CRPL-F 104

IONOSPHERIC DATA

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

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

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

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency 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	27	52	78	103	111	133	105	51	
February	29	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 69 and figures 1 to 138 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

Commonwealth of Australia, Department of External Affairs:
- Macquarie I.

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

University of Graz:
Graz, Austria

British Department of Scientific and Industrial Research, Radio Research Board:
Falkland Is.
Inverness, Scotland
Khartoum, Sudan (University College of Khartoum)
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

Danish National Committee of URSI:
Godhavn, Greenland

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

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

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

Manila Observatory:
Baguio, P. I.

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

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):
Baton Rouge, Louisiana (Louisiana State University)
Fairbanks, Alaska
Guam I.
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 70 to 81 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 82 presents ionosphere character figures for Washington, D. C., during March 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.

RADIO PROPAGATION QUALITY FIGURES

Tables 83a and 83b give for February 1953 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 each 6-hour interval of the Greenwich day, viz., 00-06, 06-12, 12-18, 18-24 hours UT (Universal Time or GCT).

(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the four quarter-day 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. 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, and 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 6-hour interval are averaged on the quality scale of the original reports. These 6-hour indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby coverted linearly to the Q-figure scale. The 6-hourly quality figures are (subjectively) weighted means of the reports received for that period. These 6-hourly quality figures replace, beginning January 1953, the half-daily quality figures which formerly appeared in this table.

These 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 84 through 86 give the observations of the solar corona during March 1953, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 87 through 89 list the coronal observations obtained at Sacramento Peak, New Mexico, during March 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 84 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 85 gives similarly the intensities of the first red (6374A) coronal line; and table 86, the intensities of the second red (6702A) coronal line; all observed at Climax in March 1953.

Table 87 gives the intensities of the green (5303A) coronal line; table 88, the intensities of the first red (6374A) coronal line; and table 89, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in March 1953.

The following symbols are used in tables 84 through 89: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 90 lists the daily provisional Zürich relative sunspot number, R_Z, as communicated by the Swiss Federal Observatory. Table 91 continues the new series of American relative sunspot numbers, $R_{A'}$. Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into $R_{A'}$. Observatory coefficients for each of the 28 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated $R_{A'}$ rather than R_A. The American relative sunspot numbers appear monthly in these pages as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

Table 92 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 93 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

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

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

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

SUDDEN IONOSPHERE DISTURBANCES

Table 94 shows that no sudden ionosphere disturbances were observed during the month of March 1953 at Washington, D. C.

Table 1

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	2.3						3.0
01	(280)	2.2						3.0
02	(280)	2.2						3.0
03	270	2.2						3.0
04	260	2.1						3.0
05	(260)	2.0						3.1
06	260	2.4						3.2
07	240	3.7	220	—	110	1.9		3.4
08	280	4.3	220	3.4	110	2.3		3.2
09	340	4.5	220	3.8	110	2.5		3.1
10	340	4.8	200	3.9	110	2.8		3.0
11	360	5.0	200	4.0	100	3.0		3.0
12	320	5.2	200	4.2	100	3.0		3.1
13	320	5.5	210	4.1	100	3.0		3.2
14	320	5.5	210	4.0	110	3.0		3.2
15	300	5.6	220	4.0	110	2.8		3.2
16	300	5.2	220	3.7	110	2.5		3.2
17	260	5.2	230	3.2	110	2.1		3.3
18	240	4.9	230	—	120	1.7		3.3
19	230	4.4						3.2
20	240	3.7						3.1
21	250	3.2						3.0
22	(250)	3.9						3.0
23	(270)	2.6						3.0

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

Table 2

Tromso, Norway (69.7°N, 19.0°E) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.8	---
01	---	(2.5)					3.8	(2.9)
02	(325)	(1.8)					3.2	(3.0)
03	325	1.8					3.1	2.9
04	300	1.8					3.1	3.0
05	310	1.8					3.0	3.0
06	280	1.8					2.7	3.0
07	260	2.0					2.0	3.1
08	240	2.9			---	---	2.1	3.2
09	235	3.6	---	---	---	---	1.7	3.4
10	235	4.2	230	---	150	1.8		3.5
11	230	4.5	230	---	---	1.8		3.5
12	225	4.6	225	---	---	1.9		3.5
13	230	4.8	230	---	150	1.8		3.4
14	230	4.7	---	---	140	1.7	2.0	3.4
15	230	4.0			150	1.6	1.6	3.4
16	230	3.4			---	---	1.7	3.4
17	240	2.8					3.0	3.2
18	(245)	(2.7)					3.2	(3.2)
19	(280)	(2.4)					4.0	(3.1)
20	---	---					4.0	---
21	---	---					4.1	---
22	---	---					3.9	---
23							3.8	---

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

Table 3

Kiruna, Sweden (67.8°N, 20.5°E) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.2	---
01	(310)	(3.0)					(2.1)	(2.9)
02	(300)	(2.4)						(2.9)
03	---	---					(1.3)	---
04	---	---					(2.1)	---
05	(320)	(2.6)						(3.0)
06	---	(2.2)						(3.1)
07	(300)	(2.3)						(3.1)
08	(230)	(3.2)						3.3
09	230	(4.0)	---	---	---	---		3.6
10	240	4.1	---	---	---	---		3.5
11	230	5.0	---	---	---	---		3.6
12	235	4.9	---	---	---	---		3.6
13	230	5.2	---	---	---	---		3.5
14	230	4.9	---	---	---	---		3.6
15	220	4.3	---	---	---	---		3.5
16	220	4.0			---	---		3.4
17	240	3.5						3.3
18	260	3.1						3.3
19	---	(3.0)					2.6	(3.2)
20	(310)	(3.0)					4.1	(3.1)
21	---	---					2.8	---
22	---	---					4.0	---
23	---	---					3.8	---

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

Table 4

Fairbanks, Alaska (64.9°N, 147.8°W) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.0	---
01	---	---					5.0	---
02	---	---					5.6	---
03	---	---					5.6	---
04	---	---					5.2	---
05	(300)	(2.4)					5.4	(3.0)
06	---	(2.0)					5.1	---
07	(300)	(2.5)			---	---		---
08	<260	(3.0)			---	---		(3.4)
09	240	3.7	---	---	---	---		3.4
10	230	4.2	---	---	---	---		3.4
11	230	4.6	220	---	---	---		3.4
12	220	5.3	220	(3.1)	---	---		3.4
13	220	5.2	220	---	---	---		3.4
14	220	5.2	---	---	---	---		3.4
15	220	5.1			---	---		3.5
16	220	4.5						3.4
17	220	4.2						3.4
18	240	3.3						3.3
19	240	(2.4)						(3.3)
20	---	---					4.1	---
21	---	---					4.8	---
22	---	---					6.3	---
23	---	---					5.4	---

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

Table 5

Narsarssuak, Greenland (61.2°N, 45.4°W) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.7)					4.8	---
01	---	---					4.8	---
02	---	---					4.7	---
03	---	---					4.7	---
04	---	---					4.5	---
05	---	---					4.1	---
06	---	---					4.0	---
07	---	(2.0)					3.7	---
08	240	3.2						3.4
09	230	3.8	---	---	---	---		3.5
10	240	4.2	210	---	---	---		3.5
11	260	(4.6)	220	(3.4)	---	---		3.5
12	270	(4.8)	(220)	3.4	110	2.8		3.4
13	270	4.8	220	3.4	110	---		3.3
14	250	(5.0)	220	3.3	(110)	(2.3)		3.4
15	240	(4.7)	(230)	3.2	---	---		(3.4)
16	240	(4.2)	---	---	---	---	2.6	(3.3)
17	250	(3.8)	---	---	---	---	3.2	(3.2)
18	260	(3.4)					4.2	(3.3)
19	300	(3.2)					4.1	(2.9)
20	---	(3.0)					4.5	---
21	---	(3.2)					6.2	(3.2)
22	---	(3.0)					6.8	(3.0)
23	---	---					5.8	---

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	1.8						2.9
01	310	1.6					2.2	2.9
02	290	1.6					2.3	2.9
03	300	1.6					2.0	2.9
04	300	1.4					1.9	2.9
05	310	1.4					1.0	3.0
06	290	1.4					1.4	(3.0)
07	(285)	1.8						3.1
08	235	3.1	255	---	135	1.6	2.0	3.4
09	225	4.2	225	---	130	1.8	2.9	3.6
10	230	4.8	215	---	125	2.1	3.0	3.6
11	240	4.8	215	---	120	2.2	2.9	3.6
12	240	4.8	215	3.5	120	2.4	3.0	3.5
13	240	5.0	215	3.4	120	2.3	3.0	3.6
14	235	5.1	225	---	125	2.2	3.0	3.5
15	230	5.1	230	---	125	2.0	2.8	3.6
16	220	4.8	235	---	135	1.8	2.4	3.5
17	225	4.2	240	---	145	1.6		3.4
18	235	4.0			---	---		3.3
19	240	3.4						3.2
20	250	2.6						3.2
21	(270)	1.8						3.1
22	(290)	1.8						(3.0)
23	---	1.6						(3.0)

Time: 15.0°E.
Sweep: 0.6 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 7

Upsala, Sweden (59.8°N, 17.6°E) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.0						2.9
01	330	2.0						2.8
02	310	2.0					2.4	2.9
03	315	2.0						2.9
04	340	1.8						2.8
05	310	1.6					2.0	(3.0)
06	320	1.6						(2.9)
07	260	2.3			---	E		3.0
08	225	3.7	225	(2.4)	125	1.5	2.3	3.5
09	225	4.5	220	2.8	120	1.8		3.5
10	225	5.0	220	3.2	115	2.1		3.5
11	225	5.1	215	3.3	115	2.2		3.5
12	230	5.2	210	3.3	115	2.3		3.5
13	235	5.2	220	3.2	120	2.2		3.5
14	230	5.3	220	3.1	120	2.1		3.5
15	225	5.1	230	2.8	125	1.9		3.5
16	220	4.6	230	---	135	1.6		3.5
17	220	4.0			---	---		3.4
18	230	3.7						3.2
19	235	3.1						3.2
20	250	2.3						3.2
21	280	1.9						3.0
22	300	1.8						3.0
23	300	1.8						(2.9)

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	2.7						3.2
01	250	2.8						3.1
02	(250)	2.8						3.1
03	250	2.7						3.1
04	260	2.7						3.1
05	<250	2.7						3.1
06	230	2.8						3.2
07	210	3.6	---	---	---	E		3.5
08	210	4.8	210	---	120	1.9		3.7
09	220	5.2	200	3.3	110	2.2		3.6
10	230	5.6	210	3.6	110	2.4		3.6
11	240	6.0	210	3.8	110	2.5		3.6
12	230	6.0	210	3.8	110	2.6		3.5
13	240	6.1	210	3.7	110	(2.5)		3.5
14	230	6.2	210	---	110	2.3		3.6
15	220	5.8	210	---	110	2.2		3.6
16	210	5.2	---	---	120	1.9		3.6
17	200	4.6						3.6
18	210	3.5						3.6
19	210	2.8						3.5
20	<220	2.2						3.4
21	240	2.4						(3.2)
22	250	2.6						3.0
23	250	2.6						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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.1						
01	280	3.1						
02	290	3.1						
03	300	3.1						
04	290	2.9						
05	270	2.4						
06	250	2.4						
07	230	3.4						
08	200	4.8						
09	200	5.3	200	3.4				
10	220	5.4	200	3.6				
11	230	6.0	200	3.7				
12	240	6.0	200	3.8				
13	240	5.8	200	3.8				
14	230	5.4	200	3.6				
15	220	5.8	200	3.3				
16	210	5.2	200	3.3				
17	200	5.0						
18	220	3.9						
19	250	3.9						
20	250	3.5						
21	250	3.2						
22	280	3.3						
23	270	3.1						

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	(3.1)						(3.2)
01	(230)	(3.0)						(3.3)
02	(230)	(2.8)						(3.3)
03	(240)	(2.9)						(3.2)
04	(240)	(3.0)						(3.3)
05	(250)	(2.9)						(3.2)
06	(250)	(2.9)						(3.2)
07	230	(3.8)						(3.4)
08	220	(5.4)	210	---	110	2.0	2.3	(3.6)
09	230	6.0	210	(3.8)	110	(2.5)	2.2	3.6
10	250	6.2	200	(4.0)	(110)	(2.7)	2.4	3.5
11	260	6.3	200	(4.1)	110	3.0	3.4	3.4
12	260	6.9	200	4.2	110	(3.0)	2.6	3.4
13	260	6.8	200	(4.1)	(110)	(3.0)	3.0	3.4
14	260	6.4	210	(4.0)	110	(3.0)	2.4	3.5
15	240	5.9	210	(3.9)	110	(2.8)	2.0	3.5
16	230	5.7	220	---	110	(2.4)	2.7	3.6
17	220	5.2	200	---	(120)	1.9	2.7	3.6
18	200	(4.2)					2.5	(3.5)
19	(210)	(3.1)						(3.4)
20	(220)	2.8						3.4
21	(230)	(2.7)						(3.4)
22	(240)	(2.7)						3.2
23	(240)	(3.0)						(3.2)

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.2						3.2
01	250	3.3						3.2
02	250	3.1						3.2
03	240	3.2						3.2
04	230	3.2						3.3
05	230	3.0						3.3
06	240	2.8						3.2
07	220	4.2	---	---	---	---		3.5
08	220	5.6	210	---	110	2.2	1.8	3.6
09	240	5.9	220	---	100	2.6	2.3	3.6
10	260	6.1	200	4.2	100	2.9	2.6	3.5
11	260	6.6	200	4.3	100	3.0	2.7	3.3
12	270	6.8	200	4.3	100	3.1	3.2	3.3
13	260	7.0	200	4.3	100	3.1	2.8	3.4
14	260	7.0	210	4.1	100	3.0	2.6	3.4
15	250	6.2	200	4.0	100	2.8	2.2	3.5
16	230	5.8	220	---	100	2.6	2.8	3.6
17	220	5.4	210	---	100	2.0	3.1	3.6
18	200	4.6					2.6	3.6
19	210	3.3					2.2	3.6
20	230	3.0						3.4
21	240	2.8						3.3
22	240	3.0						3.2
23	250	3.2						3.2

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 12

Baton Rouge, Louisiana (30.5°N, 91.2°W) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.2						3.2
01	260	3.3						3.1
02	260	3.4						3.2
03	250	3.3						3.2
04	250	3.4						3.3
05	250	3.1						3.2
06	260	3.0						3.3
07	230	4.3						3.6
08	240	5.8	230	---	120	2.1	3.4	3.6
09	250	6.2	220	---	110	2.6	4.7	3.6
10	260	6.1	220	4.0	110	2.9	4.2	3.5
11	280	6.1	220	4.2	110	3.0	4.8	3.4
12	300	6.8	200	4.2	110	3.1	4.4	3.2
13	280	7.1	210	4.2	110	3.1	4.3	3.4
14	270	6.8	220	4.1	110	3.0	3.8	3.4
15	260	6.3	220	4.0	110	2.9	4.0	3.4
16	250	6.0	230	---	120	2.4	3.9	3.5
17	230	5.6	---	---	120	2.0	3.0	3.6
18	220	4.8					2.3	3.6
19	230	3.9					2.0	3.6
20	240	3.1						3.4
21	250	3.0						3.3
22	270	3.0						3.1
23	270	3.2						3.1

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.0						2.9
01	280	3.1						3.0
02	270	3.0					1.8	3.1
03	250	3.2						3.3
04	230	2.5					1.8	3.4
05	270	2.3						3.1
06	290	2.1						3.0
07	240	4.4	---	---	---	---		3.4
08	250	5.6	230	---	120	2.2		3.4
09	270	6.4	240	---	120	2.6		3.4
10	290	7.8	230	(4.2)	120	2.9		3.2
11	290	8.6	230	4.3	120	3.0	3.4	3.2
12	290	9.2	220	4.4	120	3.1		3.1
13	300	10.2	210	4.4	120	3.1	3.5	3.1
14	280	11.0	230	4.2	120	3.0	3.6	3.2
15	260	10.2	230	(4.0)	120	2.8	3.5	3.3
16	260	7.6	230	---	120	2.5	2.8	3.4
17	240	6.8	240	---	120	2.0	2.8	3.5
18	220	5.8					2.2	3.5
19	230	4.3						3.3
20	235	3.8					1.8	3.2
21	260	3.5					1.9	3.1
22	265	3.2					1.8	3.0
23	280	2.9						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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.9						3.0
01	270	2.9						3.0
02	240	3.2						3.2
03	220	3.2					1.4	3.5
04	<220	2.3					1.5	3.6
05	<240	2.0						3.2
06	<280	1.8					1.6	3.0
07	250	3.6	---	---	120	1.4		3.2
08	250	5.4	230	---	110	2.2		3.4
09	290	6.6	230	---	110	2.7		3.2
10	300	7.8	220	4.4	110	3.0	3.8	3.0
11	290	9.8	220	4.5	110	3.2	4.1	3.2
12	270	10.2	210	4.5	110	3.3	4.0	3.2
13	290	10.1	200	4.5	110	3.3	4.4	3.1
14	280	10.6	210	4.5	110	3.2	4.1	3.1
15	270	10.2	220	4.4	110	3.0	4.4	3.3
16	250	9.0	230	4.1	110	2.8	3.8	3.4
17	240	7.2	230	---	110	2.4	3.5	3.5
18	220	5.8			120	1.6	3.2	3.7
19	210	3.9					2.5	3.6
20	220	3.1					2.4	3.3
21	260	3.0					1.8	3.1
22	250	3.1					1.6	3.2
23	240	2.9						3.2

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.5						3.1
01	260	3.6						3.2
02	250	3.8						3.2
03	230	4.1						3.4
04	220	3.8						3.4
05	220	3.4						3.5
06	230	3.0			---	---		3.3
07	220	3.9	---	---	100	---		3.6
08	220	5.5	210	---	100	2.2		3.7
09	240	6.0	210	---	100	2.7		3.6
10	260	6.4	220	4.3	100	3.0		3.5
11	260	7.2	220	4.4	100	3.2		3.5
12	270	7.0	210	4.5	100	3.3		3.4
13	270	6.9	210	4.5	100	3.3		3.4
14	270	6.9	210	4.4	100	3.2		3.4
15	270	7.0	210	4.3	100	3.1		3.4
16	260	6.8	220	4.1	100	2.9		3.4
17	240	6.6	220	---	100	2.4		3.5
18	220	6.6	220	---	110	---	3.0	3.6
19	200	5.6					2.2	3.7
20	200	4.2						3.6
21	240	2.9						3.3
22	270	3.3						3.1
23	270	3.6						3.1

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	4.8						3.3
01	230	4.4						3.4
02	240	4.2						3.4
03	330	3.2						3.4
04	250	2.5						3.3
05	270	2.1						3.3
06	270	1.8					1.6	3.3
07	250	4.4			130	1.7		3.4
08	270	6.2	230	---	120	2.4	3.0	3.3
09	290	7.6	220	4.1	110	2.8	4.0	3.1
10	320	8.3	200	4.3	110	3.0	4.2	2.8
11	340	8.4	200	4.4	110	3.2	4.1	2.5
12	350	8.0	200	4.4	110	3.3	4.0	2.5
13	340	7.6	190	4.4	110	3.3		2.6
14	340	8.0	200	4.4	110	3.2		2.6
15	320	8.6	200	4.3	110	3.0	3.8	2.8
16	300	9.0	220	4.1	110	2.8	3.4	3.0
17	270	9.2	230	3.6	120	2.4		3.2
18	250	9.0			---	---	2.8	3.4
19	230	8.6						3.3
20	220	7.8						3.3
21	220	7.0					2.2	3.3
22	230	6.1					2.2	3.3
23	240	5.3						3.3

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) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.1					1.7	3.0
01	240	3.1					1.7	3.1
02	230	3.3					1.8	3.3
03	230	3.0					2.4	3.4
04	220	2.5					2.7	3.3
05	260	2.2					2.4	2.9
06	270	2.6					2.2	2.9
07	240	4.5			120	---	2.2	3.4
08	260	5.8	230	---	110	2.4		3.4
09	280	6.6	220	4.2	110	2.9		3.2
10	300	7.4	220	4.4	110	3.1		3.1
11	320	7.8	220	4.6	110	3.3		2.9
12	320	8.8	210	4.5	110	3.4	3.6	3.0
13	300	8.9	210	4.6	110	3.4	3.6	2.9
14	310	8.9	200	4.6	110	3.3	3.5	2.9
15	310	9.4	<230	4.4	110	3.2	4.2	2.9
16	280	10.1	240	4.3	110	2.9	4.2	3.1
17	250	9.8	---	---	110	2.5	4.3	3.3
18	220	7.8			---	---	4.2	3.5
19	220	4.9					3.4	3.4
20	220	3.6					3.2	3.3
21	(250)	3.0					2.4	3.1
22	(280)	2.8						2.8
23	290	2.9						2.9

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

Table 18

Fairbanks, Alaska (64.9°N, 147.8°W) January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					6.4	---
01	(270)	(2.8)					5.8	---
02	---	(2.2)					7.4	(3.0)
03	(330)	(2.8)					6.2	(2.8)
04	---	(2.0)					6.5	---
05	(300)	(2.6)					6.6	(3.0)
06	(300)	(3.0)					6.8	(3.0)
07	(290)	(2.3)					4.2	---
08	(280)	(2.0)						(3.2)
09	240	3.4			---	---		3.3
10	240	4.2			---	---		3.3
11	240	4.9			---	---		3.4
12	220	4.8			---	---		3.4
13	220	4.8						3.4
14	220	4.8						3.4
15	220	4.5						3.3
16	220	3.8						3.3
17	230	(2.8)						(3.3)
18	---	---					(3.0)	---
19	---	---					(6.7)	---
20	---	---					(5.6)	---
21	---	---					3.3	---
22	---	---					6.0	---
23	---	---					5.6	---

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

Table 19

Reykjavik, Iceland (64.1°N, 21.8°W) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.2					4.9	---
01	(340)	3.0					4.9	(2.8)
02	(340)	3.0					4.5	(2.8)
03	320	2.8					4.2	2.9
04	300	2.6					4.1	3.0
05	270	2.4					2.2	3.1
06	270	2.1						3.2
07	(270)	(1.7)					2.3	(3.2)
08	(260)	(1.6)						3.0
09	250	2.7			---	---		3.2
10	230	4.2	---	---	---	---		3.4
11	230	5.2	---	---	---	---		3.5
12	220	5.6	---	---	130	---		3.5
13	230	5.5	---	---	---	---		3.5
14	230	4.8	---	---	---	---		3.4
15	230	4.4	---	---	---	---		3.4
16	230	3.8			---	---		3.3
17	240	3.0					3.8	3.3
18	260	2.6					3.6	3.1
19	(300)	(2.6)					4.3	(3.1)
20	310	(2.7)					4.2	(3.1)
21	(310)	(2.9)					4.1	(3.0)
22	(350)	(3.4)					4.6	(3.0)
23	---	---					5.0	---

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

Table 20

De Bilt, Holland (52.1°N, 5.2°E) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<270	(2.5)						(3.0)
01	270	(2.7)						(3.0)
02	280	(2.4)						(3.0)
03	270	(2.0)						---
04	240	(2.0)						(3.2)
05	240	(2.0)						(3.4)
06	(250)	(2.0)						(3.3)
07	230	(2.4)						(3.3)
08	205	4.8			---	E	2.3	3.6
09	205	5.7	---	---	120	2.0	2.3	3.7
10	210	6.4	200	3.4	110	2.2		3.7
11	210	6.6	205	3.4	110	2.5	3.3	3.7
12	210	6.8	200	3.4	110	2.5	3.2	3.6
13	210	6.4	205	3.4	110	2.4	3.2	3.6
14	210	5.8	---	---	110	2.1	2.7	3.6
15	205	5.4	---	---	125	2.0	3.1	3.6
16	200	4.8			---	E		3.6
17	205	3.8						3.4
18	210	3.2						3.4
19	220	2.5						3.1
20	<250	2.4						3.1
21	(230)	(2.4)						3.1
22	<270	(2.4)						3.0
23	<260	(2.5)						3.0

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

Table 21

Schwarzenburg, Switzerland (46.8°N, 7.3°E) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	3.1						3.3
01	255	3.1						3.3
02	275	3.0						3.2
03	270	3.1						3.2
04	250	3.0						3.3
05	230	2.7						3.4
06	240	2.4						3.5
07	240	2.3						3.6
08	200	3.6						3.8
09	200	5.4			120	2.0		4.0
10	200	6.1			100	2.4		3.9
11	200	6.4			100	2.6		3.8
12	200	6.5			100	2.6		3.9
13	200	6.3			100	2.8		3.9
14	200	6.0			100	2.5		3.8
15	200	6.0			100	2.4		3.9
16	200	5.7			100	2.0		3.9
17	200	4.9						3.9
18	200	3.8						3.7
19	200	3.5						3.7
20	220	2.8						3.5
21	280	2.8						3.3
22	250	3.0						3.4
23	265	3.0						3.2

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

Table 22

Baton Rouge, Louisiana (30.5°N, 91.2°W) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.4						3.1
01	270	3.4						3.1
02	250	3.6						3.1
03	260	3.5						3.1
04	240	3.7					2.2	3.2
05	250	3.2						3.1
06	250	3.0						3.2
07	240	4.0						3.5
08	230	5.4	---	---	130	2.0	4.2	3.6
09	240	5.5	220	---	110	2.6	5.0	3.5
10	260	6.5	220	4.1	110	2.8	5.8	3.5
11	270	6.8	210	4.2	110	3.0	5.2	3.3
12	270	7.0	210	4.2	110	3.1	3.9	3.4
13	280	6.8	210	4.2	110	3.0	3.8	3.3
14	270	6.8	210	4.1	110	3.0	3.7	3.4
15	260	6.6	220	3.8	110	2.7	3.8	3.5
16	240	6.2	220	---	120	2.2	3.4	3.5
17	230	5.5						3.6
18	210	4.2						3.5
19	230	3.0						3.4
20	240	2.7						3.3
21	280	2.9						3.1
22	270	3.1						3.1
23	270	3.4						3.1

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

Table 23

Formosa, China (25.0°N, 121.5°E) — January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.1					2.6	2.9
01	260	3.2					2.4	3.1
02	260	3.0					2.4	3.0
03	280	2.7					2.2	3.1
04	270	2.0					2.2	2.8
05	<320	2.2					2.2	2.7
06	<290	2.0					2.1	2.9
07	250	4.7			160	1.7	2.2	3.3
08	250	6.7	240	---	120	2.2	2.5	3.3
09	270	7.6	240	4.1	120	2.7	3.7	3.3
10	280	9.0	230	4.3	120	(3.0)	4.2	3.3
11	280	10.6	215	4.4	(120)	3.2	4.4	3.3
12	280	12.2	210	4.4	(120)	3.2	4.4	3.2
13	280	11.5	220	4.4	(120)	3.2	4.4	3.3
14	280	10.8	220	4.2	(120)	3.6	4.3	3.2
15	270	9.4	220	3.8	(120)	---	4.3	3.4
16	240	7.7	230	3.5	(120)	2.3	4.2	3.4
17	240	6.6			(120)	---	3.6	3.6
18	235	5.2					3.4	3.2
19	240	4.9					3.5	3.1
20	240	5.2					2.8	3.1
21	240	4.1					2.4	3.2
22	260	3.4					2.4	3.1
23	280	3.1					2.3	3.0

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

Table 24

Baker Lake, Canada (64.3°N, 98.0°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	2.4			---	E	7.5	3.0
01	250	2.4			---	E	6.9	3.0
02	250	2.5			---	E	5.9	3.0
03	250	2.5			---	E	4.7	3.0
04	280	2.4	---	---	140	1.6	6.5	3.0
05	290	2.5	---	---	140	1.6	4.2	3.0
06	300	2.7	---	---	110	1.8	6.0	3.0
07	270	2.9	---	---	110	1.9	5.0	3.0
08	260	3.0	---	---	100	2.1	6.0	3.0
09	280	3.2	---	---	110	2.2	5.9	3.0
10	270	3.8	---	---	100	2.5	6.0	3.0
11	270	4.2	---	---	100	2.7	3.8	3.0
12	260	4.3	---	---	100	2.5	3.6	3.0
13	260	4.8	---	---	100	2.4	3.5	3.0
14	250	4.9	---	---	100	2.4	3.3	3.0
15	250	4.0	---	---	100	2.0	3.8	3.0
16	270	3.2	---	---	110	2.0	4.0	3.0
17	270	3.4	---	---	110	1.9	4.1	2.9
18	270	3.5	---	---	110	2.0	5.2	3.0
19	240	3.2	---	---	120	1.8	5.0	3.0
20	250	2.8	---	---	---	1.7	6.2	3.0
21	280	2.5	---	---	---	E	7.5	3.0
22	280	2.4	---	---	---	E	7.0	3.0
23	250	2.6	---	---	---	E	7.0	3.0

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

Table 25

Reykjavik, Iceland (64.1°N, 21.8°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	—					5.6	—
01	---	—					5.0	—
02	—	3.0					4.9	2.9
03	340	2.8					4.8	3.0
04	(320)	2.6					5.0	3.0
05	285	2.4					3.8	3.0
06	275	2.0					3.9	3.2
07	(290)	(1.9)			—	—	2.7	3.2
08	286	1.8			—	—	2.0	3.1
09	260	2.2			—	—		3.2
10	240	3.4	—	—	120	—		3.4
11	230	4.2	—	—	110	—		3.4
12	240	4.5	240	—	130	—		3.5
13	240	4.7	—	—	130	—		3.4
14	240	4.4	---	---	135	---		3.4
15	240	3.9			120	---		3.3
15	260	3.4			---	---	2.4	3.3
17	280	3.0			120	---	3.7	3.1
18	300	2.4			---	—	4.0	3.2
19	(300)	(1.9)					4.8	—
20	—	—					4.6	—
21	---	—					4.6	—
22	---	---					4.3	—
23	---	(2.9)					4.9	(3.0)

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

Table 26

Churchill, Canada (58.8°N, 94.2°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	2.8			120	2.8	5.3	(3.3)
01	(310)	2.8			130	2.4	6.5	(3.0)
02	300	2.5			120	2.2	4.0	(2.9)
03	(290)	2.8			110	2.4	3.8	(3.2)
04	(300)	3.0			120	3.0		(3.0)
05	(320)	<3.2			110	3.0	3.3	—
05	(310)	<3.3			110	3.0		(3.3)
07	(340)	<3.3			110	3.2	3.7	(3.2)
08	(320)	2.6	—	—	100	2.9		(3.2)
09	300	4.0	—	—	120	2.2		3.1
10	250	4.8	—	—	—	2.0		3.3
11	250	5.3	—	—	—	2.2		3.3
12	250	6.5	—	—	---	—		3.3
13	260	5.9			—	2.3		3.2
14	260	5.8			130	2.6		3.2
15	270	5.7			120	2.8		3.3
15	270	6.5			120	(3.0)		3.0
17	270	4.5			120	2.5		3.1
18	280	3.5			110	2.3		2.9
19	300	<3.6			110	2.6		2.9
20	300	3.4			110	2.6		3.0
21	300	3.0			120	2.7	7.0	2.8
22	300	3.0			120	2.9	6.1	(3.0)
23	(270)	3.0			110	3.2	5.0	(3.1)

Time: 90.0°W.
Sweep: 0.5 Mc to 20.0 Mc in 15 seconds.

Table 27

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.6			110	3.1	4.8	(3.0)
01	320	2.8			100	2.8	4.0	(2.9)
02	300	<2.8			110	2.9	4.0	(3.0)
03	320	3.2			110	3.0		(2.9)
04	350	<3.0			100	3.0	3.8	3.0
05	(400)	<3.8			100	3.3	5.0	(2.9)
06	(340)	<3.2			100	3.2	4.5	(3.0)
07	340	2.8			110	2.8	4.0	2.8
08	300	3.4			100	2.4		3.0
09	260	4.2			100	2.0		3.1
10	250	5.0			110	2.2		3.1
11	260	5.5			110	2.3		3.0
12	270	5.9			110	2.3		3.0
13	270	5.8			110	2.4		3.0
14	250	5.0			110	2.5		3.0
15	280	4.8			110	2.5		3.0
15	280	4.1			110	2.4		3.0
17	300	3.8			110	2.4	2.0	2.9
18	320	3.3			110	2.9	4.0	2.9
19	300	3.0			110	2.6	4.9	2.8
20	300	3.1			100	2.5	4.7	2.9
21	300	<3.1			110	2.0	6.0	(2.8)
22	300	2.7			100	2.8	5.0	3.0
23	320	2.5			100	2.6	5.3	(3.0)

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

Table 28

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

Time	h'F2*	foF2	h'F1*	foF1	h'E*	foE	fEs	(M3000)F2*
00	(320)	1.6						—
01	310	1.5						(2.8)
02	(340)	1.5						(2.8)
03	(370)	1.8					3.2	—
04	(400)	2.0					2.2	(2.5)
05	(350)	1.9					3.7	—
06	(390)	2.1					3.6	(2.5)
07	(300)	1.9						(2.8)
08	320	2.1						2.8
09	280	3.6			---	1.5	2.2	2.8
10	270	5.0			120	2.0	2.2	2.9
11	260	5.8	---	---	120	2.2		3.0
12	250	5.9	---	---	120	2.2		2.8
13	260	6.0	260	---	120	2.2		2.9
14	250	6.3	---	---	130	2.2		2.9
15	260	5.9			---	2.0		2.9
16	250	5.0			---	1.7		2.9
17	260	3.9			—	—		2.7
18	270	3.2						2.8
19	290	2.4						2.9
20	(300)	1.8						(2.8)
21	—	(1.8)						—
22	—	(1.7)					2.0	—
23	---	(1.8)						—

Time: 120.0°W.
Sweep: 0.5 Mc to 20.0 Mc in 15 seconds.
*15th to 31st only; height markers in error first half of month.

Table 29

Winnipeg, Canada (49.9°N, 97.4°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.4						3.0
01	340	2.5						2.9
02	350	2.4					3.0	2.8
03	320	2.5					3.2	3.0
04	320	2.4					4.1	3.0
05	320	2.5					3.6	2.8
06	350	2.5					4.0	(3.0)
07	320	2.5					4.0	(3.0)
08	260	2.7			—	—		3.2
09	240	4.2	—	—	110	2.0		3.4
10	240	5.2	220	—	110	2.3		3.4
11	250	5.0	220	—	120	2.4		3.4
12	250	5.1	230	3.4	110	2.4		3.4
13	250	5.2	220	3.4	120	2.5		3.4
14	240	5.3	240	—	120	2.3		3.4
15	240	5.2	240	—	120	2.2		3.4
15	230	6.0			—	—		3.4
17	220	4.9						3.3
18	230	4.0						3.3
19	260	3.0						3.2
20	280	2.4						3.2
21	300	2.3						3.0
22	320	2.4						2.9
23	330	2.4						2.8

Time: 90.0°W.
Sweep: 0.5 Mc to 20.0 Mc in 16 seconds.

Table 30

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	1.8						2.9
01	330	1.8						2.8
02	330	1.8					2.0	2.9
03	290	1.9					2.9	3.0
04	300	1.7					3.4	3.0
05	270	1.4					3.7	3.0
05	300	1.5					4.0	3.0
07	250	3.0	---	---	120	E	1.7	3.1
08	230	4.5	220	---	120	1.8	2.4	3.4
09	240	5.4	210	3.0	120	2.2	2.5	3.4
10	250	5.2	220	3.5	120	2.4		3.4
11	240	5.3	220	3.5	120	2.5		3.4
12	240	5.5	220	3.5	120	2.5	2.4	3.4
13	240	5.3	220	3.4	120	2.4	2.5	3.4
14	240	5.3	230	2.9	120	2.2	2.7	3.4
15	230	5.3	---	---	130	E		3.4
16	220	5.2			---	E		3.3
17	230	4.4						3.2
18	240	3.5						3.1
19	250	2.5						3.0
20	300	2.3						3.0
21	330	2.0						2.9
22	320	1.8						2.9
23	320	1.9						2.9

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

Table 31

Ottawa, Canada (45.4°N, 75.7°W) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.0)						(3.1)
01	---	2.0						3.1
02	(300)	2.1						3.0
03	300	2.3						3.1
04	(280)	2.0						3.2
05	(280)	2.0					2.1	3.2
06	---	2.0					3.5	(3.3)
07	290	2.3						3.1
08	230	4.2			---	1.8		3.4
09	220	5.1	220	---	120	2.3		3.4
10	240	6.2	220	---	120	2.7		3.4
11	240	6.8	230	3.4	120	2.7		3.4
12	240	6.8	230	---	120	2.8		3.4
13	250	6.6	230	---	120	2.7		3.4
14	250	6.5	230	---	120	2.5		3.3
15	240	6.4	240	---	120	2.2		3.4
16	230	5.9			---	---		3.4
17	220	5.0						3.3
18	230	4.0						3.3
19	240	3.2						3.2
20	260	2.7						3.2
21	(290)	2.3						3.2
22	(280)	2.2						3.1
23	---	2.0						(3.1)

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

Table 32

Baguio, P.I. (16.4°N, 120.6°E) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.5						3.1
01	240	3.3						3.1
02	240	3.2						3.2
03	220	2.9						3.0
04	240	2.1						3.2
05	(250)	(2.1)						3.0
06	270	2.6						3.0
07	240	5.5			---	---		3.4
08	(260)	7.3	230	---	120	2.5	2.9	3.3
09	280	9.0	210	(4.2)	110	2.8	3.6	3.3
10	290	9.4	200	4.3	110	3.0	3.7	3.1
11	310	9.7	200	(4.4)	110	3.2	4.2	2.8
12	320	9.4	200	(4.5)	110	3.2	4.4	2.7
13	310	9.5	200	4.5	100	3.1	4.2	2.8
14	290	9.9	210	---	110	3.0	4.0	3.0
15	270	10.0	220	---	110	2.8	4.4	3.1
16	250	10.0	220	---	110	2.4	4.0	3.3
17	230	9.6					2.6	3.4
18	210	8.8						3.5
19	210	7.4					2.2	3.3
20	220	6.5					2.6	3.1
21	230	6.4						3.2
22	220	5.5						3.4
23	230	4.2						3.4

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

Table 33

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.4						2.9
01	260	4.1					1.6	3.0
02	250	3.9						3.0
03	250	3.6						3.0
04	260	3.3					1.7	3.0
05	270	3.4						3.0
06	240	4.9	240	---	120	2.0	2.8	3.1
07	340	5.5	230	4.0	110	2.6	3.1	3.0
08	340	6.1	220	4.2	110	3.0	3.4	2.9
09	340	6.7	220	4.4	110	3.2	3.7	2.9
10	340	7.0	210	4.5	110	3.4	3.9	2.9
11	340	7.3	200	4.6	110	3.5	3.8	2.9
12	330	7.7	200	4.6	110	3.5	4.0	2.9
13	330	7.6	200	4.6	110	3.5	3.6	2.9
14	330	7.2	210	4.5	110	3.4	4.1	2.9
15	320	7.4	210	4.4	110	3.2	3.9	2.9
16	310	7.3	220	4.2	110	3.0	3.8	3.0
17	290	7.0	230	3.9	110	2.7	3.4	3.0
18	270	6.6	230	3.2	120	2.1	2.9	3.1
19	250	6.7			---	---	2.6	3.1
20	250	6.5					2.1	3.0
21	250	6.0						3.1
22	260	5.1					1.9	3.0
23	260	4.6						2.9

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

Table 34

Watheroo, W. Australia (30.3°S, 115.9°E) — December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.7					3.8	3.0
01	250	4.3					4.1	3.1
02	250	4.3					3.9	3.0
03	250	3.9					4.0	3.0
04	260	3.4					3.6	3.1
05	260	3.2				---	2.8	3.1
06	(270)	4.1	230	3.1		2.0	2.9	3.4
07	(320)	4.9	230	3.8		2.5	3.7	3.3
08	(330)	5.4	220	4.2		3.0	3.8	3.2
09	340	5.6	210	4.3		3.2	4.1	3.0
10	350	6.0	200	4.4		3.3	4.1	3.0
11	340	6.3	---	4.4		3.4	4.2	3.0
12	330	6.5	---	---		3.4	4.2	3.0
13	330	6.6	200	4.4		3.4	4.2	3.0
14	320	6.8	205	4.4		3.3	4.6	3.0
15	310	6.4	220	4.3		3.2	4.7	3.1
16	300	6.3	220	4.2		3.0	4.2	3.0
17	290	6.1	220	4.0		2.7	4.2	3.1
18	270	5.9	230	3.5		2.2	3.6	3.1
19	250	6.0	---	---		---	3.2	3.2
20	240	5.8					2.1	3.1
21	250	5.5					2.4	3.0
22	260	5.0					2.4	3.0
23	260	4.8					3.0	3.0

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

Table 35

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9					1.7	2.9
01	280	3.9					1.8	2.8
02	280	3.8					2.0	2.9
03	270	3.7					1.7	2.9
04	270	3.6					1.8	2.9
05	270	3.5						2.9
06	250	4.4	250	---	130	1.8		3.1
07	340	5.0	230	3.6	120	2.4		3.0
08	350	5.6	230	4.0	110	2.9	3.3	2.9
09	370	5.8	230	4.2	110	3.1		2.8
10	400	6.0	220	4.5	110	3.3	3.6	2.8
11	370	6.7	220	4.5	110	3.5	3.9	2.8
12	350	6.7	210	4.6	110	3.5	4.1	2.9
13	360	6.6	210	4.6	110	3.5	4.0	2.8
14	360	6.6	210	4.5	110	3.4	4.0	2.8
15	350	6.6	210	4.5	110	3.3	4.0	2.9
16	330	6.6	220	4.3	110	3.1	3.8	2.9
17	320	6.6	220	4.0	110	2.9	3.6	3.0
18	300	6.1	230	3.8	110	2.6	3.1	3.1
19	270	6.1	240	3.0	120	2.0	2.8	3.2
20	240	6.0					2.4	3.2
21	240	5.5					2.1	3.1
22	250	4.8					1.9	3.1
23	250	4.1					2.0	3.0

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

Table 36

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.7						2.9
01	260	2.8						2.9
02	270	2.7						2.9
03	260	2.7						2.9
04	270	2.7						2.8
05	270	2.8						2.9
06	260	2.7						2.9
07	270	3.0						3.0
08	260	3.4						2.8
09	250	4.0						2.9
10	250	3.8						3.0
11	240	4.5						3.0
12	250	4.0						3.0
13	240	3.9						3.0
14	240	4.0						3.0
15	250	4.0						2.9
16	250	3.9						2.9
17	260	3.8						3.0
18	260	3.4						3.0
19	260	3.0						3.0
20	260	3.1						3.0
21	260	3.0					1.3	3.0
22	250	2.9						2.9
23	250	2.8						3.0

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

Table 37

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.4			—	E	6.0	3.0
01	260	2.3			—	E	5.0	3.0
02	280	2.5	—	—	—	E	7.0	3.0
03	270	2.5	—	—	—	E	4.1	2.9
04	270	2.5	—	—	110	1.7	5.0	3.0
05	280	2.6	—	—	110	1.9	3.7	3.0
06	270	2.8	—	—	100	1.8	4.1	3.0
07	280	2.8	—	—	100	1.9	4.6	2.9
08	280	3.3	—	—	100	2.1	4.0	3.0
09	260	3.9	—	—	100	2.5	4.7	2.9
10	260	4.2	—	—	100	2.6	4.1	3.0
11	270	4.6	—	—	110	2.7	3.2	3.0
12	260	5.0	—	—	100	2.7	3.2	3.0
13	260	5.2	240	2.9	110	2.5		3.0
14	260	5.1	—	—	100	2.3	3.0	3.0
15	240	4.7	—	—	100	2.1	3.0	3.0
16	260	4.1	—	—	110	2.0	3.2	3.0
17	250	4.0			120	2.1	4.5	2.9
18	260	3.5			110	2.0	5.9	2.9
19	240	3.1			120	1.8	5.4	3.0
20	250	3.2			110	1.9	8.0	3.0
21	270	3.0			120	1.6	7.0	3.0
22	240	2.7			—	E	7.0	3.0
23	250	2.5			—	E	8.2	3.0

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

Table 38

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	<2.8			110	2.6	4.0	(3.0)
01	(300)	<2.5			110	2.5	3.5	(3.0)
02	(380)	<3.0			110	2.8		(3.0)
03	300	<3.0			100	3.0		(3.0)
04	(340)	<3.0			100	3.1	4.2	(3.1)
05	300	3.0			100	3.0	3.9	(3.0)
06	340	3.0			100	3.2	4.6	(2.8)
07	300	<3.5			100	2.9	3.5	3.0
08	290	4.3	—	—	110	2.3		3.1
09	290	4.8	250	—	110	2.2		3.1
10	290	5.2	250	—	110	2.3		3.1
11	290	5.8	250	—	110	2.4		3.0
12	290	5.9	250	—	110	2.3		3.0
13	280	5.9	270	—	120	2.2		3.0
14	280	5.3	260	—	110	2.2		3.0
15	270	5.0	—	—	110	2.0		3.0
16	280	4.5			110	2.5		3.0
17	310	3.8			110	2.6		2.9
18	320	3.4			110	2.6		2.8
19	300	3.0			110	2.2	4.6	2.9
20	300	3.0			110	2.4	6.0	2.9
21	300	2.8			100	2.5	5.0	3.0
22	300	2.8			100	2.5	4.8	2.9
23	300	2.8			110	2.8	4.9	(2.9)

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

Table 39

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	6.5					3.2	3.1
01	240	5.4					3.5	3.1
02	240	4.8					3.0	3.1
03	250	4.7					2.8	3.0
04	250	4.3					2.3	3.0
05	250	3.8			—	—	2.3	3.0
06	230	4.9			120	2.0	3.4	3.3
07	255	5.8	230	3.9	110	2.5	4.3	3.2
08	295	6.3	220	4.4	110	2.9	5.3	3.1
09	320	7.4	210	4.5	110	3.2	5.5	3.0
10	315	8.2	200	4.5	110	3.4	5.9	3.0
11	310	8.5	200	4.6	110	3.5	5.1	3.0
12	310	8.9	180	4.5	110	3.5	>4.5	3.0
13	300	9.3	195	4.5	110	3.5	4.7	3.1
14	300	8.9	200	4.4	115	3.4	4.8	3.1
15	280	8.6	205	4.3	110	3.2	>4.5	3.1
16	290	8.0	220	4.2	120	2.9	4.5	3.1
17	280	7.4	230	3.7	110	2.5	4.3	3.1
18	250	6.8			125	<1.8	3.8	3.1
19	250	6.5					3.3	3.0
20	280	6.9					4.0	3.0
21	280	6.3					3.8	3.0
22	280	(6.4)					3.4	3.0
23	255	6.9					3.5	3.0

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

Table 40

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	6.0					3.8	3.1
01	220	5.3					3.1	3.1
02	240	4.5					3.0	3.1
03	250	3.9					2.7	3.0
04	250	3.7					2.7	3.1
05	230	4.0			—	1.6		3.3
06	240	4.9	225	3.7	120	2.2		3.4
07	290	5.6	230	4.2	120	2.8		3.1
08	300	6.0	225	4.4	110	3.1		3.1
09	310	6.8	210	4.5	100	3.3		3.1
10	310	7.4	200	4.5	100	3.4		3.1
11	300	7.6	200	4.6	105	3.5		3.0
12	300	7.5	200	4.6	100	3.5		3.0
13	300	7.5	200	4.6	105	3.4		3.0
14	300	7.2	210	4.5	110	3.3		3.1
15	290	6.8	210	4.3	110	3.2		3.1
16	285	6.5	220	4.0	110	2.9		3.1
17	270	6.2	230	3.7	120	2.4		3.1
18	260	6.4			—	—	3.4	3.0
19	265	6.6					3.6	2.9
20	280	6.5					3.6	2.9
21	280	6.3					3.2	2.9
22	280	6.2					3.5	2.9
23	270	6.0					4.0	3.0

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

Table 41

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.5					3.0	3.0
01	240	4.7					3.0	3.1
02	230	4.1					2.8	3.0
03	240	3.7					2.8	3.0
04	240	3.4					2.6	3.0
05	245	3.8			—	1.3	2.5	3.2
06	240	4.6	240	(3.7)	110	1.8	3.4	3.3
07	340	4.7	225	4.0	100	2.6	3.5	3.2
08	350	5.3	220	4.3	100	3.0	3.9	3.0
09	335	5.8	210	4.3	100	3.3	4.0	3.1
10	330	6.3	200	4.4	100	3.3	4.0	3.1
11	315	6.6	200	4.5	100	3.4	4.0	3.1
12	310	6.5	200	4.4	100	3.4	4.0	3.1
13	310	6.7	200	4.4	100	3.4	3.9	3.1
14	300	6.4	210	4.4	100	3.3	3.7	3.1
15	300	6.3	210	4.3	100	3.2	3.3	3.2
16	300	6.1	220	4.0	100	3.0		3.2
17	275	6.0	230	(3.9)	110	2.6		3.2
18	240	6.0	—	—	110	1.8	2.7	3.1
19	240	6.1			—	—	2.5	3.0
20	250	6.2					3.1	3.0
21	250	6.0					3.7	2.9
22	260	5.8					3.6	2.9
23	260	5.6					3.4	3.0

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

Table 42

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	4.0						2.9
01	260	3.5						2.9
02	250	3.0						3.0
03	250	3.0						3.0
04	270	2.6						3.0
05	250	3.5			120	1.6		3.1
06	230	4.5			100	2.3		3.1
07	220	4.5			100	2.7		3.1
08	350	4.8	200	4.4	100	3.0		3.0
09	370	5.4	200	4.5	100	3.2	4.2	2.9
10	360	5.6	200	4.5	100	3.4	4.3	2.9
11	355	5.6	200	4.5	100	3.5	4.4	2.9
12	350	6.0	200	4.5	100	3.5	4.2	2.9
13	330	6.0	200	4.5	100	3.5	4.4	2.9
14	310	6.2	200	4.5	100	3.5	4.5	3.0
15	310	6.0	200	4.5	100	3.4		3.0
16	300	6.0	210	4.4	100	3.0		3.0
17	210	5.9	—	—	100	2.7		3.0
18	240	6.0			100	2.2		3.0
19	250	6.0			120	1.6		3.0
20	250	5.5						3.0
21	250	5.5						3.0
22	250	5.2						3.0
23	250	4.5						2.9

