copy 1

CRPL-F158 PART A FOR OFFICIAL USE

## PART A

# IONOSPHERIC DATA

ISSUED
OCTOBER 1957

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

CRPL-F158
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
22 Oct. 1957

# IONOSPHERIC DATA

## CONTENTS

# SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, 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 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M   Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z   (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
    (2) (descriptive letter) Third magnetoionic component present.

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 above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N, R or S 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'F (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 descriptive 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.

At night B for fEs is counted on the low side when there is a numerical value of foF2; otherwise it is omitted from the median count.

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 the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians 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.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

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

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

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

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

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

# PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

| Month | Predicted Sunspot Number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1958 | 1957 | 1956 | 1955 | 1954 | 1953 | 1952 | 1951 | 1950 | 1949 | 1948 |
| December | | 150* | 150 | 42 | 11 | 15 | 33 | 53 | 86 | 108 | 114 |
| November | | 150* | 147 | 35 | 10 | 16 | 38 | 52 | 87 | 112 | 115 |
| October | | 150* | 135 | 31 | 10 | 17 | 43 | 52 | 90 | 114 | 116 |
| September | | 150* | 119 | 30 | 8 | 18 | 46 | 54 | 91 | 115 | 117 |
| August | | 150* | 105 | 27 | 8 | 18 | 49 | 57 | 96 | 111 | 123 |
| July | | 150* | 95 | 22 | 8 | 20 | 51 | 60 | 101 | 108 | 125 |
| June | | 150* | 89 | 18 | 9 | 21 | 52 | 63 | 103 | 108 | 129 |
| May | | 150* | 77 | 16 | 10 | 22 | 52 | 68 | 102 | 108 | 130 |
| April | | 150* | 68 | 13 | 10 | 24 | 52 | 74 | 101 | 109 | 133 |
| March | 150* | 150* | 60 | 14 | 11 | 27 | 52 | 78 | 103 | 111 | 133 |
| February | 150* | 150* | 53 | 14 | 12 | 29 | 51 | 82 | 103 | 113 | 133 |
| January | 150* | 150* | 48 | 12 | 14 | 30 | 53 | 85 | 105 | 112 | 130 |

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1956.

Observed Sunspot Number

| Month | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1954 | | | | 3 | 4 | 4 | 5 | 7 | 8 | 8 | 9 | 12 |
| 1955 | 14 | 16 | 19 | 23 | 29 | 35 | 40 | 46 | 55 | 64 | 73 | 81 |
| 1956 | 89 | 98 | 109 | 119 | 127 | 137 | 145 | 148 | 149 | 154 | 157 | 162 |
| 1957 | 169 | 171 | 174 | | | | | | | | | |

# 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
- Hobart, Tasmania
- Townsville, 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:
- 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

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:
- Calcutta (Institute of Radio Physics and Electronics)

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
- Akita, Japan
- Tokyo (Kokubunji), Japan
- Wakkanai, Japan
- Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
- Campbell I.
- Rarotonga, Cook Is.
- Scott Base

Norwegian Defence Research Establishment, Kjeller per Lillestrom, 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:
- Kiruna, Sweden
- Lycksele, Sweden
- Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
- Lulea, Sweden

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

United States Army Signal Corps:
- Adak, Alaska
- Thule, Greenland
- White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
- Anchorage, Alaska
- Huancayo, Peru (Instituto Geofisico de Huancayo)
- Panama Canal Zone
- Point Barrow, Alaska
- San Francisco, California (Stanford University)
- Talara, Peru (Instituto Geofisico de Huancayo)
- Washington, D. C.

# ERRATUM

F157(A), p. 18, Table 11 and p. 34, Fig. 22: h'E for hours 07 through 17 should read 150, 110, 100, 100, 100, 100, 105, 100, 100, 105, 120.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
Godhavn, Greenland, April 21, 1957

The following ionograms were obtained at the Godhavn, Greenland ionosphere vertical sounding station operated by the Danish URSI Committee. They are typical of day and night conditions for April at this geomagnetic latitude (80°). Ionospheric data are scaled directly from these records onto the f-plot, a graph of frequency characteristics vs. time. The f-plot for the day represented by these soundings is found on the following page.

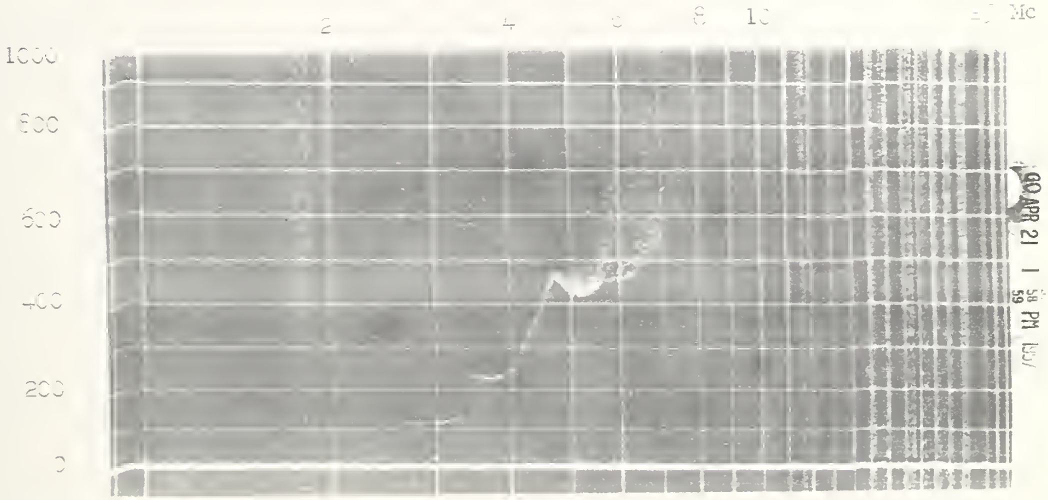



Fig. A. Godhavn, Greenland, April 21, 1957, 1358 hours, 45°W time.

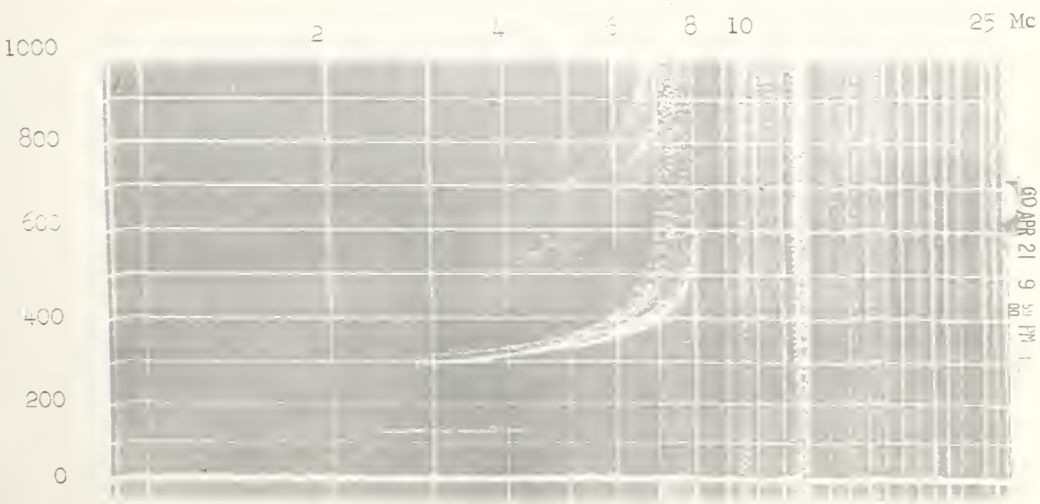
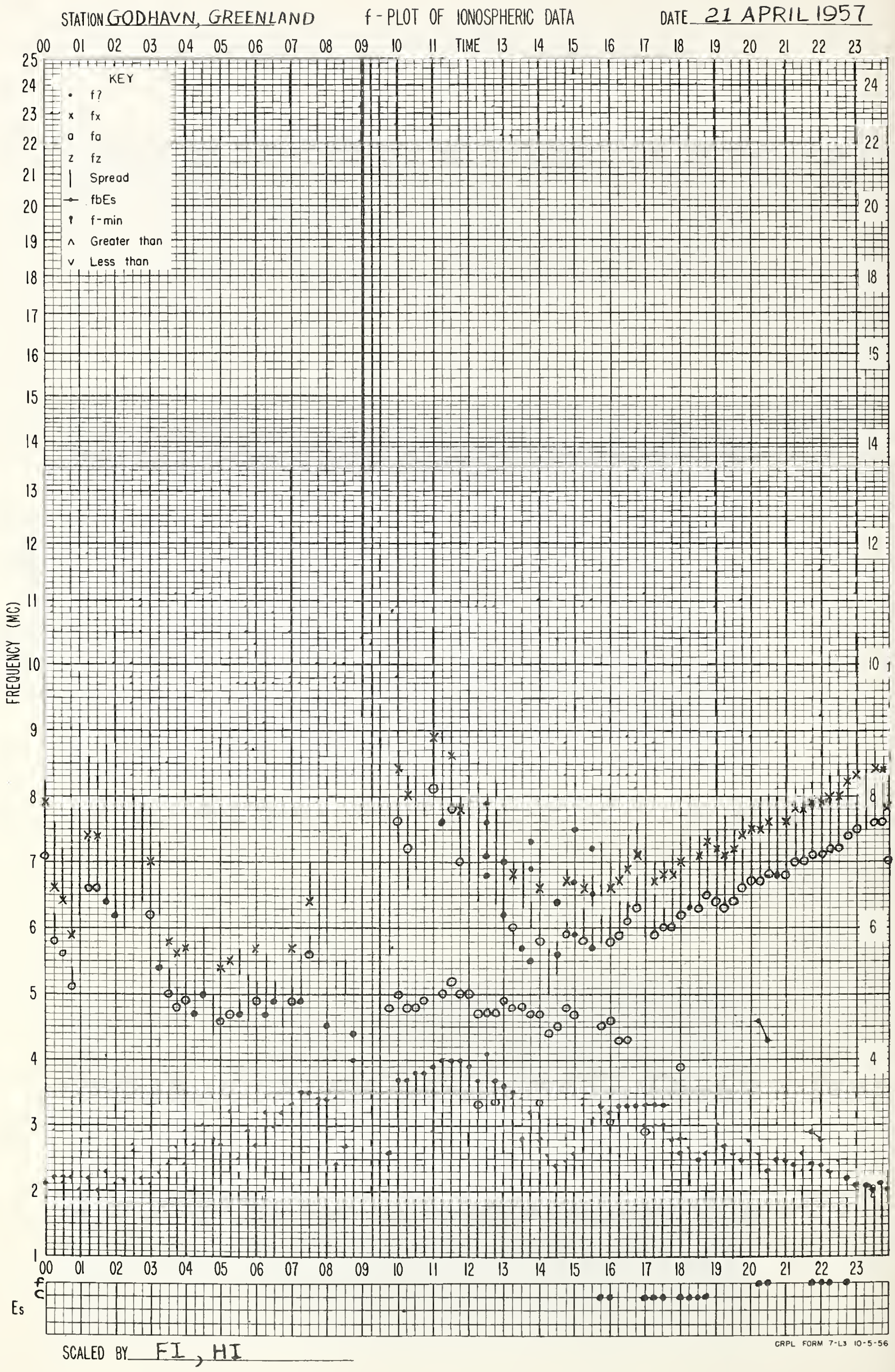



Fig. B Godhavn, Greenland, April 21, 1957, [illegible] hours, 45°W time.


STATION GODHAVN, GREENLAND
f-PLOT OF IONOSPHERIC DATA
DATE 21 APRIL 1957
KEY
• f?
x fx
o fo
z fz
| Spread
fbEs
f-min
∧ Greater than
∨ Less than
TIME
FREQUENCY (MC)
Es
SCALED BY FI, HI
CRPL FORM 7-L3 10-5-56

## Radio Noise Data

The results of radio noise measurements are presented in the following graphs and tables. These are based on three parameters of the noise: (1) the mean power, (2) the mean envelope voltage, and (3) the mean logarithm of the envelope voltage. The mean power averaged over a period of several minutes is the basic parameter and is expressed as an effective antenna noise figure, $F_a$. $F_a$ is defined as the noise power available from an equivalent lossless antenna in db above ktb (the thermal noise power available from a passive resistance) where

k = Boltzman's constant ($1.38 \times 10^{-23}$ joules per degree Kelvin)

t = Absolute room temperature (taken as 288° K)

b = Bandwidth in cycles per second.

The mean voltage and mean logarithm are expressed as deviations, $V_d$ and $L_d$ respectively, in db below the mean power.

Measurements of these parameters were made with the National Bureau of Standards Radio Noise Recorder, Model ARN-2, which has an effective noise bandwidth of 280 cycles per second and uses a standard 21.75' vertical antenna. A 15-minute recording is made on each frequency each hour, and these 15-minute samples are taken as representing the noise conditions for the full hour. The month-hour medians, $F_{am}$, $V_{dm}$, and $L_{dm}$ are determined from these hourly values for each of the corresponding parameters and the resulting medians are plotted at the half-hour point on the curves. Normally from 25 to 30 observations of the mean power are obtained monthly for each hour of the day, and from 10 to 15 observations of the voltage and logarithm deviations. When there are fewer than 15 observations of the mean power, or 7 observations of the voltage and logarithm deviations, the tabulated values are identified by an asterisk (*).

The upper and lower decile values of $F_a$ are also reported in the following tabulation to give an indication of the extent of the variation of the noise power from day to day at a given time of day. These are expressed in db above and below the month-hour median, $F_{am}$, and designated by $D_u$ and $D_\ell$ respectively.

Information on expected worldwide noise levels and their application to systems problems is presented in NBS Circular 557 (available from the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C.). More recent estimates of radio noise levels are given in CCIR Report No. 65, "Report on Revision of Atmospheric Radio Noise Data", Warsaw, 1956 (available from the International Telecommunication Union, Geneva).

Comparisons are made in this issue between observed time-block median values of noise for the past season and predicted values taken from CCIR Report No. 65. A "time-block median" is the median of all values obtained during a four-hour period of the day for an entire season.

# RADIO NOISE DATA

Station Boulder, Colorado Lat. 40.1°N Long. 105.1°W Type Recorder ARN-2 Month August 19 57

| | Local 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 |
| | 51 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 142 | 140 | 140 | 140 | 138 | 134 | 134 | 132 | 130 | 134 | *132 | 137 | 141 | 144 | 144 | 144 | 146 | 144 | 144 | 144 | 144 | 142 | 142 | 142 |
| $D_u$ | 2 | 4 | 2 | 2 | 2 | 6 | 4 | 6 | 6 | 5 | | 6 | 6 | 6 | 8 | 8 | 6 | 10 | 7 | 6 | 5 | 8 | 7 | 4 |
| $D_\ell$ | 4 | 2 | 4 | 6 | 4 | 4 | 6 | 6 | 7 | 6 | | 6 | 6 | 6 | 5 | 4 | 6 | 4 | 6 | 6 | 5 | 3 | 4 | 4 |
| $V_{dm}$ | 7.5 | 8.0 | 7.5 | 7.0 | 9.0 | 9.5 | 10.5 | 11.0 | 11.0 | *10.0 | *9.5 | 11.5 | 11.0 | 9.5 | 8.5 | 8.5 | 8.0 | 8.0 | 8.5 | 7.5 | 7.5 | 8.0 | 7.5 | 7.0 |
| $L_{dm}$ | 13.5 | 14.5 | 12.5 | 14.0 | 16.0 | 15.0 | 17.5 | 18.5 | 19.0 | *19.0 | *17.0 | 19.0 | 19.0 | 17.0 | 16.0 | 17.0 | 16.0 | 14.5 | 15.0 | 13.5 | 13.0 | 15.5 | 14.0 | 15.5 |
| | 113 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 127 | 126 | 126 | 124 | 122 | 118 | 116 | 114 | 112 | 112 | *114 | 116 | 126 | 130 | 130 | 132 | 132 | 132 | 134 | 132 | 131 | 128 | 128 | 128 |
| $D_u$ | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 10 | 13 | 12 | | 16 | 8 | 8 | 10 | 10 | 10 | 14 | 4 | 7 | 7 | 10 | 9 | 6 |
| $D_\ell$ | 7 | 6 | 6 | 4 | 5 | 10 | 12 | 12 | 7 | 9 | | 5 | 8 | 8 | 6 | 6 | 6 | 7 | 10 | 8 | 7 | 4 | 4 | 6 |
| $V_{dm}$ | 7.0 | 7.0 | 6.0 | 6.5 | 8.5 | 9.5 | 11.0 | 11.0 | *12.5 | *11.0 | *11.0 | 11.0 | 11.5 | 11.0 | 10.0 | 10.0 | 9.0 | 9.0 | 9.0 | 8.0 | 6.5 | 7.0 | 7.0 | 7.0 |
| $L_{dm}$ | 12.5 | 12.0 | 11.5 | 12.5 | 15.5 | 18.0 | 20.0 | 20.0 | *18.0 | *18.0 | *16.5 | 19.5 | 19.0 | 19.5 | 19.0 | 18.0 | 19.0 | 17.0 | 16.5 | 14.5 | 12.0 | 14.0 | 13.5 | 14.0 |
| | 246 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 110 | 110 | 108 | 108 | 104 | 100 | 98 | 96 | 94 | 92 | 93 | 100 | 110 | 112 | 117 | 118 | 120 | 118 | 116 | 116 | 114 | 112 | 111 | 110 |
| $D_u$ | 6 | 6 | 6 | 2 | 4 | 4 | 8 | 12 | 16 | 14 | 19 | 21 | 8 | 12 | 15 | 12 | 8 | 11 | 8 | 12 | 9 | 12 | 12 | 9 |
| $D_\ell$ | 6 | 6 | 6 | 6 | 13 | 20 | 18 | 16 | 20 | 16 | 11 | 9 | 18 | 13 | 11 | 10 | 12 | 10 | 13 | 9 | 6 | 6 | 5 | 6 |
| $V_{dm}$ | 6.0 | 6.5 | 6.5 | 6.0 | 9.5 | 10.0 | 10.5 | 11.0 | *9.5 | *8.0 | *8.5 | 12.0 | 11.0 | 11.0 | 10.5 | 9.5 | 9.5 | 10.0 | 10.0 | 6.5 | 6.0 | 6.0 | 6.0 | 6.5 |
| $L_{dm}$ | 12.0 | 12.0 | 12.0 | 13.0 | 15.5 | 17.0 | 18.5 | 19.5 | *16.0 | *14.0 | *13.0 | 20.0 | 20.0 | 20.5 | 20.5 | 18.5 | 19.5 | 19.0 | 18.0 | 13.5 | 12.5 | 12.0 | 13.0 | 13.0 |
| | 545 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 98 | 98 | 96 | 96 | 84 | 82 | 78 | 83 | 80 | *76 | 81 | 84 | 98 | 98 | 104 | 107 | 104 | 102 | 102 | 102 | 98 | 98 | 99 | 98 |
| $D_u$ | 6 | 6 | 4 | 4 | 14 | 6 | 8 | 15 | 17 | | 15 | 22 | 12 | 13 | 16 | 9 | 14 | 13 | 10 | 13 | 6 | 11 | 9 | 6 |
| $D_\ell$ | 4 | 6 | 6 | 6 | 8 | 10 | 4 | 9 | 6 | | 9 | 10 | 22 | 19 | 14 | 18 | 13 | 16 | 18 | 8 | 4 | 4 | 4 | 5 |
| $V_{dm}$ | 6.0 | 5.0 | 6.0 | 6.5 | 6.0 | *2.0 | 4.5 | *3.5 | *1.5 | *3.5 | *7.0 | *5.5 | 9.0 | 10.5 | 9.0 | 10.0 | 10.0 | 11.0 | 7.0 | 5.5 | 5.0 | 5.0 | 4.5 | 6.0 |
| $L_{dm}$ | 12.5 | 11.5 | 11.0 | 14.0 | 12.0 | *4.0 | 10.0 | *8.0 | *4.0 | *6.0 | *15.0 | *9.0 | 13.5 | 21.5 | 18.5 | 20.0 | 18.5 | 21.0 | 13.5 | 11.0 | 9.5 | 9.5 | 10.0 | 12.0 |
| | 2.5 Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 72 | 71 | 70 | 70 | 68 | 58 | 50 | 46 | 48 | 49 | 48 | 50 | 54 | 57 | 62 | 66 | 66 | 64 | 68 | 74 | 74 | 74 | 74 | 74 |
| $D_u$ | 7 | 6 | 6 | 8 | 8 | 8 | 10 | 12 | 10 | 10 | 10 | 19 | 23 | 25 | 16 | 18 | 13 | 18 | 13 | 6 | 14 | 12 | 10 | 5 |
| $D_\ell$ | 4 | 5 | 4 | 4 | 9 | 10 | 6 | 4 | 6 | 4 | 4 | 4 | 8 | 11 | 14 | 14 | 15 | 12 | 11 | 9 | 4 | 4 | 6 | 6 |
| $V_{dm}$ | 3.0 | 2.5 | 3.5 | 3.0 | 4.5 | 6.0 | 3.5 | *1.0 | *1.0 | *2.0 | *4.0 | 3.0 | 5.0 | 6.0 | 5.0 | 5.5 | 5.0 | 5.5 | 3.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| $L_{dm}$ | 6.5 | 7.5 | 8.5 | 8.0 | 9.5 | 11.0 | 6.5 | *3.0 | *2.0 | *4.0 | *6.0 | 5.0 | 12.5 | 15.0 | 12.0 | 12.0 | 12.0 | 9.5 | 8.5 | 5.5 | 6.0 | 6.0 | 6.5 | 6.0 |
| | 5 Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 64 | 64 | 64 | 62 | 62 | 54 | 46 | 42 | 42 | 40 | 44 | 44 | 47 | 46 | 50 | 54 | 54 | 56 | 62 | 66 | 66 | 66 | 64 | 64 |
| $D_u$ | 6 | 6 | 6 | 8 | 6 | 8 | 9 | 7 | 7 | 11 | 8 | 8 | 17 | 18 | 30 | 18 | 13 | 16 | 10 | 10 | 11 | 11 | 7 | 7 |
| $D_\ell$ | 4 | 6 | 5 | 3 | 5 | 7 | 3 | 4 | 5 | 4 | 8 | 8 | 9 | 6 | 8 | 8 | 5 | 4 | 6 | 4 | 5 | 4 | 4 | 4 |
| $V_{dm}$ | 2.5 | 3.0 | 2.0 | 3.0 | 3.0 | 4.5 | *4.0 | 2.5 | *2.0 | *1.5 | *3.0 | 2.5 | 5.0 | 5.5 | 4.5 | 4.0 | 3.0 | 4.0 | 2.0 | 2.5 | 2.5 | 1.5 | 2.5 | 2.5 |
| $L_{dm}$ | 7.0 | 6.5 | 6.5 | 8.0 | 8.0 | 9.5 | *8.0 | 4.5 | *4.0 | *3.5 | *4.0 | 4.0 | 10.0 | 9.5 | 13.5 | 8.5 | 8.0 | 8.0 | 5.5 | 6.0 | 6.0 | 6.5 | 6.5 | 6.0 |
| | 10 Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 46 | 46 | 46 | 46 | 44 | 44 | 42 | 40 | 35 | 34 | 34 | 34 | 38 | 40 | 44 | 46 | 48 | 50 | 52 | 52 | 50 | 50 | 48 | 46 |
| $D_u$ | 8 | 6 | 6 | 7 | 9 | 7 | 9 | 6 | 12 | 10 | 7 | 10 | 12 | 12 | 12 | 14 | 8 | 9 | 9 | 7 | 8 | 12 | 8 | 8 |
| $D_\ell$ | 5 | 5 | 2 | 3 | 2 | 4 | 6 | 10 | 6 | 7 | 7 | 4 | 6 | 6 | 8 | 7 | 4 | 3 | 3 | 3 | 2 | 4 | 4 | 4 |
| $V_{dm}$ | 2.5 | 3.0 | 2.5 | 2.0 | 4.0 | 3.5 | 4.5 | 4.5 | 4.0 | *5.5 | *3.5 | 4.0 | 5.0 | 3.5 | 4.5 | 4.0 | 2.5 | 2.5 | 2.0 | 2.5 | 3.0 | 3.5 | 3.0 | 3.5 |
| $L_{dm}$ | 6.0 | 7.0 | 6.0 | 5.5 | 8.0 | 8.0 | 9.0 | 9.0 | 7.0 | *9.0 | *7.0 | 8.0 | 11.0 | 7.0 | 10.0 | 7.0 | 6.5 | 6.0 | 5.5 | 6.0 | 7.0 | 7.0 | 6.0 | 7.0 |
| | 20 Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 23 | 23 | 23 | 23 | 23 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 27 | 27 | 29 | 31 | 31 | 31 | 31 | 27 | 25 | 25 | 25 | 23 |
| $D_u$ | 8 | 8 | 7 | 7 | 7 | 8 | 8 | 9 | 10 | 10 | 10 | 10 | 10 | 12 | 14 | 12 | 10 | 11 | 11 | 15 | 18 | 14 | 8 | 8 |
| $D_\ell$ | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 2 | 3 | 4 | 6 | 4 | 4 | 5 | 4 | 3 | 4 | 3 | 2 | 2 | 4 | 3 |
| $V_{dm}$ | *1.0 | *1.0 | *1.0 | *1.0 | *1.0 | 2.0 | *2.0 | *1.5 | *1.5 | *2.0 | *1.5 | 2.5 | 2.5 | 3.0 | 4.0 | 2.5 | 3.0 | 2.5 | 3.0 | 2.5 | 2.5 | 2.0 | 1.5 | 1.0 |
| $L_{dm}$ | *2.5 | *2.5 | *3.0 | *2.5 | *2.5 | 3.5 | *4.5 | *4.0 | *4.0 | *5.0 | *4.0 | 5.0 | 8.5 | 6.0 | 8.0 | 5.5 | 5.5 | 5.0 | 6.0 | 4.0 | 4.0 | 4.0 | 3.0 | 2.5 |

# SEASONAL VALUES OF RADIO NOISE

LAT. 43N LONG. 105W STATION Bill, Wyoming SEASON Summer ( July ) 19 57

| | TIME BLOCKS (LMT) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0000-0400 | | | 0400-0800 | | | 0800-1200 | | | 1200-1600 | | | 1600-2000 | | | 2000-2400 | | |
| FREQUENCY (Mc) | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ |
| .051 | 142 | | | 135 | | | 131 | | | 141 | | | 144 | 9 | 7 | 144 | 4 | 8 |
| .113 | 126 | | | 114 | | | 111 | | | 125 | 10 | 12 | 128 | 10 | 12 | 128 | 5 | 8 |
| .246 | 109 | | | 96 | | | 91 | | | 112 | 8 | 20 | 114 | 12 | 21 | 112 | 6 | 8 |
| .545 | 88 | | | 67 | | | 74 | | | 96 | | | 96 | | | 92 | | |
| 2.5 | 73 | 5 | 8 | 40 | 12 | 8 | 26 | 10 | 4 | 59 | 14 | 38 | 60 | 14 | 24 | 71 | 6 | 8 |
| 5.0 | 65 | 4 | 4 | 46 | 6 | 12 | 26 | 12 | 6 | 43 | 13 | 23 | 54 | 6 | 18 | 66 | 4 | 5 |
| 10.0 | 47 | 6 | 4 | 42 | 5 | 7 | 31 | | | 39 | 7 | 9 | 46 | 4 | 5 | 52 | 3 | 6 |
| 20.0 | 28 | 4 | 4 | 28 | 5 | 4 | 26 | | | 28 | 6 | 4 | 31 | 5 | 6 | 28 | 4 | 4 |

LAT. 40N LONG. 105W STATION Boulder, Colorado SEASON Summer ( June – Aug.) 19 57

| | TIME BLOCKS (LMT) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0000-0400 | | | 0400-0800 | | | 0800-1200 | | | 1200-1600 | | | 1600-2000 | | | 2000-2400 | | |
| FREQUENCY (Mc) | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ |
| .051 | 140 | 5 | 5 | 133 | 5 | 6 | 132 | 3 | 4 | 142 | 8 | 6 | 144 | 7 | 7 | 143 | 6 | 6 |
| .113 | 125 | 5 | 6 | 116 | 7 | 10 | 113 | 7 | 5 | 128 | 10 | 12 | 132 | 8 | 11 | 129 | 7 | 8 |
| .246 | 110 | 7 | 8 | 97 | 8 | 15 | 94 | 11 | 10 | 113 | 14 | 16 | 118 | 9 | 14 | 114 | 8 | 8 |
| .545 | 93 | 7 | 8 | 78 | 10 | 7 | 80 | 16 | 9 | 100 | 14 | 20 | 102 | 10 | 18 | 98 | 7 | 7 |
| 2.5 | 72 | 6 | 5 | 52 | 6 | 6 | 47 | 8 | 3 | 60 | 17 | 12 | 65 | 11 | 13 | 73 | 6 | 5 |
| 5.0 | 63 | 4 | 4 | 49 | 5 | 5 | 43 | 6 | 6 | 50 | 17 | 8 | 57 | 9 | 6 | 65 | 6 | 4 |
| 10.0 | 45 | 4 | 4 | 40 | 6 | 4 | 32 | 8 | 6 | 40 | 10 | 7 | 49 | 5 | 4 | 48 | 5 | 4 |
| 20.0 | 22 | 4 | 3 | 22 | 5 | 3 | 23 | 9 | 3 | 26 | 11 | 5 | 27 | 8 | 4 | 23 | 7 | 2 |

$F_{am}$ = Time block median value of effective antenna noise figure in db above ktb

$D_u$ = Ratio of upper decile to median in db

$D_\ell$ = Ratio of median to lower decile in db

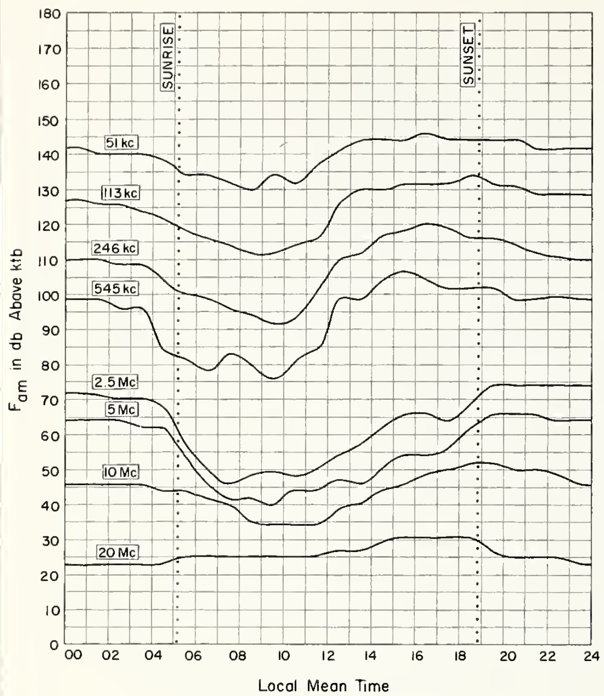
LAT. 40N LONG. 105W STATION Boulder, Colorado SEASON Summer (June – Aug.) 19 57

| | TIME BLOCKS (LMT) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0000-0400 | | | 0400-0800 | | | 0800-1200 | | | 1200-1600 | | | 1600-2000 | | | 2000-2400 | | |
| FREQUENCY (Mc) | $V_{dm}$ | $L_{dm}$ | | $V_{dm}$ | $L_{dm}$ | | $V_{dm}$ | $L_{dm}$ | | $V_{dm}$ | $L_{dm}$ | | $V_{dm}$ | $L_{dm}$ | | $V_{dm}$ | $L_{dm}$ | |
| .051 | 6.5 | 13.0 | | 9.5 | 17.0 | | 11.5 | 19.0 | | 9.5 | 15.5 | | 8.0 | 13.5 | | 7.0 | 13.0 | |
| .113 | 6.0 | 12.5 | | 9.5 | 18.5 | | 12.0 | 20.0 | | 10.0 | 17.5 | | 8.0 | 15.0 | | 7.0 | 12.0 | |
| .246 | 6.5 | 12.0 | | 9.5 | 17.5 | | 11.5 | 18.5 | | 10.0 | 18.5 | | 8.0 | 15.0 | | 6.0 | 11.5 | |
| .545 | 5.5 | 11.5 | | 5.5 | 10.5 | | 6.5 | 11.5 | | 9.5 | 17.5 | | 8.0 | 15.0 | | 5.0 | 10.0 | |
| 2.5 | 3.5 | 8.5 | | 3.0 | 7.5 | | 2.0 | 4.0 | | 7.0 | 13.0 | | 5.0 | 10.5 | | 3.5 | 8.0 | |
| 5.0 | 3.5 | 8.0 | | 4.0 | 7.5 | | 1.5 | 4.0 | | 5.0 | 11.0 | | 3.0 | 7.5 | | 3.0 | 7.5 | |
| 10.0 | 3.5 | 7.0 | | 4.5 | 8.5 | | 4.5 | 7.0 | | 4.5 | 9.0 | | 3.0 | 6.5 | | 3.5 | 7.5 | |
| 20.0 | 1.0 | 3.0 | | 1.5 | 4.0 | | 2.5 | 5.0 | | 3.5 | 6.0 | | 3.0 | 6.0 | | 2.0 | 3.5 | |

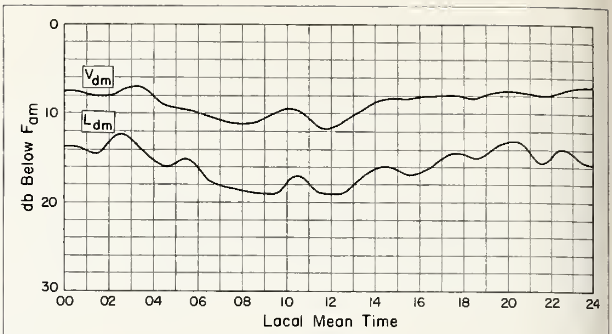
$V_{dm}$ = Time block median value of deviation of mean envelope voltage below mean power in db.

$L_{dm}$ = Time block median value of deviation of mean logarithm of voltage below mean power in db.

# GRAPHS OF RADIO NOISE DATA

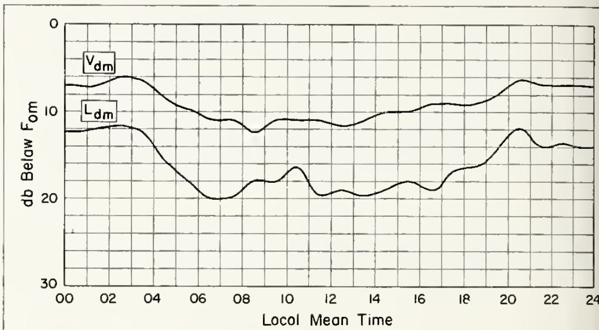



BOULDER, COLORADO AUGUST 1957



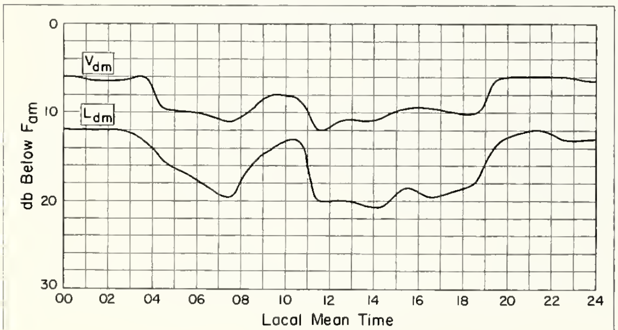

51 kc

BOULDER, COLORADO AUGUST 1957



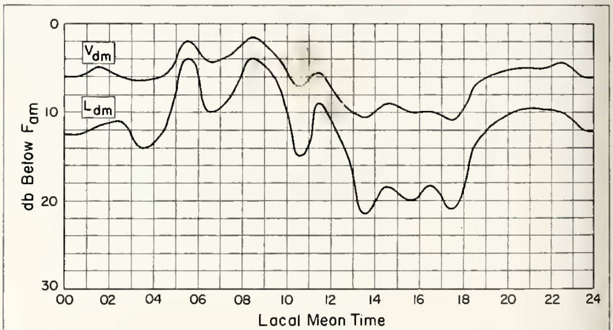

113 kc

BOULDER, COLORADO AUGUST 1957



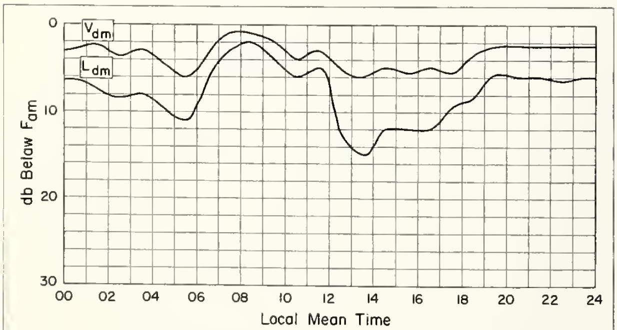

246 kc

BOULDER, COLORADO AUGUST 1957



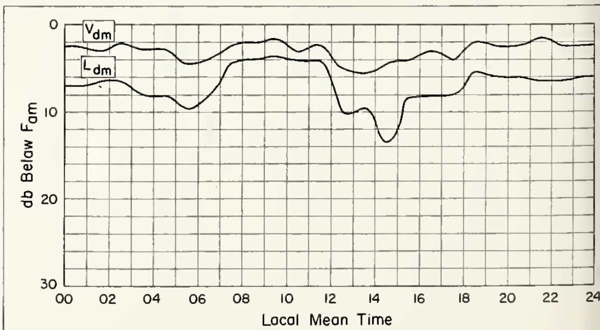

545 kc

BOULDER, COLORADO AUGUST 1957



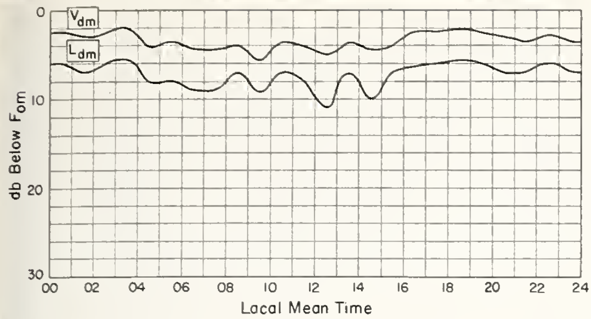

2.5 Mc

BOULDER, COLORADO AUGUST 1957



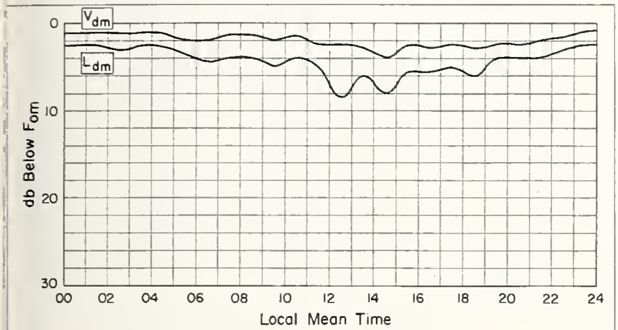

5 Mc

BOULDER, COLORADO AUGUST 1957



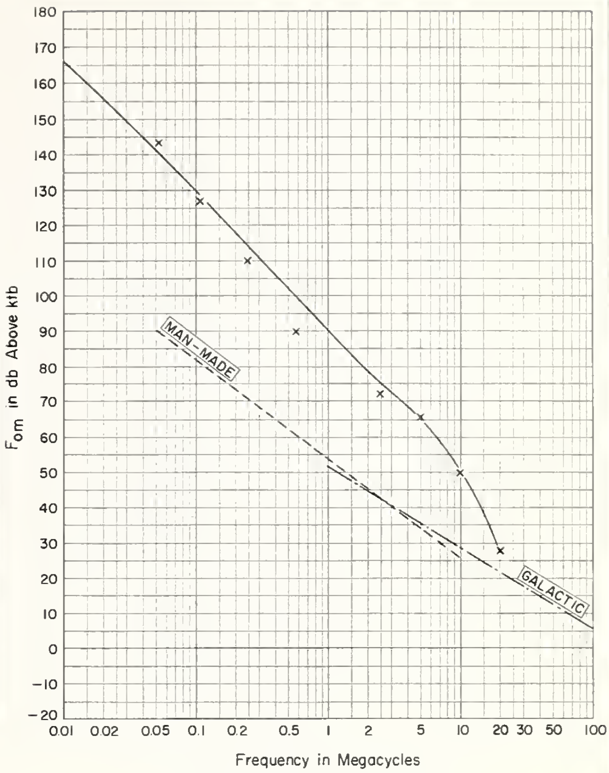

10 Mc

BOULDER, COLORADO AUGUST 1957




20 Mc

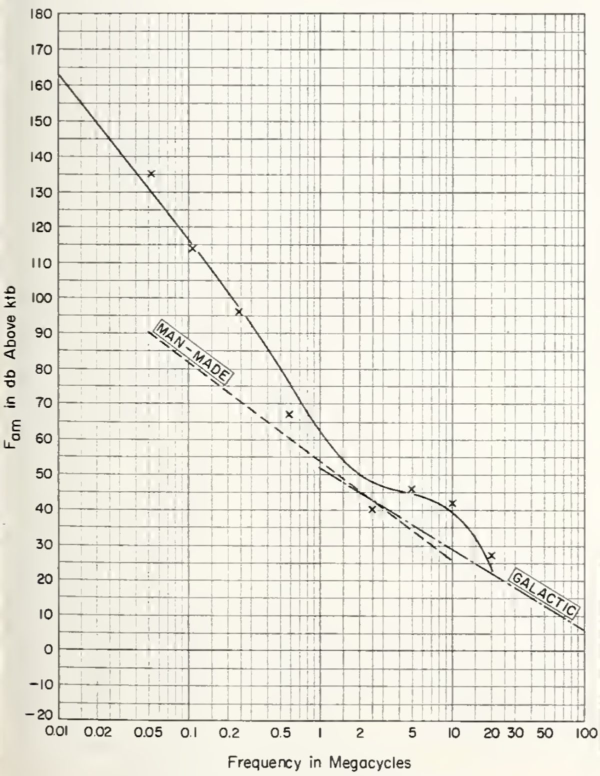
BOULDER, COLORADO AUGUST 1957




RADIO NOISE FOR SUMMER SEASON

Time Block: 0000-0400 & 2000-2400, June-July-August, 1957

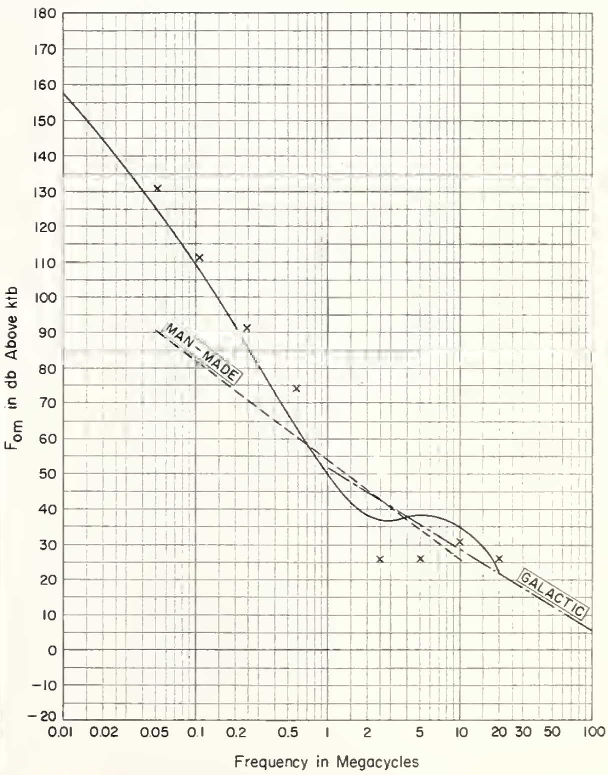
Bill, Wyoming Observed: ××× Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 0400-0800, June-July-August, 1957

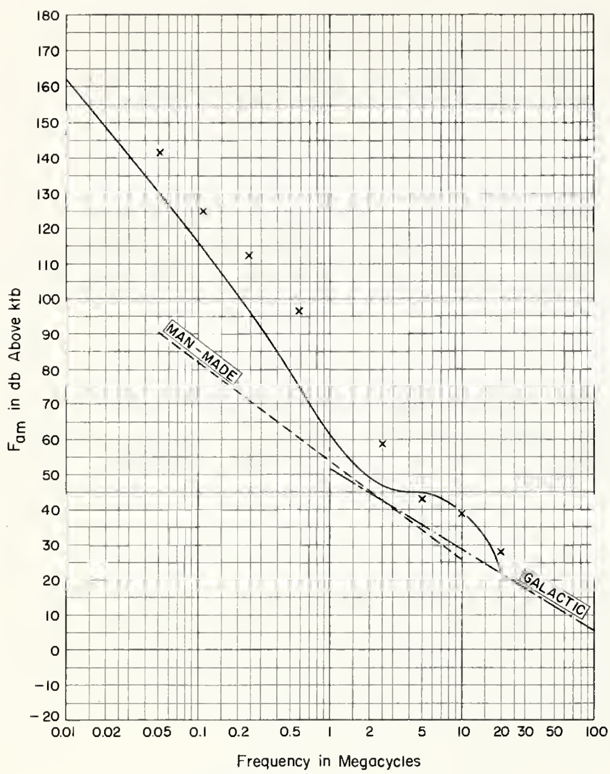
Bill, Wyoming Observed: ××× Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 0800-1200, June-July-August, 1957

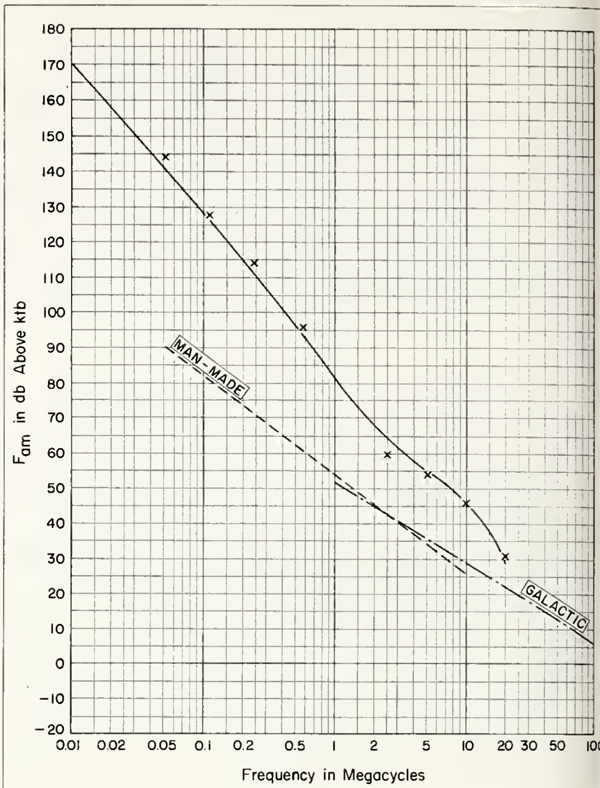
Bill, Wyoming Observed: ××× Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 1200-1600, June-July-August, 1957

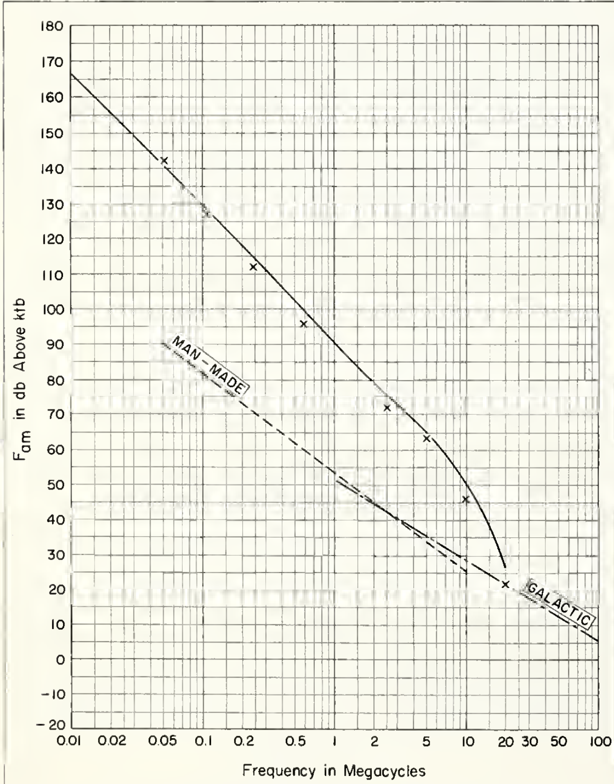
Bill, Wyoming Observed: x x x Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 1600-2000, June-July-August, 1957

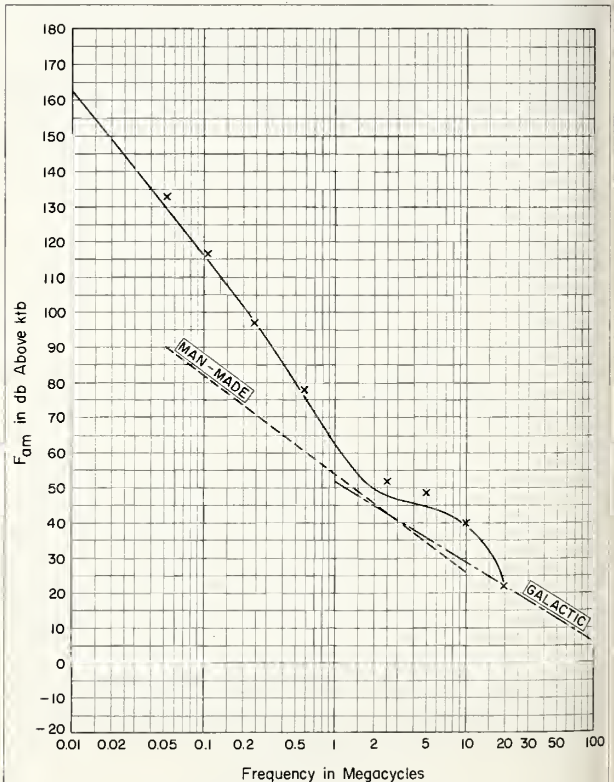
Bill, Wyoming Observed: x x x Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 0000-0400 & 2000-2400, June-July-August, 1957

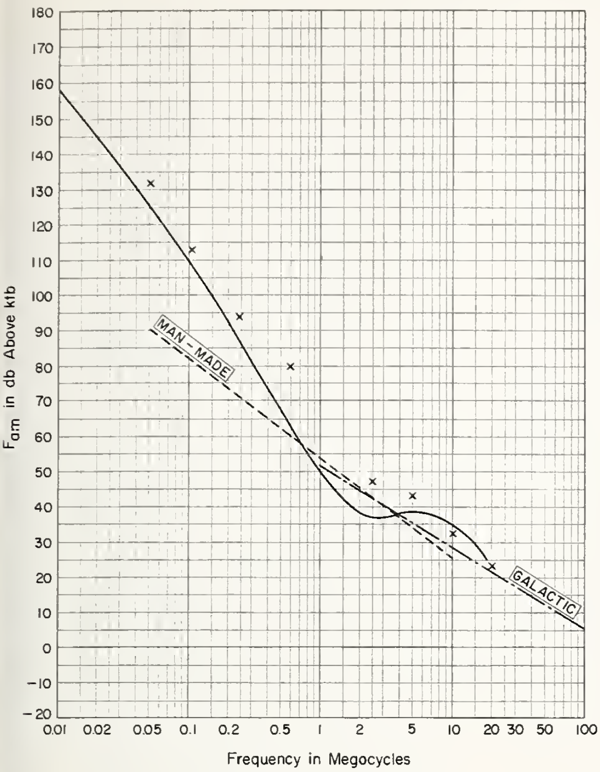
Boulder, Colorado Observed: x x x Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 0400-0800, June-July-August, 1957

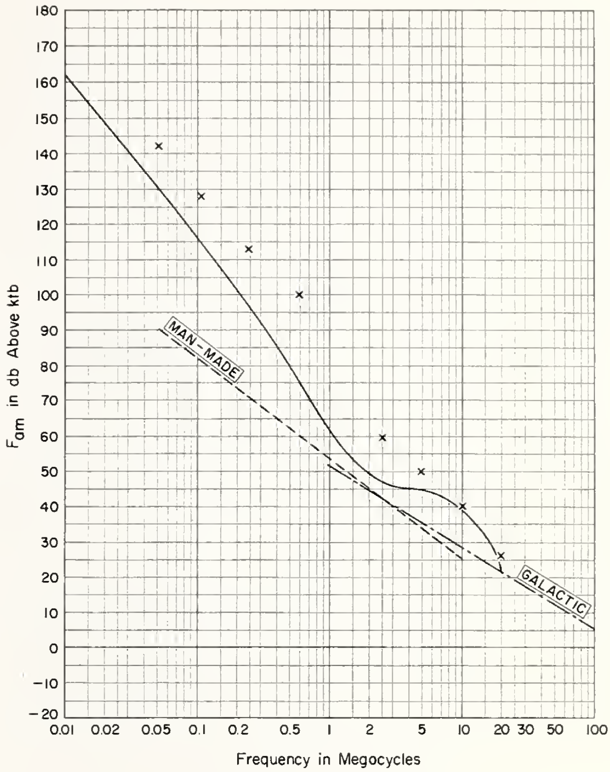
Boulder, Colorado Observed: x x x Predicted: ——




RADIO NOISE FOR SUMMER SEASON

Time Block: 0800-1200, June-July-August, 1957

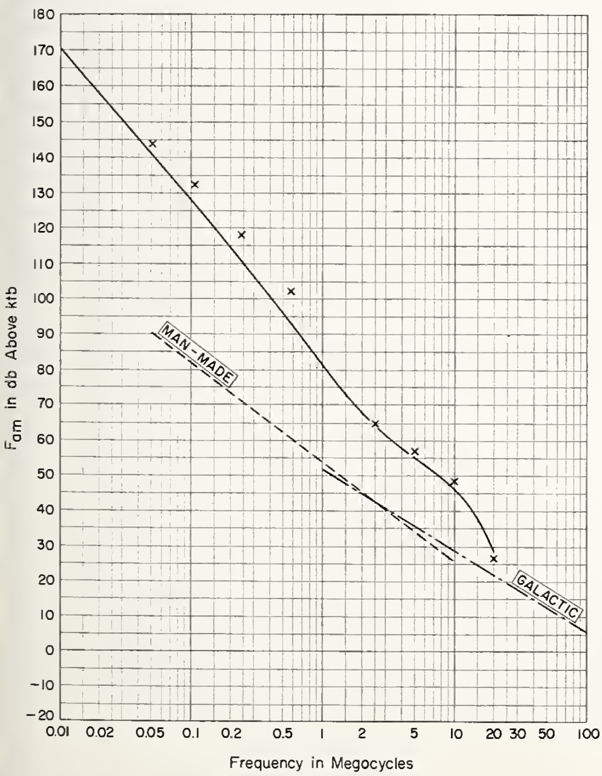
Boulder, Colorado Observed: × × × Predicted: ———




RADIO NOISE FOR SUMMER SEASON

Time Block: 1200-1600, June-July-August, 1957

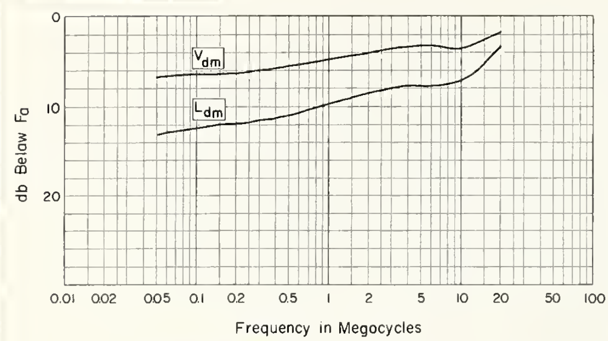
Boulder, Colorado Observed: × × × Predicted: ———




RADIO NOISE FOR SUMMER SEASON

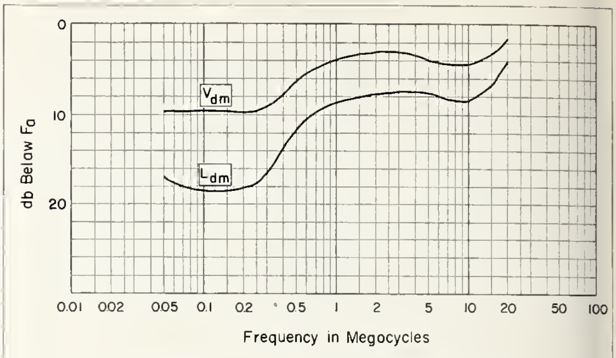
Time Block: 1600-2000, June-July-August, 1957

