PART A

IONOSPHERIC DATA

ISSUED
JULY 1957

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

CRPL-F 155
PART A

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Issued
22 July 1957

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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*	60	14	11	27	52	78	103	111	133
February		150*	53	14	12	29	51	82	103	113	133
January		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												

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:

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

University of Graz:
Graz, Austria

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

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

National Laboratory of Radio-Electricity (French Ionospheric Bureau):
Casablanca, Morocco
Poitiers, France

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:
Ahmedabad (Physical Research Laboratory)
Bombay (All India Radio)
Delhi (All India Radio)
Kodaikanal (India Meteorological Department)
Madras (All India Radio)
Tiruchy (All India Radio)

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

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

Manila Observatory:
- Baguio, P. I.

Institute of Terrestrial Magnetism, Ionosphere and Radio Propagation, Moscow, U.S.S.R.:
- Alma-Ata
- Ashkhabad
- Irkutsk
- Leningrad
- Moscow
- Rostov-on-Don
- Sverdlovsk
- Tomsk

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
- 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
- Ft. Monmouth, New Jersey
- Okinawa I.
- Thule, Greenland

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

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

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

The interpretation of a cell is as follows: U F
32

The U is a qualifying symbol meaning doubtful. Other qualifying symbols are I, interpolated, D, greater than, E, less than, J, ordinary component deduced from extraordinary, and T, value determined by a sequence of observations. Absence of a letter in the upper left position means full weight is given to the observation.

Symbols such as F above are given in the upper right position.

There should be no difficulty in the placing of the decimal point. For the time being, a final zero will be found in each value of foF1. Thus at a later date it will be possible to register more closely scaled values of this characteristic, whenever such are reported.

ERRATUM

1. CRPL-F154 (Part A), p. 26, table 48: Change sweep to read "16.0 Mc to 1.6 Mc in 12 minutes 30 seconds."

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
THULE, GREENLAND; APRIL 28, 1957
(Geomagnetic Latitude 88°N)

The following ionograms were obtained at the Signal Corps Thule, Greenland vertical sounding station. They are typical of day and night conditions for April at this geomagnetic latitude. Ionospheric data are scaled directly from these records onto the daily 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. Medians as found in the Tables of Ionospheric Data are calculated using hourly values taken from the f-plot or directly from the ionogram.

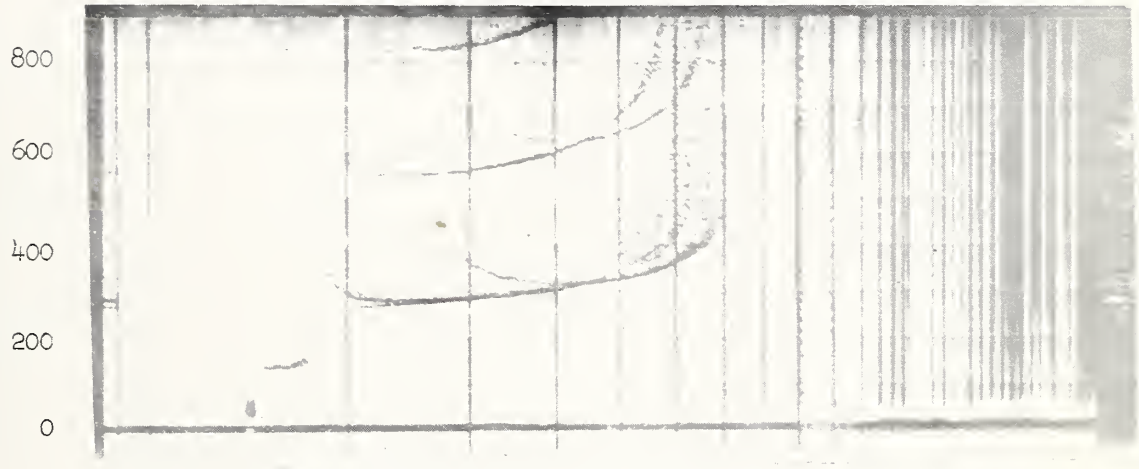


Fig. A. Thule, Greenland, April 28, 1957, 2300 hours, 75°W time.

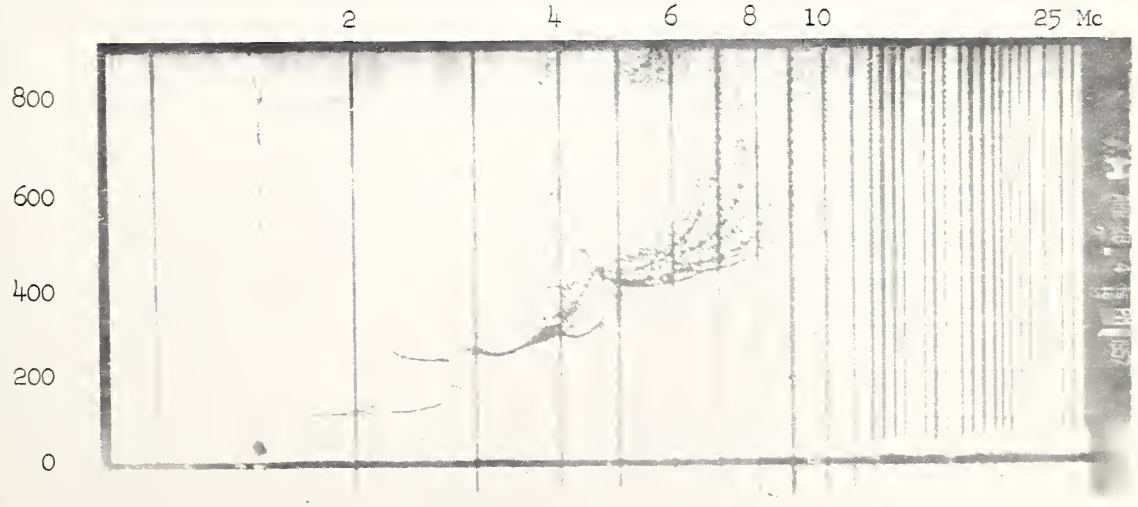
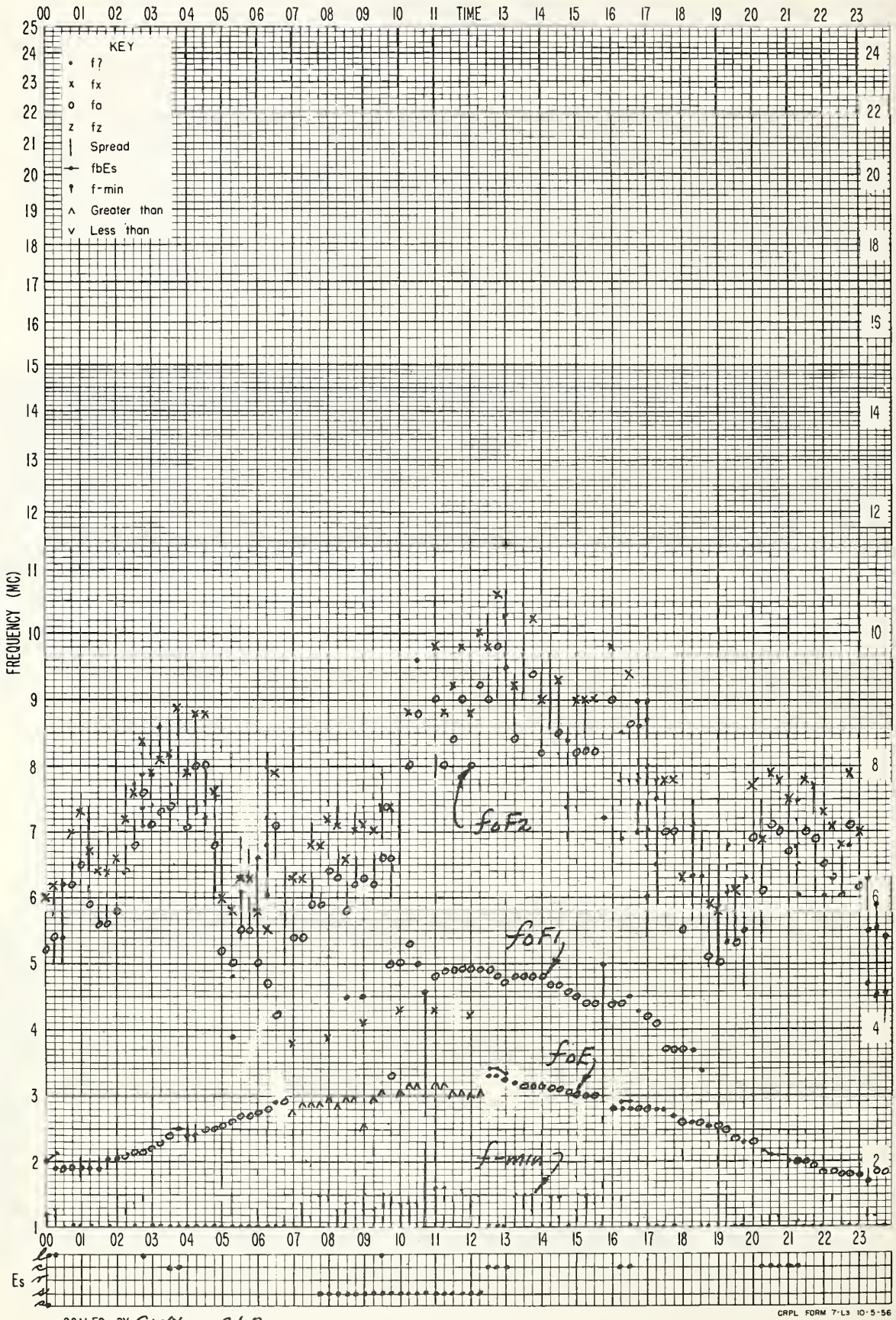


Fig. B. Thule, Greenland, April 28, 1957, 1615 hours, 75°W time.

THULE, GREENLAND

STATION IONTH — f - PLOT OF IONOSPHERIC DATA — DATE 28 April 1957



SCALED BY CWN - CLD

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 (1.38×10^{-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_ℓ 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° N Lang. 105° W Type Recorder ARN-2 Month May 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}	137	137	135	137	129	129	127	125	*124	125	127	131	135	139	141	143	140	139	140	137	141	139	139	139
D_u	8	6	8	6	10	4	6	8		10	7	11	12	10	8	6	11	10	7	10	4	8	8	6
D_ℓ	6	8	6	10	6	10	10	12		8	8	8	5	6	8	8	5	6	7	4	8	4	4	6
V_{dm}	7.0	7.0	7.0	7.5	10.0	11.0	10.0	10.5	*11.0	11.0	8.5	10.0	9.0	10.0	8.0	8.5	7.5	7.0	8.0	7.5	6.5	7.0	8.0	7.0
L_{dm}	14.5	15.0	14.0	15.0	13.0	19.5	19.0	19.5	*19.0	19.0	15.5	16.5	16.0	16.0	15.0	15.5	15.0	15.0	13.0	14.0	12.5	13.0	15.0	12.5
	113 kc																							
F_{am}	122	124	122	122	111	108	108	108	*104	102	106	116	120	123	124	124	128	124	123	124	124	126	124	126
D_u	8	6	6	8	13	12	10	14		18	17	11	13	17	14	16	14	12	11	8	8	6	8	4
D_ℓ	6	10	10	12	11	20	22	21		14	13	14	9	10	6	6	8	8	9	8	6	6	6	8
V_{dm}	7.0	6.5	7.0	8.0	11.5	10.0	11.0	11.0	*11.0	10.0	10.0	12.0	11.5	11.0	10.0	9.0	8.5	8.5	8.5	7.0	6.5	7.0	8.0	6.0
L_{dm}	13.5	14.0	13.5	14.0	18.0	15.5	15.5	18.0	*19.0	16.0	17.5	17.5	23.0	20.0	18.5	17.5	16.5	16.0	17.0	13.0	13.5	12.5	14.0	12.0
	246 kc																							
F_{am}	111	109	105	105	89	85	89	91	*95	83	85	99	105	110	111	112	114	109	109	109	113	113	113	111
D_u	6	6	10	10	18	18	18	19		22	21	20	19	16	16	17	15	14	12	12	6	4	4	4
D_ℓ	12	8	8	10	10	12	16	17		10	10	20	17	14	12	11	13	12	10	6	10	10	12	10
V_{dm}	7.0	6.0	6.5	8.0	7.0	5.0	7.0	6.0	*5.0	5.5	5.0	8.5	11.5	11.0	11.0	10.5	11.0	8.0	9.0	7.0	6.0	7.0	6.0	4.0
L_{dm}	12.0	11.0	11.0	15.0	12.5	11.0	11.0	15.0	*8.0	8.0	8.0	13.0	19.5	21.0	21.5	19.0	20.5	15.5	15.0	13.0	11.0	12.0	11.0	11.5
	545 kc																							
F_{am}	92	92	90	82	64	74	76	79	*82	71	76	80	94	94	96	96	95	90	78	92	92	94	94	94
D_u	6	6	8	12	18	10	12	19		18	17	26	14	21	20	18	17	18	28	8	8	4	6	4
D_ℓ	10	10	10	6	4	10	10	10		5	11	12	22	22	18	18	17	16	2	10	6	8	6	8
V_{dm}	6.0	5.0	6.0	7.5	8.0	*4.0	6.0	*6.5		*5.5	*4.5	6.5	11.5	10.0	11.5	10.0	10.5	7.0	10.5	6.5	5.0	4.0	6.0	5.0
L_{dm}	12.0	10.0	11.0	14.0	10.0	*5.0	9.5	*12.0		*7.0	*7.0	9.0	20.0	20.5	23.5	19.0	18.0	12.5	18.0	12.0	8.5	8.0	8.5	9.5
	2.5 Mc																							
F_{am}	70	69	68	67	60	50	46	46	*45	46	47	49	50	52	54	58	61	54	58	68	72	72	71	70
D_u	6	5	8	7	12	8	4	4		2	6	22	24	26	24	23	21	20	14	4	6	6	5	6
D_ℓ	8	7	8	9	6	6	4	6		4	3	5	4	4	6	10	15	8	8	6	6	8	7	8
V_{dm}	4.5	4.0	5.0	4.5	4.0	2.5	2.5	2.0	*2.0	*3.0	2.0	2.5	2.5	2.5	5.5	6.5	6.0	5.0	3.5	2.5	3.5	3.0	4.0	4.0
L_{dm}	6.0	7.0	7.0	6.0	7.0	5.0	4.0	4.0	*4.0	*4.0	3.5	4.5	5.0	5.0	6.5	9.0	10.5	7.0	7.0	5.0	7.0	7.0	6.0	6.0
	5 Mc																							
F_{am}	62	61	61	61	57	49	45	44	*44	43	45	46	47	47	49	51	51	55	59	65	64	63	64	64
D_u	9	8	8	6	8	6	4	3		4	5	14	22	17	22	24	18	8	6	4	5	6	5	3
D_ℓ	3	4	4	4	4	6	6	7		6	8	9	8	8	10	10	8	6	6	4	3	2	7	7
V_{dm}	4.5	4.0	4.0	4.5	4.0	4.0	2.5	2.0	*2.5	2.0	2.0	2.0	2.0	2.5	4.5	5.0	4.0	3.5	4.0	4.0	4.5	4.0	4.0	3.5
L_{dm}	8.0	8.0	8.0	8.0	8.0	7.0	5.5	5.0	*4.0	4.5	4.0	4.0	5.0	6.0	7.0	9.5	7.5	8.0	7.0	8.0	8.0	8.0	8.0	8.0
	10 Mc																							
F_{am}	45	45	45	43	41	39	37	33	*31	29	31	33	37	42	43	45	47	51	51	51	49	47	46	45
D_u	6	4	4	6	6	6	6	8		8	17	22	16	19	14	14	10	4	2	2	6	6	5	8
D_ℓ	2	2	4	4	2	4	4	3		2	4	4	5	8	6	4	4	6	2	4	2	2	3	2
V_{dm}	4.5	4.5	5.0	4.0	5.0	5.0	5.0	4.5	*4.0	*3.5	*3.5	4.5	4.0	4.0	4.0	5.0	4.0	4.0	4.0	4.5	4.0	5.0	4.0	4.0
L_{dm}	8.0	7.5	8.0	7.0	8.0	7.5	7.5	6.0	*7.0	*5.0	*5.0	7.0	7.5	7.5	9.0	8.0	7.5	7.0	7.0	8.0	7.5	8.0	7.5	7.0
	20 Mc																							
F_{am}	24	24	24	24	24	24	24	26	*24	24	25	26	28	30	32	31	32	30	29	26	26	24	24	24
D_u	4	0	2	2	4	6	6	3		4	8	18	18	16	9	16	21	25	31	17	8	4	2	2
D_ℓ	0	2	2	2	2	2	2	4		0	3	2	4	5	6	5	6	4	3	2	2	0	0	0
V_{dm}	2.0	1.5	2.0	2.0	2.0	2.5	2.5	*2.0	*2.0	2.5	3.0	3.0	3.0	4.0	3.5	4.0	3.0	3.5	2.5	2.5	2.5	2.0	2.0	2.0
L_{dm}	4.0	3.0	4.0	3.0	3.0	4.5	4.0	*4.0	*3.5	4.0	4.0	4.0	4.5	5.0	9.0	10.5	10.0	10.0	5.5	5.0	5.0	4.5	4.0	4.0

GPO 845918

SEASONAL VALUES OF RADIO NOISE

LAT. 45N LONG. 105W STATION BILL, WYOMING SEASON Spring (April) 19 57

	TIME BLOCKS (LMT)																	
	0000-0400			0400-0800			0800-1200			1200-1600			1600-2000			2000-2400		
FREQUENCY (Mc)	F_{am}	D_u	D_ℓ	F_{am}	D_u	D_ℓ	F_{am}	D_u	D_ℓ	F_{am}	D_u	D_ℓ	F_{am}	D_u	D_ℓ	F_{am}	D_u	D_ℓ
.051	136	4	6	131	5	12	128	6	9	132	10	10	134	10	15	137	8	8
.113	119	5	7	108	12	16	104	10	16	114	16	17	117	12	17	120	9	10
.246	104	6	9	86	13	10	84	13	12	98	19	22	100	15	20	104	11	11
.545	88	7	7	65	12	5	66	12	5	70	32	7	76	20	10	86	12	5
2.5	68	6	8	44	10	10	20	8	3	24	29	5	48	20	12	68	8	12
5.0	64	4	6	44	8	5	18	8	2	28	23	11	56	9	13	64	6	10
10.0	49	5	4	42	4	5	29	8	6	36	8	11	50	4	10	52	4	8
20.0	25	3	2	26	4	2	26	4	3	28	9	4	30	3	4	25	4	2

LAT. 40 N LONG. 105W STATION BOULDER, COLORADO SEASON Spring (Mar. - May) 19 57

	TIME BLOCKS (LMT)																	
	0000-0400			0400-0800			0800-1200			1200-1600			1600-2000			2000-2400		
FREQUENCY (Mc)	F_{om}	D_u	D_ℓ	F_{om}	D_u	D_ℓ	F_{om}	D_u	D_ℓ	F_{om}	D_u	D_ℓ	F_{om}	D_u	D_ℓ	F_{om}	D_u	D_ℓ
.051	134	6	9	126	8	10	123	10	12	129	9	9	130	10	10	133	9	6
.113	119	6	10	108	10	18	100	16	13	108	16	12	114	11	14	118	9	8
.246	104	9	9	90	16	15	85	18	10	95	14	13	98	14	12	105	8	11
.545	90	7	9	76	12	10	76	11	8	81	14	12	82	14	10	91	8	8
2.5	67	6	8	52	7	6	45	8	4	48	12	4	55	10	9	67	8	7
5.0	60	5	4	49	7	6	39	5	6	41	10	6	54	7	8	61	5	5
10.0	46	4	4	39	6	4	30	10	3	35	11	6	46	5	5	47	4	4
20.0	23	2	1	24	5	2	25	7	3	28	9	5	30	12	5	22	6	2

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

D_u = Ratio of upper decile to median in db

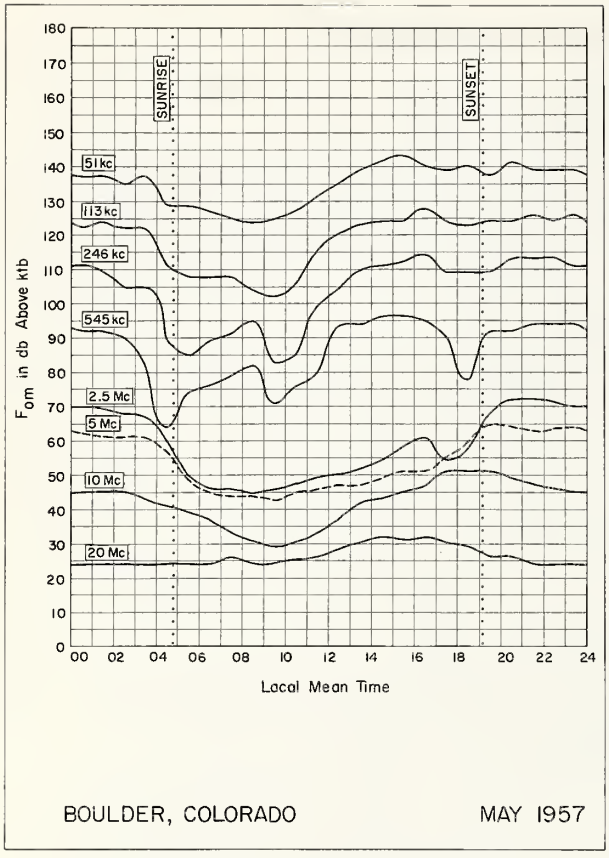
D_ℓ = Ratio of median to lower decile in db

LAT. 40N LONG. 105W STATION BOULDER, COLORADO SEASON Spring (Mar. - May) 19 57

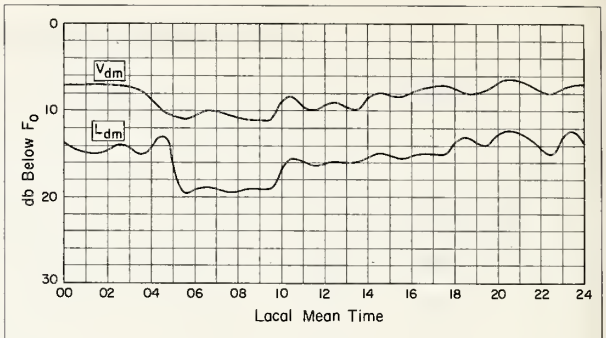
	TIME BLOCKS (LMT)																	
	0000-0400			0400-0800			0800-1200			1200-1600			1600-2000			2000-2400		
FREQUENCY (Mc)	V_{dm}	L_{dm}		V_{dm}	L_{dm}		V_{dm}	L_{dm}		V_{dm}	L_{dm}		V_{dm}	L_{dm}		V_{dm}	L_{dm}	
.051	6.5	14.0		9.0	16.0		9.0	15.0		8.5	15.0		7.5	14.0		7.5	13.0	
.113	7.0	14.5		9.0	15.5		8.0	16.0		9.5	18.0		7.5	15.0		7.0	14.0	
.246	6.0	11.0		5.5	9.5		5.5	8.0		10.0	16.5		7.0	13.0		6.0	11.5	
.545	6.0	10.0		5.0	9.0		4.0	6.5		7.5	15.0		6.5	12.0		5.0	9.0	
2.5	4.5	8.0		3.5	5.0		2.0	3.0		2.5	6.0		4.0	6.5		4.0	7.5	
5.0	4.0	8.0		4.0	8.0		2.0	3.5		2.0	5.0		3.5	7.0		4.0	8.0	
10.0	4.5	7.5		5.0	7.5		4.0	6.0		4.0	7.0		4.0	6.5		4.0	7.0	
20.0	1.5	3.0		2.0	3.0		2.5	4.0		3.0	5.0		3.0	5.0		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

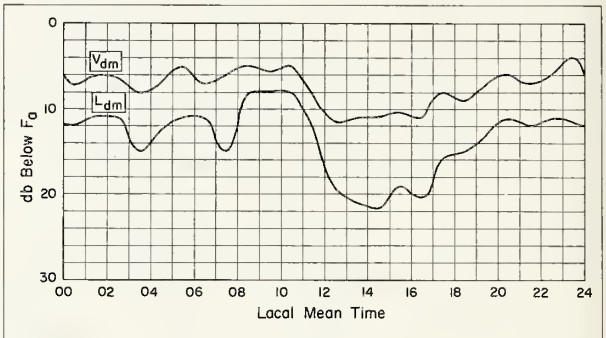


BOULDER, COLORADO MAY 1957



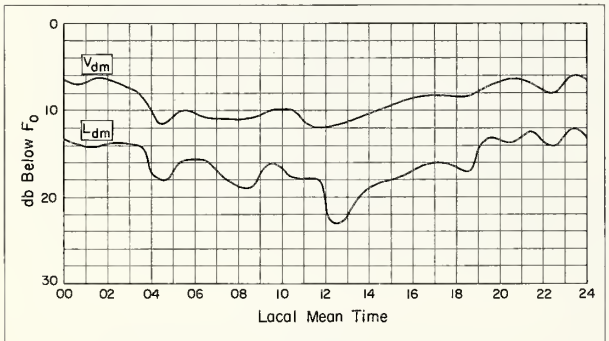
51 kc

BOULDER, COLORADO MAY 1957



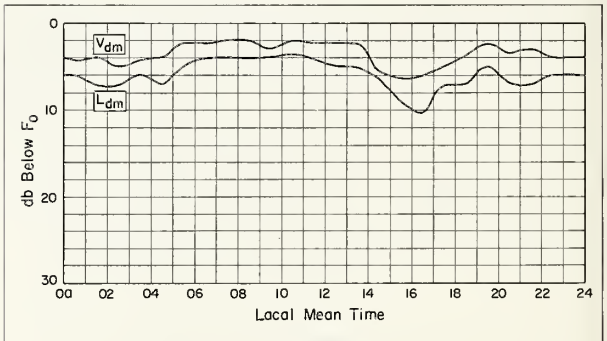
246 kc

BOULDER, COLORADO MAY 1957



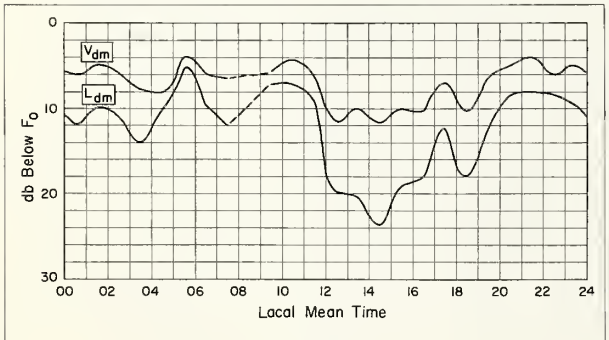
113 kc

BOULDER, COLORADO MAY 1957



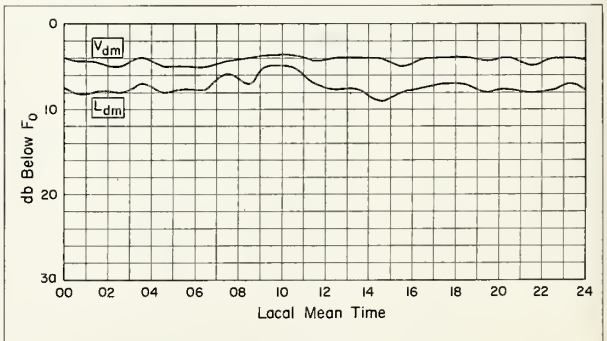
2.5 Mc

BOULDER, COLORADO MAY 1957



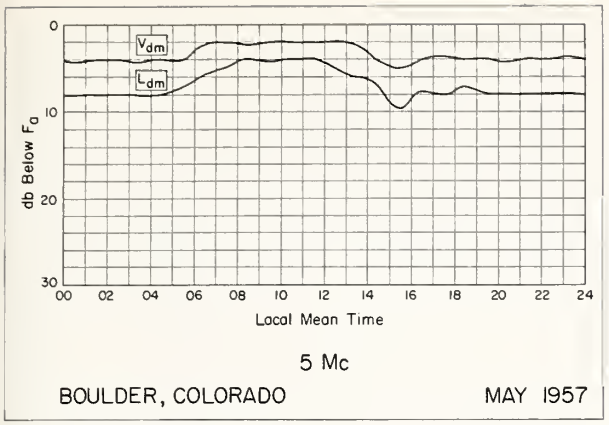
545 kc

BOULDER, COLORADO MAY 1957



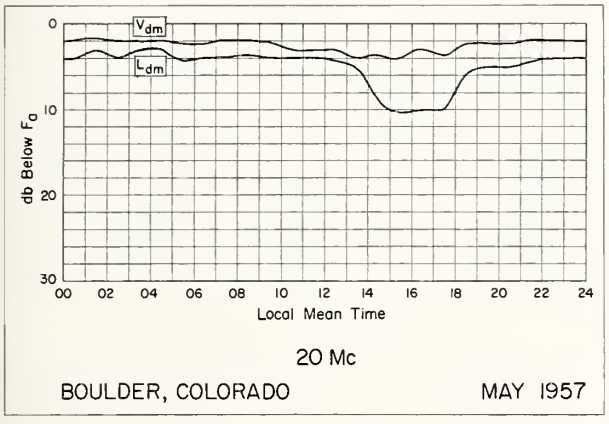
10 Mc

BOULDER, COLORADO MAY 1957



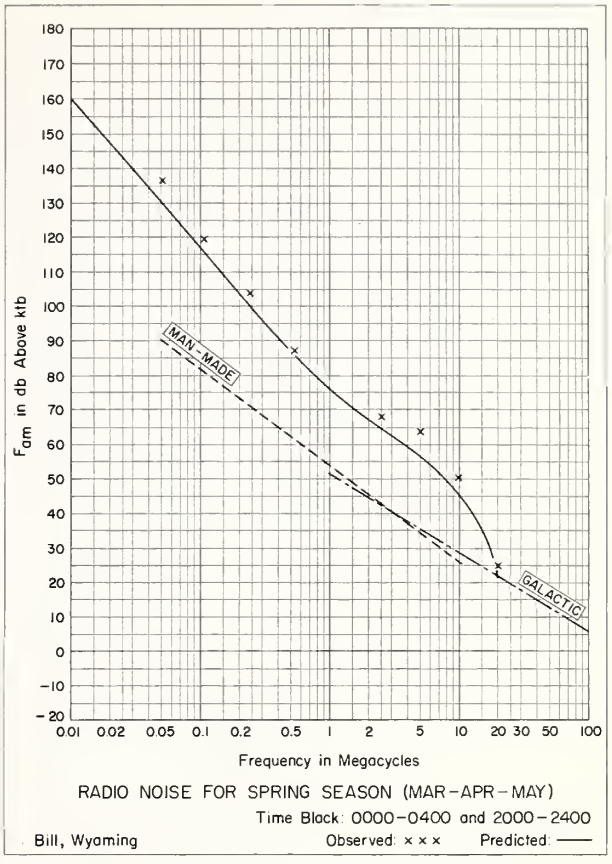
5 Mc

BOULDER, COLORADO MAY 1957



20 Mc

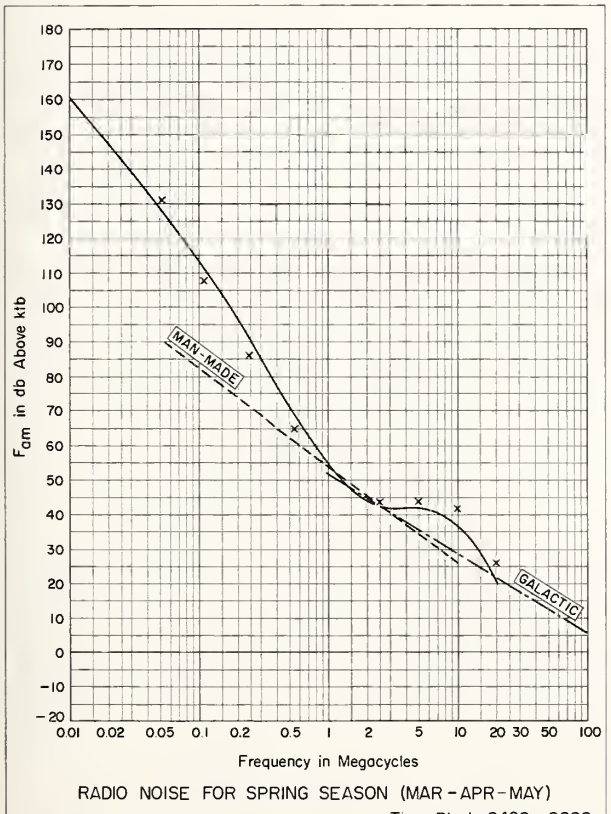
BOULDER, COLORADO MAY 1957



RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 0000–0400 and 2000–2400

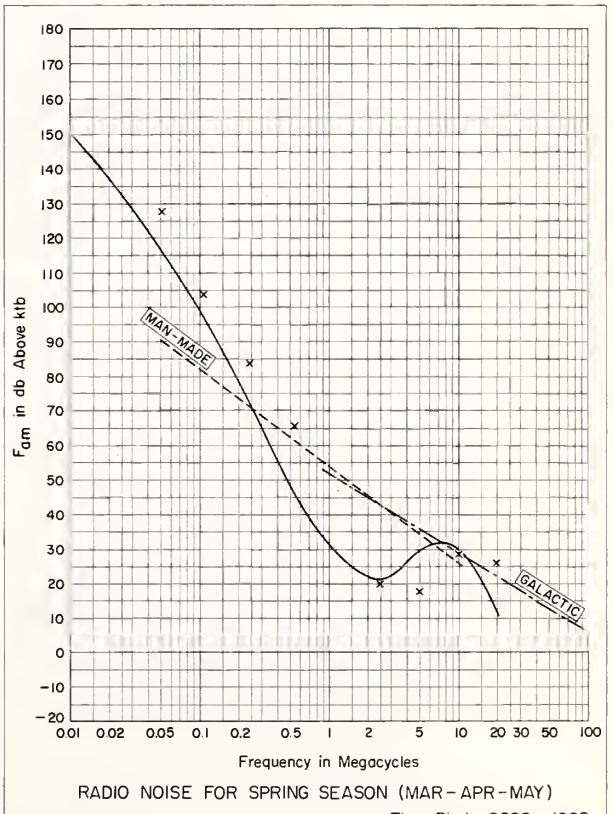
Bill, Wyoming Observed: × × × Predicted: ——



RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 0400–0800

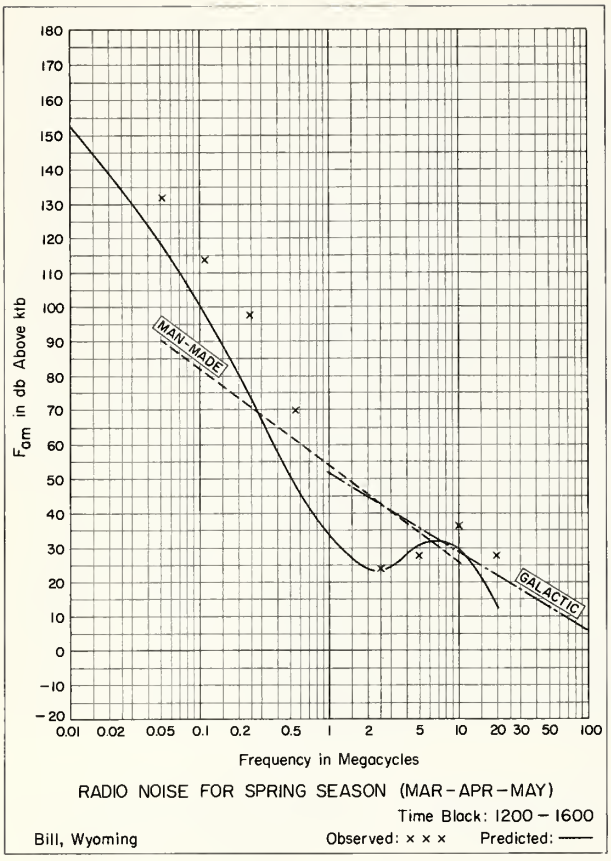
Bill, Wyoming Observed: × × × Predicted: ——



RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 0800–1200

Bill, Wyoming Observed: × × × Predicted ——

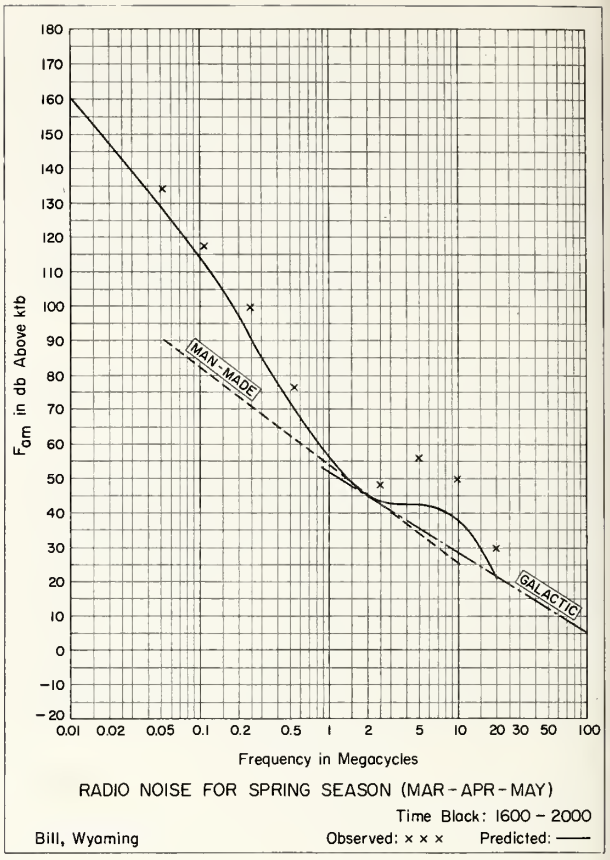


RADIO NOISE FOR SPRING SEASON (MAR-APR-MAY)

Time Block: 1200 – 1600

Bill, Wyoming

Observed: × × × Predicted: ——

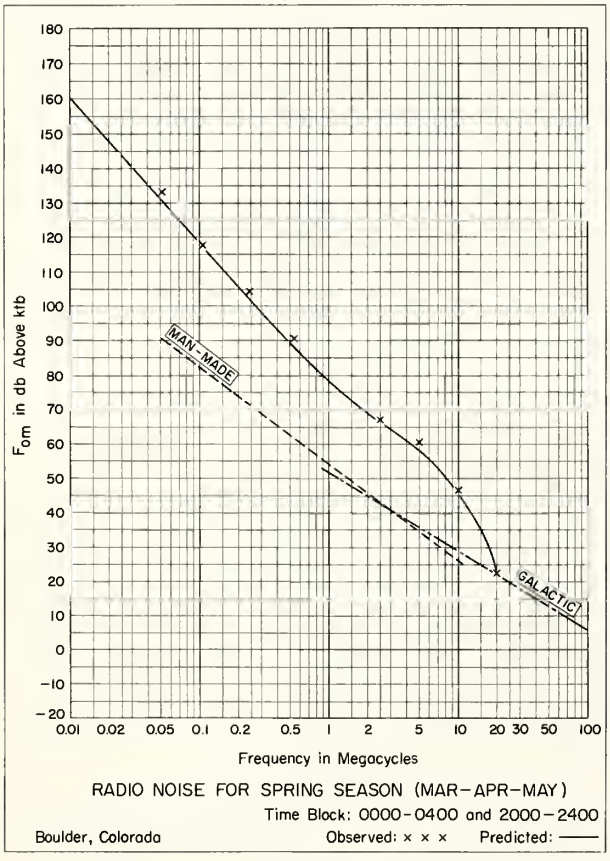


RADIO NOISE FOR SPRING SEASON (MAR-APR-MAY)

Time Block: 1600 – 2000

Bill, Wyoming

Observed: × × × Predicted: ——

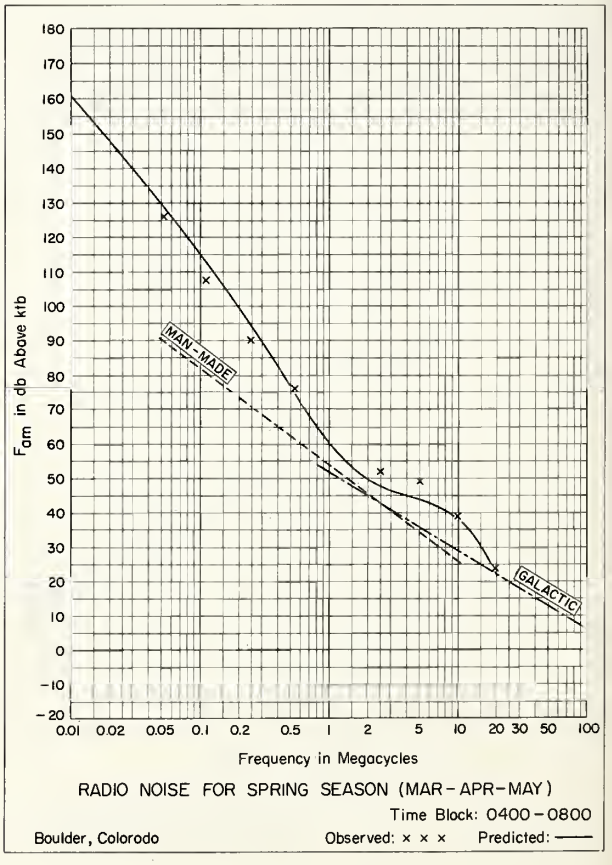


RADIO NOISE FOR SPRING SEASON (MAR-APR-MAY)

Time Block: 0000-0400 and 2000-2400

Boulder, Colorado

Observed: × × × Predicted: ——

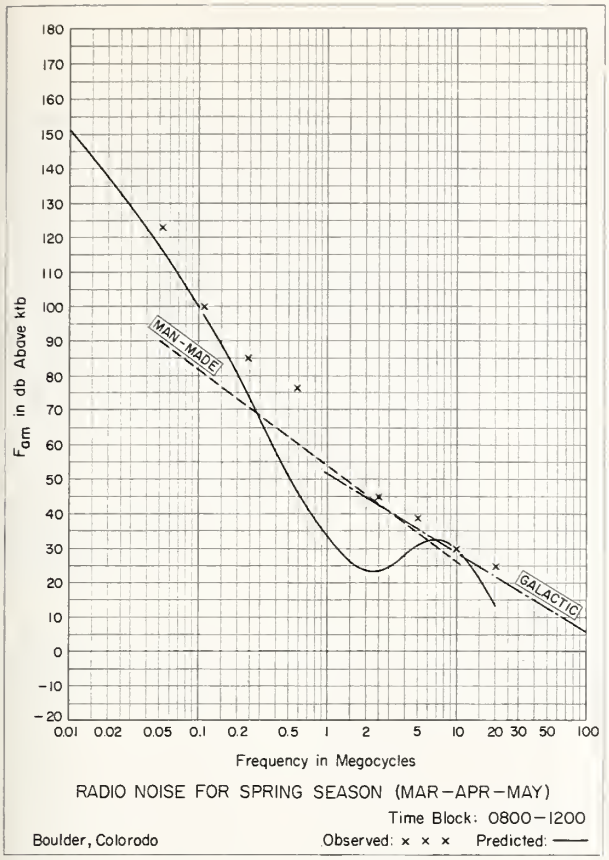


RADIO NOISE FOR SPRING SEASON (MAR-APR-MAY)

Time Block: 0400 – 0800

Boulder, Colorado

Observed: × × × Predicted: ——

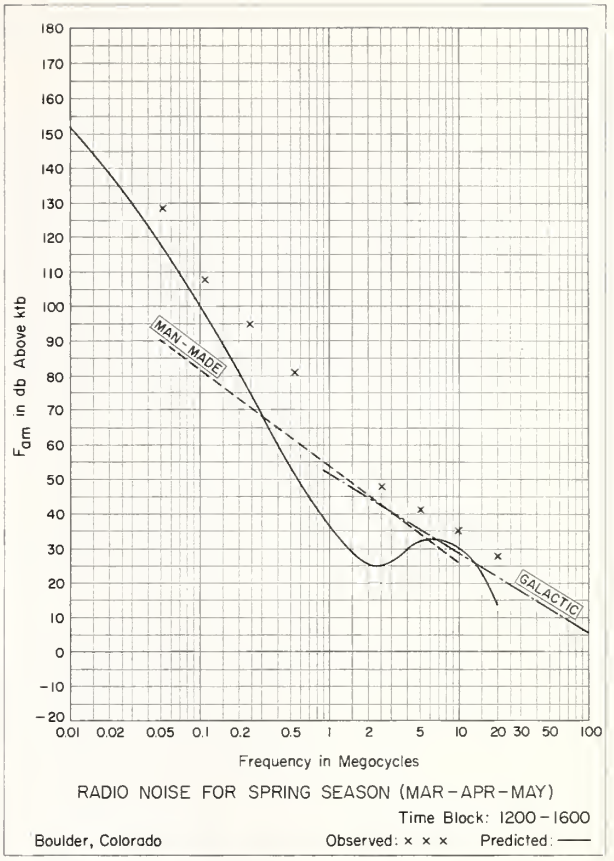


RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 0800–1200

Boulder, Colorado

Observed: × × × Predicted: ——

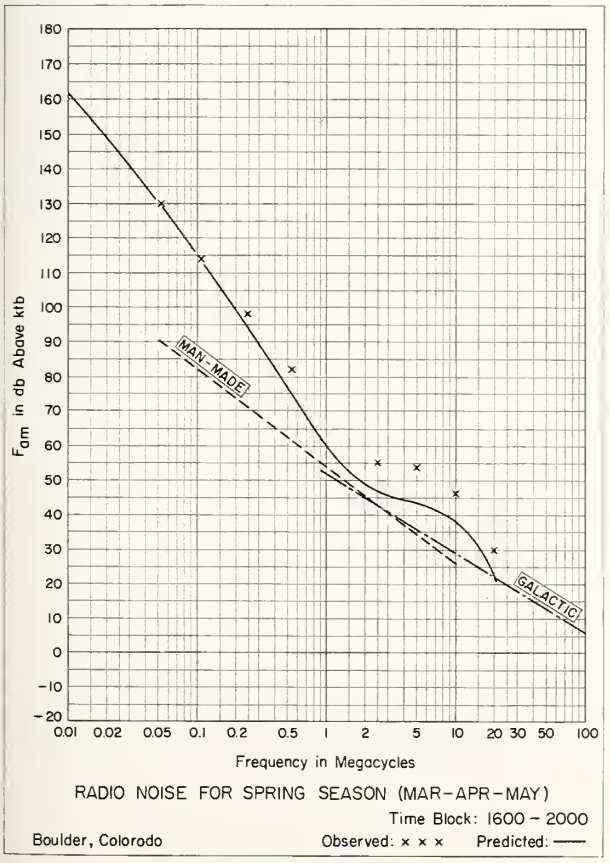


RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 1200–1600

Boulder, Colorado

Observed: × × × Predicted: ——

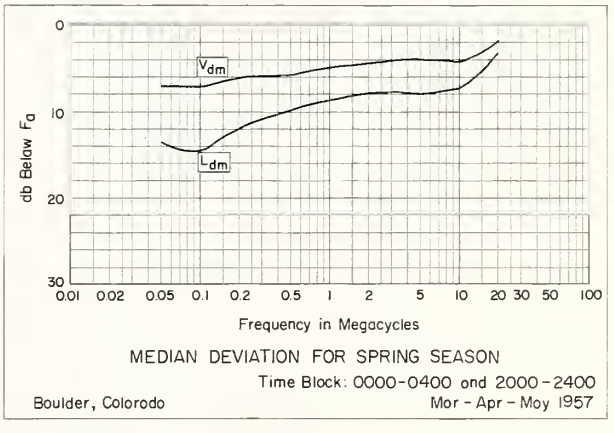


RADIO NOISE FOR SPRING SEASON (MAR–APR–MAY)

