6	8	X	X	X	11	11	10	8	7	8	7	6	5	6	7	6	3	3	3	4	3	4	4	3	3
22.7	3	4	5	4	4	3	2	4	4	4	5	4	8	17	8	11	13	12	11	14	15	13	11	8	6	5	5	3	3	3	2	2	3	4	4	4	4
23.x																																					
24.7a	4	4	3	3	2	3	2	3	4	5	5	4	5	20	16	7	8	9	11	14	13	12	11	12	12	13	12	5	6	3	2	3	2	3	2	3	4
25.8	6	7	8	7	5	6	5	6	7	8	8	7	11	32	16	13	16	20	20	18	16	15	15	14	14	13	10	7	5	4	3	3	4	4	5	4	5
26.6	3	4	4	3	4	3	2	3	4	5	4	4	6	11	3	5	12	13	14	16	14	13	12	11	8	6	5	5	4	3	3	2	2	3	5	4	4
27.7	4	4	5	3	4	3	2	3	4	5	8	7	6	5	4	6	11	14	15	16	15	14	11	9	8	9	11	11	10	5	4	3	4	2	4	4	5
28.7a	3	3	3	2	2	2	2	2	3	3	3	3	3	6	4	4	5	8	8	9	8	7	7	5	5	6	7	4	3	2	2	-	2	2	2	3	3
29.7	4	4	4	5	4	4	3	3	4	5	3	3	4	14	13	14	14	15	15	16	13	12	11	7	5	15	16	14	11	3	2	3	4	3	4	3	4
30.7	3	3	5	4	5	4	2	2	3	2	-	4	5	5	14	12	11	12	14	11	10	9	8	8	5	12	16	14	4	3	2	2	2	3	3	4	3

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																																					
Nov 1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.x																																					
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.x																																					
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-

Table 92b

Coronal observations at Sacramento Peak, New Mexico, (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																																					
Nov 1.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	13	5	4	4	5	5	4	2	2	3	4	5	5
2.7	3	3	2	3	3	2	3	2	3	3	2	3	3	X	X	X	X	X	X	X	X	X	X	X	4	3	3	2	3	2	2	2	3	2	3	4
3.7	3	3	4	2	3	3	3	2	2	3	2	2	3	5	8	7	6	7	8	6	5	4	5	6	5	5	4	3	3	3	2	2	2	2	2	3	3
4.7	3	3	3	2	3	2	3	3	2	2	3	4	4	5	6	5	5	5	7	8	6	5	5	4	4	6	4	3	4	2	2	2	3	2	3	2	3
5.7	4	4	4	4	3	3	4	4	2	4	5	6	7	8	11	11	12	16	15	13	12	11	10	9	8	7	6	5	5	3	2	2	5	4	3	3	4
6.6	4	4	5	4	4	2	3	4	5	4	8	7	6	7	8	13	14	13	13	13	12	11	8	6	7	6	5	6	5	4	3	3	4	4	3	3	4
7.7	4	4	3	4	5	3	2	3	4	5	4	6	4	4	5	7	8	10	11	13	12	11	10	8	9	8	6	4	3	4	2	2	3	3	4	5	4
8.7a	4	3	3	4	5	4	3	3	4	5	4	5	3	3	6	8	11	14	13	11	12	13	10	11	12	11	6	5	2	3	2	3	3	3	4	5	4
9.7a	4	2	3	3	4	2	3	2	2	3	4	4	5	3	4	5	5	6	11	12	11	10	8	9	16	11	7	3	4	3	2	3	4	3	3	4	3
10.7	3	2	2	3	3	2	2	3	3	3	4	5	4	4	6	11	10	11	12	13	11	10	7	12	20	21	5	4	4	2	3	3	3	2	3	5	4
11.x																																					
12.7a	6	5	5	4	4	3	3	2	2	4	7	9	10	10	11	13	14	15	16	14	13	12	11	9	8	6	6	7	5	4	4	4	2	3	5	6	4
13.8a	3	3	3	2	2	3	-	2	2	3	5	7	7	6	5	6	8	11	12	12	11	10	9	4	4	2	2	2	3	3	2	3	2	4	5	3	4
14.x																																					
15.7	5	4	5	2	3	2	2	2	3	5	8	16	23	20	10	8	7	9	14	15	12	11	8	8	11	14	2	3	4	5	4	3	3	3	4	5	5
16.7	4	5	4	4	2	3	3	4	5	5	10	23	32	20	11	14	15	13	14	14	14	13	12	14	16	17	3	2	3	5	4	5	3	3	4	5	4
17.7	3	2	3	4	2	2	2	2	3	3	8	20	28	18	10	8	11	10	10	11	11	10	9	9	16	14	4	3	3	2	2	3	3	3	4	5	4
18.7	3	4	3	4	3	2	3	3	4	4	8	14	18	16	16	15	16	15	14	11	12	11	12	11	15	18	10	4	3	2	3	3	4	2	3	4	4
19.7	3	5	4	5	4	2	3	4	5	3	5	8	14	13	13	12	11	11	10	11	12	13	12	13	16	15	12	8	5	3	4	3	3	2	5	4	4
20.7	4	5	4	5	4	3	3	3	4	5	5	6	8	11	13	14	14	13	14	11	12	11	10	8	11	12	9	7	6	3	4	4	4	3	4	4	4
21.8a	3	3	3	2	2	2	2	2	3	3	3	3	5	8	10	11	10	11	12	13	14	13	11	9	8	5	5	6	5	X	X	X	X	X	X	4	5
22.7	4	3	3	3	3	2	2	2	2	3	2	2	8	10	11	14	11	12	12	11	11	10	8	7	5	4	6	5	4	2	3	2	3	3	2	4	3
23.x																																					
24.7a	4	4	3	4	3	2	2	2	3	4	5	5	6	12	12	11	11	12	14	13	11	11	10	10	9	5	5	4	4	3	2	2	2	3	4	4	4
25.8	5	6	8	6	7	4	3	3	5	5	6	7	8	10	11	12	14	13	14	13	13	12	12	11	9	7	10	8	8	5	4	5	4	4	5	6	6
26.6	4	4	4	3	3	2	2	2	3	4	4	5	5	6	7	8	10	11	13	14	13	12	11	11	13	12	8	6	5	3	3	2	2	2	3	4	3
27.7	5	5	6	3	4	3	2	3	4	5	6	7	8	10	14	15	16	17	18	14	13	11	11	10	10	14	12	10	8	2	3	2	3	2	3	4	4
28.7a	3	2	2	2	2	2	-	2	-	3	3	4	3	5	6	8	7	7	8	9	8	7	6	5	4	3	4	3	-	-	-	2	2	3	3	3	3
29.7	4	4	5	4	3	2	2	3	4	5	4	5	5	8	13	14	13	14	15	14	14	13	12	11	7	5	5	6	4	3	3	3	2	3	3	4	4
30.7	3	3	3	3	2	2	2	2	3	3	2	2	4	6	8	10	11	12	12	12	11	11	12	10	7	4	3	2	2	2	3	2	2	-	2	2	3

Table 93b

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

Date UT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Nov 1.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.x																																					
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	2	-	-	-	-	-	-	-	-	-
13.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.x																																					
15.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	2	2	4	3	2	-	-	-	-	-	-	-	-	2	3	2	2	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.x																																					
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 94

Zürich Provisional Relative Sunspot Numbers

November 1954

Date	R_Z*	Date	R_Z*
1	0	17	7
2	0	18	7
3	0	19	7
4	0	20	0
5	0	21	0
6	7	22	0
7	8	23	0
8	7	24	0
9	24	25	0
10	36	26	0
11	44	27	0
12	38	28	0
13	37	29	0
14	23	30	0
15	9	Mean:	8.7
16	7		

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

Table 95

American Relative Sunspot Numbers

October 1954

Date	R_A'	Date	R_A'
1	0	17	1
2	0	18	2
3	2	19	8
4	3	20	8
5	2	21	8
6	2	22	11
7	0	23	10
8	3	24	9
9	1	25	9
10	0	26	7
11	3	27	0
12	5	28	0
13	7	29	0
14	12	30	0
15	19	31	0
16	15	Mean:	4.7

Table 96

Solar Flares, November 1954

No solar flares were reported for the month of November.

Table 97

Indices of Geomagnetic Activity for October 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									Final Selected Days
		Three-hour interval								Sum	
		1	2	3	4	5	6	7	8		
1	1.4	5-	6+	5+	5+	3o	6-	4o	3-	36+	Five
2	0.8	3+	4-	2+	0+	1-	0+	2-	4o	16+	Quiet
3	1.3	5-	5-	4o	2+	3o	4-	4-	5o	31o	
4	1.2	6o	4o	3-	3o	2o	3+	2o	3-	26-	9
5	0.7	1+	3-	1+	2-	1-	2+	4-	3-	16+	10
											12
6	1.2	2o	4-	4-	3o	5-	5+	2o	2+	27-	13
7	0.8	2-	2o	2-	3o	3+	3+	2o	1+	18+	15
8	0.7	3-	2+	2o	1+	3+	3o	2o	3-	19+	
9	0.1	2o	3o	2o	1-	0+	0+	0+	1+	10o	
10	0.1	2-	3-	2-	1o	1-	0+	2o	1o	11o	
11	0.1	2+	3-	3-	2-	1+	0+	0+	0o	11+	Five
12	0.0	0o	0o	0o	0o	0o	0o	0o	0o	0o	Disturbed
13	0.1	0o	0o	1o	1o	0+	1-	1o	2-	6-	
14	0.5	2o	0+	1-	2+	1-	1o	3o	2o	12o	1
15	0.2	2-	2o	2o	2+	2-	0+	0+	1-	11o	3
											18
16	0.6	1+	0o	2-	1-	2+	4o	3-	2-	14+	23
17	0.5	2o	2+	1+	2-	1+	1+	2o	3+	15+	24
18	1.5	5-	5-	5-	5+	5+	6-	2o	3o	35+	
19	1.0	2+	3+	3o	5-	4o	4-	2+	2+	26-	
20	0.8	4-	2+	4o	3+	3o	2-	2-	3-	22+	
21	0.3	2-	1o	2o	2+	2-	1o	2-	1-	12o	Ten
22	0.9	1-	2o	3-	2+	2-	3o	3+	3o	19-	Quiet
23	1.3	4-	3o	3+	4+	3+	4-	4+	5-	30+	
24	1.5	5o	5+	5o	4+	4+	6o	5-	4o	39-	9
25	1.1	5-	5+	4o	4-	4o	3-	2-	1+	27+	10
											11
26	0.7	3-	2+	3+	2+	1+	2+	3o	2o	19+	12
27	1.1	1o	3-	3+	5o	3+	4o	2-	1o	22o	13
28	0.1	3-	2+	2-	2-	1o	2o	1o	1o	13+	14
29	0.2	0+	1-	2-	3-	2-	0+	1-	3-	11-	15
30	0.9	4o	5o	2+	1o	3o	2o	2o	3+	23-	21
31	1.0	2-	3o	3o	3o	3o	3o	3+	4+	24+	28
											29
Mean:	0.74										

Table 98

Sudden Ionosphere Disturbances Observed at Washington, D. C.

November 1954

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

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.

GRAPHS OF IONOSPHERIC DATA

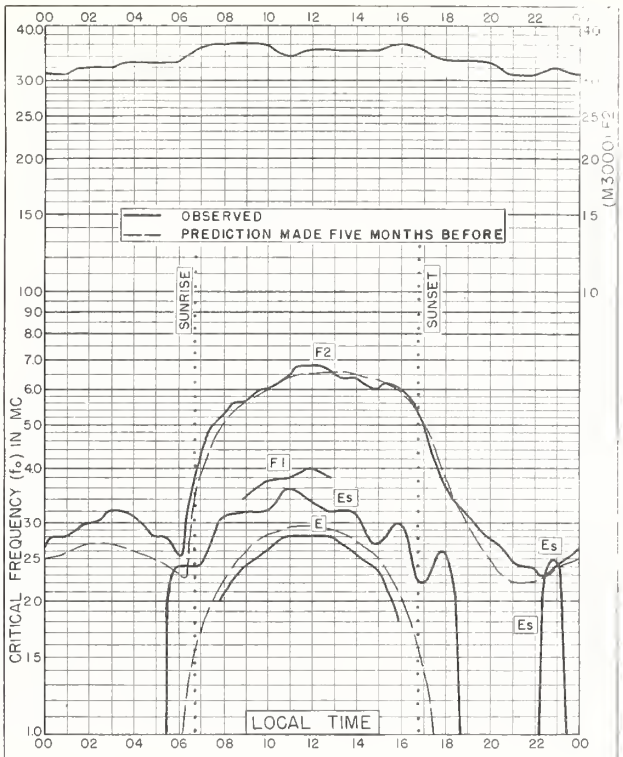


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W NOVEMBER 1954

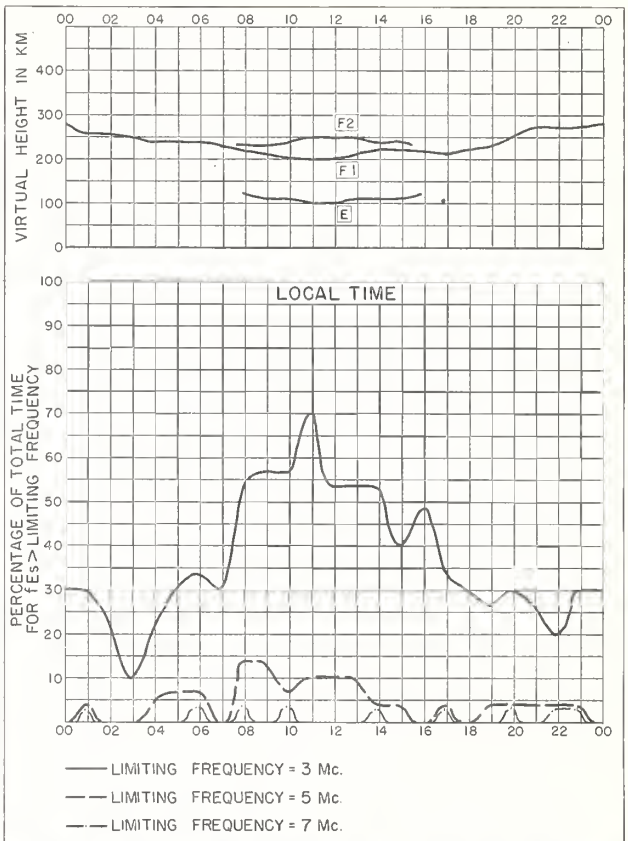


Fig. 2. WASHINGTON, D.C. NOVEMBER 1954

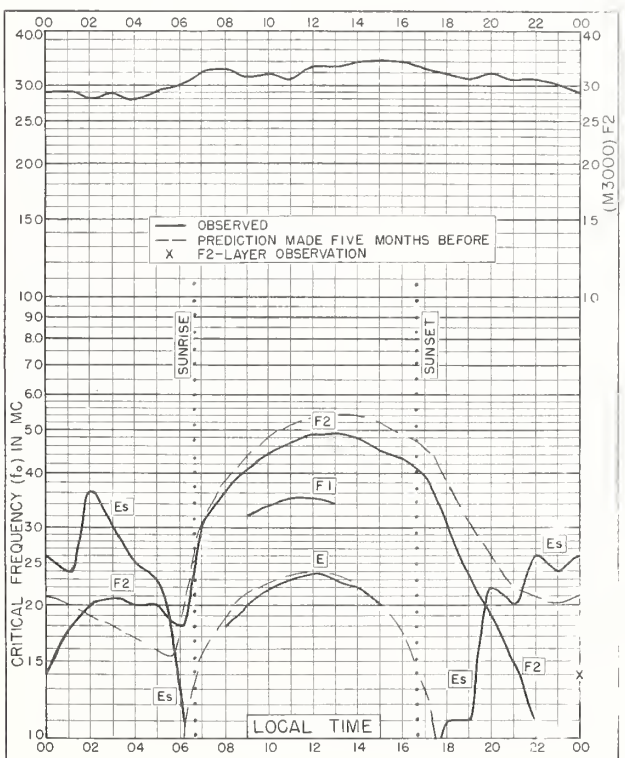


Fig. 3. ANCHORAGE, ALASKA
61.2°N, 149.9°W OCTOBER 1954

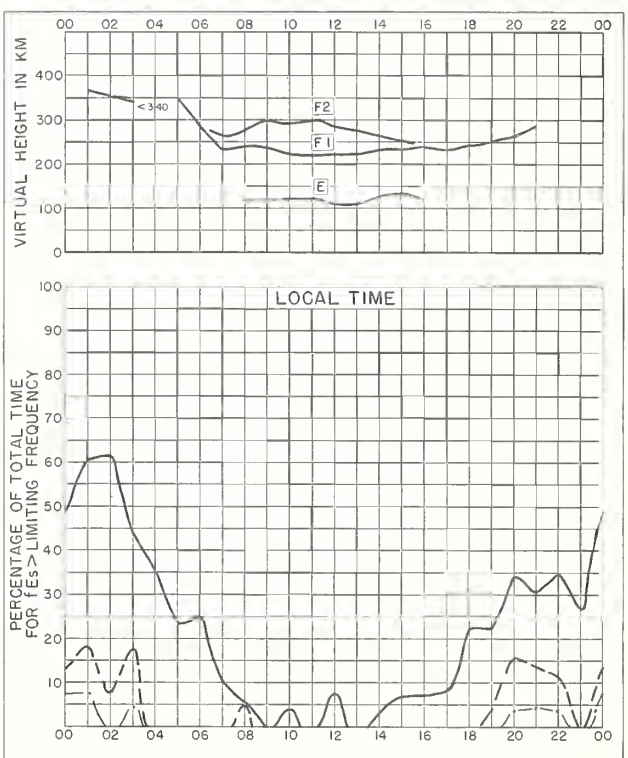


Fig. 4. ANCHORAGE, ALASKA OCTOBER 1954

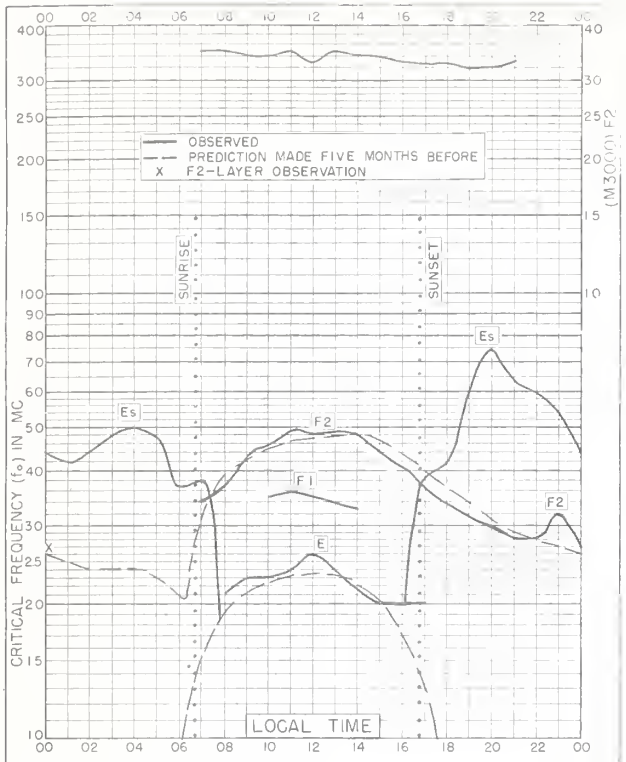
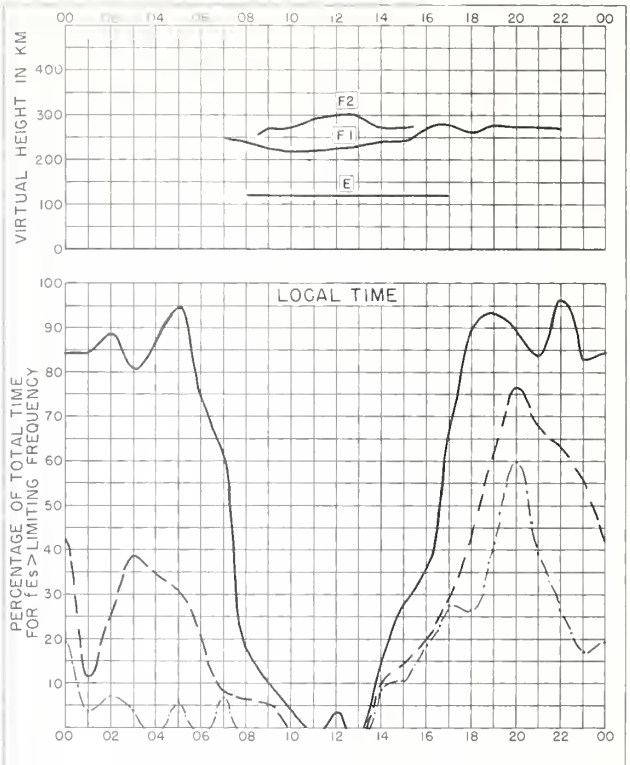


