PART A

IONOSPHERIC DATA

ISSUED
JANUARY 1957

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

CRPL-F 149
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
22 Jan. 1957

IONOSPHERIC DATA

CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above, plus an additional symbol, R: "Scaling of characteristic is influenced or prevented by absorption in the neighborhood of the critical frequency," (May 1955). Also, beginning with January 1956, additional meanings are assigned to T: A smoothed value which better fits the observations, replacing a doubtful or clearly inconsistent observed value; and to U: foF2 minus foF1 is 0.5 Mc or less (used with (M3000)F2).

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

Values missing because of G are counted:

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

The symbol W is included in the median count only when it replaces a height characteristic; the symbol D, only when it replaces a frequency characteristic.

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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 or sporadic E, 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.

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

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

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice

in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

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

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

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

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

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

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

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

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

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

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										
	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947
December		150	42	11	15	33	53	86	108	114	126
November		147	35	10	16	38	52	87	112	115	124
October		135	31	10	17	43	52	90	114	116	119
September		119	30	8	18	46	54	91	115	117	121
August		105	27	8	18	49	57	96	111	123	122
July		95	22	8	20	51	60	101	108	125	116
June	150*	89	18	9	21	52	63	103	108	129	112
May	150*	77	16	10	22	52	68	102	108	130	109
April	150*	68	13	10	24	52	74	101	109	133	107
March	150*	60	14	11	27	52	78	103	111	133	105
February	150*	53	14	12	29	51	82	103	113	133	90
January	150*	48	12	14	30	53	85	105	112	130	88

*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 (some of which may be subject to minor change) beginning with the minimum of April 1954.

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	72	80
1956	88	97	108	119	128	137						

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 60 and figures 1 to 120 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:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina

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

University of Graz:
Graz, Austria

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

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

French National Center for Telecommunications Studies:
Tananarive, Madagascar

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)

Calcutta (Institute of Radio Physics and Electronics)
Delhi (All India Radio)
Madras (All India Radio)
Tiruchy (All India Radio)
Kodaikanal (India Meteorological Department)

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.

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

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

United States Army Signal Corps:
Adak, Alaska
Ft. Monmouth, New Jersey

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 61 through 71 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: $\overset{U\ F}{32}$

The U is a weight meaning doubtful. Other weights are I, interpolated, D, greater than, and E, less than. 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 and foE. Thus at a later date it will be possible to register more closely scaled values of these characteristics, whenever such are reported.

ERRATUM

CRPL-F142(A), p. 55, fig. 101 and
CRPL-F149(A), p. 55, fig. 95: Ignore the prediction curves of foF2 for Kodaikanal, India. These were incorrectly drawn.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
ADAK, ALASKA; NOV. 21, 1956

The following ionograms were obtained at the U.S. Signal Corps, Adak, Alaska vertical sounding station. They are typical of day and night conditions for November 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.

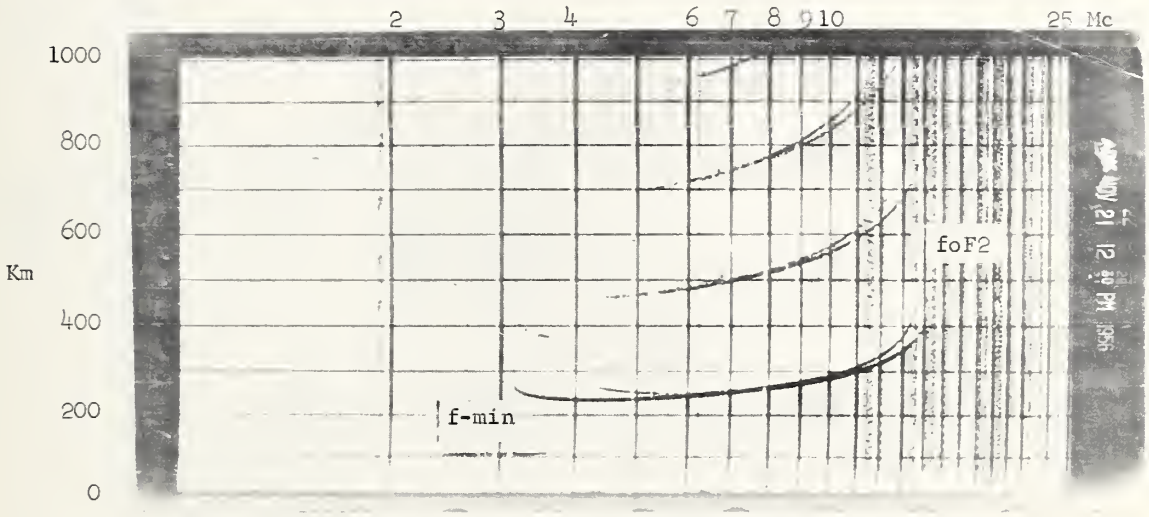


Fig. A. Adak, Alaska, Nov. 21, 1956, 1230 hours, 150°W time.

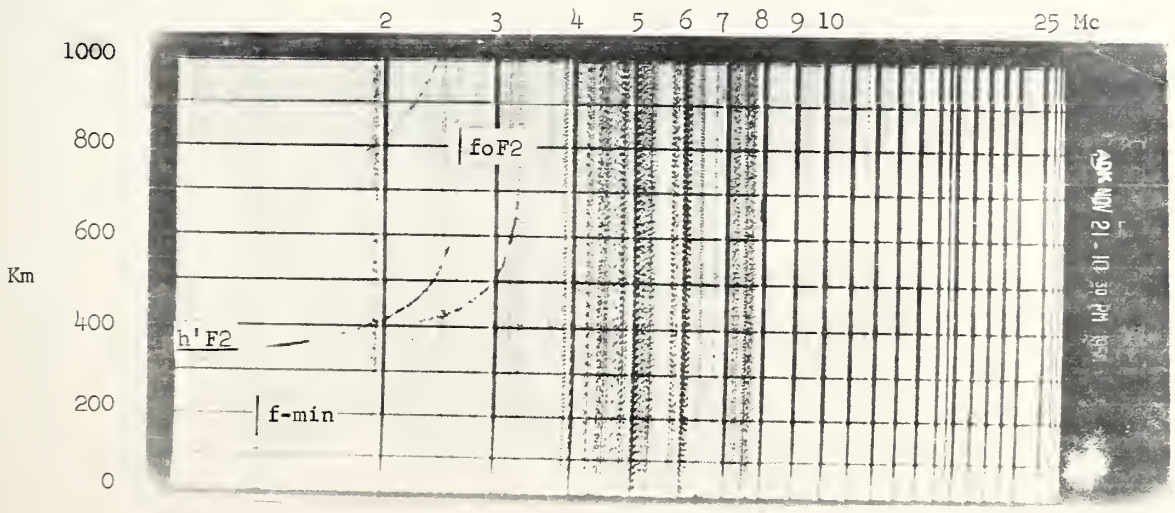
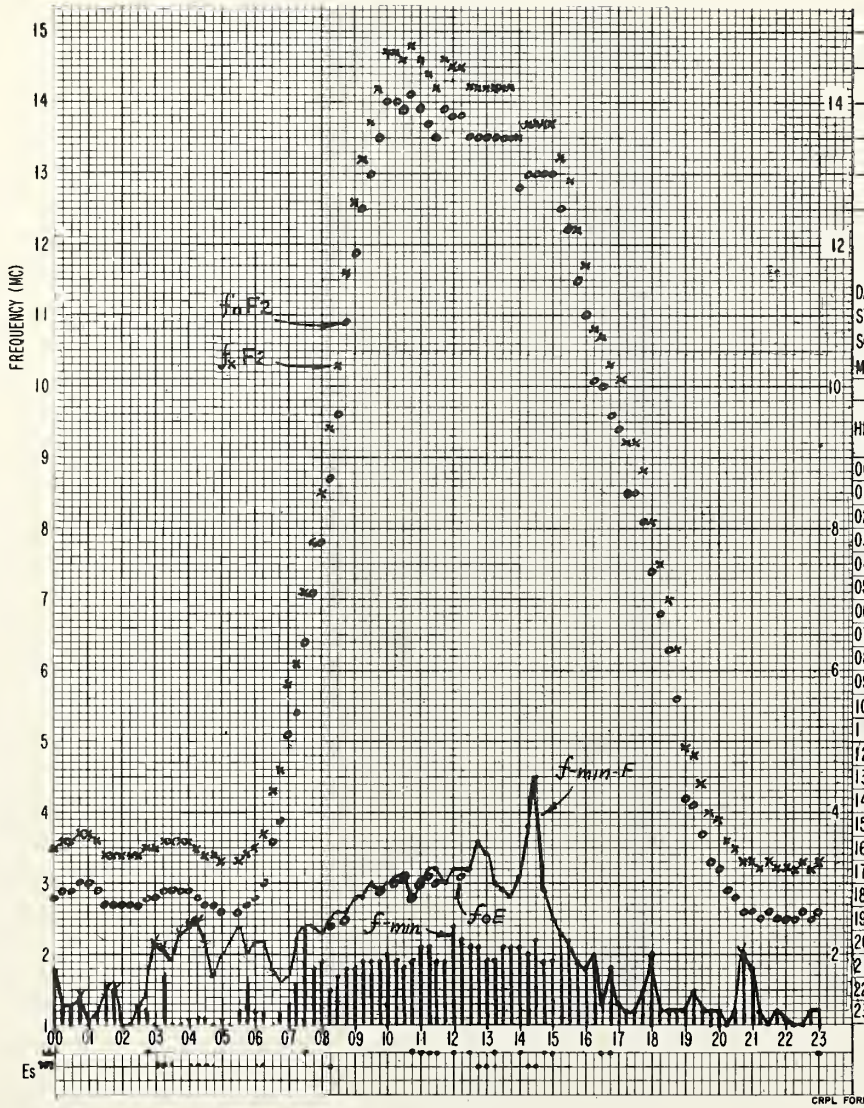


Fig. B. Adak, Alaska, Nov. 21, 1956, 2230 hours, 180°W.time.



f-PLOT

f-PLOT OF
IONOSPHERIC DATA

DATE 21 November 1956
STATION ADAK
SCALED BY REC, BPS
MERIDIAN TIME 180°W

UNPLOTTED HOURLY VALUES

HR	F2 M3000	WT	SYM	F1 M3000	WT	SYM	h'E	WT	SYM	f'Es	SYM
00	240	1									B
01	240	1									B
02	240	1									B
03	240	1								030	
04	240	1								042	
05	230	1								057	
06	230	1								057	
07	245	1				Q			A	034	
08	320	1				Q	135	1			G
09	320	1				Q	121	1	H	021	
10	315	1				Q	111	1	H		G
11	310	1				Q	131	1		030	
12	300	1				Q	123	2	A	031	
13	295	1				Q			A	058	
14	300	1				Q			A	047	
15	305	1				Q			A	030	
16	310	1				Q			B		B
17	310	1									B
18	330	1									B
19	320	1									B
20	300	1									B
21	290	1									B
22	260	1									B
23	240	1								020	

GPO 840792

CRPL FORM 7-L E 4-2-56

Table 1

Washington, D. C. (38.7°N, 77.1°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	5.6					3.0	2.80
01	260	5.4					(3.9)	2.80
02	270	5.4					(4.4)	2.80
03	270	5.2					(4.0)	2.80
04	260	5.1					3.6	2.80
05	250	4.7					(3.4)	2.85
06	260	4.7					3.1	2.90
07	250	5.8					4.0	2.95
08	230	9.2	---	---	121	2.2		3.20
09	230	11.7	225	---	110	2.9	2.9	3.20
10	240	12.7	225	---	111	3.2		3.10
11	240	13.2	230	---	109	3.4		3.00
12	(250)	13.4	225	---	109	3.5		2.90
13	(250)	13.3	230	---	109	3.4		2.85
14	(250)	13.0	230	---	111	3.2		2.80
15	(240)	12.7	230	---	111	2.9	2.9	2.80
16	240	12.2	230	---	119	2.3	2.3	2.85
17	230	11.6	---	---				2.85
18	230	10.4					3.5	2.90
19	230	9.2					3.4	2.95
20	230	7.8					3.6	3.00
21	240	7.0					3.3	2.90
22	250	6.3					(3.1)	2.85
23	260	5.8					2.8	2.90

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) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.50					1.4	2.45
01	325	3.60					2.3	2.40
02	310	3.55					1.4	2.40
03	300	4.10						2.50
04	300	4.10						2.55
05	280	4.00						2.55
06	255	3.65						2.65
07	250	4.40						2.60
08	250	5.85			---	1.80		2.70
09	240	8.45	---	---	130	2.20		2.90
10	240	10.90	250	---	120	2.65		3.00
11	240	12.60	250	---	120	2.80		3.00
12	240	13.80	245	---	120	2.85		3.00
13	235	13.90	250	---	115	2.85		3.00
14	235	13.70	245	---	130	2.60		3.00
15	235	13.00	245	---	150	2.25		2.95
16	230	>12.00	---	---	---	----		2.95
17	230	10.60			---	----		2.90
18	230	8.90						2.95
19	230	6.65						2.70
20	250	5.25						2.70
21	260	5.00						2.50
22	295	4.10						2.45
23	325	3.75					2.5	2.40

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) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	3.8					3.5	2.7
01	340	3.8					3.1	2.6
02	330	3.6					2.8	2.7
03	315	3.8					3.0	2.7
04	300	4.0					2.7	2.75
05	270	4.2					2.6	2.75
06	260	4.1			---	----	2.4	2.7
07	250	5.0			---	E		2.9
08	240	6.6			125	1.80	2.3	3.0
09	235	9.3			115	2.20	2.6	3.0
10	235	12.2	---	---	110	2.55		3.0
11	235	13.4	---	---	110	2.70		3.0
12	230	14.1	---	---	110	2.70		2.9
13	230	14.4			115	2.65		3.0
14	225	14.0			125	2.35		3.0
15	225	13.2			---	1.90	2.2	3.0
16	225	11.8			---	E	2.8	2.95
17	220	9.3			---	E	2.4	3.0
18	225	7.8					1.6	3.0
19	240	6.1					2.4	2.9
20	275	4.7						2.8
21	300	4.3					2.0	2.7
22	305	4.3					2.3	2.7
23	325	3.8					2.9	2.65

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) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	5.8						
01	330	4.9						
02	380	4.8						
03	360	4.9						
04	310	4.6						
05	290	4.3						
06	---	4.0						
07	260	7.0						
08	230	9.4						
09	235	0						
10	240	0						
11	245	0						
12	250	0						
13	240	0						
14	250	0						
15	240	0						
16	240	0						
17	240	0						
18	250	9.0						
19	250	7.9						
20	260	6.6						
21	300	6.1						
22	310	6.0						
23	325	5.3						

Time: 15.0°E.
Sweep: 2.5 Mc to 11.0 Mc in 2 minutes.

