CRPL-F 100

IONOSPHERIC DATA

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CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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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 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 foFl, 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'Fl, foFl, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'Fl and foFl 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							
	1952	1951	1950	1949	1948	1947	1946	1945
December		53	86	108	114	126	85	38
November	38	52	87	112	115	124	83	36
October	43	52	90	114	116	119	81	23
September	46	54	91	115	117	121	79	22
August	49	57	96	111	123	122	77	20
July	51	60	101	108	125	116	73	
June	52	63	103	108	129	112	67	
May	52	68	102	108	130	109	67	
April	52	74	101	109	133	107	62	
March	52	78	103	111	133	105	51	
February	51	82	103	113	133	90	46	
January	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.

University of Graz:
- Graz, Austria

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

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

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

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

The Royal Netherlands Meteorological Institute:
- De Bilt, Holland

Icelandic Post and Telegraph Administration:
- Reykjavik, Iceland

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

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

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

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
- Christchurch, New Zealand

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

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Baton Rouge, Louisiana (Louisiana State University)
Fairbanks, Alaska
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
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 to 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during November 1952, 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 86a and 86b give for October 1952 the radio propagation quality figures for the North Atlantic area, CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, separately for 00-12 and 12-24 hours UT (Universal Time or GCT). The basis of calculation is summarized below.
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the two half-daily Q-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. The forecasts issued just prior to 00^h and 12^h UT are scored against the half-daily quality figures; the results for the intervening forecasts should be similar. 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 and Q-figures.
(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.

The radio propagation quality figures 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:-- FCC, Coast Guard, Navy, Army Signal Corps, Air Force (AACS), State Department. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Beginning with recalculated figures for January 1952, only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality. Observations of selected ionospheric characteristics, even though strongly correlated with radio transmission quality, and traffic reports for paths such as New York-Stockholm or New York-Tangier, previously included in the quality-figure determination with low weight, have been left out of the present calculations inasmuch as a sufficient number of homogeneous reports are now available.

The original reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day 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. Each report is given a statistical weight which is the reciprocal of the departure from linearity. Each half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These quality figures are, in effect, a consensus of reported radio propagation conditions in the North Atlantic area. 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.

Note. The North Pacific quality figures, which were published through October 1951, have been temporarily discontinued. Since the establishment of the North Pacific Radio Warning Service at Anchorage, Alaska, a larger number of reports are being received than were previously available in Washington. The preparation of the quality figures will be resumed when sufficient data have been accumulated for determination of conversion tables for these new reports.

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during November 1952, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 90 through 92 list the coronal observations obtained at Sacramento Peak, New Mexico, during November 1952, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 87 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 88 gives similarly the intensities of the first red (6374A) coronal line; and table 89, the intensities of the second red (6702A) coronal line; all observed at Climax in November 1952.

Table 90 gives the intensities of the green (5303A) coronal line; table 91, the intensities of the first red (6374A) coronal line; and table 92, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in November 1952.

The following symbols are used in tables 87 through 92: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 93 lists the daily provisional Zurich relative sunspot number, R_Z, as communicated by the Swiss Federal Observatory. Table 94 continues the new series of American relative sunspot numbers, $R_{A'}$. Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into $R_{A'}$. Observatory coefficients for each of the 28 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated $R_{A'}$ rather than R_A. The American relative sunspot numbers appear monthly in these pages as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

Table 95 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 96 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 four criteria: (1) C; (2) the sum of the eight Kp's; (3) the greatest Kp; and (4) the sums of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g. 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. At the meeting of ATME held in Brussels in August 1951, it was decided that the computation of Kw would be discontinued after the month of December 1951 since Kp is available from January 1, 1940. Kw, therefore, no longer appears in these reports.

SUDDEN IONOSPHERE DISTURBANCES

Tables 97 and 98 list respectively the sudden ionosphere disturbances observed at Washington, D. C., November 1952; and at Point Reyes, California, November 1952.

ERRATA

1. CRPL-F97, p. 25, table 70: Opposite 10 in the "12" column, the entry should read "400."

2. CRPL-F99, p. 15, table 15: Opposite 07 in the "fEs" column, the entry should read ">4.0."

INDEX OF IONOSPHERIC DATA PUBLISHED IN 1952 (CRPL-F89 THROUGH F100)

The following index of tables and graphs of ionospheric data published in the CRPL-F series in 1952 is divided into two parts. Part I is an index of data observed in 1951 and 1952. Part II is an index of data observed prior to 1951.

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 1952 are in IRPL-F17, CRPL-F28, -F40, -F52, -F64, -F76, and -F88.

PART I

Index of Tables and Graphs of Ionospheric Data Observed in 1951 and 1952 and Published in 1952 (CRPL-F89 through F100)

Station	1951 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
Adak, Alaska											90	90	92	92	93	94	95	96	97	98	99	100		
Akita, Japan									89	90	91	92	93	94	94	96	97	97	99	100				
Anchorage, Alaska***											89	90	91	92	93	94	95	96	97	98	99			
Baker Lake, Canada									90	90	90	91	92	93	94	95	97	97	98	100				
Batavia, Ohio (mobile unit)									92	92	92		91	92	93	94	95	96	97	98				
Baton Rouge, Louisiana							91	99	99		90	90	92	92	93	94	95	96	97	100	100			
Bombay, India						90	90	90	91	94	95	95	95	96	100	100								
Brisbane, Australia								89	89	91	91	92	94	95	96	97	98	99						
Buenos Aires, Argentina					89	89	89	89	94	94	95	95	95	95	95	96	96	98	99	100	100			
Calcutta, India						90	96	96	96	96	98	98	100	100										
Canberra, Australia							89	91	91		92	92	94		97	96								
Capetown, Union of S. Africa										89	90	91	93	94	95	96	97	98	98	100				
Casablanca, Morocco										100	100	100												
Christchurch, New Zealand								89	89	90	92	92	93	95	95	97		100						
Churchill, Canada										90	90	91	92	93	94	95	97	97	98	100				
Cocoa, Florida													91	92	94	95	98							
Dakar, French West Africa					91	91	93	93	91	93	95	96												
De Bilt, Holland										89	90	91		93		95	96	98	98	99	100			
Decepcion I.														95	95	95	96	98	99	100	100			
Delhi, India						90	90	90	91	94	95	95	95	96	100	100								
Djibouti, French Somaliland										93	93	97	98											
Domont, France				89	90-	91	95	96	99	100	100	100												
Fairbanks, Alaska										89#	90#	91		93	94	95	95	97	97	99	100	100		
Falkland Is.						89	89	90	91	93	93	94	96	97	98	99	99							
Formosa, China									89	90	91	92	94	95	96	100	98	100	100					
Fort Chimo, Canada									89*	90	91	91	92	93	95	97	97	97	98	100				
Fraserburgh, Scotland**							89	89	90**															
Fribourg, Germany							91		91	92	93	96	96											
Godhavn, Greenland												98		99	98									
Graz, Austria				91			89	89	89	91	90	91	91	92	93	94	95	96	99	99	99	100		
Guam I.										99	99	97	93			97	97	97	98		100	100		
Hobart, Tasmania								89	89	91	91	92	94	95	96	97	98	99						
Huancayo, Peru											90	90	92	92	93	94	97	97	98	98	99	100		
Ibadan, Nigeria												94	97			98	99							
Inverness, Scotland**										**	93	93	94	96	97	98	99	99						
Johannesburg, Union of S. Africa										89	90	91	93	94	95	96	97	98	98	100				
Kartoum, Sudan															99		99							
Kiruna, Sweden									90	90	91	92	92	93	94	95	96	97	99	99	100			
Lindau/Harz, Germany							89	89	89	91	90	90	92	93	95	96	97	99 99	99	99	100			
Madras, India						90	90	90	91	94	95	95	95	96	100	100								
Maui, Hawaii											89	90	91	92	93	94	95	96	97	98	99	100		
Nairobi, Kenya															96									
Narsarssuak, Greenland											89	90	91	92	93	96	96	96	98	98	100			
Okinawa I.											90	90	92	92	93	94	95	96	97	98	99			
Oslo, Norway											89	90	91	92	93	94	95	96	97	98	99	100		
Ottawa, Canada									89	89	90	91	92	93	94	95	97	97	98	100				
Panama Canal Zone										92	90	90	91	95	93	94	95	96	97	98	99			
Point Barrow, Alaska											90	90	92	92	93	94	95	97	98	99"				
Poitiers, France				89	90	91	95	96	99	100	100	100												
Port Lockroy															98	99	99							
Prince Rupert, Canada										89	91	91	92	93	94	95	97	97	98	100				
Puerto Rico, W.I.											89	90	91	92	93	94	95	96	97	98	99	100		
Rarotonga I.							89	90	90	90	92	92	93	95	95	97								
Resolute Bay, Canada							89	89	89	90	91	91	92	93	95	95	97	97	98	100				
Reykjavik, Iceland							89	89	93	93	93	94	93	94	95	96	97	97	99	100				

PART I (CONTINUED)

Index of Tables and Graphs of Ionospheric Data Observed in 1951 and 1952 and Published in 1952 (CRPL-F89 through F100)

Station	1951												1952											
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N	D
St. John's, Newfoundland										89	90	91	92	93	94	95	97	97	98	100				
San Francisco, California											89	90	91	92	93	94	95	96	97	98	99	100		
Schwarzenburg, Switzerland										89	90	91	92	93	94	95	96	97	98	99	100			
Singapore, British Malaya							89	89	90	91	93	93	94	96	97	98	99	99						
Slough, England							89	89	90	91	93	93	94	96	97	98	99	99						
Tananarive, Madagascar											95	96	97	98	98									
Terre Adelie				89	90	91	95	96	99		100	100												
Tiruchy, India						90	90	90	91	94	95	95	95	96	100	100								
Tokyo, Japan									89	90	91	92	93	94	94	96	97	97	99	100				
Townsville, Australia						89			91				95	95	96	97	98	99						
Tromso, Norway											89	90	91	92	93	94	95	96	97	98	99	100		
Upsala, Sweden													91	92	93	94	95	96	97	98	99	100		
Wakkanai, Japan									89	90	91	92	93	94	94	96	97	97	99	100				
Washington, D.C.												89	90	91	92	93	94	95	96	97+	98	99	"100	
Watheroo, Western Australia									89	90	91	91	94	94	95	95	96	97	99	99				
White Sands, New Mexico											90	90	91	92	93	94	95	96	97	98	99	100		
Winnipeg, Canada					91					89	90	91	92	93	94	95	97	97	98	100				
Yamagawa, Japan									89	90	91	92	93	94	94	96	97	97	99	100				

+See erratum 1 in F100, p. 12.
#See erratum in F91, p. 11.
*See erratum in F90, p. 11.
"See erratum 2 in F100, p. 12.
**Station at Fraserburgh replaced by station at Inverness, Scotland, beginning with October 11, 1951 data. The first data published in the F series were those for November 1951.
***See erratum in F89, p. 13.

PART II

Index of Tables and Graphs of Ionospheric Data Observed Prior to 1951 and Published in 1952 (CRPL-F89 through F100)

Station	1949												1950											
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N	D
Buenos Aires, Argentina														98	98	98	100	99	99	100	100	100	100	100
Campbell I.											91	91	91	91	91									
Fribourg, Germany																				91				
	1942																							
San Francisco, California		93	93	93	93	92	92	92	93	93	93	93												

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.8					2.4	3.0
01	270	2.8					2.4	3.0
02	260	3.0					2.6	3.0
03	250	3.1					2.6	3.0
04	250	3.0					2.4	3.0
05	250	2.9					3.1	3.1
06	250	2.5					3.2	3.1
07	230	4.1					2.8	3.4
08	230	5.8	220	---	110	2.1	3.0	3.5
09	240	6.2	210	---	110	2.5	2.2	3.5
10	250	6.8	210	3.6	110	2.8		3.4
11	250	7.2	210	3.9	110	3.0		3.3
12	260	7.6	220	4.0	110	3.0		3.3
13	250	7.4	220	4.0	110	3.0		3.3
14	250	7.4	230	---	110	2.8	2.0	3.3
15	240	7.2	220	---	110	2.5	2.6	3.4
16	220	7.0	---	---	120	2.0	2.2	3.5
17	210	6.2					2.7	3.4
18	220	4.5					2.5	3.3
19	230	3.6						3.2
20	(240)	2.9						3.2
21	(260)	2.7						3.0
22	(280)	2.6						3.0
23	(280)	2.5					2.2	3.0

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

Table 2

Tromso, Norway (69.7°N, 19.0°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.6	---
01	---	(2.1)					3.6	(2.8)
02	(320)	(2.3)					3.2	(2.8)
03	(325)	(2.1)					3.2	(2.9)
04	305	1.9			---	---	3.0	2.9
05	290	2.0			---	---	3.0	2.9
06	270	2.6			---	---	2.7	3.1
07	255	3.4	---	---	---	---	2.5	3.2
08	240	4.0	---	---	---	1.6	2.6	3.2
09	240	4.6	240	---	110	1.7	1.8	3.4
10	245	5.2	235	---	---	1.9	2.0	3.3
11	270	5.4	235	---	---	2.0		3.2
12	245	5.3	240	---	115	2.0		3.2
13	240	5.2	245	---	110	2.0		3.4
14	240	4.8	250	---	135	2.0	1.8	3.4
15	245	4.5	---	---	---	1.6	2.6	3.2
16	250	4.4	---	---	140	1.4	2.8	3.2
17	260	3.7	---	---	---	---	3.0	3.1
18	(280)	(3.0)					3.9	(3.1)
19	(290)	(3.0)					3.4	(3.1)
20	(315)	---					3.8	---
21	(345)	(3.0)					3.6	(2.9)
22	---	---					4.0	---
23	---	---					3.7	---

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

Table 3

Fairbanks, Alaska (64.9°N, 147.8°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.6	---
01	---	---					6.1	---
02	---	---					6.3	---
03	---	---					6.8	---
04	(340)	(2.6)			---	---	6.6	(2.7)
05	340	(2.8)			---	---	6.2	(2.6)
06	320	(2.7)			---	---	5.9	(2.9)
07	290	(3.2)	---	---	---	---		(3.0)
08	260	3.8	---	---	---	---		3.1
09	280	4.2	230	---	---	---		3.1
10	280	4.3	230	---	---	---		3.1
11	280	4.5	230	3.4	---	---		3.1
12	280	4.7	230	3.5	---	---		3.1
13	280	4.8	230	---	---	---		3.1
14	250	4.9	240	---	120	2.1		3.1
15	250	4.9	---	---	---	---		3.2
16	250	4.6			---	---		3.1
17	240	4.3						3.1
18	260	(3.7)						(3.0)
19	250	(2.7)						(3.1)
20	290	(2.0)					5.4	(3.0)
21	(290)	(1.8)					5.0	(3.0)
22	(300)	(1.9)					6.0	(3.0)
23	---	---					5.2	---

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

Table 4

Oslo, Norway (60.0°N, 11.1°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	2.0						2.7
01	320	1.8					2.7	2.7
02	310	1.8					1.5	2.7
03	320	(1.8)					1.5	(2.8)
04	(315)	(1.8)					2.7	(2.8)
05	305	1.8					2.6	2.8
06	290	2.0					2.7	3.0
07	250	3.2			135	1.6		3.2
08	235	4.1	235	---	130	1.8	2.2	3.4
09	240	4.6	230	---	125	2.1	3.0	3.4
10	250	5.1	225	3.5	120	2.3	3.0	3.4
11	275	5.5	210	3.7	120	2.4	2.9	3.4
12	270	5.7	215	3.8	120	2.4	2.9	3.2
13	250	6.1	220	3.7	120	2.4	2.9	3.4
14	245	(5.8)	230	---	115	2.2		3.4
15	240	5.8	235	---	125	2.1	2.0	3.3
16	235	5.2	240	---	130	1.8	1.7	3.4
17	235	5.2	---	---	130	1.7		3.2
18	240	5.0						3.2
19	250	4.4						3.1
20	250	3.6						3.1
21	265	2.8						3.1
22	295	2.2						2.9
23	310	2.2						2.8

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

Table 5

Upsala, Sweden (59.8°N, 17.6°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.0					2.0	2.7
01	320	(2.0)					2.3	2.6
02	340	(2.0)					2.5	2.6
03	335	(2.1)					2.8	2.6
04	340	(1.9)					2.1	2.6
05	345	(1.7)					3.0	(2.6)
06	280	2.3			---	E		2.8
07	255	3.7	250	2.5	---	E	2.1	3.1
08	250	4.3	235	3.0	125	1.9	1.9	3.1
09	260	4.9	225	3.4	115	2.2	2.4	3.2
10	265	5.1	220	3.5	115	2.3	2.6	3.1
11	275	5.2	220	3.7	110	2.4	2.6	3.1
12	255	5.7	220	3.7	115	2.4	2.4	3.1
13	255	5.7	225	3.6	110	2.4		3.1
14	245	5.8	230	3.3	110	2.2		3.2
15	245	5.5	235	---	115	2.0	1.9	3.2
16	235	5.2	235	---	---	E	1.8	3.2
17	235	5.0	---	---	---	E	2.2	3.1
18	240	4.9			---	---	2.1	3.0
19	240	4.2			---	---	2.3	3.0
20	245	3.2						3.0
21	270	2.5						2.9
22	290	2.2						2.8
23	320	2.0					2.0	2.7

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

Table 6

Adak, Alaska (51.9°N, 176.6°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.7						3.0
01	280	2.7						2.9
02	290	2.8					1.8	2.9
03	280	2.8					1.9	2.9
04	280	2.8						3.0
05	280	2.8					2.2	3.0
06	260	3.2	---	---	---	E	2.3	3.1
07	240	4.5	260	---	120	1.9	1.7	3.4
08	240	5.4	230	3.4	120	2.2	2.7	3.4
09	260	5.8	220	3.6	110	2.6	2.7	3.4
10	270	6.2	220	(3.9)	110	2.7	3.0	3.3
11	260	6.6	210	4.0	110	2.8	3.2	3.3
12	250	6.6	220	4.0	110	2.8	2.8	3.3
13	240	6.4	220	3.8	110	2.7	2.4	3.4
14	250	6.2	230	(3.8)	110	2.5	2.1	3.5
15	240	6.0	240	---	110	2.3	2.1	3.5
16	230	5.6	---	---	120	2.0	2.3	3.5
17	220	4.9			---	E	2.1	3.5
18	240	4.1					2.3	3.2
19	240	3.4					1.3	3.2
20	250	2.8					1.4	3.2
21	260	2.9						3.1
22	260	2.8						3.1
23	260	2.9						3.0

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

Table 7

Graz, Austria (47.1°N, 15.5°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2						
01	300	3.4						
02	290	3.3						
03	290	3.3						
04	270	3.3						
05	220	3.0						
06	250	3.0	---	---				
07	205	4.8	---	---				
08	200	6.0	---	---				
09	205	6.3	200	3.8			3.5	
10	240	6.8	200	4.0			4.0	
11	235	7.2	200	4.0			3.8	
12	230	7.1	200	4.0			3.6	
13	210	6.6	200	4.3				
14	230	6.9	200	4.0			3.5	
15	220	7.0	---	---			3.4	
16	210	6.7	---	---				
17	200	6.1	---	---				
18	215	5.9						
19	220	5.1						
20	235	3.9						
21	280	3.5						
22	270	3.3						
23	295	3.2						

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

Table 8

San Francisco, California (37.4°N, 122.2°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.1)						(3.1)
01	280	(3.2)						(3.1)
02	270	(3.1)						(3.2)
03	260	(3.0)						(3.2)
04	(280)	(3.0)						(3.1)
05	(280)	(3.1)						(3.1)
06	260	3.4					2.7	3.2
07	240	5.1	230	---	120	1.9	2.1	3.6
08	250	5.9	220	3.5	120	2.4		3.6
09	260	6.3	210	4.0	110	2.7	2.9	3.4
10	270	6.4	200	4.2	110	2.9	3.6	3.4
11	280	6.7	210	4.3	110	3.0	3.0	3.2
12	290	7.0	200	4.4	110	3.1		3.2
13	280	7.0	220	4.3	110	3.1	2.8	3.2
14	280	7.0	220	4.2	110	2.9	2.3	3.3
15	260	7.1	230	4.0	120	2.7	2.3	3.4
16	240	6.7	230	---	120	2.4		3.4
17	220	6.2	---	---	120	---	2.5	3.6
18	220	4.6					3.0	3.5
19	230	3.5					2.6	(3.3)
20	230	(3.1)					2.8	(3.4)
21	(260)	(2.8)					2.8	(3.1)
22	(270)	(3.0)					2.4	(3.1)
23	270	(3.1)					2.4	(3.2)

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

Table 9

White Sands, New Mexico (32.3°N, 106.5°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.2						3.1
01	260	3.3					2.0	3.1
02	250	3.4					1.9	3.1
03	240	3.4						3.2
04	250	3.2						3.1
05	260	3.1						3.0
06	250	3.6					2.1	3.2
07	230	5.3	220	---	110	1.9	2.1	3.5
08	240	6.2	210	3.9	100	2.5	2.5	3.5
09	260	6.5	200	4.1	100	2.8	2.8	3.4
10	260	7.0	200	4.3	100	3.0	3.1	3.4
11	270	6.9	200	4.3	100	3.1	3.1	3.3
12	280	7.6	200	4.4	100	3.2	3.1	3.2
13	270	7.8	200	4.3	100	3.1	3.3	3.3
14	270	7.7	220	4.3	100	3.0	2.9	3.2
15	250	7.7	220	4.1	100	2.8	2.9	3.4
16	240	7.7	220	---	110	2.4	2.5	3.5
17	220	6.8	220	---	110	1.8	2.5	3.6
18	200	5.2					2.3	3.6
19	210	3.4					2.3	3.3
20	240	3.2					2.0	3.2
21	250	3.1						3.1
22	270	3.2						3.0
23	270	3.2						3.0

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

Table 10

Maui, Hawaii (20.8°N, 156.5°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.2						3.1
01	250	3.3						3.3
02	240	2.9						3.4
03	240	2.8						3.3
04	250	2.2					1.5	3.0
05	270	2.1					1.7	3.0
06	300	2.4						2.9
07	250	5.4	---	---	120	2.0		3.3
08	260	7.4	230	---	110	2.6	3.2	3.3
09	280	8.2	220	(4.4)	110	2.9	3.8	3.1
10	310	9.0	220	(4.7)	110	3.2	4.0	3.0
11	300	10.1	210	4.7	110	3.3	4.1	3.0
12	300	10.7	220	4.7	110	3.3	4.2	3.0
13	300	11.0	220	4.7	110	3.3	4.2	3.0
14	290	11.6	220	4.5	110	3.2	4.4	3.1
15	260	12.3	230	4.4	110	3.0	4.0	3.2
16	240	10.6	230	(4.1)	110	2.6	3.9	3.3
17	230	9.0	240	---	110	2.0	4.0	3.4
18	220	7.5					3.5	3.5
19	220	5.3					2.4	3.4
20	230	3.7					2.1	3.2
21	270	3.5					1.9	3.0
22	260	3.6					2.0	3.1
23	270	3.3						3.1

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

Table 11

Puerto Rico, W.I. (18.5°N, 67.2°W) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.7						3.0
01	260	3.9						3.1
02	240	4.1						3.3
03	220	3.9						3.5
04	230	3.1						3.2
05	260	2.7						3.1
06	260	2.7			(100)	---		3.0
07	230	5.2	---	---	110	1.9		3.5
08	240	6.5	230	---	110	2.5		3.5
09	260	7.2	220	---	100	2.9		3.4
10	280	8.0	220	4.5	100	3.2		3.2
11	280	8.7	220	4.6	110	3.3		3.2
12	280	9.2	220	4.6	110	3.4		3.2
13	280	9.4	220	4.6	110	3.4		3.1
14	280	9.7	220	4.6	110	3.3		3.2
15	250	9.7	230	4.3	110	3.1	4.5	3.4
16	250	9.1	230	---	110	2.8	4.3	3.4
17	230	8.0	220	---	110	2.3	3.6	3.4
18	210	6.8			(100)	---	3.5	3.5
19	220	4.8					3.2	3.4
20	240	3.7					2.3	3.0
21	280	3.5						2.9
22	290	3.6						2.9
23	280	3.7						2.9

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

Table 12

Guam I. (13.6°N, 144.9°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	7.4					2.7	3.2
01	230	7.2					2.2	3.4
02	230	6.4						3.5
03	220	5.4						3.5
04	220	3.6						3.4
05	240	3.2						3.4
06	260	3.4					2.0	3.2
07	230	6.6	---	---	120	(2.2)	3.0	3.5
08	260	8.0	220	---	110	2.6	3.6	3.3
09	280	9.0	210	(4.4)	110	3.0	4.0	3.0
10	290	9.7	200	4.5	110	3.1	4.5	2.7
11	300	9.4	200	4.6	110	3.2		2.5
12	320	9.4	200	4.6	110	3.3		2.5
13	300	9.9	210	4.6	110	3.3	3.6	2.7
14	300	10.7	220	4.5	110	3.2	4.2	2.9
15	280	11.4	220	(4.4)	110	(3.0)	4.5	3.1
16	270	11.8	220	---	110	2.8	4.6	3.2
17	260	12.0	240	---	120	2.2	4.7	3.2
18	240	11.4			---	---	3.2	3.2
19	250	10.6					2.2	3.0
20	240	10.2					2.9	3.1
21	230	9.3					3.5	3.2
22	240	8.5					3.7	3.0
23	250	7.9					2.9	3.1

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

Table 13

Huancayo, Peru (12.0°S, 75.3°W) — October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	7.6						3.2
01	250	6.7						3.3
02	230	5.3						3.3
03	250	4.4						3.3
04	250	3.5						3.3
05	250	3.2						3.3
06	240	5.4			120	1.6	4.1	3.4
07	(260)	7.8	220	---	110	2.5	5.8	3.3
08	280	9.1	210	4.2	110	---	10.2	3.1
09	300	9.4	200	4.4	100	---	12.2	2.8
10	320	9.2	200	4.5	100	---	12.6	2.6
11	330	8.4	200	4.5	100	---	12.7	2.5
12	340	8.0	190	4.6	100	---	12.8	2.6
13	340	8.1	190	4.6	100	---	12.7	2.6
14	310	8.6	190	4.4	100	---	12.4	2.6
15	300	9.0	190	4.2	110	---	11.4	2.6
16	(270)	9.2	200	---	110	---	9.0	2.7
17	240	9.4			110	2.2	5.7	2.8
18	260	9.3			---	---		2.8
19	290	9.0						2.8
20	280	8.8						2.8
21	270	8.1						2.9
22	250	8.4						3.0
23	260	7.9						3.1

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

Table 14

Kiruna, Sweden (67.8°N, 20.5°E) — September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.1	---
01	(370)	(3.2)					4.2	---
02	(320)	(3.2)					3.3	---
03	(350)	(2.7)					2.2	(2.7)
04	(290)	(2.4)					3.4	(2.8)
05	280	2.8	---	---	---	---	1.5	(2.8)
06	(275)	3.7	---	3.1	---	---		(2.9)
07	(295)	(4.0)	240	---	---	2.0		(3.0)
08	(300)	(4.2)	235	3.3	120	2.2		(3.0)
09	305	4.7	220	3.6	110	2.3		(3.0)
10	300	4.9	210	3.8	110	2.4		(3.0)
11	300	5.0	210	3.9	110	2.6		3.0
12	300	5.2	210	3.8	110	2.7		3.0
13	290	5.1	220	3.8	110	2.6		3.1
14	290	5.0	225	3.6	110	2.5		3.0
15	290	4.8	230	3.4	115	2.2		3.0
16	280	4.5	240	3.3	120	2.0	2.1	2.9
17	280	4.2	---	---	---	---	2.2	3.0
18	280	4.2	---	---	---	---	2.9	2.9
19	290	4.0					3.7	(2.8)
20	(280)	(3.8)					4.1	(2.9)
21	(370)	(3.7)					4.1	(2.7)
22	---	---					4.3	---
23	---	---					4.0	---

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

Table 15

Fairbanks, Alaska (64.9°N, 147.8°W) — September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.2	---
01	(370)	(2.7)					5.4	(2.8)
02	(370)	(3.0)					5.9	(2.7)
03	(390)	(3.0)			---	---	6.0	(2.7)
04	(370)	(3.0)			---	---	5.1	(2.9)
05	320	(2.7)	---	---	120	(1.3)	4.6	(2.8)
06	300	3.2	270	---	---	---	2.4	3.0
07	380	(3.7)	240	3.2	---	---		(2.8)
08	380	4.0	230	3.4	110	---		2.9
09	430	4.0	230	3.6	120	(2.3)		2.7
10	440	4.2	210	3.7	110	(2.5)		2.7
11	420	4.3	220	3.8	110	2.6		2.7
12	400	4.4	220	3.8	120	2.6		2.8
13	360	4.4	220	3.8	120	(2.5)		2.9
14	340	4.3	230	3.7	120	2.4		2.9
15	330	4.5	230	(3.6)	120	2.3		3.1
16	300	4.5	240	3.4	120	(1.9)		3.1
17	260	4.4	250	---	---	---		3.1
18	270	(4.0)	---	---	---	---		(3.0)
19	250	(3.8)			---	---	4.2	(3.0)
20	260	(3.2)			---	---	4.6	(3.0)
21	300	(2.9)					5.0	(3.0)
22	(330)	(2.6)					4.8	(3.0)
23	(320)	(2.4)					5.0	(2.8)

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

Table 16

Narsarssuak, Greenland (61.2°N, 45.4°W) — September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	440	(2.9)					4.6	(2.4)
01	(490)	(2.7)					4.7	---
02	---	---					5.0	---
03	---	---					5.4	---
04	---	---					4.5	---
05	---	---					4.8	---
06	(400)	(3.4)			---	---	4.1	(2.7)
07	330	4.0			---	---		2.8
08	410	4.2	290	3.6	---	---		2.8
09	430	4.5	290	3.8	---	---		2.7
10	470	4.7	280	4.0	140	(2.8)		2.6
11	450	4.8	300	(4.0)	(130)	2.8		2.6
12	500	4.9	280	4.0	130	(2.8)		2.6
13	480	5.0	270	(4.0)	130	(2.9)		2.5
14	480	5.0	300	3.9	130	2.8		2.5
15	440	5.0	300	3.8	130	(2.5)		2.6
16	440	(4.8)	320	3.6	140	2.3	2.7	(2.6)
17	400	(4.6)	340	---	140	2.3	4.0	(2.7)
18	370	(4.2)					4.6	(2.7)
19	400	(3.9)					5.4	(2.6)
20	380	(3.8)					4.6	(2.6)
21	380	(3.8)					6.1	(2.6)
22	380	(3.4)					5.2	(2.6)
23	(410)	(3.3)					5.2	(2.4)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 17

De Bilt, Holland (52.1°N, 5.2°E) — September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<290	3.0						2.9
01	280	2.7					1.7	2.9
02	<290	2.6						2.9
03	280	2.5						3.0
04	---	2.4					2.1	3.0
05	260	2.6			---	---	2.5	3.1
06	250	3.8	215	---	---	1.6	1.9	3.4
07	290	4.2	210	3.6	110	2.2	2.5	3.2
08	300	4.5	210	3.7	105	2.5	2.8	3.3
09	300	5.0	200	4.0	100	2.7	3.7	3.2
10	320	5.2	200	4.1	100	2.9	3.8	3.2
11	300	5.9	200	4.2	100	2.8	3.8	3.3
12	300	5.7	200	4.2	100	2.8	3.9	3.3
13	290	5.6	200	4.0	100	2.8	3.9	3.3
14	290	5.5	205	4.0	100	2.8	3.6	3.2
15	280	5.8	220	3.9	100	2.6	2.8	3.2
16	270	5.6	220	3.6	105	2.3		3.2
17	250	5.7	230	---	110	2.0	2.3	3.2
18	240	6.2	---	---	---	---	2.4	3.2
19	240	5.6					2.7	3.2
20	235	5.1					2.8	3.2
21	240	4.1					2.7	3.1
22	245	3.4						3.0
23	265	3.3						3.0

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

Table 18

Lindau/Harz, Germany (51.6°N, 10.1°E) — September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3					2.6	2.9
01	290	3.2					2.4	2.9
02	280	3.1					2.3	2.9
03	280	2.9					2.3	2.9
04	270	2.7					2.3	2.9
05	265	2.6			---	E	2.5	3.0
06	250	3.3	---	---	---	E	3.0	3.2
07	260	4.2	230	3.4	120	1.9	3.1	3.4
08	310	4.6	220	3.6	110	2.4	3.2	3.2
09	300	5.0	210	4.0	105	2.6	3.5	3.3
10	310	5.2	210	4.1	105	2.8	4.2	3.3
11	300	5.4	200	4.2	100	2.9	4.3	3.3
12	300	5.8	200	4.2	100	3.0	4.0	3.2
13	300	5.7	200	4.2	100	3.0	3.9	3.2
14	280	5.8	210	4.2	105	3.0	4.0	3.3
15	270	5.8	215	4.0	105	2.8	3.6	3.3
16	275	6.0	225	3.9	105	2.6	3.6	3.3
17	250	5.8	230	---	115	2.2	3.2	3.2
18	240	5.8	240	---	120	E	2.9	3.2
19	240	6.0			---	E	3.2	3.2
20	250	5.8			---	E	3.2	3.2
21	240	5.1					3.1	3.2
22	250	4.2					2.6	3.1
23	270	3.6					2.4	2.9

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

Table 19

Schwarzenburg, Switzerland (46.8°N, 7.3°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						3.1
01	300	3.5						3.1
02	300	3.5						3.1
03	300	3.3						3.1
04	300	3.1						3.1
05	300	2.9			---	---		3.1
06	240	3.0			---	---		3.5
07	230	4.2	---	---	100	2.0		3.6
08	215	4.5	---	---	100	2.[illegible]		3.6
09	300	5.0	200	4.0	100	2.[illegible]		3.4
10	300	5.8	200	4.2	100	2.9		3.5
11	300	5.6	200	4.2	100	3.0		3.4
12	3[illegible]0	5.5	200	4.2	100	3.0		3.5
13	300	5.8	200	4.2	100	3.0		3.4
14	300	6.0	200	4.2	100	3.0		3.4
15	300	6.0	200	4.2	100	2.9		3.4
16	245	6.0	200	4.0	100	2.6		3.5
17	225	6.0	---	---	100	2.4		3.5
18	235	5.9			100	2.2		3.5
19	230	6.3						3.5
20	230	5.6						3.4
21	235	5.2						3.5
22	240	4.2						3.3
23	275	3.8						3.2

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

Table 20

Baton Rouge, Louisiana (30.5°N, 91.2°W) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.5						2.9
01	300	3.3						2.9
02	300	3.4						2.9
03	290	3.4						2.9
04	280	3.3					2.3	2.9
05	280	3.2						3.0
06	270	4.2			---	---	2.8	3.1
07	280	5.5	250	---	120	2.1	3.0	3.2
08	280	6.2	240	4.0	120	2.7	5.0	3.2
09	300	6.2	220	4.2	120	2.9	4.8	3.2
10	340	6.3	220	4.4	110	3.1	3.7	3.0
11	340	6.8	210	4.5	110	3.3	3.7	3.0
12	340	7.2	220	4.5	110	3.3		3.0
13	340	7.6	230	4.5	110	3.3		2.9
14	320	7.7	230	4.4	120	3.2		3.0
15	310	7.6	240	4.2	120	3.0		3.0
16	300	7.2	240	4.0	120	2.7	4.0	3.1
17	270	7.4	250	---	120	2.1	3.6	3.2
18	240	7.0			---	---	2.4	3.3
19	240	5.6						3.2
20	260	4.4						3.0
21	290	3.8						2.9
22	290	3.7						3.0
23	300	3.5						2.8

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

Table 21

Guam I. (13.6°N, 144.9°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.1						3.1
01	250	5.8						3.2
02	230	5.4						3.4
03	230	4.1						3.4
04	240	3.2						3.4
05	240	2.8						3.4
06	250	3.1						3.2
07	240	6.4	220	---	120	2.2	2.8	3.4
08	260	7.7	210	---	110	(2.6)	3.5	3.3
09	290	8.5	200	(4.4)	110	(3.0)	3.8	3.0
10	320	9.1	200	4.6	110	(3.2)	3.5	2.7
11	330	9.4	200	4.6	(110)	(3.3)		2.6
12	330	9.6	200	4.6	110	---		2.6
13	330	10.0	200	4.6	110	(3.5)	3.4	2.7
14	330	10.6	220	4.6	(110)	(3.3)		2.8
15	310	11.4	220	4.4	110	3.2	4.4	3.0
16	290	12.2	220	(4.4)	110	3.0	5.2	3.1
17	270	12.4	220	---	110	2.6	4.3	3.2
18	250	11.8	---	---	---	---	3.6	3.1
19	250	10.6					3.8	3.0
20	250	10.2					3.1	3.0
21	240	9.6					3.8	3.1
22	240	9.0					3.4	3.1
23	260	7.4					2.6	3.1

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

Table 22

Buenos Aires, Argentina (34.5°S, 58.5°W) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.4						2.9
01	300	4.2						3.0
02	300	4.0						2.9
03	270	4.2						3.3
04	220	4.0						3.3
05	250	3.4						3.2
06	240	4.7						3.3
07	230	5.8	---	---	---	---		3.5
08	270	6.8	220	---	100	2.9	3.6	3.5
09	280	7.0	210	---	110	3.1	3.9	3.4
10	290	8.0	200	4.4	100	3.2	3.8	3.3
11	290	9.0	200	4.4	110	3.3	4.2	3.2
12	300	9.8	200	4.4	110	3.3	4.0	3.2
13	270	10.3	200	4.4	100	3.3	3.8	3.4
14	270	9.7	200	---	100	3.3	4.0	3.3
15	270	9.2	210	---	100	3.0	3.8	3.4
16	250	8.5	220	---	100	(2.7)	3.6	3.5
17	230	7.6	---	---			3.3	3.5
18	210	6.7						3.4
19	220	5.9						3.2
20	250	5.2						3.0
21	260	5.2						3.1
22	280	4.6						3.0
23	300	4.8						3.0

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

Table 23

Decepcion I. (63.0°S, 60.7°W) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01	300	3.2						3.2
02								
03	280	3.0						3.2
04								
05	250	2.9						3.4
06	220	3.0						3.6
07	200	3.0						3.6
08								
09	---	---					2.5	---
10								
11	---	---						---
12								
13	---	---						---
14								
15	---	---						---
16								
17	210	3.1						3.7
18	200	3.2						3.7
19	220	3.4						3.6
20								
21	250	3.2						3.4
22								
23	300	3.1						3.1

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

Table 24

Resolute Bay, Canada (74.7°N, 94.9°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.2						3.1
01	240	4.0			---	---		3.0
02	240	3.9	---	---	---	---		3.0
03	250	4.1	---	---	---	---		3.0
04	250	4.0	210	3.0	---	1.8		3.1
05	260	4.0	220	3.0	100	2.0		3.0
06	280	4.3	220	3.4	100	2.3		3.0
07	320	4.3	220	3.5	100	2.4		3.0
08	330	4.4	200	3.7	100	2.6		3.0
09	360	4.5	200	3.8	100	2.7		2.8
10	370	4.7	210	3.8	100	2.7		2.8
11	350	4.7	200	3.8	100	2.7		2.8
12	400	4.6	200	3.8	100	2.7		2.7
13	370	4.7	200	3.9	100	2.8		2.8
14	360	4.7	200	3.8	100	2.7		2.7
15	360	4.8	200	3.8	100	2.7		2.7
16	340	4.5	200	3.8	100	2.6		2.8
17	360	4.5	200	3.5	100	2.5		2.8
18	310	4.6	210	3.5	110	2.3		3.0
19	280	4.5	210	3.2	120	2.1		3.0
20	250	4.5	210	3.0	120	2.0		3.0
21	250	4.5	230	---	---	1.9		3.0
22	240	4.4			---	---		3.0
23	240	4.3			---	---		3.0

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

Table 25

Baker Lake, Canada (64.3°N, 96.0°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	3.9			---	E	5.0	3.0
01	230	3.8			---	E	3.5	2.9
02	240	3.4			---	E	4.0	2.9
03	260	3.2			---	1.3	4.0	3.0
04	260	3.1	---	---	100	1.6	3.2	3.0
05	240	3.5	210	---	100	1.9	2.2	3.0
06	260	3.6	200	3.1	100	2.2	3.0	2.9
07	360	3.9	200	3.5	100	2.5	2.7	(2.8)
08	400	4.2	200	3.7	100	2.8		(2.6)
09	490	4.4	200	4.0	100	2.9	3.2	(2.6)
10	470	4.5	200	4.0	100	3.0		2.5
11	420	4.8	200	4.0	100	3.1	3.0	(2.7)
12	390	5.0	200	4.0	100	3.2		2.8
13	390	4.9	200	4.0	100	3.0		2.8
14	390	5.0	200	4.0	100	3.0		2.8
15	340	5.0	200	4.0	100	2.9		2.8
16	340	5.0	200	3.9	100	3.0		2.8
17	310	5.0	200	3.8	100	2.7	2.8	2.9
18	290	4.8	210	3.5	100	2.5	4.0	3.0
19	250	4.6	210	3.5	100	2.3	6.0	3.0
20	250	4.4	250	---	100	1.9	4.8	3.0
21	250	4.2	---	---	100	1.5	6.0	3.0
22	230	4.0			---	E	5.0	3.0
23	230	4.0			---	E	7.0	3.0

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

Table 26

Reykjavik, Iceland (64.1°N, 21.8°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(350)	(3.5)					4.7	(3.0)
01	(320)	(3.3)					5.0	---
02	---	---					4.9	---
03	(300)	(3.0)					4.9	(3.0)
04	(270)	(2.8)			---	---	4.9	(3.1)
05	260	3.2	---	---	---	---	4.0	3.1
06	260	3.7	220	---	110	2.0	2.2	3.2
07	(350)	3.9	210	3.5	100	2.2		3.0
08	(350)	4.4	210	3.8	100	2.5		3.0
09	320	4.6	210	3.9	100	2.6		3.2
10	330	4.8	210	4.0	100	2.8		3.1
11	350	4.7	200	4.1	100	2.9		3.1
12	340	4.9	200	4.1	100	3.0		3.0
13	380	4.8	200	4.0	100	3.0		2.9
14	380	4.8	200	4.0	100	2.9		2.9
15	360	4.8	200	4.1	100	2.8		3.0
16	350	4.8	210	4.0	100	2.7		3.0
17	320	4.8	220	3.8	100	2.5		3.1
18	300	4.6	230	3.6	100	2.2	3.4	3.1
19	280	4.4	240	---	110	2.0	3.7	3.1
20	300	(4.2)			---	---	4.0	(3.1)
21	310	(4.0)			---	---	4.5	(3.0)
22	320	(3.8)					4.7	(3.0)
23	340	(3.5)					4.6	(2.9)

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

Table 27

Churchill, Canada (58.8°N, 94.2°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.0			---	---	6.5	---
01	290	3.5			---	---	5.9	---
02	300	3.2			---	---	5.8	---
03	280	3.2			---	---	4.0	---
04	300	3.2			100	2.5	3.7	---
05	270	3.4	---	---	100	2.8	2.0	(2.8)
06	300	3.8	200	4.0	100	3.0	3.2	(2.8)
07	360	4.1	280	3.8	110	3.2	4.0	(3.0)
08	360	4.5	220	3.9	110	2.9		3.0
09	400	4.5	210	4.1	100	3.0		2.9
10	400	4.9	210	4.1	100	3.1		2.9
11	370	4.7	200	4.2	100	3.2		2.8
12	400	4.8	200	4.2	100	3.2		2.9
13	380	5.0	200	4.2	100	3.2		2.9
14	380	5.0	200	4.2	100	3.2		2.9
15	360	5.3	210	4.1	100	3.0		2.9
16	330	5.2	220	4.0	100	3.0		2.9
17	310	5.0	220	3.8	110	3.0		2.8
18	300	5.0	250	3.8	110	2.6	3.2	3.0
19	280	4.6	---	---	110	2.7	4.7	3.0
20	290	4.2			(120)	2.8	5.5	(2.9)
21	280	4.2			---	---	10.0	(2.9)
22	270	3.7			---	---	9.0	---
23	280	3.7					9.0	---

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

Table 28

Fort Chimo, Canada (58.1°N, 68.3°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2			100	2.0	5.8	3.0
01	300	3.0			110	2.2	4.0	2.9
02	300	3.0			110	2.1	4.0	3.0
03	370	3.0			100	2.6	4.1	(2.8)
04	300	3.2			100	3.2		(3.0)
05	300	3.8			100	3.2		3.0
06	300	4.0	210	3.7	100	3.2	4.0	3.0
07	300	4.2	220	3.9	100	3.0		3.0
08	400	4.4	210	4.0	100	3.0		2.8
09	400	4.5	200	4.0	100	3.0		2.8
10	420	4.8	200	4.1	100	3.2		2.7
11	400	4.8	200	4.1	100	3.2		2.8
12	390	5.0	200	4.1	100	3.2		2.9
13	400	5.0	200	4.1	100	3.2		2.8
14	380	5.0	210	4.0	100	3.1		2.8
15	380	5.0	220	4.0	100	3.1		2.8
16	390	4.8	230	3.9	100	3.0		2.8
17	320	5.0	250	3.7	100	2.9		2.9
18	300	4.6	260	3.6	100	2.7		3.0
19	280	4.1			100	2.3	3.2	3.0
20	280	3.8			100	2.0	5.0	2.9
21	290	3.4			100	2.6	6.0	2.9
22	280	3.7			---	---	6.5	2.9
23	300	3.4			100	2.6	5.8	3.0

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

Table 29

Prince Rupert, Canada (54.3°N, 130.3°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.4					1.2	2.8
01	300	2.0					1.9	2.7
02	310	2.0			---	---		2.7
03	310	1.8			---	---		2.7
04	310	1.8			---	---		2.7
05	280	2.3	---	---	---	E	2.5	2.8
06	250	3.2	270	2.8	110	1.8	2.4	2.8
07	390	3.9	220	3.3	110	2.2	3.2	2.7
08	450	4.1	210	3.7	100	2.5	3.6	2.6
09	490	4.3	200	3.9	100	2.8	4.0	2.5
10	450	4.5	200	4.0	100	3.0	4.0	2.6
11	420	5.0	200	4.2	100	3.0	3.8	2.7
12	400	5.0	200	4.2	100	3.1		2.7
13	400	5.0	200	4.2	100	3.2		2.7
14	410	4.9	200	4.2	100	3.2	3.5	2.7
15	400	5.0	210	4.2	100	3.0		2.8
16	390	4.9	210	4.0	100	2.9	3.7	2.7
17	360	4.7	220	4.0	100	2.7		2.8
18	300	4.8	220	3.7	100	2.4	2.0	2.9
19	210	4.7	240	---	110	2.0		2.9
20	250	4.6			---	---	2.8	3.0
21	250	4.1			---	---	2.9	2.8
22	240	3.8			---	---	2.0	2.9
23	250	3.0					3.0	2.9

Time: 120.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 30

Winnipeg, Canada (49.9°N, 97.4°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.7						2.8
01	320	2.7						2.8
02	340	2.6					4.0	2.8
03	330	2.7					4.0	2.8
04	320	2.7					4.1	2.8
05	300	2.8	---	---	---	---	2.9	2.9
06	270	3.4	230	3.0	110	1.9	2.4	3.1
07	400	4.1	220	3.5	110	2.4		3.0
08	420	4.4	210	3.8	110	2.7		2.8
09	420	4.7	200	4.0	110	3.0		2.7
10	400	4.8	200	4.1	110	3.2		2.8
11	390	5.0	200	4.3	110	3.2		2.8
12	420	5.0	200	4.3	110	3.2	3.4	2.8
13	420	5.0	210	4.3	110	3.3		2.8
14	420	5.1	210	4.3	110	3.2		2.8
15	400	5.2	210	4.2	110	3.1		2.9
16	360	5.1	210	4.0	110	3.0		2.9
17	340	5.2	220	3.9	110	2.7		3.0
18	300	5.2	220	3.6	110	2.4		3.1
19	250	5.1	240	---	120	2.0		3.1
20	250	5.1						3.1
21	260	4.6						3.0
22	260	3.7						3.0
23	290	2.9						2.9

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

Table 31

St. John's, Newfoundland (47.6°N, 52.7°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0					2.0	2.7
01	300	2.8					3.2	2.8
02	310	2.5	---	---			3.0	2.7
03	300	[illegible]	---	---			3.5	2.8
04	280	[illegible]	---	---	---	E	3.0	2.8
05	G	3.3	230	3.1	130	1.8	3.1	3.0
06	G	4.0	230	3.6	120	2.3	3.6	2.8
07	350	4.6	220	3.8	110	2.6	4.0	3.0
08	370	4.7	200	4.0	100	2.8	3.8	3.0
09	360	5.0	200	4.2	110	3.1	3.5	2.9
10	400	5.0	200	4.3	100	3.2	3.7	2.8
11	400	4.9	200	4.3	100	3.3		2.8
12	400	5.1	200	4.4	100	3.3	3.5	2.8
13	400	5.0	200	4.3	100	3.3		2.9
14	390	5.0	210	4.3	100	3.2		2.9
15	370	5.1	210	4.1	100	3.0		3.0
16	330	5.4	220	4.0	110	2.7		3.0
17	300	5.6	240	3.5	110	2.3		3.0
18	270	5.8	240	2.7	120	2.8	3.5	3.1
19	250	5.8	---	---	---	E	3.0	3.1
20	240	5.4						3.0
21	240	4.8						3.0
22	270	3.8						2.8
23	290	3.2						2.8

Time: 60.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 32

Ottawa, Canada (45.4°N, 75.7°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.7						3.0
01	310	2.4						3.0
02	330	2.4						2.9
03	310	2.1					3.0	2.9
04	320	2.0						3.0
05	290	2.5	---	---	---	---		3.1
06	260	<3.6	240	3.3	120	2.0		3.2
07	360	4.2	230	3.7	120	2.4	3.2	3.0
08	380	4.4	220	4.0	120	2.7	3.5	3.0
09	380	4.8	220	4.1	120	3.0	3.4	3.0
10	370	5.0	210	4.3	120	3.2	4.2	3.0
11	370	5.2	210	4.3	120	3.4	3.5	3.0
12	400	5.0	200	4.4	120	3.4	4.0	2.9
13	400	5.2	210	4.3	120	3.4	3.4	2.9
14	380	5.2	220	4.3	120	3.2	3.2	2.9
15	380	5.2	230	4.2	120	3.1	3.0	2.9
16	370	5.2	230	4.0	120	2.9	3.2	3.0
17	330	5.4	230	3.8	120	2.7	3.0	3.0
18	310	5.6	250	3.4	120	2.1	2.8	3.1
19	270	5.8						3.1
20	250	5.7						3.1
21	270	4.8						3.0
22	280	4.0						3.0
23	280	3.4						3.0

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

Table 33

Wakkanai, Japan (45.4°N, 141.7°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.7					3.2	2.7
01	330	4.2					3.0	2.6
02	320	4.1					3.0	2.6
03	310	4.0					3.0	2.7
04	310	4.0					2.8	2.7
05	300	4.3	300°	3.0	120	1.5	2.6	2.8
06	310	4.9	290	3.4	120	2.1	3.9	2.7
07	320	5.4	270	3.9	120	2.6	4.7	2.9
08	340	5.6	270	4.0	120	2.8	6.0	2.8
09	380	5.4	270	4.2	120	3.0	5.4	2.8
10	380	5.8	260	4.3	120	3.0	5.6	2.8
11	420	5.8	260	4.3	120	3.0	5.0	2.6
12	380	5.8	250	4.3	120	3.1	4.5	2.7
13	400	5.6	260	4.3	120	3.0	4.4	2.7
14	400	5.8	280	4.3	120	3.0	3.8	2.8
15	380	5.8	280	4.2	120	3.0	4.2	2.7
16	370	5.5	290	4.0	120	2.7	4.8	2.8
17	310	5.5	280	3.7	120	2.4	5.0	2.9
18	300	5.6	---	---	130	1.8	4.6	2.8
19	300	6.0					5.6	2.8
20	310	6.0					6.0	2.7
21	310	6.0					5.0	2.7
22	300	5.7					4.7	2.8
23	320	4.8					4.2	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 15.5 Mc in 2 minutes.