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

Table 43

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00	306	3.1						3.0
01	(280)	2.8						
02	(280)	2.8						
03	—	—						
04	300	3.3						3.0
05	280	3.6						
06	260	4.4						
07	240	6.5						
08	240	8.2						(3.4)
09	260	8.5						
10	260	9.0						
11	280	9.0						
12	280	9.4						(3.1)
13	280	10.5						
14	270	10.3						
15	260	9.7						
16	260	9.0						3.6
17	250	8.3						
18	240	6.6						
19	245	5.2						
20	280	4.0						3.2
21	280	3.6						
22	300	3.3						
23	300	3.1						

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 44

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	300	6.9						
08	330	8.2						3.0
09	360	8.8						
10	390	9.6						
11	390	11.1						
12	420	11.9						(2.5)
13	450	12.8						
14	(390)	13.0						
15	—	13.5						
16	406	13.6						(2.5)
17	390	12.8						
18	390	12.3						
19	360	10.5						
20	360	9.4						2.9
21	330	7.8						
22	300	6.8						(3.1)
23	300	6.0						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 6 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 45

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	6.9						
08	360	8.5						(2.7)
09	390	9.6						
10	420	9.8						
11	420	9.3						
12	420	9.4						(2.5)
13	450	9.9						
14	450	10.6						
15	420	10.9						
16	420	11.2						(2.6)
17	420	11.2						
18	420	11.1						
19	420	10.2						
20	390	9.6						(2.6)
21	390	8.9						
22	360	8.5						
23								

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

Table 46

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

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06	390	6.3						
07	420	7.4						
08	450	9.0						2.4
09	480	9.2						
10	480	9.2						
11	510	9.2						
12	510	9.2						(2.3)
13	510	9.2						
14	510	9.4						
15	510	9.5						
16	510	9.5						(2.2)
17	510	9.5						
18	480	9.5						
19	480	9.2						
20	480	8.9						(2.3)
21	420	8.5						
22	420	7.8						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 6 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 47*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	(3.5)					2.1	2.8
01	290	3.0					2.4	2.8
02	305	(2.6)					2.5	2.7
03	305	2.4					1.5	(2.7)
04	285	(2.4)					2.7	(2.8)
05	270	3.1	(250)		131	(1.6)	3.0	3.0
06	320	3.7	240	(3.2)	114	1.8	3.0	3.2
07	350	4.2	220	3.4	110	2.2	3.1	3.1
08	430	4.6	210	3.9	110	2.6	3.1	(3.1)
09	380	4.9	220	4.0	110	2.8	3.6	3.1
10	350	5.0	210	4.2	105	2.9	3.7	3.1
11	360	5.0	215	4.3	105	3.0	3.5	3.1
12	370	5.2	210	4.4	110	3.0	3.3	3.0
13	370	6.3	210	4.4	110	3.0	3.3	2.9
14	380	6.2	215	4.3	105	3.0	3.1	3.1
15	385	5.3	215	4.2	105	3.0	3.1	3.0
16	360	6.2	220	4.2	105	2.8	3.2	2.9
17	350	6.4	230	3.9	110	2.6	3.4	3.0
18	305	5.6	240	3.6	115	2.2	3.3	3.0
19	270	5.6	240	3.0	130	1.8	3.1	3.1
20	255	5.8				(1.7)	2.7	3.0
21	260	5.3					2.4	2.9
22	260	4.6					2.6	2.9
23	280	(3.8)					2.3	2.9

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

Table 48*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.8					2.6	2.8
01	290	3.6					2.6	2.8
02	290	3.1					3.5	2.8
03	295	3.2					3.8	2.8
04	295	2.9					4.1	2.8
05	275	3.5	265	2.5	125	1.7	3.8	3.0
06	300	4.1	240	3.4	125	2.0	4.5	3.1
07	340	4.6	235	3.8	120	2.4	4.5	3.0
08	340	5.0	230	4.1	115	2.7	4.8	3.0
09	360	5.4	225	4.3	115	3.0	4.8	3.1
10	345	5.6	220	4.4	115	3.1	5.0	3.0
11	350	5.4	220	4.4	115	3.2	6.6	3.0
12	380	5.4	220	4.5	115	3.2	4.8	3.0
13	400	5.4	220	4.6	120	3.2	6.1	3.0
14	365	5.5	225	4.4	115	3.2	4.8	3.0
15	360	5.4	230	4.3	115	3.1	4.7	3.0
16	340	6.5	225	4.2	115	2.9	4.4	3.0
17	320	6.6	235	3.9	120	2.6	4.3	3.0
18	295	5.7	250	3.6	125	2.1	3.9	3.0
19	270	6.0	250	3.2	130	1.8	3.4	3.0
20	260	6.5					3.7	3.0
21	250	6.0					3.1	3.0
22	250	5.0					2.6	3.0
23	275	4.4					2.6	2.8

Time: 0.0°.
Sweep: 0.65 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 49*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	5.0					3.0	3.1
01	240	4.3					3.0	3.1
02	240	3.8					2.9	3.2
03	245	2.8					3.0	3.2
04	260	2.3					3.5	3.2
05	270	2.0					3.7	(3.2)
06	270	3.2					3.2	3.0
07	250	6.6	(240)		125	2.2	3.6	3.0
08	305	8.4	225		120	2.9	4.2	2.8
09	315	9.6	215	(4.6)	115	3.2	5.4	2.7
10	335	10.3	210	4.6	110	3.4	5.9	2.5
11	340	10.4	205	4.7	110	3.6	6.0	2.6
12	340	10.1	200	4.7	110	3.6	5.1	2.5
13	345	10.2	200	4.7	110	3.6	5.2	2.5
14	340	9.8	200	4.6	110	3.5	5.2	2.5
15	335	9.6	205	(4.5)	115	3.2	5.6	2.4
16	315	9.6	225		115	2.9		2.4
17	(280)	9.8	240		120	2.4	3.4	2.5
18	255	9.9			(145)	1.8	3.0	2.7
19	255	10.2					3.0	2.9
20	250	9.6					3.0	3.0
21	230	9.7					3.0	3.2
22	215	7.4					3.0	3.3
23	220	5.8					3.2	3.2

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 50

Rarotonga I. (21.3°S, 159.8°W) — August 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.0						3.0
01	270	4.0						3.0
02	260	4.0						3.1
03	<270	3.6						3.0
04	280	3.3						3.0
05	<300	2.9						2.9
06	300	2.7						2.8
07	250	5.2	<200	2.1	—	—		3.3
08	250	6.8	220	3.7	115	2.4	3.5	3.3
09	280	7.4	220	4.3	110	2.9	3.7	3.2
10	270	8.0	220	4.5	110	3.1	4.1	3.3
11	270	8.0	210	4.4	110	3.2	4.1	3.3
12	270	7.0	200	4.5	110	3.2	4.2	3.4
13	280	7.1	210	4.5	110	3.2	4.3	3.2
14	290	7.2	200	4.6	110	3.1	4.0	3.3
15	290	6.8	210	4.5	110	3.0	3.9	3.2
16	280	6.9	240	4.2	110	2.8	3.8	3.2
17	260	6.9	240	3.4	110	2.4	3.7	3.2
18	250	6.3	—	—			3.5	3.2
19	250	6.0					2.9	3.0
20	250	5.3					2.7	3.0
21	<270	4.8					2.4	2.9
22	290	4.7						2.8
23	<280	4.2						2.9

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

Table 51

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.6					2.5	3.0
01	280	2.5					3.2	3.0
02	270	2.6					2.8	3.0
03	270	2.4					3.2	3.1
04	260	2.1					3.1	3.2
05	240	1.8					3.4	3.2
06	270	1.8					3.2	3.1
07	250	3.2	---	---		1.4	3.4	3.4
08	250	4.5	240	3.2		1.9	3.4	3.5
09	260	4.9	230	3.7		2.3		3.4
10	280	5.3	220	3.9		2.7		3.2
11	290	5.5	230	4.1		2.8	4.3	3.2
12	300	5.7	230	4.2		2.9	4.5	3.2
13	300	6.0	220	4.2		2.9	4.3	3.3
14	280	5.8	220	4.0		2.7	4.2	3.3
15	260	5.6	230	3.8		2.5	4.1	3.4
16	260	5.5	240	3.3		2.2		3.3
17	240	5.2	240	2.2		1.4	1.5	3.3
18	240	4.3						3.1
19	250	3.9						3.0
20	260	3.5						3.0
21	270	3.2						3.0
22	270	2.8						3.0
23	270	2.8					2.4	3.0

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

Table 52*

Khartoum, Sudan (15.6°N, 32.6°E) — July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	345	(4.9)					4.1	
01	335	—					2.9	
02	330	(4.1)					3.8	
03	330	—					2.4	
04	265	(3.7)						
05	260	(3.3)					3.9	
06	240	5.4			130	1.9	4.4	
07	250	6.6	230		125	2.5	5.6	
08	290	7.2	(230)	(4.4)	120	3.1	4.9	
09	400	7.2	(230)	(4.6)	120	3.5	5.4	
10	450	7.4	(210)	4.6	120	3.5	5.3	
11	500	7.5	(240)	4.7	120	3.6	4.3	
12	505	8.0	210	4.7	120	3.7	5.2	
13	460	8.3	(205)	4.6	120	3.6	5.6	
14	430	8.5	220	4.6	120	3.4	5.9	
15	380	9.0	220	4.4	120	3.3	5.6	
16	360	9.3	(220)	4.2	120	(3.2)	5.6	
17	(400)	9.4			120	2.5	4.9	
18	260	9.8					4.4	
19	260	9.6					4.7	
20	280	7.8					3.9	
21	290	7.0					3.9	
22	340	6.4					3.9	
23	350	(5.2)					2.6	

Time: 30.0 E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 53

Rarotonga I. (21.3°S, 159.8°W) — July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.[illegible]						2.8
01	270	3.0						2.8
02	<300	3.2						2.8
03	270	3.3						2.9
04	240	3.1						3.0
05	<260	2.9						3.0
06	<280	2.5						2.9
07	250	4.6	—	1.9				3.2
08	250	6.1	200	3.0	115	2.3	3.0	3.3
09	270	6.9	220	4.1	110	2.7	3.5	3.3
10	270	7.4	220	4.2	110	3.0	3.8	3.4
11	270	7.0	210	4.4	110	3.1	3.9	3.5
12	270	6.7	200	4.4	110	3.2	3.9	3.3
13	280	7.0	200	4.4	110	3.1	4.0	3.2
14	290	7.0	200	4.3	110	3.1	3.9	3.2
15	270	7.2	210	4.1	110	3.0	3.5	3.2
16	260	7.0	230	4.0	110	2.7	3.5	3.3
17	250	6.4	250	3.0	120	2.2	3.3	3.2
18	240	6.3					3.1	3.3
19	230	5.1					2.4	3.2
20	250	3.9						3.0
21	<260	3.5						2.9
22	<270	3.4						2.9
23	<280	3.3						2.9

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

Table 54

Christchurch, N.Z. (43.6°S, 172.7°E) — July 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.2					3.3	3.1
01	280	2.2					3.4	3.0
02	280	2.4					2.9	3.0
03	270	2.2					3.2	3.0
04	250	2.0					3.3	3.2
05	240	1.8					3.5	3.3
06	(230)	1.6					3.5	3.3
07	270	2.2				—	3.6	3.2
08	240	3.8				1.5	4.0	3.6
09	240	4.6	240	3.2		2.2	3.4	3.5
10	260	5.1	230	3.5		2.4	4.3	3.4
11	280	5.5	230	3.8		2.6	4.4	3.4
12	270	5.8	230	3.9		2.7	4.5	3.3
13	270	5.8	230	3.8		2.7	4.4	3.4
14	260	5.8	240	3.7		2.5	4.4	3.4
15	260	5.4	240	3.3		2.2	4.4	3.4
16	240	5.4	240	2.4		1.8	3.5	3.5
17	230	4.4				---	3.6	3.3
18	250	3.7					3.2	3.1
19	260	3.3					2.5	3.1
20	270	2.9					1.9	3.1
21	270	2.4						3.1
22	280	2.3						3.0
23	290	2.3					3.3	3.0

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

Table 55*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.6					3.0	2.9
01	315	2.6					2.3	2.8
02	295	2.5						2.9
03	285	2.6						2.9
04	280	2.5						2.9
05	265	2.4						3.2
06	225	2.2						3.4
07	260	2.2				(1.4)		(3.1)
08	220	3.9			(160)	(1.9)	4.2	3.5
09	220	4.7			(240)		4.9	3.7
10	220	4.9			(130)		4.0	3.7
11	230	5.5	(215)	(3.3)	(120)		4.0	3.6
12	230	6.0	(220)	(3.4)	(120)		4.6	3.7
13	230	6.0	(225)	(3.4)	(120)		5.0	3.7
14	230	5.6	(230)	(3.1)			4.8	3.7
15	220	5.0					4.9	3.7
16	215	4.5					4.8	3.7
17	220	3.3					3.0	(3.0)
18	245	2.8					3.0	3.2
19	245	2.8					2.9	3.2
20	260	2.6					3.0	3.2
21	270	2.5					2.9	3.0
22	280	2.6					2.9	2.9
23	305	2.6					2.9	2.9

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

Table 56*

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.2						2.9
01	295	2.3						2.8
02	295	2.4						2.8
03	295	2.4						2.8
04	285	2.4						2.8
05	255	2.2						3.0
06	245	2.2						3.2
07	(235)	1.8						
08	(235)	1.8						(3.3]
09	235	2.9					1.9	3.2
10	215	4.4					3.1	(3.3)
11	215	4.5					4.3	(3.6)
12	220	4.6					3.6	(3.5)
13	220	4.9						(3.4)
14	215	4.5						3.5
15	215	4.2						3.4
16	220	3.8						(3.2)
17	215	3.0						3.2
18	230	2.2						3.2
19	260	1.9						3.0
20	(275)	1.8						(2.9)
21	(290)	2.0						2.9
22	(290)	2.0						2.8
23	285	2.2						2.8

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 57*

Khartoum, Sudan (15.6°N, 32.6°E) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	415	(4.3)						
01	415	(3.8)						
02	385	(3.4)						
03	375	(4.8)					2.0	
04	335	(3.6)					1.9	
05	285	3.4					5.5	
06	255	5.6			117	2.0	4.1	
07	255	6.9	228	4.0	111	2.6	5.8	
08	280	7.8	227	4.4	112	3.0	5.8	
09	310	8.0	218	4.6	112	3.3	5.6	
10	345	7.8	214	4.7	111	3.4	5.6	
11	345	8.0	210	4.7	111	3.5	5.8	
12	325	8.3	217	4.7	112	3.6	5.4	
13	310	8.5	210	4.7	112	3.5	5.9	
14	310	8.7	216	4.6	113	3.4	6.5	
15	310	9.4	218	4.5	112	3.2	5.9	
16	305	9.8	225	4.3	114	3.0	5.7	
17	265	10.0	236	3.9			5.4	
18	245	10.1					5.8	
19	260	9.4					5.0	
20	310	8.3					3.5	
21	340	7.3					3.0	
22	375	6.0					2.6	
23	405	(4.2)					2.5	

Time: 30.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 58

Macquarie I. (54.5°S, 159.0°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	—	—					5.0	—
01	—	—					4.2	—
02	—	—					5.2	—
03	—	—					3.9	—
04	(285)	(2.2)					4.0	(2.9)
05	(265)	(2.4)					1.7	(3.1)
06	250	3.3			150	1.8		3.3
07	250	4.0	—	—	100	2.2		3.3
08	305	4.6	225	3.7	100	2.5		3.2
09	350	4.9	220	3.9	100	—		3.1
10	320	5.3	220	4.1	100	2.9		3.2
11	320	5.6	220	4.2	100	3.0		3.2
12	300	5.6	210	4.2	—	—		3.2
13	310	5.6	215	4.2	100	3.0		3.1
14	330	5.5	220	4.1	100	3.0		3.1
15	295	5.9	220	3.9	100	2.8		3.2
16	270	5.6	225	3.7	110	2.6		3.2
17	290	5.2	240	3.6	110	2.4	3.8	3.2
18	250	5.5			—	—	2.8	3.2
19	(255)	4.6					4.6	3.2
20	270	4.5					5.1	3.1
21	(260)	(3.7)					4.8	(3.0)
22	—	—					5.5	—
23	—	—					5.3	—

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 59

Macquarie I. (54.5°S, 159.0°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	—	(4.4)					5.2	(2.9)
01	(295)	—					4.8	—
02	(280)	3.6					4.7	3.0
03	(270)	(3.1)					4.0	(3.1)
04	(295)	2.6					3.8	3.0
05	250	3.3					2.9	3.2
06	240	4.1	—	—	105	2.2	2.8	3.3
07	255	4.7	230	3.9	—	—	3.0	3.3
08	310	5.0	220	4.1	—	—	3.1	3.2
09	320	5.5	210	4.2	100	2.9	3.2	3.2
10	320	5.6	200	4.3	100	—	3.2	3.1
11	330	5.8	200	4.4	100	3.2		3.0
12	330	6.0	200	4.4	100	3.2		3.0
13	315	6.0	200	4.4	100	3.3		3.1
14	330	6.1	200	4.3	100	3.2		3.1
15	325	6.0	210	4.3	100	2.9		3.0
16	300	5.9	220	4.1	100	2.8	3.0	3.1
17	290	5.8	220	3.9	100	2.6	4.0	3.0
18	260	5.9	235	—	—	—	4.3	3.1
19	260	5.0	—	—	—	—	4.0	3.1
20	255	4.4					5.1	3.0
21	(260)	4.6					4.8	3.0
22	270	4.6					4.8	3.1
23	(300)	(4.4)					5.0	(3.0)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 60

Godhavn, Greenland (69.2°N, 53.5°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(2.5)					4.2	(3.0)
01	260	(2.5)					4.2	(3.1)
02	(260)	(2.4)					4.0	(3.1)
03	—	—					4.6	—
04	—	—					4.8	—
05	—	—					5.2	—
06	—	—					5.3	—
07	—	—					5.1	—
08	—	—					4.4	—
09	(290)	(2.8)					4.3	—
10	<250	(3.3)					3.8	(3.2)
11	250	(4.4)					4.0	(3.2)
12	250	(4.2)					3.0	(3.2)
13	(260)	(4.1)					2.0	(3.2)
14	240	(4.2)					3.6	(3.3)
15	240	(3.6)					3.2	(3.2)
16	250	(3.6)					4.6	(3.1)
17	230	(3.6)					4.2	(3.1)
18	(240)	(3.4)					4.1	(3.1)
19	(240)	(3.4)					3.8	(3.1)
20	<240	(3.0)					3.8	(3.2)
21	(240)	(3.0)					3.9	(3.1)
22	240	(2.8)					4.6	(3.1)
23	<250	(2.6)					3.9	(3.2)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 61

Macquarie I. (54.5°S, 159.0°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	3.9					5.5	2.9
01	300	(3.6)					5.0	(3.0)
02	(295)	3.4					5.0	3.0
03	(295)	3.3					4.7	3.0
04	(260)	3.3			---	---	3.0	3.1
05	240	3.6	---	---	100	2.1	2.8	3.1
06	350	4.2	235	3.7	100	2.6	2.8	3.2
07	370	4.6	220	3.9	100	2.8	3.0	3.1
08	360	4.8	200	4.2	100	3.0	3.5	3.0
09	400	4.9	200	4.4	100	3.3	3.5	2.8
10	410	5.0	200	4.4	100	3.4	3.7	2.9
11	410	5.1	200	4.5	100	3.4	3.7	2.9
12	395	5.2	200	4.5	100	3.4	3.6	2.9
13	390	5.4	200	4.5	100	3.4	3.5	2.9
14	365	5.5	200	4.5	100	3.3	3.5	2.9
15	360	5.6	200	4.4	100	3.3	3.4	2.9
16	340	5.6	200	4.3	100	3.1	3.5	3.0
17	320	5.9	220	4.1	100	2.9	3.6	3.1
18	300	5.4	225	3.8	100	2.5	3.9	3.1
19	265	5.2	245	3.4	100	2.2	4.3	3.0
20	250	5.2					3.8	3.1
21	260	4.7					>4.7	3.1
22	(260)	4.7					5.1	3.0
23	(290)	(4.4)					>5.2	(2.9)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 62

Macquarie I. (54.5°S, 159.0°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	(4.7)					5.0	(3.0)
01	(270)	(4.0)					5.0	(3.1)
02	(260)	(3.8)					5.2	(3.2)
03	(260)	3.8					4.0	3.2
04	(250)	3.9			---	---	4.0	3.2
05	240	4.5	---	---	100	2.3	2.8	3.2
06	295	5.0	220	4.0	100	2.6	3.2	3.1
07	330	5.3	215	4.2	100	2.9	3.2	3.1
08	320	5.8	210	4.4	100	3.2	3.5	3.1
09	345	6.0	200	4.6	100	3.2	3.9	3.0
10	335	6.1	200	4.6	100	3.3	3.5	3.1
11	340	6.1	200	4.7	100	3.4	3.6	3.0
12	345	6.2	200	4.7	100	3.4	3.5	3.0
13	340	6.2	200	4.6	100	3.5		3.0
14	340	6.2	200	4.6	100	3.4	3.3	3.0
15	330	6.4	210	4.5	100	3.2	3.4	3.0
16	330	6.4	215	4.4	100	3.2	3.5	2.9
17	310	6.5	220	4.1	---	---	4.0	3.0
18	305	6.0	---	3.8	---	---	5.4	3.0
19	270	5.1	---	3.2	---	---	4.7	3.1
20	(260)	5.2					5.2	3.2
21	(240)	(4.8)					4.4	(3.0)
22	(270)	(4.8)					5.2	(3.0)
23	---	4.5					5.0	2.9

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 63

Godhavn, Greenland (69.2°N, 53.5°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(3.1)					3.6	(2.8)
01	(270)	(3.0)					4.0	(2.8)
02	(280)	(2.8)					3.4	(2.7)
03	(290)	(3.1)					2.8	(2.8)
04	(280)	(3.1)					3.8	(2.8)
05	(260)	(3.2)					4.2	(2.9)
06	---	(3.5)					3.6	(2.8)
07	(260)	(3.0)					3.9	(2.8)
08	(270)	(3.4)					3.0	(2.8)
09	270	(4.1)					3.5	(2.8)
10	260	(4.6)					1.8	(3.1)
11	(250)	(5.2)						(3.1)
12	240	(5.0)						(3.1)
13	240	(5.0)					3.5	(3.2)
14	(250)	(4.6)					4.5	(3.1)
15	250	(4.4)					5.0	(3.1)
16	240	(4.1)					5.2	(3.1)
17	250	(4.2)					3.8	(3.0)
18	(250)	(4.2)					3.6	3.0
19	(250)	(4.0)					4.1	(2.9)
20	(240)	(3.7)					4.1	(2.9)
21	(240)	(3.8)					4.3	(3.0)
22	(250)	(3.8)					4.7	(2.9)
23	(270)	(3.3)					3.7	(3.0)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 64

Macquarie I. (54.5°S, 159.0°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(295)	4.3					5.3	2.9
01	295	3.9					4.1	3.0
02	265	3.8					4.2	3.0
03	260	3.4					4.0	3.0
04	260	3.9			---	E	3.3	3.2
05	240	4.4	---	---	100	2.2	2.4	3.2
06	250	4.6	225	3.8	100	2.6	3.3	3.2
07	365	5.0	220	4.2	100	2.8		3.0
08	355	5.5	210	4.4	100	3.1	3.3	3.0
09	350	5.8	210	4.5	100	3.2	3.3	3.1
10	350	6.0	200	4.6	100	3.3	3.4	3.0
11	350	6.1	210	4.7	100	3.4		3.0
12	340	6.3	200	4.7	100	3.4		3.0
13	350	6.5	200	4.7	100	3.4		2.9
14	340	6.5	200	4.6	100	3.3		3.0
15	320	6.5	200	4.5	100	3.2		3.0
16	320	6.5	220	4.3	100	3.0	3.3	3.0
17	300	6.4	230	4.0	100	2.8	3.4	3.0
18	260	6.7	230	3.6	100	2.3	4.6	3.0
19	260	5.8			---	---	3.5	3.0
20	260	5.4					4.2	3.0
21	270	5.6					4.5	3.0
22	(265)	(5.2)					5.0	(3.0)
23	(280)	(4.7)					5.0	(3.0)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 65

Macquarie I. (54.5°S, 159.0°E) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2					4.3	2.9
01	(270)	3.2					3.9	3.0
02	290	3.0					3.3	2.9
03	270	2.7					2.3	3.0
04	280	2.8					1.4	3.0
05	260	3.8			---	E		3.1
06	240	4.3	---	---	100	2.3		3.2
07	310	4.8	220	4.0	100	2.6	2.7	3.1
08	330	4.9	220	4.2	100	2.9		3.1
09	345	5.3	210	4.3	100	3.1		3.1
10	360	5.4	210	4.4	100	3.2		3.0
11	330	5.8	200	4.5	100	3.2		3.1
12	330	6.2	200	4.5	100	3.2		3.0
13	310	6.2	200	4.4	100	3.2	3.2	3.1
14	320	6.0	210	4.3	100	3.1		3.0
15	300	6.1	210	4.2	100	3.0		3.0
16	300	6.1	220	4.0	100	2.6	3.0	3.0
17	240	6.4	240	3.5	100	2.4	3.2	3.1
18	250	6.4			---	---	3.0	3.0
19	250	5.8			---	---	3.5	3.0
20	250	5.0					>4.4	3.0
21	(250)	(4.6)					>4.4	(3.0)
22	(260)	(4.0)					>4.4	(3.0)
23	280	4.1					4.0	3.0

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 66

Macquarie I. (54.5°S, 159.0°E) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.5)					5.0	(2.9)
01	---	(2.1)					4.5	(2.8)
02	---	---					4.5	---
03	---	(1.8)					3.9	(3.0)
04	---	(1.7)					3.2	(3.0)
05	(280)	(2.1)					2.1	(3.1)
06	260	3.3			---	E		3.1
07	250	4.1	---	---	100	2.0		3.3
08	240	4.5	230	---	100	2.5		3.2
09	310	5.0	220	4.1	100	2.8		3.2
10	370	5.2	220	4.2	100	3.0		3.0
11	320	5.4	220	4.2	100	3.2		3.1
12	320	5.6	220	4.2	100	3.1		3.0
13	300	6.0	210	4.2	100	3.1		3.1
14	310	6.0	210	4.1	100	3.0		3.1
15	315	5.8	220	4.0	100	2.7	2.8	3.0
16	250	5.8	220	3.6	100	2.3	2.6	3.2
17	245	5.5	---	---	130	2.0	3.5	3.2
18	245	5.0					4.4	3.2
19	260	4.2					4.8	3.1
20	(250)	4.2					4.7	3.1
21	(290)	(3.7)					4.8	(3.1)
22	(285)	(3.3)					4.4	(3.0)
23	---	(3.0)					4.8	(2.9)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 67

Macquarie I. (54.5°S, 169.0°E) August 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(320)	(3.0)					4.4	(3.0)
01	—	(2.8)					4.8	(3.0)
02	(280)	(3.5)					4.1	(3.0)
03	(270)	(3.2)					3.9	(3.1)
04	—	(2.5)					3.6	(3.1)
05	(290)	2.6					2.7	3.1
06	280	2.1					2.8	3.2
07	250	3.0			—	—	2.1	3.2
08	240	4.2			100	2.0		3.4
09	220	4.8	—	—	100	2.4		3.4
10	255	5.2	210	3.7	100	2.6		3.4
11	280	5.4	216	4.0	110	2.8		3.2
12	300	5.4	210	4.0	100	2.9		3.2
13	280	5.8	215	4.0	105	2.8		3.2
14	280	5.7	220	3.8	110	2.7		3.2
15	240	5.8	—	3.5	110	2.4		3.3
16	230	5.5			110	2.0		3.3
17	245	4.4			—	—	2.0	3.2
18	250	4.4					2.2	3.0
19	290	4.0					3.9	3.1
20	(280)	3.3					4.4	3.0
21	(280)	(3.2)					4.2	(3.1)
22	(280)	(2.6)					4.8	(3.0)
23	—	—					4.8	—

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 68

Macquarie I. (54.5°S, 159.0°E) July 1961*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	3.1					4.4	(3.0)
01	(300)	(2.8)					4.7	(3.0)
02	(300)	2.8					4.2	2.9
03	(280)	2.6					2.2	3.0
04	(270)	2.6					3.9	3.1
05	(260)	(2.4)					3.4	(3.2)
06	250	2.6					2.0	3.2
07	(255)	(2.0)						(3.2)
08	(230)	(3.9)			—	—	(2.0)	(3.4)
09	(220)	5.3			—	2.1	2.5	3.5
10	220	6.0			100	2.4	(2.7)	3.5
11	220	6.6			100	2.5	(2.7)	3.5
12	(230)	(7.2)			100	2.6		(3.4)
13	(220)	(7.2)			100	2.6		(3.4)
14	(220)	(7.2)			—	—		(3.4)
15	225	(7.5)			—	—		(3.5)
16	(220)	(6.8)			—	—	(1.9)	(3.4)
17	220	5.8						3.2
18	—	—						—
19	(270)	(3.3)					2.3	(3.0)
20	(250)	(3.0)					3.6	(3.0)
21	(260)	(2.8)					4.1	(3.0)
22	(290)	(2.9)					4.4	(3.0)
23	—	(2.6)					5.2	(2.9)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.
*No record from 21st through 30th.

Table 69

Macquarie I. (54.5°S, 159.0°E) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	(3.0)					4.2	(3.0)
01	(270)	(2.9)					4.4	(3.0)
02	(290)	(2.8)					3.7	(2.9)
03	(270)	3.0					4.0	(3.0)
04	(260)	2.8					4.0	3.0
05	(280)	2.5					3.3	3.0
06	(270)	2.2					1.8	3.1
07	(260)	2.1					2.4	3.2
08	240	3.5			—	1.4	2.2	3.4
09	230	4.7			100	2.0	2.4	3.4
10	220	6.8			100	2.2	2.4	3.5
11	230	6.5			100	2.4	2.8	3.5
12	220	7.2			100	2.5		3.4
13	230	7.0			100	2.4		3.4
14	230	7.0			100	2.2		3.4
15	220	7.0			—	1.8		3.3
16	220	6.6			—	—		3.3
17	225	5.1						3.2
18	(230)	4.0					3.2	(3.2)
19	260	3.5					2.7	3.1
20	250	3.4					3.1	3.1
21	270	3.0					3.5	3.1
22	(275)	2.8					3.7	(3.0)
23	(280)	(2.8)					4.4	(3.0)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Form adopted June 1946

TABLE 70

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

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), March (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: F. J. McC., E. J. W.

Calculated by: F. J. McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(270)S	(290)S	(280)S	270	250	270	(300)S	240	240	260	270	290	250	300	280	290	270	250	210	230	240	(240)S	250	(280)SK
2	(270)SK	(320)SK	(330)SK	(310)SK	S K	E K	F K	300 K	G K	G K	G K	G K	G K	G K	G K	G K	330 K	(350)LK	270 K	270 K	(260)SK	250 K	[240]SK	(330)SK
3	(300)A	270	(270)S	280	260	(240)S	[240]F	240	250	280	280 H	290	290	280	260	300	260	230	230	210	230	250	(250)S	240
4	(300)S	(270)S	250	240	240	(240)S	(280)S	220	220	250	250	310	290	250	260	260	250	240	220	210	220	250	250	270
5	280	270	250	250	230	230	(240)S	220	220	250	270	280	280	300	270	260	230	250	220	210	220	(240)S	(250)S	(250)S
6	260	(270)S	(280)S	(260)S	250	(240)S	230	220	230	(250)H	(280)L	[280]L	270 H	300	270	[260]C	260	220	220	230	240	230	250	250
7	(250)S	240	S	S	(290)S	(290)S	(240)S	240	230 H	320	G	420	440	360	330	320	300	260	230	230	(240)S	(290)S	(300)S	(310)S
8	[300]A	(290)S	250	(240)S	250	(260)S	260	240	280	300	300	350 K	320 K	300 K	320 K	290 K	280 K	270 K	280 K	280 K	270 K	270 K	260 K	S K
9	S K	S K	<370 EK	<320 EK	<300 EK	S K	S K	260 K	G K	G K	G K	G K	G K	450 K	350 K	440 K	410 K	310 K	270 K	250 K	250 K	240 K	(280)SK	(260)S
10	(250)S	(300)S	A	A	A	S	S	250	(300)L	340	410 K	400 K	430 K	400 K	370 K	370 K	310 K	300 K	250	230	250	(270)S	(280)S	290
11	(280)S	S	S	(280)S	(290)S	S	S K	250 K	G K	420 K	G K	420 K	500 K	340 K	370 K	320 K	300 K	260 K	240	230	(240)S	(260)S	(250)S	(270)S
12	(280)S	[280]S	(280)S	(270)S	(260)S	(290)S	(270)S	240	320	350	420	340	310	330	330	370 H	(300)L	250	240	220	240	250	(250)S	(260)S
13	(270)S	[270]S	(270)S	(270)S	260	(250)S	(240)S	240 H	270 H	270	290 H	290 H	280 H	270	290	290	280	250	230	220	(240)S	240	(250)S	(260)S
14	(280)S	(280)S	270	(250)S	(270)S	(290)S	(250)S	260	300	320	300 H	320	300	280	300	270	270	250	230	220	220	(250)S	(250)S	230
15	260	(260)S	(280)S	(260)S	240	(280)S	250	230	260	(360)L	340	290	300	240	280	280	280	250	230	220	(240)S	(270)S	(270)A	(270)S
16	(270)S	(270)S	250	250	250	(260)S	(250)S	220	280	280	310	290	270	300	290	260	260	250	230	220	240	250	250	(260)S
17	(280)S	[280]S	(270)S	(270)S	260	(250)S	(240)S	(230)L	250	300	320	300	300	300	290	270	260	240	220	200	(230)S	(260)S	(270)S	(270)S
18	(280)S	240	270	270	250	250	240	230	250 H	300	360	290	310	310	300	300	250	250	230	230	240	250	250	270
19	(270)S	260	260	270	250	(260)S	240	250	(330)L	340	340	370	300	280	290	290	280	260	240	220	250	250	250	250
20	(280)S	[240]A	[240]A	S	(270)S	(270)S	240	230 H	250	270	270	290	270	280	330 K	270 K	240 K	260 K	220 K	210 K	230 K	230 K	(250)SK	(300)SK
21	(310)SK	(310)SK	(300)SK	250 K	230 K	[260]SK	(290)SK	250 K	(430)LK	G K	G K	G K	G K	G K	(490)SK	510 K	430 K	360 K	260 K	(240)SK	(260)SK	(290)SK	(320)SK	(310)S
22	(310)S	(320)S	(300)S	240	260	(270)S	270	270	270	370	340	360	350	370	310	360	330	300	250	240	230 K	(250)SK	S K	E K
23	E K	E K	E K	300 K	240 K	[260]SK	270 K	250 K	G K	G K	G K	G K	G K	G K	G K	G K	390 K	G K	250 K	240 K	(290)SK	(300)SK	S K	S K
24	(330)SK	(230)SK	(300)SK	[300]SK	(300)SK	[280]SK	270 K	240 K	350 K	420 K	400 K	430 K	410 K	440 K	400 K	330 K	330 K	300 K	250 K	250 K	230 K	(260)SK	S K	A K
25	S K	S K	S K	S K	S K	S K	(290)SK	230 HK	240 K	G K	G K	400 K	410 HK	380 K	340 K	300 K	330 K	240 K	250 K	250 K	260 K	(270)SK	S K	S K
26	S K	S K	S K	S K	S K	S	250	230	310	300	300	340	320	300	280	300	300	260	240	230	220	230	(230)S	(280)S
27	(280)S	250	270	280	(320)SK	[300]SK	280 K	260 K	G K	G K	G K	G K	450 K	440 K	360 K	360 K	350 K	300 K	260	230	240	(270)S	(290)S	[280]S
28	(290)S	[300]S	(310)S	[300]S	(300)S	[280]S	270 K	G K	G K	G K	G K	G K	G K	430 K	380 K	370 K	340 K	300 K	250 K	250	260	260	(280)S	S
29	S	S	(280)S	(280)S	(300)S	(310)S	270	220	G	G	380	360	350	320	330	320	300	280	250	250	250	250	(270)S	280
30	280	(300)S	270	260	270	[260]S	260	230	340	380	360	400	390	370	340	[330]C	320	(280)L	250	240	230	250	(270)S	(270)S
31	(280)S	(290)S	(240)S	260	[260]S	(270)S	260	(260)L	[280]C	310	330	360	320	330	290	310	290	280	250	240	(240)S	240	240	(240)S
Median	(280)	(280)	(280)	270	260	(260)	260	240	280	340	340	360	320	320	320	300	300	260	240	230	240	250	(250)	(270)
Count	27	26	24	26	26	26	27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 71

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

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.4	2.2	2.3	2.3	2.2	1.8F	2.1F	3.5	5.0	5.0	5.3	6.0	6.1	5.6	5.8	6.0	5.2	5.5	4.8	3.7	3.4	3.1F	3.0F	2.8FK
2	2.7FK	K(2.1)JF	K(1.7)JS	K(1.7)PS	F SK	K<1.0E	F K	2.6K	<3.0GK	<3.3GK	<3.4GK	<3.6GK	<3.6GK	<3.6GK	<3.5GK	<3.5GK	4.2K	3.5K	3.9K	K(3.4)FS	3.2FK	2.5FK	K(1.7)FS	K(2.0)FS
3	2.4JS	2.5F	2.6F	2.5F	(2.2)FS	1.9JS	[2.8]FS	3.7FS	5.2	5.8	(5.6)H	6.0	6.1	6.7	6.4	6.4	6.0	6.6	5.5	5.0	3.5	2.7F	2.7F	2.7
4	2.3	2.4F	2.5F	2.3F	2.0F	2.0F	2.1F	4.4	5.4	6.4	6.4	6.2	6.9	7.0	6.0	6.2	6.0	6.2	5.4	4.4	3.8	3.2	3.1	2.9
5	2.8	2.7	2.6	2.5	2.2	2.2	2.2	4.0	4.9	5.5	5.2	6.0	6.4	6.0	6.8	6.7	6.2	6.2	5.7	4.9	3.6	3.2	3.0	2.9
6	2.5F	2.3F	2.5F	2.5F	2.6	2.6	2.5	4.2	4.9	(6.0)H	5.4	6.4	6.4H	6.4	6.8	[6.7]C	6.6	6.3	5.2	5.0JS	4.1JS	4.1JS	3.7	3.6
7	3.1	3.0	2.1	2.1	2.3	2.1F	2.0F	3.3	3.7JS	4.2	<4.0G	4.4	4.5	4.9	5.0	5.1	5.0	5.0	4.3	3.1	2.7	2.4F	2.3F	(2.3)F
8	(2.0)AF	2.2JF	(2.5)JF	2.4F	2.2F	2.1FS	2.2F	3.8	5.0	4.8	5.0	5.0K	6.0K	6.2K	6.2K	6.4K	6.8K	6.6K	6.8K	6.6K	K6.4JS	K5.2JS	K3.6ZF	1.9K
9	1.9K	K1.6JS	K1.7JS	1.7FK	1.6FK	1.8FK	1.7K	3.0K	<3.4GK	<3.5GK	<3.5GK	<3.7GK	<3.8GK	4.3K	4.5K	4.2K	4.3E	4.6K	4.6K	4.3K	3.1FK	4.0K	3.2K	2.7
10	2.8JF	2.4	(2.7)A	2.4	[2.2]A	1.9	2.0	3.8	4.2	4.5	4.6K	4.5H	4.5K	4.5K	4.9K	4.6K	4.7K	4.5K	4.5	3.7	3.0	2.7F	2.4F	2.5F
11	2.2	(2.0)F	1.9JS	1.9JS	1.8	1.7JS	K1.8JS	3.1A	<3.6GK	3.9A	<3.8GK	K4.3JH	4.4K	4.8K	4.7K	4.9K	4.7K	4.8K	4.3	4.4	3.5	3.2	2.9	2.4
12	2.2	2.0JS	1.9	2.0	2.0	2.0	2.1	3.4	3.9	4.2	4.3	4.7	4.9	5.0	5.0	4.8H	4.9	4.9	4.5	4.1	3.5	3.1	2.8	2.5
13	2.3	2.0	1.9	2.0	2.1F	2.1F	2.2	4.0H	4.4H	5.2	5.3H	5.2H	5.2H	5.2JS	5.5	5.6	5.3	5.3	5.6	5.0	3.9	3.7	3.2	2.6
14	2.4	2.4	2.3JS	2.3JS	2.2	2.3	2.4	3.6	4.3	4.3	4.7H	5.2	5.6	5.7	5.6	5.8	5.6	5.5	5.6	4.7	4.1	3.7	(3.3)JS	3.1JS
15	2.8	2.5	2.2JS	2.4	2.4	2.2	2.5	3.7	4.6	4.3	5.1	6.2	5.9	6.0	6.0	6.0	5.5	5.2	4.9	4.1	3.4	3.1	3.2	3.1
16	2.9	2.5	2.5	2.4	2.3	2.2	2.6	4.1	4.6	5.0	5.2	5.8	6.1	5.9	5.8	5.8	5.5	5.3	5.5	4.6	3.9	3.5	3.3	2.7
17	2.3	2.2F	2.2	2.3F	2.4F	(2.5)S	2.9	4.2	4.7	4.8	5.2	5.4	5.9	5.6	5.7	5.8	5.6	5.6	5.0	4.5	2.8	2.5	2.3	2.3
18	2.3	2.2	2.1F	2.4F	2.3	2.3F	2.6	4.0	4.6H	4.5	5.0	5.6	5.5	5.6	5.8	5.6	5.2	4.9	4.7	4.5	4.0	3.8	3.5JS	3.2
19	3.1	2.9JS	2.7	2.8	2.6	2.5	2.6	3.6	4.0	4.5	5.1	5.0	6.1	6.4	5.6	5.6	5.2	5.8	5.2	5.2	4.5	4.1	3.6	2.9
20	2.3	[2.0]A	[1.9]A	1.8F	2.2	2.2F	2.7	4.5H	5.0	5.7	5.8	6.3	5.6	6.7	5.5K	6.6K	6.7K	(7.4)SK	7.0K	5.4K	5.0K	3.9K	2.7K	2.5K
21	2.2K	2.1K	2.1K	2.1K	K(1.6)PS	K(1.6)JS	2.2K	3.2K	K(3.6)PS	<3.6GK	<3.7GK	<3.8GK	<3.8GK	<3.8GK	4.1K	4.1K	4.0K	4.1K	4.2K	3.3K	K(2.6)JS	2.4FK	K(2.1)PS	2.1JS
22	(2.3)PS	[2.3]FS	2.3S	2.4	(1.9)PS	(1.8)PS	2.5	4.2	4.3	4.5	4.6	4.9	4.9	4.7	5.0	4.7	4.8	5.1	4.9	3.9	K3.7JS	2.8FK	2.0K	<1.0EK
23	<1.0EK	<1.0EK	K(1.3)SP	1.8K	K1.8SF	[2.0]SK	2.3K	3.0K	<3.4GK	<3.6GK	<3.8GK	<3.8GK	<3.8GK	<3.8GK	<3.9GK	<3.7GK	4.1K	<3.5GK	3.8K	3.2K	2.4K	K2.4FS	K(1.9)JS	K(1.8)JF
24	2.0K	2.2FK	K(2.1)FS	[2.0]FK	1.9FK	K[2.2]FS	2.4K	3.6K	K4.0HF	4.1K	4.3K	4.4K	4.6K	4.6K	5.0K	5.8K	5.6K	5.6K	5.4K	5.8K	4.1K	K(2.6)JF	K1.7JS	[1.4]AR
25	F SK	K1.7JS	K1.9JS	S K	S K	F SK	(2.1)SH	3.0HK	3.2K	<3.7GK	<3.8GK	4.8K	5.0HK	5.1K	6.2K	5.6K	4.7K	4.7K	4.6K	3.8K	(3.5)SK	2.7K	K(1.9)FS	K(1.9)FS
26	K1.5JS	K(1.4)JS	K(1.5)JS	K1.4JS	K(1.5)JS	(1.5)JF	2.6	3.9	4.6	4.7	5.2	5.6	5.6	5.8	6.0	5.4	6.0	6.1	6.2	6.2	5.2	4.7	3.1F	3.0
27	2.7F	2.3F	2.3	1.9F	K1.5JS	1.8FK	2.3K	3.2K	<3.4GK	<3.7GK	<4.0GK	<4.0GK	4.4K	4.5K	4.7K	4.7K	4.6K	4.6K	4.6	4.2	3.2	2.8F	2.4F	2.4
28	2.2JF	(1.8)FS	1.7JS	1.7JS	1.8JS	(1.6)JS	2.5K	<3.2GK	<3.5GK	<3.8GK	<3.9GK	<3.9GK	<4.0GK	4.5K	4.8K	4.7K	4.7K	4.4K	4.1K	(4.0)S	(3.9)S	3.0	2.6	2.4
29	1.9	[2.0]S	2.2	1.9	1.9JS	1.9JS	2.5	3.5	<3.6G	<3.8G	4.5	5.0	5.2	5.5	5.4	5.4	5.2	5.1	4.4	4.2	4.0	3.5	3.2	3.0
30	2.5SF	2.2F	2.2F	2.0	(1.8)JS	2.0	2.8	3.7	4.1	4.5	4.8	4.8	5.0	5.0	5.1	[4.9]C	4.7	4.6	4.6	4.6	4.6	3.5	3.1	2.7
31	2.5	2.4	2.2	2.2	2.1	2.2	3.1	4.2	[4.8]C	5.5	5.2	5.0	5.6	5.5	5.6	5.6	5.5	5.4	5.5	5.5	5.7	4.8	4.3	3.2JS
Median	2.3	2.2	2.2	2.2	2.1	2.0	2.4	3.7	4.3	4.5	4.8	5.0	5.2	5.5	5.5	5.6	5.2	5.2	4.9	4.4	3.7	3.2	3.0	2.6
Count	30	31	31	30	29	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 72

