CRPL-F91

IONOSPHERIC DATA

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

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

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

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

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

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

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

University of Graz:
- Graz, Austria

British Department of Scientific and Industrial Research, Radio Research Board:
- Falkland Is.
- Singapore, British Malaya
- Slough, England

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

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

French Ministry of Naval Armaments (Section for Scientific Research):
- Dakar, French West Africa
- Fribourg, Germany

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

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

The Royal Netherlands Meteorological Institute:
- De Bilt, Holland

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

Radio Regulatory Commission, Tokyo, Japan:
- Akita, Japan
- Tokyo (Kokubunji), Japan
- Wakkanai, Japan
- Yamagawa, Japan

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

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

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

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

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

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

United States Air Force:
- Cocoa, Florida

United States Army Signal Corps:
- White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
- Anchorage, Alaska
- Batavia, Ohio (mobile unit)
- Baton Rouge, Louisiana (Louisiana State University)
- Fairbanks, Alaska
- Maui, Hawaii
- Narsarssuak, Greenland
- Panama, Canal Zone
- Puerto Rico, W. I.
- San Francisco, California (Stanford University)
- Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

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

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during February 1952, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 86 gives provisional radio propagation quality figures for the North Atlantic area, for 01 to 12 and for 13 to 24 GCT, for each day in January 1952. Also indicated in the table are: (1) CRPL radio disturbance warnings for North Atlantic paths, (2) CRPL semi-weekly advance forecasts of probable disturbed periods, and (3) half-day averages of geomagnetic K-indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to CRPL by a method similar to that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," now out of print. The reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day indices are then adjusted to the 1 to 9 quality figure scale. The conversion table was prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution originally determined from analysis of many reports in 1946 made on the 1 to 9 quality figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. The half-daily radio propagation quality figures, beginning January 1948, is the weighted mean of the reports received for that period.

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

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

OBSERVATIONS OF THE SOLAR CORONA

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

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

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

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

RELATIVE SUNSPOT NUMBERS

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

OBSERVATIONS OF SOLAR FLARES

Table 95 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

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

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

INDICES OF GEOMAGNETIC ACTIVITY

Table 96 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

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

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

The Committee on Characterisation 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

Tables 97 and 98 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, February 1952; and at Lindau/Harz, Germany, January 1952.

ERRATUM

Virtual heights and factors for Fairbanks, Alaska, for the months of June 1951 through November 1951 as published in CRPL-F84 through F90 are in error and should be disregarded. The virtual heights are approximately 25 percent high.

Table 1

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.0						3.0
01	290	2.7						3.0
02	270	2.5						3.0
03	280	2.6						3.0
04	270	2.4						3.0
05	280	2.3						3.0
06	280	2.3						3.0
07	250	3.3			—	—		3.2
08	240	5.2	230	—	120	2.1		3.4
09	250	6.0	210	3.2	110	2.5		3.3
10	270	6.7	210	3.9	110	2.8		3.2
11	270	7.4	220	4.1	110	3.0		3.2
12	270	7.5	210	4.2	110	3.0		3.2
13	270	7.8	210	4.2	110	3.0		3.1
14	270	7.5	220	4.0	110	3.0		3.1
15	260	7.6	230	3.8	110	2.8		3.2
16	250	7.3	230	—	120	2.4		3.3
17	240	7.0	—	—	120	2.0		3.3
18	230	6.1						3.2
19	230	5.0						3.1
20	240	4.2						3.1
21	250	3.5						3.0
22	280	3.2						3.0
23	270	3.1						2.9

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

Table 2

Tromso, Norway (69.7°N, 19.0°E) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00							4.4	---
01	---	---					4.5	---
02	---	---					3.5	---
03	(340)	(2.6)					3.4	(2.8)
04	320	(2.8)					3.0	(2.8)
05	(295)	(2.6)					3.1	(3.0)
06	(295)	(2.4)					2.2	(2.9)
07	(290)	(2.2)					2.8	3.0
08	295	2.2			---	---	2.6	3.0
09	260	3.1			---	---	1.8	3.2
10	240	3.9			---	(1.5)		3.4
11	245	4.4			---	1.8		3.3
12	245	4.8	---	---	---	(1.9)		3.4
13	250	4.6			115	(1.6)	1.6	3.4
14	250	3.8			---	---	1.6	3.3
15	250	3.0			---	---	2.8	3.2
16	(260)	(2.4)					2.9	(3.2)
17	(275)	(1.6)					3.2	(3.1)
18	---	---					4.0	---
19	---	---					4.4	---
20	---	---					4.8	---
21	---	---					5.2	---
22	---	---					4.3	---
23	---	---					4.0	---

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

Table 3

Anchorage, Alaska (61.2°N, 149.9°W) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					(4.1)	---
01	---	(2.4)					4.2	(3.0)
02	---	(2.3)					(2.3)	---
03	(320)	(2.6)					2.7	(2.9)
04	---	---					(2.1)	---
05	---	---						---
06	---	(2.4)						---
07	---	(2.4)						---
08	(270)	2.5						3.2
09	250	4.0						3.2
10	240	4.5						3.3
11	< 240	4.9						3.4
12	240	6.0						3.3
13	230	6.4						3.4
14	230	6.0						3.3
15	220	5.4						3.4
16	220	5.1						3.3
17	230	4.5						3.3
18	240	3.0						3.3
19	(240)	(2.4)						(3.3)
20	---	---						---
21	---	---						---
22	---	---					(3.1)	---
23	(300)	(2.8)					3.8	(3.1)

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

Table 4

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.2	---
01	---	---					5.0	---
02	---	---					5.0	---
03	---	---					4.6	---
04	---	---					5.0	---
05	---	---					5.0	---
06	---	---					4.0	---
07	---	---					4.0	---
08	(320)	2.4					2.9	2.8
09	300	4.0			---	---		3.0
10	290	5.0			---	---		3.1
11	310	5.6	---	---	140	---		3.0
12	310	5.6	310	---	---	---		3.0
13	310	5.4	---	---	---	---		3.0
14	300	5.2	---	---	---	---		3.0
15	300	4.4			---	---		2.9
16	320	(3.3)					3.8	(3.0)
17	(340)	(2.7)					4.1	(2.6)
18	---	---					4.7	---
19	(450)	(3.0)					4.5	(2.5)
20	(410)	(3.1)					5.6	(2.6)
21	(360)	(2.8)					6.0	---
22	(320)	(2.6)					6.6	---
23	---	---					5.0	---

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

Table 5

Oslo, Norway (60.0°N, 11.1°E) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	(2.4)						(2.8)
01	310	(2.7)					2.4	(3.0)
02	320	(2.3)					2.0	(3.0)
03	315	(2.2)					2.9	(2.9)
04	300	2.0					2.8	3.0
05	290	(1.6)					2.4	(3.1)
06	< 300	1.6						3.1
07	300	1.6						(3.1)
08	265	2.3						3.1
09	220	4.1			---	1.6	2.8	3.4
10	210	5.2	---	---	115	1.9	3.2	3.6
11	215	6.0	220	2.4	120	2.0	2.1	3.6
12	210	6.4	210	---	130	2.2	2.4	3.6
13	215	6.6	215	2.6	130	2.1		3.6
14	210	6.1	220	2.3	130	2.0		3.6
15	205	5.7	225	---	145	1.8	2.4	3.6
16	205	5.3	---	---	---	---	1.6	3.5
17	205	4.2						3.4
18	225	3.0						3.4
19	265	2.2						3.1
20	325	1.9						3.0
21	325	1.9						(3.0)
22	350	(2.0)					2.4	(2.8)
23	345	(2.6)						(2.8)

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

Table 6

Upsala, Sweden (59.8°N, 17.6°E) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	430	1.9						---
01	380	2.0					2.1	---
02	400	2.0					2.0	---
03	370	1.6					2.2	---
04	360	1.7					2.2	---
05	350	1.4					2.4	---
06	350	1.5					2.2	---
07	480	E			---	---		---
08	260	3.0			---	E		3.1
09	230	4.6			120	1.8	2.2	3.3
10	230	5.7			---	2.0		3.4
11	230	6.4			120	2.1		3.4
12	230	6.5			---	2.2		3.4
13	230	6.5			---	---		3.4
14	225	6.2			---	1.9		3.4
15	220	5.7			---	---		3.4
16	225	5.2			---	E		3.3
17	235	3.7			---	---		3.2
18	250	2.5						3.0
19	380	1.4						(2.8)
20	440	E						---
21	465	E						---
22	500	E						---
23	510	E						---

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

Table 7

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04	(280)	2.9						
05	(250)	2.7						
06	(260)	2.5						
07	(260)	2.7						
08	210	5.0						
09	220	7.0						
10	220	7.5		(3.9)				
11	220	7.7		(3.9)				
12	230	7.4	200	4.0		3.0		
13	235	7.2		(3.5)		2.9		
14	230	7.0	(220)	(3.7)				
15	210	6.7						
16	200	6.0						
17	210	5.2						
18	240	4.2						
19	245	3.2						
20	(250)	2.9						
21	300	2.8						
22								
23								

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

Table 8

Batavia, Ohio (39.1°N, 84.1°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	2.4						3.0
01	---	2.4						3.0
02	---	2.5						3.0
03	---	2.6						3.0
04	(260)	2.6						3.0
05	(250)	2.6						3.1
06	(250)	2.6						3.1
07	(240)	2.6						3.1
08	230	4.2						3.4
09	220	5.6	210	---	(120)	(2.2)		3.5
10	230	6.3	210	3.4	(110)	2.5		3.4
11	250	7.1	210	3.8	(110)	2.8		3.3
12	250	8.0	210	4.1	110	2.8		3.3
13	250	8.0	210	(4.1)	110	2.9		3.3
14	250	7.8	210	4.0	110	2.8		3.3
15	240	7.6	210	(3.7)	110	2.7		3.2
16	240	7.3	220	---	110	2.4		3.3
17	220	6.9			---	---		3.4
18	220	5.8						3.3
19	(230)	5.0						3.2
20	(230)	4.0						3.3
21	(230)	3.2						3.1
22	(240)	2.7						3.0
23	---	2.5						3.0

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

Table 9

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.9					2.5	3.0
01	260	2.9					2.5	3.1
02	250	2.9						3.0
03	240	2.9						3.2
04	240	2.8						3.1
05	260	2.7						3.0
06	260	2.6						3.0
07	250	3.1					(3.6)	3.1
08	230	5.4			---	---	2.2	3.4
09	230	6.3	230	---	120	2.4	2.4	3.5
10	240	6.9	220	4.1	120	2.8	2.9	3.3
11	260	8.2	210	4.2	120	3.0	3.0	3.3
12	250	8.6	220	4.3	120	3.1		3.3
13	240	8.1	220	4.2	120	3.0	2.6	3.3
14	240	7.0	210	4.1	120	2.9	3.0	3.4
15	240	7.2	220	---	120	2.7	2.7	3.4
16	230	6.0	---	---	120	---	2.5	3.4
17	220	5.6					3.5	3.4
18	220	4.3					2.5	3.3
19	230	3.3					3.0	3.3
20	240	2.6					2.8	3.3
21	(250)	2.4					2.1	3.1
22	(250)	2.5					2.6	3.1
23	270	2.8					2.9	3.0

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

Table 10

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.1						3.0
01	260	3.2					1.7	3.1
02	250	3.3					1.9	3.2
03	240	3.2						3.3
04	230	3.0						3.4
05	250	2.6						3.1
06	280	2.6						3.0
07	240	3.8						3.3
08	220	5.7	---	---	120	2.1		3.5
09	230	6.7	220	---	110	2.5	3.2	3.5
10	260	7.2	210	---	100	2.8	3.5	3.3
11	250	7.9	210	---	110	3.1	3.5	3.2
12	250	8.8	[illegible]	4.1	110	3.1	3.3	3.3
13	250	8.2	210	---	110	3.1	3.5	3.3
14	250	7.8	210	---	110	3.0	3.6	3.3
15	240	7.7	220	---	110	2.7	2.8	3.4
16	230	7.0	220	---	120	2.3	2.3	3.4
17	220	6.1			---	---	2.0	3.4
18	210	4.8					2.6	3.4
19	220	3.7					2.6	3.3
20	230	3.0					2.3	3.2
21	250	2.7						3.2
22	260	2.8					2.0	3.1
23	280	2.8					1.8	3.0

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

Table 11

Cocoa, Florida (28.2°N, 80.6°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.6						2.9
01	280	4.0						3.0
02	270	4.1						3.0
03	260	4.0						3.0
04	250	3.9						3.0
05	260	3.8						3.0
06	260	3.4						2.9
07	260	4.0					3.2	3.1
08	240	6.2	---	---	130	1.9		3.4
09	250	7.0	240	---	120	2.4		3.3
10	260	7.5	230	---	120	2.7		3.3
11	270	8.1	220	4.3	120	(3.0)		3.2
12	280	8.3	220	4.4	120	3.2		3.1
13	280	8.5	220	(4.3)	120	3.2		3.1
14	280	8.4	230	(4.2)	120	3.1		3.1
15	270	8.0	230	---	120	(2.9)		3.1
16	260	8.0	240	---	120	2.6		3.2
17	240	7.4	---	---	130	2.0		3.3
18	220	6.1					3.0	3.3
19	230	4.4					1.8	3.1
20	250	3.6						3.0
21	260	3.6						3.0
22	270	3.5						3.0
23	(270)	3.6						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 12

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.8					1.4	2.7
01	280	3.1						2.9
02	240	3.0						3.1
03	240	2.6					1.8	3.3
04	250	2.1					1.6	3.1
05	260	1.9					1.8	3.1
06	280	1.9			---	---	3.4	2.9
07	270	3.8			---	---		2.9
08	250	6.3	250	---	120	2.2		3.3
09	270	8.4	240	---	120	2.8	4.3	3.3
10	270	9.4	230	4.5	110	3.0	4.8	3.2
11	270	10.1	210	4.6	110	(3.2)	4.6	3.1
12	310	10.2	210	4.8	110	3.3	5.0	2.9
13	300	12.0	210	4.8	110	(3.3)	4.8	3.0
14	280	12.0	220	4.7	110	3.3	4.6	3.1
15	260	11.4	230	4.4	120	3.1	4.3	3.1
16	250	10.4	230	---	120	2.8	4.3	3.1
17	240	8.8	---	---	120	2.3	3.8	3.3
18	220	7.3			---	---	3.3	3.5
19	210	4.5					2.7	3.4
20	250	3.7					2.7	2.9
21	250	4.5					2.9	3.1
22	220	4.5					2.3	3.1
23	240	3.1					1.6	3.1

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

Table 13

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1						3.0
01	240	4.4						3.1
02	230	4.3						3.2
03	230	4.2						3.2
04	230	3.6						3.0
05	240	3.4					1.8	3.0
06	250	3.4						3.0
07	240	4.4						3.3
08	220	6.6	230	---	110	2.2		3.5
09	240	7.5	220	---	100	(2.7)	3.5	3.5
10	240	8.7	210	4.4	100	3.1		3.5
11	240	7.8	200	4.5	100	3.2		3.4
12	260	7.6	200	4.5	100	3.3		3.3
13	270	8.1	200	(4.7)	100	3.4		3.2
14	270	8.5	220	4.6	100	3.3	4.1	3.2
15	260	8.4	220	(4.4)	100	3.2	4.5	3.2
16	250	8.3	220	---	110	2.8	4.4	3.3
17	240	7.9	220	---	110	2.4	3.7	3.3
18	210	7.3	---	---			3.6	3.4
19	210	5.0					2.9	3.3
20	230	4.2						3.2
21	250	4.0					2.0	3.1
22	250	4.1						3.1
23	260	3.8						3.0

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

Table 14

Panama Canal Zone (9.4°N, 79.9°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.8					2.0	3.0
01	250	3.6					2.0	3.1
02	240	3.4					2.8	3.2
03	< 240	2.8						3.3
04	260	2.6					2.1	2.8
05	280	2.6					2.4	2.7
06	280	(3.0)						2.8
07	250	5.4	---	---	<170	2.0		3.2
08	260	7.6	240	---	110	2.6	3.0	3.2
09	280	9.4	230	(4.6)	110	3.0	3.4	3.1
10	280	10.0	220	4.7	110	3.2	3.8	3.2
11	290	9.2	210	4.8	110	3.4	4.4	3.0
12	300	8.8	210	4.8	110	3.5	4.6	2.8
13	320	9.6	220	4.9	110	3.5	4.2	2.8
14	320	10.5	220	4.8	110	3.4	4.7	2.8
15	290	10.8	240	(4.7)	110	3.2	4.2	2.9
16	270	10.2	240	(4.5)	110	3.0	4.3	3.0
17	240	8.9	230	---	120	2.6	3.8	3.1
18	240	7.6			---	---	3.2	3.1
19	230	6.2					3.0	3.2
20	220	4.6					2.5	3.1
21	240	4.0					2.2	3.0
22	260	4.0						2.8
23	260	(3.9)					2.2	3.0

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

Table 15

Resolute Bay, Canada (74.7°N, 94.9°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.8						2.8
01	260	3.4						2.9
02	270	3.2						2.9
03	280	3.4						2.9
04	270	3.2						2.9
05	280	3.4						2.8
06	290	3.4						2.9
07	280	3.6						2.9
08	280	3.6						2.8
09	280	3.6						2.8
10	260	3.6						2.8
11	260	3.8						2.8
12	260	3.5						2.8
13	250	4.0						2.9
14	250	3.8						2.8
15	250	3.8						2.8
16	230	4.0						2.9
17	260	3.8						2.8
18	240	3.8						2.9
19	260	3.7						3.0
20	250	3.8						2.9
21	250	3.8						2.8
22	250	3.5						2.8
23	270	3.7						2.9

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

Table 16

Fairbanks, Alaska (64.9°N, 147.8°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---					5.4	
01		---					5.4	
02		---					5.0	
03		(3.5)					5.6	
04		(3.6)					4.1	
05		(3.6)					3.0	
06		(3.7)						
07		(2.6)						
08		(2.8)						
09		(3.6)						
10		5.2						
11		6.0						
12		6.5						
13		7.2						
14		6.2						
15		5.8						
16		(5.0)						
17		(3.6)						
18		(2.8)						
19		---					(4.4)	
20		---					2.5	
21		---					5.0	
22		---					4.7	
23		---					4.6	

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

Table 17

Baker Lake, Canada (64.3°N, 96.0°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.0					7.0	2.7
01	300	3.1					5.9	2.7
02	310	3.0					4.9	2.7
03	320	2.8					4.4	2.6
04	320	(2.8)			---	---	4.4	2.6
05	300	3.1			---	(2.0)	4.0	2.8
06	300	3.5			120	(2.0)	4.4	2.7
07	300	3.4			120	2.2	3.8	2.8
08	300	3.8			120	2.3	4.5	2.7
09	310	3.7			120	2.5	3.5	2.7
10	300	4.4	---	---	120	2.8	2.0	2.8
11	300	5.0	---	---	120	2.8	2.0	2.8
12	300	5.2	---	---	130	2.9	2.5	2.8
13	300	6.2	---	---	130	2.8	2.4	2.8
14	300	6.1	---	---	120	2.8	2.4	2.8
15	290	5.2			120	2.4	2.0	2.8
16	300	4.5			130	2.4	4.0	2.8
17	300	4.1			130	2.3	4.0	2.7
18	300	4.0			130	2.5	5.2	2.8
19	300	4.0			120	2.4	4.2	2.8
20	300	3.7			130	2.4	5.5	2.7
21	300	3.5			140	1.8	7.0	2.7
22	300	3.6					7.5	2.7
23	300	3.0					7.0	2.8

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

Table 18

Churchill, Canada (58.8°N, 94.2°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0			120	2.5	6.0	3.0
01	300	3.0			120	2.6	6.8	(2.9)
02	290	2.8			130	---	6.0	3.1
03	320	3.3			120	2.0	5.2	(2.9)
04	(290)	(3.1)			110	2.7	5.2	2.8
05	(370)	(3.2)			120	3.4	5.4	---
06	(340)	(4.0)			120	3.1	6.0	---
07	(300)	(4.0)			120	3.0	4.5	(3.0)
08	320	3.4			110	3.0	4.4	(2.8)
09	290	4.4			120	2.6	4.0	3.0
10	260	5.1			120	2.7	2.2	3.2
11	260	5.8			120	2.8	2.8	3.1
12	270	6.0			130	2.7	3.0	3.1
13	260	7.0	---	---	120	2.4	3.0	3.0
14	250	8.0			120	2.8	2.5	3.1
15	250	7.1			120	2.4	2.0	3.0
16	270	6.2			120	2.6	1.6	3.0
17	300	5.0			120	3.0	1.9	2.8
18	320	4.2			110	3.0		2.8
19	310	3.7			120	3.0		3.0
20	300	< 3.7			120	3.0	5.3	3.0
21	310	3.4			130	2.8	6.0	3.0
22	320	3.8			130	2.6	5.8	2.9
23	300	3.0			120	2.6	6.0	3.0

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

Table 19

Fort Chimo, Canada (58.1°N, 68.3°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	2.8			100	3.0	4.3	---
01	(300)	3.0			100	2.8	4.2	---
02	300	3.0			100	2.8	4.0	---
03	(320)	3.2			100	2.5	4.5	---
04	300	3.2			100	2.8	4.2	---
05	(300)	3.1			100	2.9	4.1	(2.9)
06	(300)	(2.8)			---	---	4.1	---
07	(300)	(3.0)			100	2.8	3.9	---
08	270	3.9			---	---	3.5	3.1
09	240	5.2			---	---	3.0	3.2
10	240	6.0			---	---	3.0	3.1
11	240	6.9			110	2.5	3.0	3.2
12	240	6.9			---	---	2.9	3.1
13	260	6.5			110	2.6	2.8	3.0
14	230	5.2			100	2.2	2.5	3.1
15	240	4.3			100	2.0	2.2	(3.3)
16	240	3.5			100	2.8	2.0	(3.0)
17	330	3.3			100	2.8	4.0	---
18	300	3.4			100	2.8	4.8	---
19	300	3.8			100	2.8	5.7	---
20	300	3.2			100	2.1	4.8	---
21	280	2.5			100	2.3	5.1	---
22	290	2.5			---	---	5.3	---
23	300	3.0			100	---	4.5	---

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

Table 20

Prince Rupert, Canada (54.3°N, 130.3°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	1.8					1.5	2.9
01	290	1.6					1.1	3.0
02	290	1.5					1.6	3.0
03	300	1.8					1.7	3.0
04	300	1.5					1.7	3.0
05	300	1.8					2.0	2.9
06	300	1.8					1.8	3.0
07	300	1.9					1.5	2.9
08	280	2.0			---	---	1.6	2.9
09	250	3.9	---	---	110	1.7	2.0	3.0
10	240	5.0	---	---	110	2.0	2.0	3.0
11	230	6.6	---	---	120	2.2	2.4	3.1
12	240	7.0	---	---	120	2.4	2.5	3.1
13	240	7.8	---	---	120	2.4		3.2
14	230	8.0	---	---	110	2.2		3.2
15	230	7.3	---	---	120	2.0	2.1	3.2
16	220	6.6			---	1.7	2.0	3.2
17	220	5.5			---	---	1.7	3.2
18	220	4.4					1.5	3.1
19	230	3.0					1.4	3.1
20	260	2.0					1.2	3.0
21	290	1.8					1.2	3.0
22	280	1.8					1.5	3.0
23	280	1.8					1.4	3.0

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

Table 21

De Bilt, Holland (52.1°N, 5.2°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(275)	(2.7)					2.7	(2.8)
01	(280)	(2.8)					(2.7)	(2.8)
02	(265)	(2.6)					2.6	2.9
03	(<280)	(2.3)					2.7	(3.0)
04	(225)	(2.2)					2.8	(2.9)
05	---	(2.0)					3.7	(3.1)
06	---	(2.0)					2.8	(3.0)
07	(240)	(2.7)					(2.6)	(3.0)
08	210	5.2			---	1.8	3.0	3.4
09	210	6.6	---	---	115	2.1	3.2	3.5
10	210	7.0	---	---	110	2.3	3.8	3.5
11	210	7.6	---	---	110	2.4	3.4	3.5
12	210	7.4	220	3.4	110	2.4	3.7	3.5
13	210	7.7	---	---	120	2.4	3.9	3.4
14	210	7.3	---	---	120	2.2	3.1	3.5
15	205	6.6			---	1.9	3.2	3.5
16	210	5.6					3.0	3.3
17	205	4.4					2.8	3.3
18	220	3.5					3.2	3.2
19	(240)	3.0					(3.0)	3.2
20	---	(2.7)					(2.9)	(3.1)
21	---	(2.6)					2.8	(2.9)
22	---	(2.7)					2.6	(2.8)
23	---	(2.5)					(2.5)	(2.8)

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

Table 22

Winnipeg, Canada (49.9°N, 97.4°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.9					2.5	(2.9)
01	300	2.6					2.0	(2.9)
02	310	2.6					3.4	(2.9)
03	300	2.4					3.5	2.9
04	310	2.6					4.0	(2.9)
05	310	2.6					3.8	3.0
06	300	2.9					3.2	2.8
07	300	2.6					2.8	2.7
08	270	3.1			---	---	2.0	3.0
09	240	5.0	---	---	120	2.0	2.1	3.1
10	240	6.5	230	---	120	2.3	2.3	3.1
11	260	7.2	230	---	120	2.6	2.6	3.1
12	260	7.9	220	---	120	2.6		3.1
13	240	7.8	230	---	120	2.7	2.6	3.0
14	250	8.2	240	---	120	2.4	2.4	3.1
15	240	8.2	---	---	130	2.3	2.3	3.1
16	230	7.6					2.0	3.1
17	230	6.9					2.0	3.0
18	230	5.7					2.0	3.0
19	240	4.4					2.0	3.0
20	260	3.3					1.7	3.0
21	290	2.9					1.7	2.9
22	290	2.7					1.8	2.8
23	290	2.9					1.9	2.8

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

Table 23

St. John's, Newfoundland (47.6°N, 52.7°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.3					1.4	2.7
01	300	2.6					1.8	2.7
02	300	2.6					1.8	2.8
03	290	2.5					2.7	2.8
04	270	2.6					3.1	2.8
05	280	2.1					3.2	2.8
06	300	2.2					2.6	2.9
07	260	3.3			---	---	2.5	3.1
08	230	5.2	230	---	120	2.0	2.4	3.2
09	230	6.5	230	3.5	120	2.3	2.2	3.2
10	250	7.3	220	3.4	120	2.6		3.3
11	240	7.4	220	3.5	120	2.7		3.2
12	250	7.6	220	3.5	120	2.8		3.2
13	250	7.9	230	3.4	120	2.5		3.1
14	240	7.9	240	---	110	2.2		3.2
15	230	7.1	---	---	120	1.9	2.0	3.1
16	230	7.0	---	---	---	---	1.7	3.1
17	230	5.9	---	---			1.3	3.0
18	250	4.3					1.2	2.9
19	260	3.7					1.2	2.9
20	270	3.2					1.3	2.9
21	300	2.6					1.3	2.8
22	300	2.7					1.4	2.8
23	300	2.6					1.4	2.8

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

Table 24

Graz, Austria (47.1°N, 15.5°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04	270	3.0						
05	250	2.8						
06	(265)	2.3						
07	270	3.0						
08	200	5.2						
09	200	6.9				(2.7)		
10	210	8.2				2.7		
11	220	8.3				(2.8)		
12	220	7.8				2.8		
13	220	7.8				2.8		
14	220	7.8				(2.7)		
15	210	7.2						
16	200	6.2						
17	220	4.9						
18	240	3.9						
19	250	3.2						
20	260	3.0						
21	(300)	3.0						
22								
23								

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

Table 25

Schwarzenburg, Switzerland (46.8°N, 7.3°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.1						3.1
01	300	3.1						3.1
02	280	3.2						3.2
03	270	3.1						3.3
04	250	3.0						3.4
05	230	2.8						3.5
06	230	2.4						3.5
07	260	2.5						3.4
08	210	4.0			---	---		3.7
09	200	6.0			130	2.0		4.0
10	200	7.1			110	2.4		3.9
11	200	7.8			110	2.6		3.8
12	200	7.9			110	2.7		3.9
13	200	7.4			100	2.6		3.9
14	210	7.5			100	2.6		3.8
15	200	7.5			100	2.4		3.8
16	200	7.0			---	---		3.8
17	200	5.4					2.8	3.7
18	200	4.4						3.7
19	230	3.5						3.6
20	240	3.2						3.7
21	250	2.9						3.4
22	300	3.0						3.2
23	300	3.2						3.2

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

Table 26

Ottawa, Canada (45.4°N, 75.7°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.6					1.7	2.8
01	300	2.4					1.6	2.8
02	300	2.4					1.7	2.8
03	300	2.4					1.6	2.8
04	300	2.4					1.7	2.8
05	280	2.3					1.7	2.9
06	300	2.3					2.2	2.9
07	280	2.5					1.7	2.9
08	240	4.6	---	---	120	1.8	2.0	3.2
09	230	6.0	220	---	120	2.3	2.4	3.2
10	240	6.8	220	3.3	120	2.5		3.2
11	250	7.7	230	3.7	120	2.7		3.2
12	240	7.6	220	3.6	120	2.7		3.2
13	240	8.0	230	3.5	120	2.6		3.2
14	240	8.0	230	3.4	120	2.5	2.7	3.1
15	240	8.3	---	---	120	2.3	2.4	3.2
16	230	7.6			---	---	2.1	3.2
17	230	6.6					1.7	3.0
18	230	5.5					1.7	3.0
19	240	4.5					1.7	3.1
20	250	3.4					1.6	3.0
21	280	3.0					1.7	2.9
22	300	2.8					1.6	2.8
23	300	2.7					1.6	2.8

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

Table 27

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.1					2.4	2.9
01	270	4.8					2.5	2.9
02	270	4.3					2.5	2.9
03	280	3.9					2.3	2.9
04	270	3.7					2.1	2.9
05	270	4.0			130	---	2.3	2.9
06	250	5.6	240	---	120	2.1	2.9	3.1
07	300	6.5	230	4.2	110	2.7	3.6	2.9
08	330	7.0	220	4.6	110	3.1	4.0	2.9
09	340	7.7	210	4.7	110	3.4	4.0	2.8
10	360	8.0	210	4.8	110	3.6	3.9	2.8
11	360	8.6	200	4.9	110	3.7	4.0	2.8
12	340	9.2	200	4.9	110	3.7	4.1	2.8
13	340	8.9	210	4.9	110	3.7	4.3	2.8
14	340	8.8	210	4.8	110	3.6	4.0	2.8
15	320	8.7	220	4.7	110	3.4	4.1	2.9
16	310	8.5	220	4.5	110	3.1	3.9	2.9
17	280	8.0	220	4.0	110	2.8	3.7	3.0
18	260	7.4	240	3.0	120	2.2	3.1	3.0
19	250	7.2			---	---	2.5	3.0
20	250	6.9					2.0	3.0
21	240	6.2					1.8	3.0
22	260	5.4					2.0	2.9
23	290	5.0					2.2	2.8

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

Table 28

Watheroo, W. Australia (30.3°S, 115.9°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.5					4.1	2.8
01	280	5.2					4.3	2.8
02	280	4.7					4.8	2.8
03	300	4.3					4.2	2.7
04	290	4.2					3.2	2.7
05	290	3.7	---	---		1.9	3.2	2.8
06	270	4.8	260	3.5		2.2	3.2	3.0
07	330	5.4	240	4.0		2.7	3.9	2.9
08	380	5.6	260	4.5		3.1	5.3	2.8
09	380	5.8	240	4.6		3.3	5.4	2.9
10	370	6.6	240	4.7		3.4	5.4	2.8
11	370	7.2	240	4.8		3.5	5.4	2.8
12	360	7.2	250	4.8		3.4	5.4	2.8
13	330	8.0	240	4.9		3.4	5.2	2.8
14	350	8.0	250	4.8		3.6	4.4	2.8
15	350	7.6	240	4.6		3.3	4.4	2.8
16	320	7.8	240	4.5		3.1	4.3	2.9
17	300	7.4	250	4.1		2.8	4.3	3.0
18	280	7.2	240	3.6		2.2	4.1	3.0
19	260	7.2					3.3	3.0
20	260	6.6					3.3	2.9
21	270	5.8					3.2	2.8
22	280	5.7					3.3	2.8
23	280	5.6					4.0	2.8

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

Table 29

Capetown, Union of S. Africa (34.2°S, 18.3°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.4					2.5	2.8
01	290	4.3					2.6	2.8
02	290	4.1					2.8	2.8
03	280	4.0					2.2	2.8
04	280	3.8					2.1	2.8
05	280	3.6						2.8
06	260	4.9	260	---	130	1.9		3.0
07	320	5.9	240	3.9	120	2.5		2.9
08	350	6.7	230	4.3	110	3.0	3.2	2.7
09	360	7.0	220	4.6	110	3.2	4.0	2.8
10	360	7.8	220	4.7	110	3.4	4.3	2.7
11	360	8.1	210	4.9	110	3.6	4.0	2.7
12	350	8.3	210	4.9	110	3.7	4.5	2.8
13	350	8.5	220	4.9	110	3.7	4.2	2.8
14	340	8.4	210	4.8	110	3.6	4.1	2.8
15	350	7.7	220	4.7	110	3.5	4.0	2.8
16	330	7.2	220	4.6	110	3.3	3.8	2.8
17	320	6.9	220	4.3	110	3.1	3.7	2.9
18	300	6.5	230	4.0	110	2.7	3.6	3.0
19	260	6.4	250	3.2	120	2.0	3.0	3.0
20	250	6.3					2.2	3.0
21	240	6.1					2.0	3.0
22	250	5.5					2.0	3.0
23	270	4.7					2.3	2.8

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

Table 30

Resolute Bay, Canada (74.7°N, 94.9°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.4						3.0
01	280	3.4						3.0
02	280	3.4						3.0
03	280	3.2						3.0
04	290	3.5						2.9
05	270	3.2						2.8
06	280	3.4						2.9
07	280	3.6						3.0
08	280	3.6						2.9
09	260	3.7						2.9
10	240	3.8						3.0
11	250	4.0						3.0
12	240	4.1						3.1
13	240	4.5						3.0
14	250	4.6						3.0
15	240	4.6						3.0
16	250	4.0						2.9
17	250	4.0						2.8
18	260	3.9						2.8
19	260	3.8						2.8
20	260	3.8						2.9
21	270	3.7						2.9
22	260	3.8						2.9
23	270	3.6						2.9

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

Table 31

Kiruna, Sweden (67.8°N, 20.5°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(3.8)					4.0	
01	(350)	3.8					3.8	
02	310	4.0					3.8	
03	300	3.8					3.4	
04	290	3.9					2.0	
05	290	3.4					2.0	
06	270	2.8					1.9	
07	260	2.9						
08	250	3.8						
09	230	4.6			---	---		
10	230	5.5	---	---	---	2.0	1.9	
11	225	6.0	---	---	---	2.0	1.9	
12	220	6.3	---	---	110	2.0	1.9	
13	225	5.8			---	1.9		
14	220	5.2			---	---		
15	230	4.2					1.3	
16	240	4.0					2.8	
17	240	3.2					4.0	
18	275	3.5					3.8	
19	(250)	(3.4)					4.2	
20	(285)	(3.3)					4.1	
21	(265)	(3.5)					4.4	
22	---	(3.2)					4.2	
23	---	(3.6)					4.4	

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

Table 32

Fort Chimo, Canada (58.1°N, 68.3°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.5			---	---	4.3	---
01	300	[illegible]			120	2.2	4.1	---
02	(330)	[illegible]			100	---	4.2	---
03	(320)	3.0			100	3.2	4.2	---
04	(310)	[illegible]			100	3.2	3.7	(2.9)
05	330	3.3			100	2.4	4.0	---
06	300	3.2			100	3.6	4.2	---
07	280	3.6			---	---	3.3	2.9
08	250	5.0	---	---	---	---	3.0	3.1
09	240	5.7	---	---	110	2.2	2.9	3.0
10	250	6.5	220	---	---	---	3.0	3.1
11	240	7.3	220	---	---	---	3.1	3.0
12	250	7.8	240	---	100	2.7	2.7	3.0
13	260	7.0	---	---	110	2.6	2.8	3.0
14	240	6.0	---	---	120	2.7	2.4	3.0
15	270	4.0			100	2.4	2.0	3.0
16	310	3.8			100	3.0	3.6	(2.8)
17	300	3.3			100	2.9	4.8	---
18	280	3.7			100	3.2	5.8	---
19	220	3.2			---	---	4.8	---
20	300	3.2			---	---	5.0	---
21	260	3.0			---	---	4.4	---
22	300	3.2			100	2.8	5.6	---
23	290	3.0			---	---	4.0	---

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

Table 33

Prince Rupert, Canada (54.3°N, 130.3°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	1.8					1.3	3.0
01	300	1.8			---	---	1.4	2.8
02	310	1.7			---	---	1.7	2.8
03	300	1.7			---	---	3.0	3.0
04	(340)	1.8			---	---	3.5	2.9
05	(350)	2.1			---	---	3.8	2.9
06	320	2.2			---	---	2.0	2.9
07	310	2.0			---	---	1.5	2.8
08	280	5.2	---	---	120	1.8	1.8	3.2
09	260	4.6	---	---	120	2.1	1.8	3.3
10	250	5.6	250	3.6	110	2.1	2.0	3.4
11	260	7.0	250	3.7	110	2.5		3.3
12	260	7.4	240	3.8	120	2.5		3.2
13	260	7.5	250	3.6	120	2.6		3.2
14	250	8.0	260	3.3	120	2.5		3.3
15	240	8.0	---	---	130	2.2		3.4
16	240	7.8			---	2.0	2.0	3.3
17	230	6.9			---	1.7	1.8	3.4
18	230	5.9			---	---	1.6	3.4
19	230	4.0			---	---	1.6	3.5
20	240	2.8			---	---	1.4	3.3
21	270	2.2			---	---	1.5	3.3
22	280	2.0			---	---	1.5	3.1
23	300	1.9					1.3	3.0

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

Table 34

Wakkanai, Japan (45.4°N, 141.7°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	3.6						2.6
01	360	3.7						2.6
02	350	3.8						2.6
03	330	3.9						2.7
04	320	3.8						2.8
05	300	3.9						2.9
06	320	3.7						2.8
07	270	6.2			---	---		3.1
08	270	8.1	---	---	120	2.2	[illegible]	3.1
09	270	8.8	---	---	120	[illegible]		3.1
10	270	9.0	210	---	120	2.7		3.1
11	280	8.8	270	---	120	2.8		3.1
12	270	8.6	---	---	130	2.9		3.1
13	270	8.4	---	---	120	2.9		3.1
14	270	8.2			130	2.7		3.1
15	270	7.9			120	[illegible]		3.2
16	260	7.[illegible]			---	---		3.2
17	240	5.0						3.1
18	290	4.1						2.9
19	290	3.8						2.9
20	300	3.5						2.9
21	320	3.4						2.8
22	320	3.6						2.8
23	350	3.6						2.7

Time: 135.0°E.
Sweep: 1.5 Mc to 17.5 Mc in 2 minutes.

Table 35

Akita, Japan (39.7°N, 140.1°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.5					2.0	2.8
01	300	3.5					2.2	2.8
02	300	3.7					2.1	2.8
03	280	3.8					2.2	2.9
04	270	3.6					1.5	3.0
05	260	3.5					1.4	3.0
06	250	3.8						3.0
07	220	6.9	---	---	120	1.9	2.0	3.4
08	230	8.1	220	---	110	2.4	2.8	3.4
09	230	9.4	220	---	110	2.8	3.4	3.4
10	240	9.6	220	---	110	3.0		3.3
11	240	10.3	220	---	110	3.1		3.3
12	240	9.3	220	---	110	3.2		3.3
13	240	9.0	220	---	110	3.0		3.3
14	240	8.8	230	---	110	2.8	3.0	3.3
15	230	8.3	---	---	110	2.4	3.2	3.4
16	220	6.9	---	---	110	1.9	2.2	3.5
17	220	5.3					2.2	3.3
18	230	4.2					2.6	3.2
19	240	3.9					2.6	3.2
20	250	3.4					2.4	3.1
21	280	3.3					2.5	3.0
22	290	3.5					2.5	3.0
23	300	3.4					2.4	2.8

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

Table 36

Tokyo, Japan (35.7°N, 139.5°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	[illegible]	3.3					2.2	[illegible]
01	[illegible]	3.4					2.3	2.8
02	[illegible]	[illegible]					2.0	2.8
03	[illegible]	3.6					[illegible]	[illegible]
04	260	3.3					2.1	3.0
05	[illegible]	3.3					1.6	[illegible]
06	[illegible]	[illegible]					1.5	[illegible]
07	[illegible]	[illegible]	---	---	120	[illegible]	[illegible]	3.3
08	[illegible]	[illegible]	---	---	120	2.4	[illegible]	3.3
09	260	[illegible]	[illegible]	---	110	[illegible]		3.2
10	260	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	3.2
11	[illegible]	[illegible]	230	---	110	3.2		3.2
12	[illegible]	[illegible]	230	---	110	[illegible]		[illegible]
13	260	[illegible]	240	---	[illegible]	[illegible]		3.2
14	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]		3.3
15	[illegible]	8.3	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]			110	[illegible]	[illegible]	3.4
17	220	[illegible]					[illegible]	3.2
18	230	[illegible]					[illegible]	3.2
19	240	3.7					2.4	3.1
20	250	3.4					2.4	3.1
21	280	3.3					2.2	2.9
22	300	3.2					2.4	[illegible]
23	300	3.3					[illegible]	2.7

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

Table 37

Yamagawa, Japan (31.2°N, 130.6°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.3						2.7
01	300	3.4					2.0	2.8
02	270	3.4						2.8
03	260	3.4						2.9
04	250	3.6						3.1
05	250	2.9					2.4	2.8
06	300	3.0						2.8
07	250	4.9			---	1.6	2.2	3.1
08	240	7.9	---	---	110	2.3	3.0	3.4
09	250	8.4	220	---	100	2.7	3.8	3.3
10	250	9.2	220	---	100	3.0	4.1	3.2
11	250	10.8	220	---	100	3.2	4.3	3.2
12	260	11.2	220	---	100	3.2	4.2	3.2
13	260	11.3	230	5.0	100	3.2	4.4	3.2
14	250	10.4	230	---	100	3.1	4.3	3.3
15	240	9.6	220	---	100	2.8	3.8	3.3
16	230	8.2	---	---	110	2.3	3.3	3.4
17	220	7.1			120	1.7	3.0	3.4
18	200	5.2					2.7	3.2
19	220	4.6					2.4	3.1
20	240	4.3					2.2	3.0
21	250	3.8					2.0	3.0
22	270	3.3						2.8
23	300	3.2						2.8

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

Table 38

Formosa, China (25.0°N, 121.5°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.7						3.3
01	260	4.8						3.6
02	260	3.9						3.6
03	250	4.2						3.7
04	250	3.0						3.8
05	320	2.9						3.2
06	290	3.6						3.4
07	240	7.4	230	4.3	130	2.7	3.0	3.8
08	240	9.0	230	4.3	120	3.1	3.5	3.8
09	240	9.6	210	4.4	110	3.5	3.9	3.7
10	240	10.8	200	4.7	110	3.4	4.3	3.7
11	240	12.2	200	4.8	110	3.4	4.3	3.5
12	250	14.0	200	5.1	110	3.5	4.5	3.5
13	240	13.8	200	4.8	110	---	4.3	< 3.7
14	240	13.8	210	4.5	110	3.2	4.3	3.5
15	240	13.1	200	4.3	120	3.0	3.9	< 3.7
16	230	12.1	210	4.2	120	2.9	3.7	3.8
17	220	11.6	---	---	120	---	2.9	3.9
18	200	8.8	---	---				3.8
19	200	7.6						3.7
20	240	7.6						3.8
21	240	6.6						3.7
22	250	5.4						3.5
23	270	4.8						3.3

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

Table 39

Brisbane, Australia (27.5°S, 153.0°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	7.3					3.8	2.9
01	250	6.8					4.0	3.0
02	250	6.0					3.2	2.9
03	260	5.9					2.5	2.8
04	250	5.2						2.9
05	250	5.0			130	1.7		3.1
06	240	5.8	230	3.4	110	2.5		3.2
07	280	6.4	220	4.4	100	3.0		3.1
08	330	6.8	215	4.7	100	3.3		2.9
09	320	8.0	210	4.8	100	3.4	3.8	2.8
10	310	8.7	200	5.0	100	3.5	4.4	2.9
11	310	9.5	200	5.1	100	---	4.4	2.9
12	310	9.4	220	5.1	100	3.8	4.4	2.8
13	300	9.4	200	5.0	100	3.7	4.2	2.9
14	300	9.5	230	4.9	100	3.5		3.0
15	290	9.0	230	4.7	100	3.4		3.0
16	270	8.4	230	4.5	100	3.0		3.1
17	265	8.0	240	3.8	110	2.6		3.0
18	250	8.0			---	---	4.2	3.0
19	250	7.7					4.2	2.8
20	270	7.6					3.6	2.8
21	290	7.6					4.0	2.8
22	290	7.4					4.4	2.8
23	280	7.6					4.1	2.8

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

Table 40

Watheroo, W. Australia (30.3°S, 115.9°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.4					3.7	2.8
01	270	5.3					3.6	2.8
02	260	4.9					4.2	2.8
03	270	4.3					4.0	2.8
04	270	4.0					3.2	2.8
05	280	4.0	---	---		---	3.0	2.8
06	260	4.7	250	3.6		2.2	2.6	3.1
07	340	5.4	240	4.2		2.7	3.2	2.9
08	330	6.0	240	4.5		3.1	4.1	2.9
09	360	6.4	220	4.7		3.3	4.9	3.0
10	400	6.7	230	4.8		3.4	5.0	2.8
11	390	6.6	230	4.8		3.4	4.8	2.8
12	360	7.6	230	5.0		3.6	4.6	2.8
13	340	7.6	230	4.9		3.5	4.5	2.8
14	320	7.5	240	4.8		3.5	4.2	2.9
15	350	7.2	240	4.6		3.3	4.4	2.9
16	320	7.7	240	4.4		3.0	4.6	3.0
17	290	7.9	240	4.0		2.6	3.7	3.0
18	260	7.4	---	---		---	3.4	3.1
19	250	7.3					3.4	3.1
20	240	6.5					3.0	2.9
21	260	5.7					3.2	2.8
22	290	5.6					4.0	2.7
23	280	5.7					3.9	2.8

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

Table 41

Hobart, Tasmania (42.8°S, 147.4°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.5						2.6
01	260	5.0						2.8
02	250	4.5					2.1	2.8
03	255	3.8					1.8	2.8
04	280	3.5					2.0	2.8
05	260	4.1			120	1.7	2.5	3.0
06	250	4.7			100	2.5		3.1
07	245	5.1	---	---	100	3.0		3.0
08	360	5.6	230	4.5	100	3.2		2.8
09	350	6.1	220	4.7	100	3.5		2.8
10	350	6.5	220	4.8	100	3.5	3.9	2.8
11	350	7.0	200	5.0	100	3.5	4.0	2.8
12	345	7.0	200	5.0	100	3.5	4.1	2.9
13	340	7.0	205	5.0	100	3.5	4.0	2.9
14	350	7.0	210	4.9	100	3.5	3.8	2.8
15	350	7.0	215	4.6	100	3.5	3.6	2.8
16	320	7.0	230	4.5	100	3.2		2.9
17	250	7.2	245	4.5	100	3.0		2.9
18	250	7.3			110	2.3		3.0
19	250	7.1					4.0	2.9
20	250	7.0					4.6	2.9
21	250	6.6					4.0	2.8
22	270	5.8					3.5	2.7
23	290	5.5						2.7

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

Table 42

Lindau/Harz, Germany (51.6°N, 10.1°E) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.3					2.7	2.7
01	300	3.0					2.6	2.7
02	300	3.0					2.8	2.7
03	300	2.9					2.7	2.7
04	280	2.8					3.0	2.8
05	260	2.4					2.8	2.9
06	280	2.4					2.8	2.9
07	240	4.3	---	---	---	E	2.8	3.2
08	240	5.5	240	---	100	2.7	3.2	3.3
09	240	6.0	220	3.9	100	2.5	3.8	3.3
10	260	7.2	210	4.0	100	2.8	3.8	3.2
11	250	7.7	210	4.1	100	2.9	3.9	3.2
12	250	7.9	210	4.2	100	3.0	3.9	3.2
13	250	7.4	210	4.2	100	3.0	3.9	3.2
14	240	7.6	220	---	100	2.8	3.9	3.2
15	240	7.6	230	---	100	2.6	3.9	3.2
16	230	7.3	---	---	100	2.3	3.2	3.2
17	220	7.1			---	E	3.5	3.2
18	230	6.6					2.8	3.1
19	220	5.6					2.8	3.1
20	230	4.5					2.5	3.0
21	260	3.8					2.6	2.9
22	290	3.4					2.4	2.8
23	300	3.2					2.4	2.7

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

Table 43°

Slough, England (51.5°N, 0.6°W) — October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	3.0					2.4	2.6
01	315	3.0					2.9	2.6
02	315	2.9					2.6	2.6
03	310	2.7					2.6	2.6
04	295	2.4					2.9	2.7
05	295	2.3					3.1	2.8
06	275	3.0					3.2	2.9
07	255	4.7	255	3.0	135	1.9	3.5	3.2
08	270	5.7	245	3.5	125	2.3	3.5	3.2
09	275	6.8	240	3.9	120	2.6	4.2	3.2
10	275	7.3	230	4.1	125	2.8	4.5	3.2
11	275	7.7	220	4.2	125	2.9	4.5	3.2
12	275	7.9	225	4.2	120	3.0	4.5	3.2
13	260	7.7	230	4.1	125	3.0	4.5	3.2
14	260	7.8	235	3.9	125	2.8	4.2	3.2
15	255	7.6	240	3.8	125	2.6	3.9	3.2
16	245	7.4	250	3.3	125	2.2	3.9	3.2
17	240	7.1			135	1.9	3.5	3.2
18	250	6.5					3.1	3.1
19	250	5.3					2.5	3.0
20	265	4.2					2.6	2.9
21	295	3.6					2.3	2.7
22	320	3.2					2.3	2.6
23	315	3.2					2.4	2.6

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

Table 44

Graz, Austria (47.[illegible]°N, 15.[illegible]°E) — October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04	290	3.5						
05	250	2.9						
06	260	3.4						
07	220	5.2						
08	220	6.8	200	(3.5)		2.7		
09	230	7.5	200	4.0	100	3.0	3.6	
10	240	8.1	200	(4.1)	100	3.1	3.8	
11	240	8.4	200	(4.1)	100	3.2	3.4	
12	240	8.4	200	4.1	100	3.2		
13	240	8.2	200	(4.1)	110	3.0		
14	230	8.0	210		100	3.0		
15	230	8.0	230			2.9		
16	220	7.8				(2.6)		
17	215	7.2						
18	220	6.6						
19	230	5.4						
20	250	3.9						
21	290	3.8						
22								
23								

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

Table 45°

Singapore, British Malaya (1.3°N, 103.8°E) — October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	6.5						2.9
01	260	6.0						2.9
02	270	5.6						2.9
03	260	5.4						2.9
04	260	4.4						3.0
05	250	3.7						3.2
06	260	5.6						3.1
07	260	8.6	240		130	2.6	3.5	3.1
08	285	9.5	230		120	3.1	4.2	2.7
09	310	9.8	215	4.6	120	3.5	4.2	2.3
10	335	10.0	210	4.9	120#	3.9	4.2	2.1
11	330	9.9	205	4.9	120#	4.1	3.4	2.4
12	340	10.1	205	4.9	120#	4.1#	4.0	2.3
13	330	10.4	200	4.8	120#	3.8#	3.9	2.3
14	330	10.9	210	4.8	115#	3.3#	4.1	2.4
15	310	11.1	220	4.5	120	3.0	4.0	2.6
16	300	11.1	240	4.2#	120	3.0	3.8	2.5
17	290	11.1	250		125	2.5	3.1	2.6
18	285	11.1					2.6	2.5
19	315	11.0						2.5
20	290	10.9						2.7
21	260	(11.1)						2.9
22	225	11.0						3.3
23	210	9.4						3.2

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
° Average values except foF2 and fEs, which are median values.
One or two observations only.

