CRPL-F76

IONOSPHERIC DATA

ISSUED
DECEMBER 1950

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

CRPL and IRPL Reports

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

Daily:

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

Weekly:

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

Semimonthly:

CRPL–Ja. Semimonthly Frequency Revision Factors for CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499– , monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) series.)

CRPL–F. Ionospheric Data.

Quarterly:

*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

*IRPL–H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.

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

Reports issued in past:

IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.

IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.

IRPL–R. Nonscheduled reports:

R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.

R5. Criteria for Ionospheric Storminess.

R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.

R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.

**R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.

**R12. Short Time Variations in Ionospheric Characteristics.

R14. A Graphical Method for Calculating Ground Reflection Coefficients.

**R15. Predicted Limits for *F*2-Layer Radio Transmission Throughout the Solar Cycle.

**R17. Japanese Ionospheric Data—1943.

R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.

**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)

**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.

R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.

**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.

R26. The Ionosphere as a Measure of Solar Activity.

R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.

**R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.

R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.

**R33. Ionospheric Data on File at IRPL.

**R34. The Interpretation of Recorded Values of *fEs*.

R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.

IRPL–T. Reports on tropospheric propagation:

T1. Radar operation and weather. (Superseded by JANP 101.)

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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*Items bearing this symbol are distributed only by U. S. Navy. They are issued under one cover as the DNC 14 ( ) series.

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

CRPL-F76

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON,D.C.

Issued
27 Dec. 1950

IONOSPHERIC DATA

CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1949, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948, and given in detail on pages 2 to 10 of the report CRPL-F53, "Ionospheric Data," issued January 1949.

For symbols and terminology used with data prior to January 1949, see report IRPL-C61, "Report of International Radio Propagation Conference, Washington, 17 April to 5 May, 1944," previous issues of the F series, in particular, IRPL-F5, CRPL-F24, F33, F50, and report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

Following the recommendations of the Washington (1944) and Stockholm (1948) conferences, beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, the following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

Values missing because of A, B, C, F, L, M, N, Q, R, S, or T (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count. See CRPL-F38, page 9.

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.

Values missing because of W are counted:

1. For foF2, as equal to or less than the median when it is apparent that h'F2 is unusually high; otherwise, values missing because of W are omitted from the median count.
2. For h'F2, as equal to or greater than the median.

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 G (no Es reflections observed, the equipment functioning normally otherwise) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number					
	1950	1949	1948	1947	1946	1945
December		108	114	126	85	38
November	87	112	115	124	83	36
October	90	114	116	119	81	23
September	91	115	117	121	79	22
August	96	111	123	122	77	20
July	101	108	125	116	73	
June	103	108	129	112	67	
May	102	108	130	109	67	
April	101	109	133	107	62	
March	103	111	133	105	51	
February	103	113	133	90	46	
January	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 48 and figures 1 to 95 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:

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

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

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

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

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

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

Radio Regulatory Commission, Tokyo, Japan:
Akita, Japan
Tokyo, Japan
Wakkanai, Japan
Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Campbell I.
Christchurch, New Zealand
Rarotonga I.

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

United States Army Signal Corps:
Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
Baton Rouge, Louisiana (Louisiana State University)
Boston Massachusetts (Harvard University)
Huancayo, Peru (Instituto Geophysico de Huancayo)
Maui, Hawaii
San Francisco, California (Stanford University)
San Juan, Puerto Rico (University of Puerto Rico)
Trinidad, British West Indies
Washington, D. C.
White Sands, New Mexico

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 49 to 60 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 a new location, Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D. C.

Table 61 presents ionosphere character figures for Washington, D. C., during November 1950, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 62 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, October 1950, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal

of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

OBSERVATIONS OF THE SOLAR CORONA

Tables 63 through 65 give the observations of the solar corona during November 1950 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 66 through 68 list the coronal observations obtained at Sacramento Peak, New Mexico, during November 1950, 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 63 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 64 gives similarly the intensities of the first red (6374A) coronal line; and table 65, the intensities of the second red (6702A) coronal line; all observed at Climax in November 1950.

Table 66 gives the intensities of the green (5303A) coronal line; table 67, the intensities of the first red (6374A) coronal line; and table 68, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in November 1950.

The following symbols are used in tables 63 through 68; a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 69 presents the daily American relative sunspot number, R_A, computed from observations communicated to CHPL by observers in America and abroad. Beginning with the observations for January 1948, a new method of reduction of observations is employed such that each observer is assigned a scale-determining "observatory coefficient," ultimately referred to Zürich observations in a standard period, December 1944 to September 1945, and a statistical weight, the reciprocal of the variance of the observatory coefficient. The daily numbers listed in the table are the weighted means of all observations received for each day. Details of the procedure are given in the Publication of the Astronomical Society of the Pacific, issued February 1949, in an article entitled "Reduction of Sunspot-Number Observations." The American relative sunspot number computed in this way is designated R_A. It is noted that a number of observatories abroad, including the Zürich observatory, are included in R_A. The scale of R_A was referred specifically to that of the Zürich relative sunspot numbers in the standard comparison period; since that time, R_A is influenced by the Zürich observations only in that Zürich proves to be a consistent observer and receives a high statistical weight. In addition this table lists the daily provisional Zürich sunspot numbers, R_Z.

OBSERVATIONS OF SOLAR FLARES

Table 70 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 Boulder, Colorado. 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 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 71 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary mean 3-hourly K-indices, Kw; (2) preliminary international character-figures, C; (3) geomagnetic planetary three-hour-range indices, Kp; (4) magnetically selected quiet and disturbed days.

Kw is the arithmetic mean of the K-indices from all reporting observatories for each three hours of the Greenwich day, on a scale 0 (very quiet) to 9 (extremely disturbed). The C-figure is the arithmetic mean of the subjective classification by all observatories of

each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity.

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

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles Kw, C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

Table 72 lists the sudden ionosphere disturbances observed at Fort Belvoir, Virginia, November 1950.

INDEX OF IONOSPHERIC DATA PUBLISHED IN 1950 (CRPL-F65 THROUGH F76)

The following index of tables and graphs of ionospheric data published in the CRPL-F series in 1950 is divided into two parts. Part I is an index of data observed in 1949 and 1950. Part II is an index of data observed prior to 1949.

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 1950 are in IRPL-F17, CRPL-F28, -F40, -F52, and -F64.

PART I

Index of Tables and Graphs of Ionospheric Data Observed in 1949 and 1950 and Published in 1950 (CRPL-F65 through F76)

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
Akita, Japan												71	72	69	71	72	73	73	74	75	76			
Bagneux, France						66	66	69	69	70	70													
Baton Rouge, Louisiana											65	66	67	68	69	70	71	72	73	74	75	76		
Bombay, India								65	66	67	70	70	72	72	74	75	76	76						
Boston, Massachusetts											65	66	67	68	69	70	71	73	73	74	75	76		
Brisbane, Australia								65	66	67	67	69	69	71	71	73	73	75	76					
Calcutta, India							67	67	67	71	71	71	76	76	76	76	76	76						
Campbell I.	74	74	75	75	76																			
Canberra, Australia								65	66	67	67	69	69	71	71	73	73	75	76					
Capetown, Union of S. Africa									65	65	66	67	68	69	70	71	72	73	75	75	76			
Christchurch, New Zealand									65	66	68	68	69	69	71	72	73	73	75	76				
Chungking, China									65															
Dakar, French West Africa							68	68	68	72	72	72	75	75	75									
De Bilt, Holland											67	68	68	69		70	72	73		75	76			
Delhi, India								65	66	67	70	70	72	72	74	75	76	76						
Domont, France															75									
Formosa, China															70	72	72	73	74	74	76			
Fribourg, Germany							68	68	68	72	72	72	75	75	75									
Fukaura, Japan									65	68	68													
Guam I.									69		65	66	67	68			72	73	73	74	75			
Hobart, Tasmania								76	67	67	67	71	71	71	73	73	75	75	76					
								65	66															
Huancayo, Peru											65	66	67	68	69	70	71	72	73	75	75	76		
Johannesburg, Union of S. Africa									65	65	66	67	68	69	70	71	72	73	75	75	76			
Kiruna, Sweden			71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	74	74	74	76			
Lindau/Harz, Germany		70						70	70	65	66	67	68	70	70	71	72	73	74	75	76			
Madras, India								65	66	67	70	70	72	72	74	75	76	76						
Maui, Hawaii											65	66	67	68	69	70	71	72	73	74	75	76		
Okinawa I.												74	74	74	74									
											66	66	67	68	69						75	76		
Oslo, Norway	67	67	67	67#65		65	65	65	65		65	66	67	68	69	70	71	72	73	74	75	76		
Palmyra I.										65*65														
Poitiers, France						66	66	69	69	70	70	70	73	74	75									
Rarotonga I.								65	66	68	68	69	69	71	72	73	73	75	76					
San Francisco, California											65	66	67	68	69	70	71	72	73	74	75	76		
San Juan, Puerto Rico											65	66	67	68	69	70	71	72	73	74	75	76		
Shibata, Japan									65															
Tiruchirapalli, India								65	66	67	70	70	72	72	74	75	76	76						
Tokyo, Japan									65	68	68	71	72	69	71	72	73	73	74	75	76			
Trinidad, British West Indies											65	66	68		69	70	71	72	73	74	75	76		
Wakkanai, Japan									65	68	68	71	72	69	71	71	73	73	74	75	76			
Washington, D. C.												65	66	67	68	69	70	71	72	73	74	75	76	
Watheroo, West Australia									65	65	67	67	69	70	75	72	73	74	75	76	76			
															71									
White Sands, New Mexico											65	66	67	68	69	70	71	72	73	74	75	76		
Yamagawa, Japan									65	68	68	71	72	69	71	72	73	73	74	75	76			

#See also erratum in F68, p.10.
*See also erratum No. 1 in F66, p.10.

PART II

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TABLES OF IONOSPHERIC DATA

Table 1

Washington, D.C. (38.7°N, 77.1°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	3.0						2.9
01	(280)	3.1						3.0
02	280	3.0						3.0
03	270	3.1						2.9
04	260	2.6						3.0
05	240	2.8						3.1
06	(250)	2.5					2.3	3.0
07	240	4.4			(110)	1.8		3.3
08	230	6.2	230	---	(110)	2.2		3.4
09	240	7.0	210	---	100	2.5		3.4
10	250	7.8	200	4.0	(100)	2.8	2.0	3.3
11	260	8.2	210	4.1	100	3.0		3.2
12	260	9.0	210	---	(100)	3.0		3.2
13	250	9.0	220	---	(110)	3.0		3.2
14	250	8.7	220	---	(110)	2.8		3.2
15	240	8.3	230	---	(110)	2.5		3.3
16	230	(8.0)	---	---	(110)	2.1		(3.3)
17	220	(7.3)			---	---		(3.3)
18	220	(6.0)						(3.1)
19	220	(5.0)						(3.2)
20	(240)	3.7						3.1
21	(260)	3.3						3.0
22	(280)	3.0						2.9
23	(290)	3.0						2.9

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

Table 2

Oslo, Norway (60.0°N, 11.0°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	(2.6)						2.8
01	315	(2.5)						2.8
02	315	(2.3)						(2.7)
03	320	(2.1)					1.5	(2.8)
04	310	(2.3)						(2.8)
05	305	(2.2)						(2.9)
06	300	(2.4)						2.8
07	260	3.0	---	---	---	---		3.2
08	250	(5.0)	250	3.3	125	2.1	2.0	3.2
09	250	5.5	225	3.4	115	2.4	2.4	3.2
10	260	5.8	220	3.7	110	2.5	2.5	3.3
11	250	6.5	220	3.9	110	2.6	2.4	3.2
12	260	7.1	215	3.9	110	2.6	2.6	3.2
13	260	7.4	220	3.8	110	2.6	2.4	3.2
14	250	7.1	225	3.7	110	2.5	2.0	3.3
15	240	6.8	240	3.3	115	2.3	2.1	3.4
16	235	6.5	245	---	125	2.1	2.0	3.4
17	230	(6.2)	---	---	150	1.8		(3.3)
18	235	(5.4)					2.0	(3.0)
19	245	(4.9)						(3.1)
20	250	(3.5)						(3.1)
21	290	(3.2)						(3.0)
22	300	(3.1)						(3.0)
23	320	(2.8)						(2.9)

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

Table 3

Boston, Massachusetts (42.4°N, 71.2°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.7						2.9
01	290	3.6						3.0
02	280	3.4						3.0
03	270	2.9						3.0
04	290	2.8						3.0
05	280	2.7						3.1
06	260	3.7						3.2
07	230	5.5	---	---	130	2.1		3.4
08	240	7.0	220	3.7	120	2.6		3.4
09	240	7.6	210	3.9	120	2.8		3.3
10	240	8.0	200	4.0	120	2.8		3.3
11	250	8.2	200	4.0	120	2.8		3.1
12	250	8.8	220	4.1	120	2.9		3.2
13	250	8.7	220	4.0	120	2.8		3.2
14	250	8.6	220	3.9	120	2.7		3.2
15	240	8.6	220	3.6	120	2.5		3.2
16	220	8.4	250	---	120	2.3		3.3
17	220	7.4						3.3
18	230	6.4						3.2
19	230	5.4						3.1
20	270	4.5						3.0
21	270	4.4						3.0
22	280	4.0						2.9
23	300	3.7						2.9

Time: 75.0°W.
Sweep: 0.5 Mc to 18.0 Mc in 1 minute.

Table 4

San Francisco, California (37.4°N, 122.2°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.2						2.9
01	300	3.2						2.8
02	300	3.3						2.8
03	300	3.5						2.8
04	290	3.6						2.8
05	280	3.4						2.8
06	260	3.9						3.1
07	240	6.0	---	---	---	---		3.4
08	240	6.8	220	3.7	120	2.6		3.3
09	250	7.6	220	4.3	120	---		3.2
10	260	7.8	210	4.5	120	---		3.1
11	280	8.8	220	4.6	110	---		3.1
12	280	9.6	(220)	4.6	110	---		3.1
13	270	9.5	(230)	4.6	110	---		3.1
14	270	9.5	230	4.5	120	---		3.1
15	250	9.1	240	4.1	110	---		3.2
16	240	7.9	(230)	3.7	120	2.6	2.8	3.3
17	230	7.6	---	---	120	---	2.7	3.4
18	220	6.0					2.7	3.3
19	240	4.4						3.2
20	250	3.9						3.1
21	280	3.5						3.0
22	290	3.3						2.8
23	290	3.4						2.9

Time: 120.0°W.
Sweep: 1.3 Mc to 18.0 Mc in 4 minutes.

Table 5

White Sands, New Mexico (32.3°N, 106.5°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.6					2.9	2.7
01	280	3.6					3.6	2.8
02	270	3.6					3.8	2.8
03	280	3.6					3.0	2.8
04	260	3.5					3.0	2.7
05	280	3.5					3.8	2.8
06	270	4.2			---	---	3.6	2.9
07	240	6.7	---	---	120	(2.2)	4.4	3.3
08	240	7.7	220	---	110	(2.6)	5.0	3.3
09	260	7.8	220	4.4	110	(3.0)	5.0	3.2
10	270	8.5	210	(4.6)	110	(3.2)	5.1	3.0
11	280	9.2	210	(4.8)	110	3.4	4.9	3.0
12	290	9.8	220	(4.8)	110	3.4	5.0	2.9
13	280	10.1	230	4.7	110	3.4	5.2	3.0
14	270	10.0	230	4.4	110	3.2	5.0	3.1
15	260	10.0	240	---	110	(2.9)	4.9	3.1
16	240	9.7	240	---	110	(2.6)	4.4	3.2
17	230	8.5			(110)	---	3.4	3.3
18	220	6.3			---	---	3.8	3.2
19	230	4.6					3.2	3.1
20	280	3.6					3.2	2.9
21	280	3.5					3.7	2.8
22	300	3.5					2.9	2.7
23	290	3.5					3.2	2.7

Time: 105.0°W.
Sweep: 0.8 Mc to 14.0 Mc in 2 minutes.

Table 6

Baton Rouge, Louisiana (30.5°N, 91.2°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	4.0						2.9
01	300	4.0						3.0
02	300	4.0						3.0
03	290	3.8						3.0
04	310	3.6						2.8
05	320	3.6						2.8
06	290	4.1						3.0
07	260	6.6	---	---				3.2
08	270	7.8	260	---	120	(2.8)		3.2
09	280	8.3	250	---	120	(3.2)		3.1
10	290	8.8	240	---	(120)	(3.4)		3.1
11	300	9.3	240	---	120	(3.4)		2.9
12	300	9.6	240	---	120	(3.4)		2.9
13	300	10.2	260	---	120	3.5		2.9
14	300	10.5	260	---	120	3.4		3.0
15	290	10.4	260	---	120	3.2		3.0
16	280	9.5	270	---	(130)	(3.0)		3.1
17	240	8.6			130	---		3.1
18	240	7.0						3.1
19	270	4.9						3.0
20	300	4.1						2.9
21	330	3.9						2.8
22	320	4.0						2.9
23	330	4.0						2.8

Time: 90.0°W.
Sweep: 2.05 Mc to 14.1 Mc in 5 minutes, automatic operation.

Table 7

Okinawa I. (26.3°N, 127.7°E) October 1950*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	5.8						2.8
01	270	5.7						2.9
02	260	4.8						3.0
03	260	4.9						3.0
04	(230)	4.2						3.2
05	(240)	3.1						3.0
06	(270)	3.2						2.9
07	230	6.4			140	---	2.4	3.4
08	230	8.0	---	---	110	(2.6)	3.7	3.4
09	250	9.1	220	---	110	3.0	4.4	3.3
10	260	10.4	220	---	110	3.2	4.6	3.2
11	270	11.3	220	---	(120)	3.3	4.6	3.1
12	280	12.0	220	---	(120)	3.5	5.1	3.0
13	290	13.2	(220)	---	120	3.5	5.1	3.0
14	280	14.1	(230)	---	120	3.4	4.5	3.0
15	270	14.0	230	---	120	3.3	4.6	3.1
16	250	13.1	240	---	110	2.9	4.5	3.2
17	240	11.6	---	---	---	---	4.4	3.2
18	230	11.5					4.1	3.3
19	(220)	10.0					4.4	3.2
20	(230)	(8.2)					3.5	(3.0)
21	(250)	7.6					4.0	2.9
22	(240)	7.0					3.2	3.1
23	(250)	(6.4)					2.0	(2.9)

Time: 135.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.
*Frequency markers out of alignment, 28 through 31.

Table 8

Maui, Hawaii (20.8°N, 156.5°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.4					2.2	3.0
01	250	3.8					1.4	3.0
02	240	4.0						3.1
03	230	3.4						3.4
04	250	2.3						2.9
05	300	2.3					1.9	2.8
06	300	3.1					1.9	2.8
07	240	6.3	---	---	120	2.1	3.6	3.3
08	240	8.4	230	---	110	2.7	5.8	3.3
09	260	9.6	220	4.3	110	3.0	5.8	3.1
10	280	10.8	210	4.8	100	3.3	5.6	3.0
11	280	12.0	210	4.9	100	3.4	4.8	3.1
12	280	12.6	200	4.9	110	3.5	4.6	3.0
13	300	13.5	210	5.0	110	3.5	4.6	3.0
14	280	14.4	220	4.8	110	3.3	4.5	3.0
15	260	14.4	220	4.4	110	3.2	4.4	3.2
16	250	12.6	220	---	110	2.8	4.4	3.2
17	230	11.8	240	---	110	2.3	4.2	3.3
18	210	10.2			---	---	4.8	3.4
19	220	8.0					4.8	3.2
20	230	7.3					4.8	3.0
21	250	6.4					4.2	2.8
22	240	5.4					3.4	3.0
23	250	4.9					2.4	2.8

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

Table 9

San Juan, Puerto Rico (18.4°N, 66.1°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(4.7)						(2.9)
01	230	(4.9)						(3.0)
02	230	4.7						3.1
03	---	4.2						3.1
04	---	3.7						3.0
05	---	(3.5)						2.9
06	---	3.6						3.0
07	230	(6.3)						(3.1)
08	240	8.2				E		3.2
09	250	9.3			---	3.2		3.2
10	250	10.0		4.9		3.5		3.2
11	260	10.6		5.0		3.6		3.2
12	270	10.4		5.3		3.7	4.6	3.2
13	270	(10.9)		---		3.7	4.6	(3.0)
14	260	11.0		---		3.6	5.0	3.2
15	250	10.6		5.0		3.4	4.8	3.1
16	250	10.4		---		---	4.8	3.2
17	230	(9.7)					4.3	(3.1)
18	220	(8.2)						(3.1)
19	230	(6.4)						(3.0)
20	240	(5.0)						(3.0)
21	---	(4.5)						2.7
22	---	(4.6)						(2.8)
23	---	(4.7)						(2.8)

Time: 60.0°W.
Sweep: 2.8 Mc to 13.0 Mc in 9 minutes, automatic operation; supplemented by manual operation.

Table 10

Trinidad, British West Indies (10.6°N, 61.2°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	6.2						3.2
01	230	6.1						3.3
02	220	4.9						3.4
03	230	3.7						3.3
04	250	3.2						3.2
05	270	3.2						3.1
06	240	4.6			---	---	2.6	3.4
07	230	7.3	---	---	120	2.5	3.4	3.5
08	250	8.8	220	4.5	120	3.0	3.8	3.5
09	260	10.4	220	4.8	110	3.4	4.4	3.5
10	260	11.4	200	4.9	110	3.6	4.7	3.5
11	260	11.1	200	5.0	100	3.7	4.8	3.3
12	270	11.8	200	5.0	100	3.7	4.9	3.3
13	260	12.0	220	5.0	100	3.7	5.1	3.3
14	260	11.5	200	4.9	100	3.6	5.3	3.3
15	250	11.2	220	4.6	100	3.3	5.4	3.3
16	260	10.8	220	4.4	100	2.9	5.1	3.2
17	240	10.6	---	---	110	2.2	4.8	3.3
18	230	9.6					4.7	3.3
19	240	8.5					3.6	3.3
20	220	7.8					3.8	3.2
21	250	6.9					5.0	3.0
22	270	6.4						2.9
23	270	6.3						3.1

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

Table 11

Huancayo, Peru (12.0°S, 75.3°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	9.8					4.9	3.2
01	230	(8.0)					4.8	3.1
02	250	6.2					5.6	3.1
03	250	5.8					5.5	3.1
04	250	5.1					5.6	3.2
05	250	4.7					3.7	3.1
06	250	6.9			120	2.1	4.2	3.2
07	260	9.0	230	---	110	2.7	5.7	3.3
08	290	10.7	220	4.9	110	3.1	12.0	3.0
09	300	11.1	210	5.0	110	---	12.4	2.5
10	310	10.8	210	5.0	110	---	12.6	2.4
11	320	9.9	210	5.0	110	---	12.6	2.5
12	310	9.6	210	4.9	110	---	12.5	2.5
13	310	9.8	200	4.8	110	---	12.4	2.5
14	310	9.9	200	4.9	110	---	12.2	2.5
15	300	10.2	210	4.9	110	(3.1)	12.0	2.5
16	240	10.6	220	---	110	2.8	11.9	2.5
17	260	10.9			110	2.2	8.0	2.6
18	290	11.2			110	---	3.3	2.6
19	320	10.4					2.1	2.4
20	320	9.9					2.4	2.5
21	300	9.8					3.0	2.6
22	270	10.6					3.2	2.8
23	260	10.8					3.2	3.1

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

Table 12

Kiruna, Sweden (67.8°N, 20.5°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(310)	(3.6)					3.9	
01	(300)	(3.9)					4.0	
02	300	3.4					2.8	
03	285	3.2					2.7	
04	270	3.1					2.6	
05	260	3.7						
06	250	4.2	---	---	115	2.1		
07	250	4.8	240	---	120	2.5		
08	270	5.2	230	4.0	115	2.8		
09	285	5.8	230	---	110	2.9		
10	280	5.9	220	(>4.0)	110	2.9		
11	290	6.0	210	(>4.2)	110	2.9		
12	280	5.8	210	(>4.4)	110	2.9		
13	275	5.8	215	---	110	2.8		
14	260	5.8	220	---	110	2.8		
15	250	5.6	235	---	110	2.7		
16	255	5.5	245	---	115	2.4		
17	250	5.4	---	---	125	2.2		
18	250	4.9			---	---	2.2	
19	255	4.8					3.9	
20	250	(4.2)					4.0	
21	(255)	(3.6)					4.0	
22	(275)	(3.6)					4.3	
23	---	---					4.2	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 30 seconds.

Table 13

DeBilt, Holland (52.1°N, 5.2°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	3.5					3.0	2.8
01	295	(3.2)					2.9	3.0
02	300	3.2					2.9	2.9
03	300	(3.1)					3.0	2.9
04	290	(2.9)					3.0	3.0
05	270	3.2	---	---	---	E	3.1	3.2
06	230	4.0	---	---	115	2.0	3.4	3.3
07	270	4.5	220	3.5	100	2.4	3.5	3.3
08	330	4.9	210	4.0	100	2.7	3.6	3.1
09	340	5.4	205	4.2	100	3.0	3.7	3.1
10	295	5.9	200	4.4	100	3.3	4.7	3.2
11	300	6.0	200	4.5	100	3.3	4.1	3.2
12	305	6.2	205	4.5	100	3.3	3.8	3.3
13	300	6.2	205	4.4	100	3.2	3.6	3.3
14	290	6.4	210	4.2	100	3.1	3.7	3.3
15	290	6.1	220	4.0	100	2.9	3.5	3.2
16	280	6.2	240	4.0	100	2.5	3.2	3.2
17	260	6.6	240	3.4	---	2.0	3.2	3.2
18	250	6.9	---	---	---	E	3.5	3.2
19	250	6.8					3.2	3.2
20	235	6.2					3.2	3.2
21	240	4.7					2.4	3.1
22	270	4.0					2.4	3.0
23	300	3.6					2.4	2.8

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 7 minutes, automatic operation.

Table 14

Lindau/Harz, Germany (51.6°N, 10.1°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.5					2.0	2.8
01	300	3.4					2.0	2.7
02	290	3.2					2.0	2.8
03	290	3.2					2.0	2.8
04	290	3.0					2.0	2.8
05	280	2.8					2.0	2.9
06	250	3.5	---	---	---	E	3.2	3.3
07	260	4.4	220	---	100	2.0	3.0	3.4
08	280	4.9	210	3.8	100	2.5	3.6	3.2
09	300	5.2	210	4.0	100	2.8	3.6	3.1
10	300	5.9	210	4.2	100	3.0	3.4	3.1
11	290	6.3	210	4.3	100	3.1	3.9	3.2
12	300	6.2	210	4.4	100	3.2	4.7	3.2
13	290	6.3	200	4.4	100	3.2	3.7	3.2
14	290	6.2	210	4.3	100	3.1	3.4	3.2
15	290	6.2	220	4.2	100	2.9	3.4	3.2
16	280	6.0	220	3.9	100	2.7	3.3	3.2
17	260	6.2	230	3.8	100	2.4	2.8	3.2
18	250	6.7	240	---	120	1.6	3.1	3.1
19	250	6.6					3.4	3.1
20	230	6.5					2.8	3.1
21	230	5.7					2.6	3.2
22	240	4.4					2.2	2.9
23	280	3.6					2.0	2.9

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

Table 15

Wakkanai, Japan (45.4°N, 141.7°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.7					1.4	2.7
01	300	4.4					1.7	2.7
02	300	4.4					2.4	2.7
03	290	4.2					1.6	2.8
04	290	4.3					2.2	2.8
05	270	4.3	---	---	140	1.2	1.6	3.0
06	260	5.4	270	---	110	2.0	2.4	3.1
07	280	6.3	240	---	110	2.4		3.1
08	300	7.0	250	4.2	100	2.8	3.5	3.1
09	300	7.3	240	4.4	100	3.0	4.2	3.1
10	300	7.0	240	4.5	110	3.0		3.1
11	300	7.1	220	4.6	100	3.1		3.0
12	310	7.3	240	4.6	100	3.0		3.1
13	300	7.2	250	4.5	110	3.2		3.0
14	300	6.9	250	4.5	110	3.0	3.4	3.1
15	300	7.0	250	4.2	100	2.8	3.2	3.0
16	290	7.0	250	3.8	100	2.5	3.1	3.0
17	280	7.0	270	---	100	2.1	3.4	3.1
18	270	6.7	250	---	100	1.4	3.0	3.0
19	270	6.3					2.3	2.9
20	270	6.1					3.2	2.9
21	280	5.4					3.1	2.8
22	300	5.0					2.0	2.7
23	310	4.8					1.8	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 14.0 Mc in 15 minutes, manual operation.

Table 16

Akita, Japan (39.7°N, 140.1°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.8					2.8	2.8
01	280	4.6					2.2	2.8
02	270	4.4					2.0	2.8
03	260	4.4						3.0
04	260	4.1					1.4	3.0
05	260	4.3					2.0	3.0
06	230	5.7			120	1.8		3.3
07	250	6.6	220	---	110	2.4	3.0	3.3
08	260	7.6	220	4.2	110	2.8	3.6	3.4
09	270	8.1	220	4.4	110	3.1	3.7	3.3
10	260	7.8	210	4.6	110	3.2		3.3
11	280	7.4	210	4.6	110	3.2		3.2
12	290	7.9	220	4.5	110	3.3		3.1
13	300	7.6	220	4.6	110	3.3		3.1
14	280	7.4	230	4.6	110	3.2		3.2
15	280	7.6	230	4.4	110	3.0		3.2
16	270	7.7	240	4.2	110	2.7	3.2	3.2
17	250	7.6	250	---	110	2.1	3.2	3.3
18	240	7.3					3.2	3.2
19	240	6.9					3.4	3.2
20	250	5.8					3.5	3.0
21	270	5.4					3.2	2.9
22	290	5.0					3.1	2.7
23	300	4.8					3.0	2.8

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

Table 17

Tokyo, Japan (35.7°N, 139.5°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.7					2.8	2.8
01	290	4.7					2.4	2.8
02	280	4.4					2.4	2.9
03	250	4.4					2.4	3.0
04	250	4.0					2.2	3.1
05	250	4.0					2.2	3.0
06	230	6.1	---	---	120	1.9		3.4
07	230	6.8	240	---	110	2.5	3.2	3.4
08	250	8.3	230	4.2	100	2.8	3.4	3.3
09	260	7.6	210	4.5	100	3.2	3.6	3.3
10	270	8.1	210	4.8	100	3.4	4.1	3.2
11	280	7.8	210	5.0	100	3.5		3.1
12	290	8.4	210	5.0	100	3.5	4.0	3.1
13	280	8.5	210	4.6	100	3.5		3.2
14	290	8.2	220	4.6	100	3.4		3.2
15	280	8.0	220	4.4	100	3.0		3.2
16	270	8.1	240	---	100	2.8		3.2
17	250	8.0	230	---	110	2.2	3.2	3.3
18	230	7.6					2.8	3.4
19	220	7.1					2.8	3.3
20	230	5.4					2.8	3.0
21	280	4.9					2.9	2.8
22	280	5.0					2.9	2.8
23	290	5.0					2.7	2.8

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

Table 18

Yamagawa, Japan (31.2°N, 130.6°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.2					3.4	2.8
01	290	5.0					2.8	2.8
02	290	4.8					3.1	2.9
03	270	4.7					2.8	3.0
04	240	4.3					2.6	3.1
05	270	3.9					2.5	3.0
06	250	4.6			---	E	2.8	3.1
07	240	6.9	230	---	110	2.2	3.4	3.4
08	260	8.1	230	---	110	2.8	3.6	3.4
09	260	8.1	220	---	110	3.0	4.2	3.4
10	270	7.6	210	4.7	110	3.4	4.2	3.1
11	300	8.5	210	5.1	110	3.5	4.4	3.0
12	300	9.5	220	5.2	100	3.6	4.5	3.0
13	300	9.3	220	4.8	100	3.6	4.4	3.0
14	300	10.0	220	4.8	110	3.4	4.5	3.0
15	300	9.9	240	4.6	110	3.4	4.2	3.1
16	290	9.7	240	---	100	3.0	4.0	3.1
17	260	9.5	240	---	100	2.6	3.8	3.2
18	250	9.2	250	---	110	1.9	3.6	3.3
19	220	8.3					3.4	3.3
20	230	6.8					3.2	3.1
21	250	5.3					3.0	2.8
22	290	5.3					3.4	2.8
23	300	5.4					2.8	2.8

Time: 135.0°E.
Sweep: 1.2 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 19

Formosa, China (25.0°N, 121.0°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07								
08	240	9.2	200	5.0	100	3.1	3.9	3.8
09	240	9.0	200	5.7	100	3.1	4.3	3.7
10	250	9.5	200	4.9	100	3.5	4.4	3.4
11	280	11.2	180	5.6	100	3.6	4.0	3.2
12	280	11.5	200	5.5	100	3.6	4.2	3.3
13	280	12.3	200	5.6	100	3.4	4.3	3.5
14	280	13.6	200	5.4	100	3.5	4.0	3.4
15	250	14.0	200	5.4	100	3.4	4.1	3.4
16	240	13.8	200	4.6	100	---	4.2	3.8
17	220	13.5			---	---	3.8	3.8
18	220	11.9			---	---	3.4	3.9
19	220	12.5					2.9	3.7
20								
21								
22								
23								

Time: 120.0°E.
Sweep: 2.5 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 20

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.6						3.1
01	250	3.3						3.1
02	250	3.1						3.0
03	(240)	3.0						2.9
04	(260)	3.0						2.9
05	260	3.1						3.0
06	250	4.1			---	---		3.2
07	230	6.4	230	---	110	2.2		3.4
08	250	7.4	230	4.1	110	(2.8)		3.4
09	270	7.9	220	4.6	110	(3.1)		3.2
10	280	8.6	210	4.8	110	(3.4)		3.2
11	280	8.7	210	4.8	110	(3.5)		3.1
12	290	8.8	200	4.9	110	(3.6)		3.0
13	290	9.1	200	4.8	110	3.5	3.6	3.0
14	280	9.3	200	4.6	110	(3.4)	3.6	3.1
15	270	8.9	210	4.4	110	(3.3)	3.4	3.1
16	260	8.6	220	3.7	110	(2.9)	3.1	3.1
17	240	8.0	230	---	110	2.4	2.5	3.2
18	230	8.0			---	---		3.2
19	220	7.0						3.2
20	220	5.5						3.2
21	240	4.2						3.1
22	250	4.2						3.1
23	240	4.0						3.2

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

Table 21

Watheroo, W. Australia (30.3°S, 115.9°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9					2.3	2.9
01	260	3.9					2.3	2.9
02	250	3.7					2.3	3.0
03	250	3.6					1.6	3.0
04	260	3.5					2.3	2.9
05	270	3.4					2.3	2.9
06	270	3.8					1.6	3.1
07	260	5.6	250	3.8		2.2		3.3
08	270	6.7	240	4.2		2.7	3.2	3.3
09	280	7.4	230	4.5		3.1		3.3
10	290	7.6	220	4.6		3.3		3.2
11	290	7.5	220	4.7		3.3		3.2
12	300	8.0	220	4.7		3.3		3.1
13	290	8.1	220	4.7		3.3		3.2
14	290	7.8	230	4.5		3.2		3.2
15	280	7.6	230	4.4		3.0	3.2	3.2
16	270	7.1	230	4.0		2.7	3.2	3.2
17	250	7.0	240	3.4		2.2	3.1	3.3
18	240	6.4					1.5	3.3
19	230	5.6						3.1
20	240	4.8					2.2	3.0
21	260	4.2					2.0	2.9
22	260	4.1					2.3	2.9
23	260	4.0					2.2	2.9

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 22

Capetown, Union of S. Africa (34.2°S, 18.3°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(260)	3.0						2.9
01	(280)	3.2						2.8
02	(280)	3.3						2.9
03	(270)	3.4						2.9
04	(260)	3.4						2.9
05	(260)	3.3						2.9
06	(260)	3.4						3.0
07	230	5.5			---	1.9		3.4
08	240	6.7	230	---	120	2.4		3.4
09	260	7.3	230	---	110	(2.9)		3.3
10	270	7.7	220	---	110	(3.2)		3.2
11	280	8.0	210	4.7	110	(3.4)		3.1
12	300	8.8	210	4.8	110	(3.4)		2.9
13	300	9.6	220	4.7	110	---		3.0
14	280	9.8	220	4.7	110	(3.5)		3.0
15	270	9.6	220	4.4	110	(3.3)	3.5	3.1
16	270	9.2	220	4.1	110	3.1	3.3	3.0
17	250	8.8	230	---	120	2.7	2.9	3.1
18	240	8.2	---	---	120	2.1	2.0	3.2
19	220	7.0					1.7	3.2
20	220	5.6						3.2
21	230	4.2						3.1
22	250	4.0						3.2
23	250	3.5						3.1

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

Table 23

Watheroo, W. Australia (30.3°S, 115.9°E) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.5					2.9	3.0
01	260	3.4					3.0	3.0
02	260	3.6					2.9	3.0
03	240	3.7					2.8	3.1
04	240	3.6					3.0	3.1
05	240	3.3					3.0	3.0
06	250	3.0					2.8	3.0
07	230	5.3				1.8		3.5
08	240	6.8	---	---		2.4	3.0	3.5
09	260	7.4	230	4.2		2.9	3.2	3.4
10	270	8.1	230	4.6		3.2		3.4
11	270	8.5	230	4.7		3.3	3.5	3.4
12	270	8.4	220	4.7		3.3	3.6	3.3
13	280	8.4	220	4.6		3.3	3.8	3.3
14	270	8.4	220	4.5		3.2	3.4	3.3
15	260	8.3	230	4.2		3.0	3.2	3.3
16	250	8.0	230	3.6		2.7	3.2	3.3
17	240	7.3	---	---		2.1	2.8	3.4
18	220	6.7				---	2.9	3.3
19	220	5.2					2.8	3.2
20	240	4.1					2.8	3.1
21	250	3.9					2.8	3.0
22	260	3.7					2.6	2.9
23	260	3.6					2.6	3.0