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

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	2.3	2.2	2.3	2.2	1.9 F	1.9 F	2.7	4.7	5.0	5.2	5.3	6.2	5.9 JH	5.6	5.9	5.6	5.3	5.2	4.2	3.7	3.2	2.9 F	3.0 F	2.7 FK
2	2.5 FK	K2.0 JS	K(1.7) JS	F SK	F SK	F SK	K(2.2) PS	2.8 K	<3.1 GK	<3.4 GK	<3.5 GK	<3.6 GK	<3.7 GK	<3.6 GK	<3.5 GK	4.3 K	<3.4 GK	3.7 K	3.8 FK	3.2 FK	2.9 FK	2.2 FK	1.7 FK	2.2 FK
3	2.1 F	2.5 F	2.1 FJ	2.2 FS	1.9 F	[2.3] FS	2.7 F	4.2	5.4	6.2	5.8	5.9	6.6	6.8	6.5	6.4	6.2	5.6	5.6	4.1	3.0	2.7	2.3 F	2.4
4	2.4 F	2.4 F	2.5	2.4 F	2.1 F	2.0 F	3.0	4.9	6.0	6.1	(5.6) H	6.4	7.0	6.2 H	6.2	6.0	6.0	6.0	4.9	4.1	3.5	3.0	3.0	2.8
5	2.8	2.7	2.5	2.4	2.1 F	2.1	3.2	4.3 H	5.3	5.5	5.6	6.2	6.0	6.4	6.8	6.8	5.7	6.0	5.2	4.4	3.3	3.1	3.0	2.7
6	2.2 F	2.5 F	2.4	2.5	2.7	2.7	3.1	4.5	5.2	(5.6) H	6.2	6.6	6.8	6.4	6.7	[6.6] C	6.6	5.8	5.1	4.5	4.3	3.9	3.7	3.5
7	3.1	2.4 F	2.1 F	2.1	2.2 F	2.0 F	2.7	3.5	4.2 H	4.3	4.4 H	4.6	4.6 H	4.9	5.1	5.0	4.9	4.6	3.8	3.0	2.4 F	2.3 F	(2.2) JF	[2.1] F
8	(2.2) JF	2.4 F	2.4 F	2.3 JF	2.2 F	2.0 F	3.1	4.5	4.8	5.4	5.2 H	5.5 K	6.2 K	6.0 K	6.4 K	6.4 K	6.8 K	6.6 K	6.2 K	K7.6 JS	K6.8 JS	4.5 K	2.4 K	1.7 K
9	1.7 K	1.5 K	1.7 FK	1.7 FK	1.7 FK	K1.7 JS	2.5 K	3.4 K	<3.6 GK	3.5 K	3.7 K	3.8 K	<4.0 GK	4.3 K	4.2 K	4.3 K	4.6 K	4.6 K	4.5 K	4.2 K	K4.2 JS	3.8 K	2.9 K	2.8
10	2.3 F	2.7 JA	2.6	2.5	2.0	1.9	3.0	4.2	4.6	4.5	4.5 K	4.6 K	4.5 K	4.6 K	4.7 K	4.8 K	4.6 K	4.6 K	4.2	3.4	2.9	2.7 F	2.5 F	2.1 F
11	2.0 F	2.0	1.8	1.7 JS	1.8	1.7 JS	2.5 K	3.3 K	[3.6] CK	<3.8 GK	4.3 K	4.4 K	4.7 K	4.8 K	4.8 K	4.8 K	4.7 K	4.4 K	4.3	4.1 JS	(3.4) PS	3.0	2.6 JS	2.3
12	2.0	(1.9) JS	2.0 JS	2.0	2.0	1.9	2.9	3.6	4.1	4.3	4.4	4.7	4.9	5.0	5.1	4.9	4.9	4.7 H	4.2	3.9	3.3	3.0	2.7	2.4
13	2.1	2.0	2.0 JS	2.1	2.1 F	2.1 F	3.1	4.1	4.8	4.9	5.2	5.2	5.3	5.9	5.4 H	5.1	5.4	5.3	5.3	4.4 JS	3.8	3.3	3.1	2.7
14	2.3	2.3	2.3	2.2	2.3	2.3	3.1	3.9	4.3	4.6	5.1	5.4	5.8	5.1	5.8	5.8	5.4	5.5	5.4	4.6	3.9	3.5	3.2	3.1
15	2.7	2.3	2.3	2.4	2.0	2.3	3.2	4.2	4.2	4.7	5.5	6.1	5.9	6.2	5.8	5.7	5.4	5.0	4.7	3.9	3.1	3.2	3.1	3.0
16	2.6	2.5	2.4	2.4	2.3	2.1 JS	3.4	4.4	5.0	5.2	5.6 H	5.8	5.8	6.0	5.8	5.7	5.3	5.4	5.4	4.2	3.6	3.4	3.0	2.5
17	2.2	2.2	2.3	2.3 F	2.5	2.5	3.6	4.5	[4.7] C	5.0	5.4 H	5.6	5.8	5.6	6.0	5.6	5.6	5.4	5.0	3.3	2.6	2.4	2.3	2.3
18	2.3	2.2	2.2	2.3	2.2 F	2.3	3.5	4.2	4.7	4.3	5.5	5.2	5.6	5.8	5.4 H	5.4	5.1	5.0	4.6	4.2	3.9 JS	3.6	3.2	3.0
19	3.0	2.8	2.7	2.8	2.3	2.5	3.1	3.7	4.3	4.4	4.2 H	5.6	5.9	6.2	5.6	5.6	5.2	5.6	5.3	4.8	4.2	3.8	3.2	2.7
20	2.1	[2.0] A	1.8	2.1	2.2 F	2.2	4.0	4.4	5.3	6.3	5.9	5.8	5.5 JS	6.0	6.0 K	6.1 K	7.2 K	(7.4) SK	6.5 K	5.2 K	4.5 K	3.6 SK	2.6 K	2.5 K
21	2.3 K	(2.1) SK	2.0 K	2.0 K	K(1.6) JS	K(1.7) JS	2.9 K	3.3 K	<3.5 GK	<3.6 GK	<3.7 GK	K<3.9 HG	K<3.7 HG	<3.8 GK	K(4.0) PS	4.1 K	4.0 K	4.2 K	3.8 K	3.1 SK	K2.6 FJ	K(2.2) PF	2.1 K	(2.2) JS
22	(2.0) PF	(2.2) PS	2.3	2.2 S	(1.8) PS	(1.9) PS	3.4	4.2	4.4	[4.6] NH	4.7	5.0	4.9	4.9	5.0	4.7	4.9	5.1	4.5	3.9	3.1 K	2.4 FK	S K	E K
23	<1.0 EK	(1.3) SK	1.6 FK	2.0 FK	1.7 FK	K(1.6) JS	2.9 K	<3.3 GK	[<3.5G] CK	<3.6 GK	<3.8 GK	<3.8 GK	<3.8 GK	<3.9 GK	<3.7 GK	4.0 K	<3.5 GK	3.8 K	3.5 K	K2.8 JS	2.4 K	2.1 FK	2.0 FK	K(1.9) FS
24	2.0 FK	2.2 FK	K[2.0] FS	F K	K[2.0] FS	K(1.7) JS	3.2 K	3.7 K	(4.2) HK	4.3 K	4.3 K	4.5 K	4.6 K	4.9 K	5.3 K	5.7 K	5.6 K	6.1 K	5.7 K	5.0 K	3.2 K	K2.1 JS	K(1.4) JS	K(1.5) JS
25	K[1.8] FS	(2.1) SK	A K	S K	F SK	S K	2.7 K	3.3 K	<3.5 GK	<3.8 GK	(4.5) SK	K(4.8) JH	5.4 K	5.5 K	6.1 K	5.0 K	5.0 K	4.6 K	4.3 K	3.6 K	(3.1) SK	K(2.4) JS	K(2.1) JS	[1.7] FK
26	K1.5 JS	[1.4] SK	K1.4 JS	K(1.5) JS	K(1.6) JS	1.8 JS	3.3 F	4.1	4.5	4.7	4.8	5.7	5.7	5.8	5.8	5.7	6.0	6.1	(6.2) S	(5.8) S	(5.0) S	3.8	3.0	2.9 F
27	(2.8) S	2.3	2.2	1.8 F	1.8 FK	K1.8 JF	2.4 K	<3.4 GK	<3.5 GK	<3.8 GK	<4.0 GK	4.3 K	4.5 K	4.6 K	4.8 K	4.6 K	4.6 K	4.6 K	4.6	3.9	3.0	2.5 F	2.4 F	2.2 JF
28	(2.0) S	1.7 JS	(1.7) JS	1.7 JS	1.7 JS	1.6 JS	2.9 K	<3.4 GK	<3.6 GK	<3.9 GK	<4.0 GK	<4.0 GK	4.4 K	4.7 K	4.7 K	4.7 K	4.6 K	4.3 K	4.2 K	4.1	(3.2) S	2.8 JS	2.5	2.1 JS
29	(1.8) JS	(2.2) S	2.0	1.8	1.9	2.0	3.0	<3.4 G	<3.7 G	<3.8 G	(4.7) H	5.2	5.2	5.2	5.4	5.2	5.4	4.9	4.3	4.3	3.8	3.3	3.0	2.5 F
30	2.3 SF	2.3 F	2.1 F	1.9 F	2.0	2.1	3.3	4.2	4.2	4.8	4.6	4.8	[4.9] C	5.2	[5.0] C	4.9	4.7	4.5	4.5	4.7	4.0	3.3	3.0 JS	2.8
31	2.4	2.3	2.2	2.1	2.1	2.5	4.0	4.5	5.0	5.4	5.0	5.4	5.4	5.8	5.4	5.6	5.4	5.4	5.3	5.6	5.2	4.5 JS	3.7	2.9
Median	2.2	2.2	2.2	2.2	2.0	2.0	3.1	4.1	4.3	4.6	4.7	5.2	5.4	5.5	5.4	5.4	5.3	5.1	4.6	4.1	3.3	3.0	2.8	2.5
Count	31	31	30	28	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 73

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

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), March (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: F. J. McC., E. J. W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1								220	240	220	190	190	200 H	190 H	200	200 H	200	240								
2								Q K	250 K	240 K	220 K	190 HK	(250) SK	230 K	230 K	240 K	230 K	250 K								
3								Q	250	240	220	200	190	220	220	220	220	Q								
4								Q	210	200	190	180	170 H	250	180	200	220	230								
5								200	200	210	200	190	210 H	220	200	200 H	210	210								
6								Q	210	190 H	200	200	200 H	210 H	200	[210]	220	Q								
7								Q	210 H	200	200	190	200	200	210	230	230	240								
8								230	220 H	220	200	190 K	180 K	230 K	220 K	220 K	240 K	240 K								
9								Q K	250 K	230 K	210 K	250 K	230 K	220 K	230 K	220 K	250 K	250 K								
10								Q	230	230	210 K	250 K	220 K	200 K	230 K	200 HK	220 HK	240 K								
11								Q K	230 K	250 K	200 K	190 K	190 K	(220) AK	[220] AK	(230) AK	220 K	220 K								
12								Q	220	220 H	200	190 H	190 H	200 H	200	200 H	220	230								
13								210	210	230	190 H	180 H	260 H	200 H	260	190 H	210 H	230								
14								230	210	220	190	190	230	220	210	200	200	230								
15								Q	220	210 H	200 H	220 H	220	200	200	220	220	220								
16								Q	220	210	200	230	200	220	200	230	210	240								
17								210	230	220	220	200	200	210 H	200 H	190 H	220	230								
18								200	220	210	210	200	190	200	200	230	220	230								
19								230	230	230	210 H	200	200	220	200 H	210	220 H	240								
20								220	220	200	200	190	230	220 H	220 HK	220 HK	230 K	220 HK								
21								Q K	230 K	230 K	200 K	200 HK	200 HK	190 HK	230 K	220 K	230 HK	230 HK								
22								250	230	210	200 H	200	250	200 H	230 H	220	210 H	220 H	230							
23								190 K	190 HK	210 K	250 HK	240 HK	280 HK	200 K	200 HK	230 K	230 K	240 K	Q K							
24								Q K	220 K	(200) HK	230 K	220 HK	220 K	210 K	220 K	220 HK	220 HK	260 K	Q K							
25								Q K	220 K	(220) SK	210 K	200 HK	210 K	220 K	220 K	230 K	230 K	220 K	Q K							
26								Q	220	220	200 H	200	210	200	200	220	220	230	Q							
27								Q K	220 K	250 K	210 K	190 K	200 K	200 K	200 K	220 K	230 K	240 K	250							
28								230 K	230 K	210 K	210 K	230 K	200 K	210 K	210 K	220 K	230 K	230 K	250 K							
29								Q	230	210	200	180	220	200	230	210	210	230	230							
30								Q	220	200 H	190	190 H	200	200	220	[220] C	220	240	Q							
31								230	[220] C	210	210	220	190	190 H	190	200 H	220 H	230	230							
Median								220	220	220	200	200	200	210	210	220	220	230	230							
Count								13	31	31	31	31	31	31	31	31	31	24	5							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 74

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

Form adopted June 1946

IONOSPHERIC DATA

foFl (Characteristic), Mc (Unit), March (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: F. J. McC., E. J. W.

Calculated by: F. J. McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	3.9	4.0	4.2H	4.3H	4.0	4.0H	3.5	L						
2								QK	3.0K	3.3K	3.4K	(3.6)HK	3.6K	3.6K	3.5K	3.5K	3.4K	LK						
3								Q	L	3.8	4.0	4.2	4.2	4.2	[4.1]L	4.0	L	Q						
4								Q	L	L	4.1	4.4	4.4H	4.3	3.6	4.1	L	L						
5								L	L	L	L	4.3	4.3H	4.2	4.2	L	L	2.5						
6								Q	L	(4.0)J	4.1	[4.2]L	4.2H	4.3	4.0	C	L	Q						
7								Q	L	3.6	4.0	4.0	4.1	4.1	4.0	3.9	3.6	L						
8								L	L	3.9	4.0	4.0K	4.2K	4.2K	4.2K	4.0K	LK	LK						
9								QK	3.4K	3.5K	3.5K	3.7K	3.8K	4.0K	3.9K	3.8K	3.5K	LK						
10								Q	L	3.7	3.8K	3.9K	4.0K	4.0K	3.8K	3.8HK	3.6HK	LK						
11								QK	3.6K	3.7K	3.8K	4.0K	4.0K	3.9K	4.0K	3.8K	(3.5)PK	LK						
12								Q	3.3	3.8H	3.9	4.1H	4.1H	4.1H	4.0	4.1H	L	L						
13								L	3.2	3.7	3.8J	4.1H	4.2H	(4.1)H	4.1	4.0H	3.7H	L						
14								L	3.4	3.7	3.7	4.0	4.2	4.1	3.9	3.8	3.7	L						
15								Q	L	3.8H	3.9H	4.2H	4.1	4.1	4.0	3.9	L	L						
16								Q	L	3.8	4.1	4.2	4.2	4.2	4.1	L	L	L						
17								L	L	3.8	4.1	4.1	4.2	4.2H	4.2H	4.0H	L	L						
18								L	L	3.9	4.1	4.2	4.2	4.2	4.0	4.0	L	L						
19								L	(3.5)L	3.8	3.9H	4.1	4.2	4.1	4.1H	3.9	L	L						
20								L	L	3.6	4.0	4.2	4.2	4.2H	4.2HK	(3.9)HK	(3.8)PK	LK						
21								QK	(3.3)LK	3.6K	3.7K	3.8HK	3.8K	3.8HK	3.8K	3.6K	3.5HK	3.2HK	QK					
22								L	L	3.8	4.0H	3.9	4.1	4.0H	3.9H	3.8	3.6H	3.9H	L					
23								2.4K	3.4HK	3.6K	3.8HK	3.8HK	3.8HK	3.8K	3.9HK	3.7K	3.5K	3.5K	QK					
24								QK	3.5K	(3.7)HK	3.9K	4.0HK	4.0K	4.1K	3.9K	3.9HK	3.7HK	3.2K	QK					
25								QK	LK	3.7JK	3.8K	3.9HK	4.0K	4.0K	3.9K	3.8K	3.7K	3.2K	QK					
26								Q	3.5	3.9	3.9H	4.1	4.2	4.2	4.1	4.0	3.8	L	Q					
27								QK	3.4K	3.7K	4.0K	4.0K	4.0K	4.1K	4.0K	4.0K	3.7K	3.3K	L					
28								3.2K	3.5K	3.8K	3.9K	3.9K	4.0K	4.1K	4.0K	4.0K	3.7K	3.3K	LK					
29								Q	3.6	3.8	4.1	4.0	4.3	4.2	4.2	4.0	3.9	L	L					
30								Q	3.7	4.0H	4.1	4.1H	4.2	4.1	4.1	[4.0]C	3.8	L	Q					
31								L	C	4.0	4.2	4.3	4.3	4.3H	(4.1)P	4.1H	(3.9)L	L	L					
Median								–	3.4	3.8	3.9	4.0	4.2	4.1	4.0	4.0	3.7	3.2	–					
Count								2	15	28	3.0	3.1	3.1	3.1	3.1	2.8	2.0	8						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 75

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

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

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

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

foE (Characteristic), Mc (Unit), March (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: F. J. McC, E. J. W.

Calculated by: F. J. McC, E. J. W, N. B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	A	2.5	(2.8)P	A	A	(3.0)P	3.0	2.8	2.5	2.0H						
2								SK	2.2HK	2.5K	2.7HK	2.9HK	(2.9)SK	2.9K	2.8K	2.5K	2.2K	2.0K						
3								S	A	(2.4)P	2.7	2.9	3.0	3.0	2.9	2.7	2.5	2.1						
4								S	2.2	2.6	2.8	2.9	3.0	(3.1)P	(2.8)P	2.7	2.5	2.4						
5								S	2.4	2.7	2.9	3.1	3.1	(2.9)P	2.9	2.7	2.5	2.0						
6								S	2.3	2.7	(2.9)P	3.0	3.1	3.0	3.0	C	2.5	A						
7								1.8H	2.2	2.5	2.7	2.9	3.0	3.0	2.9	2.8	2.4	2.0						
8								1.5	2.3H	2.5	2.8	3.0K	3.0K	3.1K	3.0K	2.8K	2.5K	2.1K						
9								1.8K	2.2HK	2.3K	(2.5)AK	2.9K	3.0K	3.0K	2.8K	2.5K	2.3K	2.0K	(1.4)SK					
10								2.0	2.3H	2.5	[2.8]AK	3.0K	[3.0]AK	3.0K	2.9K	(2.7)AK	2.4K	AK						
11								1.9K	(2.2)PK	2.4K	2.5K	2.8K	2.8K	2.8HK	2.7HK	2.7HK	2.4K	1.9HK	A					
12								(1.7)S	2.2H	2.6H	2.7H	2.9H	(3.0)P	2.9H	2.9	2.8	2.5	2.1	(1.3)S					
13								(1.8)S	2.4	2.6	2.8	3.0H	3.1	3.0H	3.0	2.8H	2.6	2.3H	S					
14								S	2.2	2.5	(2.7)P	(2.8)P	(2.9)P	3.0H	2.9	2.8	2.6	2.1H	S					
15								S	2.1	2.5	(2.7)P	(2.8)P	(3.0)B	2.9	2.9	2.8	2.6	2.2	S					
16								1.9	2.3	2.7	2.8	3.0	3.1	3.0	3.0	2.9	2.5	2.1	S					
17								S	2.2	2.6	2.8	3.0	3.1	3.2	3.1	2.9	2.6	2.2	S					
18								1.6	2.2	2.3	2.8	3.0	3.1	3.2	3.0	2.9	2.7	2.2	S					
19								1.9	2.4	2.7	3.0	3.0	3.2	3.1	3.0	2.9	2.6	2.1	1.8					
20								1.8	2.3	2.6	[2.8]B	(3.0)P	[3.0]A	3.0	3.0K	2.9K	(2.6)PK	2.1K	SK					
21								1.8K	[2.2]AK	2.5HK	2.5K	2.9K	3.0K	(2.9)PK	(2.7)BK	(2.7)BK	(2.5)PK	2.0K	1.7K					
22								(1.8)P	[2.2]A	2.5	(2.6)A	A	A	3.0	[2.8]A	2.7	(2.5)S	2.1	S					
23								2.1K	2.4K	2.5K	[2.6]AK	(2.8)PK	(2.8)SK	2.9K	2.8K	(2.7)CK	2.5K	(2.2)PK	AK					
24								1.9K	2.3K	2.6K	2.8K	[2.9]BK	(3.0)PK	3.0K	3.0K	2.9K	2.5HK	2.2HK	(1.8)PK					
25								1.9HK	2.2K	(2.5)SK	2.7K	(2.8)PK	3.1K	3.0K	(2.9)PK	2.7K	2.5HK	2.1K	SK					
26								2.0	[2.4]A	(2.7)P	(2.8)P	3.1	3.1	(3.0)P	3.0	2.8	2.6	2.2	S					
27								2.0K	2.4K	2.7K	2.9K	3.0K	3.0K	3.0K	3.0K	2.8K	2.5K	2.2K	S					
28								(2.0)PK	2.4K	2.7K	(2.8)PK	3.0K	3.0K	3.1K	3.0K	2.8K	2.6K	2.2K	1.7K					
29								2.0	2.4	2.6	2.8	(3.0)P	3.2	(3.2)P	3.0	3.0	2.7	2.3	S					
30								2.1H	2.4	2.6	(2.8)P	(3.0)P	3.1	3.1	3.0	[2.8]C	2.7	2.3	S					
31								2.1H	[2.3]C	(2.5)P	(2.9)B	3.2	3.2	3.2	[3.0]A	(2.9)P	(2.7)P	(2.2)B	S					
Median								1.9	2.3	2.5	2.8	3.0	3.0	3.0	3.0	2.8	2.5	2.1	1.7					
Count								22	29	31	31	29	29	31	31	30	31	29	6					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 77

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

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	22/110	E	E	E	G	22/110	32Y/110	33/110	49/100	39Y/100	2.7/100	G	G	G	G	E	E	E	E	E	E
2	E	E	E	E	E	E	E	19/120 H	G	G	G	G	G	G	G	G	G	23/110 H	2.7Y/120	30Y/120	24Y/120	E	E	E
3	39/120	E	33Y/100	E	E	E	E	G	28/120 H	39Y/110	G	G	G	G	G	G	G	G	E	E	E	E	E	E
4	E	E	E	E	E	E	E	G	G	G	G	G	30/100	G	G	G	G	G	E	E	E	E	E	E
5	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	22/130	E	E	E	E	E	E
6	E	E	39/110	E	E	E	E	G	G	G	G	G	G	G	G	C	44Y/120	24/120	E	E	E	E	E	E
7	E	24/130	E	22/160	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	28Y/120
8	38/110	E	E	E	E	E	E	19/140	G	G	G	29/110	G	74Y/120	G	G	G	G	E	E	E	E	E	E
9	E	23/120	E	23Y/110	24Y/110	40Y/110	E	G	G	25/120	32/120	G	G	G	G	G	G	G	G	E	E	E	E	E
10	E	26Y/120	38/110	30/110	29/110	22/110	28/100	G	G	G	2.7/100	28/100	36Y/100	G	2.8/100	32Y/100	20/100	26/100 H	E	E	E	E	E	E
11	E	E	E	E	E	E	E	G	22/120	G	69Y/110	G	G	42Y/120	44Y/120	39Y/120	27/120	21/130	19/120	E	E	E	E	E
12	E	22Y/110	29/110	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	E	E	25/110	E	E
13	21Y/110	E	E	E	22/110	E	E	G	G	G	G	G	G	G	G	G	G	G	18/100 H	E	E	E	E	E
14	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	33Y/120	G	E	E	E	E	E
15	E	E	E	E	E	E	E	22/140	G	G	G	G	G	G	G	G	G	G	G	E	E	30/110	3.9Y/110	E
16	E	E	E	E	E	43Y/110	E	G	G	G	G	G	G	G	G	G	G	G	G	E	24Y/110	E	E	E
17	E	E	E	E	E	E	E	26/120	G	G	G	G	G	27/100	37Y/100	G	G	G	G	E	E	E	E	E
18	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
19	22/100	E	E	E	E	E	E	19Y/110	32Y/110	G	G	31/100	G	G	2.1/100	G	G	G	G	E	E	22/110	23/110	24/110
20	28Y/100	43/100	42/100	37/100	22Y/110	24/100	26Y/100	G	35Y/110	G	27/100	35Y/100	38/100	G	G	G	G	G	G	E	E	E	E	E
21	E	E	E	E	E	E	49Y/100	G	37/110	38/120	G	G	G	G	G	G	G	G	G	E	E	24/100	E	E
22	E	E	(23)S/110	E	E	E	27/150	G	25/110 H	G	28/120	29/110	30/110	G	29/100	29/110	34/120	G	G	E	E	E	E	E
23	E	E	E	E	E	E	42/130	G	G	44Y/110	43Y/110	G	G	G	G	G	G	G	19/130	E	2.5/110	E	E	E
24	E	E	E	[illegible]	E	E	E	71Y/130	G	G	G	G	G	G	G	G	G	G	G	E	E	21/110	E	30/110
25	E	34Y/110 H	E	E	E	E	E	G	G	G	G	48Y/100	G	G	G	G	G	G	G	E	28Y/110	E	E	E
26	E	E	E	E	E	E	E	G	25/110	26/110	G	G	G	G	G	G	G	G	G	24Y/110	E	E	E	E
27	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
28	E	E	E	E	E	E	E	G	G	G	28/110	G	G	G	G	G	G	G	G	E	E	(23)S/110	E	E
29	E	E	E	E	E	E	E	72Y/120	25/110	29/120 H	31/120	G	G	G	G	G	G	1.8/100	G	E	E	23/110	E	E
30	E	E	E	13/100	E	E	E	G	G	G	G	G	G	60/120	43/120	C	G	G	G	E	E	E	E	E
31	E	E	E	E	E	E	E	74Y/110	C	3.3/110	28/110	G	G	G	3.2Y/100 H	G	G	G	G	E	E	E	E	E
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	29	31	31	31	31	31	31	31	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 ☒

Form adopted June 1946

TABLE 78

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

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), March (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: F.J. McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.1	2.0	2.0	1.9	2.0	2.1F	2.0F	2.3	2.6	2.4	2.4	2.2	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.0	2.2	2.0F	2.0F	2.0FK
2	2.1FK	J(1.9)FK	J(1.8)SK	P(1.9)SK	FSK	EK	FK	2.1K	GK	GK	GK	GK	GK	GK	GK	GK	2.1K	2.0K	1.9K	F(2.0)SK	1.9FK	2.0FK	FSK	F(1.9)SK
3	(2.1)JS	2.0F	2.0F	2.0F	(2.0)FS	(2.1)JS	FS	2.2FS	2.4	2.3	(2.2)H	2.2	2.3	2.3	2.3	2.2	2.2	2.5	2.3	2.4	2.3	2.1F	2.1F	2.3
4	1.9	2.0F	2.1F	2.2F	2.1F	2.1F	2.1F	2.5	2.7	2.4	2.5	2.1	2.2	2.4	2.3	2.4	2.3	2.4	2.4	2.2	2.2	2.2	2.1	2.0
5	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.4	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1
6	2.0F	2.1F	2.0F	2.1F	2.1	2.2	2.4	2.5	2.5	(2.7)H	2.1	2.0	2.4H	2.2	2.3	C	2.4	2.5	2.3	(2.1)JS	(2.0)JS	(2.2)JS	2.0	2.0
7	2.2	2.2	1.9	1.9	1.9	2.0F	2.2F	2.4	(2.2)JS	2.3	G	1.9	1.8	2.0	2.1	2.1	2.2	2.4	2.3	2.1	2.1	2.0F	2.0F	(2.0)F
8	(1.9)AF	(2.1)JF	(2.0)JF	2.0F	2.0F	2.0FS	2.0F	2.3	2.2	2.2	2.3	2.0K	2.1K	2.1K	2.1K	2.1K	2.2K	2.1K	1.9K	1.7K	J(1.9)SK	J(1.9)SK	Z2.1FK	1.7K
9	1.8K	J(1.8)SK	J(2.0)SK	2.2FK	1.8FK	1.9FK	1.9K	2.2K	GK	GK	GK	GK	GK	1.8K	2.1K	1.8K	1.9K	2.0K	2.0K	2.0K	2.0FK	2.0K	1.9K	2.0
10	(2.1)JF	1.9	(1.9)A	2.0	A	2.1	2.0	2.3	2.2	2.1	1.8K	1.9K	1.8K	1.9K	1.9K	2.0K	2.2K	2.1K	2.2	2.2	2.1	2.0F	2.0F	1.9F
11	2.0	(2.0)F	(1.9)JS	(2.0)JS	1.9	(1.9)JS	J(2.0)SK	2.3K	GK	1.9K	GK	J(2.1)HK	1.7K	2.2K	2.0K	2.2K	2.2K	2.3K	2.3	2.2	2.1	2.0	2.1	2.1
12	2.0	(2.0)JS	2.0	2.0	2.1	2.1	2.1	2.4	2.2	2.1	1.9	2.2	2.3	2.2	2.1	2.0H	2.1	2.4	2.3	2.2	2.1	2.1	2.1	2.1
13	2.0	2.0	2.0	2.0	2.1F	2.2F	2.1	2.2H	2.2H	2.4	2.2H	1.9H	2.4H	(2.4)JS	2.3	2.3	2.3	2.4	2.4	2.3	2.1	2.1	2.2	2.1
14	2.0	2.1	(2.1)JS	(2.2)JS	2.1	2.0	2.1	2.3	2.3	2.2	2.1H	2.2	2.2	2.4	2.2	2.3	2.4	2.3	2.4	2.3	2.3	2.1	(2.1)JS	(2.0)JS
15	2.1	2.1	(2.0)JS	2.1	2.2	2.0	2.3	2.3	2.5	2.0	2.0	2.2	2.3	2.3	2.3	2.3	2.2	2.4	2.4	2.2	2.2	1.9	2.1	2.0
16	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.4	2.4	2.3	2.2	2.2	2.3	2.1	2.2	2.4	2.3	2.3	2.3	2.3	2.1	2.0	2.2	2.1
17	1.9	2.0F	1.9	2.1F	2.0F	(2.2)S	2.2	2.4	2.4	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.6	2.2	2.0	2.2	1.9
18	2.2	2.2	2.0F	2.0F	2.2	2.2F	2.3	2.4	2.5H	2.3	2.0	2.3	2.2	2.2	2.3	2.2	2.4	2.3	2.3	2.2	2.2	2.0	(2.1)JS	2.0
19	2.0	(2.0)JS	2.0	2.0	1.9	2.1	2.2	2.4	2.1	2.1	2.1	1.9	2.2	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.1	1.9	2.0	2.0
20	2.0	A	A	2.0F	2.1	2.1F	2.3	2.4H	2.4	2.2	2.3	2.3	2.2	2.3	2.1K	2.3K	2.1K	(2.2)SK	2.4K	2.2K	2.2K	2.2K	2.1K	2.0K
21	1.9K	2.0K	1.9K	2.2K	P(2.3)SK	J(1.9)SA	2.1K	2.2K	P(1.9)SK	GK	GK	GK	GK	GK	1.7K	1.7K	1.8K	2.0K	2.2K	2.1K	J(2.1)SK	2.0FK	P(1.9)SK	(2.0)JS
22	(1.9)PS	FS	2.0S	2.2	(2.1)PS	(2.1)PS	2.2	2.4	2.4	2.1	2.1	2.0	2.1	2.0	2.3	2.0	2.0	2.1	2.3	2.1	J(2.4)K	2.2FK	2.0K	EK
23	EK	EK	SFK	2.0K	S2.2FK	SK	2.2K	2.5K	GK	GK	GK	GK	GK	GK	GK	GK	2.0K	GK	2.1K	2.1K	2.0K	F2.0SK	J(1.9)SK	J(1.9)FK
24	2.0K	1.9FK	S(2.0)FK	FK	1.9FK	FSK	2.1K	2.1K	H2.1FK	1.9K	2.0K	1.8K	1.9K	1.8K	1.9K	2.0K	1.9K	2.0K	1.9K	2.1K	2.1K	J(2.2)FK	(2.0)SK	AK
25	FSK	J(1.9)SK	J(2.0)SK	SK	SK	FSK	(2.0)SK	2.5HK	2.4K	GK	GK	1.9K	1.8HK	1.9K	1.8K	2.1K	2.1K	2.1K	2.3K	2.0K	(2.1)SK	2.0K	S(2.0)FK	F(2.0)SK
26	J(1.9)SK	J(1.9)SK	J(1.9)SK	J(1.9)SK	J(1.9)SK	(2.1)JF	2.3	2.4	2.2	2.1	2.3	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1F	2.0
27	2.0F	2.2F	1.9	1.9F	J(1.8)SK	1.9FK	2.3K	2.3K	GK	GK	GK	GK	1.8K	1.8K	2.0K	2.0K	2.0K	2.2K	2.2	2.3	2.1	2.0F	1.9F	2.0
28	(2.1)JF	(2.0)FS	(1.9)JS	(2.0)JS	(1.9)JS	(1.9)JS	2.2K	GK	GK	GK	GK	GK	GK	1.9K	2.0K	2.0K	2.0K	2.1K	2.1K	(2.1)S	(1.9)S	2.0	2.0	2.0
29	2.0	S	2.1	2.0	(1.9)JS	(1.9)JS	2.2	2.2	G	G	2.0	2.1	2.0	2.2	2.2	2.1	2.2	2.3	2.2	2.0	2.1	2.0	2.0	2.0
30	2.0SF	1.9F	2.0F	2.1	(2.0)JS	1.9	2.2	2.2	2.2	2.0	2.1	1.9	1.9	1.9	2.2	C	2.2	2.2	2.2	2.0	2.1	2.0	2.0	2.0
31	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.2	C	2.2	2.0	2.0	2.1	2.2	2.3	2.2	2.3	2.2	2.3	2.1	2.1	2.0	2.1	(2.1)JS
Median	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.0	2.0	2.0
Count	29	27	29	24	28	27	29	31	30	31	31	31	31	31	31	29	31	31	31	31	31	31	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 79

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

Form adopted June 1946

IONOSPHERIC DATA

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

National Bureau of Standards (Institution)

Observed at Washington, D.C.

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

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	31	30	30	29	30	31 F	30 F	34	36	35	35	32	34	32	32	33	33	34	35	30	32	30 F	30 F	29 FK
2	31 FK	K(29) JF	K(27) JS	K(28) PS	F SK	E K	F K	31 K	G K	G K	G K	G K	G K	G K	G K	G K	31 K	30 K	29 K	K(30) FS	29 FK	29 FK	F SK	K(28) FS
3	(31) JS	30 F	30 F	30 F	(29) FS	(31) JS	F S	32 FS	34	33	(32) H	32	33	33	34	32	32	35	34	35	33	31 F	31 F	34
4	29	30 F	31 F	32 F	31 F	31 F	31 F	35	38	35	35	31	32	34	33	34	33	34	35	32	32	32	31	30
5	30	31	31	31	32	32	33	34	35	36	35	33	33	32	34	34	35	34	34	34	33	32	31	31
6	30 F	31 F	30 F	31 F	31	32	34	35	36	(37) H	31	30	34 H	32	34	C	34	35	34	(31) JS	(30) JS	(32) JS	30	30
7	32	32	29	29	29	30 F	32 F	35	(32) JS	33	G	29	28	30	31	31	32	34	33	31	31	30 F	30 F	(30) F
8	(28) AF	(31) JF	(30) JF	30 F	30 F	30 FS	30 F	34	32	32	33	30 K	31 K	31 K	31 K	31 K	32 K	31 K	29 K	26 K	K(29) JS	K(29) JS	K 31 ZF	26 K
9	28 K	K(27) JS	K(29) JS	32 FK	28 FK	29 FK	29 K	32 K	G K	G K	G K	G K	G K	28 K	31 K	27 K	28 K	30 K	30 K	29 K	30 FK	30 K	29 K	30
10	(31) JF	29	(28) A	30	A	31	30	33	32	31	27 K	29 K	28 K	29 K	29 K	30 K	32 K	31 K	32	32	31	30 F	30 F	29 F
11	[illegible]	(30) F	(29) JS	(29) JS	28	(29) JS	K(30) JS	33 K	G K	29 K	G K	K(31) JH	26 K	32 K	30 K	32 K	33 K	34 K	33	32	31	30	31	31
12	30	(30) JS	30	30	31	31	31	35	32	32	29	32	34	32	31	30 H	31	34	34	32	31	31	31	31
13	30	30	30	30	31 F	32 F	31	32 H	32 H	35	32 H	29 H	35 H	(35) JS	33	33	34	.34	34	34	31	32	32	31
14	30	31	(31) JS	(32) JS	31	30	31	33	33	32	31 H	33	33	34	32	34	34	33	35	33	33	32	(31) JS	(30) JS
15	31	31	(30) JS	31	32	29	33	33	36	30	30	33	33	33	34	34	32	35	34	32	32	29	31	30
16	30	31	30	31	31	31	32	35	34	33	32	32	34	31	32	34	34	33	34	33	31	30	32	31
17	28	30 F	29	31 F	30 F	(32) S	32	34	35	34	32	33	32	32	32	32	33	34	35	36	32	30	32	29
18	32	32	30 F	30 F	32	32 F	33	35	35 H	33	30	34	32	32	33	32	35	34	34	32	32	30	(31) JS	30
19	30	(30) JS	30	30	29	31	32	34	31	31	31	29	32	33	33	33	32	33	32	32	31	29	30	30
20	30	A	A	30 F	31	31 F	34	34 H	34	34	33	33	32	33	31 K	33 K	31 K	(32) SK	34 K	32 K	32 K	32 K	31 K	30 K
21	29 K	30 K	29 K	32 K	K(34) PS	K(29) JS	31 K	32 K	K(28) PS	G K	G K	G K	G K	G K	36 K	26 K	28 K	29 K	33 K	31 K	K(31) JS	30 FK	K(29) PS	(29) JS
22	(28) PS	F S	30 S	33	(31) PS	(31) PS	32	34	34	31	32	30	31	30	34	30	30	31	33	31	K(34) JS	32 FK	30 K	E K
23	E K	E K	S FK	30 K	K 32 FS	S K	32 K	35 K	G K	G K	G K	G K	G K	G K	G K	G K	30 K	G K	31 K	31 K	30 K	K 30 FS	K(28) JS	K(28) JF
24	30 K	28 FK	K(30) SF	F K	29 FK	F SK	31 K	31 K	K 31 HF	28 K	30 K	28 K	29 K	27 K	28 K	30 K	29 K	30 K	29 K	31 K	31 K	K(32) JF	K(30) JS	A K
25	F SK	K(29) JS	K(29) JS	S K	S K	F SK	(30) SK	35 HK	35 K	G K	G K	28 K	27 HK	29 K	27 K	31 K	31 K	31 K	33 K	30 K	(31) SK	30 K	K(30) SF	K(30) FS
26	K(28) JS	K(28) JS	K(28) JS	K(29) JS	K(29) JS	(31) JF	33	35	32	30	33	31	32	32	33	32	32	32	33	32	32	32	31 F	30
27	30 F	32 F	29	29 F	K(27) JS	29 FK	33 K	33 K	G K	G K	G K	G K	28 K	27 K	30 K	30 K	30 K	32 K	33	33	31	29 F	29 F	30
28	(31) JF	(30) FS	(29) JS	(30) JS	(29) JS	(28) JS	32 K	G K	G K	G K	G K	G K	G K	28 K	30 K	29 K	30 K	31 K	31 K	(31) S	(29) S	30	30	30
29	30	S	31	30	(29) JS	(29) JS	32	32	G	G	30	31	30	32	32	31	32	33	32	30	30	30	30	29
30	30 SF	28 F	30 F	31	(30) JS	29	33	32	32	30	31	29	29	29	32	C	32	32	32	30	31	30	30	30
31	30	30	30	31	30	30	32	32	C	32	30	30	31	32	34	32	33	32	33	31	31	30	31	(31) JS
Median	30	30	30	30	30	31	32	34	32	31	30	30	31	32	32	32	32	33	33	32	31	30	30	30
Count	29	27	29	29	28	27	29	31	30	31	31	31	31	31	31	29	31	31	31	31	31	31	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702518

TABLE 80

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

IONOSPHERIC DATA

Form adopted June 1946

(M 3000)F1 (Characteristic), ______ (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	3.8	3.9	3.7H	3.8H	3.8	3.6H	3.8	L						
2								QK	3.5K	3.5K	3.7K	(3.9)HK	3.7K	3.7K	3.6K	3.5K	3.4K	LK						
3								Q	L	3.7	3.8	3.6	3.6	3.6	L	3.7	L	Q						
4								Q	L	L	3.8	3.8	3.7H	3.7	4.3	3.8	L	L						
5								L	L	L	L	3.7	3.7H	3.7	3.8	L	L	4.1						
6								Q	L	(4.0)J	3.8	L	3.7H	3.7	3.9	C	L	Q						
7								Q	L	3.7	3.7	3.8	3.6	3.7	3.6	3.7	3.6	L						
8								L	L	3.7	3.7	4.0K	3.6K	3.4K	3.6K	3.5K	LK	LK						
9								QK	3.2K	3.8K	3.9K	3.7K	3.6K	3.7K	3.5K	3.5K	3.4K	LK						
10								Q	L	3.5	3.5K	3.6K	3.7K	3.8K	3.7K	3.6HK	3.5HK	LK						
11								QK	3.3K	3.5K	3.8K	3.8K	3.9K	3.8K	3.6K	3.6K	(3.8)PK	LK						
12								Q	3.7	3.7H	3.8	3.8H	3.7H	3.8H	3.8	3.5H	L	L						
13								L	3.9	3.9	(4.0)J	4.1H	3.7H	(3.8)H	3.6	3.8H	3.7H	L						
14								L	3.7	3.8	4.1	4.0	3.6	3.8	4.0	4.0	3.7	L						
15								Q	L	3.6H	3.6H	3.7H	3.9	3.9	3.7	3.5	L	L						
16								Q	L	3.6	3.7	3.7	3.7	3.6	3.8	L	L	L						
17								L	L	3.7	3.7	3.7	3.8	3.8H	3.6H	3.7H	L	L						
18								L	L	3.7	3.8	3.7	3.8	3.8	3.8	3.7	L	L						
19								L	(3.6)L	3.6	3.8H	3.9	3.7	3.6	3.5H	3.7	L	L						
20								L	L	3.7	4.0	3.8	3.7	3.6H	3.6HK	(3.7)HK	(3.5)PK	LK						
21								QK	(3.7)HK	3.8K	3.9K	4.0HK	4.0K	3.9HK	3.7K	3.6K	3.5HK	3.6HK	QK					
22								L	L	3.9	3.8H	4.1	3.6	3.8H	3.7H	3.7	3.6H	3.5H	L					
23								4.3K	3.6HK	3.7K	3.7HK	3.8HK	3.5HK	3.8K	3.5HK	3.5K	3.5K	3.2K	QK					
24								QK	3.6K	(3.7)HK	3.8K	3.7HK	3.7K	3.7K	3.8K	3.5HK	3.5HK	3.3K	QK					
25								QK	LK	(3.4)JK	3.8K	3.8HK	3.7K	3.6K	3.5K	3.5K	3.5K	3.7K	QK					
26								Q	3.6	3.6	3.8H	4.0	3.7	3.8	3.5	3.7	3.5	L	Q					
27								QK	3.8K	3.6K	3.9K	4.0K	3.9K	3.8K	3.6K	3.6K	3.5K	3.6K	L					
28								3.6K	3.6K	3.8K	3.9K	3.9K	3.9K	3.8K	3.6K	3.6K	3.6K	3.7K	LK					
29								Q	3.5	3.8	3.8	3.9	3.9	4.0	3.8	3.5	3.5	L	L					
30								Q	3.7	3.6H	3.9	3.9H	3.8	3.8	3.7	C	3.5	L	Q					
31								L	C	3.7	3.9	3.7	3.7	3.7H	(3.9)P	3.6H	(3.6)L	L	L					
Median								—	3.6	3.7	3.8	3.8	3.7	3.8	3.7	3.6	3.5	3.6	—					
Count								2	15	28	30	30	31	31	30	27	20	8	—					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 81

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

IONOSPHERIC DATA

(M1500)E (Characteristic), ______ (Unit), March (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: F.J.McC., E.J.W.

Calculated by: F.J.McC., E.J.W., N.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	A	42H	(3.9)P	A	A	(42)P	4.0	41	42	4.0H						
2								SK	4.4HK	42K	4.1HK	4.2HK	(43)SK	43K	42K	4.3K	41K	39K						
3								S	A	(43)P	4.2	4.2	4.4	43	4.3	4.2	4.0	40						
4								S	43	43	42	4.2	4.2	(4.2)P	(43)P	4.3	42	43						
5								S	4.1	43	43	42	4.2	(43)P	4.4	43	43	42						
6								S	4.0	4.0	(4.0)P	4.0	4.3	43	4.1	C	42	A						
7								43H	4.4	43	43	4.1	4.1	4.2	4.1	4.1	4.2	4.1						
8								39	42H	41	4.1	4.1K	4.1K	4.1K	4.0K	4.0K	4.1K	41K						
9								41K	42HK	43K	(41)AK	43K	4.0K	4.2K	4.2K	43K	4.3K	42K	(4.0)SK					
10								44	43H	41	AK	4.2K	AK	41K	4.2K	(4.2)AK	43K	AK						
11								4.0K	(42)PK	43K	43K	42K	4.4K	4.4HK	42HK	43HK	43K	4.3HK	A					
12								(4.2)S	42H	4.2H	45H	4.3H	(4.4)P	4.4H	4.1	4.1	4.1	43	(4.3)S					
13								(39)S	4.1	43	4.0	4.1H	4.1	4.2H	4.2	4.1H	4.1	41H	S					
14								S	44	4.4	(43)P	(42)P	(42)P	4.1H	4.2	43	43	4.4H	S					
15								S	45	43	(43)P	(43)P	(44)B	4.1	4.0	4.0	42	43	S					
16								36	42	42	43	4.0	4.2	42	4.2	4.2	4.3	43	S					
17								S	43	4.3	42	42	43	4.1	4.0	4.1	42	4.2	S					
18								42	43	4.3	42	4.2	4.1	4.1	4.2	4.1	4.3	43	S					
19								4.0	4.1	4.2	4.0	4.3	4.0	4.0	41	4.2	4.3	4.1	38					
20								43	42	4.3	B	(4.2)P	A	4.2	41K	4.2K	(43)PK	44K	SK					
21								41K	AK	43HK	4.4K	4.2K	4.2K	(43)PK	(4.1)BK	(4.3)BK	(4.2)PK	4.2K	42K					
22								(41)P	A	4.4	(4.5)A	A	A	4.1	A	4.2	(4.1)S	41	S					
23								4.2K	42K	4.2K	AK	(4.2)PK	(41)SK	4.1K	4.2K	(4.3)PK	3.9K	(4.2)PK	AK					
24								42K	42K	41K	4.2K	BK	(4.0)PK	4.2K	4.1K	4.2K	4.3HK	4.0HK	(3.9)PK					
25								41HK	42K	(4.3)SK	44K	(42)PK	4.0K	42K	(4.2)PK	43K	4.2HK	3.9K	SK					
26								43	A	(41)P	(4.2)P	4.2	43	(4.0)P	4.2	42	43	4.3	S					
27								43K	43K	43K	42K	4.1K	43K	4.2K	4.3K	43K	4.2K	4.2K	S					
28								(43)FK	4.0K	42K	(4.3)PK	4.2K	4.2K	42K	4.3K	4.3K	4.3K	4.3K	39K					
29								4.1	4.2	4.2	43	(4.3)P	43	(43)P	4.3	4.2	4.2	4.1	S					
30								4.0H	4.2	4.3	(4.3)P	(4.1)P	43	4.2	42	C	4.1	4.2	S					
31								40H	C	(43)P	(43)B	4.2	43	43	A	(43)P	(42)P	(43)B	S					
Median								4.1	4.2	43	4.2	4.2	4.2	4.2	4.2	42	4.2	42	4.0					
Count								22	25	31	28	29	27	31	19	29	31	29	6					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 82

Ionospheric Storminess at Washington, D. C.

March 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	1			3	2
2	4	7	0400	----	5	4
3	3	3	----	0500	4	2
4	1	3			2	2
5	1	3			2	2
6	1	3			1	3
7	0	3			4	2
8	1	4	1600	----	2	3
9	5	5	----	----	4	3
10	3	4	----	0400	3	3
			1500	2300		
11	2	4	1100	2300	2	1
12	1	2			2	1
13	1	3			0	1
14	1	2			3	3
15	0	3			3	2
16	1	2			3	2
17	1	1			2	1
18	1	2			1	2
19	1	1			3	3
20	1	4	1900	----	2	2
21	4	6	----	----	4	4
22	3	2	----	0300	4	3
23	5	6	0100	----	5	4
24	4	4	----	----	5	4
25	5	4	----	----	4	4
26	5	1	----	1000	3	4
27	2	4	0900	2300	4	2
28	3	4	1100	2400	4	3
29	2	1			3	3
30	2	2			3	3
31	2	2			2	2

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

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

----Dashes indicate continuing storm.

Table 83a

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

February 1953

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

Score:

		Short-term 00	06	12	18	Advance 1-4 days	4-7 days
Quiet periods	P	14	10	9	9	3	4
	S	5	6	11	13	16	16
	U	1	1	6	3	1	0
	F	0	0	2	0	2	2
Disturbed periods	P	3	4	0	3	3	0
	S	4	7	0	0	3	4
	U	0	0	0	0	0	2
	F	1	0	0	0	0	0

Scales:

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

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

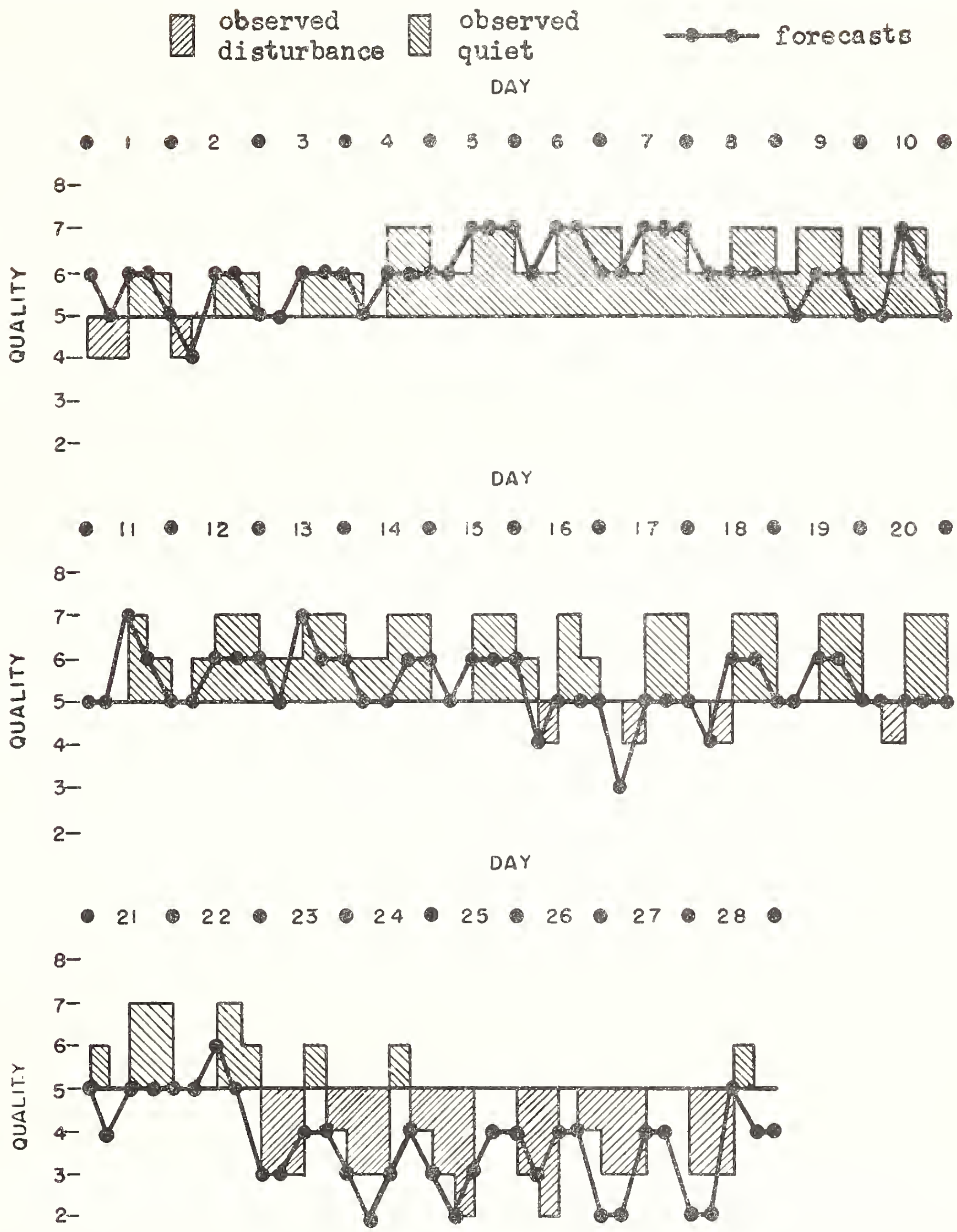
Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were $\geqslant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

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT).