Fig. 5. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W OCTOBER 1954



OCTOBER 1954
Fig. 6. NARSARSSUAK, GREENLAND

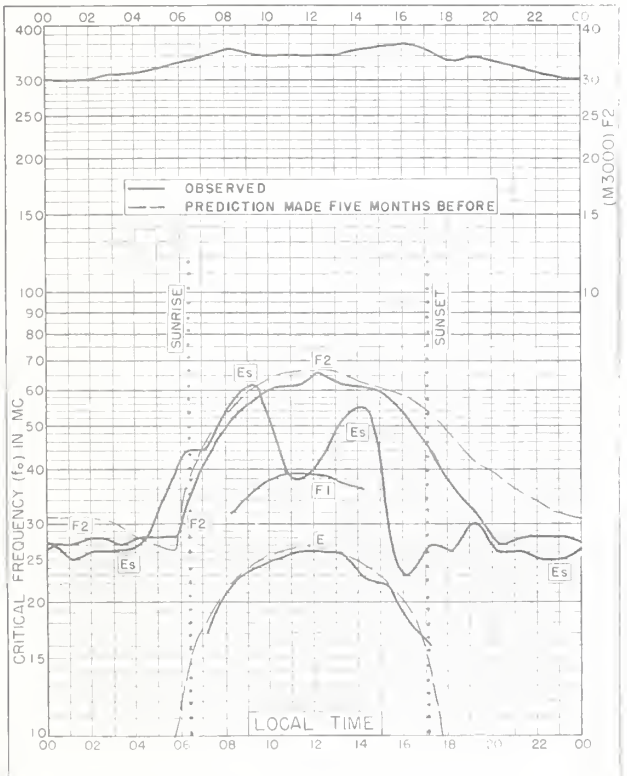


Fig. 7. ADAK, ALASKA
51.9°N, 176.6°W OCTOBER 1954

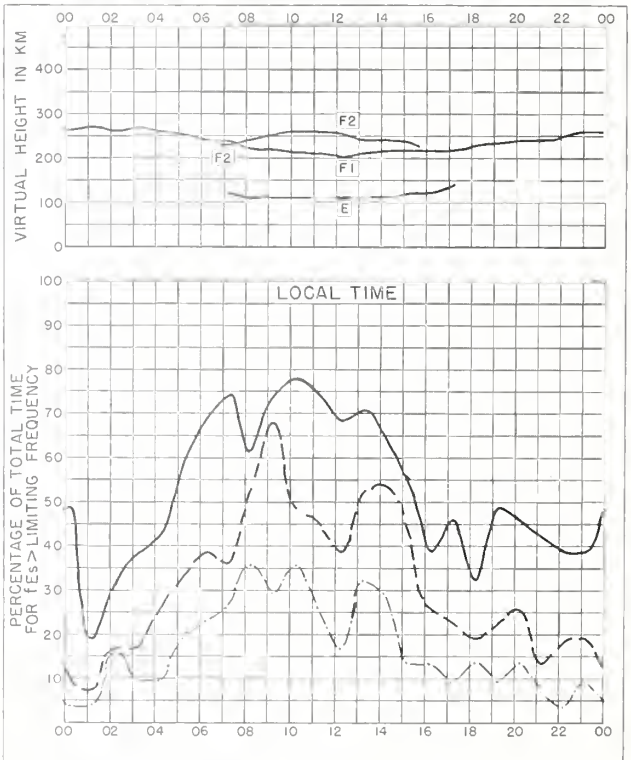


Fig. 8. ADAK, ALASKA OCTOBER 1954

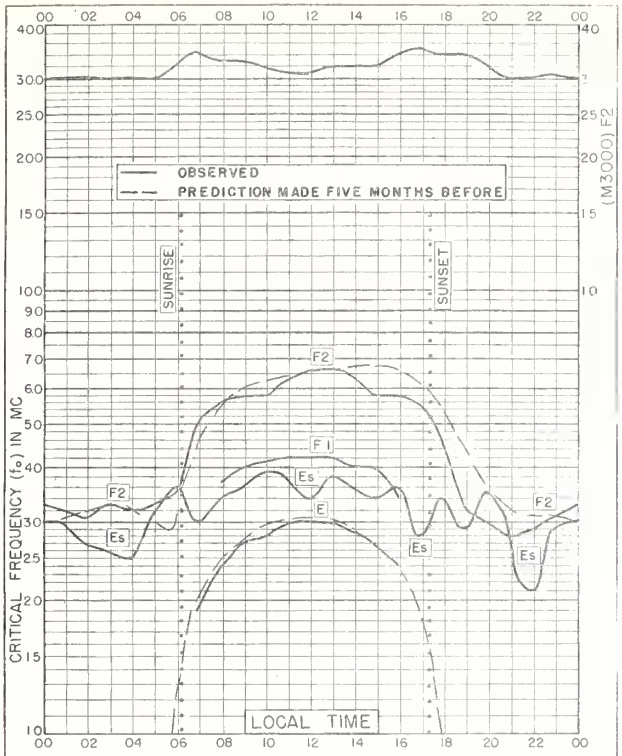


Fig. 9. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W OCTOBER 1954

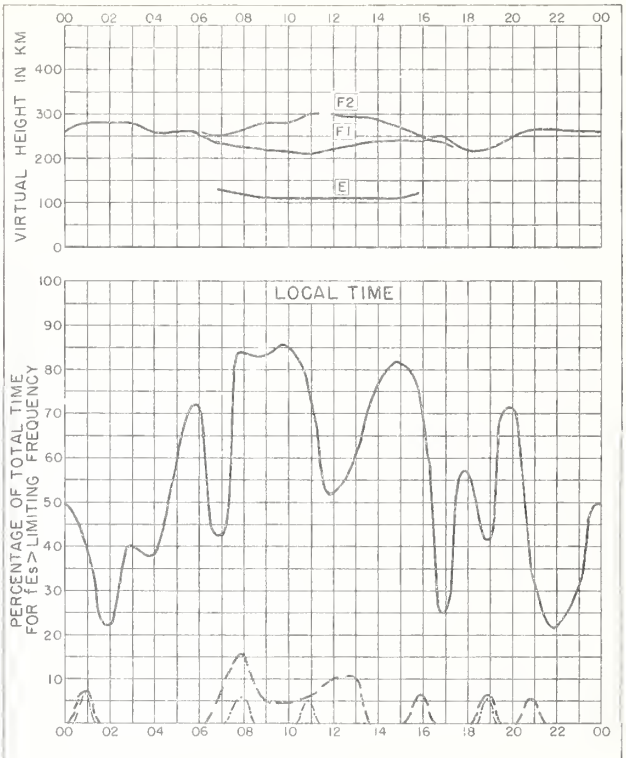


Fig. 10. SAN FRANCISCO, CALIFORNIA OCTOBER 1954

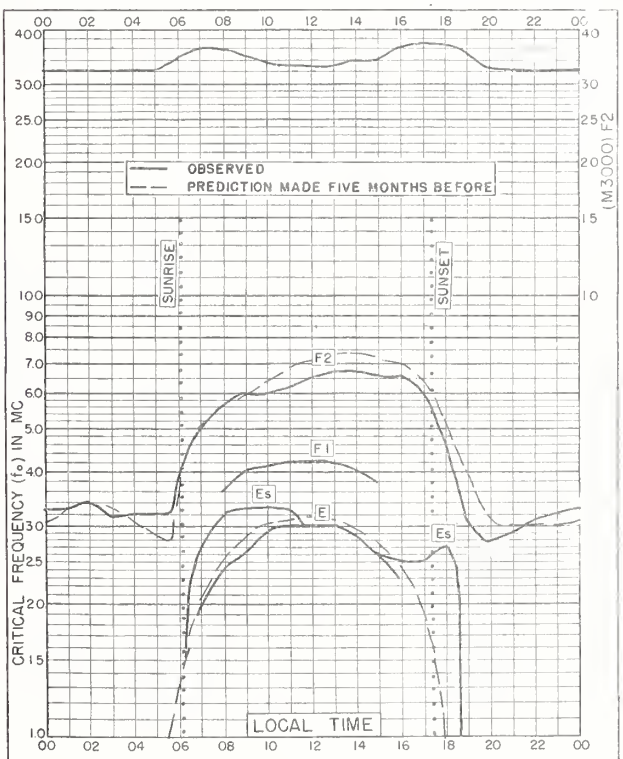


Fig. 11. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W OCTOBER 1954

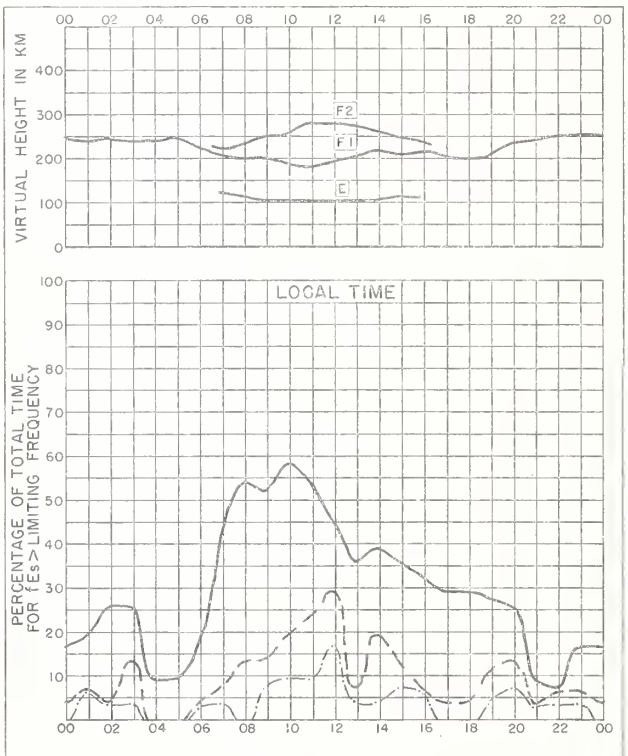


Fig. 12. WHITE SANDS, NEW MEXICO OCTOBER 1954

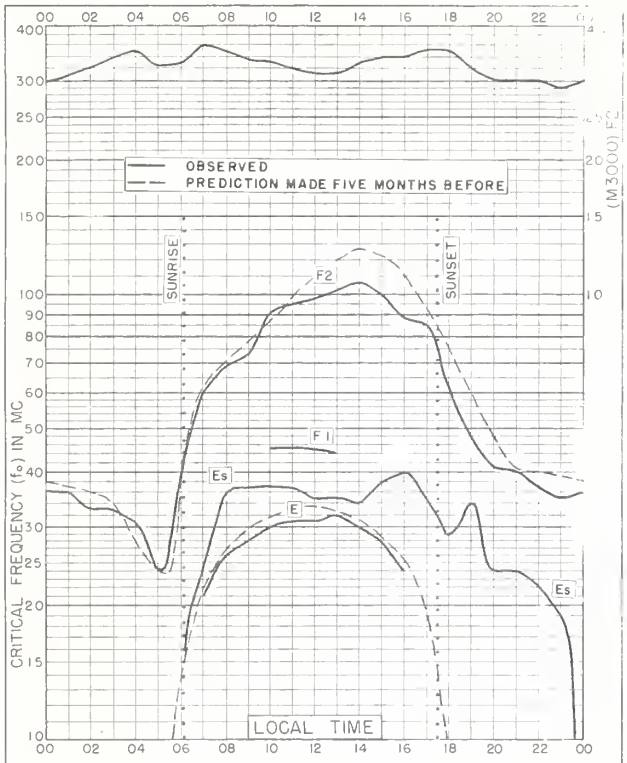


Fig. 13. OKINAWA I.
26.3°N, 127.8°E OCTOBER 1954

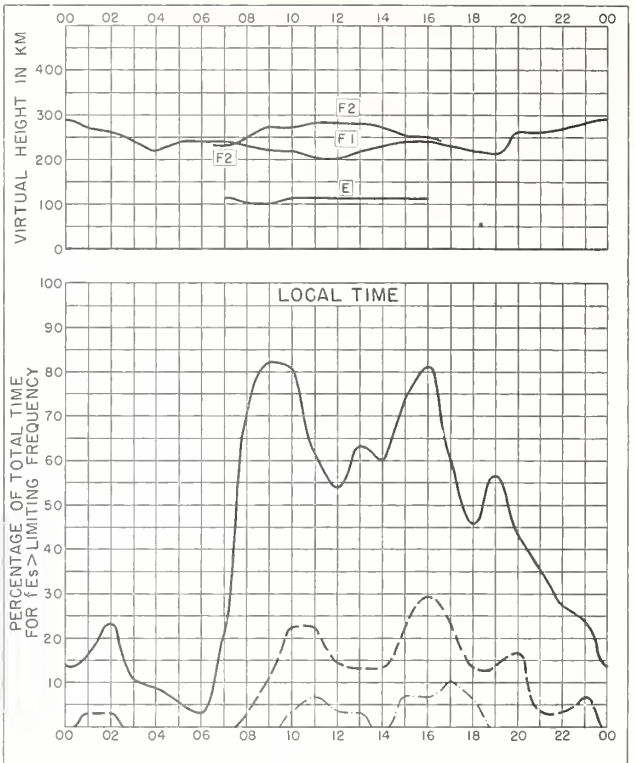


Fig. 14. OKINAWA I. OCTOBER 1954

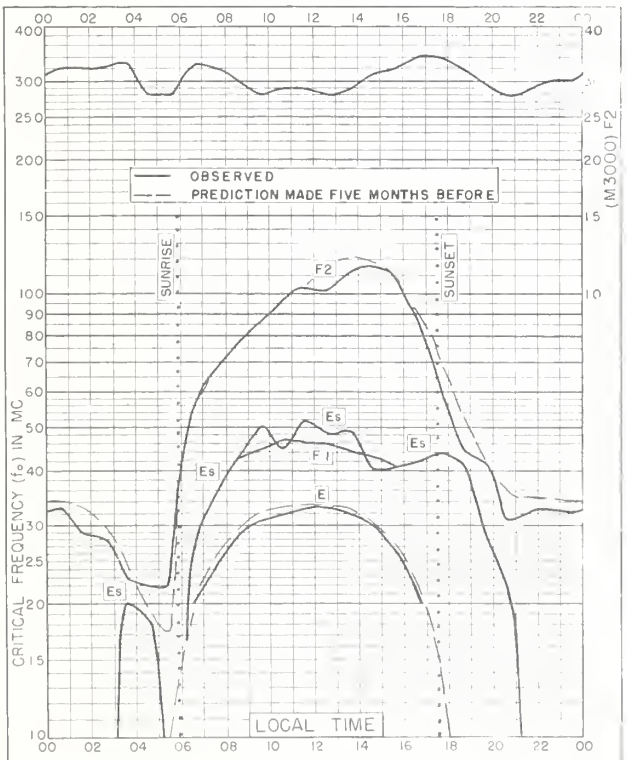


Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W OCTOBER 1954

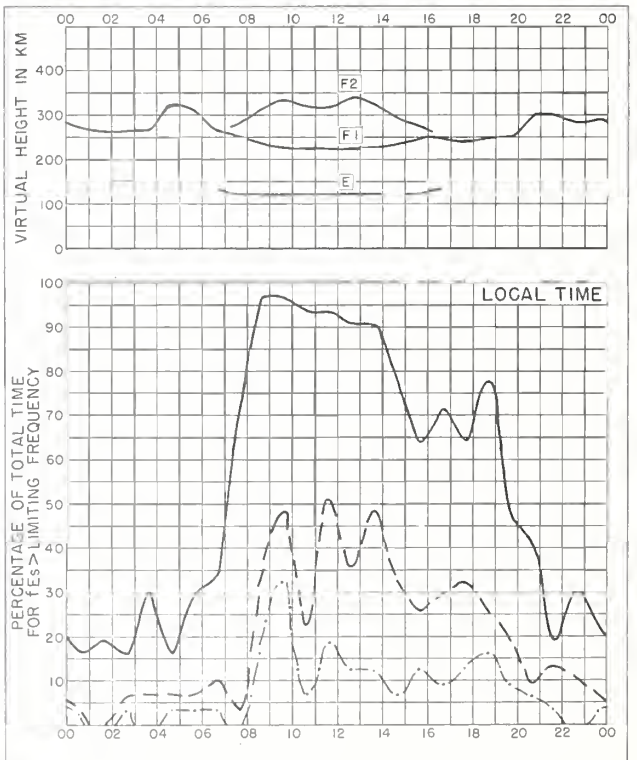


Fig. 16. MAUI, HAWAII OCTOBER 1954

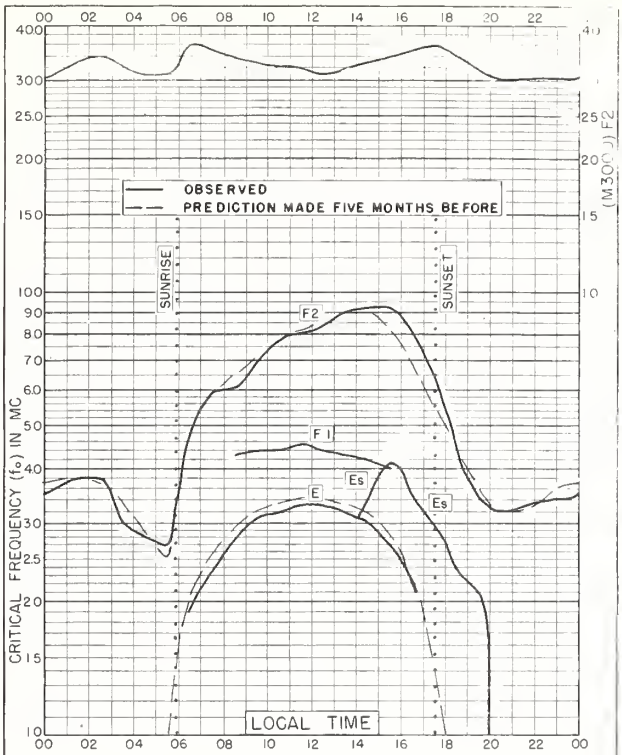


Fig. 17. PUERTO RICO, W. I.
18.5°N, 67.2°W OCTOBER 1954

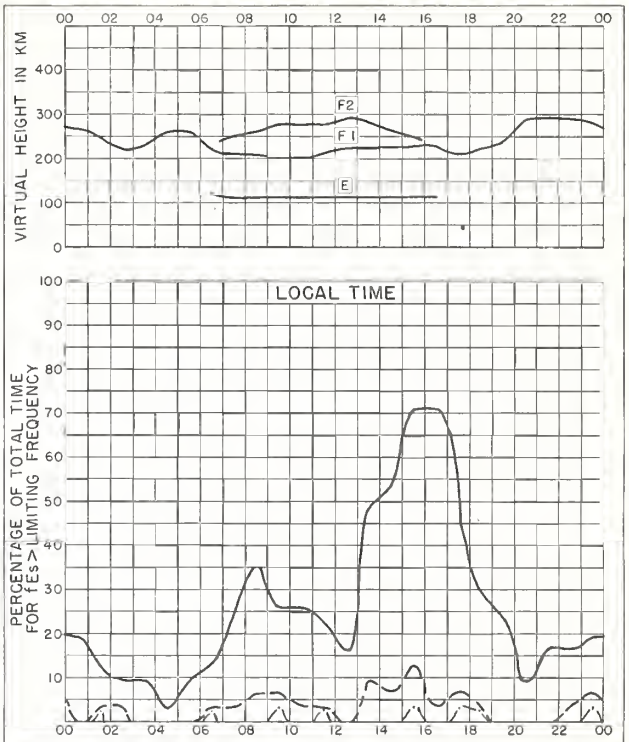


Fig. 18. PUERTO RICO, W. I. OCTOBER 1954

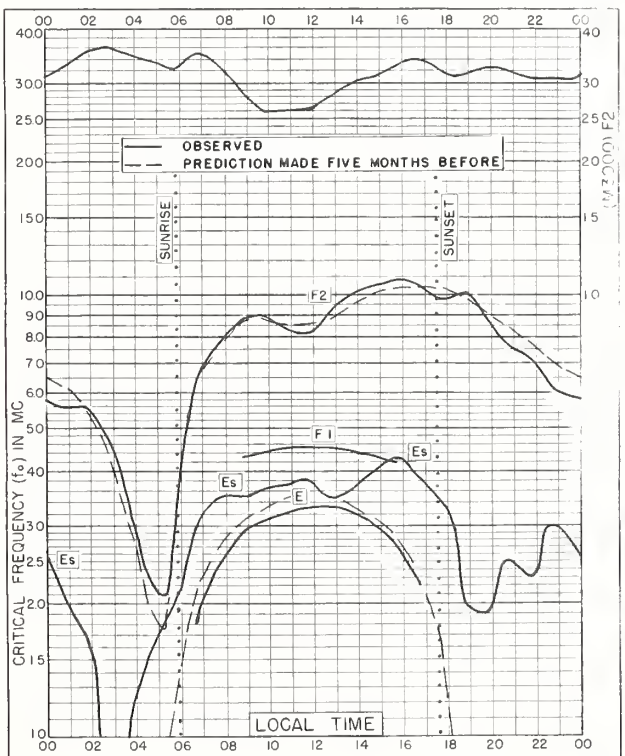


Fig. 19. GUAM I.
13.6°N, 144.9°E OCTOBER 1954

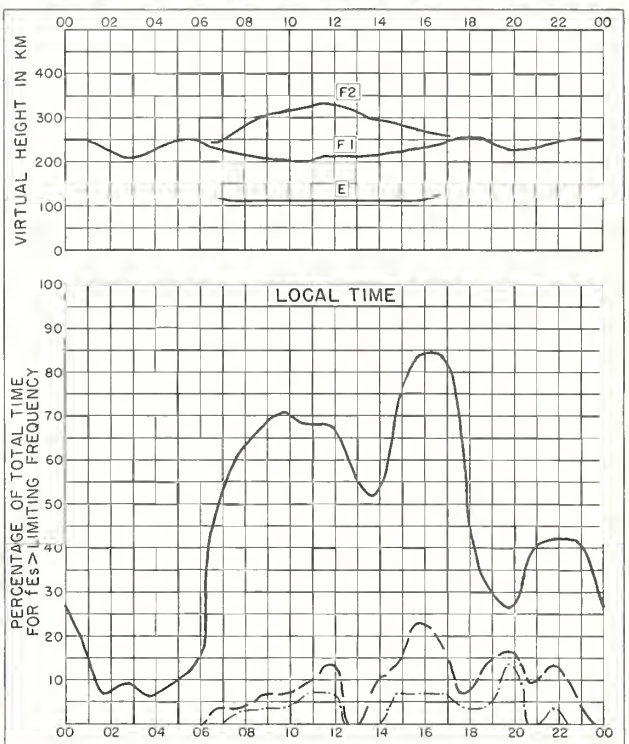


Fig. 20. GUAM I. OCTOBER 1954

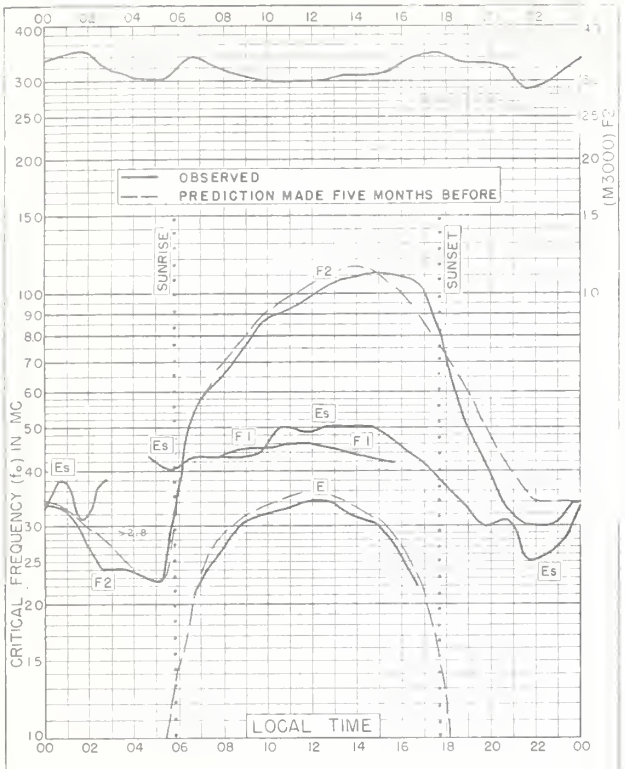


Fig. 21. PANAMA CANAL ZONE
9.4°N, 79.9°W OCTOBER 1954

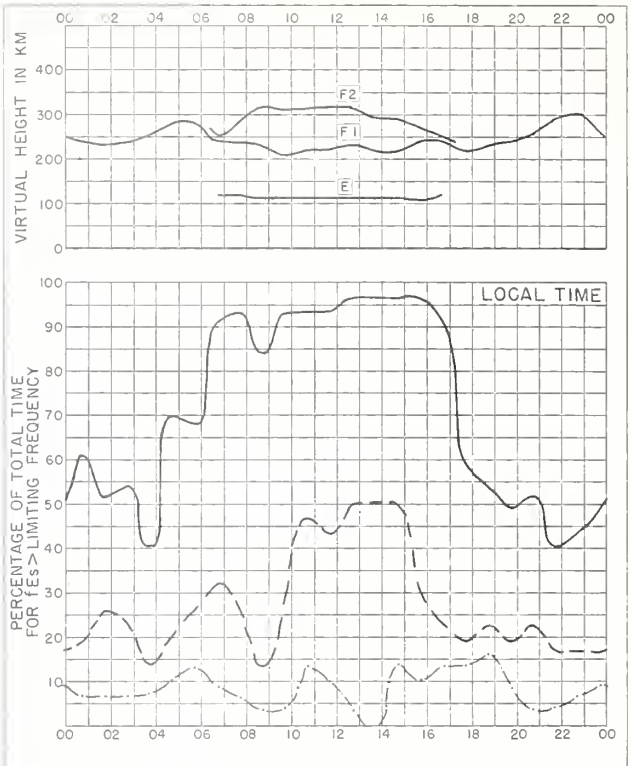


Fig. 22. PANAMA CANAL ZONE OCTOBER 1954

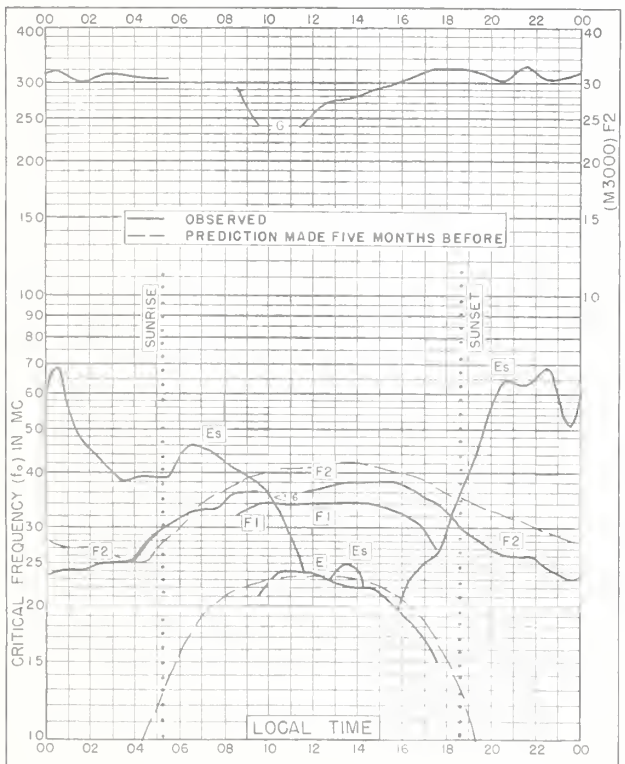


Fig. 23. POINT BARROW, ALASKA
71.3°N, 156.8°W SEPTEMBER 1954

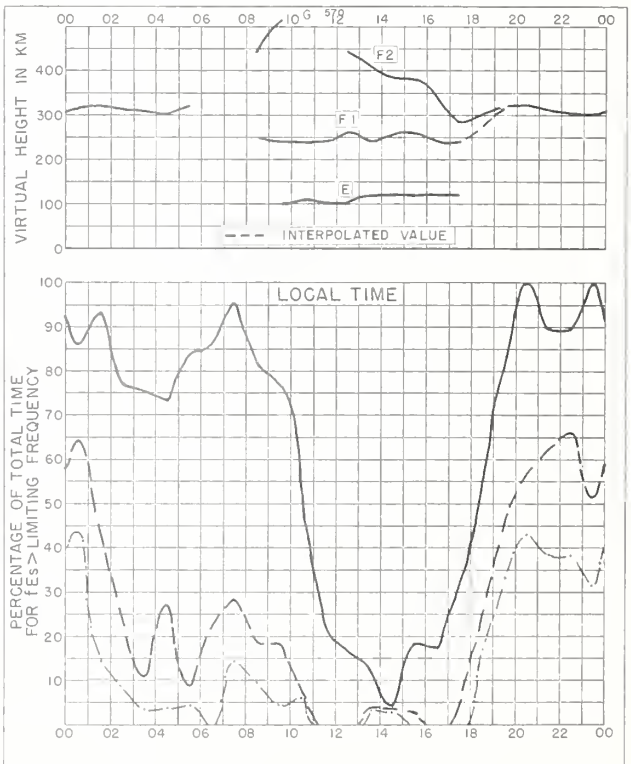


Fig. 24. POINT BARROW, ALASKA SEPTEMBER 1954

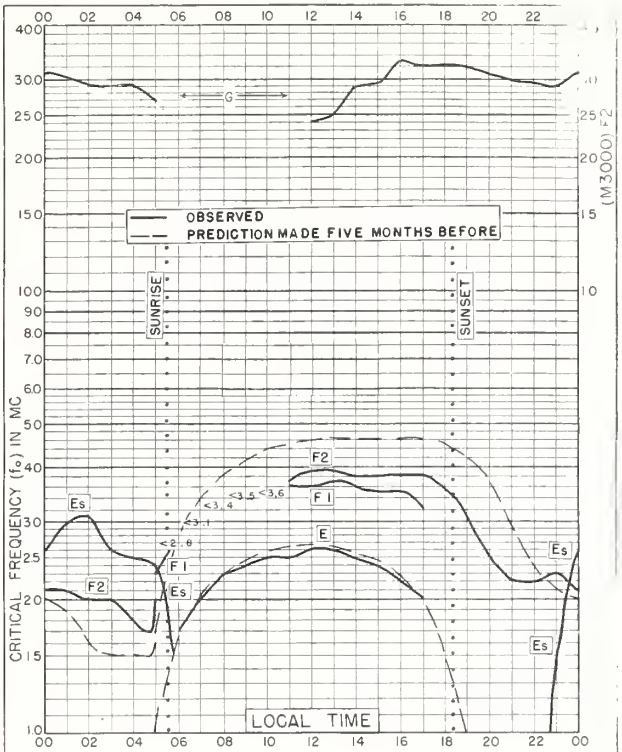


Fig. 25. ANCHORAGE, ALASKA
61.2°N, 149.9°W SEPTEMBER 1954

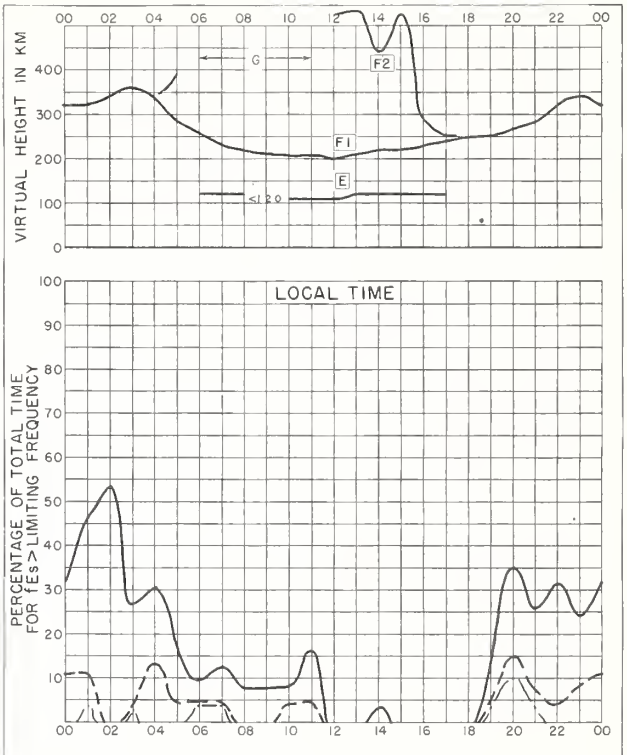


Fig. 26. ANCHORAGE, ALASKA SEPTEMBER 1954

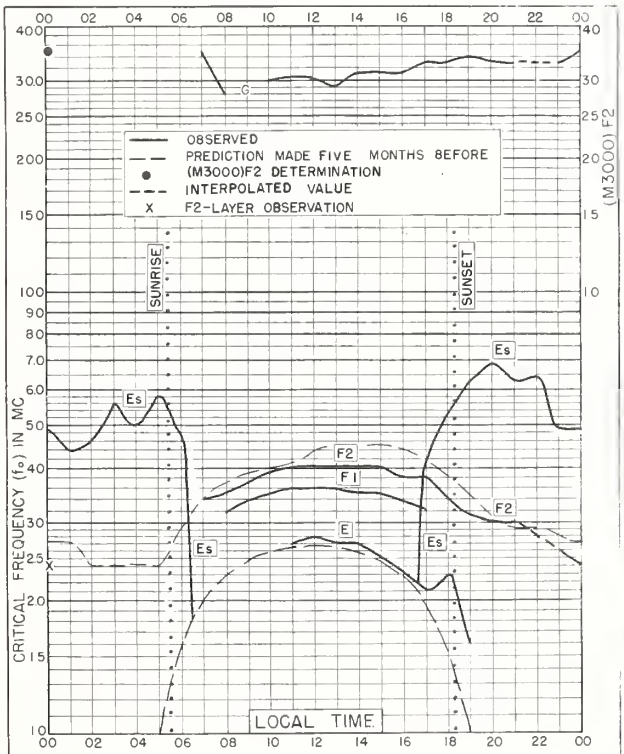


Fig. 27. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W SEPTEMBER 1954

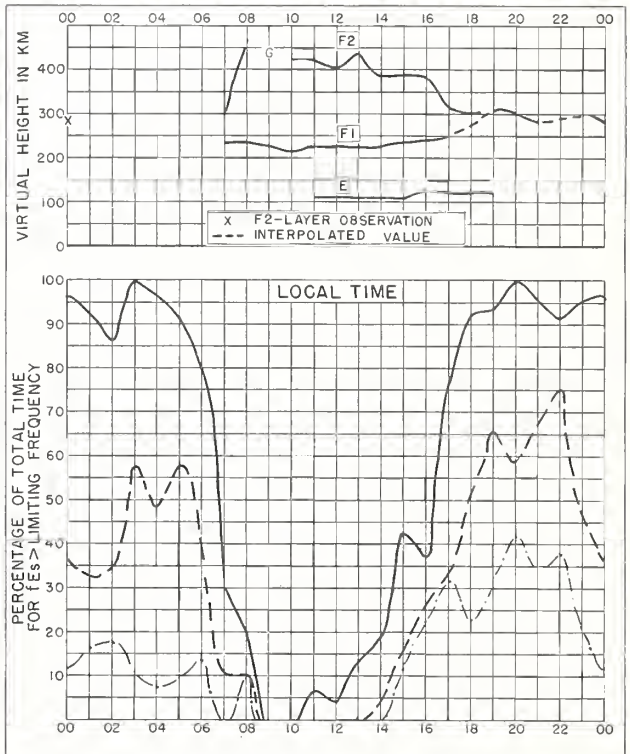


Fig. 28. NARSARSSUAK, GREENLAND SEPTEMBER 1954

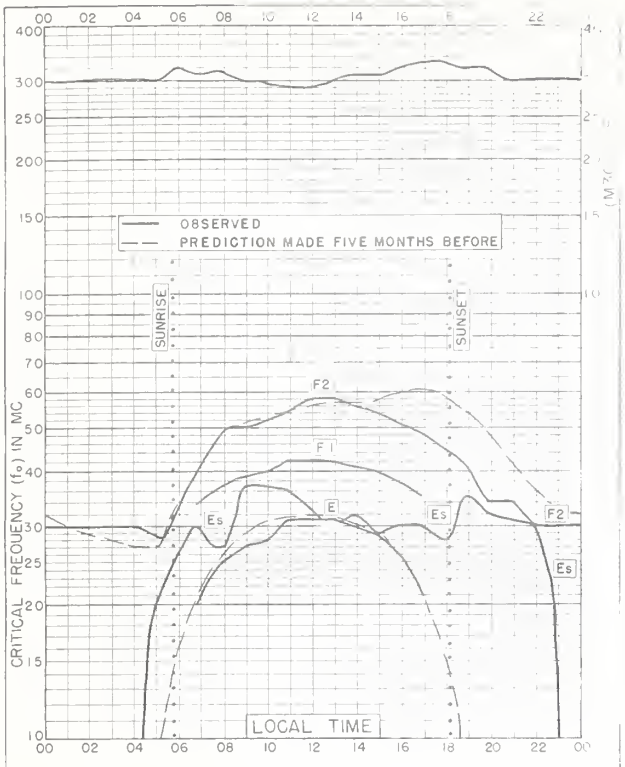
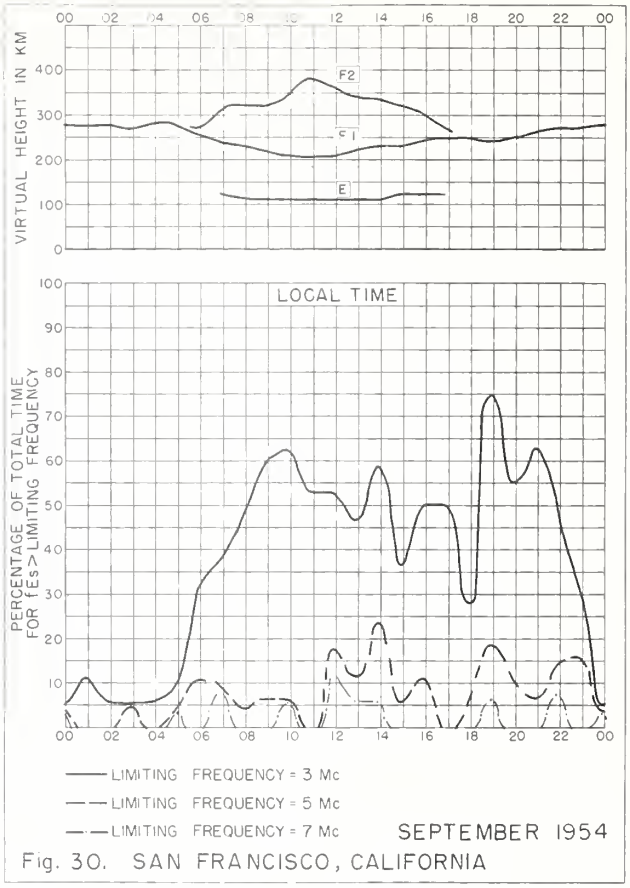


Fig. 29. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W SEPTEMBER 1954



SEPTEMBER 1954

Fig. 30. SAN FRANCISCO, CALIFORNIA

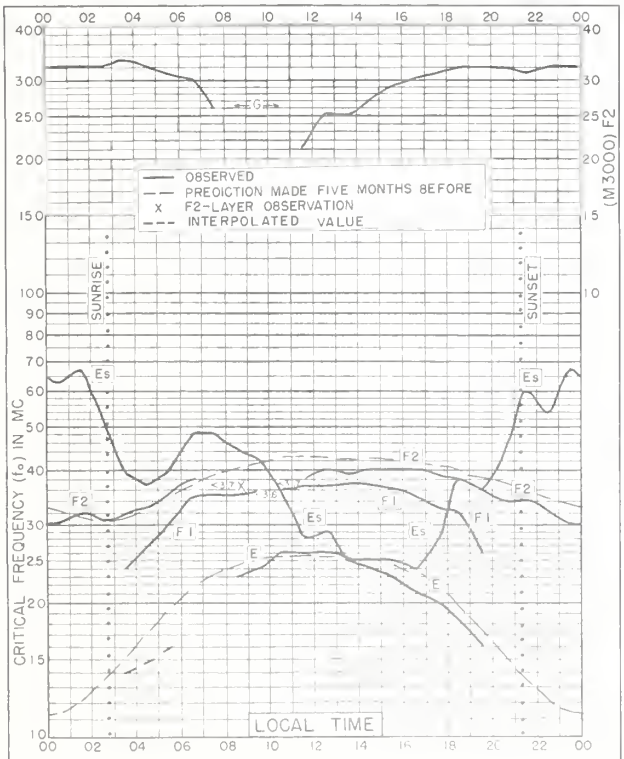
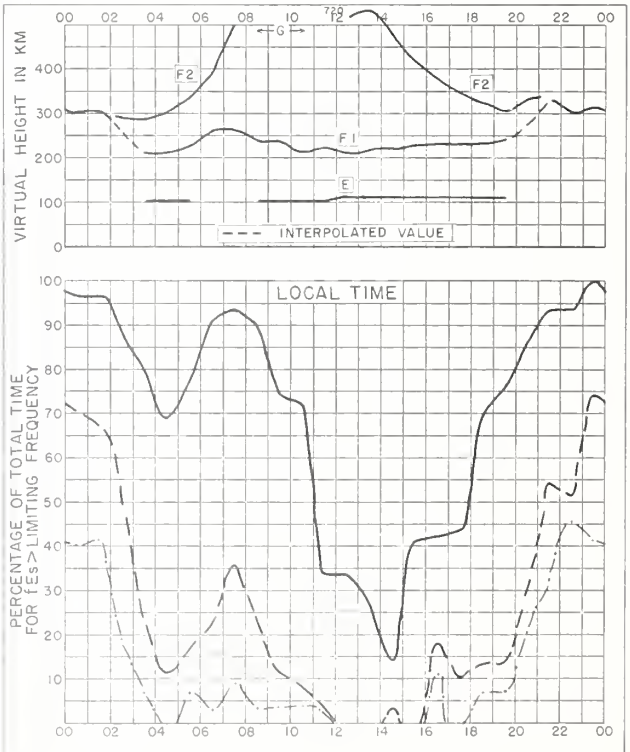