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 24

Christchurch, New Zealand (43.5°S, 172.7°E) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.0					2.2	2.8
01	290	3.3					2.0	2.8
02	280	2.6					2.4	2.8
03	280	2.6					2.4	2.9
04	270	2.4					1.3	2.9
05	270	2.0					3.2	3.0
06	270	2.0					3.0	3.0
07	260	3.8				1.6	2.5	3.2
08	250	5.3	250	3.1		2.2	2.8	3.4
09	260	6.1	240	3.8		2.6	3.3	3.3
10	260	6.5	240	4.1		2.9	3.3	3.3
11	280	7.4	230	4.3		3.1	3.3	3.2
12	280	7.4	230	4.5		3.2		3.2
13	270	7.5	230	4.4		3.1	3.5	3.2
14	270	7.2	240	4.3		3.0	3.5	3.3
15	260	7.2	240	3.8		2.7	2.8	3.3
16	250	6.8	250	3.2		2.3	2.7	3.2
17	240	6.3	---	---		1.6	2.1	3.3
18	240	5.5					2.0	3.0
19	250	5.3						3.0
20	250	4.6						3.0
21	270	4.1						2.9
22	280	3.6						2.9
23	280	3.4					2.0	2.8

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

Table 25

Rarotonga I. (21.3°S, 159.8°W) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.4						2.8
01	300	4.4						2.8
02	280	4.3						2.8
03	270	4.2						3.0
04	280	3.9						2.9
05	300	3.6						2.9
06	280	4.1	---	---	---	---	2.6	2.9
07	260	6.9	---	---	100	3.2	3.6	3.1
08	250	8.6	250	5.5	110	3.0	3.9	3.2
09	250	9.3	230	4.8	110	3.4	4.5	3.1
10	250	9.8	220	4.9	105	3.4	4.7	3.2
11	250	9.6	240	5.0	110	3.5	4.5	3.2
12	270	9.0	240	5.0	110	3.4	4.4	3.1
13	280	9.3	240	4.8	110	3.5	4.5	3.1
14	270	9.2	240	5.0	110	3.3	4.5	3.1
15	280	9.0	250	5.1	110	3.5	4.2	3.0
16	260	9.3	250	5.4	110	3.2	4.5	3.0
17	250	9.1	240	4.4	120	3.0	4.3	3.1
18	250	8.5	210	4.7	110	3.4	4.0	3.2
19	240	8.2	---	---	---	---	3.9	3.0
20	250	6.9	---	---			3.3	2.9
21	260	6.3	---	---			3.0	2.9
22	260	5.5					2.7	2.9
23	290	5.1						2.8

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

Table 26

Brisbane, Australia (27.5°S, 153.0°E) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.9						2.9
01	260	4.0					2.0	3.0
02	250	4.1						3.0
03	250	4.2					2.2	3.1
04	240	3.8					2.1	3.1
05	230	3.6					3.0	3.0
06	240	3.5						3.0
07	220	5.8			160	2.2	3.0	3.4
08	230	7.3			110	2.5		3.4
09	240	7.9	210	4.5	100	3.0		3.4
10	250	8.2	220	4.5	100	3.3		3.3
11	250	8.3	210	4.6	100	3.4		3.3
12	250	7.9	210	4.8	100	3.4		3.3
13	250	8.1	200	4.6	110	3.3	3.5	3.3
14	250	8.1	210	4.5	110	3.3	3.6	3.2
15	250	8.2	200	4.0	110	3.0	3.8	3.3
16	220	7.4	---	---	110	2.6	3.2	3.4
17	220	6.9			---	E	3.7	3.2
18	210	5.6					3.5	3.3
19	220	4.4					2.9	3.1
20	240	4.0						3.1
21	250	3.9						3.0
22	260	4.0						3.0
23	260	3.9						2.9

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

Table 27

Canberra, Australia (35.3°S, 149.0°E) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.3					2.5	3.0
01	260	(3.4)					2.7	(2.9)
02	260	(3.5)					2.8	(2.9)
03	260	(3.5)					2.7	(3.0)
04	245	3.8					2.6	3.0
05	220	3.8					2.8	3.2
06	230	3.3					2.6	3.1
07	235	4.0			---	(1.5)	2.9	3.3
08	220	6.4			110	2.3	3.1	3.5
09	220	7.0	220	---	100	2.7	3.5	3.5
10	240	7.6	210	4.3	100	3.0	3.3	3.4
11	250	8.0	210	4.4	100	3.2	3.5	3.4
12	240	8.0	200	4.4	100	3.3	3.5	3.2
13	240	8.0	200	4.4	100	3.2	3.9	3.4
14	240	8.2	200	4.2	100	3.1	3.5	3.4
15	240	8.0	200	3.4	100	2.9	3.8	3.4
16	220	7.6	205	---	(100)	2.5	3.5	3.4
17	210	6.7			(130)	(1.9)	3.4	3.3
18	210	5.4					3.4	3.2
19	220	4.7					3.4	(3.2)
20	220	4.0					2.7	3.2
21	(240)	(3.5)					2.5	3.0
22	(250)	(3.6)					2.7	3.0
23	250	(3.5)					2.6	(3.0)

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

Table 28

Hobart, Tasmania (42.8°S, 147.4°E) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.3					1.9	3.0
01	260	2.3					2.5	3.0
02	270	2.4					2.5	3.0
03	260	2.3					2.0	3.0
04	250	2.3					2.5	3.0
05	240	2.4					2.0	3.2
06	250	2.0						3.0
07	240	3.0			---	E		3.1
08	210	5.5	---	---	100	1.9		3.5
09	220	6.5	200	3.6	100	2.5		3.5
10	230	6.7	200	3.8	100	2.7		3.5
11	240	7.1	200	4.0	100	2.9		3.5
12	240	7.1	210	4.0	100	3.0		3.4
13	240	7.4	210	4.0	100	3.0	2.0	3.4
14	240	7.6	200	3.9	100	2.7		3.5
15	220	7.3	210	3.4	100	2.5		3.4
16	210	7.0	200	3.1	100	2.0		3.4
17	200	5.8			---	E	1.9	3.3
18	210	4.9					1.8	3.3
19	210	4.0						3.2
20	240	3.4						3.2
21	250	3.0						3.0
22	250	2.6						3.0
23	250	2.4						3.0

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

Table 29

Delhi, India (28.6°N, 77.1°E) June 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	7.5						
01	330	7.4						
02	---	---						
03	---	---						
04	---	---						
05	310	7.2						
06	300	7.7						
07	300	8.4						
08	320	8.6						
09	340	9.0						
10	360	9.6						
11	360	11.0						
12	(360)	11.5						
13	(360)	12.0						
14	360	12.5						
15	360	12.3						
16	340	12.3						
17	340	11.8						
18	320	11.0						
19	320	10.6						
20	300	9.8						
21	(320)	9.4						
22	340	8.7						
23	340	8.0						

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

Table 30

Calcutta, India (22.6°N, 88.4°E) June 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	10.0						2.8
01	240	10.0						
02	240	8.5						
03	240	8.0						3.1
04	240	7.0				---		
05	240	7.2				2.2		
06	270	9.0				2.7		2.8
07	300	9.9				3.1		
08	300	10.3				3.2		
09	300	10.4				3.2		2.7
10	300	11.0				3.4		
11	300	11.0				3.5		
12	(360)	(11.0)				---		(2.6)
13	(330)	(11.0)				---		
14	---	---				---		
15	---	---				---		---
16	300	11.0				3.1		
17	300	11.0				3.0		
18	300	11.0				2.8		2.7
19	300	11.0				2.7		
20	300	11.0				2.5		
21	300	11.0				2.0		2.7
22	300	11.0				1.6		
23	270	10.2				---		

Time: Local.

Table 31

Bombay, India (19.0°N, 73.0°E) June 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	300	7.9						
08	360	9.0						
09	420	9.4						
10	420	10.2						
11	480	10.9						
12	520	11.6						
13	510	12.4						
14	510	12.7						
15	520	(13.6)						
16	510	(14.0)						
17	510	13.9						
18	510	13.9						
19	480	13.2						
20	450	12.7						
21	420	12.0						
22	420	11.2						
23	420	10.4						

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

Table 32

Madras, India (13.0°N, 80.2°E) June 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	9.6						
08	390	10.2						
09	420	10.3						
10	460	10.4						
11	480	10.4						
12	480	10.6						
13	510	10.7						
14	510	11.0						
15	510	11.2						
16	510	11.8						
17	510	12.4						
18	480	12.6						
19	480	12.4						
20	480	11.2						
21	480	10.6						
22	480	10.2						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 6 minutes, manual operation.
*Height at 0.83 foF2.

Table 33

Tiruchy, India (10.8N, 78.8°E) June 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	8.0						
08	420	9.6						
09	480	9.8						
10	520	10.2						
11	540	10.3						
12	540	10.0						
13	540	10.3						
14	540	10.4						
15	(540)	(11.2)						
16	540	11.5						
17	540	11.5						
18	540	11.6						
19	480	10.8						
20	480	10.3						
21	480	(9.8)						
22	480	---						
23								

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

Table 34

Delhi, India (28.6°N, 77.1°E) May 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	7.8						2.5
01	360	7.6						
02	---	---						
03	---	---						
04	---	---						3.0
05	320	7.2						
06	300	7.9						
07	300	8.5						
08	320	9.1						3.1
09	320	10.0						
10	340	10.8						
11	360	11.4						
12	360	12.5						2.8
13	360	13.1						
14	360	13.7						
15	360	(13.8)						
16	360	(13.5)						3.1
17	360	12.8						
18	340	11.8						
19	320	11.0						
20	330	10.0						3.4
21	330	9.6						
22	340	8.9						
23	350	8.2						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 35

Calcutta, India (22.6°N, 88.4°E) May 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	10.7				---		3.0
01	270	10.4				---		
02	260	9.4				---		
03	(240)	(8.5)				---		(3.0)
04	(240)	(7.4)				---		
05	---	---				---		
06	---	---				---		---
07	(240)	(9.8)				2.5		
08	(270)	(10.5)				2.8		
09	270	10.8				3.1		2.8
10	(270)	11.0				3.2		
11	300	11.0				3.5		
12	---	---				---		---
13	---	---				---		
14	---	---				---		
15	---	---				---		---
16	(270)	11.0				---		
17	300	11.0				3.0		
18	270	11.0				2.7		2.8
19	300	11.0				2.1		
20	270	11.0				2.0		
21	270	11.0				---		2.8
22	300	11.0				---		
23	270	11.0				---		

Time: Local.

Table 36

Bombay, India (19.0°N, 73.0°E) May 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	8.6						
08	420	10.6						2.6
09	480	11.3						
10	570	12.0						
11	660	13.5						
12	600	(14.2)						2.3
13	(560)	(14.2)						
14	---	(14.3)						
15	---	(14.4)						
16	---	(14.6)						2.3
17	(570)	(14.8)						
18	560	(14.5)						
19	570	14.0						
20	540	13.6						2.4
21	510	12.7						
22	480	12.0						2.7
23	480	11.7						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 37

Madras, India (13.0 N, 80.2°E) May 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	10.1						
08	420	11.0						2.7
09	450	11.5						
10	480	11.9						
11	480	11.9						
12	540	11.7						2.4
13	540	11.8						
14	540	12.2						
15	540	12.4						
16	540	12.9						2.4
17	540	13.1						
18	510	13.0						
19	480	12.6						
20	(440)	(12.0)						2.8
21	(420)	(11.9)						
22	(420)	(11.5)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 38

Tiruchy, India (10.8°N, 78.8°E) May 1950

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	9.2						
08	420	10.8						
09	480	11.2						
10	540	11.2						
11	540	11.0						
12	540	11.2						
13	540	11.2						
14	570	11.2						
15	600	11.4						
16	600	11.5						
17	570	11.4						
18	570	11.3						
19	600	11.0						
20	480	10.9						
21	---	---						
22								
23								

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

Table 39

Calcutta, India (22.6°N, 88.4°E) April 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	(10.7)						(3.0)
01	(260)	(10.6)						
02	---	(9.0)						
03	---	(8.0)						---
04	---	---						
05	---	---						
06	(240)	(9.2)				2.3		(3.0)
07	(260)	(10.5)				2.9		
08	(260)	(11.0)				2.8		
09	270	11.0				3.2		(2.8)
10	270	11.0				3.5		
11	(270)	(11.0)				---		
12	---	(10.8)				---		---
13	---	---				---		
14	---	---				---		
15	---	---				---		---
16	---	---				---		
17	(270)	(10.8)				3.2		
18	270	11.0				2.8		2.8
19	(270)	(11.0)				2.7		
20	(270)	(11.6)				2.2		
21	(270)	11.0				2.0		2.9
22	270	11.0				1.7		
23	270	10.9				---		

Time: Local.

Table 40

Calcutta, India (22.6°N, 88.4°E) March 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	10.8						3.0
01	240	10.2						
02	240	9.7						
03	(210)	(7.5)						(3.1)
04	---	(4.8)						
05	(210)	(3.8)				---		
06	220	7.2				2.0		3.0
07	240	9.5				2.5		
08	270	11.0				3.0		
09	270	11.0				3.2		2.8
10	270	11.0				3.5		
11	270	11.0				3.6		
12	---	(11.0)				---		---
13	---	(11.0)				---		
14	(300)	10.5				---		
15	(300)	11.0				---		2.8
16	300	11.0				3.2		
17	270	11.0				3.0		
18	270	11.0				2.5		2.8
19	270	11.0				2.5		
20	270	11.0				2.2		
21	240	11.1				2.0		3.0
22	240	11.0				1.5		
23	240	11.0				---		

Time: Local.

Table 41

Calcutta, India (22.6°N, 88.4°E) February 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	10.5				1.2		(3.1)
01	270	9.8				1.2		
02	(270)	(8.4)				1.2		
03	270	(7.5)				---		(3.1)
04	---	---				1.2		
05	---	(6.6)				1.2		
06	(240)	(7.6)				2.0		(3.3)
07	240	8.5				2.4		
08	270	10.5				2.8		
09	270	11.0				3.2		2.8
10	270	11.0				3.4		
11	300	11.0				3.5		
12	300	11.0				3.6		2.7
13	300	11.0				---		
14	(300)	11.0				---		
15	(300)	11.0				3.2		(2.7)
16	300	11.0				3.2		
17	270	11.0				2.9		
18	(270)	(11.0)				2.5		(2.8)
19	270	11.0				2.1		
20	270	11.0				2.3		
21	270	11.0				2.0		2.8
22	270	11.0				1.5		
23	240	11.0				1.3		

Time: Local.

Table 42

Calcutta, India (22.6°N, 88.4°E) January 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(210)	(7.7)				---		(3.3)
01		(7.4)				---		
02		(6.2)				---		
03	---	---				---		---
04		---				1.0		
05		---				---		
06	---	---				---		---
07		---				---		
08		(10.5)				3.0		
09	270	10.4				3.2		2.8
10		(10.7)				3.3		
11		11.0				3.4		
12	300	11.0				3.5		2.7
13		11.0				---		
14		11.0				---		
15	300	11.0				3.4		2.7
16		11.0						
17		11.0						
18	(270)	(11.0)						(2.8)
19		(10.8)						
20		(10.9)						
21	270	10.5						3.0
22		(9.2)						
23		(8.8)						

Time: Local.

Table 43 (supersedes Table 35, CRPL-F65)

Hobart, Tasmania (42.8°S, 147.4°E) August 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.5					4.0	2.8
01	260	4.0					3.8	2.8
02	270	4.0					3.7	2.8
03	260	4.0					4.2	2.8
04	250	3.7					3.8	2.9
05	250	3.2					3.8	3.0
06	250	3.0					4.0	3.0
07	240	4.3			---	E	2.5	3.2
08	230	6.8	---	---	100	2.3	3.5	3.4
09	230	7.6	220	4.2	100	2.8	3.2	3.3
10	250	8.3	230	4.3	100	3.1	3.9	3.2
11	250	6.5	210	4.5	100	3.3	3.8	3.1
12	250	(9.6)	220	4.5	100	3.3	4.2	(3.1)
13	250	9.7	220	4.5	100	3.4	4.0	3.2
14	250	9.5	210	4.3	100	3.3	3.5	3.1
15	240	9.3	220	4.0	100	3.0	3.3	3.1
16	230	9.3	210	3.3	100	2.6	3.5	3.1
17	230	8.2			130	1.9	2.5	3.1
18	230	8.0			---	E	2.5	3.1
19	220	6.8					2.1	3.1
20	230	6.4					2.6	2.9
21	240	5.6					2.5	2.9
22	240	5.4					2.5	2.9
23	250	4.5					3.0	2.9

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

Table 44*

Campbell I. (52.5°S, 169.2°E) May 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	(3.4)					2.0	(2.8)
06								
07	250	(5.0)			---	---	2.0	(2.8)
08	230	7.2			140	2.1	2.2	3.2
09	230	8.6	---	---	110	2.4	2.4	3.2
10	240	9.8	220	6.0	120	2.6	2.7	3.1
11	240	10.6	220	5.3	110	2.7	2.7	3.1
12	240	11.0	---	---	110	2.8	1.9	3.1
13	240	10.8	---	---	120	2.8	2.7	3.1
14	240	11.1	---	---	120	2.6	2.6	3.0
15	230	10.9	---	---	120	2.2	2.6	3.1
16	230	10.4			---	2.0	2.1	3.1
17	220	8.7			---	---	1.9	3.0
18	220	(7.6)			---	---	1.8	(3.0)
19	240	(6.8)			---	---	2.0	(2.9)
20								
21	250	(5.0)					2.1	---
22								
23	280	(5.0)					2.4	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc , manual operation.
*Observations taken on a 16-hour working schedule.

Table 45*

Campbell I. (52.5°S, 169.2°E) May 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	5.0						---
06								
07	250	6.0			---	1.7	2.4	2.8
08	240	8.0			110	2.1	2.7	3.0
09	230	9.8			110	2.5	2.8	3.1
10	230	11.0			110	2.8	2.6	3.0
11	240	12.2			110	3.0	3.0	3.0
12	230	12.3			110	3.0	2.8	2.9
13	240	12.3			110	3.0	3.0	2.9
14	230	12.5			110	2.8		2.8
15	230	12.2			110	2.3	2.1	2.9
16	230	11.6			---	1.8	2.1	2.9
17	220	9.8					2.9	2.8
18	230	8.3					2.9	2.8
19	240	7.1					2.5	2.8
20								
21	(260)	6.0					3.2	(2.8)
22								
23	(270)	5.8					4.8	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16- hour working schedule.

Table 46*

Campbell I. (52.5°S, 169.2°E) May 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	(5.5)					2.9	(2.6)
06								
07	250	6.4			---	E	2.8	2.9
08	240	8.4			---	2.1	2.8	3.1
09	230	10.8			120	2.6	2.8	3.1
10	230	12.1			120	2.8	2.5	3.0
11	240	13.6		---	120	3.0	2.5	3.0
12	240	13.6		---	120	3.0		2.9
13	230	13.7		---	120	3.0		3.0
14	240	13.5			120	2.8		3.0
15	230	13.2			120	2.5		3.0
16	230	12.6			---	(2.0)		3.0
17	230	11.4			---	E		2.9
18	230	9.6					2.9	2.9
19	240	8.8					2.5	2.8
20								
21	260	7.2					2.8	2.9
22								
23	280	(6.6)					3.2	(2.7)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 47* (supersedes Table 37, CRPL-F28)

Campbell I. (52.5°S, 169.2°E) May 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05		---						---
06								
07		---						---
08		5.9						3.1
09		6.8						3.2
10		7.3						3.2
11		8.4						3.1
12		8.8						3.1
13		8.4						3.1
14		8.8						3.1
15		8.8						3.2
16		8.4						3.0
17		7.5						3.0
18		(6.1)						(3.0)
19		---						---
20								
21		(4.9)						---
22								
23		---						---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 48* (supersedes Table 19, IRFL-F11)

Campbell I. (52.5°S, 169.2°E) May 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	360	---					3.0	---
06								
07	275	(3.6)						(3.1)
08	---	---						
09	220	5.3	215	3.4	135	2.4	2.4	3.4
10	---	---	---	---	---	---	3.0	
11	250	6.2	220	3.6	120	2.6		3.3
12	250	6.6	220	3.8	120	2.6		3.4
13	240	6.5	220	3.6	125	2.6		3.3
14	240	6.6	225	3.2	130	2.4		3.3
15	230	6.4			---	2.1		3.3
16	225	5.9						3.3
17	230	5.2						3.2
18	245	4.6						3.2
19	270	(4.0)						2.9
20								
21	300	3.4						2.8
22								
23	330	---					2.9	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

TABLE 49

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

Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), November (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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	S K	(330) K S	(300) K S	(300) K S	(300) K S	S K	S K	230 K	230 K	310 K	300 K	320 K	280 K	270 K	270 K	240	230	230	220	210	250	(250) S	(260) S	(280) S
2	(280) S	(260) S	(250) S	(270) S	(260) S	[240] S	(210) S	240	250	250	250	270	260	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	260	260	250	250	260	250	230	210	200	210	220	230	270	(260) S	(300) S
4	(290) S	(260) S	290	270	(290) B	290	(300) S	270 K	[350] L	430 K	410 K	500 K	440 K	390 K	310 K	290 K	240 K	250 K	240 K	270 K	(280) K S	(290) K S	(280) K S	(280) K S
5	(290) K S	(290) K S	(300) K S	290 K	(280) K S	280 K	(310) S	260	260	270	270	260	270	270	260	270	230	220	230	(230) S	(230) S	(270) S	(280) S	(300) S
6	(280) S	(270) S	(280) S	(280) S	(250) S	(270) S	(260) S	230	230	240	250	270	270	260	270	250	230	220	(210) S	(200) S	240	(250) S	(290) S	(290) S
7	(290) S	(270) S	(290) S	270	(260) S	(260) S	(270) S	240	230	240	250	250	240	240	250	230	220	210	210	(210) S	(220) S	(240) S	270	(280) S
8	(280) S	(270) S	(260) S	250	230	(260) S	[240] S	230	230	230	240	230	230	240	240	240	230	230	230	240	(240) S	(250) S	(270) S	(270) S
9	270	280	280	(260) S	250	(240) S	(240) S	240	230	240	250	270	250	260	270 K	[240] M	230	220	220	(220) S	(230) S	260	(260) S	(260) S
10	260	250	250	260 K	270 K	S K	S K	290 K	280 K	420 K	360 K	420 K	320 K	330 K	310 K	280 K	250 K	240 K	230	230	250	(270) S	(300) S	300
11	(290) S	250	250	280	250	(290) S	(300) S	250	240	260	260	270	270	270	240	240	230	220	220	220	(230) S	(270) S	(290) S	290
12	(280) S	280	270	230	290	(300) S	280	230	240	260	270	280	270	250	240	230	230	220	220	220	260	230	(270) S	270
13	(300) S	(300) S	290	290	280	230	(230) S	230	210 H	230	250	260	260	250	240	230	220	210	210	210	A	A	(290) A	S
14	S	(300) S	280	260	230	230	[220] S	220	210	240	240	240	270	250	240	230	210	200	210	220	220	(280) S	(280) S	(280) S
15	(290) S	280	270	260	240	230	240	230	220	210 H	230	260	270	250	260	240	220	210	220	220	250	(260) S	(280) S	(290) S
16	(290) S	(280) B	(270) S	240	230	230	[220] S	220	220	220	240	250	240	230	230	230	230	210	220	230	230	(240) S	(270) S	(250) S
17	280	260	270	290	300	280	(270) S	230	230	230	260	250	280	260	250	230	230	220	210	(230) S	230	(250) S	(290) S	(280) S
18	S	S	S	(280) S	(260) S	(220) S	(260) S	240	230	230	230	250	260	250	250	250	230	220	(210) S	(210) S	(250) S	(250) S	(270) S	S
19	S	250	240	230	230	230	(230) A	230	220	230	230	240	250	240	230 H	230	220	210	(230) S	210	(230) S	(240) S	(260) S	(290) S
20	300	(280) S	290	280	260	230	(240) S	230	220	200 H	240	230	250	250	230	230	220	210	210	(220) S	240	(270) S	(290) S	290
21	(280) S	(280) S	[280] S	280	260	230	(230) S	220	210	240	250	260	250	250	240	230	220	210	210	210	(240) S	(240) S	[260] S	(280) S
22	(280) S	(250) S	280	280	270	250	230	230	230	230	260	250	250	260	270	240	220	210	270	240	280	260	250	270
23	230	240	280	290	(280) S	(260) A	230	220	230	230	230	220 H	250	260	240	240	220	210	[210] A	220	(230) S	(280) S	[290] S	(300) S
24	S	S	S	270	260	260	(260) S	240	230	[230] M	240	260	250	250	260 K	260 K	240 K	210 K	210 K	(240) K S	[280] K S	(330) K S	330 K S	290 K
25	290 K	(250) K S	240	300	300	260	(270) A	270	220	270	250	250	260	250	240	230	230	240	210	220	240	(260) S	(300) S	(300) S
26	(310) K S	(250) K S	270 K	210 K	A K	A K	400 K	300 K	253 K	280 K	330 K	310 K	310 K	300 K	280 K	270 K	260 K	230 K	270 K	240 K	(260) K S	(280) K S	(290) K S	[310] K S
27	(330) K S	280 K	300 K	300 K	260 K	(240) K S	[260] S	(270) S	250	250	270	260	260	250 H	250	230	230	220	250	230	(240) S	(270) S	(290) S	(290) S
28	(290) K S	(290) K S	[270] K S	(270) K S	(270) K S	S K	S K	(280) K S	250 K	300 K	290 K	290 K	280 K	270 K	280 K	270 K	250 K	230 K	210 K	230 K	S K	A K	S K	S K
29	S K	(300) K S	(300) K S	260 K	240 K	S K	S K	250	200 H	260	270	250	260	240	240	260	230	230	210	210	(250) S	(260) S	S	A
30	A	S	(300) S	300	270	240	S K	260	220	240	210 H	230	260	260	260	(250) A	(240) A	230	[240] A	260	260	S	S	S
31																								
Median	(290)	(280)	280	270	260	240	(250)	240	230	240	250	260	260	250	250	240	230	220	230	220	(240)	(260)	(280)	(290)
Count	22	26	27	29	28	24	24	29	29	30	30	30	30	29	29	29	29	29	29	29	27	26	26	24

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 50

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

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), November (Month), 1950

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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	K(2.1)J F	K(2.4)S F	K(1.7)F B	K(1.5)S F	K(1.5)S F	K(1.5)S F	1.7 F K	4.4 K	5.2 F K	5.3 F K	6.1 F K	K6.8 F Z	K 7.0 F Z	7.8 K	8.0 K	(8.6) S	8.3 Z F	(7.4) S F	6.6 F	(5.8) S F	4.2 F	(4.0) S	(3.8) J S	3.5
2	3.2 F	3.2 F	3.2 F	2.4 F	(1.6) F P	S F	(1.8) S F	4.3 F	5.8 F	7.1 F	6.5	7.8 F Z	8.8 F Z	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	7.0	7.8	7.7	8.2 F V	8.6 F Z	(8.9) S F	(9.0) S F	(8.2) S F	7.1 F Z	(6.1) S F	(5.3) S	4.5	3.5	3.1 F	3.0 F
4	(3.4) S F	3.2 F	(2.5) S F	(2.4) S F	2.4 F	2.2 F	2.6 F	K(3.9) S F	4.2 K	4.5 F K	4.9 K	4.8 F K	5.0 K	5.3 K	5.3 K	5.4 F K	(5.6) S K	(5.1) S K	(4.6) S K	K(3.7) S P	3.1 K	3.0 F K	3.0 F K	2.8 F K
5	2.6 F K	(2.3) F K	1.7 F K	K(1.9) S F	1.7 F K	1.5 F K	1.7 F	4.1 F	5.6 F	6.2 F	(7.0) S	(7.0) S	7.8	7.6	7.6 Z	7.7	(7.8) S	6.8	6.2	(4.3) S F	3.3 F	2.5 F	(2.5) S	2.4 F
6	2.4 F	2.2	(2.1) S	(2.0) S	(2.0) S	1.9	2.1 F	5.0 F	6.1 F Z	6.6 F	7.6 F	7.8 F Z	7.8	8.4	8.9	8.2	7.9 F	(7.3) S F	(5.8) S F	4.2 F	3.9	(3.3) S	3.1	3.0
7	3.0	2.9	2.8	2.6	2.6	(2.5) S	2.6 F	5.3	6.4	7.0	7.6	8.1	8.1	8.1	8.2	8.0	(8.1) S Z	(7.4) S	(6.0) S	(5.4) S	(4.1) S F	(4.0) S J	3.7	3.5
8	3.5 F	(3.8) S	3.6	3.5	3.2	(2.9) S P	2.8 F	(5.2) S K	7.7	8.2	9.1	9.4	9.4	9.4	9.4	9.2	9.0	7.9	6.4	(6.0) S P	(5.1) S P	4.3 F	(4.3) S P	4.3
9	4.0	3.7	3.5 F	3.5 F	3.6 F	3.3	3.1	5.5	7.5	7.7	8.4	9.0	9.3	9.9	9.2	[9.0] M	9.0	8.7	7.7	(6.2) S	5.4	5.3	(4.8) S	4.6
10	(4.2) J	4.2	(3.9) S	3.3 V K	2.1 F K	1.9 F K	1.9 F K	3.6 F K	5.0 F K	4.3 F K	5.3 F K	5.3 F K	6.1 F K	K 5.7 F Z	K 6.1 F Z	K 6.2 F Z	6.5 Z K	(6.0) S K	(6.0) S V	(5.0) S	(4.2) S F	(3.5) S F	(3.1) S F	3.4 F
11	(4.0) S F	(4.0) S	3.4 F	3.1 F	2.4 F	2.3 F	2.3 F	(4.4) S	(6.6) S	7.3	7.9	8.8	9.2	9.0	8.4	7.8	(7.8) S	(7.1) S	(7.0) S	(4.6) S	(3.7) S F	(3.3) S F	3.2 F	3.2 F
12	3.2	3.3	3.3 F	(2.7) S F	1.7 F	1.7 F	(2.0) S F	(4.5) S F	6.6 F	6.9 Z	(8.5) S	8.8	9.7	9.2	8.8	8.2	7.8	(7.6) S	(7.1) S	(5.1) S	(4.5) S	(3.9) S F	3.4 F	3.0 F
13	3.0 F	3.5 F	3.6 F	3.5 F	(3.4) F	3.2 F	3.4 F	(5.1) F	7.1	(7.1) F	9.7	8.8	10.1	9.4 F	9.0	(8.3) S	(8.4) S	(7.6) S	(5.9) S	(5.2) S	(4.2) S A	3.0	2.6 F	2.3 F
14	2.2 F	2.3 F	(2.7) F S	(3.1) F	(3.0) S F	2.7 F	2.3 F	(5.2) S P	(6.6) S	8.3 F	9.0	8.8	9.8	9.7	9.5	9.2	(8.8) S	(7.1) S	(5.7) S	(5.1) S	3.6	3.0	3.1	3.1
15	(3.6) S	3.0	3.0 F	(3.1) J F	(3.5) F	(3.5) S F	3.1 F	(5.2) S	(6.8) S	7.2	7.7	8.2	8.9	8.9	8.4	9.0	(8.8) S	(7.3) S	(6.1) S	(4.6) S	3.7	3.3	3.0	3.0
16	3.1	3.2	3.3	3.4	3.3 F	(3.1) S	(2.5) J	(4.8) F	(6.9) S	(7.0) S	(8.1) S	8.3	9.0	(8.9) S	(8.8) S	8.0	(8.4) S	(7.4) S	6.4	5.6	5.4	(4.5) S	(4.1) J	(3.6) J
17	(3.2) J B	(3.7) S P	3.3 F	3.2 F	3.7	3.8 F	3.5	(4.4) S	5.7	(6.6) S	7.6 V	9.0	9.7	10.0	9.9	9.0	8.0	7.9	(5.8) S Z	(5.0) S Z	3.9 F	2.9 F	2.6 F	2.3 F
18	(2.1) S F	(2.0) S F	1.9 F	2.2 F	2.4 F	2.8 F	2.5 F	3.8 F	(6.1) S	6.8 F	7.8	8.0	9.4 F	9.5	9.3	8.8	(9.8) S	8.8	(7.2) S	(4.8) S F	3.3	3.0 F	2.7 F	(2.5) S F
19	2.7 F	(3.3) S F	(3.7) J F	(3.8) S	3.6	3.4 F	(3.0) J P	(4.6) S F	(7.0) S	6.9	7.8	8.2	9.6	9.5	8.7	(8.4) S	(7.6) S	6.7	(6.2) S	(5.7) S	(3.9) J F	(3.6) J S	3.1 F	2.9
20	(3.0) S	3.1 F	3.2 F	3.6 F	3.9 F	3.8 F	3.5 F	(4.6) S F	6.3	7.2	7.8	8.1	(9.1) S	(9.2) S	8.9	(8.3) S V	(7.8) S	(6.7) S	(5.1) S	4.4	3.7	3.0	(2.6) J S	2.9
21	3.0	3.1	3.0 F	3.1 F	3.3 F	3.2 F	(3.1) S	4.2	6.1	7.1	8.5	8.8	9.0	8.6	8.7	8.8	(8.0) S	(7.2) S	(5.7) S P	4.2	(3.7) S F	(3.5) S F	2.8 F	2.9 F
22	3.1 F	3.6 F	(3.8) S	(4.0) S	4.2	4.2	4.1 F	4.8	6.2	7.3	8.8	9.1	(10.3) S	9.8	(11.1) S	(10.8) J S	(9.5) S	(8.6) J S	(6.2) S	(5.8) S	(5.2) S	(5.6) S	(5.2) S	4.0 F
23	(3.8) S F	2.7 F	(2.7) S F	3.4 F	3.6 F	(4.7) S	3.7 F	4.5 F	6.3 F	7.7	8.8	8.6 F	9.5 F	(9.0) F	8.7	(8.2) S	(7.5) S	(6.1) S	[5.2] A	(5.1) S	3.3 F	2.8 F	2.9	2.6
24	(2.4) S	(2.3) J F	(2.4) S F	2.6 F	2.7 F	[2.6] S	(2.6) J S	4.0	6.2	[7.0] M	7.8	8.3	8.3	8.0 H	8.6 K	(8.9) S K	(10.2) S K	8.6 K	K(5.6) J S	K(3.8) J S	K(3.2) R S	(4.0) S K	3.6 K	K(4.0) S F
25	K(3.8) S P	K(4.2) S P	3.1 F	2.7 F	3.1	(2.8) J S	(2.3) S F	3.2 F	5.8 F	7.2 F	(8.6) S Z	9.6	9.0	(9.2) S	9.0	(7.7) J F	[7.4] S	(6.8) S F	(6.5) S	(4.8) J S	3.6 F	3.0	(2.8) S	3.0 F
26	K(2.7) J F	K(3.6) S E	K(3.4) S E	K(2.5) S E	A K	A K	1.9 F K	K(2.9) J S	4.6 K	4.6 K	5.7 K	6.0 K	6.1 K	5.9 K	(6.1) S K	(6.1) S K	6.6 K	(6.9) S K	K(5.6) S F	(4.9) S K	K(3.3) S F	3.0 K	2.5 F K	[2.6] W K
27	2.5 F K	2.5 F K	1.6 F K	1.5 F K	2.2 F K	2.1 F K	[1.8] S	3.3 F	5.5 F	6.6 F	(7.5) S	7.8 F	9.6	9.2 Z	8.8	7.8	7.3 Z	7.3 F	6.6 F	5.0 F	(3.8) S	3.1 F	2.6 F	(2.5) F
28	2.8 F K	K(2.3) S F	1.7 F K	K(1.8) J F	K(1.6) S F	S K	S K	3.2 F K	4.5 F K	K(5.7) S V	(5.8) S K	6.6 K	(6.6) S K	6.9 K	K(7.2) S Z	(7.7) S K	8.0 K	K(7.9) J S	(6.1) S K	(4.9) S K	K(2.4) J F	[3.2] A K	(1.9) B K	1.9 K
29	2.9 F K	(2.5) S K	2.4 F K	2.8 F K	2.2 F K	1.7 F K	K(1.7) J S	3.5 F	(6.3) V	7.5 Z	8.0	8.3	8.4 F	7.5 F	7.2 F	8.3 F	8.0	(7.6) S F	5.7 F	3.7 F	3.2	(2.6) S	(2.1) S	A
30	A	(2.2) S	2.3	2.5 F	2.6 F	2.6 F	S	3.6 F	6.0 V	6.9	(7.8) H	(8.0) H	8.9	9.0	8.5	7.8	(7.5) S	6.7	4.3 F	4.5 F	3.3 F	2.6	(2.2) S	2.1
31																								
Median	3.0	3.1	3.0	3.1	2.6	2.8	2.5	4.4	6.2	7.0	7.8	8.2	9.0	9.0	8.7	8.3	(8.0)	(7.3)	(6.0)	(5.0)	3.7	3.3	3.0	3.0
Count	28	29	29	29	28	26	27	29	29	30	30	30	30	29	29	29	29	29	29	29	29	29	29	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 51