Table 83b

Short-Term Forecasts--February 1953



Outcome of Advance Forecasts (1 to 3 or 4 days ahead)--February 1953

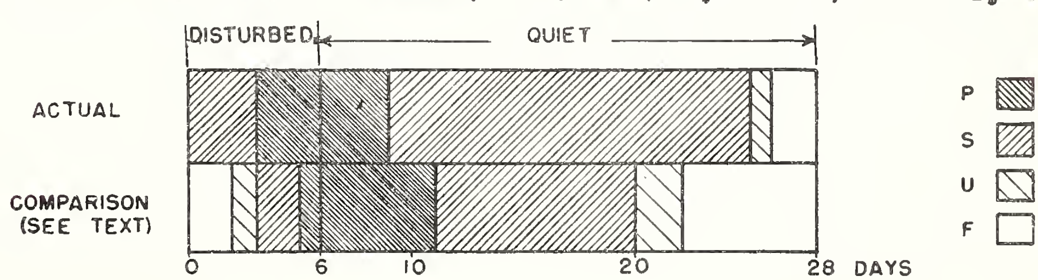


Table 84a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 1.6	-	-	-	-	1	4	6	6	6	8	9	13	16	17	10	16	17	20	18	14	20	16	7	3	1	1	1	1	1	1	1	1	-	-	-	-	-
4.9a	-	-	-	-	-	-	-	3	3	-	-	-	-	-	2	3	3	4	4	4	5	6	3	3	2	1	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	2	3	5	4	2	1	1	1	1	1	1	3	3	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	3	4	3	3	2	2	2	3	2	2	2	1	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	4	4	4	3	2	2	2	2	2	3	3	2	1	-	-	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	1	1	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8a	-	-	-	-	-	-	-	3	3	2	1	1	1	3	3	3	3	1	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-
10.8	-	-	-	-	-	-	-	3	3	3	2	2	2	3	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	3	4	4	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.9a	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	1	1	3	2	1	3	3	3	3	3	2	1	1	1	2	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	8	9	2	2	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	1	1	2	3	2	3	4	6	7	8	6	3	4	3	2	1	1	1	1	1	2	3	3	3	3	2	-	-	-	-	-	-
25.7	-	-	-	-	-	1	2	2	2	3	3	4	5	5	4	3	3	3	1	1	1	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	3	4	4	3	4	6	6	6	8	9	12	10	11	9	15	10	12	4	3	3	3	3	3	3	2	2	-	-	-	-	-	-
28.9	-	-	-	-	-	-	4	4	3	2	2	3	4	7	6	5	8	7	17	16	13	12	5	3	2	2	2	3	3	3	3	2	-	-	-	-	-

Table 85a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 1.6	4	5	4	4	3	1	1	1	1	2	2	3	3	3	1	1	3	1	3	4	1	2	4	4	4	3	3	3	3	2	1	2	2	3	3	4	2
4.9a	3	3	3	3	3	2	2	2	2	3	2	1	1	1	1	1	1	1	1	1	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1
5.8	2	2	2	2	1	1	1	1	2	4	1	1	1	1	1	1	1	2	3	4	4	3	4	4	4	3	4	3	1	1	1	1	1	1	1	1	2
6.8	4	4	3	3	2	2	2	2	2	3	3	2	5	5	4	3	3	4	5	5	6	4	4	4	3	3	4	2	2	1	1	1	1	2	3	3	3
7.7	5	4	4	4	3	3	3	3	4	5	5	4	4	4	5	5	6	5	6	5	3	4	4	4	4	4	3	3	3	2	2	2	2	3	3	3	3
8.9a	3	4	4	3	3	3	2	2	2	1	1	1	2	3	2	1	1	3	4	3	3	4	4	3	4	5	4	3	3	2	2	2	2	2	2	3	3
9.8a	4	4	4	3	3	2	2	2	2	3	4	3	3	4	3	3	3	5	4	5	5	4	5	5	6	6	6	4	3	2	1	1	1	3	3	3	4
10.8	4	3	3	3	2	2	1	1	1	1	1	1	1	2	3	3	4	5	5	4	4	4	4	4	5	5	5	4	3	2	2	2	3	3	3	4	4
12.7	3	3	3	2	1	1	-	-	-	-	-	-	-	1	1	1	2	3	3	3	2	2	2	2	3	3	3	2	1	1	1	1	2	3	3	3	3
15.9a	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	4	5	5	5	5	4	3	2	3	3	2	1	1	1	1	1	1	2	2	2
16.8	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	4	5	7	5	3	3	1	1	1	1	1	1	1	1	1	2	2
17.7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	3	3	5	10	12	9	5	3	3	3	3	2	2	2	2	2	2	3[a]	3[a]
19.7a	1	1	1	1	1	1	1	1	1	1	2	3	3	2	2	2	3	2	2	3	6	9	7	9	4	3	1	1	1	1	1	1	2	2	2	2	2
24.7	3	3	3	2	2	1	-	-	-	-	-	-	-	-	3	3	5	5	4	6	7	6	6	6	7	7	4	3	3	3	4	4	4	5	5	4	3
25.7	2	3	2	2	2	1	1	1	1	-	-	-	-	-	-	-	3	4	1	2	3	3	3	2	3	3	2	2	2	1	1	1	1	2	2	2	2
27.7	2	3	2	2	1	-	-	-	-	-	-	-	-	3	-	-	5	3	2	4	9	4	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2
28.9	4	4	3	2	1	-	-	-	-	-	-	-	-	-	2	2	1	1	11	7	2	2	3	2	1	1	-	-	-	-	-	-	-	1	2	3	3

Table 86a

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

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 1.6	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	2	2	3	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-[a]	-[a]
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 84b

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	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																																					
Mar 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	4	2	2	2	3	3	3	2	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	5	5	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-
5.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	5	5	4	3	3	1	1	1	1	1	1	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	4	4	6	6	6	5	5	4	3	3	3	1	-	-	-	-	-	-	-
8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	4	2	3	4	4	4	3	3	1	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	2	3	2	2	2	2	2	3	3	3	3	3	3	3	5	6	6	6	6	5	3	2	1	-	-	-	-	-	-
10.8	-	-	-	-	-	-	1	2	2	3	3	2	2	1	2	3	3	2	3	3	5	7	8	7	8	9	7	4	3	3	3	2	1	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	7	8	11	17	16	12	4	2	1	1	6	4	-	-	-	-	-
15.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	5	6	7	7	4	4	3	3	1	1	1	-	-	-	-	-	-	-	-	-
16.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	6	7	8	7	5	6	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5	5	6	4	4	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	2	2	2	3	3	3	3	4	3	2	2	1	-	-	-
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	2	3	3	3	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	1	1	2	3	3	2	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	3	-	-	-	-	-	-

Table 85b

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																																					
Mar 1.6	2	3	4	5	4	3	2	3	3	4	6	5	5	4	7	7	7	9	9	6	5	4	4	4	4	4	5	5	2	1	1	1	2	3	3	4	4
4.9	1	2	2	2	2	2	2	2	1	1	2	3	3	4	4	3	3	5	6	6	3	3	3	4	6	4	3	3	2	2	2	2	2	3	3	3	3
5.8a	2	2	2	2	2	2	2	1	1	1	1	2	2	3	4	4	3	4	2	1	1	1	1	1	1	3	2	2	2	2	2	2	2	2	2	2	2
6.8	3	4	3	3	2	2	1	1	1	1	3	5	5	5	5	5	5	3	2	2	2	1	4	4	3	3	3	3	2	2	2	3	3	3	4	4	4
7.7	3	3	3	3	3	3	3	3	2	2	3	6	6	6	6	6	6	6	6	6	5	5	12	6	6	6	5	5	3	3	3	3	4	4	5	5	5
8.9	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	5	4	5	4	4	4	4	2	2	2	2	2	2	2	3	3	3
9.8	4	4	3	3	3	3	2	2	2	3	3	4	4	4	4	4	5	4	6	6	5	6	4	4	5	4	4	2	2	2	2	2	3	3	3	4	4
10.8	4	4	4	4	4	4	3	3	2	3	4	5	5	6	6	6	7	6	6	6	6	4	3	4	4	4	4	4	3	3	3	4	4	4	4	4	4
12.7	3	3	3	3	2	2	2	2	2	3	5	5	4	4	4	4	5	3	3	4	4	2	2	2	1	1	1	1	1	1	1	1	2	3	3	3	3
15.9	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	3	2	2	2	2	2	2	2
16.8a	2	3	3	3	3	2	2	2	2	2	3	2	2	3	3	3	3	2	2	2	2	2	3	3	3	3	3	3	5	3	3	2	2	2	2	2	3
17.7	3[a]	3[a]	3[a]	3	3	3	2	2	2	2	2	3	3	4	2	2	2	3	3	3	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	3	3
19.7a	2	3	3	3	3	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	1
24.7	3	3	3	3	2	2	2	3	3	3	3	4	5	5	5	4	5	5	5	5	4	3	3	1	1	3	4	3	2	1	2	2	3	3	3	3	3
25.7a	2	2	2	2	2	2	2	2	2	3	2	2	3	4	3	3	3	3	5	5	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
27.7a	2	2	2	2	2	3	3	3	2	2	3	3	2	2	2	2	4	4	4	4	3	3	3	3	3	3	3	2	2	1	1	1	1	1	1	1	2
28.9	3	3	1	1	2	2	1	1	1	1	2	3	2	2	3	3	3	3	4	5	3	3	3	2	2	2	3	2	1	1	1	1	2	3	3	4	4

Table 86b

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																																					
Mar 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-[a]	-[a]	-[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 87a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 4.7	-	-	-	2	2	2	3	4	4	3	3	3	3	3	4	4	5	7	8	10	11	14	13	8	5	4	2	2	2	3	4	5	3	-	-	-	-
5.7	2	-	-	2	2	2	3	3	3	3	3	3	3	3	3	4	5	6	7	5	8	12	9	4	3	2	2	3	4	4	4	3	2	-	-	-	-
11.8	-	-	2	2	2	2	2	2	3	3	2	3	2	3	3	4	4	5	4	4	3	3	3	3	-	-	-	-	-	2	2	2	2	2	2	2	-
12.7	-	-	-	-	-	2	3	4	7	6	5	4	4	4	4	4	3	2	2	2	-	-	2	2	3	2	2	2	3	3	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	2	3	5	6	5	4	4	3	3	3	3	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	2	3	3	3	3	3	3	3	2	2	2	3	3	2	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	3	3	3	3	4	3	3	3	2	2	2	3	3	2	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	2	3	4	14	8	4	3	2	2	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	2	2	3	3	3	2	2	3	3	3	3	3	3	4	5	4	5	8	11	8	4	2	2	3	2	2	2	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	4	4	4	5	4	4	4	3	2	2	2	2	2	-	-	-	-	-	-	-
20.7	-	-	-	2	2	3	3	3	4	4	4	4	3	4	4	4	5	5	5	5	4	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
21.8a	-	-	-	-	3	3	4	4	4	4	5	4	3	3	3	3	3	3	5	5	5	5	4	4	3	4	3	3	3	2	2	-	-	-	-	-	-
22.7a	-	-	-	-	-	-	2	2	3	3	4	3	4	5	5	5	4	4	3	4	3	3	3	3	2	-	-	2	3	2	3	-	-	-	-	-	-
23.7	2	-	-	-	-	2	2	2	4	3	4	5	5	5	6	6	5	5	4	3	3	3	3	2	2	3	3	4	5	3	2	-	-	-	-	-	-
24.6	-	-	-	-	-	-	2	3	5	6	8	9	11	12	14	13	11	9	6	5	3	4	3	4	2	2	3	4	4	3	3	2	-	-	-	-	-
26.7	2	-	-	-	-	2	3	4	5	5	6	8	13	14	15	15	14	13	12	11	12	14	16	10	4	3	2	2	2	2	2	-	-	-	-	-	-
27.6	-	-	-	-	-	-	3	5	8	7	5	8	11	12	13	15	16	17	16	14	17	16	14	9	5	3	3	3	3	2	3	2	2	2	3	3	3
30.7a	-	-	-	-	-	-	-	-	-	3	3	4	4	4	5	5	4	5	4	4	4	5	5	5	5	5	5	4	5	4	5	5	-	-	-	-	-
31.7	-	-	2	3	3	4	5	6	5	4	4	5	5	4	4	5	5	6	6	5	4	3	3	3	2	2	3	2	2	3	2	2	-	-	-	-	-

Table 88a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 4.7	3	3	3	4	2	2	3	2	3	2	4	5	4	3	3	3	2	2	3	2	3	4	5	3	3	3	2	2	2	-	2	2	-	2	2	2	2
5.7	4	3	4	5	3	4	3	3	4	5	8	4	4	4	3	4	4	5	5	6	7	5	5	4	4	4	4	4	2	2	3	2	3	2	3	3	3
11.8	4	2	3	2	2	2	-	-	3	3	4	4	4	4	5	10	9	8	11	6	5	4	4	4	6	5	4	4	4	2	2	3	3	3	3	3	2
12.7	4	4	4	4	3	2	2	2	2	3	2	3	6	5	5	6	8	8	9	10	8	6	5	3	5	6	5	5	4	2	3	2	2	3	2	2	3
13.7	3	3	3	4	2	2	2	2	2	4	3	4	3	3	4	6	8	5	4	5	5	5	4	4	5	4	4	5	5	4	2	2	-	2	3	3	3
14.7a	2	2	2	2	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	5	4	4	3	3	2	5	3	4	3	2	2	3	2	2	3	2
15.7a	2	2	2	2	2	2	2	-	-	3	3	3	2	2	2	2	3	3	5	6	7	5	6	3	2	3	5	5	4	4	2	3	3	-	2	2	3
17.9	3	2	2	2	2	2	-	-	2	[illegible]	3	4	4	5	4	4	3	4	5	6	8	15	11	9	5	3	4	3	3	2	-	-	-	2	3	2	2
18.7	3	2	3	2	2	2	-	2	2	3	5	7	5	4	5	4	4	5	5	6	6	14	26	16	5	5	4	3	2	2	3	2	-	2	3	3	2
19.7a	3	3	3	2	2	2	3	2	3	[illegible]	5	6	7	[illegible]	5	5	6	4	5	7	8	15	14	11	5	3	3	2	3	3	3	2	2	3	2	4	3
20.7	4	4	5	4	4	3	3	2	2	2	3	5	5	7	8	5	5	4	4	4	5	5	8	8	7	5	5	5	4	4	3	2	2	2	-	4	4
21.8a	3	3	2	-	-	-	2	2	[illegible]	[illegible]	3	3	2	2	3	3	2	3	3	3	2	3	4	3	3	2	3	3	-	-	-	-	-	-	2	2	2
22.7a	4	3	4	3	3	2	3	2	[illegible]	[illegible]	3	[illegible]	[illegible]	3	3	5	6	7	6	5	5	4	5	3	4	4	4	2	2	-	2	2	2	2	3	2	3
23.7	4	3	3	4	3	3	3	2	3	3	3	3	4	4	5	6	7	8	9	7	5	6	5	6	5	5	3	4	3	2	2	2	2	3	3	3	2
24.6	3	3	3	3	2	3	2	2	2	2	2	2	2	2	3	4	5	7	7	6	8	5	6	6	4	4	4	3	2	3	2	3	2	3	3	2	3
26.7	3	4	4	3	3	2	2	2	2	-	[illegible]	[illegible]	-	3	2	3	[illegible]	8	5	3	5	6	4	5	5	3	3	-	3	2	2	2	-	3	2	-	3
27.6	4	4	3	3	3	2	3	2	3	2	[illegible]	3	2	[illegible]	4	2	2	11	5	9	11	11	5	2	3	3	2	2	3	3	-	-	2	2	3	3	3
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	4	3	4	4	3	2	3	2	-	5	4	5	5	3	3	3	4	3	4	5	6	6	5	5	5	4	3	4	3	3	2	3	2	3	3	3	3

Table 89a

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

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 87b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	50	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Mar 4.7	-	-	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	4	5	4	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-
5.7	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	3	2	2	4	8	9	8	5	4	3	2	2	3	3	3	3	2	2	2	2	2	2
11.8	-	-	-	-	-	-	-	-	-	2	3	3	2	3	4	4	3	3	3	3	5	6	7	8	13	16	15	13	5	4	6	4	3	2	-	-	-
12.7	-	-	-	-	-	-	-	2	3	3	3	3	2	2	3	3	4	4	4	8	12	13	14	18	22	20	19	11	8	5	11	14	5	3	2	2	-
13.7	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	4	5	5	5	8	13	14	16	18	20	17	15	10	5	5	6	6	2	-	2	2	-
14.7	-	-	-	-	-	2	2	3	3	3	3	3	2	3	2	4	5	6	8	11	14	12	11	11	11	10	8	5	4	3	4	5	3	2	2	2	-
15.7	-	-	-	-	2	2	3	3	3	3	3	3	4	3	3	4	5	8	14	14	12	11	8	7	6	5	4	3	3	4	5	4	3	2	-	-	-
17.9a	-	-	-	-	-	-	2	2	2	3	3	3	2	2	3	4	5	5	5	5	4	5	4	3	2	2	2	3	2	2	2	2	-	-	-	-	-
18.7	-	-	-	-	-	-	-	2	3	5	4	4	4	4	3	4	5	8	8	5	4	4	5	4	5	4	3	2	2	2	2	-	-	-	2	2	-
19.7	-	-	-	-	-	-	-	-	2	3	3	2	2	2	3	3	3	4	3	3	3	2	2	2	2	-	-	2	2	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	2	2	3	5	5	4	4	4	4	4	3	3	3	2	2	3	3	3	2	2	2	2	3	3	3	2	2	2	2	2	2	-
21.8a	-	4	4	4	3	4	4	5	4	5	4	3	4	3	3	3	4	5	4	3	4	3	3	3	3	3	4	4	-	-	-	-	-	2	3	3	-
22.7	-	-	-	-	-	-	-	-	-	2	2	3	2	2	3	3	5	5	5	4	5	5	4	5	4	4	4	3	4	4	3	3	3	3	2	2	-
23.7	-	-	-	-	-	-	-	2	2	3	3	2	3	3	3	2	3	3	3	3	3	4	4	4	5	5	4	3	3	5	5	4	5	4	3	2	2
24.6	-	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2	2	2	2	2	3	2	3	4	4	5	5	5	5	6	6	5	4	3	3	2	-
26.7	-	-	-	-	-	-	2	2	2	3	3	3	2	2	2	2	2	2	3	2	3	3	3	3	3	4	4	5	5	6	7	4	4	4	2	3	2
27.6a	3	3	-	-	2	2	2	2	3	3	3	3	3	2	2	2	3	3	3	3	3	2	2	2	3	3	4	3	4	5	5	4	3	3	3	3	-
30.7a	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
31.7	-	-	-	-	-	-	-	-	2	3	3	3	2	2	3	13	18	11	3	4	4	4	4	3	3	2	2	3	4	3	3	2	-	-	2	2	-

Table 88b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	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.																																					
Mar 4.7	2	2	3	2	2	2	-	-	2	2	2	3	3	4	3	4	3	7	10	8	5	3	3	3	5	5	4	4	3	2	2	2	2	3	3	2	3
5.7	3	3	3	2	3	2	2	3	2	2	2	3	3	3	3	4	6	7	4	3	3	2	3	4	4	4	3	4	3	2	2	2	2	3	5	4	4
11.8	2	3	2	2	3	3	2	-	-	2	3	4	4	5	4	4	5	4	5	6	5	4	4	4	5	3	2	2	-	2	2	2	3	3	3	4	4
12.7	3	4	3	3	3	3	2	2	2	4	5	6	6	5	4	5	5	6	5	5	6	4	2	3	3	2	-	2	-	2	-	-	3	3	4	6	4
13.7	3	2	2	3	3	2	2	2	3	3	4	5	4	4	5	5	4	5	4	5	2	2	2	2	3	3	2	2	3	3	3	2	2	2	3	4	3
14.7	2	3	-	2	-	-	2	3	2	3	3	3	3	2	3	3	3	3	3	3	2	-	2	2	-	3	2	2	2	2	-	2	2	3	2	3	2
15.7	3	3	-	3	3	2	3	3	2	3	2	2	2	3	3	3	5	2	3	3	2	3	2	2	3	3	3	3	3	4	2	2	2	3	3	3	2
17.9a	2	2	-	-	2	2	3	2	2	3	-	2	3	3	3	3	3	2	3	3	3	2	2	3	2	3	3	3	4	3	2	2	2	2	3	3	3
18.7	2	3	2	3	3	2	2	-	2	2	3	4	3	3	4	5	5	6	5	5	5	4	3	3	3	3	3	5	5	4	3	3	2	2	3	3	3
19.7	3	3	2	2	2	2	3	2	2	2	3	2	2	3	3	4	4	5	5	4	5	4	3	3	4	4	3	3	4	3	2	3	4	3	3	2	3
20.7	4	5	3	3	3	2	2	2	2	2	3	4	5	6	5	5	5	7	5	6	7	7	8	5	6	6	5	5	4	3	3	4	2	3	4	4	4
21.8a	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3	-	-	-	3	3	-	-	-	-	-	-	3	2	3
22.7	3	2	2	3	2	2	3	2	2	2	3	5	5	5	8	7	6	5	4	3	3	3	3	4	3	4	4	4	3	3	2	3	2	3	3	4	4
23.7	2	3	2	2	3	2	2	2	3	2	3	4	5	5	6	7	5	6	5	5	6	5	5	5	4	4	4	5	3	2	3	2	3	3	4	4	4
24.6	3	3	3	3	2	2	2	3	3	4	5	4	5	6	5	6	5	8	7	8	9	6	4	5	5	4	5	4	2	2	3	2	3	3	3	3	3
26.7	3	2	3	2	2	2	2	2	-	2	2	3	4	5	4	2	3	3	5	6	8	6	6	6	5	5	4	4	3	-	2	3	2	2	3	3	3
27.6a	3	2	3	2	2	2	2	3	3	2	2	3	4	3	3	4	3	3	5	5	4	5	4	3	4	3	3	2	-	3	-	-	2	2	2	2	4
30.7a	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
31.7	3	3	2	3	2	2	3	2	-	2	3	3	3	4	5	11	15	8	9	9	5	5	4	3	3	4	3	4	4	3	4	2	2	3	3	4	4

Table 89b

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

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	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																																					
Mar 4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	2	2	3	2	2	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-
15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-
17.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 90

Zürich Provisional Relative Sunspot Numbers

March 1953

Date	R_Z*	Date	R_Z*
1	0	17	0
2	0	18	8
3	0	19	10
4	0	20	8
5	14	21	10
6	0	22	10
7	6	23	10
8	0	24	9
9	0	25	9
10	0	26	7
11	0	27	17
12	0	28	25
13	7	29	32
14	15	30	47
15	8	31	48
16	7	Mean:	9.9

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

Table 91

American Relative Sunspot Numbers

February 1953

Date	R_A *	Date	R_A *
1	1	16	0
2	9	17	0
3	10	18	0
4	10	19	0
5	10	20	0
6	12	21	0
7	13	22	0
8	11	23	0
9	13	24	0
10	10	25	0
11	8	26	0
12	2	27	0
13	1	28	0
14	0		
15	1	Mean:	4.0

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

Table 92

Solar Flares, March 1953

No solar flares were reported for the month of March 1953.

Table 93

Indices of Geomagnetic Activity for February 1953

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

Gr. Day 1953	C	Values Kp three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	0.2	1o	1+	2-	1-	1o	1-	1+	2o	10-	Five
2	0.2	2o	2+	2o	2-	1+	3-	1+	1o	14+	Quiet
3	0.2	3-	2o	1+	2+	1o	1+	1+	1+	13+	
4	0.4	1+	2o	1-	2o	3o	2+	2o	0+	14-	1
5	0.0	0o	0o	0+	1+	1o	2-	2o	0+	7-	5
											6
6	0.0	0o	0o	1-	1o	1o	2-	1+	0+	6o	7
7	0.0	0+	0+	0+	1-	0o	0o	0+	1-	3-	13
8	0.2	1-	1o	1o	2-	2-	1+	1o	2o	10+	
9	0.9	3-	4-	2o	2+	2+	3-	2+	4o	22o	
10	0.8	2o	0+	0+	1+	3o	3o	3+	5-	18o	
11	0.5	4-	3-	3o	3-	2-	1-	2o	2o	18+	Five
12	0.1	1o	1+	1+	2-	2-	2o	2-	0+	11o	Disturbed
13	0.1	0o	0o	1-	0+	0+	0+	1-	2o	4+	
14	0.7	3o	2o	4-	3o	1+	2+	3+	1+	20o	22
15	0.7	3-	3-	3-	2o	3-	1o	1+	4-	19-	23
											24
16	1.0	4+	2-	3-	3-	2+	5-	3o	2-	23o	25
17	0.4	2+	3+	3-	3o	1+	2-	2-	1o	17o	26
18	0.2	0+	0+	2o	2-	1+	2-	1+	3-	11+	
19	0.6	2+	3o	3-	3-	2+	3-	2o	3o	21-	
20	0.3	3o	1-	1o	1o	1+	2+	2o	1-	12o	
21	0.7	4o	3+	3+	2-	1o	2o	2o	2+	20-	Ten
22	1.3	3o	2o	2+	2+	3-	4+	5-	6o	27+	Quiet
23	1.5	5+	4o	5+	5o	4o	5o	5-	4o	37+	
24	1.5	6-	6o	6o	4-	5-	5o	5+	5o	41+	1
25	1.3	6-	5-	5+	5o	4+	4o	4-	5o	38-	3
											5
26	1.5	4+	4+	5+	4+	5+	4o	5+	5-	39-	6
27	1.2	4o	2+	4+	5o	3+	4o	3-	5o	31-	7
28	1.0	3o	6o	3+	2-	2+	3+	3+	2+	25+	8
											12
Mean	0.62										13
											18
											20

Table 94

Sudden Ionosphere Disturbances Observed at Washington, D. C.

March 1953

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

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

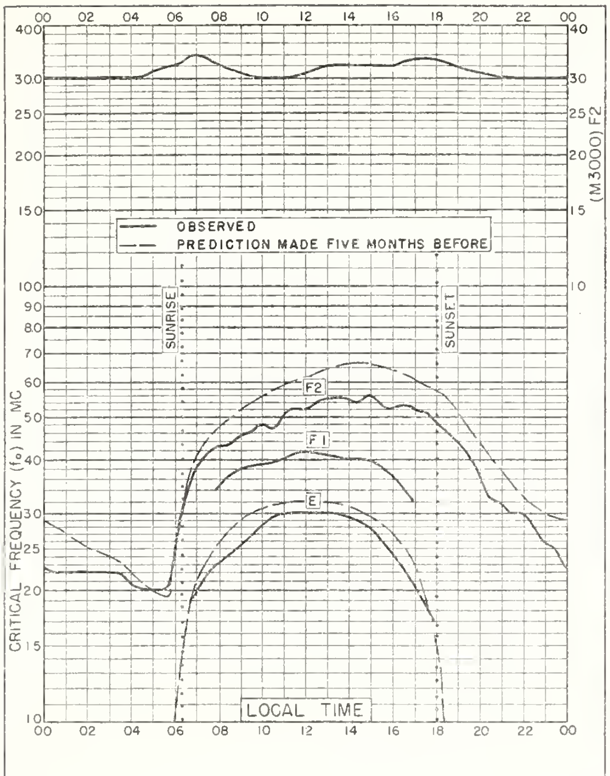
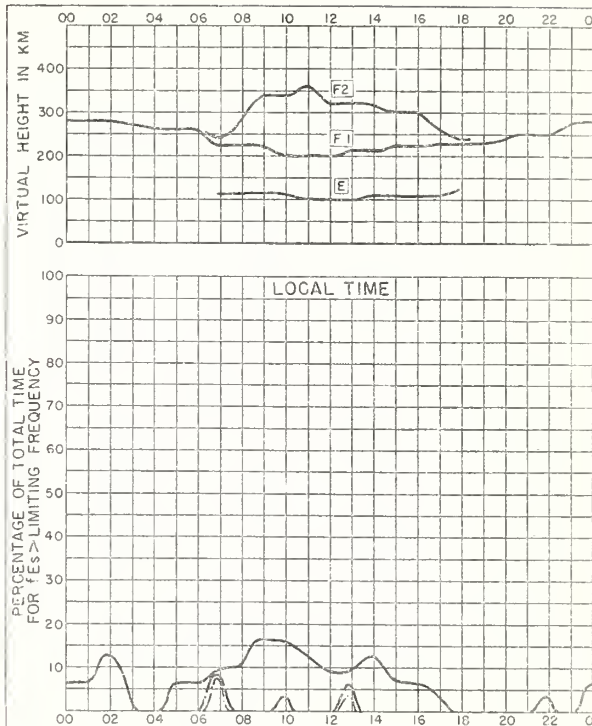


Fig. 1. WASHINGTON, D.C.
38.7°N, 77.1°W MARCH 1953



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

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

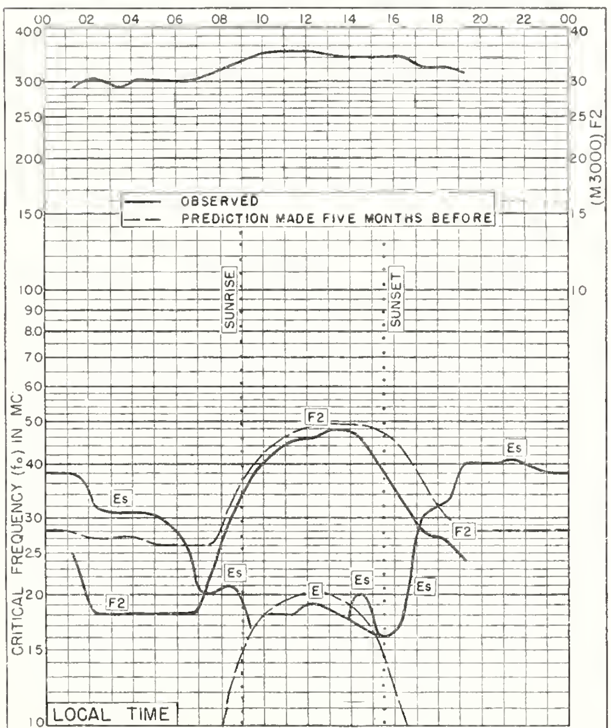
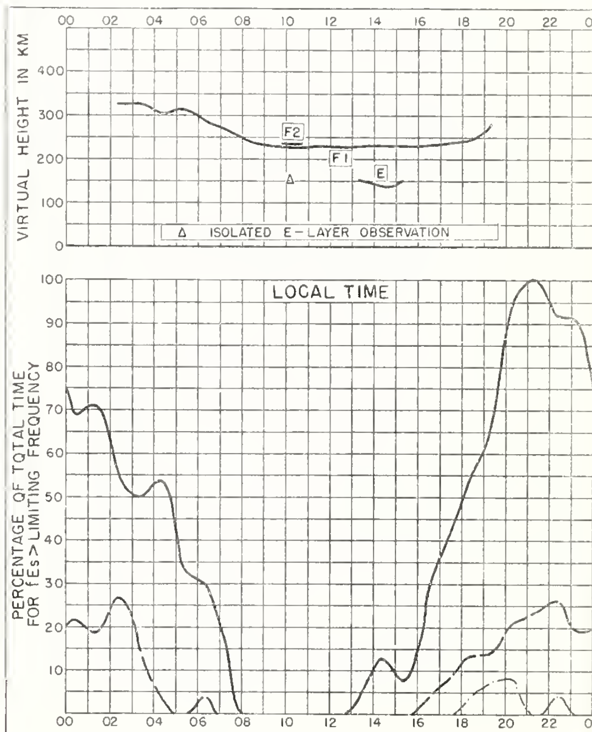


Fig. 3. TROMSO, NORWAY
69.7°N, 19.0°E FEBRUARY 1953



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

Fig. 4. TROMSO, NORWAY FEBRUARY 1953

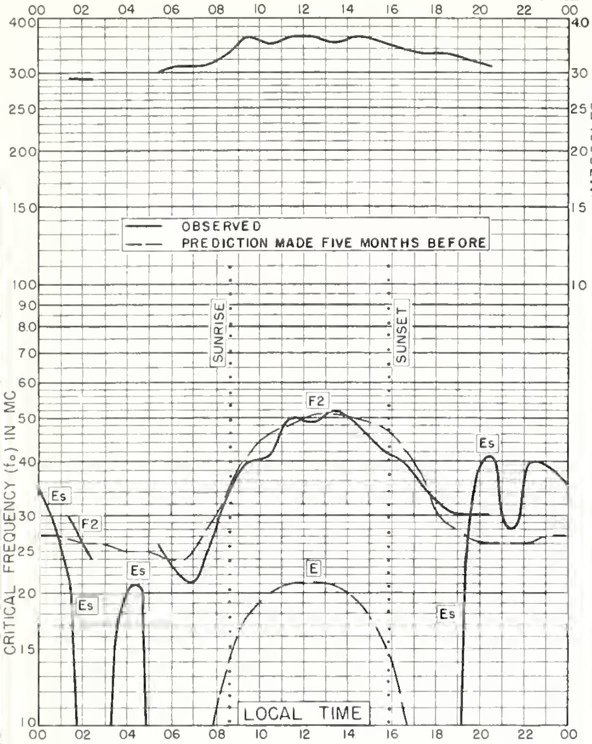


Fig. 5. KIRUNA, SWEDEN
67.8°N, 20.5°E FEBRUARY 1953

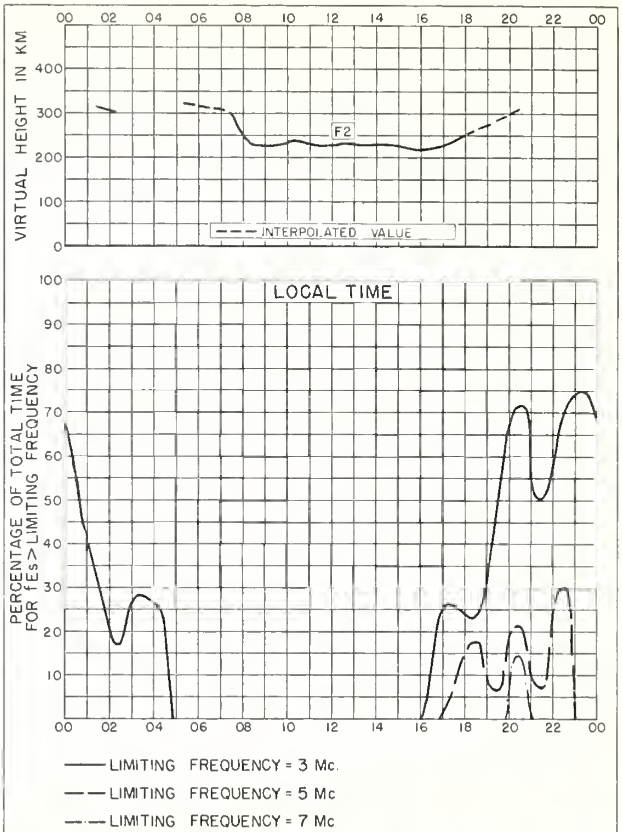


Fig 6. KIRUNA, SWEDEN FEBRUARY 1953

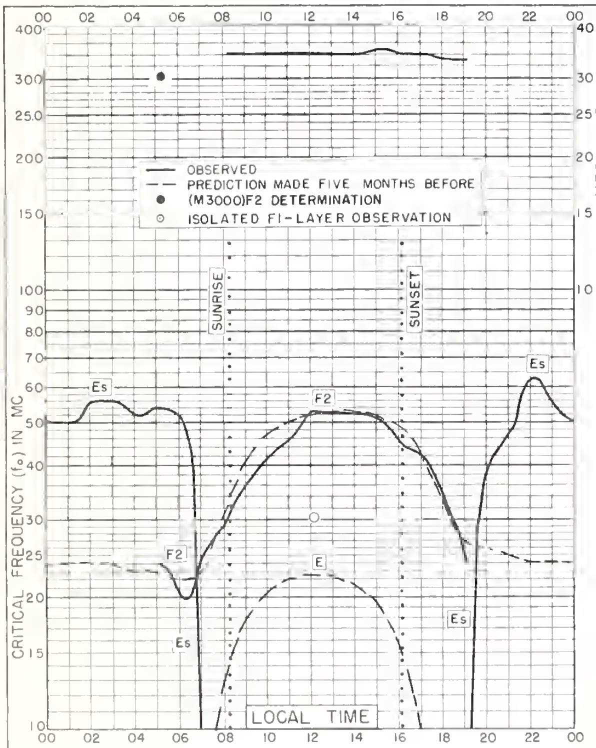


Fig 7. FAIRBANKS, ALASKA
64.9°N, 147.8°W FEBRUARY 1953

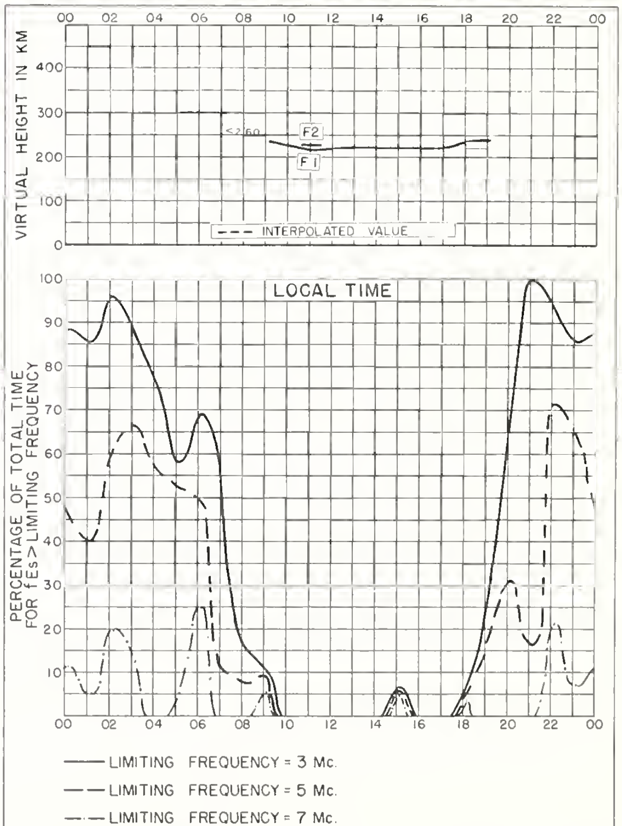


Fig. 8. FAIRBANKS, ALASKA FEBRUARY 1953

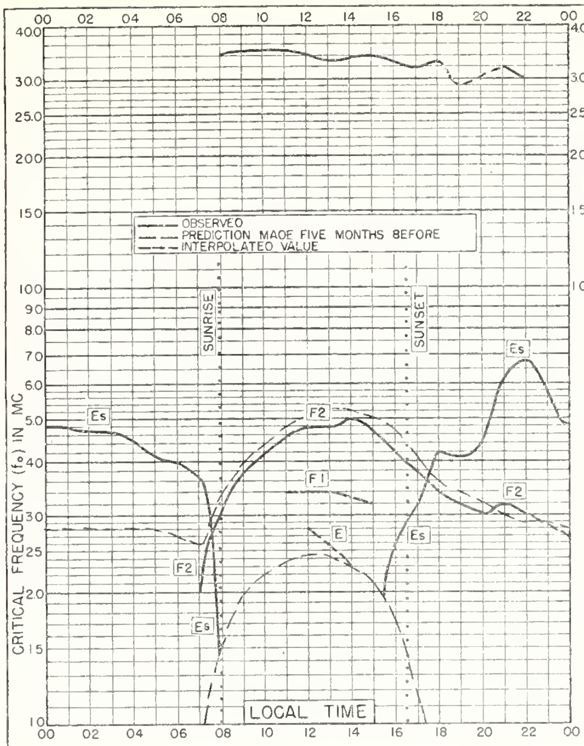
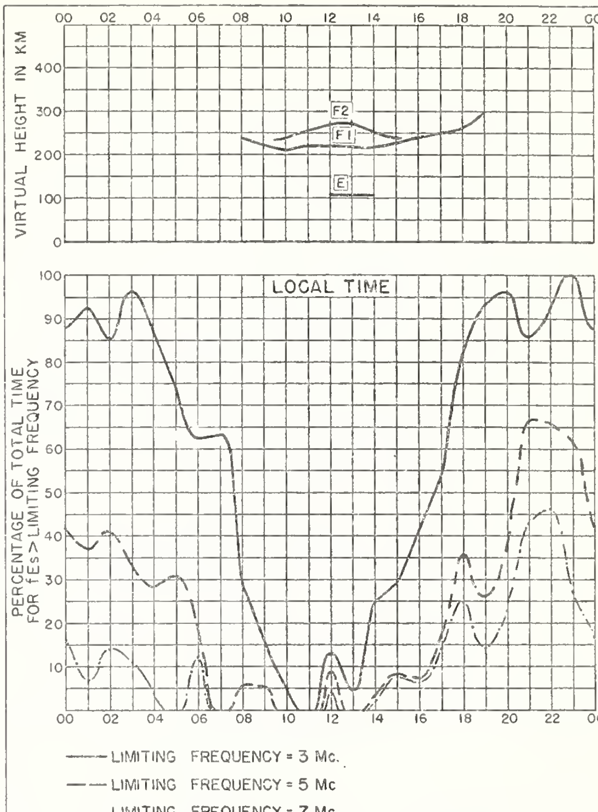


Fig. 9 NARSARSSUAK, GREENLAND
61.2°N, 45.4°W FEBRUARY 1953



FEBRUARY 1953
Fig. 10. NARSARSSUAK, GREENLAND

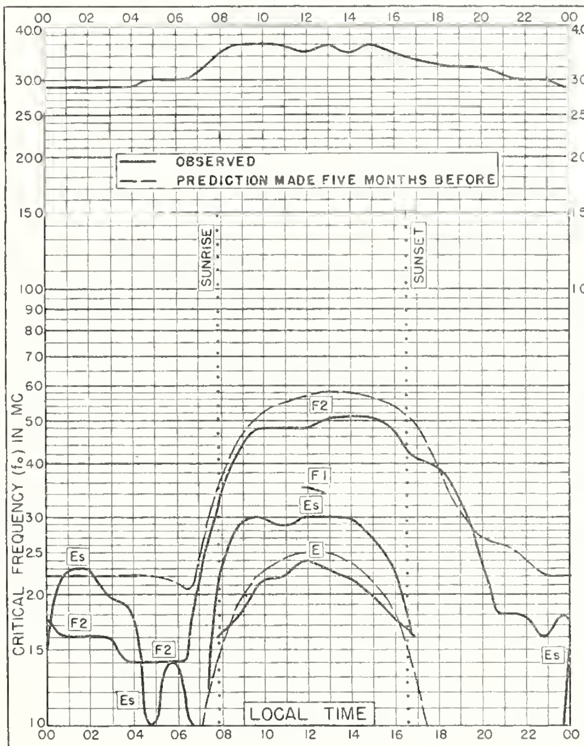


Fig. 11. OSLO, NORWAY
60.0°N, 11.1°E FEBRUARY 1953

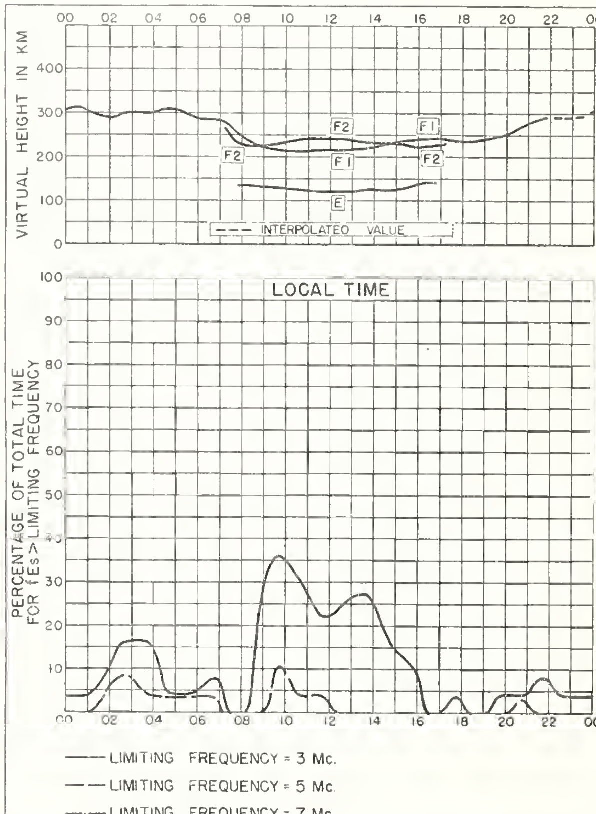


Fig. 12. OSLO, NORWAY FEBRUARY 1953

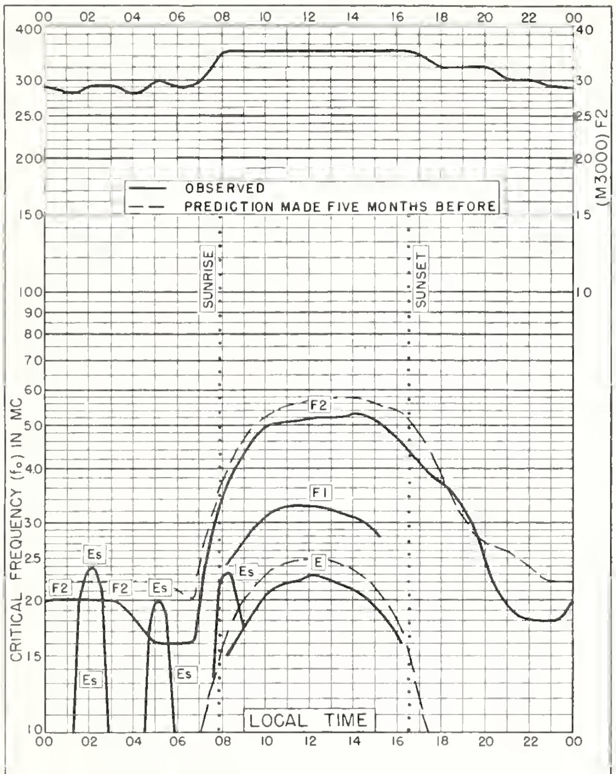


Fig. 13. UPSALA, SWEDEN
59.8°N, 17.6°E FEBRUARY 1953

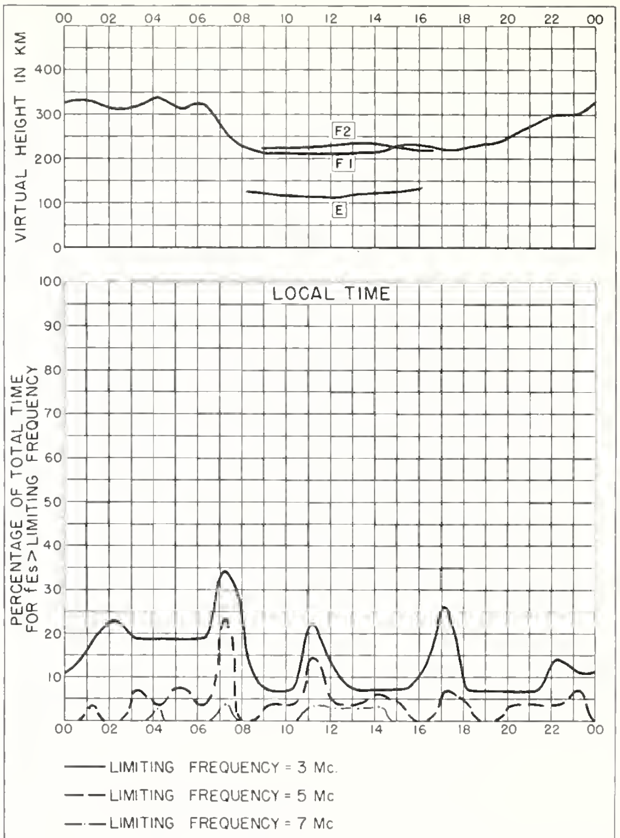


Fig. 14. UPSALA, SWEDEN FEBRUARY 1953

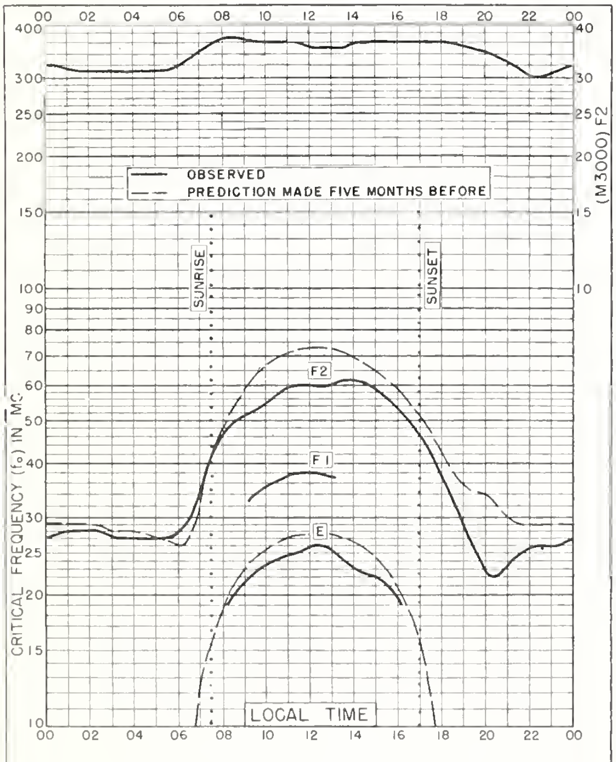


Fig. 15. ADAK, ALASKA
51.9°N, 176.6°W FEBRUARY 1953

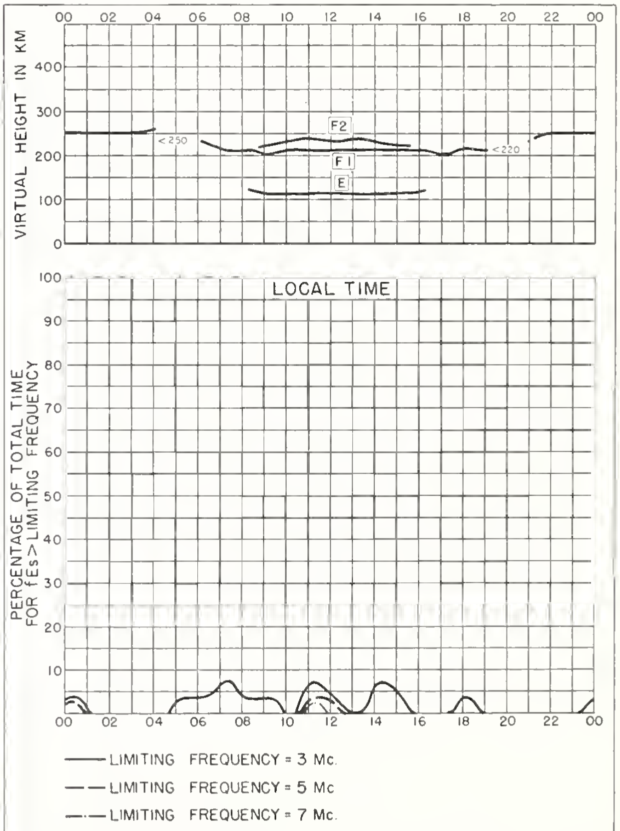


Fig. 16. ADAK, ALASKA FEBRUARY 1953

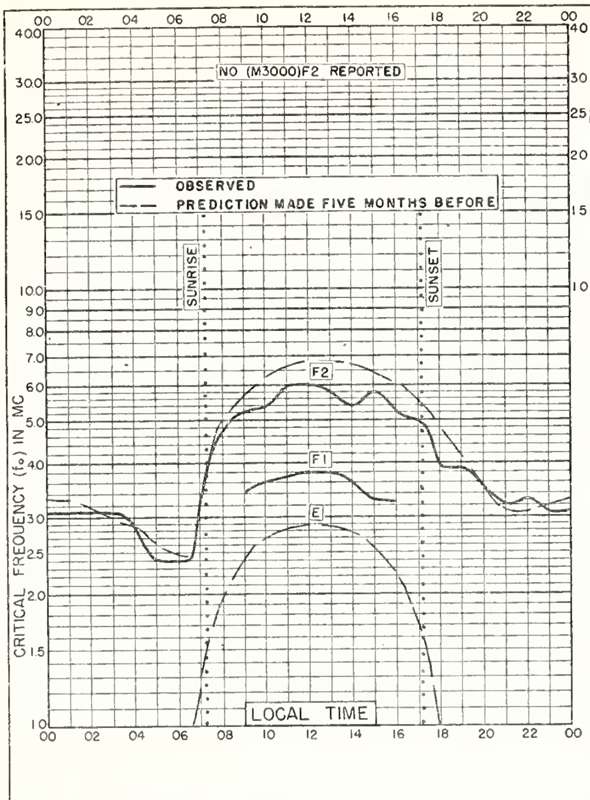


Fig. 17. GRAZ, AUSTRIA
47.1°N, 15.5°E FEBRUARY 1953

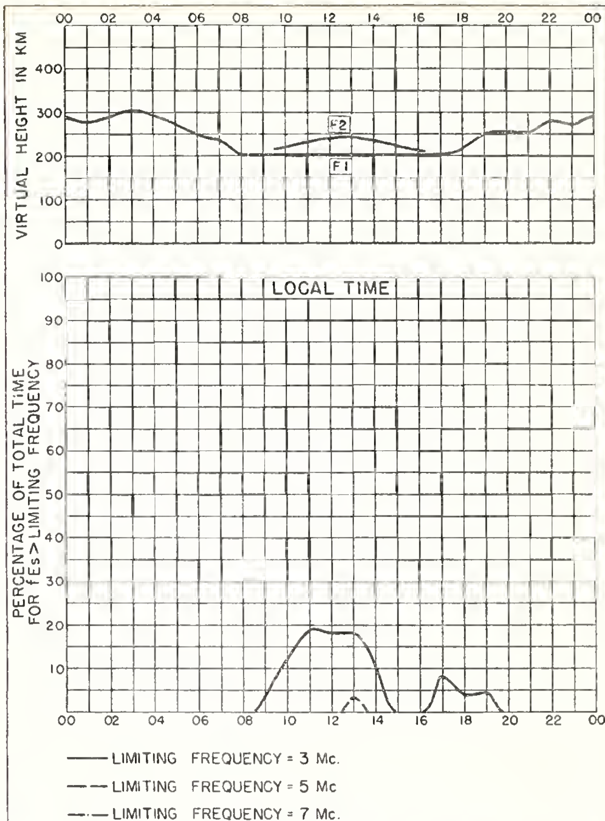


Fig. 18. GRAZ, AUSTRIA FEBRUARY 1953

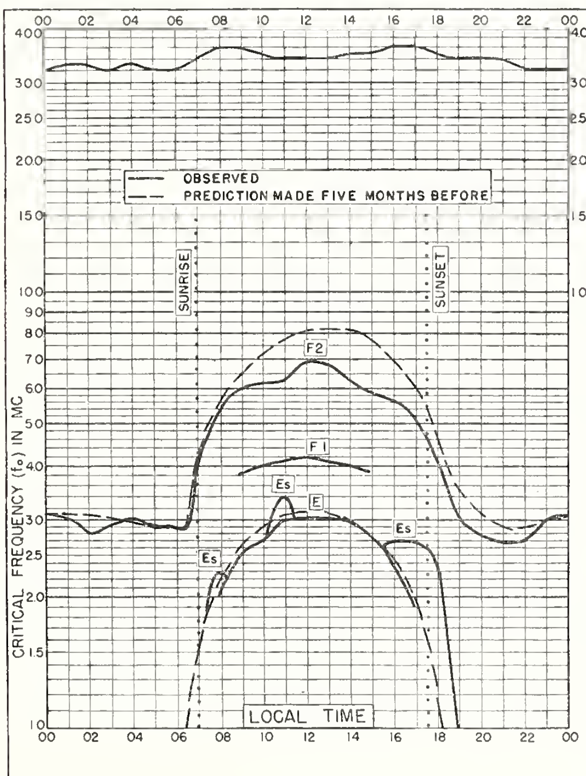
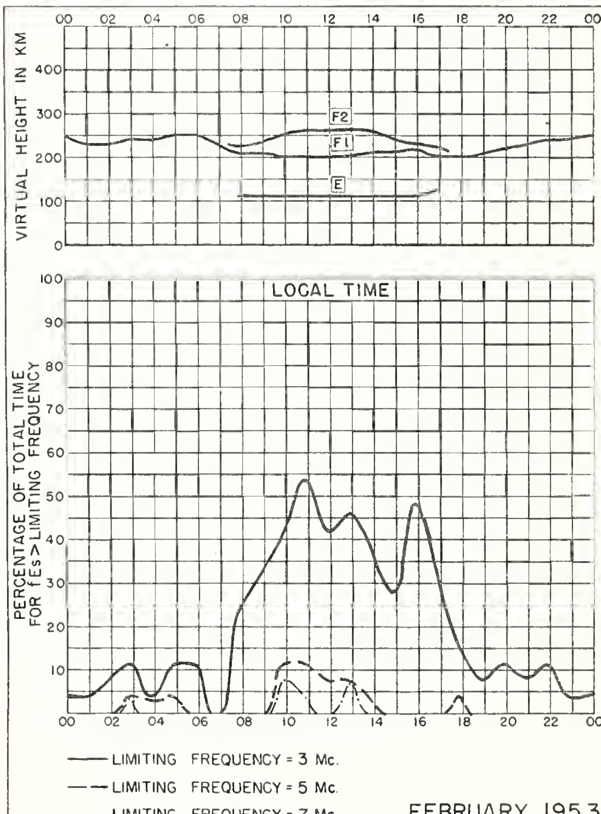