Table 34

Akita, Japan (39.7°N, 140.1°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.9					4.2	2.9
01	290	4.7					3.8	2.9
02	290	4.5					3.2	2.9
03	280	4.2					3.4	3.0
04	280	4.2					2.9	3.0
05	270	4.2	---	---	---	E	3.2	3.0
06	260	5.3	250	3.6	110	2.3	3.6	3.2
07	260	5.8	230	3.8	110	2.7	4.2	3.2
08	280	6.1	220	4.2	110	3.0	6.0	3.3
09	280	6.1	220	4.5	110	3.1	6.2	3.2
10	300	6.0	220	4.6	110	3.2	6.1	3.2
11	310	6.1	220	4.6	110	3.4	5.7	3.1
12	330	6.1	220	4.6	110	3.4	5.2	3.1
13	360	6.6	220	4.7	110	3.4	5.2	2.9
14	310	6.7	230	4.5	110	3.3	4.7	3.1
15	300	6.6	230	4.4	110	3.1	4.7	3.1
16	300	6.4	220	4.2	110	2.8	5.1	3.2
17	290	6.3	240	3.8	110	2.5	4.4	3.2
18	280	6.2	240	3.5	110	---	4.4	3.2
19	250	6.5					3.8	3.1
20	260	6.2					4.4	3.1
21	270	5.7					4.0	3.1
22	280	5.4					4.2	3.0
23	290	5.0					3.8	3.0

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

Table 35

Tokyo, Japan (35.7°N, 139.5°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.6					4.0	2.8
01	300	4.5					4.0	2.8
02	300	4.2					3.8	2.8
03	270	4.0					3.0	2.9
04	280	3.9					3.0	2.9
05	280	3.8	---	---	120	1.3	3.0	2.9
06	280	5.0	250	3.4	120	2.0	3.2	3.1
07	280	6.0	240	4.0	110	2.5	4.3	3.2
08	280	6.1	230	4.2	110	2.8	4.8	3.2
09	300	6.2	220	4.5	110	3.1	5.7	3.1
10	320	6.2	210	4.6	110	3.2	5.6	3.0
11	350	6.0	200	4.6	110	3.2	5.8	2.8
12	360	6.2	220	4.6	110	3.3	5.5	2.8
13	350	6.5	220	4.5	110	3.3	5.6	2.8
14	330	7.1	230	4.5	110	3.3	5.6	2.9
15	310	7.0	230	4.4	110	3.2	5.2	3.0
16	300	6.7	240	4.1	110	2.8	5.0	3.0
17	290	6.5	250	3.8	110	2.4	4.7	3.1
18	270	6.5	250	---	120	1.7	5.1	3.0
19	260	6.7					4.8	3.0
20	250	6.2					4.6	3.0
21	260	5.5					4.2	2.9
22	300	5.2					4.2	2.8
23	300	4.8					4.7	2.8

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

Table 36

Yamagawa, Japan (31.2°N, 130.6°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.7					3.5	2.9
01	290	4.3					3.5	2.9
02	290	4.2					3.5	3.0
03	260	3.8					3.5	3.1
04	250	3.7					3.0	3.1
05	260	3.4					2.9	3.2
06	250	4.2	---	---	---	1.6	3.0	3.4
07	250	5.7	230	3.6	110	2.2	3.6	3.4
08	250	6.1	220	4.0	100	2.7	3.8	3.4
09	280	6.0	210	4.4	100	3.0	4.6	3.3
10	300	5.8	220	4.5	100	3.1	4.9	3.2
11	330	6.2	200	4.6	100	3.3	4.6	3.1
12	330	6.5	220	4.6	100	3.3	4.3	3.0
13	340	7.0	230	4.5	100	3.4	4.4	2.9
14	320	7.7	220	4.5	100	3.4	4.4	3.0
15	310	7.8	240	4.5	100	3.3	4.9	3.0
16	300	7.9	220	4.4	100	3.0	4.5	3.1
17	290	7.6	230	4.0	100	2.7	4.2	3.1
18	260	7.1	240	3.5	110	2.1	4.2	3.2
19	240	7.2					3.8	3.2
20	220	6.6					3.8	3.2
21	240	5.3					3.5	3.1
22	290	4.8					3.5	3.0
23	300	4.5					3.6	2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 2 minutes.

Table 37

Baton Rouge, Louisiana (30.5°N, 91.2°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.5					3.3	2.8
01	300	3.5					2.5	2.9
02	290	3.3					2.7	2.9
03	300	3.1						3.0
04	290	3.0					2.8	3.0
05	290	3.0					2.2	3.0
06	270	4.1	260	---	130	(1.8)	2.9	3.2
07	320	5.0	230	3.7	120	2.3	3.6	3.1
08	340	5.2	220	4.0	120	2.7	5.0	3.1
09	350	5.2	210	4.2	110	3.0	5.6	3.0
10	410	5.5	200	4.3	110	3.3	5.0	2.9
11	400	5.6	210	4.5	110	3.4	4.5	2.8
12	400	5.8	220	4.4	110	3.4	4.3	2.8
13	400	5.9	230	4.4	110	3.4	4.0	2.8
14	380	6.4	230	4.4	110	3.4	4.4	2.8
15	360	6.6	230	4.3	110	3.2	4.3	2.9
16	330	6.7	240	4.1	120	3.0	4.6	3.0
17	320	6.2	240	3.8	120	2.6	4.4	3.0
18	280	6.2	250	---	120	---	3.8	3.1
19	250	6.0					3.0	3.1
20	250	5.9					2.8	3.1
21	270	4.7					2.8	3.0
22	280	4.0					3.2	3.0
23	310	3.6					3.0	2.9

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

Table 38

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	2.9						3.2
01	240	2.8						3.1
02	240	2.9						3.1
03	250	2.9						3.2
04	250	2.7					2.0	3.0
05	260	2.6					1.6	3.0
06	250	2.8						3.1
07	220	5.2	---	---	130	1.9		3.5
08	240	6.0	220	3.6	110	2.5		3.5
09	250	6.2	220	4.1	110	2.9		3.4
10	270	7.0	200	4.4	110	3.1		3.3
11	270	7.4	200	4.5	110	3.3		3.3
12	280	7.1	200	4.6	110	3.4		3.3
13	280	7.0	200	4.5	110	3.3	3.6	3.2
14	280	7.0	200	4.4	110	3.2	3.6	3.2
15	270	7.0	200	4.2	110	3.0	3.6	3.2
16	250	7.0	220	3.7	110	2.7	3.2	3.3
17	230	6.9	230	---	120	2.1	2.7	3.4
18	220	6.0						3.4
19	210	4.2						3.4
20	230	3.5						3.3
21	240	3.2						3.2
22	240	3.2						3.3
23	240	3.1						3.2

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

Table 39

Capetown, Union of S. Africa (34.2°S, 18.3°E) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	2.9						3.2
01	260	2.8						3.1
02	260	2.8						3.0
03	260	2.9						3.0
04	250	2.9						3.1
05	250	2.8						3.0
06	270	2.9						3.0
07	250	3.1						3.2
08	220	5.1	---	---	120	2.0		3.6
09	240	5.9	220	3.1	120	2.4		3.5
10	260	6.2	210	4.0	110	2.8		3.3
11	270	6.6	210	4.2	110	3.1		3.3
12	280	6.8	210	4.4	110	3.2		3.2
13	290	7.2	200	4.4	110	3.2		3.1
14	280	7.7	210	4.3	110	3.1		3.2
15	270	7.5	220	4.1	110	3.0	3.6	3.2
16	250	7.3	230	3.7	110	2.8	3.5	3.3
17	240	6.8	220	2.9	120	2.3	3.0	3.4
18	220	6.2			120	1.8		3.4
19	220	4.4					2.0	3.4
20	240	3.2					2.1	3.3
21	240	3.0						3.3
22	240	3.0						3.3
23	240	2.7						3.2

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

Table 40

Buenos Aires, Argentina (34.5°S, 58.5°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.0						2.9
01	320	3.0						2.9
02	300	3.0						3.1
03	260	3.2						3.3
04	220	2.8						3.5
05	320	2.0						3.2
06	300	2.5						3.2
07	220	4.6						3.5
08	230	5.4	220	---	---	2.8		3.5
09	270	6.1	210	---	110	3.0	3.7	3.3
10	280	7.0	210	4.2	110	3.0	3.8	3.4
11	280	7.4	210	4.4	110	3.2	4.0	3.3
12	270	7.6	200	4.4	---	---	4.0	3.2
13	270	8.4	200	4.5	100	3.2	4.0	3.3
14	280	8.0	210	4.0	110	3.0	3.9	3.3
15	250	8.0	220	---	110	3.0	3.5	3.4
16	230	7.0	220	---	---	2.8	3.4	3.5
17	210	6.5						3.5
18	210	5.4						3.4
19	220	4.8						3.4
20	230	4.4						3.2
21	270	3.7						3.2
22	280	3.3						3.1
23	300	3.2						3.0

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

Table 41

Decepcion I. (63.0°S, 60.7°W) August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.7						3.2
01								
02	280	2.6						3.2
03								
04	250	2.6						3.4
05								
06	210	2.6						3.5
07	230	2.7						3.6
08	200	3.2						3.7
09								
10	(200)	(3.1)						(3.7)
11								
12	(200)	(3.1)						(3.8)
13								
14	(200)	(3.0)						(3.8)
15								
16	200	3.2						3.8
17	200	3.3						3.7
18	200	3.3						3.7
19								
20	250	2.8						3.6
21								
22	280	2.6						3.3
23								

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

Table 42

Formosa, China (25.0°N, 121.5°E) July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	(5.0)					3.8	(3.1)
01	280	(6.2)					3.6	(3.3)
02	235	(4.6)					2.9	(3.2)
03	(280)	---					3.3	---
04	(300)	---					3.5	---
05	(260)	---					3.6	---
06	250	(5.3)	---	---	---	E	3.7	(3.7)
07	255	6.0	---	4.2	(120)	---	4.7	3.7
08	280	5.9	215	4.3	(100)	---	6.0	3.4
09	340	6.1	200	4.6	(110)	---	6.0	3.2
10	320	6.7	200	4.5	(100)	---	5.8	3.2
11	360	6.5	210	4.6	(120)	---	5.9	3.0
12	360	7.4	210	4.7	(120)	---	5.4	2.9
13	340	8.2	240	4.9	(120)	---	6.4	3.1
14	340	8.2	220	4.5	(110)	---	5.8	3.1
15	320	8.8	230	4.5	(120)	---	4.9	3.0
16	300	9.5	220	4.2	(120)	---	5.3	3.2
17	280	9.8	240	---	(120)	---	5.1	3.4
18	230	10.0	---	---	(110)	---	5.0	3.6
19	235	8.1					4.6	3.6
20	220	6.5					4.6	3.3
21	270	6.0					4.4	3.2
22	280	5.6					4.2	3.1
23	300	5.6					3.6	3.1

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

Table 43

Frmoea, China (25.0°N, 121.5°E) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(6.6)					4.7	(2.8)
01	280	6.4					6.0	3.2
02	260	6.0					7.0	3.0
03	270	4.6					4.6	3.0
04	260	4.0					4.2	3.2
05	260	3.9					3.9	3.0
06	260	5.1	230	---	---	E	4.2	3.3
07	280	5.7	220	---	(120)	---	5.4	3.2
08	300	5.9	230	4.3	(110)	---	7.1	3.2
09	340	6.2	220	4.6	(110)	---	7.0	3.0
10	340	6.9	220	4.7	(100)	---	7.0	2.9
11	370	7.6	220	4.9	(110)	---	7.2	2.8
12	380	7.8	230	4.8	(100)	---	6.8	2.6
13	380	8.5	---	---	(110)	---	8.3	2.8
14	360	9.3	---	---	(100)	---	6.6	2.8
15	350	>10.2	240	4.5	(110)	3.3	6.5	2.9
16	320	10.0	240	4.4	(110)	2.9	5.7	3.0
17	290	9.4	250	---	(110)	---	5.4	3.2
18	280	9.4	---	---	---	E	5.5	3.2
19	240	8.3					5.2	3.3
20	270	6.7					4.4	3.0
21	290	6.2					5.2	3.0
22	320	6.2					3.7	2.8
23	310	6.3					4.2	2.8

Time: 120.0°E.
Sweep: 2.3 Mc to 14.2 Mc in 15 minutes, manual operation.

Table 44

Christchurch, New Zealand (43.6°S, 172.7°E) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.5					1.5	3.0
01	280	2.5					3.7	3.0
02	280	2.4					2.5	3.0
03	280	2.5					2.6	3.0
04	270	2.2					2.6	3.1
05	260	2.2					3.3	3.2
06	230	1.8					3.4	3.3
07	280	2.2				---	3.2	3.1
08	240	4.0	---	---		1.5	3.6	3.5
09	240	4.8	240	3.1		2.1	3.0	3.5
10	250	5.2	240	3.4		2.4	4.4	3.4
11	260	5.5	220	3.7		2.6	4.4	3.5
12	260	5.9	230	3.8		2.6	4.4	3.4
13	260	5.9	230	3.8		2.6	4.4	3.4
14	260	5.9	240	3.6		2.5	4.3	3.4
15	240	5.9	240	3.2		2.2	4.2	3.4
16	240	5.4	240	2.3		1.6	3.8	3.4
17	230	4.3				---	2.9	3.2
18	250	3.6					2.6	3.1
19	250	2.9						3.2
20	260	2.7					2.4	3.1
21	280	2.5						3.0
22	280	2.4					2.9	3.0
23	280	2.2					2.4	3.1

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

Table 45

Delhi, India (28.6°N, 77.1°E) April 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	4.3						
01	(320)	(4.0)						
02	---	---						
03	---	---						
04	300	3.7						
05	290	4.3						
06	260	5.4						
07	250	6.8						
08	270	7.0						
09	280	7.8						
10	310	8.5						
11	320	9.8						
12	320	11.2						
13	300	11.6						
14	300	11.9						
15	300	11.5						
16	290	11.0						
17	280	10.0						
18	280	9.8						
19	260	8.5						
20	270	6.1						
21	280	4.8						
22	320	4.5						
23	340	4.2						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 46

Formosa, China (25.0°N, 121.5°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.8						2.9
01	280	6.7						3.1
02	250	6.0						3.2
03	250	4.7						3.2
04	280	3.9						2.8
05	310	3.8						2.9
06	260	5.4	---	---	---	---	2.5	3.3
07	260	7.0	240	4.4	130	3.3	3.6	3.5
08	270	7.9	240	4.4	130	3.6	4.2	3.3
09	280	8.3	240	4.5	130	3.7	4.6	3.1
10	280	9.8	220	4.8	120	3.7	4.4	3.2
11	310	11.0	230	4.8	120	4.0	4.3	3.2
12	310	13.4	240	5.0	120	4.2	4.1	3.0
13	300	14.2	230	4.8	120	4.2	4.2	3.2
14	290	14.3	230	4.7	120	4.0	4.2	3.3
15	290	14.2	240	4.6	120	3.8	3.8	3.3
16	285	13.5	240	4.5	120	3.3	3.8	3.2
17	270	13.8	240	4.5	120	3.0	3.4	3.4
18	260	13.2	---	---	120	3.2	2.6	3.4
19	240	10.8			125	---	2.8	3.5
20	240	7.4						3.0
21	280	6.2						2.9
22	300	6.0						2.8
23	310	6.5						2.8

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

Table 47

Bombay, India (19.0°N, 73.0°E) April 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	270	6.3						
08	330	8.2						
09	360	9.1						
10	390	10.1						
11	400	11.0						
12	420	11.8						
13	440	12.6						
14	390	(13.6)						
15	360	(13.9)						
16	360	(14.2)						
17	330	14.1						
18	390	13.1						
19	360	11.6						
20	330	9.2						
21	320	7.4						
22	300	6.3						
23	300	5.7						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 48

Madras, India (13.0°N, 80.2°E) April 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	7.0						
08	390	8.4						
09	420	9.3						
10	420	9.4						
11	450	9.0						
12	450	9.4						
13	450	9.5						
14	450	10.0						
15	450	10.3						
16	450	10.9						
17	450	11.4						
18	450	12.0						
19	420	11.3						
20	420	10.4						
21	420	(9.6)						
22	390	(8.7)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 49

Tiruchy, India (10.8°N, 78.8°E) April 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	5.7						
07	420	7.5						
08	480	9.1						
09	510	9.1						
10	510	8.4						
11	540	8.6						
12	540	9.0						
13	540	9.2						
14	540	9.5						
15	520	10.4						
16	540	11.1						
17	520	10.8						
18	510	10.8						
19	510	10.1						
20	480	9.8						
21	480	9.4						
22	480	9.2						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 50

Delhi, India (28.6°N, 77.1°E) March 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.3						
01	(320)	(3.1)						
02	---	---						
03	---	---						
04	280	3.4						
05	280	3.6						
06	260	4.0						
07	260	6.0						
08	260	7.2						
09	280	8.0						
10	290	8.5						
11	280	10.0						
12	270	10.4						
13	280	11.0						
14	290	10.8						
15	280	10.0						
16	270	9.5						
17	270	9.1						
18	260	8.8						
19	250	6.9						
20	280	4.9						
21	300	4.0						
22	300	3.9						
23	320	3.5						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 51

Bombay, India (19.0°N, 73.0°E) March 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	270	6.2						
08	300	8.6						
09	330	9.2						
10	360	10.2						
11	390	11.4						
12	390	12.6						
13	390	13.1						
14	390	13.5						
15	390	13.8						
16	390	13.6						
17	360	13.2						
18	360	12.3						
19	330	11.5						
20	330	10.6						
21	300	9.3						
22	300	7.6						
23	270	6.2						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 52

Madras, India (13.0°N, 80.2°E) March 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	330	o.6						
08	360	8.2						
09	420	9.2						
10	420	9.2						
11	420	9.0						
12	450	9.1						
13	450	9.6						
14	450	9.9						
15	450	10.4						
16	440	11.3						
17	440	11.2						
18	420	11.2						
19	420	11.0						
20	420	10.2						
21	390	(9.5)						
22	360	(9.0)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 53

Tiruchy, India (10.8°N, 78.8°E) March 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	4.6						
07	420	6.5						
08	480	8.7						
09	540	9.0						
10	540	8.8						
11	540	8.6						
12	540	8.7						
13	540	9.0						
14	570	9.3						
15	570	9.8						
16	540	10.7						
17	540	10.5						
18	540	10.2						
19	540	10.0						
20	530	9.7						
21	520	9.3						
22	480	9.1						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 54

Calcutta, India (22.6°N, 88.4°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.5						3.0
01	270	5.1						
02	240	4.4						
03	(270)	3.8						3.0
04	(240)	(3.2)						
05	(240)	3.2						
06	(240)	(3.1)						2.2
07	240	6.0				2.1		
08	240	8.5				2.5		
09	240	8.5				2.8		2.4
10	(240)	(11.5)				3.3		
11	---	(11.8)				---		
12	---	12.4				---		2.4
13	---	13.2				---		
14	---	13.8				---		
15	(240)	13.5				---		2.3
16	(240)	(12.4)				---		
17	---	(11.0)				---		
18	210	8.9				---		2.3
19	240	8.5				---		
20	240	8.2						
21	(220)	(8.8)						2.4
22	270	7.3						
23	270	5.6						

Time: Local.

Table 55

Calcutta, India (22.6°N, 88.4°E) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---						---
01	---	---						
02	(240)	(4.1)						
03	---	---						---
04	---	---						
05	---	---						
06	---	---				---		---
07	---	---				---		
08	(240)	(8.2)				2.3		
09	(220)	(8.8)				2.4		(3.0)
10	(240)	(10.0)				2.8		
11	---	10.8				---		
12	---	(11.2)				---		(3.5)
13	---	(12.2)				---		
14	---	(10.5)				---		
15	---	(11.0)				---		(3.2)
16	---	(9.2)				---		
17	---	(8.6)				---		
18	---	---				---		(3.3)
19	---	---				---		
20	(240)	---				---		
21	---	---						---
22	---	---						
23	---	---						

Time: Local.

Table 56

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.9						
01	260	2.9						
02	260	2.9						
03	250	2.6						
04	230	2.3						
05	230	2.2						
06	270	2.0						
07	215	2.8	---	---				
08	200	4.8	180	---	120	1.8	2.1	
09	200	6.4	180	---	100	2.0		
10	210	7.0	190	---	100	2.2		
11	200	7.5	190	---	100	2.3		
12	200	7.2	190	---	100	2.3		
13	210	7.5	190	---	100	2.3		
14	210	7.2	190	---	100	2.1		
15	200	6.8	180	---	100	1.9		
16	200	5.6	180	---	90	1.8	2.2	
17	200	4.6					1.9	
18	200	4.0						
19	210	3.4						
20	240	2.8						
21	260	2.9						
22	260	2.8						
23	260	3.0						

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

Table 57

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2					1.9	2.9
01	270	3.2					2.2	3.0
02	285	3.3					2.0	3.0
03	270	3.1					2.0	(3.0)
04	<250	2.7						---
05	240	2.6					2.2	3.2
06	<240	2.5						(3.2)
07	230	2.9						3.3
08	205	5.3	190	2.0	130	1.8	2.6	3.6
09	210	7.0	220	2.4	105	2.1	2.6	3.7
10	220	7.4	210	3.0	105	2.5	2.6	3.6
11	220	8.1	210	3.5	100	2.7		3.6
12	215	7.6	205	3.5	100	2.7	2.0	3.7
13	220	7.6	215	---	100	2.6		3.6
14	220	7.6	220	---	100	2.5	2.3	3.6
15	210	7.2	210	2.4	110	2.1	2.4	3.7
16	200	6.0	210	---			2.3	3.6
17	210	5.1					2.5	3.4
18	<230	4.4					2.4	3.4
19	230	3.8					2.3	3.4
20	235	3.2					2.4	3.2
21	265	3.2					2.6	3.0
22	270	3.4					2.4	2.9
23	260	3.4					2.3	3.0

Time: 0.0°.
Sweep: 1.51 Mc to 16.8 Mc in 1 minute.

Table 58

Casablanca, Morocco (33.6°N, 7.6°W) — December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.8					2.5	2.8
01	---	---						---
02	---	3.5					2.4	2.9
03	---	3.8					2.4	3.0
04	---	3.7					2.2	3.2
05	---	3.1					2.1	3.2
06	---	2.8			---	---		2.8
07	---	3.6			---	E	2.2	2.9
08	225	6.4	---	---	120	1.8		3.5
09	230	7.7	---	---	120	2.5		3.6
10	(240)	(8.0)	225	4.0	120	3.0		(3.3)
11	240	8.4	220	4.1	120	3.2		(3.6)
12	250	8.8	215	---	120	3.4		(3.5)
13	250	(7.7)	205	4.2	120	3.3		(3.4)
14	(250)	(7.3)	220	---	120	3.1		(3.4)
15	240	7.6	210	---	120	2.9		3.3
16	240	7.9	---	---	110	(2.5)		3.3
17	225	7.4			110	1.9		3.5
18	220	5.4			---	---	2.5	3.2
19	---	4.8					2.3	3.0
20	---	4.8					2.2	3.1
21	---	4.0					2.4	3.1
22	---	3.7					2.2	2.7
23	---	3.8					2.4	2.8

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

Table 59

Terre Adelie (66.8°S, 141.4°E) — December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	400	5.8	220	4.3	100	3.0		
01	350	(6.4)	220	4.6	100	(3.0)		
02	340	(6.5)	210	4.5	100	(3.0)		
03	375	(6.5)	200	4.5	100	(3.0)		
04	385	5.8	200	4.4	100	(3.0)		
05	405	5.7	205	4.3	100	3.0		
06	400	5.6	230	4.2	105	3.0		
07	400	5.6	220	4.0	105	2.8		
08	375	5.5	215	3.9	105	2.7		
09	350	5.6	220	3.7	110	2.5		
10	325	5.1	230	3.5	130	2.2	2.2	
11	290	5.2	250		150	2.0		
12	290	4.8	250			---		
13	260	4.3	260			---	2.3	
14	285	4.0				---		
15	275	4.0				---	2.8	
16	275	4.0				---	2.3	
17	260	4.4	245		(150)	1.8	3.4	
18	300	4.2	250		140	2.2	2.9	
19	300	4.4	250	(3.5)	120	2.4		
20	355	4.8	225	3.7	110	2.5		
21	400	(4.8)	220	4.0	105	2.7		
22	400	(5.2)	225	4.2	100	2.8		
23	360	5.4	220	4.3	100	2.9		

Time: 0.0°.
Sweep: 1.5 Mc to 16.3 Mc in 1 minute.

Table 60

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	3.0						2.9
01	260	3.0						2.9
02	280	2.9						2.9
03	250	2.7						3.1
04	245	2.3						3.3
05	230	2.3						3.3
06	240	2.4	---	---				3.0
07	220	4.2	200	---	---	1.7		3.6
08	200	6.0	195	---	100	1.9		3.8
09	210	7.0	190	---	90	2.2		3.6
10	220	7.8	190	---	90	2.5		3.8
11	210	8.3	200	---	90	2.7		3.7
12	210	8.2	190	---	80	2.7		3.8
13	220	7.6	190	---	90	2.7		3.5
14	220	8.0	200	---	90	2.5		3.6
15	210	7.6	200	---	100	2.0		3.8
16	200	6.4	190	---	100	1.8		3.6
17	200	5.6	195	---	80	---	2.2	3.5
18	200	4.4					2.2	3.4
19	220	3.7					1.8	3.5
20	240	2.8						3.0
21	280	2.9						2.8
22	300	3.0						2.9
23	290	3.0						2.9

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

Table 61

Poitiers, France (46.6°N, 0.3°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.5						---
01	---	3.4						---
02	---	3.4						---
03	---	3.2						---
04	---	2.9						---
05	---	2.6						---
06	---	<3.1						---
07	250	4.6						3.4
08	230	6.3	<220	---				3.5
09	240	7.5	225	---				3.5
10	240	8.0	220	---				3.4
11	250	8.5	225	3.8				3.5
12	240	8.3	220	(4.0)				3.5
13	240	8.0	230	---				3.5
14	240	7.8	230	---				3.5
15	240	7.6	225	---				3.5
16	235	6.8	215	---				3.5
17	240	5.9	220	---				(3.3)
18	240	4.8	---	---				(3.2)
19	255	4.2						3.2
20	---	3.4						---
21	---	3.2						(3.0)
22	---	3.2						---
23	---	3.4						---

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

Table 62

Casablanca, Morocco (33.6°N, 7.6°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	4.0						2.8
01	---	(4.0)						(2.9)
02	---	4.0						2.8
03	---	3.9						3.0
04	---	3.9						3.2
05	---	3.0						3.0
06	---	2.6						2.8
07	<250	4.7			---	E		3.3
08	230	7.3	---	---	125	2.0		3.6
09	240	8.2	225	(4.0)	115	(2.6)		3.5
10	240	8.4	225	(4.0)	115	3.0		3.4
11	250	8.2	220	(4.3)	110	3.2		3.5
12	250	8.2	220	(4.4)	110	3.2		3.3
13	250	8.6	220	(4.2)	110	3.2		3.4
14	250	8.2	230	(4.3)	110	3.1		3.3
15	250	8.1	230	(3.9)	110	2.9		3.3
16	250	7.9	230	---	120	2.5		3.4
17	225	7.4			120	1.9		3.4
18	<220	5.8			---	---	2.1	3.2
19	---	5.0					2.0	3.2
20	---	4.7					2.0	3.0
21	---	4.2						2.9
22	---	4.1						2.8
23	---	4.2						2.8

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

Table 63

Terre Adelie (66.8°S, 141.4°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	400	(6.0)	225	4.4	110	2.9		
01	400	(6.0)	235	4.5	110	2.8		
02	400	5.5	220	4.5	105	3.0		
03	390	6.1	210	4.4	105	2.8		
04	400	5.7	200	4.4	105	2.8		
05	380	5.9	210	4.3	105	3.0		
06	370	6.0	220	4.3	110	2.8		
07	365	6.0	220	4.0	110	2.8		
08	350	6.2	250	4.0	115	2.5	2.7	
09	300	6.0	240		120	2.2		
10	300	5.8	250		135	2.0		
11	270	5.5	250			E		
12	260	5.1				---		
13	250	5.0						
14	255	4.5						
15	280	4.0						
16	275	3.8						
17	275	4.0				E	2.3	
18	265	4.0	225		150	E	3.0	
19	290	4.4	240		140	2.2	2.7	
20	350	4.8	240	3.9	120	2.4		
21	395	(5.0)	245	4.0	110	2.7		
22	400	(5.6)	240	3.0	110	2.8		
23	400	(5.5)	230	4.2	110	2.9		

Time: 0.0°.
Sweep: 1.5 Mc to 16.3 Mc in 1 minute.

Table 64

Domont, France (49.0°N, 2.3°E) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	3.4						2.8
01	280	3.3						2.9
02	280	3.2						3.0
03	270	3.0						3.0
04	245	2.5						3.1
05	250	(2.2)	---	---				3.2
06	220	3.4	210	---	---	---		3.3
07	220	4.8	200	---	110	1.9		3.7
08	220	6.2	200	---	100	2.4		3.6
09	220	7.0	190	---	100	2.7	3.0	3.6
10	220	7.7	180	---	100	2.9		3.5
11	220	8.0	185	---	100	3.0		3.5
12	220	8.0	190	---	90	3.0		3.5
13	230	7.8	190	---	90	2.9		3.4
14	220	7.8	200	---	90	2.8		3.4
15	220	8.0	200	---	90	2.5		3.5
16	220	7.6	200	---	90	2.2		3.5
17	210	6.8	200	---	100	1.8		3.4
18	200	6.0	---	---	---	---	3.1	3.4
19	200	5.2					2.2	3.4
20	205	4.2						3.3
21	250	3.4						3.0
22	270	3.4						2.8
23	280	3.2						2.8

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

Table 65

Poitiers, France (46.6°N, 0.3°E) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<330	3.6						---
01	<335	3.8						(2.8)
02	340	3.6						(2.8)
03	---	3.5						(2.9)
04	300	3.4						(3.0)
05	---	E						---
06	---	3.3						---
07	230	5.2	---	---				---
08	250	6.8	230	---				(3.2)
09	250	7.2	220	3.9			3.8	(3.4)
10	255	7.8	210	4.0			4.0	(3.4)
11	250	8.2	220	4.2				3.5
12	250	8.2	220	4.2				3.4
13	255	8.0	220	4.0				3.4
14	250	7.8	230	---				3.3
15	250	8.0	230	---				3.2
16	245	7.8	230	---				(3.4)
17	245	7.7	220	---				---
18	240	6.3	---	---				---
19	245	5.2						---
20	260	4.2						---
21	<330	3.7						---
22	<330	3.6						---
23	(310)	3.6						---

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

Table 66

Casablanca, Morocco (33.6°N, 7.6°W) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	4.4					2.2	2.7
01	---	4.2					2.2	2.8
02	---	4.2					2.4	2.8
03	---	4.1					2.2	3.0
04	---	4.2					2.2	3.1
05	---	3.5					2.0	3.0
06	---	2.8					2.2	3.0
07	240	5.5	---	---	130	1.8		3.4
08	240	7.3	240	(3.3)	125	2.3		3.4
09	250	8.2	230	(4.0)	120	2.8	3.6	3.4
10	260	8.4	220	(4.5)	115	3.1	3.6	3.3
11	270	9.0	220	(4.7)	110	3.2	3.6	3.3
12	260	9.8	215	(4.7)	110	---	3.6	3.3
13	270	8.9	220	(4.8)	110	---	3.5	3.2
14	275	9.3	230	(4.7)	110	3.2		3.2
15	280	9.5	230	(4.5)	110	3.1		3.2
16	260	9.5	240	---	115	2.8	3.6	3.2
17	250	10.0	---	---	115	2.2	3.6	3.4
18	240	8.5			110	---	3.0	3.4
19	230	6.5					3.0	3.3
20	(290)	5.0					2.2	3.0
21	---	4.5					2.2	3.0
22	---	4.4					2.2	2.8
23	---	4.6					2.3	2.8

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

Table 67

Buenos Aires, Argentina (34.5°S, 58.5°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	7.5					5.0	2.8
01	300	7.7					4.0	2.8
02	280	7.4					3.7	2.9
03	270	6.7					4.0	2.9
04	280	6.6					2.2	2.8
05	260	6.6	---	---	---	---	2.8	2.8
06	250	7.1	240	---	100	2.8	3.4	2.9
07	300	7.3	220	---	---	---	3.8	2.8
08	360	7.7	220	(4.6)	---	---	3.8	2.6
09	380	8.3	220	4.8	---	---		2.5
10	410	9.0	210	4.8	---	---		2.6
11	410	9.8	220	(4.9)	---	---		2.6
12	380	10.8	220	(4.8)	---	---		2.7
13	360	11.0	220	(4.8)	---	---		2.9
14	310	11.5	220	4.8	---	---	4.4	3.0
15	300	11.2	220	5.0	---	---		3.0
16	300	10.8	220	4.8	---	---		3.0
17	300	9.8	240	---			3.2	3.0
18	270	9.4	250	---			2.8	3.0
19	280	8.9						2.8
20	300	8.0						2.7
21	310	8.0					2.9	2.7
22	340	7.6					3.9	2.6
23	320	7.5					4.0	2.7

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

Table 68

Buenos Aires, Argentina (34.5°S, 58.5°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.1					3.0	2.7
01	300	8.2					2.8	2.8
02	280	8.0					2.9	2.8
03	260	7.5					2.6	2.8
04	270	6.7						2.8
05	250	6.8			---	---	2.3	3.1
06	250	7.5	240	---	100	2.4	3.2	3.2
07	270	7.7	220	---	100	(3.0)		3.2
08	290	8.0	210	---	100	3.2	3.9	2.9
09	320	8.5	220	---	---	(3.5)	4.0	2.8
10	340	9.2	220	---	---	---		2.6
11	360	10.2	220	---	---	---		2.7
12	340	11.4	220	(5.1)	---	---	4.6	2.8
13	320	12.2	220	---	---	---	4.7	2.9
14	310	13.0	210	(4.8)	---	---	4.7	3.0
15	290	12.8	220	---	---	---	4.7	3.1
16	280	11.9	220	---	---	---	4.7	3.2
17	280	11.0	240	---			3.9	3.2
18	270	10.6	260	---			3.4	3.1
19	270	9.8						3.0
20	280	8.8						2.8
21	310	8.5						2.7
22	300	8.4					3.0	2.7
23	310	8.0						2.7

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

Table 69

Buenos Aires, Argentina (34.5°S, 58.5°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.8						2.8
01	300	8.2						2.9
02	250	8.6						3.1
03	220	7.1						3.3
04	230	5.9						3.1
05	250	5.8						3.1
06	230	7.0				2.2		3.4
07	240	7.4	230	---		2.9		3.3
08	270	8.5	230	---		3.2	3.6	3.1
09	290	9.9	230	---		3.5	4.2	3.0
10	300	10.5	220	---		---	4.8	2.9
11	300	11.6	220	---		---	4.7	3.0
12	310	12.3	210	---		---	4.3	3.0
13	300	13.5	220	---		---		3.0
14	300	14.1	220	---		---		3.1
15	290	14.4	230	---		---		3.1
16	270	14.0	240	---		---		3.2
17	270	13.5	250	---		---		3.3
18	250	12.8						3.3
19	230	11.1						3.2
20	240	9.3						3.0
21	280	8.5						2.8
22	300	8.1						2.8
23	300	8.1						2.8

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

Table 70

Buenos Aires, Argentina (34.5°S, 58.5°W) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.3						2.8
01	290	5.6						2.9
02	280	5.8						3.0
03	240	5.4						3.4
04	230	3.7						3.2
05	300	3.2						2.9
06	260	5.2			---	---		3.3
07	230	6.7	---	---	---	2.7		3.5
08	260	7.5	230	---	110	3.0		3.5
09	270	8.2	220	---	110	3.2		3.3
10	290	9.0	220	---	100	3.4		3.2
11	290	9.8	220	---	---	---	3.5	3.2
12	290	10.9	230	---	---	---		3.2
13	290	12.0	220	---	---	---		3.2
14	270	11.6	230	---	---	---		3.3
15	270	11.1	220	---	---	---	3.5	3.3
16	260	10.0	230	---	---	---	3.2	3.4
17	240	10.2	---	---				3.4
18	220	10.1						3.4
19	220	7.6						3.2
20	270	7.2						3.0
21	270	6.5						3.0
22	280	6.1						3.0
23	300	5.6						2.9

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

Table 71

Buenos Aires, Argentina (34.5°S, 58.5°W) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.4						2.8
01	310	4.2						2.8
02	290	4.2						2.9
03	270	4.4						3.2
04	230	3.7						3.5
05	280	2.7						3.0
06	290	2.8						3.0
07	240	5.6			---	---		3.5
08	240	6.9	---	---	---	---		3.5
09	270	7.4	240	---	---	---		3.5
10	270	8.5	230	---	---	---		3.4
11	270	8.8	230	---	---	---		3.5
12	280	8.8	230	---	---	---		3.3
13	280	9.5	230	---	---	---		3.3
14	270	10.0	230	---	---	---		3.5
15	250	9.5	220	---	---	---		3.4
16	230	8.1	---	---	---	---		3.4
17	230	8.1			---	---		3.4
18	220	7.4						3.4
19	230	6.0						3.1
20	250	6.5						3.1
21	240	6.0						3.2
22	270	5.4						3.1
23	300	4.6						2.9

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

Table 72

Buenos Aires, Argentina (34.5°S, 58.5°W) May 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.8						2.8
01	300	5.7						2.8
02	290	5.8						2.9
03	280	5.3						3.0
04	240	4.9						3.4
05	290	3.1						2.8
06	310	3.1						2.8
07	260	6.7			---	---		3.3
08	250	9.1	---	---	---	(2.8)		3.4
09	260	10.8	250	---	(120)	(3.1)		3.3
10	260	11.1	240	---	120	3.2		3.4
11	270	11.0	240	---	120	3.4	4.1	3.3
12	270	10.5	230	(4.4)	(120)	(3.4)	4.1	3.2
13	290	11.5	250	(3.9)	---	---	3.8	3.1
14	280	13.1	250	---	---	---	3.5	3.2
15	260	13.0	(250)	---	---	---		3.2
16	240	12.5			---	---	3.1	3.3
17	230	11.4						3.4
18	210	9.0						3.2
19	250	8.6						3.1
20	240	8.5						3.1
21	230	7.6						3.2
22	270	6.5						2.9
23	300	6.2						2.8

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

TABLE 73

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

IONOSPHERIC DATA

Form adopted June 1946

h'F2 (Characteristic), Km (Unit), November (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

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	250	270	220	280	300	300	[260]S	230	230	260	260	270	260	270	250	260	220	210	220	240	260	250	260	270
2	260	250	250	250	270	260	220	230	220	230	250	270	220	250	240	250	220	200	200	230	240	(250)S	270	240
3	250	260	(270)A	[260]A	260	250	(250)S	220	220	230	240	270	270	250	250	230	230	220	210	230	240	(250)S	(300)S	270
4	290	280	280	270	260	250	250	230	240	230	260	260	250	260	260	240	220	210	220	(230)S	(260)S	(270)S	(290)S	(260)S
5	260	260	250	(250)S	250	240	230	230	220	240	250	260	250	270	250	230	230	210	220	230	230	240	270	(290)S
6	(300)S	(280)S	250	290	280	230	280	240	230	250	270	280	250	[260]M	250	240	230	220	220	(240)S	260	(260)S	[280]A	290
7	270	(280)S	250	240	250	230	(240)S	230	230	240	250	240	260	250	260	270	240	220	210	220	(270)S	(270)S	(280)S	(280)S
8	(310)S	280	270	260	220	210	(220)S	230	230	240	230	260	250	270	250	240	240	220	210	230	240	280	280	280
9	280	280	250	240	240	230	230	230	230	250	250	250	260	250	250	240	240	220	210	[240]A	(270)A	(280)S	(280)S	290
10	(300)S	(280)S	270	260	250	240	(230)A	220	240	240	230	250	250	[250]C	250	240	230	210	220	(240)S	250	(300)S	(280)S	(280)S
11	(280)S	(260)S	260	(270)S	280	(250)S	260	220	220	240	250	260	270	260	250	250	220	220	210	(220)S	(240)S	(300)S	(320)S	(300)S
12	(300)S	290H	280	280	280	250	(280)S	240	230	230	240	250	250	250	250	240H	230	210	210	250	(240)S	(300)S	(280)S	270
13	260	(280)S	280	260	260	(260)S	(270)S	230	230	240	250	270	250	270	270	230	230	(210)A	(230)A	230	(240)S	(250)S	(270)S	(280)S
14	(280)S	(260)S	270	250	(260)S	250	(250)S	230	220	230	250	230	260	260	250	230	240	C	C	(250)S	(220)S	(230)S	(270)S	(290)S
15	290	(270)S	(280)S	260	250	280	(270)S	220	230	250	260	250	250	260	240	240	220	210	220	210	(300)S	270	(270)S	260
16	(250)S	250	240	250	230	220	220	230	290H	220	250	250	250	260	230	230	220	220	220	220	(240)A	240	(240)S	240
17	230	250	260	260	250	250	230	240	240	240	250	250	250	240	270	240	240	210	220	210	210	(250)A	(270)S	(250)S
18	(250)S	240	230	240	250	250	250K	230K	220K	[300]K L	320K	300K	300K	280K	260K	240K	220K	220	220	220	250	(260)S	260	260
19	260	(240)S	(250)S	240	240	(240)A	230	(220)A	220	220	250	250	260	250	250	240	210	210	200	240	(250)S	(280)S	[280]A	(290)A
20	250	250	250	240	(220)A	240	240	210	220	220	240	240	240	240	230	230	220	220	(220)S	220	240	(240)S	(290)S	(300)A
21	270	(290)S	270	250	280	(320)F	(330)F	260	[260]L	270	240	240	270	260	250	230	220	210	210	240	240	300	270	300
22	280	270	240	250	270	240	(240)S	240	230	230	250	250	240	250	250	240	230	210	210	240	(220)S	(300)S	(280)S	(280)S
23	300	250	260	270	260	250	250	230	240	230	250	250	240	240	250	240	230	(240)A	(250)S	210	(240)S	(240)S	(280)S	(270)S
24	(260)S	260	260	230	230	240	(270)S	230	220	230	230	250	240	250	250	240	220	200	210	(240)A	(240)S	(300)S	(290)S	(270)S
25	(270)S	250	250	240	230	230	270	230	220	230	(240)L	250	260	250	240	250	210	210	230	[250]A	(270)S	(270)S	(280)S	(280)S
26	(280)S	[280]F	(290)F	250F	240	270F	250	240	210	230	240	250	(280)L	260	250	250	230	210	240	220K	(250)KS	270K	(270)KS	240K
27	(280)KS	(300)KS	(300)KS	(270)KS	(320)KS	(300)KS	[260]KS	230	220	240	(300)L	260	260	260	230	240	230	220	240	230	(260)S	260	(310)S	270
28	270	270	270	250	250	(250)S	260	240	220	220	270	250	250	260	250	240	220	210	(270)A	(270)A	(240)A	(260)S	(250)S	(280)S
29	(300)S	(300)S	(280)S	(280)S	300	(280)S	(270)S	240	240	250	240	250H	260	250	230	240	210	200	(240)A	210	260	(250)A	(250)A	(260)S
30	(290)S	(270)S	260	250	270	240	220	220	220	240	220	240	240	250	240	240	220	(200)A	[220]A	(230)S	(240)S	(260)S	(290)S	(280)S
31																								
Median	280	270	260	250	250	250	250	230	230	240	250	250	260	250	250	240	220	210	220	230	(240)	(260)	(280)	(280)
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C, E. J. W.

Calculated by: Mc C, E. J. W.

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	2.9F	2.5FJ	(2.4)F	2.2F	(1.9)F	(1.5)FS	(1.8)FA	3.5	5.8	5.0	5.8F	6.0F	7.2	7.2	7.4	7.2	6.9	5.6FS	5.3	4.3	3.8	3.3	3.1F	2.9F
2	3.0F	2.6F	2.4F	2.1F	1.9F	(2.5)F	(2.2)F	4.5	5.9	5.4	6.6	7.0	8.1	8.2	8.4	7.2	7.0	6.0	4.2	3.7	3.2F	2.9F	2.9F	3.1F
3	2.8F	2.7F	2.7F	(2.7)S	2.8	2.2F	1.9F	4.5	5.4	6.2	6.5F	7.2	7.8	8.0	7.6	7.6	7.2	6.8	5.0	4.0F	3.3	2.7F	2.4FS	2.5F
4	2.5F	2.8F	(2.8)FP	(2.8)F	3.0F	2.6F	2.5F	3.8	5.0	5.2	6.4	6.4V	6.7	7.1	7.2	7.1	6.4	6.5V	(4.7)FS	3.0F	2.7F	(2.7)PF	(2.7)PS	(2.9)JF
5	(3.0)PF	(3.1)PF	(3.1)PF	(2.9)JF	2.6F	2.6F	2.4F	4.5	5.8	6.6	6.4	6.9	6.6	7.4	8.0	7.2	6.5	5.6	4.2	3.8	3.2	2.7F	2.2F	2.3F
6	2.3F	2.7F	3.2F	3.2F	3.2	3.2	2.5	4.1	5.2	5.5	6.9	7.0	7.2	[7.7]M	8.2	7.2	6.8	6.2	4.3	3.5	3.0F	2.7SF	[2.6]A	2.5F
7	2.8F	3.2F	3.5F	3.5F	3.6	3.4	2.6	4.5	5.8	7.0	7.0	6.4	8.0	8.3	7.6	7.8	(8.2)S	(7.4)JS	6.6	4.5	3.0F	2.5F	2.7FS	2.5
8	2.6F	3.2FS	3.3JS	3.9	4.1	3.3F	2.2F	4.7	5.8	6.8	7.1	8.0	8.3	8.0	7.9	7.6	8.6	7.6	5.4	3.7F	3.3F	3.0F	3.1	3.1F
9	3.3	3.5	3.7	3.5F	3.3	3.0	3.1	4.7	6.1	7.4Z	7.9	7.9	7.6	7.2	7.2	7.2	7.8	7.0	5.0	(3.4)S	2.6	2.4	2.3	2.3
10	2.3	2.5	2.8F	2.9	3.0	3.1	2.6H	4.5	6.2	7.0	7.2	7.2	7.6	[7.4]C	6.8	7.2	7.6	5.8	3.9	3.7	2.9	2.5	2.5	2.5
11	2.5	2.7F	2.9	2.8	2.8	2.9	2.6	4.2JS	6.0	6.7Z	7.6	7.5	8.2	7.5	7.6	8.6	8.2	6.4	4.4	3.5	2.7	2.3	2.2	2.3
12	2.2	2.3H	2.3	2.5	2.7	2.7	2.4	4.0	5.6	6.0	6.4	7.4	7.1	6.9	6.8	7.0H	6.9	5.6	4.2	3.5	2.9	2.7	2.8	2.8
13	2.7	2.6	2.5F	2.4	2.4F	2.4	2.4F	4.5	6.0	6.2	6.4	7.8	6.5	7.0	7.0	7.2	7.3	6.6	4.3	(3.8)S	3.1	2.8	2.8	2.9
14	3.2	3.2	3.2	3.4	3.2	3.3	3.2	4.4	6.4	6.8	7.8	7.4	7.3	7.5	7.1	7.1	7.0	C	C	(4.0)JS	4.2	2.7	(2.5)S	2.2
15	2.4	(2.6)JS	2.7	3.1	3.0	2.8	2.3	3.9JS	5.3	6.3	6.3	6.8	7.0	7.4	7.5	7.0	7.2	6.2S	4.6	3.1	2.3	2.4	2.6	2.8
16	(3.0)PS	3.5S	3.7	3.9	4.1	4.1	3.5	5.0V	6.8H	6.9	7.9	8.1	8.4	8.5	8.8	7.6	6.9	6.6	5.8	4.7	4.2	4.0	3.9	3.8
17	3.6	3.5	3.7	3.6F	3.8	3.5	3.4	4.5	5.6	6.2	6.8	7.4	7.6	7.3	7.6	7.8JS	8.4	7.9	8.0	6.6	4.5F	3.0F	2.8F	3.3
18	3.7F	4.4F	4.1F	3.7F	2.8F	3.6F	3.6FK	3.7K	4.2K	4.2K	5.0JK	5.6K	6.0K	6.8K	6.6K	6.4K	6.6K	5.7	5.0	4.0F	4.0	3.5FS	3.8	4.0
19	3.7	3.7	3.8	3.9	3.9	3.7	3.4	4.3	6.1	6.0	6.8	6.8	8.6	8.6	7.2	6.8	6.2	(6.2)S	4.3	3.4	(2.5)AS	2.2F	[2.0]A	(1.9)JA
20	2.7F	3.2	3.3	3.5	3.3	3.3	3.3	4.2	5.8	6.4	6.6	7.2	8.2S	7.4F	6.9	6.2	6.3	6.6	4.5	3.6	2.9	2.6	2.7	2.8
21	3.0	2.9	2.9JF	2.8	1.9F	[1.9]F	[2.0]F	3.0F	4.2	6.0	6.0	6.2	7.5	7.8	8.4	8.0	7.0	6.2	4.4	3.2	2.9	3.0F	2.6F	2.3F
22	(2.5)F	(2.8)F	(3.0)F	(3.2)PF	3.0F	(3.0)PF	(2.9)PF	4.1S	6.0F	6.4S	6.9	7.0	7.4	8.5	8.0	7.3	7.2	6.0	(5.0)FP	(4.6)PF	(2.8)PF	(1.9)PF	(2.3)PF	[2.5]F
23	2.9F	(3.5)PF	(3.1)FS	(3.4)PF	3.6FS	3.2F	2.6F	4.0	5.3	5.8	6.2	6.9	7.7	6.6	6.5	7.2	6.2	5.2	3.6	3.5	2.9	2.5	2.4F	2.4F
24	2.8F	3.0	3.1	2.8F	(2.7)F	(2.6)F	2.5F	3.9	5.3	6.4	6.0	7.1	7.2	7.2	7.1	6.7	6.9V	5.8F	3.5F	3.2	2.4F	2.3F	2.4F	2.8F
25	(3.5)PS	3.6	3.7	3.6	3.3	(2.3)PF	(2.5)F	(3.7)PS	5.8JS	6.0	5.9	6.6F	6.8	7.0	6.8	7.3	7.2S	5.4	(4.0)JS	(2.9)A	2.4F	(2.3)FA	2.3F	2.2F
26	(2.0)PF	[2.3]F	[2.2]F	F	F	F	(2.5)F	3.9	5.6	6.2	6.9	7.0	7.6	8.6	8.6	8.2	8.3	6.6	5.4	3.5FK	2.3FK	3.0FK	3.0K	3.2K
27	3.0K	2.4FK	(1.8)FK	K(1.9)FJ	K(1.8)FJ	[1.8]FK	K(1.7)FJ	3.6F	4.8F	6.0F	6.8F	9.0	8.8	9.0	8.4	7.6	8.2	6.0	4.8F	4.5	(3.2)FS	2.8F	2.3F	(2.8)S
28	(2.8)FP	(3.6)FJ	(3.4)FP	(3.2)FP	(3.1)FJ	(3.0)FP	(2.5)F	(3.6)FJ	6.0S	5.8H	7.7	8.4	8.0	7.5	7.4	7.4	6.8	5.7	4.0	(3.4)S	2.4F	2.3F	2.2F	2.0F
29	1.9F	2.3F	(2.3)F	2.3F	2.0	(1.9)F	(2.3)FP	3.4JS	5.0	6.1	7.2	7.2JH	7.2	7.8	6.8	7.0	6.2	5.0	4.9F	3.2FS	2.7F	(2.8)FP	2.5F	(2.3)FA
30	2.1	2.3FP	(2.3)FP	(2.5)FP	(2.4)FP	(2.7)FP	(3.7)FP	(4.0)FP	6.1	6.7	7.3	7.4	6.7	7.0	6.9	7.5	6.2	5.6	[4.1]A	2.6	2.3	2.0	2.0	2.1
31																								
Median	2.8	2.8	3.0	3.1	3.0	2.9	2.5	4.1	5.8	6.2	6.8	7.2	7.6	7.4	7.4	7.2	7.0	6.2	4.5	3.6	2.9	2.7	2.6	2.5
Count	30	30	30	29	29	29	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), November (Month), 1952

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., E.J.W.