Table 46

Brisbane, Australia (27.5°S, 153.0°E) — October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.3					2.5	2.9
01	250	5.8						2.9
02	240	5.0						2.9
03	270	4.6						2.8
04	280	4.5						2.8
05	280	4.6						2.9
06	250	6.0	250	----	120	2.3		3.2
07	270	7.2	230	4.4	110	2.7		3.2
08	270	8.0	220	4.7	110	3.2		3.2
09	290	8.1	210	4.7	105	3.4		3.1
10	300	8.1	210	4.9	100	3.5		3.1
11	300	8.4	200	5.0	100	3.6		3.0
12	300	9.0	200	5.0	100	3.7		3.0
13	300	8.7	220	4.9	110	3.6		3.0
14	290	8.4	220	4.8	110	3.5		3.0
15	290	8.3	230	4.6	110	3.3		3.0
16	270	8.0	230	4.3	110	2.9		3.1
17	250	7.6	250	3.4	120	2.3		3.0
18	250	7.7			---	---		3.0
19	250	7.3					3.0	2.9
20	260	7.2					2.5	2.8
21	290	7.0					2.9	2.8
22	280	7.0					2.0	2.8
23	280	6.6						2.8

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

Table 47

Hobart, Tasmania (42.8°S, 147.4°E) — October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.5						2.8
01	270	4.0						2.8
02	260	3.6						2.8
03	260	3.2					1.4	2.9
04	280	2.8						2.8
05	290	3.0						2.9
06	250	4.5			110	2.0		3.0
07	250	4.9	---	---	100	2.6		3.0
08	350	5.3	230	4.5	100	3.0		2.9
09	350	5.6	220	4.5	100	3.2		2.9
10	340	6.2	210	4.6	100	3.5		2.9
11	330	6.5	200	4.6	100	3.5		2.9
12	320	6.9	200	4.7	100	3.5		2.9
13	330	7.0	210	4.7	100	3.5		2.9
14	310	7.0	210	4.5	100	3.5		3.0
15	300	7.0	220	4.5	100	3.3		3.0
16	280	7.0	230	4.4	100	3.0		2.9
17	250	7.0	---	---	100	2.5		3.0
18	250	7.1			120	1.9		3.0
19	240	7.0			---	E		2.9
20	250	6.5						2.9
21	250	5.9						2.7
22	250	5.5						2.7
23	270	4.8						2.7

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

Table 48

Fribourg, Germany (48.1°N, 7.8°E) — September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	4.0					2.4	2.6
01	< 310	3.7					2.2	2.6
02	310	3.6					2.4	2.6
03	300	3.5					2.3	2.6
04	285	3.2					2.1	2.7
05	270	2.8					2.4	2.7
06	265	4.0	< 270	---	123	< 1.6	3.0	3.0
07	280	5.0	250	3.6	119	2.4	3.2	3.0
08	320	5.4	250	4.1	116	2.8	3.1	3.0
09	340	5.4	235	4.4	115	3.0	3.3	3.0
10	325	6.4	245	4.6	118	3.2	3.2	3.0
11	355	6.5	230	4.6	115	3.4	3.2	2.9
12	330	6.7	235	4.7	115	3.4	3.3	2.9
13	330	6.4	255	4.7	114	3.3	3.7	3.0
14	320	7.0	240	4.6	111	3.2	3.4	3.0
15	315	6.8	240	4.6	114	3.0	3.4	2.9
16	< 305	6.7	250	4.3	115	2.9	2.4	3.0
17	280	6.9	260	---	121	2.2	3.1	3.0
18	270	6.8	---	---	---	< 1.7	3.0	3.0
19	270	7.0					2.7	2.9
20	260	6.1					2.2	3.0
21	255	5.0					2.4	2.8
22	< 290	4.4					2.2	2.7
23	300	4.2					2.2	2.7

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

Table 49

Delhi, India (28.6°N, 77.1°E) September 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00	320	5.8						3.3
01	(330)	(5.6)						
02	---	---						
03	---	---						
04	300	5.9						3.5
05	280	6.0						
06	280	6.8						
07	270	8.0						
08	280	8.7						3.6
09	280	9.1						
10	300	10.3						
11	320	10.8						
12	320	11.4						3.3
13	320	12.0						
14	320	12.1						
15	320	11.5						
16	300	11.2						3.3
17	310	10.8						
18	300	10.0						
19	300	9.0						
20	310	7.9						3.4
21	320	7.1						
22	320	6.5						3.3
23	320	6.0						

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 50

Bombay, India (19.0°N, 73.0°E) September 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06								
07	300	8.1						
08	330	9.6						3.2
09	360	10.2						
10	390	11.5						
11	420	12.4						
12	420	12.9						2.6
13	450	13.3						
14	450	13.8						
15	440	14.2						
16	420	14.3						2.7
17	390	14.0						
18	360	13.6						
19	360	12.9						
20	360	12.4						2.9
21	360	10.3						
22	360	9.2						2.9
23	340	8.4						

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 51

Dakar, French West Africa (14.6°N, 17.4°W) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	6.0					2.6	2.8
01	300	6.2						3.1
02	290	5.2						2.8
03	290	4.5						2.8
04	265	4.5						3.1
05	235	4.1						3.3
06	245	5.4			146	1.7		3.3
07	245	7.6	235	---	111	2.6		3.4
08	260	8.6	220	---	105	3.1	3.6	3.4
09	285	9.8	220	5.2	107	3.4	3.6	3.2
10	305	11.0	210	5.2	104	3.6		3.1
11	320	11.8	210	5.4	103	3.9	3.8	2.9
12	330	> 13.0	200	5.5	101	3.9		2.7
13	330	13.6)	210	5.5	102	3.8		2.7
14	345	13.6)	220	5.3	103	3.7		< 2.7
15	320	> 14.0	225	---	105	3.4	3.5	< 2.8
16	300	> 14.0	235	---	105	3.0	3.5	(2.7)
17	260	> 14.0	250	---	111	2.5	3.8	3.0
18	255	12.8			---	---	3.5	3.0
19	275	12.0					3.0	2.8
20	300	9.5					2.4	2.7
21	320	8.2						2.7
22	325	6.8						2.7
23	315	6.5					2.7	2.8

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

Table 52

Madras, India (13.0°N, 80.2°E) September 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06								
07	360	8.2						
08	390	9.6						2.8
09	420	10.2						
10	450	10.2						
11	450	10.2						
12	480	10.2						2.5
13	480	10.4						
14	480	11.6						
15	480	12.2						
16	480	12.8						2.5
17	480	12.8						
18	480	12.5						
19	440	11.9						
20	420	11.8						2.6
21	400	(10.5)						
22	(360)	(10.2)						
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 53

Tiruchy, India (10.8°N, 78.8°E) September 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06	360	[illegible]						
07	390	[illegible]						
08	450	10.2						2.5
09	510	10.1						
10	510	9.8						
11	540	10.0						
12	540	9.9						2.4
13	540	10.4						
14	570	10.9						
15	560	11.0						
16	540	11.0						2.5
17	540	11.2						
18	540	10.9						
19	540	10.7						
20	510	10.3						2.4
21	480	10.1						
22	(480)	9.4						
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 54

Townsville, Australia (19.3°S, 146.8°E) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	(4.8)					2.1	(3.3)
01	250	4.6					2.2	3.2
02	240	4.4					2.0	3.4
03	240	3.4					2.2	3.0
04	290	3.1					2.5	2.9
05	280	3.2					2.1	3.0
06	280	3.6			---	1.3	2.1	3.2
07	250	(6.7)			130	2.2	3.0	(3.3)
08	(260)	(8.6)	230	4.6	110	2.8	3.4	(3.4)
09	260	(9.5)	230	4.7	110	3.2	3.0	(3.5)
10	260	(10.2)	230	4.8	110	3.4		(3.3)
11	270	9.0	220	4.9	110	---		3.2
12	270	9.0	210	4.9	110	3.7	(3.5)	3.2
13	300	8.8	200	4.8	110	3.6	3.3	3.1
14	290	8.6	200	4.7	110	3.4	4.2	3.1
15	280	8.2	210	4.8	120	3.3	3.8	3.2
16	(280)	7.5	230	4.5	120	2.9	3.7	3.2
17	250	(7.4)	240	---	120	2.5	3.2	3.2
18	250	6.7			160	1.9	3.0	(3.2)
19	250	(5.8)					2.8	(3.1)
20	260	(5.8)					2.2	(3.2)
21	280	---					2.1	---
22	270	---					2.1	---
23	265	(4.7)					2.2	---

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

Table 55

Canberra, Australia (35.3°S, 149.0°E) September 1951*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.2					2.3	3.0
01	265	4.0					2.5	3.0
02	260	3.9					2.6	3.0
03	250	3.7					2.4	3.1
04	250	3.3					2.3	3.0
05	260	3.0					2.1	3.0
06	260	3.4					2.4	3.1
07	250	4.8			100	2.2		3.4
08	250	6.3	230	4.0	100	2.8		3.4
09	280	6.6	220	4.4	100	3.1		3.4
10	270	7.1	220	4.5	100	3.3		3.3
11	280	7.5	220	4.7	100	3.5		3.3
12	290	7.3	215	4.6	100	3.6		3.3
13	280	7.6	210	4.6	100	3.6		3.4
14	275	7.6	200	4.6	100	3.4		3.3
15	270	7.0	220	4.4	100	3.2		3.4
16	250	6.9	210	3.6	100	2.8	3.0	3.3
17	240	6.6	---	---	100	2.3	2.4	3.3
18	240	6.0					2.4	3.2
19	250	5.8					2.3	3.0
20	250	5.4						3.0
21	260	4.8						3.0
22	270	4.6					2.5	3.0
23	270	4.4					2.6	2.9

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*No record 26th through 30th.

Table 56*

Falkland Is. (51.7°S, 57.8°W) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	4.1						2.5
01	350	4.0						2.5
02	340	4.0						2.6
03	310	3.9						2.7
04	300	3.5						2.7
05	300	3.5						2.7
06	250	4.8						3.1
07	240	6.3	250#	4.0#	150	2.3		3.3
08	240	7.0	250#	4.3#	130	2.6	3.0	3.3
09	240	7.8	230	4.0#	120	2.9	3.9	3.2
10	260	8.4	230	4.6	120	3.1	4.0	3.2
11	270	8.8	230	4.9	120	3.1	4.2	3.1
12	260	9.2	220	4.7	110	3.1	4.2	3.1
13	260	9.3	220	4.4	120	3.2	4.2	3.2
14	260	8.8	230	4.2	120	3.1	3.7	3.2
15	250	8.4	220	3.7	120	2.8		3.2
16	240	7.8			130	2.5		3.3
17	240	7.3			---	2.3#	2.8	3.3
18	230	6.3					2.8	3.3
19	260	5.0					2.7	3.0
20	280	4.6						2.8
21	310	4.3						2.7
22	350	4.3						2.5
23	360	4.2						2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
One or two observations only.

Table 57

Canberra, Australia (35.3°S, 149.0°E) August 1951*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.4					2.8	(3.0)
01	260	3.4					3.0	(2.9)
02	260	3.3					2.7	(2.9)
03	260	3.4					3.1	(3.0)
04	250	3.4					2.5	(3.0)
05	250	3.0					2.5	(3.0)
06	(240)	2.8						(3.1)
07	230	4.6			---	1.7	2.5	3.5
08	225	6.0	---	---	110	2.4		3.5
09	250	6.6	220	4.0	110	2.9		3.4
10	250	6.8	210	4.5	100	3.1		3.4
11	260	7.0	200	4.5	100	3.3		3.4
12	270	7.3	200	4.5	100	3.3	3.2	3.4
13	290	6.7	200	4.5	100	3.3		3.3
14	260	7.6	200	4.5	100	3.3		3.4
15	250	7.2	210	4.1	100	3.0		3.5
16	240	6.9	220	---	100	2.5	2.8	3.4
17	220	6.2			---	1.8	2.6	3.4
18	220	5.8					3.2	3.2
19	230	5.1					3.0	3.2
20	230	4.7					2.7	3.2
21	250	3.9					2.5	3.1
22	250	3.5					2.7	3.0
23	(260)	3.4						(3.0)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*No record 10th through 26th.

Table 58

Fribourg, Germany (48.1°N, 7.8°E) July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	5.8					2.3	2.7
01	280	5.5					2.1	2.7
02	280	5.0					2.5	2.7
03	280	4.7					2.2	2.7
04	300	4.4	---	---	---	---	2.1	2.8
05	325	4.8	265	3.2	127	1.9	2.6	2.8
06	330	5.5	245	3.8	115	2.5	3.3	2.9
07	340	6.0	240	4.3	109	2.8	3.8	3.0
08	350	5.9	235	4.6	109	3.2	4.8	2.9
09	370	6.4	230	4.9	107	3.3	4.6	2.8
10	370	6.5	230	4.8	107	3.4	4.5	2.8
11	370	6.5	225	4.8	107	3.6	5.0	2.9
12	365	6.3	230	5.0	105	3.6	5.0	2.8
13	380	6.6	230	4.9	108	3.6	4.5	2.8
14	360	6.5	230	4.8	109	3.5	4.2	2.9
15	350	6.3	230	4.8	107	3.4	4.1	2.9
16	340	6.4	250	4.6	109	3.2	4.0	2.9
17	320	6.5	245	4.4	109	2.9	3.6	2.9
18	315	6.8	250	4.0	115	2.5	3.8	2.9
19	290	7.1	260	3.0	122	2.0	3.7	2.9
20	270	7.4					4.0	2.9
21	270	7.4					3.2	2.8
22	265	7.0					2.8	2.9
23	270	6.3					2.4	2.8

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

Table 59

Baton Rouge, Louisiana (30.5°N, 91.2°W) July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.0					3.2	2.8
01	290	4.6					3.2	2.8
02	280	4.3					3.1	2.8
03	290	4.0					3.0	2.8
04	300	3.9					2.8	2.9
05	300	3.5					3.1	2.9
06	290	4.4	260	---	120	(2.1)	3.6	3.0
07	320	5.4	240	4.0	120	2.6	5.9	3.0
08	340	6.1	230	4.2	120	3.0	4.9	3.0
09	350	6.2	210	4.4	110	3.1	4.0	2.9
10	360	6.4	(220)	(4.6)	110	3.3	4.0	2.8
11	400	6.4	240	(4.8)	110	3.4	3.9	2.7
12	390	6.6	---	(5.0)	110	(3.4)	3.8	2.7
13	400	6.9	---	5.0	110	(3.4)	3.6	2.7
14	380	7.0	---	(4.8)	110	3.3	3.6	2.7
15	370	7.0	220	4.6	110	3.3		2.8
16	340	6.8	240	(4.4)	110	3.1	3.7	2.9
17	350	6.6	240	4.1	120	2.8	3.8	2.9
18	300	6.7	250	(3.6)	120	2.2	4.0	3.0
19	270	6.6					4.4	3.0
20	260	6.8					3.6	2.9
21	260	6.2					2.8	2.9
22	280	5.5					3.6	2.9
23	290	5.1					3.2	2.8

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

Table 60

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.7						2.9
01	260	5.4						2.9
02	250	5.4					2.8	3.0
03	260	5.0	---	---			2.9	3.0
04	280	4.9	230	---		1.6	3.0	3.0
05	280	5.5	215	---		2.1	3.2	3.1
06	290	6.0	210	4.0		2.6	3.3	3.1
07	300	6.4	200	4.2		3.0	4.3	3.1
08	300	6.9	200	4.3		3.1	4.1	3.1
09	300	7.0	200	4.4		3.2	4.0	3.2
10	300	6.8	195	4.8		3.2	4.2	3.1
11	315	6.4	180	4.8		3.2	4.2	3.0
12	325	6.6	190	4.8		3.2	3.8	3.0
13	315	6.8	200	4.8		3.2		3.0
14	320	6.4	200	4.5		3.2	3.3	3.1
15	300	7.0	200	4.5		3.1		3.1
16	300	6.8	200	4.4		3.0		3.1
17	290	6.7	200	4.2		2.8	4.3	3.2
18	260	7.0	210	---		2.5	4.3	3.2
19	240	7.0	225	---		1.8	3.5	3.2
20	230	7.0	---	---		---	3.8	3.1
21	230	7.2					3.3	3.1
22	230	6.8					2.8	3.1
23	255	6.3					2.7	2.9

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

Table 61

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	6.0						---
01	320	5.7						---
02	310	5.6						---
03	310	5.4						(2.8)
04	300	5.2						(2.8)
05	280	5.4	---	3.4				(3.0)
06	320	6.0	230	3.8			3.8	3.0
07	310	6.5	230	4.1			4.2	(3.0)
08	315	7.2	230	4.6			4.9	(3.1)
09	320	6.8	230	4.7			5.1	3.0
10	320	7.0	220	4.8			5.1	3.0
11	335	6.8	220	4.7			4.8	3.0
12	350	6.7	230	4.8			4.6	3.0
13	330	7.0	225	4.8			4.2	3.0
14	330	6.8	220	4.8			3.8	3.0
15	330	7.1	230	4.7			4.3	3.0
16	320	7.0	230	4.4			4.0	2.9
17	300	7.0	230	4.2			4.6	3.0
18	280	7.2	---	---			4.8	3.0
19	270	7.2					4.7	---
20	270	7.5						2.9
21	280	7.1					4.1	---
22	280	6.6						---
23	300	6.4						---

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

Table 62

Dakar, French West Africa (14.6°N, 17.4°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	335	4.1					3.0	(2.6)
01	325	3.9					3.0	2.7
02	345	3.7					3.1	2.6
03	340	3.7					2.6	2.6
04	310	3.7					2.8	2.9
05	290	3.6					2.5	2.9
06	245	5.8	---	---	119	2.0	3.1	3.2
07	250	6.8	230	---	111	(2.7)	4.0	3.2
08	290	7.6	230	4.7	111	(3.4)	5.4	3.0
09	310	7.6	230	---	109	3.6	6.1	2.9
10	355	8.4	225	5.1	109	3.8	5.0	2.5
11	390	9.5	220	5.1	107	3.9	5.9	2.5
12	425	10.8	210	5.2	107	4.0	6.2	2.6
13	425	11.6	220	5.3	109	3.9	5.1	2.6
14	370	12.2	230	5.1	109	3.8	5.2	2.7
15	350	12.4	225	5.0	109	3.6	6.1	2.7
16	320	12.5	240	5.0	109	3.3	5.0	2.7
17	310	12.2	245	---	111	2.8	4.6	2.8
18	270	11.6	260	---	---	2.0	3.9	2.8
19	280	8.4					3.8	(2.8)
20	345	6.4					2.6	2.5
21	380	5.8						2.5
22	370	5.5						2.4
23	360	5.5					2.0	(2.5)

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

Table 63

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.5					2.2	
01	260	4.4					2.8	
02	260	4.8						
03	260	4.6						
04	250	4.8						
05	260	5.2					2.6	
06	255	5.4					3.0	
07	260	4.8					2.9	
08	250	5.4					4.0	
09	260	4.5					3.7	
10	260	3.9					3.5	
11	270	3.5					2.3	
12	260	3.6					2.6	
13	260	3.5						
14	300	2.9					2.9	
15	280	3.0						
16	275	2.8					2.3	
17	280	2.9					2.6	
18	200	2.4					3.0	
19	280	2.7					3.7	
20	300	2.8					3.4	
21	300	2.8					3.7	
22	270	3.0					2.9	
23	280	3.2					3.0	

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

Table 64

Winnipeg, Canada (49.9°N, 97.4°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.1					2.0	(2.8)
01	330	3.0					3.0	(2.6)
02	320	3.0					3.0	(2.8)
03	320	3.1					2.8	(2.6)
04	300	(3.1)					2.5	---
05	280	3.8			---	---	2.0	(2.8)
06	300	4.0	240	3.5	120	(2.3)	2.0	2.8
07	370	4.6	230	4.0	110	2.8		(2.8)
08	430	5.2	230	4.2	110	(3.0)	3.2	2.6
09	430	5.4	220	4.4	110	(3.2)	3.0	2.5
10	430	5.5	220	4.5	110	3.4	2.7	2.6
11	420	5.8	220	4.6	110	(3.5)	3.2	2.6
12	430	5.9	220	4.5	110	(3.4)	3.2	2.6
13	410	5.9	220	4.6	110	(3.4)	3.6	2.7
14	420	5.8	220	(4.5)	110	(3.4)		2.6
15	410	6.0	220	4.4	110	(3.4)	3.5	2.6
16	390	6.0	220	4.4	110	(3.1)	3.5	2.6
17	360	6.0	230	4.2	110	3.0	3.2	2.7
18	320	6.0	240	4.0	110	(2.8)	3.0	2.9
19	280	5.8	260	---	---	---	2.7	2.9
20	270	5.8			---	---	2.0	3.0
21	260	5.6					2.5	2.8
22	280	4.3					2.8	2.8
23	300	4.0					2.4	2.8

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

Table 65

Dakar, French West Africa (14.6°N, 17.4°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	4.6						2.7
01	310	5.4					2.2	(2.6)
02	300	5.4					2.6	2.8
03	270	4.8					3.3	3.0
04	255	5.2					3.5	3.0
05	230	4.6					2.8	3.1
06	240	6.0	---	---	121	2.0	3.4	3.3
07	240	6.6	230	---	107	2.6	4.2	3.2
08	270	8.0	225	---	103	3.2	5.6	3.0
09	310	8.6	220	---	103	3.4	4.3	2.8
10	335	9.3	220	4.9	105	3.7	4.5	2.6
11	405	10.6	210	5.0	105	3.8	4.8	2.6
12	400	11.9	205	5.0	103	3.8	4.6	2.6
13	360	12.8	210	5.0	105	3.8	5.8	2.6
14	335	13.8	220	5.0	107	3.7	3.5	2.7
15	330	13.9	220	---	105	3.6	4.4	(2.7)
16	310	13.5	225	---	107	3.2	3.6	2.8
17	325	13.2	240	---	109	2.7	3.6	2.9
18	250	12.4	260	---	128	2.1	3.7	(2.8)
19	270	9.7					3.6	2.7
20	340	6.9					3.1	2.6
21	380	6.4						2.4
22	380	6.0						2.5
23	350	(5.6)						(2.5)

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

Table 66

Graz, Austria (47.1°N, 15.5°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	300	4.0						
06	240	4.5				(2.6)		
07	240	5.2	(225)	(3.5)	110	2.8		
08	270	6.3	220	4.3	110	3.0	3.5	
09	300	6.4	210	4.6	100	3.2	3.5	
10	300	7.3	200	4.9	100	3.5	3.9	
11	300	7.6	210	5.0	100	3.5	3.9	
12	300	8.0	205	5.0	110	3.6	3.4	
13	300	7.9	200	4.9	100	3.7		
14	280	7.8	210	4.9	105	3.6		
15	290	7.9	210	4.7	105	3.4		
16	280	7.7	220	4.2	110	3.1		
17	240	7.8			120	2.8		
18	240	7.7						
19	230	7.8						
20	240	7.0						
21								
22								
23								

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

Table 67

Fribourg, Germany (48.1°N, 7.8°E) — August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.4					2.4	2.9
01	290	5.2					2.4	2.8
02	285	4.7					2.4	2.9
03	280	4.5					2.6	2.9
04	285	4.3					2.4	3.0
05	270	4.0	---	---	---	1.5	2.4	3.1
06	265	5.3	240	3.5	119	2.1	3.5	3.2
07	315	6.0	240	4.0	111	2.6	4.4	3.2
08	315	6.3	235	4.3	109	3.0	4.4	3.2
09	305	6.2	230	4.6	107	3.1	4.2	3.1
10	355	6.2	215	4.8	104	3.3	4.9	3.1
11	335	6.3	215	4.8	107	3.4	4.3	3.1
12	340	6.5	210	4.8	107	3.3	4.5	3.1
13	345	6.3	220	4.9	107	3.4	4.4	3.0
14	315	6.5	220	4.8	107	3.3	3.8	3.1
15	330	6.5	220	4.6	107	3.2	3.5	3.2
16	330	6.5	235	4.5	107	3.0	3.9	3.1
17	300	6.6	240	3.9	111	2.6	3.5	3.2
18	275	6.9	245	---	111	2.2	3.4	3.2
19	260	7.1	---	---	---	---	3.4	3.2
20	245	7.2					3.1	(3.1)
21	240	6.9					3.3	3.1
22	245	6.2					3.5	3.0
23	265	5.6					3.1	3.0

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

Table 68*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	4.3						---
06								
07	250	6.0	---	---	110	2.4		3.1
08	240	6.8	240	4.4	110	2.8		3.0
09	290	7.2	220	4.5	110	3.0		3.1
10	300	7.4	220	4.6	110	3.2		3.0
11	300	7.9	220	4.6	110	3.3		2.9
12	300	8.0	220	4.7	110	3.3		2.9
13	300	8.2	220	4.8	110	3.3		2.9
14	300	8.2	230	4.6	110	3.2		2.9
15	270	8.4	230	4.4	110	3.1		2.9
16	250	8.2	230	3.7	110	2.8		2.9
17	250	8.4	---	---	120	2.4		2.9
18	250	8.5			140	2.0		2.9
19	250	8.4						2.9
20								
21	260	6.8						---
22								
23	290	5.9						---

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

Table 69*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	5.2			120	1.8		2.9
06								
07	250	6.3	240	4.2	110	2.7	2.9	3.0
08	300	6.8	230	4.5	110	3.0		3.0
09	300	7.3	220	4.8	110	3.2	3.4	3.0
10	310	7.4	210	4.9	110	3.4		2.9
11	310	7.8	210	5.0	110	3.5		2.9
12	320	7.9	220	5.1	110	3.6		2.9
13	320	8.0	220	5.1	110	3.5		2.8
14	320	7.9	230	4.9	110	3.4		2.9
15	300	8.0	230	4.7	110	3.3		2.8
16	300	8.2	230	4.5	110	3.1		2.8
17	270	8.2	240	4.2	110	2.7		2.8
18	250	8.4	---	---	120	2.3	2.7	2.9
19	250	8.5			130	1.8	3.0	2.9
20								
21	250	7.6						2.8
22								
23	280	6.6					2.8	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 70*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	5.5	250	3.9	110	2.2	3.0	2.8
06								
07	320	6.4	240	4.6	110	3.0	3.4	2.9
08	350	6.8	220	4.9	110	3.3	3.7	2.9
09	350	7.0	230	5.0	110	3.5	4.0	2.8
10	370	7.1	220	5.1	110	3.5	4.0	2.8
11	380	7.2	220	5.3	110	3.6	4.2	2.7
12	390	7.5	220	5.4	110	3.8	4.3	2.7
13	380	7.5	230	5.2	110	3.7	4.1	2.7
14	390	7.4	220	5.2	110	3.6	4.0	2.7
15	380	7.6	230	5.0	110	3.5	3.6	2.7
16	350	7.6	230	4.9	110	3.3	3.6	2.8
17	340	7.6	240	4.5	110	3.0	3.2	2.8
18	300	7.9	240	4.0	110	2.7	3.3	2.8
19	260	8.0	---	---	120	2.3	2.7	2.8
20								
21	260	7.9					3.0	2.7
22								
23	290	6.8					2.7	2.6

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

Table 71*

Campbell I. (52.5°S, 169.2°E) — December 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	6.6	---	---	110	2.6	3.4	2.8
06								
07	300	7.3	230	5.0	110	3.2	3.8	2.8
08	340	7.6	230	5.1	110	3.4	3.9	2.7
09	360	7.9	220	5.4	110	3.5	4.2	2.7
10	350	8.1	220	5.6	110	3.6	4.1	2.7
11	380	8.1	220	5.7	110	3.8	4.2	2.6
12	400	8.1	230	5.7	110	3.8	4.2	2.6
13	400	8.1	220	5.7	110	3.7	4.0	2.6
14	390	8.2	220	5.6	110	3.6	3.9	2.6
15	380	8.2	230	5.5	110	3.5	3.8	2.6
16	350	8.2	230	5.1	110	3.3	3.6	2.7
17	320	8.2	240	4.6	110	3.1	3.5	2.7
18	250	8.3	250	---	110	2.7	3.3	2.7
19	260	8.5	---	---	120	2.2	2.9	2.7
20								
21	290	8.4					3.9	2.5
22								
23	300	7.8					3.1	2.6

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

Table 72*

Campbell I. (52.5°S, 169.2°E) — November 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	5.7	---	---	100	2.4	2.4	2.8
06								
07	250	6.7	250	4.8	110	3.1	3.4	2.7
08	340	7.1	230	4.9	110	3.4	3.6	2.7
09	370	7.6	230	5.3	110	3.5	3.7	2.7
10	370	8.0	220	5.4	110	3.6	3.8	2.6
11	400	8.2	230	5.5	110	3.6		2.6
12	410	8.3	220	5.6	110	3.7		2.6
13	380	8.4	230	5.6	110	3.6		2.6
14	370	8.7	230	5.5	110	3.5		2.6
15	350	8.6	230	5.2	110	3.4		2.6
16	340	8.5	240	5.0	110	3.2		2.6
17	300	8.6	250	4.5	110	2.8		2.6
18	270	8.7	270	4.0	120	2.4	2.8	2.7
19	270	8.7			---	1.9	2.8	2.7
20								
21	290	8.2					2.9	---
22								
23	320	7.8					4.4	---

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

TABLE 73

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

Form adopted June 1946

IONOSPHERIC DATA

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

Observed at Washington, D. C.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A. C. K.

Calculated by: McC., A. C. K.

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	270	250	270	(300)A	270	(320)S	290	(290)S	240	250	260	270	250	290	260	260	240	220	220	210	250	(300)S	(300)S	[300]A		
2	(330)S	A	A	(290)A	270	310	[280]S	260	240	[260]A	280	250	260	260	270	250	240	220	230	220	220	240	250	(260)S		
3	(300)S	(300)S	270	290	260	230	240	230	220	220	250	240	250	260	280H	260	250	220	240	220	210	[250]S	(280)S	(300)S		
4	290	[280]S	260	(270)S	220	260	(250)S	(230)S	210	230	230	240	260	240H	240H	[250]C	250	230	210	230	230	230	270S	280S		
5	290S	280S	270	250	250	230	240	230	220	230	240	250	250	260	260	250	240	230	220	230	230	240	260	270S		
6	270S	290	300	300	260	230	250	250	250	250	280	300	320	270	280	290	260	250	250	[240]C	230	230	(290)A	260		
7	260	260	260	270	290	270S	310S	270	240	260	250	(270)L	270	280	270	260	240	230	230	220	230	(280)S	(300)S	(270)S		
8	250	270S	250S	240	290	330	270S	260	250	280K	320K	330K	280K	320K	300K	290K	270K	240K	230K	240K S	250K	260K S	280K S	(300)K S		
9	[300]K S	(300)K S	[300]K A	(310)K A	250K S	S K	S K	260	250	250	270	260	280	280	260	260	250	240	220	240	250	250	250S	240		
10	270S	300S	300	300	260	220	280	230	230	230	270	270	280	260	280	270	240	240K	250K	300K	290K S	(330)K S	300K S	280K		
11	300K	260K S	260K	[280]K A	300K	(340)K S	[310]K S	280K	270K	250K	300K	300K	310K	330K	320K	300K	280K	250K	240K	260K	220K	290K	(340)K S	(350)K S		
12	310K S	300K	300K	330K	330K S	300K S	[280]K S	250	250	250	300	280	280	280	220	260	250	240	230	240	260S	240	250	220S		
13	(300)S	280S	260	240	(280)S	S	S	260	210H	250	250	290	300	270	250	250	240	240	230	240	260	260	240	(240)S		
14	(260)S	(290)S	(300)S	270S	250S	S	S	240	220	240	260	260	270	270	270H	270	240	230	220	220	(240)A	[250]A	260S	260S		
15	220S	[280]A	(300)S	(290)S	250	290	(260)S	240	220H	230	260	270	260	250	260	260	250	230	230	240	230S	(250)S	(250)S	(280)S		
16	300S	300S	(370)S	(360)S	290S	260S	250S	300	250	(350)L	410	330H	280	300	330	300	280	250	240	240S	240S	260S	(340)S	(340)S		
17	(320)S	(330)S	300S	280S	(300)S	(320)S	[280]S	240	240	270	220	270	280	270	290	280	260	240	230	220	240S	240S	240S	260S		
18	290S	290S	260S	270	280S	(270)S	[260]S	250	260	270	270	260	270	270	270	270	260	250	220	220	270S	230S	290S	270S		
19	300S	280S	250S	260S	240S	300S	270S	240	240	270	260H	240	260	280	290	260	260	240	220	230	220S	240S	270S	(330)S		
20	310S	290S	300S	250	250S	240S	(280)S	240S	240	240	250	260	250	250	260	240	240	220	220	230	230	(250)A	260S	260		
21	280	270S	290	290S	260	260	260S	250	250	250	250	270	250	270	270	250	250	220	210	230	230	230	(270)S	260		
22	270	(280)S	270	(260)S	(260)S	(260)S	(260)S	240	230	260	250	260	270	270	260	270	260	230	210	220	230	(250)S	250H	270H		
23	(280)S	(270)S	270	(280)S	250	240	230	210	220H	240	250	250	260	260	270H	280	250	240	220	220	360K	360K	400K H	380K		
24	320K	270K	260K	A K	A K	A K	370K S	290K	240K	420K	400K H	530K	460K	[480]K A	500K	430K	380K	340K	250K	250K	(270)K S	300K	(290)K S	(290)K S		
25	(270)K S	(290)K S	(280)S	(280)S	(290)S	(300)S	(320)S	270	250	290	300	290	290	280	280	280	260	250	250	(240)A	(230)A	250S	220S	220S		
26	280S	320	270S	260S	270S	280S	300S	250	270	250	290	280	290	290	270	280	260	240	230	(260)A	(260)A	290	300	290S		
27	270S	300	(320)S	280S	300S	S	S	240	250	280	290H	290	280	260	260	250	270	250	240	230	240	290	280S	260S		
28	300	B	B	(360)S	270S	[350]S	(420)S	260	250	270	290	270	270	270	270	260	240	240	220	230	250	270S	290S	280		
29	280S	300S	280S	280S	270S	280S	(300)S	240K	(280)K L	[320]K L	350K	300K	300K	290K	280K	270K	260K	240K	240K	240	230	250S	280S	280S		
30																										
31																										
Median	290	290	270	280	270	280	280	250	240	250	270	270	270	270	270	260	250	240	230	230	240	250	280	270		
Count	29	27	27	28	28	24	25	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 74

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

IONOSPHERIC DATA

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

Observed at Washington, D.C.

Lat. 38.7° N, Long. 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.6	3.4	3.0	2.6^{F}	2.6	2.8^{H}	2.5	3.0	4.5	6.0	6.6	7.4	8.0	8.6	9.3	8.8	8.8	7.0	6.1	4.5	(2.5)B	2.5	2.4^{F}	[2.5]A
2	2.3	[2.4]A	[2.0]A	2.4^{F}	1.9^{J}_{F}	1.9^{J}_{S}	1.8^{F}	2.9	5.4	(5.7)A	6.8	7.2	6.3	6.6	7.0	7.4	7.0	5.8	6.0^{F}_{S}	5.0	$(3.8)^{J}_{S}$	3.2^{S}	3.0	2.5
3	2.3^{F}	2.2^{F}	2.2^{J}_{F}	$(2.0)^{F}$	$(2.3)^{F}_{P}$	2.5^{F}	2.5^{J}_{F}	3.0^{F}	5.2	6.0	6.4	7.0	7.0	6.8	7.4^{H}	7.6	7.6	6.2	5.2	4.9^{J}_{S}	$(3.5)^{S}$	2.3	2.4	2.2^{F}
4	2.0	2.4	1.9^{F}	1.9^{F}	1.8^{F}	1.8^{F}	2.0^{F}	3.1	5.2	5.8	6.6	7.6	6.8	6.6^{H}	6.0^{H}	[7.0]C	7.3	7.3	5.2	4.0	3.9	3.1	2.5	2.4^{S}
5	2.5	2.5^{F}	2.5^{F}	2.8^{F}	3.1^{F}	2.8^{F}	2.5^{S}	3.3^{F}	5.6	6.0	7.0	7.4	7.5	7.2	7.0	7.1	6.9	6.7	5.2	4.7	4.4	3.5^{S}	3.2	3.3^{S}
6	3.3^{V}	2.7	2.5^{F}	2.7^{F}	3.3^{F}	3.2	2.9	3.2	5.6	5.7	7.4	8.5	8.2	9.1	9.2	9.1	9.1	8.3	8.6	[7.3]C	6.0	5.0	4.3^{S}	3.3^{S}
7	3.8^{F}	4.0	3.6	2.4	3.1	2.7^{F}	2.1^{F}	2.7^{F}	4.3^{F}	5.8^{F}	6.7^{F}	7.3^{F}	8.9	8.2	9.0	8.6	8.5	7.4	6.7	6.0	4.7	3.5^{S}	$(3.2)^{S}$	$(3.4)^{S}$
8	3.8^{S}	3.2^{S}	3.1	2.9^{S}	2.3^{F}	2.3^{F}	2.5^{F}	3.1^{S}	4.7	5.2^{K}	5.7^{K}	6.4^{K}	7.1^{K}	6.5^{K}	6.3^{K}	5.7^{K}	5.9^{K}	5.5^{K}	4.7^{K}	4.4^{K}	3.3^{K}	3.0^{K}	2.7^{K}	3.3^{K}
9	2.0^{K}	2.2^{K}	$^{K}2.0^{A}_{J}$	1.9^{S}_{K}	1.9^{S}_{K}	1.7^{B}_{K}	$^{K}1.6^{J}_{S}$	3.2	5.4	6.6	6.5	7.4	7.3	7.9	7.5	7.8	7.3	7.0	6.4	4.8	4.3	3.8	3.4	3.8
10	2.3^{F}	2.2^{F}	2.1^{F}	2.0^{F}	$(2.2)^{F}$	$(2.3)^{F}$	2.5^{F}	3.4^{F}	5.9	6.7	7.4	8.1	8.5	8.9	8.4	8.9	8.6	8.0^{K}	5.0^{K}	3.0^{K}	3.7^{S}_{K}	$(3.2)^{S}_{K}$	$(2.5)^{S}_{K}$	$(3.1)^{S}_{K}$
11	$(2.5)^{F}_{K}$	$(2.4)^{F}_{K}$	2.0^{F}_{K}	$(1.7)^{A}_{K}$	2.1^{V}_{K}	2.1^{K}	1.9^{K}	3.0^{K}	4.4^{F}_{K}	5.0^{S}_{K}	5.5^{K}	5.4^{K}	5.6^{K}	5.7^{K}	6.2^{K}	6.2^{K}	6.0^{K}	5.6^{S}_{K}	4.5^{K}	4.3^{K}	3.0^{K}	2.6^{K}	2.3^{S}_{K}	$^{K}(2.0)^{A}_{S}$
12	2.6^{K}	2.5^{K}	2.0^{V}_{K}	1.7^{K}	2.0^{K}	$(2.0)^{F}_{K}$	$^{K}(1.8)^{B}_{F}$	3.1^{F}	4.9^{S}	5.8	6.6	7.4	8.0	8.1	7.9	7.0	6.6	6.4	7.2	5.3^{S}	4.8^{S}	4.1	3.8^{S}	2.8^{F}
13	2.0^{F}	2.7^{F}	3.0^{F}	2.2^{J}_{S}	2.2^{J}_{S}	$(1.9)^{J}_{S}$	1.5^{J}_{S}	3.2	$(5.8)^{Z}_{H}$	6.5	7.0	7.4	8.2	9.0	8.0	7.8	6.8	6.6	6.5	5.2	4.7	4.2^{S}	4.1	3.1
14	3.7^{S}	2.4	2.5	2.6	2.4	$(1.8)^{J}_{S}$	$(1.8)^{J}_{S}$	3.8	5.6	6.4	7.2	8.8	8.4	9.0	8.7^{H}	9.0	9.0	7.5^{S}	6.2^{S}	4.7	4.2^{J}_{S}	$(3.5)^{P}_{S}$	3.3^{S}	3.3^{S}
15	3.1	[3.0]A	3.0	3.0^{J}_{S}	$(2.7)^{J}_{S}$	2.9	2.9^{S}	4.2^{J}_{S}	6.0^{H}	6.2	7.3	7.8	8.3	8.0	7.6	7.7	7.5	6.7	5.3	$(5.3)^{S}$	$(4.5)^{S}$	$(3.5)^{S}$	3.3^{S}	2.9
16	3.0	2.7^{F}	2.3^{F}	$(3.3)^{F}$	$(2.7)^{F}$	3.0^{F}	3.0^{F}	$(3.2)^{F}$	4.2^{S}	5.2	5.3	6.6^{H}	7.0^{S}	6.8	6.8	7.0	7.0	7.3	5.7	5.2^{S}	3.8^{S}	2.9	2.3^{S}	2.2^{S}
17	2.2	2.1	2.1^{S}	2.0^{S}	$(1.8)^{S}$	$(1.6)^{J}_{S}$	$(1.6)^{S}_{J}$	3.7^{S}	5.4	6.2	6.9	7.1^{S}	7.1	7.0^{V}	7.3	7.4	7.6	7.0	6.2^{S}	5.2^{S}	4.4^{S}	3.8	3.1	3.0
18	2.6	2.6	2.5	2.3	2.3	2.1	1.9	3.6^{S}	5.0	6.0	6.6	7.2	7.7	8.1	8.0	7.7	8.2	8.4	8.3	5.7	5.0	4.2	4.2	4.0
19	3.9^{S}	3.9^{S}	3.8^{S}	3.1	2.7	2.4	2.4^{S}	4.3^{S}	5.8	7.5	7.5^{H}	8.4	7.6	8.3	9.0	9.6^{S}	9.4	9.2^{S}	8.0	5.6	5.5	4.0^{S}	3.0^{F}	2.3^{F}_{S}
20	$(3.0)^{F}$	3.3^{F}	2.8^{F}	3.0^{F}	$(2.9)^{F}_{S}$	$(2.2)^{F}_{S}$	$(2.3)^{F}_{S}$	4.3	6.7	7.6	8.9	9.6	9.3	9.0	8.6	8.0	8.2	7.1	6.2	5.4	4.9	3.8	3.7	3.5^{F}_{S}
21	3.1	3.2	3.2	3.0	3.1	2.9	2.8	3.8	5.0	6.0	6.6	7.2	7.8	7.2	7.3	7.6	7.4	7.0	6.2	5.0	4.6	3.5^{S}	$(3.2)^{S}$	3.1
22	3.0	3.1	3.0	3.0	3.0	3.0	2.9	4.3	6.0	7.0	6.8	7.0	7.4	7.8	7.4	8.0	8.4	7.3	6.0	$(4.4)^{F}_{S}$	4.0^{J}_{S}	3.2	3.1^{H}	2.8^{H}
23	3.0	2.9^{F}	2.8^{F}	2.8^{F}_{S}	3.0^{F}_{S}	2.9^{F}	$(3.4)^{S}_{F}$	4.4	6.4^{H}	7.5	7.2	8.0	7.5	7.2	7.6^{H}	7.4	7.4^{S}	7.4	6.3^{S}	5.0	$^{K}4.2^{J}_{S}$	$^{K}(4.4)^{J}_{S}$	$^{K}(5.0)^{S}_{H}$	2.3^{K}
24	3.2^{S}_{K}	3.3^{F}_{K}	2.8^{F}_{K}	A^{K}	A^{K}	A^{K}	$^{K}2.3^{F}_{S}$	2.9^{F}_{K}	3.5^{F}_{K}	4.1^{K}	4.3^{H}_{K}	$(4.1)^{A}_{K}$	4.3^{K}	$[4.2]^{A}_{K}$	4.3^{K}	4.6^{K}	4.8^{K}	4.8^{K}	4.5^{K}	3.7^{S}_{K}	2.8^{K}	2.4^{K}	2.2^{K}	2.0^{F}_{K}
25	2.4^{F}_{K}	$^{K}(2.3)^{A}_{F}$	2.5^{F}	2.6^{F}	2.4^{F}	2.5^{F}	$(2.4)^{F}_{S}$	3.5	4.7	5.6	5.8	6.7	6.8^{V}	6.5	6.5	6.4	6.4	6.2	6.1^{S}	5.6^{S}	4.3	3.3	3.1	2.9
26	2.6^{F}	2.3	2.7	2.8^{V}	2.6^{F}	2.3^{F}	2.7^{F}	3.7^{S}	4.5	5.6	6.4	6.9	7.4	7.5	7.3	7.0	6.8	6.2	5.5	5.1^{S}	4.2	3.5	3.5^{S}	3.6^{S}
27	3.3	3.5^{F}	$(2.4)^{F}$	2.7^{F}	$[2.1]^{F}$	1.8^{S}_{J}	1.9^{S}	3.9^{S}	5.1	5.8	7.4^{H}	8.3	8.5	8.8	8.0	6.6^{F}	6.7^{S}	6.6^{S}	6.2	5.3^{S}	3.7^{S}	3.4	3.6^{S}	$(3.3)^{S}_{F}$
28	2.7	[1.8]B	(1.8)B	$(2.4)^{S}_{F}$	$(2.0)^{F}$	$[1.8]^{S}_{B}$	$(1.9)^{S}_{B}$	3.8^{S}	5.1	6.3	7.1	8.2	8.1^{S}	8.5	8.2	8.2	7.2	6.6	5.4	4.3	3.7^{S}	3.3^{S}	3.3^{S}	3.2^{S}
29	3.1	2.9	2.7	2.6^{S}	2.4^{S}	2.2	2.0	3.1^{K}	4.1^{K}	4.1^{K}	5.2^{K}	5.8^{K}	6.1^{K}	6.1^{K}	6.3^{K}	6.0^{K}	5.6^{K}	5.4^{K}	4.9^{K}	5.0	4.2^{S}	3.3^{S}	3.2^{S}	3.2^{F}
30																								
31																								
Median	3.0	2.7	2.5	2.6	2.4	2.3	2.3	3.3	5.2	6.0	6.7	7.4	7.5	7.8	7.5	7.6	7.3	7.0	6.1	5.0	4.2	3.5	3.2	3.1
Count	29	29	29	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

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

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: McC., A. C. K.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

Calculated by: McC., A. C. K.

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	3.5	3.1	2.6F	2.6F	2.3F	2.8F	2.2	3.5	5.2	5.8	7.5	8.0	8.0	9.4	9.0	9.2	7.8JS	7.0	5.7	3.4	(2.4)B	2.5	[2.5]A	(2.6)A
2	[2.4]A	2.4	[2.1]A	1.9F	1.8	1.8	1.8	4.3	5.6	[6.4]A	7.2JS	7.0	6.8	7.0	7.8	7.6JS	6.4	5.4	5.7S	4.7S	3.3	3.0	2.8F	2.4F
3	2.3	(2.5)JS	2.0F	(2.0)F	(2.3)F	2.5JF	2.2F	4.3	6.0	6.0	7.2	6.8	7.0	6.5	7.6	7.3	7.1	5.4	(5.0)JS	4.1S	2.5F	2.3F	2.3F	2.2F
4	2.0F	1.9	1.9	1.8	1.8F	1.9F	2.6F	4.5	6.1	6.2H	7.2H	7.2	7.4	6.5	6.4H	7.0	7.4	6.2	4.0	3.9	3.4	2.6S	2.4F	2.4S
5	2.5F	(2.4)S	2.7S	3.0F	3.1S	2.5F	2.3F	4.5	5.7	7.0	7.7	7.5	7.4	7.0	7.6	7.4	6.9	6.0	4.7	4.7	4.0S	3.3S	(3.2)S	3.2V
6	3.0F	2.5F	2.6F	3.0F	3.6F	3.0F	2.8	4.2	[5.6]C	6.3	7.2	9.2	9.1	8.9	9.2	9.2	9.0	8.7	9.1	6.5	5.6F	4.5F	3.8	3.3S
7	3.9	3.8S	(3.0)F	2.6	3.0	2.4F	2.0F	3.7F	5.2	6.4F	6.7F	8.2	9.6	8.6	8.7	9.0	7.6	7.2	6.5F	4.7S	3.6S	(3.3)S	3.3S	(3.8)S
8	3.4S	3.4S	3.0	2.5S	2.2FS	2.6FS	2.5FS	4.2	5.0	5.5HK	5.9K	6.8K	6.4K	6.6K	6.0K	5.9K	5.8A	5.4K	4.6K	3.8K	3.5K	3.1K	2.5K	K(1.9)AJ
9	K2.0JB	2.2A	1.9K	2.1K	1.8K	K1.6BJ	1.9K	4.4V	5.8H	6.2	7.3	7.5	7.7	8.0	7.7S	7.4	7.0	7.0	5.2	5.0	3.9	3.8	3.2	2.6
10	2.3F	2.2F	2.0F	(2.1)F	2.3F	(2.4)F	(2.5)F	4.8	6.5F	6.4F	8.1	8.8	9.0	9.0	9.2	9.0	8.0	7.8K	3.4FK	3.3K	(3.5)SK	2.5K	K(3.4)FS	2.2K
11	(2.5)FK	(2.3)FK	K1.9SF	[1.9]AK	2.1SK	2.0K	2.0K	3.9K	4.6K	5.4K	5.4K	6.6K	5.7K	6.0K	6.1K	6.4K	5.9K	5.5A	3.9K	3.4K	(2.5)AK	2.3K	2.2SK	A(2.2)S
12	2.5SK	2.2VK	1.8SK	1.8K	(2.0)SK	K(2.0)FB	K(1.8)FJ	4.3	5.6	6.1	7.2	7.7	8.0	8.0	7.3	6.6	6.7	6.5	6.0	(4.4)S	4.4S	4.0S	3.3FS	2.5
13	2.2F	3.0	2.7F	1.9SF	(2.1)JS	1.7	S(2.0)JF	4.6S	5.4SH	7.1	6.5F	8.0	9.0	8.8	8.0	7.4	6.4	6.6	5.7	4.9S	4.5	4.3	3.8	3.0
14	2.5	2.4S	2.5	2.6	2.2JF	1.7JS	2.2	4.7	5.8	7.2	8.2	8.2	8.8	9.0	9.0S	9.4S	8.1	6.6	5.7	4.7	3.7	3.4JS	3.3S	3.1
15	3.0	(3.0)PA	(3.0)S	3.0S	2.7F	2.9	3.1	5.4	6.3	7.5	7.1	8.3	8.4	7.6	8.1	7.5	7.4S	5.8	(5.3)S	(5.2)S	(3.9)S	(3.4)S	3.0F	[illegible]S
16	2.9SF	2.4F	(2.0)JB	(2.9)SF	(3.0)F	(3.0)F	(2.6)F	3.8S	4.3S	5.6	5.9	7.0	6.9S	6.6	(7.0)S	7.0S	(6.8)S	6.4S	5.6S	4.9S	(3.5)S	2.4	2.2S	2.4
17	2.1	2.1	2.0S	1.9S	(1.8)JS	(1.6)JS	2.1	4.7	5.7	6.6	7.0	7.3	7.3	7.0	7.4	7.5	7.8	6.7	6.0S	4.8S	4.2S	3.6S	3.1	2.8
18	2.6	2.6S	2.5	2.2	2.2	1.9S	2.4	4.5	5.4	6.5	6.9	7.4	8.1	7.6	8.0	8.2?	8.6	8.4	7.2	4.9	4.6	4.3	4.2H	3.7
19	3.9S	4.0S	3.3S	3.0S	2.3S	2.5	2.7	4.9H	6.8	8.4	8.6	7.7	7.8	8.8	9.9?	9.4	9.2?	8.4	6.7	5.8	4.2S	(3.1)F	2.5F	2.3F
20	2.8F	(3.1)F	3.0F	2.9F	(2.7)F	2.2S	2.8FS	5.6	7.2	8.5	9.8	9.7	9.0	8.4	8.4	8.2	7.6?	6.3	5.8	5.2	4.4	3.6	3.5	3.2
21	3.2	3.2	3.1	3.0	3.0	2.8F	3.0	4.7	5.5	6.5	6.6	7.5	7.6	7.2	7.8	7.5	7.6S	6.6	5.3	5.0	4.1S	3.3S	3.2	3.0
22	3.0	3.0	3.1	3.0	2.9	3.0	3.2	5.5	6.0	6.1	6.8	7.4	7.8	7.8	7.7	8.0	8.0	6.7S	(5.4)S	4.3	3.6	3.2S	3.0H	2.7F
23	3.0	2.9	2.6	2.8F	3.0F	3.2F	3.5SF	5.2	6.5	7.5	8.2	8.0	7.6	7.4JS	7.8	7.6	7.0	6.2JS	5.7S	4.3	HK(4.2)JS	K4.2JS	[3.8]SK	(4.3)SK
24	(3.2)SK	3.0FK	K2.4SF	AK	AK	AK	2.7FK	3.1FK	K3.7SH	(4.4)AK	4.4HK	(4.2)AK	(4.1)AK	(4.2)AK	4.5K	4.7K	4.8K	4.8K	4.1K	3.3K	2.6K	2.3VK	(2.0)SK	(1.9)SK
25	K(2.2)AF	2.6FK	2.6F	2.4S	2.5S	2.6F	2.3	4.2	5.1	5.8	6.3	6.8	6.9	6.3	6.4	6.5	6.2	5.8	6.2	5.0	3.7S	3.2S	3.1S	2.8
26	2.5	2.5	2.7	2.6	2.6V	2.3F	3.1	4.1	5.1	5.8S	6.6H	7.2	7.5	7.9	7.1	6.7	6.5	5.9	4.9	5.4	3.9	3.4	3.5	2.5
27	3.3F	3.3F	(2.2)BF	(2.4)SF	S1.8JB	1.9S	2.8H	4.4S	5.3	6.6	7.8	8.7	8.7	8.3	7.1S	6.3	6.6	6.4	6.4S	4.3S	3.3S	3.5S	3.6F	3.3S
28	1.9S	[1.8]B	1.9SF	(2.5)FS	1.6F	1.8F	2.4SF	5.0	5.8	6.6	7.6	8.4	8.1S	8.5	8.3	8.2S	6.8	6.1	4.8	3.8S	3.5S	3.3S	3.2S	3.1
29	3.0	2.8S	2.8	2.6S	2.3S	2.2	2.4	3.7K	4.3K	4.7K	5.6K	5.8SK	6.1K	6.3K	6.2K	5.8K	5.8SK	5.0K	5.1K	4.7S	3.7S	2.8FS	3.2F	3.1F
30																								
31																								
Median	2.6	2.6	2.6	2.6	2.3	2.4	2.4	4.4	5.6	6.4	7.2	7.5	7.7	7.6	7.7	7.5	7.0	6.4	5.6	4.7	3.7	3.3	3.2	2.8
Count	29	29	29	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 76

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

Form adopted June 1946

IONOSPHERIC DATA

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

Observed at Washington, D. C.