Fig. 19. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W FEBRUARY 1953



FEBRUARY 1953
Fig. 20. SAN FRANCISCO, CALIFORNIA

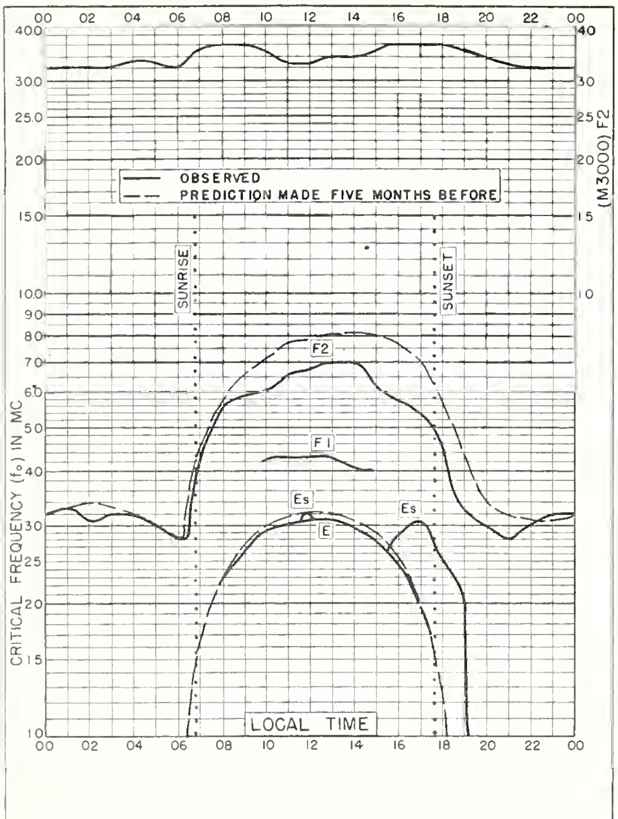


Fig. 21. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W FEBRUARY 1953

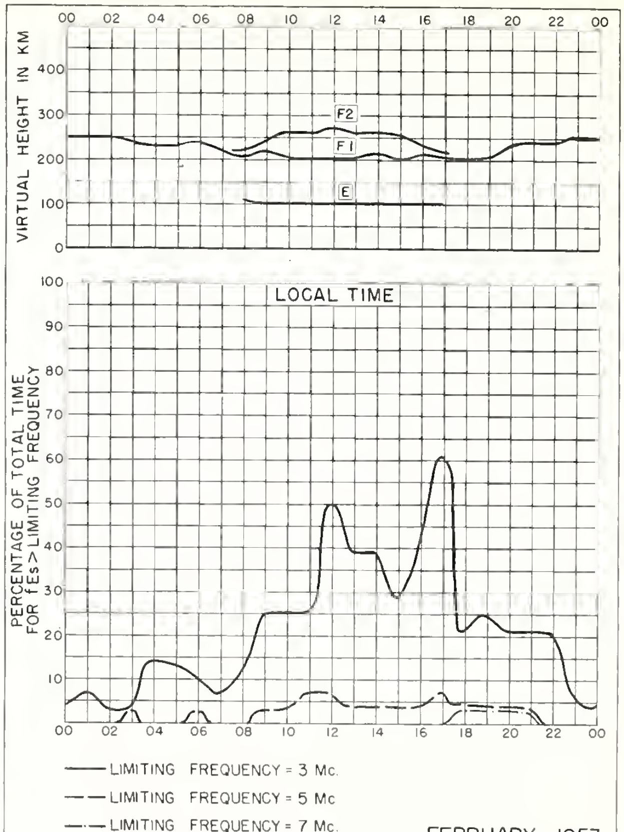


Fig. 22. WHITE SANDS, NEW MEXICO FEBRUARY 1953

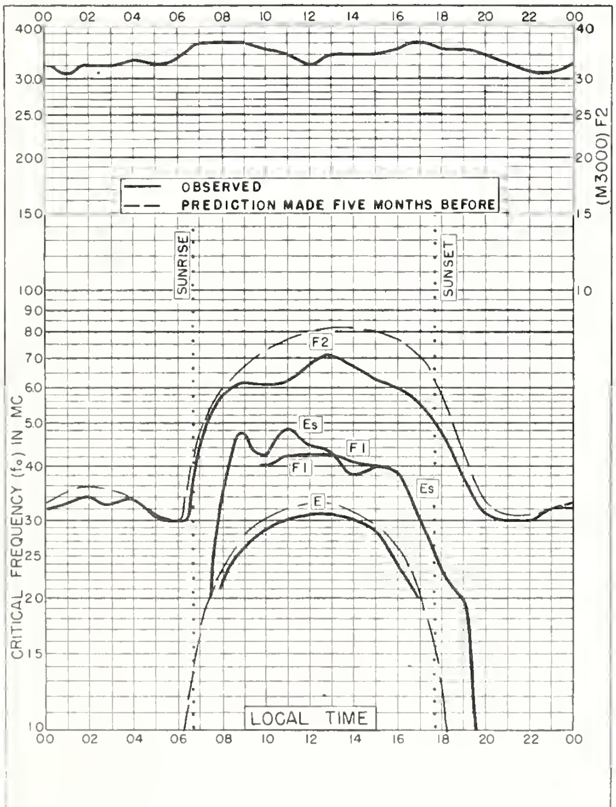


Fig. 23. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W FEBRUARY 1953

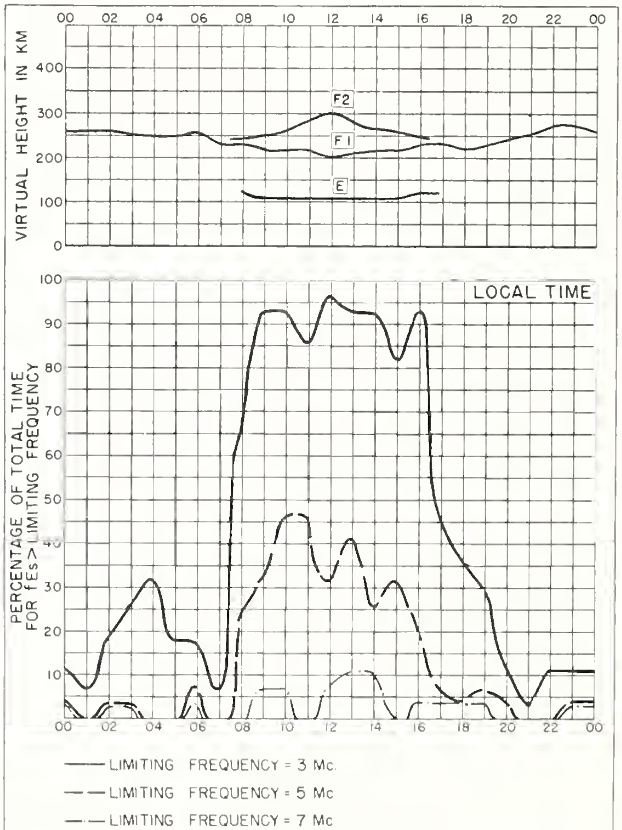


Fig 24. BATON ROUGE, LOUISIANA FEBRUARY 1953

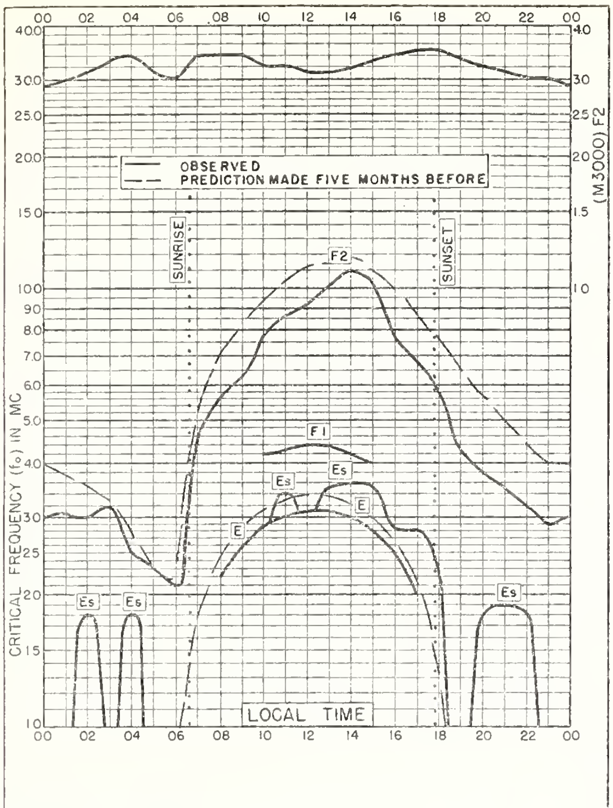


Fig. 25. OKINAWA I.
26.3°N, 127.8°E FEBRUARY 1953

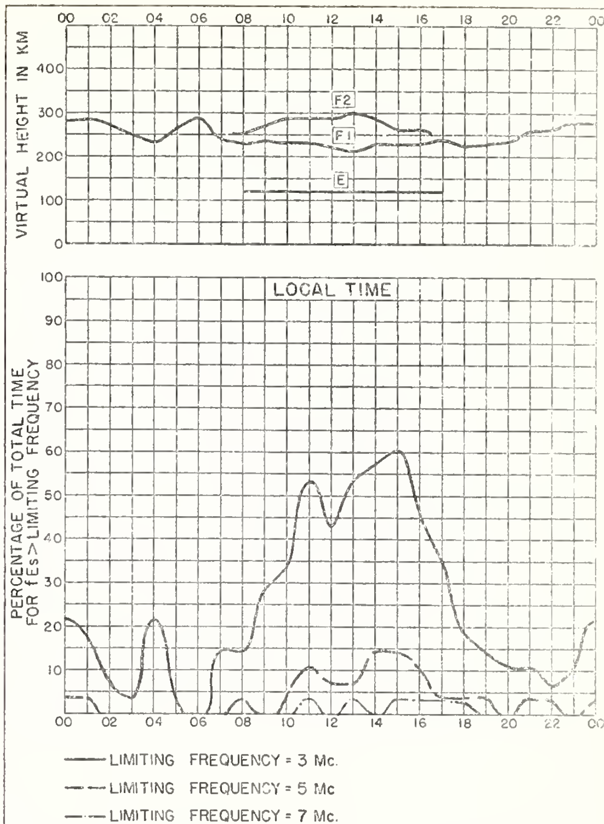


Fig. 26. OKINAWA I FEBRUARY 1953

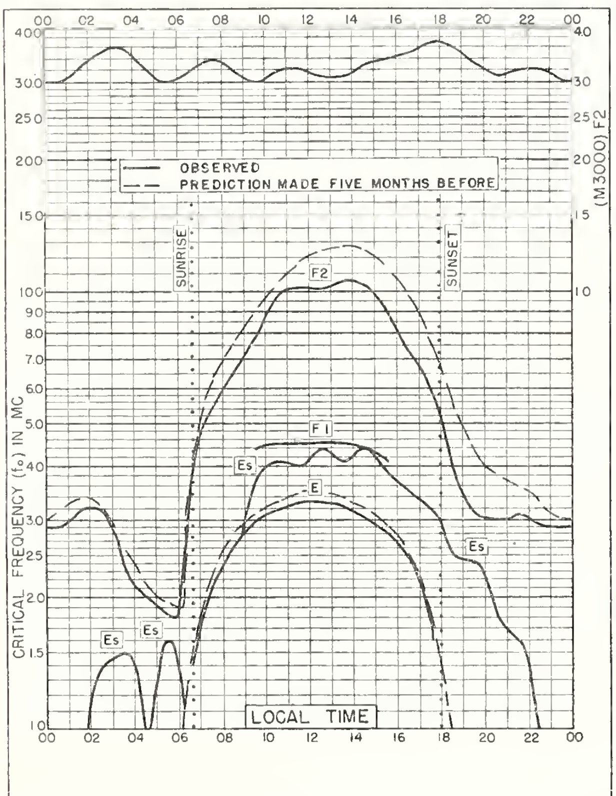


Fig. 27. MAUI, HAWAII
20.8°N, 156.5°W FEBRUARY 1953

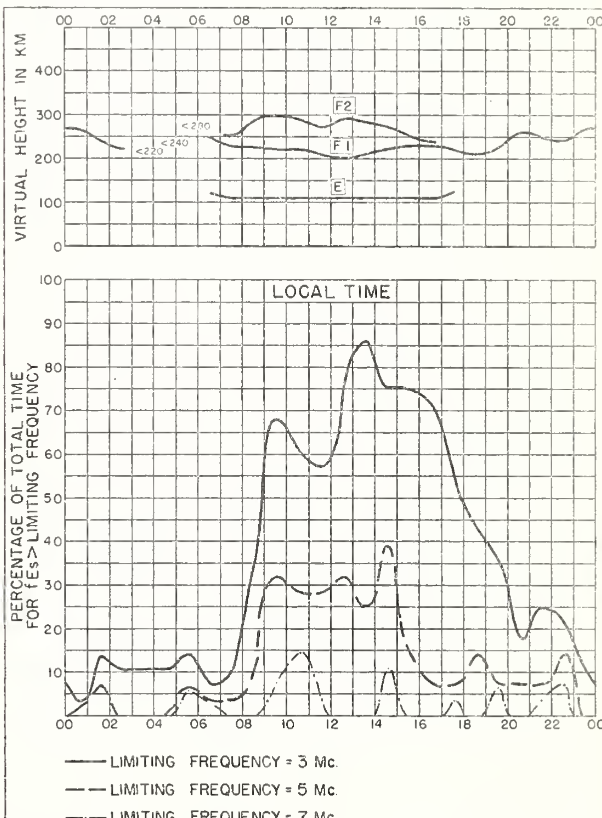


Fig. 28. MAUI, HAWAII FEBRUARY 1953

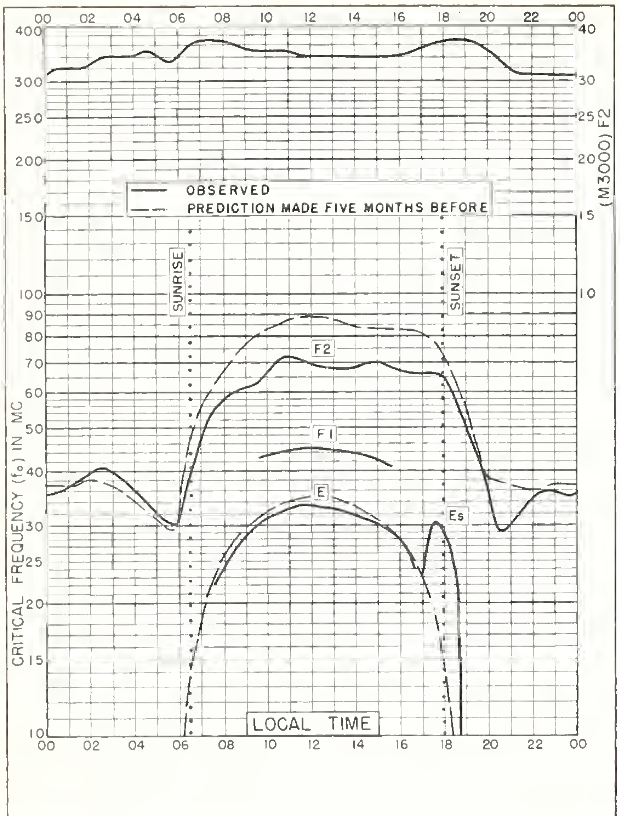


Fig. 29. PUERTO RICO, W. I.
18.5°N, 67.2°W FEBRUARY 1953

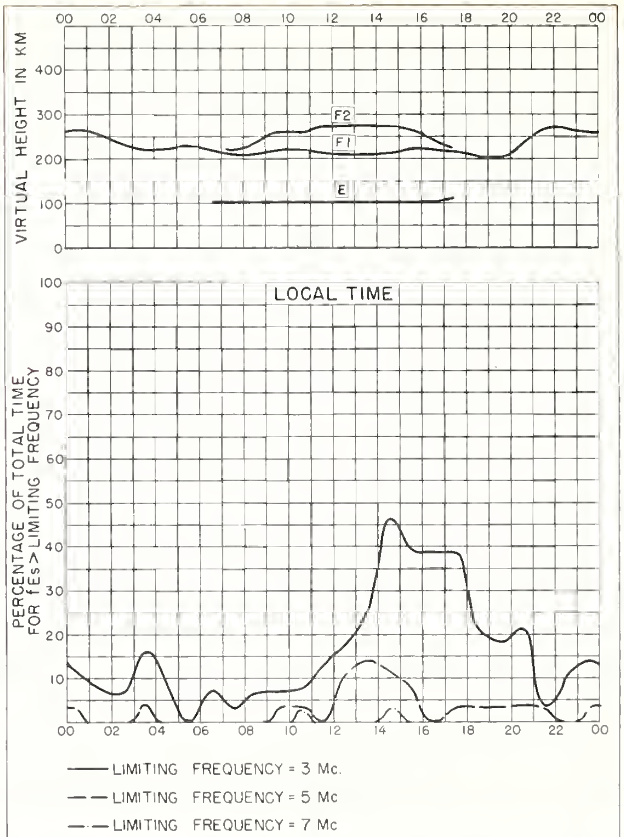


Fig. 30. PUERTO RICO, W. I. FEBRUARY 1953

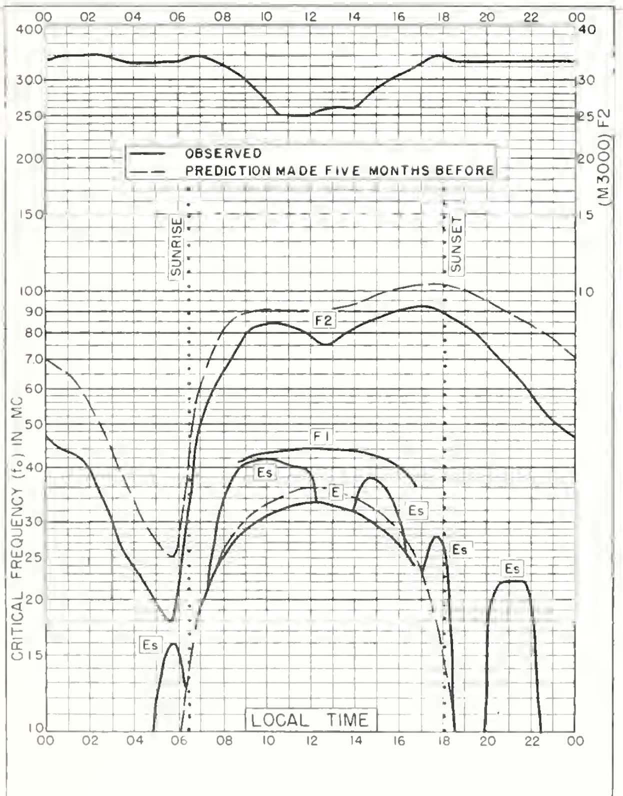


Fig. 31. GUAM I.
13.6°N, 144.9°E FEBRUARY 1953

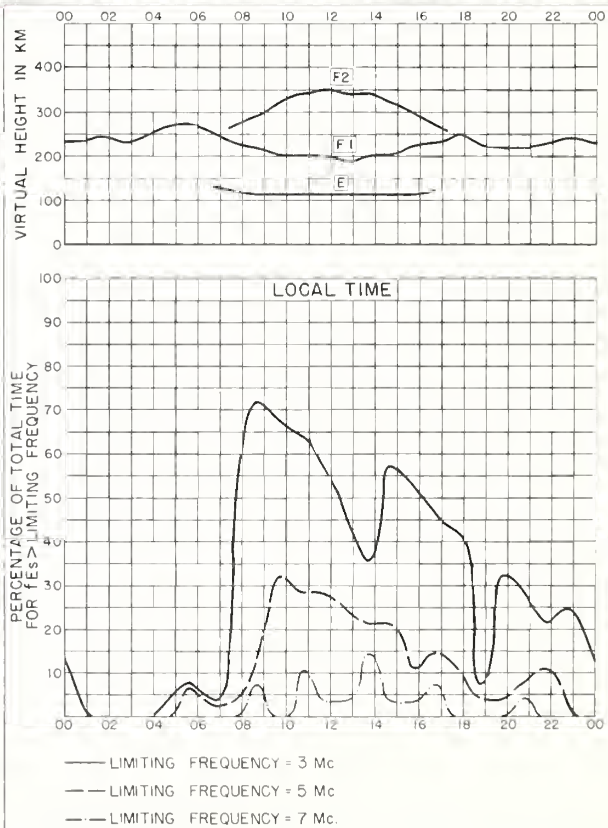


Fig. 32. GUAM I. FEBRUARY 1953

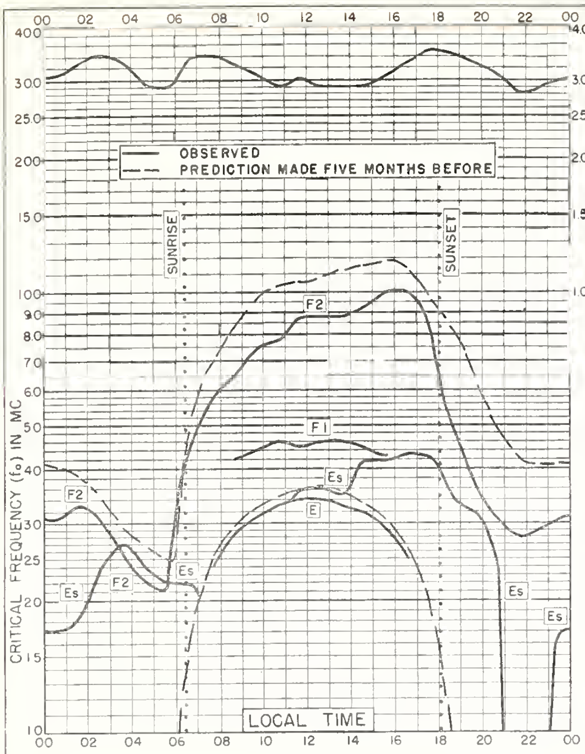


Fig. 33. PANAMA CANAL ZONE
9.4°N, 79.9°W FEBRUARY 1953

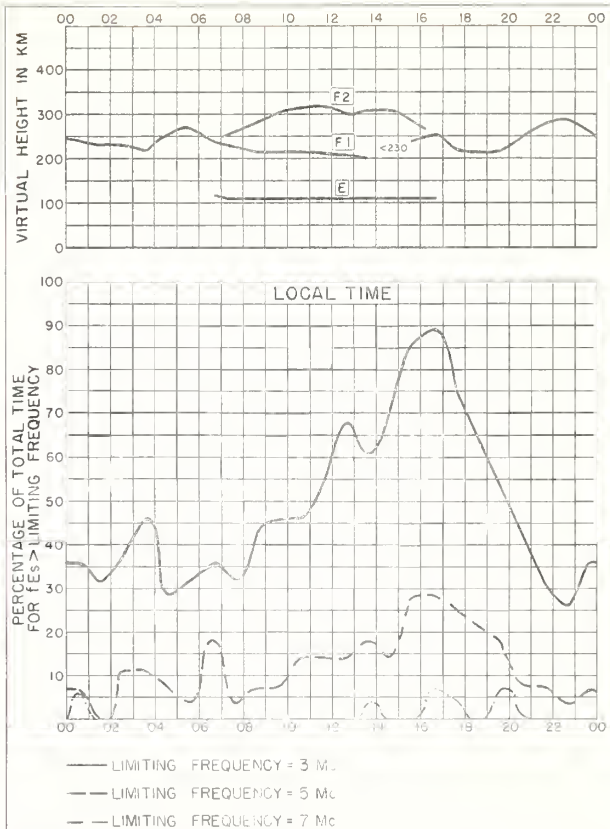


Fig. 34. PANAMA CANAL ZONE FEBRUARY 1953

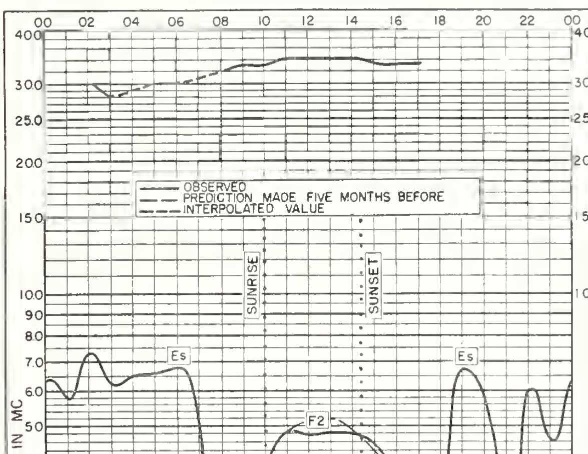


Fig. 35. FAIRBANKS, ALASKA
64.9°N, 147.8°W JANUARY 1953

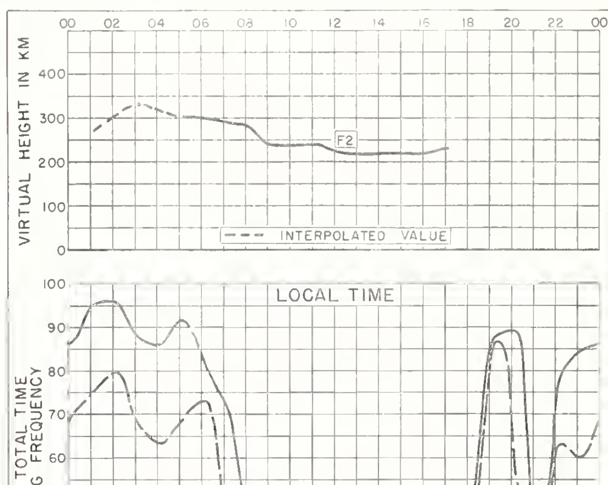


Fig. 36. FAIRBANKS, ALASKA JANUARY 1953

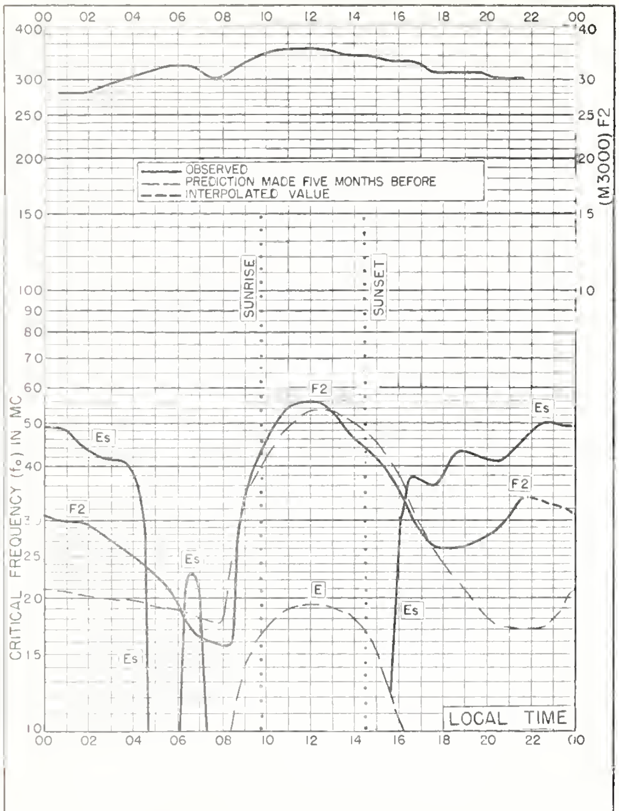


Fig. 37 REYKJAVIK, ICELAND
64.1°N, 21.8°W JANUARY 1953

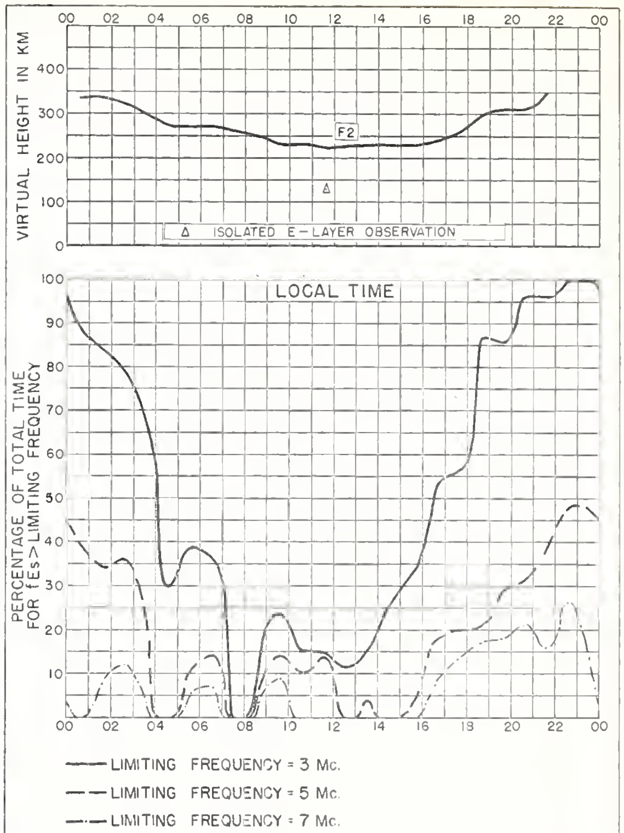


Fig. 38. REYKJAVIK, ICELAND JANUARY 1953

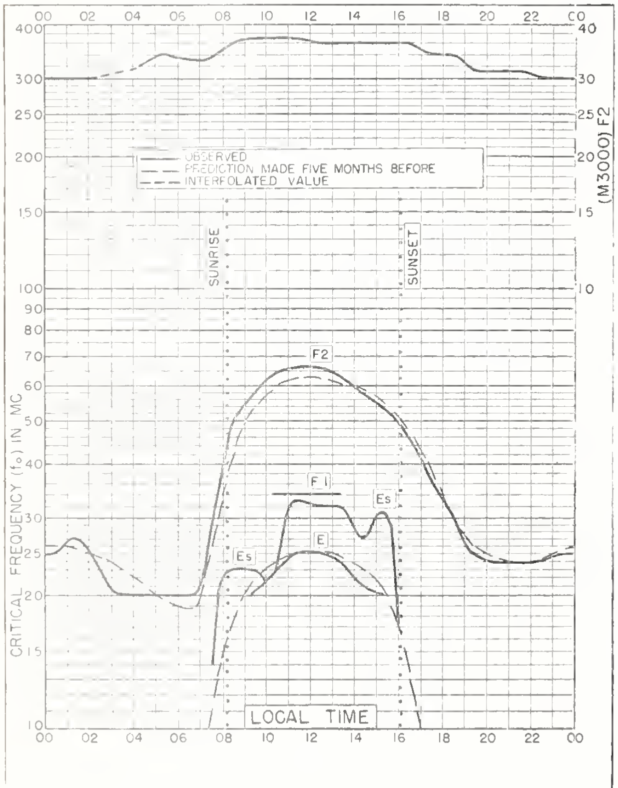


Fig. 39 De BILT, HOLLAND
52.1°N, 5.2°E JANUARY 1953

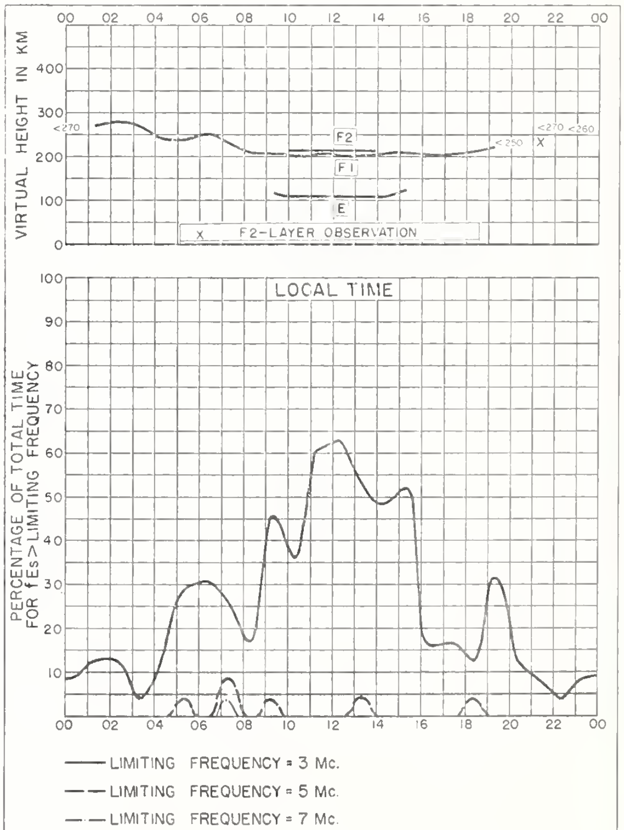


Fig. 40. DeBILT, HOLLAND JANUARY 1953

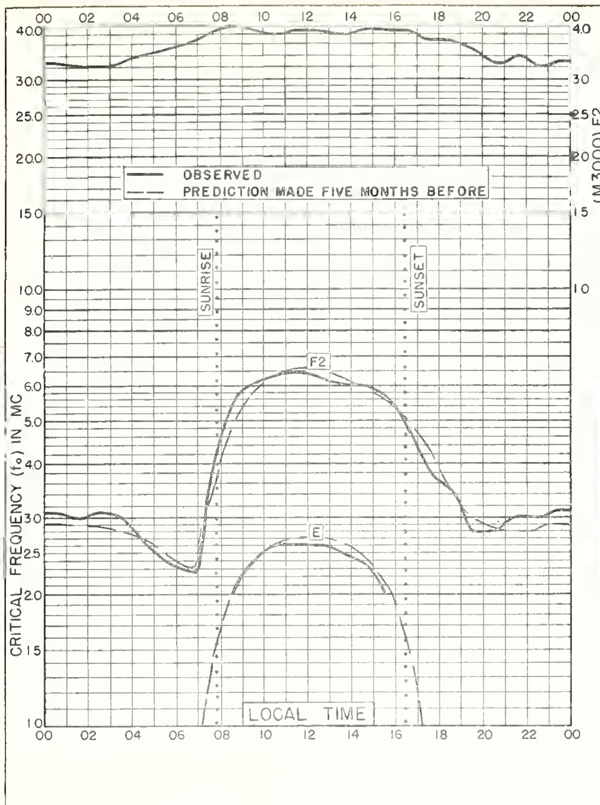
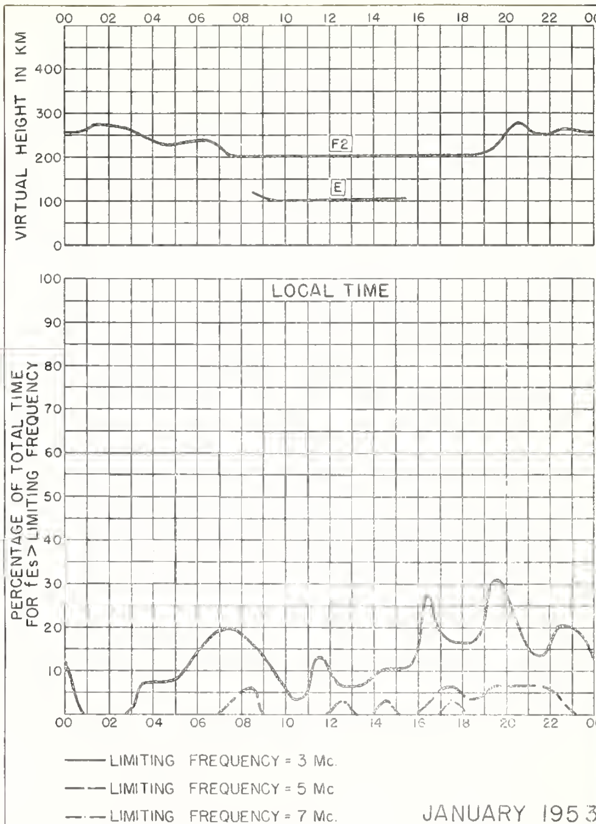


Fig. 41. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JANUARY 1953



JANUARY 1953
Fig. 42. SCHWARZENBURG, SWITZERLAND

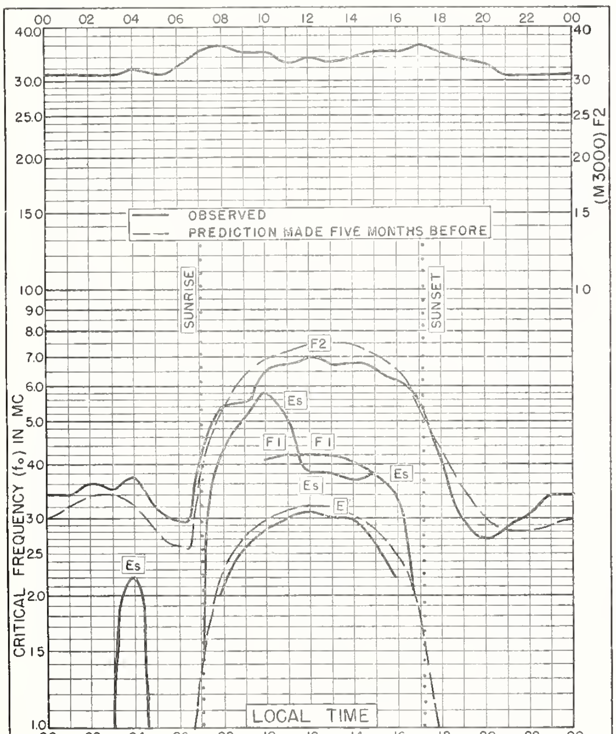
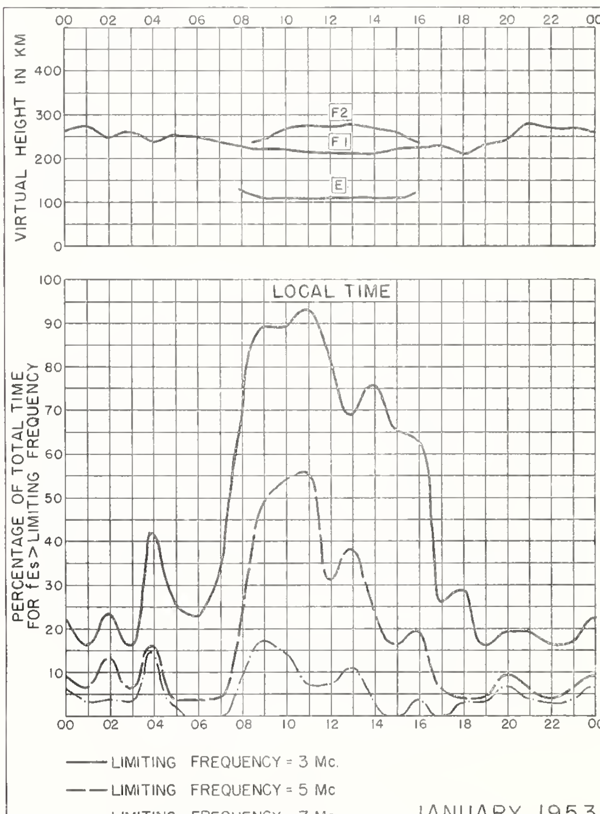