Calculated by: McC., E.J.W.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	2.6 F	2.4 JF	2.4 F	[2.6] F	2.9 F	[2.7] A	2.5 F	4.1	5.1	6.0	6.4 F	7.0	7.1	7.4	7.2	7.0	6.2	5.3	4.5 F	3.7	3.5 F	3.2 F	3.0 F	3.0 F
2	2.8 F	2.7 F	2.3 F	(2.0) F	1.8 F	2.7 F	3.1 F	5.1	5.3	6.0	6.6	7.2	8.0	8.0	7.4	7.5	6.8	5.1	3.9 F	3.3 F	3.1 F	2.7	3.0 F	2.9 F
3	2.7 F	2.7 F	2.7	2.8	2.6 F	2.2 F	3.6 F	5.1	5.8	6.2	6.5	7.9	8.0	7.8	7.6	7.2	6.9	6.1	4.5	3.5	2.9 F	2.5 F	2.5 F	2.5 F
4	2.6 F	2.8 F	(2.6) F	(3.0) F	3.1 F	2.6 F	3.0 F	4.5 F	5.0 F	6.2	6.6	6.0 F	7.1	6.9	7.1	6.8	(6.3) S	4.8 F	3.3 F	2.8 F	(2.6) F	2.5 F	2.8 F	(2.7) JF
5	(3.0) JS	(3.0) PF	3.2 F	2.6 F	2.5 F	2.5 F	3.1 F	5.4	6.8	6.4	6.7	6.7	7.2	7.6	7.4	6.6	6.2	4.8	4.0	3.5	3.0	2.4 F	2.4 F	2.2 F
6	2.3 F	3.0 F	3.0 FS	3.2	3.3	2.9	3.0	4.7	5.8	6.0 H	7.0	7.2	7.2	8.2	7.8	7.0	6.8	5.2	(3.9) S	3.3 SF	2.9 F	(2.7) A	[2.6] A	2.5 F
7	2.8 FS	3.5 SF	4.0	3.7	3.7	3.1	3.3	5.2	6.3	6.8	6.6	7.8	8.0	7.8	7.0	8.2	8.0	7.4 JS	5.6	3.1	2.7 F	2.5 F	2.4 F	2.4 F
8	(2.8) SF	3.4	3.9	4.2	3.8	2.7 F	3.2	5.6	6.6	7.5	7.4	8.4	8.0	8.0	7.8	8.0	8.4	6.0	4.4	3.4	3.0 F	3.1	3.2 F	3.2 F
9	3.5	3.5 SF	3.7 F	3.5 F	3.2	3.0 JS	3.5	5.6	6.2	7.0	7.3	7.8	7.3	7.8	7.2	7.2	(7.6) S	6.4	4.2	2.9	2.5	2.4	2.3	2.3
10	2.3 F	2.6 F	2.8 F	3.0	3.0	2.9	3.2	5.3	6.8	7.0	7.5	7.6	7.6	7.0	[7.2] C	7.5	7.1	4.7	3.8	3.3	2.7	2.5	2.5	2.5
11	2.7	2.9	2.9	2.8	2.9	2.7	3.1	5.6	6.6	7.4	7.5	8.0	8.2	7.8	8.0	5.8	[illegible]	5.5	4.2	3.1	(2.4) S	2.2	2.2	2.2
12	2.2	2.3	2.4	2.6	2.8	2.6 F	3.0	4.8	6.4	6.2	7.2	6.8	7.0	6.6	7.0	6.6	6.6	5.0	3.5	3.3	2.8	2.8	2.8 F	2.8
13	2.6	2.6	(2.4) S	2.5	2.4	2.4	3.0	5.6	6.6	6.6	7.7	7.0	6.8	6.8	7.4	7.2	7.1	5.0	4.4	3.4	2.9	2.8	2.8	3.0
14	3.2	(3.2) S	3.3	3.3	3.3	3.2	3.5	5.7	7.0	7.0 JS	8.0	7.1	7.7	7.3	7.2	6.8	7.0	C	C	(4.1) S	3.6	(2.5) JS	2.3	(2.3) JS
15	(2.6) PS	2.6	(2.8) PS	3.2 JS	3.0 V	(2.6) S	(2.8) S	4.7	6.0	6.0	6.6	6.9	7.0	7.8	7.3	7.4	6.7	5.1	3.7	2.5	2.3	2.5	2.6	3.0
16	3.2	3.6	3.6 F	4.2	4.2	3.9	3.9	6.3	6.8	6.9 H	7.9	8.0	8.4	8.9	7.9	7.2 JS	6.9	6.4	5.2	(4.5) A	4.3	4.1	3.9	3.7
17	3.6	3.7	3.8	3.6	3.6	3.5	3.7	5.3	6.0	6.6	7.2	7.6	7.9	7.0	8.0	8.0	8.6	7.8	8.0	(6.2) SJ	3.6	3.0 F	2.9 F	3.2 F
18	3.8 F	5.2 F	3.8 A	3.2 H	3.5 F	3.3 F	3.5 K	3.7 K	4.2 K	K 4.8 JH	K 5.4 JH	5.8 K	6.1 K	6.2 K	6.7 K	6.4 K	6.0 K	5.2	4.9	3.9	3.8	3.7	4.0	3.8
19	3.8	3.8	4.0	3.9	3.8	3.6	3.7	5.5	7.0	5.8	7.2	7.2	8.5	7.0	6.7	6.4	6.5	5.8	3.6	3.0	(2.3) A	2.2 F	(1.8) PJ	2.7
20	3.0	3.2	3.4 F	(3.5) S	3.3	3.3	3.4	5.1	6.6	6.0	6.6	7.6	7.8 JF	7.6	6.4	6.4	6.6 S	(5.3) S	4.1	3.2	2.7 JS	2.5	2.8	2.9
21	2.9	2.9	2.8	2.6	(1.6) F	(1.8) PF	(2.2) F	3.6 F	4.9	6.1	6.7	6.7	7.8	8.0	8.2	7.6	6.8	5.3	3.5 JS	3.1	2.8 F	2.7 F	2.5 F	2.4 F
22	(2.8) FS	(3.6) FS	(3.5) F	(3.1) PF	(3.2) PF	(3.0) FJ	(3.0) PF	4.9 F	5.8 F	6.6	6.9 F	7.3	8.2	7.8	7.6 F	7.4 F	(6.4) JS	(6.6) PS	4.2 F	(4.0) JS	(2.1) PF	(2.1) PF	(2.3) PF	(2.7) PF
23	3.0 F	3.5 F	J (3.2) PS	(3.3) PF	3.3 F	2.7 F	3.0 F	4.3	5.4	6.0	6.6	7.7	6.9	7.0	6.9	6.8	5.8	4.4	3.3	3.4 JS	2.4	2.4 F	2.4	2.7
24	2.9 F	3.0	3.1 F	2.8 F	2.8 F	(2.5) F	2.5 F	4.9	6.0	6.1	7.0	7.2 JS	7.2 V	7.1	6.9	6.7	6.3 F	4.5 F	3.3 F	3.0 F	2.4	2.3 F	2.5 F	3.0 F
25	3.6 F	(3.8) SF	(3.6) SP	3.3 JF	(3.0) FS	(2.6) PF	2.8 F	5.2 S	5.9	6.1	6.9	(7.0) H	7.0 JS	6.8	6.9	7.2	5.9	4.7	3.7 F	2.4	2.3 F	2.3 F	2.3 F	(2.2) PF
26	(2.3) PF	(2.3) PF	(2.2) PF	F	F	F	(2.7) P	5.8	6.4 F	6.8	7.2	6.9	8.6	9.0	8.4	8.2	8.4	6.2	(4.1) F	(2.6) FK	(2.7) FK	3.0 K	3.1 K	[illegible] FK
27	2.9 K	(1.9) FK	(1.7) FK	F KA	F K	F K	(1.9) FK	(5.0) FJ	6.1 FJ	6.2 FS	8.2	9.0	8.7	8.4	7.5	7.6	7.2	5.1	4.7	3.7	3.2	2.4 F	2.6 FS	[illegible] PF
28	(3.6) FP	(3.6) FP	(3.2) FP	(2.9) PF	(3.2) FP	(2.8) F	(2.4) F	4.9	5.6 F	6.4	8.2	8.0	7.8	7.5	7.2	7.4	6.4	4.2	3.5 JS	2.8	2.4 F	2.3 F	2.1 JF	[illegible] F
29	2.3 F	2.1 F	2.5 F	2.1 F	(1.8) PF	(2.1) F	2.4 F	4.4	5.4	6.4	6.6	7.2	7.5	8.0	7.4	7.6	5.6	4.4 FS	4.0 F	2.6 F	2.5 F	2.5 F	2.4 F	2.0
30	2.0 F	(2.2) F	(2.4) F	(2.5) F	2.3 F	3.0 F	3.4 F	4.8	6.0 H	7.2	6.8	7.0	6.8	6.9	7.4	6.4	6.2	4.0 JS	[3.2] A	2.5	2.1	2.0	2.2	2.3
31																								
Median	2.8	3.0	3.0	3.0	3.0	2.7	3.0	5.1	6.0	6.3	7.0	7.2	7.6	7.6	7.4	7.2	6.8	5.2	4.0	3.3	2.7	2.5	2.5	2.7
Count	30	30	30	28	28	28	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 76

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

Form adopted June 1946

IONOSPHERIC DATA

h' F1 (Characteristic), Km (Unit), November (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 77

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

IONOSPHERIC DATA

Form adopted June 1946

fo F1 (Characteristic), Mc (Unit), November (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	L	L	L	4.0	4.0	L	L	Q							
2									L	L	L	L	L	L	L	L	Q							
3									L	L	L	L	L	L	L	L	Q							
4									L	L	L	L	3.9	(4.2) H	(4.0) H	L	L							
5									L	3.4	3.6	L	L	4.0	L	L	Q							
6									L	L	L	L	4.1	M	L	L	Q							
7									L	L	L	3.6	L	L	L	L	Q							
8									Q	L	L	4.0 H	A	L	L	L	Q							
9									L	L	L	L	L	L	L	L	Q							
10									L	L	L	L	L	C	L	L	Q							
11									Q	L	L	4.4 H	4.0	[3.8] L	3.6 H	Q	Q							
12									Q	L	L	3.7	L	L	L	L	Q							
13									L	L	L	3.8 H	L	L	3.5	L	L							
14									Q	L	L	L	L	L	L	L	L							
15									L	L	3.8	(4.0) P	(4.0) P	L	L	L	Q							
16									L	L	L	L	L	L	L	L	Q							
17									L	L	L	L	L	L	L	Q	Q							
18									L K	L K	3.9 K	4.0 K	4.2 K	4.0 K	L K	L K	Q K							
19									Q	L	L	L	(4.2) P	(4.2) P	3.7	L	Q							
20									Q	L	L	L	L	L	L	L	Q							
21									L	L	L	L	(4.0) P	L	L	L	Q							
22									L	L	L	L	L	3.9	L	L	L							
23									L	L	L	L	L	L	L	L	Q							
24									L	3.0	3.3	L	L	L	L	L	A							
25									Q	Q	L	L	L	L	L	L	Q							
26									Q	2.9	[3.1] L	3.3	L	L	L	L	Q							
27									Q	Q	L	L	L	L	L	L	Q							
28									Q	L	L	L	L	L	L	L	Q							
29									Q	Q	Q	L	L	L	L	Q	Q							
30									A	L	L	L	L	L	L	L	Q							
31																								
Median									—	—	3.6	3.9	4.0	4.0	—	—	—							
Count										3	5	8	8	7	4									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 78

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

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), November (Month), 1952

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 79

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

IONOSPHERIC DATA

fo E (Characteristic), Mc (Unit), November (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., E.J.W.

Calculated by: Mc C., E.J.W.

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	2.2	2.5	2.9	(3.0)A	3.0	3.0	2.7	A	A							
2								A	A	2.5	(2.8)P	2.9	2.9	3.1H	2.9	(2.5)P	A							
3									(2.2)P	2.5	2.8	2.9	(3.0)P	2.9	2.8	2.5	2.1H							
4									2.2H	2.5	2.8	3.0	[3.0]A	3.0H	2.8	A	A							
5									A	A	2.8	3.0	3.1	3.0	2.9H	2.5	2.1							
6								A	2.1	2.5H	2.9	3.0	3.0	M	A	A	A							
7									A	2.5	2.9	[3.0]A	3.0	2.9	2.7	2.6H	A							
8									2.2	2.6	2.8	(3.0)P	(3.0)P	(3.0)P	2.8	2.6	2.1H							
9									2.1H	2.6	2.8	3.0	3.1H	3.0	2.9	2.5H	2.0							
10									2.1H	2.6H	2.9	3.0	3.0	[2.9]C	2.8	2.6	2.0H							
11									2.2H	2.6	2.9	3.0	3.0	3.0	2.8	2.6	2.0							
12									A	A	2.9F	3.0	3.0	3.0	2.8	2.5	2.2H							
13									A	(2.5)F	2.9	2.9	3.1H	3.0	2.8	(2.5)S	1.9							
14									2.3H	2.7	2.8	(3.0)P	3.0	2.9	2.8	(2.7)P	(2.6)P							
15									(2.2)P	2.7H	3.0	3.1	3.1	3.1	3.0	A	A							
16									(2.2)A	2.7H	2.9	3.1	3.1	3.0	3.0	(2.5)A	(2.1)H							
17									2.1F	2.5	3.0H	3.0	3.0	3.0	2.8	2.3	A							
18									2.1FK	2.5K	2.8K	3.0K	3.0K	3.0K	2.8K	2.5HK	1.9HK							
19									2.3H	2.7F	3.0H	3.1H	3.1	3.0	(2.8)P	2.5	(2.1)P							
20									(2.1)P	2.6	3.0H	3.0H	[3.0]A	(3.0)P	2.8	A	A							
21									A	A	2.8	2.9	3.1	2.9	2.9H	2.5	A							
22									2.1	2.4	2.8	2.9	3.0	2.9	(2.8)P	(2.3)A	2.0							
23									A	2.4H	2.7F	[2.8]A	(2.9)B	(2.9)P	2.7	2.4	1.9H							
24									2.0H	2.5	2.7	2.9	3.0	(2.8)P	[2.6]A	2.4	A							
25									2.1H	2.5	(2.8)H	2.9H	3.0	2.9H	2.7	2.4H	(1.8)A							
26									A	2.5H	2.8	2.9	A	A	(2.7)P	2.4	(1.8)P							
27									(1.4)H	2.6H	2.7	2.9	3.0	2.9	2.7	2.3	1.9H							
28									1.9H	[2.4]A	2.8H	2.9	2.9	2.9	2.6	2.4H	A							
29									A	A	A	(2.9)P	3.0	2.9	2.4	2.3	A							
30									2.0	2.4	A	A	A	A	A	A	A							
31																								
Median									2.1	2.5	2.8	3.0	3.0	3.0	2.8	2.5	2.0							
Count									21	26	28	29	28	27	28	24	17							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 80

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

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), November (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	36Y 100	E	2.3 110	3.6 H 100	3.7Y 100	2.9 100	74Y 110	G	G	G	G	G	3.8Y 90	3.0 90	3.3 100	4.7 100	3.1 120	E	E	E	1.8 100	24 100
2	24 100	2.3 100	27 H 100	11.0 100	E	3.2 110	3.3 110	2.7Y 100	25 110	2.4 100	7.2Y 130	3.0Y 100	G	G	1.9 100	3.1 100	2.4 H 100	1.7 H 100	2.8Y 100	E	E	E	E	E
3	22 100	2.3 H 100	33 100	40 H 100	3.7 100	33 110	4.0 100	2.7Y 110	3.0Y 100	2.8 100	34 100	G	G	25 100	2.9 90	2.3 100	G	1.8Y 120	2.5 100	E	E	E	36 110	4.2 110
4	38Y 110	25Y 110	30 H 100	2.8Y 110	39 H 110	2.2 120	2.3 110	23Y 110	30Y 110	G	3.4 100	3.8 100	4.4 100	G	2.6Y 100	3.7 120	60Y H 100	22Y H 100	2.4Y 100	2.7 110	(3.3)Y (130)S	E	E	3.3 110
5	E	70Y H 110	30Y H 110	40Y H 100	37Y 110	E	40Y H 110	25Y H 110	68Y 110	52 110	4.6 100	1.9 100	G	39 100	3.2 H 100	3.0 100	2.2 100	36 100	E	E	E	E	E	E
6	E	E	E	24 100	4.0 120	35 130	E	22Y 120	2.5Y 120	G	G	G	G	M	3.2 120	26 120	2.1 100	E	E	E	3.3 110	E	7.6 100	E
7	E	32 100	2.5 100	2.4 100	58Y 100	32 110	E	25 120	3.0 110	4.7 110	3.5 110	38 100	G	G	3.7Y 120	4.1 110	37 110	3.1 H 110	3.0Y 110	3.3 H 110	2.7 100	7.2 H 100	34 H 100	E
8	35 100	37 110	31 H 100	E	E	E	E	E	G	G	70Y 100	3.4Y 110	58 110	G	G	3.3 110	G	2.9Y 100	33 H 100	3.3Y 110	E	23Y 100	25 100	25 100
9	23 100	E	35 100	31 100	E	E	E	5.0 H 110	7.6Y 100	33Y 100	G	G	49Y 120	4.3 120	10.0Y 120	G	G	2.7Y 100	30Y 120	4.3 110	3.5 110	E	34 110	31Y H 100
10	39Y 110	26Y 110	37Y 110	27 100	2.1 100	3.7 H 100	3.7 H 100	4.2 120	4.0 H 100	36 H 110	G	G	G	C	4.0Y 100	G	G	3.0Y 100	22 100	21 100	1.9 110	35 110	32 110	25 110
11	36 110	E	3.6Y 110	2.5 100	24 100	3.8 100	3.1 100	E	4.5 120	G	G	7.6Y 110	G	G	G	G	22Y 110	3.5 110	3.2 H 110	E	E	E	E	39Y 110
12	31 120	38 H 110	2.7Y 110	26Y 120	2.1 100	2.3 100	4.3Y 110	3.7 120	4.9 H 110	6.2 H 110	4.2 100	G	4.0 100	2.5 110	G	2.3 110	27Y 100	23Y 100	E	E	E	2.7Y 110	E	22Y 110
13	21Y 110	30Y 100	38 H 100	2.9Y 100	E	E	E	E	3.1 H 110	8.0 120	G	37 110	G	31Y 100	G	G	3.5Y 100	3.7 100	2.8Y 100	E	3.1 H 100	2.1 100	E	22 100
14	28Y 100	24 100	2.5Y 100	E	7.0Y 120	2.4Y 110	14.5Y 110	4.2 H 120	G	G	G	G	G	G	G	G	G	C	C	E	E	E	E	E
15	2.3Y 100	23Y 100	33Y 100	2.9Y 100	1.7 100	E	E	6.0Y 130	10.0Y 130	G	G	G	G	86Y 120	G	37Y 100	4.2Y 100	3.4Y 100	2.1 100	E	E	E	E	2.3Y 110
16	25Y 110	3.2 H 100	1.9 H 100	E	3.0Y 110	3.3Y 120	E	11.0Y H 100	50Y 110	2.0 110	G	3.9Y 140	G	G	G	3.3Y 100	2.4Y 140	2.2Y 120	3.6 120	2.6Y 120	6.6Y 110	3.9 110	E	E
17	E	1.3Y 110	1.2Y 110	1.3 110	1.9 110	1.5 120	E	E	G	G	G	G	G	G	G	G	2.5 120	E	E	E	2.6Y 110	37 110	E	E
18	E	E	E	E	4.9 H 120	4.1 H 130	4.2Y 150	2.9 110	9.2Y 110	G	G	G	G	G	G	G	G	2.9 120	E	2.5 100	35Y H 100	3.5 110	32 100	3.1 100
19	33 100	E	3.5 110	3.7Y 100	25Y H 110	4.9 100	5.2 110	5.0Y 100	5.8Y 100	3.9Y H 100	4.2 100	G	G	G	G	G	G	E	E	72Y H 110	4.4 110	33 H 110	42 100	35 100
20	E	E	24 100	42Y H 100	5.1 110	37 110	5.2Y 110	E	1.9 110	8.2Y H 110	G	G	43Y 110	G	G	28 120	2.2 H 100	35Y 100	28Y 100	E	37Y 100	25Y H 100	1.9Y 120	3.5 110
21	30 110	30Y 110	24Y H 110	2.6Y 110	E	E	E	E	36 120	3.7 110	G	G	G	G	G	G	2.3 H 140	34Y 100	E	E	E	E	E	E
22	30Y 100	26 100	2.3 100	25 100	26Y 130	E	8.3Y 120	7.2Y 120	G	68Y 100	2.0Y 100	26Y 100	G	G	3.1 120	2.5 130	G	E	E	E	E	E	20Y 110	E
23	27 110	E	E	E	9.0Y 110	3.0Y 120	3.0 120	30 H 120	2.9Y 110	G	3.1Y 100	3.1Y 100	2.4Y 100	20 110	G	G	G	E	3.1 110	E	E	E	E	E
24	E	E	E	E	E	E	E	E	G	G	G	G	G	G	2.7 100	3.2Y 100	4.1 100	3.8 H 100	25Y 100	3.5 110	27Y 110	E	E	E
25	E	31Y 100	36 100	3.0Y 100	3.0Y 120	2.9 110	17.0Y 120	3.7Y 120	3.7Y 110	G	G	32 140	3.5 130	4.3 130	4.0 130	3.5 120	3.3Y 120	3.2 110	1.1 120	3.9 110	3.2 110	33 110	3.7 110	28 100
26	38 100	32 110	2.9 H 110	36Y 110	E	1.1 120	2.4Y 120	2.9Y 110	2.1Y 110	2.0 110	G	20 100	3.9 100	28 100	2.2Y 100	27Y 100	G	E	E	E	E	E	E	E
27	E	E	E	E	39Y 100	3.2Y 110	4.7Y 120	23Y 120	G	G	G	3.0 130	G	2.0 100	2.1 100	2.0 100	G	2.1 100	2.1 120	33Y 120	E	E	E	E
28	E	E	E	E	E	3.2Y 120	3.2Y 120	3.8Y H 120	2.5Y H 110	25 H 110	G	G	3.4 100	2.1 100	1.9 100	G	2.2 H 100	1.9 100	35 120	3.6 120	4.1 120	2.4 H 110	E	86Y 100
29	27Y 110	24Y 110	24Y 110	30Y 110	3.7 H 120	68 H 110	5.6Y 110	4.5Y 110	3.7 110	6.6Y 110	4.7 110	34 130	33Y 110	3.3Y 110	3.8 110	3.5Y 130	2.6Y 100	23 H 110	3.5 110	76Y H 110	E	3.2 110	32 100	35 110
30	27 100	2.6 100	E	E	E	36Y 110	2.4 100	24 100	3.6 140	4.2Y 130	3.8 H 100	6.6Y H 100	3.7 100	4.0 H 100	3.7 100	3.5 H 100	3.5 100	3.0 100	4.9 110	3.3 110	3.1 110	4.5 110	E	E
31																								
Median	24 100	24 100	26 100	26 100	2.4 100	3.1 110	3.2 100	2.8 110	3.0 110	2.2 100	**	**	**	**	2.0 100	2.6 100	2.2 100	27 100	2.5 110	**	**	**	**	22 100
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	30	29	29	30	30	30	30	30

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 81

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), November (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C., E. J. W.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C., E. J. W.

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	2.0F	(2.0)FJ	(1.9)F	1.9F	(1.8)F	(1.8)FJ	(1.5)FA	2.3	2.3	2.4	2.2F	2.2F	2.3	2.3	1.9	2.3	2.4	2.4FS	1.8	2.0	2.0	2.0	2.0F	2.0F
2	1.9F	2.0F	2.1F	2.0F	2.0	(2.0)F	(2.2)F	2.6	2.7	2.4	2.2	2.2	2.3	2.3	2.3	2.3	2.5	2.4	2.2	2.3	2.2F	2.0F	2.0F	2.2F
3	2.1F	2.0F	2.0F	(2.0)S	2.2	2.3F	2.3F	2.4	2.5	2.1	2.4F	1.8	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3F	2.3	2.1F	(2.0)FJ	2.0F
4	2.0F	2.0F	(1.8)PF	(1.8)F	1.8F	2.0F	2.1F	2.4	2.4	2.4	2.4	2.3V	2.4	2.4	2.4	2.4	2.4	2.5V	(2.3)FS	2.2F	2.1F	(2.1)PF	(2.0)PS	(2.1)JF
5	(2.0)PF	(1.9)PF	(2.1)F	(2.0)JF	2.2F	2.2F	2.3F	2.4	2.6	2.5	2.3	2.4	2.2	2.2	1.9	2.3	2.3	2.3	2.0	2.2	2.2	2.1F	2.0F	2.0F
6	1.8F	2.0F	2.0F	1.9F	2.0	1.8	2.3	2.3	2.4	2.3	2.3	2.2	2.3	M	2.3	2.3	2.3	2.3	2.2	2.1	2.0F	1.9SF	A	2.0F
7	1.9F	1.9F	2.0F	2.2F	2.2	2.3	2.2	2.4	2.4	2.4	2.3	2.2	2.3	2.3	2.3	2.2	(2.3)S	(2.2)JS	2.2	2.4	2.0F	2.1F	2.1ES	2.0
8	1.9F	2.0ES	(2.0)JS	2.0	2.3	2.3F	2.3F	2.4	2.3	2.2	1.9	2.2	2.3	2.3	2.3	2.2	2.3	2.4	1.9	2.1F	2.1F	2.0F	1.9	2.0F
9	2.0	2.0	2.0	2.2F	2.3	2.1	2.3	2.4	2.4	2.2Z	2.4	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	(2.3)S	2.1	2.0	2.0	2.0
10	2.0	2.0	2.0F	2.0	2.0	2.2	2.3H	2.3	2.4	2.4	2.4	2.3	2.3	C	2.3	2.3	2.4	2.4	2.2	1.7	2.1	2.0	2.0	2.0
11	2.1	2.0F	2.0	2.0	2.0	2.1	2.1	(2.3)JS	2.4	2.4Z	2.4	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.3	2.2	2.0	2.0	1.9	1.9
12	1.9	2.0H	2.0	1.9	1.9	2.0	2.0	2.3	2.3	2.0	2.3	2.5	2.4	2.3	2.3	2.2H	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0
13	2.1	2.1	2.0F	2.0	2.0F	2.0	2.0F	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.1	(2.3)S	2.2	2.0	2.0	2.0
14	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	C	C	(2.1)JS	2.4	2.0	(2.0)S	2.0
15	2.0	(2.1)JS	2.0	2.0	2.1	2.3	1.9	(2.3)JS	2.5	2.5	2.4	2.4	2.3	2.2	2.3	2.4	2.4	2.5S	2.4	2.4	2.1	2.0	2.0	2.0
16	(2.0)PS	2.1S	2.2	2.1	2.2	2.2	2.2	2.2V	2.2H	2.6	2.4	2.4	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1
17	2.1	2.1	2.0	2.0F	2.0	2.1	2.1	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.2	(2.2)JS	2.2	2.2	2.3	2.2	2.3F	2.2F	2.0F	2.0
18	2.0F	1.9F	2.0F	2.0F	2.0F	2.0F	2.0FK	2.1K	2.3K	2.1K	(2.0)JK	2.2K	2.1K	2.1K	2.3K	2.3K	2.4K	2.4	2.3	2.2F	2.2	2.1ES	2.1	2.1
19	2.0	2.1	2.0	2.1	2.0	2.1	2.2	2.4	2.4	2.6	2.4	2.3	2.4	2.4	2.4	2.4	2.3	(2.3)S	2.3	2.3	(2.2)AS	2.1F	A	(1.9)JA
20	2.3F	2.1	2.2	2.1	2.2	2.2	2.3	2.4	2.5	2.5	2.4	2.5	(2.4)J	2.4F	2.4	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.0	1.9
21	2.1	2.0	(2.0)JF	2.2	2.0F	F	F	2.2F	2.1	2.3	2.4	2.3	2.3	2.2	2.3	2.3	2.4	2.3	2.4	2.2	2.2	1.9F	1.9F	1.9F
22	(2.0)F	(2.3)F	(2.1)F	(2.1)PF	2.2F	(2.1)PF	(2.2)PF	2.2S	2.4F	2.4S	2.5	2.3	2.3	2.4	2.3	2.3	2.4	2.4	(2.4)EF	(2.2)FP	(2.4)FP	(2.0)FP	(2.0)FP	F
23	2.0F	(2.0)FP	(2.1)ES	(2.0)FP	2.1ES	2.0F	2.2F	2.4	2.4	2.5	2.3	2.3	2.5	2.4	2.4	2.4	2.5	2.4	2.3	2.1	2.1	2.0	2.0F	2.0F
24	2.0F	2.0	2.0	2.2F	(2.0)F	(1.9)F	2.0F	2.3	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.4	2.4V	2.5F	2.3F	2.2	2.3F	2.0F	2.1F	2.1F
25	(2.0)PS	2.1	2.1	2.3	2.2	(2.4)FP	(2.1)F	(2.3)PS	(2.6)JS	2.5	2.4	2.3F	2.4	2.4	2.3	2.2	2.5S	2.3	(2.3)JS	(2.5)A	2.1F	(2.0)FA	2.1F	2.1F
26	(2.1)FP	F	F	F	F	F	(2.4)F	2.2	2.5	2.3	2.3	2.3	2.0	2.2	2.3	2.3	2.3	2.4	2.1	2.4FK	2.0FK	2.0FK	2.1K	2.2K
27	2.0K	2.0FK	(2.0)FK	F(2.4)JK	F(1.9)PK	FK	(2.6)JK	2.3F	2.1F	2.3F	2.0F	2.1	2.2	2.3	2.4	2.3	2.4	2.4	2.2F	2.2	(2.0)FS	2.1F	2.0F	(2.0)S
28	(1.9)FP	(2.0)FJ	(2.1)FP	(2.2)FP	(2.0)FJ	(2.2)FP	(2.1)F	(2.3)FS	2.6S	2.4H	2.3	2.4	2.3	2.4	2.3	2.3	2.4	2.3	2.1	(2.2)S	2.2F	2.0F	2.2F	2.0F
29	2.0F	2.0F	(2.2)F	2.1F	2.0	(2.0)F	(2.1)FP	(2.1)JS	2.4	2.3	2.4	(2.1)JH	2.3	2.3	2.3	2.4	2.4	2.5	2.5ES	2.3F	2.2F	(2.2)PF	2.3F	(2.2)FA
30	2.1	2.1F	(2.1)FP	(2.2)FP	(1.9)FP	(2.1)FP	(2.1)FP	(2.3)FP	2.5	2.4	2.6	2.5	2.2	2.4	2.4	2.6	2.5	2.6	A	2.3	2.2	2.0	2.0	2.0
31																								
Median	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.0	2.0	2.0
Count	30	29	29	29	29	27	29	30	30	30	30	30	30	28	30	30	30	29	28	30	30	30	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 82

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

IONOSPHERIC DATA

(M3000)F2, ______ November, 1952
(Characteristic) (Unit) (Month)

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75° W Mean Time

National Bureau Standards
(Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

Form adopted June 1946

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	3.0F	(3.0)FS	(2.8)F	2.9F	(2.7)F	(2.7)FS	(2.4)FA	3.4	3.3	3.4	3.2F	3.2F	3.3	3.3	2.8	3.4	3.5	3.4FS	2.7	3.0	3.0	3.0	3.0F	2.9F
2	2.9F	3.0F	3.1F	3.0F	3.0F	(2.9)F	(3.2)F	3.7	3.8	3.5	3.2	3.2	3.3	3.3	3.4	3.4	3.6	3.4	3.2	3.3	3.2F	3.0F	3.0F	3.2F
3	3.1F	3.0F	3.0F	(3.0)S	3.2	3.3F	3.3F	3.5	3.5	3.1	3.4F	2.7	3.3	3.4	3.4	3.5	3.4	3.5	3.4	3.3F	3.3	3.1F	(3.0)FS	3.0F
4	2.9F	3.0F	(2.7)FP	(2.7)F	2.7F	3.0F	3.1F	3.4	3.5	3.4	3.4	3.3V	3.4	3.5	3.4	3.5	3.5	3.5V	(3.4)FS	3.3F	3.1F	(3.1)PF	(3.0)PS	(3.1)JF
5	(3.0)PF	(2.9)PF	(3.0)PF	(3.0)JF	3.2F	3.3F	3.3F	3.4	3.7	3.6	3.3	3.5	3.2	3.2	2.9	3.3	3.4	3.4	3.0	3.2	3.2	3.1F	3.0F	2.9F
6	2.7F	3.0F	3.0F	2.8F	2.9	2.7	3.3	3.3	3.5	3.3	3.3	3.2	3.3	M	3.3	3.4	3.3	3.4	3.2	3.1	3.0F	2.8SF	A	2.9F
7	2.9F	2.8F	3.0F	3.2F	3.2	3.4	3.2	3.5	3.6	3.5	3.3	3.2	3.3	3.3	3.3	3.2	(3.3)S	(3.2)JS	3.2	3.4	3.0F	3.1F	3.1FS	3.0
8	2.9F	3.0FS	(3.0)JS	3.0	3.3	3.3F	3.3F	3.4	3.3	3.2	3.0	3.2	3.4	3.3	3.3	3.2	3.3	3.5	2.9	3.1F	3.1F	2.9F	2.9	2.3F
9	3.0	3.0	3.0	3.2F	3.3	3.1	3.3	3.4	3.4	3.2Z	3.4	3.2	3.3	3.3	3.3	3.3	3.4	3.4	3.5	(3.4)S	3.1	3.0	3.0	3.0
10	2.9	3.0	3.0F	3.0	3.0	3.2	3.3H	3.4	3.4	3.5	3.5	3.3	3.4	C	3.4	3.3	3.5	3.5	3.2	2.6	3.1	2.9	3.0	3.0
11	3.1	3.0F	3.0	3.0	3.0	3.1	3.1	(3.4)JS	3.4	3.5Z	3.5	3.4	3.3	3.2	3.3	3.3	3.5	3.4	3.4	3.2	3.0	3.0	2.8	2.9
12	2.9	3.0H	3.0	2.9	2.9	3.0	3.0	3.4	3.4	3.0	3.3	3.6	3.4	3.4	3.4	3.2H	3.5	3.4	3.4	3.0	3.0	2.9	3.0	3.0
13	3.1	3.1	3.0F	3.0	3.0F	3.0	3.0F	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.3	3.5	3.5	3.5	3.1	(3.3)S	3.2	3.0	3.0	3.0
14	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.2	3.5	3.4	3.3	3.4	3.3	3.3	3.3	3.4	3.3	C	C	(3.1)JS	3.5	2.9	(2.9)S	2.9
15	3.0	(3.1)JS	2.9	3.0	3.1	3.3	2.9	(3.4)JS	3.6	3.6	3.4	3.5	3.4	3.3	3.4	3.4	3.5	3.5S	3.5	3.4	3.1	3.0	3.0	3.0
16	(2.9)PS	3.1S	3.2	3.1	3.2	3.2	3.2	3.2V	3.3H	3.6	3.5	3.4	3.2	3.3	3.5	3.5	3.5	3.4	3.3	3.2	3.1	3.1	3.2	3.1
17	3.1	3.1	3.0	3.0F	2.9	3.1	3.1	3.3	3.5	3.5	3.4	3.3	3.4	3.3	3.2	(3.2)JS	3.2	3.2	3.3	3.2	3.4F	3.2F	3.0F	3.0
18	3.0F	2.8F	3.0F	3.0F	3.0F	3.0F	2.9FK	3.0K	3.4K	3.1K	(3.0)JK	3.2K	3.1K	3.1K	3.3K	3.3K	3.5K	3.4	3.3	3.2F	3.2	3.1FS	3.1	3.1
19	3.0	3.1	3.0	3.1	3.0	3.1	3.2	3.4	3.4	3.7	3.5	3.3	3.5	3.4	3.5	3.5	3.4	(3.4)S	3.3	3.3	(3.2)AS	3.2F	A	(2.9)JA
20	3.3F	3.1	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.5	3.5	3.6	(3.4)J	3.4F	3.4	3.6	3.5	3.4	3.3	3.3	3.3	3.2	3.0	2.9
21	3.1	3.0	(3.0)JF	3.2	3.0F	F	F	3.3F	3.2	3.4	3.4	3.3	3.3	3.2	3.3	3.3	3.4	3.3	3.4	3.2	3.2	2.8F	2.8F	2.8F
22	(3.0)F	(3.3)F	(3.1)F	(3.1)PF	3.2F	(3.0)PF	(3.2)PF	3.2S	3.5F	3.5S	3.6	3.4	3.4	3.5	3.4	3.4	3.5	3.5	(3.4)FP	(3.2)PF	(3.4)PF	(3.0)PF	(3.0)PF	F
23	3.0F	(3.0)PF	(3.1)FS	(3.0)PF	3.1FS	3.0F	3.2F	3.4	3.5	3.5	3.4	3.4	3.5	3.4	3.4	3.5	3.5	3.4	3.3	3.1	3.1	3.0	3.0F	3.0F
24	3.0F	2.9	3.0	3.2F	(3.0)F	(2.9)F	3.0F	3.3	3.4	3.5	3.3	3.4	3.4	3.3	3.3	3.5	3.5V	3.7F	3.4F	3.2	3.4F	3.0F	3.1F	3.1F
25	(2.5)PS	3.2	3.1	3.3	3.3	(3.4)PF	(3.1)F	(3.4)PS	(3.7)JS	3.7	3.4	3.4F	3.5	3.5	3.4	3.3	3.5S	3.3	(3.4)JS	(3.5)A	3.1F	(3.0)FA	3.1F	3.2F
26	(3.1)PF	F	F	F	F	F	(3.1)F	3.3	3.6	3.4	3.3	3.3	3.0	3.2	3.3	3.3	3.3	3.5	3.1	3.4FK	2.9FK	3.0FK	3.1K	3.2K
27	3.0K	2.9FK	2.9FK	K(3.5)FJ	K(2.8)FP	F K	K(3.6)FJ	3.3F	3.1F	3.3F	3.0F	3.1	3.2	3.3	3.5	3.3	3.5	3.5	3.2F	3.3	(3.0)FS	3.1F	2.9F	(2.9)S
28	(2.8)FP	(3.0)FJ	(3.1)FP	(3.2)FP	(3.0)FJ	(3.2)FP	(3.1)F	(3.3)FS	3.7S	3.5H	3.3	3.4	3.4	3.5	3.3	3.4	3.4	3.3	3.1	(3.2)S	3.2F	3.0F	3.2F	3.0F
29	3.0F	3.0F	(3.2)F	3.1F	3.0	(3.0)F	(3.1)FP	(3.1)JS	3.5	3.4	3.5	(3.1)JH	3.3	3.3	3.3	3.5	3.4	3.5	3.5FS	3.4FS	3.2F	(3.3)FP	3.3F	(3.2)FA
30	3.1	3.1F	(3.1)FP	(3.2)FP	(2.9)FP	(3.1)FP	(3.1)FP	(3.3)FP	3.6	3.5	3.7	3.6	3.2	3.5	3.5	3.7	3.6	3.7	A	3.3	3.2	3.0	3.0	3.0
31																								
Median	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.4	3.5	3.5	3.4	3.3	3.3	3.3	3.3	3.4	3.5	3.4	3.3	3.2	3.2	3.0	3.0	3.0
Count	30	29	29	29	29	27	29	30	30	30	30	30	30	28	30	30	30	29	28	30	30	30	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 83

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1, ______ (Characteristic) (Unit) November, 1952 (Month)

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau Standards (Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 703519

Form adopted June 1946

TABLE 84

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

IONOSPHERIC DATA

(M1500)E , ______ , November , 1952
(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: Mc C., E. J. W.

Calculated by: Mc C., E. J. W.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1								A	4.2	4.1	4.0	(3.9)H	4.2	4.2	4.1	A	A									
2								A	A	4.2	(4.4)P	4.1	4.3	4.2H	4.2	(4.2)P	A									
3									(4.3)P	4.4	4.2	4.2	(4.2)P	4.4	4.1	4.2	4.3H									
4									3.8H	4.1	4.0	4.0	A	4.1H	4.2	A	A									
5									A	A	3.9	4.1	4.0	4.0	3.9H	4.2	4.0									
6								A	4.2	4.2H	4.0	4.0	4.1	M	A	A	A									
7									A	4.0	3.9	A	4.0	4.2	4.2	4.3H	A									
8									4.3	4.3	3.9	(4.2)P	(4.1)P	(4.0)P	4.2	4.1	3.9H									
9									3.9H	4.3	4.0	4.1	3.9H	4.2	4.2	4.0H	3.9									
10									4.1H	4.0H	4.0	4.1	4.2	C	4.1	4.0	4.3H									
11									4.0H	3.8	4.0	4.1	4.1	4.2	4.1	4.1	4.2									
12									A	A	3.8F	3.9	4.1	4.0	4.0	4.2	4.0H									
13									A	(3.9)F	4.0	4.2	4.0H	4.1	4.2	(4.0)S	4.3									
14									3.7H	3.9	4.0	(4.0)P	4.0	4.0	3.9	(4.1)F	(4.0)P									
15									(4.0)F	4.0H	3.9	4.0	4.2	4.2	4.3	A	A									
16									(3.9)A	3.9H	3.9	4.0	4.1	4.3	4.1	(4.2)A	(4.0)H									
17									4.0F	4.1	3.8H	4.0	4.2	4.1	4.2	4.3	A									
18									3.9FK	4.0K	4.2K	4.3K	4.2K	4.0K	4.3K	4.1HK	4.0HK									
19									3.9H	3.9F	3.8H	4.0H	4.1	4.3	(4.1)P	4.3	(3.9)P									
20									(4.3)P	4.0	3.9H	4.3H	A	(4.3)P	4.2	A	A									
21									A	A	4.2	4.2	4.2	4.2	4.0H	4.2	A									
22									4.2	4.2	4.2	4.1	4.1	4.2	(4.4)P	(4.4)A	3.8									
23									A	4.1H	3.8F	A	(4.1)B	(4.0)P	4.2	4.2	4.3H									
24									4.0H	3.8	4.0	4.1	4.0	(4.2)P	A	4.2	A									
25									3.7H	4.0	(4.0)H	4.1H	4.0	4.2H	4.2	4.4H	(4.3)A									
26									A	3.7H	3.7	4.0	A	A	(4.2)P	4.1	4.0									
27									(3.8)H	3.7H	3.9	3.9	3.8	4.2	4.1	4.2	4.1H									
28									4.2H	A	4.2H	4.1	4.1	4.2	4.3	4.0H	A									
29									A	A	A	(4.1)P	4.0	4.0	4.2	4.0	A									
30									4.0	4.2	A	A	A	A	A	A	A									
31																										
Median									4.0	4.0	4.0	4.1	4.1	4.2	4.2	4.2	4.0									
Count									21	25	28	27	26	26	27	24	17									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 85

Ionospheric Storminess at Washington, D. C.

November 1952

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	2	3			3	4
2	2	2			3	3
3	1	1			3	2
4	2	2			2	1
5	1	2			2	1
6	3	2			3	2
7	2	2			3	3
8	2	1			3	3
9	2	2			2	2
10	3	2			1	1
11	2	2			1	2
12	3	2			1	1
13	2	2			1	1
14	2	2			2	2
15	2	2			3	2
16	1	1			2	2
17	1	2			2	3
18	3	4	110	2200	2	2
19	1	1			2	1
20	1	2			2	2
21	2	1			4	3
22	2	1			3	2
23	2	1			4	1
24	1	2			2	2
25	1	2			2	1
26	3	1			2	4
27	4	3	0000	1200	4	4
28	1	1			4	3
29	3	2			2	3
30	2	2			2	2

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

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

----Dashes indicate continuing storm.

Table 86a

Radio Propagation Quality Figures
(Including Comparisons with Short-Term and Advance Forecasts)

October 1952

Day	North Atlantic quality figure		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Whole day quality index	Advance forecasts (J-reports) for whole day, issued in advance by:			Geomagnetic K_{Ch}	
	Half Day UT		00 to 12	06 to 18	12 to 24	18 to 06	UT	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half day UT	
Oct	(1)	(2)									(1)	(2)
1	(3)	6	(4)	(2)	5	6	(4)	(3)	5		3	2
2	(4)	5	5	(4)	6	6	5	(4)	5		2	3
3	5	5	5	(4)	6	6	5	(4)	5		3	3
4	(3)	5	(4)	(3)	(4)	(4)	(4)	(4)	(4)		(5)	(4)
5	(3)	(4)	(3)	(2)	(4)	(3)	(3)	(3)	(3)	X	(5)	(4)
6	(3)	6	(3)	(2)	(4)	5	(4)	(3)	(3)	X	(5)	3
7	5	6	5	(4)	5	5	5	(4)	(4)	X	2	2
8	5	7	(4)	(3)	6	5	6	(4)	(4)	X	2	3
9	5	7	(4)	(4)	6	6	6	5	5		2	2
10	5	7	5	5	6	5	6	5	5		2	3
11	5	7	(4)	(4)	6	6	6	5	5		3	3
12	5	7	5	(4)	5	5	6	5	5		(4)	2
13	5	8	5	(4)	6	6	7	6	6		2	2
14	6	7	5	5	6	6	7	5	5		3	1
15	6	8	6	6	7	7	7	7	7		1	2
16	6	7	7	6	7	7	7	7	7		2	2
17	6	7	7	6	6	6	7	7	7		3	2
18	5	7	6	5	6	7	6	6	6		(4)	3
19	5	7	6	5	6	7	6	6	6		3	1
20	6	7	6	6	6	7	7	6	6		2	2
21	6	7	6	6	6	5	7	6	6		1	(4)
22	6	7	5	(4)	6	7	7	(4)	6		2	0
23	6	7	6	6	7	8	7	(4)	5		1	1
24	6	8	6	6	7	7	7	(4)	5		1	1
25	6	7	7	6	7	6	7	5	(4)	X	2	3
26	5	6	5	(3)	5	(4)	5	(3)	(3)	X	(5)	(4)
27	(4)	7	(3)	(3)	6	6	6	(3)	(3)	X	3	2
28	5	7	5	(3)	6	6	6	(4)	(4)	X	3	2
29	5	6	6	5	6	6	6	6	5		2	3
30	5	5	5	(4)	5	(4)	5	5	5		3	(4)
31	(3)	(4)	(3)	(2)	(4)	(4)	(4)	(4)	(4)	X	(5)	3

Score: Quiet periods

	00 to 12	12 to 24	1 to 3/4 days	4/5 to 7 days
P	13	5	7	8
S	11	21	11	11
U	0	2	3	3
F	0	1	5	4

Disturbed periods

	00 to 12	12 to 24	1 to 3/4 days	4/5 to 7 days
P	3	2	3	3
S	4	0	2	2
U	0	0	0	0
F	0	0	0	0

Scales:

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

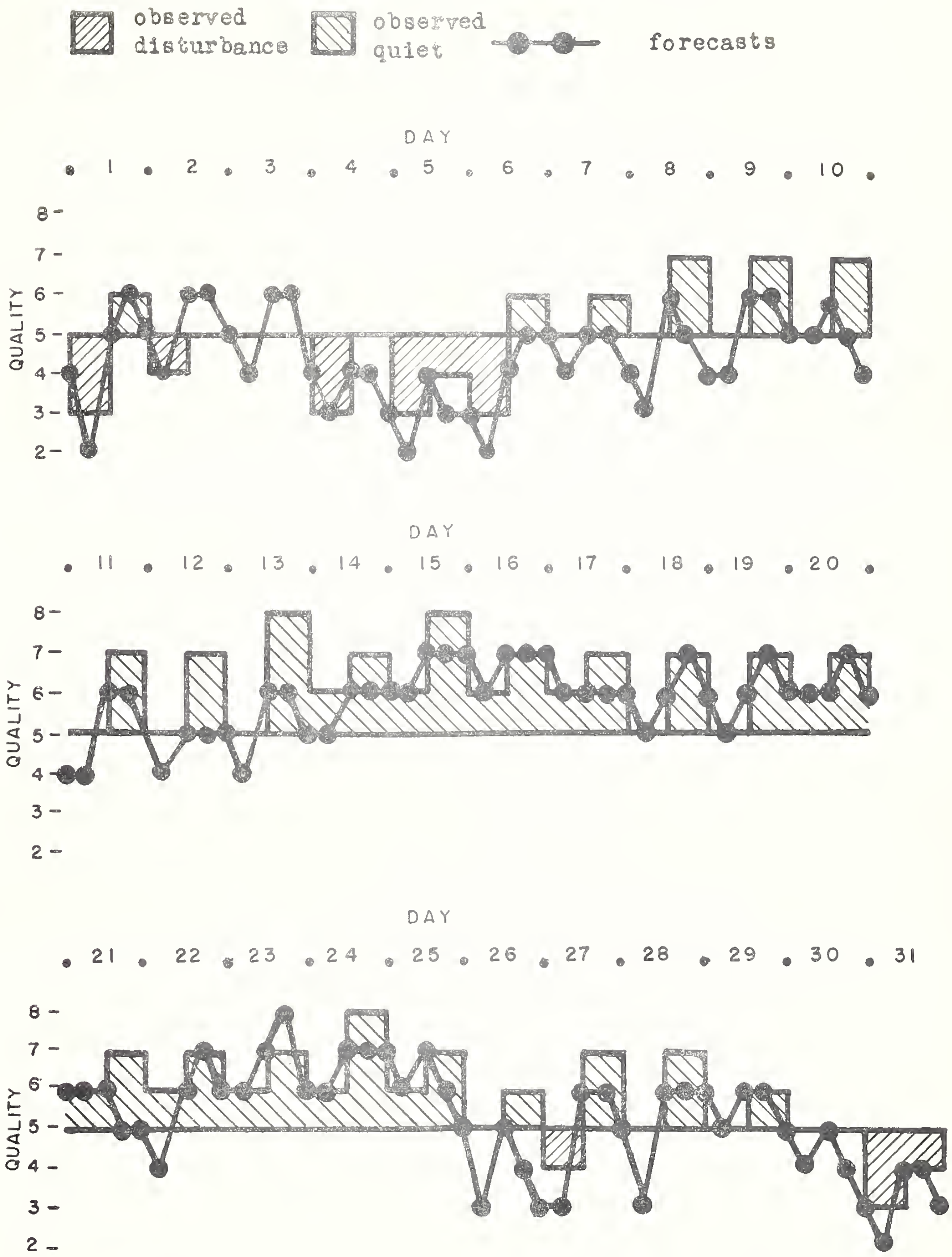
K-scale of Geomagnetic Activity
0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geqslant 4$ indicates significant disturbance, enclosed in ( ) for emphasis

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 $\geqslant 5$, or both $\leqslant 5$
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Table 86b