Boulder, Colorado Observed: × × × Predicted: ———



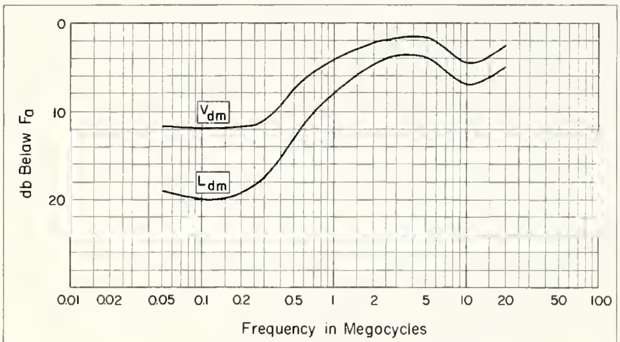

MEDIAN DEVIATION FOR SUMMER SEASON

Time Block: 0000-0400 & 2000-2400
June - July - August, 1957
Boulder, Colorado



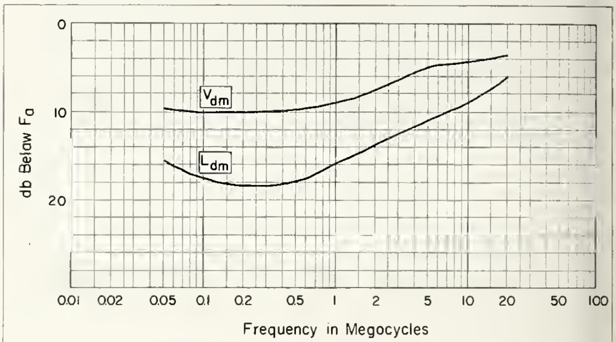

MEDIAN DEVIATION FOR SUMMER SEASON

Time Block: 0400-0800
June - July - August, 1957
Boulder, Colorado



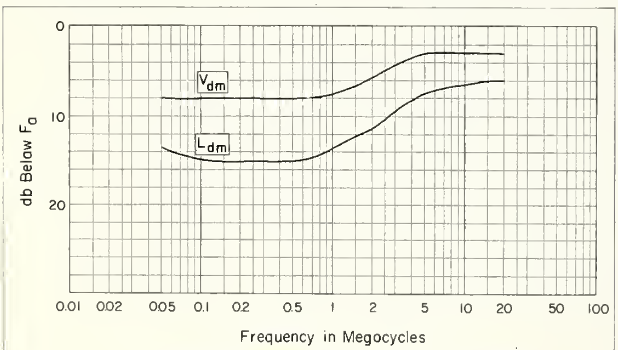

MEDIAN DEVIATION FOR SUMMER SEASON

Time Block: 0800-1200
June - July - August, 1957
Boulder, Colorado



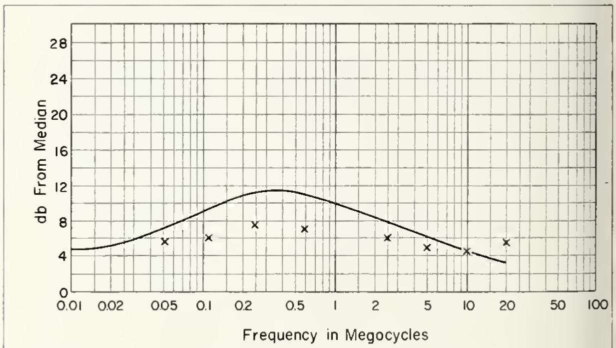

MEDIAN DEVIATION FOR SUMMER SEASON

Time Block: 1200-1600
June - July - August, 1957
Boulder, Colorado



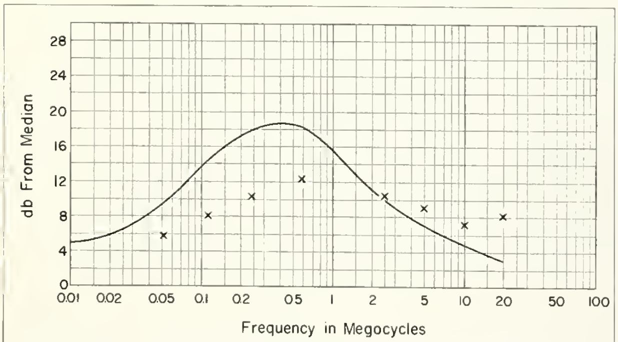

MEDIAN DEVIATION FOR SUMMER SEASON

Time Block: 1600-2000
June - July - August, 1957
Boulder, Colorado



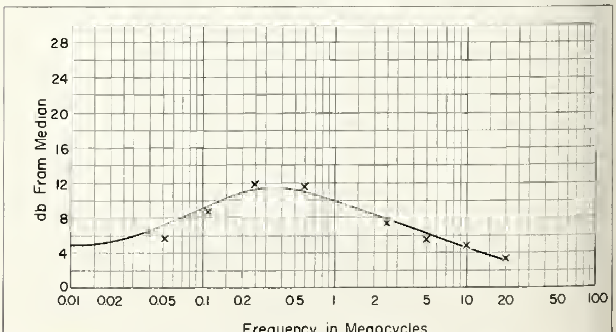

VARIATION OF $D_u$ FROM MEDIAN NOISE LEVELS FOR SUMMER SEASON

Time Block: 0000 - 0400 & 2000-2400, June - July - August, 1957
Boulder, Colorado Observed ××× Predicted ——




VARIATION OF $D_u$ FROM MEDIAN NOISE LEVELS FOR SUMMER SEASON

Time Block: 04-08, 08-12, 12-16, 16-20, June - July - August, 1957
Boulder, Colorado Observed ××× Predicted ——




VARIATION OF $D_\ell$ FROM MEDIAN NOISE LEVELS FOR SUMMER SEASON

Time Block: All, June - July - August, 1957
Boulder, Colorado Observed ××× Predicted ——

Table 1

Upsala, Sweden (59.8°N, 17.6°E) August 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.6 | 315 | | | | 3.2 | 2.5 |
| 01 | | 5.2 | 310 | | | | 3.9 | 2.5 |
| 02 | | 5.0 | 310 | | | | 3.5 | 2.5 |
| 03 | | 4.6 | 305 | | --- | E | 3.8 | 2.5 |
| 04 | --- | 4.8 | 290 | ---- | --- | E | 4.5 | 2.6 |
| 05 | (345) | 5.5 | 260 | 3.60 | 125 | 2.10 | 4.5 | 2.7 |
| 06 | 370 | 6.1 | 245 | 4.20 | 115 | 2.50 | 5.3 | 2.7 |
| 07 | 330 | 6.9 | 240 | 4.70 | 110 | 2.90 | 5.5 | 2.7 |
| 08 | 390 | 7.3 | 240 | 5.00 | 110 | 3.20 | 5.2 | 2.7 |
| 09 | 345 | 7.5 | 230 | 5.20 | 105 | 3.40 | 6.5 | 2.7 |
| 10 | 360 | 7.6 | 230 | 5.30 | 105 | 3.50 | 6.6 | 2.7 |
| 11 | 375 | 7.7 | 220 | 5.40 | 105 | 3.60 | 6.7 | 2.7 |
| 12 | 380 | 7.7 | 220 | 5.50 | 105 | 3.60 | 6.0 | 2.7 |
| 13 | 375 | 7.7 | 225 | 5.50 | 105 | 3.60 | 6.3 | 2.7 |
| 14 | 380 | 7.4 | 230 | 5.50 | 105 | 3.50 | 6.3 | 2.7 |
| 15 | 360 | 7.5 | 230 | 5.30 | 105 | 3.40 | 5.2 | 2.7 |
| 16 | 340 | 7.7 | 240 | 5.00 | 110 | 3.20 | 5.6 | 2.7 |
| 17 | 300 | 7.7 | 245 | 4.50 | 110 | 2.90 | 5.0 | 2.7 |
| 18 | 300 | 7.7 | 260 | 3.85 | 120 | 2.40 | 4.5 | 2.8 |
| 19 | | 7.6 | 265 | ---- | 125 | 1.80 | 3.9 | 2.7 |
| 20 | | 7.6 | 260 | | --- | E | 3.3 | 2.7 |
| 21 | | 6.8 | 265 | | --- | E | 3.3 | 2.6 |
| 22 | | 6.3 | 290 | | | | 3.2 | 2.5 |
| 23 | | 6.1 | 300 | | | | 3.0 | 2.5 |

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

Table 2

Formosa, China (25.0°N, 121.5°E) August 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 12.6 | 280 | | | | 3.0 | 2.70 |
| 01 | | 13.2 | 260 | | | | 2.9 | 2.85 |
| 02 | | 13.0 | 240 | | | | 2.5 | 2.90 |
| 03 | | 10.4 | 240 | | | | 2.2 | 2.90 |
| 04 | | 8.9 | 240 | | | | 3.1 | 3.00 |
| 05 | | 7.6 | 240 | | | | 2.4 | 2.95 |
| 06 | | 8.6 | 250 | | | (2.2) | 2.4 | 3.05 |
| 07 | | 9.5 | 230 | | | (3.1) | 3.8 | 3.15 |
| 08 | | 9.9 | 220 | | | 3.6 | 4.8 | 2.95 |
| 09 | --- | 10.0 | 220 | --- | | (4.0) | 5.8 | 2.70 |
| 10 | --- | 11.4 | 220 | (6.2) | | (4.3) | 6.0 | 2.55 |
| 11 | 380 | 12.6 | 220 | (6.3) | | --- | 5.4 | 2.60 |
| 12 | 370 | 13.5 | 220 | (6.4) | | --- | 5.6 | 2.60 |
| 13 | 380 | 14.0 | 220 | (6.4) | | 4.4 | 6.0 | 2.60 |
| 14 | 370 | 14.7 | 220 | (6.2) | | (4.3) | 5.0 | 2.60 |
| 15 | 360 | 15.4 | 220 | (5.9) | | (4.1) | 4.9 | 2.75 |
| 16 | (320) | 15.4 | 220 | --- | | (3.7) | 5.1 | 2.80 |
| 17 | (310) | 15.5 | 240 | | | (3.2) | 4.6 | 2.75 |
| 18 | --- | 15.3 | 260 | | | 2.5 | 4.4 | 2.80 |
| 19 | | 14.9 | 270 | | | --- | 4.2 | 2.70 |
| 20 | | 14.5 | 280 | | | | 3.7 | 2.60 |
| 21 | | >13.6 | 280 | | | | 3.1 | 2.60 |
| 22 | | >14.3 | 280 | | | | 2.4 | 2.70 |
| 23 | | 13.7 | 280 | | | | 2.8 | 2.70 |

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

Table 3

Kiruna, Sweden (67.8°N, 20.3°E) July 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.4 | (350) | | | | (3.3) | 2.5 |
| 01 | --- | 5.8 | (330) | --- | --- | --- | (3.3) | 2.5 |
| 02 | (395) | 5.4 | (300) | 3.0 | --- | 1.9 | (2.8) | 2.45 |
| 03 | 420 | 6.0 | (275) | 3.5 | --- | 2.0 | (3.1) | 2.5 |
| 04 | (410) | 6.0 | 250 | 4.0 | 110 | 2.2 | 2.4 | 2.5 |
| 05 | 425 | 6.0 | 245 | 4.1 | 105 | 2.6 | | 2.5 |
| 06 | 450 | 6.1 | 240 | 4.4 | 105 | 2.9 | | 2.5 |
| 07 | 405 | 6.1 | 240 | 4.7 | 105 | 3.0 | | 2.5 |
| 08 | 440 | 6.5 | 230 | 5.0 | 100 | 3.2 | | 2.5 |
| 09 | 430 | 7.0 | 230 | 5.0 | 105 | 3.2 | | 2.5 |
| 10 | 450 | 7.0 | 225 | 5.1 | 105 | 3.3 | | 2.5 |
| 11 | 440 | 6.9 | 220 | 5.1 | 105 | 3.4 | | 2.5 |
| 12 | 470 | 6.7 | 220 | 5.2 | 100 | 3.4 | | 2.5 |
| 13 | 460 | 6.5 | 215 | 5.2 | 105 | 3.3 | | 2.5 |
| 14 | 440 | 6.6 | 220 | 5.1 | 105 | 3.2 | | 2.5 |
| 15 | 455 | 6.4 | 220 | 5.1 | 105 | 3.2 | | 2.55 |
| 16 | 440 | 6.4 | 230 | 5.0 | 105 | 3.0 | | 2.6 |
| 17 | 480 | 6.2 | 235 | 4.7 | 105 | 2.9 | | 2.6 |
| 18 | --- | 6.2 | 245 | --- | 110 | 2.8 | | 2.7 |
| 19 | --- | 6.1 | 250 | --- | 110 | 2.2 | (3.0) | 2.7 |
| 20 | --- | 6.3 | 265 | --- | 110 | 2.1 | (2.8) | 2.6 |
| 21 | --- | 6.0 | 280 | --- | --- | 1.9 | (3.0) | 2.6 |
| 22 | | 5.9 | 335 | | --- | --- | (3.0) | 2.6 |
| 23 | | 5.8 | 310 | | | | (3.0) | 2.5 |

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 4

Lycksele, Sweden (64.6°N, 18.8°E) July 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.2 | 310 | | | | 2.6 | 2.5 |
| 01 | | 5.9 | 320 | | --- | E | 2.5 | 2.5 |
| 02 | (365) | 5.8 | 315 | 2.90 | --- | E | 2.8 | 2.5 |
| 03 | 330 | 6.2 | 280 | 3.10 | 105 | 1.80 | 2.2 | 2.5 |
| 04 | 355 | 6.2 | 250 | 3.70 | 105 | 2.20 | 2.2 | 2.6 |
| 05 | 385 | 6.4 | 240 | 4.10 | 105 | 2.50 | | 2.6 |
| 06 | 390 | 6.5 | 230 | 4.50 | 105 | 2.90 | | 2.6 |
| 07 | 390 | 6.7 | 230 | 4.80 | 105 | 3.05 | 3.5 | 2.6 |
| 08 | 420 | 6.8 | 230 | 5.00 | 105 | 3.25 | 3.6 | 2.6 |
| 09 | 400 | 7.3 | 225 | 5.10 | 105 | 3.40 | 3.8 | 2.6 |
| 10 | 405 | 7.2 | 220 | 5.35 | 105 | 3.40 | 3.9 | 2.6 |
| 11 | 425 | 7.2 | 220 | 5.50 | 105 | 3.50 | 3.8 | 2.6 |
| 12 | 410 | 7.1 | 215 | 5.40 | 105 | 3.60 | 3.8 | 2.6 |
| 13 | 425 | 7.2 | 215 | 5.35 | 105 | 3.50 | | 2.5 |
| 14 | 420 | 7.2 | 215 | 5.30 | 105 | 3.40 | | 2.6 |
| 15 | 380 | 7.0 | 215 | 5.20 | 105 | 3.30 | | 2.6 |
| 16 | 370 | 6.9 | 225 | 5.10 | 105 | 3.20 | | 2.6 |
| 17 | 340 | 7.0 | 230 | 4.80 | 105 | 3.00 | | 2.7 |
| 18 | 330 | 6.9 | 240 | 4.50 | 105 | 2.70 | 3.1 | 2.7 |
| 19 | 290 | 6.9 | 250 | 3.80 | 110 | 2.35 | 3.4 | 2.7 |
| 20 | 290 | 6.9 | 260 | 3.50 | 115 | 1.90 | 2.8 | 2.7 |
| 21 | --- | 6.8 | 270 | ---- | --- | E | 2.2 | 2.7 |
| 22 | | 6.6 | 290 | | --- | E | | 2.6 |
| 23 | | 6.4 | 300 | | --- | | | 2.55 |

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

Table 5

Upsala, Sweden (59.8°N, 17.6°E) July 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.7 | 310 | | | | 2.6 | 2.5 |
| 01 | | 6.4 | 315 | | --- | ---- | 2.8 | 2.4 |
| 02 | | 6.2 | 310 | | --- | E | 3.0 | 2.5 |
| 03 | (365) | 6.2 | 300 | 2.85 | --- | 1.55 | 3.0 | 2.4 |
| 04 | 370 | 6.4 | 270 | 3.60 | 125 | 2.10 | 3.4 | 2.5 |
| 05 | 400 | 6.5 | 250 | 4.20 | 110 | 2.55 | 3.5 | 2.55 |
| 06 | 435 | 6.4 | 240 | 4.50 | 105 | 2.90 | 3.6 | 2.5 |
| 07 | 440 | 6.8 | 240 | 4.90 | 105 | 3.15 | 4.6 | 2.5 |
| 08 | 420 | 7.1 | 240 | 5.10 | 105 | 3.40 | 4.6 | 2.6 |
| 09 | 410 | 7.3 | 230 | 5.40 | 105 | 3.55 | 5.0 | 2.6 |
| 10 | 415 | 7.6 | 220 | 5.50 | 105 | 3.65 | 5.6 | 2.6 |
| 11 | 430 | 7.6 | 210 | 5.50 | 105 | 3.75 | 6.0 | 2.6 |
| 12 | 440 | 7.4 | 220 | 5.60 | 105 | 3.75 | 4.7 | 2.6 |
| 13 | 450 | 7.3 | 220 | 5.50 | 105 | 3.70 | 4.2 | 2.6 |
| 14 | 450 | 7.3 | 220 | 5.50 | 105 | 3.60 | 4.8 | 2.5 |
| 15 | 420 | 7.2 | 225 | 5.30 | 105 | 3.50 | 4.3 | 2.6 |
| 16 | 400 | 7.1 | 230 | 5.30 | 105 | 3.40 | 3.6 | 2.6 |
| 17 | 390 | 7.2 | 240 | 4.95 | 105 | 3.20 | 3.6 | 2.7 |
| 18 | 370 | 7.1 | 250 | 4.50 | 110 | 2.85 | 3.5 | 2.7 |
| 19 | 300 | 7.2 | 260 | 3.90 | 115 | 2.50 | 3.6 | 2.7 |
| 20 | --- | 7.1 | 275 | ---- | 140 | 1.80 | 3.1 | 2.7 |
| 21 | | 7.0 | 280 | | --- | E | 2.6 | 2.6 |
| 22 | | 7.0 | 290 | | --- | E | 2.2 | 2.5 |
| 23 | | 7.0 | 295 | | | | | 2.5 |

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

Table 6

Washington, D. C. (38.7°N, 77.1°W) July 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.6 | 280 | | | | 3.6 | 2.70 |
| 01 | | 6.2 | <280 | | | | 3.8 | 2.70 |
| 02 | | 5.8 | 280 | | | | 3.7 | 2.70 |
| 03 | | 5.4 | 275 | | | | 4.0 | 2.65 |
| 04 | | 5.0 | <290 | | | | 4.3 | 2.65 |
| 05 | | 5.2 | 290 | | --- | ---- | 1.7 | 2.80 |
| 06 | (290) | 6.0 | 250 | --- | 111 | (2.40) | 2.5 | 2.90 |
| 07 | 340 | 6.6 | 240 | 4.6 | 109 | (3.00) | 3.5 | 2.85 |
| 08 | 410 | 6.8 | 230 | 5.0 | 105 | 3.35 | 3.9 | 2.75 |
| 09 | 420 | 6.8 | 220 | 5.1 | 104 | (3.60) | 4.2 | 2.70 |
| 10 | 455 | 6.9 | 205 | 5.5 | 103 | (3.85) | 4.6 | 2.60 |
| 11 | 440 | 7.0 | 210 | 5.5 | 103 | (3.95) | 4.3 | 2.65 |
| 12 | 440 | 7.0 | 210 | 5.5 | 103 | 4.00 | 4.3 | 2.60 |
| 13 | 450 | 7.2 | 210 | (5.5) | 105 | 4.00 | 4.3 | 2.60 |
| 14 | 450 | 7.2 | 215 | 5.4 | 105 | 4.00 | 4.2 | 2.60 |
| 15 | 440 | 7.3 | 220 | 5.4 | 109 | 3.80 | | 2.55 |
| 16 | 420 | 7.3 | 225 | 5.2 | 109 | 3.60 | | 2.60 |
| 17 | 380 | 7.5 | 230 | (4.9) | 109 | 3.25 | | 2.70 |
| 18 | 355 | 7.6 | 240 | --- | 111 | 2.80 | 3.0 | 2.75 |
| 19 | --- | 7.7 | 270 | | 121 | (2.00) | 2.2 | 2.75 |
| 20 | | 7.4 | 260 | | | | 3.6 | 2.80 |
| 21 | | 7.2 | 270 | | | | 3.8 | 2.70 |
| 22 | | 7.2 | 275 | | | | 4.3 | 2.70 |
| 23 | | 6.8 | 280 | | | | 3.7 | 2.70 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Thule, Greenland (76.6°N, 68.7°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (440) | 5.8 | 240 | 3.7 | 109 | 2.35 | | 2.60 |
| 01 | 440 | 5.6 | 250 | 3.8 | 107 | (2.45) | | 2.65 |
| 02 | (500) | 5.4 | 240 | 4.0 | 103 | 2.60 | | 2.75 |
| 03 | 520 | 5.6 | 230 | 4.0 | 103 | 2.70 | | 2.65 |
| 04 | (490) | 5.9 | 230 | 4.0 | 102 | 2.80 | | 2.80 |
| 05 | 495 | 5.8 | 230 | 4.3 | 101 | 3.00 | | 2.60 |
| 06 | 500 | 5.8 | 220 | 4.4 | 101 | 3.10 | | 2.50 |
| 07 | 510 | 5.6 | 225 | 4.6 | 101 | 3.20 | 3.4 | 2.40 |
| 00 | 550 | 5.9 | 215 | 4.7 | 101 | 3.30 | | 2.45 |
| 09 | 600 | 5.2 | 220 | 4.8 | 101 | 3.40 | | G |
| 10 | 540 | 5.6 | 210 | 4.8 | 101 | 3.50 | 4.2 | 2.35 |
| 11 | G | 5.0 | 210 | 4.8 | 103 | 3.50 | 3.8 | G |
| 12 | 600 | 5.3 | 215 | 4.8 | 101 | 3.50 | 4.6 | 2.10 |
| 13 | 590 | 5.5 | 220 | 4.8 | 101 | 3.50 | | 2.25 |
| 14 | 570 | 5.4 | 220 | 4.6 | 101 | 3.40 | | 2.30 |
| 15 | 520 | 6.0 | 210 | 4.7 | 101 | 3.30 | | 2.50 |
| 16 | 475 | 6.0 | 220 | 4.5 | 101 | 3.20 | | 2.45 |
| 17 | 430 | 6.2 | 215 | 4.7 | 104 | 3.15 | | 2.55 |
| 18 | 440 | 5.7 | 230 | 4.4 | 105 | 3.00 | | 2.60 |
| 19 | 455 | 5.7 | 230 | 4.2 | 109 | 2.80 | | 2.65 |
| 20 | 450 | 5.8 | 230 | 4.0 | 107 | 2.70 | | 2.60 |
| 21 | (450) | 5.5 | 240 | 3.8 | 107 | 2.60 | | 2.70 |
| 22 | --- | 5.4 | 250 | --- | 109 | 2.50 | | 2.70 |
| 23 | (530) | 5.6 | 245 | 3.6 | 109 | (2.40) | | 2.70 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Point Barrow, Alaska (71.3°N, 156.8°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.6 | | | --- | 2.40 | 4.5 | 2.80 |
| 01 | | 5.5 | | --- | 111 | 2.40 | 3.2 | 2.75 |
| 02 | | 5.8 | | --- | 111 | 2.30 | 3.2 | 2.70 |
| 03 | | 5.6 | | --- | --- | 2.45 | 4.2 | 2.60 |
| 04 | | 5.6 | | (3.7) | 103 | 2.40 | | 2.60 |
| 05 | | (5.6) | | (4.1) | 105 | 2.60 | | (2.60) |
| 06 | | 5.4 | | 4.4 | 101 | 2.85 | | (2.40) |
| 07 | | (5.7) | | 4.5 | 100 | 3.25 | | (2.35) |
| 00 | | (6.4) | | 4.7 | 101 | ---- | | (2.50) |
| 09 | | (6.5) | | --- | 99 | ---- | | (2.55) |
| 10 | | (6.6) | | --- | 105 | ---- | | (2.50) |
| 11 | | 6.2 | | --- | 100 | 3.40 | | (2.50) |
| 12 | | 6.3 | | (5.0) | 101 | 3.40 | | 2.55 |
| 13 | | 6.3 | | 5.1 | 103 | (3.50) | | 2.55 |
| 14 | | 6.3 | | 5.1 | 105 | (3.50) | | 2.40 |
| 15 | | 6.3 | | 5.0 | 101 | 3.45 | | 2.50 |
| 16 | | 6.2 | | 4.9 | 101 | (3.30) | | 2.50 |
| 17 | | 6.2 | | 4.8 | 101 | 3.15 | | 2.50 |
| 18 | | 6.1 | | (4.4) | 101 | (3.00) | | 2.65 |
| 19 | | 5.9 | | --- | 101 | 2.80 | | 2.60 |
| 20 | | 5.9 | | --- | 109 | (2.55) | | (2.70) |
| 21 | | 5.6 | | --- | 109 | 2.90 | | 2.80 |
| 22 | | 5.7 | | | 117 | 2.80 | 2.8 | 2.80 |
| 23 | | 5.8 | | | 121 | 2.60 | 2.6 | 2.85 |

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Kiruna, Sweden (67.8°N, 20.3°E) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | --- | 5.5 | 360 | --- | | | (3.4) | 2.5 |
| 01 | --- | 5.9 | 335 | --- | --- | --- | (3.3) | 2.45 |
| 02 | (430) | 6.0 | (290) | 3.5 | --- | --- | (3.0) | 2.4 |
| 03 | (390) | 6.1 | 270 | 3.8 | --- | 2.0 | (2.8) | 2.5 |
| 04 | 390 | 6.0 | 255 | 4.0 | 105 | 2.4 | | 2.6 |
| 05 | 440 | 6.2 | 240 | 4.4 | 105 | 2.8 | | 2.5 |
| 06 | 450 | 6.6 | 240 | 4.6 | 105 | 3.0 | | 2.5 |
| 07 | 450 | 6.4 | 240 | 4.8 | 105 | 3.1 | | 2.5 |
| 00 | 470 | 6.7 | 230 | 5.0 | 105 | 3.2 | | 2.5 |
| 09 | 500 | 6.9 | 230 | 5.1 | 105 | 3.4 | | 2.5 |
| 10 | 405 | 6.8 | 230 | 5.2 | 105 | 3.5 | | 2.4 |
| 11 | 520 | 6.8 | 230 | 5.3 | 105 | 3.5 | | 2.4 |
| 12 | 550 | 6.4 | 220 | 5.3 | 100 | 3.5 | | 2.4 |
| 13 | 530 | 6.3 | 220 | 5.3 | 105 | 3.5 | | 2.4 |
| 14 | 525 | 6.2 | 230 | 5.2 | 105 | 3.4 | | 2.5 |
| 15 | 480 | 6.2 | 230 | 5.1 | 105 | 3.3 | | 2.6 |
| 16 | (475) | 6.1 | 240 | 5.0 | 105 | 3.2 | | 2.6 |
| 17 | 440 | 6.2 | 240 | 4.9 | 110 | 3.0 | 3.1 | 2.6 |
| 18 | --- | 6.4 | 250 | --- | 110 | 2.9 | (3.3) | 2.7 |
| 19 | --- | 6.3 | 250 | --- | 110 | 2.3 | (3.4) | 2.7 |
| 20 | --- | 6.4 | 260 | --- | 105 | 2.1 | (3.5) | 2.7 |
| 21 | --- | 6.2 | 285 | --- | --- | 1.8 | (3.3) | 2.6 |
| 22 | --- | 6.0 | 310 | --- | --- | --- | (3.8) | 2.6 |
| 23 | --- | 5.9 | 330 | --- | | | (4.3) | 2.5 |

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 10

Anchorage, Alaska (61.2°N, 149.9°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.3 | | | | | 2.0 | 2.45 |
| 01 | | 5.0 | | | --- | ---- | 2.0 | 2.45 |
| 02 | | 5.4 | | | 113 | ---- | 2.2 | 2.40 |
| 03 | | 5.6 | | 3.2 | 109 | (1.80) | 2.4 | 2.35 |
| 04 | | 5.7 | | 3.7 | 109 | 2.25 | | 2.35 |
| 05 | | 6.1 | | 4.2 | 109 | 2.50 | 2.8 | 2.35 |
| 06 | | 6.2 | | 4.5 | 109 | 2.95 | 3.0 | 2.30 |
| 07 | | 6.4 | | 4.6 | 107 | 3.15 | 3.3 | 2.30 |
| 00 | | 6.4 | | 4.8 | 103 | 3.40 | | 2.25 |
| 09 | | 6.5 | | 5.0 | 101 | (3.50) | 3.5 | 2.30 |
| 10 | | 6.7 | | 5.0 | 102 | 3.60 | 3.6 | 2.35 |
| 11 | | 6.5 | | 5.2 | 103 | (3.65) | | 2.35 |
| 12 | | 6.6 | | 5.2 | 102 | (3.70) | | 2.30 |
| 13 | | 6.4 | | 5.2 | 102 | 3.70 | | 2.35 |
| 14 | | 6.4 | | 5.3 | 103 | (3.60) | | 2.35 |
| 15 | | 6.2 | | 5.2 | 107 | 3.50 | | 2.35 |
| 16 | | 6.3 | | 5.0 | 107 | 3.40 | | 2.40 |
| 17 | | 6.4 | | 5.0 | 109 | 3.10 | | 2.50 |
| 18 | | 6.4 | | 4.7 | 111 | 2.95 | | 2.55 |
| 19 | | 6.4 | | --- | 112 | 2.70 | 3.0 | 2.60 |
| 20 | | 6.2 | | --- | 125 | (2.25) | 3.0 | 2.70 |
| 21 | | 6.2 | | | --- | ---- | 2.1 | 2.70 |
| 22 | | 5.6 | | | --- | ---- | 2.6 | 2.60 |
| 23 | | 5.3 | | | | | 2.2 | 2.55 |

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Adak, Alaska (51.9°N, 176.6°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (7.1) | 315 | | | | | (2.50) |
| 01 | | (6.8) | 330 | | | | 1.8 | (2.45) |
| 02 | | (6.2) | 330 | | | | | (2.40) |
| 03 | --- | (5.8) | 355 | | --- | ---- | 1.6 | 2.40 |
| 04 | 450 | 6.3 | 300 | 3.3 | 119 | ---- | 2.2 | 2.35 |
| 05 | 465 | 7.0 | 280 | 4.0 | 121 | ---- | 2.9 | 2.30 |
| 06 | 460 | 7.5 | 260 | 4.5 | 117 | ---- | 3.6 | 2.35 |
| 07 | 430 | 8.0 | 250 | 5.0 | 111 | (3.30) | 3.9 | 2.35 |
| 00 | 420 | 0.0 | <240 | 5.0 | 109 | (3.55) | 4.6 | 2.40 |
| 09 | 435 | 8.0 | 230 | 5.4 | 108 | (3.70) | 5.4 | 2.45 |
| 10 | 470 | 7.8 | 220 | 5.5 | 109 | (3.80) | 5.2 | 2.40 |
| 11 | 470 | 7.8 | 220 | 5.4 | 108 | (3.90) | 4.7 | 2.45 |
| 12 | 470 | 7.4 | 220 | 5.5 | 109 | (3.90) | 5.0 | 2.45 |
| 13 | 505 | 7.0 | 225 | 5.4 | 110 | (3.90) | 4.4 | 2.40 |
| 14 | 515 | 6.8 | 230 | 5.4 | 109 | (3.85) | 4.2 | 2.40 |
| 15 | 500 | 6.8 | 240 | 5.4 | 109 | (3.70) | 4.0 | 2.40 |
| 16 | 470 | 6.8 | 245 | 5.1 | 111 | 3.50 | 3.7 | 2.45 |
| 17 | 455 | 6.8 | 245 | 4.9 | 111 | (3.20) | 3.8 | 2.55 |
| 18 | --- | 6.8 | 260 | --- | 113 | (2.80) | 3.6 | 2.60 |
| 19 | --- | 7.2 | 280 | | 119 | (2.35) | 3.6 | 2.70 |
| 20 | | 7.1 | 300 | | --- | ---- | 3.2 | 2.70 |
| 21 | | 7.2 | 290 | | --- | ---- | 3.0 | 2.60 |
| 22 | | 7.4 | 300 | | --- | ---- | (3.2) | 2.55 |
| 23 | | (7.4) | 300 | | --- | ---- | 2.2 | (2.50) |

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 12

San Francisco, California (37.4°N, 122.2°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.4 | 325 | | | | (3.4) | 2.40 |
| 01 | | 6.3 | <325 | | | | (3.0) | 2.50 |
| 02 | | 6.0 | <320 | | | | (3.0) | 2.40 |
| 03 | | 5.6 | 315 | | | | (2.8) | 2.40 |
| 04 | | 5.4 | 310 | | | | (3.0) | 2.45 |
| 05 | --- | 5.6 | 300 | --- | --- | ---- | 2.4 | 2.60 |
| 06 | --- | 6.6 | 255 | --- | 109 | (2.55) | 3.0 | 2.50 |
| 07 | 495 | 7.1 | 240 | 4.5 | 109 | (3.15) | 3.7 | 2.40 |
| 00 | 425 | 8.2 | 230 | 4.9 | 105 | (3.50) | 4.0 | 2.50 |
| 09 | 430 | 8.1 | 220 | 5.4 | 109 | (3.70) | 4.5 | 2.40 |
| 10 | 450 | 8.5 | 205 | 5.4 | 105 | (3.90) | 4.6 | 2.40 |
| 11 | 475 | 8.6 | 210 | 5.6 | 101 | (4.00) | 4.5 | 2.40 |
| 12 | 445 | 9.4 | 210 | 5.4 | 106 | >3.90 | 4.6 | 2.40 |
| 13 | 420 | 9.2 | 215 | 5.4 | 109 | (4.00) | 4.6 | 2.40 |
| 14 | 415 | 9.0 | <230 | 5.4 | 109 | (4.00) | 4.3 | 2.45 |
| 15 | 405 | 8.8 | 230 | 5.4 | 102 | (3.80) | 4.1 | 2.50 |
| 16 | 390 | 8.4 | 235 | 5.1 | 109 | (3.65) | 3.9 | 2.55 |
| 17 | 410 | 8.2 | 240 | 4.9 | 109 | 3.35 | 3.5 | 2.60 |
| 18 | --- | 7.8 | 250 | | 109 | (2.80) | 3.2 | 2.65 |
| 19 | | 7.6 | 275 | | --- | ---- | (3.0) | 2.75 |
| 20 | | 7.4 | 260 | | | | (3.0) | 2.65 |
| 21 | | 7.0 | 280 | | | | (2.8) | 2.55 |
| 22 | | 6.7 | 300 | | | | (3.1) | 2.50 |
| 23 | | 6.4 | 300 | | | | (3.3) | 2.50 |

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

White Sands, New Mexico (32.3°N, 106.5°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.8 | <330 | | | | (3.4) | 2.50 |
| 01 | | 6.7 | <320 | | | | 3.0 | 2.55 |
| 02 | | 6.4 | <290 | | | | 2.6 | 2.60 |
| 03 | | 6.0 | <285 | | | | 2.7 | 2.55 |
| 04 | | 5.8 | <290 | | | | 2.7 | 2.55 |
| 05 | | 5.9 | <300 | | --- | ---- | 2.2 | 2.60 |
| 06 | (450) | 7.0 | 250 | --- | 113 | 2.60 | 2.8 | 2.70 |
| 07 | (455) | 8.1 | 235 | 4.5 | 109 | 3.10 | 3.6 | 2.65 |
| 08 | (450) | 8.9 | 230 | 4.8 | 107 | 3.55 | 4.4 | 2.60 |
| 09 | 465 | 9.5 | 220 | 5.2 | 107 | 3.80 | 4.2 | 2.50 |
| 10 | 430 | 9.3 | 210 | 5.4 | 107 | 4.00 | 4.6 | 2.45 |
| 11 | 435 | 9.7 | 215 | 5.9 | 107 | 4.10 | 5.2 | 2.50 |
| 12 | 430 | 10.1 | 210 | 5.9 | 107 | (4.20) | 4.6 | 2.45 |
| 13 | 425 | 10.0 | 215 | 5.9 | 109 | (4.20) | 4.7 | 2.45 |
| 14 | 420 | 9.8 | 220 | 5.7 | 107 | 4.10 | 4.4 | 2.50 |
| 15 | 405 | 9.2 | <230 | 5.5 | 108 | 4.00 | 4.2 | 2.50 |
| 16 | 400 | 9.0 | 235 | 5.2 | 109 | 3.65 | 4.1 | 2.55 |
| 17 | 400 | 8.8 | 240 | --- | 109 | 3.30 | 3.7 | 2.65 |
| 18 | --- | 8.2 | 250 | | 111 | 2.75 | 3.2 | 2.70 |
| 19 | | 8.1 | 270 | | --- | ---- | 2.8 | 2.75 |
| 20 | | 7.8 | <260 | | | | (3.6) | 2.70 |
| 21 | | 7.4 | <280 | | | | (3.2) | 2.60 |
| 22 | | 7.0 | <310 | | | | (3.9) | 2.55 |
| 23 | | 7.0 | <330 | | | | (4.6) | 2.50 |

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Formosa, China (25.0°N, 121.5°E) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 13.0 | 300 | | | | 4.2 | 2.65 |
| 01 | | (11.8) | 280 | | | | 4.1 | (2.7) |
| 02 | | 10.2 | 260 | | | | 3.4 | 2.8 |
| 03 | | 9.1 | 260 | | | | 2.5 | 2.7 |
| 04 | | 8.5 | 270 | | | | 2.7 | 2.6 |
| 05 | | 8.1 | 270 | | | --- | 2.5 | 2.6 |
| 06 | | 8.8 | 240 | | | --- | 3.5 | 3.0 |
| 07 | | 9.3 | 230 | | | 3.2 | 4.9 | 2.9 |
| 08 | | 9.5 | 230 | | | (3.0) | 5.8 | 2.7 |
| 09 | --- | 10.3 | 220 | --- | | (4.0) | 6.2 | 2.5 |
| 10 | (400) | 11.1 | 220 | (6.7) | | --- | 6.2 | 2.4 |
| 11 | 420 | 12.2 | 230 | 6.5 | | --- | 5.4 | 2.5 |
| 12 | 410 | 13.1 | (230) | 6.4 | | --- | <5.5 | 2.5 |
| 13 | 400 | 14.0 | (220) | 6.4 | | --- | 5.1 | 2.5 |
| 14 | 400 | 14.4 | 220 | 6.3 | | (4.4) | <5.2 | 2.5 |
| 15 | 390 | 15.1 | 220 | 6.1 | | (4.2) | <4.8 | 2.5 |
| 16 | 360 | 15.5 | 230 | (5.9) | | (3.8) | 4.4 | 2.6 |
| 17 | 350 | 15.0 | 240 | --- | | 3.3 | 4.2 | 2.6 |
| 18 | --- | 14.2 | 260 | | | --- | 4.0 | 2.6 |
| 19 | | 13.8 | 280 | | | | 3.4 | 2.5 |
| 20 | | 13.6 | 310 | | | | 3.0 | 2.5 |
| 21 | | 13.6 | 320 | | | | 2.6 | 2.4 |
| 22 | | 13.2 | 320 | | | | 3.0 | 2.4 |
| 23 | | 13.2 | 320 | | | | 4.0 | 2.5 |

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

Table 15

Panama Canal Zone (9.4°N, 79.9°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 9.6 | 270 | | | | | 2.70 |
| 01 | | 9.0 | 270 | | | | | 2.70 |
| 02 | | 8.7 | 270 | | | | (4.3) | 2.70 |
| 03 | | 8.2 | 260 | | | | | 2.70 |
| 04 | | 7.8 | 260 | | | | (4.6) | 2.75 |
| 05 | | 7.2 | 260 | | | | (3.4) | 2.80 |
| 06 | | 7.0 | 280 | | --- | ---- | (4.0) | 2.80 |
| 07 | | 7.7 | 250 | | 111 | 2.70 | (3.2) | 2.95 |
| 08 | --- | 8.5 | 230 | | 109 | 3.30 | (3.9) | 2.70 |
| 09 | --- | 9.2 | 225 | --- | 109 | 3.80 | (4.5) | 2.40 |
| 10 | --- | 10.4 | 215 | --- | 109 | 4.00 | (4.5) | 2.30 |
| 11 | 440 | 11.2 | 220 | --- | 111 | 4.20 | | 2.35 |
| 12 | 415 | 11.8 | 220 | 6.1 | 109 | 4.25 | 4.8 | 2.40 |
| 13 | 425 | 12.2 | 215 | 6.0 | 109 | 4.25 | 4.7 | 2.40 |
| 14 | 420 | 12.4 | 220 | 5.8 | 109 | 4.20 | 4.5 | 2.40 |
| 15 | 415 | 12.4 | 225 | 5.8 | 109 | 4.00 | 4.6 | 2.45 |
| 16 | 405 | 11.9 | 230 | 5.8 | 110 | 3.65 | 4.2 | 2.50 |
| 17 | (400) | 11.6 | 240 | | 110 | 3.10 | (4.0) | 2.50 |
| 18 | | 11.0 | 270 | | 119 | (2.50) | (3.6) | 2.55 |
| 19 | | 10.1 | 290 | | | | (2.8) | 2.55 |
| 20 | | 9.7 | 310 | | | | (2.6) | 2.50 |
| 21 | | 10.0 | 315 | | | | (2.6) | 2.50 |
| 22 | | 10.0 | 305 | | | | (3.0) | 2.55 |
| 23 | | 10.0 | 295 | | | | | 2.70 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Huancayo, Peru (12.0°S, 75.3°W) June 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 8.4 | 230 | | | | | 2.90 |
| 01 | | 8.2 | 230 | | | | | 3.05 |
| 02 | | 7.7 | 230 | | | | | 3.05 |
| 03 | | 6.8 | 230 | | | | | 3.05 |
| 04 | | 5.6 | 230 | | | | | 3.10 |
| 05 | | 4.9 | <250 | | | | | 3.05 |
| 06 | | 5.5 | 275 | | | | | 2.80 |
| 07 | | 8.3 | 260 | | 120 | 2.50 | (5.5) | 2.85 |
| 08 | | 10.5 | 240 | | 109 | 3.20 | (6.9) | 2.80 |
| 09 | | 11.2 | 230 | | --- | ---- | (7.8) | 2.55 |
| 10 | | 11.3 | 220 | | --- | ---- | (8.6) | 2.40 |
| 11 | | 11.1 | 210 | | --- | ---- | (9.0) | 2.30 |
| 12 | --- | 10.8 | 210 | --- | --- | ---- | (8.6) | 2.25 |
| 13 | --- | 10.8 | 210 | --- | --- | ---- | (8.6) | 2.20 |
| 14 | --- | >10.4 | 210 | --- | --- | ---- | (8.6) | 2.15 |
| 15 | --- | 10.2 | 220 | --- | --- | ---- | (8.6) | (2.15) |
| 16 | | >9.8 | 240 | | --- | ---- | >8.0 | 2.25 |
| 17 | | 9.6 | 270 | | --- | ---- | >5.9 | 2.30 |
| 18 | | >9.0 | 310 | | --- | ---- | >4.2 | 2.25 |
| 19 | | 8.9 | 345 | | | | | 2.25 |
| 20 | | 8.8 | 310 | | | | (2.8) | 2.35 |
| 21 | | >8.8 | 260 | | | | >3.0 | 2.50 |
| 22 | | 8.1 | <240 | | | | >3.8 | 2.60 |
| 23 | | 8.4 | 235 | | | | | 2.80 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Resolute Bay, Canada (74.7°N, 94.9°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (350) | 6.1 | 270 | --- | 105 | 2.1 | | (2.7) |
| 01 | (410) | 5.9 | 270 | --- | 105 | 2.1 | | --- |
| 02 | (380) | 5.8 | 270 | 3.6 | 105 | 2.2 | | (2.8) |
| 03 | 400 | 5.7 | 260 | 3.9 | 100 | 2.3 | | (2.7) |
| 04 | 350 | 5.8 | 250 | 3.9 | 100 | 2.5 | | (2.7) |
| 05 | 380 | 5.8 | 250 | 4.2 | 100 | 2.8 | | 2.7 |
| 06 | 440 | 5.7 | 240 | 4.3 | 100 | 2.9 | | (2.6) |
| 07 | 470 | 5.4 | 230 | 4.4 | 100 | 3.0 | | (2.3) |
| 08 | 540 | 5.4 | 220 | 4.6 | 100 | 3.2 | | (2.45) |
| 09 | 480 | 5.5 | 230 | 4.6 | 100 | 3.3 | | (2.5) |
| 10 | 520 | 5.7 | 220 | 4.7 | 100 | 3.5 | | (2.3) |
| 11 | 500 | 5.9 | 220 | 4.8 | 100 | 3.4 | | --- |
| 12 | 520 | 5.8 | 220 | 4.7 | 100 | 3.5 | | --- |
| 13 | 500 | 5.8 | 230 | 4.7 | 100 | 3.5 | | (2.3) |
| 14 | 520 | 5.6 | 230 | 4.7 | 100 | 3.5 | | G |
| 15 | 480 | 5.9 | 230 | 4.8 | 100 | 3.4 | | --- |
| 16 | 460 | 6.0 | 230 | 4.8 | 100 | 3.2 | | --- |
| 17 | 450 | 6.4 | 230 | 4.6 | 100 | 3.0 | | (2.4) |
| 18 | 440 | 6.2 | 240 | 4.4 | 100 | 3.0 | | (2.5) |
| 19 | 410 | 6.0 | 250 | 4.2 | 100 | 2.8 | | (2.6) |
| 20 | 380 | 6.1 | 270 | 4.0 | 100 | 2.7 | | --- |
| 21 | 360 | 6.0 | 260 | 4.0 | 105 | 2.5 | | (2.65) |
| 22 | 320 | 6.1 | 270 | 3.8 | 105 | 2.3 | | (2.5) |
| 23 | (320) | 6.1 | 270 | --- | 105 | 2.1 | | (2.6) |

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 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.9 | (345) | | --- | ---- | (3.3) | 2.35 |
| 01 | --- | 5.8 | (365) | | --- | 2.40 | (3.3) | 2.30 |
| 02 | --- | 5.6 | (315) | ---- | --- | ---- | (3.3) | 2.30 |
| 03 | --- | 5.9 | (300) | ---- | --- | 2.30 | (3.6) | 2.40 |
| 04 | (445) | 6.0 | 255 | 4.00 | 110 | 2.55 | (3.8) | 2.40 |
| 05 | (440) | 6.4 | 255 | 4.40 | 110 | 2.80 | 3.2 | 2.55 |
| 06 | (445) | 6.6 | 250 | 4.60 | 110 | 3.00 | | 2.50 |
| 07 | 460 | 6.6 | 245 | 4.80 | 105 | 3.15 | | 2.50 |
| 08 | 445 | 6.9 | 245 | 5.00 | 105 | 3.30 | | 2.50 |
| 09 | 460 | 7.0 | 240 | 5.20 | 110 | 3.40 | | 2.45 |
| 10 | 460 | 7.0 | 240 | 5.30 | 105 | 3.50 | | 2.40 |
| 11 | 470 | 7.0 | 235 | 5.30 | 105 | 3.55 | | 2.40 |
| 12 | 475 | 7.1 | 240 | 5.30 | 105 | 3.55 | | 2.45 |
| 13 | 460 | 7.0 | 235 | 5.20 | 105 | 3.60 | | 2.50 |
| 14 | 445 | 6.9 | 240 | 5.10 | 110 | 3.50 | | 2.55 |
| 15 | 460 | 6.8 | 245 | 5.20 | 105 | 3.40 | | 2.55 |
| 16 | (460) | 6.8 | 245 | 5.00 | 110 | 3.30 | | 2.55 |
| 17 | --- | 6.7 | 250 | ---- | 110 | 3.05 | | 2.60 |
| 18 | --- | 6.8 | 260 | ---- | 115 | 2.85 | | 2.70 |
| 19 | --- | 6.8 | 290 | ---- | 110 | 2.90 | 2.9 | 2.70 |
| 20 | --- | 6.5 | 295 | ---- | 120 | 2.75 | | 2.60 |
| 21 | --- | 6.4 | 330 | | 135 | 2.85 | | 2.55 |
| 22 | | 6.3 | 345 | | 145 | 2.55 | | 2.55 |
| 23 | | 6.0 | (325) | | --- | ---- | (3.6) | 2.45 |

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 19

Kiruna, Sweden (67.8°N, 20.3°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | 370 | | --- | --- | (3.8) | 2.5 |
| 01 | | 6.0 | 345 | | --- | --- | (4.3) | 2.5 |
| 02 | --- | 6.0 | 350 | --- | --- | --- | (3.8) | 2.5 |
| 03 | --- | 6.0 | 290 | 3.6 | --- | 2.1 | (2.6) | 2.6 |
| 04 | --- | 6.0 | 265 | 4.0 | 110 | 2.3 | | 2.6 |
| 05 | 430 | 6.1 | 250 | 4.2 | 105 | 2.6 | | 2.6 |
| 06 | 430 | 6.5 | 245 | 4.5 | 105 | 3.0 | | 2.6 |
| 07 | 440 | 6.6 | 240 | 4.8 | 105 | 3.1 | | 2.6 |
| 08 | 460 | 6.8 | 240 | 5.0 | 105 | 3.2 | | 2.6 |
| 09 | 460 | 6.9 | 235 | 5.2 | 105 | 3.4 | | 2.5 |
| 10 | 460 | 7.0 | 235 | 5.2 | 105 | 3.5 | | 2.5 |
| 11 | 475 | 7.0 | 225 | 5.3 | 105 | 3.5 | | 2.5 |
| 12 | 470 | 7.0 | 230 | 5.4 | 105 | 3.5 | | 2.5 |
| 13 | 460 | 7.0 | 230 | 5.3 | 105 | 3.5 | | 2.6 |
| 14 | 440 | 7.0 | 230 | 5.2 | 105 | 3.4 | | 2.6 |
| 15 | (450) | 6.7 | 230 | 5.0 | 110 | 3.2 | | 2.6 |
| 16 | (410) | 6.9 | 240 | 4.9 | 105 | 3.0 | | 2.65 |
| 17 | --- | 6.8 | 250 | 4.5 | 105 | 2.9 | | 2.7 |
| 18 | --- | 6.6 | 255 | --- | 110 | 2.6 | | 2.7 |
| 19 | | 6.7 | 260 | --- | 110 | 2.2 | 3.1 | 2.8 |
| 20 | | 6.3 | 290 | | --- | 2.0 | 2.9 | 2.7 |
| 21 | | 6.4 | 310 | | --- | 1.8 | (2.4) | 2.7 |
| 22 | | 6.1 | 320 | | --- | --- | (2.8) | 2.6 |
| 23 | | 6.0 | 340 | | | | (3.6) | 2.6 |

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 20

Lycksele, Sweden (64.6°N, 18.8°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.1 | 335 | | | | 2.5 | 2.5 |
| 01 | --- | 6.2 | 335 | | --- | E | 2.7 | 2.5 |
| 02 | --- | 6.1 | 325 | ---- | --- | E | 2.5 | 2.5 |
| 03 | 340 | 6.0 | 290 | 3.25 | 115 | 1.80 | 2.3 | 2.6 |
| 04 | 325 | 6.1 | 260 | 3.70 | 110 | 2.15 | | 2.7 |
| 05 | 335 | 6.6 | 250 | 4.15 | 105 | 2.50 | | 2.7 |
| 06 | 380 | 6.8 | 240 | 4.75 | 105 | 2.80 | | 2.6 |
| 07 | 410 | 7.0 | 230 | 4.90 | 105 | 3.10 | | 2.6 |
| 08 | 420 | 7.0 | 230 | 5.15 | 105 | 3.25 | 3.9 | 2.6 |
| 09 | 420 | 7.3 | 230 | 5.30 | 105 | 3.35 | 3.9 | 2.6 |
| 10 | 420 | 7.2 | 220 | 5.35 | 100 | 3.45 | 4.0 | 2.6 |
| 11 | 440 | 7.3 | 220 | 5.50 | 100 | 3.50 | | 2.6 |
| 12 | 445 | 7.4 | 215 | 5.50 | 105 | 3.60 | 3.8 | 2.6 |
| 13 | 440 | 7.5 | 215 | 5.45 | 105 | 3.55 | | 2.6 |
| 14 | 425 | 7.4 | 220 | 5.45 | 105 | 3.50 | | 2.7 |
| 15 | 390 | 7.2 | 225 | 5.40 | 105 | 3.40 | | 2.7 |
| 16 | 380 | 7.2 | 230 | 5.10 | 105 | 3.20 | 3.2 | 2.7 |
| 17 | 360 | 7.3 | 240 | 5.00 | 105 | 3.00 | 3.8 | 2.8 |
| 18 | 300 | 7.2 | 250 | 4.25 | 105 | 2.65 | 3.6 | 2.8 |
| 19 | 290 | 7.1 | 260 | (3.90) | 110 | 2.30 | 3.1 | 2.8 |
| 20 | --- | 7.0 | 265 | ---- | 130 | 1.75 | 2.8 | 2.8 |
| 21 | --- | 7.1 | 275 | | --- | E | 2.1 | 2.7 |
| 22 | | 7.0 | 285 | | --- | E | 2.1 | 2.7 |
| 23 | | 6.7 | 305 | | | | | 2.6 |

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

Table 21

Baker Lake, Canada (64.3°N, 96.0°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | 280 | | 120 | 1.3 | 3.8 | |
| 01 | | 5.9 | 270 | | 130 | 1.3 | 4.2 | |
| 02 | | 5.7 | 290 | | 120 | 1.5 | 3.8 | |
| 03 | | 5.6 | 280 | | 110 | 1.8 | 2.8 | --- |
| 04 | --- | 5.4 | 280 | --- | 110 | 2.0 | 2.3 | --- |
| 05 | (360) | 5.3 | 250 | 4.0 | 110 | 2.4 | | --- |
| 06 | 410 | 5.4 | 230 | 4.3 | 110 | 2.8 | 5.0 | --- |
| 07 | 450 | 5.7 | 220 | 4.6 | 105 | 3.1 | 5.3 | --- |
| 08 | 500 | 5.6 | 210 | 4.8 | 100 | 3.3 | 4.3 | --- |
| 09 | 490 | 5.8 | 210 | 4.8 | 100 | 3.5 | 5.4 | --- |
| 10 | 500 | 6.2 | 220 | 5.0 | 100 | 3.7 | 6.0 | (2.6) |
| 11 | 500 | 6.4 | 230 | 5.0 | 100 | 3.9 | 5.6 | (2.7) |
| 12 | 480 | 6.7 | 220 | 5.2 | 100 | 3.8 | | 2.6 |
| 13 | 470 | 7.2 | 220 | 5.3 | 100 | 3.8 | 5.0 | 2.6 |
| 14 | 450 | 7.3 | 220 | 5.1 | 100 | 3.7 | | (2.6) |
| 15 | 440 | 7.0 | 220 | 5.0 | 100 | 3.7 | | (2.6) |
| 16 | 420 | 7.0 | 220 | 5.0 | 100 | 3.5 | | (2.65) |
| 17 | 400 | 7.0 | 230 | 4.8 | 105 | 3.3 | | --- |
| 18 | 400 | 6.7 | 230 | 4.6 | 105 | 3.0 | | --- |
| 19 | (400) | 6.8 | 250 | 4.2 | 110 | 2.6 | 4.2 | |
| 20 | --- | 6.0 | 260 | --- | 115 | 2.3 | 5.1 | |
| 21 | --- | 6.0 | 280 | --- | 120 | 2.0 | 5.0 | --- |
| 22 | --- | 6.0 | 290 | --- | 115 | 1.8 | 5.2 | --- |
| 23 | | 6.0 | 270 | | 140 | 1.5 | 4.0 | |

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 22

Churchill, Canada (58.8°N, 94.2°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.5 | 300 | | 130 | (1.5) | 5.0 | --- |
| 01 | | 5.8 | 300 | | 110 | E | 5.0 | --- |
| 02 | | 5.5 | 300 | | 120 | 1.2 | 5.0 | --- |
| 03 | | 5.0 | 300 | | 130 | 1.4 | 5.0 | |
| 04 | --- | 5.2 | 320 | --- | 120 | 2.0 | 5.0 | --- |
| 05 | (400) | 5.2 | 300 | 4.0 | 120 | 2.8 | 4.6 | --- |
| 06 | 450 | 5.4 | 280 | 4.2 | 110 | 3.1 | 4.6 | (2.5) |
| 07 | 500 | 5.8 | 260 | 4.6 | 105 | 3.5 | | 2.5 |
| 08 | 500 | 6.0 | 240 | 5.0 | 100 | 3.7 | 4.1 | 2.5 |
| 09 | 500 | 6.4 | 240 | 5.0 | 100 | 3.7 | | 2.4 |
| 10 | 500 | 6.6 | 230 | 5.1 | 100 | 3.8 | | 2.4 |
| 11 | 500 | 6.8 | 230 | 5.2 | 100 | 3.9 | | 2.4 |
| 12 | 490 | 7.0 | 230 | 5.3 | 100 | 3.9 | | 2.4 |
| 13 | 480 | 7.2 | 230 | 5.3 | 100 | 3.9 | | 2.4 |
| 14 | 460 | 7.5 | 230 | 5.3 | 100 | 3.8 | | 2.5 |
| 15 | 450 | 7.3 | 230 | 5.1 | 100 | 3.6 | | 2.4 |
| 16 | 420 | 7.2 | 240 | 5.0 | 105 | 3.5 | 3.2 | 2.5 |
| 17 | 400 | 7.0 | 250 | 4.7 | 105 | 3.3 | | 2.5 |
| 18 | 400 | 6.7 | 270 | 4.4 | 110 | 3.2 | | 2.6 |
| 19 | 380 | 6.3 | 290 | 4.0 | 110 | 3.0 | 3.2 | (2.7) |
| 20 | --- | 5.9 | 330 | --- | 120 | 2.9 | 3.0 | (2.6) |
| 21 | | 6.1 | 310 | | 120 | 2.4 | 5.0 | --- |
| 22 | | 6.0 | 310 | | 125 | 1.9 | 6.0 | |
| 23 | | 5.5 | 300 | | 120 | 2.0 | 7.0 | |

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 23

Winnipeg, Canada (49.9°N, 97.4°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 4.9 | 330 | | | | 3.5 | (2.7) |
| 01 | | 4.8 | 340 | | | | 3.4 | 2.55 |
| 02 | | 4.8 | 380 | | | | 3.7 | 2.6 |
| 03 | | 4.9 | 340 | | | | 3.3 | 2.5 |
| 04 | | 4.7 | 330 | | --- | --- | 3.5 | 2.6 |
| 05 | --- | 5.0 | 300 | --- | 120 | 1.9 | 3.2 | 2.7 |
| 06 | 370 | 5.5 | 250 | 4.0 | 110 | 2.5 | | 2.7 |
| 07 | 420 | 6.0 | 230 | 4.5 | 105 | 3.0 | | 2.6 |
| 08 | 480 | 6.1 | 220 | 4.9 | 105 | 3.3 | | 2.5 |
| 09 | 500 | 6.2 | 210 | 5.0 | 100 | 3.6 | | 2.5 |
| 10 | 500 | 6.4 | 210 | 5.1 | 100 | 3.8 | | 2.5 |
| 11 | 510 | 6.8 | 200 | 5.2 | 100 | 3.9 | | 2.4 |
| 12 | 520 | 6.9 | 210 | 5.2 | 100 | 4.0 | | 2.4 |
| 13 | 530 | 6.9 | 220 | 5.3 | 100 | 4.0 | | 2.4 |
| 14 | 500 | 6.9 | 220 | 5.2 | 100 | 3.9 | | 2.4 |
| 15 | 490 | 6.8 | 220 | 5.2 | 100 | 3.9 | | 2.5 |
| 16 | 480 | 6.9 | 220 | 5.0 | 105 | 3.6 | | 2.5 |
| 17 | 400 | 7.0 | 240 | 5.0 | 105 | 3.2 | | 2.5 |
| 18 | 380 | 7.0 | 250 | 4.8 | 110 | 2.9 | | 2.6 |
| 19 | 310 | 7.1 | 270 | | 110 | 2.5 | 2.6 | 2.7 |
| 20 | | 7.0 | 280 | | 120 | 1.8 | 2.6 | 2.7 |
| 21 | | 7.0 | 280 | | | | 2.4 | 2.8 |
| 22 | | 6.4 | 280 | | | | 4.0 | 2.7 |
| 23 | | 5.4 | 290 | | | | 2.6 | 2.7 |

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

Table 24

Schwarzenburg, Switzerland (46.8°N, 7.3°E) May 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 7.9 | | | | | | 2.8 |
| 01 | 300 | 7.6 | | | | | | 2.85 |
| 02 | 300 | 7.3 | | | | | | 2.8 |
| 03 | 300 | 7.0 | | | | | | 2.8 |
| 04 | 290 | 6.8 | | | | | | 2.9 |
| 05 | 270 | 7.0 | | | --- | --- | | 3.1 |
| 06 | 230 | 7.8 | --- | --- | 100 | 2.4 | | 3.2 |
| 07 | 230 | 8.3 | 210 | 5.2 | 100 | 3.0 | 3.8 | 3.3 |
| 08 | 280 | 8.4 | 210 | 5.2 | 100 | 3.3 | 4.6 | 3.2 |
| 09 | 300 | 8.8 | 200 | 5.8 | 100 | 3.6 | 4.6 | 3.25 |
| 10 | 310 | 9.1 | 200 | 6.2 | 100 | 3.8 | 4.6 | 3.0 |
| 11 | 350 | 9.0 | 200 | 6.1 | 100 | 3.8 | | 2.95 |
| 12 | 350 | 9.5 | 200 | 6.2 | 100 | 3.9 | | 3.0 |
| 13 | 360 | 9.4 | 200 | 6.3 | 100 | 4.0 | | 2.9 |
| 14 | 360 | 9.2 | 200 | 6.1 | --- | --- | | 3.0 |
| 15 | 330 | 9.2 | 200 | 6.1 | 100 | 3.7 | | 3.0 |
| 16 | 310 | 9.2 | 200 | 6.0 | 100 | 3.5 | | 3.0 |
| 17 | 300 | 9.0 | 220 | 5.6 | 100 | 3.3 | 3.8 | 3.1 |
| 18 | 280 | 8.6 | 220 | 5.2 | 100 | 2.8 | 4.3 | 3.2 |
| 19 | (270) | (8.4) | --- | --- | --- | --- | 3.2 | --- |
| 20 | 250 | 8.0 | | | | | 2.8 | (3.2) |
| 21 | 240 | 8.2 | | | | | | 3.15 |
| 22 | 270 | 8.0 | | | | | | 3.1 |
| 23 | 280 | 8.0 | | | | | | 2.9 |

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

Table 25

Ottawa, Canada (45.4°N, 75.9°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.9 | 300 | | | | <1.6 | 2.5 |
| 01 | | 5.1 | 320 | | | | <1.5 | 2.4 |
| 02 | | 4.9 | 320 | | | | <1.5 | 2.5 |
| 03 | | 4.7 | 310 | | | | <1.5 | 2.5 |
| 04 | | 4.6 | 300 | | | | <1.5 | 2.6 |
| 05 | --- | 5.2 | 270 | | 120 | 2.0 | 2.0 | 2.8 |
| 06 | 340 | 5.8 | 250 | --- | 110 | 2.7 | | 2.7 |
| 07 | 380 | 6.1 | 230 | 4.9 | 105 | 3.1 | | 2.6 |
| 08 | 420 | 6.4 | 220 | 5.0 | 105 | 3.4 | | 2.6 |
| 09 | 470 | 6.7 | 210 | 5.3 | 105 | 3.8 | | 2.5 |
| 10 | 460 | 7.0 | 210 | 5.4 | 105 | 4.0 | | 2.5 |
| 11 | 470 | 7.2 | 200 | 5.6 | 105 | 4.0 | | 2.5 |
| 12 | 470 | 7.1 | 210 | 5.7 | 105 | 4.0 | | 2.5 |
| 13 | 480 | 7.4 | 220 | 5.6 | 105 | 4.0 | | 2.5 |
| 14 | 470 | 7.4 | 220 | 5.7 | 105 | 4.0 | | 2.5 |
| 15 | 450 | 7.5 | 230 | 5.4 | 105 | 3.8 | | 2.5 |
| 16 | 420 | 7.7 | 230 | 5.3 | 105 | 3.6 | | 2.6 |
| 17 | 370 | 7.8 | 240 | 5.0 | 110 | 3.1 | | 2.6 |
| 18 | 320 | 8.0 | 260 | | 110 | 2.7 | | 2.6 |
| 19 | --- | 8.3 | 280 | | 125 | 2.0 | 2.1 | 2.6 |
| 20 | | 8.2 | 270 | | | | <1.6 | 2.6 |
| 21 | | 7.6 | 270 | | | | <1.5 | 2.6 |
| 22 | | 7.0 | 280 | | | | <1.5 | 2.6 |
| 23 | | 6.5 | 290 | | | | <1.5 | 2.5 |

Time: 75.0°W.
Sweep: 1.0 Mc to 20.0 Mc in 15 seconds.