Lat. 38.7° N, Long. 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A. C. K.

Calculated by: McC., A. C. K.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 77

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

Form adopted June 1946

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), February (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7° N, Long 77.1° W

75° W Mean Time

Scaled by: McC., A. C. K.

Calculated by: McC., A. C. K.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Q	L	L	L	4.1	4.1	4.0	L	L							
2									Q	A	A	L	L	4.0	L	L	L							
3									Q	L	L	L	L	3.9	4.2	L	L							
4									Q	3.1	L	L	L	L	L	L	L							
5									L	L	L	L	L	L	L	L	L							
6									Q	L	(3.9)L	4.1	4.3H	3.8H	3.8	L	L							
7									Q	L	L	L	4.3	4.1	4.1	L	L							
8									Q	L K	3.9 K	4.1 K	4.2 HK	4.2 HK	4.1 HK	L K	L K							
9									2.9	3.4	L	L	4.3	4.3	L	L	L							
10									L	A	L	L	L	L	L	L	L	L K						
11									L K	L K	3.9 K	4.2 K	4.2 K	4.2 K	4.1 K	4.0 K	L K							
12									L	L	L	4.2H	4.3H	4.3	4.0	L	L							
13									Q	L	L	4.2	4.3H	L	L	L	L							
14									Q	L	L	L	4.0	4.2	3.7H	L	L							
15									Q	L	L	4.0	4.4	4.2H	L	L	L							
16									Q	L	4.2H	4.2	4.2	4.2	4.3	4.0	L K							
17									L	L	3.9	[4.0]C	4.2H	L	L	L	L							
18									L	L	L	L	4.2	L	L	L	L							
19									L	L	L	L	L	L	L	L	L							
20									L	3.1	[3.6]L	4.1	L	L	4.1	L	L							
21									L	L	L	L	L	L	L	L	L							
22									Q	L	L	L	4.1	4.1H	L	L	L							
23									Q	3.0	L	L	L	L	4.0H	L	L							
24									Q K	3.6 K	3.8 SK	3.9 SK	3.9 K	A K	A K	3.7 K	3.4 HK	A K						
25									L	L	L	4.1	4.2	4.2	4.1H	L	L	A						
26									2.9H	[3.4]L	4.0H	4.1	4.2	4.2	4.0	A	L	Q						
27									L	L	L	4.2	4.3	4.2	4.1	(3.8)L	L	L						
28									L	L	L	4.1	4.1H	4.2	3.9H	3.8	L	Q						
29									L K	L K	4.0 K	4.1 HK	4.2 HK	4.2 HK	3.9 K	L K	L K	L K						
30																								
31																								
Median									—	3.2	3.9	4.1	4.2	4.2	4.0	3.8	—	—						
Count									2	6	9	15	20	18	15	5	1							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 78

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

IONOSPHERIC DATA

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

Observed at Washington, D.C.

Lat. 38.7° N, Long 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K.

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									120^{H}	110	110^{H}	[110]A	(110)A	100	100	120	120^{H}							
2									A	A	110	[110]A	110	110	110	120	120	130						
3									130^{H}	110^{H}	110^{H}	120^{H}	110	110	(110)^{A}	(110)^{A}	120	A						
4									120^{H}	110	120	110^{H}	110	110	110	[110]C	120	130						
5									120^{H}	110^{H}	110	110	110	110	110	110	[130]A	(150)^{S}						
6									130	110	110	110	110	120	110	120	120							
7									(120)^{S}	110	110	110	110	110	110	110	110	130^{B}						
8									130	120^{K}	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	120^{K}	120^{K}	(160)$^{S}_{K}$						
9									110^{S}	110	100	100	100	100	100	110	110	110						
10									110^{H}	110	110	100	100	110	120	120	120							
11									110^{K}	120^{K}	120^{K}	110^{K}	110^{K}	120^{K}	110^{K}	110^{K}	120^{K}	130^{K}						
12									120	110	110	110	110	110	110	110	120	130^{H}						
13									110	(110)^{A}	110	120	110	110	110	110	120							
14									130	110	110	110	110	110	110	110^{H}	120^{H}	S						
15									120	110	110	110	110	110	110	110	110	(130)^{S}						
16								(120)S	120	110	100	110	110	110	110^{B}	110	110	120^{S}						
17								A	110	110	100	100	110	110	110	110	110	A						
18									110	100	110	110	110	100	110	110	110							
19									120	120	110	100	100	110	110	110	110	120						
20									110	110	110	110	100	110	110	110	110	120^{H}						
21									120	110	110	110	110	110	110	110	110	110						
22									(120)^{S}	110	110	110	110	110	110	110.	110	A						
23									110^{H}	110	110^{H}	110	110	110^{H}	110	110	120	120						
24									110^{K}	120^{K}	110^{K}	110^{K}	100^{K}	100^{K}	110^{K}	110^{K}	120^{K}	(120)$^{S}_{K}$						
25									110	110	110	110	110	110	110^{H}	110	110	120						
26									110	110	110	110	110	110	100	100	100	100						
27								120^{S}	110	110	110	110	110	100	110	120	120	130						
28								A	110	110	110	(120)B	110	120	120	120	110	120						
29									120^{K}	A^{K}	A^{K}	110^{K}	120$^{B}_{K}$	120^{K}	110^{K}	120^{K}	110^{K}	130^{K}						
30																								
31																								
Median								–	120	110	110	110	110	110	110	110	120	120						
Count								2	28	27	28	29	29	29	29	29	29	20						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 79

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

IONOSPHERIC DATA

Form adopted June 1946

foE (Characteristic), Mc (Unit), February (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A.C.K.

Calculated by: Mc C., A.C.K.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 80

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

Form adopted June 1946

IONOSPHERIC DATA

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

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A.C.K.

Calculated by: Mc C., A.C.K.

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	36/110	3.0/110	3.4/110	3.0/110	2.3/110	E	E	E	G	32/110	G	48Y/110	31/110	G	G	G	G	E	E	E	E	E	29/110	90/110
2	74Y/110	6.0/110	58/110	3.9/110	28/110	48H/110	2.7Y/110	2.3/130	54/110	128/110	76/110	33/110	G	G	G	G	G	G	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	G	G	G	G	32/110	G	39Y/110	4.1/110	32/110	38/110	52/110	E	E	35/110	27Y/110	E
4	E	E	E	E	E	E	E	90Y/110	G	G	30/110	G	G	31/110	G	C	G	G	E	E	E	26/100	E	E
5	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	2.3/100	24/100	E	E	E	E	E	E
6	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	E	E	C	E	23/120	50/120	E
7	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	28/120	G	G	E	E	E	E	37/120	E
8	E	E	E	E	E	E	E	E	G	G	34/110	G	G	G	G	G	G	G	E	26Y/120	35/130	28/120	31/120	30/130
9	E	E	2.7/110	38/110	E	E	E	28/120	G	2.7/120	G	39/110	3.3/110	44/110	48/110	50/110	23/110	20/110	2.7/110	26Y/110	34/110	30/130	E	E
10	2.7/130	E	E	E	E	E	66/110	30/110	G	36/140	39/120	29/110	30/110	36/120	34/120	G	G	E	E	E	E	E	E	E
11	E	30/120	E	53/120	40/110	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	24/110	E	34/120
12	E	E	E	E	E	E	E	28Y/120	G	G	G	G	G	G	G	G	G	G	E	E	E	L	E	E
13	E	E	E	E	E	E	74Y/160	E	90Y/110	41/110	G	G	G	G	G	G	G	E	E	E	E	E	E	E
14	E	E	E	E	34Y/110	E	E	E	31/110	G	G	G	G	G	G	G	30/130	21/120S	E	31/120	32/120	35/120	E	E
15	E	4.5/110	42/110	36Y/110	E	31/120	30/120	E	G	G	G	G	G	G	G	G	G	G	C	E	E	E	E	E
16	E	E	E	E	E	E	E	G	G	72/130	G	G	G	112/110	G	G	G	G	E	E	E	38Y/120	E	E
17	E	E	E	E	E	E	E	64/110	34/110	35/110	G	G	G	G	G	G	G	21/120	E	E	E	21/110	E	E
18	E	E	E	E	E	E	E	E	31/120	33/110	G	G	G	G	G	G	G	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	36/120	35Y/130	40/120	40/120	41/120	48/120	G	G	50/120	G	E	E	E	4.7/130	E	E
20	E	E	E	E	66/110	E	E	E	G	G	G	G	G	20/100	G	G	G	G	E	E	E	3.4Y/110	E	E
21	E	E	2.9/110	27/110	E	E	E	E	G	G	G	G	G	G	G	G	36/120	21/110	E	E	E	E	30/110	E
22	24/110	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	21/100	24Y/100	30Y/130	E	E	E	E
23	E	E	E	E	E	E	E	E	G	34/110	3.4Y/110	G	G	58Y/100	G	G	G	36/130	30/120	E	E	E	E	E
24	E	E	E	54/120	56/120	53/110	66H/110	96Y/120	G	47/120	56/120	54/120	G	53/120	60/120	G	G	31/150	E	E	90/130	E	E	E
25	E	30/130	24Y/130	E	42/120	44/120	21/110	E	21/130	G	35/110	40/110	G	G	G	G	G	37/120	18/120	49/110	42/110	20/110	E	45/[illegible]
26	E	30Y/100	E	E	E	E	E	31Y/110	G	36/110	46/110	46/110	G	G	G	48/130	G	21/100	31/100	43/100	26/100	24/100	E	E
27	E	E	E	E	E	34/130	48/120	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E
28	E	B	E	E	E	E	E	24H/120	25/110	G	G	G	G	70/100	G	G	32/110	21/120	E	2.2/110	18/110	E	E	E
29	E	E	E	E	E	E	E	E	G	2.9/100	31/100	G	G	68/120	G	G	G	G	E	E	E	E	E	17/100
30																								
31																								
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	29	28	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	29	28	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 ☒

Form adopted June 1946

TABLE 81

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

IONOSPHERIC DATA

(M1500)F2, ______ (Unit), February (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A. C. K.

Calculated by: Mc C., A. C. K.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.0	2.2	2.1	1.9 F	2.2	1.7 H	1.9	2.0	2.4	2.4	2.1	2.2	2.3	2.1	2.1	2.0	2.2	2.2	2.2	2.3	(2.1) B	1.9	1.9 F	A
2	1.9	A	A	2.0 F	(2.0) J F	(2.0) J S	2.0 F	2.1	2.5	(1.9) A	2.3	2.4	2.2	2.3	2.1	2.3	2.4	2.4	2.2 F S	2.3	(2.3) J S	2.1 S	2.2	2.1
3	1.9 F	2.0 F	(2.1) J F	(2.0) F	(2.2) F F	2.3 F	(2.1) J F	2.3 F	2.4	2.5	2.4	2.5	2.4	2.4	2.1 H	2.3	2.4	2.4	2.3	(2.3) J S	(2.4) S	1.9	2.1	2.0 F
4	2.1	1.9	2.1 F	2.0 F	2.1 F	2.2 F	2.2 F	2.3	2.5	2.5	2.6	2.4	2.3	2.2 H	2.1 H	C	2.2	2.4	2.4	2.2	2.3	2.3	2.0	2.0 S
5	2.0	2.1 F	2.1 F	2.2 F	2.2 F	2.3 F	2.3 S	2.4 F	2.6	2.3	2.3	2.3	2.4	2.3	2.1	2.2	2.4	2.4	2.3	2.1	2.2	2.2 S	2.1	2.0 S
6	2.0 V	2.0	1.9 F	1.9 F	2.1 F	2.3	2.0	2.1	2.3	2.1	2.2	2.0	1.9	2.1	2.0	2.0	2.1	2.0	2.0	C	2.0	2.1	2.0 S	2.1 S
7	2.0 F	2.0	2.1	1.9	1.8	1.9 F	2.0 F	2.2 F	2.3 F	2.3 F	2.2 F	2.1 F	2.1	2.1	2.2	2.1	2.3	2.2	2.1	2.3	2.2	2.0 S	(2.0) S	(2.0) S F
8	2.2 S	2.0 S	2.0	2.2 S	1.8 F	1.9 F	2.1 F	2.2 S	2.3	2.3 K	2.1 K	2.0 K	2.1 K	2.0 K	2.1 K	2.2 K	2.2 K	2.2 K	2.1 K	2.1 K	2.1 K	1.9 K	2.0 K	1.9 K
9	1.8 K	2.0 K	K (1.9) A J	2.0 S K	2.3 S K	2.1 B K	(2.0) J S	2.2	2.2	2.4	2.2	2.4	2.2	2.1	2.3	2.3	2.3	2.2	2.3	2.1	2.3	2.1	2.2	2.3
10	2.1 F	2.0 F	2.0 F	2.0 F	(2.0) F	(2.2) F	2.1 F	2.3 F	2.4	2.4	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.3 K	2.1 K	1.8 K	1.9 S K	(1.8) S K	(2.0) S K	(2.0) S
11	(2.0) F K	(2.0) F K	2.1 F K	(2.1) A K	1.9 V K	1.9 K	2.0 K	2.1 K	2.3 F K	2.2 S K	2.2 K	2.1 K	2.2 K	2.1 K	2.1 K	2.1 K	2.2 K	2.2 S K	2.2 K	2.1 K	1.9 K	2.0 K	1.9 S K	K (1.8) A S
12	1.9 K	1.9 K	2.0 K V	1.9 K	1.9 K	(2.0) F K	K (2.2) B F	2.3 F	2.3 S	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.1 S	2.0 S	2.1	2.1 S	2.0 F
13	1.9 F	2.0 F	2.0 F	(2.1) J S	(2.0) J S	(2.0) J S	(1.8) J S	2.2	(2.4) Z H	2.2	2.3	2.1	2.0	2.1	2.1	2.3	2.3	2.2	2.3	2.1	2.0	2.1 S	2.2	2.0
14	2.1 S	2.0	1.9	2.0	2.3	(2.1) J S	(2.2) J S	2.3	2.5	2.3	2.2	2.3	2.1	2.1	2.1 H	2.1	2.2	2.3 S	2.3 S	2.1	(2.2) J S	(2.1) P S	2.0 S	2.0 P S
15	2.0	A	2.0	(2.0) J S	(2.1) J S	1.9	2.1 S	(2.3) J S	2.5 H	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.2	(2.2) S	(2.4) S	(2.2) S	2.2 S	2.0
16	2.0	2.0 F	1.7 F	(1.9) F	(2.0) F	2.0 F	2.3 F	(2.0) F	2.3 S	1.9	1.8	2.0 H	2.2 S	2.0	1.9	2.0	2.1	2.2	2.1	2.0 S	2.1 S	2.1	1.8 S	1.9 S
17	2.0	1.9	2.0 S	2.0 S	(2.0) S	(1.9) S J	(1.9) S J	2.3 S	2.4	2.3	2.3	2.2 S	2.2	2.0 U	2.1	2.1	2.2	2.2	2.2 S	2.3 S	2.1 S	2.1	2.2	2.0
18	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.3 S	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.2	2.0	2.0	1.9	2.0
19	1.9 S	1.9 S	2.1 S	2.0	2.2	1.9	2.1 S	2.1 S	2.3	1.9	2.1 H	2.3	2.6	2.1	2.0	2.1 S	2.1	2.2 S	2.2	2.0	2.3	2.3 S	2.0 F	1.9 F S
20	(1.9) F	2.0 F	2.0 F	2.1 F	(2.1) F S	(2.2) F S	(2.1) F S	2.2	2.4	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.2	2.1	2.2	2.1	2.0	2.0 S
21	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.2	2.3	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.1	2.3	2.3 S	(2.1) S	2.0
22	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.5	2.4	2.4	2.2	2.1	2.3	2.3	2.1	2.3	2.4	2.3	(2.2) S F	(2.3) J S	2.0	2.0 H	2.0 H
23	2.0	2.0 F	2.0 F	2.0 S F	2.1 S F	2.1 F	(2.2) F S	2.4	2.4 H	2.3	2.2	2.3	2.3	2.3	2.3 H	2.2	2.3 S	2.3	2.3 S	2.1	K (1.7) J S	(1.7) J S	K (1.6) S H	1.7 K
24	1.7 S K	2.0 F K	2.0 F K	A K	A K	A K	K 1.7 S	2.0 F K	2.2 F K	1.9 K	1.9 H K	(1.6) A K	1.8 K	A K	1.7 K	1.8 K	1.8 K	1.9 K	2.0 K	2.0 S K	1.9 K	1.9	2.0	2.0 F
25	2.1 F K	K (2.0) A F	2.0 F	2.0 F	2.0 F	1.9 F	(1.9) F S	2.2	2.3	2.2	2.1	2.1	2.2 V	2.3	2.3	2.2	2.3	2.3	2.1 S	2.3 S	2.3	2.1	2.0	2.0
26	2.0 F	2.0	2.0	2.1 V	2.0 F	1.9 F	1.8 F	2.3 S	2.2	2.2	2.2	2.2	2.1	2.0	2.1	2.1	2.2	2.3	2.2	2.0 S	2.0	1.9	1.8 S	1.9 S
27	2.0	1.9 F	(1.9) F	2.1 F	F	(1.8) S J	1.9 S	2.3 S	2.2	2.2	2.0 H	2.1	2.1	2.2	2.2	2.3 F	2.2 S	2.3 S	2.1	2.3 S	2.1 S	1.9	1.9 S	(–.1) S F
28	1.8	B	(1.9) B	(1.7) S F	(2.2) F	S B	(1.7) B S	2.2 S	2.2	2.3	2.1	2.1	2.1 S	2.1	2.1	2.3	2.3	2.3	2.2	2.2	2.0 S	2.0 S	1.9 S	1.9 S
29	2.0	1.9	1.9	2.0 S	2.0 S	2.0	2.0	2.2 K	2.2 K	2.3 K	2.0 K	2.1 K	2.1 K	2.2 K	2.3 K	2.3 K	2.3 K	2.3 K	2.2 K	2.2	2.2 S	2.1 S	2.0 S	2.0 F
30																								
31																								
Median	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0
Count	29	26	28	28	27	27	29	29	29	29	29	29	29	28	29	28	29	29	29	28	29	29	29	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 82

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic) — (Unit) — February (Month), 1952

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A. C. K.

Calculated by: Mc C., A. C. K.

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	30	32	31	29F	30	2.6H	2.9	3.0	34	34	31	3.2	34	31	31	3.0	32	3.2	32	3.3	(31)B	2.9	28F	A
2	2.8	A	A	30F	(30)JF	(30)JS	3.0F	31	36	(28)A	33	34	32	33	31	33	34	35	32FS	33	(33)JS	31S	32	3.1
3	2.9F	30F	(3.1)JF	(30)F	(32)FP	34F	(3.1)JF	34F	35	36	34	36	34	35	30H	33	34	34	33	(34)JS	(35)S	29	31	2.9F
4	3.1	28	31F	30F	31F	32F	32F	33	35	35	26	34	33	31H	31H	C	33	35	3.5	3.2	3.2	33	30	30S
5	3.0	31F	31F	3.2F	33F	33F	33S	34F	36	34	33	34	35	33	31	32	34	34	33	31	32	32S	31	30S
6	3.0V	3.0	2.9F	2.9F	31F	33	30	31	34	31	32	2.9	28	3.1	30	30	31	29	2.9	C	30	31	2.9S	31S
7	3.0F	30	31	28	2.7	28F	2.9F	3.2F	33F	34F	32F	31F	31	3.1	3.2	31	33	3.2	31	33	32	2.9S	(29)S	(29)S
8	3.2S	3.0S	3.0	3.2S	27F	2.8F	31F	32S	34	34K	31K	30K	31K	30K	30K	32K	3.2K	32K	31K	31K	31K	2.9K	29K	28K
9	2.7K	3.0K	K(28)AS	3.0SK	33SK	3.1BK	K(29)JS	32	32	34	32	34	32	31	33	33	33	32	34	31	33	31	32	33
10	3.1F	2.9F	3.0F	30F	(3.0)F	(32)F	31F	33F	35	35	32	31	3.1	32	31	31	32	33K	31K	27K	29SK	(27)SK	(30)SK	(3.0)SK
11	(3.0)FK	(3.0)FK	3.1FK	(31)AK	29VK	2.7K	2.9K	3.1K	34FK	3.2SK	3.2K	31K	32K	31K	31K	31K	32K	32SK	32K	31K	28K	3.0K	28SK	K(27)AS
12	2.8K	2.8K	29VK	28K	28K	(30)FK	K(32)BF	33F	33S	3.2	31	32	31	31	32	32	3.2	32	33	31S	30S	31	31S	30F
13	2.9F	3.0F	30F	(31)JS	(2.9)JS	(3.0)JS	(27)JS	32	(35)ZH	32	33	31	30	3.1	31	33	33	32	33	31	2.9	31S	3.2	29
14	31S	3.0	29	30	3.3	(32)JS	(32)JS	34	35	33	32	33	31	31	3.1H	31	33	34S	33S	31	(32)JS	(30)PS	30S	30S
15	3.0	A	2.9	(30)JS	(31)JS	2.8	31S	(33)JS	36H	3.3	34	32	33	33	33	33	33	34	32	(32)S	(34)S	(32)S	32S	29
16	2.9	2.9F	26F	(2.8)F	(3.0)F	3.0F	33F	(30)F	33S	28	2.7	30H	32S	3.0	29	30	31	32	31	30S	31S	30	27S	28S
17	2.9	28	3.0S	3.0S	(3.0)S	(2.9)JS	(2.8)JS	33S	34	33	33	32S	3.2	30V	31	31	32	32	32S	33S	31S	31	32	3.0
18	2.9	2.9	3.0	3.0	28	29	29	33S	34	33	33	34	3.2	32	32	31	31	3.2	33	32	29	29	28	29
19	2.8S	2.9S	3.0S	29	32	29	31S	31S	34	28	31H	33	30	31	30	31S	31	32S	32	30	34	33S	29F	28FS
20	(28)S	30F	3.0F	3.1F	(31)FS	(32)FS	(31)FS	32	34	32	31	3.2	32	3.2	32	32	34	35	32	31	32	31	30	30FS
21	3.0	3.0	3.0	2.9	3.0	30	29	32	33	33	34	33	33	32	32	32	33	34	34	31	33	33S	(31)S	30
22	3.0	3.0	30	30	30	3.0	30	32	35	35	34	32	31	33	33	31	33	35	33	(32)SF	(33)JS	30	30H	29H
23	3.0	3.0F	30F	30SF	31FS	3.2F	(32)SF	35	34H	3.4	3.2	34	34	33	33H	32	33S	33	33S	31	K(26)JS	K(26)JS	K(24)SH	26K
24	2.6SK	2.9FK	30FK	AK	AK	AK	K26FS	29FK	32FK	28K	2.9HK	(24)AK	27K	AK	25K	27K	28K	28K	30K	30SK	28K	28K	29K	2.9FK
25	3.1FK	K(2.9)FA	30F	2.9F	3.0F	29F	(28)FS	32	33	32	31	31	32V	33	33	32	33	33	31S	33S	33	30	29	30
26	3.0F	2.9	30	30V	3.0F	28F	2.7F	33S	32	32	32	32	31	30	31	31	32	34	32	30S	30	28	27S	2.8S
27	30	2.8F	(2.8)F	3.1F	F	(27)JS	28S	33S	32	32	30H	31	31	32	32	33F	32S	33S	30	33S	31S	28	29S	(31)SF
28	2.7	B	(2.8)B	(26)SF	(32)F	BS	(26)BS	3.2S	32	33	30	31	3.1S	31	31	33	34	34	32	32	30S	30S	29S	29S
29	3.0	29	2.9	30S	29S	2.9	30	32K	3.2K	32K	30K	31K	31K	33K	33K	34K	33K	34K	32K	32	32S	31S	30S	2.9F
30																								
31																								
Median	3.0	30	30	30	30	30	30	32	34	33	32	32	32	31	31	32	33	33	32	31	31	30	30	2.9
Count	29	26	28	28	27	27	29	29	29	29	29	29	29	28	29	28	29	29	29	28	29	29	29	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 83

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

Form adopted June 1946

IONOSPHERIC DATA

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

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

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A.C.K.

Calculated by: Mc C., A.C.K.

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 84

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

IONOSPHERIC DATA

(M1500)E, ____ (Characteristic) (Unit) February (Month), 1952

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A.C.K.

Calculated by: Mc C., A.C.K.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									$(3.7)^{H}$	4.0	4.0^{H}	A	A	4.0	4.1	$(4.2)^{B}$	4.0^{H}							
2									A	A	A	A	4.1	4.1	4.1	$(4.1)^{B}$	4.3	3.8						
3									3.5^{H}	4.0^{H}	4.0^{H}	4.0^{H}	4.1	4.2	A	$(4.0)^{A}$	3.8	A						
4									3.9^{H}	4.0	3.9	4.0^{H}	4.0	A	B	C	4.1	3.8						
5									3.7^{H}	3.8^{H}	3.8	4.1	4.1	4.3	4.2	4.1	4.2	3.6						
6									3.9	4.0	4.0	4.1	4.0	4.0	4.0	4.2	4.0							
7									3.7	3.8	4.2	4.1	4.1	B	$(4.0)^{P}$	A	4.0	$(3.6)^{P}$						
8									3.7	3.9^{K}	A^{K}	B^{K}	4.3^{K}	$(4.0)^{P}_{K}$	4.1^{K}	$(4.2)^{B}_{K}$	4.3^{K}	$(3.5)^{P}_{K}$						
9									4.1	4.0	4.0	A	A	A	A	A	A	B						
10									3.7^{H}	4.1	A	A	A	A	A	4.2	$(4.1)^{B}$							
11									4.2^{K}	4.4^{K}	4.1^{K}	4.3^{K}	4.2^{K}	4.2^{K}	4.4^{K}	4.1^{K}	4.1^{K}	3.8^{K}						
12									4.4	4.3	4.2	4.2	4.1	4.1	4.2	4.3	4.2	4.0^{H}						
13									$(4.3)^{A}$	A	4.1	4.1	4.2	4.2	4.3	3.8	3.9							
14									3.9	3.7	4.1	4.1	4.2	4.3	4.4	4.0^{H}	$(4.3)^{H}$							
15									S	4.0	4.0	4.1	4.1	4.4	4.3	4.1	4.1	3.7						
16								$(4.3)^{S}$	4.0	4.2	4.0	4.2	4.2	4.2	$(4.0)^{B}$	4.1	4.1	3.9						
17								A	A	4.1	4.1	4.2	4.2	4.0	4.1	4.2	4.2	A						
18									4.1	4.2	4.3	4.1	4.2	4.1	4.2	4.3	4.1							
19									A	4.0	4.0	4.2	4.2	4.2	4.1	4.1	A	4.1						
20									3.8	3.9	4.0	3.9	4.2	4.1	4.2	4.1	4.1	4.0^{H}						
21									3.9	4.1	4.2	4.1	4.0	4.0	4.0	4.1	4.3	A						
22									4.0	4.1	4.0	4.0	4.1	4.0	4.1	4.1	4.0	A						
23									4.0	A	3.9^{H}	3.7	4.0	4.1^{H}	4.1	4.1	4.0	4.1						
24									4.3^{K}	A^{K}	4.1^{K}	4.0^{K}	4.0^{K}	4.2^{K}	4.1^{K}	4.0^{K}	4.0^{K}	4.1^{K}						
25									A	4.1	4.1	A	4.3	4.1	4.1^{H}	4.2	4.3	A						
26									4.4^{B}	A	A	A	4.1	4.2	4.2	4.2	4.1	A						
27								4.2	4.2	4.2	4.1	4.2	4.2	4.1	4.2	4.1	4.1	3.9						
28								A	4.1	4.1	4.1	B	4.2	4.2	4.2	4.0	A	A						
29									4.1^{K}	$(4.1)^{A}_{K}$	4.1^{K}	4.0^{K}	4.1^{K}	4.2^{K}	4.3^{K}	4.4^{K}	4.1^{K}	$(3.7)^{P}_{K}$						
30																								
31																								
Median								—	4.0	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.8						
Count								2	24	24	25	21	26	25	25	26	26	15						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 85

Ionospheric Storminess at Washington, D. C.

February 1952

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	1	1			3	3
2	3	2			4	2
3	2	1			2	2
4	3	3			1	1
5	1	2			1	1
6	2	3			3	4
7	1	1			5	3
8	0	4	1400	----	4	4
9	4	2	----	1200	4	4
10	2	2	2200	----	3	4
11	4	5	----	----	4	4
12	4	1	----	1200	4	4
13	2	0			4	4
14	1	2			3	3
15	2	1			3	2
16	3	3			5	4
17	3	1			3	2
18	1	1			3	3
19	2	3			4	3
20	2	3			3	1
21	1	1			1	1
22	1	1			1	1
23	1	1	0100	----	2	2
24	4	6	----	----	5	4
25	4	2	----	0700	3	2
26	2	1			4	4
27	2	2			5	3
28	3	3			5	3
29	2	4	1200	2400	3	3

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

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

----Dashes indicate continuing storm.

Table 86

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
January 1952

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

Score:	Warning N.A.	Forecast N.A.
H	19	11
(M)	6	0
M	15	28
G	22	22
O	0	1

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

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

Table 87a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7a	-	-	-	-	-	-	2	2	2	2	-	3	-	-	-	3	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	3	4	6	8	6	5	5	4	4	9	13	10	5	5	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7a	-	-	2	2	2	3	3	3	3	3	4	5	5	4	5	6	5	6	8	4	-	-	3	3	3	-	-	-	3	3	3	-	-	-	-	-	-
9.7	x	x	x	-	3	3	3	5	3	4	6	9	6	6	6	5	4	5	5	3	3	3	4	4	3	3	3	3	3	5	3	3	3	-	-	-	-
10.7	-	-	-	-	-	3	9	6	3	5	9	6	5	8	6	5	5	4	5	3	7	6	6	6	5	3	-	-	3	4	4	3	-	-	-	-	-
14.6	-	-	-	-	-	3	4	6	4	3	3	5	6	6	6	6	6	4	4	4	4	4	4	4	4	3	3	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	4	4	4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	3	4	3	-	3	6	12	8	5	6	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	3	3	3	3	3	3	4	6	5	4	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	3	3	3	4	3	2	6	6	4	5	5	5	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 88a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7a	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2	4	3	3	4	3	2	2	2	3	2	2	-	-	-	2	2	2	-	-	-	-
2.7	2	2	3	4	3	-	-	-	-	-	-	-	-	-	3	3	8	5	4	4	4	5	4	5	5	6	3	2	3	3	2	2	3	2	3	3	3
8.7a	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	3	2	14	2	3	4	2	2	3	2	-	-	-	-	2	3	3	3	3	3	2
9.7	x	x	x	-	-	-	-	-	-	-	-	-	-	-	3	3	4	13	3	3	2	4	2	-	2	2	2	2	2	2	2	2	3	3	3	3	3
10.7	3	3	4	4	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2	4	2	2	2	3	2	2	-	-	-	2	2	2	2	3	3
14.6	3	3	3	3	-	-	-	-	-	-	-	3	3	4	4	3	3	3	3	3	5	4	3	4	4	4	4	3	3	2	2	2	2	2	3	3	3
16.7	2	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	2	3	3	5	3	2	2	2	-	-	-	-	-	-
25.7	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	4	3	2	3	3	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-
26.9	2	2	2	2	2	2	2	2	3	-	-	-	-	2	2	2	5	3	5	3	5	4	3	3	5	3	3	3	3	3	3	3	3	3	3	3	3
29.7	3	4	3	3	3	3	2	2	3	-	-	-	-	2	3	2	7	5	3	2	2	3	5	6	5	3	3	3	2	2	2	2	2	2	2	2	2

Table 89a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Feb. 1.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	x	x	x	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	-
14.6	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 87b

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
1952																																					
Feb. 1.7a	-	-	-	-	-	2	2	2	2	2	3	3	2	2	3	3	2	3	5	5	5	5	4	4	5	3	2	2	-	2	2	2	-	-	-	-	-
2.7	-	-	-	-	x	x	x	x	x	x	x	x	5	6	9	11	12	12	11	13	12	6	9	8	4	3	3	3	3	x	x	x	x	x	x	x	-
8.7a	-	-	-	-	-	-	-	-	-	5	4	5	5	4	4	6	7	6	6	8	8	9	9	6	4	3	3	3	3	3	3	-	-	-	-	-	-
9.7	-	-	-	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
10.7	-	-	-	4	4	5	5	4	5	6	5	4	-	-	3	4	6	9	12	14	21	25	15	9	6	6	8	9	6	5	3	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	3	6	11	3	-	3	7	6	6	9	6	6	5	6	6	5	5	3	-	-	-	-	-	-	-
16.7	-	-	-	-	x	x	x	x	x	x	x	x	x	3	3	4	4	6	10	13	13	15	16	14	12	9	6	5	4	4	4	4	4	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	3	4	5	10	17	17	10	5	4	5	4	5	6	4	4	5	5	4	6	4	-	-	-	-	-	-
26.9	-	-	-	-	2	2	3	3	3	2	2	2	3	6	12	11	13	5	5	5	4	4	6	6	5	4	4	4	4	6	4	3	-	-	-	-	-
29.7	-	-	-	-	-	3	3	3	3	3	3	3	3	4	4	4	6	6	6	8	4	4	4	4	4	3	3	2	3	4	3	3	-	-	-	-	-

Table 88b

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
1952																																					
Feb. 1.7a	-	-	-	-	-	-	-	-	-	2	3	3	3	2	3	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.7	3	3	3	3	x	x	x	x	x	x	x	x	3	2	2	2	-	-	-	-	-	-	-	-	-	-	2	2	2	x	x	x	x	x	x	x	2
8.7a	2	2	2	2	2	3	3	3	3	2	2	2	2	4	3	2	-	-	-	2	2	3	3	2	3	3	2	3	3	3	2	2	3	3	3	3	3
9.7	3	3	3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10.7	3	3	3	3	3	2	2	2	2	2	3	3	4	4	4	3	3	3	3	6	4	15	3	-	-	-	-	3	3	2	2	2	2	4	4	3	3
14.6	3	3	3	3	3	3	3	4	3	3	3	3	3	14	5	5	4	5	7	5	4	2	-	-	-	-	2	2	2	3	3	3	3	3	3	3	3
16.7	-	2	3	3	x	x	x	x	x	x	x	x	x	8	5	3	3	5	3	8	6	4	3	4	-	-	-	2	2	4	2	3	2	3	3	4	2
25.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	6	4	4	4	4	4	3	5	4	-	-	-	-	-	-	-	2	2	2	2	2	2
26.9	3	3	3	3	3	3	-	-	-	2	3	3	2	2	5	5	3	2	3	2	3	4	4	3	2	2	2	2	2	-	-	-	-	2	2	2	2
-29.7	2	2	2	2	2	2	2	2	2	2	4	3	3	3	2	3	2	2	2	2	2	3	2	2	-	2	2	3	2	2	2	2	2	2	3	3	3

Table 89b

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
1952																																					
Feb. 1.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	x	x	x	x	x	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	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
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	2	2	2	2	2	2	2	2	2	-
16.7	-	-	-	-	x	x	x	x	x	x	x	x	x	-	-	-	2	2	2	2	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-
25.7	-	-	-	2	2	2	2	2	2	3	3	2	2	2	3	4	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.9	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	-	-	-	-	-	3	3	4	4	5	7	6	7	6	7	5	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.7	-	-	-	-	2	2	2	4	4	5	5	5	8	11	10	9	8	8	6	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	X	X	X	X	2	6	6	7	8	7	6	11	12	14	14	36	32	40	43	36	14	12	8	5	5	4	4	4	3	3	4	4	3	2	2	-	-
14.8a	-	-	-	-	-	-	-	2	2	3	3	4	4	4	4	4	3	4	5	5	5	5	5	4	4	3	3	3	2	2	2	2	2	X	X	X	X
15.7	-	2	2	2	3	6	10	11	8	10	11	8	10	11	8	14	20	12	12	11	10	10	10	8	8	6	5	4	4	5	4	5	4	3	2	-	-
21.7	2	2	2	-	-	-	2	3	4	4	3	3	5	5	8	8	8	11	10	10	10	11	11	10	10	10	9	7	6	5	5	5	3	-	-	-	-
22.8	2	2	2	2	2	2	2	2	2	3	3	4	5	5	5	5	5	4	8	12	14	15	12	11	9	4	8	9	8	7	4	3	3	-	-	-	-
24.7	-	-	-	-	-	-	-	-	2	2	2	2	3	3	4	5	9	11	14	16	20	19	17	16	15	11	11	8	10	8	7	5	2	2	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5	7	8	9	13	15	16	15	14	13	12	11	8	6	6	6	5	10	8	3	-	-	-
27.7	-	-	-	-	-	-	-	2	-	4	5	10	10	8	12	20	39	28	23	11	8	6	5	4	3	3	3	5	5	4	3	3	2	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	3	5	8	14	10	10	28	39	32	28	12	8	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
30.9a	-	-	-	-	-	-	-	3	3	8	8	7	6	6	5	6	8	8	5	4	3	3	3	3	3	-	-	-	-	-	-	-	-	-	X	X	X
31.7	-	-	-	-	-	3	3	5	6	8	8	10	8	8	8	11	7	7	5	12	13	5	4	3	3	2	2	-	-	-	2	2	-	-	-	-	-

Table 91a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.7	2	2	3	3	3	3	2	-	-	-	-	-	-	-	-	-	2	3	5	3	2	2	2	2	4	3	2	-	2	3	-	-	2	2	2	2	-
9.7	X	X	X	X	2	-	-	-	-	-	-	-	-	-	-	10	16	5	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
15.7	2	2	3	2	2	2	-	-	-	-	-	-	2	2	-	3	11	10	3	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-
21.7	2	2	2	3	3	2	2	-	-	-	2	3	2	-	-	-	-	2	-	-	-	6	5	-	-	-	-	-	-	5	3	-	2	-	2	-	-
22.8	-	-	-	-	2	2	-	2	2	2	3	2	2	3	2	3	3	2	2	-	3	8	2	2	-	-	-	-	-	3	2	2	-	-	-	-	-
24.7	4	4	4	4	2	3	4	4	3	3	3	3	4	3	3	3	2	2	-	3	4	2	2	4	3	2	-	-	-	2	3	3	3	3	2	2	-
25.7	2	2	3	3	2	2	2	2	2	3	2	4	4	3	2	2	2	3	5	7	7	4	5	8	4	4	2	2	2	2	2	2	2	2	-	2	2
27.7	-	2	3	3	3	3	2	2	2	2	2	3	-	-	-	11	20	16	16	3	3	3	5	4	5	3	2	2	2	3	4	4	3	2	2	2	-
28.7	2	3	2	-	4	2	2	2	2	2	3	3	-	-	2	8	16	14	23	5	2	8	5	4	4	3	2	2	3	2	2	2	-	-	-	2	-
30.9a	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	-	-	-	3	3	2	2	-	-	2	-	-	-	-	-	X	X	X
31.7	2	3	3	2	2	2	2	2	2	-	-	-	-	3	2	2	2	7	5	4	4	4	4	4	5	4	3	2	2	2	2	2	2	2	2	-	2

Table 92a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	X	X	X	X	-	-	-	-	-	-	-	-	-	2	3	2	3	4	5	6	7	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
14.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5	7	4	4	4	3	3	-
4.7	-	-	-	-	2	3	3	4	4	4	2	3	4	4	4	5	4	4	4	4	8	7	6	6	6	7	6	6	3	8	6	3	-	-	-	-	-
9.7	-	-	-	-	-	-	2	2	3	4	5	4	4	5	8	11	14	15	14	11	10	6	6	5	5	3	-	-	-	2	2	2	-	-	X	X	X
14.8a	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	2	2	2	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5	11	14	11	10	8	11	10	10	8	5	3	2	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	2	2	3	3	5	5	8	12	14	18	23	23	20	12	8	5	3	4	3	3	4	5	4	3	3	2	2
22.8	-	-	-	-	-	-	-	-	-	3	4	5	6	6	5	8	12	13	16	20	23	20	23	16	8	5	5	3	3	3	3	3	3	3	3	2	2
24.7	-	-	-	-	-	-	-	2	6	7	6	5	4	4	4	3	5	6	11	26	26	23	11	8	12	10	9	6	5	8	7	8	8	5	3	-	-
25.7	-	-	-	-	-	-	2	3	5	8	6	3	2	3	5	4	3	2	11	20	23	20	14	11	10	8	11	10	8	7	6	10	8	3	-	-	-
27.7	-	-	-	-	-	-	2	3	5	5	4	3	3	5	5	4	4	10	11	13	14	11	8	5	5	10	10	8	6	6	6	6	4	4	3	2	-
28.7	-	-	-	-	2	2	3	5	5	5	5	5	6	5	6	4	4	9	10	10	9	8	6	5	4	5	8	6	6	8	5	6	3	-	-	-	-
30.9a	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	-	-	-	-
31.7	-	-	-	-	-	-	2	2	4	5	4	4	4	5	5	5	8	8	7	8	9	10	9	8	7	5	4	4	4	5	6	2	2	-	-	-	-

Table 91b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	2	2
4.7	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	2	-	-	3	4	3	3	8	5	3	-	2	-	3	2	2	-	-	2	2	-	2
9.7	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	6	-	-	3	6	6	3	-	-	-	2	-	-	-	-	-	-	X	X	X
14.8a	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	-	-	-	-	-	-	-
15.7	-	-	-	-	2	2	2	2	3	3	2	3	4	4	3	3	3	3	2	-	2	3	4	-	-	-	-	-	-	2	2	3	2	2	2	3	2
21.7	-	-	2	2	-	-	-	2	-	-	2	4	6	7	3	2	2	3	5	4	11	10	8	5	-	-	-	-	-	-	-	-	2	2	2	2	2
22.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	8	3	9	11	11	6	4	-	-	-	-	-	-	-	2	2	2	2	3	4
25.7	2	2	2	-	-	-	-	-	-	-	-	3	2	2	2	3	4	5	4	11	16	12	2	-	-	-	-	-	-	-	2	4	4	3	2	3	2
27.7	-	2	2	3	2	2	-	-	-	-	-	-	3	3	2	2	3	2	3	5	4	3	2	3	2	2	-	-	-	-	-	2	-	-	2	2	-
28.7	-	2	2	2	3	2	2	2	2	2	-	-	2	2	2	2	-	-	-	3	2	3	8	5	4	-	-	-	-	2	-	2	2	2	2	2	2
30.9a	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	3	-	-	-	2	2
31.7	2	3	3	2	2	3	2	2	2	2	3	5	5	3	2	2	3	-	2	2	3	3	3	2	-	-	2	2	-	-	-	2	2	2	2	3	2

Table 92b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jan. 2.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
14.8a	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	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-
22.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	4	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	4	4	4	3	2	2	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.9a	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	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 93

Zürich Provisional Relative Sunspot Numbers

February 1952

Date	R_Z*	Date	R_Z*
1	21	16	44
2	7	17	53
3	0	18	52
4	10	19	54
5	22	20	35
6	25	21	28
7	24	22	20
8	23	23	26
9	28	24	17
10	18	25	0
11	0	26	0
12	16	27	0
13	23	28	0
14	35	29	0
15	44	Mean:	21.6

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

Table 94

American Relative Sunspot Numbers

January 1952

Date	R_A' *	Date	R_A' *
1	61	17	50
2	60	18	53
3	43	19	42
4	26	20	39
5	30	21	39
6	14	22	12
7	14	23	26
8	25	24	28
9	47	25	21
10	49	26	26
11	54	27	24
12	57	28	25
13	55	29	18
14	74	30	26
15	74	31	18
16	67	Mean:	38.6

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

Table 95

Solar Flares, January 1952

Observatory	Date 1952	Time Observed: Beginning (GCT)	Time Observed: Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible Hemisph)	Position: Latitude (Deg)	Position: Longitude Diff (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac. Peak	Jan. 15	2025	2110	45	79	N16	E45	2045	9	3	1 -	
McMath	16	1440				N04	E37	--			1 -	
"	31	1955				N12	E56	--			1 +	
Flares not previously reported - 1951												
Sac. Peak	May 14	2100	2110	10	83	N08	W19	2105	10	9	1 -	
"	20	1820	1830	10	82	S18	E25	1825	8	9	1 -	
"	June 25	1945	1955	10	104	N19	W39	1950	5	9	1	Yes
Correction to flare position previously reported - 1951												
Sac. Peak	May 18	1725	1815	50	41	N16	E45	1737	6	9	1 -	

Sac. Peak = Sacramento Peak

Table 96

Indices of Geomagnetic Activity for January 1952

Preliminary values of mean K-indices, Kw, from 35 observatories;
Preliminary values of international character-figures, C;
Magnetically selected quiet and disturbed days

Gr. Day 1952	Values Kw	Sum	C	Final Sel. Days
1	4.1 2.7 3.3 3.3 2.7 2.6 2.9 2.3	23.9	1.0	Five
2	1.9 2.0 1.1 1.3 1.3 1.6 2.4 1.8	13.4	0.2	Quiet
3	1.8 1.8 1.2 1.3 1.9 1.0 3.6 3.2	15.8	0.6	
4	3.2 1.6 1.3 2.0 2.9 3.0 3.2 4.4	21.6	1.0	18
5	3.5 4.6 4.7 3.6 4.5 3.8 2.7 4.1	31.5	1.3	19
				20
6	3.7 3.7 3.5 3.2 2.8 4.5 3.2 2.4	27.0	1.2	21
7	2.3 2.3 2.1 2.1 4.0 4.1 3.4 3.3	23.6	1.0	26
8	2.4 3.0 2.0 2.6 2.6 2.5 1.7 0.9	17.7	0.5	
9	0.5 2.3 2.9 1.9 1.8 2.7 3.7 2.9	18.7	0.7	
10	2.6 4.3 3.5 3.0 3.0 4.6 3.5 4.2	28.7	1.2	
11	3.5 3.1 2.9 2.9 4.0 4.5 3.6 3.4	27.9	1.2	Five
12	4.0 4.2 3.4 3.4 3.9 4.5 4.2 4.5	32.1	1.3	Dist.
13	3.5 3.5 3.1 4.5 5.2 4.4 4.8 4.5	33.5	1.5	
14	3.7 4.0 3.7 3.4 4.1 4.7 4.5 4.5	32.6	1.4	5
15	3.1 3.3 3.1 3.0 5.4 4.9 3.7 2.4	28.9	1.3	13
				14
16	2.9 1.9 2.1 2.6 2.3 2.6 2.7 2.6	19.7	0.5	27
17	1.8 2.0 1.5 1.5 1.0 1.3 2.2 1.8	13.1	0.2	29
18	1.4 1.0 0.5 0.8 0.8 0.9 1.1 1.0	7.5	0.0	
19	0.8 0.6 0.6 0.8 1.8 1.6 2.4 1.6	10.2	0.1	
20	0.5 1.2 0.9 1.1 1.0 1.3 2.3 2.1	10.4	0.2	Ten
				Quiet
21	1.9 1.2 0.9 1.7 1.4 1.3 1.7 1.4	11.5	0.2	
22	1.5 1.3 1.4 1.5 1.8 1.9 2.5 2.9	14.8	0.5	2
23	2.5 1.7 2.2 2.9 4.1 4.3 3.9 4.0	25.6	1.1	3
24	3.2 1.7 1.6 1.5 2.9 3.7 2.6 2.9	20.1	0.8	8
25	2.8 1.0 1.5 2.5 2.9 2.7 2.8 1.9	18.1	0.6	17
				18
26	0.4 0.5 1.2 2.3 2.7 2.1 1.3 0.9	11.4	0.2	19
27	1.3 2.9 3.5 3.9 5.3 5.1 3.7 3.9	29.6	1.5	20
28	2.9 4.1 3.0 2.9 3.5 3.4 2.2 3.0	25.0	1.0	21
29	1.8 1.0 2.4 3.1 3.5 5.2 5.7 4.9	27.6	1.5	22
30	3.0 3.0 2.8 2.2 2.7 1.3 2.7 2.5	20.2	0.7	26
31	1.1 1.1 1.2 1.5 3.4 3.5 2.2 2.6	16.6	0.8	
Mean	2.37 2.23 2.94 3.00	2.65	0.82	
	2.34 2.40 3.08 2.86			

N.B. Kp data was not received in time for publication in this issue; therefore Kw is substituted.