Short-Term Forecasts--October 1952



Advance Forecasts (1 to 3/4 days ahead)--October 1952

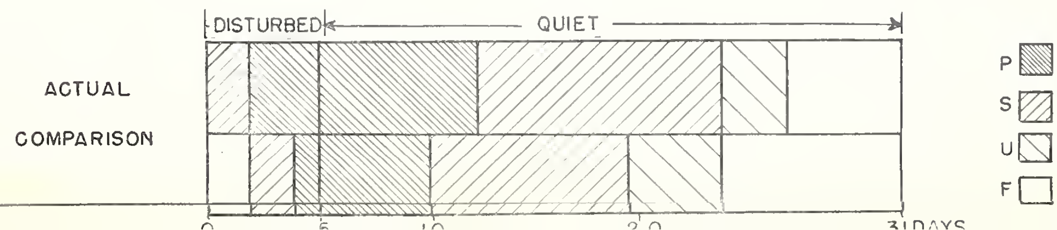


Table 87a

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

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 3.8	-	-	-	-	1	2	3	4	5	4	3	4	5	4	4	3	2	1	2	3	5	6	6	5	4	3	2	2	2	3	3	-	-	-	-	-	-
4.7	-	-	-	-	-	2	3	3	4	5	6	5	4	3	3	2	2	-	2	3	3	5	7	5	4	3	2	2	3	4	3	-	-	-	-	-	-
5.7	-	-	-	-	-	2	3	3	4	4	4	5	6	6	5	3	2	2	2	2	3	4	4	3	3	2	2	2	3	3	2	-	-	-	-	-	-
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	4	5	6	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
7.7a	-	-	-	-	-	2	3	3	3	2	2	2	3	6	13	14	13	7	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	2	3	4	5	6	5	2	3	7	13	15	15	13	11	12	11	10	8	4	2	2	2	2	2	2	-	-	-	2	2	2	3
11.7	-	-	-	-	-	-	2	2	3	4	5	5	5	5	7	8	9	9	9	10	11	9	5	3	2	1	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	1	2	2	3	3	4	3	2	1	2	3	5	8	10	12	14	13	9	9	6	5	3	2	1	1	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	1	2	2	2	2	1	2	4	12	15	21	18	15	12	10	7	4	1	1	1	-	1	2	1	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6	8	3	-	2	3	4	6	3	2	2	2	1	3	3	4	3	2	-	-	-	-	-
21.7a	X	X	X	X	X	X	X	X	X	X	X	1	2	3	3	8	8	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	3	3	3	5	7	8	6	4	3	3	12	14	8	7	15	18	8	6	10	13	8	7	6	4	2	-	-	-	2	-	-	-	-	-

Table 88a

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

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 3.8	3	3	3	3	3	2	1	-	-	1	3	3	5	6	6	6	9	11	9	3	2	6	2	2	2	1	2	3	3	2	2	2	2	2	2	2	2
4.7	4	5	5	6	5	3	2	1	-	1	2	2	3	5	5	3	4	15	9	5	3	5	2	1	-	-	1	3	2	1	-	1	2	3	4	4	5
5.7	4	4	3	2	2	1	-	-	-	1	2	2	3	3	4	3	6	9	4	3	3	3	2	2	-	-	-	-	-	-	2	3	3	3	2	3	4
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
7.7a	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	3	1	3	2	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
10.7	5	4	4	4	4	3	1	-	-	1	2	3	4	3	6	5	4	4	3	3	2	3	3	4	4	4	4	3	2	2	2	2	3	3	4	4	4
11.7	3	4	4	3	3	3	1	-	-	1	2	4	5	4	3	1	1	1	2	3	2	2	3	3	4	3	2	2	1	1	1	1	2	2	2	3	4
12.7	4	3	3	3	4	4	2	1	1	2	4	5	4	3	3	2	1	1	2	4	4	3	5	7	4	3	2	2	1	1	2	2	3	3	3	3	4
14.7	5	2	3	3	2	2	1	1	1	2	4	4	3	2	2	2	3	2	1	8	2	2	2	3	4	5	4	2	1	1	1	2	2	3	4	4	3
20.7	4	5	5	4	3	2	2	2	3	4	3	4	2	2	3	7	13	10	2	3	3	3	4	3	4	4	4	1	1	1	1	2	3	4	3	4	4
21.7a	X	X	X	X	X	X	X	X	X	X	X	X	1	1	1	2	6	3	4	5	4	2	-	1	2	2	3	2	1	-	-	1	1	3	4	4	3
29.6	3	4	4	3	3	2	2	1	1	1	3	2	2	3	5	5	8	20	10	2	6	8	6	4	5	4	4	3	2	2	2	3	3	4	3	4	5

Table 89a

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

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
7.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	2	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7a	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 87b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	50	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
1952																																					
Nov. 3.8	-	-	-	-	-	-	-	2	3	4	3	3	3	5	9	11	11	9	6	4	3	5	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	2	2	3	2	2	3	5	7	10	11	10	8	4	2	2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	2	2	2	2	3	4	6	8	8	5	3	4	5	5	3	2	2	1	-	-	-	-	-	-	-	-	-	-
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	7	12	9	5	4	3	2	2	-	-	-	-	-	-	-	-	-
10.7	3	2	2	2	-	-	-	-	2	2	3	6	10	12	9	5	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	2	3	2	2	2	-	-	-	-	-	2	5	9	11	13	12	8	5	3	4	3	3	2	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	1	5	12	17	18	16	12	7	6	4	2	2	3	2	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	1	1	1	1	2	2	1	1	1	3	6	10	17	18	17	14	11	4	3	3	5	7	3	1	-	-	-	-
20.7	-	-	-	-	-	-	-	-	1	1	1	1	3	4	4	4	4	4	3	4	6	9	10	5	6	4	3	2	2	4	4	3	-	-	-	-	-
21.7a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29.6	-	-	-	-	-	-	-	-	1	1	3	3	5	7	8	10	15	18	16	16	17	12	8	5	1	-	-	-	-	-	-	-	-	-	-	-	-

Table 88b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 3.8	2	2	2	3	3	3	2	2	-	2	3	4	4	3	2	-	2	3	4	11	6	6	5	4	5	5	4	4	3	3	4	4	3	4	3	3	3
4.7	5	6	3	3	5	4	3	3	2	2	3	5	4	4	3	3	2	2	3	10	15	11	9	8	8	5	6	3	4	4	4	4	3	4	4	5	4
5.7	4	3	1	2	2	3	3	3	3	3	3	4	4	3	2	1	-	-	-	-	1	2	2	2	2	2	2	2	2	2	2	2	2	3	2	5	4
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.7	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	2	2	1	1	2	21	3	1	-	-	-	-	-	-	1	1	1	2	2	3	2
10.7	4	4	5	5	5	6	4	5	5	6	6	10	13	10	10	11	12	9	5	3	1	2	2	1	1	2	2	2	2	3	3	3	3	3	5	4	5
11.7	4	3	2	2	2	2	2	2	2	3	4	5	6	6	7	6	6	6	6	8	7	14	13	6	6	7	3	1	2	2	2	3	3	4	4	5	3
12.7	4	4	3	2	2	2	2	3	2	2	4	5	6	5	5	5	4	3	2	2	2	20	6	2	4	4	3	1	-	-	1	2	3	4	4	5	4
14.7	3	3	3	2	2	2	1	1	3	5	5	5	6	6	6	6	6	7	7	5	2	3	8	5	1	1	1	1	1	1	1	-	1	2	3	5	5
20.7	4	3	2	4	3	4	4	3	4	4	4	3	4	4	4	3	4	3	4	4	4	3	4	4	7	3	1	1	3	3	2	3	3	4	3	3	4
21.7a	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29.6	5	5	4	4	3	3	3	3	2	2	3	4	3	2	1	4	8	6	18	12	15	26	4	5	8	10	7	5	3	3	2	2	2	2	2	4	3

Table 89b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	3	2	1	1	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 2.6	-	3	2	-	-	-	2	5	9	11	10	8	8	11	14	15	10	7	5	5	5	6	7	7	5	4	4	3	2	2	3	3	2	-	-	-	-
4.7a	-	-	-	-	-	-	3	3	3	3	5	5	5	4	4	4	3	3	2	2	4	4	3	4	5	4	3	2	2	4	4	3	3	-	-	-	-
5.7	-	-	-	3	3	3	4	5	8	10	11	11	11	10	11	11	8	5	5	4	6	7	8	10	11	8	5	4	7	8	8	7	4	2	-	-	-
6.8	-	-	-	2	3	3	4	8	9	10	11	7	8	8	13	14	13	12	11	5	4	6	6	8	9	8	7	6	6	5	6	7	4	3	2	-	-
8.8	-	-	-	-	-	2	4	5	5	5	5	6	6	8	12	16	16	15	10	6	5	5	5	4	3	3	3	4	5	5	3	3	3	3	2	-	-
10.7	-	-	-	-	-	2	3	9	10	11	12	5	5	12	16	15	16	18	16	14	14	14	12	11	5	3	2	2	2	3	3	3	3	2	2	2	-
11.7	-	-	-	-	-	2	3	6	7	8	8	5	11	11	14	14	15	16	16	16	16	14	12	12	11	5	3	2	3	3	3	2	2	2	2	-	-
12.7a	-	-	-	-	-	-	2	3	5	5	4	5	4	5	6	7	8	9	11	14	11	10	8	7	5	4	3	2	2	2	-	-	-	-	-	-	-
13.7a	-	-	-	2	2	2	2	3	3	4	3	3	3	4	5	5	6	11	17	20	18	8	6	5	4	3	3	2	5	5	4	3	3	2	2	-	-
14.7	-	-	-	2	2	3	4	5	8	9	4	4	5	5	5	8	11	22	40	41	32	16	14	13	11	5	5	4	5	4	5	4	2	2	2	-	-
18.7	-	-	-	-	-	-	3	3	3	3	4	4	4	4	5	5	5	4	5	6	11	12	12	8	5	6	5	4	3	4	6	4	2	-	-	-	-
19.7	-	-	-	-	-	2	2	3	4	3	3	3	4	3	3	5	8	10	8	10	14	13	11	8	4	5	4	5	8	8	6	4	2	-	-	-	-
20.7	-	-	-	-	-	2	2	3	3	3	3	4	5	6	8	15	18	10	5	5	8	12	11	8	6	5	5	4	4	3	5	5	3	2	-	-	-
21.7	-	-	2	2	3	3	3	4	4	5	5	5	6	8	11	14	17	13	5	3	5	5	6	5	3	3	3	4	4	4	5	4	3	2	-	-	-
22.7	-	-	-	2	3	3	4	5	7	7	6	5	5	5	8	7	11	10	.3	2	2	2	3	3	3	3	3	2	2	2	3	4	3	2	2	-	-
26.9	4	4	4	3	2	4	4	6	5	4	3	3	3	4	12	14	13	12	11	7	5	4	3	4	3	2	2	3	2	3	3	3	2	2	-	-	-
27.7	-	-	-	-	-	3	4	5	5	4	4	4	5	8	14	15	14	11	8	5	4	4	3	3	2	2	3	4	3	4	3	3	3	2	2	-	-
28.7	-	-	3	3	3	3	4	5	6	5	5	5	5	8	11	10	8	11	13	8	5	4	5	6	4	3	3	3	2	2	3	3	2	2	-		-

Table 91a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 2.6	5	5	6	5	5	4	3	3	2	2	2	10	5	5	6	6	8	10	8	8	7	5	5	6	5	4	3	4	5	4	3	2	3	3	3	2	4
4.7a	2	3	2	2	2	2	2	2	3	3	3	3	2	3	3	3	3	4	5	5	4	2	3	2	2	-	-	-	2	2	3	3	3	3	2	3	3
5.7	4	5	4	5	4	4	2	2	2	-	2	3	5	4	6	7	7	8	8	7	3	4	4	2	2	2	3	4	5	4	2	3	3	2	3	3	4
6.8	5	4	4	4	5	3	3	3	2	3	3	5	4	5	5	4	5	4	8	6	5	4	3	2	2	2	-	-	2	2	3	2	2	3	3	3	4
8.8	3	5	4	5	4	3	2	2	2	3	2	3	3	3	3	2	3	3	2	3	8	3	3	3	4	4	5	5	4	3	2	3	3	3	3	2	4
10.7	5	7	5	5	4	5	3	2	2	2	3	3	4	4	7	6	4	3	4	4	4	3	4	4	5	5	4	4	3	2	2	3	2	3	3	4	4
11.7	5	6	4	5	5	6	4	3	2	4	4	4	5	6	5	5	4	3	4	4	3	3	3	5	8	7	4	3	3	2	2	3	3	3	2	3	4
12.7a	3	4	3	3	3	3	4	2	3	2	3	4	5	4	3	2	2	3	3	4	4	3	3	4	4	4	4	3	3	2	2	-	-	-	-	3	4
13.7a	5	4	3	3	3	5	4	2	3	3	3	4	5	3	2	2	2	2	3	9	3	2	3	4	5	6	5	4	3	2	2	3	3	2	3	3	3
14.7	8	5	5	4	4	5	5	4	3	3	4	8	5	4	3	3	3	5	11	14	5	4	3	3	10	11	10	6	3	2	3	2	3	4	3	2	3
18.7	4	3	5	4	3	4	3	2	3	3	2	4	5	5	6	5	6	8	7	4	2	3	3	3	3	2	2	2	2	3	2	?	2	2	3	3	4
19.7	6	6	5	5	5	5	4	3	4	5	4	3	6	4	5	4	8	8	4	3	3	2	3	3	4	4	3	3	2	2	3	3	3	3	3	4	3
20.7	4	4	5	6	5	5	4	3	4	4	5	4	5	4	4	4	4	11	13	5	7	5	4	5	4	4	3	3	4	3	2	2	3	4	4	4	4
21.7	5	5	6	5	4	4	3	4	4	3	3	3	3	4	5	4	5	7	7	6	8	7	4	3	3	3	4	3	4	3	2	3	3	3	3	3	4
22.7	4	3	4	3	3	2	3	2	2	3	2	2	3	3	4	5	5	4	5	5	7	5	4	4	4	3	3	3	3	3	2	3	3	3	3	3	3
26.9	5	4	3	3	3	4	2	3	3	2	3	4	4	2	2	3	2	5	2	2	5	5	4	5	4	4	5	5	4	5	3	2	3	2	2	3	3
27.7	3	4	2	3	3	2	2	2	2	3	4	4	4	3	3	3	4	4	3	4	8	5	6	5	4	4	4	5	4	3	3	2	2	2	2	2	2
28.7	4	5	5	3	4	3	2	2	2	3	4	5	2	3	5	5	3	7	5	4	5	5	4	4	3	4	4	4	3	4	3	2	2	2	-	-	3

Table 92a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	3	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	50	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
1952																																					
Nov. 2.6	-	-	-	-	-	-	-	3	3	5	8	10	8	8	12	14	18	19	20	23	23	32	18	12	8	4	3	3	4	5	3	2	2	2	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	3	3	4	3	3	4	4	5	7	8	6	5	4	4	3	4	5	3	3	3	3	2	2	2	-	-	-	-	-
5.7	-	-	-	-	-	-	2	3	4	5	4	5	6	6	8	12	13	14	14	13	11	8	9	8	8	4	4	4	5	5	5	4	3	-	-	-	-
6.8	-	-	-	-	-	-	-	2	3	5	5	5	5	5	6	7	10	11	14	15	14	14	15	14	12	11	5	4	4	3	4	3	3	2	2	2	-
8.8	-	-	-	-	-	-	2	2	3	4	3	3	3	4	4	5	5	4	4	4	8	15	20	16	13	11	8	5	3	4	3	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	2	3	3	4	4	3	4	4	5	4	4	4	5	11	16	17	16	13	11	9	8	8	6	5	3	3	2	-	-	-
11.7	-	-	-	-	-	-	-	2	3	5	5	4	4	3	2	3	4	3	3	8	16	17	19	16	11	11	10	10	10	10	9	8	5	3	2	-	-
12.7a	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	2	3	3	6	14	20	22	16	14	11	8	6	5	5	5	6	5	2	-	-	-	-
13.7a	-	-	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	5	11	18	26	32	32	16	14	7	5	4	5	5	5	4	3	2	-	-
14.7	-	-	-	2	3	3	4	5	5	4	4	4	4	5	5	5	5	5	8	12	15	32	40	41	32	23	15	6	5	6	9	11	6	2	-	-	-
18.7	-	-	-	-	-	2	3	3	3	4	4	4	5	5	6	9	11	8	6	7	6	5	6	6	5	7	7	4	5	5	5	6	6	5	3	2	-
19.7	-	-	-	-	-	2	2	3	4	3	3	3	4	5	8	9	9	7	5	6	8	9	11	9	8	8	7	6	5	7	7	7	5	3	2	-	-
20.7	-	-	-	-	-	-	2	2	3	4	4	5	5	6	8	7	8	7	6	8	14	16	18	15	14	11	9	8	8	9	7	7	4	3	2	2	-
21.7	-	-	-	-	-	-	2	3	4	5	4	4	4	5	5	6	7	9	10	11	20	23	24	16	12	11	8	6	5	6	6	5	5	3	2	-	-
22.7	-	-	-	-	-	2	2	3	3	2	3	3	3	4	5	5	8	7	5	6	13	15	16	15	14	9	5	5	6	6	5	4	3	2	-	-	-
26.9	-	-	-	2	2	2	2	3	3	3	3	4	4	4	3	4	4	5	15	16	15	14	8	3	3	2	2	4	4	5	5	4	4	4	5	5	4
27.7a	-	-	-	-	2	2	2	3	3	3	3	4	3	3	3	5	22	23	20	21	20	13	11	4	3	2	3	3	4	4	5	3	2	2	2	-	-
28.7	-	-	-	-	-	-	-	2	3	3	3	3	3	4	5	8	14	20	16	19	18	16	11	8	5	3	3	4	4	3	3	3	3	3	3	3	-

Table 91b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 2.6	4	4	4	4	4	4	5	4	3	4	3	4	6	5	5	4	3	2	3	7	7	5	4	4	4	7	7	6	6	6	5	5	3	3	3	4	5
4.7a	3	3	3	4	3	3	3	3	2	3	3	2	3	3	3	2	2	2	2	3	6	3	3	3	3	3	2	3	3	2	3	3	3	2	3	3	2
5.7	4	4	5	3	4	5	4	4	3	4	4	4	4	5	4	3	2	2	2	2	3	4	5	4	11	10	8	7	4	4	3	3	3	4	3	4	4
6.8	4	4	4	3	3	4	2	3	4	4	3	4	3	4	5	4	3	2	2	3	3	10	12	3	3	6	8	4	5	3	3	3	3	3	3	4	5
8.8	4	4	3	4	3	2	3	4	4	3	3	5	6	4	3	5	4	5	4	5	5	11	16	8	4	6	6	4	4	3	3	2	2	3	4	4	3
10.7	4	4	3	4	4	4	4	4	4	3	5	6	5	8	7	6	5	5	5	4	5	6	8	14	11	14	13	10	5	4	2	3	2	3	4	5	5
11.7	4	4	3	3	4	4	3	3	3	2	6	7	8	6	8	5	5	4	5	6	5	13	11	7	8	11	10	5	3	3	3	2	3	2	3	4	5
12.7a	4	4	3	2	3	3	2	3	3	2	3	4	7	6	5	3	4	4	3	3	3	16	14	5	4	5	4	2	2	2	2	2	3	2	3	3	3
13.7a	3	4	3	2	3	2	2	2	2	2	3	5	4	4	4	3	3	3	4	2	2	8	9	5	2	2	2	2	-	-	2	2	3	3	3	4	5
14.7	3	4	3	4	4	3	3	2	4	5	8	8	7	7	6	6	6	7	7	7	7	5	8	10	8	5	4	4	3	2	2	3	3	3	3	6	8
18.7	4	3	3	4	3	3	2	2	2	2	3	3	4	3	4	5	6	4	5	15	12	10	5	5	6	5	5	4	3	2	3	2	3	3	3	5	4
19.7	3	3	3	5	4	3	4	3	3	3	4	5	3	3	2	4	4	4	5	8	12	8	6	6	5	5	5	4	4	3	3	3	4	5	5	8	6
20.7	4	5	4	6	4	5	4	5	5	5	4	4	4	5	4	5	6	5	5	5	5	4	4	4	5	5	5	3	5	4	4	3	4	4	4	5	4
21.7	4	5	4	3	4	3	3	4	5	4	3	4	6	5	4	4	3	3	3	3	3	3	3	2	3	3	5	4	3	2	2	3	3	5	5	6	5
22.7	3	3	3	2	2	2	2	2	3	2	3	4	7	4	3	3	2	2	3	3	2	2	2	3	2	3	3	2	2	-	2	2	3	4	3	4	4
26.9	3	3	3	3	3	3	3	3	2	3	4	4	5	4	5	4	5	3	4	4	16	11	4	8	7	6	11	5	4	3	2	3	3	4	3	3	5
27.7a	2	4	3	4	4	2	2	2	3	3	4	5	9	8	4	3	4	4	3	3	16	5	11	11	8	9	8	6	3	2	2	-	2	3	3	2	3
28.7	3	4	3	3	2	2	3	2	2	3	5	6	5	5	4	3	4	2	11	5	20	14	15	12	8	9	8	6	4	3	2	2	3	3	3	3	4

Table 92b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Nov. 2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
4.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	5	4	3	2	2	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	4	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	5	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 93

Zürich Provisional Relative Sunspot Numbers

November 1952

Date	R_Z*	Date	R_Z*
1	14	17	28
2	12	18	35
3	7	19	43
4	0	20	47
5	9	21	42
6	13	22	39
7	32	23	35
8	30	24	30
9	30	25	28
10	26	26	17
11	23	27	14
12	16	28	8
13	18	29	0
14	22	30	7
15	23		
16	15	Mean:	22.1

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

Table 94

American Relative Sunspot Numbers

October 1952

Date	$R_{A'}$*	Date	$R_{A'}$*
1	17	17	0
2	20	18	0
3	22	19	14
4	33	20	18
5	34	21	21
6	41	22	25
7	25	23	29
8	23	24	28
9	17	25	34
10	16	26	40
11	15	27	38
12	17	28	36
13	16	29	33
14	15	30	30
15	13	31	20
16	9	Mean:	22.5

*Combination of reports from 28 observers; see page 10.

Table 95

Solar Flares, November 1952

Observatory	Date 1952	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Latitude (Deg)	Position Longitude Diff (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac.Peak	Nov.15	2025	2042	17	72	N05	E90	2030	14	3	1 -	
"	15	2055	2106	11	55	N05	E90	2101	10	8	1 -	
"	16	1730	1805	35	104	N01	E70	1750	12	6	1	
"	18	2045	2155	70	293	N06	E41	2106	15	4	2	
"	18	2135	2210	35	45	N03	E32	2150	15	8	1 -	
Sac.Peak	19	1715	1805	50	259	N03	E22	1723	15	3	2	
"	21	1645	1720	35	231	N07	E00	1652	15	2	2	
"	21					N09	W12					
"	21	Five flares occurred				N13	W08					
"	21	simultaneously.				N07	E02					
Sac.Peak	21					N06	W03					
"	22	1515	1535	20	66	N01	W12	1525	8	5	1 -	
"	22	1800	1830	30	122	S02	W12	1815	8	4	1	
"	22	1835	1905	30	210	S01	W12	1842	19	7	2	
"	22	1840	1900	20	39	S02	W13	1853	8	7	1 -	
Sac.Peak	22	1910	1930	20	72	S01	W12	1916	9	8	1 -	
"	22	2145	2155	10	28	N04	W21	2152	9	3	1 -	
"	22	2205	2220	15	30	S02	W13	2208	7	5	1 -	

Sac. Peak = Sacramento Peak

Table 96

Indices of Geomagnetic Activity for October 1952

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

Gr. Day 1952	C	Values Kp three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	0.7	4-	4o	3-	3-	2-	2-	2o	3-	21o	Five
2	0.8	2o	3-	2-	2o	4o	2+	4o	3-	21+	Quiet
3	1.3	3o	4o	3o	1+	3o	4+	5+	6o	30o	
4	1.7	6+	6+	6+	5-	4-	5-	5+	7-	44o	13
5	1.7	4o	6-	7-	6-	6-	6o	7-	3o	43+	15
											22
6	1.2	5-	4+	4o	4+	4o	5-	3o	1+	30+	23
7	0.7	1-	2-	3+	3-	3o	3o	2+	3+	20o	24
8	1.1	4o	3+	2+	2+	4o	3o	3o	5o	27o	
9	0.7	4-	3-	1+	3o	2o	2-	3o	3+	21-	
10	0.9	2+	3-	2-	2o	1o	3+	5o	4o	22o	
11	1.2	3+	3+	3o	4-	3o	4o	5-	5-	30-	Five
12	1.0	5-	5-	4o	3-	3-	2o	3-	3-	26o	Disturbed
13	0.3	3o	2-	1-	1+	2-	2o	1o	2+	14-	
14	0.6	3-	4o	4-	1+	1o	2-	1o	0+	16-	4
15	0.2	1o	1-	0+	1-	0+	2o	3-	1o	9-	5
											26
16	0.4	1+	3-	1+	2o	3o	1o	1o	2+	15-	30
17	0.8	3+	4o	3-	1+	2o	4-	3-	2-	21+	31
18	0.9	2+	4-	5-	2+	2o	3o	3+	2+	24-	
19	0.5	2+	1o	3o	4o	1+	1-	0+	1o	14-	
20	0.3	2+	2+	2o	2-	2o	2o	1o	2-	15o	
21	1.2	0o	0o	2-	4+	5+	5o	5-	3+	24+	Ten
22	0.1	1+	3-	1o	1+	1o	0o	0o	1-	8o	Quiet
23	0.0	0o	0o	0+	1-	2-	1+	0+	1-	5o	
24	0.0	1o	1-	0+	0+	0o	0+	1-	0+	4-	13
25	0.8	0o	0+	1-	3+	2+	4-	4-	4+	18+	14
											15
26	1.5	6o	5o	4-	5-	5o	5-	4-	4o	37-	16
27	0.6	3+	3+	3+	3-	1o	2-	2-	2o	19o	19
28	0.7	4-	3+	2+	2o	2+	3o	2o	2-	20+	20
29	0.8	2+	2o	2o	2o	3o	4-	4o	4-	23-	22
30	1.5	5o	6o	2+	2o	3o	5o	5+	6o	35-	23
31	1.6	6o	5+	6-	5+	5+	5o	3o	4-	39+	24
											27
Mean	0.83										

Table 97

Sudden Ionosphere Disturbances Observed at Washington, D. C.

November 1952

1952 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
November 22	1840	1925	Ohio, D. C., Colombia, Mexico, North Dakota	0.2	Solar flares** 1835, 1840

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

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

Table 98

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

1952 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
November 21-22	2348	0030	Australia, Hawaii, Japan, Okinawa, Philippine Is.	

