CRPL-F 102

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-F76.

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Month	Predicted Sunspot Number								
	1953	1952	1951	1950	1949	1948	1947	1946	1945
December		33	53	86	108	114	126	85	38
November		38	52	87	112	115	124	83	36
October		43	52	90	114	116	119	81	23
September		46	54	91	115	117	121	79	22
August		49	57	96	111	123	122	77	20
July		51	60	101	108	125	116	73	
June		52	63	103	108	129	112	67	
May		52	68	102	108	130	109	67	
April		52	74	101	109	133	107	62	
March		52	78	103	111	133	105	51	
February		51	82	103	113	133	90	46	
January	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

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

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

University of Graz:
- Graz, Austria

British Department of Scientific and Industrial Research, Radio Research Board:

- Falkland Is.
- Ibadan, Nigeria (University College of Nigeria)
- Inverness, Scotland
- Port Lockroy
- Singapore, British Malaya
- Slough, England

Defence Research Board, Canada:

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

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

- Formosa, China

French Ministry of Naval Armaments (Section for Scientific Research):

- Dakar, French West Africa
- Djibouti, French Somaliland
- Tananarive, Madagascar

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

- Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:

- De Bilt, Holland

Icelandic Post and Telegraph Administration:

- Reykjavik, Iceland

All India Radio (Government of India), New Delhi, India:

- Bombay, India
- Delhi, India
- Madras, India
- Tiruchy (Tiruchirapalli), India

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

- Calcutta, India

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:

- Akita, Japan
- Tokyo (Kokubunji), Japan
- Wakkanai, Japan
- Yamagawa, Japan

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

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

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

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

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

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

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

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 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 January 1953, 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.

Tables 86a and 86b give for **December 1952** the radio propagation quality figures for the North Atlantic area, CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, separately for 00-12 and 12-24 hours UT (Universal Time or GCT). The basis of calculation is summarized below.
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the two half-daily Q-figures, before rounding off, with half weight given to quality grades 5 and 6. This procedure tends to give whole-day indices suitable for comparison with whole-day advance forecasts which designate whenever possible the days when significant disturbance or unusually quiet conditions will occur.
(c) short-term forecasts, issued by CRPL every six hours (nominally one hour before 00^h, 06^h, 12^h, 18^h UT) and applicable to the period 1 to 13 (especially 1 to 7) hours ahead. The forecasts issued just prior to 00^h and 12^h UT are scored against the half-daily quality figures; the results for the intervening forecasts should be similar. Note that new scoring rules have been adopted beginning with October 1952 data.
(d) advance forecasts, issued semiweekly (CRPL-J reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole-day quality indices.
(e) half-day averages of the geomagnetic K indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.
(f) illustration of the comparison of short term forecasts and Q-figures.
(g) illustration of the outcome of advance forecasts (1 to 3 or 4 days ahead) and for comparison the outcome of a type of "blind" forecast. For the latter the frequency for each quality grade, as determined from the distribution of quality grades in the four most recent months of the current season, is partitioned among the grades observed in the current month in proportion to the frequencies observed in the current month.

The radio propagation quality figures are prepared from radio traffic data reported to CRPL by American Telephone and Telegraph Company, Mackay Radio and Telegraph Company, RCA Communications, Inc., Marconi Company, British Admiralty Signal and Radar Establishment, and the following agencies of the U. S. government:-- FCC, Coast Guard, Navy, Army Signal Corps, Air Force (AACS), State Department. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Beginning with recalculated figures for January 1952, only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality. Observations of selected ionospheric characteristics, even though strongly correlated with radio transmission quality, and traffic reports for paths such as New York-Stockholm or New York-Tangier, previously included in the quality-figure determination with low weight, have been left out of the present calculations inasmuch as a sufficient number of homogeneous reports are now available.

The original reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. Each half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

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

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

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during January 1953, 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 1953, 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 January 1953.

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 1953.

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

RELATIVE SUNSPOT NUMBERS

Table 93 lists the daily provisional 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, <u>61</u>, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated R_A' rather than R_A. The American relative sunspot numbers appear monthly in these pages as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

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

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

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

INDICES OF GEOMAGNETIC ACTIVITY

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

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following four criteria: (1) C; (2) the sum of the eight Kp's; (3) the greatest Kp; and (4) the sums of the squares of the eight Kp's.

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

The diagram showing Kp indices for the year 1952 appears on pages 48 and 49. Monthly tables of Kp have been given in these CRPL-F reports beginning with January 1951 in F79. The Kp indices are plotted according to 27-day solar rotations.

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

SUDDEN IONOSPHERE DISTURBANCES

Table 97 shows that no sudden ionosphere disturbances were observed during the month of January 1953 at Washington, D. C. Table 98 lists the sudden ionosphere disturbances observed at Nederhorst den Berg, Netherlands, on various days from January 9 through October 4, 1952.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	2.5						3.0
01	(270)	2.5						3.0
02	270	2.6						3.0
03	250	2.7						3.1
04	250	2.8						3.1
05	240	2.6					2.2	3.1
06	(250)	2.3						3.2
07	250	2.5						(3.2)
08	220	4.6	220	---	(120)	1.8	1.7	3.5
09	230	5.7	220	3.0	120	2.3	2.0	3.5
10	250	6.0	220	3.8	110	2.7		3.4
11	250	6.8	210	3.9	110	2.9		3.4
12	250	6.4	210	3.9	110	3.0		3.4
13	260	6.4	210	3.9	110	2.9		3.4
14	260	6.4	220	3.8	110	2.8		3.3
15	250	6.3	220	---	110	2.5		3.4
16	240	6.0	220	---	120	2.1		3.4
17	220	5.2			110	---		3.4
18	220	4.7						3.3
19	220	3.8						3.4
20	240	2.9						3.2
21	(260)	2.5						3.1
22	(250)	2.6						3.1
23	(260)	2.3						3.0

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

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.1	---
01	---	---					6.3	---
02	---	(3.0)					7.0	---
03	---	(2.0)					5.0	---
04	---	---					4.9	---
05	---	---					4.6	---
06	---	---					4.7	---
07	---	---					5.0	---
08	---	---					5.0	---
09	< 320	(2.4)					4.6	(3.1)
10	---	(2.5)					4.5	---
11	260	3.2					3.7	3.1
12	240	3.6					2.6	3.1
13	260	3.7					2.1	3.1
14	240	3.8					2.3	3.1
15	250	3.2					2.1	3.0
16	280	3.0						3.0
17	< 290	2.7					2.6	(2.8)
18	---	(2.1)					3.7	---
19	(320)	(3.0)					3.7	---
20	(290)	(2.5)					3.6	(3.0)
21	---	(3.0)					4.7	---
22	---	---					5.8	---
23	---	---					6.5	---

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

Table 3

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.7)					3.7	---
01	(335)	(2.7)					4.0	(2.8)
02	(320)	(2.6)					4.0	(2.9)
03	(295)	(2.4)					3.2	(2.9)
04	(305)	2.4					3.0	2.8
05	300	2.0					3.0	2.9
06	295	1.9					3.0	3.0
07	(280)	1.8					3.0	(3.0)
08	270	1.7					2.8	3.1
09	250	2.3			---	---	2.5	3.1
10	235	3.2			145	1.2	1.3	3.4
11	225	3.8			---	1.2	2.0	3.4
12	230	4.0	---	---	---	---	2.4	3.4
13	230	3.8	---	---	---	(1.1)	2.7	3.4
14	245	3.2			---	(1.0)	2.0	3.2
15	250	2.6			---	---	2.7	3.1
16	(265)	2.2					3.0	(3.1)
17	(265)	(2.1)					3.0	---
18	---	(1.8)					3.5	---
19	---	---					3.8	---
20	---	---					3.8	---
21	---	---					3.8	---
22	---	---					3.6	---
23	---	---					3.8	---

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

Table 4

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					6.4	---
01	300	(2.9)					6.6	---
02	(320)	(3.0)					7.0	---
03	(320)	(2.7)					6.6	---
04	(320)	(2.6)					7.4	(2.8)
05	---	---					7.0	---
06	(310)	(2.5)					7.0	---
07	(300)	(2.5)					7.3	(3.0)
08	(280)	(2.0)					6.4	(3.0)
09	260	(3.1)					2.6	(3.0)
10	240	4.0			---	---		3.2
11	240	4.5			---	---		3.2
12	240	4.7			---	---		3.3
13	240	5.2			---	---		3.3
14	240	4.8			---	---		3.2
15	230	(4.0)						3.2
16	240	3.3						3.0
17	240	(2.6)					5.6	(3.2)
18	(260)	(2.0)					4.2	(3.2)
19	---	---					6.8	---
20	---	(1.9)					6.6	---
21	---	---					5.8	---
22	---	---					6.2	---
23	(300)	(3.1)					5.6	---

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

Table 5

Narserssuak, Greenland (61.2°N, 45.4°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(3.3)					5.0	---
01	---	(3.3)					5.0	---
02	---	---					5.2	---
03	340	(3.2)					5.4	(2.9)
04	300	(3.1)					4.9	3.0
05	300	2.8					4.1	(3.0)
06	(290)	(2.3)					4.0	(3.2)
07	(280)	(2.0)					3.4	---
08	(280)	(2.2)					2.3	3.1
09	230	(3.6)					2.1	3.4
10	240	(4.6)			---	---		(3.4)
11	250	(5.0)	---	---	---	---		3.4
12	250	5.3	---	---	---	---		3.3
13	240	(5.0)	260	---	---	---		(3.3)
14	250	(4.7)						(3.3)
15	250	(4.6)					2.8	(3.2)
16	260	(4.0)					3.5	(3.0)
17	(320)	(3.5)					4.9	(2.8)
18	(340)	(3.4)					4.5	(2.9)
19	(310)	(3.0)					4.5	(2.9)
20	(330)	(3.0)					5.6	(3.0)
21	(310)	(3.3)					5.6	(2.9)
22	(310)	(3.7)					6.9	(3.1)
23	---	(3.3)					6.5	---

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

Table 6

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(315)	1.8					2.7	(2.8)
01	310	1.6					2.9	3.0
02	310	1.6					2.7	2.9
03	310	1.5					2.9	2.9
04	305	1.4					2.9	2.9
05	295	1.6					2.7	3.0
06	275	1.6					2.9	3.0
07	270	1.6					2.6	3.1
08	260	1.8			---	---	2.7	3.1
09	225	3.5			---	---	3.0	3.4
10	215	4.4	(235)	---	145	1.8	3.1	3.6
11	215	5.0	225	---	140	1.9	3.1	3.6
12	215	5.7	225	---	140	2.0	3.1	3.6
13	220	5.6	225	---	140	2.0	3.1	3.6
14	220	5.4	230	---	145	1.8	3.1	3.5
15	215	4.8	---	---	---	1.6	2.9	3.5
16	220	4.2			---	---	2.6	3.3
17	230	3.4						3.3
18	245	2.4						3.2
19	270	1.9						3.0
20	---	1.8						3.0
21	---	1.6					2.2	---
22	---	1.6						---
23	---	1.6						---

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

Table 7

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(350)	1.6						(2.9)
01	320	1.7					3.1	2.9
02	330	1.7					2.9	2.9
03	340	1.6					2.7	2.9
04	350	1.6					2.8	2.8
05	(340)	1.6						(3.0)
06	(340)	1.5					2.8	(3.0)
07	(330)	1.5						---
08	250	2.5			---	E		3.1
09	215	4.1			---	(1.5)	2.4	3.5
10	215	4.8	---	---	130	(1.8)		3.6
11	220	5.4	230	(2.5)	130	1.9		3.6
12	220	5.8	225	2.6	125	2.0	2.0	3.5
13	220	5.8	230	2.5	130	1.8	2.3	3.5
14	220	5.1			145	1.7	2.3	3.5
15	210	4.4			---	E		3.5
16	225	3.6						3.3
17	240	2.8					1.7	3.2
18	250	2.2					2.9	3.2
19	(290)	1.8					2.8	3.0
20	(340)	1.6					2.7	(3.0)
21	(420)	1.6						---
22	(360)	1.6						(2.8)
23	(355)	1.6						(2.8)

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

Table 8

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.8						3.0
01	260	2.8						3.0
02	260	2.8						3.0
03	260	2.8						3.0
04	260	2.8					1.5	3.0
05	270	2.9						3.0
06	240	2.9						3.2
07	220	2.6						3.2
08	210	4.3	---	---	---	1.8	1.8	3.5
09	220	5.5	200	---	110	(2.1)		3.6
10	220	6.2	210	---	(110)	2.3		3.6
11	220	6.2	(210)	---	---	2.5		3.6
12	220	6.3	210	---	---	---		3.6
13	230	6.4	220	---	110	---		3.5
14	210	6.3			(120)	2.2		3.7
15	200	5.6			---	---		3.7
16	200	4.3			---	---		3.6
17	210	3.0						3.6
18	220	2.5						3.4
19	240	2.2						3.3
20	220	2.2						3.3
21	260	2.2					1.1	3.1
22	260	2.5					2.0	3.0
23	260	2.8					1.8	3.1

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

Table 9

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.2						
01	280	3.1						
02	290	3.2						
03	290	3.2						
04	280	2.9						
05	260	2.8						
06	250	2.4						
07	250	2.8						
08	200	4.4						
09	200	5.9						
10	210	6.8						
11	210	6.8						
12	200	6.0						
13	210	6.0						
14	220	6.3						
15	200	6.0						
16	200	5.1						
17	240	3.9						
18	250	3.7						
19	250	3.1						
20	250	3.2						
21	250	3.2						
22	280	3.3						
23	290	3.0						

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

Table 10

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	(2.9)					2.2	(3.1)
01	(240)	(3.0)						(3.3)
02	(240)	(2.8)					2.2	3.2
03	(240)	(2.8)					2.4	(3.2)
04	(250)	(2.9)						(3.2)
05	(260)	(2.9)						(3.1)
06	(250)	(2.8)					2.3	(3.2)
07	230	(3.5)					2.4	(3.3)
08	210	5.6	---	---	120	2.0	2.0	3.6
09	220	6.4	210	(3.4)	120	2.4	3.2	3.7
10	230	6.2	200	(3.8)	110	2.7	2.6	3.6
11	240	7.6	200	(4.0)	110	2.9		3.5
12	230	(7.5)	200	(4.0)	110	3.0	2.2	3.5
13	230	7.0	210	(3.9)	110	2.9	2.3	3.5
14	230	6.7	220	(3.6)	110	2.8		3.5
15	220	6.4	220	---	120	2.5	2.7	3.6
16	220	5.8	---	---	---	---	2.9	(3.5)
17	210	4.9					3.1	3.6
18	(230)	(3.4)					3.6	(3.4)
19	220	(2.9)					3.2	(3.6)
20	(220)	(2.7)					2.7	(3.5)
21	(230)	(2.6)					2.4	3.4
22	(240)	(2.6)					2.2	(3.2)
23	(270)	(2.9)					2.2	(3.1)

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

Table 11

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.2						3.2
01	260	3.2						3.2
02	250	3.3						3.2
03	240	3.2						3.2
04	230	3.1						3.3
05	250	2.8						3.2
06	260	2.8					2.3	3.1
07	230	3.9						3.4
08	220	5.8	220	---	110	2.0	2.7	3.6
09	240	6.3	220	3.8	110	2.5	3.0	3.6
10	240	6.4	210	4.0	110	2.8	3.3	3.5
11	250	7.0	200	4.1	100	2.8	3.1	3.4
12	250	8.0	210	4.2	100	3.0	3.2	3.3
13	240	7.8	210	4.1	100	2.9	3.1	3.5
14	240	6.9	210	3.9	100	2.8	3.0	3.5
15	230	6.3	210	3.3	100	2.6	3.3	3.6
16	220	6.0	---	---	110	2.1	3.0	3.6
17	210	5.1					2.7	3.6
18	220	3.4					2.9	3.4
19	230	3.0					2.6	3.4
20	240	2.7					2.6	3.5
21	250	2.7					3.1	3.2
22	270	2.8					2.4	3.1
23	260	3.0						3.1

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

Table 12

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3					2.4	3.1
01	260	3.3					2.5	3.2
02	250	3.3						3.2
03	240	3.3						3.3
04	240	3.1					2.2	3.3
05	250	3.0					3.1	3.1
06	260	3.0					2.3	3.2
07	230	4.2					2.6	3.4
08	230	6.0	210	---	130	2.1	4.5	3.6
09	250	6.5	230	---	120	2.5	6.2	3.5
10	250	6.9	220	4.0	110	2.9	6.2	3.5
11	260	7.0	210	4.1	110	3.0	6.2	3.4
12	260	7.6	220	4.2	110	3.0	6.2	3.3
13	260	8.0	220	4.2	110	3.0	6.0	3.4
14	250	7.4	220	---	110	2.8	5.8	3.5
15	240	6.9	220	---	120	2.5	4.1	3.5
16	230	6.6	---	---	120	2.1	3.8	3.5
17	220	5.5					3.6	3.5
18	220	3.9					3.4	3.5
19	250	3.0					3.1	3.3
20	260	2.8					3.1	3.2
21	270	2.8					3.1	3.2
22	270	3.1					2.8	3.2
23	280	3.1					2.8	3.0

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

Table 13

Okinawa I. (26.3°N, 127.8°E) December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.7						3.0
01	290	2.7						3.0
02	280	2.8						3.0
03	280	2.8						3.0
04	250	2.8						3.1
05	280	2.4						3.1
06	270	2.4						3.2
07	240	4.9	---	---	130	1.7	1.9	3.5
08	250	6.6	240	---	120	2.2	3.2	3.6
09	250	7.1	230	---	120	2.5	3.8	3.4
10	260	8.3	220	(4.2)	120	2.7	4.0	3.4
11	270	8.2	210	(4.3)	120	2.8	4.2	3.3
12	280	8.6	220	(4.4)	120	2.9	4.1	3.2
13	270	10.1	220	4.3	120	2.8	4.6	3.3
14	260	9.4	230	---	120	2.8	4.4	3.3
15	250	8.5	240	---	120	2.6	3.7	3.4
16	240	7.9	240	---	120	2.3	3.5	3.4
17	220	7.0					3.1	3.6
18	210	4.4					3.1	3.4
19	230	4.5					2.8	3.1
20	240	4.8					2.2	3.2
21	230	4.3					2.2	3.3
22	250	3.4						3.2
23	260	3.0						3.0

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

Table 14

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0					2.5	3.0
01	27	2.8					2.4	3.0
02	250	3.0					1.9	3.3
03	230	3.4					1.3	3.5
04	220	2.2					1.8	3.5
05	280	1.9					1.7	3.0
06	300	2.1					1.8	2.9
07	250	4.0			160	1.5	2.2	3.2
08	250	6.4	240	---	120	2.4	3.4	3.3
09	280	7.8	230	---	110	2.8	3.8	3.3
10	270	9.0	220	4.3	110	3.0	4.2	3.3
11	280	9.5	220	4.5	110	3.2	4.4	3.2
12	280	9.5	220	4.6	110	3.2	4.5	3.1
13	290	10.1	210	4.5	110	3.2	4.4	3.1
14	270	10.4	230	4.4	110	3.1	4.8	3.2
15	250	9.9	230	---	110	2.9	4.8	3.3
16	240	8.2	230	---	110	2.5	4.5	3.5
17	230	6.8			110	---	4.5	3.6
18	220	5.4					4.5	3.6
19	220	3.6					4.4	3.4
20	(260)	3.4					4.4	2.9
21	240	4.1					4.6	3.1
22	240	3.8					3.5	3.2
23	250	3.4					3.4	3.1

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

Table 15

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1						3.1
01	250	4.4						3.1
02	240	4.6					1.9	3.3
03	230	4.4						3.5
04	240	3.6					1.9	3.3
05	250	3.1					2.4	3.2
06	240	3.0			100	---	2.5	3.2
07	230	4.3			(100)	---	2.8	3.4
08	230	5.8	230	---	110	2.2	3.0	3.5
09	250	7.1	230	---	100	2.7		3.4
10	250	7.9	220	4.2	100	3.0		3.5
11	260	7.6	220	4.3	100	3.2		3.5
12	260	7.3	220	4.5	100	3.3		3.5
13	270	6.9	210	4.5	100	3.2		3.3
14	280	7.3	220	4.4	100	3.1	3.8	3.2
15	260	7.7	220	(4.3)	100	3.0	4.4	3.4
16	240	7.2	220	---	100	2.6	4.5	3.5
17	220	6.6	230	---	100	2.1	3.7	3.5
18	220	5.8			(100)	---	3.3	3.5
19	220	4.2					3.2	3.5
20	240	3.3					3.1	3.1
21	280	3.4					2.7	3.0
22	270	3.7						3.0
23	270	4.0						3.0

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

Table 16

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.8						3.3
01	250	3.5						3.3
02	260	3.4						3.2
03	250	3.2						3.4
04	250	2.9						3.3
05	250	2.5						3.4
06	250	2.2						3.1
07	240	5.1			130	2.0		3.5
08	(260)	7.0	220	---	110	2.4		3.3
09	290	8.8	210	4.3	110	2.8	3.8	3.1
10	300	9.4	200	4.4	110	3.0		2.9
11	300	9.2	200	4.5	110	3.2	3.8	2.7
12	300	8.7	200	4.5	110	3.2	3.5	2.7
13	320	8.8	200	4.5	110	3.2	4.3	2.7
14	310	9.1	200	4.4	110	3.1	4.1	2.8
15	290	9.2	210	---	110	3.0	4.5	2.9
16	270	9.7	220	---	110	2.7	4.8	3.1
17	240	9.6	230	---	110	2.2	3.8	3.3
18	220	9.3					3.0	3.4
19	210	8.4					3.1	3.4
20	220	7.2					3.8	3.3
21	230	6.4					3.6	3.2
22	230	5.5					2.6	3.4
23	230	4.6						3.4

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

Table 17

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	3.9					2.0	(3.3)
01	220	3.3					2.7	3.5
02	230	(2.6)					2.1	(3.1)
03	250	2.3					2.1	3.0
04	240	2.0					1.9	2.9
05	270	2.2					3.5	2.8
06	260	2.6					2.5	2.9
07	240	5.1			(130)	(1.8)	3.7	3.3
08	260	6.8	<240	---	110	2.5	4.2	3.2
09	270	8.1	230	(4.4)	110	(2.9)	4.2	3.1
10	<280	9.0	220	4.5	110	3.1	4.5	3.2
11	270	9.2	220	4.6	110	3.3	4.5	3.2
12	290	8.8	220	4.7	110	3.4	4.9	3.0
13	290	8.6	220	4.6	110	3.4	5.0	2.9
14	290	8.6	(220)	4.6	110	3.2	5.0	3.0
15	280	9.3	220	4.4	110	3.1	4.9	3.1
16	250	8.6	220	---	110	2.7	5.2	3.3
17	230	7.3			120	2.2	4.3	3.5
18	220	5.3					3.7	3.4
19	230	3.9					4.1	3.3
20	230	3.2					4.1	3.2
21	260	3.0					3.1	2.8
22	280	(3.4)					2.4	(2.9)
23	260	(3.8)					2.5	(3.0)

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

Table 18

Kiruna, Sweden (67.8°N, 20.5°E) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	370	(2.9)					2.7	(2.8)
01	350	2.9					2.8	2.8
02	315	3.0					2.5	2.9
03	300	2.8					2.0	2.8
04	300	2.9					1.7	2.8
05	305	2.6						3.0
06	300	2.1						3.0
07	300	2.5					1.5	3.0
08	250	3.2						3.2
09	250	4.1			---	---		3.4
10	240	5.0			---	---		3.4
11	230	5.3	---	---	---	---		3.3
12	240	5.4			---	---		3.4
13	240	5.0			---	---		3.3
14	230	4.2			---	---		3.2
15	240	4.2						3.2
16	255	(3.7)					2.0	(3.2)
17	(260)	(2.8)					2.2	(3.1)
18	(300)	(2.7)					2.6	(2.9)
19	(310)	(2.1)					1.8	(2.9)
20	(320)	(2.7)					4.1	(2.9)
21	(335)	(3.0)					3.0	(2.9)
22	(340)	(3.1)					3.5	(2.9)
23	(360)	(3.1)					2.8	(2.9)

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

Table 19

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4			---	2.8	5.2	(3.1)
01	290	2.6			---	(2.8)	6.0	(3.0)
02	(300)	2.8			(120)	2.2	4.8	(3.0)
03	(300)	2.4			(110)	2.4	4.0	(2.9)
04	(320)	<2.8			110	2.8	2.9	(2.8)
05	---	---			110	2.8		---
06	(290)	<3.0			110	3.1	3.7	---
07	(280)	<3.0			110	(3.0)	3.6	---
08	250	3.5	---	---	110	2.7		3.2
09	250	4.6	---	---	120	2.4		3.3
10	270	5.1	260	---	---	---		3.2
11	280	5.4	240	---	---	---		3.2
12	280	5.6	250	---	---	---		3.2
13	280	5.8	260	---	---	2.3		3.2
14	270	6.0	---	---	---	---		3.2
15	260	5.8			120	(2.1)		3.2
16	250	5.2			110	2.2		3.1
17	270	4.2			120	2.0		3.0
18	290	4.0			110	2.2		2.9
19	300	3.2			110	2.9		3.0
20	300	3.5			120	2.6	2.8	2.9
21	290	3.4			120	2.6	5.1	3.0
22	310	3.0			120	2.4	5.6	(2.9)
23	300	2.8			120	2.4	5.3	3.0

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

Table 20

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		1.5					2.5	
01		1.6					2.6	
02		1.6					3.4	
03		1.8					3.1	
04		1.9					3.8	
05		1.8					2.6	
06		1.9					3.6	
07		1.9					2.0	
08		3.2				---	2.1	
09		4.2				1.9	2.0	
10		5.0		---		2.2	2.8	
11		5.7		3.5		2.3		
12		6.2		3.4		2.4		
13		6.2		---		2.4		
14		6.3		---		2.3		
15		6.0				2.1		
16		5.8				1.8		
17		5.0				---		
18		3.8					2.2	
19		2.8						
20		2.1						
21		1.8						
22		1.8						
23		1.8						

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) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.0						3.0
01	<270	3.0						3.0
02	<270	2.8						3.0
03	---	2.5						3.0
04	---	2.2						3.2
05	---	2.0						(3.2)
06	---	2.0						3.1
07	210	3.8			---	E		3.5
08	205	5.1	---	---	---	1.8	2.2	3.7
09	210	5.9	(210)	(2.9)	120	2.2	2.9	3.7
10	220	6.3	200	3.4	105	2.4		3.7
11	220	6.6	200	3.5	105	2.5	2.5	3.6
12	220	6.6	200	3.4	120	2.5	3.2	3.7
13	220	6.4	(210)	(3.2)	120	2.4	2.8	3.6
14	220	6.4	---	---	120	2.2	2.8	3.7
15	205	5.8			140	1.8		3.6
16	200	4.8						3.5
17	220	4.0						3.4
18	215	3.6						3.3
19	220	3.2						3.4
20	220	2.7						3.3
21	---	2.6						2.9
22	---	2.7						3.0
23	---	2.8						3.0

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

Table 22

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.9					2.6	3.0
01	265	3.0					2.6	3.0
02	270	2.9					2.5	3.0
03	260	2.8					2.6	3.0
04	250	2.6					2.6	3.0
05	250	2.1					2.5	3.1
06	245	2.1					2.6	3.3
07	230	2.8			---	E	2.2	3.3
08	210	4.6	---		---	E	2.5	3.6
09	215	5.5	200		115	2.1	3.2	3.6
10	220	6.2	210		105	2.3	3.4	3.6
11	225	6.6	210		105	2.4	3.4	3.5
12	220	6.8	205		105	2.6	3.5	3.6
13	220	6.5	205		105	2.5	4.0	3.5
14	220	6.4	210		110	2.3	3.3	3.5
15	220	6.2	---		120	2.0	3.2	3.6
16	210	5.4			---	E	3.1	3.5
17	210	4.6					3.0	3.4
18	225	3.8					2.4	3.3
19	230	3.4					2.4	3.3
20	230	3.0					2.2	3.3
21	250	2.6					2.2	3.1
22	275	2.6					2.2	3.0
23	280	2.7					2.4	3.0

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

Table 23

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.3						3.0
01	320	2.4						2.9
02	330	2.5					3.1	2.8
03	310	2.4					4.2	2.8
04	320	2.6					4.2	2.8
05	300	2.6					3.8	2.9
06	330	2.5					3.4	(2.9)
07	300	2.6					3.0	3.0
08	240	3.9	240	---	110	1.8		3.3
09	240	4.6	220	---	110	2.0		3.3
10	250	5.1	220	3.3	110	2.3		3.3
11	260	5.6	230	3.7	110	2.5		3.3
12	270	6.0	230	3.8	110	2.5		3.3
13	260	6.2	230	3.7	120	2.5		3.3
14	250	6.3	230	---	120	2.4		3.3
15	240	6.3	230	---	120	2.3		3.4
16	230	6.2	230	---	---	2.0		3.4
17	220	5.2						3.3
18	230	4.3						3.2
19	250	3.4						3.2
20	260	2.6						3.1
21	280	2.3						3.1
22	300	2.2						3.0
23	300	2.2						3.0

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

Table 24

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.2						2.8
01	300	2.0						2.8
02	310	2.2						2.9
03	300	2.2						3.0
04	280	2.0						3.0
05	300	1.8					2.8	3.0
06	270	2.2			---	E		3.0
07	230	4.0	230	---	120	E		3.4
08	230	5.2	220	3.0	120	2.0		3.5
09	240	5.5	210	3.4	110	2.4		3.5
10	250	6.1	210	3.6	110	2.6		3.4
11	250	6.4	220	3.7	120	2.7		3.4
12	250	6.6	220	3.7	110	2.7		3.4
13	250	6.8	230	3.5	120	2.6		3.4
14	240	6.7	240	3.4	120	2.3		3.4
15	230	6.3	---	---	120	E		3.4
16	230	6.0	---	---	---	E		3.4
17	230	5.2			---	E		3.2
18	240	4.3						3.1
19	250	3.4						3.0
20	270	2.8						3.0
21	300	2.5						2.8
22	300	2.3						2.8
23	300	2.1						2.8

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

Table 25

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0						3.1
01	300	3.2						3.1
02	300	3.2						3.1
03	300	3.2						3.1
04	285	3.0						3.3
05	255	2.8						3.4
06	240	2.5						3.6
07	230	3.0						3.5
08	220	5.0						3.8
09	220	5.5			110	2.2		3.8
10	230	6.4			110	2.5		3.7
11	230	6.7			105	2.6		3.7
12	230	7.0			100	2.7		3.7
13	230	6.6			100	2.6		3.7
14	230	6.2			110	2.6		3.7
15	230	6.6			120	2.3		3.7
16	220	6.0			---	---		3.7
17	210	5.0						3.7
18	230	3.3						3.5
19	240	3.2						3.5
20	240	3.1						3.5
21	260	3.0						3.4
22	300	2.9						3.2
23	300	3.1						3.1

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) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(285)	2.0						(3.0)
01	(295)	2.0						(3.0)
02	(285)	2.0					1.8	(3.1)
03	(285)	1.9					2.2	(3.0)
04	(285)	2.0						(3.1)
05	(285)	1.9					2.4	(3.1)
06	(285)	2.0			---	---		(3.1)
07	(255)	3.2			(105)	1.7		(3.3)
08	(225)	4.7	---	---	(105)	2.0		(3.5)
09	(235)	5.6	(225)	---	(105)	2.4		(3.4)
10	(245)	6.1	(205)	---	(115)	2.7		(3.4)
11	(255)	6.4	(215)	---	(105)	2.8		(3.3)
12	(265)	7.0	(225)	---	(115)	2.8		(3.4)
13	(255)	6.9	(225)	---	(115)	2.8		(3.4)
14	(255)	6.9	(225)	---	(115)	2.7		(3.4)
15	(245)	6.9	(245)	---	(115)	2.3		(3.4)
16	(225)	6.6			---	---		(3.4)
17	(215)	5.9						(3.4)
18	(225)	4.8						(3.3)
19	(235)	3.8						(3.3)
20	(255)	3.0						(3.3)
21	(285)	2.6						(3.2)
22	(285)	2.4						(3.1)
23	(295)	2.0						(3.1)

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

Table 27

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.3						2.8
01	300	3.3					1.6	2.8
02	310	3.3						2.8
03	300	3.3						2.8
04	300	3.4					1.6	2.9
05	280	3.2						3.0
06	270	3.2						3.0
07	270	5.4	---	---	140	1.6		3.1
08	270	6.7	---	---	130	2.1		3.2
09	270	7.1	250	3.4	120	2.4	3.0	3.1
10	280	7.9	260	3.9	120	2.6		3.1
11	280	8.2	260	3.8	120	2.6		3.2
12	260	7.8	260	3.8	120	2.6		3.2
13	280	6.9	260	3.4	120	2.4		3.2
14	270	6.6	---	---	120	2.2		3.2
15	260	6.4			120	2.0	2.3	3.2
16	250	5.4			---	---	2.6	3.2
17	260	3.8					2.4	3.1
18	280	3.2					2.2	3.0
19	280	3.2					2.1	2.9
20	290	3.2						2.9
21	300	3.2						2.9
22	300	3.2						2.8
23	310	3.2						(2.8)

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

Table 28

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3					2.5	3.0
01	280	3.3					2.4	2.9
02	280	3.3					2.4	3.0
03	270	3.3					2.4	3.0
04	260	3.2					2.4	3.1
05	240	3.1					2.2	3.2
06	240	3.2					2.0	3.2
07	220	5.7			120	1.8	2.5	3.5
08	220	7.0	210	---	110	2.3	3.2	3.6
09	230	7.4	220	3.7	110	2.6	3.5	3.5
10	240	7.5	220	4.0	110	2.8	3.5	3.5
11	240	8.2	220	3.9	110	2.8	3.5	3.5
12	240	7.9	220	4.0	110	2.9	3.4	3.5
13	240	7.3	220	3.8	110	2.8	3.4	3.4
14	240	6.9	230	---	110	2.6	3.5	3.4
15	230	6.8	230	---	110	2.3	3.4	3.5
16	220	5.8			110	1.8	3.3	3.6
17	220	4.3					3.2	3.4
18	240	3.7					3.0	3.2
19	250	3.4					2.9	3.1
20	250	3.2					2.6	3.2
21	260	3.1					2.6	3.1
22	270	3.2					2.4	3.1
23	280	3.2					2.5	3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 10 minutes, manual operation, from 1st to 14th; 0.85 Mc to 22.0 Mc in 6 minutes, automatic operation, from 15th to 30th.

Table 29

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4					2.1	2.9
01	260	3.7					2.2	3.1
02	240	3.2					1.8	3.0
03	220	3.4					2.2	3.3
04	210	3.0					2.6	3.5
05	<240	2.1					2.3	2.9
06	255	3.4					2.2	3.1
07	225	5.9			120	2.0	2.9	3.5
08	240	7.0	---	---	120	2.6	3.6	3.4
09	270	8.3	230	4.3	120	2.9	4.0	3.4
10	270	9.8	220	4.5	(120)	3.1	4.2	3.4
11	280	10.5	220	4.5	(120)	3.2	4.4	3.4
12	270	11.7	210	4.5	(120)	3.2	4.4	3.2
13	280	13.0	230	4.5	(120)	---	4.6	3.3
14	260	14.2	230	4.4	(120)	---	4.8	3.4
15	240	12.2	220	(4.2)	(120)	---	4.4	3.5
16	230	9.9	---	---	(120)	---	4.0	3.5
17	200	9.0			(100)	1.8	4.0	3.7
18	200	6.6					3.7	3.4
19	225	5.6					4.0	3.0
20	240	5.7					3.7	3.0
21	240	5.0					3.0	3.3
22	240	4.0					2.6	3.0
23	<280	3.5					2.2	3.0

Time: 120.0°E.
Sweep: 1.5 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 30

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0						2.9
01	260	3.0						3.0
02	250	3.0						3.0
03	260	3.0						3.0
04	270	3.0						2.8
05	280	3.0						2.9
06	260	2.8						3.0
07	260	3.6	---	---				3.0
08	260	3.8	---	---				3.0
09	250	4.0	---	---				3.0
10	250	3.9	240	3.0				3.0
11	250	4.0	250	3.0				3.0
12	260	4.0	240	3.0				3.0
13	260	4.0	250	3.0				3.0
14	260	4.0	250	3.0				3.0
15	250	3.8	---	---				3.0
16	250	4.2	---	---				3.0
17	240	4.1	---	---				3.0
18	260	4.0	---	---				3.0
19	250	3.7						2.9
20	260	3.6						3.0
21	270	3.1						2.9
22	250	3.0						3.0
23	250	3.1						3.0

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

Table 31

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.8			---	E	6.0	2.9
01	270	2.6			---	E	5.9	2.9
02	260	2.6			---	E	5.0	2.9
03	300	2.5			---	E	5.2	2.8
04	300	2.4			---	1.4	5.7	2.8
05	290	2.5			---	1.5	6.0	2.8
06	280	2.7	---	---	100	1.8	4.0	3.0
07	290	2.9	---	---	100	2.0	5.0	3.0
08	260	3.7	230	2.8	100	2.1	3.8	3.0
09	260	3.9	230	3.0	100	2.4	3.6	3.0
10	290	4.2	220	3.2	100	2.5	2.8	3.0
11	320	4.3	270	3.4	100	2.8		3.0
12	320	4.5	250	3.5	100	2.8		3.0
13	320	5.0	230	3.4	100	2.5		2.9
14	300	5.1	240	3.3	100	2.6		2.9
15	270	5.0	250	3.2	110	2.4		2.9
16	250	4.9	260	2.9	110	2.3	3.3	3.0
17	260	4.0	---	---	110	2.3	4.7	3.0
18	260	4.0			100	2.0	5.0	2.9
19	260	3.7			110	1.8	6.0	2.9
20	240	3.3			---	1.6	7.0	2.9
21	250	3.1			---	1.6	7.0	2.9
22	250	3.2			---	E	6.2	2.9
23	260	3.0			---	E	7.0	2.9

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

Table 32

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.9	---
01	---	---					4.5	---
02	(300)	(3.6)					5.3	(2.9)
03	(320)	(2.5)					4.9	(2.9)
04	(310)	(2.4)					3.6	(2.9)
05	(300)	(2.4)					3.4	(3.0)
06	---	(2.2)					3.2	---
07	(260)	2.5			---	---		3.2
08	240	3.7	---	---	100	---		3.3
09	240	4.5	(220)	---	110	---		3.3
10	240	4.6	220	---	110	---		3.3
11	250	5.1	220	3.5	110	(2.2)		3.3
12	250	5.4	220	(3.5)	110	(2.3)		3.3
13	260	5.4	220	(3.6)	110	(2.3)		3.3
14	250	5.1	230	---	120	---		3.2
15	240	4.9	230	---	130	(2.2)		3.2
16	250	4.6	230	---	140	---		3.2
17	250	(4.3)	---	---	120	---	3.6	(3.2)
18	270	(4.0)			120	---	4.0	(3.2)
19	280	(3.6)			---	---	4.5	(3.0)
20	(270)	(3.4)			---	---	4.4	(3.1)
21	---	---					5.7	---
22	---	(3.2)					5.2	---
23	---	---					5.0	---

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

Table 33

Anchorage, Alaska (61.2°N, 149.9°W)

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	October 1952 (M3000)F2	Sept. 1952* (M3000)F2
00	360	2.8					2.1	2.8	2.8
01	350	2.5					3.2	2.9	2.9
02	330	2.8					2.7	2.8	2.8
03	(360)	2.4					3.2	2.8	2.8
04	340	2.4					2.8	(2.8)	2.7
05	(320)	(2.3)					2.0	(2.8)	2.9
06	300	2.4						3.0	3.1
07	260	3.1	---	---	---	---		3.2	2.9
08	260	3.8	230	---	---	---		3.2	2.6
09	280	4.4	230	---	120	2.1		3.2	2.7
10	300	4.7	220	3.6	120	(2.3)		3.2	2.8
11	300	4.9	220	3.6	120	2.4		3.2	2.9
12	300	5.1	220	3.6	110	2.6		3.2	2.8
13	280	5.0	230	---	120	2.4		3.2	2.8
14	270	5.0	230	---	120	2.2		3.2	2.9
15	250	5.0	230	---	---	---		3.3	3.0
16	240	4.8	---	---				3.3	3.1
17	230	4.5						3.3	3.2
18	240	3.8						3.2	3.2
19	250	3.0						3.2	3.1
20	280	2.8						3.1	3.0
21	290	2.4						3.1	3.0
22	(300)	(2.0)						(3.0)	3.0
23	(320)	(2.6)					3.0	---	3.0

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.
*This column supersedes the corresponding column in CRPL-F99, page 13, table 3.

Table 34

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0			---	---	6.0	---
01	300	2.8			---	---	5.4	---
02	300	2.7			100	1.9	4.0	---
03	300	2.5			120	2.8	5.0	(2.7)
04	330	3.2			110	2.4	3.6	(2.8)
05	300	3.0			110	2.4	2.3	---
06	(300)	3.0			100	3.0	4.1	---
07	300	3.6	---	---	100	3.0	3.7	(3.1)
08	300	4.1	280	(3.9)	100	3.0		3.2
09	300	4.4	250	3.5	100	2.6		3.0
10	300	4.8	240	3.6	100	2.8		3.0
11	330	5.0	230	3.8	100	2.6		3.0
12	320	5.0	220	3.8	110	2.8		3.0
13	300	5.3	240	3.8	110	2.7		3.0
14	300	5.3	240	3.6	110	2.6		3.0
15	290	5.5	280	3.3	120	2.7		3.0
16	290	5.3	---	---	120	2.5		3.0
17	280	5.0	---	---	120	2.2		3.0
18	300	4.6			120	2.4	3.0	3.0
19	280	4.0			120	2.8	3.9	3.0
20	300	3.5			130	2.4	5.3	2.8
21	300	3.3			120	2.5	6.6	(2.8)
22	300	3.2			140	2.4	8.1	(2.7)
23	300	2.9			---	---	8.0	(2.7)

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

Table 35

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	2.4			110	2.4	5.0	(2.7)
01	310	<2.6			110	2.7	4.5	(2.9)
02	(320)	<2.3			110	2.6	3.1	---
03	(350)	<2.8			110	3.0		---
04	---	<2.8			110	3.0		---
05	(340)	3.6			100	3.5	4.0	---
06	340	3.0			100	3.6	3.2	(2.9)
07	320	4.0	---	---	110	3.4		3.0
08	300	4.3	250	---	110	2.7		3.0
09	320	4.7	250	3.6	110	2.6		3.0
10	310	5.0	250	3.7	110	2.6		3.0
11	320	5.2	260	3.8	110	2.8		2.9
12	320	5.3	260	3.7	110	2.7		2.9
13	310	5.3	260	3.7	110	2.7		2.9
14	320	5.2	280	3.5	110	2.8		2.8
15	300	5.0	290	---	120	2.5		2.8
16	300	4.2	---	---	115	2.8		2.9
17	320	<3.6	---	---	110	2.5		2.8
18	340	3.4	---	---	110	2.6	2.3	2.8
19	320	3.2			110	2.5	5.0	2.8
20	310	2.9			115	2.2	5.0	2.8
21	300	3.0			100	2.3	5.2	2.8
22	310	2.9			120	2.3	5.4	2.9
23	310	2.8			110	2.2	4.6	2.8

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

Table 36

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	1.6					2.2	2.8
01	320	1.7					4.0	2.7
02	330	1.8					4.0	2.6
03	360	1.9					4.0	2.6
04	320	2.0					4.0	2.6
05	320	1.8					3.8	2.5
06	320	1.7					3.8	2.6
07	270	2.6			---	---	2.0	2.8
08	240	3.8	---	---	110	1.9	2.1	2.9
09	220	4.3	220	---	110	2.2		2.9
10	300	4.6	210	3.6	110	2.5		2.8
11	310	5.0	210	3.7	110	2.6		2.9
12	310	5.2	210	3.8	110	2.8		2.8
13	300	5.2	220	3.9	110	2.8		2.8
14	280	5.3	220	3.7	110	2.6		2.9
15	260	5.1	220	3.7	110	2.4		2.9
16	240	5.0	240	---	110	2.1		3.0
17	240	4.9	---	---	120	1.8		3.0
18	240	4.5	---	---				3.0
19	240	3.6						2.9
20	250	2.8						2.9
21	290	2.1						2.8
22	290	2.0					1.6	2.9
23	300	1.7						2.8

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

Table 37

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0					2.4	2.9
01	290	3.0					2.3	2.9
02	280	2.9					2.4	2.9
03	280	2.8					2.4	2.9
04	280	2.4					2.4	3.0
05	260	2.2					2.4	3.1
06	260	2.3			---	E	2.5	3.1
07	230	4.0	---	---	---	E	2.5	3.4
08	225	5.2	225	---	120	2.0	2.8	3.5
09	240	5.6	220	3.8	110	2.4	3.4	3.5
10	260	6.0	210	3.8	105	2.6	3.9	3.5
11	260	6.6	210	3.8	105	2.7	4.0	3.4
12	260	6.6	210	4.0	105	2.7	4.5	3.4
13	250	6.5	220	3.9	100	2.6	4.2	3.4
14	250	6.6	220	---	110	2.6	3.5	3.4
15	240	6.4	230	---	110	2.4	3.4	3.4
16	230	6.0	---	---	120	2.1	3.4	3.5
17	225	5.8	---	---	---	E	3.1	3.4
18	225	5.6			---	E	3.1	3.3
19	230	5.4					2.8	3.2
20	230	4.3					2.6	3.2
21	250	3.5					2.6	3.2
22	280	3.0					2.4	3.0
23	290	2.9					2.5	2.9

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

Table 38

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	2.4					3.0	2.8
01	330	2.4					3.6	2.9
02	320	2.7					3.8	2.8
03	330	2.5					4.0	2.9
04	350	2.5					4.0	2.7
05	340	2.3	---	---	---	---	3.7	2.8
06	320	2.4	---	---	---	---	4.0	2.9
07	260	3.1	---	---	---	---		3.2
08	250	4.0	220	---	120	2.1		3.2
09	270	4.5	220	3.6	110	2.4		3.2
10	290	5.0	210	3.8	110	2.6		3.2
11	330	5.4	200	4.0	110	2.8		3.1
12	300	5.9	210	4.0	110	2.9		3.1
13	300	5.9	210	4.0	110	2.8		3.2
14	300	6.0	220	3.9	110	2.7		3.2
15	280	5.8	230	3.6	110	2.5		3.2
16	260	5.6	240	---	120	2.3		3.2
17	250	5.4	---	---	130	1.9		3.2
18	240	5.0						3.1
19	250	4.2						3.0
20	260	3.5						3.1
21	270	2.9						3.0
22	300	2.6						3.0
23	320	2.4						2.9

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

Table 39

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.5					2.6	2.8
01	320	2.5						2.8
02	300	2.4					2.8	2.9
03	300	2.3					3.0	2.9
04	260	2.0	—	—			2.9	3.0
05	270	1.9	—	—	—	E	2.8	3.0
06	240	3.3	—	—	120	E		3.2
07	240	4.8	230	3.1	120	2.2		3.3
08	260	5.4	220	3.5	120	2.3		3.3
09	270	5.9	210	3.8	110	2.6		3.3
10	280	6.1	200	4.0	110	2.8		3.3
11	270	6.3	210	4.0	110	2.9		3.3
12	280	6.5	220	4.0	110	2.9		3.3
13	280	6.3	220	4.0	110	2.8		3.2
14	280	6.1	240	3.8	120	2.6		3.2
15	270	6.3	240	3.5	120	2.3		3.3
16	250	6.1	240	3.1	130	1.8		3.3
17	240	5.9	—	---	—	E		3.2
18	240	5.4			—	E		3.2
19	240	4.4						3.1
20	260	3.8						3.0
21	280	3.0						2.8
22	300	2.8						2.8
23	320	2.7						2.7

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

Table 40

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.2						3.0
01	310	2.2						3.0
02	310	2.0						3.0
03	(320)	2.0						3.0
04	—	(1.8)					2.2	(3.1)
05	—	2.0					3.7	(3.0)
06	300	2.3						3.1
07	260	4.2			130	1.8		3.3
08	260	5.2	240	—	130	2.3		3.3
09	280	5.8	240	3.8	130	2.7		3.3
10	290	6.2	230	4.0	130	2.8		3.3
11	300	6.7	230	4.0	120	2.9		3.2
12	300	6.7	230	4.2	130	3.0		3.2
13	300	6.6	240	4.0	120	3.0		3.2
14	290	6.8	250	3.9	130	2.8		3.2
15	280	6.4	250	—	130	2.6		3.2
16	260	6.2			---	2.0		3.2
17	250	6.0			---	---		3.2
18	250	5.3						3.1
19	260	4.6						3.2
20	270	3.5						3.1
21	290	3.0						3.0
22	300	2.8						2.9
23	310	2.4						2.9

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

Table 41

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.4					2.6	2.8
01	320	3.6					2.0	2.7
02	320	3.5					2.4	2.8
03	310	3.6					2.2	2.8
04	300	3.6					1.6	2.7
05	300	3.7						2.9
06	270	4.7						3.0
07	280	5.9	---	---	130	2.2		3.1
08	280	7.0	270	3.6	120	2.4	2.7	3.1
09	290	7.6	260	3.8	120	2.6	3.6	3.1
10	290	8.0	260	4.0	120	2.6	3.4	3.1
11	290	8.1	260	4.0	120	2.8		3.1
12	290	8.0	270	4.0	120	2.8		3.1
13	280	7.2	270	4.0	120	2.7		3.1
14	290	7.0	260	4.0	120	2.6		3.1
15	290	7.1	280	3.5	120	2.3	3.0	3.1
16	270	6.6			120	2.0	2.7	3.1
17	260	6.0					2.9	3.1
18	270	4.8					2.6	3.0
19	290	4.2					2.5	2.9
20	280	3.9					2.2	2.9
21	310	3.6					1.6	2.8
22	310	3.4						2.8
23	320	3.4					2.6	2.8

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

Table 42

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5					2.3	3.0
01	290	3.6					2.4	3.0
02	280	3.4					2.4	3.0
03	280	3.5					2.4	3.0
04	270	3.4					2.2	3.0
05	250	3.3					2.0	3.1
06	220	4.6	—	—	—	1.6	2.0	3.4
07	230	6.6	---	---	110	2.2	3.0	3.5
08	220	7.4	220	4.2	110	2.7	3.7	3.5
09	230	7.7	220	4.2	110	2.9	4.0	3.4
10	250	7.7	220	4.4	110	3.0	4.3	3.3
11	250	8.3	220	4.5	110	3.1	4.2	3.4
12	260	8.2	220	4.5	110	3.0	3.6	3.4
13	260	8.2	220	4.5	110	3.0	3.9	3.3
14	260	7.8	220	4.1	110	2.9	3.6	3.3
15	240	7.3	220	4.0	110	2.6	3.6	3.4
16	230	7.3	230	3.6	110	2.3	3.4	3.5
17	220	6.6	---	---	---	---	3.3	3.4
18	220	5.1					3.2	3.3
19	230	4.6					3.6	3.2
20	240	4.2					2.8	3.2
21	250	3.6					2.6	3.1
22	270	3.6					2.3	3.0
23	270	3.5					2.4	3.0

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

Table 43

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4					2.6	2.9
01	270	3.4					2.5	2.9
02	270	3.4					2.5	2.9
03	260	3.4					2.5	2.9
04	260	3.3					2.5	3.0
05	250	3.3			---	---	2.5	3.0
06	230	4.8			140	---	2.5	3.3
07	230	6.7	240	---	120	2.2	3.0	3.4
08	240	7.7	230	4.0	110	2.6	3.8	3.4
09	250	7.2	220	4.2	110	2.8	4.0	3.4
10	260	8.0	220	4.3	110	3.0	4.0	3.2
11	260	8.4	220	4.5	110	3.1	4.0	3.3
12	260	8.7	200	4.5	110	3.2	4.2	3.2
13	270	8.4	230	4.5	110	3.0	4.1	3.2
14	270	8.4	240	4.2	110	2.9	3.8	3.2
15	250	7.6	240	3.8	110	2.6	4.0	3.3
16	240	7.3	250	---	120	2.3	3.9	3.3
17	230	7.0	---	---	---	---	3.1	3.3
18	230	5.6					3.2	3.3
19	240	4.6					3.6	3.1
20	260	4.0					3.0	3.0
21	260	3.7					3.0	2.9
22	290	3.6					3.0	2.9
23	300	3.5					2.6	2.9

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

Table 44

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4					2.9	3.0
01	270	3.4					2.5	3.0
02	260	3.3					2.5	3.0
03	250	3.3					2.4	3.1
04	250	3.2					2.4	3.3
05	250	3.0					2.3	3.2
06	240	3.3					2.2	3.2
07	230	6.1	---	---	130	1.9	2.9	3.5
08	240	6.9	220	---	110	2.5	3.5	3.5
09	240	7.8	220	4.1	100	2.8	3.8	3.5
10	250	8.1	210	4.5	100	3.0	3.8	3.3
11	260	8.9	210	4.5	100	3.1	3.8	3.2
12	270	10.0	200	4.5	100	3.2	3.8	3.2
13	270	10.0	200	4.7	100	3.2	3.8	3.2
14	270	10.4	230	4.5	100	3.0	3.8	3.3
15	250	10.0	240	4.3	100	2.8	3.8	3.3
16	240	8.4	230	3.6	100	2.5	3.6	3.4
17	230	7.6	230	---	110	2.0	3.8	3.4
18	210	6.8	---	---			3.5	3.5
19	210	4.6					3.0	3.5
20	260	3.7					3.0	3.0
21	260	3.9					3.0	3.0
22	260	3.5					3.0	3.0
23	290	3.4					2.8	3.0