Table 5

Ft. Monmouth, New Jersey (40.3°N, 74.1°W) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.8						2.80
01	260	6.4					(3.2)	2.75
02	270	6.3					(2.0)	2.70
03	270	6.0						2.70
04	270	5.6					2.7	2.75
05	270	5.3					3.7	2.75
06	250	5.4			---	---	(3.2)	2.80
07	240	7.7	235	---	111	---		3.10
08	230	10.8	230	---	118	2.7		3.15
09	230	12.2	225	---	113	3.1		3.10
10	240	13.5	220	---	113	3.5		3.00
11	230	14.0	225	---	115	3.6		2.95
12	240	13.9	225	---	114	3.6		2.85
13	(240)	13.7	225	---	113	3.5		2.85
14	(240)	13.5	230	---	115	3.3		2.80
15	230	13.2	230	---	117	3.0		2.85
16	230	12.6	230	---	119	---		2.85
17	230	12.0						2.85
18	230	10.6					2.2	2.85
19	240	9.4					2.5	2.85
20	240	8.6					(3.6)	2.85
21	250	7.8					(1.8)	2.80
22	250	7.4					(2.2)	2.85
23	250	7.0						2.80

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

Table 6

Formosa, China (25.0°N, 121.5°E) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	12.1						2.9
01	240	10.6					(2.7)	2.9
02	240	9.8					(2.3)	2.8
03	250	(10.2)					(2.2)	(2.9)
04	240	(9.6)					(2.3)	(3.0)
05	260	(9.8)						(3.05)
06	260	(10.6)					(2.1)	(3.0)
07	260	(11.0)			---	---	(2.2)	(3.0)
08	250	14.2	---	---	120	3.1		3.0
09	240	14.8	---	---	120	3.4	3.8	3.0
10	(240)	15.6	240	---	120	3.8	4.0	2.9
11	---	15.5	240	---	120	3.8		2.7
12	---	15.9	240	---	120	4.0		2.6
13	---	16.6	240	---	---	---		2.6
14	---	17.2	240	---	---	---		2.6
15	---	17.2	240	---	---	---		2.6
16	(240)	16.7	240	---	120	2.9	3.2	2.6
17	260	17.0	---	---			3.2	2.8
18	270	17.8					(2.9)	2.7
19	280	18.1					(3.0)	2.7
20	260	>19.0					(2.8)	(2.8)
21	240	17.3						2.8
22	240	14.9						2.9
23	240	(13.0)						2.9

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

Table 7

Maui, Hawaii (20.8°N, 156.5°W) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	9.1						3.00
01	230	8.0						2.90
02	250	7.0						2.90
03	230	6.0						3.00
04	260	4.2						2.60
05	300	4.0						2.50
06	310	4.4						2.50
07	270	8.6	---	---	131	2.2		2.90
08	250	12.4	250	---	118	2.9		3.10
09	260	14.0	240	---	113	3.4		3.00
10	(270)	14.6	230	---	111	3.7		2.90
11	(260)	14.9	225	---	111	3.8		2.80
12	350	15.5	230	---	111	3.9		2.70
13	370	15.5	235	7.4	111	3.8		2.65
14	370	15.5	240	7.2	111	3.7		2.65
15	360	15.4	240	---	113	3.5	4.0	2.70
16	(320)	15.0	250	---	118	3.0	3.8	2.70
17	250	14.2	250	---	125	2.5	3.4	2.75
18	240	13.8					4.3	2.85
19	240	13.0					3.9	2.90
20	260	12.8					3.2	2.90
21	250	13.1					2.2	3.00
22	230	12.2						3.10
23	220	11.0						3.00

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

Table 8

Panama Canal Zone (9.4°N, 79.9°W) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	8.5					(2.8)	3.00
01	240	7.3					(3.3)	2.90
02	240	5.7					3.5	2.80
03	250	5.1					3.6	2.80
04	260	5.0					2.4	2.75
05	290	4.6					4.5	2.70
06	290	6.7					3.5	2.80
07	250	11.0			123	2.6		3.05
08	(250)	13.6	240	---	117	3.3		3.00
09	---	14.3	235	---	111	3.7	4.8	2.95
10	---	14.3	230	---	111	4.0	4.9	2.80
11	---	14.0	230	---	111	4.2	5.0	2.70
12	(380)	13.6	230	---	111	4.2	5.4	2.60
13	400	13.6	230	7.2	111	4.2	5.1	2.50
14	420	13.4	235	7.0	111	3.9	5.2	2.50
15	400	13.4	240	---	109	3.6	5.6	2.50
16	---	13.3	250	---	111	3.2	5.0	2.55
17	---	12.3	255	---	117	2.7	4.0	2.70
18	270	12.2					3.4	2.80
19	260	11.8					3.2	2.90
20	250	11.6					2.8	2.85
21	250	11.0					1.9	2.80
22	240	10.8						2.90
23	240	10.0						3.00

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

Table 9

Reykjavik, Iceland (64.1°N, 21.8°W) October 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---					3.9	----
01		(5.8)					4.1	(2.60)
02		(5.6)					3.8	(2.50)
03		---					4.2	----
04		(5.9)					3.6	(2.50)
05		(5.8)					3.0	(2.65)
06		4.6						2.70
07		5.4						2.85
08		6.9			---	---		2.95
09		7.8			111	---		2.95
10		9.3			111	(2.8)		2.90
11		10.8		---	111	2.8		2.90
12		11.3		---	111	(2.9)		2.85
13		11.1		---	115	3.0		2.90
14		11.0		---	117	2.9		2.90
15		10.9		---	116	2.7		2.95
16		10.8			119	2.5	2.6	2.95
17		11.2			---	---	2.7	3.00
18		(10.2)					3.8	(3.00)
19		8.0					3.5	2.95
20		(5.2)					4.0	(2.90)
21		---					3.9	----
22		(6.8)					3.8	(2.50)
23		(6.4)					3.8	(2.60)

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

Table 10

Narsarssuak, Greenland (61.2°N, 45.4°W) October 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---					4.1	----
01		---					3.8	----
02		---					3.8	----
03		---					4.2	
04		---					4.5	----
05		(4.4)					3.7	(2.70)
06		(5.0)					3.2	(2.90)
07		(6.5)			---	---		(3.00)
08		(7.8)			119	2.2		(3.05)
09		8.9			119	2.5		3.00
10		10.1		---	119	2.8		2.95
11		10.6		---	113	2.9		2.90
12		(10.8)		---	113	2.9		(2.90)
13		(10.2)		---	111	2.9		(2.90)
14		(10.0)		---	115	2.7		(2.90)
15		(9.9)		---	117	2.5		(2.90)
16		(11.6)		---	121	2.4		(3.00)
17		(11.2)			---	---	3.5	(3.00)
18		---			---	---	3.3	----
19		---					4.1	----
20		---					4.0	----
21		---					5.6	
22		---					4.6	----
23		---					3.8	----

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

Table 11

Adak, Alaska (51.9°N, 176.6°W) October 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.8						2.55
01	330	3.9						2.60
02	340	3.8						2.55
03	320	3.8						2.50
04	320	4.0						(2.60)
05	310	4.0						(2.55)
06	270	5.2	---	---	---	---		2.75
07	240	7.6	---	---	(125)	2.4		3.10
08	230	10.2	240	---	121	2.7		3.15
09	230	11.9	230	---	115	(3.0)		3.05
10	230	13.0	225	---	117	3.3	3.4	3.00
11	230	13.7	230	---	117	(3.4)		2.95
12	240	13.6	230	---	115	(3.3)		2.90
13	240	13.3	230	---	113	3.2		2.90
14	240	12.8	235	---	115	(3.0)		2.90
15	230	12.2	240	---	123	2.7		2.90
16	230	11.8	---	---	---	2.3		3.00
17	230	10.7			---	---		3.00
18	230	9.0						3.00
19	240	7.6						3.05
20	240	6.0						3.05
21	250	4.5						2.95
22	270	3.9						2.75
23	300	4.0						2.60

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

Table 12

Anchorage, Alaska (61.2°N, 149.9°W) September 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		3.9					1.9	2.50
01		3.8					1.9	2.50
02		3.5					1.5	2.40
03		(3.8)					2.0	(2.45)
04		(3.9)			---	---		(2.45)
05		4.2		---	---	---		2.50
06		5.0		3.0	121	2.0		2.70
07		5.6		(3.8)	121	2.4		2.75
08		6.4		4.1	117	2.7		2.75
09		6.9		4.4	119	(3.0)		2.70
10		7.2		(4.6)	118	3.2		2.65
11		7.6		4.8	115	3.3		2.65
12		7.6		4.9	<117	3.3		2.65
13		7.8		4.8	115	3.2		2.65
14		7.9		4.8	118	3.1		2.70
15		8.1		(4.7)	118	3.0		2.70
16		8.3		(4.4)	121	2.5		2.80
17		8.0		---	126	2.2		2.85
18		7.8			---	---		2.90
19		7.2						2.90
20		6.2						2.80
21		5.0						2.80
22		4.3						2.75
23		(3.9)						(2.65)

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

Table 13

Baguio, P. I. (16.4°N, 120.6°E) — 5september 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	13.7						3.20
01	220	13.0						3.30
02	210	10.0						3.15
03	220	8.2					1.6	3.00
04	230	7.6					2.2	3.00
05	220	6.3					2.8	3.20
06	260	7.4			---	---	3.0	3.00
07	240	9.9			111	(2.7)	4.0	3.05
08	230	11.3	---	---	109	(3.2)	4.8	2.70
09	(220)	12.2	220	---	107	(3.7)	5.2	2.50
10	---	12.5	215	---	(107)	(3.9)	5.4	2.35
11	---	12.5	210	---	---	(4.0)	4.4	2.30
12	---	12.5	210	---	(105)	4.1	4.1	2.30
13	---	13.2	210	---	---	4.0		2.25
14	---	13.7	215	---	107	4.0	4.6	2.35
15	---	14.2	220	---	107	3.7	4.4	2.45
16	(240)	14.0	230	---	109	3.2	4.5	2.50
17	250	13.5			111	(2.4)	4.4	2.40
18	280	13.0					3.8	2.40
19	360	(11.9)					2.4	(2.30)
20	330	11.5					2.1	2.40
21	280	13.0					2.8	2.65
22	270	(13.0)					2.1	2.90
23	250	13.5						3.05

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

Table 14

Tromso, Norway (69.7°N, 19.0°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	5.20	---	----	---	----	4.3	2.55
01	(360)	5.20	305	----	---	----	3.2	2.55
02	(325)	(6.10)	265	----	---	----	4.0	(2.55)
03	(360)	5.70	290	----	---	----	4.0	2.55
04	(400)	5.85	245	3.70	100	2.40	4.0	2.60
05	420	5.75	240	4.00	105	2.70	<3.0	2.65
06	420	5.90	245	4.30	100	2.95	3.0	2.60
07	440	5.80	240	4.50	100	3.00	3.2	2.70
08	420	6.05	235	4.70	100	3.20	<2.2	2.60
09	435	6.10	230	4.75	100	3.25	<3.6	2.60
10	420	6.30	225	4.95	100	3.30	4.0	2.60
11	405	6.35	215	4.95	100	3.30	4.0	2.70
12	440	6.40	215	4.95	100	3.30	<3.6	2.70
13	395	6.40	205	4.95	100	3.30	<3.6	2.70
14	415	6.25	210	4.80	100	3.30	<2.2	2.70
15	400	6.10	220	4.70	100	3.25	3.2	2.80
16	(360)	5.95	240	4.70	100	3.20	<3.6	2.75
17	(435)	5.95	245	4.50	100	3.00	4.0	2.80
18	---	6.10	250	----	100	2.80	4.0	2.85
19	---	5.85	250	----	105	2.65	4.0	2.85
20	---	5.90	255	----	105	----	4.0	2.80
21	(295)	5.70	---	----	105	----	4.0	2.70
22	(300)	5.65	---	----	---	----	4.0	2.70
23	---	5.40			---	----	4.2	(2.55)