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

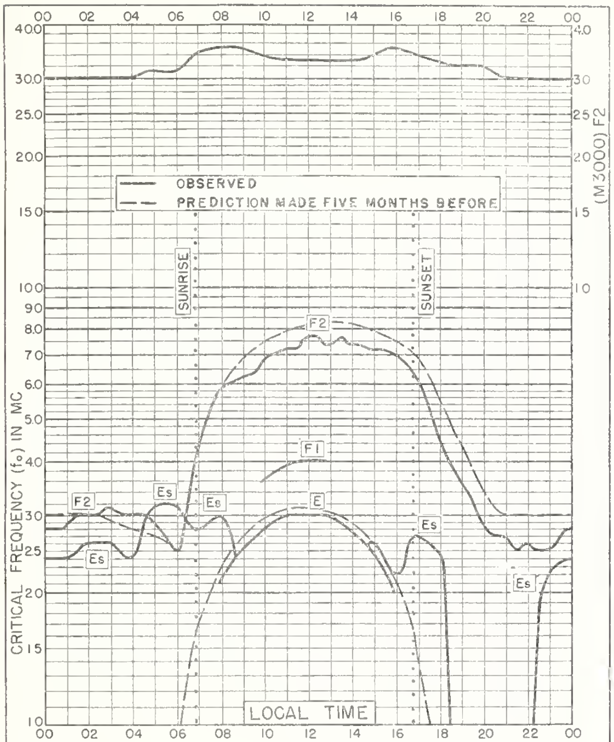


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W NOVEMBER 1952

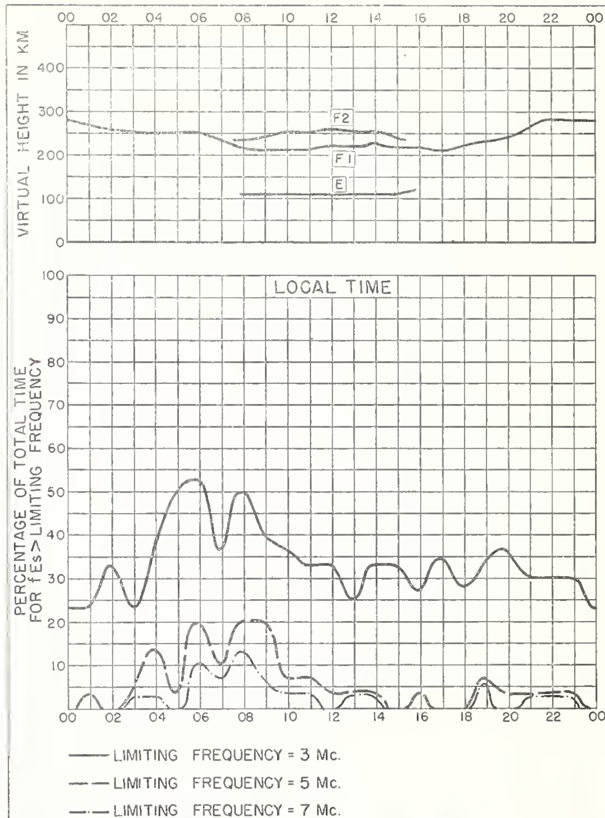


Fig. 2. WASHINGTON, D. C. NOVEMBER 1952

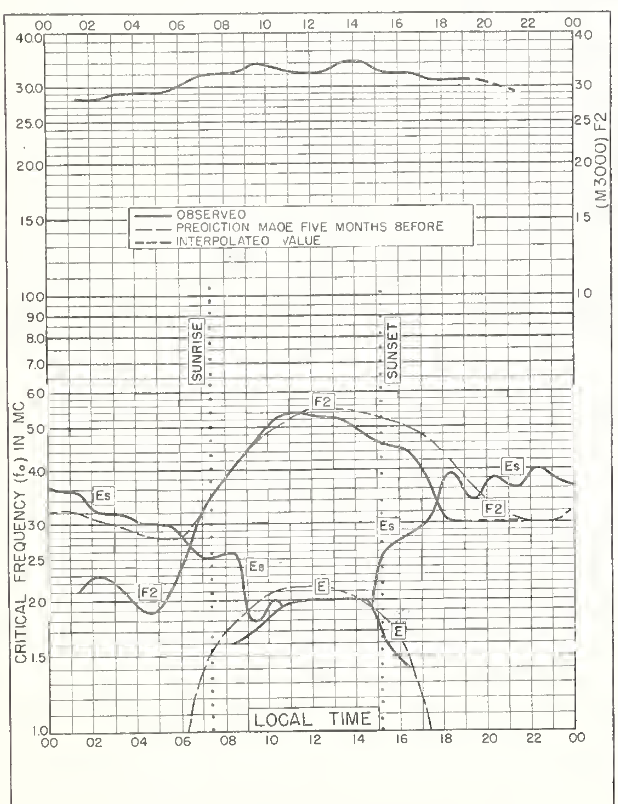


Fig. 3. TROMSO, NORWAY
69.7°N, 19.0°E OCTOBER 1952

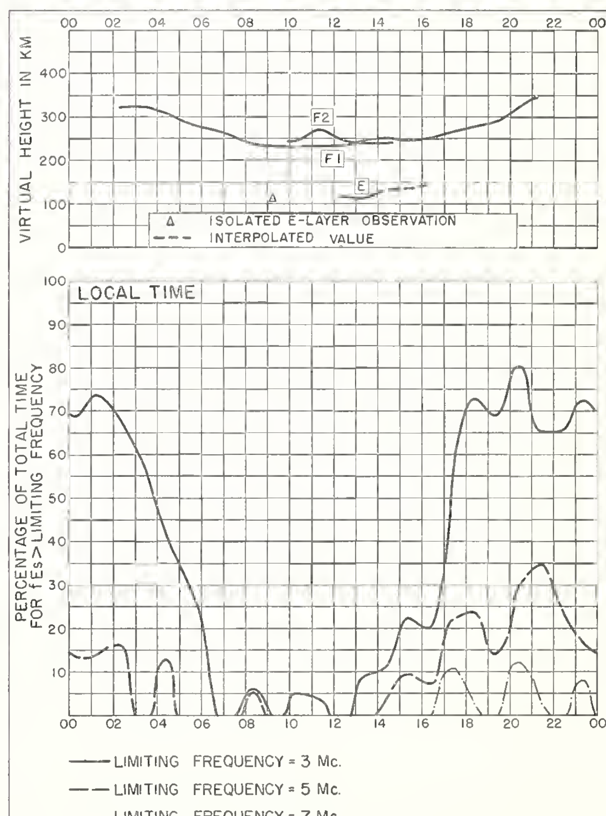


Fig. 4. TROMSO, NORWAY OCTOBER 1952

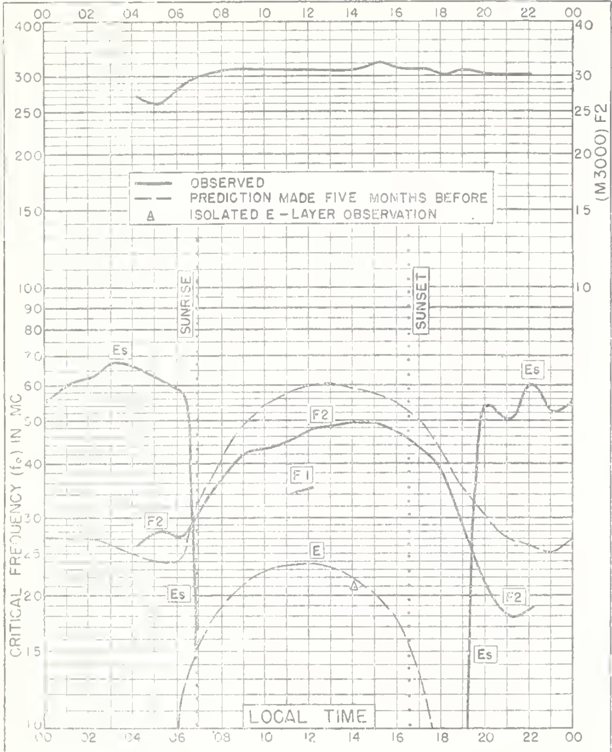


Fig. 5. FAIRBANKS, ALASKA
64.9° N, 147.8° W OCTOBER 1952

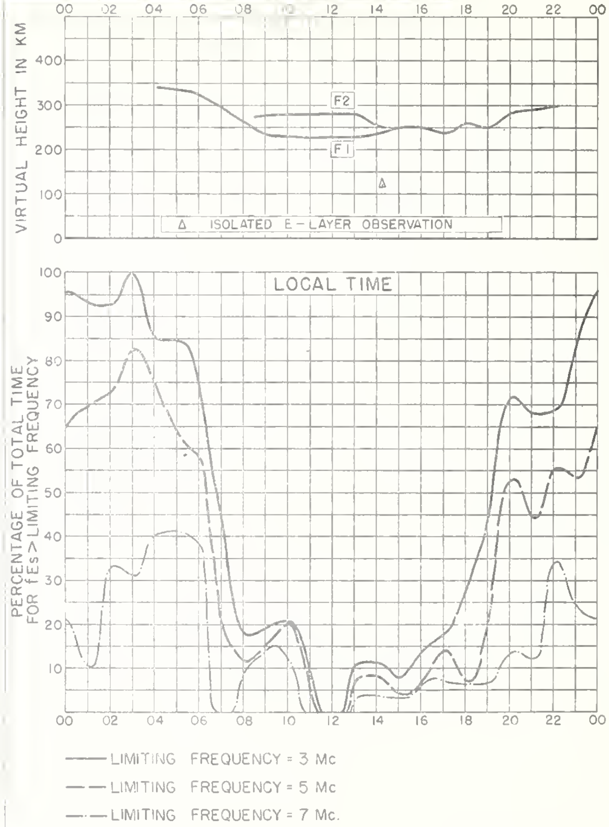


Fig. 6 FAIRBANKS, ALASKA OCTOBER 1952

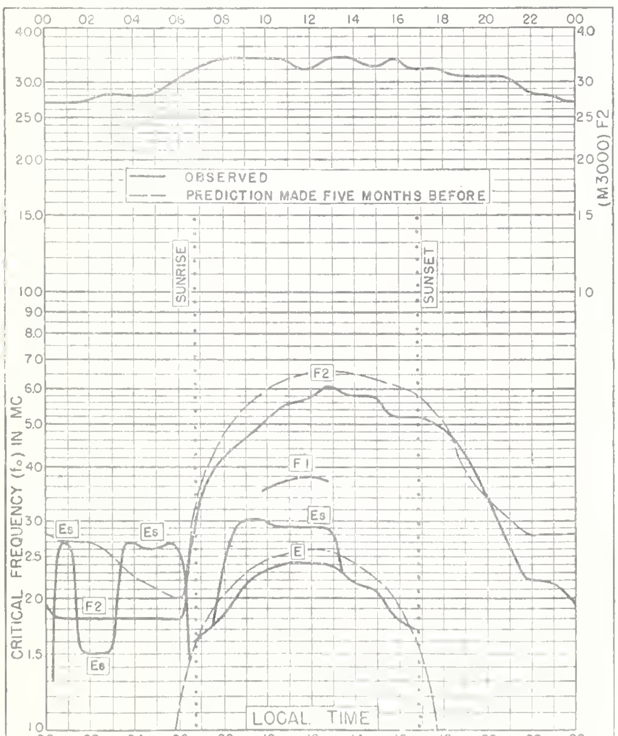


Fig. 7. OLSO NORWAY
60.0° N, 11.1° E OCTOBER 1952

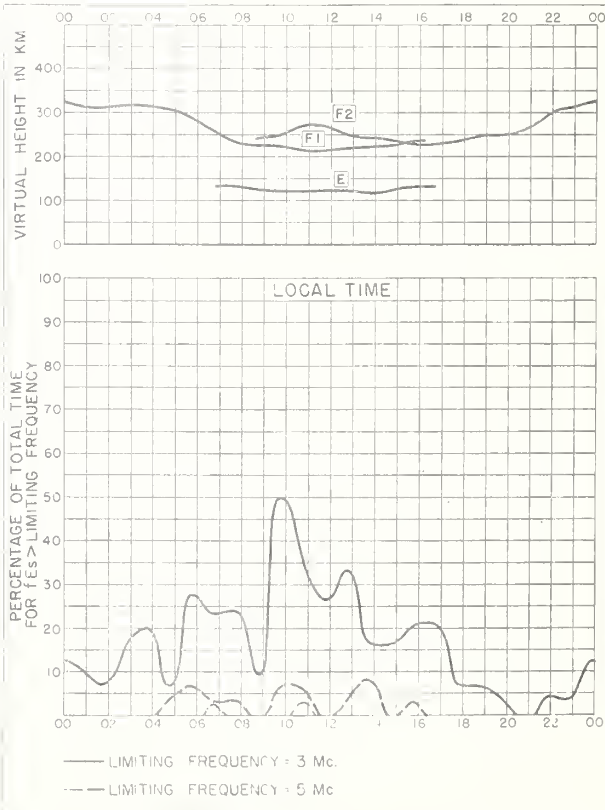


Fig. 8. OSLO, NORWAY OCTOBER 1952

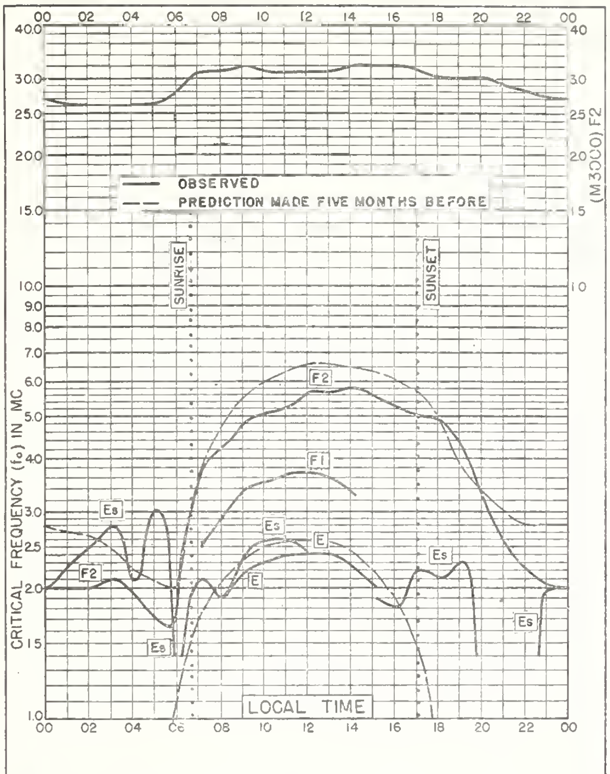


Fig. 9. UPSALA, SWEDEN
59.8°N, 17.6°E OCTOBER 1952

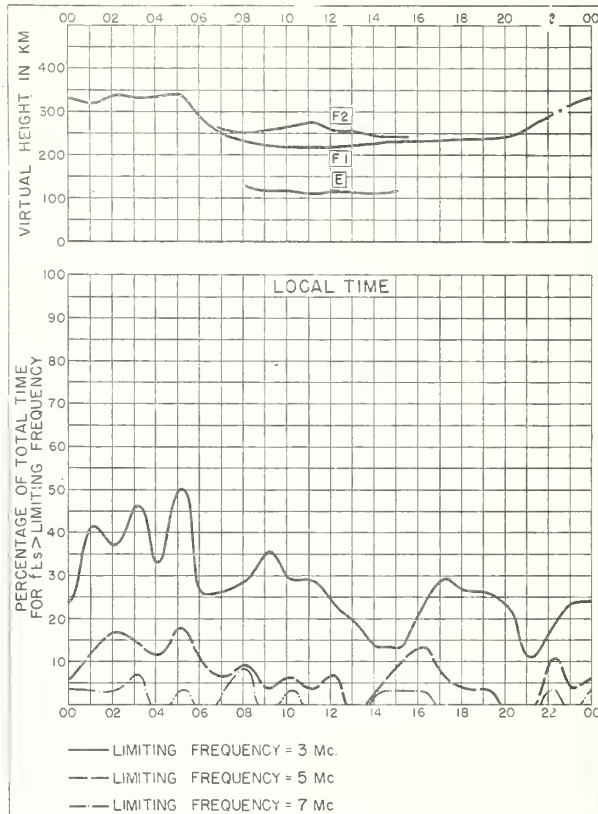


Fig. 10. UPSALA, SWEDEN OCTOBER 1952

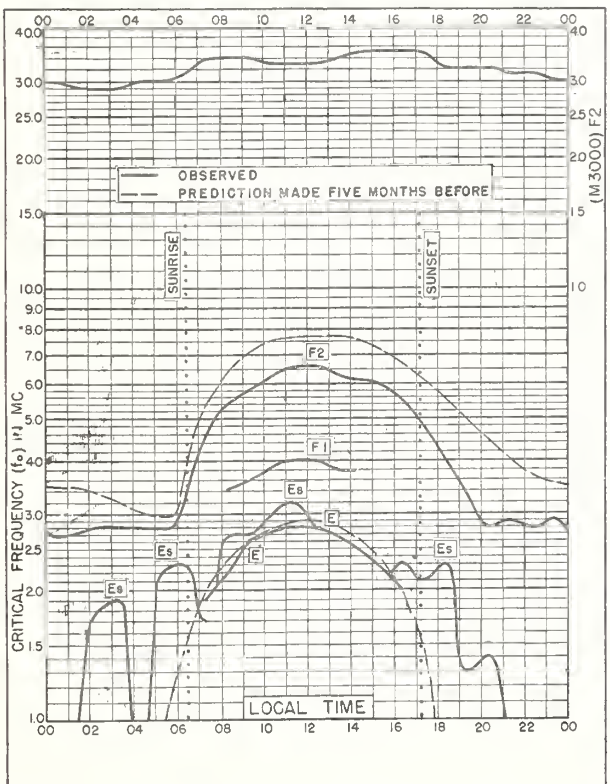


Fig. 11. ADAK, ALASKA
51.9°N, 176.6°W OCTOBER 1952

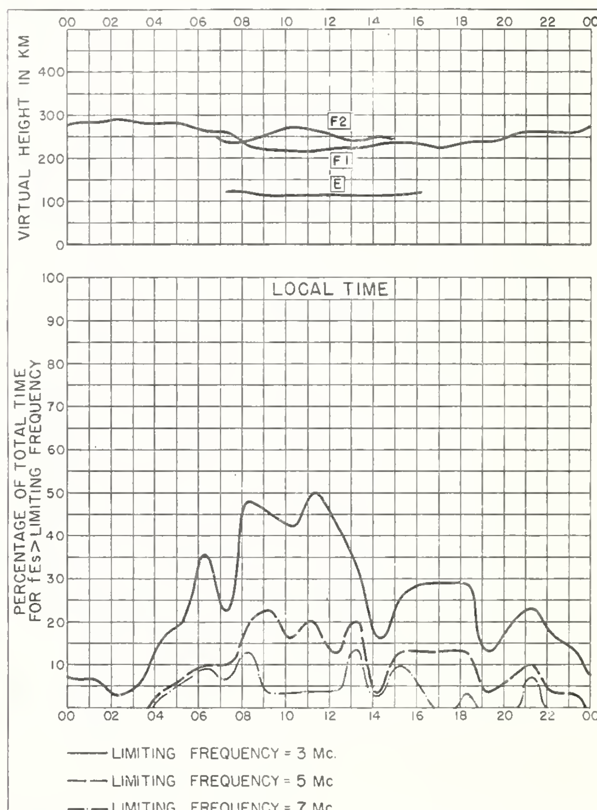


Fig. 12. ADAK, ALASKA OCTOBER 1952

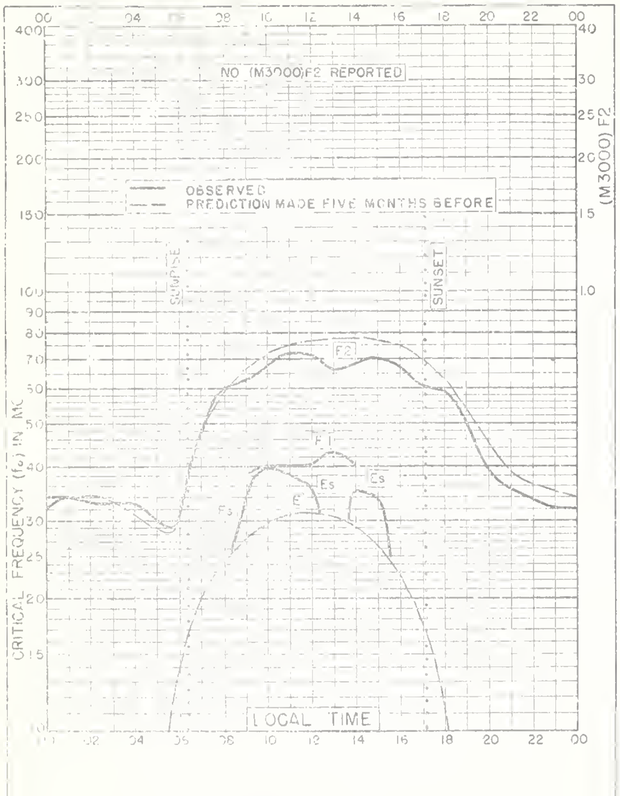


Fig. 13. GRAZ, AUSTRALIA
47.1°N, 15.5°E OCTOBER 1952

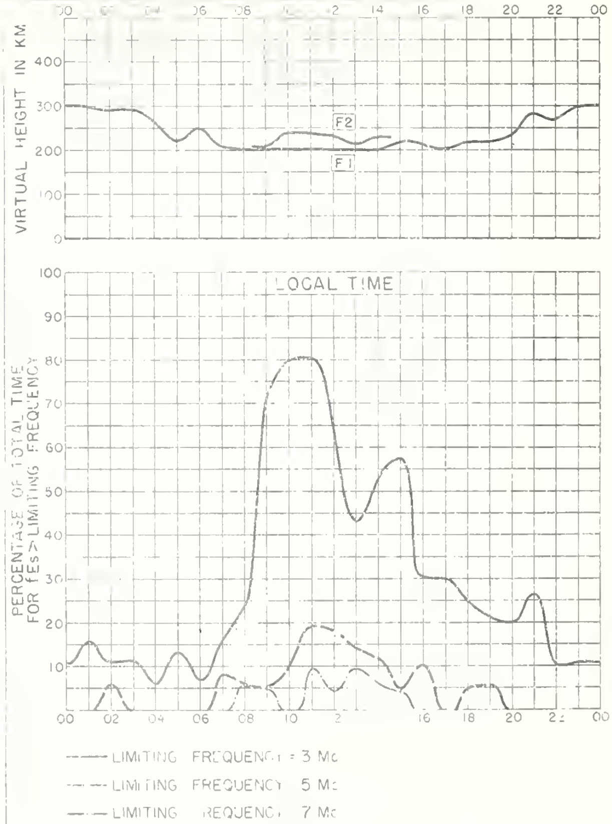


Fig. 14 GRAZ, AUSTRALIA OCTOBER 1952

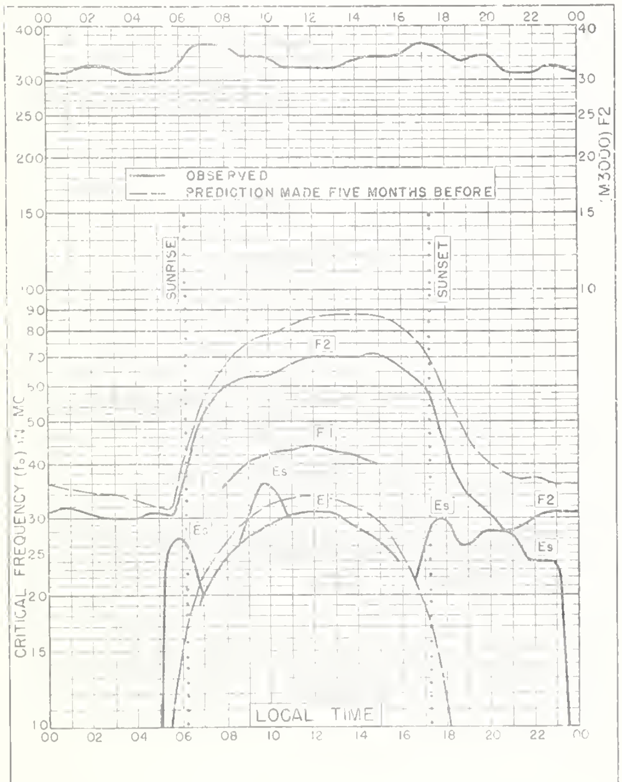


Fig. 15. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W OCTOBER 1952

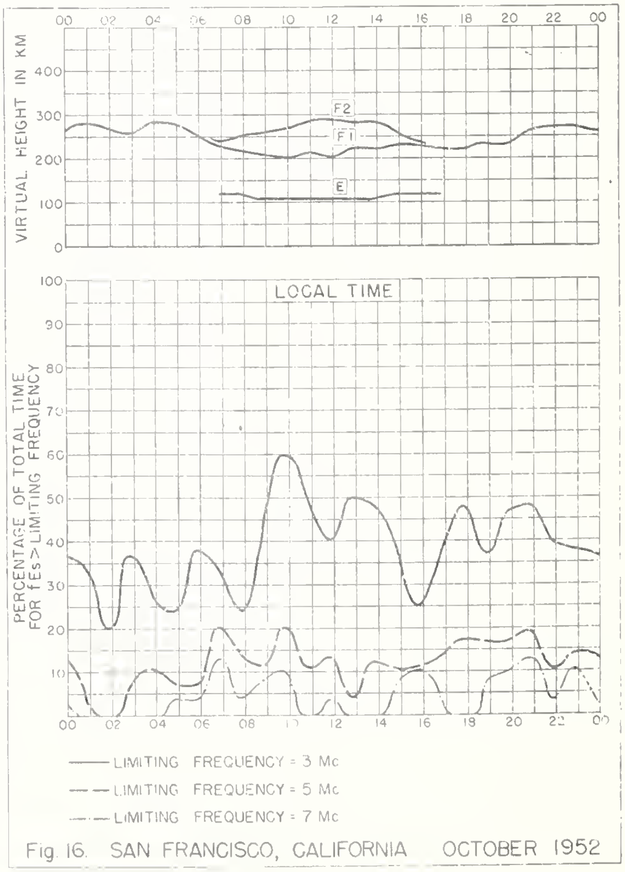


Fig. 16. SAN FRANCISCO, CALIFORNIA OCTOBER 1952

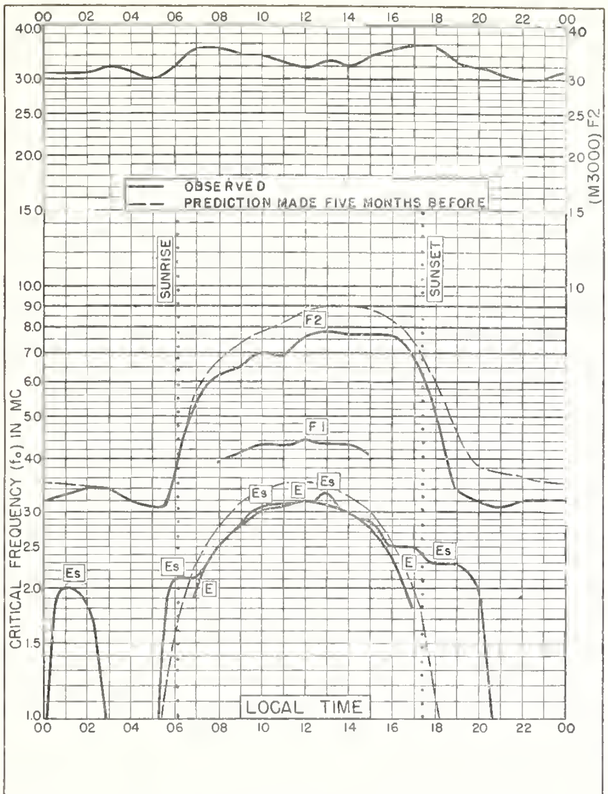


Fig. 17. WHITE SANDS, NEW MEXICO
32.3° N, 106.5° W OCTOBER 1952

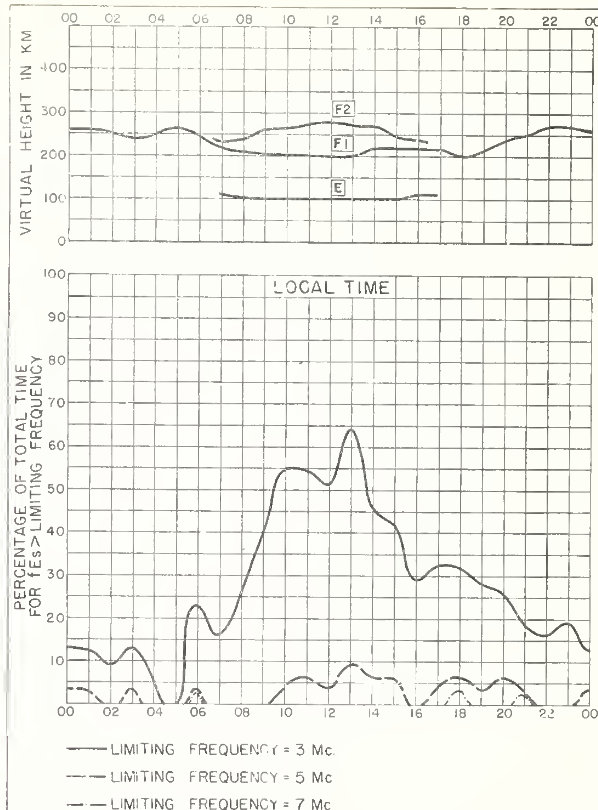


Fig. 18. WHITE SANDS, NEW MEXICO OCTOBER 1952

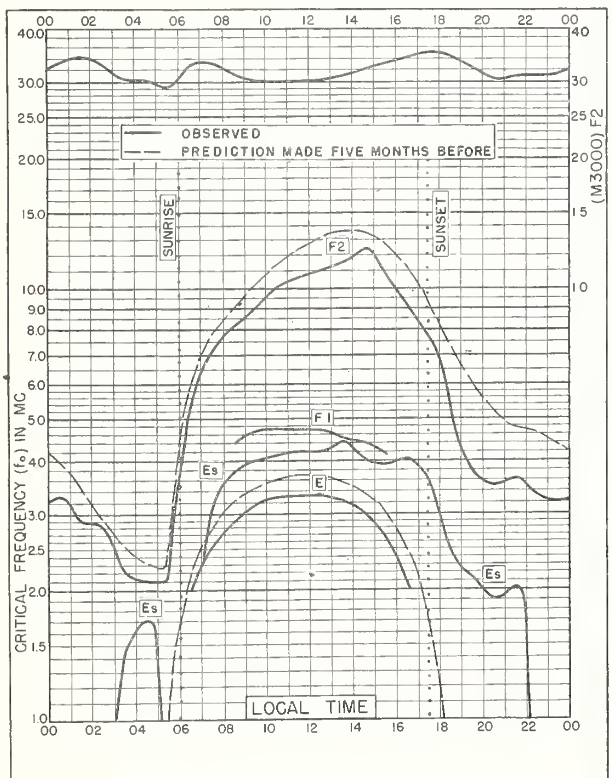


Fig. 19. MAUI, HAWAII
20.8° N, 156.5° W OCTOBER 1952

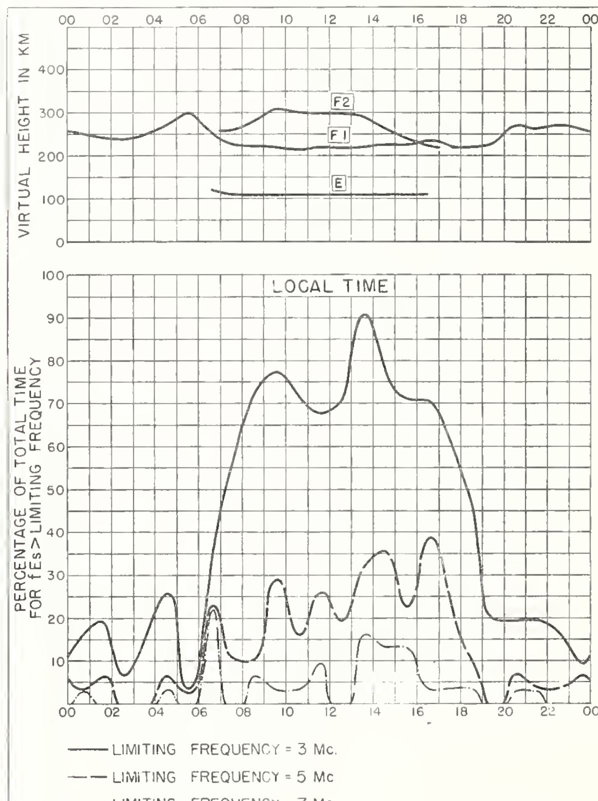


Fig. 20. MAUI, HAWAII OCTOBER 1952

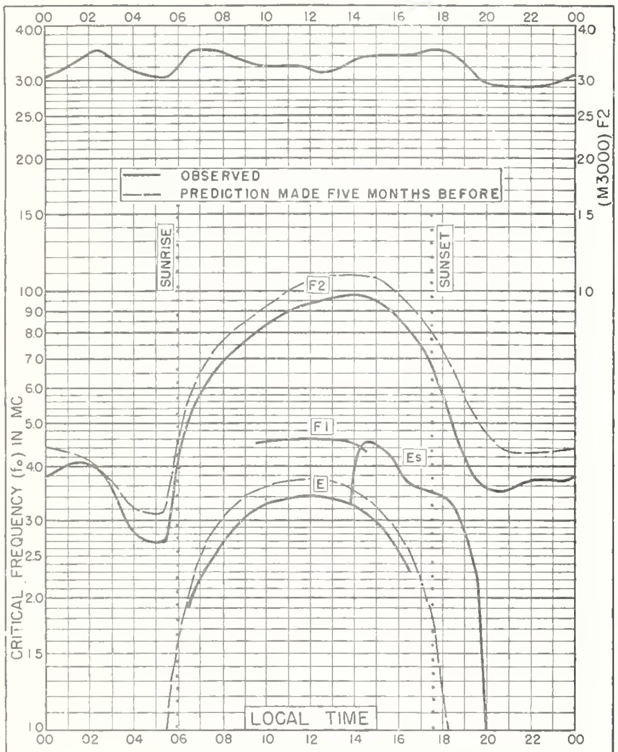


Fig. 21. PUERTO RICO, W. I.
18.5°N, 67.2° W OCTOBER 1952

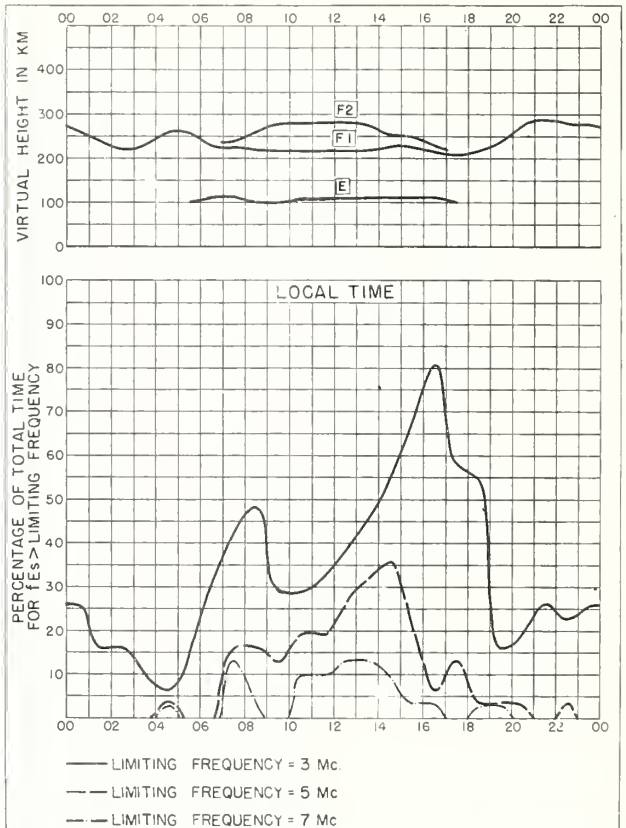


Fig. 22. PUERTO RICO, W. I. OCTOBER 1952

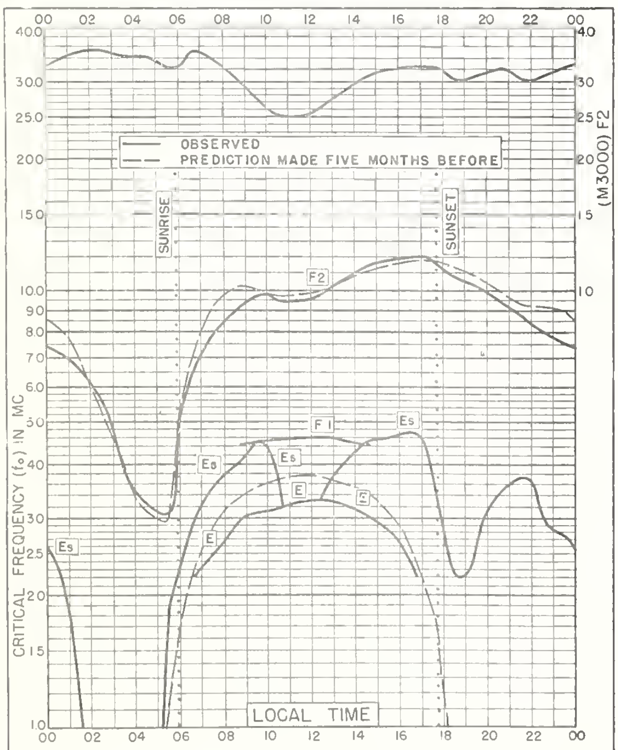


Fig. 23. GUAM I.
13.6° N, 144.9° E OCTOBER 1952

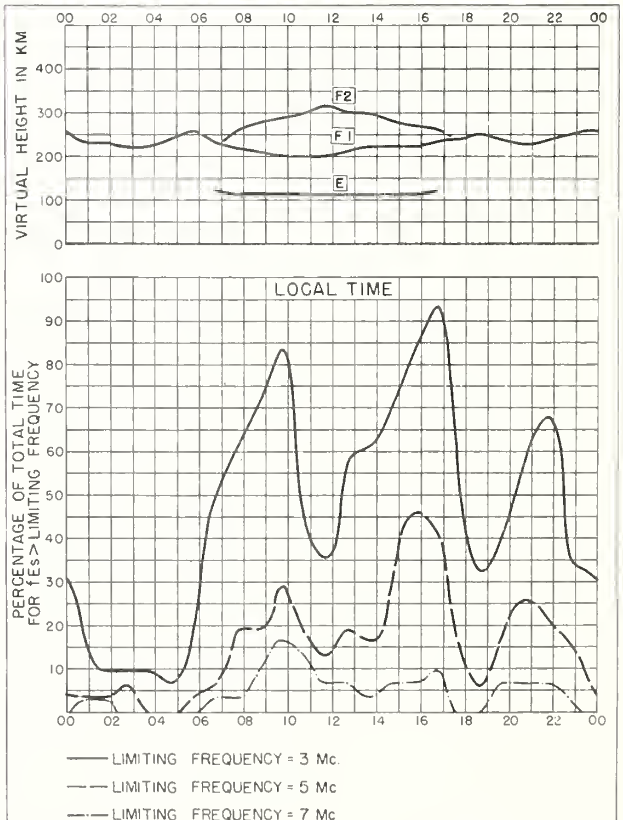


Fig. 24. GUAM I. OCTOBER 1952

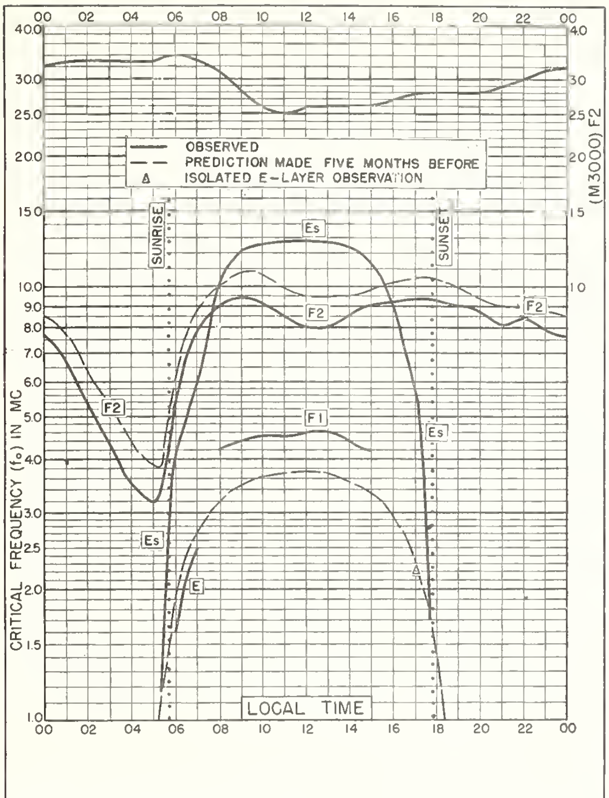


Fig. 25. HUANCAYO, PERU
12.0° S, 75.3° W OCTOBER 1952

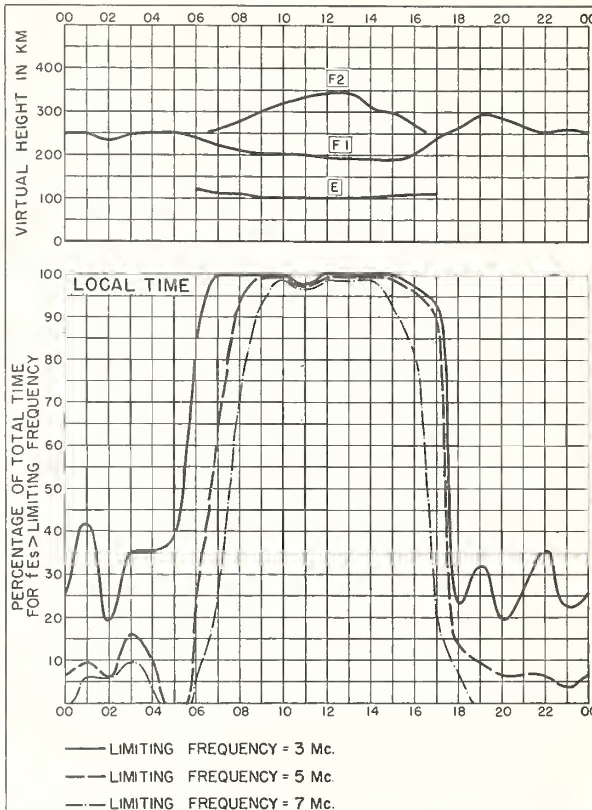


Fig. 26. HUANCAYO, PERU OCTOBER 1952

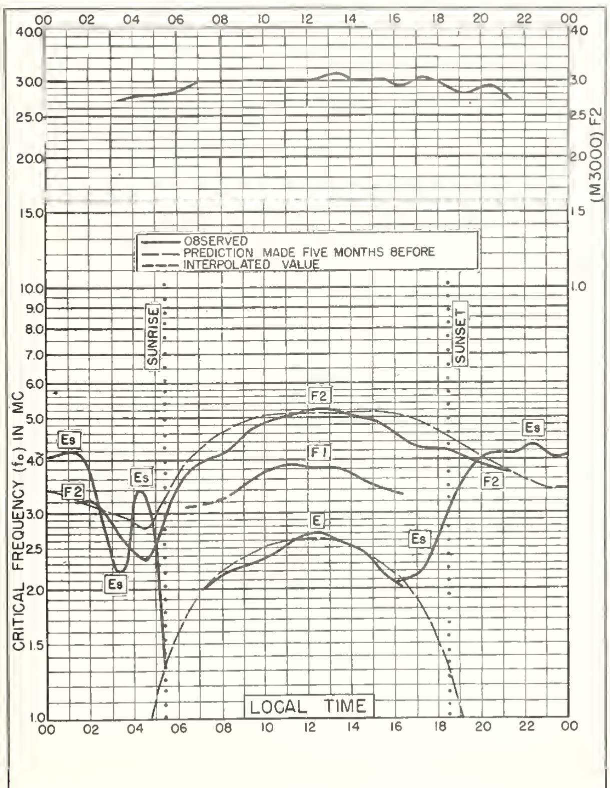


Fig. 27. KIRUNA, SWEDEN
67.8° N, 20.5° E SEPTEMBER 1952

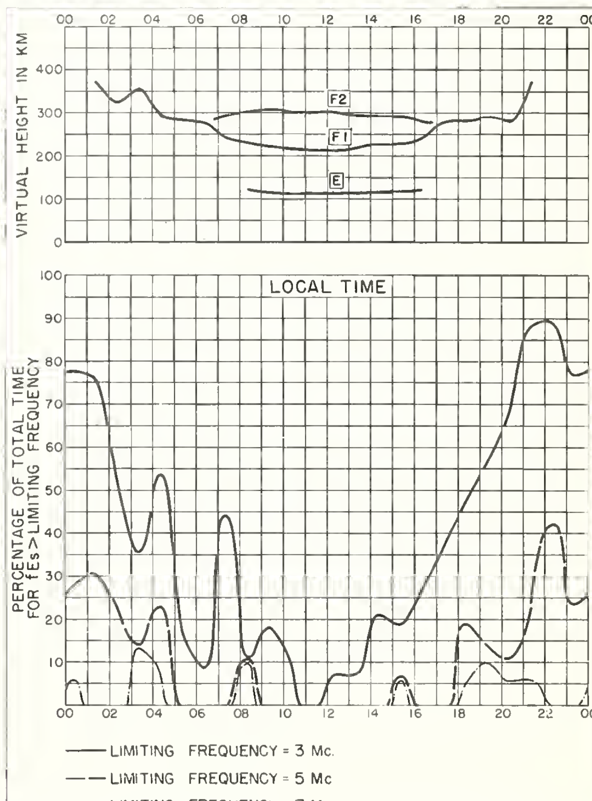


Fig. 28. KIRUNA, SWEDEN SEPTEMBER 1952

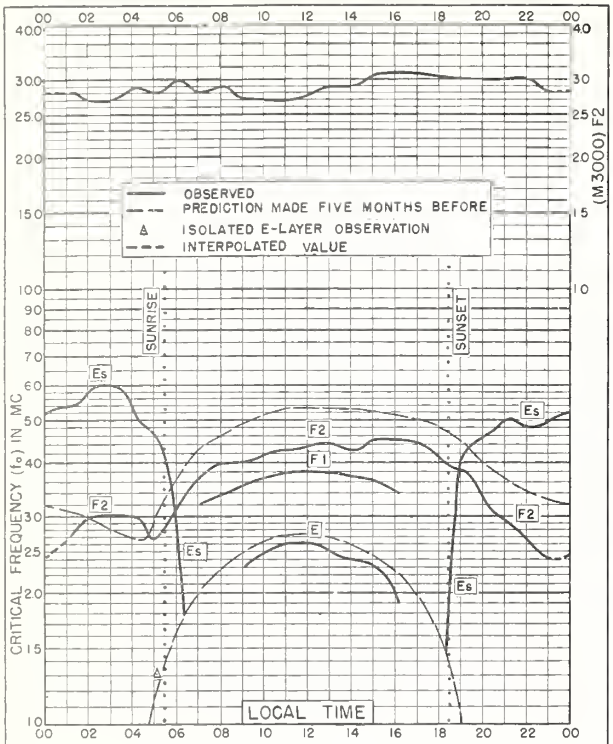


Fig. 29. FAIRBANKS, ALASKA
64.9°N, 147.8°W SEPTEMBER 1952

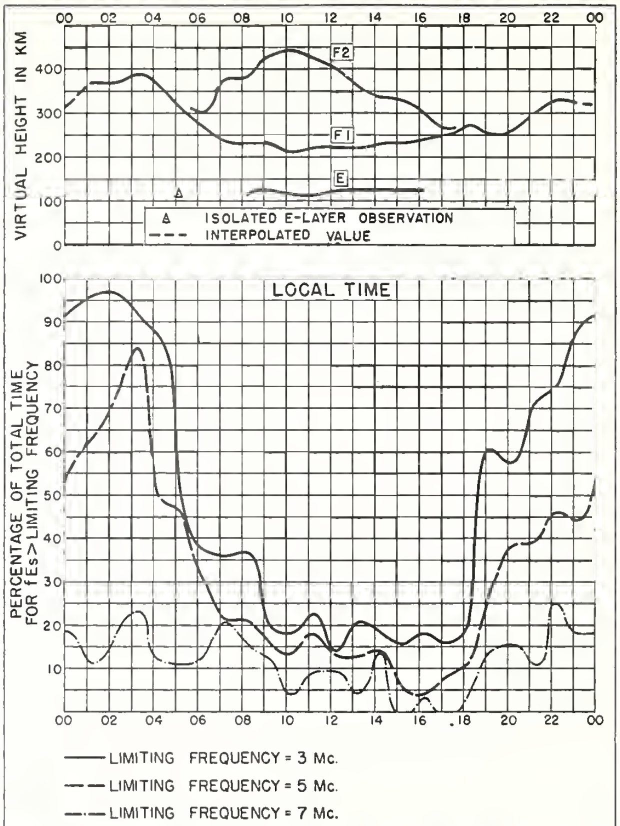


Fig. 30. FAIRBANKS, ALASKA SEPTEMBER 1952

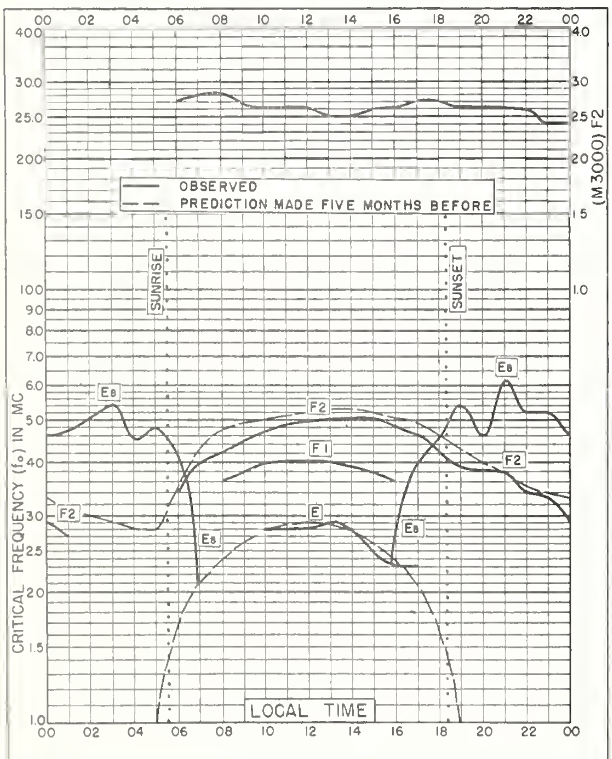


Fig. 31. NARSARSSUAK, GREENLAND
61.2°N, 45.4° W SEPTEMBER 1952

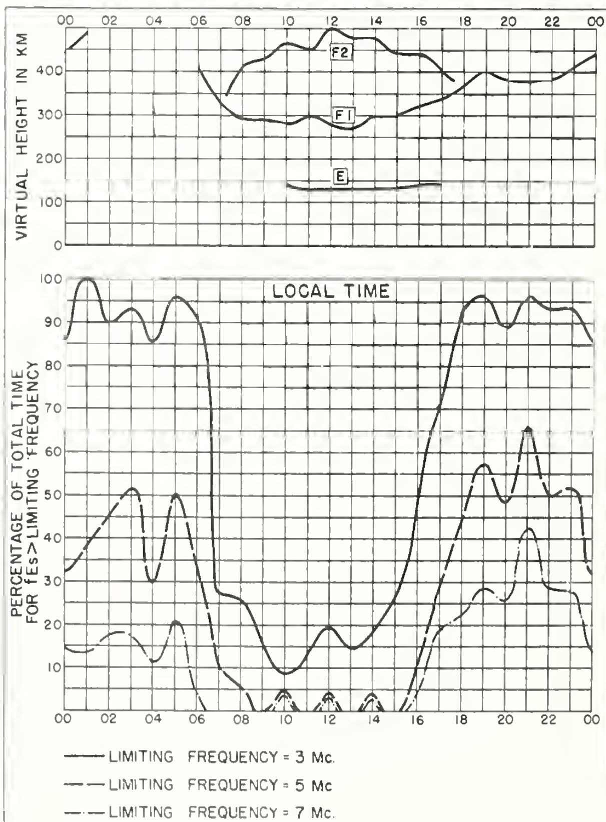


Fig. 32. NARSARSSUAK, GREENLAND SEPTEMBER 1952

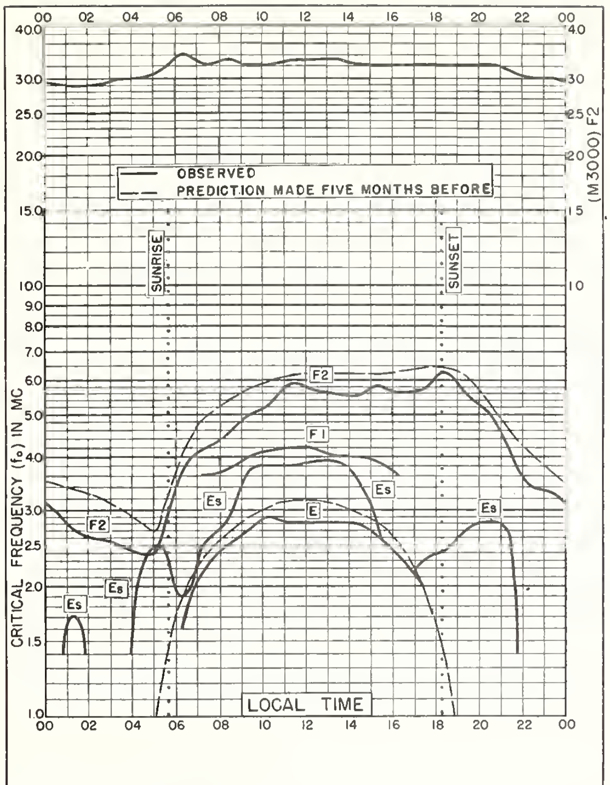


Fig.33. De BILT, HOLLAND
52.1°N, 5.2°E SEPTEMBER 1952

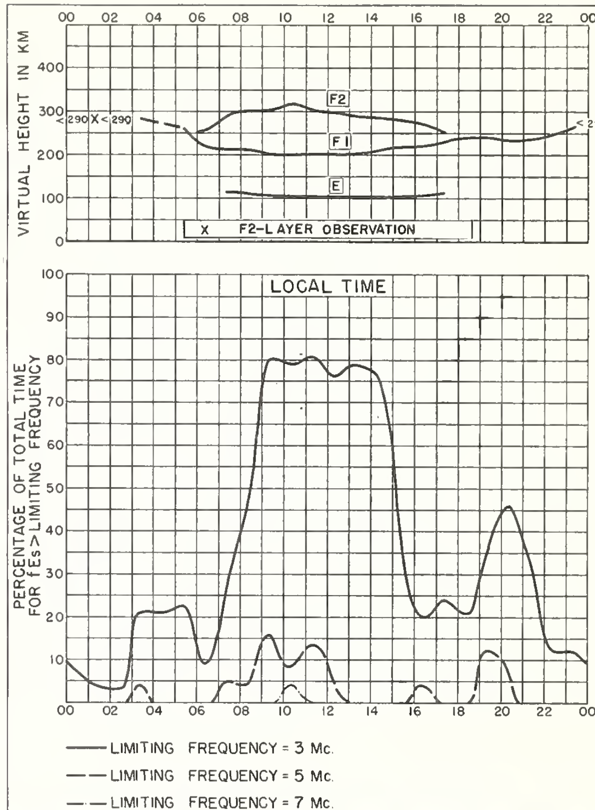


Fig. 34. De BILT, HOLLAND SEPTEMBER 1952

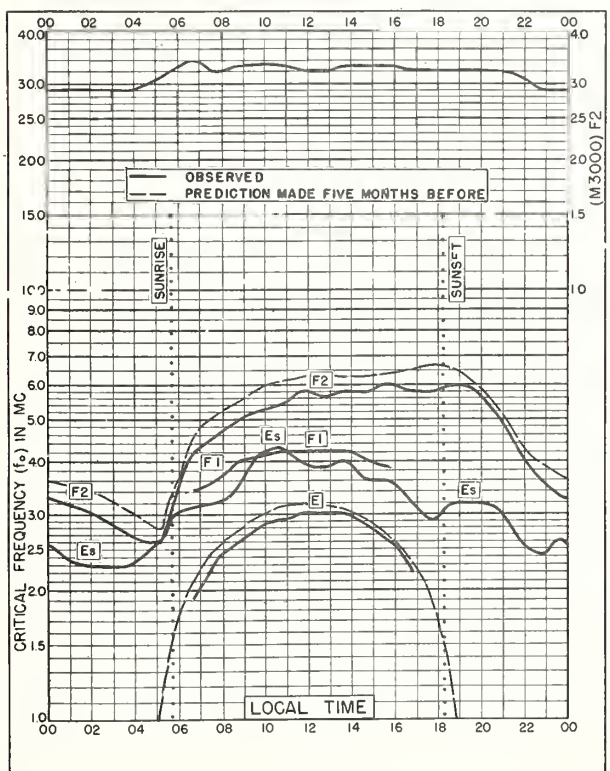


Fig. 35. LINDAU / HARZ, GERMANY
51.6°N, 10.1°E SEPTEMBER 1952

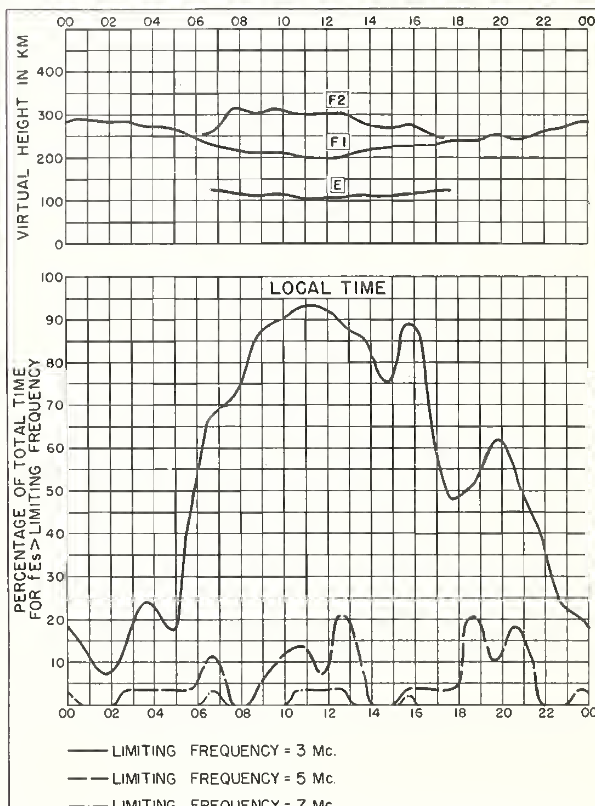


Fig. 36. LINDAU/HARZ, GERMANY SEPTEMBER 1952

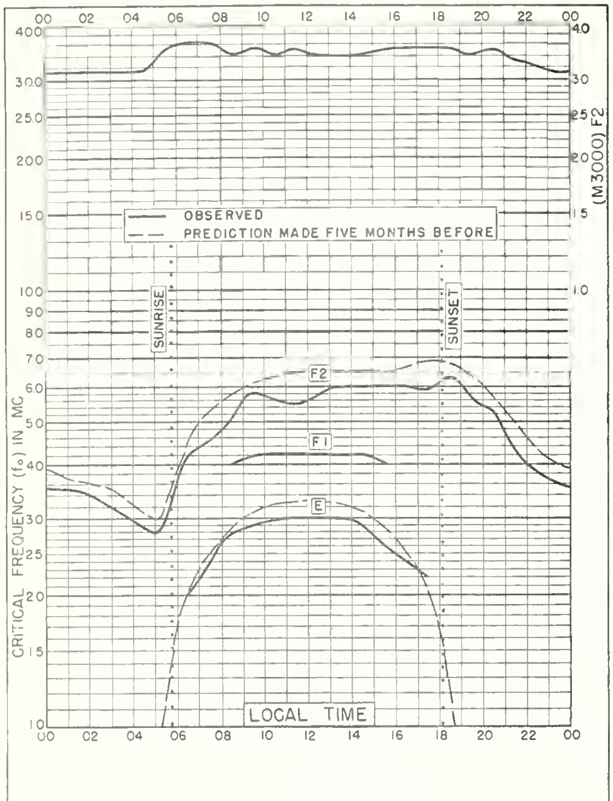


Fig. 37. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E SEPTEMBER 1952

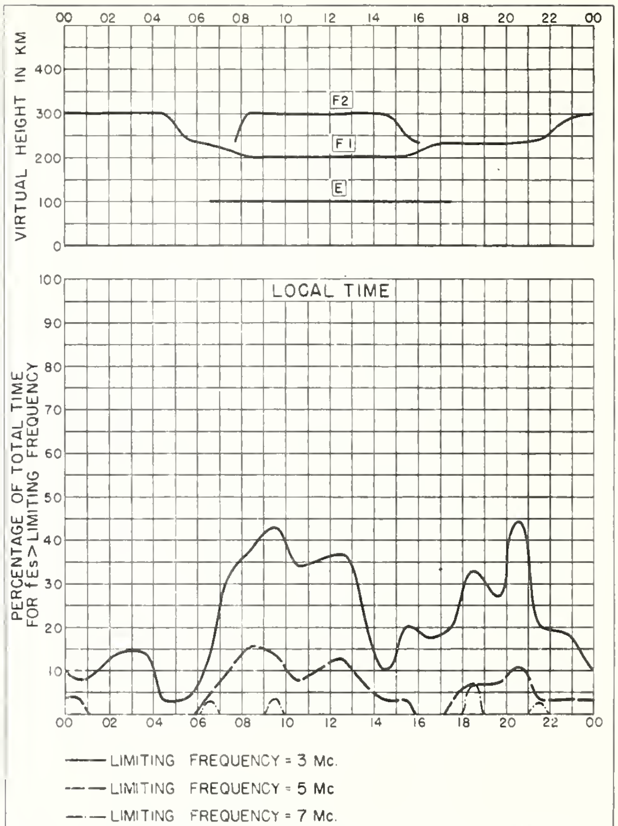


Fig. 38. SCHWARZENBURG, SWITZERLAND SEPTEMBER 1952

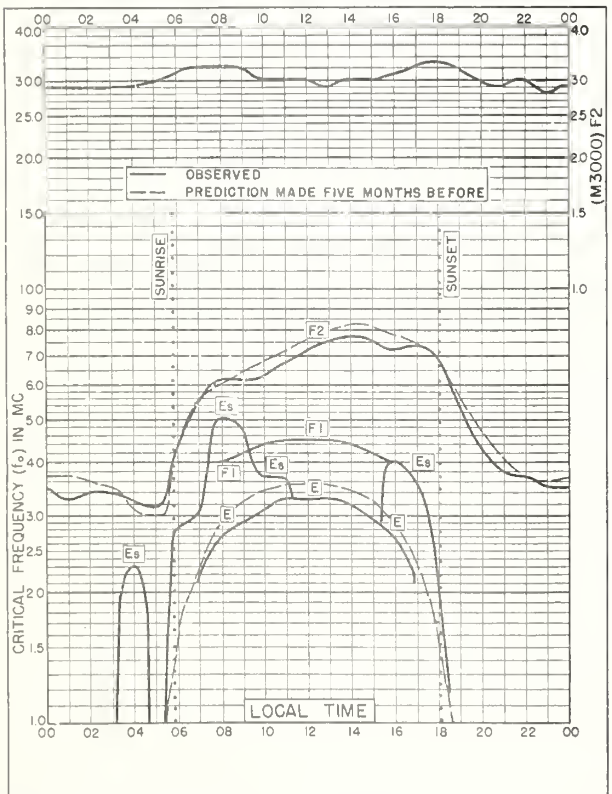


Fig. 39. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W SEPTEMBER 1952

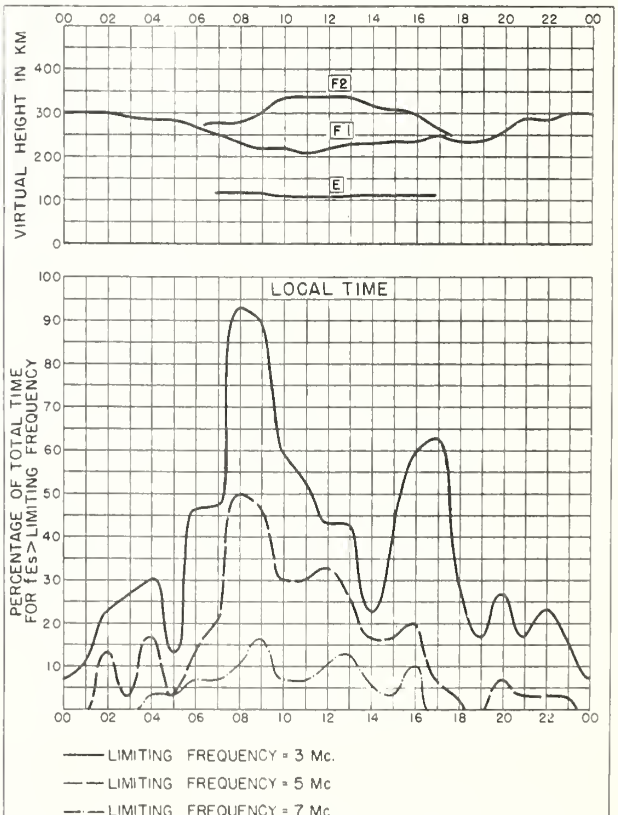


Fig. 40. BATON ROUGE, LOUISIANA SEPTEMBER 1952

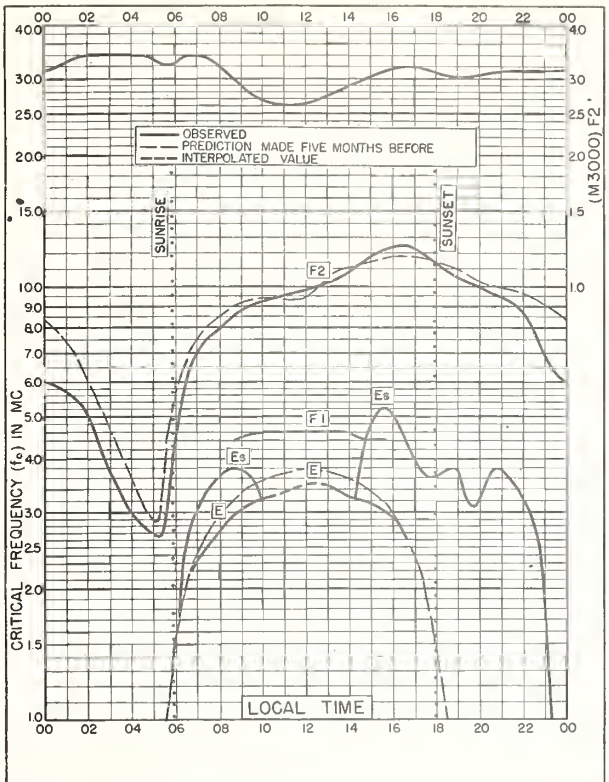


Fig. 41. GUAM I.
13.6°N, 144.9°E SEPTEMBER 1952

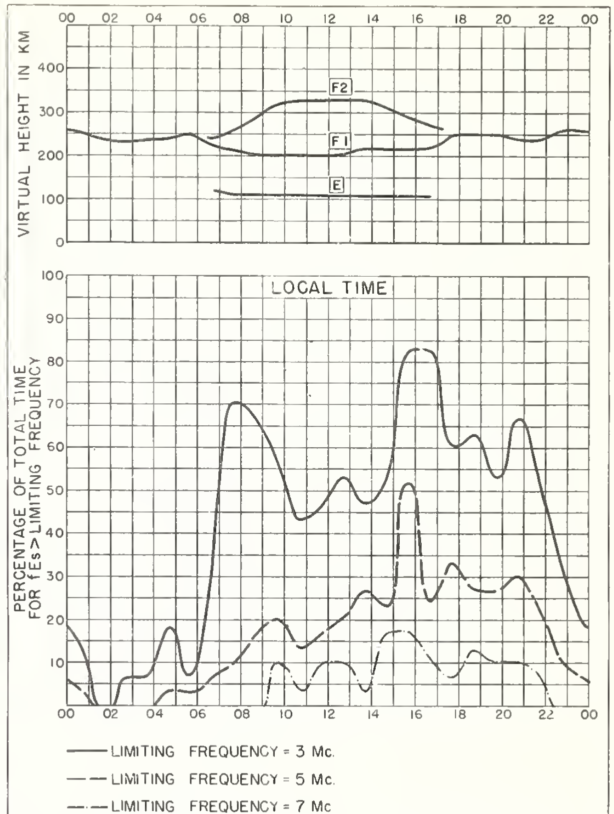


Fig. 42. GUAM I. SEPTEMBER 1952

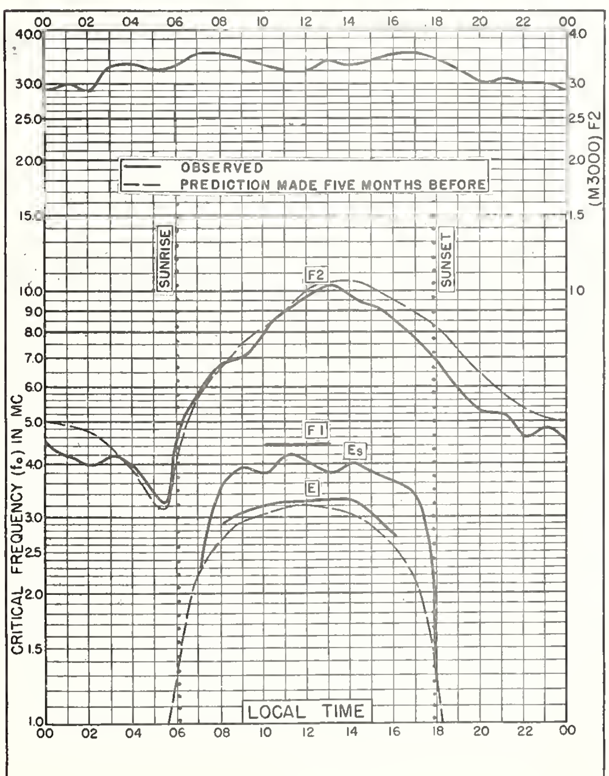


Fig. 43. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W SEPTEMBER 1952

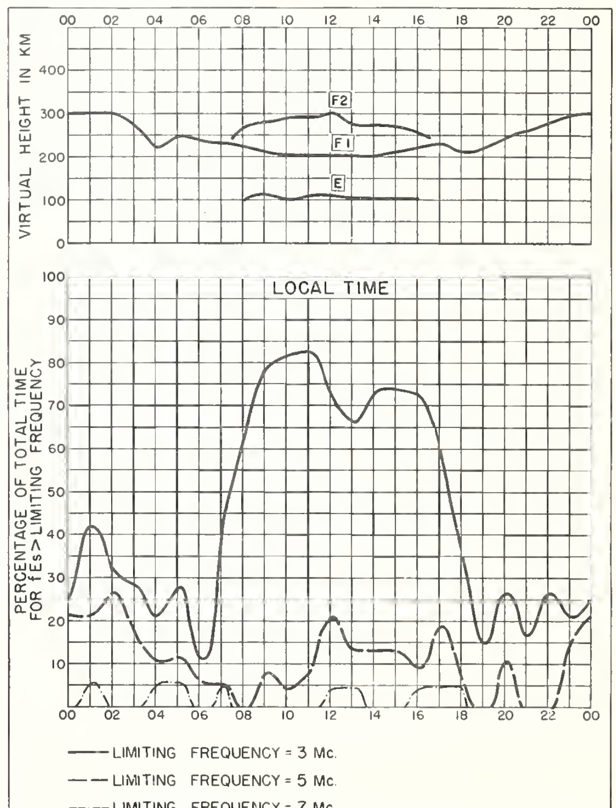


Fig. 44. BUENOS AIRES, ARGENTINA SEPTEMBER 1952

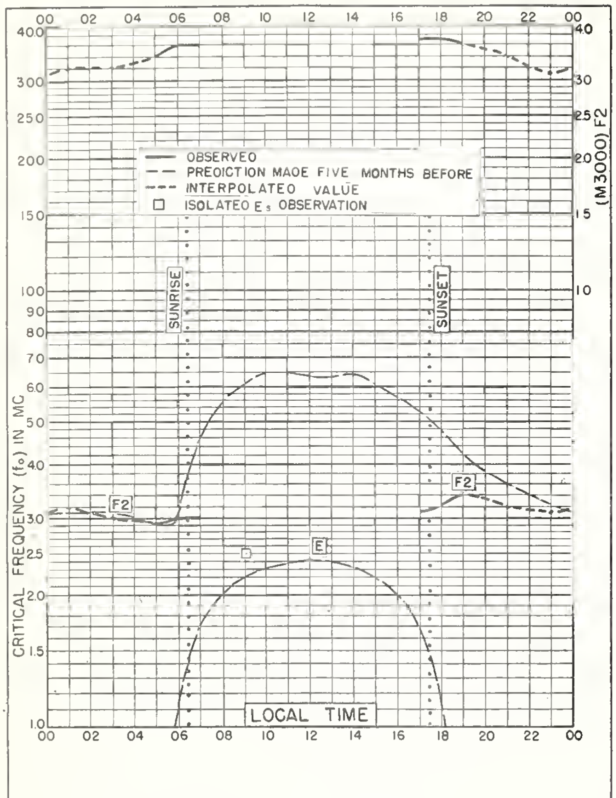


Fig. 45. DECEPCION I.
63.0°S, 60.7°W SEPTEMBER 1952

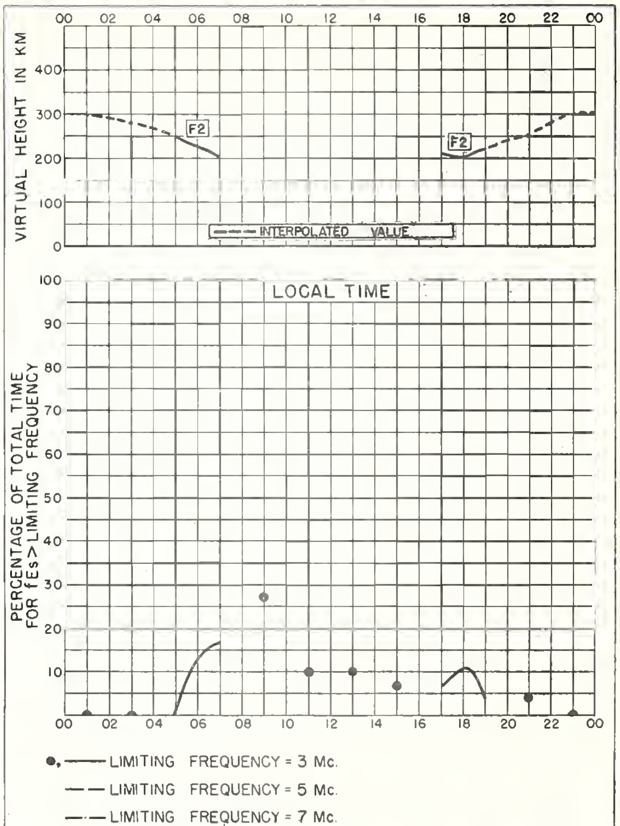


Fig. 46. DECEPCION I. SEPTEMBER 1952

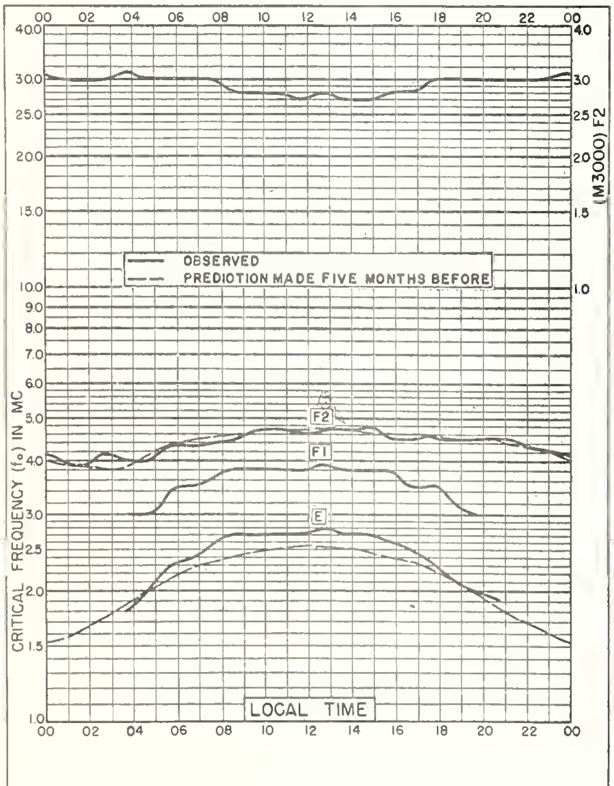


Fig. 47. RESOLUTE BAY, CANADA
74.7°N, 94.9°W AUGUST 1952

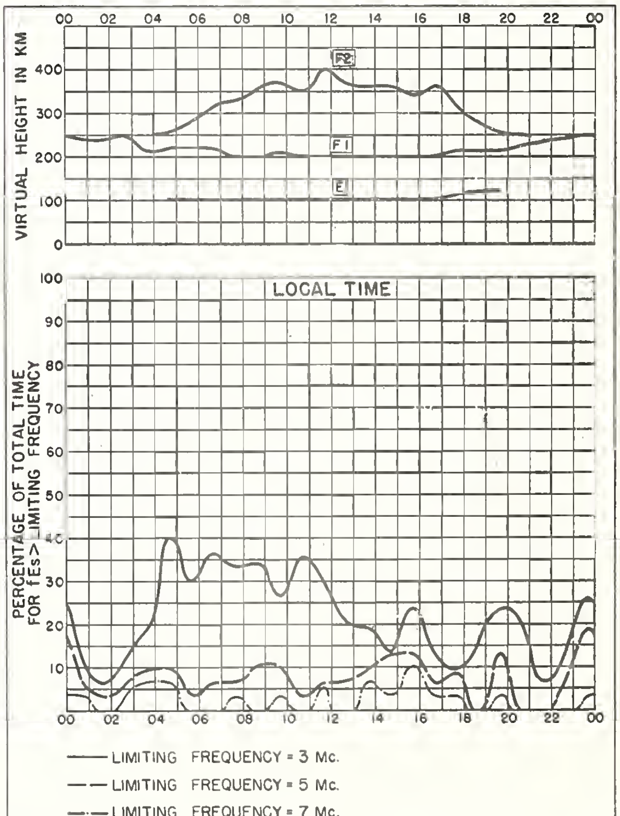


Fig. 48. RESOLUTE BAY, CANADA AUGUST 1952

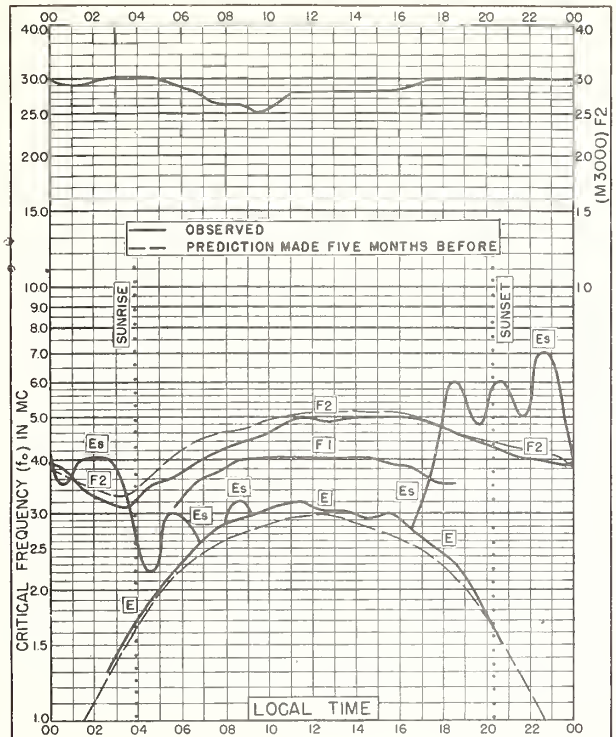
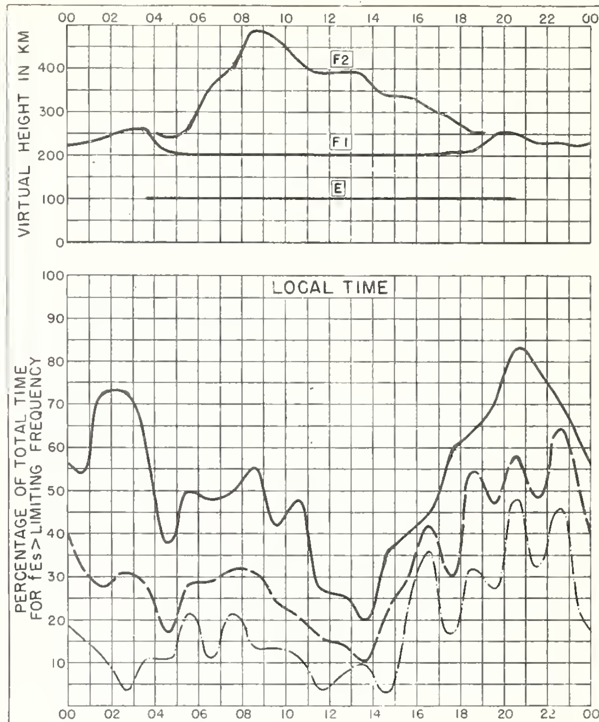


Fig. 49. BAKER LAKE, CANADA
64.3°N, 96.0°W AUGUST 1952



—— LIMITING FREQUENCY = 3 Mc.
— — LIMITING FREQUENCY = 5 Mc
—·— LIMITING FREQUENCY = 7 Mc

Fig. 50 BAKER LAKE, CANADA AUGUST 1952

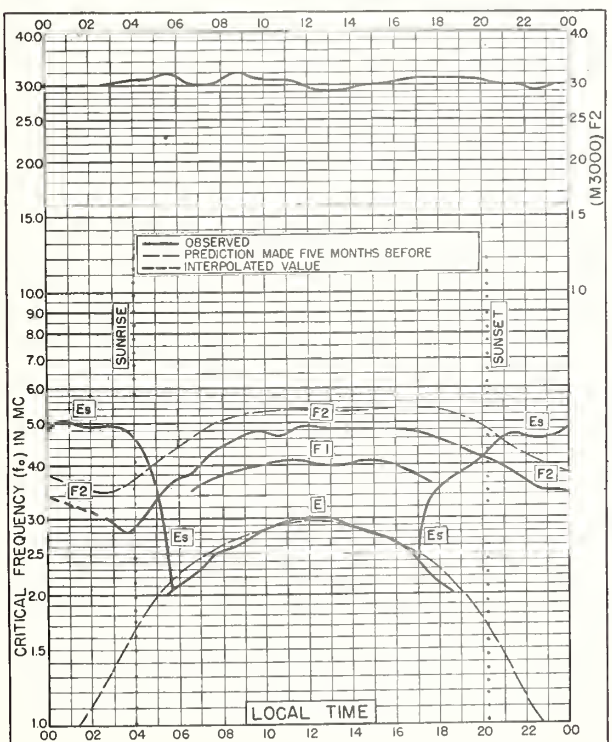
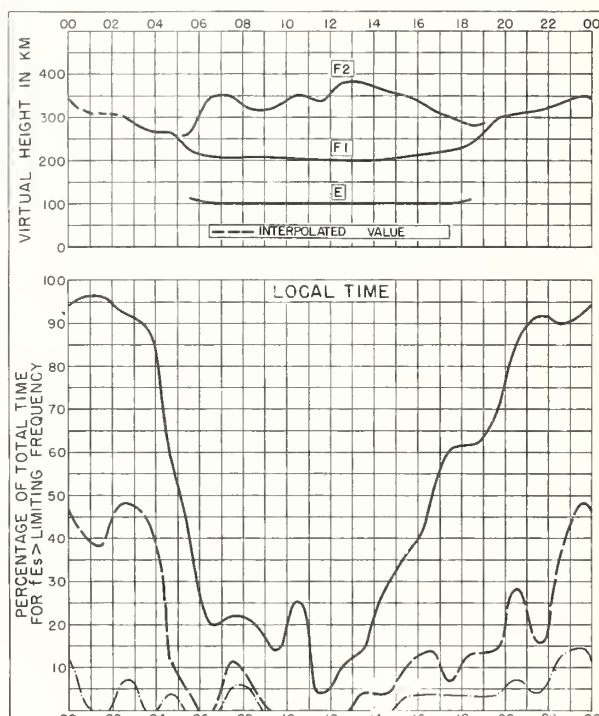


Fig. 51. REYKJAVIK, ICELAND
64.1°N, 21.8°W AUGUST 1952



—— LIMITING FREQUENCY = 3 Mc.
— — LIMITING FREQUENCY = 5 Mc
—·— LIMITING FREQUENCY = 7 Mc.