Table 26

Wakkanai, Japan (45.4°N, 141.7°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 8.5 | 290 | | | | 2.1 | 2.60 |
| 01 | | 8.2 | 280 | | | | 1.6 | 2.60 |
| 02 | | 7.8 | 280 | | | | | 2.60 |
| 03 | | 7.5 | 280 | | | | | 2.55 |
| 04 | --- | 7.6 | 295 | | | | | 2.60 |
| 05 | --- | 8.0 | 255 | | | | 2.3 | 2.70 |
| 06 | (350) | 8.3 | 240 | | | | 3.4 | 2.65 |
| 07 | 340 | 8.8 | 240 | | | | 3.5 | 2.70 |
| 08 | 375 | 8.6 | 250 | | | | 4.1 | 2.70 |
| 09 | 415 | 8.9 | 250 | | | | 4.2 | 2.60 |
| 10 | 400 | 9.0 | 250 | | | | 4.2 | 2.60 |
| 11 | 390 | 9.2 | 240 | | | | 4.0 | 2.60 |
| 12 | 400 | 9.6 | 250 | | | | | 2.60 |
| 13 | 380 | 9.4 | 250 | | | | | 2.60 |
| 14 | 365 | 9.3 | 260 | | | | 3.5 | 2.65 |
| 15 | 350 | 9.0 | 250 | | | | 4.0 | 2.65 |
| 16 | 350 | 8.8 | 245 | | | | 4.0 | 2.75 |
| 17 | (335) | 8.5 | 250 | | | | 3.5 | 2.75 |
| 18 | --- | 8.4 | 260 | | | | (3.6) | 2.75 |
| 19 | | 8.6 | 270 | | | | (3.2) | 2.70 |
| 20 | | 8.5 | 275 | | | | 2.3 | 2.60 |
| 21 | | 8.5 | 290 | | | | 2.3 | 2.55 |
| 22 | | 8.5 | 300 | | | | 2.0 | 2.55 |
| 23 | | 8.7 | 300 | | | | 2.3 | 2.60 |

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 27

Akita, Japan (39.7°N, 140.1°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 9.0 | 300 | | | | (2.8) | 2.60 |
| 01 | | 8.8 | 295 | | | | (1.8) | 2.65 |
| 02 | | 8.2 | 290 | | | | (2.2) | 2.60 |
| 03 | | 7.9 | 290 | | | | (2.3) | 2.60 |
| 04 | | 7.6 | 300 | | | | (2.0) | 2.50 |
| 05 | --- | 8.4 | 255 | | | | (2.5) | 2.75 |
| 06 | (250) | 9.4 | 245 | | | | 3.5 | 2.85 |
| 07 | (250) | 9.8 | 245 | | | | 4.0 | 2.75 |
| 08 | 250 | 9.7 | 245 | | | | 4.4 | 2.70 |
| 09 | 250 | 10.1 | 240 | | | | 4.6 | 2.60 |
| 10 | (250) | 10.5 | 230 | | | | 4.5 | 2.60 |
| 11 | 250 | 10.8 | 230 | | | | 4.4 | 2.60 |
| 12 | (250) | 10.8 | 230 | | | | 4.6 | 2.60 |
| 13 | (255) | 10.6 | 230 | | | | 4.5 | 2.60 |
| 14 | --- | 10.6 | 240 | | | | 4.5 | 2.60 |
| 15 | --- | 10.5 | 245 | | | | 4.3 | 2.65 |
| 16 | (255) | 9.6 | 250 | | | | 4.3 | 2.70 |
| 17 | --- | 9.4 | 260 | | | | (4.0) | 2.70 |
| 18 | --- | 9.5 | 270 | | | | (3.5) | 2.80 |
| 19 | | 9.0 | 280 | | | | (3.0) | 2.70 |
| 20 | | 8.7 | 300 | | | | (2.5) | 2.60 |
| 21 | | 9.0 | 310 | | | | (2.5) | 2.55 |
| 22 | | 9.0 | 320 | | | | (3.0) | 2.55 |
| 23 | | 9.0 | 310 | | | | (2.5) | 2.55 |

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 28

Tokyo, Japan (35.7°N, 139.5°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 9.6 | 305 | | | | 2.4 | 2.60 |
| 01 | | 9.5 | 300 | | | | 2.2 | 2.65 |
| 02 | | 8.9 | 290 | | | | (2.6) | 2.65 |
| 03 | | 8.5 | 290 | | | | (2.2) | 2.55 |
| 04 | | 8.0 | 305 | | | | 2.4 | 2.50 |
| 05 | | 9.0 | 260 | | | 2.00 | 2.4 | 2.70 |
| 06 | (280) | 9.8 | 250 | --- | | 2.80 | 3.7 | 2.80 |
| 07 | 265 | 10.2 | 250 | --- | | 3.30 | 4.3 | 2.70 |
| 08 | 270 | 10.4 | 240 | --- | | 3.70 | 4.7 | 2.60 |
| 09 | 275 | 10.3 | 240 | --- | | 3.85 | 4.7 | 2.55 |
| 10 | 280 | 11.0 | 240 | --- | | 4.00 | 4.8 | 2.50 |
| 11 | 300 | 11.6 | 230 | --- | | 4.10 | 4.6 | 2.55 |
| 12 | 350 | 12.0 | 250 | 5.8 | | 4.10 | 4.8 | 2.55 |
| 13 | 365 | 12.2 | 245 | 6.0 | | 4.10 | 4.7 | 2.55 |
| 14 | 355 | 12.2 | 245 | 5.8 | | 3.90 | 4.5 | 2.60 |
| 15 | 350 | 11.8 | 250 | 5.7 | | 3.70 | 4.4 | 2.60 |
| 16 | 320 | 11.0 | 255 | --- | | 3.45 | 4.5 | 2.65 |
| 17 | 290 | 10.4 | 260 | | | 2.90 | 4.2 | 2.65 |
| 18 | --- | 10.1 | 280 | | | 2.30 | (3.5) | 2.70 |
| 19 | | 9.8 | 280 | | | | (2.6) | 2.65 |
| 20 | | 9.4 | 305 | | | | (2.9) | 2.50 |
| 21 | | 9.4 | 330 | | | | 3.2 | 2.45 |
| 22 | | 9.6 | 330 | | | | (2.5) | 2.45 |
| 23 | | 9.8 | 320 | | | | (2.5) | 2.55 |

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

Table 29

Yamagawa, Japan (31.2°N, 130.6°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 11.3 | 300 | | | | (2.8) | 2.70 |
| 01 | | 11.0 | 290 | | | | (2.6) | 2.80 |
| 02 | | 10.1 | 255 | | | | (2.6) | 2.80 |
| 03 | | 9.0 | 270 | | | | (2.6) | 2.70 |
| 04 | | 8.4 | 290 | | | | (2.6) | 2.60 |
| 05 | | 8.2 | 295 | | | | (2.3) | 2.60 |
| 06 | | 9.3 | 250 | | | | 2.6 | 2.90 |
| 07 | | 10.0 | 245 | | | | 3.8 | 2.90 |
| 08 | --- | 10.2 | 245 | | | | 4.6 | 2.75 |
| 09 | --- | 10.6 | <245 | | | | 5.3 | 2.60 |
| 10 | (250) | 11.0 | 235 | | | | 5.2 | 2.50 |
| 11 | (250) | 12.1 | 235 | | | | (5.3) | 2.55 |
| 12 | (250) | 12.7 | 240 | | | | 5.2 | 2.55 |
| 13 | --- | 13.0 | 240 | | | | 4.9 | 2.55 |
| 14 | (265) | 13.5 | <250 | | | | 5.1 | 2.60 |
| 15 | (275) | 13.0 | 245 | | | | 5.1 | 2.65 |
| 16 | (285) | 12.6 | 250 | | | | (5.3) | 2.60 |
| 17 | | 11.8 | 250 | | | | (5.6) | 2.65 |
| 18 | | 11.7 | 285 | | | | (5.5) | 2.65 |
| 19 | | 11.3 | 290 | | | | (4.4) | 2.70 |
| 20 | | 10.5 | 300 | | | | (4.2) | 2.60 |
| 21 | | 10.5 | 310 | | | | (3.5) | 2.50 |
| 22 | | 10.9 | 330 | | | | (3.6) | 2.50 |
| 23 | | 11.0 | 320 | | | | (3.0) | 2.60 |

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 30

Formosa, China (25.0°N, 121.5°E) May 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 280 | (15.6) | | | | | 3.1 | 2.8 |
| 01 | 260 | 14.2 | | | | | 3.3 | 2.9 |
| 02 | 240 | 12.4 | | | | | 2.8 | 2.9 |
| 03 | 240 | 11.2 | | | | | 2.8 | 2.8 |
| 04 | 250 | 10.0 | | | | | 2.7 | 2.8 |
| 05 | 260 | 8.9 | | | --- | --- | 2.9 | 2.8 |
| 06 | 240 | 9.5 | | | 140 | 2.2 | 3.5 | 2.9 |
| 07 | 240 | 10.1 | --- | --- | 120 | 3.1 | 4.4 | 2.9 |
| 08 | 230 | 11.0 | 220 | --- | 110 | 3.6 | 5.4 | 2.7 |
| 09 | --- | 11.9 | 220 | --- | 100 | 3.8 | 6.0 | 2.5 |
| 10 | --- | 12.8 | 220 | --- | 100 | 4.0 | 5.8 | 2.5 |
| 11 | (360) | 14.0 | --- | (7.0) | --- | --- | 5.7 | 2.5 |
| 12 | (400) | 15.0 | --- | 6.8 | --- | --- | 5.6 | 2.5 |
| 13 | (410) | 15.7 | --- | (6.6) | --- | --- | | 2.6 |
| 14 | 380 | 16.2 | 220 | (6.6) | --- | --- | 5.2 | 2.6 |
| 15 | 380 | 16.2 | 220 | 6.3 | 100 | 3.9 | 4.5 | 2.6 |
| 16 | --- | 16.6 | 240 | --- | 110 | 3.7 | 4.2 | 2.6 |
| 17 | --- | 16.4 | 240 | --- | --- | --- | 4.1 | 2.6 |
| 18 | 270 | 16.4 | --- | --- | --- | --- | 3.6 | 2.7 |
| 19 | 300 | 16.5 | | | | | 3.1 | 2.6 |
| 20 | 320 | 16.5 | | | | | 2.9 | 2.5 |
| 21 | 320 | 16.3 | | | | | 3.1 | 2.6 |
| 22 | 300 | 16.5 | | | | | 2.7 | 2.6 |
| 23 | 290 | 16.1 | | | | | 2.9 | 2.7 |

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

Table 31

Baguio, P.I. (16.4°N, 120.6°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 13.6 | 265 | | | | | 3.00 |
| 01 | | 11.5 | 240 | | | | | 3.05 |
| 02 | | 9.6 | 230 | | | | | 2.90 |
| 03 | | 8.9 | 245 | | | | 1.4 | 2.75 |
| 04 | | 8.0 | 245 | | | | 1.6 | 2.85 |
| 05 | | 6.9 | 240 | | | | 2.2 | 2.80 |
| 06 | | 8.5 | 275 | | 130 | (2.15) | (4.2) | 2.85 |
| 07 | | 10.0 | 250 | | 119 | (3.00) | (5.4) | 2.80 |
| 08 | | 11.1 | 250 | | 117 | (3.50) | (5.6) | 2.50 |
| 09 | | 11.8 | 240 | | 115 | (3.85) | (6.0) | 2.30 |
| 10 | | 12.4 | 230 | | 117 | 4.00 | 5.0 | 2.20 |
| 11 | | 12.7 | 225 | | 119 | 4.10 | | 2.15 |
| 12 | | 13.0 | 220 | | 117 | (4.15) | | 2.15 |
| 13 | | 13.0 | 220 | | 119 | 4.10 | | 2.10 |
| 14 | | 13.0 | 220 | | 118 | 4.00 | 4.2 | 2.10 |
| 15 | | 12.8 | 230 | | 117 | 3.80 | 4.1 | 2.10 |
| 16 | --- | 13.0 | 245 | | 119 | (3.40) | 4.0 | 2.20 |
| 17 | | 13.0 | 265 | | 119 | (2.80) | (3.9) | 2.25 |
| 18 | | 12.8 | 295 | | 135 | 2.00 | (3.1) | 2.30 |
| 19 | | >12.0 | 375 | | | | 2.0 | 2.20 |
| 20 | | 12.0 | 400 | | | | 2.0 | 2.15 |
| 21 | | 12.2 | 375 | | | | 2.4 | 2.30 |
| 22 | | 12.7 | 325 | | | | | 2.50 |
| 23 | | 13.2 | 300 | | | | | 2.80 |

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 32

Nairobi, Kenya (1.3°S, 36.8°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | ---- | --- | | | | | |
| 01 | | ---- | (220) | | | | | |
| 02 | | >11.6 | (210) | | | | >2.4 | |
| 03 | | >10.8 | 220 | | | | >2.0 | |
| 04 | | >9.2 | 220 | | | | 2.6 | |
| 05 | | >8.0 | 220 | | | | 2.6 | |
| 06 | | >7.0 | 220 | | | | >2.6 | (3.15) |
| 07 | | ---- | (240) | | | | | ---- |
| 08 | (260) | (13.2) | 240 | --- | | 3.1 | 4.1 | (3.1) |
| 09 | 260 | (13.4) | 240 | --- | | --- | | (3.0) |
| 10 | --- | >13.2 | --- | --- | | --- | | 2.8 |
| 11 | --- | >13.8 | --- | --- | | --- | | 2.7 |
| 12 | (410) | 14.4 | --- | --- | | --- | 5.6 | (2.5) |
| 13 | --- | ---- | --- | --- | | --- | | |
| 14 | --- | ---- | --- | --- | | --- | | |
| 15 | (420) | 15.0 | --- | --- | | --- | (5.0) | (2.4) |
| 16 | (410) | >15.1 | 250 | --- | | --- | | 2.3 |
| 17 | --- | >15.0 | 250 | --- | | 3.1 | 3.2 | (2.3) |
| 18 | | ---- | --- | | | | | |
| 19 | | ---- | --- | | | | | |
| 20 | | ---- | --- | | | | | |
| 21 | | ---- | --- | | | | | |
| 22 | | ---- | --- | | | | | |
| 23 | | ---- | --- | | | | | |

Time: 45.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 33

Leopoldville, Belgian Congo (4.4°S, 15.2°E) May 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 215 | 13.4 | | | | | | 2.74 |
| 01 | 220 | 11.0 | | | | | | 2.73 |
| 02 | 230 | 8.1 | | | | | 2.2 | 2.72 |
| 03 | 240 | 6.3 | | | | | 2.2 | 2.58 |
| 04 | 250 | 5.0 | | | | | 2.9 | 2.54 |
| 05 | 270 | 6.6 | | | --- | --- | 2.5 | 2.66 |
| 06 | 255 | 10.4 | 250 | --- | 120 | 2.8 | 3.5 | 2.78 |
| 07 | 270 | 12.9 | 240 | --- | 115 | 3.4 | 4.1 | 2.73 |
| 08 | 290 | 13.6 | 235 | --- | 115 | 3.9 | 4.1 | 2.66 |
| 09 | 320 | 13.6 | 230 | --- | 115 | 4.0 | | 2.50 |
| 10 | 345 | 14.0 | 230 | --- | 115 | 4.1 | | 2.43 |
| 11 | 380 | 14.4 | 220 | --- | 110 | 4.1 | | 2.31 |
| 12 | 385 | 15.0 | 215 | --- | 110 | 4.1 | | 2.26 |
| 13 | 400 | 15.8 | 235 | --- | 115 | 4.0 | | 2.18 |
| 14 | 400 | 15.5 | 245 | --- | 115 | 3.6 | | 2.18 |
| 15 | 380 | 15.8 | 245 | --- | 115 | 3.2 | 3.6 | 2.20 |
| 16 | 340 | 16.0 | 260 | --- | 120 | 2.6 | 3.6 | 2.25 |
| 17 | 300 | 16.1 | 280 | --- | | | 3.4 | 2.34 |
| 18 | 290 | 16.5 | | | | | 2.6 | 2.40 |
| 19 | 295 | 17.0 | | | | | 2.3 | 2.35 |
| 20 | 245 | 17.5 | | | | | | 2.54 |
| 21 | 230 | 18.1 | | | | | | 2.63 |
| 22 | 225 | 18.1 | | | | | | 2.70 |
| 23 | 220 | 16.0 | | | | | | 2.67 |

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 34

Talara, Peru (4.6°S, 81.3°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 10.4 | 230 | | | | | 2.75 |
| 01 | | 10.7 | 240 | | | | | 2.95 |
| 02 | | 10.2 | 240 | | | | | 3.00 |
| 03 | | 9.0 | 230 | | | | | 3.10 |
| 04 | | 7.4 | 230 | | | | | 3.10 |
| 05 | | 5.4 | <235 | | | | | 3.00 |
| 06 | | 5.4 | 255 | | --- | ---- | (1.7) | 2.85 |
| 07 | | 8.1 | 270 | | 128 | 2.30 | | 2.85 |
| 08 | | 10.2 | 245 | | 117 | 3.10 | 3.4 | 2.75 |
| 09 | --- | 11.2 | 235 | | 113 | 3.60 | | 2.50 |
| 10 | --- | 11.2 | 225 | | 111 | 3.90 | | 2.35 |
| 11 | --- | 11.6 | 220 | | 112 | 4.00 | | 2.20 |
| 12 | --- | 11.7 | 215 | | 111 | 4.10 | | 2.15 |
| 13 | --- | 11.8 | 210 | | 113 | 4.05 | 4.2 | 2.20 |
| 14 | --- | 12.1 | 215 | | 113 | 3.95 | | 2.20 |
| 15 | --- | 12.0 | 215 | | 111 | 3.70 | | 2.15 |
| 16 | --- | 11.8 | 230 | | 113 | 3.30 | 3.6 | 2.15 |
| 17 | | 11.5 | 250 | | 121 | 2.85 | 3.2 | 2.15 |
| 18 | | (11.2) | 290 | | --- | ---- | >2.8 | (2.10) |
| 19 | | (10.8) | 380 | | | | >3.1 | (2.10) |
| 20 | | 11.0 | 380 | | | | (2.5) | (2.10) |
| 21 | | (11.6) | <330 | | | | >3.1 | (2.40) |
| 22 | | (11.5) | 270 | | | | >3.1 | (2.60) |
| 23 | | 10.7 | 230 | | | | >2.5 | (2.70) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Elisabethville, Belgian Congo (11.6°S, 27.5°E) May 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 235 | 7.1 | | | | | | 2.67 |
| 01 | 225 | 5.5 | | | | | | 2.56 |
| 02 | 235 | 4.5 | | | | | | 2.65 |
| 03 | 240 | 3.6 | | | | | 1.6 | 2.67 |
| 04 | 250 | 4.6 | | | | | | 2.40 |
| 05 | 240 | 9.4 | | | 120 | 2.4 | 3.0 | 2.92 |
| 06 | 245 | 11.3 | 235 | --- | 110 | 3.2 | 3.4 | 2.82 |
| 07 | 250 | 12.8 | 225 | --- | 100 | 3.6 | 3.8 | 2.71 |
| 08 | 260 | 13.2 | 220 | --- | 105 | 3.9 | 3.9 | 2.60 |
| 09 | 285 | 13.3 | 230 | --- | 105 | 4.0 | | 2.52 |
| 10 | (320) | 13.5 | 235 | --- | 105 | 4.0 | | 2.41 |
| 11 | 330 | 13.2 | 235 | --- | 105 | 4.0 | 4.5 | 2.37 |
| 12 | 350 | 13.5 | 235 | --- | 105 | 3.9 | 4.6 | 2.35 |
| 13 | 340 | 13.5 | 235 | --- | 105 | 3.6 | 4.8 | 2.34 |
| 14 | 315 | 13.7 | 240 | --- | 110 | 3.4 | 4.2 | 2.38 |
| 15 | 265 | 13.5 | 255 | --- | 115 | 2.7 | 4.4 | 2.45 |
| 16 | 250 | 13.5 | | | --- | --- | 3.8 | 2.52 |
| 17 | 240 | 13.4 | | | | | 3.2 | 2.60 |
| 18 | 240 | 12.4 | | | | | 3.4 | 2.64 |
| 19 | 230 | 12.3 | | | | | 3.0 | 2.58 |
| 20 | 225 | 13.5 | | | | | 2.0 | 2.71 |
| 21 | 220 | 12.0 | | | | | | 2.62 |
| 22 | 225 | 10.0 | | | | | | 2.56 |
| 23 | 230 | 8.6 | | | | | | 2.45 |

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 36

Huancayo, Peru (12.0°S, 75.3°W) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 8.1 | 230 | | | | | 2.95 |
| 01 | | 7.8 | 230 | | | | | 3.00 |
| 02 | | 7.4 | 230 | | | | | 3.05 |
| 03 | | 6.5 | 235 | | | | | 3.05 |
| 04 | | 5.3 | 235 | | | | | 3.10 |
| 05 | | 4.7 | 235 | | | | | 3.15 |
| 06 | | 5.2 | 260 | | | | | 2.90 |
| 07 | | 9.0 | 255 | | 119 | 2.45 | (4.8) | 3.00 |
| 08 | | 11.3 | 235 | | 111 | 3.20 | (7.5) | 2.80 |
| 09 | | 12.2 | 225 | | --- | ---- | >8.6 | 2.55 |
| 10 | | 12.2 | 215 | | --- | ---- | (11.1) | 2.35 |
| 11 | | 11.6 | 215 | | --- | ---- | (11.6) | 2.25 |
| 12 | --- | 11.6 | 205 | | --- | ---- | (11.1) | 2.20 |
| 13 | | 11.4 | 200 | | --- | ---- | (11.2) | 2.20 |
| 14 | | 11.2 | 200 | | --- | ---- | (9.9) | 2.20 |
| 15 | | 11.1 | 215 | | --- | ---- | >8.8 | 2.20 |
| 16 | | 10.9 | 240 | | --- | ---- | (7.8) | 2.20 |
| 17 | | 10.5 | 265 | | --- | ---- | >5.8 | 2.20 |
| 18 | | >9.4 | 320 | | | | | 2.20 |
| 19 | | 9.0 | 380 | | | | | 2.15 |
| 20 | | (8.7) | 340 | | | | (2.5) | (2.25) |
| 21 | | 8.6 | 280 | | | | | 2.40 |
| 22 | | 8.1 | 240 | | | | | 2.60 |
| 23 | | 8.1 | 235 | | | | | 2.80 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 37

Townsville, Australia (19.3°S, 146.7°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >6.0 | 240 | | | | | (3.00) |
| 01 | | >6.2 | 240 | | | | | 3.00 |
| 02 | | 5.5 | 240 | | | | | 3.00 |
| 03 | | 4.8 | 240 | | | | | 3.10 |
| 04 | | >4.0 | 250 | | | | | 2.90 |
| 05 | | 4.2 | 260 | | | | | 2.90 |
| 06 | | 4.8 | 250 | | | | | 3.05 |
| 07 | | >7.5 | 230 | | | 2.20 | | ---- |
| 08 | | >10.5 | 230 | | | 3.00 | 3.1 | ---- |
| 09 | --- | >11.0 | 220 | | | 3.40 | | ---- |
| 10 | (240) | (13.0) | 210 | | | 3.60 | 4.0 | (3.10) |
| 11 | --- | >12.0 | 200 | | | 3.75 | 4.3 | 3.05 |
| 12 | --- | 12.0 | 210 | | | 3.80 | 4.5 | 2.95 |
| 13 | --- | 12.5 | 220 | | | 3.75 | 4.5 | 2.90 |
| 14 | | 11.8 | 210 | | | 3.70 | 4.5 | 2.80 |
| 15 | | 11.8 | 230 | | | 3.50 | 4.3 | (2.80) |
| 16 | | >10.5 | 240 | | | 3.10 | 3.8 | ---- |
| 17 | | >8.0 | 240 | | | 2.50 | 4.1 | |
| 18 | | >7.2 | 240 | | | ---- | >4.0 | |
| 19 | | >6.7 | 230 | | | | 3.1 | |
| 20 | | >7.0 | 230 | | | | 2.7 | |
| 21 | | >6.5 | 240 | | | | | ---- |
| 22 | | >6.5 | 230 | | | | | ---- |
| 23 | | >6.5 | 230 | | | | | (2.80) |

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

Table 38

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 3.7 | <290 | | | | | 2.8 |
| 01 | | 3.8 | <280 | | | | | 2.8 |
| 02 | | 3.7 | <290 | | | | | 2.8 |
| 03 | | 3.8 | <260 | | | | | 2.9 |
| 04 | | 3.6 | <250 | | | | | 2.9 |
| 05 | | 3.4 | (250) | | | | | 2.9 |
| 06 | | 3.6 | 240 | | | | | 2.9 |
| 07 | | 7.8 | 230 | | | 2.2 | | 3.2 |
| 08 | --- | 10.8 | 230 | | | 2.9 | | 3.3 |
| 09 | 240 | 12.4 | 230 | | | 3.3 | | 3.2 |
| 10 | 240 | 13.2 | 220 | | | 3.6 | | 3.1 |
| 11 | 240 | 13.7 | 220 | --- | | 3.8 | | 2.9 |
| 12 | (250) | 13.2 | 210 | --- | | (3.9) | | 2.9 |
| 13 | (290) | 13.1 | 220 | --- | | 3.8 | 4.0 | 2.8 |
| 14 | (300) | 13.4 | 230 | --- | | (3.7) | 3.9 | 2.8 |
| 15 | --- | 13.2 | 240 | --- | | 3.5 | 3.6 | 2.8 |
| 16 | --- | 13.0 | 240 | | | 3.0 | | 2.8 |
| 17 | | 12.8 | 240 | | | 2.3 | | 2.9 |
| 18 | | 11.9 | 220 | | | | | 2.9 |
| 19 | | 10.0 | 220 | | | | | 3.0 |
| 20 | | 8.8 | 230 | | | | | 3.1 |
| 21 | | 6.8 | 230 | | | | | 3.2 |
| 22 | | 4.9 | 230 | | | | | 3.1 |
| 23 | | 4.0 | 240 | | | | | 2.85 |

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 39

Brisbane, Australia (27.5°S, 152.9°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | 250 | | | | | 2.70 |
| 01 | | 5.9 | 250 | | | | | 2.70 |
| 02 | | 5.6 | 250 | | | | | 2.65 |
| 03 | | 5.5 | 255 | | | | 1.5 | 2.70 |
| 04 | | 5.0 | 250 | | | | 2.5 | 2.65 |
| 05 | | 5.0 | 260 | | | E | | 2.70 |
| 06 | | 6.0 | 250 | | | E | | 2.80 |
| 07 | | 9.6 | 240 | | | 2.45 | | 3.15 |
| 08 | | 11.4 | 230 | | | 3.00 | | 3.15 |
| 09 | | 12.6 | 230 | | | 3.45 | | 3.10 |
| 10 | | 12.8 | 220 | | | 3.60 | 3.9 | 3.05 |
| 11 | | 12.0 | 220 | | | 3.80 | 4.0 | 2.90 |
| 12 | | 12.0 | 220 | | | 3.80 | 4.2 | 2.85 |
| 13 | | 11.7 | 220 | | | 3.80 | | 2.80 |
| 14 | | 11.7 | 230 | | | 3.60 | 3.6 | 2.80 |
| 15 | | 11.4 | 240 | | | 3.25 | 3.6 | 2.80 |
| 16 | | >11.0 | 235 | | | 2.60 | 3.1 | 2.80 |
| 17 | | 10.9 | 240 | | | 1.90 | | 2.80 |
| 18 | | 9.5 | 230 | | | E | 2.9 | 2.75 |
| 19 | | 8.6 | 230 | | | ---- | | 2.80 |
| 20 | | 8.2 | 240 | | | | | 2.75 |
| 21 | | 7.4 | 240 | | | | | 2.75 |
| 22 | | 6.8 | 245 | | | | | 2.75 |
| 23 | | 6.4 | 250 | | | | | 2.70 |

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

Table 40

Capetown, Union of S. Africa (34.1°S, 18.3°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 3.2 | <300 | | | | | 2.7 |
| 01 | | 3.1 | <310 | | | | | 2.6 |
| 02 | | 3.4 | <320 | | | | | 2.6 |
| 03 | | 3.4 | <320 | | | | | 2.65 |
| 04 | | 3.6 | <300 | | | | | 2.8 |
| 05 | | 3.4 | 260 | | | | | 2.9 |
| 06 | | 3.2 | <260 | | | | | 2.9 |
| 07 | | 3.9 | 240 | | | | | 2.8 |
| 08 | | 7.8 | 230 | | | 2.2 | | 3.3 |
| 09 | | 10.4 | 230 | | | 2.9 | | (3.25) |
| 10 | 250 | >11.9 | 230 | --- | | 3.3 | | ---- |
| 11 | 240 | >12.8 | 230 | --- | | 3.5 | | ---- |
| 12 | 240 | >12.8 | 230 | --- | | (3.7) | | |
| 13 | (250) | >13.1 | 230 | | | --- | | |
| 14 | (260) | >13.1 | 240 | | | 3.7 | | |
| 15 | 250 | >13.0 | 240 | | | 3.4 | | |
| 16 | --- | >13.0 | 240 | | | 3.1 | | |
| 17 | | >12.8 | 240 | | | 2.6 | | |
| 18 | | >12.2 | 220 | | | | | ---- |
| 19 | | >10.8 | 220 | | | | | (2.95) |
| 20 | | (9.2) | 220 | | | | | (3.1) |
| 21 | | 6.6 | 220 | | | | | 3.3 |
| 22 | | 4.0 | 230 | | | | | 3.3 |
| 23 | | 3.0 | (240) | | | | | 2.8 |

Time: 30.0°E.
Sweep: 1.0 Mc to 14.0 Mc in 7 seconds.

Table 41

Scott Base (77.8°S, 166.8°E) May 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 3.1 | 300 | | --- | --- | | ---- |
| 01 | | 3.0 | 300 | | --- | --- | | ---- |
| 02 | | (3.2) | 300 | | --- | --- | | |
| 03 | | (3.4) | <300 | | --- | --- | | ---- |
| 04 | | --- | 290 | | --- | --- | | ---- |
| 05 | | (4.1) | 280 | | --- | --- | | ---- |
| 06 | | 4.4 | 250 | | --- | --- | | ---- |
| 07 | | 3.8 | 250 | | --- | --- | 1.4 | ---- |
| 08 | | 4.3 | 250 | | --- | --- | | ---- |
| 09 | | (5.2) | 250 | | --- | --- | 2.2 | ---- |
| 10 | | (6.0) | 240 | | --- | --- | 2.0 | ---- |
| 11 | | 6.6 | 240 | | --- | --- | 3.2 | ---- |
| 12 | | 6.8 | 250 | | --- | --- | 2.4 | ---- |
| 13 | | 7.0 | 250 | | --- | --- | 4.7 | (3.10) |
| 14 | | 7.3 | 250 | | --- | ---- | 2.8 | ---- |
| 15 | | 8.0 | 250 | | --- | --- | 2.3 | ---- |
| 16 | | 8.3 | 250 | | --- | --- | | (3.05) |
| 17 | | 8.6 | 250 | | --- | --- | | ---- |
| 18 | | 9.0 | 250 | | --- | --- | | ---- |
| 19 | | 7.8 | 250 | | --- | --- | | ---- |
| 20 | | 6.9 | 260 | | --- | --- | | ---- |
| 21 | | (5.8) | 250 | | --- | --- | | |
| 22 | | 4.9 | 260 | | --- | --- | | ---- |
| 23 | | (3.8) | 290 | | --- | --- | | ---- |

Time: 165.0°E.

Table 42

Resolute Bay, Canada (74.7°N, 94.9°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.4 | 280 | | --- | 1.7 | 1.7 | 2.7 |
| 01 | | 6.8 | 280 | | --- | 1.7 | 1.7 | (2.85) |
| 02 | | 6.4 | 270 | | 110 | 1.8 | 1.8 | (2.6) |
| 03 | --- | 6.2 | 280 | --- | 120 | 2.0 | | 2.7 |
| 04 | (310) | 6.2 | 280 | --- | 110 | 2.1 | | 2.75 |
| 05 | 320 | 6.3 | 280 | --- | 105 | 2.3 | | 2.7 |
| 06 | 330 | 6.0 | 260 | 3.9 | 105 | 2.6 | | 2.75 |
| 07 | 400 | 5.8 | 250 | 4.1 | 100 | 2.8 | | 2.8 |
| 08 | 400 | 6.0 | 250 | 4.2 | 100 | 3.0 | | (2.5) |
| 09 | 460 | 5.9 | 240 | 4.4 | 100 | 3.0 | | 2.5 |
| 10 | 480 | 6.0 | 250 | 4.5 | 100 | 3.2 | | 2.5 |
| 11 | 500 | 5.8 | 240 | 4.6 | 100 | 3.2 | | 2.45 |
| 12 | 450 | 5.8 | 250 | 4.6 | 100 | 3.2 | | (2.6) |
| 13 | 460 | 6.8 | 240 | 4.7 | 100 | 3.2 | | (2.6) |
| 14 | 460 | 6.0 | 250 | 4.7 | 100 | 3.2 | | (2.45) |
| 15 | 440 | 5.7 | 250 | 4.5 | 100 | 3.1 | | (2.65) |
| 16 | 420 | 6.1 | 250 | 4.4 | 100 | 3.0 | | 2.45 |
| 17 | 400 | 6.4 | 250 | 4.2 | 105 | 2.9 | | (2.7) |
| 18 | 440 | 6.6 | 260 | 4.0 | 105 | 2.7 | | 2.5 |
| 19 | 330 | 6.2 | 280 | 3.5 | 105 | 2.5 | | 2.6 |
| 20 | (380) | 6.3 | 290 | --- | 105 | 2.3 | | 2.6 |
| 21 | | 6.0 | 280 | | 105 | 2.0 | | 2.6 |
| 22 | | 6.0 | 280 | | --- | 1.9 | <2.5 | (2.7) |
| 23 | | 6.3 | 280 | | 110 | 1.8 | 1.8 | 2.6 |

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 43

Godhavn, Greenland (69.2°N, 53.5°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (6.6) | | | | | | (2.60) |
| 01 | | (5.1) | | | | | | (2.60) |
| 02 | | (4.9) | | | | | | (2.45) |
| 03 | | (4.8) | | | | | | 2.60 |
| 04 | | (4.9) | | | | | | (2.65) |
| 05 | | (4.5) | | --- | --- | ---- | | ---- |
| 06 | | 5.0 | | --- | 113 | (2.40) | | 2.75 |
| 07 | | (4.8) | | --- | 111 | 2.55 | | (2.80) |
| 00 | | (5.4) | | (4.0) | 111 | (2.90) | | ---- |
| 09 | | (6.6) | | 4.3 | 111 | 3.20 | | (2.40) |
| 10 | | (6.8) | | 4.6 | 111 | (3.30) | | (2.55) |
| 11 | | (7.2) | | 4.7 | 111 | (3.30) | | (2.50) |
| 12 | | (7.0) | | 4.7 | 112 | (3.40) | | (2.45) |
| 13 | | (6.9) | | 4.7 | 110 | 3.30 | | (2.50) |
| 14 | | (6.4) | | 4.7 | 111 | (3.30) | | (2.50) |
| 15 | | (6.4) | | 4.8 | 111 | 3.20 | | (2.45) |
| 16 | | (6.4) | | 4.5 | 113 | 3.00 | | (2.60) |
| 17 | | (6.2) | | 4.5 | 111 | 2.90 | | 2.55 |
| 18 | | (6.4) | | (4.2) | 113 | 2.70 | | 2.60 |
| 19 | | (6.2) | | --- | 117 | 2.35 | | 2.65 |
| 20 | | (6.5) | | | <121 | 2.00 | | 2.60 |
| 21 | | (6.3) | | | 129 | ---- | | (2.55) |
| 22 | | (6.4) | | | | | | (2.60) |
| 23 | | (6.4) | | | | | | (2.60) |

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 44

Churchill, Canada (58.8°N, 94.2°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | 310 | | --- | --- | 5.0 | (2.4) |
| 01 | | 5.8 | 310 | | --- | 1.4 | 4.0 | (2.5) |
| 02 | | 5.5 | 300 | | 115 | (1.8) | 4.0 | --- |
| 03 | | 4.6 | 360 | | 120 | 2.0 | 3.8 | --- |
| 04 | | 5.0 | 360 | | 120 | 2.0 | 3.8 | |
| 05 | | 5.0 | 350 | | 120 | 2.5 | | (2.6) |
| 06 | (490) | 5.4 | 300 | --- | 120 | 3.0 | | (2.8) |
| 07 | 490 | 6.1 | 290 | 4.3 | 115 | 3.1 | | (2.7) |
| 08 | 500 | 6.0 | 260 | 5.0 | 110 | 3.3 | | (2.7) |
| 09 | 510 | 6.2 | 260 | 4.9 | 110 | 3.6 | | 2.4 |
| 10 | 520 | 6.3 | 250 | 5.0 | 110 | 3.6 | | 2.45 |
| 11 | 500 | 6.4 | 230 | 5.0 | 110 | 3.8 | | 2.45 |
| 12 | 490 | 7.0 | 240 | 5.1 | 110 | 3.8 | | 2.4 |
| 13 | 490 | 7.2 | 240 | 5.1 | 110 | 3.7 | | 2.3 |
| 14 | 480 | 7.4 | 240 | 5.0 | 110 | 3.7 | | 2.4 |
| 15 | 460 | 7.4 | 240 | 5.0 | 110 | 3.5 | | 2.4 |
| 16 | 410 | 7.0 | 240 | 4.7 | 110 | 3.3 | | 2.5 |
| 17 | 400 | 6.5 | 270 | 4.4 | 115 | 3.0 | | 2.5 |
| 18 | (410) | 6.5 | 300 | 4.2 | 115 | 3.0 | | (2.6) |
| 19 | --- | 6.2 | 330 | --- | 125 | 2.8 | | (2.6) |
| 20 | | 5.6 | 320 | | 125 | 2.6 | 2.8 | (2.5) |
| 21 | | 5.5 | 320 | | 120 | 2.2 | 5.0 | --- |
| 22 | | 5.5 | 300 | | 135 | 2.0 | 5.0 | --- |
| 23 | | 6.0 | 310 | | --- | --- | 5.0 | --- |

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 45

Leopoldville, Belgian Congo (4.4°S, 15.2°E) April 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 220 | 14.6 | | | | | | 2.71 |
| 01 | 215 | 12.0 | | | | | | 2.67 |
| 02 | 230 | 11.0 | | | | | | 2.67 |
| 03 | 230 | 8.4 | | | | | | 2.70 |
| 04 | 230 | 5.6 | | | | | 2.0 | 2.69 |
| 05 | 255 | 6.3 | --- | --- | --- | --- | 2.6 | 2.60 |
| 06 | 250 | 10.2 | 245 | --- | 120 | 2.8 | 3.4 | 2.72 |
| 07 | 275 | 12.2 | 240 | --- | 115 | 3.5 | 4.0 | 2.60 |
| 08 | 295 | 13.4 | 230 | --- | 110 | 3.8 | 4.8 | 2.53 |
| 09 | (350) | 13.9 | 220 | --- | 110 | 4.0 | 4.7 | 2.38 |
| 10 | 385 | 14.8 | 220 | --- | 110 | 4.1 | | 2.30 |
| 11 | 380 | 15.9 | 230 | --- | 115 | 4.1 | | 2.32 |
| 12 | 390 | 16.0 | 230 | --- | 110 | 4.2 | | 2.26 |
| 13 | 410 | 16.0 | 230 | --- | 110 | 4.0 | | 2.19 |
| 14 | 420 | 16.0 | 240 | --- | 115 | 3.9 | 4.6 | 2.17 |
| 15 | 395 | 16.2 | 245 | --- | 115 | 3.3 | 4.0 | 2.20 |
| 16 | 380 | 16.4 | 260 | --- | 120 | 2.7 | 3.9 | 2.22 |
| 17 | 325 | 16.7 | 290 | --- | --- | --- | 3.4 | 2.26 |
| 18 | 320 | 17.1 | | | | | 3.0 | 2.25 |
| 19 | 300 | >17.6 | | | | | | <2.37 |
| 20 | 245 | >17.6 | | | | | | <2.50 |
| 21 | 230 | >17.7 | | | | | | 2.52 |
| 22 | 230 | 18.3 | | | | | | 2.57 |
| 23 | 230 | 17.5 | | | | | | 2.68 |

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 46

Talara, Peru (4.6°S, 81.3°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 10.5 | 220 | | | | >3.8 | 2.75 |
| 01 | | >10.4 | 235 | | | | | 2.75 |
| 02 | | 10.2 | 250 | | | | | 2.90 |
| 03 | | 9.1 | 240 | | | | >1.9 | 2.85 |
| 04 | | 8.5 | 235 | | | | 1.8 | 2.90 |
| 05 | | 7.2 | 240 | | | | (1.7) | 2.95 |
| 06 | | 6.9 | 245 | | --- | E | 1.8 | 2.90 |
| 07 | | 9.4 | 265 | | 129 | 2.25 | 2.5 | 2.90 |
| 08 | | 11.7 | 245 | | 119 | 3.20 | 3.5 | 2.80 |
| 09 | | 12.8 | 230 | | 115 | 3.70 | | 2.60 |
| 10 | | 13.4 | 225 | | 113 | 4.00 | | 2.40 |
| 11 | | >13.5 | 220 | | 113 | 4.15 | | 2.40 |
| 12 | | (13.5) | 215 | | 113 | 4.20 | | 2.30 |
| 13 | | (13.5) | 215 | | 113 | 4.20 | | (2.20) |
| 14 | | (13.6) | 215 | | 111 | 4.05 | | (2.20) |
| 15 | | 13.5 | 215 | | 110 | 3.80 | | 2.30 |
| 16 | | 13.4 | 230 | | 111 | 3.35 | | 2.30 |
| 17 | | >13.0 | 250 | | 116 | 2.90 | | (2.20) |
| 18 | | >13.0 | 285 | | --- | ---- | 2.3 | (2.10) |
| 19 | | >11.5 | 370 | | | | >3.2 | ---- |
| 20 | | >11.5 | 385 | | | | >2.9 | ---- |
| 21 | | >12.4 | 320 | | | | >3.1 | (2.30) |
| 22 | | >12.3 | 250 | | | | (4.4) | (2.60) |
| 23 | | (11.7) | 220 | | | | >4.4 | (2.80) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 47

Elisabethville, Belgian Congo (11.6°S, 27.5°E) April 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 230 | 8.0 | | | | | | 2.57 |
| 01 | 240 | 6.8 | | | | | | 2.62 |
| 02 | 245 | 5.1 | | | | | | 2.63 |
| 03 | 245 | 4.0 | | | | | 2.4 | 2.76 |
| 04 | 245 | 4.8 | | | | | 2.2 | 2.49 |
| 05 | 235 | 9.2 | --- | --- | 120 | 2.4 | 3.0 | 2.84 |
| 06 | 240 | 11.4 | 230 | --- | 110 | 3.2 | 3.6 | 2.76 |
| 07 | 250 | 12.7 | 230 | --- | 110 | 3.6 | 3.8 | 2.63 |
| 08 | 270 | 13.4 | 225 | --- | 110 | 3.8 | 4.0 | 2.51 |
| 09 | --- | 13.6 | 230 | --- | 110 | 4.0 | | 2.43 |
| 10 | 340 | 14.1 | 235 | --- | 110 | 4.0 | | 2.39 |
| 11 | 350 | 14.2 | 230 | --- | 110 | 4.0 | 4.5 | 2.37 |
| 12 | 365 | 14.1 | 240 | --- | 110 | 4.0 | 4.7 | 2.33 |
| 13 | 355 | 14.0 | 240 | --- | 110 | 3.7 | 4.6 | 2.34 |
| 14 | 340 | 13.7 | 245 | --- | 115 | 3.4 | 4.4 | 2.34 |
| 15 | 280 | 13.6 | 255 | --- | 115 | 2.8 | 4.0 | 2.38 |
| 16 | 265 | 13.6 | --- | --- | --- | --- | 3.2 | 2.47 |
| 17 | 260 | >13.5 | | | | | 3.0 | 2.52 |
| 18 | 250 | >13.4 | | | | | 2.8 | 2.58 |
| 19 | 235 | 13.6 | | | | | 2.3 | 2.59 |
| 20 | 230 | >13.3 | | | | | | 2.59 |
| 21 | 230 | 13.1 | | | | | | 2.64 |
| 22 | 225 | 10.8 | | | | | | 2.67 |
| 23 | 240 | 9.4 | | | | | | 2.56 |

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 48

Huancayo, Peru (12.0°S, 75.3°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 9.0 | 230 | | | | | 2.90 |
| 01 | | 8.5 | 230 | | | | | 3.00 |
| 02 | | 7.8 | 240 | | | | (3.7) | 2.95 |
| 03 | | 7.0 | 250 | | | | (2.9) | 2.90 |
| 04 | | 6.5 | 245 | | | | | 3.00 |
| 05 | | 6.0 | 240 | | | | | 3.05 |
| 06 | | 6.6 | 260 | | --- | ---- | | 2.90 |
| 07 | | 10.4 | 250 | | 121 | 2.60 | (5.2) | 3.00 |
| 08 | | 13.0 | 235 | | 119 | (3.25) | (7.3) | 2.85 |
| 09 | | 14.1 | 225 | | --- | 3.60 | (8.7) | 2.55 |
| 10 | | >14.5 | 215 | | --- | ---- | (11.2) | 2.35 |
| 11 | | 14.4 | 210 | | --- | ---- | (11.6) | 2.25 |
| 12 | | 13.4 | 210 | | --- | ---- | (11.6) | 2.20 |
| 13 | | 12.9 | 210 | | --- | ---- | (11.6) | 2.15 |
| 14 | | 13.0 | 210 | | --- | ---- | (10.7) | 2.15 |
| 15 | | 13.0 | 210 | | --- | ---- | (8.6) | 2.10 |
| 16 | | 12.8 | 240 | | --- | ---- | (8.2) | 2.10 |
| 17 | | >12.6 | 265 | | --- | ---- | >6.8 | 2.10 |
| 18 | | (11.2) | 310 | | | | | (2.15) |
| 19 | | 9.2 | 410 | | | | | (2.05) |
| 20 | | (9.1) | 390 | | | | | (2.30) |
| 21 | | (9.2) | 280 | | | | | (2.45) |
| 22 | | 9.2 | 240 | | | | | 2.70 |
| 23 | | 9.0 | 230 | | | | (4.3) | 2.85 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 49

Townsville, Australia (19.3°S, 146.7°E) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >7.5 | 250 | | | | | ---- |
| 01 | | >7.5 | 250 | | | | | (2.80) |
| 02 | | >7.4 | 260 | | | | | (2.85) |
| 03 | | >7.0 | 240 | | | | | 3.00 |
| 04 | | 6.4 | 230 | | | | 1.6 | 2.80 |
| 05 | | 6.2 | 280 | | | | 2.8 | 2.70 |
| 06 | | >6.5 | 250 | | | | 2.6 | 2.95 |
| 07 | | >8.0 | 230 | | | 2.45 | | |
| 08 | | (12.8) | 225 | | | 3.05 | | (3.10) |
| 09 | --- | (14.0) | 220 | | | 3.50 | | (3.20) |
| 10 | --- | 14.0 | 220 | | | 3.70 | 4.0 | 3.05 |
| 11 | --- | 13.8 | 210 | | | 3.80 | 4.2 | 2.90 |
| 12 | --- | >13.1 | 210 | | | 3.90 | 4.3 | 2.75 |
| 13 | --- | 13.5 | 210 | --- | | 3.90 | 4.1 | 2.75 |
| 14 | | 14.0 | 220 | | | 3.80 | 4.3 | 2.75 |
| 15 | | (13.5) | 230 | | | 3.65 | 4.2 | (2.70) |
| 16 | | >12.0 | 240 | | | 3.30 | 4.1 | ---- |
| 17 | | >9.5 | 245 | | | 2.70 | 3.8 | |
| 18 | | >8.0 | 250 | | | ---- | 3.6 | |
| 19 | | >7.5 | 250 | | | | 3.1 | |
| 20 | | >7.6 | 250 | | | | 2.8 | |
| 21 | | >8.0 | 250 | | | | | |
| 22 | | >7.5 | 250 | | | | | |
| 23 | | >7.5 | 240 | | | | | ---- |

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

Table 50

Rarotonga I. (21.2°S, 159.8°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (10.2) | 250 | | | | | (2.8) |
| 01 | | (9.5) | 250 | | | | | (2.7) |
| 02 | | 8.7 | 250 | | | | | 2.7 |
| 03 | | (7.8) | 250 | | | | | 2.8 |
| 04 | | 6.7 | 280 | | | | | 2.65 |
| 05 | | 6.6 | 300 | | | | | 2.7 |
| 06 | | 8.0 | 300 | | | | 2.0 | 2.8 |
| 07 | | (12.7) | 250 | | --- | 2.5 | 2.7 | (3.0) |
| 08 | | 14.2 | 250 | | 105 | 3.2 | 3.3 | 3.1 |
| 09 | | 14.4 | 250 | | 110 | 3.5 | 3.6 | 3.0 |
| 10 | --- | 15.2 | 240 | | 110 | 3.8 | 3.9 | 2.9 |
| 11 | --- | 14.7 | 240 | --- | 110 | --- | 3.9 | 2.8 |
| 12 | (360) | 15.0 | 250 | --- | 110 | (4.2) | | 2.7 |
| 13 | 360 | 15.5 | 250 | 7.5 | 110 | (4.2) | | 2.7 |
| 14 | 360 | 15.5 | 250 | --- | 110 | (3.8) | 4.6 | 2.7 |
| 15 | (350) | 14.8 | 250 | --- | --- | 3.5 | 4.5 | 2.7 |
| 16 | --- | (14.7) | 250 | | --- | 3.2 | 4.4 | (2.7) |
| 17 | | (14.5) | 260 | | --- | --- | 3.9 | (2.7) |
| 18 | | (14.1) | 300 | | | | 3.4 | (2.8) |
| 19 | | (14.2) | 290 | | | | 3.4 | (2.85) |
| 20 | | (14.0) | <260 | | | | 2.2 | (2.9) |
| 21 | | (13.1) | 260 | | | | 2.0 | (2.8) |
| 22 | | (12.7) | 250 | | | | | (2.8) |
| 23 | | (11.0) | 250 | | | | | (2.8) |

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 51

Brisbane, Australia (27.5°S, 152.9°E) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 7.4 | 280 | | | | | 2.55 |
| 01 | | 7.4 | 290 | | | | | 2.50 |
| 02 | | 7.2 | 290 | | | | 2.7 | 2.60 |
| 03 | | 6.8 | 260 | | | | | 2.65 |
| 04 | | 6.5 | 250 | | | | | 2.50 |
| 05 | | 6.4 | 260 | | | E | | 2.55 |
| 06 | | 7.5 | 250 | | | ---- | | 2.80 |
| 07 | | 10.9 | 240 | | | <2.70 | | 3.00 |
| 08 | | >12.4 | 230 | | | 3.25 | | 3.05 |
| 09 | | >13.0 | 230 | | | 3.55 | 3.8 | 3.00 |
| 10 | | >13.2 | 230 | | | >3.80 | 4.0 | 2.95 |
| 11 | | 12.8 | 220 | | | 3.95 | 4.3 | 2.85 |
| 12 | | 12.9 | 220 | | | 3.95 | 4.0 | 2.80 |
| 13 | | 12.8 | 220 | | | 3.95 | 4.1 | 2.75 |
| 14 | | 12.5 | 230 | | | 3.80 | 3.9 | 2.75 |
| 15 | | 12.2 | 240 | | | 3.50 | 3.7 | 2.80 |
| 16 | | 11.7 | 240 | | | 3.00 | 3.4 | 2.80 |
| 17 | | 11.4 | 240 | | | 2.20 | 3.0 | 2.80 |
| 18 | | 10.9 | 240 | | | E | 2.9 | 2.80 |
| 19 | | 9.5 | 250 | | | ---- | 3.0 | 2.75 |
| 20 | | 9.3 | 270 | | | | | 2.80 |
| 21 | | 8.9 | 250 | | | | 3.2 | 2.70 |
| 22 | | 8.1 | 260 | | | | 2.7 | 2.70 |
| 23 | | 7.8 | 270 | | | | 3.1 | 2.60 |

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

Table 52

Scott Base (77.8°S, 166.8°E) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (3.5) | 330 | | | | | |
| 01 | | 3.6 | 340 | | | | | ---- |
| 02 | | (3.5) | 340 | | | | | |
| 03 | | 4.1 | 340 | | | | | ---- |
| 04 | | (3.8) | 300 | | | | | |
| 05 | | 3.7 | 300 | | | | | |
| 06 | | 4.4 | 300 | | | | | ---- |
| 07 | | 4.0 | 280 | | --- | E | | |
| 08 | | 6.2 | 250 | | --- | <1.3 | | |
| 09 | | 5.8 | 270 | | --- | <1.4 | | ---- |
| 10 | | 6.8 | 250 | | --- | 1.8 | 2.3 | ---- |
| 11 | | 7.4 | 250 | | --- | <2.0 | | ---- |
| 12 | | 7.8 | 260 | | --- | --- | | ---- |
| 13 | | 8.3 | 270 | | --- | 1.8 | | (3.00) |
| 14 | | 9.0 | 260 | | 130 | --- | | (3.00) |
| 15 | | 8.0 | 280 | | 150 | 1.6 | | (3.10) |
| 16 | | 9.0 | 270 | | --- | E | | ---- |
| 17 | | 9.0 | 260 | | | | | (3.00) |
| 18 | | 8.4 | 260 | | | | | ---- |
| 19 | | 7.6 | 290 | | | | | ---- |
| 20 | | 7.4 | 290 | | | | | |
| 21 | | 5.8 | 300 | | | | | ---- |
| 22 | | 5.5 | 300 | | | | | ---- |
| 23 | | 4.3 | 330 | | | | | |

Time: 165.0°E.

