

CRPL-F 132

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IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
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CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

IONOSPHERIC DATA

CONTENTS

	<u>Page</u>
Symbols, Terminology, Conventions.	2
World-Wide Sources of Ionospheric Data	5
Hourly Ionospheric Data at Washington, D. C. . .	7, 13, 25, 55
Ionospheric Storminess at Washington, D. C. .	8, 37
Radio Propagation Quality Figures.	8, 38
Observations of the Solar Corona	9, 40
Relative Sunspot Numbers	10, 46
Observations of Solar Flares	11, 49
Indices of Geomagnetic Activity.	11, 51
Sudden Ionosphere Disturbances	12, 52
Tables of Ionospheric Data	13
Graphs of Ionospheric Data	55
Index of Tables and Graphs of Ionospheric Data in CRPL-F132	91

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, plus an additional symbol, R: "Scaling of characteristic is influenced or prevented by absorption in the neighborhood of the critical frequency," (May 1955).

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, R, 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 usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

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; the symbol D, only when it replaces a frequency characteristic.

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 f_{oF2} is less than or equal to f_{oF1} , 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 f_{oE} . Blank spaces at the beginning and end of columns of $h'F1$, f_{oF1} , $h'E$, and f_{oE} are usually the result of diurnal variation in these characteristics. Complete absence of medians of $h'F1$ and f_{oF1} 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:

<u>Month</u>	<u>Predicted Sunspot Number</u>										
	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945
December	11	15	33	53	86	108	114	126	85	38	
November	10	16	38	52	87	112	115	124	83	36	
October	10	17	43	52	90	114	116	119	81	23	
September	8	18	46	54	91	115	117	121	79	22	
August	8	18	49	57	96	111	123	122	77	.20	
July	22	8	20	51	60	101	108	125	116	73	
June	18	9	21	52	63	103	108	129	112	67	
May	16	10	22	52	68	102	108	130	109	67	
April	13	10	24	52	74	101	109	133	107	62	
March	14	11	27	52	78	103	111	133	105	51	
February	14	12	29	51	82	103	113	133	90	46	
January	12	14	30	53	85	105	112	130	88	42	

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

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

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:

Brisbane, Australia
Canberra, Australia
Hobart, Tasmania
Townsville, Australia

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

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Elisabethville, Belgian Congo
Leopoldville, Belgian Congo

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

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

Defence Research Board, Canada:

Baker Lake, Canada
Churchill, Canada
Ottawa, Canada
Resolute Bay, Canada
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University,

Taipeh, Formosa, China:
Formosa, China

Danish National Committee of URSI:

Godhavn, Greenland

Institute for Ionospheric Research, Lindau Über Northeim,

Hannover, Germany:
Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:

De Bilt, Holland

Icelandic Post and Telegraph Administration:

Reykjavik, Iceland

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

Calcutta, India

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

Akita, Japan
Tokyo (Kokubunji), Japan
Wakkai, Japan
Yamagawa, Japan

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
Nairobi, Kenya (East African Meteorological Department)

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
Ft. Monmouth, New Jersey
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Fairbanks, Alaska (Geophysical Institute of the University
of Alaska)
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, V. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

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

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during July 1955, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Tables 86a and 86b give for June 1955 the radio propagation quality figures for the North Atlantic area, the relevant CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

- (a) radio propagation quality figures, Q_a, 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_a-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 with Q_a-figures and also with estimates of radio quality based on CRPL observations only.
- (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.

These radio propagation quality figures, Q_a, 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:--Coast Guard, Navy, Army Signal Corps, and U. S. Information Agency. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality.

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 converted 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 forecasts and quality indices are prepared by the North Atlantic Radio Warning Service, the CRPL forecasting center at Ft. Belvoir, Virginia.)

These quality figures are, in effect, a consensus of reported radio propagation conditions. 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: A tabulation of forecasts for the North Pacific area and comparisons with observed radio propagation conditions will appear in a later issue.

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during July 1955, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 90 through 92 list the coronal observations obtained at

Sacramento Peak, New Mexico, during July 1955, derived by Harvard College Observatory as a part of its performance of a research contract with the Upper Air Research Observatory, Geophysical Research Directorate, Air Force Cambridge Research Center. 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.

Beginning with January 1, 1955, the Climax, Colorado, coronal measurements are reported in absolute units rather than on the arbitrary relative scale that has been used in the past. Absolute intensities are given in millionths of the intensity in one angstrom of the spectrum of the center of the solar disk at the wavelength of the coronal line. Two conversion tables from arbitrary relative to absolute units were published in CRPL-F127, March 1955. One table gave the green-line conversions to absolute units applicable for all readings made since 1943. The other table gave the red-line conversions applicable for the years 1952 to the present. For earlier years a table is available from the High Altitude Observatory, Boulder, Colorado, showing changes in red-green sensitivity. Absolute yellow-line ($\lambda 5694$) intensities may be obtained approximately by multiplying the values in the $\lambda 5303$ table by 0.75. Absolute far red ($\lambda 6702$) may be obtained approximately by multiplying the values in the $\lambda 6374$ table by 0.9.

The Sacramento Peak measurements will continue to be on an arbitrary relative scale.

Table 87 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 88 gives similarly the intensities of the first red (6374A) coronal line; and table 89, the intensities of the second red (6702A) coronal line; all observed at Climax in July 1955.

Table 90 gives the intensities of the green (5303A) coronal line; table 91, the intensities of the first red (6374A) coronal line; and table 92, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in July 1955.

The following symbols are used in tables 87 through 92; a, observation of low weight for whole limb (if in date column) or for portion of limb indicated; -, corona not visible; and X, no observation for whole limb (if in date column) or for portion of limb indicated.

RELATIVE SUNSPOT NUMBERS

Tables 93 and 94 list, respectively, the daily provisional Zurich relative sunspot number, R_Z , for June and July 1955, as communicated by the Swiss Federal Observatory. Table 95 contains the daily American relative sunspot number, R_A' , for June 1955, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 96 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 97 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, K_p; (3) daily "equivalent amplitude," A_p; (4) 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 three criteria: (1) the sum of the eight K_p's; (2) the greatest K_p; and (3) the sum of the squares of the eight K_p's.

K_p 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 K_p 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.

A_p indicates magnetic activity on a linear scale rather than the quasi-logarithmic scale of the K-indices. The column headed A_p gives the daily average for the eight values a_p per day, where a_p is defined as one-half the average gamma range of the most disturbed of the three force components, in the three-hour interval at standard stations. A_p is computed from the 8 indices K_p per day, see IATME Bulletin No. 12h (for 1953), p. VIII f. Values of A_p (like K_p and C_p) have been published for the Polar Year 1932/33 and currently since January 1937.

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. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

SUDDEN IONOSPHERE DISTURBANCES

Tables 98, 99, 100, 101, 102, and 103 list, respectively, the sudden ionosphere disturbances observed at Washington, D. C., for June 13, 1955, and July; in England for July 1955; in Australia for June and July 1955; at Riverhead, New York, for June 1955; at Enköping, Sweden, for June 1955; and at Nederhorst den Berg, Netherlands, for May and June 1955.

ERRATUM

CRPL-F131, p. 85, fig. 131: (M3000)F2 curve at 1630 should read <2.95.

Table 1

Washington, O. C., (38.7°N, 77.1°W)							July 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	260	3.9				3.9	3.1
01	280	3.6				3.8	3.0
02	270	3.4				3.7	3.05
03	270	2.9				3.7	3.1
04	290	2.5				3.1	3.1
05	260	3.0			---	<1.6	3.1
06	330	3.8	220	3.3	110	2.0	4.5
07	350	4.4	210	3.8	110	2.5	4.9
08	350	4.9	210	4.0	100	(2.9)	5.1
09	340	5.0	200	4.2	100	(3.1)	5.0
10	360	5.4	200	4.4	100	3.3	5.2
11	360	5.2	200	4.4	100	(3.4)	4.9
12	400	5.2	200	4.5	100	3.3	4.7
13	370	5.2	190	4.4	100	3.4	4.5
14	380	5.2	200	4.4	100	3.3	4.6
15	380	5.2	200	4.3	100	3.2	4.6
16	350	5.3	210	4.2	100	3.0	4.8
17	320	5.5	210	3.9	110	2.8	4.3
18	300	5.6	220	3.5	110	2.3	4.4
19	260	5.6	240	---	---	<1.6	4.1
20	240	6.0	---	---			4.3
21	240	5.6					3.6
22	250	4.8					4.2
23	270	4.3					3.1

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Fairbanks, Alaska (64.9°N, 147.9°W)							June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	270	4.0					4.6 (3.0)
01	270	4.0					4.7 3.1
02	290	4.0	---	---	---	---	4.5 3.1
03	320	4.2	240	(2.8)	---	---	5.4 3.0
04	350	4.4	220	3.2	---	(2.0)	5.6 2.95
05	360	4.5	220	3.5	---	(2.3)	6.4 3.0
06	380	4.6	220	3.6	100	2.4	6.6 2.9
07	400	4.6	200	3.7	100	2.6	6.6 2.9
08	410	4.6	200	3.9	100	2.7	5.6 2.8
09	440	4.6	200	4.0	100	2.9	6.0 2.7
10	460	4.6	200	4.0	100	2.9	4.4 2.7
11	420	4.7	210	4.1	100	3.0	4.6 2.8
12	410	4.6	200	4.1	100	(3.0)	4.0 2.9
13	430	4.6	200	4.2	100	(3.0)	3.6 2.9
14	400	4.6	200	4.1	100	(2.9)	3.2 2.9
15	410	4.6	200	4.1	100	2.8	<3.1 2.9
16	380	4.7	210	4.0	100	(2.6)	3.0 2.9
17	350	4.7	220	3.9	100	(2.5)	3.2 3.0
18	320	4.7	220	(3.7)	100	2.2	3.2 3.1
19	300	4.7	220	(3.4)	110	2.1	3.7 3.2
20	250	4.6	240	---	120	(1.8)	3.2 3.2
21	250	4.4	---	---	---	---	2.4 3.2
22	250	4.1	---	---	---	---	3.4 3.2
23	270	(3.9)					4.6 (3.2)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Oslo, Norway (60.0°N, 11.1°E)							June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	250	4.4				2.8	3.0
01	260	4.2				1.8	2.9
02	260	3.8			---	2.0	2.9
03	285	3.8	260	---	110	1.3	1.4 2.9
04	295	4.0	250	2.9	120	1.7	1.8 2.95
05	350	4.4	230	3.4	105	2.0	2.3 2.9
06	370	4.6	215	3.6	105	2.3	3.8 2.9
07	360	4.8	210	3.9	100	2.6	4.0 2.9
08	390	4.9	210	4.0	100	2.8	3.9 2.9
09	390	5.2	210	4.2	100	2.9	4.0 2.9
10	360	5.2	210	4.2	100	2.9	4.0 2.9
11	360	5.2	205	4.3	100	3.1	3.8 2.95
12	380	5.2	205	4.4	100	3.2	4.2 2.9
13	390	5.0	210	4.4	100	3.1	4.3 2.9
14	375	5.0	205	4.3	100	3.0	3.7 2.9
15	395	4.9	205	4.2	100	3.0	3.6 2.9
16	360	5.0	205	4.2	100	2.9	3.2 2.95
17	345	5.1	210	4.0	100	2.7	3.6 3.0
18	320	5.0	240	3.8	105	2.4	4.1 3.05
19	300	5.2	240	3.6	110	2.2	4.0 3.1
20	275	5.2	245	---	120	1.8	3.4 3.05
21	250	5.4	250	---	---	1.6	3.1 3.1
22	250	5.4					3.1 3.1
23	250	5.0					3.2 3.0

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W)							June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	260	(4.0)					5.4 (3.1)
01	(280)	(4.1)	240				5.2 (3.1)
02	(270)	(4.0)	(240)				5.0 (3.15)
03	(280)	(4.1)	240	(3.1)			5.6 (3.1)
04	---	(4.1)	(230)	(3.2)	120	2.0	4.4 ---
05	(370)	(4.4)	(210)	(3.4)	110	(2.0)	3.8 ---
06	(420)	(4.5)	---	(3.6)	---	---	4.3 (2.7)
07	400	(4.6)	240	3.7	---	---	4.4 (2.8)
08	(420)	(4.5)	220	3.8	100	2.6	4.7 (2.8)
09	(480)	(4.3)	220	3.9	100	2.7	4.0 (2.6)
10	520	4.4	220	3.9	100	2.8	3.2 (2.55)
11	500	4.3	200	4.0	100	2.8	3.5 (2.6)
12	440	4.5	200	4.0	100	2.9	3.2 (2.8)
13	460	4.6	220	4.0	100	(2.9)	3.2 2.8
14	(420)	4.7	200	4.0	100	2.8	2.8 2.8
15	400	4.7	210	4.0	100	2.8	2.9 2.9
16	380	4.7	220	3.9	110	2.8	2.9 2.9
17	370	4.7	220	3.8	110	2.7	3.0 3.0
18	350	4.7	(230)	(3.7)	100	2.3	<2.4 3.0
19	340	4.6	240	(3.6)	110	2.2	2.8 3.1
20	330	(4.4)	250	(3.4)	110	2.2	3.7 (3.0)
21	300	(4.1)	240	---	120	---	4.0 3.1
22	300	(4.1)	---	---	---	---	4.3 (3.1)
23	(270)	(4.3)					6.6 (3.1)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Narsarssuak, Greenland (61.2°N, 45.4°W)							June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	280	(3.3)					4.4 3.05
01	310	3.2					4.7 3.1
02	340	(3.2)					4.5 3.0
03	320	3.3					4.3 3.0
04	(310)	3.8	---	---	---	---	4.8 3.1
05	300	3.9	240	3.5	110	---	4.7 3.2
06	360	4.1	230	3.8	110	2.4	3.8 3.1
07	370	4.3	210	3.9	110	2.6	3.7 3.0
08	390	4.5	210	4.0	110	2.8	3.3 2.9
09	400	4.6	200	4.0	110	2.9	3.1 2.8
10	380	4.7	210	4.1	110	3.0	3.3 3.0
11	400	4.8	210	4.1	110	3.1	3.5 2.85
12	410	4.9	210	4.2	110	3.1	2.9 2.9
13	390	4.9	210	4.2	110	3.1	2.9 2.9
14	380	4.9	210	4.1	110	3.0	2.9 2.9
15	400	4.9	210	4.1	110	2.9	2.9 2.9
16	370	4.8	230	3.9	110	2.7	4.2 3.0
17	370	4.8	230	3.8	110	2.7	4.2 3.0
18	330	4.7	240	3.8	110	2.4	4.2 3.1
19	310	4.6	260	3.5	110	2.1	4.4 3.1
20	280	4.3	240	3.0	120	1.8	4.0 3.2
21	270	4.0	---	---	---	---	4.8 3.2
22	270	(3.6)	---	---	---	---	5.2 3.1
23	300	3.4					5.1 3.1

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Upsala, Sweden (59.8°N, 17.6°E)							June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	260	4.6					2.3 3.0
01	260	4.2					2.4 3.0
02	280	3.8					3.0 3.0
03	300	4.0	260	2.6	---	E	3.1 3.0
04	320	4.3	235	3.1	130		

Table 7

Adak, Alaska (51.9°N, 176.6°W)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	260	4.6				2.6	3.05
01	270	4.2				2.0	3.0
02	270	3.8				2.1	3.0
03	300	3.5				2.4	2.9
04	380	3.8	260	2.7	130	1.5	1.8
05	400	4.4	240	3.3	110	2.0	2.5
06	400	4.8	230	3.6	110	2.4	3.8
07	380	5.2	230	3.9	110	2.7	5.0
08	370	5.4	220	4.0	110	2.9	5.6
09	380	5.3	210	4.1	110	3.0	5.1
10	400	5.0	200	4.2	110	3.2	7.0
11	410	4.9	210	4.3	110	3.2	5.1
12	400	5.0	200	4.3	110	3.2	4.9
13	480	4.8	200	4.3	110	3.2	4.6
14	450	4.8	200	4.3	110	3.0	4.1
15	400	4.9	210	4.1	110	2.9	4.7
16	380	4.8	220	4.0	110	2.7	3.2
17	340	5.0	230	3.9	110	2.6	3.6
18	320	5.0	240	3.6	110	2.2	4.3
19	280	5.3	240	---	120	1.7	4.2
20	260	5.8					3.8
21	260	5.8					3.8
22	250	5.6					3.2
23	250	5.0					2.4
							3.1

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 9

White Sands, New Mexico (32.3°N, 106.5°W)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	260	3.9				3.6	3.0
01	270	3.8				2.8	3.0
02	<280	3.6				3.2	3.0
03	260	3.6				3.3	3.1
04	260	3.3				3.4	3.1
05	250	3.6	---	---	---	2.9	3.2
06	300	4.3	220	3.4	110	2.0	3.4
07	330	5.2	210	3.9	100	2.5	4.0
08	320	5.4	200	4.1	100	2.9	4.5
09	330	5.8	190	4.3	100	3.0	5.4
10	370	5.6	190	4.4	100	3.3	6.9
11	380	5.8	190	4.5	100	3.4	5.6
12	360	6.0	200	4.5	100	3.4	6.8
13	340	6.3	200	4.5	100	3.4	5.6
14	340	6.2	200	4.4	100	3.3	5.4
15	330	6.3	210	4.3	100	(3.1)	5.5
16	320	6.0	210	4.2	100	3.0	5.0
17	300	6.2	210	3.9	100	2.6	4.3
18	280	6.3	220	(3.4)	110	(2.2)	3.8
19	240	6.6	---	---			3.6
20	220	6.6					3.4
21	220	5.4					3.5
22	240	4.4					4.4
23	<270	4.2					4.3
							3.0

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Formosa, China (25.0°N, 121.5°E)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	280	6.8				4.3	2.9
01	260	6.4				3.3	3.2
02	240	5.4				2.9	3.35
03	240	(5.8)				3.2	(3.15)
04	240	(4.6)				3.2	(2.95)
05	280	4.3				3.0	2.9
06	240	5.8				3.8	3.1
07	260	6.3	220	4.0	110	2.7	5.5
08	280	6.5	230	4.2	100	3.1	6.6
09	310	6.4	220	4.5	100	3.2	6.7
10	340	6.8	200	4.6	100	3.3	7.6
11	360	7.8	---	---	100	3.3	7.1
12	360	8.2	---	---	---	7.4	2.8
13	340	9.1	220	4.6	100	3.3	5.6
14	340	9.5	270	4.6	100	3.2	5.6
15	320	10.2	240	4.4	100	3.2	4.8
16	280	10.6	220	4.3	---	5.4	3.1
17	250	10.5	---	---	---	6.6	3.1
18	240	9.2	---	---		5.8	3.35
19	240	8.2	---	---		5.2	3.25
20	260	7.2				3.6	3.0
21	280	6.4				3.0	3.1
22	280	6.4				3.2	2.85
23	290	6.6				3.2	2.9

Time: 120.0°E.

Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 8

Ft. Monmouth, New Jersey (40.0°N, 74.0°W)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	260	4.1					3.4
01	250	3.7					2.4
02	250	3.2					2.5
03	250	2.7					2.4
04	250	2.6					2.6
05	240	3.4	220	3.0	<130	(1.8)	2.7
06	<370	4.0	220	3.5	110	(2.3)	3.7
07	340	4.5	210	3.6	110	(2.6)	4.2
08	350	4.9	210	4.1	100	(3.0)	4.1
09	340	5.2	200	4.2	100	(3.2)	4.6
10	340	5.4	190	4.3	100	(3.3)	4.2
11	360	5.4	190	4.4	100	(3.3)	3.7
12	370	5.3	190	4.4	100	(3.4)	4.5
13	370	5.3	210	4.4	100	(3.2)	4.6
14	350	5.4	200	4.3	100	3.4	3.7
15	340	5.5	200	4.3	100	3.3	3.6
16	330	5.6	210	4.1	110	3.0	3.7
17	310	5.6	200	3.8	110	2.7	4.2
18	280	5.8	220	(3.5)	110	(2.3)	4.0
19	240	6.0	230	---	---	---	3.6
20	230	6.0					4.2
21	240	5.5					4.2
22	<260	4.8					4.2
23	260	4.4					3.1

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Okinawa I. (26.3°N, 127.8°E)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	290	(6.2)					4.4
01	260	(6.1)					4.0
02	260	(5.6)					4.5
03	250	(4.7)					3.7
04	250	(4.0)					3.6
05	270	(4.2)	---	---	---	---	3.2
06	250	(4.2)	---	---	---	---	3.8
07	250	5.2	240	---	120	2.0	4.4
08	280	5.9	230	---	110	(2.6)	5.5
09	310	6.2	220	4.3	110	(3.0)	6.6
09	300	6.3	220	4.4	110	(3.3)	7.2
10	<400	6.2	(210)	4.6	110	(3.3)	6.3
11	400	6.3	(220)	4.6	110	(3.4)	7.6
12	380	6.9	200	4.5	110	(3.4)	6.9
13	370	7.4	220	4.6	110	(3.4)	5.6
14	350	8.1	(220)	(4.4)	110	(3.3)	6.6
15	340	8.8	220	4.4	110	(3.2)	5.8
16	320	>9.0	230	4.2	110	(3.0)	5.2
17	300	>9.0	240	4.0	110	(2.6)	6.6
18	260	>8.8	240	---	---	---	5.2
19	250	(7.4)					4.8
20	260	(6.3)					4.5
21	280	(5.9)					3.9
22	300	(6.0)					3.8
23	300	6.0					4.2

Time: 127.5°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Maui, Hawaii (20.8°N, 156.5°W)							June 1955
Time	h°F2	foF2	h'F1	foF1	h°E	foE	fEs (M3000)F2
00	330	6.0					3.7
01	310	5.6					2.8
02	300	5.4					3.4
03	300	5.0					3.4
04	310	4.6					2.7
05	330	4.2					2.6
06	310	4.3	290	---	---	---	3.2
07	350	5.5	260	3.0	130	2.3	4.4
08	380	5.8	240	4.2	130	2.8	5.6
09	480	6.4	230	4.4	120	3.1	5.7
10	490	7.1	220	4.6	120	3.3	6.5
11	480	7.8	220	4.6	120	3.4	6.7
12	460	8.6	230	4.6	120	3.5	6.2
13	430	9.2	230	4.5	120	3.5	6.0
14	410	9.8	240	4.5	120		

Table 13

Puerto Rico, W. I. (18.5°N, 67.2°W)								June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	280	5.6			<2.4	3.0		
01	260	5.9			<2.5	3.1		
02	240	5.4			<1.8	3.2		
03	250	4.0			2.0	3.1		
04	270	3.6			<1.8	3.0		
05	270	3.4			<2.0	3.0		
06	260	3.8	250	---	---	2.5	3.1	
07	280	5.0	230	3.7	110	2.2	3.4	3.3
08	320	5.9	220	4.1	110	2.7	4.0	3.1
09	330	6.0	210	4.3	110	3.0	4.2	3.05
10	340	6.5	200	4.4	110	3.2	4.4	2.9
11	360	7.3	200	4.5	110	3.4	4.0	2.8
12	350	8.3	210	4.5	110	3.5	4.0	2.8
13	340	9.2	210	4.5	110	3.5	4.0	2.9
14	310	9.2	210	4.5	110	3.4	3.8	2.9
15	310	9.1	220	4.4	110	3.3	4.0	3.0
16	310	8.8	230	4.2	110	3.1	4.4	3.0
17	280	9.0	220	4.0	110	2.7	4.3	3.1
18	260	8.4	230	---	120	2.2	4.0	3.1
19	240	7.9				3.4	3.2	
20	240	6.8				3.8	3.1	
21	260	6.5				3.2	3.0	
22	270	6.0				3.2	2.9	
23	280	5.6				2.3	3.0	

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15

Panama Canal Zone (9.4°N, 79.9°W)								June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	240	6.0				1.7	3.2	
01	240	5.2				1.8	3.1	
02	260	4.9				2.2	3.1	
03	260	4.4				2.0	3.1	
04	250	4.2				1.7	3.1	
05	250	4.0				2.7	3.15	
06	250	4.1	---	---		3.6	3.3	
07	240	5.0	220	3.9	120	2.2	3.8	3.35
08	310	5.5	210	4.2	110	(2.7)	3.7	3.1
09	380	6.0	200	4.4	110	3.1	3.6	2.7
10	400	7.2	200	4.4	110	3.3	4.4	2.6
11	400	7.8	200	4.5	110	3.4	4.3	2.7
12	390	8.6	200	4.5	110	3.5	4.4	2.7
13	380	9.4	200	4.5	110	3.5	4.6	2.8
14	360	10.0	200	4.4	110	3.4	4.8	2.8
15	340	10.4	220	4.3	110	3.2	4.6	2.9
16	320	10.6	210	4.2	110	3.0	4.4	3.0
17	290	10.4	220	4.0	110	2.5	4.2	3.1
18	260	9.8	230	(3.4)	---	3.5	3.2	
19	230	9.1				3.2	3.2	
20	240	7.7				2.7	3.0	
21	260	6.7				2.2	3.0	
22	270	6.4				1.8	3.0	
23	260	6.4			<1.7		3.1	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Point Barrow, Alaska (71.3°N, 156.8°W)								May 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(280)	(3.7)			---	---	4.8	(3.0)
01	(280)	(3.7)	---	---	---	6.2	(3.0)	
02	280	(3.0)	---	---	---	4.4	(3.0)	
03	(290)	(3.8)	---	---	---	4.3	(3.1)	
04	(300)	(3.8)	250	(3.0)	120	1.9	3.6	(3.0)
05	(380)	(4.0)	(240)	(3.2)	120	(2.0)	3.8	(3.1)
06	(390)	(4.2)	(240)	(3.3)	---	3.9	(2.8)	
07	400	(4.3)	250	(3.6)	110	(2.2)	4.3	(2.9)
08	400	(4.2)	(260)	3.7	110	2.5	4.2	(2.9)
09	400	4.3	230	3.7	110	2.6	4.0	2.9
10	450	(4.3)	220	3.8	110	2.6	3.5	(2.75)
11	430	4.4	220	3.8	110	2.8	3.2	2.7
12	420	4.4	220	3.9	110	2.8	3.2	2.8
13	400	4.6	210	3.9	110	2.8	2.9	2.9
14	420	4.6	220	3.9	110	(2.7)	2.8	
15	390	4.6	220	3.8	110	2.6	2.95	
16	360	4.6	220	3.8	110	2.5	3.0	
17	360	4.6	230	3.6	110	2.4	3.0	
18	360	4.4	240	(3.5)	120	2.2	2.9	3.0
19	310	4.6	240	(3.3)	120	2.0	3.8	3.05
20	(290)	(4.2)	(240)	3.1	120	1.8	3.6	(3.1)
21	280	(4.0)	---	---	120	1.5	4.0	(3.1)
22	300	(3.9)	---	---	E	4.2	(3.1)	
23	280	(3.6)	---	---	3.9	(3.2)		

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Guam I., (13.6°N, 144.9°E)								June 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	340	4.0						2.5
01	330	3.7						2.0
02	320	3.4						2.9
03	320	3.4						1.5
04	280	3.4						3.0
05	260	3.2						1.7
06	250	4.4	---	---	---	---		2.1
07	250	5.9	220	---	110	2.2	3.0	3.4
08	290	6.5	210	---	110	(2.8)	3.8	3.1
09	340	6.8	200	4.4	110	(3.0)	4.6	2.9
10	380	6.8	200	4.5	110	(3.2)	4.4	2.65
11	420	7.3	200	4.5	110	(3.3)	4.4	2.5
12	420	7.6	210	4.5	110	3.4	4.8	2.5
13	400	8.2	220	4.5	110	(3.4)	4.1	2.6
14	400	8.4	210	4.4	110	(3.4)	4.6	2.65
15	390	8.6	210	4.4	110	3.2	5.0	2.7
16	370	9.0	220	4.2	110	3.0	5.0	2.7
17	340	9.2	230	---	110	2.6	4.7	2.8
18	300	9.3	---	---				4.8
19	260	9.0						4.8
20	260	8.0						4.5
21	280	6.6						3.3
22	310	5.2						2.8
23	340	4.3						2.8

Time: 150.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds

Table 16

Resolute Bay, Canada (74.7°N, 94.9°W)								May 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	250	4.2	230	---	110	1.5	2.3	3.2
01	250	4.2	230	---	110	1.5	3.2	
02	260	4.2	230	2.9	110	1.7	3.2	
03	270	3.9	230	3.0	105	1.8	3.15	
04	300	4.0	230	3.1	105	2.0	3.1	
05	310	4.0	220	3.2	105	2.1	3.05	
06	330	4.1	220	3.3	105	2.2	3.4	3.1
07	370	4.2	220	3.5	100	2.4	3.8	3.0
08	380	4.3	220	3.5	100	2.5	3.3	2.9
09	380	4.3	220	3.6	100	2.7	4.0	2.9
10	400	4.3	210	3.7	100	2.7	4.0	2.8
11	380	4.5	210	3.8	100	2.8	4.0	2.9
12	400	4.5	210	3.8	100	2.8	3.0	2.9
13	345	4.8	220	3.8	100	2.6	2.9	3.1
14	360	5.1	210	3.9	105	2.7	3.0	3.0
15	350	5.2	210	4.0	100	2.8	3.1	3.05
16	355	5.1	205	4.0	105	2.8	3.0	3.1
17	350	5.1	210	4.0	105	2.8	3.2	3.1
18	345	5.0	205	4.1	110	2.8	3.2	3.1
19	340	4.8	205	4.0	105	2.8	3.1	3.1
20	360	4.8	205	4.0	100	2.8	3.1	3.1
21	350	5.1	215	3.0	105	2.4	>3.1	3.2
22	(290)	5.1	225	3.6	105	2.3	3.2	3.2
23	(270)	(4.6)	235	---	105	2.1	3.1	(3.2)

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds

Table 18

Tromso, Norway (69.7°N, 19.0°E)								May 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2

Table 19

Baker Lake, Canada (64.3°N, 96.0°W)							May 1955	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	240	4.1			120	1.0	4.6	3.1
01	240	3.8			110	1.0	4.7	3.1
02	240	3.7	---	---	110	1.2	4.3	3.1
03	250	3.3	---	---	105	1.5	4.2	3.1
04	260	3.5	230	2.5	105	1.8	4.1	3.1
05	290	3.8	230	3.1	105	2.0	4.1	3.1
06	340	4.0	220	3.4	105	2.3	4.3	3.0
07	370	4.2	200	3.7	100	2.7	5.2	3.0
08	400	4.3	200	3.9	100	2.9	5.8	2.8
09	420	4.4	210	3.9	100	3.1	6.0	2.7
10	420	4.6	220	4.0	100	3.3	6.0	2.75
11	400	4.7	230	4.1	100	3.3	5.2	2.9
12	400	4.8	220	4.1	100	3.2	5.2	2.85
13	400	4.7	210	4.1	100	3.2	4.6	2.9
14	380	5.0	210	4.0	100	3.0	3.8	2.9
15	370	5.1	210	4.0	100	3.0	5.0	2.9
16	350	5.1	220	4.0	100	3.0	5.0	2.9
17	350	5.1	220	4.0	100	2.9	4.2	2.9
18	310	5.0	220	3.7	100	2.7	4.9	3.1
19	280	4.8	220	3.4	105	2.3	5.0	3.1
20	270	4.6	240	3.1	105	2.0	7.0	3.1
21	250	4.5	250	---	105	1.8	6.8	3.1
22	240	4.2	---	---	105	1.5	6.0	3.1
23	250	4.3			110	1.3	6.0	3.1

Time: 90.0°W.

Sweep: 0.6 Mc to 10.0 Mc in 16 seconds.

Table 21

Anchorage, Alaska (61.2°N, 149.9°W)							May 1955	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	260	3.0				2.3	2.9	
01	290	3.0				1.7	2.85	
02	290	2.7				1.3	2.8	
03	300	3.0	---	---	E	1.4	2.9	
04	330	3.4	260	2.9	130	1.5	2.0	2.8
05	380	3.9	240	3.2	120	1.8	2.2	2.7
06	400	4.3	230	3.4	110	2.1	<2.4	2.7
07	400	4.4	220	3.6	110	2.3	2.8	2.7
08	470	4.4	220	3.8	110	2.6	2.8	2.6
09	440	4.5	210	3.8	110	2.7	3.0	2.7
10	420	4.6	210	4.0	110	(2.8)	3.0	2.8
11	400	4.7	210	4.0	110	(2.9)	3.1	2.8
12	420	4.7	210	4.0	110	(3.0)	<3.1	2.8
13	400	4.7	210	4.0	110	(2.9)	3.0	2.85
14	400	4.7	210	4.0	110	2.8		2.9
15	380	4.6	220	4.0	110	(2.7)	3.0	2.9
16	380	4.6	220	3.8	110	(2.6)		2.8
17	360	4.5	230	3.7	110	2.3		2.9
18	320	4.5	240	(3.4)	110	2.1	2.3	3.0
19	290	4.6	250	---	120	1.8	2.6	3.05
20	260	4.6	250	---	130	1.4	2.7	3.1
21	250	4.6				2.4	3.1	
22	250	4.5				1.7	3.0	
23	250	4.2				2.0	3.0	

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

De Bilt, Holland (52.1°N, 5.2°E)							May 1955	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	260	4.1					2.9	
01	250	3.7					2.9	
02	260	3.6					2.9	
03	260	3.4					2.95	
04	250	3.5	---	---			3.0	
05	250	4.1	225	3.4	105	2.0	2.2	3.1
06	340	4.5	225	3.8	100	2.3	2.8	3.1
07	300	5.0	210	4.0	100	2.7	3.2	3.15
08	315	5.2	200	4.1	100	2.9	3.3	3.2
09	300	5.5	200	4.3	100	3.1	3.6	3.2
10	325	5.5	200	4.4	100	3.1	4.0	3.2
11	310	5.6	200	4.4	100	3.2	3.8	3.1
12	320	5.5	200	4.5	100	3.2	3.8	3.1
13	350	5.6	200	4.4	100	3.2	3.6	3.05
14	320	5.5	200	4.4	100	3.1	3.4	3.1
15	320	5.4	200	4.2	100	3.0	3.6	3.1
16	300	5.7	225	4.0	100	2.8	3.5	3.1
17	290	5.7	225	3.8	100	2.5	3.2	3.1
18	270	5.8	225	3.2	105	2.1	3.1	3.1
19	250	6.2	---	---			2.2	3.1
20	225	6.3					3.1	
21	225	6.2					3.0	
22	250	5.3					3.0	
23	250	4.7					2.9	

Time: 0.0°.

Sweep: 0.8 Mc to 20.0 Mc in 20 seconds.

Table 20

Reykjavik, Iceland (64.1°N, 21.8°W)							May 1955	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(260)						3.8	---
01	290	(3.3)					4.0	(3.0)
02	280	(3.4)					4.0	(2.95)
03	280	3.2					3.7	3.0
04	300	3.6	---	---	120	1.4	<3.1	3.1
05	280	3.7	240	---	110	---		3.1
06	360	4.0	230	3.6	110	---		3.05
07	370	4.2	220	3.7	100	2.4		3.1
08	330	4.4	220	3.8	100	(2.7)		3.0
10	350	4.9	200	4.0	110	---		3.1
11	360	4.9	200	4.0	100	---		3.1
12	350	4.9	200	4.1	110	---		3.1
13	360	4.9	210	4.1	100	---		3.0
14	380	4.9	200	4.1	100	---		2.9
15	370	4.9	210	4.0	100	---		3.0
16	350	4.9	220	4.0	110	(2.7)		3.0
17	320	4.7	220	3.8	110	2.6		3.1
18	320	4.7	220	3.8	110	2.4	<2.9	3.1
19	300	4.8	240	---	110	---	3.6	3.1
20	280	4.4	240	---	110	2.6	3.6	3.1
21	300	(4.1)	---	---	---	---	3.3	3.1
22	280	(4.0)	---	---	---	---	3.6	3.1
23	300	(4.0)	---	---	300	4.2	4.2	---

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 21

Anchorage, Alaska (61.2°N, 149.9°W)							May 1955	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	280	3.8					7.0	---
01	270	3.8					6.0	---
02	300	3.5					5.0	---
03	300	3.1					4.8	---
04	290	3.3					4.7	(3.05)
05	300	3.7	260	3.4	120	2.2	5.0	(3.2)
06	370	4.0	230	3.7	110	2.4	5.1	(2.9)
07	420	4.2	230	3.8	105	2.8	5.6	2.8
08	420	4.3	220	3.9	105	2.9	6.0	2.85
09	420	4.4	210	4.0	110	3.0	5.8	2.9
10	400	4.7	210	4.0	110	3.0	5.0	2.85
11	400	4.8	200	4.0	110	3.0	5.3	2.9
12	380	4.9	200	4.0	105	3.1	5.0	2.9
13	400	4.9	200	4.1	105	3.1	5.0	2.9
14	400	4.9	200	4.0	110	3.1	5.0	2.9
15	380	5.0	210	4.0	110	3.0	5.0	3.0
16	350	5.0	220	4.0	110	3.0	5.0	3.0
17	330	5.1	230	3.9	105	2.8	4.5	3.0
18	320	4.8	240	3.7	110	2.7	4.2	3.0
19	300	4.6	250	3.2	110	2.6	4.4	3.1
20	300	4.5	200	4.2	100	3.1	4.4	3.1
21	320	4.2	210	4.2	100	3.0	3.9	3.1
22	310	5.4	215	4.1	100	2.8	3.8	3.1
23	300	5.6	220	3.9	100	2.6	4.1	3.1

Time: 90.0°W.

Sweep: 0.6 Mc to 10.0 Mc in 16 seconds.

Table 23

De Bilt, Holland (52.1°N, 5.2°E)							May 1955
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Table 25

Winnipeg, Canada (49.9°N, 97.4°W)								May 1955
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.8				3.2	3.0	
01	300	2.6				3.0	3.0	
02	320	2.4				3.4	2.9	
03	300	2.4				3.2	3.0	
04	300	2.4				3.2	3.0	
05	260	3.0				2.1	3.1	
06	240	3.6	220	3.8	120	2.1	3.1	
07	400	4.0	220	3.7	120	2.6	3.0	
08	420	4.4	210	3.9	110	2.8	3.2	2.9
09	410	4.6	200	4.0	110	3.0		2.9
10	420	4.7	210	4.1	110	3.1	3.2	2.85
11	390	4.9	200	4.2	110	3.2	3.3	3.0
12	380	5.1	200	4.2	110	3.2	3.4	3.0
13	380	5.0	200	4.2	110	3.2	3.4	3.0
14	390	5.0	210	4.3	110	3.2	3.2	2.9
15	360	5.0	210	4.1	110	3.1	3.1	3.0
16	360	5.0	220	4.0	110	3.0		3.0
17	340	5.0	220	3.9	110	2.8		3.0
18	310	5.0	230	3.8	115	2.5		3.1
19	280	5.0	240	3.1	130	2.1		3.2
20	250	5.0				2.2	3.1	
21	250	5.0				3.3	3.1	
22	250	4.0					3.2	
23	280	3.2				3.0	3.0	

Time: 90.0°W.

Sweep: 1.0 Mc to 10.0 Mc in 16 seconds.

Table 27

Ottawa, Canada (45.4°N, 75.9°W)								May 1955
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.5				2.2	3.0	
01	300	2.3					3.0	
02	310	2.1					2.9	
03	320	2.0				1.6	(3.0)	
04	300	2.1					3.0	
05	250	3.0				---	3.3	
06	270	3.9	230	3.4	110	2.2	3.2	
07	360	4.3	220	3.8	110	2.6	3.1	
08	360	4.8	220	4.0	105	2.9	3.0	
09	380	4.9	210	4.1	105	3.2	3.3	3.0
10	390	5.0	200	4.2	105	3.3	3.5	3.0
11	380	5.1	210	4.2	105	3.4	3.5	3.0
12	400	5.1	200	4.3	105	3.5	3.5	2.95
13	400	5.1	210	4.2	105	3.4	3.5	3.0
14	390	5.3	220	4.2	105	3.4	3.4	2.9
15	360	5.2	220	4.2	105	3.2	3.2	3.0
16	350	5.2	220	4.0	110	3.0		3.0
17	320	5.4	230	3.8	110	2.6		3.0
18	290	5.5	240	3.3	115	2.1		3.0
19	260	5.8	250	---	140	1.9	2.5	3.1
20	240	5.7				2.0		3.1
21	240	5.0					3.1	
22	250	4.0					3.0	
23	270	3.0				2.4	3.0	

Time: 75.0°W.

Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 29

San Francisco, California (37.4°N, 122.2°W)								May 1955
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	(3.7)				(3.2)	(2.9)	
01	(290)	(3.7)				(3.0)	(2.9)	
02	(280)	(3.6)				(2.6)	(2.9)	
03	(260)	(3.3)				(2.3)	(3.0)	
04	(270)	(3.2)				(2.0)	(3.0)	
05	(260)	(3.3)	(260)	---	---	<1.7	3.15	
06	280	(4.2)	(220)	(3.5)	(120)	(2.2)	<2.6	(3.1)
07	330	5.0	(220)	(3.8)	---	3.7	3.1	
08	320	5.3	(210)	(4.1)	---	(4.4)	3.1	
09	340	5.8	(200)	(4.2)	---	4.6	3.0	
10	340	5.7	(210)	(4.4)	---	(4.8)	3.0	
11	350	5.9	(200)	(4.4)	---	(4.7)	3.0	
12	360	6.3	(200)	(4.4)	---	4.9	3.0	
13	350	6.1	(200)	(4.4)	---	4.9	3.0	
14	340	6.2	(210)	(4.3)	---	4.7	3.0	
15	340	5.8	(220)	(4.3)	---	(4.5)	3.0	
16	330	5.7	(220)	(4.2)	---	4.1	3.1	
17	310	5.6	(220)	(3.8)	---	3.9	3.1	
18	270	5.7	(230)	---	---	3.4	3.2	
19	240	6.0	---	---	---	<3.1	3.2	
20	(230)	(6.0)				<3.1	(3.2)	
21	(220)	(4.9)				(3.2)	(3.2)	
22	(250)	(4.2)				<3.0	(3.0)	
23	(260)	(3.7)				(3.4)	(3.0)	

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 26

Schwarzenburg, Switzerland (46.8°N, 7.3°E)								May 1955
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.1						3.4
01	260	3.9						3.4
02	250	3.8						3.4
03	260	3.6						3.4
04	250	3.4						3.4
05	250	3.6						3.4
06	200	4.2	---	---	---	---	---	3.65
07	240	5.0	200	3.7	100	2.3		3.7
08	300	5.2	200	3.9	100	2.7		3.5
09	300	5.6	200	4.1	100	2.9		3.55
10	300	5.8	200	4.2	100	3.0		3.6
11	300	5.8	200	4.4	100	3.2		3.5
12	300	5.6	200	4.4	100	3.2		3.5
13	300	5.6	200	4.4	100	3.2		3.3
14	300	5.6	200	4.3	100	3.2		3.4
15	300	5.8	200	4.3	100	3.0		3.4
16	300	5.7	200	4.2	100	3.0		3.4
17	300	6.0	200	4.0	100	2.6		3.4
18	(260)	(5.7)	---	---	100	2.4		(3.5)
19	240	5.6			100	2.0		3.6
20	230	5.7						3.55
21	200	5.4						3.75
22	220	4.4						3.8
23	220	4.2						3.75

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 28

Ft. Monmouth, New Jersey (40.0°N, 74.0°W)								May 1955
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.1						3.1
01	260	2.8						3.0
02	<260	2.6						3.1
03	260	2.4						3.1
04	---	2.3						3.2
05	250	3.2	230	---	---	---	---	3.4
06	270	4.2	220	3.5	110	(2.2)	3.2	3.4
07	320	4.5	210	3.8	110	2.5	3.2	3.2
08	310	5.0	200	4.0	110	(2.8)	4.0	3.3
09	320	5.0	200	4.2	110	(3.0)	3.7	3.25
10	330	5.3	190	4.3	110	(3.2)	4.5	3.2
11	370	5.4	190	4.4	110	(3.3)	3.9	6.0
12	370	5.4	200	4.4	110	(3.3)	3.9	6.0
13	350	5.6	200	4.3	110	3.3	3.6	3.0
14	340	5.6	210	4.3	100	3.2	3.6	3.05
15	320	5.5	210	4.2	110	3.0	3.7	3.1
16	310	5.7	210	4.0	110	2.8	3.5	3.1
17	290	5.7	210	3.7	110	(2.5)	2.9	3.2
18	270	5.9	230	(3.2)	110	(2.1)	3.8	3.2
19	240	6.3						2.2
20	220	5.9						2.0
21	230	5.2						1.8
22	240	4.3						1.8
23	250	3.7						1.9

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 30

Leopoldville, Belgian Congo (4.4°S, 15.2°E)								May 1955
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M2000)F2
00	225	3.8						2.5
01	220	4.0						2.55
02	230	3.0						2.5
03	240	2.6						2.6
04	250	1.9						2.45
05	250	3.6	---	---	---	---		2.65
06	250	6.0	230	---</				

Table 31

Elisabethville, Belgian Congo (11.6°S, 27.5°E)								May 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	260	2.6						2.4
01	250	2.5						2.6
02	250	2.2						2.5
03	260	2.1					2.8	2.5
04	250	2.6						2.4
05	230	5.4	<230	---	125	1.8	2.5	2.8
06	250	6.1	220	---	115	2.6	2.8	2.7
07	270	6.8	215	4.1	110	3.0	3.8	2.6
08	270	7.0	210	4.2	110	3.1	3.5	2.6
09	290	6.8	230	4.4	110	3.2	3.2	2.5
10	290	7.6	250	4.3	110	3.3	3.7	2.5
11	295	7.3	230	4.3	110	3.2	3.8	2.4
12	280	7.1	230	4.2	110	3.1	3.6	2.5
13	280	6.6	240	4.0	110	3.0	3.7	2.5
14	270	6.3	240	---	115	2.7	4.0	2.45
15	250	6.5	240	---	120	2.1	3.3	2.6
16	225	6.1					3.0	2.7
17	220	4.8					3.0	2.8
18	220	3.2					2.6	2.8
19	240	2.5					2.8	2.5
20	270	2.6						2.3
21	260	2.6						2.4
22	260	2.6						2.45
23	270	2.5						2.4

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 33

Point Barrow, Alaska (71.3°N, 156.8°W)								April 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(300)	(3.1)					6.3	(3.1)
01	(280)	(2.8)					6.8	(3.0)
02	(310)	(3.0)					5.6	---
03	270	(3.1)					4.3	(3.0)
04	280	(3.2)					3.9	(3.1)
05	(300)	(3.4)					4.0	---
06	(350)	(3.5)	---	---	---	---	4.0	(3.0)
07	(450)	3.4	---	---	3.3	---	4.3	(2.7)
08	(460)	3.6	250	3.4	110	---	3.9	2.8
09	540	3.8	(240)	3.5	110	(2.4)	4.5	(2.65)
10	(540)	(3.9)	230	3.5	110	(2.4)	3.6	2.55
11	550	(3.9)	(220)	3.6	110	2.5	3.6	2.5
12	470	(4.0)	220	3.6	110	2.6	2.8	2.7
13	460	4.2	240	3.7	110	2.6		2.7
14	420	(4.3)	220	3.6	110	(2.5)	2.9	2.8
15	400	4.2	240	3.6	110	2.5		2.8
16	(390)	4.1	250	(3.5)	110	(2.3)	2.5	3.0
17	(340)	4.0	250	(3.4)	110	2.2	2.4	3.0
18	(310)	(4.0)	250	(3.3)	110	(2.0)	2.6	(3.0)
19	(300)	(3.6)	250	---	110	1.7	2.6	(3.0)
20	(280)	(3.4)	---	---	<130	1.2	3.7	(3.1)
21	(300)	(3.2)					4.3	(3.2)
22	(280)	(3.2)					4.7	(3.0)
23	---	(3.0)					6.6	---

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Lindau/Harz, Germany (51.6°N, 10.1°E)								April 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	290	3.0					1.6	3.0
01	290	2.8					1.9	3.0
02	270	2.7					2.0	3.0
03	270	2.6					2.0	3.0
04	260	2.6					2.0	3.0
05	250	2.8	---	---	---	E	2.3	3.1
06	250	3.4	230	---	120	1.5	2.5	3.4
07	290	4.0	225	3.5	110	2.0	2.7	3.3
08	340	4.4	220	3.7	100	2.4	3.0	3.1
09	340	4.8	215	3.9	100	2.6	3.2	3.2
10	300	5.1	205	4.0	100	2.8	3.4	3.2
11	315	5.3	205	4.2	100	3.0	3.4	3.2
12	310	5.2	200	4.2	100	3.0	3.6	3.2
13	320	5.4	205	4.2	100	3.0	3.7	3.2
14	320	5.2	210	4.1	100	3.0	3.5	3.2
15	300	5.4	215	4.0	100	2.8		3.2
16	290	5.4	220	3.9	100	2.6	2.7	3.2
17	275	5.3	225	3.7	100	2.4	2.7	3.3
18	260	5.4	230	---	110	2.0	2.5	3.25
19	240	5.7	230	---	---	E	2.4	3.3
20	230	5.4					2.0	3.2
21	230	4.8					1.9	3.2
22	240	3.7						3.2
23	260	3.2						3.05

Time: 15.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 32

Huancayo, Peru (12.0°S, 75.3°W)								May 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	220	4.7						3.4
01	230	4.3						3.4
02	230	4.0						3.35
03	240	3.6						3.3
04	250	3.2						3.3
05	250	2.9						3.3
06	260	3.1					---	3.2
07	230	5.7	230	---	110	2.1	7.2	3.2
08	(290)	7.1	210	---	110	2.7	9.2	3.1
09	310	7.7	200	4.2	110	---	10.8	2.8
10	340	7.4	200	4.3	110	---	11.4	2.6
11	360	6.8	200	4.4	100	---	11.2	2.6
12	370	6.7	190	4.4	100	---	11.2	2.6
13	360	6.8	190	4.3	110	---	11.3	2.6
14	340	6.9	180	4.3	110	---	11.2	2.6
15	340	7.0	180	4.2	110	---	10.3	2.7
16	---	7.2	200	---	110	---	9.6	2.7
17	240	7.1	240	---	110	2.0	5.8	2.7
18	260	7.2					<1.4	2.9
19	260	6.7					<1.5	2.9
20	250	6.4					<1.5	3.0
21	240	6.5						3.2
22	220	6.4						3.4
23	220	5.3						3.4

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 34

Anchorage, Alaska (61.2°N, 149.9°W)								April 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	300	2.1						2.7
01	310	(1.8)						(2.75)
02	340	1.8						2.75
03	<350	2.0						2.7
04	310	2.1	---	---	---	---		2.8
05	470	2.0	250	2.6	120	1.5		2.85
06	630	3.3	240	3.1	120	1.8		2.6
07	600	3.6	220	3.3	120	2.1		2.5
08	560	3.8	220	3.5	110	2.4		2.4
09	520	3.9	220	3.7	110	2.5		2.5
10	530	4.0	220	3.8	110	2.7		2.5
11	500	4.2	210	3.8	110	2.7		2.4
12	460	4.3	210	3.9	110	2.7		2.7
13	430	4.4	220	3.9	110	2.8		2.7
14	390	4.5	230	3.9	110	2.6		2.8
15	360	4.4	220	3.7	110	(2.6)		3.0
16	330	4.4	230	3.6	120	2.4		3.1
17	300	4.4	230	3.4	120	2.1		3.2
18	270	4.4	240	---	120	1.8		3.2
19	260	3.9	250	---	140	1.4		1.9
20	260	3.6						3.0
21	270	(3.2)						1.9
22	260	(3.0)						(3.05)
23	260	(2.4)						2.5

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 36

Wakkanai, Japan (45.4°N, 141.7°E)								April 1955
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	290	4.3						2.0
01	290	4.2						2.3
02	270	4.0						
03	250	3.8						
04	250	3.6						
05	250	4.0						
06	240	4.5						
07								

Table 37

Akita, Japan (39°7'N, 140°1'E) April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	310	4.0				2.1		
01	300	4.0				2.1		
02	290	3.8				2.3		
03	250	3.8				2.1		
04	260	3.3				2.1		
05	270	3.6				2.4		
06	250	4.8						
07	280	5.5						
08	300	5.9						
09	320	6.2				3.8		
10	310	6.5				4.0		
11	320	7.0				4.3		
12	330	7.2				4.2		
13	320	7.0				4.1		
14	310	6.9				3.5		
15	300	6.6				3.4		
16	300	6.6				3.4		
17	290	6.2				3.2		
18	270	6.2				3.0		
19	260	6.6				2.8		
20	250	5.9				2.7		
21	270	4.8				2.2		
22	300	4.5				2.2		
23	310	4.3				2.0		

Time: 135.0°E.

Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 39

Yamagawa, Japan (31.2°N, 130.6°E) April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	300	3.9				2.3		
01	300	4.0				2.7		
02	260	4.0				2.3		
03	240	3.8				2.4		
04	250	3.0				2.3		
05	300	2.9				2.1		
06	250	4.2				2.4		
07	240	5.9				3.4		
08	250	6.2				4.0		
09	280	6.2				4.7		
10	300	6.6				5.4		
11	320	7.5				5.6		
12	310	8.7				4.8		
13	300	9.0				4.8		
14	290	9.4				4.6		
15	290	9.0				4.3		
16	290	8.8						
17	280	8.5				3.8		
18	250	8.5				3.2		
19	240	8.8				3.1		
20	230	7.1				2.4		
21	230	4.9				2.3		
22	310	3.7				2.3		
23	320	3.9				2.3		

Time: 135.0°E.

Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 41

Huancayo, Peru (12.0°S, 75.3°W) April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	220	6.2				4.4	3.4	
01	210	6.0					3.4	
02	210	5.3					3.4	
03	230	4.8					3.4	
04	250	3.6					3.3	
05	240	2.7					3.5	
06	250	3.5					3.25	
07	(260)	6.4	220	---	110	2.1	6.2	3.4
08	(280)	7.8	210	---	110	2.6	9.4	3.1
09	300	8.0	200	4.2	110	---	11.2	2.75
10	330	7.5	200	4.4	110	---	11.4	2.7
11	340	7.0	190	4.4	110	---	11.4	2.6
12	350	7.2	190	4.4	100	---	11.6	2.6
13	340	7.4	190	4.4	110	---	11.5	2.7
14	310	8.0	190	4.2	110	---	11.3	2.8
15	(290)	8.3	190	---	110	---	10.8	2.8
16	(260)	8.5	190	---	110	---	9.8	2.7
17	230	8.6	230	---	110	2.2	5.8	2.75
18	260	8.2		---			2.8	
19	280	7.6					2.8	
20	270	8.0				3.1	2.9	
21	240	8.0				4.4	3.1	
22	220	7.8				5.7	3.3	
23	210	7.0				4.2	3.4	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 38

Tokyo, Japan (35.7°N, 139.5°E)

April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	290	4.0						2.5
01	280	4.0						2.0
02	250	3.9						2.4
03	230	3.6						2.3
04	250	3.1						3.1
05	250	3.4					---	1.8
06	230	5.0	240		130	1.9		3.1
07	250	5.6	240		110	2.5		3.4
08	270	6.2	230	4.1	110	2.8	>3.8	3.3
09	280	6.6	230	4.3	110	3.0	4.2	3.3
10	290	6.6	220	4.4	110	3.1	4.4	3.1
11	300	7.1	230	4.5	110	3.1	4.3	3.1
12	290	8.0	210	4.5	110	3.2	3.6	3.1
13	290	8.0	230	4.4	110	3.2	3.4	3.1
14	280	7.9	220	4.4	110	3.1	3.1	3.2
15	280	7.5	230	4.2	110	2.9	3.4	3.2
16	270	7.2	230	4.0	110	2.7	3.2	3.3
17	260	6.6	240	3.5	120	2.2	3.0	3.3
18	250	7.0	250	---	130	1.5	3.0	3.2
19	230	7.0					2.8	3.3
20	220	5.7					2.9	3.3
21	250	4.4					3.0	2.9
22	300	4.0					2.8	2.8
23	300	4.2					2.8	2.9

Time: 135.0°E.

Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 40

Baguio, P. I. (16.4°N, 120.6°E)

April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	270	7.2						2.9
01	230	7.2						3.3
02	200	5.7						3.5
03	210	3.8						3.3
04	240	3.1						2.8
05	240	3.0						3.4
06	230	4.6						4.0
07	230	6.2				110	2.2	3.5
08	(200)	6.8	220	---	110	2.7	5.4	3.2
09	300	7.8	210	---	110	3.0	7.0	3.0
10	330	8.8	200	4.3	100	3.2	7.0	2.7
11	340	9.4	200	4.4	100	3.3	6.9	2.5
12	350	10.0	190	(4.4)	100	3.4	7.0	2.5
13	340	10.0	190	4.4	100	3.3	6.6	2.6
14	320	10.0	200	---	100	3.2	4.4	2.7
15	300	10.5	200	---	100	3.0	4.2	2.9
16	290	11.1	220	---	110	2.7	3.5	3.0
17	250	11.4	220	---	110	2.2	4.0	3.3
18	240	11.3					3.4	3.3
19	230	10.3					2.3	3.1
20	240	9.0					2.7	3.0
21	250	8.7					2.2	3.1
22	270	8.2					2.3	3.0
23	280	7.8					2.1	3.0

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 42

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

April 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	250	3.1						2.4
01	240	3.2						2.9
02	240	3.0						3.1
03	240	3.2						3.2
04	220	2.8						2.0
05	240	2.6						3.1
06	240	2.8					1.7	3.1
07	220	5.1				130	1.9	3.5
08	240	6.1	230	3.7	110	2.5		3.4
09	260	6.8	220	4.1	110	2.8	3.6	3.3
10	270	7.5	210	4.3	110	3.1	3.8	3.3
11	260	7.7	200	4.4	110	3.2	4.0	3.3
12	270	7.2	200	4.4	110	3.2	3.8	3.2
13	290	7.2	190	4.4	110	3.2	3.9	3.1
14	280	8.0	200	4.3	110	3.1	4.0	3.1
15	270	8.2	210	4.2	110	3.0	3.8	3.2
16	250	7.9	220	3.7	110	2.6	3.7	3.3
17	230	7.2	230	2.8	120	2.1	3.1	3.4
18	220	6.4					2.4	3.4
19	210	4.3					1.9	3.4
20	<230	3.2					2.0	3.25
21	240	3.4					1.7	3.2
22	2							

Table 43

Watheroo, W. Australia (30.5°S , 115.9°E)

April 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	260	3.3				2.7	3.1	
01	250	3.5				3.4	3.1	
02	250	3.3				2.4	3.1	
03	250	3.3				2.4	3.2	
04	240	3.5				2.1	3.3	
05	230	3.2				1.6	3.2	
06	240	3.0				1.9	3.2	
07	240	4.5	---	---	1.7		3.5	
08	250	5.8	230	3.5	2.3	2.6	3.55	
09	250	6.4	220	4.0	2.7	3.1	3.4	
10	260	6.3	210	4.2	2.9	3.3	3.5	
11	270	6.1	200	4.4	3.0	3.6	3.4	
12	290	6.5	200	4.4	3.1	3.6	3.2	
13	280	6.8	210	4.4	3.1	3.7	3.3	
14	280	6.9	230	4.4	3.0	3.7	3.3	
15	270	7.0	230	4.0	3.0	3.7	3.3	
16	250	7.0	240	3.7	2.6	3.6	3.5	
17	240	6.4	---	---	2.2	3.6	3.6	
18	220	5.4	---	---	2.6	3.5		
19	210	3.8			1.8	3.3		
20	250	3.0			1.8	3.1		
21	250	3.2				3.1		
22	250	3.2				3.05		
23	250	3.2				2.6	3.1	

Time: 120.0°E .

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 45

Rarotonga I. (21.3°S , 159.0°W)

February 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	250	6.2				2.4	3.0	
01	240	5.9				2.4	3.1	
02	250	4.8				3.0	3.1	
03	260	4.4				2.6	3.0	
04	300	3.8				2.4	2.9	
05	300	4.0				2.6	2.9	
06	290	3.6	---	---	2.7	3.0		
07	250	5.2	250	---	2.1	3.2	3.1	
08	310	6.5	240	4.2	110	2.6	4.2	
09	300	0.4	230	4.4	105	3.0	4.4	
10	300	9.1	200	4.5	105	3.2	4.7	3.15
11	300	9.4	200	4.5	105	3.4	4.6	3.1
12	300	9.6	200	4.6	105	3.4	4.6	3.1
13	300	9.6	200	4.6	---	3.5	4.8	3.0
14	300	9.5	200	4.6	105	3.4	4.8	3.0
15	300	8.9	200	4.5	105	3.2	4.6	3.0
16	300	7.6	210	4.3	105	3.1	4.4	3.05
17	310	7.0	240	4.1	110	2.7	4.5	3.0
18	290	7.2	250	3.6	120	2.2	4.1	2.9
19	270	7.8				3.9	3.0	
20	260	7.8				3.3	3.0	
21	270	6.9				3.4	2.95	
22	280	6.6				3.0	2.9	
23	280	6.6				2.8	3.0	

Time: 157.5°W .

Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 47*

Inverness, Scotland (57.4°N , 4.2°W)

January 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	295	(2.0)					(3.0)	
01	300	1.9					2.9	
02	295	1.6					2.0	
03	305	1.7					2.8	
04	295	1.5				2.4	2.0	
05	275	1.5				1.9	3.0	
06	285	1.5					3.1	
07	290	1.5					3.1	
08	255	2.2					3.2	
09	215	4.2			(155)	1.6	2.6	3.6
10	215	5.0	(225)		125	1.9	2.4	3.7
11	220	5.6	(225)	(3.1)	125	2.0	2.4	3.7
12	220	6.0	215	3.0	125	2.1	2.4	3.8
13	225	5.7	210	2.9	125	2.1	2.4	3.7
14	225	5.5	(220)	(2.8)	125	1.9	3.7	
15	215	5.2			125	1.8	2.1	3.6
16	215	4.7			(145)	(1.6)	1.6	3.5
17	220	4.0					3.5	
18	245	2.9					3.3	
19	275	2.1					3.1	
20	290	1.9					3.0	
21	290	1.0					3.1	
22	300	(1.8)					3.0	
23	315	(1.8)					2.7	

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 44

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

April 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	<260						3.0	
01	250						3.0	
02	250						3.05	
03	250						3.1	
04	240						3.2	
05	230						3.3	
06	240						3.2	
07	230						3.2	
08	230	5.2			240	---	130	2.0
09	250	6.1	230	3.6	120	2.5		3.4
10	260	7.0	230	4.1	110	2.6	3.2	3.3
11	270	7.2	220	4.3	110	3.0	3.8	3.3
12	280	7.2	200	4.4	110	3.1	3.7	3.2
13	290	7.6	200	4.4	110	3.1	3.6	3.1
14	290	8.2	210	4.4	110	3.1	3.3	3.05
15	270	8.2	230	4.2	110	3.0	3.4	3.2
16	260	8.0	230	3.9	110	2.8	3.4	3.2
17	240	7.5	230	3.4	120	2.4	3.0	3.4
18	230	6.4	---	---	110	---	2.4	3.4
19	210	4.6					2.0	3.4
20	220	3.0					2.1	3.25
21	240	3.0					1.9	3.15
22	240	3.0					3.2	
23	250	3.0					3.1	

Time: 30.0°E .

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 46

Christchurch, New Zealand (43.6°S , 172.0°E)

February 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	250	4.1						3.0
01	270	3.8						3.0
02	260	3.4						3.0
03	270	3.2						3.0
04	270	2.8						3.05
05	270	2.8						3.05
06	250	3.9	240	---			1.8	3.25
07	280	4.5	230	3.7			2.3	3.4
08	290	5.1	220	4.0			2.7	3.4
09	310	5.5	220	4.2			3.0	3.2
10	320	5.7	220	4.3			3.2	3.1
11	320	6.0	200	4.4			3.2	3.2
12	290	6.0	210	4.4			3.2	3.3
13	310	6.0	210	4.3			3.2	3.3
14	300	5.9	230	4.3			3.0	3.2
15	300	5.6	200	4.2			2.9	3.3
16	320	5.4	220	4.1			2.8	3.15
17	290	5.2	230	3.9			2.6	3.15
18	280	5.2	240	3.3			3.6	3.1
19	250	5.8					3.0	3.05
20	260	5.4					3.4	3.1
21	260	5.4					4.0	3.1
22	250	5.0					3.3	3.0
23	260	4.4					3.3	3.0

Time: 172.5°E .

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 40*

Slough, England (51.5°N , 0.6°W)

January 1955

Time	$\text{h}^*\text{F2}$	foF2	$\text{h}^*\text{F1}$	foF1	h^*E	foE	fEs	(M3000)F2
00	270	3.2						2.6
01	260	3.0						2.6
02	265	3.0						2.6
03	265	2.8						

Table 49*

Ibadan, Nigeria (7.4°N, 4.0°E)	January 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.1			2.4		3.1	
01	270	3.6			1.5		3.1	
02	270	4.0			1.7		3.0	
03	275	3.0			1.4		3.1	
04	255	2.9			2.3		3.3	
05	225	2.1					(3.5)	
06	255	3.2			(1.4)		3.1	
07	6.0	235			(105)	2.2	6.0	3.2
08	310	7.0	210		(100)	2.8	9.2	2.8
09	370	7.2	205	4.3	100	3.2	10.1	2.4
10	395	6.6	200	4.4	100	3.3	11.1	2.5
11	405	6.3	200	4.4	105	3.4	11.4	2.5
12	400	6.6	200	4.4	105	3.4	10.9	2.5
13	380	7.1	195	4.4	105	3.4	10.6	2.5
14	365	7.4	200	4.3	105	3.3	6.6	2.5
15	340	7.6	205	4.1	110	3.0	5.2	2.6
16	(315)	8.0	215		110	2.6	6.7	2.7
17		7.7	240		115	2.0	5.3	2.6
18	270	>7.0			(150)	1.3	2.0	2.5
19	285	6.8						2.6
20	275	7.1					3.7	2.8
21	255	6.1					2.2	3.2
22	240	5.4					2.6	3.2
23	245	4.6					1.8	3.2

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 51

Nairobi, Kenya (1.3°S, 36.8°E)	January 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	210	3.4					3.15	
01	---	2.9					2.9	
02	---	2.8					2.9	
03	---	2.6					3.05	
04	(240)	2.6					3.1	
05	---	2.7				1.6	3.1	
06	---	2.4					3.05	
07	240	4.6	240	3.0	120	2.0	2.6	3.4
08	280	6.0	220	4.0	110	2.5		3.2
09	330	6.5	200	4.2	110	3.0		3.0
10	420	7.4	200	4.4	110	3.3		2.65
11	410	8.1	200	4.5	110	3.4		2.6
12	390	9.0	200	4.5	110	3.5		2.6
13	380	9.2	200	(4.5)	110	3.5	3.9	2.7
14	350	9.6	190	4.5	110	3.4		2.8
15	340	9.1	200	4.4	110	3.3		2.9
16	350	8.4	200	4.3	110	3.1		2.8
17	350	8.0	220	4.1	110	2.7	3.1	2.8
18	(320)	7.2	250	3.9	---	2.9		2.8
19	280	>7.0						2.8
20	300	>6.4						2.9
21	270	>6.4						3.0
22	230	6.8						3.2
23	210	5.0						3.4

Time: 45.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 53

Christchurch, New Zealand (43.6°S, 172.8°E)	January 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.3				3.4		3.1
01	250	3.8				3.5		3.05
02	260	3.4				>3.8		3.1
03	270	3.1				2.8		3.0
04	260	2.9				---	2.7	3.1
05	250	3.6	250	2.3		1.5		3.3
06	280	4.2	230	3.4		2.1		3.3
07	310	4.6	240	3.8		2.5	4.2	3.25
08	350	4.9	220	4.0		2.8	4.4	3.1
09	330	5.2	220	4.2		3.0	5.0	3.1
10	330	5.5	210	4.3		3.2	4.4	3.1
11	330	5.6	210	4.3		3.3	4.9	3.1
12	320	5.6	200	4.4		3.3	5.6	3.2
13	350	5.5	200	4.4		3.3		3.1
14	330	5.4	220	4.3		3.2	4.4	3.1
15	330	5.4	210	4.2		3.1		3.1
16	330	5.4	220	4.1		2.9		3.1
17	300	5.2	240	3.8		2.6		3.1
18	280	5.5	240	3.5		2.2	3.5	3.2
19	260	5.3	250	2.7		1.7		3.2
20	250	5.2				---	2.4	3.2
21	250	5.1					2.8	3.1
22	260	5.0					2.6	3.0
23	260	4.7					3.3	3.1

Time: 172.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50*

Singapore, British Malaya (1.3°N, 103.8°E)	January 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245				2.6			(3.1)
01	265				2.4			2.7 (3.0)
02	275				2.2			3.1 ---
03	300				2.0			3.0 (3.0)
04	310				1.9			3.0 ---
05	300				1.9			3.1 ---
06	270				2.6			(1.3) 3.0 ---
07	250				5.4	235	120	2.0 3.2 3.1
08	335				6.4	225	120	2.6 5.6 2.8
09	410				6.8	210	4.2 115	3.0 5.3 2.5
10	445				7.1	205	4.4 110	3.2 5.9 2.3
11	470				7.2	205	4.4 (110)	3.4 5.3 2.1
12	470				7.5	200	4.4 110	3.5 5.5 2.1
13	440				7.6	200	4.4 110	3.4 5.5 2.2
14	400				7.9	205	4.4 110	3.3 5.6 2.4
15	380				8.0	210	4.3 110	3.1 4.5 2.4
16	375				8.0	225	4.1 115	2.8 4.4 2.5
17	300				8.0	240	120	2.3 4.5 2.5
18	260				7.6		150	1.8 3.1 2.6
19	290				7.1			3.0 2.7
20	300				5.9			3.1 2.7
21	275				6.0			3.2 3.0
22	240				5.7			3.0 3.2
23	220				4.4			3.0 (3.4)

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 52

Rarotonga I. (21.3°S, 150.8°W)	January 1955							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250				5.4			3.0 (3.0)
01	240				5.1			3.1 3.4
02	250				3.8			3.0 3.2
03	290				3.0			3.6 2.95
04	290				2.5			3.1 3.0
05	350				2.3			3.3 3.0
06	260				3.4			3.2 3.1
07	260				4.8	250	3.7 115	2.3 4.3 3.1
08	320				6.1	240	4.2 110	2.8 4.9 3.1
09	330				7.5	230	4.2 105	3.1 5.3 2.9
10	340				8.8	200	4.4 105	3.3 5.8 2.9
11	340				9.2	200	4.5 105	3.4 6.1 2.9
12	320				10.3	200	4.5 105	3.4 5.6 2.9
13	300				10.5	200	4.5 105	3.5 5.5 3.0
14	300				10.5	200	4.4 105	3.4 5.0 3.1
15	300				9.4	200	4.4 105	3.3 4.9 3.1
16	300				8.2	220	4.2 105	3.1 4.5 3.1
17	290				6.7	230	4.0 110	2.8 4.3 3.1
18	270				5.7	230	3.6 115	2.2 4.2 3.2
19	280				5.6			4.3 2.9
20	300				6.0			4.4 2.8
21	300				5.6			3.9 2.8
22	300				5.7			3.0 2.9
23	280				6.1			3.1 2.7

Time: 157.5°W.

Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 54

Godhavn, Greenland (69.2°N, 53.5°W)	December 1954							
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	(1.9)						4.0 (3.2)
01	(280)	(2.1)						3.5 (3.05)
02	(270)	(2.5)						5.6 (3.15)
03	<270	(2.6)						3.3 (3.1)
04	260	(2.8)	</td					

Table 55

Calcutta, India (22.6°N, 88.4°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	(2.6)						(2.95)
01	(260)	(2.6)						
02	(260)	(2.7)						
03	(210)	(3.0)						(3.4)
04	(210)	(2.1)						
05	(260)	(2.2)						
06	(255)	(1.9)						(3.1)
07	(225)	(4.8)						
08	(240)	(6.3)			2.2			
09	(280)	(8.1)			---			(2.85)
10	(270)	(9.6)			3.0			
11	(260)	(10.2)			3.2			
12	240	10.3			3.2			2.85
13	225	10.5			3.1			
14	240	10.2			3.0			
15	225	9.6			2.7			3.05
16	240	9.3			2.5			
17	260	8.5			2.0			
18	220	7.7						(3.1)
19	210	(5.2)						
20	220	(4.7)						
21	225	(4.4)						(3.2)
22	240	(4.1)						
23	255	(3.3)						

Time: 90.0°E.

Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operations.

Table 57

Townsville, Australia (19.3°S, 146.7°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	>6.0					4.1	(3.15)
01	240	5.1					3.8	(3.2)
02	250	>4.5					3.7	(3.05)
03	250	(3.8)					3.5	(3.15)
04	260	(3.5)					3.5	(3.15)
05	250	(3.0)					3.3	(3.15)
06	240	4.3	---	---	---	E	4.0	3.3
07	250	5.4	210	---	110	2.4	4.8	3.3
08	320	5.5	210	4.0	100	2.8	5.2	3.1
09	330	6.4	210	4.3	100	3.1	5.8	3.1
10	340	7.0	---	4.3	100	3.3	5.8	3.0
11	330	7.0	200	4.4	100	3.4	6.0	3.0
12	350	7.9	200	4.4	110	3.4	5.7	2.9
13	325	8.5	200	4.4	100	3.5	6.3	3.0
14	300	(8.8)	200	4.3	100	3.4	5.4	(3.05)
15	280	>8.5	200	4.2	100	3.2	4.8	(3.2)
16	270	(8.2)	220	4.0	110	2.9	5.8	(3.2)
17	265	6.7	220	3.8	110	2.6	4.8	3.25
18	250	6.4	---	---	E	4.4	3.2	
19	265	(5.9)	---	E		4.4	(3.0)	
20	280	(5.9)				5.0	(3.0)	
21	280	(6.0)				4.3	(3.05)	
22	270	(5.9)				4.2	3.0	
23	270	(5.8)				3.8	(3.1)	

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 59

Canberra, Australia (35.3°S, 149.0°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	(4.8)					3.6	(3.1)
01	---	(4.7)					3.6	3.15
02	---	(4.1)					3.4	3.2
03	---	(3.8)					2.2	3.1
04	(240)	3.3					2.7	3.05
05	250	3.6					1.6	3.3
06	250	4.6	---	3.5	110	2.1	3.4	3.2
07	320	5.0	---	4.0	110	2.6	4.8	3.2
08	320	5.5	---	4.1	110	3.0	5.4	3.1
09	330	5.6	---	4.2	110	3.1	6.0	3.1
10	320	6.0	---	4.2	110	3.3	6.0	3.1
11	320	6.0	200	4.2	110	3.3	5.5	3.1
12	340	6.0	200	4.2	110	(3.4)	5.5	3.1
13	340	6.0	210	4.2	110	3.4	5.5	3.1
14	330	6.0	210	4.2	110	3.3	5.1	3.1
15	310	6.0	210	4.1	110	3.2	4.9	3.1
16	300	6.0	230	4.1	120	3.0	4.8	3.2
17	290	5.9	240	3.8	110	2.7	4.6	3.2
18	260	6.0	230	(3.4)	---	2.1	4.6	3.2
19	240	5.6					4.1	3.2
20	---	(5.5)					3.6	3.05
21	---	5.0					3.6	3.0
22	---	(4.9)					3.8	(2.9)
23	---	(4.8)					4.1	(3.1)

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 56

Ibadan, Nigeria (7.4°N, 4.0°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.0						2.0
01	255	4.4						3.2
02	255	3.6						3.1
03	255	>3.0						(3.3)
04	240	2.8						(3.2)
05	230	(2.4)						(3.3)
06	250	>3.0						(3.1)
07	6.2	225						
08	7.2	210						
09	(345)	7.1	205	(4.3)				
10	375	6.5	195	4.4	(115)			
11	390	6.3	195	4.5				
12	375	6.6	195	4.4				
13	365	7.0	195	4.4	110	3.3		
14	345	7.3	200	4.3	110	3.2		
15	(310)	7.7	205	(4.1)	115	2.9		
16	7.5	225			115	2.4		
17	250	8.2	(235)		125	1.7		
18	260	8.0						
19	275	7.3						
20	270	7.2						
21	250	>6.6						
22	240	5.7						
23	245	>5.6						

Time: 0.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 58

Brisbane, Australia (27.5°S, 153.0°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	5.7						4.4
01	260	5.1						4.5
02	260	4.7						4.0
03	250	4.3						4.0
04	250	3.8						3.25
05	240	4.0	---	---	---	---	1.8	3.4
06	300	5.0	---	3.7	120	2.1	>4.2	3.2
07	(290)	5.8	---	---	110	2.7	6.0	3.3
08	(320)	5.7	---	---	110	3.0	6.4	(3.2)
09	(310)	6.4	---	---	110	3.3	7.1	(3.2)
10	(310)	7.0	---	---	110	3.4	7.9	(3.15)
11	325	6.5	200	4.6	110	(3.5)	6.0	3.1
12	350	6.5	200	4.6	110	3.5	5.3	2.95
13	340	6.9	---	4.5	110	3.5	5.2	3.0
14	320	7.0	---	4.3	110	3.5	5.0	3.1
15	290	7.4	---	4.2	120	3.2	4.7	3.1
16	290	6.8	---	4.0	110	3.0	5.2	3.2
17	(260)	6.7	---	3.8	120	2.4	6.4	3.2
18	(250)	6.0	---	---	---	---	6.3	3.2
19	(250)	5.6						
20	(270)	5.6						
21	300	(5.2)						
22	290	5.6						
23	280	5.8						

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 60

Hobart, Tasmania (42.9°S, 147.3°E)							December 1954	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.6						2.9
01	250	4.2						2.9
02	250	3.6						2.9
03	250	3.2						2.9
04	250	3.0						2.9
05	250	3.7						3.0
06	230	4.5						3.0
07	290	5.0	220	3.9	100	2.1	3.5	3.0
08	330	5.3	200	4.0	---	---	4.5	2.9
09	320	5.6	200	4.3	---	---	5.5	2.9
10	320	6.0	200	4.4	---	---	5.5	3.0
11	300	6.5	200	4.5	---	---	5.2	3.0</

Table 61*

Falkland Is. (51.7°S, 57.8°W)							December 1954		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	280	6.4			3.1	2.9			
01	275	6.2			2.8	3.0			
02	270	5.7			2.7	3.1			
03	260	5.4				3.1			
04	250	5.4	(245)	135	1.7		3.0		
05	270	6.0	240	(3.5)	115	2.0	3.1	3.0	
06	325	6.2	235	3.9	110	2.4	4.2	2.9	
07	335	6.5	235	4.1	110	2.7	4.6	2.9	
08	320	6.8	(230)	4.2	110	2.9	5.0	2.9	
09	335	6.9	220	4.3	105	3.1	6.0	2.9	
10	325	7.5	215	4.4	105	3.2	6.3	2.9	
11	315	6.9	210	4.4	105	3.2	5.6	3.0	
12	330	6.5	205	4.4	105	3.3	5.4	3.0	
13	320	6.1	215	4.4	105	3.2	4.9	3.0	
14	330	5.8	215	4.3	105	3.1	5.2	3.1	
15	320	5.8	225	4.2	105	3.0	5.3	3.1	
16	310	5.9	230	4.1	110	2.8	4.9	3.1	
17	290	6.0		3.9	115	2.6	4.9	3.2	
18	280	6.5			125	2.3	5.8	3.1	
19	275	6.7		(140)	(1.8)	5.4	3.1		
20	270	6.9				4.8	3.0		
21	280	6.9				4.3	2.9		
22	285	6.8				4.5	2.8		
23	285	6.7				3.7	2.8		

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 63

Calcutta, India (22.6°N, 88.4°E)							November 1954		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	(240)	(3.9)						(3.1)	
01	(240)	(3.7)							
02	(240)	(3.6)							
03	(210)	(3.8)						(3.3)	
04	(210)	(3.4)							
05	(240)	(3.1)							
06	(240)	(3.5)						(3.05)	
07	(240)	(4.9)							
08	(240)	(7.5)							
09	(240)	(8.5)						(2.85)	
10	(240)	(9.8)							
11	(270)	(10.6)							
12	270	10.8							
13	270	10.6							
14	300	10.6							
15	300	10.0							
16	270	9.6							
17	270	9.4							
18	(280)	(8.7)						(2.75)	
19	(260)	(7.1)							
20	(240)	(6.8)							
21	(240)	(5.6)						(2.85)	
22	(225)	(4.8)							
23	(240)	(4.0)							

Time: 90.0°E.

Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 65

Townsville, Australia (19.3°S, 146.7°E)							November 1954		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	240	>5.9			3.1	3.1			
01	250	(5.0)			3.0	(3.2)			
02	250	(4.3)			3.4	3.15			
03	250	4.3			3.2	3.1			
04	260	4.0			3.3	3.2			
05	250	3.7			2.8	3.1			
06	240	(5.0)			120	1.8	3.2	(3.45)	
07	(240)	5.3	240	---	100	2.3	3.9	3.3	
08	290	5.6	---	4.1	100	2.8	4.4	3.15	
09	320	6.2	210	4.3	100	3.2	4.5	3.0	
10	340	7.2	---	4.4	110	3.3	4.3	3.0	
11	320	7.6	---	4.4	120	3.3	4.4	3.0	
12	320	8.2	---	4.4	110	3.3	4.4	3.0	
13	300	9.0	---	4.4	110	3.4	4.5	3.1	
14	300	8.9	---	4.4	110	3.3	4.5	3.1	
15	290	8.3	---	4.3	110	3.2	4.9	3.1	
16	280	>8.0	230	4.0	110	2.9	4.8	3.1	
17	280	7.7	240	3.8	110	2.4	4.5	3.2	
18	250	7.2	---	E	4.4	3.2			
19	250	6.5			4.3	3.2			
20	260	(6.5)			4.1	(3.1)			
21	260	(6.4)			3.8	(3.0)			
22	280	(6.2)			3.8	(3.0)			
23	280	6.0			3.5	(3.0)			

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 62*

Port Lockroy (64.8°S, 63.5°W)							December 1954		
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	270				7.7			2.4	
01					265	7.8		2.5	
02					270	7.8		2.9	
03					270	7.4	(250)	2.8	
04					280	7.2	245	2.8	
05					285	6.6	235	2.9	
06					310	6.1	230	2.9	
07					320	5.7	105	2.3	
08					335	5.8	100	2.7	
09					335	5.4	100	2.8	
10					315	5.4	100	2.8	
11					335	5.3	(215)	2.9	
12					325	5.3	100	2.9	
13					325	4.9	100	2.9	
14					345	5.0	100	3.0	
15					335	5.0	100	3.0	
16					330	5.0	100	2.8	
17					320	5.4	100	2.6	
18					295	5.7	105	2.4	
19					295	5.8	(240)	3.0	
20					285	6.3	(240)	3.0	
21					280	6.9	115	1.8	
22							120	1.6	
23					270	7.3		3.1	

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 64*

Ibadan, Nigeria (7.4°N, 4.0°E)							November 1954		
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	240				6.2			1.6	
01	245				5.5			2.1	
02	250				4.4			3.1	
03	240				3.1			3.3	
04	235				2.8			3.4	
05	245				1.9			3.0	
06	250				5.0			3.2	
07	(275)				230			1.8	
08	310				7.8	215		2.6	
09	330				7.2	205	4.4	10.7	
10	360				6.8	200	4.4	12.4	
11	365				6.9	200	4.4	12.9	
12	360				7.0	200	4.4	10.2	
13	345				7.4	200	4.4	11.2	
14	330				7.8	195	4.3	10.3	
15	325				8.2	205		2.6	
16					8.6	220		6.6	
17	255				8.4	(250)		1.7	
18	295				8.1			4.2	
19	315				6.9			2.5	
20	300				7.2			2.7	
21	265				(8.1)			2.9	
22	240				7.3			3.1	
23	240				6.5			1.4	

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 66

Brisbane, Australia (27.5°S, 153.0°E)							November 1954		
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	260				5.4			4.1	
01	240				4.6			4.7	
02	<250				4.3			3.15	
03	260				3.8			3.0	
04	260				3.5			3.0	
05	250				4.0			3.4	
06	250				4.8	240	3.6	2.1	
07	290				5.4	240	4.0	2.7	
08	300				6.0	---	4.2	1.10	
09	320				6.4	---	4.5	110	
10	340				6.8	---	4.5	110	
11	330				7.1				

Table 67

Canberra, Australia (35.3°S, 149.0°E)							November 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	---	4.5				4.0	3.0	
01	---	(4.5)				3.8	3.1	
02	---	(3.8)				3.6	(3.1)	
03	---	(3.4)				3.4	(3.1)	
04	---	(2.8)				2.8	2.9	
05	260	3.6				1.6	3.2	
06	250	4.4	---	---	(110)	(2.1)		3.2
07	300	4.7	250	3.9	110	2.6	3.3	3.2
08	330	5.5	220	4.0	110	2.9	3.8	3.1
09	340	5.6	210	4.2	120	3.1	5.1	3.1
10	340	5.8	---	4.2	110	3.2	5.5	3.1
11	340	6.0	200	4.2	(110)	3.2	5.5	3.0
12	330	6.0	210	4.2	110	3.2	4.2	3.0
13	330	6.1	210	4.2	110	3.2	4.8	3.1
14	320	6.0	230	4.2	(110)	3.2	3.7	3.1
15	330	5.8	230	4.2	110	3.1	3.6	3.1
16	300	6.0	240	4.0	110	2.9	3.0	3.2
17	280	5.9	240	(3.6)	120	2.5	3.6	3.2
18	260	5.6	---	---	---	3.7	3.2	
19	---	5.9				3.8	3.1	
20	---	(5.6)				3.5	(3.15)	
21	---	5.0				3.7	(3.1)	
22	---	4.4				3.7	2.95	
23	---	(4.3)				4.1	(2.9)	

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 69

Calcutta, India (26.6°N, 88.4°E)							October 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(210)	(4.3)					(3.05)	
01	(210)	(3.8)						
02	(210)	(4.0)						
03	(225)	(3.6)					(3.05)	
04	(230)	(3.2)						
05	(230)	(2.9)						
06	(210)	(4.2)					(3.05)	
07	(210)	(5.6)						
08	(240)	(8.5)						
09	(240)	(9.2)					(2.85)	
10	(240)	(9.6)					(3.6)	
11	(240)	(10.0)					3.4	
12	(240)	(10.5)					3.6	(2.9)
13	(240)	(10.9)					3.6	
14	(240)	(11.0)					3.4	
15	(240)	(11.0)					3.1	(3.6)
16	(210)	(10.7)					(3.1)	
17	(210)	(10.1)					(3.4)	
18	(210)	(8.6)					(3.3)	
19	(210)	(8.4)						
20	(220)	(6.2)						
21	(210)	(4.8)					(3.25)	
22	(210)	(4.5)						
23	(210)	(4.4)						

Time: 90.0°E.

Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 71

Calcutta, India (26.6°N, 88.4°E)							September 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(240)	(4.6)					(3.2)	(2.85)
01	(240)	(4.6)						
02	(240)	(4.6)						
03	(240)	(4.2)						(3.0)
04	(240)	(3.8)						
05	(225)	(3.4)						
06	(210)	(4.2)					(2.8)	(3.05)
07	(225)	(6.4)					(3.4)	
08	(240)	(7.1)					(3.8)	
09	(270)	(8.4)					(4.6)	(2.7)
10	(300)	(9.0)					(4.4)	
11	(300)	(10.0)						
12	(300)	(10.8)					3.5	(2.65)
13	(300)	10.0					3.4	
14	270	11.1						
15	270	11.0					3.4	2.6
16	270	11.0					3.5	
17	(270)	(10.4)					(3.9)	
18	(240)	(9.2)					(3.3)	(2.85)
19	(240)	(7.7)					(3.0)	
20	(240)	(6.6)						
21	(225)	(5.1)						(3.05)
22	(240)	(4.7)						
23	(240)	(4.6)						

Time: 90.0°E.

Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 68

Hobart, Tasmania (42.9°S, 147.3°E)							November 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	260	3.6						2.9
01	250	3.3						2.9
02	250	2.9						3.0
03	250	2.5						3.0
04	250	2.5						3.0
05	250	3.3						3.1
06	230	2.1						3.0
07	220	4.5	---	---	100	2.5		3.0
08	330	5.0	220	4.1	100	2.8	3.2	3.0
09	350	5.2	200	4.2	100	3.0	3.6	2.9
10	320	5.6	200	4.3	100	3.1	3.8	3.0
11	330	5.7	200	4.4	---	4.0		2.9
12	330	5.8	200	4.5	---	3.6		2.9
13	350	5.8	200	4.4	100	3.3	3.8	2.9
14	330	6.0	200	4.3	---	3.6		2.9
15	320	6.0	200	4.2	100	3.0	3.5	2.9
16	300	5.9	200	4.0	100	2.9		2.95
17	230	5.7	---	---	100	2.5		3.0
18	240	5.7			100	2.0	2.5	3.0
19	250	5.8			---	2.0		3.0
20	250	5.6					3.2	3.0
21	250	5.0					3.1	3.0
22	260	4.3					2.8	2.9
23	250	4.0						2.9

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 70*

Ibadan, Nigeria (7.4°N, 4.0°E)							October 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	225	7.0						2.9
01	225	6.1						4.4
02	225	5.3						3.3
03	220	4.2						2.1
04	225	3.1						3.4
05	235	1.8						2.0
06	240	5.3						3.4
07	7.2	225						3.3
08	(305)	7.9	210	(4.2)	100	3.0	8.9	2.7
09	325	7.8	200	4.4	100	3.3	9.9	2.5
10	330	7.1	200	4.5	105	3.4	10.0	2.6
11	350	7.2	195	4.6	105	3.5	10.1	2.5
12	340	7.8	195	4.6	105	3.5	9.5	2.5
13	320	8.7	200	4.4	105	3.4	7.6	2.6
14	305	9.3	200	4.3	105	3.3	6.8	2.7
15	(285)	9.4	200	4.2	105	3.1	6.9	2.6
16	9.4	215			110	2.6	6.6	2.6
17	9.4	245			115	1.9	5.2	2.6
18	275	9.2					4.5	2.5
19	295	8.9					2.1	2.6
20	270	9.0					1.5	2.8
21	245	(8.6)					2.2	3.0
22	235	(8.4)						3.1
23	225	8.0					2.0	3.2

Time: 0.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 72

Calcutta, India (22.6°N, 88.4°E)							August 1954	
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	(280)	(4.7)						(2.7)
01	(280)	(4.4)						3.6
02	(260)	(4.1)						3.4
03	(240)	(4.0)						(2.95)
04	(240)	(4.0)						
05	(260)	(4.0)						
06	(240)	(4.8)						(3.5)
07	(250)	(6.1)						(4.0)
08	(240)	(6.3)						(3.9)
09	(240)	(7.9)						(4.0)
10	(260)	(6.0)						(4.7)
11	(270)	(8.8)						(3.4)
12	(270)	(8.8)						(4.5)
13	(240)	9.0						4.2
14	(240)	9.1						
15	(260)	9.0						(3.4)
16	270</td							

Form adopted June 1946

TABLE 73
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

National Bureau of Standards
E.J.W., J.W.P., L.F.M., J.J.S.
Scaled by: E.J.W., N.B.

IONOSPHERIC DATA
Washington, D. C.

$h^{\prime}F_2$, Km
(Characteristic)
Observed at (Month)

July 1955
Lat. 38.7°N, Long. 77.1°W

Day	75°W Mean Time														75°W Mean Time																					
	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	260	A	270	260	(280)A	240	300	H	320	(300)L	410	H	340	H	320	370	360	390	340	360	(310)A	250	(220)A	240	260											
2	250	250	270	(280)S	(270)S	250	(250)A	370	280	480	360	340	H	320	350	H	420	370	380	320	370	K	210	K	200	K	300	K								
3	300	K	250	K	(270)S	(270)S	260	K	A	K	(350)K	440	300	360	A	410	(470)S	360	410	390	360	320	260	(260)A	(260)A	(270)A										
4	(240)A	250	(300)A	A	A	240	(300)A	400	280	120	H	380	310	370	350	380	410	340	370	320	350	320	230	250	240											
5	250	280	260	250	250	240	L	H	330	300	370	360	320	330	330	330	380	310	300	290	250	230	240	(250)A	250											
6	260	250	260	250	(280)S	210	L	H	470	H	380	300	300	370	370	40	380	420	400	H	330	300	280	250	250	280	K	290	K							
7	280	K	260	K	250	K	240	K	270	K	280	K	L	K	440	K	500	K	A	K	450	K	600	K	410	K	350	K	280	K	260	K				
8	270	K	(280)K	K	270	K	(260)A	A	320	320	400	420	340	480	530	400	470	340	(330)A	310	240	(300)A	(280)A	320	240											
9	260	290	260	290	(290)A	260	(270)A	350	(350)A	A	A	A	A	A	A	A	400	350	330	310	260	230	240	240	240	290										
10	280	260	(290)S	A	A	(290)A	400	400	360	(340)A	460	320	H	470	A	370	360	(360)A	350	340	A	A	270	A	(270)A	280										
11	250	(270)A	280	280	270	(300)A	420	F	S	560	420	450	(450)A	450	H	500	G	670	K	500	K	630	K	460	K	390	K	320	K	280	K					
12	280	280	260	310	(370)A	(360)A	350	500	G	G	G	G	G	G	500	530	450	450	450	420	330	320	260	240	240	270										
13	(310)A	(300)A	280	300	320	280	(480)A	L	310	G	G	G	G	G	400	400	400	400	400	370	320	320	260	240	240	270										
14	260	250	270	280	300	240	H	G	S	380	H	(370)H	A	A	A	A	520	440	370	H	450	H	350	340	(300)A	270	250	(250)A	240	(260)S						
15	260	250	250	(250)S	270	260	250	(280)S	310	330	330	380	430	340	350	350	350	350	350	300	(280)A	(260)A	(260)A	250	250	280	280	240	240							
16	240	270	(280)A	270	260	260	(250)A	300	(480)A	300	320	A	(450)S	A	(450)H	400	380	(360)A	300	300	250	240	240	(230)A	(230)A	(270)S										
17	270	(260)A	280	250	260	(290)A	(330)A	290	(380)A	460	380	410	420	430	400	400	400	350	320	300	(280)A	270	250	250	250	230	(280)A									
18	240	290	280	270	260	250	(270)F	250	(350)A	450	380	390	390	350	350	350	370	(360)A	390	340	340	340	320	310	310	270	250	250	(260)S							
19	270	280	(260)A	250	260	240	L	350	400	340	350	390	400	350	390	400	350	(380)A	350	380	(280)A	(260)A	240	240	250	250	240	240								
20	290	290	280	280	260	240	300	280	380	390	350	330	350	330	320	320	320	320	320	320	300	[260]A	[260]A	230	230	250	250	240	240							
21	240	250	270	270	240	250	(270)A	250	(370)A	360	310	280	310	310	310	H	380	(380)A	380	340	380	330	330	290	250	250	260	260	260	(260)S						
22	(270)A	(290)A	230	A	<300	S	(270)S	A	L	270	310	360	310	370	410	370	410	370	H	370	350	370	370	370	270	270	270	(240)A	230							
23	240	(240)S	230	230	230	S	5	A	G	340	300	270	280	H	(370)H	320	360	(500)S	460	330	330	330	330	280	260	260	(220)A	(210)S	(280)A							
24	(280)S	A	A	A	A	A	(250)A	(370)S	300	280	290	270	310	F	370	320	340	340	340	320	280	280	280	280	280	220	220	220	220	220	250					
25	300	(300)A	270	(260)S	250	250	260	G	G	400	290	410	G	G	G	500	(460)S	370	K	350	K	320	K	280	K	220	K	220	K	220	K	220	K			
26	290	K	280	290	290	290	(270)F	250	370	370	310	310	360	310	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370				
27	260	270	270	280	280	290	S	300	290	G	370	370	310	420	310	490	330	320	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310			
28	A	A	A	A	A	A	(300)S	230	L	330	300	(350)A	400	340	340	340	340	(380)S	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320		
29	270	310	A	A	A	A	300	250	L	340	(270)A	310	340	350	360	350	350	380	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370		
30	A	280	(290)S	(270)S	(300)S	250	G	380	310	360	360	380	310	320	310	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330				
31	240	280	270	270	280	280	260	330	310	390	330	330	410	400	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370				
Median	260	280	270	270	280	280	260	330	350	350	340	360	360	400	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370				
Count	29	28	27	24	27	27	21	28	31	30	29	26	29	21	31	31	31	31	31	31	30	30	31	31	31	30	31	30	31	30	31	30	29	31	30	29

Mc 10250 Mc in 1.15 sec.
Manual □ Automatic □

TABLE 74
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.
IONOSPHERIC DATA

foF2 (Characteristic)	Mc (Unit)	July (North)	Mc (Unit)	July (North)	75°W Mean Time																					
					75°W Mean Time																					
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	3.5 F	3.1	3.2	2.9	2.5 F	3.1 F	4.3 H	4.4	4.5 H	5.4	5.6	5.8 H	5.6	5.0	5.0	5.3	5.4	5.7	6.0	6.0	5.7 J	6.0	5.7 J	4.6	4.5	
2	3.9	3.6	3.1	2.9 F	2.5 S	3.2	4.4	4.7	5.2	5.3	5.8 H	5.5	5.2	6.2	6.6	7.3	7.0	8.0 K	7.2 K	5.9 K	5.3 S	5.9 K	3.1 F	-		
3	3.0 K	3.1 K	3.0 K	2.5 K	2.5 K	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F	3.0 F											
4	3.6 F	(3.0) S	(3.7) F	(3.7) F	(3.7) F	F	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	(4.1) H	
5	4.0	3.6 F	3.5 F	3.2 F	2.6 F	3.3	4.2 H	4.9	5.4	5.5	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
6	4.2	3.8	3.2 F	2.9	(2.3) S	3.1	3.8 H	4.5 H	5.0	6.3	5.9 H	5.8 H	5.3	5.3	5.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
7	5.2 K	5.2 K	4.5 K	3.7 K	3.1 K	3.2 K	3.8 K	4.2 K	4.6 K	< 4.4 G	4.8 H	4.8 H	A	A	A	A	5.0 K	5.0 K	5.6 K	5.4 K	5.1 K	4.9 K	5.0 J	4.6 K	-	
8	4.7 K	4.3 K	3.7 K	3.2 K	3.0	3.4	4.3	5.1	5.3	5.0	5.4	5.8	5.0	4.9	(5.5) S	5.1	5.8	[5.8] #	5.8	6.0	6.0	5.6	5.0	4.7	-	
9	4.2	4.4	4.2	3.9	3.4	3.4	4.4	(4.7) S	5.3	A	A	A	A	A	A	A	A	A	5.5	5.6	5.5	5.6	5.7	5.6	(4.8) P	
10	4.5	(4.1) S	(3.8) F	A	(3.2) S	4.3	4.6 F	4.9 F	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
11	6.2	4.3 F	3.8	3.2 F	3.0	2.9	3.8 F	(4.1) S	4.5	< 3.9 G	< 4.1 G	< 4.4 G	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	4.7 K	
12	3.9 F	3.2 K	2.9 F	2.4 F	2.1	2.9	3.8	4.1	4.1	4.1 F	4.6	< 4.3 G	< 4.3 G	4.9	5.1	5.0	4.9	4.9	4.9	5.2 K	5.4 K	5.4 K	5.7 K	5.2 K	4.1	
13	3.8 F	(3.9) A	(3.0) S	2.3 F	2.2 F	2.6 F	(3.8) A	4.1 F	4.6	< 4.3 G	< 4.3 G	< 4.3 G	4.9	5.1	5.0	4.9	5.2	5.2	5.4	5.3	5.5	5.5	4.9	4.8	4.7	
14	4.2	4.0	3.6	3.3	2.9	2.8 H	2.8 H	< 3.5 G	(4.0) S	4.6 H	(4.8) S	A	A	A	A	4.8	5.0	5.4 H	(5.0) S	5.4	5.5	5.5	5.6	5.6	5.7	
15	4.9	3.9	3.5 F	3.0	2.9	3.2	4.5	4.9	5.4	5.6	5.6	5.7 F	5.9	6.4	6.0	6.0	6.0	6.2	6.8	6.8	6.7	(7.2) S	b4	(5.4) S	(5.0) S	
16	4.8	4.2 F	4.3 F	3.6 F	3.2 F	3.0	(4.5) S	4.9	4.7	5.6	5.5	[5.4] A	(4.9) S	5.0	5.0	5.3	[5.6] #	5.7	(5.4) S	5.5	5.7	5.6	4.7	(4.4) S	-	
17	4.2	(3.6) F	(3.6) S	3.3	3.0	3.1	(4.2) H	4.8	(4.6) A	4.8	5.3	5.1	4.9	5.0	5.0	5.1	5.2	5.4	5.6	5.6	5.6	5.6	5.6	5.6	4.2 F	
18	3.5 F	3.2 F	3.1 F	3.0 F	2.9 F	3.3	4.1	5.1	[4.8] A	4.8	5.5	5.6	5.7 F	5.9	6.4	6.0	6.0	6.0	6.2	6.8	6.8	6.7	(7.2) S	b4	(4.8) S	(4.2) S
19	3.7	3.5	(3.5) S	3.2 F	(3.6) S	3.4	4.2	4.8	5.0	5.4	5.3	5.2	5.4	5.3	5.3	5.2	5.1	4.8	4.8	5.2	5.3	5.3	4.9	4.9	4.1	
20	3.5 F	3.7	3.6 F	3.1 F	2.7 F	3.0 F	4.2	4.5 F	4.8	5.2	5.4	5.6	5.6	5.5	5.6	5.6	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	
21	4.8	4.2	3.6	3.1	2.6	2.9	3.9	4.4	4.9	5.8	6.0	5.7 H	5.1	[5.2] A	5.1	5.4	5.0	5.5	5.6	6.4	6.6	6.6	b0	5.0	4.2 F	
22	(3.3) A	3.1	(3.0) F	2.6 S	2.3 F	2.7 F	(2.7) A	3.8	4.9	5.3	5.0	4.9	5.4	5.2	5.2	4.8	5.2	5.2	5.2	5.4	5.8	5.8	5.8	5.8	5.8	4.0
23	4.6	3.6 F	3.1	(2.7) S	(1.9) S	(2.5) A	< 3.3 G	4.2	5.2	5.5	5.0 H	(5.2) H	5.4	5.2	(4.8) S	4.7	5.3	5.3	5.4	6.5	6.5	6.6	6.6	6.6	(3.5) A	
24	(3.2) S	A	F	A	(2.1) A	A	A	A	3.3	(4.2) S	5.3	5.6	5.9	5.8	5.4 F	5.3	5.6	5.4	5.4	5.7	5.7	6.2	6.0	5.2	4.0	
25	2.8 F	2.7 F	2.4 F	(2.3) S	2.1	2.6	< 3.3 G	< 3.8 G	4.3	5.0	4.8 F	< 4.4 G	< 4.3 G	4.6	4.5 K	4.9 K	4.9 K	4.9 K	5.0 K	4.7 K	5.4 K	5.4 K	4.5 X	3.6 F		
26	3.2 K	2.9	2.7 F	2.5	2.3	2.6	3.4	(4.1) S	5.3	[5.4] A	5.4	4.8	5.1	5.0	4.9	5.2	5.3	5.6	5.7	5.3	5.2	4.7	3.6 F	2.9		
27	3.2	3.2	2.3 F	1.9 F	1.7 F	2.4	< 3.3 G	4.1	4.3	5.1	4.9	5.2	4.7	5.5	5.4	5.5	4.9	5.0	4.9	4.8	5.2	4.2	3.0	A		
28	A	A	A	A	A	2.2 F	2.6 F	4.5	5.2	5.4	[4.9] A	5.4	[5.2] S	5.5 H	5.0	5.3	5.2	5.5	5.7	6.2	6.0	5.2	4.0	[2.9] A	-	
29	(2.8) S	(2.5) F	A	A	A	2.3 F	2.6	3.6	4.4	[4.8] S	5.1	5.4	5.2	5.2	5.4	4.9	5.1	5.6	5.6	6.3	(6.6) S	5.8	A	A		
30	A	(2.6) F	2.3 F	(2.3) F	(2.1) S	2.4	< 3.5 G	4.3	5.7	5.2	5.2	5.1	5.1	5.1	5.1	5.2	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	
31	3.5	(2.7) S	(2.4) F	(2.6) F	(2.1) S	2.6 F	3.8 F	4.4	4.9	4.8	5.5	5.0	5.2	5.4	5.4	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	
Median	3.9	3.6	3.4	2.9	2.5	3.0	3.8	4.4	4.9	5.0	5.4	5.2	5.2	5.2	5.2	5.3	5.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.3	
Count	29	29	28	27	28	26	27	28	31	31	30	29	28	29	30	31	31	31	31	31	31	31	31	31	31	29

National Bureau of Standards

E.J.W., J.W.P.