Time Block: 1600 – 2000

Boulder, Colorado

Observed: × × × Predicted: ——

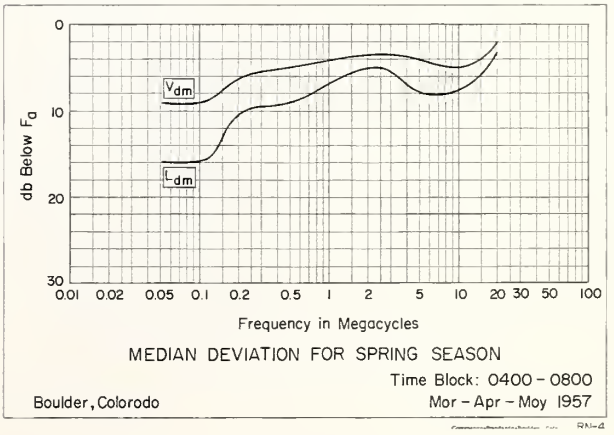


MEDIAN DEVIATION FOR SPRING SEASON

Time Block: 0000–0400 and 2000–2400

Boulder, Colorado

Mar – Apr – May 1957

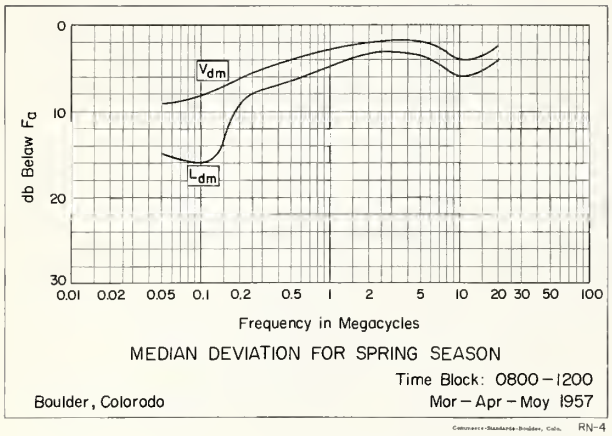


MEDIAN DEVIATION FOR SPRING SEASON

Time Block: 0400 – 0800

Boulder, Colorado

Mar – Apr – May 1957



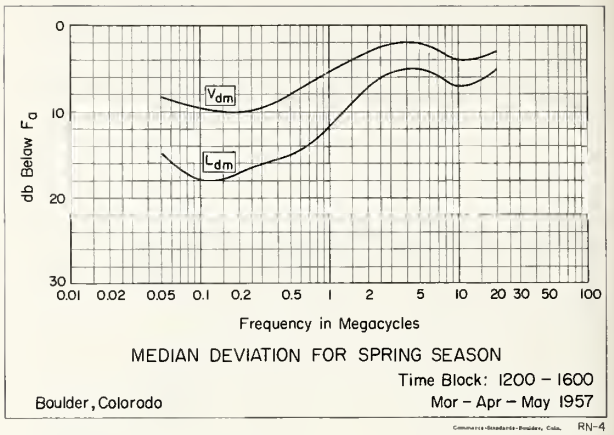
MEDIAN DEVIATION FOR SPRING SEASON

Time Block: 0800 – 1200

Boulder, Colorodo

Mar – Apr – May 1957

Commerce-Boulder, Colo. RN-4



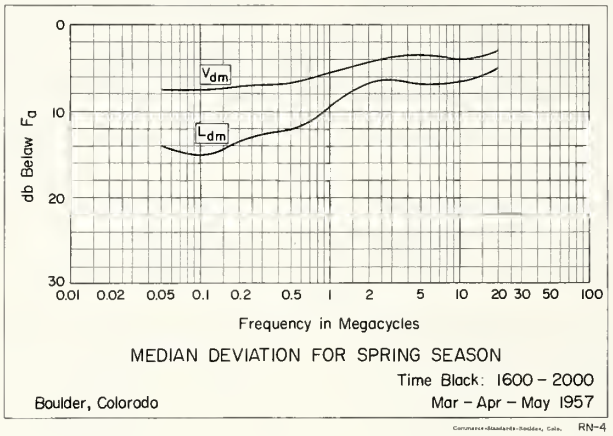
MEDIAN DEVIATION FOR SPRING SEASON

Time Block: 1200 – 1600

Boulder, Colorodo

Mar – Apr – May 1957

Commerce-Boulder, Colo. RN-4



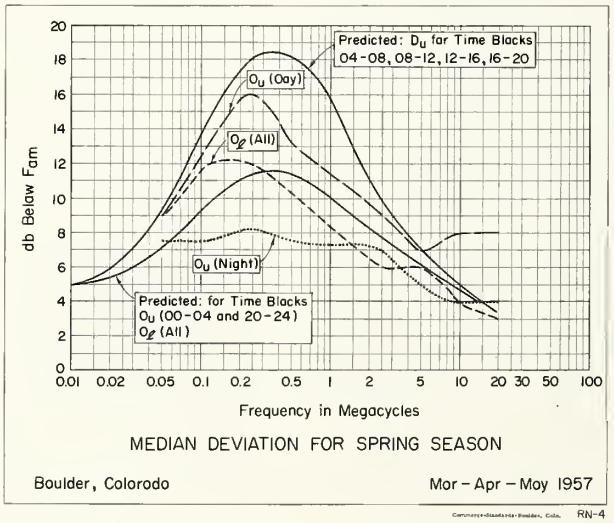
MEDIAN DEVIATION FOR SPRING SEASON

Time Black: 1600 – 2000

Boulder, Colorodo

Mar – Apr – May 1957

Commerce-Boulder, Colo. RN-4



MEDIAN DEVIATION FOR SPRING SEASON

Boulder, Colorodo

Mar – Apr – May 1957

Commerce-Boulder, Colo. RN-4

Table 1

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.8	285				(2.1)	2.60
01		6.4	290				(2.4)	2.60
02		6.0	290				3.0	2.60
03		5.6	290				(3.1)	2.60
04		5.2	290				(2.2)	2.60
05		5.2	280		121	1.80		2.70
06	(390)	6.0	250	4.0	111	2.50	2.7	2.70
07	440	6.3	240	4.6	109	3.15	3.3	2.65
08	480	6.5	230	5.1	105	3.45	4.0	2.60
09	515	6.9	220	5.2	105	(3.75)	4.2	2.50
10	500	7.0	210	5.3	105	(3.90)	4.2	2.45
11	515	7.0	210	5.5	105	4.00	4.4	2.45
12	510	7.0	220	5.5	109	(4.00)	4.3	2.45
13	500	7.0	220	5.6	105	4.00	4.2	2.45
14	515	7.0	220	5.5	108	4.00		2.40
15	480	7.0	220	5.4	105	3.85	3.9	2.50
16	440	7.2	230	5.3	109	3.60	3.7	2.50
17	400	7.2	235	4.9	109	3.30		2.60
18	340	7.4	250	4.5	111	2.80	3.2	2.65
19	<300	7.2	275		119	2.00	2.6	2.70
20		7.4	280				2.8	2.65
21		7.6	280				(2.8)	2.60
22		7.4	280				(3.4)	2.60
23		7.0	<300				(2.5)	2.60

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

Table 2

Oslo, Norway (60.0°N, 11.1°E) May 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	305				(2.2)	2.50
01		7.0	315				(2.1)	2.45
02		6.6	305				(2.0)	2.45
03		6.2	315				(2.3)	2.45
04		6.2	295		---	1.80	2.4	2.55
05		6.6	255		105	2.30	3.0	2.70
06	---	6.8	250		105	2.70	3.2	2.75
07	(410)	7.0	245	----	105	3.00	3.7	2.60
08	420	7.4	245	----	100	3.30	3.8	2.55
09	435	7.5	240	5.20	100	3.45	3.8	2.55
10	450	7.6	240	5.45	100	3.60	4.0	2.50
11	450	7.6	235	5.50	100	3.65	3.9	2.55
12	450	7.5	225	5.50	100	3.75	3.9	2.50
13	450	7.9	225	5.60	100	3.75	3.8	2.50
14	445	7.9	230	5.45	100	3.70	3.8	2.55
15	450	7.8	240	----	100	3.70		2.55
16	(450)	7.8	245	----	105	3.45		2.55
17	---	7.8	250		105	3.15	3.4	2.70
18		8.0	250		105	2.80	3.3	2.70
19		8.0	255		110	2.40	3.0	2.75
20		7.6	260		---	2.00	2.6	2.70
21		7.8	265		---	----	(2.0)	2.70
22		7.5	285				(2.2)	2.55
23		7.4	300				(2.4)	2.55

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

Table 3

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.6	315				2.2	2.4
01		6.3	310				2.3	2.4
02		6.0	310		---	E	3.0	2.4
03	---	6.2	305	----	---	E	3.5	2.4
04	340	6.4	270	3.60	130	1.80	3.3	2.5
05	350	6.7	250	4.25	115	2.45	3.5	2.6
06	345	7.0	245	4.70	110	2.85	4.1	2.6
07	390	7.2	240	5.10	105	3.15	4.8	2.5
08	400	7.4	240	5.30	105	3.35	5.9	2.5
09	415	7.4	240	5.50	105	3.50	5.2	2.4
10	410	7.6	225	5.50	105	3.60	6.5	2.5
11	425	7.7	225	5.65	105	3.70	5.5	2.4
12	425	7.9	225	5.70	105	3.70	5.5	2.5
13	420	7.9	220	5.70	105	3.70	5.2	2.45
14	410	7.9	225	5.70	105	3.60	4.7	2.5
15	380	7.7	230	5.50	105	3.50	4.8	2.5
16	375	7.7	240	5.30	105	3.30	4.0	2.5
17	350	7.8	245	5.05	105	3.05	3.9	2.6
18	(340)	7.8	250	4.50	110	2.70	3.8	2.6
19	---	7.7	260	----	120	2.20	3.6	2.7
20		7.5	265		---	1.60	3.1	2.6
21		7.5	270		---	E	2.8	2.5
22		7.5	280		---	E	2.3	2.5
23		7.2	290				2.3	2.4

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

Table 4

Graz, Austria (47.1°N, 15.5°E) May 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	7.3						
01	330	7.2						
02	310	6.8						
03	330	6.5						
04	300	6.8						
05	260	7.1						
06	240	8.0	240		130	3.5	3.8	
07	240	8.3	230		125	3.4	3.8	
08	310	8.2	210	5.4	110	3.6	4.0	
09	310	8.7	220	5.5	110	3.8	4.5	
10	340	9.4	225	(6.3)	105	3.9	4.6	
11	350	9.4	210	(6.4)	105	3.9	4.5	
12	350	9.1	200	6.4	100		4.4	
13	365	9.1		6.3	120	3.9	4.0	
14	355	9.4	230	6.1	115	3.8	3.9	
15	350	9.4	225	(5.9)	130	3.8	3.8	
16	310	9.2	230	5.4	120	3.6	3.9	
17	250	9.0	240		120	3.5	4.1	
18	250	8.5	250				4.0	
19	255	8.4					4.0	
20	260	8.4					4.2	
21	280	8.0						
22	290	7.7						
23	300	7.8						

Time: 15.0°E.
Sweep: 2.5 Mc to 11.5 Mc in 2 minutes.

Table 5

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	290		135	(1.85)		2.60
01		6.4	280		126	(1.90)		2.65
02	---	6.1	275		<136	(2.00)		2.70
03	---	5.9	270	---	121	2.10		2.65
04	---	5.8	280	---	117	2.30		2.70
05	(485)	6.0	265	3.6	117	2.50		2.70
06	(520)	5.5	260	4.1	113	2.70		2.60
07	(420)	6.0	260	4.2	111	2.85		2.70
08	450	6.3	245	4.5	111	3.00		2.75
09	410	6.3	250	(4.5)	113	3.10		2.60
10	460	6.0	240	4.5	111	3.20		2.50
11	520	6.0	240	4.5	111	3.25		2.45
12	450	6.2	230	4.5	109	3.15		2.45
13	465	6.4	235	4.6	111	3.15		2.40
14	450	6.2	240	4.5	111	3.05		2.45
15	420	6.4	250	4.4	111	3.00		2.50
16	425	6.6	250	4.3	116	2.85		2.55
17	430	6.7	255	4.0	115	2.65		2.55
18	(390)	6.2	265	3.7	119	2.50		2.55
19	---	6.6	270	---	120	2.30		2.60
20	---	6.9	275	---	121	2.10		2.60
21	---	7.0	<285	---	129	(1.90)		2.60
22		6.0	285		129	(1.85)		2.65
23		6.1	280		132	1.80		2.65

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

Table 6

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.1						2.65
01		5.4						2.65
02		(5.7)						(2.65)
03		(5.8)						(2.60)
04		5.4			---	----		(2.65)
05		(5.6)		---	---	----		(2.60)
06		5.6		(4.0)	---	----		(2.50)
07		(6.0)		3.9	115	----		(2.60)
08		(5.9)		---	111	3.00		(2.55)
09		(5.5)		---	---	----		(2.30)
10		(5.7)		---	---	----		(2.35)
11		(5.8)		---	---	(3.50)		(2.40)
12		6.0		4.9	---	----		2.40
13		6.5		4.9	109	----		2.40
14		6.9		4.8	119	3.30		2.50
15		7.0		(4.6)	---	----		2.50
16		6.9		4.2	111	----		2.60
17		(6.9)		---	111	2.90		2.60
18		6.6		---	111	----		2.75
19		6.2			---	----		2.75
20		5.6			129	----		2.80
21		5.6			140	----		2.80
22		(5.3)			---	----		(2.70)
23		(5.0)			---	----		(2.60)

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

Table 7

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.8					2.4	2.40
01		5.1					2.6	2.35
02		(5.0)					2.5	(2.40)
03		(4.9)					3.6	(2.30)
04		(5.2)					2.1	(2.40)
05		5.6		---	123	2.10		(2.45)
06		(5.9)		3.8	119	2.45		(2.40)
07		6.3		4.3	117	2.95		2.45
00		6.4		4.5	115	3.20		2.40
09		6.9		4.8	113	3.30		2.40
10		6.6		5.0	113	3.50		2.35
11		6.7		5.2	111	3.55		2.40
12		7.0		5.3	109	3.50		2.40
13		7.5		5.4	110	3.50		2.45
14		7.9		5.5	111	3.50		2.50
15		8.2		5.0	113	3.30		2.50
16		8.0		---	114	3.10		2.55
17		8.4		---	115	2.75		2.65
18		8.0			117	2.30		2.70
19		7.8			145	(2.00)		2.75
20		7.0			---	----		2.65
21		5.7						2.60
22		(5.1)					1.8	(2.60)
23		5.4						2.55

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

Table 8

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.7)	320					(2.50)
01		(5.5)	335					(2.45)
02		(5.3)	340					(2.35)
03		(5.2)	350					2.40
04		4.9	340					2.40
05	---	5.5	300	---	117	----		2.45
06	---	6.6	260	---	121	(2.35)		2.65
07	(460)	7.4	250	---	115	(2.90)		2.65
00	455	8.0	235	5.0	111	(3.35)		2.65
09	(480)	8.3	230	5.8	111	(3.50)	3.7	2.60
10	(490)	9.6	230	5.6	111	(3.70)	3.8	2.65
11	415	10.2	220	5.5	111	3.75	4.1	2.65
12	(515)	10.6	220	---	112	(3.80)	4.0	2.65
13	(535)	10.7	<230	5.5	113	(3.70)	3.9	2.60
14	(480)	10.4	235	---	115	(3.60)	3.7	2.65
15	---	10.2	240	---	112	(3.50)	3.5	2.70
16		10.2	240		111	3.00		2.75
17		10.0	250		117	2.70	2.7	2.80
18		9.7	250		120	(2.00)	2.2	2.80
19		9.3	255		131	----		2.80
20		8.5	250					2.75
21		7.7	250					2.70
22		(6.7)	270					(2.65)
23		(6.2)	300					(2.50)

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

Table 9

Ft. Monmouth, New Jersey (40.3°N, 74.1°W) April 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	290					2.55
01		6.0	290					2.60
02		5.6	305					2.45
03		5.6	<300					2.50
04		5.4	<300					2.50
05		5.4	300		---	----	(1.9)	2.70
06		6.4	265		116	2.30		2.90
07	---	6.9	240	---	111	2.90		2.90
08	---	7.6	230	---	107	3.35		2.80
09	460	7.9	220	5.4	109	3.65		2.80
10	515	8.6	205	5.4	108	3.80		2.65
11	475	9.2	210	5.6	107	3.90		2.60
12	490	9.4	215	5.5	107	3.95		2.60
13	440	10.0	220	5.6	109	3.95		2.60
14	430	9.8	225	5.7	106	3.80		2.60
15	(475)	9.8	230	5.4	108	3.60		2.60
16	---	9.6	235	---	109	3.35		2.60
17	---	9.6	245		111	2.90		2.65
10		9.4	265		121	2.30		2.70
19		9.2	265					2.70
20		8.4	250					2.65
21		7.7	265					2.60
22		7.2	280					2.55
23		7.0	300					2.50

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

Table 10

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	330				(2.4)	2.45
01		6.3	305				(2.0)	2.45
02		6.1	305				(2.0)	2.50
03		6.0	300				(1.9)	2.50
04		5.6	290				1.4	2.50
05		5.5	300		---	----	1.6	2.50
06	---	6.6	260	---	125	(2.10)	2.2	2.70
07	---	8.1	240	---	111	(2.75)		2.90
08	---	9.4	230	---	109	(3.20)	3.4	2.75
09	(435)	10.2	225	5.4	109	(3.50)	3.7	2.70
10	(430)	10.5	225	5.4	109	(3.70)	4.0	2.65
11	385	11.4	220	5.7	109	(3.90)		2.65
12	380	12.0	220	---	109	(3.90)		2.65
13	405	12.0	225	---	109	(3.90)		2.65
14	390	11.6	220	---	109	3.80		2.65
15	(450)	11.5	230	---	109	3.70		2.70
16	---	11.0	230	---	109	(3.40)		2.70
17	---	10.5	240	---	109	(2.95)	3.2	2.75
18		10.3	245		119	(2.25)	2.6	2.80
19		9.8	240		---	----	(2.1)	2.90
20		8.2	230				(2.2)	2.80
21		7.3	255				(2.1)	2.70
22		6.8	<200				(2.1)	2.60
23		6.4	290				(2.1)	2.50

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

Table 11

Okinawa I. (26.3°N, 127.8°E) April 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		14.6	270				(2.2)	2.80
01		14.1	270				(2.2)	2.85
02		13.1	250				(2.2)	2.90
03		11.5	235				(3.6)	2.80
04		9.4	240					2.70
05		8.4	255				(2.1)	2.65
06		8.0	280				(2.0)	2.70
07		10.3	240		115	(2.55)	2.7	3.00
00		11.6	235		111	3.15	3.5	2.90
09		12.6	230		109	3.60	4.1	2.75
10		13.5	220		109	(3.85)	4.2	2.70
11		14.4	220		109	(4.00)	4.3	2.65
12	---	15.0	215		109	(4.10)	4.6	2.60
13	380	15.6	230	---	109	(4.10)	4.6	2.60
14	380	15.9	220	---	111	(4.05)	4.3	2.55
15	380	16.2	230	(7.0)	110	3.95	4.0	2.55
16	355	16.5	230	---	111	3.65		2.60
17	(340)	16.5	245		111	3.20	3.4	2.65
10		16.4	260		117	2.45	3.2	2.70
19		15.6	270				(2.9)	2.70
20		(15.4)	280				(2.5)	(2.60)
21		16.8	290				(2.9)	2.60
22		16.7	285				(2.9)	2.60
23		15.8	280				(2.4)	2.70

Time: 135.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Maui, Hawaii (20.0°N, 156.5°W) April 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.2	265					2.90
01		10.5	260					2.95
02		9.4	250					2.90
03		7.8	250					2.70
04		7.0	275					2.65
05		6.8	300					2.55
06	---	7.1	290		125	1.50		2.60
07	---	9.2	240		117	2.45	2.6	3.00
08	---	11.0	240		111	3.10	3.4	2.90
09	---	12.3	230		109	3.60	3.9	2.75
10	---	12.8	225		109	3.80	4.0	2.65
11	---	14.0	220		109	4.00	4.2	2.65
12	(360)	14.8	225	---	109	4.10	4.4	2.70
13	380	15.1	230	---	109	4.20	4.4	2.65
14	370	15.1	230	---	109	4.10	4.2	2.65
15	380	15.1	230	---	109	3.95	4.5	2.60
16	360	15.1	240	---	109	3.60	4.2	2.70
17	(330)	15.0	250		114	3.10	(3.7)	2.70
18	---	14.7	260		119	2.30	(3.6)	2.80
19		14.0	260				(3.0)	2.80
20		13.6	270				(2.7)	2.75
21		13.4	270				(1.8)	2.80
22		12.0	270				(1.4)	2.80
23		11.5	280					2.80

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

Table 13

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.9	260					2.85
01		9.0	240				(3.4)	2.85
02		9.0	255				(2.0)	2.70
03		8.6	265				(2.2)	2.70
04		7.8	250					2.65
05		6.8	240				(3.3)	2.65
06		7.1	290		181	1.70		2.60
07		9.5	245		119	2.60	(3.1)	2.85
08	---	11.6	240		111	3.25		2.85
09	---	13.0	230		109	3.70	3.8	2.70
10	---	13.5	230		109	4.00	4.3	2.70
11	---	14.0	225		109	4.20	4.4	2.60
12	---	14.4	225		109	4.25		2.55
13	(400)	14.4	225		109	4.25		2.55
14	385	14.6	225		109	4.15	4.3	2.50
15	380	14.4	230		109	4.00	4.4	2.55
16	(350)	14.0	240		111	3.60	(4.4)	2.60
17		13.0	250		111	3.00	(3.8)	2.60
18		12.3	260		125	2.25	(3.3)	2.60
19		12.5	280				(3.0)	2.60
20		11.8	295				(2.5)	2.60
21		11.8	280					2.65
22		11.8	260					2.80
23		11.4	250					2.85

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

Table 14

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	265					2.70
01		6.0	270					2.70
02		5.4	270					2.70
03		5.5	275					2.70
04		5.6	260					2.70
05		5.6	265		---	1.70		2.00
06		5.8	260		121	1.85		2.85
07		5.9	260		121	2.10		2.85
08	---	6.2	260	---	117	2.20		2.05
09	(560)	6.8	250	4.0	113	2.50		2.75
10	400	6.0	250	4.2	111	(2.60)		2.75
11	(350)	7.0	250	4.0	111	2.65		2.70
12	(375)	7.0	250	---	112	2.70		2.60
13	(525)	7.1	240	---	111	2.65		2.65
14	(570)	7.3	<250	---	115	2.50		2.60
15	---	7.0	250	---	114	2.40		2.65
16	---	6.7	260	---	119	2.20		2.70
17	---	6.7	270	---	121	1.95		2.70
18	---	6.6	260	---	(125)	1.80		2.65
19	---	6.6	260		---	----		2.70
20	---	6.2	260					2.70
21		6.0	250					2.70
22		6.3	270					2.70
23		6.0	270					2.60

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

Table 15

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.0	270		---	---		---
01		6.2	270		---	---		---
02		5.2	260		---	---		
03		5.4	260		---	E		---
04		5.3	270		170	1.2		
05	---	5.4	270		125	1.5	1.5	(2.7)
06	---	6.0	280	---	120	1.7		(2.8)
07	---	5.9	270	---	120	1.8		(3.0)
08	(310)	6.0	260	---	110	2.1		(2.9)
09	400	6.2	260	4.0	110	2.4		2.9
10	380	6.2	260	4.0	110	2.6		2.9
11	400	6.9	260	4.3	105	2.7		(3.0)
12	330	7.1	260	4.3	110	2.8		2.75
13	380	6.8	260	4.3	105	2.8		(2.8)
14	340	6.4	260	4.2	105	2.8		(2.8)
15	370	7.0	270	4.0	110	2.6		(2.6)
16	380	7.0	270	3.8	110	2.5		(2.5)
17	370	6.8	280	3.8	120	2.2		(2.6)
18	---	6.5	280	---	125	1.9		(2.7)
19	---	7.0	280		120	1.7	1.7	---
20		6.0	290		135	1.5	1.5	
21		6.0	280		---	1.2	<1.4	---
22		6.1	270		---	(1.2)		---
23		6.2	270		---	---		---

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

Table 16

Lulea, Sweden (65.6°N, 22.1°E) March 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(325)	5.4					2.7	
01	320	5.1					2.7	
02	330	4.1					2.7	
03	325	5.2					1.7	
04	305	5.1						
05	275	5.8			---	---		
06	260	6.0			---	1.8		
07	250	7.0			120	2.4		
08	250	>7.7	---	---	110	2.7		
09	250	8.0	---	---	110	3.1		
10	240	>8.0	230	---	120	3.2		
11	240	>8.0	230	---	110	3.2		
12	240	>8.0	230	---	110	3.2		
13	240	>9.0	---	---	110	3.2		
14	240	>8.0	---	---	120	3.0		
15	240	>8.0	---	---	120	2.9		
16	240	>8.0			125	2.6		
17	250	>7.5			135	2.0		
18	250	>7.5			---	1.5		
19	250	>7.5			---	---		
20	(250)	>7.0						
21	(270)	(6.5)					2.5	
22	(280)	(3.8)					2.4	
23	---	(4.8)					2.8	

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

Table 17

Fairbanks, Alaska (64.9°N, 147.8°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.9)	(330)				3.8	(2.70)
01		(4.8)	365				3.3	(2.65)
02		(5.2)	(350)				3.3	(2.50)
03		(5.1)	(340)				3.6	(2.60)
04		(6.5)	(355)				4.6	(2.65)
05		(6.2)	370				3.5	(2.60)
06		(6.0)	310		---	----	1.9	(2.75)
07	---	(6.0)	275	---	119	2.30		2.85
08	---	6.4	250	---	119	2.70		2.95
09	(440)	6.9	<245	4.5	116	2.90		2.85
10	(480)	7.2	<240	4.6	113	3.10		2.80
11	(435)	7.8	240	4.7	117	3.20		2.80
12	(415)	9.0	230	(4.8)	115	3.25		2.80
13	---	9.3	240	(5.0)	115	3.20		2.75
14	---	9.8	240	---	121	3.15		2.75
15	---	10.0	240	---	120	3.00		2.85
16	---	10.2	240	---	121	2.60		2.80
17	---	10.0	240	---	123	2.20		2.90
18		8.6	250		140	1.75		2.90
19		7.0	260				1.9	2.95
20		(6.2)	255				2.0	(2.90)
21		5.2	255				3.4	2.95
22		(4.8)	275				3.1	(2.90)
23		(4.4)	<340				3.3	(2.70)

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

Table 18

Reykjavik, Iceland (64.1°N, 21.8°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---					3.5	----
01		---					3.2	----
02		---					3.5	----
03		---					3.5	----
04		(5.5)					3.0	(2.40)
05		(5.4)						(2.50)
06		(5.3)			---	----		2.65
07		5.8			---	----		2.80
08		6.6			---	----		2.90
09		7.7			---	2.90		2.85
10		8.6		----	119	(3.00)		2.80
11		9.4		----	---	----		2.80
12		10.2		----	---	----		2.70
13		10.3		----	---	----		2.70
14		10.1		----	119	3.30		2.75
15		9.2		----	119	(3.05)		2.75
16		7.8		----	121	(3.00)		2.75
17		7.6		----	121	2.85		2.80
18		(8.0)			120	2.70		(2.85)
19		(6.8)			---	----	2.3	(2.80)
20		(5.2)			---	----	3.0	(2.60)
21		(5.4)					4.2	(2.45)
22		(4.7)					(3.5)	(2.40)
23		(5.7)					3.5	(2.50)

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 19

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.3)					1.6	(2.50)
01		(3.7)					2.0	(2.35)
02		(3.5)					(3.0)	(2.40)
03		(3.8)					2.7	2.40
04		(4.0)						(2.30)
05		(4.6)						(2.35)
06		(5.1)		---	128	----		(2.55)
07		5.9		---	125	(2.20)		2.60
00		6.6		---	121	2.55		2.75
09		7.0		---	119	2.85		2.65
10		8.0		4.6	119	3.10		2.75
11		8.8		4.9	119	(3.15)		2.65
12		9.2		---	119	3.20		2.70
13		9.3		---	118	3.20		2.65
14		10.0		---	119	3.10		2.65
15		10.6		---	121	3.00		2.70
16		10.6			129	2.55		2.75
17		10.1			128	2.30		2.80
18		10.0			---	(2.00)		2.80
19		8.7						2.80
20		6.4						2.75
21		(4.8)						(2.75)
22		(4.5)					1.7	(2.70)
23		(3.9)					1.6	(2.45)

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

Table 20

Narsarssuak, Greenland (61.2°N, 45.4°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.0)	345				3.3	
01		---	325				3.0	----
02		---	340				2.8	----
03		(4.5)	375				3.6	----
04		(4.2)	370				3.6	----
05		(4.6)	330		---	----	2.4	(2.65)
06		(5.0)	320		---	----		(2.75)
07		(6.2)	<295		131	(2.30)		2.90
00		6.8	270		119	2.80		2.90
09	---	7.5	250	---	119	3.00		2.85
10	---	8.0	240	---	119	3.20		2.80
11	(420)	8.6	240	---	119	3.20		2.70
12	(395)	9.7	240	4.9	118	3.30		2.70
13	345	9.8	240	4.9	117	3.25		2.65
14	425	(8.7)	250	4.6	113	3.20		2.70
15	(400)	8.4	250	4.4	115	(3.00)		2.80
16	(315)	(7.8)	260	---	117	2.80		2.80
17	---	(6.8)	300	---	119	2.70		(2.85)
18		(6.0)	310		135	2.55	3.0	----
19		(6.8)	310		131	(1.80)	3.1	----
20		(5.6)	330		---	----	2.7	----
21		(6.4)	335				2.9	----
22		---	330				2.9	----
23		(4.8)	350				2.0	----

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 21

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.4)	335					2.45
01		(4.1)	340					2.40
02		(4.1)	350					2.35
03		(4.2)	350					(2.35)
04		(4.1)	330					2.40
05		4.0	320		---	----		2.50
06		5.4	270		129	(1.90)		2.80
07		7.5	240		119	(2.50)		3.05
08		9.0	230		113	2.90		3.00
09	---	11.2	230	---	111	(3.20)		2.90
10	---	12.0	225	---	111	3.40		2.85
11	(375)	12.6	225	---	110	3.50		2.80
12	(300)	13.0	225		111	3.55		2.80
13	---	12.7	230		110	3.55		2.75
14	---	12.0	230		111	3.40		2.75
15	---	11.9	230		115	3.20		2.80
16		11.6	240		119	(2.90)		2.85
17		10.8	240		121	(2.35)		2.90
18		10.0	235		139	(1.75)		2.90
19		8.8	235		---	----		2.90
20		7.2	235		---	----		2.90
21		6.0	250		---	----		2.80
22		5.1	<280		---	----		2.60
23		4.7	300					2.50

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

Table 22

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	300				<1.5	(2.65)
01		5.6	300				<1.6	(2.7)
02		5.1	300				<1.8	(2.5)
03		5.0	310				<1.6	(2.5)
04		4.7	300				<1.5	(2.6)
05		4.5	300				<1.5	(2.6)
06		5.0	290		110	1.7		(2.8)
07		7.0	260		110	2.3		3.0
08	290	8.7	240	---	110	2.9		3.0
09	280	9.2	220	5.0	105	3.3		3.0
10	260	10.2	220	5.5	105	3.4		2.9
11	270	11.2	220	5.2	105	3.7		2.8
12	280	11.9	220	5.5	105	3.8		2.75
13	300	11.7	220	6.0	105	3.8		2.8
14	290	11.8	230	6.0	105	3.6		2.75
15	290	11.7	230	6.0	105	3.4		2.7
16	300	11.6	240	---	105	3.0		2.7
17	(300)	11.2	250	---	110	2.6		2.8
18		11.0	240		120	2.0		2.8
19		10.0	250				<1.5	(2.8)
20		8.0	260				<1.5	(2.75)
21		7.0	270				<1.5	(2.7)
22		6.1	280				<1.5	(2.7)
23		5.5	300				<1.5	(2.8)

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

Table 23

Ft. Monmouth, New Jersey (40.3°N, 74.1°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.9	280					2.70
01		6.4	275					2.65
02		6.2	275					2.65
03		5.7	275					2.65
04		5.3	275					2.60
05		5.6	270					2.65
06		5.8	270		133	1.80		2.85
07		7.9	235		115	2.35		3.10
08	---	10.0	230		109	3.00		3.10
09	---	10.7	220		109	3.35		3.00
10	(360)	11.7	210	---	107	3.55		2.90
11	(370)	12.1	210	---	109	3.75		2.80
12	(420)	12.2	215	---	109	3.85		2.75
13	---	12.5	220	---	110	3.80		2.70
14	(410)	11.9	220	---	109	3.70		2.70
15	---	11.8	225	---	109	3.50		2.70
16	---	11.9	235	---	109	3.15		2.75
17		11.5	240		111	2.55		2.75
18		11.1	240		149	----		2.85
19		10.0	230					2.80
20		9.2	245					2.75
21		8.5	250					2.75
22		7.7	265					2.70
23		7.2	275					2.70

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

Table 24

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.4	290					2.50
01		5.4	300					2.50
02		5.6	290					2.55
03		5.6	<300					2.55
04		5.4	280					2.60
05		5.2	290					2.60
06		(5.6)	280		---	----		(2.70)
07		(8.3)	240		119	>2.20		(3.10)
00		>10.5	230		109	2.85		(3.15)
09	---	(12.0)	220	---	109	(3.20)		(3.00)
10	---	(12.5)	210	---	113	(3.55)		(2.90)
11	(315)	12.7	210	---	113	>3.45		(2.80)
12	---	>13.0	215	---	115	3.80		(2.70)
13	---	>13.0	220	---	109	3.80		(2.70)
14	---	>13.0	225	---	115	3.70		(2.60)
15	---	13.0	230	---	115	3.55		(2.70)
16	---	(12.5)	235	---	115	(3.15)		(2.75)
17		12.4	240		115	(2.70)		2.80
18		(11.6)	230		---	----	2.0	(2.90)
19		10.2	220				(2.2)	2.90
20		8.8	230				(2.1)	2.85
21		7.7	235					2.90
22		6.6	245		---	----		2.80
23		5.8	260		---	----		2.70

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

Table 25

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		14.4	240					3.00
01		13.0	230					3.20
02		10.1	220					3.15
03		8.4	220					2.85
04		7.4	245				1.7	2.80
05		6.4	245				2.0	2.85
06		7.4	270				2.1	2.85
07		10.8	255		119	(2.55)	2.9	2.95
08		13.0	245		113	3.20	3.6	2.75
09		14.2	235		111	(3.60)	3.9	2.55
10		14.2	220		111	(3.90)		2.35
11		13.8	220		111	(4.00)		2.20
12		13.2	210		111	(4.10)		2.15
13		13.5	210		111	4.05		2.20
14		13.8	215		111	4.00		2.30
15		14.4	230		111	3.70		2.35
16		14.3	240		114	3.30		2.35
17		14.2	255		117	(2.65)		2.35
18		13.8	295		---	----	(2.3)	(2.25)
19		>12.8	400				(2.0)	(2.15)
20		>12.8	375					2.20
21		>13.0	300					(2.50)
22		14.0	260					(2.80)
23		14.3	250					2.95

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

Table 26

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.3	260					---
01		5.2	260				<1.4	(2.9)
02		5.0	260		---	---	<1.5	---
03		5.0	260		---	---	<2.2	---
04		5.0	270		---	---	<1.8	(2.9)
05		4.0	280		---	---	<1.8	---
06		4.8	270		---	---	<1.6	---
07		4.9	260		---	---	<1.4	---
08		5.2	260		150	1.4	1.4	---
09		5.6	270		105	1.7	1.8	---
10		6.0	260		110	1.0		3.05
11		7.0	260		105	2.0		(2.8)
12		8.0	260		100	2.0		2.9
13		7.0	260		100	2.0		3.0
14		6.7	260		105	1.9		(2.85)
15		7.2	260		115	1.8		(2.9)
16		7.4	260		145	1.7	1.7	(2.95)
17		7.2	260		140	1.6		---
18		6.3	260		---	1.4		---
19		5.0	270		---	---		---
20		6.2	270				<1.2	
21		6.0	270					---
22		5.8	260				<1.4	---
23		5.4	260					---

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

Table 27

Tromso, Norway (69.7°N, 19.0°E) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	(355)		---	----	(3.3)	----
01		(5.0)	(330)		---	----	(3.2)	(2.50)
02		(5.6)	(340)		---	----	3.3	(2.45)
03		(5.6)	(330)		---	----	2.8	(2.50)
04		(4.8)	(305)		---	----	2.9	(2.55)
05		5.4	310		---	----	2.8	2.60
06		5.0	295		---	----	2.4	2.70
07		5.6	290		---	1.30		2.70
08		6.3	260		140	1.70		2.85
09		8.6	250		---	----		2.90
10	(255)	9.8	245		---	2.05		2.90
11	250	11.5	---		---	2.30		2.90
12	245	11.6	(245)		---	2.25		2.90
13	(250)	10.8	245		---	2.25		2.90
14		10.8	245		---	2.15		3.00
15		10.5	240		---	2.00	2.1	3.05
16		8.6	240		145	1.90		2.90
17		(5.4)	245		135	1.45	2.2	2.90
18		5.6	250		130	1.90	2.2	2.90
19		5.1	(245)		---	----	3.2	2.90
20		5.5	(280)		---	----	3.0	(2.60)
21		(5.7)	300		---	----	3.0	----
22		(5.6)	(290)		---	----	2.9	----
23		(5.7)	(315)				3.1	----

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

Table 28

Kiruna, Sweden (67.0°N, 20.3°E) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.7	350				(2.9)	2.5
01		5.2	355				(3.1)	2.6
02		6.0	350				(3.6)	(2.5)
03		6.0	320				(3.3)	2.6
04		5.7	310		---	---	(2.0)	2.6
05		5.9	295		---	---	2.0	2.6
06		5.2	280		---	E	2.0	2.7
07		5.4	260		---	E		2.8
08		6.8	255	---	---	1.6		2.85
09		8.4	250	---	---	2.0		2.9
10		9.8	240	---	---	2.1		2.9
11		11.0	240		---	2.3		2.9
12		11.2	240		---	2.4		2.9
13		11.0	240		---	2.4		2.9
14		10.1	240		---	2.3		3.0
15		9.5	240		---	2.0		3.0
16		8.9	235		---	1.4		3.0
17		7.8	240		---	E		3.0
18		(5.0)	240		---	E	2.0	2.6
19		5.5	265				2.3	2.8
20		5.1	300				(3.5)	(2.8)
21		5.0	300				(3.2)	2.55
22		(5.8)	310				(2.9)	(2.6)
23		(5.0)	335				(3.1)	(2.5)

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

Table 29

Lulea, Sweden (65.6°N, 22.1°E) February 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(325)	(4.4)					2.0	
01	310	(4.2)					2.7	
02	300	(4.0)					2.6	
03	300	(4.3)						
04	290	4.4						
05	280	5.8						
06	260	4.4						
07	250	5.8			---	---		
08	240	7.0			---	1.8		---
09	240	>7.9			---	2.1		---
10	240	>8.0			---	2.5		---
11	230	>8.0	---		---	2.5		---
12	230	>8.2			120	2.7		---
13	230	>8.0			---	2.6		
14	230	>8.0			140	2.4		
15	230	>8.0			---	2.1		
16	220	>8.0			---	1.8		
17	220	>7.1			---	---		
18	240	6.2						
19	240	>6.9						
20	(290)	>6.5						
21	(260)	(4.3)						
22	(270)	(4.0)					2.6	
23	(300)	(4.0)					2.8	

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

Table 30

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.3	250				5.1	
01		4.9	260				4.0	---
02		4.4	270				4.2	---
03		5.0	270				3.8	---
04		4.2	290		---	---	2.6	---
05		4.2	300		120	1.5	3.4	---
06		4.0	300		---	1.4	4.0	
07		4.3	300		130	(1.8)	3.9	---
08	---	4.8	280		120	2.0	3.8	---
09	---	5.5	270	---	110	2.4	<3.8	---
10	---	6.0	260	---	110	2.8		3.1
11	---	7.1	260	---	120	3.0		2.9
12	---	8.3	260	---	115	2.8		2.9
13	---	10.0	250	---	110	2.8		2.9
14	---	9.8	250	---	110	2.7		2.9
15	---	8.0	250	---	120	2.5		2.9
16	---	7.4	260		115	2.2		2.8
17		6.6	260		125	2.0	3.1	(2.7)
18		6.0	280		130	2.0	3.5	---
19		5.4	270		130	1.8	<3.1	---
20		5.0	260		---	1.8	5.0	(2.5)
21		5.2	270		---	1.4	3.4	---
22		5.3	260		---	---	5.1	---
23		5.2	260		---	---	4.5	(2.85)

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

Table 31

Reykjavik, Iceland (64.1°N, 21.8°W) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---					3.2	----
01		---					3.6	----
02		---					3.7	----
03		---					3.8	----
04		---					3.0	----
05		(4.0)					2.6	----
06		(4.0)						(2.65)
07		(4.6)						(2.75)
08		5.6						2.80
09		7.1			---	---		3.00
10		8.9			---	---		3.00
11		10.2			---	---		3.00
12		10.8		---	---	---		3.00
13		11.0		---	---	---		3.00
14		10.9			---	---		3.00
15		10.4			---	---		2.95
16		(9.6)			---	---		3.00
17		(7.8)			---	---		(3.00)
18		(6.8)					2.6	(2.90)
19		(5.3)					2.7	(2.65)
20		(5.4)					2.8	(2.80)
21		---					2.9	
22		---					3.3	----
23		---					3.7	----

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 32

Nurmijarvi, Finland (60.5°N, 24.6°E) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.7						(2.85)
01		3.8						(2.90)
02		(2.8)						(3.00)
03		(3.0)						(2.95)
04		(2.6)						(3.00)
05		(2.5)						(3.10)
06		2.8						(3.10)
07		4.5						(3.20)
08		5.8				---		3.30
09		8.3				---		3.40
10		10.3				---		3.40
11		11.4				---		3.30
12		11.9				---		3.40
13		12.1				---		3.40
14		12.5				---		3.40
15		12.3				---		3.35
16		11.4				2.3		3.40
17		11.2				---		3.50
18		9.4				---		3.40
19		7.7				---		3.40
20		5.4				---		3.25
21		4.9				---		3.10
22		4.2				---		(3.10)
23		4.5				---		(3.25)

Time: 30.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 33

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		4.6	300		130	2.0	5.0	----
01		5.0	300		140	2.0	6.0	----
02		4.3	320		120	2.0	4.8	
03		5.0	320		130	2.0	5.0	
04		4.3	340		120	2.0	4.5	
05		4.8	360		120	(2.5)	4.0	
06		(4.3)	340		115	2.8	4.0	
07		5.1	320		120	3.0	4.0	----
08		6.0	300		110	3.0		(2.95)
09		7.3	270		110	3.0		3.0
10	---	8.7	260		110	3.0		3.0
11	---	10.0	260	---	120	3.0		2.9
12	---	11.0	250	---	120	3.0		2.8
13	---	12.0	250	---	120	3.1		2.9
14	---	12.2	250	---	120	3.0		2.8
15	---	12.0	260	---	120	2.8		2.9
16	---	12.0	250		125	2.5		2.9
17		10.5	260		130	2.0		2.9
18		7.4	300		130	2.0	<3.0	(2.95)
19		(6.0)	300		120	(2.4)	2.7	----
20		5.9	300		120	2.8	3.0	----
21		5.6	300		125	2.6	4.6	----
22		(5.2)	300		130	2.7	6.4	----
23		5.0	300		130	2.0	4.8	

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

Table 34

De Bilt, Holland (52.1°N, 5.2°E) February 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.6						2.5
01	320	4.3						2.5
02	320	4.2						2.5
03	310	4.0						2.5
04	300	3.6						2.6
05	(290)	3.3						2.7
06	280	3.5						2.7
07	230	6.0			---	E		3.05
08	210	9.2			---	2.5		3.2
09	210	10.9	---	---	115	2.8		3.1
10	210	12.2	---	---	110	3.0		3.05
11	210	13.0	210	---	110	3.2		3.0
12	210	13.2	210	---	110	3.3		3.0
13	215	12.8	210	---	110	3.2		3.0
14	215	12.3	210	---	110	3.0		3.0
15	215	12.0			115	2.8		3.0
16	210	12.0			---	2.4		3.0
17	210	10.6						3.0
18	210	9.0						3.0
19	220	7.2						3.0
20	250	6.0						2.85
21	260	5.4						2.7
22	295	5.0						2.7
23	300	4.8						2.7

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 35

Lindau/Harz, Germany (51.6°N, 10.1°E) February 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.65					<2.5	2.60
01	295	4.40					2.9	2.60
02	300	4.30					2.8	2.50
03	305	4.10			---	E	2.6	2.50
04	300	3.95			---	E	2.5	2.55
05	280	3.50			---	E	2.6	2.60
06	280	3.30			---	E	2.5	2.65
07	260	4.40			---	E	3.0	2.70
08	235	7.95			---	2.05	3.2	3.10
09	230	10.05			115	2.60	3.9	3.10
10	225	11.65			110	2.90	3.6	3.05
11	230	12.95			110	3.10	3.9	3.00
12	230	13.25			115	3.25	4.0	3.00
13	230	13.40			110	3.20	3.9	2.95
14	230	13.10			110	3.10	3.8	2.95
15	230	12.70			110	2.90	3.9	2.95
16	225	12.30			115	2.60	3.9	2.95
17	225	11.70			120	2.00	3.5	3.05
18	220	10.50			---	E	2.9	3.00
19	220	8.35			---	E	2.8	3.00
20	230	6.80			---	E	2.6	2.90
21	250	5.90					2.6	2.70
22	270	5.25					2.4	2.65
23	290	5.00					2.8	2.55

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 36

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		4.8	290				<1.5	2.8
01		4.5	290				<1.5	2.7
02		4.4	310				<1.5	2.7
03		4.4	310				3.2	2.7
04		4.0	310				<2.5	2.6
05		4.5	310				<1.5	2.7
06		4.1	300				<1.5	2.7
07		4.2	280				<1.5	2.8
08		6.2	260		120	1.9		3.0
09		8.6	250		115	2.5		3.1
10	---	10.1	240		115	3.0		3.0
11	---	11.1	240		115	3.1		3.0
12	(260)	11.9	240		115	3.2		2.9
13	(270)	12.0	240		115	3.2		2.9
14	(270)	12.4	240		115	3.1		2.9
15	---	12.4	240		120	3.0		2.9
16		12.4	240		120	2.7		2.9
17		12.0	240		130	2.3		2.9
18		11.0	240		---	1.7		3.0
19		9.8	230				<1.5	2.9
20		8.4	240				<1.5	2.9
21		6.8	250				<1.5	2.9
22		5.6	270				<1.5	2.9
23		5.0	280				<1.5	2.8

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

Table 37

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.3						3.0
01	300	5.1						2.9
02	300	5.0						2.85
03	300	4.8						2.9
04	300	4.6						3.0
05	290	4.2						3.0
06	280	3.8						3.0
07	240	4.3						3.2
08	200	8.3			100	2.0		3.5
09	200	11.4			100	2.5		3.5
10	200	12.6			100	2.9		3.5
11	200	13.8			100	3.2		3.5
12	200	13.6			100	3.3		3.4
13	200	13.9			100	3.4		3.4
14	200	13.5			100	3.3		3.4
15	200	13.4			100	3.1		3.4
16	200	12.8			100	2.8		3.4
17	200	12.0			100	2.3		3.4
18	200	11.0						3.5
19	200	9.5						3.45
20	200	7.8						3.5
21	215	6.7						3.3
22	255	6.1						3.1
23	250	5.8						3.1

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

Table 38

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	280				<1.5	2.7
01		5.2	280				<1.5	2.65
02		5.1	290				<1.5	2.7
03		5.0	300				<1.4	2.7
04		4.9	280				<1.5	2.75
05		4.8	280				<1.4	2.7
06		4.7	270				<1.5	2.65
07		5.8	260		---	1.7		3.0
08	---	8.4	240		110	2.3		3.1
09	---	10.8	230		110	3.0		3.1
10	(250)	12.1	230	---	110	3.2		3.0
11	250	12.8	230	---	110	3.4		3.0
12	250	13.0	230	---	110	3.5		2.9
13	250	12.8	230	---	110	3.5		2.9
14	260	12.8	230	---	110	3.3		2.9
15	---	12.8	240		110	3.1		2.9
16	---	12.2	240		110	2.7		2.9
17		11.9	240		130	2.1		3.0
18		11.2	230		---	1.5		3.0
19		9.4	230				<1.4	2.9
20		8.1	230				<1.5	2.85
21		7.2	250				<1.5	2.8
22		6.7	250				<1.5	2.8
23		6.0	260				<1.5	2.8

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

Table 39

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.8	290					2.65
01		4.6	290					2.55
02		4.4	290					2.60
03		4.3	300					2.55
04		4.1	285					2.55
05		4.0	310					2.60
06		4.2	270					2.80
07		8.0	230				2.0	3.20
00	---	11.1	225					3.20
09	---	12.6	230					3.15
10	---	13.0	225					3.15
11	---	12.8	230					3.05
12	---	12.8	230					3.00
13	---	12.5	230					2.95
14		12.3	235					2.95
15		12.3	235					2.95
16		11.5	230				2.5	2.95
17		11.1	230				1.5	3.00
18		9.0	220					3.00
19		7.2	230					3.00
20		6.5	245					2.90
21		5.7	265					2.85
22		5.6	270					2.80
23		5.0	270					2.70

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

Table 40

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.2	285					2.65
01		5.0	275					2.65
02		4.9	290				(1.4)	2.60
03		4.0	290				(1.4)	2.60
04		4.3	280				(1.4)	2.55
05		4.3	300					2.50
06		4.6	275					2.80
07		8.4	240				2.0	3.15
00	---	11.5	240					3.20
09	(240)	12.6	235					3.15
10	(240)	13.4	230					3.10
11	245	13.0	225					3.05
12	245	13.4	225					2.95
13	(240)	12.7	230					2.95
14	245	12.4	240					2.90
15	(245)	12.0	245					2.90
16	---	11.5	240				3.0	2.95
17		11.0	240				(2.8)	3.00
18		9.8	235				(1.8)	2.95
19		7.8	235					2.95
20		7.1	250					2.90
21		6.2	260					2.85
22		5.8	250					2.85
23		5.6	275					2.70

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

Table 41

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.6	275					2.80
01		5.2	265					2.75
02		5.0	280					2.65
03		4.8	285					2.70
04		4.5	285					2.55
05		4.5	325					2.55
06		5.0	285					2.80
07		8.9	250			2.20		3.15
00		11.9	245			2.90		3.15
09	(250)	12.9	240			3.25		3.05
10	250	13.8	235			3.45		2.90
11	250	13.9	230			3.70		2.85
12	250	13.6	235			3.75		2.80
13	250	13.2	240	---		3.70		2.80
14	(265)	13.0	250	---		3.65		2.75
15	(265)	12.8	250			3.35		2.80
16	---	12.0	250			2.75	3.2	2.85
17	---	11.5	250			1.90	2.5	2.95
18		10.4	250				(2.4)	2.90
19		8.5	250				(1.0)	2.85
20		7.8	255					2.05
21		7.1	255				1.8	2.80
22		6.5	255					2.85
23		6.2	260					2.80

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

Table 42

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3	250					2.80
01		6.6	250					2.80
02		6.0	250					2.80
03		5.0	265					2.80
04		4.6	250					2.55
05		4.5	300					2.50
06		4.4	300				1.5	2.70
07		6.4	270				(1.7)	2.95
00	---	10.6	245					3.15
09	(245)	12.7	245				3.3	3.10
10	250	13.8	240				3.8	2.95
11	250	>13.8	240				4.1	2.90
12	250	(14.2)	240				3.9	(2.80)
13	250	(14.1)	240				4.0	(2.75)
14	250	>13.8	240				4.0	2.70
15	250	13.8	240				4.0	2.75
16	<260	13.2	250				3.9	2.75
17	---	12.8	250				(3.3)	2.80
18		12.0	250				(3.0)	2.90
19		11.3	245				(2.6)	2.90
20		10.2	245				(2.6)	2.85
21		9.0	245				(1.7)	2.05
22		9.4	245				(1.8)	2.80
23		8.5	250				(1.7)	2.00

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

Table 43

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	(11.9)						(2.9)
01	260	9.9						2.8
02	260	8.7					(2.3)	2.8
03	240	8.4						2.8
04	250	7.3						2.8
05	260	7.0					(2.2)	2.7
06	260	7.8					(2.2)	2.9
07	260	9.3			---	---		3.0
08	240	12.0	---	---	130	2.9		3.0
09	240	13.5	240	---	120	3.4		3.0
10	---	14.8	230	---	120	3.7	4.0	2.9
11	---	16.0	230	---	120	3.9	4.2	2.8
12	---	16.4	220	---	120	4.0	4.3	2.7
13	---	16.5	230	---	120	4.0	4.6	2.7
14	---	16.2	240	---	120	3.8	4.4	2.8
15	---	16.3	240	---	120	3.5	4.1	2.75
16	---	16.2	240	---	120	3.2	4.0	2.8
17	240	15.8	240	---	---	---	3.3	2.9
18	260	15.9					3.0	2.9
19	270	16.1					3.1	2.9
20	260	>16.5					(2.8)	(2.85)
21	240	>16.2					(2.6)	3.05
22	240	>14.0						3.0
23	240	13.2						2.9

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

Table 44

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.7	240				(2.4)	3.05
01		11.2	230					3.05
02		9.3	220					3.10
03		7.6	225					3.00
04		6.2	235				(1.4)	2.95
05		5.0	250				(1.5)	2.90
06		4.6	260				(1.6)	2.80
07		8.8	270		127	(2.30)	2.5	2.85
08		11.4	250		117	(3.10)	3.4	2.70
09		13.0	240		113	3.50	4.0	2.60
10		13.2	230		111	3.80	4.1	2.45
11		13.2	220		112	(4.00)		2.30
12		13.5	220		111	(4.00)		2.30
13	---	13.8	220		111	(4.00)		2.35
14	---	14.4	230		111	(3.95)	5.0	2.40
15	---	14.7	235		111	3.60	(5.4)	2.45
16		14.7	245		113	(3.25)	(5.5)	2.50
17		14.2	260		119	(2.55)	(4.2)	(2.50)
18		14.2	290				(2.9)	2.40
19		>13.5	360				(2.2)	(2.30)
20		(13.4)	345				(2.1)	(2.45)
21		(13.5)	270				(2.2)	(2.65)
22		13.4	250				(2.1)	2.80
23		13.0	240				(2.3)	2.95

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

Table 45

Nairobi, Kenya (1.3°S, 36.8°E) February 1957*

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.4	220					----
01		>10.6	<230					----
02		9.7	250					(2.85)
03		>9.4	250					(2.8)
04		(8.5)	250					(2.95)
05		(6.7)	230					(3.1)
06		6.0	220					3.25
07		(7.9)	260			---	(2.7)	(3.1)
08	---	10.6	240			3.0	3.2	3.1
09	---	11.2	(230)			3.6	3.8	2.8
10	---	(11.9)	(220)			---	(4.2)	(2.6)
11	---	(12.9)	---			---		(2.55)
12	---	>13.6	---			---		(2.45)
13	---	-----	---			---		-----
14	---	-----	---			---		-----
15	400	>14.0	(200)	---		---		(2.5)
16	390	>14.0	(220)			3.8		(2.5)
17	(400)	14.0	240			3.3		2.5
18		----	270			---	(2.8)	
19		----	310				2.7	
20		----	360				2.4	
21		>10.6	300					
22		>11.2	250					
23		>11.2	230					

Time: 45.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.
*Data observed 12:40 p.m. on February 13 to February 28, inclusive.