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

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), November (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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	2.4	(1.8)	(1.5)	(1.5)	(1.6)	S	3.0	4.4	5.1	5.6	5.9	7.0	7.6	7.9	8.4	8.1	7.2	(7.3)	(6.6)	4.6	4.2	4.2	3.6	3.3
2	3.1	3.1	2.7	2.0	S	S	3.1	(5.3)	6.4	6.6	7.4	8.4	10.0	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	6.4	7.2	(7.5)	7.7	8.4	8.8	9.1	8.9	8.4	(6.3)	(6.0)	(4.7)	3.7	3.3	3.0	3.1
4	(3.0)	(2.9)	2.3	2.3	(2.4)	(2.2)	3.0	4.0	(4.6)	4.4	4.7	4.9	5.0	5.2	5.2	(5.5)	(5.4)	(4.9)	(4.0)	(3.4)	3.0	2.9	(2.9)	2.8
5	2.4	(1.8)	1.8	1.7	(1.6)	1.4	3.0	5.0	(5.8)	6.6	(7.0)	7.7	7.7	7.7	7.4	8.0	7.2	6.1	5.3	(3.8)	3.0	2.5	2.4	2.4
6	2.3	2.1	2.0	(2.0)	(2.0)	(2.0)	(3.5)	(6.0)	(6.6)	6.9	7.6	7.8	8.0	8.8	8.5	8.0	7.8	(6.2)	(5.2)	(3.7)	(3.7)	3.1	3.0	3.0
7	3.1	2.8	2.7	2.6	2.6	(2.4)	3.7	6.0	6.7	7.4	7.8	8.0	8.1	8.0	8.0	(8.1)	(8.1)	(6.7)	(5.7)	(5.0)	(4.0)	(3.9)	3.6	3.5
8	3.6	3.7	3.6	3.3	3.0	(2.7)	3.6	6.4	7.6	8.5	9.4	9.7	9.2	9.6	9.3	(9.2)	8.2	7.4	(6.1)	(5.4)	4.8	(4.2)	(4.1)	(4.1)
9	3.9	3.6	3.6	3.5	3.7	(3.2)	3.9	6.7	7.4	8.4	8.6	9.3	9.8	(9.4)	9.0	9.1	(8.9)	8.2	6.9	(6.1)	(5.4)	(5.0)	4.6	(4.6)
10	4.5	(4.0)	3.5	2.5	1.9	(2.0)	2.6	4.2	[4.6]	4.8	5.3	5.6	5.9	(5.9)	(6.0)	(6.4)	(6.0)	[6.0]	(6.0)	(5.0)	(3.9)	3.2	(3.1)	(3.5)
11	(4.0)	(3.8)	3.1	3.0	2.4	2.2	(3.0)	(5.5)	6.6	7.4	8.3	8.6	9.2	9.0	7.8	7.8	(7.5)	(6.4)	[5.3]	[4.2]	3.6	3.0	(3.2)	3.1
12	3.3	3.5	3.5	(2.0)	(1.7)	1.7	(3.0)	5.7	(6.8)	7.6	8.7	9.3	9.7	9.0	8.5	8.0	(7.8)	(6.9)	(5.7)	(4.4)	(4.3)	(3.7)	3.4	3.0
13	3.4	3.5	3.5	3.4	3.1	3.1	3.9	(6.5)	(7.3)	8.0	9.3	9.8	9.9	9.4	9.0	8.8	(8.5)	(7.0)	(5.6)	(4.6)	3.5	2.9	2.3	(2.2)
14	2.2	2.5	(2.7)	(3.0)	(3.0)	2.5	(3.0)	(6.0)	(7.0)	9.1	9.2	8.9	9.8	9.5	9.3	(9.0)	8.3	(6.7)	(5.4)	4.1	3.2	3.1	3.2	3.1
15	3.0	3.1	(3.1)	3.6	(3.6)	3.2	(3.6)	(6.0)	7.2	7.5	7.8	8.6	8.9	8.4	8.7	8.8	(8.4)	(6.4)	(5.6)	(4.0)	3.6	3.1	3.0	3.0
16	3.2	3.2	(3.5)	(3.3)	3.3	2.8	3.2	(6.3)	(6.5)	7.0	(8.6)	8.7	(8.9)	8.6	8.3	(8.1)	(8.3)	(6.8)	(6.3)	(5.8)	(4.8)	(4.1)	(4.1)	3.4
17	3.4	3.8	3.1	3.4	3.7	3.6	3.6	5.0	6.9	7.2	(8.4)	8.8	10.2	9.9	9.7	8.4	7.8	7.0	5.4	4.3	3.3	[2.7]	(2.5)	2.2
18	2.0	(1.9)	2.0	2.3	2.5	2.6	2.7	5.1	7.2	7.6	8.0	9.0	9.2	9.3	9.3	9.2	(8.7)	(7.8)	(5.8)	(3.8)	3.1	2.7	(2.6)	2.8
19	3.2	(3.6)	(3.9)	(3.8)	3.5	3.2	3.2	5.7	7.0	7.5	7.8	9.3	(9.6)	9.2	8.4	8.3	(7.3)	6.6	(6.2)	4.4	(3.9)	(3.5)	3.0	3.0
20	2.8	3.2	3.4	3.7	3.8	3.5	3.6	(5.8)	6.9	7.4	8.4	(8.9)	(9.0)	(9.0)	(9.1)	(8.0)	(7.3)	(5.7)	4.7	(3.7)	(3.4)	2.7	(2.7)	3.0
21	3.1	3.0	3.0	3.2	3.2	3.1	3.1	(5.6)	(6.3)	7.1	8.1	8.8	9.0	8.6	(8.7)	8.3	(7.5)	(6.3)	(5.7)	(3.9)	(3.5)	3.2	3.0	3.0
22	3.2	(3.8)	(3.9)	4.1	4.2	4.3	(4.0)	5.7	6.6	7.4	(9.6)	10.1	9.4	(10.4)	(11.0)	(10.5)	(9.6)	(7.0)	(5.8)	(5.6)	(5.4)	(5.2)	4.3	4.0
23	3.5	2.7	(3.2)	3.5	3.7	(4.2)	3.4	(5.4)	6.9	7.7	8.5	9.4	(9.0)	8.6	8.2	(8.2)	(7.4)	(5.5)	(5.1)	4.0	3.0	2.9	2.7	2.5
24	(2.5)	(2.3)	2.4	2.6	2.7	(2.6)	(2.7)	5.3	[6.1]	(7.5)	7.9	8.5	8.5	8.2	(9.0)	(9.4)	(9.3)	(6.9)	(4.7)	[3.7]	(3.5)	(3.8)	(3.8)	(3.9)
25	(3.8)	3.6	2.7	3.0	3.1	2.5	[2.4]	4.6	6.6	8.0	9.0	9.2	(8.8)	(9.2)	(8.6)	(7.8)	7.0	(6.8)	(5.7)	4.0	3.3	2.8	3.0	(2.9)
26	[3.2]	3.3	(3.5)	(2.7)	A	A	2.3	3.7	4.6	5.0	5.6	6.1	6.0	6.2	6.2	(6.3)	(6.9)	5.3	5.5	4.0	3.4	2.9	(2.7)	(2.5)
27	2.5	2.4	(1.6)	1.8	2.3	1.6	(2.0)	4.6	[6.1]	(7.6)	7.6	8.8	9.0	8.6	8.2	(7.6)	7.4	6.0	5.9	5.1	3.4	3.2	2.7	2.5
28	(2.5)	(1.9)	[1.8]	1.9	(1.5)	[1.7]	1.9	4.1	(5.0)	(5.6)	(6.3)	(6.9)	7.1	7.0	(7.7)	7.5	(7.9)	(7.4)	(5.6)	3.7	A	B	B	(2.0)
29	(2.4)	2.4	2.6	2.6	2.0	1.7	2.0	4.8	6.4	7.0	8.0	8.4	8.6	7.5	(7.7)	(8.1)	(7.5)	7.0	4.7	3.6	3.2	2.4	A	A
30	(2.1)	2.2	2.3	2.7	2.5	2.1	(2.1)	(5.0)	(6.8)	(7.7)	8.7	(8.5)	7.9	8.1	8.9	(7.8)	(7.4)	6.3	4.4	(3.9)	3.0	[2.4]	2.1	2.1
31																								
Median	3.1	3.1	3.0	2.7	2.7	2.6	3.0	5.4	6.6	7.4	8.0	8.6	9.0	8.6	8.5	(8.1)	(7.8)	(6.7)	(5.6)	(4.1)	3.5	3.1	3.0	3.0
Count	29	29	29	29	27	26	29	29	30	30	30	30	30	29	29	29	29	29	29	29	28	28	27	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 52

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), 1950

Observed at Washington, D. C.

Lat 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R. F. B., B. E. B.

Calculated by: McC., B. E. B.

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 K	210 N K	200 N K	200 N K	230 K	220 K	220 K	230	220								
2									230	210	200	190	230	M	M	M									
3									(Y)	200	200	210	210	200	230	210									
4									220 H K	240 K	230 K	200 K H	220 K	230 K	230 K	230 K									
5									230	210	200 H	200 H	200	210	220	210									
6									220	220 N	220	200	200	220 N	230	230									
7									220	210	200	190 N	230 H	200	200 H	210									
8									210	200	200 N	200	200	210	220	220									
9									Q	220	220	210	230	220	230 H	[230] M									
10									260 K	210 K N	250 K	250 K	240 K	230 K	230 K	240 K									
11									Q	200 N	230	210	200 N	200 N	230	230									
12									230	210	200 H	200 N	230	220	220	220									
13									Q	200	220	220	220	200 N	220	Q									
14									Q	220	200 H	220	210	220	220 H	210									
15									Q	Q	200 N	210	220	230	220	Q									
16									Q	Q	200 N	210	210	200	210	A									
17									Q	220	230	230	210	230	220	220									
18									Q	220	[210] A	200	200 N	220	230	240	230								
19									Q	210	210	200 N	230	230	Q	Q									
20									Q	Q	200 N	200 N	200 N	220	Q	Q									
21									Q	210 N	190 N	[180] A	180 N	220	Q	Q									
22									Q	210	190 N	210	210	230	230	230									
23									Q	Q	Q	Q	230	230	220	A									
24									Q	(Y)	180	190 H	200 N	200 H	230 K	230 K									
25									Q	210	220	210	220	230	Q	Q									
26									Q K	230 K	230 K	200 K N	220 K	230 K	(230) K S	(250) K S									
27									Q	220	210	200	210	220	230	Q									
28									240 K	230 K	220 K	210 K	200 K	200 K	200 K N	200 K N	230 K								
29									Q	220	210 H	210 N	220 N	220	210	240									
30									Q	230	Q	210	200 N	210	A	A									
31																									
Median									230	210	200	210	210	220	220	230	—								
Count									9	25	28	29	30	29	24	19	3								

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 53

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

Form adopted June 1946

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), November (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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^{K}	4.0^{K}	4.3^{K}	4.6^{K}	4.5^{K}	L^{K}	L^{K}	L	L							
2									L	L	L	L	L	M	(M)	M								
3									M	L	L	L	L	L	L	L								
4									L^{K}	4.0^{K}	4.0^{K}	4.0^{K}	4.2^{K}	4.2^{K}	4.1^{K}	L^{K}								
5									L	L	L	L	L	L	L	L								
6									L	L	L	L	L	L	L	L								
7									L	L	L	L	L	L	L	L								
8									L	L	L	L	L	L	L	L								
9									Q	L	L	L	L	L	L	M								
10									L^{K}	4.0^{K}	[4.2]^{K}	4.4^{K}	4.2^{K}	4.1^{K}	L^{K}	L^{K}								
11									Q	L	L	L	L	L	L	L								
12									L	L	L	L	L	L	L	L								
13									Q	L	L	L	L	L	L	Q								
14									Q	L	L	L	L	L	L	L								
15									Q	Q	L	L	L	L	L	Q								
16									Q	Q	L	L	L	L	L	A								
17									Q	L	L	L	L	L	L	L								
18									Q	L	L	L	L	L	L	L	L							
19									Q	L	L	L	L	L	Q	Q								
20									Q	Q	L	L	L	L	Q	Q								
21									Q	L	L	L	L	L	Q	Q								
22									Q	L	L	L	L	L	L	L								
23									Q	Q	Q	Q	L	L	L	L								
24									Q	M	L	L	L	L	L^{K}	L^{K}								
25									Q	L	L	L	L	L	Q	Q								
26									Q^{K}	L^{K}	4.0^{K}	4.1^{K}	4.3^{K}	L^{K}	L^{K}	L^{K}								
27									Q	L	L	L	L	L	L	Q								
28									L^{K}	L^{K}	L^{K}	4.1^{K}	L^{K}	L^{K}	L^{K}	L^{K}	L^{K}							
29									Q	L	3.5	L	L	L	L	L								
30									Q	L	Q	L	L	4.0	L	A								
31																								
Medion									—	—	4.0	4.1	—	—	—	—	—							
Count										3	5	5	4	3	1									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 54

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

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), November (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 55

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

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), November (Month), 1950

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B., B.E.B.

Calculated by: McC., B.E.B.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 56

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), 1950

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat. 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: R. F. B., B. E. B.

Calculated by: McC., B. E. B.

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	G	G	G	G	G	G	G	G	G	G	G	G	G	3.4 Y/110	5.9 Y/120	G	G	G	G	G	(7.8) S Y/110	2.4 Y/110	G	G
2	2.2 Y/110	G	4.7 Y/100	G	2.5 Y/100	G	G	G	G	G	G	3.2/120	4.8 Y/100	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	G	2.9/100	G	G	2.3/100	2.2/100	5.4 Y/100	2.4/100	2.8/100	2.7/100	G	G	3.0 Y/100	G	G
4	G	G	G	2.2 F/110	1.6/100	G	7.8 Y/120	8.6/110	G	G	6.7 Y/130	10.0 Y/120	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	1.4/100	1.3/100	1.1/100	G	6.3 Y/110	3.3 F/100	G	G	G	G	G	G	5.6 Y/140	8.6 Y/110	G	G	G	3.7 Y/110	G	(1.4) S/100	G	G
6	G	G	G	3.2/110	G	G	(1.7) S/100	2.4 Y/110	G	13.0 Y/110	5.2 Y/100	6.8/110	G	6.0 Y/130	G	G	2.2/110	G	G	G	G	G	2.2 Y/110	G
7	G	G	G	G	G	G	G	1.8 F (1.00) S	2.0/100	2.9/120	2.0/100	G	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	10.4/110	G	2.3/100	2.5/100	G	G	G	G	G	G	G	G	2.3 Y/100	G	G	G	G	G
9	3.4/110	3.1/110	2.6 Y/110	G	G	G	7.2 Y/150	G	G	3.3 Y/120	G	2.1/100	8.3/110	3.2/120	4.0 F/120	M	G	G	2.6 Y/110	2.4 Y/110	2.7 Y/110	3.0/110	G	G
10	G	G	G	3.0/100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	4.2 Y/110
11	G	G	G	6.8/110	G	G	G	6.6 Y/110	2.3/110	G	G	G	G	G	10.8 Y/100	2.5/110	G	G	5.2 Y/100	G	G	G	G	G
12	G	3.3/100	G	G	G	G	G	8.0/100	2.0/100	G	G	7.5 Y/160	5.9 Y/110	G	G	G	G	3.3 Y/110	3.5/110	G	G	G	G	G
13	G	G	G	3.7/100	2.4 Y/100	G	3.6/100	G	G	2.8/100	2.0 Y/100	2.4/100	2.1/100	2.6/100	8.2 Y/100	G	G	1.9 Y/100	(3.0) S/100	G	6.0/100	7.2/100	4.2/100	3.1 Y/100
14	3.0 Y/100	G	(2.5) S/100	G	G	5.0 Y/100	7.2 Y/100	G	G	G	(5.9) S/110	2.3/100	2.5/100	G	G	G	G	2.6/110	G	6.0/100	G	G	G	G
15	G	G	G	G	G	7.0/120	3.8/100	G	2.4/100	G	2.3/100	2.9/100	5.4 Y/100	2.5/100	2.4/100	7.0 Y/130	G	2.0/100	G	G	G	G	G	G
16	G	G	G	1.5/100	G	2.8 Y/100	G	G	G	2.7/110	4.3/100	3.2 F/100	2.7/100	3.2/100	5.0 Y/110	(6.8) S Y/110	G	G	G	G	G	G	G	(4.7) S/100
17	G	G	2.6 Y/100	10.2 Y/100	G	2.4/100	3.4/100	1.7/100	3.7/100	2.6/100	2.7/100	8.8/100	G	3.1 F/120	3.8 Y/120	2.7/120	G	G	G	G	G	G	2.3 (100) S	(1.8) S (100)
18	1.9 (100) S	9.3/120	G	G	G	G	3.8/110	2.9 Y/120	2.0/110	3.4 F/110	7.0/100	8.8/100	4.0/100	5.0/100	3.5/100	(2.3) S/100	1.7/100	G	G	5.7/110	5.2/110	G	2.6 Y/110	3.7/100
19	3.1/100	(2.1) S/100	2.4/100	G	G	G	5.8/110	2.5/110	G	2.3/100	(5.4) S/100	(5.0) S/100	3.1/100	3.6/100	2.6/100	(3.8) S/100	G	G	G	G	G	G	G	G
20	G	2.7/100	5.6 Y/100	G	6.6 Y/100	G	G	G	G	G	2.2/100	G	G	G	G	G	2.3/100	3.1/100	G	G	G	G	G	G
21	G	G	5.0 F/100	3.5 F/100	2.7 F/100	2.2/110	G	3.3/110	G	5.8/110	5.4/100	15.5/100	13.8 F/100	5.0 F/100	G	G	G	G	G	G	G	3.3/100	3.2 Y/100	G
22	G	2.5/100	2.5 Y/110	2.4/100	3.0/100	3.5 F/100	2.8 F/100	2.9/100	G	G	G	G	4.2/100	2.7/100	G	G	G	G	G	G	G	G	G	G
23	G	G	G	G	G	7.4/110	6.0 F/110	2.8 Y/110	4.2/100	1.7/100	3.1/110	3.1/120	G	3.0/110	2.6/110	3.7/120	2.4/120	2.0/120	8.4/110	G	2.7 Y/100	G	3.2/100	G
24	G	G	G	G	G	G	5.4/130	G	1.8/100	M	1.9/100	2.1/100	(2.0) S (110)	G	G	G	G	G	G	G	G	G	G	G
25	G	G	G	G	G	G	4.0/110	G	G	G	7.0 Y/100	G	G	G	G	2.6/110	G	G	G	G	G	G	G	G
26	G	G	G	G	3.1 Y/130	9.8/110	2.0 Y/100	G	G	G	G	G	G	G	G	6.0/120	G	G	G	3.8/110	G	G	G	G
27	G	G	G	G	G	G	G	2.7 Y/100	G	G	G	G	G	G	G	G	G	1.7/100	G	G	G	G	G	G
28	G	G	4.8 Y/150	6.1 Y/120	G	2.3 Y/110	2.3 Y/110	1.7 Y/120	(2.5) S/110	G	G	G	G	G	G	G	G	G	G	1.9/110	2.0/110	3.5/110	G	G
29	G	G	G	6.8/100	G	G	G	G	G	1.6/100	4.2/100	G	G	4.3/100	G	G	G	G	G	G	3.8 Y/120	3.7 F/110	G	4.9/110
30	4.0/110	2.7/110	G	2.2/120	3.0/110	5.4 Y/120	G	G	2.0/120	3.8 Y/120	G	G	G	G	4.8/130	6.0/110	5.6/120	4.4 Y/110	(7.6) S/110	6.8/110	2.5/120	6.2/120	G	G
31																								
Median	**	**	**	**	**	**	2.3	**	**	**	2.0	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	29	29	29	29	29	29	29	29	29	29	30	30	30	29	29	28	29	29	29	29	29	29	29	29

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O 702519

TABLE 57

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), November (Month), 1950

Observed at Washington, D. C.

Lat 38.7°N, Lang 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B., B.E.B.

Calculated by: McC, B.E.B.

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	K(1.8)J F	K(1.9)S F	K(1.8)F B	K(2.1)S F	K(2.1)S F	5.4 F	1.5 K F	2.3 K	2.2 K F	2.1 K F	2.1 K F	K 2.0 F Z	K 2.1 F Z	2.1 K	2.1 K	(2.3) S	2.2 Z F	(2.1) S F	2.0 F	(2.0) S F	2.0 F	(2.0) S	(2.0) J S	2.0
2	1.9 F	1.9 F	2.0 F	1.9 F	(2.0) F P	5 F	(1.8) S F	2.2 F	2.3 F	2.3 F	2.2	2.1 F Z	2.1 F Z	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	2.3	2.4	2.3	2.3 F V	2.1 F Z	(2.2) S F	(2.3) S F	(2.3) S F	2.3 F Z	(2.2) S F	(2.3) S	2.1	2.0	2.0 F	1.9 F
4	(1.9) S F	2.1 F	(2.0) S F	(2.1) S F	2.0 F	1.8 F	1.8 F	K(2.2) S F	2.0 K	1.7 K F	1.8 K	1.6 K F	1.7 K	1.8 K	2.1 K	2.1 K F	(2.1) S K	(2.1) S K	(2.1) S K	K(1.9) S P	1.9 K	1.9 K F	2.0 K F	2.0 K F
5	2.0 K F	(1.9) K F	2.0 K F	K(1.8) S F	2.0 K F	1.9 A F	1.8 F	2.2 F	2.3 F	2.2 F	(2.3) S	(2.3) S	2.3	2.3	2.2 Z	2.2	(2.3) S	2.3	2.1	(2.1) S F	2.0 F	1.9 F	(1.8) S	1.9 F
6	1.9 F	1.9	(1.8) S F	(1.9) S	(2.0) S	1.9	2.0 F	2.3 F	2.3 F Z	2.3 F	2.3 F	2.3 F Z	2.2 F	2.2 F	2.2	2.2	2.2 F	(2.2) S F	(2.0) S F	2.1 F	2.0	(2.1) S	1.8	1.8
7	1.9	1.9	1.9	2.0	2.0	(2.0) S	2.0 F	2.2	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	(2.3) S Z	(2.3) S	(2.2) S	(2.2) S	(2.1) S F	(2.1) S J	2.0	1.9
8	1.9 F	(2.0) S	2.0	2.1	2.2	(2.0) S F	2.1 F	(2.3) S F	2.5	2.4	2.3	2.2	2.3	2.1	2.1	2.2	2.1	2.2	2.1	(2.1) S P	(2.0) S P	1.9 F	(1.9) S P	2.0
9	2.0	2.0	2.0 F	1.9 F	2.0 F	2.0	2.1	2.2	2.4	2.3	2.3	2.3	2.1	2.2	2.1	M	2.1	2.1	2.1	(2.0) S	2.0	2.0	(1.9) S	1.9
10	(1.9) J	2.1	(1.9) S	2.0 K V	1.8 F K	1.5 F K	1.6 F K	1.7 F K	2.1 F K	1.8 F K	1.9 F K	1.8 F K	2.1 F K	K 2.0 F Z	K 2.0 F Z	K 2.0 F Z	2.1 Z K	(2.0) S K	(2.0) S V	(2.0) S	(2.0) S F	(1.8) S F	(1.8) S F	1.8 F
11	(2.0) S F	(2.1) S	2.1 F	1.9 F	1.9 F	2.0 F	2.0 F	(2.1) S	(2.3) S	2.3	2.2	2.2	2.2	2.1	2.3	2.2	(2.3) S	(2.3) S	(2.1) S	(2.2) S	(2.0) S F	(2.0) S F	1.8 F	2.0 F
12	2.0	1.9	1.9 F	(2.0) S F	2.1 F	1.9 F	(1.9) S F	(2.2) S F	2.4 F	2.4 Z	(2.2) S	2.1	2.1	2.3	2.3	2.3	2.3	(2.2) S	(2.1) S	(2.2) S	(2.0) S	(2.1) S F	1.9 F	2.0 F
13	1.9 F	1.8 F	1.9 F	1.9 F	(2.0) F	2.1 F	2.4 F	(2.2) F	2.4	(2.1) F	2.2	2.1	2.2	2.3 F	2.2	(2.2) S	(2.2) S	(2.2) S	(2.1) S	(2.3) S	(2.2) S A	2.0	2.1 F	1.9 F
14	1.9 F	1.9 F	(2.0) S F	(2.0) F	(2.1) S F	2.2 F	2.2 F	(2.3) S F	(2.4) S	2.3 F	2.3	2.2	2.2	2.2	2.2	2.3	(2.3) S	(2.3) S	(2.1) S	(2.1) S	2.1	1.9	2.0	2.0
15	(2.0) S	2.0	2.0 F	(2.1) S F	(2.2) F	(2.2) S F	2.0 F	(2.3) S	(2.3) S	2.3	2.4	2.2	2.2	2.3	2.2	2.2	(2.2) S	(2.2) S	(2.2) S	(2.1) S	2.0	2.0	1.9	1.9
16	1.9	2.0	2.0	2.1	2.2 F	(2.2) S	(2.1) S J	(2.1) F	(2.4) S	(2.4) S	(2.3) S	2.3	2.1	(2.2) S	(2.2) S	2.3	(2.2) S	(2.3) S	2.0	2.1	2.1	(2.0) S	(2.0) J S	(2.1) S
17	(2.0) J B	(2.1) S P	2.1 F	1.9 F	1.8	1.9 F	2.0	(2.3) S	2.2	(2.2) S	2.2 V	2.2	2.1	2.2	2.2	2.3	2.3	2.2	(2.0) S Z	(2.1.5) S F	2.2 F	2.0 F	2.0 F	2.0 F
18	(1.9) S F	(1.8) S F	1.9 F	1.9 F	2.0 F	2.0 F	2.1 F	2.1 F	(2.4) S	2.4 F	2.3	2.1	2.1 F	2.2	2.2	2.1	(2.3) S	2.3	(2.3) S	(2.4) S F	2.1	2.0 F	1.9 F	(2.0) S F
19	1.9 F	(2.0) S F	(2.1) J F	(2.2) S	2.1	2.2 F	(2.3) J F	(2.3) S F	(2.5) S	2.3	2.3	2.2	2.2	2.2	2.3	(2.3) S	(2.3) S	2.2	(2.2) S	(2.4) S	(2.2) J F	(2.1) J S	2.1 F	2.0
20	(1.9) S	2.0 F	2.0 F	1.9 F	2.1 F	2.1 F	2.1 F	(2.3) S F	2.4	2.5	2.3	2.3	(2.3) S	(2.3) S	2.3	(2.3) S V	(2.3) S	(2.4) S	(2.2) S	2.3	2.2	2.0	(1.9) J S	2.0
21	2.0	2.0	2.0 F	2.0 F	2.1 F	2.2 F	(2.2) S	2.3	2.4	2.4	2.2	2.2	2.2	2.3	2.2	2.3	(2.3) S	(2.3) S	(2.2) S F	2.C	(2.1) S F	(2.3) S F	2.0 F	2.0 F
22	2.1 F	2.0 F	(2.0) S	(1.9) S	2.0	2.1	2.2 F	2.4	2.4	2.4	2.2	2.1	(2.2) S	2.0	(2.1) S	(2.3) J S	(2.2) S	(2.2) J S	(2.0) S	(2.1) S	(1.9) S	(2.1) S	(2.1) S	2.1 F
23	(2.4) S F	2.3 F	(1.9) S F	1.9 F	2.0 F	(2.0) S	2.3 F	2.4 F	2.4 F	2.4	2.4	2.3 F	2.3 F	(2.3) F	2.3	(2.3) S	(2.4) S	(2.4) S	A	(2.2) S	2.2 F	2.0 F	2.0	2.0
24	(2.0) S	(2.1) J F	(2.1) S F	2.1 F	2.1 F	(2.3) S	(2.2) J S	2.2	2.5	M	2.3	2.2	2.2	2.2 H	2.1 K	(2.1) S A	(2.3) S K	2.4 K	K(2.4) J S	K(2.0) S	K(1.9) R S	(1.8) S K	1.7 K	K(1.9) S F
25	K(1.9) S F	K(2.2) S P	2.2 F	1.9 F	1.8	(2.1) J S	(2.2) S F	2.2 F	2.2 F	2.3 F	(2.3) S Z	2.3	2.3	(2.2) S	2.3	(2.3) J Z	S	(2.2) S F	(2.2) S	(2.3) J S	2.3 F	2.1	(1.9) S	1.8 F
26	K(1.8) J F	K(2.1) S F	K(2.0) S F	K(2.3) S F	A K	A K	1.7 F K	K(2.0) J S	2.2 K	2.3 K	2.0 K	2.1 K	2.1 K	2.1 K	(2.2) S K	(2.1) S K	2.2 K	(2.3) S K	K(2.0) S F	(2.2) S A	K(2.1) S F	1.9 K	1.7 F K	N K
27	1.9 F K	1.9 F K	1.9 F A	2.1 F K	2.1 F A	2.1 F K	S	2.1 F	2.2 F	2.3 F	(2.2) S	2.2 F	2.2	2.1 Z	2.2	2.2	2.2 F Z	2.3 F	2.1 F	2.2 F	(1.9) S	1.9 F	1.8 F	(1.9) F
28	1.8 F K	K(1.9) S F	1.8 F K	K(2.0) S F	K(2.1) F C	S K	S K	2.0 F K	2.3 F K	K(2.2) S V	(2.1) S K	2.2 K	(2.2) S K	2.2 K	K(2.1) S Z	(2.2) S K	2.1 K	K(2.1) J S	(2.2) S K	(2.1) S K	K(1.9) J F	A K	(1.7) 13 K	1.8 A
29	1.9 F K	(1.8) S K	1.9 F K	2.1 F K	2.3 F K	2.1 F K	S J K	2.2 F	(2.2) V	2.4 Z	2.3	2.4	2.3 F	2.3 F	2.2 F	2.3 F	2.2	(2.2) S F	2.2 F	2.2 F	2.2	(2.2) S	(1.9) S	A
30	A	(1.9) S	1.8	2.0 F	2.1 F	2.4 F	S	2.2 F	2.3 V	2.4	(2.1) H	(2.1) H	2.4	2.2	2.3	2.2	(2.3) S	2.2	2.0 F	2.2 F	2.3 F	2.2	(1.9) S	1.7
31																								
Median	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	(2.2)	(2.2)	(2.1)	(2.1)	2.1	2.0	1.9	2.0
Count	28	29	29	29	28	25	25	29	29	29	30	30	30	29	29	28	28	29	28	29	29	28	28	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 58

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic) , ____ (Unit) November (Month) , 1950

Observed at Washington, D. C.

Lat. 38.7°N , Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B. , B.E.B.

Calculated by: McC. , B.E.B.

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	K(2.8)J F	K(2.8)S F	K(2.8)F B	K(3.1)S F	K(3.1)S F	S F K	2.8 F K	3.3 K	3.3 F K	3.1 F K	3.1 F K	K3.0 F Z	K 3.1 F Z	3.1 K	3.1 K	(3.3) S	3.3 Z F	(3.2) S F	3.0 F	(3.0) S F	3.0 F	(3.0) S	(3.0) J S	2.9
2	2.9 F	2.9 F	3.0 F	2.9 F	(3.0) F P	S F	(2.8) S F	3.3 F	3.3 F	3.4 F	3.2	3.1 L	3.1 F Z	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	3.4	3.4	3.3	3.3 F V	3.1 F Z	(3.2) S F	(3.3) S F	(3.3) S F	3.3 F Z	(3.2) S F	(3.4) S	3.1	3.0	3.0 F	2.8 F
4	(2.9) S F	3.1 F	(2.9) S F	(3.1) S F	3.0 F	2.7 F	2.8 F	K(3.2) S F	2.9 K	2.7 F K	2.7 K	2.5 F K	2.6 K	2.8 K	3.1 K	3.1 F K	(3.2) S K	(3.1) S K	(3.1) S K	K(2.9) S P	2.9 K	2.8 F K	3.0 F K	3.0 F K
5	2.9 F K	(2.8) F K	3.0 F K	K(2.8) S F	2.9 F K	2.9 F K	2.7 F K	3.2 F	3.4 F	3.3 F	(3.4) S	(3.4) S	3.3	3.3	3.3 Z	3.2	(3.4) S	3.3	3.1	(3.1) S F	3.0 F	2.8 F	(2.8) S	2.8 F
6	2.8 F	2.8	(2.7) S F	(2.8) S	(3.0) S	2.9	2.9 F	3.3 F	3.4 F Z	3.3 F	3.4 F	3.3 F	3.2 F	3.2 F	3.2	3.2	3.2 F	(3.3) S F	(2.9) S F	3.1 F	3.0	(3.1) S	2.7	2.7
7	2.8	2.8	2.8	2.9	3.0	(2.9) S	2.9 F	3.2	3.4	3.4	3.3	3.4	3.2	3.2	3.3	3.2	(3.3) S Z	(3.3) S	(3.2) S	(3.2) S	(3.2) S F	(3.1) J S	2.9	2.9
8	2.9 F	(2.9) S	3.0	3.1	3.2	(2.9) S F	3.1 F	(3.3) S F	3.5	3.4	3.3	3.2	3.3	3.1	3.1	3.2	3.1	3.2	3.1	(3.1) S P	(3.0) S P	2.9 F	(2.8) S P	2.9
9	2.9	3.0	3.0 F	2.9 F	2.9 F	3.1	3.1	3.2	3.5	3.3	3.3	3.3	3.1	3.2	3.1	M	3.1	3.2	3.1	(3.0) S	3.0	2.9	(2.8) S	2.8
10	(2.8) J	3.1	(2.9) S	2.9 V K	2.8 F K	2.5 F K	2.5 F K	2.9 F K	3.1 F K	2.8 F K	2.8 F K	2.7 F K	3.1 F K	K3.0 F Z	K3.0 F Z	K 3.0 F Z	3.1 F K	(3.0) S K	(3.0) S V	(3.0) S	(3.0) S F	(2.7) F E	(2.7) F S	2.7 F
11	(2.9) S F	(3.1) S	3.1 F	2.8 F	2.8 F	2.9 F	2.9 F	(3.2) S	(3.4) S	3.4	3.2	3.2	3.2	3.2	3.4	3.2	(3.3) S	(3.3) S	(3.2) S	(3.2) S	(3.0) S F	(3.0) S F	2.8 F	3.0 F
12	3.0	2.9	2.9 F	(3.0) S F	3.1 F	2.9 F	(2.8) S F	(3.3) S F	3.4 F	3.4 Z	(3.2) S	3.1	3.1	3.3	3.3	3.3	3.3	(3.3) S	(3.2) S	(3.2) S	(3.1) S	(3.0) S F	2.8 F	3.0 F
13	2.9 F	2.8 F	2.9 F	2.8 F	(2.9) F	3.1 F	3.4 F	(3.3) F	3.5	(3.2) F	3.2	3.1	3.2	3.3 F	3.2	(3.2) S	(3.2) S	(3.2) S	(3.1) S	(3.3) S	(3.2) S A	3.0	3.1 F	2.8 F
14	2.8 F	2.9 F	(3.0) S F	(2.9) F	(3.1) S F	3.3 F	3.2 F	(3.3) S F	(3.5) S	3.3 F	3.4	3.3	3.2	3.3	3.2	3.3	(3.3) S	(3.3) S	(3.1) S	(3.1) S	3.1	2.8	3.0	2.9
15	(3.0) S	3.0	3.0 F	(3.1) S F	(3.2) F	(3.2) S F	3.0 F	(3.4) S	(3.3) S	3.3	3.5	3.3	3.2	3.3	3.2	3.3	(3.2) S	(3.3) S	(3.2) S	(3.1) S	3.0	3.0	2.8	2.9
16	2.8	3.0	3.0	3.2	3.2 F	(3.2) S	(3.0) J S	(3.1) F	(3.5) S	(3.4) S	(3.3) S	3.3	3.1	(3.3) S	(3.2) S	3.3	(3.2) S	(3.3) S	3.0	3.1	3.0	(3.0) S	(3.0) J S	(3.1) J
17	(3.0) J B	(3.1) S F	3.1 F	2.8 F	2.7	2.9 F	3.0	(3.3) S	3.2	(3.3) S	3.2 V	3.2	3.1	3.2	3.2	3.3	3.3	3.3	(3.0) S Z	(3.1) S F	3.2 F	3.0 F	3.0 F	3.0 F
18	(2.8) S F	(2.8) S F	2.8 F	2.8 F	3.0 F	3.1 F	3.1 F	3.1 F	(3.4) S	3.3 F	3.3	3.1	3.2 F	3.2	3.2	3.1	(3.3) S	3.3	(3.3) S	(3.4) S F	3.1	3.0 F	2.9 F	(2.9) S F
19	2.8 F	(3.0) S F	(3.1) J F	(3.3) S	3.1	3.2 F	(3.4) J F	(3.4) S F	(3.5) S	3.4	3.4	3.2	3.2	3.2	3.4	(3.3) S	(3.4) S	3.2	(3.2) S	(3.4) S	(3.2) J F	(3.2) J S	3.1 F	2.9
20	(2.9) S	3.0 F	3.0 F	2.9 F	3.0 F	3.1 F	3.1 F	(3.3) S F	3.5	3.5	3.4	3.3	(3.3) S	(3.4) S	3.4	(3.3) S V	(3.4) S	(3.5) S	(3.2) S	3.3	3.3	3.0	(2.9) J S	3.0
21	3.0	3.0	3.0 F	3.0 F	3.1 F	3.2 F	(3.2) S	3.3	3.5	3.4	3.3	3.2	3.3	3.4	3.2	3.3	(3.4) S	(3.3) S	(3.2) S F	3.0	(3.2) S F	(3.3) F S	3.0 F	3.0 F
22	3.1 F	3.0 F	(3.0) S	(2.9) S	3.0	3.1	3.2 F	3.4	3.5	3.4	3.2	3.1	(3.2) S	3.0	(3.1) S	(3.3) J S	(3.2) S	(3.2) J S	(2.9) S	(3.0) S	(2.9) S	(3.1) S	(3.1) S	3.1 F
23	(3.4) S F	3.3 F	(2.8) S	2.8 F	2.9 F	(3.0) S	3.4 F	3.5 F	3.5 F	3.4	3.5	3.4 F	3.3 F	(3.3) F	3.4	(3.4) S	(3.4) S	(3.4) S	A	(3.2) S	3.2 F	3.0 F	3.0	3.0
24	(2.9) S	(3.1) J F	(3.1) S F	3.1 F	3.1 F	(3.3) S	(3.2) J S	3.3	3.5	M	3.3	3.3	3.2	3.3 H	3.1 K	(3.1) S K	(3.3) S K	3.4 K	K(3.4) J S	K(2.9) J S	K(2.8) R S	(2.7) S K	2.6 K	K(2.9) S F
25	K(2.8) S F	K(3.2) S P	3.2 F	2.8 F	2.8	(3.0) J S	(3.2) S F	3.3 F	3.3 F	3.3 F	(3.3) Z	3.4	3.3	(3.2) S	3.3	(3.4) J S	5	(3.3) S F	(3.2) S	(3.4) J S	3.3 F	3.1	(2.8) S	2.7 F
26	K(2.7) J F	K(3.1) S F	K(3.0) S F	K(3.3) S F	A K	A K	2.6 F K	K(2.9) J S	3.2 K	3.3 K	3.0 K	3.1 K	3.2 K	3.1 K	(3.2) S K	(3.2) S K	3.2 K	(3.3) S K	K(2.9) S F	(3.2) S K	K(3.1) S F	2.9 K	2.9 F K	N K
27	2.8 F K	2.8 F K	2.8 F K	3.1 F K	3.1 F K	3.1 F K	5	3.1 F	3.3 F	3.4 F	(3.3) S	3.2 F	3.3	3.1 Z	3.3	3.3	3.2 F Z	3.3 F	3.1 F	3.2 F	(2.9) S	2.9 F	2.8 F	(2.9) F
28	2.8 F K	K(2.9) S F	2.7 F K	K(3.0) S F	K(3.0) S F	5 K	5 K	3.0 F K	3.3 F K	K(3.2) S V	(3.1) S K	3.2 K	(3.2) S K	3.2 K	K(3.1) S Z	(3.2) S K	3.1 K	K(3.0) J S	(3.2) S K	(3.2) S K	K(2.9) J F	A K	(2.6) R K	2.7 K
29	2.8 F K	(2.8) S K	2.9 F K	3.1 F K	3.3 F K	3.1 F K	5 J	3.3 F	(3.3) V	3.4 Z	3.3	3.4	3.3 F	3.4 F	3.2 F	3.3 F	3.3	(3.2) S F	3.2 F	3.3 F	3.2	(3.2) S	(2.8) S	A
30	A	(2.8) S	2.8	2.9 F	3.1 F	3.4 F	5	3.2 F	3.4 V	3.4	(3.0) H	(3.0) H	3.4	3.2	3.3	3.2	(3.3) S	3.2	3.0 F	3.2 F	3.3 F	3.2	(2.8) S	2.8
31																								
Median	2.9	3.0	3.0	2.9	3.0	3.1	3.0	3.3	3.4	3.4	3.3	3.2	3.2	3.2	3.2	3.3	(3.3)	(3.3)	(3.1)	(3.2)	3.1	3.0	2.9	2.9
Count	28	29	29	24	28	25	25	29	29	29	30	30	30	29	29	28	28	29	28	29	29	28	29	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 59

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), November (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: R.F.B., B.E.B

Calculated by: McC., B.E.B.