Fig. 52. REYKJAVIK, ICELAND AUGUST 1952

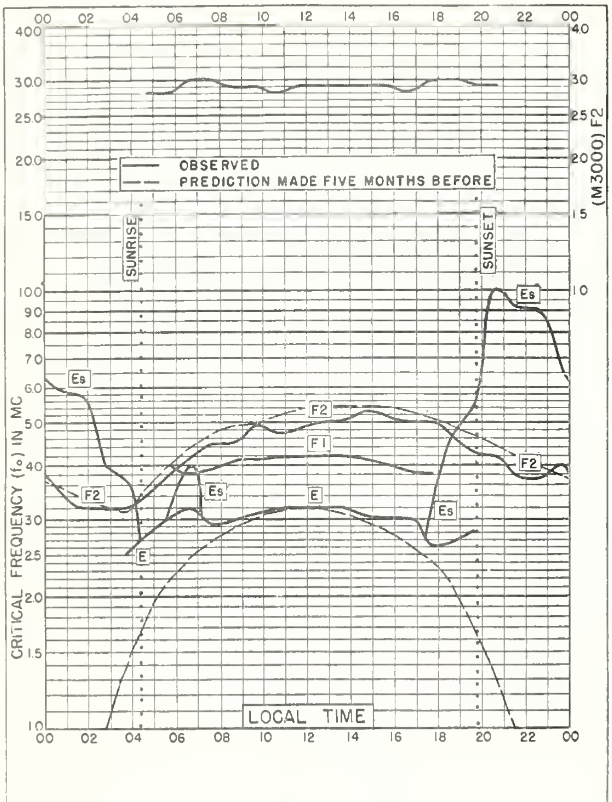


Fig. 53. CHURCHILL, CANADA
58.8°N, 94.2°W AUGUST 1952

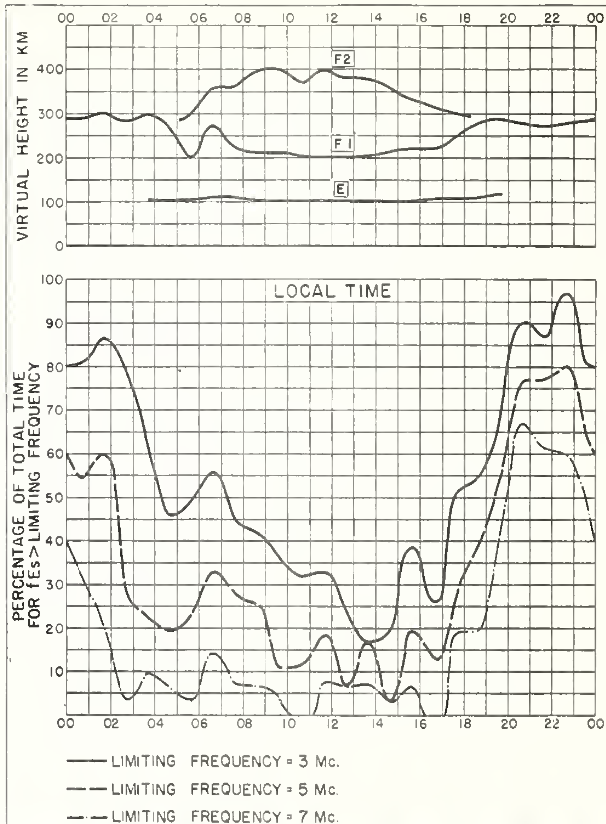


Fig. 54. CHURCHILL, CANADA AUGUST 1952

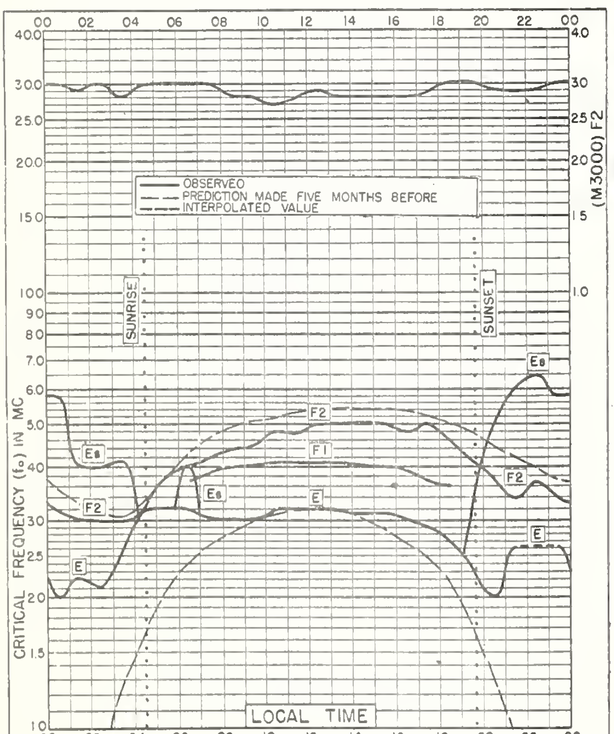


Fig. 55. FORT CHIMO, CANADA
58.1°N, 68.3°W AUGUST 1952

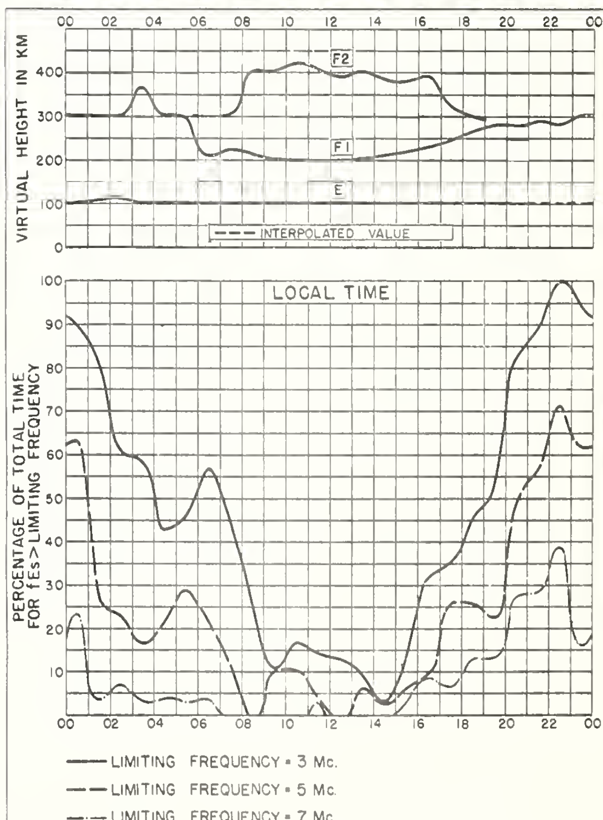


Fig. 56. FORT CHIMO, CANADA AUGUST 1952

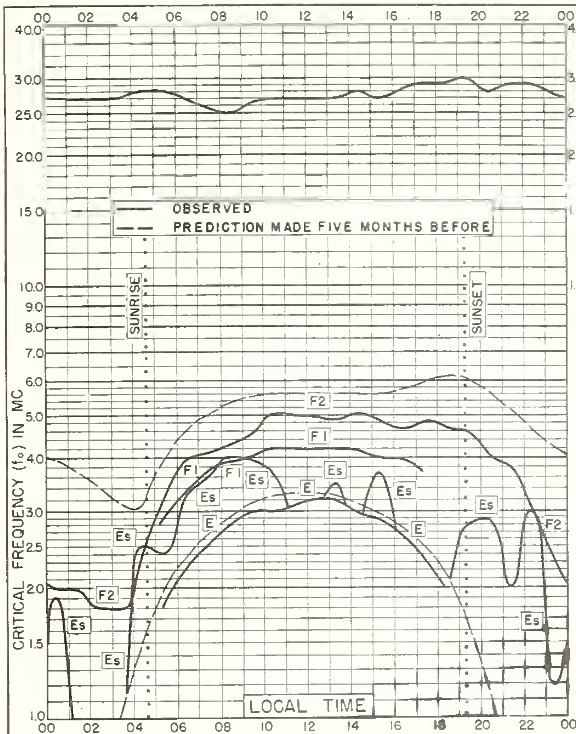


Fig. 57. PRINCE RUPERT, CANADA
54.3°N, 130.3°W AUGUST 1952

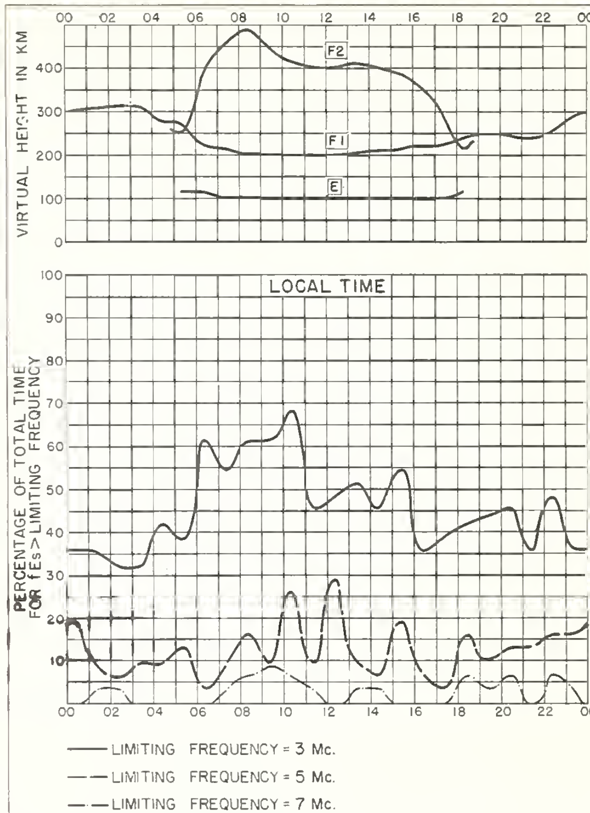


Fig. 58. PRINCE RUPERT, CANADA AUGUST 1952

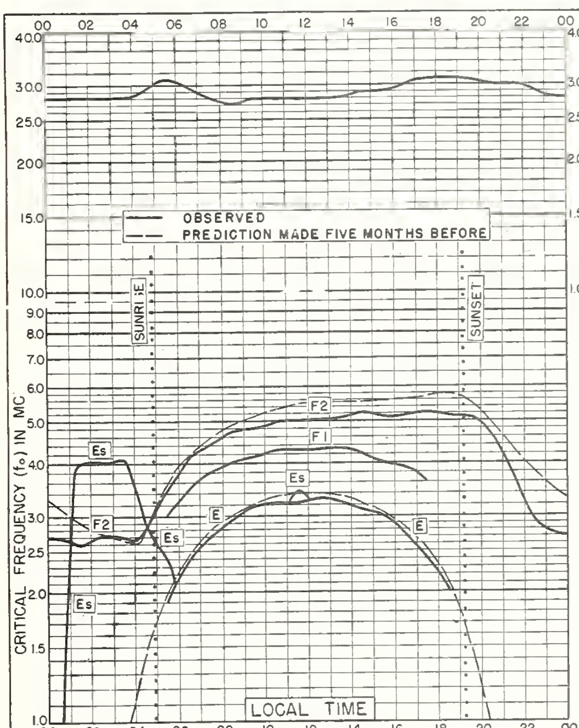


Fig. 59. WINNIPEG, CANADA
49.9°N, 97.4°W AUGUST 1952

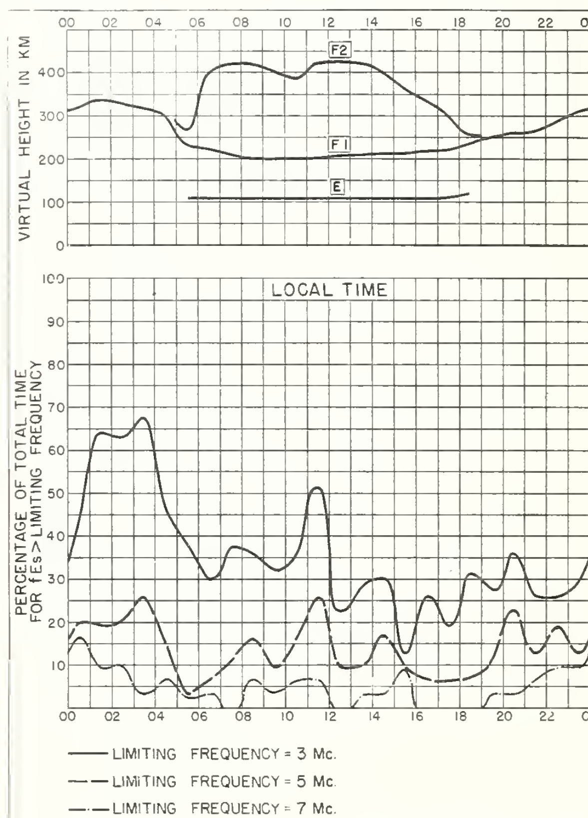


Fig. 60. WINNIPEG, CANADA AUGUST 1952

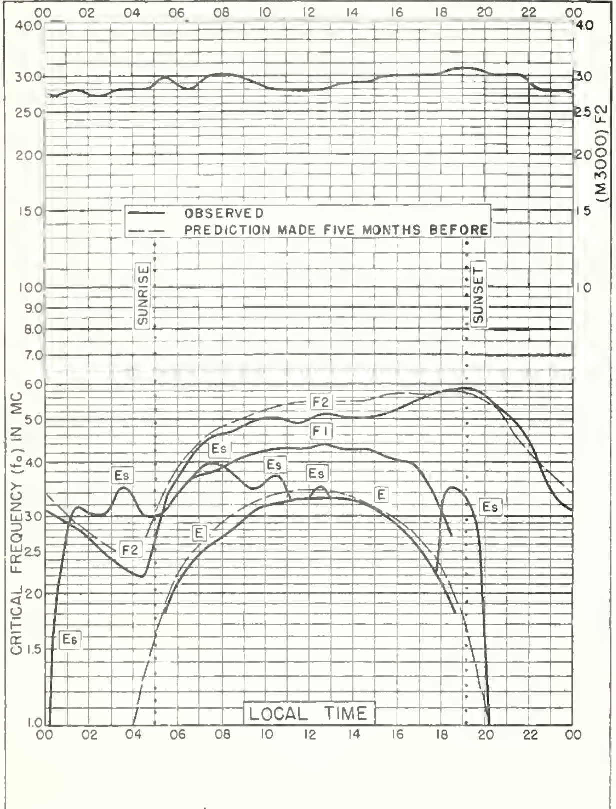


Fig. 61. ST. JOHN'S, NEWFOUNDLAND
47.6° N, 52. 7° W AUGUST 1952

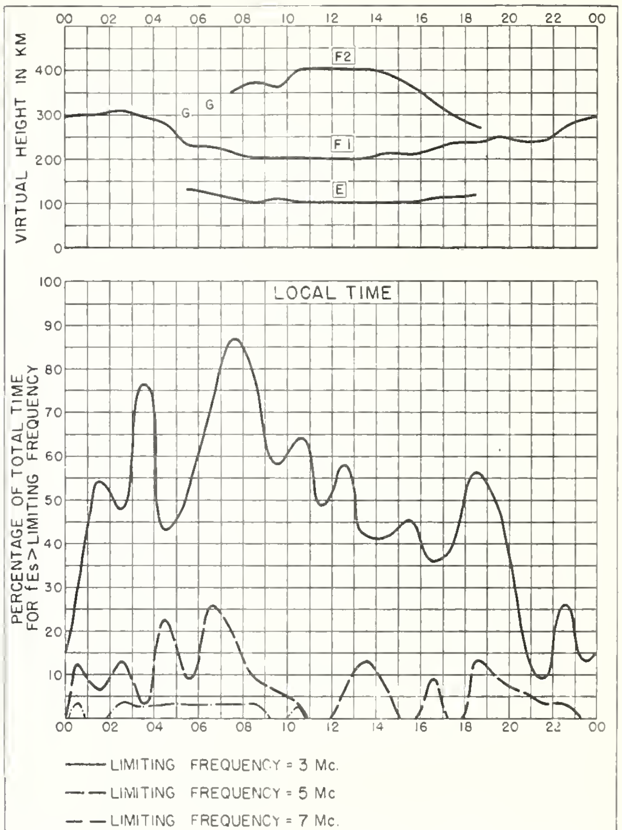


Fig. 62. ST. JOHN'S, NEWFOUNDLAND AUGUST 1952

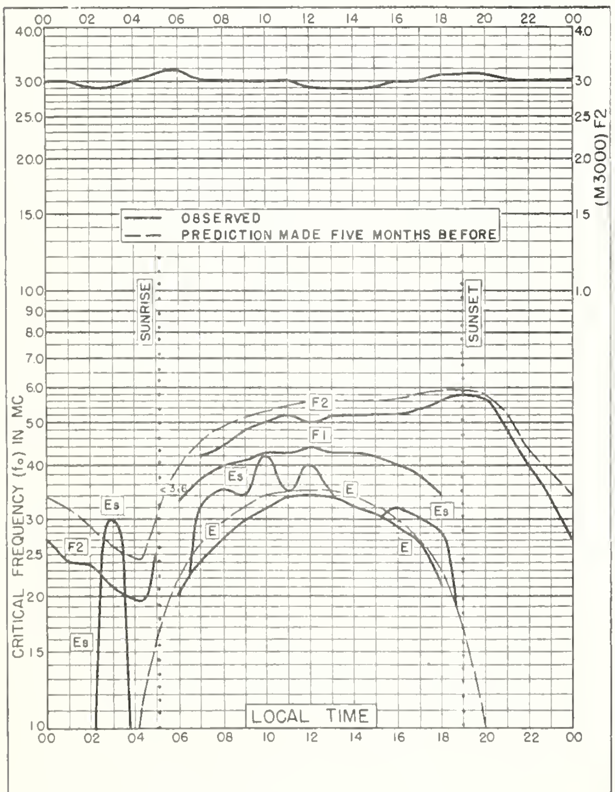


Fig 63. OTTAWA, CANADA
45.4°N, 75.7°W AUGUST 1952

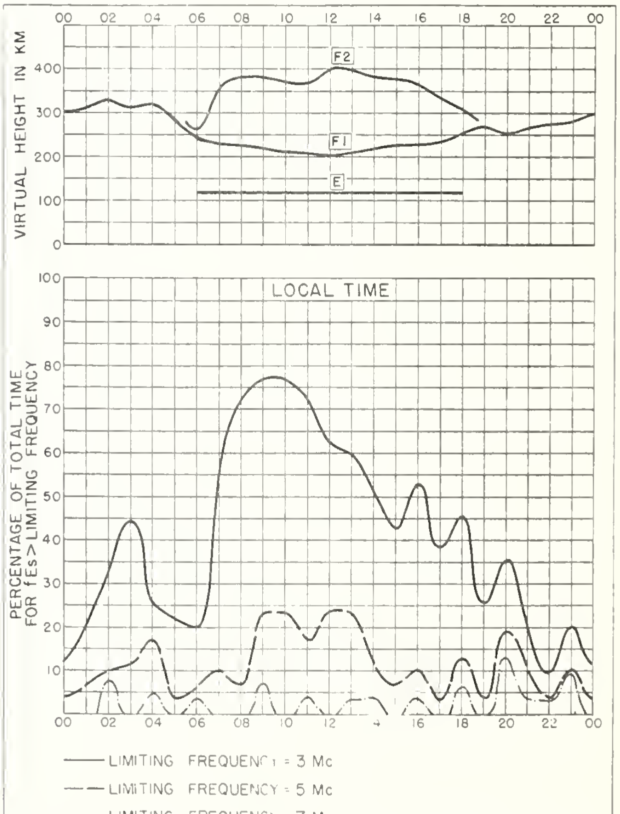


Fig 64. OTTAWA, CANADA AUGUST 1952

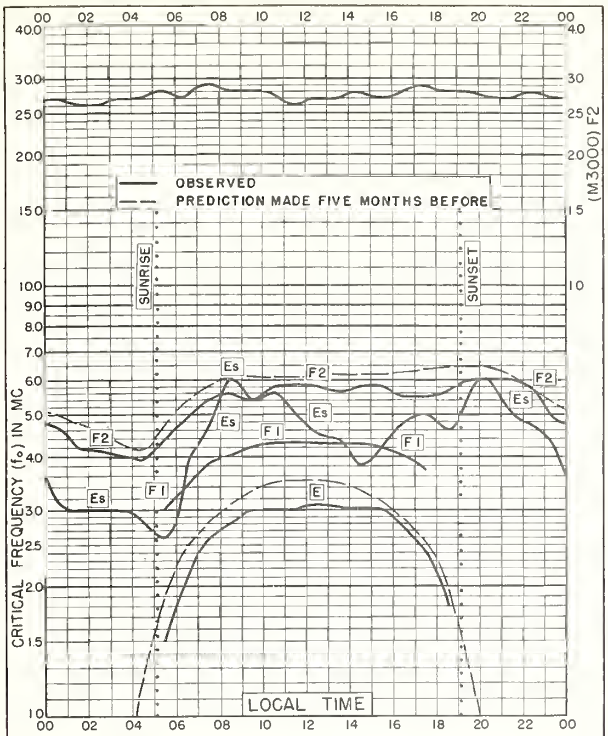
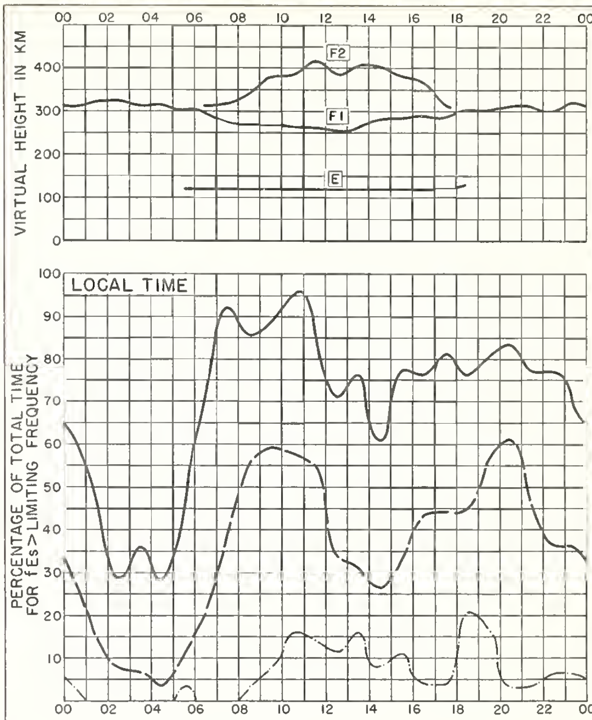


Fig 65. WAKKANAI, JAPAN
45 4°N, 141.7°E
AUGUST 1952



—— LIMITING FREQUENCY = 3 Mc.
— — LIMITING FREQUENCY = 5 Mc.
—·— LIMITING FREQUENCY = 7 Mc.

Fig. 66. WAKKANAI, JAPAN
AUGUST 1952

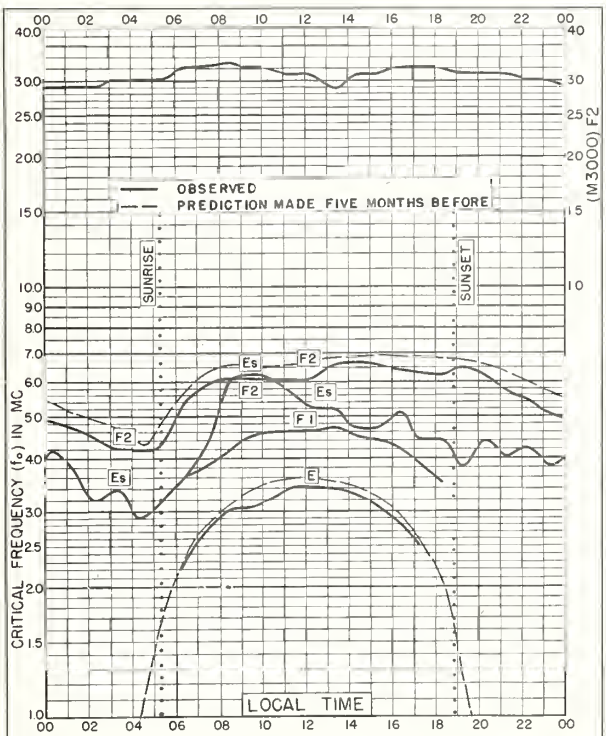
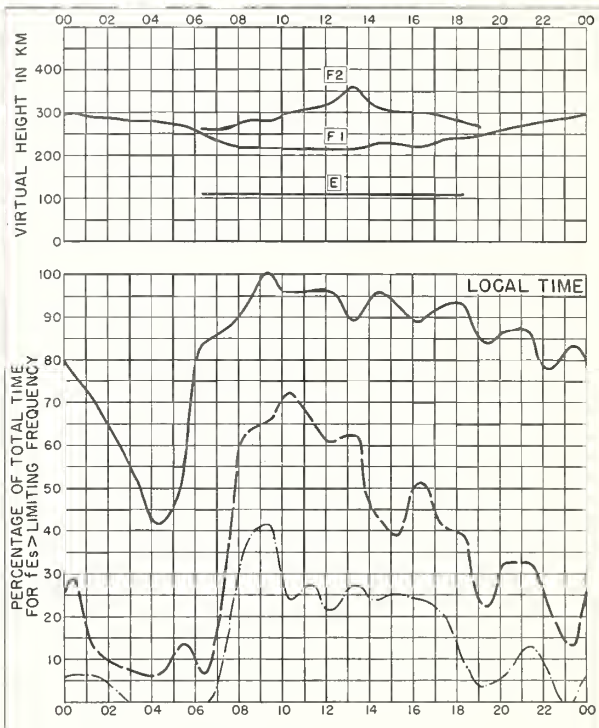


Fig. 67. AKITA, JAPAN
39.7° N, 140. 1°E
AUGUST 1952



—— LIMITING FREQUENCY = 3 Mc.
— — LIMITING FREQUENCY = 5 Mc.
—·— LIMITING FREQUENCY = 7 Mc.