Table 46

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.3	230				(4.2)	(2.90)
01		>10.2	230				>3.8	3.00
02		9.3	235				(4.0)	3.15
03		8.2	230				(3.4)	3.15
04		7.1	230				(2.8)	3.15
05		5.9	230				(3.5)	3.10
06		5.4	250				2.4	3.00
07		8.4	260		121	2.20		2.90
08		(11.7)	240		115	3.10	3.3	2.75
09		>13.5	225		111	3.60	3.8	(2.55)
10		(14.1)	215		111	3.95		(2.50)
11		>13.0	210		112	4.10		(2.35)
12		>13.0	205	---	111	4.20		(2.30)
13		>12.8	200	---	109	4.25		----
14	---	12.6	200	---	109	4.10		----
15		>12.5	210		107	4.00		(2.25)
16		>12.5	220		107	3.60	4.0	(2.20)
17		12.4	235		110	3.15	3.7	(2.25)
18		11.8	260		119	----	4.4	(2.20)
19		11.6	300				(4.2)	(2.30)
20		>11.5	360				>3.0	(2.20)
21		>10.8	330				>3.2	----
22		>11.6	260				(2.8)	----
23		>11.9	230				(3.6)	(2.80)

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

Table 47

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.0	250				(5.4)	2.80
01		8.8	250				(6.0)	2.90
02		8.2	250				(5.4)	3.00
03		8.3	250				>5.0	3.00
04		7.4	230				(4.5)	3.10
05		6.8	230				(4.4)	3.15
06		7.7	270					2.95
07		10.6	250		115	2.65	4.2	2.95
08		12.7	230		---	----	(8.2)	2.70
09		13.6	215		---	----	(11.1)	2.40
10		13.8	210		---	----	(12.1)	2.20
11		13.0	200		---	----	(12.4)	2.15
12		>12.0	200	---	---	----	(12.3)	2.15
13		11.6	200	---	---	----	(12.2)	2.10
14		11.7	200		---	----	(11.8)	2.15
15		11.6	200		---	----	(11.6)	2.15
16		11.9	215		---	----	(8.4)	2.15
17		12.0	245		---	----	(8.2)	2.20
18		>11.4	275				>5.8	2.15
19		>11.6	340					(2.10)
20		>9.0	(385)					(2.10)
21		(9.8)	360					(2.25)
22		(9.8)	300					(2.50)
23		9.2	260				(4.2)	2.70

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

Table 48

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	260				1.6	2.8
01		5.5	260				2.0	2.8
02		4.9	<260				1.8	2.7
03		4.3	260				1.4	2.7
04		4.0	<270				1.6	2.5
05		3.9	<300					2.6
06		5.8	270			1.8	2.1	2.9
07	---	8.1	240			2.7	3.2	3.0
08	280	9.3	230	---		3.4	3.8	2.9
09	300	10.4	220	5.4		3.7	4.1	2.8
10	320	11.1	210	5.7		4.0	4.5	2.6
11	350	11.4	210	6.0		4.1	4.3	2.6
12	360	11.7	210	6.3		4.2	4.6	2.6
13	370	11.5	210	6.2		4.1	4.5	2.6
14	380	11.1	220	6.1		4.1	4.2	2.6
15	370	10.5	220	6.0		4.0	4.2	2.6
16	360	10.1	230	5.5		3.7	3.9	2.6
17	340	9.8	240	4.8		3.2	3.6	2.7
18	---	9.5	250			2.5	2.8	2.8
19		9.2	250				2.2	2.9
20		8.4	250				1.8	2.8
21		7.7	260					2.8
22		7.1	270				2.0	2.8
23		6.5	270				2.1	2.8

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

Table 49

Watheroo, W. Australia (30.3°S, 115.9°E) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.5	260				2.5	2.80
01		6.3	260				2.3	2.75
02		6.1	260				1.9	2.75
03		(5.7)	280				1.3	2.70
04		5.6	300					2.60
05		(5.1)	300				1.4	2.60
06		(5.7)	270		110	1.80		2.85
07	---	6.5	230	---	100	2.65	2.7	2.95
08	(350)	7.1	220	4.9	100	3.20	3.6	2.90
09	390	8.0	210	5.2	100	3.65	4.0	2.85
10	350	9.1	210	5.6	100	3.85	4.2	2.75
11	370	9.5	210	5.6	100	4.00	4.2	2.70
12	380	9.9	(220)	6.0	100	4.00		2.65
13	380	9.8	(210)	6.1	100	4.10		2.65
14	370	10.0	210	6.0	100	4.00		2.65
15	370	9.5	210	6.0	100	3.85	4.1	2.65
16	380	8.9	210	5.5	100	3.65	4.0	2.65
17	350	8.5	230	5.3	100	3.25	3.6	2.70
18	---	8.1	250	---	100	2.65	2.9	2.85
19		7.1	250		100	1.85		(2.80)
20		7.0	250				1.5	(2.65)
21		6.8	260					(2.70)
22		(6.8)	280				1.6	(2.60)
23		6.7	260				2.2	(2.70)

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 50

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.4	<280				1.6	2.7
01		5.0	<280				2.1	2.6
02		4.6	<300				1.6	2.7
03		4.2	<300				1.7	2.6
04		4.0	<320					2.5
05		4.0	<330					2.5
06		4.2	320			---		2.5
07		6.9	260			2.3	2.5	3.0
08	(270)	8.5	240	---		3.0	3.2	2.8
09	300	9.6	240	---		3.4	3.7	2.7
10	340	10.2	230	5.6		3.6	4.0	2.6
11	360	10.8	220	5.8		---	4.2	2.5
12	380	11.0	(220)	6.0		---	4.3	2.5
13	380	11.1	(230)	6.1		---		2.5
14	380	10.8	220	6.1		---		2.5
15	380	10.5	230	5.9		---		2.6
16	380	10.0	230	5.8		3.8	4.0	2.6
17	380	9.3	240	5.6		3.5	3.7	2.6
18	---	9.0	250	---		3.1	3.3	2.7
19		8.6	260			2.4	2.2	2.8
20		8.2	250					2.85
21		7.0	240					2.8
22		6.5	<260				1.6	2.8
23		5.7	<270					2.7

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

Table 51

Leningrad, U.S.S.R. (59.9°N, 30.7°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(3.0)						---
01	350	3.0						2.4
02	330	2.8						2.7
03	350	2.8						2.6
04	320	3.1						2.7
05	300	3.2						2.8
06	280	3.2						3.0
07	270	3.2						2.7
08	240	4.6						3.0
09	220	8.6			---	E		3.1
10	220	10.4			100	2.5		3.0
11	220	11.0			100	2.6		---
12	220	11.4			100	2.7		---
13	220	11.6			100	2.6		---
14	220	11.5			100	2.5		---
15	220	11.0			(120)	E		---
16	220	10.4						3.1
17	220	9.4						3.3
18	220	9.6						3.0
19	240	5.6						3.1
20	250	4.2						3.0
21	300	3.2						2.8
22	320	3.2						2.8
23	320	3.2						2.8

Time: 30.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 52

Sverdlovsk, U.S.S.R. (56.7°N, 61.1°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	3.4						2.4
01	350	3.4						2.5
02	350	3.4						2.4
03	340	3.6						2.5
04	340	3.4						2.5
05	320	3.3						2.6
06	300	3.2						2.6
07	300	3.4						2.6
08	270	6.0			150	1.7		2.8
09	250	9.6			140	2.1		3.0
10	250	11.8			130	2.5		3.0
11	250	12.6			120	2.7		3.0
12	240	13.1			120	2.8		2.9
13	250	12.9			120	2.7		2.8
14	250	12.8			130	2.6		2.9
15	250	12.2			140	2.2		2.9
16	250	11.6			150	1.9		2.9
17	250	9.8						2.9
18	250	7.8						3.0
19	260	5.8						2.9
20	270	4.2						2.7
21	310	4.0						2.6
22	330	3.5						2.5
23	360	3.4						2.4

Time: 60.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 10 minutes, manual operation.

Table 53

Tomsk, U.S.S.R. (56.5°N, 84.9°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.4						2.6
01	320	3.5						2.5
02	320	3.6						2.6
03	320	3.8						2.6
04	300	3.7						2.6
05	290	3.7						2.6
06	260	3.3						2.7
07	260	3.3						2.9
08	250	4.6			---	1.3		2.6
09	230	8.6			120	1.9		3.0
10	230	10.8			120	2.3		3.1
11	230	12.2			120	2.6		3.0
12	230	12.8			120	2.7		3.0
13	220	12.6			120	2.8		3.0
14	230	12.8			120	2.6		3.0
15	220	12.0			120	2.3		3.0
16	230	11.2			120	1.9		3.0
17	230	10.4			---	1.5		3.0
18	230	8.6						3.0
19	220	6.8						3.0
20	240	5.2						3.0
21	250	4.5						2.8
22	270	3.7						2.7
23	300	3.4						2.5

Time: 90.0°E.
Sweep: 1.1 Mc to 15.0 Mc in 10 minutes, manual operation.

Table 54

Moscow, U.S.S.R. (55.5°N, 37.3°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.4						2.48
01	300	3.4						2.46
02	300	3.5						2.46
03	300	3.3						2.54
04	290	3.3			---	---		2.62
05	270	3.3			---	---		2.67
06	250	3.2			---	E		2.74
07	250	4.3			---	1.0		2.76
08	240	8.0			120	2.0		2.99
09	240	10.7			110	2.3		3.10
10	235	12.0			120	2.6		3.02
11	240	12.8			120	2.8		3.02
12	240	13.0			120	2.8		2.95
13	240	12.9			130	2.7		2.96
14	240	12.5			120	2.5		2.96
15	230	11.7			120	2.0		2.98
16	230	10.7			130	1.7		2.98
17	230	8.9			---	---		2.90
18	230	6.8			---	---		3.01
19	230	5.0						2.84
20	260	4.0						2.72
21	280	3.8						2.60
22	310	3.6						2.51
23	310	3.7						2.50

Time: 30.0°E.
Sweep: 0.5 Mc to 20.0 Mc in 10 to 30 seconds.

Table 55

Irkutsk, U.S.S.R. (52.5°N, 104.0°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(3.6)						2.6
01	340	(3.7)						2.6
02	320	(3.8)						2.6
03	300	(3.8)						2.7
04	280	(4.0)						2.8
05	260	(3.9)						2.8
06	270	(3.5)						2.8
07	260	3.4						2.8
08	230	(6.4)			---	(1.8)		3.1
09	240	9.8			110	2.4		3.2
10	230	11.8			110	2.8		3.3
11	230	12.0			110	3.1		3.1
12	230	12.0			110	3.0		3.0
13	230	11.7			(110)	3.0		3.0
14	240	11.6			110	2.8		3.0
15	230	11.4			110	2.6		3.0
16	230	10.4			110	2.0		3.1
17	240	9.9						3.0
18	230	8.4						3.0
19	230	(7.2)						3.1
20	240	(5.0)						2.9
21	260	(4.0)						2.7
22	290	(3.6)						2.8
23	300	3.4						2.8

Time: 105.0°E.
Sweep: 1.8 Mc to 16.0 Mc in 1 minute.

Table 56

Rostov-on-Oon, U.S.S.R. (47.2°N, 39.7°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	4.2						2.5
01	340	4.2						2.5
02	330	4.1						2.5
03	320	4.1						2.6
04	300	4.1						2.6
05	300	3.8						2.7
06	280	3.7						2.7
07	270	3.8						2.8
08	240	6.5			---	E		3.0
09	230	(9.6)			(160)	2.4		(3.0)
10	240	(9.4)			120	2.9		---
11	240	(9.3)			120	3.2		---
12	240	(9.6)			120	3.3		---
13	240	(9.6)			120	3.3		---
14	240	(9.6)			120	3.3		---
15	240	(9.4)			120	2.9		---
16	240	(9.5)			120	2.6		---
17	230	(9.2)			120	E		(3.1)
18	240	(9.0)						3.0
19	240	7.0						3.0
20	240	5.7						2.9
21	280	4.3						2.7
22	320	4.6						2.5
23	340	4.0						2.5

Time: 45.0°E.
Sweep: 1.6 Mc to 10.0 Mc in 10 minutes, manual operation.

Table 57

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.9	320					2.55
01		3.8	310					2.60
02		3.6	305					2.60
03		3.6	280					2.60
04		3.5	280					2.60
05		3.5	280					2.65
06		3.2	260					2.80
07		5.8	240					3.00
08		8.9	220				2.3	3.20
09		11.0	225				3.2	3.10
10		12.1	235				3.5	3.05
11		12.3	235				3.5	3.05
12		11.3	230				3.6	3.00
13		11.0	230				3.5	2.90
14		10.5	230				3.5	2.90
15		10.0	235				2.9	3.00
16		8.7	225				2.2	3.00
17		7.8	225				(1.6)	2.90
18		7.0	240					3.00
19		5.8	230				1.6	3.00
20		4.2	250				(1.7)	2.85
21		3.8	285					2.60
22		3.8	320					2.60
23		3.8	310					2.60

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

Table 58

Alma-Ata, U.S.S.R. (43.2°N, 76.9°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.7						2.6
01	320	3.8						2.6
02	320	3.8						2.7
03	300	3.8						2.7
04	300	3.8						2.7
05	280	3.6						2.7
06	250	3.5			---	E		2.8
07	250	5.0			100	1.2		2.8
08	230	8.8			100	2.2		3.1
09	220	10.6			100	2.7		3.1
10	230	12.1			100	3.2		3.0
11	240	12.5			100	3.6		3.0
12	230	11.9			100	3.6		3.0
13	230	11.6			100	3.6		2.9
14	240	11.2			100	3.4		2.9
15	240	11.0			100	3.1		2.9
16	230	10.2			100	2.6		2.9
17	230	9.4			100	1.7		2.9
18	220	8.2			100	1.2		3.0
19	220	7.0						3.1
20	220	4.8						3.1
21	260	4.0						2.8
22	300	3.6						2.6
23	320	3.6						2.6

Time: 75.0°E.
Sweep: 1.6 Mc to 17.0 Mc in 10 to 15 minutes, manual operation.

Table 59

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.0	310					2.55
01		4.0	310					2.55
02		4.0	300				(1.4)	2.55
03		3.9	290				1.1	2.60
04		3.6	280					2.55
05		3.5	300					2.55
06		3.7	290					2.80
07		6.6	250					3.05
08		9.7	235					3.20
09		10.9	240					3.05
10		11.9	240					3.00
11	(250)	12.0	245					2.95
12	---	11.6	245				4.1	2.85
13	(250)	11.0	240				3.5	2.75
14	---	10.5	245				3.8	2.80
15		10.4	245				3.4	2.85
16		9.5	240				2.4	2.90
17		7.9	240				1.7	2.85
18		7.5	245					2.90
19		6.5	245					2.90
20		5.0	245					2.85
21		4.2	255					2.65
22		4.2	320					2.60
23		4.2	320					2.55

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

Table 60

Ashkhabad, U.S.S.R. (37.9°N, 58.3°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.2						2.5
01	310	4.2						2.6
02	300	4.2						2.6
03	290	4.1						2.7
04	280	4.0						2.8
05	280	3.8			---	1.1		2.7
06	300	3.6			---	1.2		2.8
07	270	5.3			---	1.3		2.8
08	240	8.7			130	2.2		3.1
09	240	10.2			120	2.9		3.2
10	240	11.2	240	6.0	110	3.3		3.0
11	240	11.8	230	6.0	110	3.6		2.9
12	250	11.6	250	6.4	110	3.6		2.8
13	250	11.4	230	6.2	110	3.6		2.8
14	300	11.3	240	6.2	110	3.5		2.7
15	270	11.4	240	5.9	110	3.2		2.8
16	240	11.0			120	2.8		2.9
17	240	9.8			130	2.3		2.8
18	240	8.9			---	1.4		2.9
19	240	7.7						3.1
20	240	6.1						2.9
21	250	4.3						2.7
22	300	4.2						2.6
23	320	4.3						2.6

Time: 60.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 15 minutes, manual operation.

Table 61

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(9.0)	390				>4.6	(2.35)
01		(8.3)	370				(3.5)	(2.40)
02		(8.0)	300				(3.4)	(2.75)
03		7.9	270				(3.2)	2.95
04		7.8	240				(3.8)	3.10
05		5.8	230				(4.2)	3.10
06		7.7	280		---	2.00		2.85
07		10.6	250		115	3.00	5.2	2.80
08		12.7	235		112	3.60	(6.8)	2.65
09	---	13.5	225		---	(3.70)	(6.2)	2.50
10	---	13.6	220		---	----	(11.3)	2.35
11	---	13.7	210		---	----	(11.6)	2.20
12	---	14.0	210	(6.7)	---	----	(11.9)	2.10
13	---	14.1	200	(6.6)	---	----	(11.7)	2.05
14	(490)	13.7	200	(6.4)	---	----	(11.1)	2.00
15	(530)	14.0	205	6.2	---	----	(11.0)	2.05
16	---	>12.8	225		---	----	(8.6)	1.95
17	---	>12.5	250		---	----	(8.3)	2.10
18		>13.1	280		---	2.35	(6.2)	(2.20)
19		>11.4	335					2.20
20		>11.2	400					2.05
21		(10.5)	(420)					(2.10)
22		>9.7	430					(2.30)
23		(9.3)	(405)					(2.20)

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

Table 62

Lulea, Sweden (65.6°N, 22.1°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(295)	---					2.5	
01	---	---	---	---	---	---	2.7	
02	---	---	---	---	---	1.8	2.7	
03	(365)	---	245	3.5	---	2.2	2.8	
04	390	(5.0)	240	3.8	---	2.5	2.0	
05	430	5.7	225	4.0	---	2.0	3.0	---
06	395	6.0	225	4.4	---	3.4		---
07	(400)	6.0	---	4.5	---	---	3.5	---
08	380	6.4	---	4.7	---	---	3.0	---
09	400	6.6	---	5.0	---	3.7		---
10	405	6.9	220	5.0	---	3.9		---
11	390	6.6	210	5.0	---	---	3.1	---
12	405	6.4	210	5.0	---	3.7		---
13	385	6.4	210	5.0	---	3.6		---
14	(425)	6.2	210	4.9	---	---	3.0	---
15	415	6.4	---	4.8	---	---	3.0	---
16	(370)	6.0	225	4.6	---	3.6		
17	---	6.0	---	4.3	---	---	3.1	
18	---	6.0	---	4.0	---	---	3.2	
19	---	---	250	3.7	---	2.4	3.0	
20	---	---	260	3.7	---	2.2	2.4	
21	---	---	260	---	---	1.8	2.4	
22	---	---	280	---	---	1.6	2.0	
23	(305)	---					2.4	

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

Table 63

Delhi, India (28.6°N, 77.1°E) June 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	8.2						2.80
01	340	8.2						2.90
02	---	---						----
03								
04	320	7.0						3.00
05	320	7.2						3.00
06	310	8.2						3.05
07	280	9.2						3.25
08	300	9.0						3.10
09	320	9.4						3.00
10	380	9.8						2.70
11	400	10.8						2.60
12	380	11.5						2.70
13	370	11.8						2.75
14	360	11.9						2.80
15	360	12.2						2.80
16	360	12.3						2.80
17	320	11.4						3.00
18	320	10.9						3.00
19	320	9.8						3.00
20	320	9.1						3.00
21	360	8.5						2.80
22	360	8.6						2.80
23	360	8.4						2.80

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 64

Ahmedabad, India (23.0°N, 72.6°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	7.2					4.0	2.62
01	310	7.0					3.7	2.64
02	300	6.8					3.3	2.64
03	300	6.7					3.2	2.60
04	300	6.4					3.2	2.70
05	295	6.2					3.0	2.80
06	255	7.0	255	---	115	2.0	3.2	2.95
07	260	8.6	230	4.3	110	2.8	4.0	3.05
08	270	9.0	225	4.7	107	3.2	4.5	3.05
09	300	8.9	215	5.0	105	3.5	5.5	2.81
10	350	9.3	235	5.5	105	3.7	5.5	2.66
11	400	10.5	230	5.5	105	3.8	5.4	2.60
12	410	12.0	250	5.7	105	3.9	5.6	(2.69)
13	400	12.5	250	5.7	105	3.9	5.0	2.65
14	395	13.0	250	5.5	105	3.8	4.2	2.67
15	360	14.0	235	5.4	105	3.7	4.3	2.76
16	340	13.9	230	5.2	105	3.4	5.8	2.80
17	310	13.4	240	4.7	110	3.0	5.0	2.81
18	290	12.5	250	4.3	120	2.3	4.2	2.81
19	270	11.5					3.8	2.80
20	280	9.2					4.0	2.79
21	300	7.6					3.2	2.64
22	330	7.2					3.2	2.52
23	340	7.2					3.8	2.54

Time: 75.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 65

Bombay, India (19.0°N, 73.0°E) June 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	7.2						2.80
07	360	8.4						2.80
08:30	390	9.6						2.65
09	420	10.1						2.55
10	450	10.5						2.45
11	500	11.6						2.30
12	540	12.2						2.15
13	540	12.4						2.15
14	540	12.6						2.15
15	510	12.1						2.25
16	480	11.7						2.30
17	480	11.3						2.30
18	480	10.9						2.30
19	420	10.2						2.55
20	(360)	(8.9)						(2.80)
21	360	8.3						2.80
22	360	7.2						2.80
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 66

Madras, India (13.0°N, 80.2°E) June 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	310	8.1						3.05
07	340	9.6						2.90
08	400	10.5						2.60
09	440	10.6						2.50
10	480	10.7						2.30
11	520	10.9						2.20
12	490	10.8						2.25
13	520	11.2						2.20
14	500	11.3						2.25
15	480	11.6						2.30
16	470	12.0						2.35
17	440	12.5						2.50
18	440	12.2						2.50
19	440	11.7						2.50
20	480	10.9						2.30
21	440	>10.0						2.50
22	---	----						----
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 67

Tiruchy, India (10.8°N, 78.8°E) June 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	7.8						3.00
07	360	9.6						2.80
08	400	10.4						2.60
09	480	10.8						2.30
10	480	11.0						2.30
11	480	10.8						2.30
12	500	10.6						2.25
13	520	10.7						2.20
14	520	10.8						2.20
15	520	10.8						2.20
16	480	10.6						2.30
17	480	10.3						2.30
18	480	10.2						2.30
19	440	10.6						2.50
20	---	---						----
21:30	(440)	(9.4)						(2.50)
22	(400)	(8.9)						(2.60)
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 68

Kodaikanal, India (10.2°N, 77.5°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	7.6						2.70
01	325	6.8						2.80
02	320	6.1						2.80
03	300	5.8						2.80
04	260	5.0						3.10
05	255	4.0						3.20
06	270	7.1						2.95
07	260	9.4	245	---	---	---		2.90
08	---	10.5	235	---	---	---	6.0	2.65
09	300	10.6	220	---	---	---	8.0	2.40
10	(335)	10.6	220	---	---	---	9.0	2.30
11	(330)	10.3	215	---	---	---	9.9	2.25
12	(400)	10.2	210	---	---	---	10.0	2.20
13	(400)	10.2	220	---	---	---	10.0	2.20
14	390	10.6	220	---	---	---	10.0	2.20
15	---	10.9	230	---	---	---	9.9	2.25
16	---	11.6	240	---	---	---	8.0	2.35
17	260	11.7	---	---	120	---	7.0	2.40
18	290	11.8					4.8	2.50
19	330	11.5						2.50
20	365	10.4						2.45
21	395	9.2						2.50
22	370	9.0						2.50
23	340	8.1						2.60

Time: 75.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 69

Poitiers, France (46.6°N, 0.3°E) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	4.0					2.0	(2.75)
01	275	4.2						(2.85)
02	275	3.9						(2.75)
03	275	4.0						2.80
04	275	3.8						2.80
05	255	3.6						2.75
06	255	3.2			---	---		2.90
07	235	4.8	170	1.9	---	E		3.20
08	225	6.7	170	2.7	110	2.4		----
09	230	8.0	225	3.7	110	2.8		----
10	230	(8.5)	225	4.2	105	3.1		----
11	250	9.2	220	4.5	105	3.2		----
12	250	(9.3)	220	4.6	110	3.3		----
13	250	(8.8)	225	4.4	105	3.4		----
14	250	(9.3)	225	4.4	110	3.2		----
15	245	(9.3)	230	4.0	110	3.0		----
16	230	8.5	235	3.3	115	2.5	2.8	----
17	225	8.5	225	2.0	---	1.7	2.5	
18	220	(6.7)	---	---	---	E	2.3	----
19	230	5.1					2.2	(3.30)
20	240	4.4					1.9	----
21	250	4.5					2.0	(2.95)
22	275	4.2						----
23	295	4.4						2.75

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 70

Casablanca, Morocco (33.6°N, 7.6°W) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.10					2.2	(2.90)
01	280	4.80					2.1	2.95
02	270	>4.50						2.95
03	270	4.75						3.00
04	250	5.10						3.10
05	245	4.00						3.10
06	275	3.70						2.95
07	270	4.30						3.00
08	240	7.35	250	----	130	2.10		3.50
09	240	8.40	235	(3.60)	115	2.80	3.2	3.45
10	250	>9.55	230	(4.50)	115	3.20	3.5	3.30
11	255	9.70	230	(4.60)	115	3.40		3.35
12	270	10.00	215	(5.00)	110	3.45		3.30
13	270	9.40	220	(4.80)	115	3.50		3.20
14	275	9.40	230	(4.90)	120	3.45		3.25
15	260	9.00	235	(4.75)	115	3.30		3.25
16	255	8.60	235	(4.30)	120	3.10		3.20
17	250	8.70	245	----	125	2.50	2.9	3.30
18	240	8.50			---	----	2.6	3.30
19	235	>6.60					2.2	3.20
20	250	5.70					2.0	2.90
21	265	6.40					2.1	(3.00)
22	265	>4.50					2.1	3.00
23	280	>4.50					2.0	2.80

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

Table 71

Poitiers, France (46.6°N, 0.3°E) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<280	3.6					2.0	2.95
01	<290	3.6					2.0	2.85
02	295	3.4						2.75
03	<290	3.2						2.85
04	280	2.8						2.85
05	260	2.8						2.75
06	260	2.7						2.85
07	245	3.2			---	E		2.95
08	220	5.8	185	2.1	---	E	2.2	(3.30)
09	220	7.6	200	2.7	120	2.3		----
10	225	(8.0)	220	3.6	110	2.6		----
11	230	(8.6)	215	4.1	110	2.8		----
12	230	8.6	210	4.2	110	2.9		(3.55)
13	240	8.2	220	4.0	110	2.9		----
14	230	(8.6)	225	3.6	110	2.7		----
15	225	7.9	230	(3.1)	115	2.4		(3.50)
16	215	7.0	215	2.3	---	1.9	2.2	----
17	215	(6.7)	---	(1.6)	---	E	1.7	
18	220	(5.1)					3.0	(3.40)
19	230	4.4					2.3	3.25
20	250	3.6					2.5	2.95
21	<280	3.4					2.3	(2.80)
22	<285	3.5					2.4	2.80
23	290	3.6						2.90

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 72

Casablanca, Morocco (33.6°N, 7.6°W) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.20					2.2	3.00
01	280	3.90					2.2	2.90
02	290	3.80						2.90
03	285	3.50						2.95
04	285	3.50						3.00
05	280	3.15						2.90
06	295	2.90						2.90
07	260	3.50						3.00
08	225	7.10	240	----	---	E	1.9	3.60
09	225	7.80	230	3.30	120	2.50	3.2	3.55
10	230	8.70	225	(4.40)	110	2.90	3.5	3.40
11	245	9.90	220	(4.55)	110	3.15	3.6	3.45
12	250	9.10	215	(4.80)	110	3.30	3.5	3.40
13	250	8.70	210	(4.70)	115	3.30	3.5	3.40
14	250	8.40	220	(4.60)	115	3.20	3.6	3.30
15	255	9.00	230	(4.50)	115	3.00	3.5	3.25
16	240	8.70	240	(3.90)	120	2.70	3.4	3.40
17	230	7.65	240	----	125	2.10	2.4	3.40
18	225	6.60						3.30
19	245	5.15					2.2	(3.10)
20	240	>5.00					2.1	3.30
21	250	4.30					2.3	3.20
22	285	4.00					2.6	2.90
23	290	4.20					2.7	2.85

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

TABLE 73

IONOSPHERIC DATA

foF2, 0.1 Mc, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	69	64	60	55	F 50	55	68	75	83	84	86	90	90	92	91	90	90	86	83	88	87	85	84	80
02	76	72	73	72	65	71	86	V 93	97	100	103	106	103	103	99	98	96	95	95	95	92	88	88	84
03	80	68	68	66	62	66	72	H 74	70	76	71	70	70	68	69	70	70	70	68	70	69	69	71	F 63
04	63	65	U S 57	47	U S 50	45	49	J 49	F 55	56	57	A	A	63	66	69	71	80	80	83	92	U S 79	U S 77	75
05	66	65	61	52	F 42	45	52	53	57	57	59	59	65	65	69	69	68	67	U S 69	67	69	76	U S 72	67
06	57	F 50	U S 45	40	37	F 43	47	45	F 55	E G 48	54	E G 53	U R 55	56	58	60	U S 59	63	64	65	64	70	U S 65	64
07	63	58	52	47	45	49	F 55	59	62	62	64	65	67	64	65	68	72	71	73	72	72	72	67	67
08	64	59	56	54	48	53	64	66	63	65	65	65	63	65	65	66	64	68	68	67	69	70	F 69	69
09	F 63	F 62	F 62	F 60	F 57	63	70	75	78	82	88	90	85	85	80	82	80	80	80	80	83	F 78	F 74	F 73
10	F 71	U F 67	F 66	F 63	64	67	78	90	92	89	96	97	94	90	91	89	88	88	89	89	89	79	84	82
11	77	74	71	70	U S 65	65	70	79	87	90	94	97	97	95	93	90	89	89	87	89	91	86	85	84
12	77	76	75	70	64	62	J C 65	C	84	U S 75	83	87	83	84	84	82	80	80	U R 81	80	80	83	79	78
13	78	72	65	58	55	57	U S 59	63	63	69	74	U S 71	73	U S 72	75	75	78	78	79	77	U S 78	79	U S 73	U S 74
14	72	70	60	58	58	56	60	64	69	75	74	75	76	76	77	75	77	78	75	76	72	77	75	73
15	72	69	64	63	58	58	67	76	75	78	72	71	73	68	69	68	67	67	67	70	72	77	75	72
16	71	65	59	58	57	60	65	67	69	70	70	71	71	72	74	72	U S 74	73	74	U A 72	74	76	74	70
17	69	65	59	62	61	61	65	65	67	69	69	69	68	69	69	69	72	72	74	72	73	76	71	70
18	63	F 58	59	U S 47	48	49	53	54	56	56	59	61	61	65	66	68	69	72	70	70	74	76	76	69
19	67	59	59	53	47	48	49	56	55	F 60	63	64	64	66	69	70	70	69	70	69	F 68	F 73	77	78
20	74	66	63	62	55	57	62	61	63	64	65	64	63	63	63	67	68	69	68	72	67	67	65	65
21	62	60	49	46	43	47	54	56	59	66	65	66	69	71	70	69	69	67	71	70	F 70	F 72	U S 71	69
22	63	U S 60	56	52	44	47	56	63	H 59	58	H 61	56	58	59	60	62	63	63	64	62	64	66	67	F 65
23	F 62	F 58	F 54	F 48	F 45	F 50	62	67	70	70	72	73	75	76	73	74	77	76	78	79	76	72	72	69
24	67	66	64	50	45	46	51	52	56	59	59	63	67	67	68	70	69	71	73	72	73	76	75	72
25	70	63	63	55	53	49	52	57	68	71	75	80	77	78	73	77	76	87	86	90	86	86	U F 70	F 59
26	U F 42	F 36	U F 31	U F 25	U F 32	U F 35	U F 38	E G 44	E G 45	E G 47	E G 48	E G 52	E G 52	61	58	60	61	62	65	66	68	72	64	64
27	60	57	F 52	F 47	F 43	45	55	57	54	58	59	H 63	66	70	71	72	73	76	75	73	77	79	F 75	U F 68
28	F 68	F 64	F 63	F 58	F 54	F 58	F 70	U F 85	86	89	95	98	94	92	89	89	93	94	89	85	85	84	F 77	F 76
29	74	66	61	F 58	54	52	59	63	68	69	72	75	70	73	72	71	73	73	75	78	78	77	76	74
30	70	F 59	52	F 58	F 48	49	U F 46	47	E G 47	E G 47	E G 47	E G 47	E G 47	E G 47	E G 50	63	80	U F 55	B	U F 32	F 29	U S 27	U S 29	S
MED	68	64	60	56	52	52	60	63	65	69	70	70	70	70	70	70	72	72	74	72	74	76	74	70
NO	30	30	30	30	30	30	30	29	30	30	30	29	29	30	30	30	30	30	29	30	30	30	30	29
RAN																								

TABLE 74

IONOSPHERIC DATA

75.0W Mean Time

foF1, 0.1 Mc, June 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L	L 530		L	580	U R 580	U A 570	H 590	590	H 580	H 530	L	L					
02								L 670	A	L	A	A	H 670	H 620	590	A 630	550	L	L						
03								L 540	520	520	U H 540	540	540	540	530	510	520	U L 490	L	A				
04							L	U R 460	480	500	A	A	A	U R 530	H 550	520	510	470	L					
05							L	460	490	500	500	A 530	H 530	U R 530	U R 530	H 530	A 500	H 480	L	L				
06							400	H 450	470	480	490	530	520	520	520	F 500	490	450	420	L				
07							420	H 480	520	H 520	530	560	U R 550	540	H 550	H 530	530	490	L	L				
08							L	490	U R 560	H 530	U R 490	550	U R 540	U R 550	530	520	510	H 470	L	L				
09							A	L	H 580	590	A 560	590	R	H 590	H 600	H 560	550	L	L	A				
10								L	L	L	H 600	H 640	H 590	H 630	H 600	H 630	560	L	L	L				
11							L	L	H 500	H 620	610	H 620	H 640	H 580	H 620	H 640	550	540	A	A				
12									U H 540	L	H 610	580	570	U R 590	590	590	H 530	H 540	L					
13								H 500	H 530	U H 530	H 580	H 600	H 600	H 570	U S 590	H 580	H 530	510	L	L				
14							450	490	530	550	U R 550	U R 570	U R 570	570	U R 550	570	550	H 550	L	L				
15							L	L	U R 550	U H 610	560	H 560	U R 550	550	U R 540	H 550	U R 500	550	470	L				
16							L	490	530	H 550	H 560	H 570	A 590	U R 580	H 570	U H 580	A	500	A	A				
17							L	L	U H 540	550	A	U A 560	U R 550	U R 570	H 560	530	H 520	H 500	L	L				
18							L	450	480	500	520	550	U R 550	560	U R 530	530	U S 510	530	450	L				
19							L	460	480	F 520	H 520	550	560	A	550	H 550	H 520	500	U L 440	L				
20							L	500	510	H 540	H 520	540	550	A	H 540	H 530	530	480	L	L				
21							L	U R 450	U H 490	550	530	H 550	560	U R 560	540	530	U R 530	H 490	H 470	L				
22							410	490	H 520	500	520	A	H 530	530	520	H 550	500	480	450	L				
23							410	470	500	520	530	530	U A 550	H 560	H 540	H 540	540	U R 500	L	L				
24						L	U L 380	460	470	500	530	H 530	540	550	540	H 540	530	L	L	L				
25							U H 390	430	470	A	550	H 570	H 550	H 610	H 550	H 570	520	L	L					
26							F 350	440	450	470	480	H 520	H 520	530	520	500	H 500	470	L	A				
27						L	390	440	500	510	520	H 550	550	540	550	580	510	480	L	L				
28							L	L	L	L	590	L	H 610	H 550	H 600	590	550	480	L	A				
29							L	490	510	H 550	550	A 550	580	A	600	540	530	U H 500	U L 440	L				
30							L	U R 450	470	H 470	470	H 470	470	H 470	500	480	450	B	B					
MED							400	460	510	520	530	550	550	560	550	540	530	490	450					
NO							10	20	27	24	28	26	28	27	30	30	29	23	7					
RAN																								

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 75

IONOSPHERIC DATA

foE, 0.05 Mc, June 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. Manual ☐ Automatic ☒

75.0W 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
01							U R 250	 315	I B 360	I A 390	U R 390	I A 390	R	A	 390	I A 385	I A 360	H 330	U R 275	R				
02						S 260	 315	 340	 370	 395	 400	 400	U R 400	 395	U A 365	I A 360	I A 330	H 320	 275	A				
03						U R 185	I R 255	 300	 330	U R 360	 370	 365	 390	U H 390	U R 390	I R 390	 360	 320	 265	A				
04						A 250	 315	 335	 355	U A 365	 	A 	A 	A 	A 	 370	 350	 325	 270	H 210				
05						U R 185	H 250	 300	 335	 375	 380	A 	A 	A 	A 	A 	 345	H 325	U R 265	H 200				
06						 170	H 260	 310	R 	A 	A 	 400	U R 400	U A 395	 380	I R 360	U A 335	I R 310	I R 275	 190				
07						A 250	 310	H 350	U R 380	 400	U R 410	U R 400	U R 400	 400	 390	 375	U R 340	U A 320	I A 265	 185				
08						R 250	 315	 345	I A 365	U R 380	U R 385	I R 400	U R 400	H 400	 385	 365	H 330	 280	A 					
09						 160	H 250	R 	A 	A 	A 	 415	H 420	 420	U S 400	 370	 365	A 	B 	A 				
10						B 	A 	H 315	 345	 360	I R 390	 400	I R 415	I R 405	U R 395	U R 380	 355	 325	U A 295	A 				
11						A 250	 300	 335	 	R 	R 	R 	 400	 415	 400	 400	 365	 340	 285	A 				
12						U H 180	C 	C 	A 	U A 380	R 	A 	A 	I R 400	 400	I R 395	H 375	H 330	U R 275	 185				
13						S 	A 	U R 320	H 340	 380	U R 390	U R 390	I A 405	H 400	U R 410	 400	 370	U R 335	 285	A 				
14						S 260	 	H 335	I A 360	 385	 400	 410	U R 405	A 	S 	A 	 370	 330	 280	S 				
15						S 	A 	H 335	 375	U R 390	A 	A 	A 	R 	 415	 395	 385	 335	 285	U H 200				
16						S 	U S 270	H 325	U R 355	 385	A 	A 	U A 420	H 400	I A 400	H 395	U R 375	U R 345	U A 290	 185				
17						A 250	 315	 360	 	A 	A 	I A 395	A 	A 	A 	 400	I R 375	H 320	 280	A 				
18						 175	U R 260	 315	 350	 380	I A 395	H 405	I A 400	A 	A 	 390	 360	 340	 290	A 				
19						U R 185	R 	U A 310	 335	A 	A 	A 	A 	A 	A 	 385	 360	 330	 280	U R 200				
20						 170	I A 245	I A 285	 330	U A 360	A 	A 	A 	A 	H 400	H 385	 355	 325	 265	U R 200				
21						A 	A 	A 	U R 350	A 	A 	 	A 	A 	A 	A 	 375	 330	 290	 220				
22						R 265	H 310	 360	 	I A 375	 390	I A 400	 400	U A 400	 400	H 380	H 355	 320	H 290	U H 215				
23						H 180	I A 260	 320	 365	I A 385	 400	A 	A 	U R 410	I A 405	I R 390	I A 365	H 330	U A 285	A 				
24						R 	H 240	H 295	H 335	I R 370	A 	A 	A 	A 	 390	I R 380	 360	 335	 280	A 				
25						B 	 240	 310	A 	A 	A 	 390	 410	 410	 400	 370	 350	U S 330	 280	U H 200				
26						R 	H 250	U R 305	 335	 	A 	 400	U R 395	I A 400	 400	 385	 350	U R 330	 285	A 				
27						 175	 260	 310	I A 345	 370	I A 385	U R 390	A 	A 	A 	 385	 375	 340	U A 290	A 				
28						H 210	U H 285	 330	A 	A 	A 	A 	A 	H 400	H 400	H 385	A 	A 	 290	A 				
29						S 	H 265	 315	I A 355	U R 370	U R 395	I A 400	A 	A 	A 	A 	 350	 325	 275	A 				
30						R 	U H 270	A 	A 	A 	A 	A 	A 	A 	 390	A 	A 	B 	B 	U H 190				
MED						 180	 250	 315	 345	U 375	U 390	 400	U 400	 400	 400	 385	 360	 330	 280	 200				
NO						 11	 24	 26	 24	 20	 15	 17	 15	 16	 21	 25	 28	 27	 28	 13				
RAN																								

TABLE 76

IONOSPHERIC DATA

foEs, 0.1 Mc, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	S	S	J 20	S	B	B	G	G	40	44	45	49	J 68	46	50	40	37	G	G	B	S	S	S	S
02	J 30	S	J 29	J 32	J 28	20	J 46	J 50	J 75	J 50	J 72	J 68	47	43	50	J 48	46	G	30	29	42	28	S	18
03	S	S	B	B	B	B	B	33	84	G	40	39	G	G	G	G	G	40	J 34	J 54	J 26	S	S	27
04	S	S	B	S	26	23	27	34	J 48	44	J 66	J 115	J 84	J 48	39	G	G	G	G	G	S	19	26	S
05	J 21	J 38	J 36	J 48	S	G	27	31	40	39	40	48	42	48	42	39	J 48	35	G	B	B	B	B	S
06	B	S	S	S	S	B	G	G	G	39	40	G	G	44	40	44	37	33	G	22	B	S	B	B
07	B	J 21	S	S	S	J 29	G	G	G	G	G	J 80	G	G	40	40	38	35	28	G	S	S	S	S
08	20	J 20	S	S	S	G	G	G	36	37	G	G	G	G	G	G	44	36	40	J 39	26	19	35	J 25
09	20	S	34	J 42	J 38	J 48	J 58	33	49	38	56	G	45	44	G	G	G	39	J 52	J 84	J 40	J 64	J 40	S
10	S	S	S	S	20	24	44	37	44	49	40	G	G	G	G	39	G	G	40	J 60	22	19	J 32	S
11	J 31	J 37	S	S	S	20	31	35	39	44	40	39	43	G	G	G	G	G	J 47	J 60	J 31	S	J 52	J 22
12	J 34	B	J 30	J 31	J 30	G	C	C	J 42	45	G	40	50	G	G	G	G	G	32	G	S	S	S	S
13	S	S	31	J 22	J 18	24	27	G	G	G	43	47	46	43	43	G	G	G	30	25	S	S	S	S
14	S	S	S	J 27	J 25	25	32	38	44	44	41	43	43	J 76	43	41	39	34	30	21	S	S	S	B
15	J 26	S	S	S	20	19	28	34	G	41	40	42	44	44	G	45	41	43	33	22	S	S	S	S
16	S	S	S	S	S	19	G	39	40	47	47	52	57	53	62	49	84	47	J 70	J 74	72	64	J 21	S
17	J 21	S	S	J 39	J 21	21	27	33	38	47	J 112	J 62	49	42	42	G	G	G	32	21	S	S	S	S
18	S	S	S	S	S	G	28	J 49	J 57	39	40	44	42	41	39	G	H 41	G	32	76	S	J 23	S	S
19	S	S	S	S	J 22	G	34	32	41	H 40	42	40	J 46	J 60	45	41	G	G	G	27	40	J 35	J 22	S
20	S	S	34	14	S	G	26	36	38	40	40	42	43	J 80	G	41	G	36	36	21	J 28	J 37	J 25	J 39
21	S	J 24	S	S	J 22	19	27	32	G	48	40	41	42	40	46	45	40	G	30	29	J 44	J 60	J 41	20
22	S	S	S	S	17	G	28	32	44	44	40	J 68	G	41	G	39	39	G	G	23	J 27	J 33	S	S
23	S	S	S	S	S	G	27	36	38	52	J 50	J 68	J 58	G	39	38	40	G	30	24	23	22	S	S
24	S	S	S	S	S	G	G	G	40	42	44	50	41	40	G	41	42	39	34	40	19	S	S	S
25	S	S	S	S	S	G	G	G	39	J 74	J 72	47	G	G	G	G	G	G	30	G	S	S	S	S
26	S	S	S	S	S	G	G	G	J 62	42	43	G	G	41	G	G	G	G	35	J 45	J 34	J 23	S	J 60
27	S	19	S	S	S	19	28	34	38	38	47	44	43	64	42	G	G	G	33	33	J 35	J 44	J 35	J 46
28	S	J 26	S	S	S	G	31	35	40	40	42	41	44	G	G	G	42	35	40	J 60	22	J 22	J 43	J 46
29	J 29	J 37	17	S	S	18	G	35	44	44	49	J 50	J 68	J 72	J 72	40	G	G	34	54	58	J 64	J 36	J 42
30	S	S	S	S	S	20	28	34	37	40	52	42	43	40	44	41	40	B	B	G	S	J S 28	S	U S 23
MED	U 21	U 24	30	U 31	U 22		27	33	40	42	42	44	43	42		39	37		32	26	28	U 28	U 34	U 25
NO	11	9	10	9	14	30	29	29	30	30	30	30	30	30	30	30	30	30	29	30	19	18	14	13
RAN																								

TABLE 77

IONOSPHERIC DATA

fbEs, 0.1 Mc, June 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. Manual ☐ Automatic ☒

75.0W 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
01			18						40	43	44	44	52	43	49	40	37							
02	29		24	32	20		46	49	66	47	54	58	45	43	50	46	46		30	28	37			18
03								33			40	39						36	33	53	19			22
04					17	23		34	38	43	52	115	84	45	39									
05	17	22	27	27			27	31	39	39	40	48	42	40	41	39	46	35						
06										37	39			40	40	40	35	33		22				
07		17				25									40	39	37	35	28					
08		20							36	37							44	36	39	30	24		29	23
09	18		25	42	33	40	54	33	45	38	51		45	43				37	31	47	30	32	28	
10					20	24	36	36	44	42	40					38			33	27	20	19	26	
11	25	18				20	30	35	36	39			42						41	60	20		34	18
12	25			27	21				35	37			44						30					
13			17		18	23	27				42	45	46	42	43				30	25				
14				27	19	24	30	38	37	41	41	43	43	45	43	41	39	34	30	21				
15						18	27	34		40	40	42	43	43		40	40	35	29	22				
16						17			39	46	46	50	50	50	48	48	60	40	64	36	25	25		
17							26	33	37	45	68	52	45	41	41				29	21				
18							27	35	38	39	40	43	42	41	39		39		31	26		18		
19					20		31	31	35	38	41	40	45	57	42	40				23	17	19		
20			23					35	36	40	40	42	42	60		41		36	35		25	23	25	28
21		20				19	27	32		38	40	41	41	40	41	39			30	27	40	46	41	20
22							27	32	39	38	40	53		41		39	39			23	22	25		
23							27	35	38	45	45	45	50		39	36	36		25	23	21			
24									34	37	40	42	41	40		41	39	39	31	31				
25									37	51	40	46							30					
26										39	40			41					35	42	26			40
27						19	28	33	36			42	43	42	42				32	26	17		25	25
28							30	35	40	40	41	41	44				38	35	35	47	20			27
29	20	27						35	41	43	46	47	47	58	44	40			34	27	39	22	34	
30							27	34	35	39	45	42	43	40	40	39	40							
MED																								
NO																								
RAN																								