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

Table 45

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.4					2.8	3.0
01	260	4.2					2.8	3.1
02	245	4.1					2.4	3.2
03	235	4.0					2.3	3.2
04	240	3.1					2.2	3.1
05	<260	2.6					2.0	3.0
06	240	4.3					2.2	3.2
07	240	7.0			(120)	2.2	3.3	3.5
08	240	8.0	235	---	(120)	2.6	4.0	3.3
09	260	8.6	230	4.5	(120)	3.0	4.2	3.2
10	280	10.4	230	4.6	(120)	3.2	4.6	3.2
11	280	11.2	220	4.6	(120)	---	4.7	3.2
12	280	12.7	210	4.6	(120)	---	4.4	3.0
13	280	14.2	220	4.6	(120)	---	4.7	3.2
14	280	15.1	220	4.5	(120)	---	4.4	3.3
15	250	15.0	220	4.3	(120)	---	4.6	3.4
16	240	14.1	---	---	(120)	---	4.2	3.3
17	220	11.6			(120)	---	3.7	3.6
18	200	9.2					3.8	3.4
19	200	7.7					3.0	3.3
20	220	6.2					3.0	3.1
21	240	5.7					3.0	3.1
22	245	4.6					2.7	3.0
23	280	4.0					2.6	2.9

Time: 120.0°E.
Sweep: 1.5 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 46

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.3						3.0
01	270	3.5						3.0
02	270	3.5						3.0
03	260	3.2						3.0
04	260	3.2						3.0
05	260	3.0						3.0
06	250	4.0			---	---		3.1
07	240	5.4	230	---	120	2.1		3.3
08	260	6.1	230	3.9	120	2.6		3.3
09	280	6.6	220	4.1	110	2.9		3.2
10	300	7.0	220	4.4	110	3.1	3.2	3.1
11	310	7.3	210	4.5	110	3.3		2.9
12	320	8.0	200	4.6	110	3.4		2.9
13	310	8.3	210	4.6	110	3.4		2.9
14	300	8.7	210	4.5	110	3.3		2.9
15	290	8.6	220	4.4	110	3.2		3.0
16	280	8.0	230	4.2	110	3.0	3.2	3.0
17	270	7.8	230	3.9	120	2.7		3.1
18	250	7.6	240	3.1	120	2.1	2.7	3.2
19	230	7.1			---	---	2.1	3.3
20	220	6.0						3.2
21	230	4.9						3.3
22	250	3.9						3.1
23	260	3.6						3.0

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

Table 47

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.7						3.0
01	250	3.8						3.1
02	240	3.5						3.1
03	250	3.0						3.0
04	270	2.9					1.5	3.0
05	260	3.0						3.0
06	240	4.8			---	1.8		3.4
07	260	6.0	230	3.8	110	2.4		3.4
08	270	6.7	220	4.2	110	2.9		3.3
09	290	7.0	210	4.5	110	3.1	3.6	3.2
10	300	7.1	200	4.6	110	3.3	3.6	3.1
11	320	7.8	200	4.6	110	3.5		3.0
12	310	8.6	200	4.7	110	3.5		2.9
13	300	8.6	210	4.6	110	3.5		3.0
14	300	8.5	220	4.5	110	3.4	3.5	3.0
15	290	8.6	220	4.4	110	3.2	3.6	3.0
16	270	8.2	230	4.0	110	2.8	3.7	3.1
17	260	8.2	230	3.6	120	2.4	3.4	3.2
18	230	8.2			---	---	2.4	3.3
19	220	7.0					1.8	3.3
20	230	5.8						3.2
21	240	4.6						3.1
22	260	4.1						3.0
23	260	4.0						3.1

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

Table 48

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0			---	E	6.0	2.9
01	260	2.9			---	E	5.0	2.9
02	270	2.6			---	E	4.5	2.8
03	270	2.8			---	E	4.4	2.8
04	280	2.8	---	---	---	E	4.5	2.9
05	290	2.8	---	---	100	1.7	4.0	2.9
06	260	3.2	---	---	100	1.9	4.6	2.9
07	260	3.5	210	3.0	100	2.3	3.8	3.0
08	320	3.7	200	3.4	100	2.5	3.8	2.9
09	380	4.0	200	3.5	100	2.7	3.0	2.8
10	390	4.2	220	3.8	100	3.0		2.8
11	390	4.3	210	3.8	100	2.9		2.6
12	390	4.6	220	3.8	100	3.0		2.8
13	350	5.0	220	3.8	100	2.9		2.8
14	340	5.0	210	3.8	100	2.9		2.8
15	350	4.8	230	3.7	100	2.9		2.8
16	310	5.0	210	3.7	100	2.8	5.0	2.9
17	290	4.9	210	3.4	100	2.5	6.0	2.9
18	270	4.5	230	3.0	110	2.1	5.5	3.0
19	250	4.2	---	---	100	1.9	6.0	3.0
20	240	4.4			---	1.4	6.0	3.0
21	250	3.5			---	E	6.0	2.9
22	260	3.5			---	E	6.5	2.9
23	240	3.2			---	E	5.6	2.9

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

Table 49

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00	330	4.4						2.9
01	---	---						
02	---	---						
03	---	---						
04	300	4.2						3.1
05	280	4.6						
06	260	5.0						
07	250	6.5						
08	260	7.3						3.4
09	270	7.5						
10	290	8.0						
11	310	8.5						
12	300	10.2						3.1
13	300	10.4						
14	300	10.4						
15	290	10.2						
16	280	9.8						3.3
17	280	9.2						
18	280	9.0						
19	270	7.7						
20	280	6.1						(3.2)
21	300	5.0						
22	320	4.8						
23	320	4.4						

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 50

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	300	6.8						
08	360	7.8						(2.9)
09	360	8.2						
10	390	9.0						
11	420	9.7						
12	440	9.9						(2.6)
13	(450)	(10.3)						
14	(480)	(10.6)						
15	(480)	(10.4)						
16	(480)	(10.5)						(2.4)
17	(450)	(10.3)						
18	(420)	(10.2)						
19	390	9.7						
20	360	8.6						(2.7)
21	340	7.9						
22	(330)	7.4						(3.1)
23	(320)	(6.8)						

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

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	360	6.8						
08	390	7.8						(2.7)
09	390	8.6						
10	420	9.0						
11	440	9.0						
12	450	9.0						(2.4)
13	480	9.3						
14	450	9.9						
15	450	10.4						
16	450	11.0						(2.5)
17	420	11.0						
18	420	10.8						
19	420	10.2						
20	390	9.5						(2.6)
21	360	9.3						
22	360	7.6						
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 52

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	390	5.9						
07	400	7.2						
08	480	8.4						(2.3)
09	480	8.3						
10	510	8.2						
11	540	8.4						
12	540	8.5						(2.2)
13	540	8.8						
14	540	9.4						
15	540	9.6						
16	540	9.8						(2.2)
17	510	9.8						
18	510	9.8						
19	480	9.4						
20	480	8.7						(2.4)
21	420	8.3						
22	420	7.8						
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

Townsville, Australia (19.3°S, 146.8°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.6						3.2
01	230	3.9						3.3
02	220	3.6						3.2
03	260	3.0						3.0
04	270	3.0						3.0
05	280	3.0						2.9
06	250	3.2			---	E		3.1
07	240	5.9	(230)	---	120	2.1	3.2	3.3
08	250	7.5	220	4.0	110	2.7	4.0	3.4
09	270	8.4	220	4.4	110	3.0	4.3	3.3
10	260	8.9	210	4.4	110	3.3	4.1	3.3
11	260	8.5	200	4.5	110	3.3	4.1	3.3
12	270	7.5	200	4.5	110	3.3	4.4	3.3
13	280	7.4	200	4.4	110	3.3	4.6	3.2
14	280	7.0	200	4.4	110	3.3	4.5	3.2
15	280	7.3	200	4.3	110	3.2	4.4	3.2
16	260	6.6	210	3.9	110	2.8	3.8	3.2
17	240	6.6	210	(3.3)	110	2.3	3.6	3.2
18	240	6.1			140	1.6	3.0	3.2
19	240	6.0					3.0	3.2
20	240	5.6					2.8	3.1
21	250	5.2						3.1
22	250	4.8						3.1
23	250	4.7						3.1

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

Table 54

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.2						3.0
01	250	3.4						3.0
02	250	3.3						3.1
03	250	3.0					1.6	3.0
04	260	2.8						3.0
05	260	2.9						3.0
06	240	4.0			---	1.6		3.2
07	230	6.0	230	---	110	2.2		3.5
08	250	6.6	220	4.0	110	2.7		3.4
09	270	7.0	220	4.3	110	3.0		3.3
10	280	7.7	210	4.6	110	3.2		3.2
11	280	7.7	200	4.6	110	3.4		3.2
12	290	8.1	200	4.6	110	3.4		3.1
13	280	8.2	200	4.6	110	3.4	3.7	3.0
14	280	8.3	200	4.4	110	3.2	3.8	3.1
15	270	7.8	210	4.2	110	3.0	3.6	3.2
16	260	7.7	220	3.9	110	2.7	3.4	3.2
17	240	7.4	230	---	120	2.2	2.8	3.3
18	220	7.0			---	---		3.3
19	220	5.7						3.3
20	220	4.4						3.3
21	240	3.8						3.2
22	250	3.6						3.1
23	250	3.5						3.1

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

Table 55

Brisbane, Australia (27.5°S, 153.0°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.6					2.0	3.1
01	240	4.1					2.0	3.2
02	240	3.8					2.0	3.1
03	250	3.4					2.0	3.0
04	280	3.3					1.9	2.9
05	280	3.2						2.9
06	250	4.4			---	2.0		3.3
07	260	5.9	240	3.8	130	2.5		3.3
08	275	6.8	225	4.2	110	2.8		3.3
09	280	7.3	210	4.5	110	3.1		3.2
10	280	7.0	210	4.5	110	3.2		3.3
11	285	7.2	200	4.5	110	3.3		3.2
12	280	6.9	200	4.6	110	3.3		3.2
13	290	6.8	200	4.5	110	3.3		3.2
14	280	6.4	200	4.5	110	3.2		3.2
15	270	6.1	205	4.2	110	3.0		3.2
16	260	6.2	220	3.8	120	2.6		3.2
17	240	6.0	(230)	(2.8)	---	2.1		3.2
18	240	5.8						3.0
19	260	5.6						3.0
20	260	5.4						2.9
21	280	5.0						2.9
22	260	5.0						3.0
23	260	4.9						3.0

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

Table 56

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0						3.0
01	270	3.1						3.0
02	260	3.2						3.0
03	260	3.2						3.0
04	250	3.2						3.1
05	260	3.1						3.0
06	260	3.1						3.0
07	230	4.7	---	---	---	1.8		3.4
08	240	5.9	230	---	120	2.3		3.4
09	260	6.5	230	4.0	110	2.8		3.3
10	280	6.9	220	4.3	110	3.0		3.3
11	290	7.2	210	4.5	110	3.1		3.2
12	290	8.0	210	4.5	110	3.3		3.0
13	290	8.7	210	4.5	110	3.3		3.1
14	290	8.7	210	4.5	110	3.2	3.7	3.1
15	280	8.6	210	4.3	110	3.1	3.8	3.2
16	270	8.0	220	4.0	110	2.9	3.5	3.2
17	250	7.7	230	3.5	120	2.5	3.1	3.2
18	230	7.2	240	2.4	120	1.9	2.4	3.3
19	220	5.8						3.3
20	220	4.6						3.3
21	240	3.6						3.2
22	250	3.2						3.2
23	250	3.1						3.1

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

Table 57

Canberra, Australia (35.3°S, 149.0°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.8					2.8	3.0
01	250	3.5					2.6	3.1
02	240	3.4					2.7	3.1
03	240	3.0					2.8	3.1
04	240	2.9					2.8	3.0
05	(260)	2.6					2.5	3.0
06	250	3.2			---	---	2.6	3.2
07	240	4.7	---	---	110	1.8	3.3	3.4
08	270	5.5	225	4.0	100	2.6		3.3
09	300	5.6	215	4.3	100	2.9		3.3
10	300	6.0	200	4.4	100	3.1		3.2
11	290	6.6	200	4.4	100	3.2		3.2
12	290	6.7	200	4.5	100	3.3		3.3
13	275	6.8	200	4.4	100	3.3		3.3
14	275	6.5	210	4.3	100	3.2	3.3	3.3
15	280	6.4	210	4.1	100	3.0	3.4	3.3
16	250	6.1	210	(4.0)	110	2.6	2.8	3.3
17	240	5.7	(225)	---	110	1.8	2.7	3.3
18	230	5.5					2.6	3.2
19	240	5.4						3.0
20	240	5.0					2.6	3.0
21	250	4.7					2.3	3.0
22	250	4.0					2.6	3.0
23	250	4.0					2.5	3.0

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

Table 58

Hobart, Tasmania (42.9°S, 147.3°E) September 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.5						2.9
01	295	2.4						2.9
02	295	2.2						3.0
03	290	2.0						2.9
04	300	2.0						2.9
05	300	2.0						2.9
06	260	2.5			---	---		3.0
07	250	4.0			100	2.0		3.1
08	220	4.5			100	2.5		3.1
09	210	5.0	(200)	(4.1)	100	2.8		3.0
10	350	5.4	200	4.4	100	3.1		3.0
11	300	6.0	200	4.5	100	3.2		3.0
12	310	6.1	200	4.5	100	3.3		3.0
13	300	6.5	200	4.5	100	3.3		3.1
14	290	6.2	200	4.4	100	3.1		3.1
15	280	6.0	200	4.3	100	2.8		3.1
16	210	6.0	---	---	100	2.5		3.1
17	220	5.5			100	2.0		3.2
18	230	5.5						3.1
19	250	5.0						3.0
20	250	4.4						3.0
21	250	3.6						2.9
22	250	3.4						3.0
23	270	2.8						3.0

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

Table 59*

Inverness, Scotland (57.4°N, 4.2°W) July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9						2.8
01	280	3.6						2.8
02	280	3.2					1.4	2.8
03	285	3.2			140	1.2	2.1	2.8
04	300	3.4	265	(2.5)#	120	1.4	2.9	2.9
05	350	3.9	235	3.2	115	1.8	3.0	2.9
06	405	4.3	225	3.6	110	2.1	3.4	3.0
07	390	4.6	220	3.8	105	2.5	3.2	2.9
08	385	4.7	215	4.0	105	2.7	3.9	3.0
09	400	4.9	210	4.1	105	2.9	3.2	2.9
10	405	5.1	210	4.2	105	3.0	3.5	3.0
11	410	5.0	215	4.3	105	3.0	3.7	2.9
12	410	5.1	215	4.3	105	3.0	3.8	2.9
13	405	4.9	215	4.4	105	3.1		2.9
14	415	4.9	215	4.3	105	3.1		2.9
15	395	5.0	220	4.3	105	3.0		2.9
16	370	5.2	220	4.2	105	2.9	3.0	2.9
17	355	5.2	220	4.0	110	2.7	3.3	2.9
18	335	5.1	220	3.8	110	2.4	3.5	2.9
19	295	5.2	240	3.6	120	2.0	3.7	3.0
20	280	5.3	250	(3.1)#	135	1.8	3.1	3.0
21	260	5.1						3.0
22	260	5.0					2.1	2.9
23	270	4.4						2.8

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

Table 60*

Slough, England (51.5°N, 0.6°W) July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.4					2.4	2.8
01	270	4.0					2.6	2.8
02	275	3.7					2.6	2.8
03	280	3.4					3.3	2.8
04	280	3.5	260#	2.1#	140	1.4	3.6	3.0
05	330	4.1	240	3.1	120	1.8	4.2	3.0
06	355	4.6	235	3.6	120	2.3	4.4	3.0
07	390	4.8	230	3.9	115	2.6	4.7	3.0
08	385	5.0	230	4.1	115	2.9	4.5	3.0
09	380	5.3	230	4.3	110	3.1	4.9	2.9
10	370	5.4	230	4.4	110	3.1	4.9	3.0
11	385	5.3	220	4.4	110	3.2	5.3	2.9
12	395	5.4	220	4.5	110	3.3	4.9	2.9
13	375	5.4	220	4.5	110	3.3	4.8	3.0
14	385	5.4	225	4.4	115	3.2	4.7	3.0
15	375	5.3	220	4.4	115	3.2	4.7	2.9
16	360	5.4	225	4.2	115	3.0	4.4	2.9
17	330	5.6	235	4.0	115	2.7	4.3	3.0
18	300	5.6	245	3.8	115	2.4	3.9	3.0
19	295	5.8	250	3.3	130	2.0	3.7	3.0
20	260	6.2			150#	1.7#	3.3	3.0
21	255	5.9					2.9	3.0
22	260	5.5					2.6	3.0
23	265	4.9					2.5	2.8

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

Table 61*

Singapore, British Malaya (1.3°N, 103.8°E) July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1					3.7	3.0
01	250	3.7					3.4	3.2
02	245	3.1					3.2	(3.2)
03	250	2.9					3.5	3.1
04	250	2.6					4.0	(3.2)
05	255	2.4					4.1	—
06	270	3.2					3.3	3.0
07	250	6.4	(245)		125	2.2	3.7	3.0
08	295	8.5	230		115	2.8	5.4	2.9
09	315	8.9	225		110	3.1	5.5	2.8
10	320	9.9	215	4.5	110	3.4	11.3	2.8
11	345	10.1	205	4.7	(110)	3.5	6.6	2.5
12	350	10.2	205	4.7	(110)	3.5	6.0	2.5
13	350	9.8	205	4.6	(110)	3.5	6.9	2.6
14	355	9.7	205	4.6	(110)	3.4	6.3	2.5
15	350	9.5	225	4.4	110	3.2	6.2	2.5
16	295	9.4	230		115	2.8	5.4	2.6
17	270	9.2	235			2.3	6.2	2.8
18	245	8.9					4.6	2.9
19	245	9.2					3.3	3.1
20	240	8.2					4.1	3.2
21	230	6.5					3.6	3.3
22	225	5.2					3.4	3.3
23	245	4.7					3.3	2.9

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
* Average values except foF2 and fEs, which are median values.

Table 62

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(240)	5.6						2.8
01	(240)	(5.3)						
02	(260)	(6.0)					(3.8)	
03	(240)	(4.3)						(2.7)
04	220	4.9					3.2	
05	250	4.8					3.2	
06	240	5.7				—	3.4	3.3
07	210	6.4				2.6	4.2	
08	240	8.8				2.8	4.5	
09	210	9.2				3.0	4.3	3.2
10	240	10.0				3.6	4.4	
11	240	9.8				—	4.6	
12	(240)	9.8				3.7	4.1	(3.6)
13	240	10.4				4.0	4.2	
14	(240)	10.5				—		
15	(240)	(10.7)				—		(3.2)
16	(210)	(10.2)				—	(5.1)	
17	240	10.8				3.0	4.6	
18	240	9.8				—	5.8	(2.9)
19	210	9.5				—	4.8	
20	240	7.3					(4.7)	
21	240	6.7					(4.7)	(2.8)
22	(240)	(6.0)					(5.0)	
23	(240)	(5.8)						

Time: Local.

Table 63*

Ibadan, Nigeria (7.4°N, 4.0°E) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	>5.6					2.6	
01	305	>4.5					3.0	
02	320	(3.9)					2.3	
03	290	(3.0)					2.1	
04	285	(2.4)					2.5	
05	265	2.4				1.2 ‡	3.7	
06	245	5.5	230 ‡		130	2.0	4.9	
07	---	7.5	225		110	2.6	4.6	
08	320 ‡	8.3	215	4.5	110	3.0	5.2	
09	320	8.9	210	4.5	110 ‡	3.3	5.5	
10	340	9.1	200	4.6	115 ‡	3.5	5.6	
11	345	9.5	200	4.6	110 ‡	3.5	5.5	
12	355	8.5	200	4.7	115 ‡	3.6	9.0	
13	345	8.5	200	4.6	---	3.4	8.6	
14	335	8.7	205	4.6	110 ‡	3.3	7.0	
15	300 ‡	8.9	205	4.5 ‡	110	3.1	5.8	
16	---	9.0	225		110	2.7	5.6	
17	255	9.2	240		110	2.2	5.0	
18	250	9.3			105 ‡	1.4	4.9	
19	250	8.6					3.5	
20	250	8.0					3.4	
21	270	7.3					3.8	
22	270	(6.8)					>4.0	
23	275	(6.5)					2.6	

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

Table 64*

Falkland Is. (51.7°S, 57.8°W) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	2.6					2.0	2.8
01	310	2.6						2.8
02	305	2.6						2.9
03	290	2.6						2.9
04	280	2.6						2.9
05	260	2.5						3.0
06	240	2.4						3.3
07	250	2.2					1.6	3.2
08	220	3.8					2.9	3.5
09	215	4.6					2.5	3.7
10	220	5.0					2.7	3.6
11	225	6.0	220	3.2			2.8	3.6
12	225	5.9	(220)	(3.4)			2.8	3.6
13	225	5.6					2.7	3.7
14	225	5.4	(210)	(2.8)			2.4	3.6
15	220	5.2					2.2	3.7
16	210	4.1					2.2	3.6
17	240	2.8					2.8	3.2
18	250	2.7					2.9	3.2
19	250	2.5					1.7	3.2
20	255	2.5					2.4	3.0
21	275	2.5					1.8	2.9
22	285	2.5					2.0	2.9
23	310	2.6					1.8	2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
* Average values except foF2 and fEs, which are median values.

Table 65*

Port Lockroy (64.8°S, 63.5°W) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	345	2.2						2.6
01	340	2.3						2.6
02	335	2.3						2.6
03	320	2.3						2.6
04	315	2.3						2.7
05	290	2.2						2.8
06	280	1.9						(2.8)
07	(270)	1.8						(2.9)
08	(245)	1.7					1.6	
09	260	2.5					2.1	3.0
10	240	3.9					3.8	3.1
11	240	4.3					3.4	3.2
12	235	4.6						3.4
13	230	4.4						(3.4)
14	225	4.2						3.3
15	245	3.9						3.1
16	240	3.1						(3.2)
17	265	2.4						3.0
18	270	2.2						3.0
19	290	1.9						2.8
20	(325)	1.8						2.8
21	(335)	1.8						2.6
22	345	2.0						2.6
23	350	2.1						2.6

Time: 60.0°W.
Sweep: 1.1 Mc to 16.0 Mc, manual operation.
*Average values except foF2 and fEs, which are median values.

Table 66

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.8						3.0
01	220	5.0						
02	240	4.7						
03	(210)	(3.8)						(2.8)
04	(210)	(3.8)						
05	210	4.2						
06	210	6.0				2.2	3.6	3.2
07	210	7.5				2.6	3.7	
08	210	8.5				2.8	4.0	
09	240	8.6				3.3		(3.5)
10	240	9.0				3.4	4.4	
11	—	—				—		
12	(240)	10.4				—		(2.8)
13	(240)	(10.4)				4.1		
14	(240)	11.0				—		
15	240	11.3				3.9		3.0
16	240	11.0				3.5		
17	240	11.3				3.1		
18	240	11.3				—		2.8
19	210	10.6				—		
20	210	8.0						
21	(210)	7.5						(3.4)
22	(260)	(5.6)						
23	(270)	(4.8)						

Time: Local.

Table 67

Tananarive, Madagascar (18.8°S, 47.8°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	2.8						3.4
01	250	2.6						3.2
02	260	2.5						3.2
03	235	2.4					2.0	3.2
04	260	2.3						3.0
05	280	2.2						3.0
06	265	3.0			---	---	1.9	3.0
07	240	6.0	---	---	131	1.9	2.2	3.4
08	240	7.3	232	---	111	2.4	2.7	3.6
09	250	7.6	220	4.2	111	2.8	3.8	3.5
10	260	7.4	220	4.4	111	3.1	3.7	3.4
11	275	7.6	215	4.5	111	3.2	4.0	3.4
12	268	7.4	220	4.6	111	3.2	3.8	3.3
13	262	7.2	222	4.4	111	3.2	3.8	3.4
14	265	7.0	215	4.3	111	3.1	3.9	3.4
15	258	6.8	220	---	111	2.9	3.8	3.4
16	240	6.7	225	---	117	2.5	3.4	3.4
17	225	6.1			129	2.0	3.1	3.6
18	220	4.9					2.5	3.5
19	225	3.5					2.8	3.4
20	240	2.8					2.2	3.1
21	250	3.3					2.2	3.2
22	240	3.3						3.4
23	230	3.2						3.4

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

Table 68

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	210	5.5						2.6
01	210	5.4						
02	220	4.4						
03	220	4.1						2.8
04	(180)	(3.4)						
05	(240)	(3.6)						
06	210	5.4				---		1.7
07	210	7.8				2.4	3.7	
08	240	8.2				2.8	3.7	
09	210	9.5				3.2	3.7	2.4
10	240	10.0				3.6		
11	240	11.0				---		
12	(240)	10.7				---		2.9
13	220	11.2				---		
14	(220)	11.2				---		
15	240	11.2				3.8		(2.3)
16	(240)	(11.8)				3.2		
17	240	13.0				2.8		
18	(220)	(10.8)				---	(2.9)	(2.3)
19	210	11.4						
20	(220)	(8.5)						
21	(240)	(7.0)						(3.4)
22	(240)	(5.8)						
23	(210)	(5.9)						

Time: Local.

Table 69

Tananarive, Madagascar (18.8°S, 47.8°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.1					2.2	3.1
01	262	3.1					2.3	3.1
02	260	3.2					2.3	3.1
03	232	3.0					2.4	3.2
04	235	2.2					2.4	3.0
05	312	2.2					2.1	2.9
06	250	3.2					1.9	3.0
07	240	6.1	---	---	121	2.0	2.4	3.4
08	262	7.5	235	---	115	2.6	3.0	3.4
09	268	8.5	225	4.4	113	3.0	3.4	3.3
10	275	9.0	220	4.6	113	3.2	3.5	3.4
11	265	9.3	220	4.6	117	3.4	3.7	3.4
12	280	8.2	220	4.7	111	3.4	3.7	3.2
13	290	8.0	230	4.6	111	3.4	3.6	3.1
14	285	9.0	228	4.5	111	3.2	3.5	3.2
15	272	8.6	235	---	112	3.0	2.9	3.2
16	255	8.3	230	---	119	2.7	3.2	3.3
17	240	7.6			127	2.2	2.9	3.4
18	230	6.5			---	---	2.5	3.4
19	230	5.4					2.1	3.4
20	228	3.9					2.0	3.4
21	260	3.5					1.9	3.1
22	270	3.5					2.1	3.1
23	260	3.4					2.2	3.1

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

Table 70

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.8						3.6
01	240	4.6						
02	240	4.3						
03	210	4.0						(3.6)
04	240	3.0						
05	240	2.5						
06	240	4.1						2.3
07	210	6.8				2.2		
08	240	8.5				2.7		
09	240	9.6				3.0	3.3	3.0
10	240	10.2				3.4		
11	240	11.0				3.6		
12	240	12.1				3.8		2.4
13	240	11.6				3.9		
14	240	12.0				3.8		
15	240	11.9				3.6		2.5
16	240	12.9				3.2		
17	240	12.8				3.2		
18	210	12.6				2.1	2.5	2.3
19	240	10.2				---	2.4	
20	220	8.6				---		
21	240	7.4						3.0
22	(240)	(7.1)						
23	(240)	5.0						

Time: Local.

Table 71

Djibouti, French Somaliland (11.5°N, 43.1°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	8.7					2.5	(3.2)
01	235	8.7						3.5
02	220	7.1						(3.5)
03	220	5.5						3.4
04	212	4.2						3.4
05	225	3.2						3.4
06	255	2.8	---	---				3.2
07	230	6.7	---	---	120	2.2	3.0	3.6
08	260	9.0	220	---	111	2.8	3.6	3.3
09	280	9.8	210	---	109	3.1	4.6	3.0
10	300	9.7	202	4.8	---	3.4	7.4	2.7
11	310	9.6	200	4.9	---	3.6	7.9	2.7
12	310	9.8	200	4.9	---	3.6	8.0	2.7
13	308	10.2	200	4.9	---	3.6	4.9	2.7
14	310	11.1	200	4.8	---	3.4	4.6	2.8
15	290	12.2	210	---	109	3.2	4.5	3.0
16	280	12.5	215	---	---	3.1	4.5	3.0
17	232	12.2	220	---	111	2.7	4.5	3.0
18	240	12.0			---	1.9	4.1	2.9
19	260	11.4					3.0	2.8
20	275	9.9						(2.8)
21	252	9.5						(3.0)
22	240	9.3					2.6	(3.1)
23	245	9.0					2.8	3.1

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

Table 72

Dakar, French West Africa (14.6°N, 17.4°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(9.7)						(3.0)
01	235	(9.0)						3.1
02	232	> 8.0						3.2
03	220	6.0						3.1
04	235	4.8						2.9
05	260	3.5					2.0	2.8
06	280	3.2			---	E	3.0	2.7
07	240	6.8	240	---	130	1.9	2.6	3.1
08	260	9.0	232	---	109	2.6	3.2	3.0
09	272	>10.0	225	---	109	3.1	3.5	3.0
10	275	11.8	215	---	109	3.2	3.8	(3.1)
11	270	11.6	200	---	105	3.4	3.5	(2.9)
12	285	11.9	200	---	105	3.5	3.2	(2.6)
13	295	12.0	200	---	109	3.5		2.7
14	300	12.0	225	---	109	3.4	4.0	(2.7)
15	280	11.7	228	---	109	3.3	3.4	2.8
16	280	>12.0	245	---	109	3.0	3.4	(2.9)
17	260	>12.0	250	---	115	2.5	3.4	---
18	250	>12.0	255	---	---	---	3.2	---
19	250	>12.0					3.0	---
20	240	>11.4					1.9	---
21	250	11.1					2.8	(2.8)
22	260	>10.0					2.7	(2.9)
23	255	>10.0					2.8	---

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

Form adopted June 1946

TABLE 73

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

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(280)S	(270)S	(260)S	(280)S	240	220	[260]A	(310)S	210	230	250	240	250	250	260	250	220	220	230	220	(220)S	(250)S	(250)S	(270)S
2	[270]S	(270)S	260	260	(270)S	S	S	(260)S	230	230	230	240	240	250	270	240	210	220	220	210	(270)S	(260)S	(250)S	(270)S
3	(250)S	260	230	230	230	260	(270)S	(260)S	210	220	230	230	260	250	250	230	230	220	220	230	(230)S	(280)S	(250)S	250
4	(280)S	270	250	(230)S	220	230	250	240	220	220	230	230	240	230	250	220	230	210	210	(220)S	(250)S	(270)S	(270)S	(270)S
5	(270)S	280K	(300)SK	(280)SK	[250]FK	(230)AK	300FK	(230)SK	300K	(270)SK	270K	420K	GK	GK	500K	350K	210K	230K	250K	220K	AK	BK	BK	BK
6	BK	BK	BK	(290)SK	(270)SK	(280)SK	(310)S	(250)S	210	240	240	250	250	280	260	250	220	220	210	(230)A	280	(270)S	250	(240)S
7	(250)S	(260)S	250	250	250	240	(220)S	260	220	250	240	250	250	260	250	240	230	210	240	210	250	270	(280)S	(280)S
8	(270)S	260	260	230	220	(280)S	(280)S	250	230	250	250	220	240	240	250	240	230	230	210	250	250	(250)S	(300)S	(310)S
9	(290)S	270	240	250	250	240	(270)S	(250)S	230	240	260	250	250	280	260	250	230	220	210	(230)S	(240)S	(280)S	S	S
10	S	(280)S	270	250	230	230	250	240	220	(240)L	250	250	260	260	250	240	230	240	(240)A	220	240	240	240	(260)S
11	S	S	300	280	(280)S	250	240	220	230	250	250	240	250	270	260	250	240	230	220	220	230	(260)S	240	280
12	(270)S	280	280	250	270	250	250	240	220	230	250	240	260	250	(270)L	250	230	(240)A	(240)A	(220)A	250	260	250	(260)S
13	(260)S	(280)S	(270)S	(270)S	250	250	(280)S	(250)S	220	240	(260)L	250	250	260	270	(280)L	250	240	(240)A	240	240	250	250	(270)S
14	270	270	270	240	250	(250)A	240	250	240	240	240	240	250	[260]M	(270)L	250	230	230	230	220	250	(270)S	280	260
15	(280)S	(270)S	250	240	250	240	240	210	220	230	240	240	240	260	250	230	220	220	220	220	240	250	(240)S	(240)S
16	(260)S	[280]S	(290)S	260	260	240	220	210	210	230	240	230	230	250	250	240	220	220	220	(220)S	(230)S	(260)S	(250)S	(250)S
17	(240)S	(260)S	250	250	250	240	(230)S	(220)S	220	220	240	250	250	260	250	240	230	220	(220)S	(230)A	(220)S	(250)S	250	(260)
18	(250)S	(270)S	250	250	250	230	250	(220)S	230	260	(300)L	250	230	240	240	[240]L	240	220	220	220	(210)S	(280)S	(270)S	(300)A
19	(290)S	(310)S	290K	280K	240K	(220)SK	[260]FK	(300)SK	250K	310K	320K	330K	300K	330K	300K	270K	250K	230K	220K	230	(290)S	(290)S	(290)S	(290)S
20	(290)S	(300)S	(270)S	[290]F	(300)S	<330E	<330E	(270)S	240	270	260	260	260	270	270	250	240	220	230	(240)S	(240)S	[270]S	(300)S	[290]S
21	(290)S	(290)S	(280)S	240	240	240	(260)S	240	220	230	260	250	260	280	280	250	240	220	220	210	(230)S	[260]S	(280)S	S
22	S	(300)S	<300E	E	(300)S	[270]S	(240)S	240	220	230	270	260	250	260	250	260	240	220	220	240	220	270	S	S
23	S	(300)S	260	240	250	240	(240)S	(230)S	220	230	230	250	250	250	250	240	240	220	210	230	220	S	S	S
24	S	S	(310)S	(260)S	240	(250)S	(250)S	(250)S	230	220	260	270	310	270	270	260	250	C	C	C	230	220	(270)S	(260)S
25	(300)S	260	240	240	250	240	250	250	270	220	[260]L	290	250	250	270	260	260	230	220	220	220	240	(270)S	(250)S
26	(280)S	(260)S	260	260	250	230	(270)S	<280S	230	240	290	250	280	280	290	280	250	240	240	220	220	(250)S	<330S	<290S
27	(290)S	(260)S	(270)S	(250)S	<300S	A	S	(240)S	230	250	280	270	270	250	260	250	240	230	210	230	330	250	(260)S	S
28	S	<310S	(290)S	280	(380)S	S	A	260	220	230	240	270	270	250	250	C	C	C	C	230	(210)S	<280S	(250)S	[260]S
29	(270)S	(280)S	(290)S	270	250	240	(250)S	240	210	220	250	260	250	250	270	260	230	220	210	220	(250)S	240	(250)S	<290S
30	<300S	(290)S	270	270	(300)A	(260)A	250	250	240	(230)L	280	270	260	290	270	260	240	220	200	(240)A	A	S	(290)S	S
31	S	(300)S	250	250	250	(240)S	[240]S	(250)S	240	220	240	250H	250	290	250	270	240	220	200	(220)A	(260)S	S	S	S
Median	(270)	(270)	270	250	250	240	(250)	250	220	230	250	250	250	260	260	250	240	220	220	220	240	(260)	(250)	(260)
Count	28	27	29	30	30	27	27	30	31	31	31	31	31	31	31	30	30	29	29	30	29	26	25	21

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 103519

Form adopted June 1946

TABLE 74

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

IONOSPHERIC DATA

fo F2 (Characteristic), Mc (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

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

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

Day	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	(2.9)FS	(2.8)FS	(3.0)FP	2.5FS	(2.9)FP	(2.1)FP	[2.0]A	(2.4)AP	4.2	4.8	(5.5)P	7.2	5.9	6.2	6.2	6.4	6.1S	5.3	5.2S	4.5	3.0F	2.8	2.7	2.2F
2	1.9JS	1.9JS	1.9F	1.8FJ	(1.8)FP	1.9FJ	2.0JS	2.4JS	4.4	5.4	6.7F	7.4	7.2	7.2	6.8	6.9	5.8JS	5.2	5.4	3.5	2.3F	2.5JS	2.5FS	2.3FS
3	2.5F	2.6F	3.0F	2.3F	2.1F	2.0F	1.9F	2.2F	4.8	6.6	6.6	6.8	6.6	7.0	6.5	6.0	5.6	5.0	4.2	3.7	2.4	2.5	2.9	2.9
4	2.4	2.5JS	(2.6)F	2.8F	2.7F	2.6F	2.3F	2.5F	4.6	5.4	7.0	7.0	6.3	5.9	6.4	5.9	5.9	5.6	4.8	3.0	2.4F	2.5JS	2.6	2.5S
5	2.5	2.5SK	(1.8)KP	(1.9)PK	[2.4]FK	(2.8)PK	[2.7]FK	(2.6)PK	(2.6)PK	(3.5)SK	4.3K	4.0K	<3.7GK	<3.7GK	4.4K	5.0K	5.1K	5.1SK	3.4K	2.5K	A K	B SK	B K	(1.5)JK
6	(1.5)KB	(1.6)JB	(1.6)JB	(1.7)JS	1.7KS	(1.7)SK	(2.1)PS	2.5FS	4.5	6.0	6.8	7.0	6.4	7.8	7.4	7.1	6.4	6.0	4.0	3.2	2.8F	2.9F	3.0F	2.8F
7	(3.0)F	(3.0)F	3.1F	3.1F	3.6	3.7FS	3.3	2.5F	4.6	6.8	7.0	8.0	8.4	8.4	7.8	6.8	6.2	5.0	5.2	4.3FS	3.2FS	3.0	3.0	3.2JS
8	3.5	3.7	3.7	3.7	3.3JS	2.5F	2.1F	(2.3)FS	4.9	6.6	7.4	7.5	6.5	5.9	6.2	5.9	5.7	5.2	4.7	3.2	2.9	2.5	2.3	2.3
9	2.5	2.7	2.8	2.8S	(2.7)FS	2.5F	(2.2)FJ	(2.7)PS	5.0S	5.7	6.6	6.9	6.5	6.8	6.8	6.5	6.2	5.8	4.7	3.2	(2.8)S	2.3F	1.9F	1.9FS
10	2.1	2.3F	3.0FS	3.0F	3.1F	2.9F	2.6F	2.6F	4.7	5.9	6.8	6.9	6.8	6.8	6.4	6.0	5.3	5.2	(6.0)S	(5.4)S	3.5	3.2FS	2.9	2.3F
11	1.9	2.0F	(2.2)SF	2.6F	2.7FS	3.0F	3.0F	3.0	4.6	5.8	6.0	6.8	6.4	6.4	6.0F	6.8	6.3	6.0	5.8	4.5FS	3.5	3.0F	3.0F	2.5F
12	2.5F	2.5F	3.0F	3.3F	3.8F	4.0F	3.9F	(3.6)FS	5.2	6.4	6.9	6.8	6.4	6.6	6.2	6.2	5.6	5.6	5.0	3.8JS	3.1	2.7	2.8	2.5
13	2.5F	2.5F	2.8F	2.9	3.0	2.5F	2.3F	(2.8)JB	5.2	6.0	6.4	8.2	7.4	6.8	6.5	6.6	6.8	(6.8)S	(6.8)S	5.0	3.6	3.2	3.0	3.0F
14	3.3	3.6	3.8	3.9	4.3	4.3	4.0	3.8	5.6	6.7	7.2	7.8	7.0	[6.6]M	6.4	7.0	6.0	5.4	5.3	4.4	3.6F	2.7FS	2.7F	2.7F
15	2.5F	2.5F	(2.2)F	3.7JF	(3.5)F	3.5F	(3.4)F	[3.4]FS	5.6	6.0	6.9	6.8	6.8	6.4	6.2	6.4	5.6	5.5	4.6	4.8	3.3	3.0	3.1S	3.0S
16	2.5F	(2.4)FP	2.3F	2.7FS	3.0F	3.5F	3.6F	(3.6)FP	5.4S	6.7	7.0	7.4	6.9	6.4	6.7JS	7.2	6.0	5.2	4.7	3.9S	2.8F	2.5F	2.6S	2.8FS
17	(2.7)FS	2.5FS	(2.7)FP	3.0JS	3.3F	3.9S	3.6S	3.5	5.2	5.9	6.3	6.7	6.6	6.6	6.8	6.7	5.8	5.2	5.0	4.5JS	3.2J	2.9	2.7F	2.8S
18	3.0S	3.3	3.5	3.4S	3.6FS	3.3FS	3.4S	(3.1)PS	4.7	5.9	6.0	7.6	7.6	6.6	6.5	6.1	6.5	6.1	5.0	4.8	4.5S	2.5	2.6	(2.8)PR
19	2.8S	(2.5)FP	(2.8)PF	(3.5)JF	3.5K	(2.2)SK	[2.2]FK	(2.3)PK	3.7FK	4.5K	4.6K	5.1K	5.4K	5.0K	5.2K	5.1K	5.4K	4.8SK	3.7SK	(3.3)PF	(2.3)FS	(2.5)PS	2.4S	2.4S
20	2.2	(2.0)JF	(1.7)F	[1.8]F	(2.0)FJ	(1.8)FJ	(1.9)JF	2.3F	3.7F	4.4	5.6	6.8	6.3	6.1	6.0	5.8	5.5	4.5	3.7	2.9	1.9	1.8JS	2.0F	2.0FS
21	2.1F	2.4FS	2.6FS	3.3	3.0FS	(3.0)F	(2.6)JS	(2.7)JS	4.3	4.8F	5.4	5.8	5.8	5.9	6.1	6.0	5.6	4.9	4.4	3.7JS	2.5	2.1F	2.2F	(2.1)F
22	(2.1)F	1.9JF	1.9F	1.5FJ	1.8F	1.9	2.0	2.4F	4.3	4.3	5.4	6.2	6.1	5.8	5.8	5.6	5.6	4.8	4.1	(3.6)S	(3.2)PS	2.1F	1.9JS	(1.9)JS
23	1.9JS	(2.1)S	2.3	2.4JS	2.4	2.5S	(2.3)S	(2.4)JS	4.3	5.0	5.6	6.1	5.8	5.6JS	5.6	5.7	5.9	5.0	3.7	3.2	2.9	(1.7)JS	1.7JS	1.7JS
24	1.7JS	(1.9)JS	1.9S	2.1S	2.2	2.1JS	2.2S	2.6	5.0	4.7JS	5.3	6.1	(5.9)PJ	6.3	6.6	6.4	6.2	C	C	C	2.9	2.2	(2.1)PS	(2.2)PS
25	(2.2)PF	(2.5)FP	(2.5)FP	(2.5)FP	(2.4)FP	2.5F	2.3	(2.4)FS	4.0F	(4.2)JS	(4.8)H	5.6F	5.9F	5.8	5.6	5.8	6.0	6.4	5.8	5.4S	4.4S	3.0S	2.7F	(2.9)PS
26	(3.7)FS	(3.5)PS	3.6S	2.7F	2.5F	2.8F	(2.2)PS	(2.4)PF	4.1	5.4	5.8	[6.0]M	5.9	6.0	6.2	6.4	7.0	5.0	6.0	5.2	3.5	2.7F	[2.6]F	(2.4)JF
27	2.8	3.1JS	(2.5)F	(2.5)FP	(1.9)JF	(1.7)JF	(1.7)JS	2.4	4.2	5.8	5.8	6.8	7.0	7.3	7.0	7.4	6.6	5.4	5.0	4.5	(3.7)PS	2.9F	2.5	2.1
28	2.1	2.0F	2.3F	(2.2)JF	F	F	A	(2.4)F	(4.3)F	4.9	5.6	6.8	6.4	7.0F	6.8	C	C	C	C	4.3	(3.1)SF	2.5	(2.4)FS	(2.1)JF
29	2.8JF	(2.7)PF	2.5F	2.7F	3.3	2.7	2.5	2.7	5.2	5.7	6.3	6.8	7.6	6.6	6.4	7.0	6.6	5.5	4.3	3.3	2.9F	2.6F	2.5FS	2.0F
30	2.2F	2.0JF	2.3	(2.8)JF	3.0F	(3.2)A	2.8F	2.6JS	4.0	4.6	5.6	6.0	5.8	6.0	5.8	5.9	5.6	5.6	3.7	3.2	2.4	2.1	2.2	1.9F
31	2.0	2.3	2.5	2.5	2.4	2.1	1.8JS	2.5	4.6	5.2	5.2	6.2JH	5.6	6.2	5.8	5.8	6.2	5.6JS	4.4	3.3	2.3	1.9	1.8F	1.7F
Median	2.5	2.5	2.6	2.7	2.8	2.6	2.3	2.5	4.6	5.7	6.0	6.8	6.4	6.4	6.4	6.3	6.0	5.2	4.7	3.8	2.9	2.5	2.6	2.3
Count	31	31	31	31	30	30	30	31	31	31	31	31	31	31	31	30	30	29	29	30	30	30	30	31

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 703510

Form adopted June 1946

TABLE 75

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

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

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

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	(2.8)FT	(3.1)FP	(2.7)FS	(2.7)FP	(2.6)FT	(1.9)FS	(2.0)AT	(3.7)JS	4.7	5.6	7.0	6.6	6.9	6.1	6.7	6.5	5.6	5.0	5.0	3.8	(3.0)JS	2.9	(2.4)AP	2.0JS
2	1.9JS	1.8F	1.9F	(1.8)FJ	1.9JF	2.0	1.9JS	3.5	5.3	6.2	6.8	7.1S	7.0	6.8	7.4JS	6.7	5.6	4.9	4.4	2.7F	2.4	2.5F	2.3F	2.4F
3	(2.7)F	2.6F	(2.6)F	2.5F	2.0F	2.0F	1.8FS	3.5JS	6.0	6.1	6.6	6.4	6.5	6.5	6.6	5.6	5.2	4.2FS	4.2	3.1JS	2.4	2.8	2.9F	2.7F
4	(2.3)S	2.3F	2.7F	2.7F	2.8F	2.5F	(2.1)F	3.7	5.6S	6.2	7.3	6.5	6.2	6.1	6.0	6.0	6.1	4.7	3.4	2.7	2.4	2.6S	2.5	2.5JS
5	2.4JS	K(2.3)FP	K(2.1)FP	K(1.7)PF	K(2.5)PF	K(2.7)FP	K(2.6)PF	K(2.5)PF	<2.9GK	K(3.8)FS	[4.2]CK	<3.7GK	<3.8GK	[3.9]SK	4.8K	5.0K	5.2K	4.1K	3.2K	[2.3]AK	BSK	BK	K(1.5)JB	K(1.6)JB
6	K(1.6)JB	K(1.5)JB	K(1.6)JB	K(1.7)PS	1.8SK	K(2.0)JS	(1.8)PS	3.8	5.4JS	6.2	6.7	6.7	6.9	7.6	7.4	7.0	6.4	5.4	3.7JS	2.9	2.8F	3.0F	2.9F	2.7F
7	(3.0)F	(3.0)F	3.2F	2.8F	3.5F	3.5F	2.5F	4.1JS	5.4	7.4	7.8	8.4	8.2	8.2	7.4	6.3	5.7	5.2	5.0	3.5F	3.3FS	(3.1)S	3.2	3.5
8	3.7	3.8	3.9	3.4	2.7	2.3F	1.8F	3.5	6.0	7.2	8.0	6.8	6.4	6.0	5.6	6.0	5.0	4.9	3.7	2.9	2.8S	2.4JS	2.3	2.4
9	2.6JS	2.8	2.8JS	(2.7)FS	(2.9)FP	2.4F	(2.2)FJ	3.9F	5.9	6.6	7.2	6.7	6.6	6.5	6.8	6.2	6.0	5.3	4.2	3.0	2.5	2.2F	1.9JS	2.0
10	2.1F	2.6F	3.1FS	3.2F	3.2F	2.9F	2.4F	3.9JS	5.3	6.2	6.8	7.0	6.8	6.5	6.4	5.8	5.0	5.8	5.8	4.2	3.3FS	3.0F	2.5F	2.4F
11	1.9F	2.0F	(2.5)F	2.6F	(2.9)F	3.1F	2.7F	3.7FS	5.2	6.0	6.4	6.6	6.6	6.0F	6.6	6.4	6.0	6.0	5.0F	4.0F	3.0F	3.2F	2.6F	2.4F
12	2.4F	2.7F	3.2F	3.5F	4.0F	(4.0)FS	3.5FS	4.2JS	5.8	6.6	7.0	6.5	6.8	6.3	6.5	6.0	5.4	5.3	4.6	3.4	2.8	2.6F	2.5	2.4
13	2.5F	2.7F	2.8F	3.0	2.8	2.4	2.3F	4.1	6.0	6.6	7.6	8.1	6.9	6.7	6.4	6.6	7.0	6.8	5.8	3.8	3.3	3.2F	3.0F	3.0F
14	3.2F	3.7	4.0	4.3	4.4	4.0JA	3.7FS	4.4	7.0	7.5	7.6	7.4	6.2	6.9	6.9	6.6	5.8	5.2	5.0	3.3	2.7F	2.6F	2.8F	2.5F
15	2.5F	(2.7)F	(3.4)F	3.5F	3.5F	3.4F	3.3F	4.0	5.8	6.2	6.8	7.2	6.4	6.4	6.6	5.9	5.7	4.7	4.7	3.5	3.3S	3.0	3.0JS	(2.8)JF
16	(2.3)FS	(2.4)FS	(2.5)FP	(3.0)FP	3.1F	(4.0)FP	(3.5)FF	4.3	6.2JS	6.8	7.3	7.3	6.8	6.4	7.2	6.6	5.5	5.0	4.5	3.5	2.6JF	2.6JS	2.6FS	(2.9)FP
17	2.5FS	(2.6)FS	(3.0)PS	3.3	3.5F	3.7	(3.3)FJ	4.2	5.8	6.2	6.3	6.8	6.7	6.6	6.7	6.2	5.4	5.0JS	4.9	[3.8]A	3.1S	2.9	2.9	3.0JS
18	(2.9)JF	(3.3)PS	3.3F	(3.6)FS	3.5F	3.1F	3.2S	(3.8)PS	5.4	5.9	6.8	8.0	6.9	6.8	6.1	6.4	6.2	5.5	4.9	3.9S	2.4	2.5JA	2.6F	2.5F
19	(2.8)FP	(2.5)FP	K(3.0)JF	3.5K	2.9SK	K(1.7)JF	[2.2]FK	3.1SK	4.2K	4.4K	5.0K	5.4K	5.2K	5.2K	5.3K	5.4K	5.3K	4.5K	K3.6FS	(2.9)FP	(2.4)PS	(2.6)PS	2.5S	2.4JS
20	2.2JS	(1.8)FP	(1.8)FP	[1.8]F	(1.8)JF	(1.8)JF	(1.9)JF	3.0F	4.1	4.8S	5.9	6.3	6.0	5.9	5.8	5.5	5.2	4.0	3.4	2.5	1.7JS	1.8JF	2.0F	2.1
21	2.3JS	2.5F	2.9FS	3.0JS	3.0F	(2.7)JS	(2.3)JS	3.5FS	4.6JS	(6.1)S	5.8	6.0	5.6	6.0	6.4	5.8	5.6	4.8	4.3	3.0	2.3	2.2F	2.2F	2.1F
22	[2.0]F	(1.9)PF	1.7F	1.7F	1.8F	2.0	(1.9)S	3.4JS	4.4	5.0	5.6	6.1	5.7	5.8	5.5	5.6	5.2	4.4	3.7	(3.5)S	2.3F	2.0	1.9	(1.8)S
23	1.9JS	2.2	(2.4)PS	2.4	2.4	2.4	(2.1)S	3.4	4.9	5.8	5.9	5.9	5.6	5.9	5.9	5.7	5.4S	4.6	3.3	2.8S	(1.9)JS	1.7JS	1.7JS	1.8JS
24	1.7S	1.9	2.0	2.2	2.0S	2.1	2.2S	3.7	4.9	5.0	5.4	6.0	6.7	6.6	6.9	6.2	6.3	C	C	C	2.7	2.1S	2.1JS	(2.2)PS
25	(2.3)FS	2.2F	(2.5)F	[2.4]F	(2.4)FP	2.5F	(1.3)JS	3.4FS	4.8S	4.4S	5.6	5.8S	(6.0)PS	5.4	5.8	5.6	6.0	5.8	5.6	4.8	3.7S	2.5	2.6S	(2.7)PS
26	(3.7)PS	(3.7)PS	3.3F	2.8F	2.5F	2.5FS	(1.7)FJ	(3.3)JS	4.6S	[5.6]M	5.9	5.6	5.8	6.0	6.3	6.8	6.5	5.4	5.7	5.2	3.1	2.2	[2.3]FS	2.5F
27	(3.0)PS	(2.7)FS	2.4F	(2.1)JF	(1.6)JF	(1.7)JS	(1.7)JS	3.4F	4.7S	5.9	6.4	7.0	7.2	7.0	6.8	6.6	5.8	5.6	4.5	(4.2)S	3.0F	2.7	2.3	1.9
28	2.0	2.1F	2.0F	F	F	BS	A	3.7F	4.7	5.6	6.2	7.2	7.2	7.6JS	6.7	C	C	C	5.1	4.2	2.3SF	(2.3)SF	(2.1)F	(2.3)JF
29	2.7F	2.7	2.7	3.1	3.1	2.7	2.2	(3.8)PS	5.0	6.2	6.3	7.6	7.2	6.6	6.7	7.2	6.1	4.9	4.0	3.2	2.9F	2.6JS	2.3F	2.2JF
30	2.2JF	2.0JF	(2.8)JF	2.8F	3.0F	2.9	2.3	3.5	4.5	5.3	5.8	5.8	6.1	6.0	6.2	5.6	5.4	4.7	3.4	2.8	2.1	2.1	1.9F	2.0JS
31	2.2	2.3	2.5	2.5	2.3	2.0JS	1.7JS	3.8	5.4	5.4	6.2H	6.2	6.2	6.2	5.6	6.3	5.9	5.1	3.7	2.5	2.0	2.0JS	1.8JS	[1.7]FS
Median	2.4	2.5	2.7	2.8	2.8	2.5	2.2	3.7	5.3	6.0	6.4	6.6	6.5	6.4	6.5	6.2	5.6	5.0	4.4	3.4	2.7	2.6	2.4	2.4
Count	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	30	30	29	30	30	30	30	31	31