Table 97

Sudden Ionosphere Disturbances Observed at Washington, D. C.

February 1952

1952 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
February 16	1840	1950	Ohio, D. C., Colombia, England, Mexico	0.02	Solar flare** 1835

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

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

Table 98

Sudden Ionosphere Disturbances Reported by Institut für Ionosphärenforschung, as Observed at Lindau, Harz, Germany

1952 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
January					
9	1037	1130	München**	0.3	
21	0937	0950	München**	0.5	

*Ratio of received field intensity during SID to average field intensity before and after, for station München, 6160 kilocycles, 400 kilometers distant.

**Station München, 6160 kilocycles.

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

GRAPHS OF IONOSPHERIC DATA

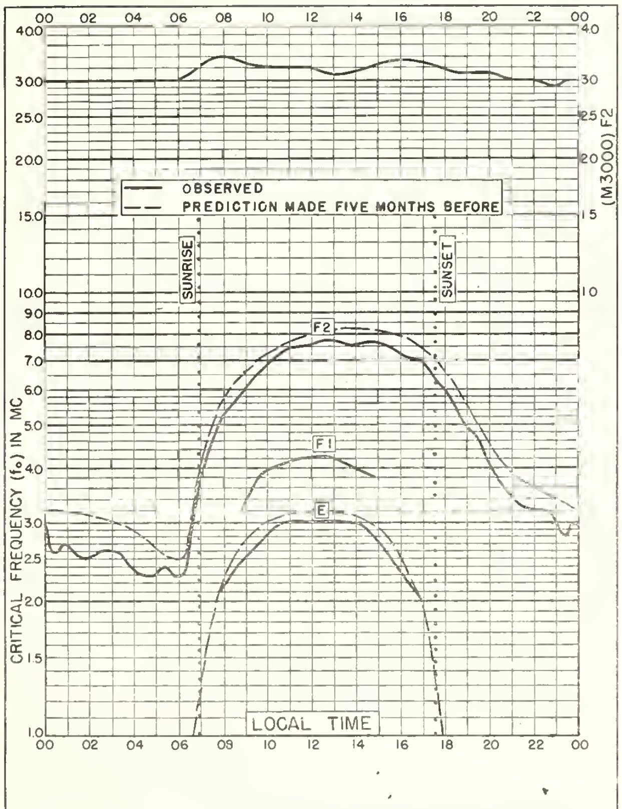

Fig. 1. WASHINGTON, D. C. 38.7°N, 77.1°W FEBRUARY 1952

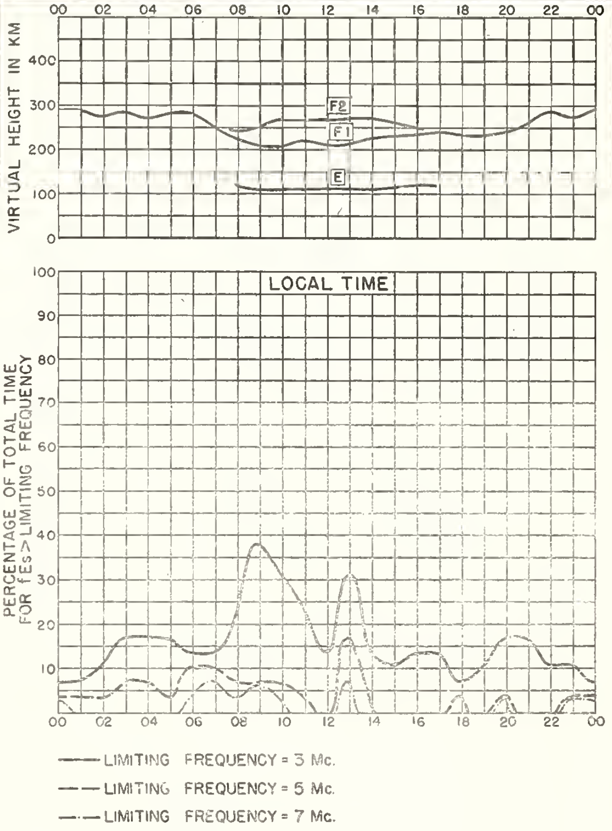

Fig. 2. WASHINGTON, D. C. FEBRUARY 1952

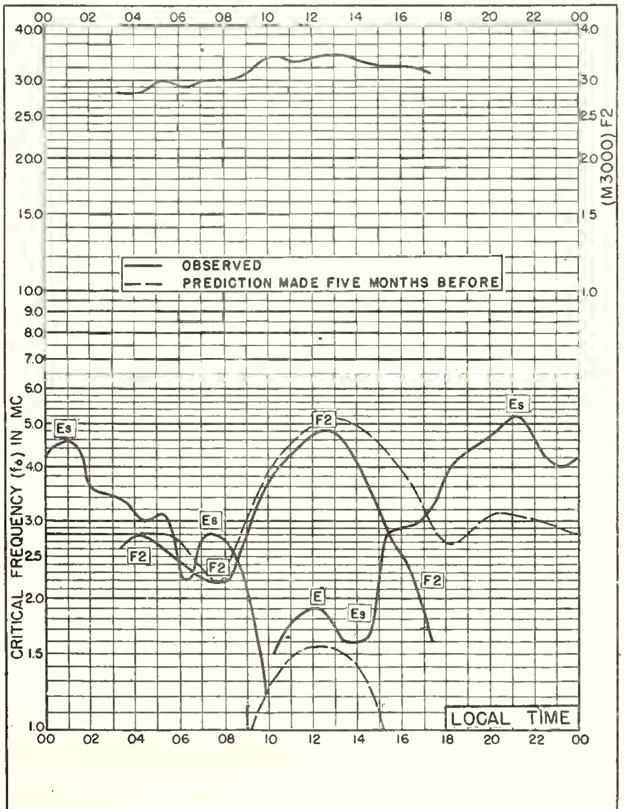

Fig. 3. TROMSO, NORWAY 69.7°N, 19.0°E JANUARY 1952

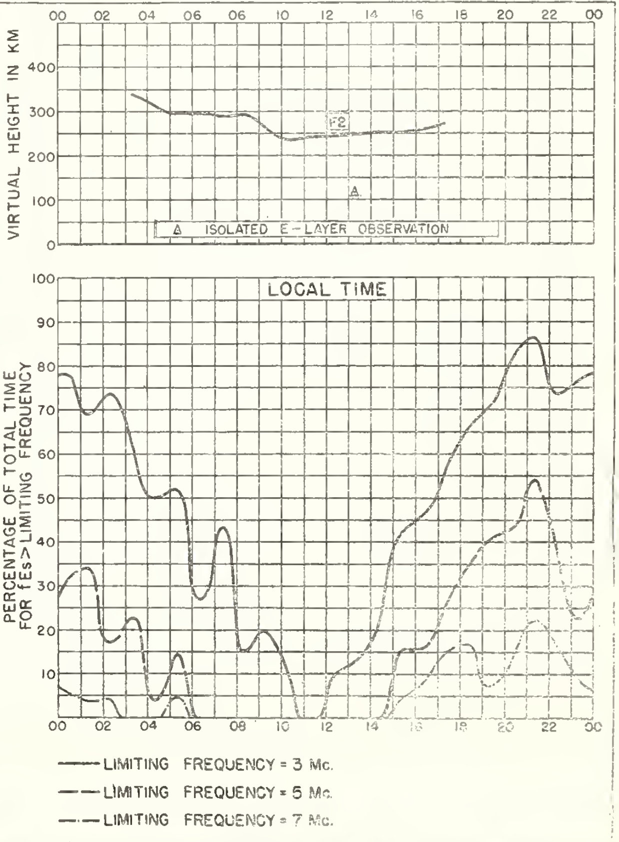

Fig. 4. TROMSO, NORWAY JANUARY 1952

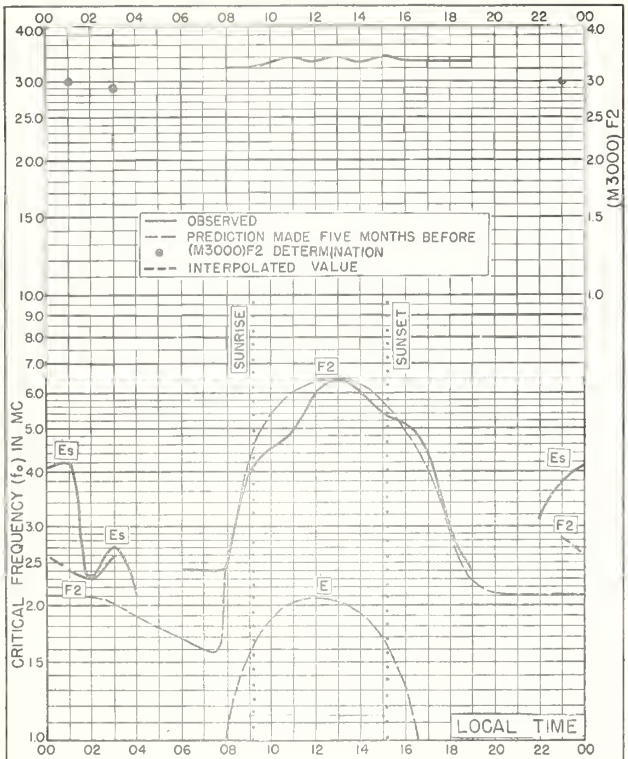

Fig. 5. ANCHORAGE, ALASKA
61.2°N, 149.9°W JANUARY 1952

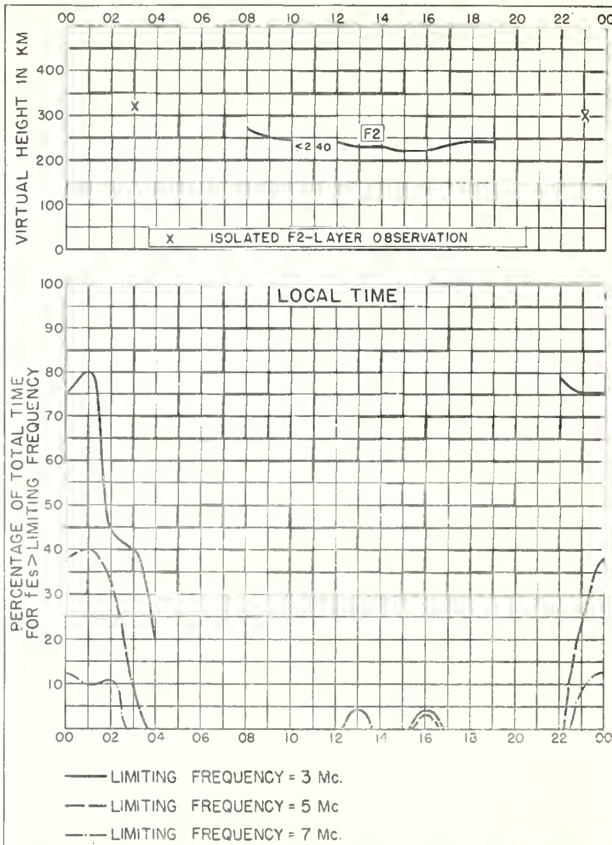

Fig. 6. ANCHORAGE, ALASKA JANUARY 1952

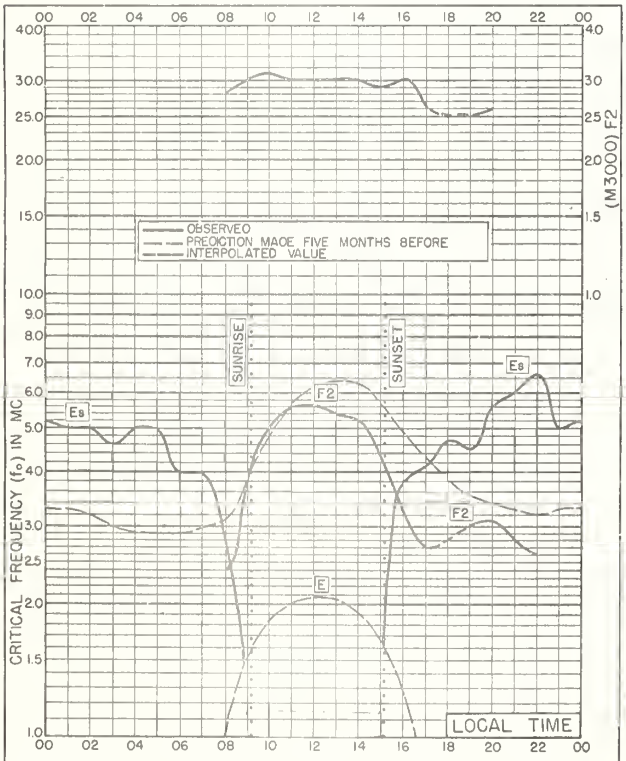

Fig. 7. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W JANUARY 1952

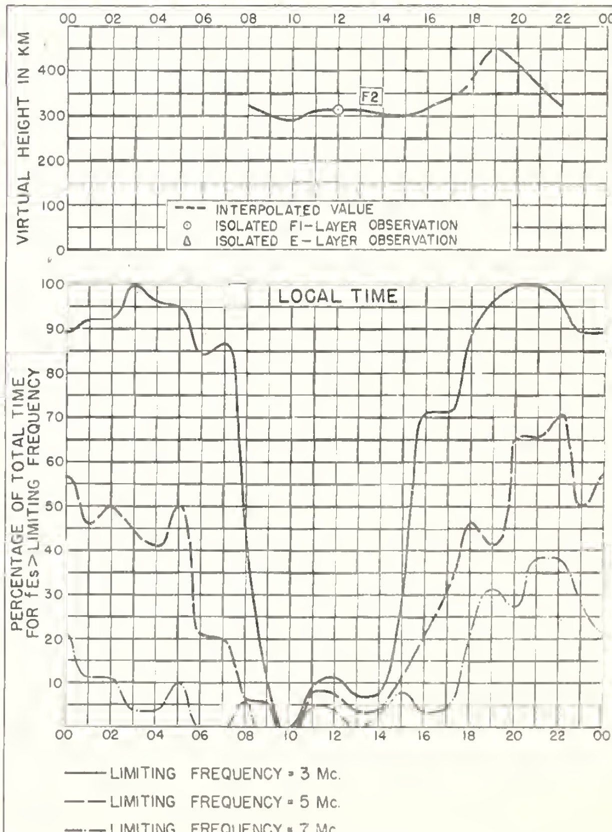

Fig. 8. NARSARSSUAK, GREENLAND JANUARY 1952

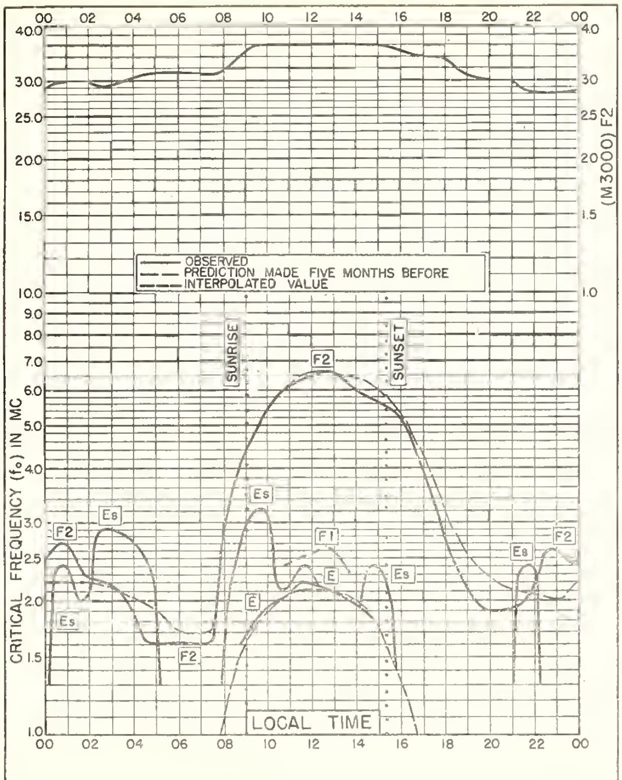

Fig. 9. OSLO, NORWAY
60.0°N, 11.1° E JANUARY 1952

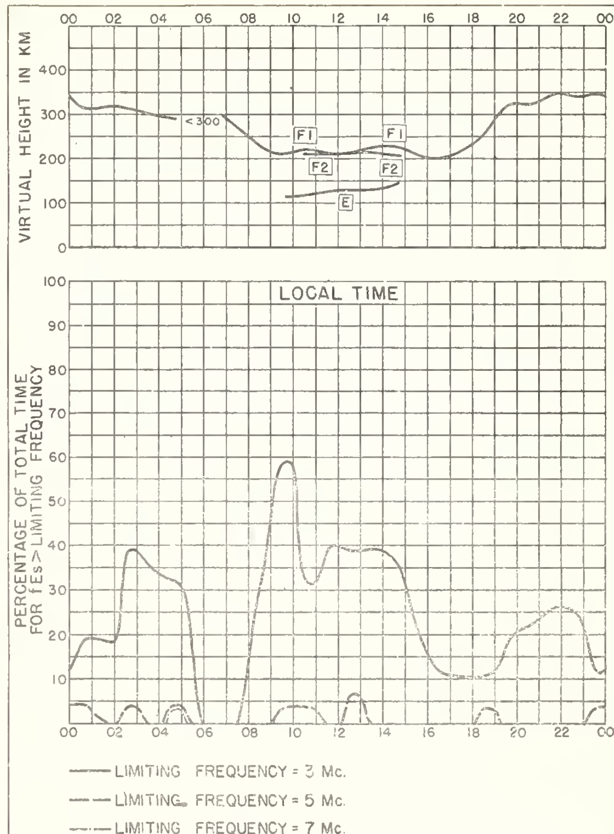

Fig. 10. OSLO, NORWAY JANUARY 1952

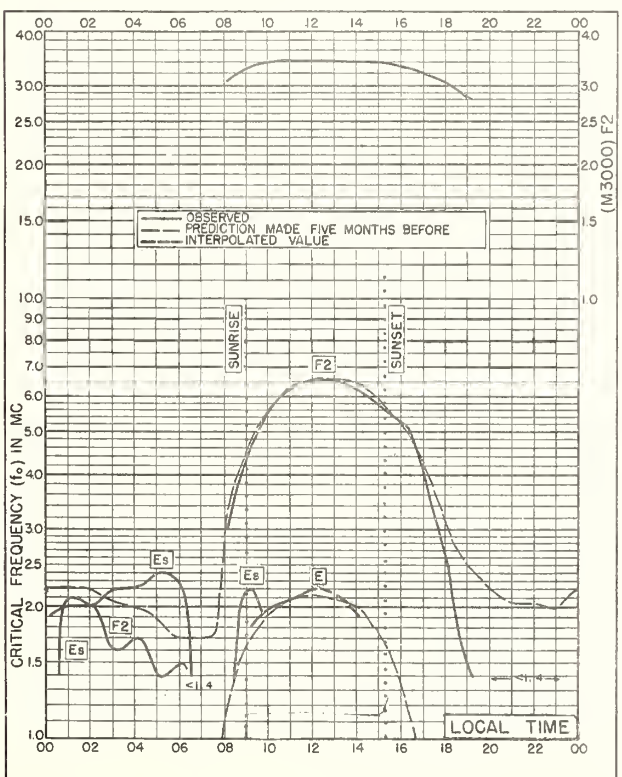

Fig. 11. UPSALA, SWEDEN
59.8° N, 17.6° E JANUARY 1952

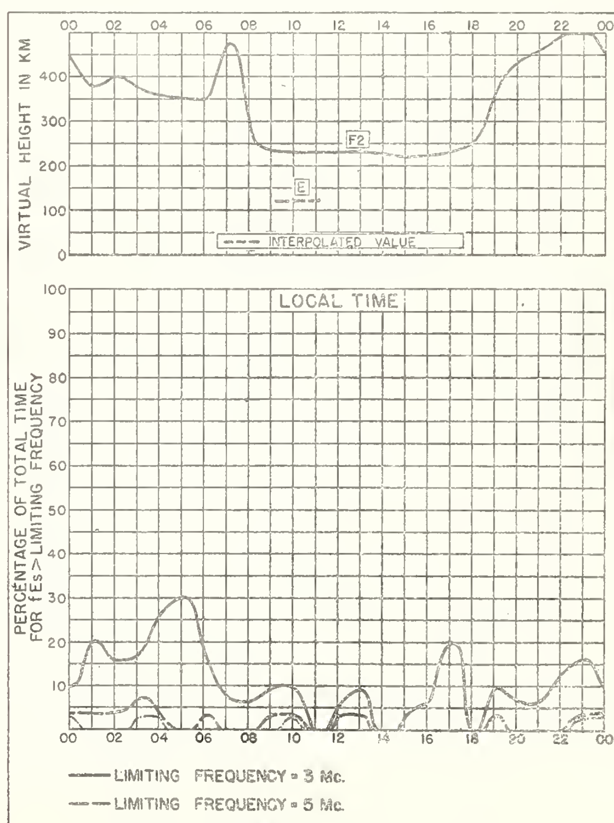

Fig. 12. UPSALA, SWEDEN JANUARY 1952

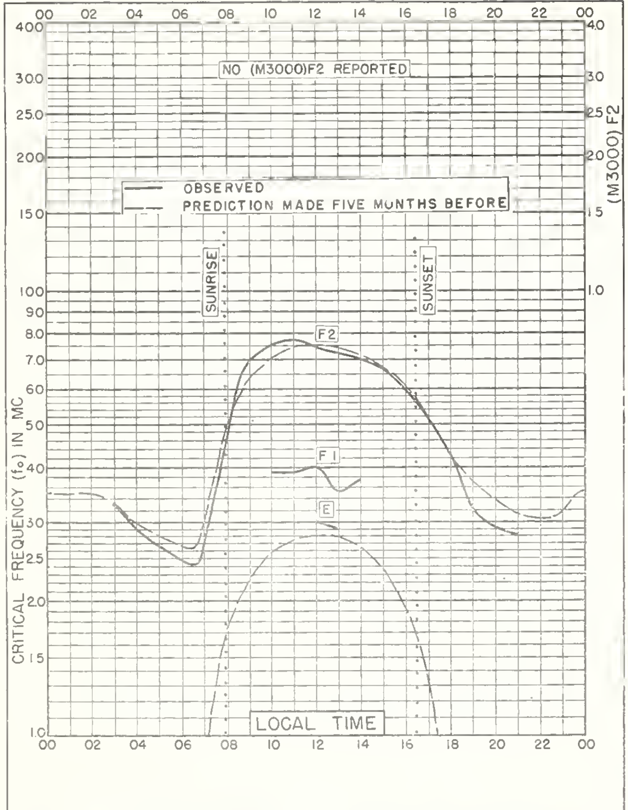

Fig. 13. GRAZ, AUSTRIA
47.1°N, 15.5°E JANUARY 1952

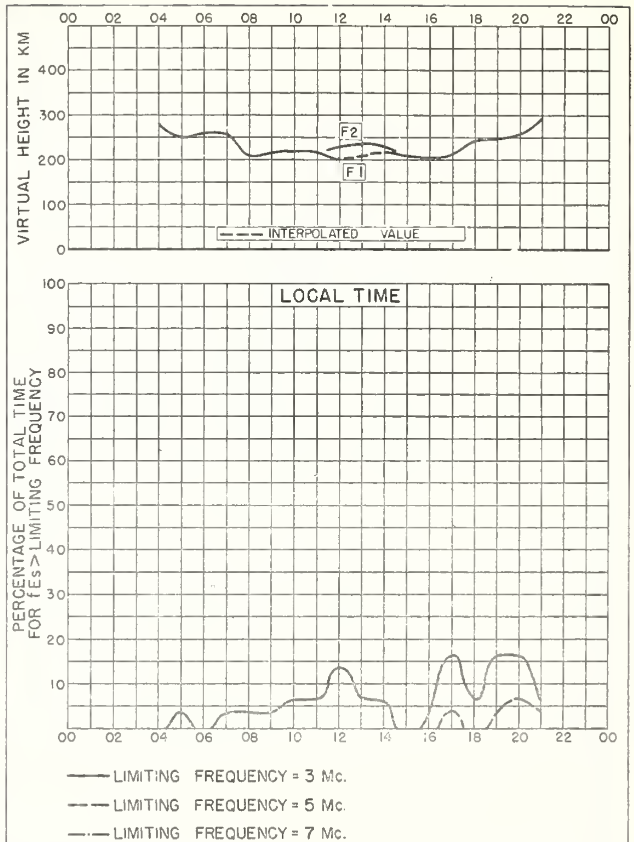

Fig. 14. GRAZ, AUSTRIA JANUARY 1952

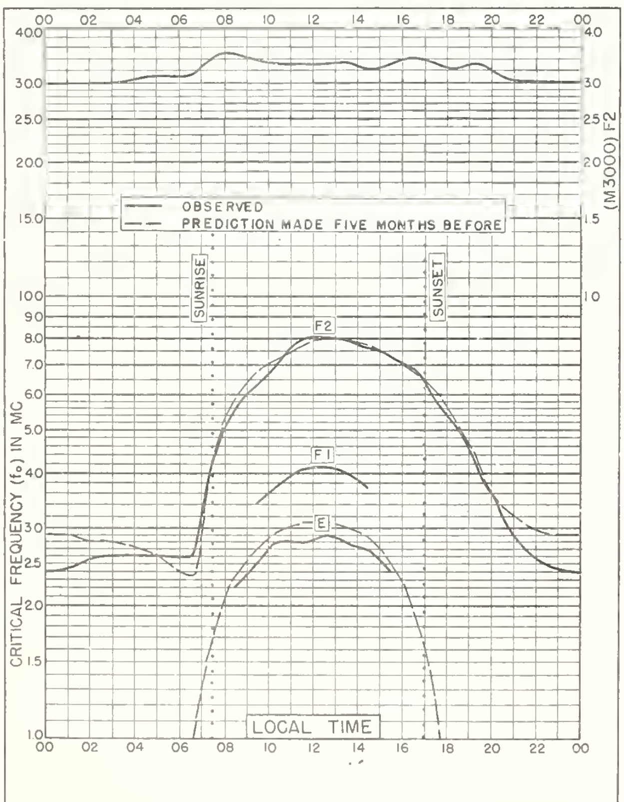

Fig. 15. BATAVIA, OHIO
39.1°N, 84.1°W JANUARY 1952

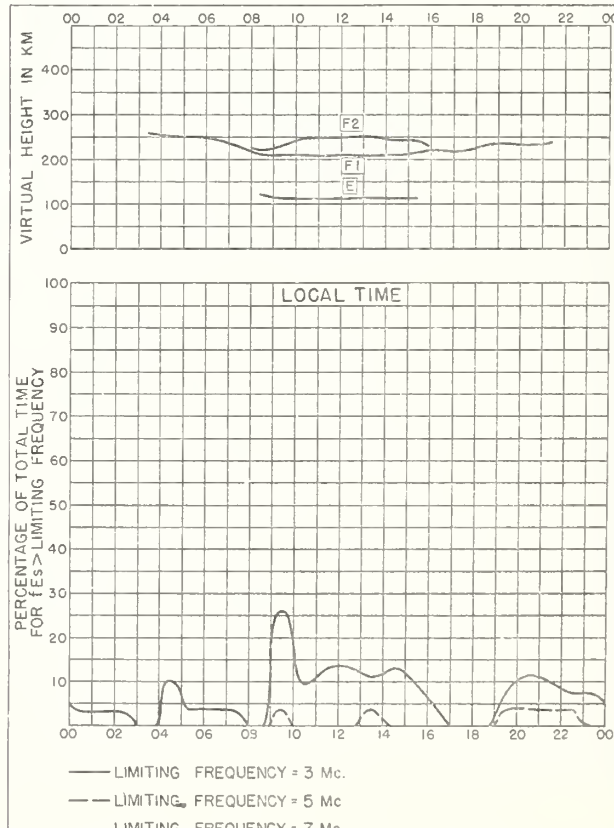

Fig. 16. BATAVIA, OHIO JANUARY 1952

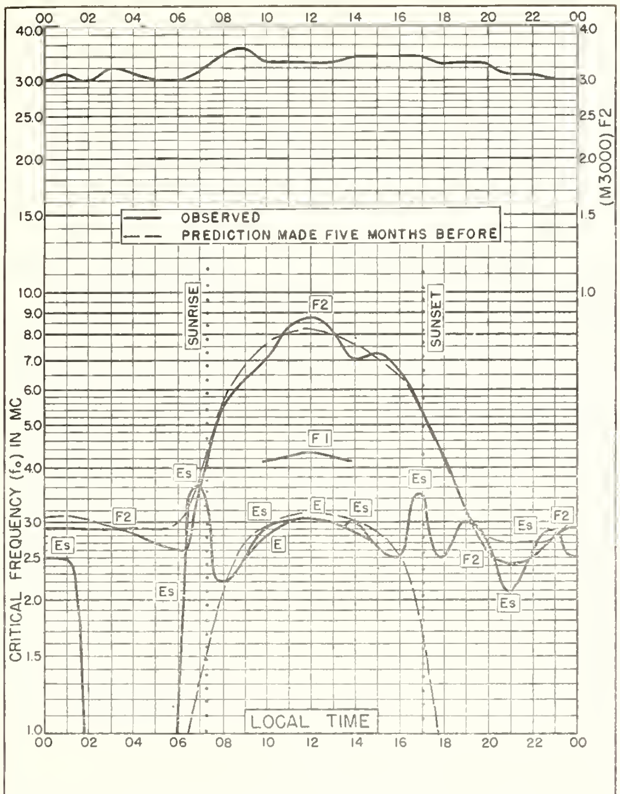

Fig. 17. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JANUARY 1952

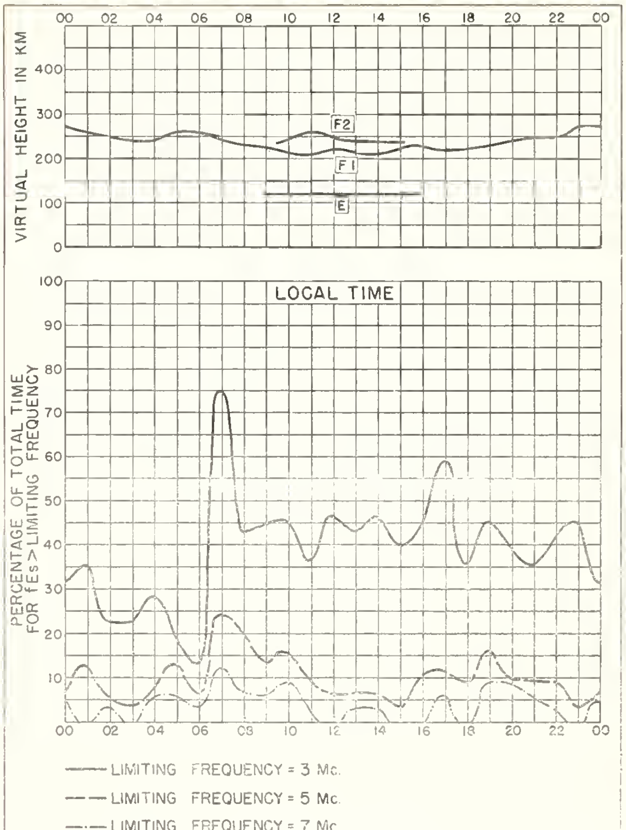

Fig. 18. SAN FRANCISCO, CALIFORNIA JANUARY 1952

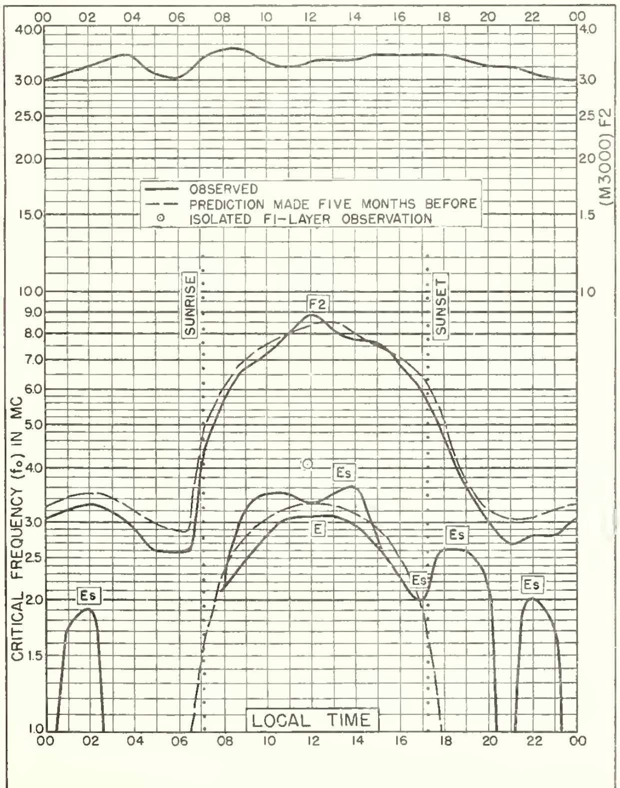

Fig. 19. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JANUARY 1952

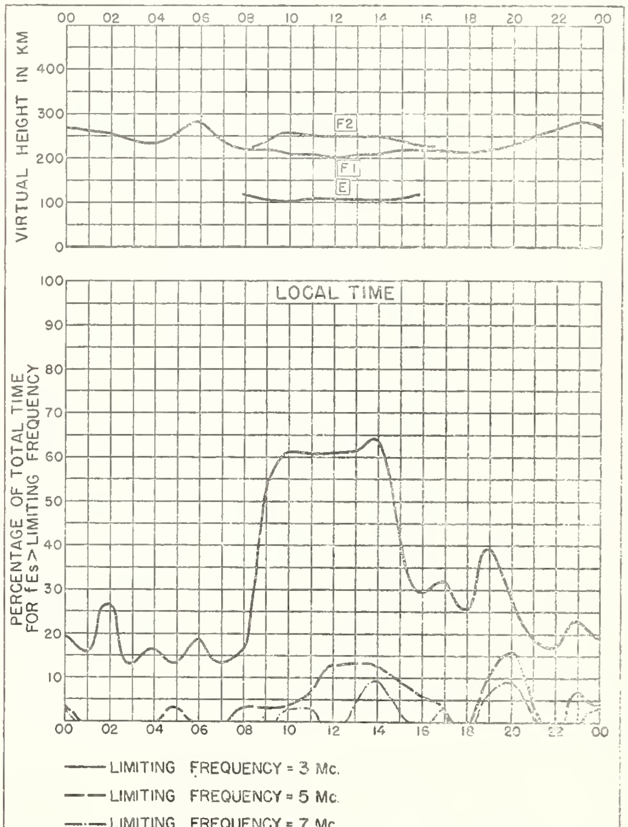

Fig. 20. WHITE SANDS, NEW MEXICO JANUARY 1952

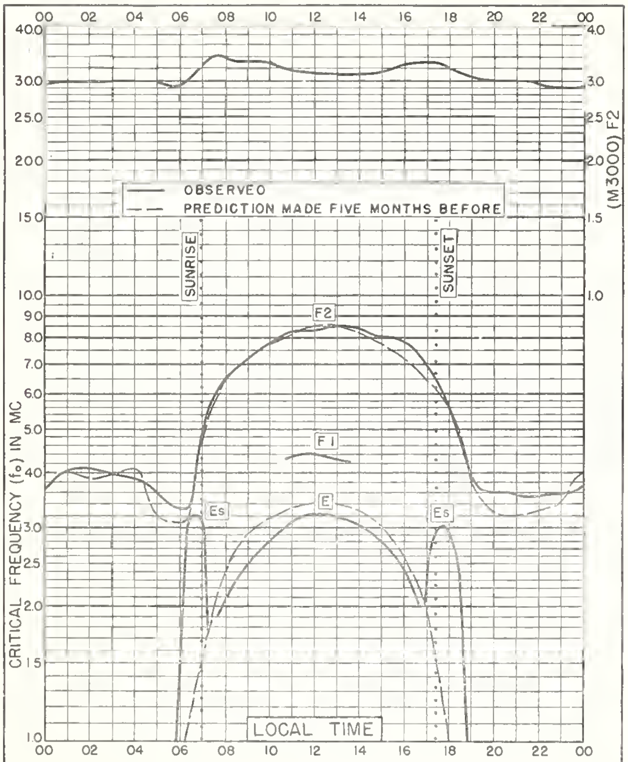

Fig. 21. COCOA, FLORIDA
28.2° N, 80.6° W JANUARY 1952

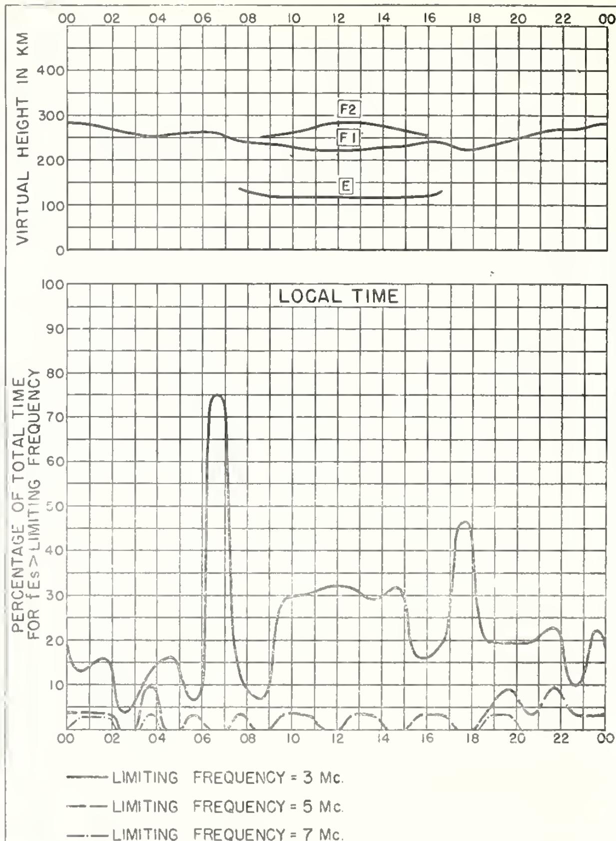

Fig. 22. COCOA, FLORIDA JANUARY 1952

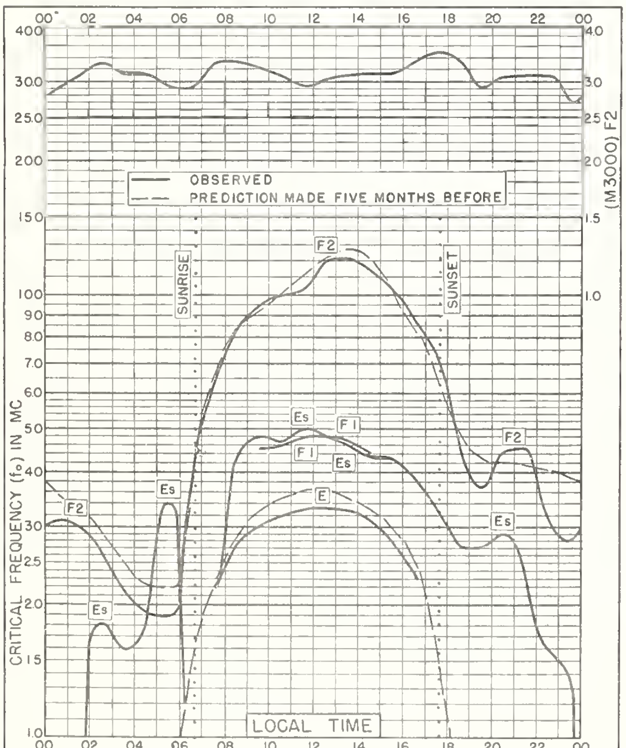

Fig. 23. MAUI, HAWAII
20.8° N, 156.5° W JANUARY 1952

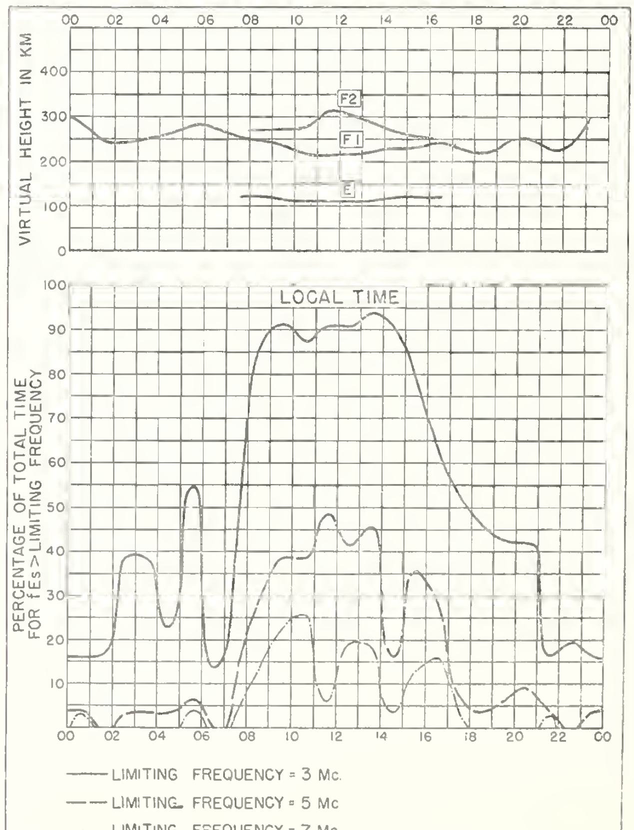