TABLE 78

IONOSPHERIC DATA

fmin, 0.1 Mc, June 1957 — 75.0W Mean Time

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. Manual ___ Automatic X

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	E S 16	E S 18	17	E S 16	22	20	18	23	38	25	28	26	26	25	34	21	23	30	16	26	E S 16	E S 16	E S 16	E S 16
02	E S 16	E S 16	E S 16	E S 16	E S 16	17	21	31	18	18	25	30	30	30	30	25	19	34	21	19	E S 16	E S 16	E S 16	E S 16
03	E S 16	E S 16	18	21	17	21	32	23	18	28	28	28	30	24	26	25	23	26	18	E S 16	17	E S 16	E S 16	E S 16
04	E S 20	E S 16	28	E S 16	E S 16	17	20	22	16	16	19	21	30	25	25	20	24	19	16	16	E S 16	E S 16	E S 16	E S 16
05	E S 16	E S 16	E S 16	E S 16	E S 16	16	16	18	18	25	22	22	30	27	26	24	20	32	18	23	17	25	24	E S 16
06	22	E S 16	E S 17	E S 16	E S 16	22	18	22	17	24	22	26	30	30	25	24	19	29	20	20	22	E S 16	23	21
07	29	E S 16	E S 16	E S 16	E S 16	E S 16	20	21	19	29	25	21	23	25	26	21	21	30	24	16	E S 16	E S 16	E S 16	E S 16
08	E S 16	E S 16	E S 21	E S 16	E S 20	16	20	21	20	27	27	28	29	25	28	25	22	25	21	16	E S 16	E S 16	E S 16	E S 16
09	E S 17	E S 16	E S 16	E S 16	E S 16	16	19	22	18	24	29	30	29	25	24	21	24	27	27	21	E S 16	E S 16	E S 16	E S 16
10	E S 16	E S 16	E S 16	E S 16	E S 16	20	26	22	21	25	25	26	30	31	30	21	21	25	22	18	E S 16	E S 16	E S 16	E S 16
11	E S 16	E S 16	E S 14	E S 16	E S 16	16	17	23	20	24	25	22	24	25	23	24	19	22	20	17	E S 16	E S 16	E S 16	E S 16
12	E S 16	29	22	E S 16	E S 15	31	C	C	16	25	23	23	29	27	25	22	23	26	20	16	E S 16	E S 16	E S 16	E S 16
13	E S 16	E S 16	E S 16	E S 16	E S 16	16	18	20	16	21	25	24	25	26	25	25	24	23	20	16	E S 20	E S 17	E S 16	E S 23
14	E S 13	E S 16	E S 16	E S 16	E S 16	16	17	24	16	16	22	26	24	31	26	32	24	17	17	16	E S 16	E S 16	E S 16	22
15	E S 16	E S 16	E S 16	E S 19	E S 16	16	16	22	26	22	20	26	24	30	30	27	22	17	16	16	E S 16	E S 16	E S 16	E S 16
16	E S 16	E S 16	E S 16	E S 16	E S 16	16	16	16	19	19	19	27	27	24	23	25	21	23	16	16	E S 15	E S 16	E S 16	E S 16
17	E S 15	E S 16	E S 16	E S 16	E S 16	16	16	22	17	20	22	25	23	24	24	26	20	24	16	16	E S 16	E S 16	E S 16	E S 16
18	E S 20	E S 16	E S 16	E S 18	E S 16	16	16	16	16	16	20	22	22	22	25	21	17	23	16	16	E S 16	E S 16	E S 16	E S 16
19	E S 16	E S 16	E S 16	E S 16	E S 16	16	17	22	16	22	23	24	25	25	25	22	17	20	19	16	E S 16	E S 16	E S 16	E S 16
20	E S 16	E S 16	E S 16	E S 12	E S 16	16	15	16	16	19	23	27	24	22	23	22	20	18	18	16	E S 16	E S 16	E S 16	E S 16
21	E S 16	E S 16	E S 16	E S 13	E S 16	16	16	18	16	22	22	25	27	27	21	18	22	21	22	16	E S 16	E S 16	E S 16	E S 16
22	E S 16	E S 16	E S 16	E S 13	E S 16	16	17	20	17	23	22	25	26	27	24	22	22	26	18	16	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 16	E S 16	E S 16	E S 14	16	16	22	28	26	27	26	28	25	27	25	21	23	20	16	E S 16	E S 16	E S 16	E S 16
24	E S 16	E S 16	E S 16	E S 16	E S 16	16	16	24	17	22	26	24	25	28	23	26	21	24	24	16	E S 16	E S 16	E S 16	E S 16
25	E S 16	E S 16	E S 16	E S 18	E S 16	17	16	21	17	23	23	22	26	25	22	22	16	21	16	16	E S 16	E S 16	E S 16	E S 16
26	E S 16	E S 16	E S 13	E S 15	E S 16	16	16	24	16	24	26	26	24	24	25	23	22	23	16	16	E S 16	E S 16	E S 16	E S 16
27	E S 16	E S 16	E S 16	E S 16	E S 16	16	16	22	22	22	25	23	26	26	27	25	25	22	22	16	E S 16	E S 16	E S 16	E S 16
28	E S 16	E S 16	E S 16	E S 16	E S 16	16	16	23	22	22	26	26	30	27	24	23	26	24	23	17	E S 15	16	E S 16	E S 16
29	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	21	24	16	23	24	27	30	32	25	22	23	24	16	16	E S 16	E S 16	E S 16	E S 16
30	E S 16	E S 16	E S 16	E S 16	E S 15	16	21	22	23	23	22	23	25	25	24	24	22	26	B	16	E S 16	E S 16	E S 20	E S 16
MED																								
NO																								
RAN																								

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 79

IONOSPHERIC DATA

h'F2, Km, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L 325		330	L	395	390	375	380	385	370	355	320	L					
02								L	A 330	L	370	330	385	350	350	385	350	U L 325	L					
03								L	520	435	500	490	510	570	500	505	470	405	370	A				
04							L	N	530	635	615	A	A	565	520	480	440	390	L	L				
05							L 500		480	545	530	635	540	560	510	450	440	425	L 360	L				
06							L 495		520	G	720	G	S	630	600	555	555	U S 450	365	300				
07							370	L	L	470	515	550	510	550	550	500	415	385	325	L				
08							L 360		500	565	500	530	600	540	525	510	500	425	350	L				
09								360	410	390	360	370	435	405	435	405	390	365	L	U A 310				
10								260	L	L	370	390	390	420	400	380	380	365	U R 325	L				
11							L	L 295	345	380	360	400	370	400	400	380	360	300	E A 300					
12									370	U L 260	430	370	375	330	415	415	400	370	L					
13							420	435	440	500	450	470	470	470	480	465	425	370	L	290				
14							390	L	385	430	490	450	470	430	455	450	450	425	340	290				
15							L	L		420	475	530	520	530	525	540	490	U L 480	L	L				
16							L 380		435	480	490	480	550	465	470	510	440	390	I A 350	U A 310				
17							L	L	410	560	U A 540	500	550	500	530	485	450	450	345	L				
18							L 585		570	660	590	610	685	570	540	520	530	425	390	L				
19							L 500		645	530	550	580	545	550	540	490	460	450	370	L				
20							L 420		520	535	550	575	625	I A 630	630	530	520	455	L	L				
21							L 510		530	H 460	565	550	575	500	520	485	470	480	380	L				
22							405	440	L	570	H 570	710	650	620	580	540	515	475	300	L				
23							350	440	U F 400	460	450	450	445	450	450	440	425	400	330	L				
24						L	L 515		530	530	630	590	530	525	530	460	485	L	340	L				
25							L 450		350	430	470	385	L	415	520	450	470	330	310					
26							400	G	G	G	G	G	G	550	600	555	470	500	L	A				
27						L	370	335	L	530	530	620	480	450	440	450	430	370	320	L				
28							L 260		L	L	375	L	390	315	395	L	355	315	285	E A 300				
29							L 400		400	430	440	395	500	450	495	440	400	370	L	L				
30							L	L	G	G	G	G	G	G	G	705	445	600	B					
MED							U 390	440	480	515	500	515	510	500	515	480	440	400	340	E 300				
NO							7	20	23	26	30	28	27	30	30	29	30	29	19	7				
RAN																								

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 80

IONOSPHERIC DATA

h'F, Km, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	280	280	285	275	E S 275	270	250	230	230	230	220	220	I A 220	H 220	I A 220	H 220	H 220	230	250	270	260	270	270	270
02	U A 310	295	U A 285	U A 295	U A 260	265	U A 250	U A 250	A	A	A	A	H 225	H 220	A	A	220	235	245	260	U A 270	260	270	265
03	280	310	300	280	290	275	245	240	230	225	210	H 210	245	225	230	230	230	230	A	A	290	310	310	325
04	330	290	U B 300	330	310	E A 300	270	U A 245	U A 235	245	A	A	A	235	H 225	225	220	235	250	270	270	290	300	315
05	300	U A 310	U A 330	E A 340	310	300	255	230	230	220	220	I A 215	H 210	H 215	215	H 230	I A 230	H 230	230	275	300	300	310	310
06	355	310	E S 315	E S 360	350	E B 310	265	H 240	230	225	200	I S 215	230	230	200	200	225	245	250	280	295	280	310	280
07	E B 320	275	265	290	300	275	240	H 220	215	H 205	210	200	205	220	H 220	H 205	225	240	265	250	265	275	270	310
08	300	320	U S 320	260	E S 310	290	255	220	H 225	H 210	H 190	H 200	210	H 220	220	220	U A 215	H 240	A	A	280	285	U A 320	300
09	300	285	U A 290	I A 310	E A 325	U A 315	A	230	H 240	210	I A 225	240	230	225	H 220	H 220	230	230	245	I A 265	U A 285	310	U A 275	260
10	280	275	275	E S 275	290	270	250	235	H 245	220	H 200	H 205	H 190	H 205	H 210	H 210	230	230	I A 250	270	250	255	U A 285	270
11	285	290	280	280	255	260	245	225	H 210	H 200	210	H 205	200	205	220	H 225	235	245	A	A	270	260	E A 310	275
12	E A 300	290	295	U A 300	275	270	U C 250	C	H 210	H 205	H 180	215	210	H 205	H 230	H 225	H 220	H 220	245	280	275	275	265	280
13	260	265	270	260	300	275	240	H 225	H 220	H 215	H 230	U A 210	H 225	H 210	H 230	H 230	H 240	235	245	275	260	270	265	310
14	275	275	250	E A 320	300	280	260	250	235	220	220	220	U B 225	235	225	H 215	240	230	220	275	265	280	275	E B 300
15	275	295	280	295	280	295	250	245	H 200	H 210	H 200	H 210	235	225	245	H 215	H 235	250	245	280	290	285	275	280
16	280	290	285	280	285	275	250	235	240	H 240	H 245	A	A	E A 265	U A 240	A	A	A	A	A	E A 300	E A 285	270	300
17	300	305	E S 320	270	255	265	240	240	230	A	A	A	225	220	H 210	215	H 235	H 230	250	260	280	280	E S 295	E S 320
18	E S 310	340	340	280	285	330	270	270	U A 235	235	210	220	210	220	200	220	235	235	250	E A 280	280	E S 310	295	U S 310
19	305	275	300	310	E A 320	310	260	220	220	210	H 200	210	225	I A 230	230	225	215	230	240	275	300	310	295	280
20	270	315	340	280	280	290	230	225	215	H 205	H 200	210	220	I A 220	H 225	H 220	230	245	A	275	280	305	305	350
21	305	330	U S 305	350	320	290	255	230	H 220	220	215	H 185	H 200	230	210	225	235	H 225	H 250	280	E A 330	E A 360	E A 335	E A 295
22	280	280	290	290	290	305	260	250	H 210	220	220	I A 210	200	200	210	H 225	230	240	250	265	295	E A 310	280	275
23	280	280	290	290	290	280	250	245	220	I A 230	235	210	I A 210	210	H 230	U S 225	H 210	245	230	260	E A 250	280	300	310
24	320	330	280	E S 310	330	275	225	250	225	235	225	H 210	240	235	H 200	H 215	240	235	265	280	275	290	325	335
25	330	310	310	310	300	315	H 235	230	240	I A 225	210	I A 210	215	H 235	H 205	H 210	220	U S 235	245	290	260	285	280	E S 300
26	370	380	350	U F 410	415	330	260	260	230	220	210	H 200	H 200	230	225	225	H 215	255	A	A	290	270	255	A
27	260	285	290	310	320	295	275	245	215	210	205	210	220	I A 220	215	225	230	240	260	E A 270	275	280	275	E A 300
28	280	290	300	305	310	280	250	240	240	225	205	220	H 210	H 200	220	215	240	235	270	I A 270	270	265	275	315
29	275	280	280	280	275	285	250	250	A	A	A	A	245	I A 240	U A 235	220	220	H 240	250	280	U A 280	265	310	290
30	290	340	370	300	300	315	305	265	230	U A 225	E A 250	250	E A 230	H 235	235	230	E A 260	B	B	310	390	U S 550	U S 640	S
MED	285	290	290	290	290	280	250	240	230	220	210	210	220	220	220	220	230	235	250	275	280	280	280	E 300
NO	27	30	28	26	27	28	29	29	28	27	25	25	27	29	29	28	28	28	23	24	28	26	27	27
RAN																								

TABLE 81

IONOSPHERIC DATA

h'E, Km, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							119	111	I B 110	109	U B 109	105	105	103	U B 119	105	111	U B 115	109	119				
02						S 115	109		105	101	105	U B 109	U B 109	109	U B 111	109	105	H 111	U B 115	119				
03						125	U B 111	101	101	109	103	105	101	H 101	103	107	109	109	111	S				
04						A 115	109		101	101	101	I A 105	U B 109	105	109	105	109	109	111	119				
05						121	111	109	105	109	101	101	U B 103	105	105	109	105	109	109	U S 129				
06						119	109	109	101	109	101	105	109	109	109	105	101	111	111	125				
07						U A 111	109	109	101	U B 111	103	101	101	103	U B 105	101	105	U B 107	109	119				
08						115	111	U B 109	109	U B 109	U B 105	105	105	103	109	109	H 103	U B 115	115	U S 115				
09						U S 119	H 109	U B 109	101	U B 105	U B 109	109	H 109	105	101	101	109	109	B	115				
10						B	109	H 109	109	109	109	107	U B 109	U B 109	U B 109	103	109	109	U B 119	U B 125				
11						U S 121	111	U B 109	101	109	109	109	109	107	101	109	109	109	115	A				
12						U S 115	C	C	A	U A 103	103	103	109	105	109	103	109	H 109	111	109				
13						S	U B 111	109	H 101	101	101	101	101	U B 105	U B 105	U B 109	U B 109	U B 111	109	125				
14						S	109	U B 115	103	101	101	109	109	103	105	U S 115	U S 109	109	111	S				
15						S	111	U B 109	109	105	101	109	105	111	109	109	109	109	109	121				
16						S	111	H 105	109	105	101	109	109	105	107	H 105	109	109	111	119				
17						U S 129	113	111	105	101	103	103	101	105	109	109	109	H 109	109	121				
18						U S 141	111	109	U A 115	101	101	H 101	101	101	101	101	103	109	109	119				
19						U S 129	111	109	103	105	105	105	109	105	105	U A 105	103	109	109	121				
20						119	115	109	109	105	105	109	105	101	H 103	H 107	107	109	111	127				
21						A 115	109		105	105	105	A 109	109	A	103	101	107	109	U B 119	121				
22						111	H 109	109	105	U B 109	107	U B 109	109	109	105	H 105	H 109	111	H 111	121				
23						H 129	I A 120	111	109	109	109	109	I A 109	109	109	H 109	109	109	E A 119	A				
24						121	H 109	H 109	H 109	105	109	105	U B 109	109	109	109	109	111	U B 119	115				
25						B	111	109	109	109	109	105	109	105	103	105	103	109	109	121				
26						119	111	H 111	101	101	109	105	103	101	103	101	101	U B 109	111	115				
27						115	109	109	109	101	105	101	101	105	109	109	109	109	115	119				
28						H 121	H 115	109	109	109	107	109	109	105	H 109	109	109	119	U B 111	U B 115				
29						S	H 109	111	101	103	101	U B 107	U B 109	I A 109	109	105	109	111	111	119				
30						U B 125	H 109	109	109	105	A	A	105	105	109	105	109	B	B	135				
MED						121	111	109	105	105	105	105	109	105	108	105	109	109	111	119				
NO						19	29	29	29	30	29	29	30	29	30	30	30	29	27	26				
RAN																								

TABLE 82

IONOSPHERIC DATA

h'Es, Km, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	S	S	107	S	B	B	G	G	131	119	111	111	109	115	115	121	117	G	G	B	S	S	S	S
02	121	S	119	119	119	119	121	115	109	109	115	109	111	111	109	109	111	G	135	117	115	115	S	109
03	S	S	B	B	B	B	B	129	101	G	115	109	G	G	G	G	G	129	119	109	121	S	S	119
04	S	S	B	S	109	119	125	119	109	109	109	105	105	105	109	G	G	G	G	G	S	129	129	S
05	119	111	105	111	S	G	119	125	111	115	115	105	109	111	109	111	111	125	G	B	B	B	B	S
06	B	S	S	S	S	B	G	G	G	119	109	G	G	119	129	119	115	119	G	129	B	S	B	B
07	B	119	S	S	S	111	G	G	G	G	G	101	G	G	129	119	121	119	119	G	S	S	S	S
08	115	109	S	S	S	G	G	G	115	119	G	G	G	G	G	G	121	121	119	109	111	115	119	119
09	117	S	109	119	115	111	109	119	109	111	109	G	127	135	G	G	G	119	115	109	109	109	109	S
10	S	S	S	S	119	121	115	119	109	109	119	G	G	G	G	139	G	G	119	119	111	109	109	S
11	109	109	S	S	S	119	119	119	117	115	119	115	121	G	G	G	G	G	119	111	109	S	107	109
12	117	B	115	105	103	G	C	C	103	131	G	115	105	G	G	G	G	G	119	G	S	S	S	S
13	S	S	121	119	115	111	117	G	G	G	139	125	109	141	169	G	G	G	150	119	S	S	S	S
14	S	S	S	119	119	119	119	129	109	121	121	119	115	111	111	119	119	145	115	113	S	S	S	B
15	119	S	S	S	117	121	121	115	G	129	121	121	117	111	G	129	129	125	131	125	S	S	S	S
16	S	S	S	S	S	129	G	111	129	119	119	115	111	111	111	119	111	121	115	111	109	115		S
17		S	S	109	109	101	129	125	121	101	109	111	111	115	119	G	G	G	119	121	S	S	S	S
18	S	S	S	S	S	G	151	119	115	139	121	111	121	111	109	G	H 129	G	131	111	S	111	S	S
19	S	S	S	S		G	151	123	111	H 109	109	109	109	109	119	121	G	G	G	121	115	111	109	S
20	S	S	119	111	S	G	115	111	111	111	111	111	109	101	G	135	G	121	117	129	111	109	109	109
21	S	121	S	S	109	119	119	115	G	109	109	109	109	109	109	111	109	G 127	125	119	111	109	109	
22	S	S	S	S	109	G	131	129	111	111	121	109	G	121	G	109	129	G	G 139	115	111	S	S	
23	S	S	S	S	S	G	115	119	125	109	109	103	105	G	109	105	115	G	105	105	105	109	S	S
24	S	S	S	S	S	G	G	G	111	111	119	115	109	109	G	139	121	119	119	111	125	S	S	S
25	S	S	S	S	S	G	G	G	115	109	109	109	G	G	G	G	G	G	119	G	S	S	S	S
26	S	S	S	S	S	G	G	G	119	119	109	G	G	119	G	G	G	G	129	115	109	109	S	109
27	S	105	S	S	S	131	131	129	121	119	119	111	109	105	109	G	G	G	115	111	119	109	109	109
28	S	109	S	S	S	G	135	131	119	121	111	119	111	G	G	G	111	125	119	109	111	111	111	109
29	109	109	111	S	S	135	G	121	109	115	109	109	109	109	109	109	G	G 135			111	109	109	
30	S	S	S	S	S		141	109	109	105	103	109	105	109	115	129	121	B	B	G	S	195	S	149
MED	117	109	113	115	115	119	121	119	111	115	111	111	109	111	111	119	118	121	119	114	111	111	109	109
NO	8	8	8	8	11	14	19	21	25	27	27	25	22	21	17	17	16	12	23	22	16	17	11	11
RAN																								

TABLE 83

IONOSPHERIC DATA

(M3000)F2, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	265	265	280	270	F 280	275	300	290	285	260	260	260	265	270	265	265	265	270	270	270	270	270	265	270
02	260	260	265	275	275	285	305	V 280	285	265	265	270	265	265	265	260	270	270	270	280	275	275	270	265
03	265	250	260	260	260	270	285	H 290	240	260	245	250	250	230	245	240	250	270	260	245	260	255	255	F 260
04	250	265	U S 245	240	U S 240	260	270	R	F 250	230	230	A	A	235	240	245	245	260	270	265	275	U S 270	U S 265	240
05	240	240	245	250	F 265	265	270	245	255	245	245	220	235	230	235	250	255	255	U S 260	265	245	260	U S 255	245
06	245	F 270	U S 260	230	230	F 265	255	250	F 250	G	210	G	R	230	230	235	U S 235	250	260	260	250	250	U S 250	245
07	260	280	265	270	265	285	F 270	270	265	255	245	240	245	240	240	245	265	265	275	270	270	260	260	255
08	255	265	250	265	270	275	290	280	250	230	245	240	230	240	240	240	245	255	260	260	260	255	F 260	265
09	F 270	F 270	F 270	F 270	F 265	280	280	285	270	265	270	265	260	265	255	255	265	270	280	280	275	F 280	F 280	F 270
10	F 265	U F 265	F 270	F 275	270	285	295	290	260	275	265	265	260	255	255	260	255	265	270	270	275	270	270	275
11	275	255	260	265	U S 265	280	295	275	300	275	265	270	260	260	260	255	260	265	270	270	275	265	265	270
12	265	265	260	270	275	280	C	C	280	U S 290	265	260	265	245	260	260	255	265	U R 260	265	270	265	265	260
13	260	265	250	255	265	290	U S 260	250	260	245	260	U S 245	250	U S 250	250	250	260	260	275	270	U S 265	275	U S 265	U S 260
14	260	270	265	265	260	280	270	275	275	265	245	255	250	260	255	255	250	260	275	280	260	260	260	255
15	260	260	240	250	260	275	260	270	265	255	250	230	235	235	240	230	240	240	235	260	255	255	260	260
16	255	260	250	265	260	280	235	270	260	250	250	250	240	260	250	240	U S 255	260	265	U A 275	260	270	260	250
17	255	255	240	260	265	280	280	265	250	230	240	245	235	245	240	245	250	245	265	260	260	255	250	245
18	250	F 240	240	U S 260	250	265	255	235	230	220	230	220	215	230	235	240	230	260	250	260	260	250	250	235
19	245	255	255	250	245	260	290	250	225	F 240	215	230	240	235	235	245	250	245	260	265	F 265	F 260	255	265
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21	250	245	245	235	245	260	270	250	240	H 260	230	235	230	245	240	245	250	240	270	265	F 260	F 260	U S 260	255
22	260	U S 255	250	260	260	250	250	255	H 260	230	H 235	210	220	230	230	240	240	250	260	255	260	250	255	F 260
23	F 265	F 260	F 260	F 280	F 280	F 270	280	250	270	260	260	260	260	250	260	255	255	255	265	265	280	260	245	245
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25	245	245	240	245	255	260	250	260	265	260	250	270	260	265	240	250	240	250	265	280	265	255	U F 260	F 240
26	U F 240	F 235	U F 260	U F 230	U F 250	U F 260	U F 295	G	G	G	G	G	G	235	230	230	250	240	260	260	270	275	255	260
27	235	270	F 260	F 260	F 255	280	280	300	230	250	250	H 230	250	260	270	250	260	270	275	270	270	270	F 270	U F 260
28	F 265	F 265	F 260	F 265	F 260	F 270	F 300	U F 315	280	275	270	265	260	285	260	265	265	280	280	275	275	270	F 270	F 275
29	280	270	260	F 270	270	280	280	265	270	260	265	270	245	255	250	255	270	265	265	270	280	275	270	260
30	260	F 240	230	F 260	F 260	270	U F 270	225	G	G	G	G	G	G	G	205	230	U F 215	B	U F 300	F 240	U S 230	U S 205	S
MEQ	260	260	260	260	260	270	270	265	260	250	245	245	245	245	240	250	250	260	265	270	265	260	260	260
NO	30	30	30	30	30	30	29	28	30	30	30	29	28	30	30	30	30	30	29	30	30	30	30	29
RAN																								

TABLE 84

IONOSPHERIC DATA

(M3000)F1, June 1957 — 75.0W Mean Time

Station WASHINGTON — Lat. 38.7N — Long. 77.1W — Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. — Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L	L 350		L	340	U R 350	U A 355	H 340	340	H 335	H 345	L	L					
02								L 315	A 330	L 345	A	A	H 340	H 345		A 340		L	L					
03								L 340	360	370	U H 360	350	365	365	370	360	U L 330	L	A					
04							L	U R 340	345	360	A	A	A	U R 370	H 340	350	340	325	L					
05							L	345	350	365	380	A	H 375	U R 370	U R 370	H 360	A	H 350	L	L				
06							310	H 330	360	370	380	350	370	370	385	F 380	360	350	320	L				
07							330	H 330	335	H 360	370	360	U R 370	370	H 375	H 370	335	350	L	L				
08							L	330	U R 325	H 360	U R 365	360	U R 365	U R 370	370	360	365	H 360	L	L				
09							A	L	H 340	320	A	350	R	350	H 330	H 340	335	L	L	A				
10								L	L	L	H 345	H 330	H 350	H 320	H 330	H 310	335	L	L	L				
11							L	L	H 365	H 335	335	H 325	H 325	H 350	325	H 310	345	330	A	A				
12									U H 345	L	H 315	350	360	U R 355	340	325	H 350	H 315	L					
13							320	H 325	H 345	U H 360	H 330	H 340	H 340	H 370	U S 330	H 320	H 350	335	L	L				
14							310	325	340	350	U R 360	U R 355	U R 355	360	U R 350	350	345	H 315	L	L				
15							L	L	U R 335	U H 330	360	H 365	U R 375	350	U R 350	H 345	U R 360	310	315	L				
16							L	330	335	H 350	H 345	H 350	A 340	U R 345	H 360	U H 320	A	350	A	A				
17							L	L	U H 340	345	A	U A 345	U R 350	U R 350	H 350	350	H 350	H 340	L	L				
18							L	340	345	350	380	370	U R 360	350	U R 370	360	U S 350	330	320	L				
19							L	360	360	F 350	H 380	350	360	A	355	H 340	H 340	330	U L 330	L				
20							L	310	335	H 365	H 375	350	360	A	H 360	H 360	335	350	L	L				
21							L	U R 360	U H 335	325	375	H 370	350	U R 350	360	360	U R 330	H 340	H 320	L				
22							310	330	H 340	370	360	A	H 385	380	370	H 335	360	340	320	L				
23							330	330	340	360	365	380	U A 370	H 360	H 360	H 370	340	U R 340	L	L				
24						L	U L 320	340	360	360	350	H 360	350	365	380	H 360	340	L	L	L				
25							U H 320	350	360	A	H 350	H 335	H 365	H 320	H 340	H 330	330	L	L					
26							F 340	320	370	370	380	H 370	H 360	350	350	360	H 335	315	L	A				
27						L	315	330	350	360	380	H 355	360	355	340	320	345	340	L	L				
28							L	L	L	L	345	L	H 330	H 370	H 340	325	335	345	L	A				
29							L	320	340	H 330	350	A	350	A	320	340	340	U H 330	U L 335	L				
30							L	U R 335	360	H 365	360	H 365	385	H 380	370	360	350	B	B					
MED							320	330	345	360	360	350	360	355	350	350	340	340	320					
NO							10	20	27	24	26	24	28	27	30	29	28	23	7					
RAN																								