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ■

Form adopted June 1946

TABLE 76

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

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

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

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

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE : 1946 O - 702519

TABLE 77

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

IONOSPHERIC DATA

Form adopted June 1946

foF1 (Characteristic), Mc (Unit), January (Month), 1953

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L								
2										L	L	(3.7)P	[3.7]L	3.7H	L	L								
3										Q	L	3.7	L	L	L	L								
4										Q	L	L	L	L	L	Q								
5										3.1HK	3.4HK	3.6K	3.7K	3.7K	3.6HK	3.5K	(3.0)LK							
6										L	L	L	L	4.0	3.5H	L								
7										3.2	L	L	4.0	L	L	Q								
8										L	L	L	4.0	L	L	L								
9										L	L	L	L	L	4.0	L								
10										L	L	L	L	L	L	L	L							
11									L	L	3.9	[3.9]L	3.9	L	L	L	L							
12										L	3.9	L	L	L	L	L	L							
13										L	L	L	L	4.0	3.7	L	L							
14										L	L	L	L	M	L	L	Q							
15										Q	L	L	L	L	L	L	Q							
16										L	L	L	L	L	L	L	Q							
17										Q	L	L	L	L	L	L	L							
18									L	L	L	4.0	L	L	L	L	Q							
19										3.3K	(3.4)PK	3.8K	3.9K	3.8K	LK	LK	LK							
20										L	(3.6)P	3.7H	(3.9)P	(3.9)P	L	L	L							
21									L	L	L	4.0	4.0H	4.0	L	L	L							
22									2.3	2.8	(3.7)L	3.9H	4.0	3.9H	[3.7]L	3.5	L							
23									Q	Q	L	3.9H	L	L	L	L	L							
24									L	L	L	(3.9)H	3.9	3.9H	L	L	L							
25									L	L	L	(3.9)P	(3.9)H	[3.9]L	3.8	L	L							
26									L	M	3.8	3.8	(3.8)H	4.0	3.8H	L	L							
27									L	L	L	L	4.0	L	L	L	L							
28									Q	L	L	4.0	4.0	L	L	C	C							
29									Q	2.9H	L	L	L	L	L	L	L							
30									L	3.0	3.9	4.0	4.0	4.0	[3.8]L	(3.6)L	L							
31									L	3.0	(3.8)L	L	L	4.2	[3.8]L	3.5	2.9							
Median									–	3.0	3.8	3.9	3.9	3.9	3.8	–	–							
Count									1	7	9	15	15	13	9	4	2							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

TABLE 78

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

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), January (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 38.7°N, Long 77.1°W

75° W Mean Time

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									S	(120)S	A	B	(120)B	110	110	[110]A	(120)S							
2									S	(120)S	[110]A	110H	110H	110	110	110	110H							
3									(150)S	110	110	(110)A	110	110H	110	110	120							
4									A	(120)A	110H	110H	[110]A	120H	110	120	A							
5									(110)SK	120HK	120HK	110K	110K	110K	110K	110K	(120)SK							
6									S	A	120	(120)B	(120)A	(120)A	[110]A	110	120							
7									A	A	110	110	(110)A	110	110	120	120							
8									A	A	B	(110)B	(120)B	B	B	B	B							
9									S	120H	(120)B	(130)B	(110)B	(110)B	110	110	110							
10									A	A	(110)A	(110)A	110	110	110	110	120							
11									S	110	110	110	110	110	100	(120)A	A							
12									S	120H	(120)B	(120)B	(110)A	110	A	A	A							
13									(120)S	(120)A	120	(120)B	A	A	(120)A	110	120H							
14									A	[100]A	100	110	110	[110]A	110H	110	120							
15									A	130	100	110	120	110	(110)A	110	110	S						
16									(110)S	A	A	120	110	110	110H	110	(120)S	(100)S						
17									A	(120)A	[120]A	110	(120)A	(130)A	A	A	A	S						
18									S	A	A	(120)A	110	110	110	120H	110H	(120)S						
19									110HK	110HK	110HK	(110)AK	110K	110HK	(110)AK	(120)AK	(110)SK	(110)SK						
20									(110)A	110H	110	110	110	110	110	110	120H	S						
21									120	(120)A	110H	100H	110	110	110	110	120	S						
22									(120)S	120	110H	110	110	110	110	110	120	S						
23									140	(120)A	110H	(110)A	(120)A	110H	110H	110	120	120						
24									120	[110]A	110H	110	100H	110	110H	110H	110H	C						
25									(120)S	110H	110H	100H	(110)A	(110)A	100H	[120]A	(120)A	A						
26									(110)S	M	A	110	110H	110	110	110	110	110						
27									110	120	110	110	110	110	110	110	120	S						
28									S	120	110	110H	110	110	110	C	C	C						
29									S	110	110	110	110	110	110H	(120)A	120H	S						
30									S	110	110	110	110	110	110	110	110	130						
31									110	110	100H	100H	100	110	110	110	110	110						
Median									(120)	120	110	110	110	110	110	110	120	110						
Count									14	24	26	30	30	29	28	27	25	7						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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

Form adopted June 1946

TABLE 79

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

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat. 38.7° N, Long. 77.1° W

75° W Mean Time

National Bureau of Standards (Institution)

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

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

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

Form adopted June 1946

TABLE 80

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

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), January, 1953 (Month)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	26 110	E	25 110	22Y 110	E	2.3Y (120)S	31 110	50 110	1.8 H 110	G	3.3Y 100	B	G	G	2.9 120	2.6 120	G	20 H 120	E	2.3Y 120	E	4.4Y 110	5.0 100	3.1 100
2	E	E	E	49Y 110	E	2.0Y 110	E	22Y (100)S	G	G	40 100	G	G	G	11.5 110	G	G	E	E	E	4.3Y 110	E	E	E
3	E	E	E	E	6.0 H 100	49 120	5.6Y 110	E	2.4Y 110	G	G	5.4Y 100	11.0Y 120	G	6.4 100	G	G	E	E	E	E	2.0 110	E	E
4	E	E	68Y 110	E	32Y 110	E	E	E	2.2 140	3.9 100	G	30 130	3.1 110	G	G	G	2.2 120	E	E	E	E	E	E	E
5	E	E	25Y 110	21Y H 110	E	31 110	1.7Y 110	E	G	G	G	G	G	G	G	G	G	1.3 140	E	6.6 110	3.0 110	B	B	B
6	B	B	B	E	25Y H 110	34Y 110	E	24Y 100	1.9 100	3.0 100	G	G	2.1 100	2.8 H 100	2.8 110	G	G	E	29Y 120	5.0 110	E	2.1 110	E	E
7	E	E	E	E	E	E	25Y 110	E	23 110	2.6 120	G	G	2.1 100	G	G	2.7 120	G	E	E	E	E	36Y 110	E	E
8	E	E	E	E	E	E	4.0Y 130	E	27 140	2.6 120	B	3.6Y 120	G	3.7 (120)B	G	G	G	E	E	2.3Y 100	E	E	E	28Y 110
9	33 100	1.3Y 100	2.0Y 100	E	21Y 110	40 110	E	E	G	G	G	G	G	G	3.5Y 120	G	G	E	E	E	E	E	E	E
10	E	E	3.2Y 110	E	E	30Y 100	3.1Y H 100	35Y 110	3.1Y H 110	3.6Y 110	34 110	30 110	G	4.2 120	G	2.9 120	1.9Y 100	2.0Y 100	38 110	2.2 120	24 110	33 110	E	E
11	2.3 110	E	E	33 120	2.5 110	24 110	E	E	3.3Y 110	G	G	G	G	G	G	2.1 100	3.2 100	35Y 100	31Y 100	2.2Y 100	E	2.2 100	E	E
12	E	E	3.9 H 120	33 110	35Y H 110	22 110	22Y 110	E	7.0Y 140	G	31 120	G	3.7 110	33 120	5.8Y 110	5.0Y 110	3.5Y H 110	58 110	4.9 110	4.5 100	E	E	E	E
13	E	E	E	E	E	22Y 110	3.8Y H 110	38Y 100	21 110	2.2 110	G	G	2.9 110	3.2 110	3.1 120	G	G	2.0Y 110	5.5 110	5.4Y 100	38Y 100	E	E	E
14	E	E	E	1.9 120	74 120	72 110	44 H 110	48 H 110	6.6Y 110	2.5 H 110	G	G	G	M	G	G	G	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	2.9 110	2.4Y H 110	G	G	G	G	1.9 100	2.6 120	3.3Y 120	G	2.4 100	2.3 100	24Y 90	E	E	E
16	E	3.0Y 100	1.7Y 100	E	E	E	E	E	G	2.5 H 100	2.9 H 100	2.0Y 100	1.6Y 100	G	G	G	G	G	E	E	E	E	E	E
17	E	E	E	E	E	2.3Y 120	E	24 110	24 110	2.1 110	4.3 100	G	2.7 H 100	2.9 H 100	2.9 H 100	2.6 100	2.3 H 100	G	E	4.4 110	7.5 110	E	E	24Y 110
18	E	E	E	E	E	23Y 120	E	E	(1.7)Y 110	2.2 100	2.5 100	2.0 100	G	G	G	G	G	G	E	3.0Y 110	1.9 110	3.5 110	36 110	36 110
19	E	2.5Y 120	E	E	E	E	E	E	G	G	G	1.9 100	G	G	2.7 110	2.1 100	22 130	34Y 100	2.0Y 110	E	28 120	4.9 110	25Y 120	2.4Y 110
20	2.3Y 110	E	E	E	E	E	3.8Y 110	E	2.0 H 110	G	G	G	G	G	G	3.8Y 120	24Y 120	G	E	E	E	E	E	E
21	E	E	4.4Y 110	E	E	E	E	E	1.9Y 110	3.3Y 110	G	G	G	G	G	G	G	1.9Y 110	E	E	E	E	E	E
22	E	E	E	E	E	4.3Y 120	E	E	G	2.1 110	G	G	G	G	G	G	G	G	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	G	25 120	G	2.6 110	2.4 110	G	G	G	G	G	E	31Y 100	24 100	E	E	1.9Y 100
24	E	E	E	E	E	E	E	E	G	25 110	G	G	G	G	G	G	G	C	C	C	E	E	E	E
25	3.2 110	21Y 120	E	E	E	E	E	E	G	G	G	G	3.7Y 110	2.2 100	G	2.4 100	2.3Y 100	33 H 100	2.1 110	E	E	E	E	E
26	E	E	E	E	E	32 H 110	E	E	G	M	33 110	G	G	G	G	G	G	G	E	E	E	E	23 110	E
27	E	E	E	E	2.1Y 110	31 H 110	2.7Y 110	3.0Y 110	G	G	G	G	G	G	G	G	G	G	E	3.3 H 110	E	E	E	E
28	E	E	E	E	E	2.2Y 120	86 110	24 110	G	18 110	G	G	G	G	G	C	C	C	C	E	2.4 130	E	E	E
29	E	E	E	E	2.5Y 110	2.2 110	E	E	G	G	G	G	G	G	G	2.1 110	G	G	E	E	E	E	30 110	E
30	E	E	E	E	70 H 120	70 110	2.5 110	E	G	G	G	G	G	G	G	G	G	G	E	4.9 110	2.7 110	E	E	E
31	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	36 110	E	E	E	2.4 100
Median	**	**	**	**	**	2.2	**	**	1.7	2.0	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	31	31	31	31	31	31	31	31	31	30	31	31	31	30	31	30	30	29	29	30	31	30	30	31

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1948 O - 702519

TABLE 81

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

Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2, ______ (Unit), January (Month), 1953

(Characteristic)

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., E. J. W.

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.1)FS	(2.1)FS	(2.1)FP	(2.1)FJ	(2.1)FP	(2.2)FP	A	(2.0)AP	2.5	2.6	(2.2)P	2.5	2.4	2.4	2.3	2.2	2.2S	2.4	2.2S	2.3	2.4F	2.1	2.1	2.2F
2	(2.1)JS	(2.1)JS	2.1F	(2.1)FJ	(2.1)FP	(2.1)FJ	(2.1)JS	(2.1)JS	2.5	2.3	2.5F	2.5	2.4	2.3	2.2	2.4	(2.5)JS	2.3	2.3	2.3	1.9F	(2.1)JS	2.1FS	2.1FS
3	2.1F	2.1F	2.2F	2.3F	2.3F	2.1F	2.4F	2.3F	2.6	2.6	2.4	2.6	2.4	2.3	2.4	2.5	2.4	2.3	2.1	2.4	2.2	2.0	2.1	2.2
4	2.0	(2.1)JS	(2.2)F	2.2F	2.3F	2.3F	2.3F	2.3F	2.5	2.7	2.6	2.6	2.5	2.5	2.4	2.3	2.4	2.4	2.4	2.3	2.1F	(2.1)JS	2.1	2.0S
5	2.2	2.0SK	K(2.0)FP	(2.2)PK	FK	K(2.1)FP	FK	K(1.9)FP	(2.1)PK	(1.4)SK	2.0K	1.9K	GK	GK	1.6K	1.9K	2.0K	2.3SK	2.1K	2.1K	AK	BSK	BK	BK
6	BK	BK	BK	K(2.0)JS	2.0SK	K(2.0)JS	(2.0)PS	2.2FS	2.4	2.4	2.5	2.3	2.2	2.1	2.3	2.3	2.3	2.3	2.4	2.1	2.0F	2.0F	2.1F	2.1F
7	(2.0)F	(2.0)F	2.0F	2.1F	2.0	2.1FS	2.4	2.2F	2.5	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.2	2.2	2.4FS	2.1FS	2.0	1.9	(2.0)JS
8	2.0	2.1	2.0	2.3	(2.3)JS	2.1F	2.0F	(2.0)FS	2.2	2.3	2.4	2.5	2.5	2.4	2.4	2.5	2.3	2.3	2.4	2.4	2.1	2.0	1.9	2.0
9	2.0	2.0	2.1	2.1S	(2.1)FS	2.2F	(2.1)FJ	(2.1)PS	2.4S	2.3	2.3	2.4	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.2	(2.2)S	2.1F	2.0F	1.9FS
10	1.9	2.0F	2.0SE	2.0F	2.3F	2.1F	2.3F	2.2F	2.5	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.0	(2.3)S	(2.4)S	2.0	2.2FS	2.3	2.0F
11	(1.9)FJ	2.0F	(1.9)FS	2.0F	2.0FS	2.0F	2.2F	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2F	2.3	2.3	2.3	2.3	2.3FS	2.3	2.1F	2.1F	2.0F
12	2.0F	2.0F	2.0F	2.1F	2.0F	2.0F	2.1F	(2.2)FS	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	(2.3)JS	2.1	2.0	2.1	2.0
13	2.0F	2.0F	2.0F	2.0	2.0	2.1F	2.0F	(2.1)JE	2.4	2.3	2.2	2.4	2.4	2.3	2.2	2.1	2.2	(2.3)S	(2.3)S	2.4	2.3	2.2	2.0	2.0F
14	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.0	2.4	2.5	2.3	2.4	2.4	M	2.1	2.3	2.3	2.3	2.2	2.4	2.2F	2.0FS	2.0F	2.1F
15	2.0F	2.0F	(2.0)F	(2.1)JF	(2.0)F	2.1F	(2.3)F	FS	2.4	2.5	2.5	2.6	2.4	2.4	2.3	2.5	2.4	2.4	2.2	2.4	2.2	2.2	2.2S	2.1S
16	2.2F	(2.0)FP	2.0F	2.0FS	2.1F	2.1F	2.4F	(2.4)FP	2.6S	2.5	2.5	2.5	2.4	2.3	(2.3)JS	2.4	2.5	2.3	2.3	2.4S	2.3F	2.1F	2.2S	2.2FS
17	(2.3)FS	2.2FS	(2.2)FP	(2.2)JS	2.2F	2.2S	2.3S	2.4	2.5	2.5	2.5	2.4	2.4	2.3	2.4	2.4	2.5	2.3	2.3	(2.4)JS	2.2S	2.2	2.1F	2.1S
18	2.0S	2.1	2.1	2.1S	2.1FS	2.3FS	2.2S	(2.3)PS	2.4	2.4	2.1	2.3	2.5	2.4	2.5	2.3	2.3	2.3	2.3	2.4	2.5S	2.1	2.1	(2.0)PA
19	2.0S	(1.9)FP	K(1.9)PF	K(1.9)JF	2.2K	K(2.2)PS	FK	K(2.0)FP	2.1FK	2.1K	2.1K	2.1K	2.2K	2.1K	2.2K	2.3K	2.3K	2.3SK	K2.3FS	(2.1)PF	(2.0)FS	(2.0)PS	1.9S	2.0S
20	2.0	(2.0)JF	(2.2)F	F	(2.0)FT	(1.9)FJ	(2.0)JF	2.3F	2.4F	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.4	(2.0)JS	2.0F	2.1FS
21	2.0F	2.0FS	2.0FS	2.1	2.1FS	(2.1)F	(2.1)JS	(2.1)JS	2.5	2.4F	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.4	(2.4)JS	2.3	2.0F	2.0F	(1.9)F
22	(2.0)F	(2.0)JF	1.8F	(1.9)FJ	2.0F	2.0	2.3	2.2F	2.7	2.4	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	(2.2)S	(2.4)FS	2.1F	(2.1)JS	(2.0)JS
23	(2.0)JS	(2.0)S	2.1	(2.2)JS	2.2	2.3S	(2.4)S	(2.3)JS	2.6	2.5	2.5	2.5	2.4	(2.4)JS	2.3	2.5	2.3	2.4	2.3	2.4	2.5	(1.8)JS	(2.0)JS	(2.0)JS
24	(2.1)JS	(2.0)JS	2.1S	2.1S	2.2	(2.2)JS	2.3S	2.2	2.6	(2.4)JS	2.4	2.3	(2.0)PJ	2.3	2.2	2.3	2.3	C	C	C	2.4	2.3	(2.0)PS	(2.0)PS
25	(2.0)PF	(2.0)FP	(2.2)FP	(2.2)FP	(2.1)FP	2.2F	2.1	(2.2)FS	2.2F	(2.7)JS	(2.1)H	2.3F	2.5F	2.5	2.3	2.3	2.3	2.4	2.3	2.3S	2.3S	2.2S	2.1F	(2.1)PS
26	(2.1)FS	(2.0)PS	2.0S	2.2F	2.2F	2.4F	(2.1)PS	(2.2)FP	2.4	2.4	2.3	M	2.3	2.3	2.2	2.2	2.3	2.3	2.1	2.3	2.3	2.1F	F	(2.0)JF
27	2.0	(2.0)JS	(2.1)F	(2.1)FP	(2.1)JF	AF	(2.2)JS	2.3	2.5	2.2	2.2	2.3	2.3	2.4	2.3	2.1	2.3	2.3	2.2	2.3	(2.3)PS	2.2F	2.3	2.0
28	1.9	2.0F	2.0F	(2.0)JF	F	F	A	(2.2)F	(2.2)F	2.5	2.4	2.3	2.2	2.3F	2.3	C	C	C	C	2.1	(2.5)SF	2.0	(2.1)FS	(1.7)SF
29	(2.0)JF	(2.0)PF	2.0F	2.0F	2.1	2.3	2.2	2.3	2.5	2.5	2.5	2.3	2.4	2.3	2.2	2.3	2.3	2.4	2.3	2.1	2.0F	2.3F	2.2FS	2.2F
30	2.0F	(2.0)JF	2.0	(1.9)JF	2.0F	(2.3)A	2.2F	(2.2)JS	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.0	2.0	2.0	1.9F
31	1.9	1.9	2.2	2.2	2.1	2.1	(2.0)JS	2.3	2.4	2.5	2.5	(2.2)JH	2.4	2.3	2.4	2.3	2.4	(2.4)JS	2.5	2.4	2.3	2.1	2.1F	FS
Median	2.0	2.0	2.0	2.1	2.1	2.1	2.2	(2.2)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.0
Count	30	30	30	30	29	29	27	30	31	31	31	30	31	30	31	30	30	29	29	30	30	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 82

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

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), January (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 38.7°N, Long 77.1°W

75°W Mean Time

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(3.1)FS	(3.1)FS	(3.1)PF	(3.1)FJ	(3.1)FP	(3.3)FP	A	(3.0)AP	3.5	3.6	(3.3)P	3.6	3.4	3.5	3.4	3.3	3.3S	3.4	3.2S	3.4	3.5F	3.1	3.1	3.2F
2	(3.1)JS	(3.1)JS	3.1F	(3.1)FJ	(3.1)FP	(3.1)FJ	(3.1)JS	(3.1)JS	3.5	3.3	3.6F	3.5	3.4	3.3	3.2	3.4	(3.6)JS	3.4	3.4	3.4	2.9F	(3.1)JS	3.1FS	3.1FS
3	3.1F	3.1F	3.2F	3.3F	3.4F	3.1F	3.5F	3.3F	3.7	3.6	3.4	3.7	3.5	3.3	3.5	3.5	3.5	3.4	3.1	3.5	3.2	3.0	3.1	3.2
4	3.0	(3.1)JS	(3.2)F	3.2F	3.3F	3.3F	3.3F	3.3F	3.6	3.8	3.7	3.7	3.5	3.6	3.5	3.4	3.4	3.5	3.5	3.4	3.1F	(3.1)JS	3.1	3.0S
5	3.2	3.0SK	K(3.0)FP	(3.2)PK	FK	K(3.1)FP	FK	K(2.8)FP	(3.1)PK	(2.1)SK	3.0K	2.8K	GK	GK	2.5K	2.8K	3.0K	3.3SK	3.1K	3.1K	AK	BSK	BK	BK
6	BK	BK	BK	K(3.0)JS	3.0SK	K(3.0)JS	(3.0)PS	3.2FS	3.5	3.5	3.6	3.4	3.2	3.1	3.3	3.3	3.4	3.4	3.5	3.1	3.0F	3.0F	3.1F	3.1F
7	(3.0)F	(3.0)F	3.0F	3.1F	3.0	3.1FS	3.4	3.2F	3.5	3.4	3.4	3.3	3.4	3.4	3.4	3.5	3.5	3.2	3.2	3.4FS	3.1FS	3.0	2.9	(3.0)JS
8	3.0	3.1	3.0	3.3	(3.3)JS	3.1F	3.0F	(3.0)FS	3.2	3.3	3.4	3.6	3.6	3.4	3.5	3.5	3.4	3.4	3.4	3.4	3.2	3.0	2.9	2.9
9	3.0	3.0	3.1	3.1S	(3.1)FS	3.3F	(3.1)FJ	(3.1)PS	3.5S	3.4	3.4	3.4	3.3	3.2	3.3	3.4	3.4	3.4	3.4	3.2	(3.2)S	3.1F	3.0F	2.8FS
10	2.8	3.0F	3.0FS	3.0F	3.3F	3.0F	3.3F	3.2F	3.6	3.5	3.5	3.3	3.3	3.4	3.4	3.5	3.4	3.0	(3.3)S	(3.4)S	3.0	3.2FS	3.3	3.0F
11	(2.9)JF	2.9F	(2.8)SF	2.9F	2.9FS	3.0F	3.2F	3.5	3.5	3.5	3.4	3.5	3.4	3.3	3.2F	3.4	3.3	3.3	3.3	3.3FS	3.4	3.1F	3.1F	3.0F
12	3.0F	3.0F	3.0F	3.0F	2.9F	3.0F	3.1F	(3.2)FS	3.5	3.5	3.5	3.5	3.3	3.4	3.3	3.4	3.4	3.3	3.4	(3.3)JS	3.1	3.0	3.1	3.0
13	2.9F	2.9F	3.0F	2.9	3.0	3.1F	3.0F	(3.1)JB	3.5	3.4	3.2	3.4	3.5	3.3	3.2	3.1	3.2	(3.3)S	(3.4)S	3.4	3.3	3.2	3.0	3.0F
14	2.9	2.9	3.0	3.1	3.0	3.1	3.2	3.0	3.4	3.5	3.4	3.4	3.4	M	3.1	3.4	3.4	3.3	3.2	3.5	3.2F	3.0FS	3.0F	3.0F
15	2.9F	3.0F	(2.9)F	(3.1)JF	(3.0)F	3.1F	(3.3)F	FS	3.4	3.5	3.5	3.5	3.5	3.4	3.3	3.6	3.5	3.5	3.2	3.5	3.2	3.2	3.2S	3.1S
16	3.2F	(3.0)FP	3.0F	3.0FS	3.1F	3.1F	3.5F	(3.5)FP	3.7S	3.6	3.6	3.6	3.5	3.3	(3.3)JS	3.5	3.6	3.4	3.3	3.5S	3.4F	3.1F	3.2S	3.3FS
17	(3.3)FS	3.2FS	(3.2)FP	(3.2)JS	3.2F	3.2S	3.3S	3.5	3.6	3.6	3.6	3.4	3.5	3.4	3.5	3.5	3.5	3.4	3.4	(3.5)JS	3.2S	3.2	3.1F	3.1S
18	3.0S	3.1	3.1	3.1S	3.1FS	3.3FS	3.3S	(3.4)PS	3.5	3.5	3.1	3.4	3.5	3.4	3.5	3.3	3.4	3.4	3.3	3.5	3.5S	3.1	3.1	(3.0)FA
19	3.0S	(2.8)FP	K(2.8)PF	K(2.7)JF	3.2K	K(3.2)PS	FK	K(3.0)FP	3.2FK	3.1K	3.1K	3.1K	3.2K	3.1K	3.2K	3.4K	3.4K	3.4SK	K3.3FS	(3.1)PF	(3.0)FS	(3.0)PS	2.9S	3.0S
20	3.0	(3.0)JF	(3.2)F	F	(3.0)FJ	(2.9)FJ	(3.0)JF	3.3F	3.4F	3.4	3.4	3.5	3.4	3.4	3.4	3.5	3.5	3.5	3.3	3.2	3.5	(3.0)JS	3.0F	3.1FS
21	3.0F	3.0FS	2.9FS	3.1	3.1FS	(3.1)F	(3.1)JS	(3.1)JS	3.6	3.5F	3.4	3.5	3.4	3.3	3.3	3.4	3.4	3.4	3.3	(3.5)JS	3.3	3.0F	3.0F	(2.9)F
22	(3.0)F	(3.0)JF	2.7F	(2.8)FJ	3.0F	3.0	3.4	3.2F	3.8	3.5	3.4	3.4	3.5	3.5	3.5	3.4	3.4	3.4	3.3	(3.2)S	(3.4)PS	3.1F	(3.1)JS	(3.0)JS
23	(3.0)JS	(3.0)S	3.1	(3.2)JS	3.2	3.3S	(3.4)S	(3.4)JS	3.7	3.6	3.6	3.6	3.5	(3.5)JS	3.4	3.6	3.3	3.5	3.4	3.5	3.6	(2.7)JS	(3.0)JS	(3.0)JS
24	(3.1)JS	(3.0)JS	3.1S	3.1S	3.2	(3.3)JS	3.4S	3.2	3.7	(3.5)JS	3.4	3.4	(3.0)PJ	3.4	3.3	3.3	3.3	C	C	C	3.4	3.3	(3.0)PS	(3.0)PS
25	(3.0)PF	(3.0)FP	(3.2)FP	(3.3)FP	(3.1)FP	3.2F	3.1	(3.3)FS	3.3F	(3.8)JS	(3.1)H	3.3F	3.5F	3.6	3.4	3.4	3.3	3.4	3.3	3.3S	3.4S	3.3S	3.1F	(3.1)PS
26	(3.1)FS	(3.0)PS	3.0S	3.2F	3.2F	3.5F	(3.1)PS	(3.2)FP	3.5	3.5	3.3	M	3.3	3.3	3.2	3.2	3.3	3.3	3.1	3.3	3.3	3.1F	F	(3.0)JF
27	3.0	(3.0)JS	(3.1)F	(3.1)FP	(3.1)JF	AF	(3.2)JS	3.3	3.6	3.2	3.2	3.3	3.3	3.4	3.3	3.4	3.3	3.4	3.2	3.3	(3.3)PS	3.2F	3.3	3.0
28	2.8	3.0F	2.9F	(3.0)JF	F	F	A	(3.2)F	(3.2)F	3.6	3.5	3.3	3.2	3.4F	3.3	C	C	C	C	3.1	(3.6)SF	3.0	(3.1)FS	(2.6)SF
29	(3.0)JF	(3.0)PF	3.0F	3.0F	3.1	3.3	3.2	3.4	3.6	3.6	3.6	3.3	3.4	3.3	3.2	3.4	3.5	3.5	3.3	3.1	3.0	3.3F	3.2FS	3.2F
30	3.0F	(2.9)JF	3.0	(2.9)JF	3.0F	(3.3)A	3.2F	(3.2)JS	3.5	3.4	3.3	3.3	3.2	3.2	3.4	3.4	3.5	3.5	3.4	3.3	3.0	2.9	3.0	2.8F
31	2.8	2.9	3.2	3.2	3.1	3.1	(3.0)JS	3.3	3.5	3.5	3.6	(3.2)JH	3.4	3.3	3.4	3.3	3.4	(3.5)JS	3.5	3.4	3.3	3.1	3.1F	FS
Median	3.0	3.0	3.0	3.1	3.1	3.1	3.2	(3.2)	3.5	3.5	3.4	3.4	3.4	3.4	3.3	3.4	3.4	3.4	3.3	3.4	3.2	3.1	3.1	3.0
Count	30	30	30	30	29	29	27	30	31	31	31	30	31	30	31	30	30	29	29	30	30	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 83

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

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), January (Month), 1953

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

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

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

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

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 702510

Form adopted June 1946

TABLE 84

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

IONOSPHERIC DATA

(M1500)E (Characteristic), ____ (Unit), January (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 38.7°N, Long 77.1°W

75°W Mean Time

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	(4.4)H	A	B	(4.3)B	4.2	4.4	A	(4.4)P							
2									S	4.1H	A	3.9H	4.1H	3.9	4.1	4.2	4.1H							
3									3.7H	3.8	4.2	4.1	4.2	4.0H	4.1	4.2	4.5							
4									A	(3.9)F	3.9H	(4.1)H	A	4.2H	4.1	4.1	A							
5									SK	3.6HK	4.0HK	(4.0)BK	(4.1)BK	4.0K	(4.1)PK	4.4K	(4.2)HK							
6									A	A	4.0H	4.0	(4.3)P	A	A	(4.2)P	4.4							
7									A	A	4.1	4.0	4.2	4.1	4.3	4.2	(3.9)F							
8									A	A	B	4.2	(4.2)P	B	B	B	B							
9									S	4.2H	4.2	B	(4.2)F	4.3	4.0	4.0	4.2							
10									A	A	4.3	(4.2)P	4.0	4.2	4.4	(4.1)P	(4.2)P							
11									S	4.2	4.2	4.0	4.3	4.4	4.3	4.1	A							
12									SH	4.2H	4.1	4.3	A	4.2	A	A	A							
13									4.0	4.2	4.1	4.1	A	A	4.2	4.4	4.2H							
14									A	A	4.1	4.2	4.0	M	4.2	(4.3)P	3.9							
15									A	4.0	4.1	4.1	4.1	(4.2)P	(4.3)F	4.4	4.5	S						
16									S	A	(4.4)A	4.3	4.3	(4.4)P	(4.3)P	4.3	4.4	S						
17									A	(4.2)H	(4.3)A	4.3	4.2	(4.2)A	A	A	A	S						
18									S	A	A	4.2	4.3	4.3	4.4	4.4H	(4.3)H	S						
19									(4.2)PK	4.2HK	(4.1)HK	4.2K	4.2K	4.3HK	AK	4.3K	4.1K	SK						
20									(4.3)A	(4.3)P	(4.2)P	4.2	4.3	4.3	4.3	4.2	4.2H	S						
21									(4.3)P	4.2	4.2H	4.1H	4.1	4.3	4.4	4.1	4.0	S						
22									4.0	4.3	4.0H	4.2	4.1	4.0	4.1	4.2	4.1	S						
23									4.0H	(4.1)H	4.0H	B	(4.1)P	4.0H	4.2H	4.2	4.2	S						
24									S	A	4.2H	4.1	4.1H	4.4	4.3H	4.3H	4.3H	C						
25									S	4.1H	4.2H	4.3H	4.3	4.3H	4.4H	A	(4.5)P	A						
26									S	M	A	(4.3)P	4.3H	4.1	4.4	4.3	4.3	S						
27									(4.5)S	4.0	4.1	4.2	4.2	4.2	4.3	4.3	4.1	S						
28									S	4.3	4.2	4.2H	4.2	4.2	4.3	C	C							
29									S	4.1	4.2	4.2	(4.2)P	4.2	4.2H	4.2	4.1H	S						
30									3.8	4.0	4.1	4.1	4.1	4.2	4.2	4.0	4.1	S						
31									4.4	4.0	3.9H	3.9H	4.1	4.3	4.3	4.3	3.9	S						
Median									4.1	4.2	4.1	4.2	4.2	4.2	4.3	4.2	4.2	—						
Count									10	22	26	28	28	27	26	25	25	—						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702510

Table 85

Ionospheric Storminess at Washington, D. C.

January 1953

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	2			3	3
2	3	2			3	4
3	1	2			2	2
4	1	3			1	2
5	4	6	0600	----	4	4
6	4	1	----	1100	2	3
7	1	1			2	2
8	1	2			3	1
9	2	2			2	2
10	2	2			2	1
11	2	2			2	1
12	2	1			2	1
13	2	1			2	3
14	1	1			3	2
15	1	2			1	1
16	1	1			1	1
17	1	2			1	1
18	1	1			2	3
19	3	5	0700	2400	5	3
20	3	3			4	2
21	2	2			3	2
22	3	2			2	1
23	2	2			2	0
24	3	3			3	2
25	1	3			2	4
26	1	3			5	4
27	2	2			4	4
28	3	2			3	4
29	2	2			4	3
30	2	3			3	2
31	2	3			3	2

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

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

----Dashes indicate continuing storm.

Table 86a

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

December 1952

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

Scales:

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

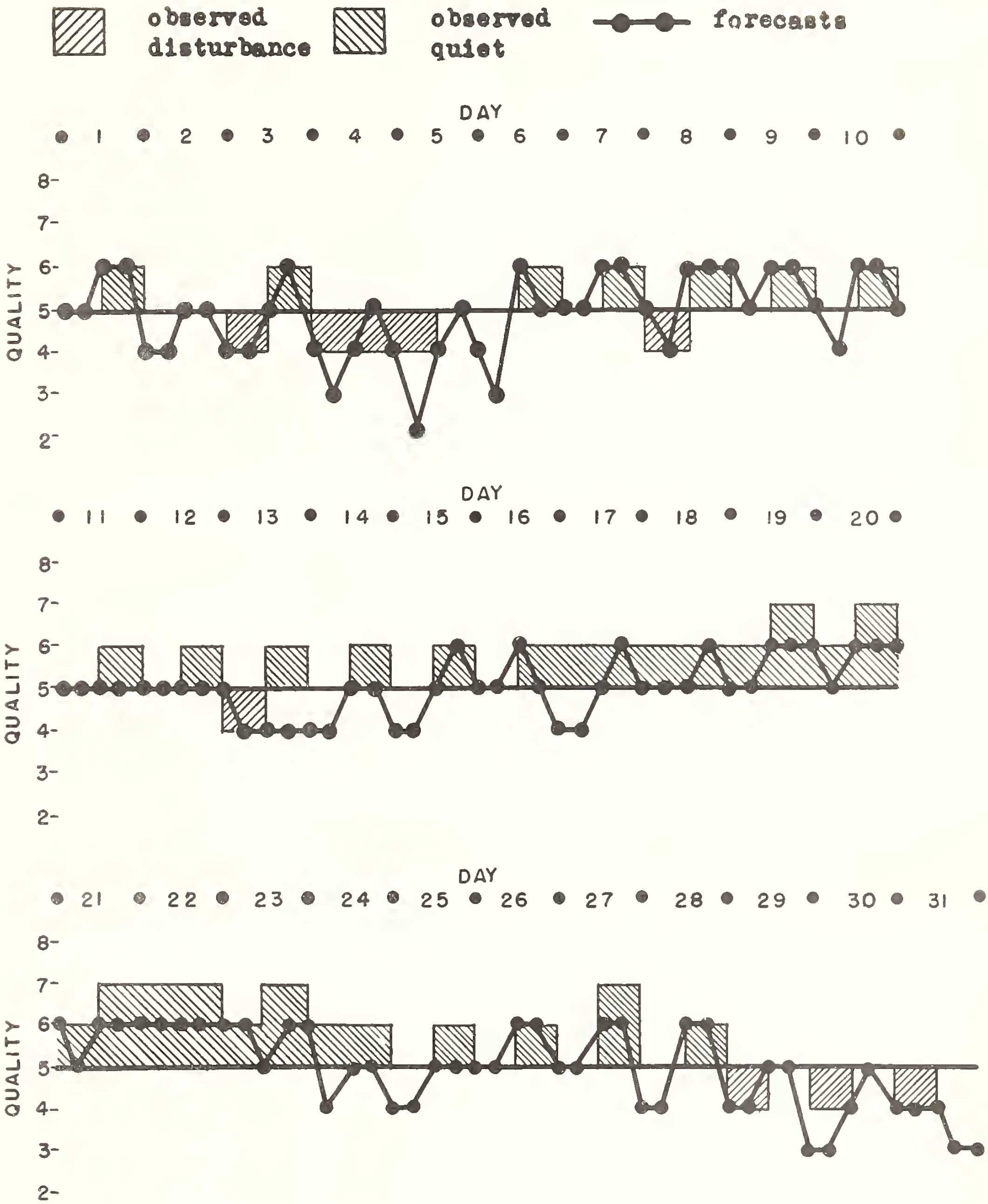
K-scale of Geomagnetic Activity
0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geqslant 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were $\geqslant 5$, or both $\leqslant 5$
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Table 86b

Short-Term Forecasts--December 1952



Outcome of Advance Forecasts (1 to 3 or 4 days ahead)--December 1952

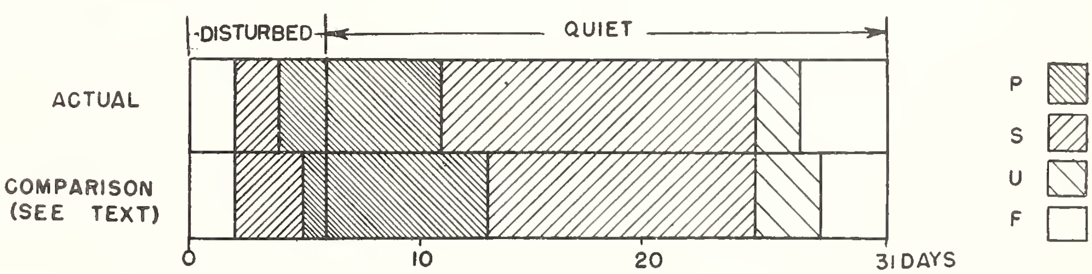


Table 87a

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
1953																																					
Jan. 4.7a	-	-	-	-	-	1	3	3	4	7	6	14	16	18	15	13	12	12	15	13	10	6	4	3	2	2	1	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	3	6	22	22	22	20	18	8	3	1	1	1	1	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	1	2	4	6	7	11	11	15	18	13	5	4	3	2	2	3	3	2	1	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	5	7	9	15	14	11	5	3	3	4	4	5	4	3	2	1	-	-	-	-	1
11.7	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	4	4	6	6	8	6	5	4	2	3	5	5	3	2[a]	1[a]	1[a]	-[a]	-[a]	-[a]	-[a]	-[a]
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	3	5	4	5	5	4	4	3	1	2	2	1	-	-	-	-	-	-	-	1
13.7	-	-	-	-	-	-	-	-	1	3	2	1	3	5	5	4	3	3	3	4	4	5	4	3	3	3	4	5	3	2	2	2	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	2	3	5	3	3	4	3	4	3	3	2	2	2	4	1	-	-	-	-	-	1	3	1	1	1	1	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	4	4	2	2	4	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	1	2	2	1	1	2	2	6	15	20	17	6	4	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	-	-
25.8	X	X	X	X	X	X	X	-	-	-	-	-	1	1	3	2	5	3	3	3	3	4	4	4	2	2	2	2	3	3	3	-	-	-	-	-	-
27.9	·	-	1	1	1	3	3	3	3	4	3	4	7	7	8	9	8	4	4	2	2	2	2	1	1	1	1	1	1	1	1	-	-	-	-	-	-
31.9	-	-	-	1	2	5	5	6	5	4	3	6	12	18	21	20	12	17	16	10	10	10	11	7	4	3	2	2	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
1953																																					
Jan. 4.7a	2	5	4	2	2	2	2	1	1	1	2	3	3	7	4	8	6	3	16	14	6	13	12	7	5	3	3	3	4	2	2	1	1	2	2	3	3
7.7	2	2	2	2	1	1	1	1	1	2	4	4	4	5	3	2	6	14	12	4	16	18	4	5	5	5	4	4	2	2	1	1	1	2	2	2	2
9.7	2	2	1	2	1	1	2	3	3	4	4	5	3	2	1	5	4	2	1	2	9	6	3	3	3	2	2	1	1	1	1	1	1	1	1	2	2
10.7	3	5	4	3	5	3	2	3	4	5	6	6	8	7	10	10	5	8	6	12	12	6	7	8	6	6	7	4	3	2	3	2	3	2	4	4	4
11.7	5	4	2	3	2	2	3	4	2	4	3	4	5	3	4	3	4	4	5	5	4	2	3	4	6	5	3	2	3	3[a]	2[a]	2[a]	2[a]	2[a]	2[a]	2[a]	2[a]
12.7	4	3	3	3	2	1	1	1	1	1	1	3	5	3	3	4	3	4	4	4	3	3	3	4	6	4	2	1	1	1	2	2	3	3	2	2	2
13.7	4	4	3	3	2	3	3	3	4	4	5	4	5	3	4	3	3	4	5	4	4	3	3	5	7	4	3	3	3	3	3	3	3	4	4	4	4
16.7a	5	5	6	3	4	3	3	2	2	2	2	3	3	3	4	6	8	6	7	9	8	7	8	6	7	7	6	7	4	3	3	3	3	4	4	4	4
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24.8	4	5	5	3	1	1	1	2	3	5	6	6	7	7	7	17	21	14	3	5	4	4	4	4	3	3	3	2	3	2	2	3	3	3	3	3	4
25.8	X	X	X	X	X	X	X	3	3	3	5	2	3	3	5	7	8	5	3	4	4	3	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2
27.9	3	4	3	2	1	1	1	1	1	1	1	1	1	2	5	5	5	5	5	6	5	4	1	3	3	3	3	2	2	2	2	2	2	2	2	3	3
31.9	3	4	3	2	1	1	1	1	1	1	1	1	2	10	7	5	3	8	14	9	5	10	9	8	8	7	3	5	3	4	3	4	4	3	4	4	4

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
1953																																					
Jan. 4.7	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	X	X	X
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	3	4	5	3	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	3	3	2	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]	-[a]
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
25.8	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
31.9	-	-	-	-	-	-	-	-	-	-	1	1	2	4	3	3	3	3	2	2	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-

Table 87b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	50	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 4.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	1	3	4	3	1	2	1	1	2	1	1	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	5	4	9	8	5	2	1	1	2	2	1	1	1	1	1	1	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	10	20	10	3	1	1	1	1	1	1	1	-	-	-	-	-	-
10.7	1	1	1	1	-	-	-	-	1	1	1	1	2	4	4	2	2	2	2	3	4	14	14	6	4	3	2	3	3	3	2	3	1	2	-	-	-
11.7	-a	-a	-a	-a	-a	-a	-a	1	1	2	3	3	4	3	4	4	3	4	3	5	6	8	7	4	5	3	4	4	4	4	3	2	2	1	-	-	-
12.7	1	1	1	1	-	-	-	-	-	1	1	1	2	3	2	2	3	4	3	4	7	7	5	3	3	2	2	2	2	1	1	1	1	-	-	-	-
13.7	-	1	1	2	2	2	3	3	4	4	4	5	5	5	5	6	5	5	5	10	13	12	11	11	11	9	9	6	4	4	3	3	1	1	1	-	-
16.7a	-	-	-	-	-	1	1	1	1	1	1	3	3	4	4	5	8	6	6	9	12	22	33	25	20	12	7	5	4	4	6	3	2	1	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	5	8	8	8	6	5	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	1	4	3	4	4	5	4	4	4	8	15	17	9	5	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27.9	-	-	-	-	-	-	-	-	-	-	3	2	2	2	3	3	2	1	1	4	4	3	3	3	2	2	2	2	2	1	-	-	-	-	-	-	-
31.9	-	-	-	-	-	-	-	-	1	3	2	-	-	-	-	-	-	-	-	1	3	3	5	4	4	4	3	4	4	4	3	-	-	-	-	-	-

Table 88b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 4.7a	3	4	3	4	4	4	1	1	1	1	1	1	3	2	2	3	2	2	2	8	10	8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2
7.7	2	2	2	2	2	2	1	1	1	2	3	4	3	3	4	4	3	5	4	3	7	5	4	2	2	2	3	1	1	1	1	1	1	2	3	3	2
9.7	2	3	3	3	3	3	2	2	3	3	3	3	5	5	5	5	4	6	12	6	15	21	18	9	3	5	5	3	2	1	1	1	1	3	2	3	2
10.7	4	5	5	5	4	3	2	2	2	3	4	4	3	4	3	3	2	4	14	8	18	20	17	12	9	9	9	7	4	3	3	5	4	3	4	4	3
11.7	2a	1a	2a	1a	1a	3a	2a	2	2	2	2	2	3	2	3	3	3	5	4	5	8	6	5	3	4	5	4	4	2	1	1	1	2	3	3	4	5
12.7	2	2	2	3	2	1	1	1	1	1	1	3	2	2	2	2	2	4	4	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	3	3	4
13.7	4	4	4	4	4	3	3	2	3	3	4	3	3	2	3	3	2	2	3	3	2	4	4	5	4	3	3	3	2	2	2	2	3	3	3	5	4
16.7a	4	3	3	4	3	4	3	3	2	3	5	6	4	2	3	4	6	10	7	3	5	20	28	3	5	2	2	2	2	2	3	2	4	5	5	5	5
20.7a	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-
24.8	4	4	4	4	4	5	5	4	4	4	5	5	6	6	6	5	12	9	4	9	9	9	9	9	9	9	9	6	4	4	4	3	3	3	4	5	4
25.8	2	1	1	2	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27.9	3	3	3	3	3	3	3	2	2	3	3	3	3	3	2	2	3	2	3	2	2	2	2	2	1	1	1	1	1	1	1	3	3	3	3	3	3
31.9	4	4	4	4	4	4	4	5	3	3	3	3	3	3	3	3	6	6	5	7	9	7	3	3	4	6	4	4	2	2	2	2	2	2	2	4	3

Table 89b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 4.7	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	X	X	X
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-a	-a	-a	-a	-a	-a	-a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	5	8	6	4	3	2	1	1	1	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Yellow line (5694A): Jan. 13.7, possible faint yellow line at N35 west limb; Jan. 27.9 very faint yellow line at S50 east limb.