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

Table 15

Kiruna, Sweden (67.8°N, 20.3°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	(5.3)	---	---	---	---	5.0	(2.6)
01	355	(5.4)	---	---	---	---	4.0	2.5
02	350	5.8	---	3.0	100	E	4.0	2.6
03	390	5.2	260	3.5	105	2.0	4.0	2.6
04	415	5.2	245	3.8	100	2.3	3.1	2.6
05	410	5.5	240	4.0	105	2.5	<3.5	2.6
06	400	5.6	230	4.2	105	2.8		2.6
07	430	5.8	220	4.4	100	3.0		2.6
08	425	6.0	215	4.6	100	3.1	<3.5	2.7
09	425	6.1	210	4.9	100	3.2	3.9	2.6
10	405	6.3	210	5.0	100	3.2	4.0	2.65
11	410	6.3	210	5.0	100	3.2	4.0	2.6
12	390	6.4	210	5.0	100	3.4	3.8	2.7
13	395	6.3	210	5.0	100	3.2	3.8	2.6
14	375	6.2	205	4.9	100	3.2	<3.6	2.7
15	375	6.2	210	4.9	100	3.1		2.8
16	355	6.0	220	4.7	100	3.0		2.75
17	(365)	6.0	230	4.6	105	2.9	3.5	2.7
18	---	6.0	240	4.1	105	2.8	3.5	2.85
19	---	6.0	250	(4.0)	105	2.4	4.0	2.8
20	(295)	6.0	255	---	110	2.1	3.9	2.8
21	295	5.9	265	---	110	1.9	4.0	2.8
22	305	5.4	---	---	---	E	4.0	2.7
23	305	5.8	---	---	---	---	4.0	2.7

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

Table 16

Oe Bilt, Holland (52.1°N, 5.2°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.5						2.4
01	290	6.2						2.4
02	290	5.6						2.4
03	290	5.2						2.4
04	270	5.5	270	---	125	1.6	2.0	2.5
05	310	5.8	240	3.9	110	2.3	2.7	2.5
06	320	6.4	230	4.3	105	2.8	3.3	2.7
07	360	6.5	220	4.6	100	3.1	3.8	2.7
08	345	6.8	210	4.9	100	3.3	4.0	2.6
09	360	6.8	210	5.2	100	3.5	4.1	2.65
10	350	7.0	200	5.2	100	3.6	4.7	2.5
11	330	7.0	210	5.2	100	3.6	4.4	2.7
12	340	7.0	200	5.3	100	3.7	4.1	2.7
13	350	6.8	200	5.2	100	3.7	4.0	2.55
14	350	6.9	200	5.2	100	3.6	3.8	2.6
15	345	6.9	220	5.2	100	3.5	3.6	2.7
16	330	6.9	220	4.8	100	3.3	3.7	2.7
17	310	7.1	220	4.7	100	3.0	3.6	2.8
18	290	7.2	240	4.0	110	2.6	3.5	2.8
19	260	7.2	250	---	120	2.0	3.2	2.8
20	260	7.2					2.0	2.7
21	260	7.0					1.7	2.7
22	275	6.8					1.7	2.5
23	280	6.8						2.4

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

Table 17

Lindau/Harz, Germany (51.6°N, 10.1°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.80					2.8	2.60
01	290	6.55					2.6	2.55
02	290	6.20					2.6	2.55
03	280	5.80			---	E	2.7	2.60
04	300	5.40	275	----	---	E	3.1	2.65
05	300	5.65	260	----	110	1.85	4.1	2.65
06	320	6.10	250	4.00	110	2.50	4.9	2.80
07	340	6.55	230	4.60	100	2.90	4.9	2.75
08	330	6.80	225	4.80	100	3.20	5.3	2.75
09	355	7.10	220	5.00	100	3.45	5.9	2.80
10	360	7.30	225	5.20	100	3.55	5.8	2.70
11	360	7.30	210	5.30	100	3.70	5.3	2.75
12	360	7.40	215	5.35	100	3.75	5.9	2.75
13	350	7.30	210	5.40	100	3.70	5.1	2.70
14	370	7.10	210	5.30	100	3.70	5.3	2.70
15	370	7.10	215	5.20	100	3.60	4.9	2.75
16	350	7.15	220	5.10	100	3.40	4.8	2.80
17	340	7.25	225	4.90	100	3.15	4.4	2.80
18	310	7.35	240	4.50	105	2.80	4.6	2.80
19	280	7.55	250	----	110	2.40	4.4	2.80
20	260	7.60	---	----	125	1.60	3.9	2.85
21	250	7.60			---	E	3.5	2.80
22	260	7.50					3.4	2.65
23	275	7.10					3.0	2.60

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

Table 18

Wakkanai, Japan (45.4°N, 141.7°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.4					2.9	
01	270	7.3					3.4	
02	280	6.8					3.0	
03	270	6.5					3.0	
04	290	6.3					2.8	
05	300	6.8						
06	320	7.3						
07	300	7.6					5.6	
08	330	7.6					5.9	
09	340	7.6					6.0	
10	370	7.0					6.0	
11	360	7.5					5.3	
12	360	7.3					5.6	
13	370	7.4					5.0	
14	370	7.3					5.0	
15	360	7.2					5.2	
16	350	7.4					5.5	
17	330	7.2					5.5	
18	300	7.2					5.5	
19	280	7.5					6.2	
20	270	7.6					4.5	
21	280	7.5					4.8	
22	280	7.6					4.0	
23	280	7.8						

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

Table 19

Akita, Japan (39.7°N, 140.1°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.6					4.3	
01	300	7.3					4.1	
02	290	7.0					4.2	
03	290	6.6					3.6	
04	300	6.4					3.1	
05	280	6.9					3.5	
06	300	7.9					4.4	
07	310	8.3					5.2	
08	300	8.1					5.4	
09	350	8.1					6.5	
10	360	8.0					6.7	
11	380	8.2					6.5	
12	380	8.4					6.2	
13	390	8.2					5.4	
14	360	8.4					5.7	
15	350	8.2					5.0	
16	350	7.9					4.8	
17	330	7.8					4.5	
18	300	8.0					4.4	
19	280	7.9					4.2	
20	270	7.6					4.0	
21	300	7.8					4.2	
22	300	7.7					4.4	
23	300	7.8					4.6	

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

Table 20

Tokyo, Japan (35.7°N, 139.5°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	7.9					3.9	2.7
01	300	7.5					3.8	2.8
02	300	7.2					4.2	2.7
03	290	6.7					3.8	2.7
04	300	6.5					3.0	2.7
05	270	6.8	270	---	130	1.8	3.0	2.7
06	290	8.4	250	4.0	120	2.6	3.8	2.8
07	280	8.9	250	4.5	110	3.1	4.8	2.9
08	320	8.5	240	5.2	110	3.5	5.8	2.8
09	350	8.2	220	5.5	110	3.7	6.0	2.7
10	390	8.6	230	5.5	110	3.8	6.3	2.6
11	400	8.8	260	5.8	110	3.9	6.5	2.6
12	380	9.4	250	5.5	110	3.9	6.0	2.7
13	380	9.0	230	5.5	110	3.8	6.0	2.7
14	370	9.4	230	5.5	110	3.8	6.3	2.7
15	350	9.4	230	5.2	110	3.7	6.0	2.8
16	340	8.6	250	5.0	110	3.3	5.8	2.8
17	330	8.6	250	4.6	110	2.9	6.0	2.8
18	300	8.6	260	4.0	120	2.2	5.5	2.9
19	270	8.2					4.0	2.9
20	300	7.5					4.4	2.7
21	300	7.8					4.2	2.6
22	310	7.9					4.4	2.6
23	310	7.8					4.4	2.7

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

Table 21

Yamagawa, Japan (31.2°N, 130.6°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.1					3.6	
01	290	8.1					3.6	
02	280	8.1					3.1	
03	260	6.9					3.0	
04	280	6.4					2.6	
05	290	6.3					2.4	
06	250	7.2					2.3	
07	250	8.5					3.7	
08	280	7.9					5.9	
09	290	7.7					5.9	
10	340	8.4					6.0	
11	350	8.7					5.9	
12	370	9.2					5.9	
13	350	9.9					5.9	
14	350	10.0					6.0	
15	340	10.0					5.9	
16	330	9.8					5.9	
17	310	9.8					6.5	
18	290	9.5					5.9	
19	270	8.6					5.6	
20	290	8.1					3.8	
21	310	8.0					3.5	
22	320	8.2					3.4	
23	310	8.1					3.6	

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

Table 22

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	2.7						2.8
01	---	2.8						2.8
02	(250)	2.8					1.9	2.9
03	250	2.9						3.0
04	240	2.7					1.9	3.0
05	240	2.6					3.2	2.9
06	<250	2.7					2.2	3.0
07	240	5.6			---	1.9		3.2
08	230	7.9	230	---	120	2.6		3.4
09	240	9.0	230	4.4	110	3.1		3.2
10	250	9.7	220	4.8	110	3.4		3.2
11	250	9.7	210	4.8	110	3.6		3.1
12	270	9.7	210	4.9	110	3.7		3.1
13	270	9.9	210	4.8	110	3.7	4.2	3.0
14	270	10.0	210	4.8	110	3.5	4.2	3.0
15	260	9.9	220	---	110	3.2	3.9	3.0
16	250	9.7	230	---	110	2.9	3.3	3.0
17	240	9.4			130	2.2	2.9	3.2
18	220	8.0					2.3	3.2
19	220	5.5					1.9	3.2
20	230	3.9						3.2
21	240	3.4						3.2
22	240	3.0						3.1
23	<250	2.8						3.0

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

Table 23

Capetown, Union of S. Africa (34.2°S, 18.3°E) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	2.6					2.8	2.8
01	<280	2.6					3.0	2.8
02	270	2.8					2.7	2.8
03	270	2.9					2.9	2.8
04	260	2.9					2.8	2.9
05	250	2.7					1.8	2.9
06	<270	2.7					1.8	2.8
07	250	2.7					2.6	2.9
08	230	5.7			---	1.8	3.0	3.2
09	240	8.0	230	---	120	2.6		3.3
10	250	8.2	230	---	120	3.0		3.2
11	250	9.0	230	4.5	120	3.3		3.2
12	260	9.8	220	4.7	120	3.4		3.1
13	270	10.1	220	---	120	3.5		2.9
14	260	10.3	230	---	120	3.4		2.9
15	260	10.3	230	---	120	3.2		2.9
16	250	10.1	230	---	120	2.9	3.1	3.0
17	240	9.8	---	---	120	2.5	3.0	3.0
18	220	8.7			---	---	3.0	3.2
19	210	5.6					2.5	3.2
20	220	4.0					2.8	3.2
21	240	3.2					2.6	3.2
22	240	2.5					2.9	3.1
23	<270	2.4					2.6	2.8

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

Table 24

Buenos Aires, Argentina (34.5°S, 58.5°W) — July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.4						2.9
01	280	4.8						2.9
02	280	4.6						2.9
03	260	4.4						3.05
04	240	4.1						3.2
05	260	3.4						3.1
06	300	3.2						3.0
07	240	5.3						3.2
08	220	7.9						3.5
09	220	8.4	220	---				3.4
10	240	9.2	220	---				3.4
11	260	9.5	210	---				3.3
12	270	10.0	220	---				3.2
13	270	10.6	220	---				3.1
14	250	10.0	220	---				3.3
15	230	9.8	220	---				3.3
16	220	9.5	---	---				3.4
17	210	9.5						3.45
18	200	7.2						3.3
19	220	6.9						3.0
20	230	7.6						3.0
21	220	7.7						3.0
22	240	6.5						3.0
23	280	5.4						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 25

Resolute Bay, Canada (74.7°N, 94.9°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2		---	110	2.2		(3.0)
01		5.2		3.5	105	2.2		---
02		5.2		3.5	105	2.2		(2.9)
03		5.1		3.8	105	2.3		---
04		5.2		3.9	100	2.5		(2.8)
05		5.0		4.0	100	2.7		---
06		5.1		4.1	100	2.9		---
07		5.2		4.2	100	3.0		---
08		5.0		4.2	100	3.1		G
09		5.2		4.3	100	3.2		---
10		5.2		4.4	100	3.2		---
11		5.2		4.4	100	3.2		---
12		5.3		4.5	100	3.3		---
13		5.2		4.4	100	3.3		G
14		5.2		4.3	100	3.2		G
15		5.2		4.3	100	3.2		---
16		5.2		4.4	100	3.1		---
17		5.3		4.2	100	3.0		---
18		5.3		4.2	100	2.9		---
19		5.3		4.1	100	2.8		(2.75)
20		5.4		4.0	100	2.7		(2.85)
21		5.4		3.9	105	2.5		(2.85)
22		5.3		3.8	105	2.3		(2.95)
23		5.3		3.3	105	2.3		(3.0)