Fig. 43. BATON ROUGE, LOUISIANA
30.5°N, 91.2° W JANUARY 1953



JANUARY 1953
Fig. 44. BATON ROUGE, LOUISIANA

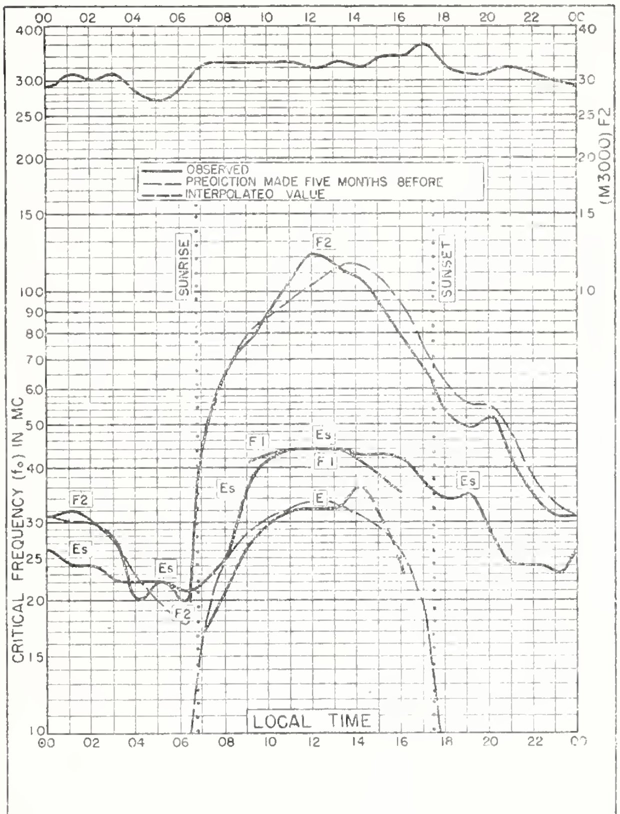


Fig. 45. FORMOSA, CHINA
25.0°N, 121.5°E JANUARY 1953

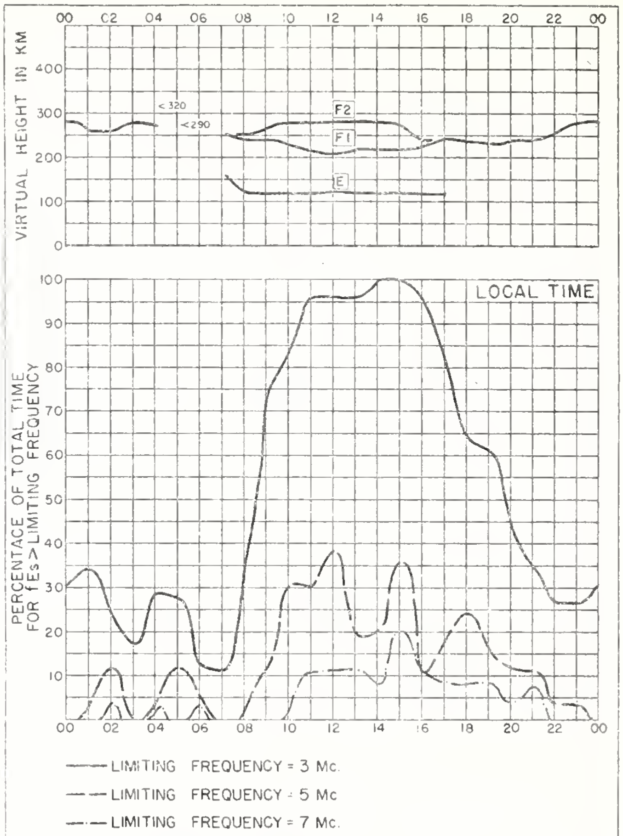


Fig. 46. FORMOSA, CHINA JANUARY 1953

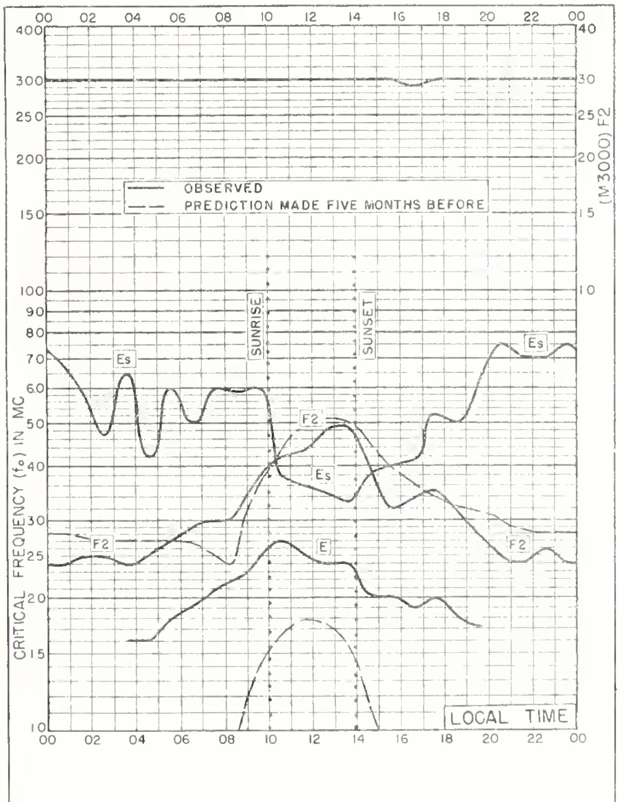


Fig. 47. BAKER LAKE, CANADA
64.3°N, 96.0°W DECEMBER 1952

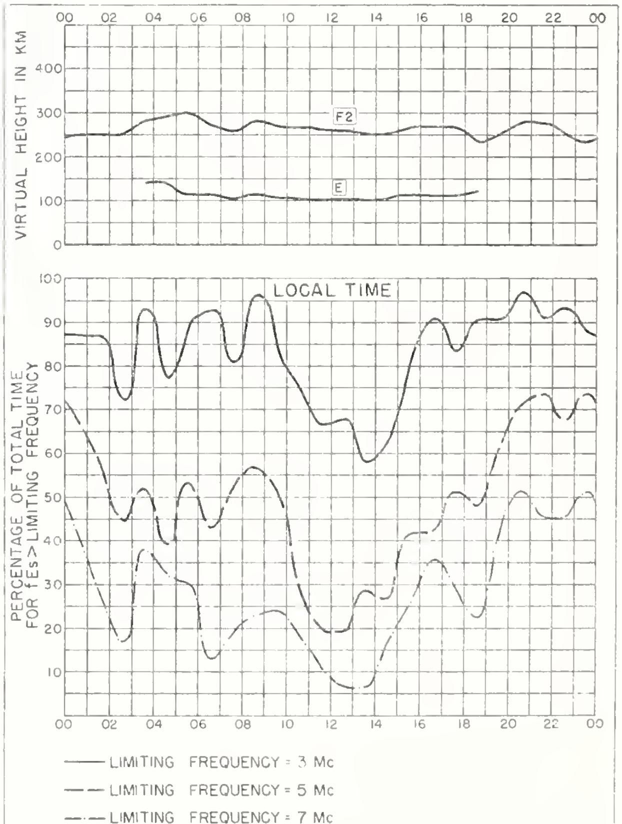


Fig. 48. BAKER LAKE, CANADA DECEMBER 1952

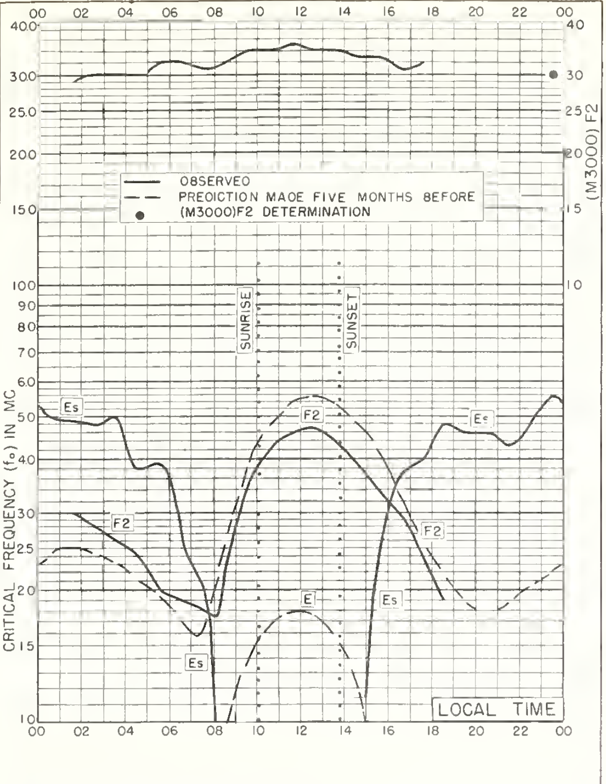


Fig. 49. REYKJAVIK, ICELAND
64.1° N, 21.8° W DECEMBER 1952

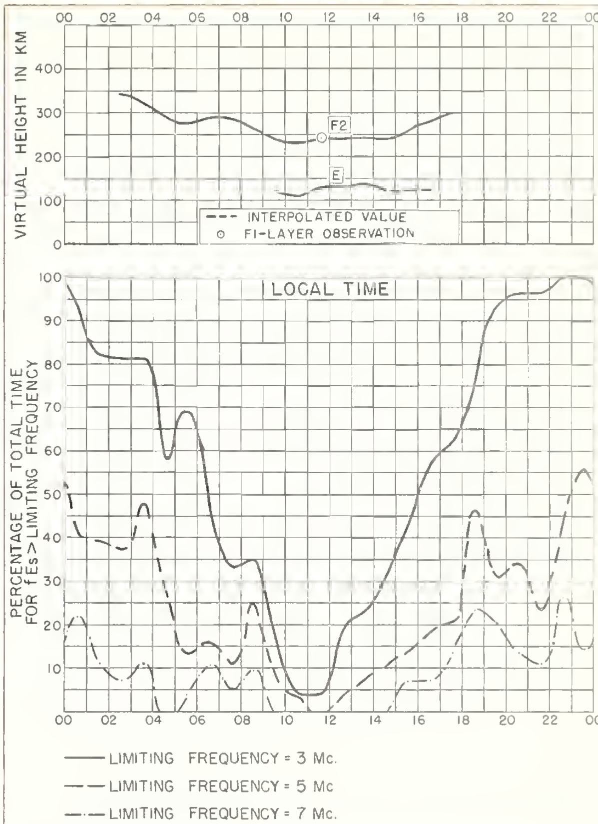


Fig. 50. REYKJAVIK, ICELAND DECEMBER 1952

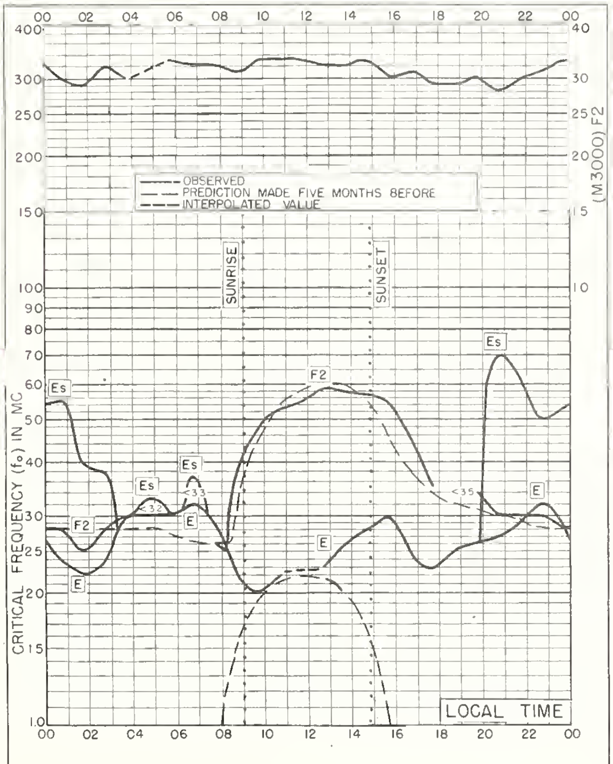


Fig. 51. CHURCHILL, CANADA
58.8°N, 94.2°W DECEMBER 1952

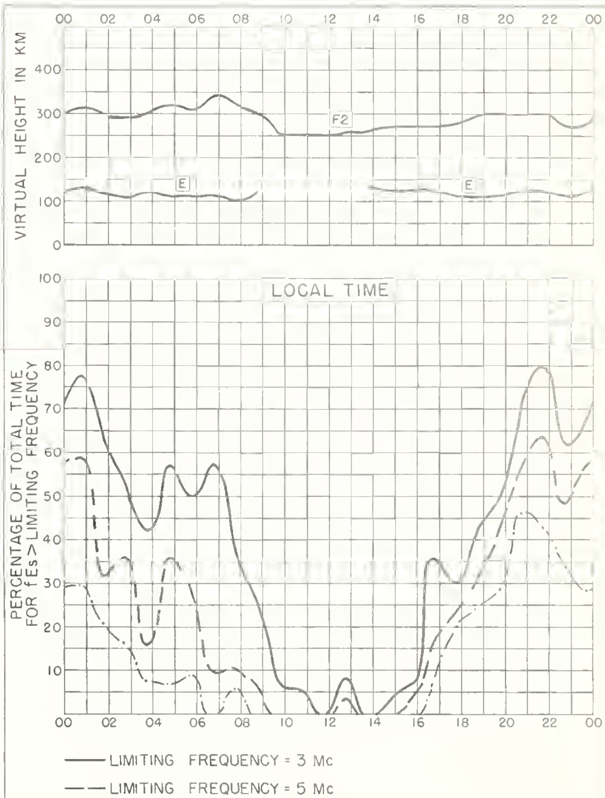


Fig. 52. CHURCHILL, CANADA DECEMBER 1952

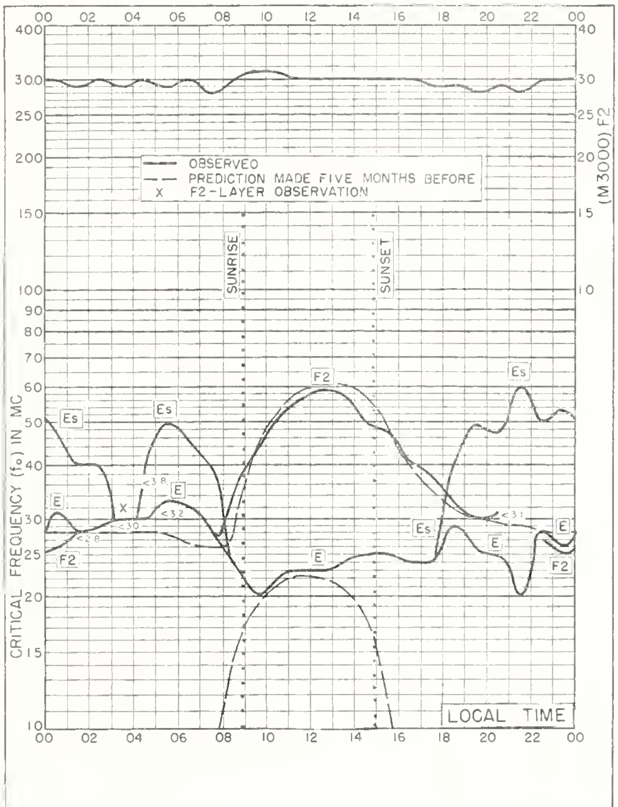


Fig. 53. FORT CHIMO, CANADA
58.1°N, 68.3°W DECEMBER 1952

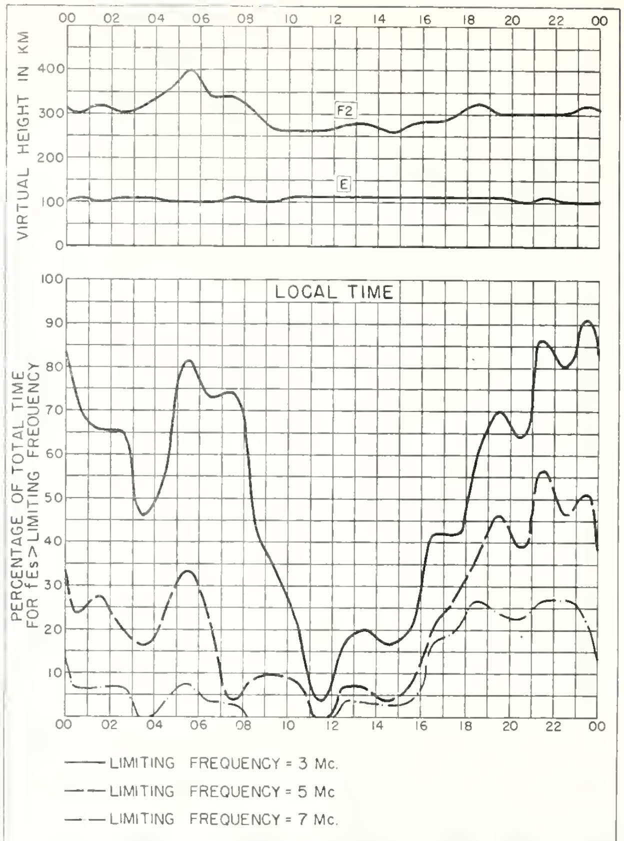


Fig. 54. FORT CHIMO, CANADA DECEMBER 1952

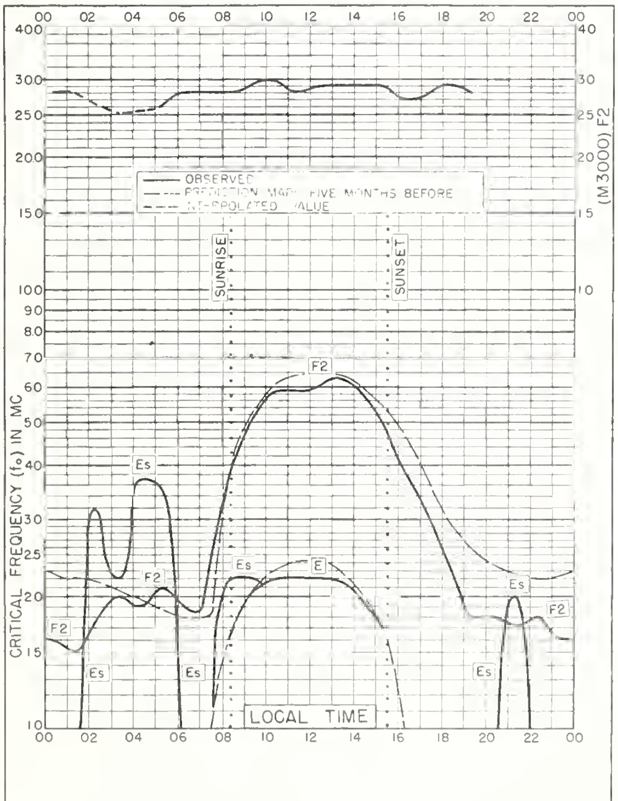


Fig. 55. PRINCE RUPERT, CANADA
54.3°N, 130.3°W DECEMBER 1952

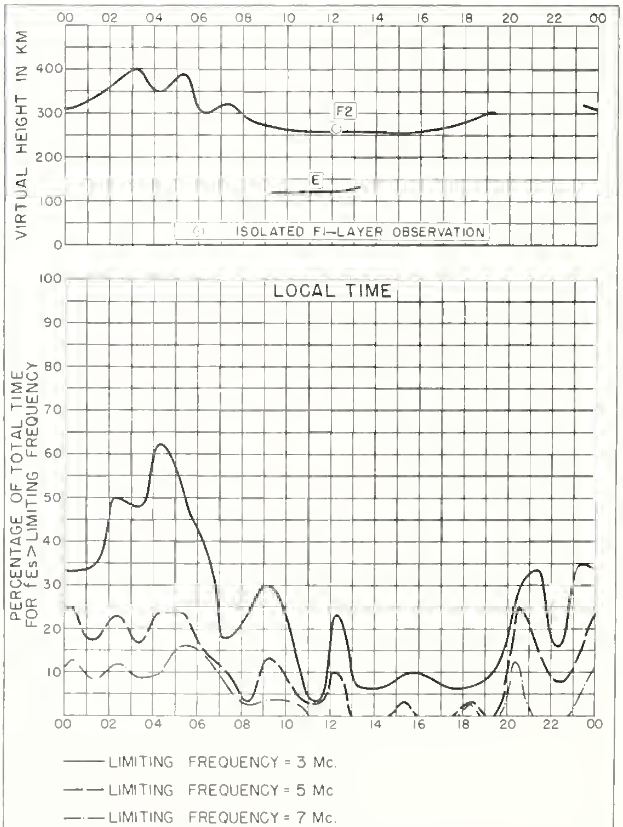


Fig. 56. PRINCE RUPERT, CANADA DECEMBER 1952

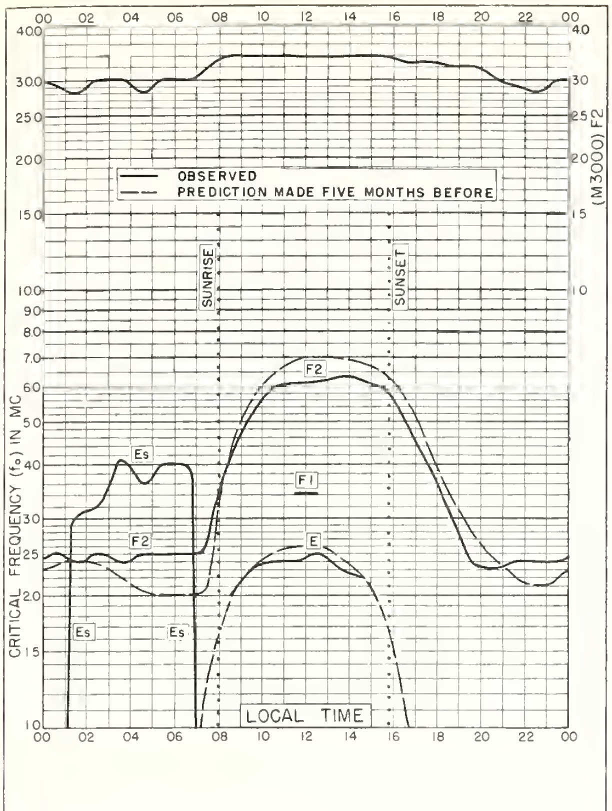


Fig. 57. WINNIPEG, CANADA
49.9°N, 97.4°W DECEMBER 1952

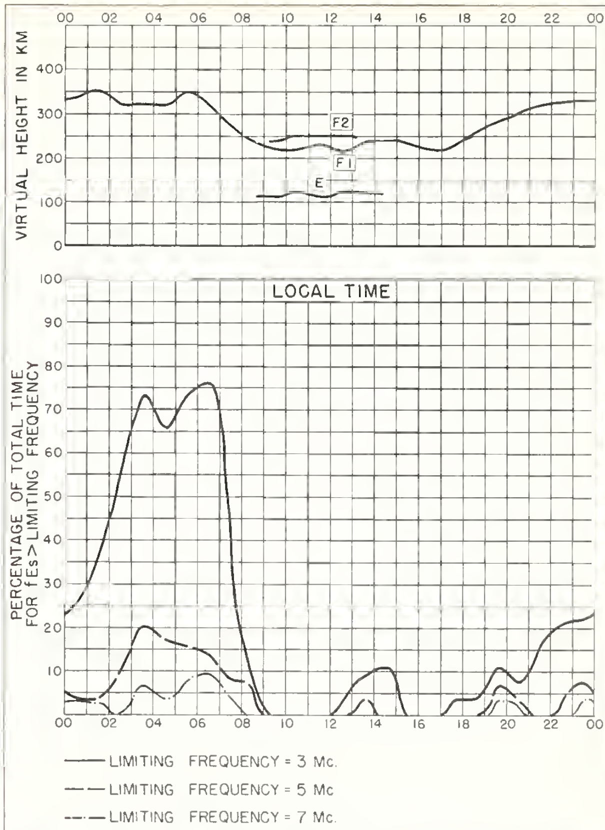


Fig. 58. WINNIPEG, CANADA DECEMBER 1952

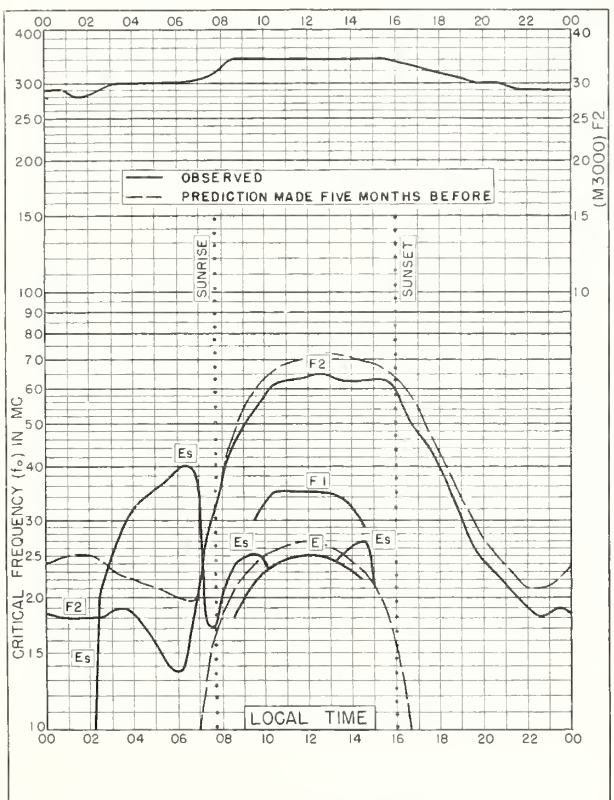
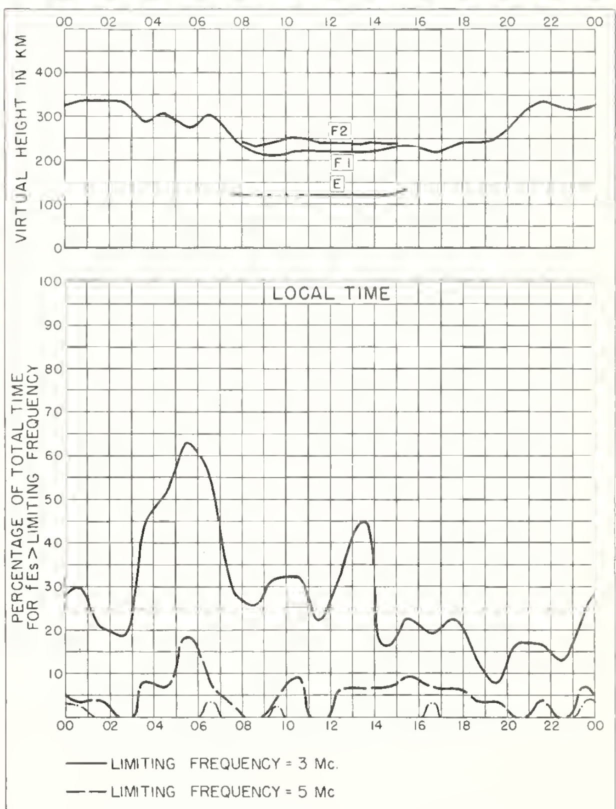


Fig. 59. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W DECEMBER 1952



DECEMBER 1952
Fig. 60. ST. JOHN'S, NEWFOUNDLAND

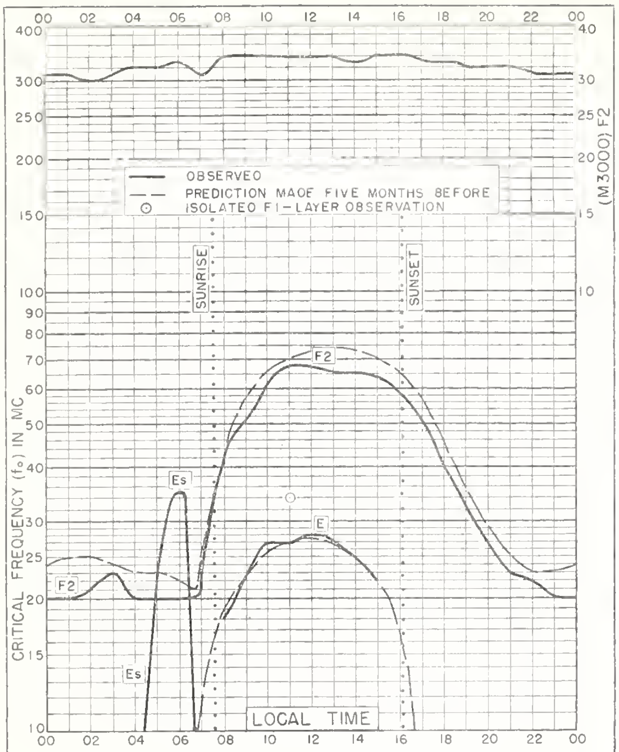


Fig. 61. OTTAWA, CANADA
45.4°N, 75.7°W DECEMBER 1952

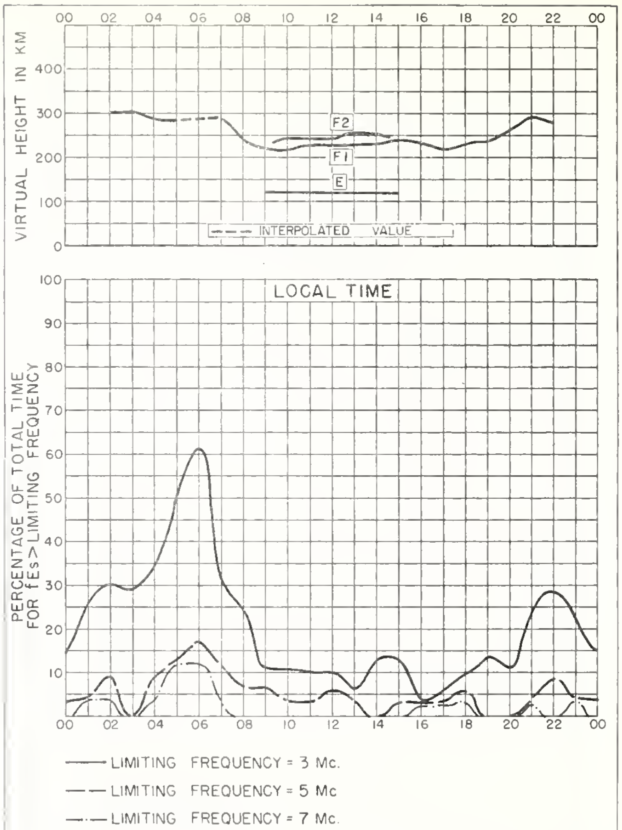


Fig. 62. OTTAWA, CANADA DECEMBER 1952

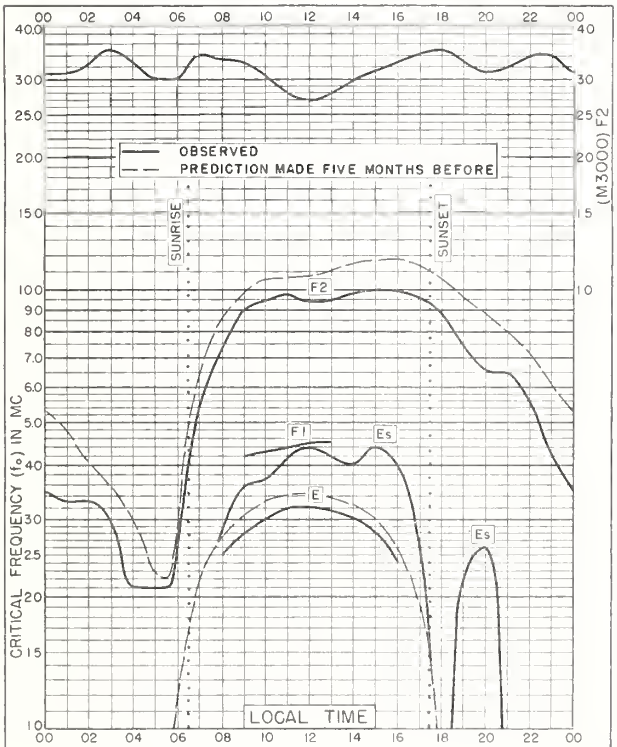


Fig. 63. BAGUIO, P. I.
16.4°N, 120.6°E DECEMBER 1952

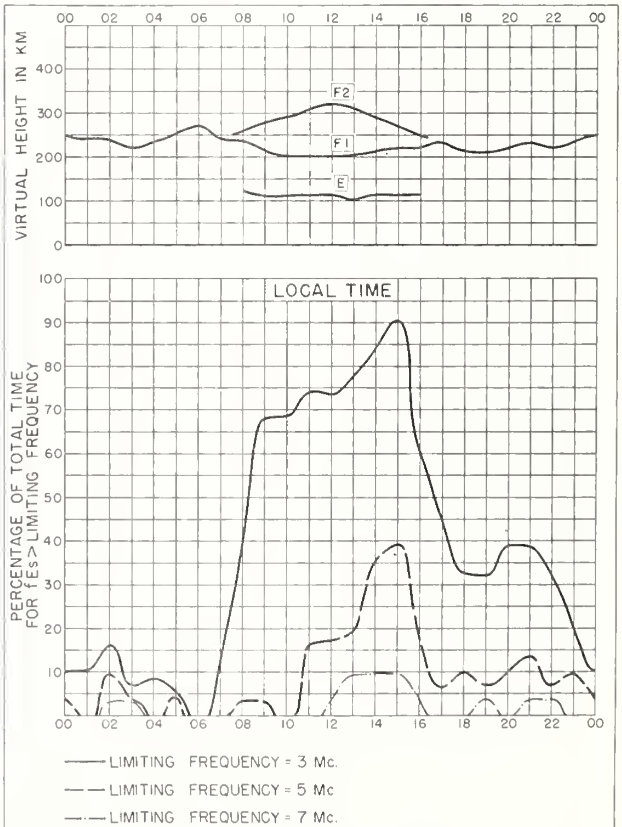


Fig. 64. BAGUIO, P. I. DECEMBER 1952

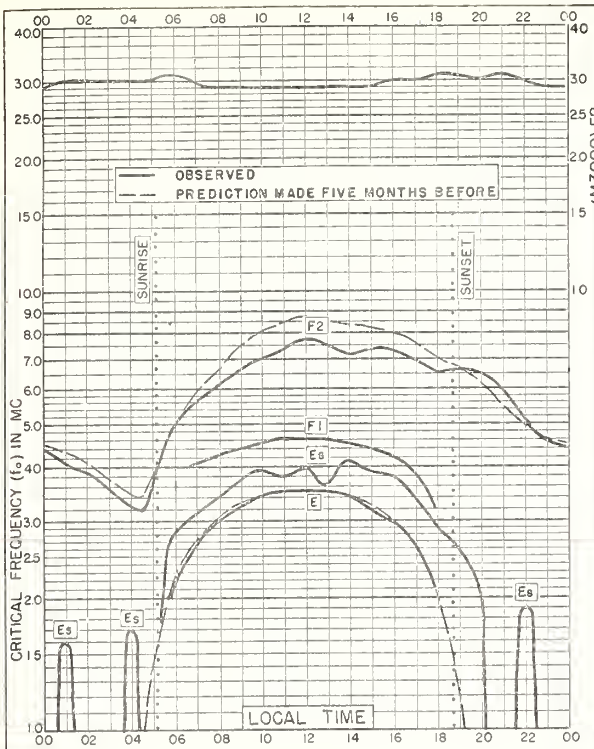
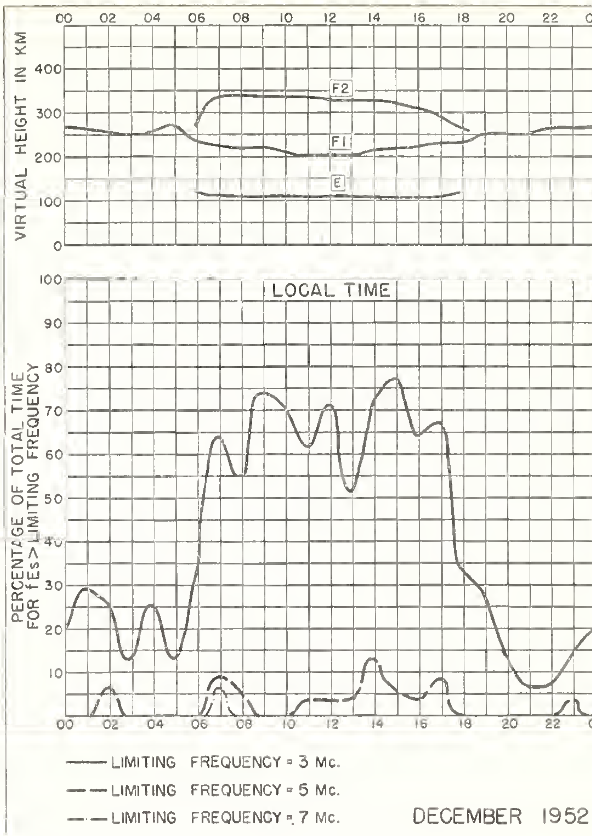