L.F.M., J.S.

Calculated by E.J.W., N.B.

Swept L.O. Mc 1025 Q. Mc incl. 135 sec.

Manual □

Automatic ■

GPO 814546

Form adopted June 1946

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

TABLE 75
IONOSPHERIC DATA

July, 1955
(Month)

Mc
(Characteristic)

Lat 38.7°N
Observed at Washington, D.C.

National Bureau of Standards

E.J.W., J.W.P., L.F.M., J.J.S.

Scaled by: 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	Mean Time				
																									75°W				
1	[3.2] ^R	3.2	3.1	3.0	2.6 ^F	3.8 ^H	4.4 ^H	(4.9) ^H	5.0	5.5	5.6	5.7 ^H	5.3 ^H	5.0	5.0	5.3	5.6	5.8 ^H	5.9	6.0	5.2	4.4	7.2						
2	3.9	3.3	2.8 ^F	2.5	2.6 ^F	3.7	4.8	5.1	4.7 ^J	5.0	5.3	5.5	5.3	[5.3] ^R	5.7 ^H	6.7	7.4	7.0	7.7 ^K	6.8 ^K	5.2 ^K	(2.9) ^L	3.0 ^K						
3	3.1 ^K	2.7 ^J	2.3 ^K	2.3 ^K	2.3 ^K	[3.3] ^J	[4.0] ^S	4.6	5.2	(5.1) ^H	5.4 ^H	4.5 ^G	4.8 ^H	4.9	5.2	4.9 ^H	5.0	5.2	5.1	5.4	5.2	4.8 ^V	4.2 ^J	(3.8) ^J					
4	3.2 ^J	(3.1) ^J	(4.2) ^R	R	R	3.7	4.5	4.7	5.0	5.7	5.3	5.3	5.5	5.0	5.0	5.1	5.1	5.5	5.7	5.7	(5.0) ^S	4.5	3.9						
5	3.7 ^F	3.6 ^F	3.4	3.0	2.7 ^F	3.8	4.5	5.0	5.7	5.7 ^H	5.5	5.7	6.3	6.0	5.8	6.1	6.3	6.4	6.2	6.2	6.2	5.3	4.9	4.3					
6	4.1 ^F	3.6 ^F	2.9 ^F	2.6 ^F	2.4	3.5	4.2	4.6	5.7 ^H	6.0	5.7 ^H	5.5	5.8	5.4	5.5	5.7	6.0	6.8	6.8 ^H	6.8 ^H	6.8 ^A	5.8 ^A	5.2 ^K						
7	5.3 ^A	4.9 ^A	4.3 ^A	3.4 ^A	2.9 ^A	3.6 ^A	4.2 ^A	4.5 ^A	4.7 ^A	4.5 ^A	4.5 ^A	4.5 ^A	[4.8] ^S	[4.8] ^R	4.8 ^H	5.0 ^A	5.4	5.7 ^A	5.2 ^A	5.6 ^A	5.2 ^A	5.0 ^A	4.7 ^J	4.6 ^A					
8	4.3 ^A	4.1 ^A	3.7 ^A	3.0	2.9	3.8	4.4	4.6	4.9	4.8	5.6	5.4	5.0	(4.6) ^S	5.4	5.4	5.8	5.7	6.0	6.2	5.7	5.2	5.0	4.4					
9	4.2	4.2	(4.0) ^R	(3.5) ^S	3.2	4.9	4.6 ^J	4.7	R	R	R	R	R	R	R	R	R	5.5	5.6	5.6	5.6	5.6	5.8	5.7	(4.9) ^S	(4.6) ^S			
10	4.6 ^J	4.2	A	A	5	(2.9) ^J	3.7	[4.3] ^R	4.8 ^F	5.5	5.1	6.0	5.8	5.3	5.8	[5.7] ^R	5.6	5.6	5.5	[5.8] ^R	6.2	6.0	5.7	5.7	5.8 ^F				
11	5.5 ^L	3.8 ^F	3.5 ^F	3.2 ^F	(2.7) ^F	3.6	3.8 ^G	4.5	(4.8) ^S	5.2	4.7	4.4 ^G	4.9	[5.4] ^R	5.2	5.4	6.1 ^F	5.4	4.9 ^F	4.9 ^F	5.4	5.6	5.0	5.0	4.9 ^F				
12	3.4	3.1	2.4	2.2 ^F	2.3 ^F	3.4	< 3.7 ^G	4.2	< 4.0 ^G	4.4 ^G	4.4 ^G	4.5 ^G	< 4.5 ^G	< 4.5 ^G	4.9 ^H	4.8 ^H	5.2 ^K	5.5 ^A	5.3 ^A	5.7 ^K	5.7 ^K	4.2 ^F	4.1	3.9					
13	3.7	3.0	2.5	2.2 ^F	2.2	3.2	[4.0] ^A	4.4 ^F	4.5	4.9	5.2	5.0	5.2	4.9	5.1	5.3	5.4	5.3	5.4	5.5	4.8	4.7	4.5						
14	4.2	3.7	3.3	3.2	2.7	3.2	3.6	4.4 ^H	4.8 ^H	4.8 ^H	4.8 ^H	5.0	(4.9) ^S	(4.9) ^R	5.3 ^H	5.3	5.3	5.3	5.4	H	H	6.0	6.0 ^J	5.6	(4.8) ^F	4.5			
15	4.2	3.8	3.3	3.0	3.0	4.1	4.9	5.5	5.8	5.8	5.8	6.1	6.4	6.2	5.8	5.9	6.5	6.9	6.7	7.0	(6.6) ^S	5.8	[5.5] ^J	H	5.9 ^J				
16	4.2 ^F	4.2 ^F	3.7 ^F	3.4 ^F	2.9 ^F	3.7	[4.7] ^R	(4.7) ^R	5.2	5.3 ^H	[5.6] ^R	(5.2) ^R	5.2	5.1	[5.7] ^R	5.4	5.6	5.4	5.4	5.4	5.6	(4.8) ^A	4.7	4.1					
17	(3.7) ^J	3.7	F	3.4 ^F	3.2	2.8 ^J	3.6	(4.5) ^A	(4.7) ^R	4.7	H	5.0	5.3	5.0	4.9	5.0	5.3	5.0	5.5	5.7	6.5	6.3 ^J	5.7	4.7	4.0 ^F				
18	3.2	3.4	2.8 ^F	2.7 ^F	2.8	3.7	4.7	4.8	4.7	5.1	5.5	5.8	5.2	5.4	5.2	5.2	5.2	5.0	5.0	5.0	5.3	(5.5) ^S	(5.4) ^S	(4.9) ^S	4.5	3.9 ^F			
19	3.8	3.5	(2.5) ^J	2.9 ^J	2.9	3.8	4.8 ^J	5.0	5.2	5.3	5.5	5.4	5.2	5.1	5.2	5.1	5.2	5.0	5.0	4.8	4.7	5.5	4.9	4.5	4.6 ^F				
20	(5.3) ^F	3.6	3.6 ^F	3.0 ^F	2.8	3.6	4.8	4.9	5.1	6.0	5.8	5.8	5.1	5.4	5.2	5.3	5.4	5.4	5.7	6.0	6.2	5.8	5.1 ^J	5.0 ^J					
21	4.2	3.8	3.5	3.0	2.7 ^J	3.4	4.3	4.8 ^F	5.5	6.2	5.7	5.3	5.0	[5.7] ^R	5.3 ^H	5.5	5.4	5.6	6.2	6.8	(6.1) ^R	4.9	4.3	3.7					
22	[2.2] ^R	(2.0) ^F	(3.2) ^J	A	2.3	3.2	4.4	4.9	4.8	5.0 ^F	5.2 ^H	5.2	5.3	5.2	5.3	4.9	5.4 ^H	5.2	5.0	5.9	5.8	5.2	4.7						
23	4.1 ^J	3.3 ^F	2.8 ^F	(2.0) ^J	[2.2] ^R	3.2	4.0	4.8	5.0	5.0	5.0 ^H	[5.2] ^J	5.0	4.8	4.9	4.9	4.9 ^J	[5.2] ^R	5.4	6.0 ^J	6.7	5.6	4.2	3.5	(3.0) ^F				
24	[3.3] ^R	(2.7) ^R	A	R	3	4.6	[3.8] ^R	4.6	5.5 ^H	6.3	5.5 ^H	5.2	5.4	5.3	5.6	5.2	5.5	5.6	5.7	5.4	4.9	4.9	4.1	3.3	2.7 ^F				
25	[2.8] ^R	2.8 ^F	(2.6) ^J	2.2	2.0	3.0	3.6	4	4.6	4.8	4.7	< 4.3 ^G	4.6	4.7	4.8 ^H	4.9	4.9 ^H	4.9	4.9 ^K	5.3 ^A	5.5 ^A	5.2 ^K	3.8 ^F	3.5 ^K	3.3 ^K				
26	3.1 ^J	2.9	2.6 ^F	2.3	2.4 ^F	3	4.0	4.6	5.0	[5.4] ^R	4.9	5.0	5.2	5.1	5.0	5.2	5.5	6.0	5.7	5.4	4.9	4.9	3.9	3.3	3				
27	2.7 ^F	2.4	2.2 ^F	(1.9) ^J	1.8 ^F	3.3	3.8	4.3	4.5	4.9	4.9	5.0	5.3	5.4	5.4	4.7 ^F	5.0	4.7	4.7	4.7	4.7	4.2	(3.4) ^J	A					
28	A	A	A	A	2.2 ^F	2.3 ^F	3.3	4.0	4.8	5.0	5.2	5.2	5.4	5.0	5.2	5.5	5.6	5.8	6.5	5.8	5.8	4.5	3.1	2.8					
29	(2.7) ^J	(2.5) ^J	A	A	2.3	3.2	4.2	4.8	5.0	5.2	5.0	4.8	5.4	5.4	5.5	5.5	5.0	5.4	5.8	6.6	6.2	A	A	A					
30	2.5	(2.4) ^F	(2.4) ^F	(2.1) ^F	2.1 ^F	3.2	< 3.8 ^G	4.9	5.8	5.3	(5.4) ^H	5.2	5.0	5.2	5.0	5.2	5.1	5.4	5.4	6.8	5.2	4.7 ^J	3.7	3.6					
31	2.8	(2.7) ^J	(2.4) ^J	(2.4) ^S	(2.4) ^J	2.3 ^F	3.2	(2.0) ^F	4.5	4.8 ^H	4.9	5.0	4.9	5.3	5.4	5.1	5.2	5.3	5.7	5.4	5.0	4.8	4.0						
Median	3.7	3.2	2.7	2.6	2.6	3.5	4.2	4.7	5.0	5.1	5.3	5.2	5.2	5.1	5.2	5.2	5.2	5.4	5.4	5.6	5.9	5.7	5.0	4.7	4.0				
Count	30	27	27	27	29	31	31	31	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29				

TABLE 76
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

National Bureau of Standards
Scaled by E.J.W., J.W.P., L.F.M., J.S.
Calculated by E.J.W., N.B.,

h' F1 (Characteristic)	Km (Units)	July (Month)	Lat 38.7°N, Long 77.1°W												75°W Mean Time																						
			Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220										
2			Q	A	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220									
3			Q	A	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220									
4			Q	A	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220									
5			Q	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210									
6			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220								
7			Q	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240								
8			Q	A	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170							
9			A	A	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210							
10			A	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220								
11			Q	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230							
12			A	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250							
13			Q	A	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200						
14			Q	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210							
15			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220							
16			Q	4	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240						
17			Q	A	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210						
18			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220						
19			Q	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230						
20			Q	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210						
21			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220					
22			A	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230					
23			Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A						
24			Q	A	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200				
25			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220				
26			Q	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210				
27			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220				
28			Q	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230				
29			Q	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220				
30			Q	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240				
31			Q	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210				
			Median		220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220			
			Count		21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21

TABLE 77
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.
IONOSPHERIC DATA

Form adopted June 1946
National Bureau of Standards
Institution E. J. W., J. W. P., L. F. M., J. S.
Scaled by E. J. W., N. B.
Calculated by E. J. W., N. B.

fo F1, Mc
(Characteristic) Mc
 (Unit)
July, 1955
(Month)

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

Day	75°W Mean Time											
	00	01	02	03	04	05	06	07	08	09	10	11
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Median	3.3	3.8	4.0	4.2	4.4	4.4	4.4	4.4	4.4	4.3	4.2	3.9
Count	12	2.9	3.0	2.9	2.7	2.7	2.7	2.7	2.7	2.8	1.9	0

Sweep LO Mc 1025 Q.Mc in 35 sec.
Manual □ Automatic ☒

Form adopted June 1946

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

TABLE 79
IONOSPHERIC DATA
 Mc (Characteristic) , Mc (Unit)
 July (Month)

Observed at **Washington, D.C.**

Lot 38.7°N., Long 77.1°W.

National Bureau of Standards
 E.J.W., J.W.P., L.F.M., J.J.S.
 Scaled by: E.J.W., N.B.
 Calculated by: E.J.W., N.B.

Day	75°W Mean Time										
	00	01	02	03	04	05	06	07	08	09	10
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
Median											
Count											

Keep I.O. Mc to 25.0 Mc in 3.5 sec.
 Manual Automatic

National Bureau of Standards
 [Institution]
 Calculated by E.J.W., N.B.
 Scaled by E.J.W., J.W.P., L.F.M., J.J.S.

TABLE 80
 IONOSPHERIC DATA
 75°W Mean Time

E _s (Characteristic)	Mc, Km (Unit)	July 1955											
		00	01	02	03	04	05	06	07	08	09	10	11
<u>Observed at Washington, D.C., Lat 38.7°N, Long 77.1°W</u>													
Day	00	01	02	03	04	05	06	07	08	09	10	11	12
1	4.6 110	5.0 100	7.6 110	2.1 100	4.4 100	3.1 100	4.5 110	4.1 100	4.5 110	5.1 110	4.2 100	4.5 110	5.1 110
2	3.2 110	4.2 100	4.1 110	2.9 100 ^H	3.1 120	2.4 100 ^H	2.1 120	5.0 120	5.7 110	4.3 120	4.5 110	5.0 110	5.7 110
3	3.1 120	2.9 120	2.4 110	<1.6 ^S	<1.5 ^S	<1.6 ^S	5.9 120	6.4 120	5.8 110	4.5 110	4.6 100	5.2 110	5.9 110
4	4.8 100	3.8 100	3.7 110	4.3 100	4.3 110	4.0 100 ^M	5.0 110	3.6 120	7.0 110	6.4 120	6.3 110	6.0 110	6.5 110
5	2.1 100	2.9 100	2.9 110	2.3 100	2.3 110	2.0 100	2.0 100	2.0 100	2.0 100	2.0 100	2.0 100	2.0 100	2.0 100
6	3.7 110	2.9 110	<1.6 ^S	3.1 100	2.2 100	2.2 100	4.8 110	4.7 110	4.3 110	4.1 110	4.0 110	4.5 110	4.2 110
7	2.6 110	<1.6 ^S	<1.6 ^S	E	2.5 100	2.5 100	4.5 110	4.5 110	4.9 110	4.9 110	4.9 110	5.1 110	5.1 110
8	4.3 100	3.6 100	3.6 100	3.7 100	3.7 100	3.7 100	4.7 110	5.3 110	5.3 110	5.4 110	5.0 110	5.4 110	5.3 110
9	5.1 100 ^S	3.5 100	2.9 100	3.1 100	3.1 100	3.1 100	5.1 100	5.6 100	5.6 100	5.6 100	5.6 100	5.6 100	5.6 100
10	3.1 120	(5.0) 100 ^H	7.4 110	8.2 100	7.2 100	7.0 110	10.0 110	10.0 110	10.0 110	10.0 110	10.0 110	10.0 110	10.0 110
11	5.6 110	4.3 100	4.1 100	8.0 100	2.8 100	3.7 110	7.1 110	4.9 110	11.0 110	11.0 110	11.0 110	11.0 110	11.0 110
12	<1.6 ^S	<1.6 ^S	4.6 100	2.4 100	3.0 100	3.0 100	3.0 100	3.1 100	3.1 100	3.1 100	3.1 100	3.1 100	3.1 100
13	4.9 110	4.9 110	4.8 100	4.3 100	4.3 100	4.3 100	4.8 110	4.9 110	4.9 110	4.9 110	4.9 110	4.9 110	4.9 110
14	3.9 100	3.1 100	3.1 100	<1.6 ^S	<1.6 ^S	G	2.3 120	3.8 120	5.1 100 ^H	4.6 120	7.3 110	6.3 110	3.6 110
15	3.1 110	<1.6 ^S	<1.6 ^S	2.7 100	2.7 100	3.0 120	3.3 120	5.4 100 ^M					
16	4.4 100	3.7 100	4.1 100	2.1 100	2.1 100	3.7 100	3.1 100	3.1 100	3.1 100	3.1 100	3.1 100	3.1 100	3.1 100
17	4.6 110 ^H	4.5 100	2.9 100	4.3 100	4.3 100	4.3 100	4.8 110	5.6 110	5.6 110	5.6 110	5.6 110	5.6 110	5.6 110
18	3.4 110	3.1 100	3.1 100	<1.3 5	<1.3 5	G	4.2 110	7.0 110	7.8 110	5.2 110	5.3 100	5.3 100	5.3 100
19	4.2 100	4.3 100	5.5 100	3.1 100	2.5 100	G	3.8 120	5.3 110	5.3 110	5.0 100	4.2 110	4.2 110	4.2 110
20	4.8 100	3.8 100	3.4 100	4.8 100	3.1 100	3.3 100	3.6 100	5.8 100	5.4 100	4.9 110	4.9 110	4.9 110	4.9 110
21	4.6 100	3.1 100	3.7 100	3.7 100	3.8 100	2.9 100	4.6 100	4.5 110	4.8 100	4.7 100	4.7 100	4.7 100	4.7 100
22	4.7 100	4.6 100	4.6 100	4.3 100	3.2 110	4.3 100	4.3 100	4.3 100	4.8 100	4.4 100	4.4 100	4.4 100	4.4 100
23	<1.6 ^S	<1.6 ^S	<1.6 ^S	2.9 100	2.9 100	2.9 100	3.4 100	4.1 100	4.1 100	4.0 100	4.0 100	4.0 100	4.0 100
24	<1.6 ^S	4.3 100	4.0 100	4.1 100	3.2 100	4.7 100	4.0 100	3.0 100	4.3 100	4.3 100	4.3 100	4.3 100	4.3 100
25	4.8 100	3.8 100	<1.2 5	<1.3 5	<1.3 5	S	3.6 100	3.6 100	3.6 100	4.7 100	4.5 100	4.3 100	4.3 100
26	3.5 110	3.0 110	4.1 100	4.8 100	4.0 100	G	3.6 110	3.8 110	5.0 100	3.8 100	4.3 100	4.1 100	4.4 100
27	<1.6 ^S	<1.6 ^S	2.9 100	(3.2) 120	3.3 110	4.3 110	4.9 100	3.7 110	4.6 100	4.4 100	4.4 100	4.4 100	<1.6 ^S
28	4.9 110	4.6 100	4.0 100	4.9 100	4.2 100	3.1 100	3.9 110	4.2 110	6.2 100	7.4 100	6.8 100	6.5 100	6.6 100
29	4.0 110	4.8 100	4.2 100	2.9 100	2.9 100	2.9 100	4.1 100	4.5 100	4.0 100	4.1 100	4.1 100	4.1 100	4.1 100
30	11.5 110	6.2 100	<1.6 ^S	(4.0) 5	4.5 100	4.5 110	4.9 110	15.0 110	5.0 110	4.1 100	3.8 110	4.1 100	15.0 110
31	(3.7) 120	4.8 100	4.9 100	7.0 110	7.2 110	3.1 110	4.8 110	10.0 100	8.4 100	6.3 100	5.0 100	3.9 110	5.8 100
Median	3.9	3.8	3.7	3.7	3.1	4.5	4.9	5.2	4.9	4.7	4.5	4.6	4.2
Count	31	31	31	31	31	31	31	31	31	31	31	31	31

Sweep 10 Mc to 250 Mc in 135 sec.

Manual □ Automatic □

Form adopted June 1946

National Bureau of Standards

Institution E.J.W., J.W.P., L.F.M., J.J.S.

Calculated by E.J.W., N.B.

TABLE 8I
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.
IONOSPHERIC DATA

(M1500) F2, (Unit) July, 1955
(Characteristic) (Month)

Observed at Washington, D.C.

Lat. 38°7'N, Long 77°10'W

Day	75°W Mean Time											
	00	01	02	03	04	05	06	07	08	09	10	11
1	21 F	21	22	22	22 F	22 F	22 F	22 H	23	23 S	19 H	21
2	21	21	20	(2.1) F	(2.1) S	2.1	2.4	2.0	2.4	1.8	2.0	2.2
3	19 F	20 F	21 F	22 F	(2.0) F	A	(2.1) S	1.8	2.3	2.1	1.9	1.9
4	2.3 F	(2.2) S	(2.0) S	F A	F S	2.3 F	2.3 F	1.9	2.4	2.0	1.9	2.0
5	2.0	1.9 F	2.1 F	2.2	2.3 F	2.4	2.2	2.3	2.0	2.1	1.9	2.0
6	2.1	2.2	2.2 F	2.1	(2.0) S	2.2	2.1 H	2.0	2.1 H	2.0	1.7	2.0
7	1.9 F	1.9 F	2.0 A	2.1 F	2.1 F	1.9 F	1.9 F	G	A	A	1.9 F	1.9 F
8	2.1 F	2.2 F	2.0 F	2.1 F	2.1	2.1	2.3	2.2	2.0	1.8	1.7	1.8
9	2.1	1.9	2.1	2.0	2.0	2.3	2.1	(1.9) S	A	A	A	A
10	1.9	(1.2) S	(2.0) F	A	A	(1.2) F	1.9	2.0 F	A	1.8 H	1.9 H	1.9 H
11	2.2	2.2 F	2.0	2.1 F	2.0	1.9 F	J S	1.6	1.9	A	1.7	1.7
12	2.3 F	2.0	2.1 F	1.9	1.9	1.9	2.1	G	G	G	1.7	1.6 A
13	1.9 F	A	(1.2) F	2.1 F	1.9 F	2.1 F	A	1.7 F	1.9	G	1.7	1.6
14	2.1	2.0	1.9	2.0	1.8	1.9 H	G	J S	2.1 H	A	1.7	1.9 H
15	2.0	2.0	2.2 F	2.1	2.0	2.2	2.3	2.2	2.1	1.9 F	1.8	2.0
16	2.0	2.0 F	2.0 F	2.1 F	2.1	1.25 S	2.2	1.7	2.3	A	1.8 S	1.8 H
17	2.0	(1.2) F	(2.0) S	2.1	2.2	2.2	1.20 H	2.3	A	1.8 H	1.8 H	1.8 H
18	2.2 F	2.0 F	2.0 F	2.1 F	2.1 F	2.2	2.3	2.2	2.1	A	1.9	1.9
19	2.0	2.1	1.20 F	1.20 S	2.2	2.3	2.2	2.0	1.9	2.1	2.1	2.1
20	2.1 F	1.9	2.0 F	2.1 F	2.2 F	2.2 F	2.3 F	2.0	1.9	2.1	2.2	2.2
21	2.0	2.0	2.1	2.1	2.1	2.2	1.9	2.1	2.2	2.1	2.1	2.1
22	(2.0) A	2.1	(2.2) F	(2.1) S	2.1 F	A	2.1	2.4	2.5	2.2	2.1	2.0
23	2.2	2.1 F	2.3	S	J S	A	G	2.1	2.2	2.0 H	2.3	2.3
24	(2.1) F	A	A	J A	A	2.5	(1.9) S	2.3	2.3	(1.7) S	2.1	2.1
25	2.0 F	2.0 F	2.1 F	J S	2.2	2.4	G	G	2.0	1.9 F	G	1.7
26	2.2 F	2.1	2.2 F	2.2	2.0	2.3	1.9	A	2.3	1.9	2.0	2.0
27	2.2	2.2	2.2 F	2.1 F	2.1 F	2.2	2.2	G	2.1	1.9	2.0	2.0
28	A	A	A	2.2 F	2.4 F	2.3 F	2.2	A	2.0	1.7	2.1	2.2
29	(2.1) F	(1.9) S	A	A	2.1 F	2.3	2.2	2.1	2.0	2.0	1.9	2.0
30	A	(2.0) F	2.0 F	(1.9) S	(1.9) S	2.2	2.3 F	2.2	2.0	1.9	2.0	2.0
31	2.1	(1.9) F	(2.0) S	(1.9) S	(1.9) S	2.2	2.3	2.0	2.1	1.9	2.0	2.0
Median	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	1.9	2.0	2.0
Count	2.9	2.8	2.8	2.4	2.7	2.8	2.9	2.7	2.9	2.5	2.8	2.7

Sweep LO Mc to 25.0 Mc in 1.25 sec.

Manual □ Automatic ■

TABLE 82
IONOSPHERIC DATA(M3000)F2. July, 1955
(Characteristic) (Month)Observed at Washington, D. C.
Lat 38.7°N, Long. 77.1°W

Day	75°W										Mean Time												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
1	3.1 F	3.1	3.2	3.2 F	3.2 H	3.4 F	3.4 F	3.4 (3.4) ^S	2.9 "	3.2	3.2 *	3.2	3.1	2.9	3.1	(3.3) S	3.2 *	J	3.1	3.0	3.1	3.0	
2	3.1	3.1	3.0 K	(3.1) F	(3.1) S	3.2	3.2 K	3.0	3.0 F	3.0 H	3.3	3.3	3.2 *	3.1 K	3.2 *	3.4 K	(3.7) K	3.9 K	(3.7) K	3.9 K	(3.7) K	3.9 K	
3	2.9 K	3.0 K	3.1 K	3.2 K	3.2 K	(3.0) S	3.3 F	A	A K	(3.1) S	3.1	3.4	2.7	2.7	2.7	2.9	3.0	3.2	3.2	3.1	3.1	(3.2) A	
4	3.4 F	(3.2) S	(3.2) F	(3.2) S	F	R	F	K	(3.1) S	2.7	3.4	2.8 H	2.8	2.9	2.9	2.9	3.0	3.2	3.2	3.1	3.1	3.1	
5	3.0	2.9 F	3.1 F	3.2	3.2 F	3.3 F	3.5	3.4 F	2.9	3.0	3.0	3.3	2.9	3.1	3.1	3.1	3.1	3.2	3.2	3.1	3.1	3.1	
6	3.1	3.3	3.2 F	3.2 F	3.1 F	(3.0) S	3.2	3.2 F	3.1 *	2.7 H	3.0	3.3	3.0 H	3.0	2.8	2.8	2.8 H	3.1	3.1	3.1	3.1	3.1	
7	2.8 K	2.9 K	3.0 K	3.1 K	2.9 H	2.8 K	2.8	G K	2.6 K	A K	A K	2.8 K	2.8 K	2.8 K	2.8 K	2.8 K	2.8 K	2.8 K					
8	3.1	3.2 K	3.0 K	3.1 K	3.1 K	3.1	3.1	3.1	3.2	3.0	3.3	3.3	3.0	2.8	3.1	2.7	2.6	(2.9) S	2.7	3.1	3.2	3.1	
9	3.1	2.9 F	3.1	3.0	3.0	3.3	3.2	(2.9) F	3.1	A	A	A	A	A	A	2.9	3.0	3.0	3.1	3.1	3.2	3.0	
10	2.9	(3.0) F	(3.0) S	A	A	A	(3.2) F	2.9	3.0 F	3.2 F	A	A	2.7	3.3 H	(2.6) A	3.0	3.0 F	3.0	A	A	3.1	3.0	
11	3.2	3.2 F	3.0	3.1 F	3.1 F	3.0	3.0	2.9 F	J S	2.4	2.8	A	2.8 H	G	2.8	2.8	2.8	2.8 F	3.3	3.1	3.1	3.1	
12	3.3 F	3.2 D	3.1 F	2.9 F	2.8	2.8	3.1	2.6	G	G	G	2.2 K	2.6 K	2.4 K	2.7 K	2.7 K	2.8 K	2.8 K	3.0 K	3.0 K	3.0 K	3.2 F	
13	2.9 F	A	(3.1) F	(3.1) S	3.1 F	2.9 F	3.1 F	A	A	A	G	G	2.6	2.5	2.7	2.8	2.8	2.7	2.7	3.1	3.0	3.0	(2.9) S
14	3.1	3.0	2.9	3.0	2.7	2.9 H	6	J S	3.1 H	(3.0) S	A	A	2.6	2.8	2.9 H	(2.8) S	3.0	3.1	A	3.2	(3.1) S	3.1	(3.2) S
15	3.0	3.0	3.2 F	3.1	3.0	3.3	3.3	3.4	3.3	3.1	3.1	2.9 F	2.7	3.0	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.0	
16	3.0	3.0 F	3.0 F	3.2 F	3.1 F	3.1	(3.6) S	3.3	2.6	3.4	3.3	A	(2.8) S	2.8 H	2.7	2.7	2.8 K	2.8 K	3.0 K	3.1 K	3.1 K	3.1 K	
17	3.0	(3.0) F	(3.0) S	3.1	3.2	3.2	(2.9) H	3.4	A	2.7	2.9	2.9	2.9	2.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	
18	3.3 F	3.0 F	3.1 F	3.1 F	3.2	3.2	3.4	3.4	A	2.7	2.9	2.8	A	2.9	3.1	3.1	3.2	3.2	3.1	3.2	3.0	3.0	
19	3.0	3.1	(3.0) S	3.2	3.2 F	3.4	3.2	3.0	2.9	3.1	3.1	2.9	2.9	3.1	A	3.1	3.1 F	3.3	3.3	3.3	3.3	3.3	
20	3.1 F	2.9	3.0 F	3.1 F	3.2 F	3.3 F	3.2	3.4 F	3.0	2.8	3.1	3.2	3.1	2.7	3.1	2.8	(3.1) S	3.1	3.1	3.1	3.1	(3.2) S	
21	3.0	3.0	3.1	3.2	3.0	3.1	3.3	2.9	3.1	3.2	3.5	3.2 H	3.0	3.1	3.0	3.0	3.2	3.1	3.3	A	3.1	3.1	
22	(3.1) A	3.1	(3.3) F	(3.1) S	3.1 F	A	3.1	3.5	3.3	3.1	3.4	3.0	2.9	3.0 H	3.0	3.4	3.4	3.2	(3.2) S	3.2	(3.2) S	(3.2) S	
23	3.2	3.1 F	3.3	S	J S	H	6	3.2	3.3	3.5	3.0 H	(2.9) S	3.3	3.1	(2.6) S	2.7	3.1	3.0	3.2	3.1	3.3	(3.4) S	
24	(3.1) F	A	A	J A	A	3.5	(2.9) S	3.3	3.4	3.4	3.5	3.2 F	3.0	3.2	3.0	3.0	3.3	3.3	3.3	3.4	3.4	3.2	
25	3.0 F	3.0 F	3.1 F	J S	3.3	3.4	G	3.0	3.5	2.9 F	G	2.6	2.7 K	3.0 K	3.0 K	3.1 K	3.2 K	3.3 K	3.4 K	3.4 K	3.4 K	3.0 K	
26	3.2 K	3.1 F	3.2 F	3.0	3.3	2.9	(3.0) S	3.2	H	3.4	2.9	3.0	3.1	2.9	3.0	3.0	3.0	3.3	3.3	3.4	3.2	3.1	
27	3.2	3.3 F	3.1 F	3.1 F	3.1 F	3.2	6	3.1	2.9	3.3	2.9	3.3	2.6	3.1	3.2	3.2	3.2	3.3	3.2	3.4	3.2	A	
28	A	A	A	A	J A	3.3 F	3.5 F	3.3	3.3	H	3.0	(3.2) S	3.2 H	3.0	3.1	3.1	2.9	3.0	3.1	3.3	3.4	3.2	
29	(3.1) F	(3.1) F	(3.1) F	A	A	3.1 F	3.4	3.3	3.1	H S	3.2	3.1	3.0	3.0	2.9	3.1	3.2	3.3	3.4	3.5	A		
30	A	(3.0) F	(3.0) F	(3.0) F	(3.0) S	3.3	G	3.0	3.4	3.4	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.4	3.4	A		
31	3.1	(2.9) S	(2.9) S	(2.9) S	(2.9) S	(3.1) S	3.4 F	3.2 F	3.3	3.0	3.1	2.9	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.0	3.1	(3.2) S	
Median	3.1	3.0	3.0	3.1	3.1	3.2	3.2	3.1	3.1 S	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.2	3.1		
Count	29	28	28	24	27	28	29	28	27	29	27	28	25	26	26	28	30	30	29	30	29	27	

Sweep LO—Mc 1025.0 Mc in 13.5 sec.
Manual □ Automatic □

GPO 836-648

TABLE 83
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.
IONOSPHERIC DATA

Form adopted June 1946
National Bureau of Standards
E.J.W., J.W.P., T. M. F.M., J.J.S.

(M3000) FI
(Characteristic)
Observed c*
Lat 38.7°N Long 77.1°W
(Month)
July 1955
Washington, D. C.

Day	75°W												Mean Time													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L		
2	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L		
3	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K		
4	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L		
5	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L		
6	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L		
7	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K	Q	K		
8	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H		
9	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
10	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
11	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
12	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
13	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H		
14	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
15	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	
16	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	
17	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	
18	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	
19	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	L	Q	
20	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
21	A	(36) 4	37	38	40	40	F	38	H	38	H	40	H	41	40	H	41	40	H	38	H	38	H	38	H	38
22	Q	36	H	(40) H	43	(40) H	(41) F	(41) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H	(40) H					
23	Q	L	38	37	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
24	Q	H	36	37	39	42	H	41	H	42	H	41	H	42	H	41	H	42	H	41	H	42	H	41	H	42
25	Q	35	35	F	38	43	43	43	H	43	H	43	H	42	H	38	K	39	H	40	K	39	K	40	K	39
26	Q	37	39	41	H	H	H	H	43	H	40	H	40	H	42	H	38	H	38	H	37	Q	38	H	38	
27	Q	35	H	36	39	H	41	H	42	H	41	H	40	H	41	H	40	H	38	H	38	L	Q	38	H	38
28	Q	L	38	37	H	H	H	H	41	H	42	H	41	H	39	H	38	K	(37) 5	37	H	37	Q	37	H	37
29	Q	L	38	39	40	40	H	40	H	39	H	39	H	39	H	39	H	37	37	36	Q	36	Q	36	Q	
30	Q	35	36	H	39	38	41	40	H	38	H	41	H	40	H	41	H	42	H	37	37	Q	36	H	36	
31	Q	L	37	37	39	39	40	40	H	40	H	40	H	40	H	41	H	42	H	37	37	Q	36	H	36	
Median		35	37	38	39	40	40	40	40	39	40	40	40	39	39	38	38	37	37	—	—	—	—	—	—	
Count		12	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Sweep I.Q. Mc to 25 Q. Mc in 13.5 sec.
Manual Automatic

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

TABLE 84
IONOSPHERIC DATA(M1500) E (Unit)
(Characteristic) July, 1955
Observed at Washington, D. C.
Lat. 38.7°N., Long. 77.0°W.National Bureau of Standards
Scaled by: E.J.W., J.W.P., L.F.M., J.J.S.

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

Doy	75°W Mean Time												75°W Mean Time													
	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	H	A	H	A	H	A	H	A	H	(4.5) ^a	(4.5) ^a	4.3 ["]												
2	S	A	(4.4) ^a																							
3	S	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	S		
4	S	A	A	(4.4) ^a	S																					
5	S	A	H	4.5	A	H	A	H	A	H	A	H	4.5 ["]	4.4 ["]	A	A	A	A	A	A	A	A	A	A	A	
6	S	A	A	4.5	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	
7	S	4.4	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	K	A	S	
8	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9	S	A	(4.4) ^a	4.4	A	(4.4) ^s	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
10	S	A	A	4.5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
11	S	A	A	A	A	4.4	A	A	4.4	A	A	4.4	A	A	A	A	A	A	4.4	F	4.4	A	A	A	S	
12	S	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	S	
13	S	4.5	4.5	4.3	4.3	4.4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
14	S	A	4.5 ["]	(4.4) ^a	4.3	4.5 ["]	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
15	S	A	A	A	A	4.2	4.3	(4.2) ^a	S																	
16	S	A	A	A	4.4	(4.5) ^a	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
17	S	(4.4) ^a	4.4 ["]	(4.5) ^a	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
18	S	4.2	A	A	A	(4.5) ^a	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
19	S	A	A	A	4.2	4.4	4.5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
20	S	(4.4)	4.5	A	A	(4.5) ^a	A	A	A	A	A	A	A	A	A	S										
21	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
22	A	A	(4.5) ^a	(4.4) ^a	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
23	S	(4.6) ^a	(4.5) ^a	(4.4) ^a	A	A	A	A	(4.4) ^a	S																
24	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
25	S	A	A	A	A	A	4.5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
26	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
27	S	A	A	A	(4.5) ^a	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
28	S	4.3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
29	S	A	4.4	4.4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
30	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	S	
31	—	4.4	4.4	4.4	4.4	4.5	—	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	S	
Median Count	8	//	15	//	11	11	3	6	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	S

Sweep LO—Mc 1025.0 Mc in 13.5 sec.

Manual Automatic

Table 85

Ionospheric Storminess at Washington, D. C.July 1955

Day	Ionospheric character*		Principal storms		Geomagnetic character**	
	00-12 GCT	12-24 GCT	Beginning GCT	End GCT	00-12 GCT	12-24 GCT
1	2	3			2	1
2	2	3	1900	----	2	4
3	4	2	----	0700	3	2
4	2	2			2	1
5	1	1			1	2
6	1	1	2200	----	1	2
7	4	4	----	----	3	2
8	3	3	----	0300	3	3
9	2	3			2	2
10	2	1			2	3
11	1	3			3	3
12	1	4	1100	2100	3	3
13	3	3			2	2
14	2	3			2	2
15	1	2			1	4
16	1	2			3	2
17	2	2			3	2
18	2	1			3	1
19	1	2			1	1
20	2	1			1	1
21	0	1			1	1
22	3	2			1	1
23	1	2			2	3
24	3	2			3	2
25	3	4	1400	----	2	2
26	2	2	----	0000	3	3
27	3	2			2	1
28	3	2			1	1
29	3	2			2	2
30	3	2			2	2
31	3	1			2	2

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

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

----Dashes indicate continuing storm.

Table 86a

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

North Atlantic Path ~ June 1955

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:			Geomag- netic K_{Ch}			
	00	06	12	18			00	06	12	18	1-4 days	4-7 days	Half Day (1) (2)
	to 06	to 12	to 18	to 24									
1	7	6	7	7	7	7	7	7	7	7	7	2	2
2	7	6	7	7	7	6	7	7	7	7	6	3	2
3	7	6	7	7	7	7	7	7	7	7	7	2	3
4	7	5	7	7	7	7	7	7	7	7	7	2	2
5	7	6	7	7	7	7	7	7	6	7	7	2	2
6	7	6	7	7	7	7	7	7	7	7	7	2	3
7	6	5	7	7	6	5	7	7	6	7	7	3	3
8	6	5	7	7	7	(4)	7	6	6	7	7	3	3
9	6	6	7	7	5	5	6	7	7	7	7	2	3
10	7	6	7	7	7	6	7	7	7	7	7	2	2
11	7	6	7	7	7	7	7	7	7	7	7	2	2
12	7	5	6	7	7	6	6	7	6	7	7	3	3
13	7	6	7	7	7	7	7	7	7	7	7	2	3
14	7	5	6	7	7	6	6	7	6	7	7	3	3
15	7	6	7	7	6	(4)	6	6	7	7	7	(4)	3
16	6	6	7	7	6	6	7	7	6	7	7	3	3
17	6	6	7	7	7	6	7	7	7	7	7	3	3
18	6	6	7	6	7	6	7	5	6	7	7	3	2
19	7	6	7	7	5	6	6	6	7	7	7	(4)	1
20	7	6	7	7	7	6	7	7	7	7	7	2	2
21	7	7	7	7	7	6	7	7	7	6	5	1	1
22	7	6	7	7	7	7	7	6	7	(4)	(4)	2	3
23	7	6	7	7	6	6	7	7	7	(4)	(4)	3	3
24	6	5	7	7	7	6	7	6	6	7	5	(4)	3
25	6	6	7	7	6	6	7	7	7	7	6	3	2
26	7	6	7	7	6	6	7	7	7	7	6	1	1
27	7	6	7	7	7	7	7	7	7	7	7	2	2
28	7	6	7	7	7	6	?	7	7	7	7	2	2
29	7	6	7	7	7	6	7	7	7	7	7	2	2
30	7	6	7	7	7	7	7	7	7	7	7	1	2

Score:

Quiet Periods	P	21	13	27	23	20	16
	S	8	15	3	7		
	U	1	1	0	0		
	F	0	1	0	0		
Disturbed Periods	P	0	0	0	0	0	0
	S	0	0	0	0	0	0
	U	0	0	0	0	0	0
	F	0	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; $K_{Ch} \geq 4$ 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 ≥ 5 , or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
X - probable disturbed date

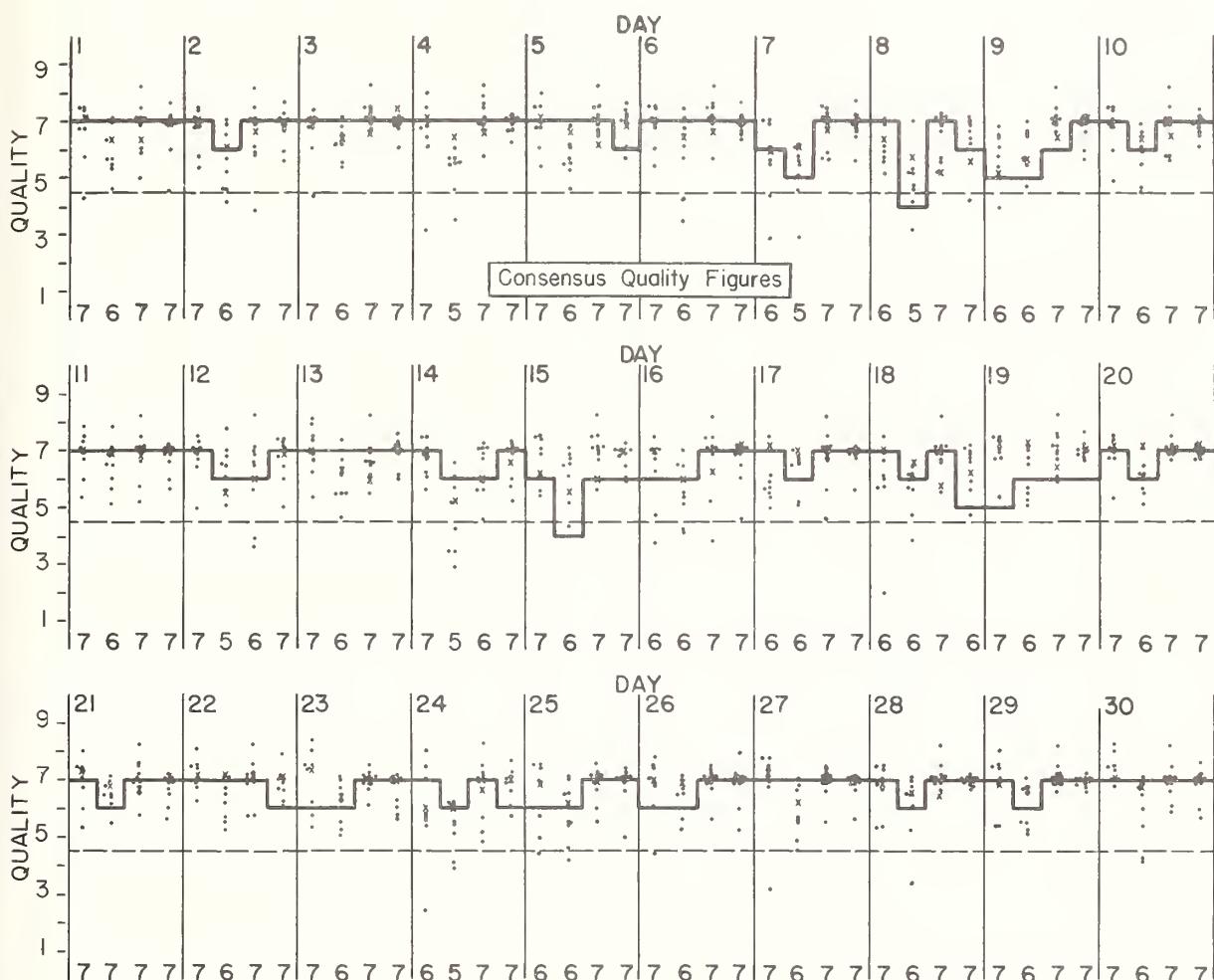
Note: All times are UT (Universal Time or GCT)

Table 86 b

Short-Term Forecasts — June 1955

— Forecast

x CRPL observation (not in consensus)

● Individual reports of quality
(adjusted to CRPL scale)

Outcome of Advance Forecasts (1 to 4 Days Ahead) — June 1955

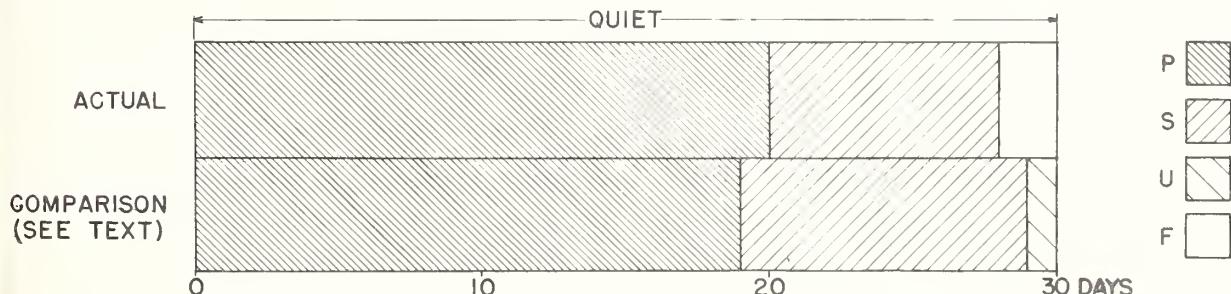


Table 87a
Coronal observations at Climax, Colorado (5303A), east limb

(Absolute values in millionths of the brightness of one angstrom at the center of the solar disk)

NOTE: The Climax, Colorado, station was unable to make coronal observations after July 7 due to installation of new equipment.

Table 88a
Coronal observations at Climax, Colorado (6374A), east limb

(Absolute values in millionths of the brightness of one angstrom at the center of the solar disk)

Table 87b
Coronal observations at Climax, Colorado (5303A), west limb

(Absolute values in millionths of the brightness of one angstrom at the center of the solar disk)

Table 88b
Coronal observations at Climax, Colorado (6374A), west limb

(Absolute values in millionths of the brightness of one angstrom at the center of the solar disk)

Table 89a
Coronal observations at Climax, Colorado (6702A), east limb

Table 90a
 Coronal observations at Sacramento Peak, New Mexico, (5303A), east limb
(Arbitrary Scale)

Table 89b
Coronal observations at Climax, Colorado (6702A), west limb
(Absolute values in millionths of the brightness of one angstrom at the center of the solar disk)

Date UT	Degrees south of the solar equator										0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
1955																												
Jul 1.																												
2.																												
3.																												
4.																												
5.																												
6.x																												
6702A coronal line was not visible at the west limb at any of the observation dates in July.																												
7.																												
8.x																												
9.x																												
10.x																												
11.x																												
12.x																												
13.x																												
14.x																												
15.x																												
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22.x																												
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24.x																												
25.x																												
26.x																												
27.x																												
28.x																												
29.x																												
30.x																												
31.x																												

Table 90b
Coronal observations at Sacramento Peak, New Mexico (5303A), west limb
(Arbitrary Scale)

Date UT	Degrees south of the solar equator										0°	Degrees north of the solar equator																																
	90	85	80	75	70	65	60	55	50	45		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90															
1955																																												
Jul 1.7a	-	-	-	-	-	-	-	-	-	-	2	3	5	4	2	-	-	-	-	3	5	11	13	11	7	6	5	4	4	5	7	8	3	2										
2.x																				2	3	3	5	8	9	7	5	3	2	2	-	-												
3.x																				2	3	5	4	3	4	2	2	-	-	-	-													
4.x																				3	3	3	2	3	4	5	6	6	8	6	4	2	2											
5.x																				2	3	5	8	10	16	20	17	8	5	5	4	3	5	3	2									
6.7a	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	5	5	8	14	20	16	8	5	6	6	4	3	-	-											
7.x																				2	3	5	4	3	4	2	2	-	-	-	-													
8.8a	-	-	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-	2	3	5	4	3	4	2	2	-	-	-														
9.x																				3	3	3	2	3	4	5	6	6	8	6	4	2	2											
10.6	-	-	-	-	-	-	-	-	-	-	2	5	6	7	8	23	39	36	28	14	5	-	-	-	-	-	-	-	-	-	-													
11.x																				3	3	3	2	3	4	5	6	6	8	6	4	2	2											
12.x																				2	3	5	8	10	16	20	17	8	5	5	4	3	5	3	2									
13.6	-	-	-	-	-	-	-	-	-	-	3	4	6	5	4	5	16	20	11	5	4	3	2	2	3	5	8	10	16	20	17	8	5	5	4	3	5	3	2					
14.6a	-	-	-	-	-	-	-	-	-	-	2	3	3	5	5	6	6	7	8	7	5	6	5	3	2	-	-	5	5	8	14	20	16	8	5	6	6	4	3	-	-			
15.x																																												
16.7a	-	-	-	-	-	-	-	-	-	-	2	3	4	5	5	6	7	8	8	6	5	5	3	2	2	3	3	4	11	14	20	25	18	16	14	11	12	8	2	-	-	-		
17.x																																												
18.x																																												
19.x																																												
20.x																																												
21.x																																												
22.x																																												
23.9a	-	-	-	-	-	-	-	-	-	-	2	3	5	8	14	23	20	3	2	2	2	5	8	10	11	12	11	6	6	7	8	5	5	3	-	-	-	-	-	-	-	-	-	-
24.x																																												
25.x																																												
26.x																																												
27.x																																												
28.x																																												
29.x																																												
30.6	-	-	-	-	-	-	-	-	-	-	2	3	4	5	8	3	2	-	-	2	2	5	8	10	11	12	11	6	6	7	8	5	5	3										

Table 91a
 Coronal observations at Sacramento Peak, New Mexico (6374A), east limb
 (Arbitrary Scale)

Table 92a
 Coronal observations at Sacramento Peak, New Mexico (6702A), east limb
 (Arbitrary Scale)

Table 9lb
 Coronal observations at Sacramento Peak, New Mexico (6374A), west limb
 (Arbitrary Scale)

Table 92b
 Coronal observations at Sacramento Peak, New Mexico (6702A), west limb
(Arbitrary Scale)

Table 93:
Zurich Provisional Relative Sunspot Numbers

June 1955

Date	R _{Z*}	Date	R _{Z*}
1	26	17	74
2	17	18	71
3	13	19	67
4	22	20	74
5	25	21	55
6	33	22	38
7	26	23	15
8	23	24	0
9	24	25	0
10	27	26	0
11	48	27	0
12	46	28	8
13	40	29	11
14	63	30	23
15	56	Mean:	
16	69	33.1	

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

Table 94
Zürich Provisional Relative Sunspot Numbers
July 1955

Date	R _{Z*}	Date	R _{Z*}
1	35	17	20
2	38	18	7
3	38	19	26
4	43	20	32
5	48	21	11
6	60	22	9
7	47	23	0
8	47	24	0
9	39	25	8
10	41	26	0
11	35	27	11
12	25	28	12
13	25	29	16
14	37	30	20
15	29	31	26
16	22	Mean:	
		26.0	

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

Table 95
American Relative Sunspot Numbers
June 1955

Date	R _A	Date	R _A
1	15	17	48
2	16	18	49
3	9	19	51
4	16	20	53
5	19	21	34
6	20	22	21
7	20	23	9
8	18	24	0
9	18	25	0
10	23	26	0
11	40	27	0
12	32	28	6
13	33	29	12
14	36	30	18
15	34	Mean:	
16	51	23.4	

Table 96

Solar Flares-July 1955

Observatory	Date	Time Observed		Duration (Min.)	Area (Mill.) (of) (Visible) (Hemisph)	Position		Int. of Maxi-mum (GCT)	Rela-tive Area of Maximum (Tenths)	Import-ance	SID Obser-ved
		Begin-ning (GCT)	End-ing (GCT)			Latitude (Deg)	Long-i-tude Diff (Deg)				
S. Peak	July 1	1320	1330A	-	13	N30	E70	1327	13	1-	
McMath	July 1	1415B	-	-	-	N34	E75	-	-	1-	
McMath	July 1	1505	1518	13	-	N34	E75	-	-	1-	
S. Peak	July 1	1610B	1640	-	42	N31	E70	1610	10	0.5	
S. Peak	July 1	1640	1715	75	26	N31	E66	1700	12	0.7	
S. Peak	July 1	1745	1755	10	16	N30	E69	1746	9	0.8	
S. Peak	July 1	1755	1810	55	13	N31	E63	1800	12	0.6	
S. Peak	July 1	1816	1905	89	19	N31	E64	1830	11	0.5	
S. Peak	July 1	1940	2012	72	13	N30	E63	1958	15	0.8	
McMath	July 1	1957	2015	58	-	N34	E75	-	-	1-	
S. Peak	July 1	2036	2054	18	11	N31	E62	2038	12	0.7	
S. Peak	July 1	2129	2243	114	26	N30	E61	2211	18	0.8	
McMath	July 1	1932	1950	18	-	S32	E46	-	-	1-	
S. Peak	July 1	2057	2111	54	16	S32	E42	2100	14	0.7	
S. Peak	July 2	1846	1852	6	32	N33	E48	1848	9	0.8	
S. Peak	July 2	1918	1929	11	65	N33	E47	1921	10	0.5	
S. Peak	July 2	1932	1947	15	26	N29	E54	1940	13	0.6	
S. Peak	July 3	1656	1728A	-	65	N34	E43	1705	12	0.2	
McMath	July 4	1547	1605	-	-	N25	E85	-	-	0.4	
S. Peak	July 4	1556B	1612	58	-	N27	E80	1557	15	1-	
S. Peak	July 4	2319B	2355A	-	36	S34	E05	2322	23	0.3	
S. Peak	July 5	1531	1559	28	88	S35	W06	1542	24	0.6	
S. Peak	July 6	1315	1440	125	52	S34	W16	1328	11	0.5	
S. Peak	July 6	1750	1837	87	29	S32	W20	1753	12	0.8	

Yes

(Over)

Table 96 (Cont'd.)Solar Flares-July 1955

Observatory	Date	Time Observed Begin- ning (GCT)	Duration (Min)	Area (Mill.) (of) (Visible)	Position		Int. of Maxi- mum (GCT)	Rela- tive Area of Maximum (Tenths)	SID Obser- ved
					Latit-	Long-			
					ude	itude			
S. Peak	July 6	1923	22	39	S33	W20	1928	11	0.4
S. Peak	July 6	1433	73	33	N28	E56	1446	10	0.6
S. Peak	July 6	1520	14	12	N30	W04	1527	10	0.9
S. Peak	July 6	1543	601	58	N25	E55	1553	12	0.7
S. Peak	July 6	1613	1636	23	N30	W04	1616	12	0.4
S. Peak	July 6	1938	1950	12	N25	E55	1942	14	0.8
S. Peak	July 6	2035	2044	9	N25	E55	2040B	12	0.7
S. Peak	July 8	2325	-	110	N29	W33	2330	15	0.6
McMath	July 9	1230	-	-	N31	W40	-	-	1-
S. Peak	July 9	1400	1515	115	S32	W56	1412	18	0.5
McMath	July 9	1415	1525	110	S35	W55	1425	-	2-
S. Peak	July 18	1915A	1929	-	S22	W52	1920	14	0.9
S. Peak	July 18	1935	1945	10	S22	W52	1937	12	0.6
S. Peak	July 18	2030	2040	10	S22	W52	2032	11	0.5
S. Peak	July 18	2110	2130	20	S22	W52	2120	12	0.8
S. Peak	July 18	2155	2250	65	S22	W52	2203	12	0.5
McMath	July 20	1315B	-	-	S25	W40	-	-	1-
McMath	July 21	1817B	-	-	S25	W60	-	-	1-
S. Peak	July 25	1535	1605	70	S26	W70	1542	10	0.8
S. Peak	July 26	1525B	1610	-	N22	E82	1540	15	0.5

S. Peak = Sacramento Peak. B = Before given time. A = After given time.

Revised data for June 1955: McMath flares for June 19 at 1420-1438 and 1450-1513 should be imp. 1. McMath reports an additional flare June 18 at 1552-1620, S22 W15, imp. 1-.