Table 90a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8a	-	-	2	2	3	3	4	4	5	6	7	7	8	16	28	41	23	13	8	6	7	8	5	5	4	5	5	4	3	2	3	2	-	-	-	-	-
3.7	-	-	2	2	2	3	3	5	7	8	5	8	12	22	34	40	36	12	12	13	10	9	6	3	4	5	3	3	2	2	3	3	2	2	2	-	-
4.7	-	-	-	-	2	2	4	5	5	5	5	8	14	23	32	34	23	18	20	26	16	11	10	5	4	3	5	3	2	2	3	3	2	-	-	-	-
5.9	-	-	-	2	2	2	2	5	6	4	5	8	10	11	11	13	16	23	39	41	26	20	18	15	5	4	4	4	3	3	3	2	2	2	-	-	-
8.7	-	-	-	-	2	2	2	2	3	3	3	3	3	2	3	3	11	20	26	28	32	23	18	14	10	7	5	5	5	4	3	2	2	2	-	-	-
9.7	-	-	-	2	2	2	3	3	3	4	4	4	4	5	5	7	11	16	22	20	38	36	22	13	10	5	4	6	6	5	4	3	2	2	-	-	-
10.7	2	-	-	2	2	2	2	2	3	3	3	3	3	2	3	3	4	5	11	12	20	18	16	13	5	4	4	4	5	4	4	3	2	-	-	-	-
11.7	-	-	-	-	-	-	-	2	2	2	3	4	4	4	4	5	5	6	8	11	12	8	5	5	3	3	3	5	5	4	4	3	2	-	-	-	-
15.8	-	-	-	-	2	3	3	3	4	5	6	6	5	5	5	4	5	5	5	3	3	4	4	3	3	3	3	3	3	3	3	3	3	2	2	-	-
17.8	-	-	-	-	-	-	-	2	3	5	5	4	4	5	3	4	5	4	4	2	13	4	5	2	2	3	4	3	3	4	3	3	3	2	2	-	-
20.7	-	-	-	2	2	2	5	8	11	10	10	11	7	4	5	11	14	11	8	3	2	2	2	3	3	2	3	3	2	3	3	2	2	-	-	-	-
21.7	-	-	-	-	-	2	4	5	6	8	5	4	4	3	7	11	10	6	4	4	3	3	2	2	3	3	3	2	2	3	2	2	2	3	2	-	-
23.9	-	-	-	-	-	2	2	3	3	3	3	3	3	3	4	5	12	20	14	11	4	3	3	3	3	3	2	3	4	4	3	3	3	3	3	3	-
24.7	-	-	-	2	3	3	3	3	3	4	4	3	3	3	8	16	22	32	16	10	6	5	5	5	4	4	4	3	5	4	4	3	2	-	-	-	-
25.7	-	-	-	-	2	3	3	4	4	5	5	3	3	5	5	7	11	13	14	8	6	5	5	5	4	5	5	4	5	5	5	4	3	-	-	-	-
26.7	-	-	-	-	3	3	3	3	3	4	3	3	4	5	7	8	8	9	7	4	3	4	3	3	3	2	2	3	2	2	2	2	2	-	-	-	-
27.8	-	-	-	-	-	2	3	5	7	8	7	8	9	11	13	13	12	11	5	4	3	3	3	3	3	3	4	3	3	4	5	3	2	2	2	-	-
28.7	-	-	-	-	-	-	3	5	7	8	8	11	13	17	20	20	19	18	11	6	5	5	5	4	3	3	4	3	4	4	4	3	-	-	-	-	-
29.7	-	-	-	-	2	3	8	9	11	8	8	11	14	21	22	20	19	16	11	8	11	8	5	5	4	4	3	4	4	3	2	2	-	-	-	-	-
30.7	-	-	-	-	3	5	14	11	9	8	9	14	18	30	28	28	23	16	14	14	13	12	9	8	5	5	3	3	4	5	3	3	3	2	2	2	-
31.7	-	-	-	-	2	3	7	8	8	7	8	11	16	32	36	32	19	16	18	16	11	12	14	13	11	6	5	4	5	4	4	4	4	3	2	2	-

Table 91a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8a	4	4	3	3	3	4	3	3	2	2	3	2	3	3	14	24	24	3	3	4	14	16	5	5	3	5	4	3	2	3	3	2	2	2	3	3	2
3.7	5	4	3	4	4	4	2	3	3	2	2	3	2	2	22	20	18	3	4	5	8	7	7	5	5	2	3	3	4	3	2	2	-	-	2	3	3
4.7	4	3	4	4	4	4	3	2	2	2	2	-	3	5	16	14	8	4	11	14	8	8	9	8	7	3	3	4	4	3	2	2	2	3	2	2	3
5.9	5	3	4	4	4	5	2	3	2	3	3	4	4	5	5	5	4	2	11	23	11	20	16	14	4	2	3	2	3	-	2	2	2	2	3	3	3
8.7	2	3	2	3	2	3	3	2	2	2	2	4	4	5	5	4	3	11	7	4	11	13	14	3	3	3	2	2	-	2	2	2	-	2	2	2	2
9.7	2	4	3	4	4	4	3	3	5	4	4	8	10	8	3	5	8	5	4	3	8	11	6	5	3	4	3	3	2	2	2	2	2	3	3	3	3
10.7	3	4	4	3	5	3	4	4	5	5	6	6	7	7	8	8	10	8	7	5	6	6	5	4	7	5	5	3	4	3	2	2	3	2	3	3	3
11.7	4	5	4	4	5	4	4	5	5	5	5	4	5	8	9	8	6	9	8	9	6	6	5	5	5	8	8	5	3	3	4	2	3	2	2	2	2
15.8	3	3	5	5	5	5	3	3	3	3	2	3	2	2	2	3	4	5	6	4	5	5	4	3	4	3	3	2	2	-	2	2	2	2	3	2	2
17.8	4	5	5	5	4	4	3	3	2	3	4	4	4	4	5	5	8	11	7	14	16	8	5	4	4	4	5	5	3	2	3	3	3	3	2	2	3
20.7	4	3	3	3	5	5	2	2	2	3	2	3	4	4	3	4	3	4	6	7	8	7	5	5	5	4	6	5	3	4	2	2	2	2	3	3	3
21.7	4	3	4	3	4	3	3	3	3	2	3	3	4	5	4	5	11	11	8	8	5	6	6	7	7	6	5	5	3	2	2	2	3	3	3	2	3
23.9	3	2	3	3	2	3	3	3	2	3	3	3	4	4	5	4	12	16	22	11	11	6	5	3	2	2	3	2	2	2	3	-	-	-	2	2	2
24.7	4	3	4	4	4	3	3	2	3	3	2	3	4	5	8	7	14	26	25	10	8	5	8	5	4	4	4	3	2	2	2	2	3	2	3	3	3
25.7	4	3	4	4	3	2	3	3	2	4	5	8	7	7	5	8	11	13	12	8	5	6	5	4	3	3	2	2	3	2	3	2	-	-	3	2	3
26.7	3	2	2	3	3	2	3	3	2	2	3	3	3	2	3	3	4	5	5	4	3	3	3	3	3	4	3	3	2	2	2	3	2	3	3	2	2
27.8	5	5	8	4	3	3	3	3	2	3	2	3	4	2	5	7	8	5	8	8	6	5	4	3	4	3	4	3	2	2	2	2	3	2	2	3	3
28.7	3	3	3	4	3	3	3	2	2	3	3	3	2	3	5	15	11	8	8	8	9	8	5	4	3	3	4	5	4	3	2	2	3	2	2	3	3
29.7	3	3	4	4	3	2	2	-	-	2	-	-	-	2	8	20	8	2	3	5	8	5	4	3	3	4	5	4	3	2	2	2	2	3	2	2	3
30.7	3	3	3	4	3	2	2	2	-	-	3	2	2	6	23	16	3	2	3	8	9	9	7	5	3	3	4	5	2	3	2	-	-	3	2	2	3
31.7	2	2	3	3	3	3	2	2	2	2	-	2	-	6	14	11	5	4	12	11	4	5	4	4	4	4	2	3	3	3	3	2	2	2	3	2	3

Table 92a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	5	7	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	5	3	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	4	4	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	4	4	5	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	5	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	2	2	3	4	4	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	2	3	4	5	5	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	2	2	3	3	5	5	4	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8	-	-	-	2	2	2	3	3	4	4	4	5	3	3	3	4	3	3	3	4	5	5	5	6	6	5	5	5	5	7	8	4	3	2	2	-	-
3.7	-	-	-	-	2	2	2	3	4	4	3	3	2	2	3	3	2	2	3	3	3	5	9	8	8	5	4	4	5	5	8	3	2	-	-	-	-
4.7	-	-	-	-	2	3	2	3	3	2	2	2	2	2	3	3	3	3	2	2	3	6	8	7	5	4	4	4	3	3	3	2	2	2	-	-	-
5.9	-	-	-	-	-	2	2	2	3	2	3	2	2	2	2	3	2	3	2	3	5	6	11	8	7	5	4	4	4	5	3	2	2	-	-	-	-
8.7	-	-	-	2	2	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	5	12	14	12	10	4	4	5	3	3	3	3	2	-	-	-	-
9.7	-	-	-	-	-	-	-	2	3	3	4	4	4	3	4	4	5	4	5	5	14	36	42	20	11	5	5	4	3	4	3	3	2	2	-	-	-
10.7	-	-	-	-	2	3	2	2	3	3	3	3	3	3	4	3	3	3	4	5	6	13	14	11	4	3	3	4	3	4	3	3	3	2	2	2	2
11.7	-	-	-	-	-	-	-	-	2	2	3	4	5	5	5	5	5	8	7	5	6	8	9	8	7	5	3	4	5	5	5	4	3	2	2	-	-
15.8	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2	2	4	5	5	5	6	14	22	30	36	20	14	5	4	5	5	4	3	2	2	-	-
17.8	-	-	-	-	2	2	2	3	3	3	3	3	3	4	5	5	8	13	14	15	17	20	23	28	32	20	16	5	4	4	3	3	2	2	2	-	-
20.7	-	-	-	-	-	2	2	2	3	7	7	8	7	7	11	18	36	39	41	42	43	44	23	16	10	8	5	4	3	3	3	2	2	-	-	-	-
21.7	-	-	-	-	2	2	2	3	5	7	7	5	4	5	8	11	36	40	44	43	41	39	16	11	5	3	2	2	3	3	3	3	3	2	2	-	-
23.9	-	-	-	-	-	-	-	-	3	3	3	3	3	3	4	5	14	23	14	12	7	5	4	3	3	3	3	3	2	2	-	-	2	2	3	3	-
24.7	-	-	-	-	-	2	2	2	3	4	4	5	5	6	8	18	23	23	22	17	10	7	5	3	2	2	2	2	-	2	-	-	3	2	2	-	-
25.7	-	-	-	-	-	-	2	3	4	4	5	5	4	4	5	8	11	10	7	5	5	4	4	3	3	2	2	3	3	3	2	2	2	2	-	-	-
26.7	-	-	-	-	-	-	-	2	3	4	5	5	4	4	5	5	5	5	5	4	4	5	4	4	4	3	3	2	2	3	2	3	3	3	3	-	-
27.8	-	-	-	-	-	2	2	3	3	4	5	4	3	3	3	4	4	4	2	2	3	4	5	5	5	4	3	2	2	2	3	3	3	2	2	-	-
28.7	-	-	-	-	-	2	2	2	2	2	3	4	4	4	4	5	5	4	3	2	2	3	5	4	3	3	2	3	3	3	4	3	3	3	2	-	-
29.7	-	-	-	-	-	-	-	-	2	2	3	4	3	3	3	2	2	2	-	-	-	3	3	4	5	4	4	4	4	3	4	3	3	2	2	-	-
30.7	-	-	-	-	-	-	-	-	3	4	5	3	3	2	2	2	2	2	2	2	3	3	3	4	5	4	3	2	3	3	3	2	2	2	2	-	-
31.7	-	-	-	2	2	2	2	2	2	3	3	3	2	-	-	-	2	2	2	3	2	3	3	4	4	4	4	4	4	4	3	3	3	2	2	2	-

Table 91b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8	2	3	2	2	2	3	2	3	2	3	3	3	3	3	3	4	3	5	5	4	5	5	5	3	2	3	2	2	2	2	3	2	3	3	3	4	4
3.7	3	4	2	3	3	2	3	2	2	2	2	3	5	4	4	5	4	5	6	7	8	11	14	10	5	5	4	3	3	3	2	2	3	3	4	4	5
4.7	3	3	3	2	2	2	3	3	3	2	3	4	5	4	4	4	8	7	7	8	8	14	15	5	5	6	4	3	2	2	2	2	2	2	5	5	4
5.9	3	3	2	2	2	3	2	2	3	2	3	5	4	5	3	3	5	6	8	7	3	12	5	2	3	3	3	2	2	3	2	3	3	4	4	3	5
8.7	2	-	2	2	2	3	3	2	2	2	3	3	3	3	4	5	4	4	5	5	7	8	14	11	7	3	3	2	-	2	3	2	2	3	2	3	2
9.7	3	2	2	2	3	4	3	3	3	3	3	4	5	6	6	6	6	6	11	14	13	18	23	22	14	10	8	7	5	3	3	3	2	3	3	4	2
10.7	3	3	3	3	2	3	3	3	3	2	3	2	3	5	4	5	6	7	12	8	15	14	16	11	6	11	10	8	5	3	3	2	-	3	3	3	3
11.7	2	2	3	3	3	3	3	3	2	3	3	3	5	4	4	5	5	5	8	7	7	8	7	6	5	8	7	6	5	3	3	2	2	3	4	2	4
15.8	2	3	2	3	3	3	2	3	2	2	3	3	4	3	3	2	3	4	4	4	2	3	20	23	5	3	2	3	2	2	3	3	3	3	3	2	3
17.8	3	2	2	2	3	3	3	3	3	3	4	5	4	3	3	4	11	9	16	14	13	10	14	16	5	3	3	2	2	2	4	3	4	4	4	3	4
20.7	3	2	3	3	2	3	3	3	3	5	4	4	3	4	3	2	8	20	12	8	7	5	3	2	5	7	7	8	5	3	2	3	4	5	4	4	4
21.7	3	3	2	2	2	3	4	3	3	5	4	4	3	2	2	11	26	20	18	3	5	5	3	3	5	6	5	6	4	3	3	3	3	4	3	4	4
23.9	2	2	2	2	-	-	2	3	3	2	3	2	2	3	3	3	11	7	3	3	3	4	4	4	3	3	3	4	2	2	3	2	3	3	3	4	3
24.7	3	3	2	3	3	2	4	2	4	3	3	3	3	5	4	4	8	11	7	5	8	9	8	8	7	5	6	5	5	4	3	3	2	2	3	3	4
25.7	3	3	2	2	3	2	3	3	3	2	2	3	3	5	5	4	3	5	6	7	7	8	9	7	4	5	6	4	2	2	2	3	3	3	4	4	4
26.7	2	2	2	3	3	3	3	3	2	3	2	3	5	6	3	2	4	4	5	4	4	3	4	4	3	3	3	2	2	2	-	2	4	4	3	3	3
27.8	3	3	2	3	3	3	3	2	2	-	2	3	5	5	4	2	4	5	5	4	3	3	3	3	3	3	4	4	3	2	3	2	2	3	3	4	5
28.7	3	2	3	3	3	2	4	-	2	2	2	3	4	3	2	4	5	6	7	5	5	4	5	5	4	3	5	3	2	3	2	3	3	3	4	3	3
29.7	3	3	2	2	2	3	3	3	3	2	3	4	3	2	3	4	4	4	5	6	5	5	4	3	3	2	3	2	2	-	2	3	3	3	3	2	3
30.7	3	3	2	3	4	3	2	3	3	3	3	3	4	4	4	3	3	4	6	8	9	11	8	5	5	5	4	4	3	3	2	3	3	3	3	4	3
31.7	3	3	2	2	2	3	3	3	3	3	4	4	5	4	5	2	4	4	5	5	5	5	4	2	2	3	2	3	2	3	2	2	3	2	2	3	2

Table 92b

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

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Jan. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	3	3	3	4	4	3	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	5	6	5	4	3	3	2	2	-	-	-	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	5	4	3	2	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	5	5	5	5	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	4	5	6	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 93

Zürich Provisional Relative Sunspot Numbers

January 1953

Date	R_Z*	Date	R_Z*
1	16	17	37
2	15	18	30
3	13	19	25
4	24	20	17
5	24	21	14
6	35	22	18
7	34	23	8
8	33	24	8
9	44	25	0
10	50	26	0
11	57	27	0
12	59	28	0
13	60	29	0
14	64	30	0
15	60	31	0
16	46	Mean:	25.5

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

Table 94

American Relative Sunspot Numbers

December 1952

Date	R_A:*	Date	R_A:*
1	11	17	68
2	17	18	68
3	14	19	59
4	15	20	45
5	29	21	40
6	36	22	28
7	39	23	25
8	51	24	26
9	29	25	13
10	25	26	19
11	33	27	7
12	53	28	0
13	53	29	3
14	65	30	12
15	66	31	22
16	69	Mean:	33.5

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

Table 95

Solar Flares, January 1953

Observatory	Date 1953	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. 6	1520	1645	85	121	S12	W46	1554	15	4	1	
"	9	1645	1705	20	16	S11	E76	1654	12	7	1 -	
"	9	1720	1740	20	36	S11	E76	1727	14	8	1 -	
"	9	1855	1920	25	22	S11	E76	1906	12	7	1 -	
"	9	2035	2106	31	27	S11	E76	2055	17	5	1	
Sac. Peak	9	2054	2200	66	230	N18	W02	2102	16	2	2	
"	13	1953	2006	13	180	S03	E22	1955	15	4	1	
"	13	2035	2042	7	160	S03	E22	2038	10	8	1	

Sac. Peak = Sacramento Peak

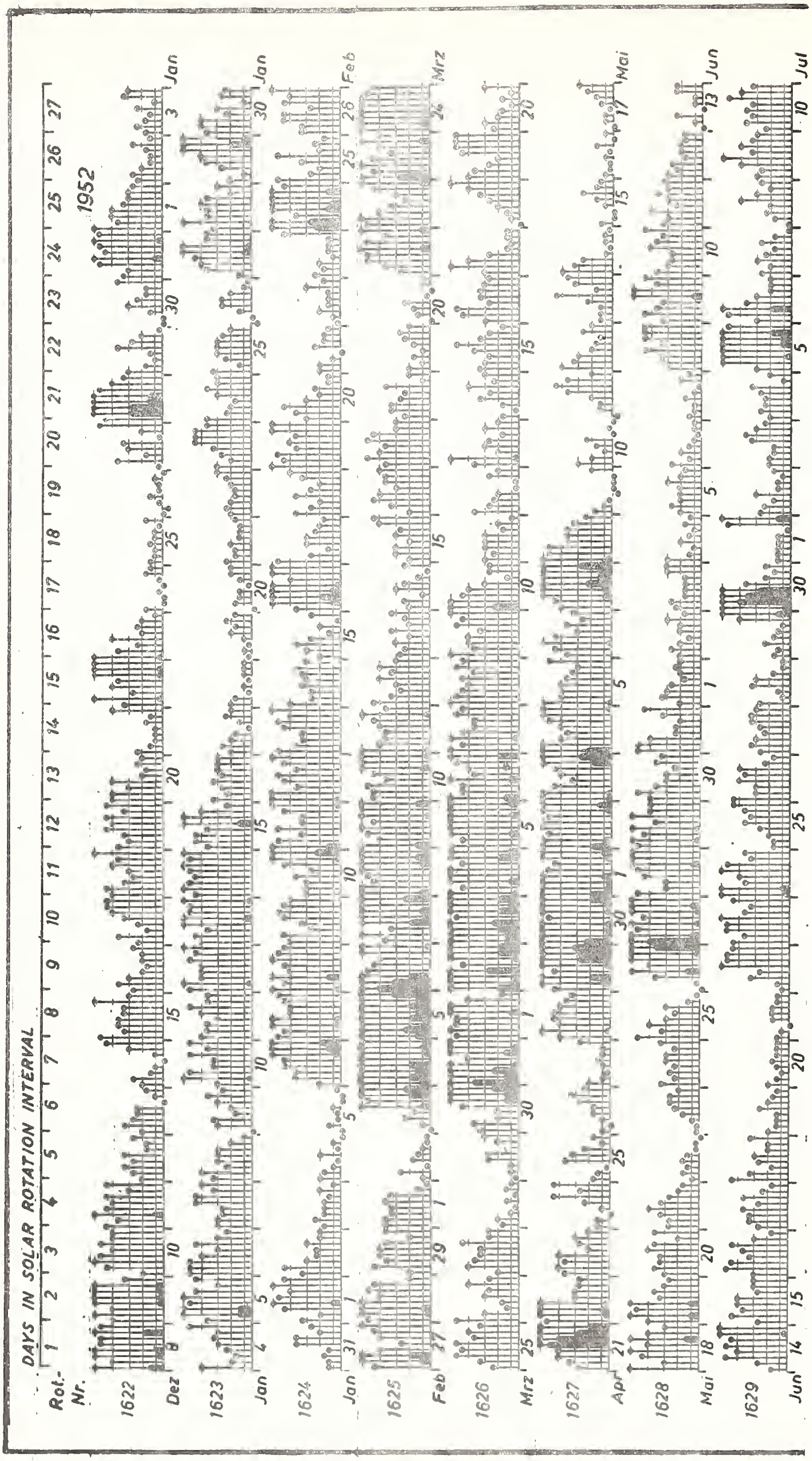
B Flare began before given time
A Flare ended after given time
Q Time reported as questionable

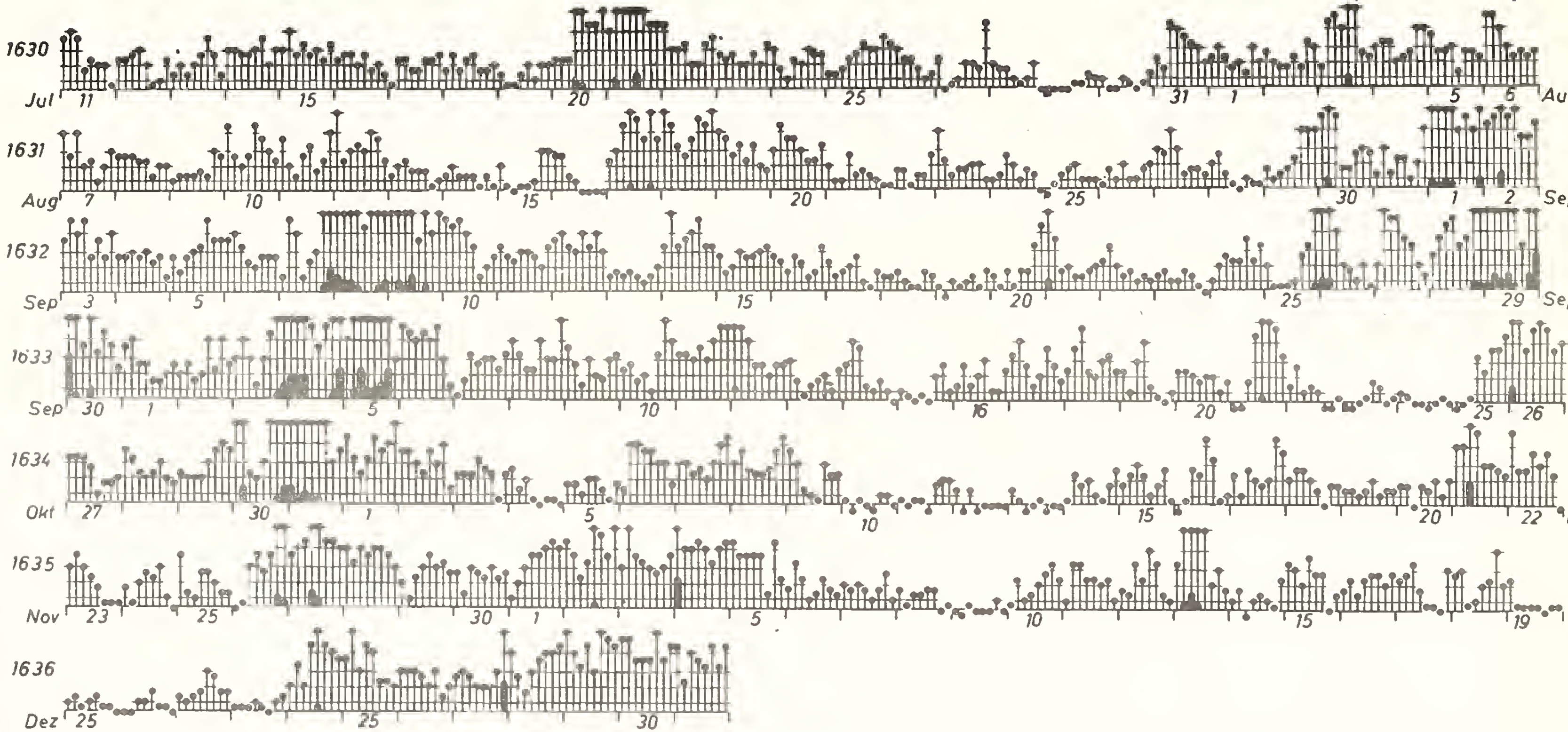
Table 96

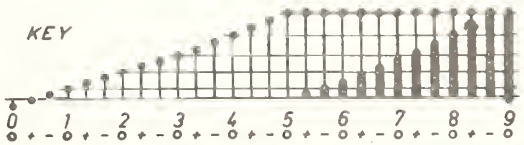
Indices of Geomagnetic Activity for December 1952

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

Gr. Day 1952	C	Values Kp three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	1.0	1o	2o	3o	4-	4-	4o	4+	4o	26-	Five
2	1.4	4+	4-	2+	3+	5+	5-	4-	5o	32+	Quiet
3	1.0	3o	5o	4-	3+	3o	3-	3o	4-	27+	
4	1.4	7-	4o	4o	4+	4o	3+	4o	4+	35-	9
5	1.0	4+	4-	4-	4-	4-	1+	4+	2+	27o	19
											20
6	0.2	2-	3+	2+	1o	1+	2+	2-	1+	15o	21
7	0.2	2o	2-	2o	2-	1o	2-	3-	1o	14-	23
8	0.1	2-	1-	1+	1+	2-	2-	0+	1-	9+	
9	0.0	0+	0o	1-	0+	0+	0+	1o	0+	3+	
10	0.6	1-	2+	1o	1+	2o	3-	3+	2+	16-	
11	0.5	1o	3+	3+	2+	2+	2o	2+	1o	18-	Five
12	0.6	2-	1+	3+	2+	4o	3+	1+	1o	18+	Disturbed
13	1.2	3+	5+	6o	5+	5o	2o	3o	2-	32-	
14	0.1	1o	2-	0o	1o	1+	1o	0+	2+	9-	2
15	0.7	3+	3o	2o	4-	3-	3-	0+	1+	19o	4
											13
16	0.6	2-	2+	1+	2+	3-	3-	2o	3-	18-	29
17	0.4	2+	3-	3+	2-	1-	1-	0+	3o	15-	30
18	0.7	3-	3o	1-	1o	2o	2+	4o	2o	18-	
19	0.1	2+	1-	1-	1-	1-	0+	1-	1-	7-	
20	0.0	1o	1+	1-	1o	1+	1-	1-	0+	7o	
21	0.0	0+	0+	1o	1o	2-	1-	1-	0+	6o	Ten
22	0.5	1+	1o	1+	2-	3o	3-	2-	2-	14+	Quiet
23	0.0	1-	1-	1-	1o	1-	0+	1o	1+	6+	
24	1.3	2o	3+	2o	4+	5+	4+	4o	4-	29o	6
25	0.9	4-	5o	3o	4+	4o	2+	2+	2o	27-	7
											8
26	0.7	3o	3o	3o	3-	2o	3o	1+	2o	20o	9
27	1.1	3-	3o	3-	2o	2o	2o	3o	7-	24o	14
28	1.0	4o	3-	2-	3o	4-	4o	4o	4+	27+	19
29	1.3	5o	4o	3+	4+	3o	5o	5-	4+	34-	20
30	1.3	5-	5-	4-	4-	4-	5o	4-	4+	33+	21
31	1.1	4+	2+	4o	4-	3+	4+	3+	4+	30-	22
											23
Mean	0.68										


DAYS IN SOLAR ROTATION INTERVAL
1952
Rot.-Nr.
1622
1623
1624
1625
1626
1627
1628
1629
Dez
Jan
Feb
Mrz
Apr
Mai
Jun
Jul





PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp

DECEMBER 8, 1951 TO DECEMBER 31, 1952

Table 97

Sudden Ionosphere Disturbances Observed at Washington, D. C.

January 1953

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

Table 98

Sudden Ionosphere Disturbances Reported by the Netherlands Postal and Telecommunication Services, as Observed at Nederhorst den Berg, Netherlands

1952 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
January				
9	1043	1055	Surinam	
14	1350	1400	Surinam	
June				
25	1010	1120	Peru, Surinam	
July				
12	1450	1515	Surinam	Terr.mag.pulse* 1448-1455 Solar flare**1450 Solar flare***1505
13	1105	1120	New York	
16	1809	1835	Surinam	Terr.mag.pulse* 1809-1815 Solar flare**1805
August				
7	0744	0800	Surinam	
7	0826	0855	Surinam	
September				
1	1240	1335	Argentina, Brazil, Surinam	
21	1217	1315	New York	
24	1224	1240	Surinam	
October				
4	1130	----	Surinam	

*As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

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

***Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

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

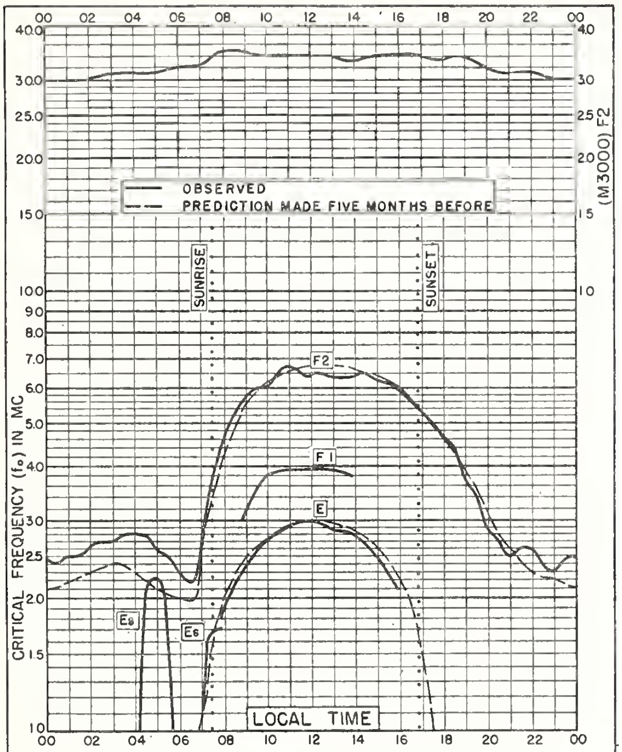


Fig. 1. WASHINGTON, D.C.
38.7°N, 77.1°W JANUARY 1953

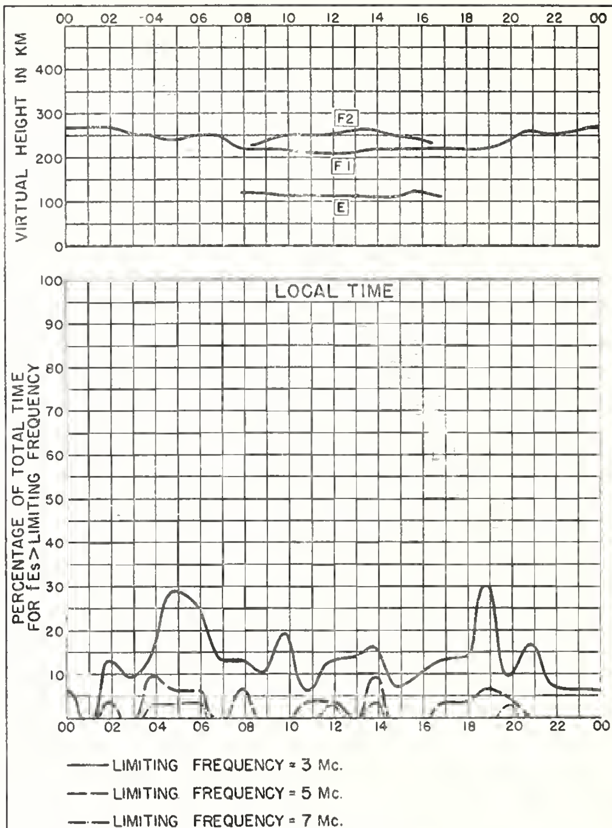


Fig. 2. WASHINGTON, D.C. JANUARY 1953

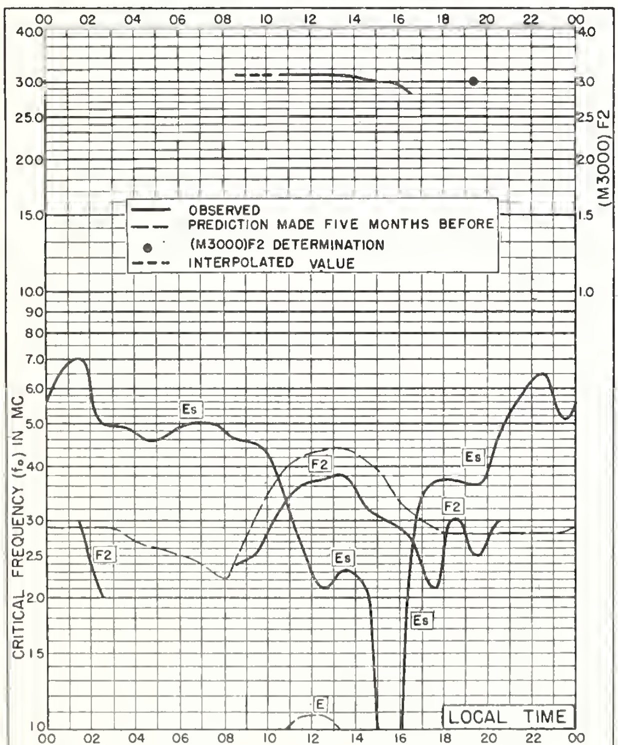


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W DECEMBER 1952

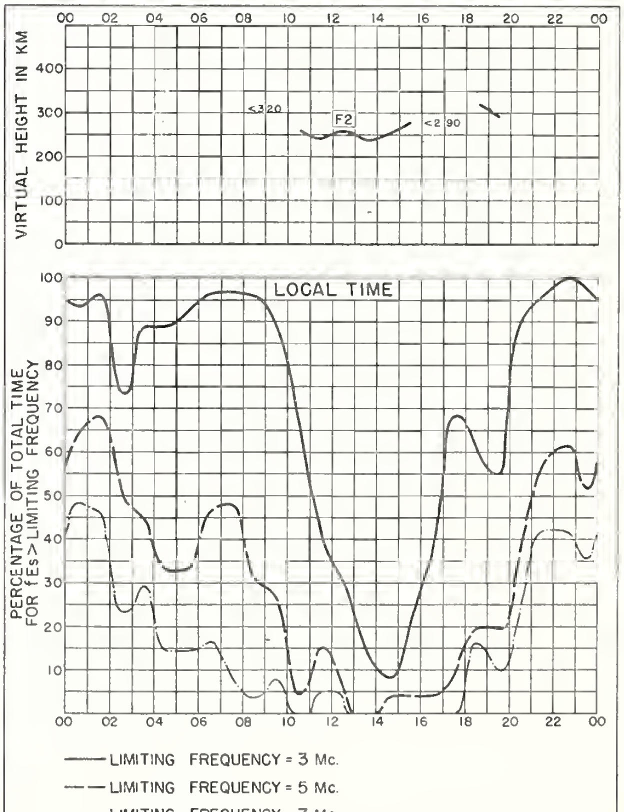


Fig. 4. POINT BARROW, ALASKA DECEMBER 1952

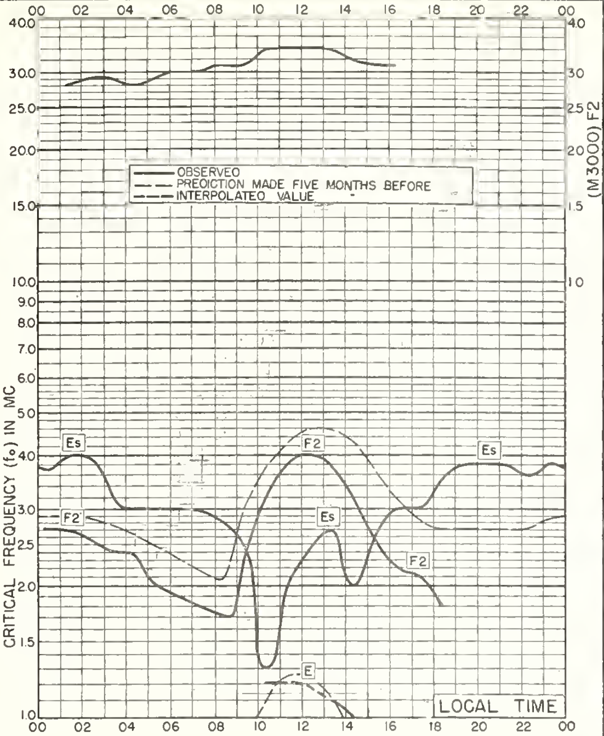


Fig. 5. TROMSO, NORWAY
69.7°N, 19.0°E DECEMBER 1952

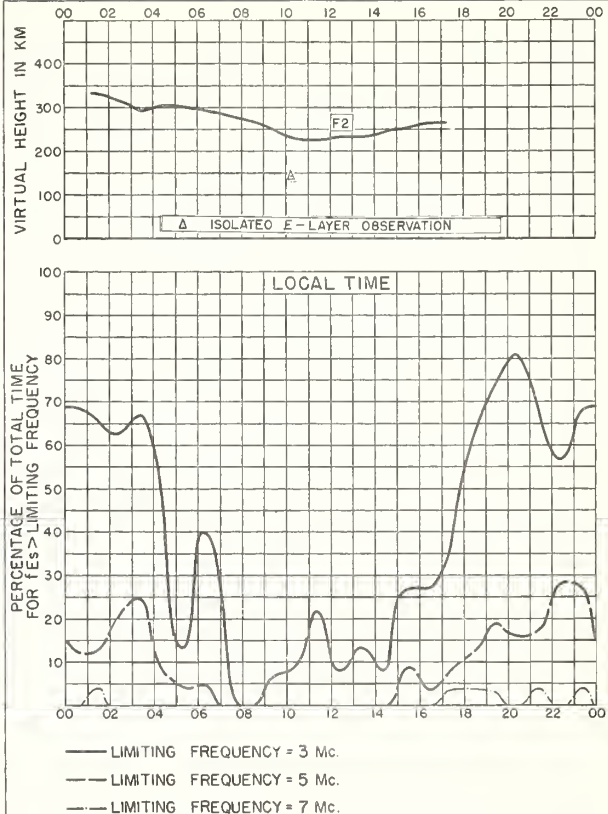


Fig. 6. TROMSO, NORWAY DECEMBER 1952

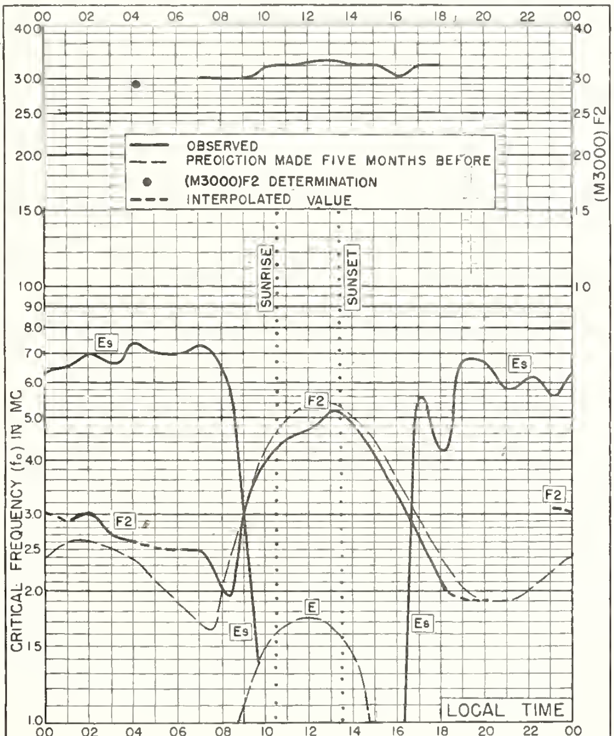


Fig. 7. FAIRBANKS, ALASKA
64.9°N, 147.8°W DECEMBER 1952

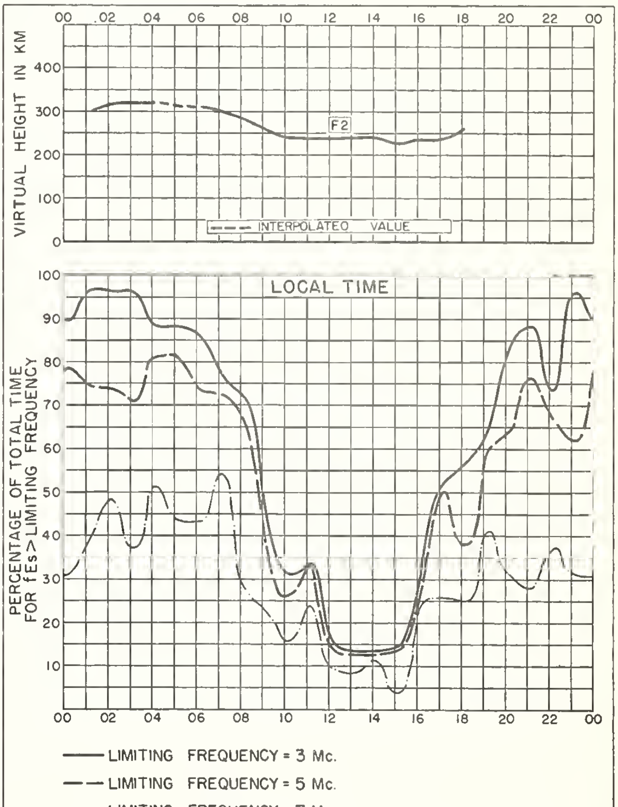


Fig. 8. FAIRBANKS, ALASKA DECEMBER 1952

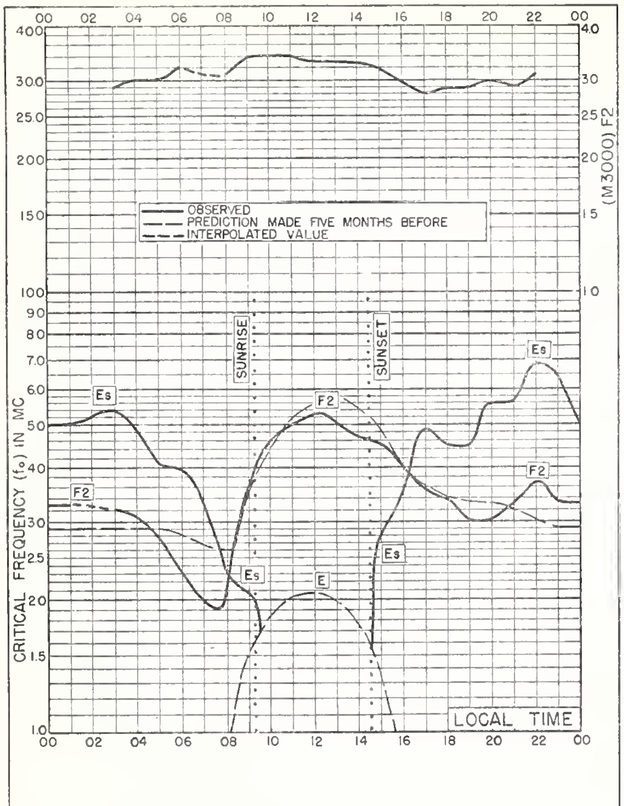
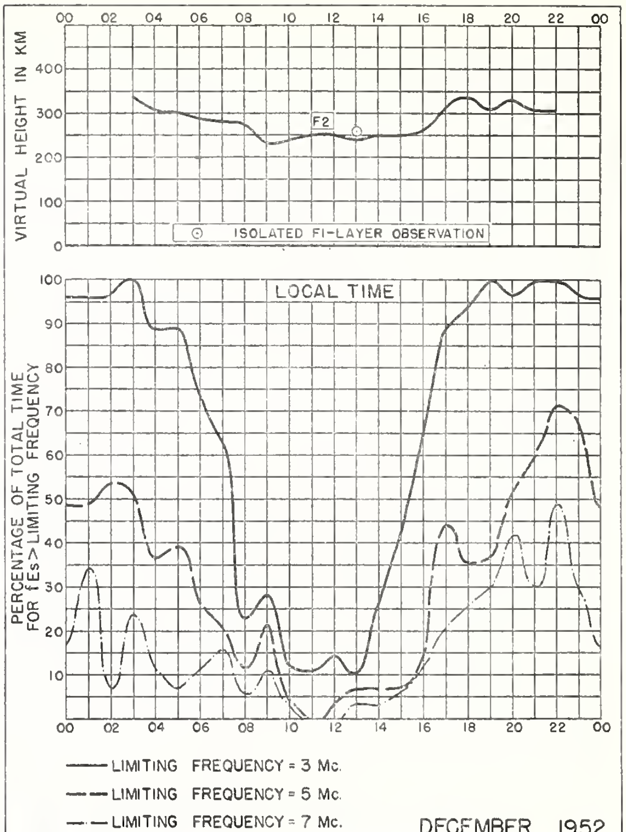


Fig. 9. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W DECEMBER 1952



DECEMBER 1952
Fig. 10. NARSARSSUAK, GREENLAND

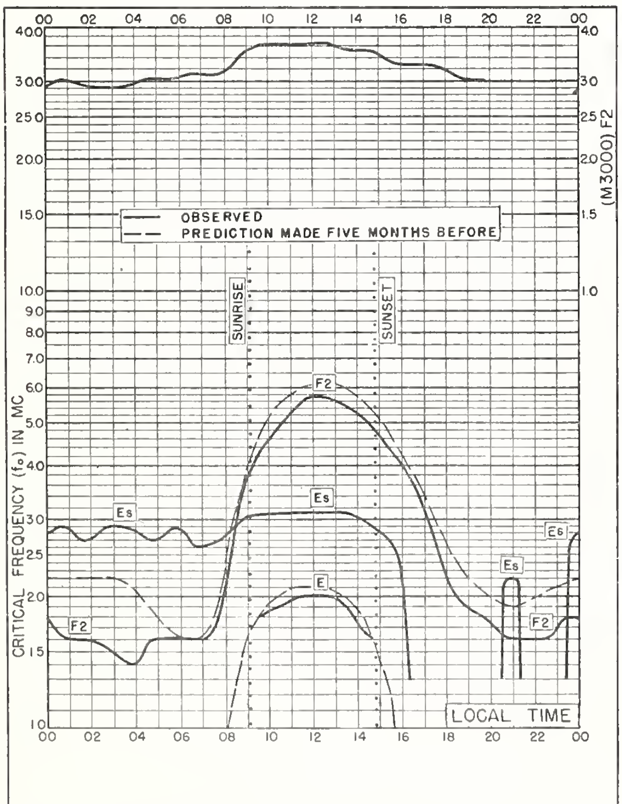


Fig. 11. OSLO, NORWAY
60.0°N, 11.1°E DECEMBER 1952

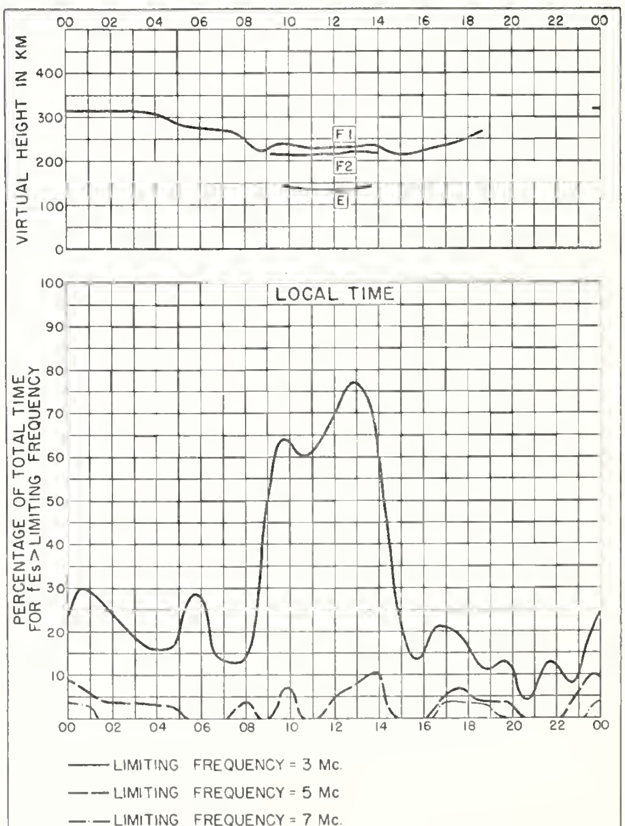


Fig. 12. OSLO, NORWAY DECEMBER 1952

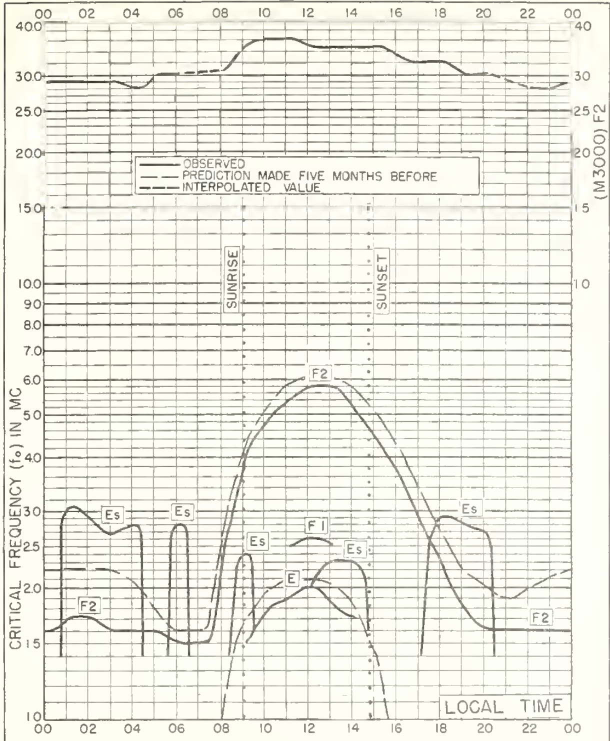


Fig. 13. UPSALA, SWEDEN
59.8°N, 17.6°E DECEMBER 1952

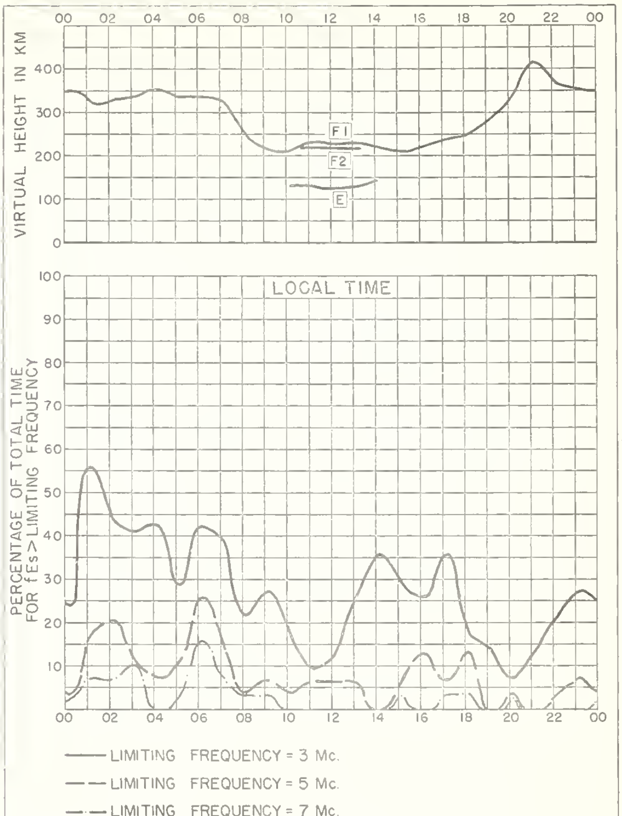


Fig. 14. UPSALA, SWEDEN DECEMBER 1952

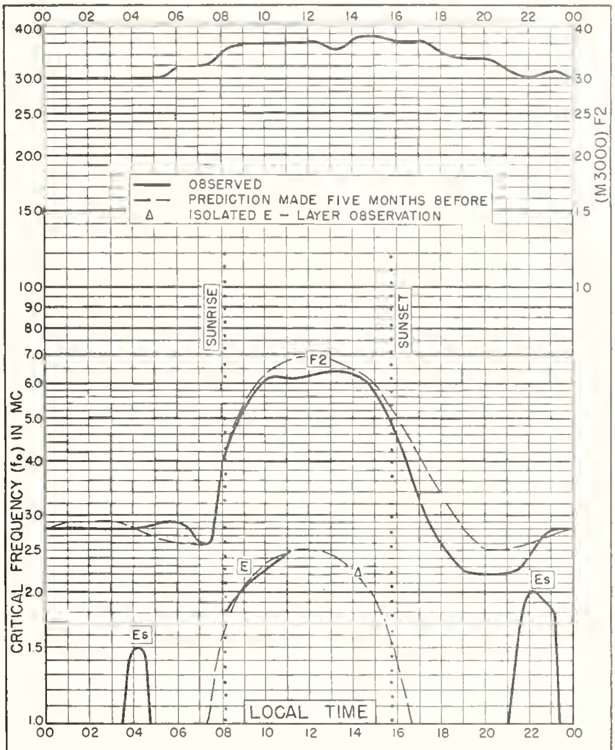


Fig. 15. ADAK, ALASKA
51.9°N, 176.6°W DECEMBER 1952

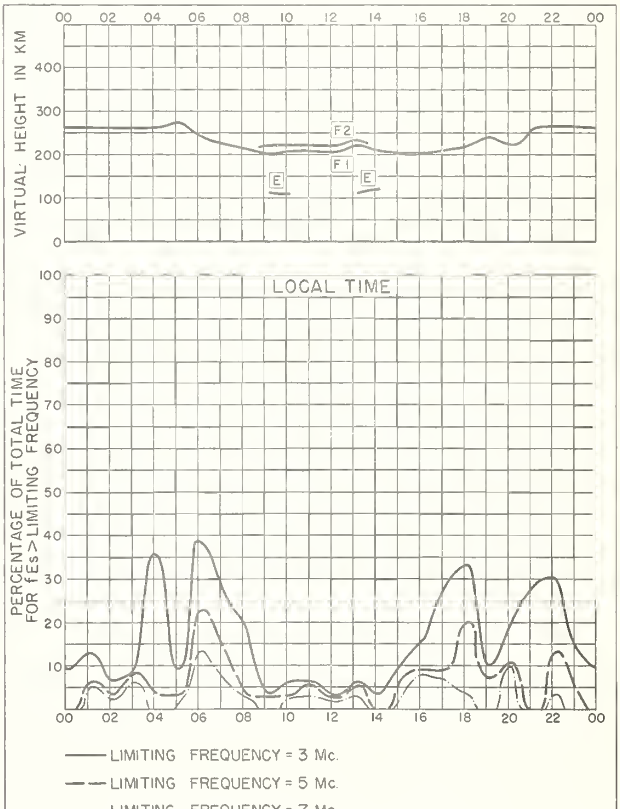


Fig. 16. ADAK, ALASKA DECEMBER 1952

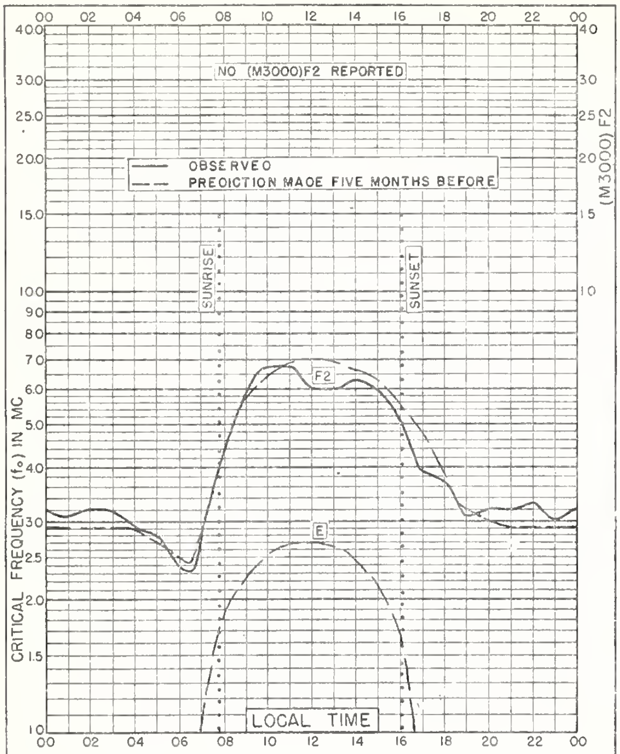


Fig.17. GRAZ, AUSTRIA
47.1°N, 15.5°E DECEMBER 1952

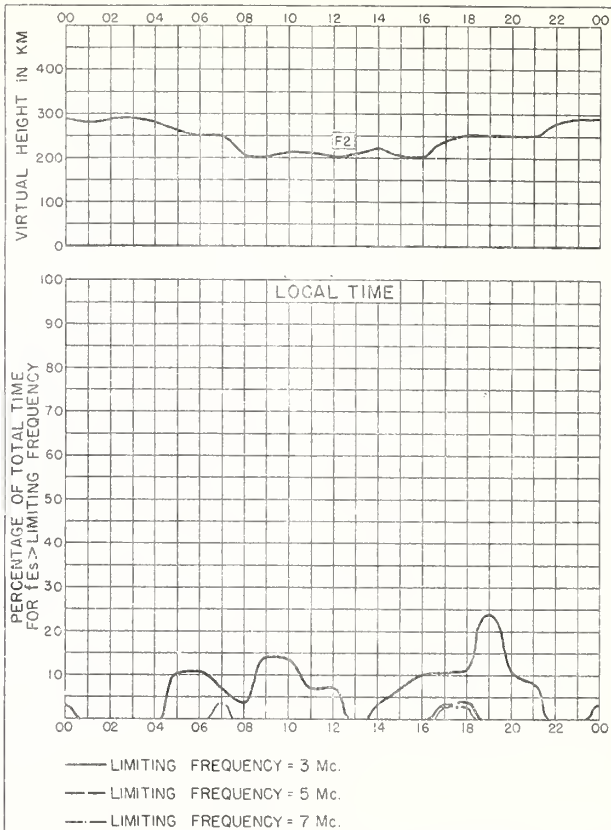


Fig.18. GRAZ, AUSTRIA DECEMBER 1952

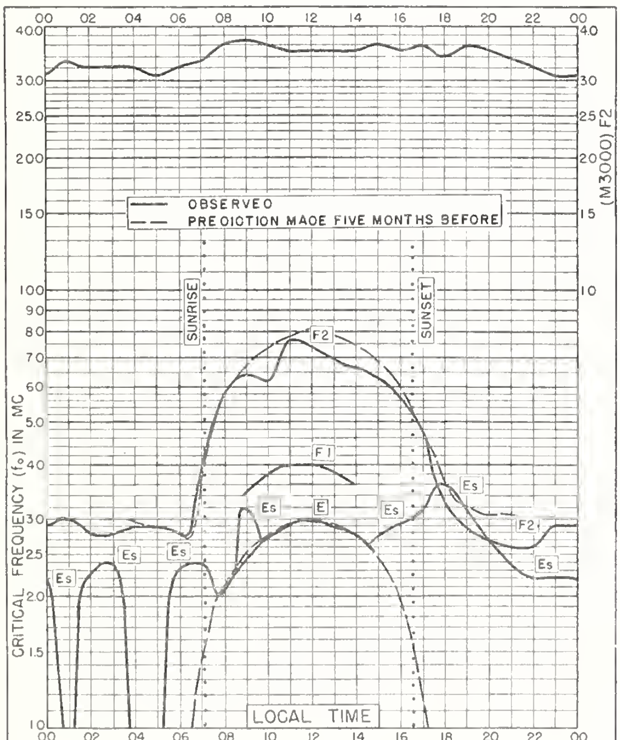
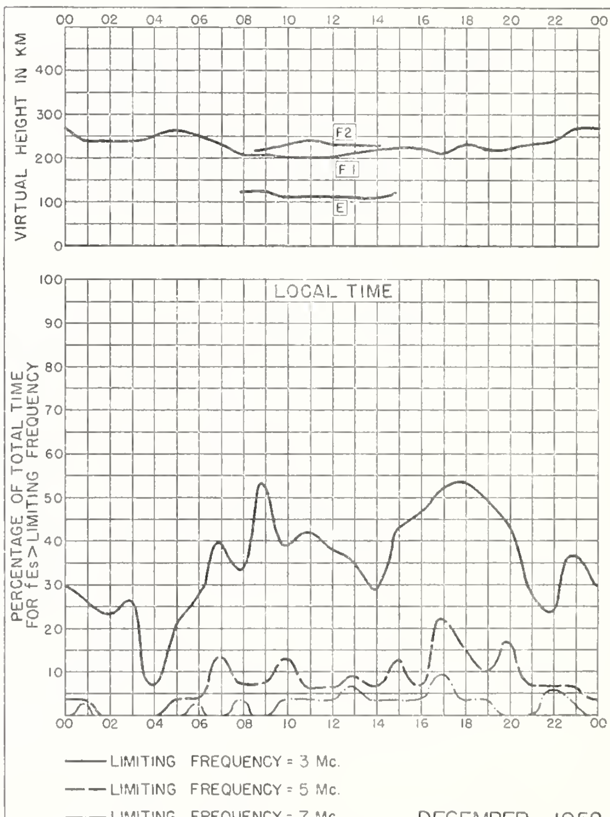