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 K	3.6 K	3.5 K	3.4 K	3.6 K	L K	L K	L	L							
2									L	L	L	L	L	M	M	M								
3									M	L	L	L	L	L	L	L								
4									L K	3.1 K	3.4 K	3.6 K	3.3 K	3.3 K	3.5 K	L K								
5									L	L	L	L	L	L	L	L								
6									L	L	L	L	L	L	L	L								
7									L	L	L	L	L	L	L	L								
8									L	L	L	L	L	L	L	L								
9									Q	L	L	L	L	L	L	M								
10									L K	3.4 F K	L K	3.3 K	3.6 H K	3.4 K	L K	L K								
11									Q	L	L	L	L	L	L	L								
12									L	L	L	L	L	L	L	L								
13									Q	L	L	L	L	L	L	Q								
14									Q	L	L	L	L	L	L	L								
15									Q	Q	L	L	L	L	L	Q								
16									Q	Q	L	L	L	L	L	A								
17									Q	L	L	L	L	L	L	L								
18									Q	L	L	L	L	L	L	L	L							
19									Q	L	L	L	L	L	Q	Q								
20									Q	Q	L	L	L	L	Q	Q								
21									Q	L	L	L	L	L	Q	Q								
22									Q	L	L	L	L	L	L	L								
23									Q	Q	Q	Q	L	L	L	L								
24									Q	M	L	L	L	L	L K	L K								
25									Q	L	L	L	L	L	Q	Q								
26									Q K	L K	3.3	3.5	3.4 K	L K	L K	L K								
27									Q	L	L	L	L	L	L	Q								
28									L K	L K	L K	3.6 K	L K	L	L K	L K	L							
29									Q	L	4.0	L	L	L	L	L								
30									Q	L	Q	L	L	3.8	L	A								
31																								
Medion									—	—	—	3.5	—	—	—	—	—							
Count										3	4	5	4	3	1									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 60

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)E , _____ November , 1950
(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: R.F.B. , B.E.B.

Calculated by: McC. , B.E.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								4.4 K	4.4 K	B K	(4.3) B K	4.3 K	4.2 K	4.2 K	4.4 K	4.4	4.4							
2								4.3	4.4	4.6	4.1	(4.3) A	4.3	M	M	M	M							
3								M	M	4.5	4.1	4.2	4.1	4.2	4.2	4.2	A							
4								4.2 K	4.2 K	4.2 K	4.3 K	4.2 K	4.0 K	4.1 K	4.2 K	F K	4.3 K	S K						
5								A	(4.2) F	4.4	4.2	4.1	4.1	4.0	4.1	4.2	4.1							
6								A	3.9	4.1	4.1	4.2 H	4.2	4.2	4.2	4.1	A							
7								A	4.1	4.2	4.3	4.2	4.3	4.5	F	4.4	4.2							
8									(4.1) F	4.5	4.2	4.3	4.4	4.4	4.3 H	4.5	4.1 H							
9									3.9 H	4.0 H	4.1	4.1	4.2	(4.2) A	A	M	4.2							
10								4.2 K	3.9 K	4.0 K	3.9 K	4.1 K	4.2 K	4.3 K	4.1 K	4.1 K	4.2 H K							
11								A	A	4.3	4.2	4.1	4.3	4.3	4.1	3.9	3.8	S						
12								4.1	4.2	4.2	(4.2) S	(4.2) S	4.0	4.1	4.1	4.1	4.0	A						
13									(4.2) S	4.2	(3.9) F	4.2	4.3	(4.2) F	4.0	4.2	4.3							
14								S	4.2	(4.3) B	4.0 F	3.9	4.1	4.2	4.2	4.2	4.2							
15									A	4.1	4.0	4.0	4.0	4.2	4.1	(4.1) S	(4.0) S							
16									(4.3) S	(4.1) A	A	(4.0) A	4.0	(4.2) A	A	A	4.3							
17									A	A	(4.0) A	A	4.2	4.3	A	4.4	(4.3) S							
18									A	A	A	A	A	(4.6) A	4.3	4.4	4.2							
19									S	4.1	(4.1) S	4.0	4.2	4.2	(4.2) S	A	S							
20									(4.2) S	4.1	4.2	4.2	4.1	4.3	4.3	4.0	A							
21								A	3.9	4.2	4.0	A	4.0	(4.1) A	4.1	4.1	(4.2) S							
22									(4.1) S	(4.2) S	4.1	4.0	4.2	4.2	4.3	(4.2) S	(4.3) S							
23									A	4.1	A	(4.0) A	3.9	(4.1) A	A	4.1								
24									4.0	M	4.1	4.2	4.1	4.2	4.2 H K	4.2 K	4.1 K							
25									4.2	(4.3) S	3.8	4.0	4.0	(4.1) S	(4.1) S	A	S							
26									S K	(4.2) S K	S K	(4.2) S K	(4.3) S K	S K	S K	S K	S K							
27									S	S	(4.2) S	4.1	4.0	4.1	4.2	4.2								
28									4.0 K	(4.2) S K	(4.0) S K	(4.0) S K	4.0 K	4.0 K	(4.2) S K	S K	S K							
29									(4.1) S	3.7	A	4.0	3.8	A	4.2	4.1	B							
30									A	(2.4) S	2.7	2.9	3.0	4.1	4.1	(4.1) A	A							
31																								
Median								4.2	4.2	4.2	4.1	4.1	4.1	4.2	4.2	4.2	4.2	—						
Count								5	20	25	25	25	29	27	23	22	18	--						

Sweep 1.0 Mc to 25.0 Mc in 5.25 min

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Table 61

Ionospheric Storminess at Washington, D.C.

November 1950

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character** 00-12 GCT	12-24 GCT
1	4	4	###	2000	5	4
2	1	1			4	2
3	***	2			3	1
4	2	6	1200	----	5	2
5	4	3	----	1100	3	2
6	3	2			2	1
7	2	3			1	0
8	1	1			2	1
9	1	0			2	1
10	3	6	0800	2300	4	3
11	1	1			4	3
12	1	1			4	3
13	2	1			4	3
14	2	0			2	2
15	2	1			1	1
16	1	1			1	2
17	1	1			2	3
18	3	1			1	3
19	1	1			2	1
20	2	1			1	1
21	2	1			0	1
22	2	3			1	4
23	1	1			1	1
24	2	4	1900	----	1	3
25	4	1	----	0700	5	4
26	4	5	0500	----	6	4
27	4	2	----	1100	5	4
28	4	4	0500	----	5	4
29	4	3	----	1200	3	3
30	3	2			3	2

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

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

----Dashes indicate continuing storm.

***No readable record. Refer to table 50 for detailed explanation.

###Storm began at 0500 GCT on October 28, 1950.

Table 62

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
October 1950

Day	North Atlantic quality figure	CRPL* Warning	CRPL Forecasts (J-reports)	North Pacific quality figure	Geomagnetic K_{Ch}
	Half day GCT (1) (2)	Half day GCT (1) (2)		Half day GCT (1) (2)	Half day GCT (1) (2)
1	(3) (3)	W W	X	(3) (3)	(5) (4)
2	(2) (4)	W W	X	(3) (3)	(5) (5)
3	(2) (3)	W W	X	(3) (4)	(5) (4)
4	(2) (3)	W W	X	(3) (4)	(5) (4)
5	(2) (4)	W W	X	(3) (3)	(5) (4)
6	(4) (4)	W U	X	(4) 5	(4) 3
7	(3) (4)	U U		(4) (4)	(4) 3
8	(4) 5	W U		(4) 5	3 2
9	5 6			5 8	3 2
10	5 6			5 6	2 1
11	6 7			7 7	1 2
12	6 6			7 6	3 2
13	6 7			6 7	3 2
14	5 5	U U		5 5	(4) (4)
15	(4) 5	W U	X	5 6	(4) 2
16	(4) (4)	U W	X	(4) (3)	(4) (4)
17	(3) 5	W	X	(4) (4)	3 3
18	5 6			(4) 6	(4) 2
19	5 6			6 7	2 1
20	6 7			7 5	2 2
21	6 6		X	6 7	1 2
22	6 6		X	5 6	1 2
23	5 6		X	6 5	3 3
24	5 6	W		5 7	3 2
25	6 6			5 6	1 1
26	6 7			5 5	2 1
27	6 7			6 7	1 1
28	(4) (3)	W W	X	5 (2)	(5) (6)
29	(2) (3)	W W	X	(4) (4)	(6) (5)
30	(2) (3)	W W	X	(4) (4)	(5) (4)
31	(2) 5	W W	X	(3) (3)	(5) (4)

Score:	Warning N.A.	Warning N.P.	Forecast N.A.	Forecast N.P.
H	29	28	23	22
(M)	1	0	0	0
M	0	2	3	4
G	30	28	27	26
O	2	4	9	10

Scales:
Quality Figures
(1)- Useless
(2)- Very poor
(3)- Poor
(4)- Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

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

Symbols:
W Disturbed conditions expected
U Unstable conditions expected
N No disturbance expected
X Probable disturbed date

Scoring:
H Storm ($Q \leq 4$) hit
(M) Storm severer than predicted
M Storm missed
G Good day forecast
O Overwarning

Scoring by half day according to following table:

	Quality Figure ≤3	4	5	≥6
W	H	H	O	O
U	(M)	H	H	O
N	M	M	G	G
X	H	H	O	O

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

Table 63a

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

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 3.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	12	10		8	10	15	12	10	5	5	5	5	5	3	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	5	8	8		8	8	12	14	12	8	8	5	5	3	3	3	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	3	5	8	8	8	8	10		8	8	10	13	13	13	10	3	3	2	3	2	3	-	-	-	-	-	-
10.7	-	-	-	-	3	5	8	8	3	3	3	10	8	8	12	10	8	5		3	12	15	13	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	2	3	3	2	2	2	2	3	8	10	12	10	10	8		3	3	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
13.8	X	X	X	X	-	-	-	-	-	-	3	3	3	8	10	10	5	5		5	3	5	8	8	5	5	3	-	-	-	-	-	-	-	-	X	X	X
16.9	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	-	-		-	-	3	3	3	3	3	3	3	3	5	3	3	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	3	5	3	3	3	3	12	12	8		3	5	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	3	5	8	8	8	12	15	20		20	15	15	17	17	8	3	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	12	12	10		8	10	10	8	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-
28.8	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	12	12		13	10	12	15	15	12	12	8	5	3	3	-	-	-	-	X	X	X	X

Table 64a

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

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8		-	-	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	2	2	2	2	3	3	1	1	1	1	-	-	-	-	2	2	8	8		-	-	2	15	15	2	-	-	2	2	2	2	3	2	-	-	-	-	-
5.8	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	2		2	-	-	8	12	3	3	3	2	2	2	3	3	3	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	3	8		8	14	11	5	3	3	3	2	3	3	2	3	3	2	-	-	2	2	2
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	2		-	2	2	3	3	2	2	2	3	2	2	3	3	3	3	3	3	3	3
13.8	X	X	X	X	-	-	-	-	-	-	-	-	-	-	3	3	8	2		2	2	-	-	2	2	2	-	-	-	-	-	-	-	-	X	X	X	
16.9	3	3	3	3	3	3	3	3	5	3	3	5	10	10	10	3	8	8		8	8	8	8	5	3	3	3	3	3	3	3	5	5	3	3	3	3	3
22.7	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	5	3	2		2	2	2	15	12	5	3	3	3	3	3	3	3	3	3	3	3	3	3
25.7	3	3	3	3	3	3	3	3	2	2	2	3	2	2	-	-	10	12		14	8	8	3	8	5	5	3	3	5	3	3	5	3	3	3	3	3	3
27.7	3	3	3	3	3	3	3	3	3	3	3	3	5	3	-	5	10	8		3	3	3	3	2	5	5	8	5	5	5	3	3	2	3	2	2	2	2
28.8	2	2	2	2	2	2	2	2	3	3	3	3	5	5	3	3	3	3		5	2	-	3	3	-	3	3	3	8	5	5	3	3	2	X	X	X	X

Table 63b

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

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 3.7	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	-		-	3	3	3	3	5	3	3	3	3	3	3	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	3	3	3	3	3	5	5	5	5	3		3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	3	3	3	3	3	3	3	3	5	8	8	5		5	5	5	8	5	5	3	3	3	3	3	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	8	12		10	8	15	20	22	20	12	8	10	10	10	8	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	3	3	3	3	3	5	5	8	12	10	8	14		12	15	18	20	20	15	15	8	10	8	5	3	2	-	-	-	-	-	-
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16.9	-	-	-	-	-	-	-	-	3	5	8	12	15	15	20	20	22	25		15	15	18	25	15	15	12	12	5	3	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	8	12		12	12	12	15	28	25	14	12	5	5	8	8	8	5	3	3	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5		5	5	8	10	17	14	8	8	5	5	5	5	5	3	3	-	-	-
27.7	-	-	-	-	3	3	3	3	3	3	3	3	5	8	8	8	5	3		3	3	3	8	10	10	10	5	3	3	3	3	5	5	-	-	-	-	-
28.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-

Table 64b

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

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	2	2	2	2	2	3	8	5	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	5	3		3	3	3	2	2	3	2	2	2	3	2	2	2	-	-	-	-	-	-
10.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	8	5		-	12	8	3	5	3	3	1	-	-	-	-	-	-	-	-	-	-	-
12.7	3	3	2	2	2	2	2	2	2	3	3	2	2	2	3	3	2	2		-	-	12	5	12	-	8	-	-	3	2	2	2	2	-	-	-	-	-
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16.9	3	3	3	3	3	3	3	8	5	3	3	3	-	-	3	5	8	2		2	3	3	15	3	3	-	3	3	5	5	3	3	2	2	3	5	5	3
22.7	3	3	3	3	3	3	3	3	5	5	3	3	3	5	5	3	8	12		10	10	5	15	15	20	-	-	-	-	-	2	2	2	2	2	X	X	X
25.7	3	3	3	3	3	3	3	3	5	8	5	8	8	5	5	5	5	5		5	5	8	12	15	12	-	-	-	-	-	-	2	2	2	3	3	3	3
27.7	2	2	2	2	2	2	2	2	3	5	3	2	2	2	2	2	5	3		2	3	3	5	3	3	3	3	3	3	3	2	2	2	2	2	3	3	3
28.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2

Table 65a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Nov. 3.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	3	3	3	3	3	2	2	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.8	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
16.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
28.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	5	3	2	2	2	2	2	-	-	-	X	X	X	X

Table 66a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Nov. 1.7	-	-	-	-	-	-	-	-	-	3	3	3	8	10	12	5	15	15	18	25	12	15	10	8	10	8	8	8	3	3	3	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	3	8	10	8	10	12	15	20	12	15	22	15	20	15	10	5	5	5	3	3	3	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	3	3	3	3	5	8	8	10	12	10	12	8	10	15	15	15	12	5	5	5	3	3	3	3	-	-	-	-	-
6.7	-	-	-	-	-	-	-	3	3	3	5	5	5	5	8	8	8	8	10	5	8	12	8	8	8	8	5	8	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	3	3	3	8	8	8	5	8	8	12	15	15	12	10	13	12	8	8	5	5	5	3	3	-	-	-	-	-	-	-	-	-
11.7	-	3	3	3	5	5	5	5	5	8	5	3	5	8	10	10	10	8	8	8	10	10	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	3	3	5	3	5	5	3	5	8	8	10	10	8	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	3	3	5	8	10	12	10	5	5	5	5	5	3	8	5	5	3	3	3	3	-	-	-	-	-	-	-	-
15.7	-	-	-	5	5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	3	5	5	5	5	5	3	-	3	3	3	3	3	3	3	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	3	5	10	8	8	10	12	28	15	12	10	20	18	10	3	-	-	5	5	5	5	5	5	3	3	-	-	-
22.7	-	-	-	-	-	-	-	-	-	3	14	12	8	8	13	28	25	28	14	10	15	20	8	5	3	3	3	3	3	3	3	3	3	3	-	-	-
23.7	-	-	-	-	-	-	-	-	3	12	12	15	8	8	15	20	28	33	20	15	14	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	3	8	10	12	10	12	20	31	33	25	15	17	14	8	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	3	8	5	5	8	12	20	17	22	15	13	13	12	10	8	8	5	5	5	3	3	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	3	5	5	3	10	12	15	20	22	15	15	12	14	12	10	10	12	3	5	3	3	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	3	3	5	8	12	12	15	18	18	10	12	15	15	12	10	12	5	5	3	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	3	5	8	12	12	13	15	15	17	15	15	31	41	22	17	15	12	10	5	3	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	3	5	8	10	12	10	15	12	10	12	15	22	33	22	15	12	12	10	10	3	-	-	-	-	-	-	-

Table 65b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Nov. 3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	5	4	2	2	2	2	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	2	2	1	1	1	1	-	-	-	-	-	-	-
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16.9	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5	3	3	3	3	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	5	5	3	3	2	2	2	2	2	2	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	5	3	3	2	-	-	2	2	2	2	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-

Table 66b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Nov. 1.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	8	8	8	5	5	8	10	14	10	10	5	3	3	3	3	5	3	5	3	-	-
4.8	-	-	-	-	-	3	3	3	3	3	5	5	8	8	5	5	5	3	3	3	5	8	8	10	5	3	3	3	3	3	3	3	-	-	-	-	-
5.7	-	-	-	-	-	3	3	5	5	5	3	8	5	8	5	8	8	8	8	8	8	10	10	5	5	3	3	3	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	3	5	8	3	3	12	15	12	8	8	12	12	10	5	5	5	3	3	3	3	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	15	12	15	20	22	20	15	8	8	12	3	3	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	3	3	3	3	5	5	5	3	5	10	12	10	13	18	28	31	17	8	8	10	5	3	3	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	3	3	5	5	8	10	8	8	5	12	13	12	13	15	18	15	12	10	8	10	3	2	2	2	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	3	3	5	8	8	8	8	8	10	10	13	15	12	10	10	8	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	5	5	8	8	5	8	8	10	12	10	8	12	12	10	8	8	5	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	3	5	5	8	10	12	15	12	15	18	12	12	12	15	17	13	10	10	5	-	-	-	-	-	-	-	-	-	-
17.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	10	10	10	8	X	X	X	X	X	X	X	X	3	3	3	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	8	5	8	8	8	8	12	13	12	10	10	8	8	3	3	3	3	3	3	3	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	8	10	12	12	12	15	20	35	31	15	10	12	10	8	8	8	5	5	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	12	15	22	20	20	15	20	38	38	25	15	10	10	10	10	10	5	5	3	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	15	18	13	13	15	31	41	28	12	10	8	5	10	8	5	3	-	-	-	-
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	8	8	12	12	10	5	5	8	10	10	8	5	3	3	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	3	5	3	3	5	5	5	5	8	8	10	12	10	10	8	5	5	10	10	8	10	3	-	-	-
27.7	-	-	-	-	-	-	-	-	3	3	5	5	5	5	8	8	10	8	5	5	5	8	8	10	10	10	8	5	3	3	3	5	8	3	3	3	-
28.7	-	-	-	-	-	-	-	3	3	3	3	5	5	5	8	8	5	5	3	3	3	5	9	8	8	5	3	3	5	3	5	5	3	3	-	-	
29.7	-	-	-	-	-	-	-	3	5	5	5	5	5	8	8	8	5	3	3	3	3	8	5	5	5	5	3	3	5	5	5	3	-	-	-		
30.7	-	-	3	3	3	5	3	3	3	5	5	5	5	3	3	3	3	3	3	5	5	5	3	3	3	5	5	3	3	3	5	5	5	3	-	-	-

Table 67a

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

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 1.7	3	2	2	2	3	3	2	2	2	2	2	2	2	-	-	-	2	2		5	10	5	10	2	2	3	3	5	2	3	2	2	3	2	-	-	-	-
4.8	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	10		3	-	-	5	12	-	-	-	3	3	2	3	3	2	2	2	-	-	-
5.7	3	3	3	2	2	2	2	2	2	2	2	3	3	-	-	3	2	3		3	-	2	8	10	2	2	2	2	2	3	3	3	2	2	-	-	-	-
6.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2		2	2	2	-	2	5	2	2	3	3	3	2	2	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	8		10	10	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	2	3		2	2	2	8	2	2	2	3	3	3	3	2	2	2	2	2	2	-	-
12.7	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	5	3	5		8	-	-	2	3	3	2	2	3	3	3	3	2	2	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-		2	2	5	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.9	3	2	2	3	3	2	2	2	2	2	2	-	-	-	-	2	14	5		3	8	5	18	12	5	12		5	3	3	3	3	2	2	2	2	2	2
22.7	2	3	3	3	3	3	2	2	2	2	2	-	-	-	-	5	12	5		3	3	17	15	8	8	3	3	3	3	2	2	2	2	2	2	2	2	2
23.7	2	3	2	2	2	2	2	2	2	2	-	-	-	-	-	5	5	5		5	3	8	8	5	5	3	3	2	2	-	-	2	2	2	2	2	2	2
25.7	2	3	3	2	3	2	2	2	2	2	3	3	3	3	3	5	12	10		2	3	5	2	3	3	3	3	5	5	3	2	2	2	2	2	-	-
26.7	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	-	10		8	3	2	2	2	2	2	2	3	3	3	-	-	-	-	-	-	-	2
27.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	5	3	10		8	3	3	3	2	2	2	5	3	3	3	2	2	2	2	2	2	2	2
28.7	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	2		2	2	2	-	-	-	-	3	5	5	8	2	-	-	2	2	2	2	2
29.7	3	3	3	2	3	2	2	3	3	2	2	3	3	2	2	-	2	2		3	-	-	8	3	-	-	-	5	5	3	3	-	-	-	-	-	2	2
30.7	2	2	3	2	2	3	2	3	3	3	3	2	2	-	2	2	2	-		-	-	-	5	5	3	-	-	2	8	8	10	3	2	3	2	-	-	-

Table 68a

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

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2		2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3		2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5		3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2		2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	2	2	2	2	2	2	3	2	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2		2	2	2	3	3	3	2	2	3	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	3	3	3	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-

Table 67b

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

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 1.7	-	-	-	-	-	-	-	3	3	3	-	-	-	-	-	-	8	5	8		2	3	2	5	12	8	8	3	3	-	-	-	3	3	3	3	3	3
4.8	-	-	-	-	-	-	3	3	3	2	2	2	2	2	2	3	3	2	3		3	3	2	2	2	2	2	3	3	2	2	2	2	2	3	2	3	3
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3		3	2	2	2	2	2	2	3	3	3	2	2	2	2	-	-	3	3
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	12	2		2	2	2	-	-	-	-	2	2	2	3	3	2	2	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	5		2	8	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	-	-		-	3	10	5	2	3	2	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3		-	-	10	5	3	3	-	-	-	2	2	2	2	2	2	2	2	2
13.7	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	2	2	2	2		2	2	2	3	5	3	2	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	2	5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
21.9	2	2	2	2	2	2	2	2	3	3	2	2	3	3	3	3	8	10	8		8	3	5	12	12	3	-	-	-	-	3	3	5	5	3	3	3
22.7	2	2	-	-	-	-	2	2	5	5	5	2	3	8	5	3	3	12	10		12	5	8	12	18	2	-	-	-	2	2	2	2	2	2	2	2	2
23.7	2	-	-	-	-	-	2	2	3	3	3	3	3	5	3	5	3	8	10		10	5	8	15	22	2	2	2	2	2	2	2	2	2	3	2	2	2
25.7a	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	2		-	-	-	10	5	3	-	-	-	-	2	2	2	2	2	2	2	2
26.7	2	2	2	2	2	2	2	2	5	5	3	3	3	2	3	3	3	2	2		2	2	3	3	8	3	-	-	-	-	-	-	3	3	3	3	3
27.7	2	2	2	2	-	-	2	2	2	2	-	-	-	-	2	2	2	2	3		3	-	-	-	2	3	2	-	-	-	-	-	2	2	2	2	-	2
28.7	2	2	-	-	-	-	2	2	3	5	3	2	-	-	-	-	2	3	5		2	2	3	2	8	2	2	2	2	3	3	2	2	2	2	2	2	2
29.7	2	2	2	2	2	2	2	3	5	3	3	2	3	3	2	5	3	5	3		3	5	3	3	3	3	3	3	3	3	2	2	2	-	-	-	-	3
30.7	-	-	-	-	-	-	2	2	2	5	2	2	2	3	2	2	5	3	3		5	5	3	3	3	8	2	3	2	3	3	2	2	2	2	2	3	2

Table 68b

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

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Nov. 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
9.7	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3		3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		2	2	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		2	2	3	5	3	3	2	2	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5		2	2	2	3	5	3	2	2	2	-	-	-	-	-	-	-	-	-
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 69

American and Zurich Provisional Relative Sunspot Numbers

November 1950

Date	R_A*	R_Z**	Date	R_A*	R_Z**
1	91	78	17	71	66
2	83	62	18	61	58
3	62	57	19	56	50
4	104	67	20	40	36
5	115	79	21	19	22
6	109	94	22	24	18
7	106	80	23	21	16
8	79	55	24	16	20
9	82	61	25	21	26
10	70	60	26	45	32
11	77	46	27	102	64
12	66	48	28	108	74
13	66	42	29	108	69
14	87	61	30	118	73
15	100	81			
16	77	42	Mean:	72.8	54.6

*Combination of reports from 45 observers; see page 9.
**Dependent on observations at Zurich Observatory and its stations at Locarno and Arosa.

Table 70

Outstanding Solar Flares, October 1950

Obeervatory	Date 1950	Time Obeerved Beginning (GCT)	Time Obeerved Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Longitude Diff (Deg)	Position Latitude (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Obeerved
Boulder	Oct. 2	1718	1729	11	80	E28	S06	1721	12	3		
"	" 7	1640	1651	--	200	E31	N11	1645	12	4		
"	" 7	2055	2110	—	60	E19	N02	2104	12	4		
Tokyo	" 8	0004	0020	—		E16	N03				2-1	
"	" 8	0133	0148	15		E17	N02				1	
"	" 8	0350	0359	9		E16	N03				1	
Wendeletein	" 8	0744	0758	--	291	E16	N04	0749			1+	
Boulder	" 11	1925	1950	25	200	E38	S15	1935	12	3		Yee
"	" 14	1745	1815	--	500	E06	S14	1804	12	4		
"	" 17*	1524	1540	—	50	W41	S15	1525	5	8		
"	" 17	1755	1900	65	200	W41	S17	1825	10	5		
"	" 17*	1920	1942	--	170	W46	S13	1935	6	3		
McMath	" 18	1525				W50	S12				1+	
"	" 18	2036				W50	S12				1	
Boulder	" 19*	1705	1730	--	--	E25	S07	1705	6	2		
"	" 19	2130	2150	—	50	E23	S07	2140	10	3		
"	" 20*	2145	2235	--	70	W87	S30	--	--	--		
"	" 22	1659	1720	21	150	W08	N23	1701	12	5		
"	" 25*	1630	1651	—	--	E89	S12	1641	6	--		
"	" 31	1805	1813	8	75	E39	N14	1809	8	5		

*The High Altitude Obeervatory reporte that thie event hae eome but not all of the typical characterietice of a flare.

Table 71

Indices of Geomagnetic Activity for October 1950

Preliminary values of mean K-indices, Kw, from 35 observatories;
Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1950	Values Kw	Sum	C	Values Kp	Sum	Final Sel. Days
1	4.2 4.5 4.9 4.3 5.0 3.9 3.5 4.4	34.7	1.6	5-5+6+6- 6+5-4o5o	42o	Five
2	3.4 4.7 4.7 5.2 4.5 5.1 5.4 4.7	37.7	1.7	4o6o6o7- 6-6+6+6o	47o	Quiet
3	4.3 4.7 3.8 3.8 3.3 3.9 5.4 3.5	32.7	1.5	5+6-5o5- 4+5-7-4-	40o	
4	4.7 3.7 4.1 3.6 3.9 4.7 4.9 2.9	32.5	1.5	5+5o5+5- 5-6-6o3o	40-	10
5	3.4 3.7 4.1 3.7 3.6 4.0 4.1 4.2	30.8	1.3	4o5-5o4+ 4o5-5-5o	36+	19
						21
6	3.3 2.1 3.3 3.7 1.7 3.7 3.1 3.9	24.8	1.0	4-3o4+5- 2-4o3+4+	29o	25
7	4.1 3.3 3.3 3.1 4.0 3.9 3.9 3.4	29.0	1.1	5o4+4+4- 4+5o4+4o	35o	27
8	3.8 2.6 2.3 2.2 2.6 2.8 0.8 0.9	18.0	0.6	4o3o3-2+ 3-3o1-0+	19-	
9	2.7 2.2 2.0 3.8 1.4 1.7 1.6 1.8	17.2	0.6	3o3-2+4+ 1+1+1+1+	18-	
10	2.0 1.1 0.6 0.9 0.9 1.4 1.1 2.2	10.2	0.2	2+1+0+1o 1-1+1o2o	10o	
11	1.1 0.9 1.3 0.6 0.7 2.4 2.6 1.7	11.3	0.3	1+1o1+0+ 0+3-2+1+	11-	Five
12	3.0 3.7 2.1 2.2 1.4 2.0 3.2 3.1	20.7	0.7	3+5-2+2+ 1+2o3o3-	22-	Dist.
13	2.4 2.5 2.3 1.6 1.9 1.6 3.1 2.9	18.3	0.6	3o3+3-2- 2-1+3o3-	19+	
14	4.3 3.9 3.2 4.1 4.8 5.1 3.9 4.1	33.4	1.6	5o5-4-5- 5+6o4+5-	38+	1
15	5.0 4.1 2.8 1.6 1.5 2.9 2.4 3.0	23.3	1.0	6o5o3+2o 2-3+2+3o	27-	2
						14
16	3.3 2.8 3.8 4.5 5.0 4.5 4.0 3.3	31.2	1.4	4o4-5o6- 6o5+4+4-	38-	28
17	3.2 2.3 3.5 2.8 3.5 4.2 3.6 3.1	26.2	1.0	4-3+5-4- 4o5-4-3+	31o	29
18	2.1 2.3 3.1 3.7 1.9 2.5 2.1 1.9	19.6	0.6	2+3o4o4+ 2-3-2-2-	21+	
19	1.5 1.2 1.3 1.4 0.9 0.3 1.2 1.8	9.6	0.1	2-2-2-1+ 1-0o1-2-	9+	
20	1.2 0.4 1.3 1.8 1.1 1.1 2.3 2.7	11.9	0.3	1o0+1+2o 1o1o3-2+	12-	
						Ten
21	0.8 0.5 0.7 1.1 1.1 1.1 1.9 1.0	8.2	0.0	1o0+0+1o 1o1o2o1-	7+	Quiet
22	0.2 0.9 0.8 1.7 2.5 3.8 3.0 3.3	16.2	0.6	0o1o1-2- 3-4o3+3+	17-	
23	3.6 2.6 2.0 2.9 2.1 2.1 2.6 3.3	21.2	0.7	4o3+2+3+ 2+2+3-4o	24+	9
24	2.9 1.9 2.5 2.3 1.7 1.7 1.5 1.9	16.4	0.5	3+2+3-3- 2-2-1o2-	17o	10
25	1.3 0.9 0.3 0.8 0.5 0.5 1.6 3.0	8.9	0.2	2-1+0o1o 1o1-1+3+	10+	11
						19
26	2.0 1.5 1.7 1.5 0.8 0.6 2.4 1.8	12.3	0.1	2o2o2o2o 1o1-2+2-	14-	20
27	1.0 0.4 1.1 0.9 0.8 0.9 1.5 1.7	8.3	0.0	1o0+1+1+ 1-1-1+1+	8o	21
28	3.5 4.3 4.7 5.6 5.6 5.5 6.1 5.4	40.7	1.8	4-5o6o7o 6+6o7+7-	48o	24
29	4.7 3.8 4.8 4.2 4.9 5.2 4.6 5.1	37.3	1.7	6o5o6-5o 5+6o5-6o	44-	25
30	4.6 4.5 3.4 3.3 4.5 4.7 4.9 4.8	34.7	1.5	6-6-4+4o 5-5+5+6-	41-	26
31	4.7 4.0 3.8 4.1 4.8 4.2 4.8 4.3	34.7	1.5	5+5o5-5+ 6-5-5+5o	41o	27
Mean	2.98 2.70 2.67 3.13 2.65 2.81 2.97 3.06	2.87	0.88			

Table 72

Sudden Ionosphere Disturbances Observed at Washington, D.C.