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

Table 26

Baker Lake, Canada (64.3°N, 96.0°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2			---	1.4	1.9	2.8
01		5.2			---	1.3	1.4	2.8
02		4.8			110	1.6	1.8	2.9
03		4.8		---	105	1.9		2.9
04		4.9		3.4	110	2.2		(2.9)
05		4.7		3.7	110	2.4		2.8
06		4.8		4.0	105	2.7		(2.5)
07		4.6		4.2	105	3.0		G
08		4.7		4.4	100	3.3		G
09		5.1		4.5	100	3.5		G
10		5.4		4.7	100	3.7		G
11		5.5		4.8	100	3.7		2.5
12		5.8		4.9	100	3.8		2.5
13		6.2		4.8	100	3.7		2.6
14		6.2		4.8	100	3.6		2.6
15		6.4		4.8	100	3.5		2.6
16		6.2		4.7	100	3.4		2.7
17		6.1		4.6	100	3.2		2.75
18		5.6		4.3	105	3.0		2.7
19		5.7		4.0	105	2.6	5.8	2.7
20		5.4		4.0	110	2.4	5.4	2.85
21		5.7		---	110	2.2	5.6	2.8
22		5.3			110	1.9	4.2	2.8
23		5.3			110	1.7	2.8	2.8

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

Table 27

Churchill, Canada (58.8°N, 94.2°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2					6.0	---
01		5.0			---	---	6.0	---
02		4.7			---	---	5.5	---
03		5.0			---	2.5	6.0	
04		4.8		---	120	2.5	5.2	---
05		4.5		3.5	110	2.8	4.8	---
06		4.9		3.9	110	3.0	4.9	G
07		5.1		4.2	100	3.4	4.6	G
08		5.4		4.6	100	3.7	5.0	2.55
09		5.5		4.7	100	3.7		2.6
10		5.7		4.8	100	3.7	4.0	2.5
11		6.0		5.0	100	3.7		2.6
12		6.1		5.0	100	3.7		2.65
13		6.0		5.0	100	3.7		2.6
14		6.5		4.9	100	3.6		2.7
15		6.5		4.9	100	3.5		2.7
16		6.5		4.8	100	3.4		2.8
17		6.2		4.7	110	3.3		2.8
18		6.0		4.3	110	3.1		2.8
19		5.5		4.0	110	3.0	5.0	2.85
20		5.3		---	120	3.0	4.6	3.0
21		5.3			120	2.7	5.9	3.25
22		5.2			125	2.2	6.5	(3.0)
23		5.0			---	---	7.0	---

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

Table 28

Lindau/Harz, Germany (51.6°N, 10.1°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.00					2.2	2.55
01	300	6.50					2.2	2.55
02	290	6.10					2.2	2.55
03	290	5.90			---	E	2.4	2.55
04	300	5.60	305	----	---	1.20	3.5	2.60
05	330	6.00	255	3.40	115	2.05	4.2	2.60
06	340	6.40	240	4.10	110	2.60	4.7	2.70
07	365	6.60	240	4.70	100	2.95	5.0	2.70
08	350	7.25	220	4.80	100	3.20	5.1	2.70
09	360	7.55	215	4.95	100	3.40	5.7	2.70
10	350	8.00	210	5.20	100	3.50	6.4	2.70
11	385	7.75	210	5.20	100	3.60	7.0	2.65
12	370	7.60	210	5.30	100	3.60	7.0	2.70
13	380	7.40	215	5.30	100	3.65	6.8	2.65
14	370	7.15	210	5.30	100	3.60	6.4	2.70
15	360	7.20	225	5.20	100	3.50	5.5	2.70
16	365	7.25	220	5.05	100	3.40	5.3	2.70
17	340	7.30	230	4.70	100	3.15	5.1	2.75
18	300	7.60	240	4.50	105	2.80	4.5	2.75
19	290	7.50	250	----	110	2.30	5.1	2.80
20	270	7.80	---	----	115	1.60	4.2	2.80
21	260	7.75			---	E	3.6	2.75
22	260	7.50					3.0	2.65
23	285	7.15					2.4	2.60

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

Table 29

Winnipeg, Canada (49.9°N, 97.4°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		4.5					<1.6	----
01		4.0					4.0	----
02		4.0					5.0	(2.70)
03		3.8					3.6	----
04		4.0					2.9	----
05		4.4		---	130	2.0		(2.70)
06		4.9		3.8	120	2.5		2.70
07		5.0		4.1	110	3.0		2.55
08		5.2		4.4	110	3.1		2.50
09		5.3		4.7	110	3.4		2.50
10		5.6		4.8	110	3.7		2.50
11		5.7		4.9	105	3.8		2.50
12		5.9		5.0	105	3.9		2.50
13		6.0		5.0	105	3.8		2.50
14		6.0		5.0	110	3.8		2.50
15		6.1		4.9	110	3.6		2.50
16		6.2		4.8	110	3.4		2.60
17		6.3		4.6	110	3.2		2.60
18		6.7		---	115	3.0		2.70
19		6.8		---	120	2.5		2.80
20		6.9			130	2.0		2.80
21		6.5			---	---	<1.8	2.80
22		6.2					<1.7	(2.80)
23		5.0					<1.6	----

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

Table 30

Ottawa, Canada (45.4°N, 75.9°W) June 1956

Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2					3.0	2.8
01		4.8					3.1	2.8
02		4.3					3.0	2.7
03		4.0					3.0	2.7
04		3.7					<2.0	2.8
05		4.2		3.3	110	2.1		2.9
06		4.8		4.0	110	2.7		2.7
07		5.2		4.5	105	3.0		2.8
08		5.5		4.7	105	3.3		2.65
09		5.8		4.9	105	3.6		2.65
10		5.9		5.0	105	3.8		2.6
11		6.0		5.0	105	4.0		2.5
12		6.1		5.1	105	4.0		2.5
13		6.3		5.0	105	4.0		2.5
14		6.5		5.0	105	3.9		2.6
15		6.6		5.0	105	3.8		2.6
16		6.8		5.0	105	3.5		2.7
17		6.9		4.7	105	3.2		2.8
18		7.0		4.1	110	2.8		2.8
19		7.2		---	115	2.1		2.9
20		7.2			115	1.6	<1.8	2.9
21		7.0					<1.7	2.8
22		6.4					<1.6	2.8
23		5.8					<1.6	2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 15.0 Mc in 15 seconds.

Table 31

Wakkanai, Japan (45.4°N, 141.7°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.3					3.3	
01	280	7.2					3.2	
02	280	6.6					3.5	
03	280	6.5					3.5	
04	300	6.4					3.5	
05	350	7.0					3.8	
06	350	7.3					4.8	
07	330	7.3					6.2	
08	340	7.2					6.1	
09	360	6.6					6.5	
10	400	6.6					6.2	
11	410	6.7					6.0	
12	400	6.9					6.0	
13	400	6.8					6.1	
14	360	7.0					5.5	
15	370	7.2					5.2	
16	350	7.2					4.8	
17	320	7.5					6.0	
18	300	7.5					5.2	
19	280	7.6					6.0	
20	280	7.9					6.0	
21	300	7.7					4.8	
22	280	7.6					4.4	
23	280	7.6					3.3	

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

Table 32

Akita, Japan (39.7°N, 140.1°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	8.0					4.5	
01	300	7.6					4.2	
02	300	7.4					4.4	
03	310	6.5					4.2	
04	320	6.6					3.9	
05	320	7.1					4.0	
06	340	8.0					4.5	
07	330	8.2					6.0	
08	340	7.8					6.4	
09	380	7.3					6.7	
10	400	7.2					6.7	
11	420	7.6					6.5	
12	390	7.8					6.2	
13	390	8.0					5.8	
14	380	8.2					6.4	
15	360	8.2					5.4	
16	350	8.3					6.0	
17	340	8.2					5.8	
18	310	8.3					5.8	
19	300	8.3					4.5	
20	300	8.1					5.2	
21	310	8.0					5.7	
22	330	8.4					4.9	
23	320	7.9					5.6	

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

Table 33

Tokyo, Japan (35.7°N, 139.5°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	7.6					5.8	2.7
01	310	7.5					5.9	2.8
02	300	7.8					5.6	2.7
03	310	7.0					4.5	2.7
04	290	6.9					3.9	2.7
05	270	7.2	260	3.3	130	1.8	3.2	2.7
06	320	8.1	240	4.7	120	2.7	4.8	2.8
07	310	8.8	240	4.7	110	3.2	6.0	2.9
08	320	8.2	240	5.2	110	3.5	6.6	2.8
09	360	7.6	210	5.5	110	3.6	7.2	2.75
10	380	7.8	220	5.6	110	3.8	7.2	2.6
11	410	8.0	220	5.6	110	3.8	7.0	2.6
12	380	8.6	---	5.5	110	3.8	6.6	2.7
13	380	8.8	240	5.5	110	3.7	6.4	2.7
14	360	9.1	240	5.4	110	3.7	6.1	2.7
15	350	9.0	250	5.1	110	3.6	6.0	2.8
16	340	9.1	250	5.0	110	3.3	5.7	2.8
17	310	8.8	250	4.5	110	2.9	6.0	2.8
18	300	8.6	260	4.0	120	2.1	4.5	2.8
19	280	8.2					4.5	2.8
20	290	8.0					3.8	2.7
21	300	7.9					3.7	2.6
22	320	8.0					5.2	2.6
23	320	8.1					5.7	2.7

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

Table 34

Yamagawa, Japan (31.2°N, 130.6°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.6					4.4	
01	300	8.6					3.8	
02	280	8.5					4.2	
03	280	7.4					3.6	
04	290	7.0					3.4	
05	290	6.8					2.9	
06	260	8.0					3.2	
07	250	8.5					3.6	
08	260	8.4					5.9	
09	300	8.4					6.5	
10	330	8.5					6.6	
11	380	8.7					6.6	
12	370	9.0					6.7	
13	340	9.8					5.9	
14	340	10.0					5.9	
15	340	10.4					5.9	
16	320	10.5					5.9	
17	300	10.1					5.9	
18	290	10.0					5.6	
19	280	9.0					4.2	
20	280	8.7					3.7	
21	290	8.5					3.1	
22	310	8.4					3.4	
23	300	8.5					3.4	

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

Table 35

Leopoldville, Belgian Congo (4.4°S, 15.2°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	9.5					3.0	2.9
01	215	7.8					3.2	2.9
02	230	6.6					3.0	2.7
03	230	4.7					2.8	2.8
04	245	4.0					2.6	2.8
05	270	5.4	---	---	---	---	2.9	2.7
06	260	9.3	240	---	120	2.5	3.0	2.9
07	260	11.5	230	---	110	3.1	3.9	2.9
08	270	11.5	220	---	110	3.5	4.4	2.8
09	280	12.0	210	---	105	3.7	4.9	2.8
10	310	11.5	210	5.0	105	3.8	4.4	2.6
11	325	12.2	205	5.4	105	3.8	5.0	2.6
12	320	12.6	220	5.2	105	3.8	4.3	2.5
13	340	13.1	235	5.5	105	3.6	4.4	2.5
14	330	13.0	245	---	110	3.4	4.6	2.5
15	320	13.1	240	---	110	3.0	4.6	2.5
16	290	13.3	250	---	120	2.5	4.9	2.6
17	255	>13.6	---	---			4.3	2.7
18	240	>13.9					3.2	2.9
19	220	>13.0					3.0	<3.0
20	210	>13.0					2.7	2.9
21	210	>13.0					2.2	2.7
22	220	12.9					2.6	2.8
23	210	>10.9					3.0	2.9

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

Table 36

Elisabethville, Belgian Congo (11.6°S, 27.5°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.0					1.6	2.6
01	265	2.7						2.6
02	265	2.6					1.6	2.7
03	270	2.4					1.6	2.7
04	270	3.4						2.6
05	245	7.2	245	---	120	2.1	2.7	3.0
06	250	9.8	230	---	110	2.9		3.0
07	255	11.0	225	---	110	3.3		2.9
08	260	10.6	220	---	105	3.6	4.0	2.8
09	275	10.7	230	4.8	105	3.7	4.0	2.7
10	280	10.6	230	5.0	105	3.7	4.8	2.7
11	290	10.1	230	5.0	105	3.7	4.6	2.6
12	300	10.0	245	---	105	3.6	4.0	2.5
13	295	10.0	240	---	110	3.4	4.1	2.5
14	280	10.2	235	---	110	3.0	4.0	2.5
15	255	10.8	250	---	120	2.4	3.7	2.7
16	240	10.4					3.3	2.8
17	220	9.2					3.0	3.0
18	215	6.8					2.8	3.0
19	225	5.4					2.6	2.7
20	240	5.0					2.6	2.7
21	240	5.0					2.6	2.7
22	240	4.5					2.2	2.8
23	255	3.6					1.8	2.7