Table 97

Indices of Geomagnetic Activity for June 1955

Preliminary values of international character-figures, C;
geomagnetic planetary three-hour-range indices, Kp;
Daily "equivalent amplitude", Ap;
Magnetically selected quiet and disturbed days

Table 98Sudden Ionosphere Disturbances Observed at Washington, D. C.

1955 Day	GCT		Location of transmitters	Relative intensity at minimum*	Other phenomena
	Beginning	End			
June 13	1312	1340	Ohio, England, Mexico, North Dakota	0.2	
July 4	1550	1605	Ohio, England, Mexico, North Dakota	0.05	Solar flare** 1547 Solar flare*** before 1556

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

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

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

Table 99Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,Cable and Wireless, Ltd., as Observed in England

1955 Day	GCT		Receiving station	Location of transmitters
	Beginning	End		
July 4	0940	0955	Brentwood	Austria, Belgian Congo, Barbados, Brazil, Canary Islands, Greece, Iran, Iraq, Kenya, Malta, New York, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Turkey, Yugoslavia, Zanzibar

Table 100Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,Cable and Wireless, Ltd., as Observed in Australia

1955 Day	GCT		Receiving station	Location of transmitters	Other phenomena
	Beginning	End			
June 18	1907	1922	Somerton	New York	Solar flare* 1906
July 4	0940	0955	Somerton	China, Egypt, Formosa, India, Iran, Pakistan	

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

Table 101Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,as Observed at Riverhead, New York

1955 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
June 9	1530	1548	England, Brussels, Tangier	
13	1308*	1346	England, Brussels, Tangier	
18	1228	1248	England, Brussels, Tangier	Solar flare** 1226
18	1905	1931	England, Brussels, Tangier	Solar flare** 1906

*Signals begin dropping at 1253.

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

Table 102Sudden Ionosphere Disturbances as Observed at Enköping, Sweden

1955 Day	GCT		Location of transmitters
	Beginning	End	
June 18	1915	1920	Buenos Aires, Lima, Washington

Table 103Sudden Ionosphere Disturbances Reported by the Netherlands Postal and Telecommunication Services, as Observed at Nederhorst den Berg, Netherlands

1955 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
May 27	1011.5	1045	Karachi, Paramaribo	Reinforcement (of atmospheric long-wave noise) 1014-1121
June 13	1544.5	1620	Paramaribo	Reinforcement 1545-1656
14	1312.5	1355	Karachi, Paramaribo, Washington	Reinforcement 1313-1415
17	0855.5	0945	Karachi, Paramaribo	Reinforcement 0900-0951
18	1055.5	1121	Karachi, Paramaribo	Reinforcement 1057-1131
	1225	1321	Karachi, Cairo, Tangier, Rio de Janeiro, Buenos Aires, Paramaribo, Curacao, Washington, New York, Karlsberg	Reinforcement 1224-1324
	1906	1930	Buenos Aires, Paramaribo, Lima, Curacao, Washington, New York	Reinforcement 1907-1945

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, Boulder, Colorado; Attention: Mr. Vaughn Agy.

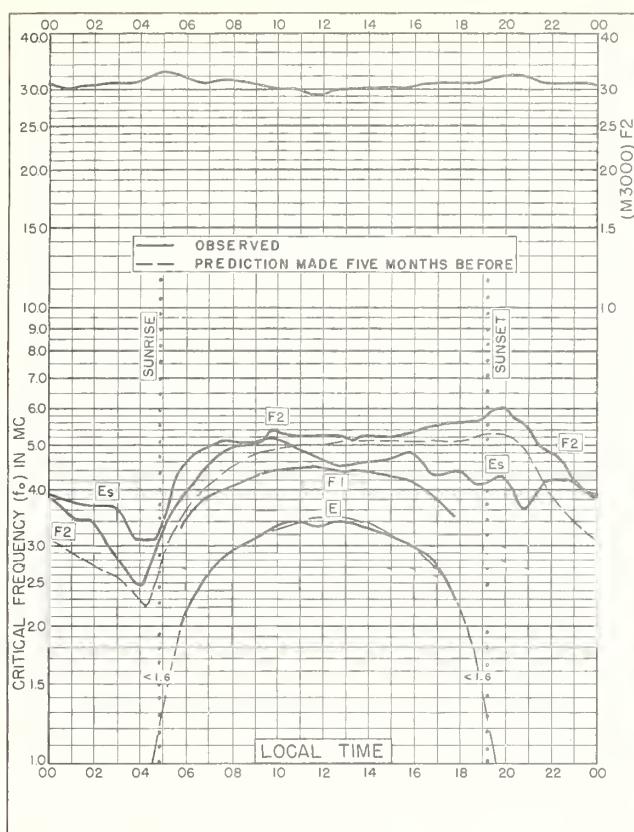


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W JULY 1955

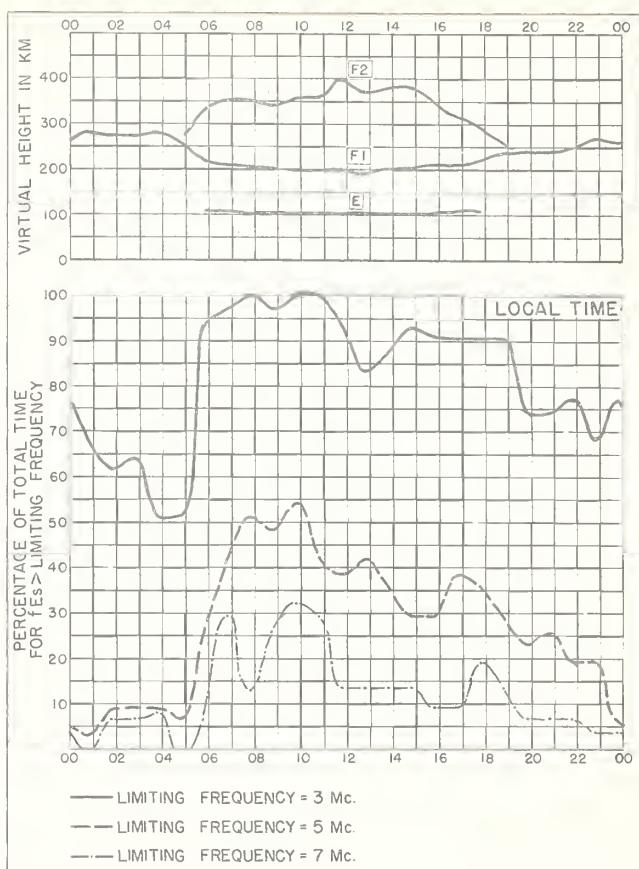


Fig. 2. WASHINGTON, D. C. JULY 1955

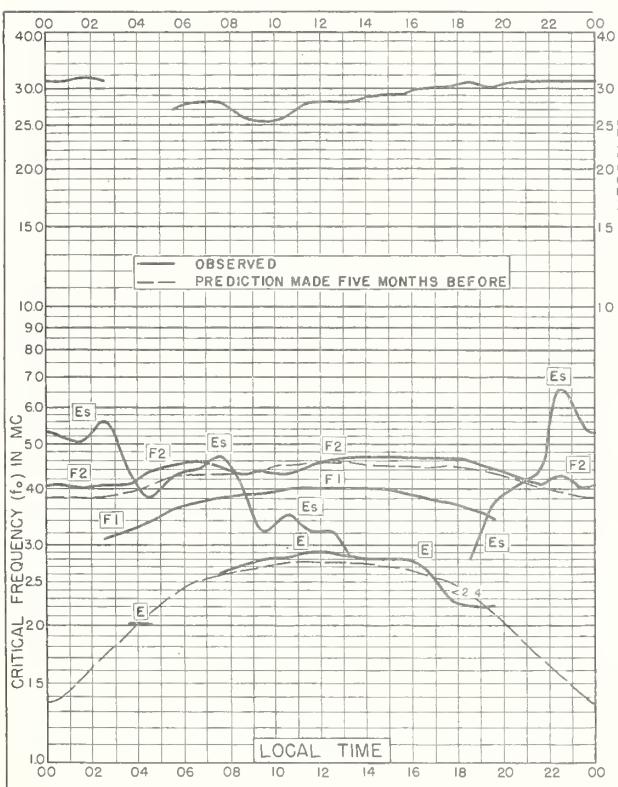


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W JUNE 1955

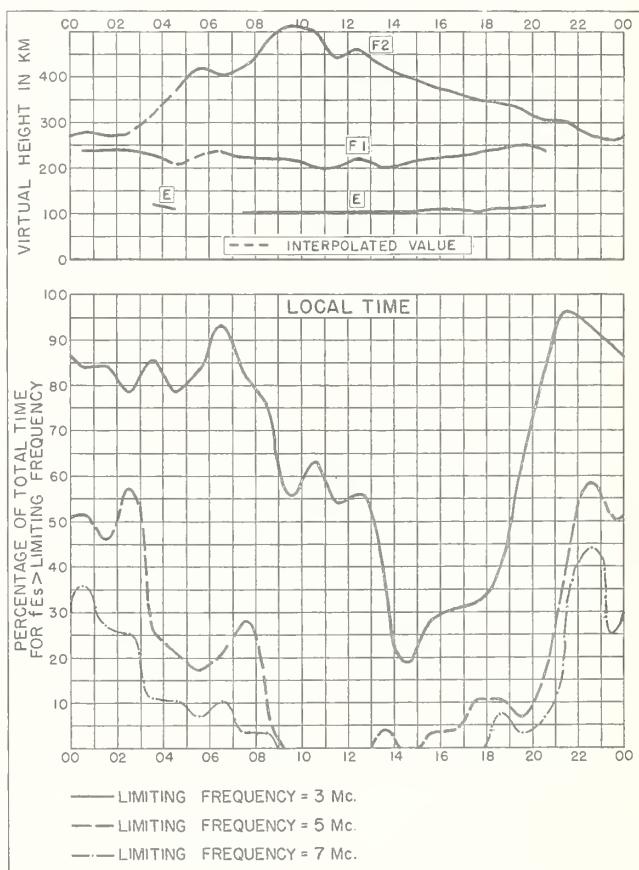
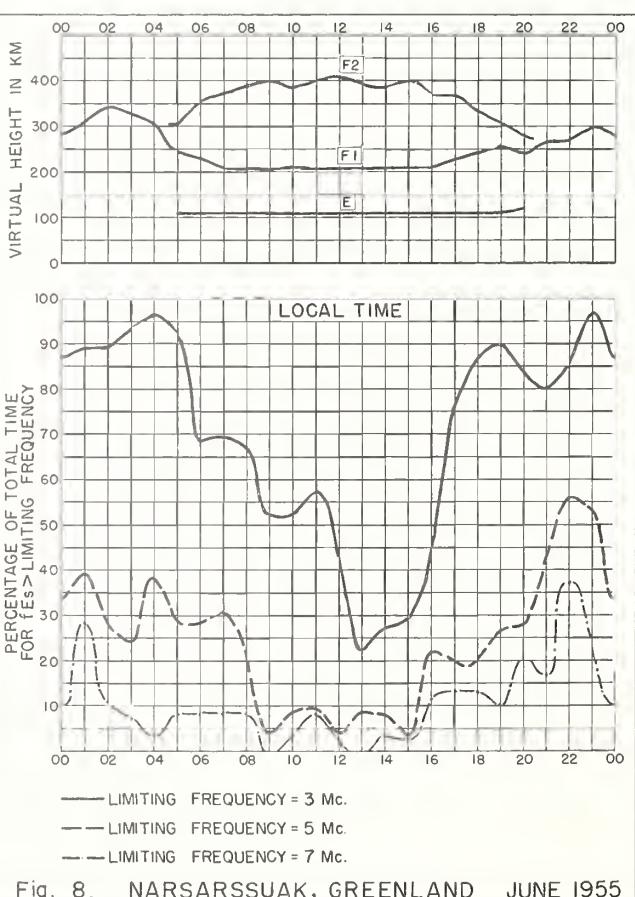
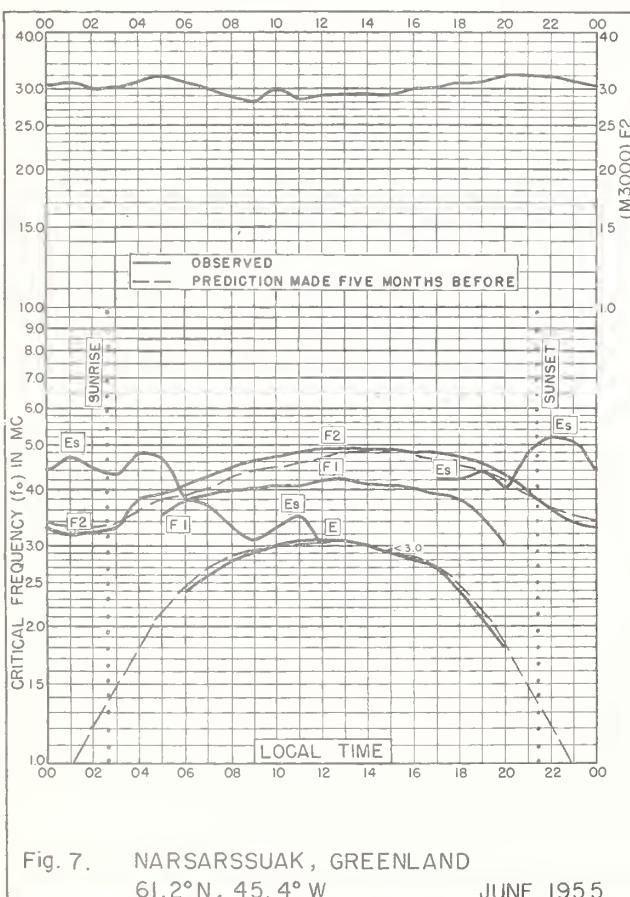
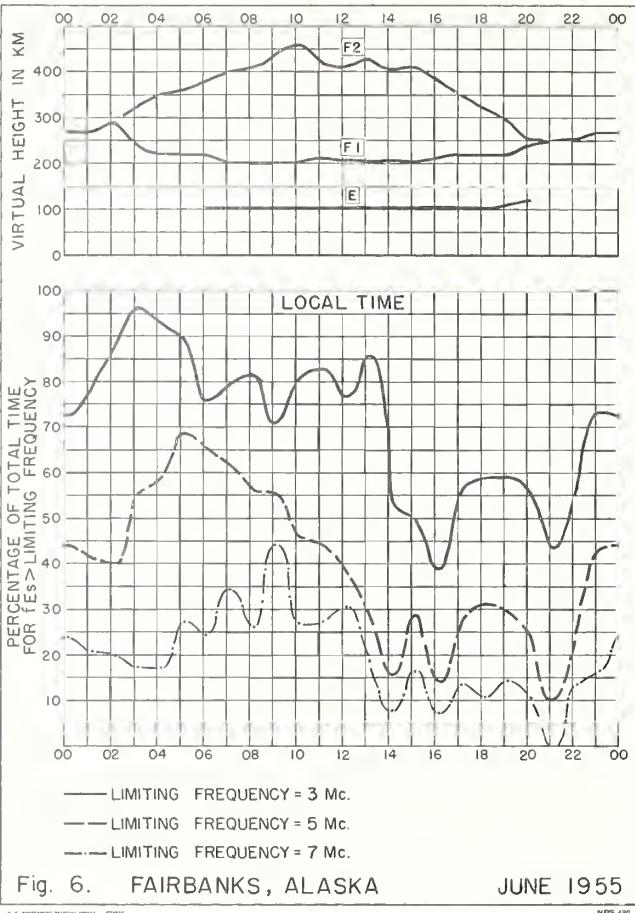
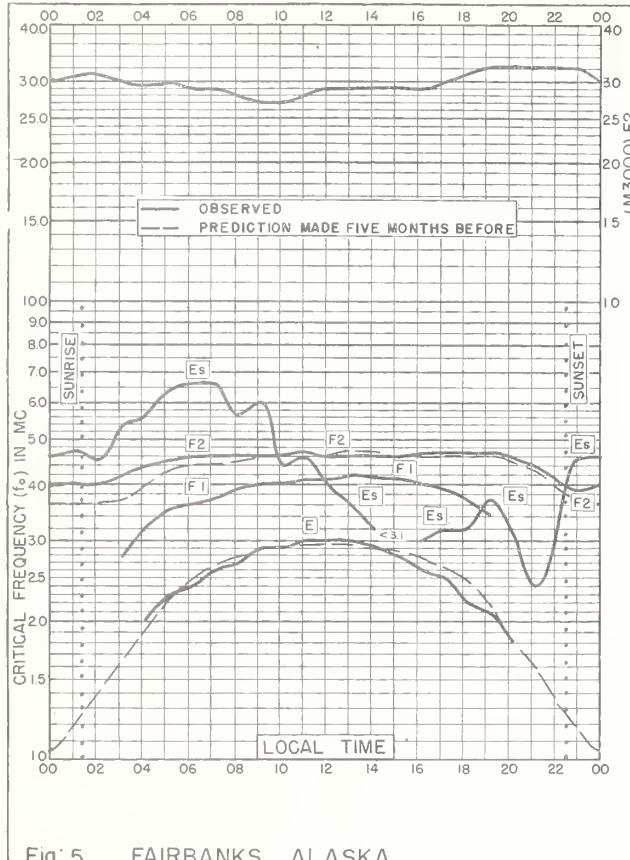


Fig. 4. POINT BARROW, ALASKA JUNE 1955



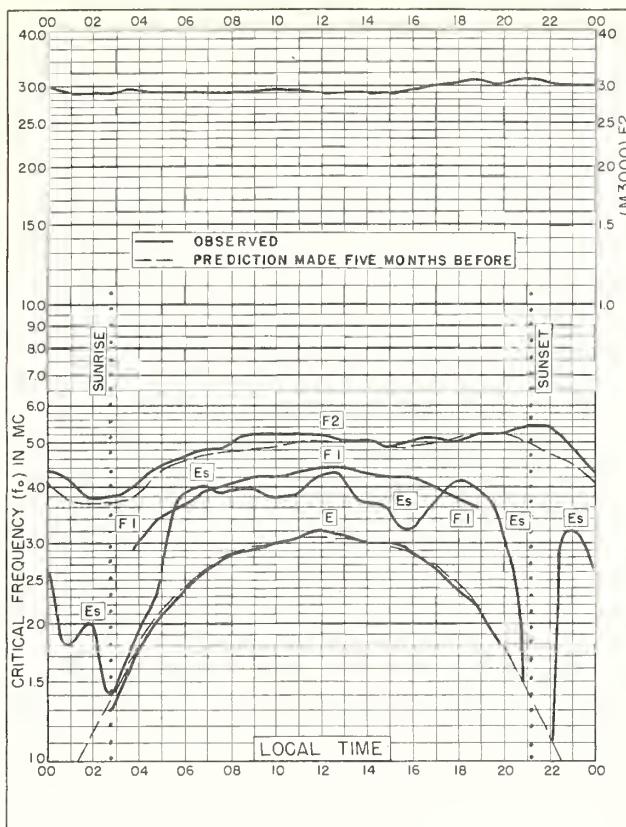


Fig. 9. OSLO, NORWAY
60.0°N, 11.1°E JUNE 1955

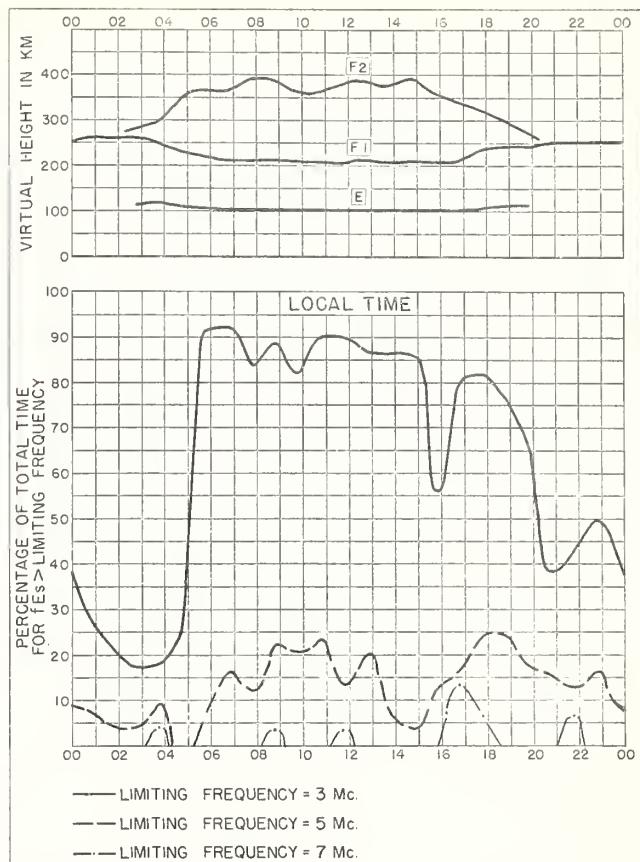


Fig. 10. OSLO, NORWAY JUNE 1955

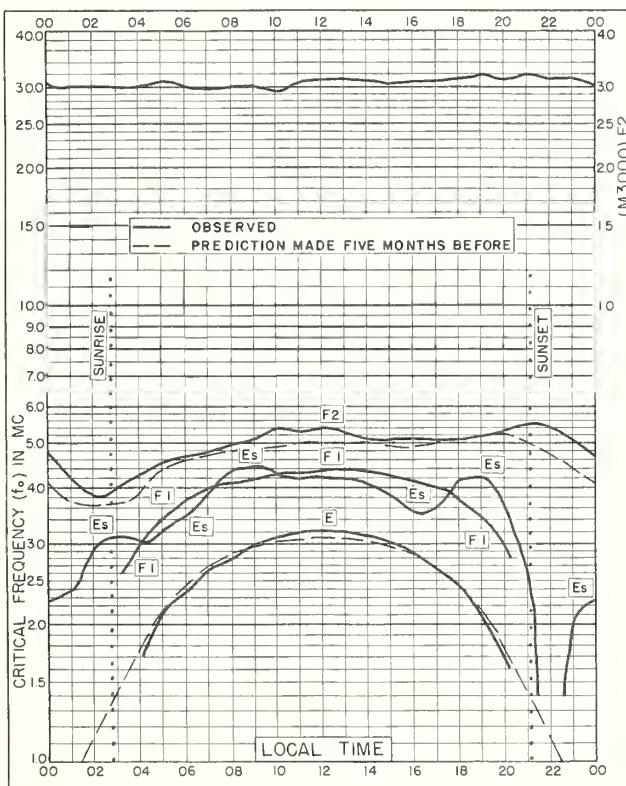


Fig. 11. UPSALA, SWEDEN
59.8°N, 17.6°E JUNE 1955

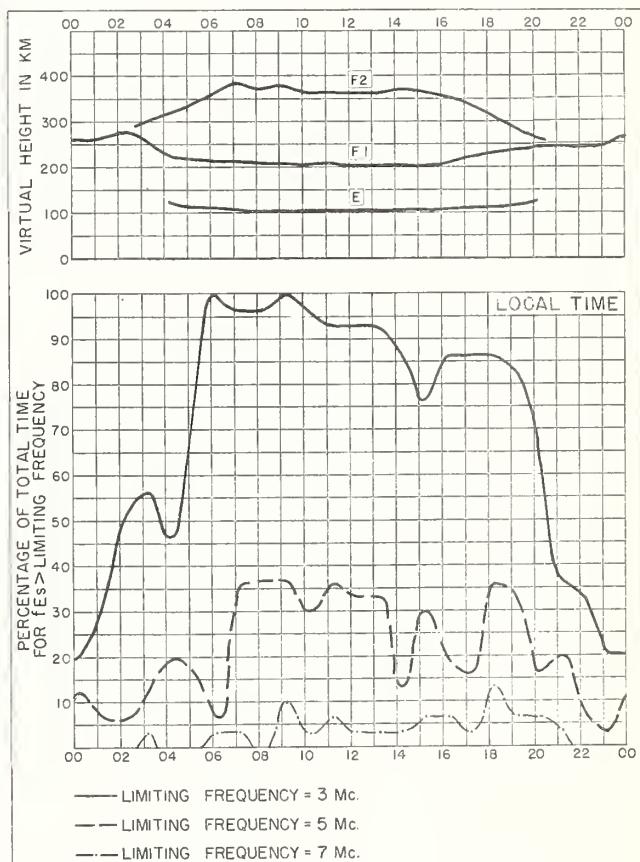


Fig. 12. UPSALA, SWEDEN JUNE 1955

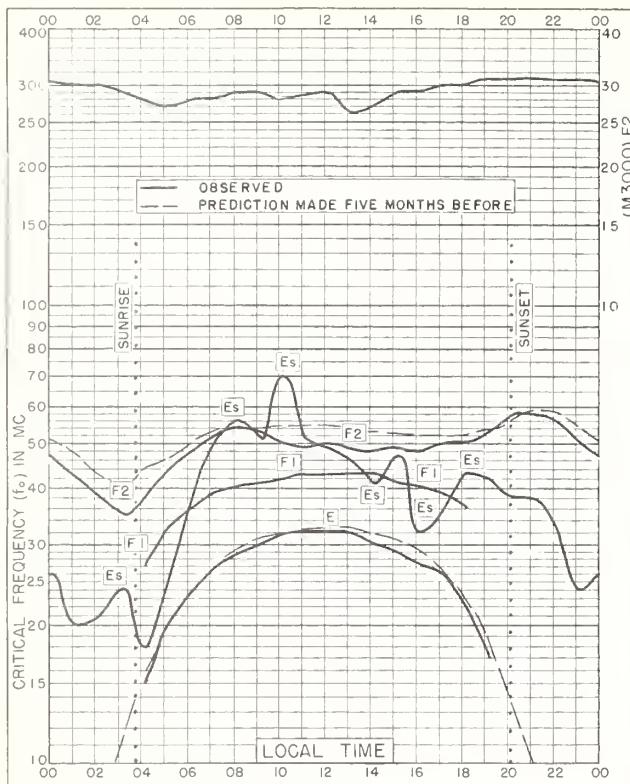


Fig. 13. ADAK, ALASKA
51.9°N, 176.6°W JUNE 1955

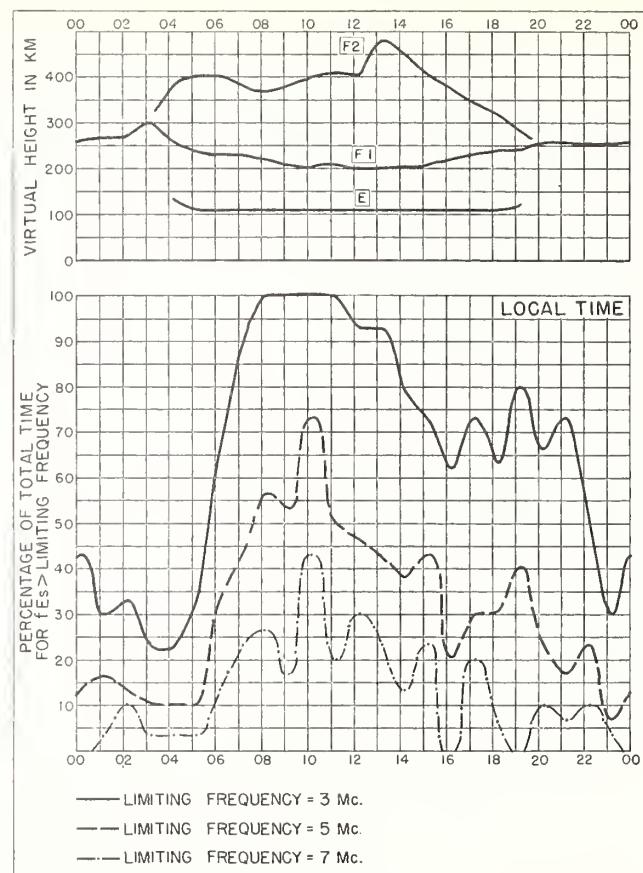


Fig. 14. ADAK, ALASKA JUNE 1955

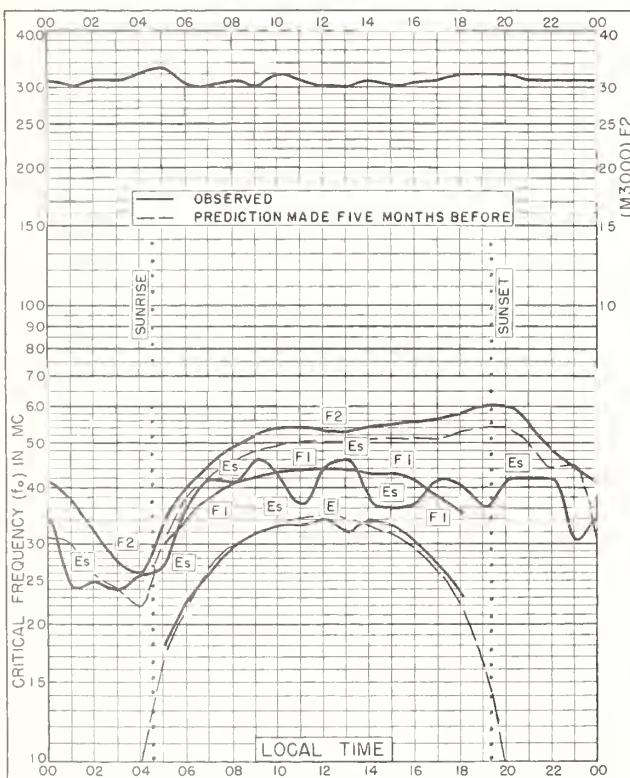


Fig. 15. FT. MONMOUTH, NEW JERSEY
40.0°N, 74.0°W JUNE 1955

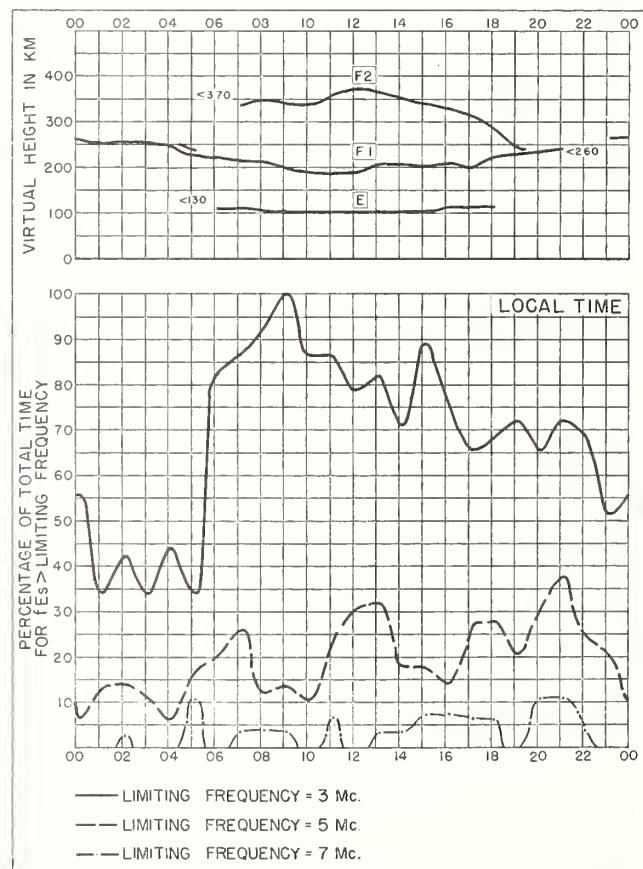


Fig. 16. FT. MONMOUTH, NEW JERSEY JUNE 1955

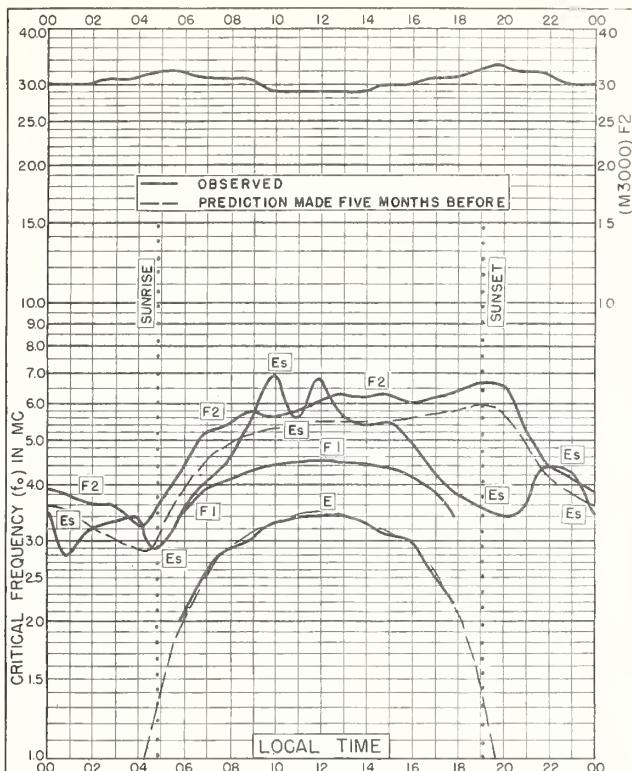


Fig. 17. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JUNE 1955

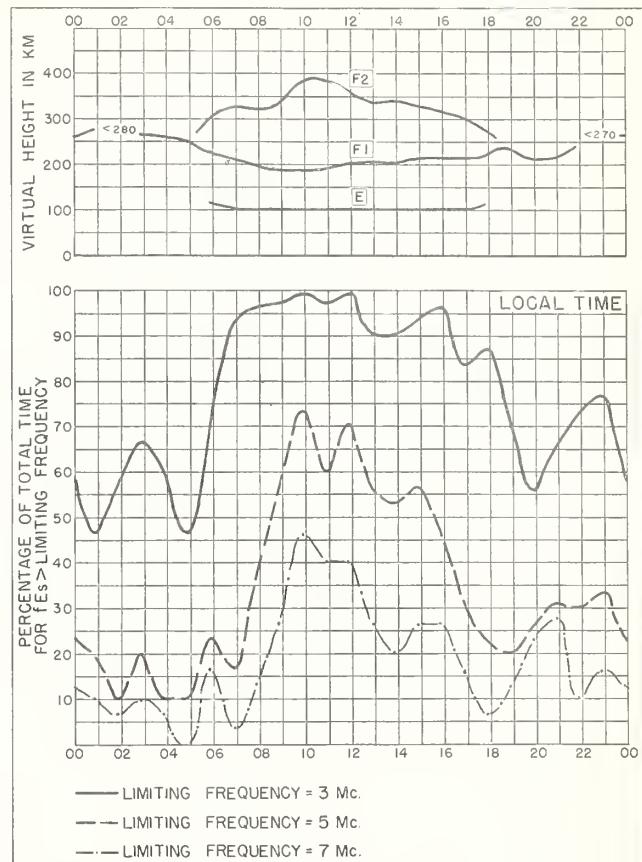


Fig. 18. WHITE SANDS, NEW MEXICO JUNE 1955

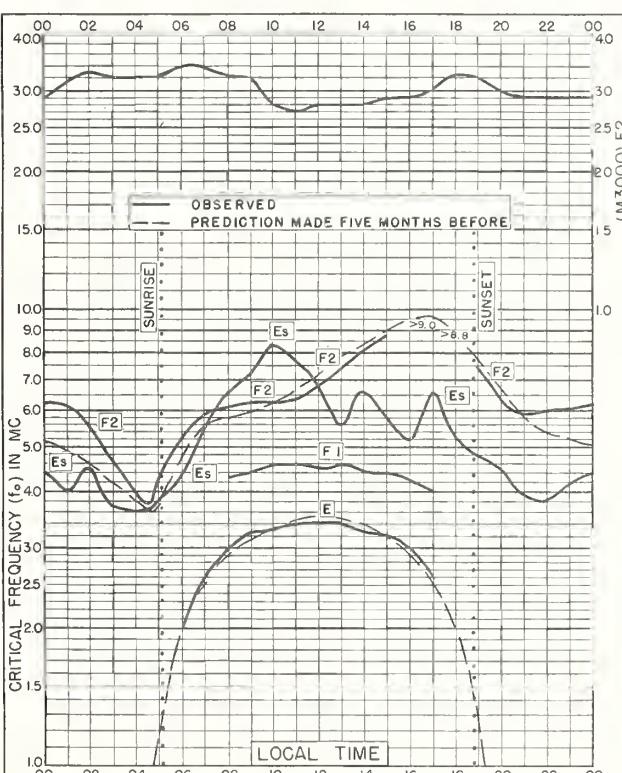


Fig. 19. OKINAWA I.
26.3°N, 127.8°E JUNE 1955

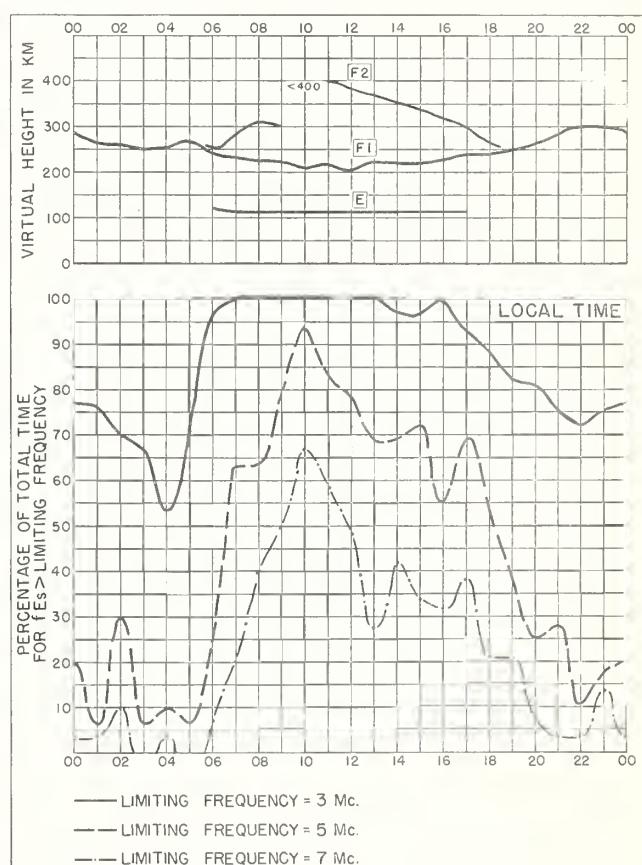


Fig. 20. OKINAWA I. JUNE 1955

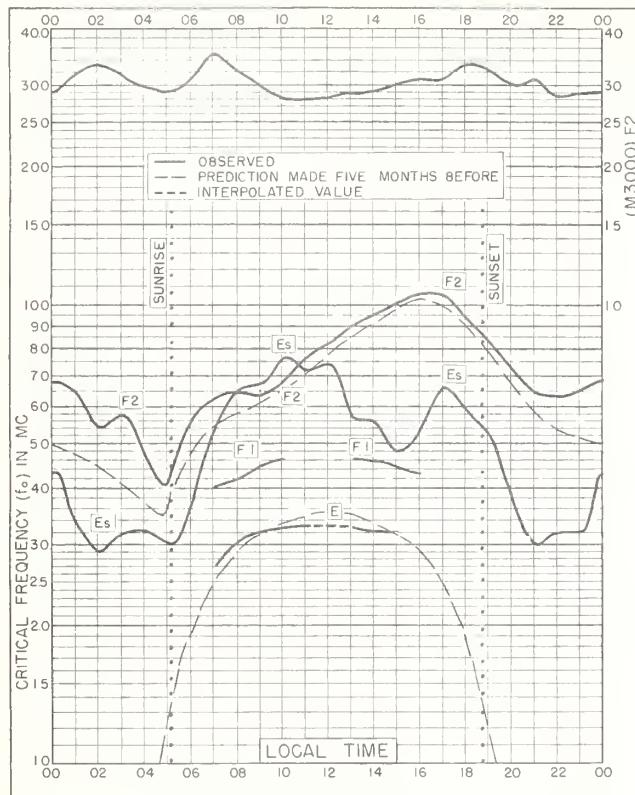


Fig. 21. FORMOSA, CHINA
25.0°N, 121.5°E JUNE 1955

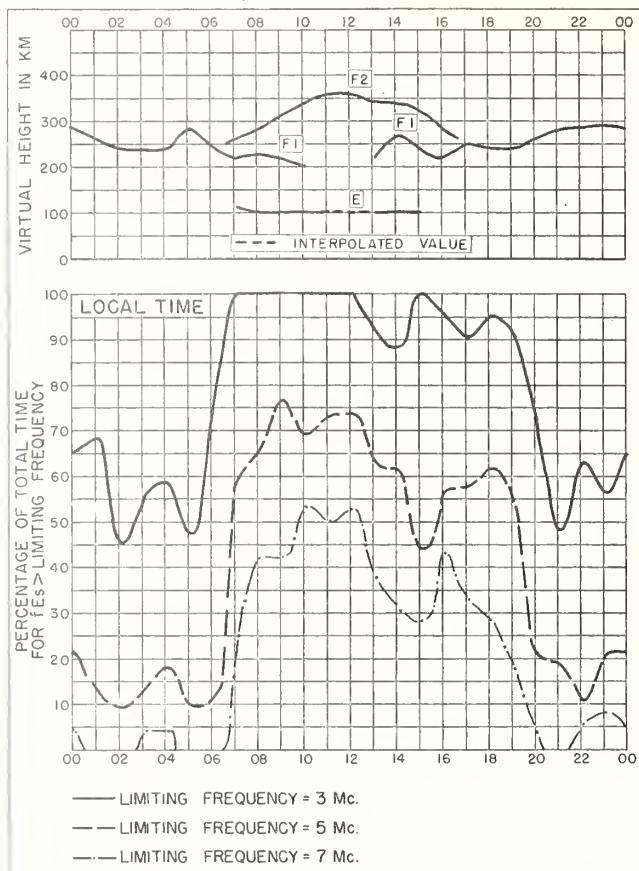


Fig. 22. FORMOSA, CHINA JUNE 1955

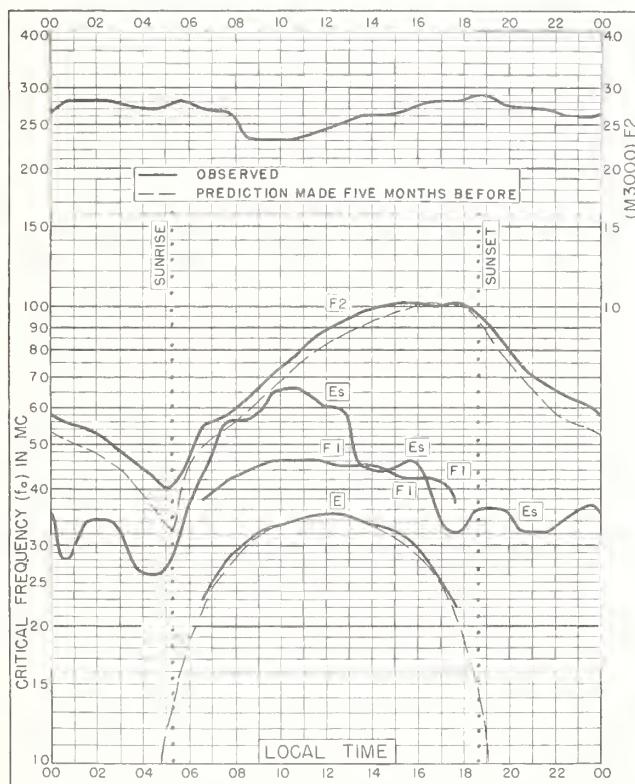


Fig. 23. MAUI, HAWAII
20.8°N, 156.5°W JUNE 1955

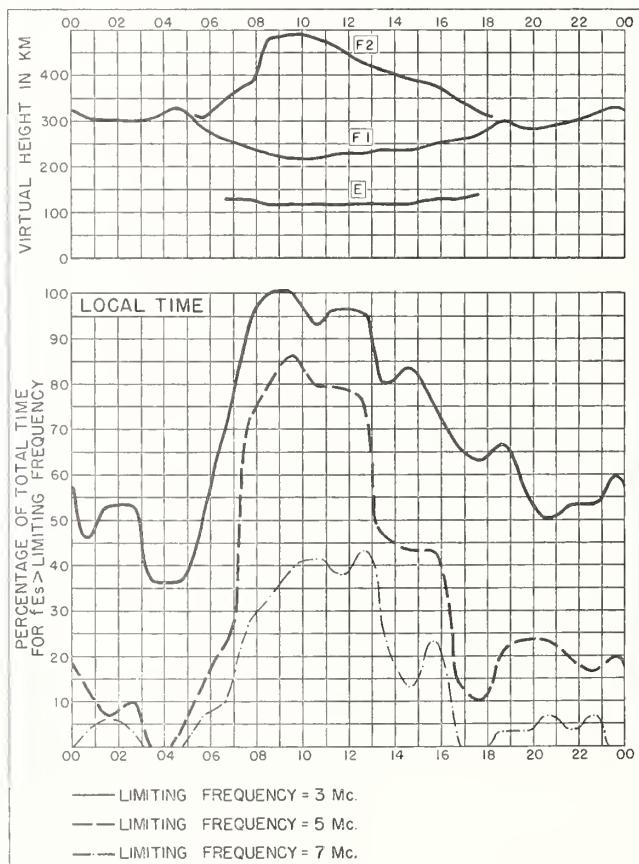


Fig. 24. MAUI, HAWAII JUNE 1955

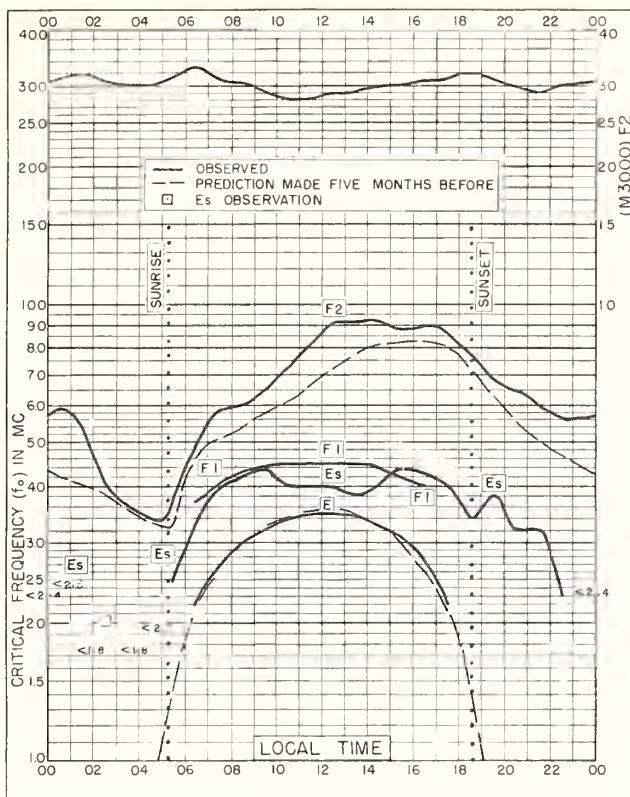


Fig. 25. PUERTO RICO, W. I.