Fig. 19. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W DECEMBER 1952



DECEMBER 1952
Fig. 20. SAN FRANCISCO, CALIFORNIA

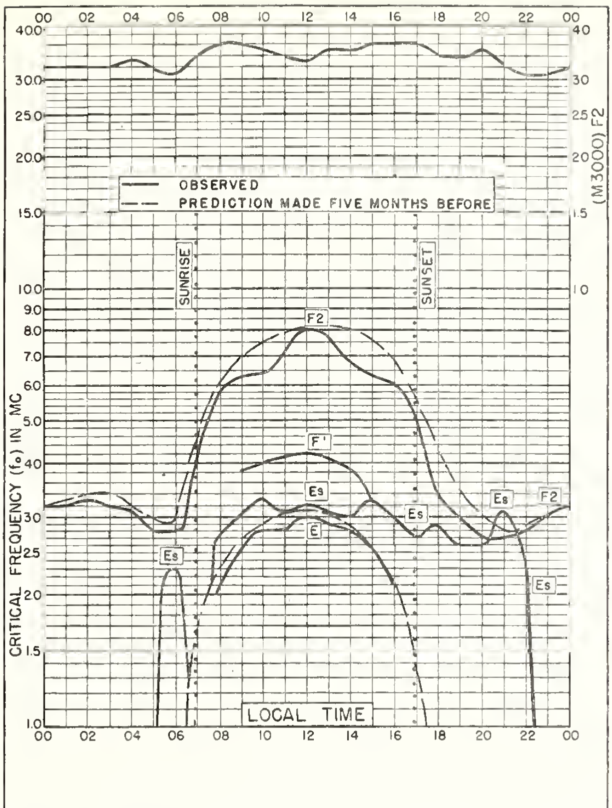
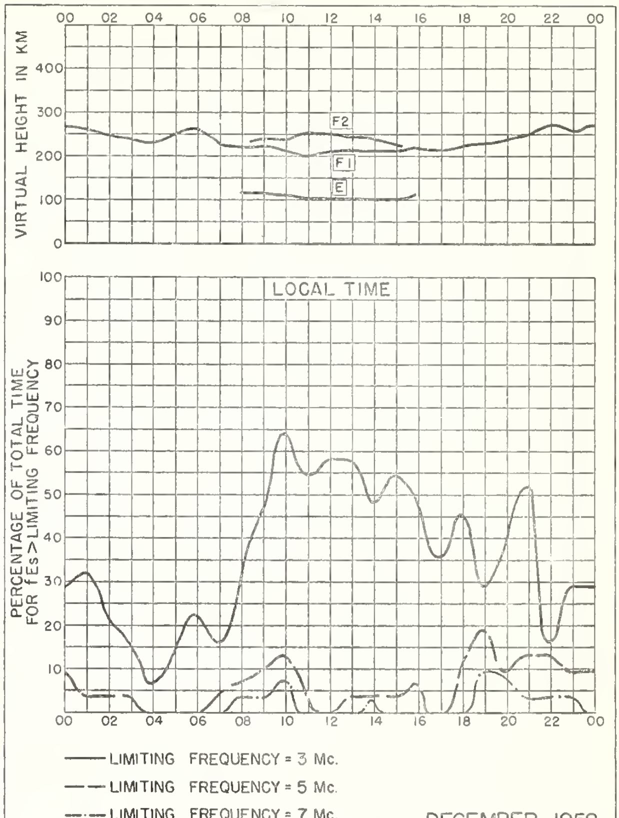


Fig. 21. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W DECEMBER 1952



DECEMBER 1952

Fig. 22. WHITE SANDS, NEW MEXICO

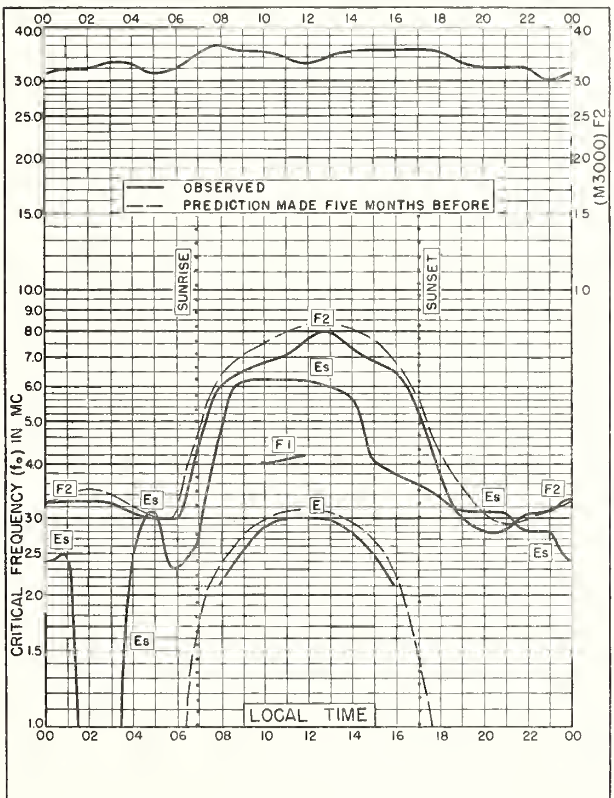
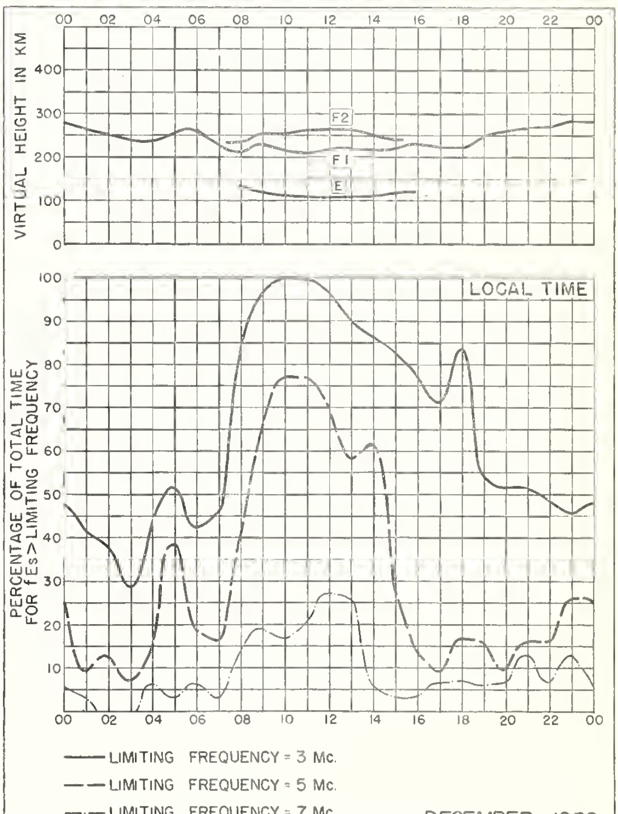


Fig. 23. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W DECEMBER 1952



DECEMBER 1952

Fig. 24. BATON ROUGE, LOUISIANA

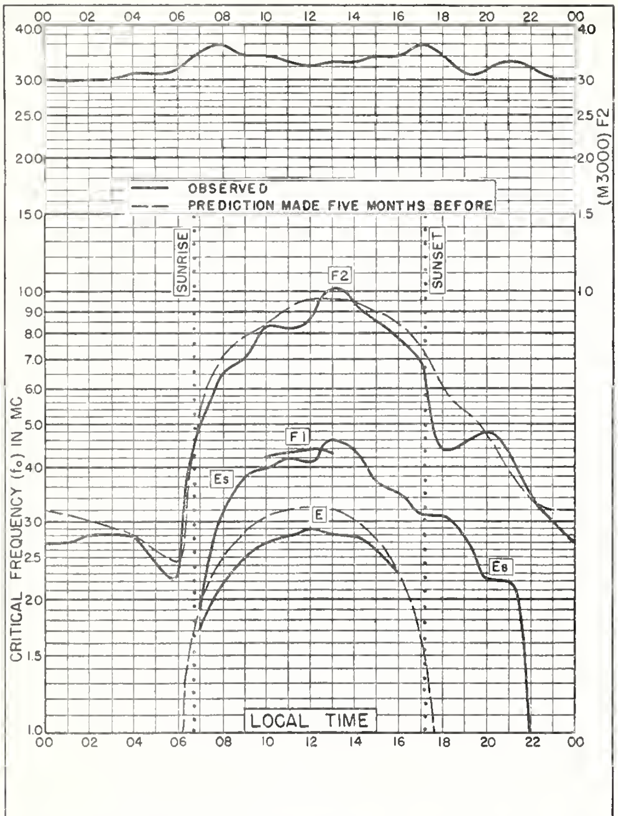


Fig. 25. OKINAWA I.
26.3°N, 127.8°E DECEMBER 1952

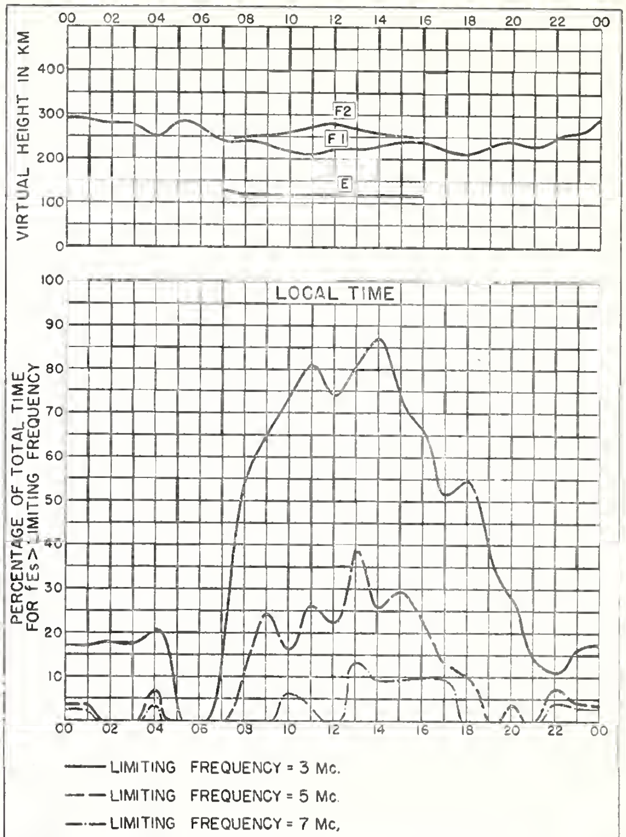


Fig. 26. OKINAWA I. DECEMBER 1952

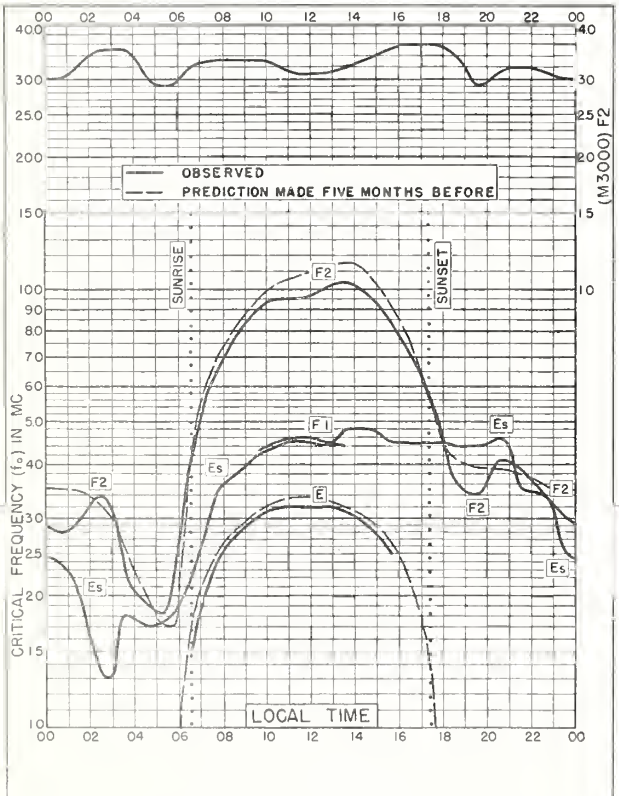


Fig. 27. MAUI, HAWAII
20.8°N, 156.5°W DECEMBER 1952

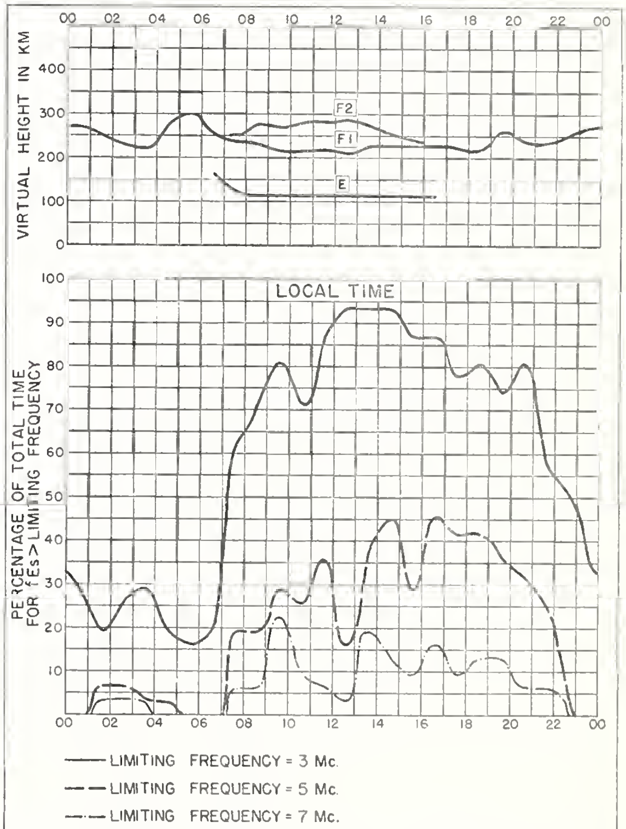


Fig. 28. MAUI, HAWAII DECEMBER 1952

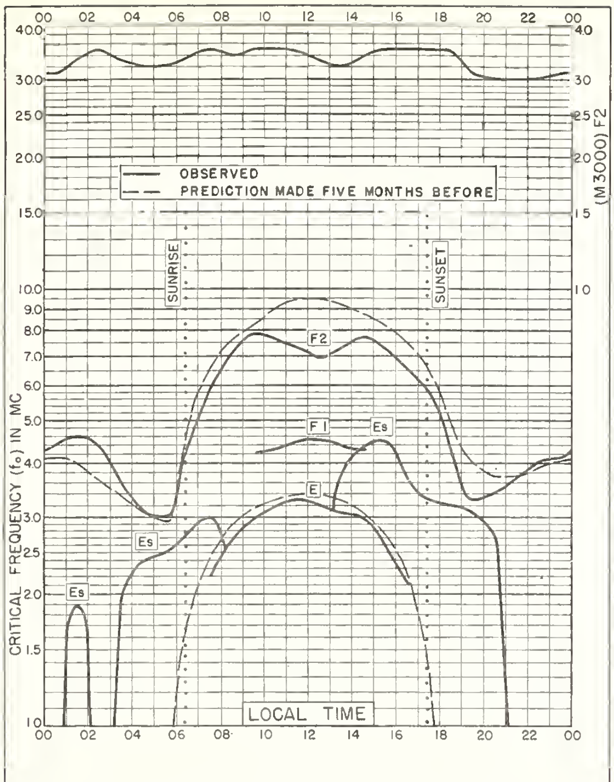


Fig. 29. PUERTO RICO, W.I. 18.5°N, 67.2°W DECEMBER 1952

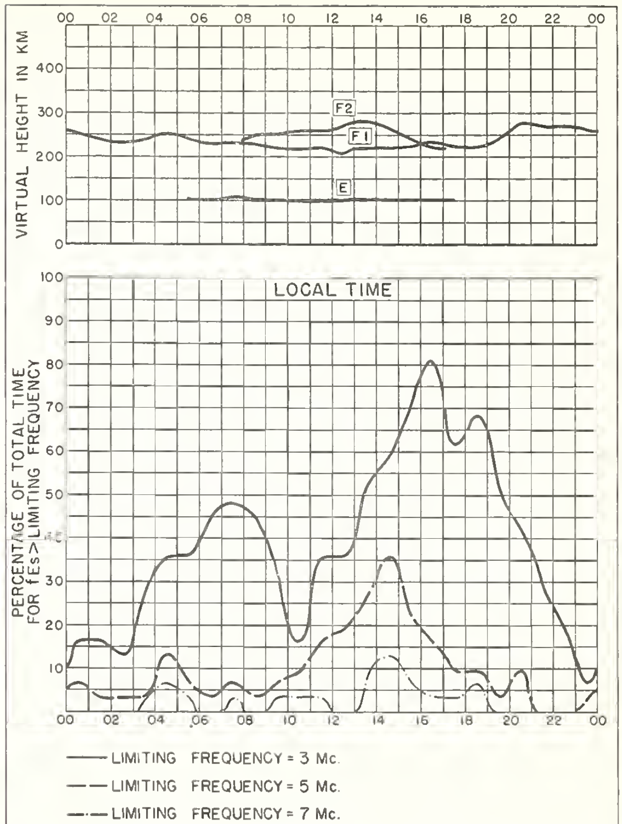


Fig. 30. PUERTO RICO, W.I. DECEMBER 1952

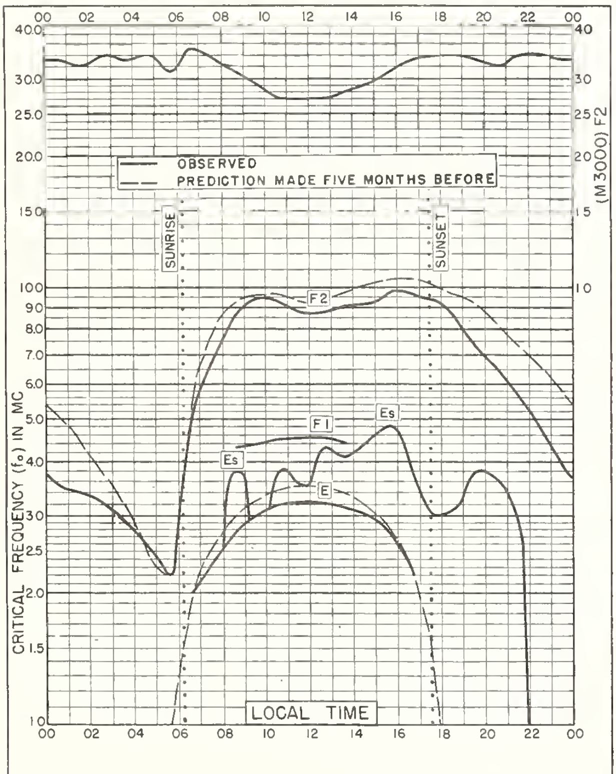


Fig. 31. GUAM I. 13.6°N, 144.9°E DECEMBER 1952

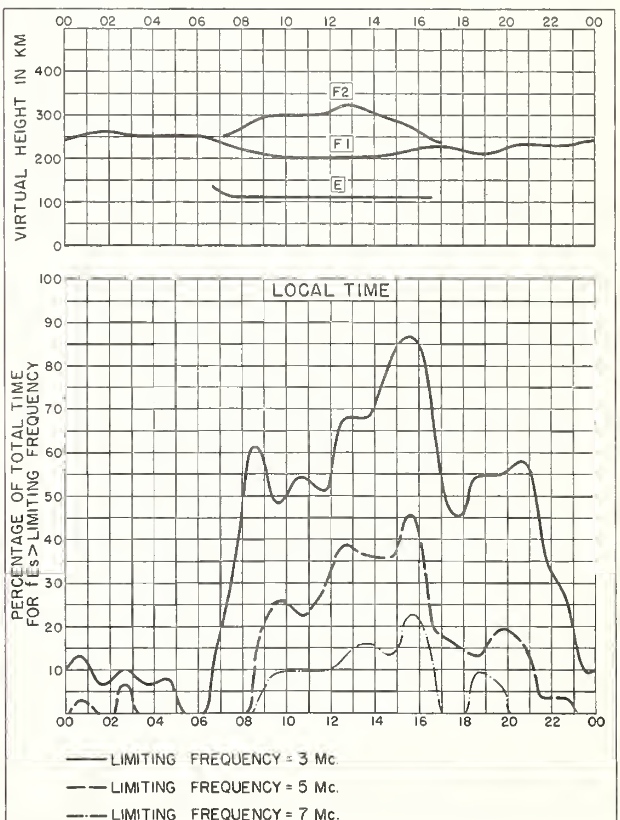


Fig. 32. GUAM I. DECEMBER 1952

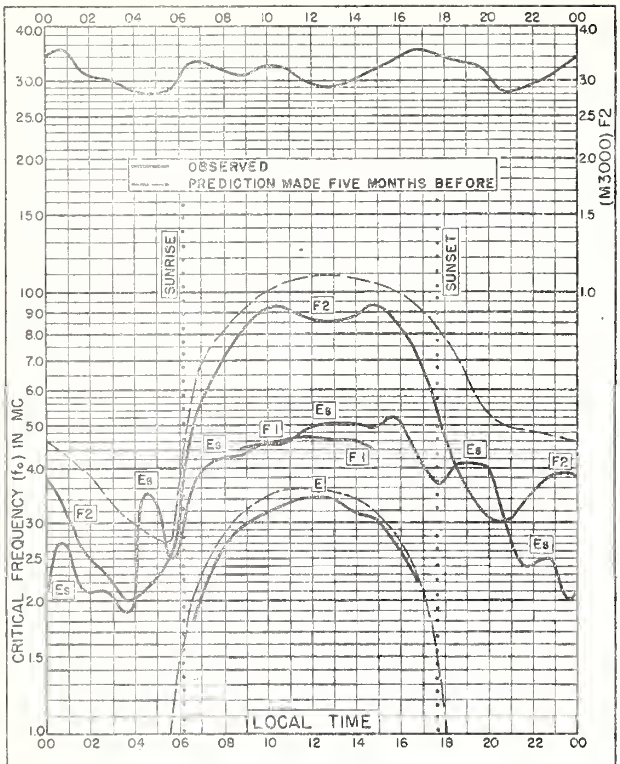


Fig. 33. PANAMA CANAL ZONE
9.4°N, 79.9°W DECEMBER 1952

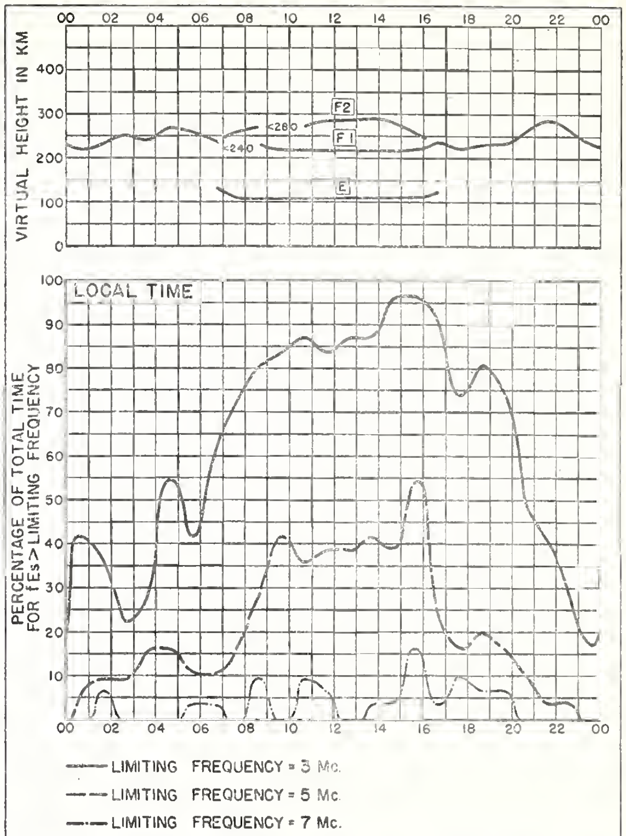


Fig. 34. PANAMA CANAL ZONE DECEMBER 1952

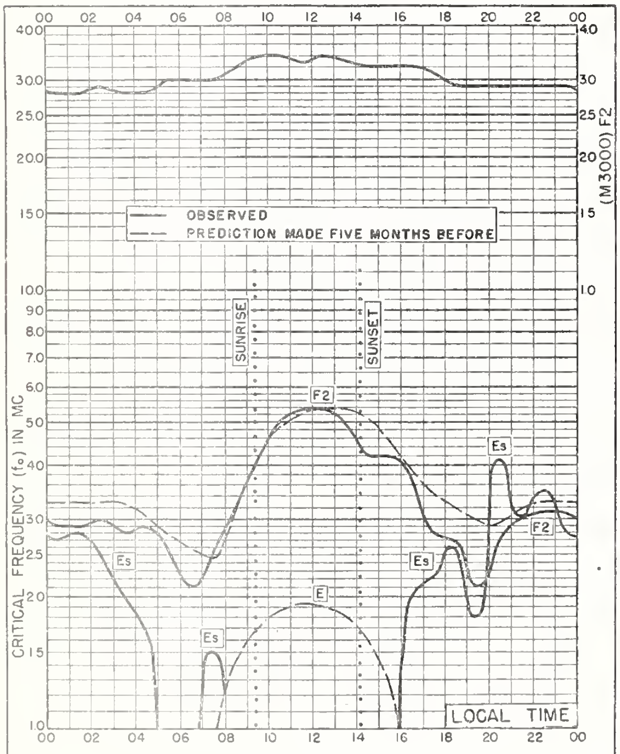


Fig. 35. KIRUNA, SWEDEN
67.8°N, 20.5°E NOVEMBER 1952

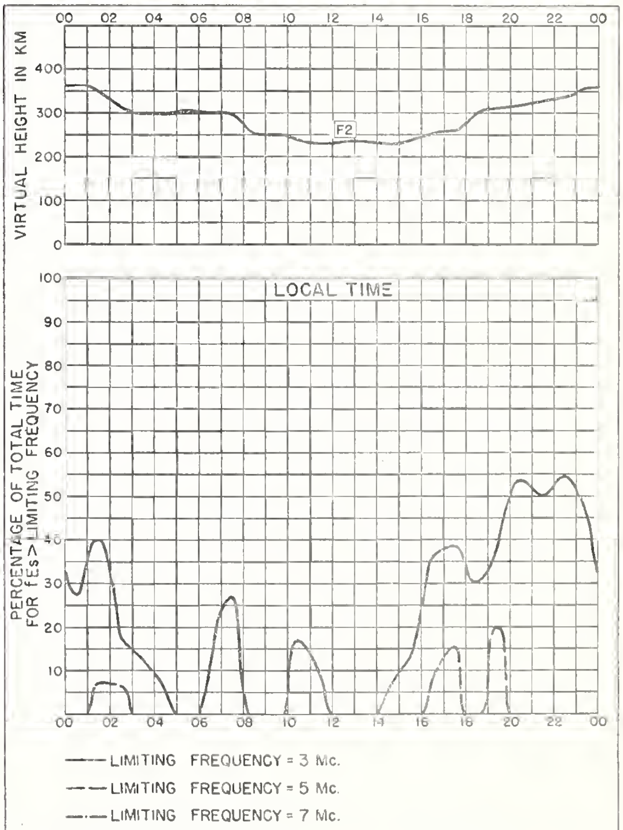


Fig. 36. KIRUNA, SWEDEN NOVEMBER 1952

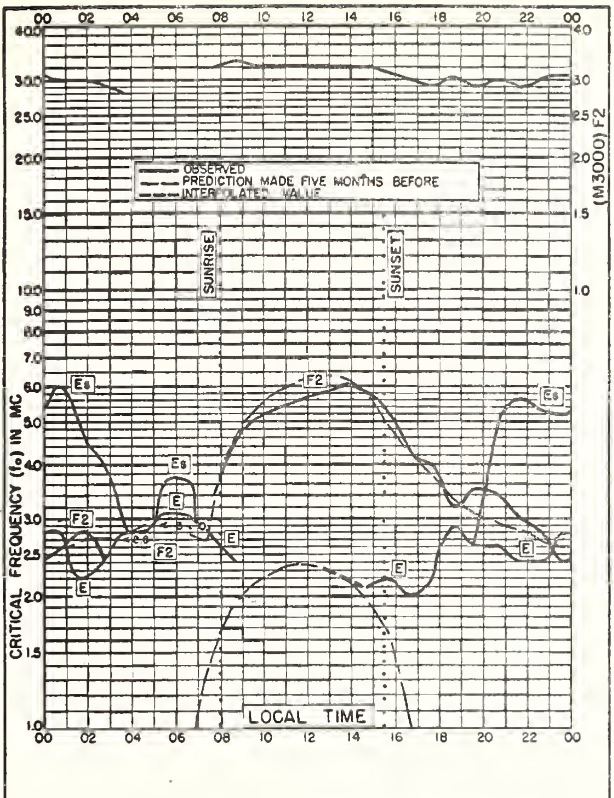


Fig. 37. CHURCHILL, CANADA
58.8°N, 94.2°W NOVEMBER 1952

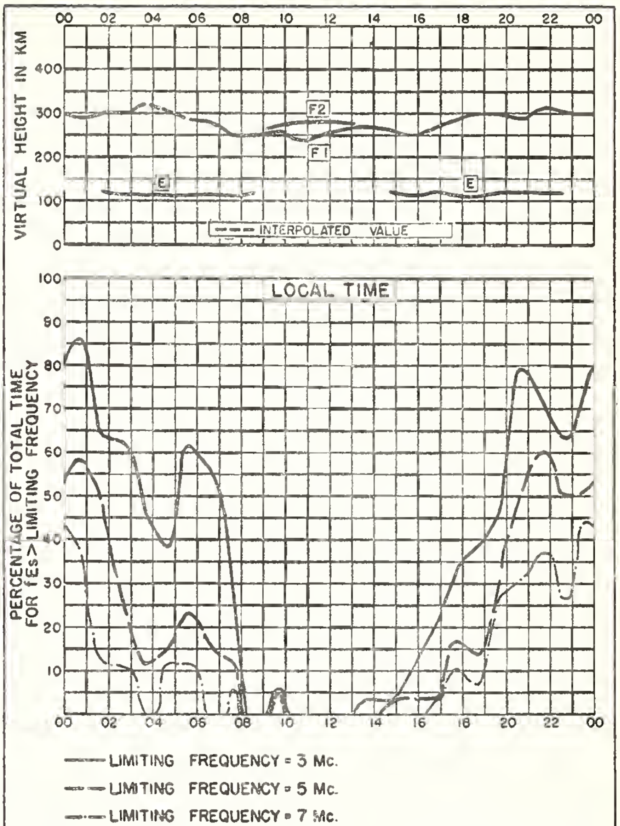


Fig. 38. CHURCHILL, CANADA NOVEMBER 1952

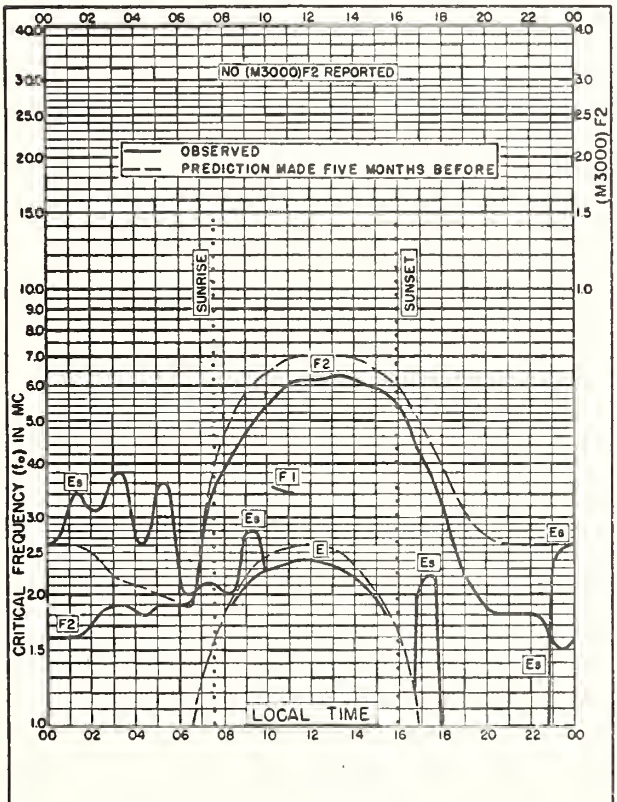


Fig. 39. PRINCE RUPERT, CANADA
54.3°N, 130.3°W NOVEMBER 1952

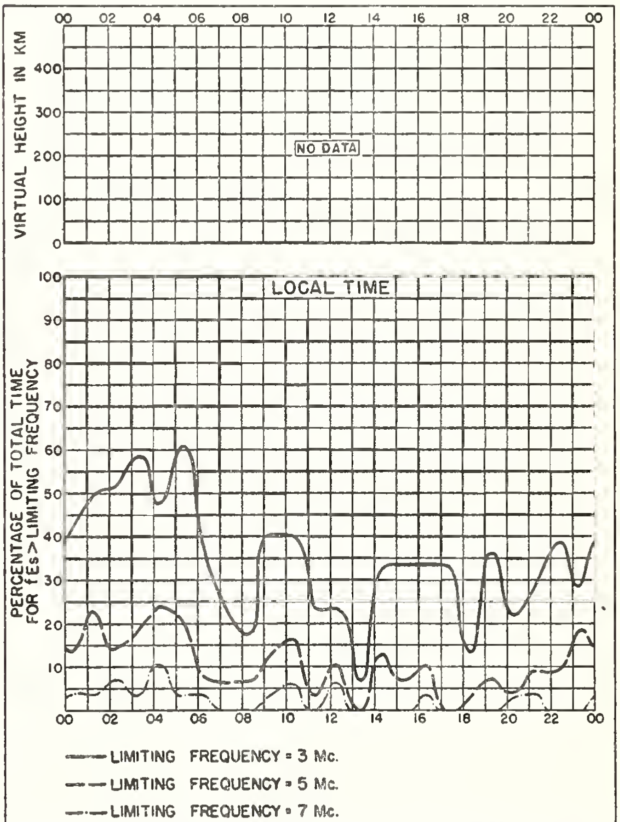


Fig. 40. PRINCE RUPERT, CANADA NOVEMBER 1952

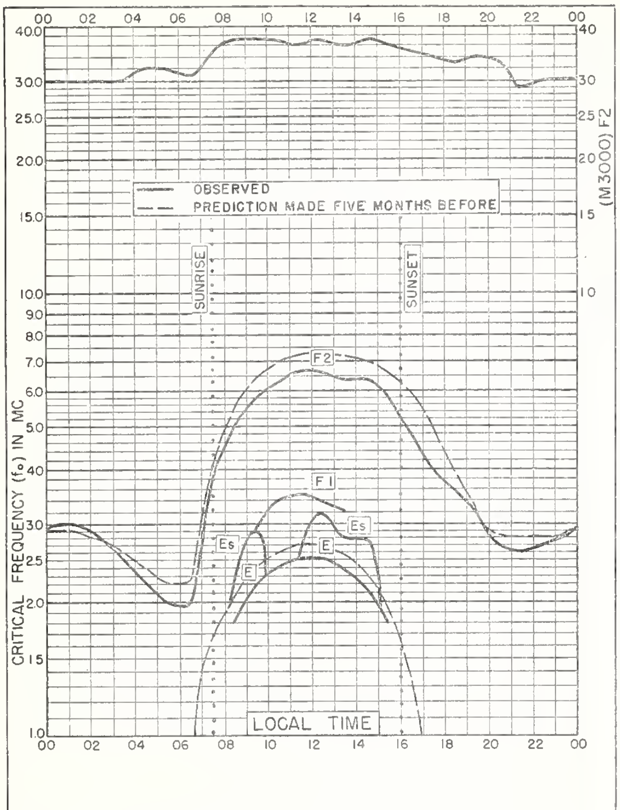


Fig. 41. De BILT, HOLLAND
52.1°N, 5.2°E NOVEMBER 1952

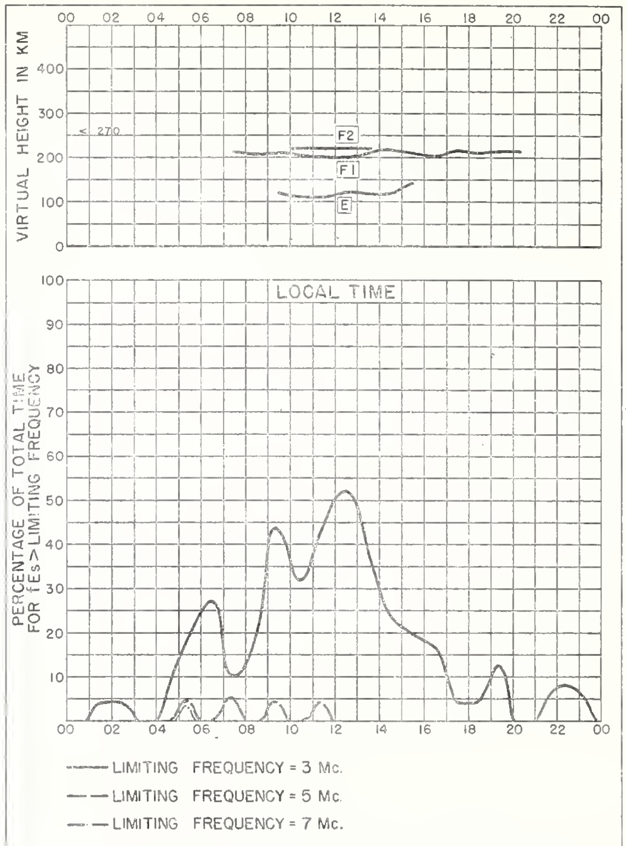


Fig. 42. De BILT, HOLLAND NOVEMBER 1952

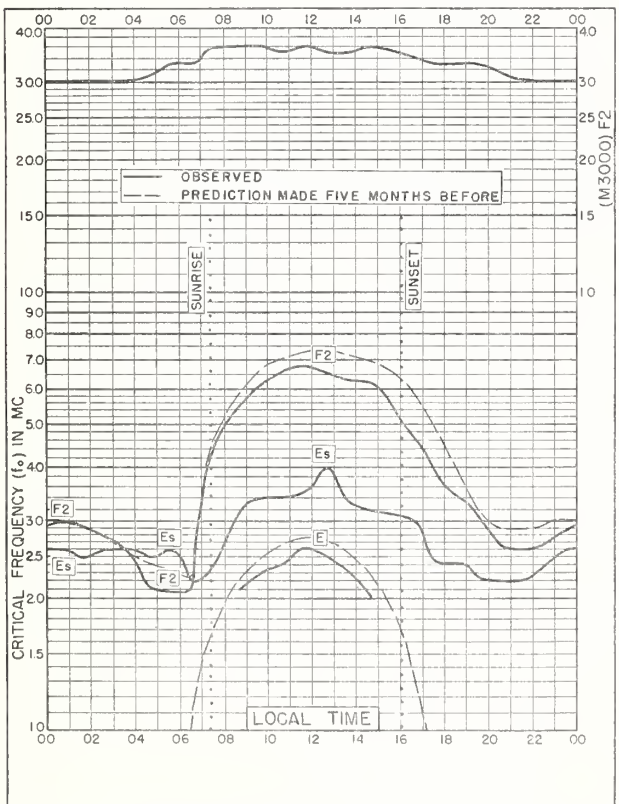


Fig. 43. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E NOVEMBER 1952

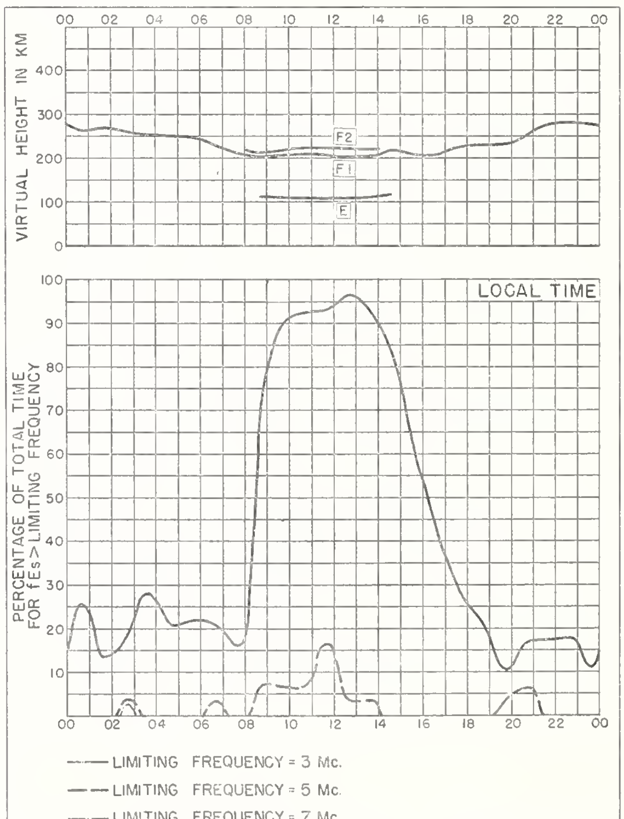


Fig. 44. LINDAU/HARZ, GERMANY NOVEMBER 1952

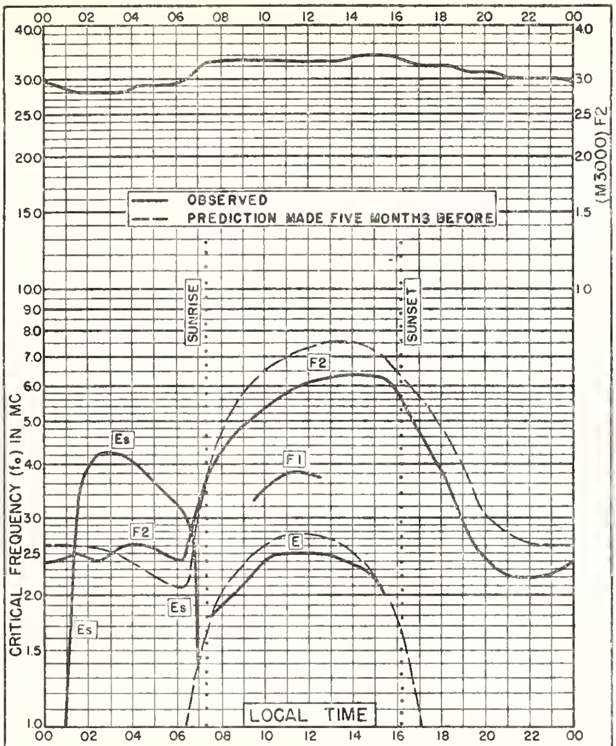


Fig. 45. WINNIPEG, CANADA
49.9°N, 97.4°W NOVEMBER 1952

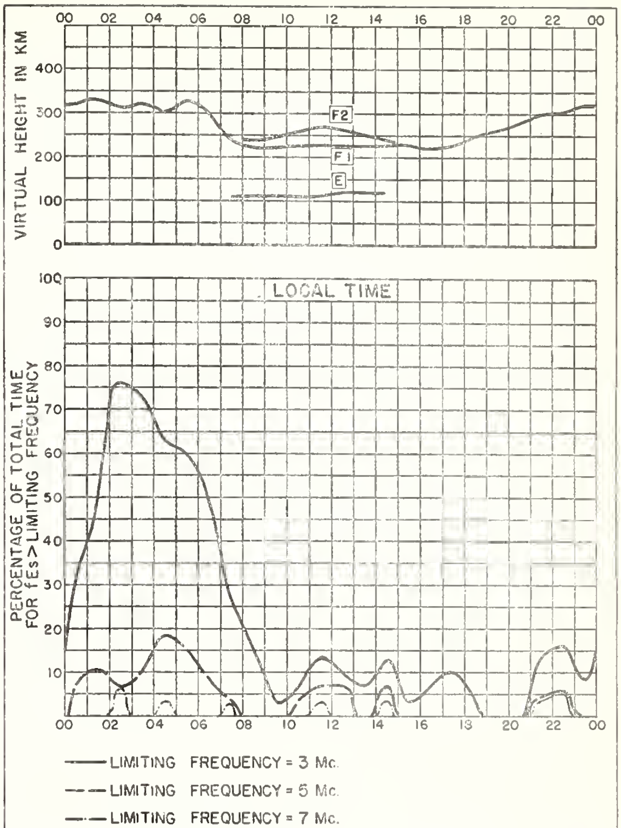


Fig. 46. WINNIPEG, CANADA NOVEMBER 1952

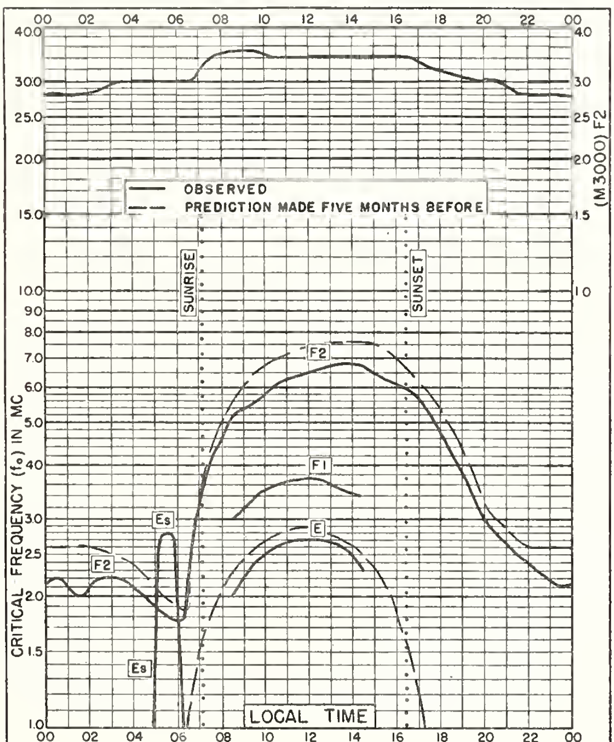
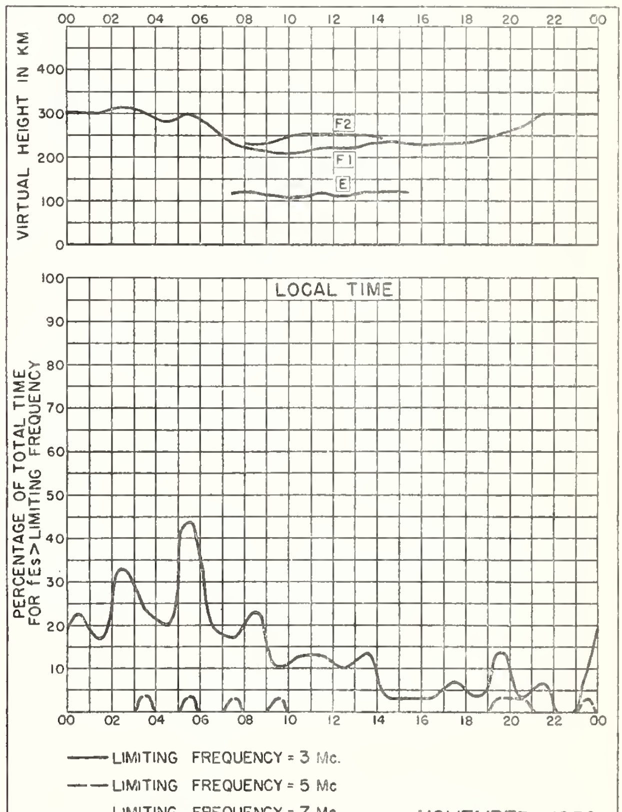