Table 53

Godhavn, Greenland (69.2°N, 53.5°W) March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.5 | 280 | | | | | 2.60 |
| 01 | | (5.7) | 270 | | | | | 2.65 |
| 02 | | (5.0) | 280 | | | | | (2.70) |
| 03 | | (4.1) | 295 | | | | | (2.50) |
| 04 | | (4.0) | 290 | | | | | 2.50 |
| 05 | | (4.2) | 295 | | | | | ---- |
| 06 | | 4.6 | 300 | | --- | ---- | 1.8 | (2.75) |
| 07 | ---- | (4.6) | 280 | --- | --- | ---- | 1.8 | (2.80) |
| 08 | ---- | (5.6) | 255 | --- | 121 | 2.30 | | (2.80) |
| 09 | ---- | (6.4) | 250 | (3.7) | 119 | 2.50 | | 2.75 |
| 10 | ---- | (7.0) | 260 | (4.2) | 118 | 2.80 | | 2.80 |
| 11 | (3.55) | 6.9 | 250 | 4.4 | 115 | (2.95) | | 2.70 |
| 12 | (4.40) | (7.8) | 240 | (4.4) | 115 | 3.00 | | (2.55) |
| 13 | 3.90 | (7.4) | 235 | 4.3 | 115 | 3.00 | | (2.75) |
| 14 | (4.10) | 7.3 | 245 | (4.3) | 117 | 2.85 | | 2.60 |
| 15 | (4.40) | 6.8 | 245 | 4.2 | 117 | 2.70 | | 2.70 |
| 16 | ---- | 6.7 | 250 | (4.4) | 119 | 2.55 | | 2.70 |
| 17 | ---- | (7.0) | 260 | --- | 119 | 2.35 | 2.5 | 2.65 |
| 18 | | 6.8 | 265 | --- | 121 | 2.00 | | 2.70 |
| 19 | | (6.6) | <270 | | --- | ---- | 1.7 | 2.60 |
| 20 | | 6.7 | 270 | | | | | 2.55 |
| 21 | | (6.0) | 255 | | | | | (2.60) |
| 22 | | 5.8 | 275 | | | | | 2.60 |
| 23 | | 5.2 | 270 | | | | | 2.60 |

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 54*

Slough, England (51.5°N, 0.6°W) March 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 330 | 5.9 | | | | | 2.1 | 2.45 |
| 01 | 330 | 5.5 | | | | | 2.1 | 2.35 |
| 02 | 335 | 5.2 | | | | | 2.4 | 2.4 |
| 03 | 325 | 4.7 | | | | | 2.1 | 2.4 |
| 04 | 320 | 4.1 | | | | | 2.2 | 2.4 |
| 05 | 310 | 3.7 | | | | | 2.3 | 2.45 |
| 06 | 285 | 4.9 | | | 165 | 1.7 | 2.9 | 2.65 |
| 07 | 265 | 7.0 | (260) | (4.4) | 125 | 2.2 | 3.2 | 2.9 |
| 08 | 265 | 8.5 | 250 | 4.7 | 120 | 2.7 | 3.3 | 2.85 |
| 09 | 275 | 10.2 | 235 | 5.0 | 115 | 3.1 | 3.7 | 2.75 |
| 10 | 275 | 11.4 | 230 | 4.9 | 120 | 3.3 | 4.2 | 2.7 |
| 11 | 275 | 12.6 | 235 | 5.4 | 115 | 3.5 | 3.3 | 2.65 |
| 12 | 250 | 12.3 | 230 | 5.5 | 115 | 3.5 | | 2.65 |
| 13 | 270 | 12.1 | 235 | 5.3 | 115 | 3.6 | | 2.65 |
| 14 | 265 | 11.8 | 235 | 5.3 | 115 | 3.4 | 3.3 | 2.65 |
| 15 | 260 | 11.6 | 245 | 5.1 | 115 | 3.3 | 3.3 | 2.65 |
| 16 | 250 | 11.8 | (255) | (5.0) | 120 | 2.9 | 3.3 | 2.7 |
| 17 | 255 | 11.3 | (250) | (5.0) | 125 | 2.4 | 3.2 | 2.8 |
| 18 | 250 | 10.6 | | | 145 | 1.8 | 2.5 | 2.8 |
| 19 | 240 | 9.5 | | | | | 2.1 | 2.7 |
| 20 | 250 | 8.1 | | | | | 1.9 | 2.6 |
| 21 | 280 | 7.0 | | | | | | 2.5 |
| 22 | 315 | 6.5 | | | | | 1.8 | 2.45 |
| 23 | 330 | 6.1 | | | | | 2.2 | 2.4 |

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

Table 55

Talara, Peru (4.6°S, 81.3°W) — March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 11.6 | 220 | | | | (3.2) | 2.80 |
| 01 | | 10.8 | 230 | | | | (3.5) | 2.90 |
| 02 | | 9.6 | 240 | | | | (4.0) | 2.95 |
| 03 | | 8.6 | 240 | | | | (3.0) | 3.00 |
| 04 | | 7.4 | 230 | | | | (2.6) | 3.05 |
| 05 | | 6.4 | 230 | | | | (2.0) | 3.15 |
| 06 | | 5.7 | 240 | | --- | ---- | (2.5) | 3.10 |
| 07 | | 9.0 | 260 | | 125 | 2.20 | | 3.00 |
| 08 | | 12.0 | 240 | | 114 | 3.10 | 3.7 | 2.90 |
| 09 | | 13.5 | 230 | | 111 | 3.60 | | 2.70 |
| 10 | | 14.0 | 220 | | 109 | 4.00 | | 2.40 |
| 11 | | >14.4 | 210 | | 109 | 4.20 | | 2.30 |
| 12 | | >13.6 | 210 | | 109 | 4.25 | | 2.20 |
| 13 | | 13.0 | 205 | | 109 | 4.25 | | (2.15) |
| 14 | | >12.8 | 205 | | 107 | 4.15 | | (2.15) |
| 15 | | >12.7 | 210 | | 109 | 3.95 | | (2.15) |
| 16 | | >12.6 | 210 | | 109 | 3.60 | | 2.15 |
| 17 | | 12.6 | 245 | | 111 | 3.00 | | (2.20) |
| 18 | | (12.5) | 270 | | 127 | 2.30 | | (2.20) |
| 19 | | 12.5 | 330 | | | | >2.9 | (2.30) |
| 20 | | >12.0 | 420 | | | | | (2.20) |
| 21 | | (12.6) | 330 | | | | 1.7 | (2.40) |
| 22 | | 12.8 | 240 | | | | 1.8 | (2.70) |
| 23 | | (12.2) | 215 | | | | (2.0) | (2.85) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 56

Townsville, Australia (19.3°S, 146.7°E) — March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >6.2 | 260 | | | | | |
| 01 | | >6.4 | 280 | | | | | |
| 02 | | >6.0 | 250 | | | | | |
| 03 | | >5.9 | 270 | | | | | |
| 04 | | >6.5 | 275 | | | | | ---- |
| 05 | | >6.0 | 280 | | | | 2.0 | ---- |
| 06 | | >6.0 | 280 | | | | | ---- |
| 07 | --- | >7.0 | 240 | --- | | 2.50 | | ---- |
| 08 | --- | >11.5 | 225 | --- | | 3.10 | 3.3 | (3.50) |
| 09 | --- | >13.0 | 220 | --- | | 3.50 | 3.7 | (3.30) |
| 10 | --- | >13.0 | 210 | --- | | 3.75 | 4.0 | 3.25 |
| 11 | --- | 13.8 | 200 | --- | | 3.95 | 4.2 | 3.10 |
| 12 | (360) | 14.0 | 200 | --- | | 4.05 | | 3.10 |
| 13 | (350) | 14.0 | 210 | --- | | 4.00 | | 2.95 |
| 14 | (330) | 13.8 | 215 | --- | | 3.90 | | 2.95 |
| 15 | --- | >13.0 | 220 | | | 3.75 | 4.1 | (2.95) |
| 16 | --- | >13.0 | 240 | | | 3.50 | 4.0 | (2.95) |
| 17 | --- | >10.0 | 250 | | | 3.00 | 3.7 | ---- |
| 18 | | >7.3 | 250 | | | 2.05 | 3.6 | ---- |
| 19 | | >7.0 | 260 | | | | 3.0 | ---- |
| 20 | | >6.0 | 275 | | | | | |
| 21 | | >6.0 | 280 | | | | | |
| 22 | | >6.0 | 275 | | | | | |
| 23 | | >6.0 | 270 | | | | | |

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

Table 57

Brisbane, Australia (27.5°S, 152.9°E) — March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 8.4 | 295 | | | | | 2.55 |
| 01 | | 8.0 | 290 | | | | | 2.55 |
| 02 | | 7.5 | 280 | | | | | 2.55 |
| 03 | | 7.2 | 300 | | | | | 2.50 |
| 04 | | 7.0 | 300 | | | | | 2.45 |
| 05 | | 7.1 | 300 | | | E | | 2.55 |
| 06 | | 8.3 | 250 | | | <2.40 | | 2.80 |
| 07 | --- | >8.5 | 240 | --- | | 2.80 | 2.9 | ---- |
| 08 | --- | >8.5 | 230 | --- | | (3.35) | 3.6 | ---- |
| 09 | --- | >8.5 | 225 | --- | | (3.70) | 4.3 | ---- |
| 10 | --- | >8.5 | 220 | --- | | 3.90 | 4.4 | ---- |
| 11 | --- | >8.5 | 215 | --- | | (4.00) | 4.4 | ---- |
| 12 | ---- | >8.5 | 210 | --- | | 4.10 | | ---- |
| 13 | --- | >8.5 | 225 | --- | | 4.00 | 4.2 | ---- |
| 14 | | >8.5 | 230 | | | (3.95) | | ---- |
| 15 | | >8.5 | 230 | | | 3.75 | | ---- |
| 16 | | >8.5 | 240 | | | 3.30 | | ---- |
| 17 | | >8.5 | 250 | | | 2.80 | 3.0 | ---- |
| 18 | | >8.5 | 250 | | | E | | ---- |
| 19 | | (8.6) | 260 | | | E | | (2.65) |
| 20 | | >8.5 | 280 | | | | | (2.55) |
| 21 | | >8.5 | 290 | | | | | (2.50) |
| 22 | | >8.5 | 290 | | | | | 2.55 |
| 23 | | 8.4 | 285 | | | | | 2.55 |

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

Table 58

Godhavn, Greenland (69.2°N, 53.5°W) — February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (5.0) | 260 | | | | | (2.65) |
| 01 | | (4.6) | 265 | | | | | (2.80) |
| 02 | | (4.2) | 265 | | | | | (2.70) |
| 03 | | (4.3) | 275 | | | | | (2.70) |
| 04 | | (3.6) | 280 | | | | | 2.80 |
| 05 | | (3.7) | 300 | | | | | ---- |
| 06 | | (3.0) | 275 | | | | | (2.70) |
| 07 | | (3.7) | <270 | | | | | (2.45) |
| 08 | | (5.1) | 275 | | | | | ---- |
| 09 | | 5.7 | 260 | | | | | (2.95) |
| 10 | --- | 7.6 | 250 | | --- | --- | | (3.15) |
| 11 | --- | 8.6 | 250 | --- | --- | --- | | (3.10) |
| 12 | --- | 8.0 | 245 | --- | --- | --- | | 2.95 |
| 13 | --- | 7.9 | 240 | --- | --- | --- | | 2.90 |
| 14 | --- | 7.5 | 245 | --- | --- | --- | | (2.80) |
| 15 | --- | (7.4) | 245 | | --- | --- | | 3.00 |
| 16 | --- | 7.0 | 250 | | --- | --- | | 3.00 |
| 17 | | 5.9 | 240 | | | | | 2.80 |
| 18 | | 5.9 | 250 | | | | | 2.70 |
| 19 | | (6.6) | 250 | | | | | 2.60 |
| 20 | | 5.8 | 255 | | | | | 2.65 |
| 21 | | 5.6 | 240 | | | | | (2.65) |
| 22 | | 6.4 | 245 | | | | | (2.75) |
| 23 | | 5.4 | 255 | | | | | (2.75) |

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 59

Townsville, Australia (19.3°S, 146.7°E) — February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >6.5 | 255 | | | | | |
| 01 | | >6.5 | 255 | | | | | |
| 02 | | >6.0 | 265 | | | | | ---- |
| 03 | | >6.4 | 270 | | | | | ---- |
| 04 | | >6.5 | 290 | | | | | ---- |
| 05 | | >6.4 | 300 | | | | | ---- |
| 06 | | >6.4 | 300 | | | 1.70 | | ---- |
| 07 | | >7.9 | 250 | | | 2.60 | | ---- |
| 00 | (255) | 11.0 | 235 | | | 3.20 | 3.5 | 3.00 |
| 09 | --- | 11.2 | 225 | --- | | 3.55 | 4.0 | 2.90 |
| 10 | (340) | 11.5 | 210 | --- | | 3.75 | (4.8) | 2.80 |
| 11 | 350 | 12.0 | 210 | 5.9 | | 4.00 | 4.3 | 2.70 |
| 12 | 360 | >12.2 | 210 | 6.3 | | 4.00 | 4.5 | 2.70 |
| 13 | 355 | >12.0 | 200 | 6.0 | | 4.10 | 4.7 | 2.70 |
| 14 | 370 | 12.0 | 205 | 6.3 | | 4.00 | 5.0 | 2.65 |
| 15 | 380 | 11.6 | 220 | 6.2 | | 3.80 | 4.2 | 2.65 |
| 16 | (370) | >11.0 | 230 | 5.8 | | 3.50 | 3.8 | 2.65 |
| 17 | --- | >9.2 | 240 | | | 3.10 | 3.5 | ---- |
| 18 | | >8.4 | 250 | | | 2.40 | 3.0 | |
| 19 | | >7.0 | 270 | | | 1.70 | (2.4) | |
| 20 | | >6.0 | 300 | | | | (2.1) | |
| 21 | | >6.4 | 300 | | | | | |
| 22 | | >7.0 | 300 | | | | | |
| 23 | | >7.0 | 270 | | | | | |

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

Table 60*

Port Lockroy (64.8°S, 63.5°W) — February 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 310 | (9.3) | | | | | 1.0 | --- |
| 01 | 315 | (8.2) | | | | | 1.1 | --- |
| 02 | 320 | (7.8) | | | | | 0.9 | --- |
| 03 | 345 | (6.9) | (365) | | (160) | (1.1) | 1.1 | --- |
| 04 | 395 | (7.2) | 340 | | (155) | 1.6 | 1.8 | --- |
| 05 | 390 | (8.0) | 290 | (3.5) | 140 | 1.9 | 3.0 | --- |
| 06 | 400 | (8.2) | 265 | (4.0) | 125 | 2.3 | 3.2 | --- |
| 07 | 375 | (8.0) | 250 | (4.4) | 120 | 2.7 | 3.8 | --- |
| 08 | (370) | 7.8 | 245 | (5.0) | 115 | 3.0 | 4.1 | --- |
| 09 | 435 | (8.4) | 240 | (5.0) | 115 | 3.2 | 4.5 | --- |
| 10 | (375) | 8.3 | 235 | (5.5) | 115 | 3.3 | 4.8 | (2.7) |
| 11 | (395) | 8.5 | 235 | | 110 | 3.3 | 4.8 | (2.7) |
| 12 | (415) | 8.5 | 230 | (5.6) | 115 | 3.3 | 4.7 | (2.8) |
| 13 | (345) | 8.4 | 225 | | (115) | (3.2) | 4.6 | (2.8) |
| 14 | | 8.2 | 230 | | (115) | (3.2) | 3.7 | 2.8 |
| 15 | | 8.2 | 230 | | (120) | (3.3) | 3.3 | 2.8 |
| 16 | | 7.9 | 240 | | 115 | 3.1 | 3.2 | 2.8 |
| 17 | | 7.9 | 250 | | 120 | 3.0 | 2.6 | (2.9) |
| 18 | 250 | (8.0) | 250 | | 120 | 2.7 | 3.0 | --- |
| 19 | 270 | (8.3) | 260 | | 125 | 2.3 | 3.0 | --- |
| 20 | 275 | (8.3) | 275 | | 135 | 1.8 | 2.2 | --- |
| 21 | 290 | (8.6) | | | | (1.3) | 2.1 | --- |
| 22 | 295 | (8.6) | | | | | 1.4 | --- |
| 23 | 305 | (9.2) | | | | | 1.8 | --- |

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 61

Godhavn, Greenland (69.2°N, 53.5°W) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.0 | 260 | | | | | 2.70 |
| 01 | | 5.1 | 270 | | | | | (2.90) |
| 02 | | 4.8 | 280 | | | | | (2.65) |
| 03 | | 4.4 | 280 | | | | | 2.80 |
| 04 | | (4.5) | 285 | | | | | (2.80) |
| 05 | | 4.6 | 255 | | | | | (2.75) |
| 06 | | (4.4) | 270 | | | | | ---- |
| 07 | | 4.6 | 260 | | | | | ---- |
| 08 | | (4.2) | 260 | | | | | ---- |
| 09 | | (5.1) | 260 | | | | | ---- |
| 10 | | 5.8 | 260 | | | | | 2.85 |
| 11 | | (7.5) | 250 | | | | | (2.90) |
| 12 | | (7.8) | 245 | | | | | (2.90) |
| 13 | | 6.8 | 240 | | | | 2.3 | (2.90) |
| 14 | | 6.6 | 230 | | | | | 2.90 |
| 15 | | 6.3 | 240 | | | | | (2.85) |
| 16 | | 6.2 | 250 | | | | | 2.80 |
| 17 | | 5.2 | 250 | | | | | (2.75) |
| 18 | | 5.2 | 250 | | | | | 2.60 |
| 19 | | 6.6 | 260 | | | | | 2.65 |
| 20 | | 6.2 | 250 | | | | | 2.75 |
| 21 | | (6.0) | 255 | | | | | (2.75) |
| 22 | | 5.2 | 250 | | | | | 2.70 |
| 23 | | 4.8 | 260 | | | | | 2.70 |

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 62*

Singapore, British Malaya (1.3°N, 103.8°E) January 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 285 | 10.4 | | | | | 1.3 | 2.4 |
| 01 | 290 | 10.4 | | | | | | 2.5 |
| 02 | 285 | 10.2 | | | | | | 2.6 |
| 03 | 270 | 9.6 | | | | | | 2.7 |
| 04 | 255 | 8.2 | | | | | | 2.8 |
| 05 | 245 | 7.0 | | | | | | 2.9 |
| 06 | 270 | 6.2 | | | (175) | 1.4 | 1.5 | 2.7 |
| 07 | 280 | 8.2 | | | 130 | 2.6 | | 2.8 |
| 08 | 265 | 9.2 | | | 115 | 3.4 | | 2.5 |
| 09 | 240 | 10.2 | | | 110 | 3.8 | 4.0 | 2.2 |
| 10 | 250 | 10.9 | (220) | | 110 | 4.1 | | 2.0 |
| 11 | 280 | 11.7 | (215) | | 110 | 4.2 | | 1.9 |
| 12 | 265 | 12.2 | (215) | | 110 | 4.3 | | 1.9 |
| 13 | 285 | 12.6 | 210 | | 110 | 4.3 | | 1.9 |
| 14 | 265 | 12.5 | (215) | | 110 | 4.2 | | 1.9 |
| 15 | 260 | 12.6 | (220) | | 110 | 3.9 | | 1.9 |
| 16 | 275 | 12.4 | (240) | | 115 | 3.5 | | 1.9 |
| 17 | 265 | 12.1 | | | 120 | 3.0 | 3.5 | 1.9 |
| 18 | 300 | 11.8 | | | (150) | 2.1 | 3.2 | 1.9 |
| 19 | 385 | 11.4 | | | | | 3.6 | 1.9 |
| 20 | 415 | >11.0 | | | | | 2.4 | 1.9 |
| 21 | 380 | 11.4 | | | | | 3.1 | 2.1 |
| 22 | 310 | 11.3 | | | | | 3.1 | 2.3 |
| 23 | 275 | 10.5 | | | | | 1.2 | 2.3 |

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 63

Talara, Peru (4.6°S, 81.3°W) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (11.9) | 280 | | | | (4.0) | (2.65) |
| 01 | | (10.6) | 265 | | | | (4.1) | (2.70) |
| 02 | | (9.6) | 255 | | | | (4.4) | (2.80) |
| 03 | | 8.8 | 240 | | | | (4.4) | 2.90 |
| 04 | | 7.6 | 240 | | | | (4.2) | 3.00 |
| 05 | | 6.2 | 235 | | | | (3.5) | 3.10 |
| 06 | | 5.4 | 255 | | | | (4.1) | 2.80 |
| 07 | | 8.9 | 270 | | 129 | 2.30 | 3.0 | 2.80 |
| 08 | | (12.4) | 250 | | 117 | (3.20) | (4.3) | (2.80) |
| 09 | | 13.9 | 235 | | 111 | 3.75 | 4.2 | 2.75 |
| 10 | --- | 14.0 | 225 | | 111 | 4.05 | | 2.55 |
| 11 | (240) | 14.2 | 215 | --- | 111 | 4.25 | 4.3 | 2.45 |
| 12 | --- | 14.4 | 215 | --- | 111 | 4.25 | | 2.40 |
| 13 | (250) | 14.4 | 210 | 6.7 | 111 | 4.25 | | 2.35 |
| 14 | --- | (14.2) | 210 | 6.7 | 111 | (4.15) | | 2.30 |
| 15 | --- | >13.8 | 215 | --- | 113 | 3.90 | | (2.30) |
| 16 | --- | >13.6 | 230 | | 113 | 3.65 | 3.8 | (2.30) |
| 17 | | >13.5 | 250 | | 115 | 3.30 | 3.5 | (2.25) |
| 18 | | >13.2 | 270 | | 123 | 2.55 | 3.3 | (2.30) |
| 19 | | >13.0 | 305 | | | | (3.2) | (2.35) |
| 20 | | >12.5 | 350 | | | | 3.0 | (2.40) |
| 21 | | >12.9 | 330 | | | | 3.0 | (2.50) |
| 22 | | >12.7 | 300 | | | | (3.2) | (2.55) |
| 23 | | 12.6 | 290 | | | | (3.3) | (2.45) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 64

Townsville, Australia (19.3°S, 146.7°E) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >8.2 | 300 | | | | (3.0) | |
| 01 | | >6.5 | 295 | | | | (3.5) | |
| 02 | | >6.2 | 295 | | | | (3.5) | ---- |
| 03 | | >6.5 | 315 | | | | 2.4 | ---- |
| 04 | | >6.4 | 300 | | | | (2.0) | |
| 05 | | >6.0 | 300 | | | | | |
| 06 | --- | >6.0 | 280 | --- | | 2.15 | | ---- |
| 07 | --- | >8.6 | 250 | --- | | 3.00 | | (2.60) |
| 08 | --- | >8.9 | 230 | --- | | 3.45 | 3.6 | 2.70 |
| 09 | --- | (10.2) | 230 | --- | | 3.90 | 4.2 | (2.50) |
| 10 | 440 | 11.0 | 230 | 6.5 | | 4.00 | 4.2 | 2.50 |
| 11 | 410 | 11.8 | 230 | 6.7 | | 4.20 | | 2.55 |
| 12 | 400 | >12.0 | 230 | 6.6 | | 4.30 | 4.6 | 2.55 |
| 13 | 400 | 12.2 | 230 | 6.4 | | 4.30 | 4.7 | 2.55 |
| 14 | 390 | 12.0 | 240 | 6.3 | | 4.15 | 4.7 | 2.60 |
| 15 | 400 | 11.8 | 240 | 6.3 | | 4.00 | 4.9 | 2.50 |
| 16 | 400 | 11.0 | 230 | 6.0 | | 3.70 | 4.6 | 2.55 |
| 17 | --- | >10.0 | 240 | --- | | 3.30 | 4.0 | (2.60) |
| 18 | | >8.5 | 260 | | | 2.65 | (3.8) | ---- |
| 19 | | >7.0 | 300 | | | ---- | (3.5) | |
| 20 | | >6.0 | 340 | | | | (3.1) | |
| 21 | | >6.4 | 350 | | | | (2.4) | |
| 22 | | >6.0 | 350 | | | | (2.6) | |
| 23 | | >6.4 | 330 | | | | 2.4 | |

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

Table 65

Hobart, Tasmania (42.9°S, 147.2°E) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 7.4 | 300 | | | | | 2.45 |
| 01 | | 7.0 | 300 | | | | | 2.40 |
| 02 | | 6.4 | 320 | | | | | 2.40 |
| 03 | | 6.0 | 330 | | | ---- | | 2.40 |
| 04 | | >5.0 | 320 | | | 1.35 | | 2.40 |
| 05 | --- | 5.7 | 300 | --- | | 1.85 | 2.0 | 2.50 |
| 06 | --- | 6.3 | 260 | --- | | 2.50 | 3.3 | 2.60 |
| 07 | 390 | 6.9 | 240 | 4.7 | | 3.10 | 3.7 | 2.60 |
| 08 | 460 | 7.0 | 240 | 5.4 | | 3.45 | 4.4 | 2.50 |
| 09 | 450 | 7.4 | (240) | 5.6 | | 3.70 | 4.4 | 2.50 |
| 10 | 480 | 7.8 | (230) | 5.9 | | 3.80 | 4.6 | 2.50 |
| 11 | 480 | >7.6 | --- | 6.0 | | 3.80 | 4.4 | 2.40 |
| 12 | 480 | 8.0 | --- | 6.0 | | 3.80 | 4.5 | 2.40 |
| 13 | 490 | 8.0 | (240) | (6.0) | | 3.75 | 4.6 | 2.40 |
| 14 | 490 | 7.6 | (230) | 5.8 | | ---- | 4.7 | 2.40 |
| 15 | 480 | 7.6 | 230 | 5.8 | | 3.70 | 4.2 | 2.40 |
| 16 | 460 | >7.5 | 230 | 5.5 | | 3.70 | | 2.40 |
| 17 | 440 | >7.5 | 240 | 5.1 | | 3.40 | 4.0 | 2.45 |
| 18 | 440 | 7.7 | 250 | 4.6 | | 2.90 | 3.9 | 2.50 |
| 19 | | 7.6 | (285) | | | <2.20 | 4.0 | 2.50 |
| 20 | | 7.8 | 295 | | | <2.10 | 4.0 | 2.50 |
| 21 | | >8.0 | 315 | | | ---- | 5.0 | 2.35 |
| 22 | | 8.2 | 320 | | | | 3.7 | 2.35 |
| 23 | | >7.5 | 310 | | | | 3.5 | 2.40 |

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

Table 66*

Port Lockroy (64.8°S, 63.5°W) January 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 340 | (9.4) | | | (165) | (1.4) | 2.3 | --- |
| 01 | 345 | (10.4) | | | (140) | 1.3 | 2.2 | --- |
| 02 | 360 | (10.3) | 350 | | (150) | 1.4 | 2.2 | --- |
| 03 | 380 | (10.0) | 330 | | 135 | 1.5 | 2.6 | --- |
| 04 | 390 | (10.4) | 305 | 3.7 | 125 | 2.0 | 3.1 | --- |
| 05 | 400 | (10.8) | 275 | 4.2 | 120 | 2.4 | 4.4 | --- |
| 06 | 405 | (10.7) | 260 | 4.5 | 115 | 2.8 | 4.8 | --- |
| 07 | 435 | (9.7) | 245 | 5.0 | 115 | 3.1 | 5.8 | --- |
| 08 | 410 | 9.8 | 240 | 5.3 | 115 | 3.3 | 5.6 | (2.4) |
| 09 | 450 | 8.7 | 245 | 5.5 | 115 | 3.4 | 5.1 | 2.4 |
| 10 | 460 | 8.1 | 235 | 5.7 | 110 | 3.6 | 6.0 | (2.5) |
| 11 | 490 | 7.9 | 240 | 5.7 | 110 | 3.7 | 6.2 | (2.4) |
| 12 | 490 | 7.4 | 240 | 5.8 | 110 | 3.9 | 6.5 | (2.4) |
| 13 | 470 | 7.1 | 240 | 5.8 | 110 | 3.8 | 7.5 | (2.5) |
| 14 | 455 | 7.2 | 240 | 5.7 | 110 | 3.8 | 7.0 | --- |
| 15 | 455 | 7.4 | 255 | 5.7 | 110 | 3.7 | 7.0 | (2.6) |
| 16 | 450 | 7.4 | 250 | 5.5 | 115 | 3.5 | 6.7 | 2.5 |
| 17 | 445 | 7.6 | 260 | 5.4 | 115 | 3.3 | 6.3 | 2.6 |
| 18 | (420) | 7.6 | 255 | | 115 | 3.0 | 5.7 | (2.7) |
| 19 | --- | (7.9) | 265 | | 120 | 2.7 | 5.4 | --- |
| 20 | (315) | (8.2) | 275 | | 120 | 2.3 | 4.6 | (2.7) |
| 21 | 310 | (8.3) | (305) | | (120) | 1.7 | 3.7 | --- |
| 22 | 310 | (8.6) | (320) | | (135) | 1.5 | 1.9 | --- |
| 23 | 325 | (8.8) | (355) | | (150) | 1.4 | 1.6 | --- |

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 67*

Ibadan, Nigeria (7.4°N, 4.0°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 270 | (8.9) | | | | | 3.8 | --- |
| 01 | 270 | 9.6 | | | | | 4.2 | --- |
| 02 | 260 | (10.0) | | | | | 5.4 | (2.9) |
| 03 | 250 | 9.2 | | | | | 4.7 | --- |
| 04 | 230 | (7.6) | | | | | 4.0 | --- |
| 05 | 230 | (7.8) | | | | | >4.4 | --- |
| 06 | 280 | (8.4) | | | 150 | 1.85 | >5.7 | --- |
| 07 | | >10.0 | 255 | | (125) | 3.00 | >8.9 | --- |
| 08 | | 11.7 | 240 | | (120) | 3.5 | 10.2 | 2.5 |
| 09 | | 12.2 | 230 | | | 3.85 | 13.3 | 2.3 |
| 10 | | 12.4 | 225 | | | 4.1 | 13.9 | 2.1 |
| 11 | | 12.4 | 220 | | | 4.2 | 13.9 | 2.0 |
| 12 | | 12.4 | 220 | | | 4.2 | 13.8 | 1.9 |
| 13 | | 12.4 | 215 | | | 4.1 | 13.9 | 1.9 |
| 14 | | 12.2 | 220 | | | 3.9 | 13.9 | 1.9 |
| 15 | | 12.2 | 235 | | | 3.65 | 13.3 | 1.9 |
| 16 | | >11.4 | 255 | | | 3.2 | 10.7 | (1.9) |
| 17 | 285 | >9.2 | | | | 2.35 | >8.4 | --- |
| 18 | 365 | 10.3 | | | | 1.3 | 3.2 | 1.8 |
| 19 | 470 | 8.8 | | | | | | --- |
| 20 | 495 | (8.2) | | | | | | --- |
| 21 | 425 | (8.6) | | | | | | --- |
| 22 | 340 | >9.0 | | | | | | --- |
| 23 | 295 | (8.6) | | | | | 3.8 | --- |

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

Table 68*

Inverness, Scotland (57.4°N, 4.2°W) — September 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 330 | 5.2 | | | | | 1.2 | 2.4 |
| 01 | 335 | 4.9 | | | | | 2.4 | 2.3 |
| 02 | 345 | 4.6 | | | | | 2.3 | 2.3 |
| 03 | 340 | 4.4 | | | | | 2.4 | 2.3 |
| 04 | 335 | 3.8 | | | | | 2.4 | 2.4 |
| 05 | 310 | 3.8 | | | (125) | (1.6) | 1.2 | 2.5 |
| 06 | 275 | 4.8 | | | 130 | 1.8 | 2.7 | 2.7 |
| 07 | 260 | 6.0 | --- | --- | 125 | 2.3 | | 2.9 |
| 08 | 290 | 6.8 | (245) | (4.3) | 110 | 2.8 | | 2.8 |
| 09 | 325 | 7.4 | 240 | (4.7) | 110 | 3.1 | | 2.8 |
| 10 | 315 | 7.8 | 240 | 5.0 | 110 | 3.3 | | 2.8 |
| 11 | 345 | 8.2 | 235 | 5.2 | 105 | 3.5 | | 2.8 |
| 12 | 320 | 8.2 | 240 | 5.2 | 105 | 3.5 | | 2.7 |
| 13 | 320 | 8.7 | 245 | 5.3 | 105 | 3.4 | | 2.7 |
| 14 | 325 | 9.0 | 240 | 5.3 | 110 | 3.4 | | 2.7 |
| 15 | 310 | 8.8 | 245 | (5.0) | 110 | 3.2 | 2.7 | 2.7 |
| 16 | 285 | 8.6 | (260) | (4.5) | 110 | 3.0 | | 2.7 |
| 17 | 270 | 8.8 | --- | --- | 115 | 2.5 | | 2.8 |
| 18 | 260 | 8.7 | --- | --- | 130 | 2.1 | 2.5 | 2.8 |
| 19 | 255 | 8.6 | | | --- | (1.8) | | 2.8 |
| 20 | 265 | 7.6 | | | | | 2.4 | 2.7 |
| 21 | 275 | 6.9 | | | | | | 2.6 |
| 22 | 295 | 6.0 | | | | | 2.4 | 2.4 |
| 23 | 325 | 5.7 | | | | | | 2.4 |

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 69

Lulea, Sweden (65.6°N, 22.1°E) — August 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 290 | --- | | | | | 2.5 | |
| 01 | 290 | --- | | | | | 2.5 | |
| 02 | 280 | --- | | | | | 2.6 | |
| 03 | --- | --- | 290 | --- | --- | 1.6 | 2.4 | |
| 04 | --- | (5.7) | 260 | --- | --- | 1.9 | 2.5 | |
| 05 | --- | 5.9 | 250 | 3.9 | 110 | 2.3 | 2.6 | |
| 06 | (340) | 5.9 | 240 | 4.2 | 110 | 2.7 | | --- |
| 07 | (360) | 6.0 | --- | 4.5 | 100 | --- | | --- |
| 08 | (350) | 6.8 | --- | 4.8 | 110 | --- | | |
| 09 | (370) | 6.9 | --- | 5.0 | 100 | --- | | --- |
| 10 | (350) | 7.0 | --- | 5.0 | 100 | --- | 3.8 | --- |
| 11 | 355 | 7.1 | 210 | 5.2 | --- | --- | | --- |
| 12 | (360) | 7.0 | 210 | 5.1 | 100 | --- | 3.9 | --- |
| 13 | --- | 7.2 | 210 | 5.0 | 100 | --- | | (2.7) |
| 14 | --- | 7.0 | --- | 5.2 | 100 | --- | | --- |
| 15 | --- | 6.8 | --- | 5.0 | 100 | --- | | --- |
| 16 | --- | 6.7 | --- | 4.7 | 100 | --- | | --- |
| 17 | --- | 6.6 | --- | --- | 110 | --- | | --- |
| 18 | --- | (6.0) | 240 | --- | 110 | 2.3 | 3.1 | |
| 19 | --- | --- | 240 | --- | --- | 2.0 | 2.9 | |
| 20 | (260) | --- | 250 | --- | --- | 1.8 | 2.0 | |
| 21 | 260 | --- | | | --- | 1.6 | 2.3 | |
| 22 | 280 | --- | | | | | 2.4 | |
| 23 | 280 | --- | | | | | 2.4 | |

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 9 minutes, automatic operation.

Table 70

Calcutta, India (22.9°N, 88.5°E) — July 1956*

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 265 | 6.4 | | | | | 2.1 | 3.3 |
| 01 | 270 | 5.5 | | | | | 2.0 | 3.3 |
| 02 | 260 | 5.0 | | | | | 1.8 | 3.3 |
| 03 | 250 | 4.6 | | | | | | 3.3 |
| 04 | 250 | 4.3 | | | | | 2.0 | 3.25 |
| 05 | 260 | 4.4 | | | | | 2.0 | 3.3 |
| 06 | 250 | 6.8 | 230 | --- | 100 | 2.6 | 3.0 | 3.3 |
| 07 | (260) | 7.6 | 220 | 4.6 | 100 | 2.8 | 3.2 | 3.35 |
| 08 | 275 | 9.5 | 210 | 5.0 | 100 | 3.1 | 3.8 | 3.1 |
| 09 | 300 | 10.5 | 200 | 5.2 | --- | --- | 4.6 | 2.9 |
| 10 | 330 | 11.5 | 200 | 5.3 | --- | --- | 5.2 | 2.8 |
| 11 | 350 | 12.0 | --- | 5.5 | --- | --- | 5.2 | 3.0 |
| 12 | 395 | 12.5 | --- | 5.6 | --- | --- | 5.5 | 2.75 |
| 13 | 410 | 12.7 | --- | 5.5 | --- | --- | 5.2 | (2.8) |
| 14 | 400 | 12.5 | 220 | 5.4 | --- | --- | 5.1 | 2.8 |
| 15 | 360 | 12.5 | 220 | 5.2 | --- | --- | 4.0 | 3.1 |
| 16 | 340 | 11.8 | 220 | 5.1 | --- | --- | 3.8 | 3.3 |
| 17 | 310 | 11.5 | 230 | 4.7 | --- | --- | 3.6 | 3.3 |
| 18 | 280 | 11.0 | | | --- | --- | 3.5 | 3.2 |
| 19 | 280 | 9.6 | | | | | 3.2 | 3.4 |
| 20 | 290 | 8.0 | | | | | 3.0 | 3.3 |
| 21 | 300 | 7.2 | | | | | 2.0 | 3.2 |
| 22 | 300 | 9.0 | | | | | | 3.1 |
| 23 | 290 | 7.8 | | | | | 2.0 | 3.2 |

Time: 90.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.
*Data observed from July 1, 1956, to July 24, 1956, inclusive.

Table 71

Calcutta, India (22.9°N, 88.5°E) — June 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 5.6 | | | | | 3.1 | 3.1 |
| 01 | 300 | 5.5 | | | | | 2.1 | 3.0 |
| 02 | 300 | 5.5 | | | | | 3.0 | 2.9 |
| 03 | 280 | 5.2 | | | | | 2.1 | 3.0 |
| 04 | 280 | 4.8 | | | | | 2.1 | 3.1 |
| 05 | 265 | 4.6 | | | | | 2.1 | 3.1 |
| 06 | 260 | 6.2 | --- | --- | 110 | 2.5 | 3.4 | 3.2 |
| 07 | 280 | 7.3 | 230 | 4.5 | 100 | 2.8 | 3.5 | 3.3 |
| 08 | 300 | 7.6 | 210 | 4.9 | --- | --- | 5.0 | 3.2 |
| 09 | 320 | 8.0 | --- | 5.2 | --- | --- | 5.1 | 3.0 |
| 10 | (325) | (9.2) | --- | 5.3 | --- | --- | 5.5 | (3.0) |
| 11 | (350) | (10.4) | --- | 5.3 | --- | --- | 5.4 | (2.85) |
| 12 | (360) | (10.9) | 210 | 5.3 | 100 | 3.7 | 5.5 | (2.65) |
| 13 | 370 | (11.5) | 230 | 5.3 | 100 | 3.7 | 5.2 | (2.8) |
| 14 | 360 | 11.8 | 220 | 5.3 | 100 | 3.4 | 5.2 | 2.8 |
| 15 | 340 | 11.3 | 220 | 5.2 | 100 | 3.4 | 4.4 | 2.9 |
| 16 | 330 | 11.2 | 220 | 5.1 | 100 | 3.2 | | 3.1 |
| 17 | 300 | 10.7 | 220 | 4.8 | 100 | 3.0 | | 3.2 |
| 18 | 295 | 10.2 | 230 | 4.2 | 110 | 2.6 | 3.5 | 3.3 |
| 19 | 275 | 9.5 | | | | | 2.3 | 3.4 |
| 20 | 290 | 8.6 | | | | | 2.1 | 3.2 |
| 21 | 300 | 8.0 | | | | | 2.0 | 3.1 |
| 22 | 290 | 6.8 | | | | | 2.5 | 3.0 |
| 23 | 305 | 6.8 | | | | | 2.1 | 3.1 |

Time: 90.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 72*

Campbell I. (52.5°S, 169.2°E) — December 1954

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | | | | | | | |
| 01 | | | | | | | | |
| 02 | | | | | | | | |
| 03 | | | | | | | | |
| 04 | | | | | | | | |
| 05 | 260 | 4.3 | 240 | --- | 140 | 2.1 | | 3.2 |
| 06 | 310 | 4.6 | 240 | 3.7 | 125 | 2.5 | | 3.1 |
| 07 | 330 | 5.1 | 230 | 4.0 | 120 | 2.8 | | 3.1 |
| 08 | 330 | 5.2 | 230 | 4.2 | 120 | 3.0 | 4.4 | 3.1 |
| 09 | 340 | 5.5 | 230 | 4.3 | 120 | 3.1 | 4.4 | 3.1 |
| 10 | 350 | 5.5 | 220 | 4.4 | 120 | 3.2 | 4.1 | 3.0 |
| 11 | 330 | 5.6 | 220 | 4.4 | 120 | 3.2 | 3.9 | 3.1 |
| 12 | 340 | 5.6 | 230 | 4.4 | 120 | 3.3 | 3.7 | 3.0 |
| 13 | 340 | 5.7 | 220 | 4.4 | 120 | 3.5 | | 3.05 |
| 14 | 340 | 5.6 | 230 | 4.3 | 120 | 3.2 | | 3.0 |
| 15 | 340 | 5.5 | 230 | 4.3 | 120 | 3.2 | | 3.0 |
| 16 | 320 | 5.6 | 240 | 4.1 | 125 | 2.8 | | 3.0 |
| 17 | 310 | 5.7 | 240 | 3.9 | 130 | 2.7 | | 3.0 |
| 18 | 300 | 5.9 | 250 | 3.6 | 130 | 2.3 | | 3.0 |
| 19 | 270 | 5.8 | 240 | --- | 145 | 2.1 | | 3.0 |
| 20 | 270 | 6.0 | | | | | 2.4 | 3.0 |
| 21 | 260 | 5.8 | | | | | | 3.0 |
| 22 | 260 | 5.4 | | | | | | 3.0 |
| 23 | 280 | 4.9 | | | | | | 2.9 |