Fig. 68. AKITA, JAPAN
AUGUST 1952

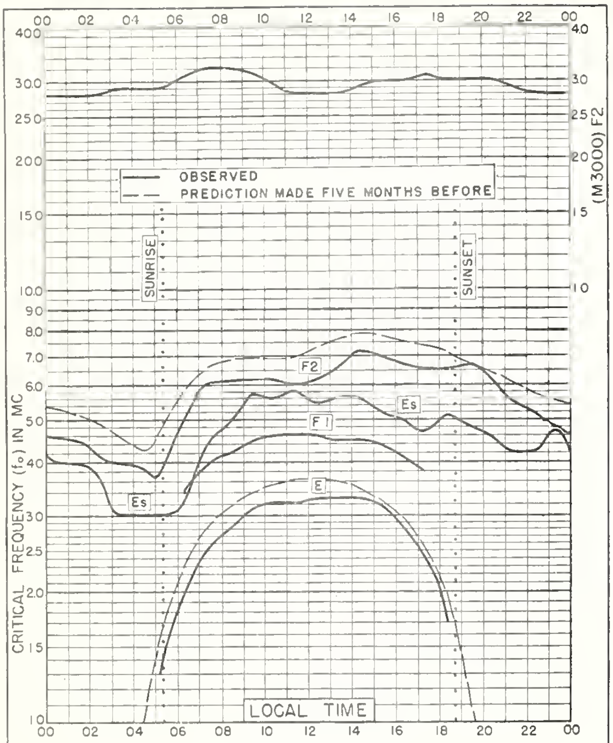


Fig. 69. TOKYO, JAPAN
35.7°N, 139.5°E AUGUST 1952

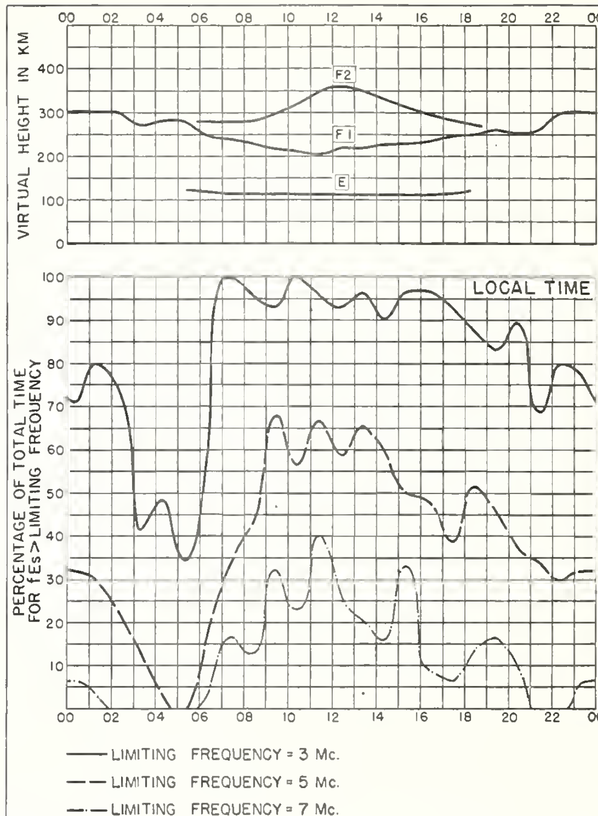


Fig. 70. TOKYO, JAPAN AUGUST 1952

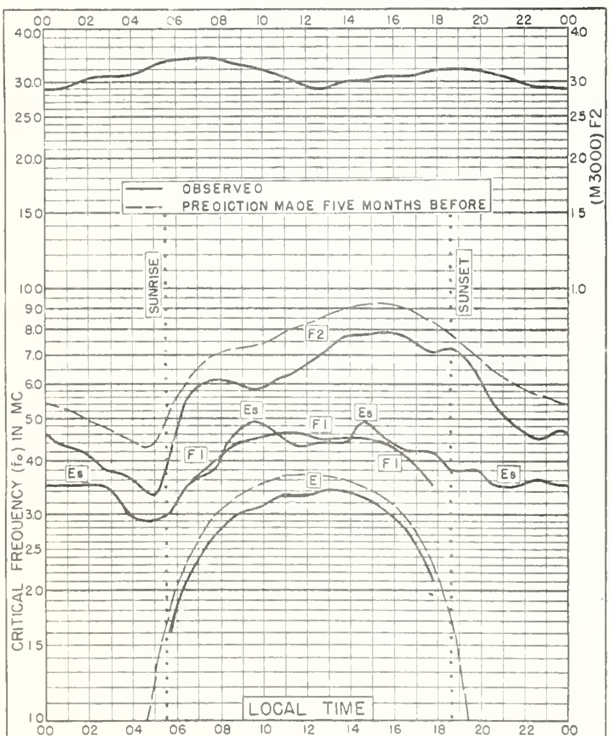


Fig. 71. YAMAGAWA, JAPAN
31.2°N, 130.6°E AUGUST 1952

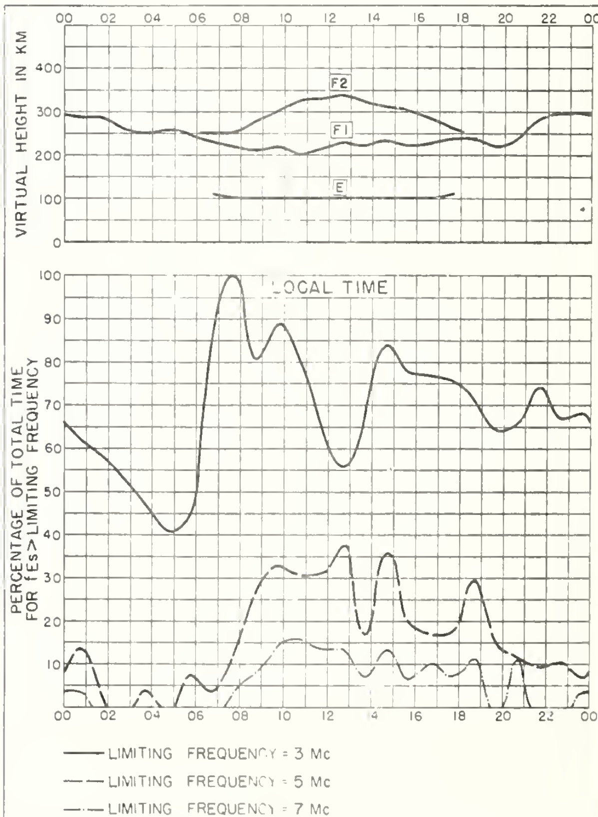


Fig 72. YAMAGAWA, JAPAN AUGUST 1952

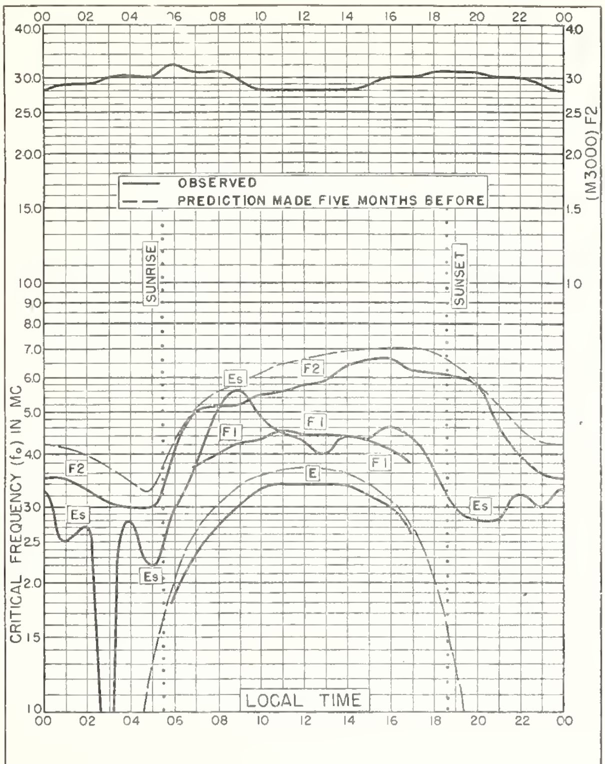


Fig. 73. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W AUGUST 1952

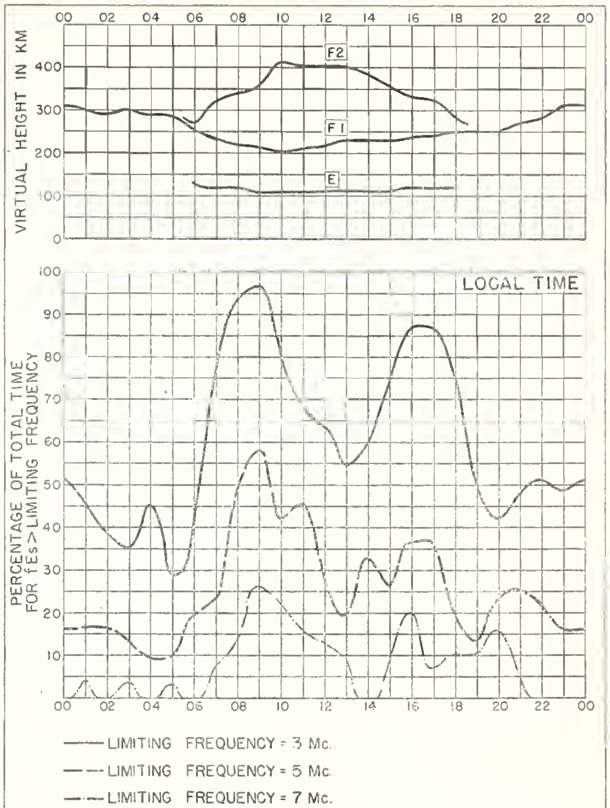


Fig. 74. BATON ROUGE, LOUISIANA AUGUST 1952

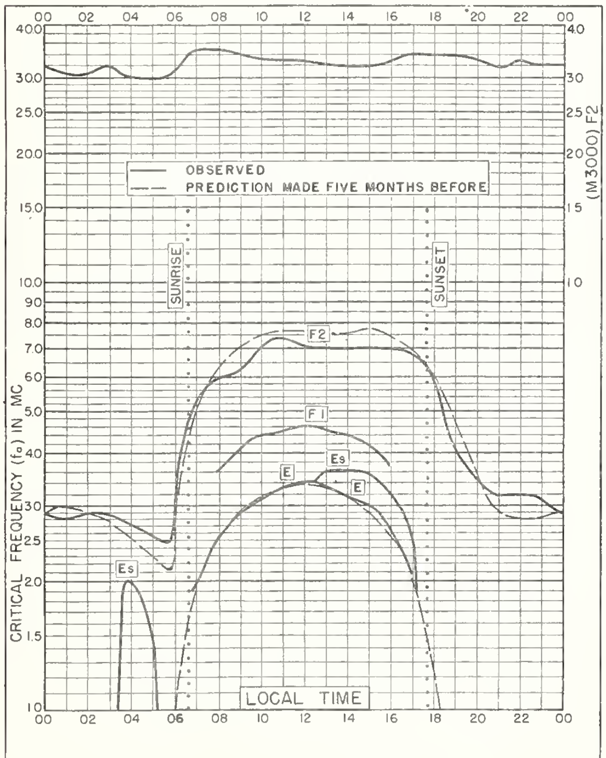


Fig. 75. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E AUGUST 1952

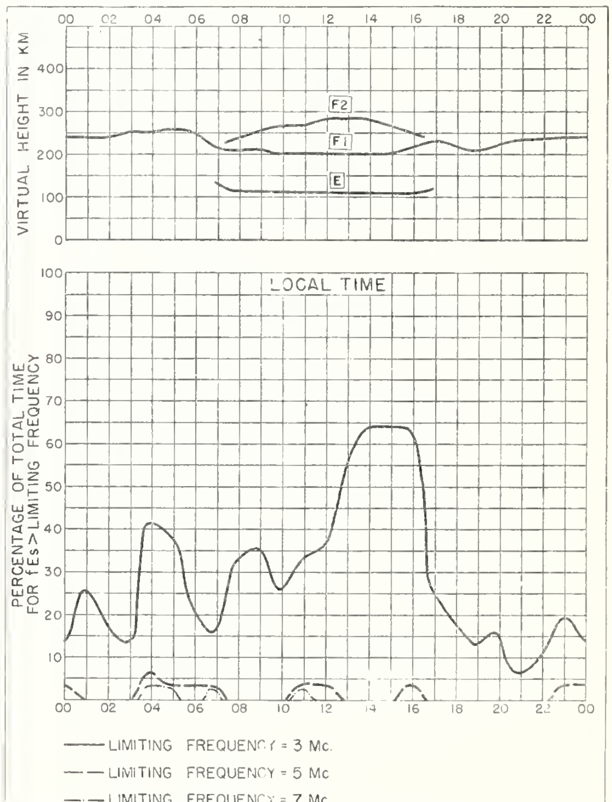


Fig. 76. JOHANNESBURG, U. OF S. AFRICA AUGUST 1952

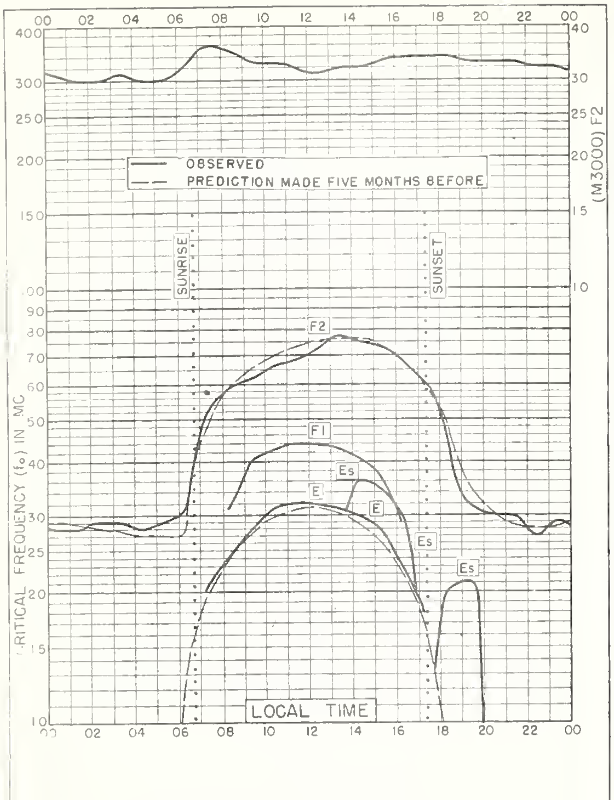


Fig. 77. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E AUGUST 1952

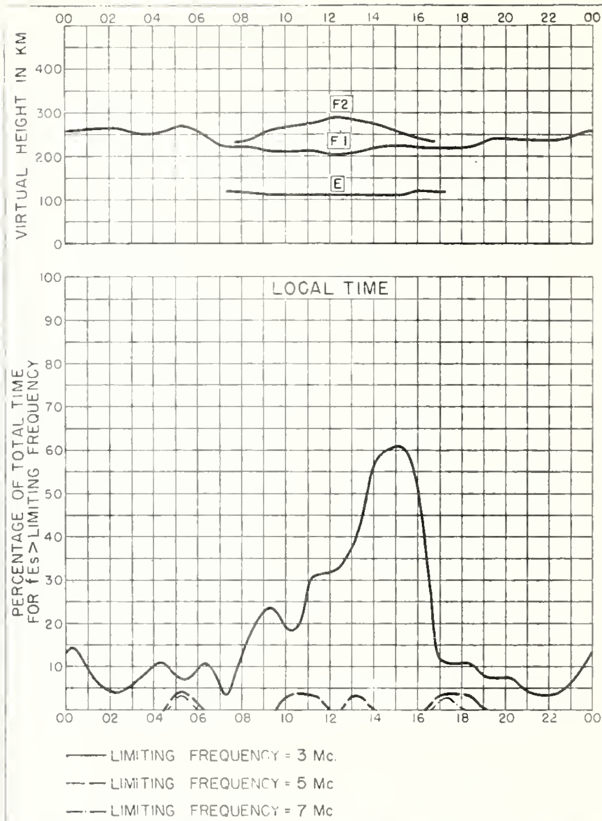


Fig. 78. CAPETOWN, U. OF S. AFRICA AUGUST 1952

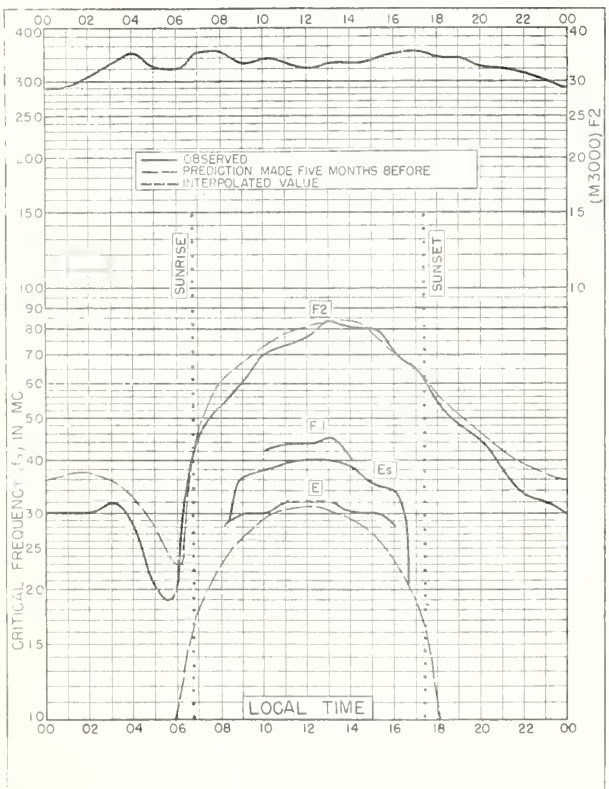


Fig 79. BUENOS AIRES, ARGENTINA
34.5° S, 58.5° W AUGUST 1952

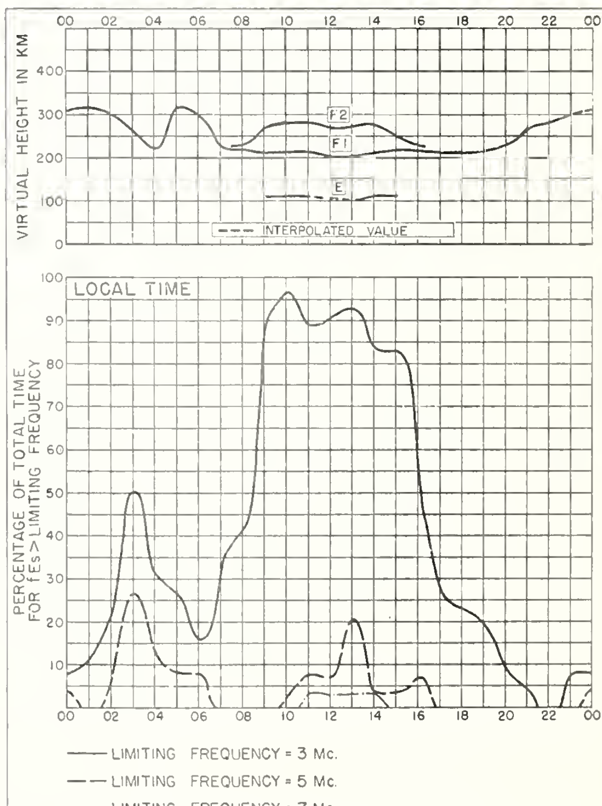


Fig. 80. BUENOS AIRES, ARGENTINA AUGUST 1952

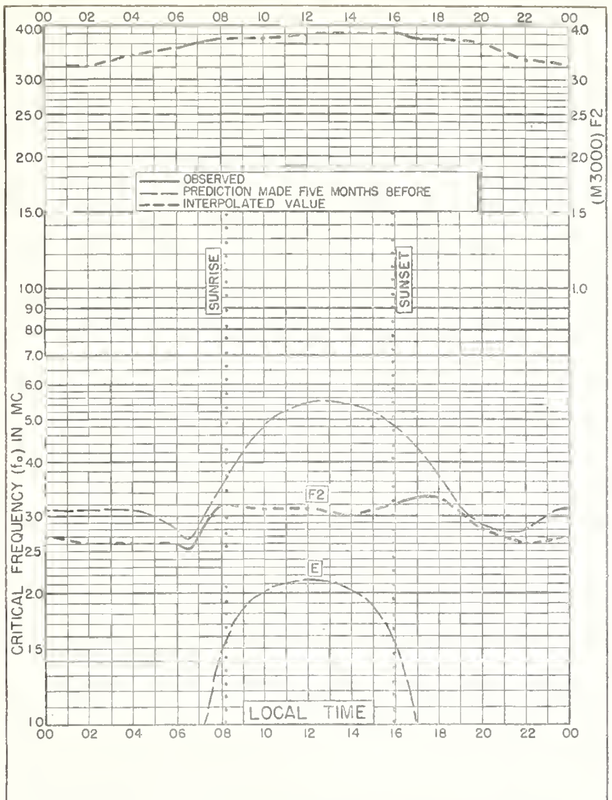


Fig. 81. DECEPCION I.
63.0°S, 60.7° W
AUGUST 1952

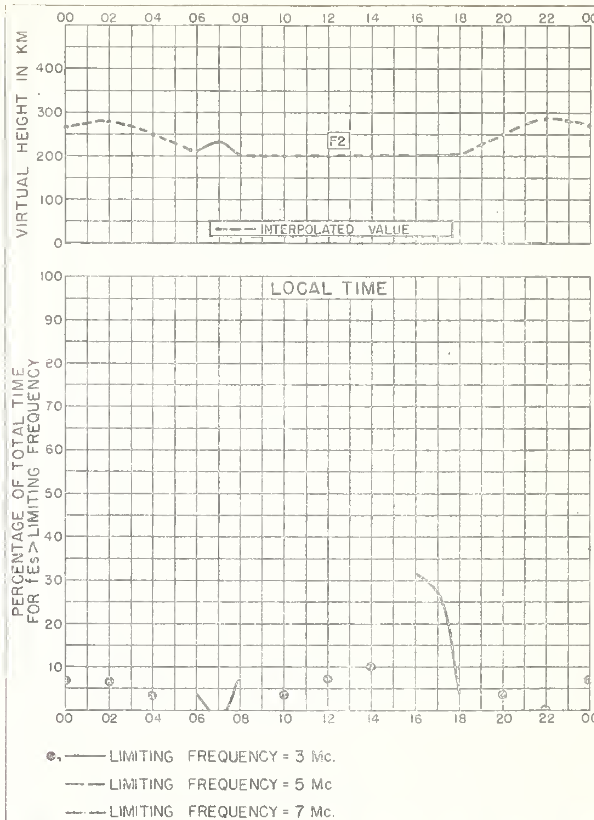


Fig.82. DECEPCION I.
AUGUST 1952

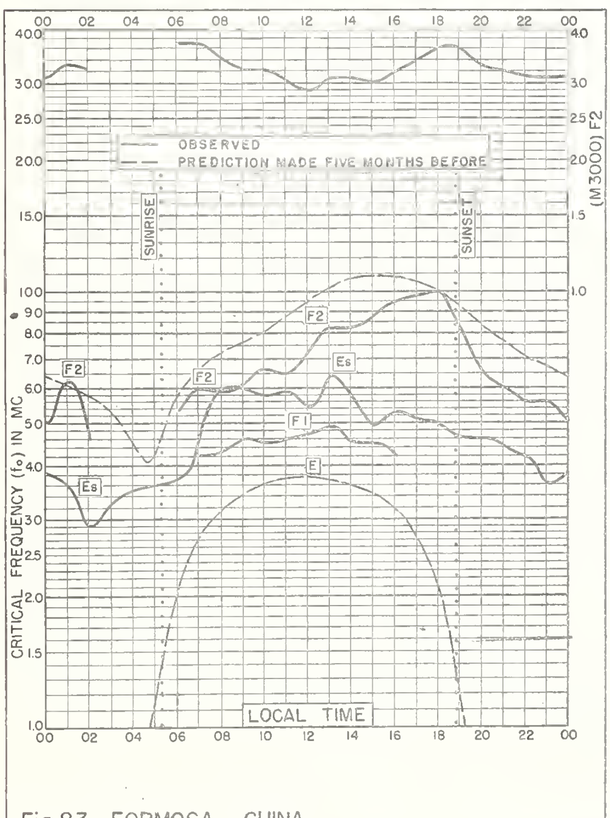


Fig.83. FORMOSA, CHINA
25.0°N, 121.5°E
JULY 1952

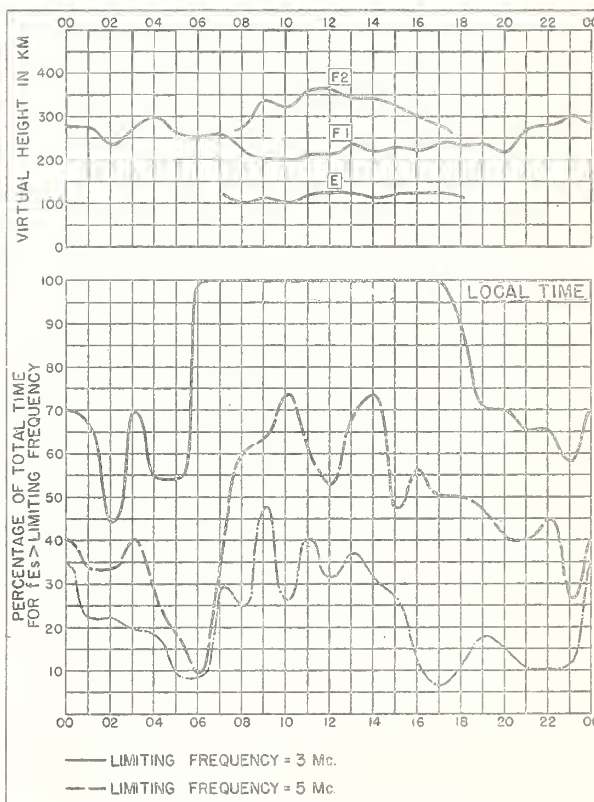


Fig.84. FORMOSA, CHINA
JULY 1952

NBS 420

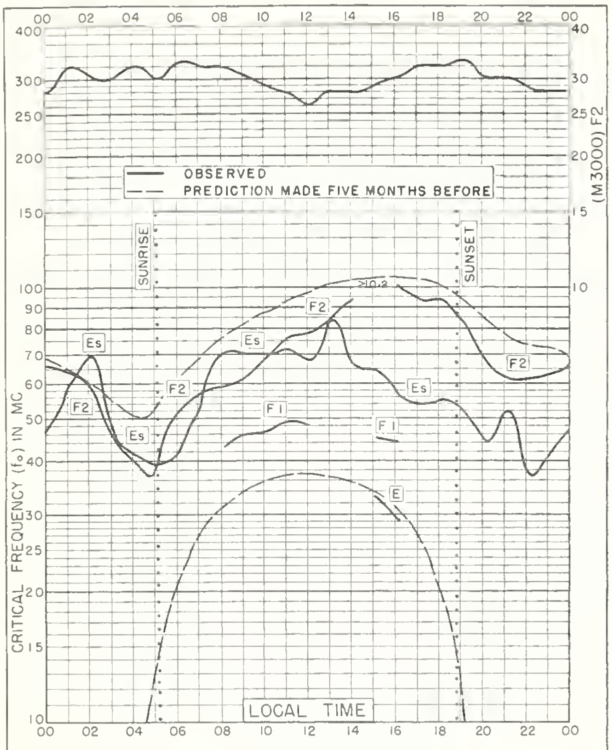


Fig. 85. FORMOSA, CHINA
25.0°N, 121.5°E JUNE 1952

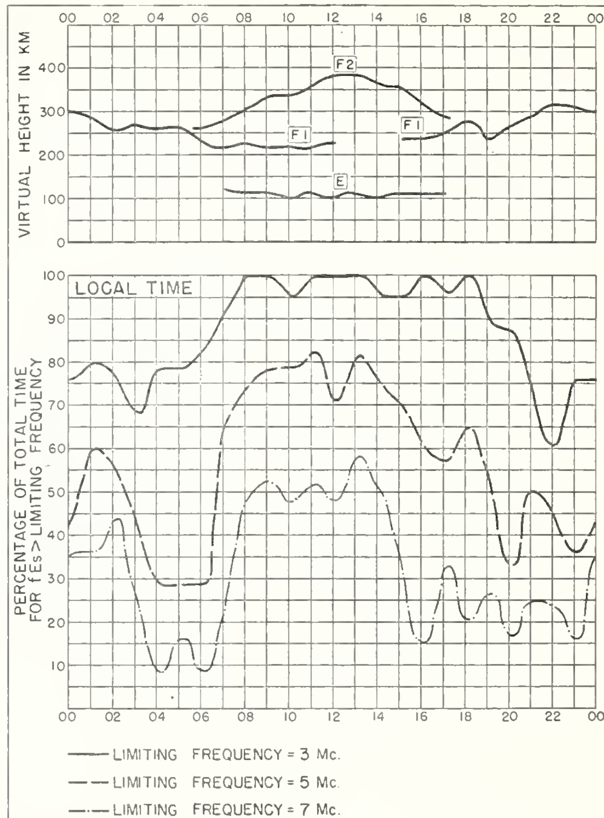


Fig. 86. FORMOSA, CHINA JUNE 1952

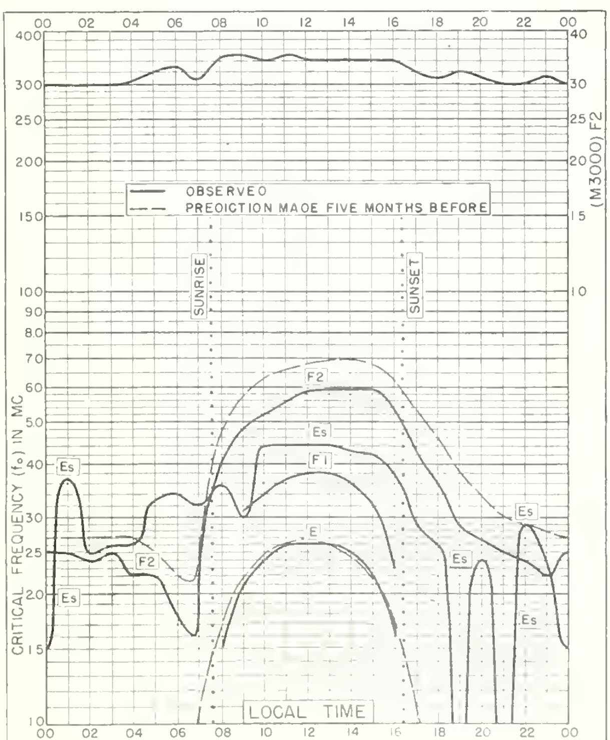


Fig. 87. CHRISTCHURCH, N.Z.
43.6°S 172.7°E JUNE 1952

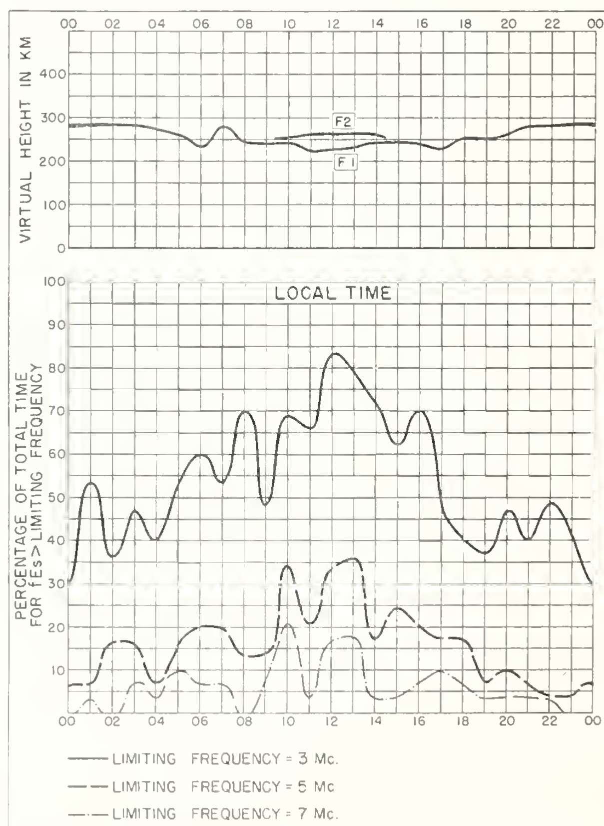


Fig. 88. CHRISTCHURCH, N.Z. JUNE 1952

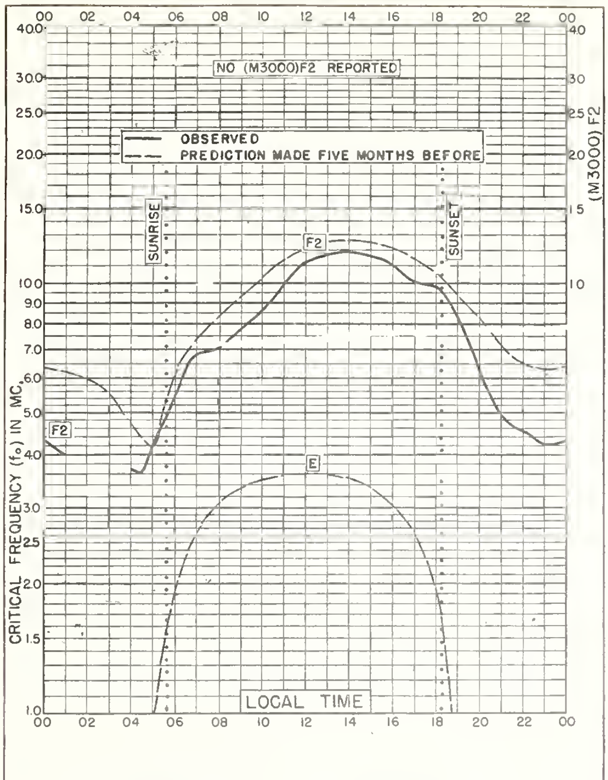


Fig. 89. DELHI, INDIA
28.6°N, 77.1°E APRIL 1952

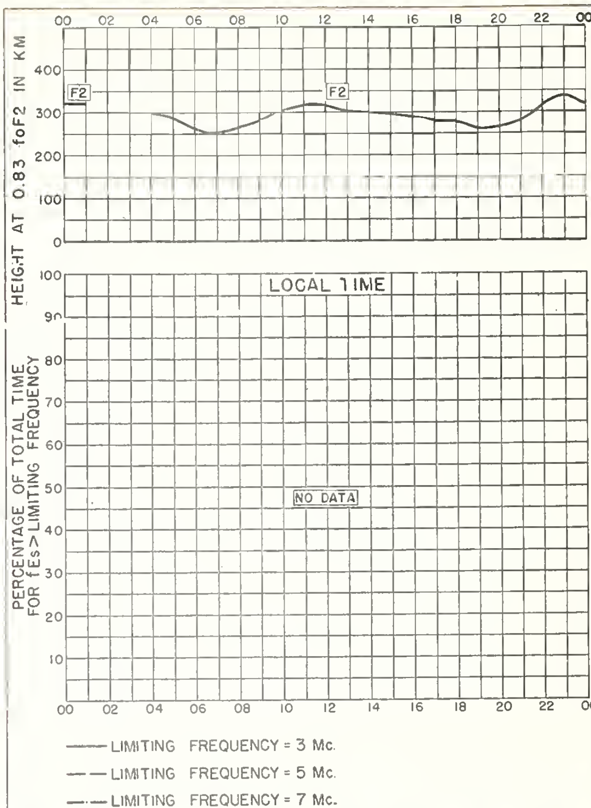


Fig. 90. DELHI, INDIA APRIL 1952

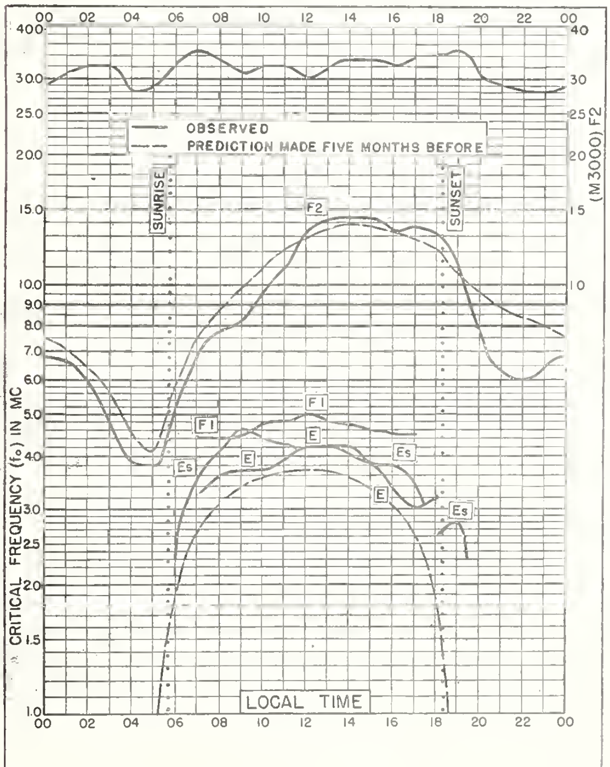


Fig. 91. FORMOSA, CHINA
25.0°N, 121.5°E APRIL 1952

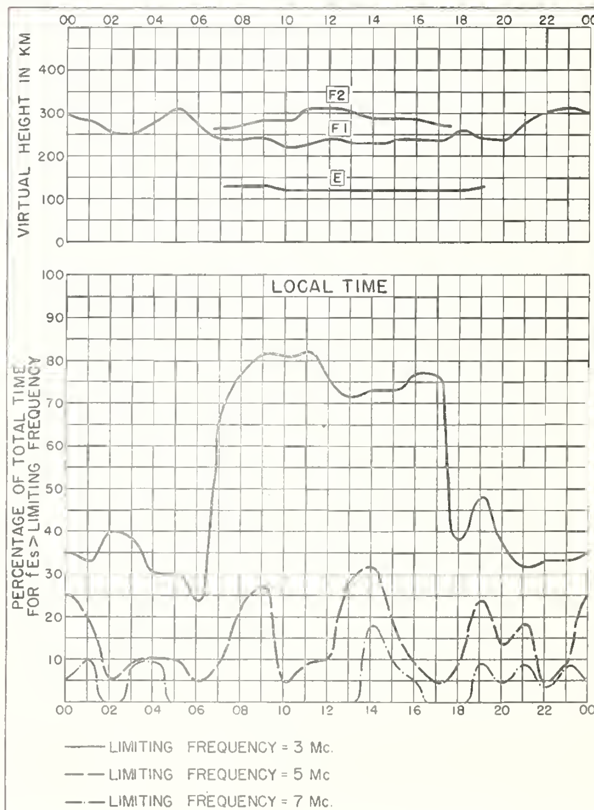


Fig. 92. FORMOSA, CHINA APRIL 1952

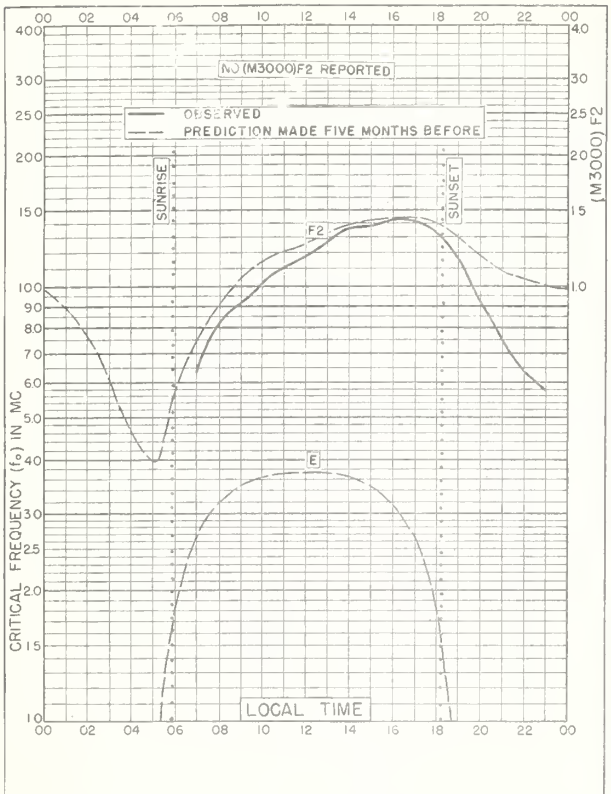


Fig. 93. BOMBAY, INDIA
19.0° N, 73.0° E APRIL 1952

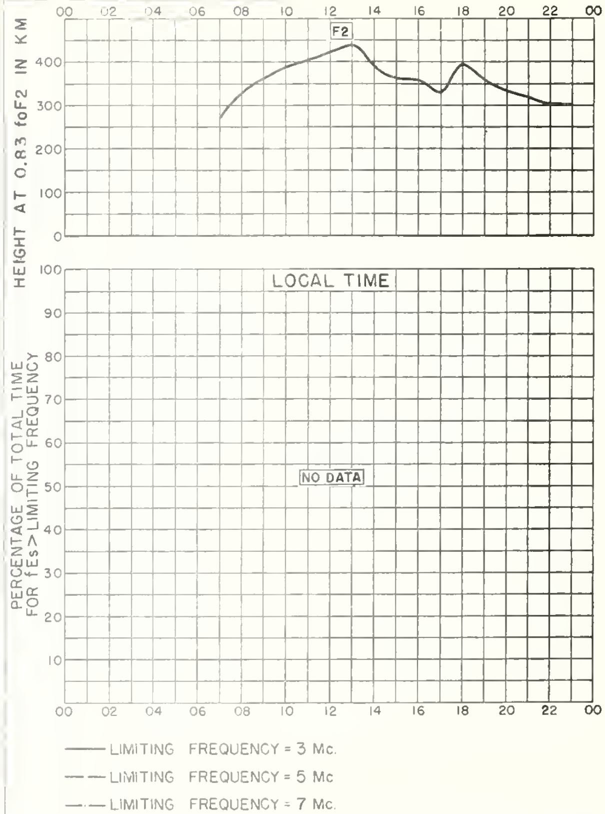


Fig. 94. BOMBAY, INDIA APRIL 1952

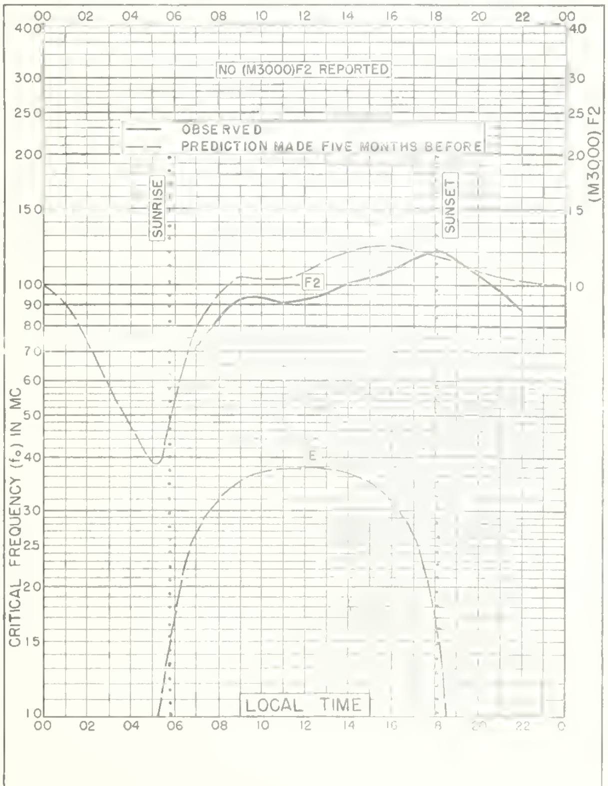


Fig. 95. MADRAS, INDIA
13.0°N, 80.2°E APRIL 1952

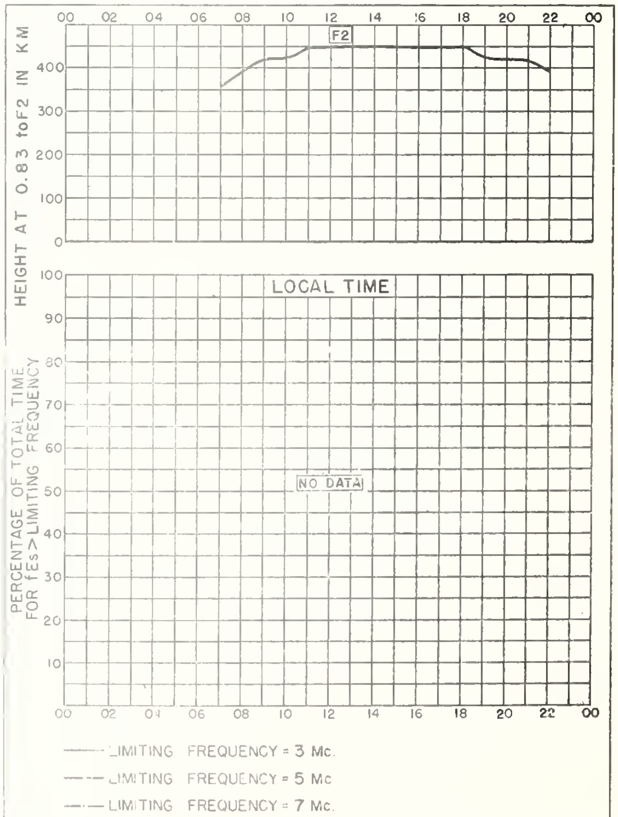


Fig. 96. MADRAS, INDIA APRIL 1952

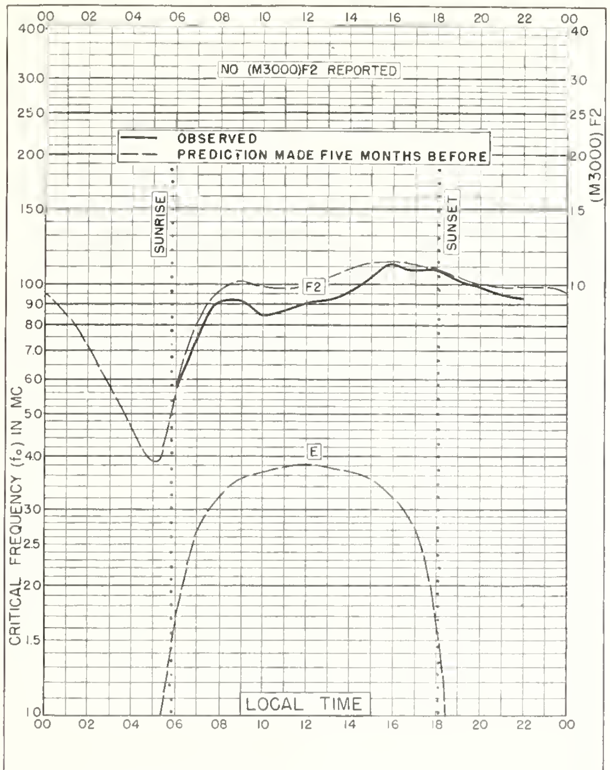


Fig 97. TIRUCHY, INDIA
10.8°N, 78.8°E APRIL 1952

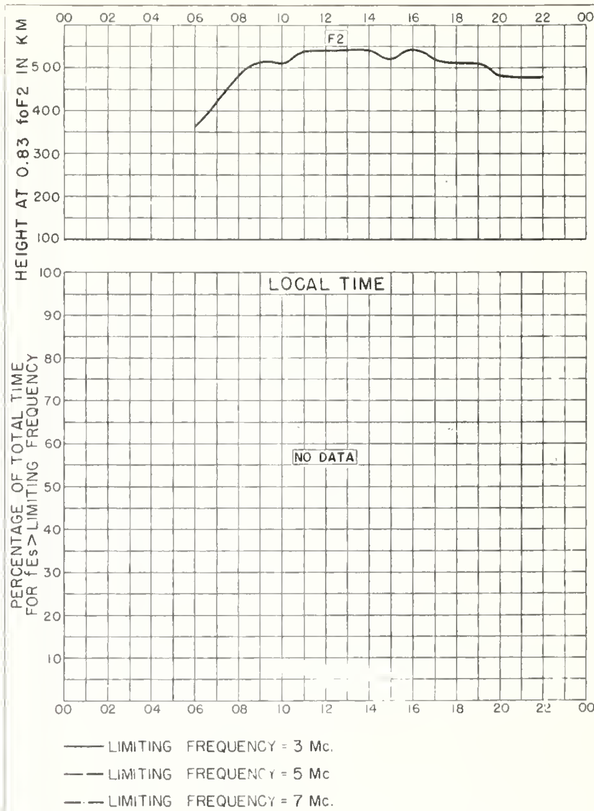


Fig. 98. TIRUCHY, INDIA APRIL 1952

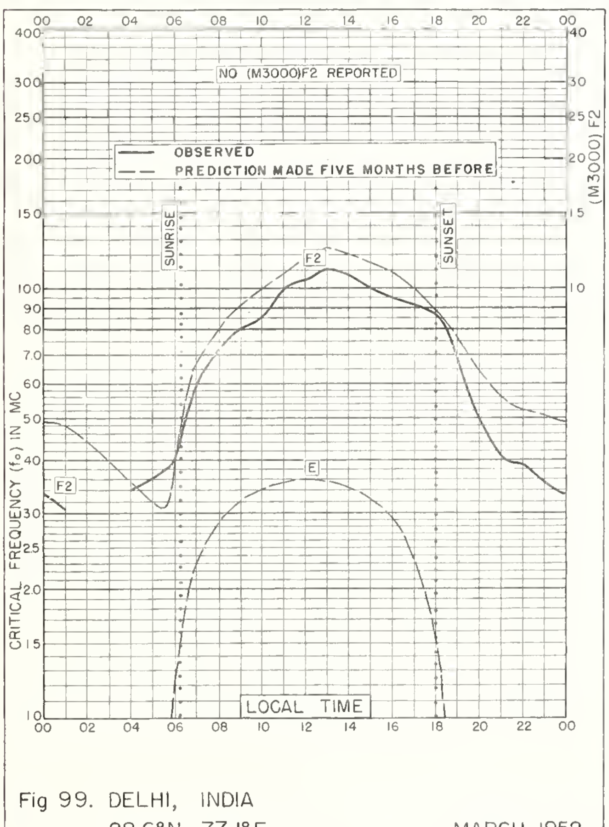


Fig 99. DELHI, INDIA
28.6°N, 77.1°E MARCH 1952

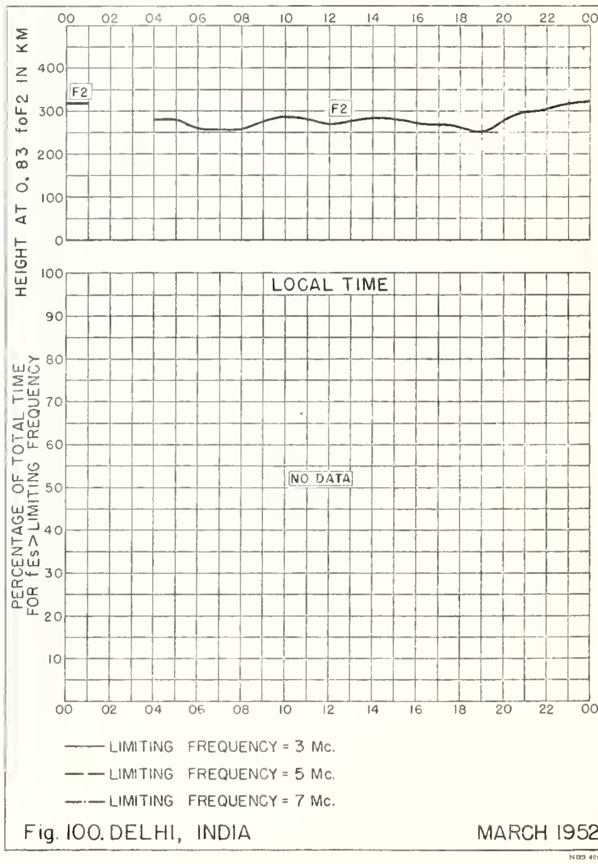


Fig. 100. DELHI, INDIA MARCH 1952

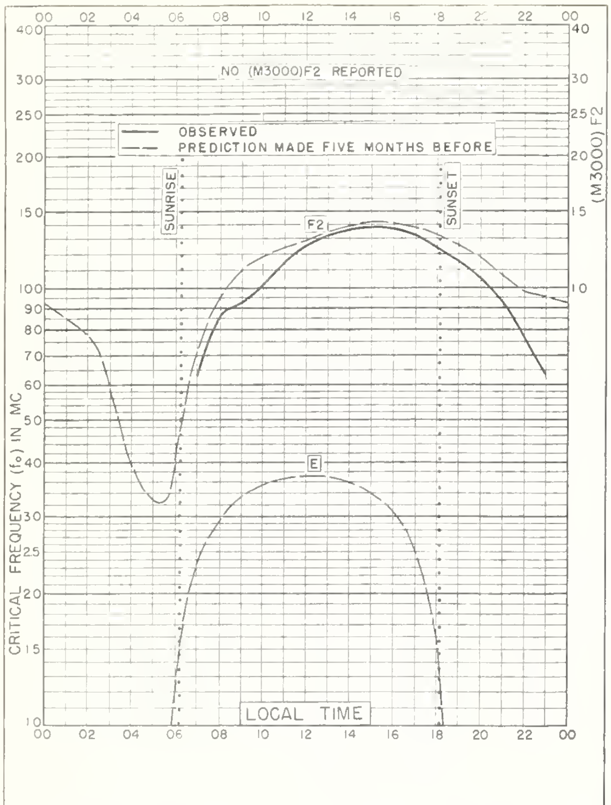


Fig. 101 BOMBAY, INDIA
19.0°N, 73.0°E MARCH 1952

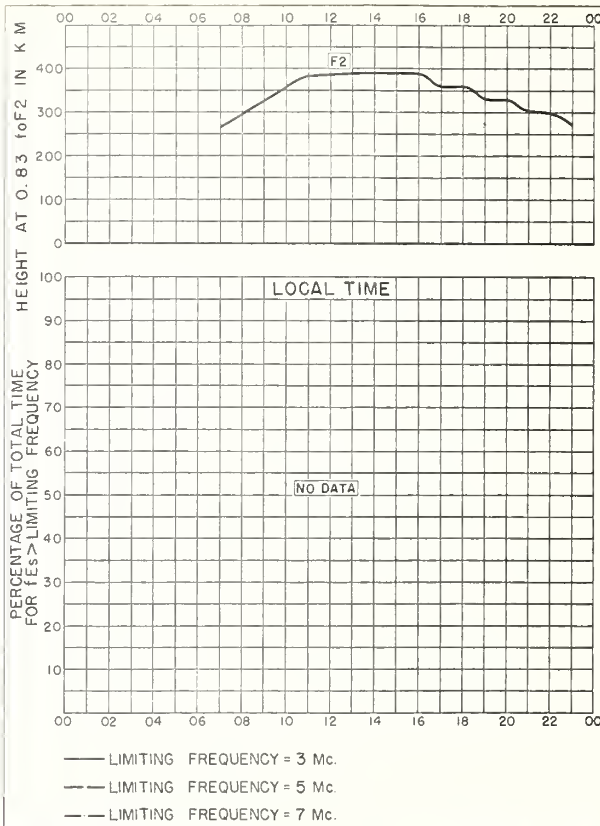


Fig. 102. BOMBAY, INDIA MARCH 1952

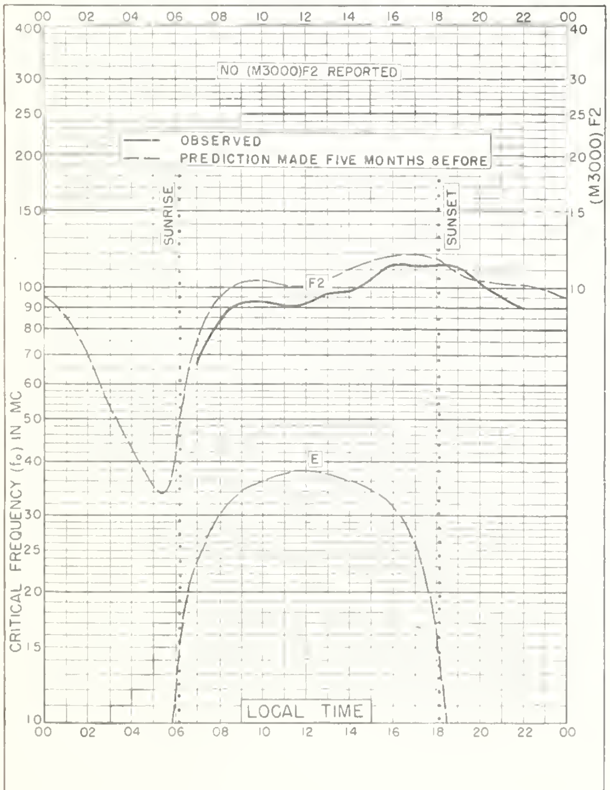


Fig 103 MADRAS, INDIA
13.0°N, 80.2°E MARCH 1952

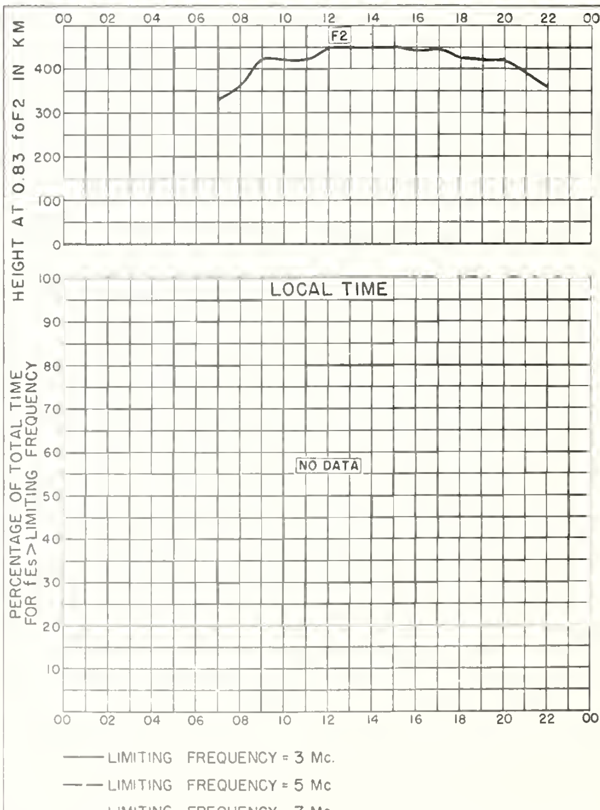


Fig 104 MADRAS, INDIA MARCH 1952

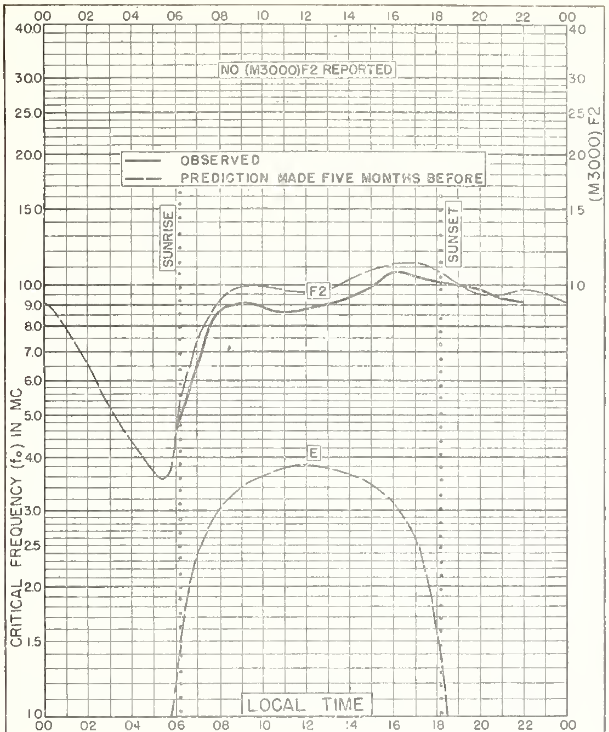


Fig. 105. TIRUCHY, INDIA
10.8°N, 78.8°E
MARCH 1952

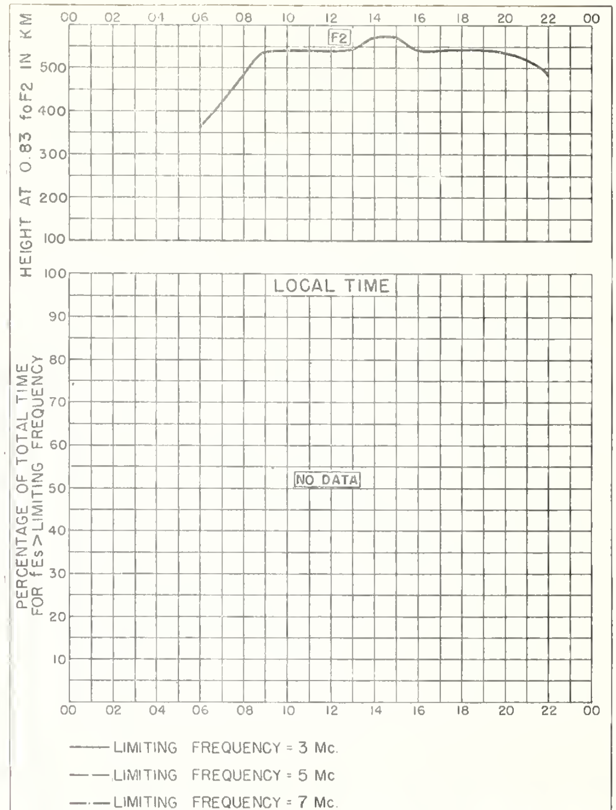


Fig. 106. TIRUCHY, INDIA
MARCH 1952

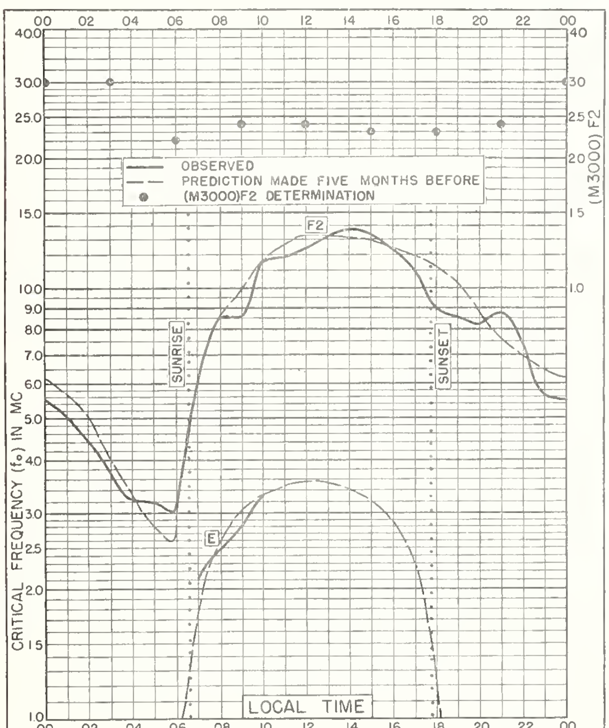


Fig. 107. CALCUTTA, INDIA
22.6°N, 88.4°E
FEBRUARY 1952

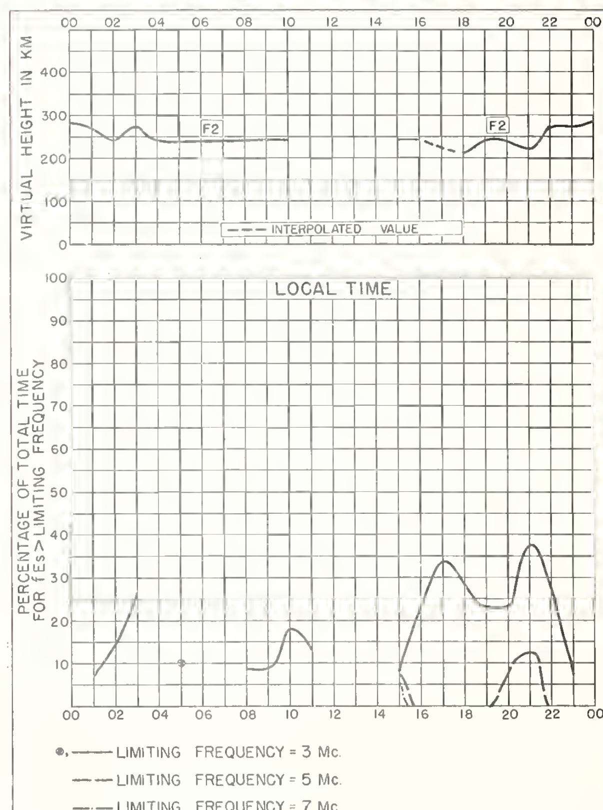


Fig. 108. CALCUTTA, INDIA
FEBRUARY 1952

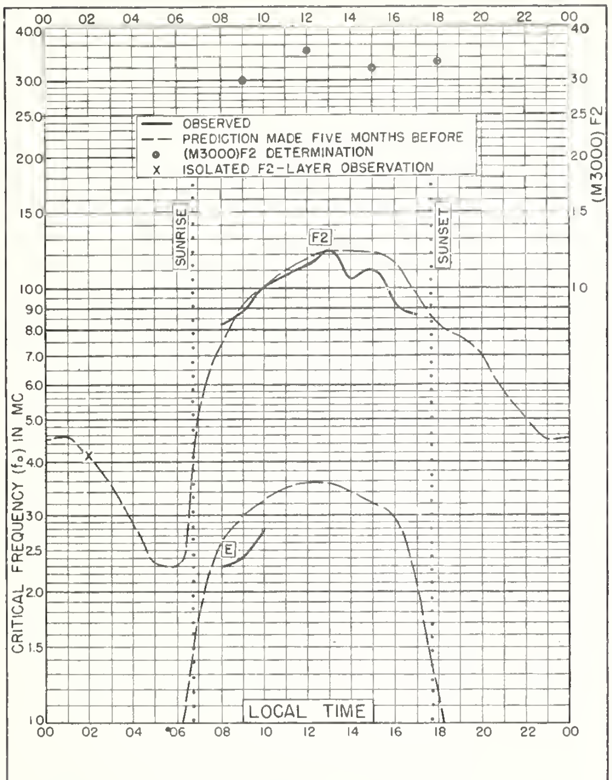


Fig 109 CALCUTTA, INDIA
22.6°N, 88.4°E JANUARY 1952

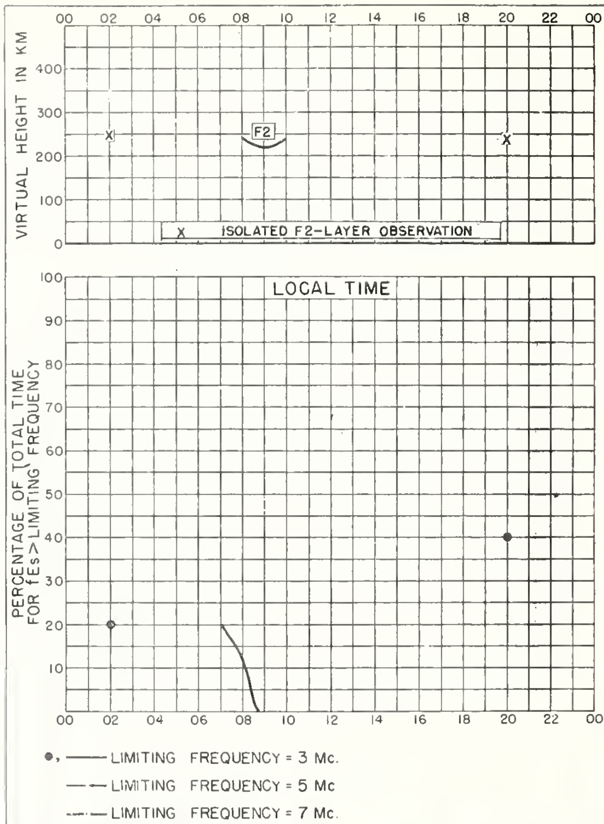


Fig. 110 CALCUTTA, INDIA JANUARY 1952

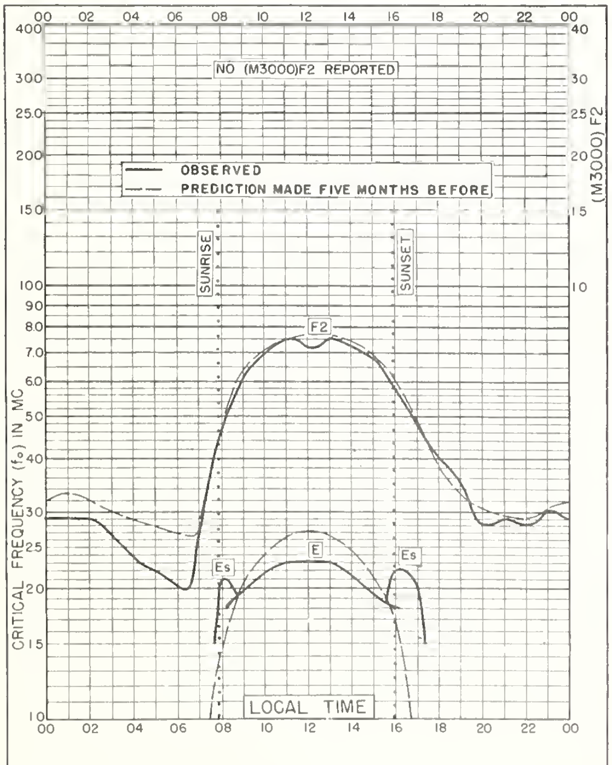


Fig III. DOMONT, FRANCE
49.0°N, 2.3°E DECEMBER 1951

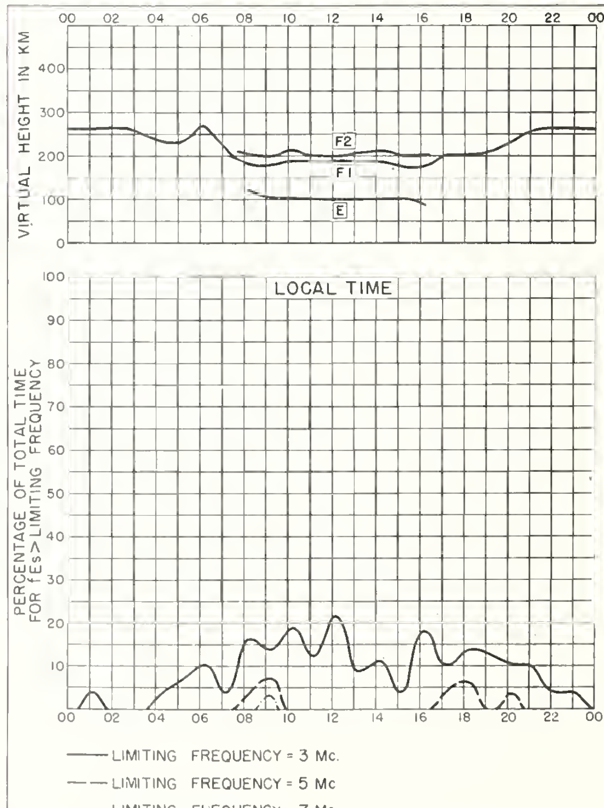


Fig 112. DOMONT, FRANCE DECEMBER 1951

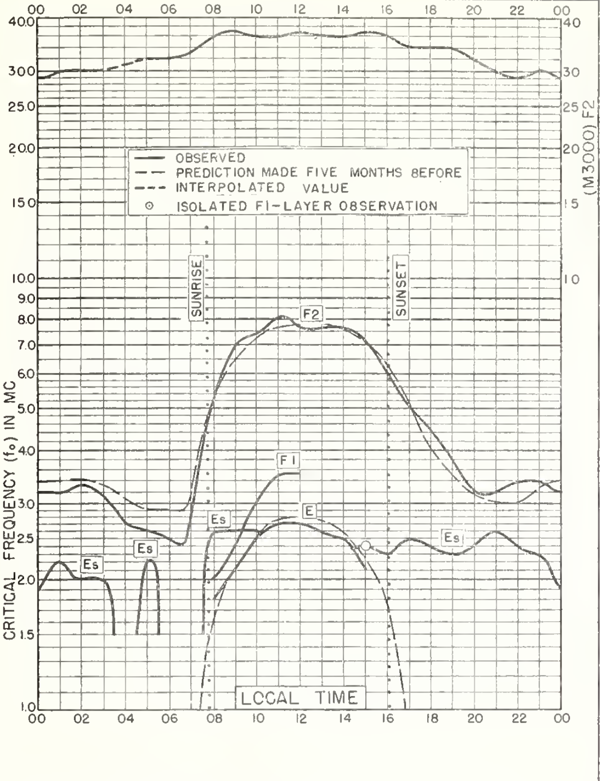


Fig. 113. POITIERS, FRANCE
46.6°N, 0.3°E DECEMBER 1951

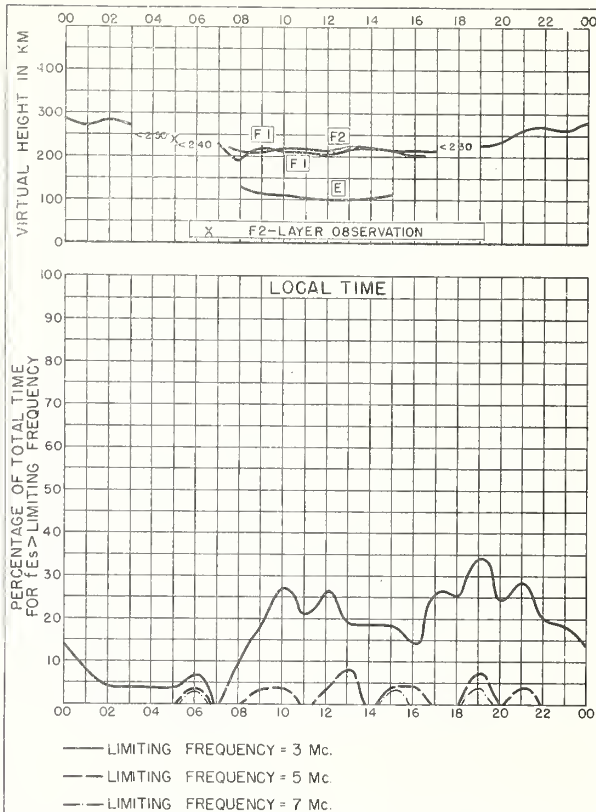


Fig. 114. POITIERS, FRANCE DECEMBER 1951

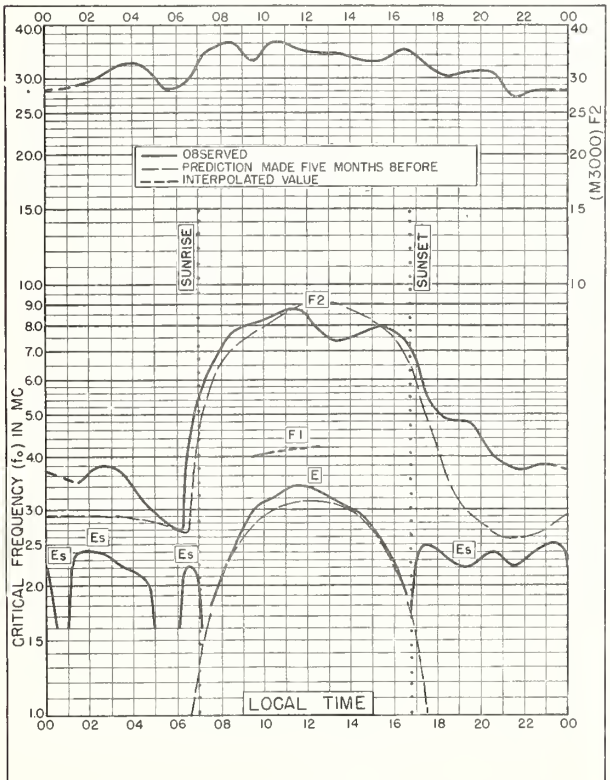


Fig. 115. CASABLANCA, MOROCCO
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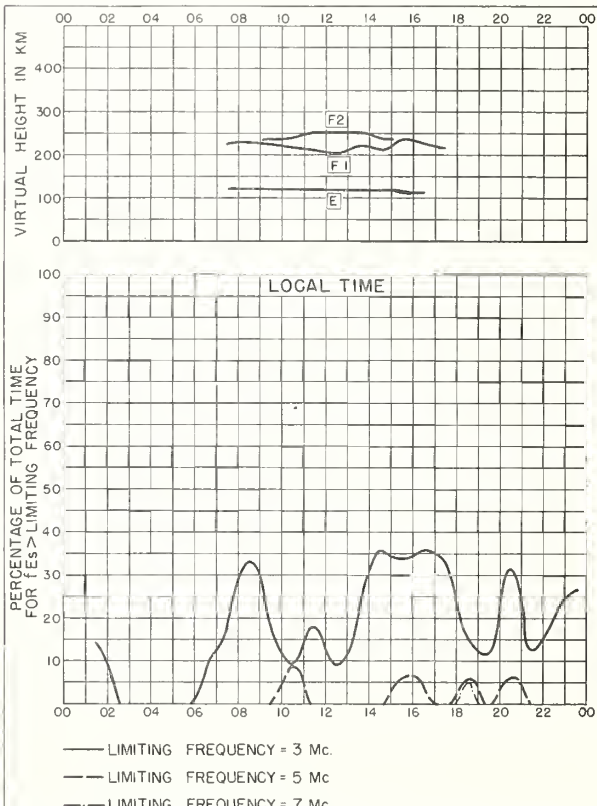