Fig. 31. POINT BARROW, ALASKA
71.3°N, 156.8°W AUGUST 1954



AUGUST 1954

Fig. 32. POINT BARROW, ALASKA

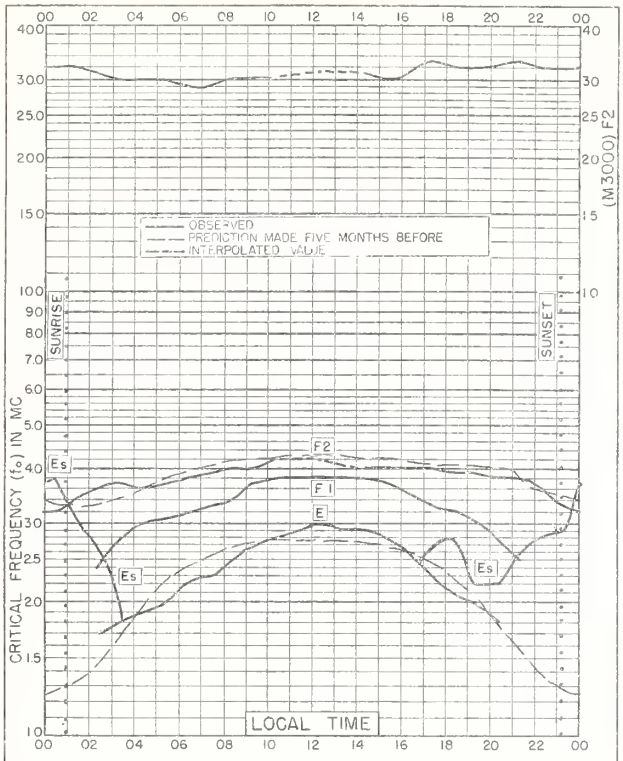


Fig. 33. KIRUNA, SWEDEN
67.8°N, 20.3°E JULY 1954

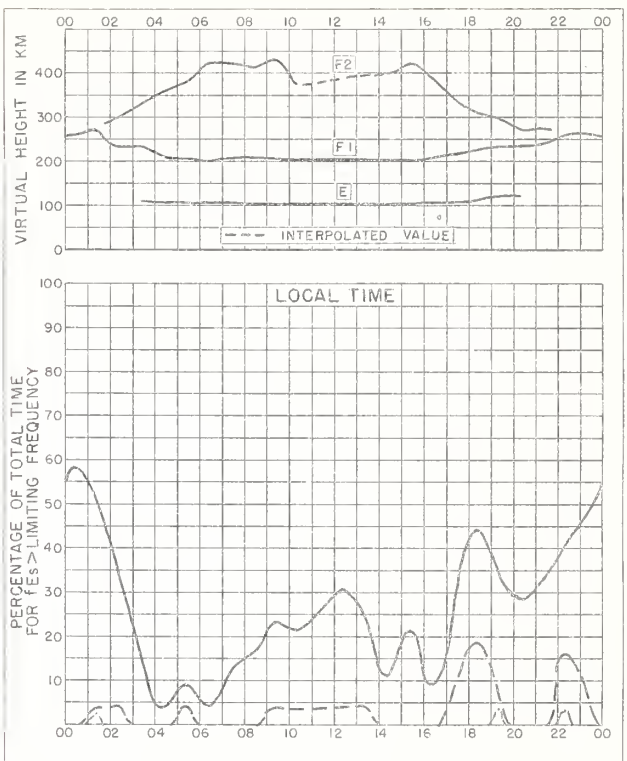


Fig. 34. KIRUNA, SWEDEN JULY 1954

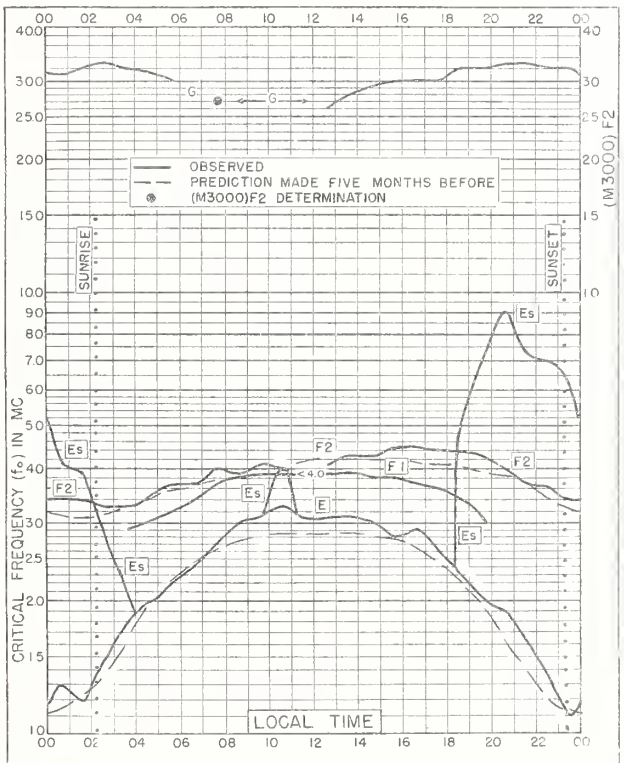


Fig. 35. BAKER LAKE, CANADA
64.3°N, 96.0°W JULY 1954

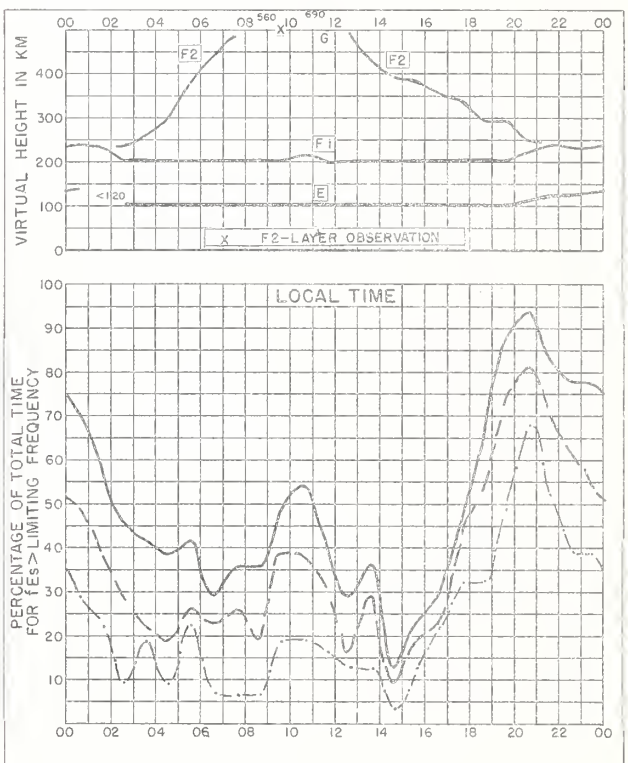


Fig. 36. BAKER LAKE, CANADA JULY 1954

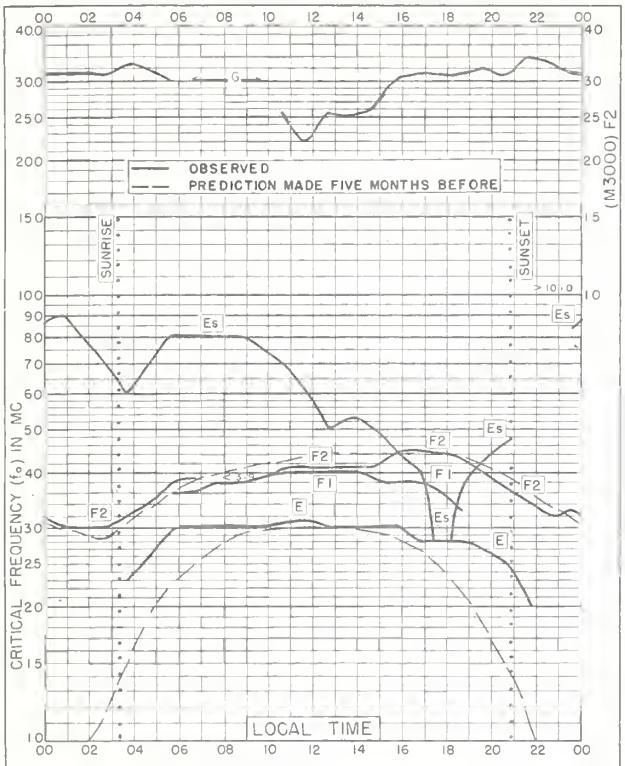


Fig. 37. CHURCHILL, CANADA
58.8°N, 94.2°W JULY 1954

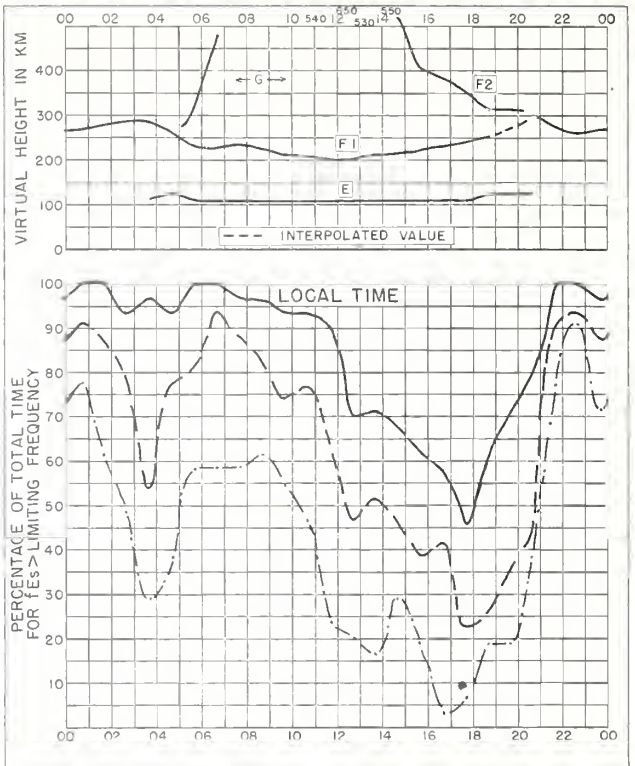


Fig. 38. CHURCHILL, CANADA JULY 1954

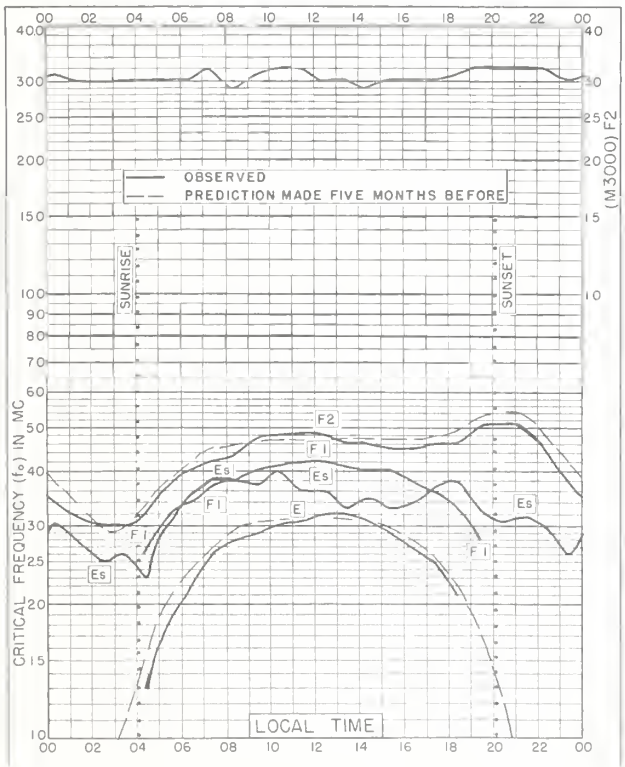


Fig. 39. De BILT, HOLLAND
52.1°N, 5.2°E JULY 1954

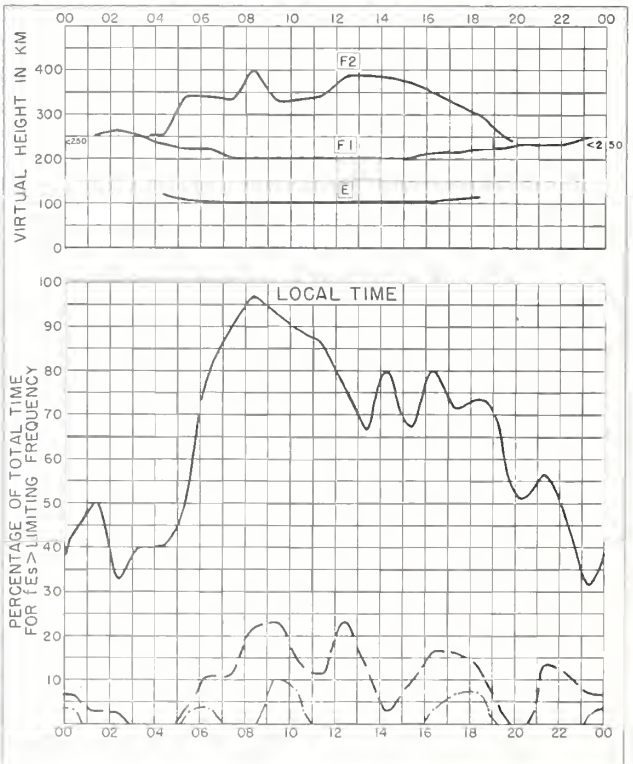


Fig. 40. De BILT, HOLLAND JULY 1954

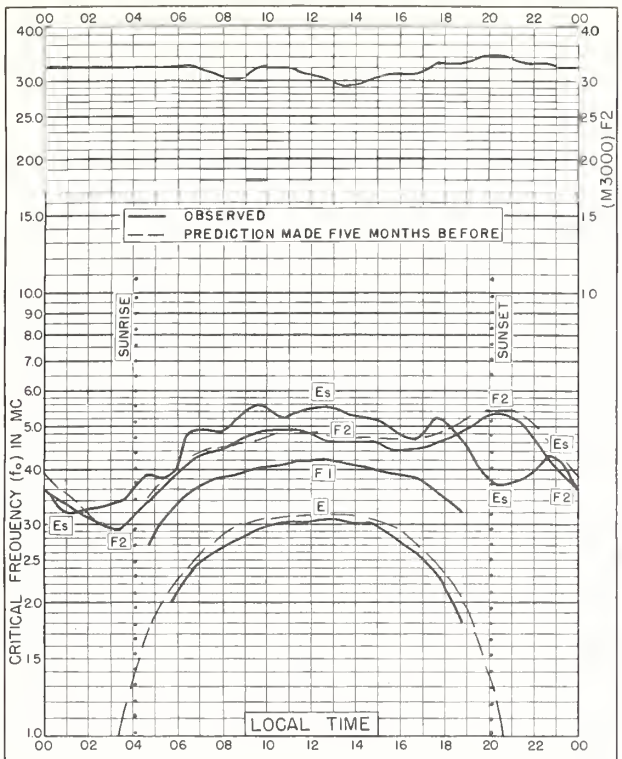


Fig. 41. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JULY 1954

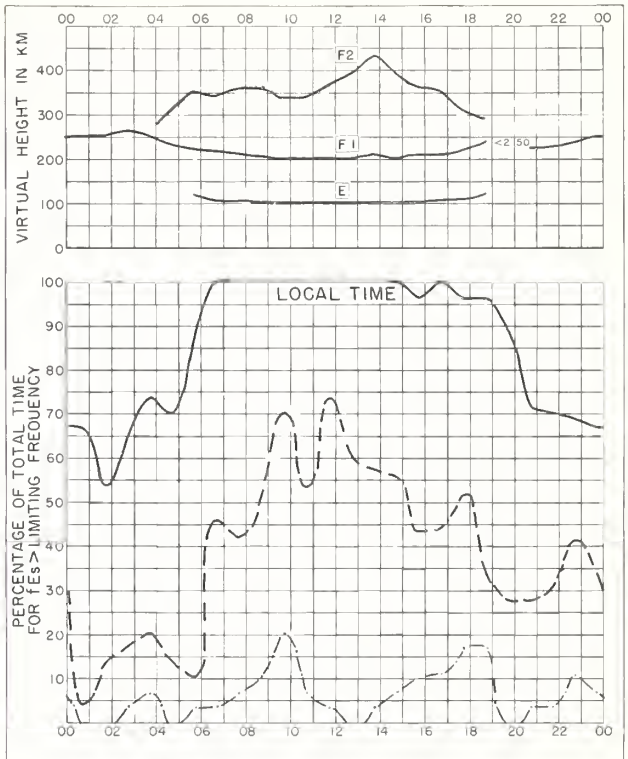


Fig. 42. LINDAU/HARZ, GERMANY JULY 1954

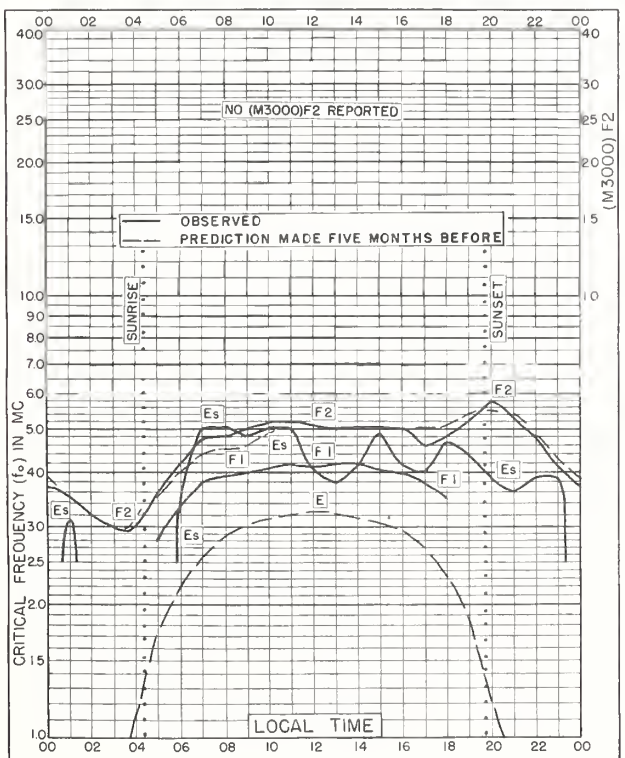


Fig. 43. GRAZ, AUSTRIA
47.1°N, 15.5°E JULY 1954

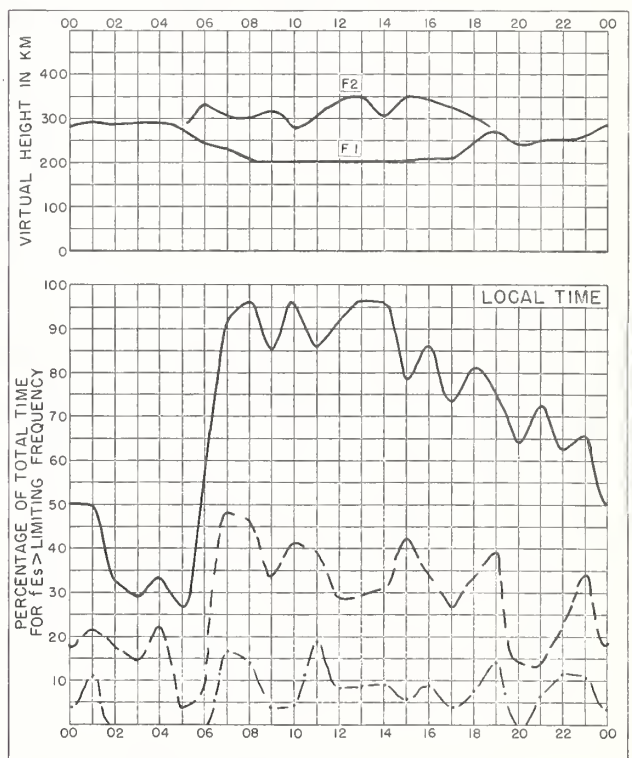


Fig. 44. GRAZ, AUSTRIA JULY 1954

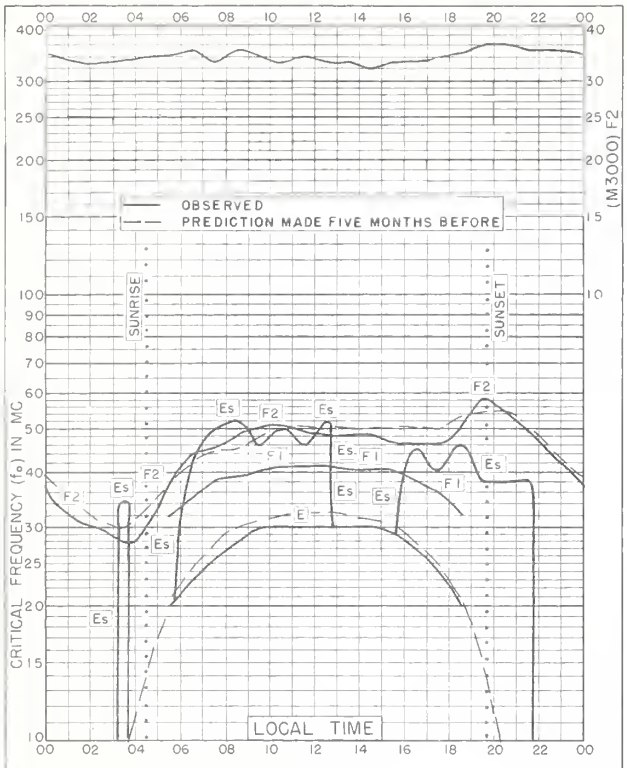
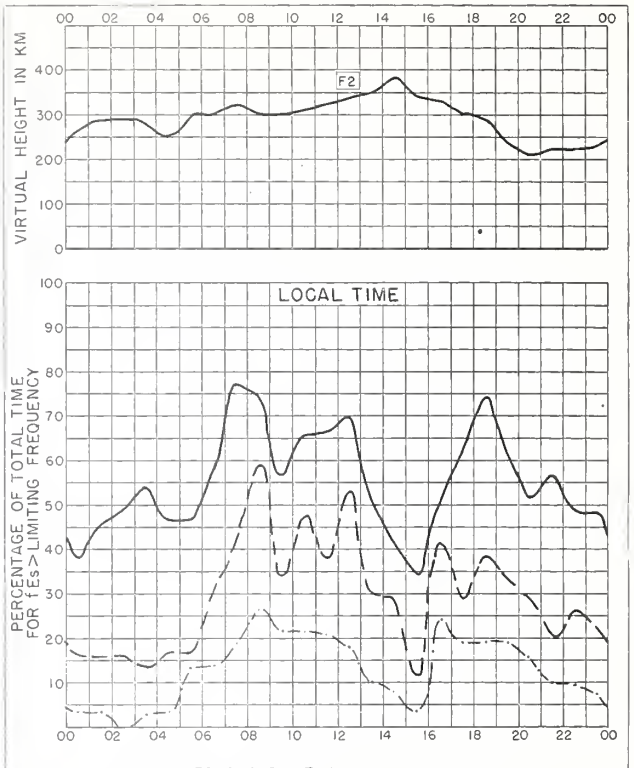