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

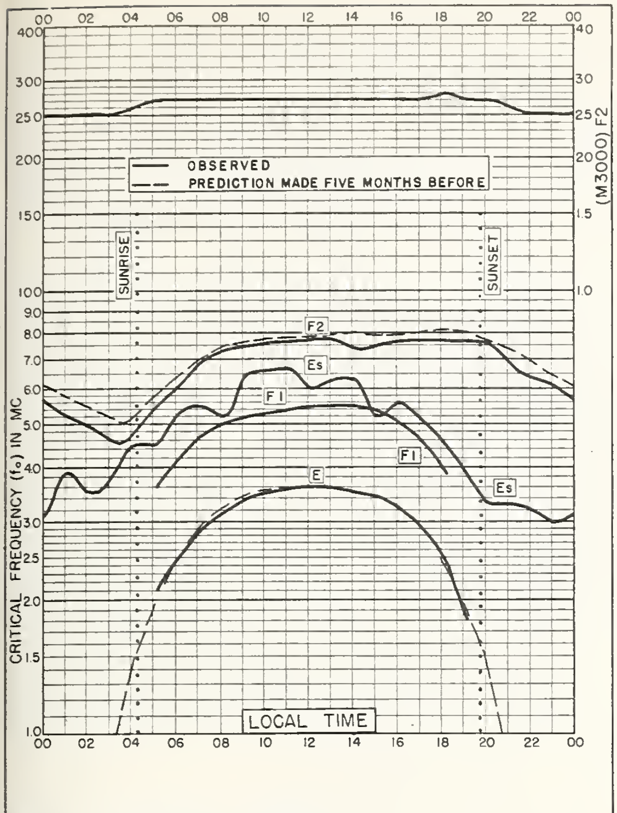



Fig. 1. UPSALA, SWEDEN
59.8°N, 17.6°E AUGUST 1957

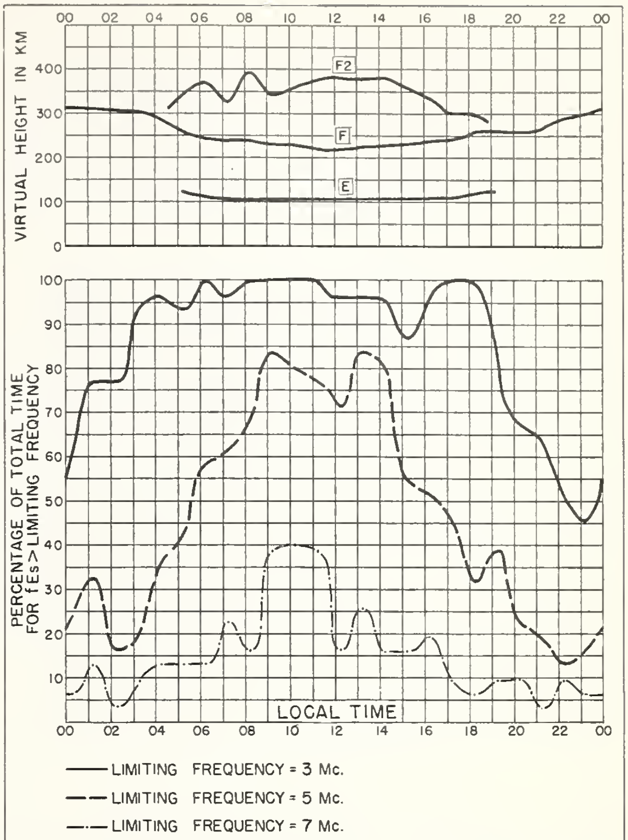



Fig. 2. UPSALA, SWEDEN AUGUST 1957



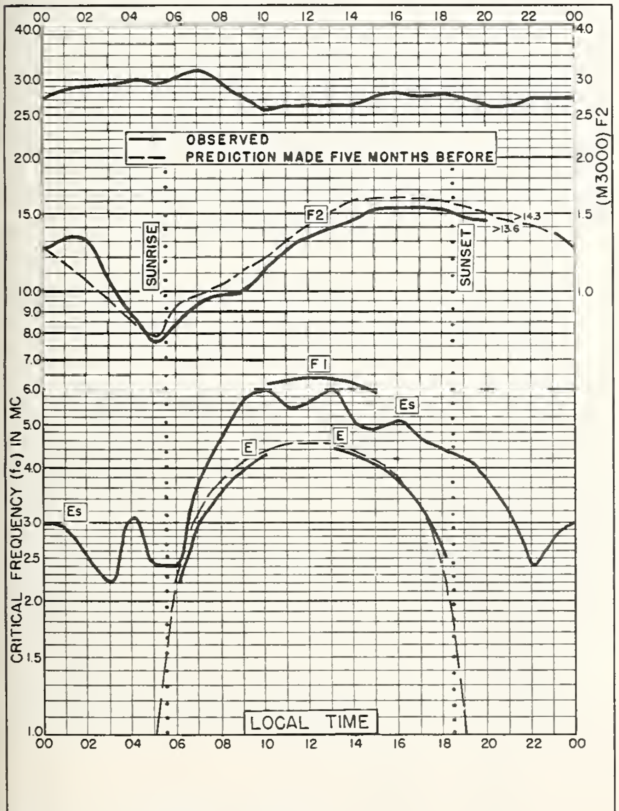



Fig. 3. FORMOSA, CHINA
25.0°N, 121.5°E AUGUST 1957

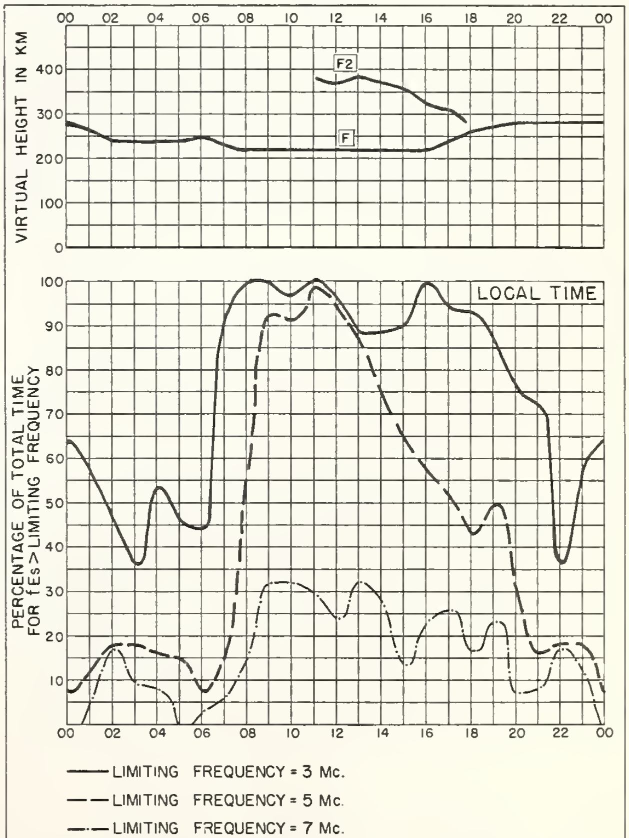



Fig. 4. FORMOSA, CHINA AUGUST 1957

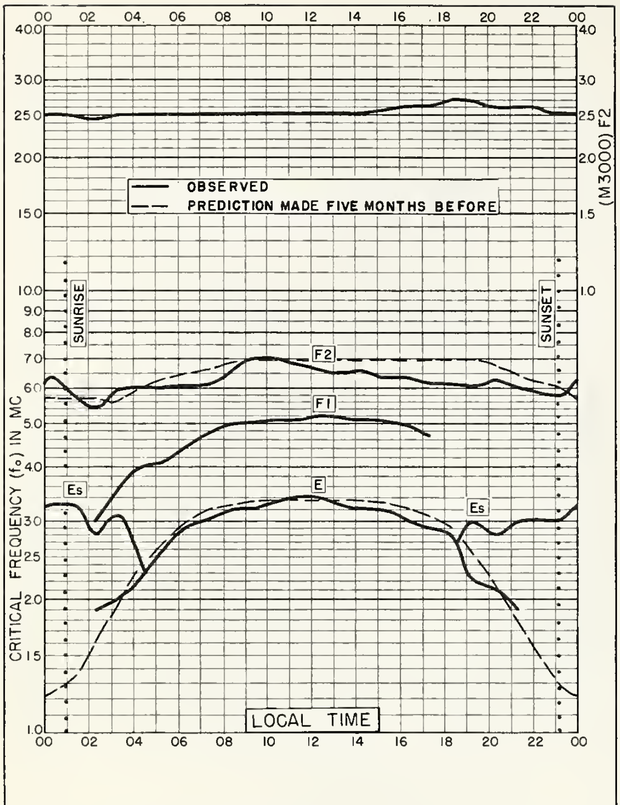



Fig. 5. KIRUNA, SWEDEN
67.8°N, 20.3°E JULY 1957

NBS 503

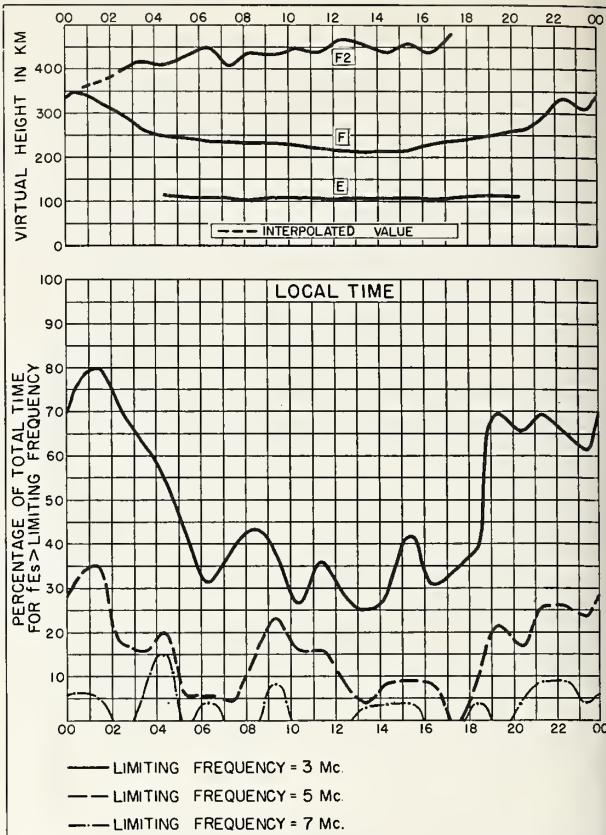



Fig. 6. KIRUNA, SWEDEN JULY 1957

NBS 490

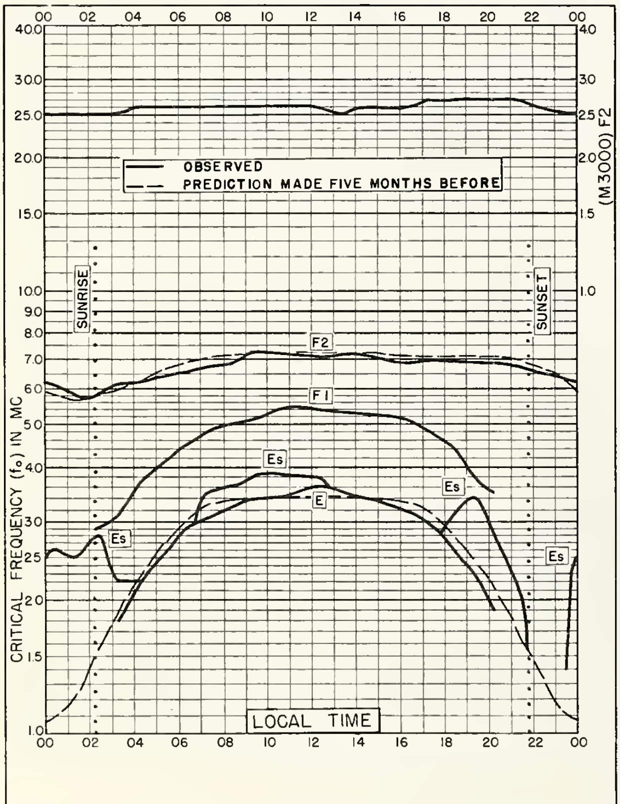



Fig. 7. LYCKSELE, SWEDEN
64.6°N, 18.8°E JULY 1957

NBS 503

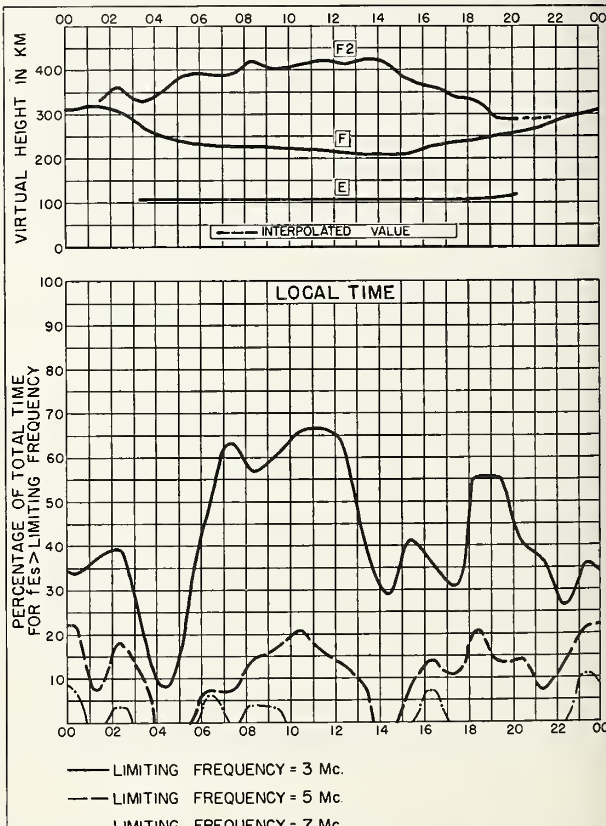



Fig. 8. LYCKSELE, SWEDEN JULY 1957

NBS 490

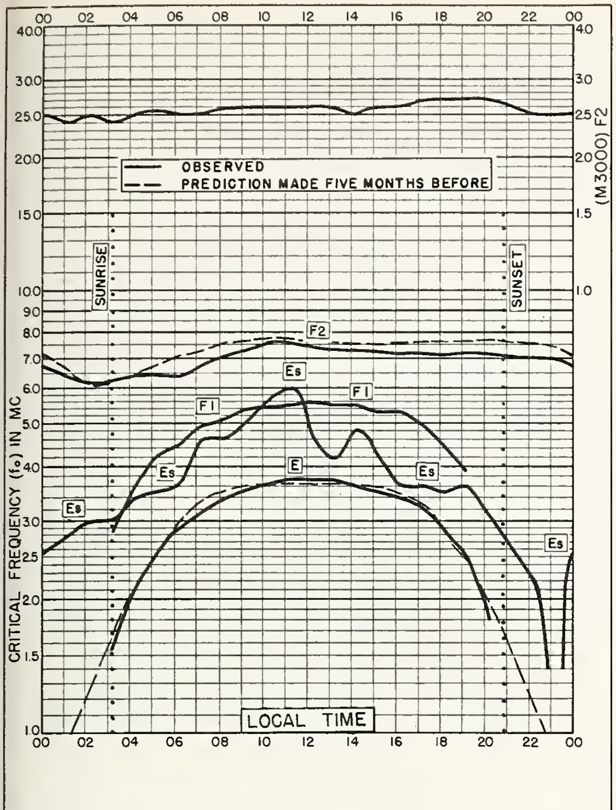



Fig. 9. UPSALA, SWEDEN
59.8°N, 17.6°E JULY 1957

NBS 503

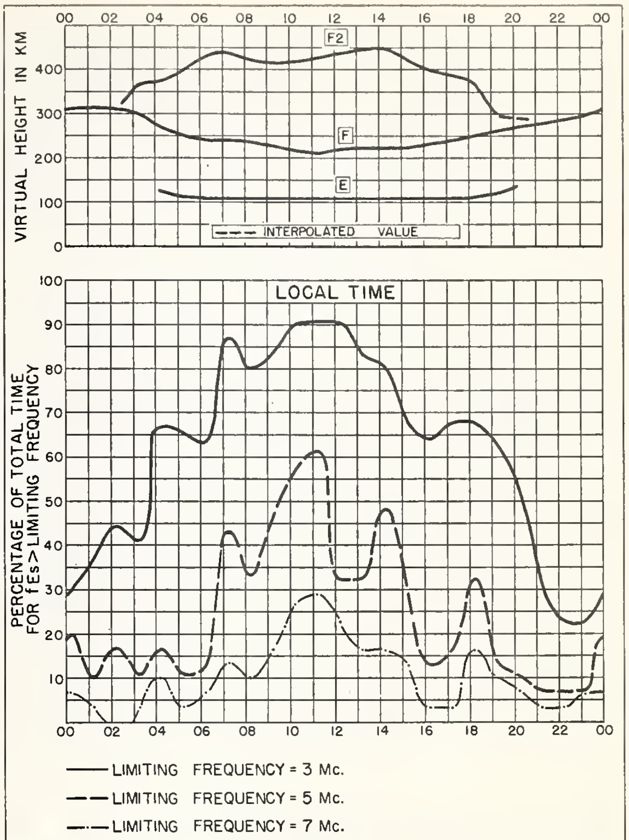



Fig. 10. UPSALA, SWEDEN JULY 1957

NBS 490

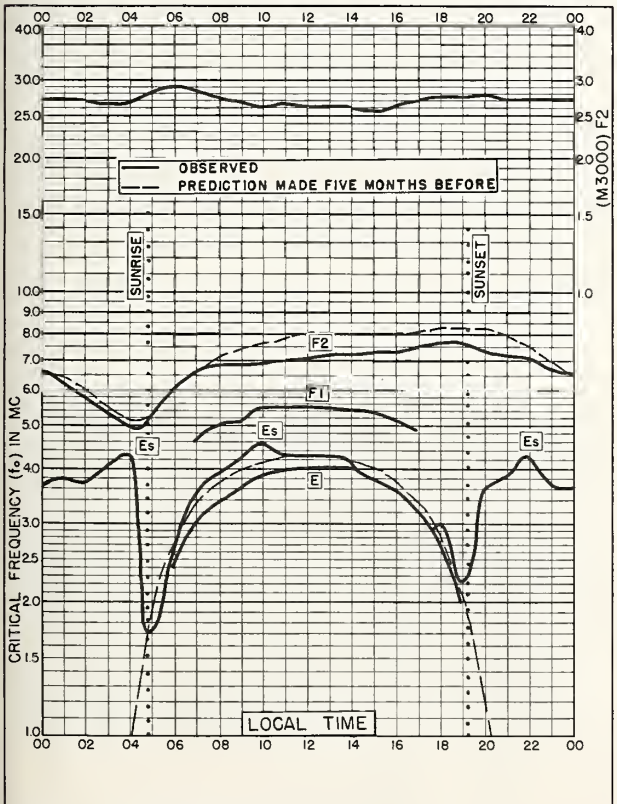



Fig. 11. WASHINGTON, D. C.
38.7°N, 77.1°W JULY 1957

NBS 503

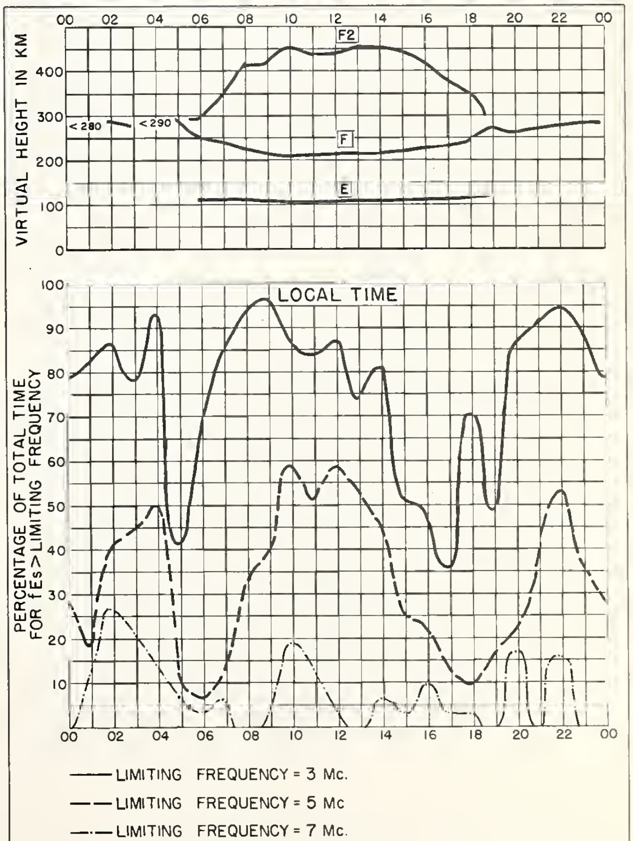



Fig. 12. WASHINGTON, D. C. JULY 1957

NBS 490

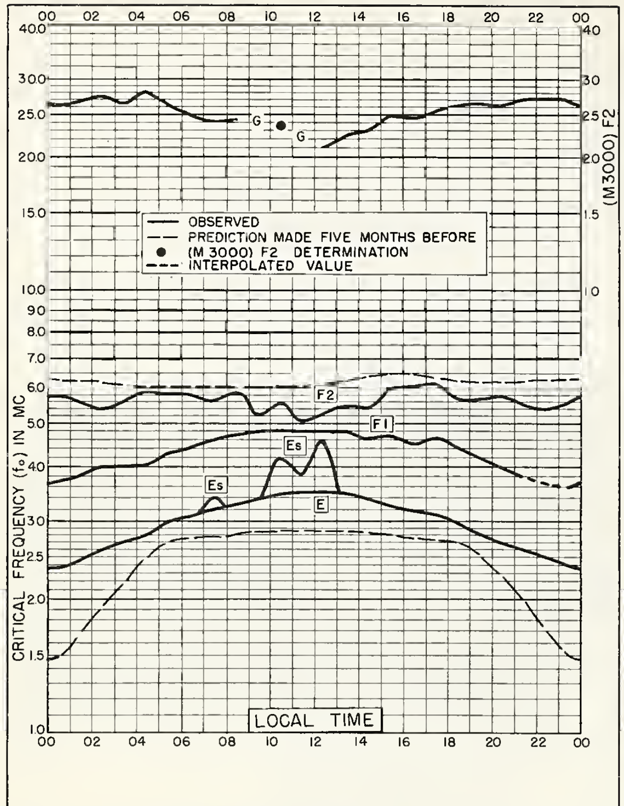
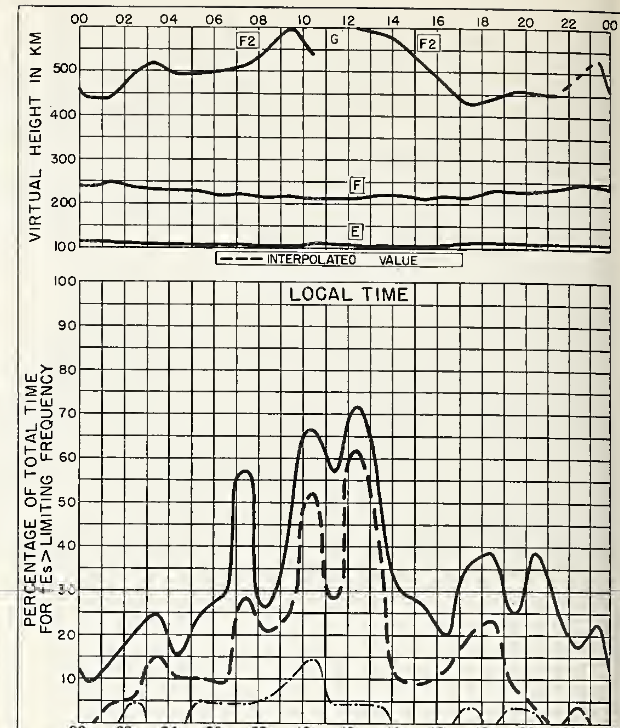



Fig. 13. THULE, GREENLAND
76.6°N, 68.7°W JUNE 1957

NBS 503




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

Fig. 14. THULE, GREENLAND JUNE 1957

NBS 490

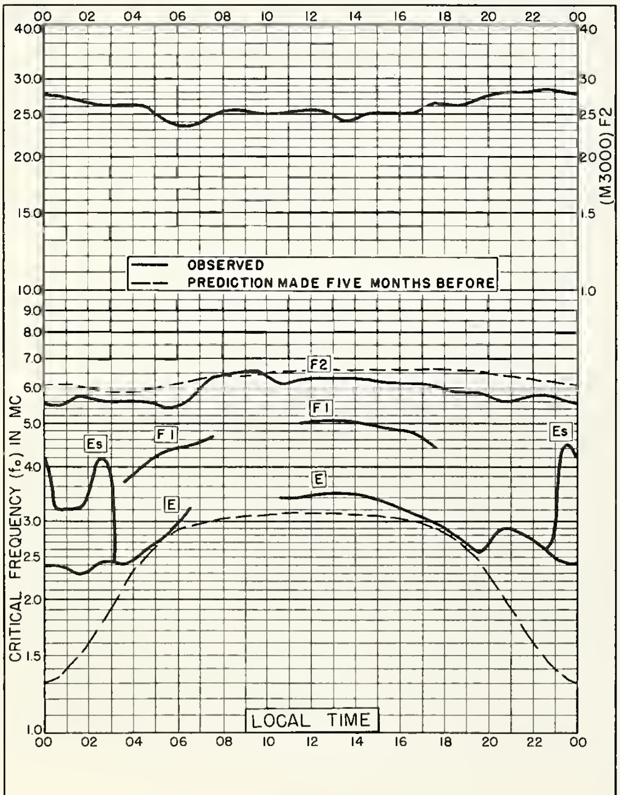
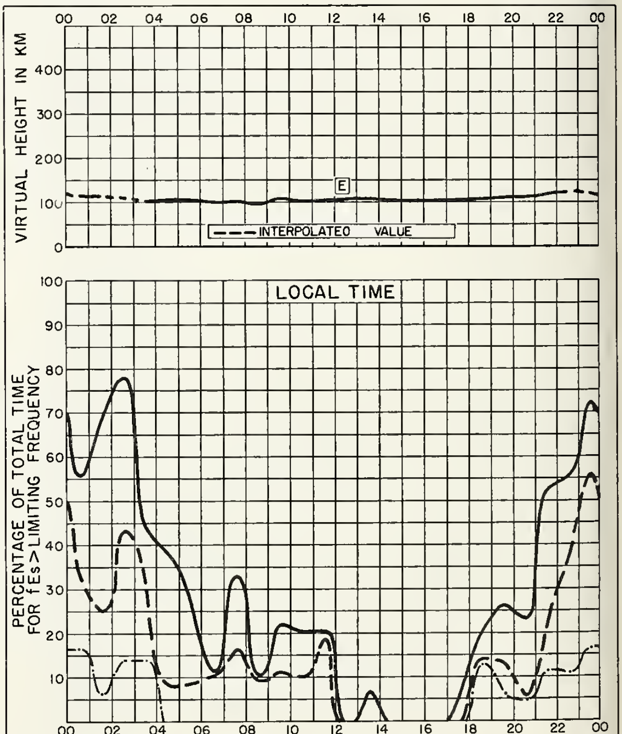



Fig. 15. POINT BARROW, ALASKA
71.3°N, 156.8°W JUNE 1957

NBS 503




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

Fig. 16. POINT BARROW, ALASKA JUNE 1957

NBS 490

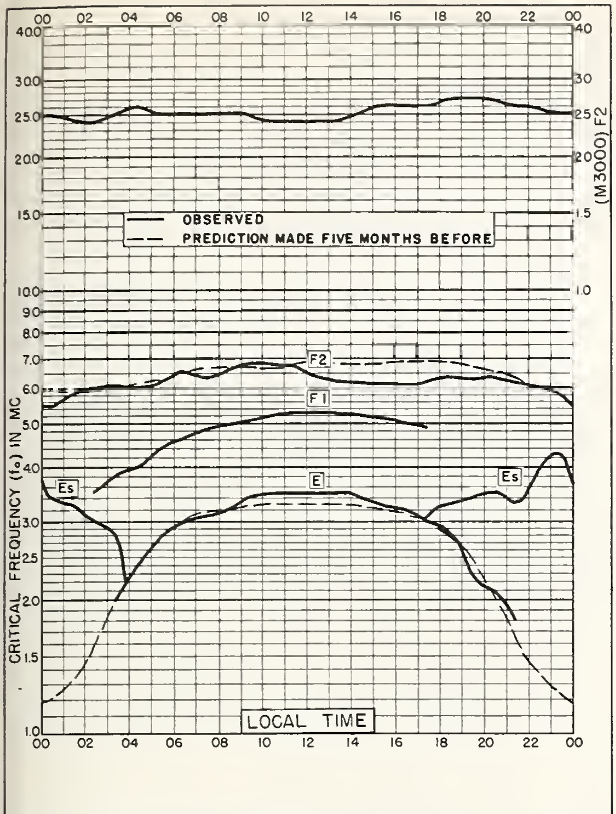



Fig. 17. KIRUNA, SWEDEN
67.8°N, 20.3°E JUNE 1957

NBS 503

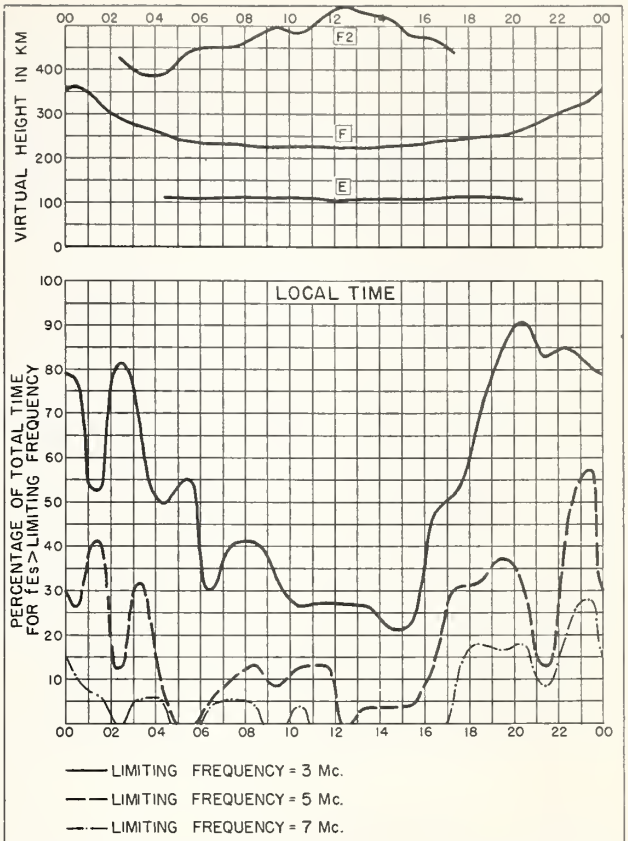



Fig. 18. KIRUNA, SWEDEN JUNE 1957

NBS 490

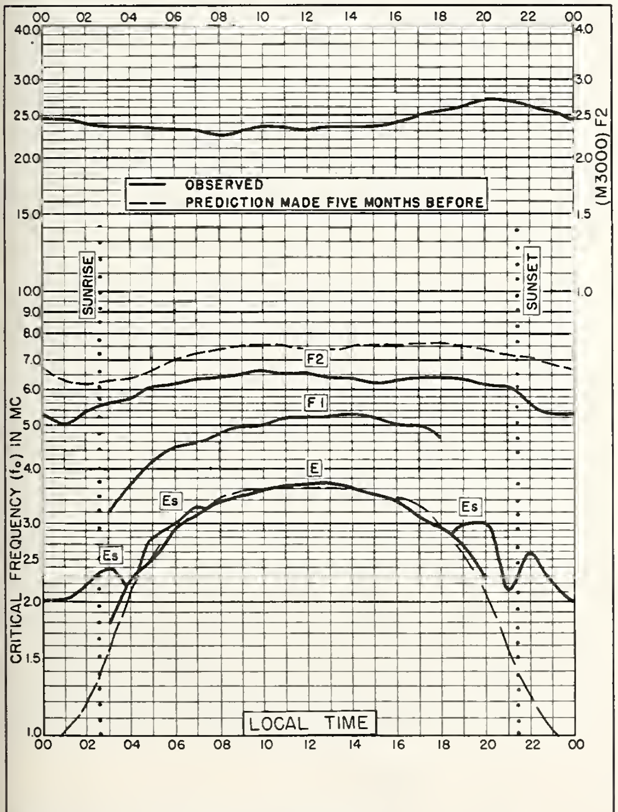



Fig. 19. ANCHORAGE, ALASKA
61.2°N, 149.9°W JUNE 1957

NBS 503

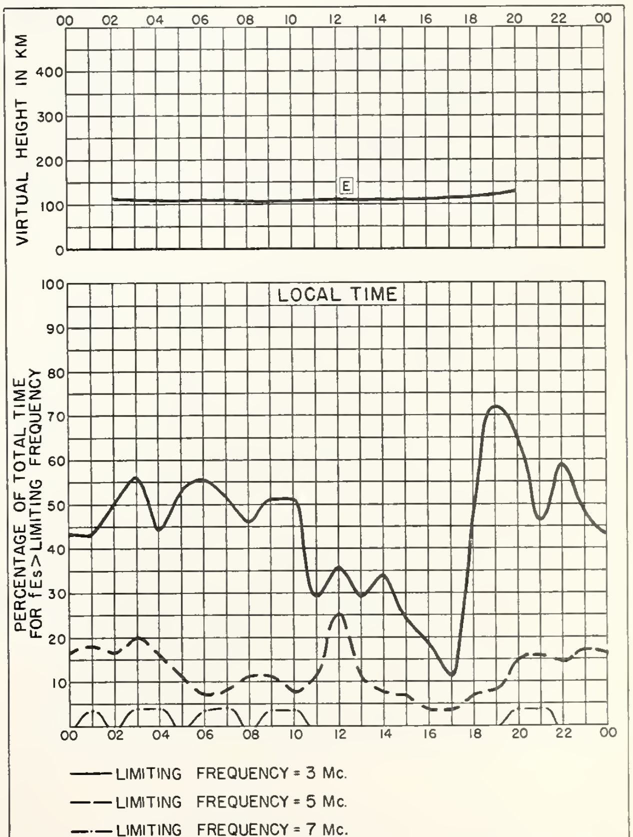



Fig. 20. ANCHORAGE, ALASKA JUNE 1957

NBS 490

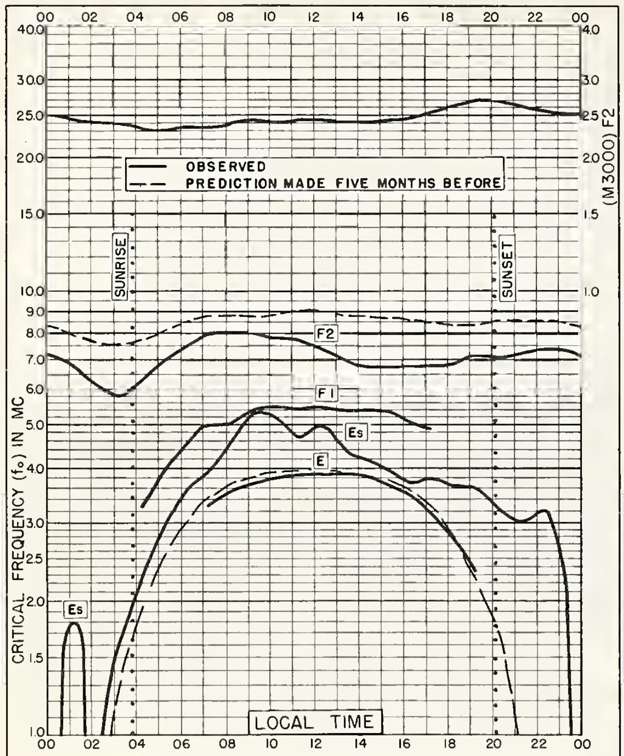



Fig. 21. ADAK, ALASKA
51.9°N, 176.6°W JUNE 1957



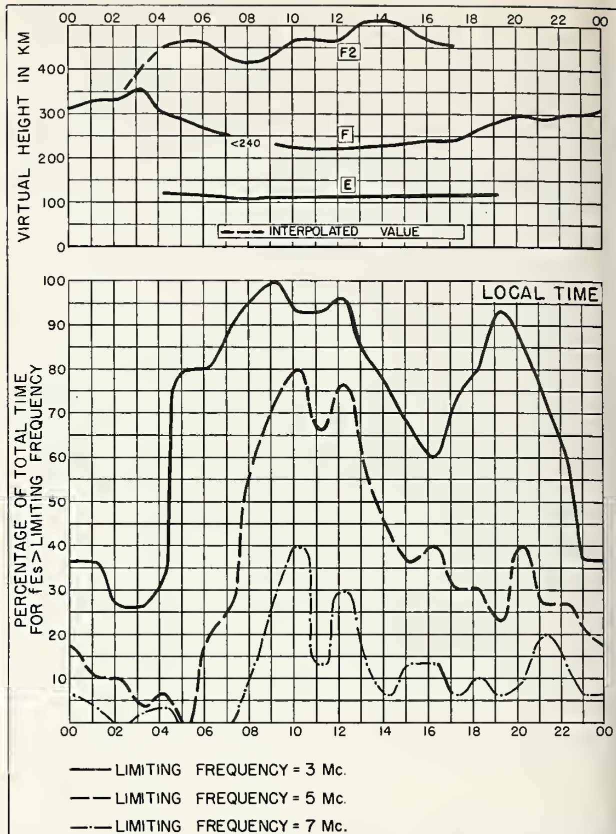



Fig. 22. ADAK, ALASKA JUNE 1957



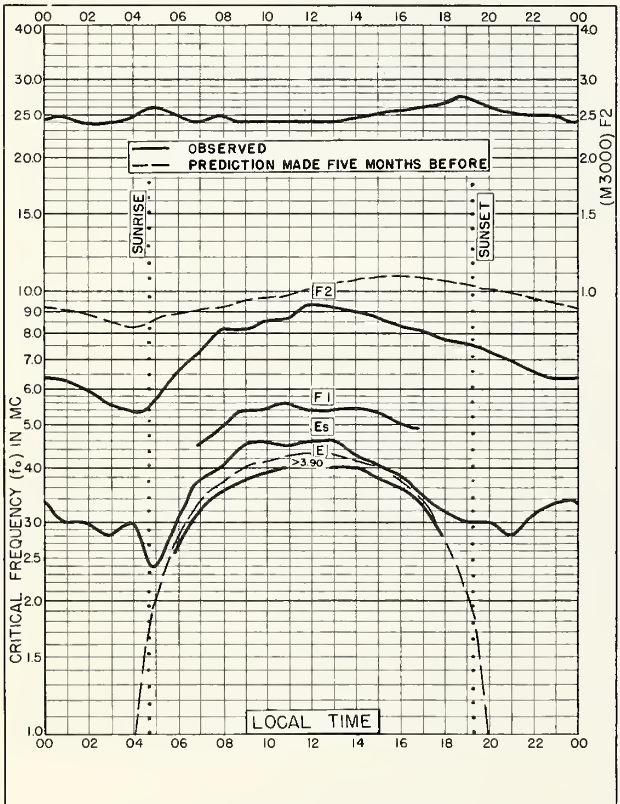
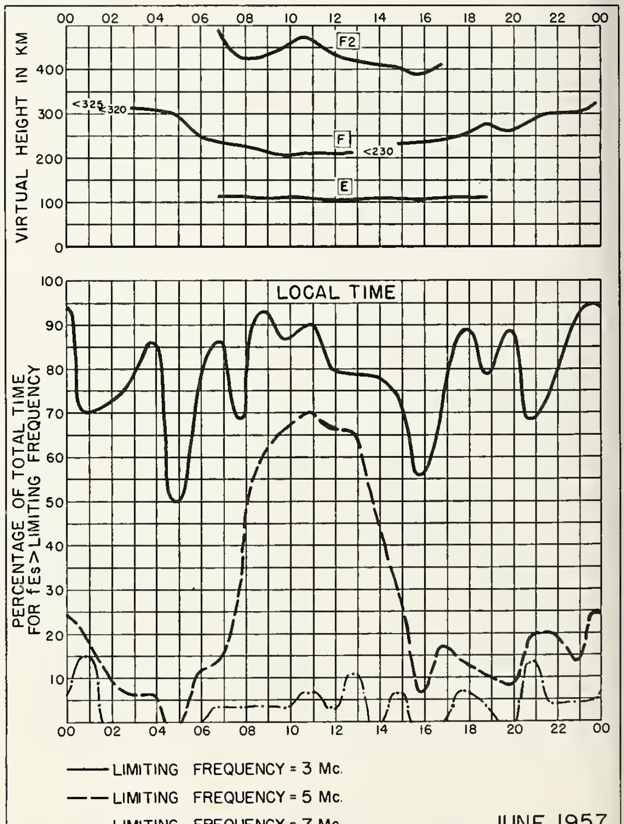