Fig. 24. MAUI, HAWAII JANUARY 1952

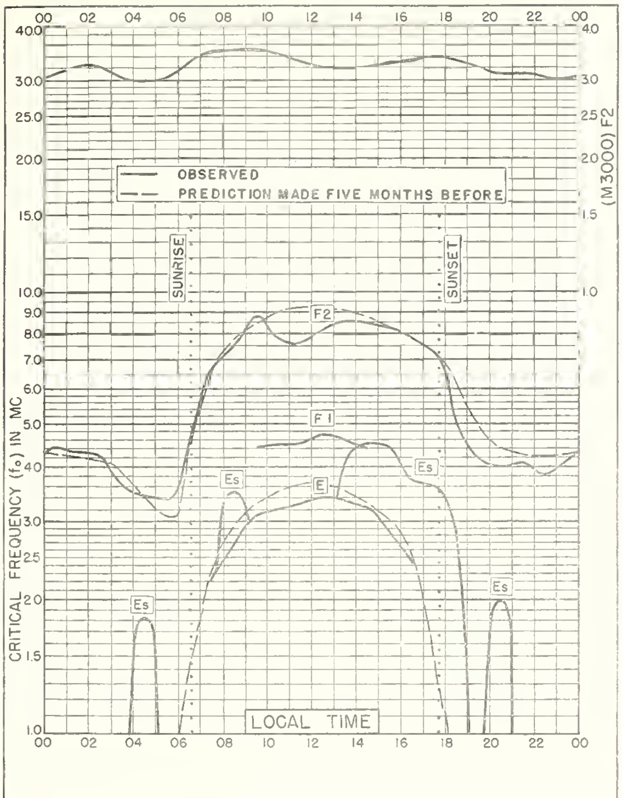

Fig. 25. PUERTO RICO, W. I.
18.5°N, 67.2°W JANUARY 1952

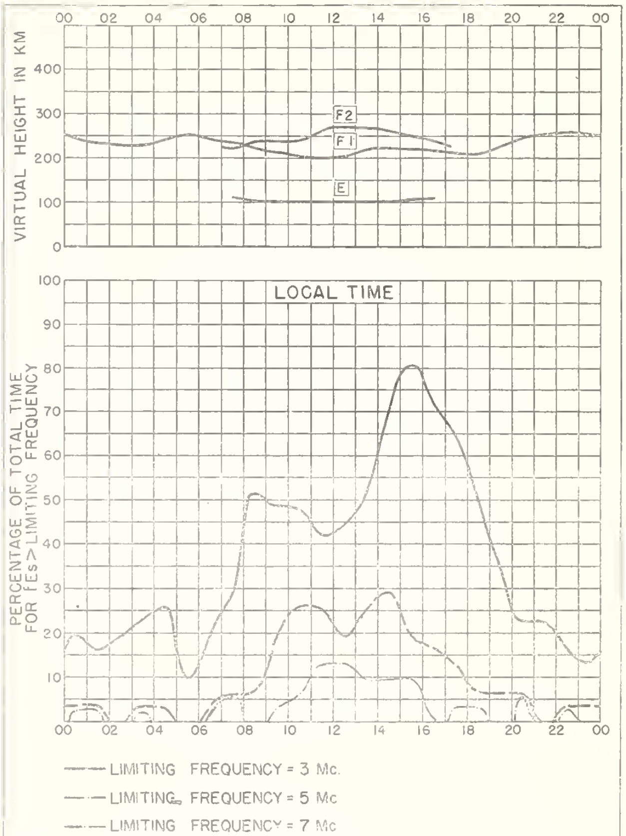

Fig. 26. PUERTO RICO, W. I. JANUARY 1952

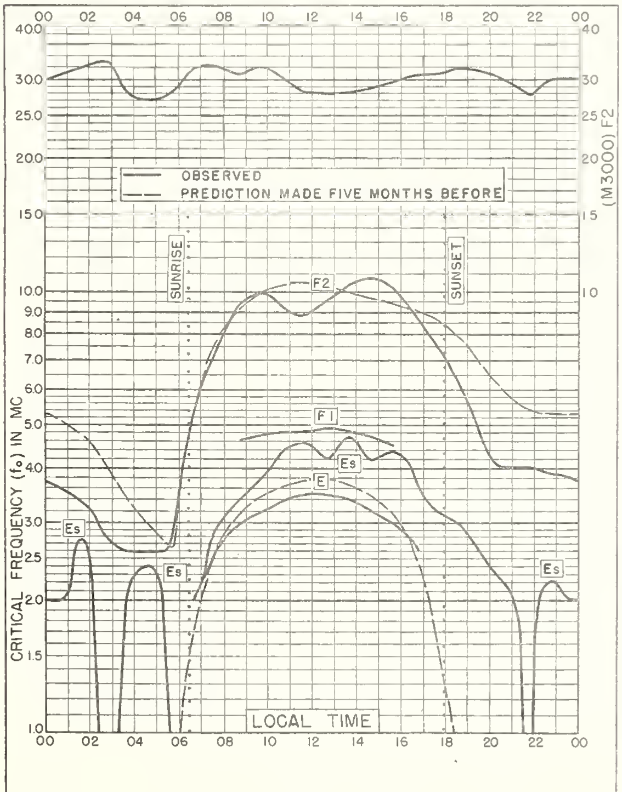

Fig. 27. PANAMA CANAL ZONE
9.4° N, 79.9° W JANUARY 1952

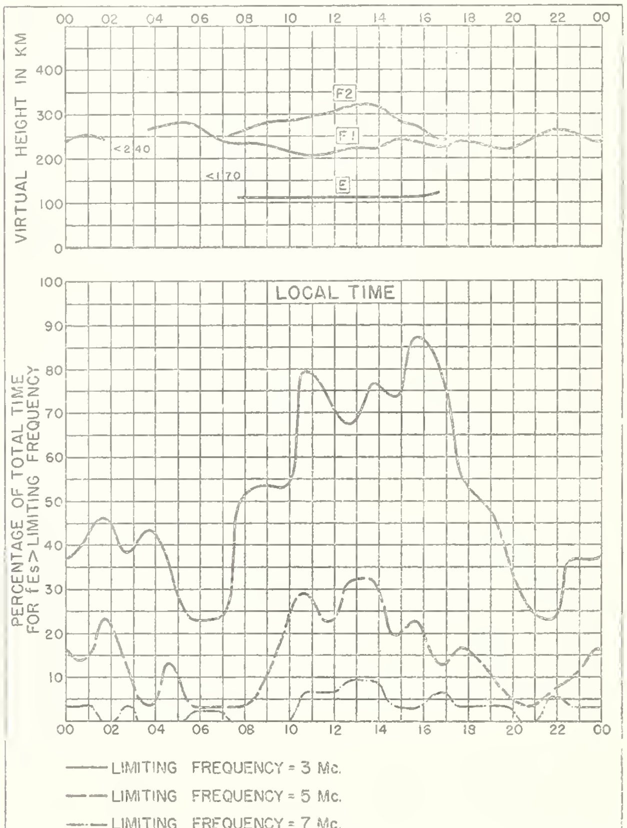

Fig. 28. PANAMA CANAL ZONE JANUARY 1952

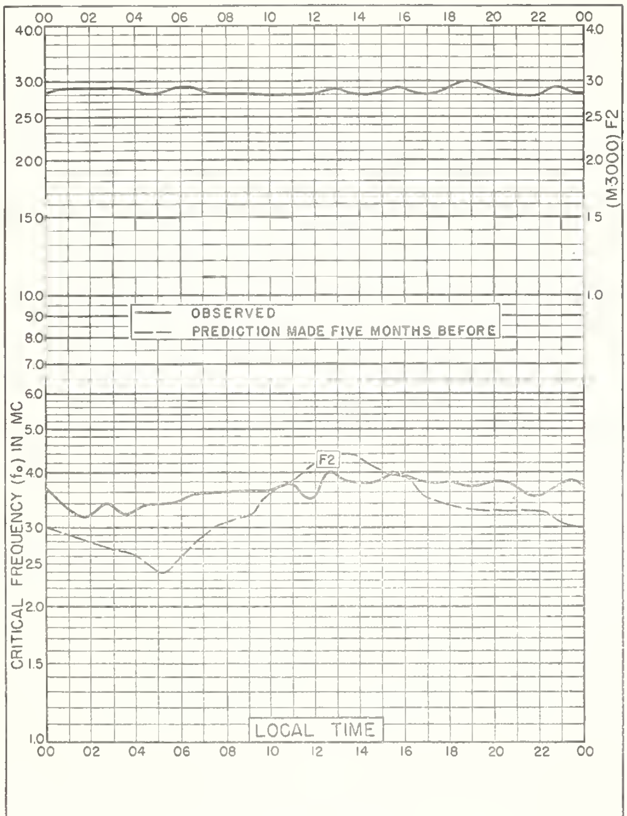

Fig. 29. RESOLUTE BAY, CANADA
74.7° N, 94.9° W DECEMBER 1951

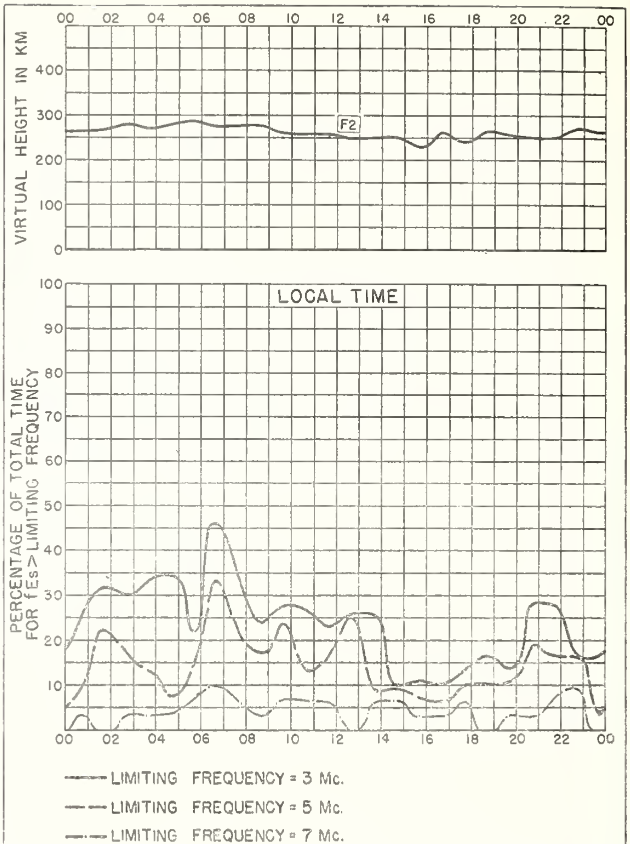

Fig. 30. RESOLUTE BAY, CANADA DECEMBER 1951

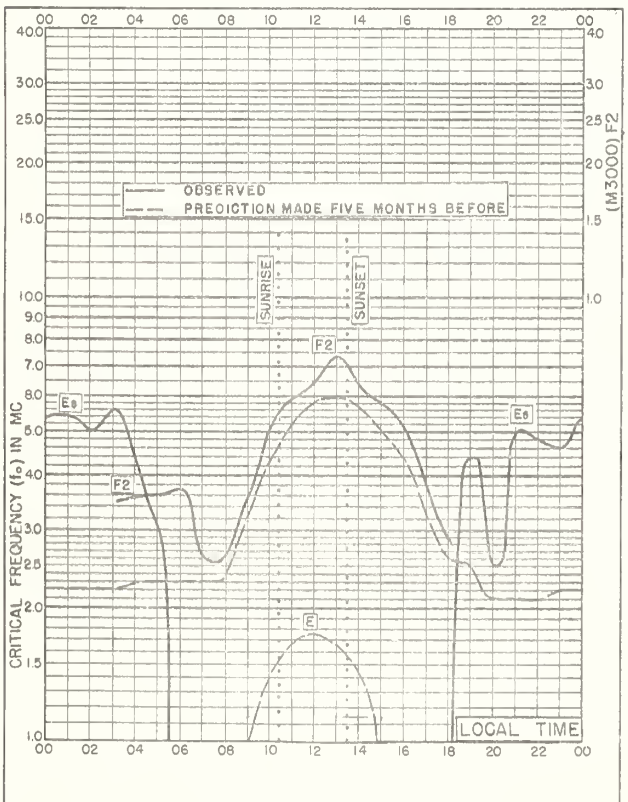

Fig. 31. FAIRBANKS, ALASKA
64.9° N, 147.8° W DECEMBER 1951

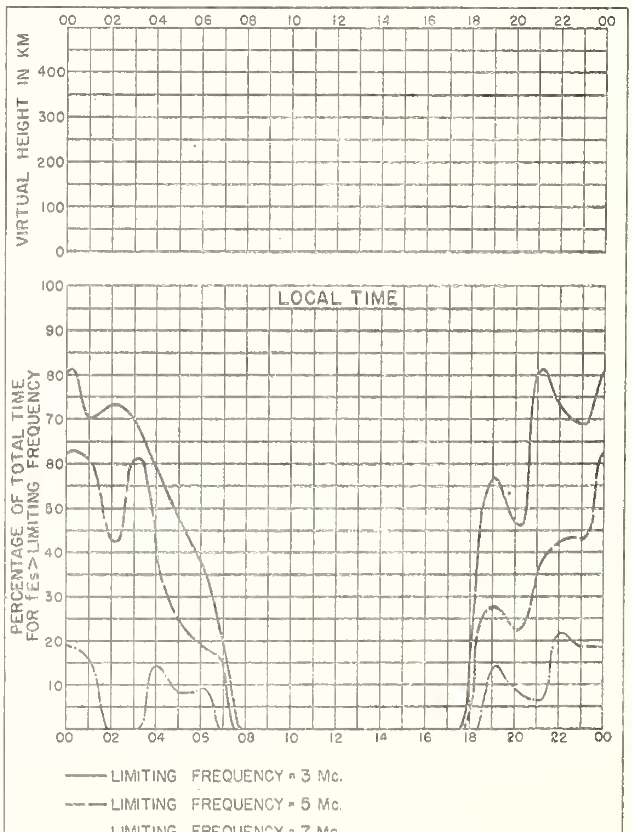

Fig. 32. FAIRBANKS, ALASKA DECEMBER 1951

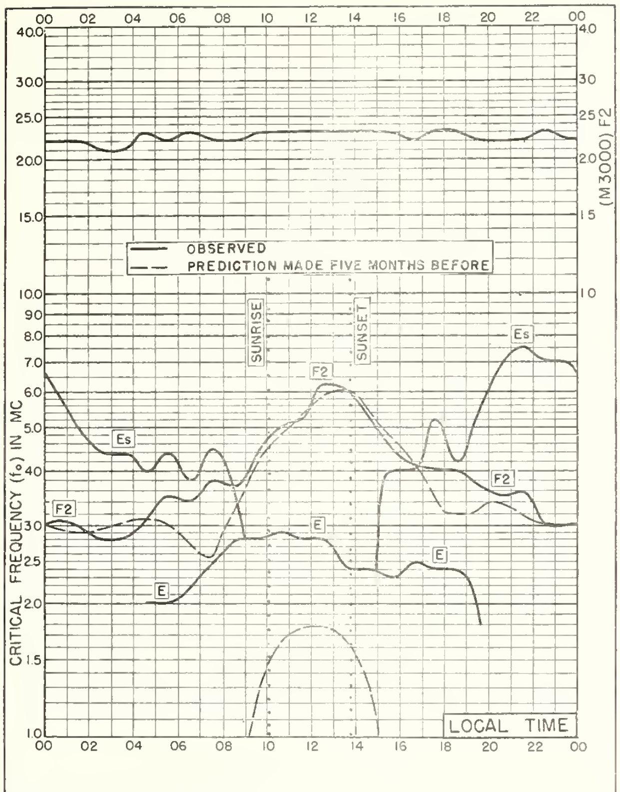

Fig. 33. BAKER LAKE, CANADA
64.3°N, 96.0°W DECEMBER 1951

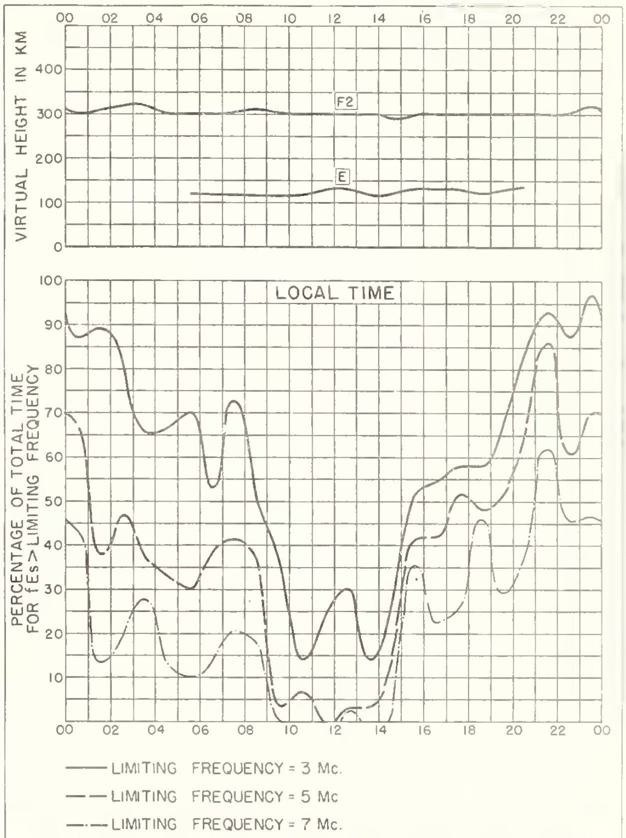

Fig. 34. BAKER LAKE, CANADA DECEMBER 1951

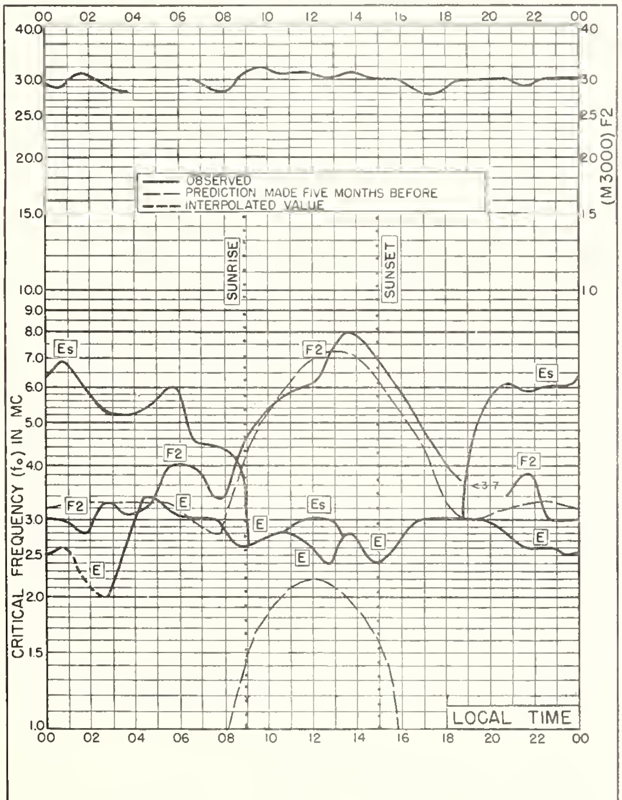

Fig. 35. CHURCHILL, CANADA
58.8° N, 94.2° W DECEMBER 1951

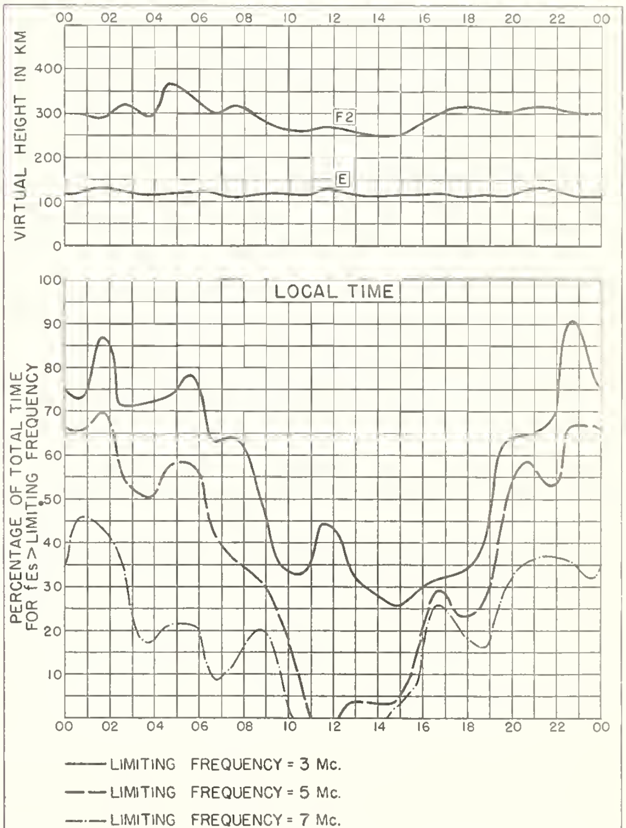

Fig. 36. CHURCHILL, CANADA DECEMBER 1951

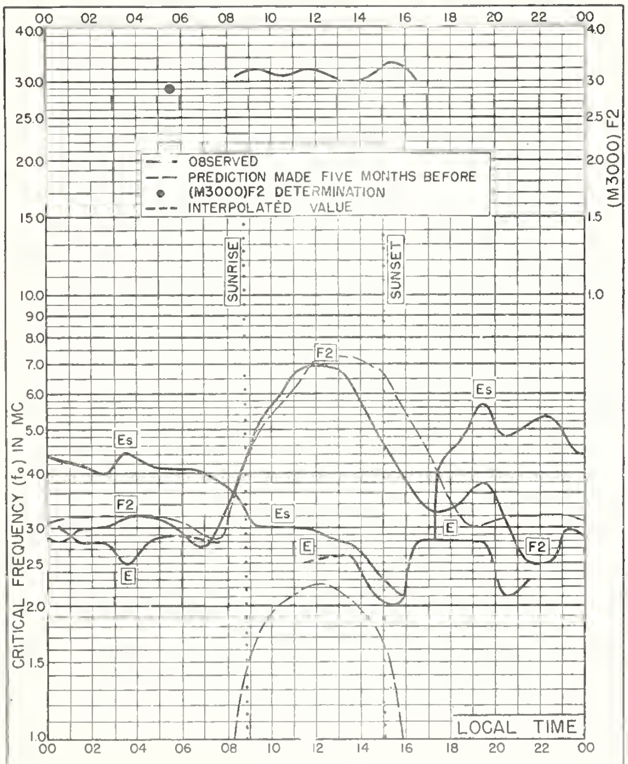

Fig. 37. FORT CHIMO, CANADA
58.1° N, 68.3° W DECEMBER 1951

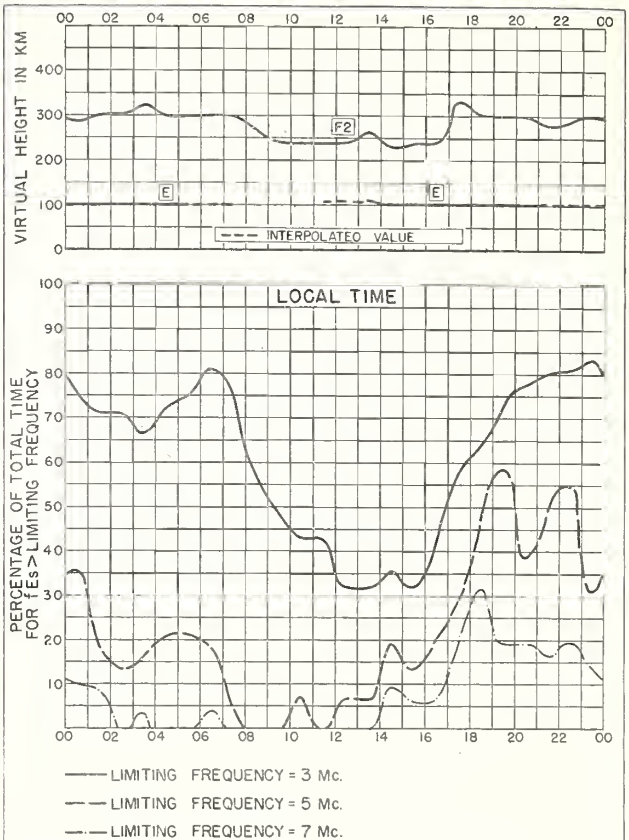

Fig. 38. FORT CHIMO, CANADA DECEMBER 1951

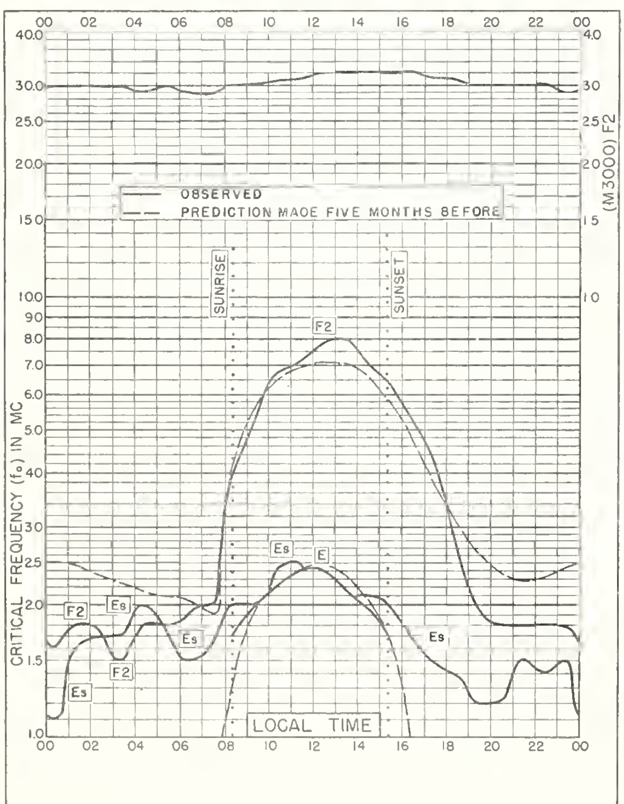

Fig. 39. PRINCE RUPERT, CANADA
54. 3°N, 130. 3° W DECEMBER 1951

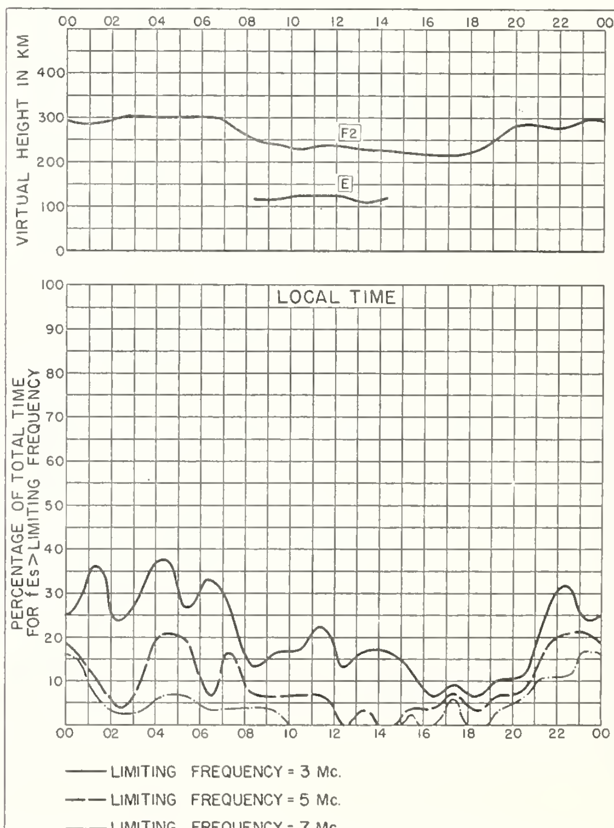

Fig. 40. PRINCE RUPERT, CANADA DECEMBER 1951

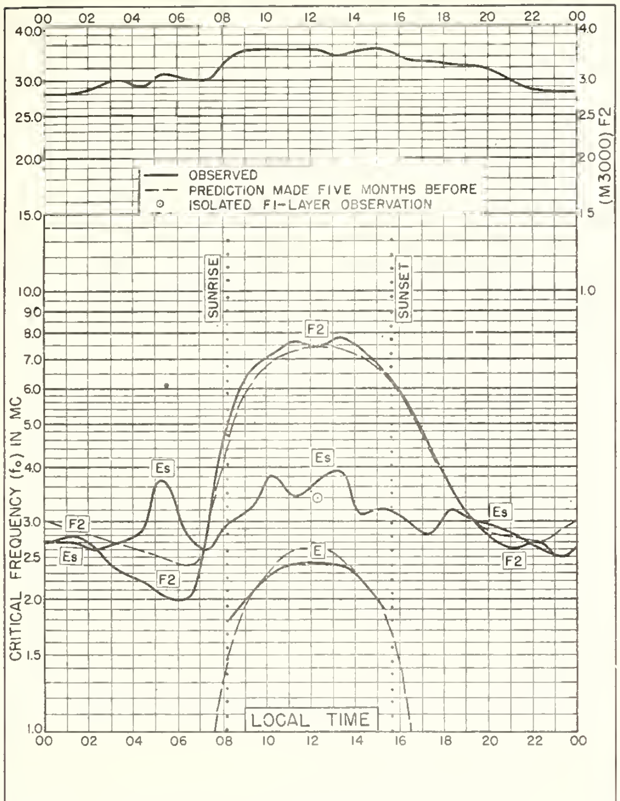

Fig. 41. De BILT, HOLLAND
52.1°N, 5.2°E DECEMBER 1951

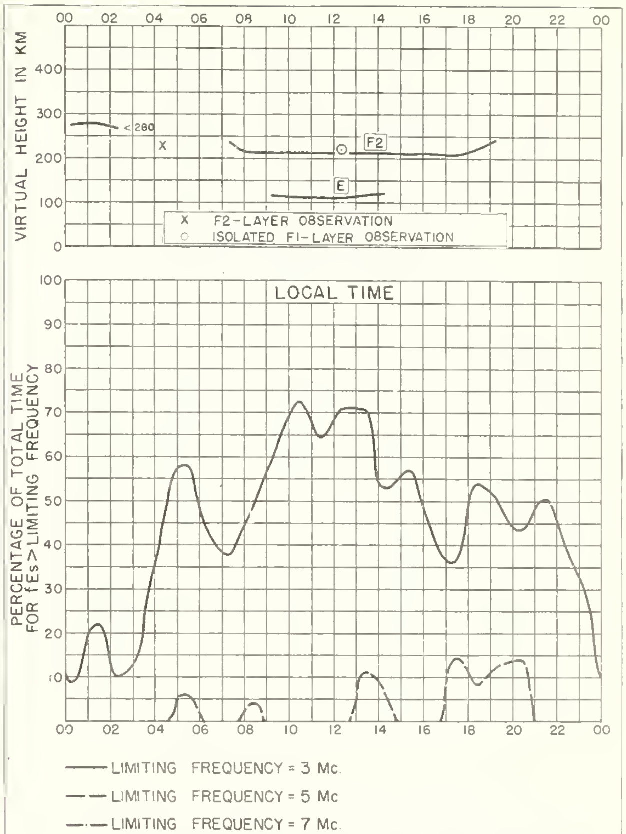

Fig. 42. De BILT, HOLLAND DECEMBER 1951

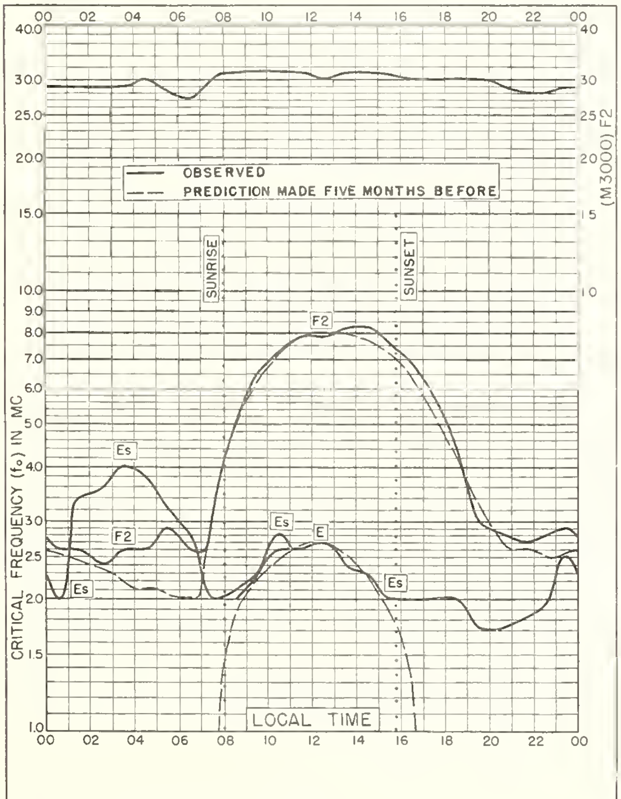

Fig. 43. WINNIPEG, CANADA
49.9°N, 97.4°W DECEMBER 1951

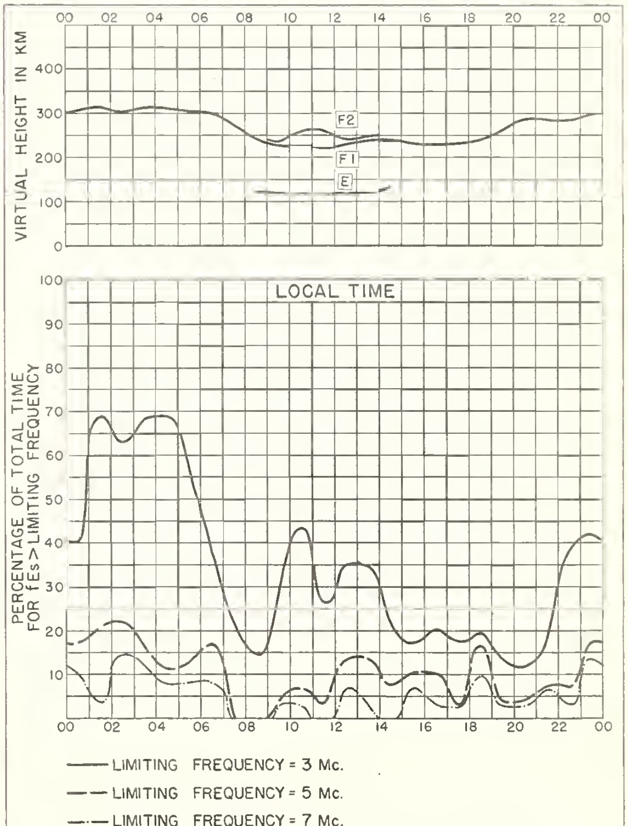

Fig. 44. WINNIPEG, CANADA DECEMBER 1951

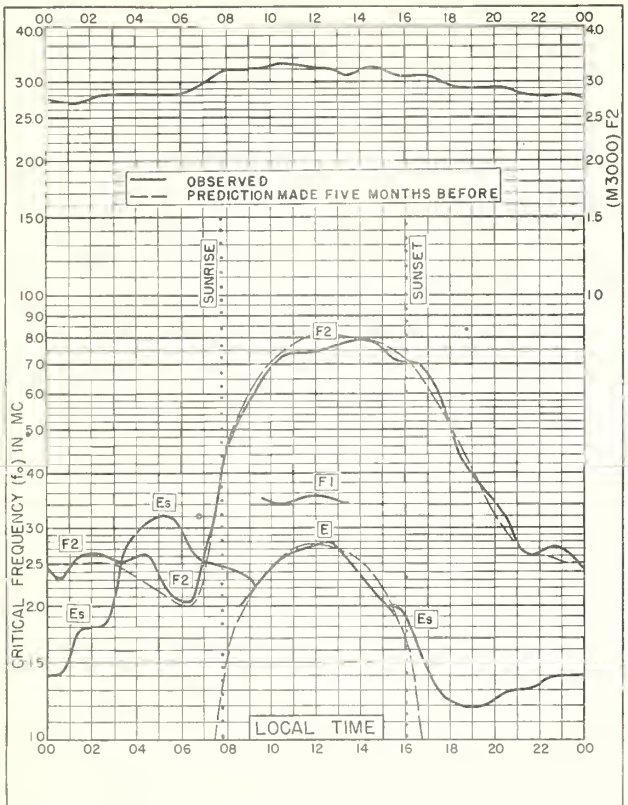

Fig. 45. ST. JOHN'S, NEWFOUNDLAND
47.6° N, 52.7° W DECEMBER 1951

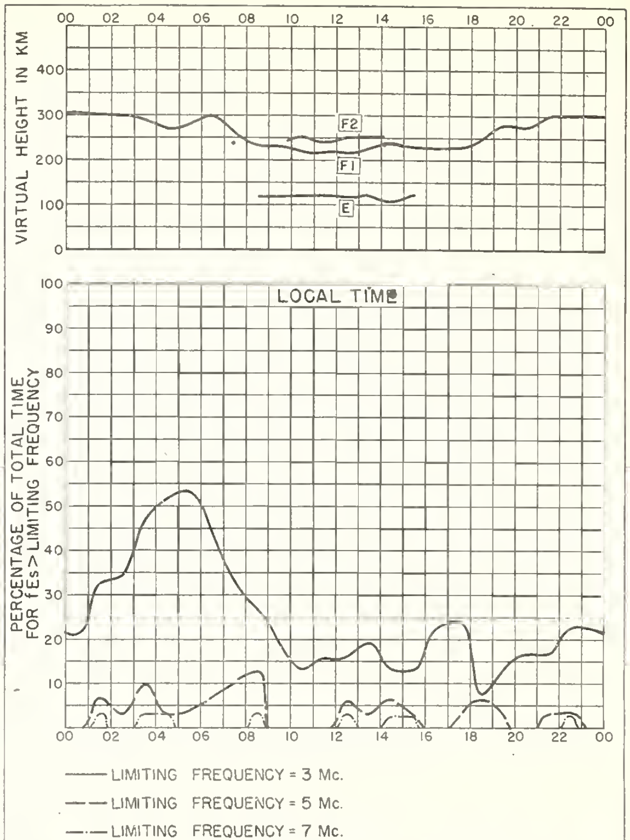

Fig. 46. ST. JOHN'S, NEWFOUNDLAND DECEMBER 1951

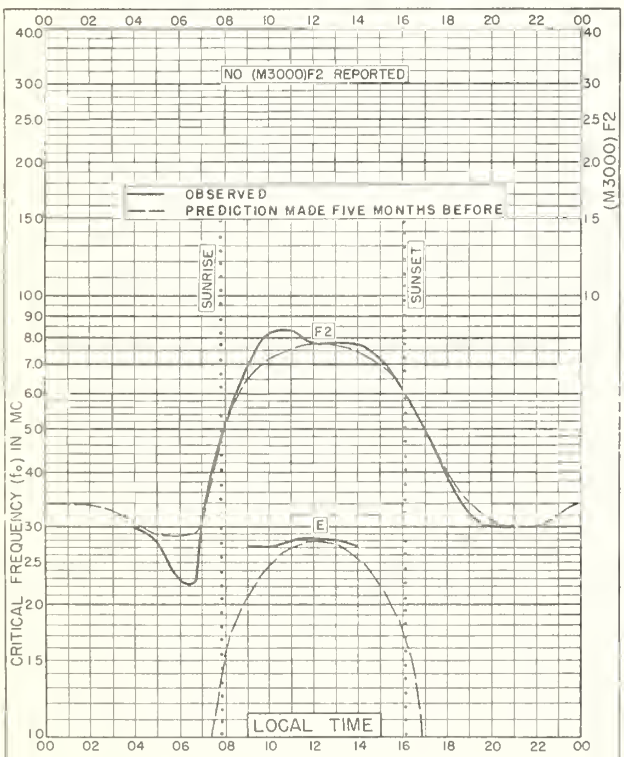

Fig 47. GRAZ, AUSTRIA
47.1° N, 15.5° E DECEMBER 1951

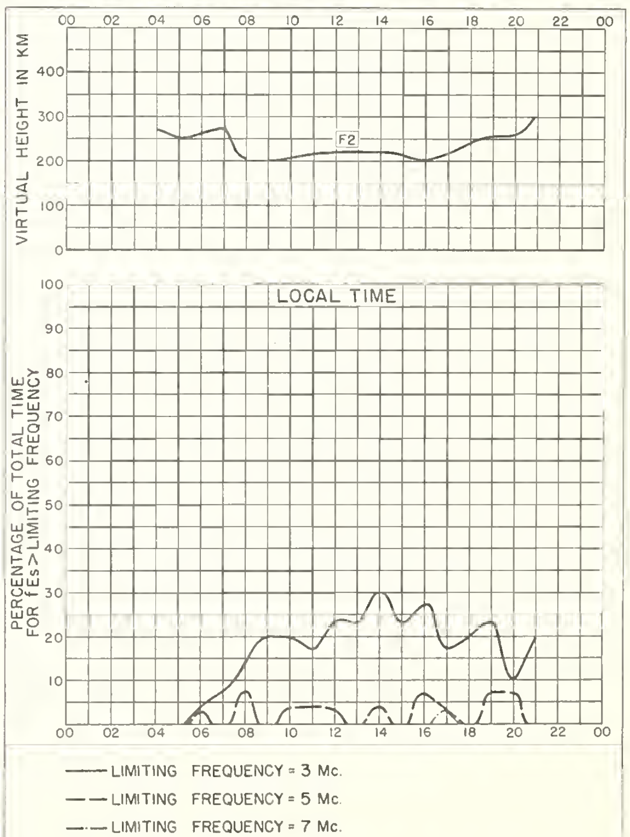

Fig. 48. GRAZ, AUSTRIA DECEMBER 1951

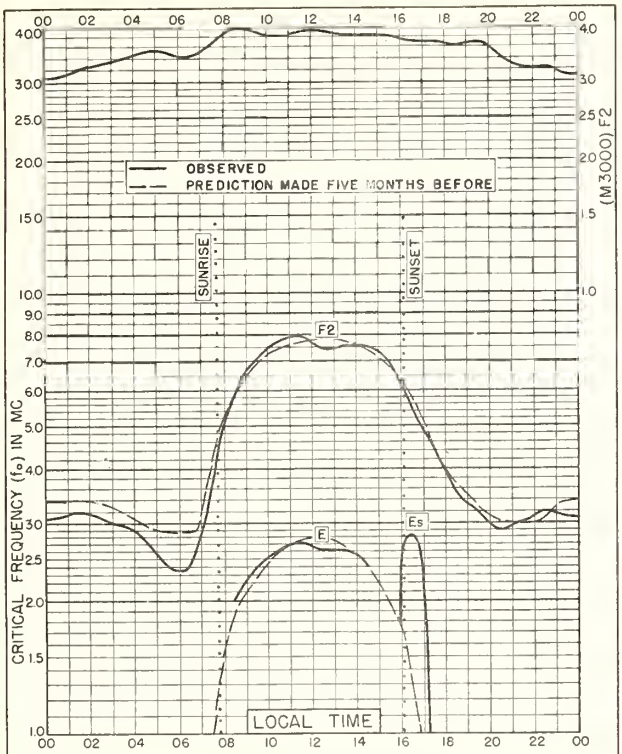

Fig. 49. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E DECEMBER 1951

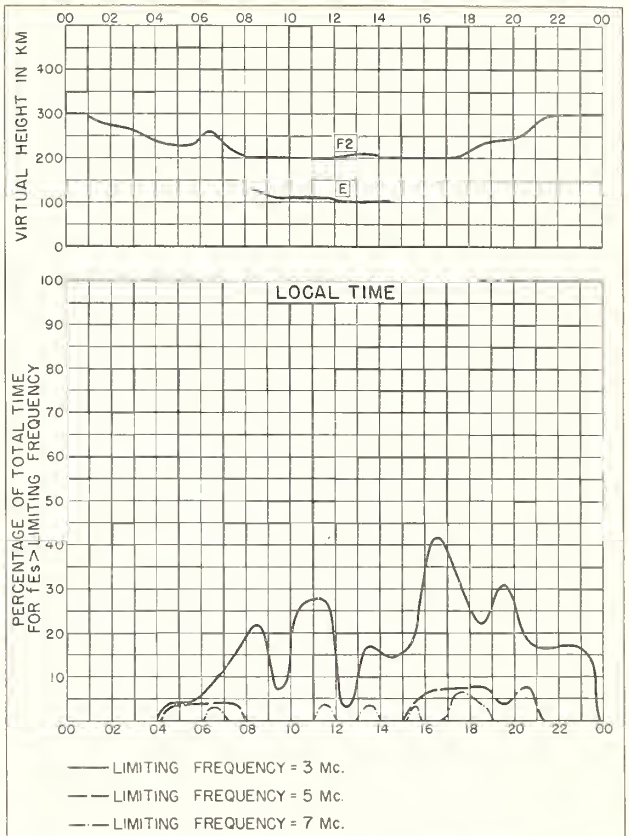

Fig. 50. SCHWARZENBURG, SWITZERLAND DECEMBER 1951

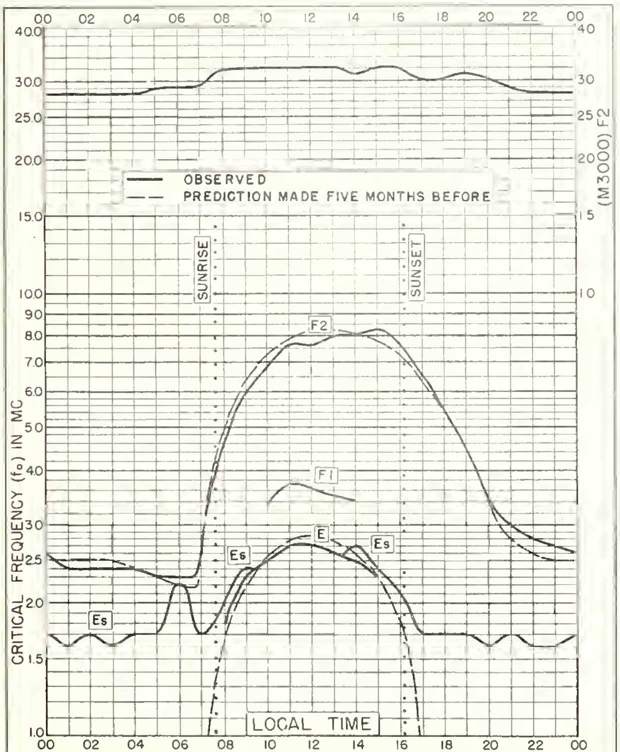

Fig. 51. OTTAWA, CANADA
45.4°N, 75.7°W DECEMBER 1951

NBS 503

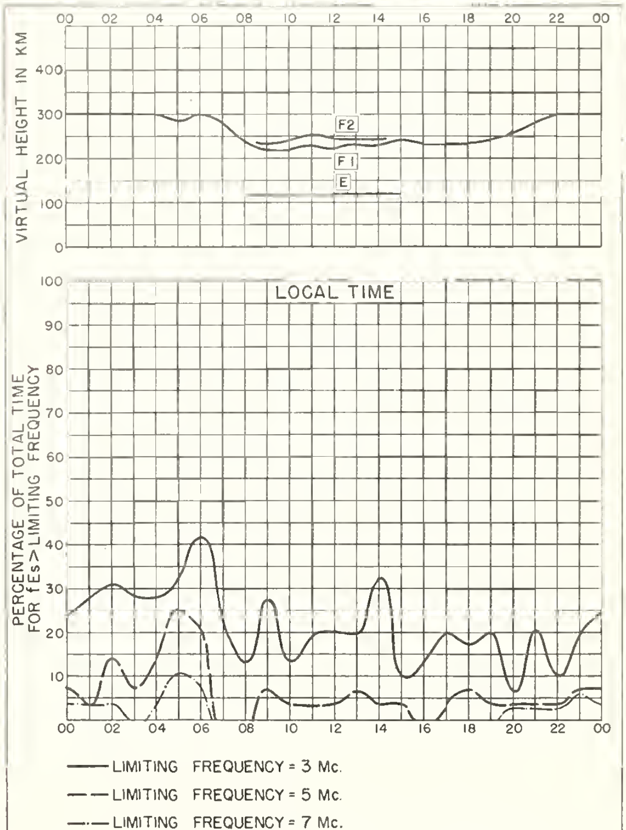

Fig. 52. OTTAWA, CANADA DECEMBER 1951

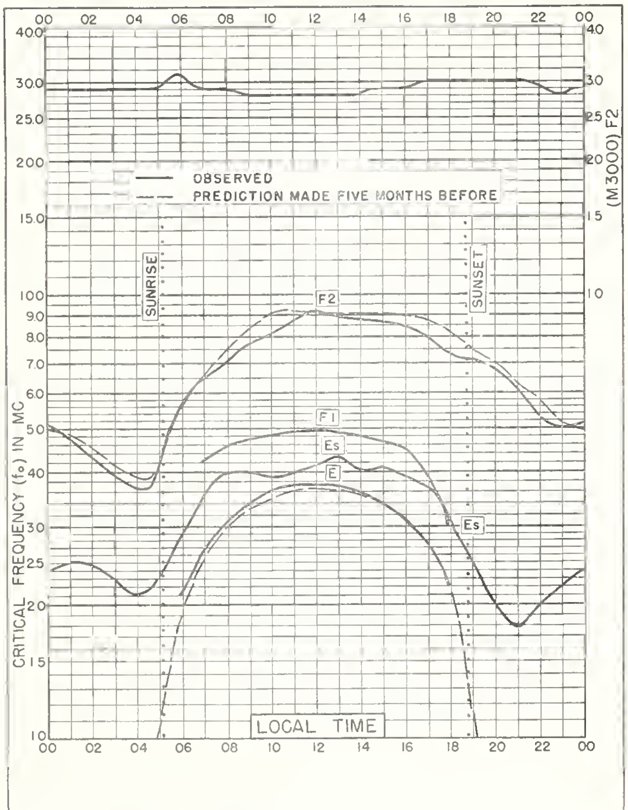

Fig. 53. JOHANNESBURG, U. OF S AFRICA
26.2° S, 28.1°E DECEMBER 1951

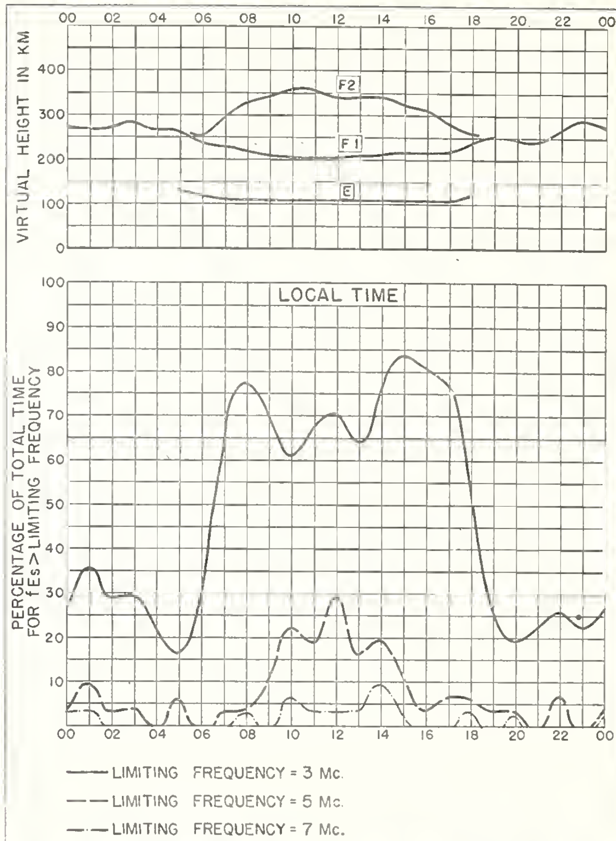

Fig. 54. JOHANNESBURG, U. OF S. AFRICA DECEMBER 1951

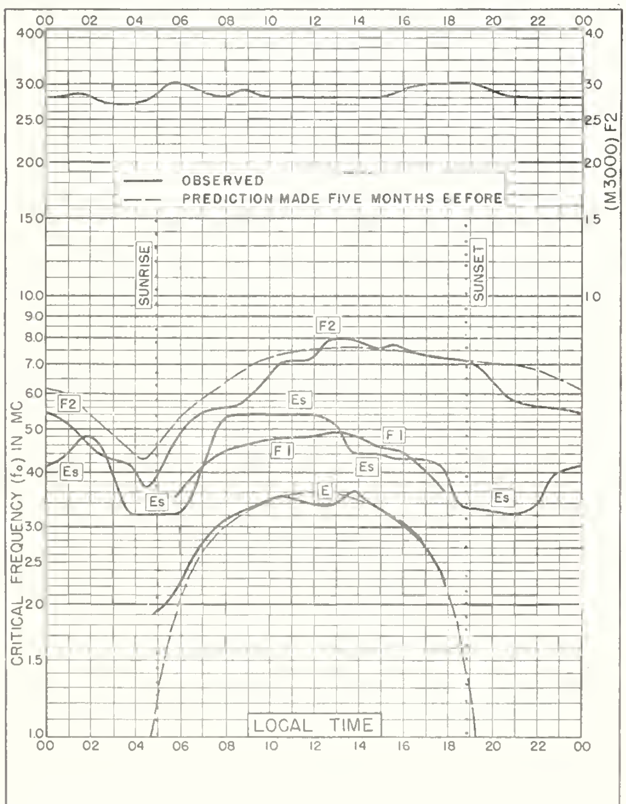

Fig. 55. WATHEROO, W. AUSTRALIA
30.3° S, 115.9° E DECEMBER 1951

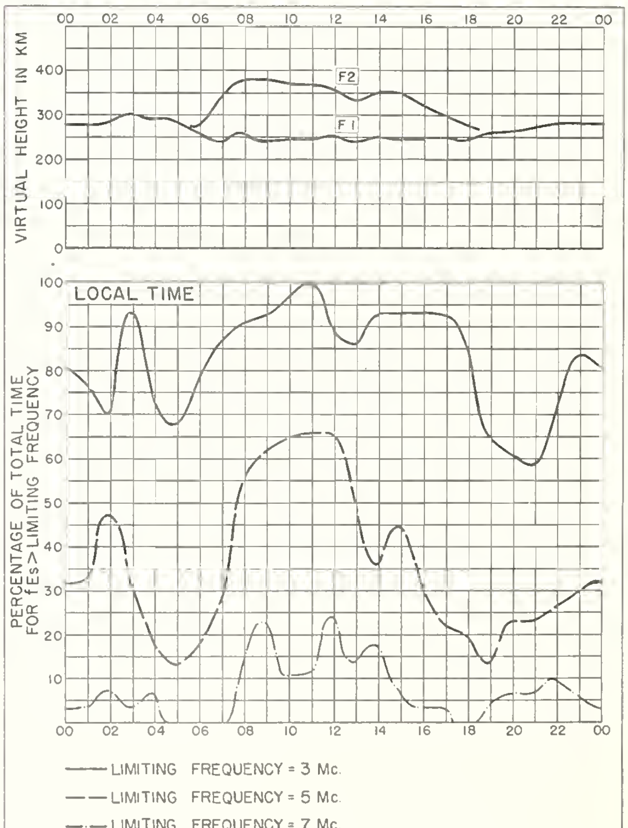