18.5°N, 67.2°W

JUNE 1955

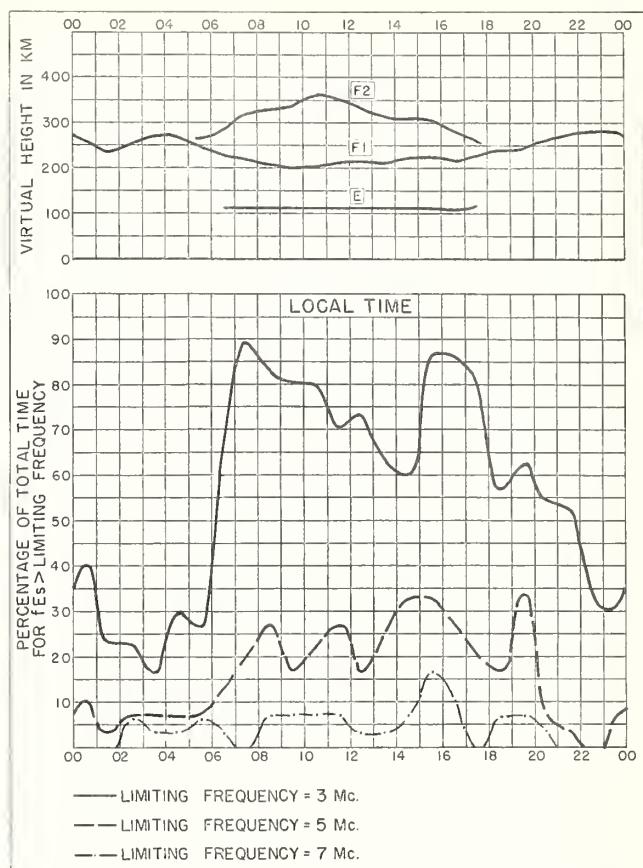


Fig. 26. PUERTO RICO, W. I.

JUNE 1955

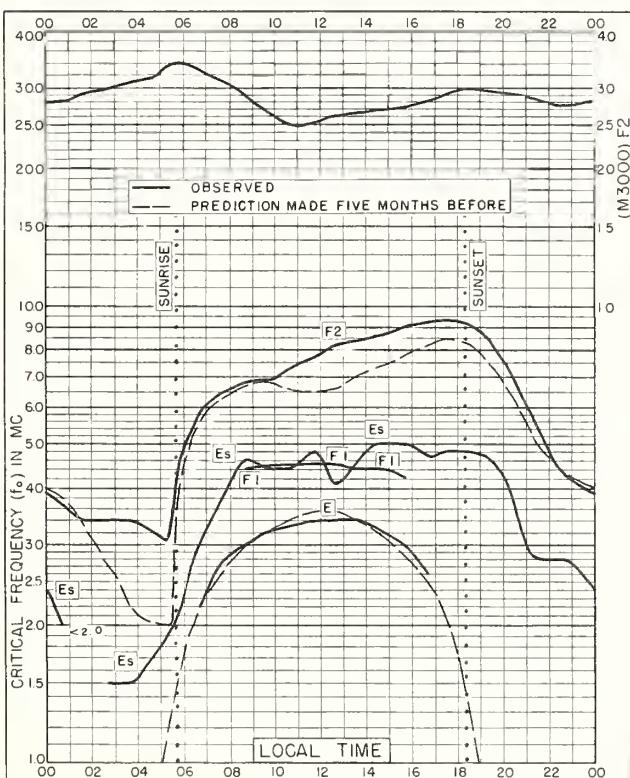


Fig. 27. GUAM I.

13.6°N, 144.9°E

JUNE 1955

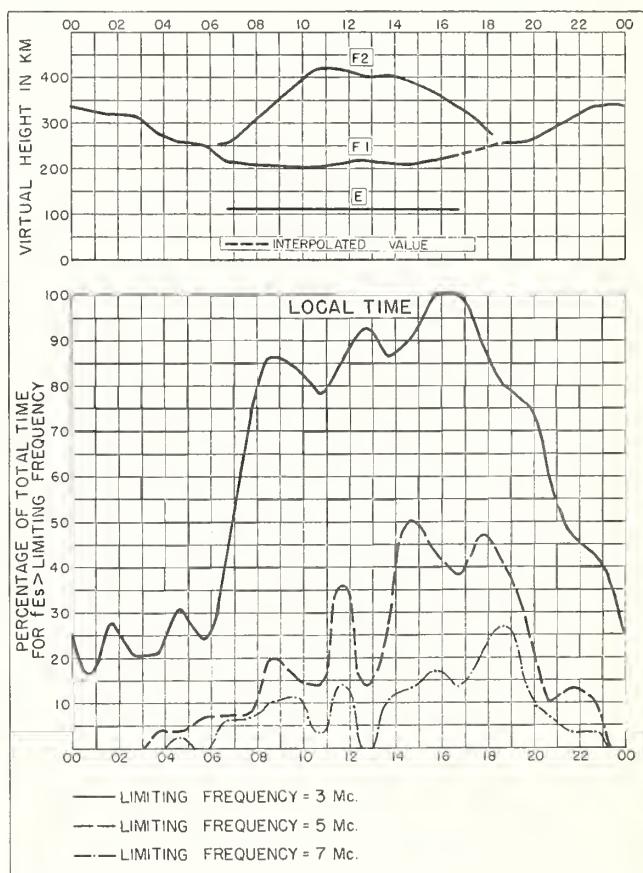


Fig. 28. GUAM I.

JUNE 1955

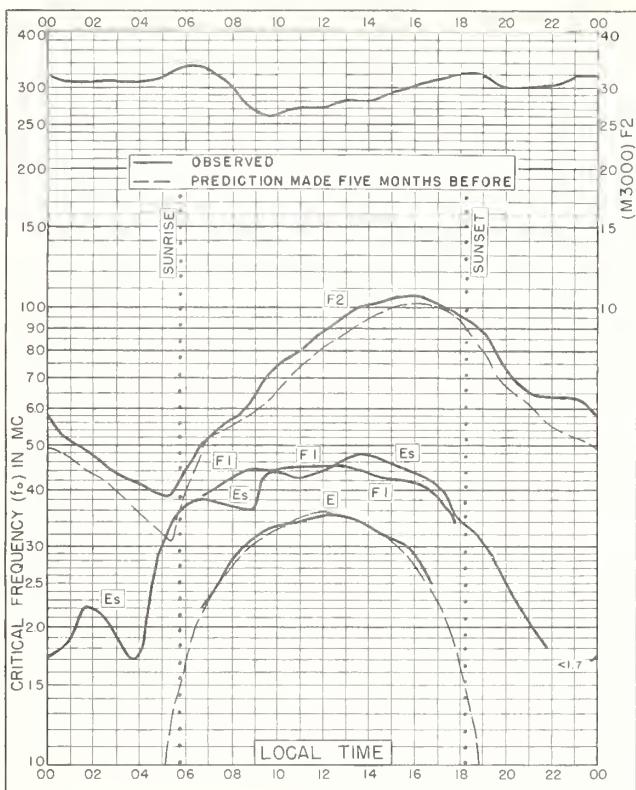


Fig. 29. PANAMA CANAL ZONE
9.4°N, 79.9°W JUNE 1955

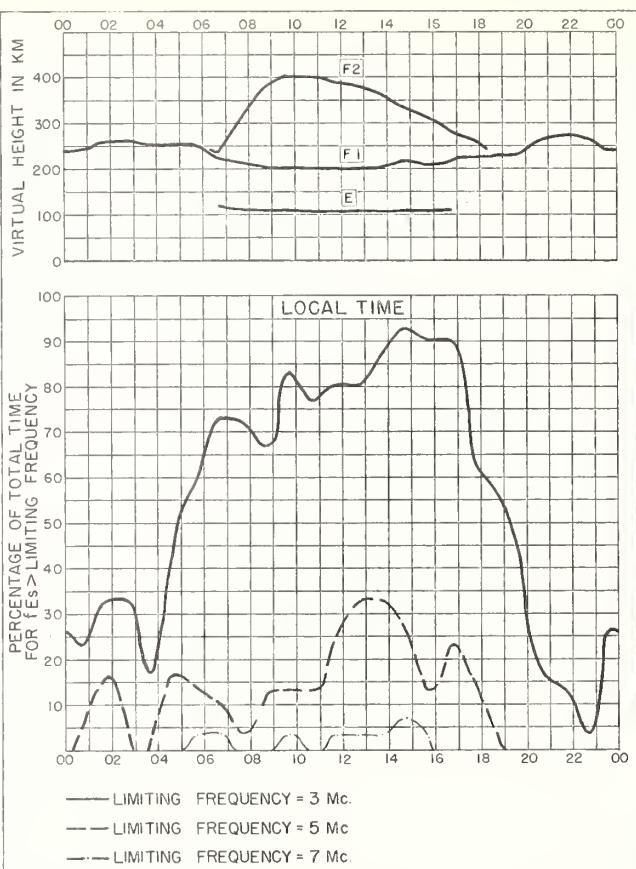


Fig. 30. PANAMA CANAL ZONE JUNE 1955

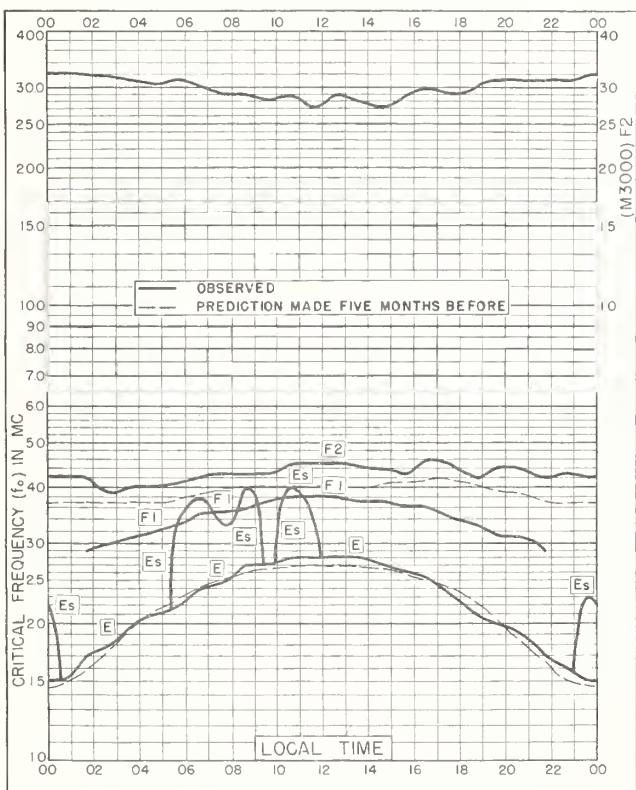


Fig. 31. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MAY 1955

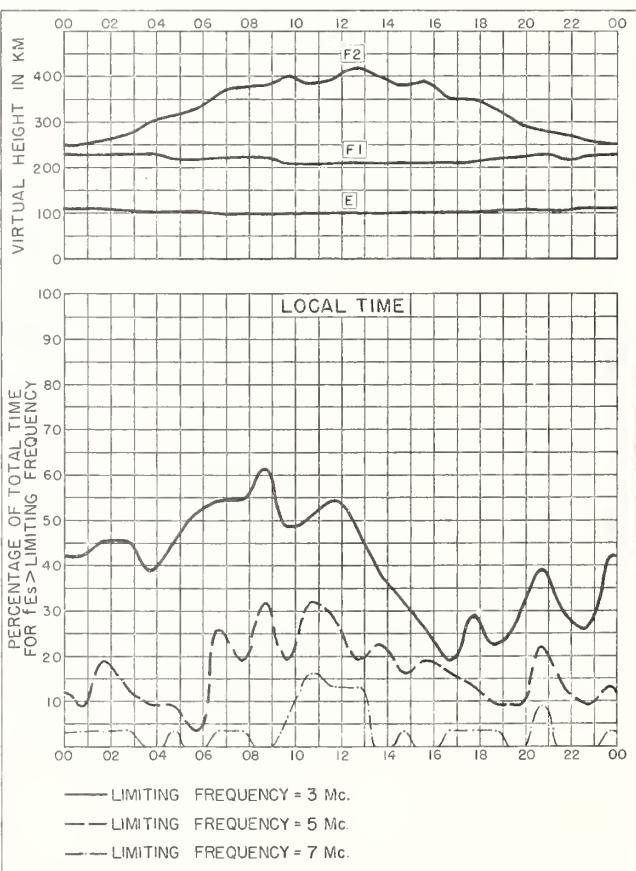
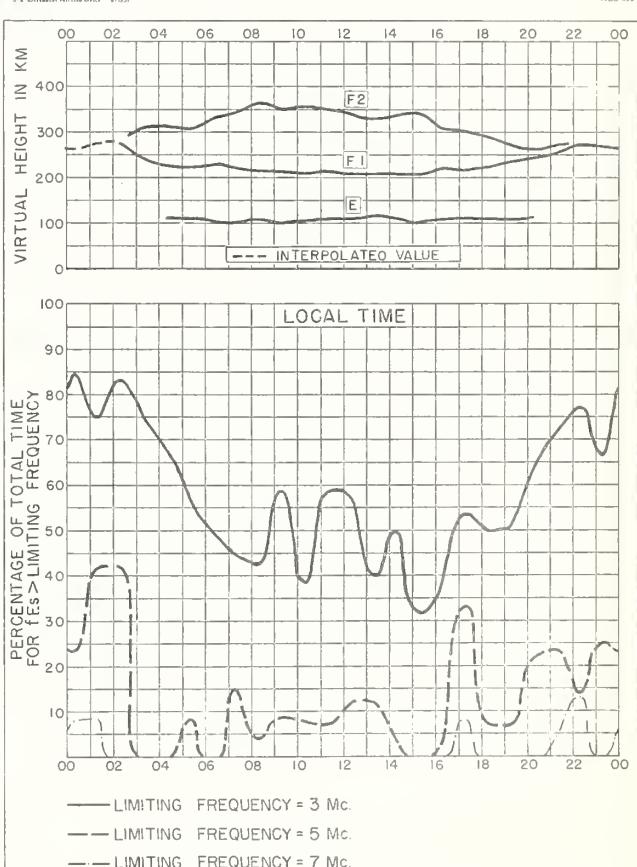
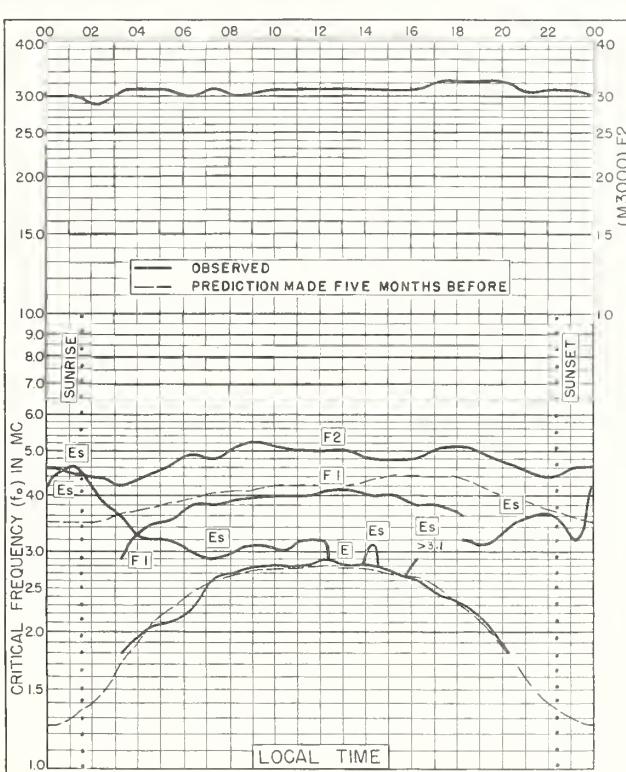
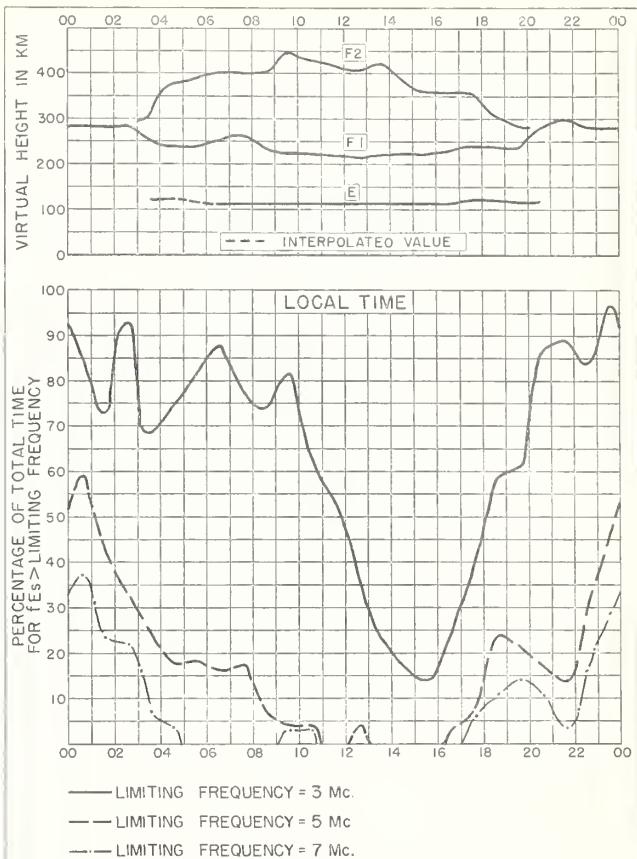
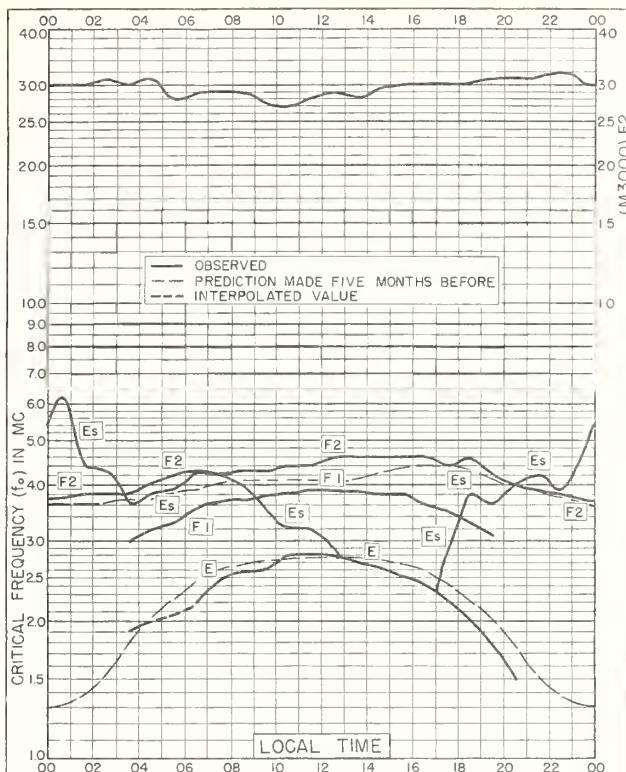
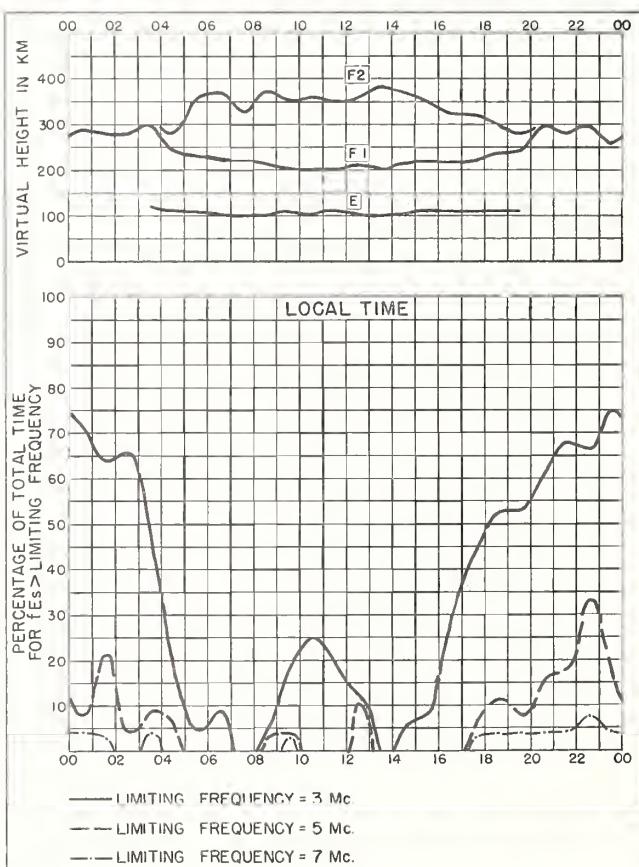
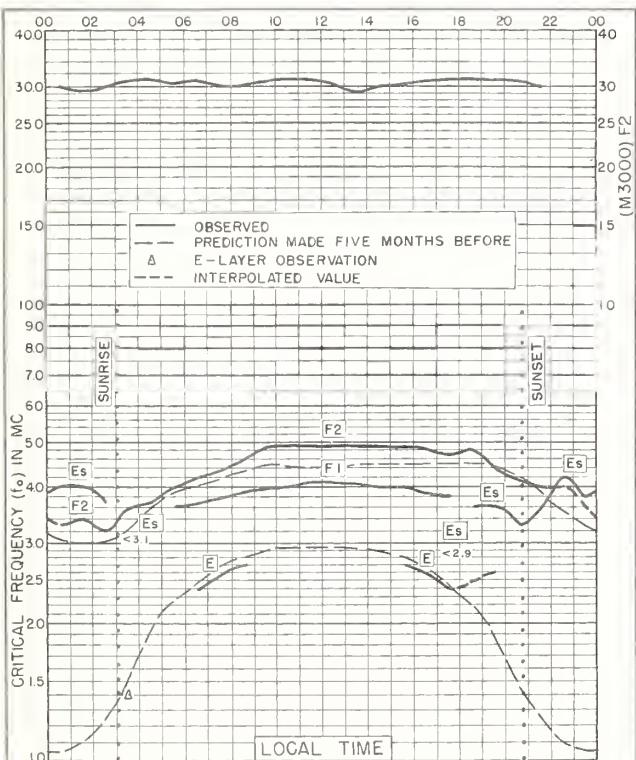
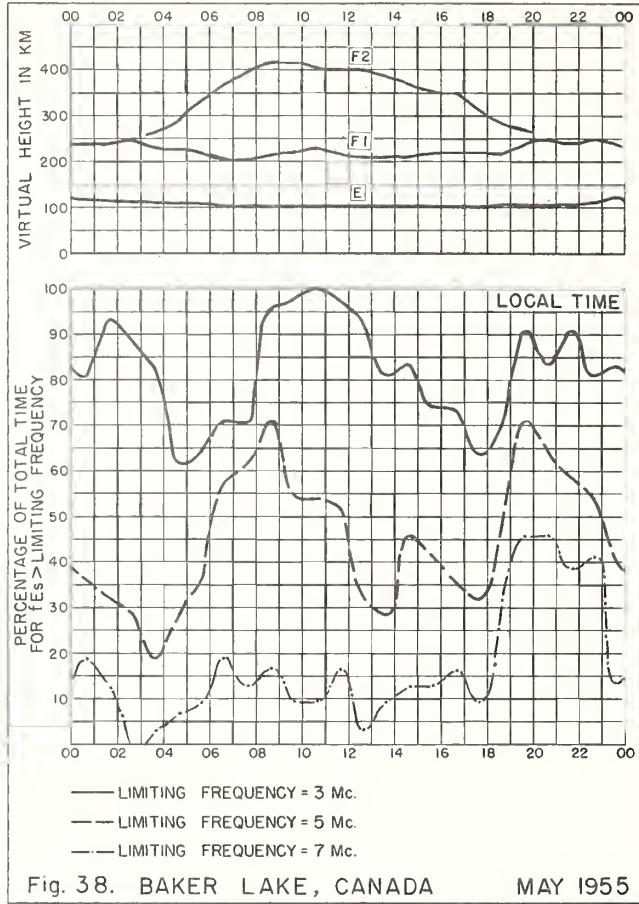
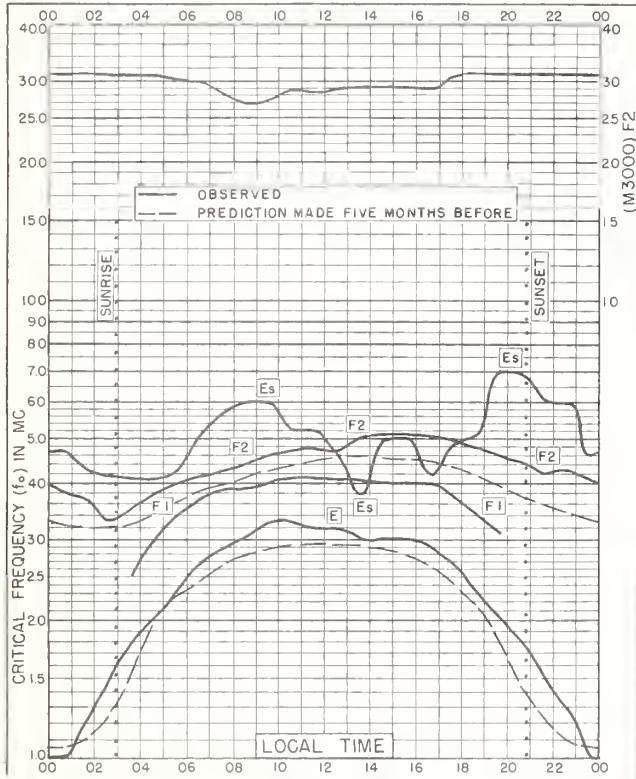