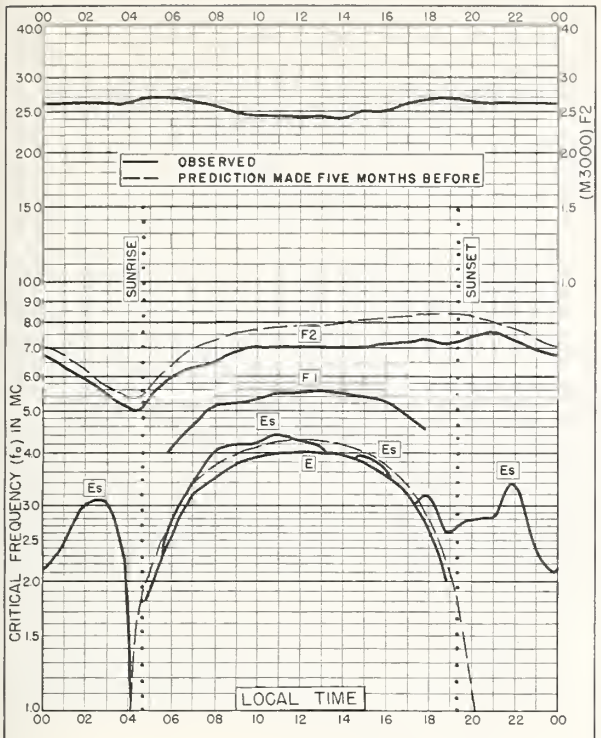


Fig. 1. WASHINGTON, D.C.
38.7°N, 77.1° W JUNE 1957

NBS 503

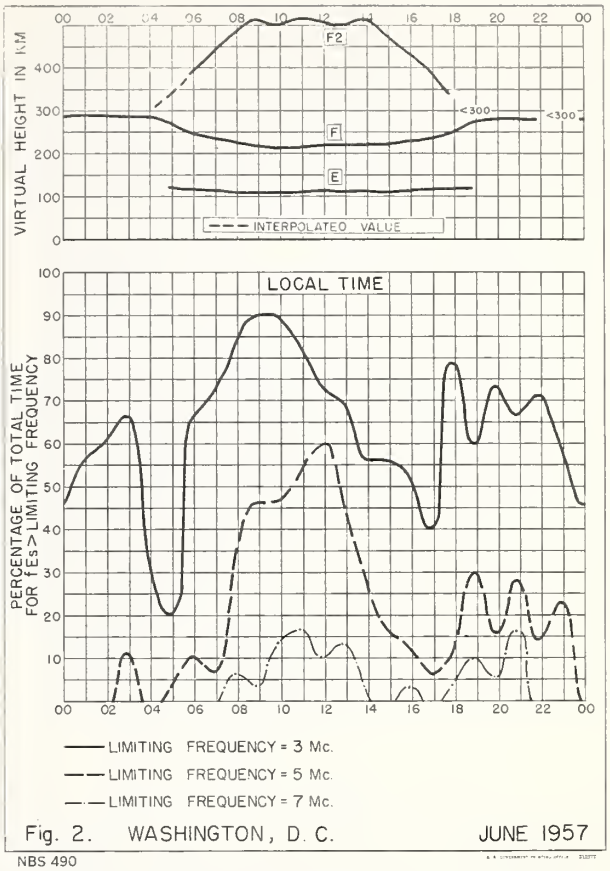


Fig. 2. WASHINGTON, D. C. JUNE 1957

NBS 490

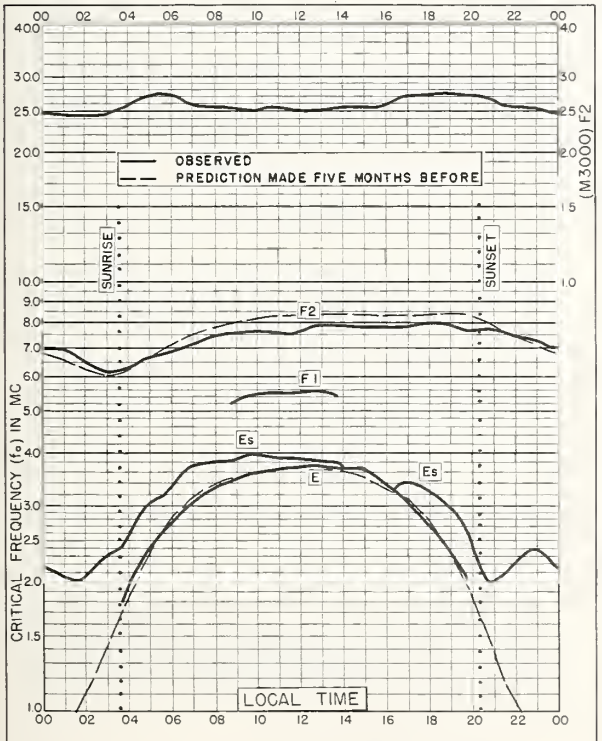


Fig. 3. OSLO, NORWAY
60.0°N, 11.1° E MAY 1957

NBS 503

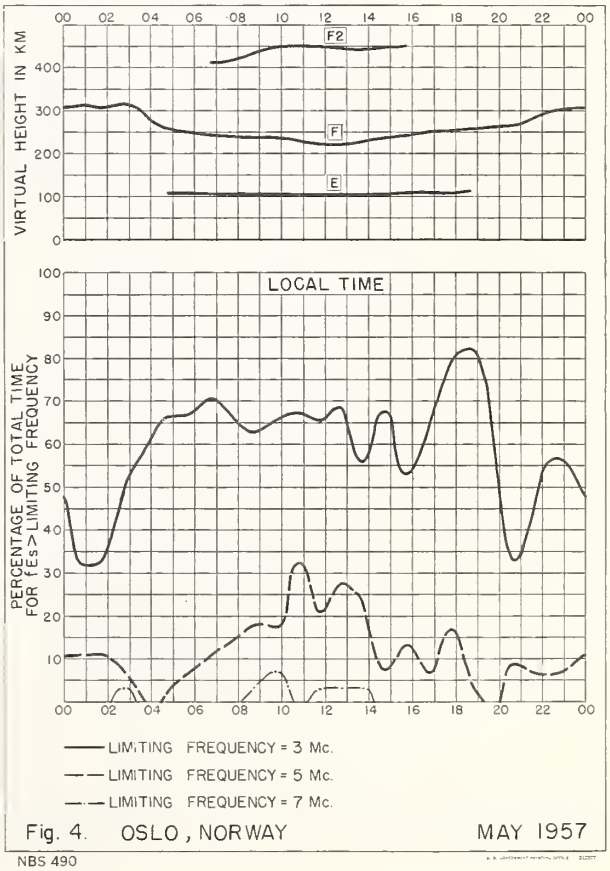


Fig. 4. OSLO, NORWAY MAY 1957

NBS 490

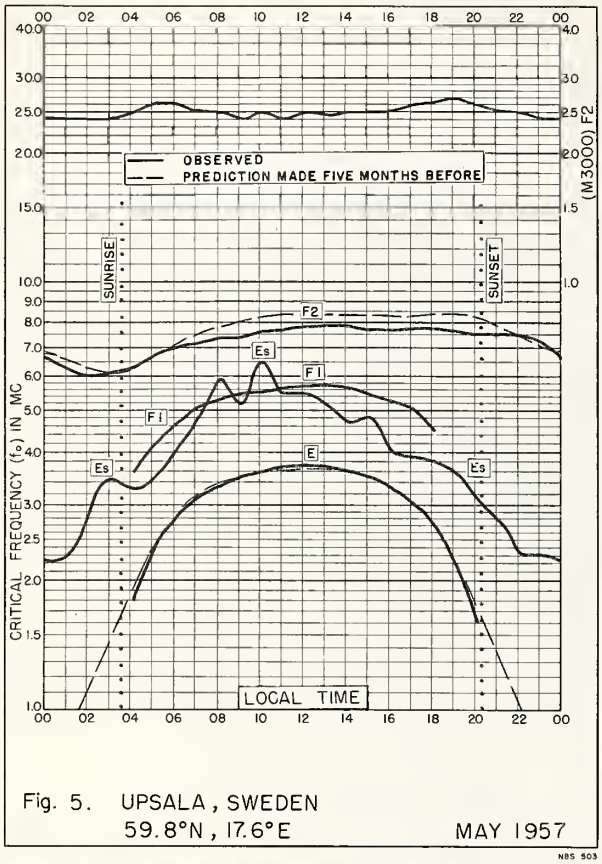


Fig. 5. UPSALA, SWEDEN
59.8°N, 17.6°E MAY 1957

NBS 503

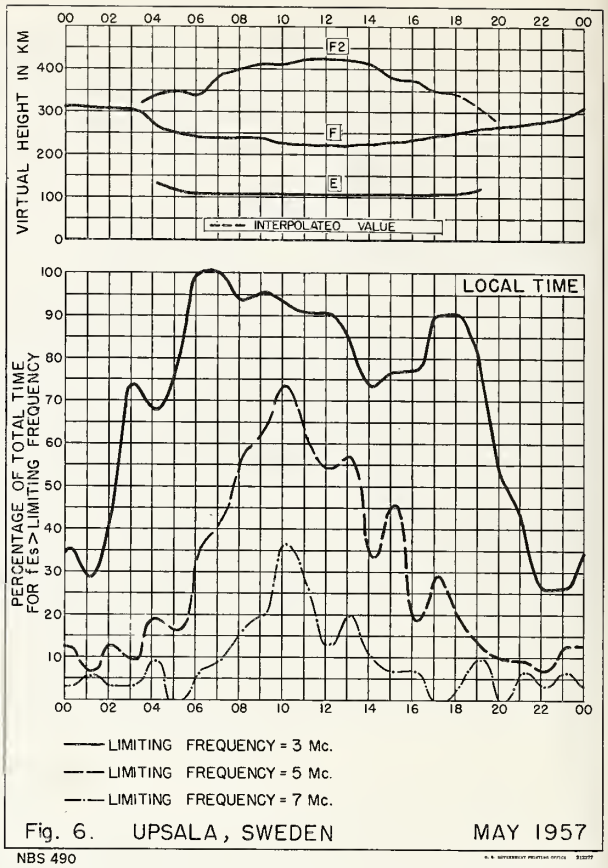


Fig. 6. UPSALA, SWEDEN MAY 1957

NBS 490

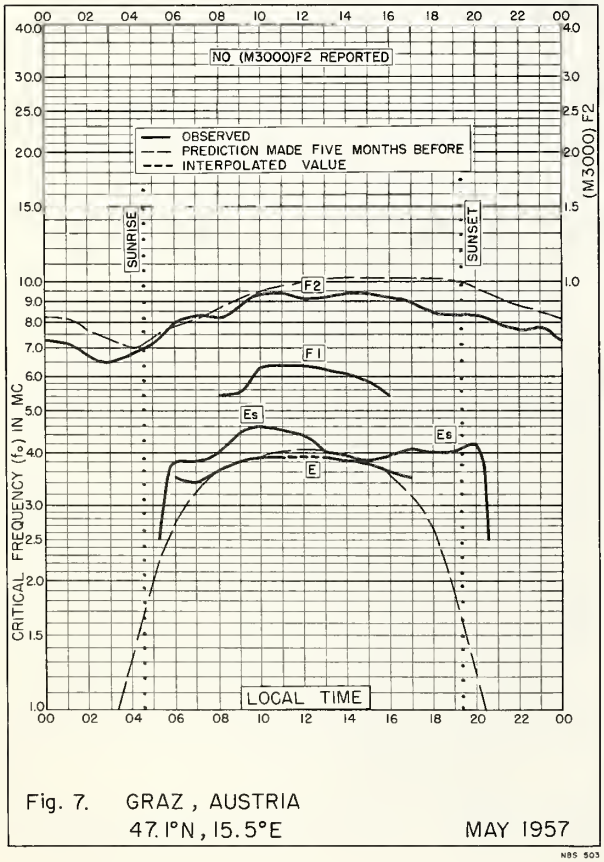


Fig. 7. GRAZ, AUSTRIA
47.1°N, 15.5°E MAY 1957

NBS 503

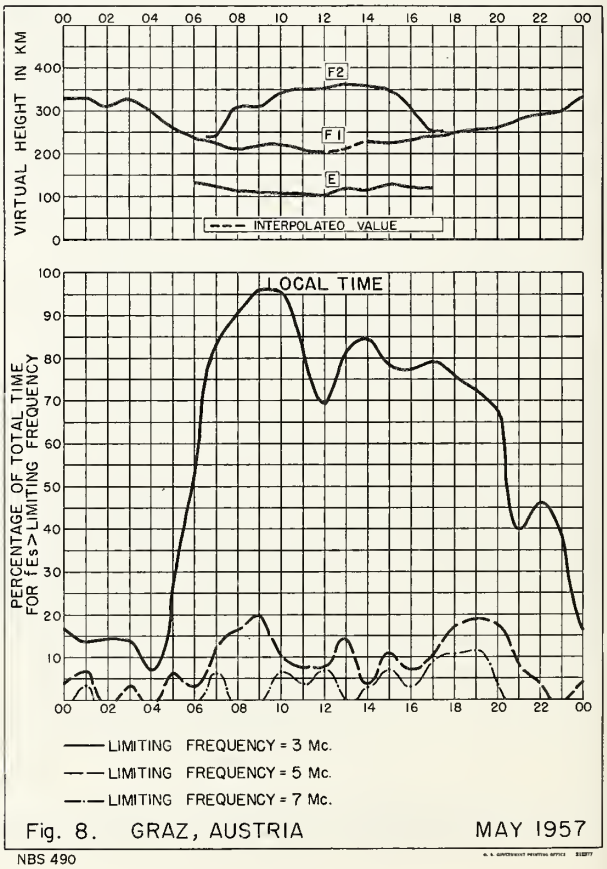


Fig. 8. GRAZ, AUSTRIA MAY 1957

NBS 490

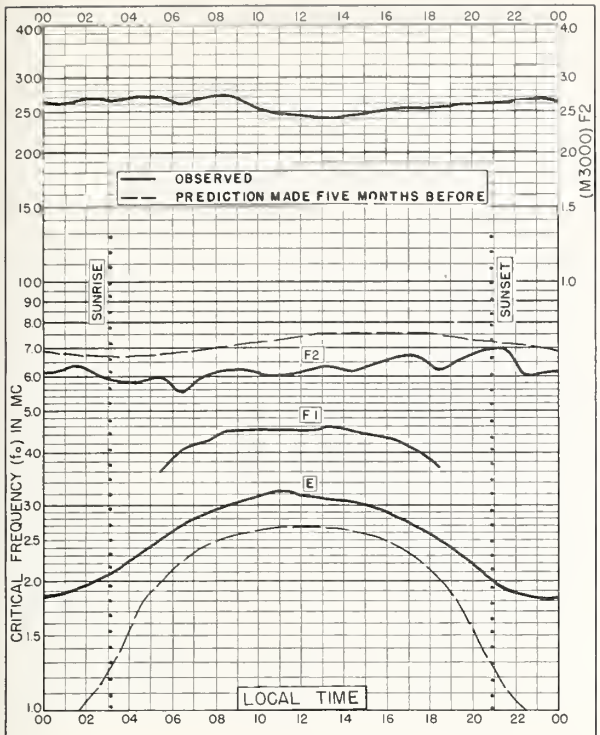


Fig. 9. THULE, GREENLAND
76.6°N, 68.7°W APRIL 1957

NBS 503

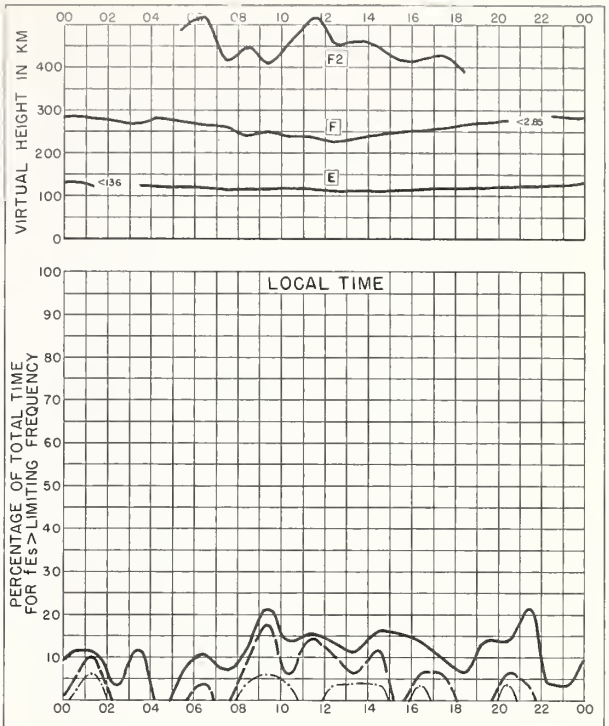


Fig. 10. THULE, GREENLAND APRIL 1957

NBS 490

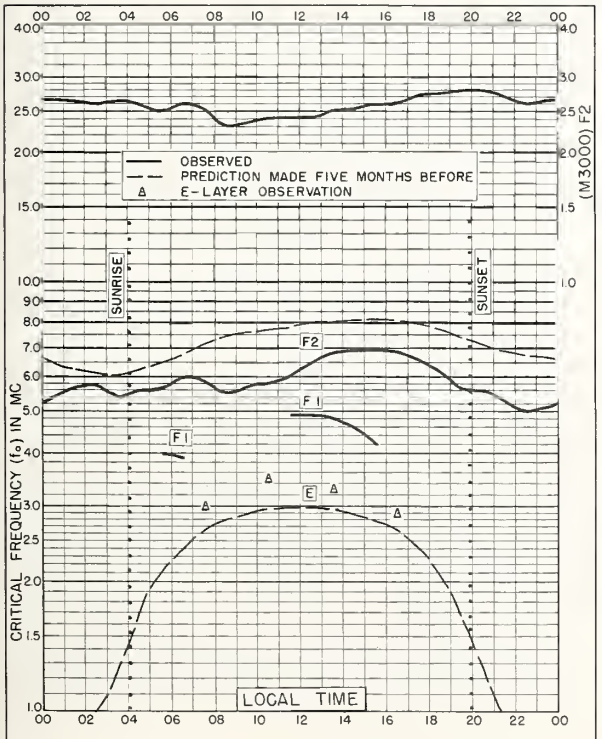


Fig. 11. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1957

NBS 503

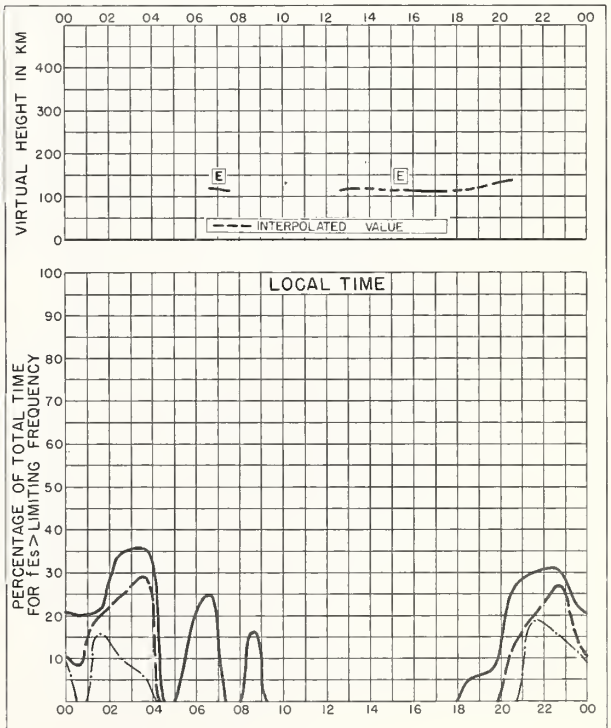


Fig. 12. POINT BARROW, ALASKA APRIL 1957

NBS 490

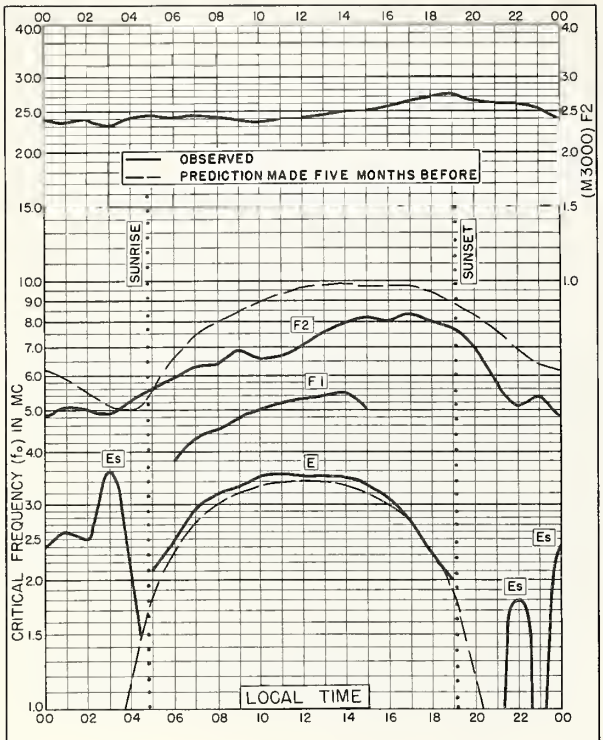


Fig. 13. ANCHORAGE, ALASKA
61.2°N, 149.9°W APRIL 1957

NBS 503

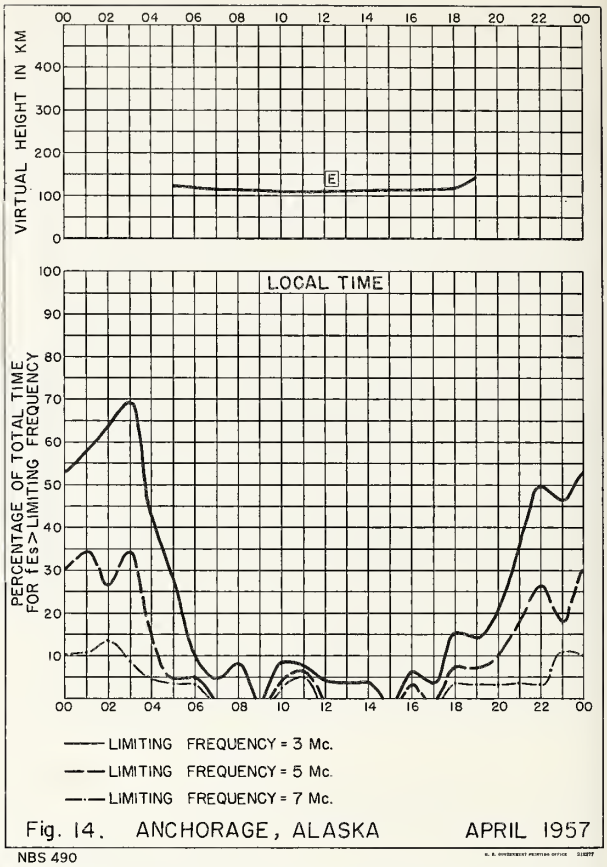


Fig. 14. ANCHORAGE, ALASKA APRIL 1957

NBS 490

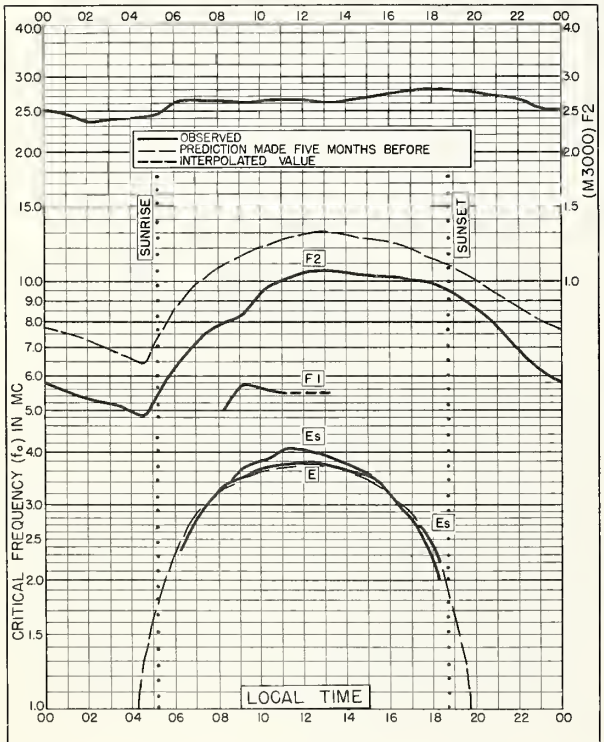


Fig. 15. ADAK, ALASKA
51.9°N, 176.6°W APRIL 1957

NBS 503

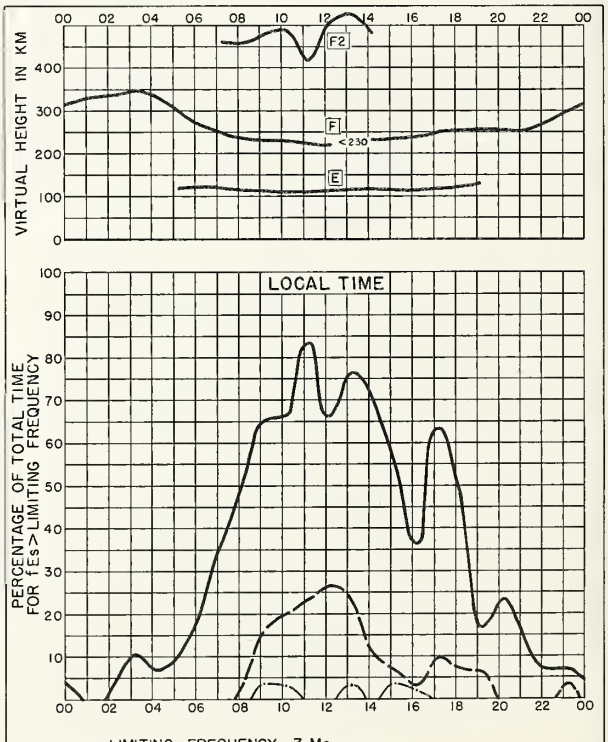


Fig. 16. ADAK, ALASKA APRIL 1957

NBS 490

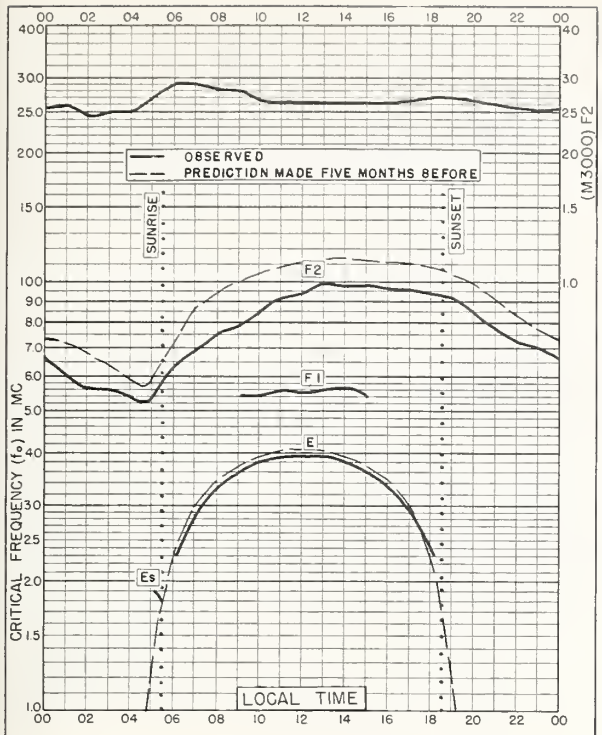


Fig. 17. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W APRIL 1957

NBS 503

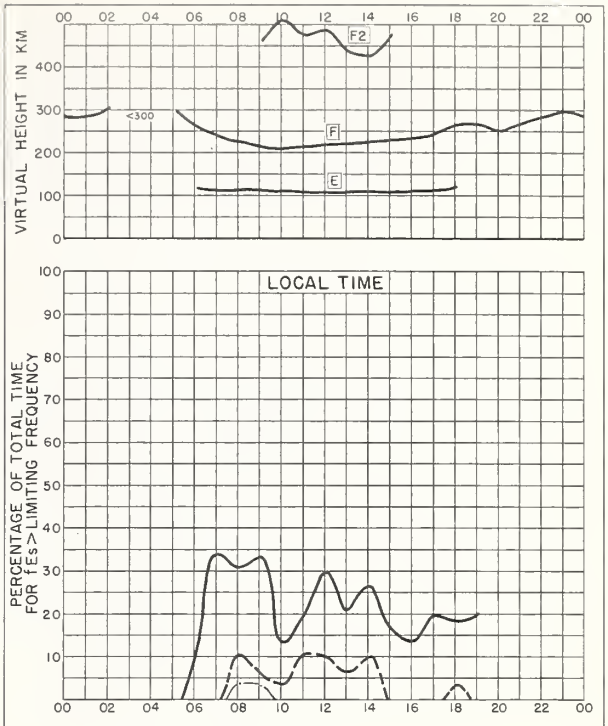


Fig. 18. FT. MONMOUTH, NEW JERSEY APRIL 1957

NBS 490

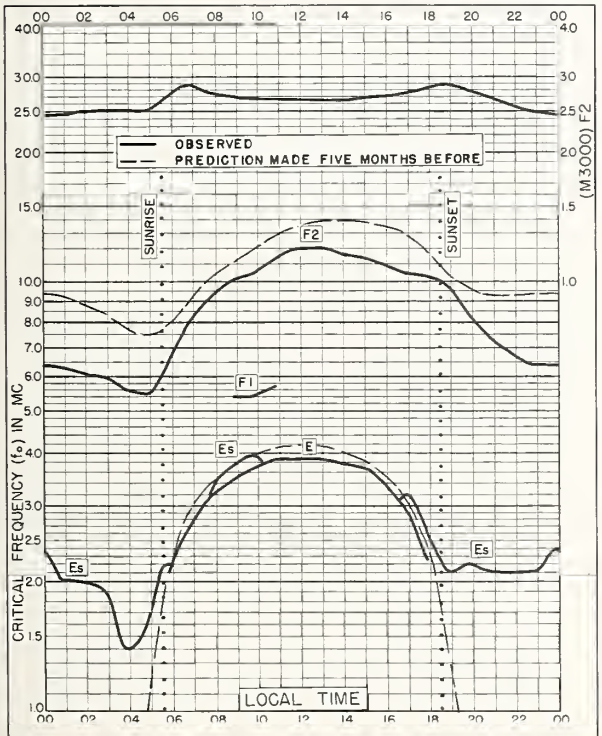


Fig. 19. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W APRIL 1957

NBS 503

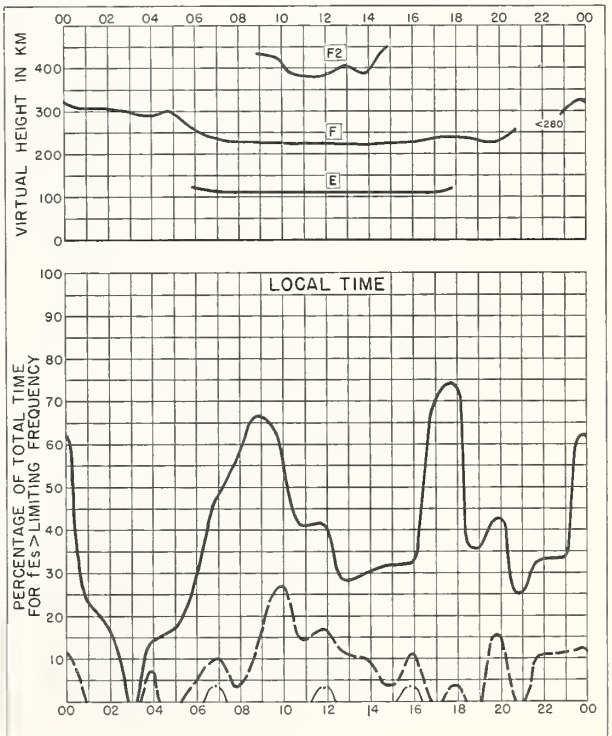


Fig. 20. SAN FRANCISCO, CALIFORNIA APRIL 1957

NBS 490

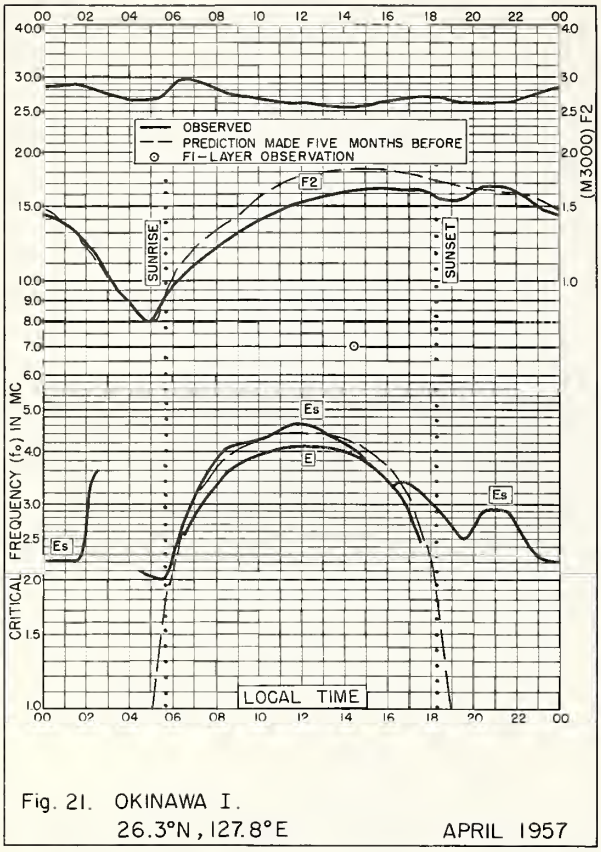


Fig. 21. OKINAWA I.
26.3°N, 127.8°E APRIL 1957

NBS 503

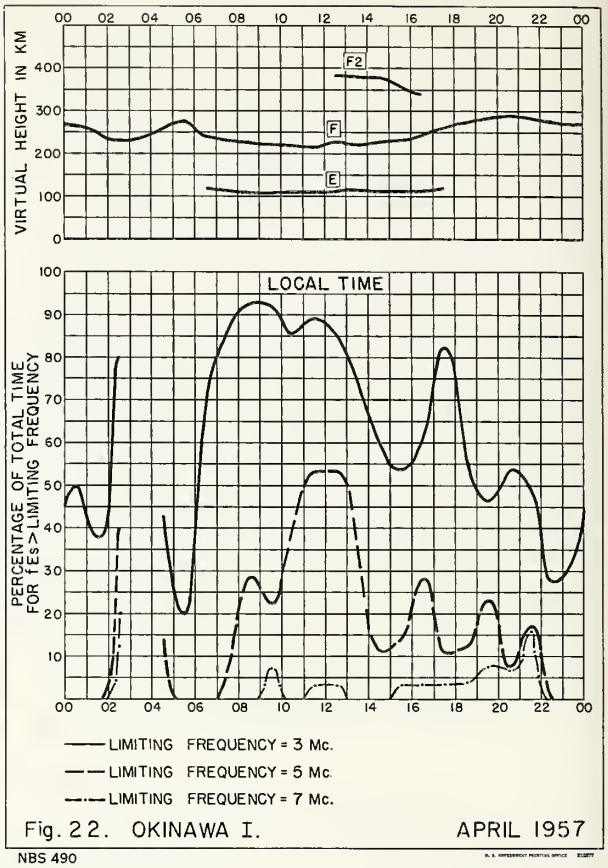


Fig. 22. OKINAWA I. APRIL 1957

NBS 490

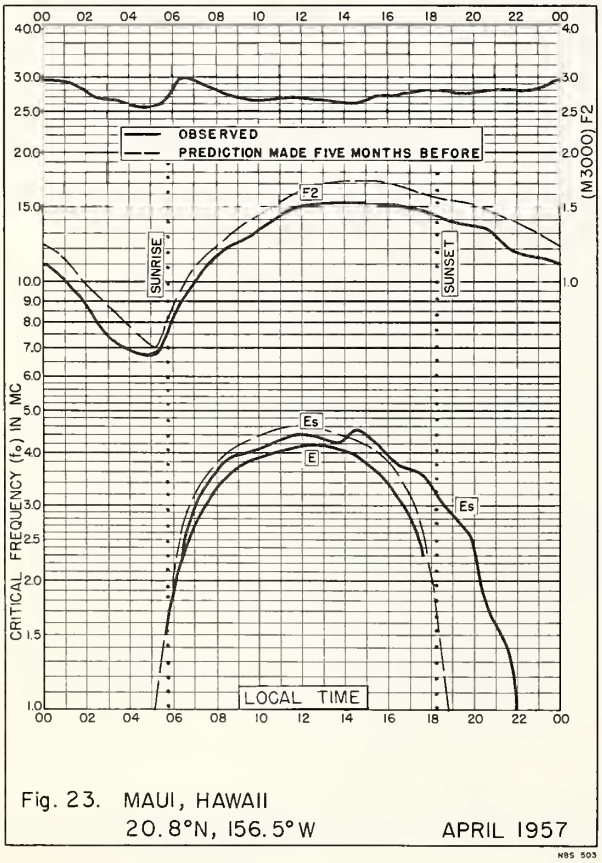


Fig. 23. MAUI, HAWAII
20.8°N, 156.5°W APRIL 1957

NBS 503

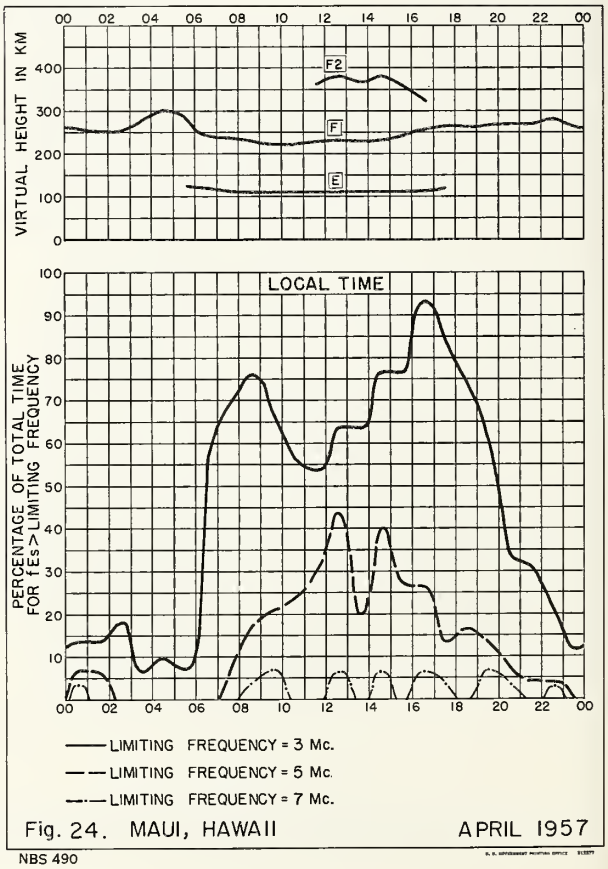


Fig. 24. MAUI, HAWAII APRIL 1957

NBS 490

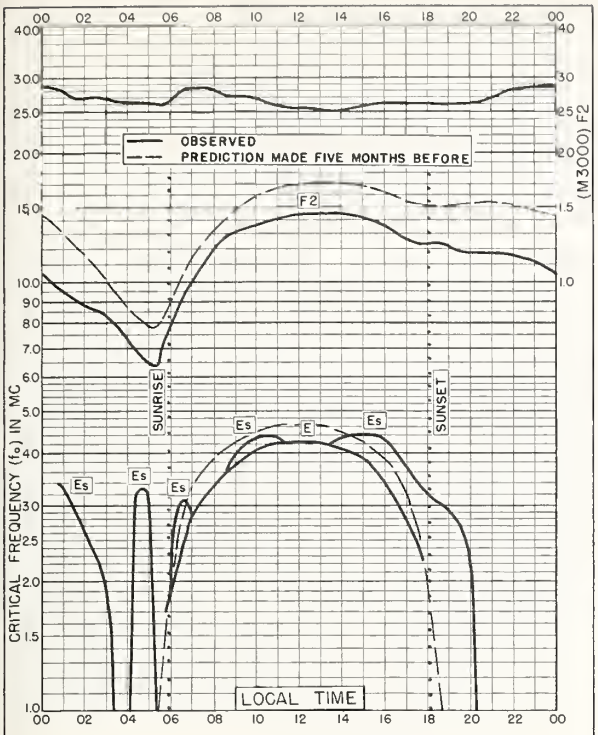


Fig. 25. PANAMA CANAL ZONE
9.4°N, 79.9°W APRIL 1957

NBS 503

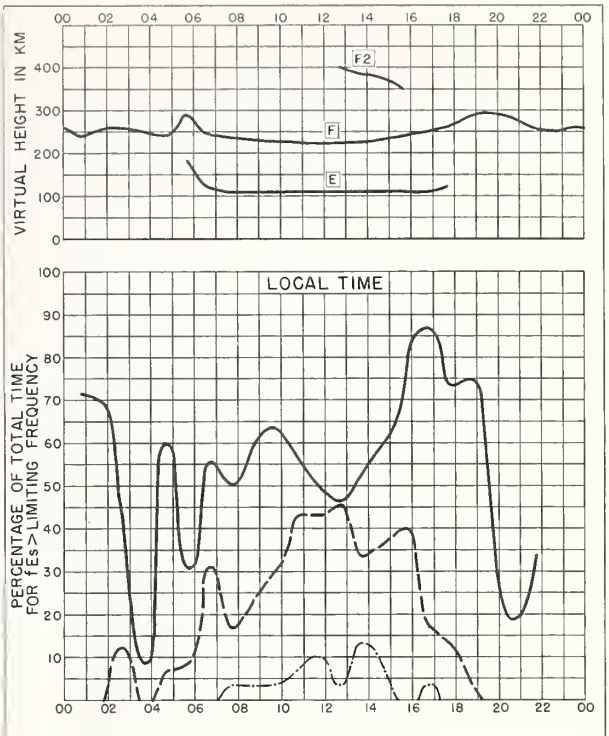


Fig. 26. PANAMA CANAL ZONE APRIL 1957

NBS 490

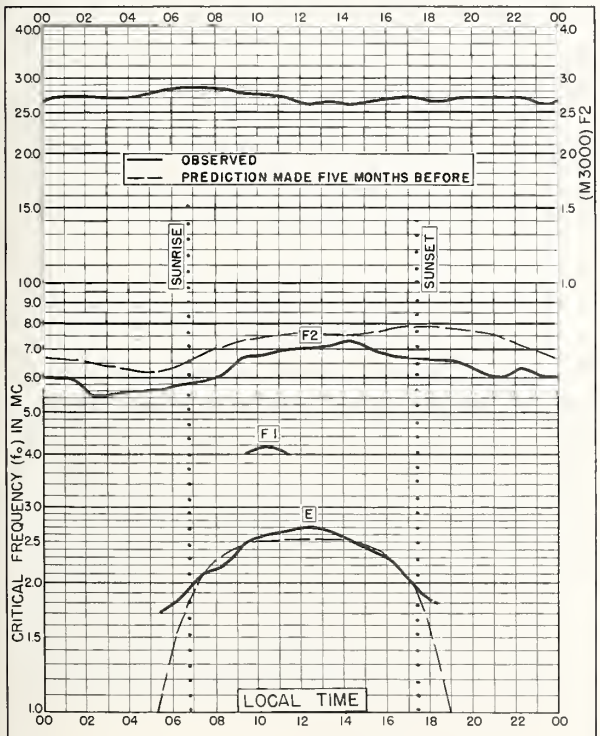


Fig. 27. THULE, GREENLAND
76.6°N, 68.7°W MARCH 1957

NBS 503

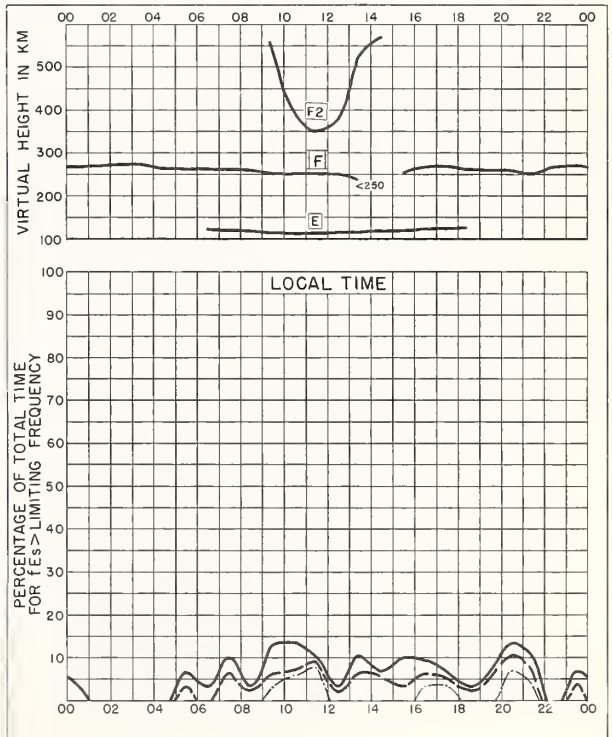


Fig. 28. THULE, GREENLAND MARCH 1957

NBS 490

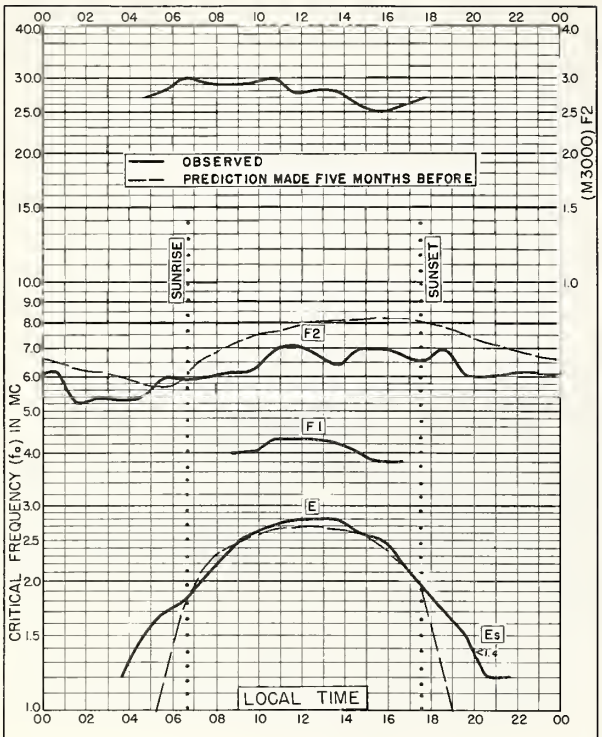


Fig. 29. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MARCH 1957

NBS 503

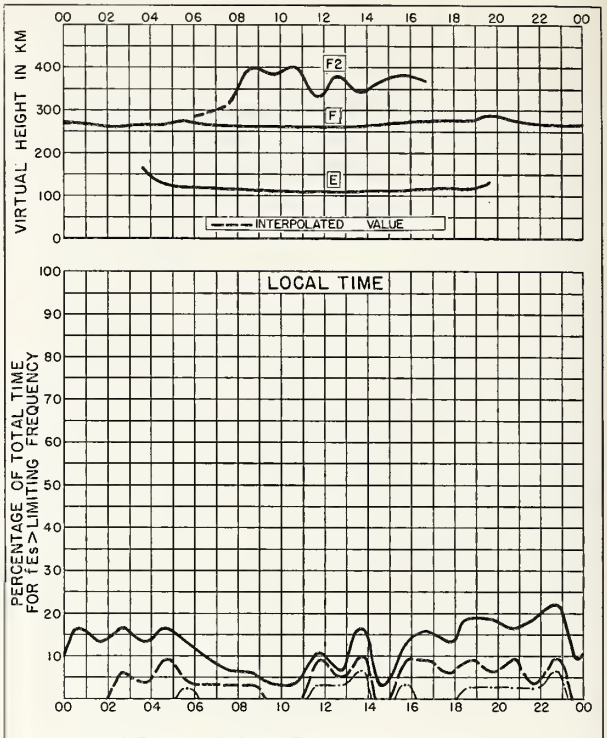


Fig. 30. RESOLUTE BAY, CANADA MARCH 1957

NBS 490

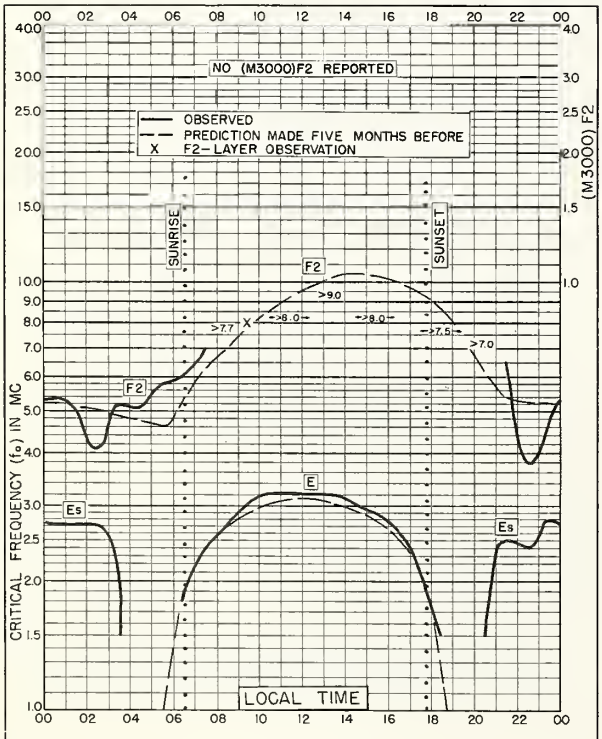


Fig. 31. LULEA, SWEDEN
65.6°N, 22.1°E MARCH 1957

NBS 503

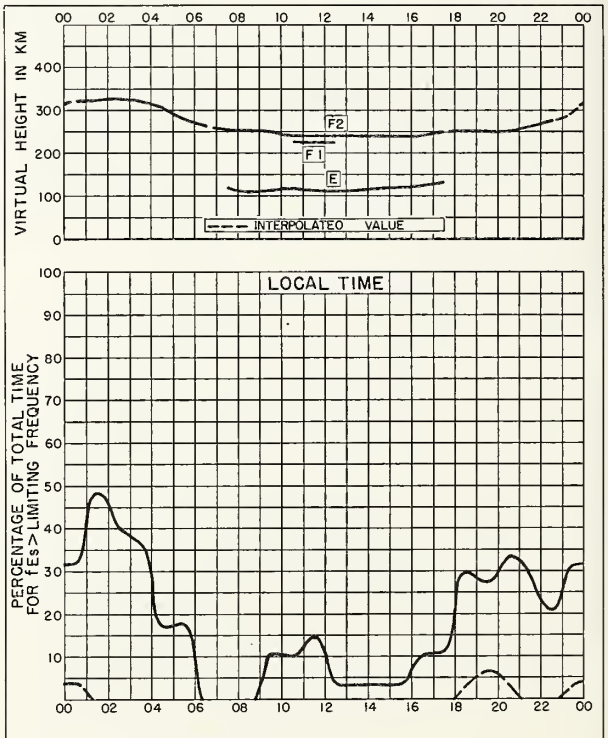


Fig. 32. LULEA, SWEDEN MARCH 1957

NBS 490

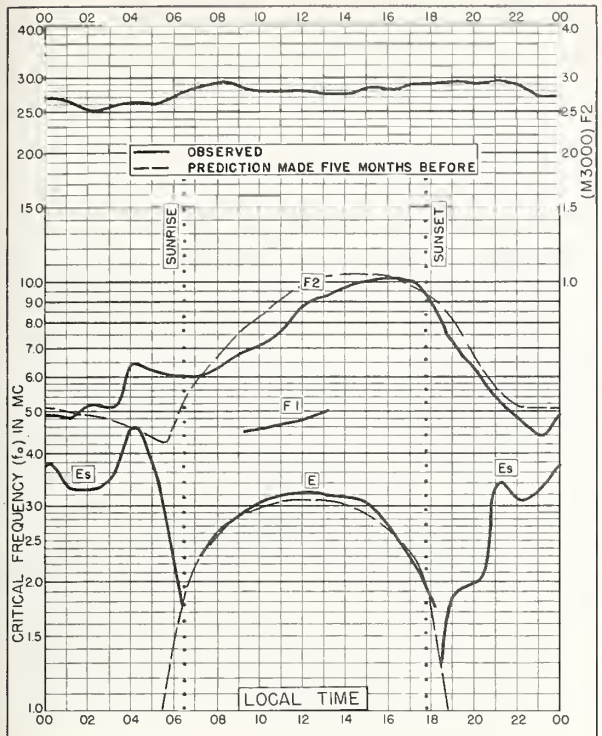


Fig. 33. FAIRBANKS, ALASKA
64.9°N, 147.8°W MARCH 1957

NBS 503

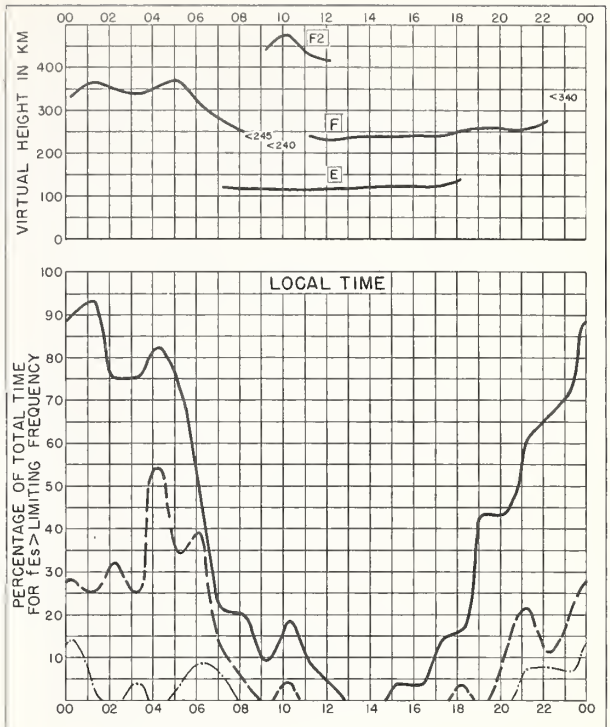


Fig. 34. FAIRBANKS, ALASKA MARCH 1957

NBS 490

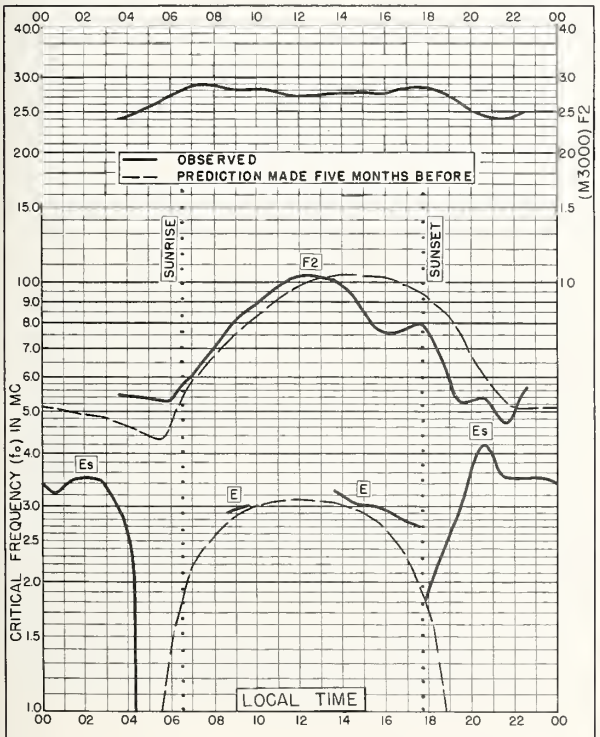


Fig.35. REYKJAVIK, ICELAND
64.1°N, 21.8°W MARCH 1957

NBS 503

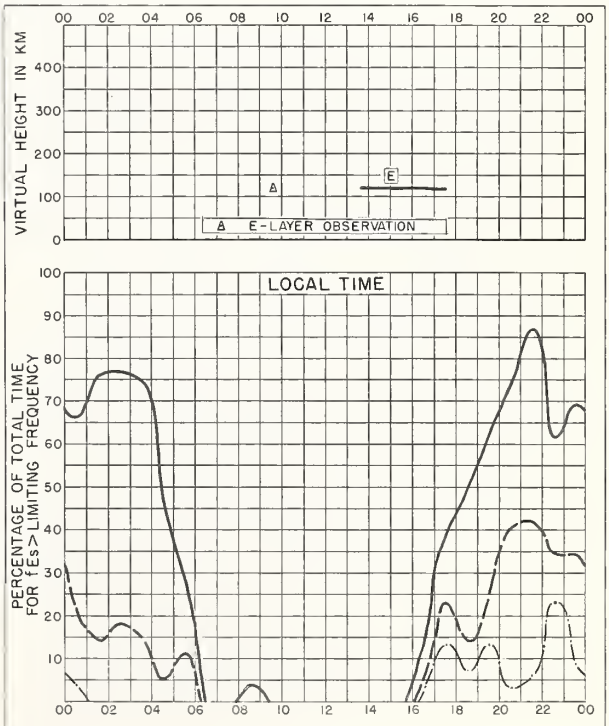


Fig. 36. REYKJAVIK, ICELAND MARCH 1957

NBS 490

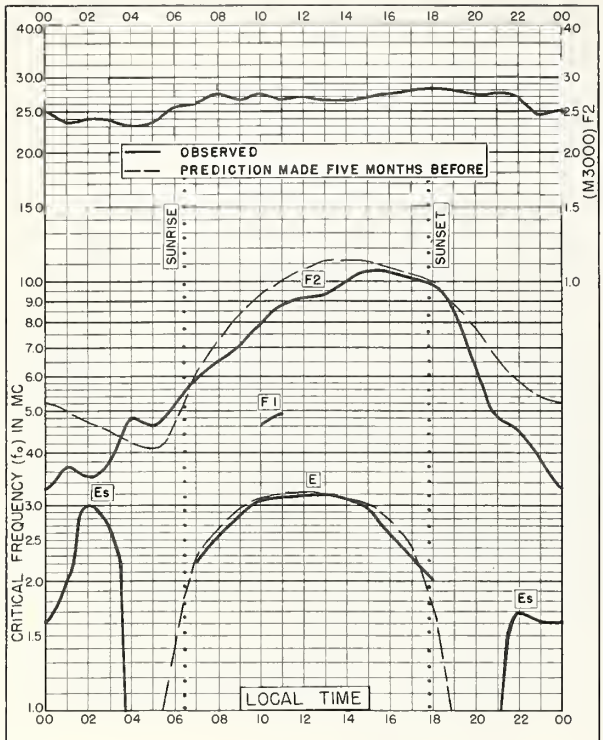


Fig. 37. ANCHORAGE, ALASKA
61.2°N, 149.9° W MARCH 1957

NBS 503

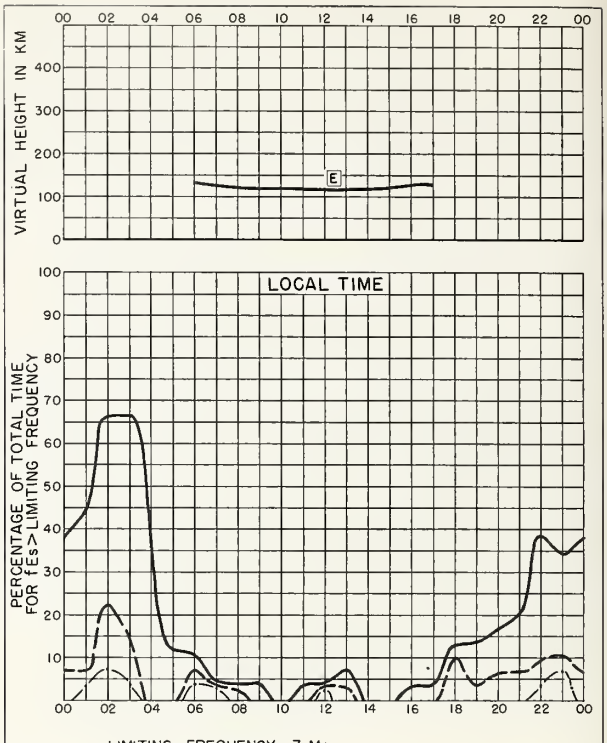


Fig. 38. ANCHORAGE, ALASKA MARCH 1957

NBS 490

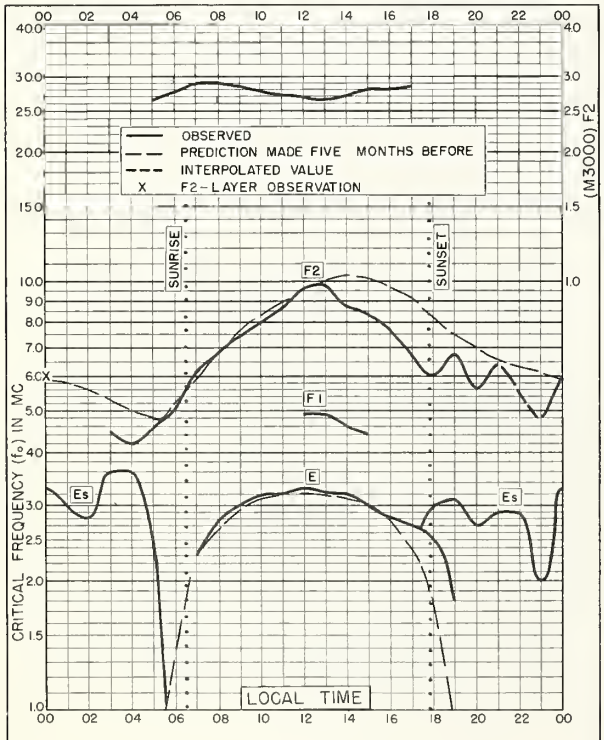


Fig. 39. NARSARSSUAK, GREENLAND
61.2°N, 45.4° W MARCH 1957

NBS 503

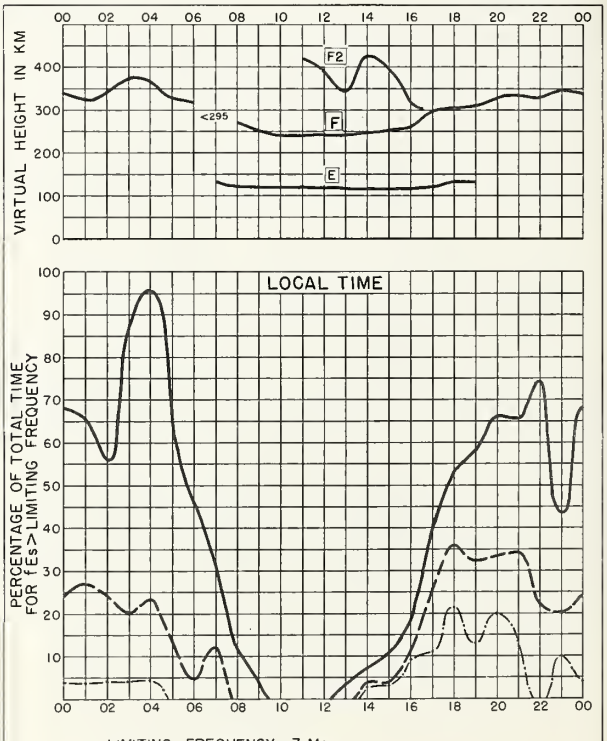


Fig. 40. NARSARSSUAK, GREENLAND MARCH 1957

NBS 490

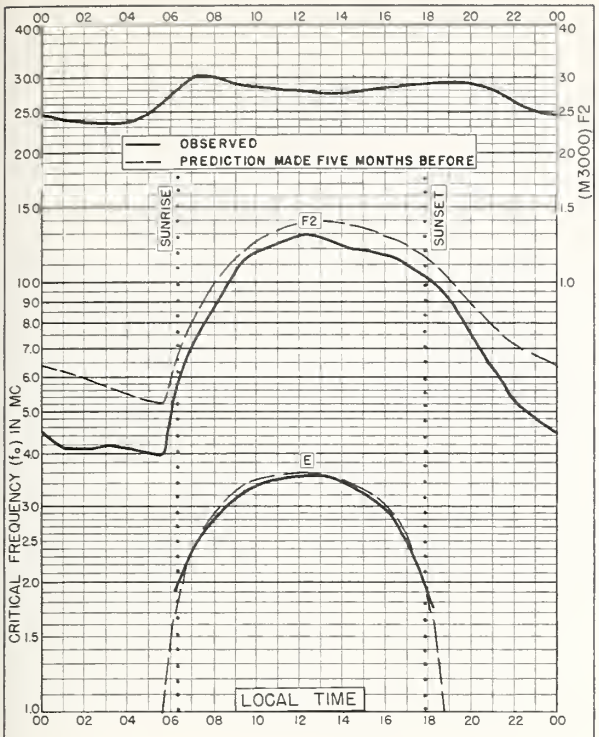


Fig. 41. ADAK, ALASKA
51.9°N, 176.6°W MARCH 1957

NBS 503

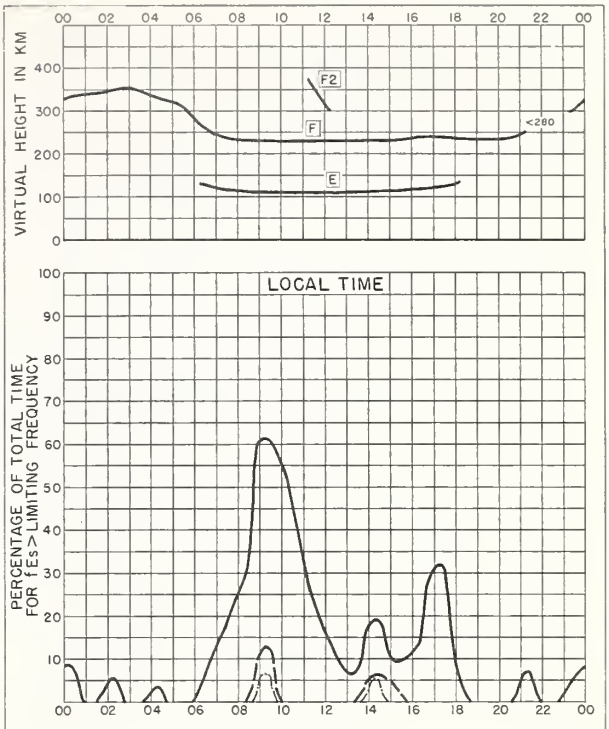


Fig. 42. ADAK, ALASKA MARCH 1957

NBS 490

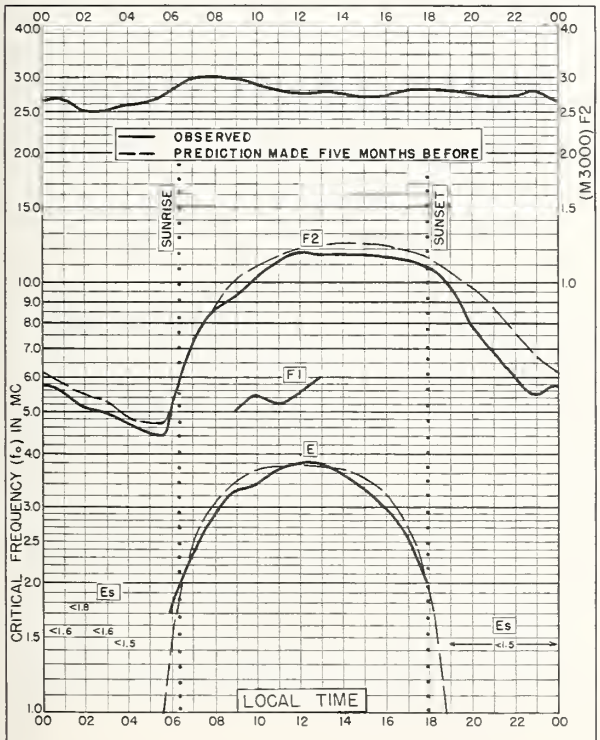


Fig. 43. OTTAWA, CANADA
45.4°N, 75.9°W MARCH 1957

NBS 503

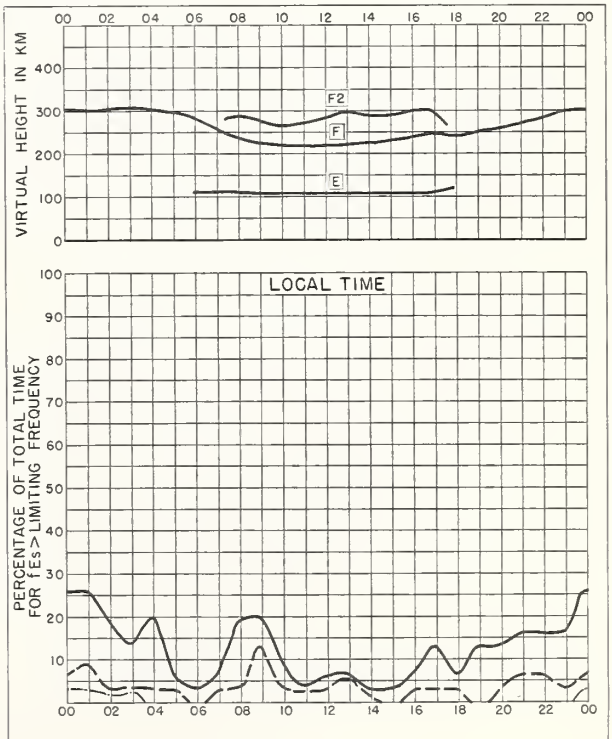


Fig. 44. OTTAWA, CANADA MARCH 1957

NBS 490

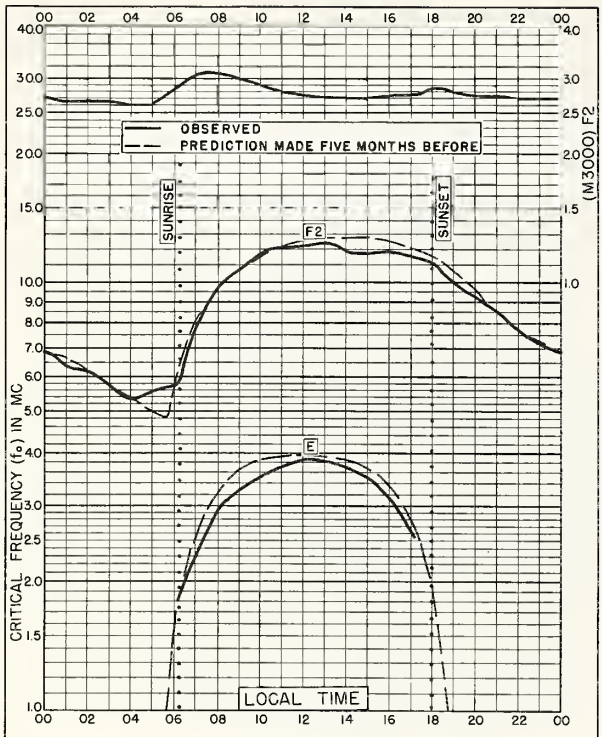
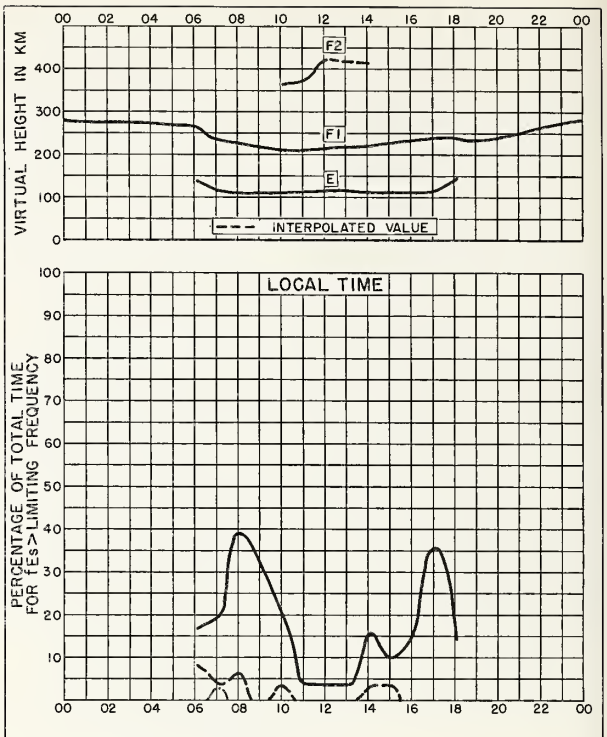


Fig. 45. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W MARCH 1957

NBS 503



MARCH 1957

Fig. 46. FT. MONMOUTH, NEW JERSEY

NBS 490

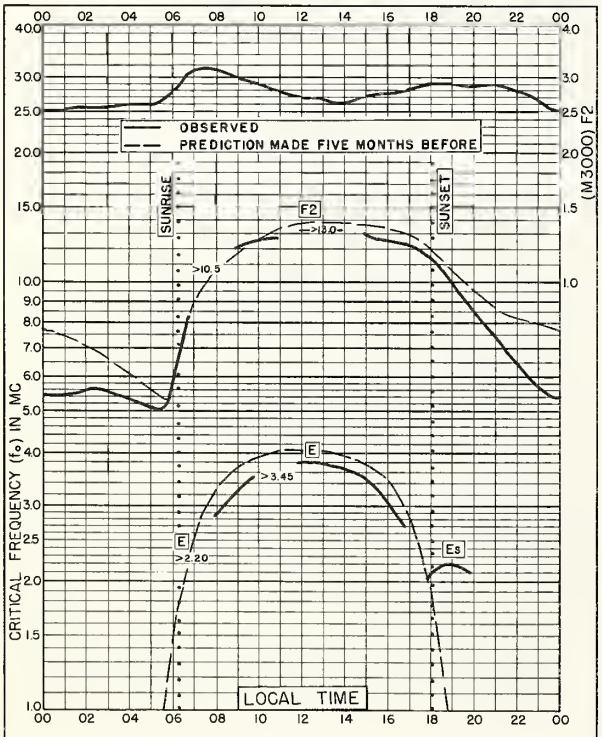
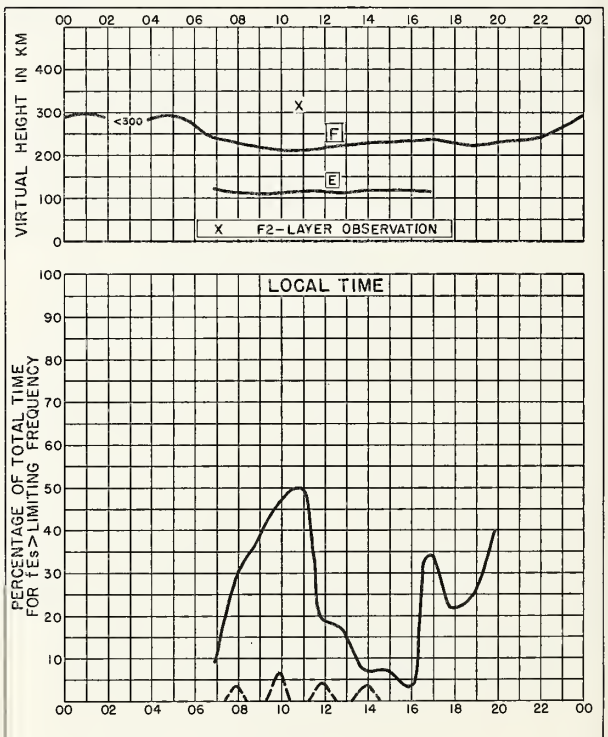