Fig. 56. WATHEROO, W. AUSTRALIA DECEMBER 1951

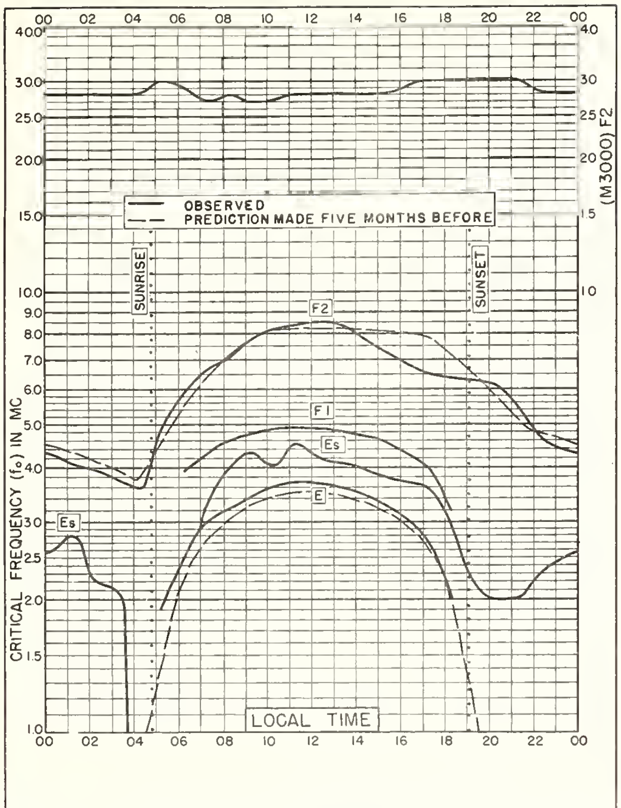

Fig. 57. CAPETOWN, U. OF S. AFRICA
34.2° S, 18.3° E DECEMBER 1951

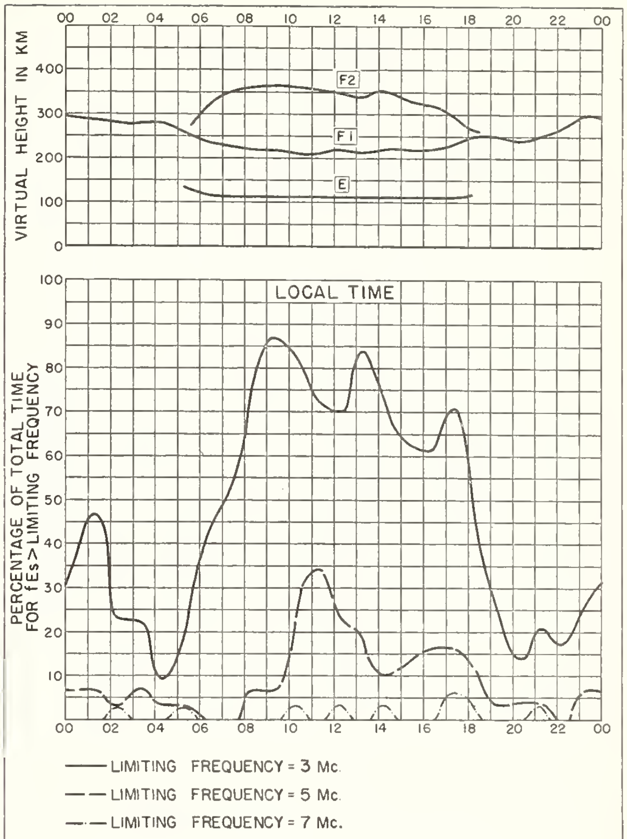

Fig. 58. CAPETOWN, U. OF S. AFRICA DECEMBER 1951

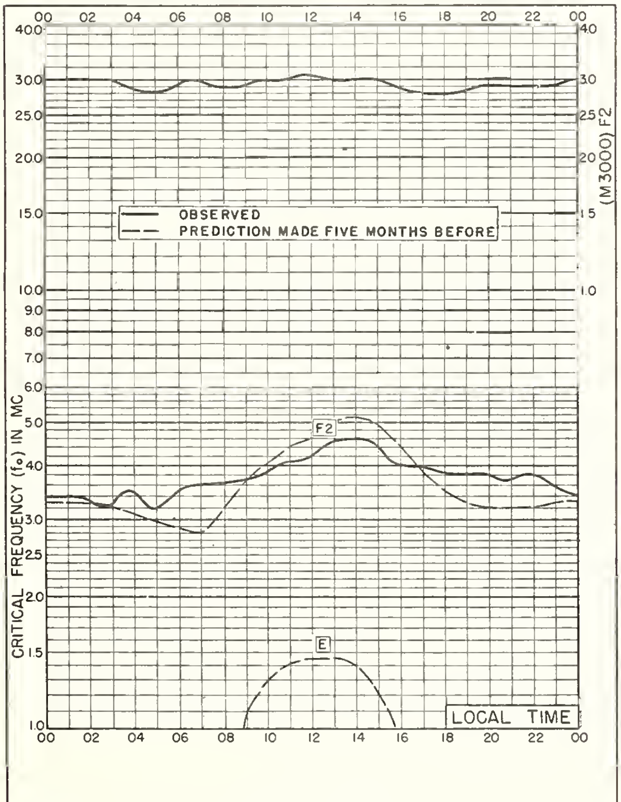

Fig. 59. RESOLUTE BAY, CANADA
74.7° N, 94.9° W NOVEMBER 1951

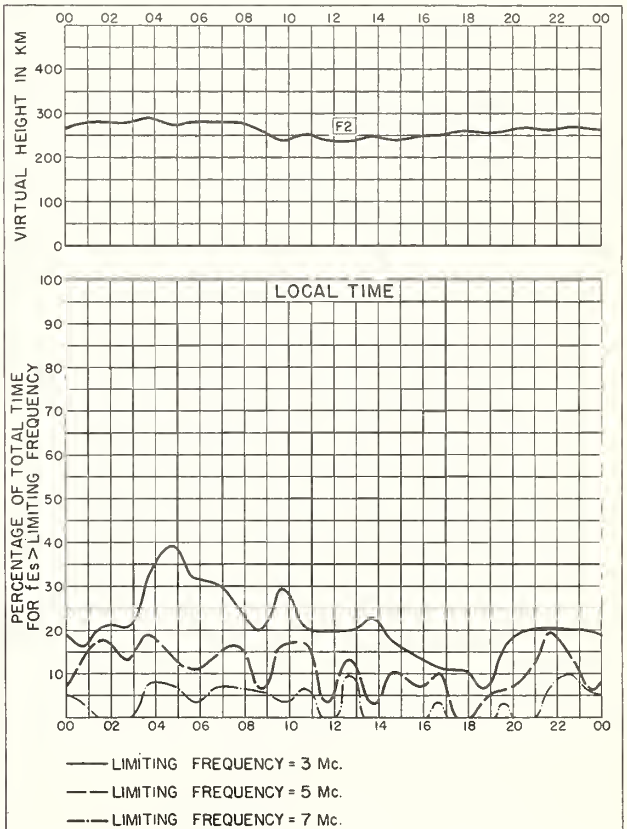

Fig. 60. RESOLUTE BAY, CANADA NOVEMBER 1951

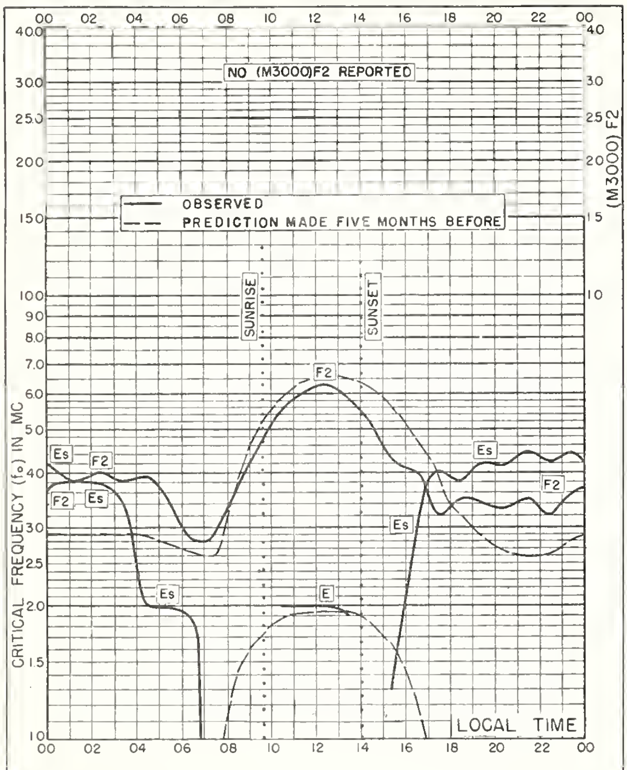

Fig. 61. KIRUNA, SWEDEN
67.8°N, 20.5°E NOVEMBER 1951

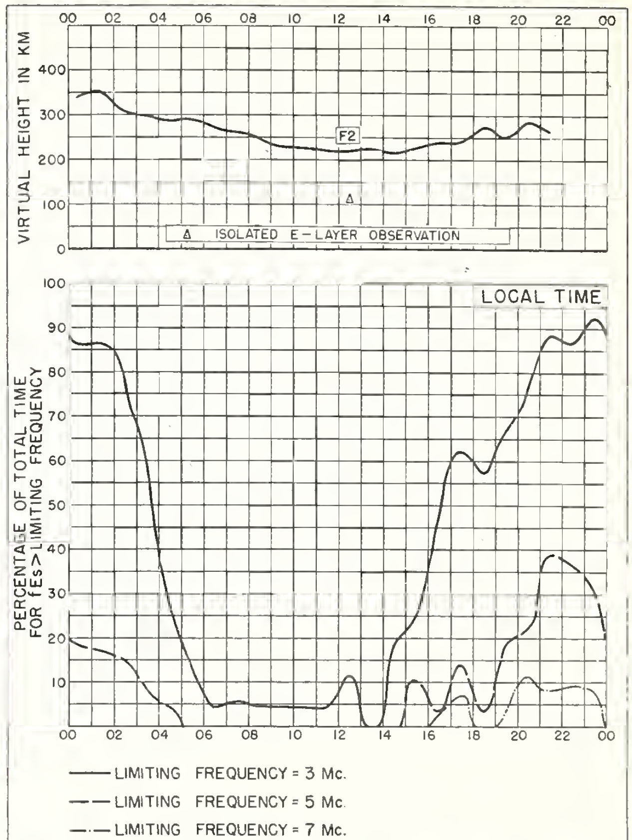

Fig. 62. KIRUNA, SWEDEN NOVEMBER 1951

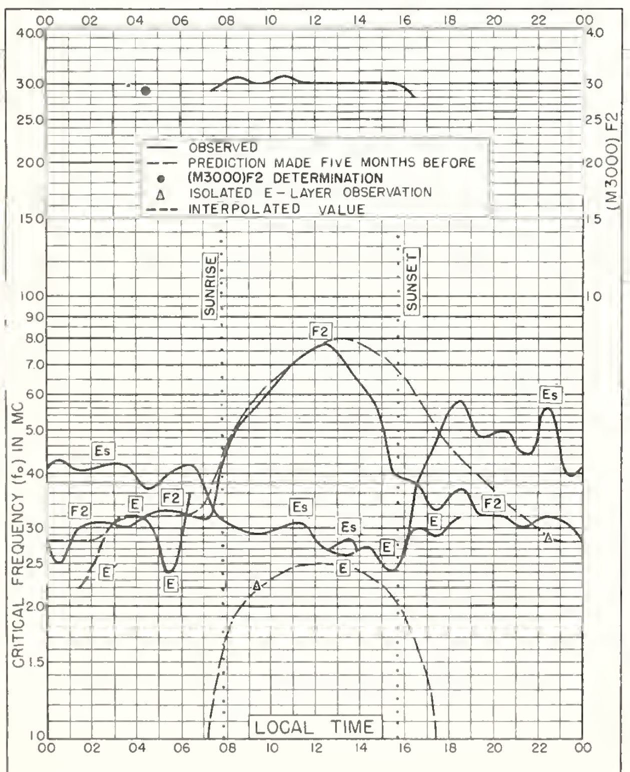

Fig. 63. FORT CHIMO, CANADA
58.1°N, 68.3°W NOVEMBER 1951

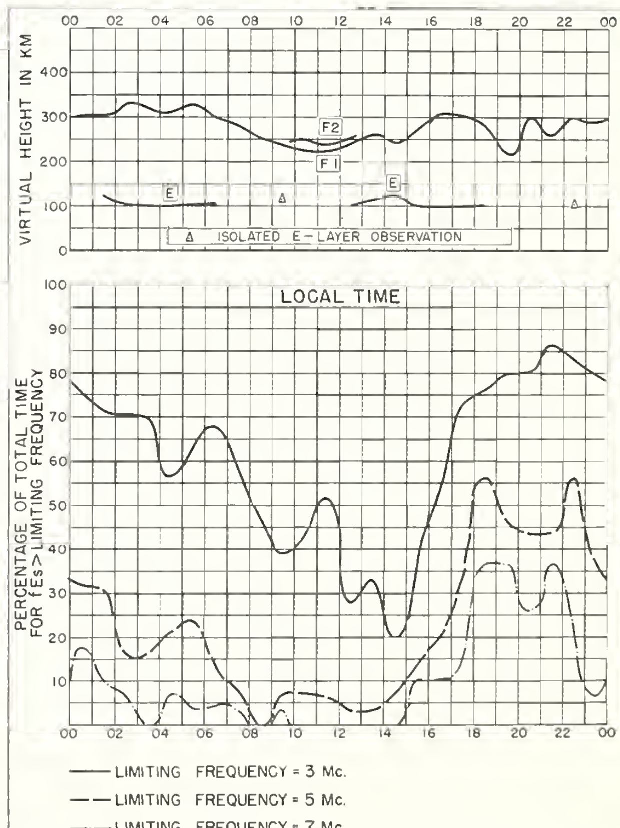

Fig. 64. FORT CHIMO, CANADA NOVEMBER 1951

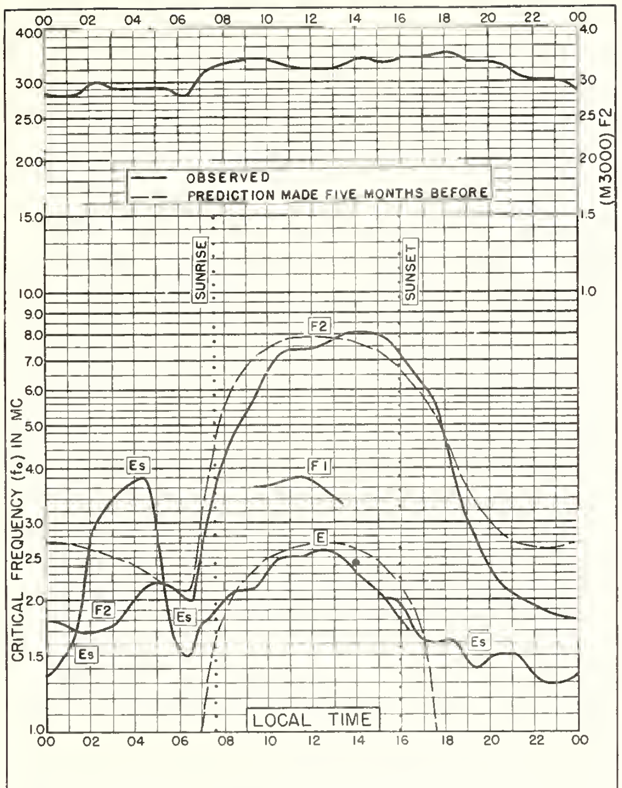

Fig. 65. PRINCE RUPERT, CANADA

54.3°N, 130.3°W NOVEMBER 1951

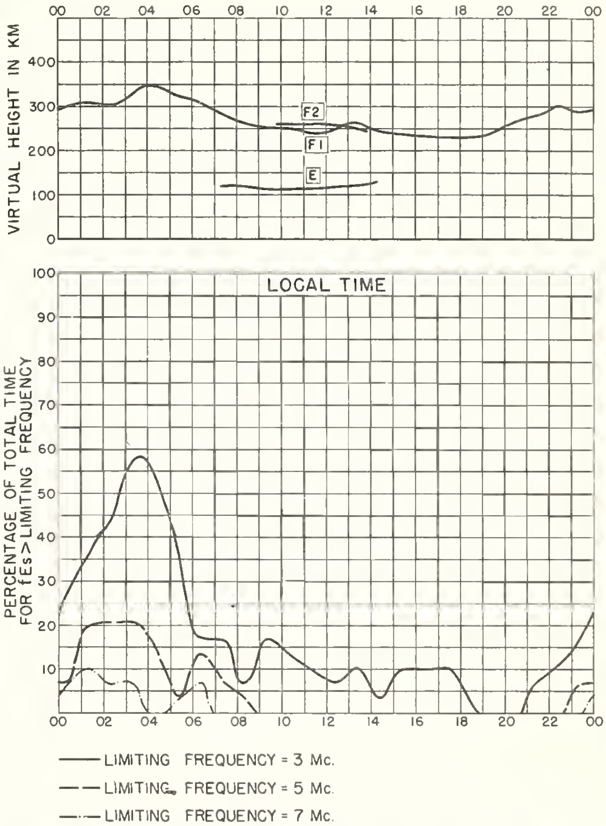

Fig. 66 PRINCE RUPERT, CANADA NOVEMBER 1951

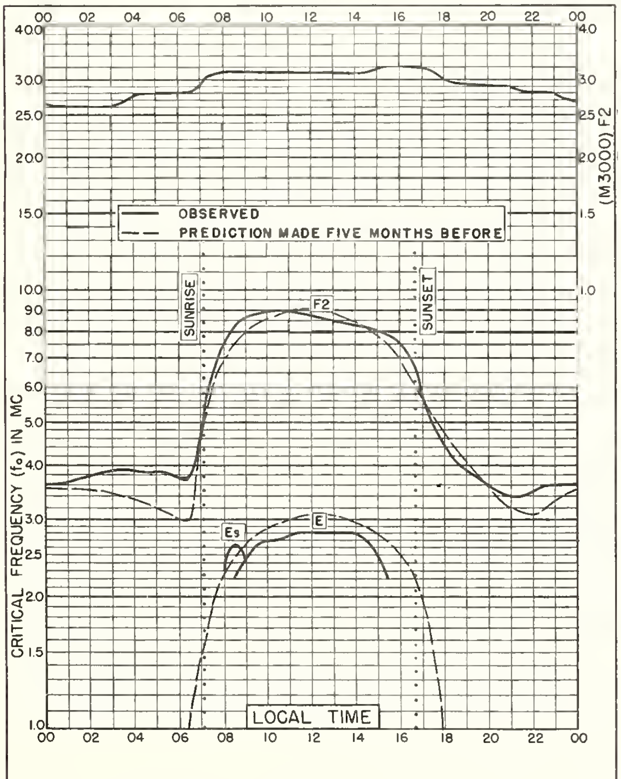

Fig. 67. WAKKANAI, JAPAN

45.4°N, 141.7°E NOVEMBER 1951

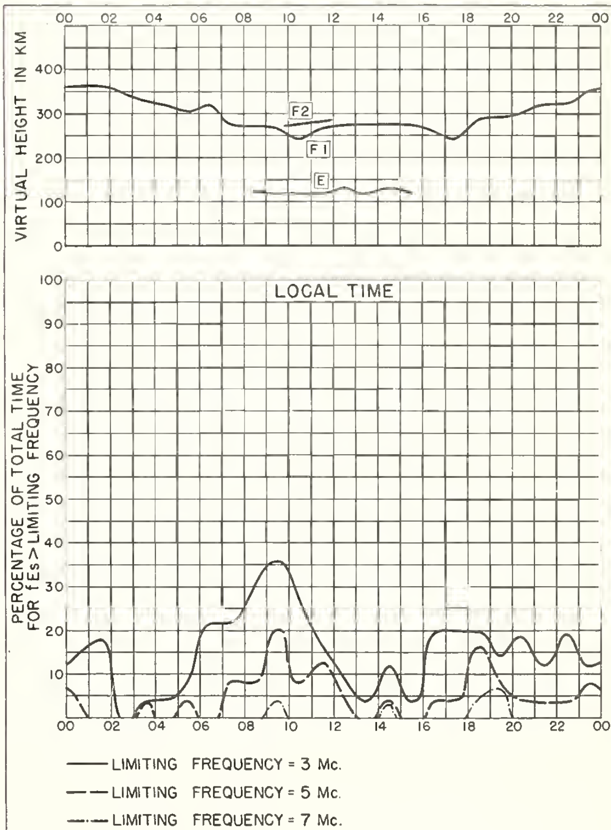

Fig. 68. WAKKANAI, JAPAN NOVEMBER 1951

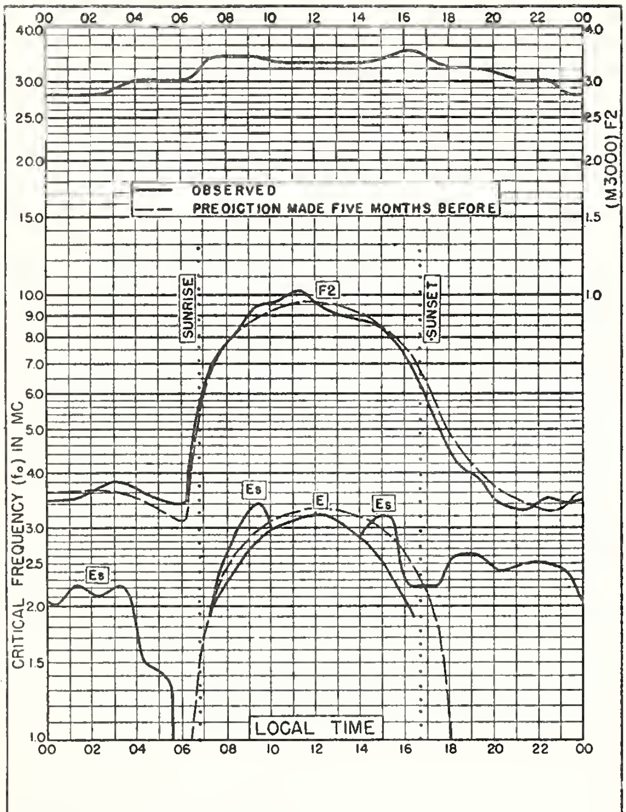

Fig. 69. AKITA, JAPAN
39.7° N, 140.1° E NOVEMBER 1951

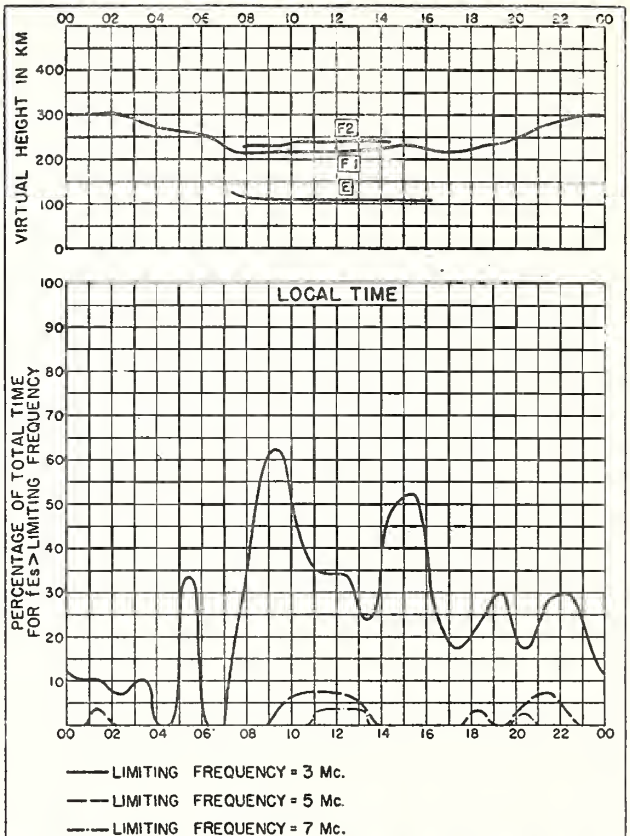

Fig. 70. AKITA, JAPAN NOVEMBER 1951

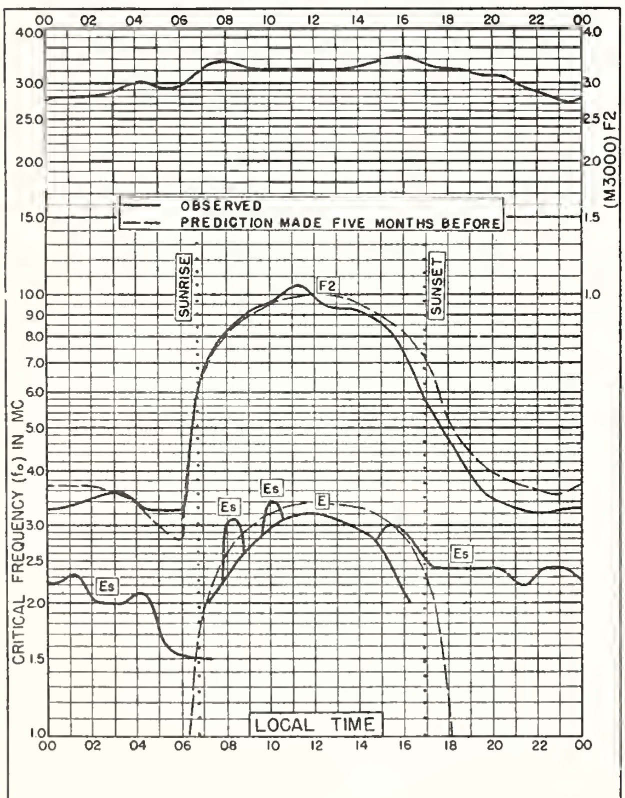

Fig. 71. TOKYO, JAPAN
35.7°N, 139.5°E NOVEMBER 1951

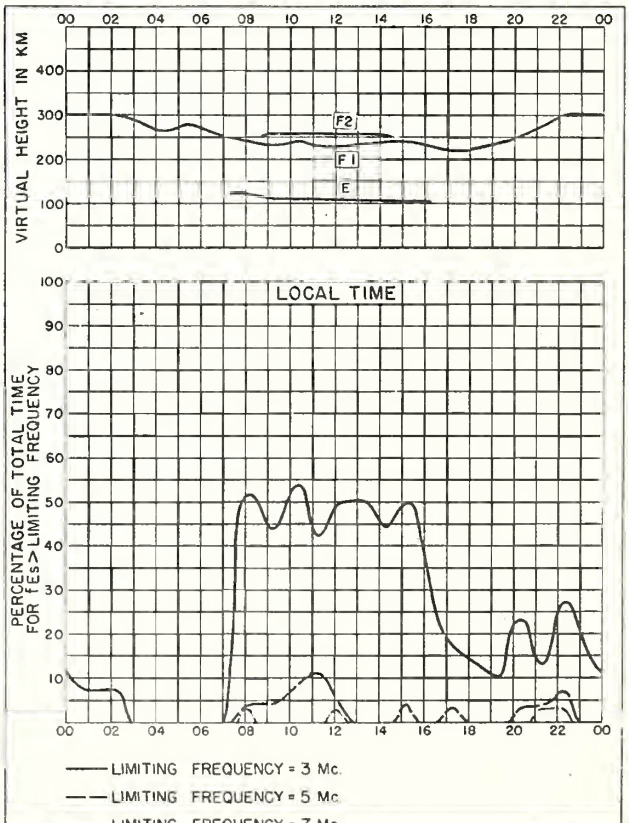

Fig. 72. TOKYO, JAPAN NOVEMBER 1951

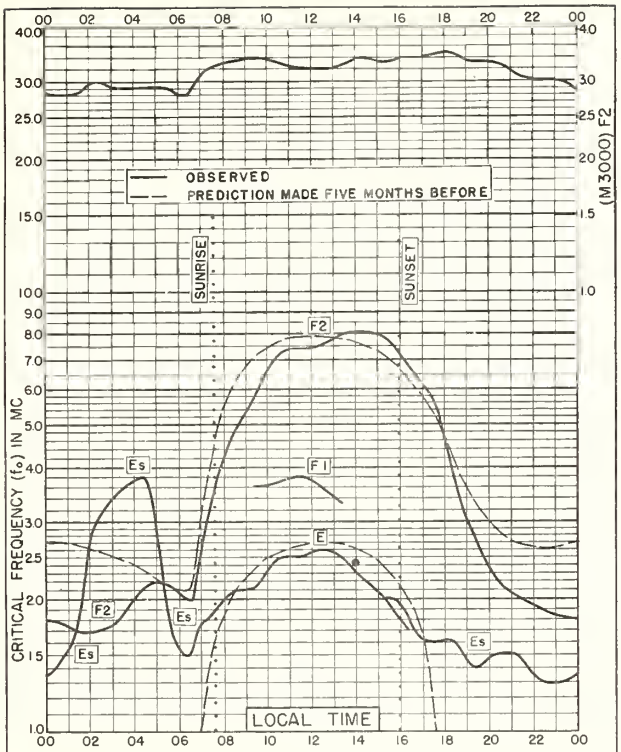

Fig. 65. PRINCE RUPERT, CANADA

54.3°N, 130.3°W NOVEMBER 1951

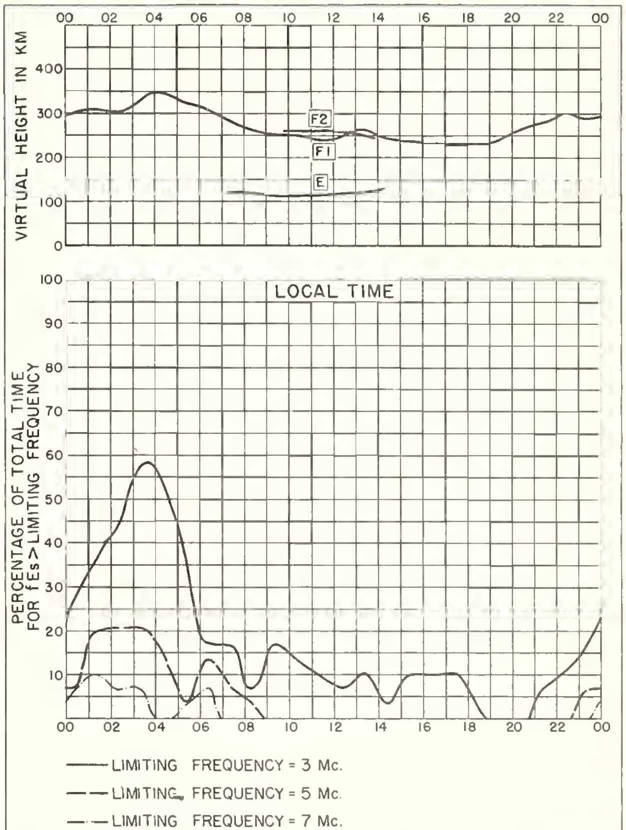

Fig. 66 PRINCE RUPERT, CANADA NOVEMBER 1951

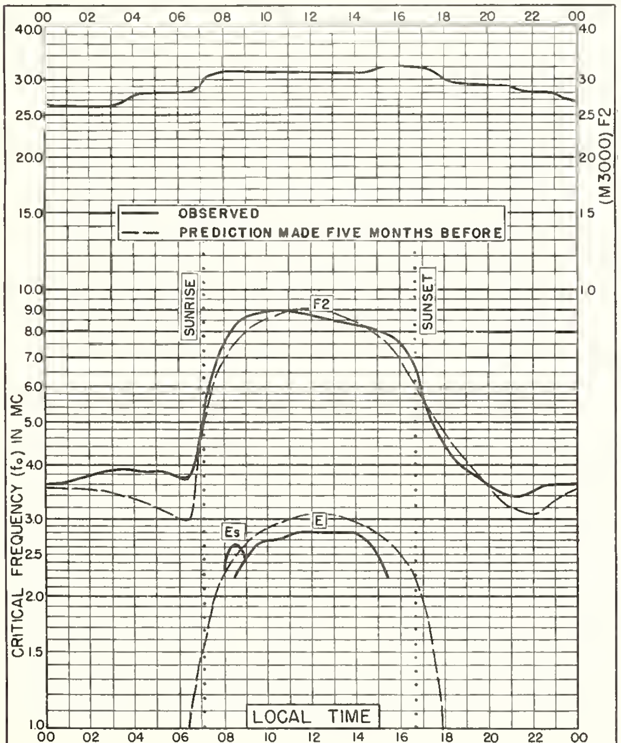

Fig. 67. WAKKANAI, JAPAN

45.4°N, 141.7°E NOVEMBER 1951

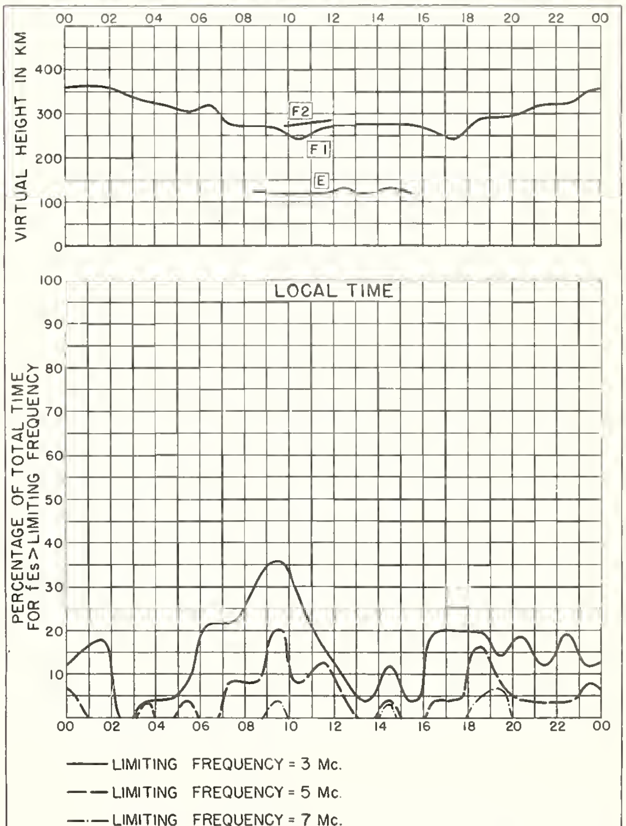

Fig. 68. WAKKANAI, JAPAN NOVEMBER 1951

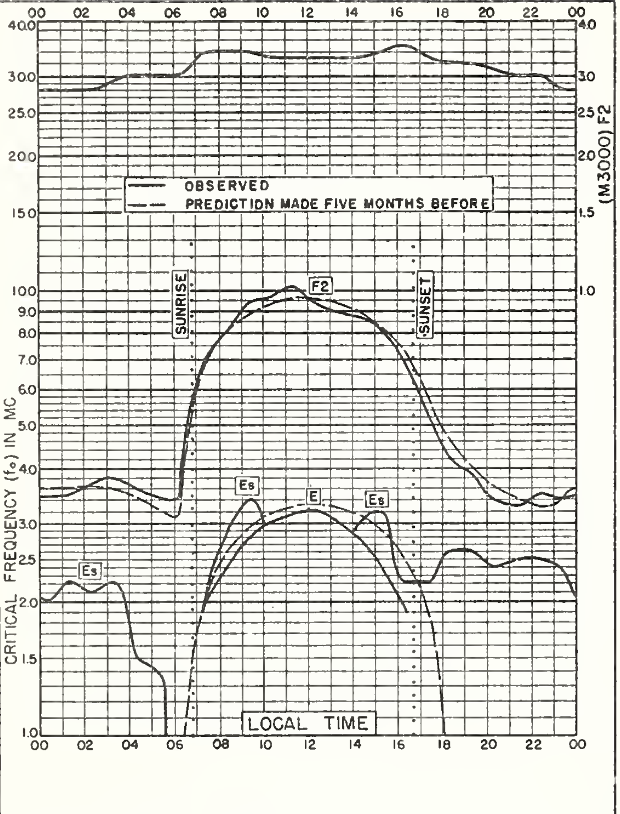

Fig. 69. AKITA, JAPAN
39.7° N, 140.1° E NOVEMBER 1951

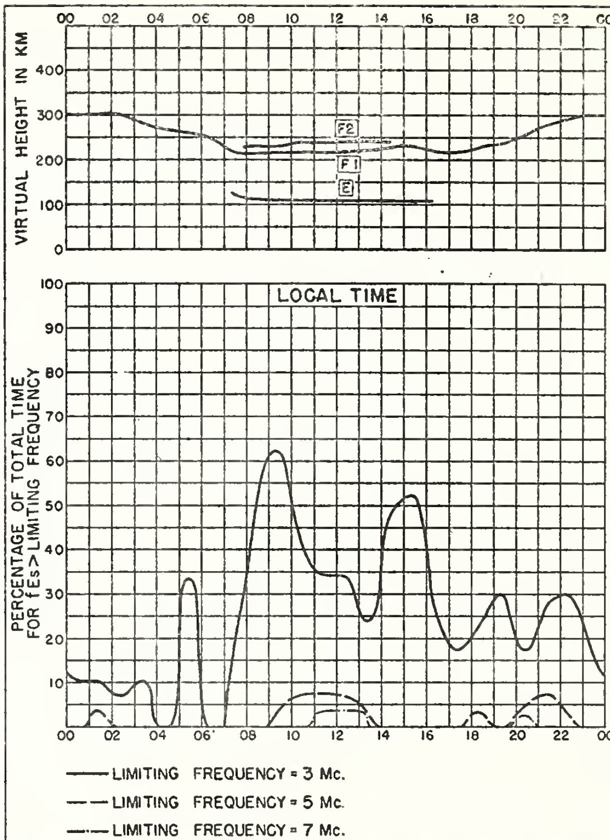

Fig. 70. AKITA, JAPAN NOVEMBER 1951

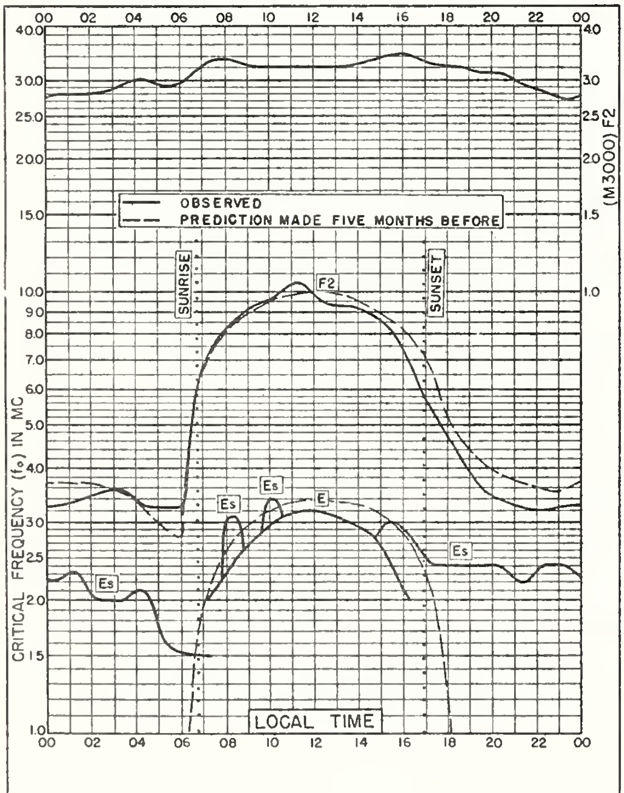

Fig. 71. TOKYO, JAPAN
35.7°N, 139.5°E NOVEMBER 1951

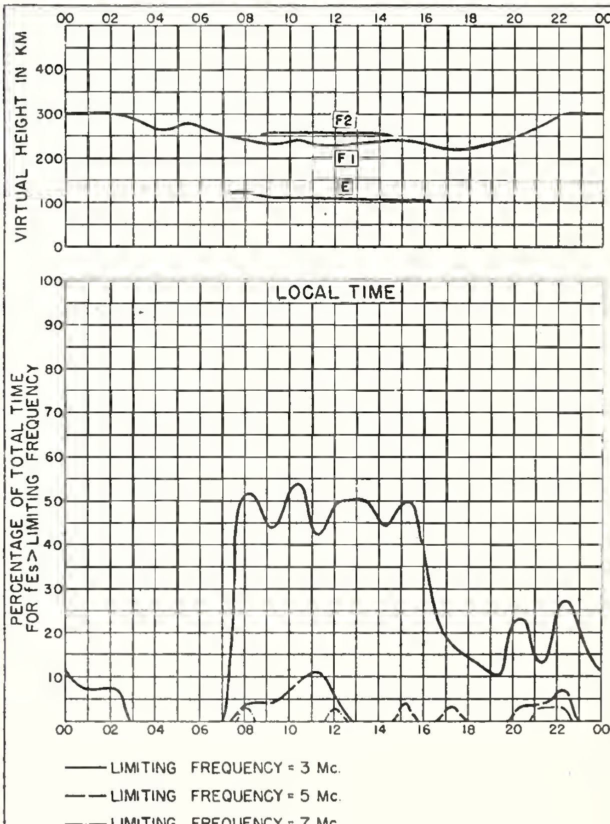

Fig. 72. TOKYO, JAPAN NOVEMBER 1951

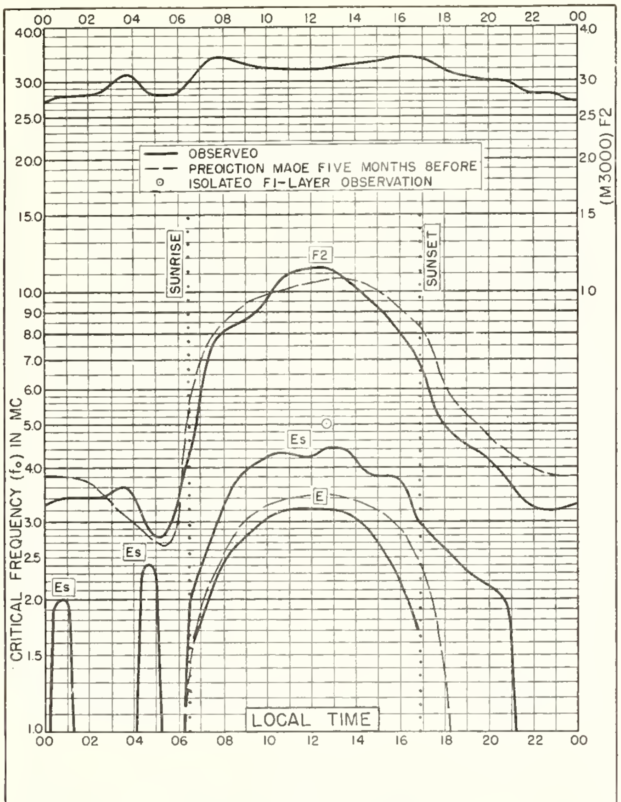

Fig. 73. YAMAGAWA, JAPAN
31.2° N, 130.6° E NOVEMBER 1951

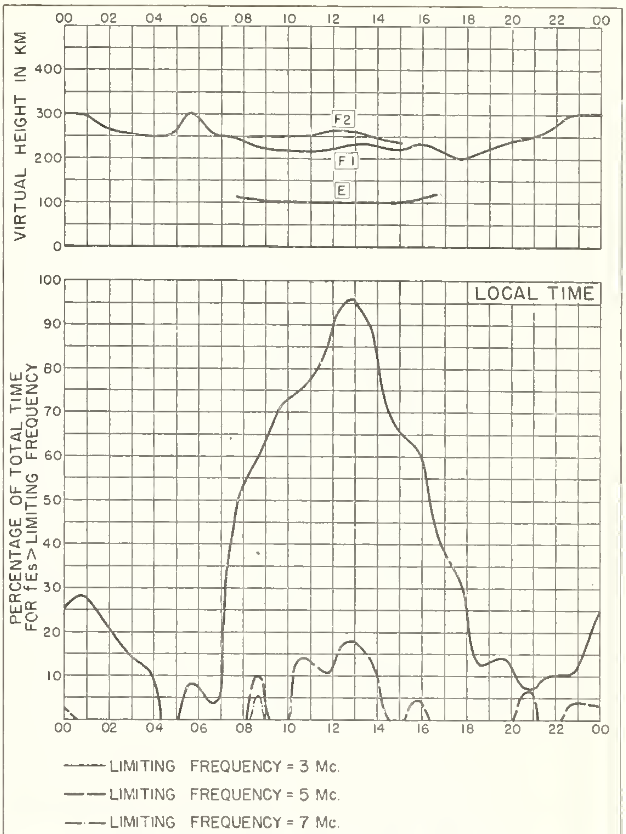

Fig 74. YAMAGAWA, JAPAN NOVEMBER 1951

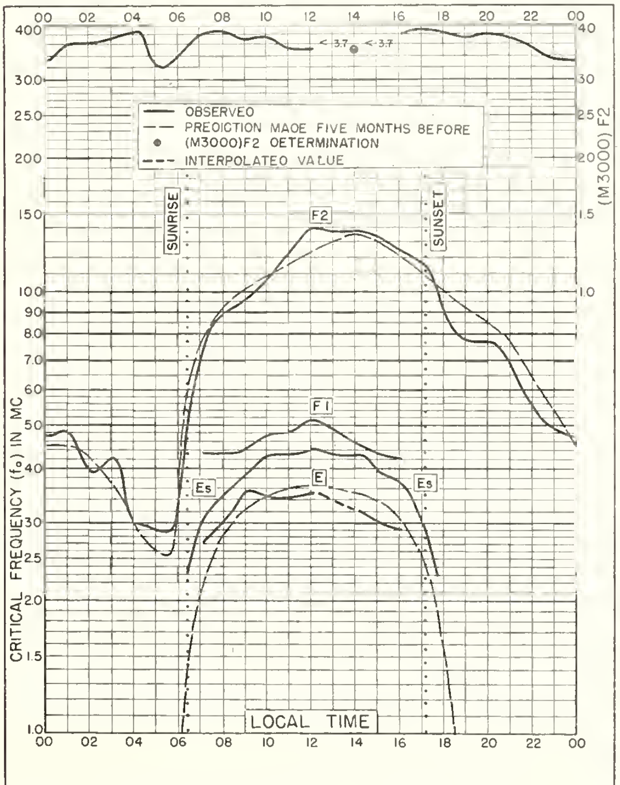

Fig. 75. FORMOSA, CHINA
25.0° N, 121.5° E NOVEMBER 1951

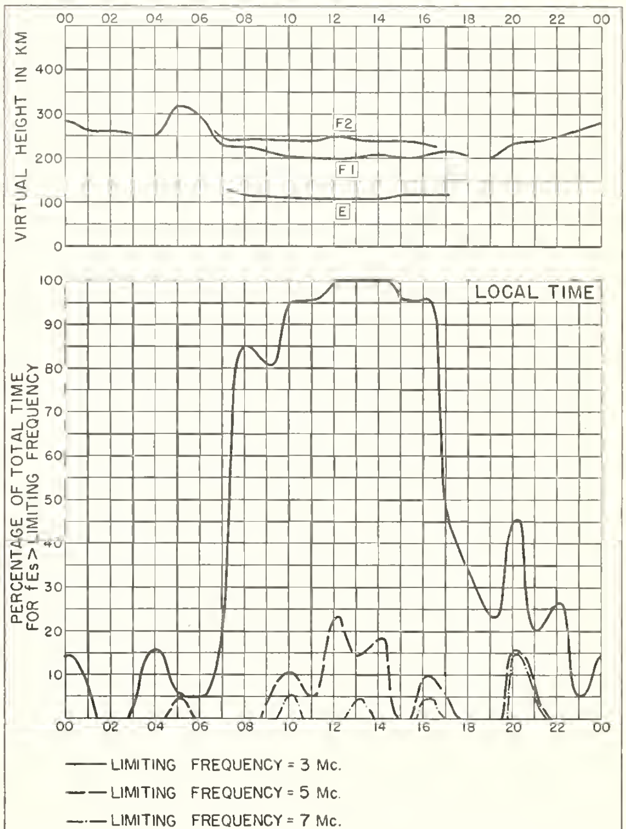

Fig. 76. FORMOSA, CHINA NOVEMBER 1951

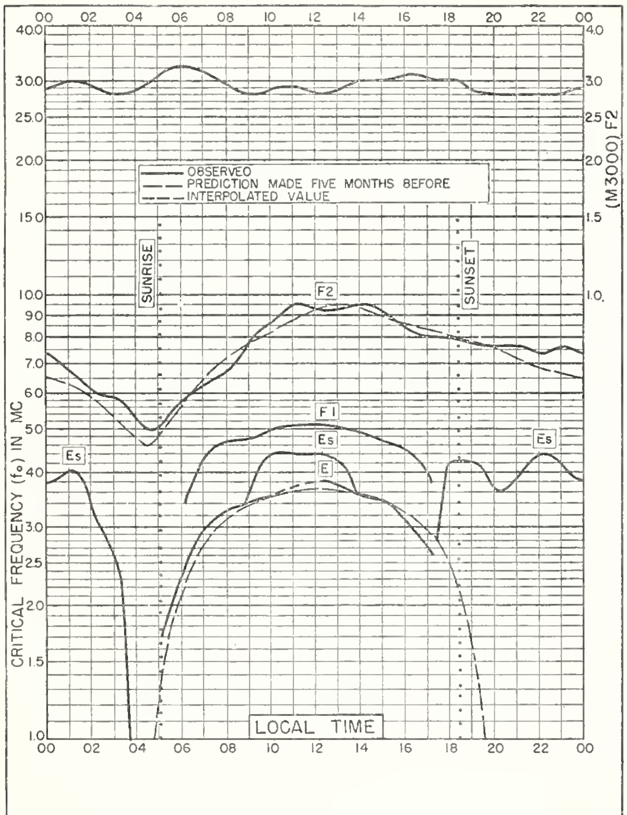

Fig. 77. BRISBANE, AUSTRALIA
27.5° S, 153.0° E NOVEMBER 1951

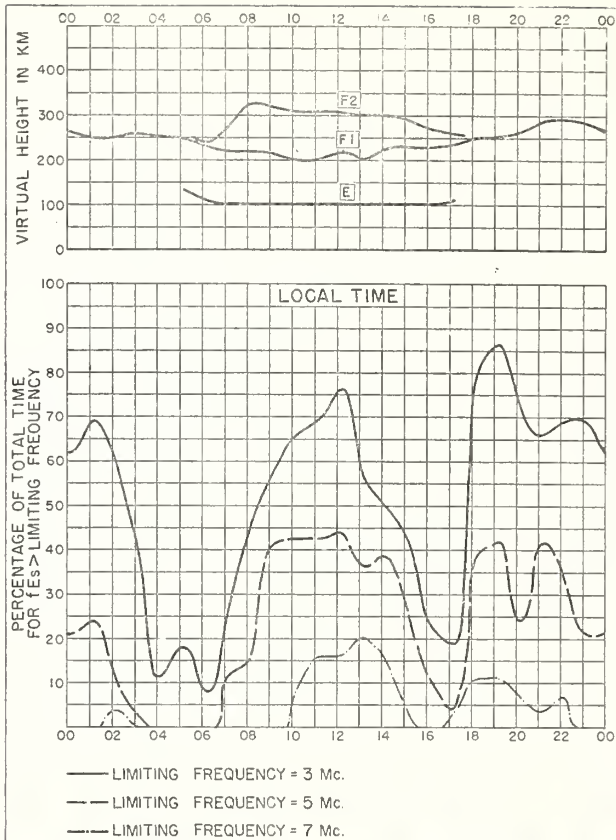

Fig. 78. BRISBANE, AUSTRALIA NOVEMBER 1951

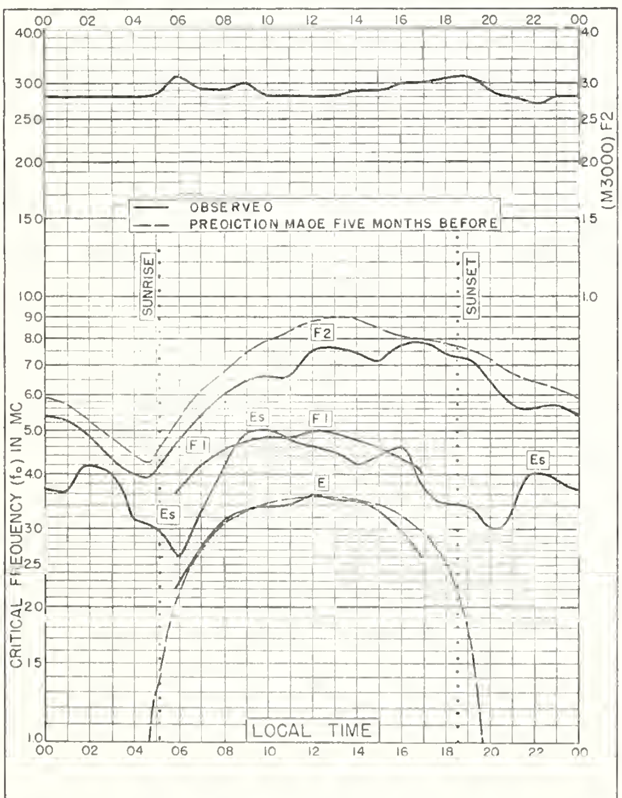

Fig. 79. WATHEROO, W. AUSTRALIA
30. 3° S, 115. 9° E NOVEMBER 1951

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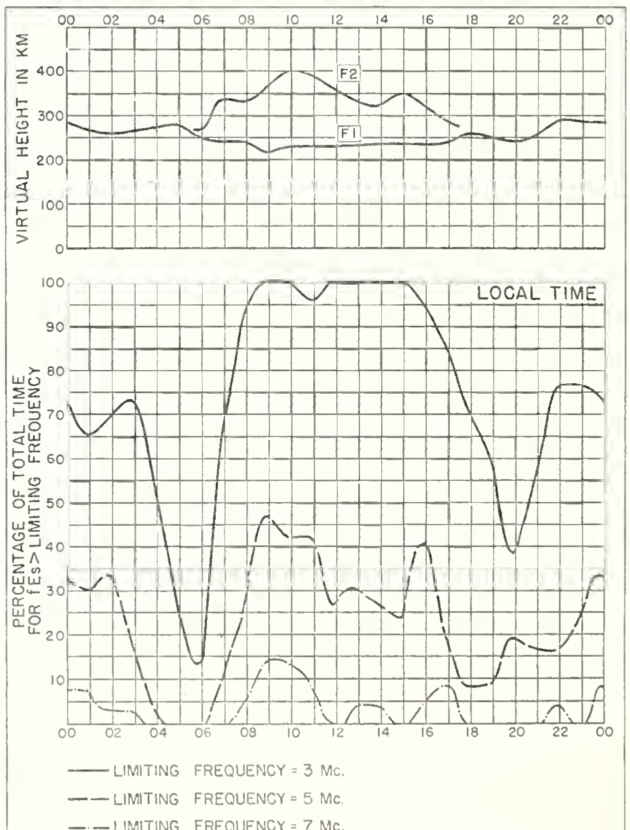