Fig. 116. CASABLANCA, MOROCCO DECEMBER 1951

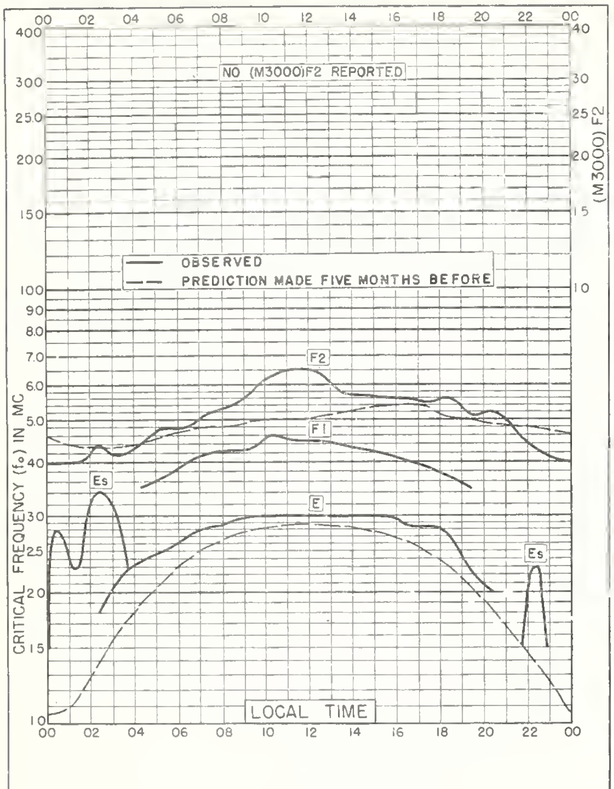
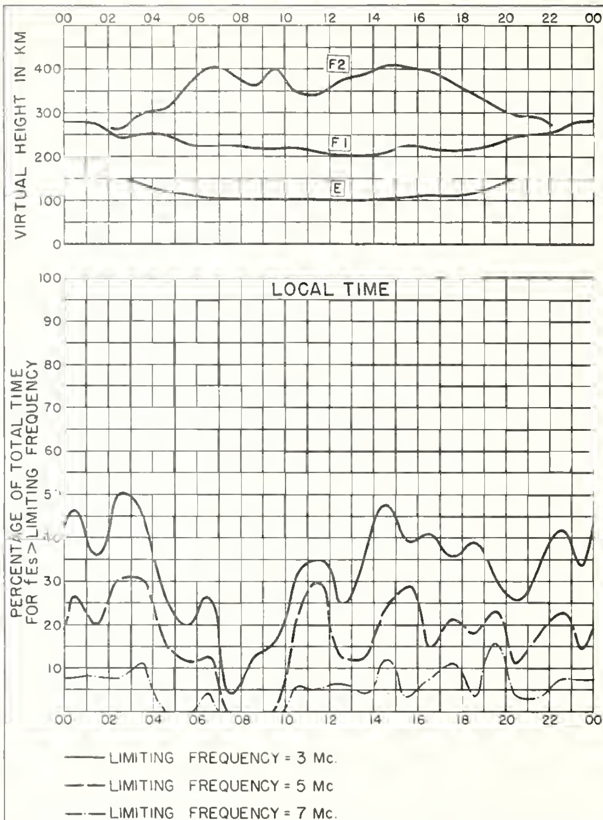


Fig. 117 TERRE ADELIE
66.8° S, 141.4° E DECEMBER 1951



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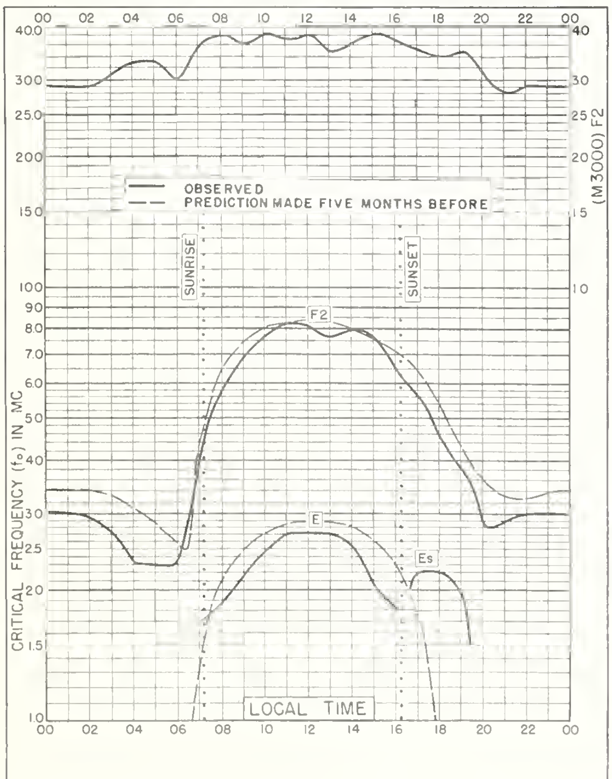

Fig. 119. DOMONT, FRANCE
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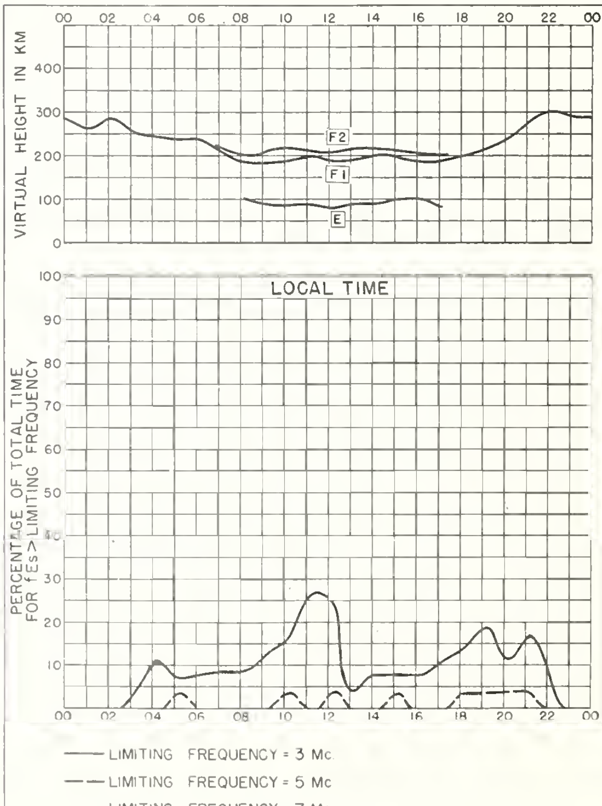

Fig. 120. DOMONT, FRANCE NOVEMBER 1951

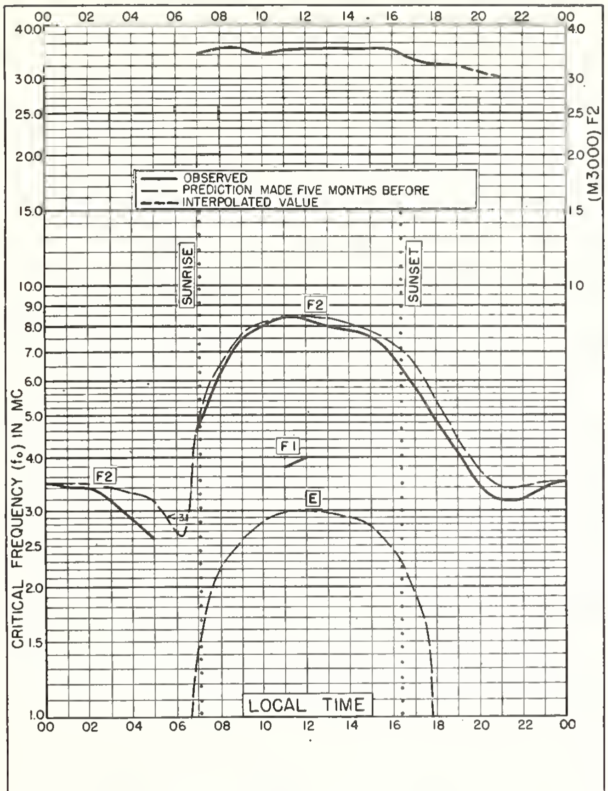

Fig.121. POITIERS, FRANCE
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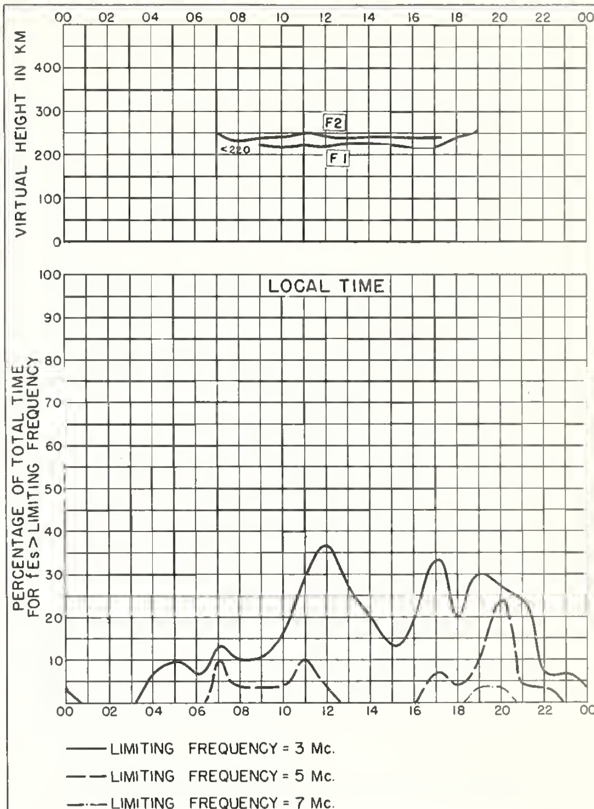

Fig.122. POITIERS, FRANCE NOVEMBER 1951

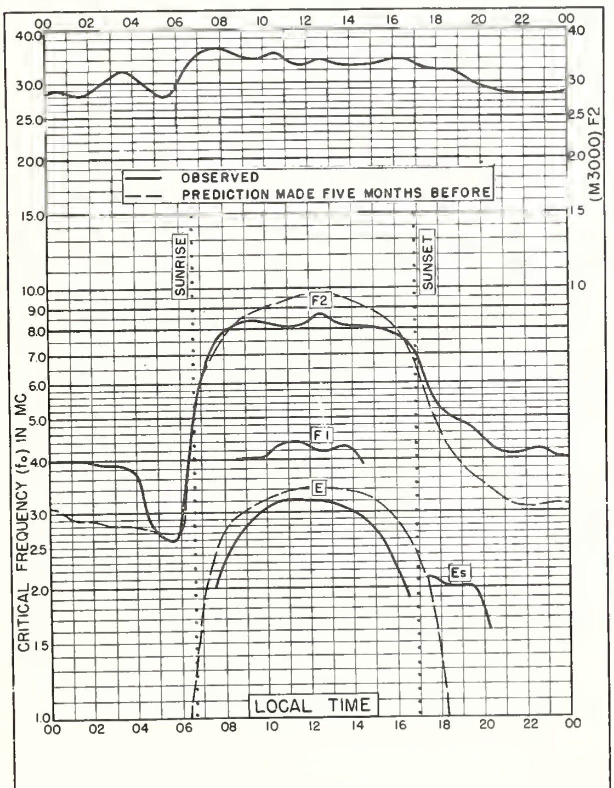

Fig. 123. CASABLANCA, MOROCCO
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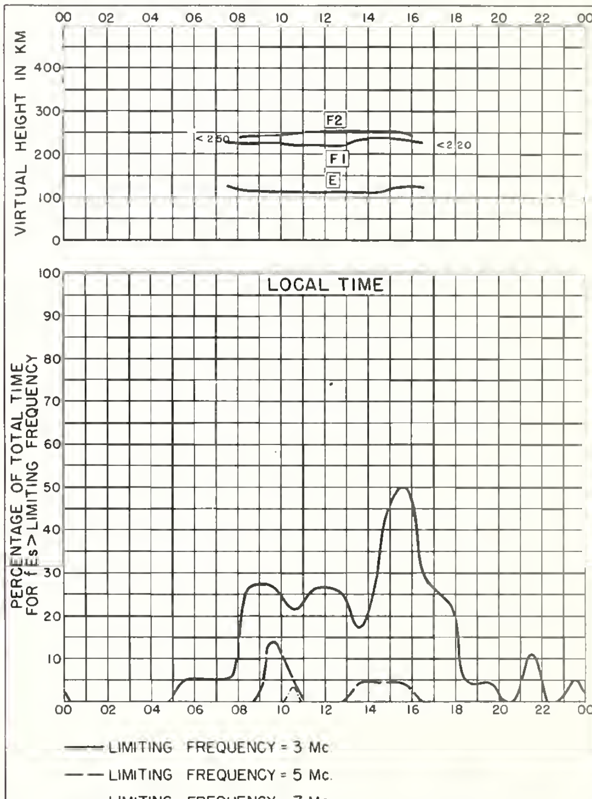

Fig.124.CASABLANCA, MOROCCO NOVEMBER 1951

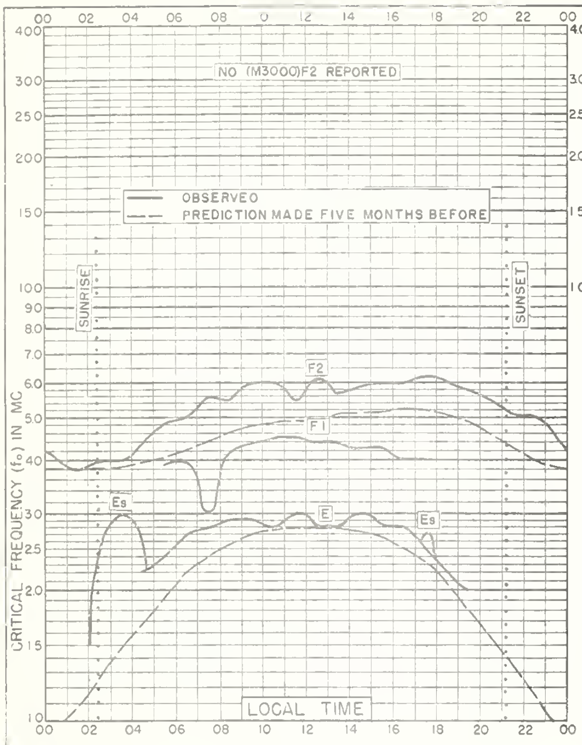

Fig.125. TERRE ADELIE
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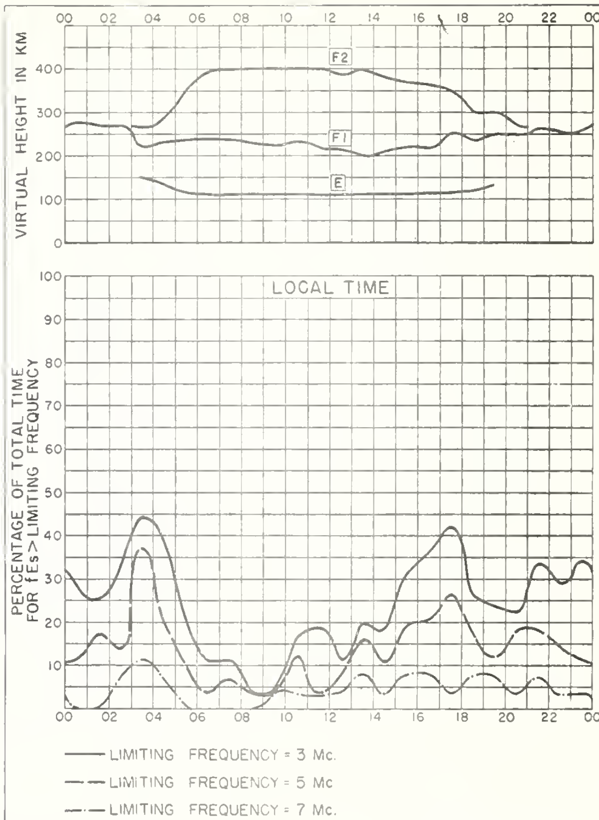

Fig.126. TERRE ADELIE NOVEMBER 1951

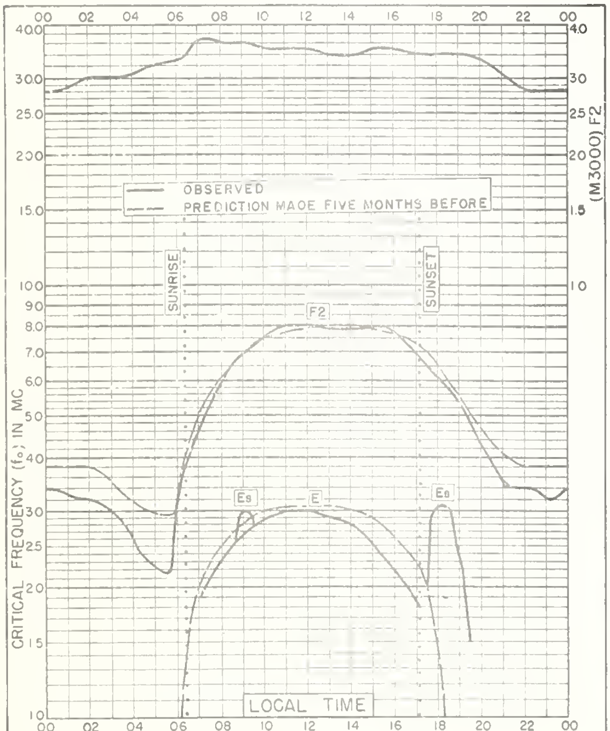

Fig 127 DOMONT, FRANCE
49.0°N, 2.3°E OCTOBER 1951

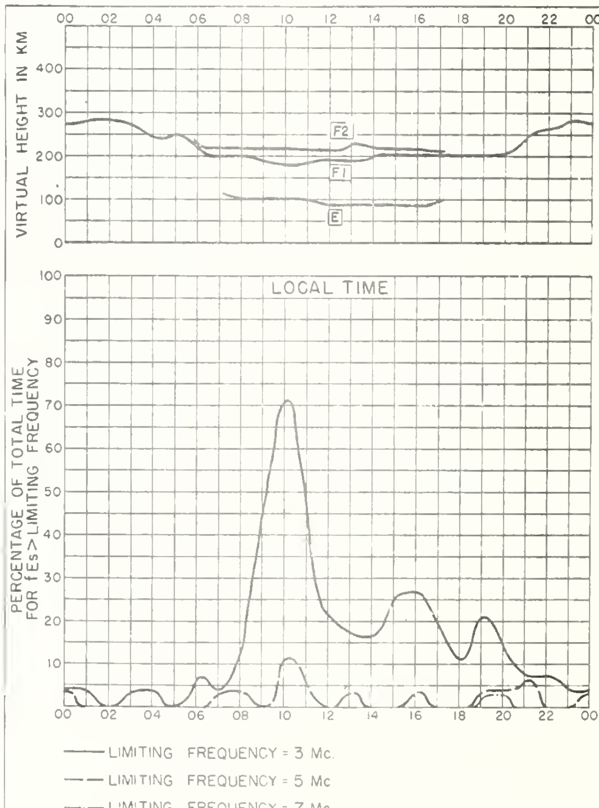

Fig 128. DOMONT, FRANCE OCTOBER 1951

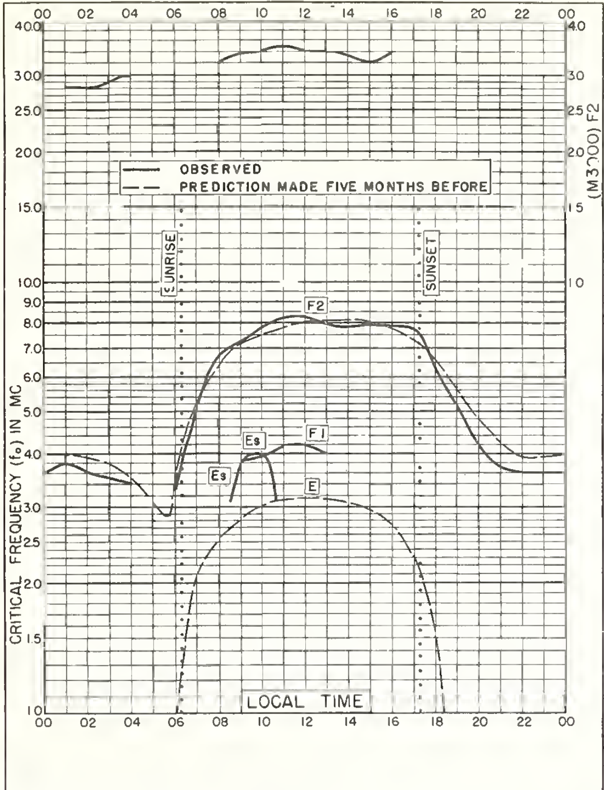

Fig. 129. POITIERS, FRANCE
46.6°N, 0.3°E OCTOBER 1951

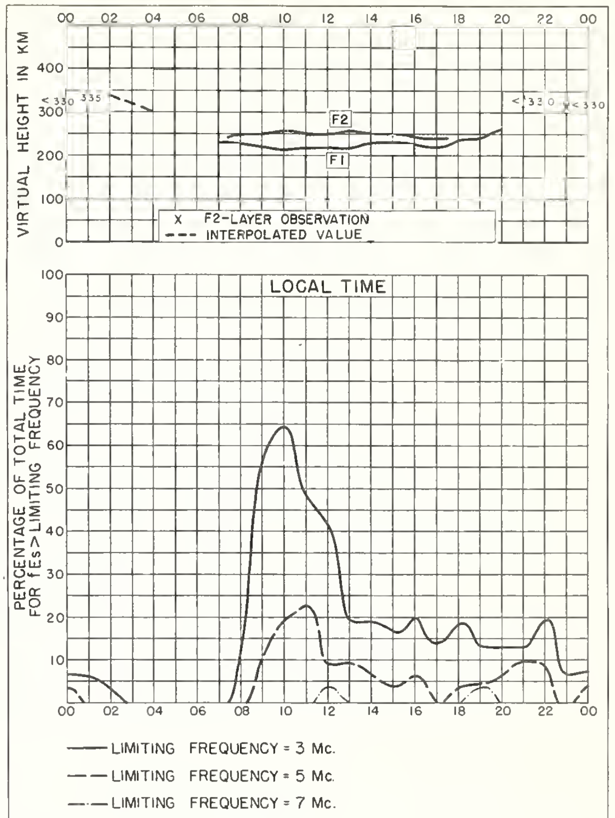

Fig. 130. POITIERS, FRANCE OCTOBER 1951

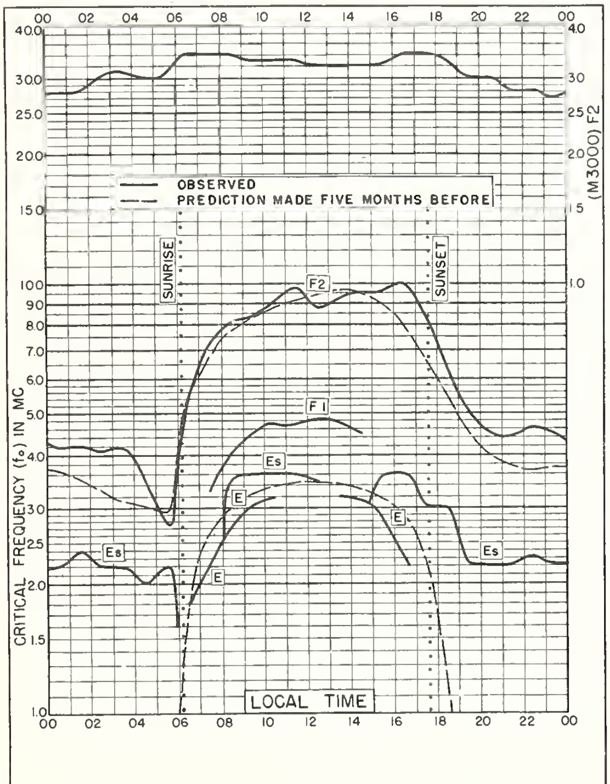

Fig. 131. CASABLANCA, MOROCCO
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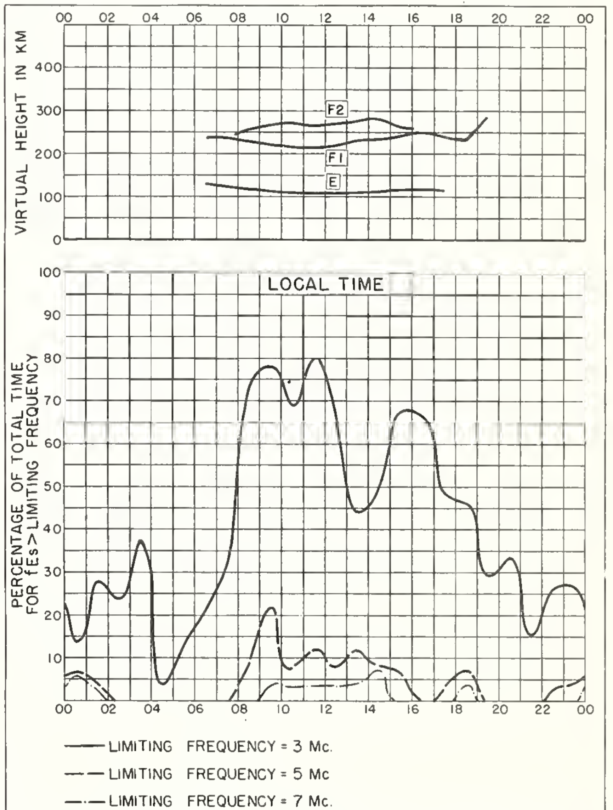

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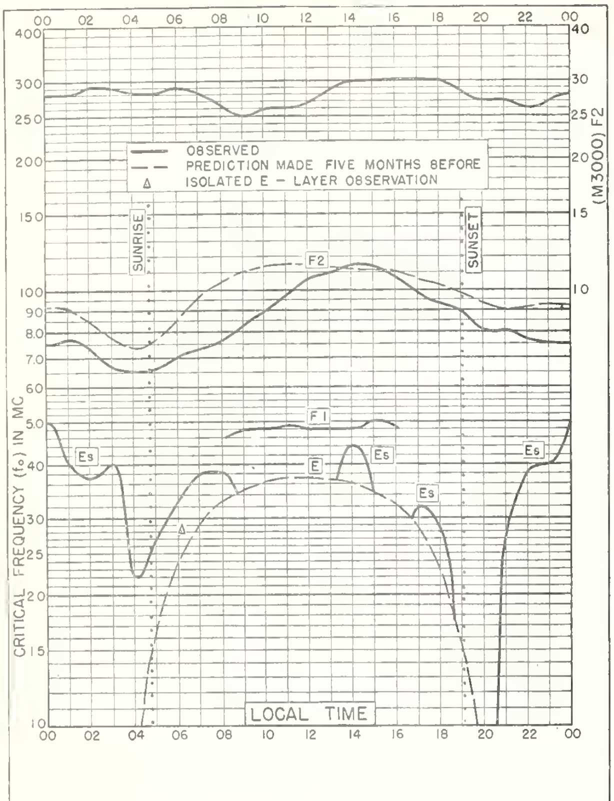

Fig. 133. BUENOS AIRES, ARGENTINA
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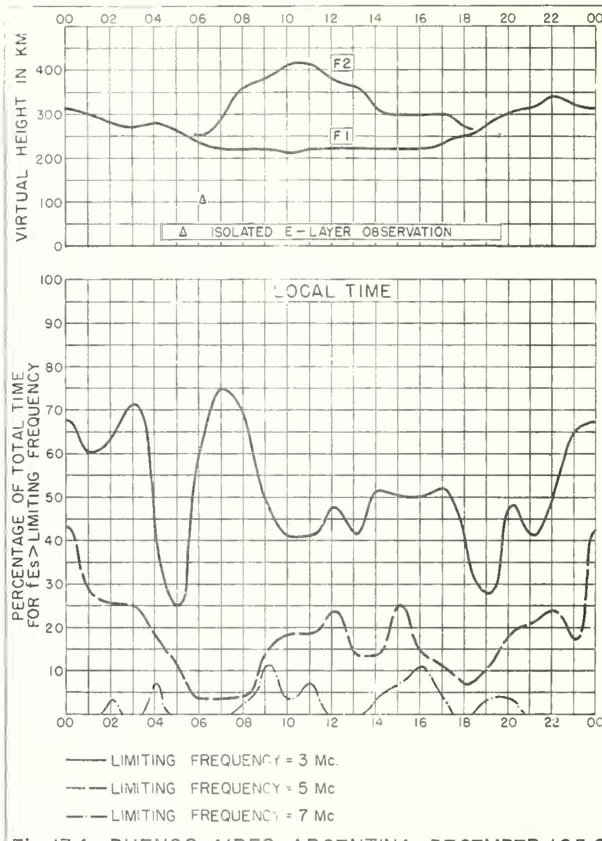

Fig. 134. BUENOS AIRES, ARGENTINA DECEMBER 1950

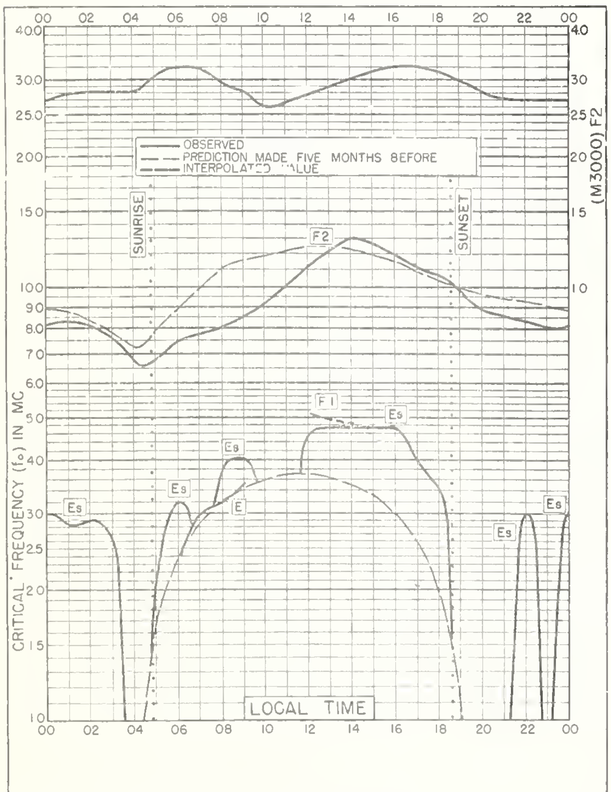

Fig. 135. BUENOS AIRES, ARGENTINA
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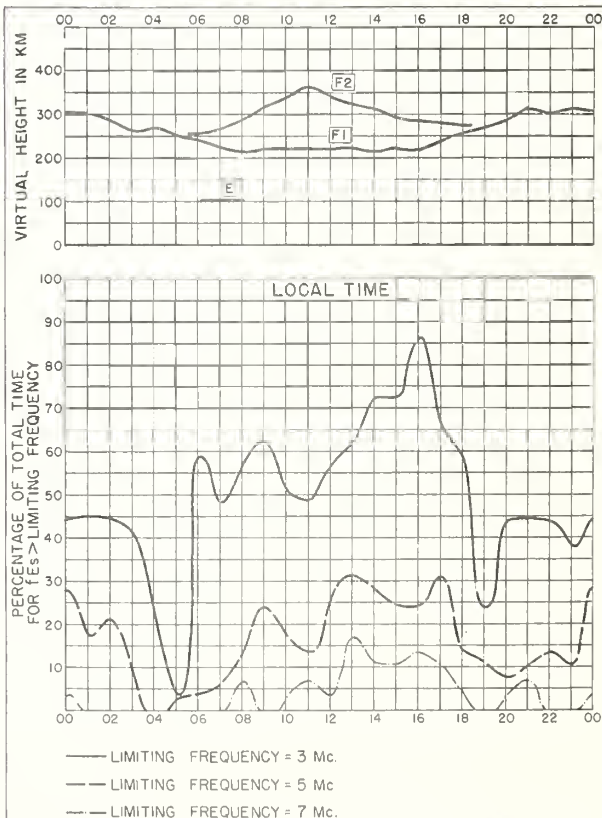

Fig. 136. BUENOS AIRES, ARGENTINA NOVEMBER 1950

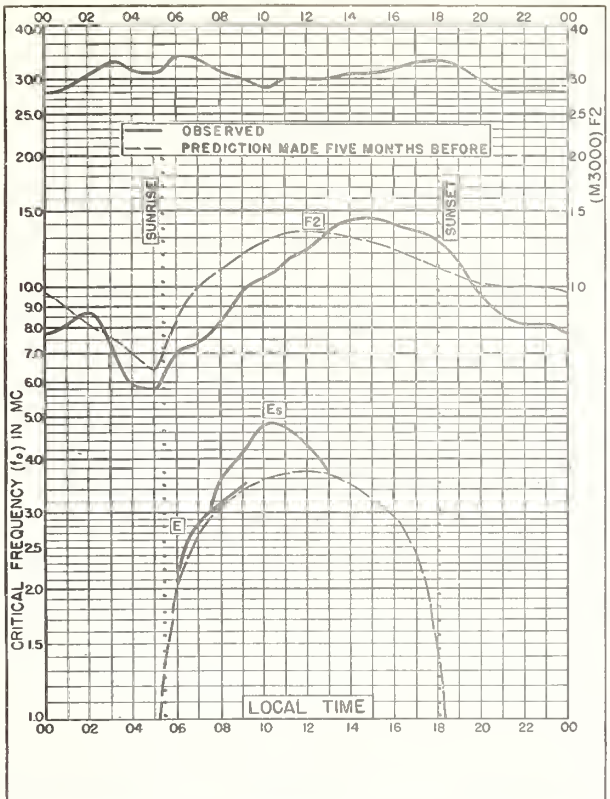

Fig. 137. BUENOS AIRES, ARGENTINA
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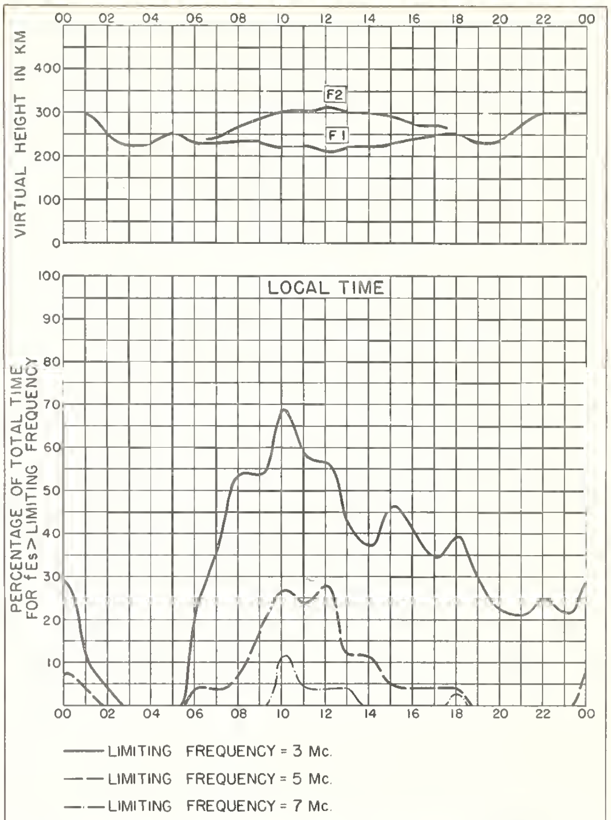

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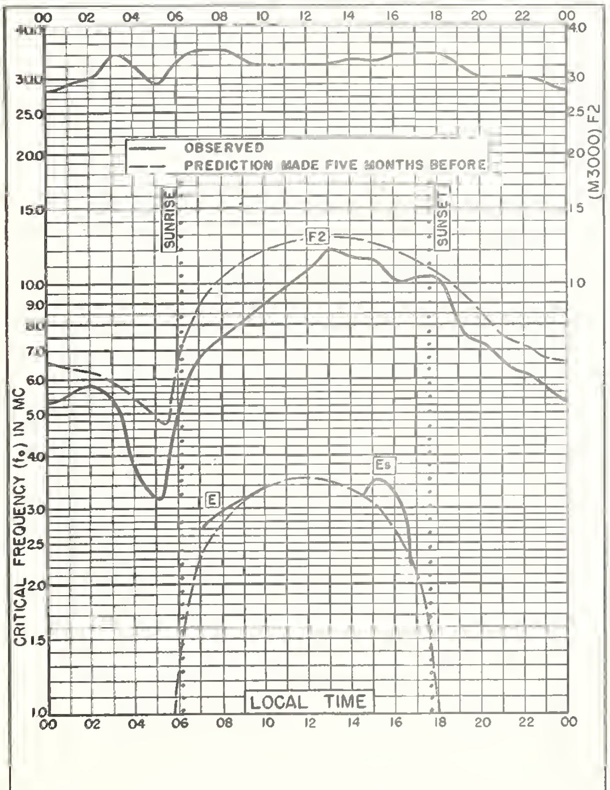

Fig. 139. BUENOS AIRES, ARGENTINA
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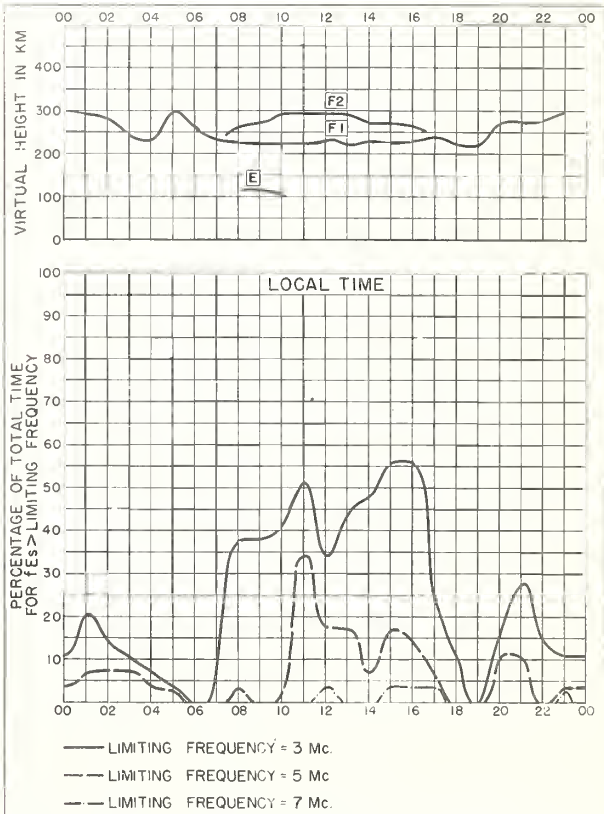

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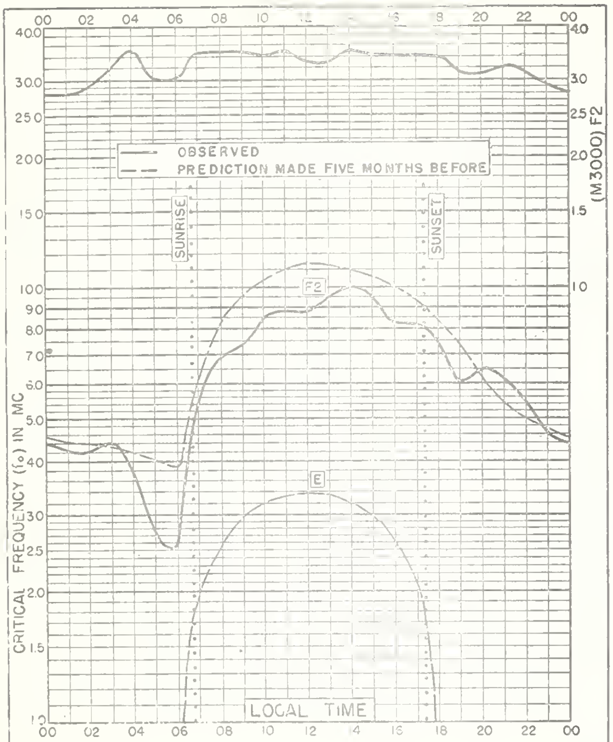

Fig. 141. BUENOS AIRES, ARGENTINA
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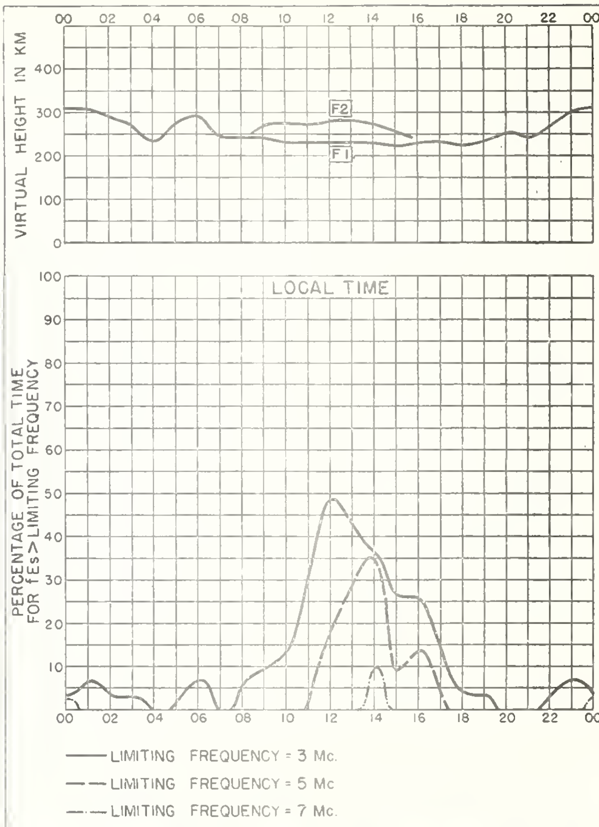
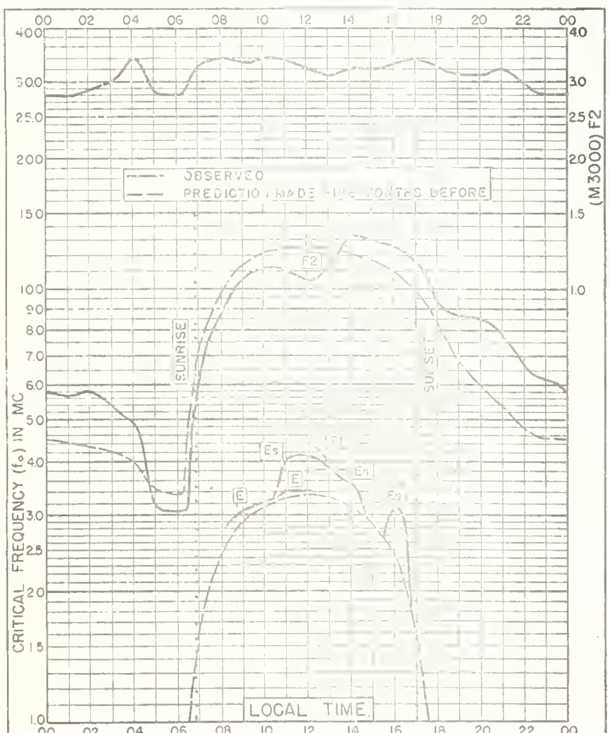


Fig. 142. BUENOS AIRES, ARGENTINA AUGUST 1950



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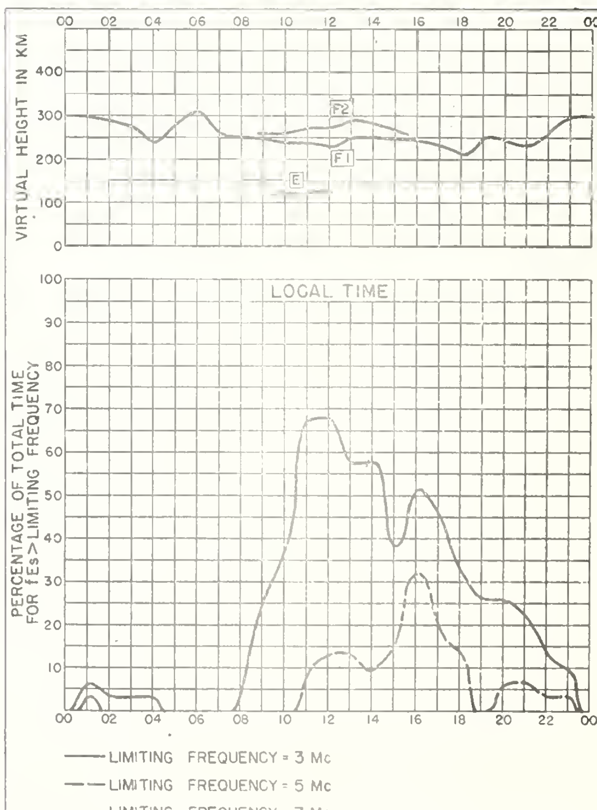

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CRPL and IRPL Reports

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

Daily:

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

Semiweekly:

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

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

Semimonthly:

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

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) series; Dept. of the Air Force, TO 16-1B-2 series.)
CRPL—F. Ionospheric Data.
*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
(G1, G3, available. Others out of print; see second footnote.)
IRPL—R. Nonscheduled reports:
R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
R5. Criteria for Ionospheric Storminess.
**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
**R12. Short Time Variations in Ionosphere Characteristics.
R14. A Graphical Method for Calculating Ground Reflection Coefficients.
**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.
**R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
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R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
**R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
**R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
**R33. Ionospheric Data on File at IRPL.
**R34. The Interpretation of Recorded Values of *fEs*.
**R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.
IRPL—T. Reports on tropospheric propagation:
T1. Radar operation and weather. (Superseded by JANP 101.)
T2. Radar coverage and weather. (Superseded by JANP 102.)
CRPL—T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG—5.)

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**Out of print; information concerning cost of photostat or microfilm copies is available from CRPL upon request.