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

Table 37

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	2.8						2.9
01	---	2.9						2.8
02	---	2.9						2.8
03	(250)	2.9						2.9
04	230	2.9						3.0
05	(240)	2.7						3.0
06	<240	2.7					3.1	3.0
07	240	5.6			---	1.9		3.2
08	230	8.2	---	---	120	2.6		3.4
09	240	9.6	220	4.3	110	3.0		3.3
10	250	10.2	220	4.7	110	3.3		3.2
11	250	10.6	210	4.8	110	3.5		3.2
12	250	10.1	210	4.9	110	3.6		3.1
13	260	10.1	220	4.8	110	3.6	4.0	3.0
14	250	10.1	220	4.9	110	3.4	3.9	3.0
15	250	10.2	220	4.5	110	3.1	4.0	3.0
16	240	10.2	230	3.8	110	2.7	3.6	3.1
17	230	9.5			140	2.2	2.9	3.2
18	210	7.2					2.8	3.3
19	220	4.5					2.6	3.2
20	240	3.7					2.2	3.2
21	250	3.4					1.8	3.1
22	<250	3.1						3.1
23	<250	3.0						2.95

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

Table 38

Capetown, Union of S. Africa (34.2°S, 18.3°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	2.5					2.9	2.8
01	<280	2.7					2.6	2.7
02	<280	2.9					3.0	2.8
03	<260	2.9					2.9	2.8
04	260	3.0					2.8	2.9
05	<250	2.9					2.4	3.0
06	250	2.7					2.8	2.9
07	240	2.6					2.9	3.0
08	240	5.6			---	1.9	3.0	3.2
09	230	7.7	230	---	120	2.6	2.8	3.2
10	250	8.8	230	---	120	2.9		3.2
11	250	9.6	230	4.5	110	3.2		3.15
12	250	9.9	220	4.6	110	3.4		3.0
13	250	10.2	220	4.7	120	3.4		3.0
14	260	10.6	220	4.6	120	3.3		2.95
15	250	10.7	230	4.4	120	3.1		3.0
16	250	10.4	230	---	120	2.8	3.6	3.0
17	230	9.9	---	---	120	2.3	3.0	3.2
18	210	8.2					2.8	3.2
19	220	5.0					2.8	3.1
20	230	3.7					2.8	3.2
21	240	3.1					2.0	3.2
22	240	2.7					2.8	3.2
23	250	2.6					3.0	2.9

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

Table 39

Buenos Aires, Argentina (34.5°S, 58.5°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.8						2.8
01	300	4.7						2.9
02	300	4.5						2.9
03	300	4.4						2.9
04	280	4.2						2.95
05	280	3.7						2.9
06	290	3.6						3.0
07	230	6.0						3.1
08	220	8.1	---	---				3.3
09	230	9.4	220	---				3.35
10	230	9.4	220	---				3.3
11	240	9.2	210	---	---	---		3.3
12	260	9.8	220	---				3.1
13	260	10.1	220	---				3.2
14	260	10.4	220	---				3.15
15	230	10.4	220	---				3.3
16	220	9.9						3.2
17	210	8.8						3.3
18	210	7.0						3.2
19	220	7.0						3.0
20	220	7.0						3.0
21	230	6.6						3.05
22	250	5.8						3.1
23	280	5.3						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 40

Poitiers, France (46.6°N, 0.3°E) Oecember 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						(2.80)
01	295	3.5					1.9	2.85
02	<290	3.6						(2.85)
03	260	3.6						2.95
04	250	3.4						3.00
05	<240	3.2						(3.15)
06	<240	2.9						3.00
07	<240	3.7			---	E		(2.95)
08	215	6.0	160	2.2	---	1.8	2.1	3.55
09	215	6.9	205	2.7	115	2.3	2.6	----
10	225	(7.5)	210	3.4	110	2.6	2.2	
11	230	(8.6)	225	4.0	105	2.8	2.5	----
12	230	(8.3)	220	4.0	110	2.9	3.0	
13	230	(7.9)	220	3.8	110	2.8	2.4	----
14	235	(7.8)	230	3.5	110	2.6	2.5	----
15	225	(8.0)	210	2.5	120	2.2	2.6	----
16	210	(6.9)	175	1.9	---	E	2.4	----
17	205	(5.6)	---	---	---	E	2.0	----
18	225	4.5	---	---	---	---	2.3	(3.30)
19	<230	4.1					2.3	(3.30)
20	<230	3.3					2.3	3.20
21	<270	3.0						2.80
22	300	3.2					2.2	2.80
23	300	3.4					2.1	2.80

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

Table 41

Casablanca, Morocco (33.6°N, 7.6°W) Oecember 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.95						3.00
01	280	3.90						3.00
02	270	4.00						3.05
03	260	4.00						3.10
04	250	3.80						3.20
05	240	3.10						3.20
06	295	3.00						2.80
07	275	3.80						3.05
08	230	7.20	245	----	---	1.70		3.50
09	230	8.30	235	(3.60)	115	2.60		3.55
10	240	9.00	230	4.30	110	2.90	3.1	3.60
11	240	8.90	220	4.50	110	3.10	3.5	3.50
12	250	9.10	220	4.60	110	3.20		3.40
13	250	8.80	220	4.50	110	3.25		3.30
14	245	8.70	220	4.40	110	3.10		3.30
15	250	9.00	230	(3.90)	115	2.90		3.30
16	240	8.60	235	(3.30)	120	2.50	3.0	3.40
17	225	8.20	---	-----	---	E	1.9	3.45
18	210	>5.20					2.2	3.40
19	235	4.45						3.20
20	250	4.40						3.10
21	255	4.30						3.10
22	270	3.90						3.00
23	295	3.90						2.90

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

Table 42

Oelhi, India (28.6°N, 77.1°E) December 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	>3.2						3.00
01	320	3.2						3.00
02	(340)	(3.3)						(2.90)
03								
04	300	3.2						3.10
05	290	3.1						3.10
06	280	3.4						3.25
07	240	6.7						3.60
08	240	9.4						3.60
09	240	>10.0						3.60
10	240	10.0						3.60
11	240	9.8						3.60
12	280	10.9						3.25
13	280	11.0						3.25
14	280	10.8						3.25
15	280	10.6						3.25
16	240	10.0						3.60
17	240	9.6						3.60
18	240	7.2						3.60
19	280	6.9						3.25
20	240	6.6						3.60
21	280	4.8						3.25
22	280	3.7						3.25
23	360	3.2						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 43

Ahmedabad, India (23.0°N, 72.6°E) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.6						2.70
01	280	5.0						2.85
02	250	5.0						3.05
03	240	4.8						3.20
04	235	3.5						3.40
05	250	2.9						3.20
06	265	2.8					>3.0	2.90
07	250	6.1			125	1.7	3.9	3.40
08	250	9.6	230	4.0	110	2.5	4.0	3.40
09	250	11.0	225	4.4	110	3.0	4.0	3.40
10	250	11.0	215	4.6	107	3.2	4.0	3.40
11	255	11.0	220	5.0	105	3.4	4.0	3.10
12	280	12.2	225	5.0	105	3.5	4.0	2.95
13	275	12.6	225	4.8	105	3.5	4.0	3.00
14	275	13.6	225	4.8	110	3.3	3.9	3.00
15	260	13.2	225	4.4	110	3.1	4.0	3.10
16	240	12.5	235	4.0	112	2.6	4.0	3.15
17	230	13.0			---	1.8	3.0	3.15
18	210	11.9					3.2	3.30
19	210	10.8						3.10
20	225	11.0						3.10
21	215	10.6						3.25
22	215	8.0						3.30
23	230	6.1						3.10

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

Table 44

Calcutta, India (22.9°N, 88.5°E) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.2						2.85
01	260	4.5						3.00
02	250	4.4						3.10
03	240	4.1						3.25
04	220	3.2						3.10
05	235	2.6						3.10
06	280	3.1						2.85
07	250	6.5	---	---	120	2.0	2.0	3.30
08	250	9.8	240	4.3	115	2.6		3.40
09	260	10.5	230	4.5	110	3.0		3.40
10	260	10.6	220	4.8	105	3.4		3.40
11	265	11.0	205	5.0	100	3.5		3.20
12	280	11.0	200	5.0	100	3.5		(3.10)
13	300	11.5	200	4.8	100	3.5		3.20
14	280	11.5	215	4.7	100	3.2		3.20
15	250	11.0	230	4.5	100	3.0		3.40
16	240	10.6	230	---	110	2.6		3.35
17	225	10.4	---	---	115	2.0	2.2	3.40
18	205	9.7					2.1	3.45
19	205	9.5						3.35
20	225	9.1					2.1	3.25
21	220	8.8						3.45
22	210	7.0						3.45
23	<230	4.8						3.10

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

Table 45

Bombay, India (19.0°N, 73.0°E) December 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	280	4.8						3.20
07	300	5.9						3.10
08:30	330	7.8						3.00
09	330	8.9						2.95
10	360	10.0						2.80
11	390	11.4						2.65
12	390	11.9						2.65
13	420	12.6						2.55
14	400	12.1						2.60
15	390	11.3						2.65
16	390	11.4						2.65
17	360	>10.0						2.80
18	360	9.8						2.80
19	330	9.0						2.95
20	(300)	(7.2)						(3.10)
21	300	6.4						3.10
22	270	5.3						3.35
23								

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

Table 46

Madras, India (13.0°N, 80.2°E) December 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	7.1						3.00
07	360	8.6						2.80
08	360	9.4						2.80
09	400	>10.1						2.60
10	400	>10.2						2.60
11	400	11.1						2.60
12	400	>10.5						2.60
13	440	>11.0						2.50
14	440	10.9						2.50
15	450	11.2						2.45
16	430	11.5						2.50
17	420	11.3						2.55
18	400	>11.0						2.60
19	360	>10.5						2.80
20	360	>9.8						2.80
21	360	>9.0						2.80
22	---	>8.5						----
23								

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

Table 47

Tiruchy, India (10.8°N, 78.8°E) December 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	6.2						3.00
07	360	8.3						2.80
08	400	9.1						2.60
09	400	9.6						2.60
10	440	9.9						2.50
11	440	10.1						2.50
12	440	10.2						2.50
13	440	10.2						2.50
14	440	10.1						2.50
15	440	10.3						2.50
16	440	10.1						2.50
17	440	10.0						2.50
18	440	9.8						2.50
19	440	9.4						2.50
20	(440)	(9.6)						(2.50)
21	400	8.6						2.60
21:30	(400)	(8.2)						(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 48

Kodaikanal, India (10.2°N, 77.5°E) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	7.6						3.1
01	240	7.2						3.1
02	240	6.7						3.2
03	240	5.4						3.2
04	240	4.2						3.3
05	245	3.0						3.3
06	280	4.6						3.0
07	250	7.9	240	---	110	2.4	6.0	3.0
08	280	9.8	225	---	105	2.9	8.0	2.8
09	300	10.5	215	---	105	---	9.0	2.6
10	310	10.1	205	---	105	---	11.0	2.5
11	320	9.7	205	---	105	---	11.0	2.5
12	340	9.8	200	---	---	---	11.6	2.4
13	310	10.3	200	---	---	---	11.8	2.4
14	(340)	10.0	200	---	105	---	11.0	2.4
15	---	10.2	200	---	105	---	10.0	2.4
16	235	10.3	---	---	110	2.8	7.6	2.4
17	260	10.2			120	2.2	3.8	2.5
18	290	9.6						2.5
19	340	8.9						2.4
20	320	8.7						2.5
21	300	8.5						2.7
22	260	8.4						2.9
23	250	7.9						3.0

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

Table 49

Townsville, Australia (19.3°S, 146.7°E) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	>11.0					3.1	2.95
01	2S0	>10.6					3.2	(3.0)
02	260	>9.5					3.2	---
03	260	8.4					3.2	(3.0)
04	250	8.3					3.2	(2.9S)
05	250	6.8					3.0	3.0
06	240	>6.3			125	2.1	3.1	3.2
07	2S0	7.6	225	---	100	2.7	4.2	3.1
08	320	8.2	210	4.9	100	3.2	5.6	3.0
09	310	9.1	210	5.1	100	3.S	5.7	2.7
10	340	>10.4	200	5.2	100	3.7	S.8	2.8
11	340	11.3	190	5.4	100	3.8	6.0	2.7
12	3S0	11.8	200	5.3	100	3.8	S.8	2.8
13	340	12.4	---	5.4	100	3.8	S.7	2.8
14	330	12.4	21S	5.2	100	3.7	4.7	2.8
1S	320	12.2	220	S.0	100	3.6	4.9	2.8
16	310	11.9	230	4.8	100	3.3	S.3	2.9
17	280	11.3	2S0	4.S	100	2.9	4.4	(2.8)
18	260	>9.4	2S0	---	120	2.1	3.8	(3.0)
19	260	>9.0			---	---	3.6	---
20	290	---					3.1	
21	300	>9.4					2.6	
22	300	>10.9						---
23	280	11.8					2.9	---

Time: 1S0.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute S5 seconds.