Fig. 45. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JULY 1954



JULY 1954

Fig. 46. SCHWARZENBURG, SWITZERLAND

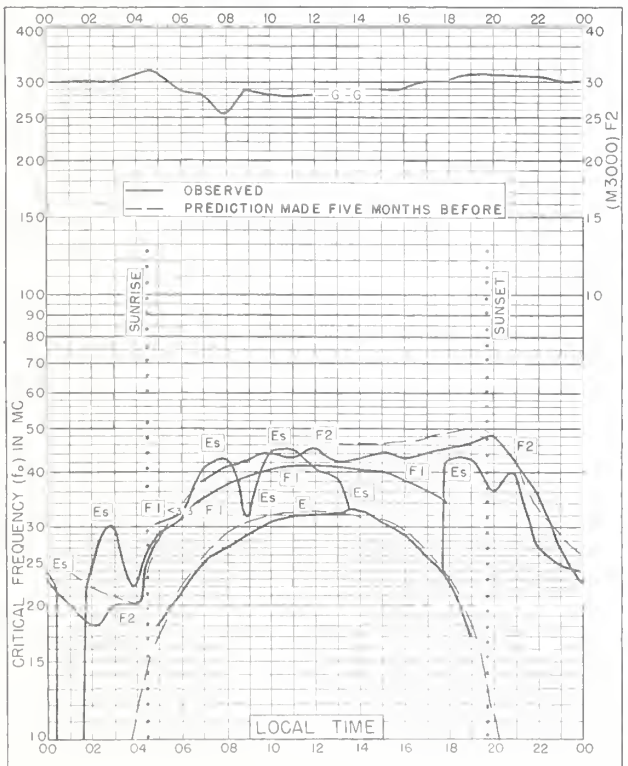


Fig. 47. OTTAWA, CANADA
45.4°N, 75.9°W JULY 1954

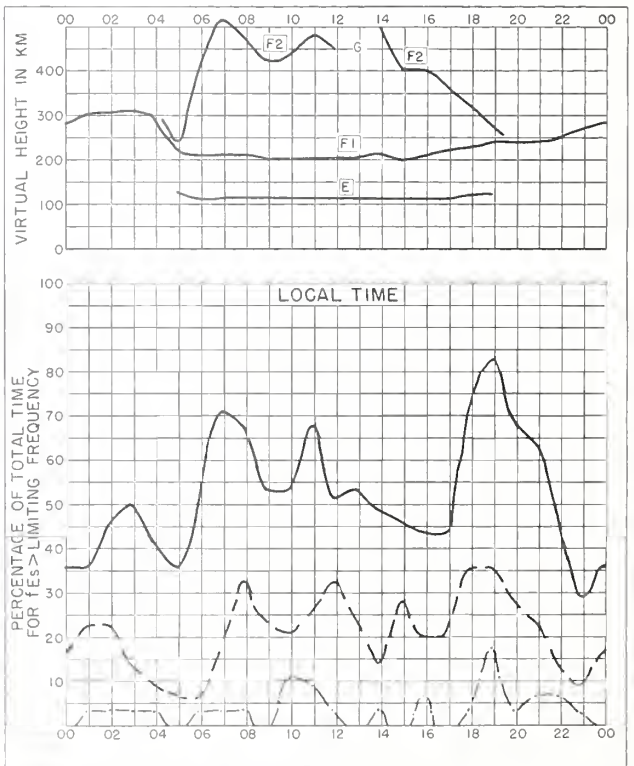


Fig. 48. OTTAWA, CANADA JULY 1954

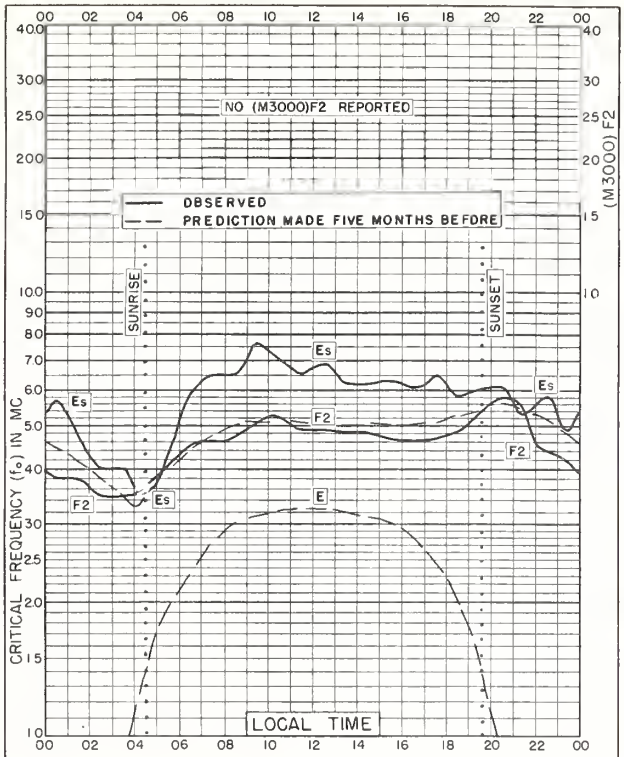


Fig. 49. WAKKANAI, JAPAN
45.4°N, 141.7°E JULY 1954

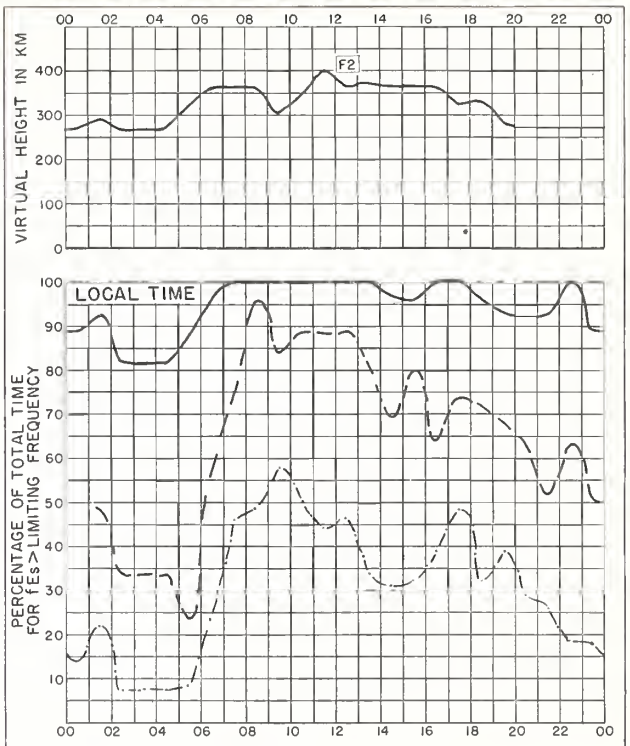


Fig. 50. WAKKANAI, JAPAN JULY 1954

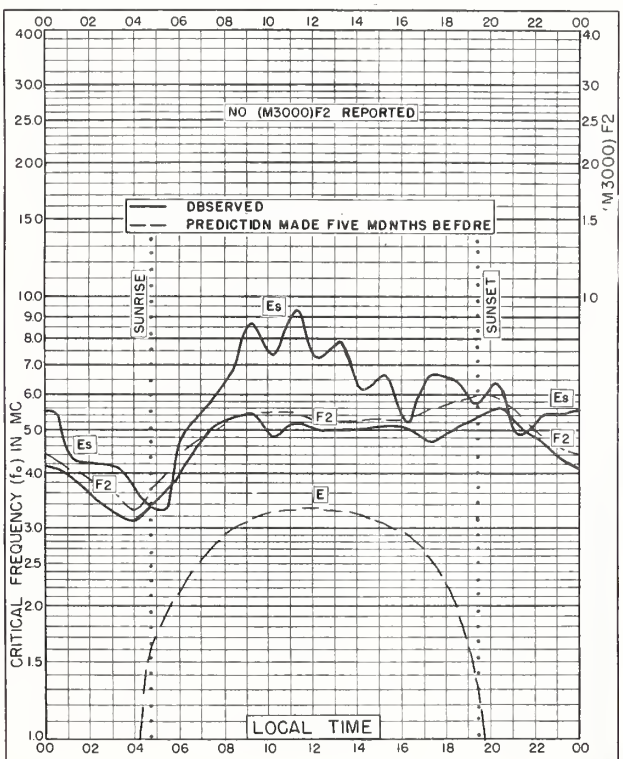


Fig. 51. AKITA, JAPAN
39.7°N, 140.1°E JULY 1954

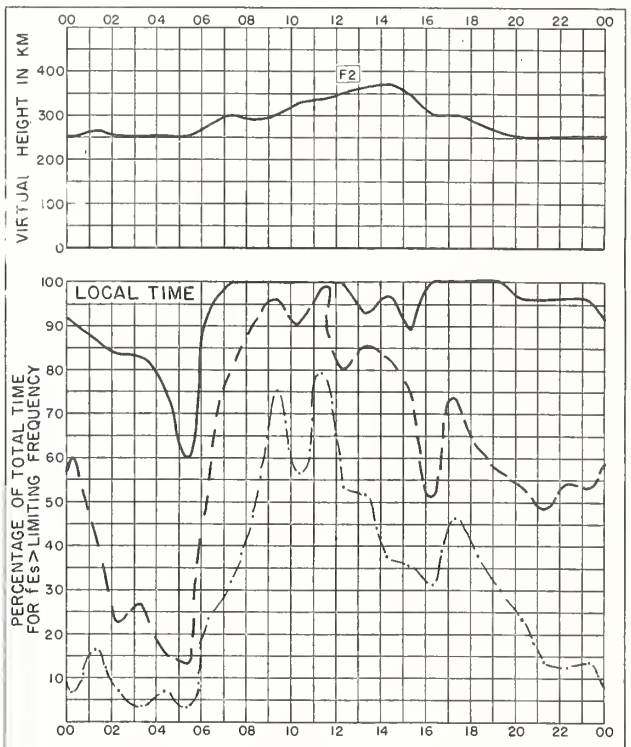


Fig. 52. AKITA, JAPAN JULY 1954

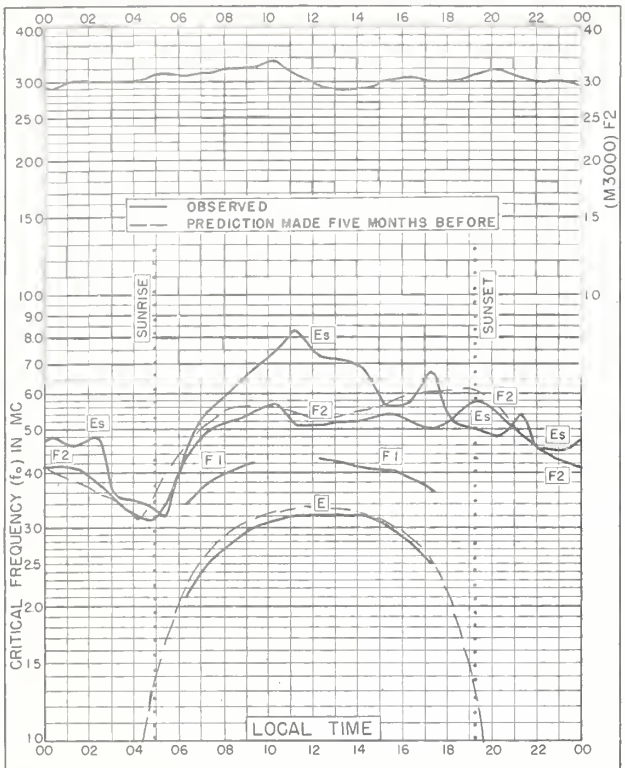


Fig. 53. TOKYO, JAPAN
35.7°N, 139.5°E JULY 1954

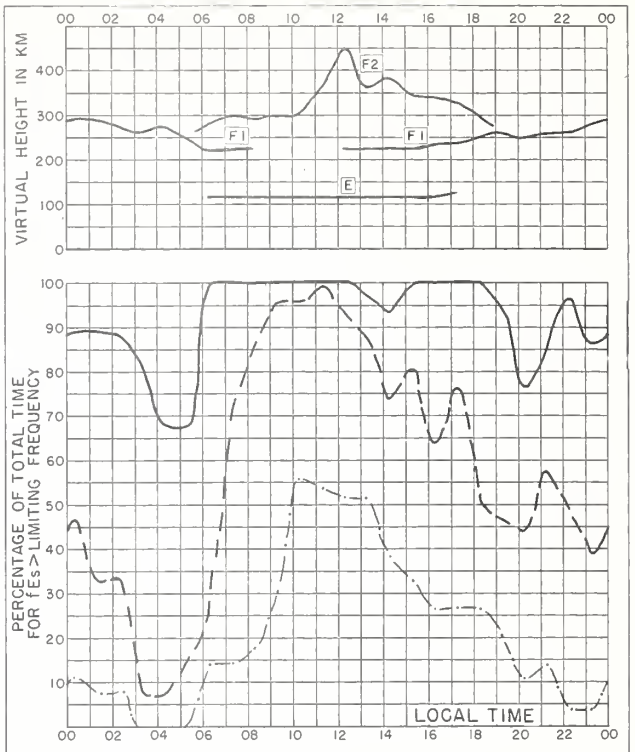


Fig. 54. TOKYO, JAPAN JULY 1954

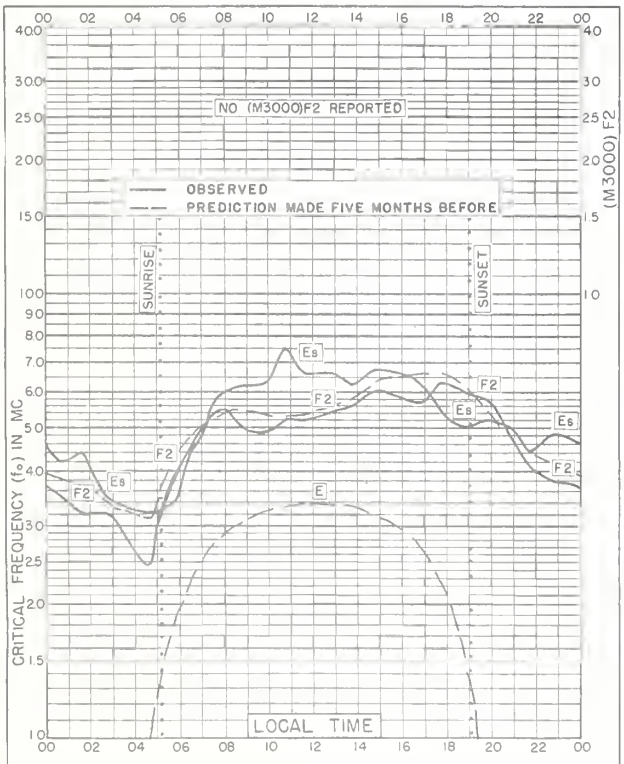


Fig. 55. YAMAGAWA, JAPAN
31.2°N, 130. 6°E JULY 1954

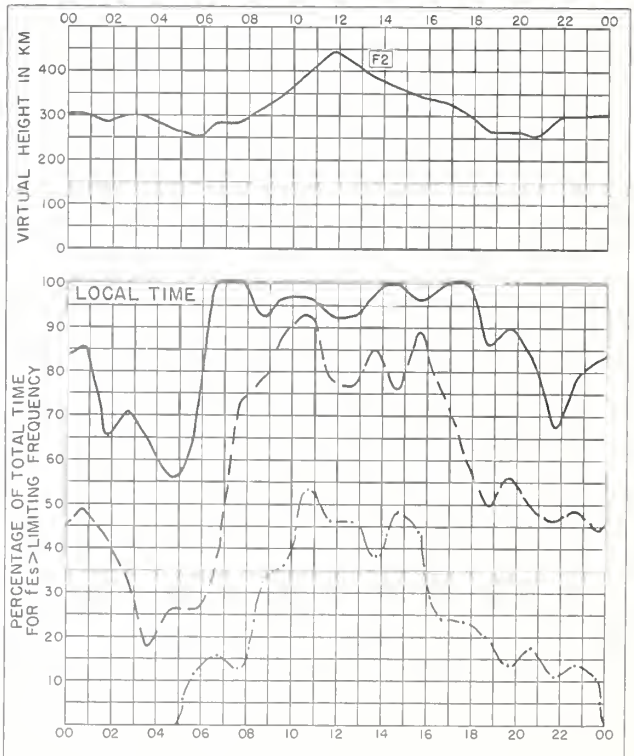


Fig. 56. YAMAGAWA, JAPAN JULY 1954

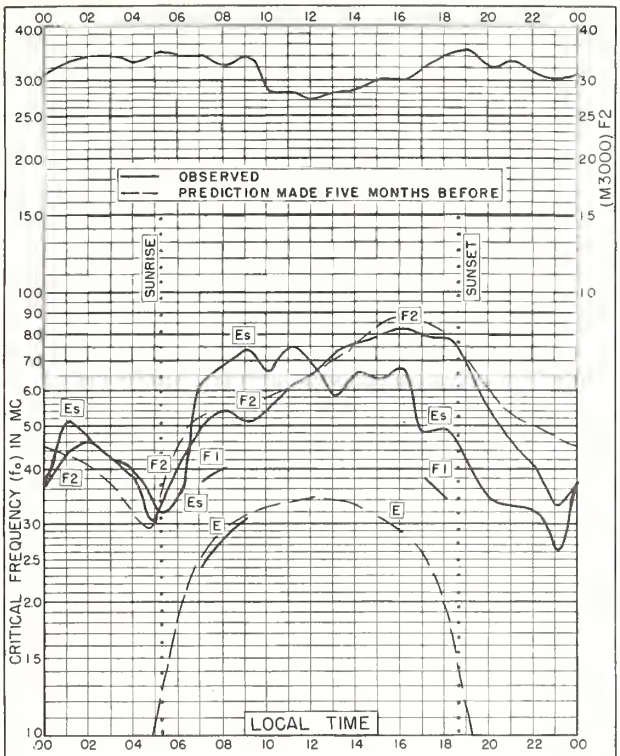


Fig. 57. FORMOSA, CHINA
25.0°N, 121.5°E JULY 1954

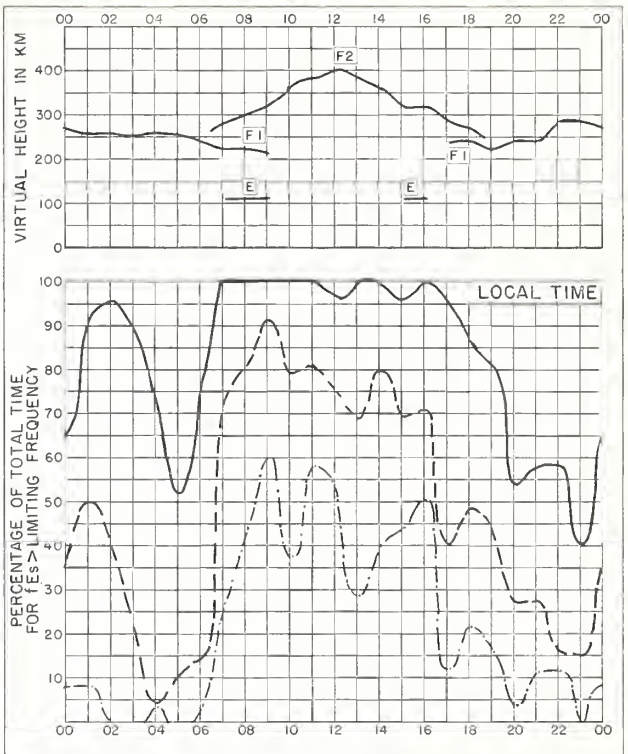


Fig. 58. FORMOSA, CHINA JULY 1954

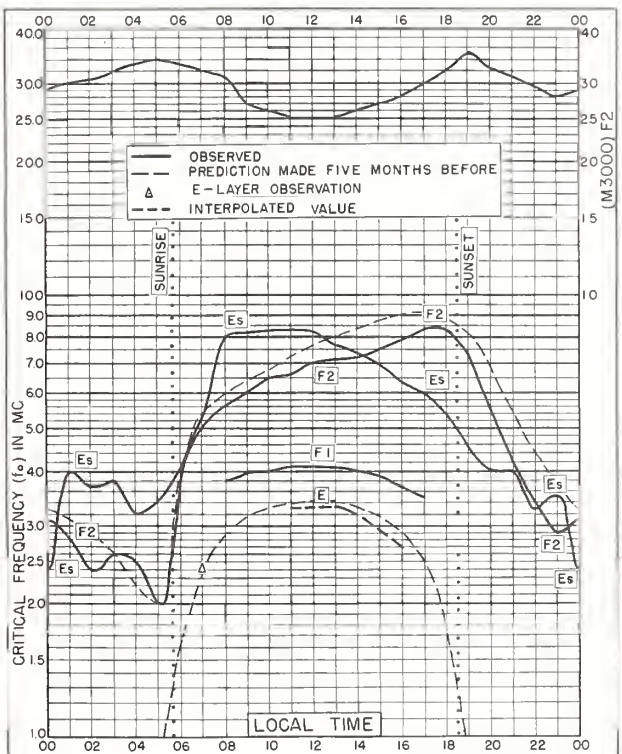


Fig. 59. BAGUIO, P. I.
16.4°N, 120.6°E JULY 1954

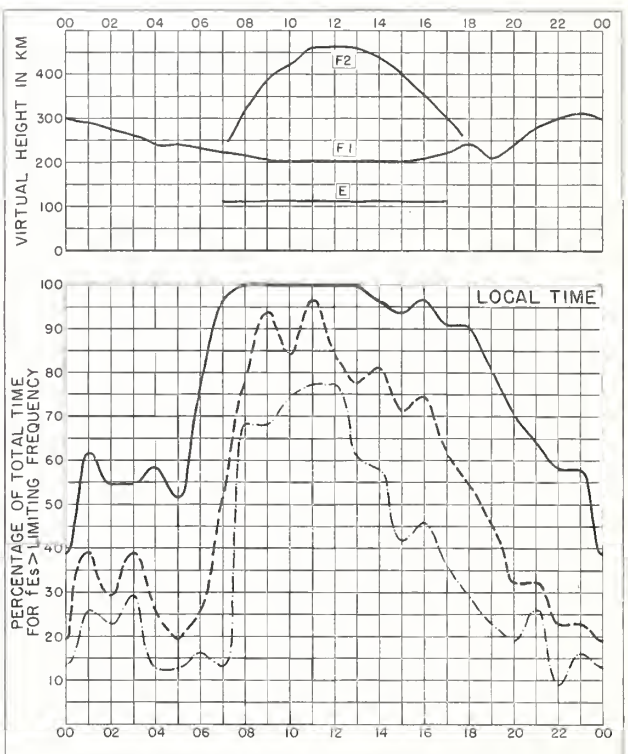


Fig. 60. BAGUIO, P. I. JULY 1954

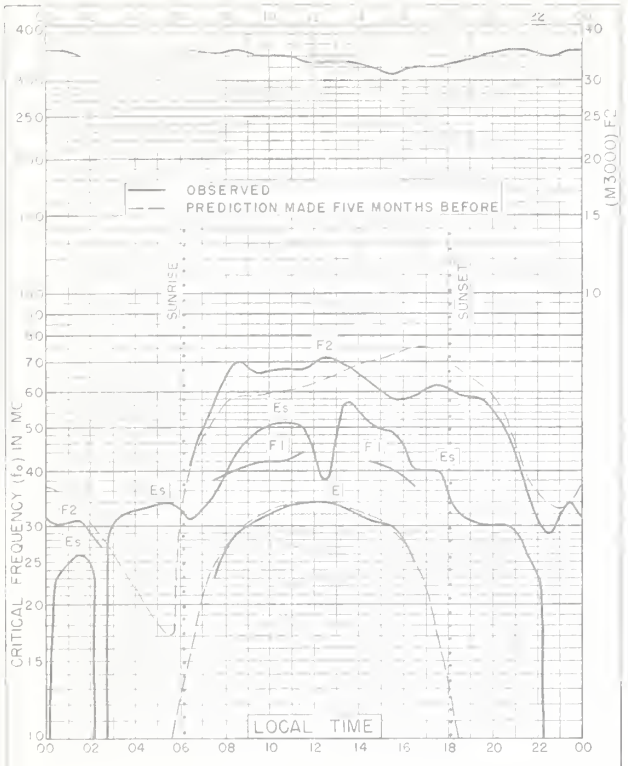


Fig. 61. NAIROBI, KENYA
1.3° S, 36.8° E JULY 1954

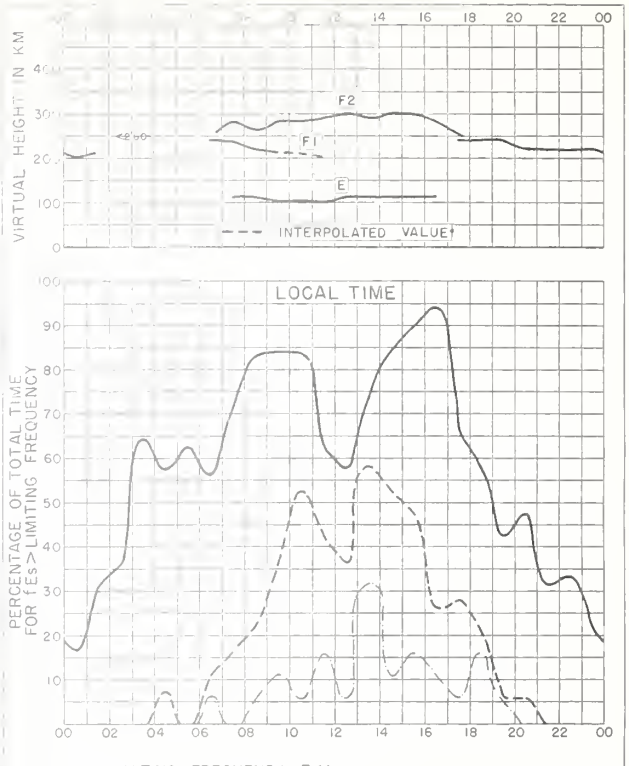


Fig. 62. NAIROBI, KENYA JULY 1954

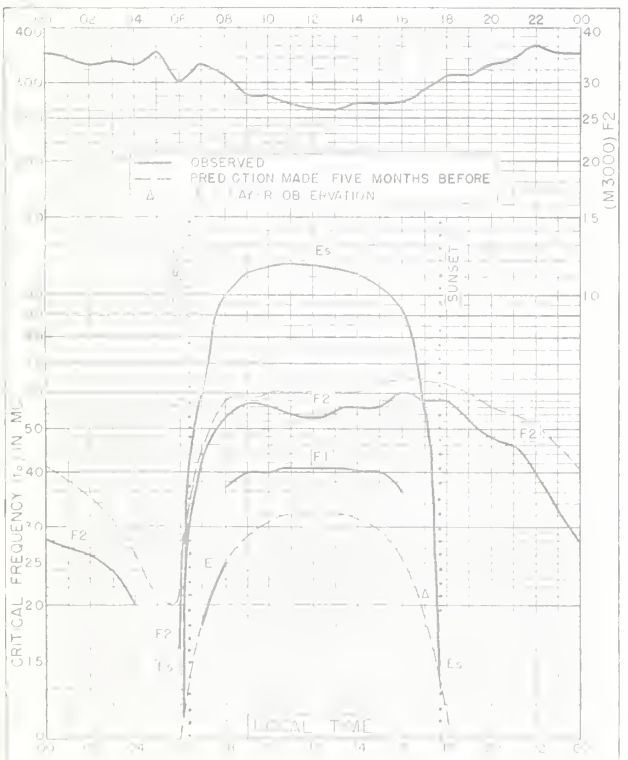


Fig. 63 HUANCAYO, PERU
12.0° S, 75.4° W JULY 1954

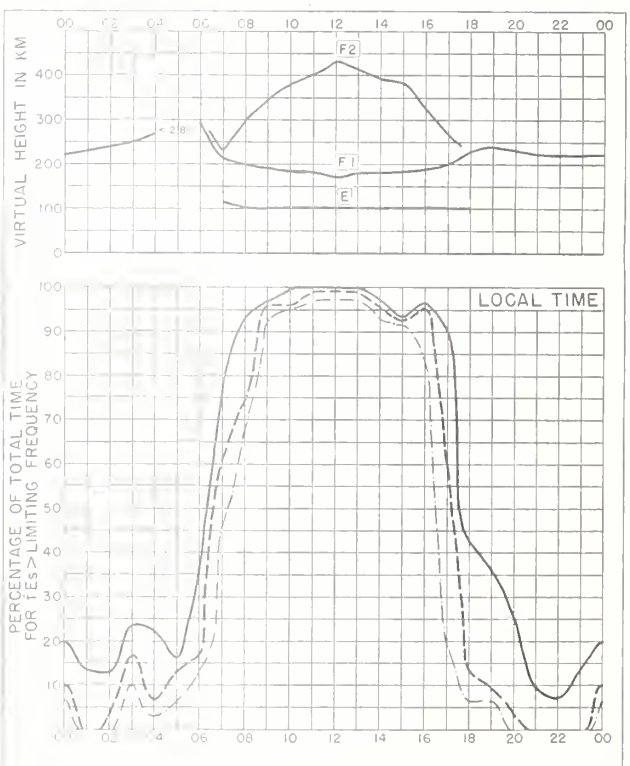


Fig. 64. HUANCAYO, PERU JULY 1954

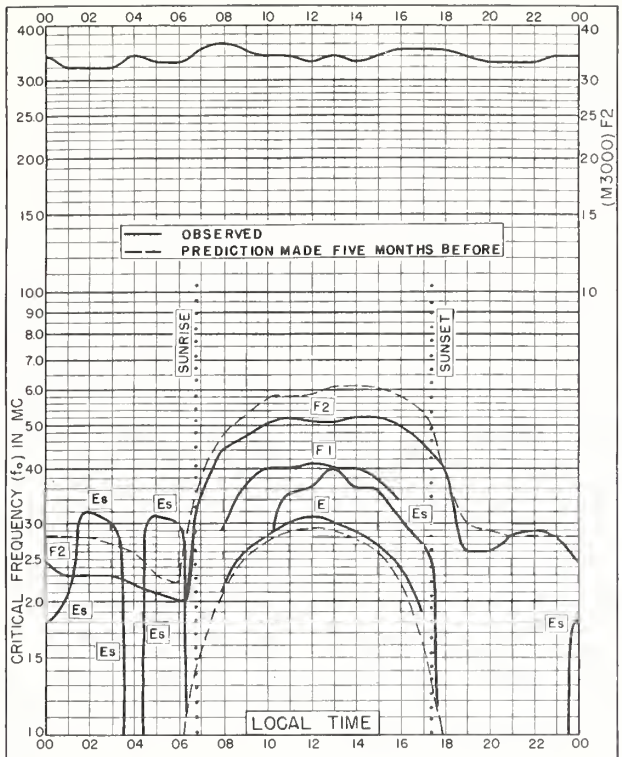
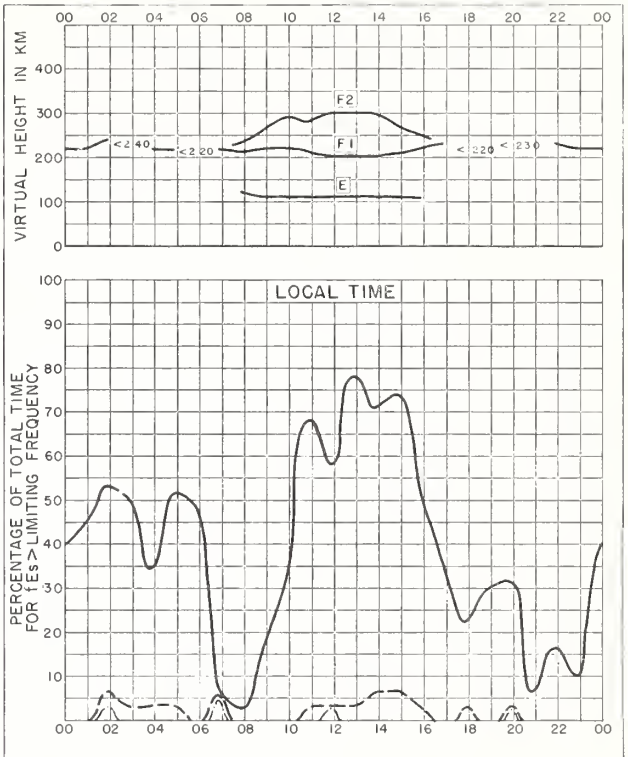