November 1950

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

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

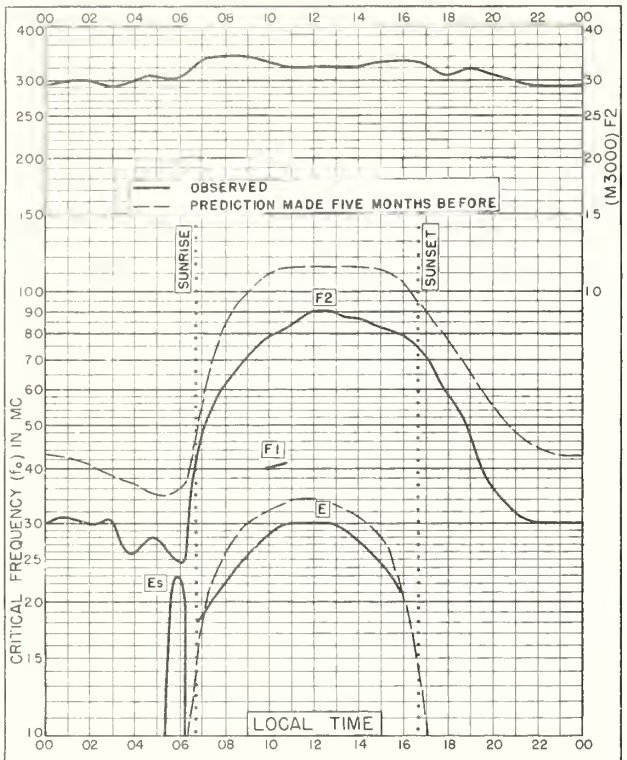

Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W NOVEMBER 1950

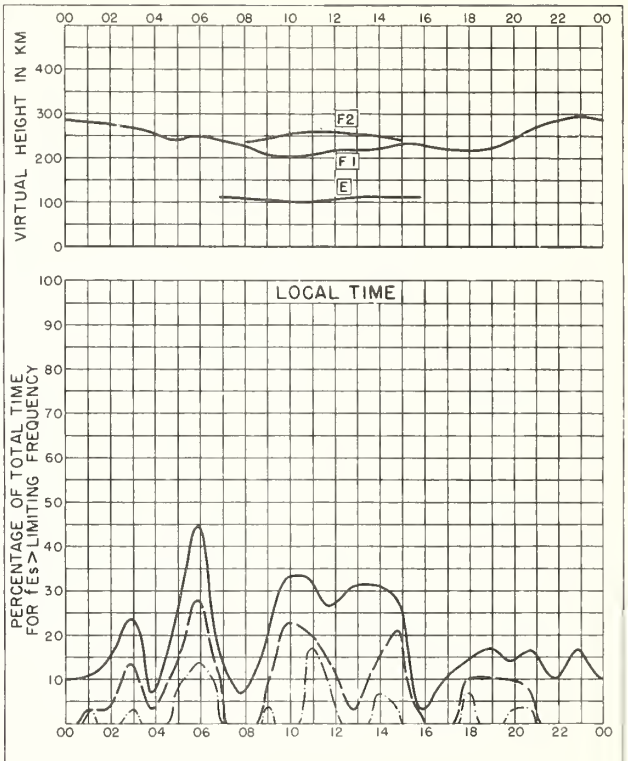

Fig. 2. WASHINGTON, D. C. NOVEMBER 1950

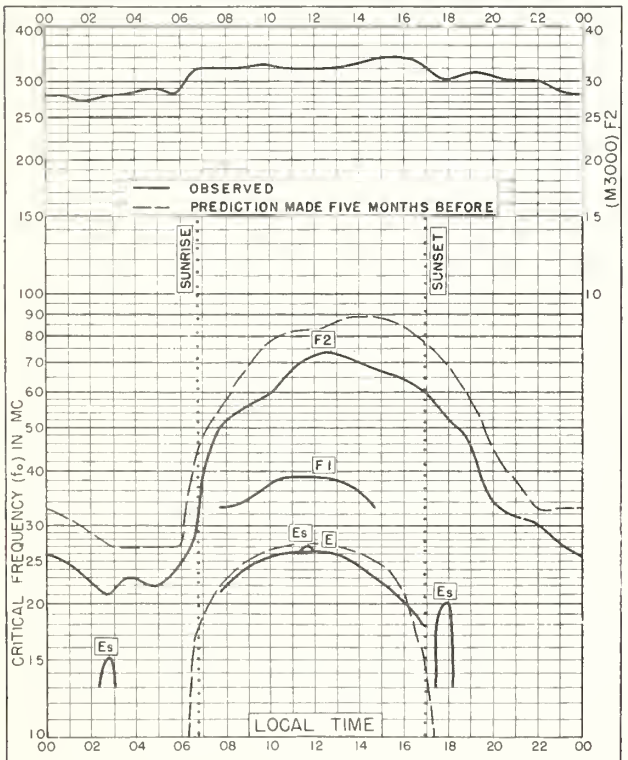

Fig. 3. OSLO, NORWAY
60.0°N, 11.0°E OCTOBER 1950

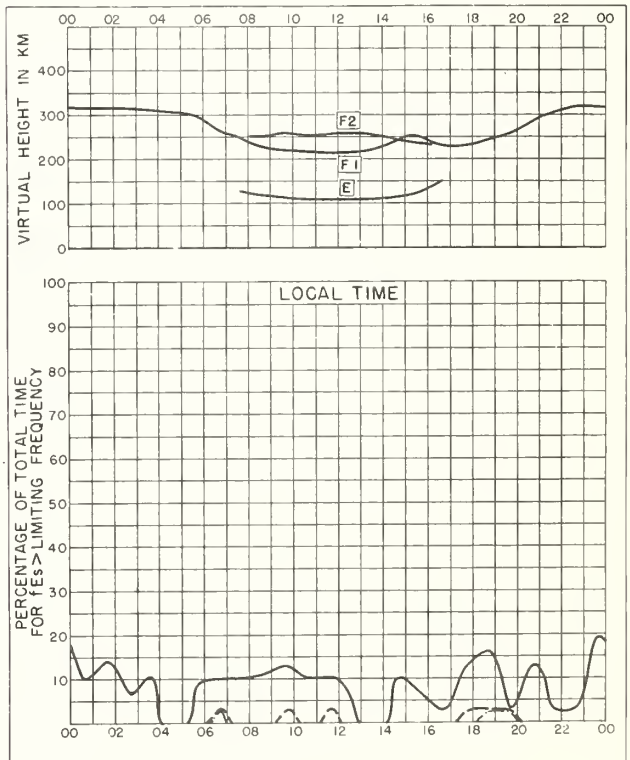

Fig. 4. OSLO, NORWAY OCTOBER 1950

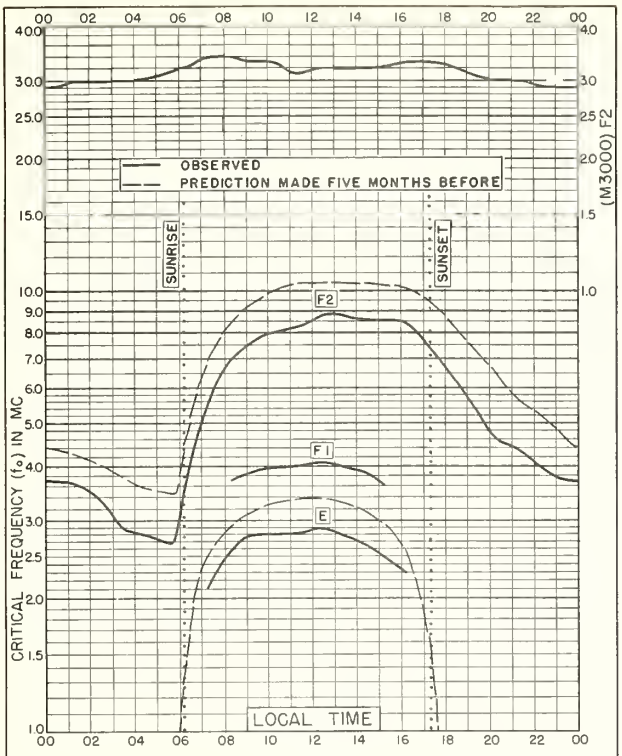

Fig. 5. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W OCTOBER 1950

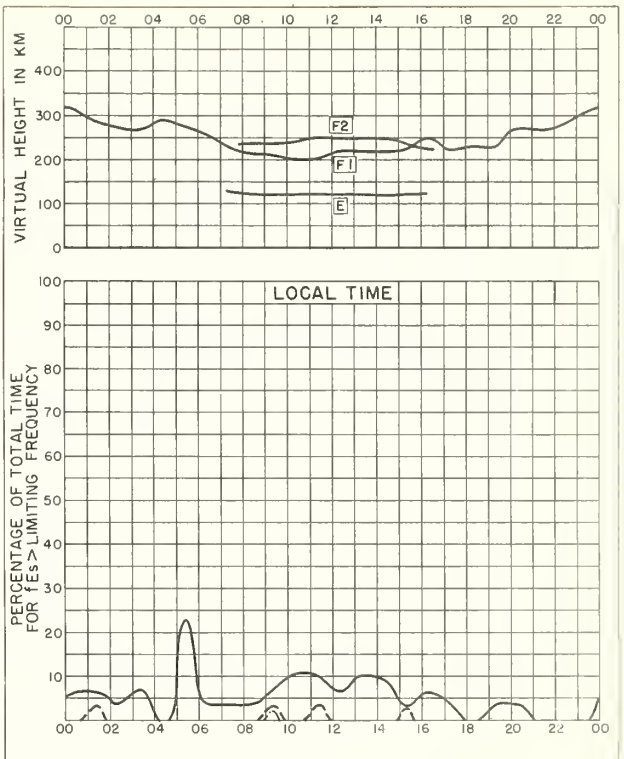

Fig. 6. BOSTON, MASSACHUSETTS OCTOBER 1950

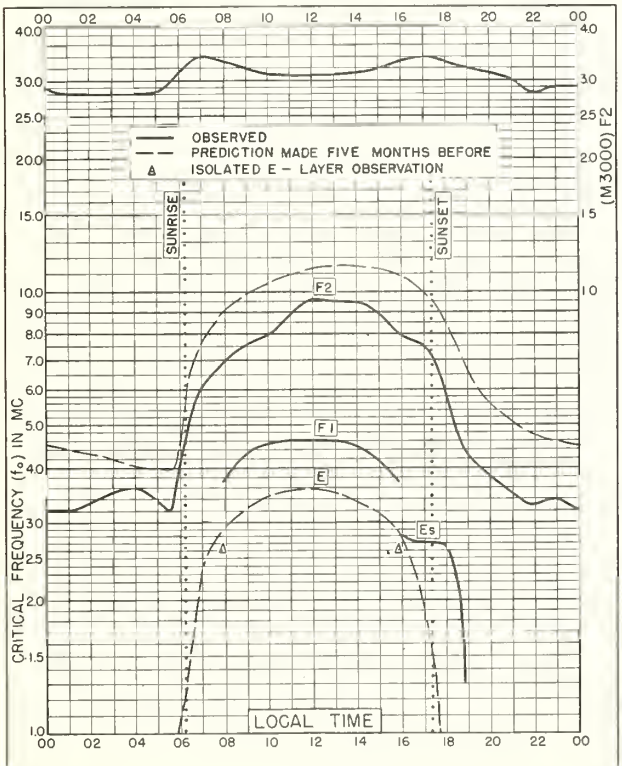

Fig. 7. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W OCTOBER 1950

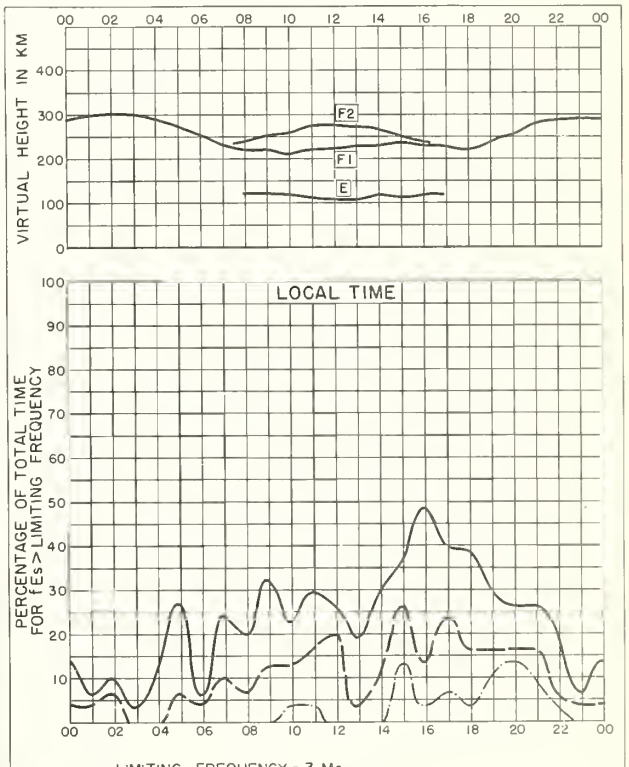

Fig. 8. SAN FRANCISCO, CALIFORNIA OCTOBER 1950

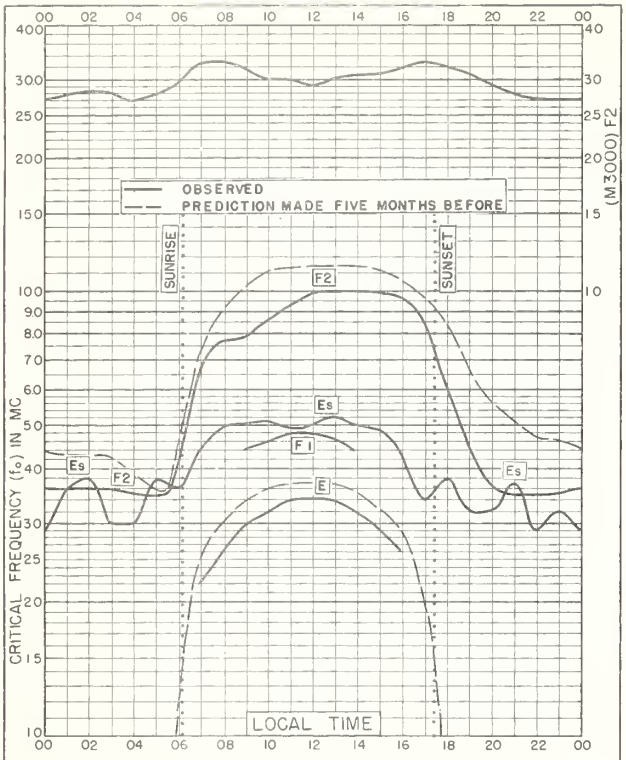

Fig. 9. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W OCTOBER 1950

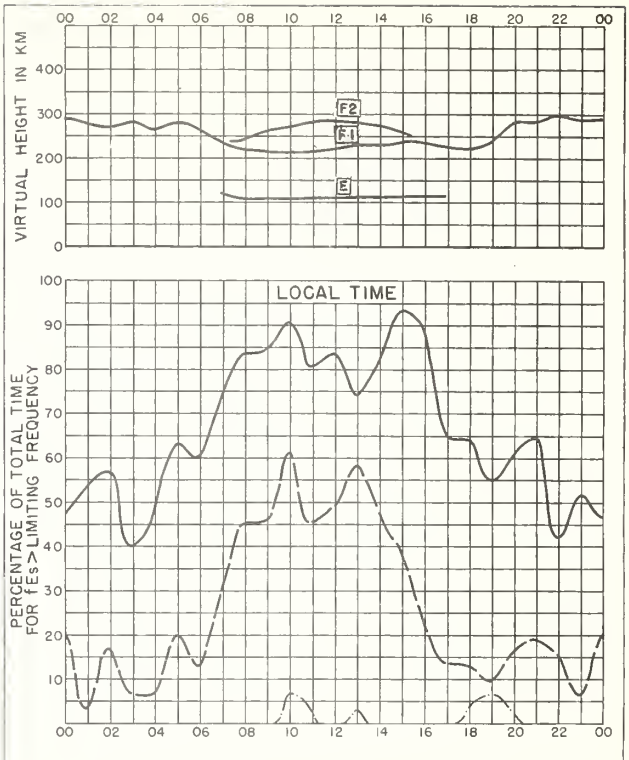

Fig. 10. WHITE SANDS, NEW MEXICO OCTOBER 1950

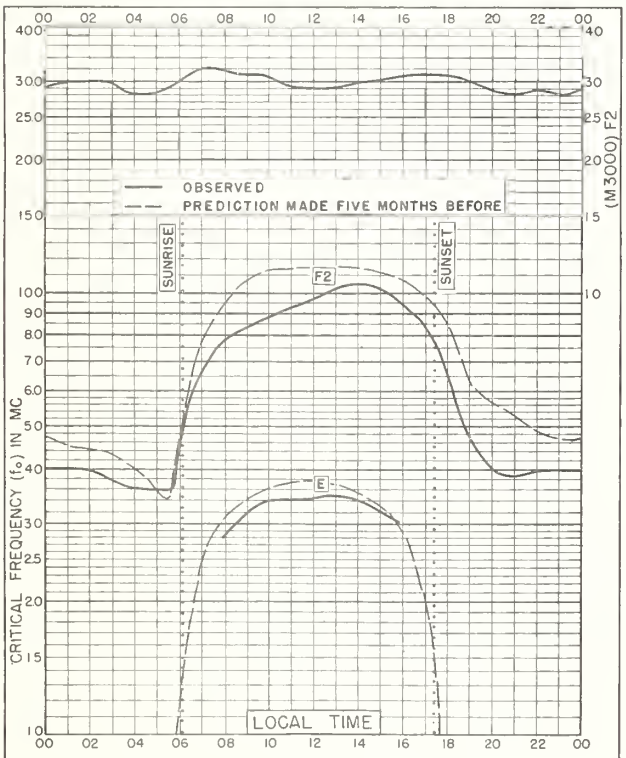

Fig. 11. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W OCTOBER 1950

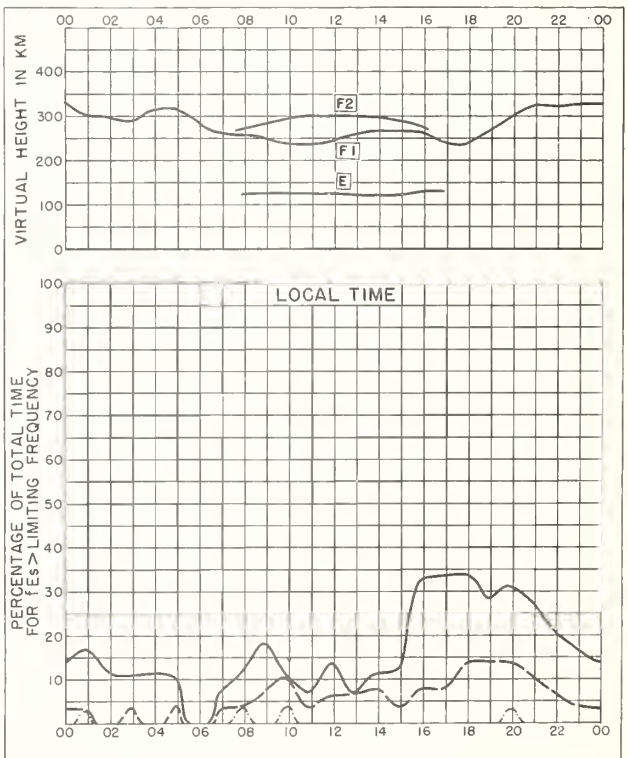

Fig. 12. BATON ROUGE, LOUISIANA OCTOBER 1950

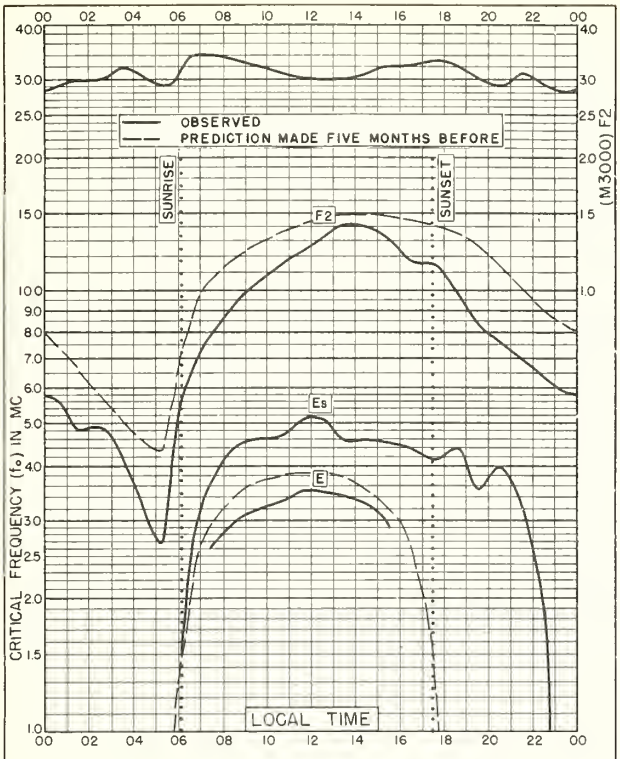

Fig. 13. OKINAWA I.
26.3°N, 127.7°E OCTOBER 1950

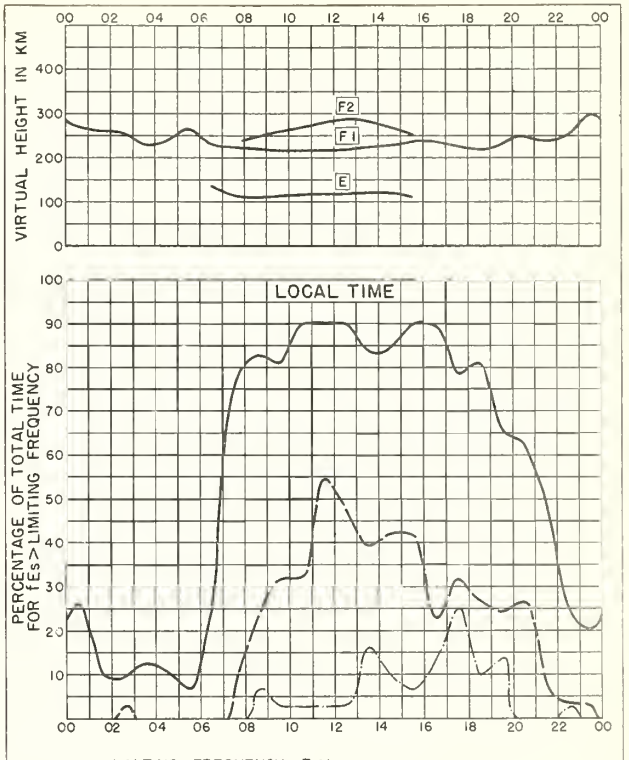

Fig. 14. OKINAWA I. OCTOBER 1950

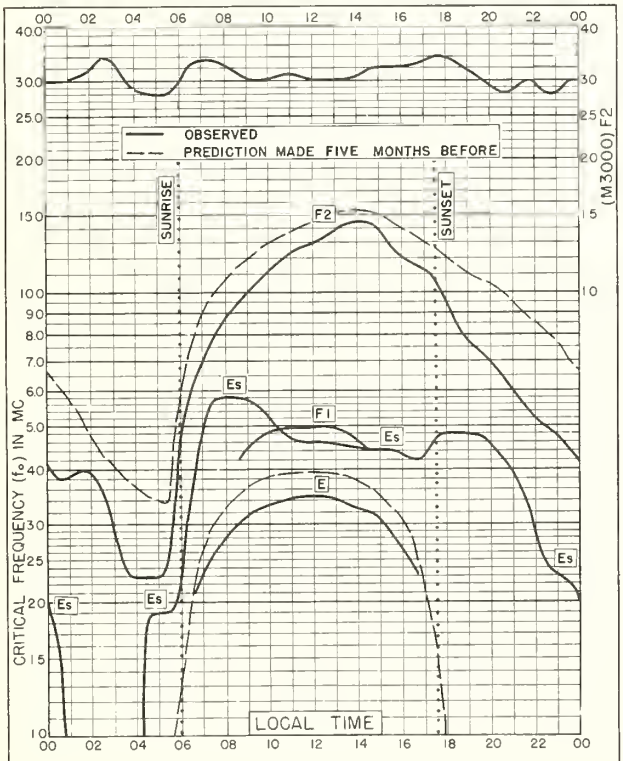

Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W OCTOBER 1950

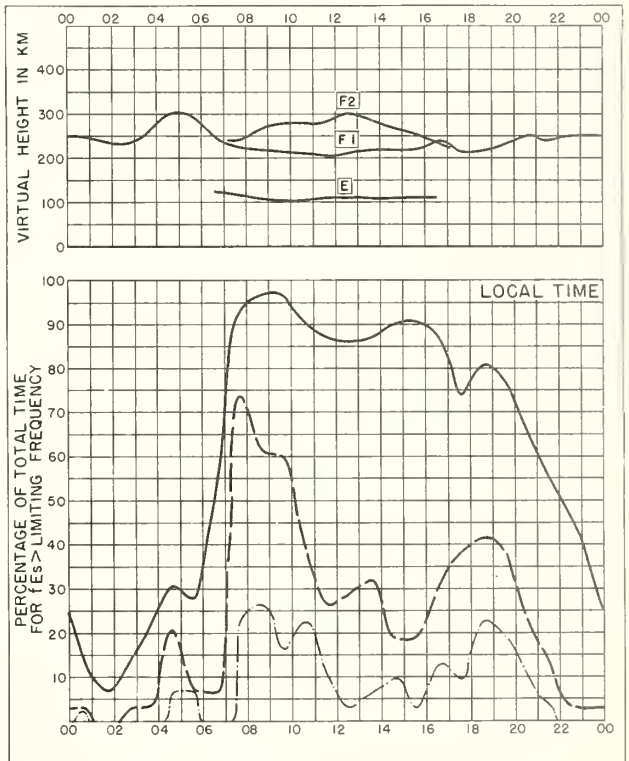

Fig. 16. MAUI, HAWAII OCTOBER 1950

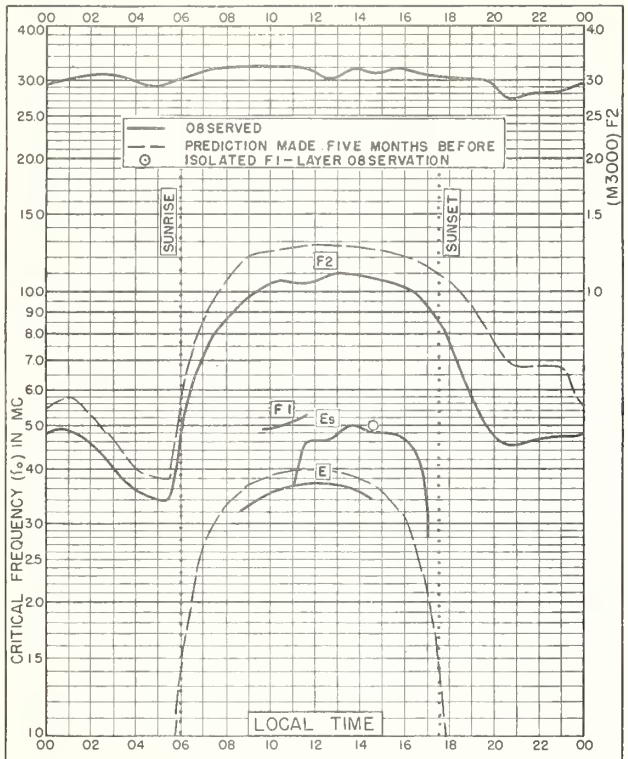

Fig. 17. SAN JUAN, PUERTO RICO
18.4°N, 66.0°W OCTOBER 1950

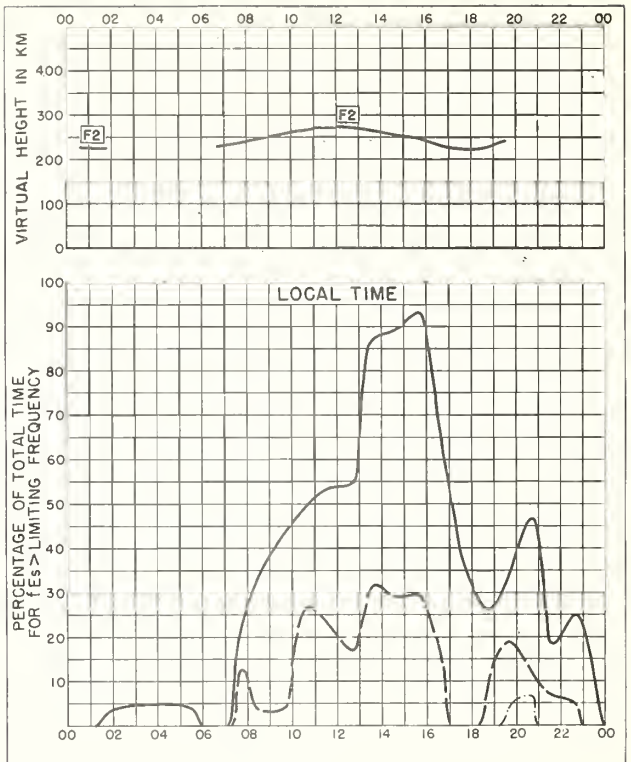

Fig. 18. SAN JUAN, PUERTO RICO OCTOBER 1950

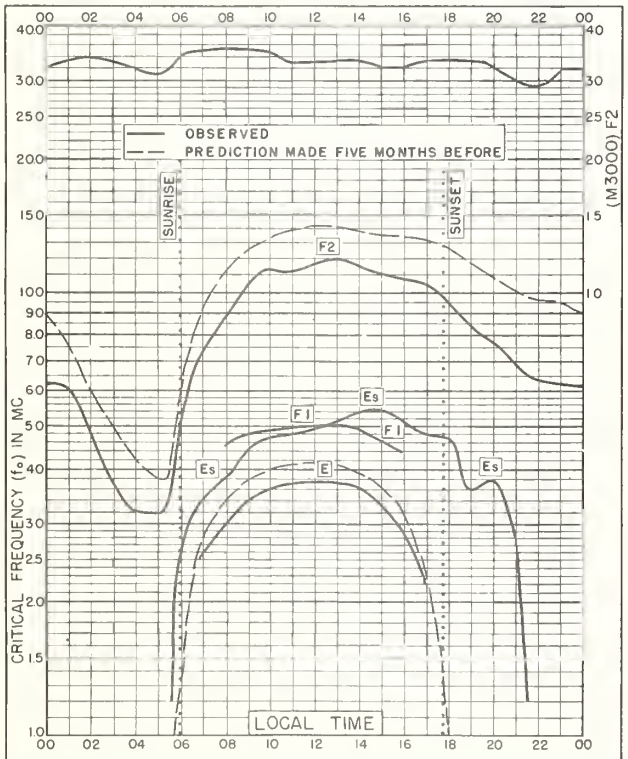

Fig. 19. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W OCTOBER 1950

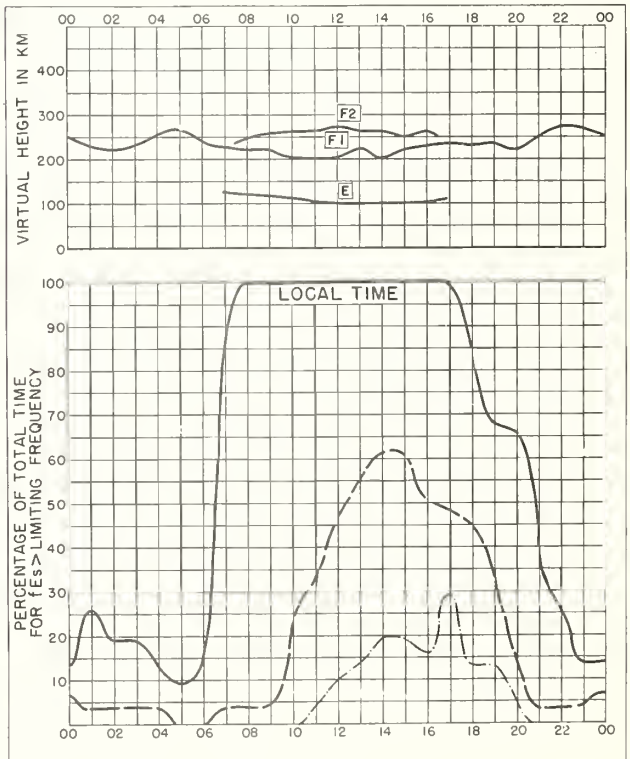

Fig. 20. TRINIDAD, BRIT. WEST INDIES OCTOBER 1950

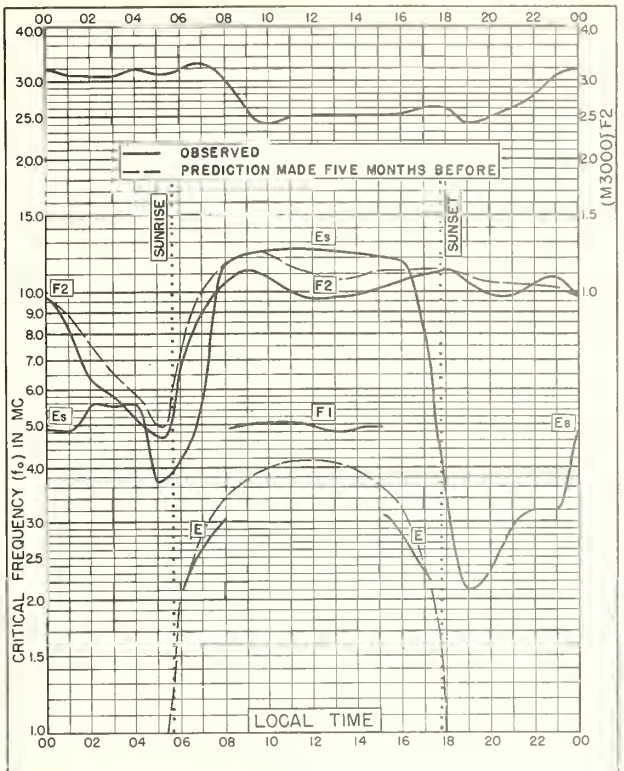

Fig. 21. HUANCAYO, PERU
12.0°S, 75.3°W OCTOBER 1950

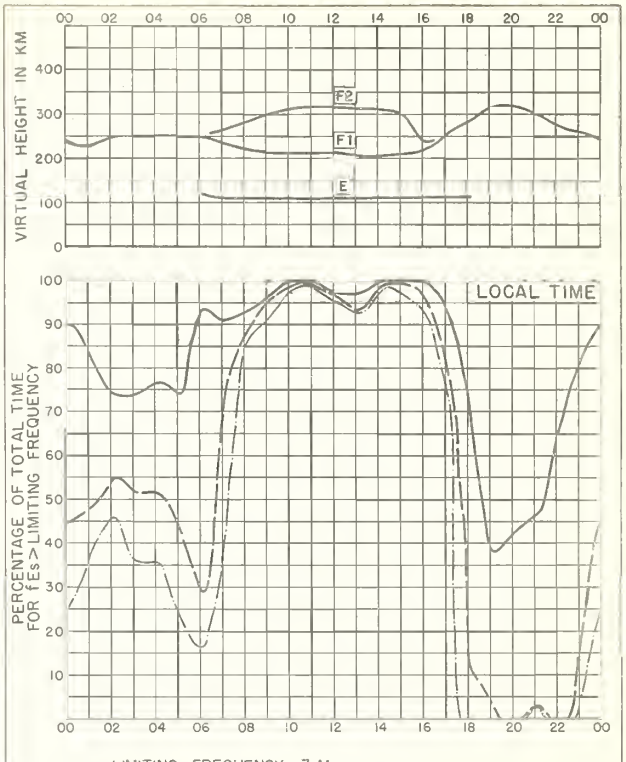