Fig. 65. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E DECEMBER 1952



DECEMBER 1952
Fig. 66. JOHANNESBURG, U. OF S. AFRICA

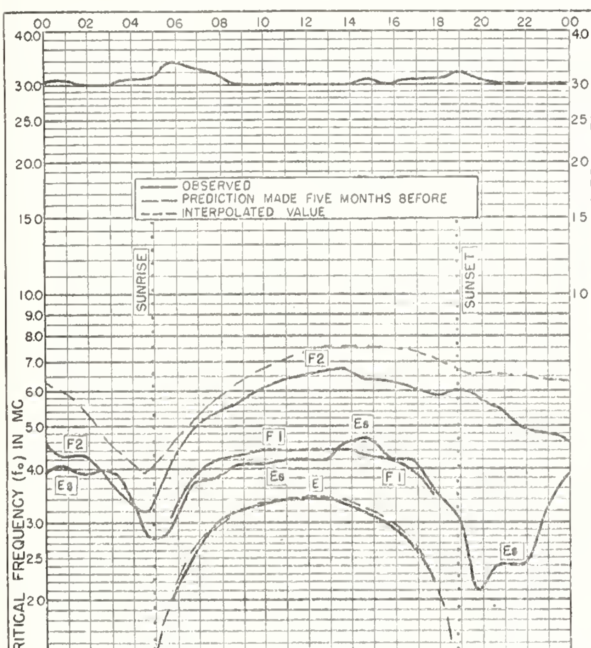


Fig. 67. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E DECEMBER 1952

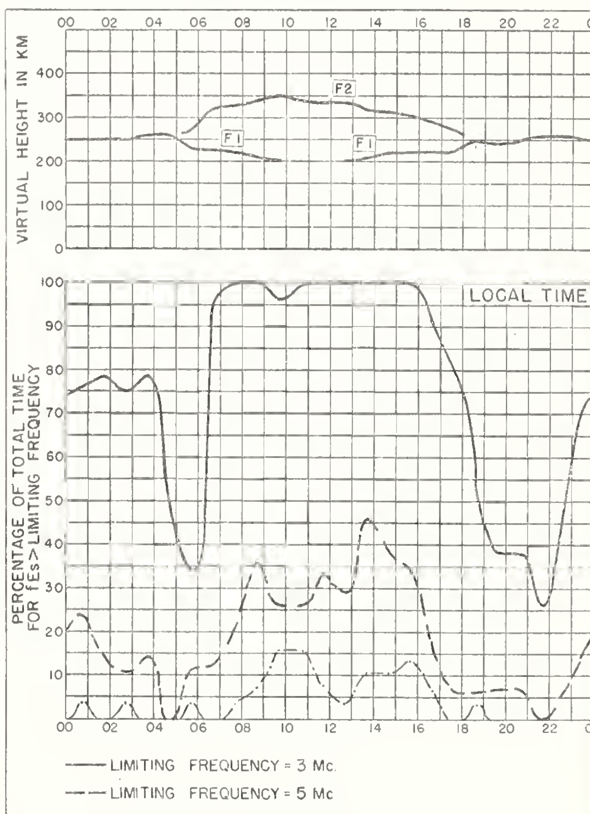


Fig. 68. WATHEROO, W. AUSTRALIA DECEMBER 1952

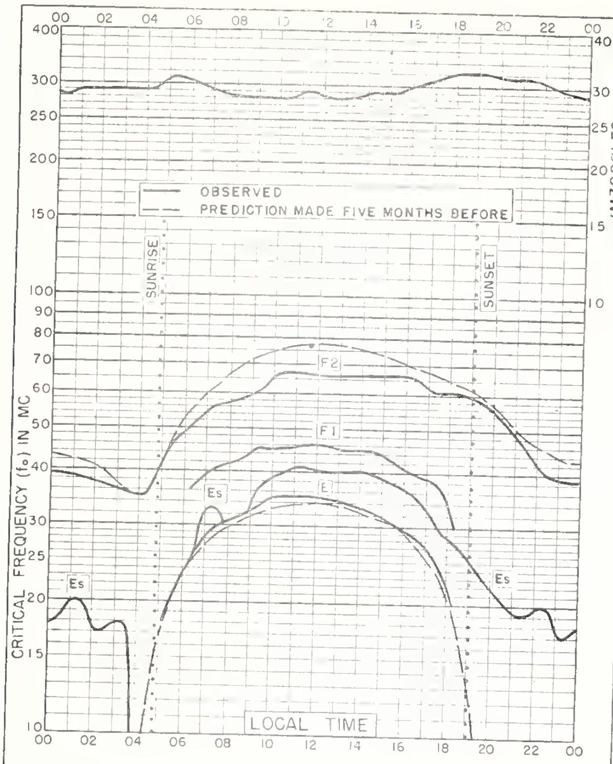


Fig. 69. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E DECEMBER 1952

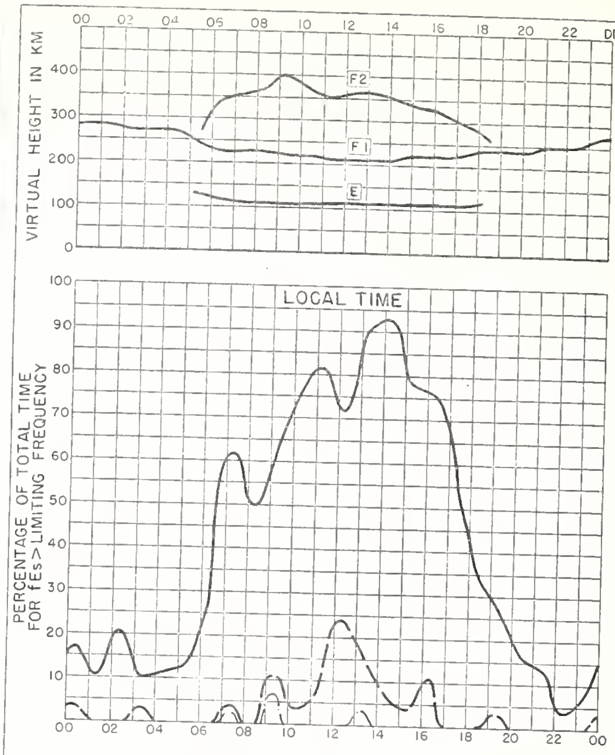


Fig. 70. CAPETOWN, U. OF S. AFRICA DECEMBER 1952

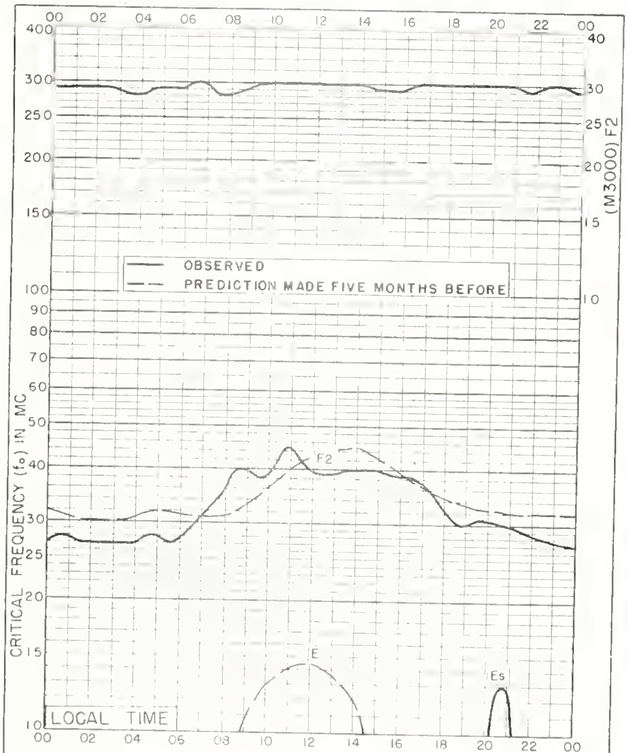


Fig 71 RESOLUTE BAY, CANADA
74.7°N, 94.9°W NOVEMBER 1952

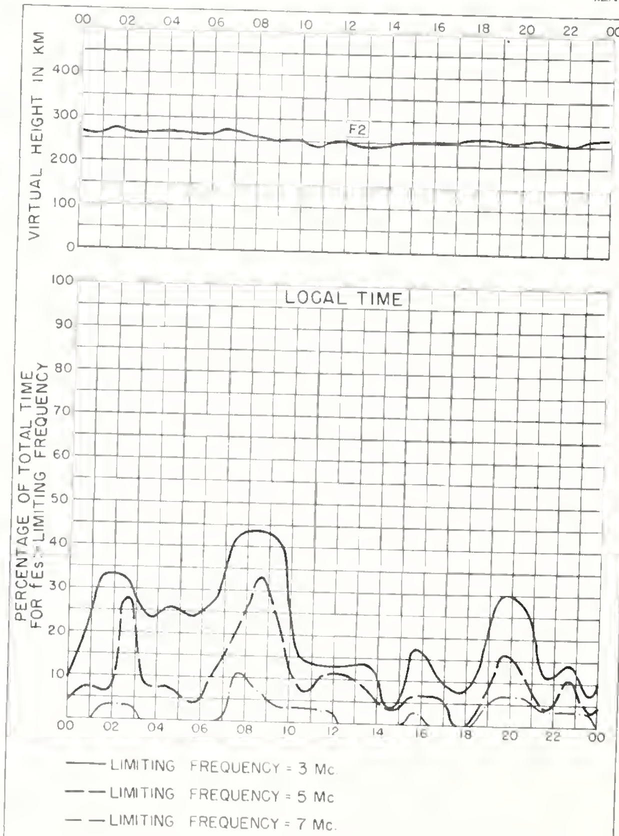


Fig 72 RESOLUTE BAY, CANADA NOVEMBER 1952

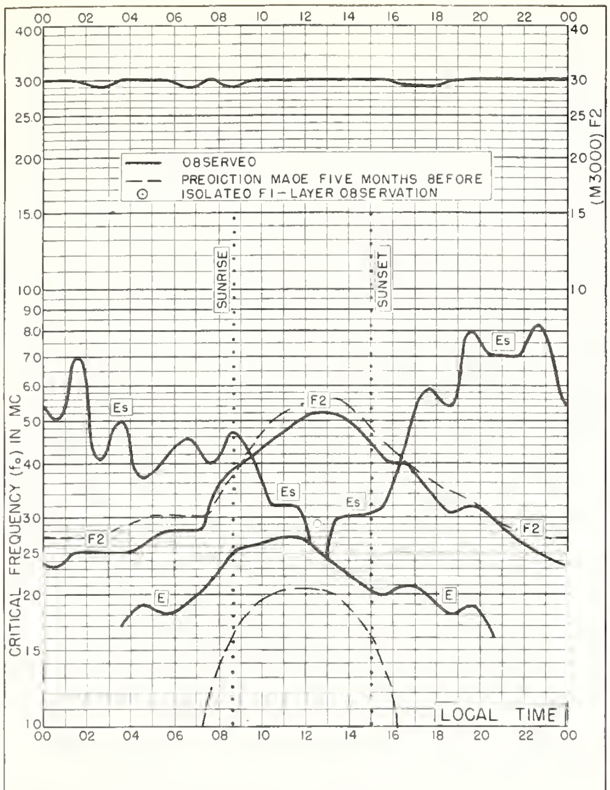


Fig. 73. BAKER LAKE, CANADA
64.3°N, 96.0°W NOVEMBER 1952

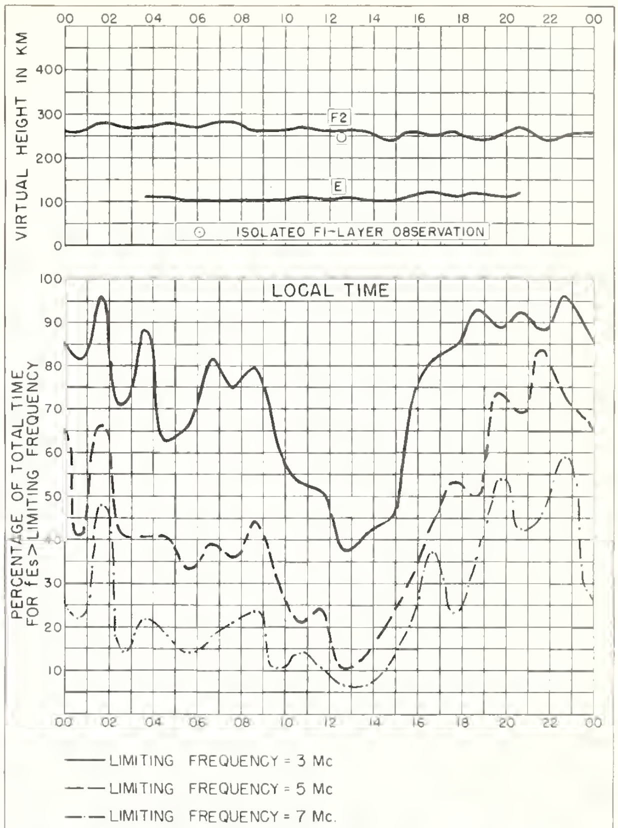


Fig. 74. BAKER LAKE, CANADA NOVEMBER 1952

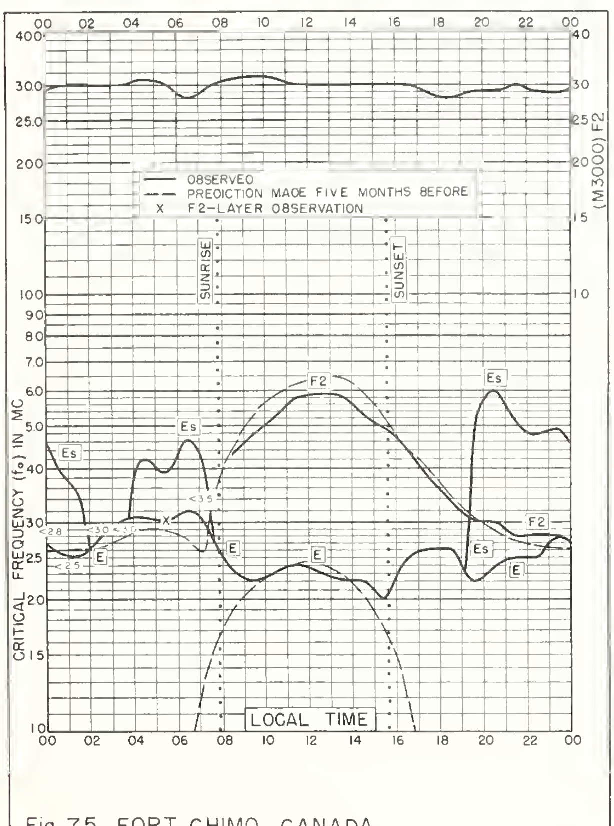


Fig. 75. FORT CHIMO, CANADA
58.1°N, 68.3°W NOVEMBER 1952

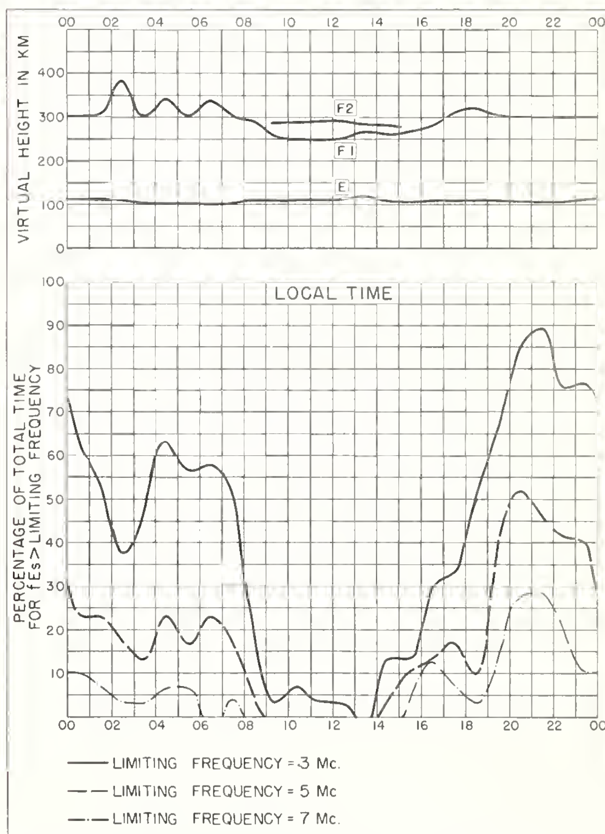


Fig. 76. FORT CHIMO, CANADA NOVEMBER 1952

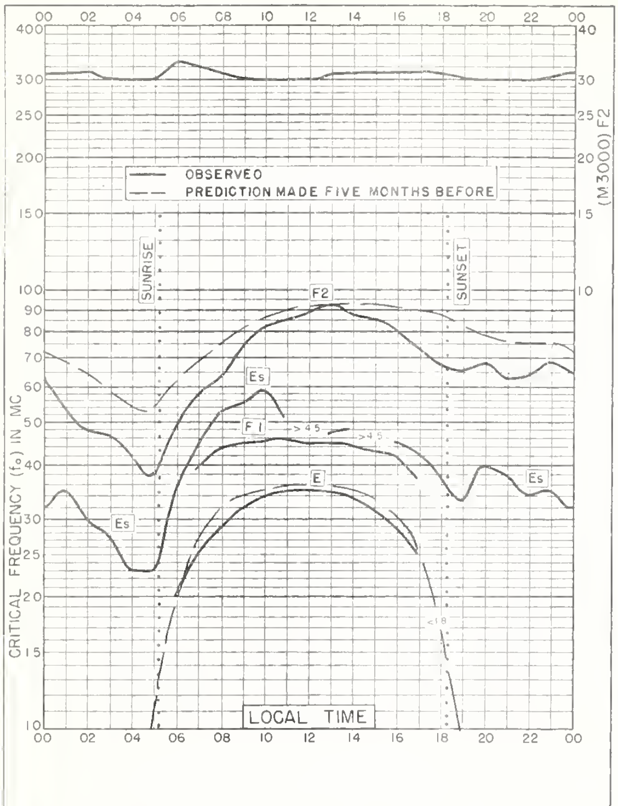


Fig. 77 TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E NOVEMBER 1952

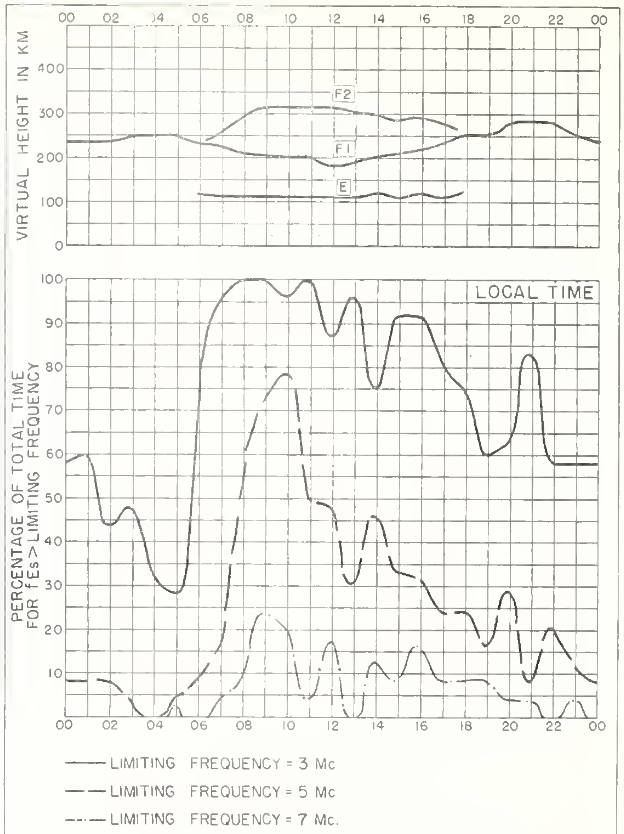


Fig. 78. TOWNSVILLE, AUSTRALIA NOVEMBER 1952

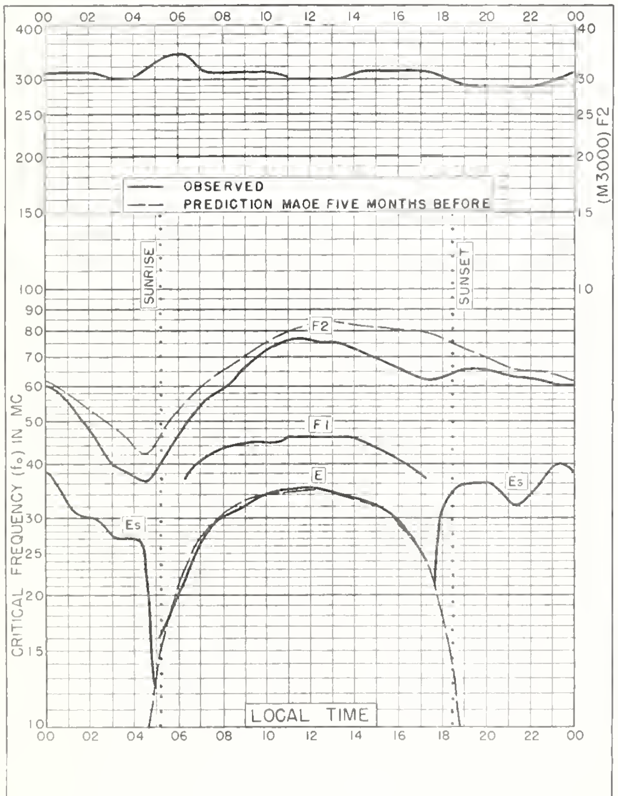


Fig. 79. BRISBANE, AUSTRALIA
27.5°S, 153.0°E NOVEMBER 1952

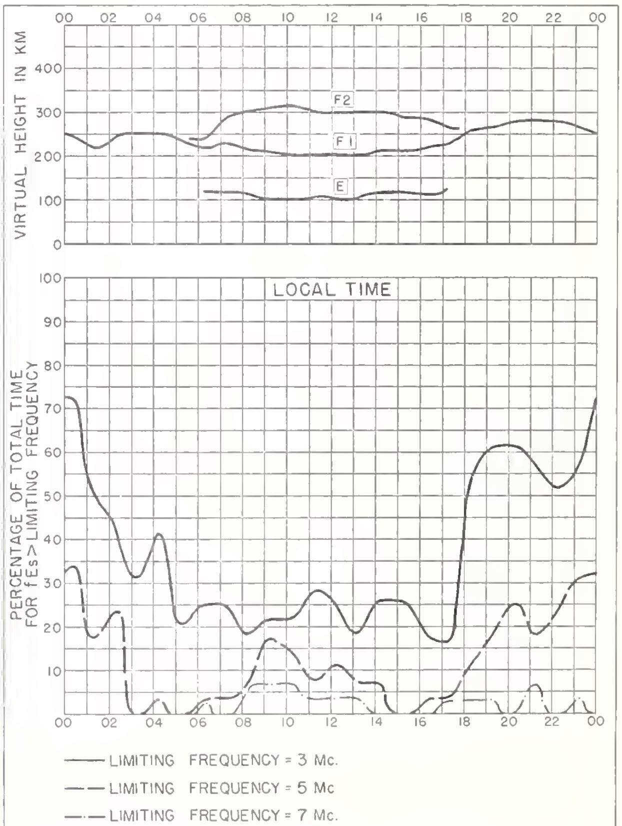


Fig. 80. BRISBANE, AUSTRALIA NOVEMBER 1952

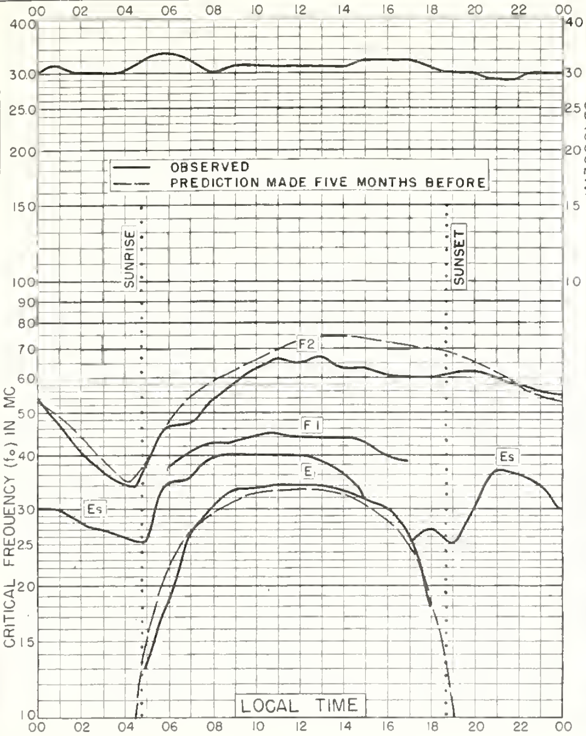


Fig. 81. CANBERRA, AUSTRALIA
35.3°S, 149.0°E NOVEMBER 1952

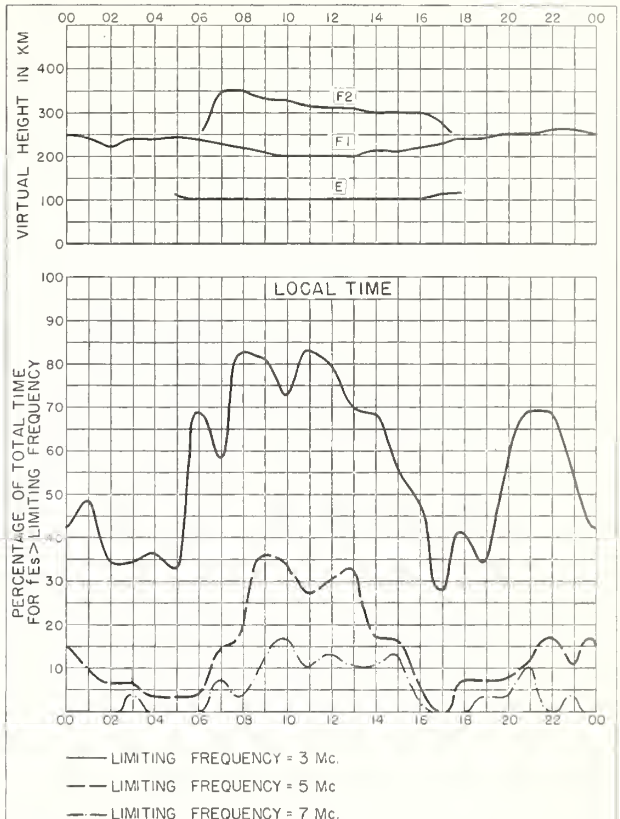


Fig. 82. CANBERRA, AUSTRALIA NOVEMBER 1952

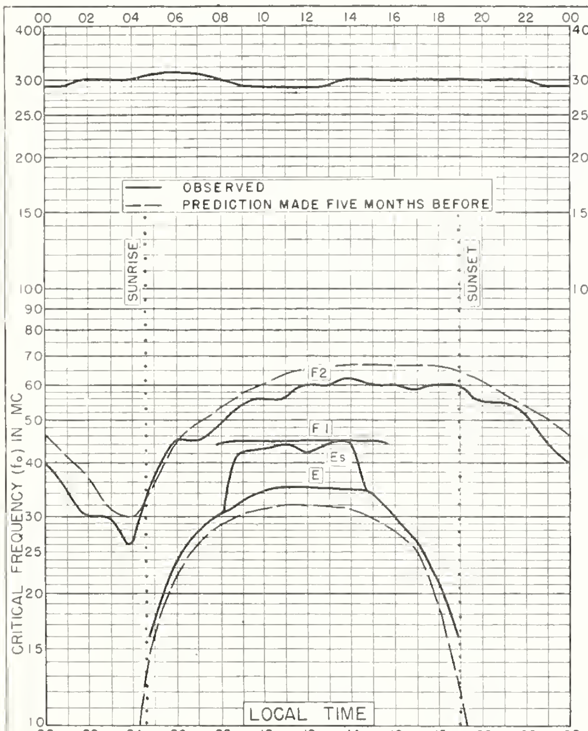


Fig. 83. HOBART, TASMANIA
42.9°S, 147.3°E NOVEMBER 1952

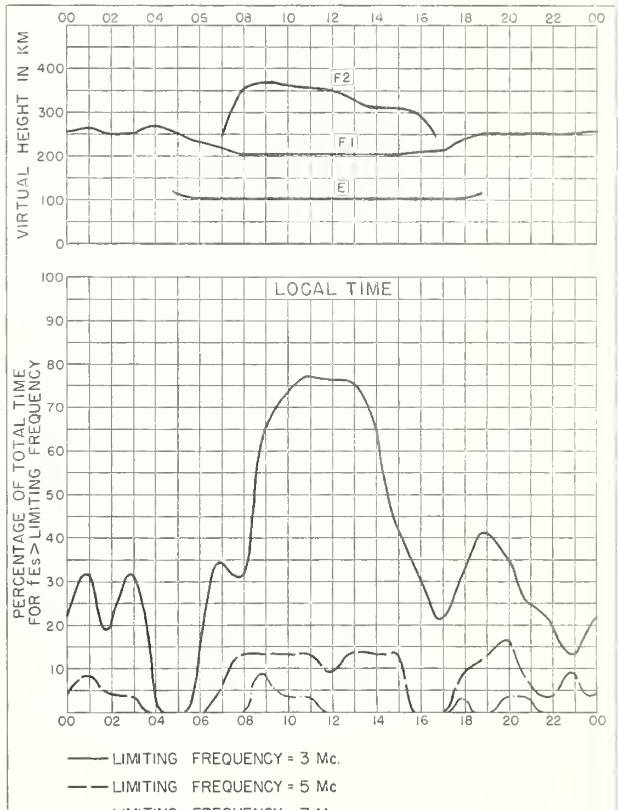


Fig. 84. HOBART, TASMANIA NOVEMBER 1952

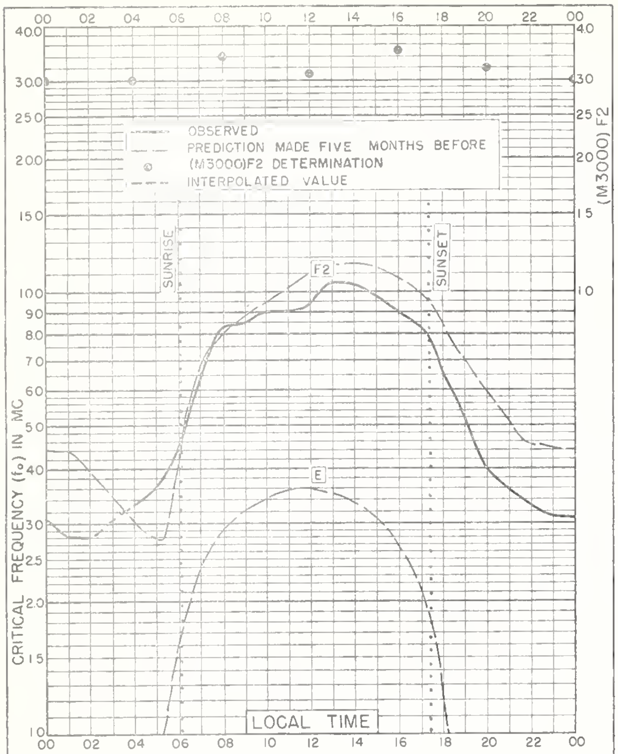


Fig. 85. DELHI, INDIA
28.6°N, 77.1°E OCTOBER 1952

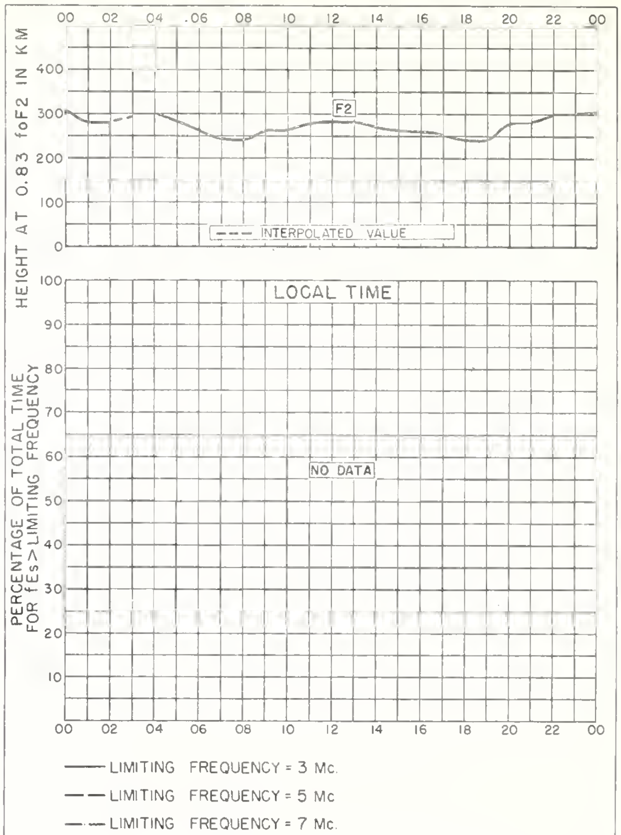


Fig. 86. DELHI, INDIA OCTOBER 1952

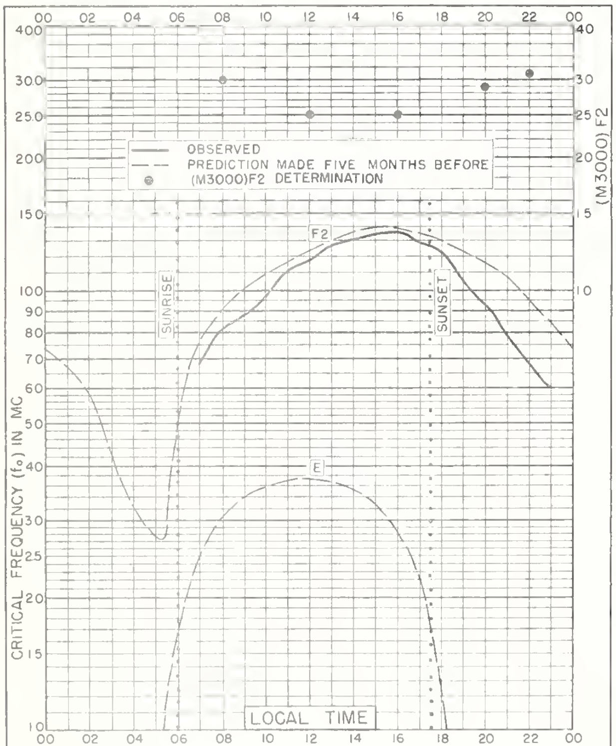


Fig. 87. BOMBAY, INDIA
19.0°N, 73.0°E OCTOBER 1952

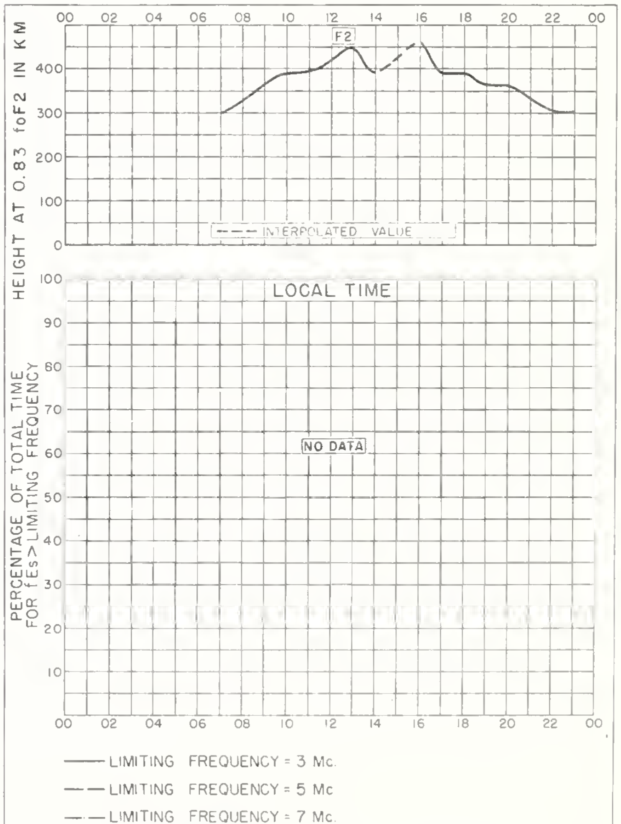


Fig. 88. BOMBAY, INDIA OCTOBER 1952

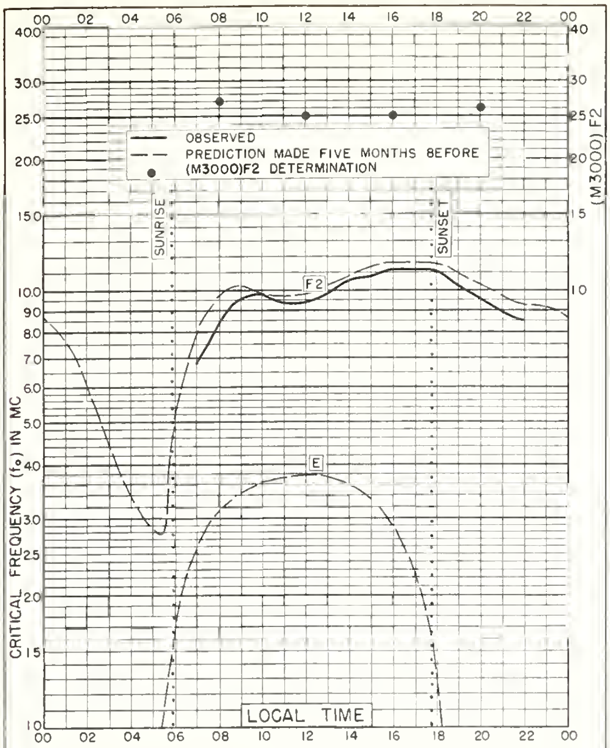


Fig. 89. MADRAS, INDIA
13.0°N, 80.2°E OCTOBER 1952

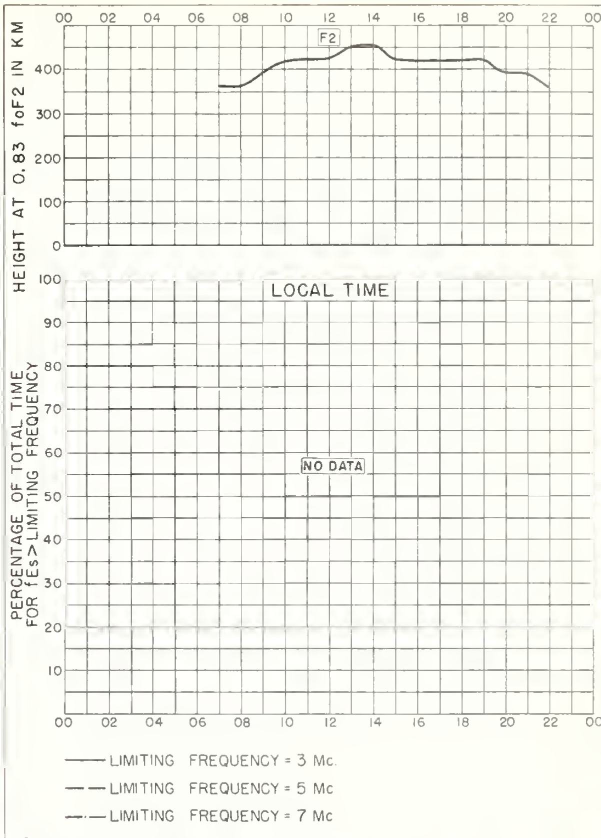


Fig. 90. MADRAS, INDIA OCTOBER 1952

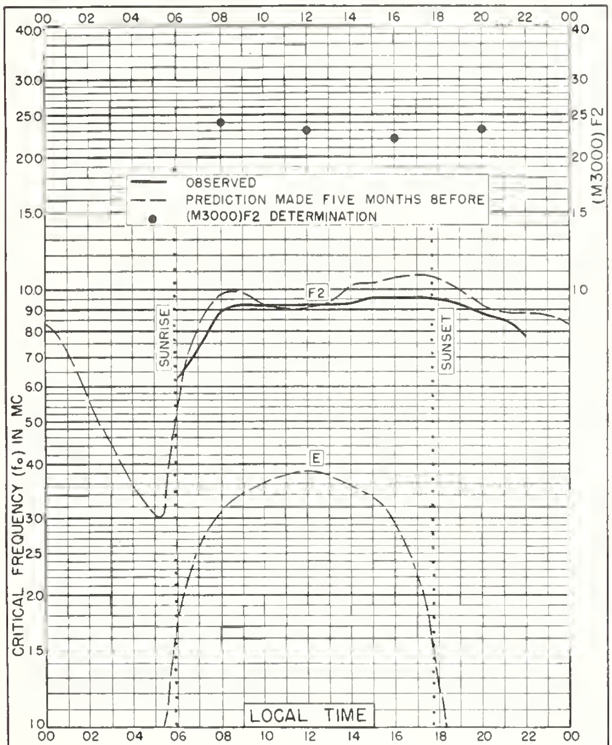


Fig. 91. TIRUCHY, INDIA
10.8°N, 78.8°E OCTOBER 1952

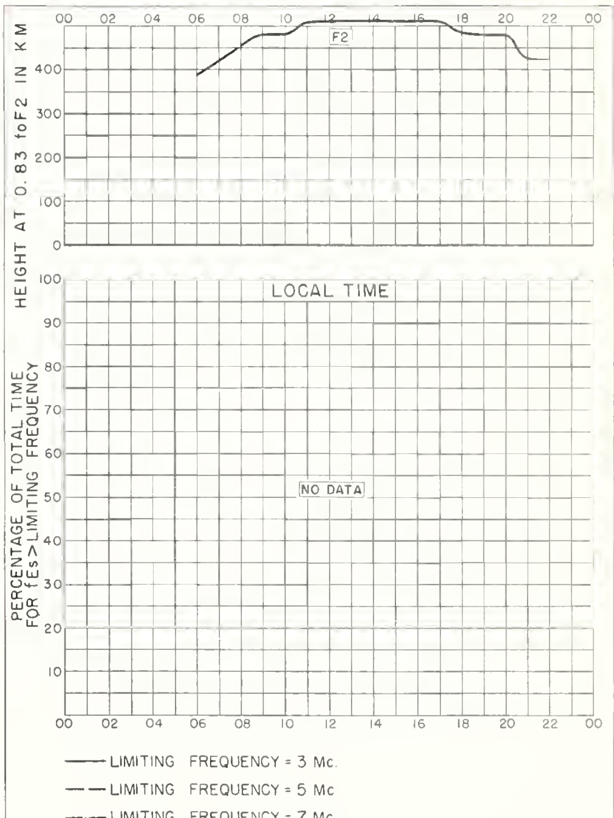


Fig. 92. TIRUCHY, INDIA OCTOBER 1952

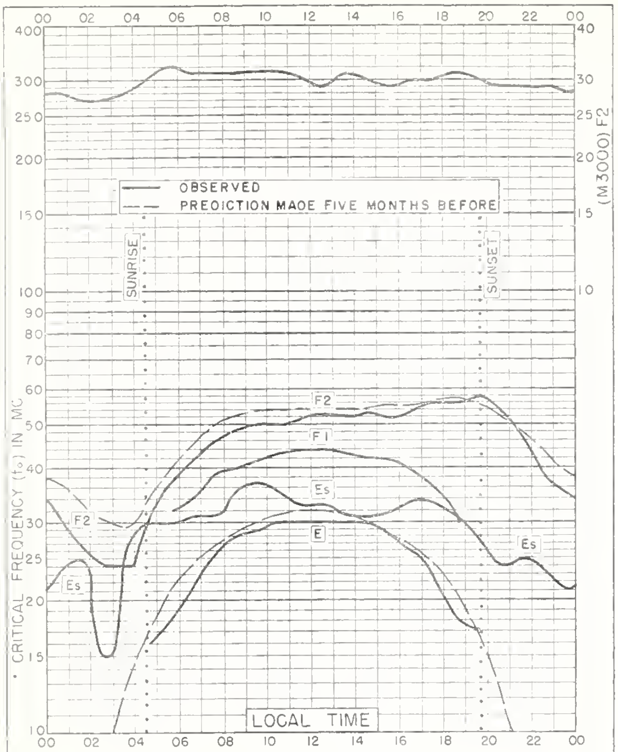


Fig 93. INVERNESS, SCOTLAND
57.4°N, 4.2°W AUGUST 1952

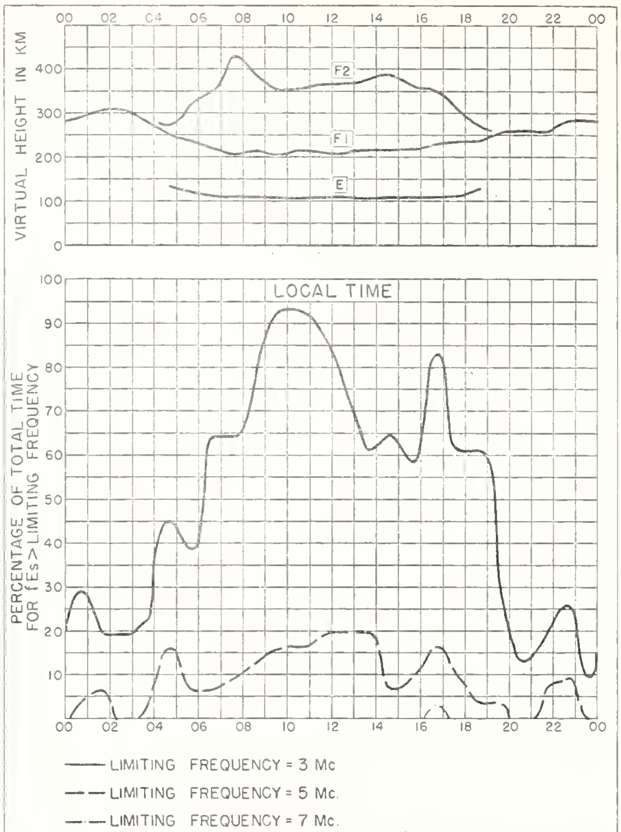


Fig 94. INVERNESS, SCOTLAND AUGUST 1952

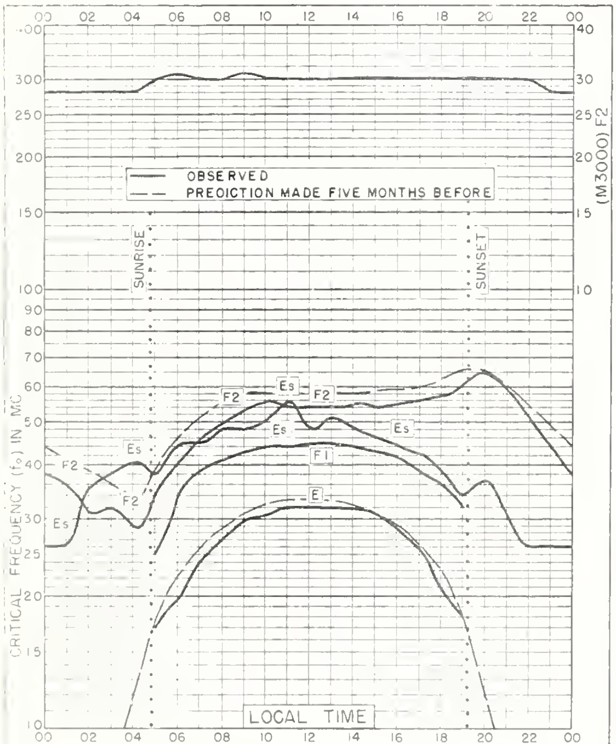


Fig. 95. SLOUGH, ENGLAND
51.5°N, 0.6°W AUGUST 1952

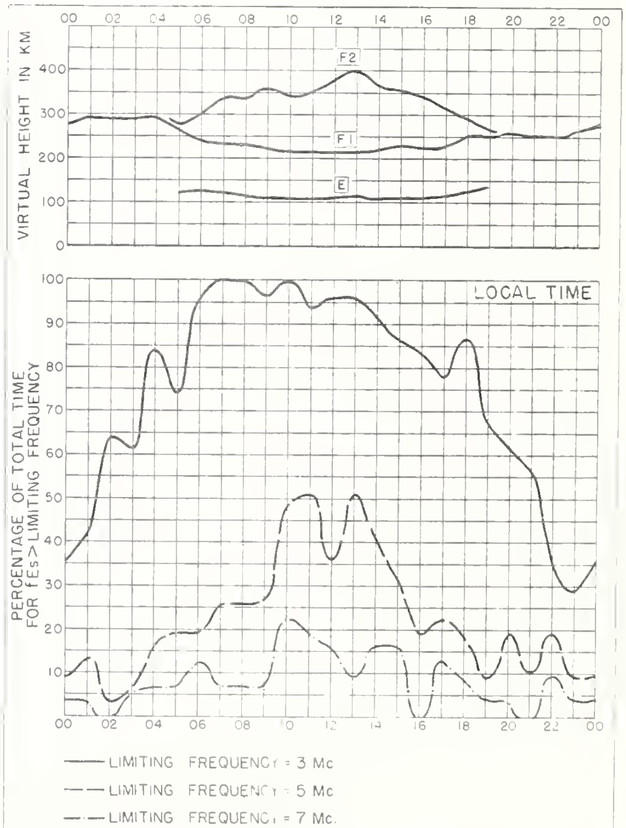


Fig. 96. SLOUGH, ENGLAND AUGUST 1952

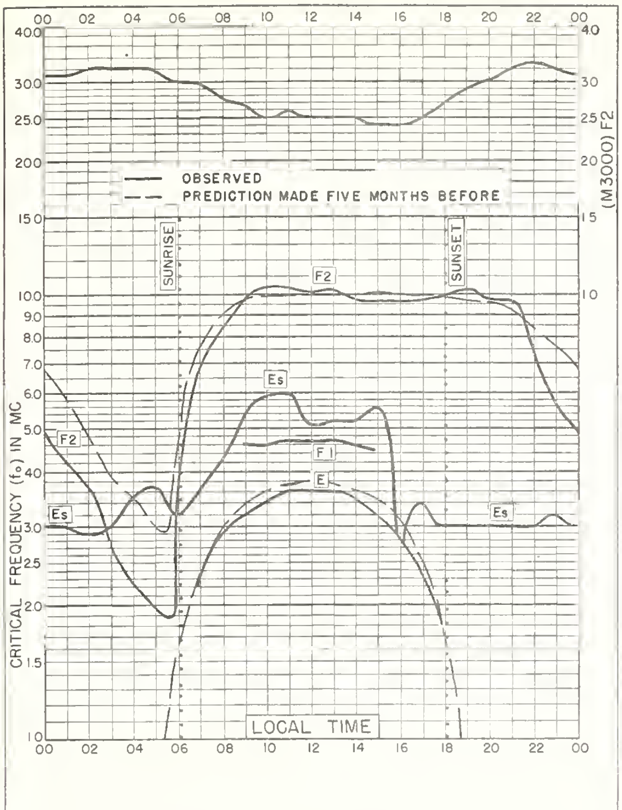


Fig. 97. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E AUGUST 1952

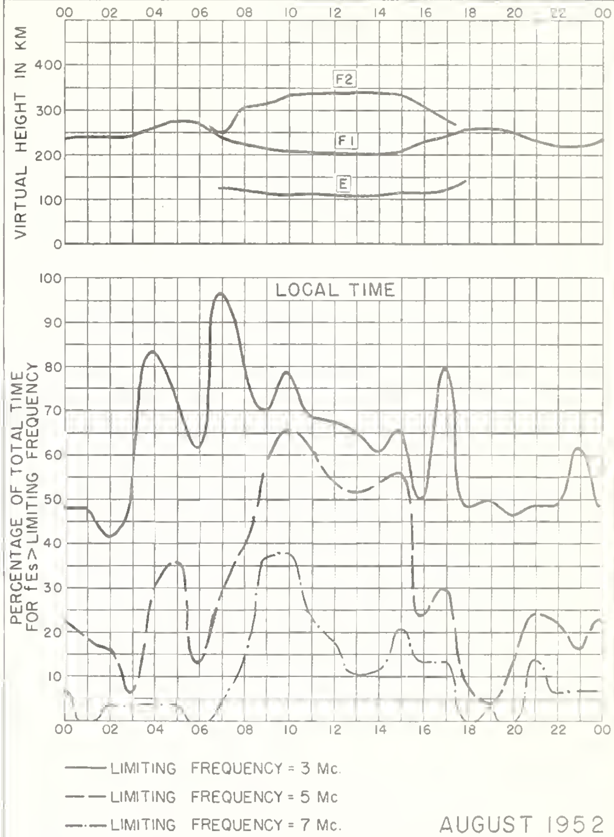


Fig. 98. SINGAPORE, BRITISH MALAYA

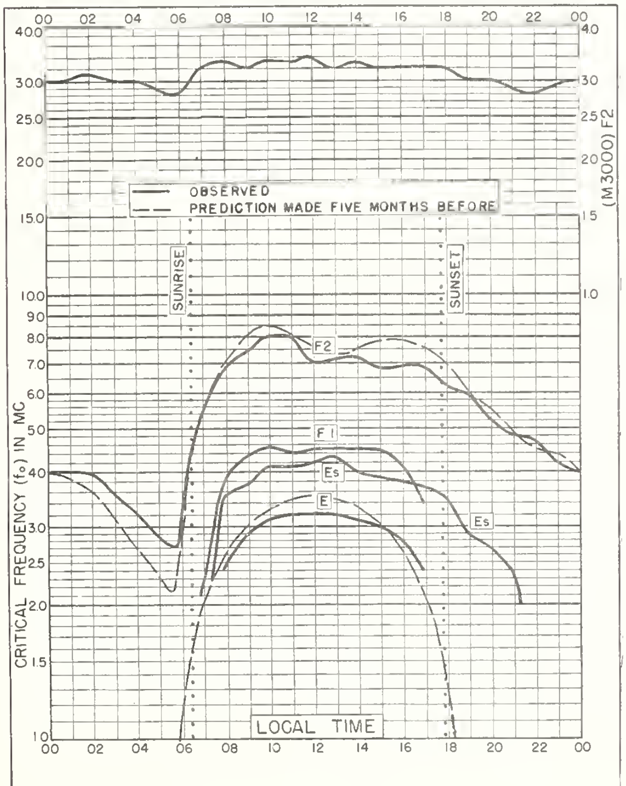


Fig. 99. RAROTONGA I.
21.3°S, 159.8°W AUGUST 1952

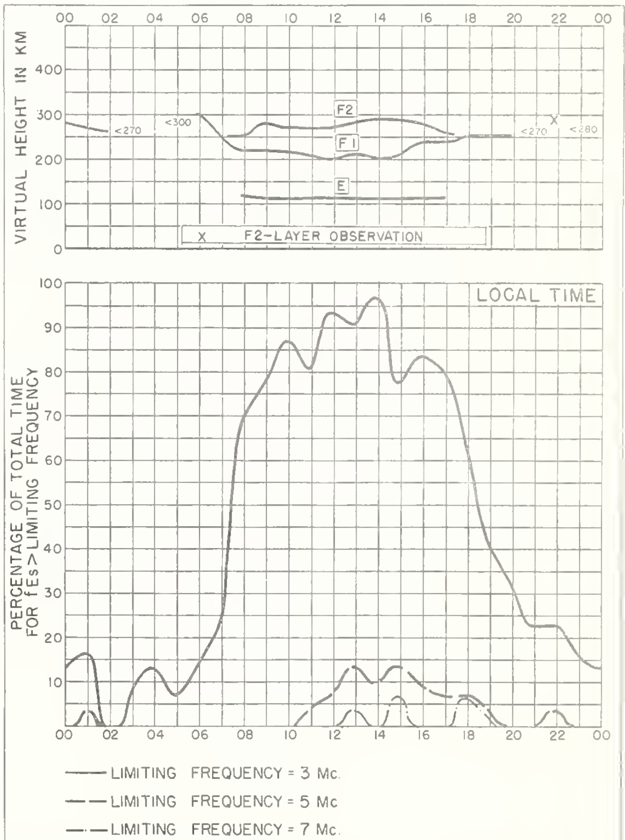


Fig. 100. RAROTONGA I. AUGUST 1952

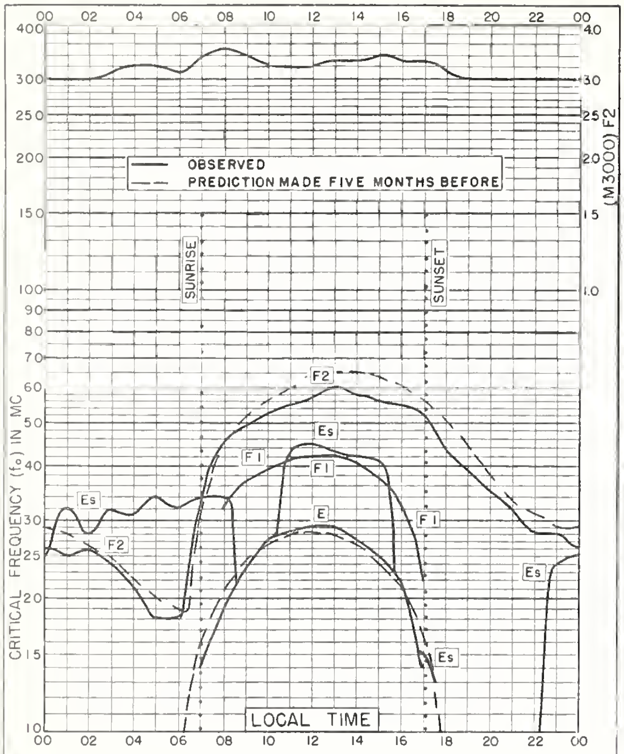


Fig. 101. CHRISTCHURCH, N. Z.
43.6° S, 172.7°E AUGUST 1952

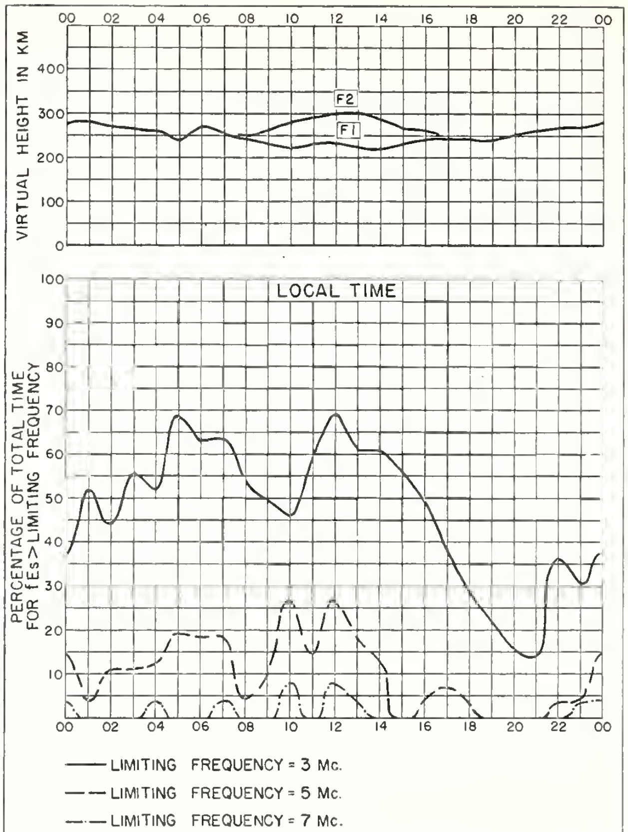


Fig. 102. CHRISTCHURCH, N. Z. AUGUST 1952