Fig. 65. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E JULY 1954



JULY 1954

Fig. 66. JOHANNESBURG, UNION OF S. AFRICA

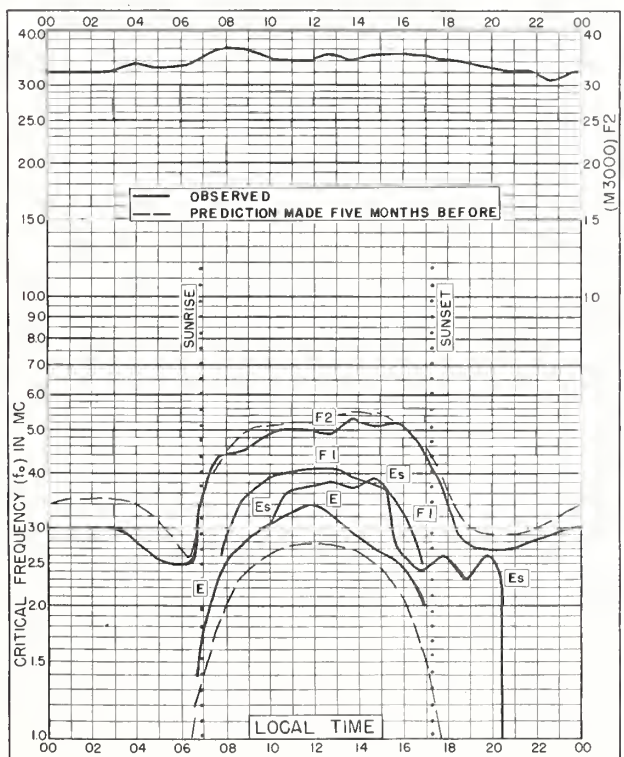


Fig. 67. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JULY 1954

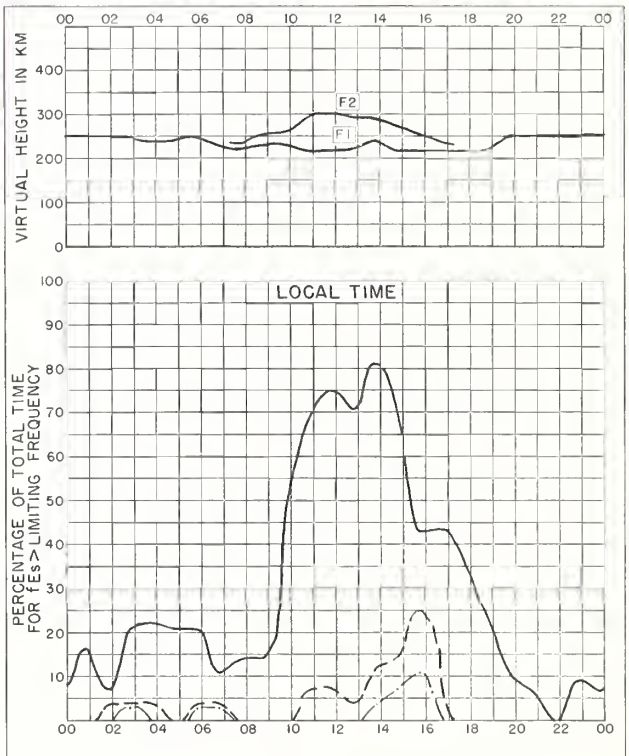


Fig. 68. WATHEROO, W. AUSTRALIA JULY 1954

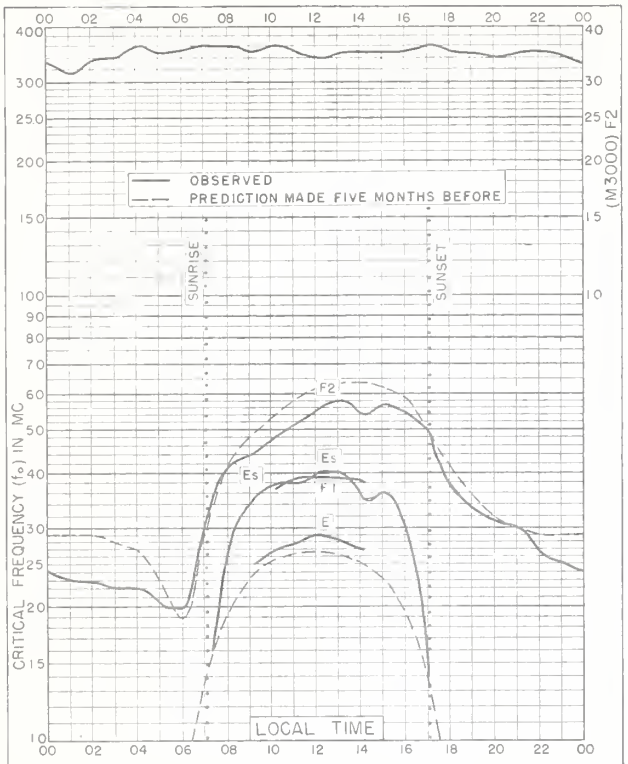


Fig. 69. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JULY 1954

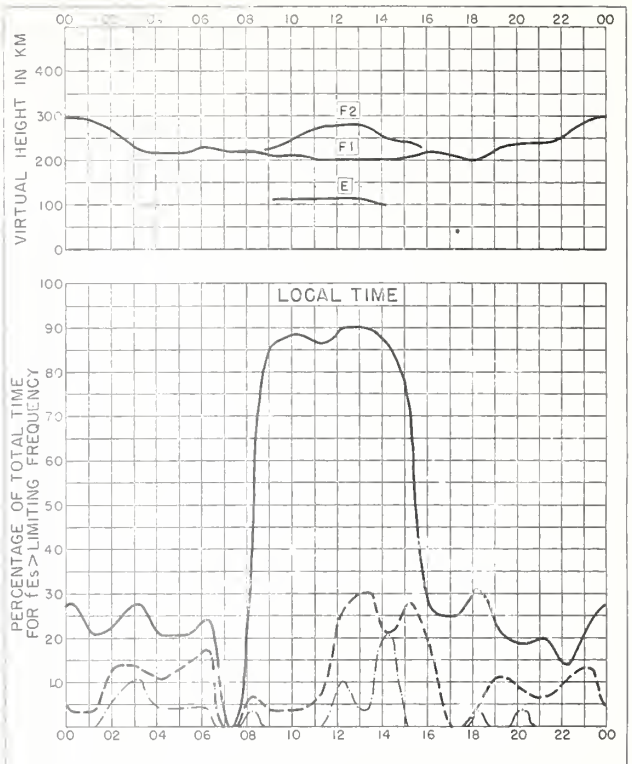


Fig. 70. BUENOS AIRES, ARGENTINA

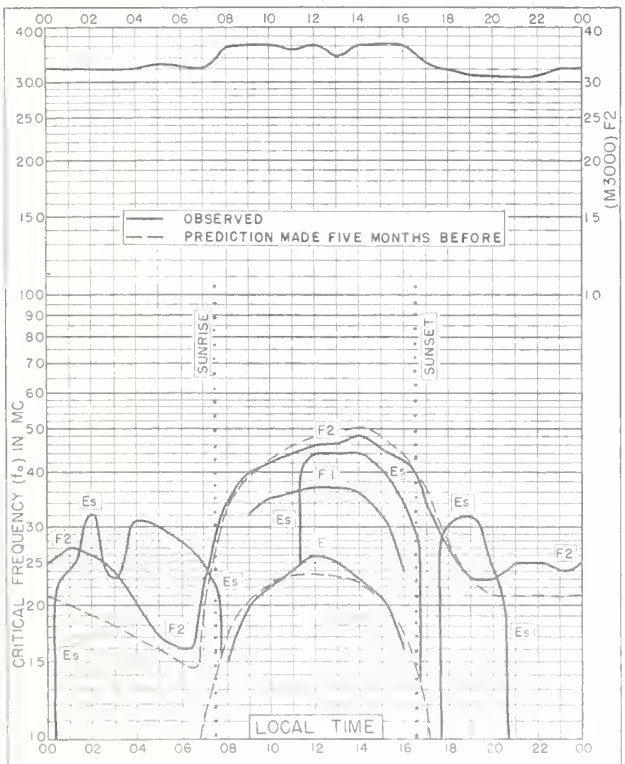


Fig. 71. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E JULY 1954

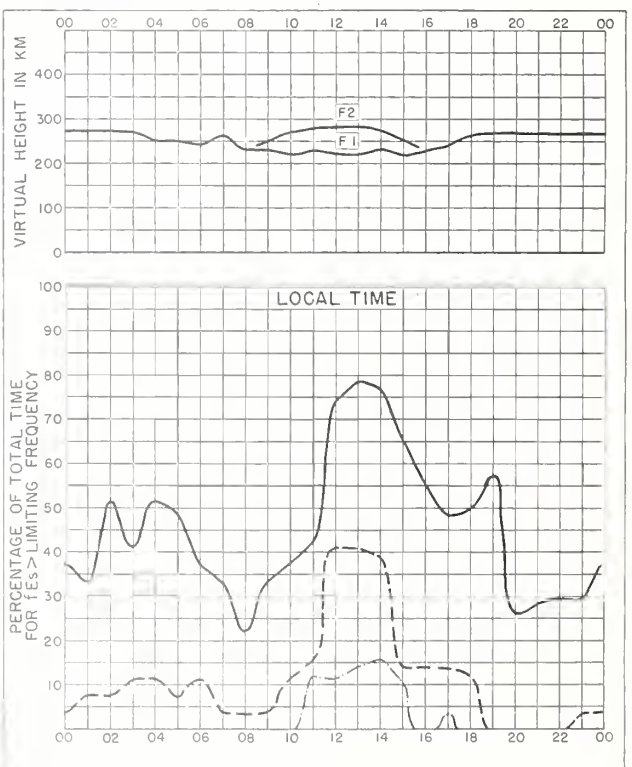


Fig. 72 CHRISTCHURCH, NEW ZEALAND

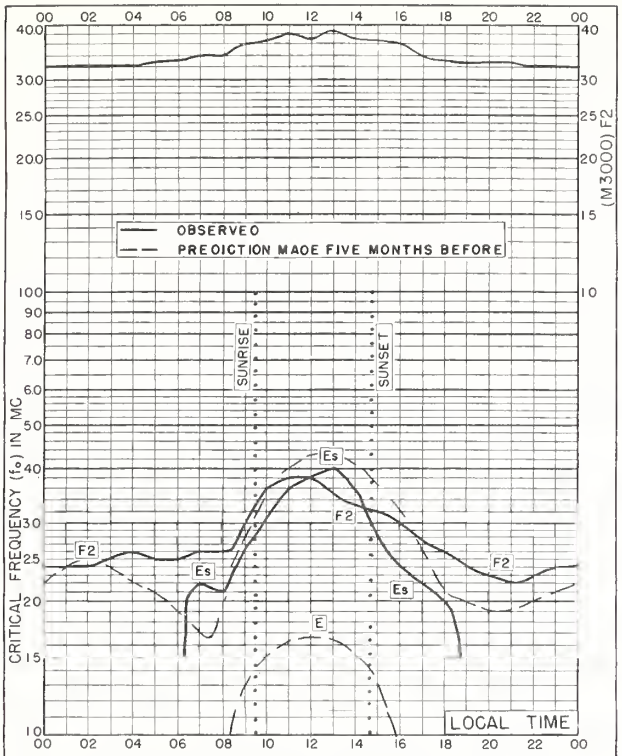


Fig. 73. DECEPCION I.
63.0°S, 60.7°W JULY 1954

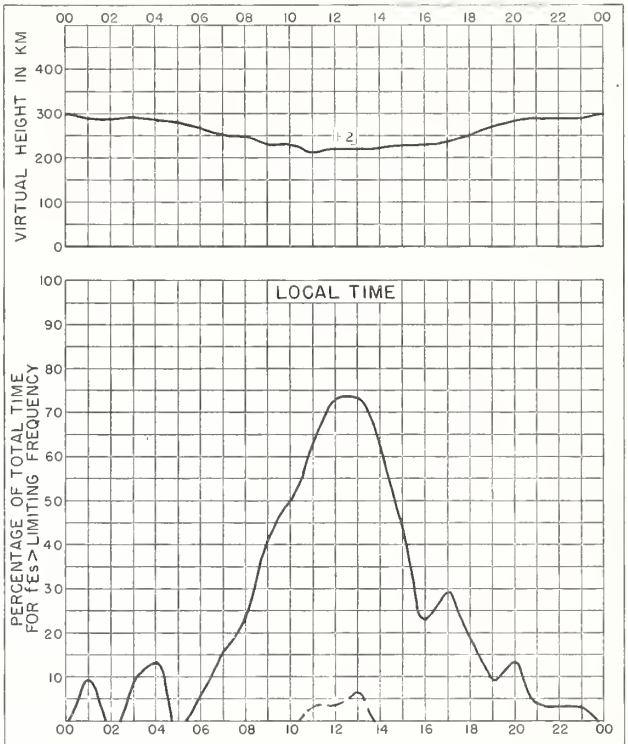


Fig. 74. DECEPCION I. JULY 1954

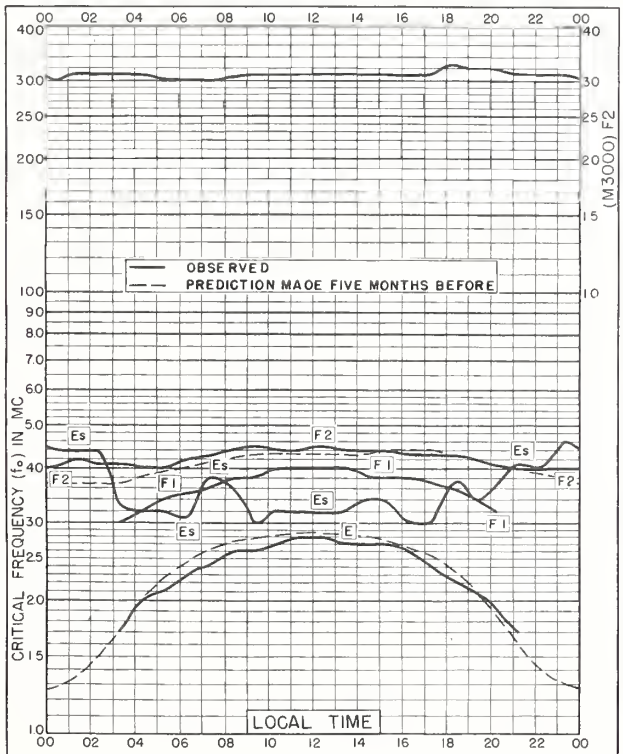


Fig. 75. TROMSO, NORWAY
69.7°N, 19.0°E JUNE 1954

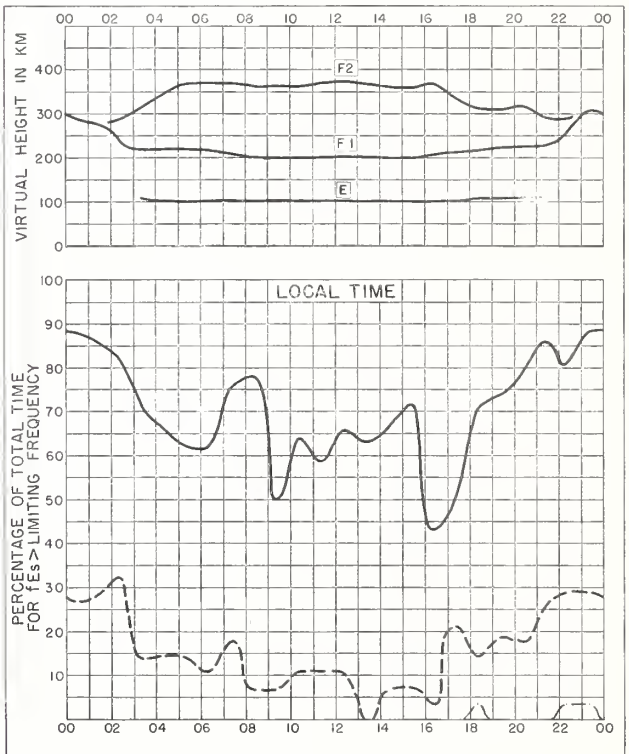


Fig. 76. TROMSO, NORWAY JUNE 1954

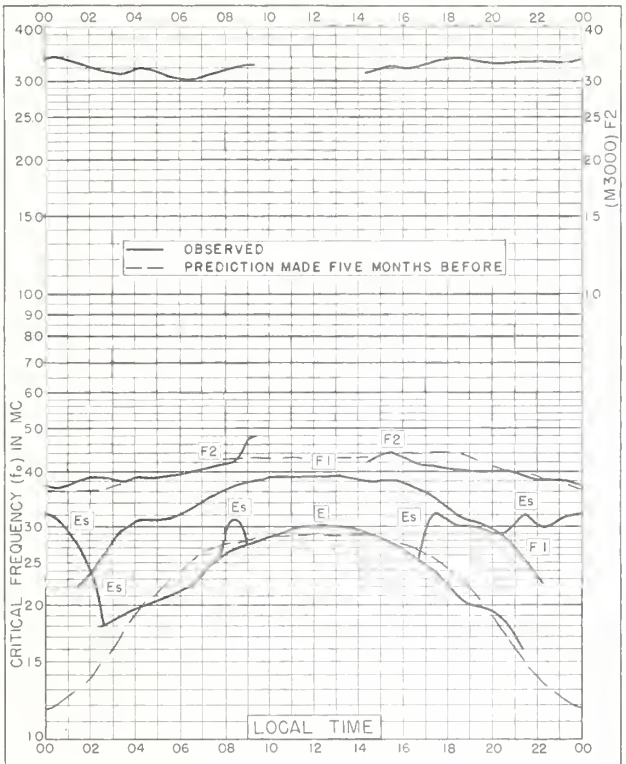


Fig. 77. KIRUNA, SWEDEN
67.8°N, 20.3°E JUNE 1954

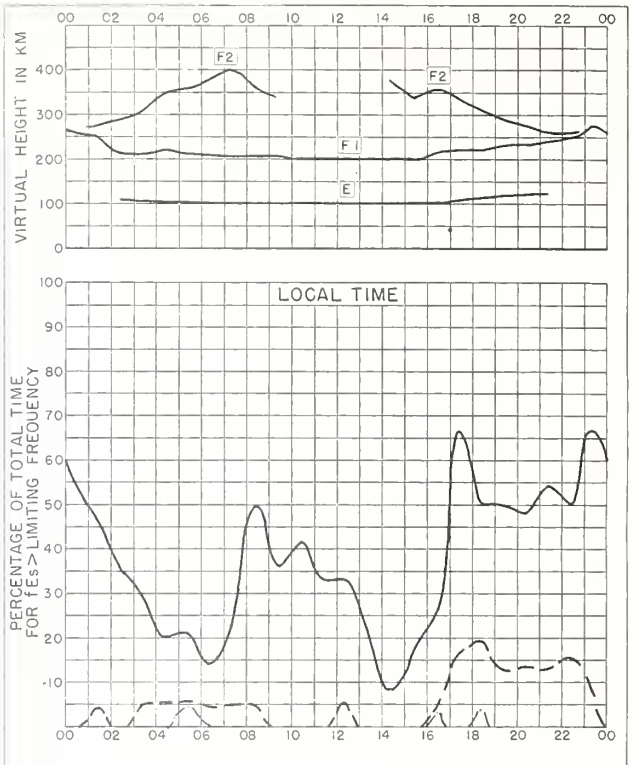


Fig. 78. KIRUNA, SWEDEN JUNE 1954

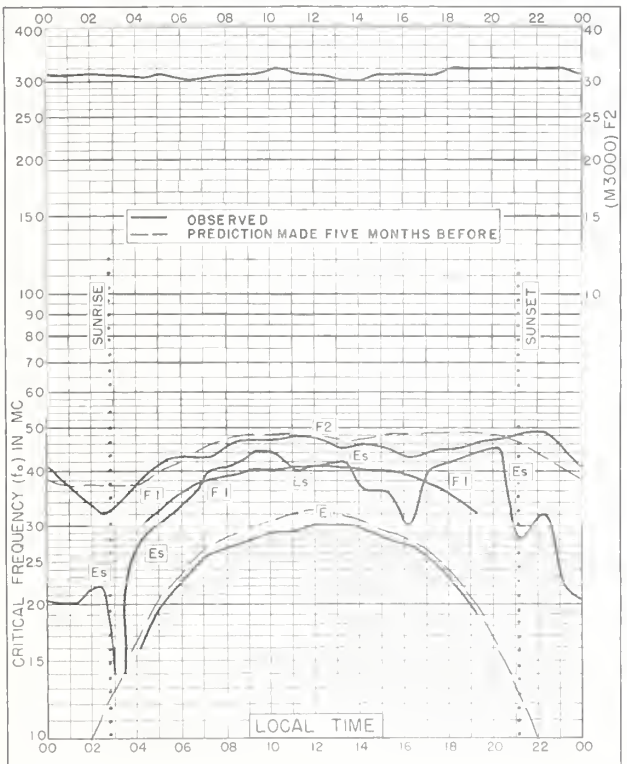


Fig. 79. UPSALA, SWEDEN
59.8°N, 17.6°E JUNE 1954

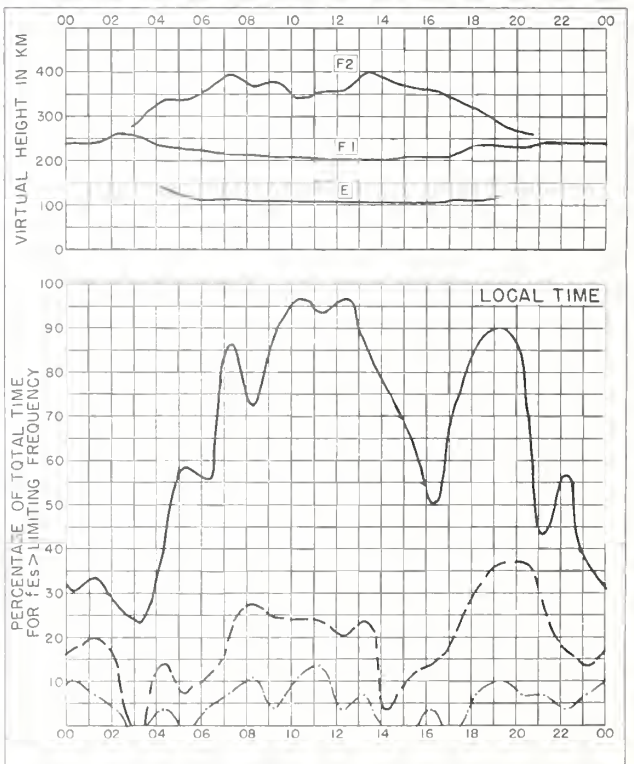


Fig. 80. UPSALA, SWEDEN JUNE 1954

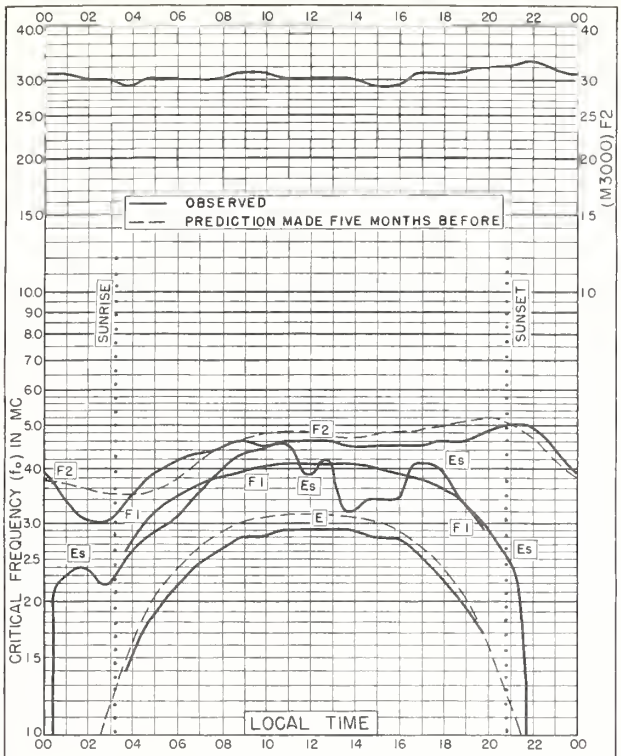


Fig. 81. INVERNESS, SCOTLAND
57.4°N, 4.2°W JUNE 1954

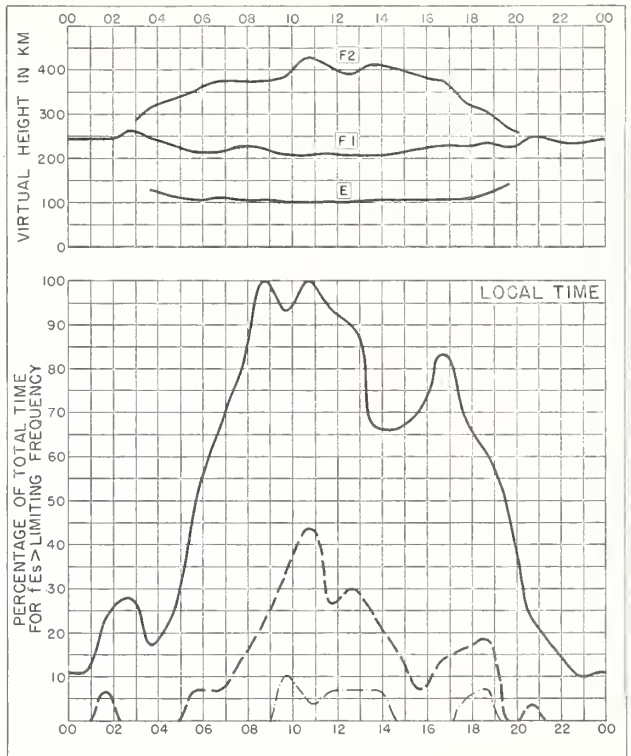


Fig. 82. INVERNESS, SCOTLAND JUNE 1954

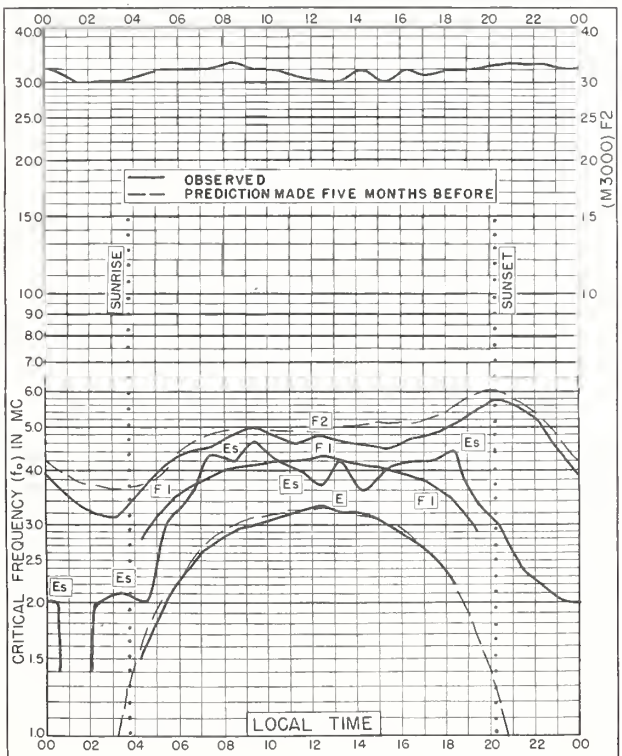


Fig. 83. De BILT, HOLLAND
52.1°N, 5.2°E JUNE 1954

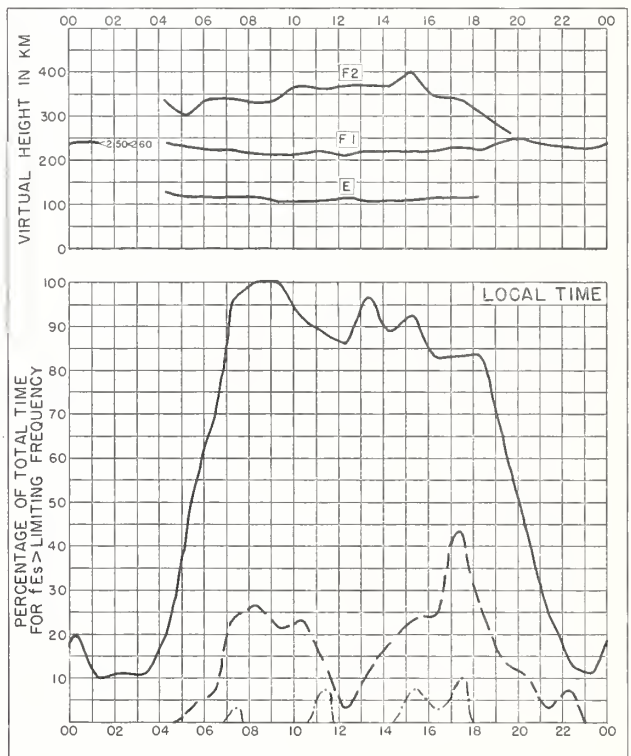


Fig. 84. De BILT, HOLLAND JUNE 1954

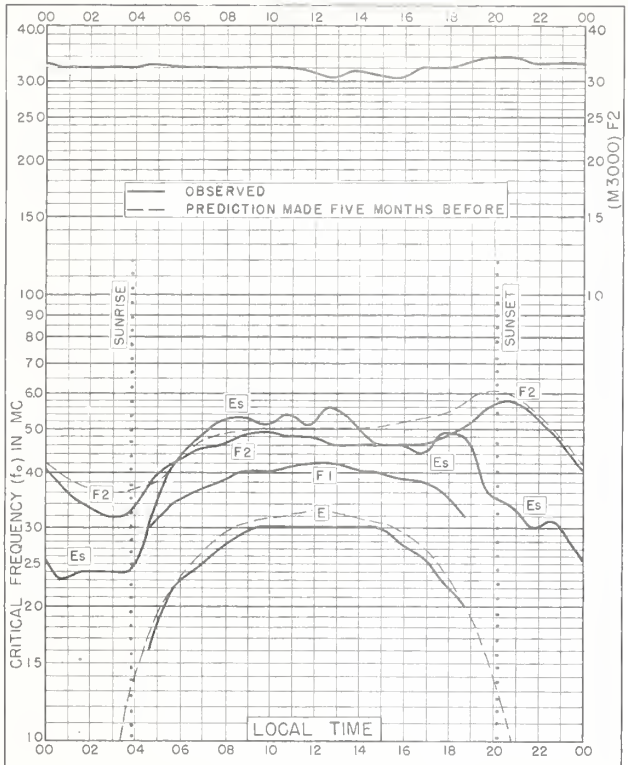


Fig. 85. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JUNE 1954