Table 50

Brisbane, Australia (27.S°S, 153.0°E) December 19SS

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	8.9					3.4	2.8
01	250	8.5					3.6	2.9
02	260	7.6					3.2	2.8
03	275	7.2					3.0	2.8
04	260	6.9			---	---	2.5	2.8
05	250	6.9			130	1.7	2.0	3.0
06	240	7.0	230	---	110	2.4	4.0	3.0
07	290	7.7	230	4.6	110	3.0	5.1	2.9
08	33S	8.0	210	5.0	110	3.3	6.0	2.7
09	330	8.5	200	S.2	110	3.6	5.7	2.7
10	340	9.8	205	5.3	110	3.8	5.5	2.7
11	330	10.8	210	5.4	110	3.8	5.6	2.7
12	330	10.6	210	5.4	110	3.8	5.5	2.7
13	330	10.9	210	S.3	110	3.8	5.1	2.7
14	320	10.9	220	S.2	110	3.7	4.2	2.7
15	300	10.6	230	5.0	120	3.5	4.3	2.8
16	300	9.8	230	4.6	120	3.2	4.4	2.8
17	280	9.5	240	4.2	120	2.7	4.3	2.8
18	260	9.0			---	E	4.0	2.8
19	2SS	8.9					2.9	2.7
20	27S	8.7					2.8	2.7
21	300	8.7					4.0	2.7
22	300	9.0					3.7	2.7
23	280	9.0					3.5	2.8

Time: 1S0.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute S5 seconds.

Table 51

Canberra, Australia (3S.3°S, 149.0°E) December 19SS

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	7.6					3.8	2.8
01	---	7.0					3.7	2.9
02	---	6.6					3.5	2.8
03	---	(6.1)					3.6	(2.9)
04	<250	(5.4)					3.1	(2.8)
05	2S0	5.2	---	---	---	1.6	2.3	2.95
06	240	6.0	240	(4.0)	110	2.4	3.5	3.1
07	305	6.7	220	4.4	100	3.0	3.9	3.0
08	310	7.2	210	(4.7)	100	3.3	5.6	3.1
09	315	7.5	200	4.9	100	3.5	S.6	3.0
10	320	8.2	190	5.1	100	3.6	5.5	2.9
11	340	8.1	200	S.1	100	3.7	6.0	2.9
12	340	8.4	200	5.1	100	3.7	4.8	2.9
13	340	8.3	200	S.1	100	(3.7)		2.9
14	330	8.2	200	S.0	100	3.8		2.9
15	32S	8.3	210	5.0	100	3.6		2.9
16	310	8.2	220	4.7	100	3.4	3.7	2.9
17	305	8.1	230	4.5	110	3.0	4.0	3.0
18	280	8.3	---	---	110	2.5	4.2	3.0
19	(240)	7.6					4.1	3.05
20	---	7.4					3.9	(2.9)
21	---	7.5					4.2	(2.8)
22	---	7.4					4.1	2.7
23	---	7.4					4.1	2.8

Time: 1S0.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 5S seconds.

Table 52

Hobart, Tasmania (42.9°S, 147.3°E) December 19SS

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.5						2.8
01	250	6.0						2.9
02	2S0	5.5						2.9
03	250	5.0						2.9
04	250	4.7						2.9
05	250	4.9			120	2.0		3.0
06	250	5.6			100	2.5		3.1
07	230	6.4			100	3.0		3.1
08	250	7.1	200	4.6	100	3.3		3.0
09	300	7.0	200	4.8	100	3.5		3.0
10	340	7.3	200	5.0	100	3.6		2.9
11	350	7.4	200	5.0	100	3.6	4.2	3.0
12	350	7.2	200	S.0	100	3.6	4.S	2.9
13	3S0	7.5	200	5.1	100	3.7	4.0	3.0
14	340	7.S	200	S.0	100	3.6		3.0
15	340	7.5	200	5.0	100	3.5		3.0
16	2S0	7.3	200	4.7	100	3.4		3.0
17	230	7.5	---	---	100	3.0		3.0
18	250	7.5			100	2.5		3.0
19	250	7.S			100	1.9	5.0	3.1
20	250	7.5					4.2	3.0
21	2S0	7.5						2.9
22	280	7.4						2.9
23	270	7.1						2.8

Time: 1S0.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 53

Delhi, India (28.6°N, 77.1°E) November 19SS

Time	*	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.2						3.00
01	320	3.2						3.00
02	320	3.2						3.00
03								
04	290	3.2						3.20
05	280	3.0						3.25
06	280	4.2						3.25
07	240	7.9						3.60
08	240	9.1						3.60
09	240	10.0						3.60
10	240	10.7						3.60
11	250	10.5						3.S0
12	280	10.9						3.2S
13	280	>11.8						3.2S
14	280	12.6						3.25
1S	270	12.6						3.30
16	240	11.6						3.60
17	240	>10.3						3.60
18	240	8.5						3.60
19	280	6.6						3.25
20	240	6.0						3.60
21	280	4.3						3.25
22	320	3.4						3.00
23	320	3.2						3.00

Time: 7S.0°E.
Sweep: 1.S Mc to 18.0 Mc in S minutes, manual operation.
*Height at 0.83 foF2.

Table 54

Ahmedabad, India (23.0°N, 72.6°E) November 1955

Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	4.6						2.80
01	290	4.6						2.85
02	265	4.9						3.10
03	240	5.1						3.40
04	220	3.8						3.60
05	250	2.7						3.15
06	260	3.6					>3.0	3.15
07	240	7.4			120	1.8	4.0	3.4S
08	2S0	10.0	230	4.1	110	2.6	4.1	3.40
09	2S0	11.0	225	4.4	107	3.0	4.2	3.35
10	25S	11.6	220	4.7	105	3.2	4.0	3.30
11	2S0	11.3	220	4.8	105	3.4	6.0	3.10
12	275	12.4	230	4.9	105	3.5	4.0	3.00
13	280	13.6	225	4.9	105	3.4	3.8	2.95
14	280	14.4	22S	4.8	105	3.3	3.8	3.05
1S	265	>1S.0	240	4.5	110	3.0	3.9	<3.10
16	250	>14.0	240	4.0	115	2.6	3.8	<3.15
17	230	14.9			---	1.9	3.4	3.25
18	210	14.0					2.4	3.30
19	210	12.4						3.20
20	220	11.1						3.10
21	210	9.S						3.2S
22	225	6.4						3.20
23	250	5.0						2.90

Time: 7S.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 55

Calcutta, India (22.9°N, 88.5°E) November 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.5						3.10
01	260	4.4						2.95
02	260	4.2						3.05
03	240	4.4						3.20
04	<220	3.2						3.40
05	<250	2.6						3.10
06	275	3.6						3.00
07	250	7.4			115	2.0		3.30
08	250	10.4	235	4.1	110	2.7		3.30
09	255	11.0	220	4.4	105	3.1		3.25
10	260	11.0	210	4.5	100	3.4		3.30
11	270	11.5	200	4.7	100	3.5		3.20
12	270	>11.5	200	4.7	100	3.5		3.15
13	285	12.0	200	4.7	100	3.5		3.10
14	280	12.0	210	4.6	100	3.2		3.10
15	270	11.7	225	4.5	100	3.0		3.15
16	250	11.5	240	4.1	100	2.7		3.30
17	240	11.2			110	2.0		3.40
18	220	11.0					2.3	3.50
19	200	10.5					2.1	3.45
20	225	10.2						3.35
21	210	10.1						3.40
22	220	9.1						3.25
23	230	5.2						3.10

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

Table 56

Bombay, India (19.0°N, 73.0°E) November 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	260	4.6						3.50
07	270	5.7						3.35
08:30	300	7.0						3.10
09	330	7.9						2.95
10	360	8.6						2.80
11	390	9.8						2.65
12	390	10.6						2.65
13	400	11.3						2.60
14	420	11.9						2.55
15	390	11.6						2.65
16	360	10.7						2.80
17	360	10.0						2.80
18	330	9.4						2.95
19	330	8.1						2.95
20	(300)	(6.8)						(3.10)
21	270	6.0						3.35
22	270	5.0						3.35
23								

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

Table 57

Madras, India (13.0°N, 80.2°E) November 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	>7.5						3.00
07	360	>9.1						2.80
08	(340)	9.8						(2.90)
09	---	>11.7						----
10	---	>9.5						----
11	---	>10.8						----
12	---	>11.4						----
13	(440)	>11.3						(2.50)
14	---	>12.1						----
15	---	>11.5						----
16	---	>11.9						----
17	---	----						----
18	---	>11.5						----
19	---	---						----
20	(360)	9.6						(2.80)
21	(320)	>9.5						(3.00)
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 58

Tiruchy, India (10.8°N, 78.8°E) November 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	6.3						3.00
07	360	9.2						2.80
08	400	9.8						2.60
09	440	10.2						2.50
10	440	10.2						2.50
11	480	10.2						2.30
12	480	10.2						2.30
13	440	10.3						2.50
14	440	10.2						2.50
15	440	10.4						2.50
16	440	10.4						2.50
17	440	10.0						2.50
18	400	9.7						2.60
19	400	9.5						2.60
20	(400)	(9.1)						(2.60)
21	400	8.8						2.60
21:30	---	---						----
23								

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

Table 59

Kodaikanal, India (10.2°N, 77.5°E) November 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	8.8						3.2
01	240	8.4						3.25
02	230	7.6						3.4
03	235	5.9						3.4
04	235	4.8						3.4
05	235	3.4						3.4
06	260	5.7						3.2
07	245	8.8	235	---	110	2.6		3.1
08	275	10.5	220	---	105	3.0	8.0	2.8
09	280	10.7	210	---	105	---	9.0	2.6
10	300	10.8	200	---	105	---	10.3	2.5
11	300	10.5	200	---	105	---	10.8	2.5
12	300	10.6	200	---	105	---	11.0	2.5
13	300	10.9	200	---	105	---	10.9	2.4
14	(315)	10.9	205	---	105	---	10.5	2.5
15	(260)	10.6	215	---	105	---	9.1	2.5
16	240	10.7	230	---	110	2.7	7.0	2.55
17	260	10.7						2.6
18	300	10.4						2.5
19	330	9.6						2.5
20	320	9.8						2.5
21	295	9.7						2.7
22	260	9.0						3.0
23	245	8.7						3.15

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

Table 60

Tananarive, Madagascar (18.8°S, 47.8°E) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.4					1.8	2.97
01	225	4.8					2.3	3.11
02	230	4.2					2.5	3.05
03	230	3.8					1.8	3.13
04	220	3.5						3.17
05	<230	3.1					1.8	3.17
06	---	4.9	225	----	113	1.85		3.36
07	270	5.8	220	(3.95)	105	2.50	3.0	3.23
08	290	6.2	210	4.20	105	2.90	3.4	3.06
09	305	7.0	210	4.40	105	3.15	3.6	2.94
10	310	7.4	210	4.45	105	3.30	3.6	2.94
11	320	8.0	210	4.55	103	3.45	3.6	2.84
12	305	8.8	210	4.50	105	3.50	3.7	2.93
13	295	8.8	205	4.45	105	3.40	3.7	2.98
14	300	8.6	220	4.40	105	3.25	3.4	2.95
15	280	8.6	210	4.25	104	3.10	3.4	3.00
16	280	8.4	220	4.05	107	2.80	3.3	2.98
17	270	8.6	220	(3.65)	109	2.30	3.3	3.00
18	---	8.5	240	----	---	----	3.0	3.05
19	230	8.3					2.5	3.06
20	220	7.8					2.4	3.14
21	220	6.6					2.2	3.10
22	240	5.7					2.0	3.01
23	260	5.4					2.0	2.90