Fig. 22. HUANCAYO, PERU OCTOBER 1950

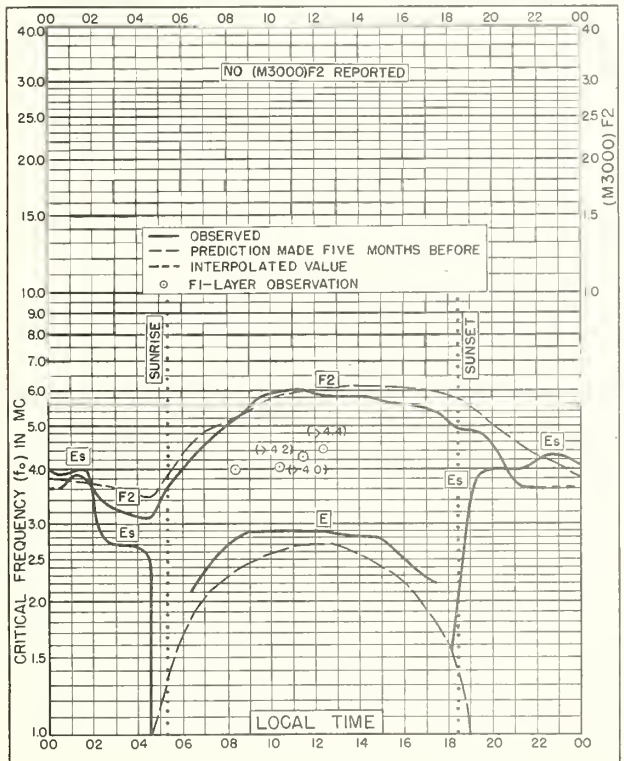

Fig. 23. KIRUNA, SWEDEN
67.8°N, 20.5°E SEPTEMBER 1950

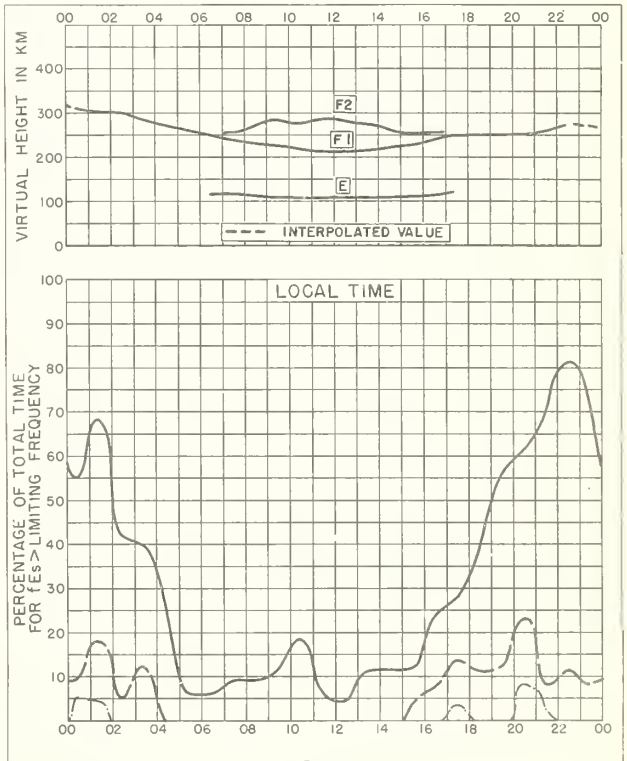

Fig. 24. KIRUNA, SWEDEN SEPTEMBER 1950

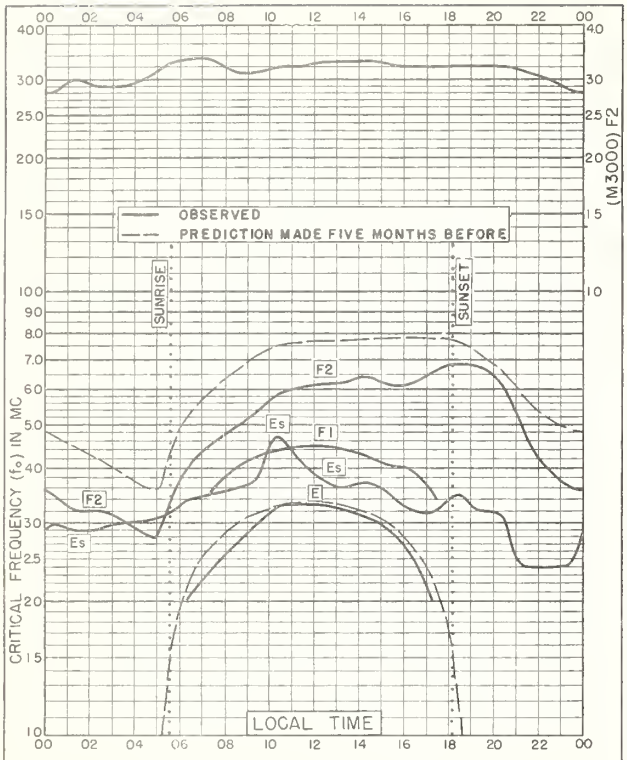

Fig. 25. De BILT, HOLLAND
52.1°N, 5.2°E SEPTEMBER 1950

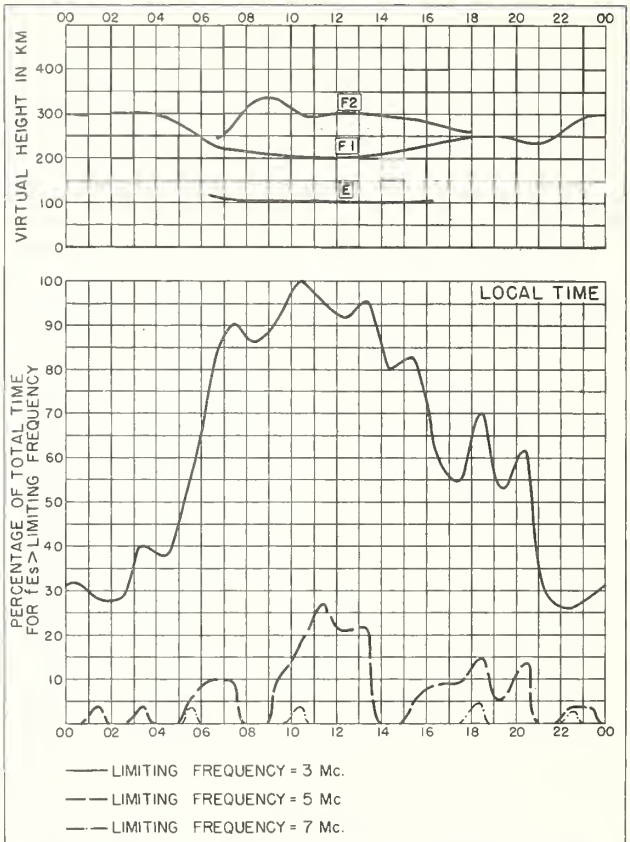

Fig. 26. De BILT, HOLLAND SEPTEMBER 1950

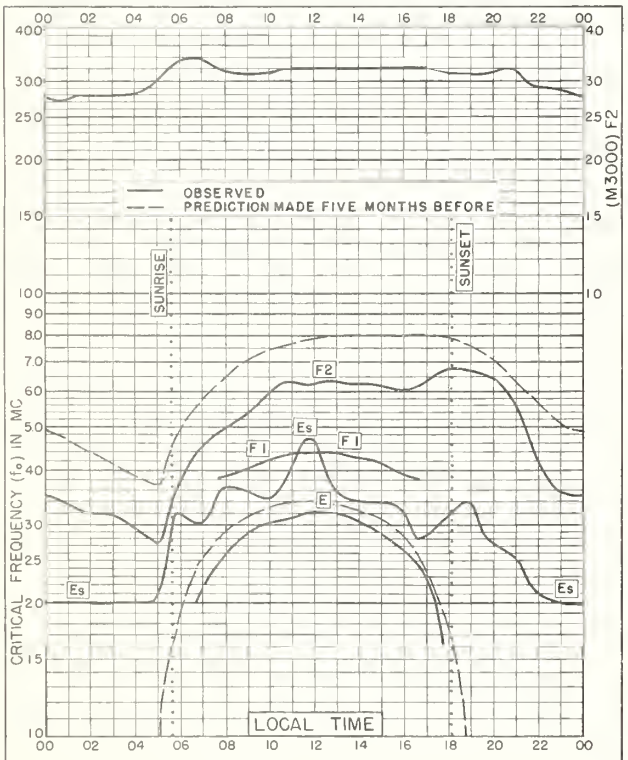

Fig. 27. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E SEPTEMBER 1950

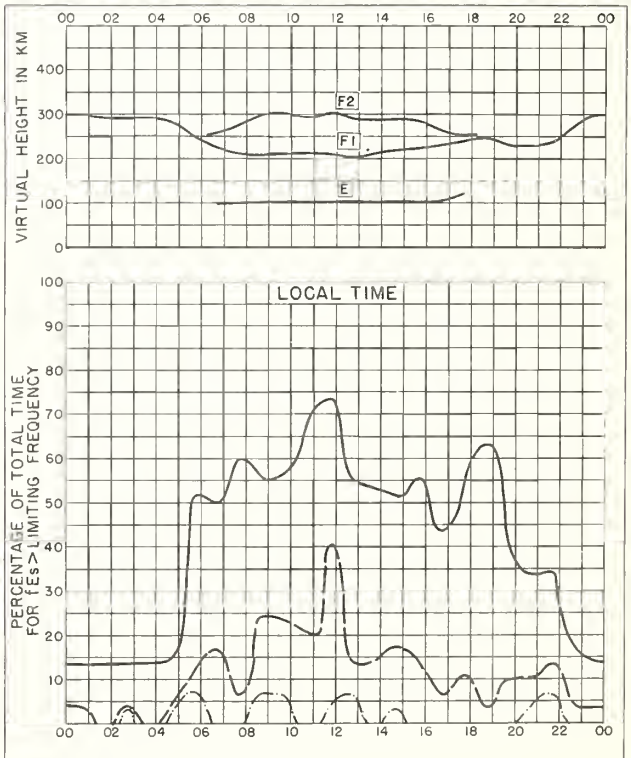

Fig. 28. LINDAU/HARZ, GERMANY SEPTEMBER 1950

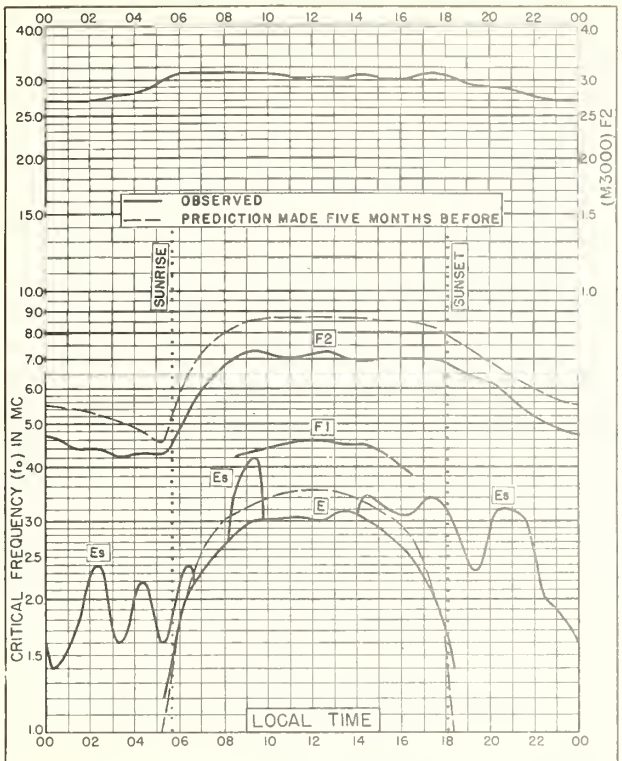

Fig. 29. WAKKANAI, JAPAN
45.4°N, 141.7°E SEPTEMBER 1950

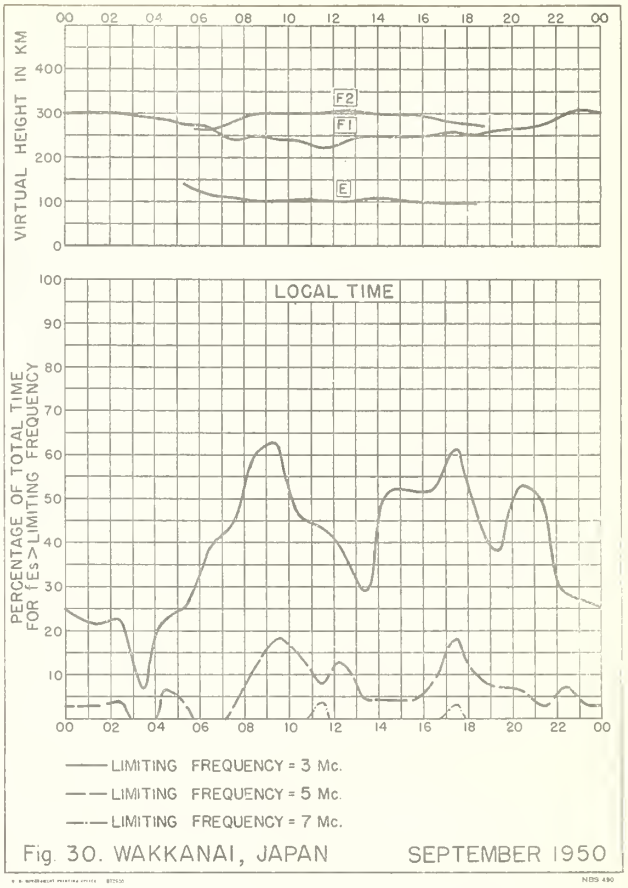

Fig. 30. WAKKANAI, JAPAN SEPTEMBER 1950

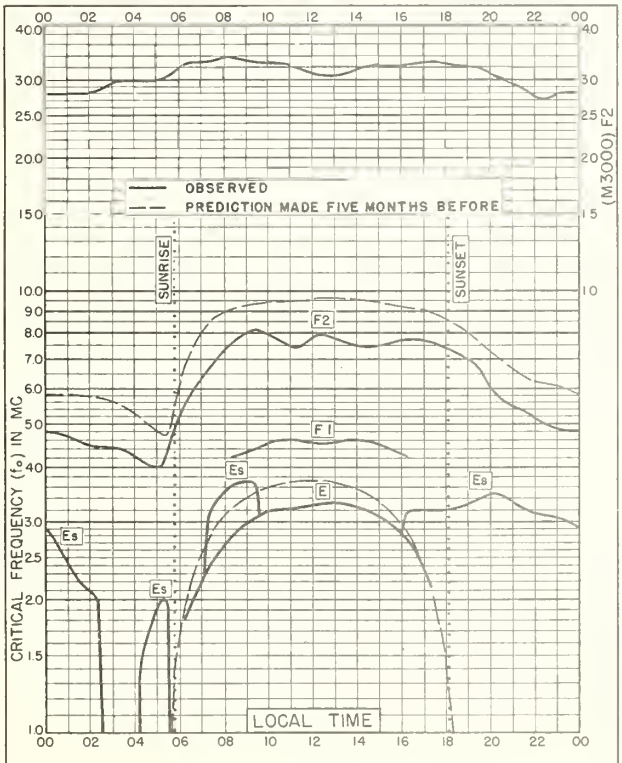

Fig. 31. AKITA, JAPAN
39.7°N, 140.1°E SEPTEMBER 1950

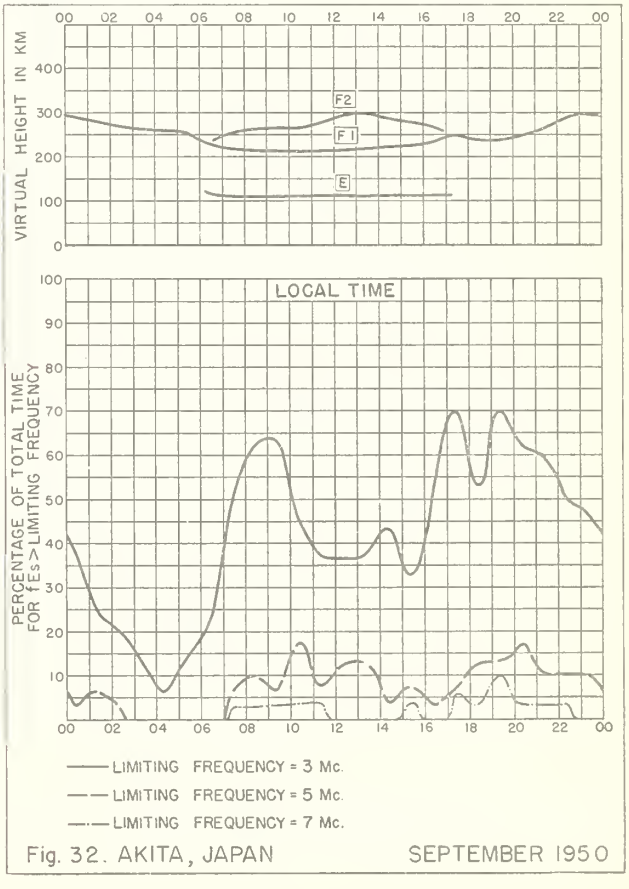

Fig. 32. AKITA, JAPAN SEPTEMBER 1950

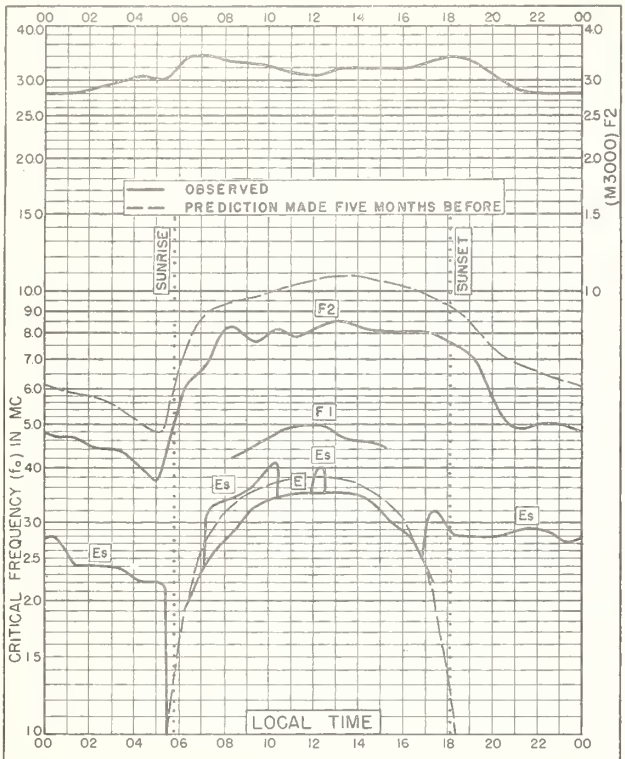

Fig. 33. TOKYO, JAPAN
35.7°N, 139.5°E SEPTEMBER 1950

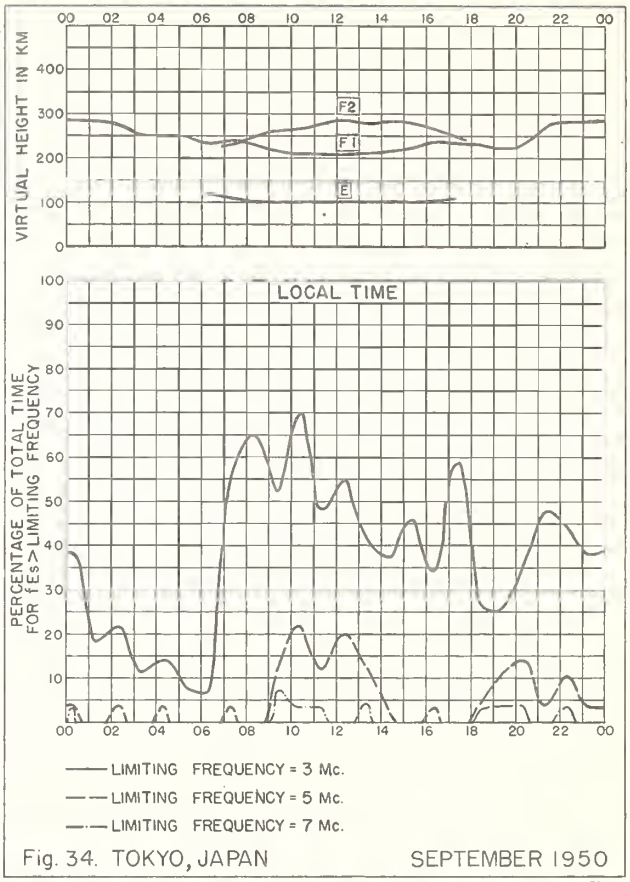

Fig. 34. TOKYO, JAPAN SEPTEMBER 1950

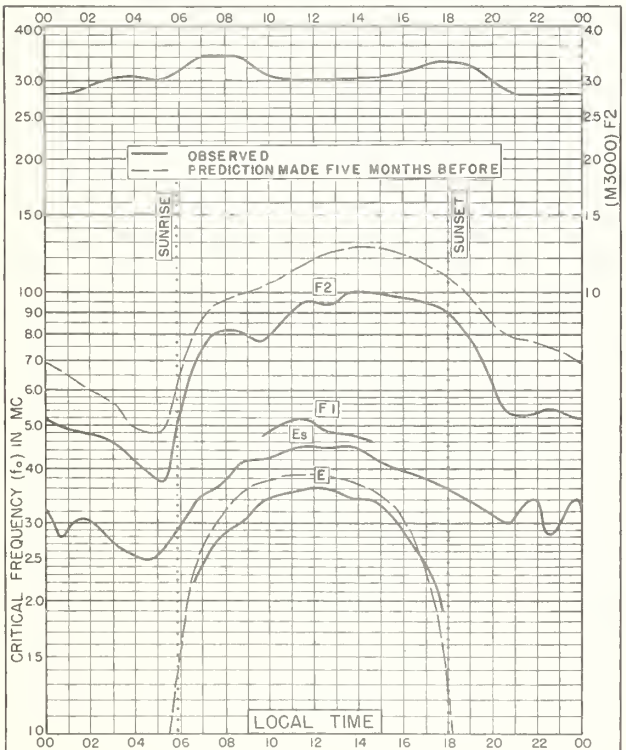

Fig. 35. YAMAGAWA, JAPAN
31.2°N, 130.6°E SEPTEMBER 1950

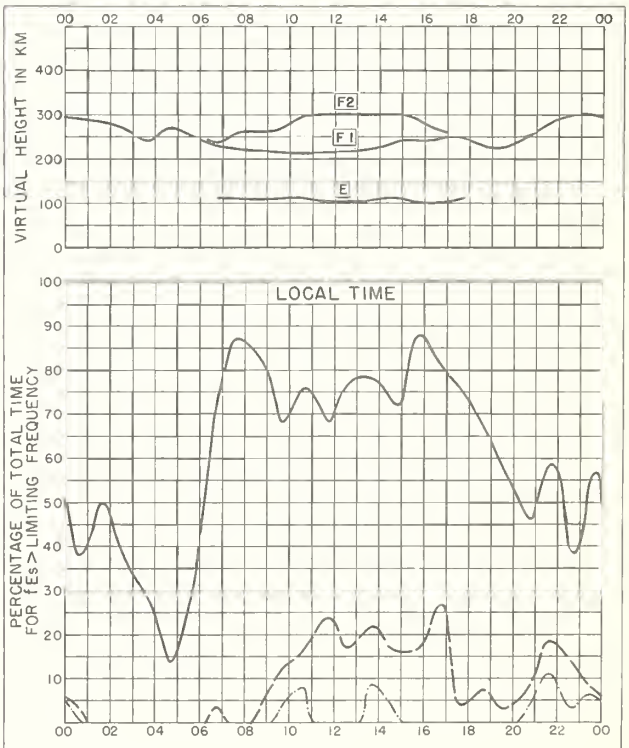

Fig. 36. YAMAGAWA, JAPAN SEPTEMBER 1950

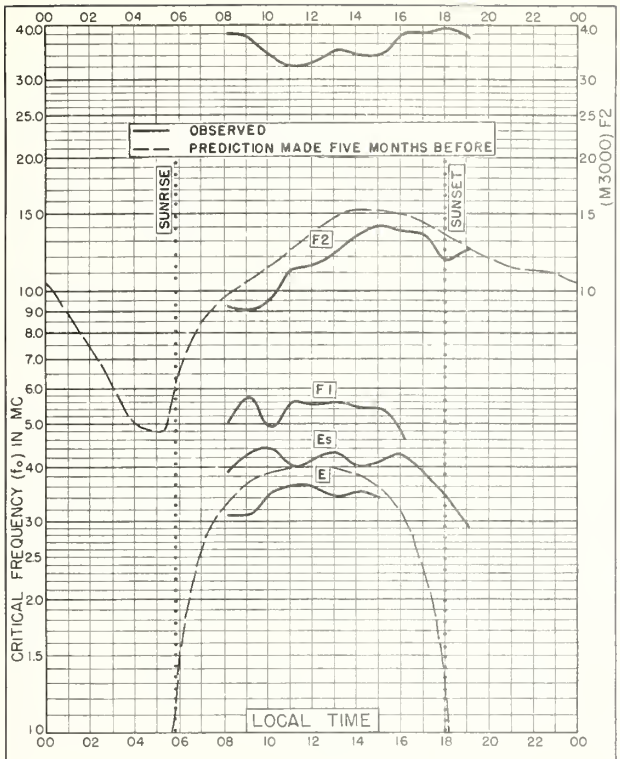

Fig. 37. FORMOSA, CHINA
25.0°N, 121.0°E SEPTEMBER 1950

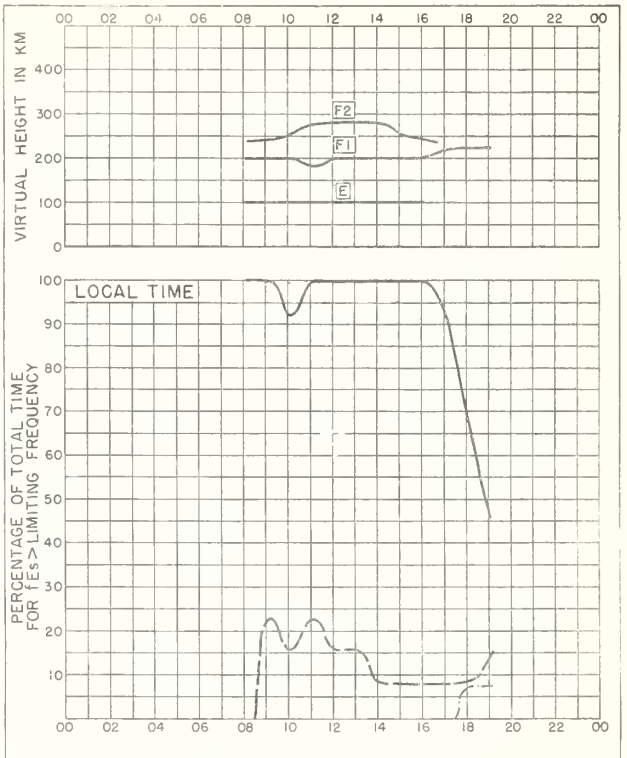

Fig. 38. FORMOSA, CHINA SEPTEMBER 1950

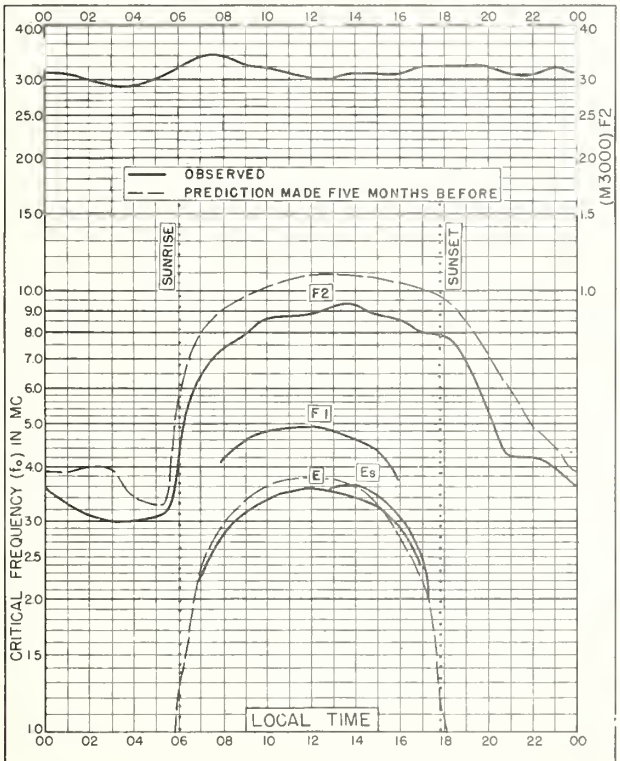

Fig. 39. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E SEPTEMBER 1950

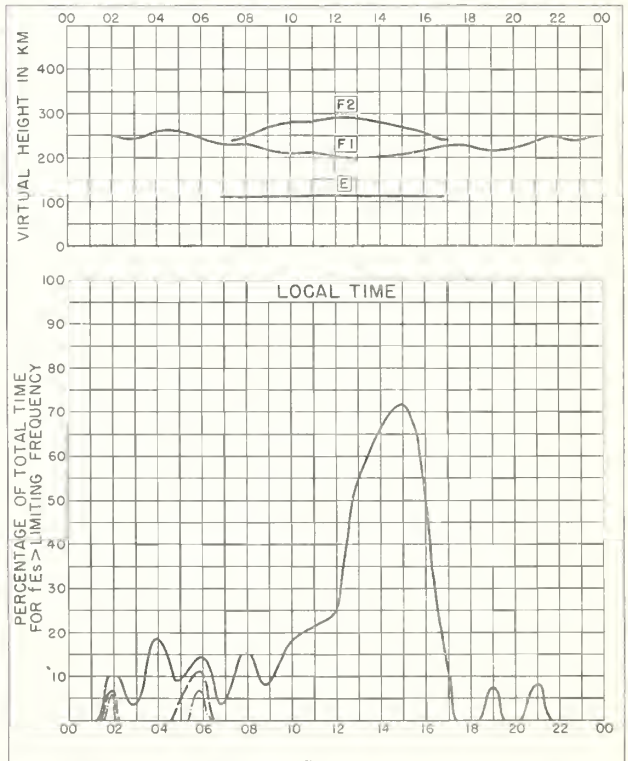

Fig. 40. JOHANNESBURG, U. OF S. AFRICA SEPTEMBER 1950

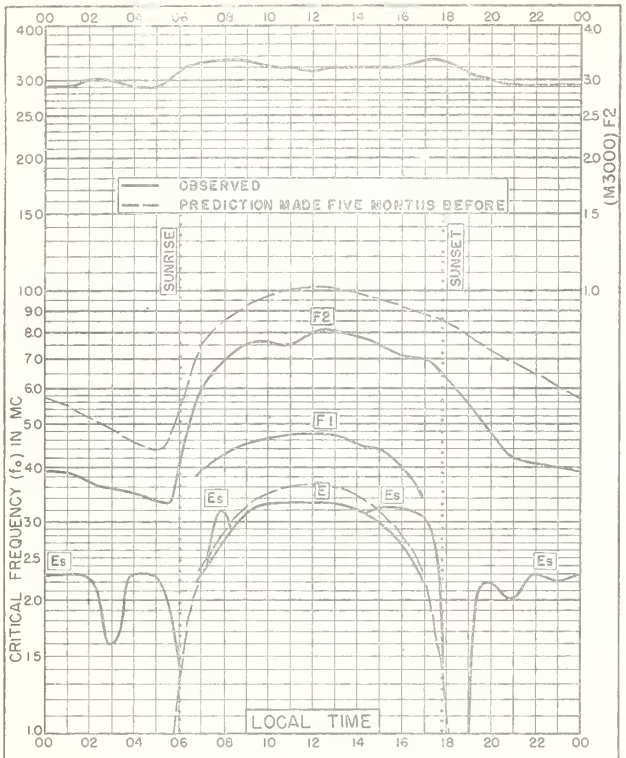

Fig. 41. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E SEPTEMBER 1950

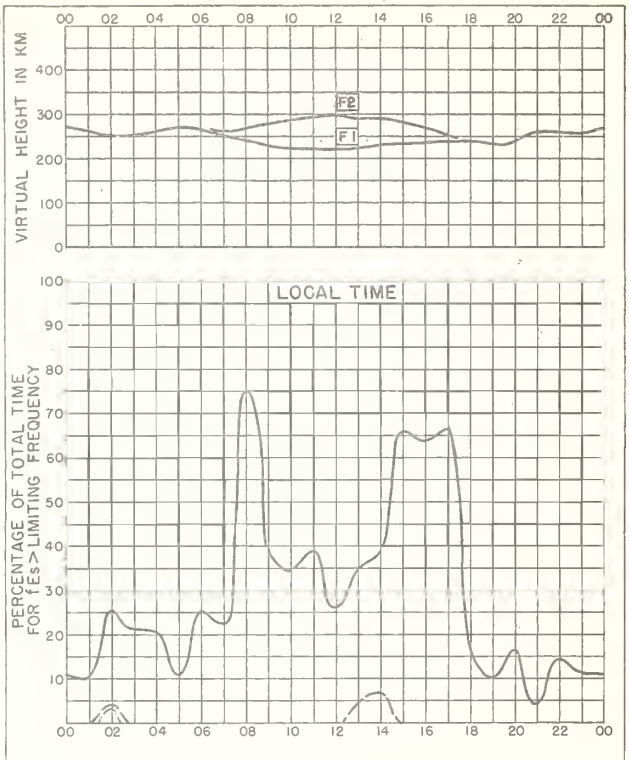

Fig. 42. WATHEROO, W. AUSTRALIA SEPTEMBER 1950

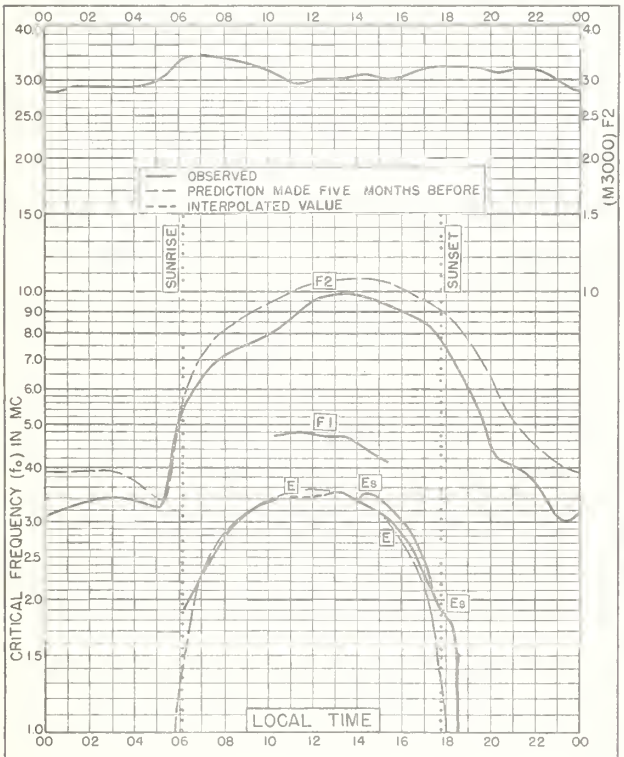

Fig. 43. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E SEPTEMBER 1950

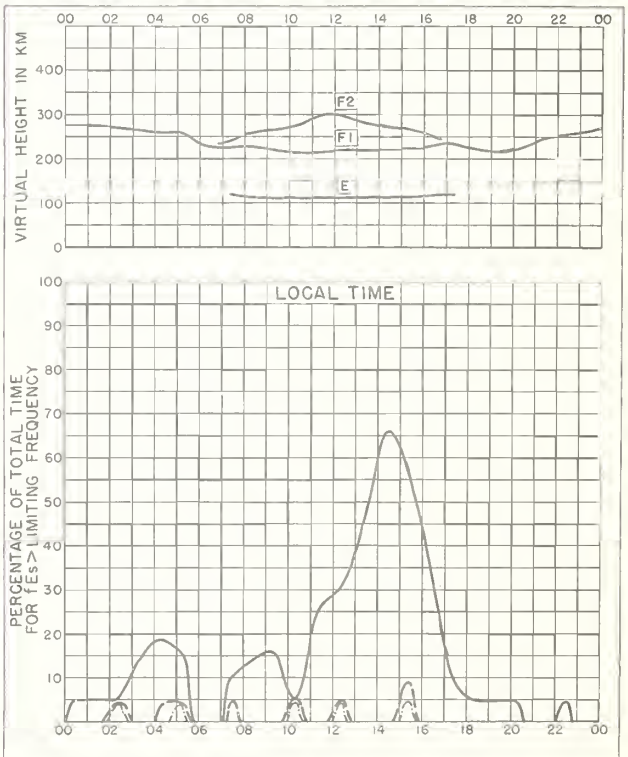

Fig. 44. CAPETOWN, U. OF S. AFRICA SEPTEMBER 1950

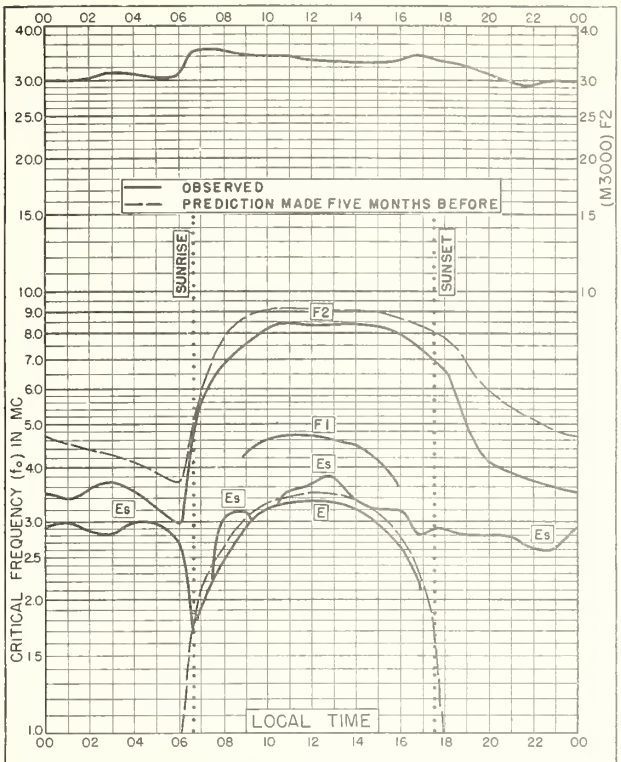