Fig. 32. RESOLUTE BAY, CANADA MAY 1955





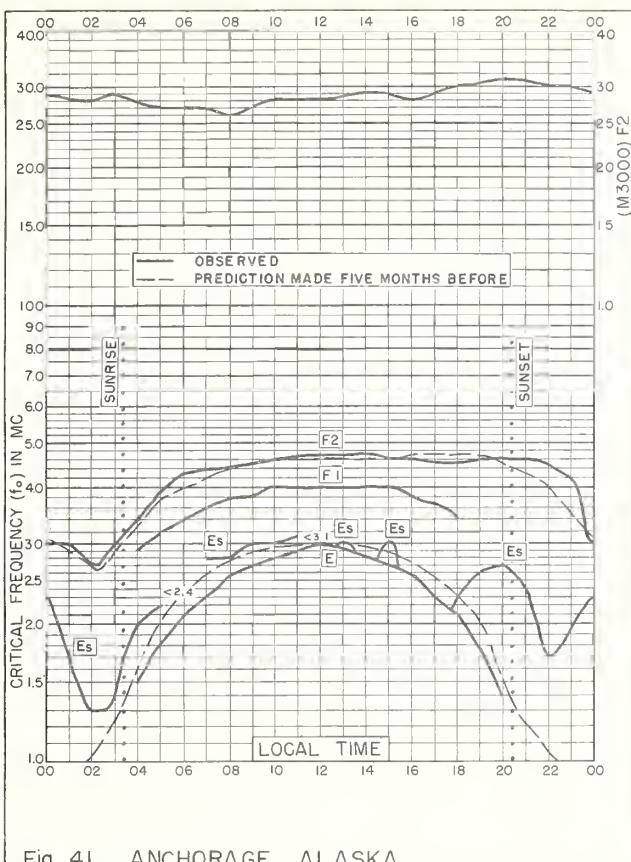


Fig. 41. ANCHORAGE, ALASKA
61.2°N, 149.9°W MAY 1955

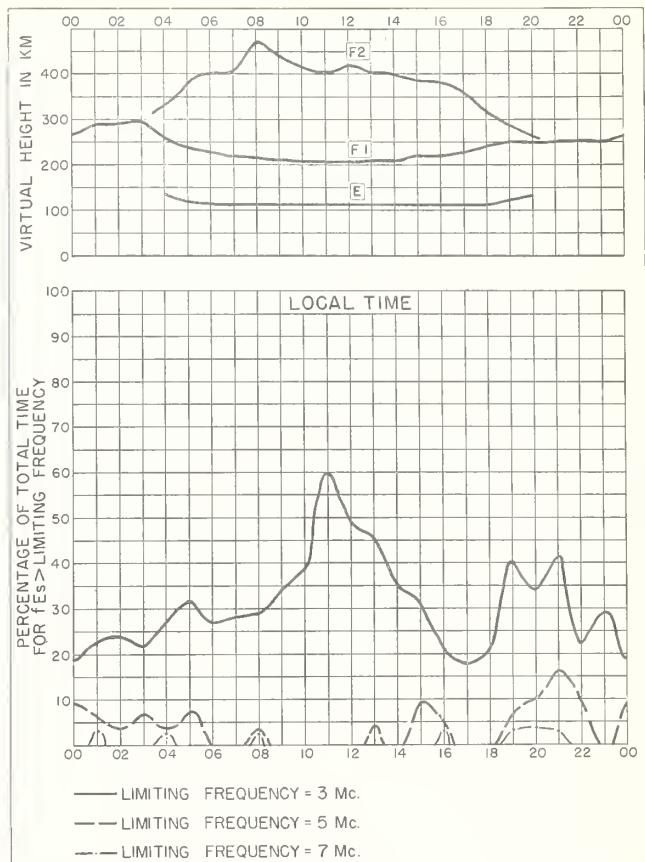


Fig. 42. ANCHORAGE, ALASKA MAY 1955

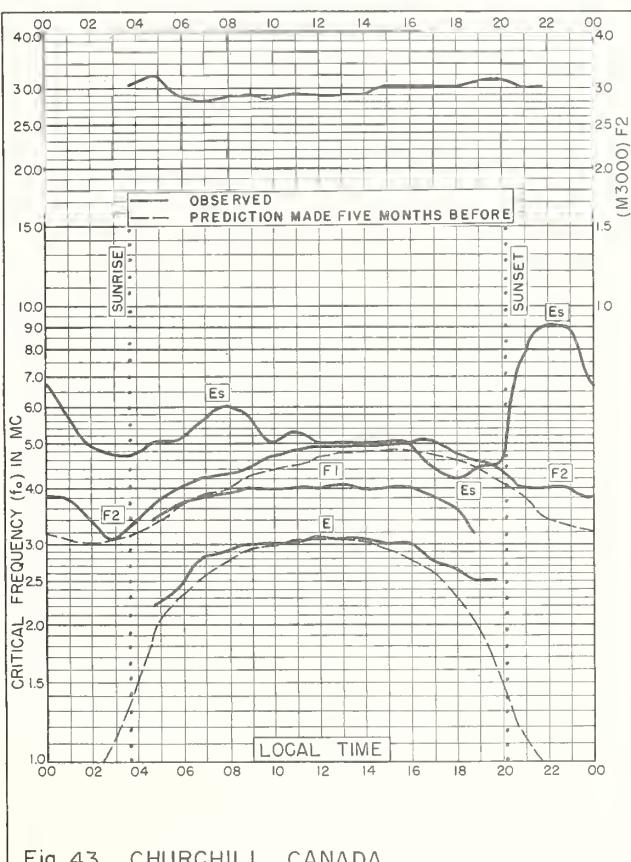


Fig. 43. CHURCHILL, CANADA
58.8°N, 94.2°W MAY 1955

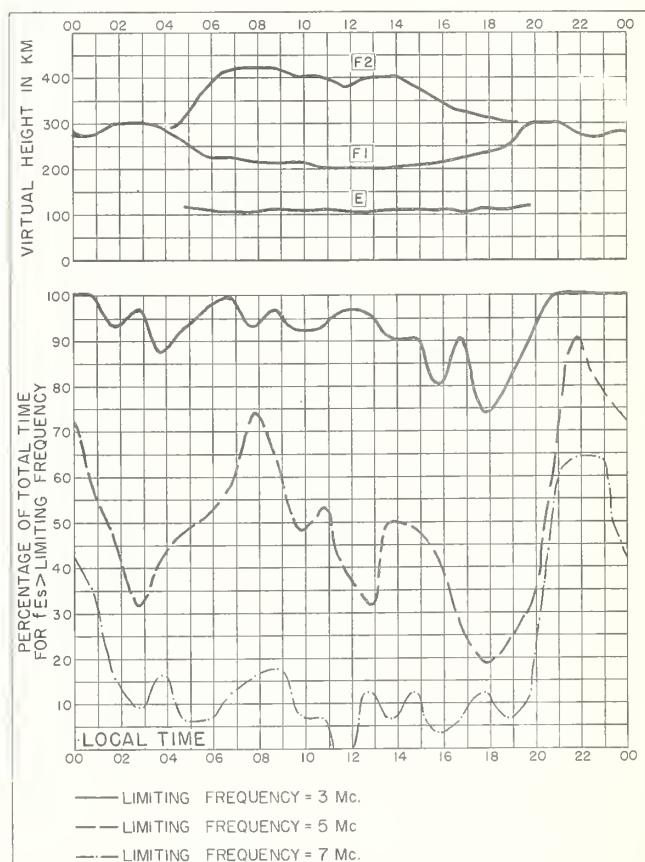


Fig. 44. CHURCHILL, CANADA MAY 1955

NBS 490

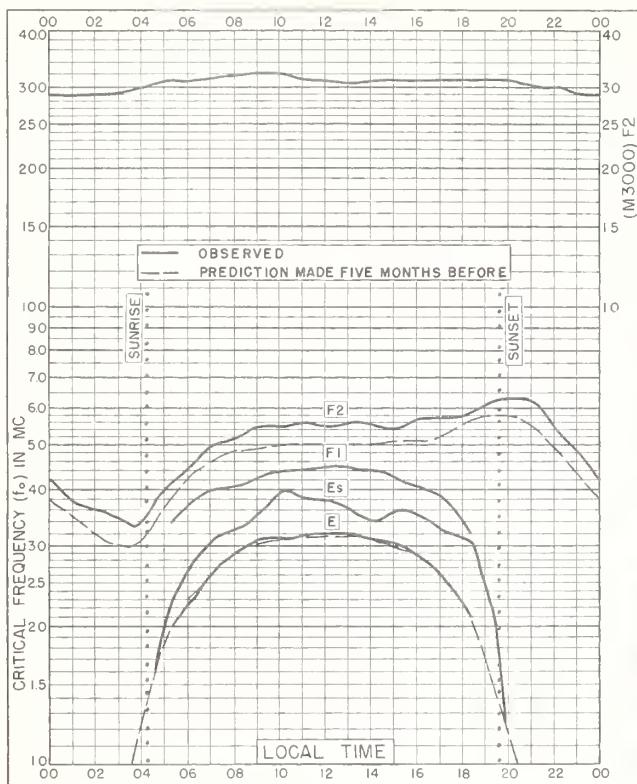


Fig. 45. De BILT, HOLLAND
52.1°N, 5.2°E MAY 1955

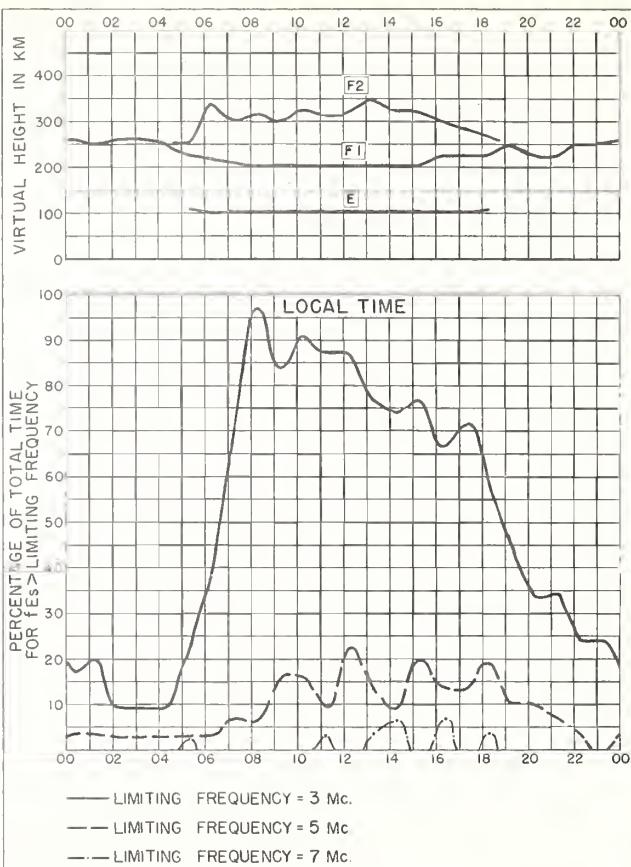


Fig. 46. De BILT, HOLLAND MAY 1955

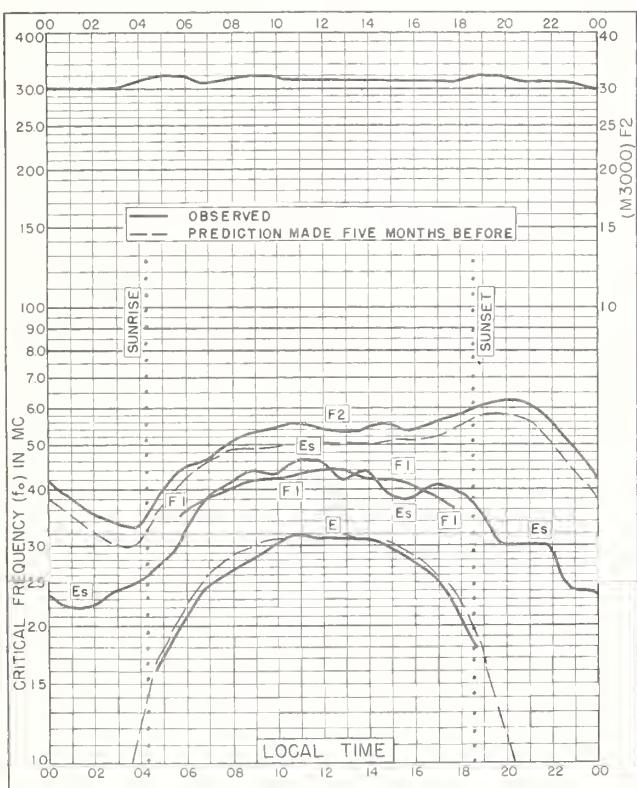


Fig. 47. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E MAY 1955

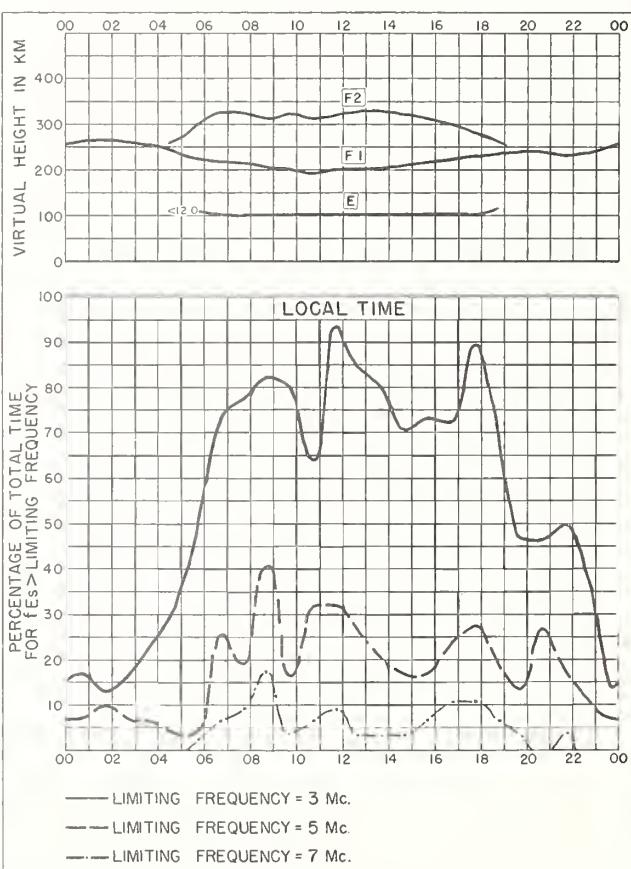


Fig. 48. LINDAU/HARZ, GERMANY MAY 1955

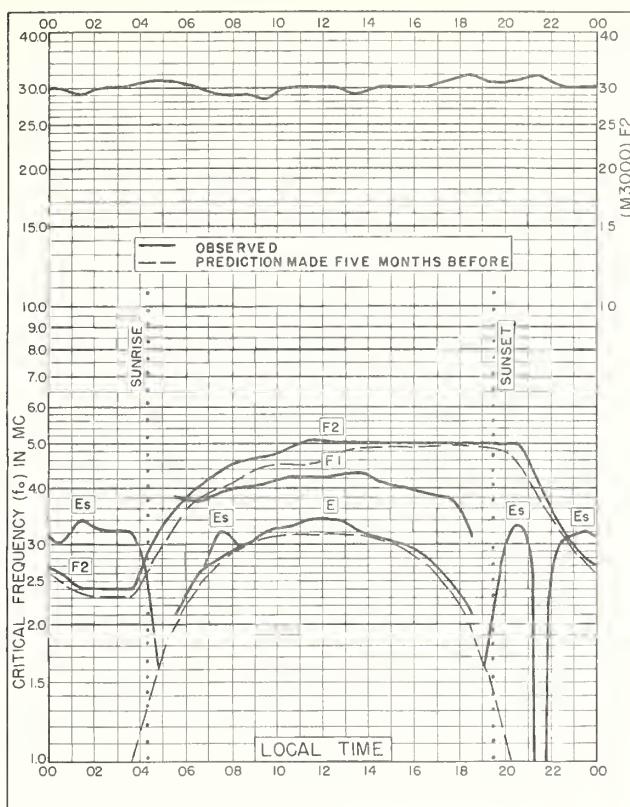


Fig. 49. WINNIPEG, CANADA
49.9°N, 97.4°W

MAY 1955

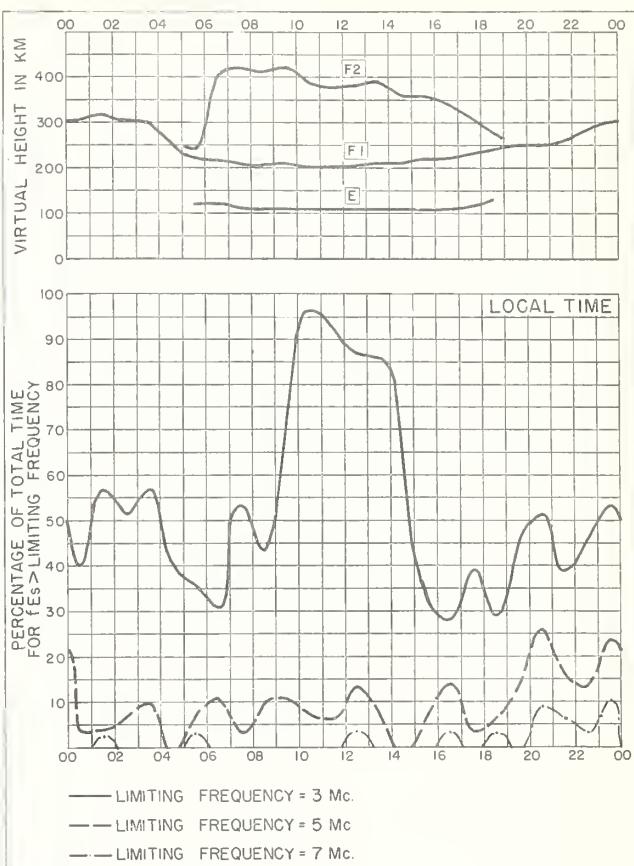


Fig. 50. WINNIPEG, CANADA

MAY 1955

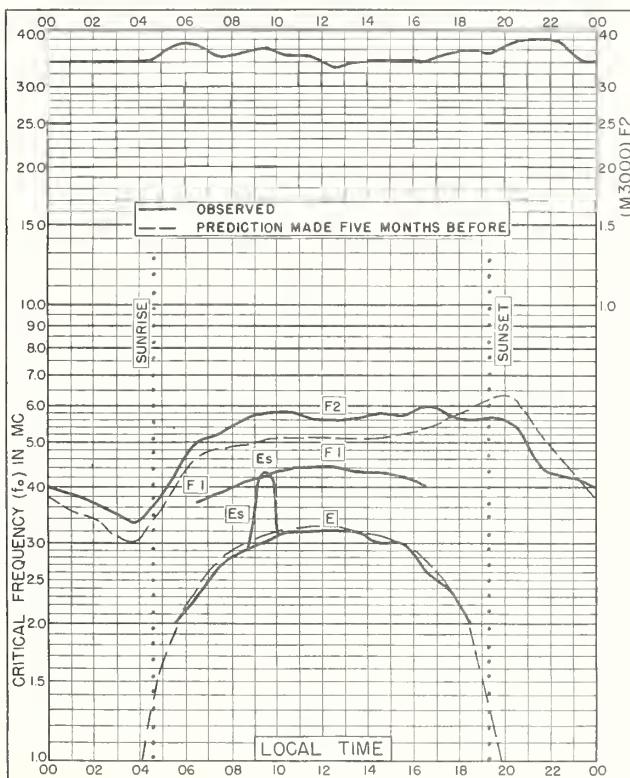


Fig. 51. SCHWARZENBURG, SWITZERLAND

46.8°N, 7.3°E

MAY 1955

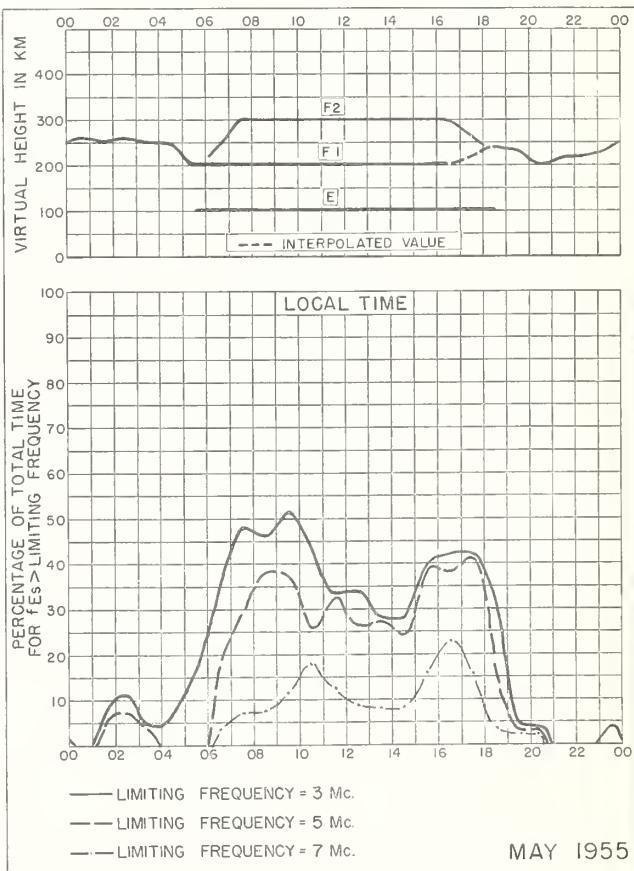


Fig. 52. SCHWARZENBURG, SWITZERLAND

MAY 1955

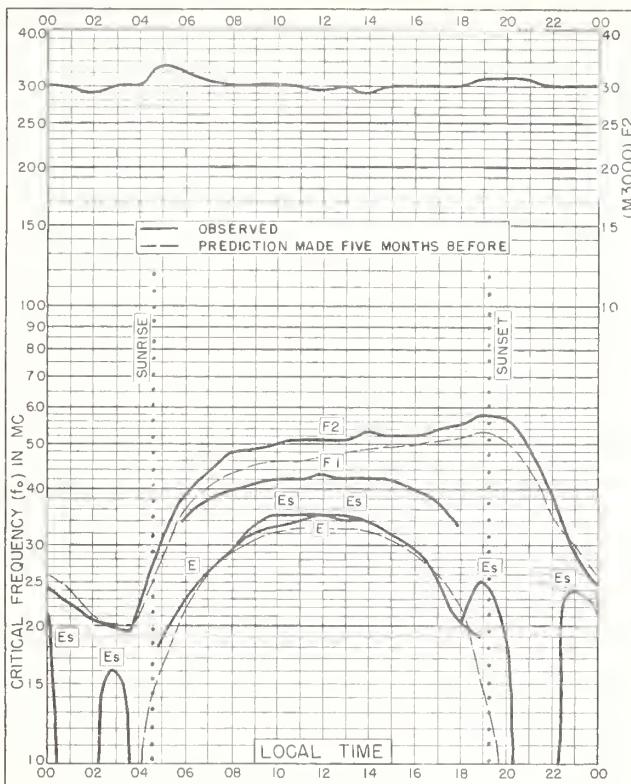


Fig. 53. OTTAWA, CANADA
45.4°N, 75.9°W MAY 1955

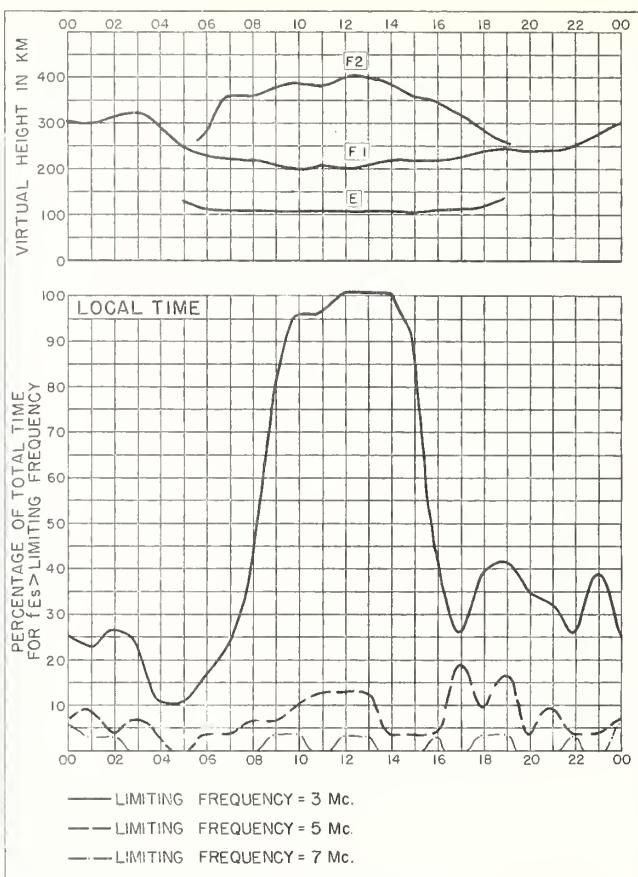


Fig. 54. OTTAWA, CANADA MAY 1955

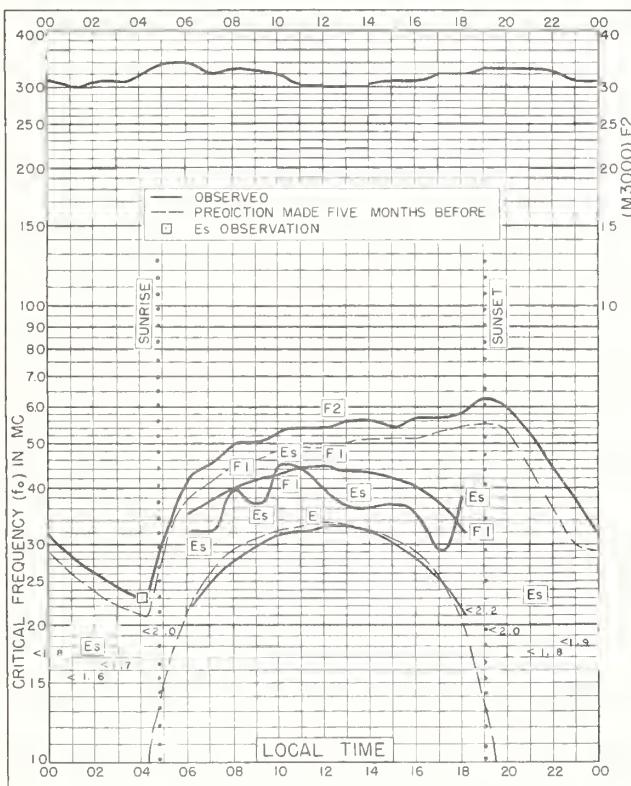


Fig. 55. FT. MONMOUTH, NEW JERSEY
40.0°N, 74.0°W MAY 1955

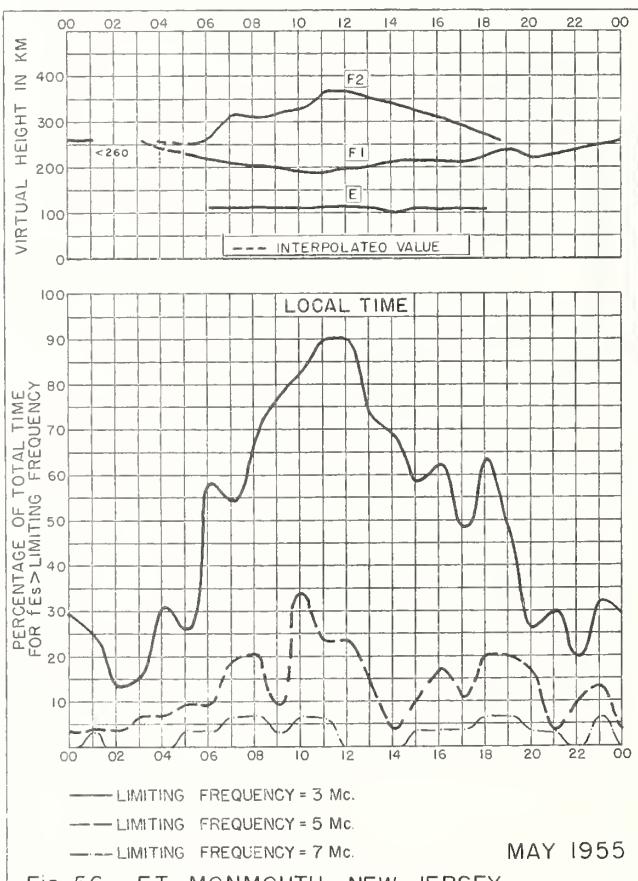


Fig. 56. FT. MONMOUTH, NEW JERSEY MAY 1955

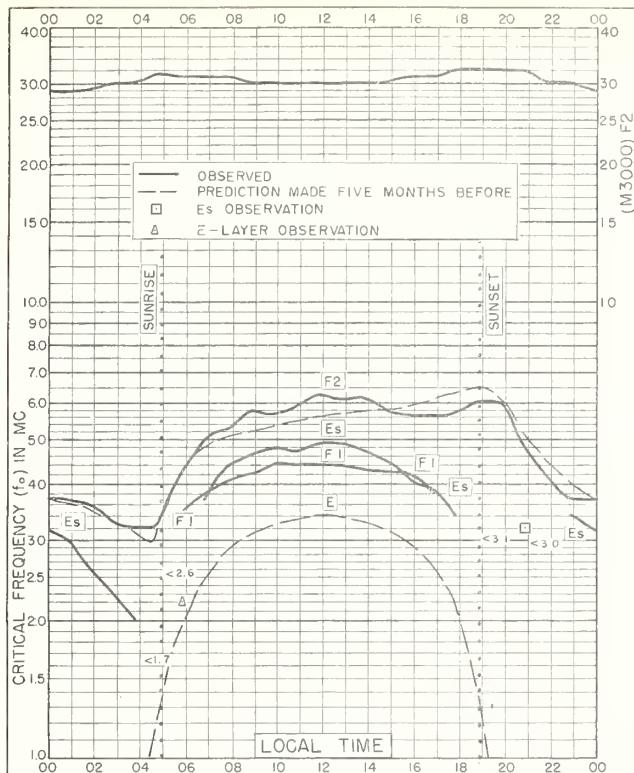


Fig. 57. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W MAY 1955

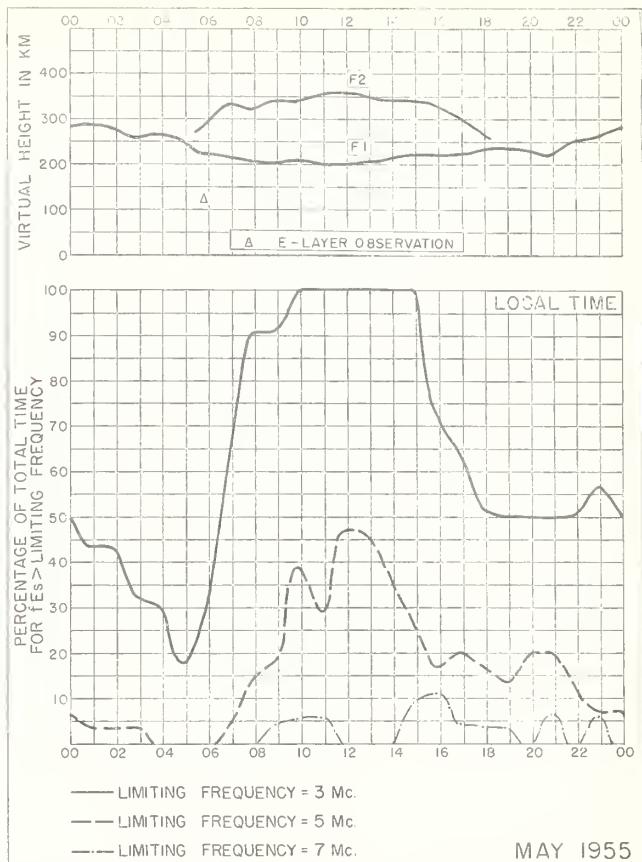


Fig. 58. SAN FRANCISCO, CALIFORNIA MAY 1955

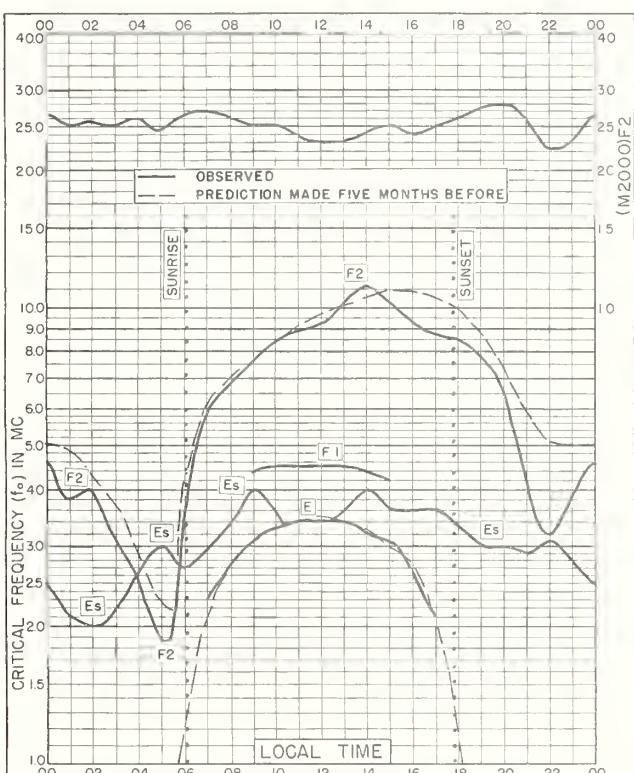


Fig. 59. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E MAY 1955

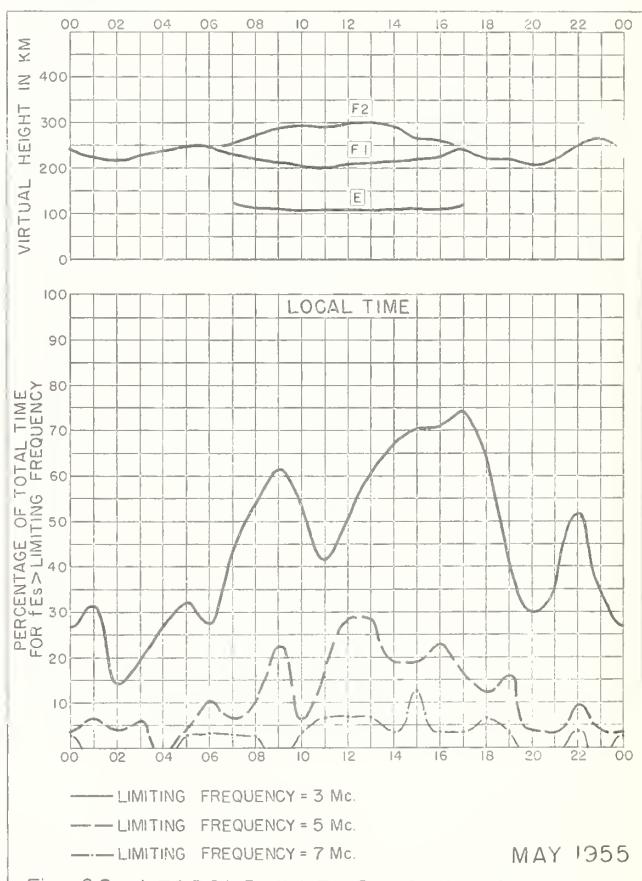
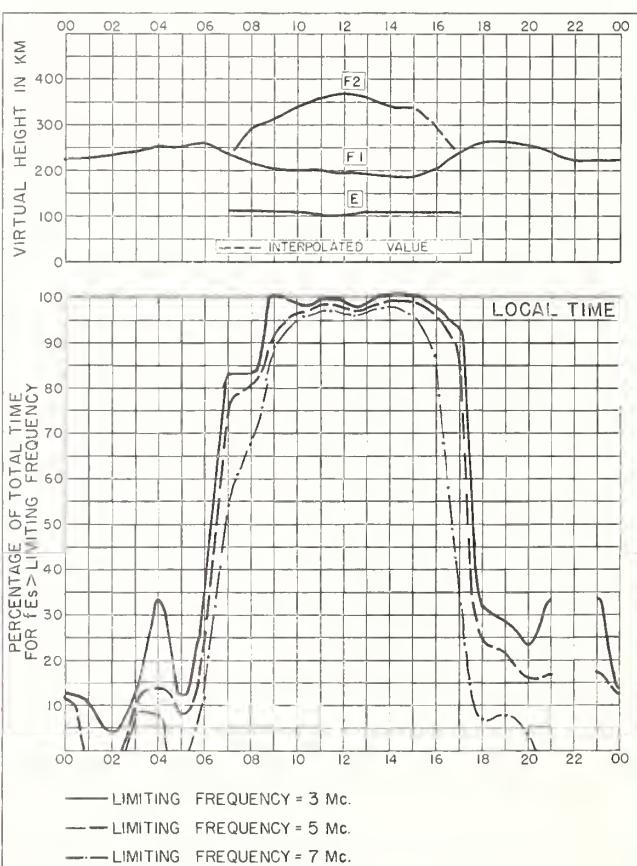
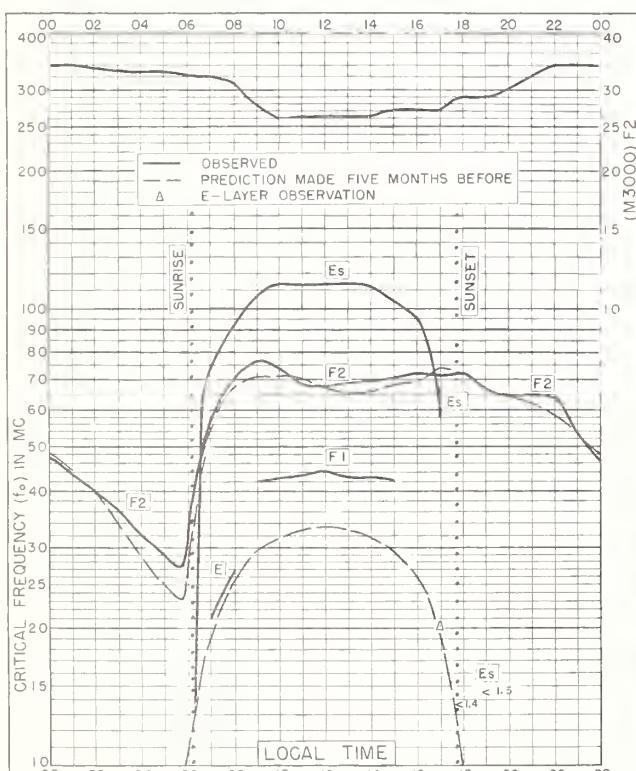
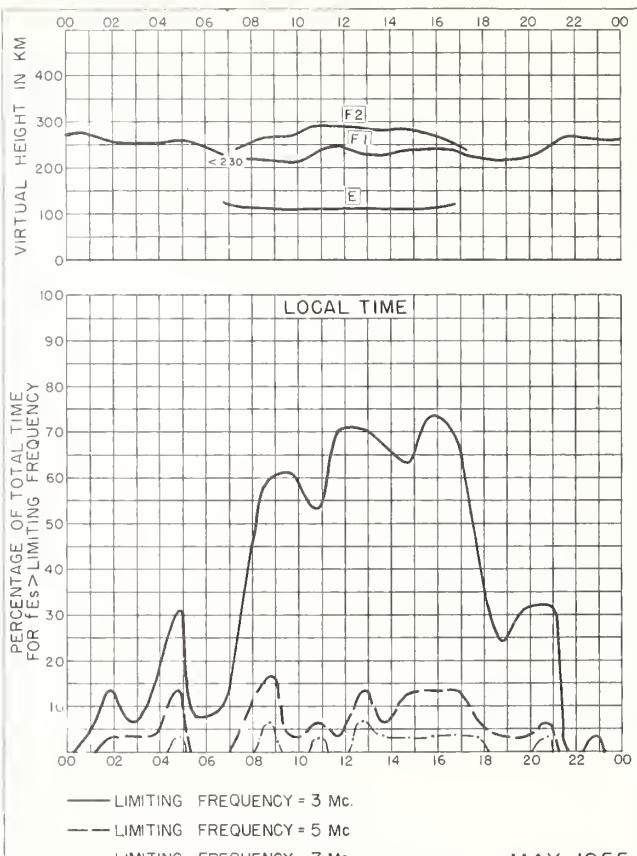
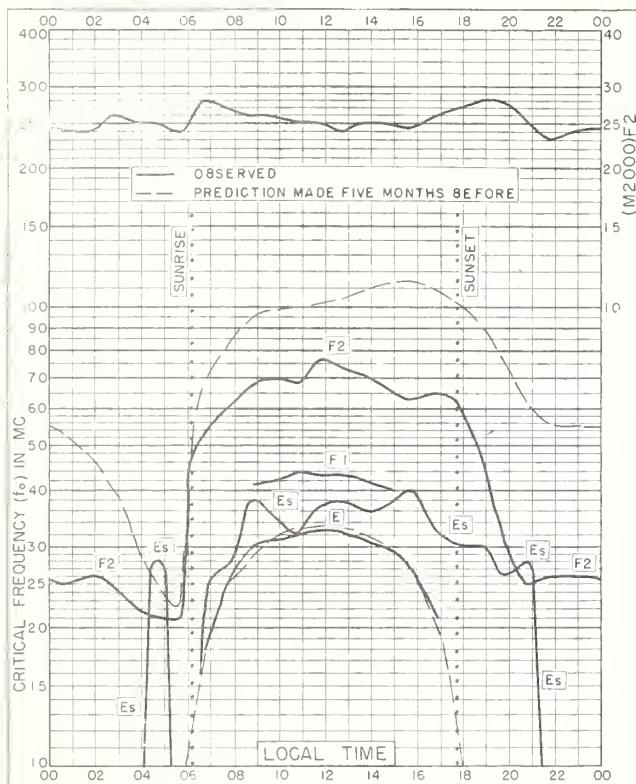


Fig. 60. LEOPOLDVILLE, BELGIAN CONGO MAY 1955



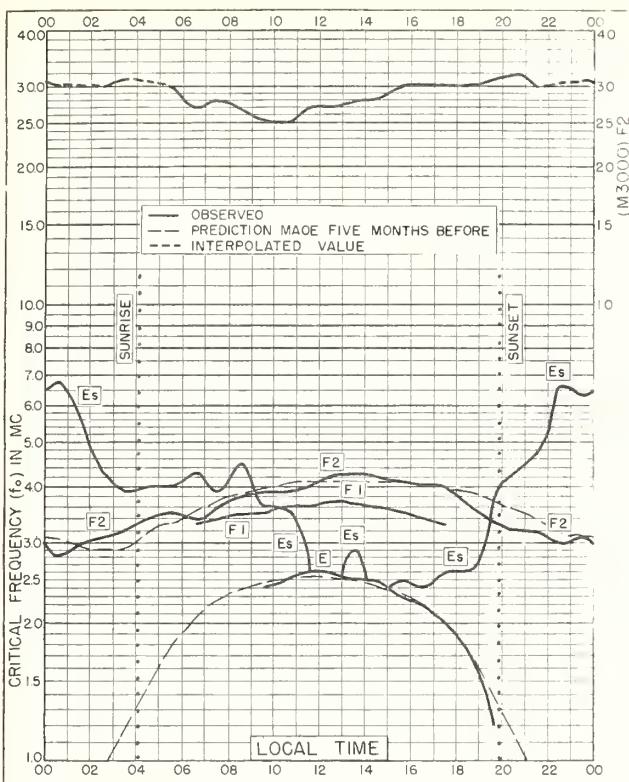


Fig. 65. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1955

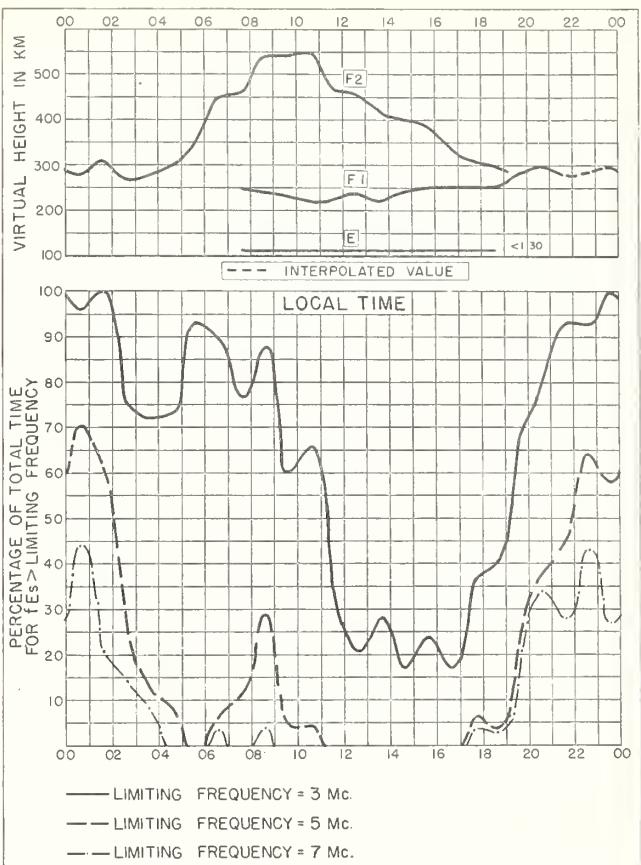


Fig. 66. POINT BARROW, ALASKA APRIL 1955

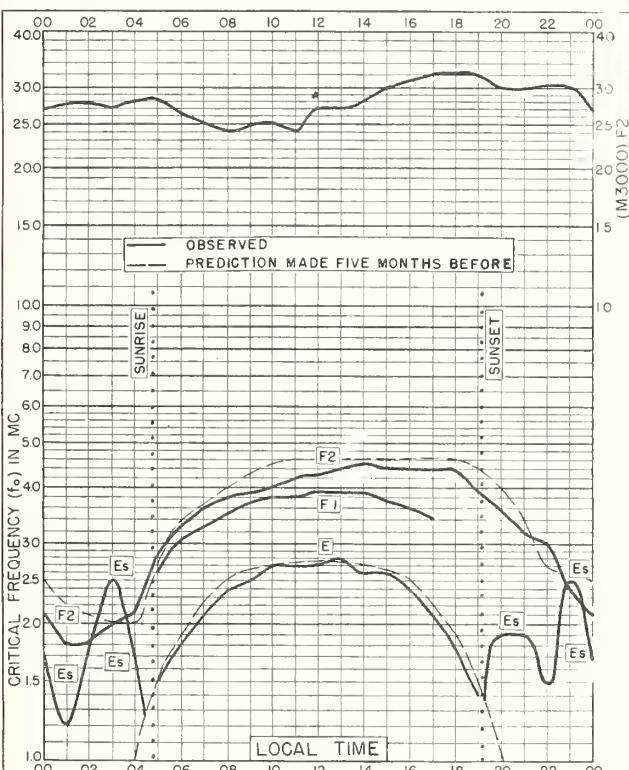


Fig. 67. ANCHORAGE, ALASKA
61.2°N, 149.9°W APRIL 1955

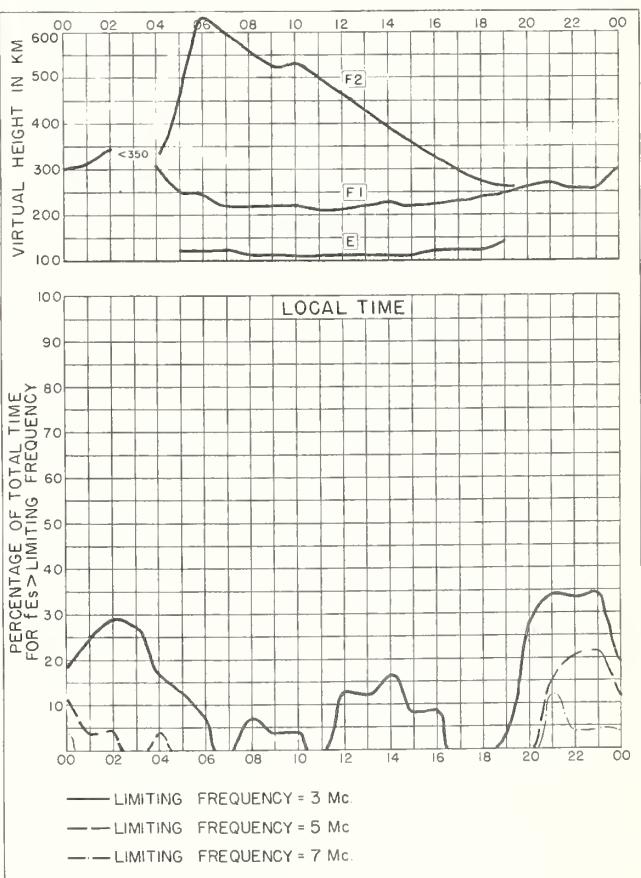


Fig. 68. ANCHORAGE, ALASKA APRIL 1955

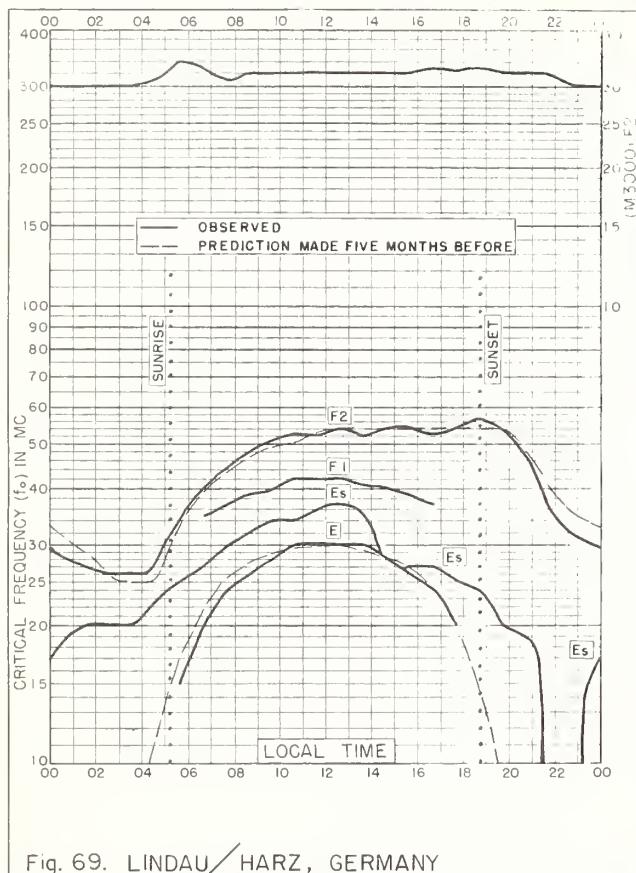


Fig. 69. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E APRIL 1955

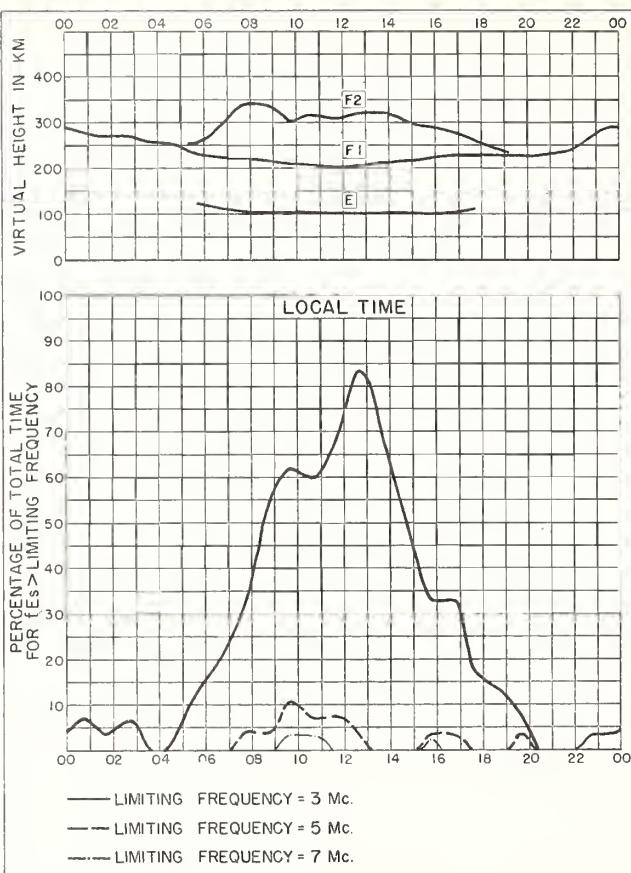


Fig. 70. LINDAU/HARZ, GERMANY APRIL 1955

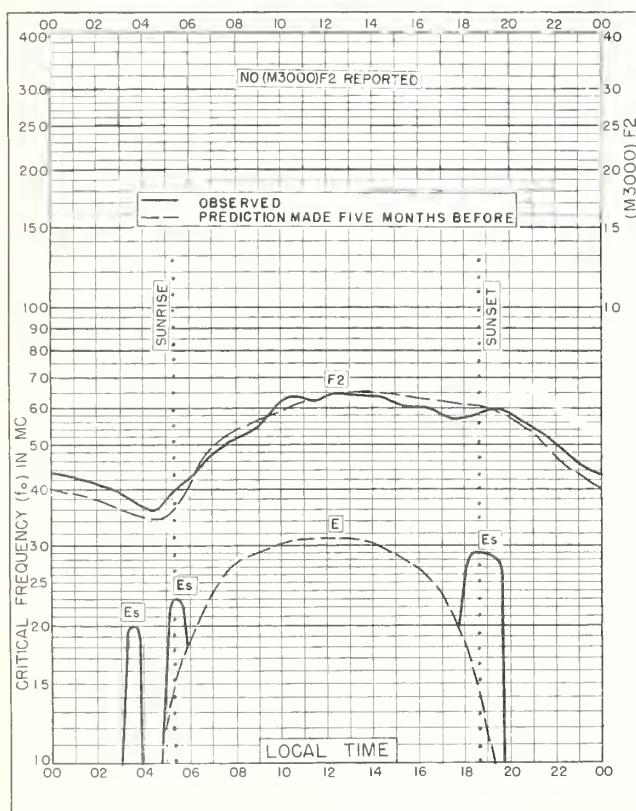


Fig. 71. WAKKANAI, JAPAN
45.4°N, 141.7°E APRIL 1955

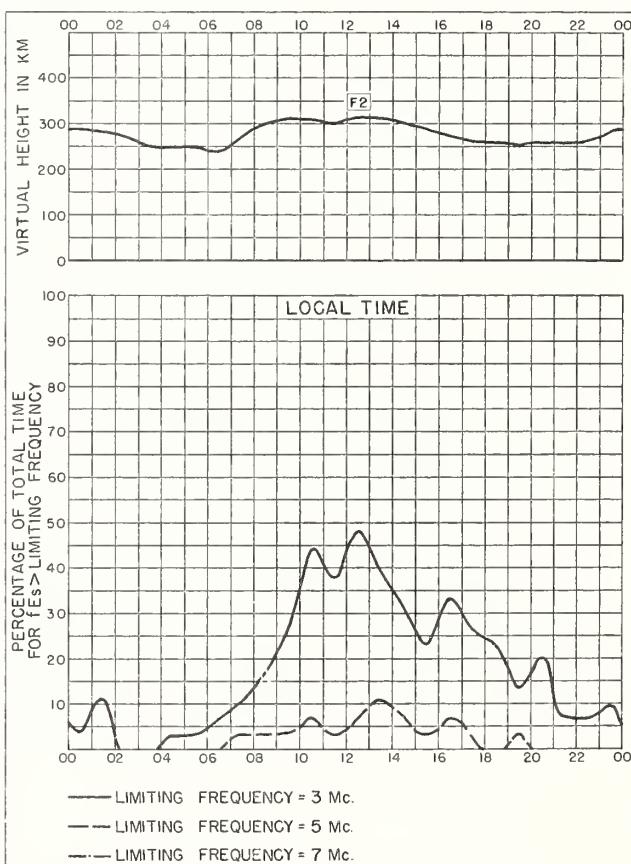


Fig. 72. WAKKANAI, JAPAN APRIL 1955

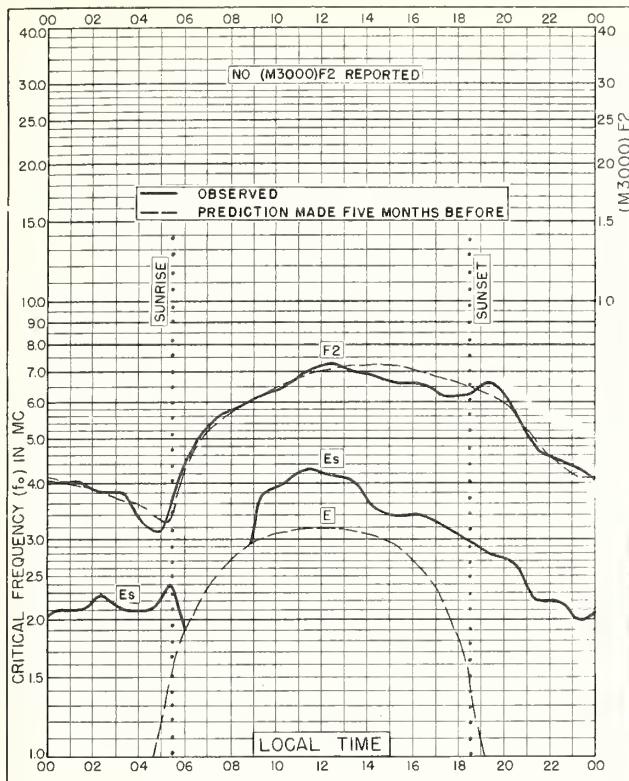


Fig. 73. AKITA, JAPAN

39.7°N, 140.1°E

APRIL 1955

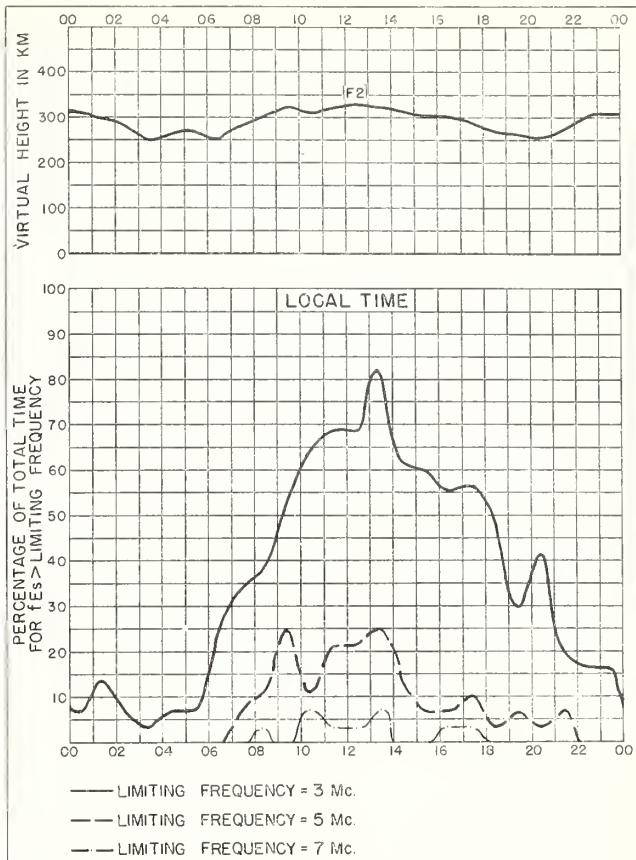


Fig. 74. AKITA, JAPAN

APRIL 1955

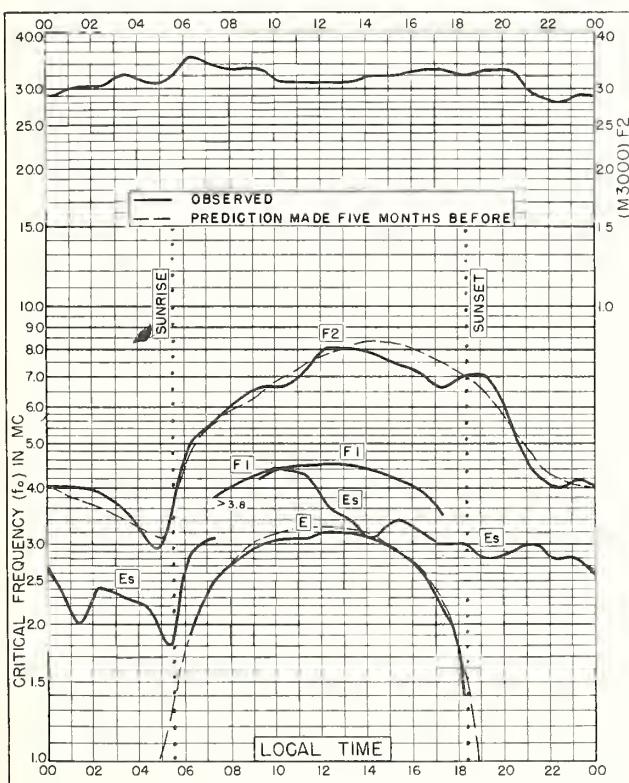


Fig. 75. TOKYO, JAPAN

35.7°N, 139.5°E

APRIL 1955

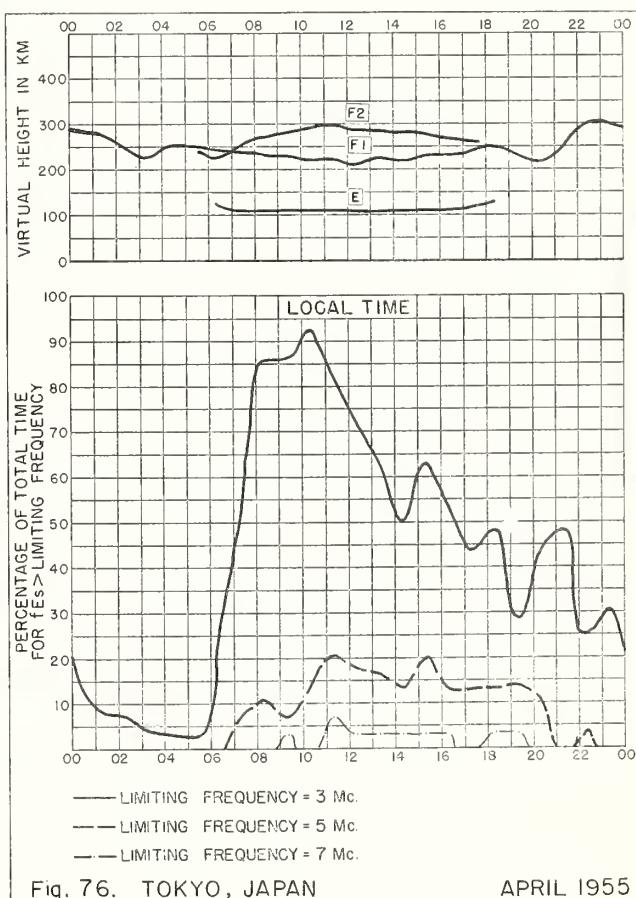


Fig. 76. TOKYO, JAPAN

APRIL 1955

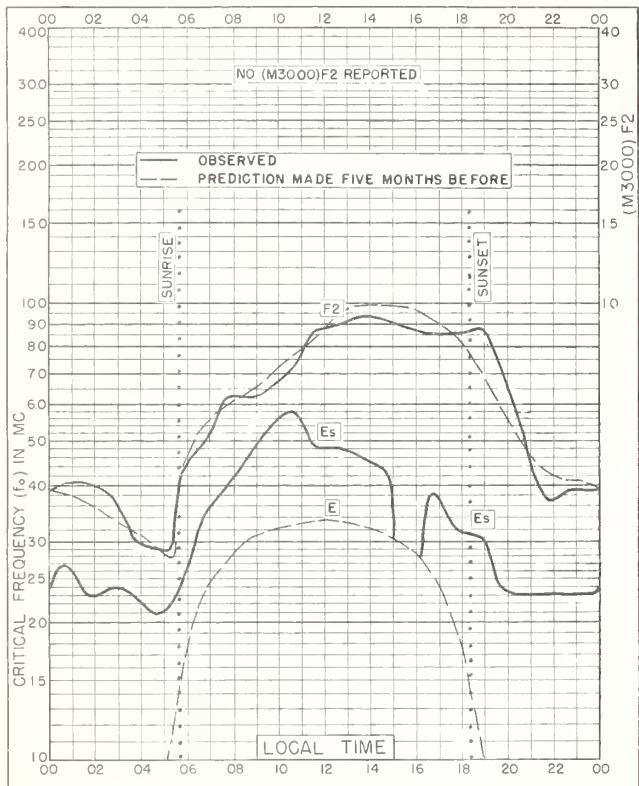


Fig. 77. YAMAGAWA, JAPAN
 31.2°N, 130.6°E APRIL 1955

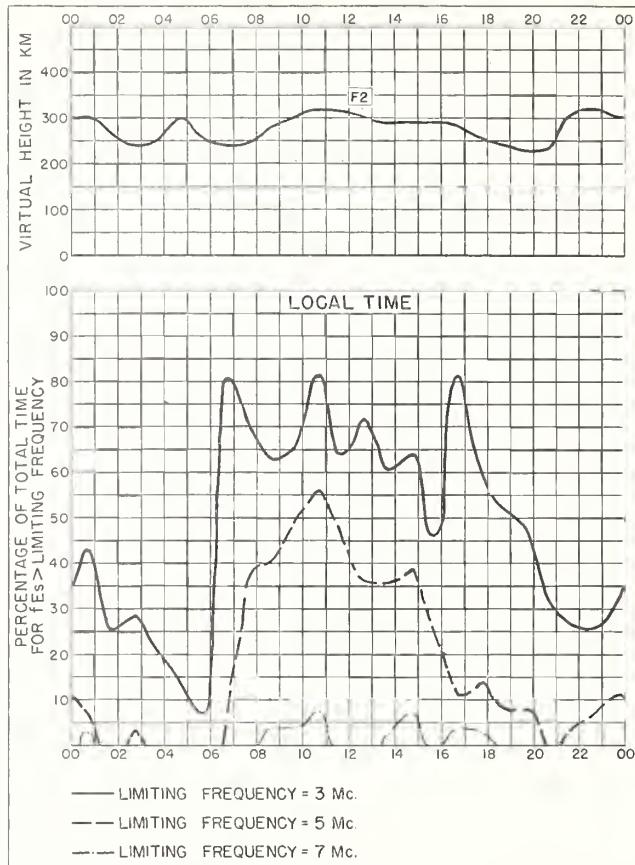


Fig. 78. YAMAGAWA, JAPAN APRIL 1955

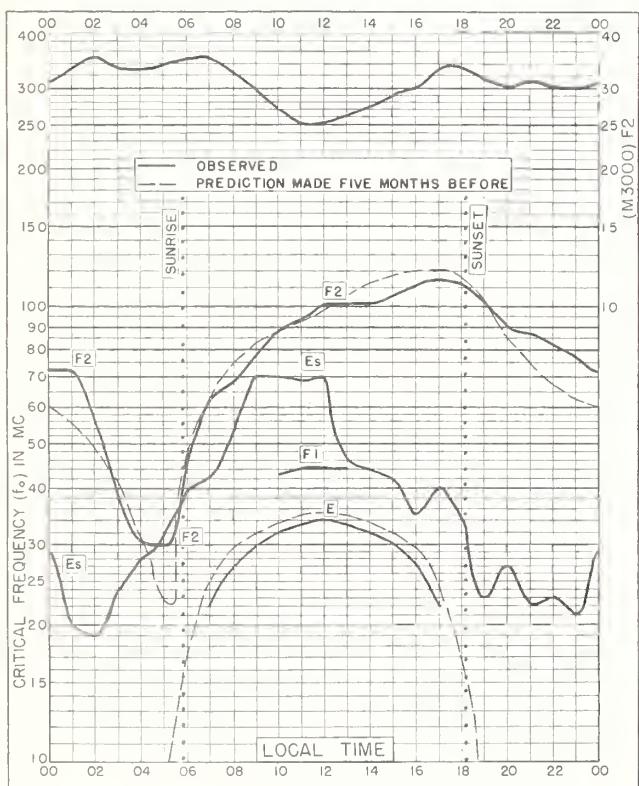


Fig. 79. BAGUIO, P. I.
16.4°N, 120.6°E

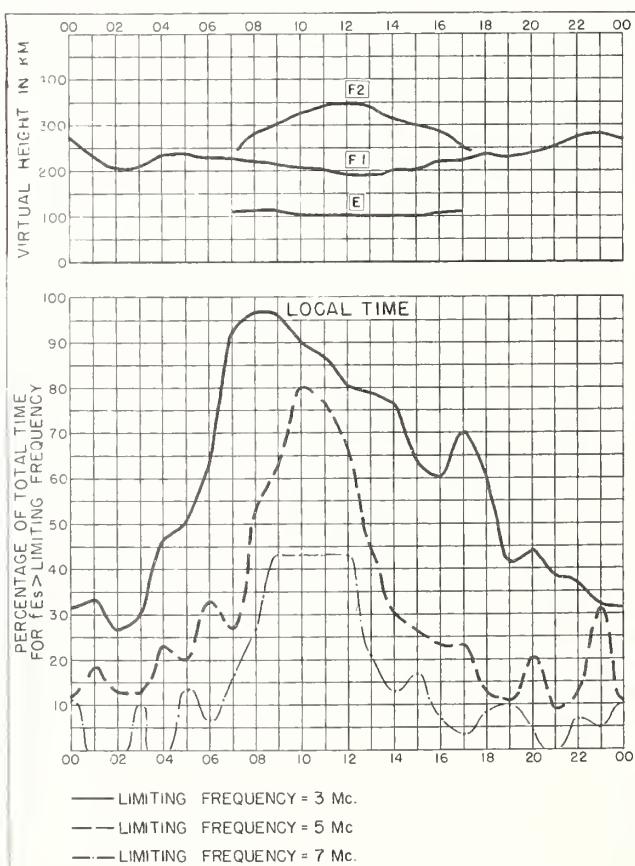
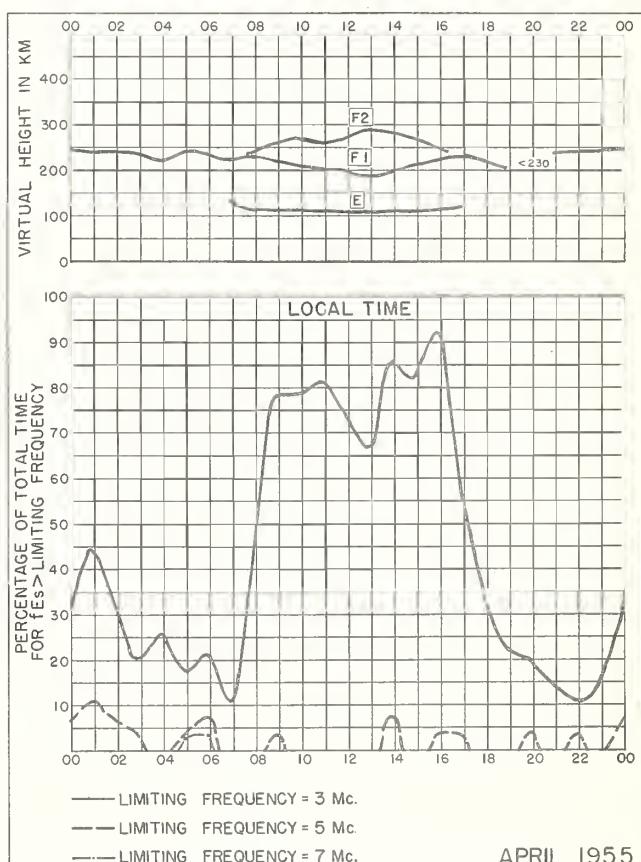
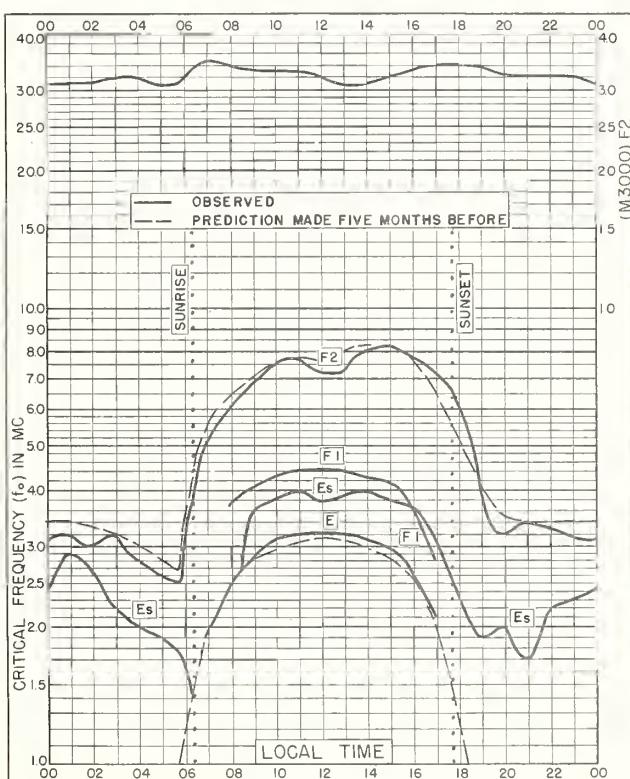
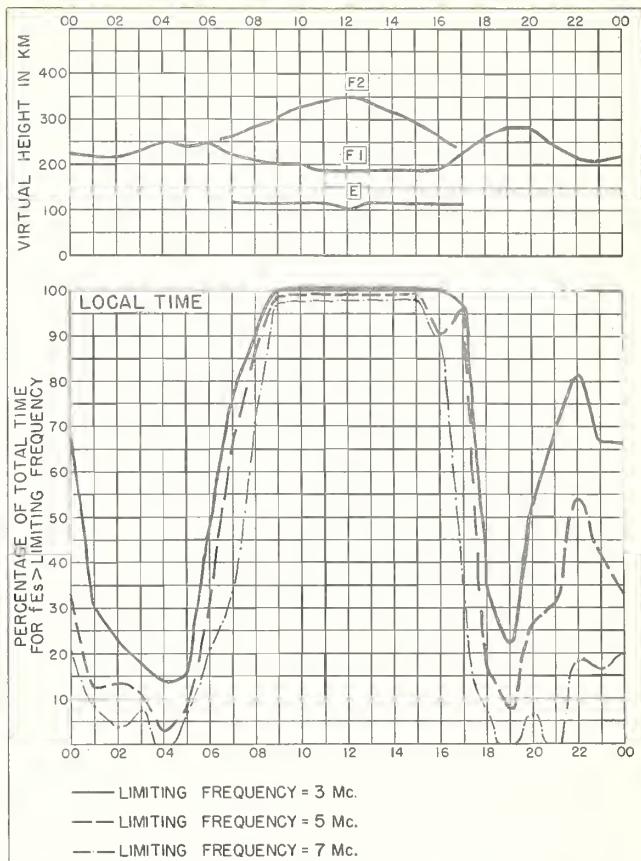
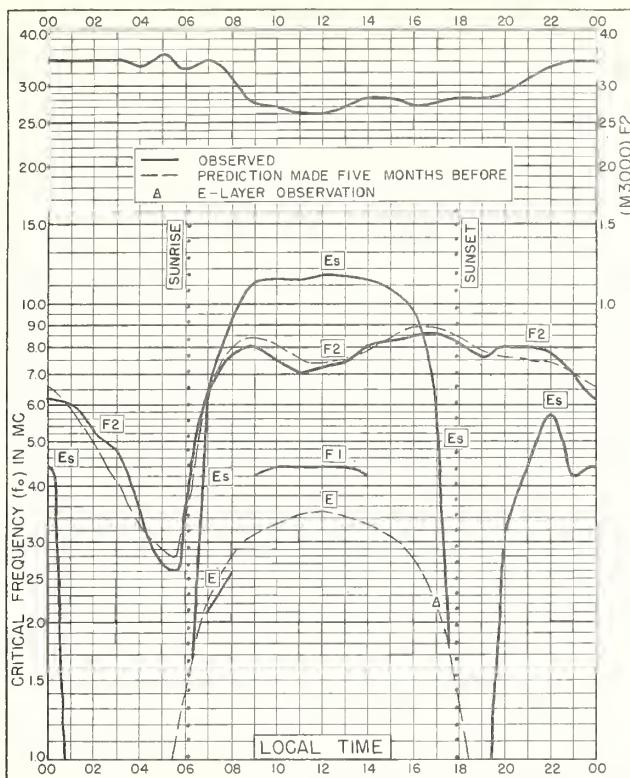