Fig. 47. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W MARCH 1957

NBS 503



MARCH 1957

Fig. 48. SAN FRANCISCO, CALIFORNIA

NBS 490

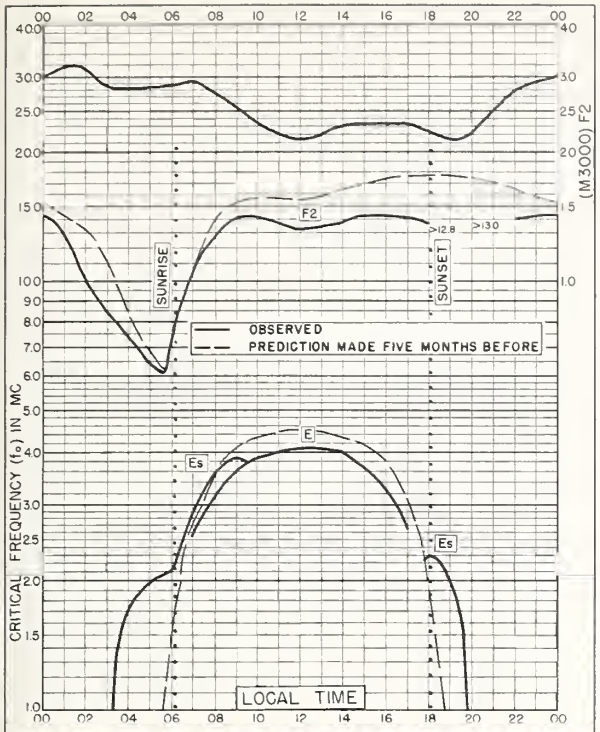


Fig. 49. BAGUIO, P.I.
16.4°N, 120.6°E MARCH 1957

NBS 503

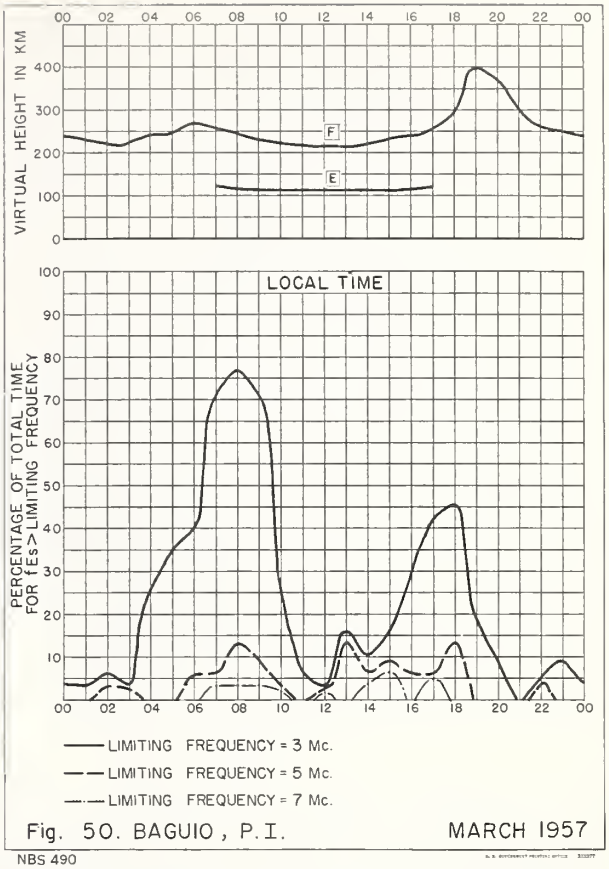


Fig. 50. BAGUIO, P.I. MARCH 1957

NBS 490

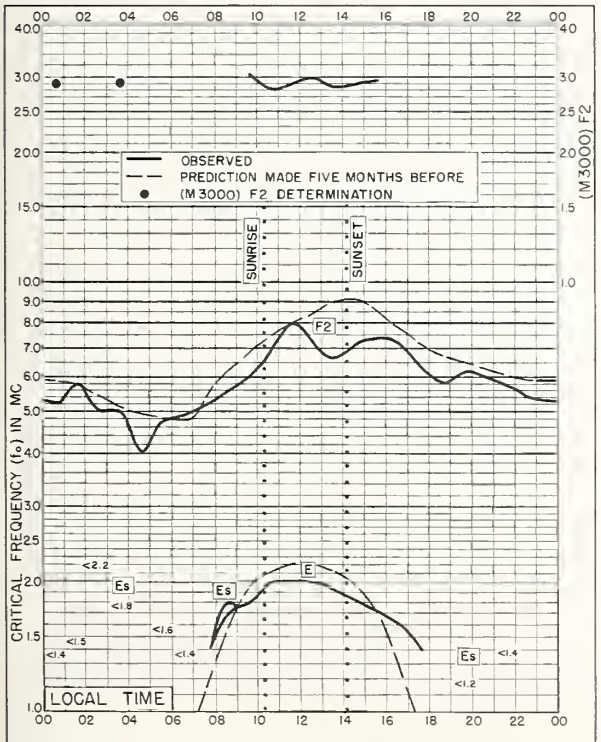


Fig. 51. RESOLUTE BAY, CANADA
74.7°N, 94.9°W FEBRUARY 1957

NBS 503

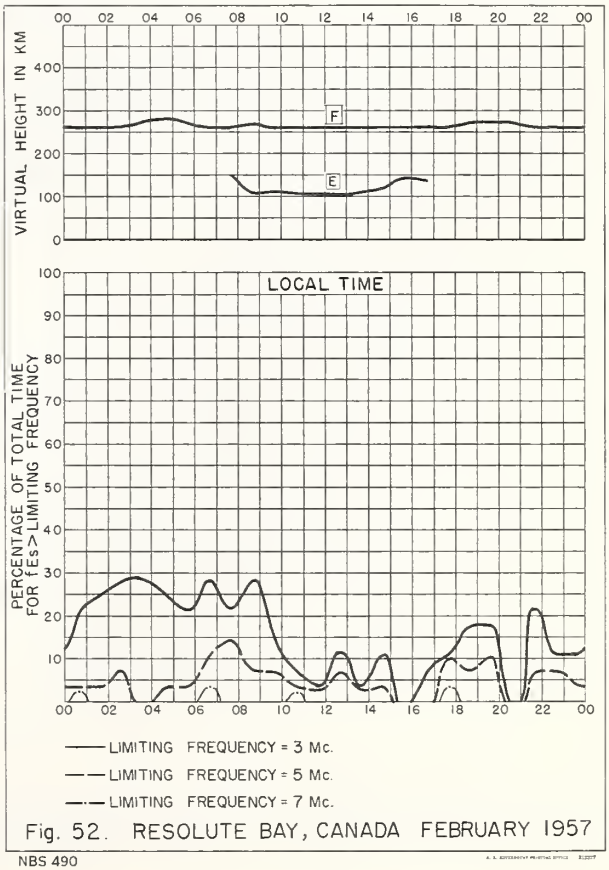


Fig. 52. RESOLUTE BAY, CANADA FEBRUARY 1957

NBS 490

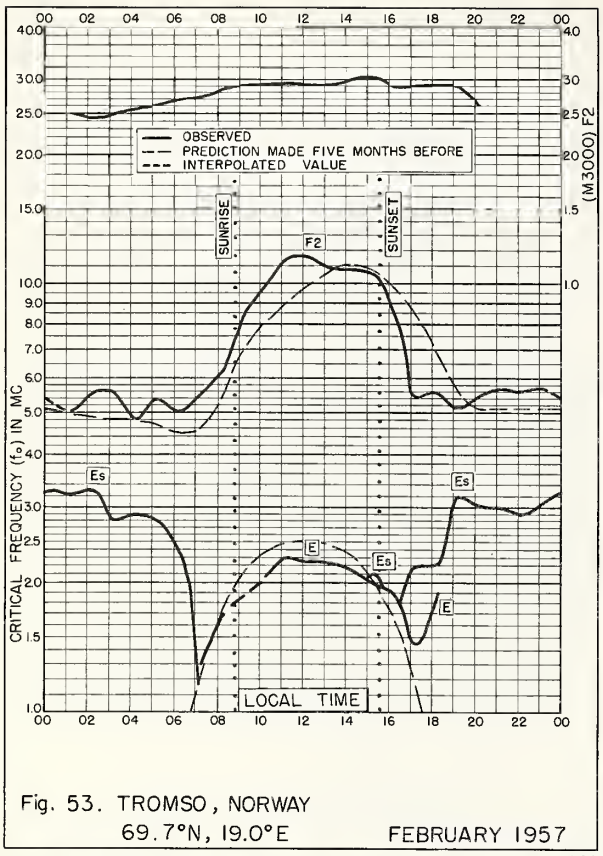


Fig. 53. TROMSO, NORWAY
69.7°N, 19.0°E FEBRUARY 1957

NBS 503

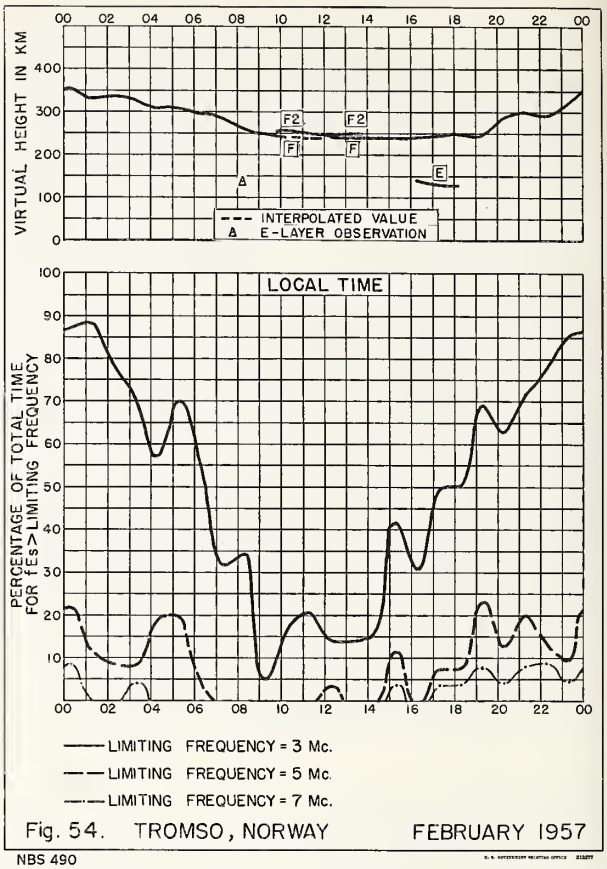


Fig. 54. TROMSO, NORWAY FEBRUARY 1957

NBS 490

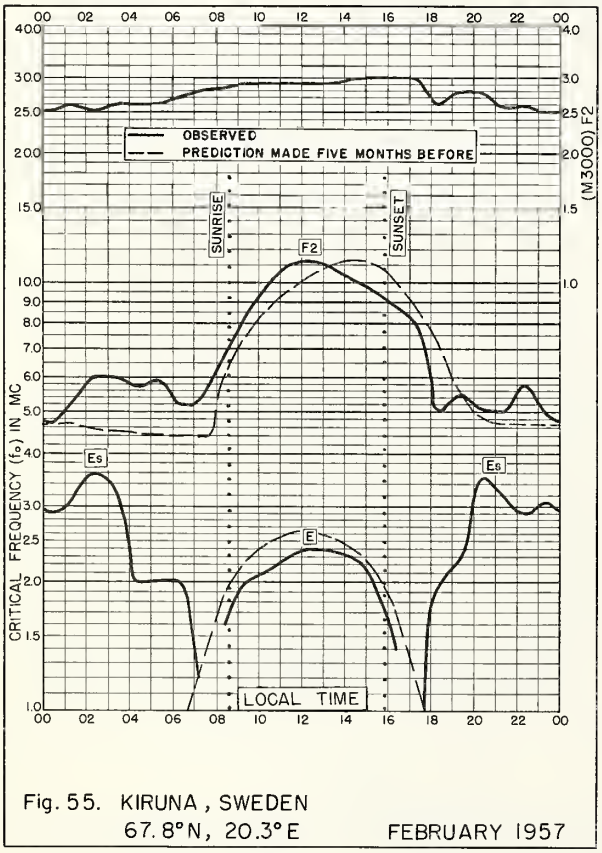


Fig. 55. KIRUNA, SWEDEN
67.8°N, 20.3°E FEBRUARY 1957

NBS 503

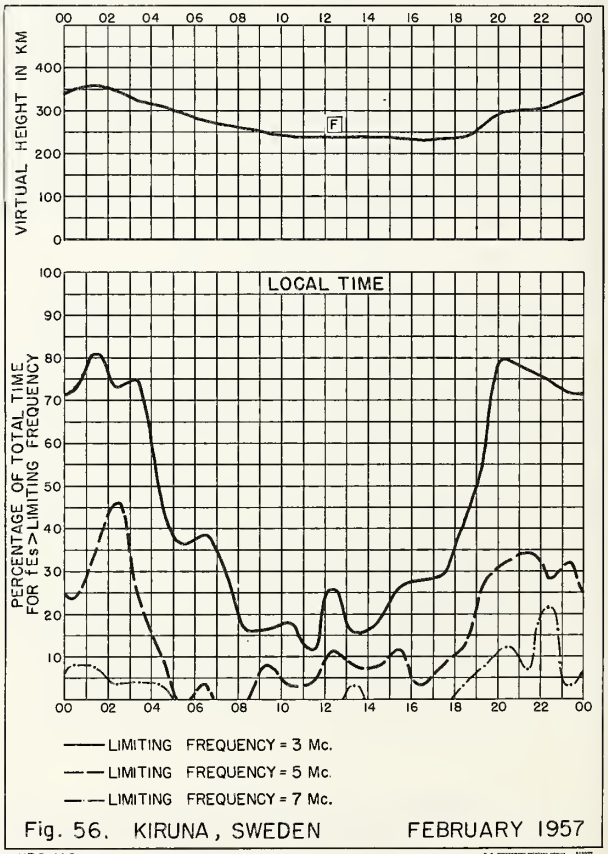


Fig. 56. KIRUNA, SWEDEN FEBRUARY 1957

NBS 490

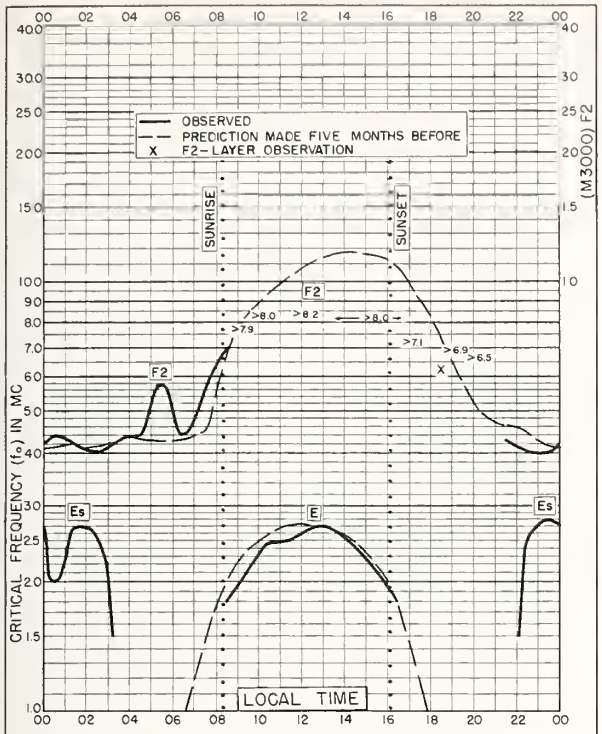


Fig. 57. LULEA, SWEDEN
65.6°N, 22.1°E FEBRUARY 1957

NBS 503

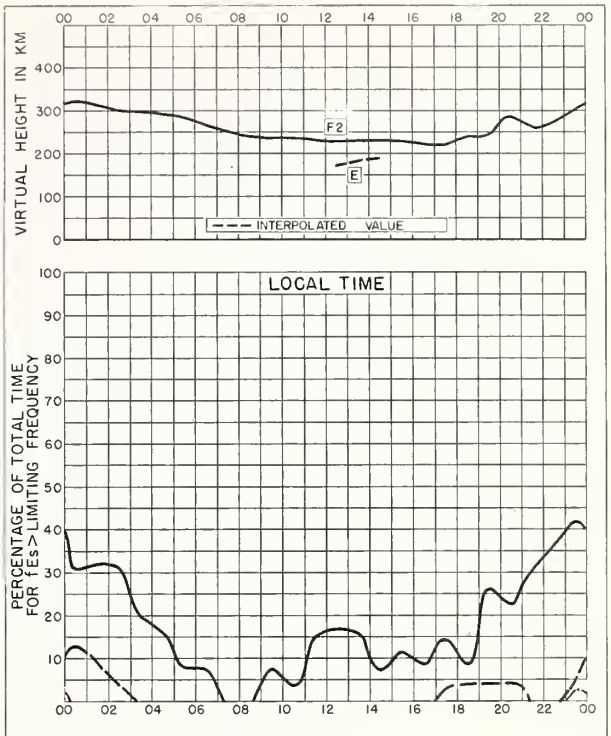


Fig. 58. LULEA, SWEDEN FEBRUARY 1957

NBS 490

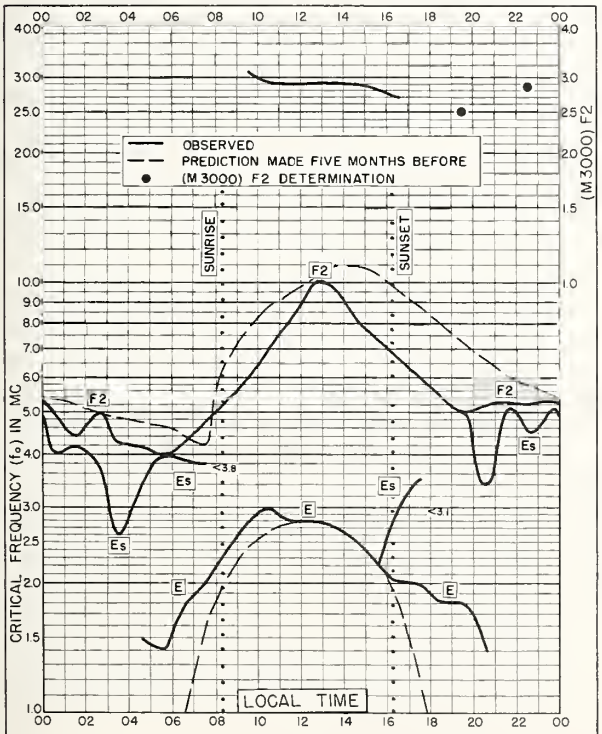


Fig. 59. BAKER LAKE, CANADA
64.3°N, 96.0°W FEBRUARY 1957

NBS 503

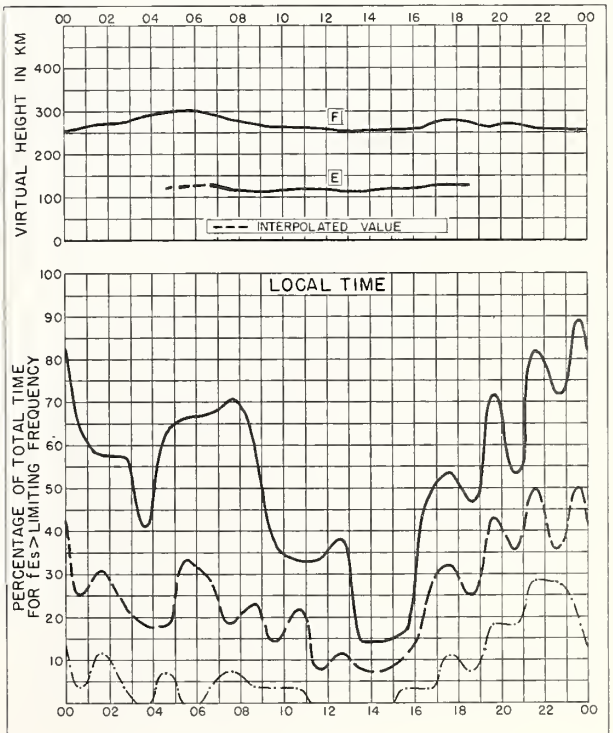


Fig. 60. BAKER LAKE, CANADA FEBRUARY 1957

NBS 490

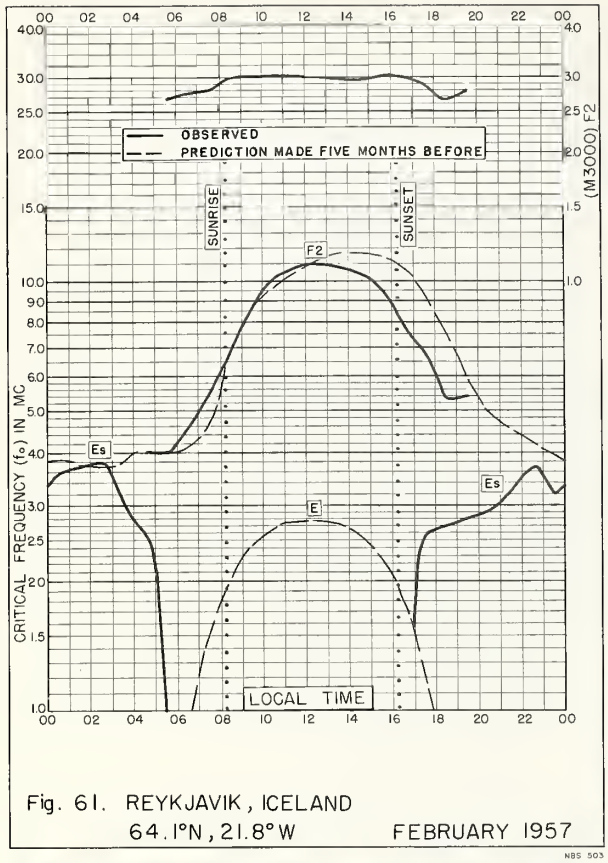


Fig. 61. REYKJAVIK, ICELAND
64.1°N, 21.8°W FEBRUARY 1957

NBS 503

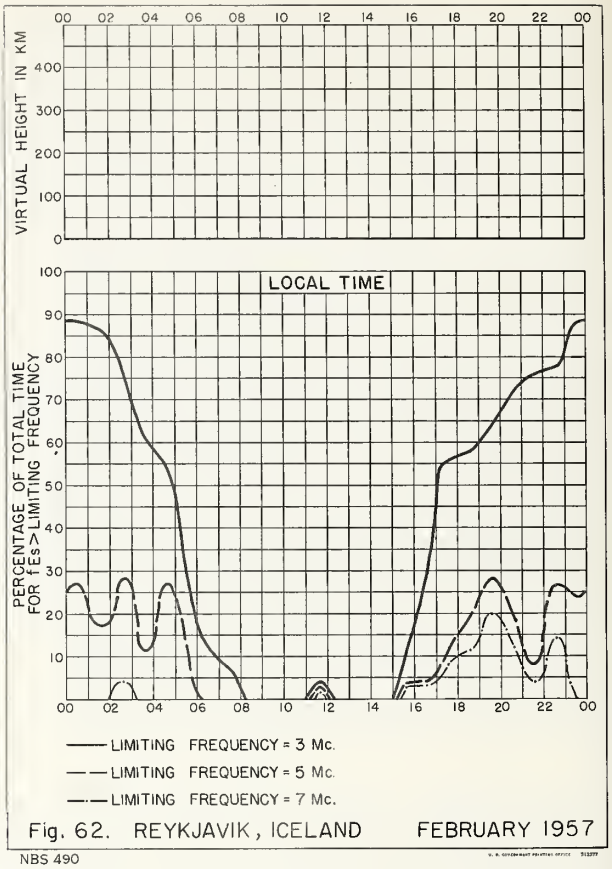


Fig. 62. REYKJAVIK, ICELAND FEBRUARY 1957

NBS 490

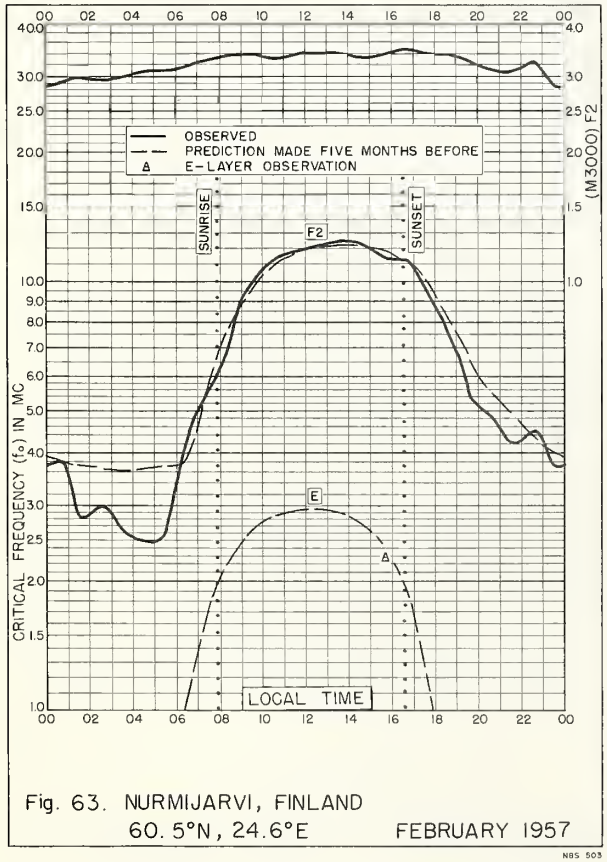


Fig. 63. NURMIJARVI, FINLAND
60.5°N, 24.6°E FEBRUARY 1957

NBS 503

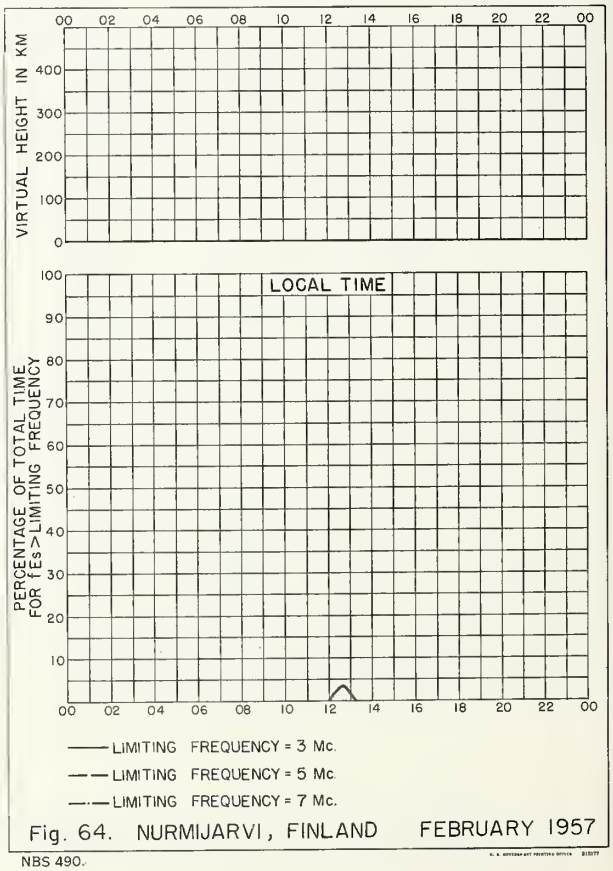


Fig. 64. NURMIJARVI, FINLAND FEBRUARY 1957

NBS 490

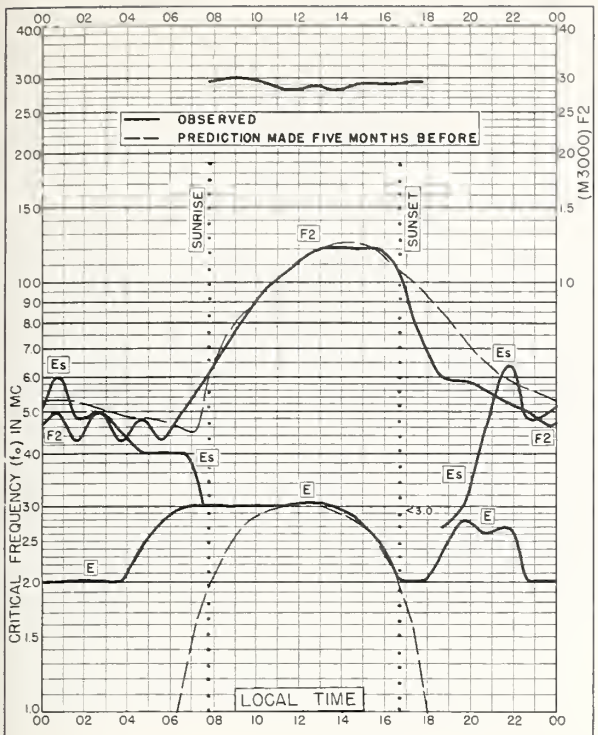


Fig. 65. CHURCHILL, CANADA
58.8°N, 94.2°W FEBRUARY 1957

NBS 503

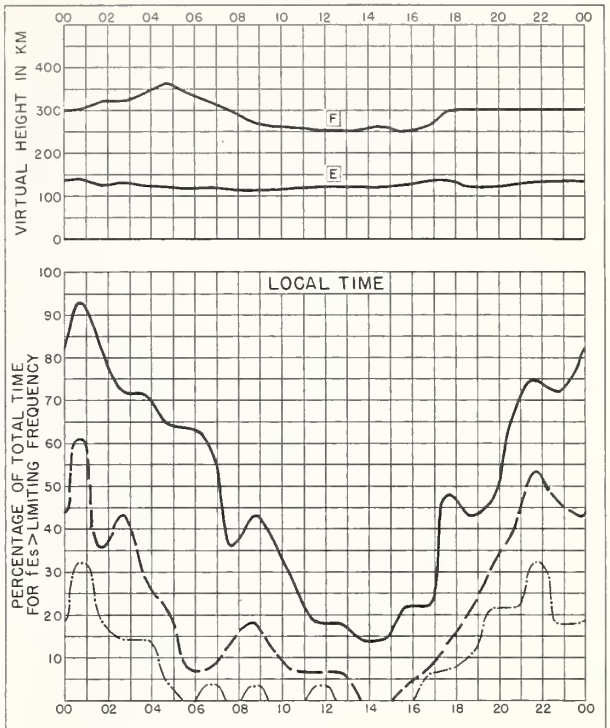


Fig. 66. CHURCHILL, CANADA FEBRUARY 1957

NBS 490

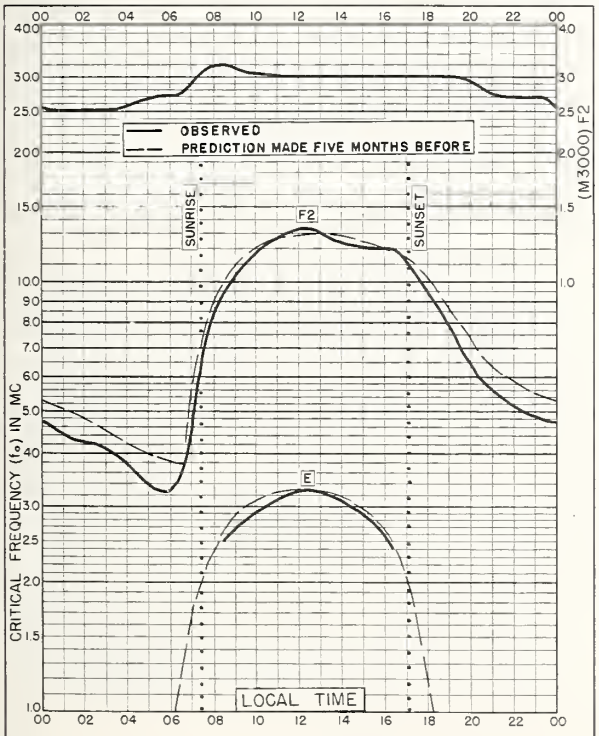


Fig. 67. De BILT, HOLLAND
52.1°N, 5.2°E FEBRUARY 1957

NBS 503

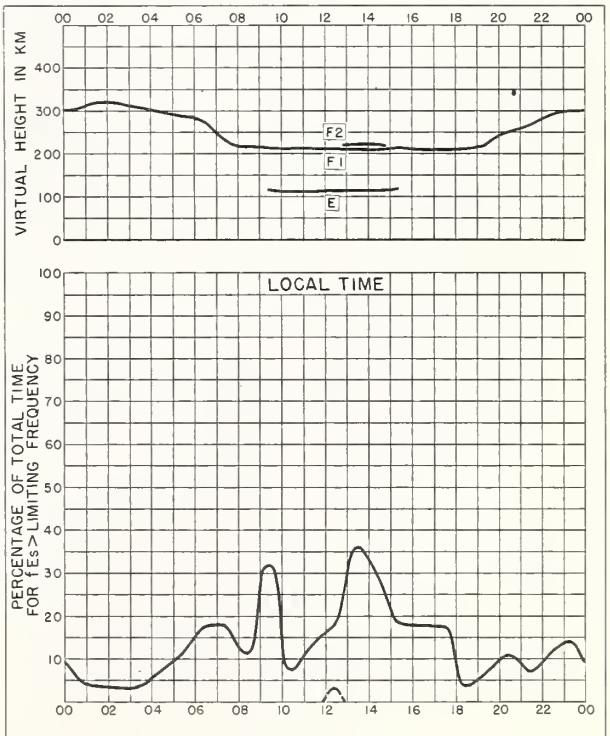


Fig. 68. De BILT, HOLLAND FEBRUARY 1957

NBS 490

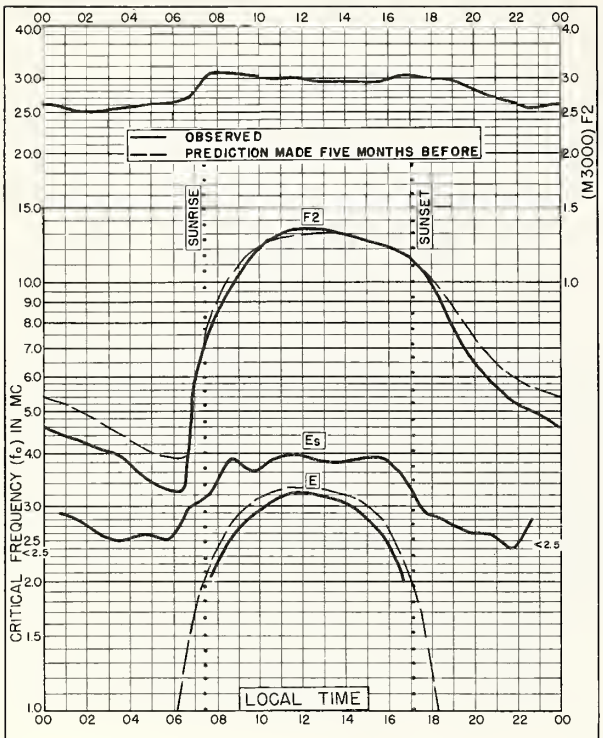
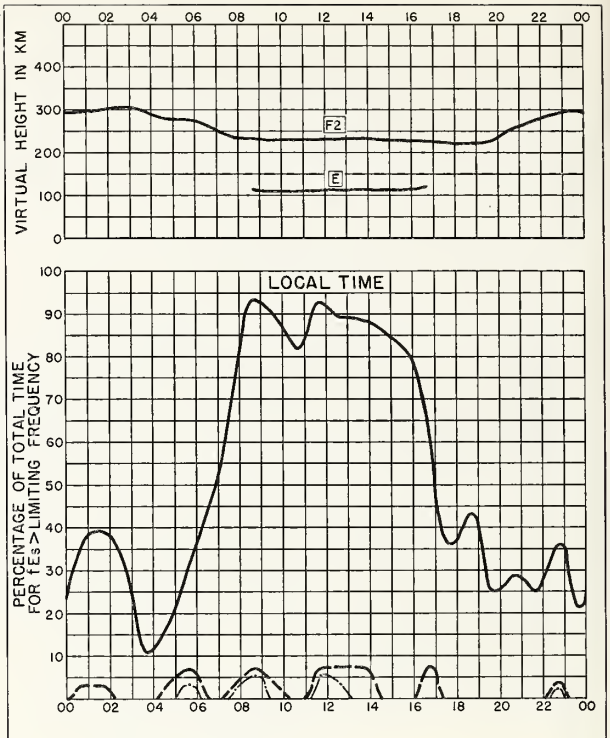