Fig. 23. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JUNE 1957






JUNE 1957

Fig. 24. SAN FRANCISCO, CALIFORNIA

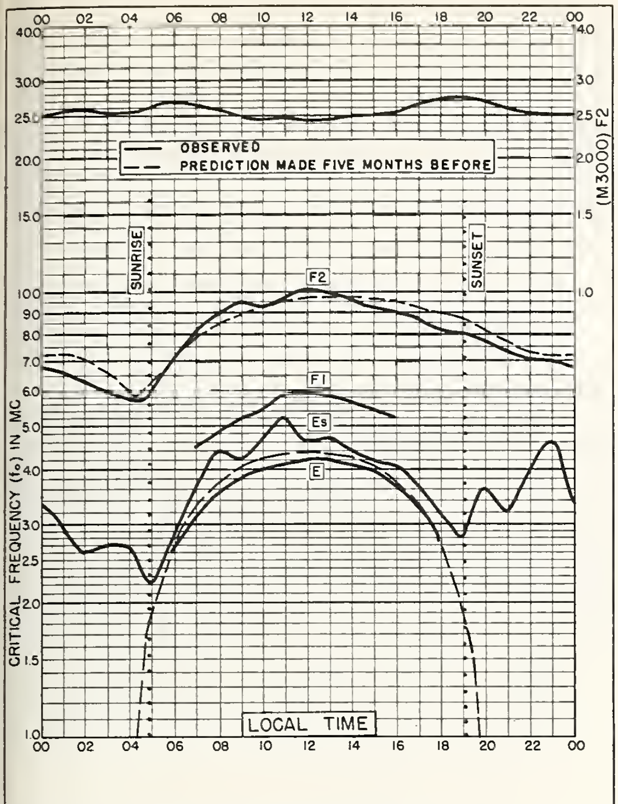



Fig. 25. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JUNE 1957

NBS 503

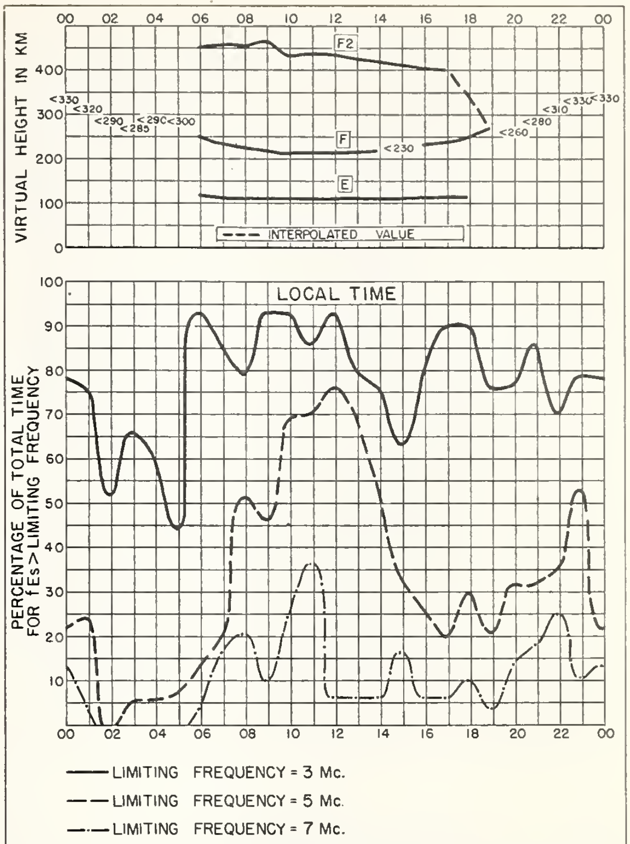



Fig. 26. WHITE SANDS, NEW MEXICO JUNE 1957

NBS 490

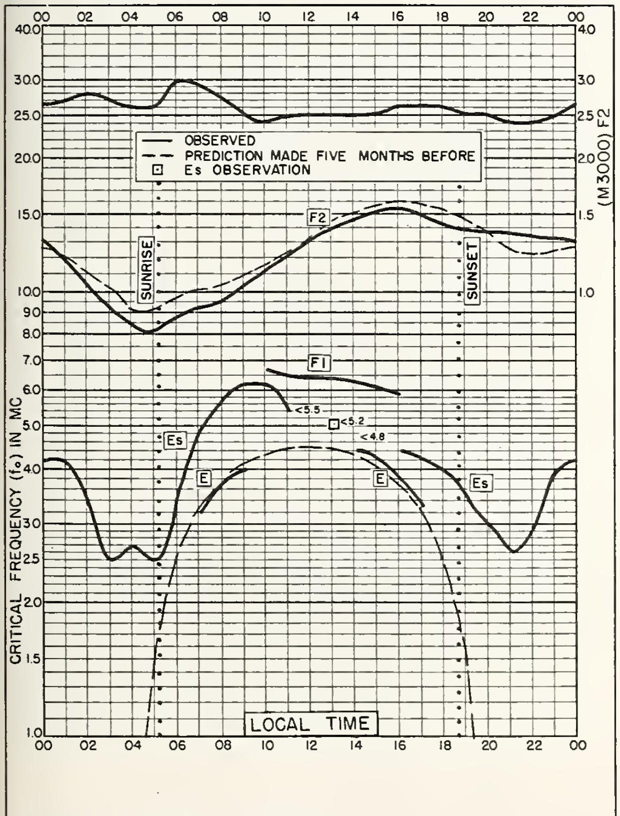



Fig. 27. FORMOSA, CHINA
25.0°N, 121.5°E JUNE 1957

NBS 503

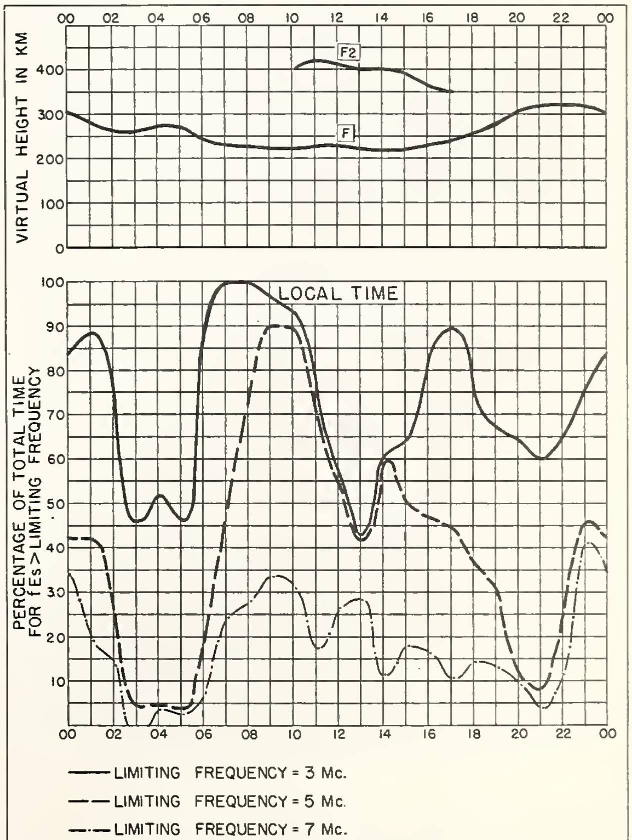



Fig. 28. FORMOSA, CHINA JUNE 1957

NBS 490

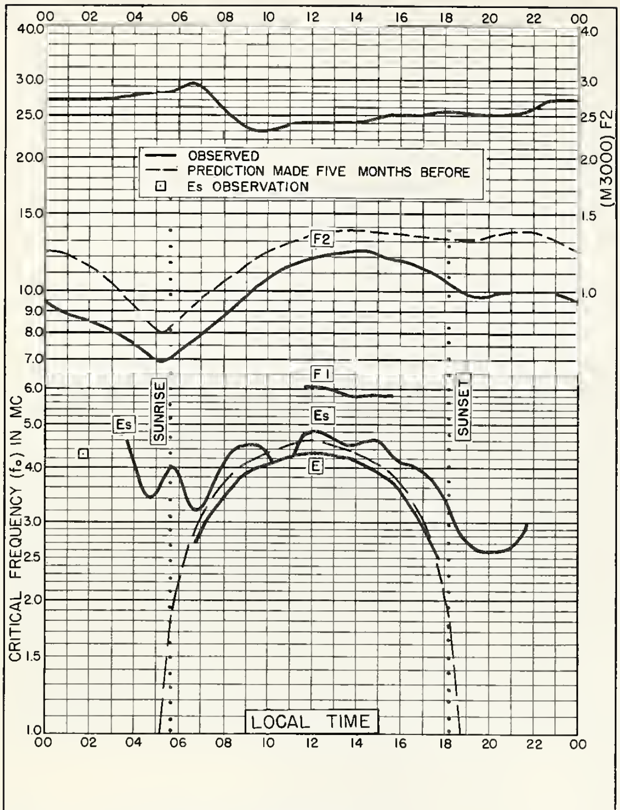



Fig. 29. PANAMA CANAL ZONE
9.4°N, 79.9°W JUNE 1957

NBS 503

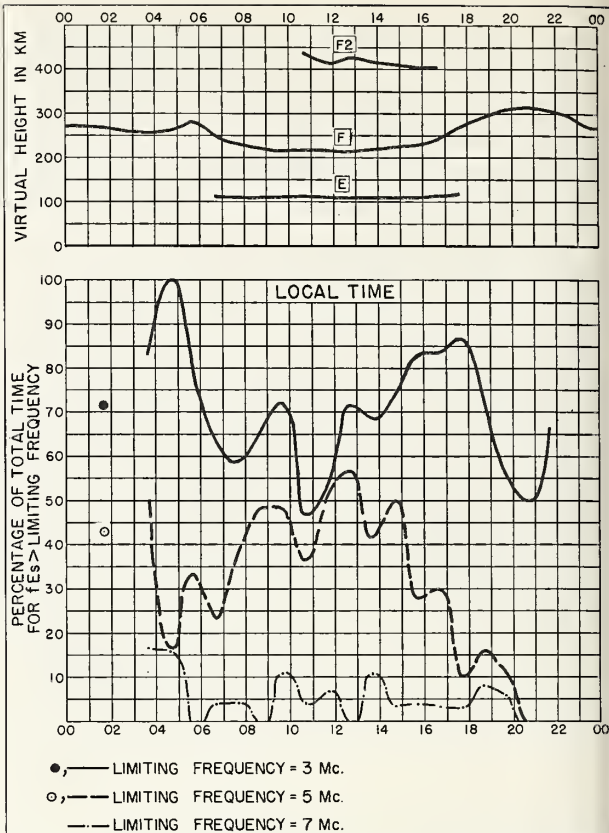



Fig. 30. PANAMA CANAL ZONE JUNE 1957

NBS 490

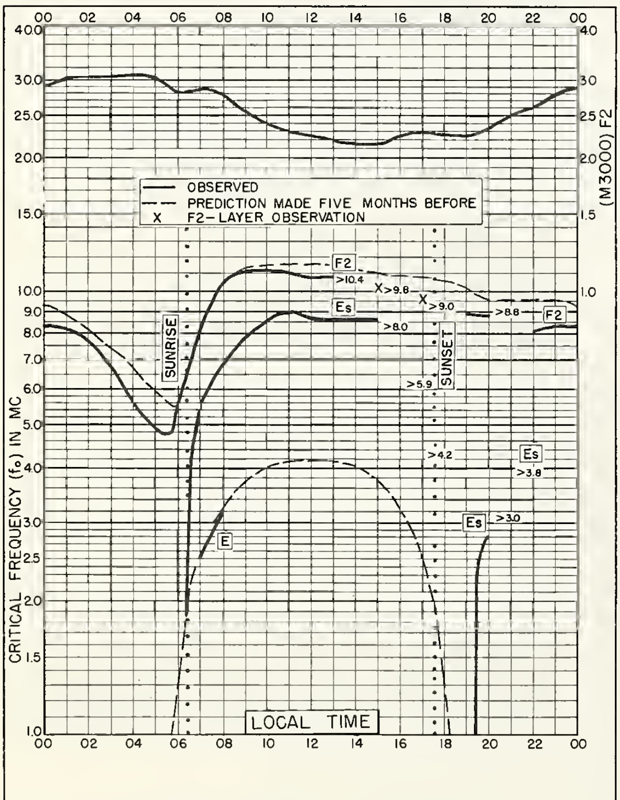



Fig. 31. HUANCAYO, PERU
12.0°S, 75.3°W JUNE 1957

NBS 503

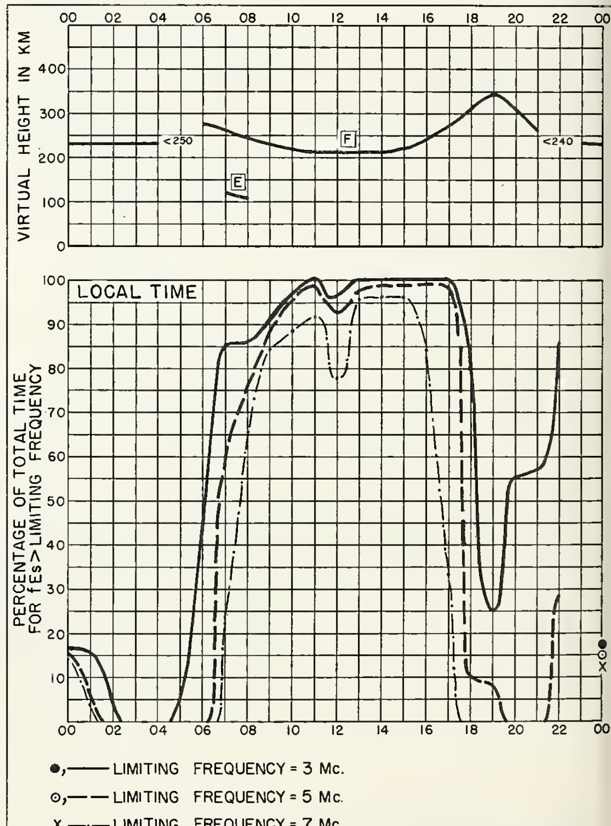



Fig. 32. HUANCAYO, PERU JUNE 1957

NBS 490

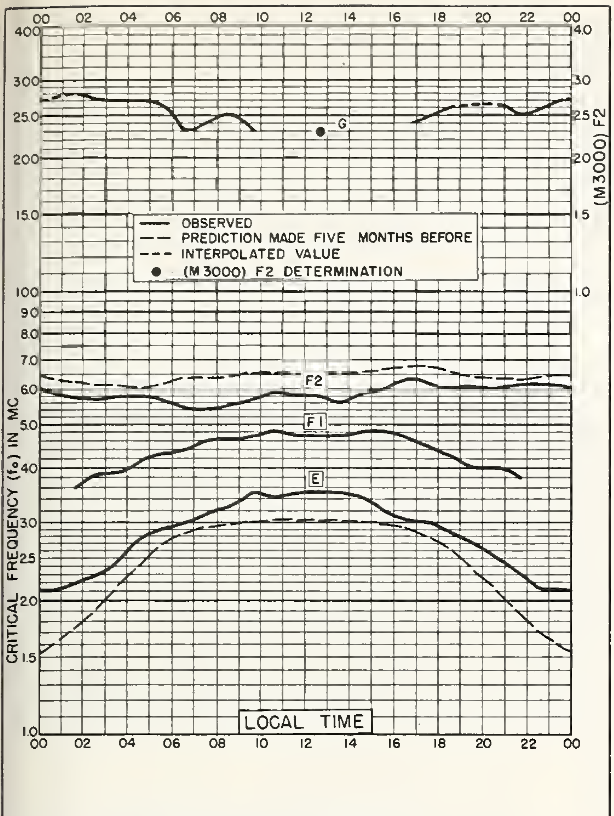



Fig. 33. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MAY 1957

NBS 503

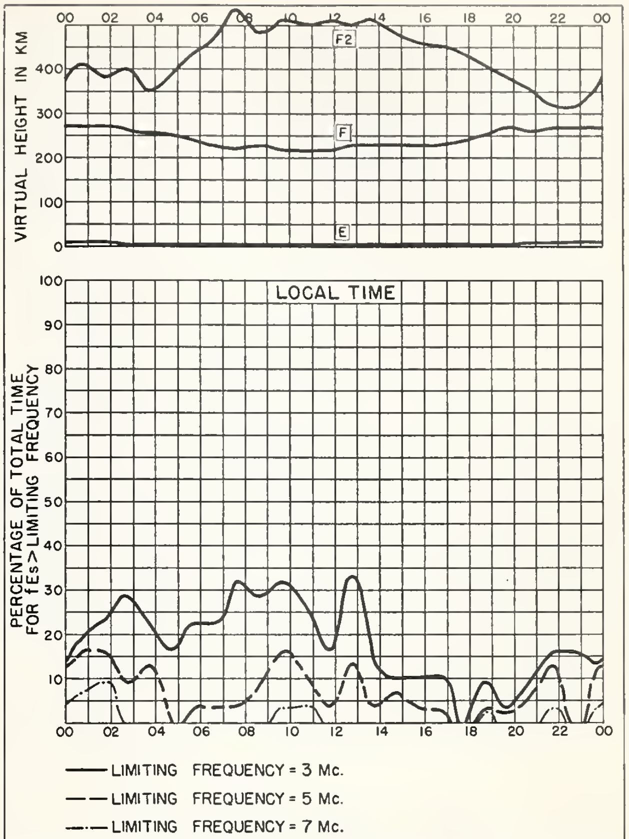



Fig. 34. RESOLUTE BAY, CANADA MAY 1957

NBS 490

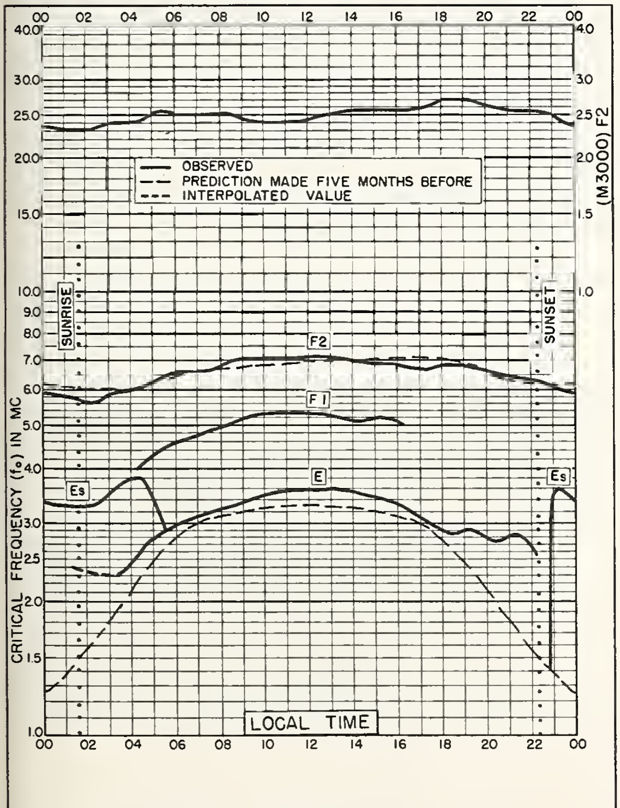



Fig. 35. TROMSO, NORWAY
69.7°N, 19.0°E MAY 1957

NBS 503

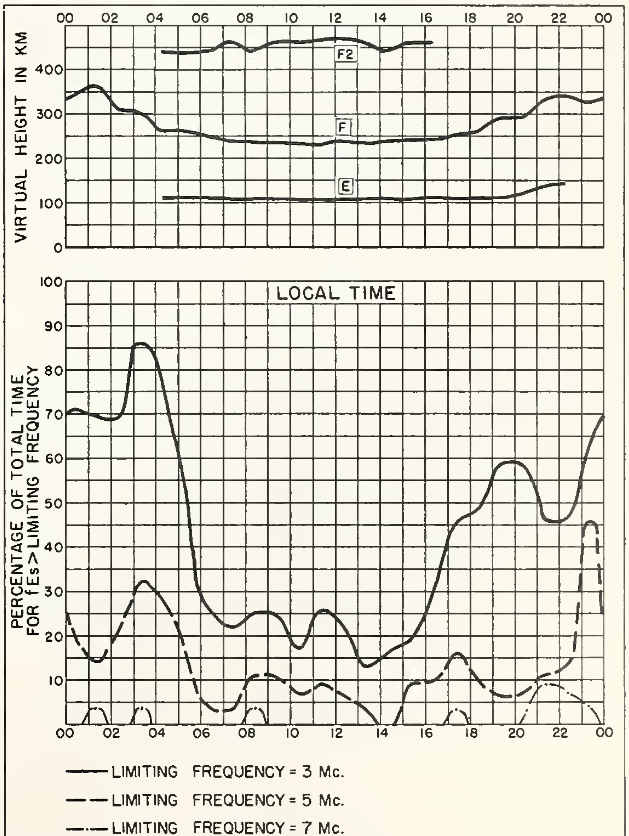



Fig. 36. TROMSO, NORWAY MAY 1957

NBS 490

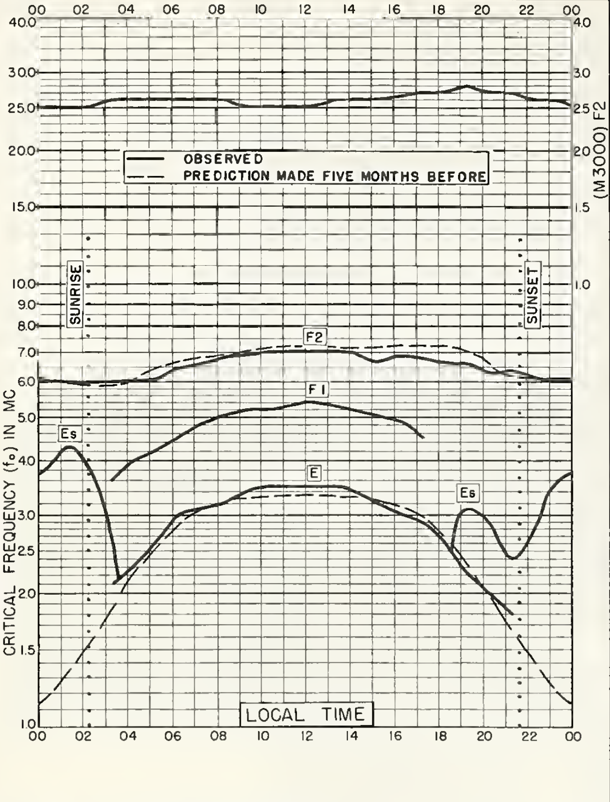



Fig. 37. KIRUNA, SWEDEN
67.8°N, 20.3°E MAY 1957

NBS 503

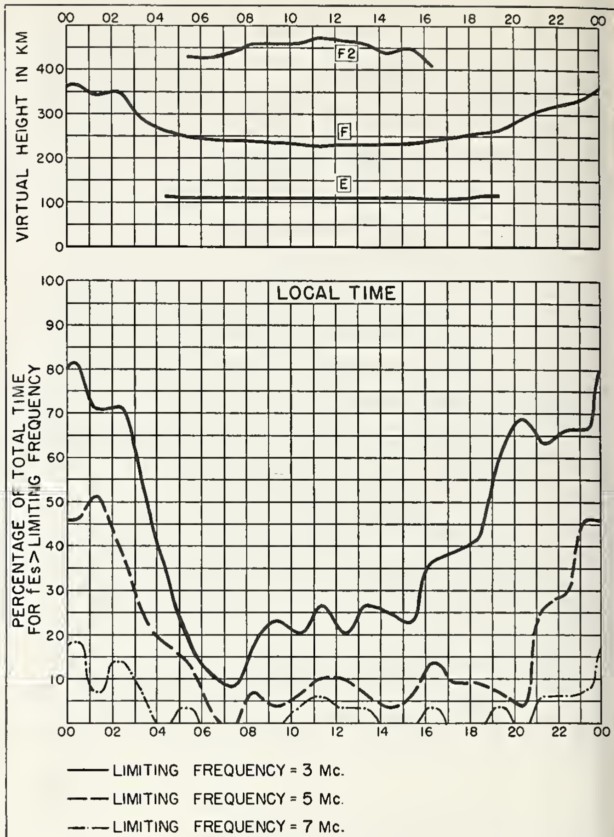



Fig. 38. KIRUNA, SWEDEN MAY 1957

NBS 490

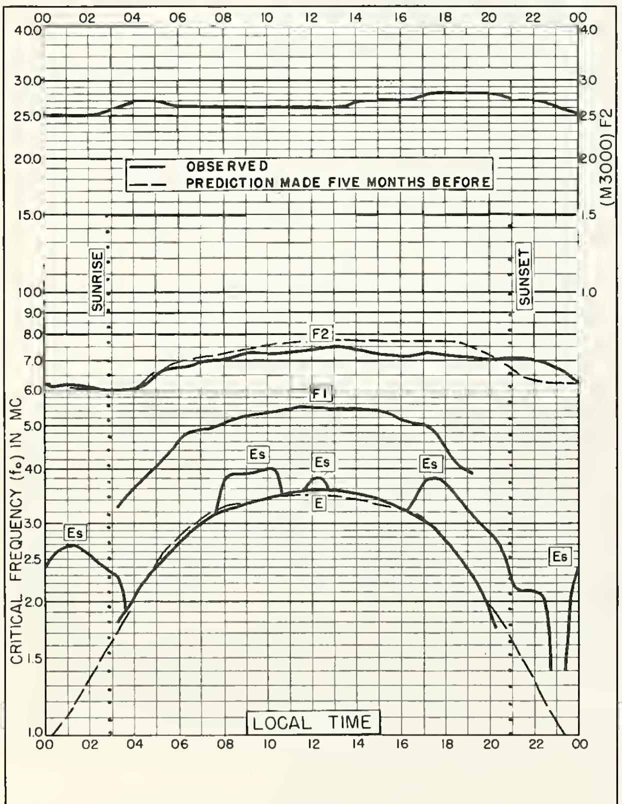



Fig. 39. LYCKSELE, SWEDEN
64.6°N, 18.8°E MAY 1957

NBS 503

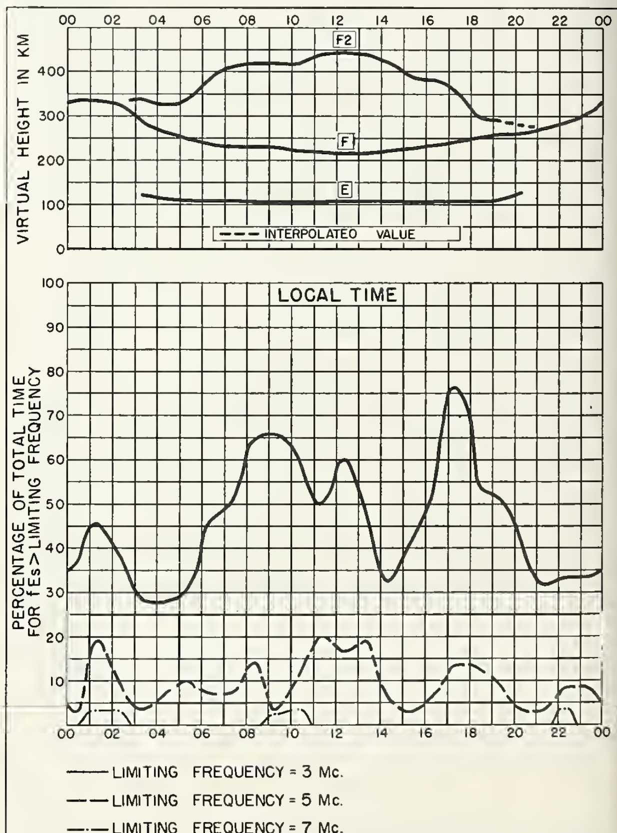



Fig. 40. LYCKSELE, SWEDEN MAY 1957

NBS 490

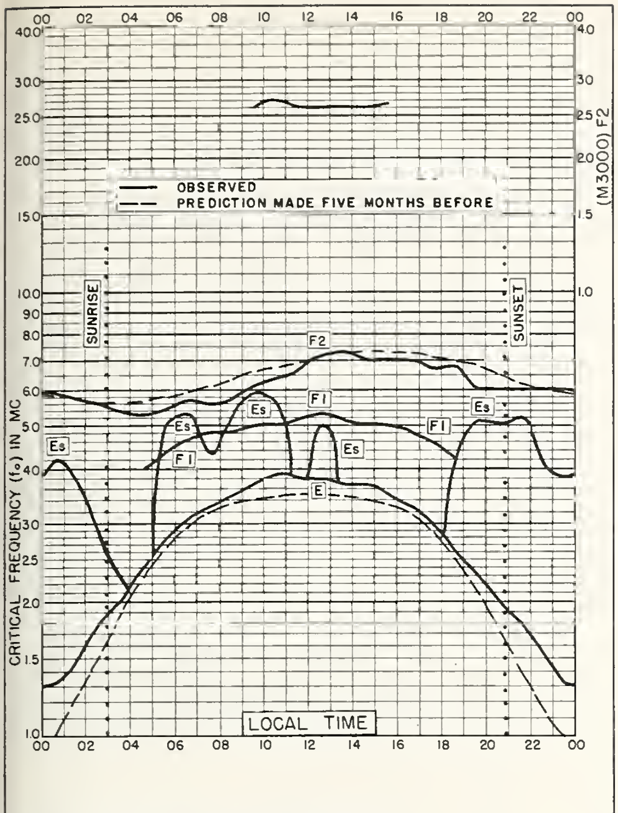



Fig. 41. BAKER LAKE, CANADA
64.3°N, 96.0°W MAY 1957

NBS 503

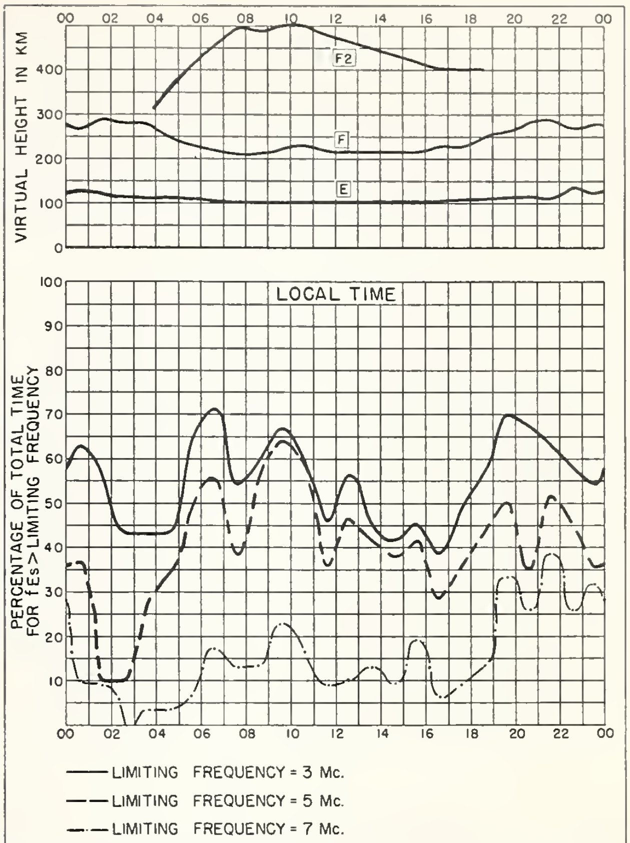



Fig. 42. BAKER LAKE, CANADA MAY 1957

NBS 490

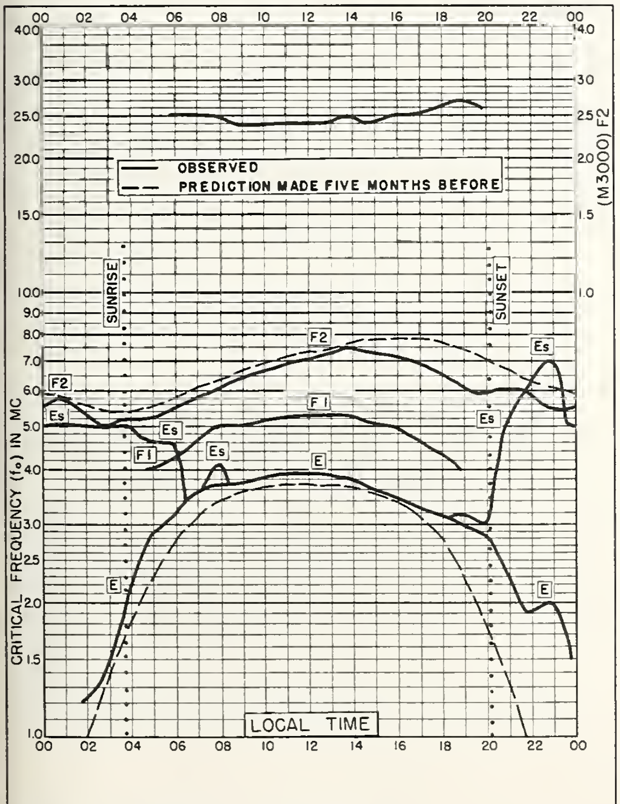



Fig. 43. CHURCHILL, CANADA
58.8°N, 94.2°W MAY 1957

NBS 503

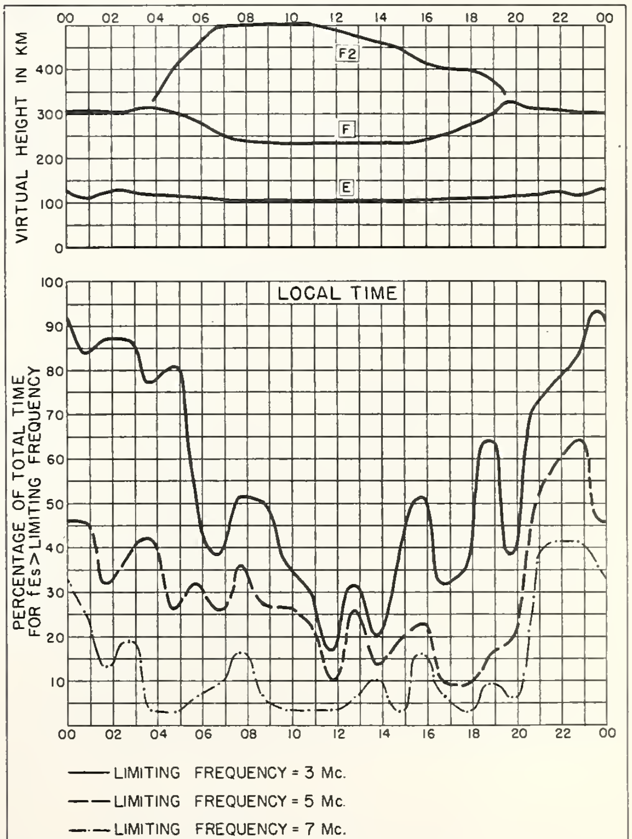



Fig. 44. CHURCHILL, CANADA MAY 1957

NBS 490

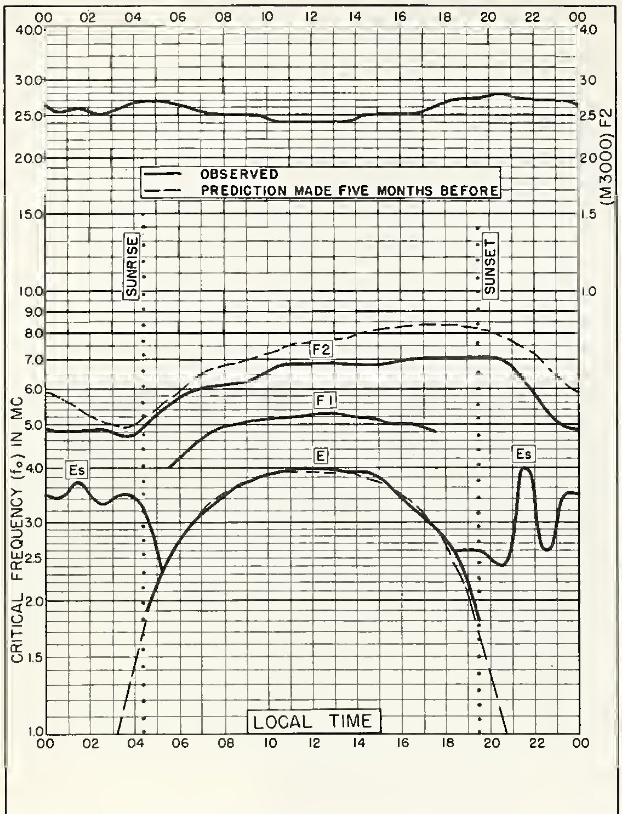



Fig. 45. WINNIPEG, CANADA
49.9°N, 97.4°W MAY 1957



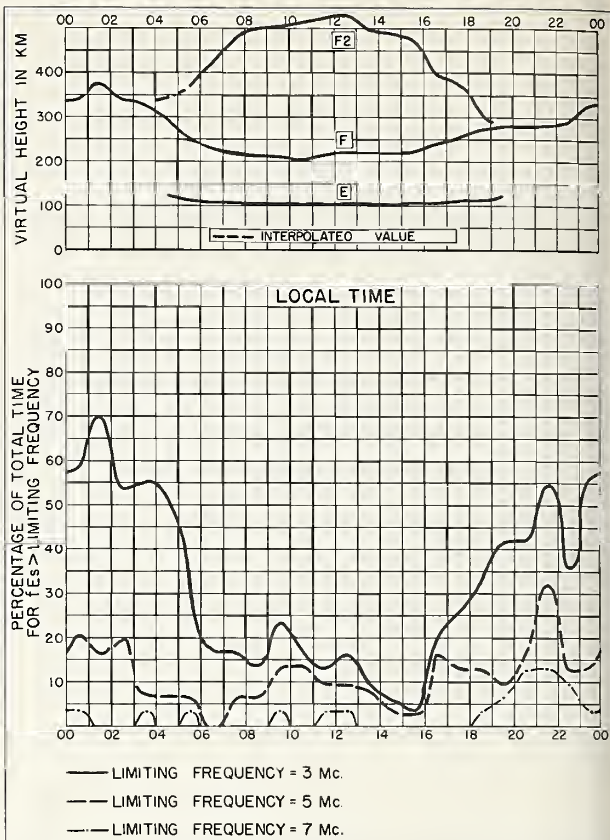



Fig. 46. WINNIPEG, CANADA MAY 1957



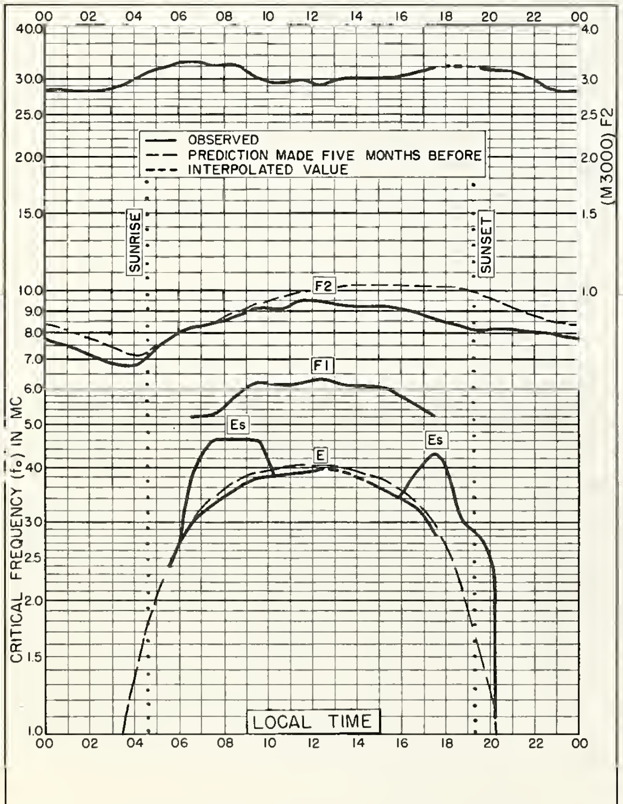
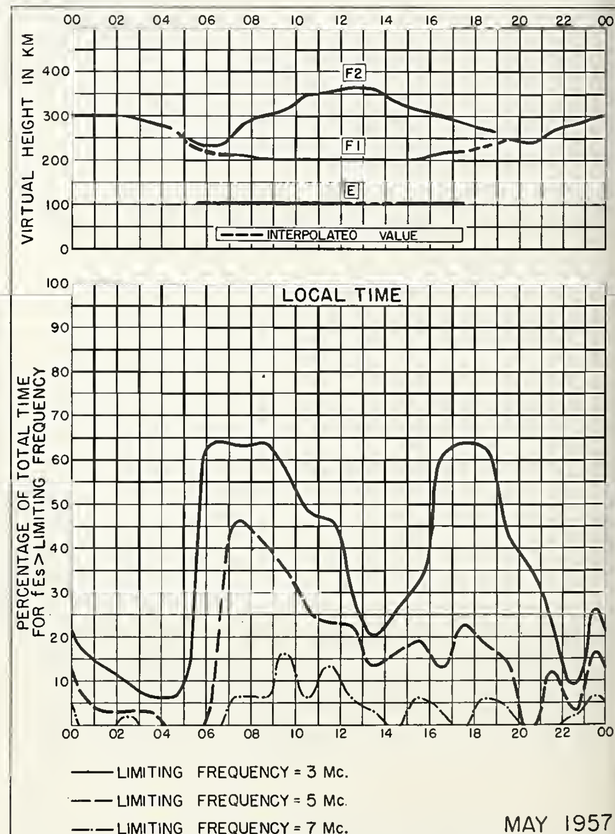



Fig. 47. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MAY 1957






MAY 1957

Fig. 48. SCHWARZENBURG, SWITZERLAND

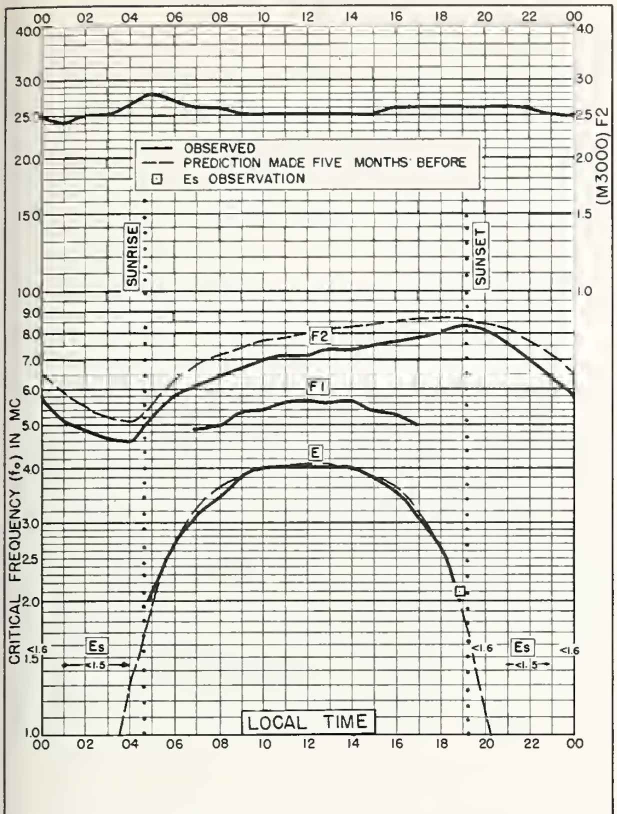



Fig. 49. OTTAWA, CANADA
45.4°N, 75.9°W MAY 1957

NBS 503

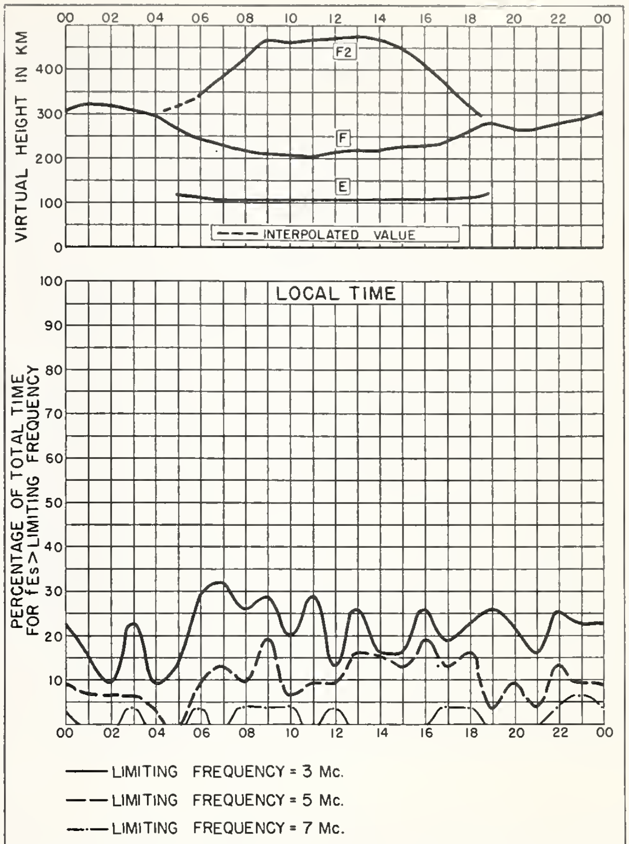



Fig. 50. OTTAWA, CANADA MAY 1957

NBS 490

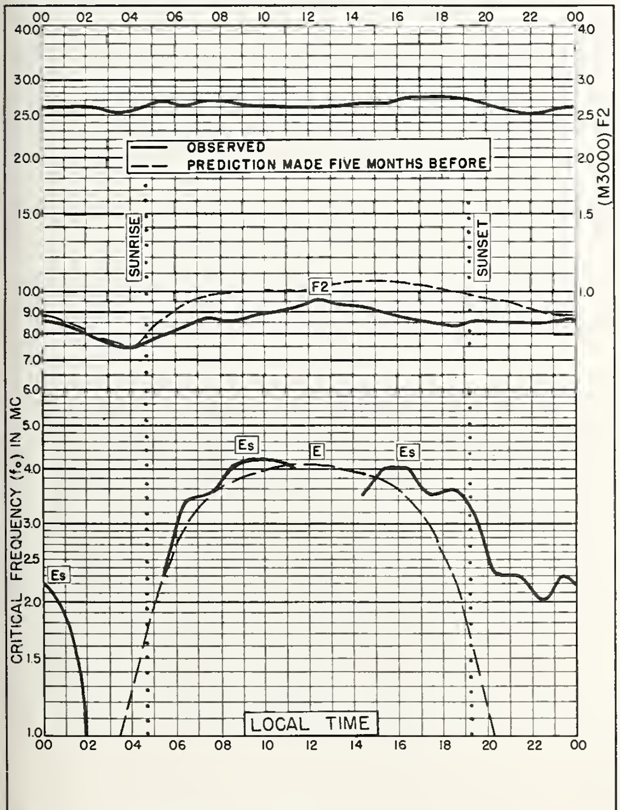



Fig. 51. WAKKANAI, JAPAN
45.4°N, 141.7°E MAY 1957

NBS 503

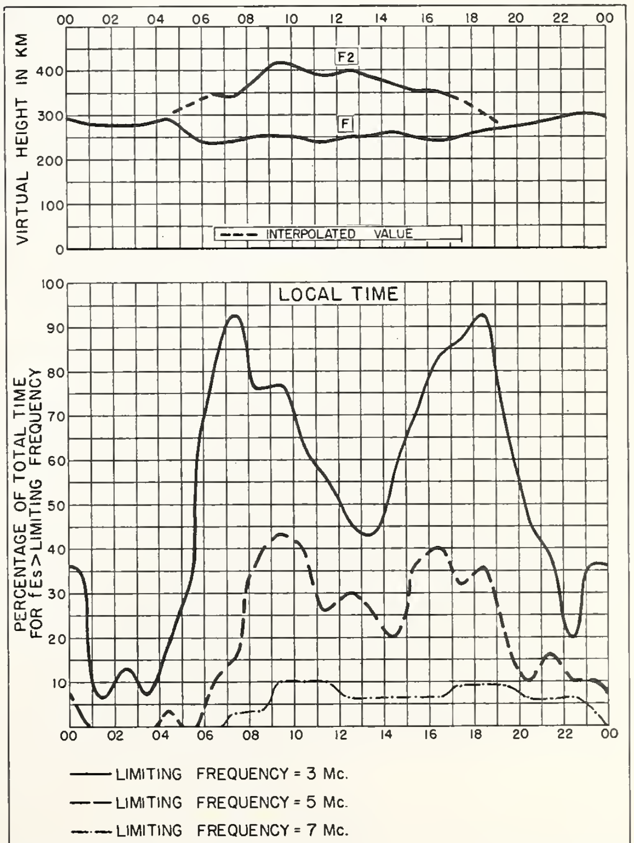



Fig. 52. WAKKANAI, JAPAN MAY 1957

NBS 490

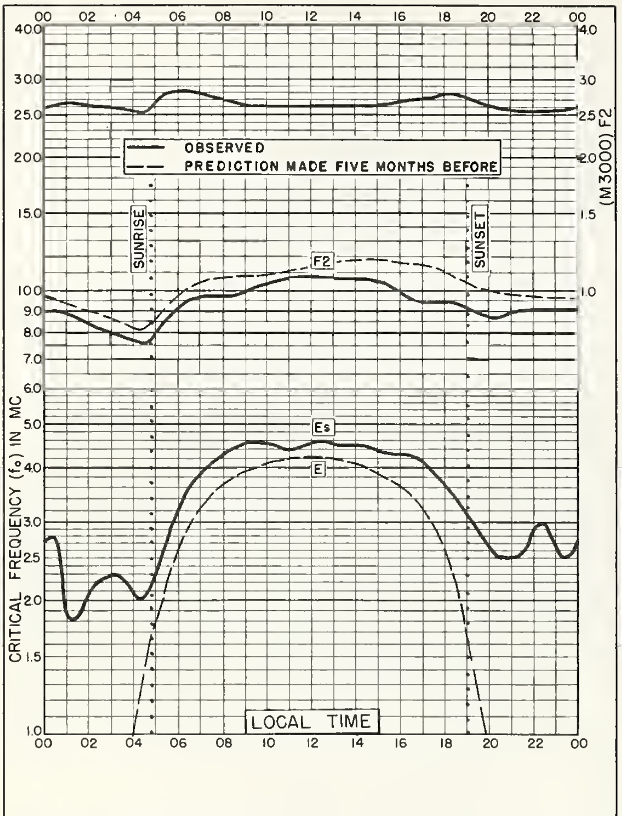



Fig. 53. AKITA, JAPAN
39.7°N, 140.1°E MAY 1957

NBS 503

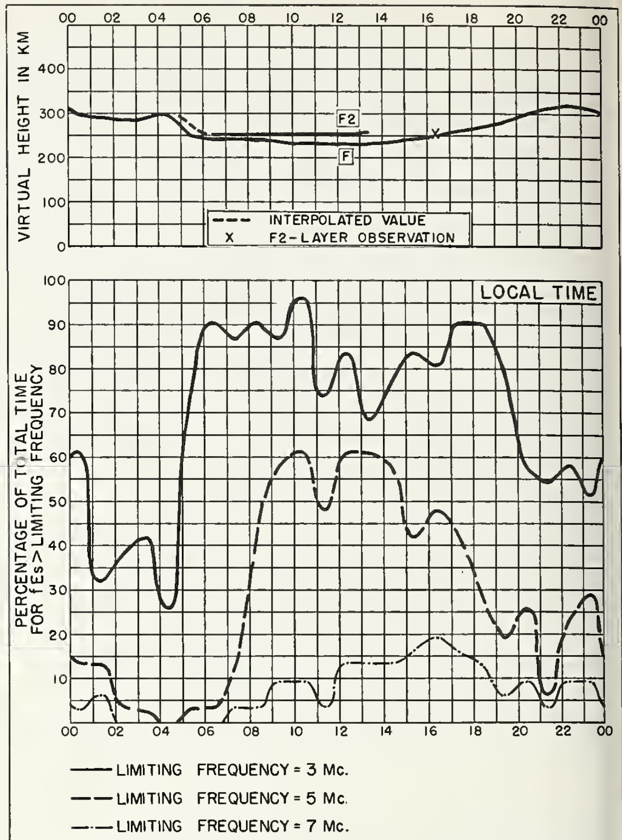



Fig. 54. AKITA, JAPAN MAY 1957

NBS 490

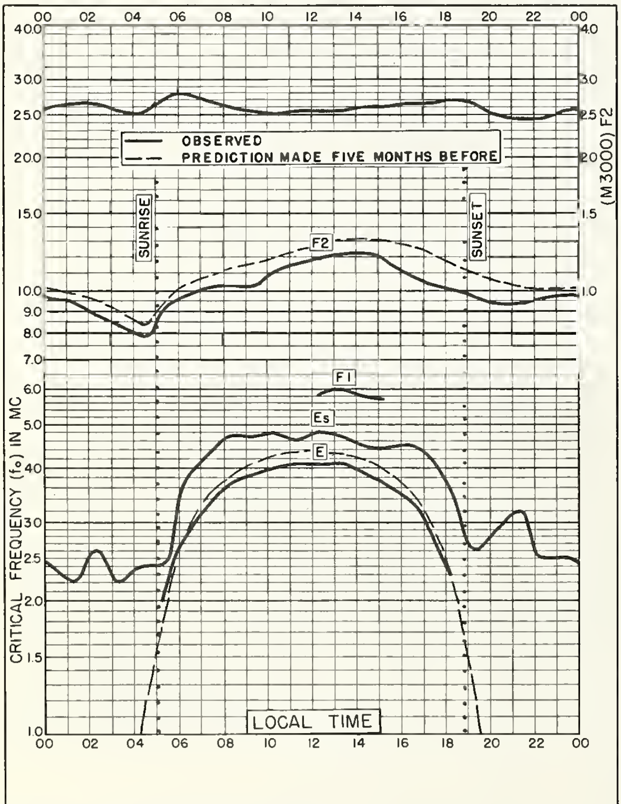



Fig. 55. TOKYO, JAPAN
35.7°N, 139.5°E MAY 1957

NBS 503

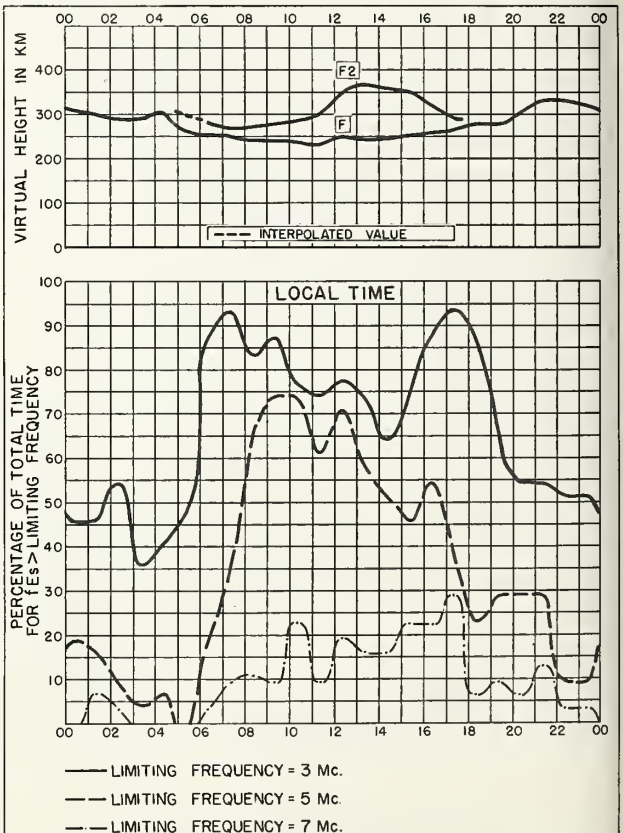



Fig. 56. TOKYO, JAPAN MAY 1957

NBS 490

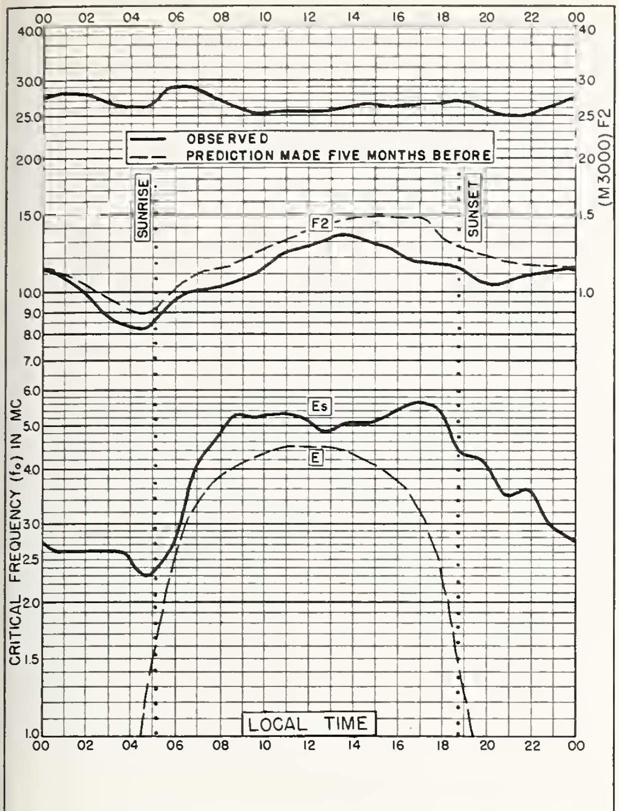



Fig. 57. YAMAGAWA, JAPAN
31.2°N, 130.6°E
MAY 1957

NBS 503

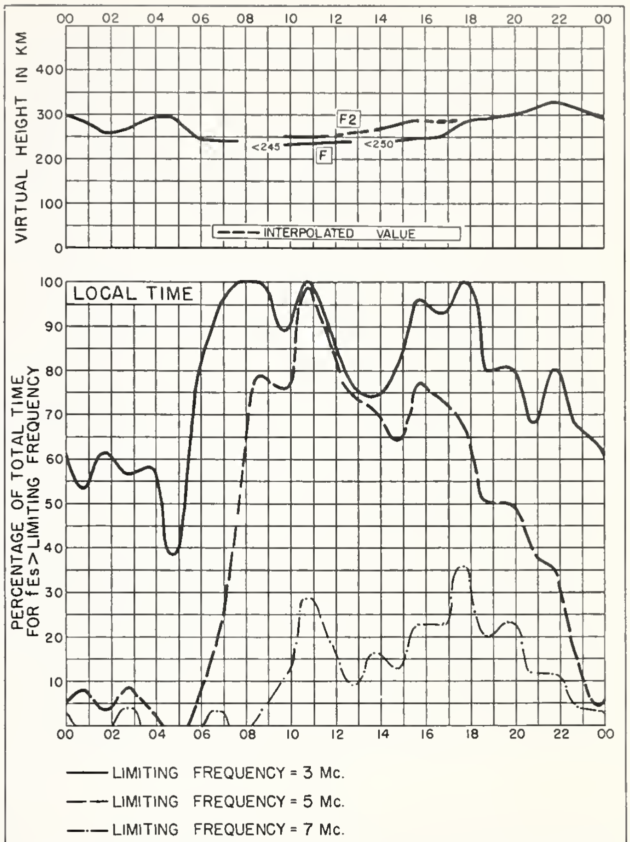



Fig. 58. YAMAGAWA, JAPAN
MAY 1957

NBS 490

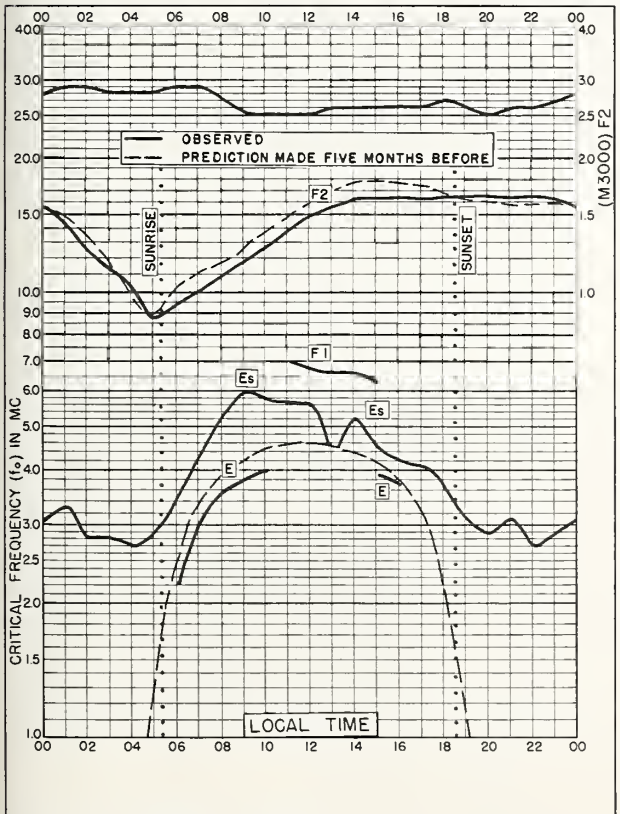



Fig. 59. FORMOSA, CHINA
25.0°N, 121.5°E
MAY 1957

NBS 503

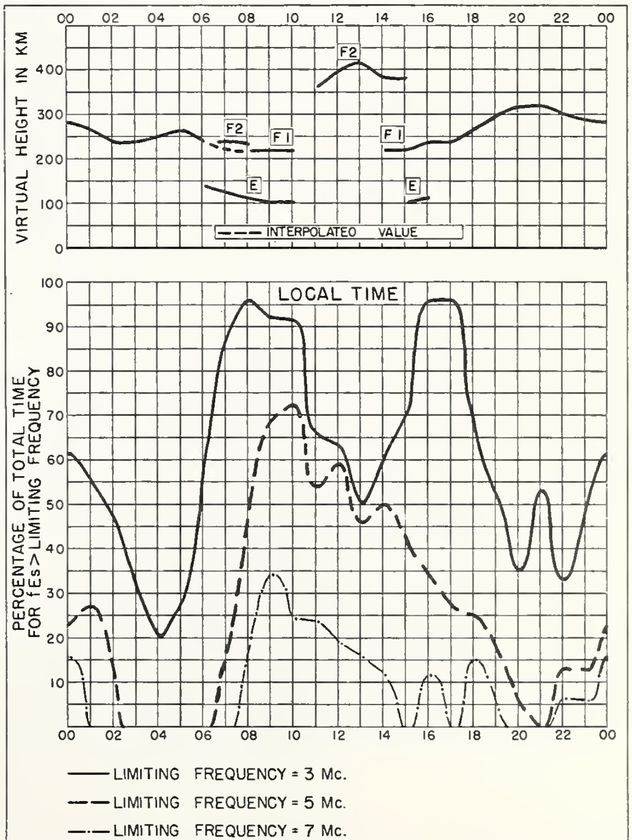



Fig. 60. FORMOSA, CHINA
MAY 1957

NBS 490

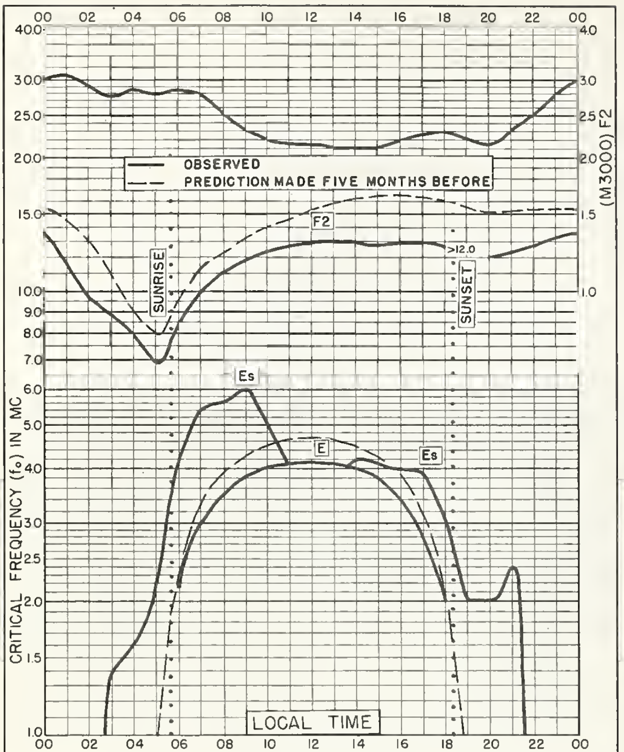



Fig. 61. BAGUIO, P.I.
16.4°N, 120.6°E
MAY 1957

NBS 503

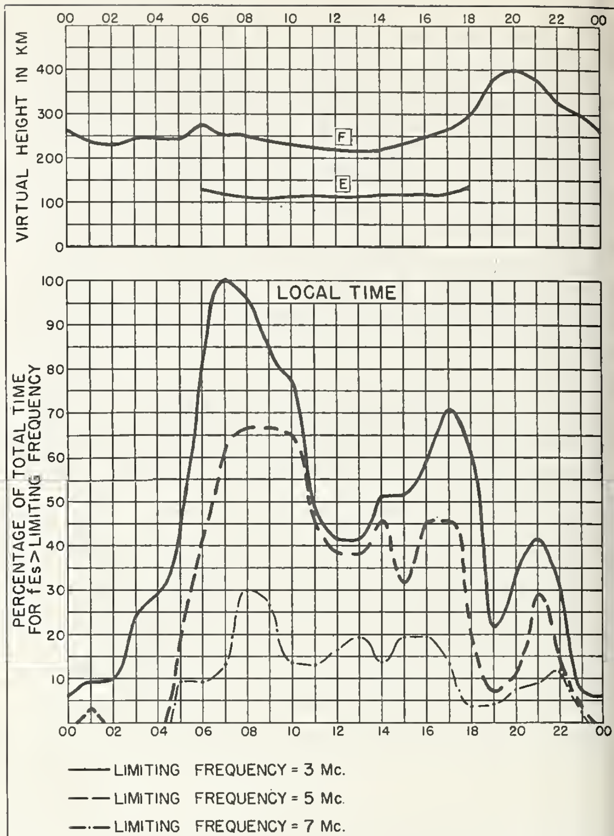



Fig. 62. BAGUIO, P.I.
MAY 1957

NBS 490

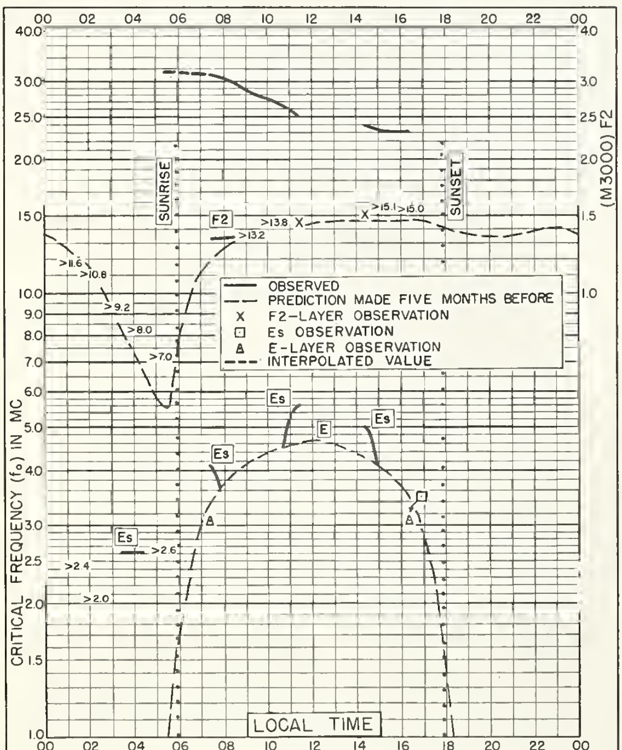



Fig. 63. NAIROBI, KENYA
1.3°S, 36.8°E
MAY 1957

NBS 503

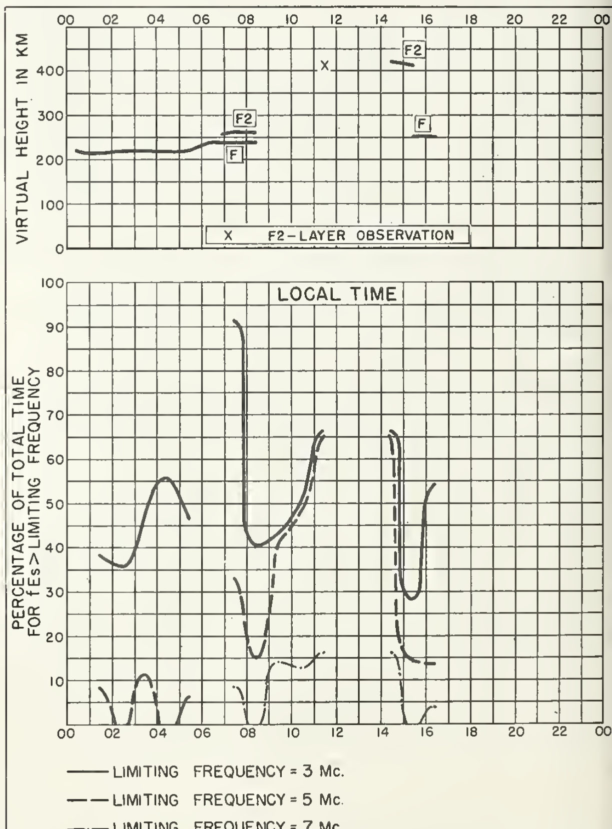



Fig. 64. NAIROBI, KENYA
MAY 1957

NBS 490

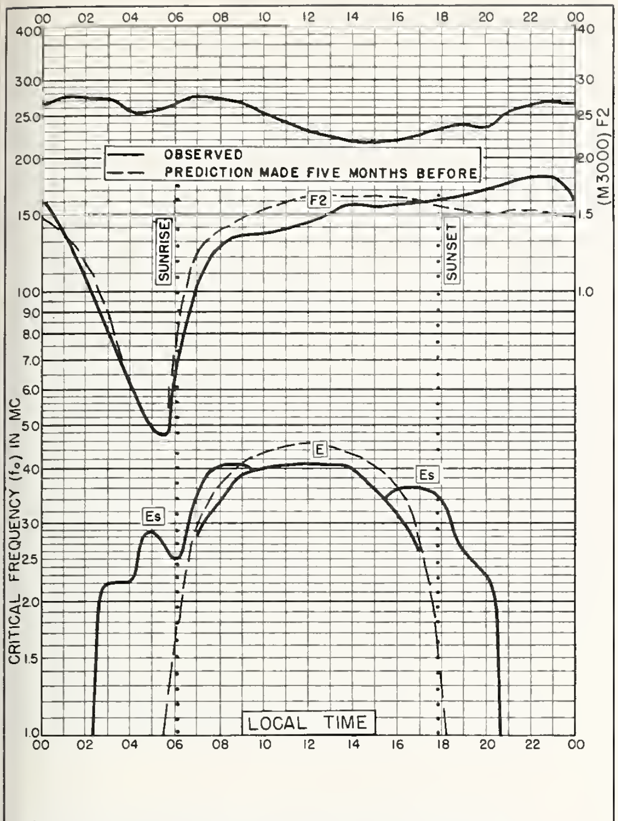
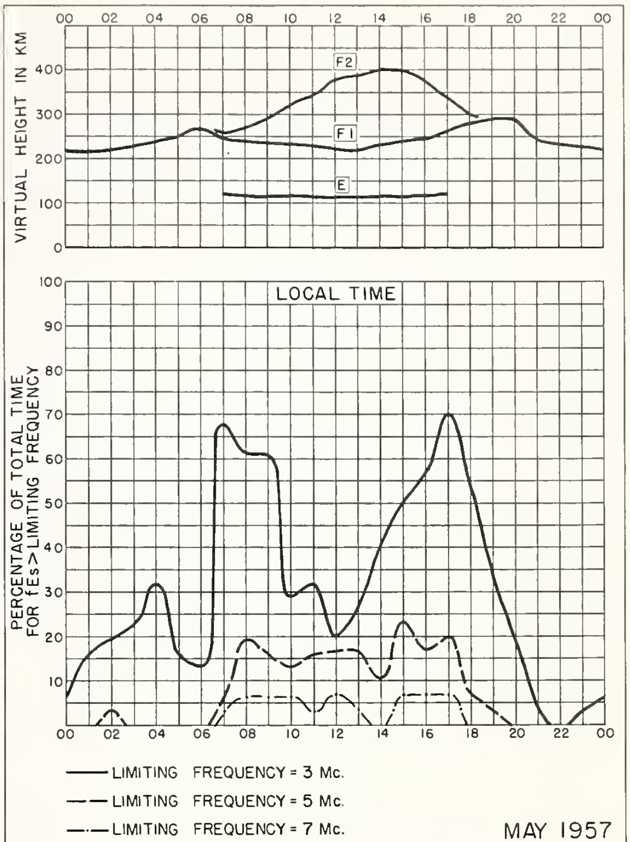



Fig. 65. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E MAY 1957

NBS 503




MAY 1957
Fig. 66. LEOPOLDVILLE, BELGIAN CONGO

NBS 490

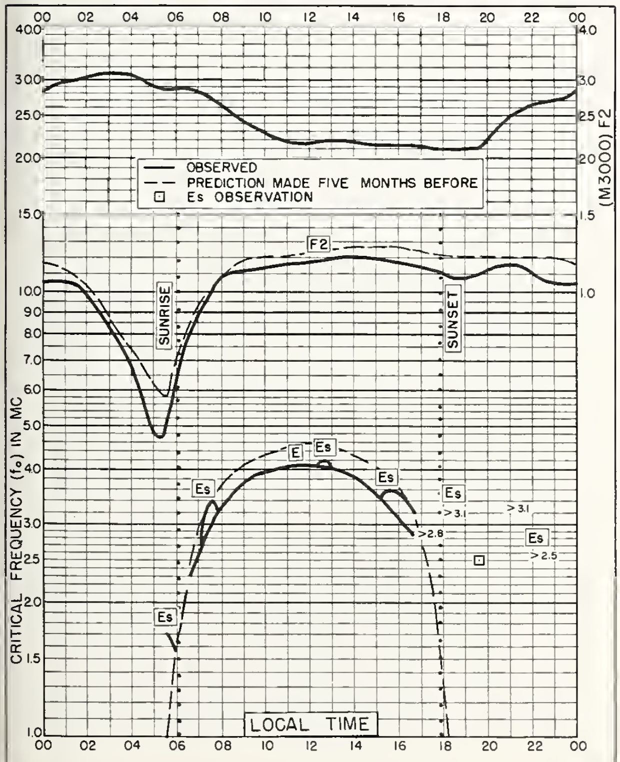



Fig. 67. TALARA, PERU
4.6°S, 81.3°W MAY 1957

NBS 503

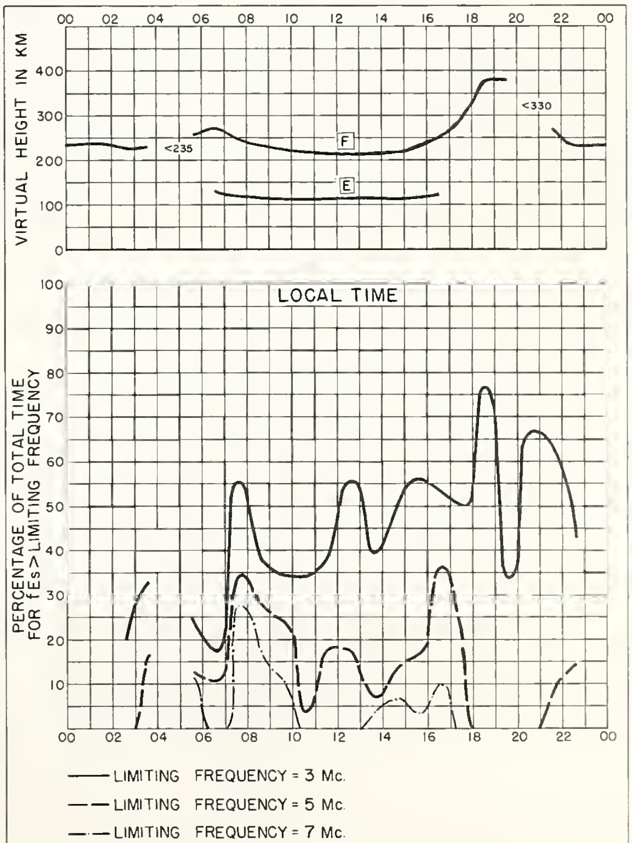



Fig. 68. TALARA, PERU MAY 1957

NBS 490

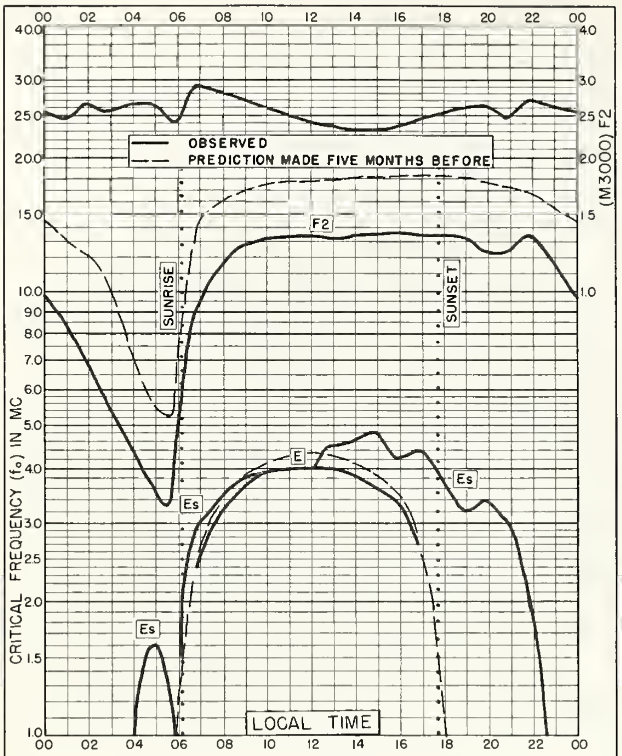
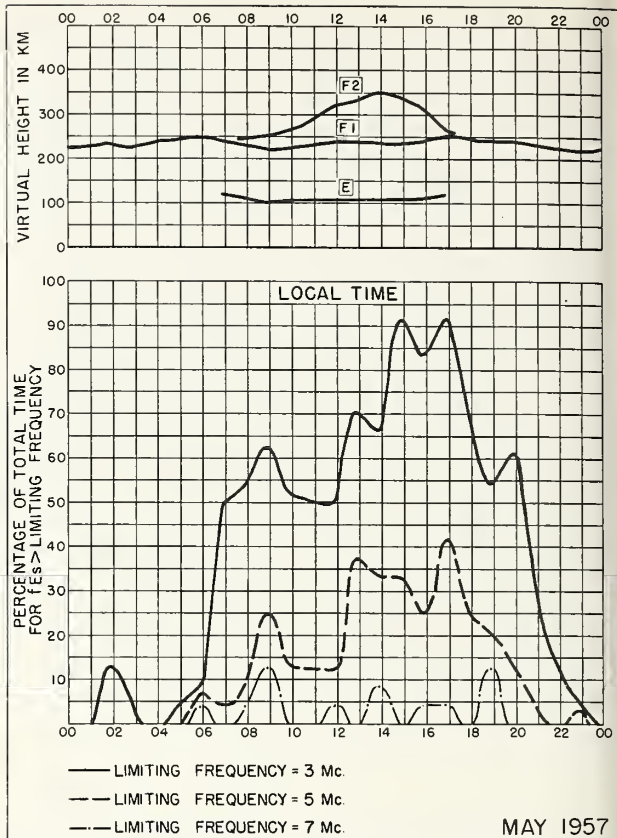



Fig. 69. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E MAY 1957

NBS 503




MAY 1957
Fig. 70. ELISABETHVILLE, BELGIAN CONGO

NBS 490

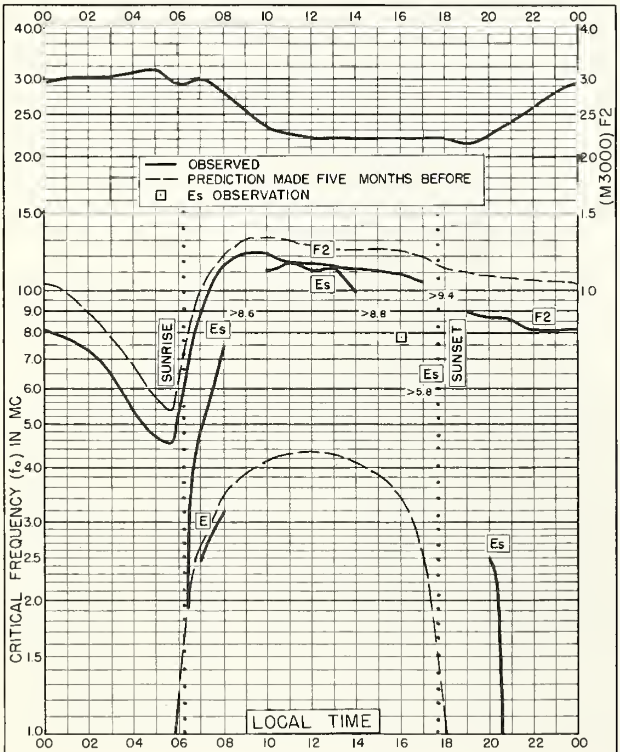



Fig. 71. HUANCAYO, PERU
12.0°S, 75.3°W MAY 1957

NBS 503

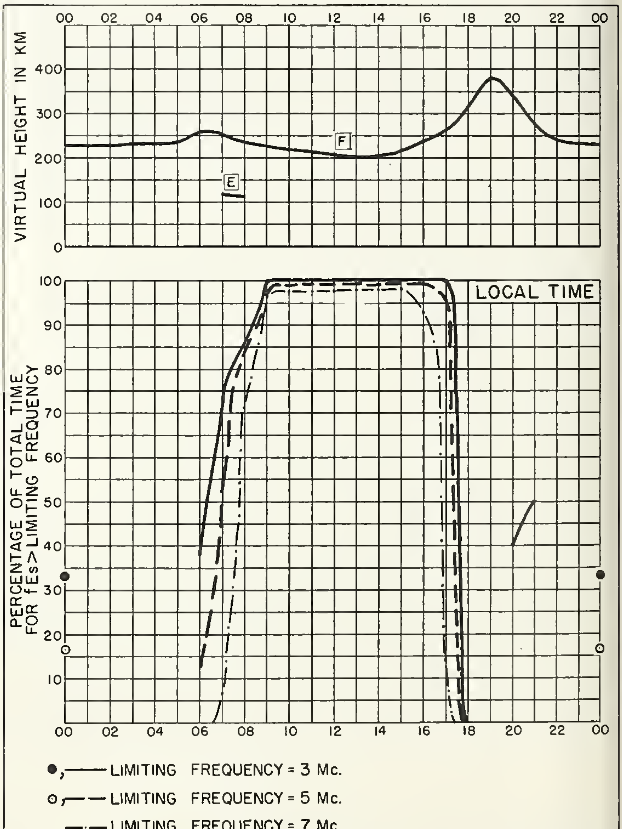



Fig. 72. HUANCAYO, PERU MAY 1957

NBS 490

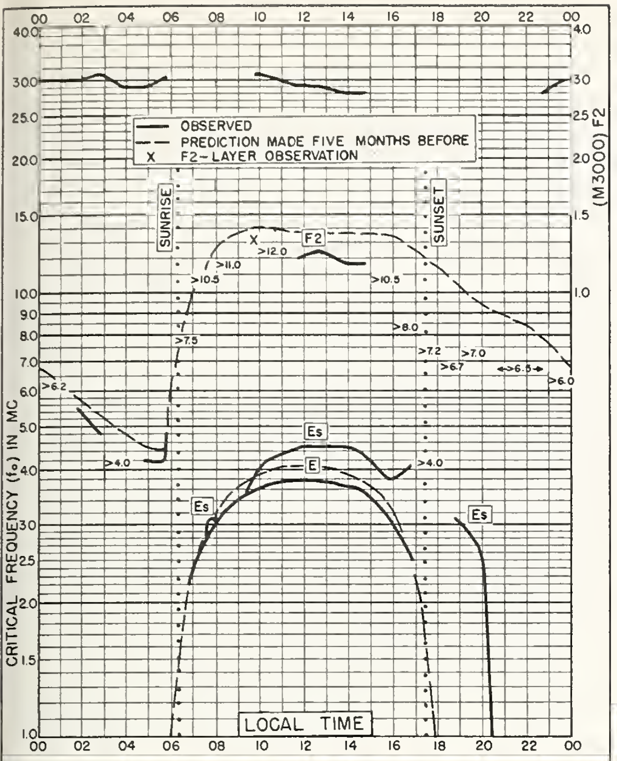



Fig. 73. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MAY 1957



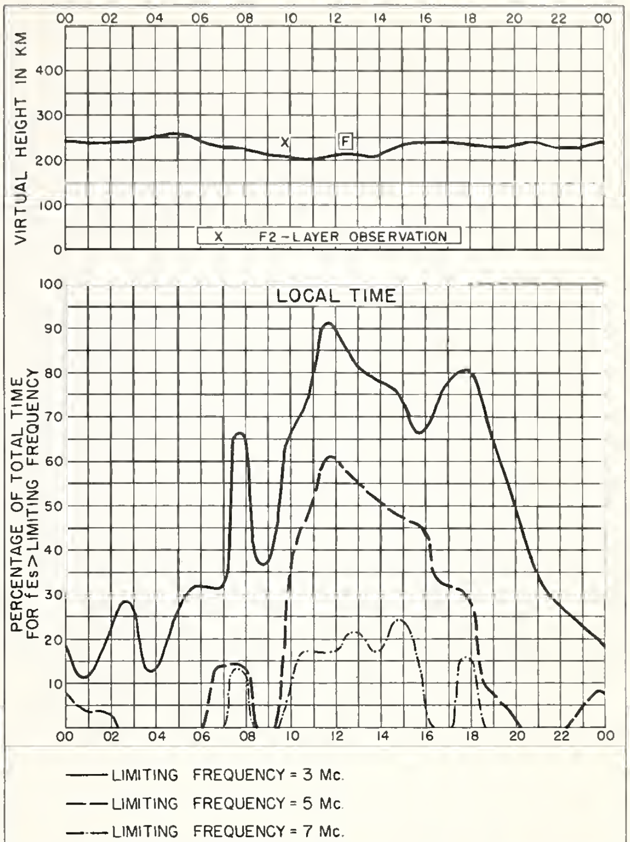



Fig. 74. TOWNSVILLE, AUSTRALIA MAY 1957



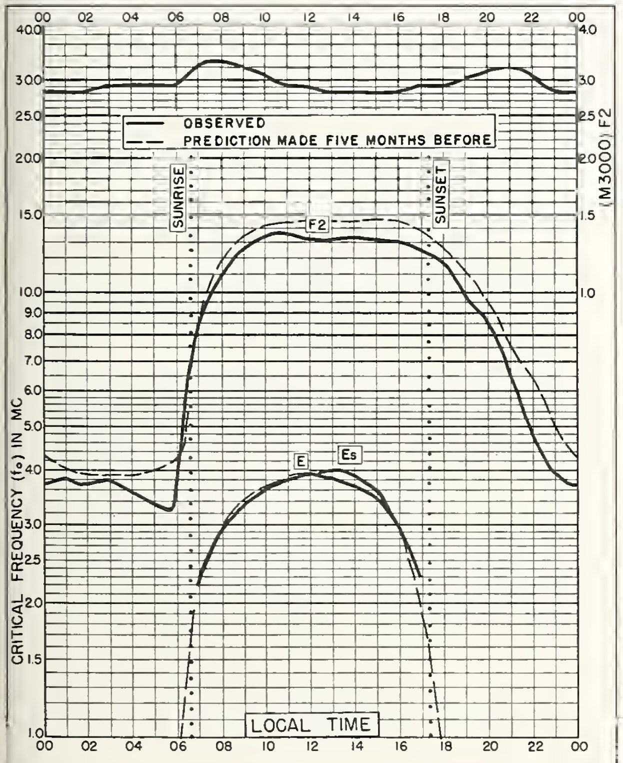
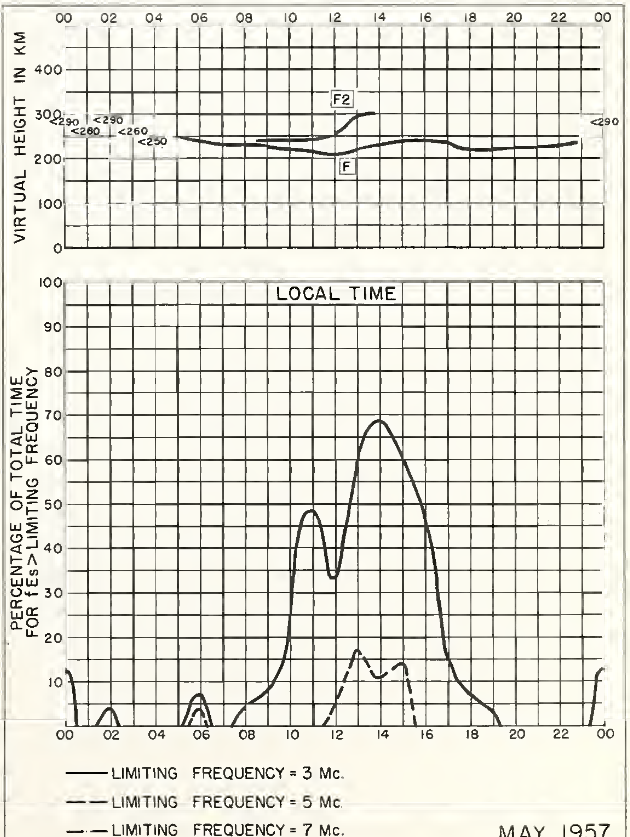