Fig. 80. BAGUIO, P. I. APRIL 1955



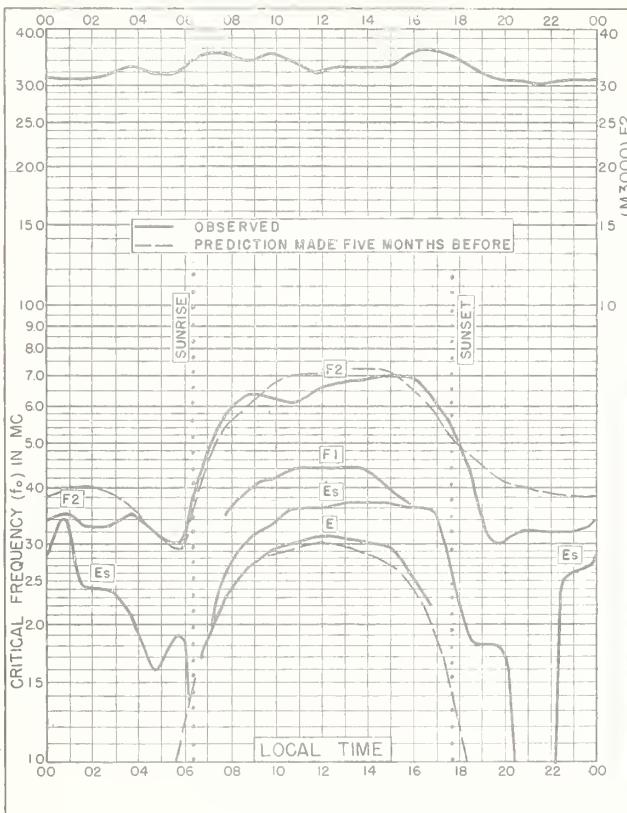


Fig. 85. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E APRIL 1955

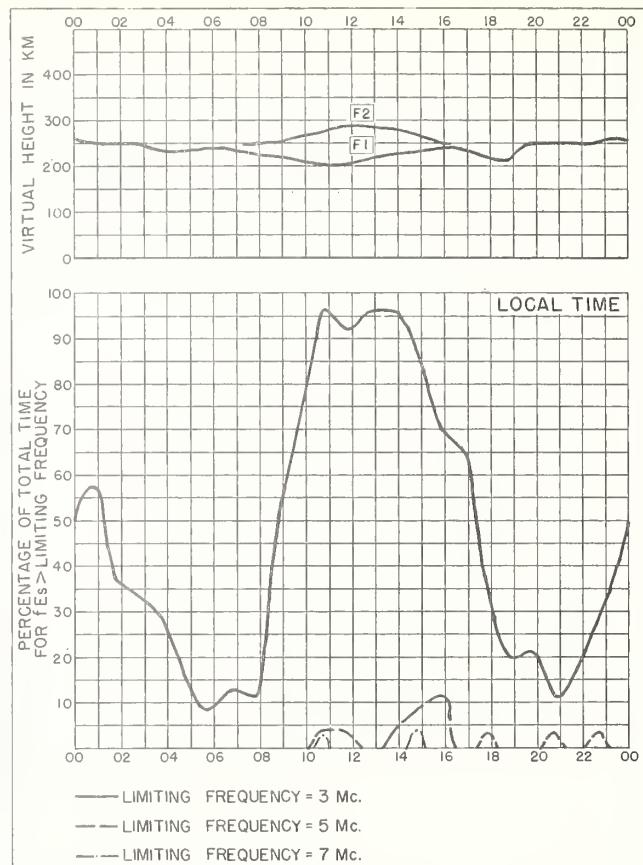


Fig. 86. WATHEROO, W. AUSTRALIA APRIL 1955

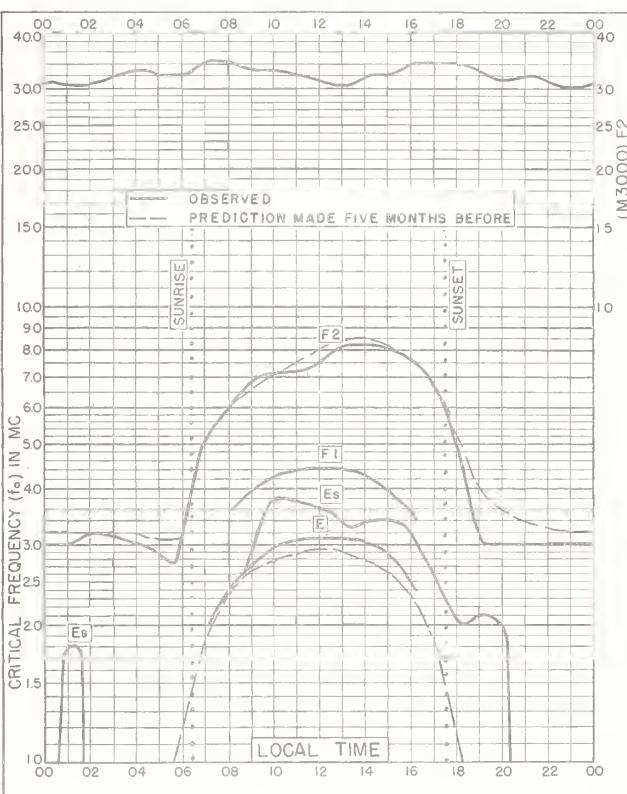


Fig. 87. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E APRIL 1955

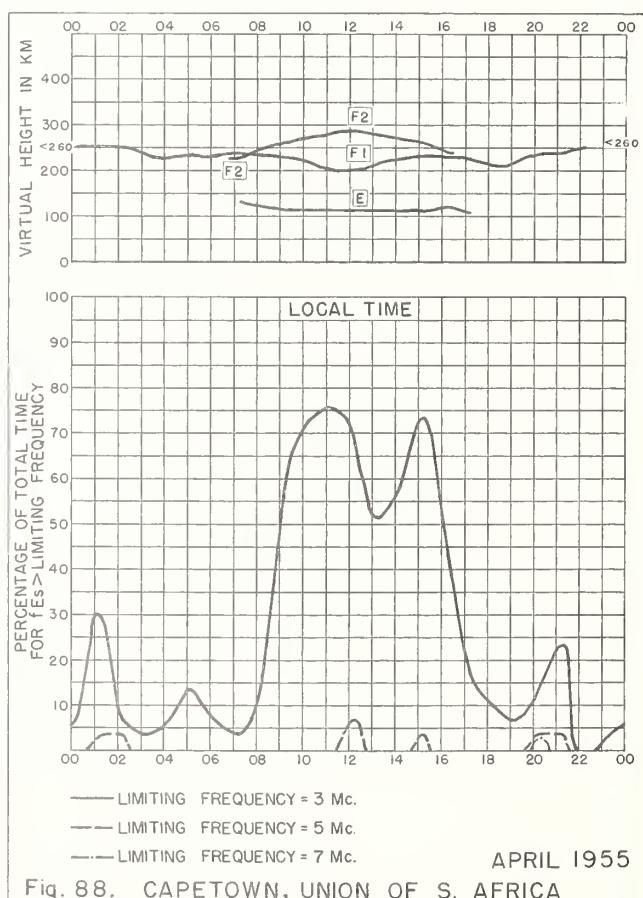


Fig. 88. CAPETOWN, UNION OF S. AFRICA APRIL 1955

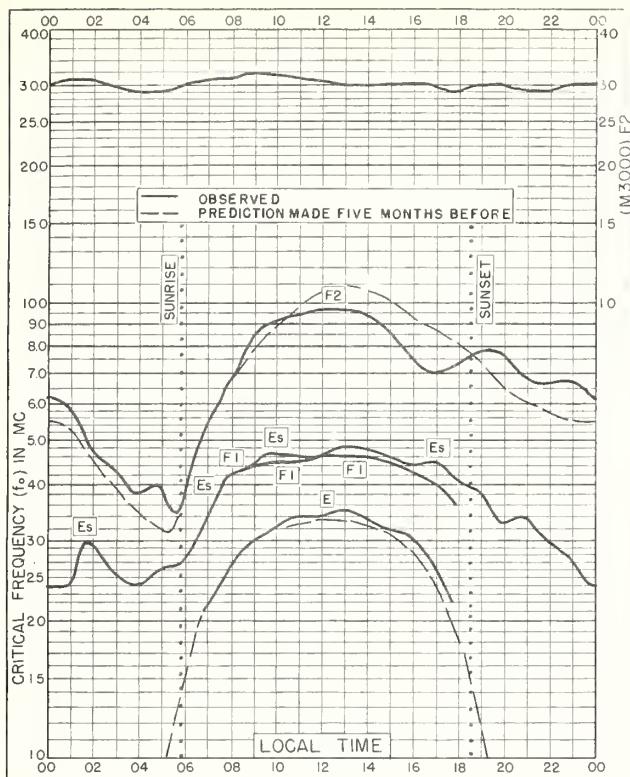


Fig. 89. RAROTONGA I.
21.3°S, 159.8°W FEBRUARY 1955

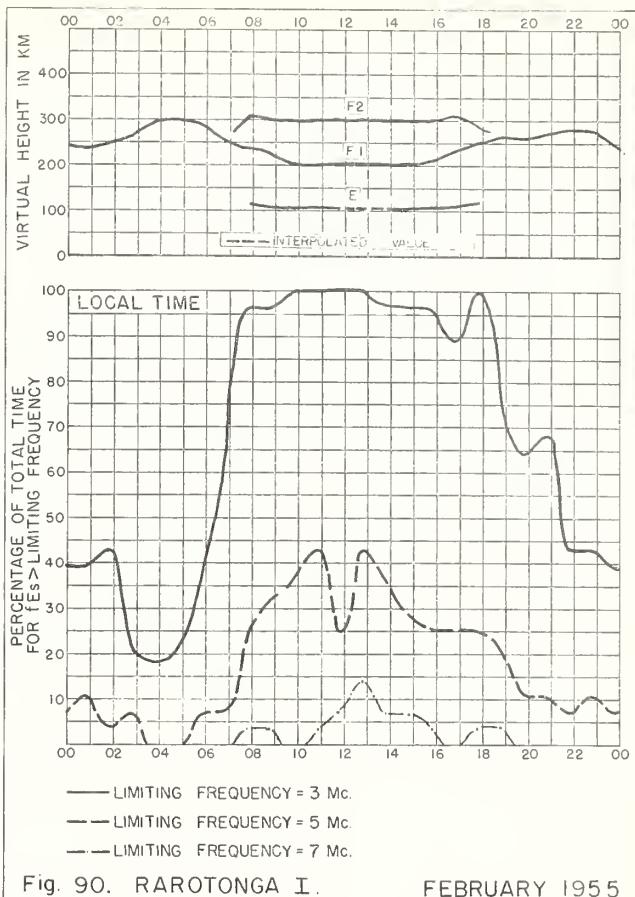


Fig. 90. RAROTONGA I. FEBRUARY 1955

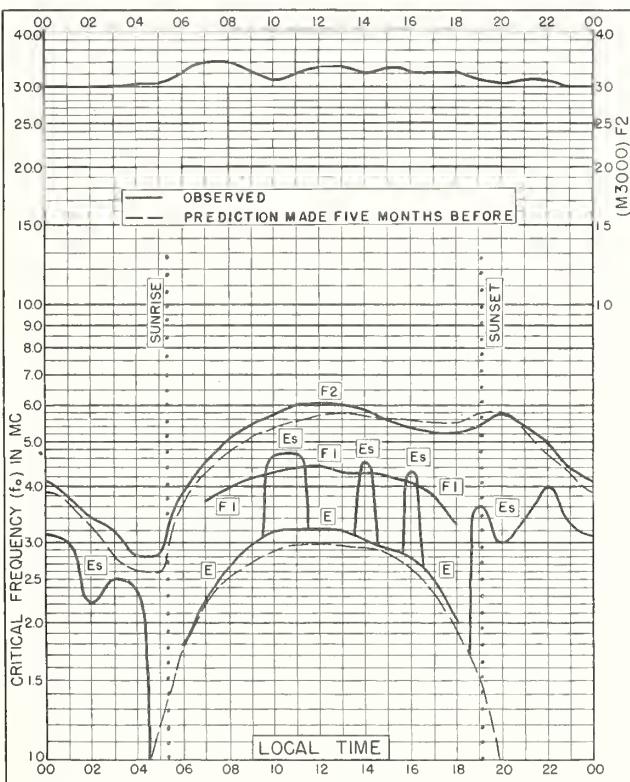


Fig. 91. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E FEBRUARY 1955

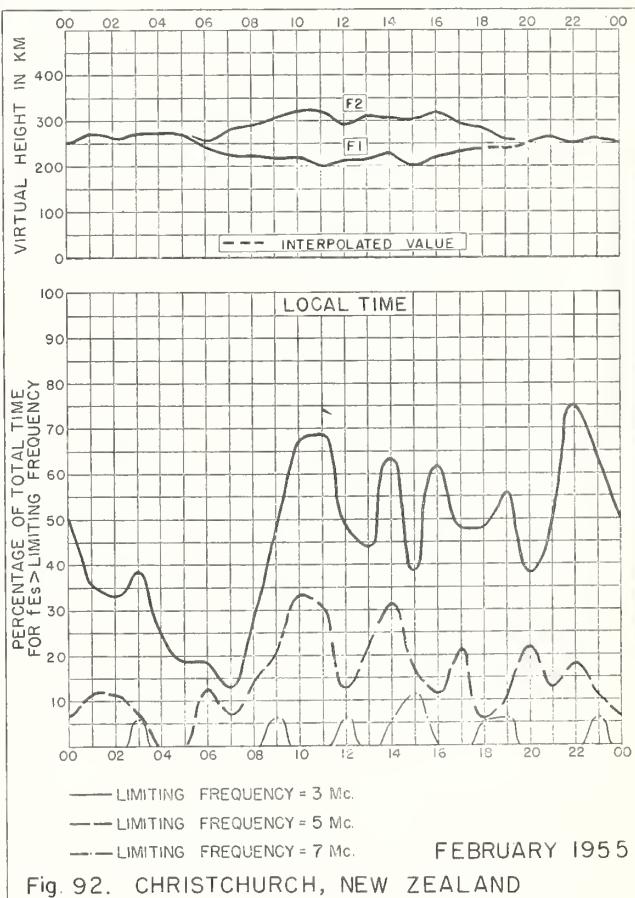
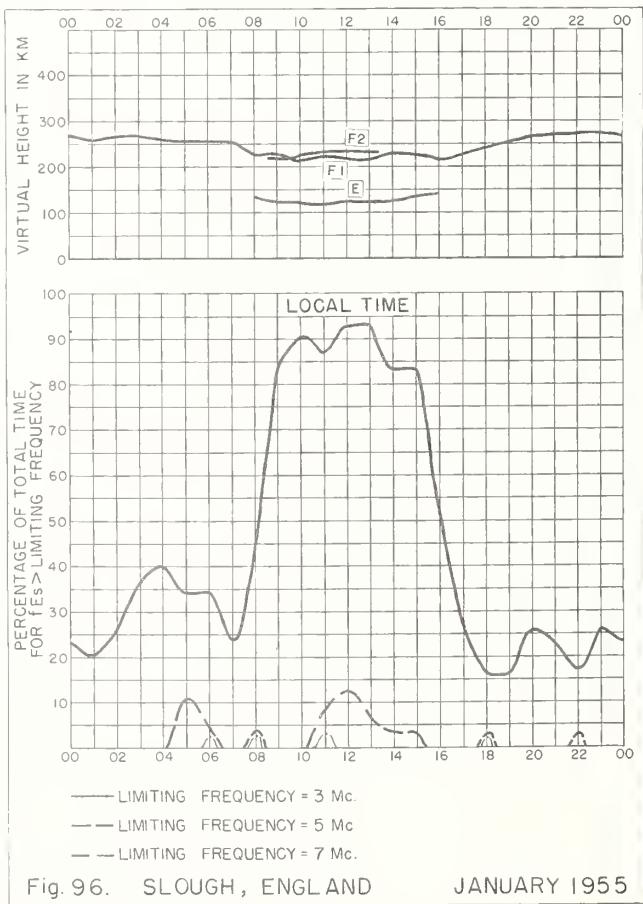
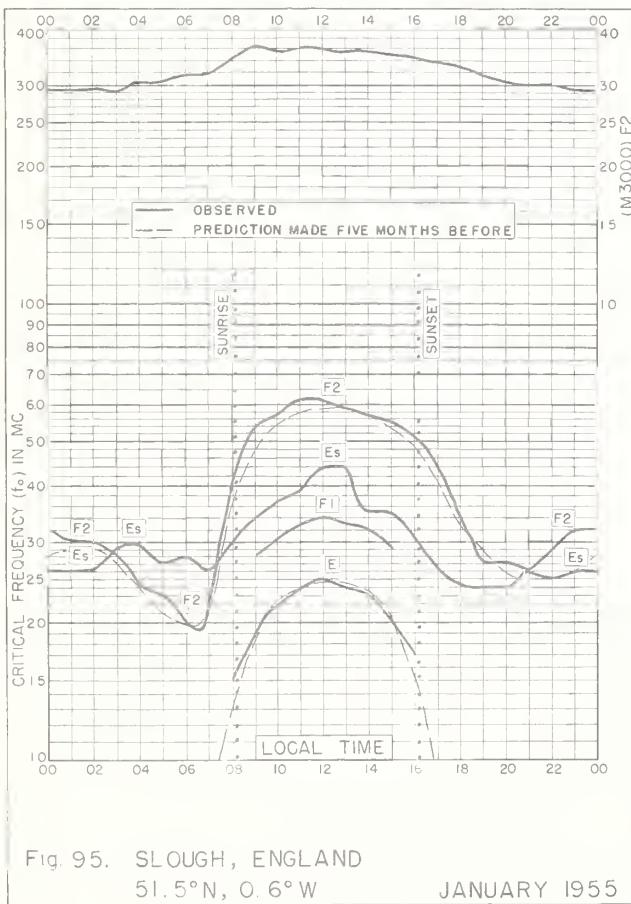
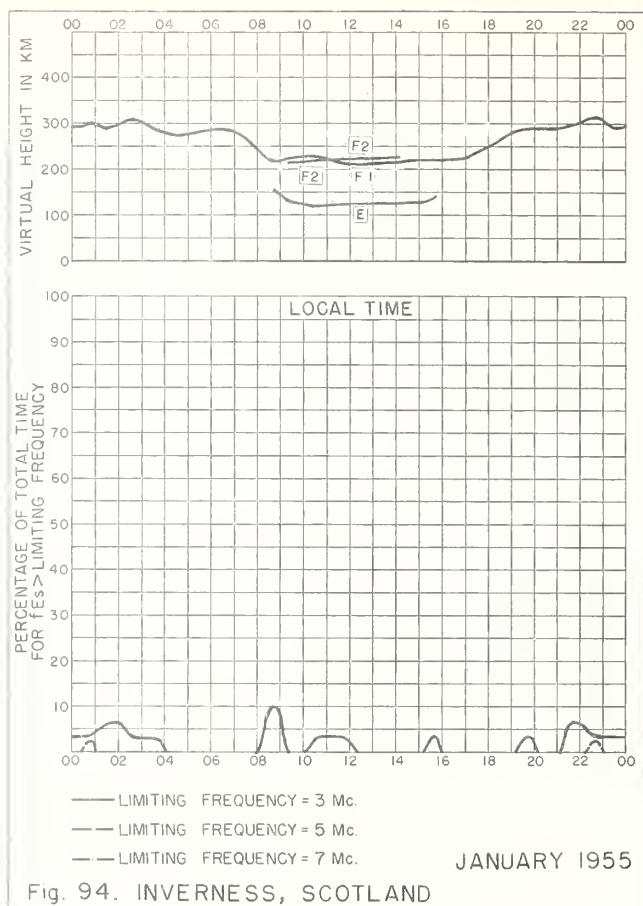
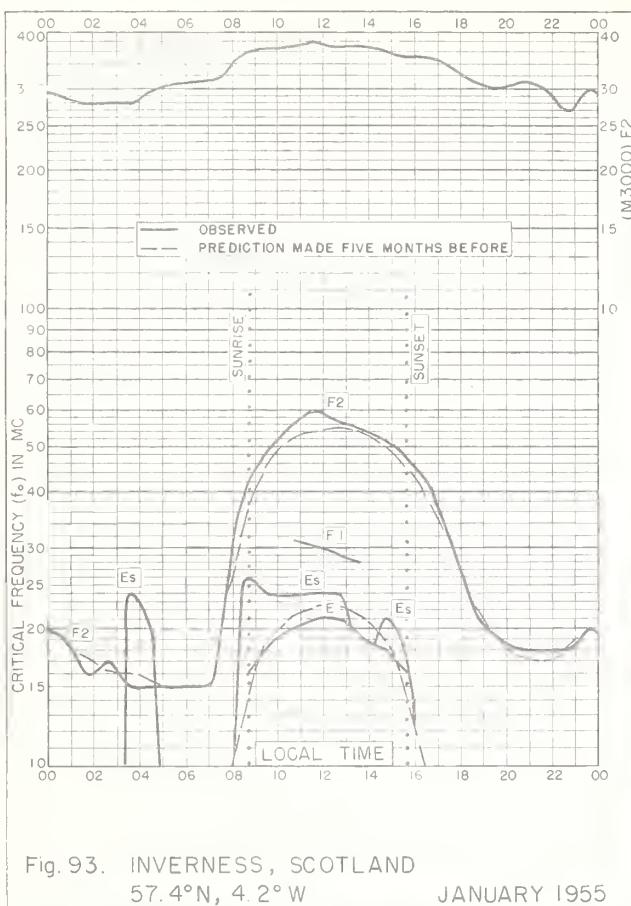


Fig. 92. CHRISTCHURCH, NEW ZEALAND FEBRUARY 1955



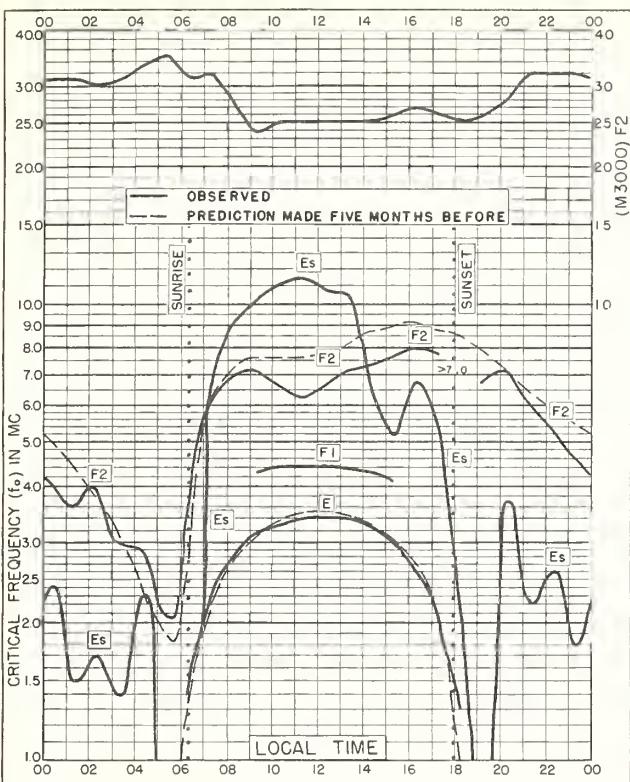


Fig. 97. IBADAN, NIGERIA
7.4°N, 4.0°E JANUARY 1955

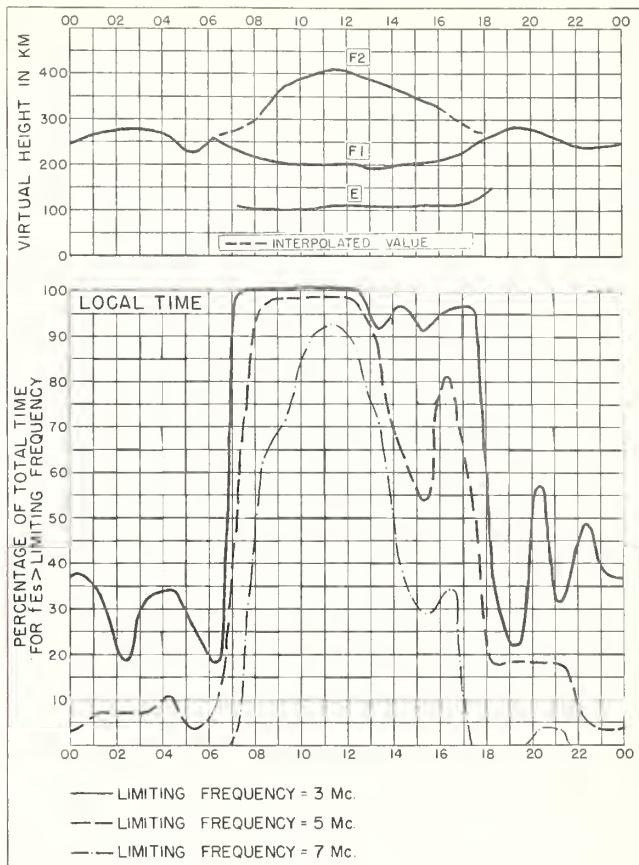


Fig. 98. IBADAN, NIGERIA JANUARY 1955

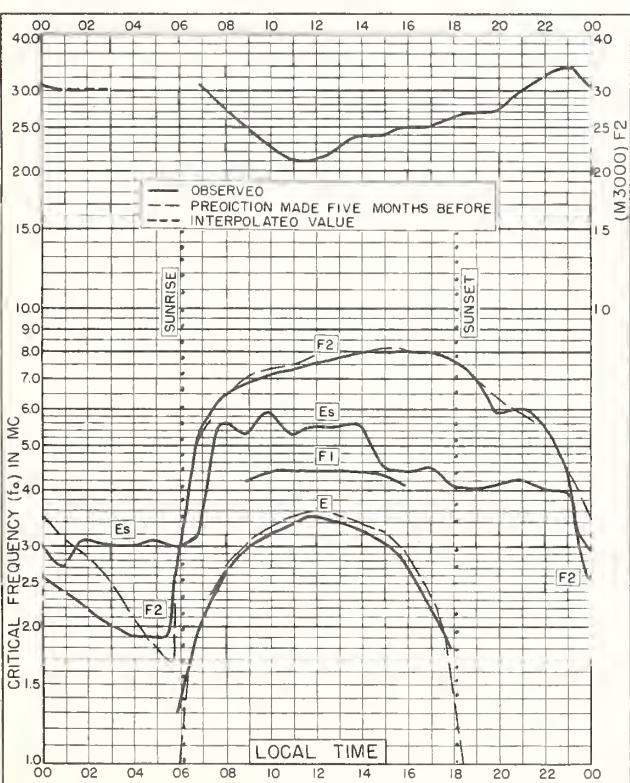


Fig. 99. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JANUARY 1955

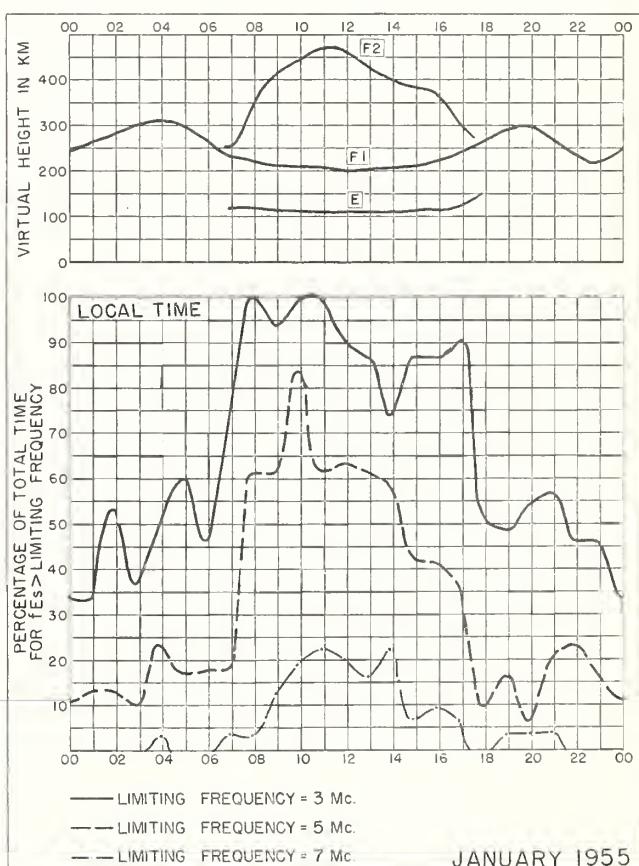


Fig. 100. SINGAPORE, BRITISH MALAYA JANUARY 1955

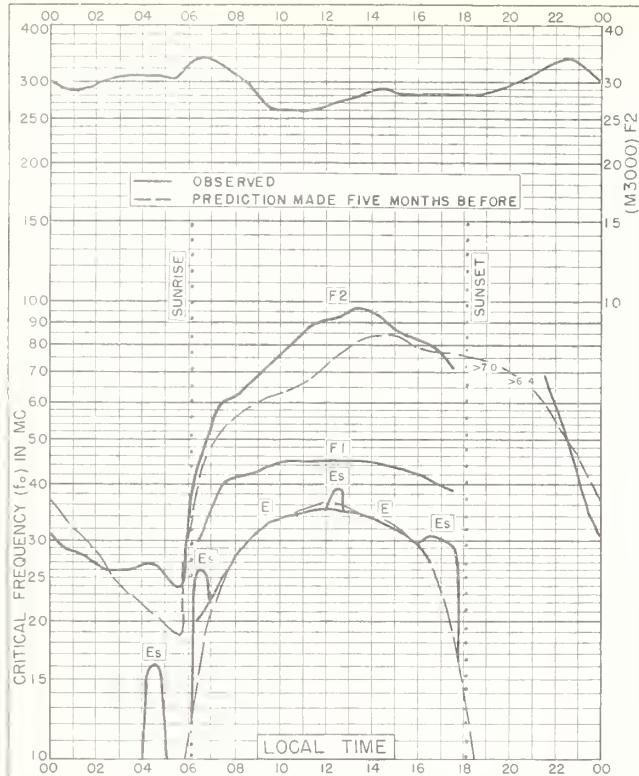


Fig. 101. NAIROBI, KENYA
 1.3° S, 36. 8° E JANUARY 1955

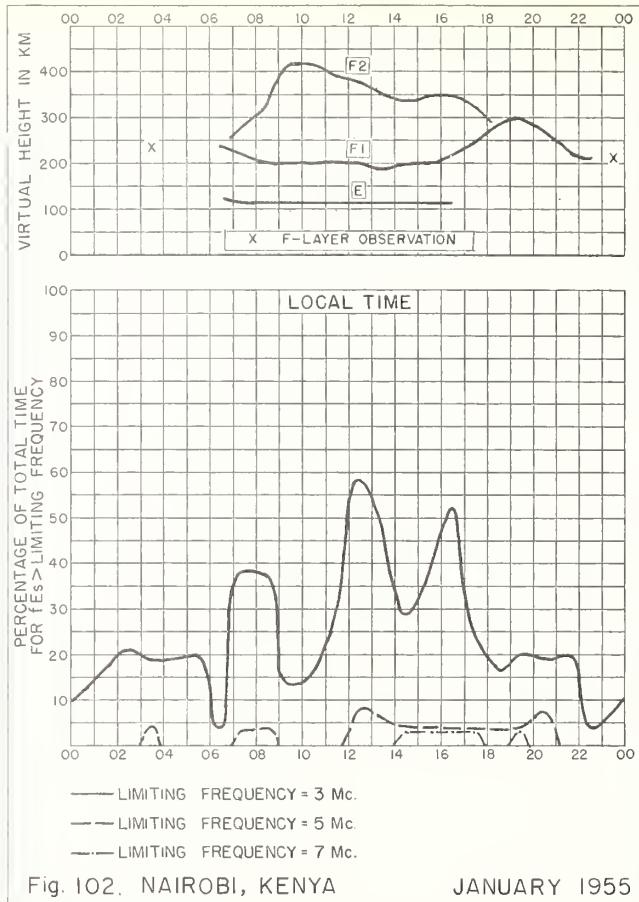


Fig. 102. NAIROBI, KENYA JANUARY 1955

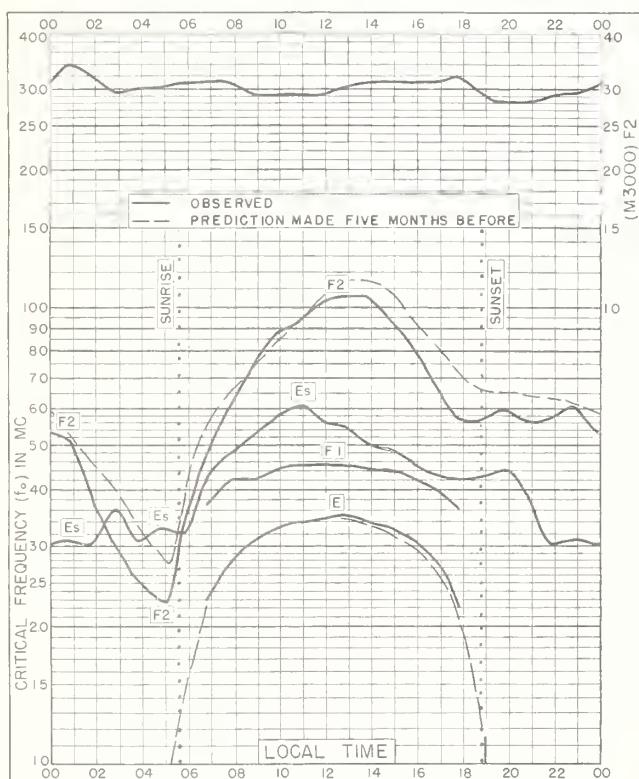


Fig. 103. RAROTONGA I.
 21.3°S, 159.8°W JANUARY 1955

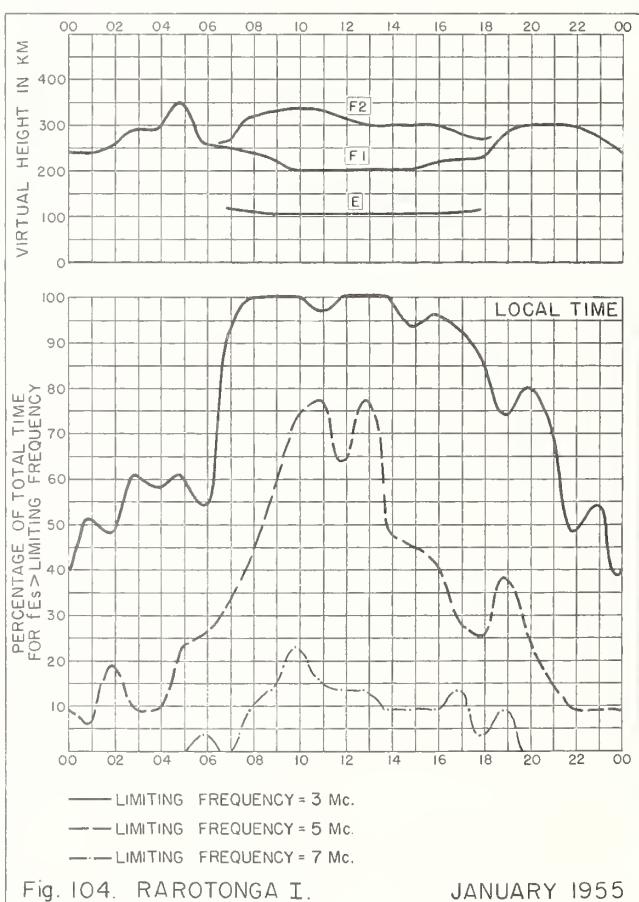


Fig. 104. RAROTONGA I. JANUARY 1955

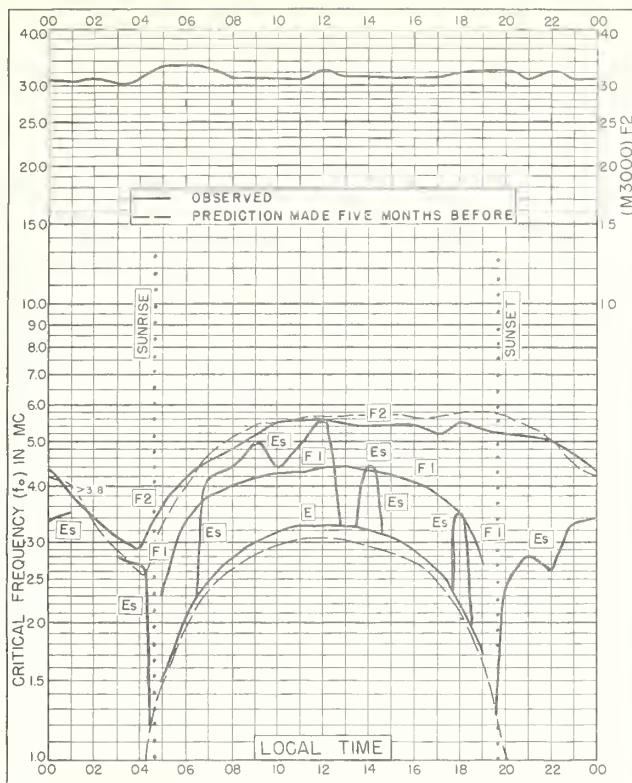


Fig. 105. CHRISTCHURCH, NEW ZEALAND
43. 6°S, 172. 8°E JANUARY 1955

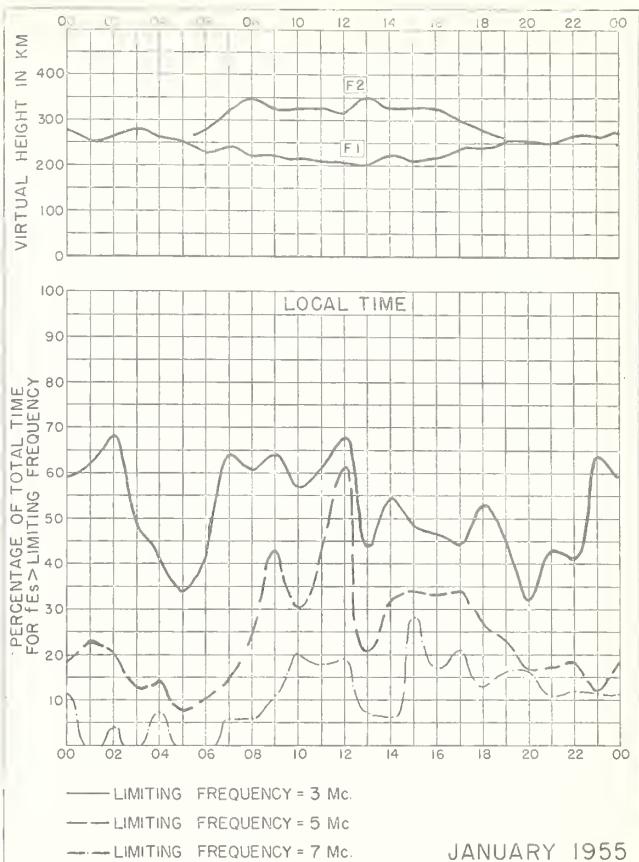


Fig. 106. CHRISTCHURCH, NEW ZEALAND

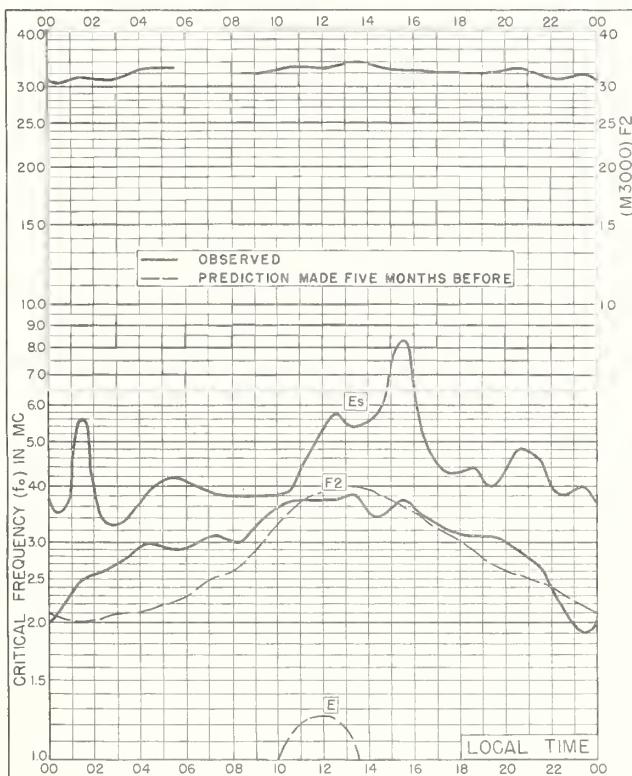


Fig. 107. GODHAVN, GREENLAND
69. 2°N, 53. 5°W DECEMBER 1954

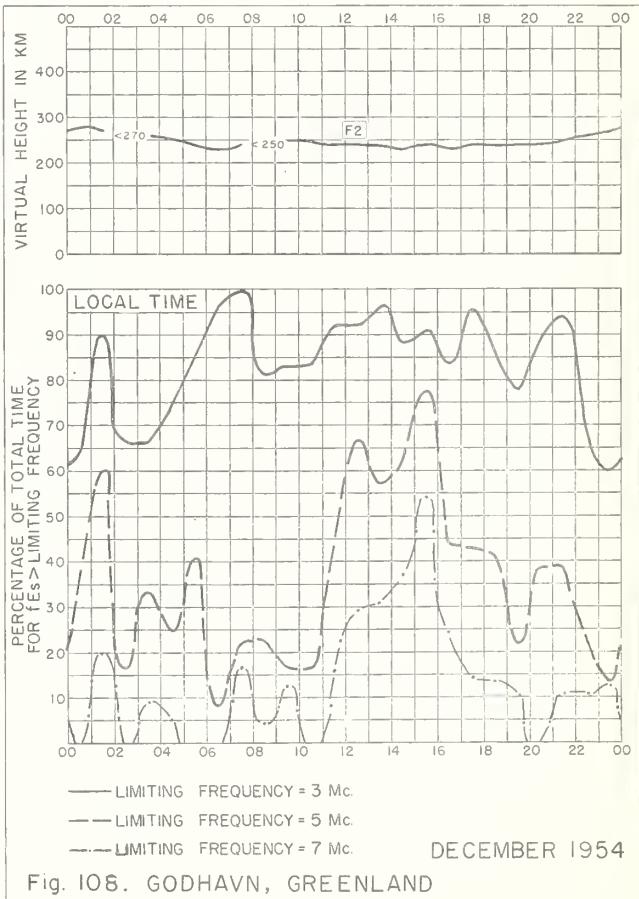
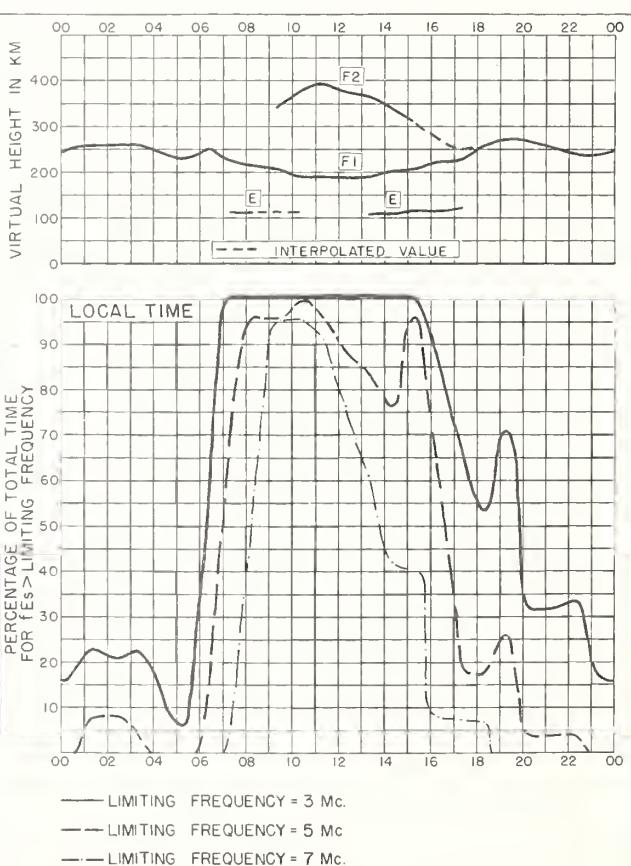
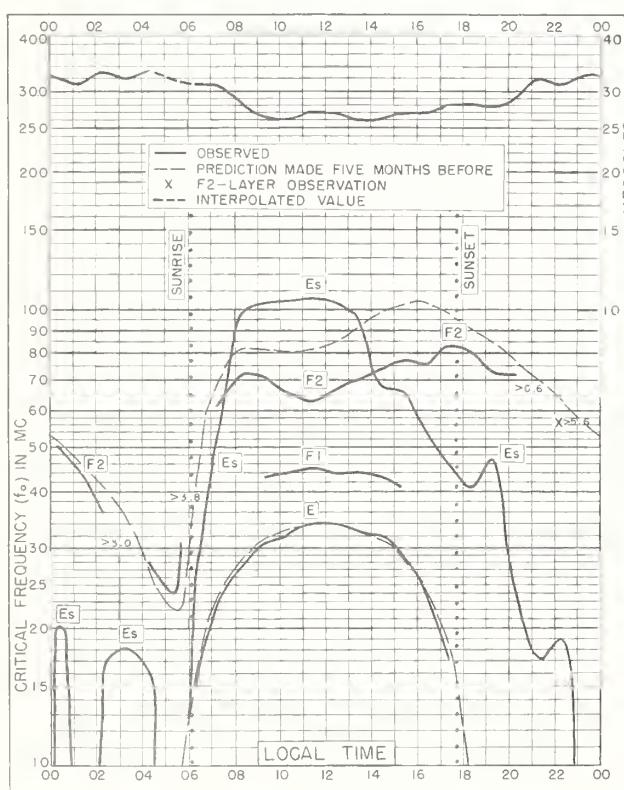
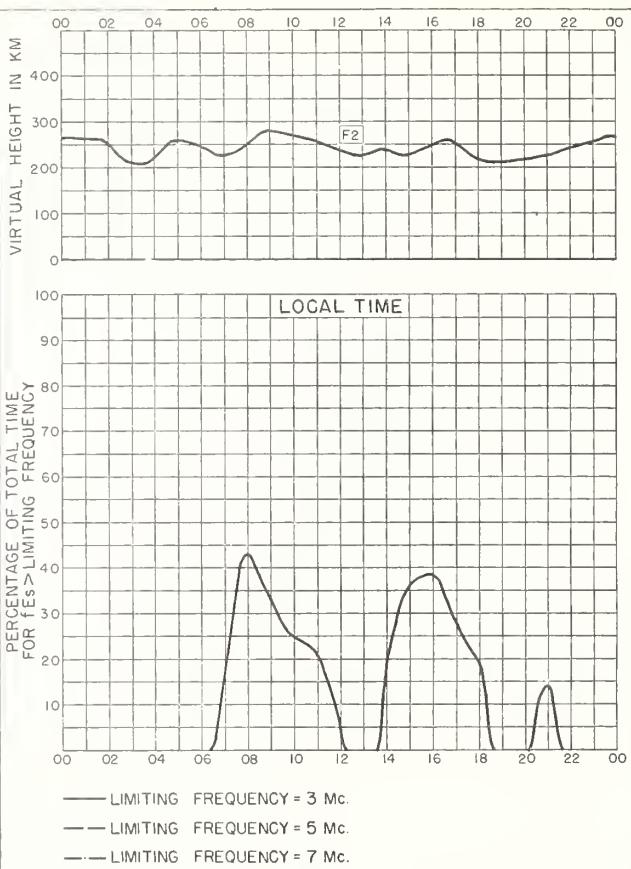
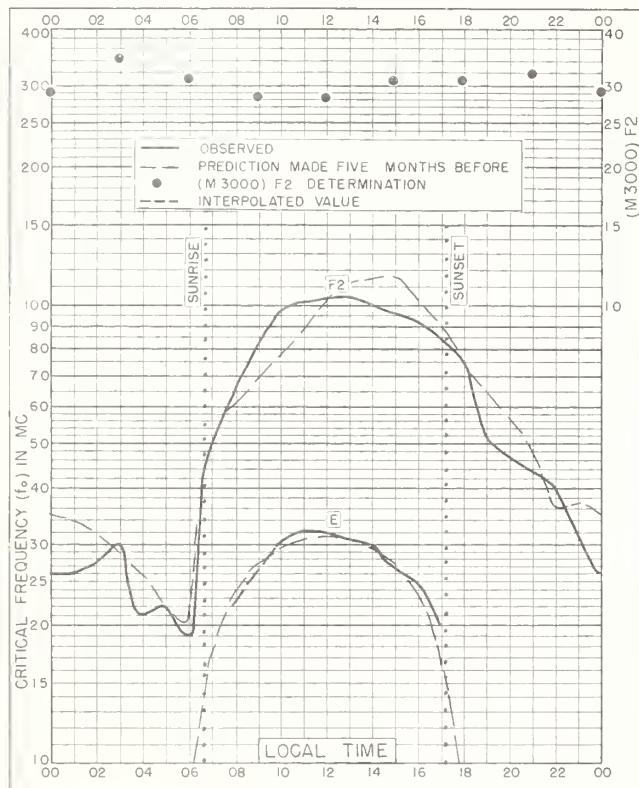