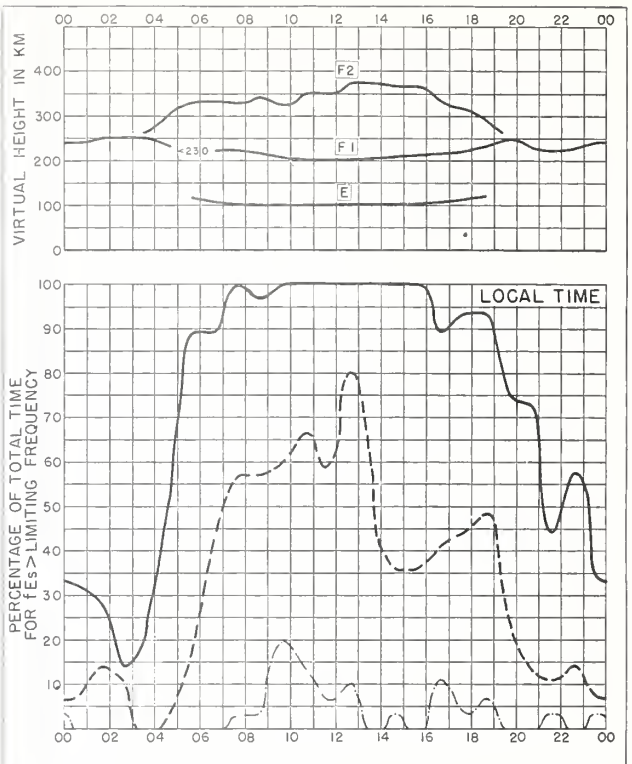


Fig. 86. LINDAU/HARZ, GERMANY JUNE 1954

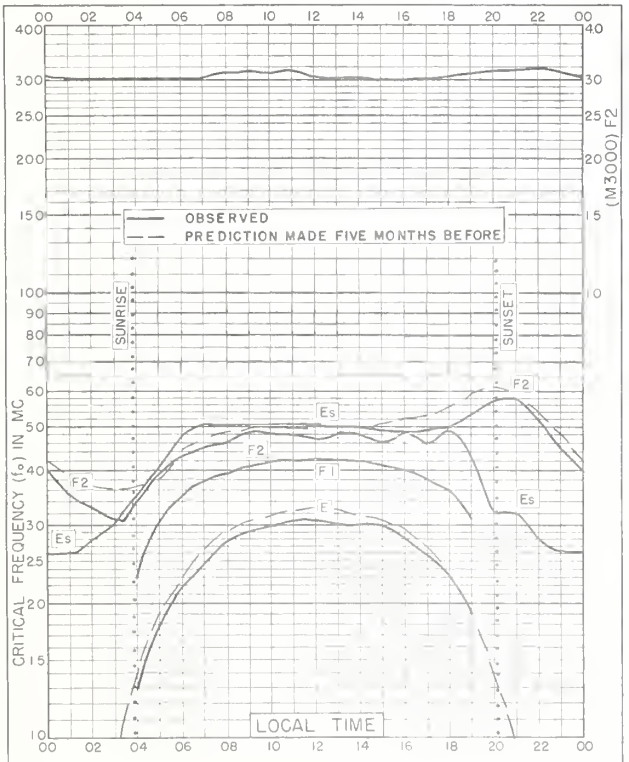


Fig. 87. SLOUGH, ENGLAND
51.5°N, 0.6°W JUNE 1954

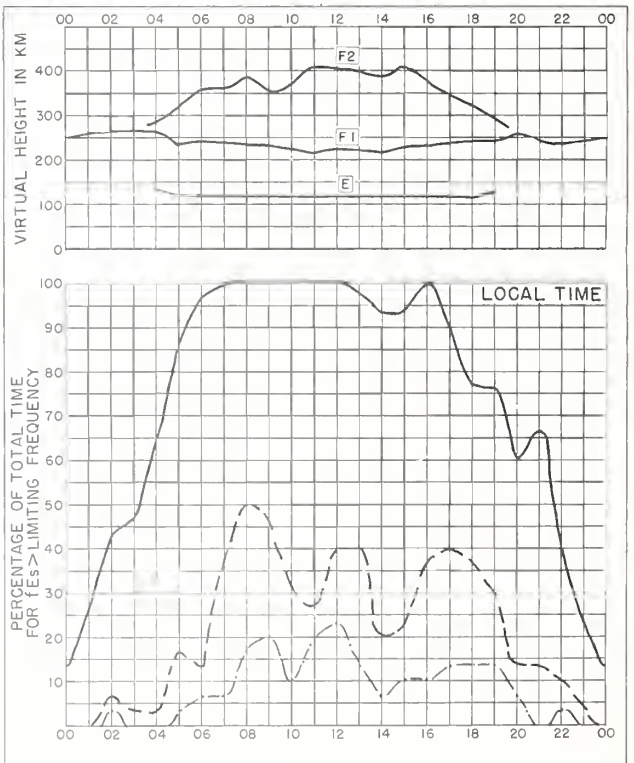


Fig. 88. SLOUGH, ENGLAND JUNE 1954

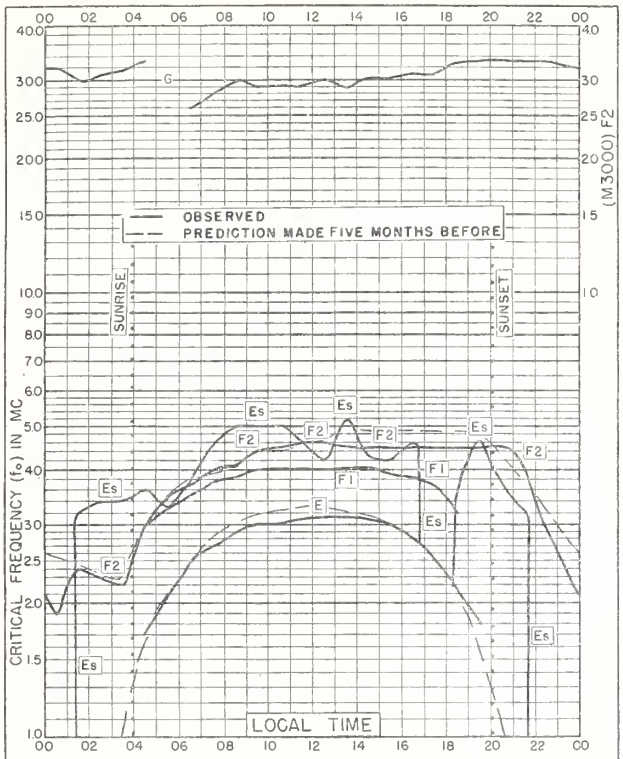


Fig. 89. WINNIPEG, CANADA
49.9°N, 97.4°W JUNE 1954

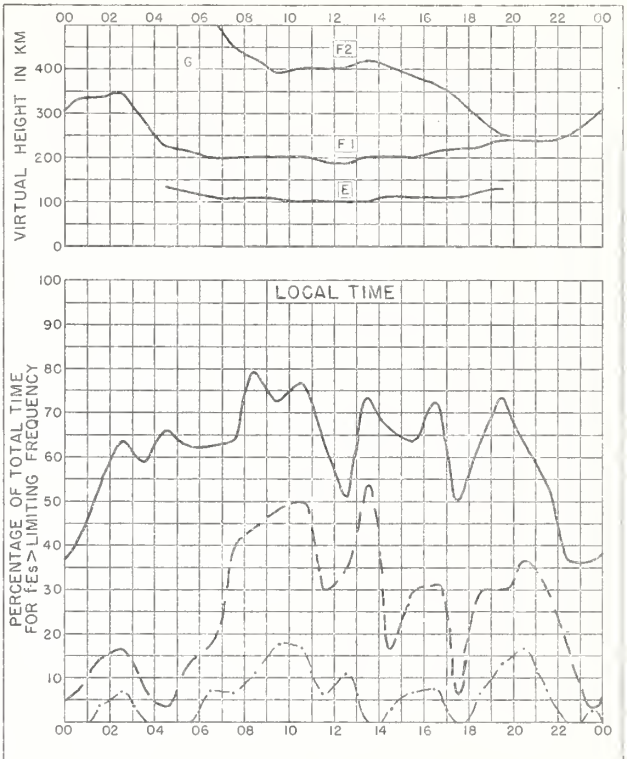


Fig. 90. WINNIPEG, CANADA JUNE 1954

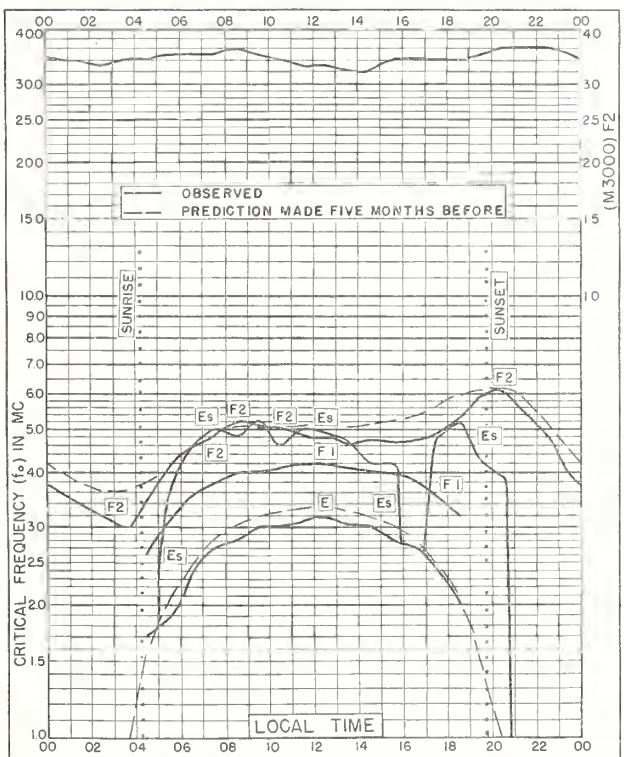


Fig. 91. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JUNE 1954

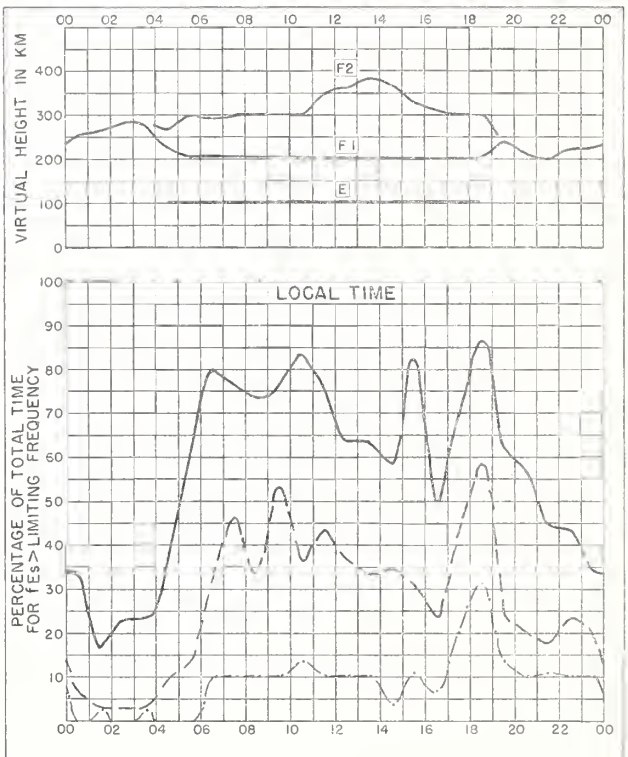


Fig. 92. SCHWARZENBURG, SWITZERLAND JUNE 1954

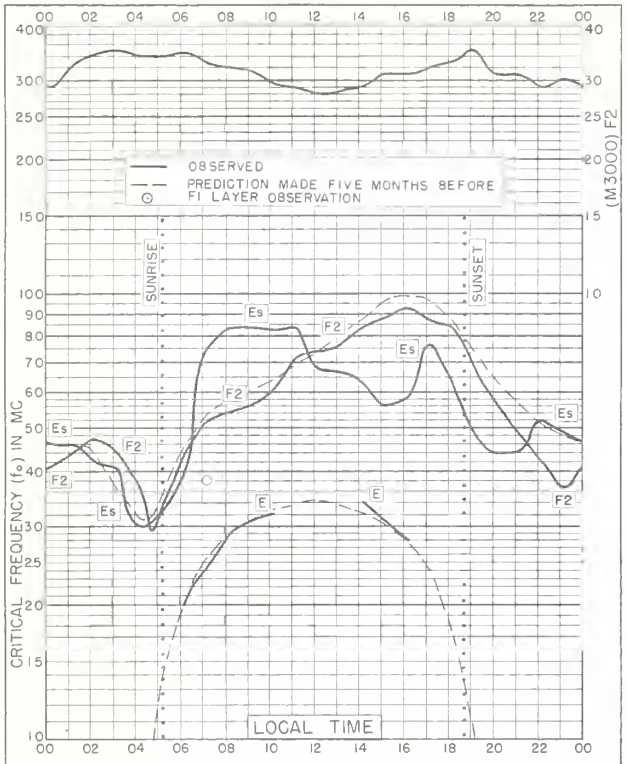


Fig. 93. FORMOSA, CHINA
25.0°N, 121.5°E JUNE 1954

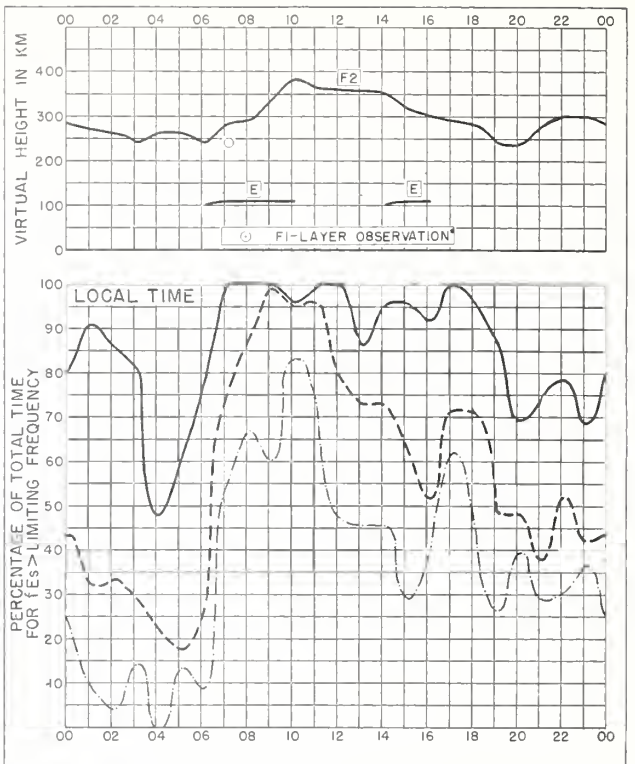


Fig. 94. FORMOSA, CHINA JUNE 1954

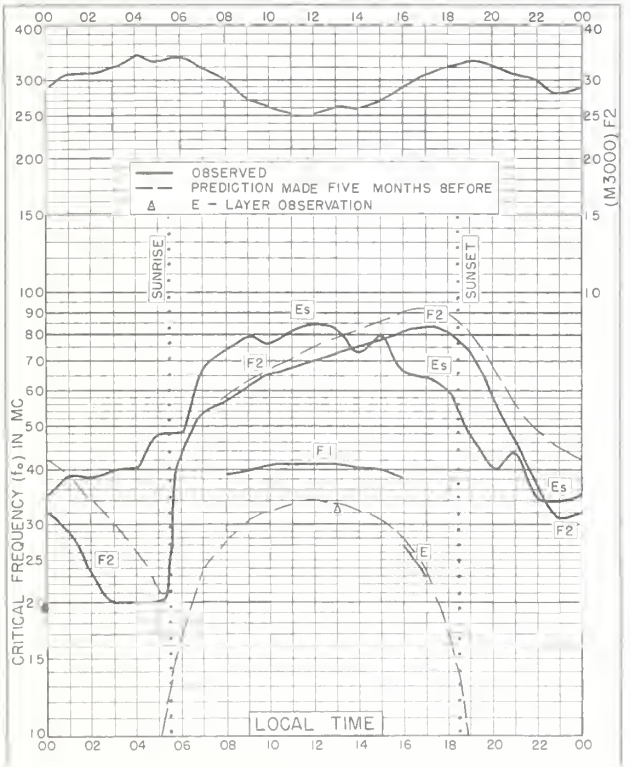


Fig. 95. BAGUIO, P. I.
16.4°N, 120.6°E JUNE 1954

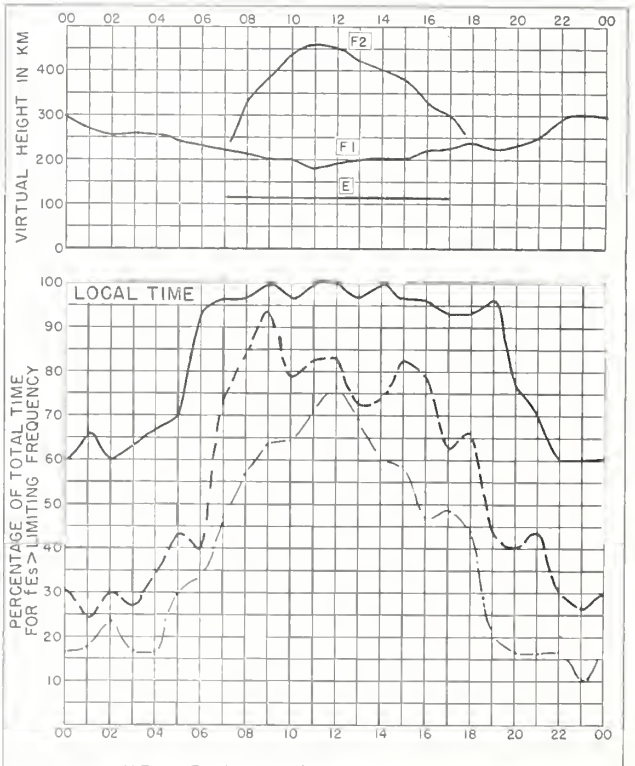


Fig. 96. BAGUIO, P. I. JUNE 1954

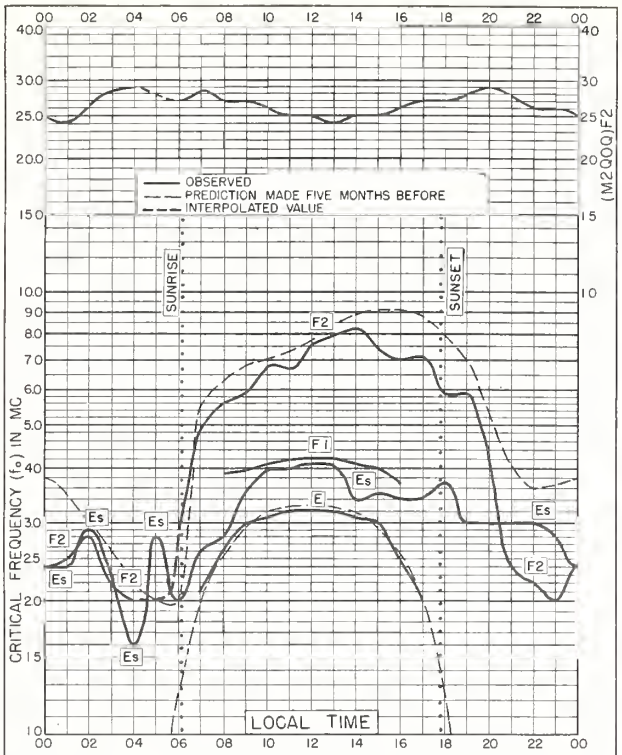


Fig. 97. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E JUNE 1954

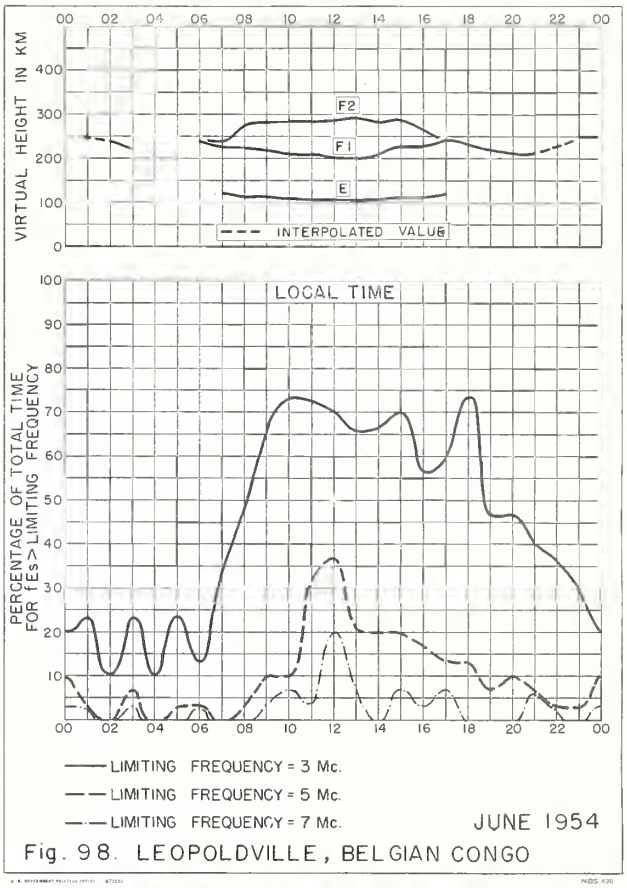


Fig. 98. LEOPOLDVILLE, BELGIAN CONGO JUNE 1954

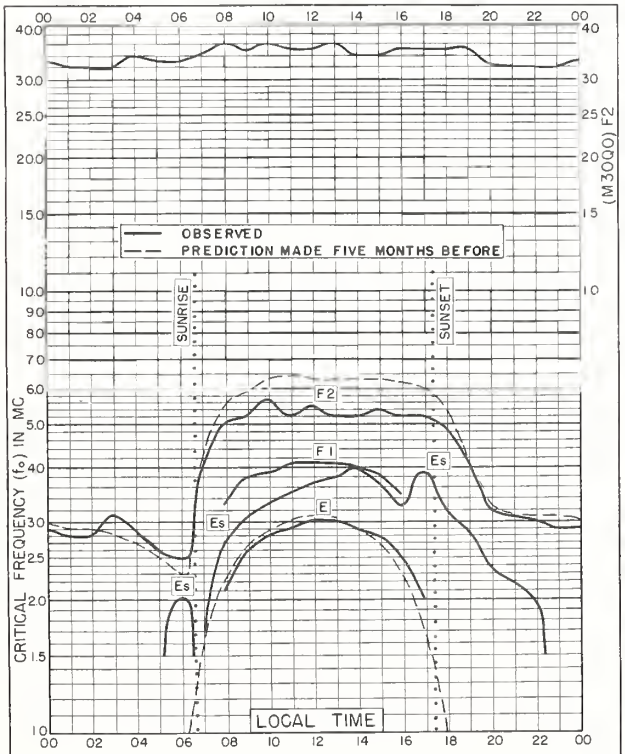


Fig. 99. RAROTONGA I.
21.3°S, 159.8°W JUNE 1954

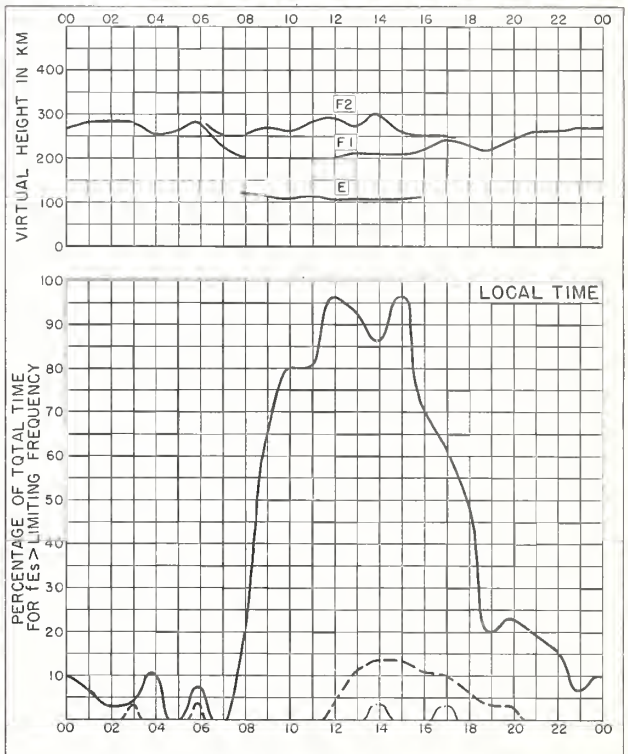


Fig. 100. RAROTONGA I. JUNE 1954

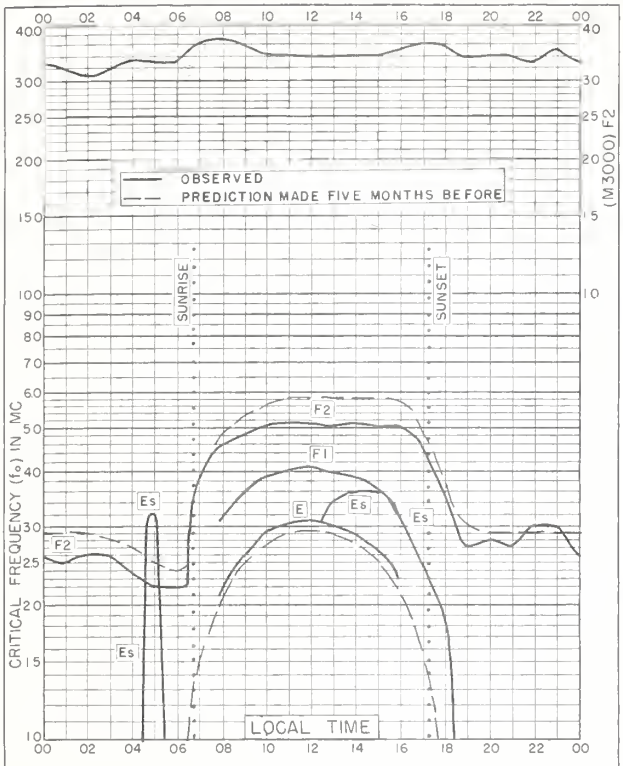


Fig. 101. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E JUNE 1954

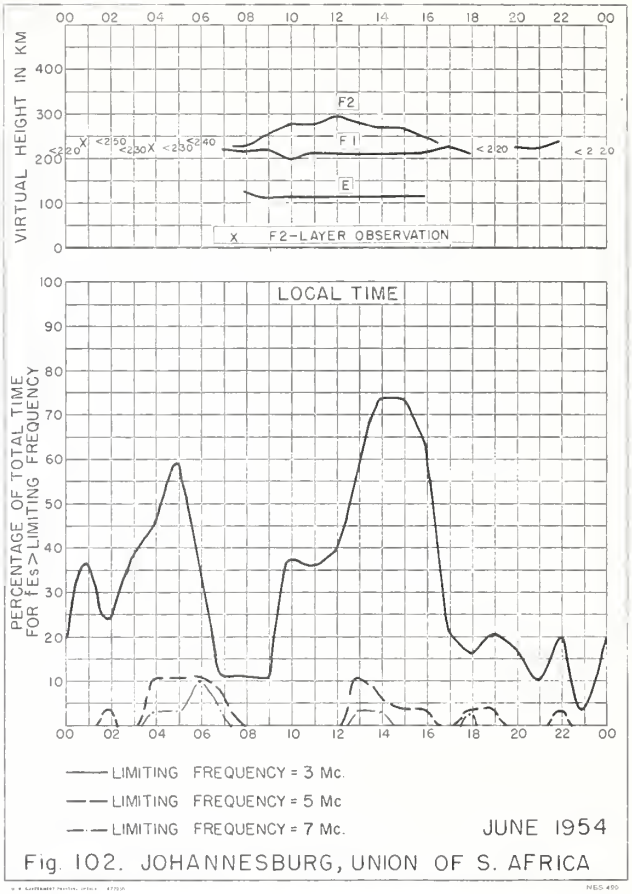


Fig. 102. JOHANNESBURG, UNION OF S. AFRICA

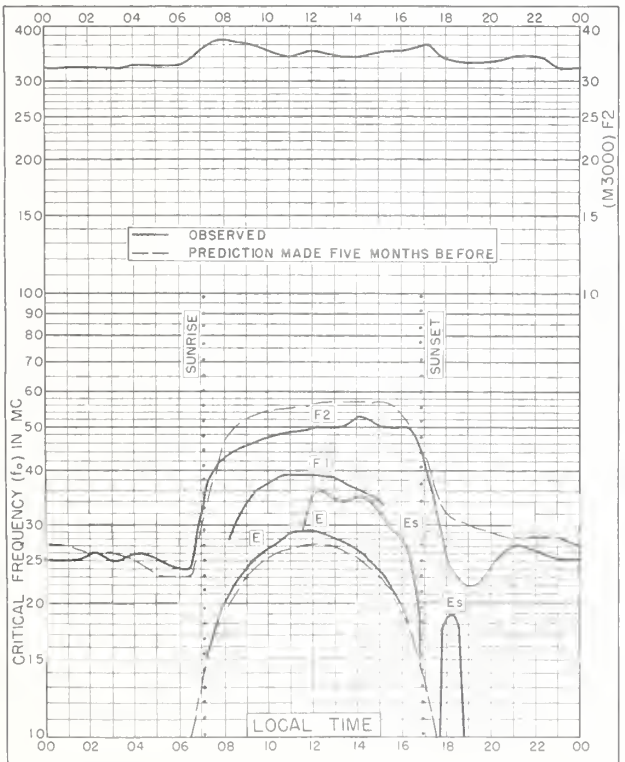


Fig. 103 CAPETOWN, UNION OF S. AFRICA
34.2°S, 18 3°E JUNE 1954

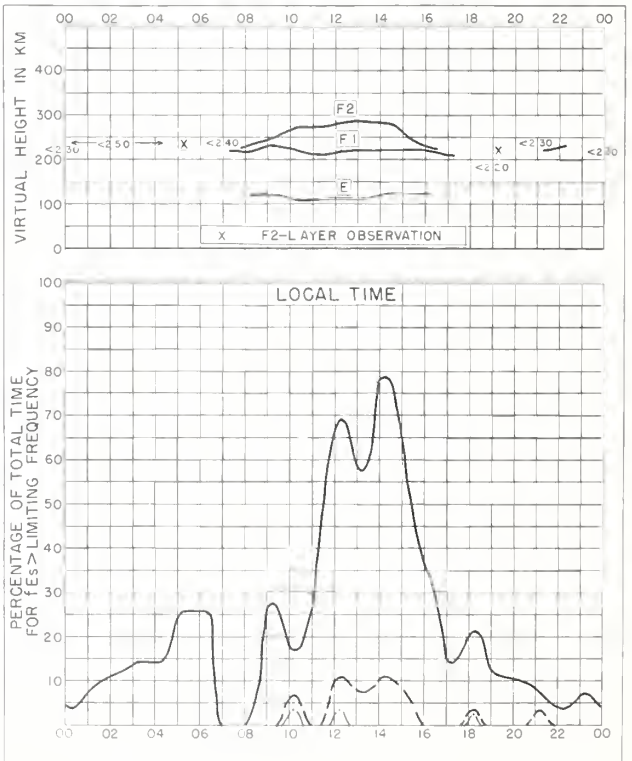


Fig. 104. CAPETOWN, UNION OF S. AFRICA

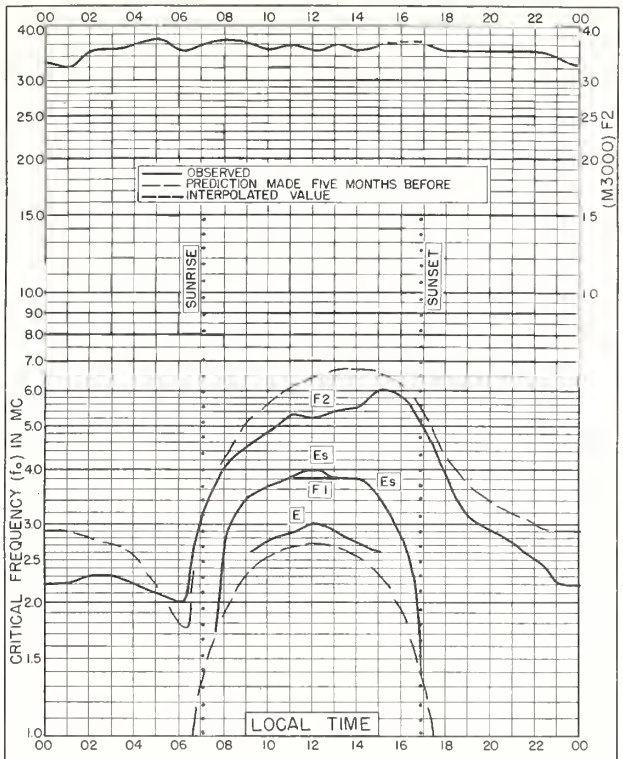


Fig. 105. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JUNE 1954

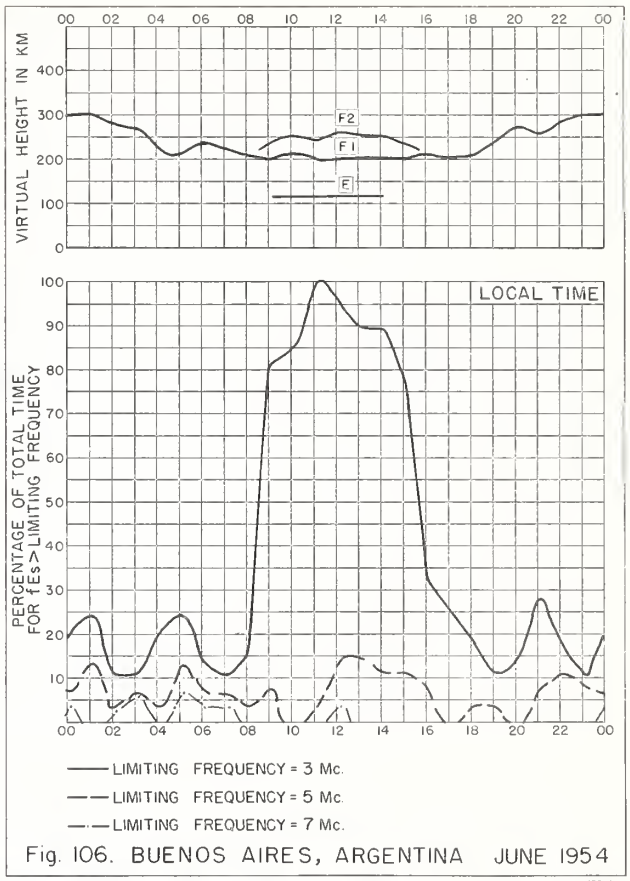