Fig. 69. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E FEBRUARY 1957

NBS 503



FEBRUARY 1957

Fig. 70. LINDAU/HARZ, GERMANY

NBS 490

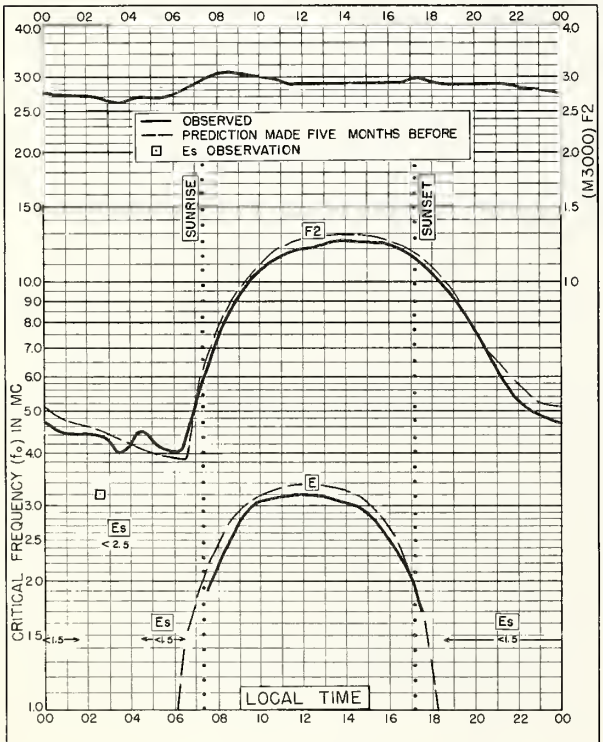


Fig. 71. WINNIPEG, CANADA
49.9°N, 97.4°W FEBRUARY 1957

NBS 503

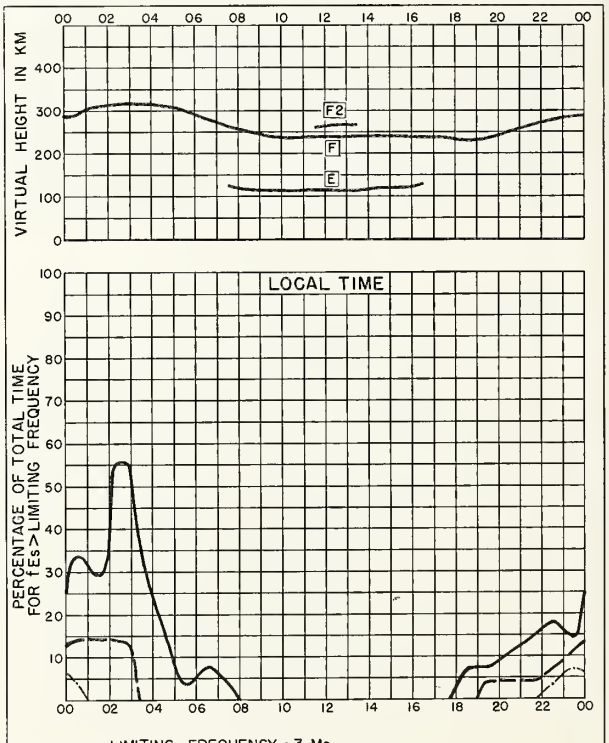


Fig. 72. WINNIPEG, CANADA FEBRUARY 1957

NBS 490

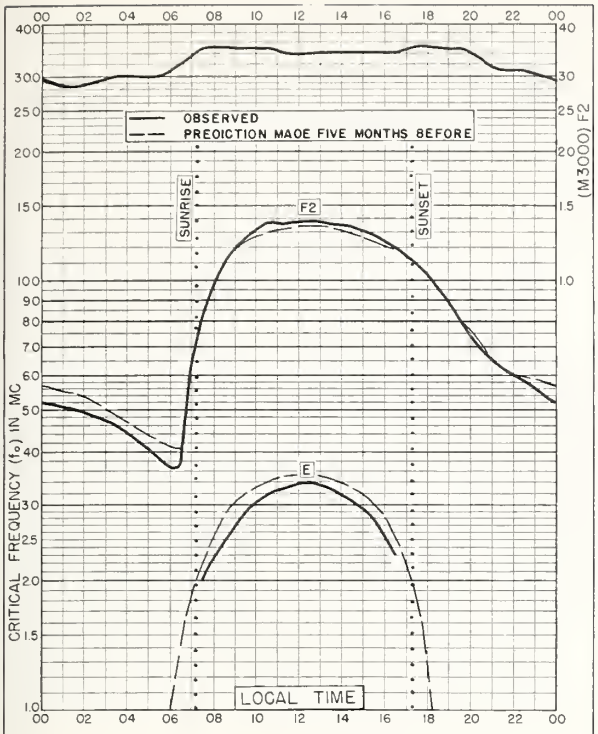


Fig. 73. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E FEBRUARY 1957

NBS 503

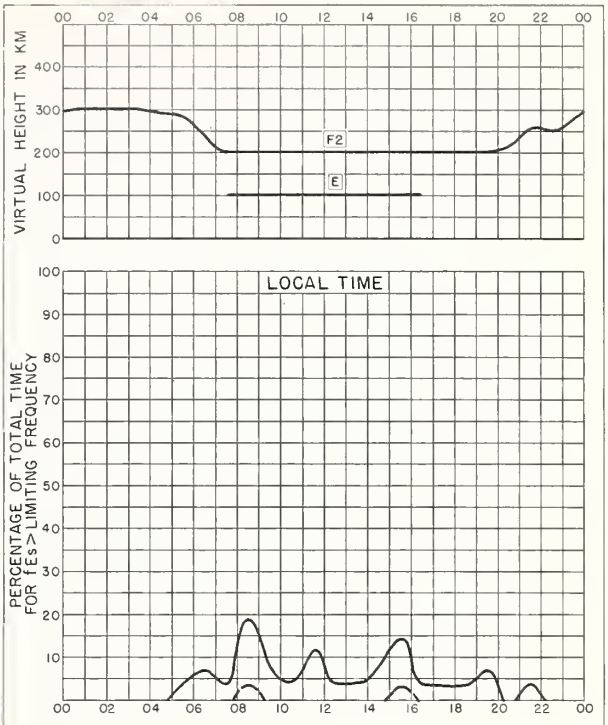


Fig. 74. SCHWARZENBURG, SWITZERLAND FEBRUARY 1957

NBS 490

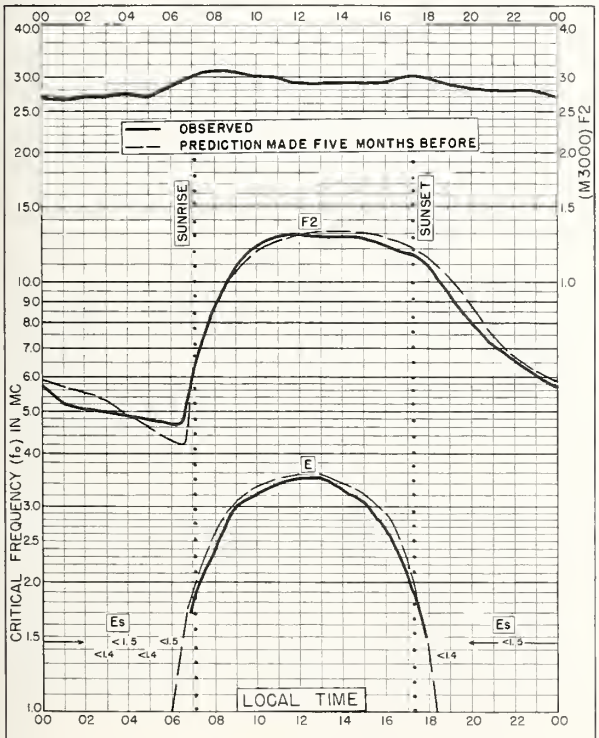


Fig. 75. OTTAWA, CANADA
45.4°N, 75.9°W FEBRUARY 1957

NBS 503

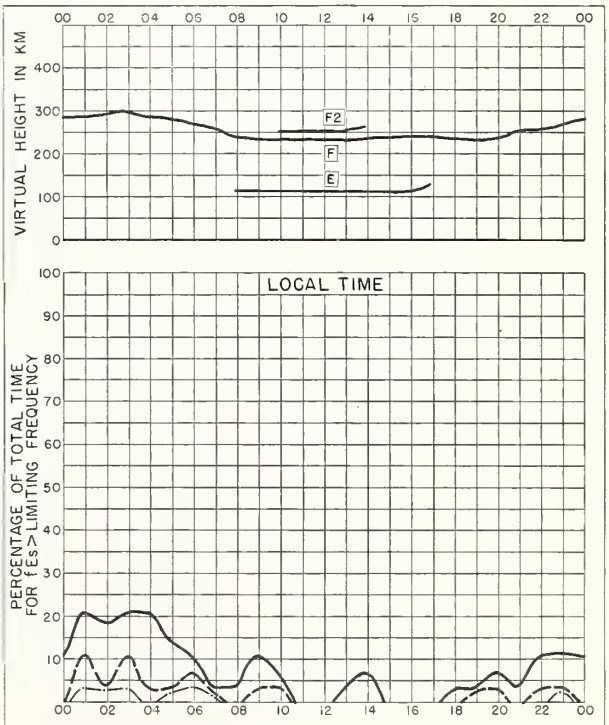


Fig. 76. OTTAWA, CANADA FEBRUARY 1957

NBS 490

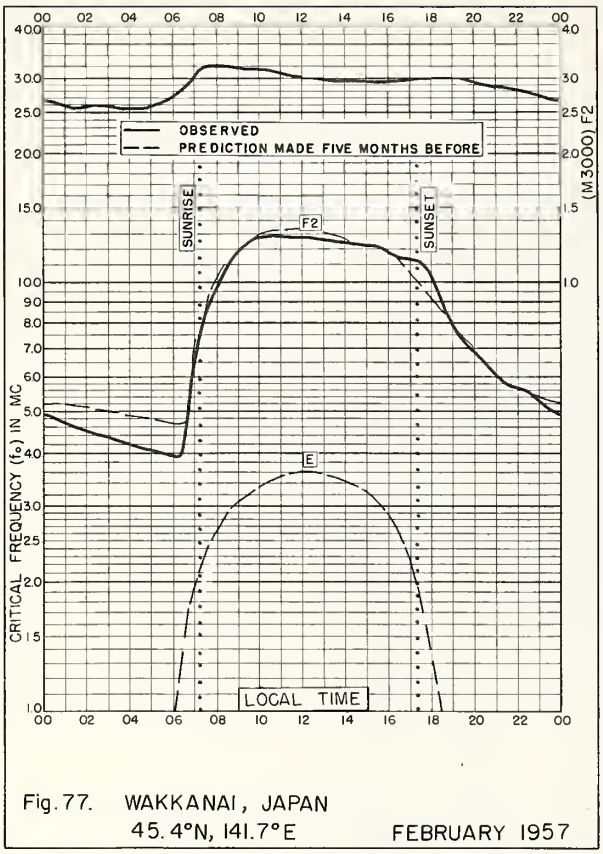


Fig. 77. WAKKANAI, JAPAN
45.4°N, 141.7°E FEBRUARY 1957

NBS 503

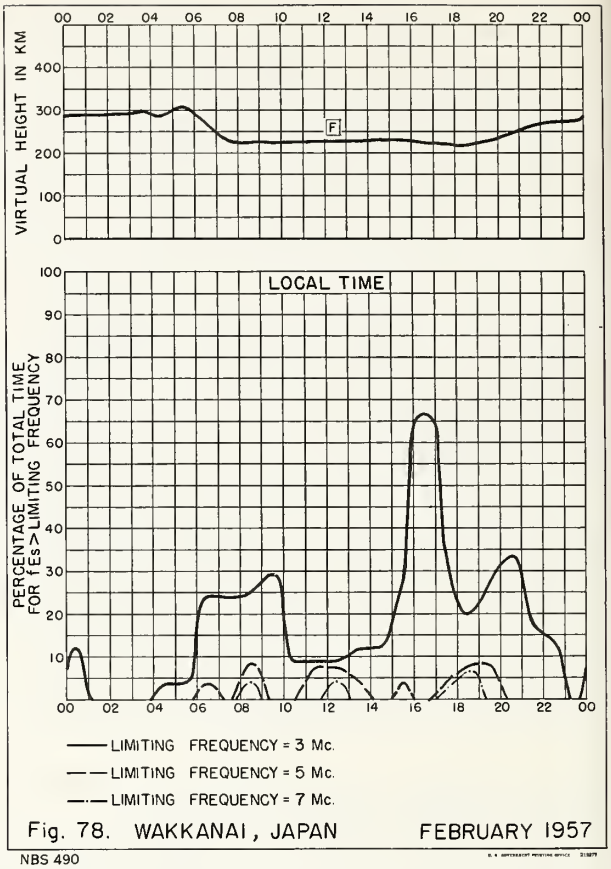


Fig. 78. WAKKANAI, JAPAN FEBRUARY 1957

NBS 490

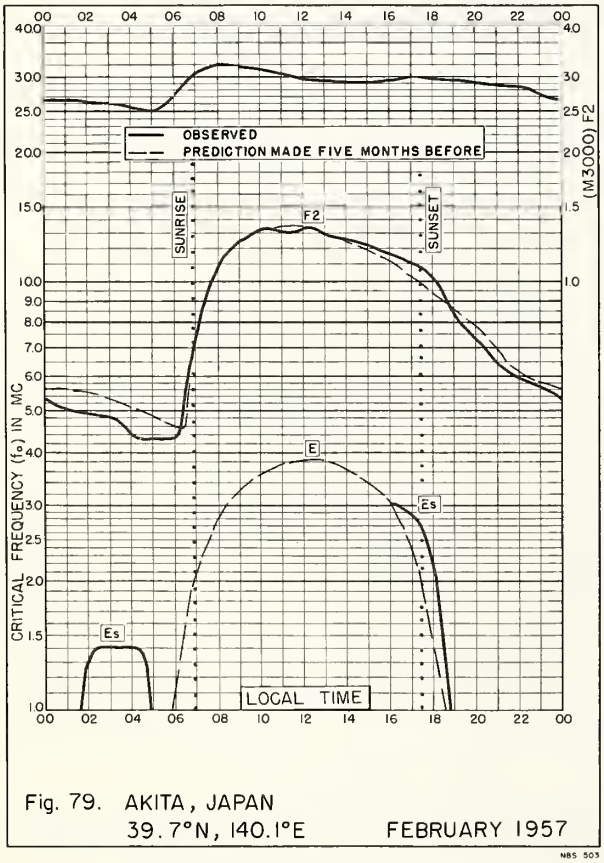


Fig. 79. AKITA, JAPAN
39.7°N, 140.1°E FEBRUARY 1957

NBS 503

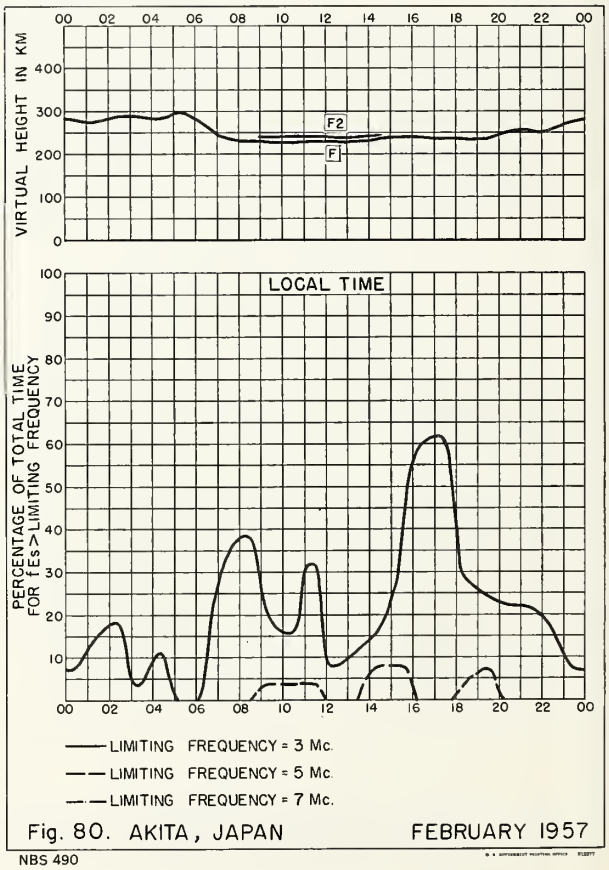


Fig. 80. AKITA, JAPAN FEBRUARY 1957

NBS 490

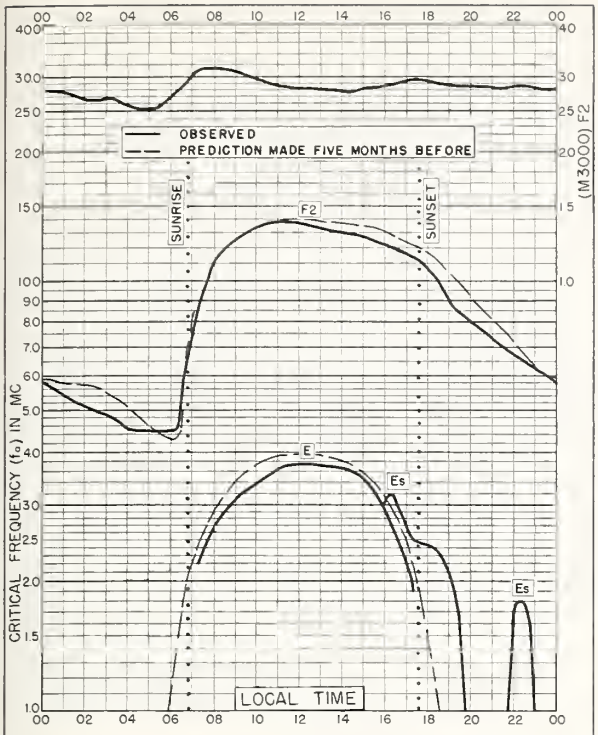


Fig. 81. TOKYO, JAPAN
35.7°N, 139.5°E FEBRUARY 1957

NBS 503

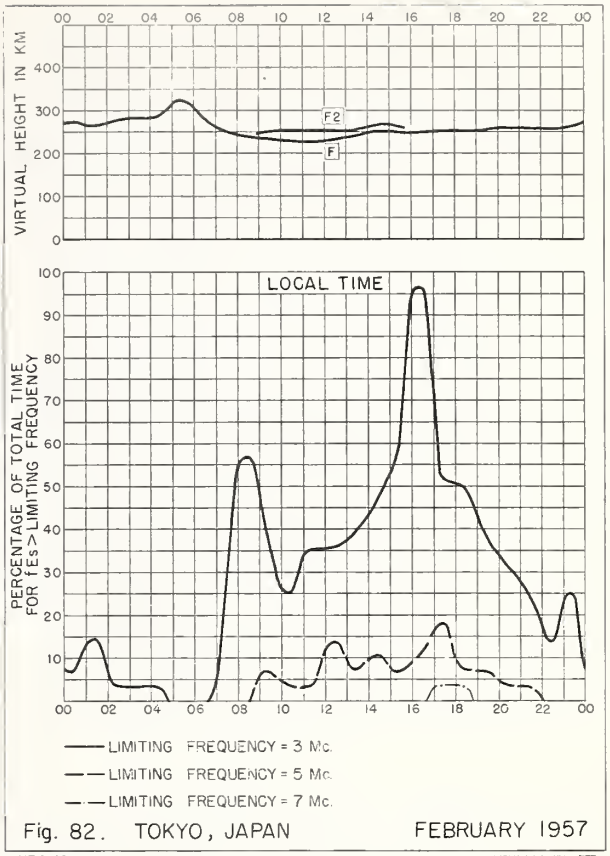


Fig. 82. TOKYO, JAPAN FEBRUARY 1957

NBS 490

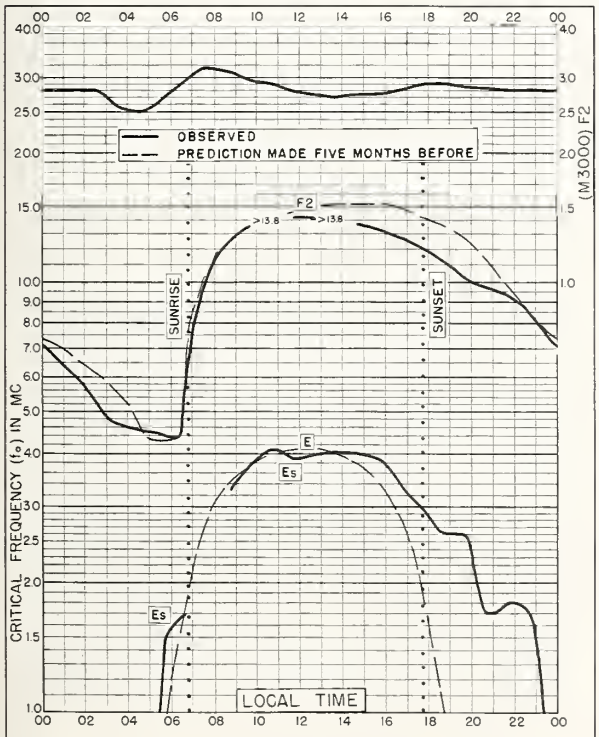


Fig. 83. YAMAGAWA, JAPAN
31.2°N, 130.6°E FEBRUARY 1957

NBS 503

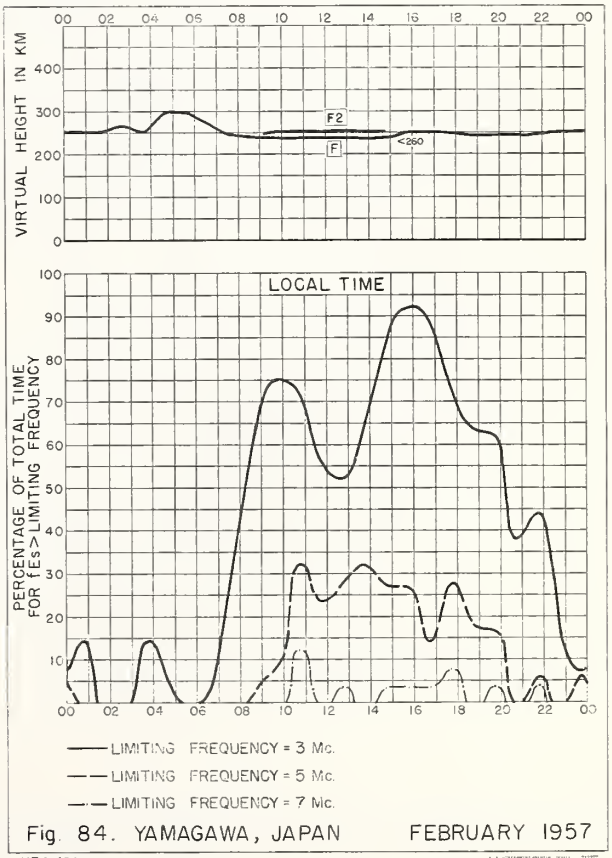


Fig. 84. YAMAGAWA, JAPAN FEBRUARY 1957

NBS 490

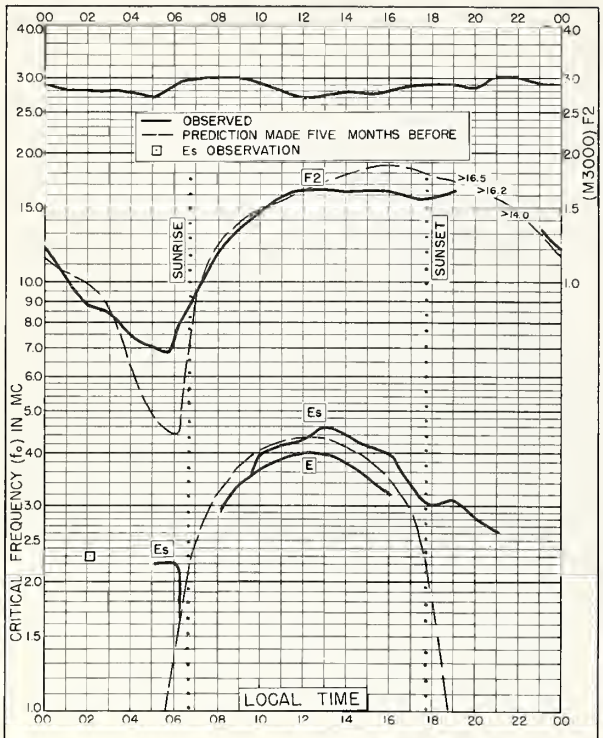


Fig. 85. FORMOSA, CHINA
25.0°N, 121.5°E FEBRUARY 1957

NBS 503

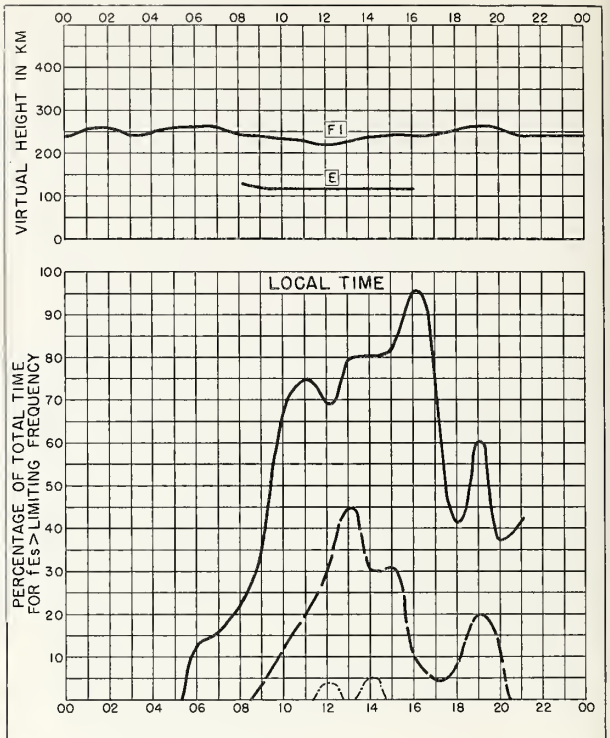


Fig. 86. FORMOSA, CHINA FEBRUARY 1957

NBS 490

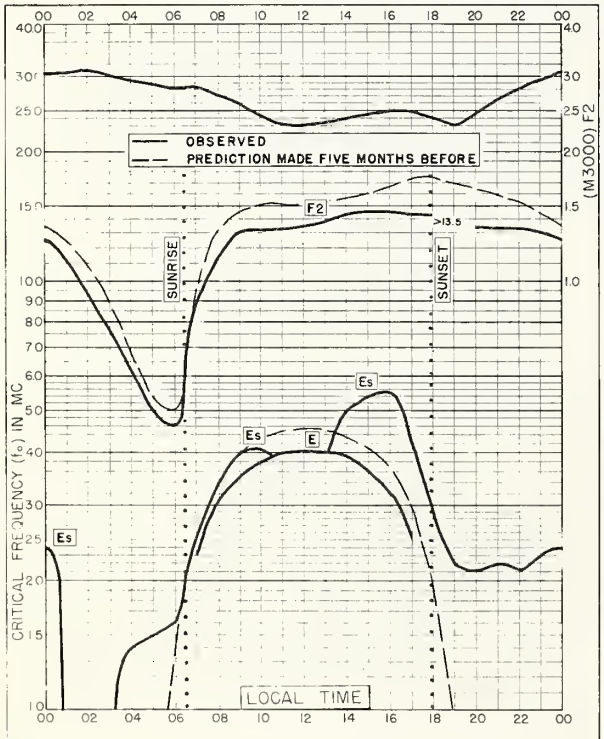


Fig. 87. BAGUIO, P. I.
16.4°N, 120.6°E FEBRUARY 1957

NBS 503

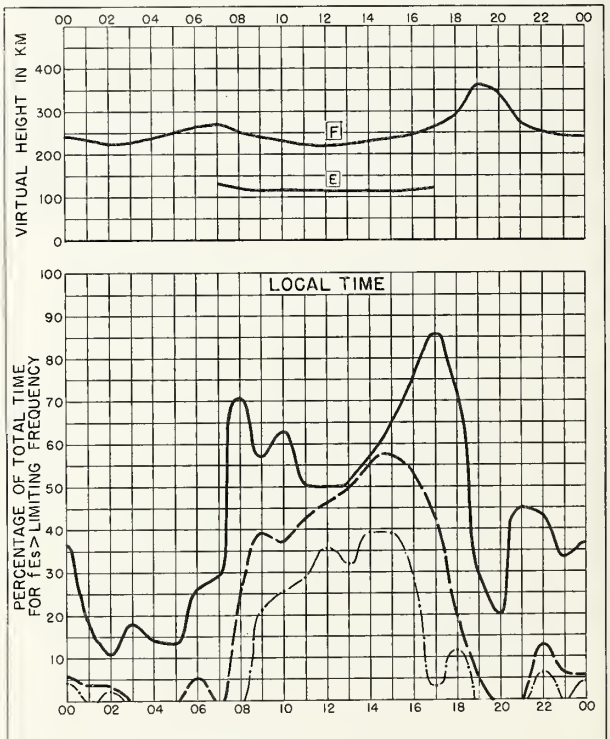


Fig. 88. BAGUIO, P. I. FEBRUARY 1957

NBS 490

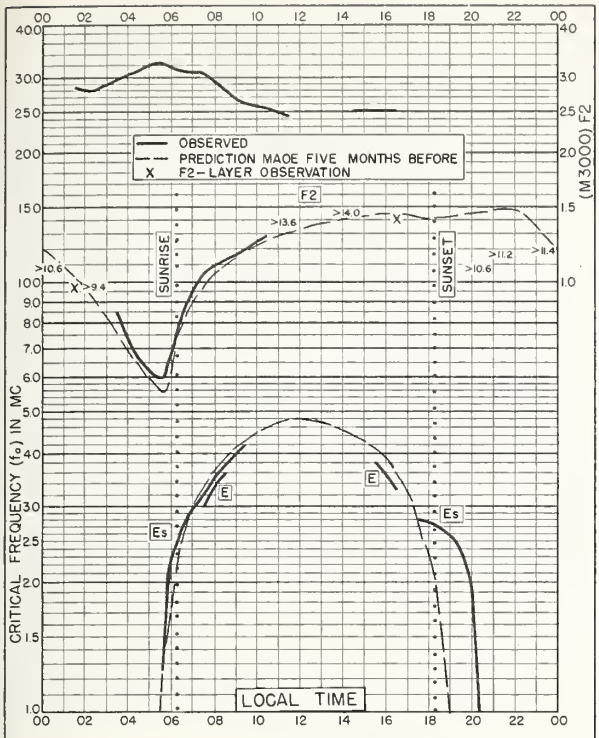


Fig. 89. NAIROBI, KENYA
1.3°S, 36.8°E FEBRUARY 1957

NBS 503

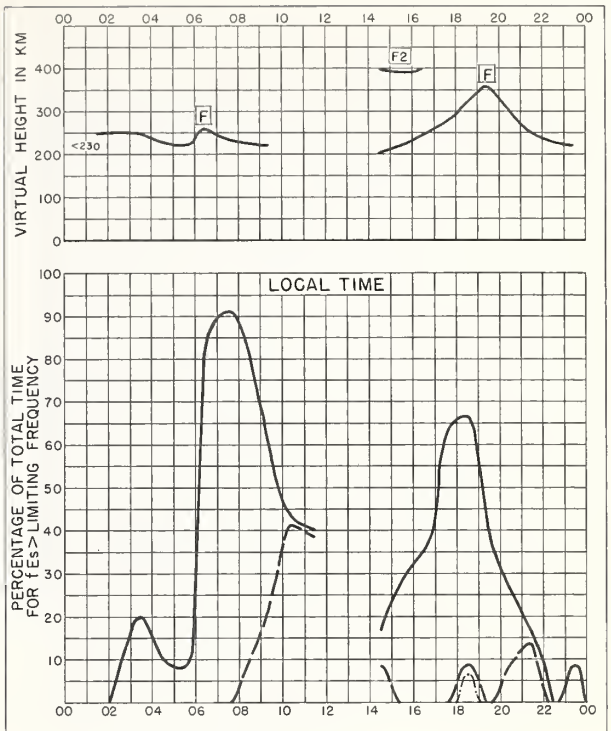


Fig. 90. NAIROBI, KENYA FEBRUARY 1957

NBS 490

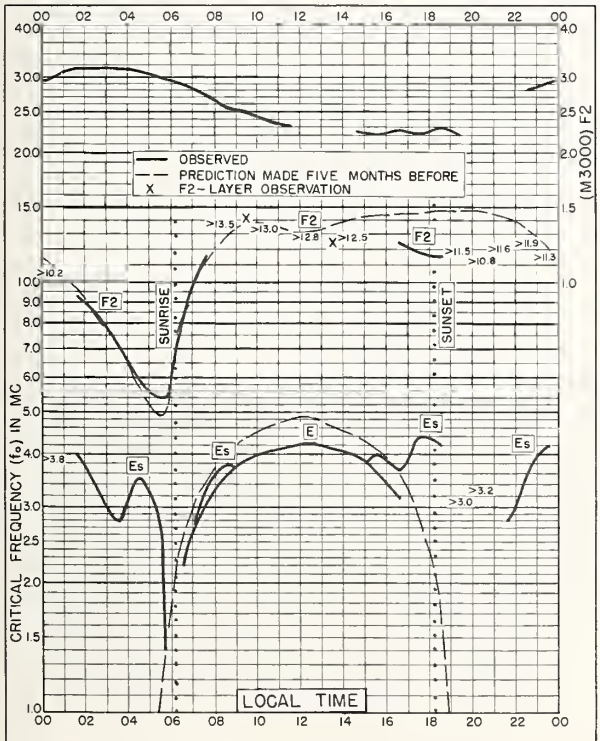


Fig. 91. TALARA, PERU
4.6°S, 81.3°W FEBRUARY 1957

NBS 503

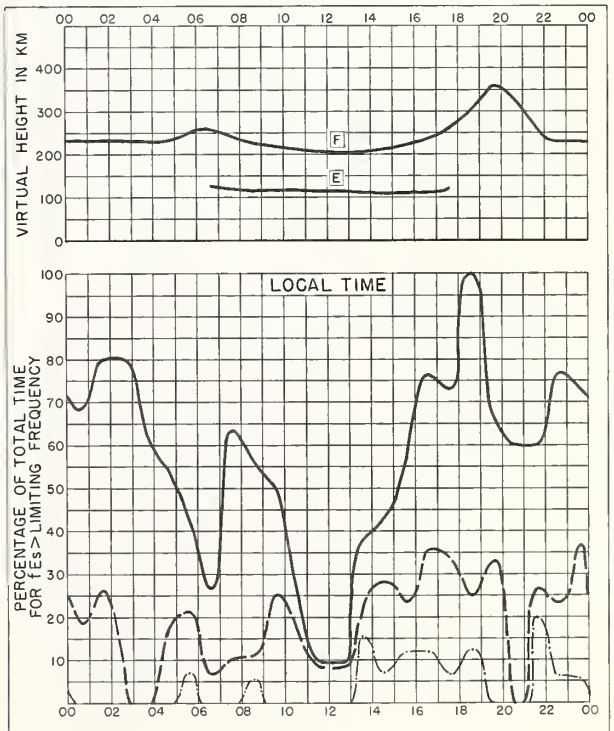


Fig. 92. TALARA, PERU FEBRUARY 1957

NBS 490

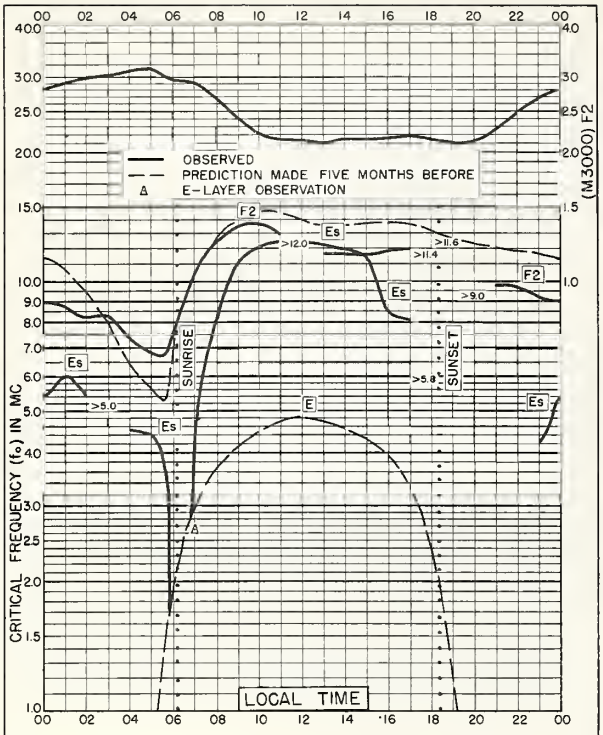


Fig. 93. HUANCAYO, PERU
12.0°S, 75.3°W FEBRUARY 1957

NBS 503

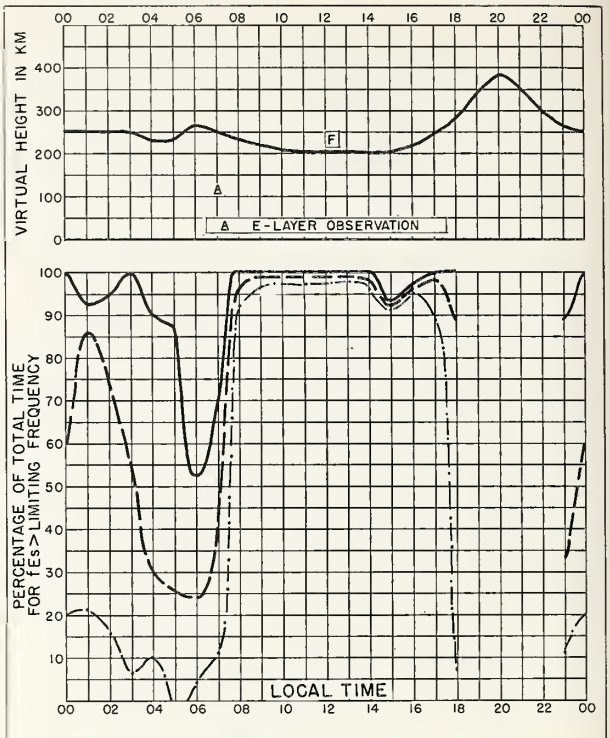


Fig. 94. HUANCAYO, PERU FEBRUARY 1957

NBS 490

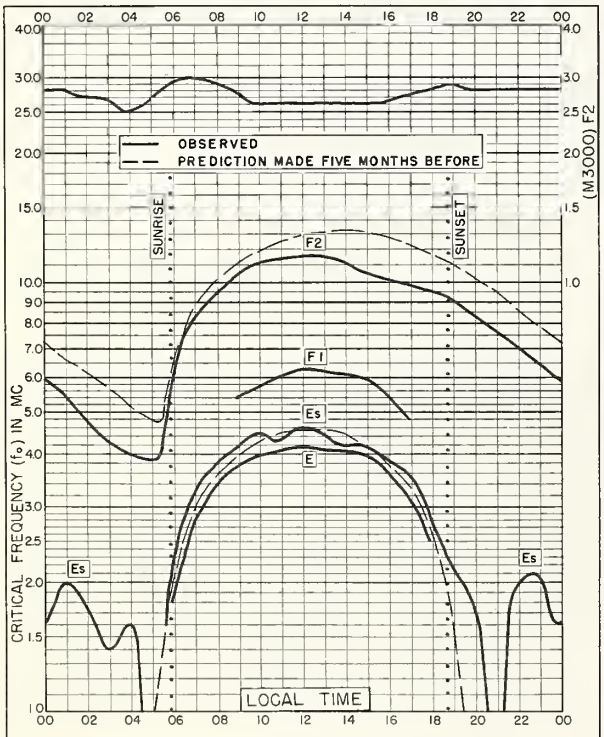


Fig. 95. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E FEBRUARY 1957

NBS 503

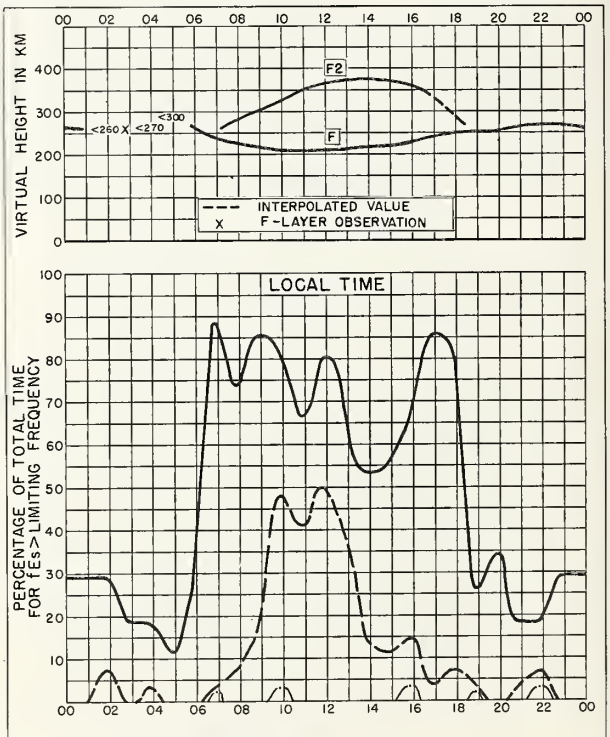


Fig. 96. JOHANNESBURG, UNION OF S. AFRICA FEBRUARY 1957

NBS 490

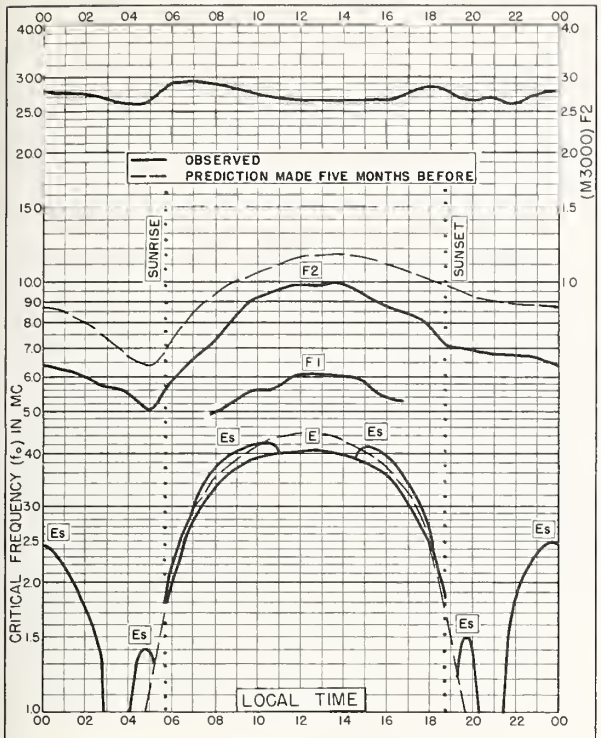
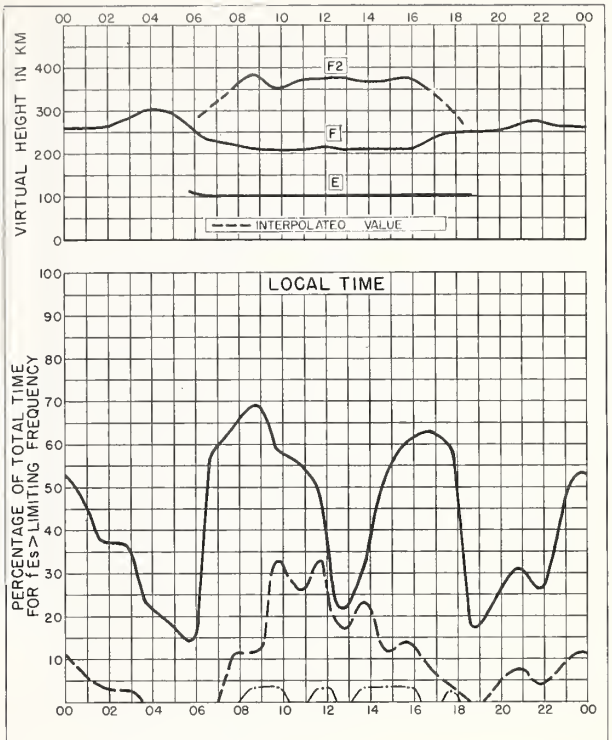


Fig. 97. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E FEBRUARY 1957

NBS 503



FEBRUARY 1957

Fig. 98. WATHEROO, W. AUSTRALIA

NBS 490

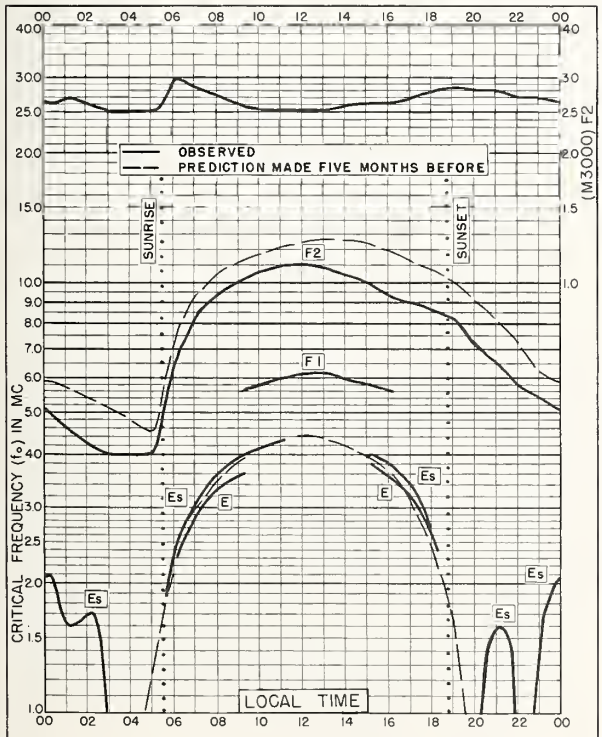
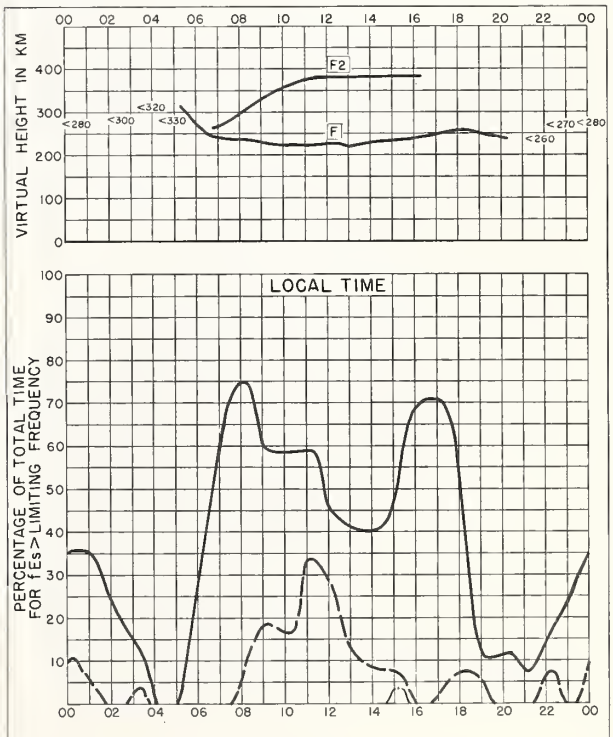