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

TABLE 61
IONOSPHERIC DATA

foF2, 0.1 Mc, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1° W 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		F 67	F 62	60	58	F 56	49	F 48	67	106	125	139	140	135	135	130	128	120	118	107	97	U F 78	68	F 68	71
02		70	73	F 68	63	F 60	56	56	72	110	135	140	U P 142	140	133	125	130	127	125	110	90	84	80	78	F 73
03		68	68	62	57	56	.F 50	49	62	98	122	136	140	136	138	135	127	124	118	110	U S 98	90	75	71	64
04		66	69	73	62	52	F 48	F 47	F 64	103	H 127	126	139	135	137	135	134	128	120	110	100	78	74	71	72
05		66	70	68	61	54	53	56	F 70	110	125	135	131	128	133	134	135	130	119	107	U S 102	89	82	77	75
06		66	60	58	58	57	54	50	64	108	128	135	135	134	135	136	130	125	118	107	98	85	78	71	64
07		54	50	F 51	F 49	48	F 47	F 43	58	94	107	125	130	127	126	121	120	115	105	U S 96	90	U S 76	66	66	64
08		60	58	55	49	49	49	48	61	101	116	130	133	135	135	131	126	122	117	108	95	78	73	66	F 56
09		F 56	U F 52	U F 50	U F 52	U F 50	U F 43	U F 46	U F 67	95	118	125	132	135	135	132	127	120	116	104	92	U F 80	U F 71	U F 68	F 58
10		F 57	U F 62	U F 65	U F 62	U F 59	U F 57	U F 51	63	91	120	135	134	141	145	138	133	128	U S 122	U P 104	93	86	85	78	68
11		67	F 60	U F 30	F 31	F 33	U F 37	U F 42	63	107	126	132	137	136	U H 135	127	123	117	102	95	91	80	70	59	53
12		49	49	48	49	47	39	39	55	92	117	130	134	130	126	125	132	126	120	107	105	U P 102	92	92	F 84
13		74	68	F 66	U F 64	U F 54	F 47	U F 45	F 62	92	F 114	122	128	132	136	132	125	116	112	102	90	78	63	62	U F 63
14		F 57	F 59	59	54	54	51	47	58	92	120	129	131	133	130	130	128	125	110	U P 99	90	74	F 68	63	F 58
15		55	54	56	57	57	54	54	64	105	122	128	137	134	132	130	127	123	114	107	92	84	67	57	57
16		F 56	56	F 54	U F 54	F 53	52	F 49	58	94	117	133	131	135	135	130	131	122	113	105	90	75	66	F 56	47
17		48	48	50	50	50	46	47	54	92	121	128	130	131	134	135	126	126	105	93	84	84	U F 66	U S 53	49
18		46	47	48	52	49	47	45	F 53	91	120	125	127	131	130	127	128	125	U S 117	U S 107	U P 96	U S 82	70	60	U S 56
19		52	48	F 47	48	F 43	39	F 41	54	90	109	123	130	129	125	H 120	126	120	109	97	82	75	62	58	55
20		52	51	51	52	53	52	49	62	105	110	127	136	131	130	126	127	120	113	99	86	72	U J 60	U J 53	52
21		47	48	49	47	45	43	40	47	84	102	114	129	132	126	125	123	115	108	96	82	68	58	52	51
22		50	48	52	53	53	44	42	50	88	110	126	141	145	135	133	128	124	117	94	93	73	66	55	50
23		49	47	44	47	44	43	43	51	88	112	121	123	126	118	118	122	115	105	94	80	69	59	57	54
24		54	56	58	62	57	47	U J 42	52	82	114	120	127	131	126	120	123	120	116	100	90	74	60	63	56
25		51	46	C	C	C	C	U A 43	F 58	84	120	135	140	145	135	130	129	133	130	120	119	90	72	F 66	65
26		F 57	F 52	49	F 48	F 45	F 42	U F 48	U F 62	94	115	130	130	136	130	130	122	120	114	98	89	77	F 60	F 55	50
27		50	F 49	F 48	F 48	50	F 48	F 43	F 48	78	114	124	130	130	123	124	125	128	127	110	90	U S 82	U F 72	U F 60	U F 64
28		U F 33	U F 52	60	47	U F 48	F 46	U F 50	F 56	85	118	114	130	137	132	130	125	118	108	94	92	80	F 70	F 66	F 61
29		63	66	68	63	58	F 48	52	60	93	115	114	125	126	126	117	124	120	107	F 91	88	69	64	60	55
30		51	47	U F 52	F 37	F 35	F 33	F 36	F 48	92	115	125	132	135	128	130	132	126	123	U J 107	98	U F 73	F 70	70	58
31		F 58	62	65	53	47	43	43	U J 50	92	115	125	137	140	135	132	129	122	125	116	100	88	74	55	53
MED		56	54	54	52	51	47	47	58	92	117	127	132	134	133	130	127	122	116	104	92	78	70	63	58
NO		31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

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

TABLE 62
IONOSPHERIC DATA

foF2, 0.1 Mc, Dec. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1° W Sweep 1.0 Mc to 25.0 Mc in 13.5 sec. Manual ☐ Automatic ☒

	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
01	62	F 60	F 58	56	53	F 48	49	85	116	131	139	140	135	136	130	127	119	117	105	86	73	67	F 70	74
02	72	70	63	61	58	F 56	62	87	120	135	148	140	134	125	128	130	125	120	100	90	U J 80	74	78	F 70
03	68	64	58	58	56	50	F 47	80	120	130	140	143	138	137	135	125	125	115	106	95	79	73	68	65
04	68	71	71	57	49	F 47	F 48	90	120	127	140	137	136	135	135	130	130	116	105	92	79	72	73	70
05	70	68	63	58	52	53	59	92	123	133	135	133	132	132	135	135	126	116	104	92	83	80	74	70
06	63	F 59	58	58	56	51	F 52	87	120	132	133	135	135	135	132	128	125	114	104	92	84	76	68	59
07	52	F 51	U F 49	F 49	48	47	45	77	103	115	125	130	127	123	125	118	112	105	U S 94	76	72	66	67	60
08	59	57	F 51	48	48	48	F 49	U J 80	110	123	131	135	136	132	126	125	117	113	98	87	75	70	62	56
09	F 53	U F 50	U F 51	U F 51	U F 48	U F 46	U J 51	F 78	111	119	125	132	134	133	130	125	119	108	94	82	U F 73	F 69	F 66	U F 54
10	U F 58	U F 61	U F 61	U F 58	F 58	U F 56	F 52	80	110	125	134	135	144	140	136	133	125	114	98	92	86	84	U J 76	68
11	63	U F 56	U F 33	F 31	F 34	U F 39	U F 48	88	117	129	136	140	135	135	127	120	107	99	U P 93	85	78	63	57	52
12	50	49	48	48	44	38	39	78	120	123	128	130	130	128	128	130	126	117	104	U P 98	U P 94	U P 92	88	76
13	69	F 64	U F 65	U F 60	U F 53	F 47	U F 50	F 76	110	U P 122	125	128	137	136	136	123	115	97	96	84	72	62	U F 62	F 64
14	F 58	60	U F 55	54	I C 54	48	49	76	108	125	132	133	130	130	127	123	115	111	92	86	70	65	61	J 56
15	56	U P 51	58	55	56	55	54	82	115	135	128	137	139	130	128	126	120	108	92	88	76	62	56	59
16	56	53	U F 54	U F 53	54	48	52	75	107	125	133	139	127	130	131	126	116	107	100	79	73	58	54	49
17	48	49	50	50	48	47	47	76	105	125	130	135	134	132	131	123	116	103	88	U J 78	U S 76	57	48	45
18	45	J 46	J 50	J 50	47	45	44	74	106	120	127	132	128	131	128	125	123	U S 115	U P 96	U S 88	U S 77	U S 66	57	55
19	51	48	48	46	F 39	38	F 42	73	103	120	128	130	124	123	127	126	116	102	88	78	68	56	57	53
20	49	52	51	62	J 53	U F 55	54	80	100	125	130	129	132	124	130	128	117	108	99	72	U S 70	U S 59	U F 51	52
21	U J 50	47	48	47	47	41	40	66	100	107	115	133	131	125	120	120	110	100	88	74	61	54	52	48
22	48	50	52	53	50	41	43	72	107	116	135	139	136	130	130	125	120	106	94	84	69	58	51	50
23	47	47	46	45	44	42	44	71	103	118	126	126	125	118	118	118	108	100	88	73	62	57	56	53
24	U F 54	58	60	57	52	I C 46	45	72	105	114	123	129	126	125	119	122	122	108	96	78	61	61	U J 61	53
25	49	C	C	C	C	44	F 48	69	102	103	138	143	142	130	130	120	135	128	118	96	79	70	64	62
26	F 58	F 52	52	F 48	F 41	U F 47	U F 56	80	110	128	126	135	132	128	123	125	116	100	92	87	F 69	F 53	54	52
27	F 48	F 47	F 48	48	J 49	F 46	F 41	U S 71	107	120	128	128	124	120	125	124	U S 131	126	J 101	87	82	70	F 68	F
28	U F 39	U S 61	J 59	47	47	F 48	F 50	F 68	102	113	124	130	U J 137	130	128	122	114	107	94	90	F 72	F 64	61	F 64
29	63	67	60	63	55	F 49	53	72	102	115	120	122	127	121	119	119	115	101	90	87	72	62	I C 56	56
30	50	47	U F 41	U F 32	F 36	F 35	F 36	U F 71	100	122	U J 127	132	130	130	133	128	123	119	105	90	72	63	59	58
31	60	64	59	51	44	43	U F 43	68	108	120	125	142	U J 140	132	127	127	127	118	101	91	80	62	56	54
MED	56	54	53	52	49	47	48	76	108	123	128	133	134	130	128	125	119	108	96	87	73	64	61	56
NO	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30

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

TABLE 63

IONOSPHERIC DATA

foF1, 0.1 Mc, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Lang. 77.1° W 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										Q	Q	L	L	L	L	L	L	Q						
02										Q	Q	L	L	L	L	L	L	Q						
03										Q	L	L	L	L	L	L	L	L						
04										Q	L	L	L	L	L	L	L	L	L						
05										Q	L	L	L	L	L	L	L	L	Q						
06										Q	Q	L	L	L	L	L	L	Q						
07										Q	L	L	L	L	L	L	L	L						
08										Q	Q	Q	L	L	L	L	L	L						
09										Q	Q	L	L	L	L	L	L	L						
10										Q	L	L	L	L	L	L	L	L						
11										Q	Q	L	L	L	L	L	L	Q						
12										Q	L	L	L	L	L	L	L	Q						
13										Q	L	L	L	L	L	L	Q	Q						
14										Q	L	L	L	L	L	L	L	L						
15										Q	Q	L	L	L	L	L	L	L						
16										Q	Q	L	L	L	L	L	L	L						
17										Q	L	L	Q	L	L	L	Q	Q						
18										Q	Q	Q	Q	L	L	L	Q	Q						
19										L	L	L	L	L	L	L	L	L						
20										Q	Q	Q	L	L	L	L	L	Q						
21										Q	Q	Q	L	L	L	L	Q	Q						
22										L	L	L	L	L	L	L	L	Q						
23										Q	Q	Q	L	L	L	L	Q	Q						
24										Q	Q	L	L	L	L	L	L	Q						
25										Q	L	L	L	L	L	L	L	Q						
26										Q	Q	L	L	L	L	L	L	L						
27										Q	Q	Q	Q	Q	L	L	L	Q						
28										Q	Q	L	L	L	L	L	L	L						
29										Q	Q	L	L	L	L	L	L	L						
30										Q	Q	L	L	L	L	L	L	L						
31										Q	Q	L	L	L	L	L	L	L						
MED																								
NO																								

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

TABLE 64
IONOSPHERIC DATA

foE, 0.1 Mc, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1° W 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									B	H 300	H 340	H 350	350	360	330	H 290	A							
02									A	H 320	I B 340	H 350	370	350	340	300	B							
03									H 240	300	330	350	350	370	H 330	H 310	B							
04									230	H 300	H 340	H 350	370	370	340	300	B	B						
05									A	A	320	A	350	H 360	H 340	300	220	S						
06									B	B	330	350	350	360	330	280	H 220							
07									A	290	H 320	340	350	U P 350	330	R	A							
08									B	U B 260	B	B	B	U B 330	320	B	B							
09									220	290	330	340	340	U P 340	320	290	A							
10									B	U F 280	310	320	340	U P 340	H 320	B	B							
11									A	H 290	330	350	U A 370	350	320	280	A							
12									H 210	290	A	A	H 350	330	300	280	U P 190							
13									H 230	280	U S 310	330	U P 360	330	U P 310	290	A							
14									200	H 290	310	330	350	H 340	A	A	H 220							
15									200	H 270	H 320	H 340	H 330	340	330	300	A							
16									220	290	340	340	H 340	350	330	A	A							
17									H 240	U H 300	330	I B 350	H 370	340	310	H 280	H 240							
18									U H 210	I A 260	310	330	340	U A 330	H 310	U H 290	B							
19									H 220	H 300	350	360	350	340	320	280	190							
20									H 210	270	A	U R 340	U R 360	H 330	H 320	H 280	H 230							
21									H 200	I A 260	320	330	360	340	320	H 300	A							
22									A	A	A	330	340	H 330	I A 310	H 290	A							
23									220	H 290	320	340	340	I A 320	300	H 290	240							
24									H 210	A	A	330	340	A	A	A	H 230							
25									U B 190	A	A	U A 330	330	320	I A 300	290	230							
26									B	270	I B 300	320	320	340	H 320	300	230							
27									B	280	320	U A 350	U B 360	340	320	290	H 230							
28									H 230	290	A	A	A	A	310	U B 280	250							
29									U P 180	280	320	320	330	H 330	290	H 290	H 240							
30									A	270	H 330	I A 340	350	360	330	I A 280	H 240							
31									H 240	290	330	I A 360	380	370	A	A	A							
MED									220	290	320	340	350	340	320	290	230							
NO									19	26	24	27	29	29	28	24	15							