Fig. 80. WATHEROO, W. AUSTRALIA NOVEMBER 1951

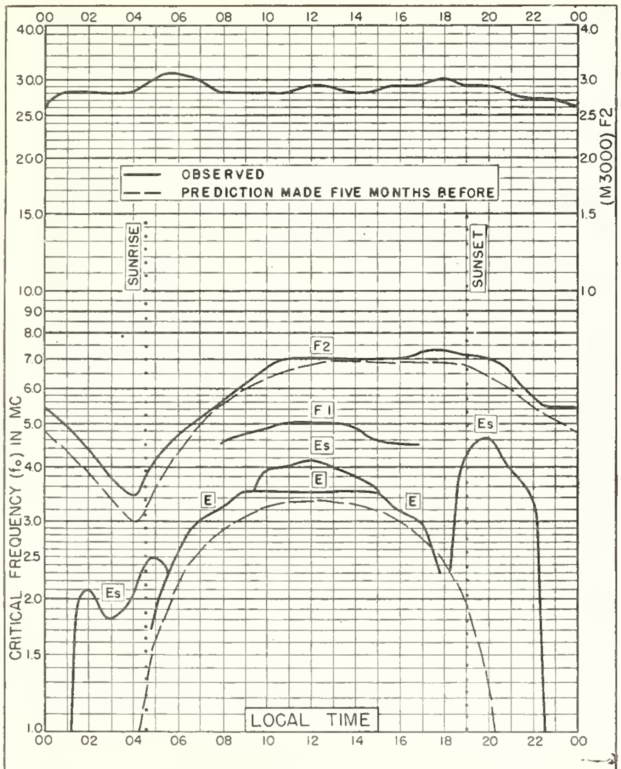

Fig. 81. HOBART, TASMANIA
42.8° S, 147.4° E NOVEMBER 1951

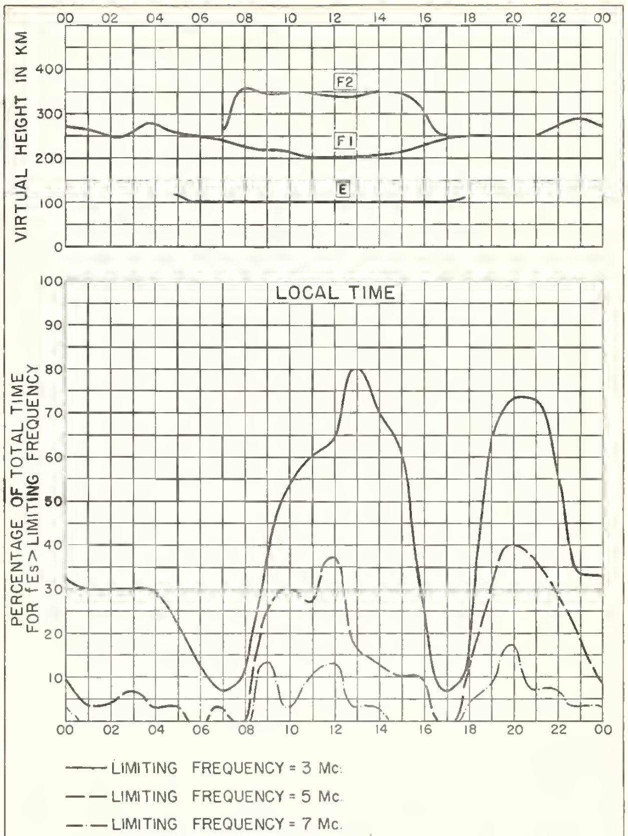

Fig. 82. HOBART, TASMANIA NOVEMBER 1951

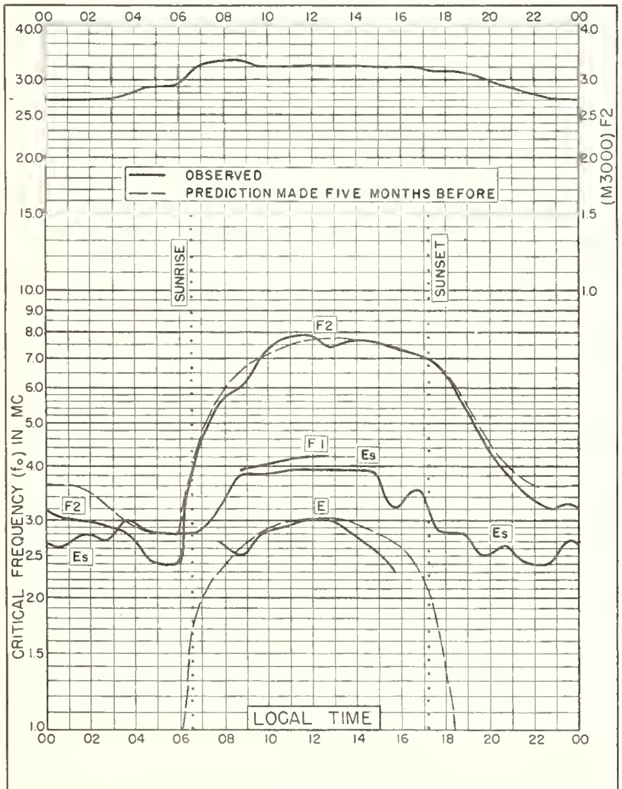

Fig. 83. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E OCTOBER 1951

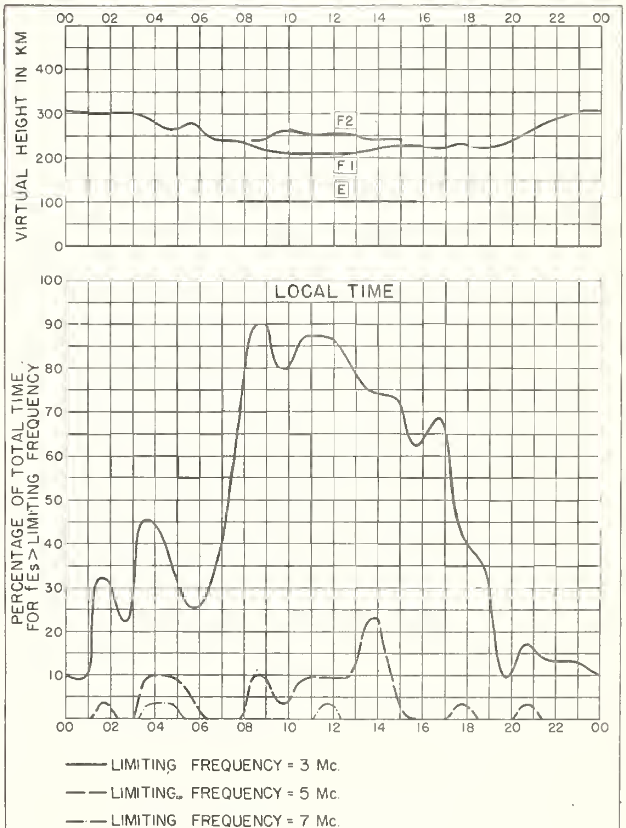

Fig. 84. LINDAU/HARZ GERMANY OCTOBER 1951

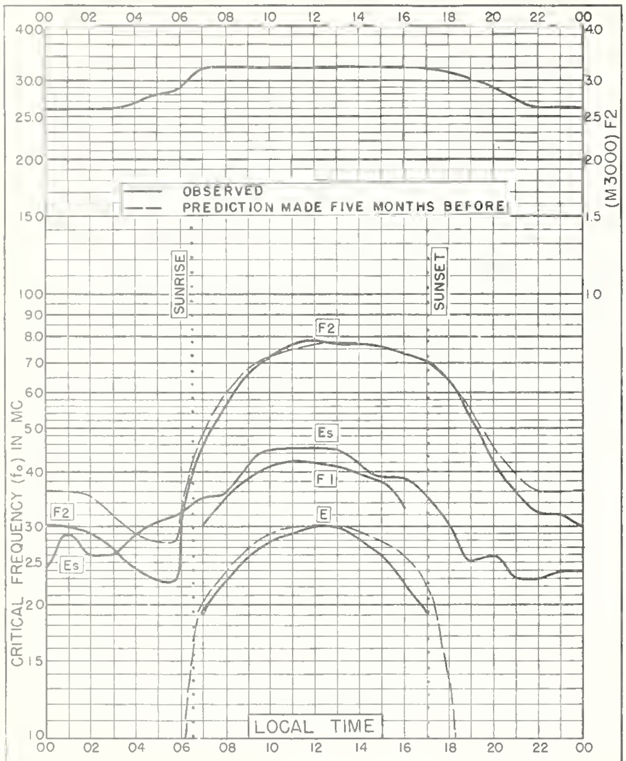

Fig. 85. SLOUGH, ENGLAND
51.5° N, 0.6° W OCTOBER 1951

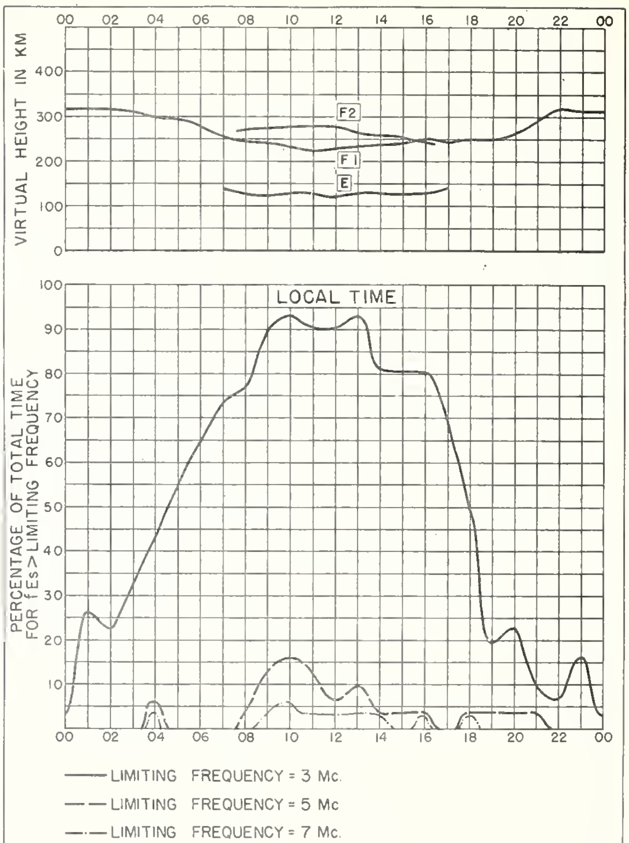

Fig. 86. SLOUGH, ENGLAND OCTOBER 1951

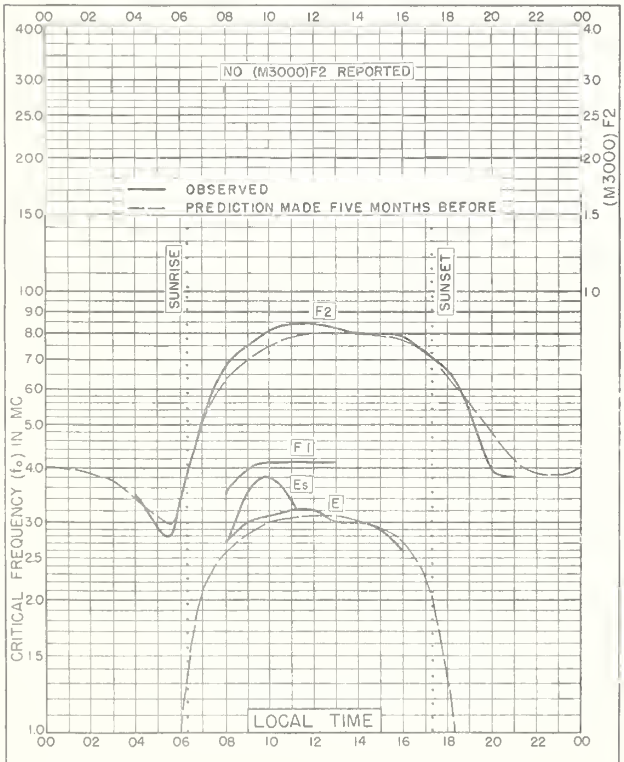

Fig. 87. GRAZ, AUSTRIA
47.1° N, 15.5° E OCTOBER 1951

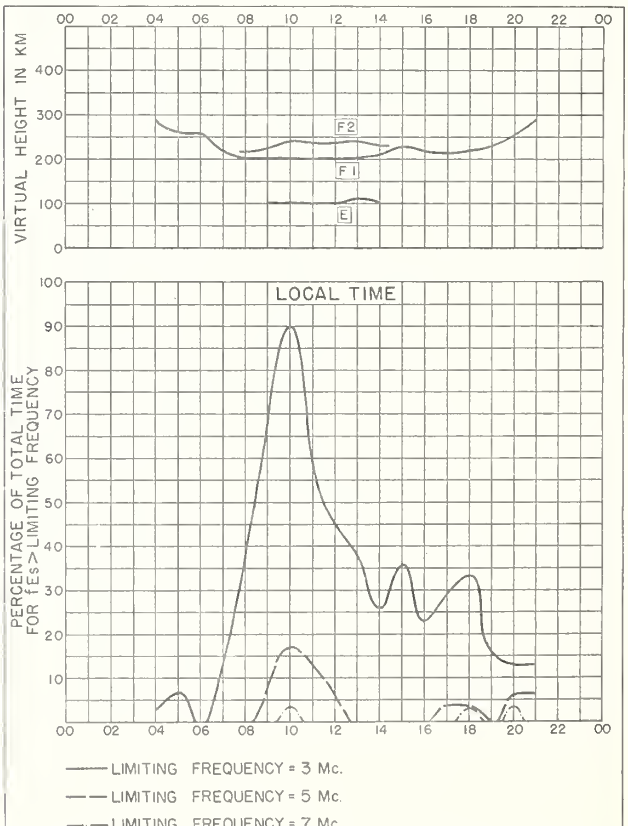

Fig. 88. GRAZ, AUSTRIA OCTOBER 1951

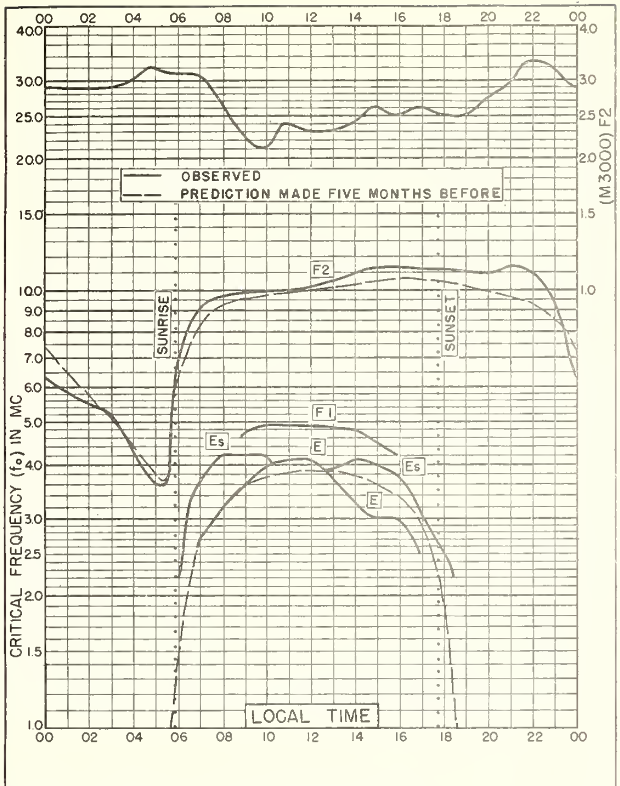

Fig. 89. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E OCTOBER 1951

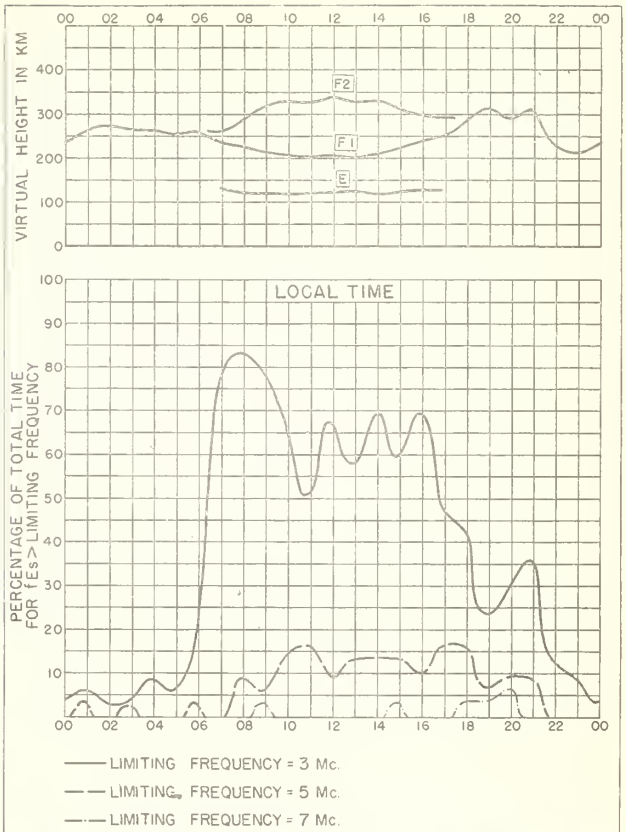

Fig. 90. SINGAPORE, BRIT. MALAYA OCTOBER 1951

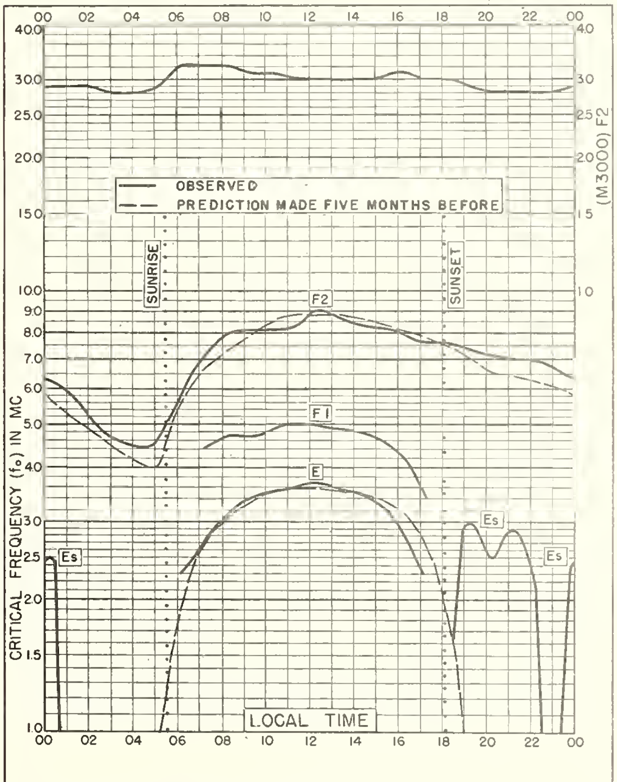

Fig. 91. BRISBANE, AUSTRALIA
27.5°S, 153.0°E OCTOBER 1951

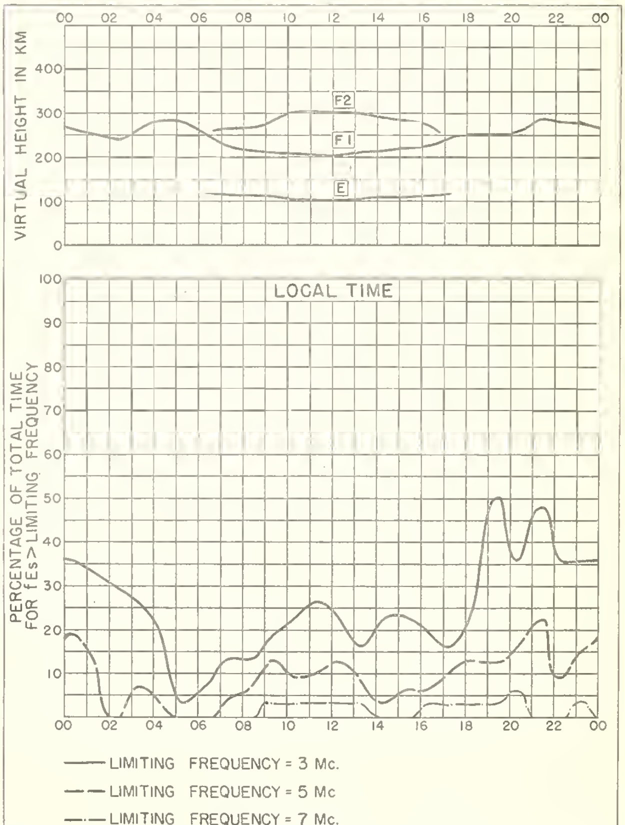

Fig. 92. BRISBANE, AUSTRALIA OCTOBER 1951

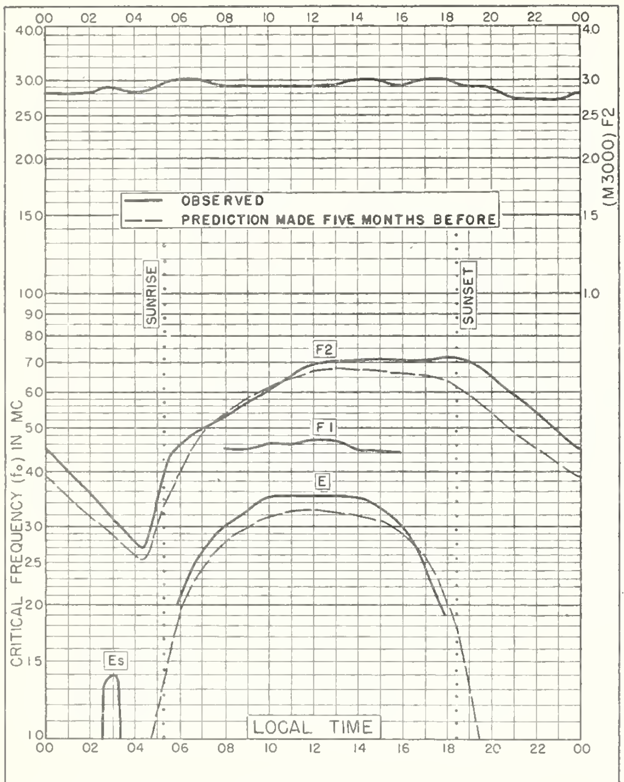

Fig. 93. HOBART, TASMANIA
42.8°S, 147.4°E OCTOBER 1951

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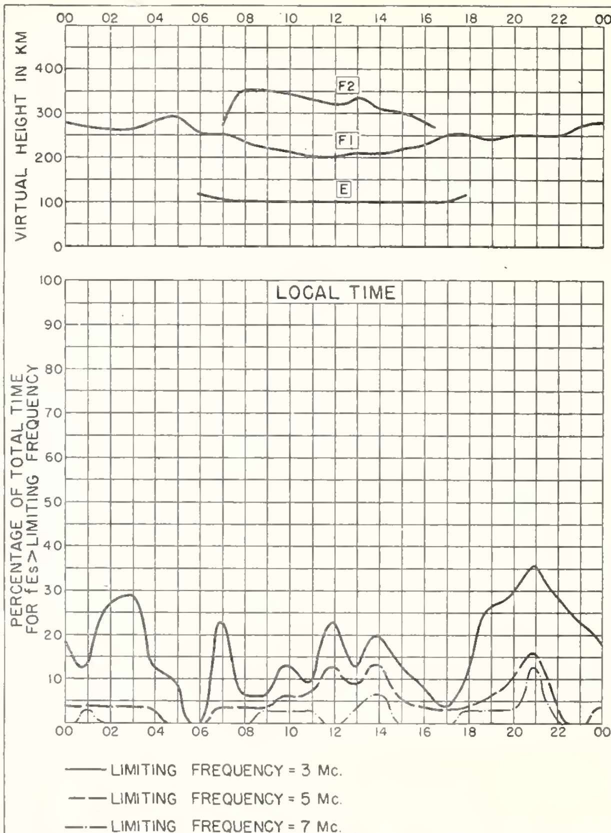


Fig. 94. HOBART, TASMANIA OCTOBER 1951

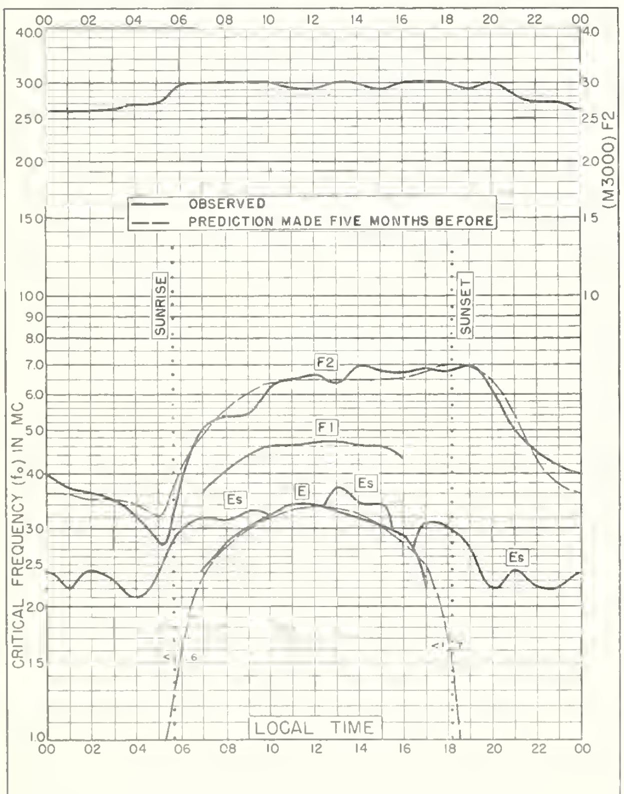


Fig. 95. FRIBOURG, GERMANY
48.1°N, 7.8°E SEPTEMBER 1951

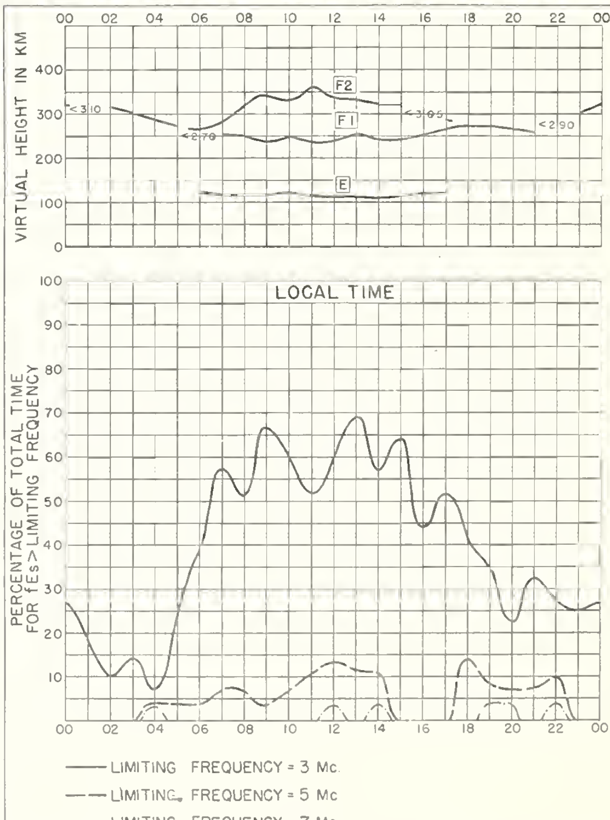


Fig. 96. FRIBOURG, GERMANY SEPTEMBER 1951

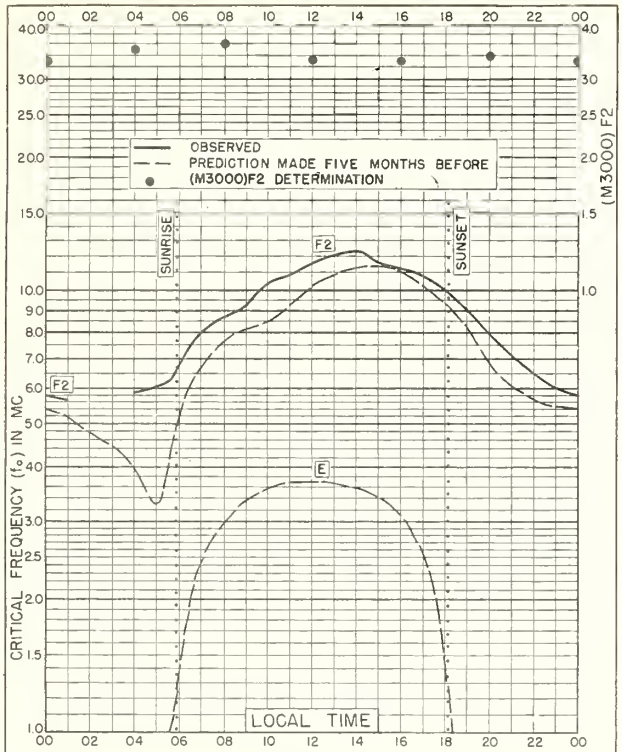


Fig. 97. DELHI, INDIA
28.6°N, 77.1°E SEPTEMBER 1951

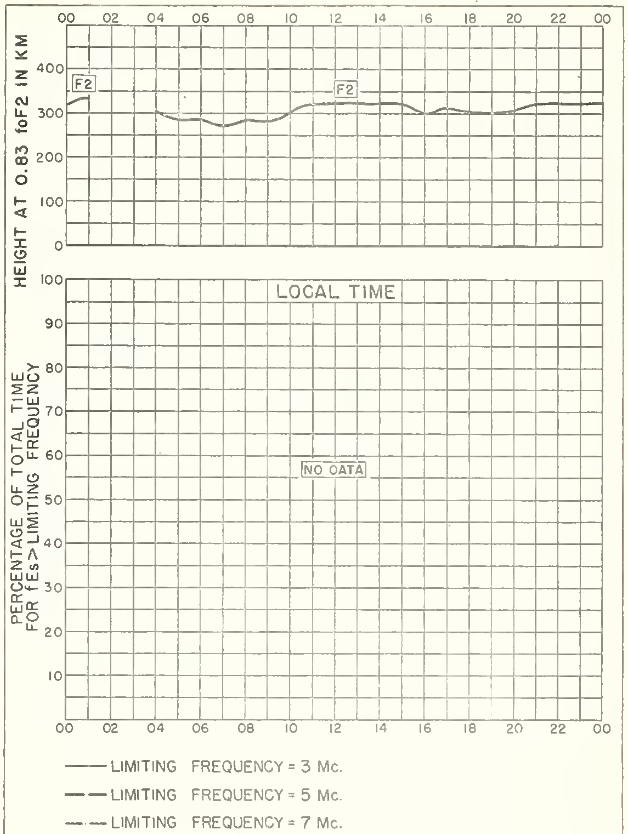


Fig. 98. DELHI, INDIA SEPTEMBER 1951

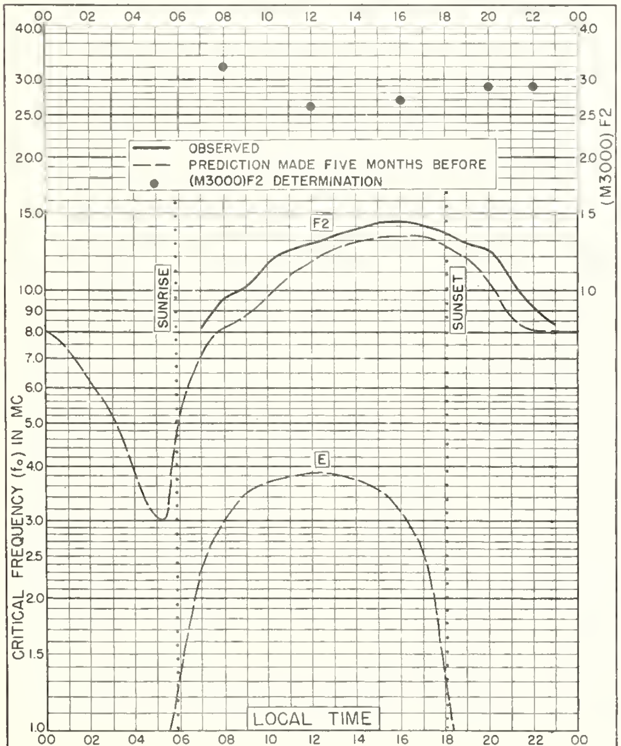


Fig. 99. BOMBAY, INDIA
19.0° N, 73.0° E SEPTEMBER 1951

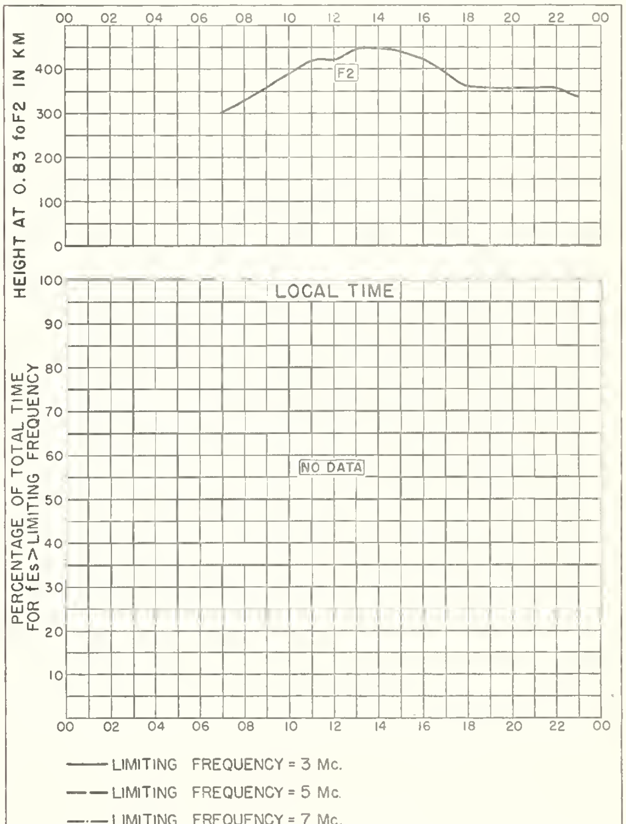


Fig. 100. BOMBAY, INDIA SEPTEMBER 1951

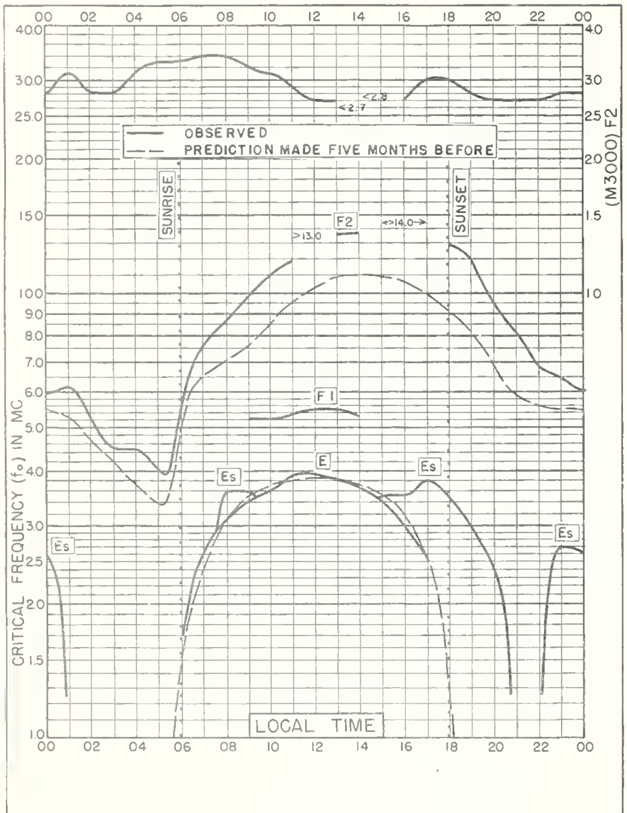


Fig. 101. DAKAR, FRENCH WEST AFRICA
14.6° N, 17.4° W SEPTEMBER 1951

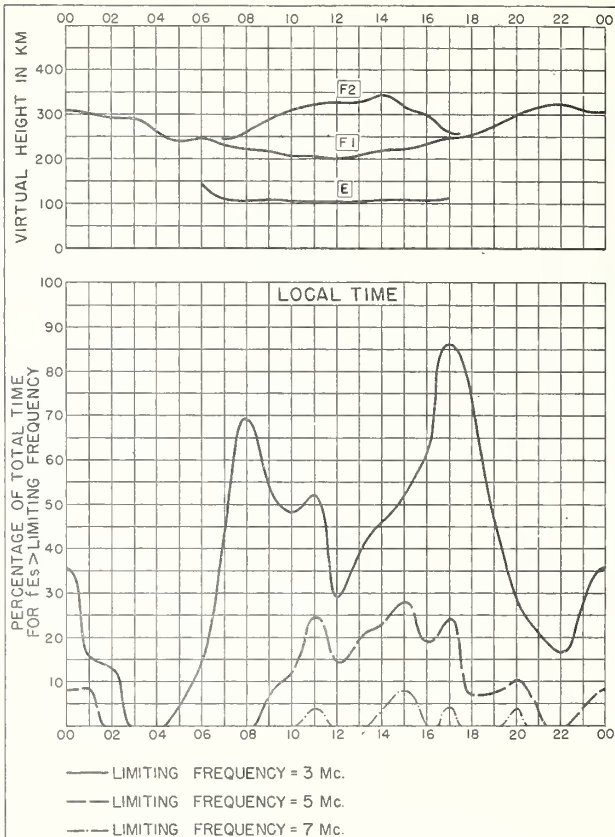


Fig. 102. DAKAR, FRENCH WEST AFRICA SEPTEMBER 1951

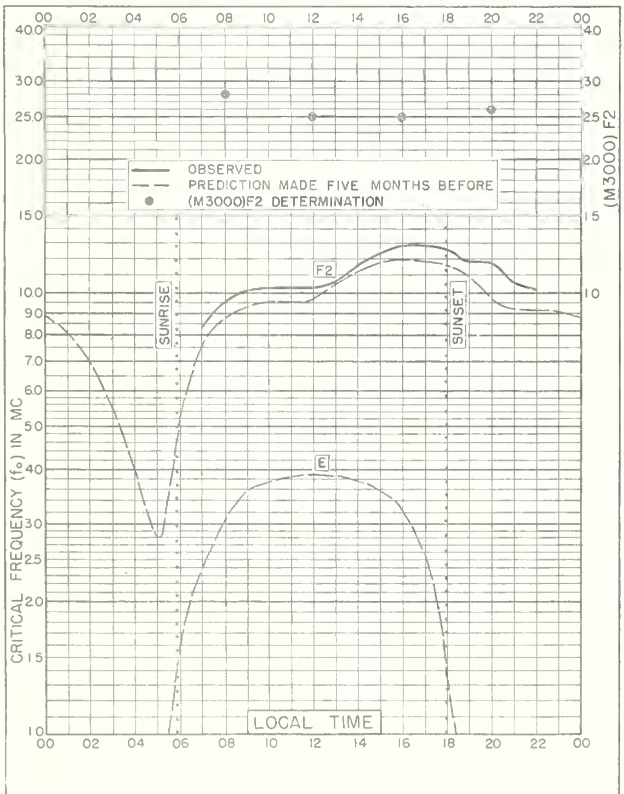


Fig. 103. MADRAS, INDIA
13.0° N, 80.2° E SEPTEMBER 1951

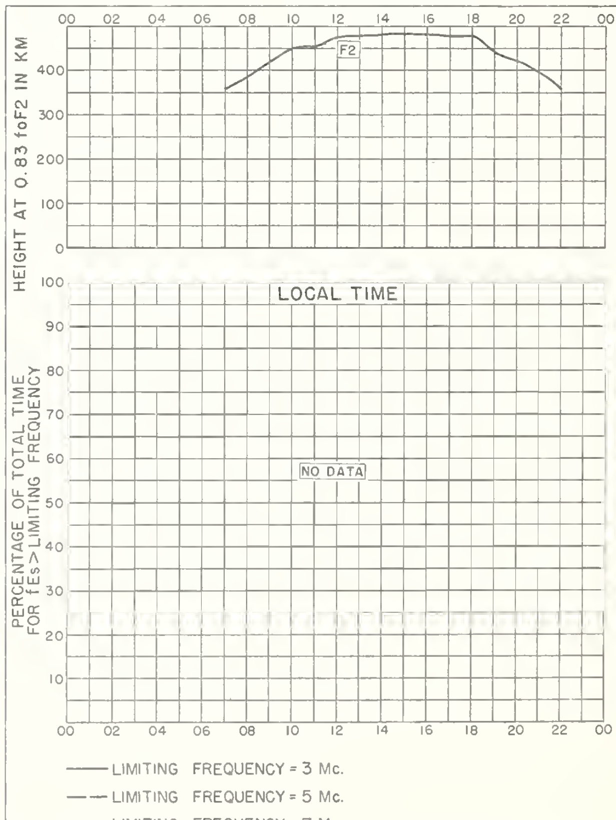


Fig. 104. MADRAS, INDIA SEPTEMBER 1951

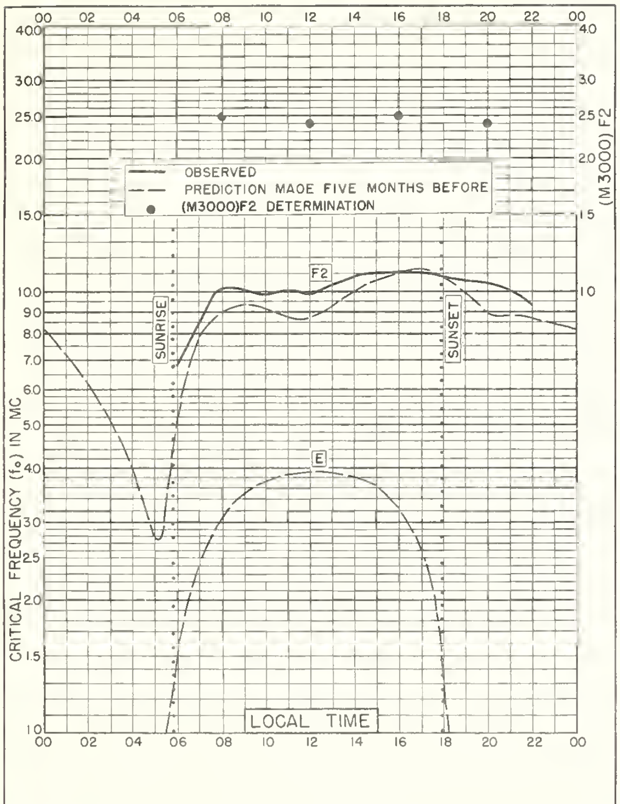


Fig. 105. TIRUCHY, INDIA
10.8° N, 78.8° E SEPTEMBER 1951

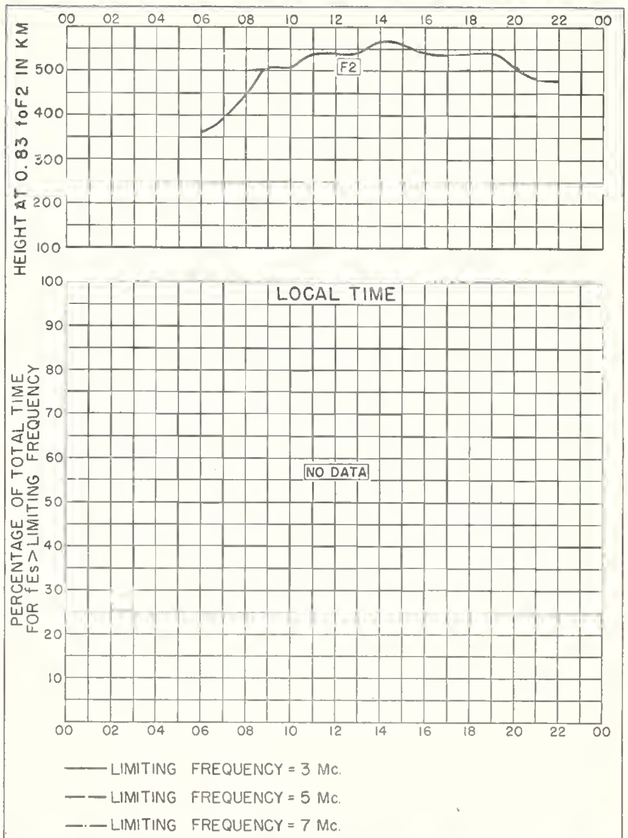


Fig. 106. TIRUCHY, INDIA SEPTEMBER 1951

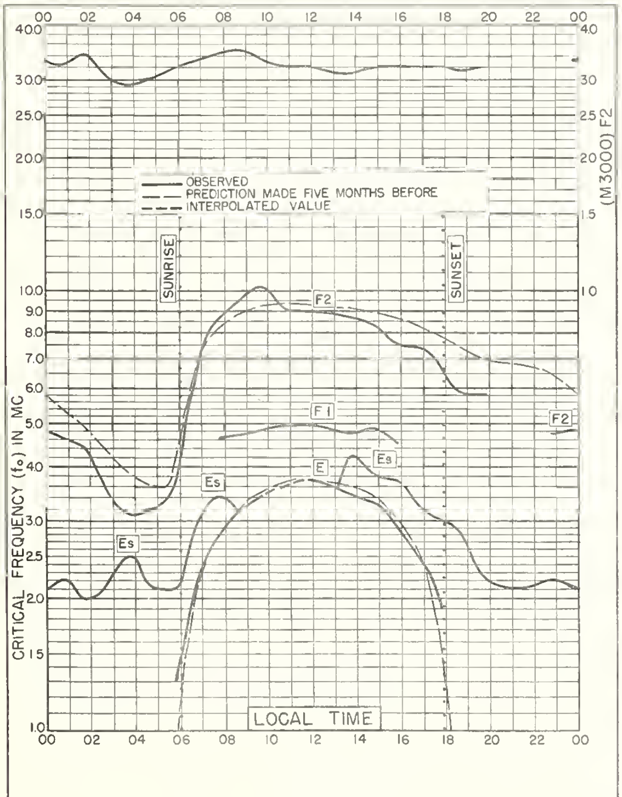
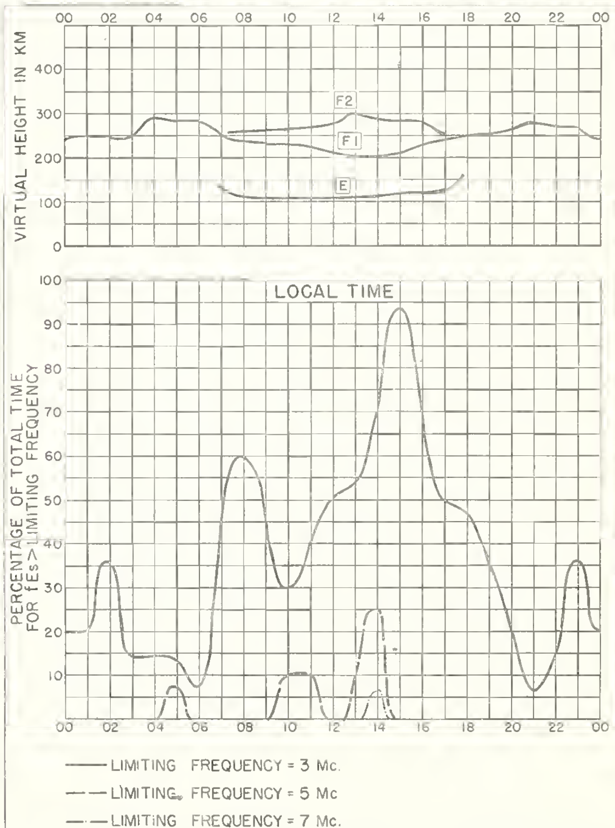


Fig. 107. TOWNSVILLE, AUSTRALIA
19.3° S, 146.8° E SEPTEMBER 1951



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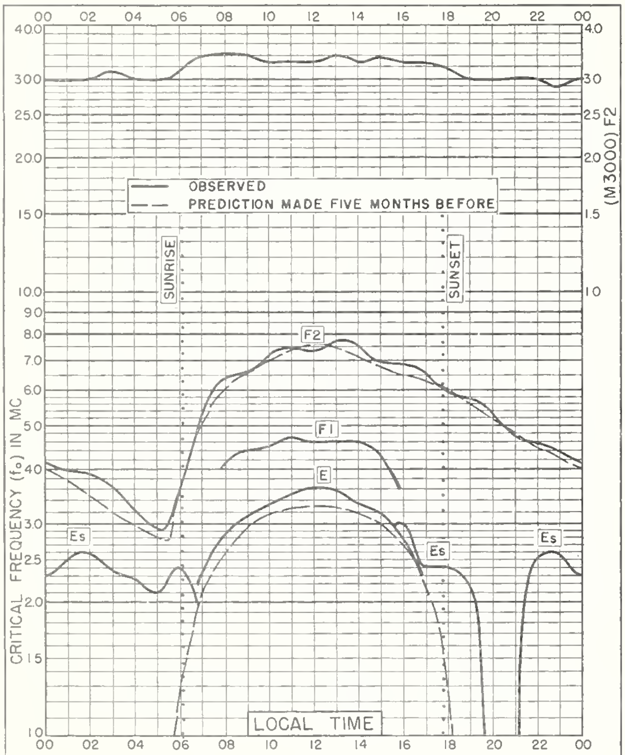

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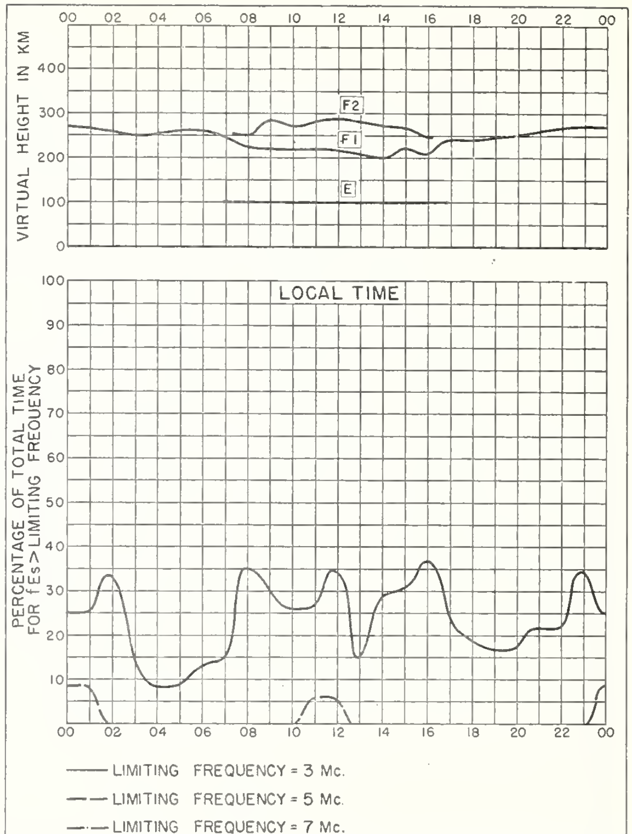

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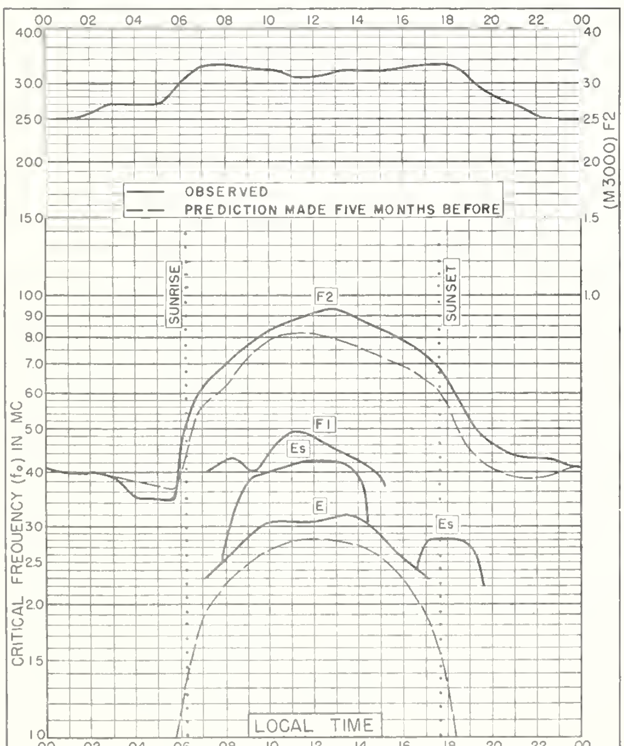

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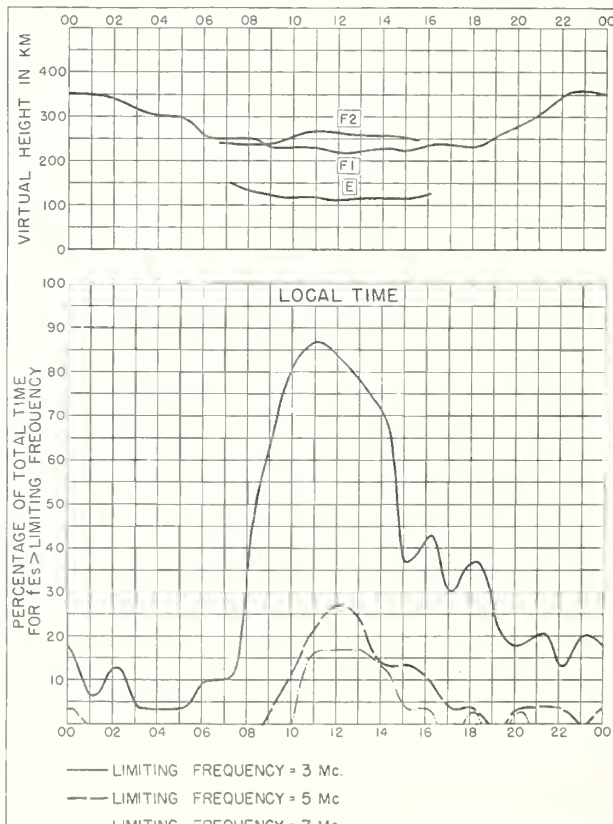