Fig. 99. CAPETOWN, UNION OF S. AFRICA
34.1° S, 18.3°E FEBRUARY 1957

NBS 503



FEBRUARY 1957

Fig. 100. CAPETOWN, UNION OF S. AFRICA

NBS 490

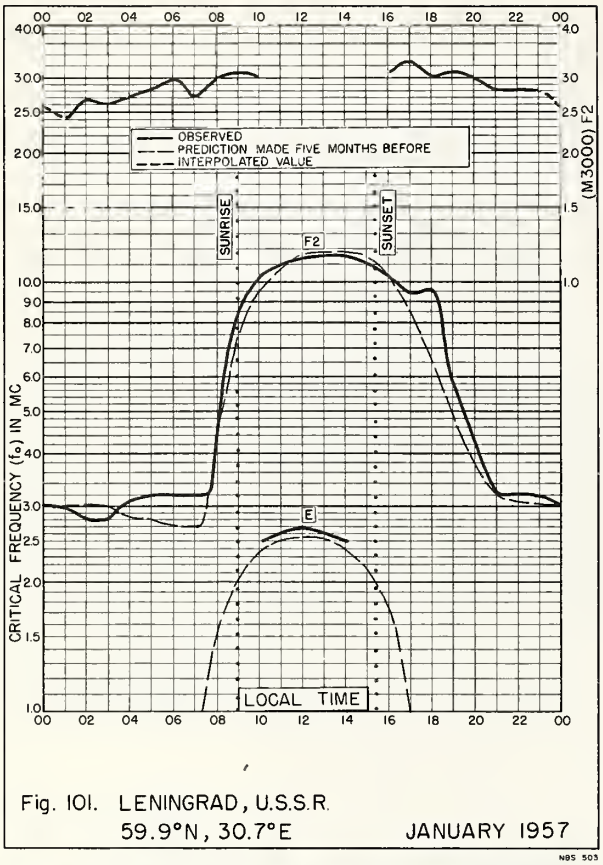


Fig. 101. LENINGRAD, U.S.S.R.
59.9°N, 30.7°E JANUARY 1957

NBS 503

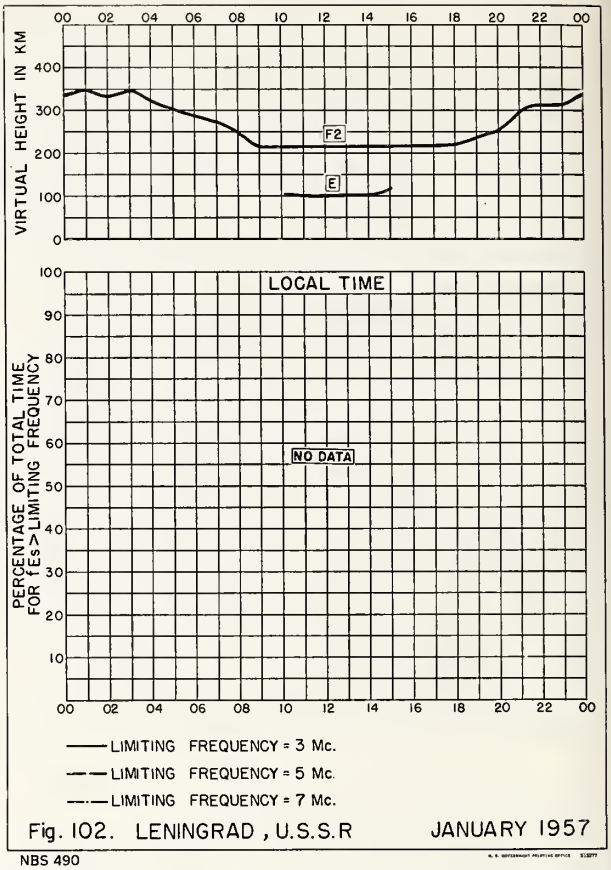


Fig. 102. LENINGRAD, U.S.S.R JANUARY 1957

NBS 490

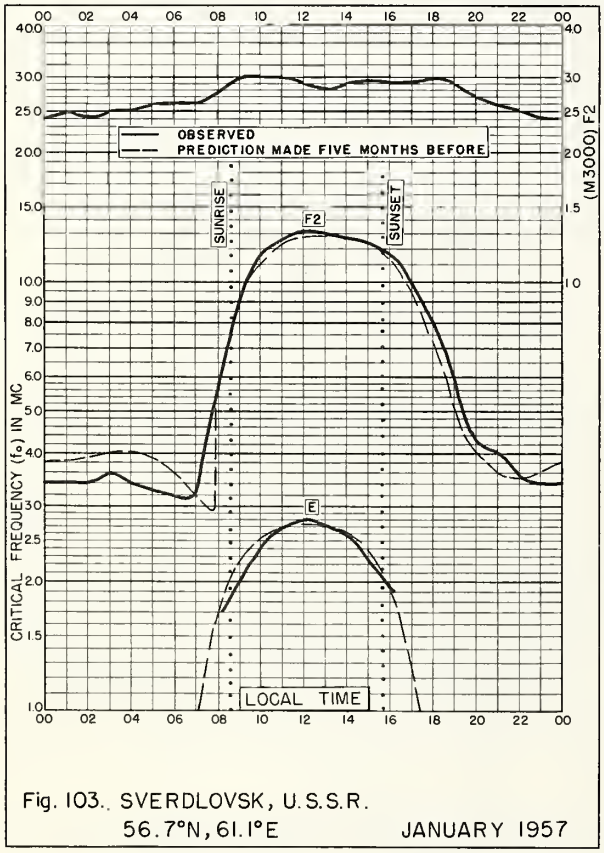


Fig. 103. SVERDLOVSK, U.S.S.R.
56.7°N, 61.1°E JANUARY 1957

NBS 503

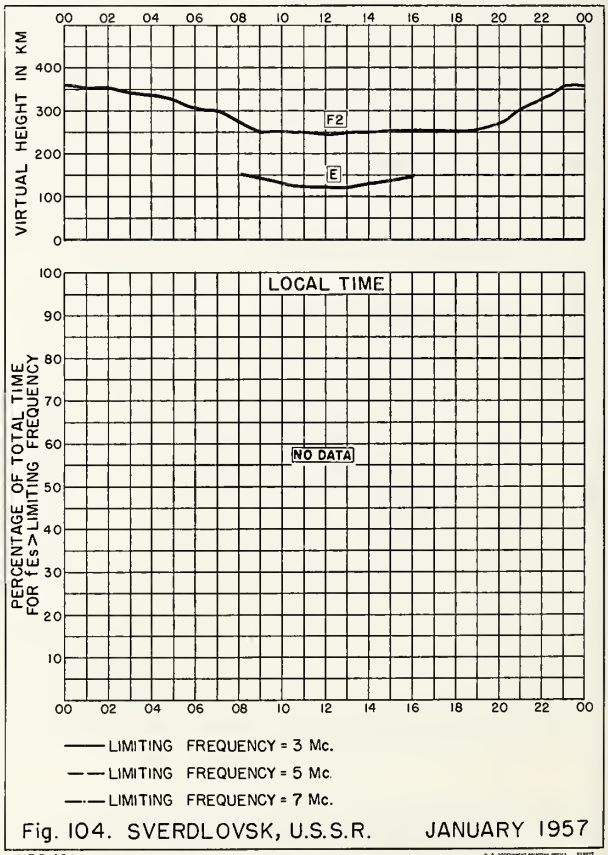


Fig. 104. SVERDLOVSK, U.S.S.R. JANUARY 1957

NBS 490

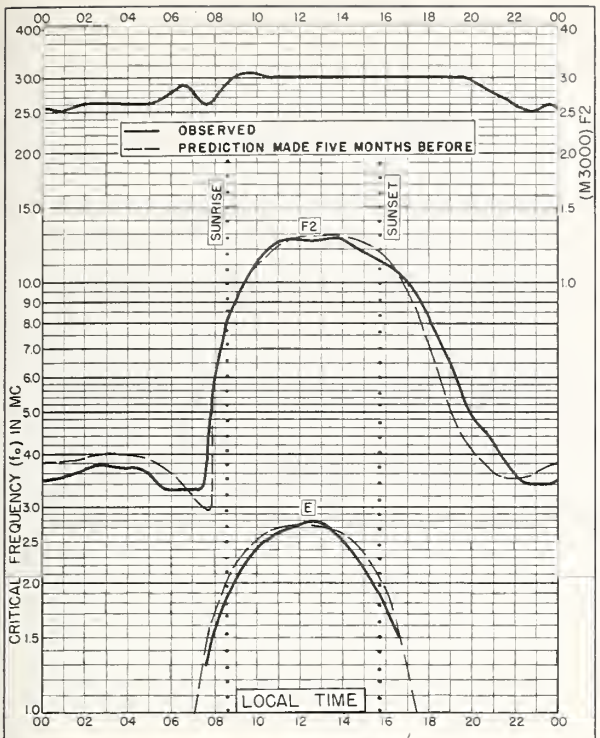


Fig. 105. TOMSK, U.S.S.R.
56.5°N, 84.9°E JANUARY 1957

NBS 503

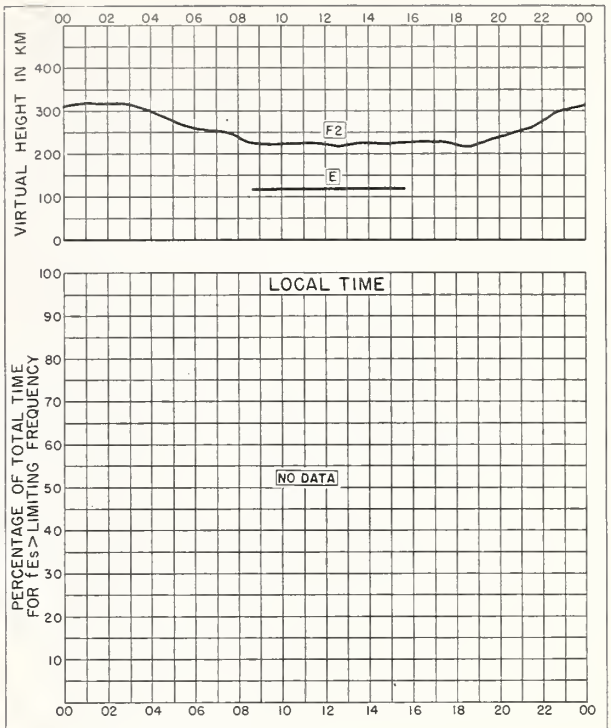


Fig. 106. TOMSK, U.S.S.R. JANUARY 1957

NBS 490

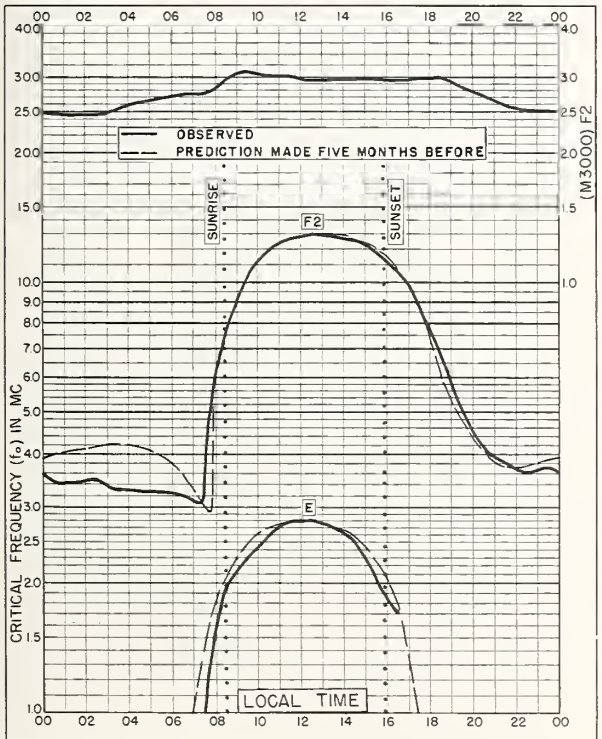


Fig. 107. MOSCOW, U.S.S.R.
55.5°N, 37.3°E JANUARY 1957

NBS 503

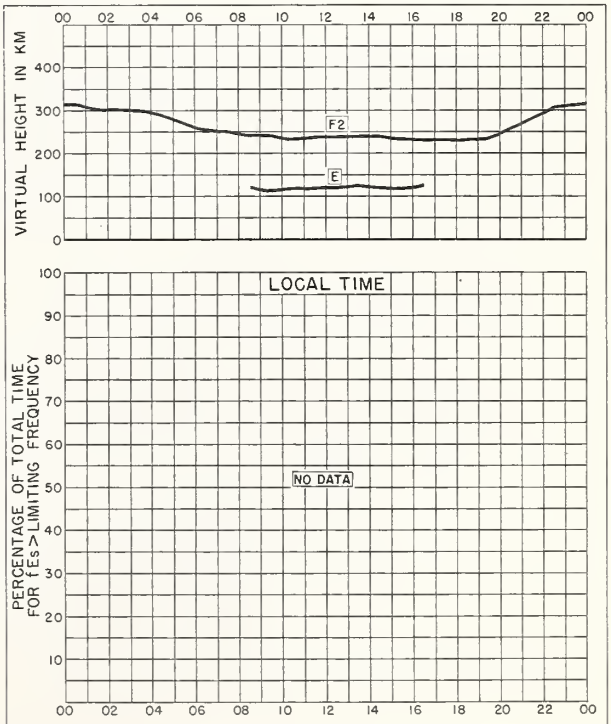


Fig. 108. MOSCOW, U.S.S.R. JANUARY 1957

NBS 490

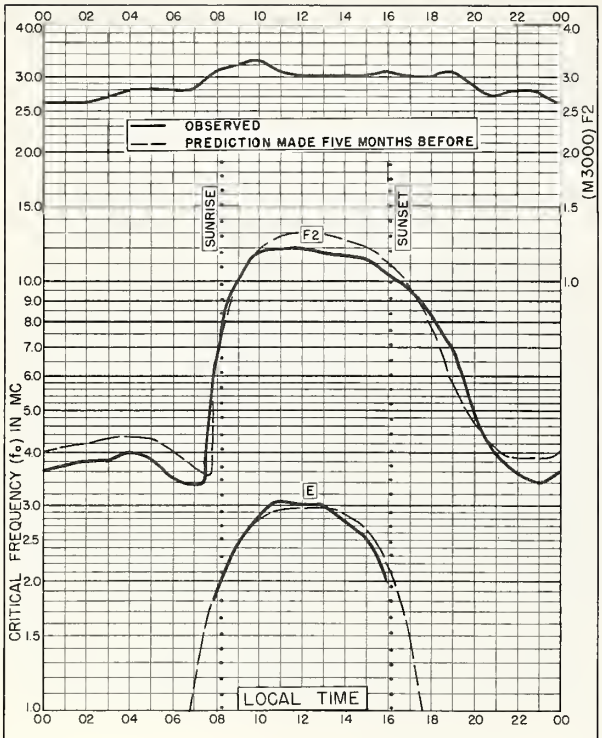


Fig. 109. IRKUTSK, U.S.S.R.
52.5°N, 104.0°E JANUARY 1957

NBS 503

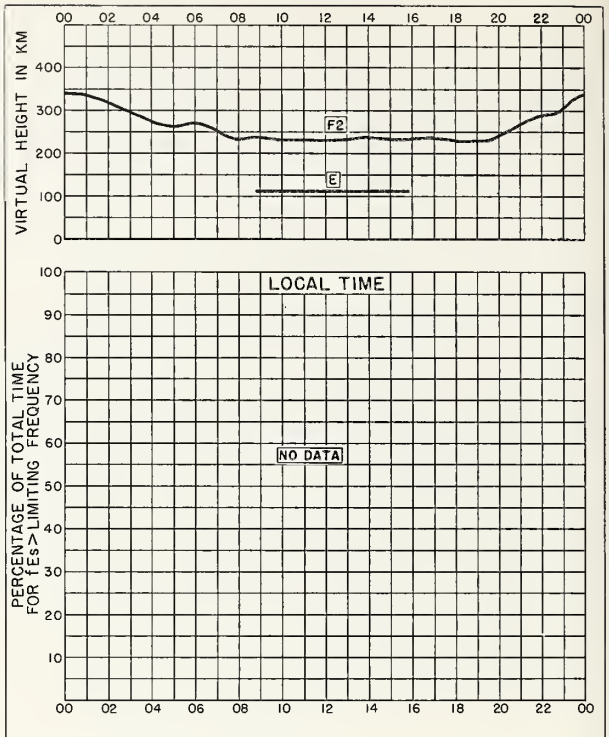


Fig. 110. IRKUTSK, U.S.S.R. JANUARY 1957

NBS 490

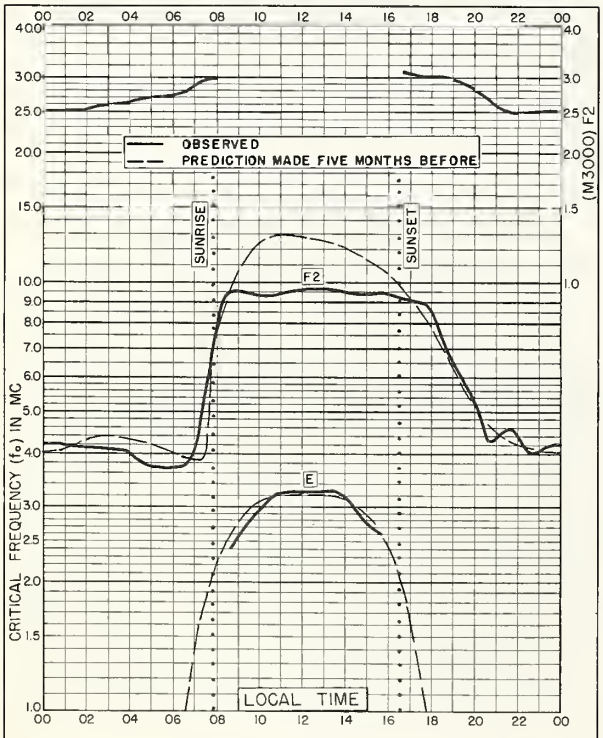


Fig. 111. ROSTOV-ON-DON, U.S.S.R.
47.2°N, 39.7°E JANUARY 1957

NBS 503

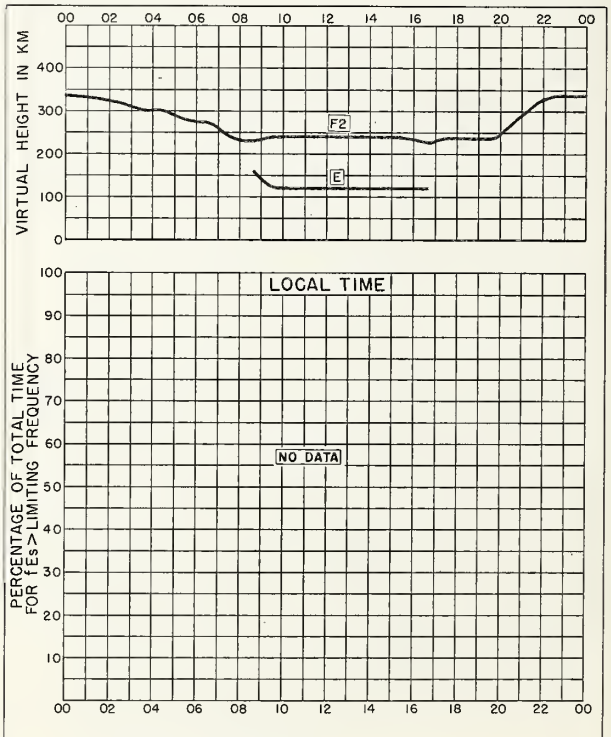


Fig. 112. ROSTOV-ON-DON, U.S.S.R. JANUARY 1957

NBS 490

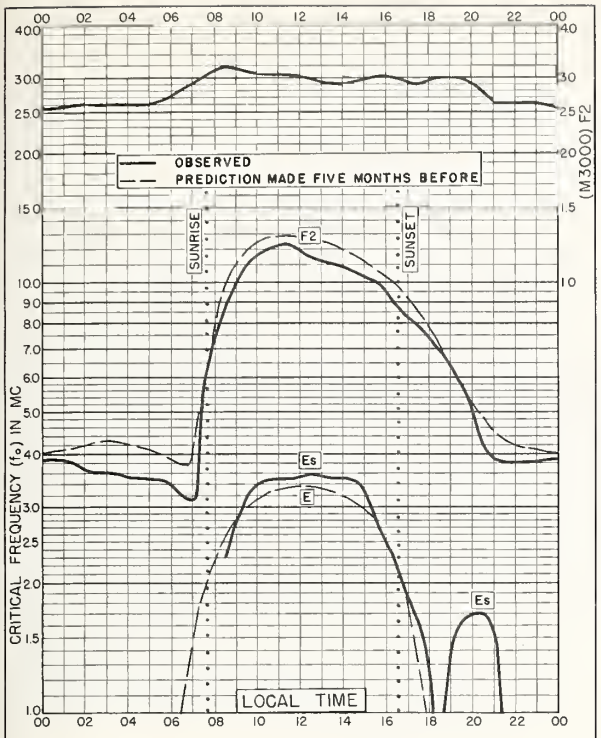


Fig. 113. WAKKANAI, JAPAN
45.4°N, 141.7°E JANUARY 1957

NBS 503

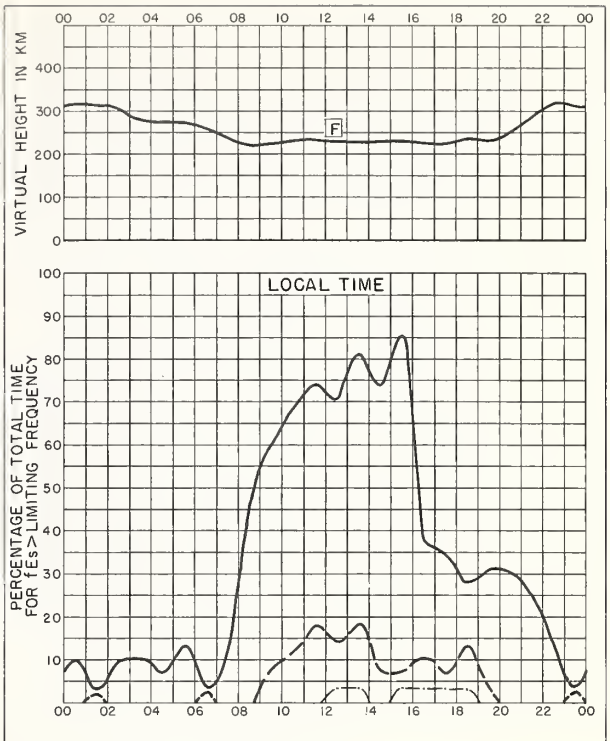


Fig. 114. WAKKANAI, JAPAN JANUARY 1957

NBS 490

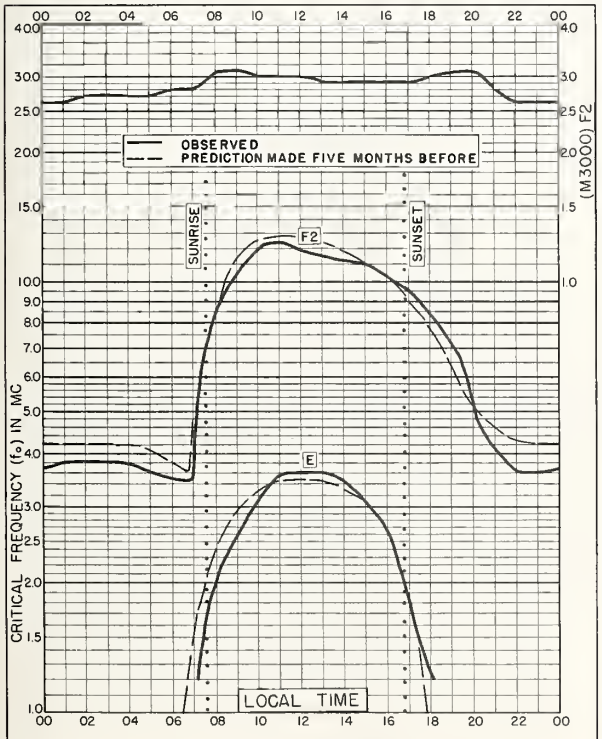


Fig. 115. ALMA-ATA, U.S.S.R.
43.2°N, 76.9°E JANUARY 1957

NBS 503

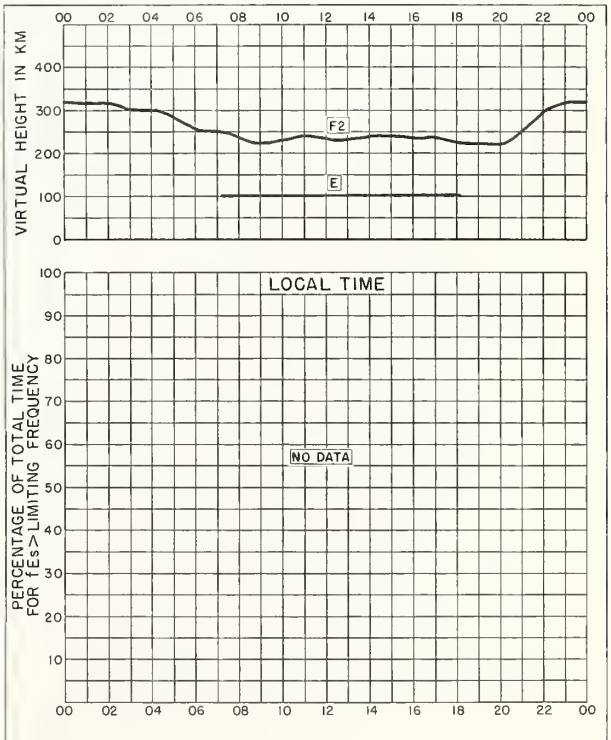


Fig. 116. ALMA-ATA, U.S.S.R. JANUARY 1957

NBS 490

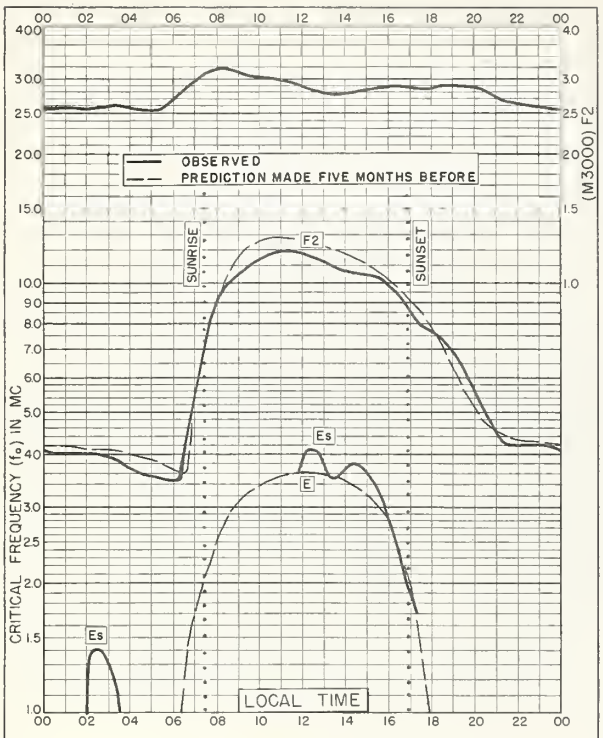


Fig. 117. AKITA, JAPAN
39.7°N, 140.1°E JANUARY 1957

NBS 503

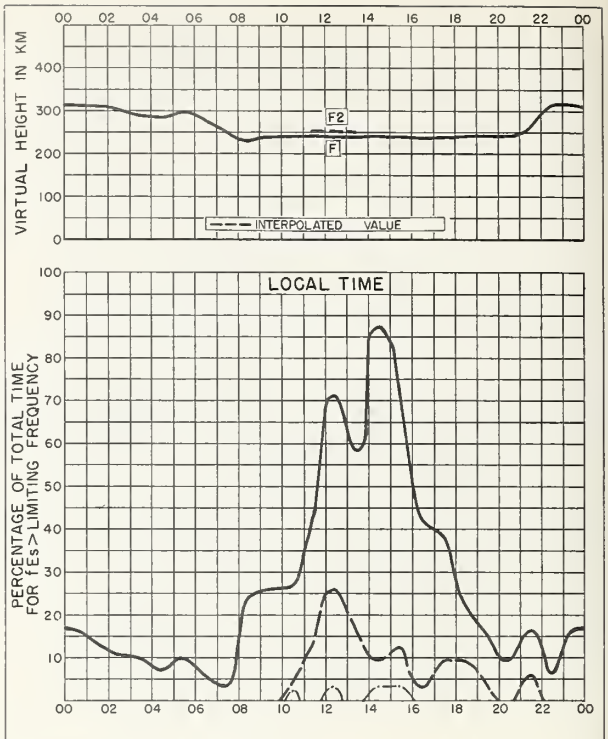


Fig. 118. AKITA, JAPAN JANUARY 1957

NBS 490

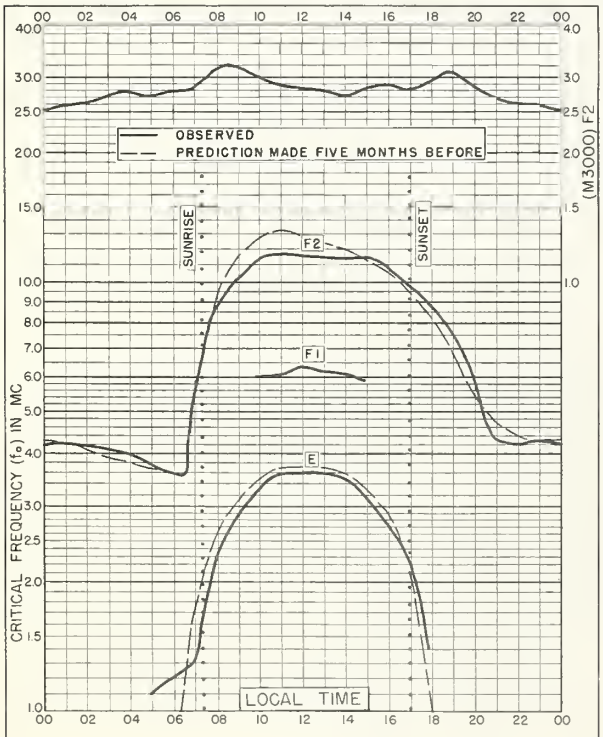


Fig. 119. ASHKHABAD, U.S.S.R.
37.9°N, 58.3°E JANUARY 1957

NBS 503

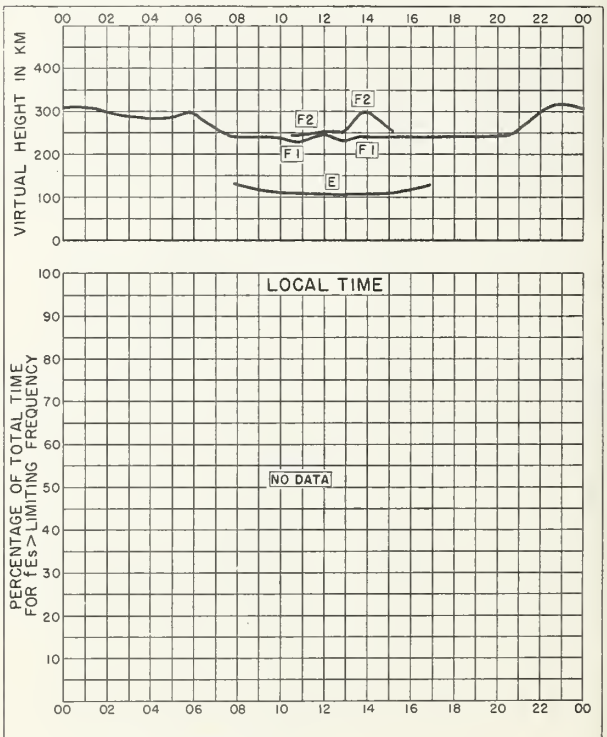


Fig. 120. ASHKHABAD, U.S.S.R. JANUARY 1957

NBS 490

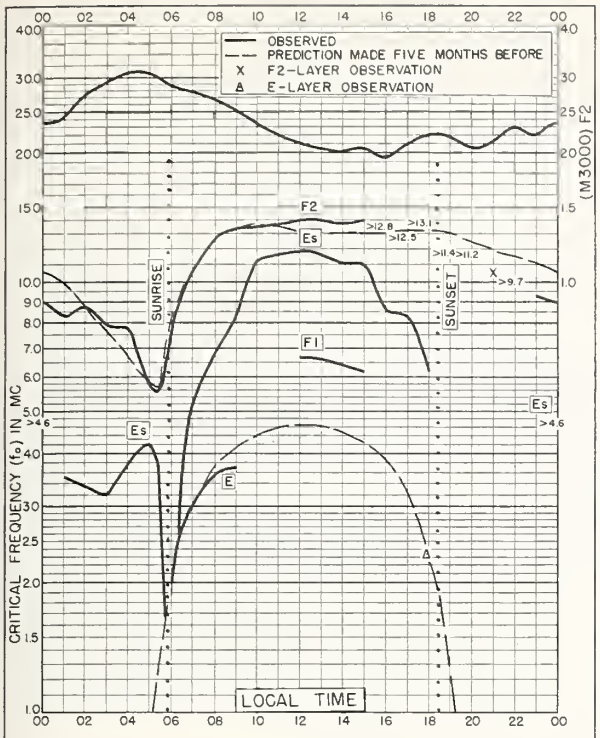


Fig. 121. HUANCAYO, PERU
12.0°S, 75.3°W JANUARY 1957

NBS 503

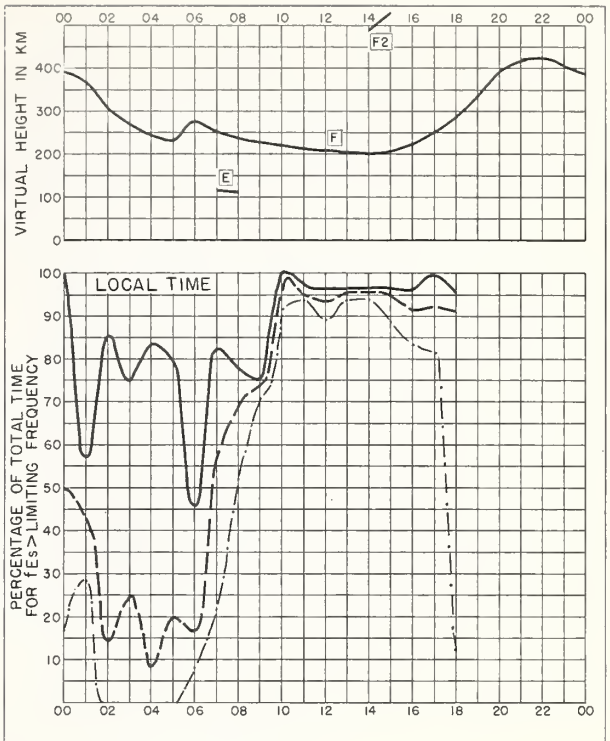


Fig. 122. HUANCAYO, PERU JANUARY 1957

NBS 490

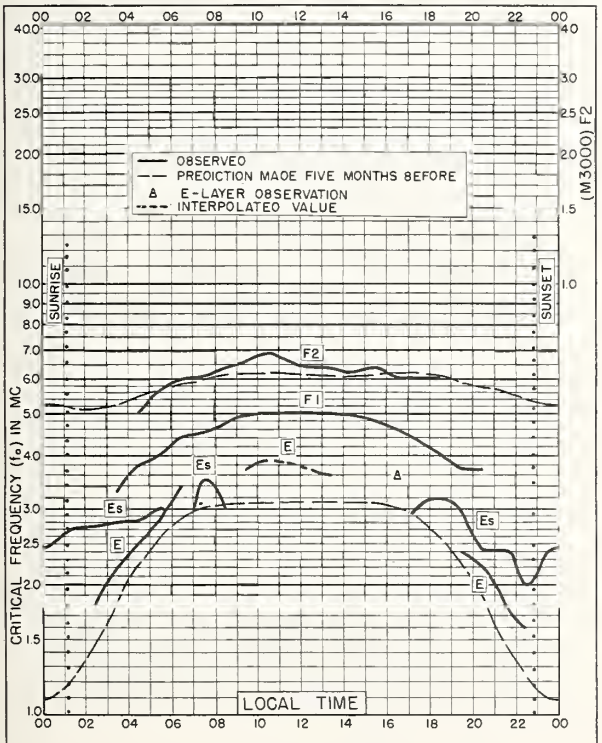


Fig. 123. LULEA, SWEDEN
65.6°N, 22.1°E JUNE 1956

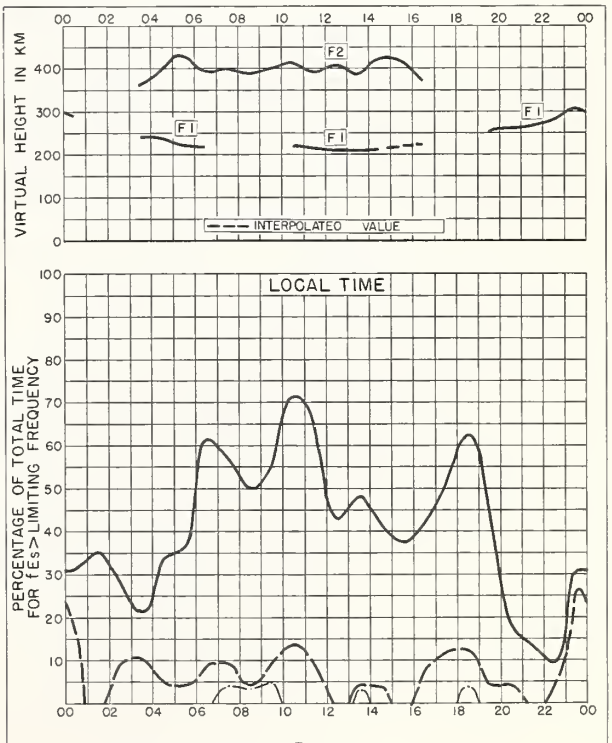


Fig. 124. LULEA, SWEDEN JUNE 1956

NBS 490

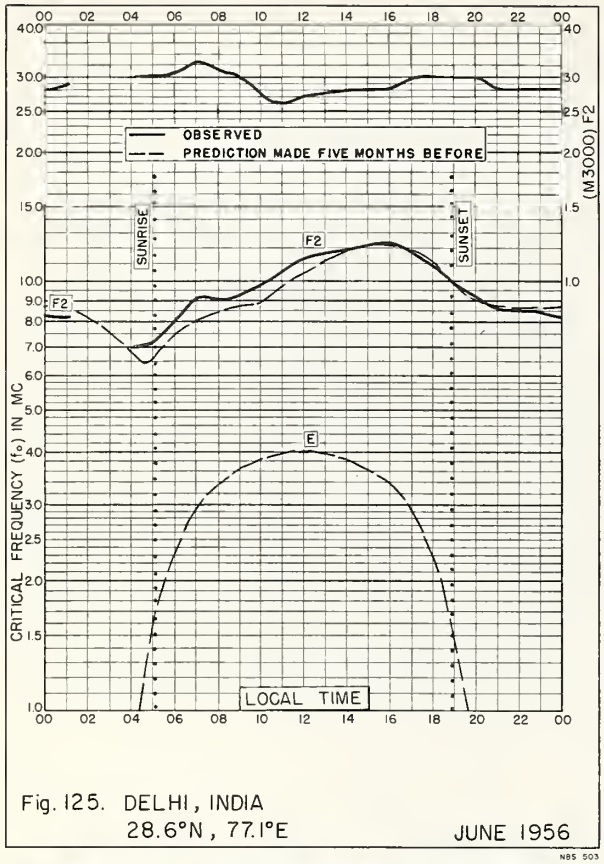


Fig. 125. DELHI, INDIA
28.6°N, 77.1°E
JUNE 1956

NBS 503

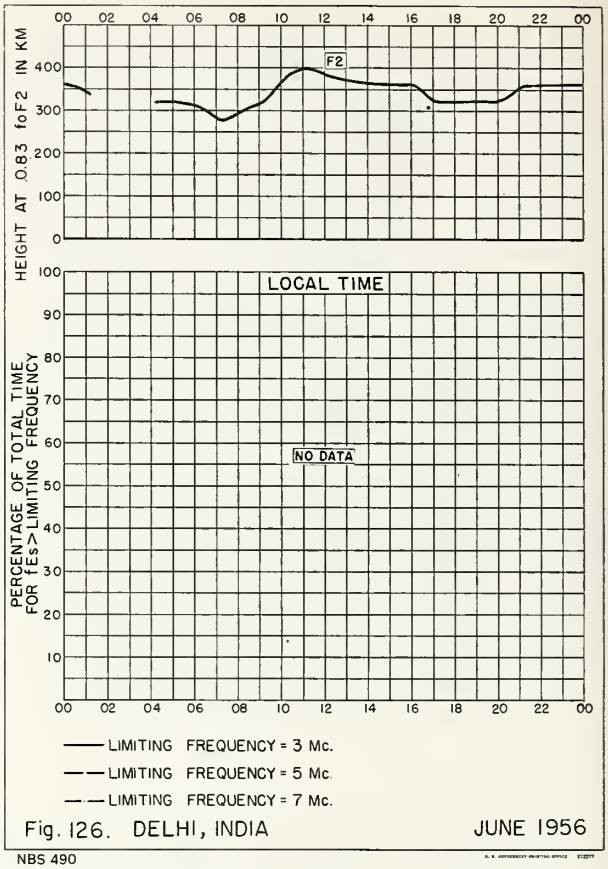


Fig. 126. DELHI, INDIA
JUNE 1956

NBS 490

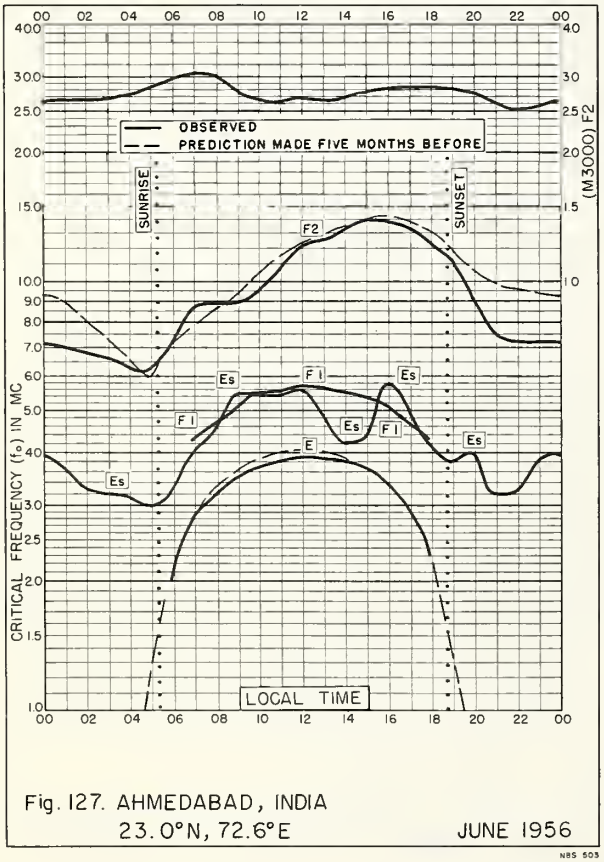


Fig. 127. AHMEDABAD, INDIA
23.0°N, 72.6°E
JUNE 1956

NBS 503

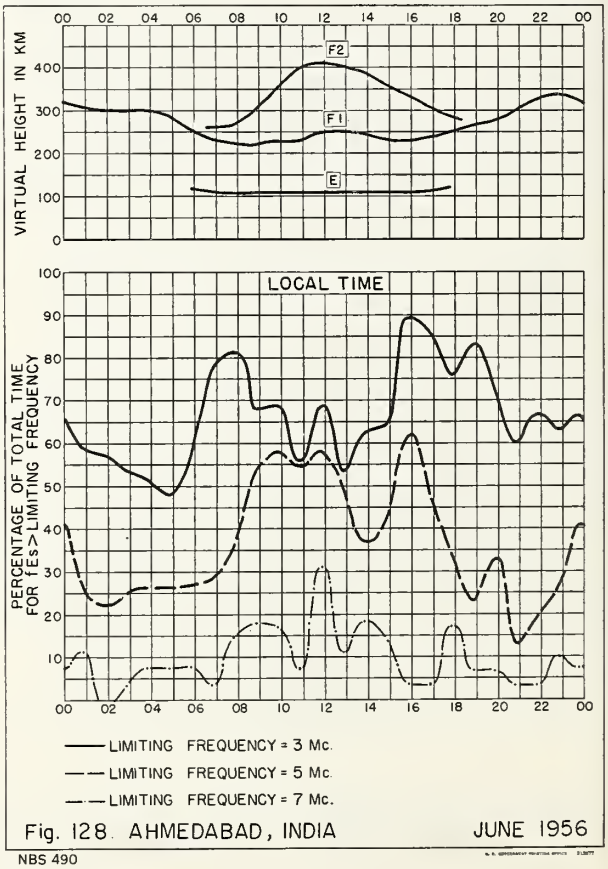


Fig. 128. AHMEDABAD, INDIA
JUNE 1956

NBS 490

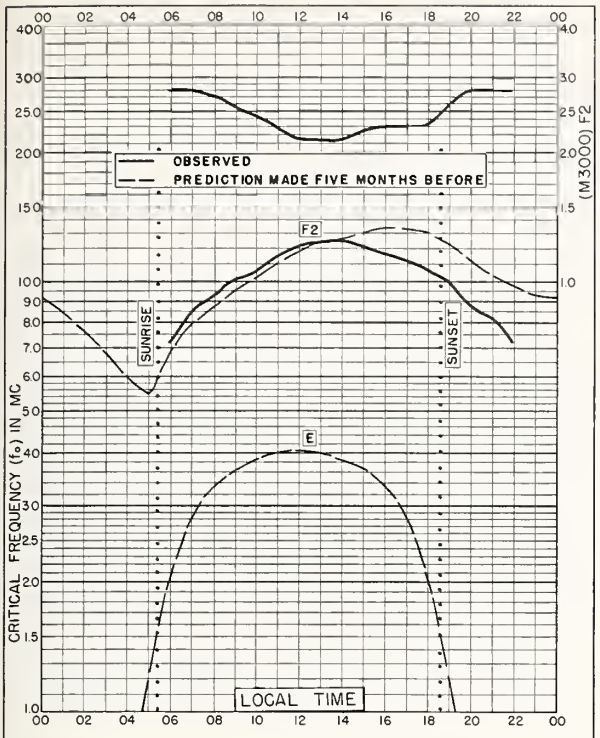


Fig. 129. BOMBAY, INDIA
19.0°N, 73.0°E JUNE 1956

NBS 503

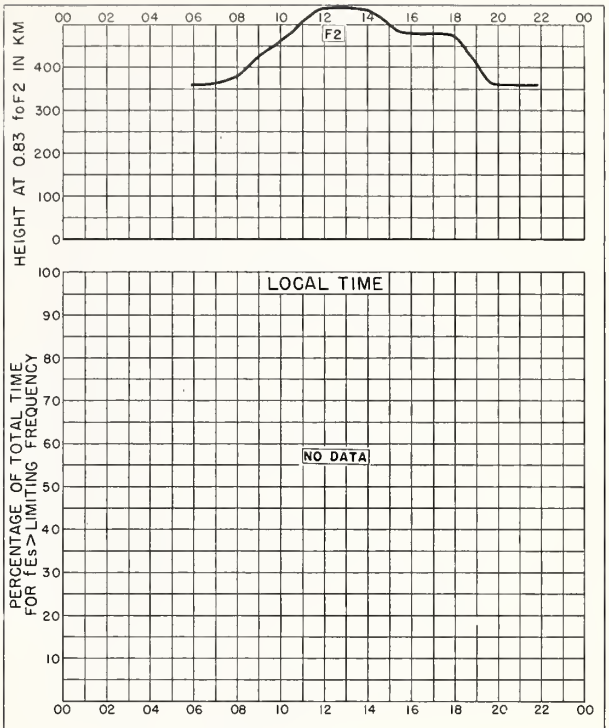


Fig. 130. BOMBAY, INDIA JUNE 1956

NBS 490

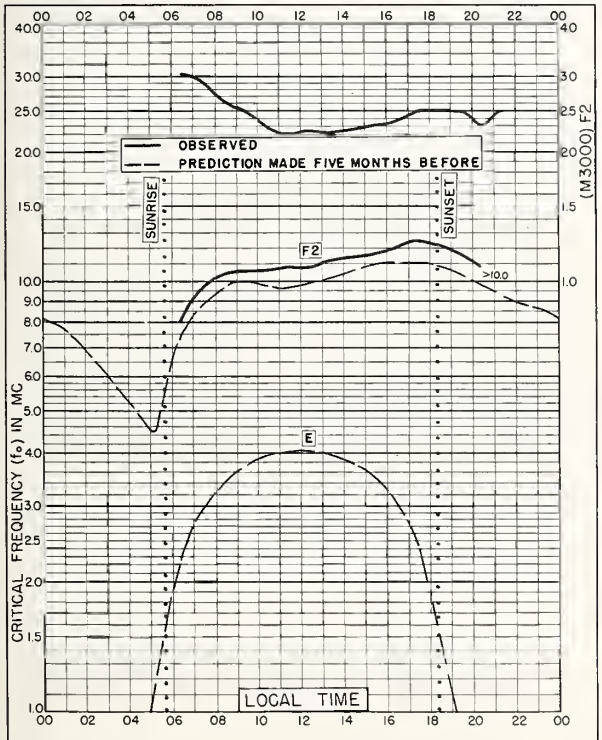


Fig. 131. MADRAS, INDIA
13.0°N, 80.2°E JUNE 1956

NBS 503

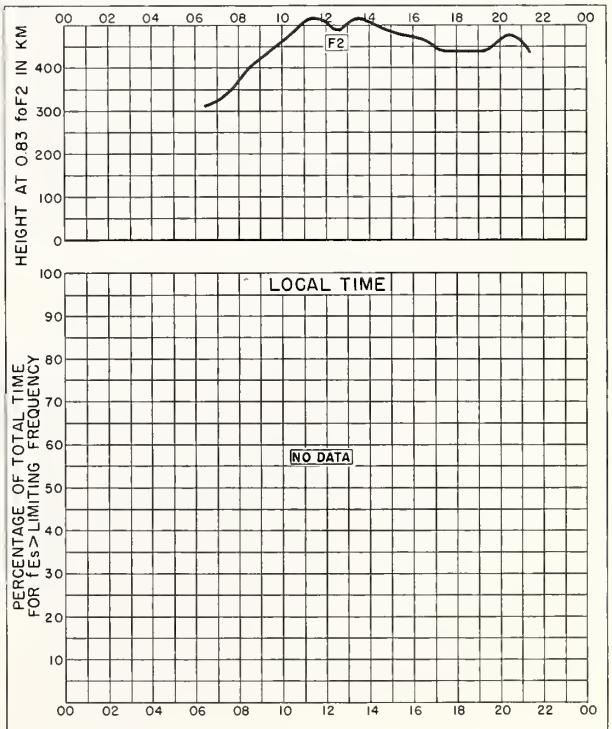


Fig. 132. MADRAS, INDIA JUNE 1956

NBS 490

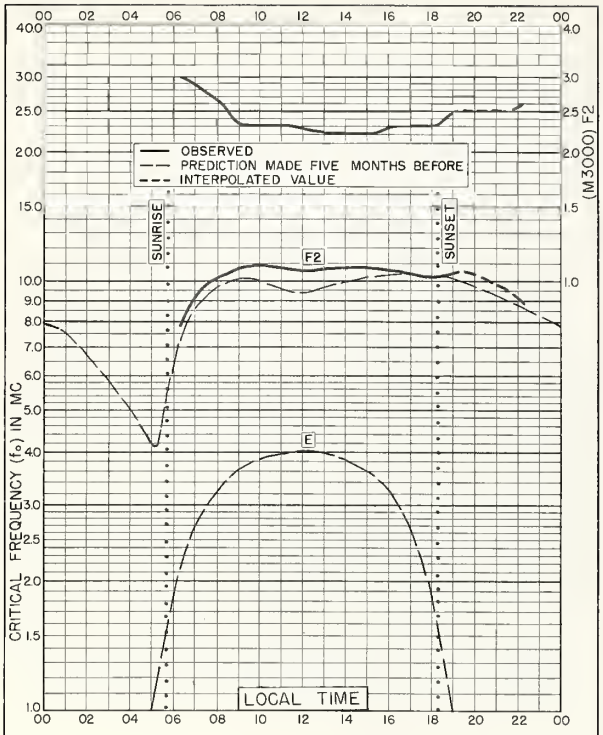


Fig. 133. TIRUCHY, INDIA
10.8°N, 78.8°E JUNE 1956

NBS 503

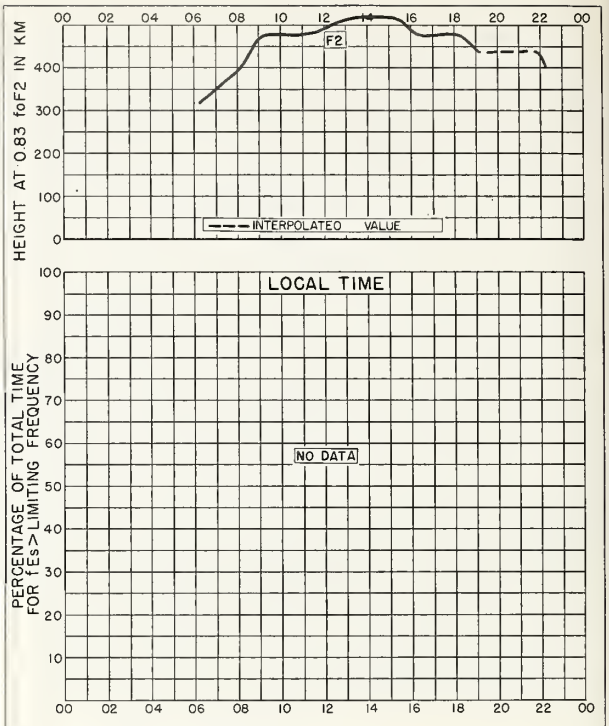


Fig. 134. TIRUCHY, INDIA JUNE 1956

NBS 490

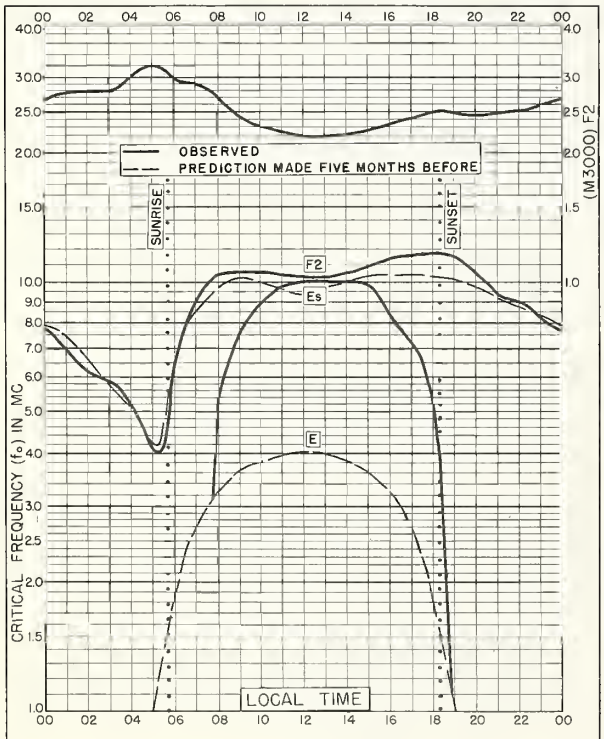


Fig. 135. KODAIKANAL, INDIA
10.2°N, 77.5°E JUNE 1956

NBS 503

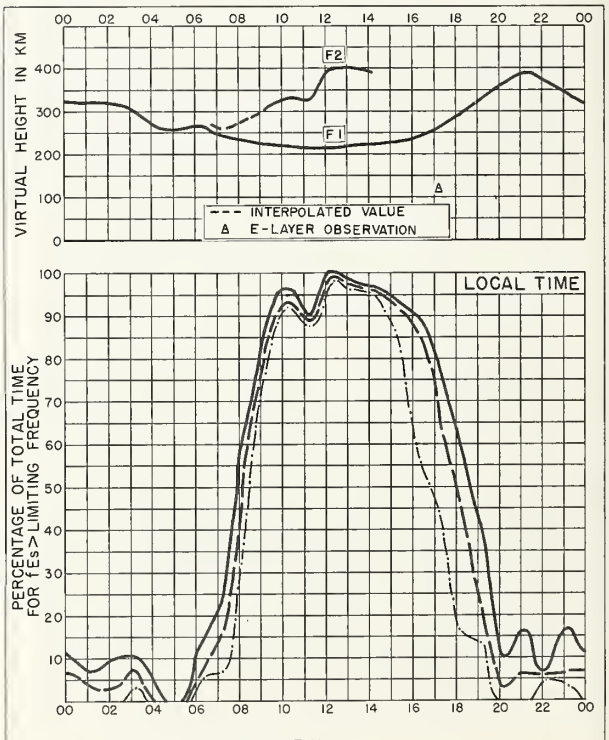


Fig. 136. KODAIKANAL, INDIA JUNE 1956

NBS 490

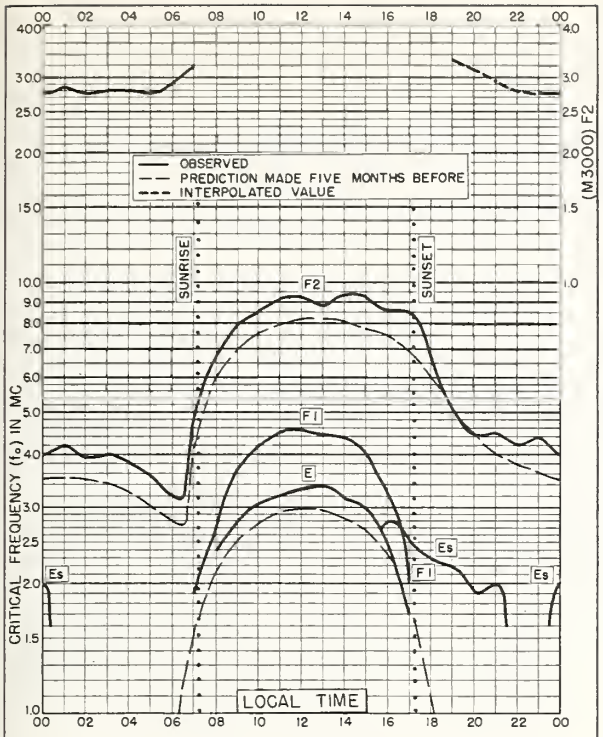


Fig. 137. POITIERS, FRANCE
46.6°N, 0.3°E FEBRUARY 1956

NBS 503

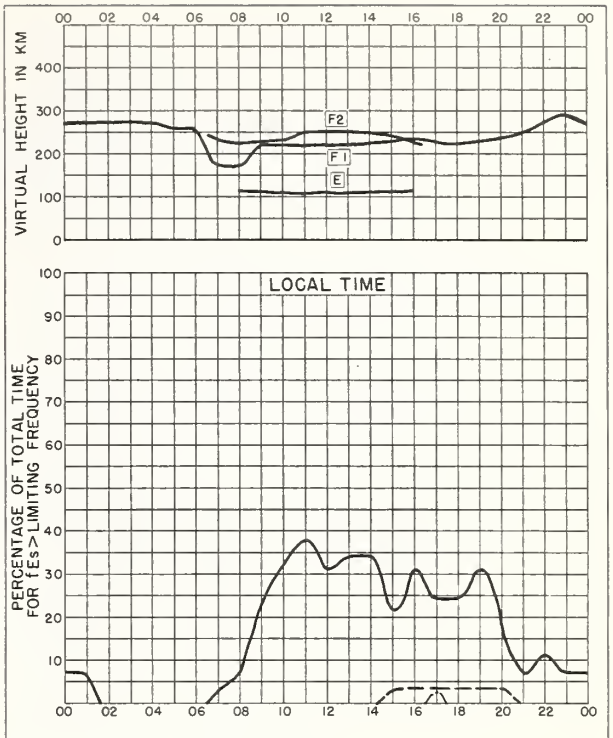


Fig. 138. POITIERS, FRANCE FEBRUARY 1956

NBS 490

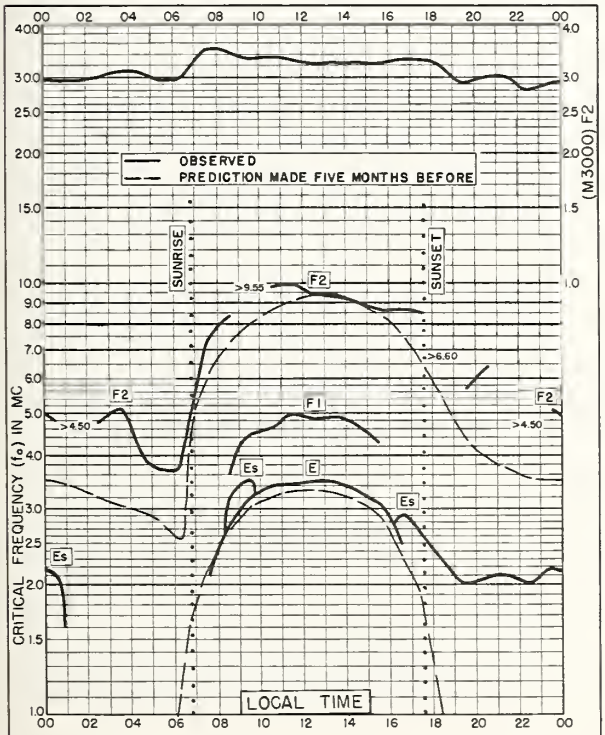


Fig. 139. CASABLANCA, MOROCCO
33.6°N, 7.6°W FEBRUARY 1956

NBS 503

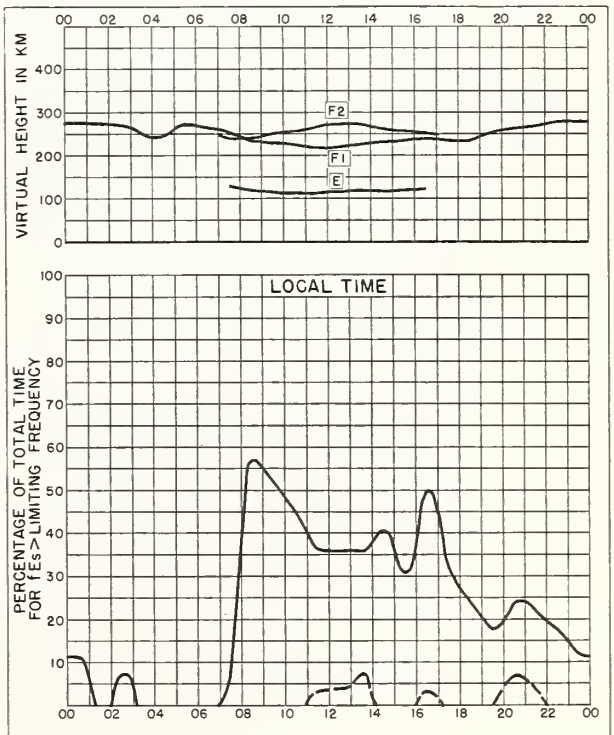


Fig. 140. CASABLANCA, MOROCCO FEBRUARY 1956

NBS 490

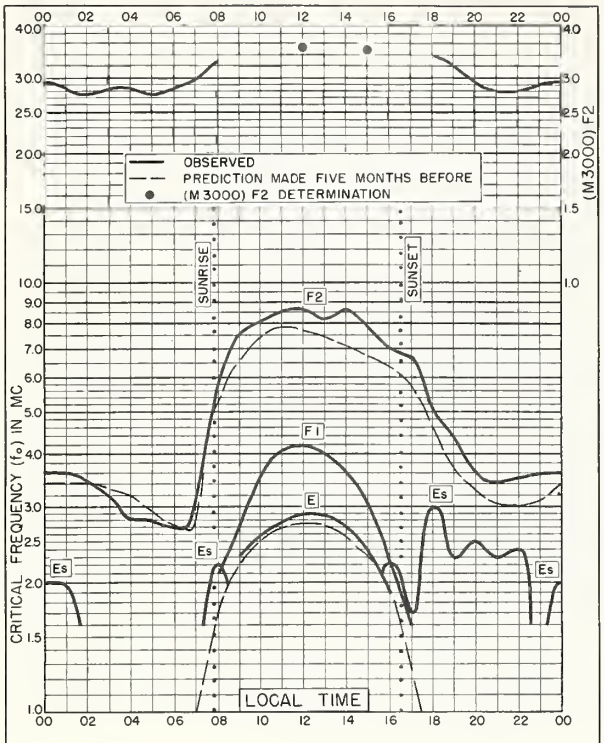


Fig. 141. POITIERS, FRANCE
46.6°N, 0.3°E JANUARY 1956

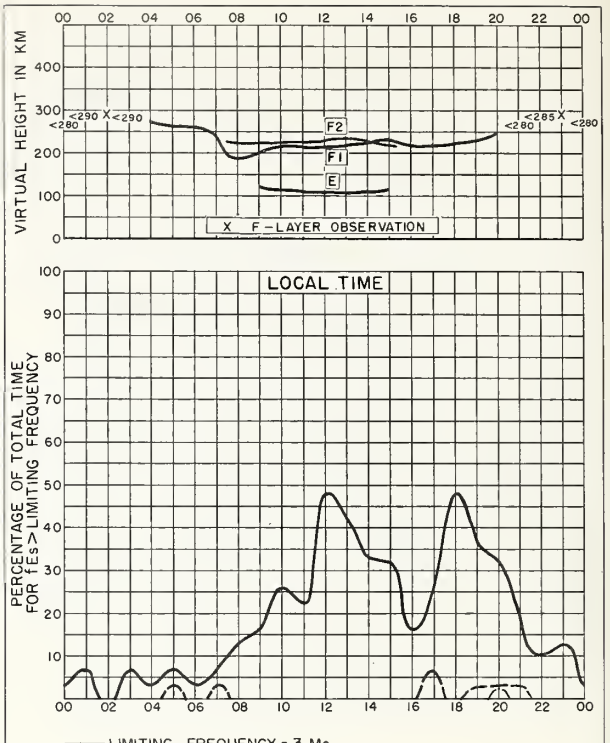


Fig. 142. POITIERS, FRANCE JANUARY 1956

NBS 490

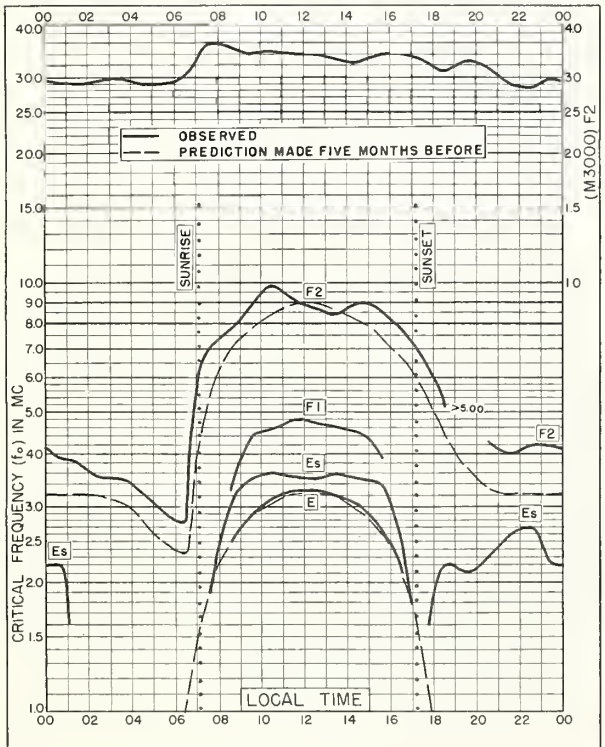


Fig. 143. CASABLANCA, MOROCCO
33.6°N, 7.6°W JANUARY 1956

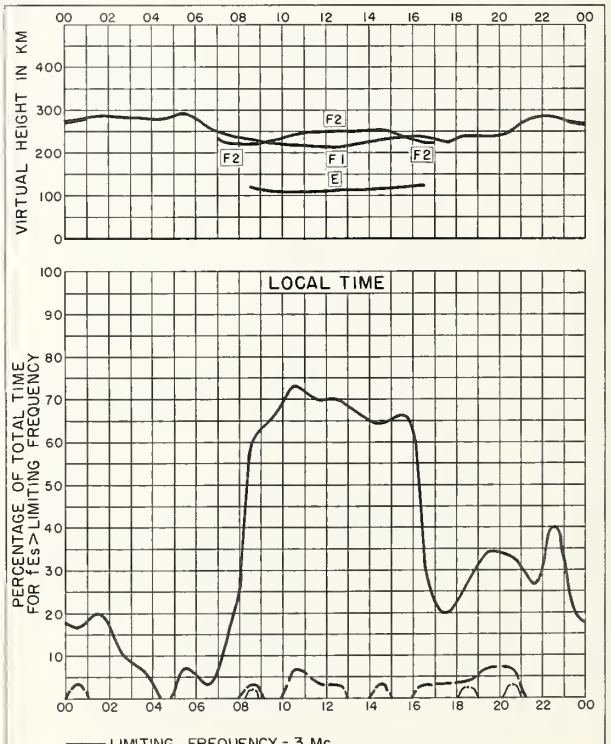


Fig. 144. CASABLANCA, MOROCCO JANUARY 1956

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in CRPL-F155 (Part A)

Index (CRPL-F155 (Part A), continued)

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