Fig. 47. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W NOVEMBER 1952



NOVEMBER 1952
Fig. 48. ST. JOHN'S, NEWFOUNDLAND

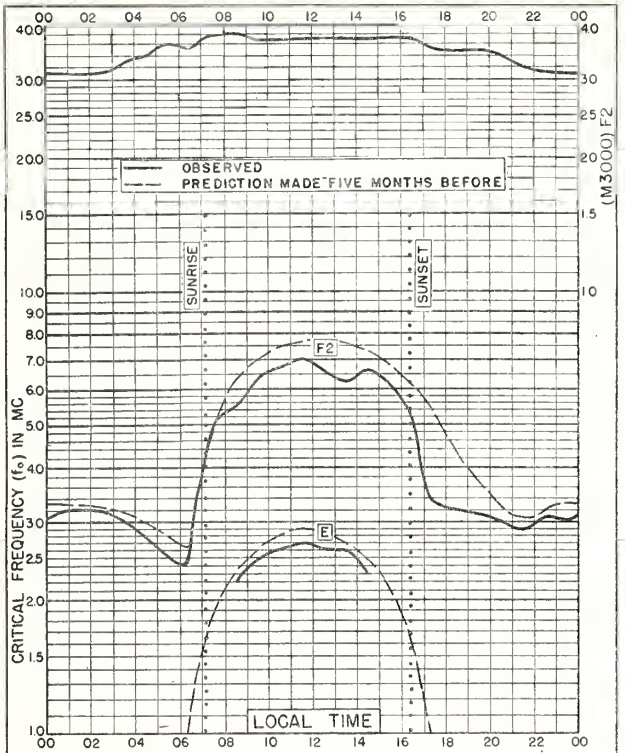
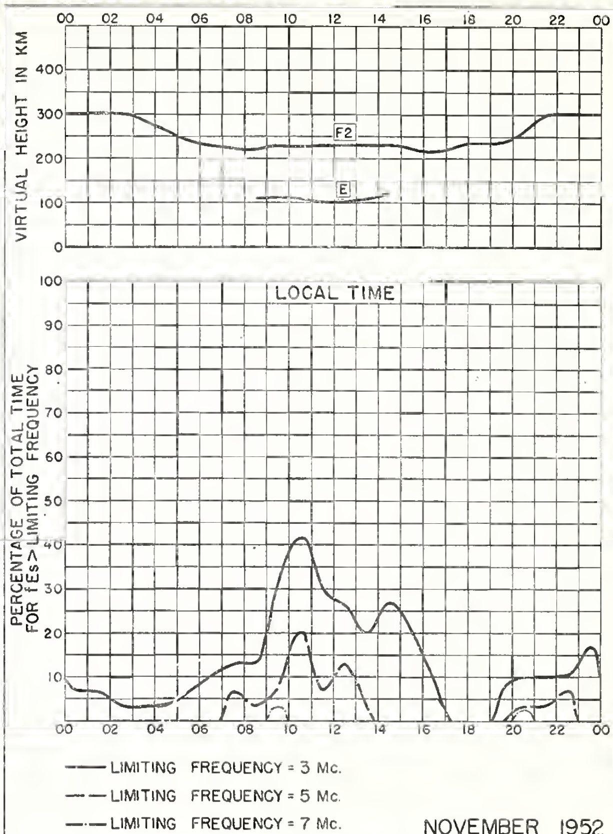