Fig. 45. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E AUGUST 1950

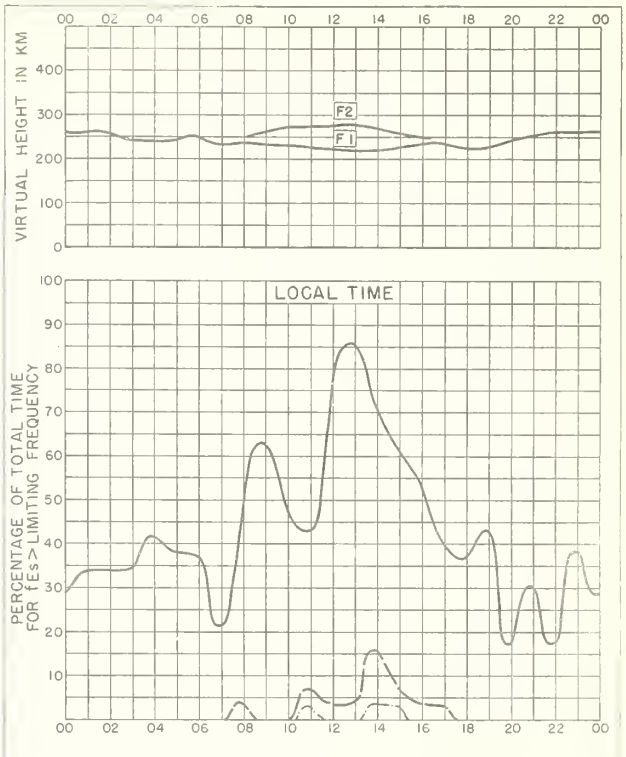

Fig. 46. WATHEROO, W. AUSTRALIA AUGUST 1950

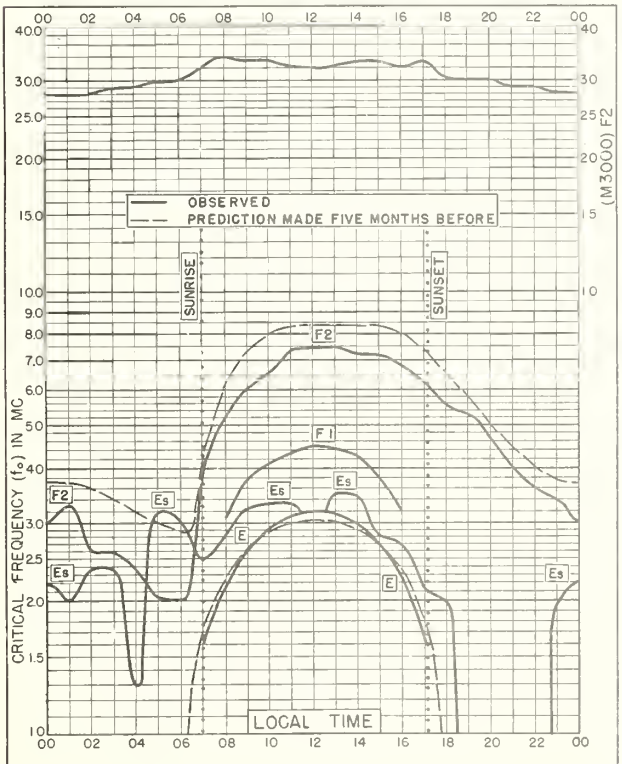

Fig. 47. CHRISTCHURCH, N. Z.
43.5°S, 172.7°E AUGUST 1950

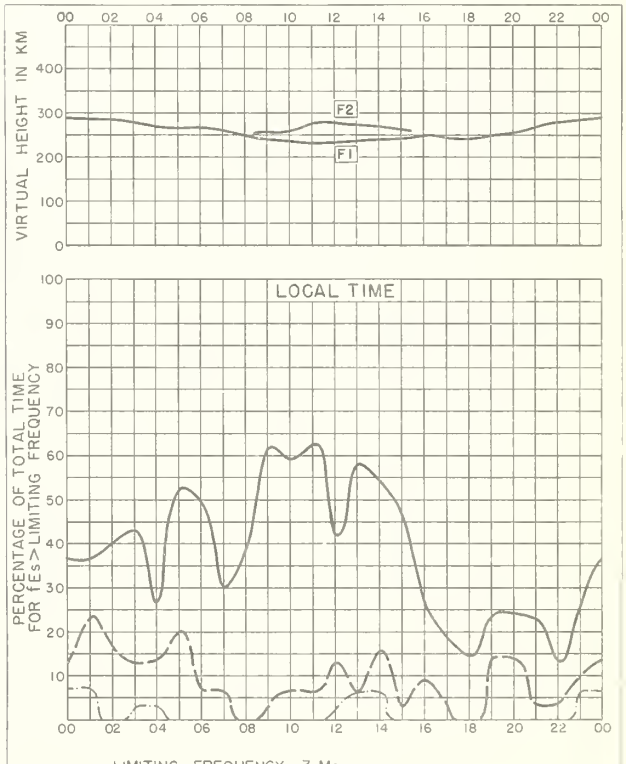

Fig. 48. CHRISTCHURCH, N. Z. AUGUST 1950

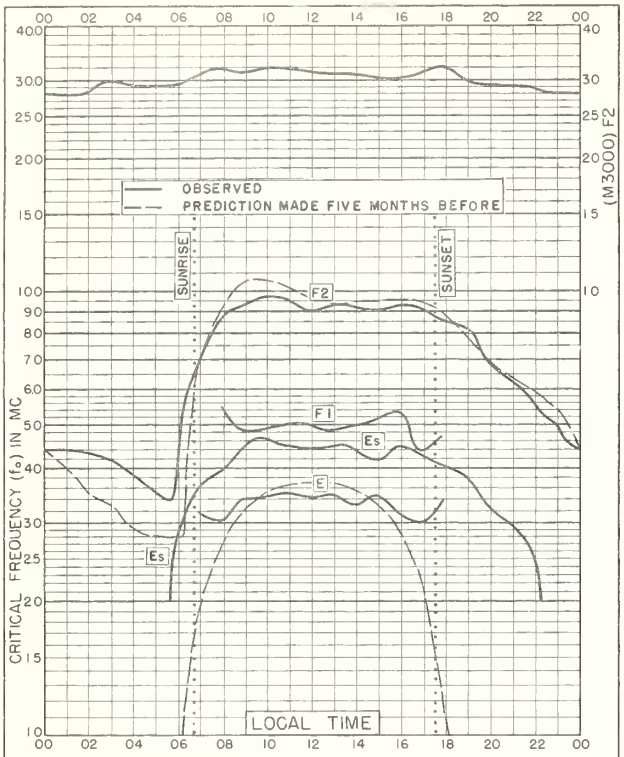

Fig. 49. RAROTONGA I.
21.3°S, 159.8°W JULY 1950

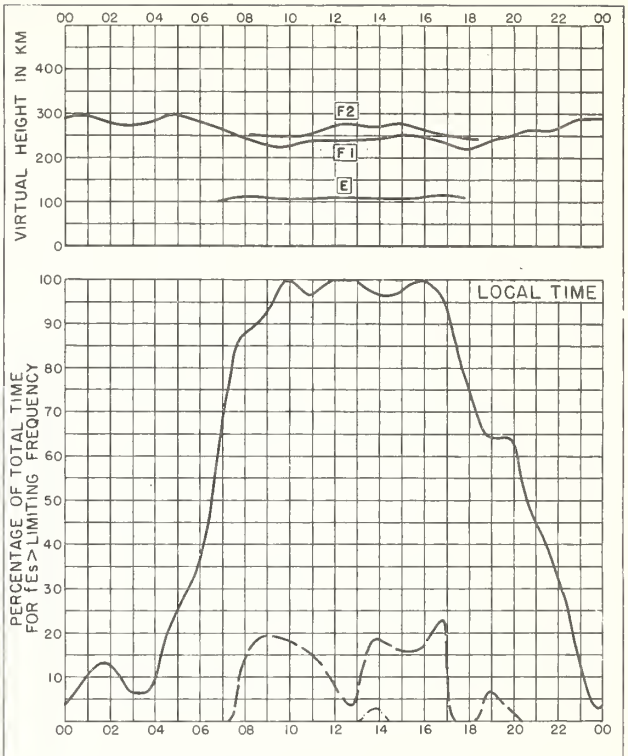

Fig. 50. RAROTONGA I. JULY 1950

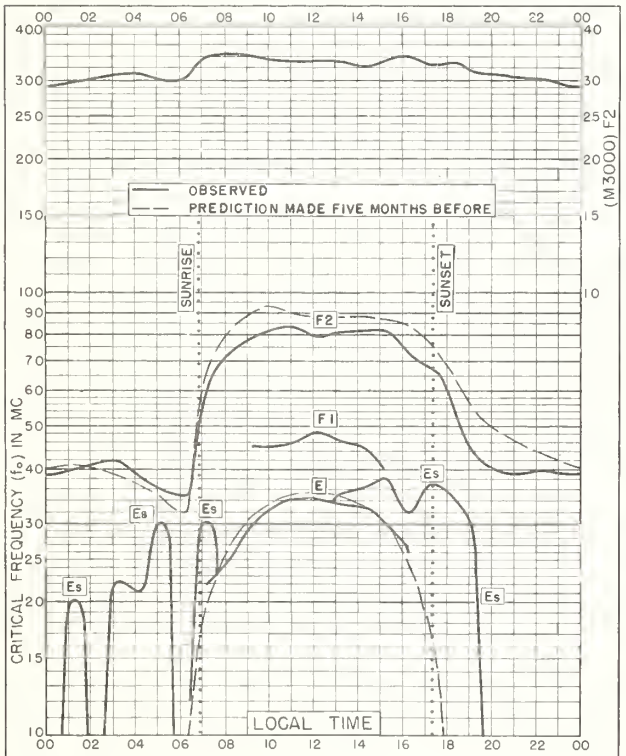

Fig. 51. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JULY 1950

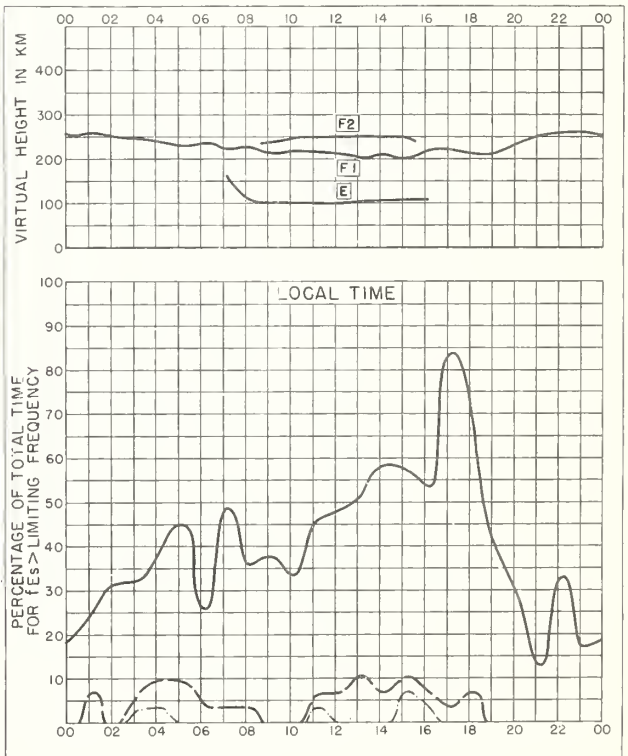

Fig. 52. BRISBANE, AUSTRALIA JULY 1950

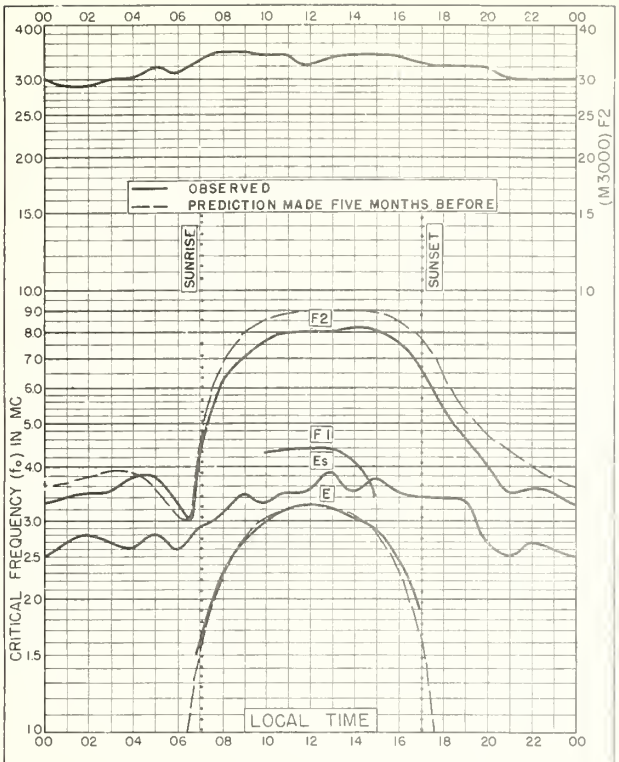

Fig. 53. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JULY 1950

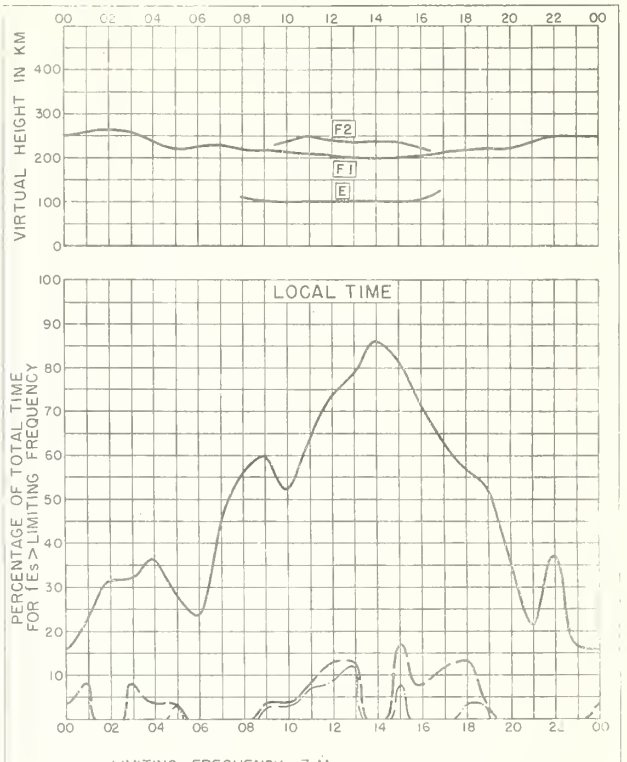

Fig. 54. CANBERRA, AUSTRALIA JULY 1950

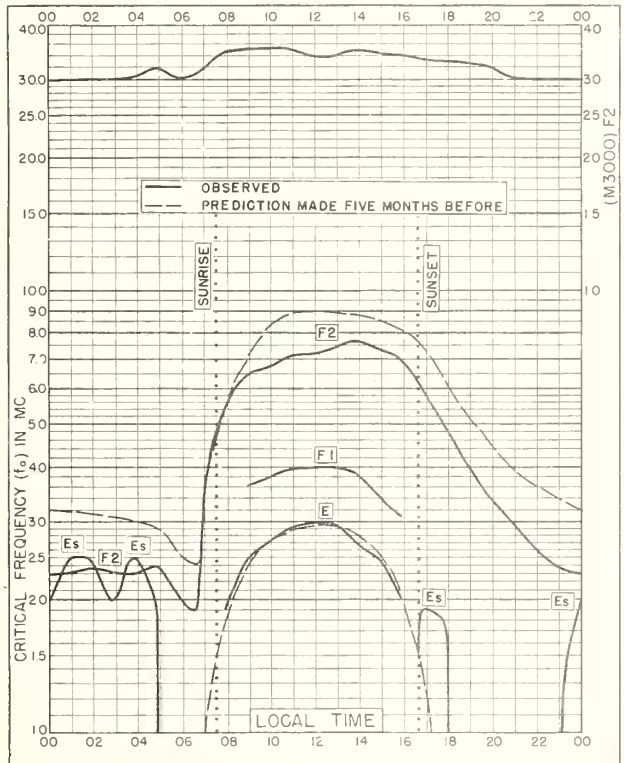

Fig. 55. HOBART, TASMANIA
42.8°S, 147.4°E JULY 1950

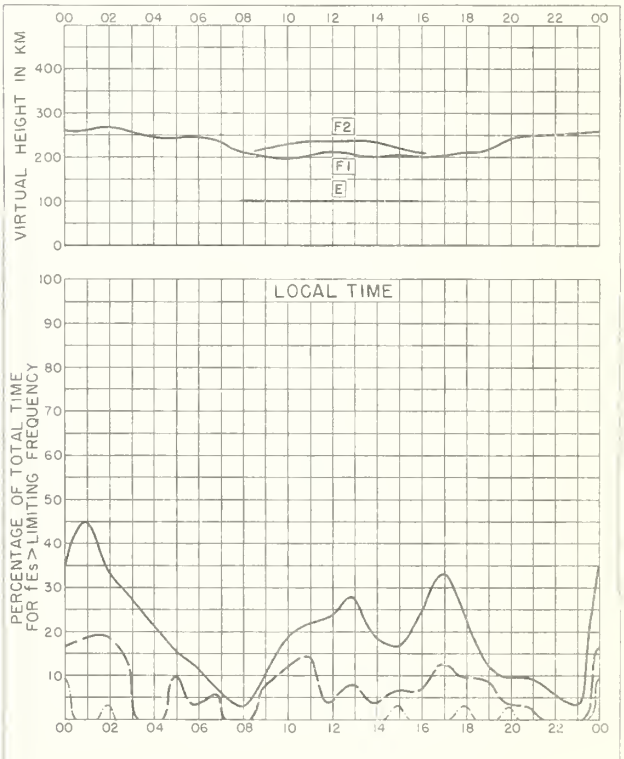

Fig. 56. HOBART, TASMANIA JULY 1950

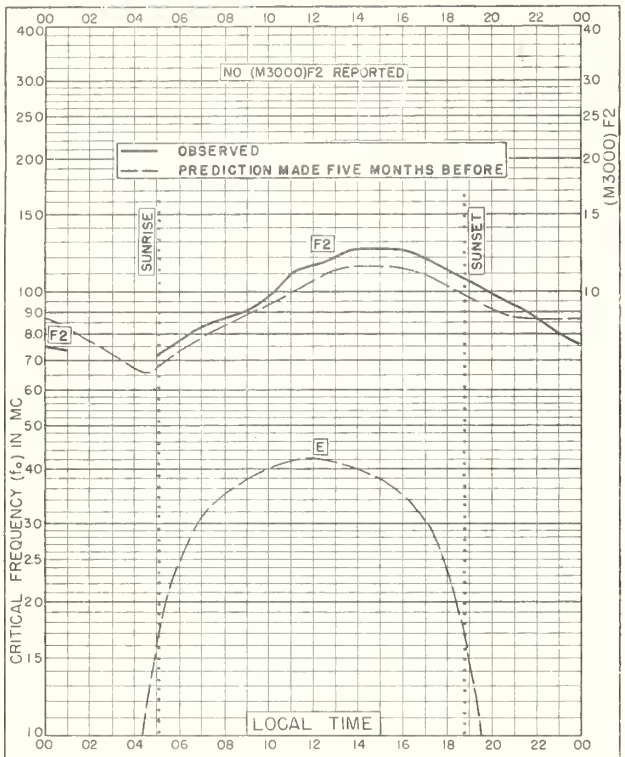

Fig. 57. DELHI, INDIA
28.6°N, 77.1°E JUNE 1950

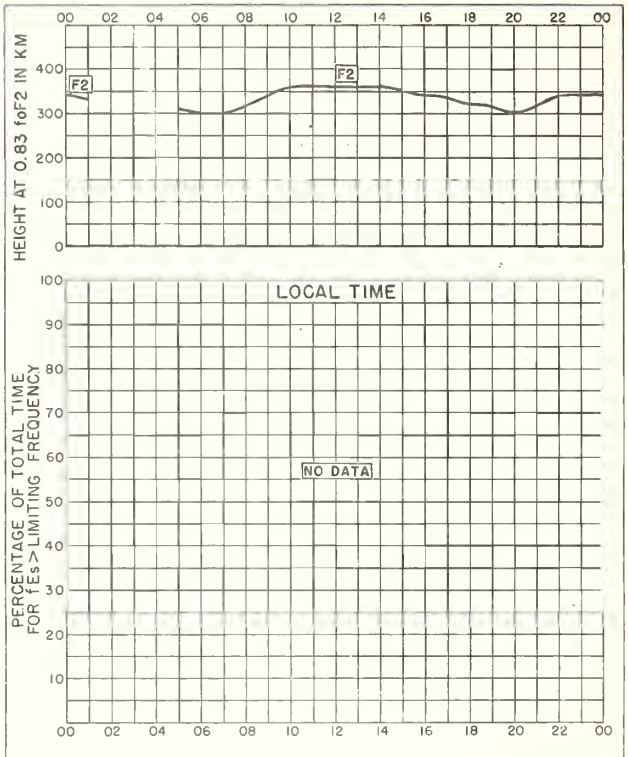

Fig. 58. DELHI, INDIA JUNE 1950

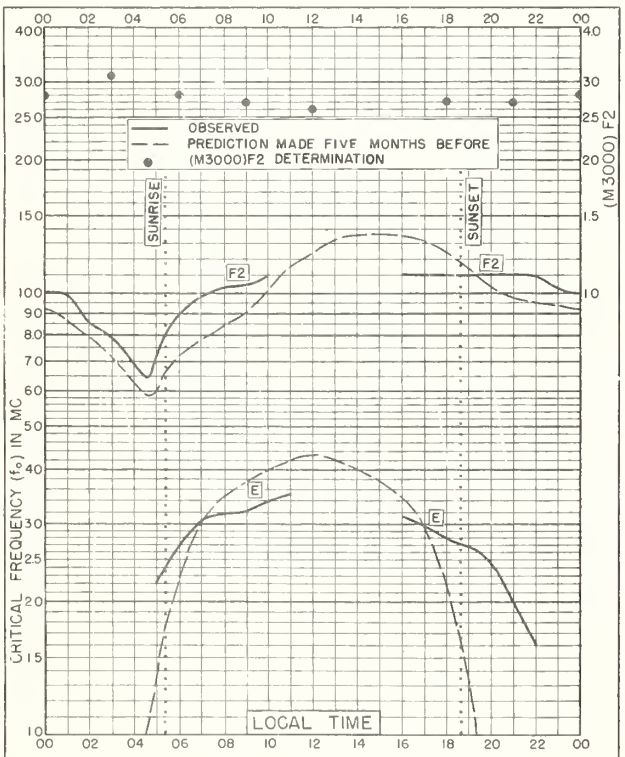

Fig. 59. CALCUTTA, INDIA
22.6°N, 88.4°E JUNE 1950

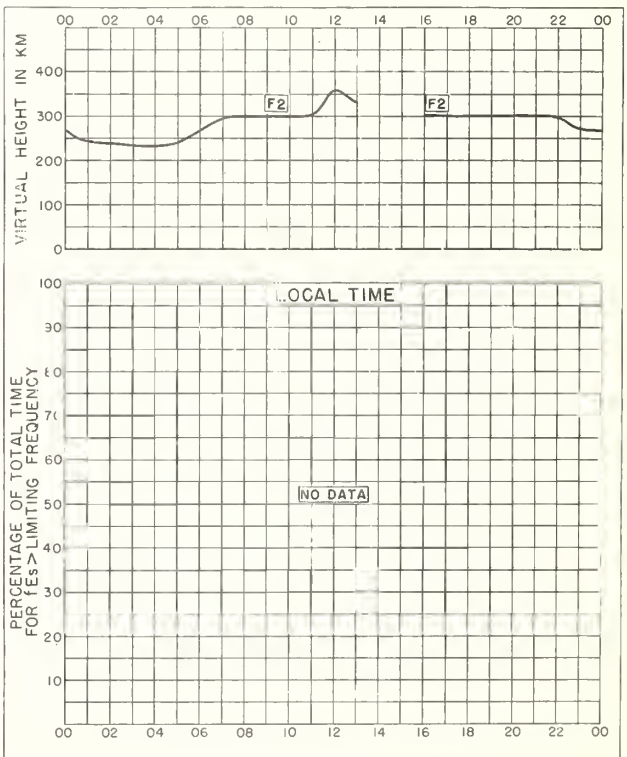

Fig. 60. CALCUTTA, INDIA JUNE 1950

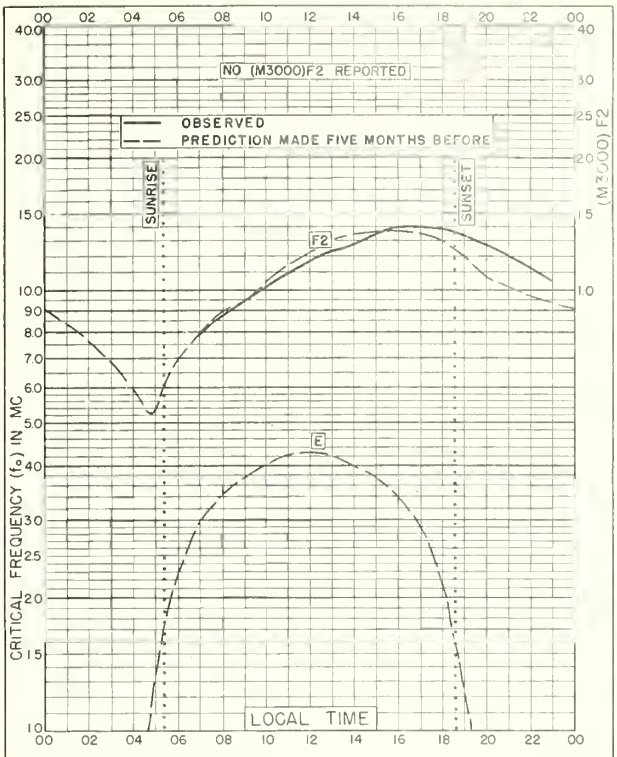

Fig. 61. BOMBAY, INDIA
19.0°N, 73.0°E JUNE 1950

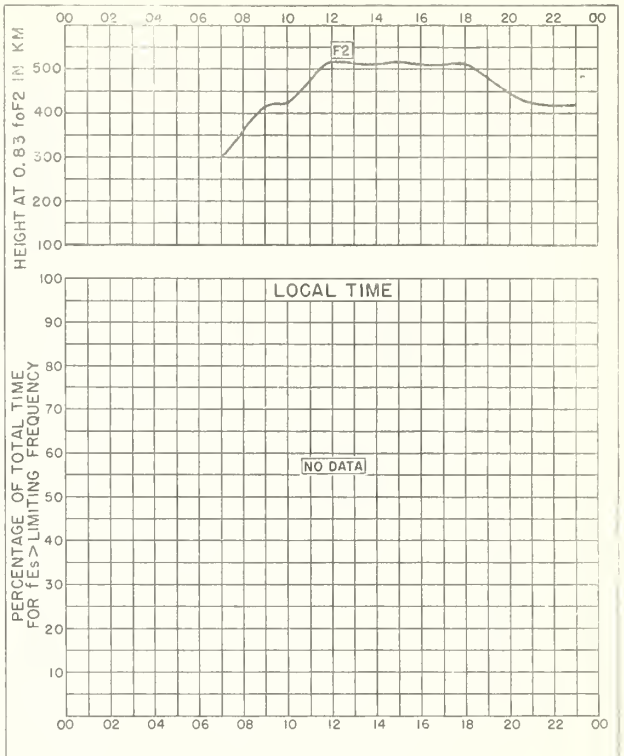

Fig. 62. BOMBAY, INDIA JUNE 1950

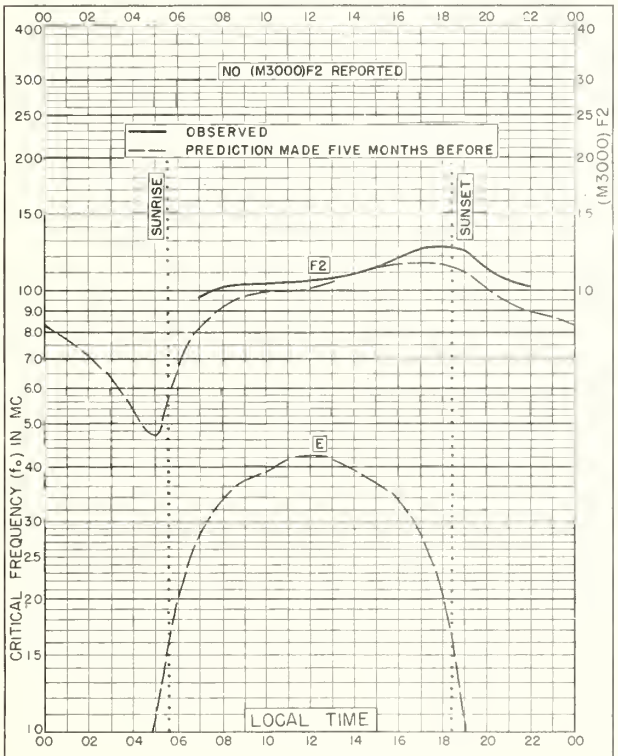

Fig. 63. MADRAS, INDIA
13.0°N, 80.2°E JUNE 1950

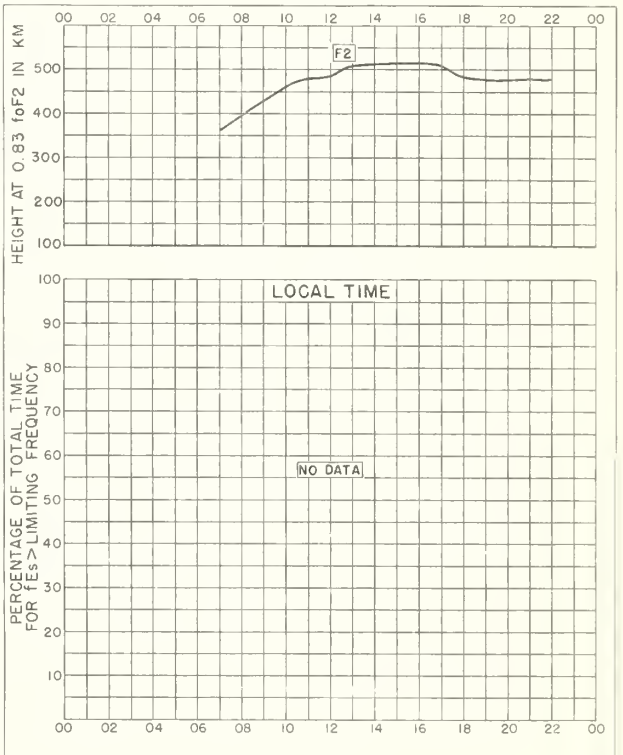

Fig. 64. MADRAS, INDIA JUNE 1950

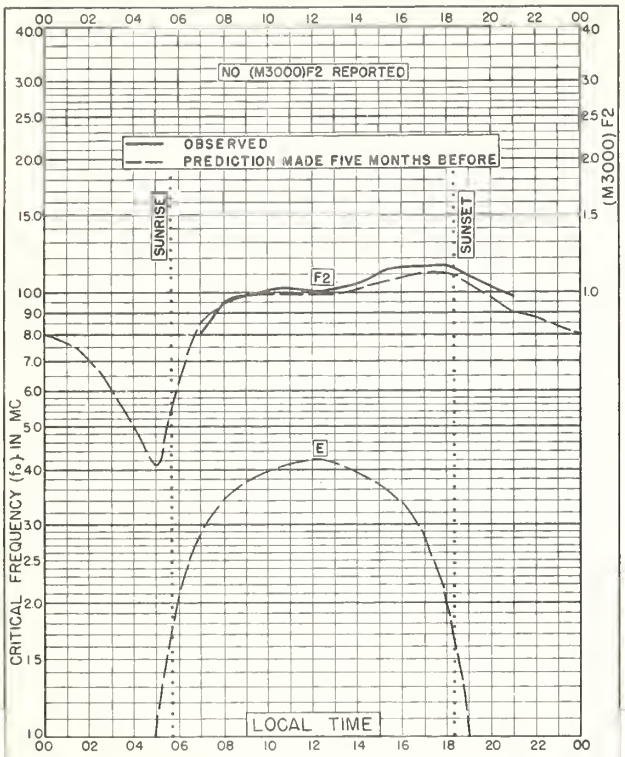

Fig. 65. TIRUCHY, INDIA
10.8°N, 78.8°E JUNE 1950

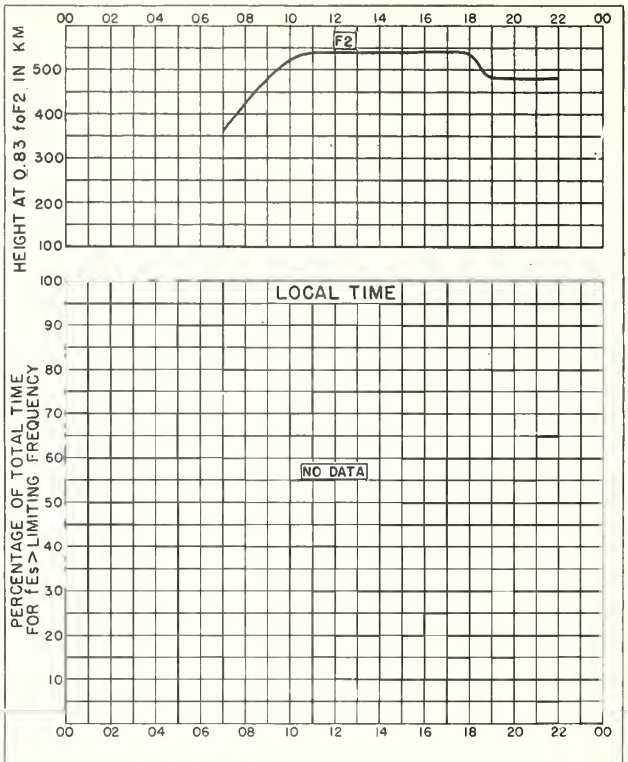

Fig. 66. TIRUCHY, INDIA JUNE 1950

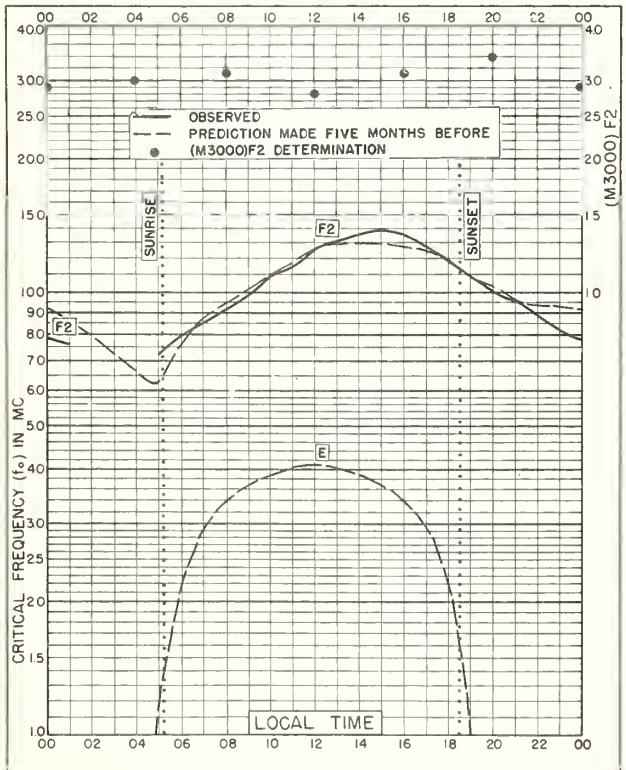

Fig. 67. DELHI, INDIA
28.6°N, 77.1°E MAY 1950

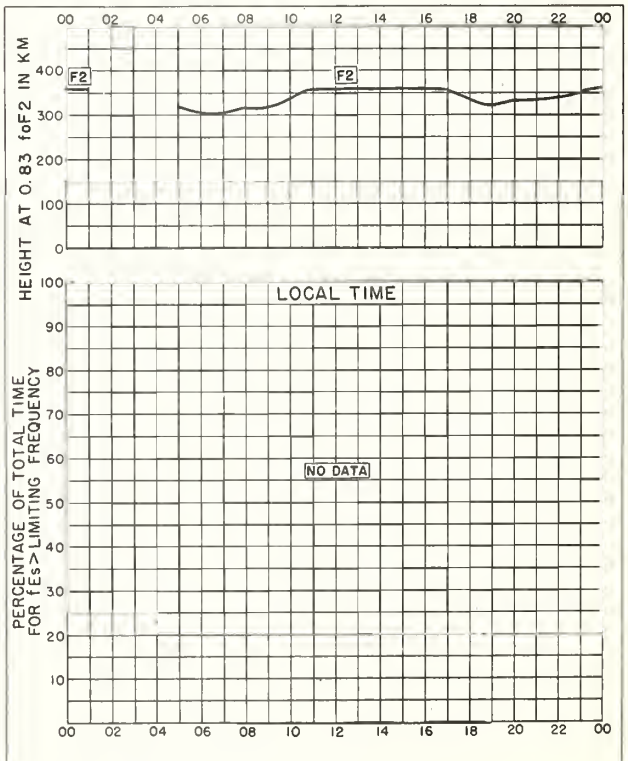

Fig. 68. DELHI, INDIA MAY 1950

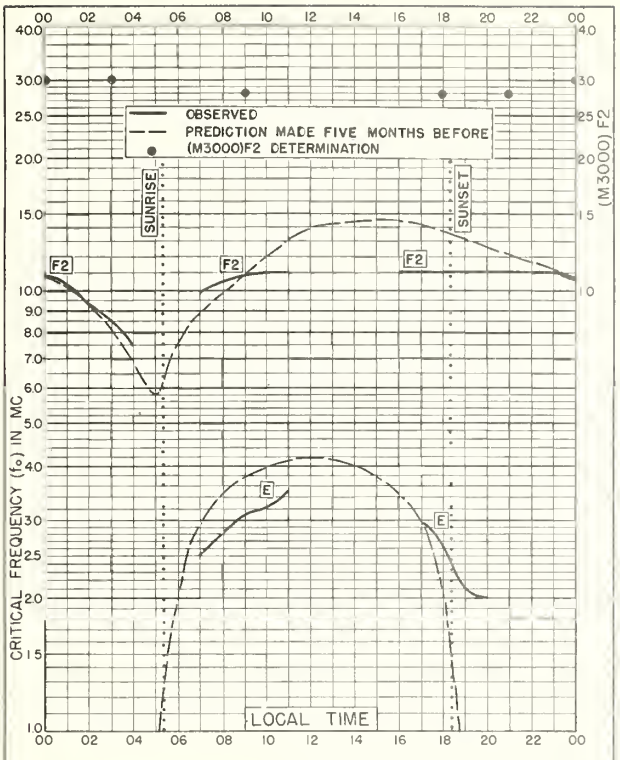

Fig. 69. CALCUTTA, INDIA
22.6°N, 88.4°E MAY 1950

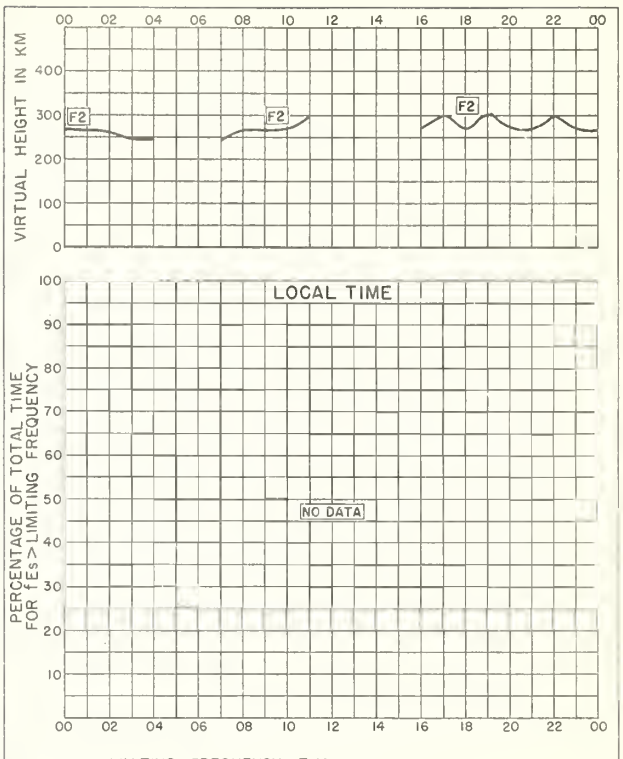