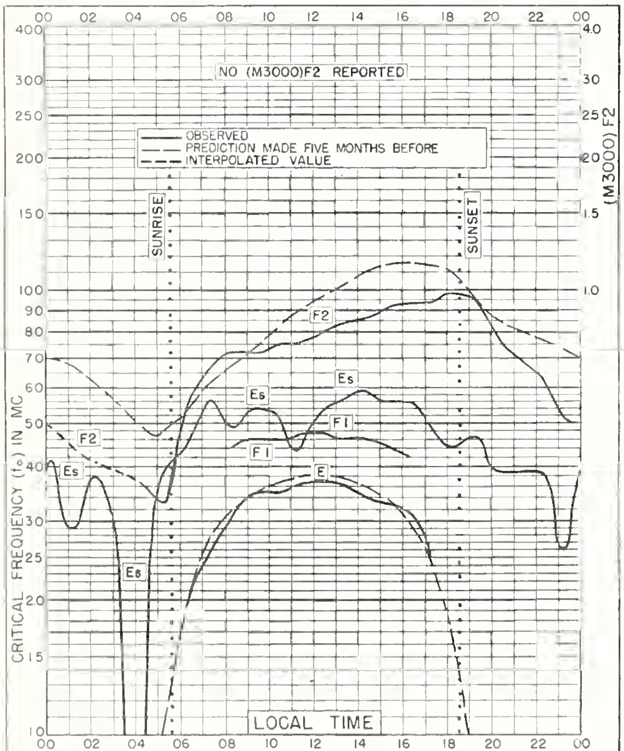


Fig. 103. KHARTOUM, SUDAN
15.6°N, 32.6°E JULY 1952

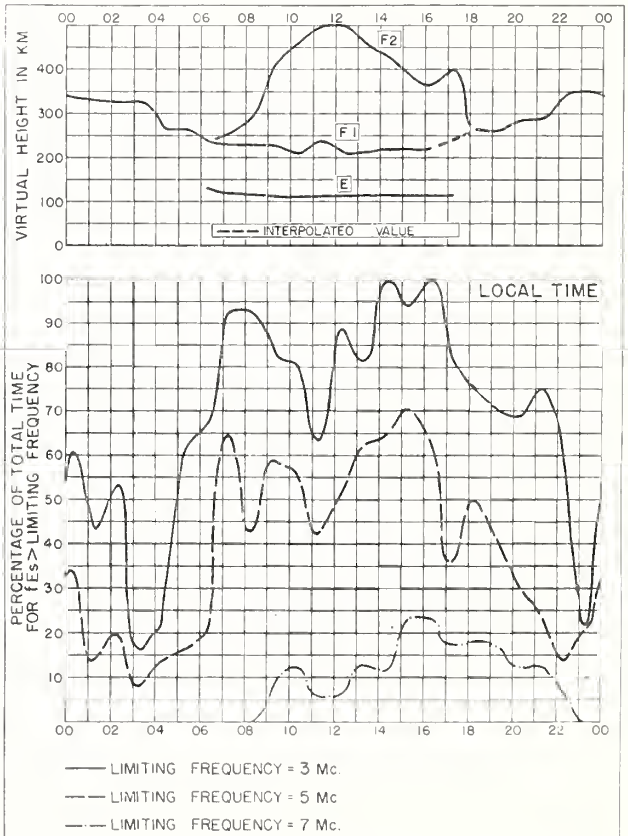


Fig. 104. KHARTOUM, SUDAN JULY 1952

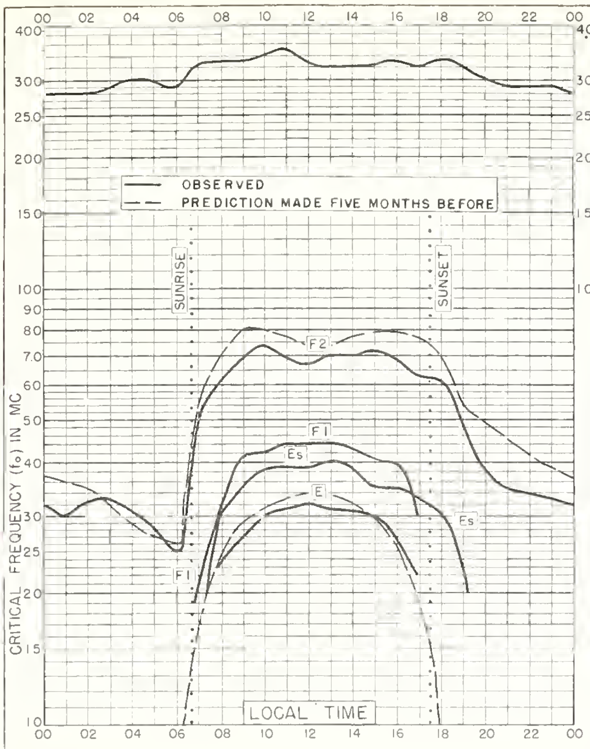


Fig. 105. RAROTONGA I.
21.3° S, 159.8° W
JULY 1952

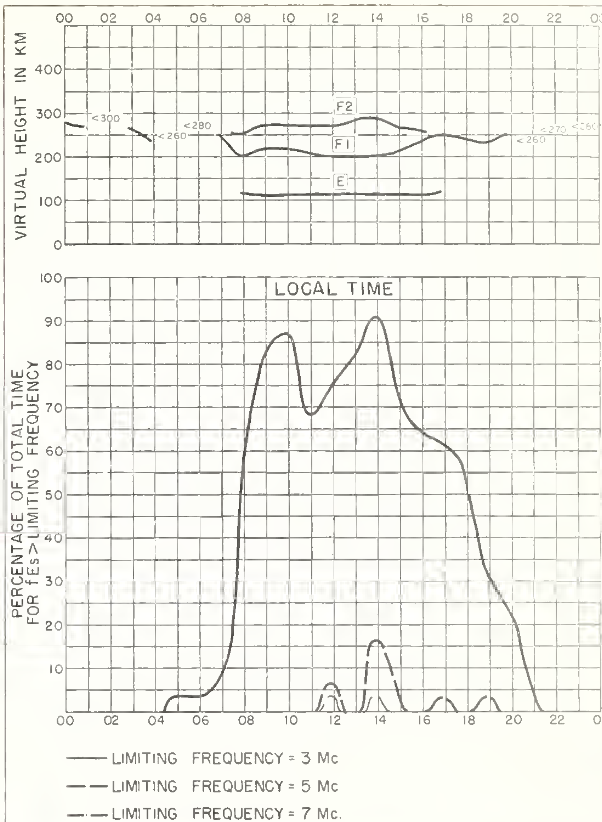


Fig. 106. RAROTONGA I.
JULY 1952

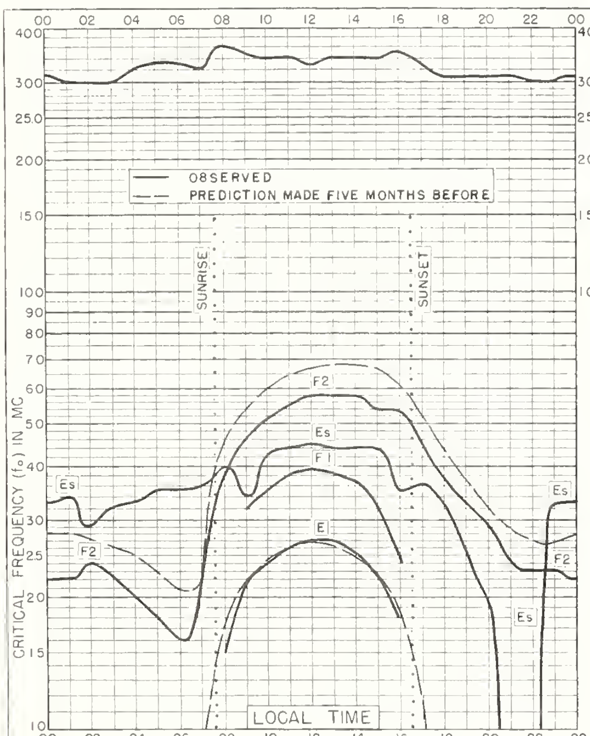


Fig 107. CHRISTCHURCH, N. Z.
43.6° S, 172.7° E
JULY 1952

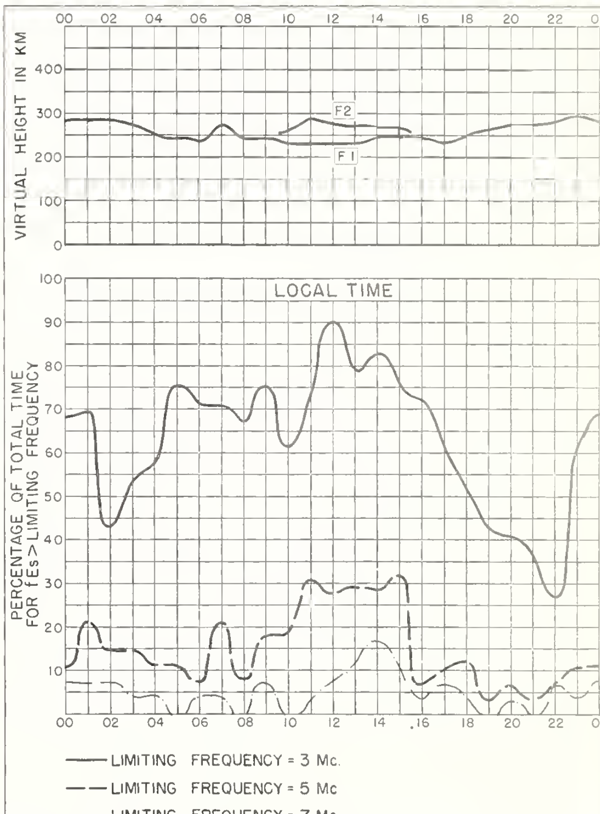


Fig. 108. CHRISTCHURCH, N. Z.
JULY 1952

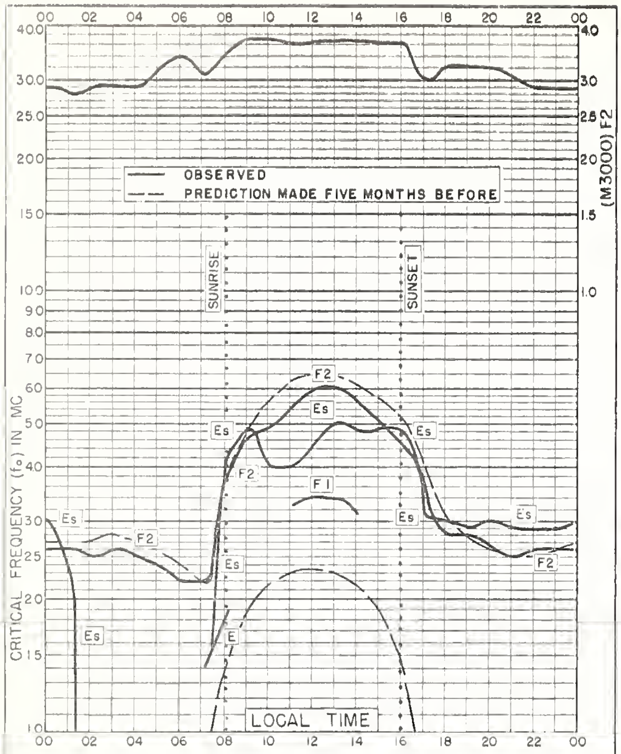


Fig. 109. FALKLAND IS.
51.7°S, 57.8°W JULY 1952

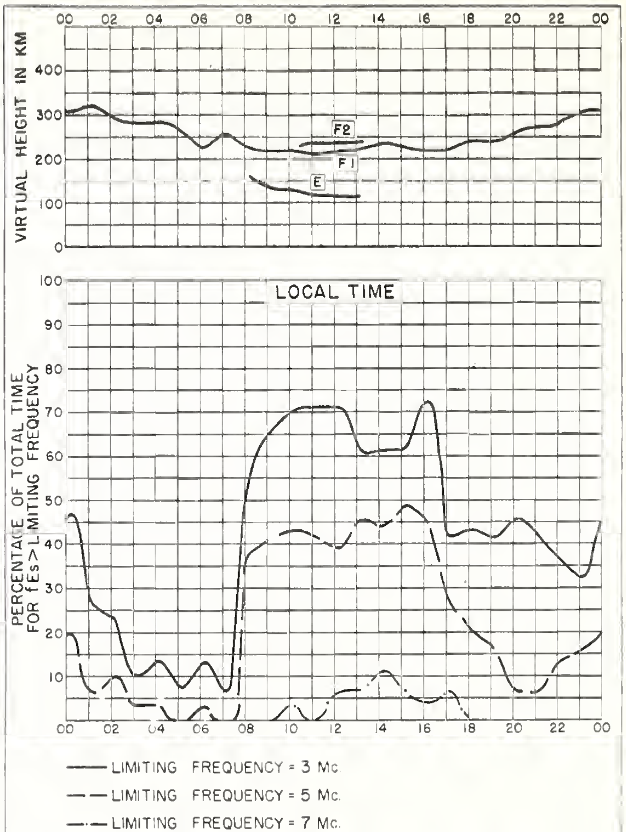


Fig. 110. FALKLAND IS. JULY 1952

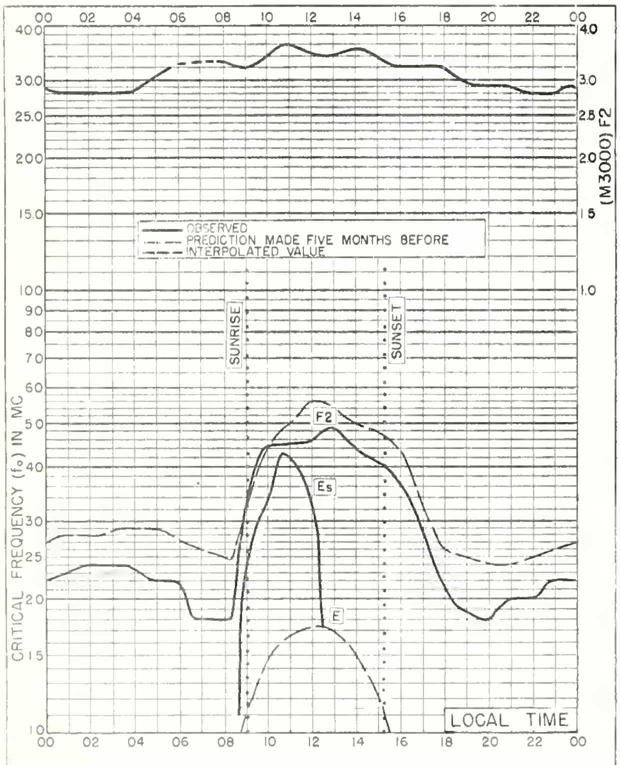


Fig. 111. PORT LOCKROY
64.8°S, 63.5°W JULY 1952

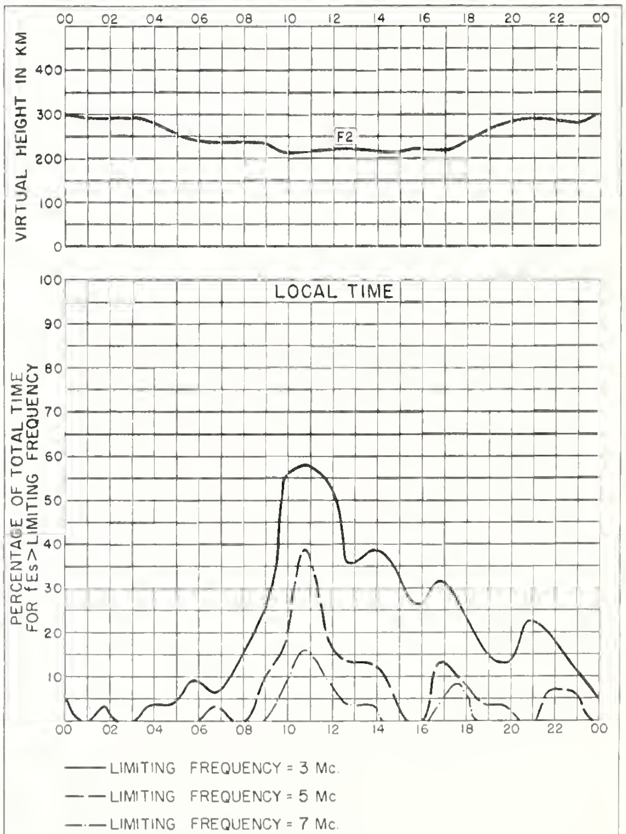


Fig. 112. PORT LOCKROY JULY 1952

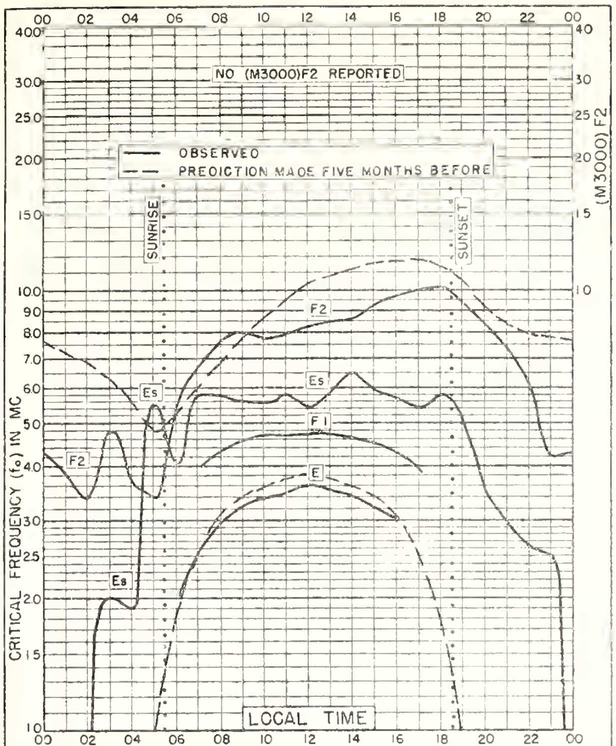


Fig. 113. KHARTOUM, SUDAN
15.6°N, 32.6°E JUNE 1952

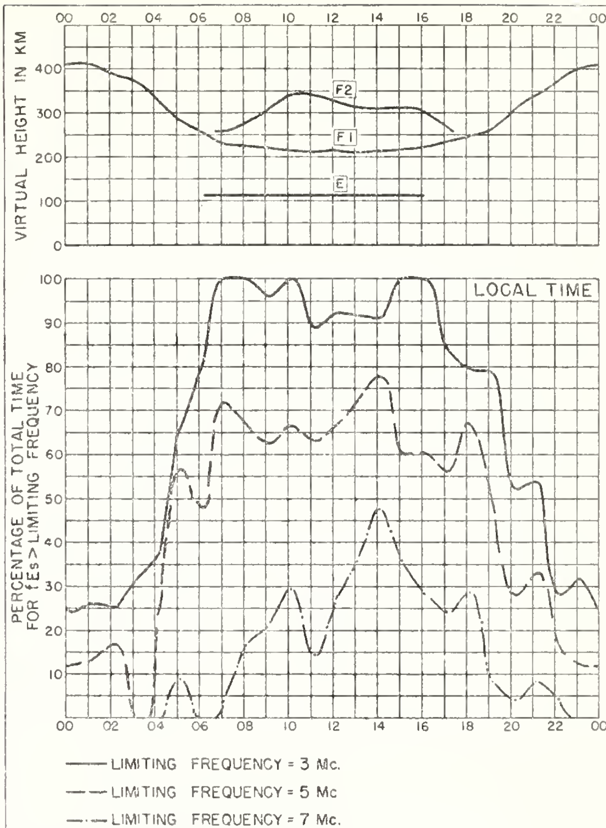


Fig. 114. KHARTOUM, SUDAN JUNE 1952

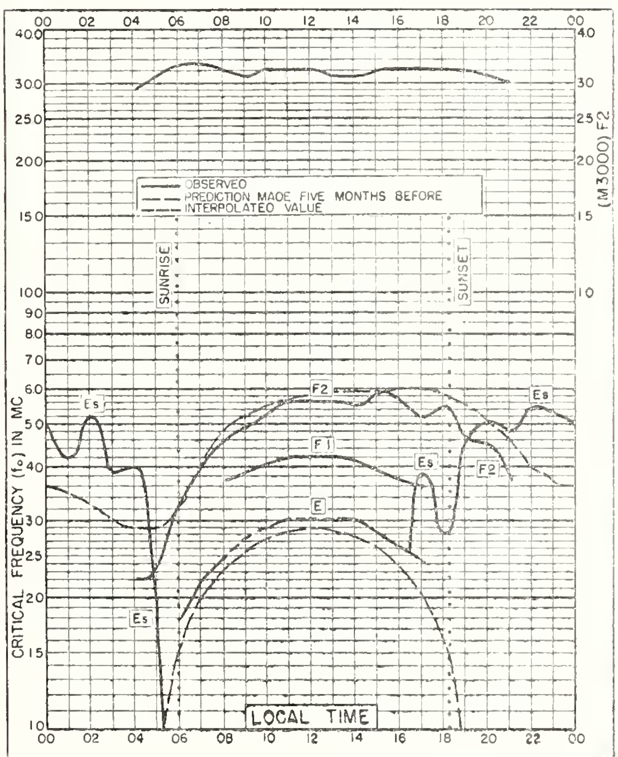


Fig. 115. MACQUARIE I.
54.5° S, 159.0°E MARCH 1952

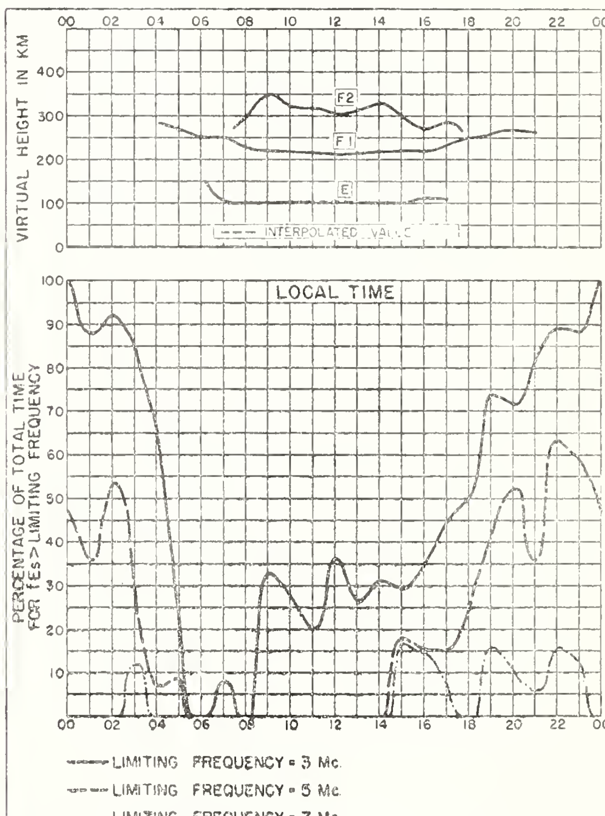


Fig. 116. MACQUARIE I. MARCH 1952

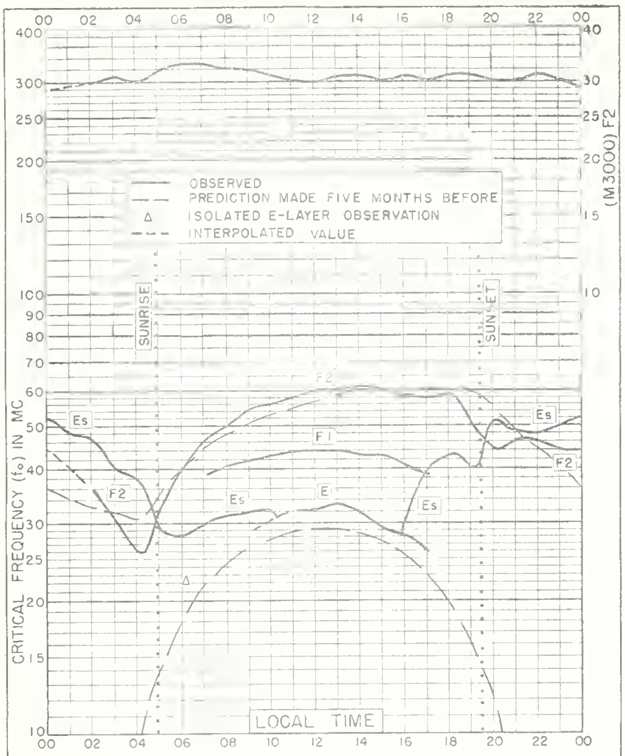


Fig. 117. MACQUARIE I.
54.5°S, 159.0°E FEBRUARY 1952

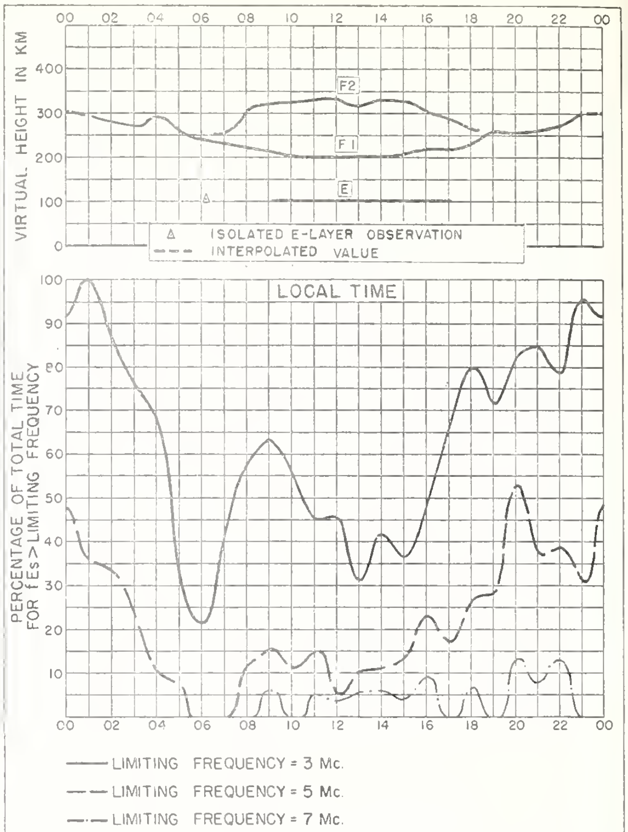


Fig. 118. MACQUARIE I. FEBRUARY 1952

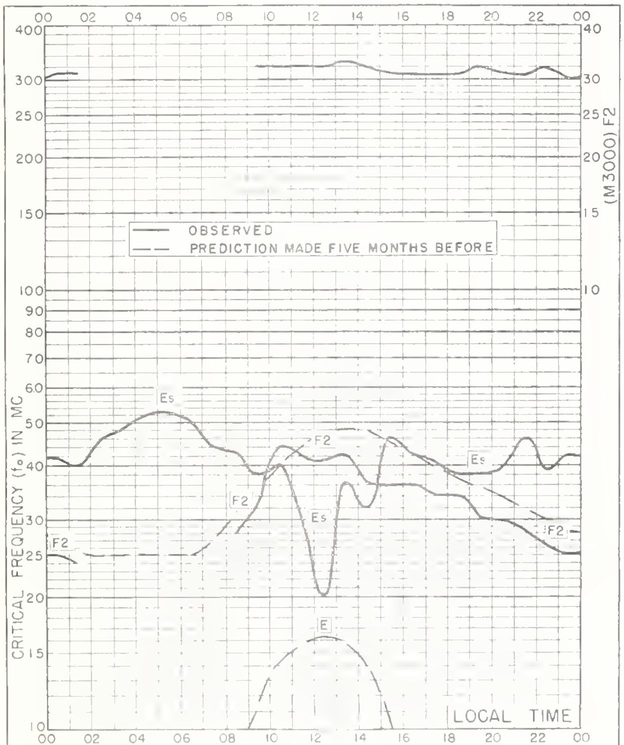


Fig. 119. GODHAVN, GREENLAND
69.2°N, 53.5°W JANUARY 1952

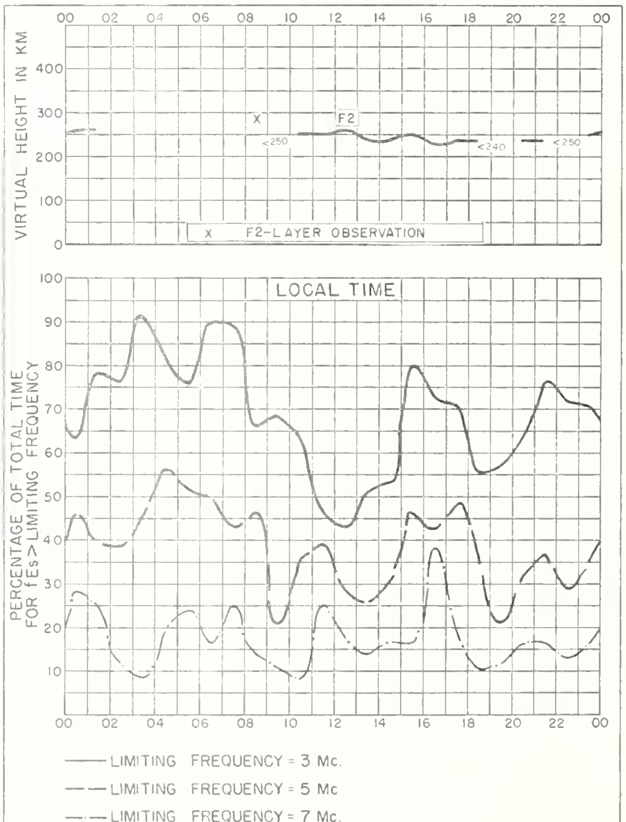


Fig. 120. GODHAVN, GREENLAND JANUARY 1952

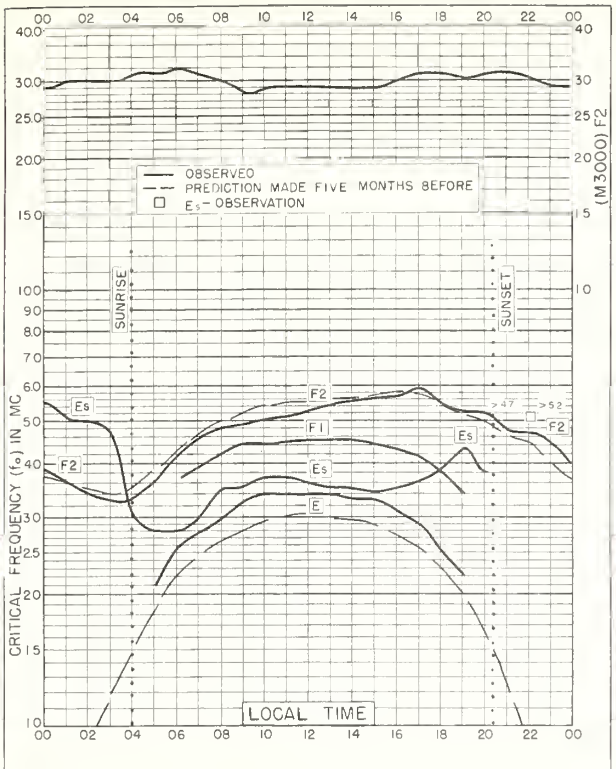


Fig. 121. MACQUARIE I. 54.5°S, 159.0°E JANUARY 1952

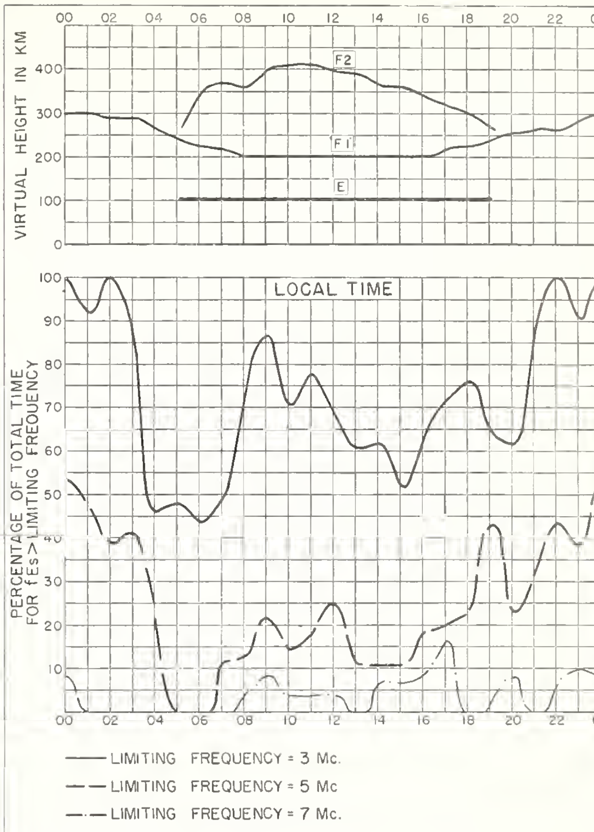


Fig. 122. MACQUARIE I. JANUARY 1952

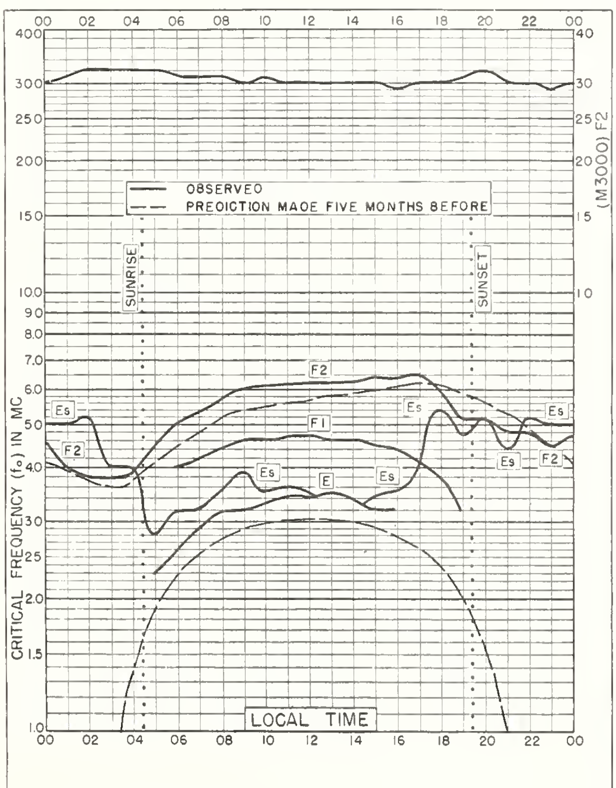


Fig. 123. MACQUARIE I. 54.5°S, 159.0°E DECEMBER 1951

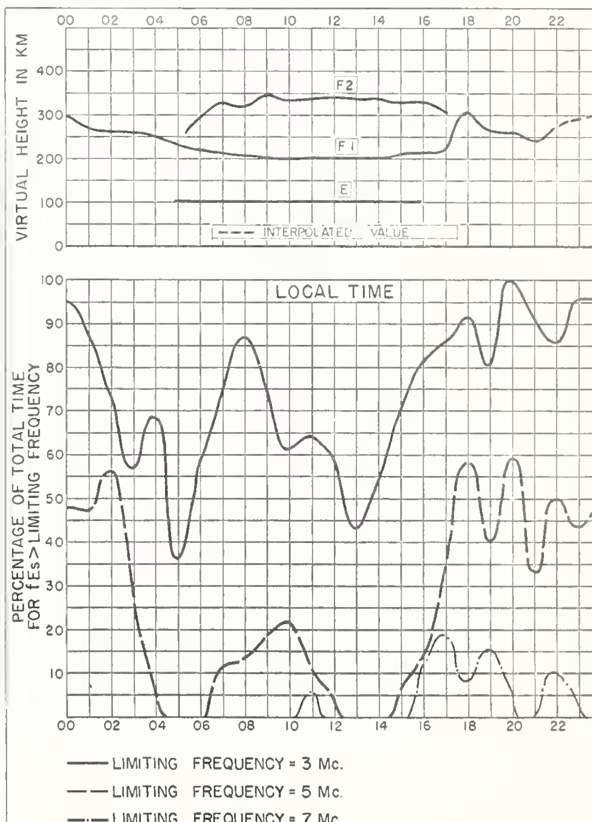


Fig. 124. MACQUARIE I. DECEMBER 1951

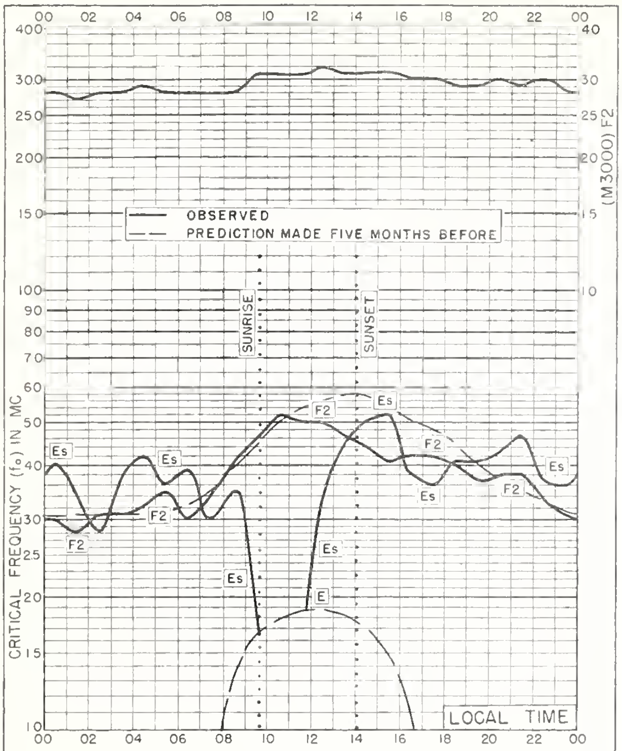


Fig.125. GODHAVN, GREENLAND
69.2°N, 53.5°W NOVEMBER 1951

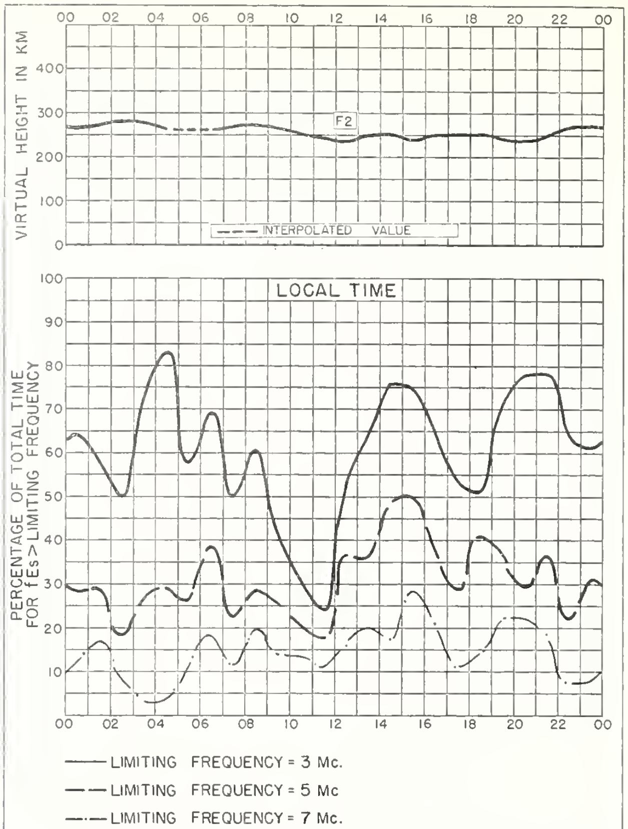


Fig.126. GODHAVN, GREENLAND NOVEMBER 1951

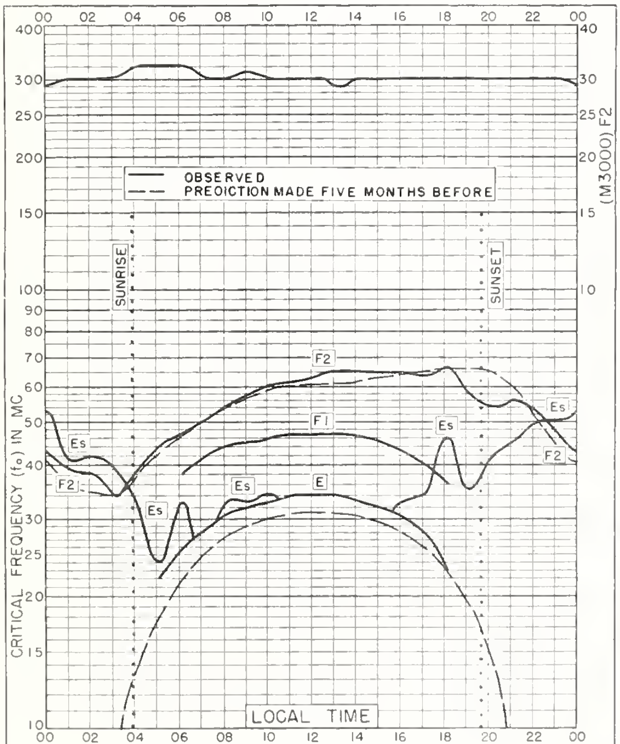


Fig 127. MACQUARIE I.
54.5°S, 159.0°E NOVEMBER 1951

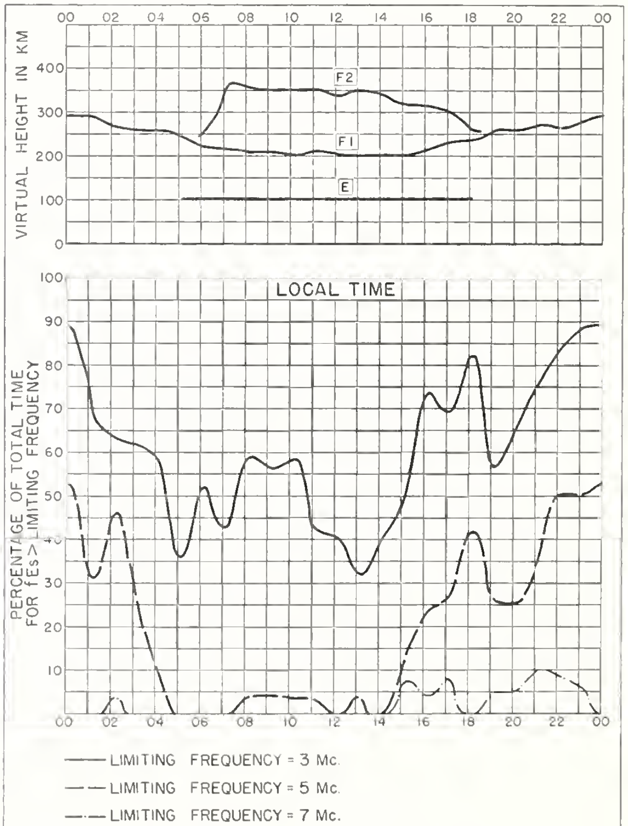


Fig. 128. MACQUARIE I. NOVEMBER 1951

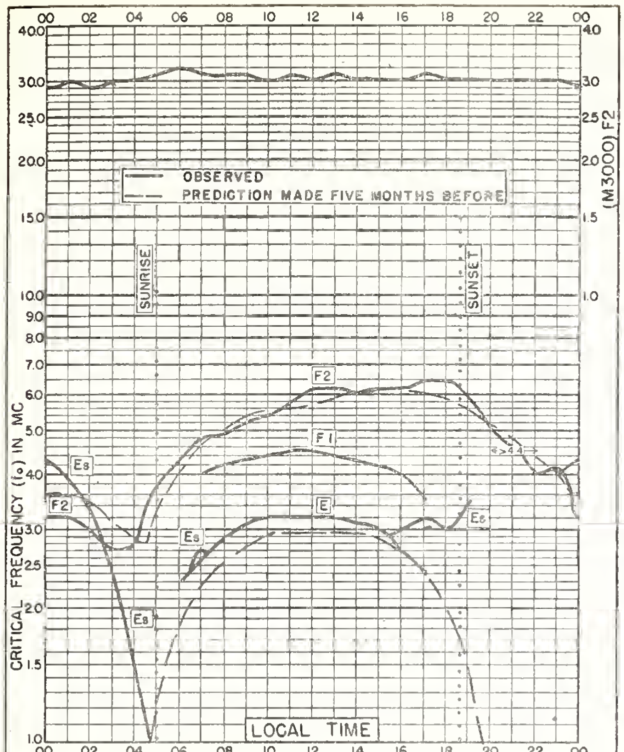


Fig.129. MACQUARIE I.
54.5°S, 159.0°E OCTOBER 1951

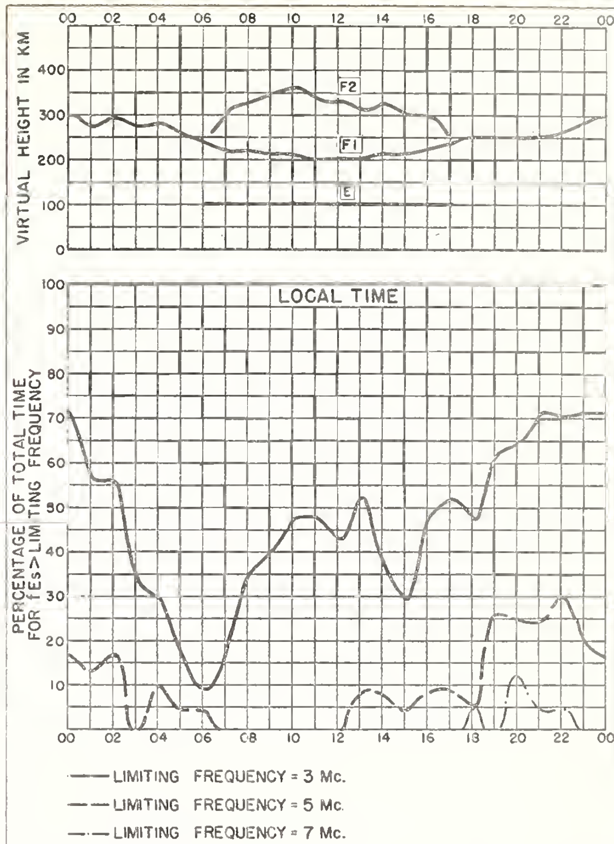


Fig.130. MACQUARIE I. OCTOBER 1951

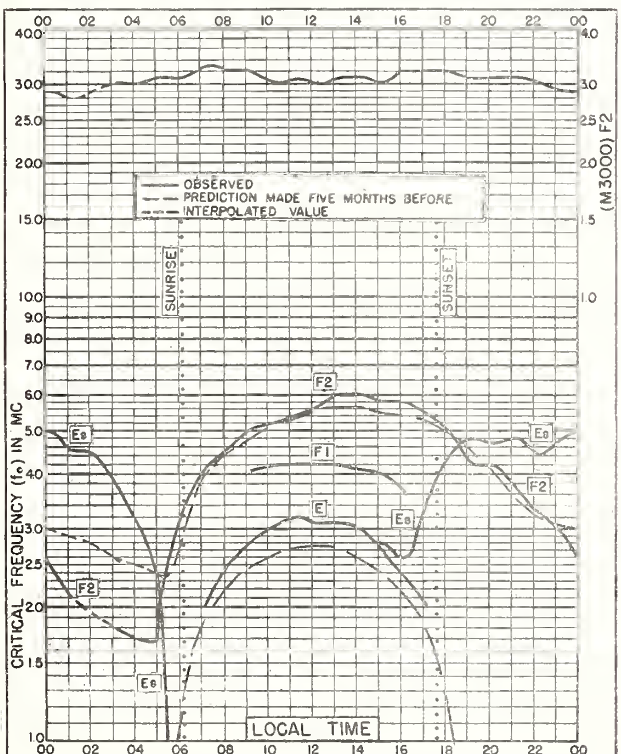


Fig.131. MACQUARIE I.
54.5° S, 159.0°E SEPTEMBER 1951

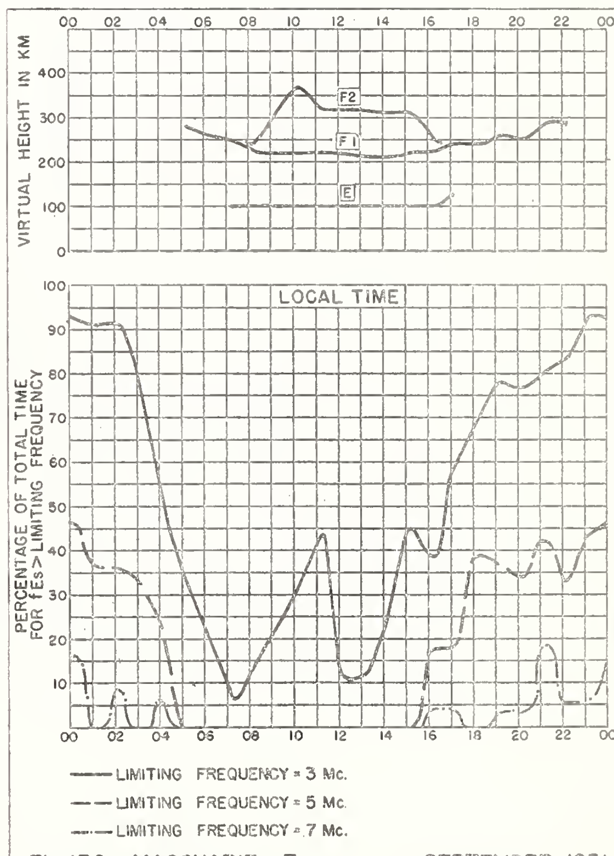


Fig.132. MACQUARIE I. SEPTEMBER 1951

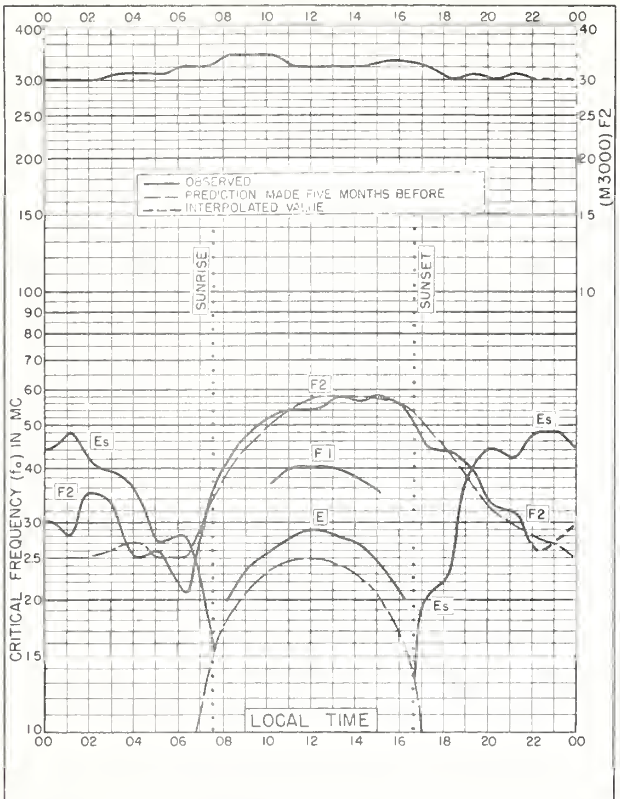


Fig. 133. MACQUARIE I.
54.5°S, 159.0°E AUGUST 1951

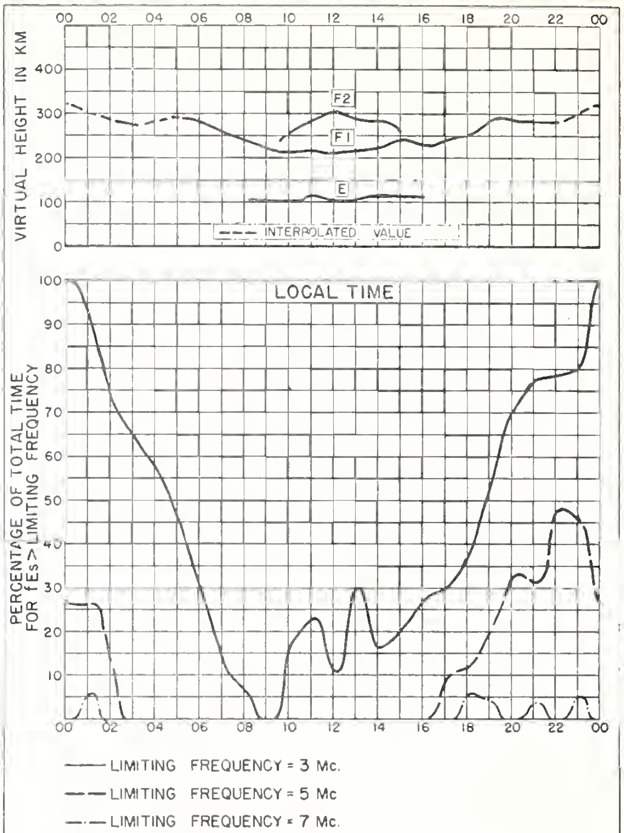


Fig. 134. MACQUARIE I. AUGUST 1951

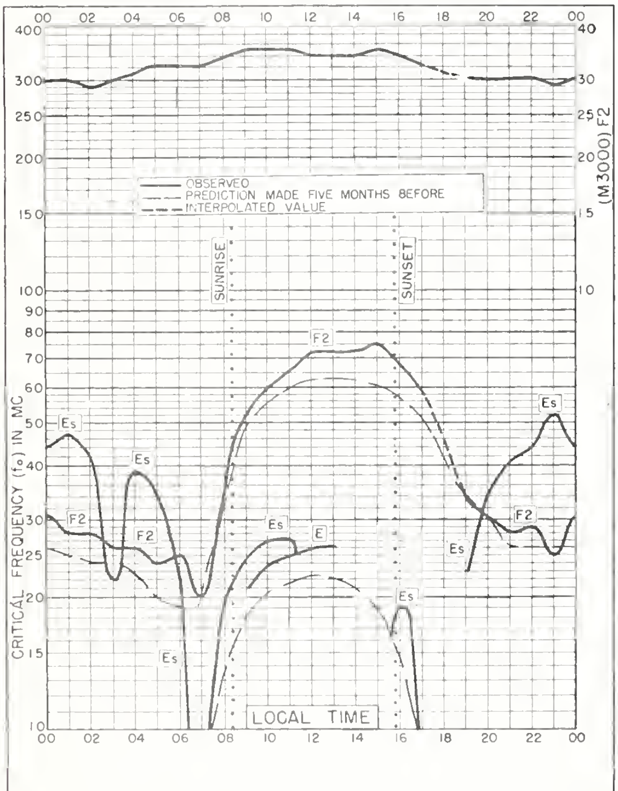


Fig 135. MACQUARIE I.
54.5°S, 159.0°E JULY 1951

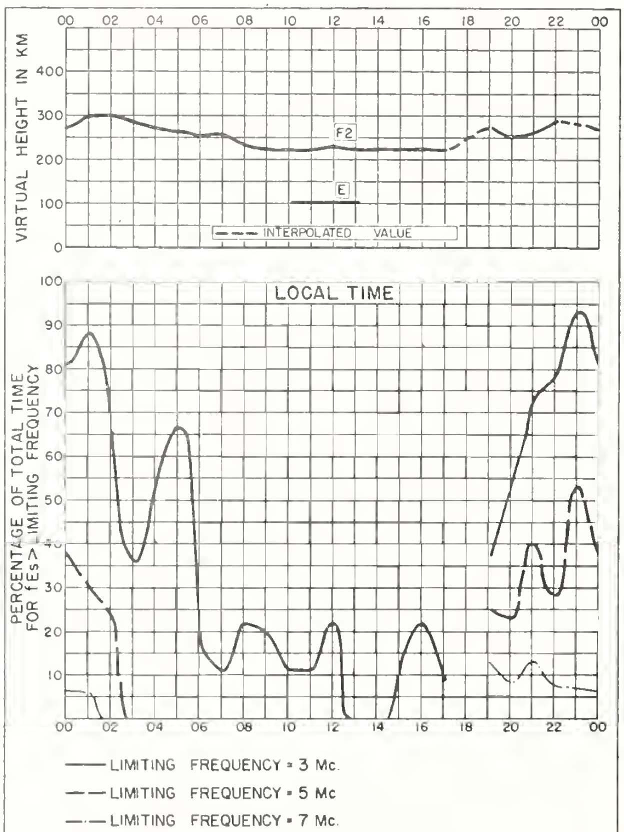


Fig 136. MACQUARIE I. JULY 1951

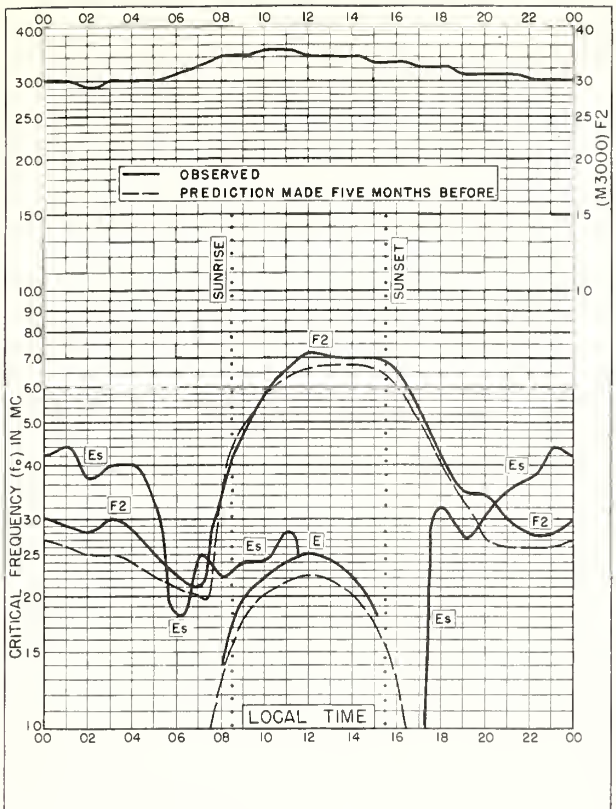


Fig. 137. MACQUARIE I.
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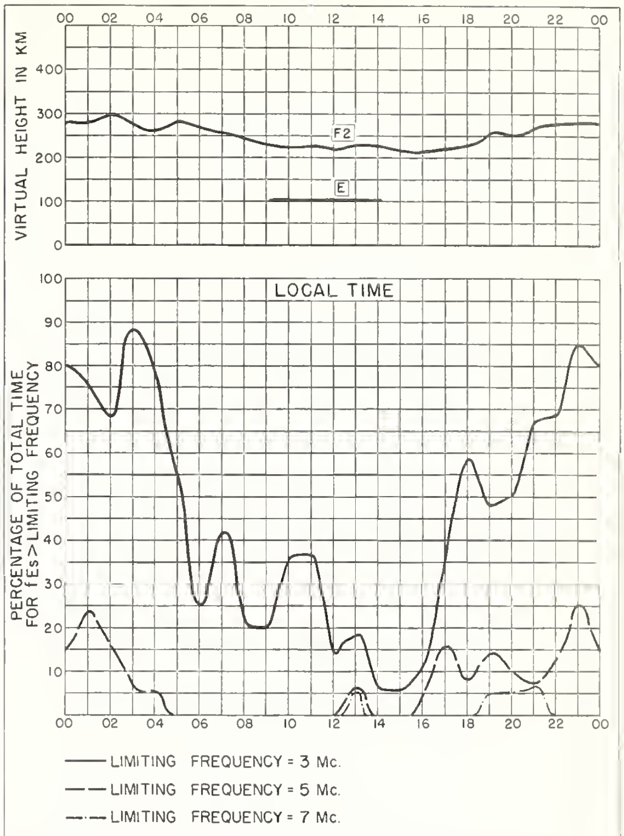

Fig. 138. MACQUARIE I. JUNE 1951

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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.)

*Items bearing this symbol are distributed only by U. S. Navy. They are issued under one cover as the DNC 14 ( ) Series.
**Out of print; information concerning cost of photostat or microfilm copies is available from CRPL upon request.