Fig. 49. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E NOVEMBER 1952



NOVEMBER 1952
Fig. 50. SCHWARZENBURG, SWITZERLAND

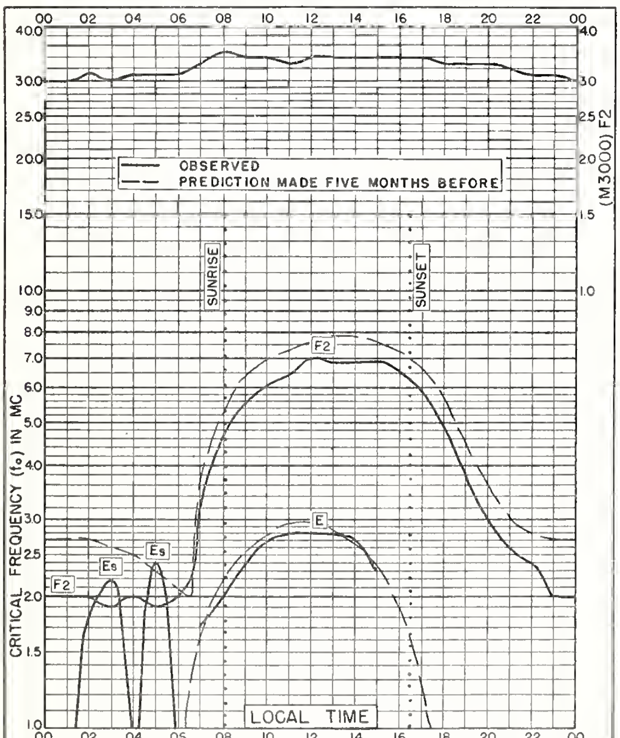


Fig. 51. OTTAWA, CANADA
45.4°N, 75.7°W NOVEMBER 1952

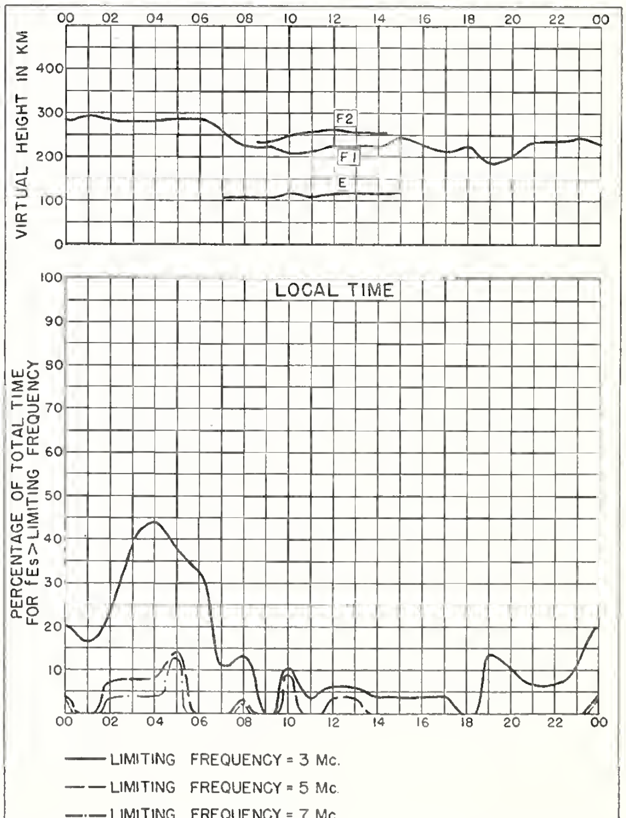


Fig. 52. OTTAWA, CANADA NOVEMBER 1952

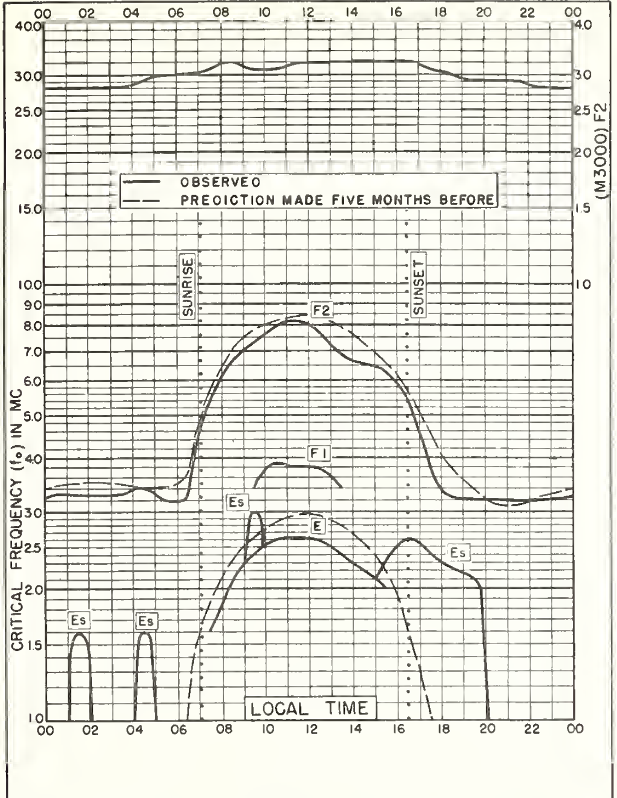


Fig. 53. WAKKANAI, JAPAN
45.4°N, 141.7°E NOVEMBER 1952

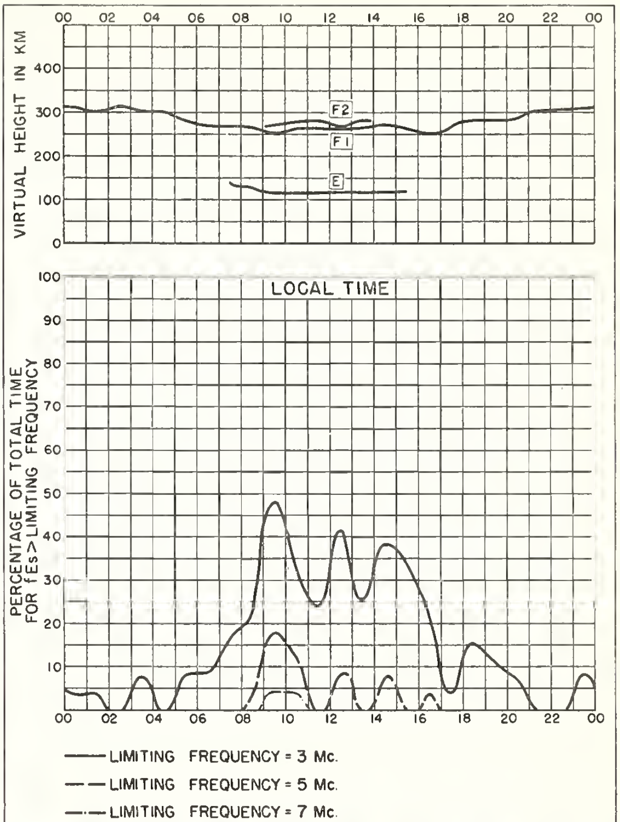


Fig. 54. WAKKANAI, JAPAN NOVEMBER 1952

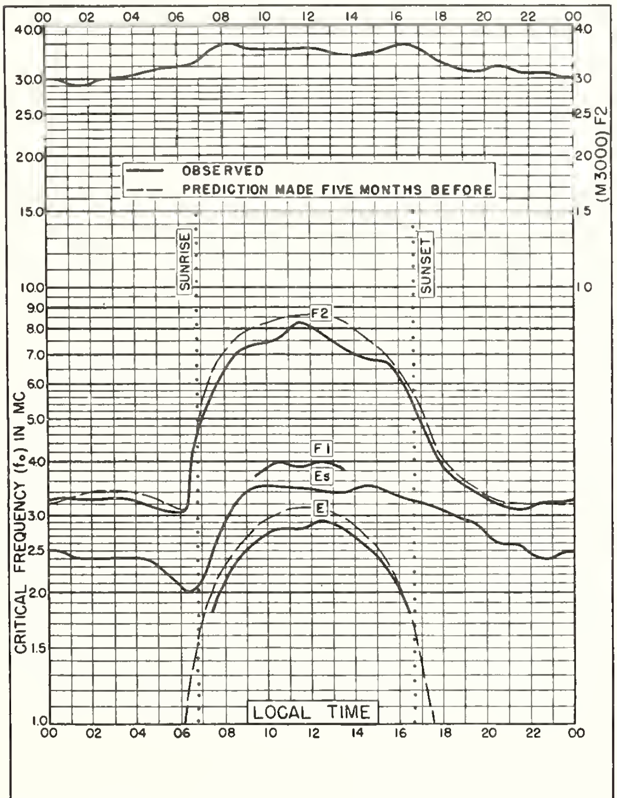


Fig. 55. AKITA, JAPAN
39.7°N, 140.1°E NOVEMBER 1952

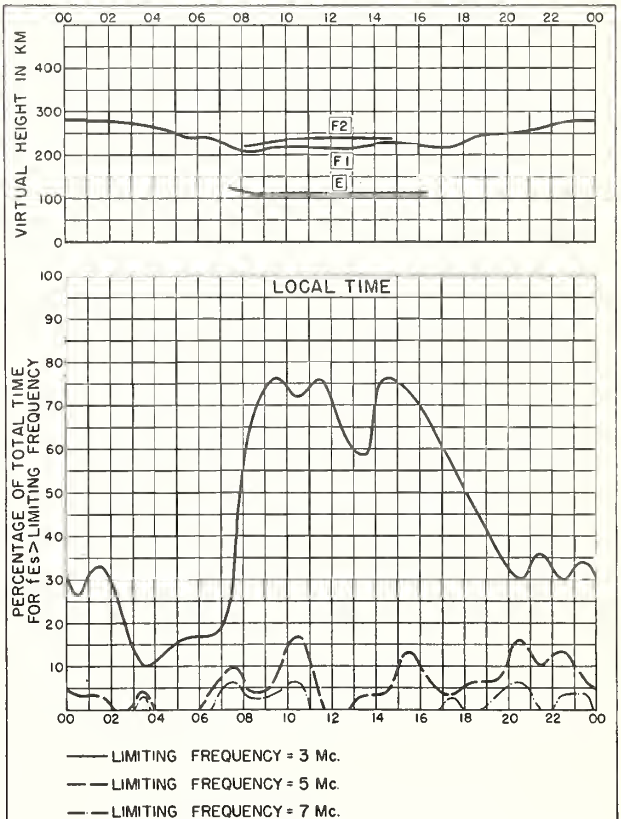


Fig. 56. AKITA, JAPAN NOVEMBER 1952

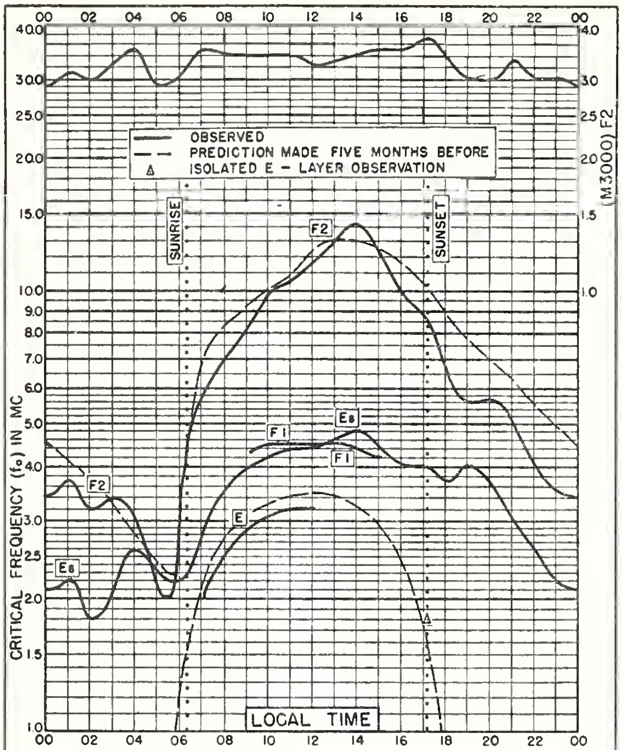


Fig. 57 FORMOSA, CHINA
25.0°N, 121.5°E NOVEMBER 1952

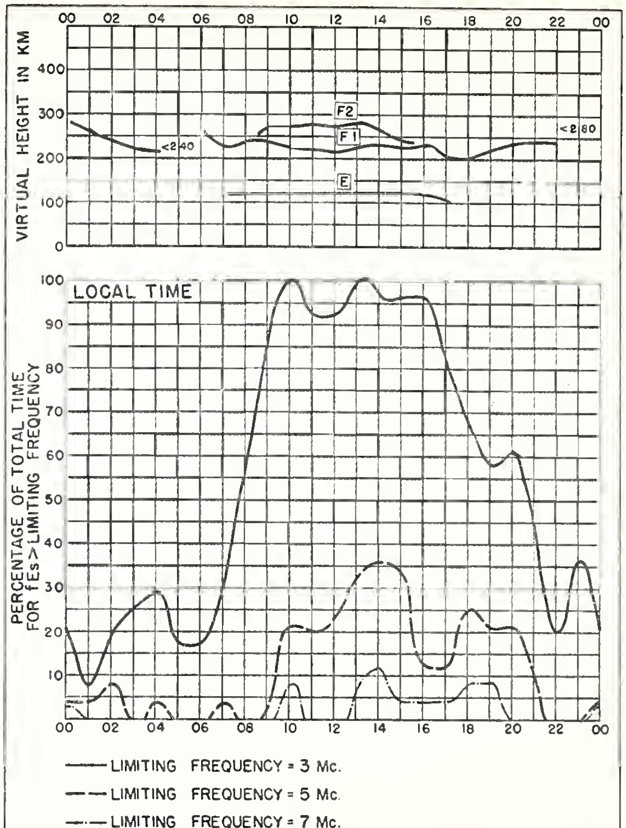


Fig. 58. FORMOSA, CHINA NOVEMBER 1952

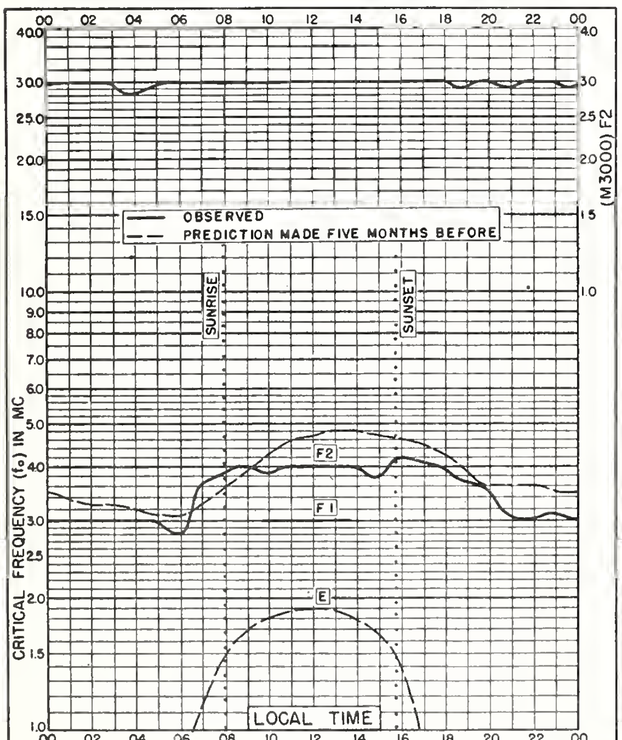


Fig. 59. RESOLUTE BAY, CANADA
74.7°N, 94.9°W OCTOBER 1952

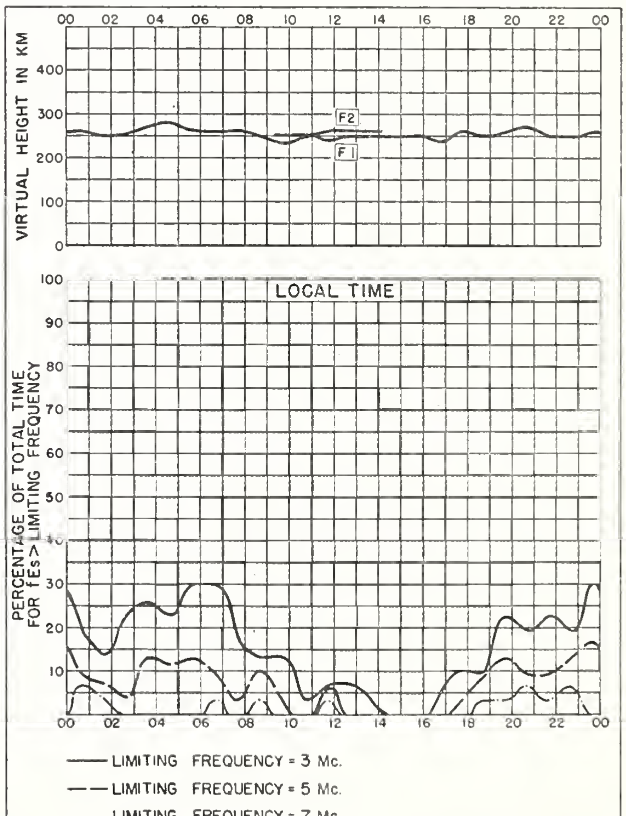


Fig. 60. RESOLUTE BAY, CANADA OCTOBER 1952

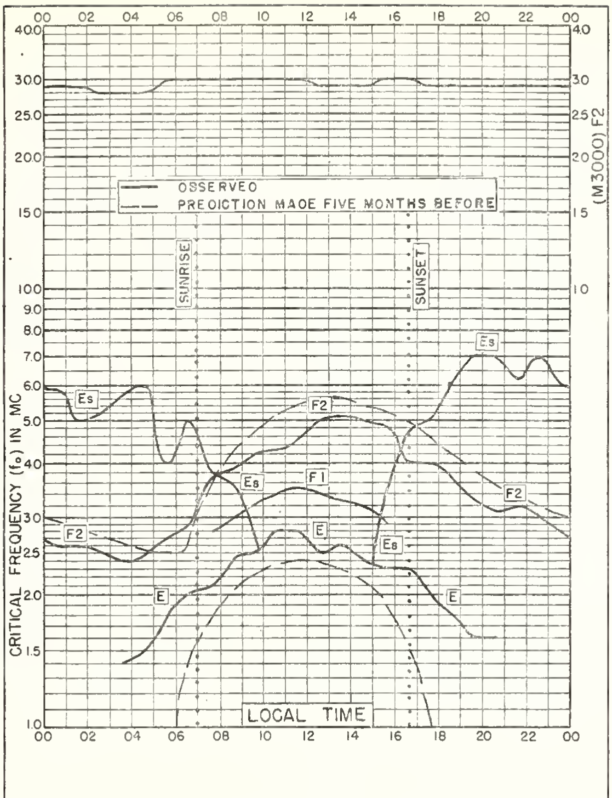


Fig. 61. BAKER LAKE, CANADA
64.3°N, 96.0°W OCTOBER 1952

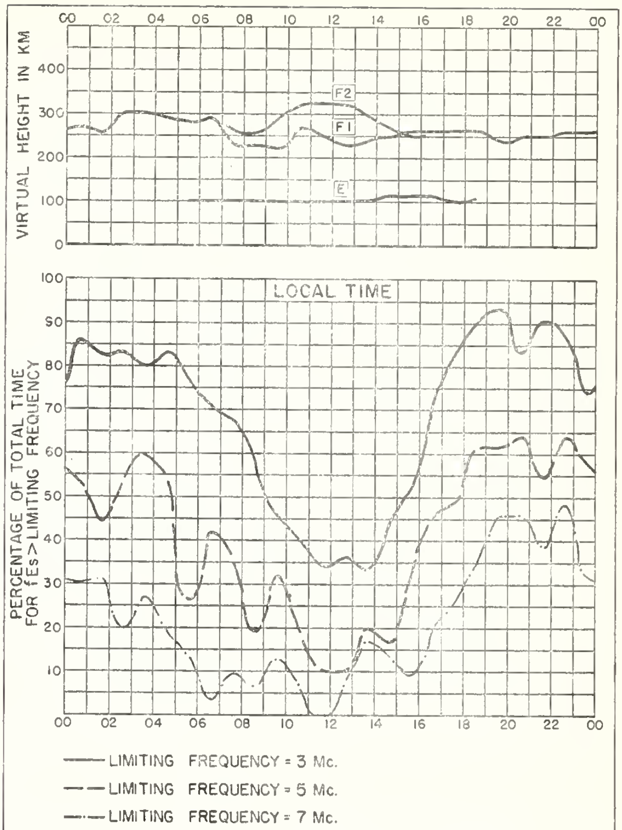


Fig. 62. BAKER LAKE, CANADA OCTOBER 1952

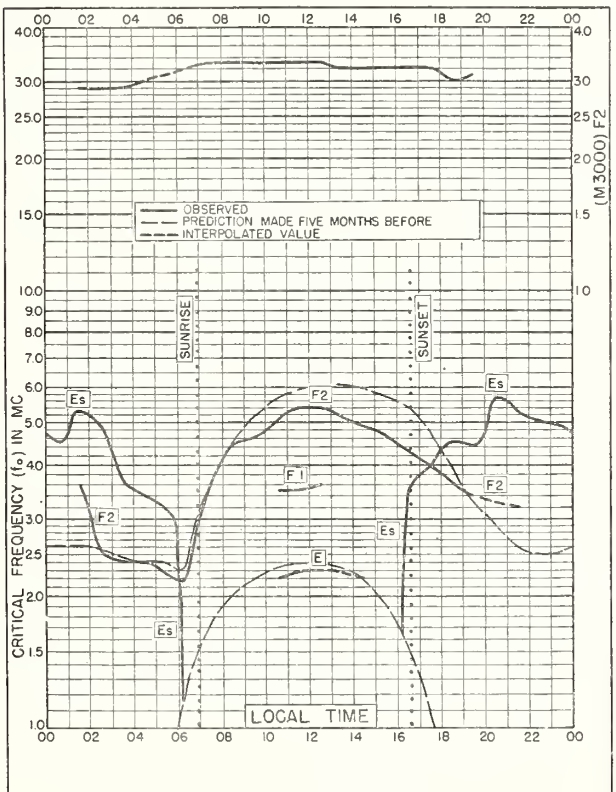


Fig. 63. REYKJAVIK, ICELAND
64.1°N, 21.8°W OCTOBER 1952

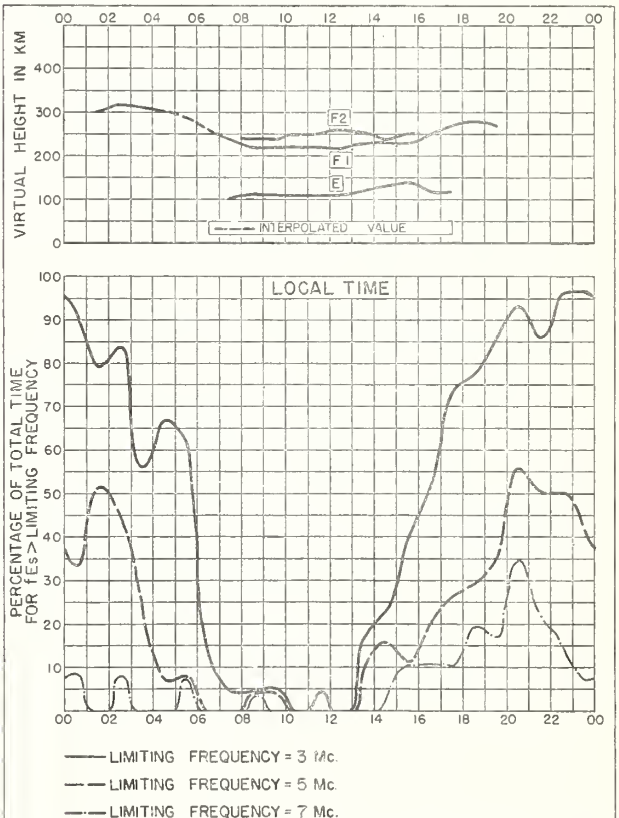


Fig. 64. REYKJAVIK, ICELAND OCTOBER 1952

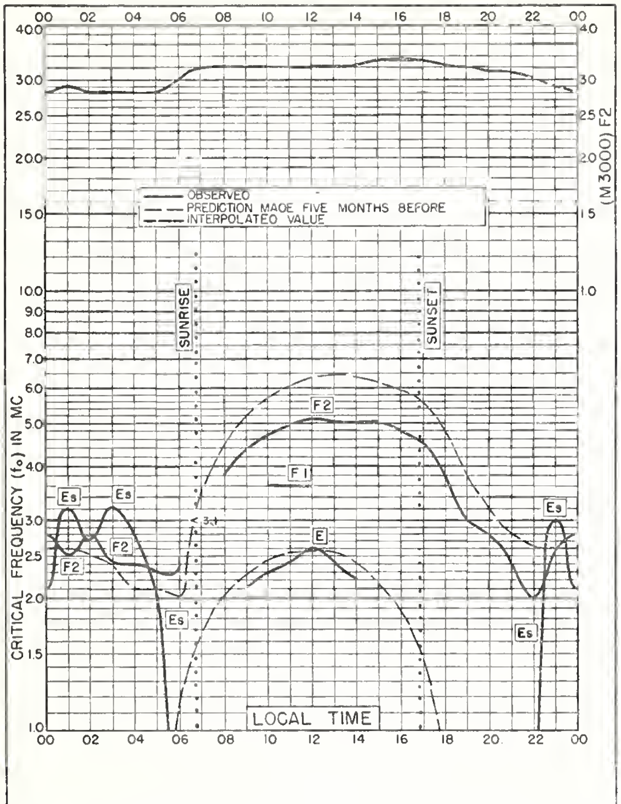


Fig. 65. ANCHORAGE, ALASKA
61.2°N, 149.9°W OCTOBER 1952

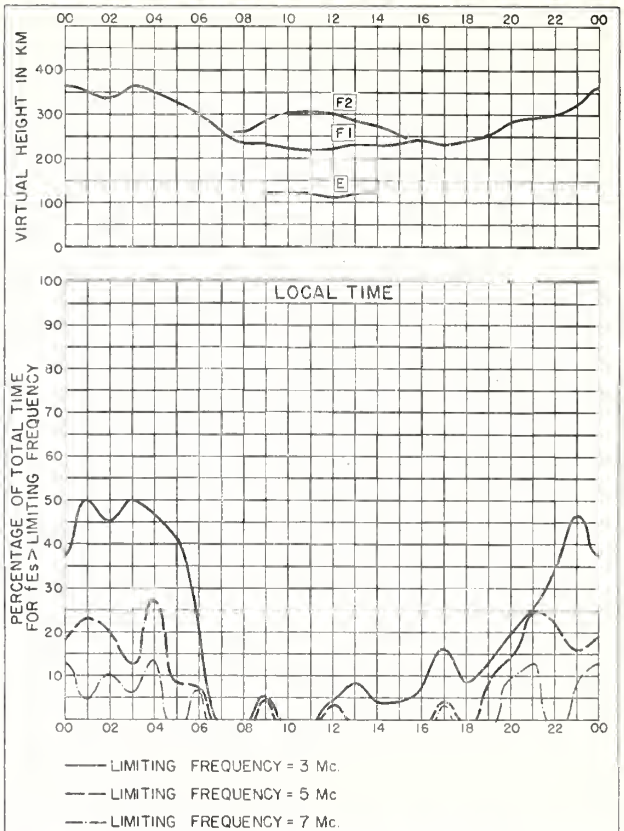


Fig. 66. ANCHORAGE, ALASKA OCTOBER 1952

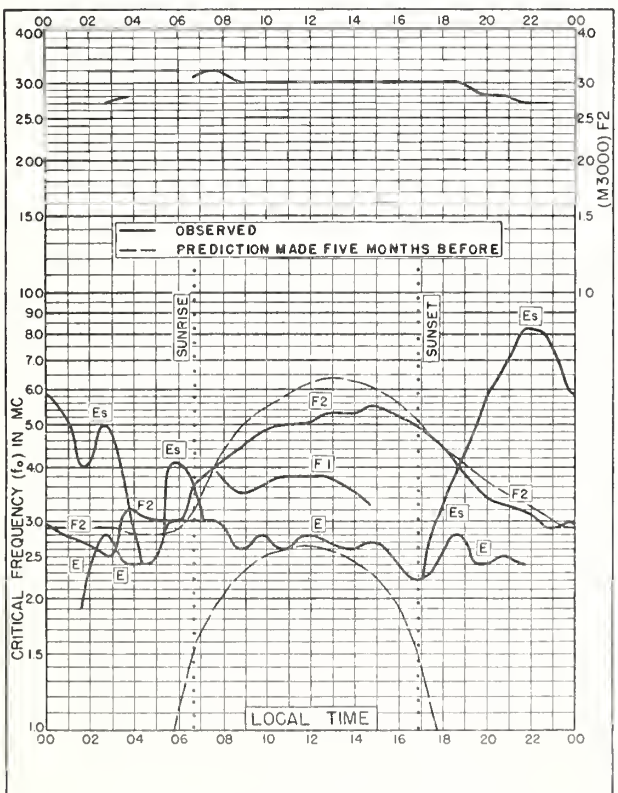


Fig. 67 CHURCHILL, CANADA
58.8°N, 94.2°W OCTOBER 1952

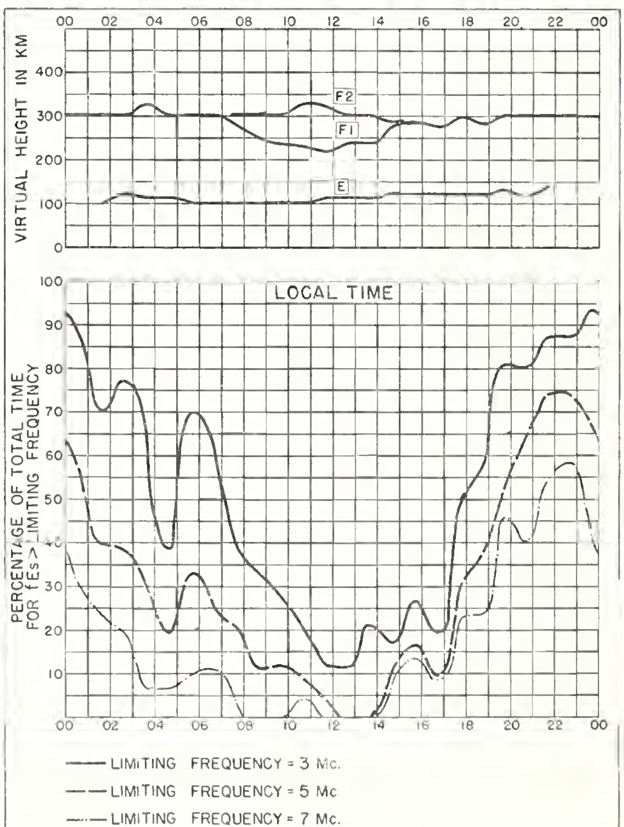


Fig 68. CHURCHILL, CANADA OCTOBER 1952

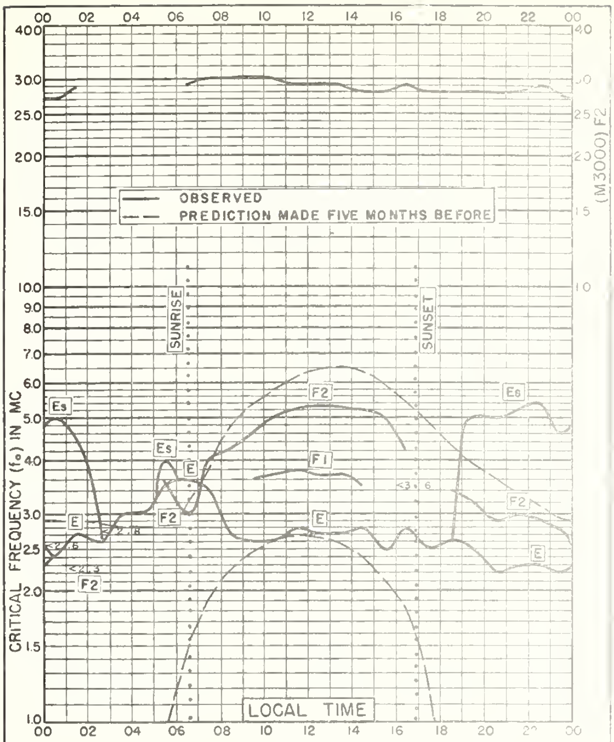


Fig. 69. FORT CHIMO, CANADA
58.1°N, 68.3°W OCTOBER 1952

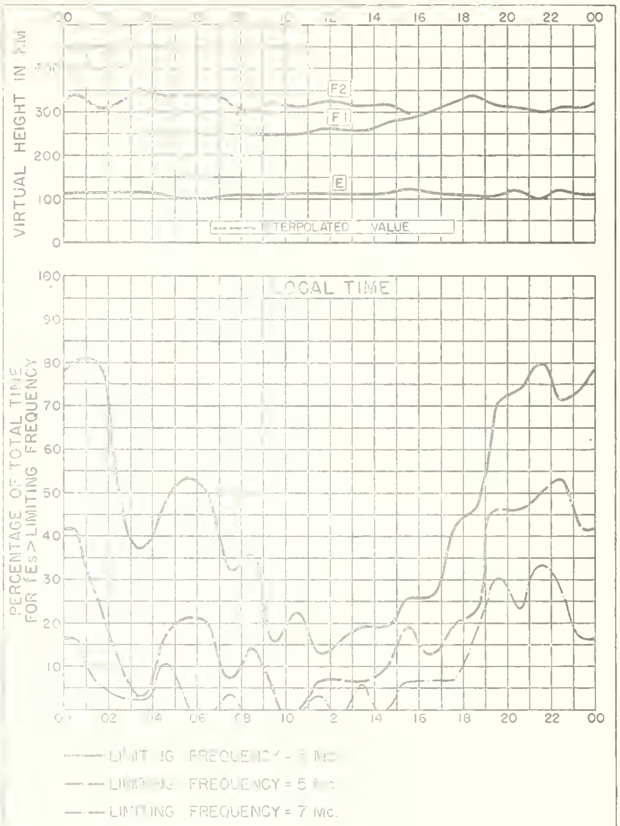


Fig. 70. FORT CHIMO, CANADA OCTOBER 1952

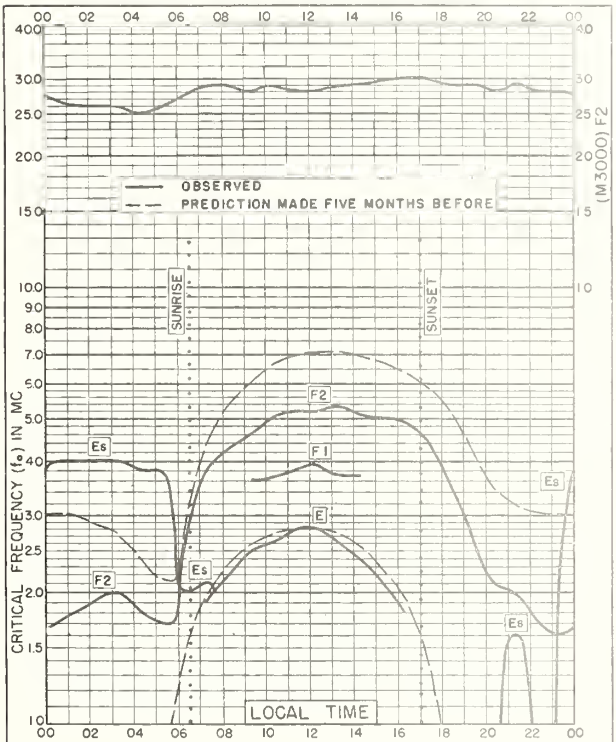


Fig. 71. PRINCE RUPERT, CANADA
54.3°N, 130.3°W OCTOBER 1952

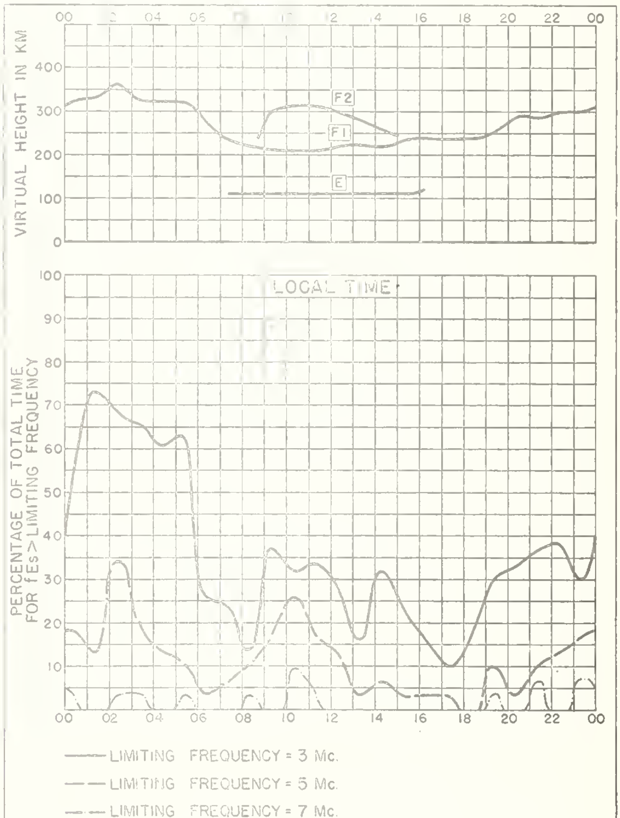


Fig 72. PRINCE RUPERT, CANADA OCTOBER 1952

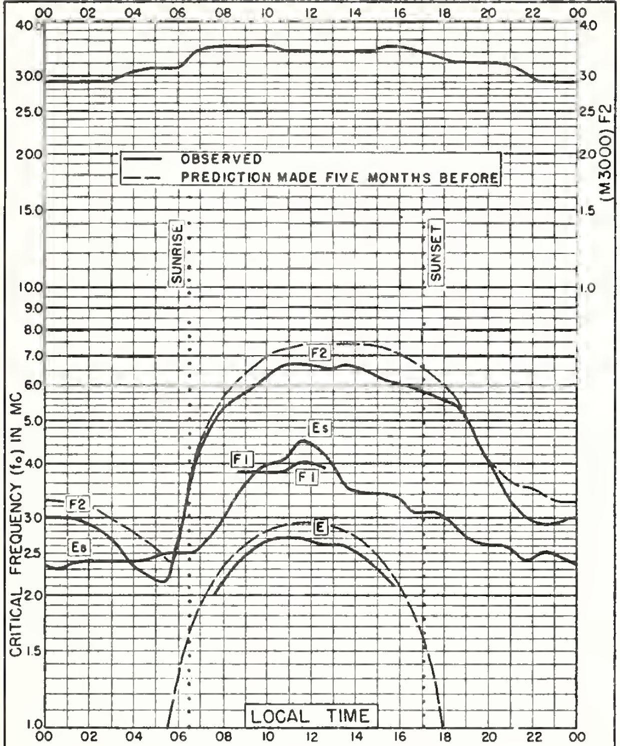


Fig. 73. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E OCTOBER 1952

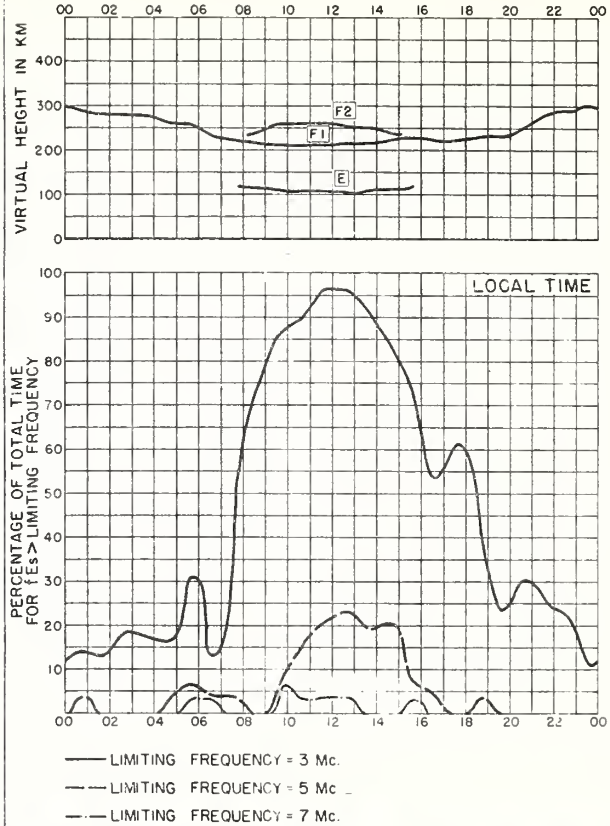


Fig. 74. LINDAU/HARZ, GERMANY OCTOBER 1952

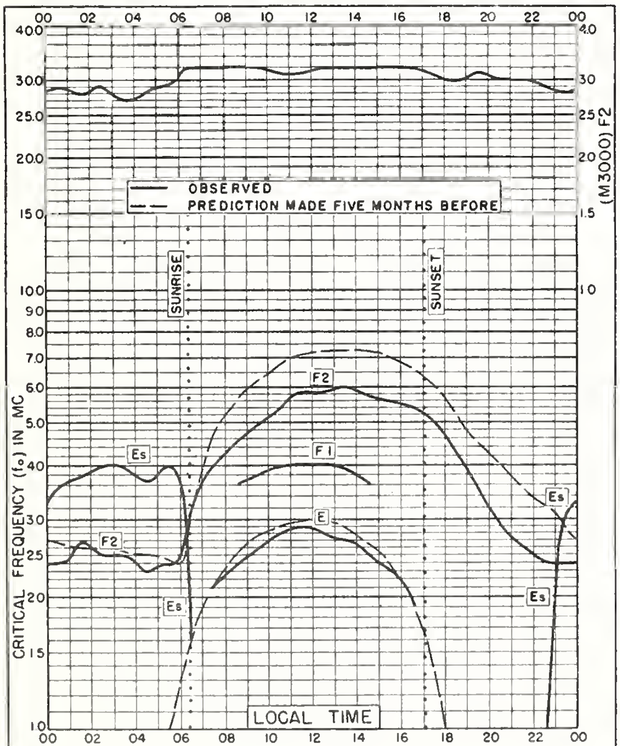


Fig. 75. WINNIPEG, CANADA
49.9°N, 97.4°W OCTOBER 1952

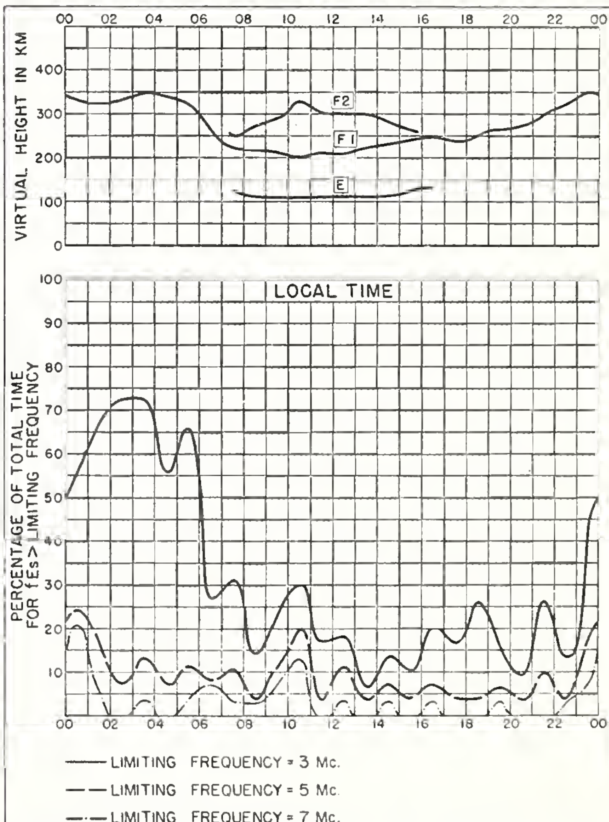


Fig. 76. WINNIPEG, CANADA OCTOBER 1952

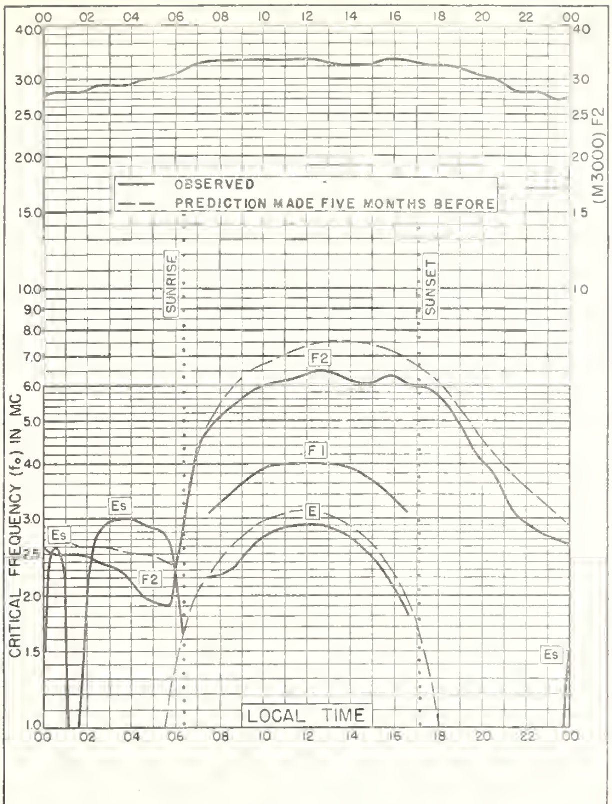


Fig. 77. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W OCTOBER 1952

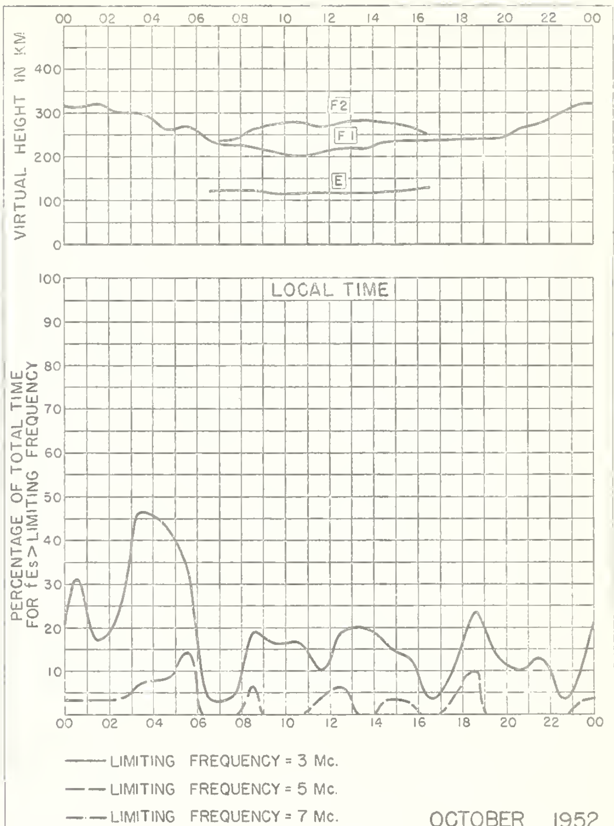


Fig. 78. ST. JOHN'S, NEWFOUNDLAND OCTOBER 1952

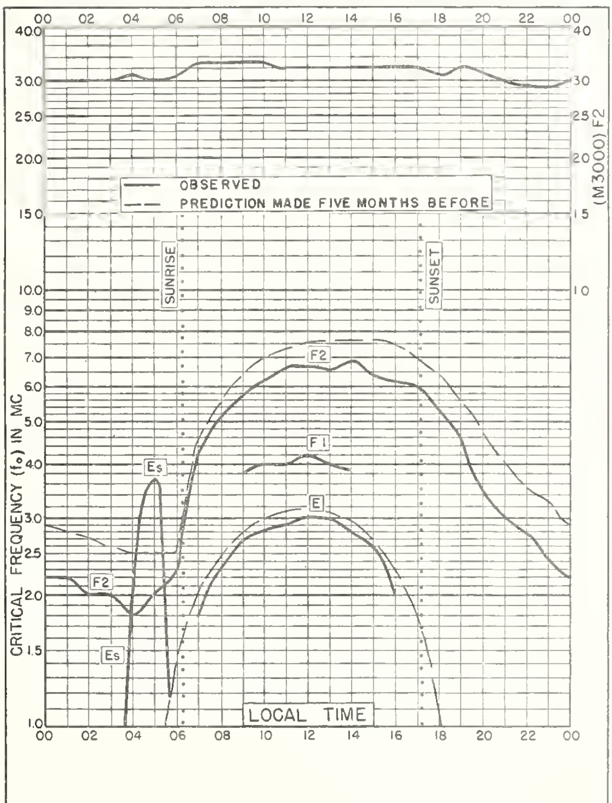


Fig. 79. OTTAWA, CANADA
45.4°N, 75.7°W OCTOBER 1952

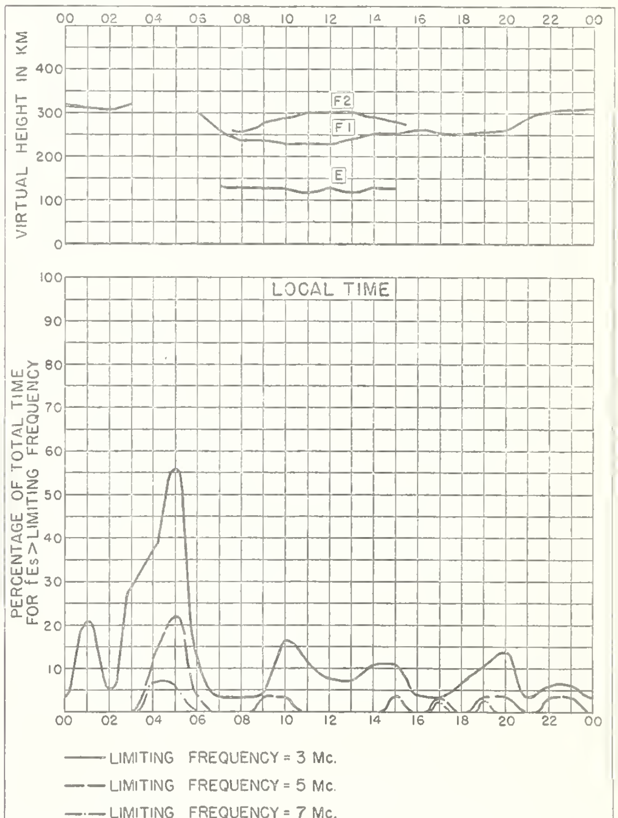


Fig. 80. OTTAWA, CANADA OCTOBER 1952

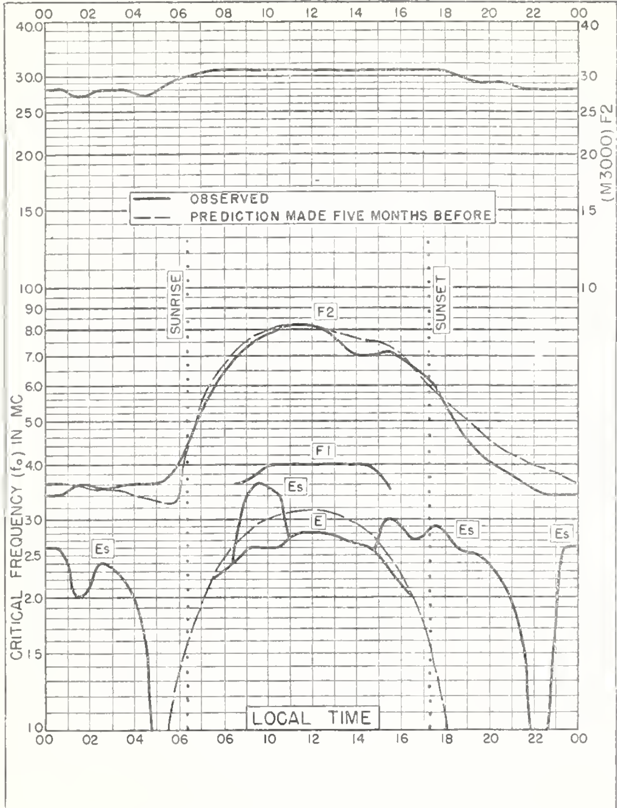


Fig. 81. WAKKANAI, JAPAN
45.4°N, 141.7°E OCTOBER 1952

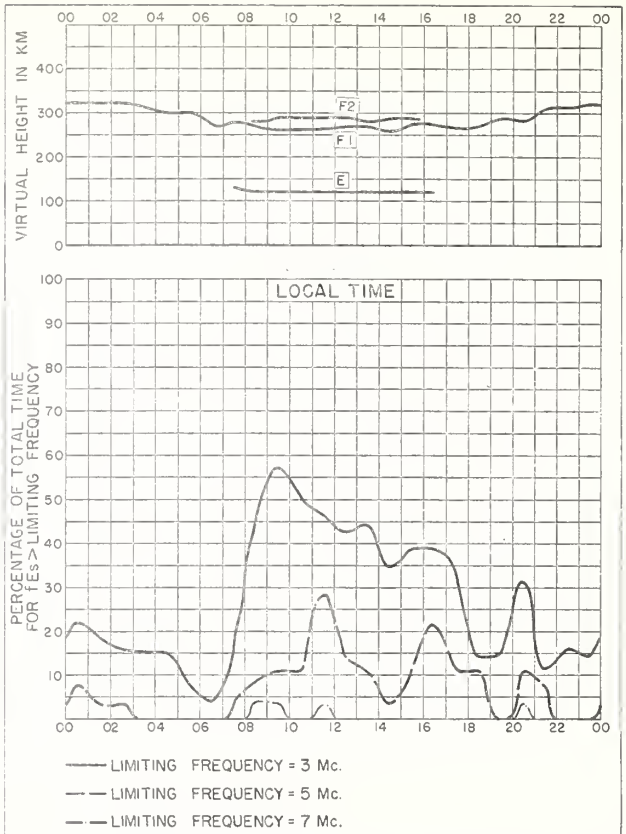


Fig. 82. WAKKANAI, JAPAN OCTOBER 1952

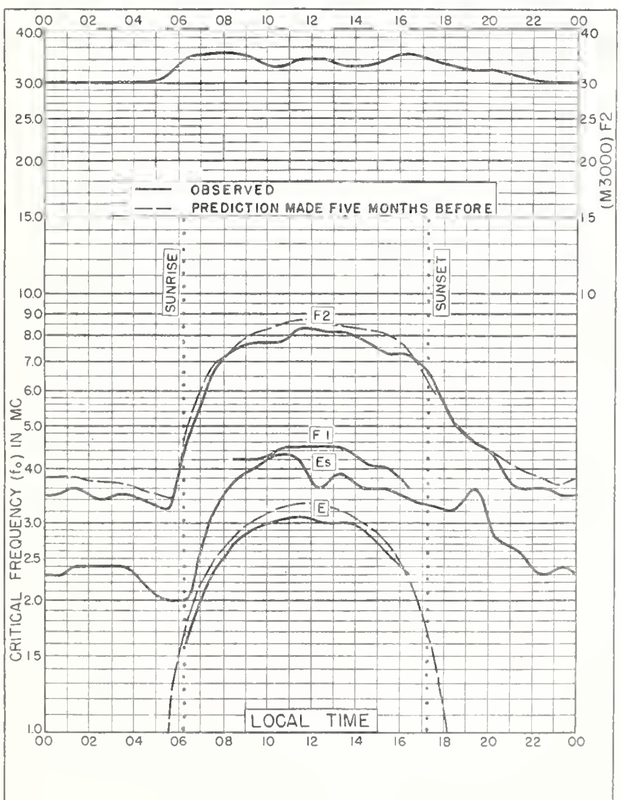


Fig. 83. AKITA, JAPAN
39.7°N, 140.1°E OCTOBER 1952

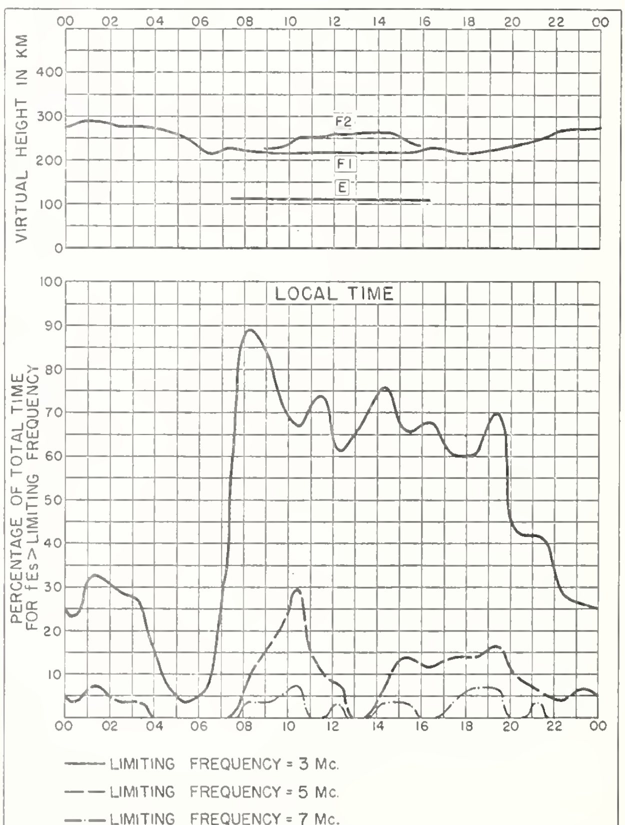


Fig. 84. AKITA, JAPAN OCTOBER 1952

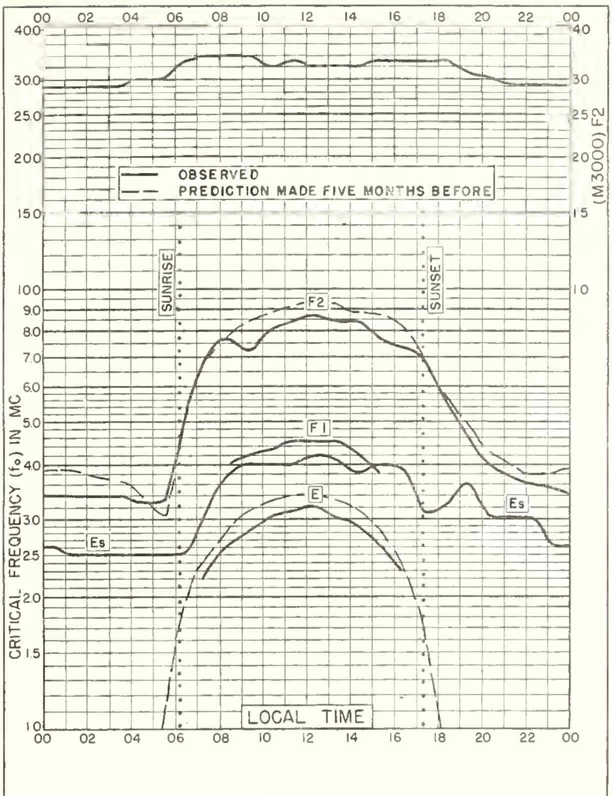


Fig. 85. TOKYO, JAPAN
35.7°N, 139.5°E OCTOBER 1952

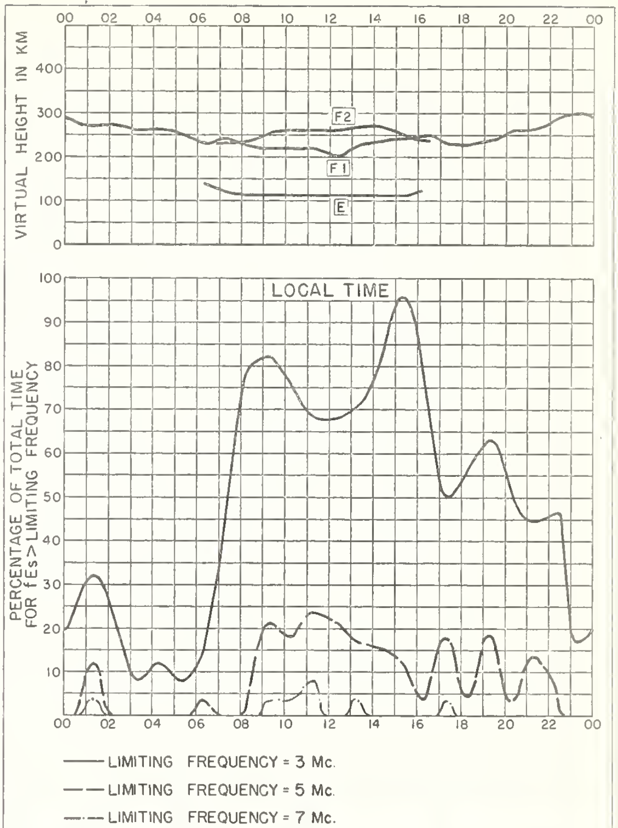


Fig. 86. TOKYO, JAPAN OCTOBER 1952

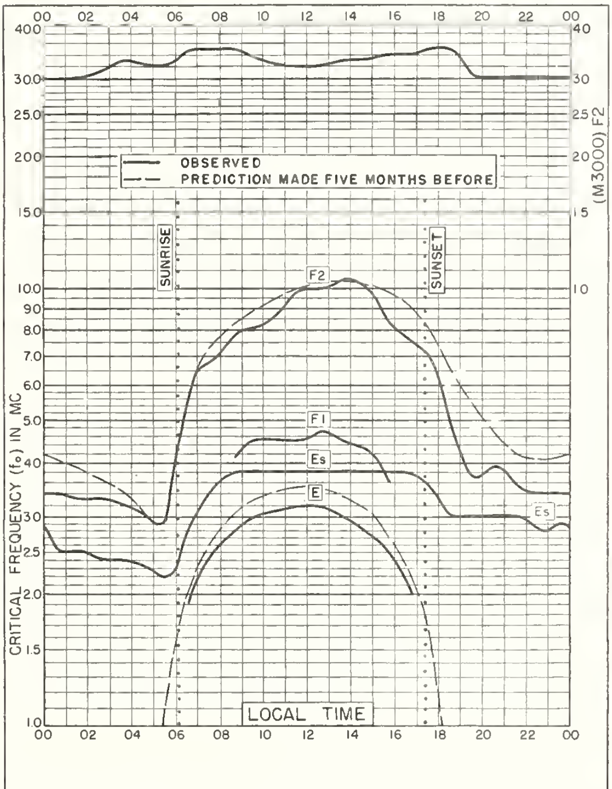


Fig. 87 YAMAGAWA, JAPAN
31.2°N, 130.6°E OCTOBER 1952

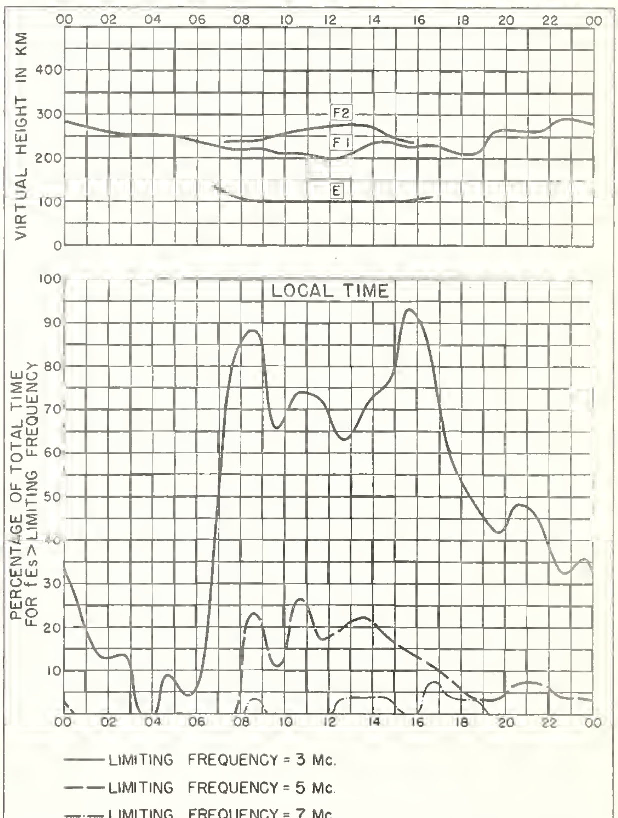


Fig. 88. YAMAGAWA, JAPAN OCTOBER 1952

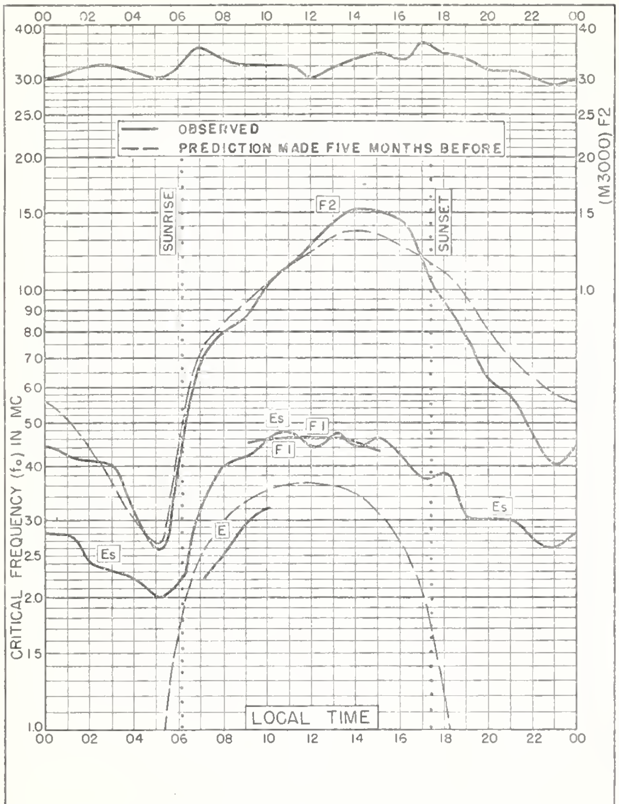


Fig. 89. FORMOSA, CHINA
25.0°N, 121.5°E OCTOBER 1952

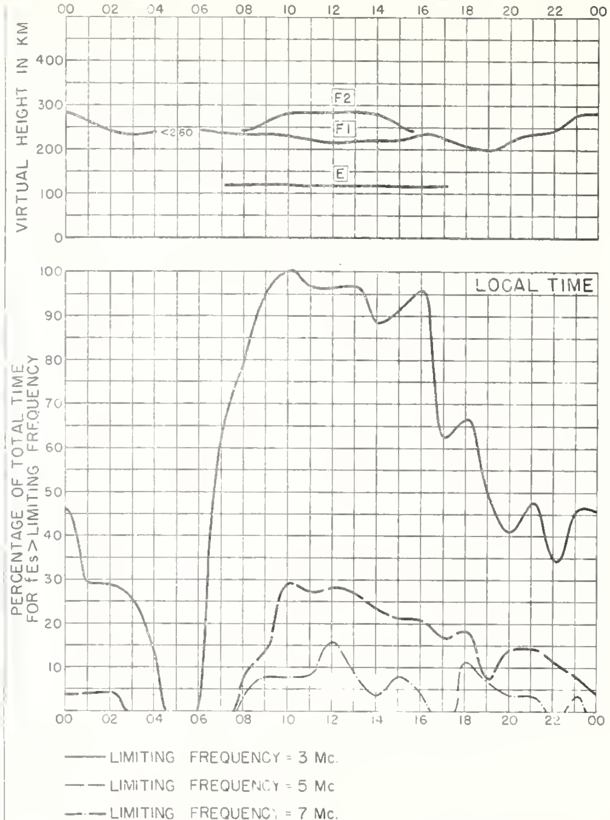


Fig. 90 FORMOSA, CHINA OCTOBER 1952

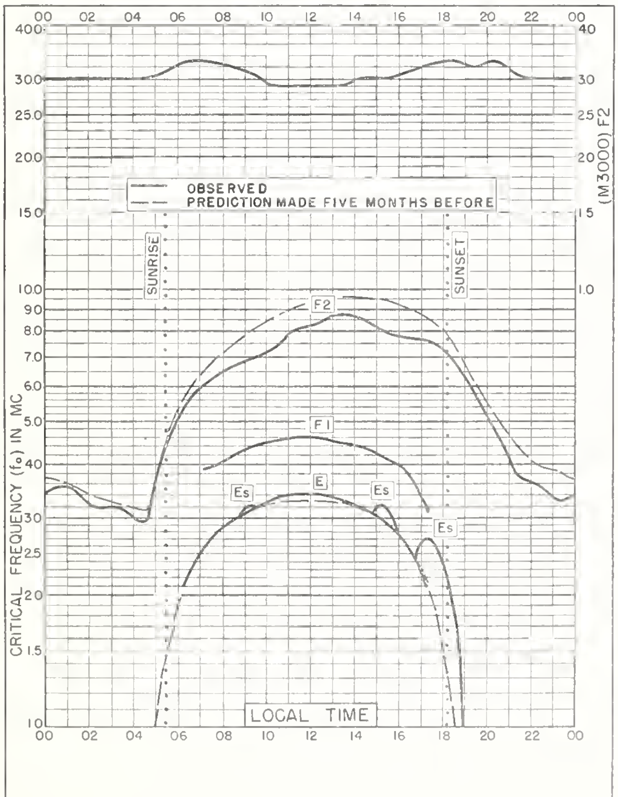
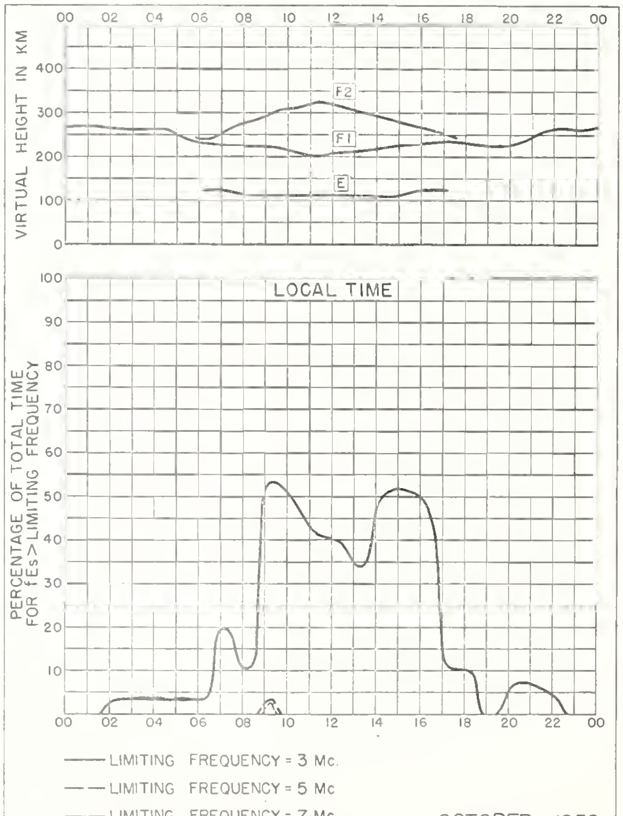


Fig. 91. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E OCTOBER 1952



OCTOBER 1952
Fig. 92. CAPETOWN, UNION OF S. AFRICA

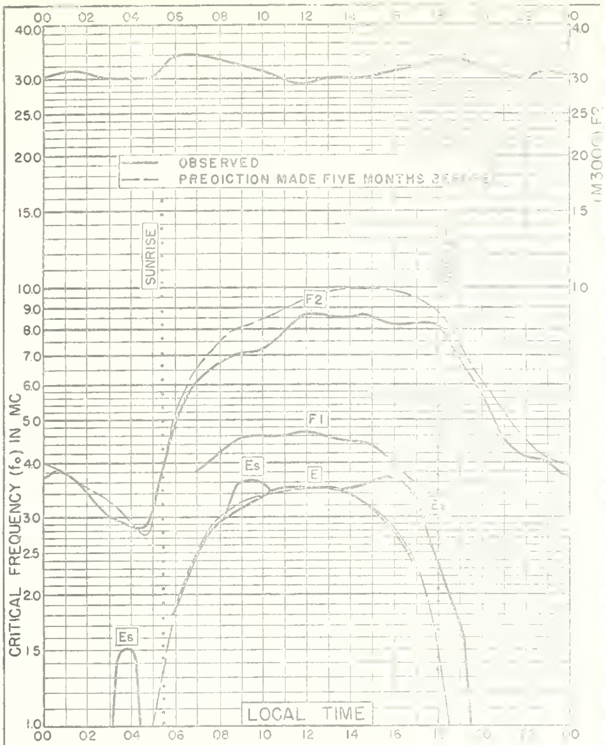
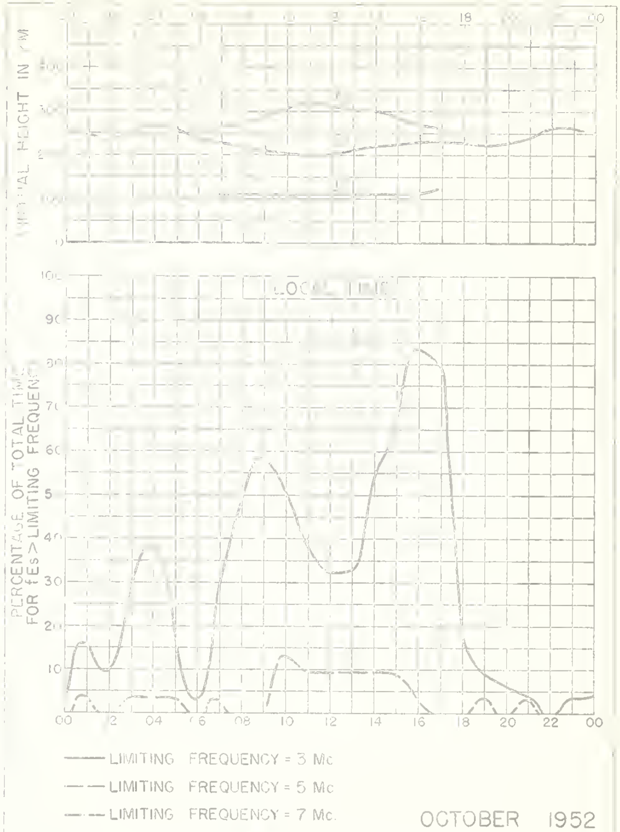


Fig. 93. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E OCTOBER 1952



OCTOBER 1952
Fig. 94 JOHANNESBURG, UNION OF S. AFRICA

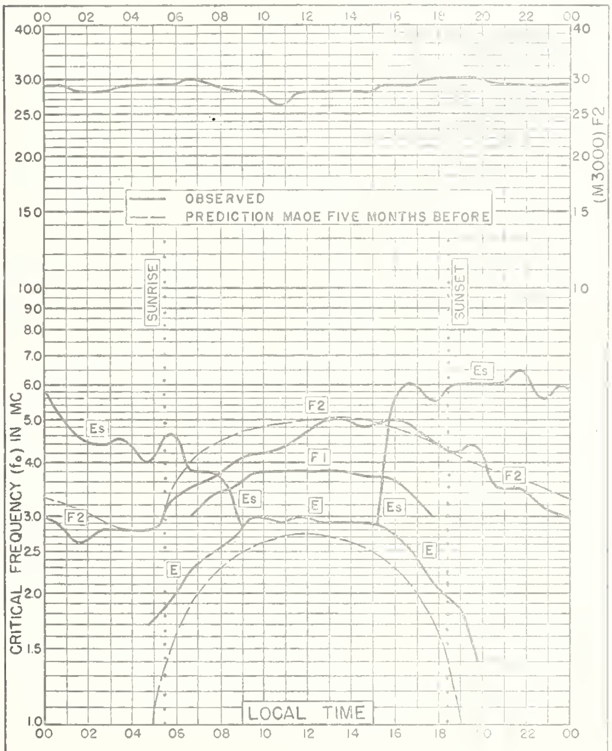


Fig. 95. BAKER LAKE, CANADA
64.3°N, 96.0°W SEPTEMBER 1952

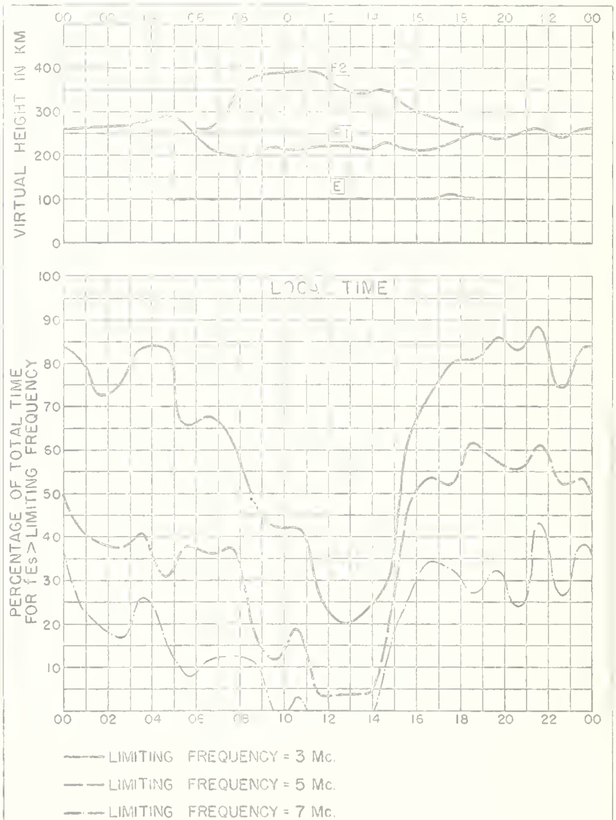


Fig. 96. BAKER LAKE, CANADA SEPTEMBER 1952

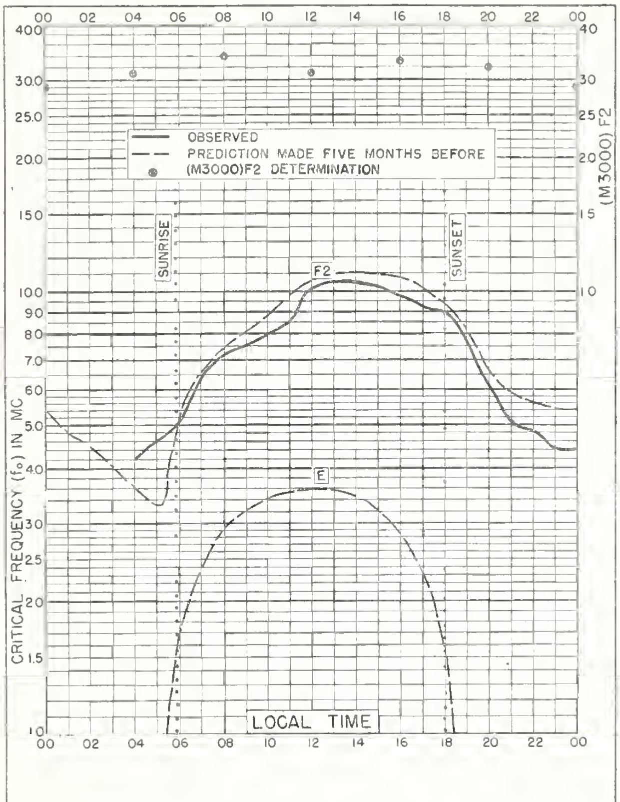


Fig. 97 DELHI, INDIA
28.6°N, 77.1°E SEPTEMBER 1952

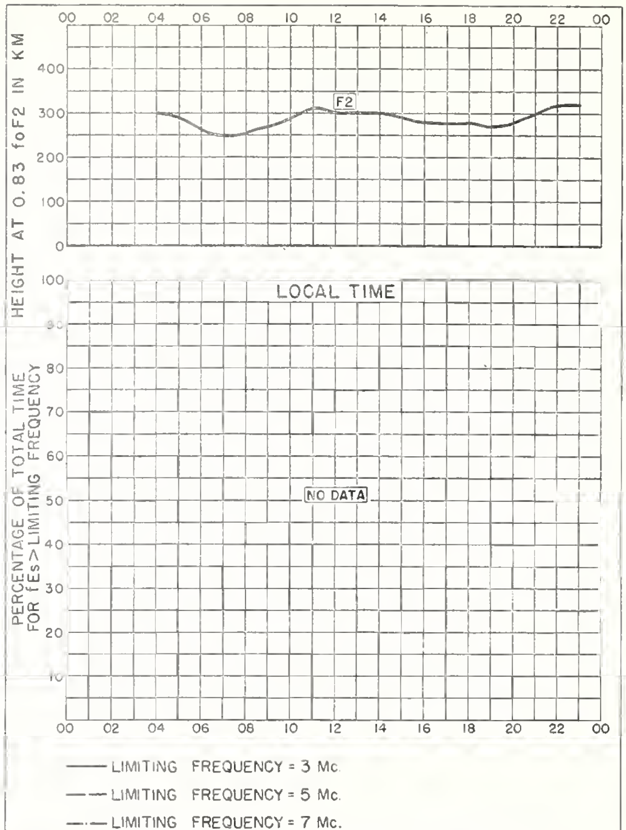


Fig. 98. DELHI, INDIA SEPTEMBER 1952

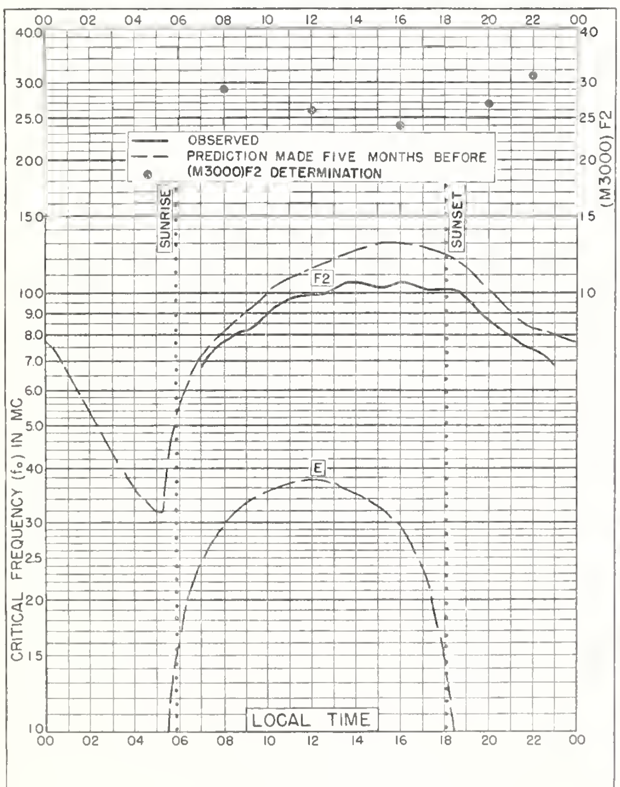


Fig. 99. BOMBAY, INDIA
19.0°N, 73.0°E SEPTEMBER 1952

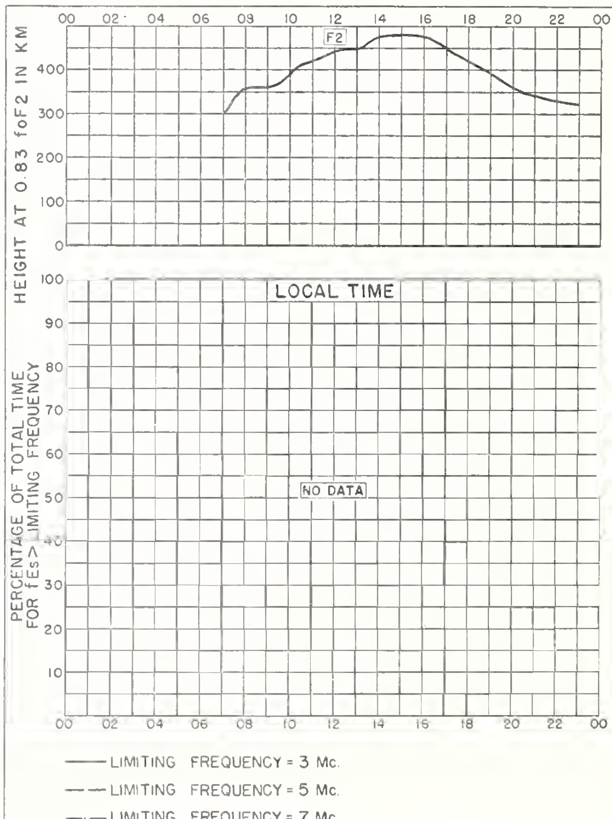


Fig. 100. BOMBAY, INDIA SEPTEMBER 1952

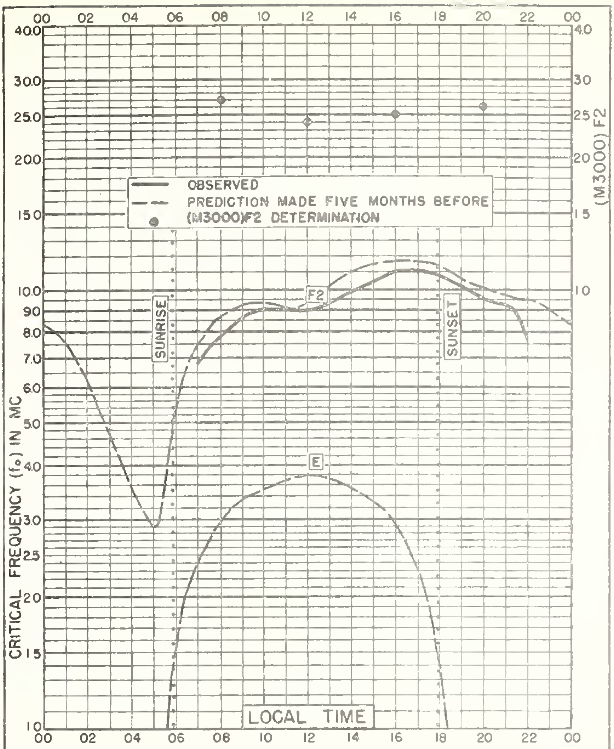


Fig.101. MADRAS, INDIA
13.0°N, 80.2°E SEPTEMBER 1952

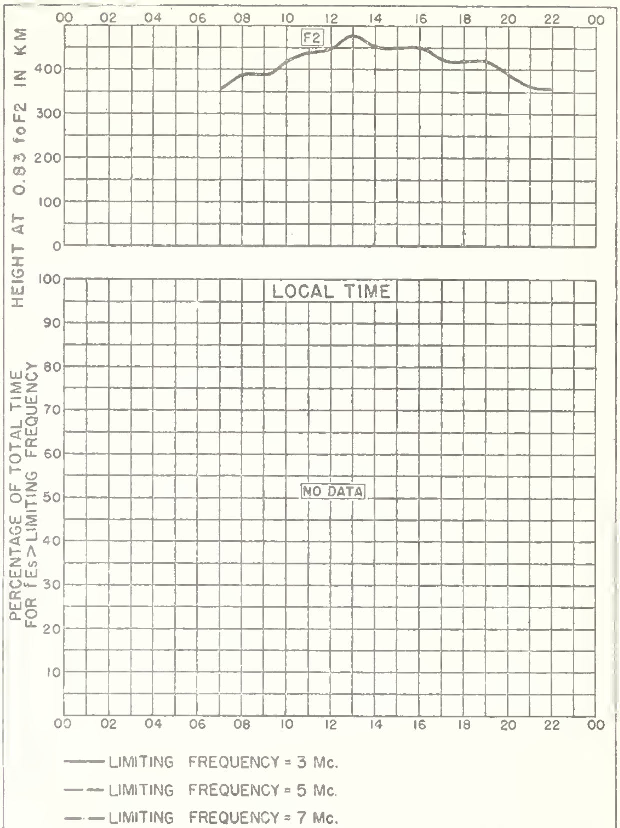


Fig.102. MADRAS, INDIA SEPTEMBER 1952

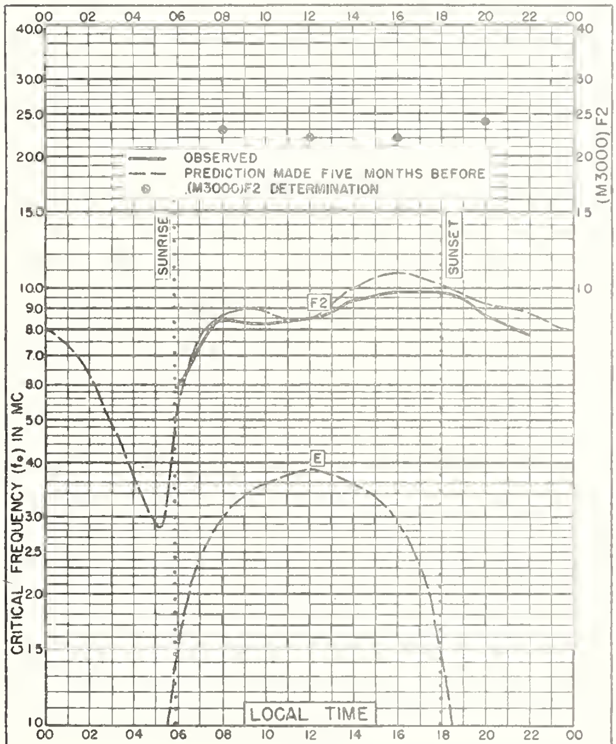


Fig. 103. TIRUCHY, INDIA
10.8°N, 78.8°E SEPTEMBER 1952

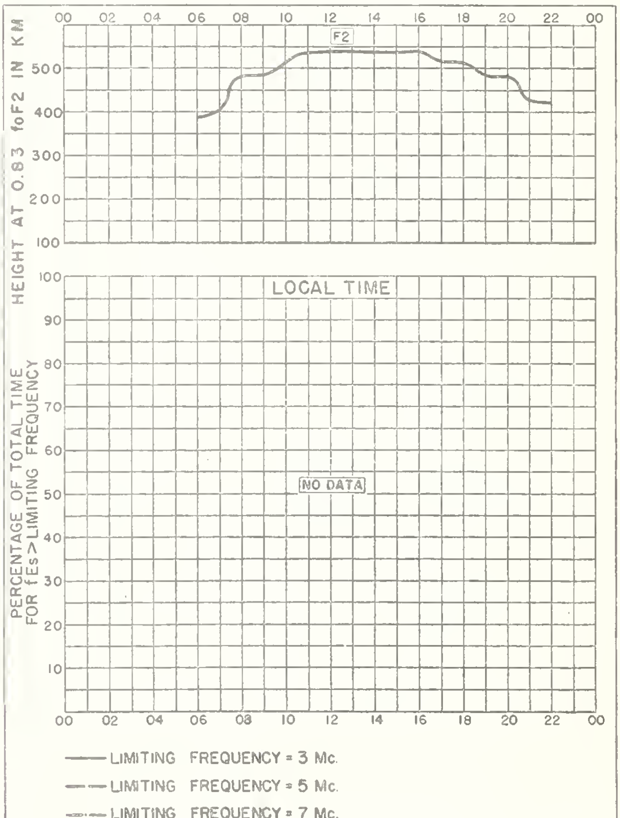


Fig. 104. TIRUCHY, INDIA SEPTEMBER 1952

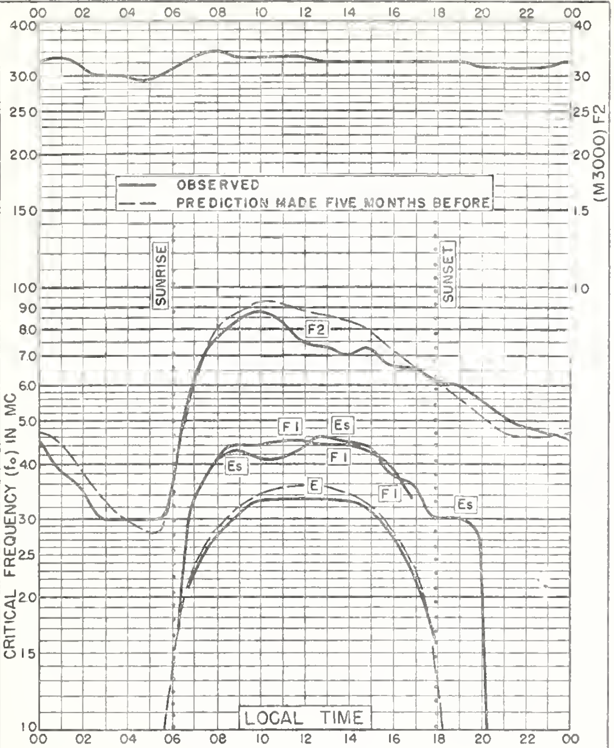


Fig. 105. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8° E SEPTEMBER 1952

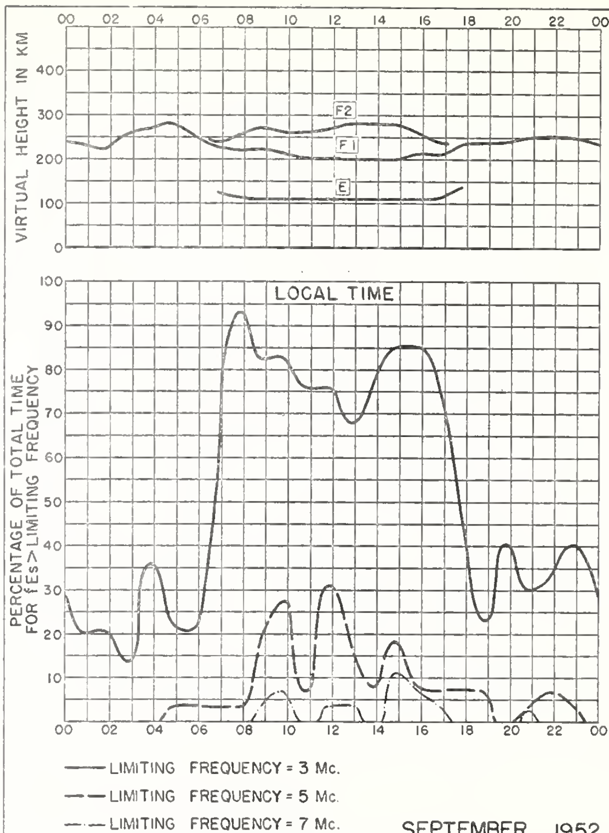


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Fig. 106. TOWNSVILLE, AUSTRALIA

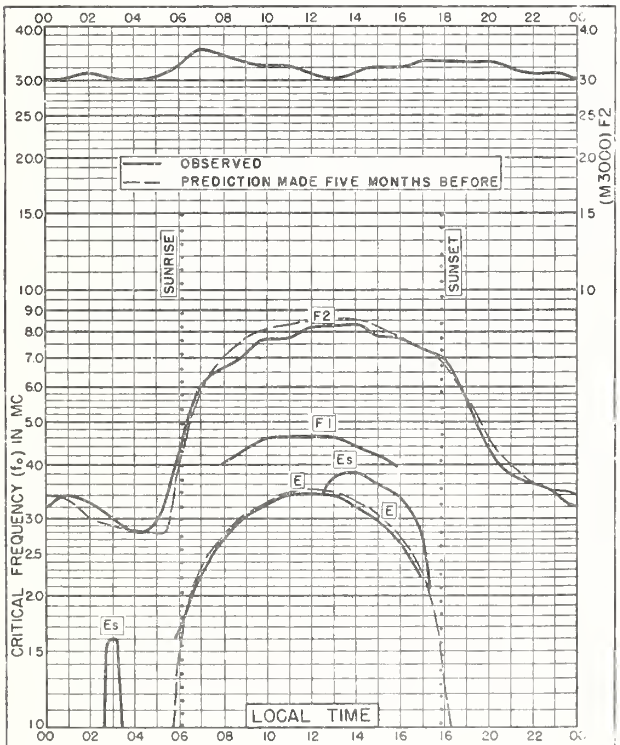

Fig. 107. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E SEPTEMBER 1952

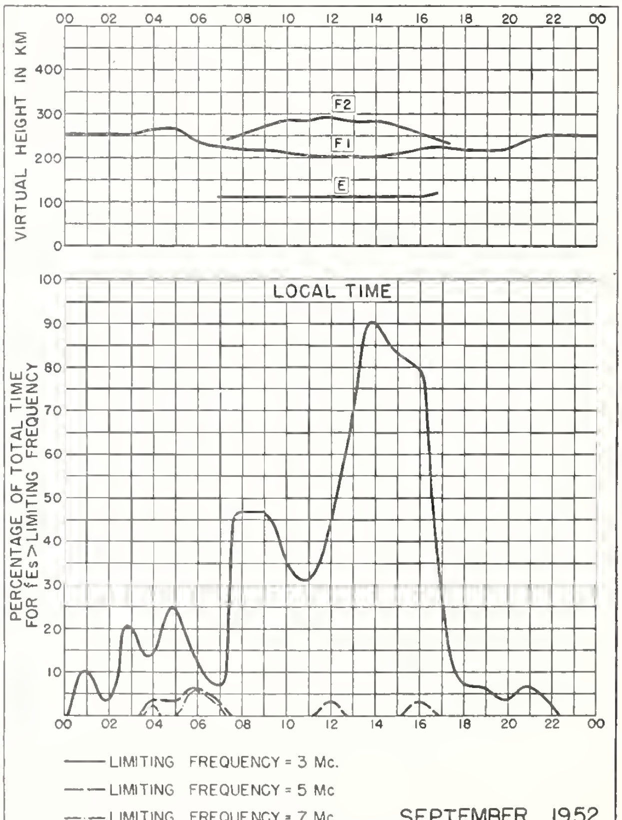

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Fig. 108. JOHANNESBURG, UNION OF S. AFRICA

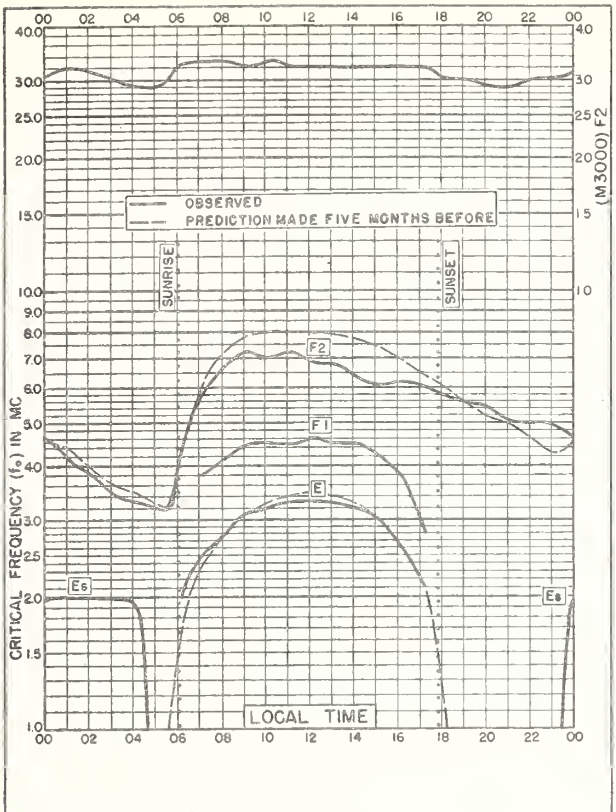

Fig. 109. BRISBANE, AUSTRALIA
27.5°S, 153.0°E SEPTEMBER 1952

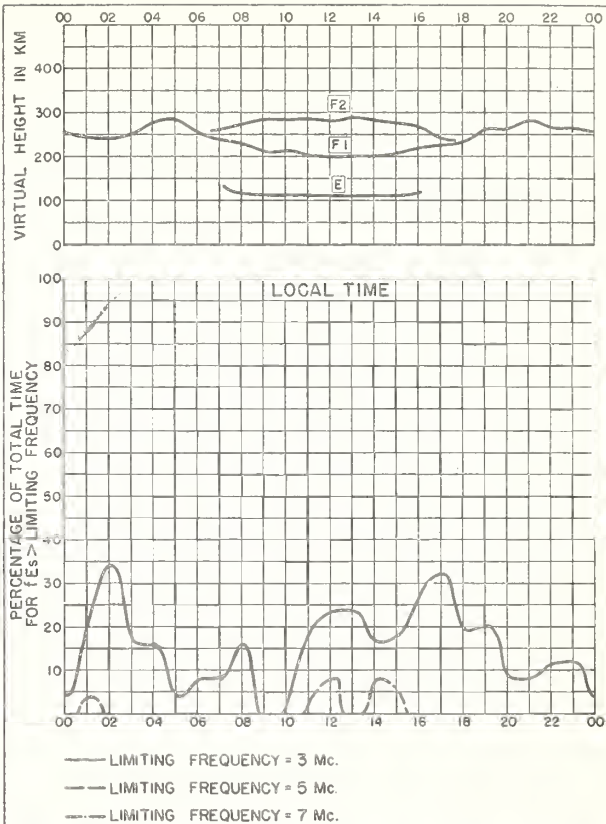

Fig. 110. BRISBANE, AUSTRALIA SEPTEMBER 1952

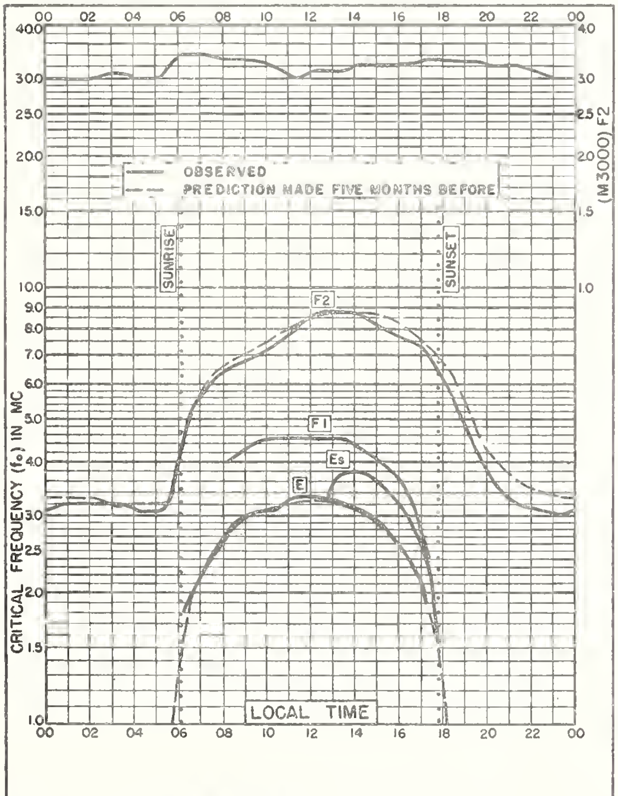

Fig. 111. CAPETOWN, UNION OF S. AFRICA
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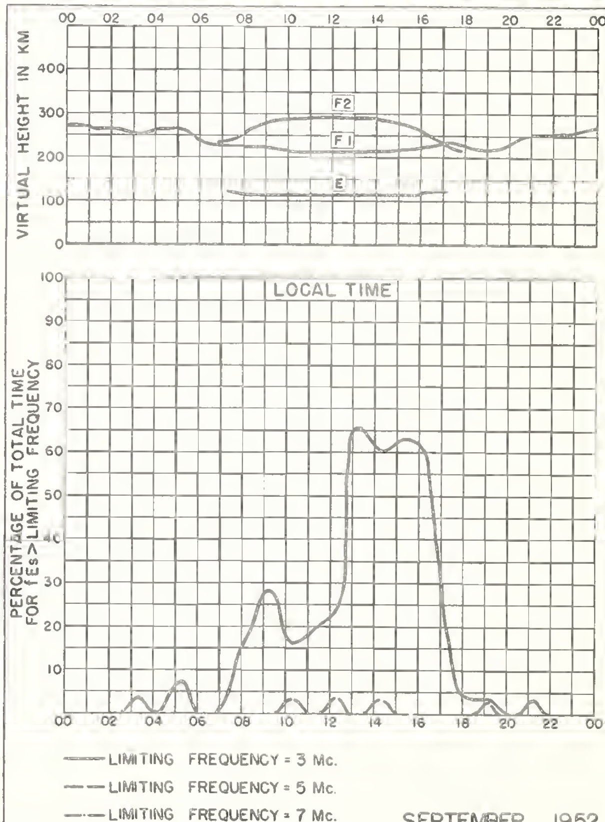

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Fig. 112. CAPETOWN, UNION OF S. AFRICA