Fig. 75. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E MAY 1957






MAY 1957
Fig. 76. JOHANNESBURG, UNION OF S. AFRICA

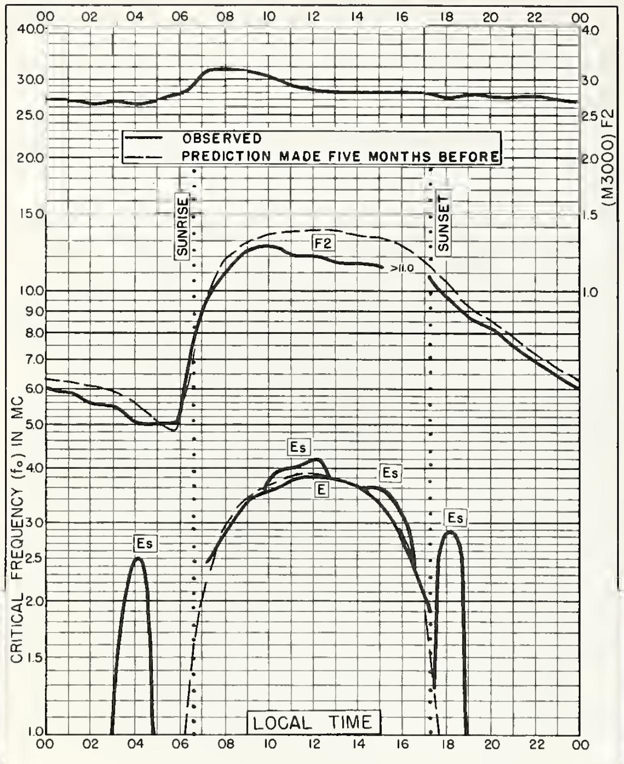



Fig. 77. BRISBANE, AUSTRALIA
27.5°S, 152.9°E MAY 1957

NBS 503

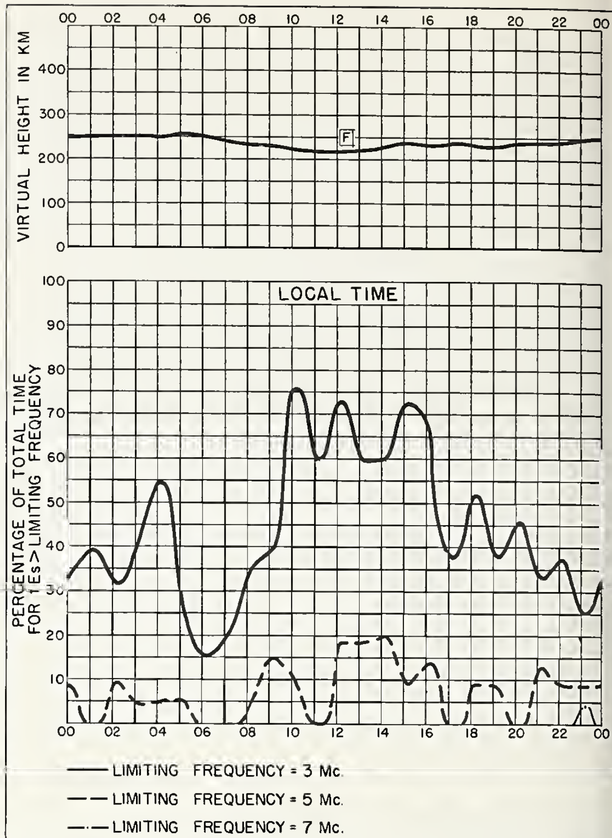



Fig. 78. BRISBANE, AUSTRALIA MAY 1957

NBS 490

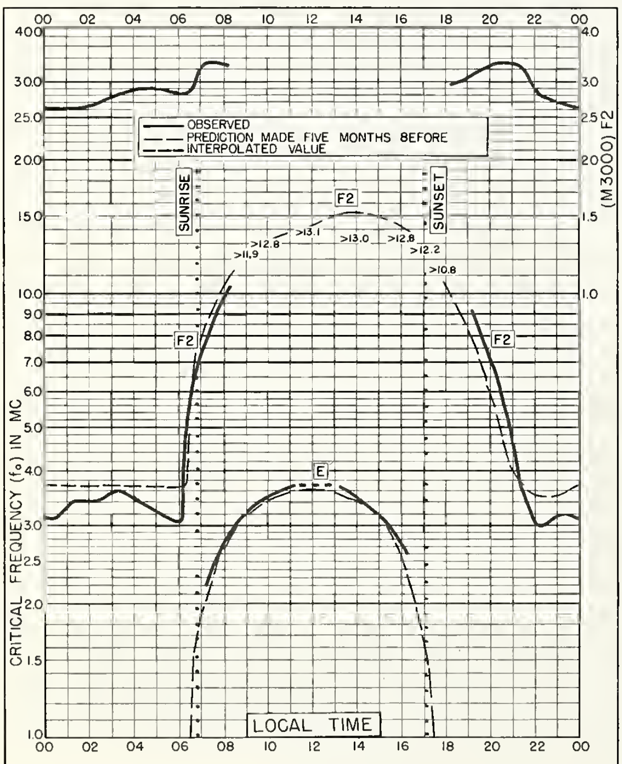
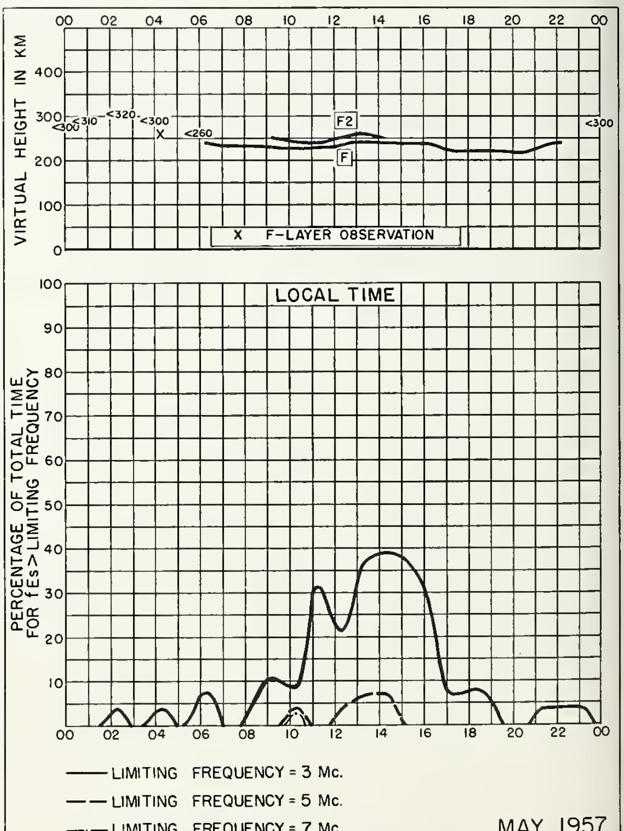



Fig. 79. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E MAY 1957

NBS 503




MAY 1957

Fig. 80. CAPETOWN, UNION OF S. AFRICA

NBS 490

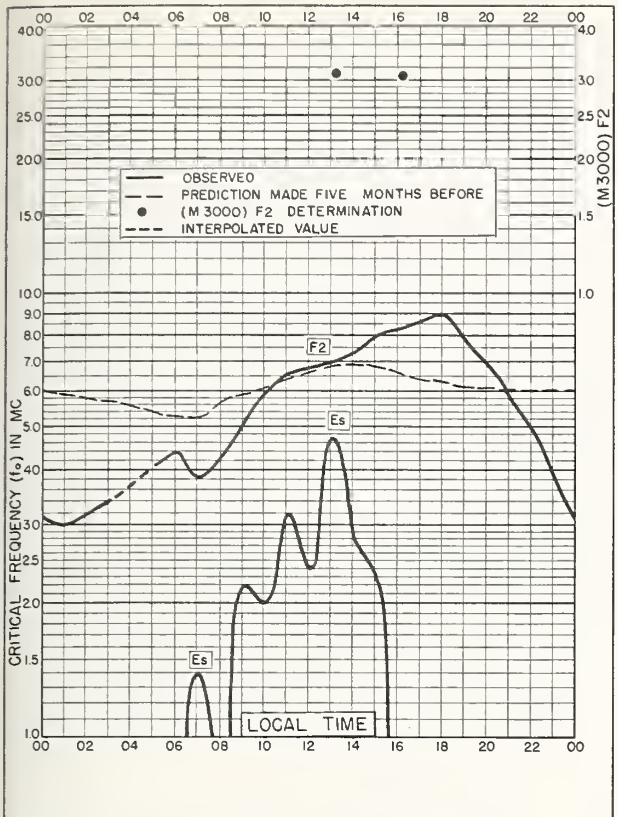



Fig. 81. SCOTT BASE
77.8°S, 166.8°E MAY 1957



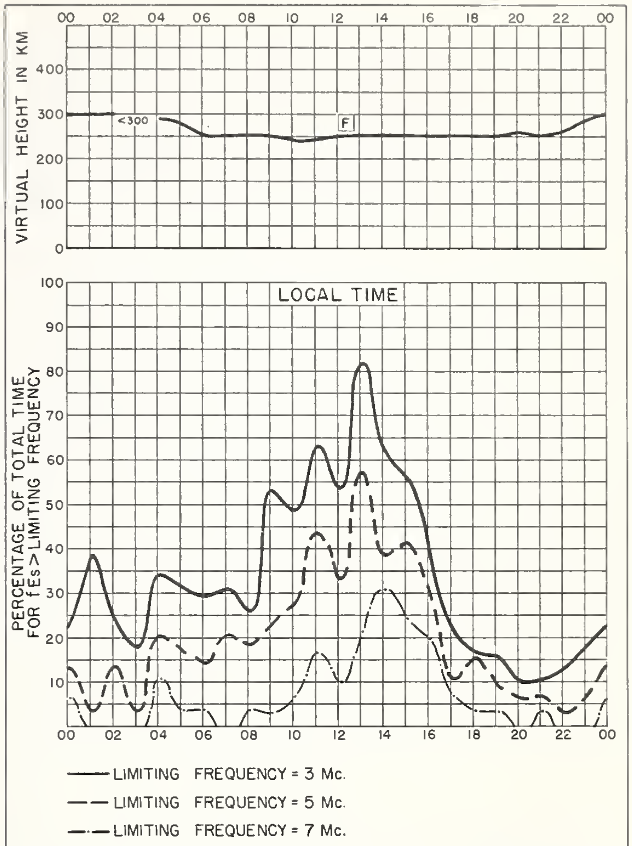



Fig. 82. SCOTT BASE MAY 1957



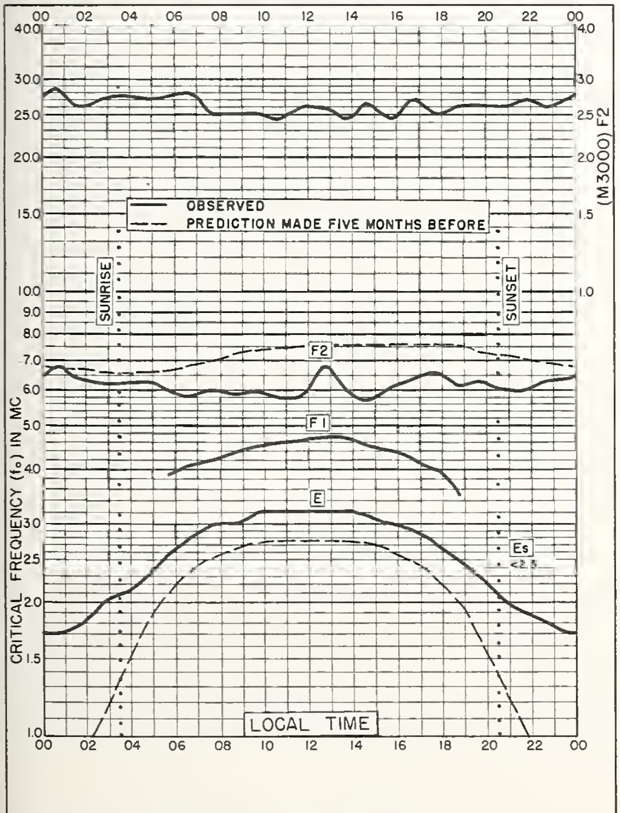



Fig. 83. RESOLUTE BAY, CANADA
74.7°N, 94.9°W APRIL 1957



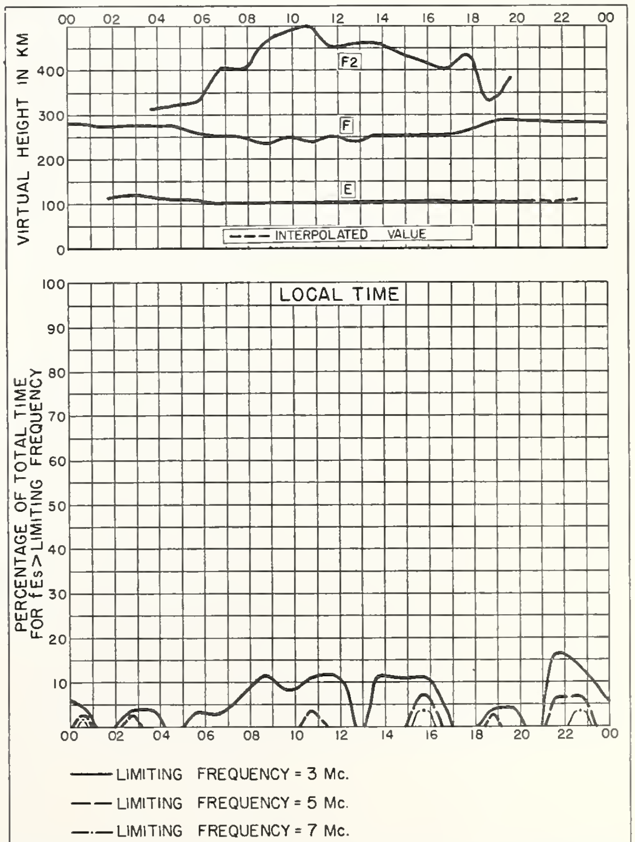



Fig. 84. RESOLUTE BAY, CANADA APRIL 1957

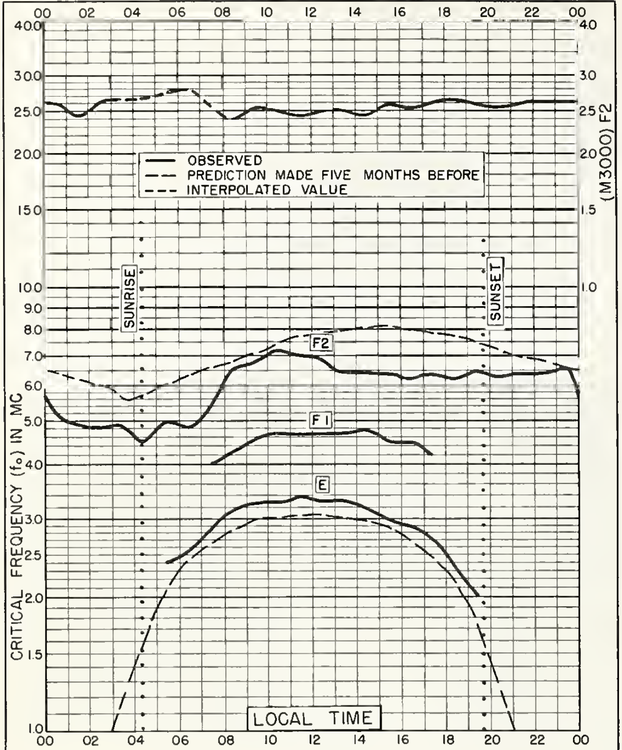



Fig. 85. GODHAVN, GREENLAND
69.2°N, 53.5°W APRIL 1957

NBS 503

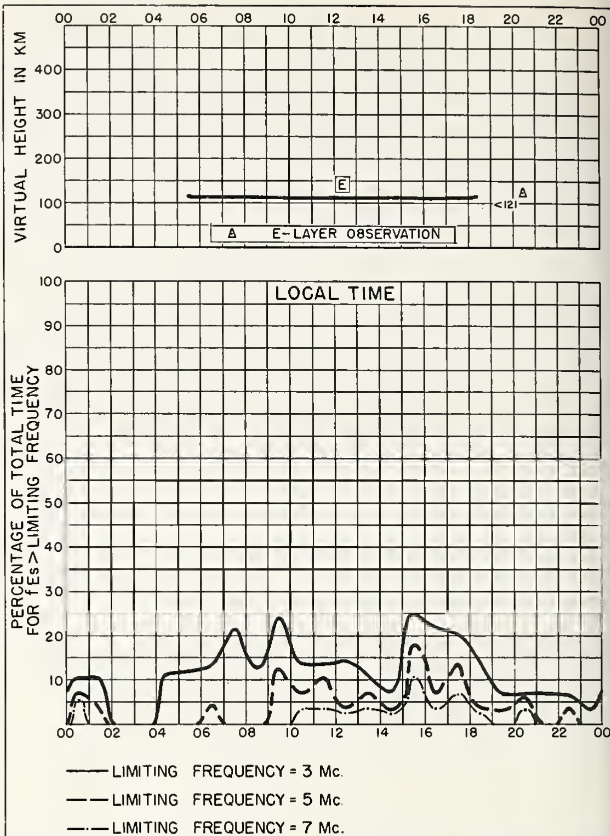



Fig. 86. GODHAVN, GREENLAND APRIL 1957

NBS 490

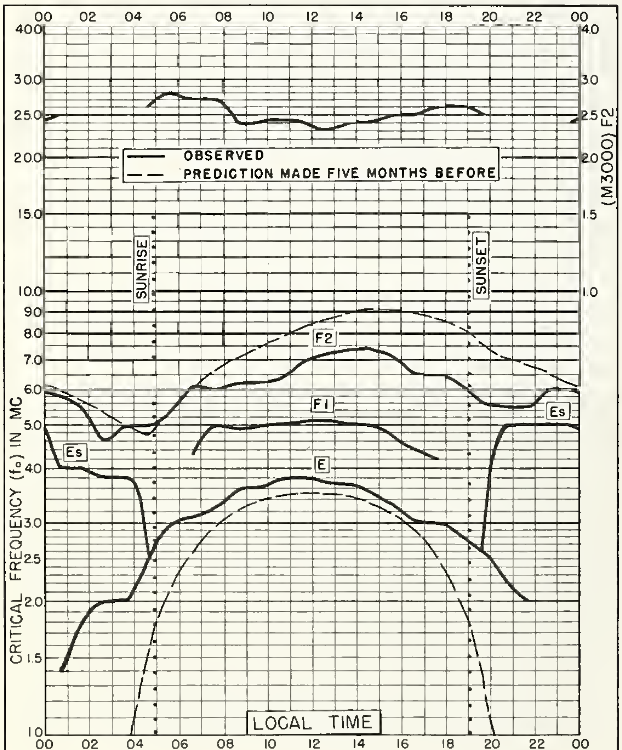



Fig. 87. CHURCHILL, CANADA
58.8°N, 94.2°W APRIL 1957

NBS 503

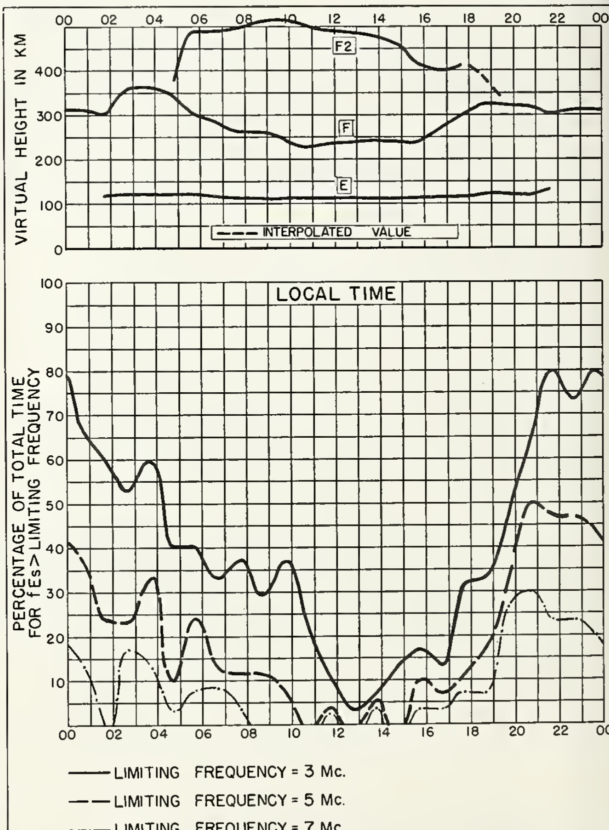



Fig. 88. CHURCHILL, CANADA APRIL 1957

NBS 490

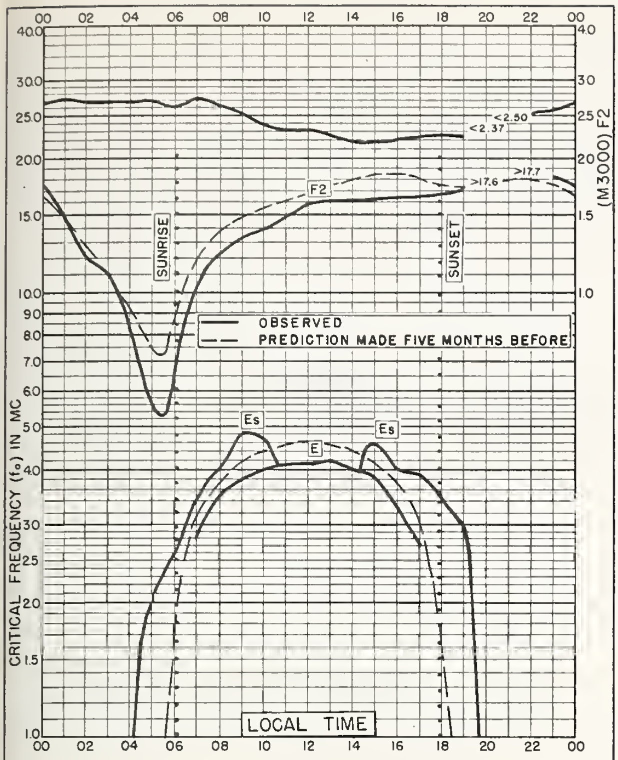
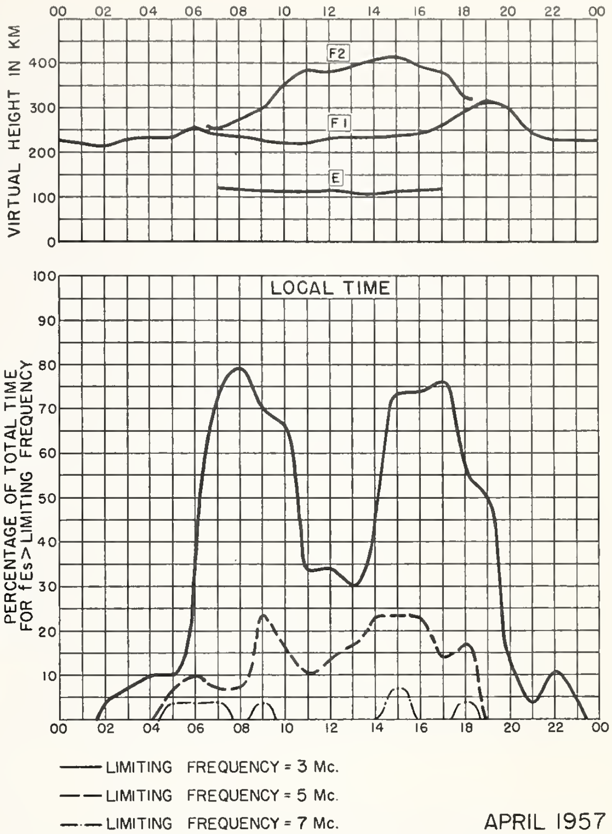



Fig. 89. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E APRIL 1957

NBS 503




APRIL 1957
Fig. 90. LEOPOLDVILLE, BELGIAN CONGO

NBS 490

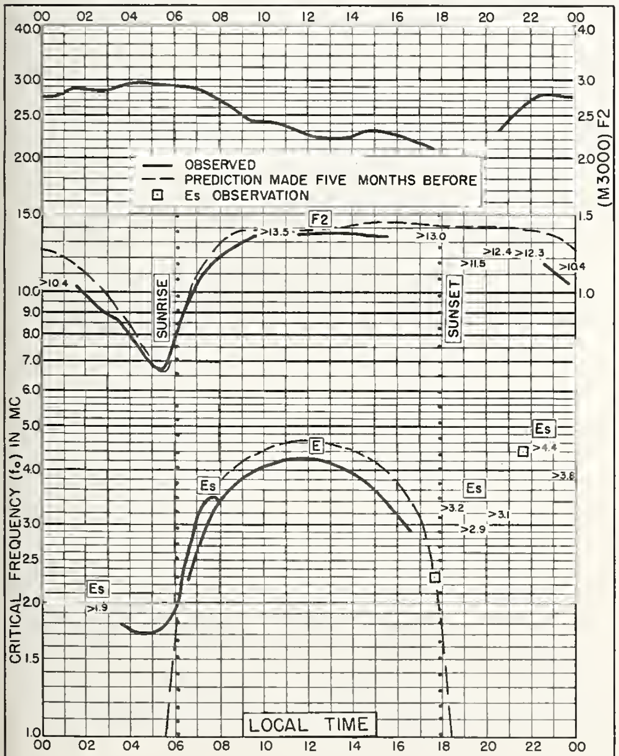



Fig. 91. TALARA, PERU
4.6°S, 81.3°W APRIL 1957

NBS 503

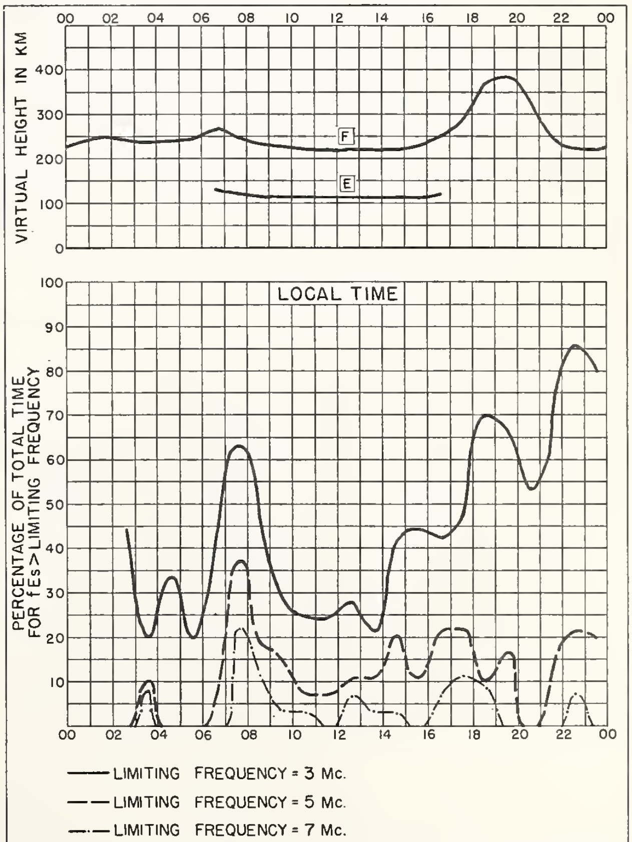



Fig. 92. TALARA, PERU APRIL 1957

NBS 490

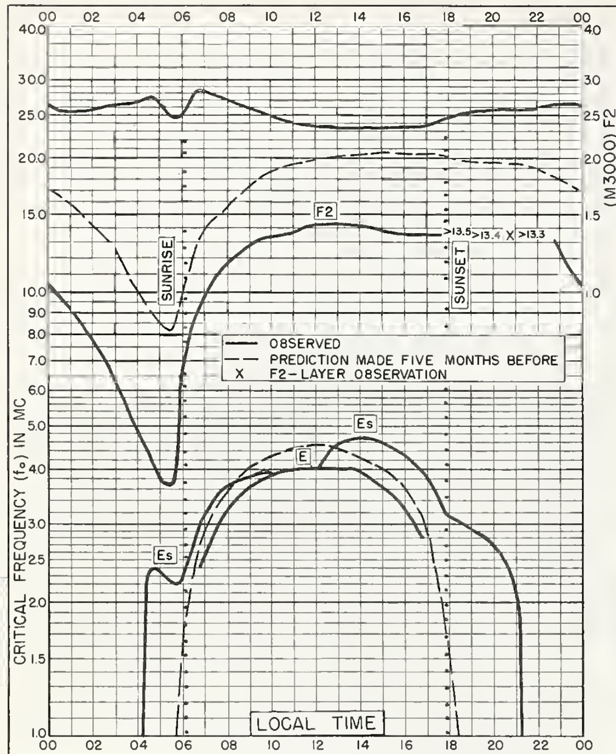
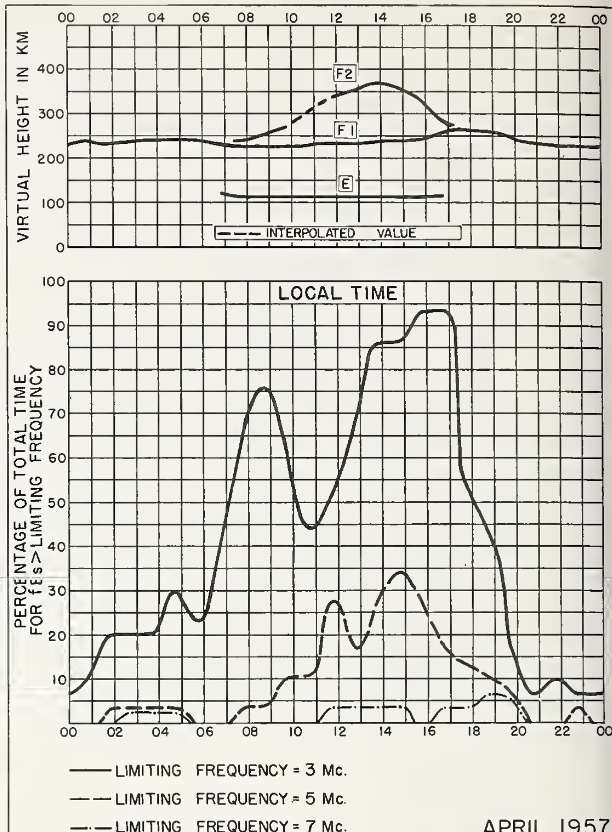