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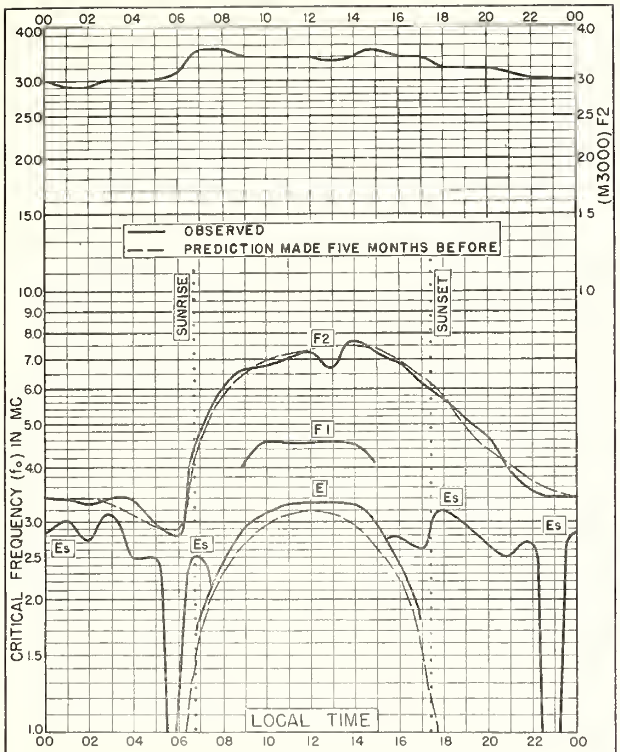

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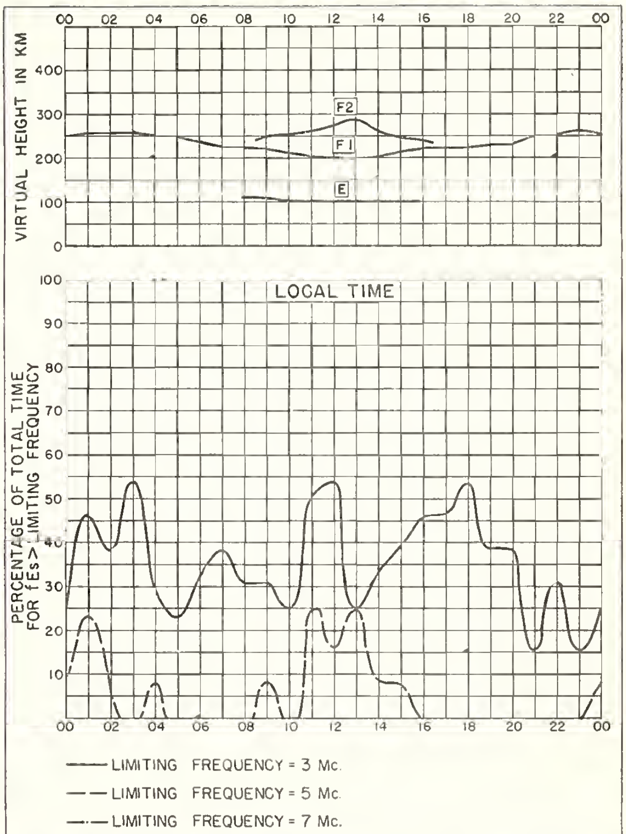

Fig. 114. CANBERRA, AUSTRALIA AUGUST 1951

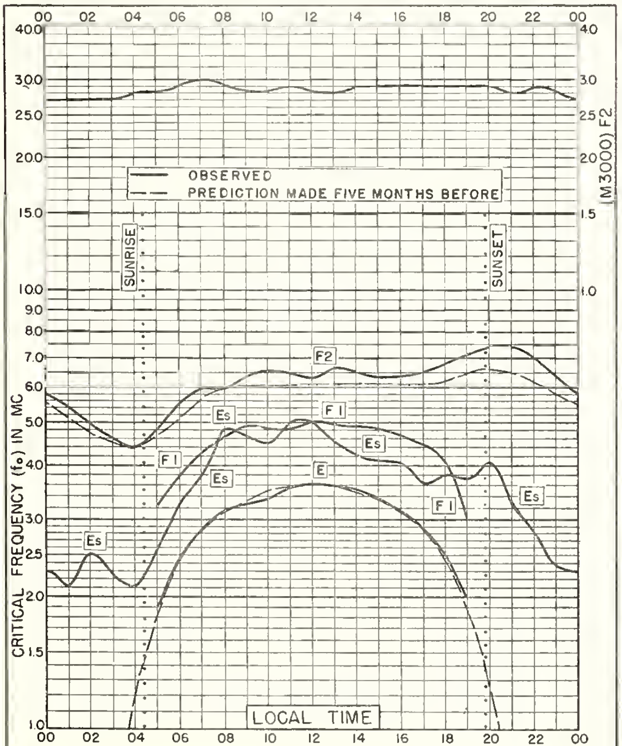

Fig. 115. FRIBOURG, GERMANY
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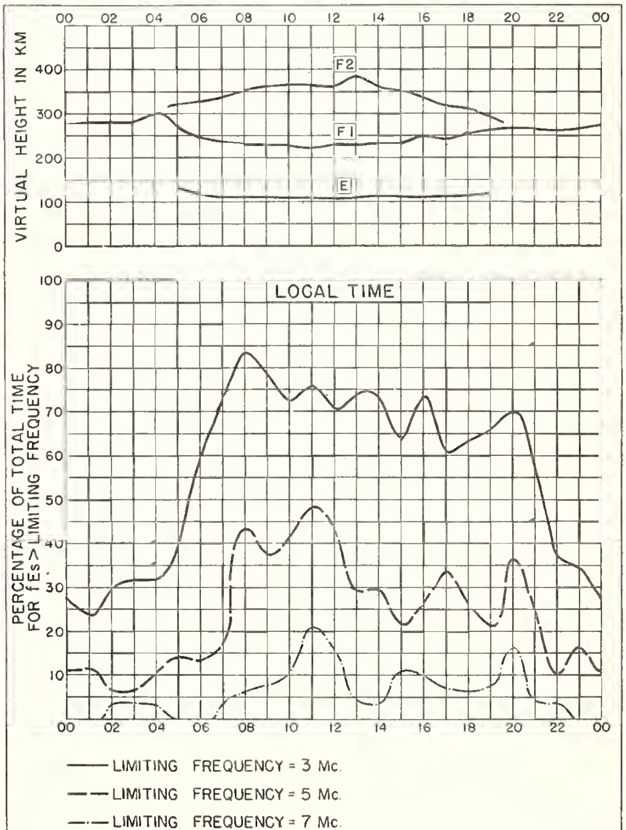

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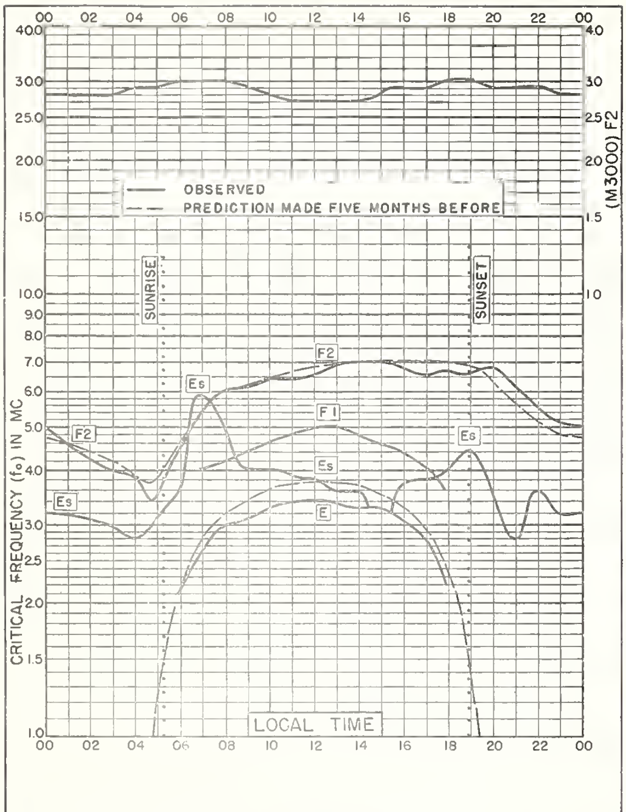

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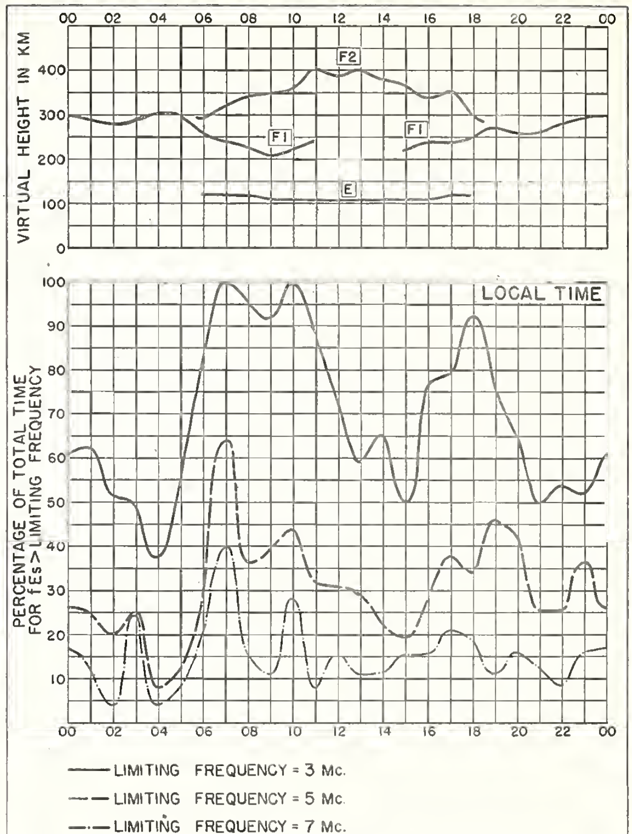
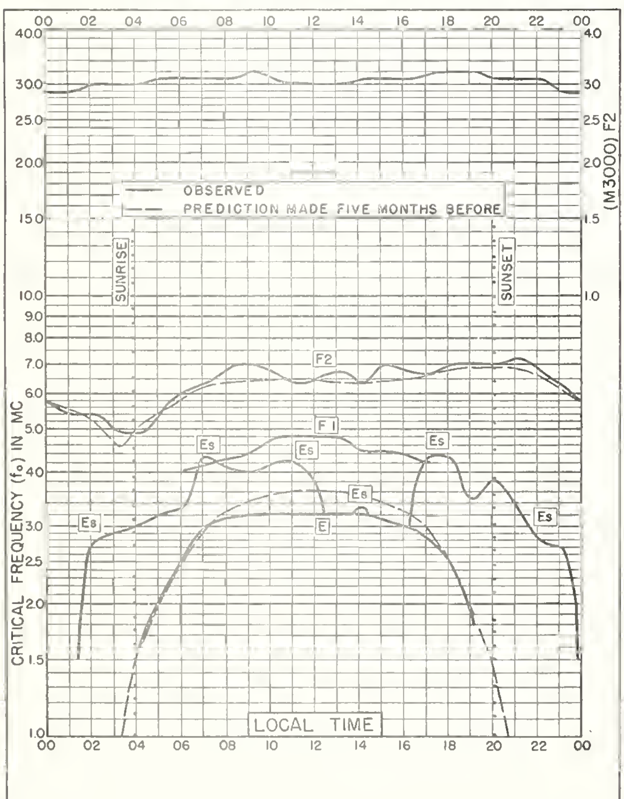


Fig. 118. BATON ROUGE, LOUISIANA JULY 1951



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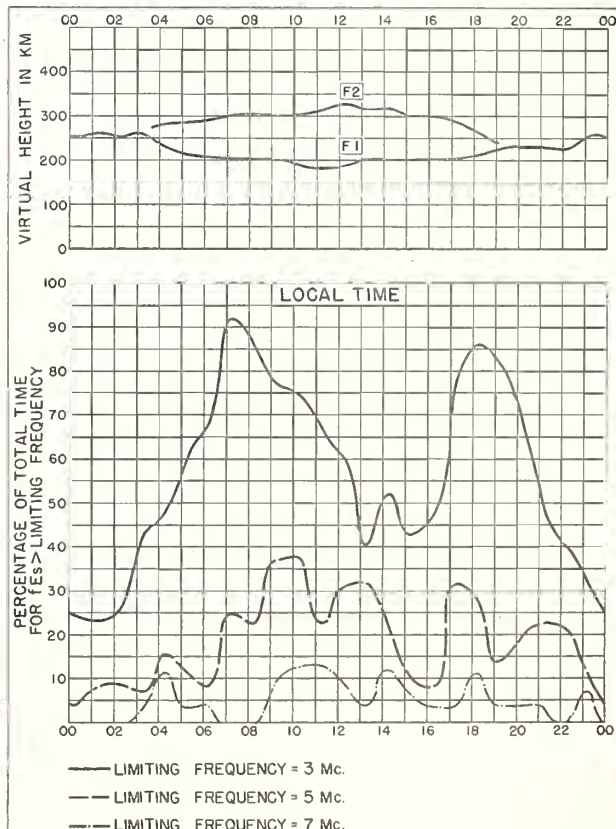

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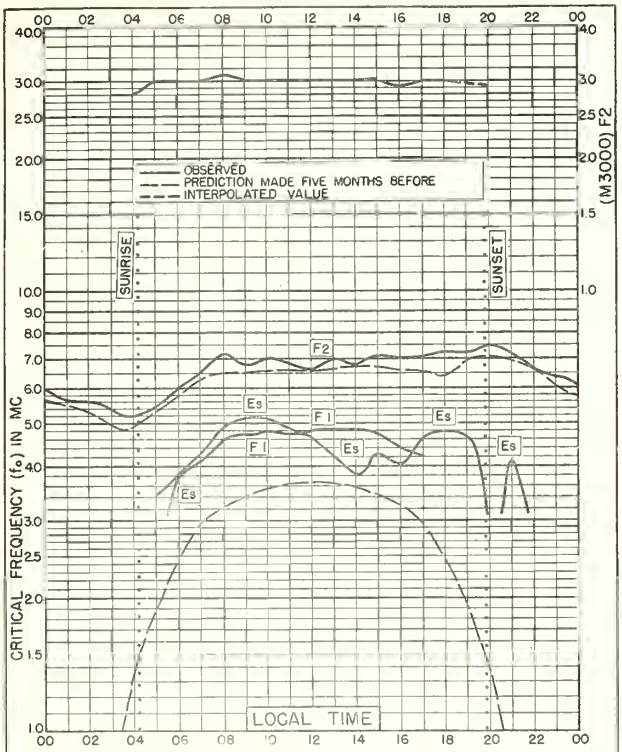

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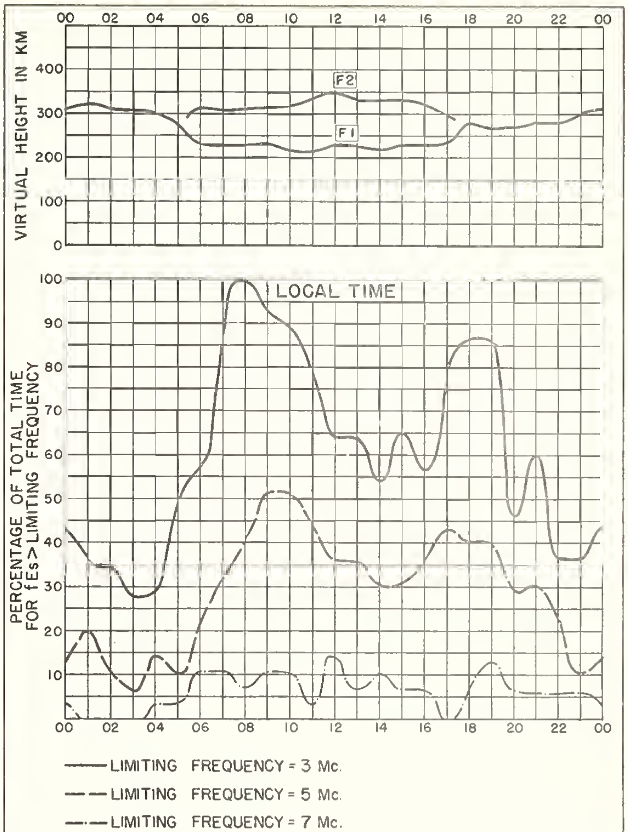

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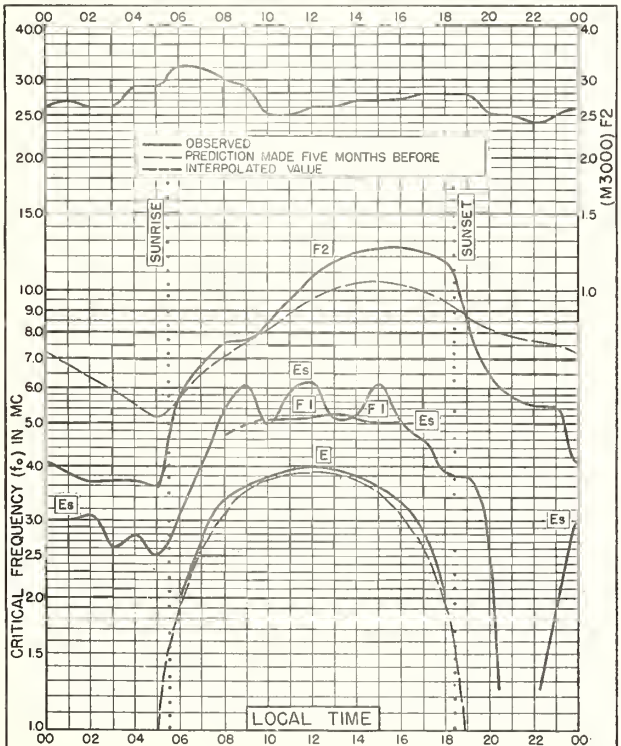

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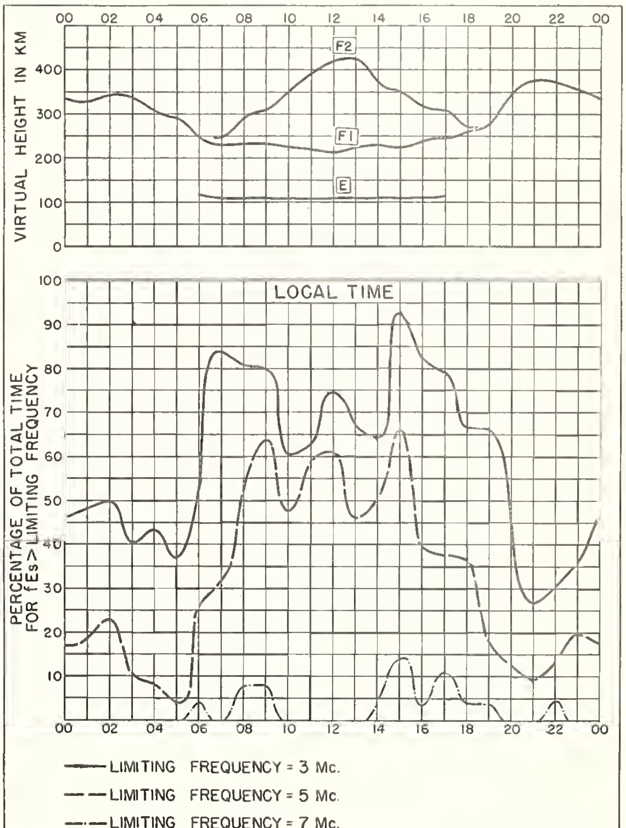

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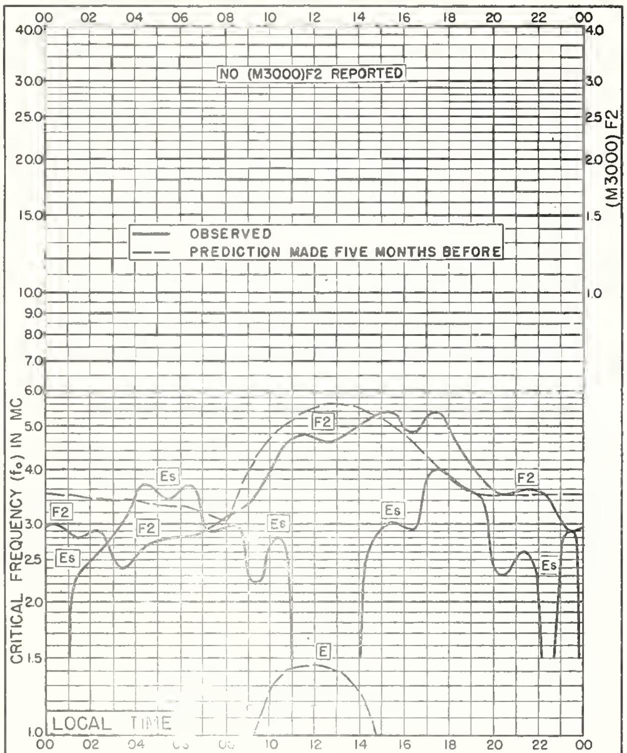

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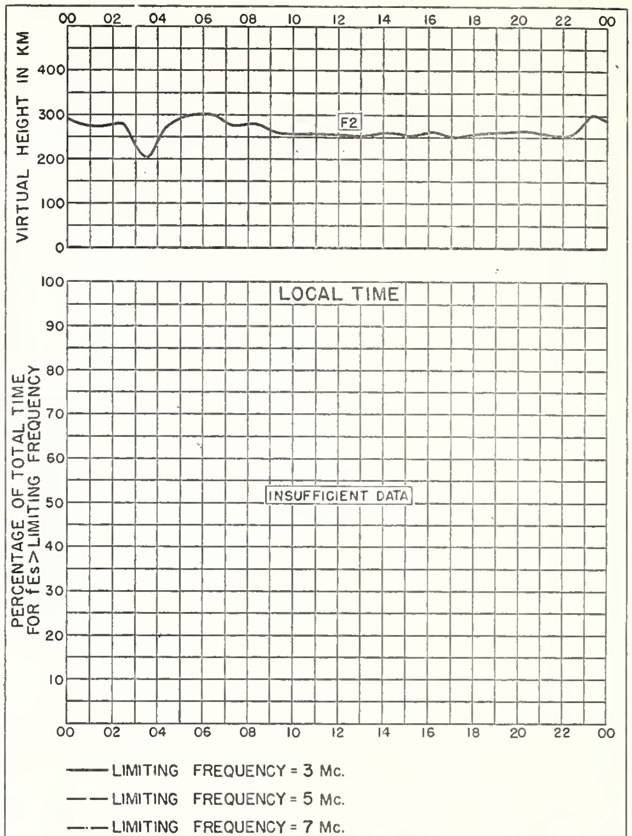

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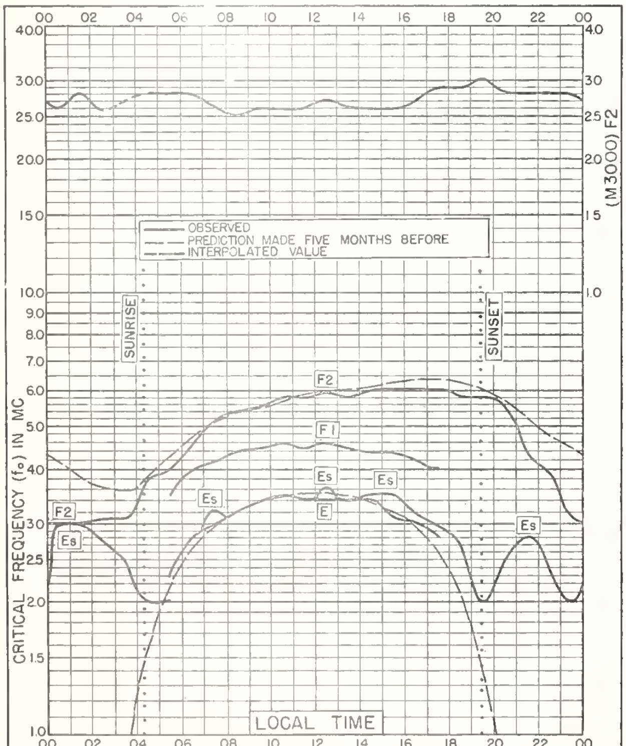

Fig. 127. WINNIPEG, CANADA
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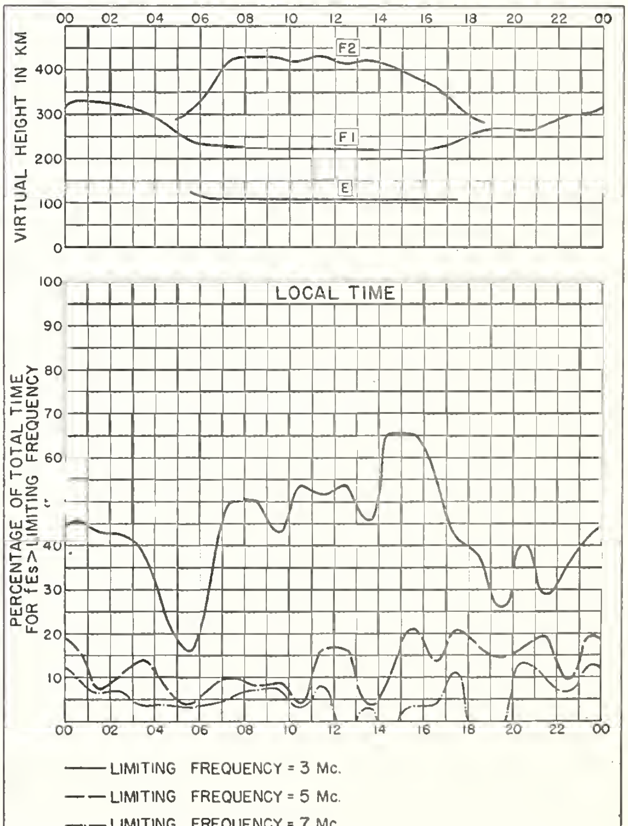

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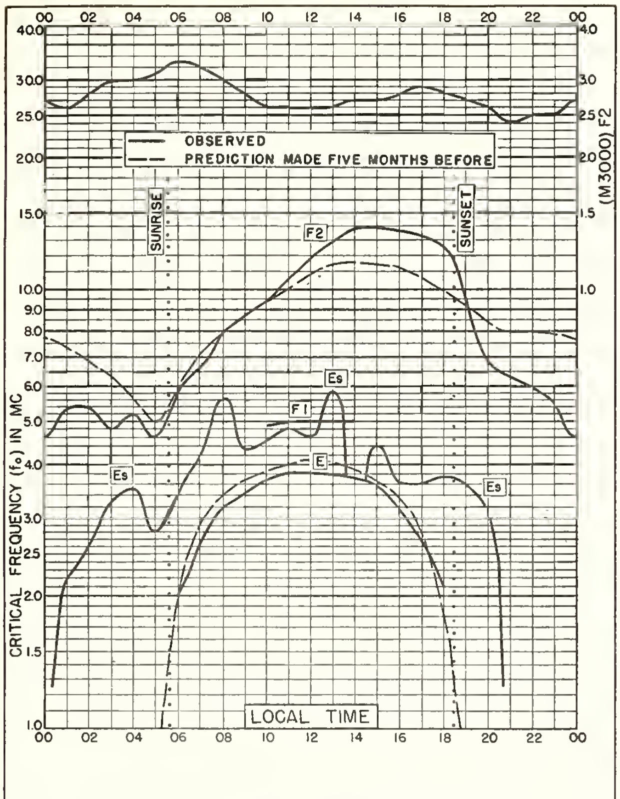

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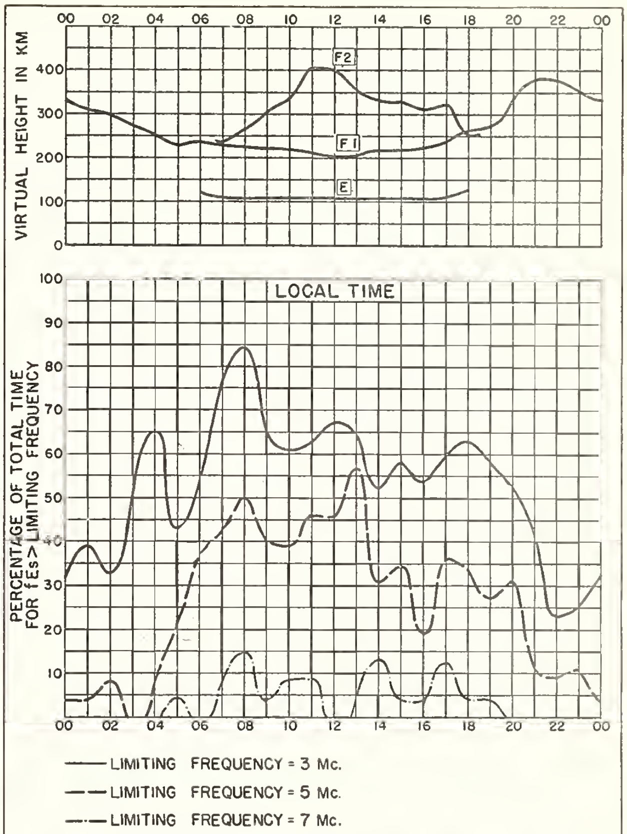

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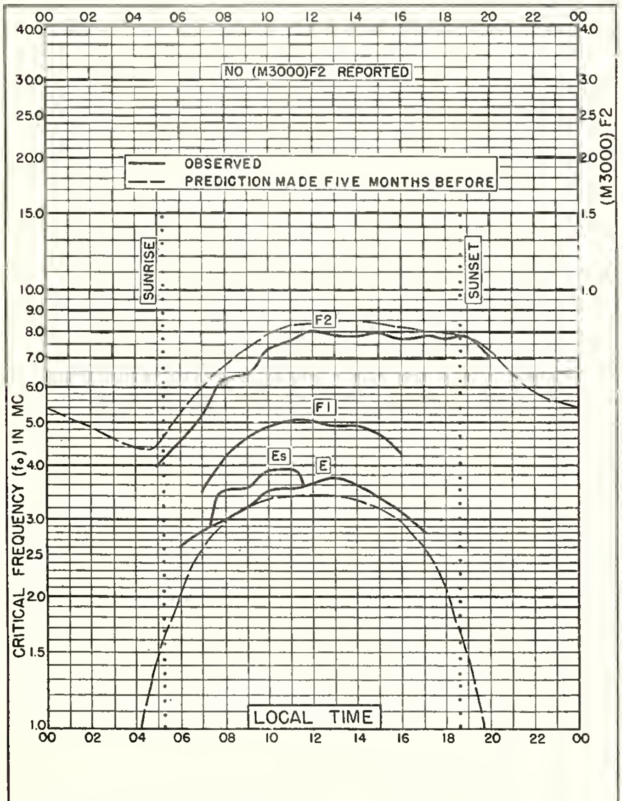

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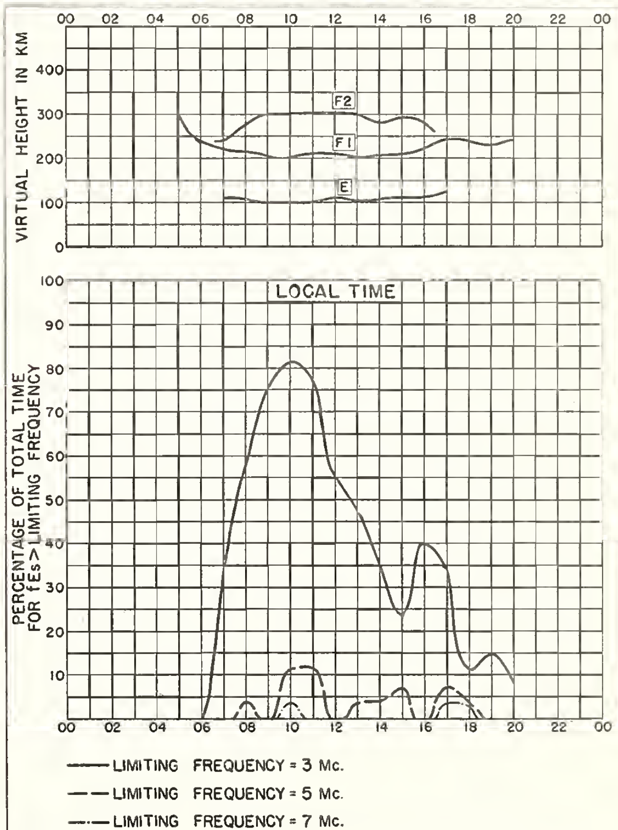

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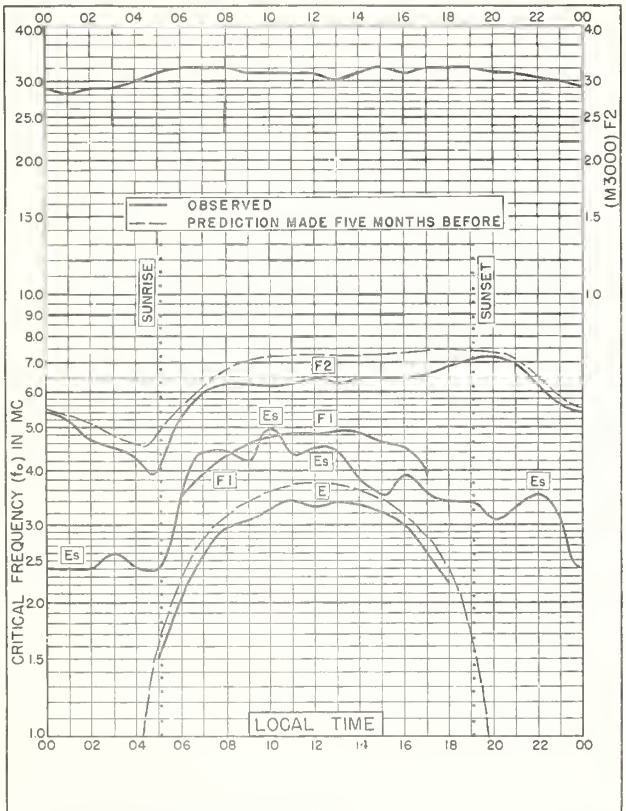

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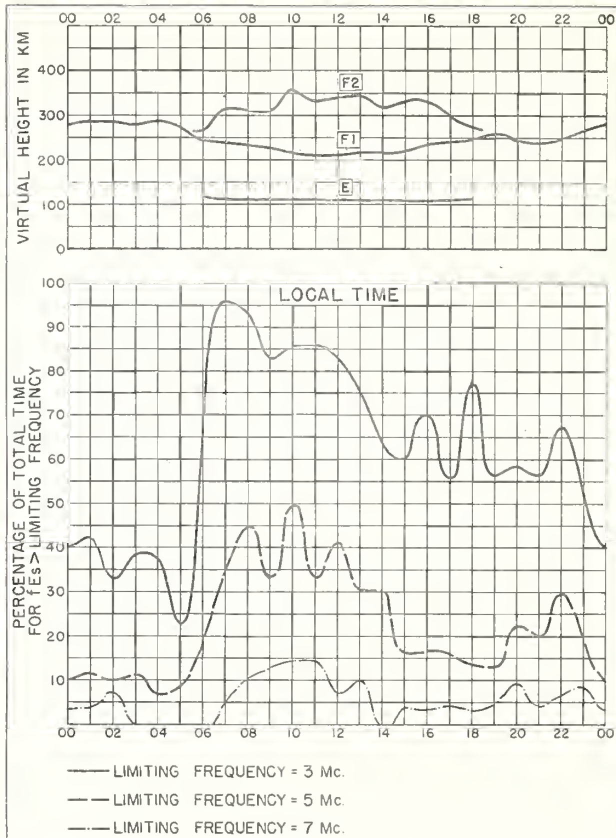

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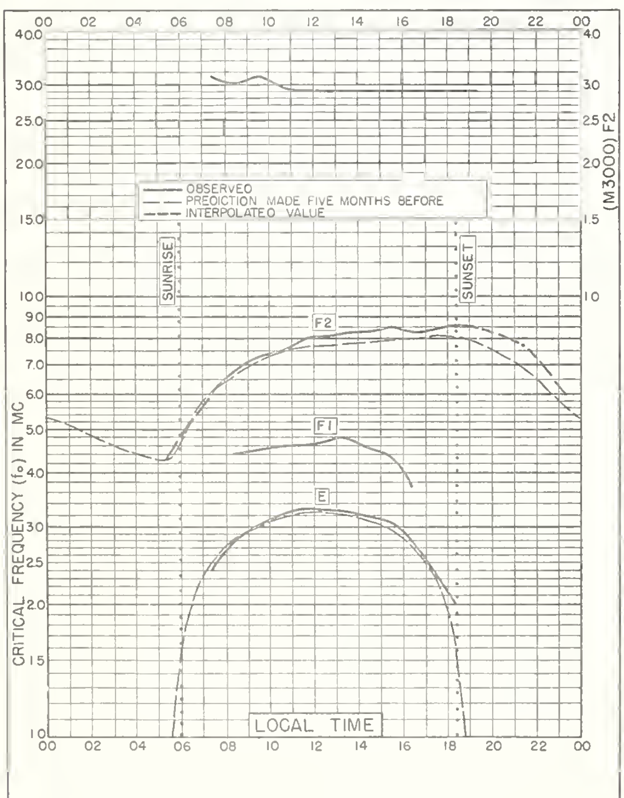

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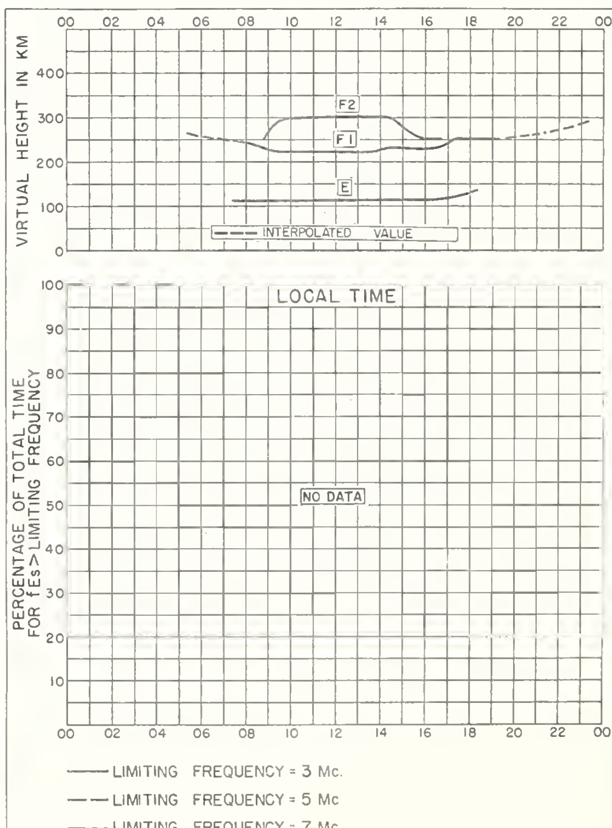

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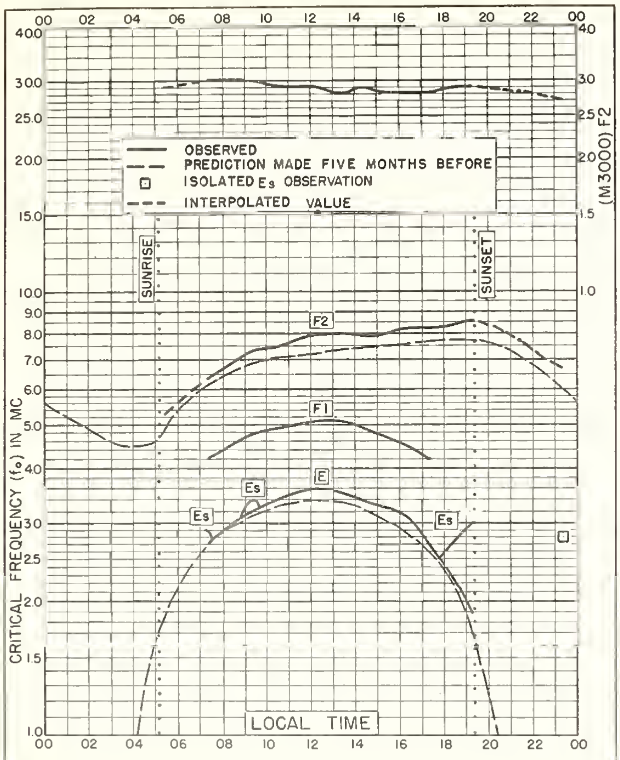

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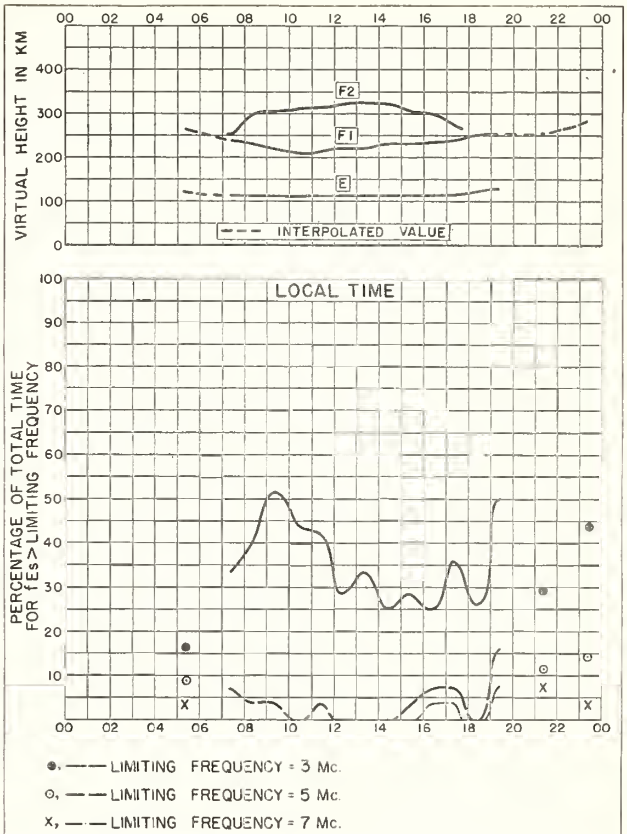

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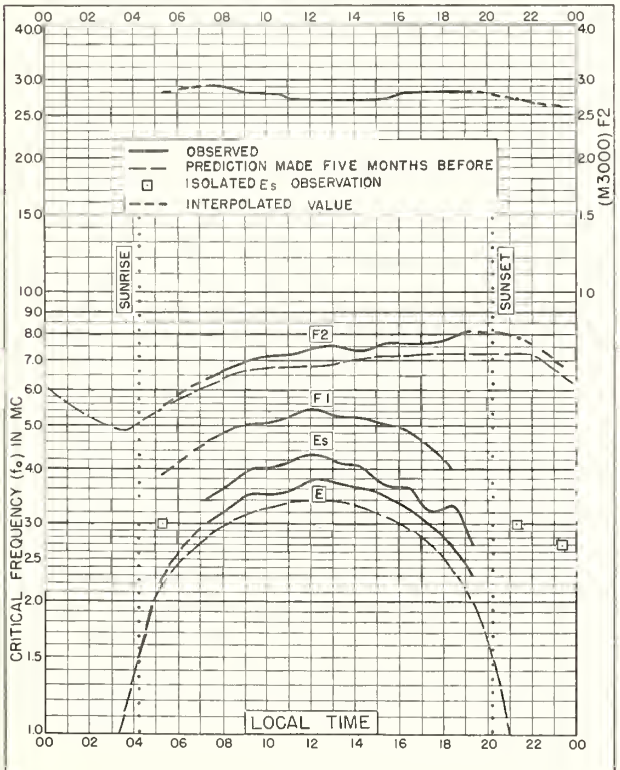

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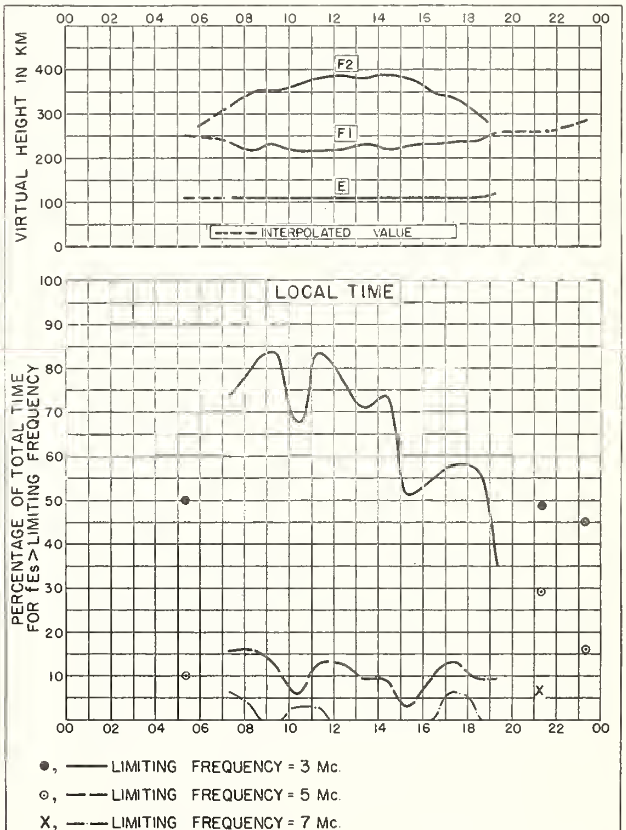

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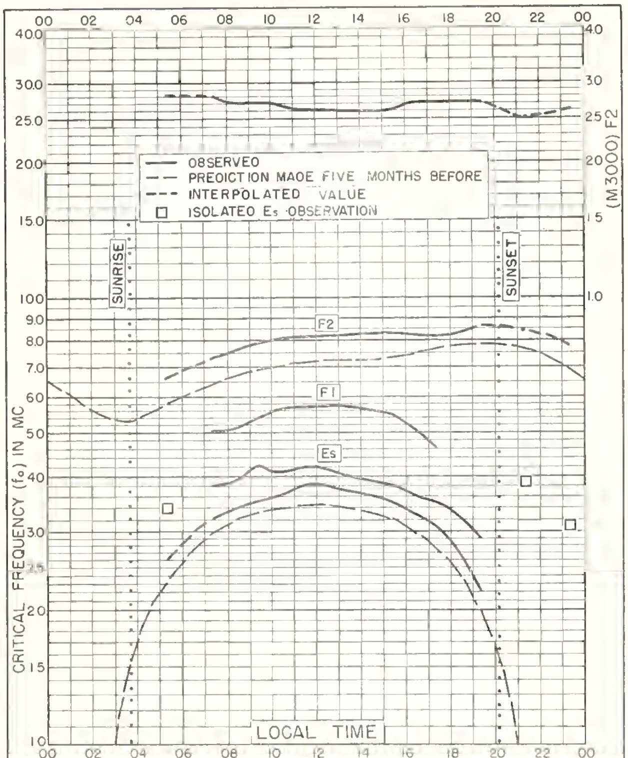

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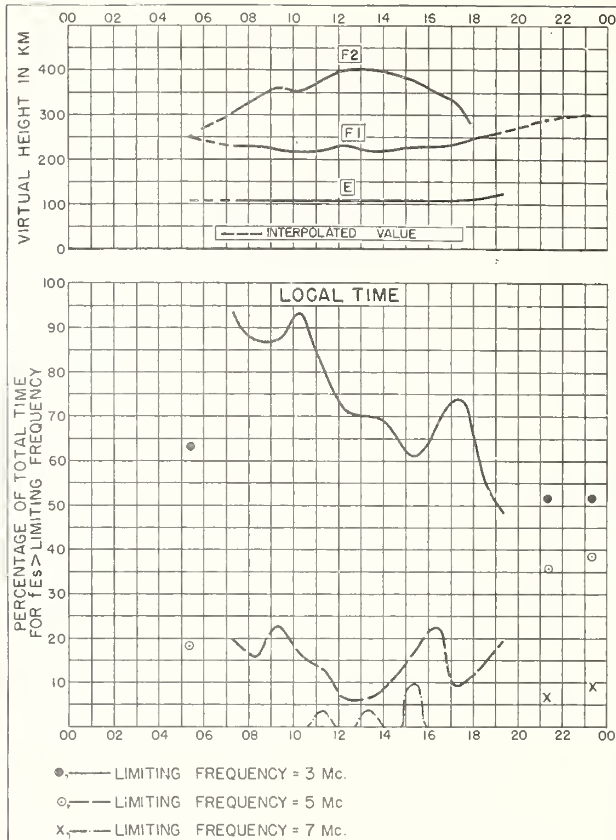

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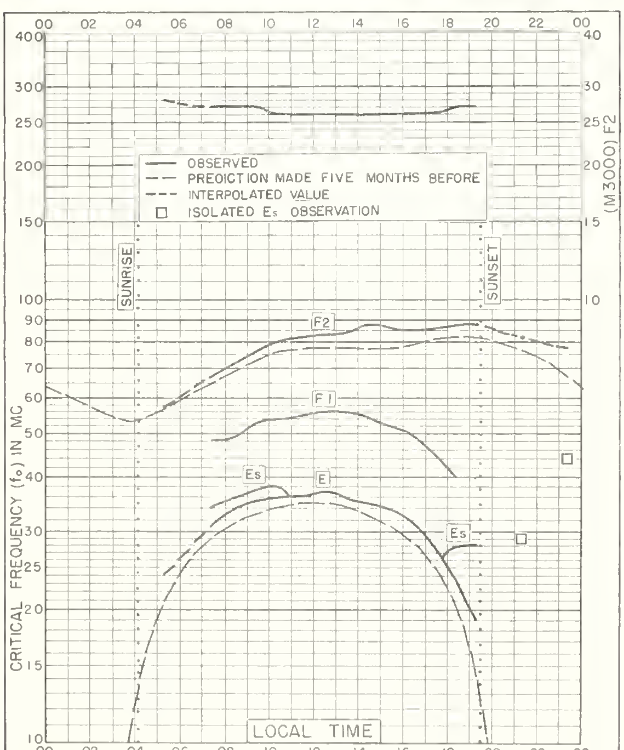

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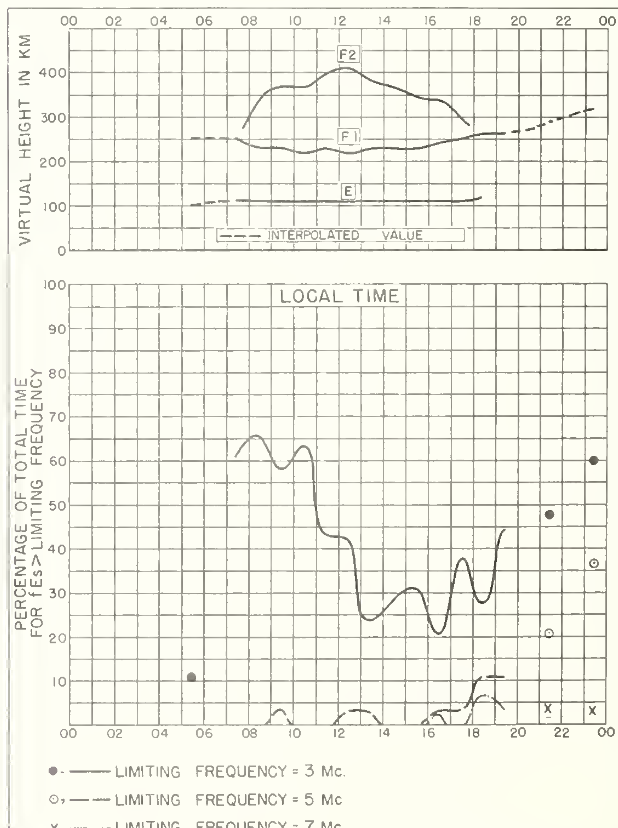

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CRPL and IRPL Reports

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

Daily:

Radio disturbance 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; Dept. of the Air Force, TO 16-1B-2 series.)
CRPL—F. Ionospheric Data.
*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

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

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
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 F2-Layer Radio Transmission Throughout the Solar Cycle.
**R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
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**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.)
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