Fig. 70. CALCUTTA, INDIA MAY 1950

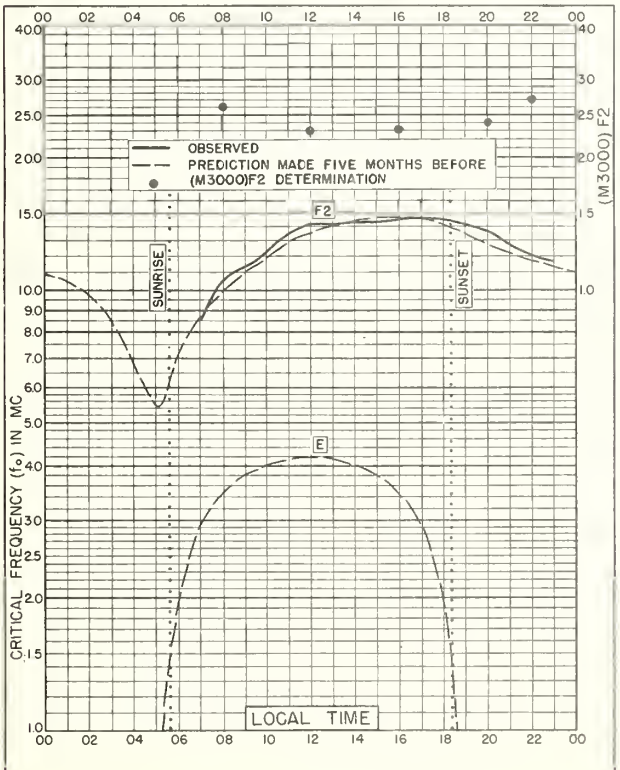

Fig. 71. BOMBAY, INDIA
19.0°N, 73.0°E MAY 1950

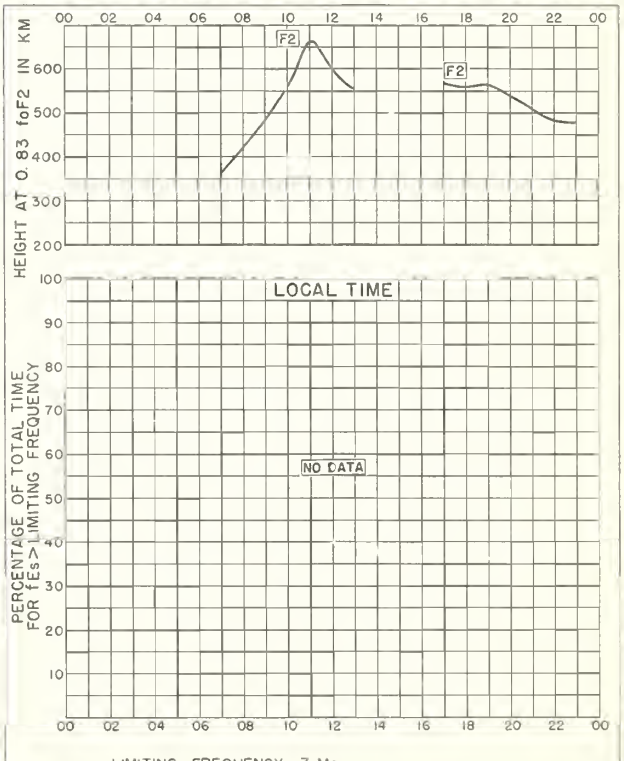

Fig. 72. BOMBAY, INDIA MAY 1950

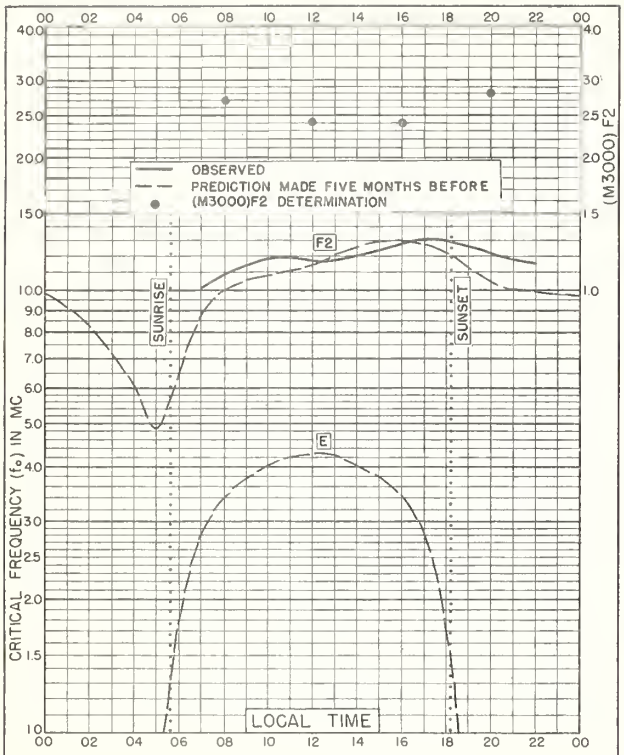

Fig. 73. MADRAS, INDIA
13.0°N, 80.2°E MAY 1950

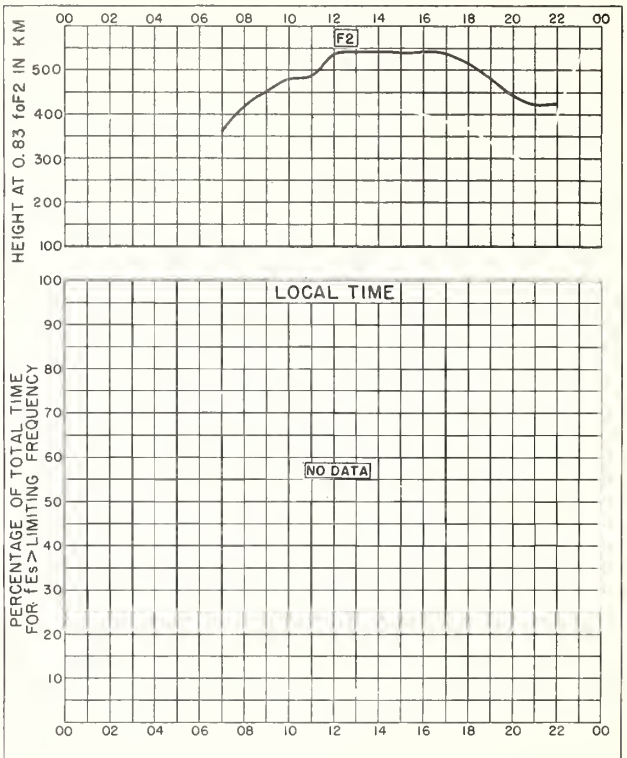

Fig. 74. MADRAS, INDIA MAY 1950

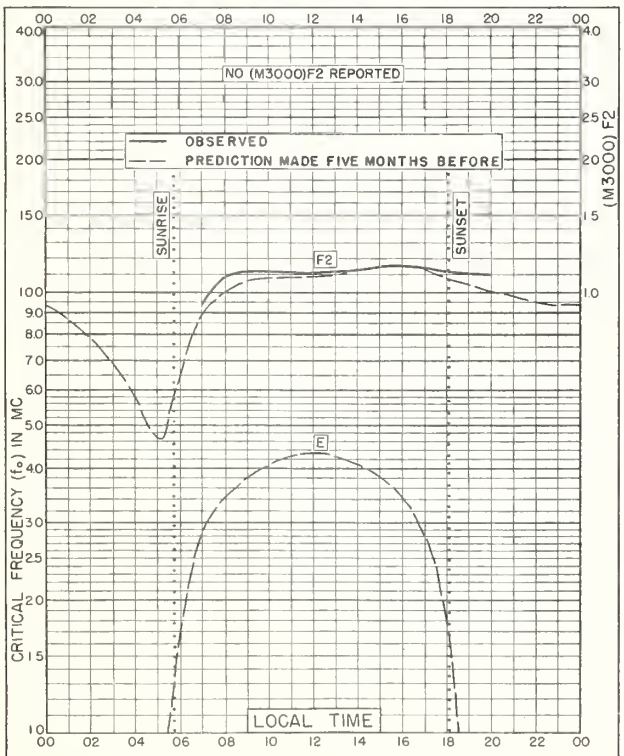

Fig. 75. TIRUCHY, INDIA
10.8°N, 78.8°E MAY 1950

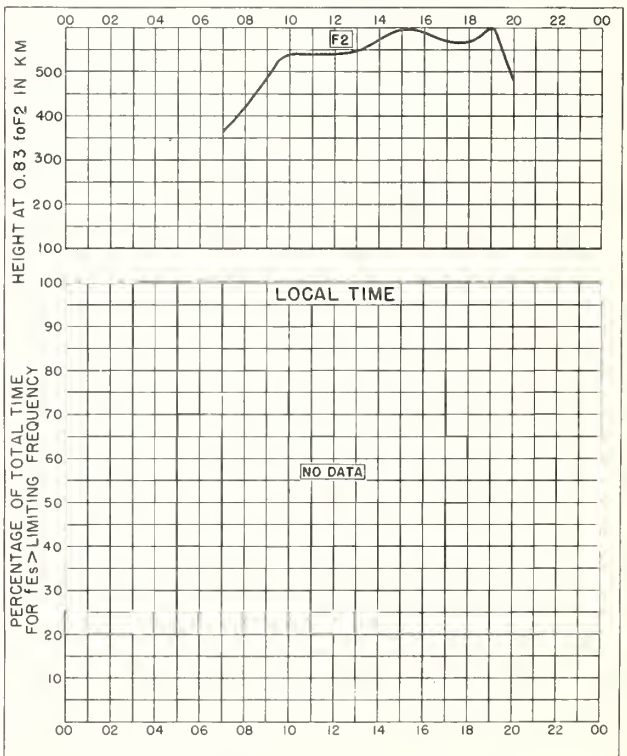

Fig. 76. TIRUCHY, INDIA MAY 1950

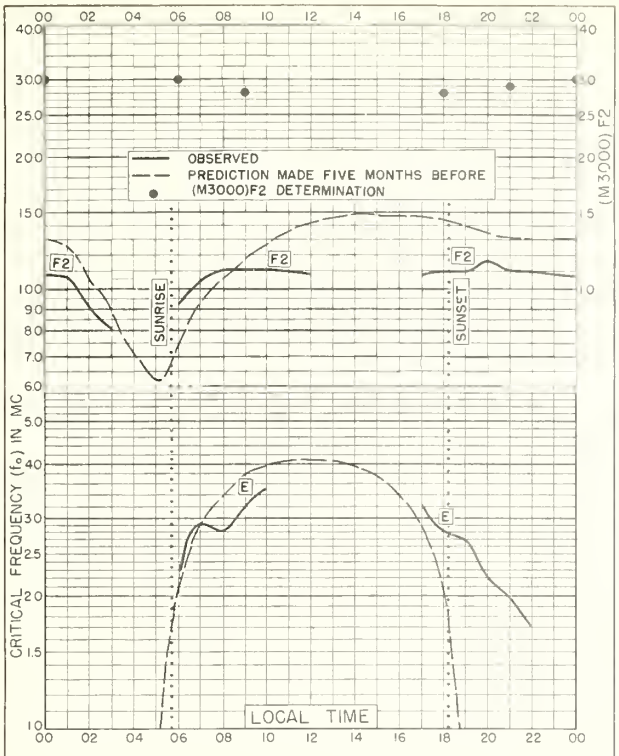

Fig. 77. CALCUTTA, INDIA
22.6°N, 88.4°E APRIL 1950

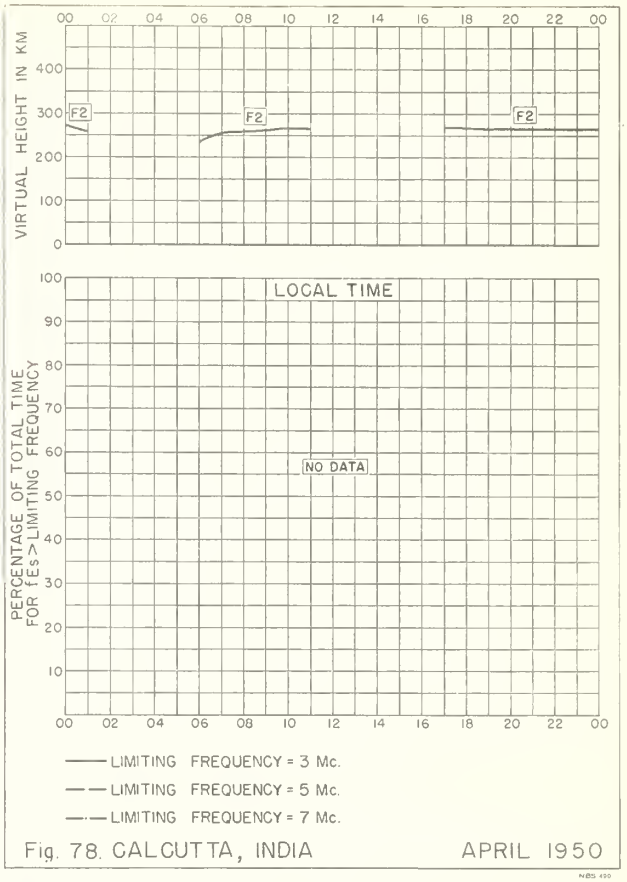

Fig. 78. CALCUTTA, INDIA APRIL 1950

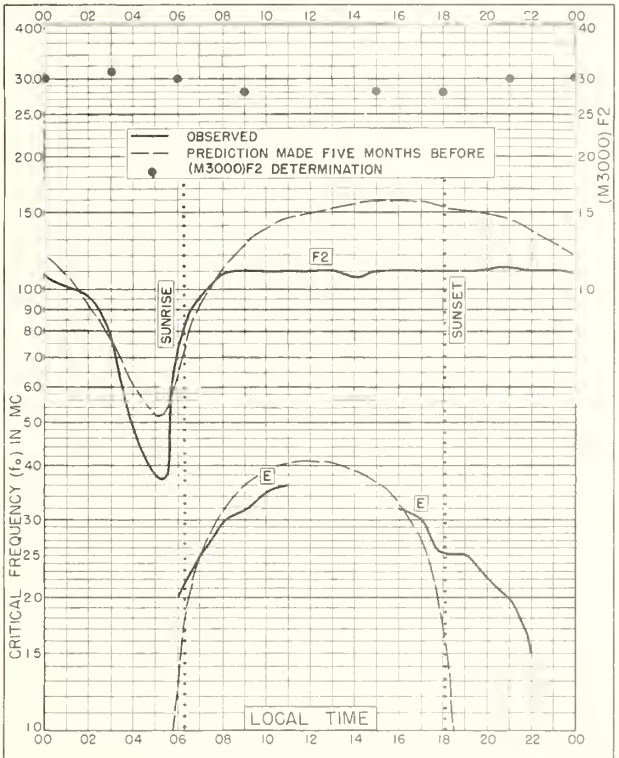

Fig. 79. CALCUTTA, INDIA
22.6°N, 88.4°E MARCH 1950

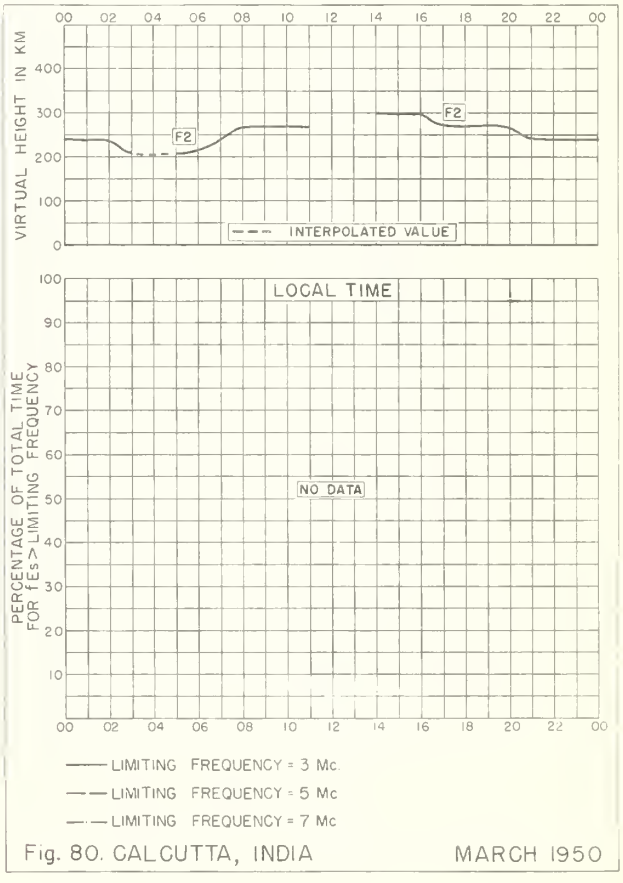

Fig. 80. CALCUTTA, INDIA MARCH 1950

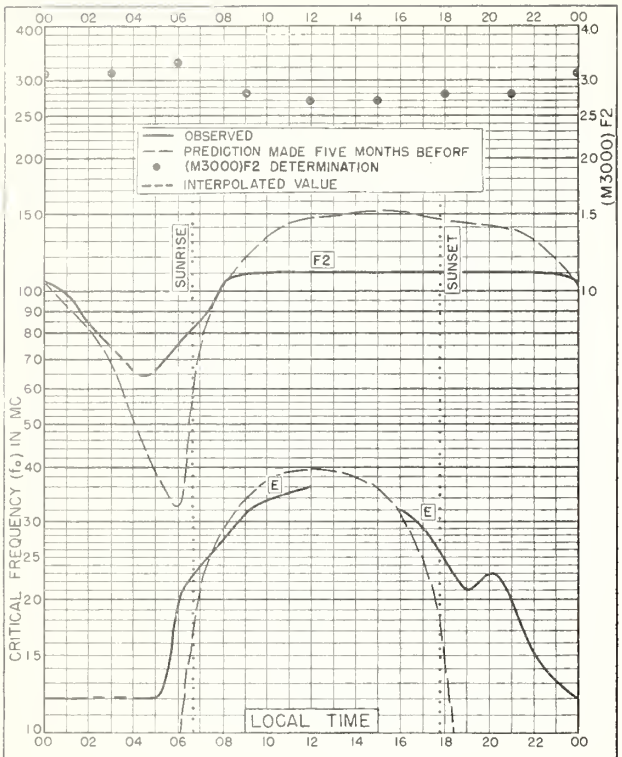

Fig. 81. CALCUTTA, INDIA
22.6°N, 88.4°E FEBRUARY 1950

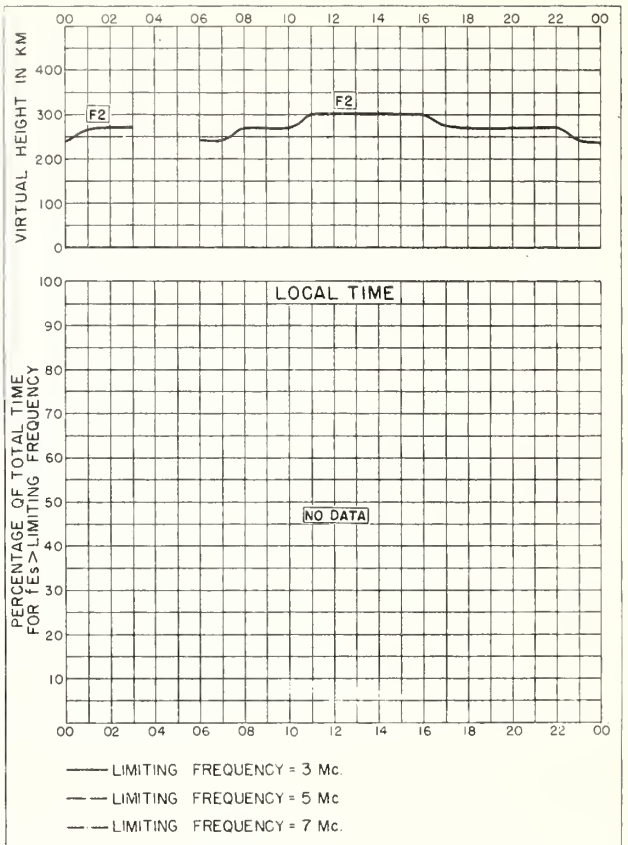

Fig. 82. CALCUTTA, INDIA FEBRUARY 1950

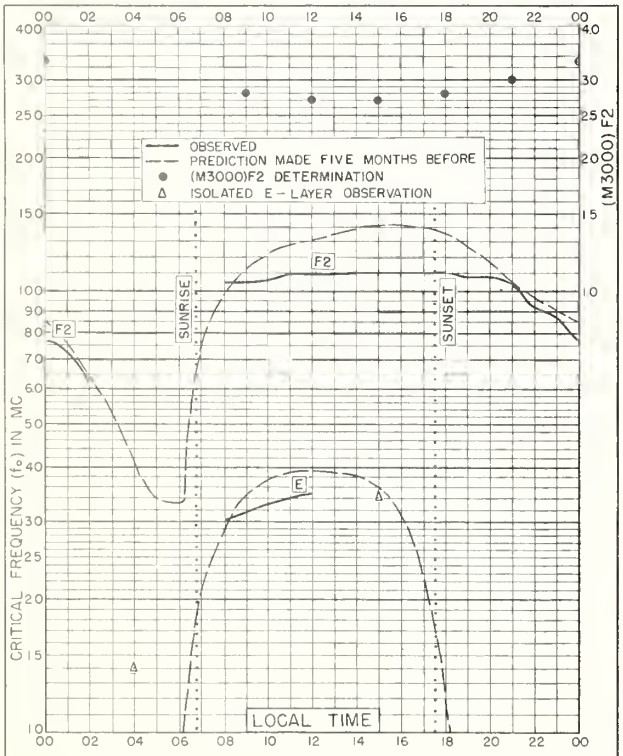

Fig. 83. CALCUTTA, INDIA
22.6°N, 88.4°E JANUARY 1950

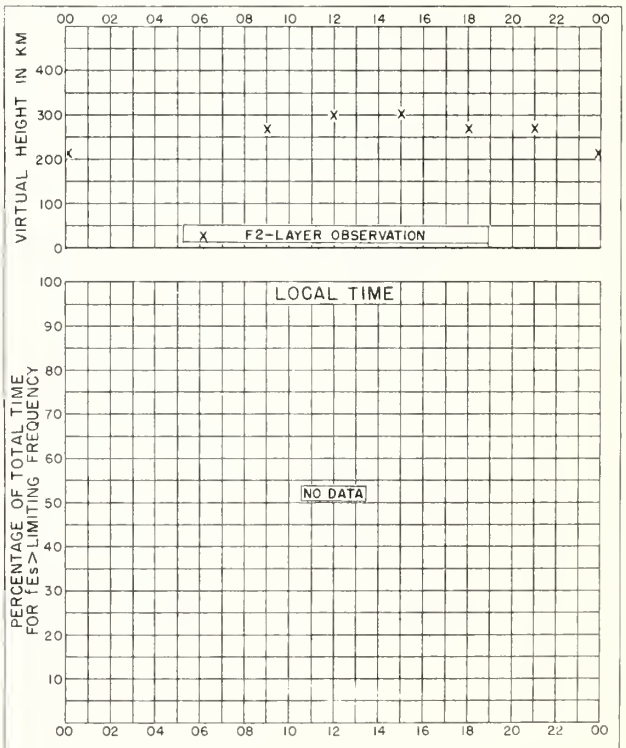

Fig. 84. CALCUTTA, INDIA JANUARY 1950

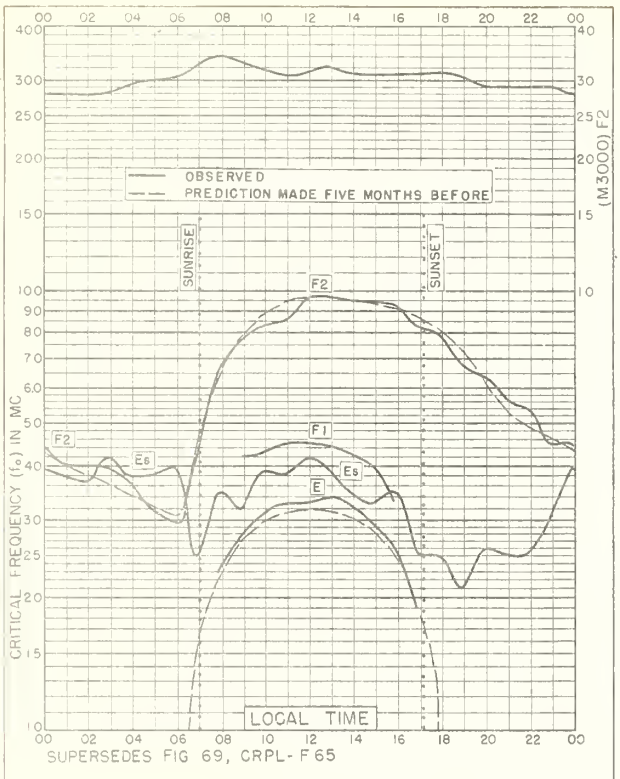

Fig. 85. HOBART, TASMANIA
42.8°S, 147.4°E AUGUST 1949

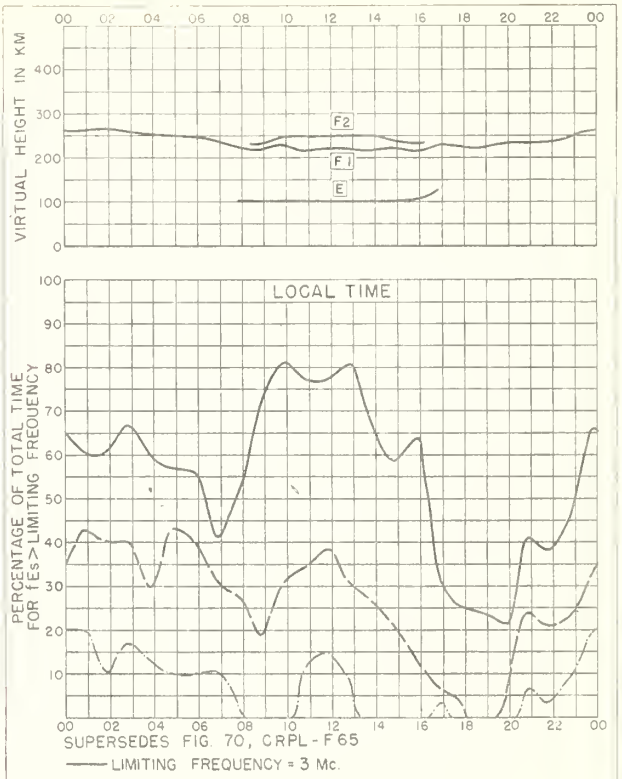

Fig. 86. HOBART, TASMANIA AUGUST 1949

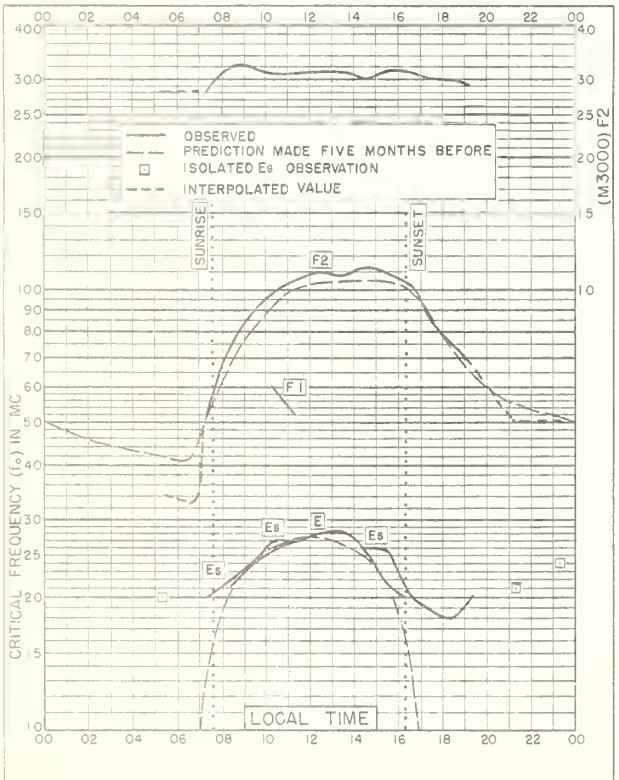

Fig 87. CAMPBELL I.
52.5°S, 169.2°E MAY 1949

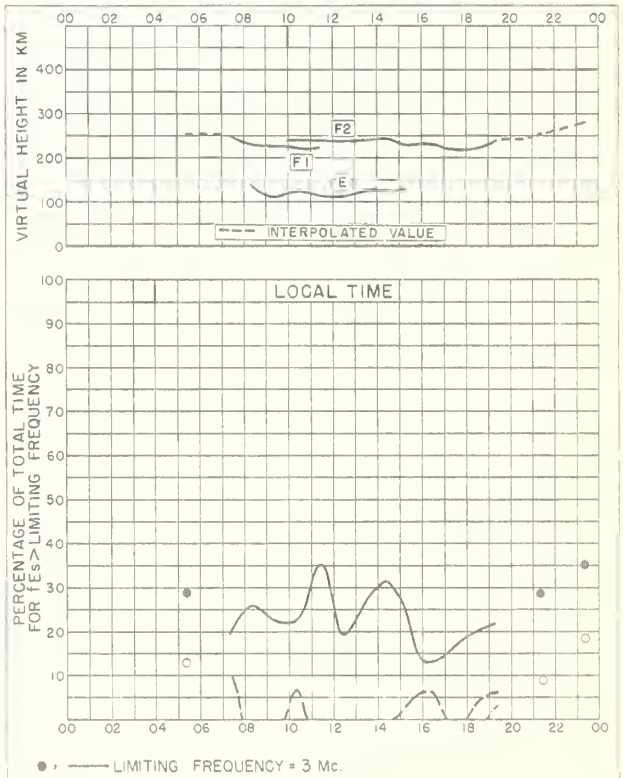

Fig. 88. CAMPBELL I. MAY 1949

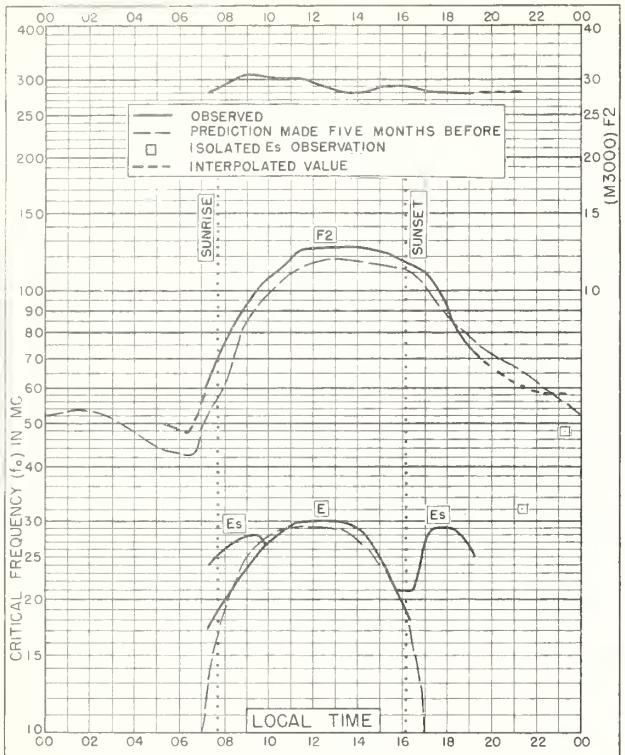

Fig. 89. CAMPBELL I.
52.5°S, 169.2°E MAY 1948

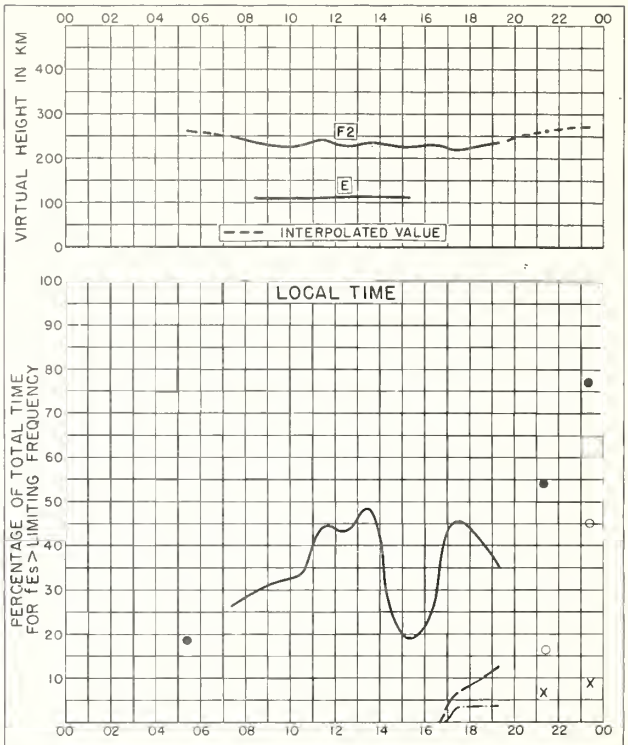

Fig. 90. CAMPBELL I. MAY 1948

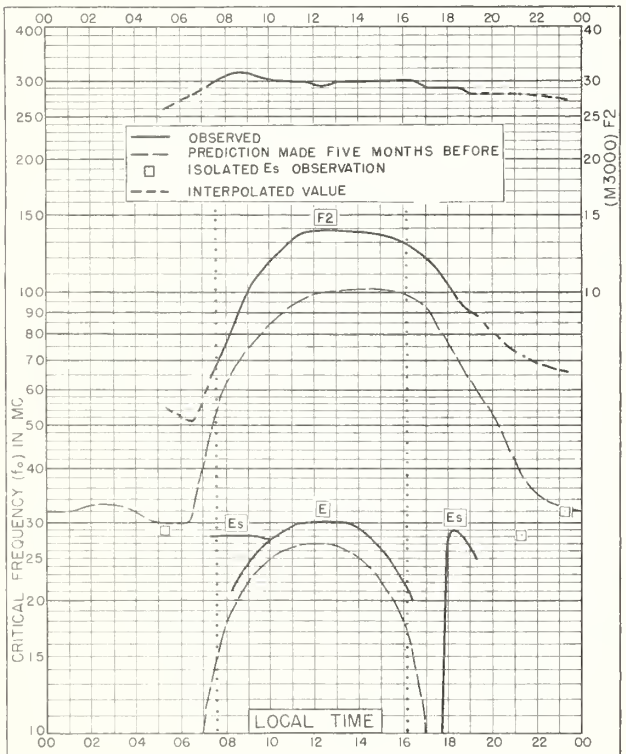

Fig 91. CAMPBELL I.
52.5°S, 169.2°E MAY 1947

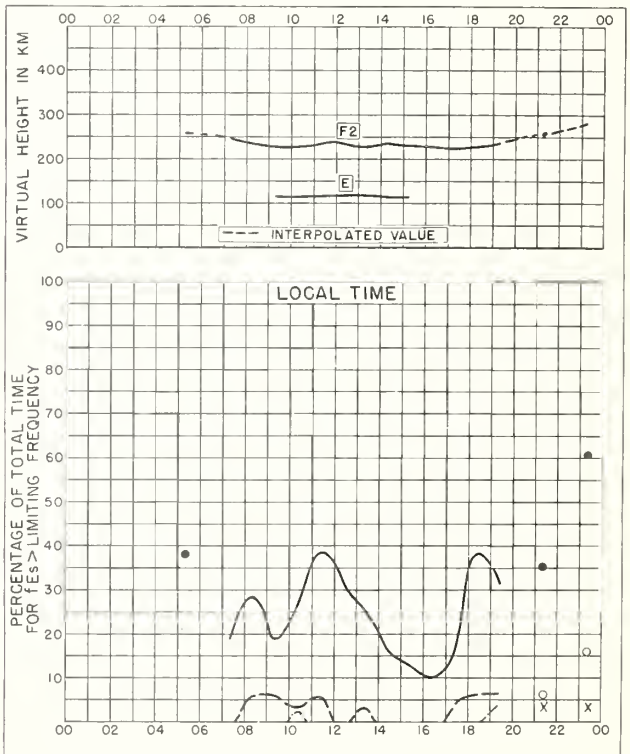

Fig. 92. CAMPBELL I. MAY 1947

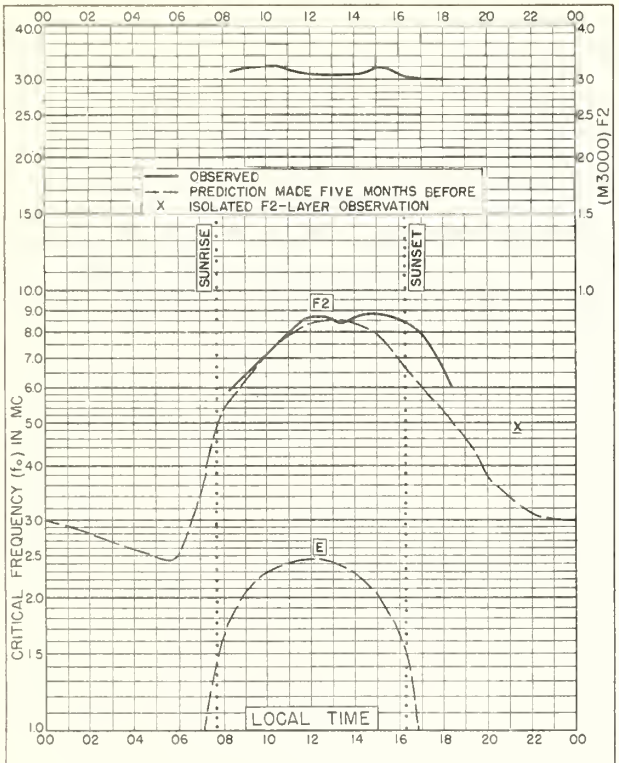

Fig. 93. CAMPBELL I.
52.5°S, 169.2°E MAY 1946

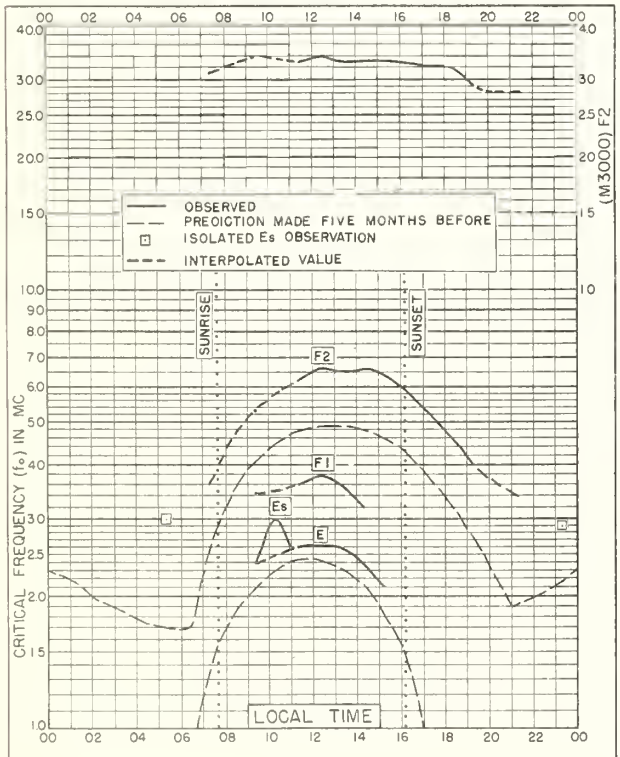

Fig. 94. CAMPBELL I.
52.5°S, 169.2°E MAY 1945

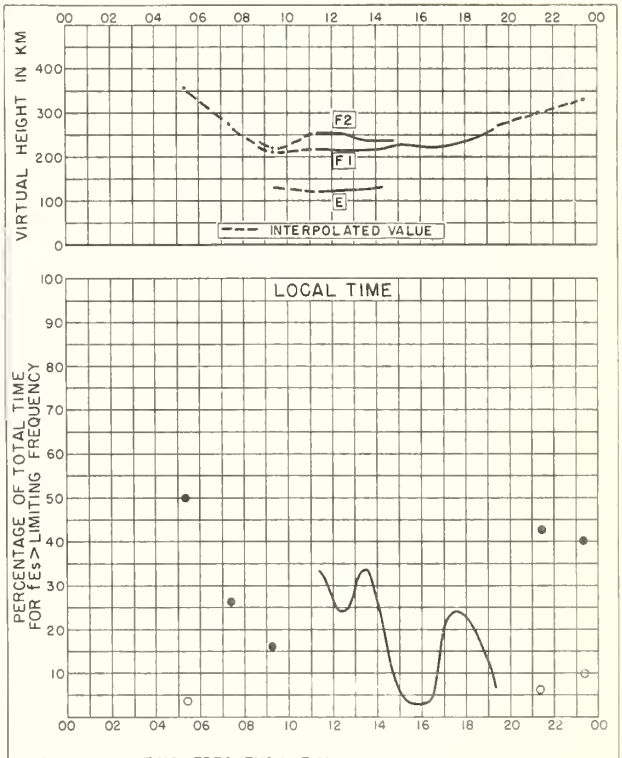

Fig. 95. CAMPBELL I. MAY 1945

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