Fig. 93. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E APRIL 1957

NBS 503




APRIL 1957

Fig. 94. ELISABETHVILLE, BELGIAN CONGO

NBS 490

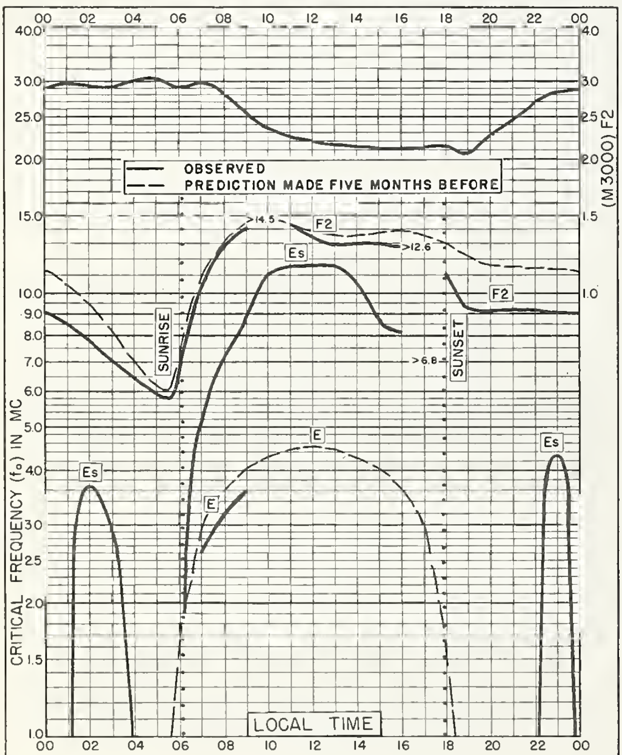



Fig. 95. HUANCAYO, PERU
12.0°S, 75.3°W APRIL 1957

NBS 503

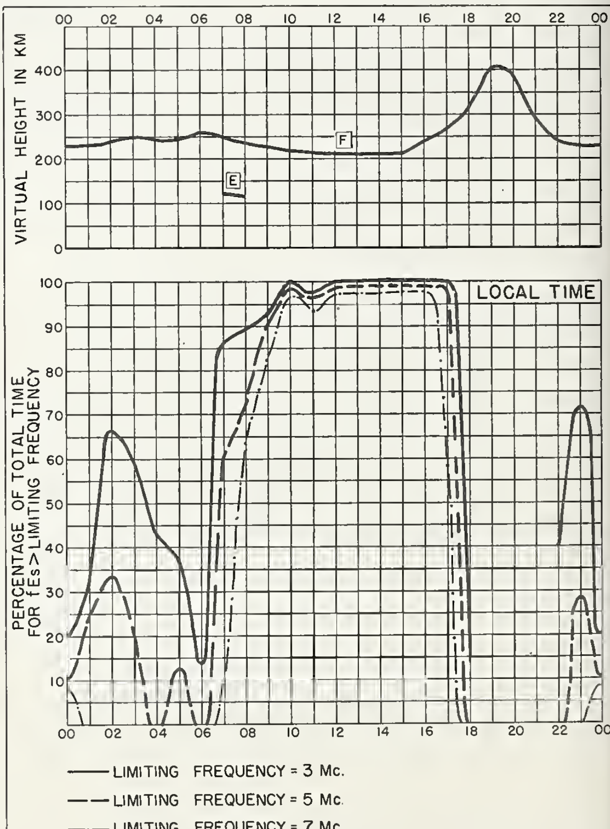



Fig. 96. HUANCAYO, PERU APRIL 1957

NBS 490

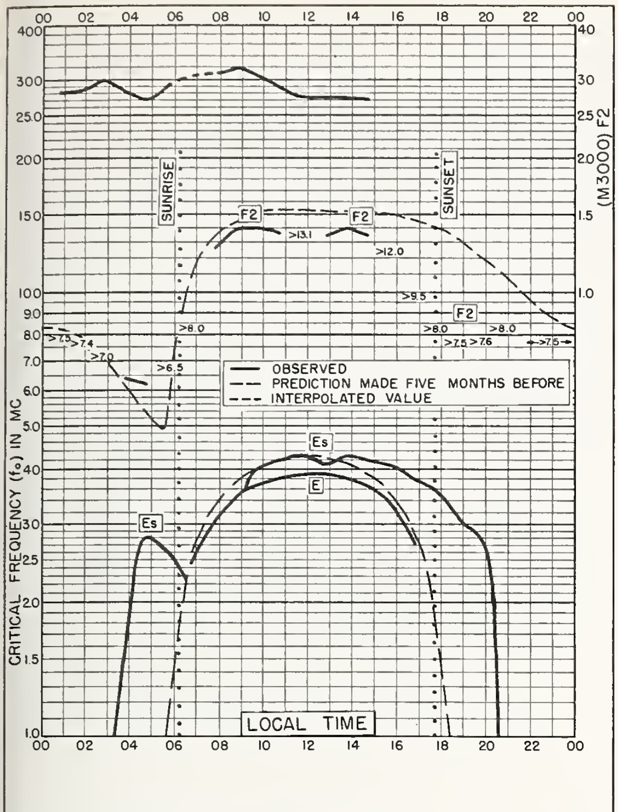



Fig. 97. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E APRIL 1957

NBS 503

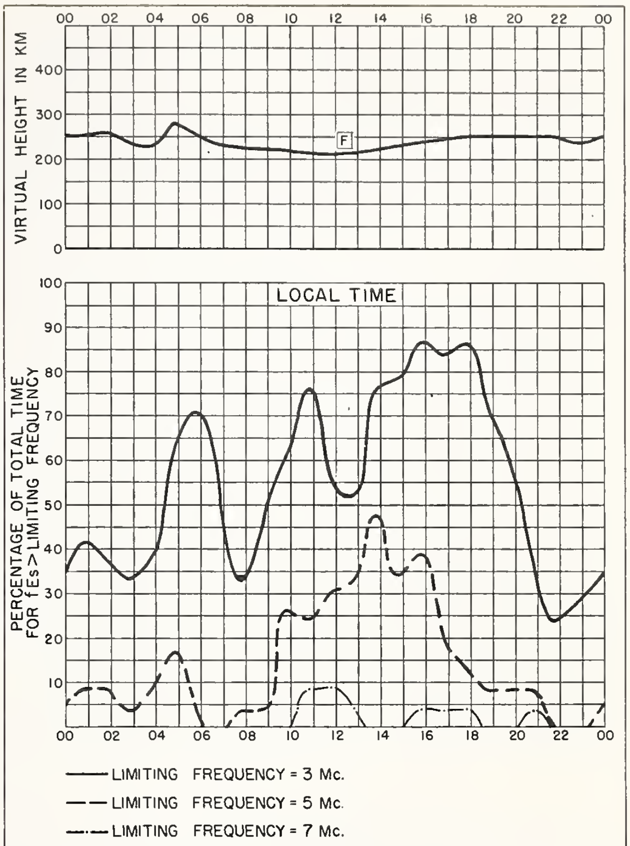



Fig. 98. TOWNSVILLE, AUSTRALIA APRIL 1957

NBS 490

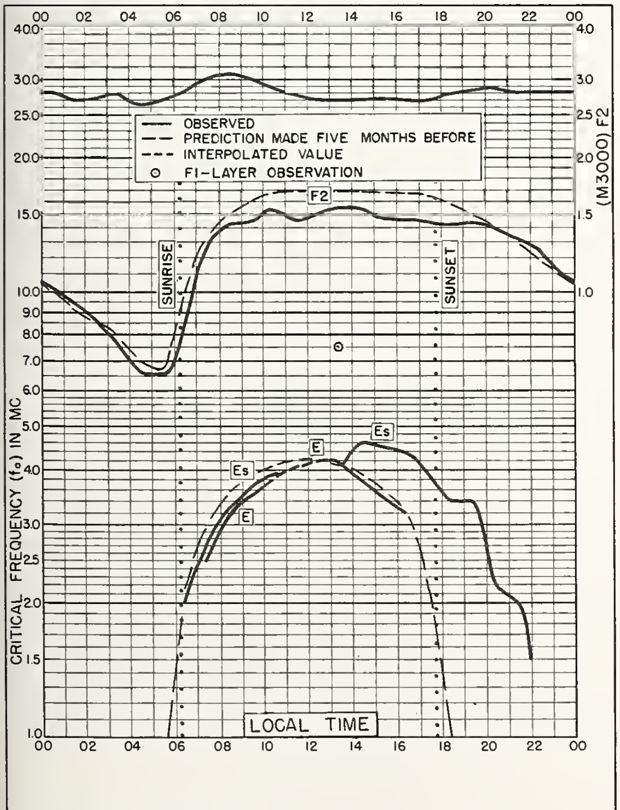



Fig. 99. RAROTONGA I.
21.2°S, 159.8°W APRIL 1957

NBS 503

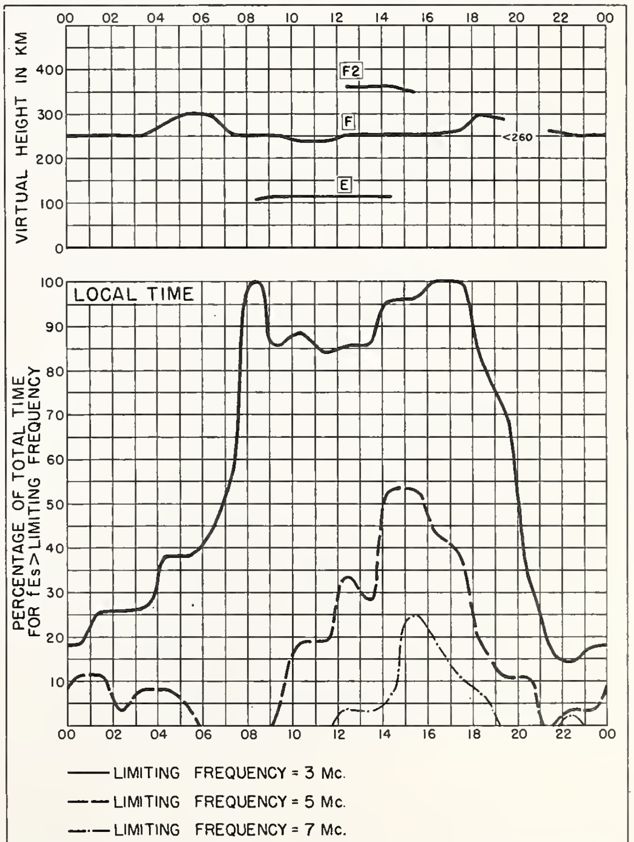



Fig. 100. RAROTONGA I. APRIL 1957

NBS 490

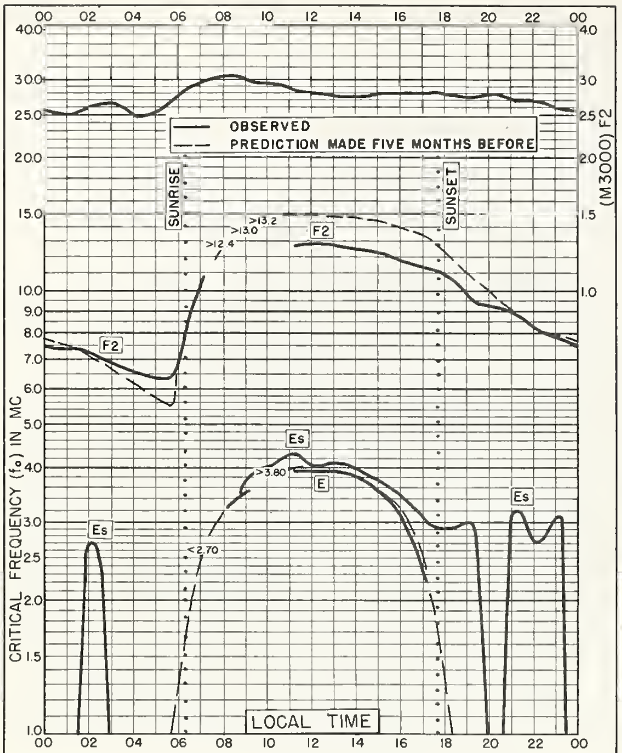



Fig. 101. BRISBANE, AUSTRALIA
27.5°S, 152.9°E APRIL 1957

NBS 503

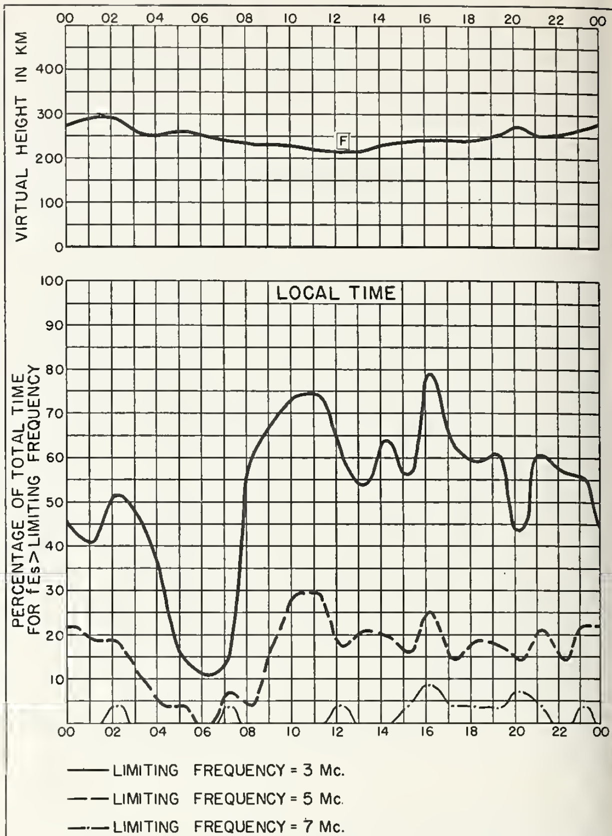



Fig. 102. BRISBANE, AUSTRALIA APRIL 1957

NBS 490

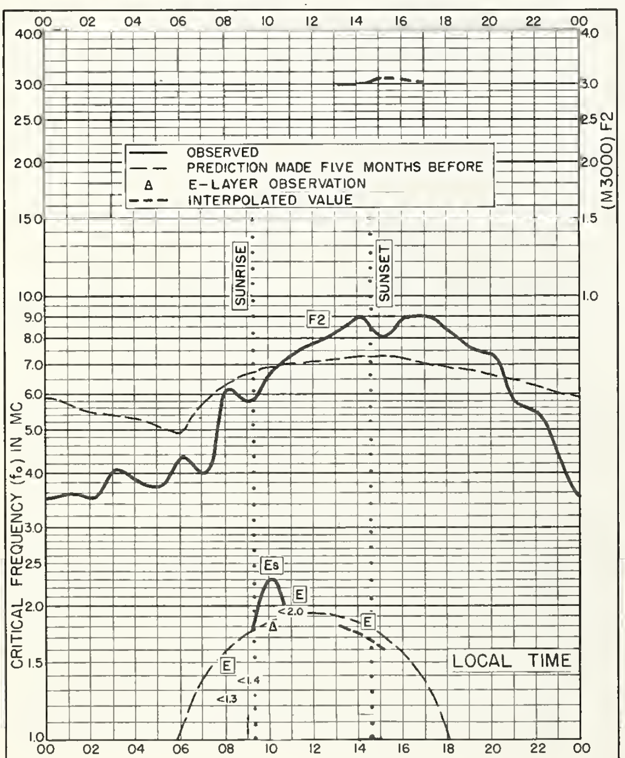



Fig. 103. SCOTT BASE
77.8°S, 166.8°E APRIL 1957

NBS 503

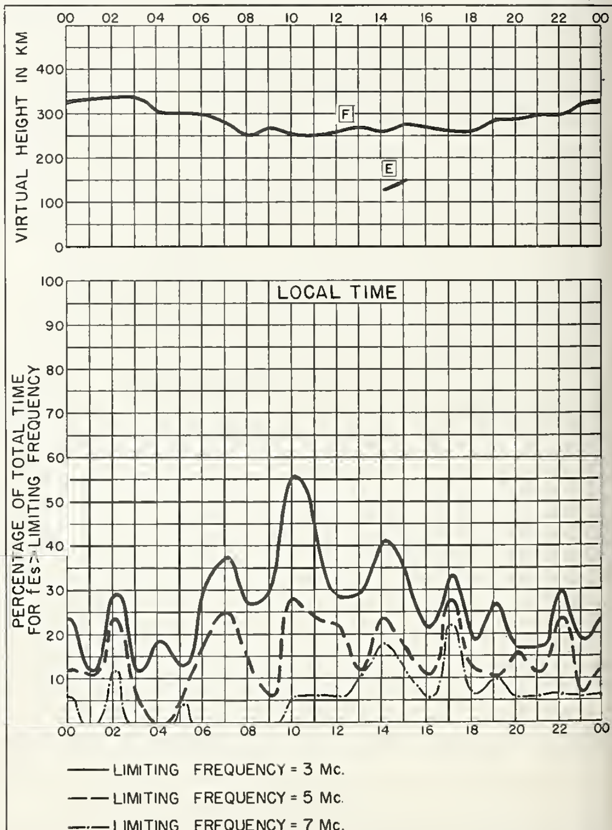



Fig. 104. SCOTT BASE APRIL 1957

NBS 490

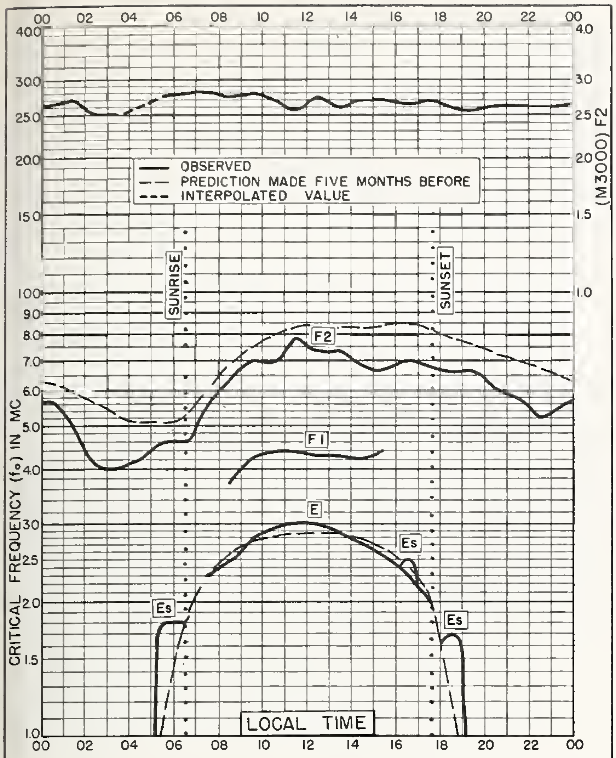



Fig. 105. GODHAVN, GREENLAND
69.2°N, 53.5°W MARCH 1957

NBS 503

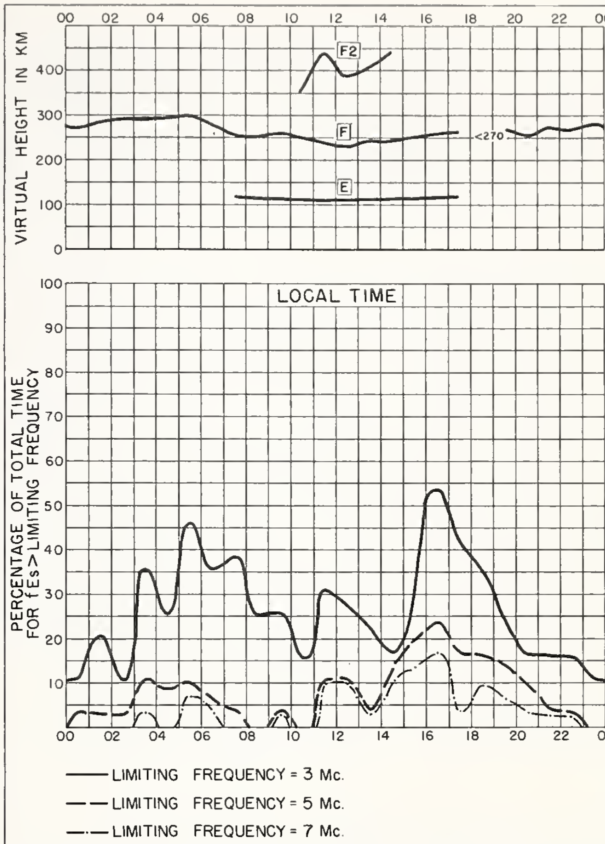



Fig. 106. GODHAVN, GREENLAND MARCH 1957

NBS 490

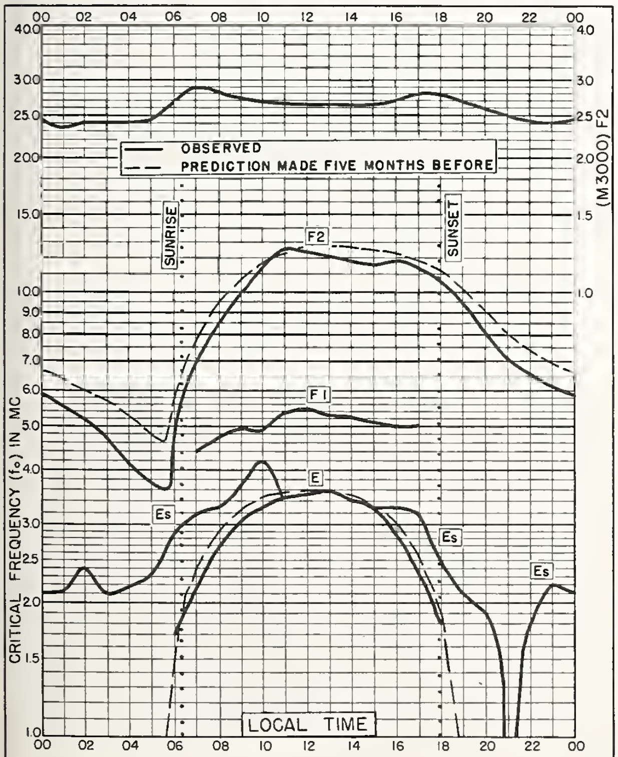



Fig. 107. SLOUGH, ENGLAND
51.5°N, 0.6°W MARCH 1957

NBS 503

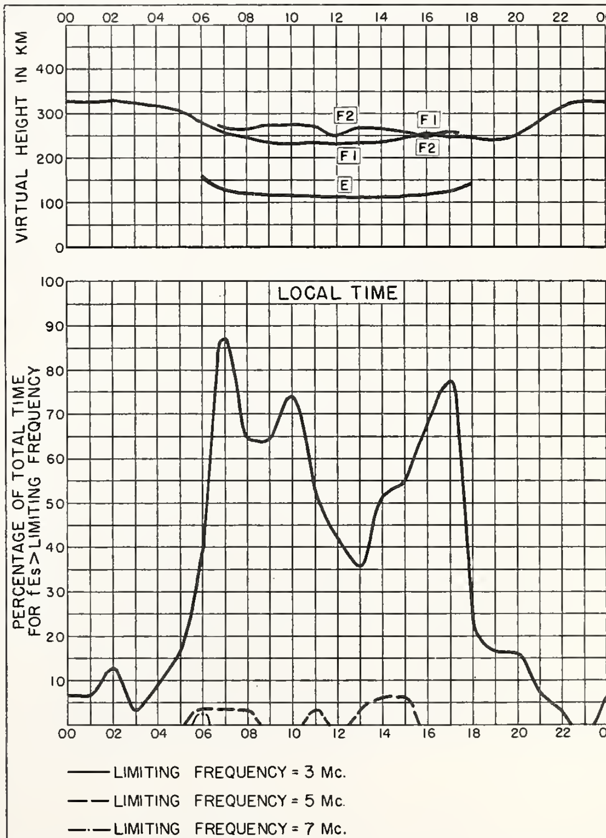



Fig. 108. SLOUGH, ENGLAND MARCH 1957

NBS 490

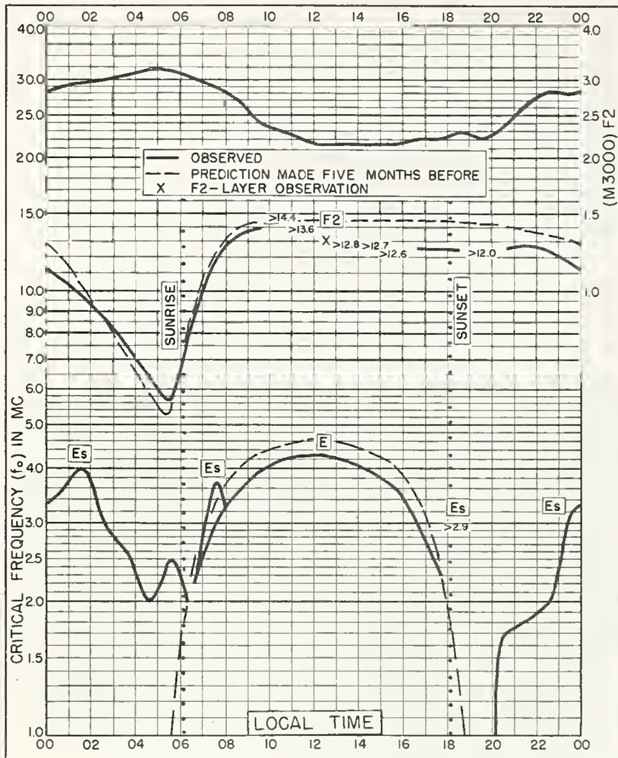



Fig. 109. TALARA, PERU
4.6°S, 81.3°W MARCH 1957

NBS 503

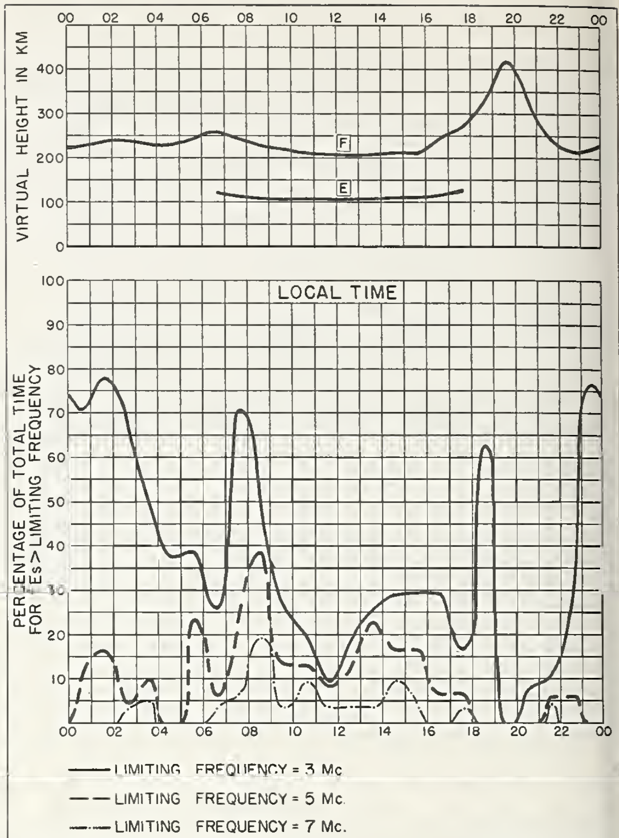



Fig. 110. TALARA, PERU MARCH 1957

NBS 490

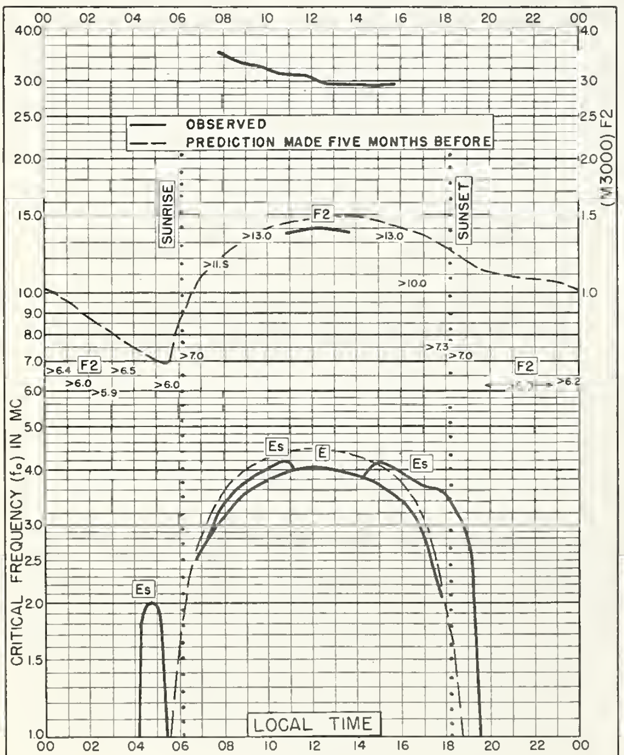



Fig. 111. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MARCH 1957

NBS 503

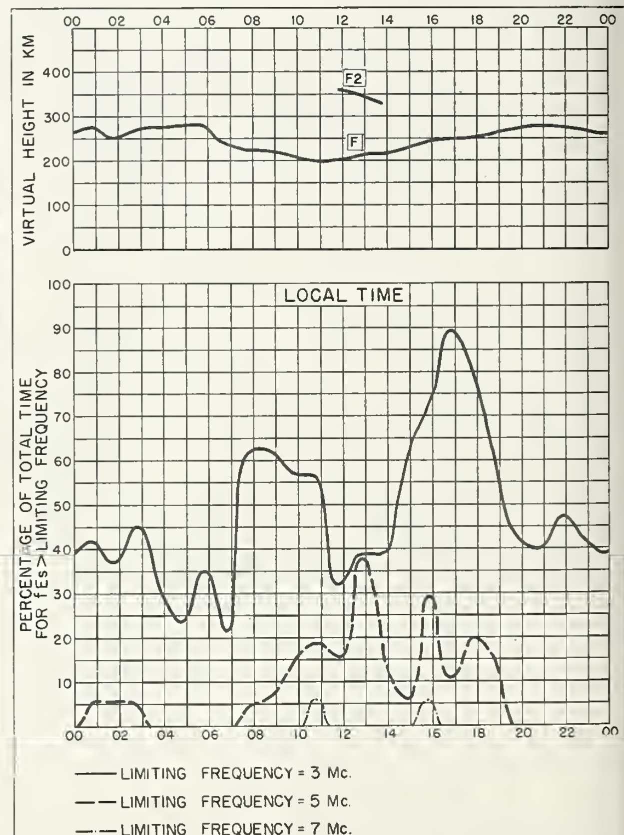



Fig. 112. TOWNSVILLE, AUSTRALIA MARCH 1957

NBS 490

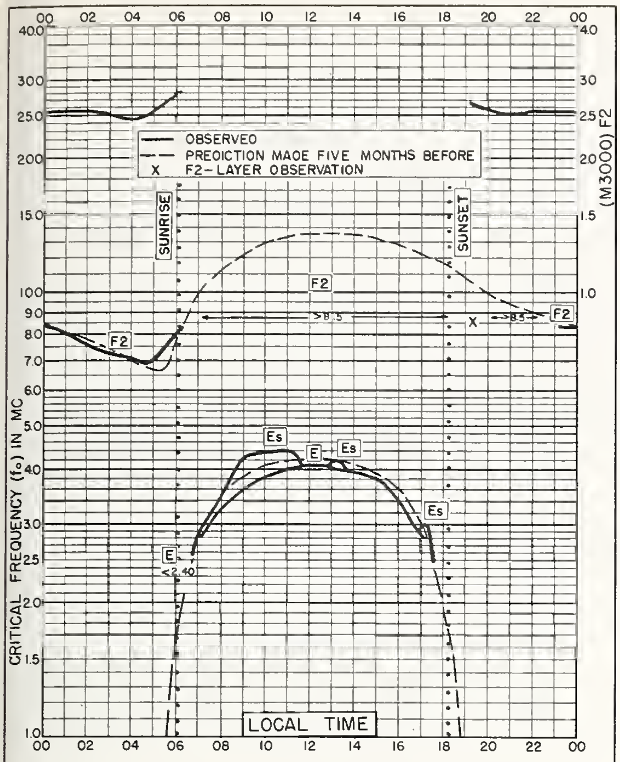



Fig. 113. BRISBANE, AUSTRALIA
27.5°S, 152.9°E MARCH 1957



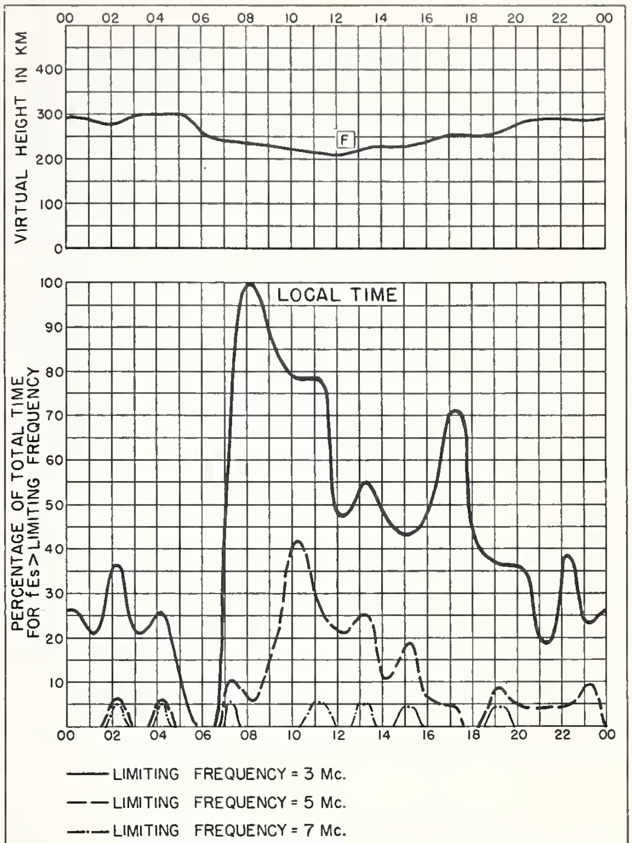



Fig. 114. BRISBANE, AUSTRALIA MARCH 1957



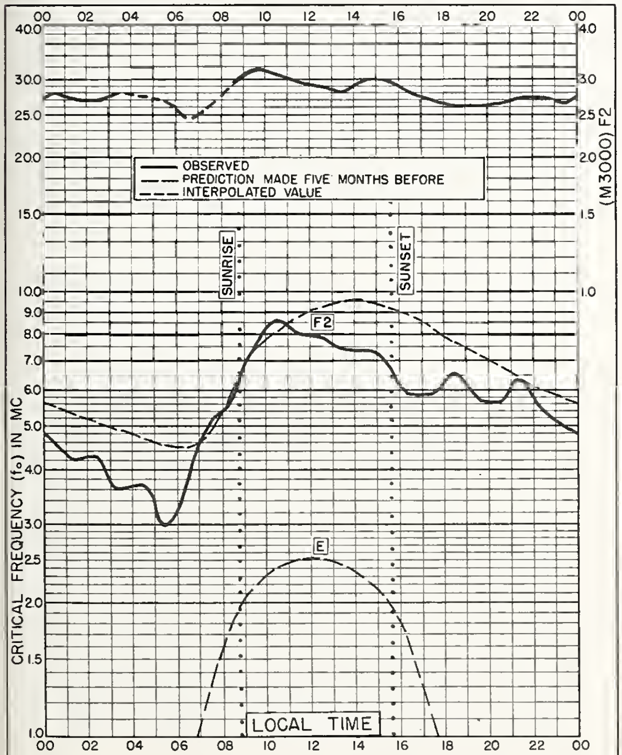



Fig. 115. GODHAVN, GREENLAND
69.2°N, 53.5°W FEBRUARY 1957



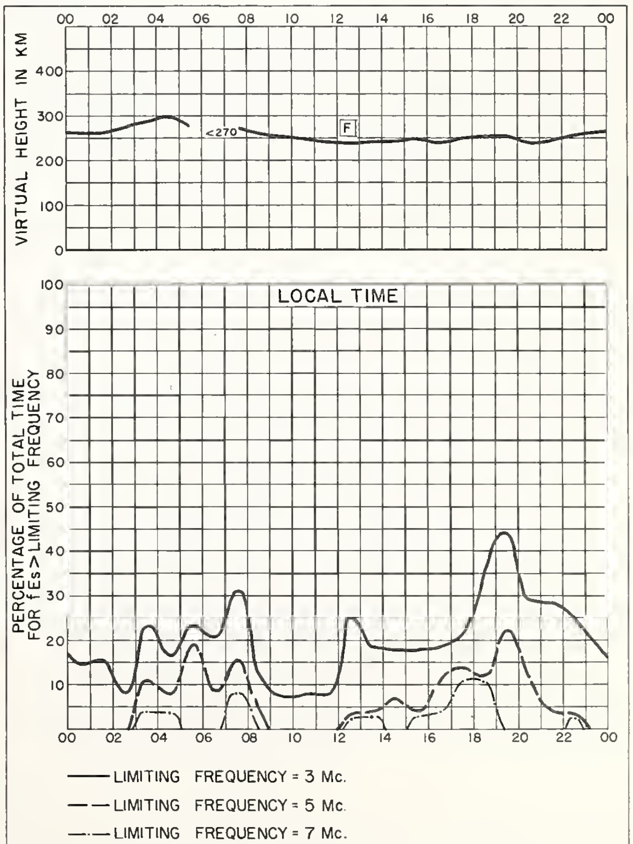



Fig. 116. GODHAVN, GREENLAND FEBRUARY 1957

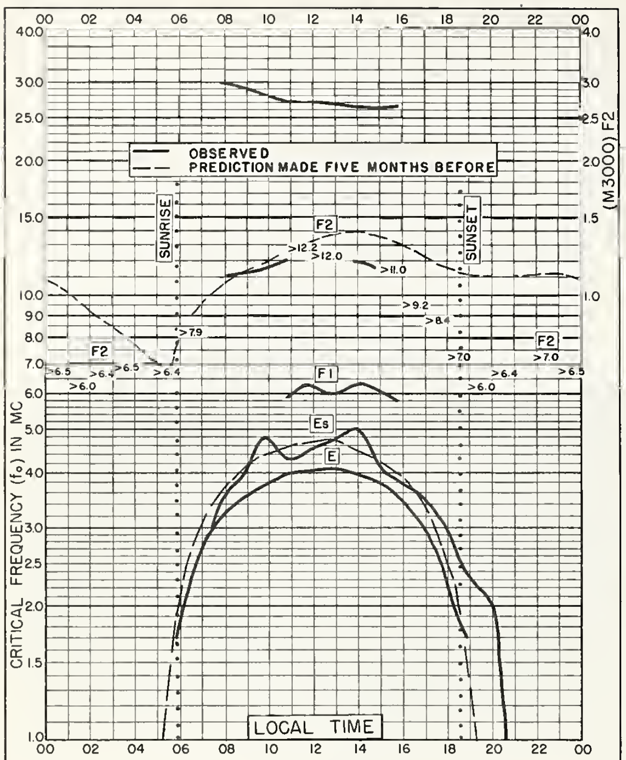
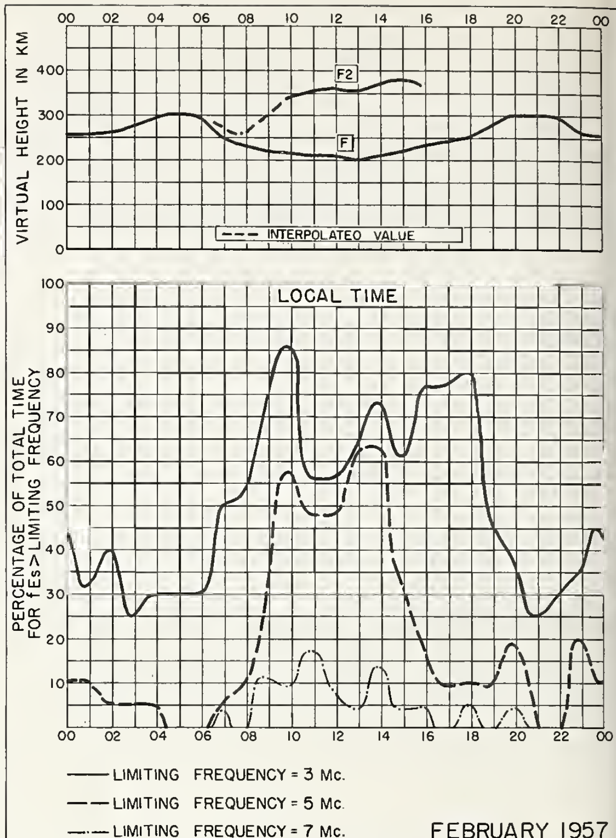



Fig. 117. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E FEBRUARY 1957






FEBRUARY 1957
Fig. 118. TOWNSVILLE, AUSTRALIA



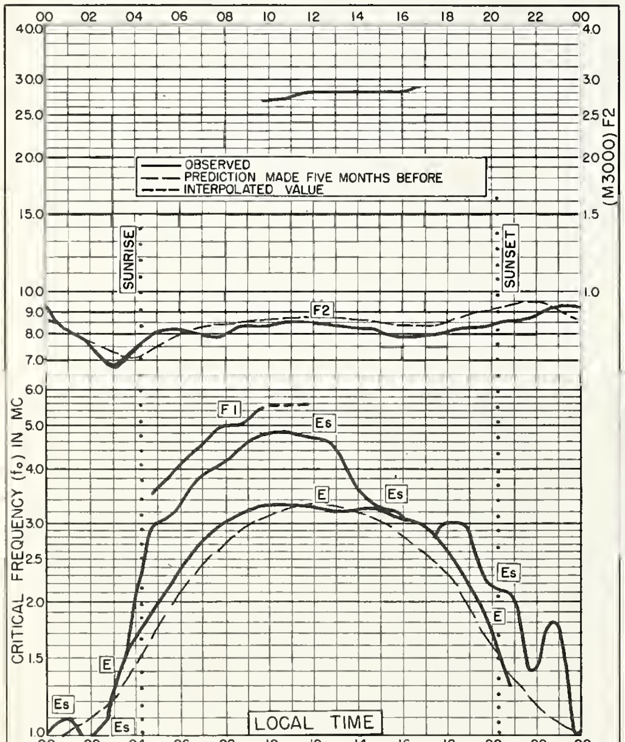



Fig. 119. PORT LOCKROY
64.8°S, 63.5°W FEBRUARY 1957



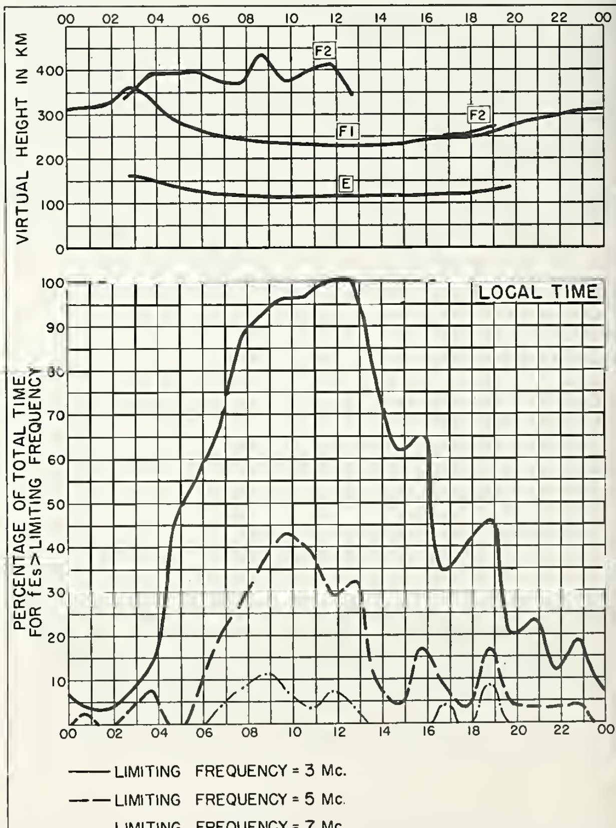



Fig. 120. PORT LOCKROY FEBRUARY 1957

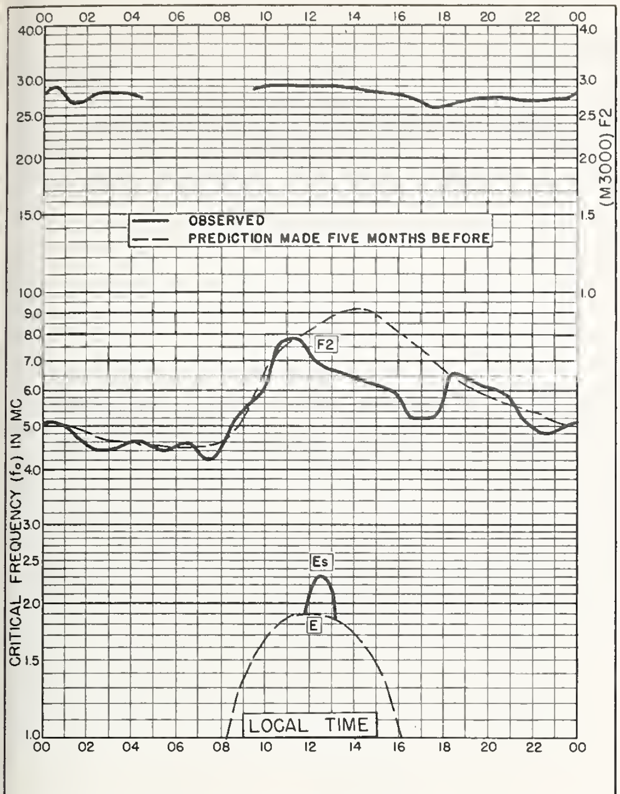



Fig. 121. GODHAVN, GREENLAND
69.2°N, 53.5°W JANUARY 1957



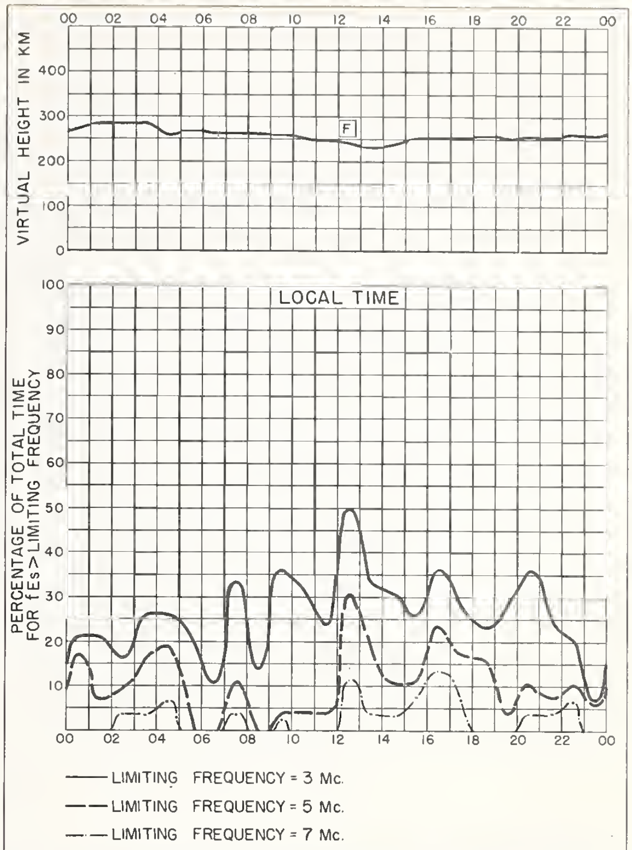



Fig. 122. GODHAVN, GREENLAND JANUARY 1957



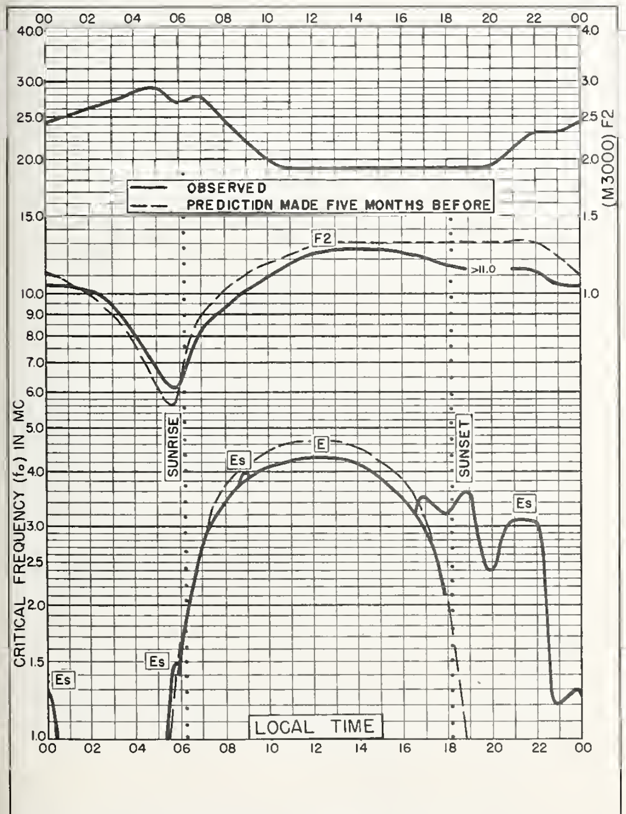
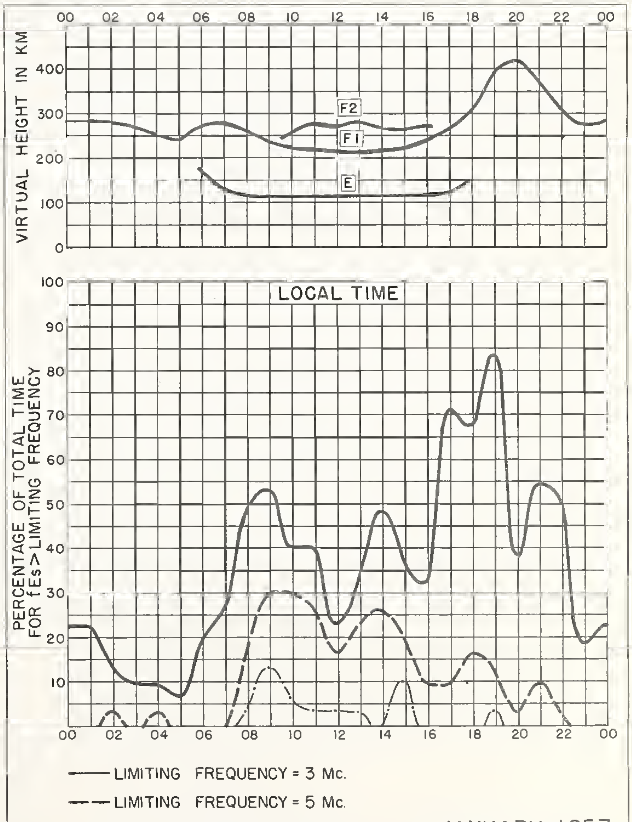



Fig. 123. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JANUARY 1957






JANUARY 1957
Fig. 124. SINGAPORE, BRITISH MALAYA



U.S. GOVERNMENT PRINTING OFFICE

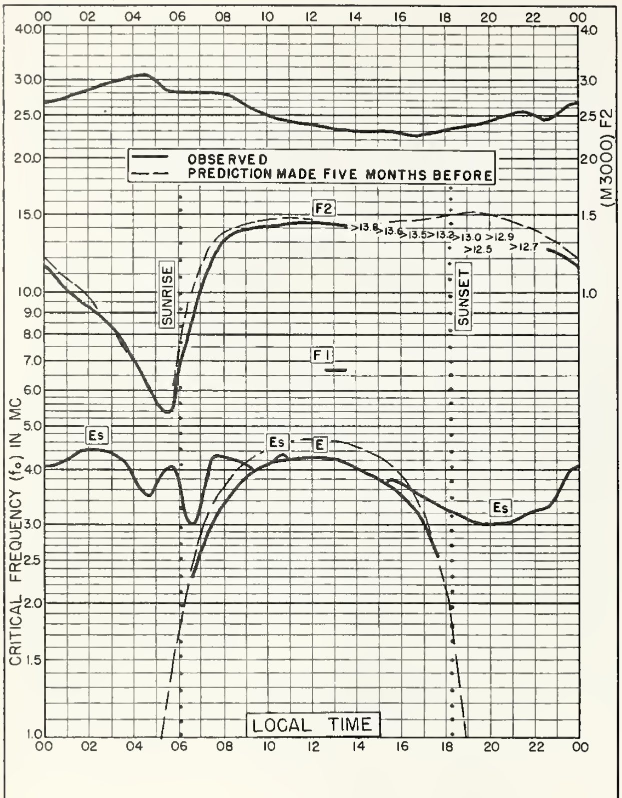



Fig. 125. TALARA, PERU
4.6°S, 81.3°W JANUARY 1957

NBS 503

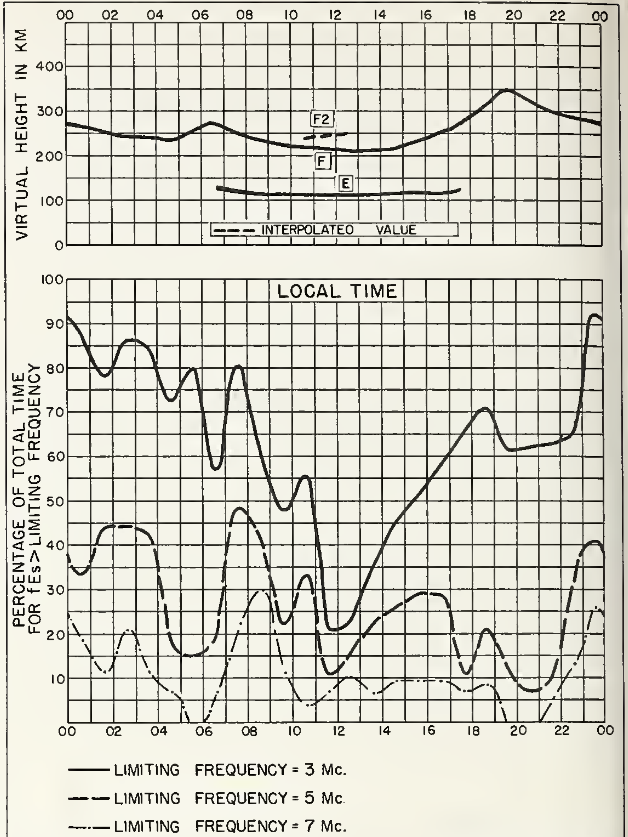



Fig. 126. TALARA, PERU JANUARY 1957

NBS 490

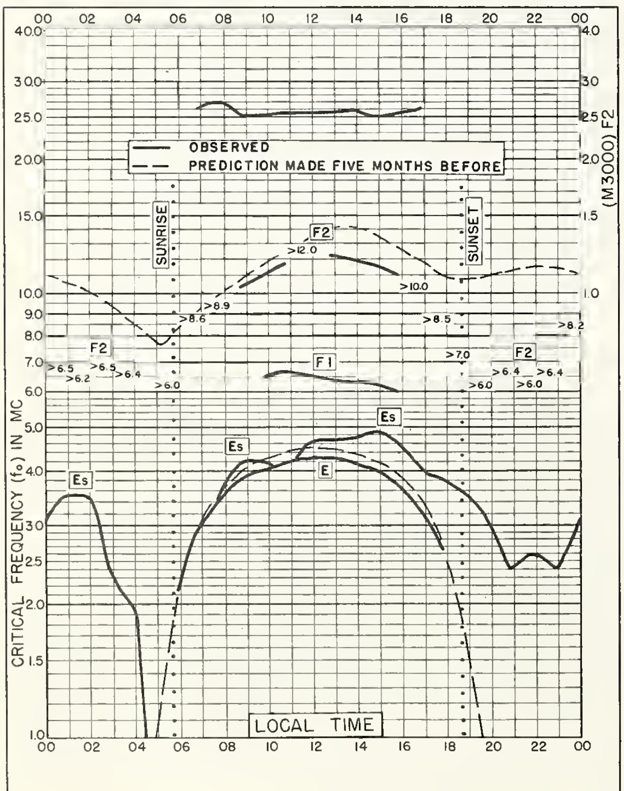
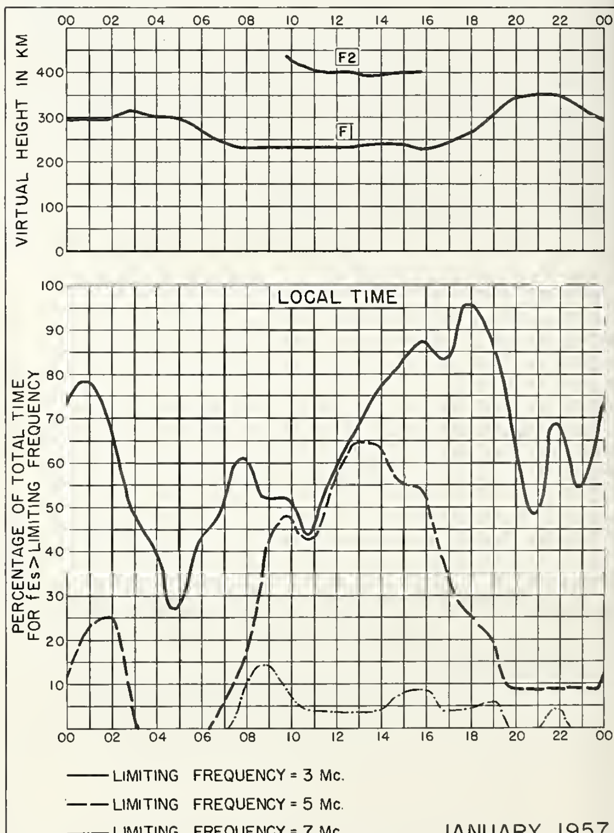



Fig. 127. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E JANUARY 1957

NBS 503




JANUARY 1957

Fig. 128. TOWNSVILLE, AUSTRALIA

NBS 490

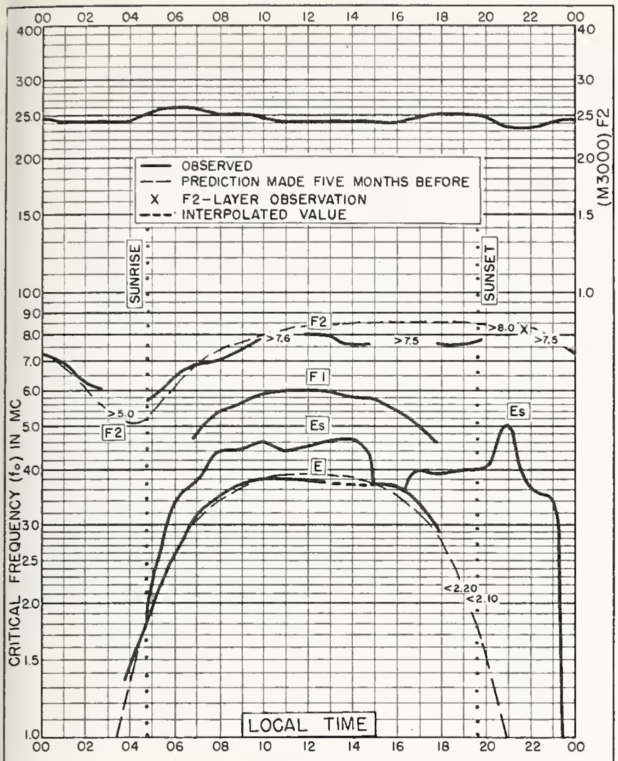



Fig. 129. HOBART, TASMANIA
42.9°S, 147.2°E JANUARY 1957

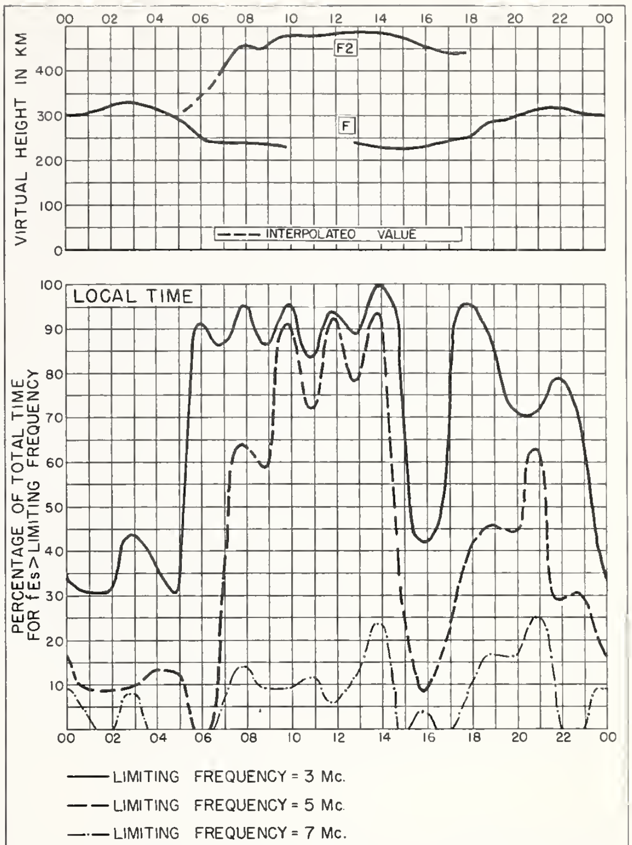



Fig. 130. HOBART, TASMANIA JANUARY 1957

NBS 503 NBS 490

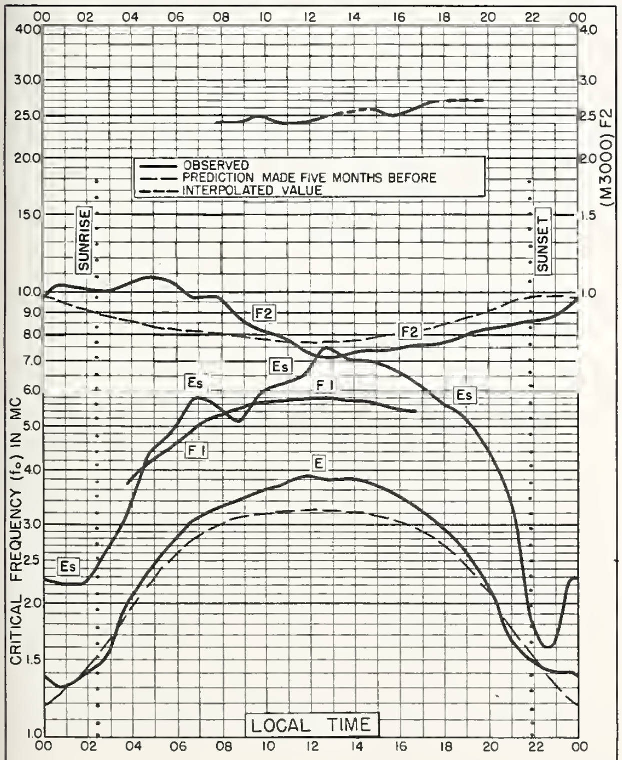



Fig. 131. PORT LOCKROY
64.8°S, 63.5°W JANUARY 1957

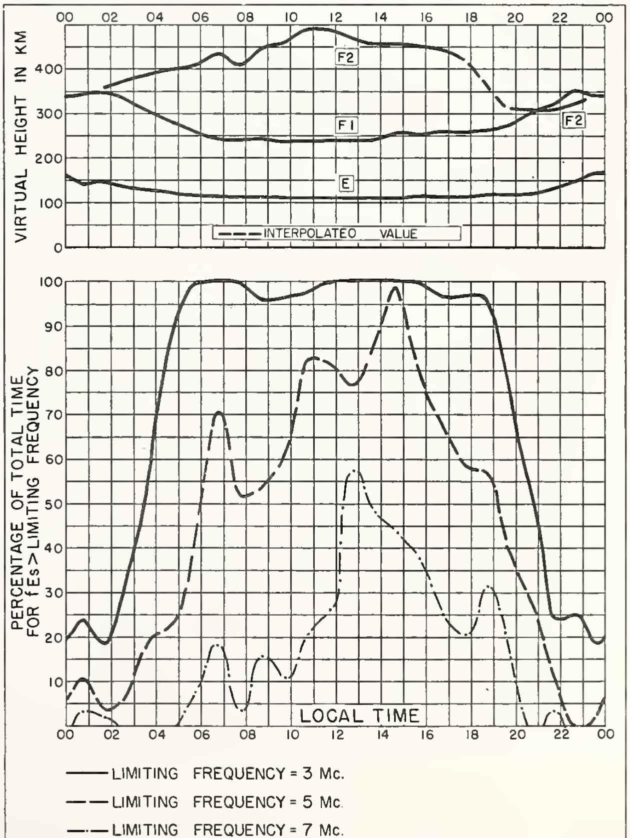



Fig. 132. PORT LOCKROY JANUARY 1957

NBS 503 NBS 490

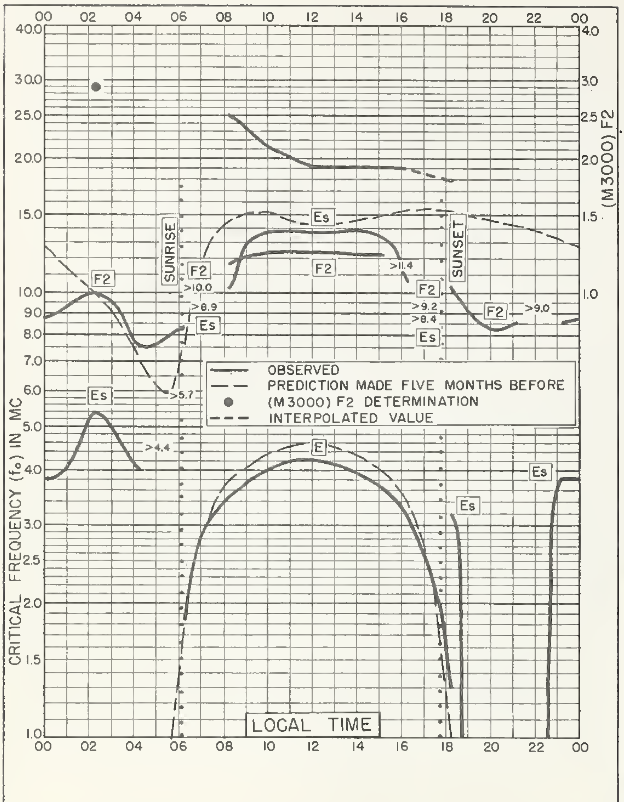



Fig. 133. IBADAN, NIGERIA
7.4°N, 4.0°E DECEMBER 1956

NBS 503

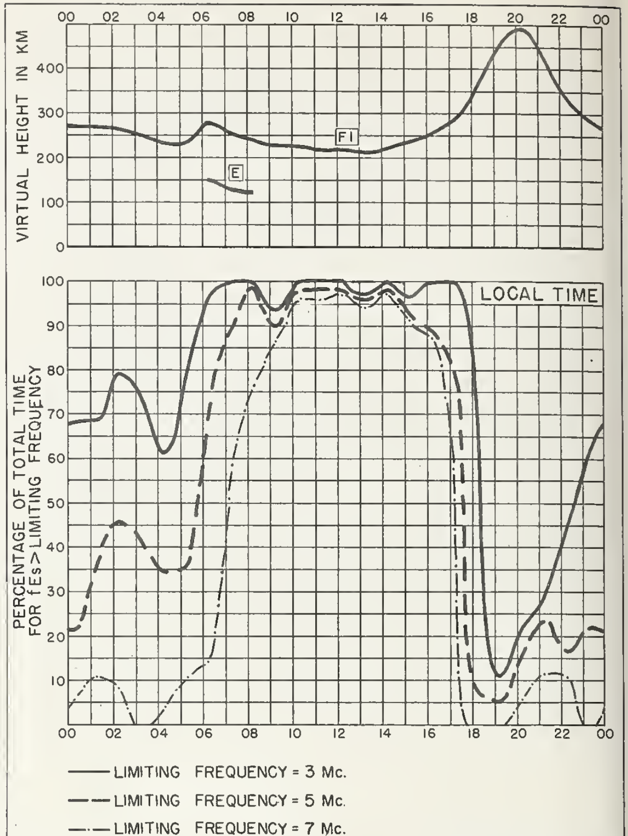



Fig. 134. IBADAN, NIGERIA DECEMBER 1956

NBS 490

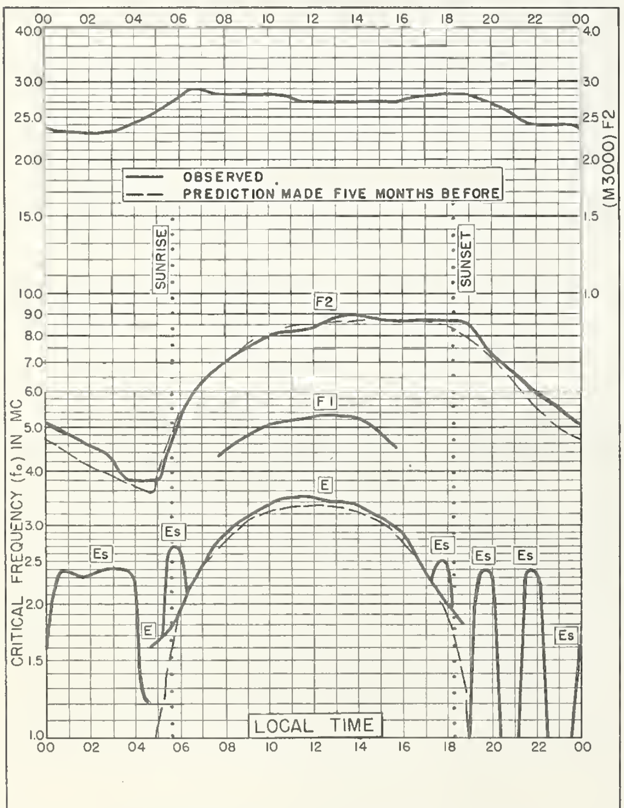
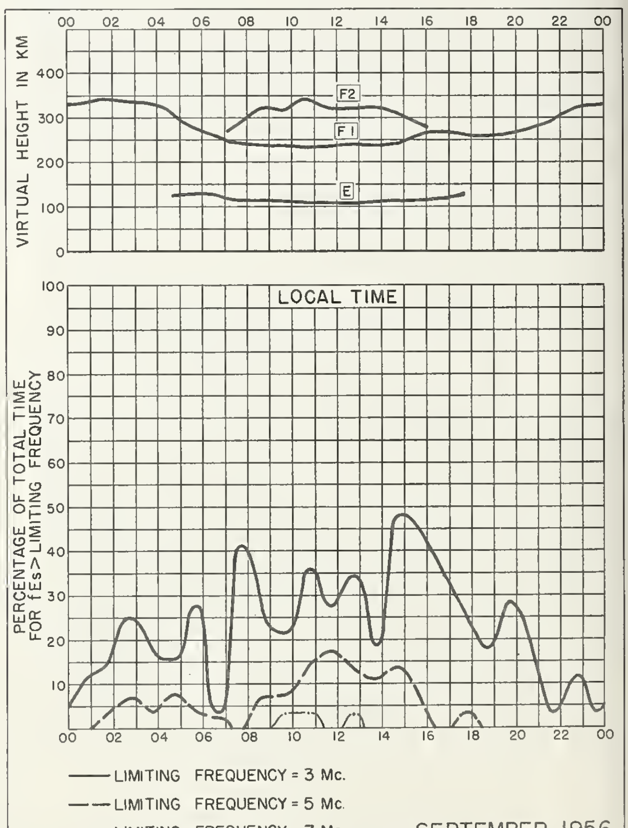



Fig. 135. INVERNESS, SCOTLAND
57.4°N, 4.2°W SEPTEMBER 1956

NBS 503




SEPTEMBER 1956
Fig. 136. INVERNESS, SCOTLAND

NBS 490

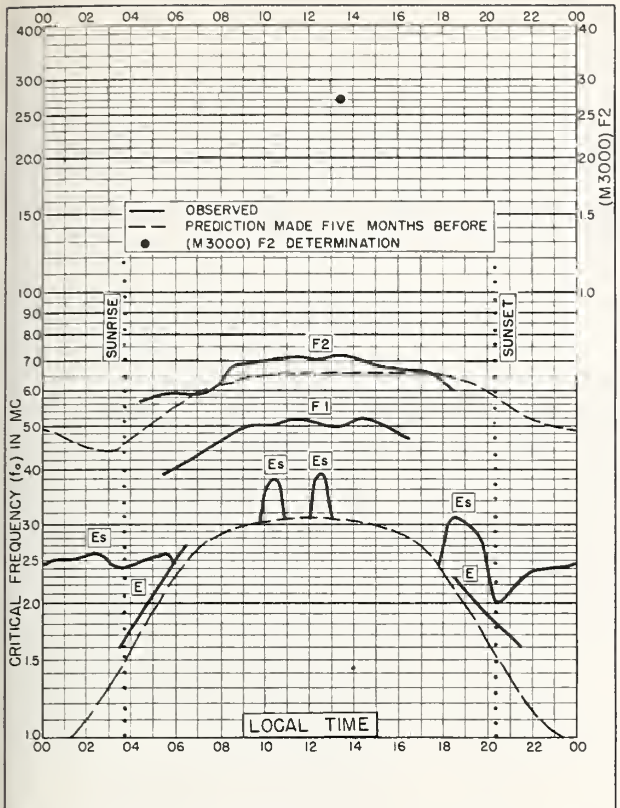



Fig. 137. LULEA, SWEDEN
65.6°N, 22.1°E AUGUST 1956

NBS 503

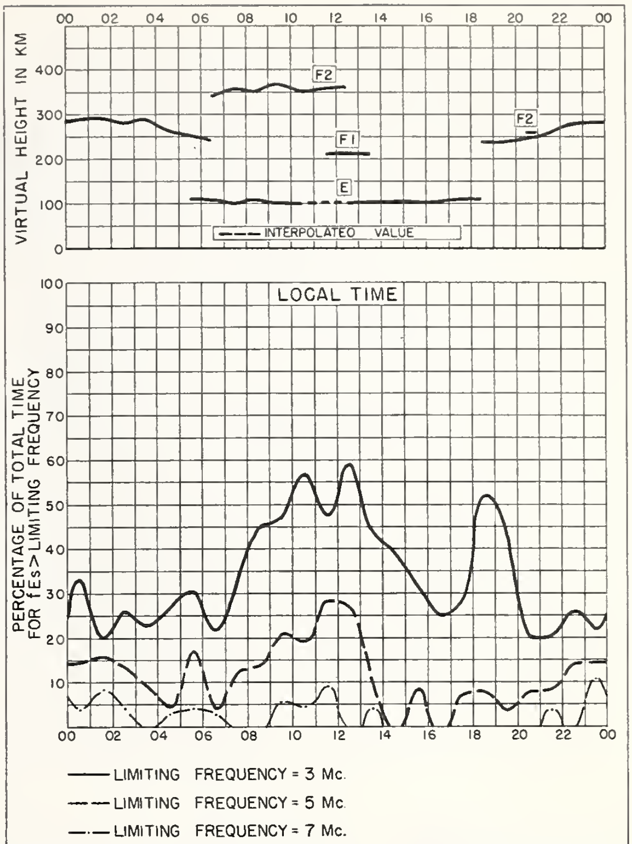



Fig. 138. LULEA, SWEDEN AUGUST 1956

NBS 490

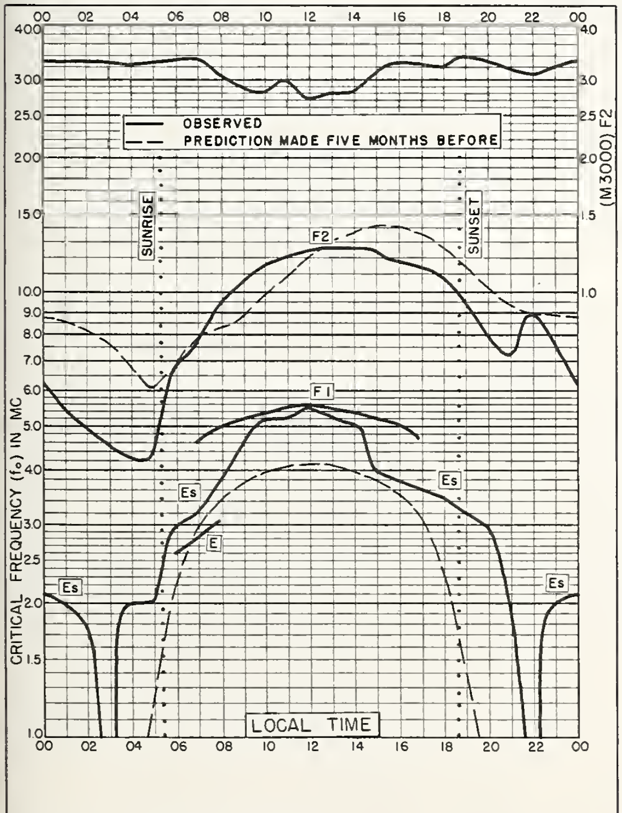



Fig. 139. CALCUTTA, INDIA
22.9°N, 88.5°E JULY 1956

NBS 503

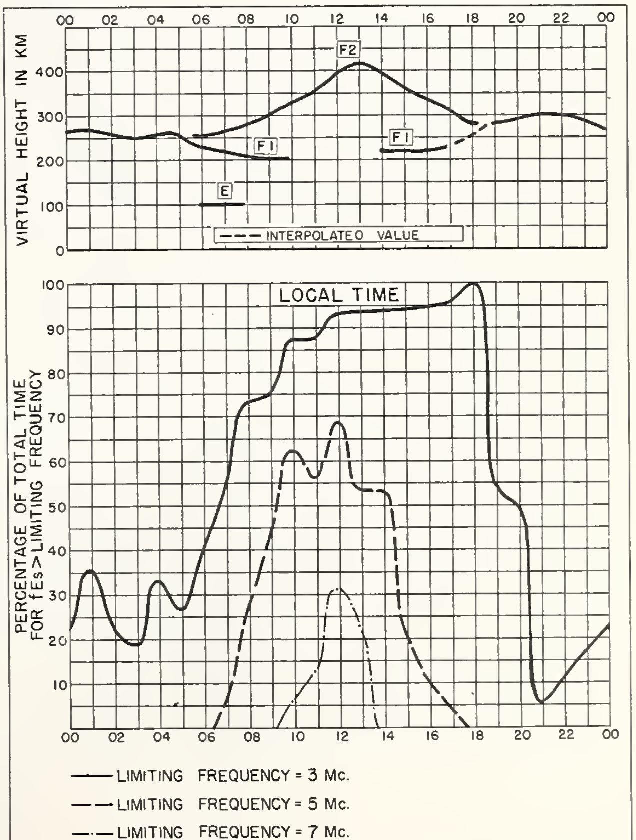



Fig. 140. CALCUTTA, INDIA JULY 1956

NBS 490

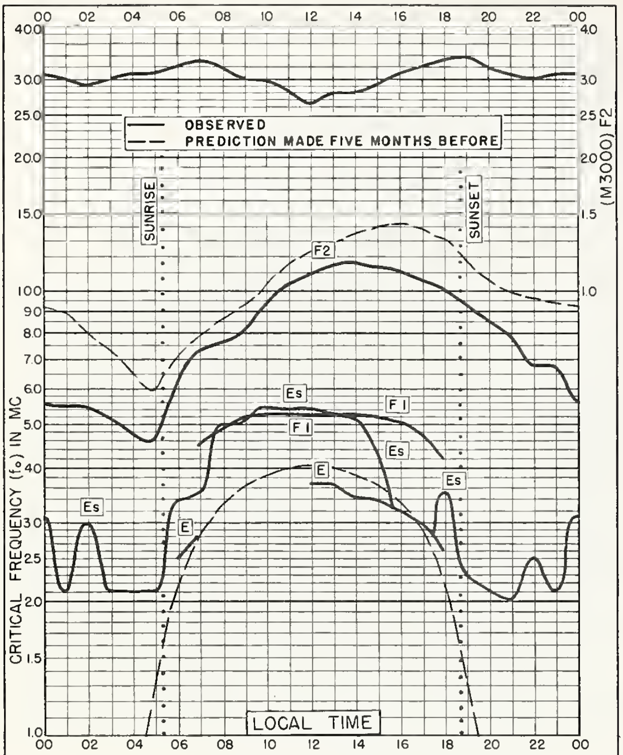



Fig. 141. CALCUTTA, INDIA
22.9°N, 88.5°E JUNE 1956

NBS 503

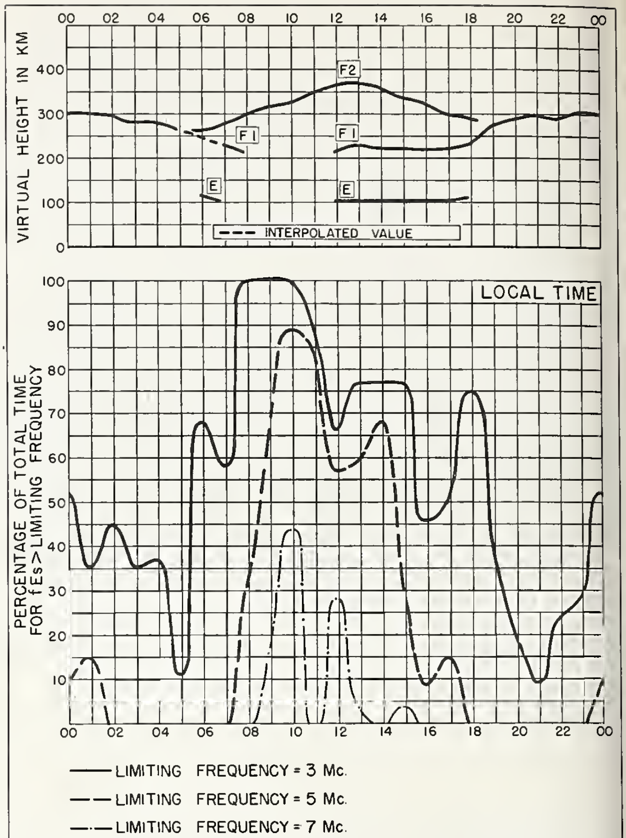



Fig. 142. CALCUTTA, INDIA JUNE 1956

NBS 490

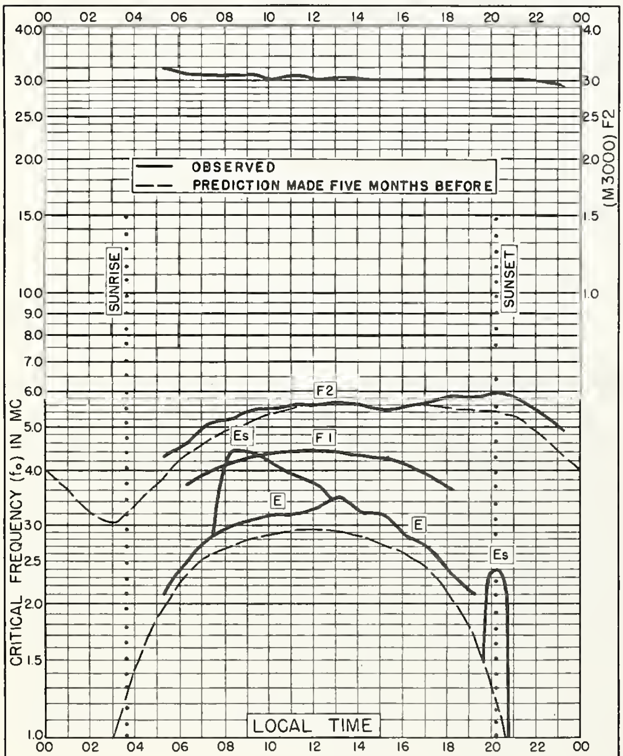



Fig. 143. CAMPBELL I.
52.5°S, 169.2°E DECEMBER 1954

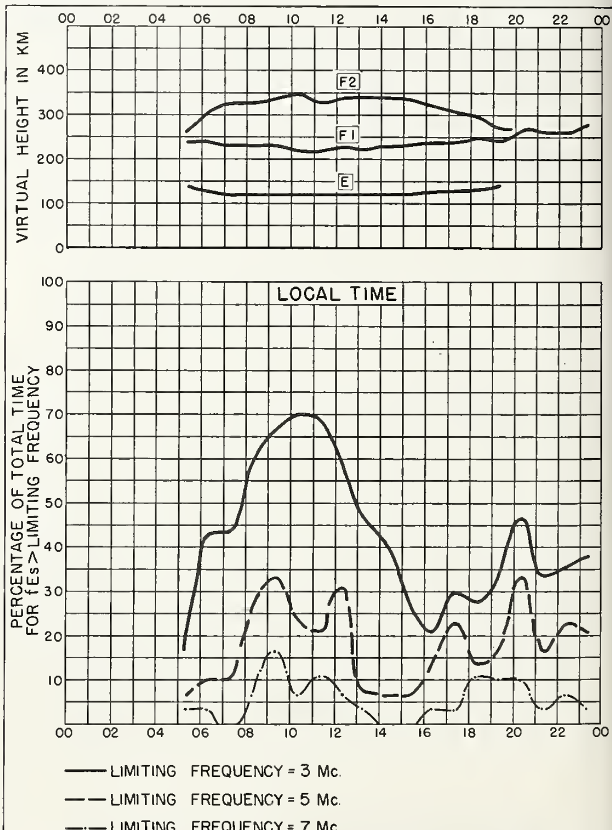



Fig. 144. CAMPBELL I. DECEMBER 1954

NBS 490

## Index of Tables and Graphs of Ionospheric Data

## in CRPL-F158 (Part A)

Index (CRPL-F158 (Part A), continued)

Index (CRPL-F158 (Part A), concluded)

## CRPL Reports

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

*Daily:*

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.

Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

*Semiweekly:*

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

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

*Semimonthly:*

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

*Monthly:*

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Air Force, TO 31–3–28 series). On sale by Superintendent of Documents.* Members of the Armed Forces should address cognizant military office.

CRPL—F. (Part A). Ionospheric Data.
(Part B). Solar-Geophysical Data.
Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic or other radio propagation data or in exchange for copies of publications on radio, physics, and geophysics for the CRPL library.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

*Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:*

NBS Circular 462. Ionospheric Radio Propagation. $1.25.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.

NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 Megacycles. 30 cents.

NBS Circular 582. Worldwide Occurrence of Sporadic E. $3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

* For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C. Price 10 cents (single copy). Subscription Price: $1.00 a year; 25 cents additional for foreign mailing.