Fig. 106. BUENOS AIRES, ARGENTINA JUNE 1954

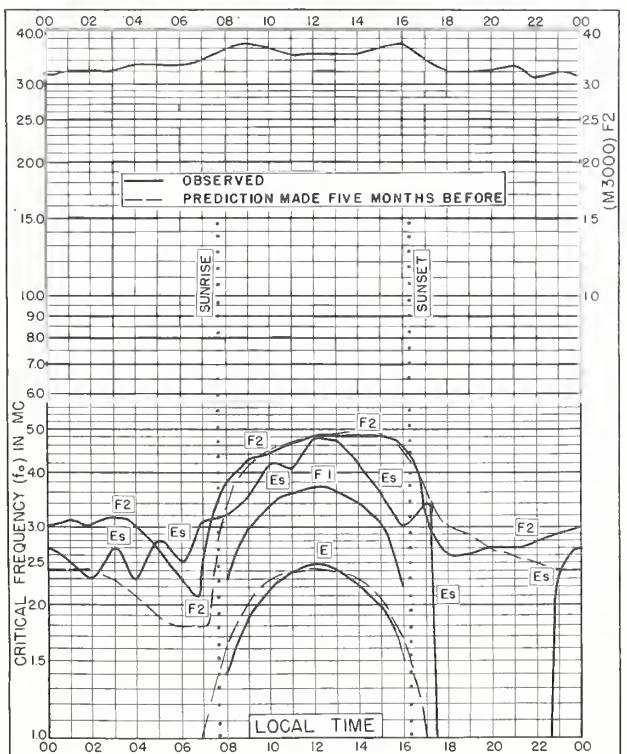


Fig. 107. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E JUNE 1954

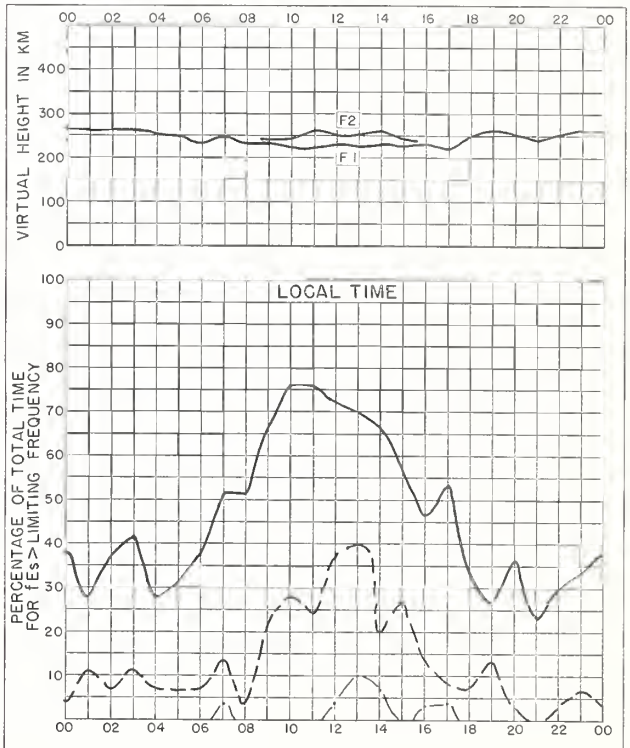


Fig. 108. CHRISTCHURCH, NEW ZEALAND JUNE 1954

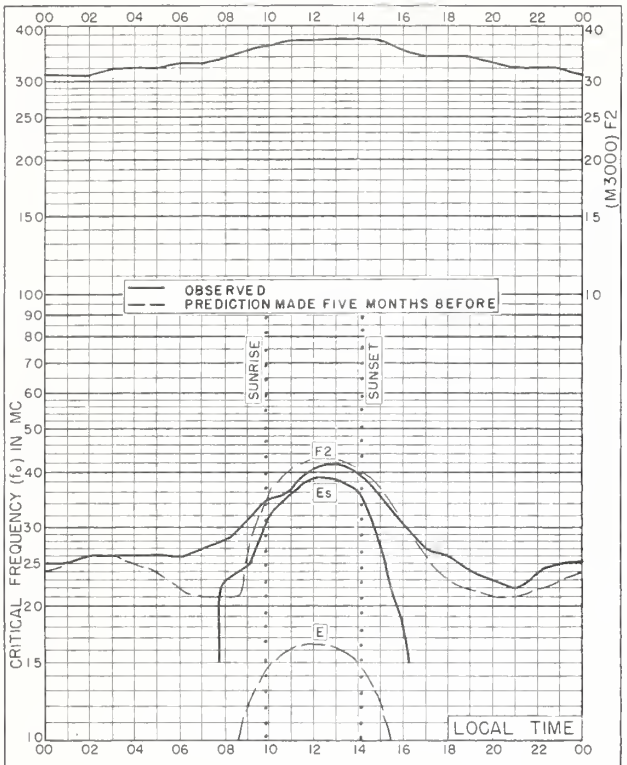


Fig. 109. DECEPCION I.
63.0°S, 60.7°W JUNE 1954

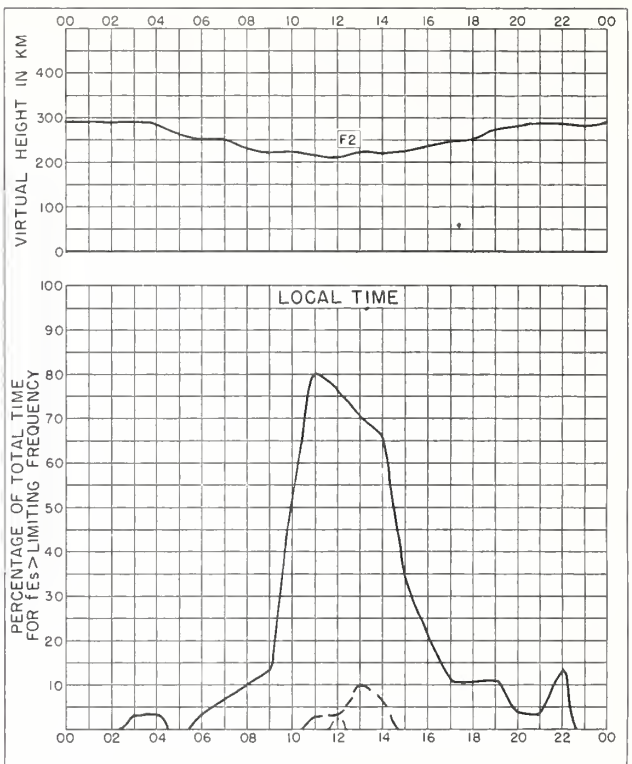


Fig. 110. DECEPCION I. JUNE 1954

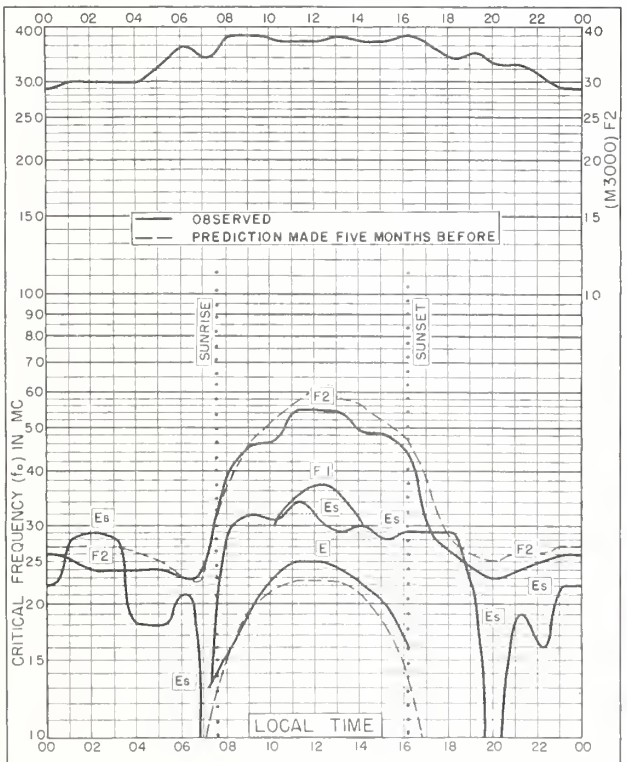


Fig. 111. FALKLAND IS.
51.7°S, 57.8°W MAY 1954

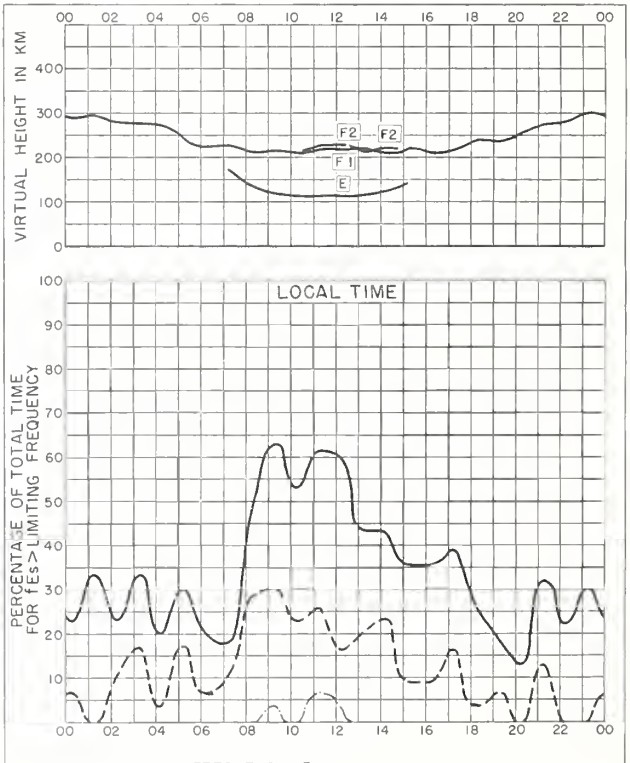


Fig. 112. FALKLAND IS. MAY 1954

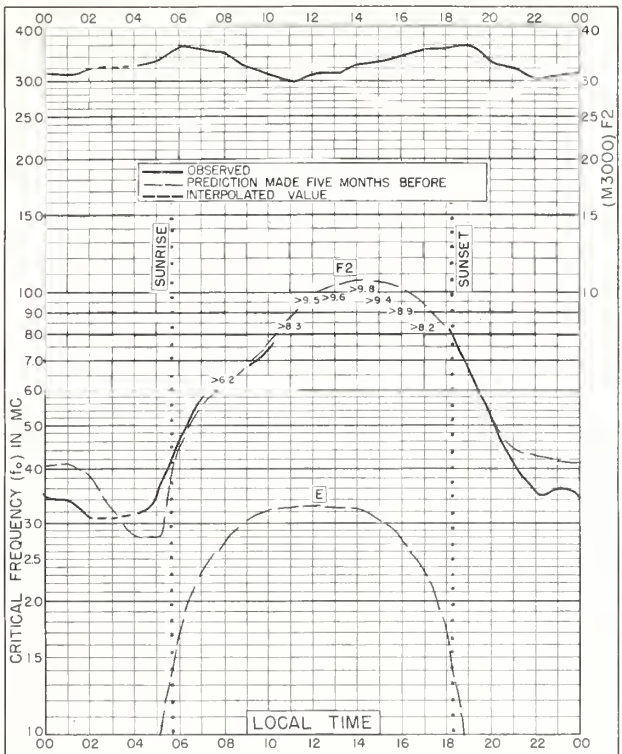


Fig. 113. DELHI, INDIA
28.6°N, 77.1°E APRIL 1954

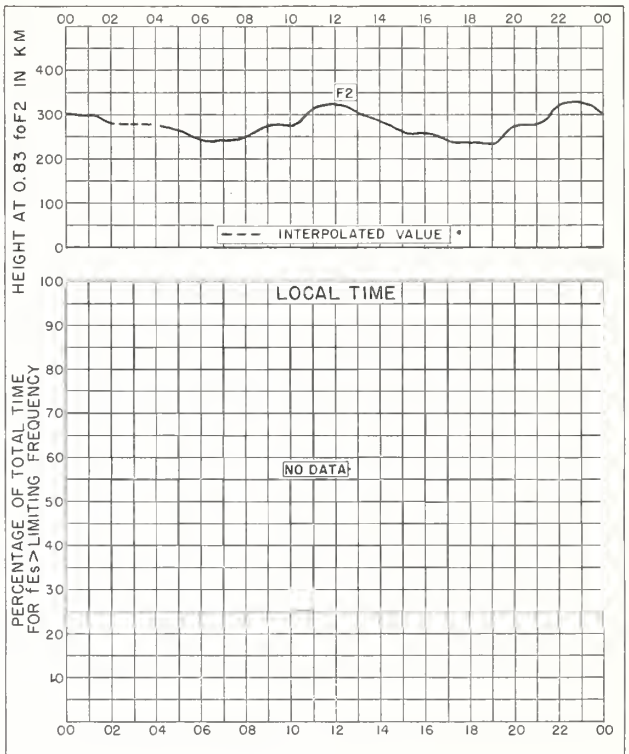


Fig. 114. DELHI, INDIA APRIL 1954

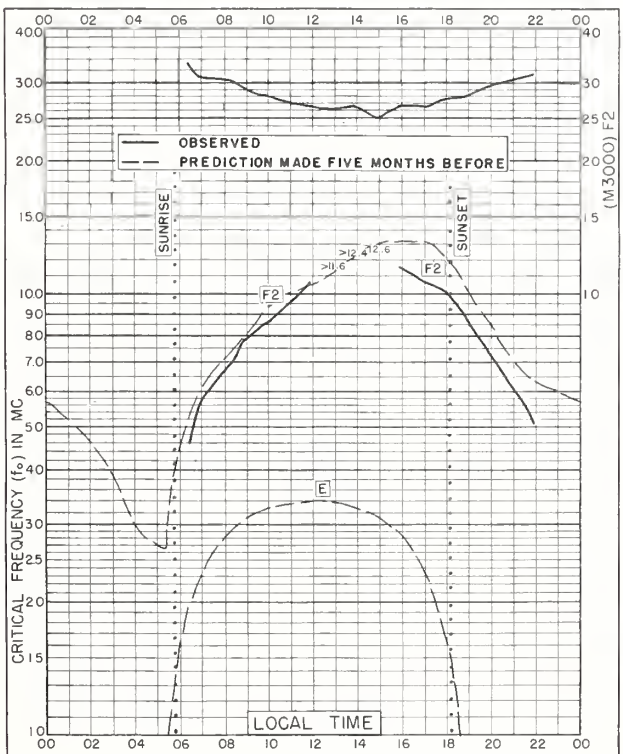


Fig. 115. BOMBAY, INDIA
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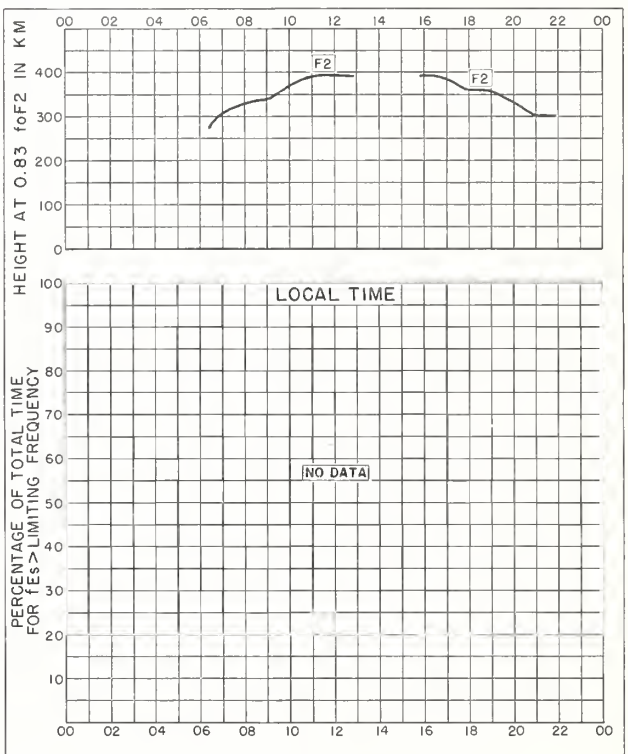

Fig. 116. BOMBAY, INDIA APRIL 1954

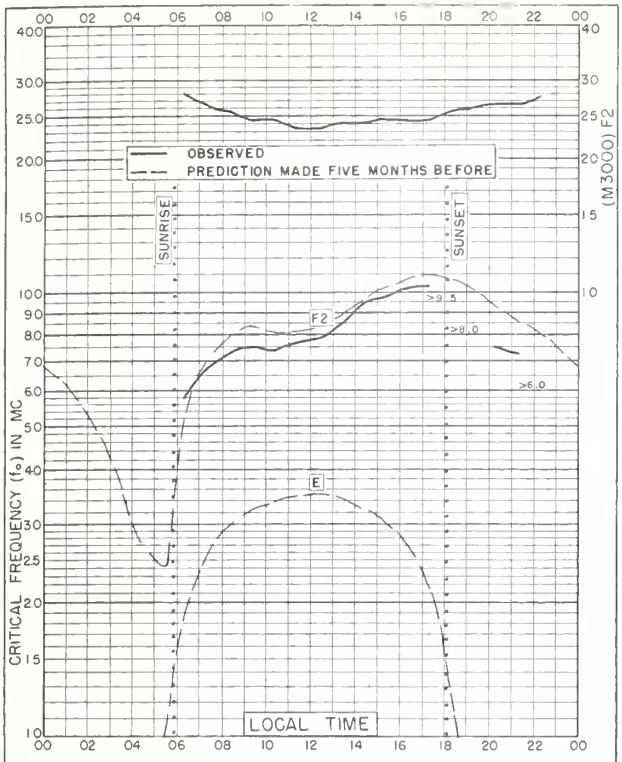

Fig. 117. MADRAS, INDIA
13.0°N, 80.2°E APRIL 1954

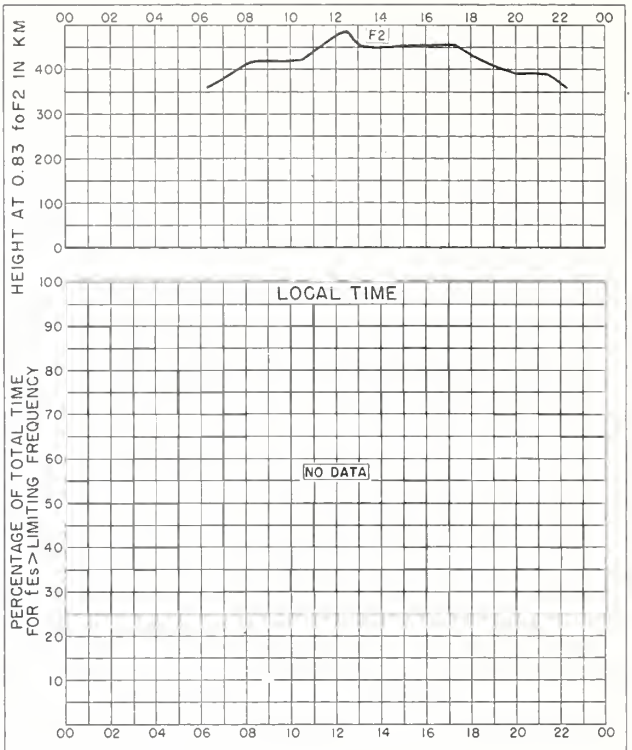

Fig. 118. MADRAS, INDIA APRIL 1954

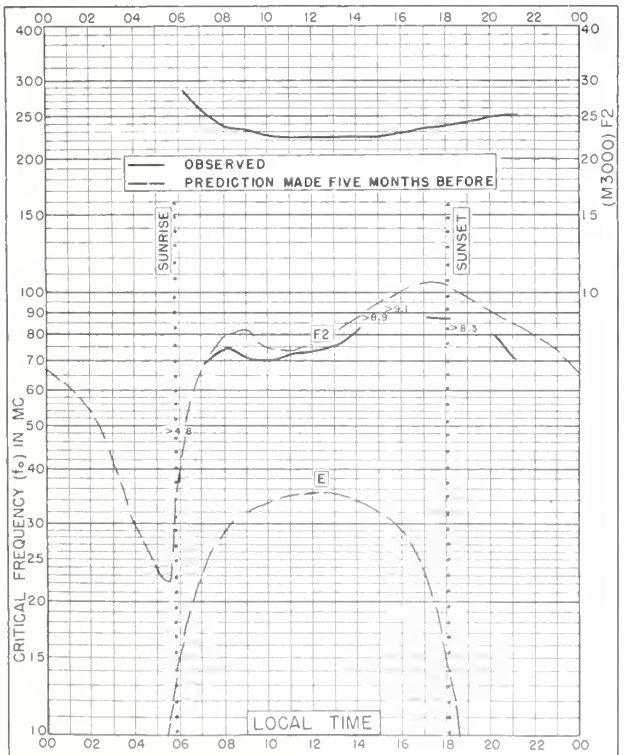

Fig. 119. TIRUCHY, INDIA
10.8°N, 78.8°E APRIL 1954

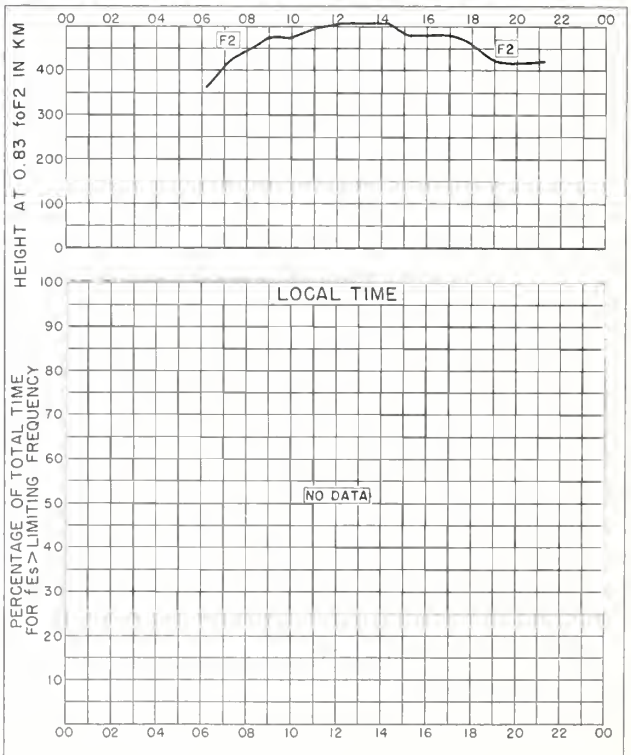

Fig. 120. TIRUCHY, INDIA APRIL 1954

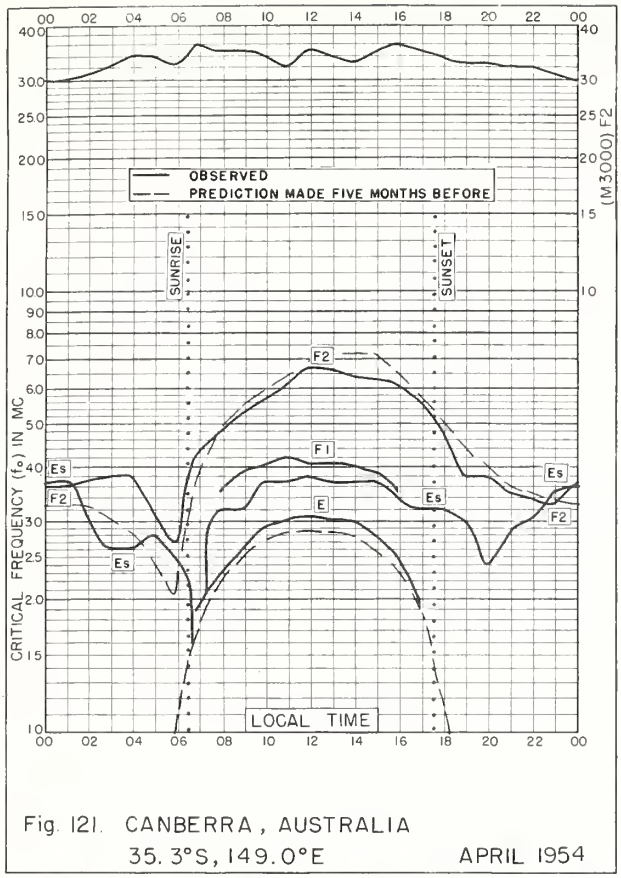

Fig. 121. CANBERRA, AUSTRALIA
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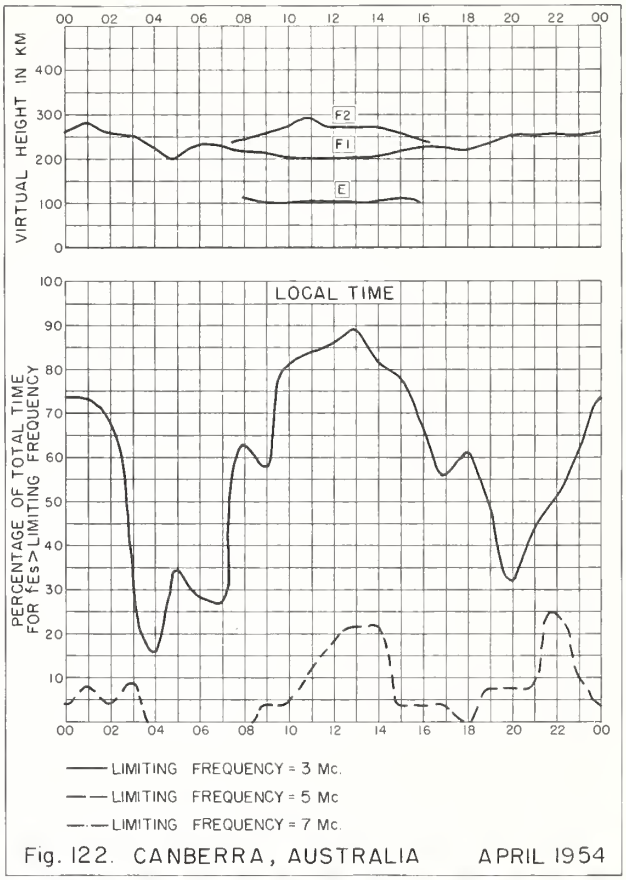

Fig. 122. CANBERRA, AUSTRALIA APRIL 1954

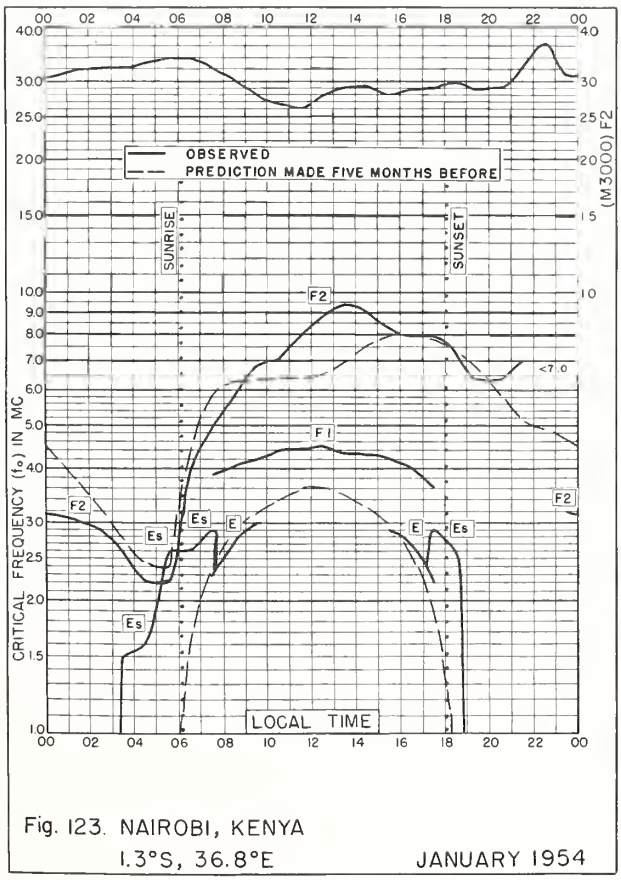

Fig. 123. NAIROBI, KENYA
1.3°S, 36.8°E JANUARY 1954

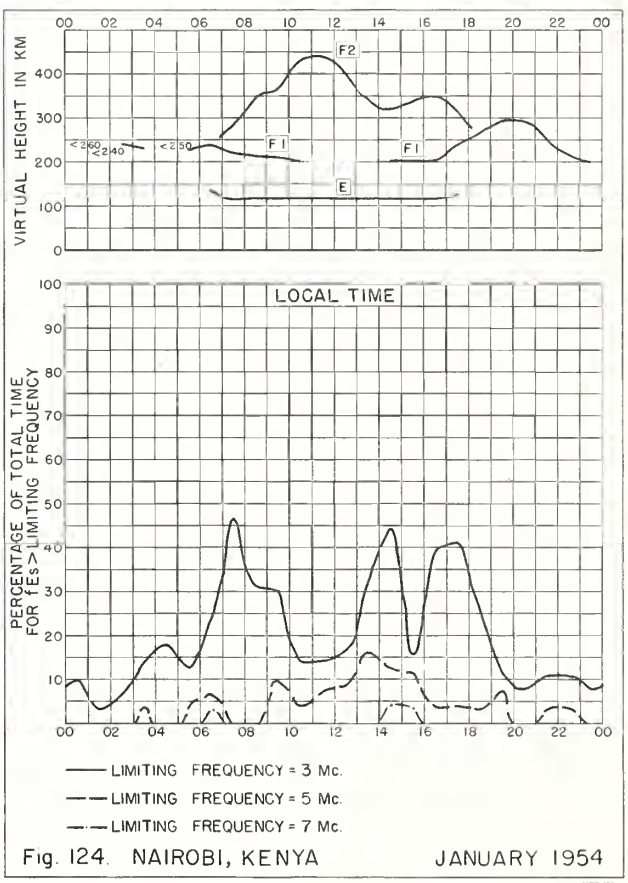

Fig. 124. NAIROBI, KENYA JANUARY 1954

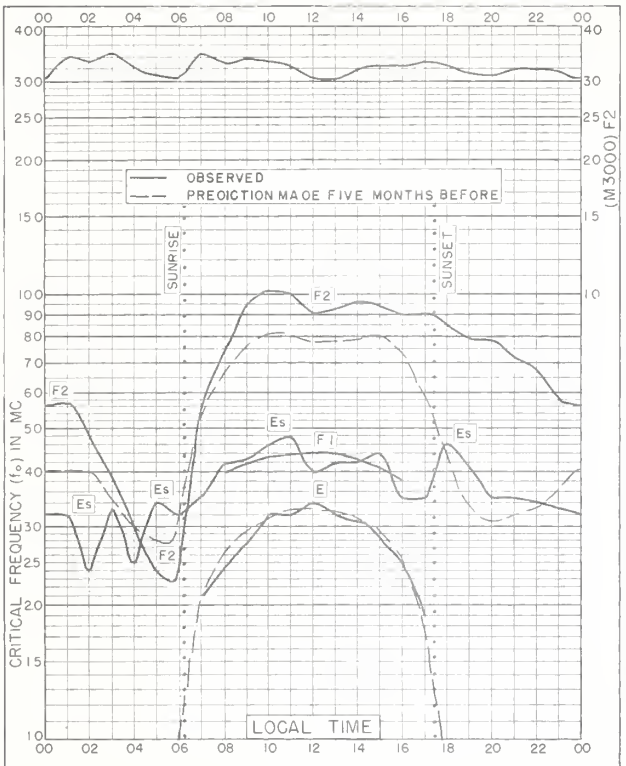

Fig. 125. DAKAR, FRENCH W. AFRICA
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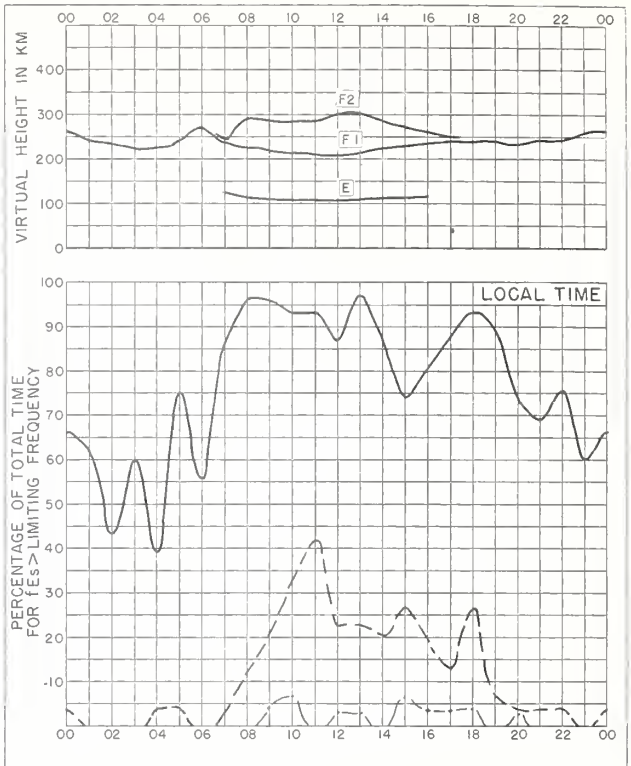