Fig. 108. GODHAVN, GREENLAND



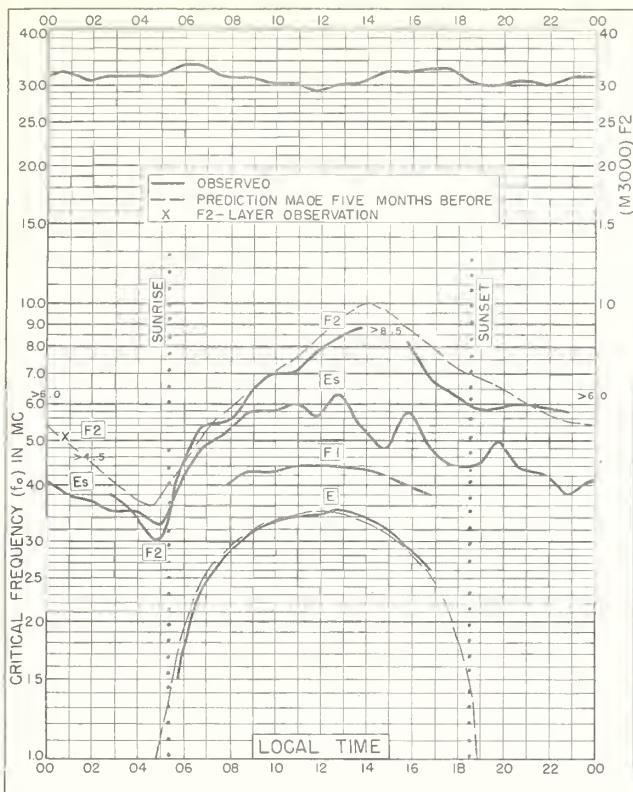


Fig. 113. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E DECEMBER 1954

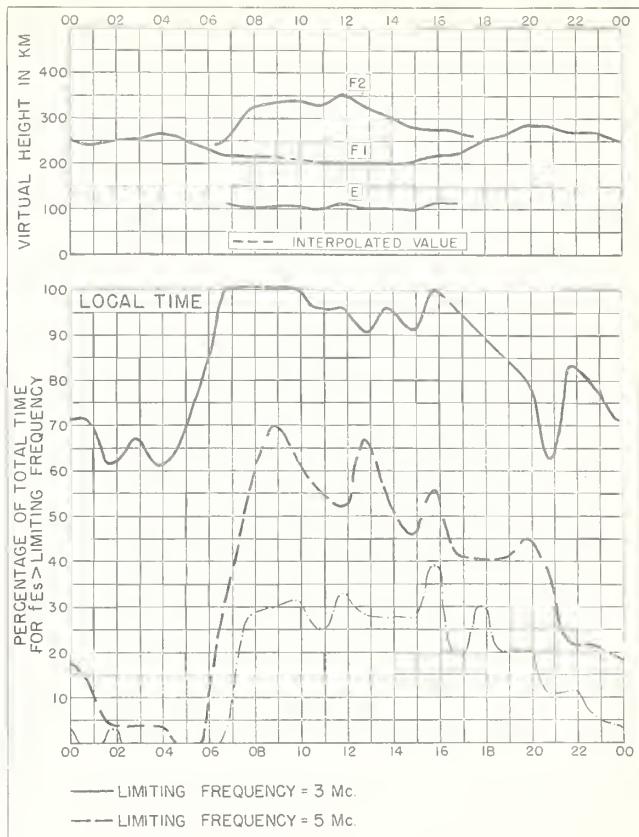


Fig. 114. TOWNSVILLE, AUSTRALIA

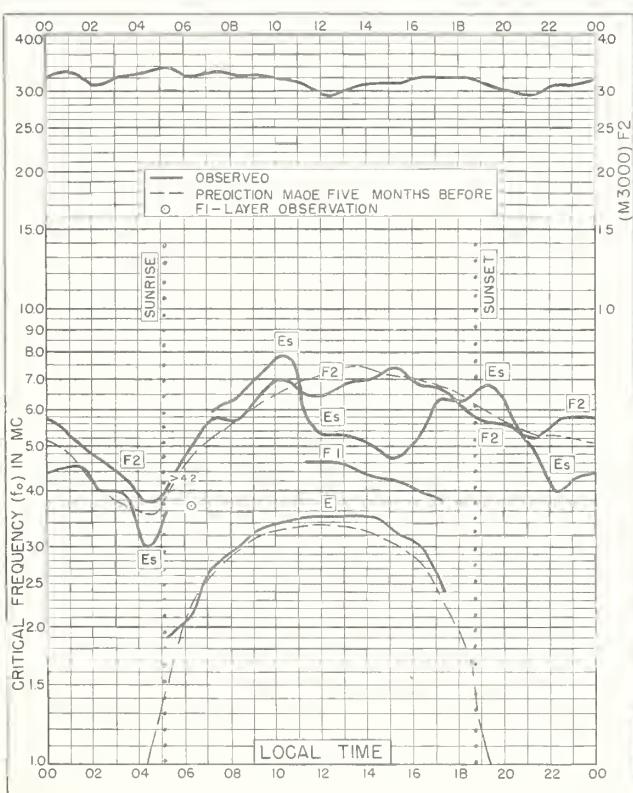


Fig. 115. BRISBANE, AUSTRALIA
27.5°S, 153.0°E DECEMBER 1954

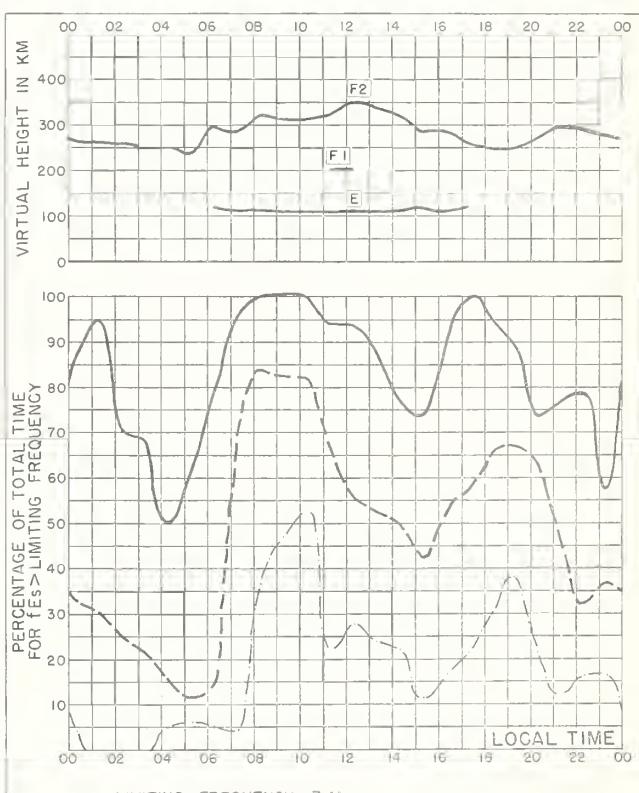


Fig. 116. BRISBANE, AUSTRALIA

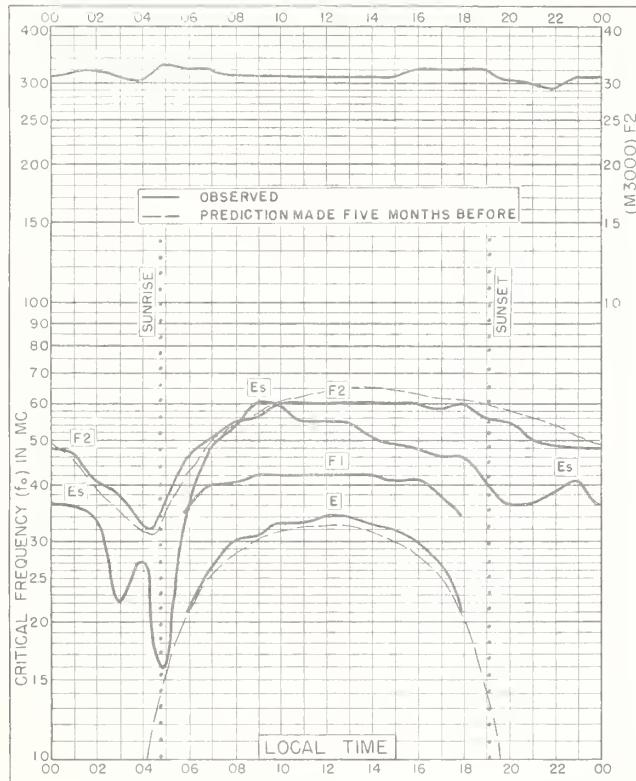


Fig. 117. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1954

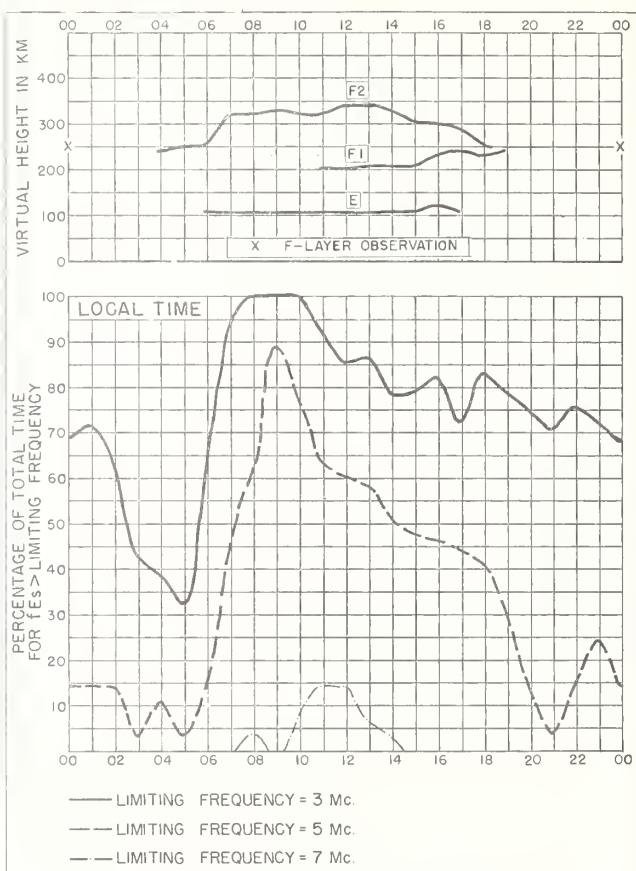


Fig. 118. CANBERRA, AUSTRALIA DECEMBER 1954

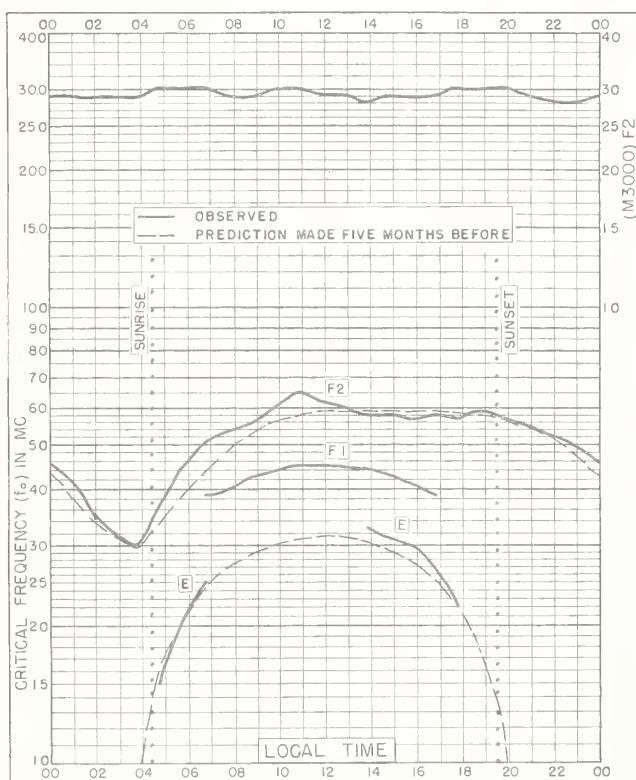


Fig. 119. HOBART, TASMANIA
42.9°S, 147.3°E DECEMBER 1954

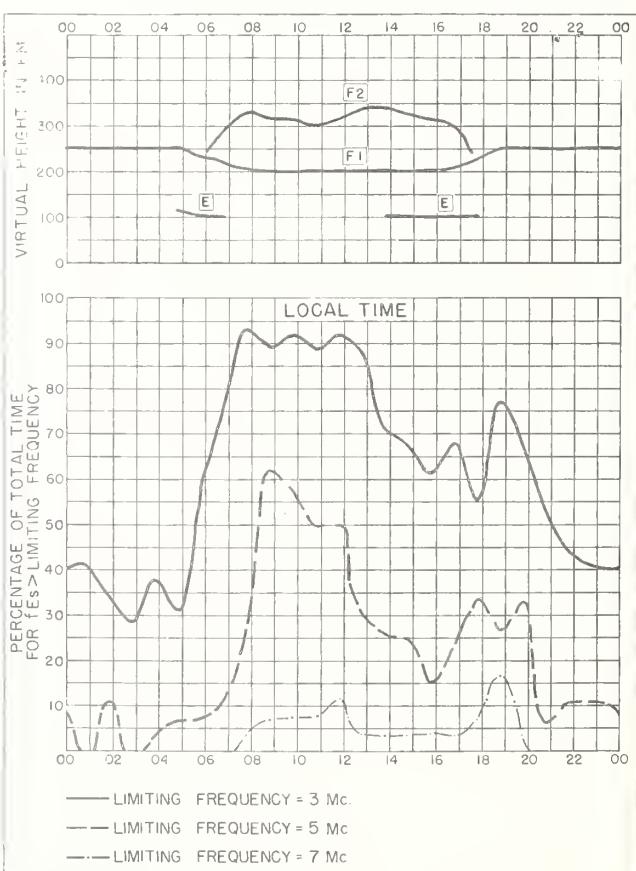


Fig. 120. HOBART, TASMANIA DECEMBER 1954

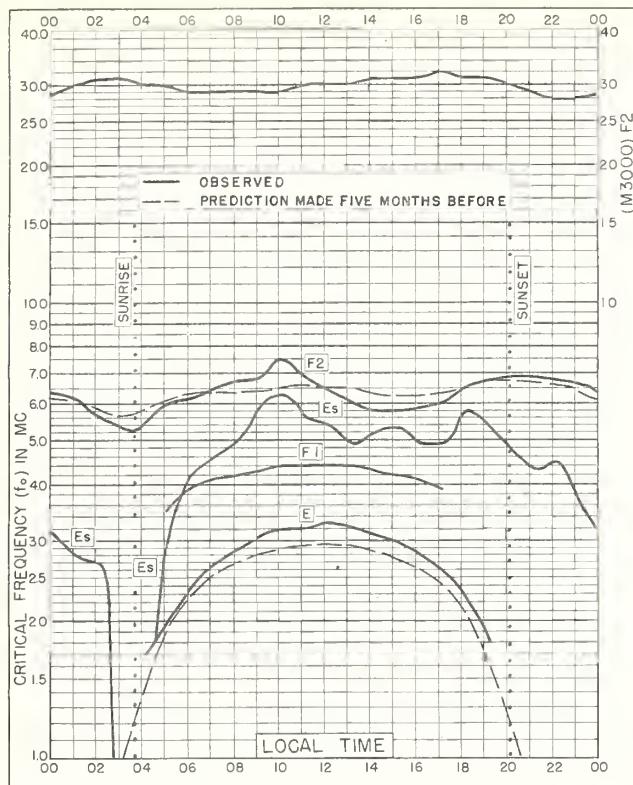


Fig. 121. FALKLAND IS.
51.7°S, 57.8°W DECEMBER 1954

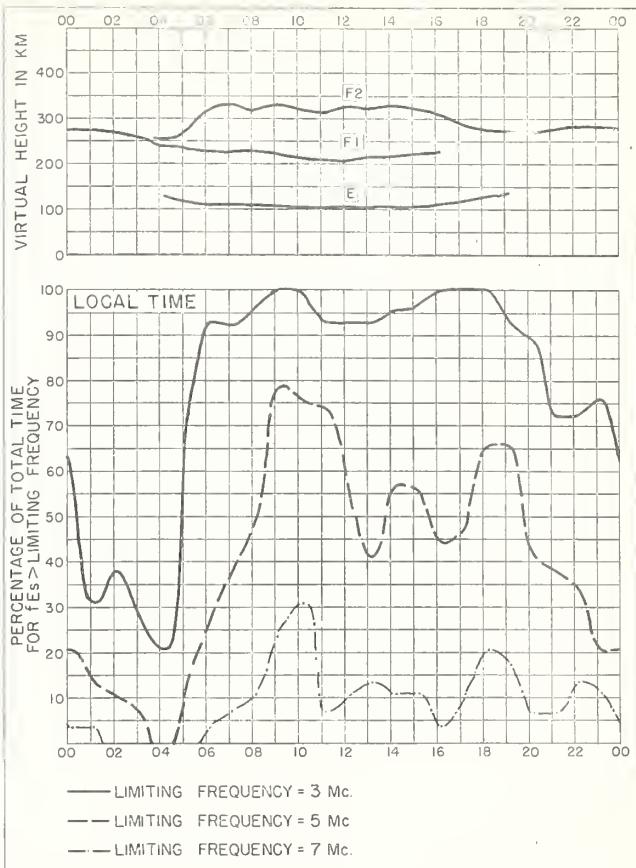


Fig. 122. FALKLAND IS. DECEMBER 1954

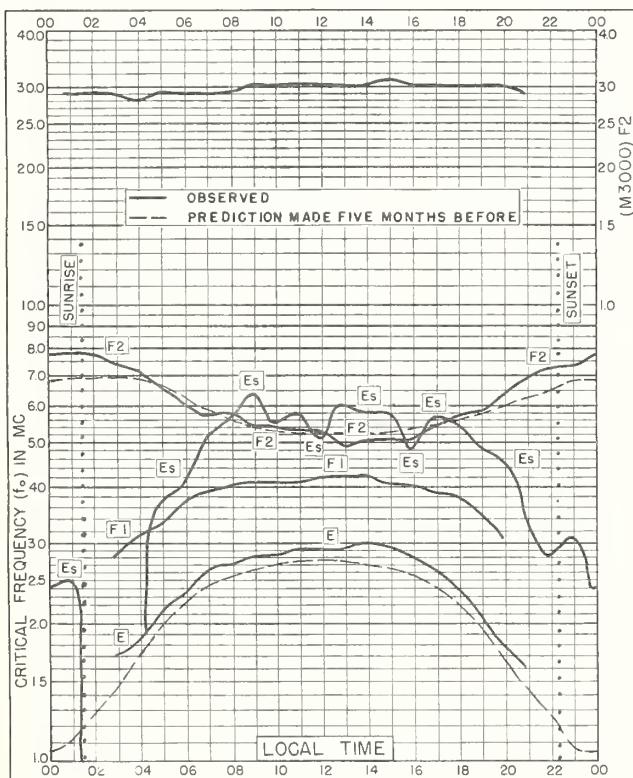


Fig. 123. PORT LOCKROY
64.8°S, 63.5°W DECEMBER 1954

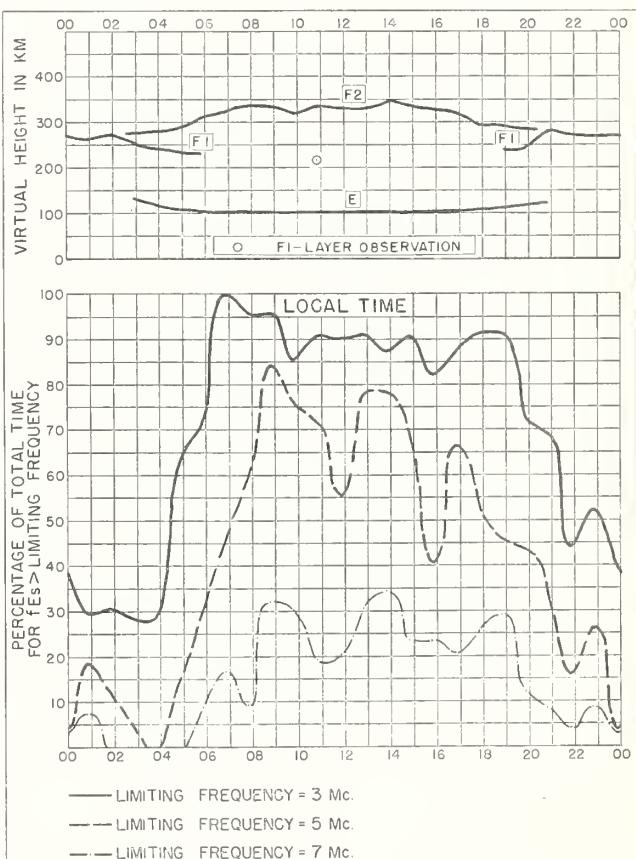


Fig. 124. PORT LOCKROY DECEMBER 1954

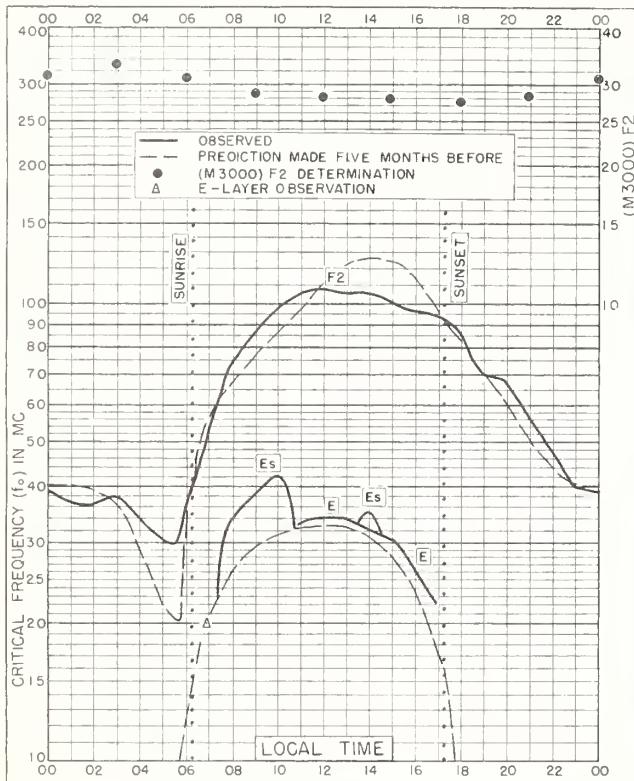


Fig. 125. CALCUTTA, INDIA
22.6°N, 88.4°E NOVEMBER 1954

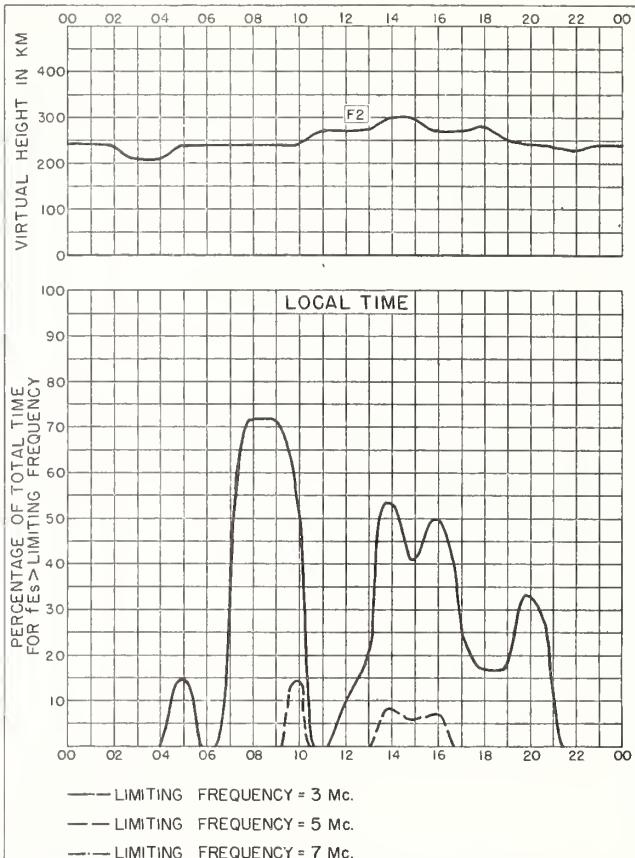


Fig. 126. CALCUTTA, INDIA NOVEMBER 1954

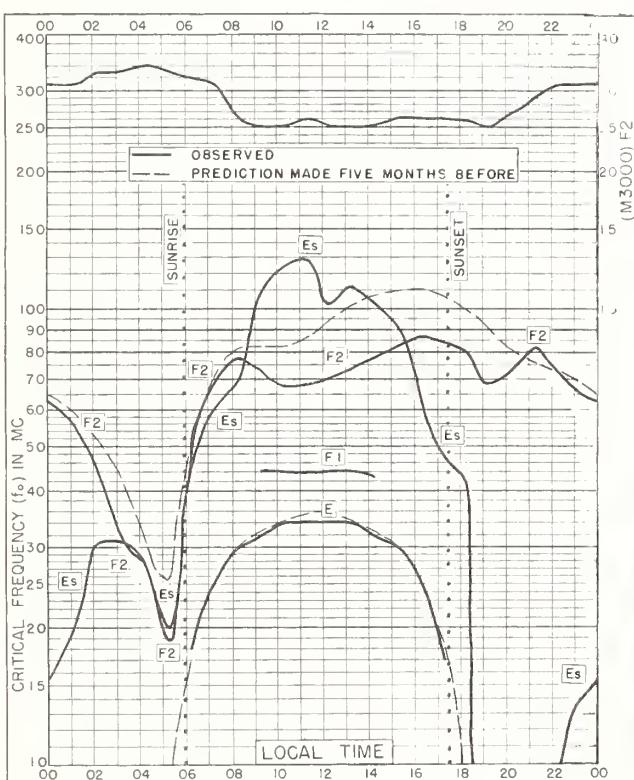


Fig. 127. IBADAN, NIGERIA
7.4°N, 4.0°E NOVEMBER 1954

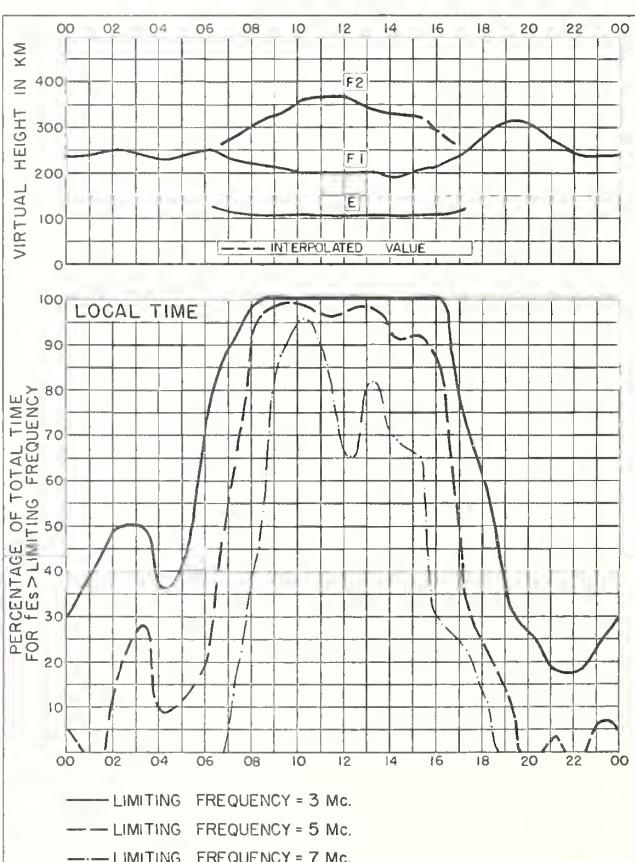
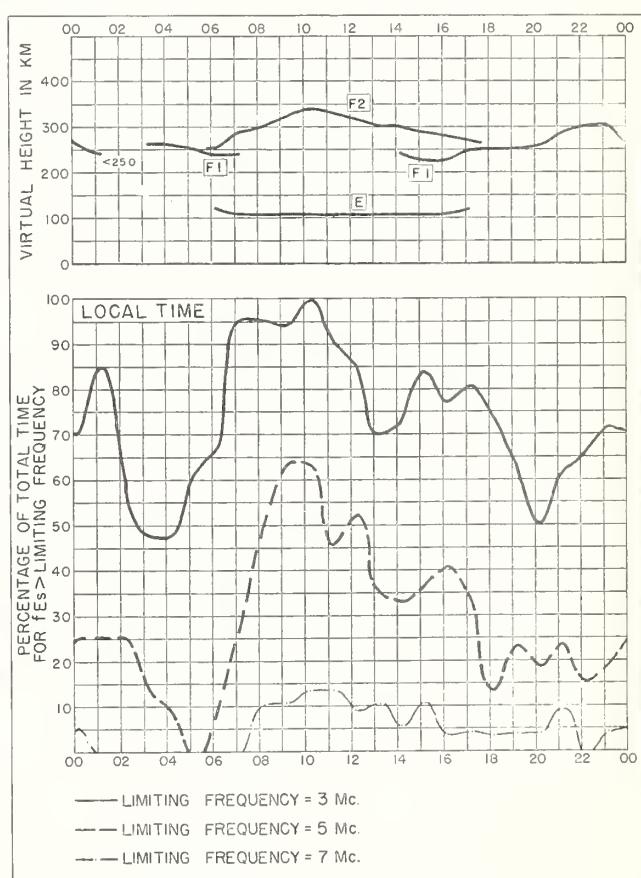
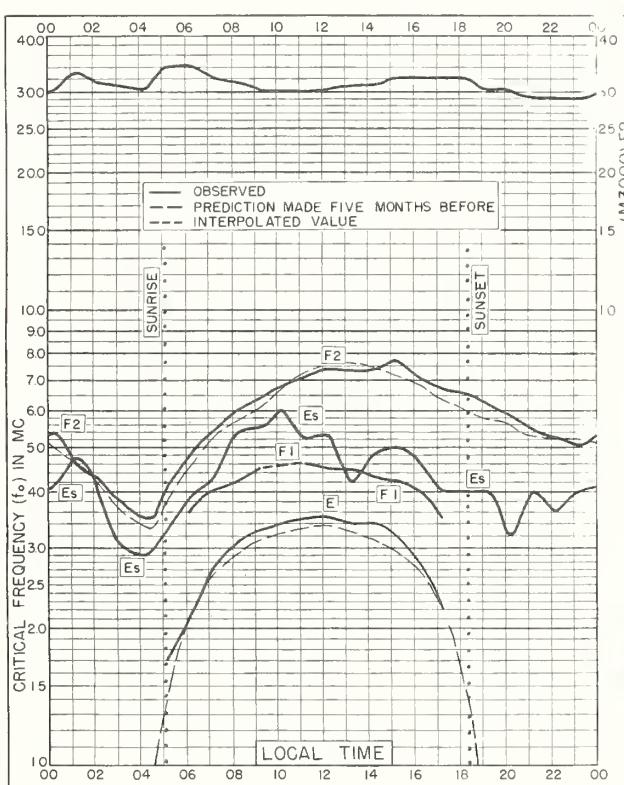
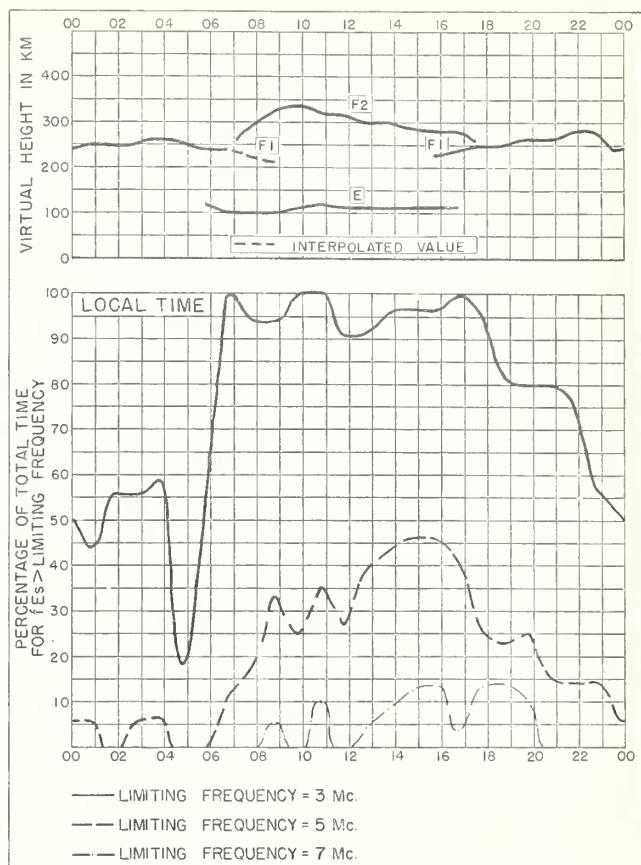
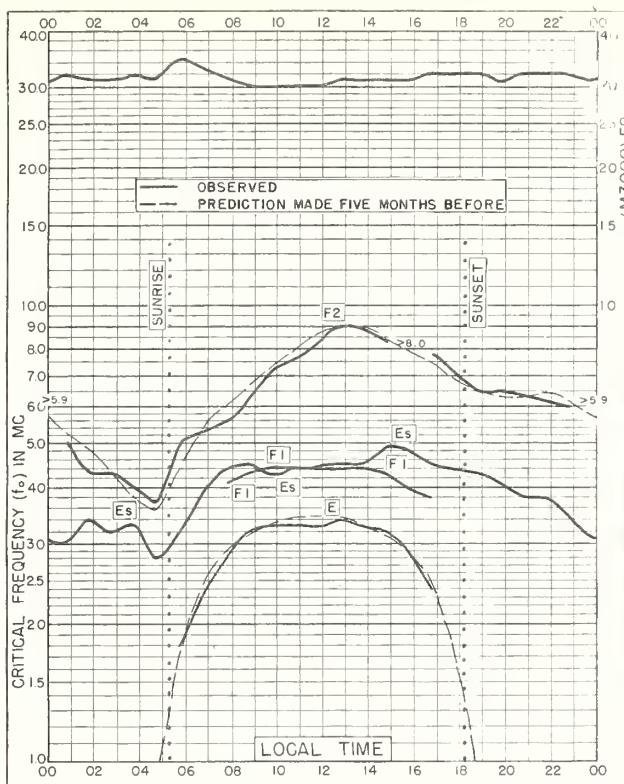


Fig. 128. IBADAN, NIGERIA NOVEMBER 1954



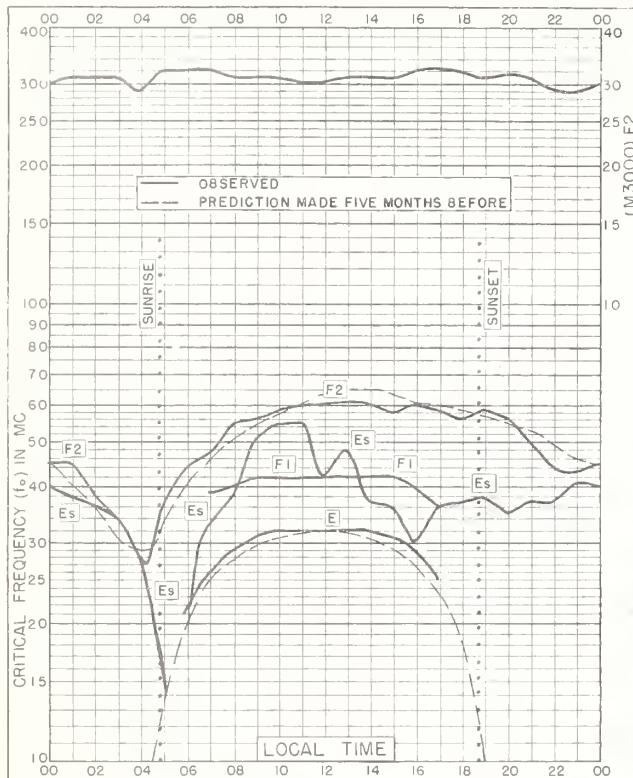


Fig. 133. CANBERRA, AUSTRALIA
35.3°S, 149.0°E NOVEMBER 1954

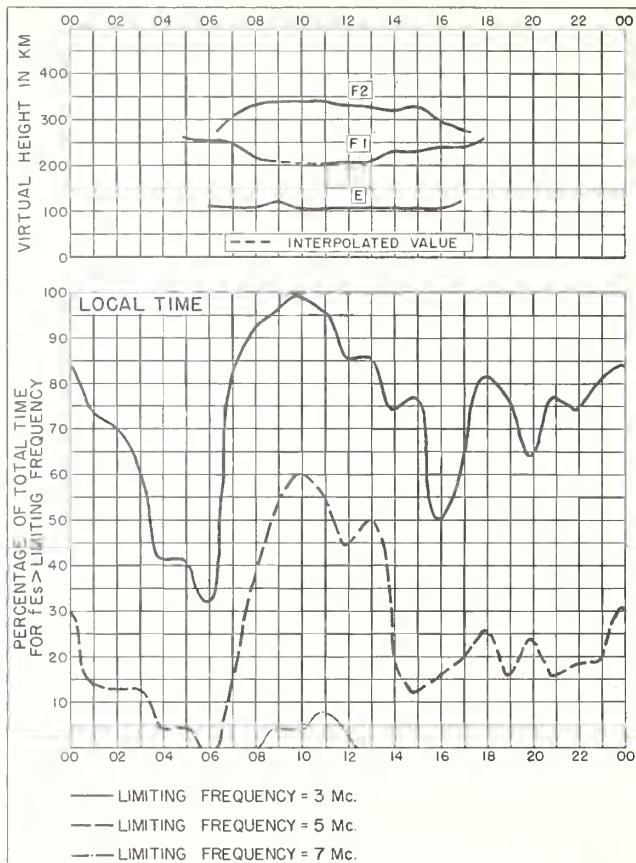


Fig. 134. CANBERRA, AUSTRALIA NOVEMBER 1954

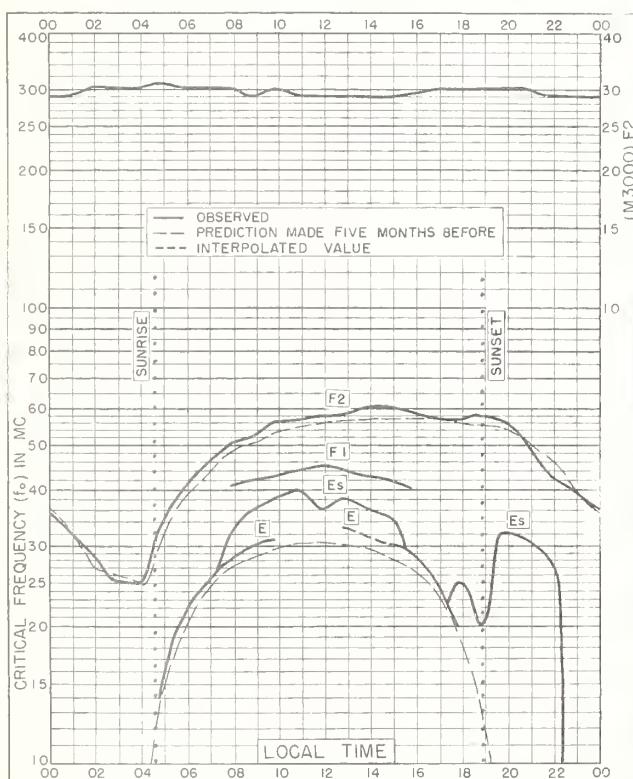


Fig. 135. HOBART, TASMANIA
42.9°S, 147.3°E NOVEMBER 1954

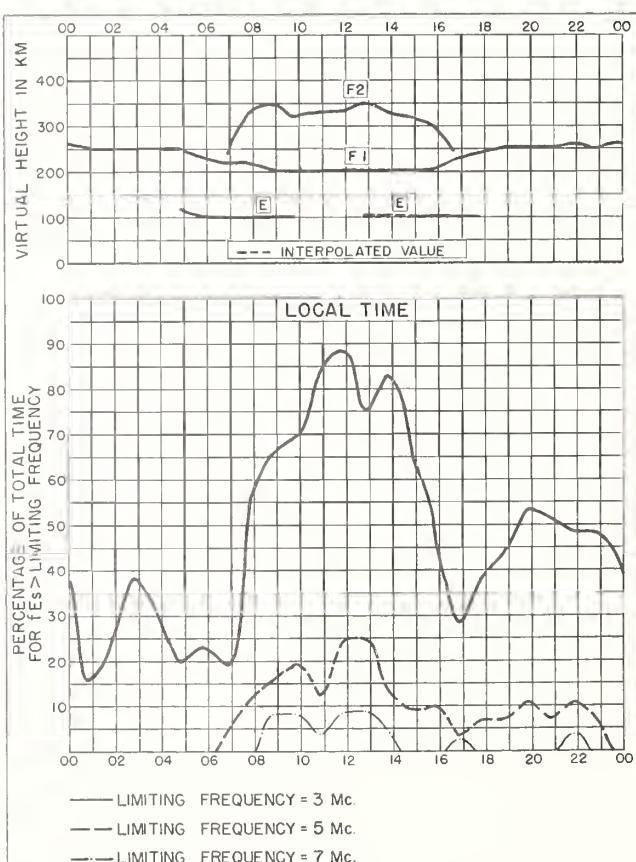


Fig. 136. HOBART, TASMANIA NOVEMBER 1954

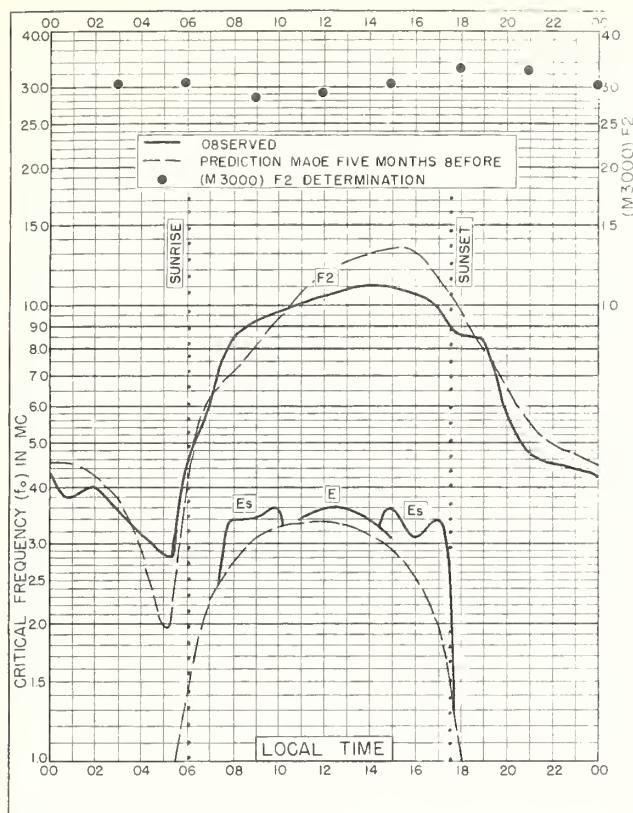


Fig. 137. CALCUTTA, INDIA
22.6°N, 88.4°E OCTOBER 1954

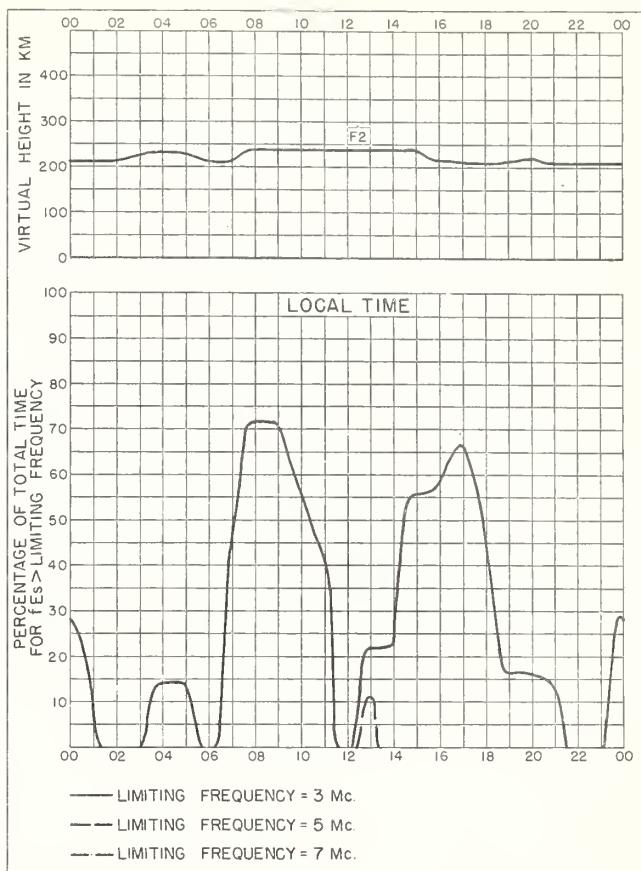


Fig. 138. CALCUTTA, INDIA OCTOBER 1954

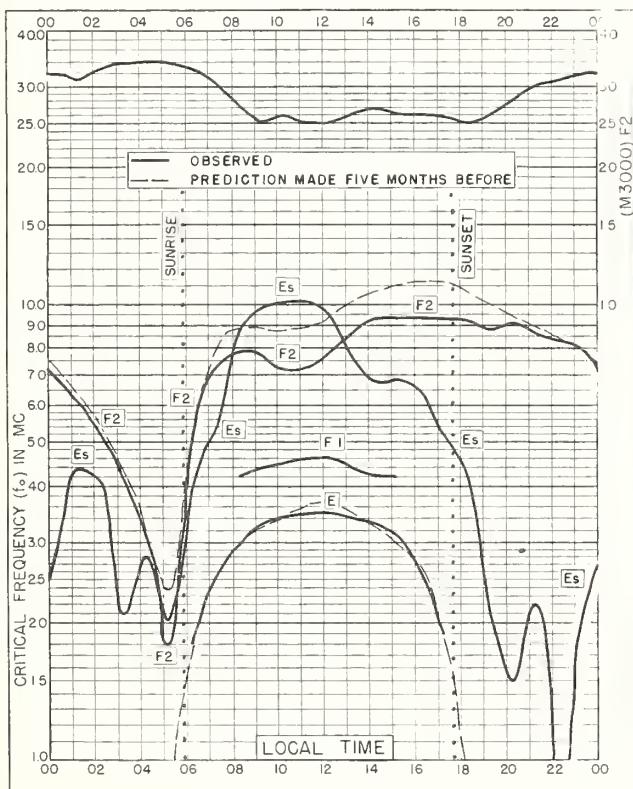


Fig. 139. IBADAN, NIGERIA
7.4°N, 4.0°E OCTOBER 1954

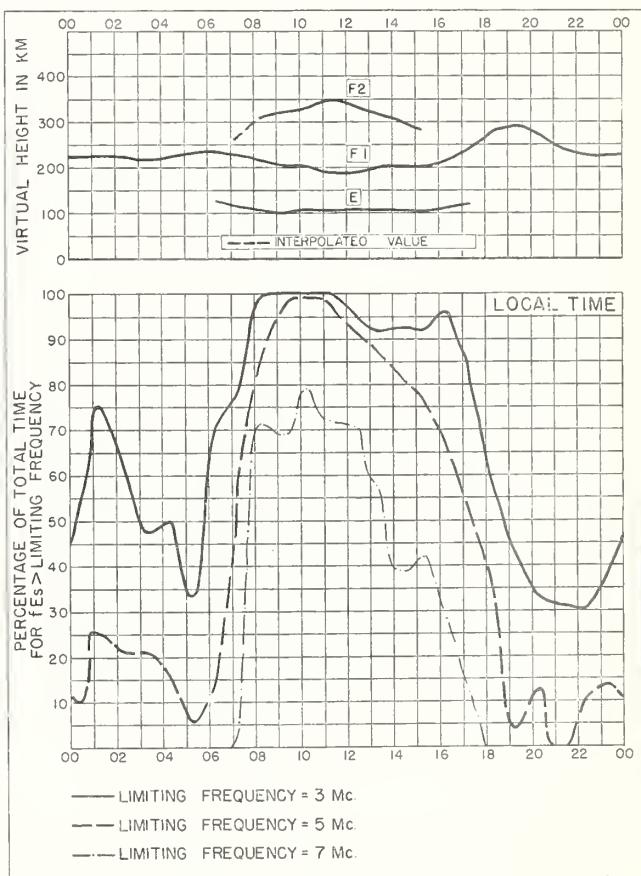


Fig. 140. IBADAN, NIGERIA OCTOBER 1954

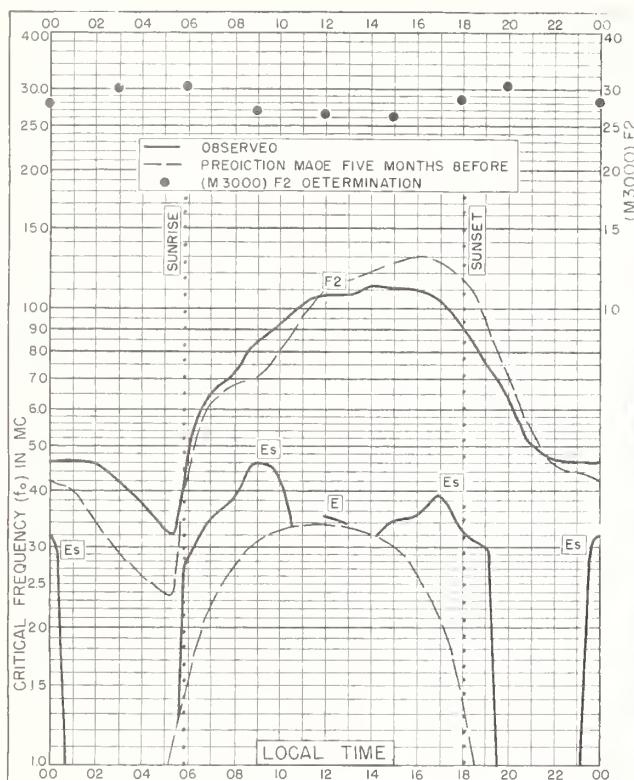


Fig. 141. CALCUTTA, INDIA
22.6°N, 88.4°E SEPTEMBER 1954

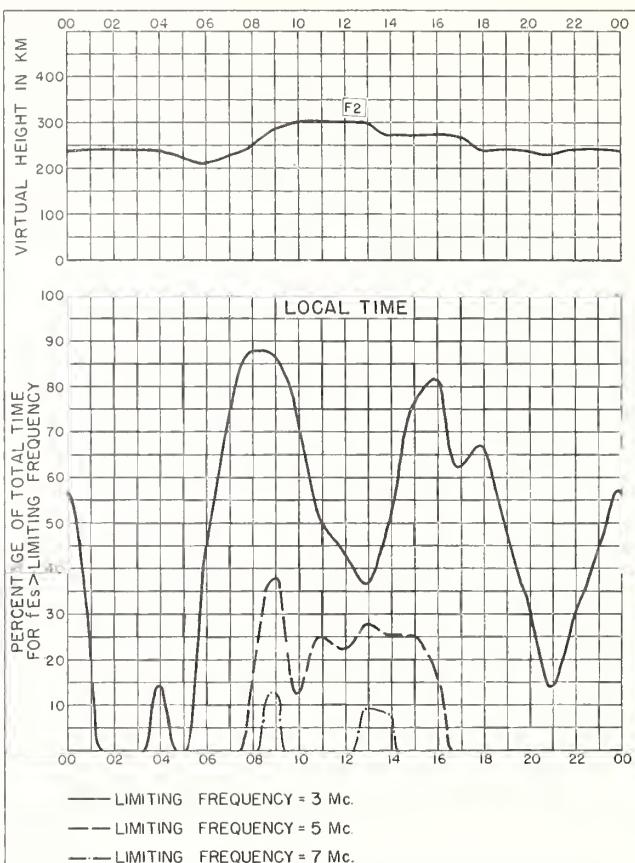


Fig. 142. CALCUTTA, INDIA SEPTEMBER 1954

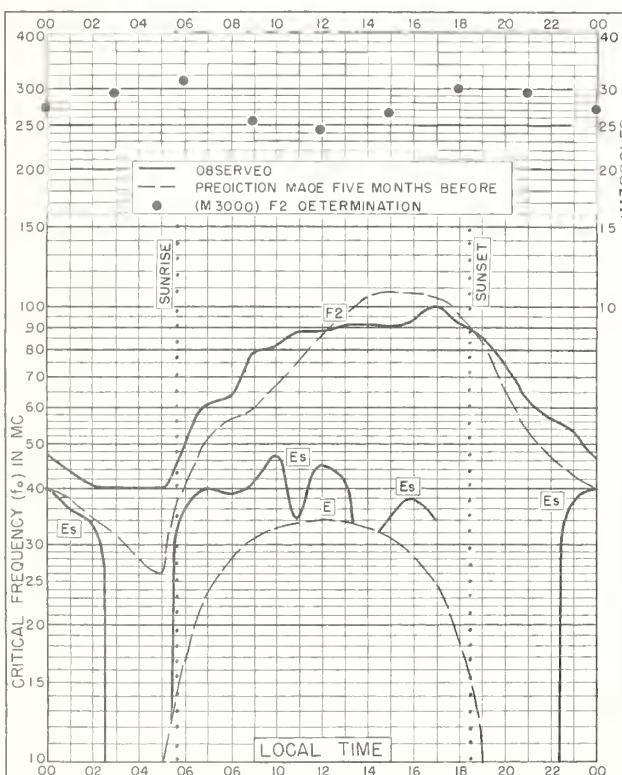


Fig. 143. CALCUTTA, INDIA
22.6°N, 88.4°E AUGUST 1954

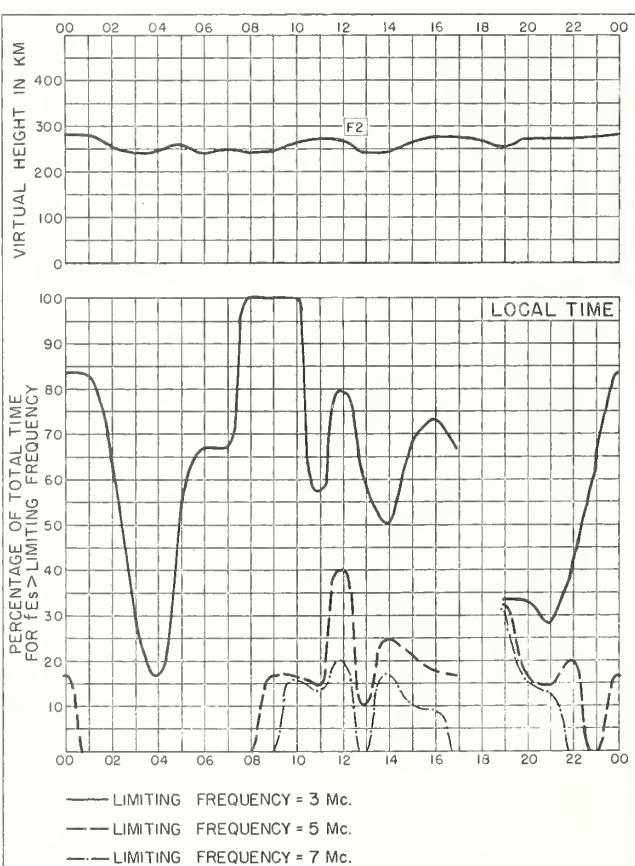


Fig. 144. CALCUTTA, INDIA AUGUST 1954

Index of Tables and Graphs of Ionospheric Data

in CRPL-F132

	<u>Table page</u>	<u>Figure page</u>
Adak, Alaska		
June 1955	14	58
Akita, Japan		
April 1955	19	73
Anchorage, Alaska		
May 1955	16	65
April 1955	18	71
Baguio, P. I.		
April 1955	19	74
Baker Lake, Canada		
May 1955	16	64
Brisbane, Australia		
December 1954	22	83
November 1954	23	87
Calcutta, India		
December 1954	22	82
November 1954	23	86
October 1954	24	89
September 1954	24	90
August 1954	24	90
Canberra, Australia		
December 1954	22	84
November 1954	24	88
Capetown, Union of S. Africa		
April 1955	20	76
Christchurch, New Zealand		
February 1955.	20	77
January 1955	21	81
Churchill, Canada		
May 1955	16	65
De Bilt, Holland		
May 1955	16	66
Elisabethville, Belgian Congo		
May 1955	18	70
Fairbanks, Alaska		
June 1955	13	56
Falkland Is.		
December 1954	23	85
Formosa, China		
June 1955	14	60
Ft. Monmouth, New Jersey		
June 1955	14	58
May 1955	17	68
Godhavn, Greenland		
December 1954	21	81

Index (CRPL-F132, continued)

	<u>Table page</u>	<u>Figure page</u>
Guam I.		
June 1955	15	61
Hobart, Tasmania		
December 1954	22	84
November 1954	24	88
Huancayo, Peru		
May 1955	18	70
April 1955	19	75
Ibadan, Nigeria		
January 1955	21	79
December 1954	22	82
November 1954	23	86
October 1954	24	89
Inverness, Scotland		
January 1955	20	78
Johannesburg, Union of S. Africa		
April 1955	19	75
Leopoldville, Belgian Congo		
May 1955	17	69
Lindau/Harz, Germany		
May 1955	16	66
April 1955	18	72
Maui, Hawaii		
June 1955	14	60
Nairobi, Kenya		
January 1955	21	80
Narsarssuak, Greenland		
June 1955	13	56
Okinawa I.		
June 1955	14	59
Oslo, Norway		
June 1955	13	57
Ottawa, Canada		
May 1955	17	68
Panama Canal Zone		
June 1955	15	62
Point Barrow, Alaska		
June 1955	13	55
May 1955	15	63
April 1955	18	71
Port Lockroy		
December 1954	23	85
Puerto Rico, W. I.		
June 1955	15	61
Rarotonga I.		
February 1955	20	77
January 1955	21	80

Index (CRPL-F132, concluded)

	<u>Table page</u>	<u>Figure page</u>
Resolute Bay, Canada		
May 1955	15	62
Reykjavik, Iceland		
May 1955	16	64
San Francisco, California		
May 1955	17	69
Schwarzenburg, Switzerland		
May 1955	17	67
Singapore, British Malaya		
January 1955	21	79
Slough, England		
January 1955	20	78
Tokyo, Japan		
April 1955	19	73
Townsville, Australia		
December 1954	22	83
November 1954	23	87
Tromso, Norway		
May 1955	15	63
Upsala, Sweden		
June 1955	13	57
Wakkanai, Japan		
April 1955	18	72
Washington, D. C.		
July 1955	13	55
Watheroo, W. Australia		
April 1955	20	76
White Sands, New Mexico		
June 1955	14	59
Winnipeg, Canada		
May 1955	17	67
Yamagawa, Japan		
April 1955	19	74



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