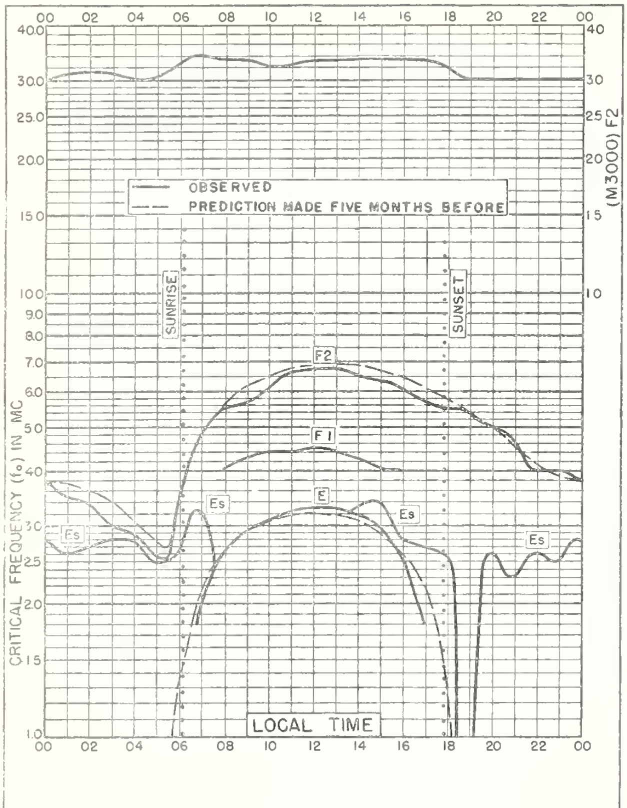

Fig. 113. CANBERRA, AUSTRALIA
35.3°S, 149.0°E SEPTEMBER 1952

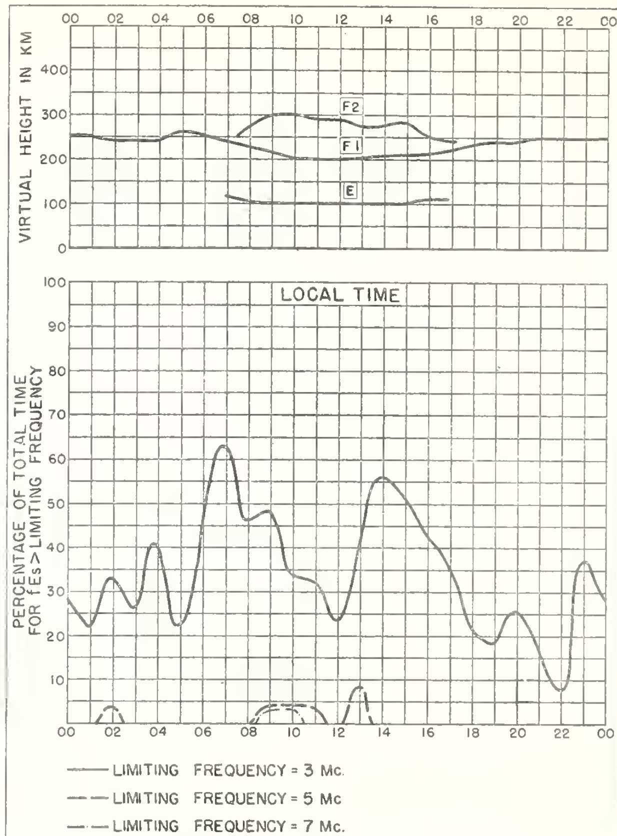

Fig. 114. CANBERRA, AUSTRALIA SEPTEMBER 1952

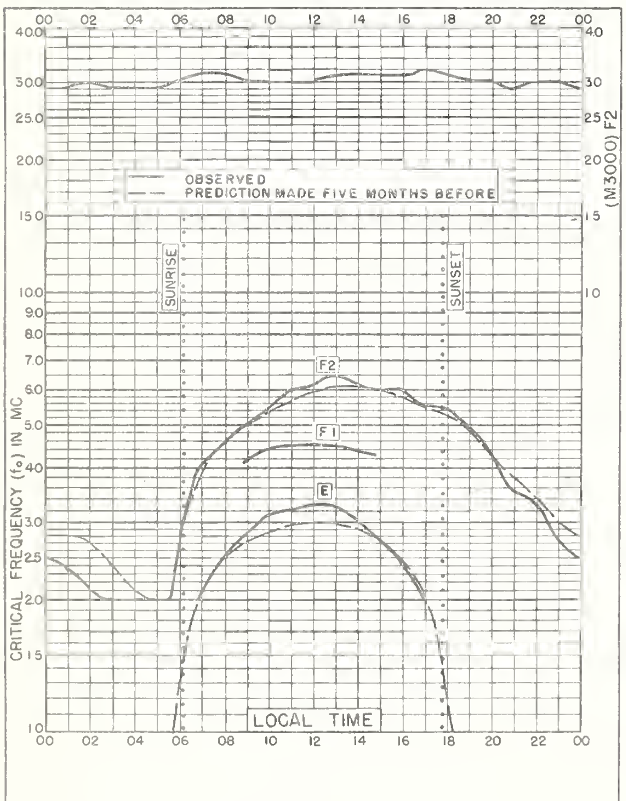

Fig. 115. HOBART, TASMANIA
42.9°S, 147.3°E SEPTEMBER 1952

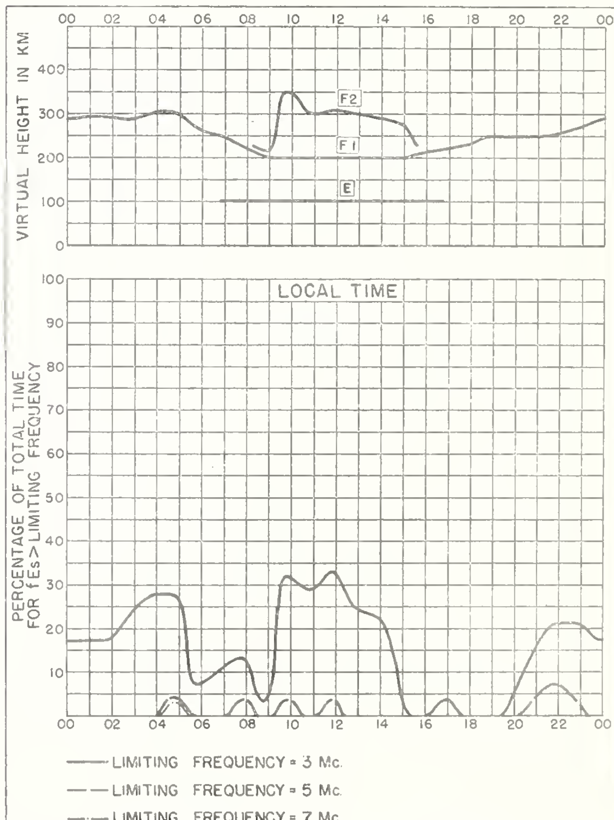

Fig. 116. HOBART, TASMANIA SEPTEMBER 1952

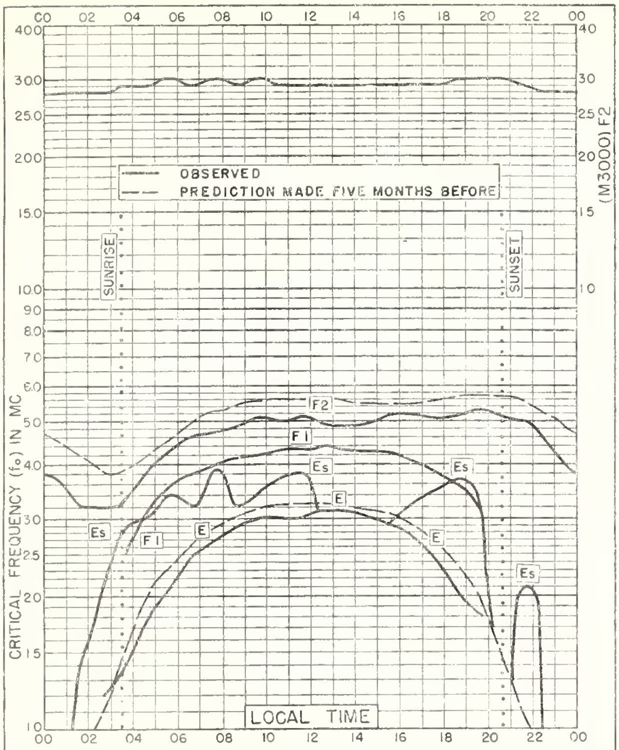

Fig. 117. INVERNESS, SCOTLAND
57.4°N, 4.2°W JULY 1952

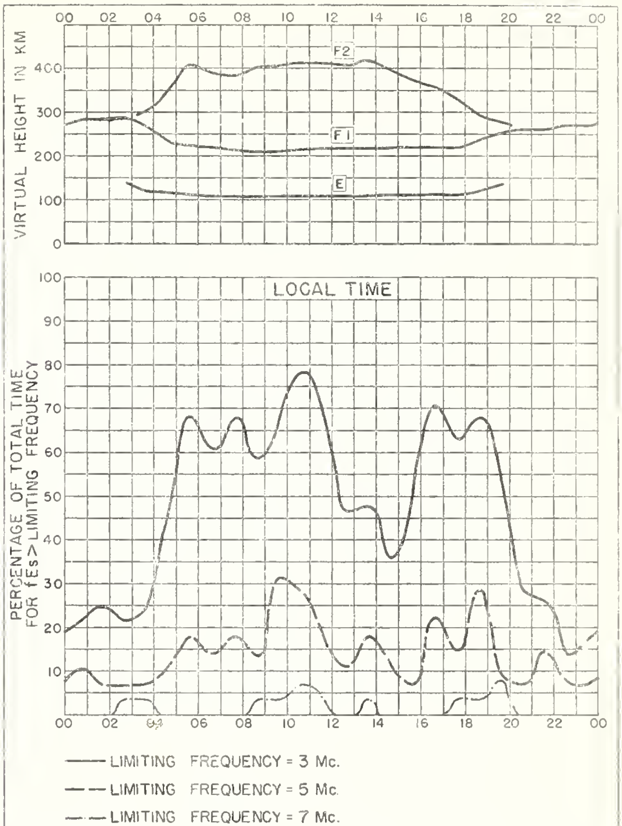

Fig. 118. INVERNESS, SCOTLAND JULY 1952

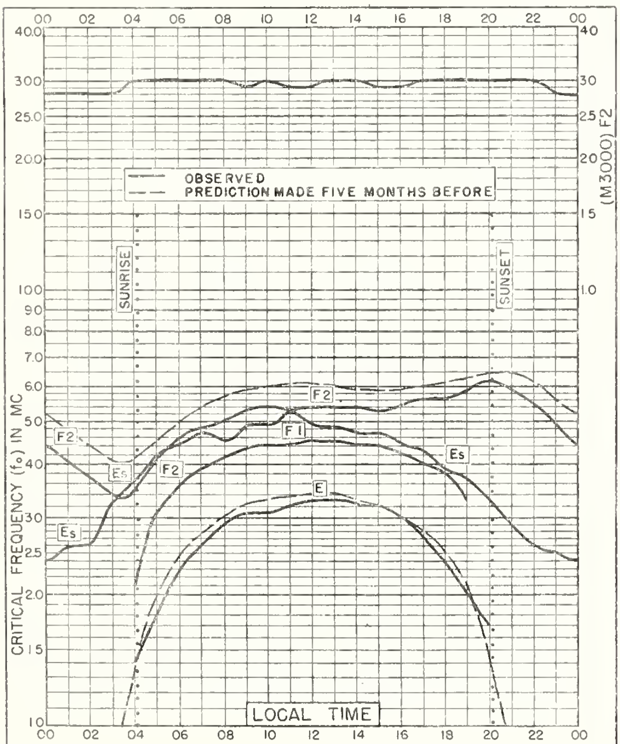

Fig. 119. SLOUGH, ENGLAND
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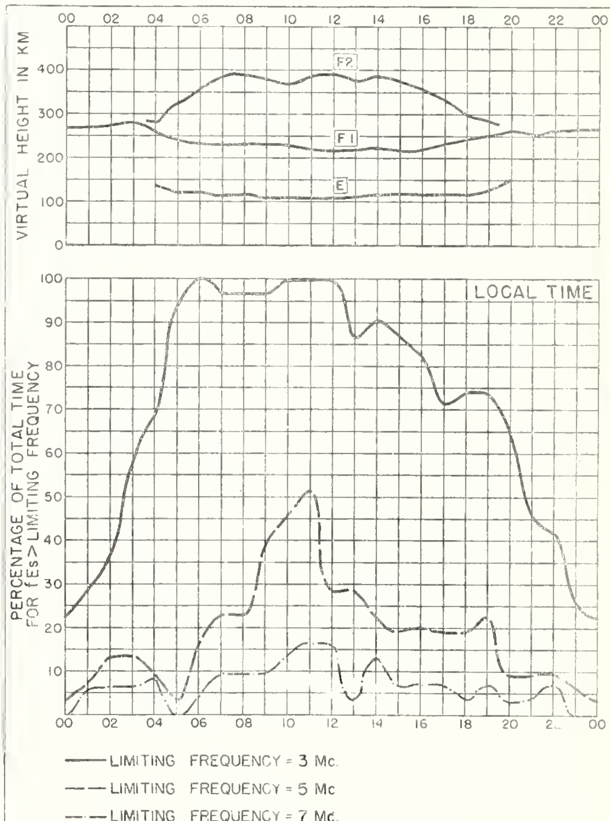

Fig. 120. SLOUGH, ENGLAND JULY 1952

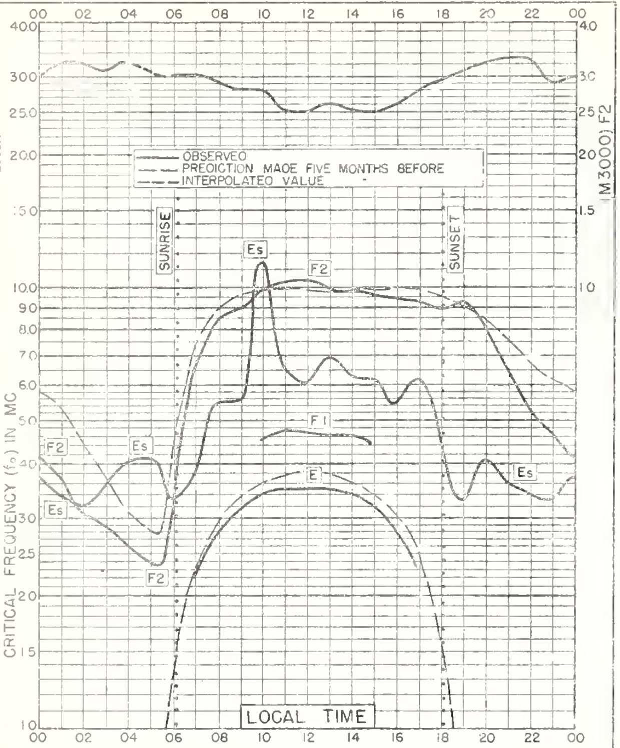

Fig.121. SINGAPORE, BRITISH MALAYA
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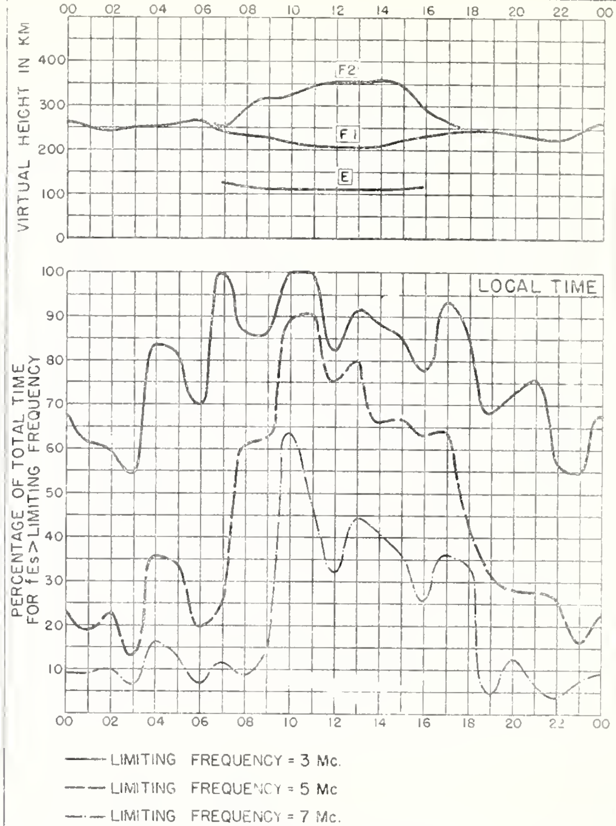

Fig. 122. SINGAPORE, BRITISH MALAYA JULY 1952

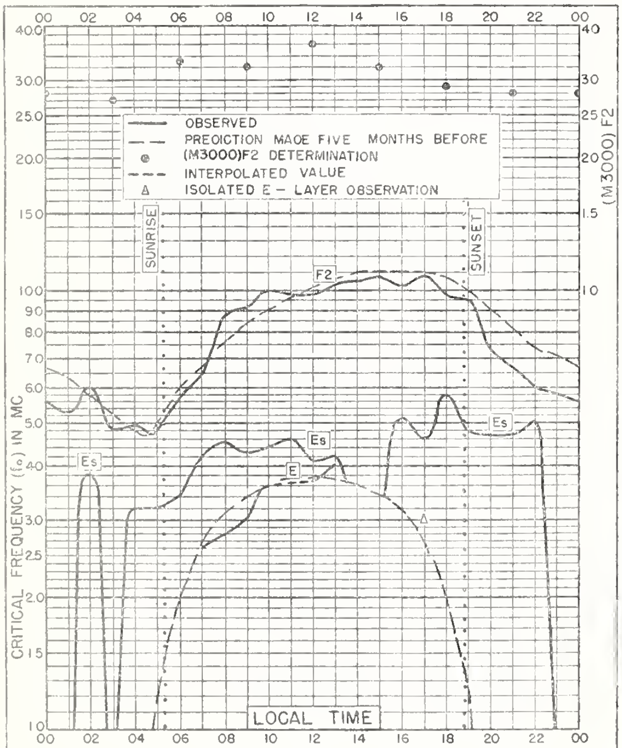

Fig.123. CALCUTTA, INDIA
22.6°N, 88.4°E JUNE 1952

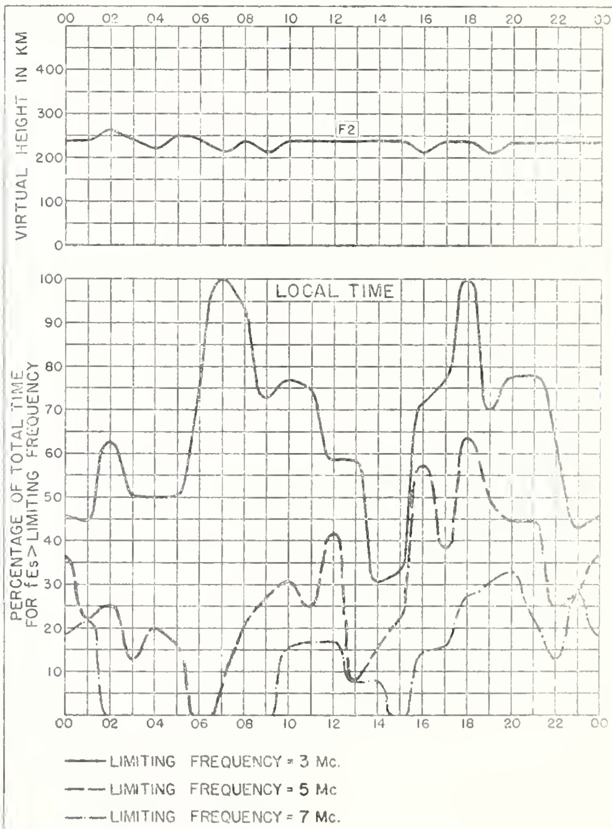

Fig. 124. CALCUTTA, INDIA JUNE 1952

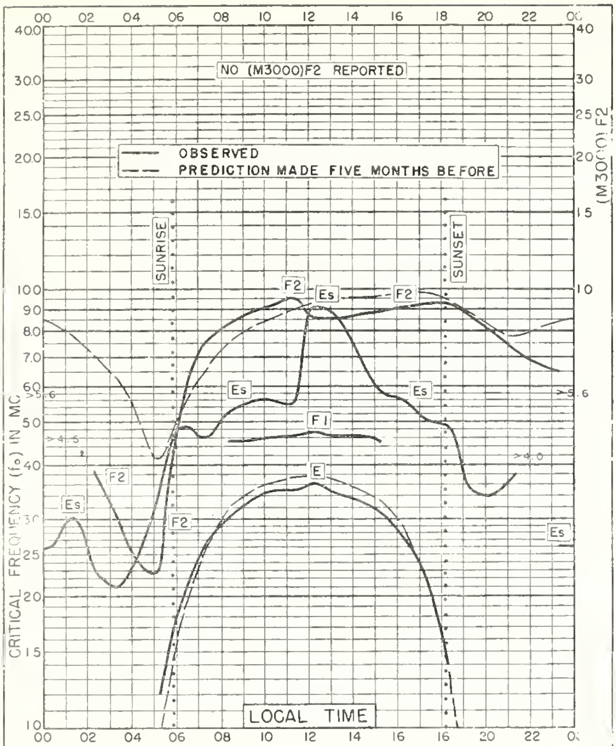

Fig.125. IBADAN, NIGERIA
7.4°N, 4.0°E JUNE 1952

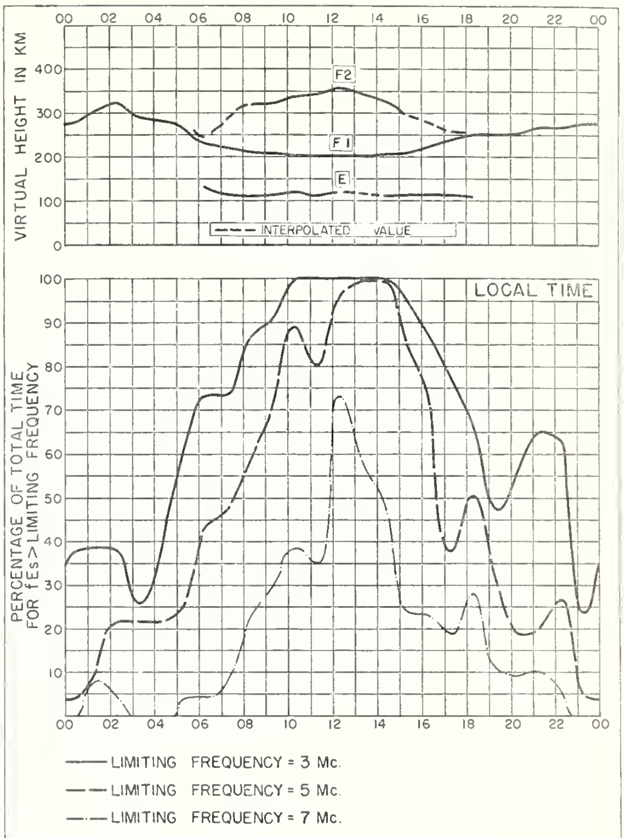

Fig.126. IBADAN, NIGERIA JUNE 1952

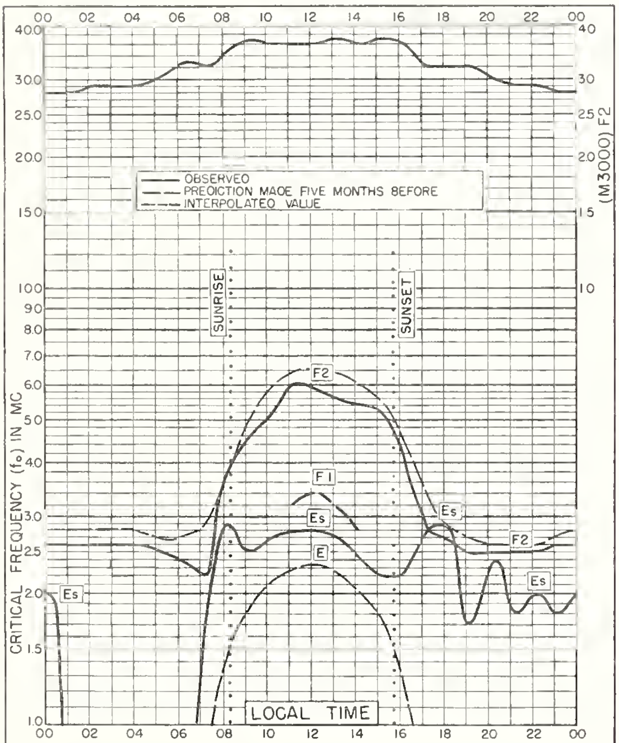

Fig.127. FALKLAND IS.
51.7°S, 57.8°W JUNE 1952

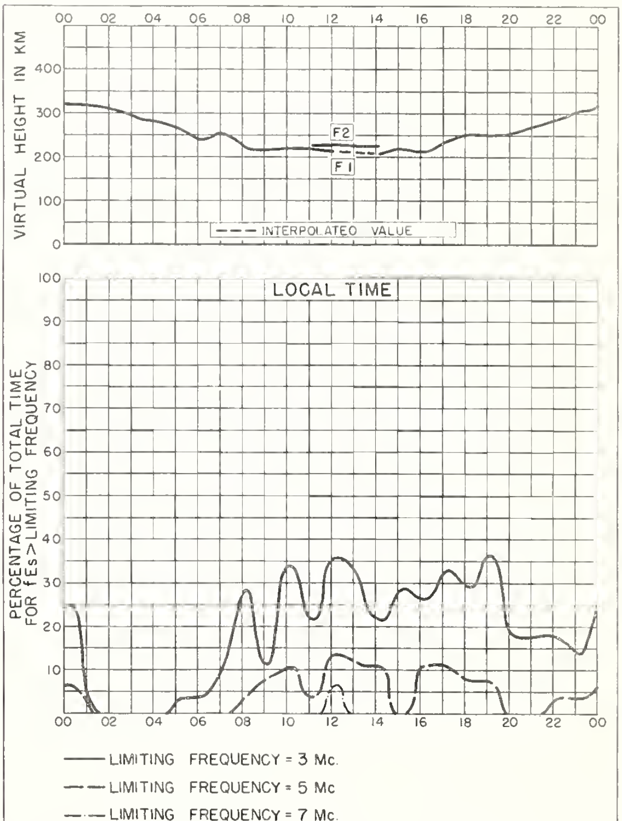

Fig.128. FALKLAND IS. JUNE 1952

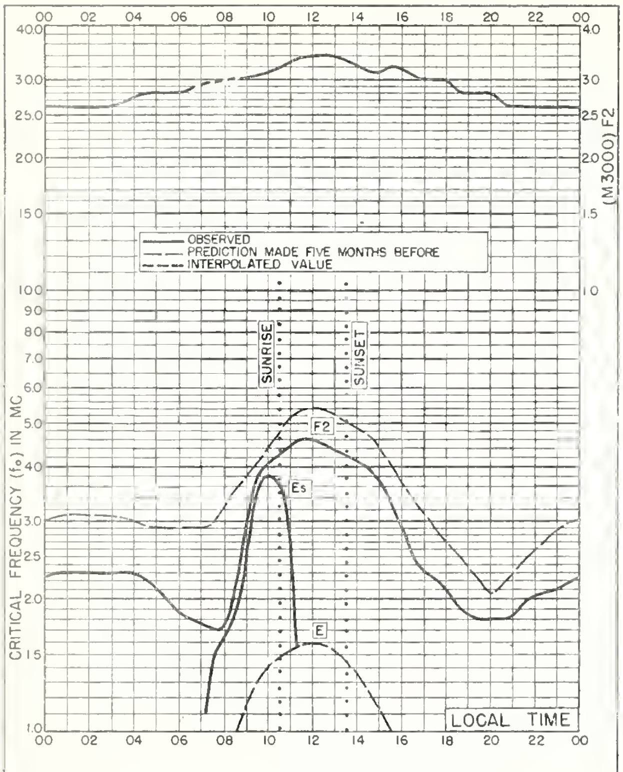

Fig. 129. PORT LOCKROY
64.8°S, 63.5°W JUNE 1952

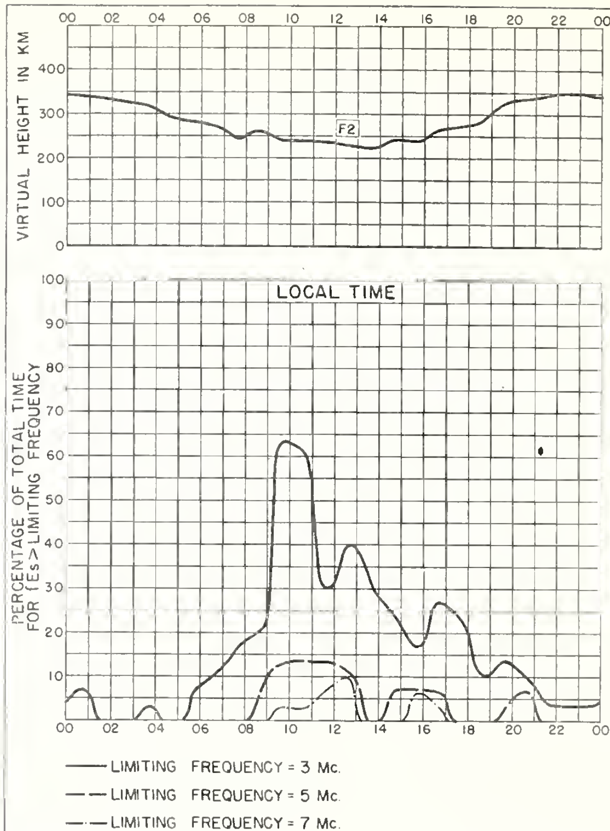

Fig. 130. PORT LOCKROY JUNE 1952

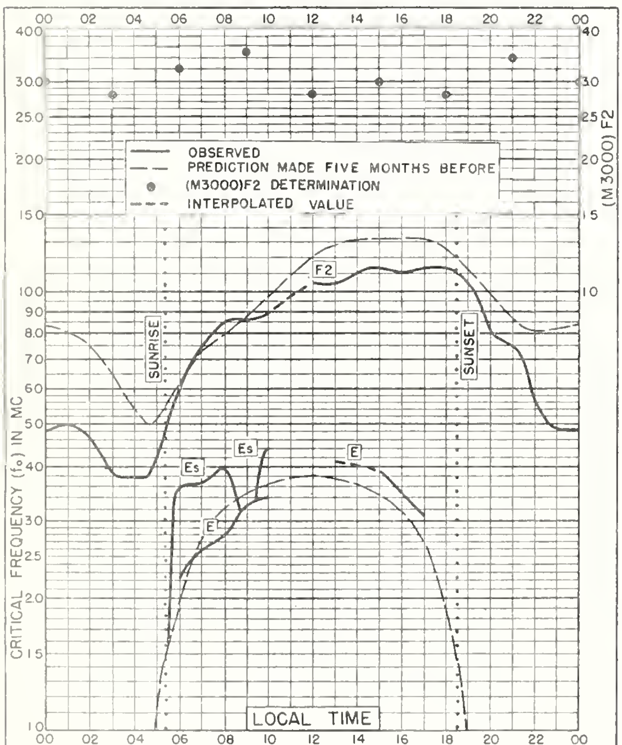

Fig. 131. CALCUTTA, INDIA
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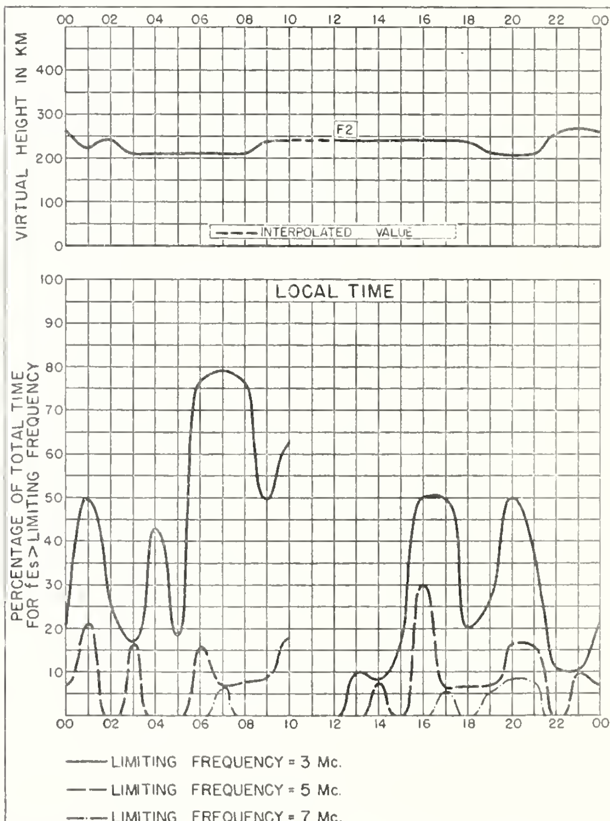

Fig. 132 CALCUTTA, INDIA MAY 1952

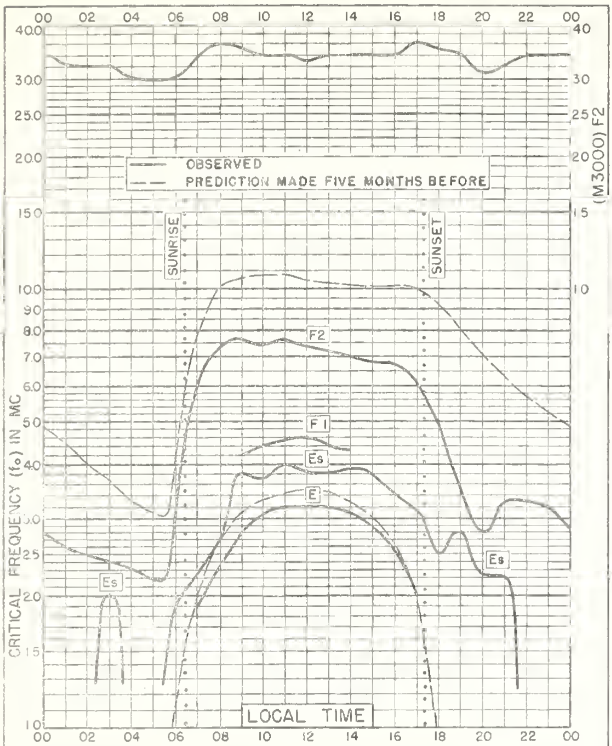

Fig. 133. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E MAY 1952

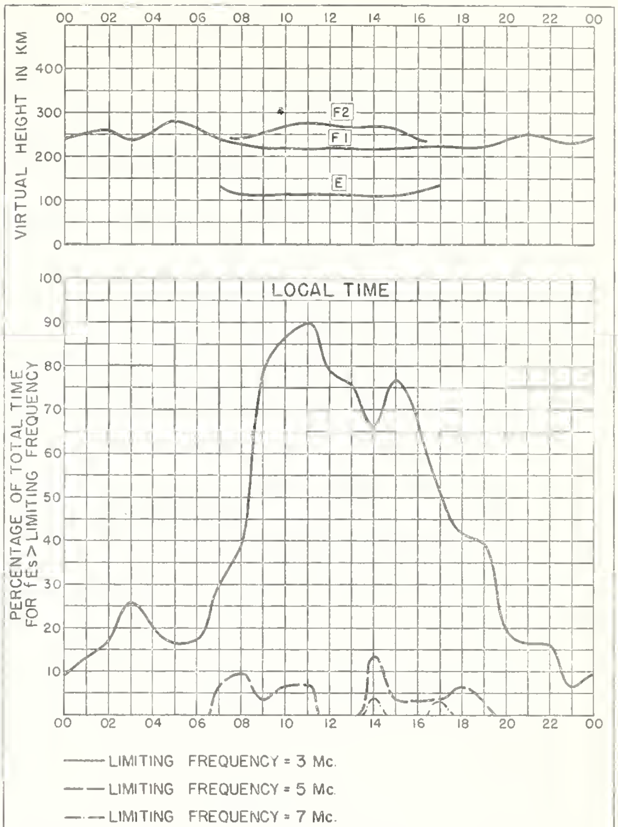

Fig. 134. TANANARIVE, MADAGASCAR MAY 1952

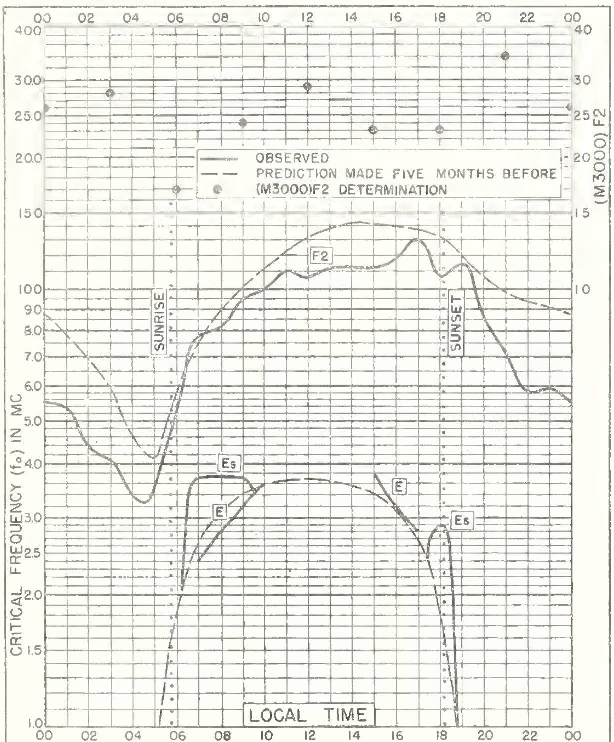

Fig. 135. CALCUTTA, INDIA
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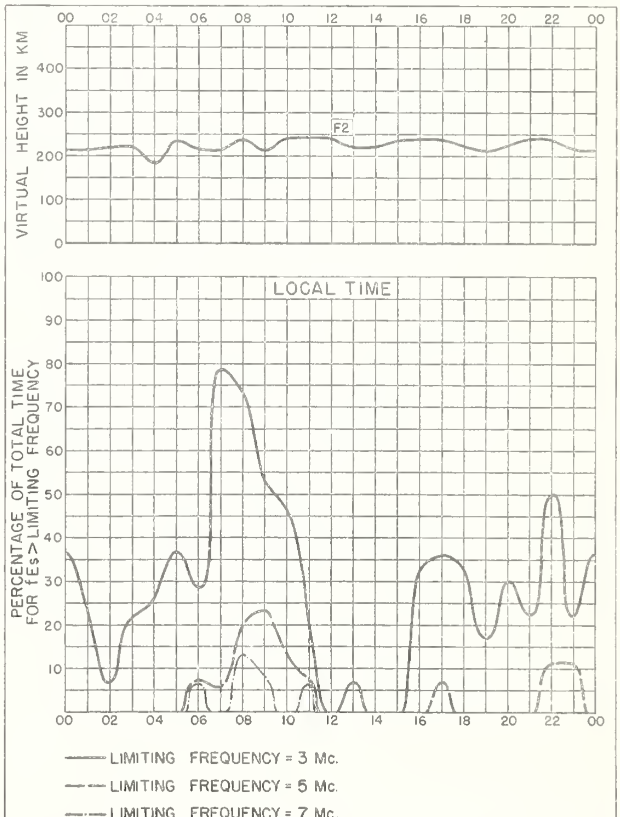


Fig. 136. CALCUTTA, INDIA APRIL 1952

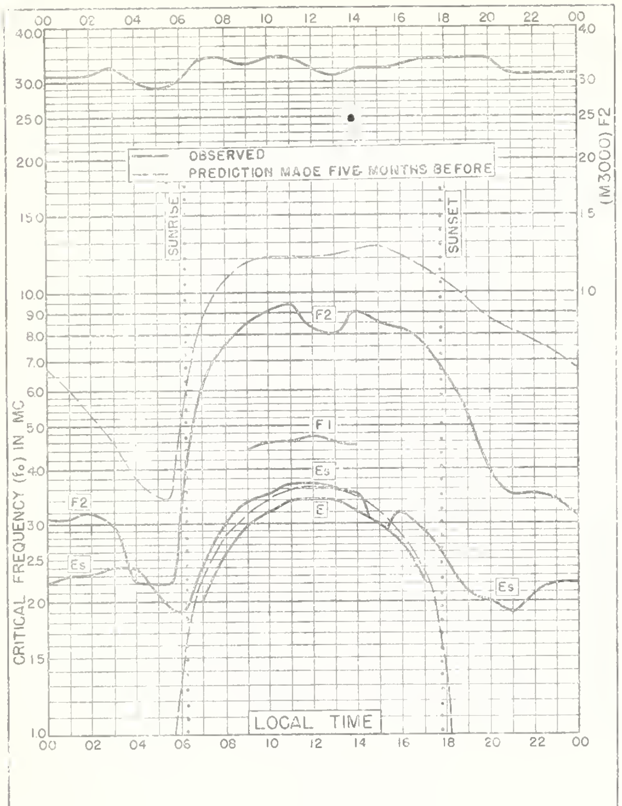
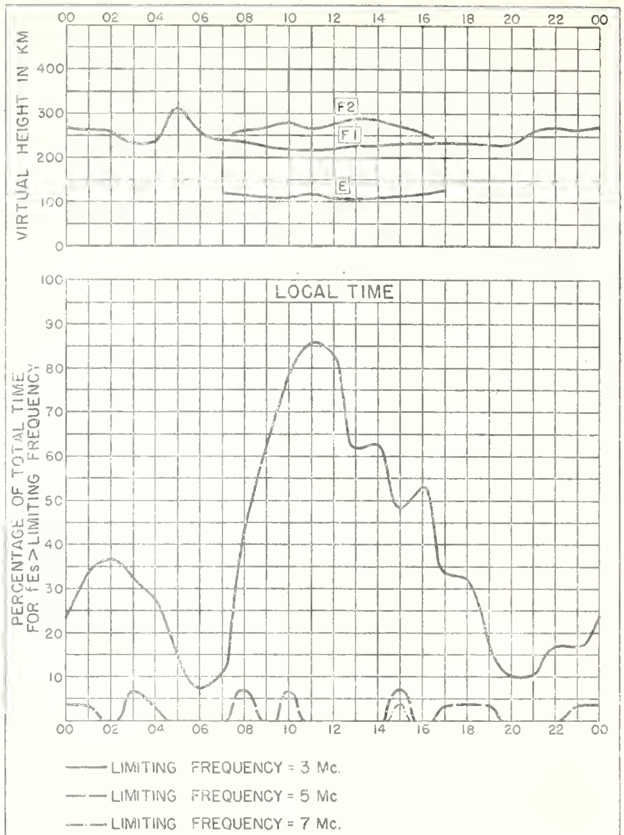


Fig.137 TANANARIVE, MADAGASCAR
18.8°S, 47.8°E APRIL 1952



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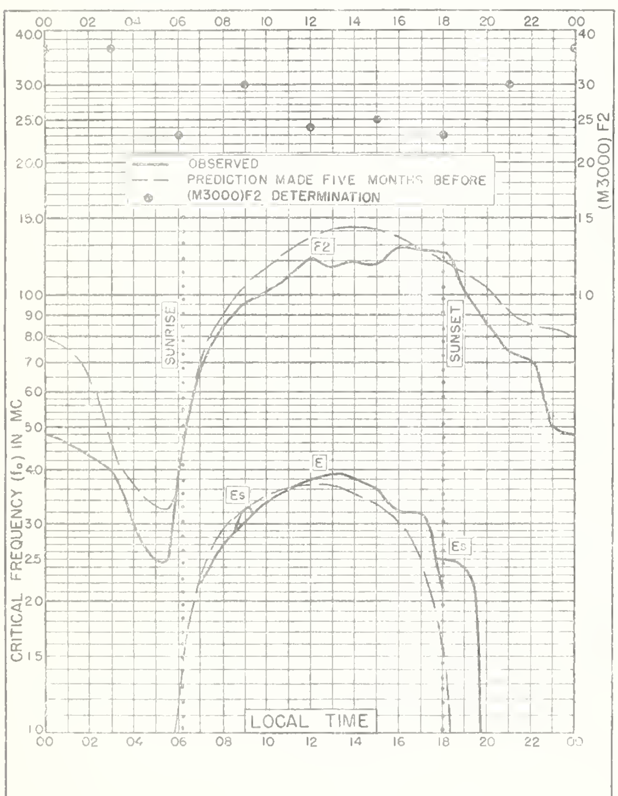

Fig.139 CALCUTTA, INDIA
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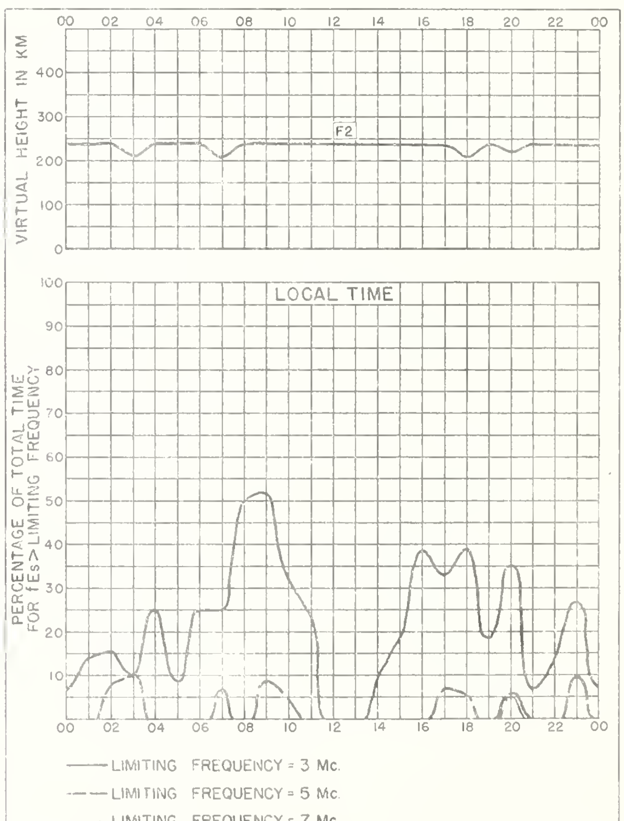

Fig.140 CALCUTTA, INDIA MARCH 1952

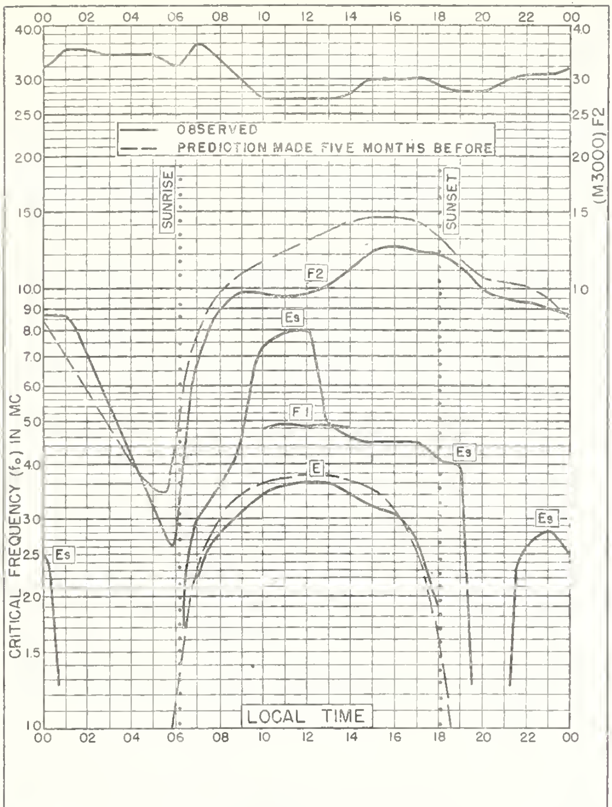

Fig. 141. DJIBOUTI, FRENCH SOMALILAND
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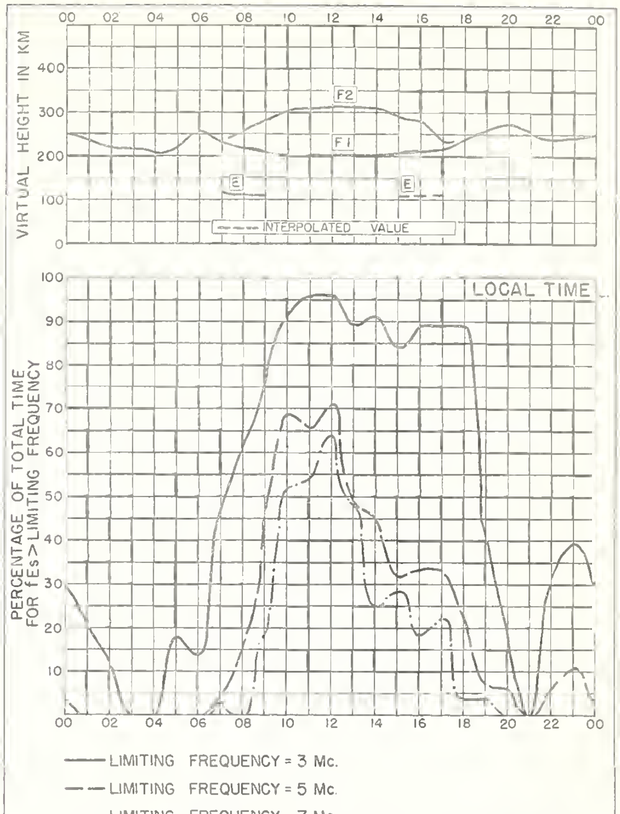

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Fig. 142. DJIBOUTI, FRENCH SOMALILAND

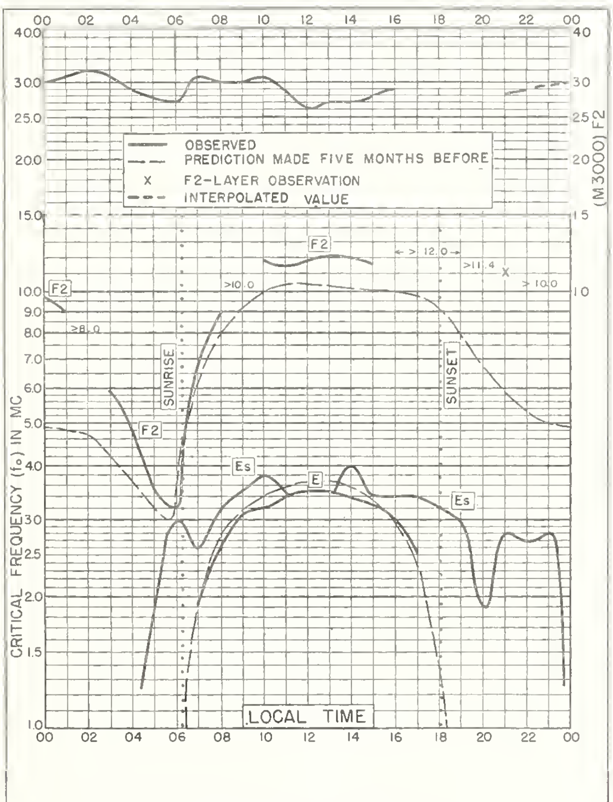

Fig. 143. DAKAR, FRENCH W. AFRICA
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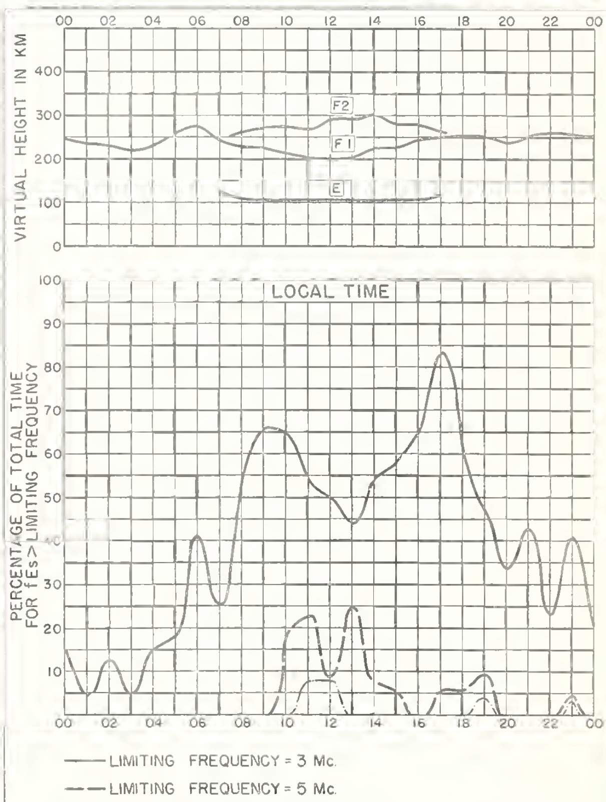

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CRPL and IRPL Reports

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

Daily:

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

Semiweekly:

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

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

Semimonthly:

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

Monthly:

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

Circulars of the National Bureau of Standards:

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

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
(G1, G3, available. Others out of print; see second footnote.)
IRPL—R. Nonscheduled reports:
R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
R5. Criteria for Ionospheric Storminess.
**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
**R12. Short Time Variations in Ionosphere Characteristics.
R14. A Graphical Method for Calculating Ground Reflection Coefficients.
**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.
**R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
**R26. The Ionosphere as a Measure of Solar Activity.
R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
**R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
**R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
**R33. Ionospheric Data on File at IRPL.
**R34. The Interpretation of Recorded Values of *fEs*.
**R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.
IRPL—T. Reports on tropospheric propagation:
T1. Radar operation and weather. (Superseded by JANP 101.)
T2. Radar coverage and weather. (Superseded by JANP 102.)
CRPL—T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG—5.)

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