DECEMBER 1953

Fig. 126. DAKAR, FRENCH W. AFRICA

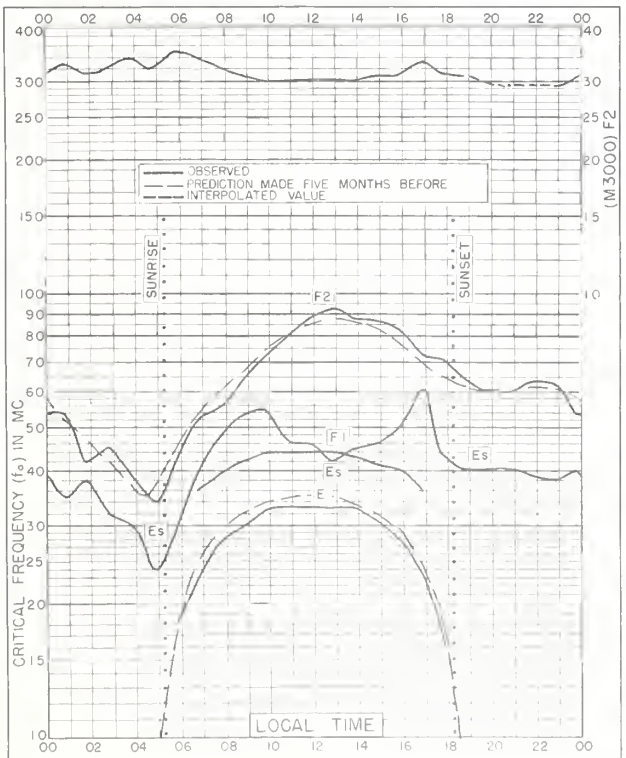
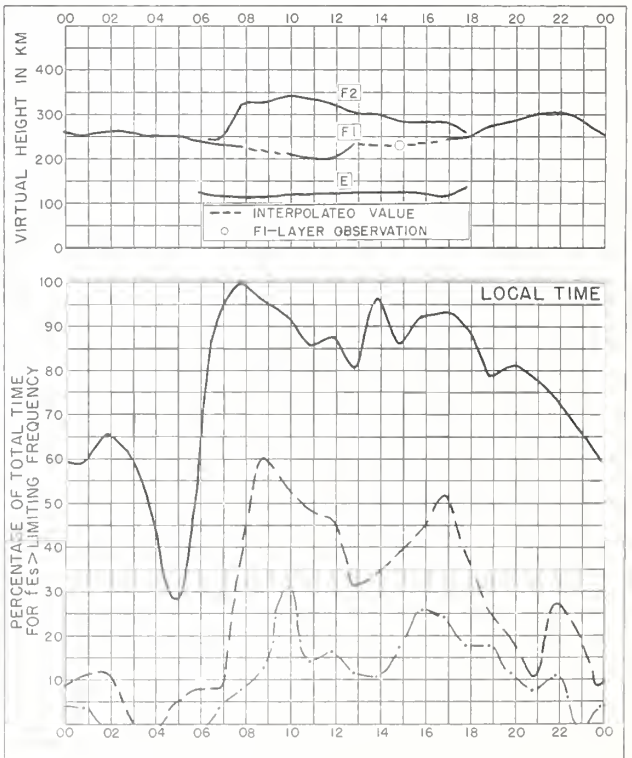


Fig. 127 TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E NOVEMBER 1953



NOVEMBER 1953

Fig. 128. TOWNSVILLE, AUSTRALIA

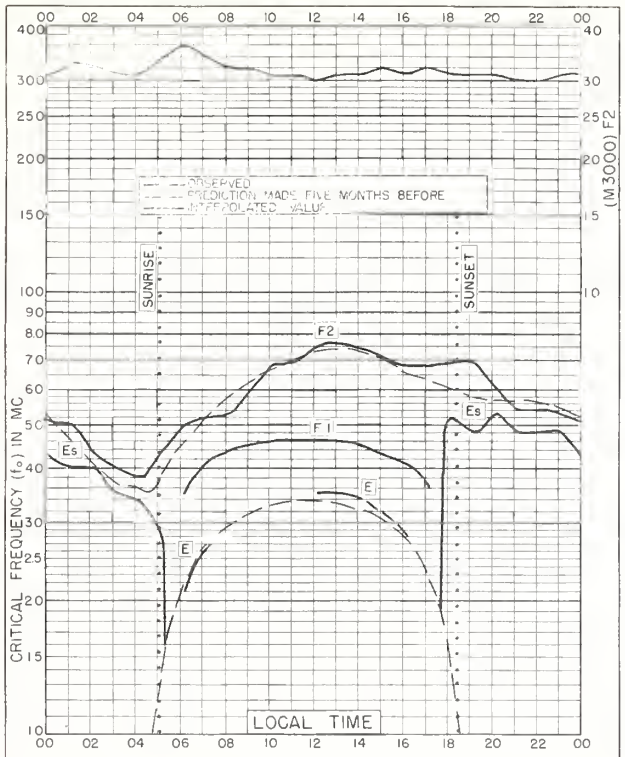


Fig. 129 BRISBANE, AUSTRALIA
27.5°S, 153.0°E NOVEMBER 1953

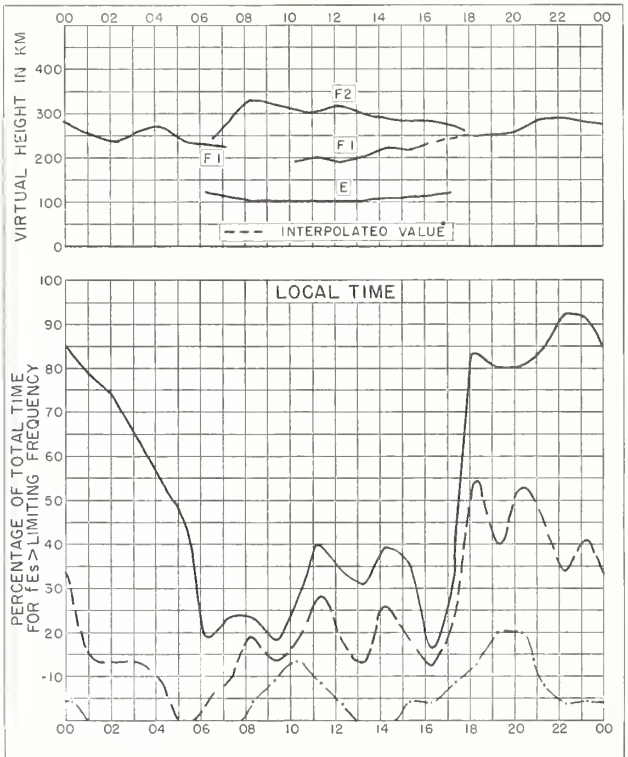


Fig. 130. BRISBANE, AUSTRALIA NOVEMBER 1953

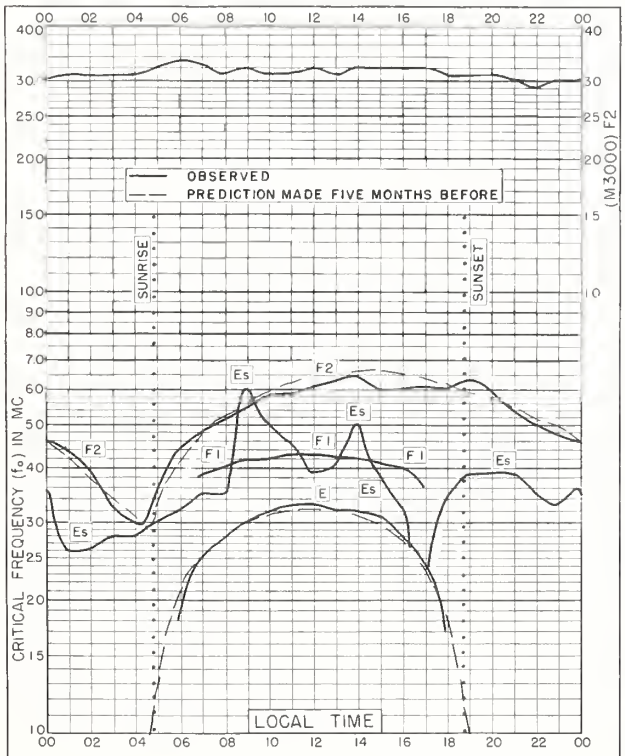


Fig. 131. CANBERRA, AUSTRALIA
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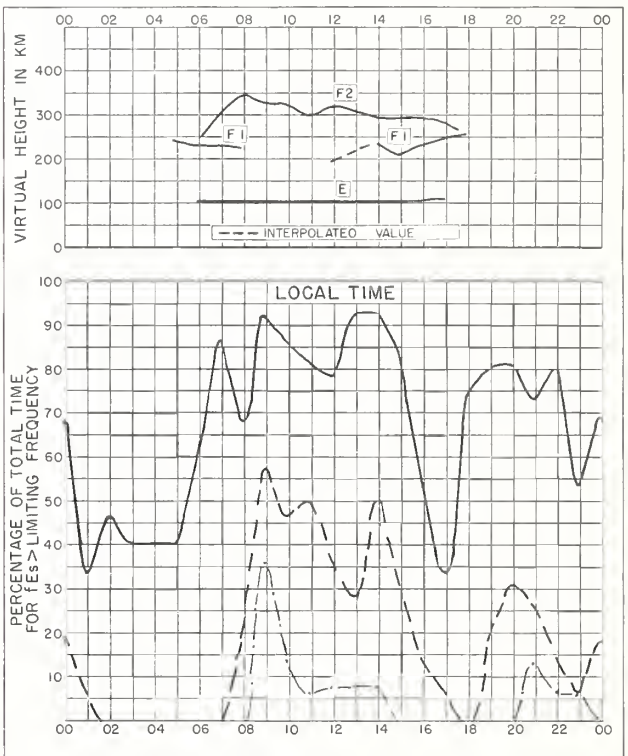

Fig. 132. CANBERRA, AUSTRALIA NOVEMBER 1953

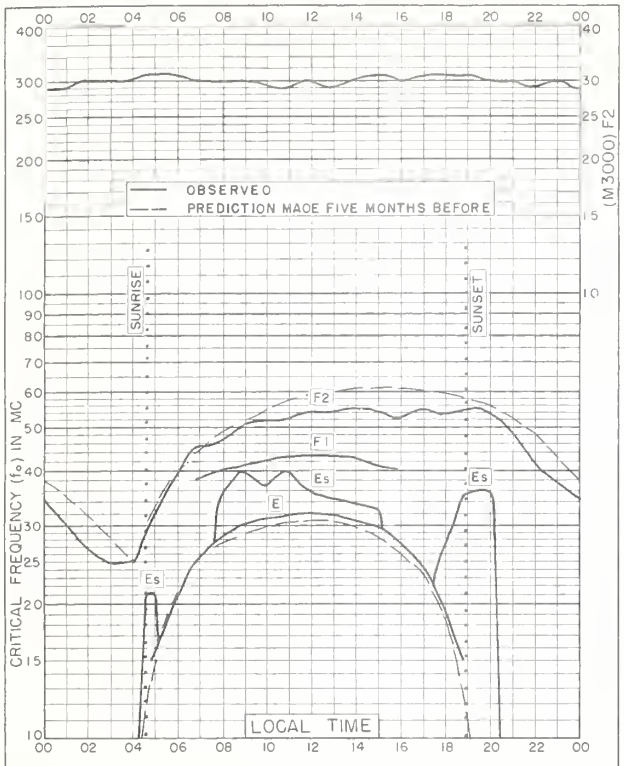

Fig. 133. HOBART, TASMANIA
42.9°S, 147.3°E NOVEMBER 1953

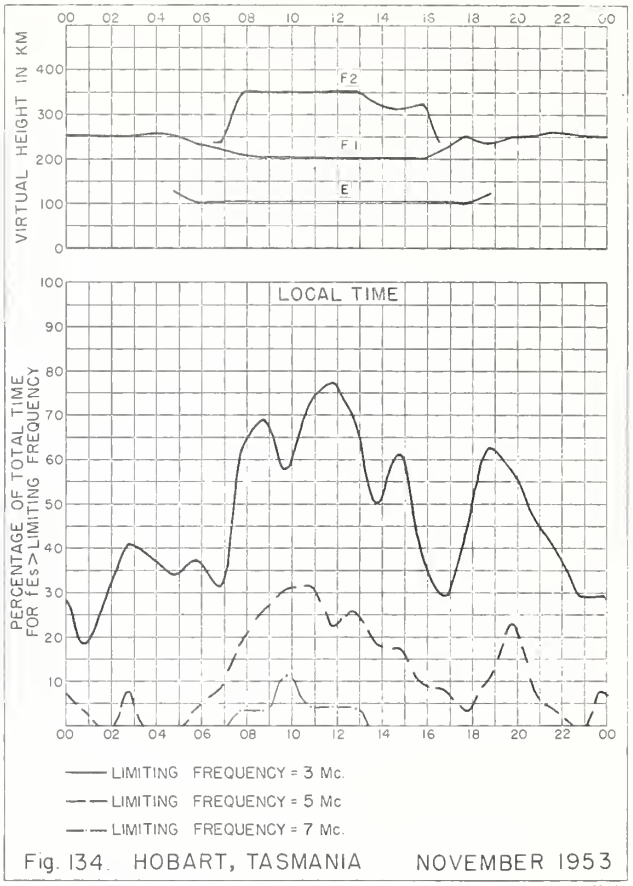

Fig. 134. HOBART, TASMANIA NOVEMBER 1953

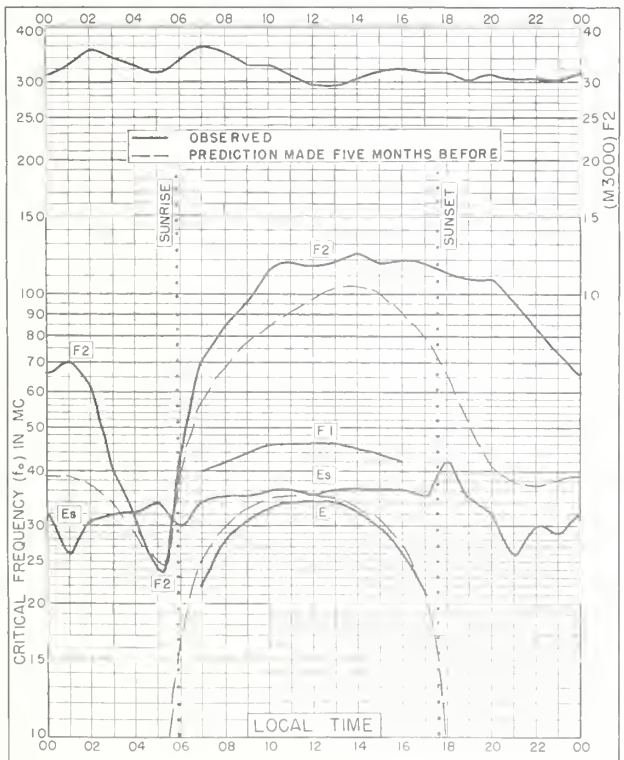

Fig. 135. DAKAR, FRENCH W. AFRICA
14.6°N, 17.3°W OCTOBER 1953

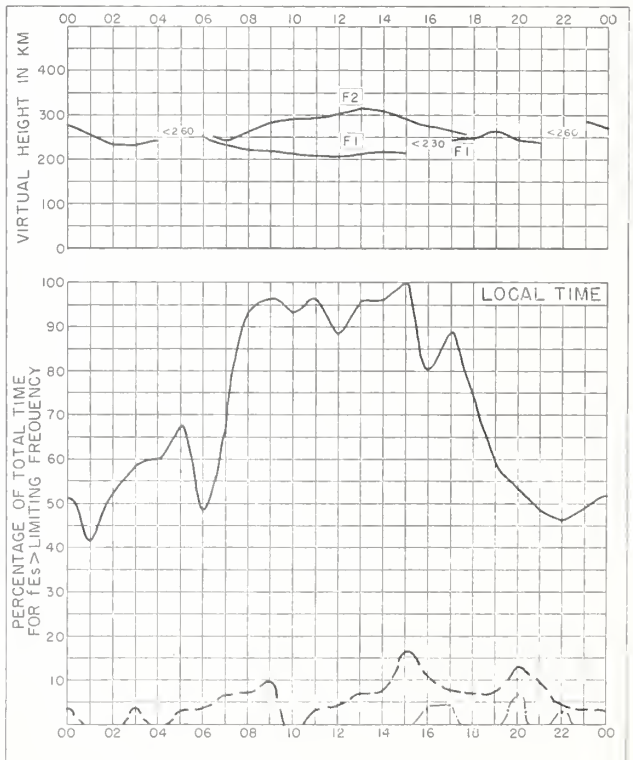

Fig. 136. DAKAR, FRENCH W. AFRICA OCTOBER 1953

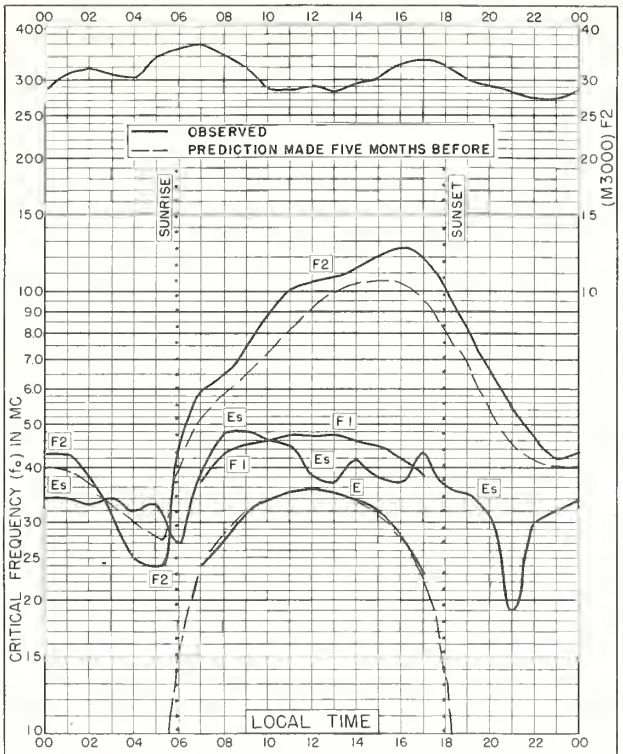

Fig. 137. DAKAR, FRENCH W. AFRICA
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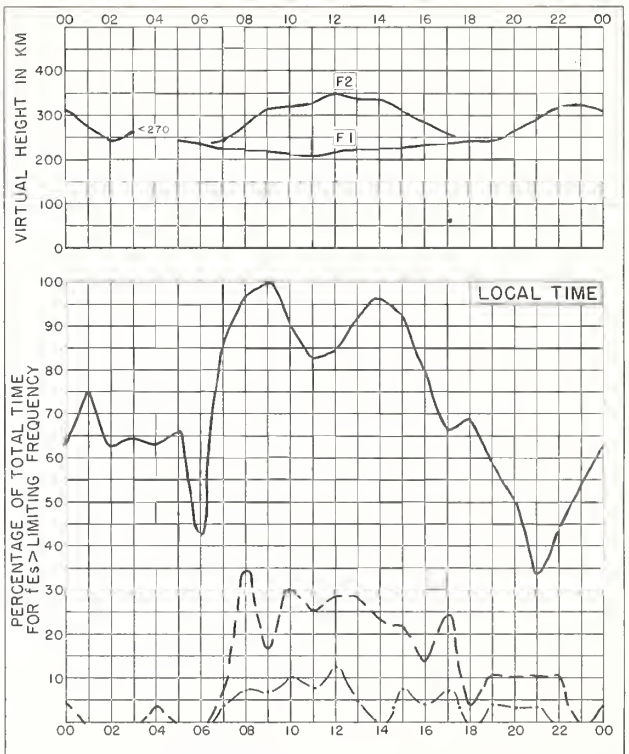

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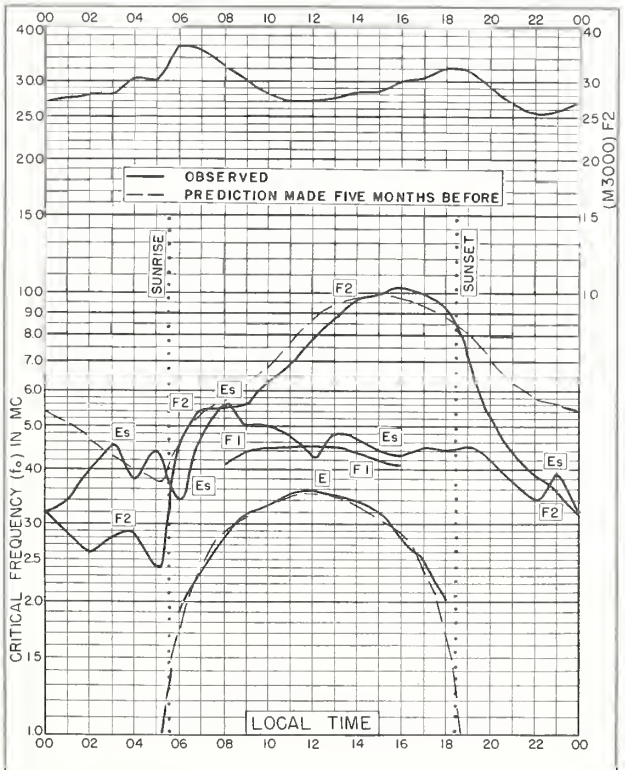

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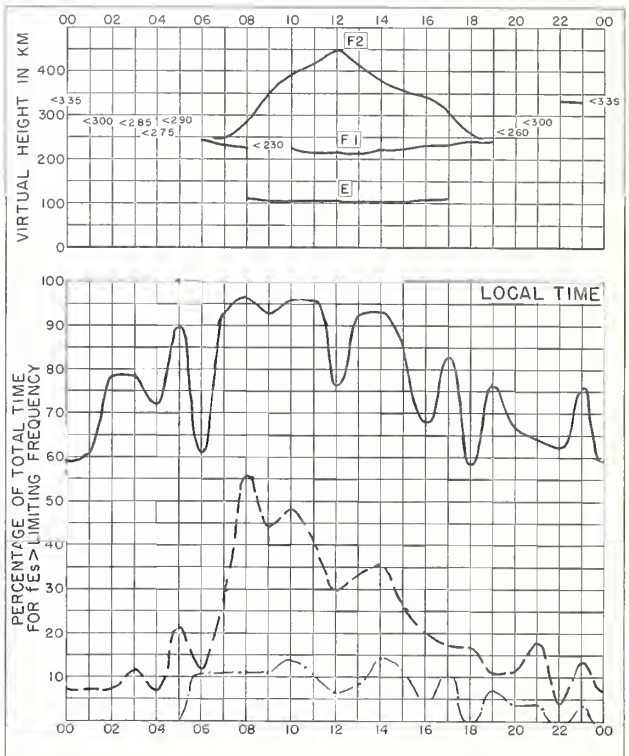
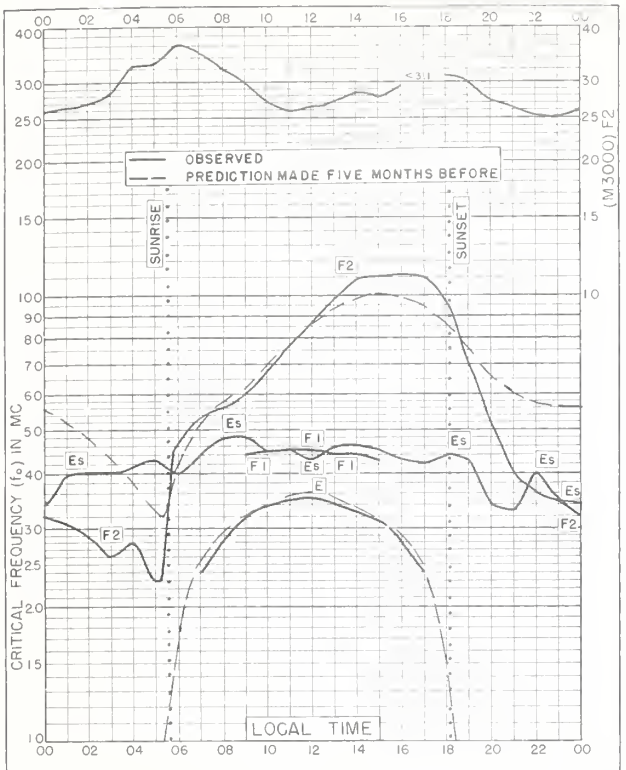


Fig. 140. DAKAR, FRENCH W. AFRICA JUNE 1953



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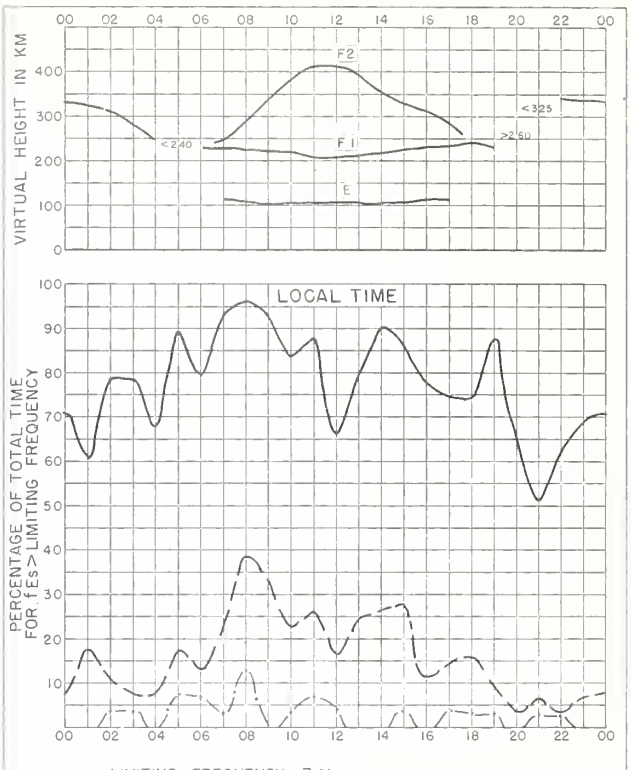

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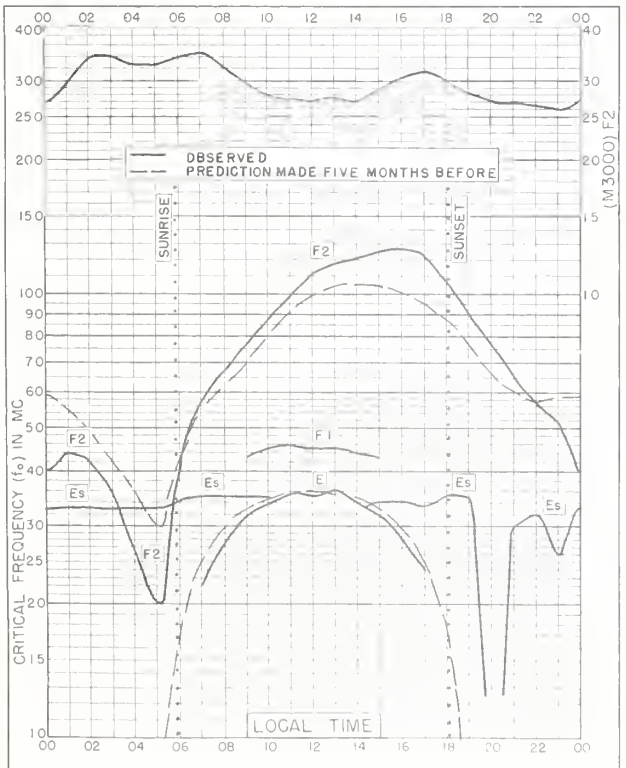

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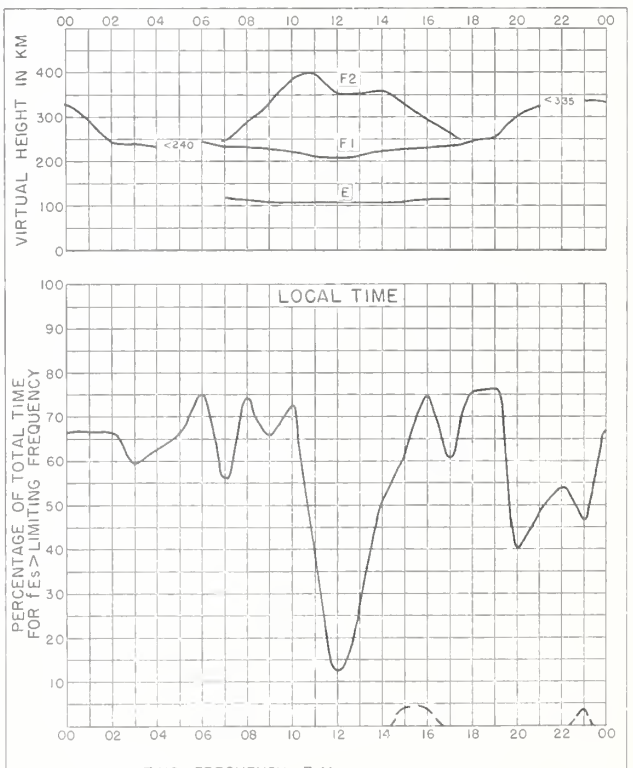

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