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

TABLE 65

IONOSPHERIC DATA

fEs, 0.1 Mc, DEC. 1956 — 75° W Mean Time

Station Washington, D.C. Lat. 38.7°N Lang. 77.1° W 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		44	33	B	S	48	116	30	29	27	G	G	25	G	G	G	56	30	B	S	36	45	33	30	S
02	S	S	S	S		15	32	120	H 78	H 88	33	B	34	41	G	G	G	B	B	S	68	S	S	31	40
03	S	S	S	S	S	S	S		48	23	G	G	G	39	G	G	G	29	B	S	S	S	33	S	28
04	39	26	S	E	S	S	S		42	39	22	G	G	23	45	34	37	25	B	S	B	S	S	33	S
05	B	S	S	S	B	S	30		17	28	39	G	68	33	G	G	G	24	S	S	49	38	38	39	33
06	39	B	B	30	S	S	31		74	B	B	G	42	G	G	G	G	17	B	S	38	39	34	30	30
07	35	S	S	S	S	S	27		S	22	G	G	G	32	42	39	G	30	S	B	B	43	40	S	31
08	38	68	S	S	S	39	S		43	B	B	B	B	B	B	B	B	B	B	S	S	S	S	S	S
09	S	S	S	S	S	34	H 43		43	17	G	G	G	G	G	G	G	24	B	S	53	S	29	S	S
10	S	45	S	S	S	S	S		B	B	F 32	32	54	38	G	G	B	25	B	S	S	48	S	S	S
11	S	S	62	41	37	S	S		48	34	44	58	80	58	74	61	52	36	20	35	32	40	S	S	45
12	S	S	49	50	44	S	S		48	22	37	53	43	G	28	24	29	G	B	S	S	34	40	S	B
13	S	S	42	S	S	S	62		39	Y 74	39	32	44	G	34	G	G	21	30	36	S	S	S	S	S
14	S	S	S	38	43	S	S		S	G	G	G	G	37	45	40	36	G	S	S	S	23	S	S	S
15	S	39	S	S	S	S	S		S	G	G	116	G	37	39	34	31	29	B	35	28	S	S	S	23
16	S	S	S	S	S	S	S		35	G	48	G	G	G	68	48	54	34	B	B	S	S	S	S	24
17	B	S	S	S	S	S	S		S	G	G	G	B	G	G	G	G	G	B	S	S	S	31	S	S
18	S	S	S	S	S	S	S		S	G	44	G	G	G	36	36	48	65	39	S	S	S	S	S	S
19	S	35	S	72	35	S	37		37	G	H 36	38	G	56	36	G	39	33	38	43	S	35	29	S	S
20	S	S	S	S	S	27	26		S	G	G	37	G	G	G	G	G	34	B	S	S	23	23	S	S
21	24	S	S	S	Y 72	S	24		28	G	Y 37	G	G	G	G	G	32	23	B	S	31	34	42	S	S
22	S	S	Y 45	S	S	S	S		S	Y 30	47	H 32	35	41	49	43	36	23	29	S	S	38	39	S	S
23	S	S	S	S	S	S	S		S	39	G	G	45	36	42	33	G	G	S	S	S	S	S	50	28
24	S	S	S	S	E	37	S		S	G	40	Y 71	45	50	52	41	Y 40	Y 35	S	S	36	S	S	S	S
25	26	39	C	C	C	C	84		72	G	29	40	35	50	44	33	G	G	24	21	29	B	S	S	S
26	S	70	72	80	35	S	S		34	32	28	B	G	G	G	G	29	G	B	B	B	30	31	26	S
27	B	S	E	S	S	S	S		S	B	G	G	Y 33	B	G	38	37	G	S	41	70	S	S	S	B
28	S	S	S	S	S	S	B		B	G	84	39	34	34	32	G	G	G	B	B	B	B	B	S	S
29	S	S	S	S	S	S	35		S	G	29	G	33	34	G	32	G	G	S	S	S	S	S	S	S
30	S	S	S	S	S	E	S		S	25	30	42	41	34	G	G	30	G	B	S	S	S	40	52	S
31	S	S	S	E	S	S	S		S	G	32	G	35	45	53	40	47	29	37	66	56	42	S	B	S
MED		30	U 39	U 44	U 40	36	U 34	31	40		29						29	23		35	34	36	33	U 31	28
NO		10	9	8	8	10	7	13	18	31	31	31	31	31	31	31	31	31	24	11	16	16	15	9	11

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

TABLE 66

IONOSPHERIC DATA

f min, 0.1 Mc, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1° W 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	E S 12	E S 13	17	E S 11	E S 13	E	E S 16	E S 15	23	24	25	24	30	27	26	26	21	20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
02	E S 16	E S 13	E S 15	E S 13	E S 11	E S 11	E S 12	E S 13	E S 16	26	40	24	30	24	27	26	27	21	E S 16	E S 14	E S 16	E S 16	E S 16	E S 16
03	E S 15	E S 13	E S 15	E S 11	E S 11	E S 13	E S 12	E S 16	E S 16	19	23	26	24	22	23	27	25	25	E S 18	E S 16	E S 16	17	E S 16	E S 16
04	E S 11	E S 12	E S	E 13	E S 11	E S 15	E S	E	E S 16	17	22	27	22	20	22	22	20	22	E S 16	17	E S 16	E S 16	18	E S 16
05	19	E S 12	E S 14	E S 16	18	E S 13	E S 12	E S 13	20	23	25	25	25	24	24	21	19	E S 17	E S 16	E S 16	E S 16	E S 12	E S 16	E S 16
06	E S 16	19	22	E S 15	E S 16	E S 16	E S 16	20	26	35	34	E S 16	24	28	22	20	E S 16	17	E S 16	E S 11	E S 16	E S 11	E S 16	E
07	E S 16	E S 13	E S 11	E S 13	E S 13	E S 12	E S 16	E S 16	E S 16	18	19	21	21	20	19	26	23	E S 16	20	19	E S 16	E S 16	E S 16	E S 16
08	E S 16	E S 16	E S 16	E S 13	E S 13	E S 16	E S 16	E S 16	25	30	39	40	36	36	35	30	24	20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
09	E S 16	E S 16	E S 12	E S 13	E S 13	E S 13	E S 16	E S 16	E S 13	22	22	26	27	22	24	24	19	18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
10	E S 16	E	E S 11	E S 11	E S 11	E S 16	E S 16	21	22	17	22	22	25	27	26	30	23	19	E S 16	E S 16	E S 16	E S 16	E S 13	E S 16
11	E S 16	E S 14	E S 15	E	E	E S 15	E S 16	E S 16	19	E S 16	17	22	22	25	22	23	18	18	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16
12	E S 16	E S 16	E S 16	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	20	20	21	22	22	21	21	17	22	E S 13	E S 13	E S 16	E 16	E S 16	17
13	E S 16	E S 13	E S 13	E S 11	E S 11	E S 15	E S 16	E S 16	17	17	18	20	24	22	23	21	17	E S 11	E S 15	E S 16	E S 15	E S 16	E S 16	E S 16
14	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	17	E S 16	20	21	20	21	20	19	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
15	E S 16	E S 16	E S 16	E S 13	E S 13	E S 16	E S 16	E S 16	17	20	19	22	24	28	22	20	16	17	E S 12	E S 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 12	E S 14	E S 16	E S 13	E S 16	E S 16	E S 16	20	23	24	22	21	20	17	20	16	E S 16	E S 16	E S 16	E S 16	E S 16
17	19	E S 16	E S 16	E S 11	E S 15	E S 13	E S 16	E S 16	E S 16	E S 16	19	40	20	21	21	21	E S 16	18	E S 16	E S 12	E S 16	E S 16	E S 16	E S 16
18	E S 16	E S 16	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	16	16	17	20	23	21	22	16	26	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
19	E S 16	E S 16	E S 14	E S 13	E S 12	E S 16	E S 16	E S 16	E S 16	E S 16	27	28	24	23	21	E S 16	E S 16	E S 16	E S 16	E S 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 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 21	E S 16	E S 16	E S 16	18	26	E S 16	E S 16	18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
21	E S 16	E S 16	E S 13	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	E S 16	21	29	23	22	19	17	E S 16	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
22	E S 16	E S 16	E S 13	E S 13	E S 14	E S 15	E S 16	E S 16	E S 16	E S 16	18	23	23	23	20	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 13	E S 13	E S 12	E S 13	E S 12	E S 13	E S 16	E S 16	E S 16	E S 16	19	17	18	20	18	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
24	E S 16	E S 13	E S 11	E S 11	E	E S 17	E S 16	E S 16	E S 16	E S 20	E S 16	19	22	18	23	18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
25	E S 16	E S 16	C	C	C	C	E S 16	E S 16	E S 16	E S 16	17	21	19	20	23	22	18	18	20	E S 15	17	E S 16	E S 16	E S 16	E S 16
26	E S 16	E S 13	E S 12	E S 13	E S 12	E S 14	E S 16	E S 16	20	21	38	25	25	27	20	22	29	21	20	20	E S 16	17	17	E S 16
27	20	E S 12	E	E S 12	E S 12	E S 13	E S 16	E S 16	24	25	24	22	38	26	22	20	16	E S 17	E S 15	E S 16	E S 16	E S 16	E S 11	22
28	E S 16	E S 15	E S 15	E S 14	E S 11	E S 16	21	21	18	23	22	24	26	28	34	32	27	17	17	18	17	17	E S 13	E S 16
29	E S 16	E S 15	E S 16	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	19	25	22	22	23	25	23	22	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
30	E S 16	E S 16	E S 13	E S 13	E S 11	E	E S 13	E S 16	E S 16	20	20	23	23	28	21	23	E S 16	18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
31	E S 16	E S 12	E S 14	E	E S 11	E S 13	E S 16	E S 16	E S 16	19	25	28	34	32	29	26	22	18	E S 16	E S 16	E S 16	E S 16	17	E S 16
MED																								
NO																								

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

TABLE 67

IONOSPHERIC DATA

h'F2, Km, DEC. 1956 — 75° W Mean Time

Station Washington, D.C. Lat. 38.7°N Lang. 77.1° W 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	270	250	250	250	300	270	260	260	230	230	L	L	L	L	L	L	240	230	230	240	240	280	300	300
	02	260	250	240	250	250	250	280	240	240	240	L	L	U L 280	L	L	L	240	220	220	220	240	260	260	240
	03	250	240	250	270	250	230	240	250	230	240	L	L	L	L	250	L	L	240	240	230	230	240	270	280
	04	300	260	250	230	230	240	250	260	230	L	250	240	L	L	L	L	L	L	240	240	230	270	280	250
	05	260	250	250	260	280	280	260	240	230	U L 240	L	L	L	L	L	L	L	230	220	240	230	250	260	250
	06	250	270	300	290	260	250	260	260	230	230	L	L	L	L	L	U L 250	230	250	230	240	220	240	240	240
	07	250	260	260	260	250	260	250	250	230	250	L	L	L	L	L	L	U L 250	240	240	240	240	250	260	260
	08	250	260	260	260	290	300	300	260	230	235	230	L	L	250	L	L	L	230	220	230	230	230	240	230
	09	270	260	280	270	250	250	260	260	230	230	L	260	260	L	L	L	260	230	230	240	230	250	240	290
	10	350	330	310	300	280	270	230	280	230	L	L	L	L	L	L	L	240	240	250	220	220	240	240	230
	11	250	260	300	280	280	270	290	250	230	230	L	L	L	L	L	L	230	220	250	230	240	230	240	240
	12	260	260	270	270	250	250	280	270	230	230	250	L	U L 250	L	L	L	240	240	240	230	250	230	250	250
	13	260	260	240	240	250	280	270	260	230	230	U L 230	U L 250	L	240	250	240	230	230	240	240	220	220	260	250
	14	250	270	260	280	270	240	260	250	230	240	240	230	250	L	L	L	250	220	220	230	230	240	250	250
	15	270	300	320	290	270	250	250	250	240	220	L	L	L	L	U L 250	L	L	230	230	240	230	230	250	270
	16	280	290	300	280	270	250	230	240	230	220	U L 250	L	240	L	L	240	U L 240	230	220	230	220	230	240	260
	17	300	300	290	270	270	240	250	240	230	240	240	230	L	260	250	230	230	210	220	220	250	230	230	270
	18	280	U S 290	U S 290	270	250	240	250	240	230	240	230	230	L	240	U L 240	230	U A 240	230	220	220	230	230	230	250
	19	250	250	250	240	240	250	280	250	240	U L 240	U L 240	L	L	L	L	L	250	220	240	230	240	230	260	250
	20	270	290	310	300	290	260	240	250	240	230	240	240	L	L	L	250	230	210	220	220	240	240	260	260
	21	250	260	270	260	240	250	260	240	220	220	230	280	L	L	L	250	230	240	220	230	230	250	270	260
	22	290	330	310	290	240	220	270	250	L	L	260	L	260	250	L	240	220	230	230	230	220	240	240	260
	23	260	260	260	280	270	250	270	240	230	230	230	L	L	230	L	250	240	240	230	220	240	260	280	280
	24	290	290	290	260	250	230	260	270	230	230	250	L	L	U L 260	240	L	240	220	210	240	240	250	260	270
	25	240	270	C	C	C	C	A	260	250	260	L	250	L	270	260	L	250	230	230	230	230	240	260	280
	26	300	320	320	310	300	290	260	240	230	230	240	240	240	L	L	L	L	220	240	240	230	220	260	250
	27	270	280	270	270	250	230	230	U S 230	230	230	230	230	240	L	L	L	250	230	U A 230	230	230	250	U S 240	E B 270
	28	E S 300	260	240	240	U S 330	300	300	230	240	U A 240	U L 240	260	L	L	L	L	L	240	220	240	240	220	270	260
	29	290	280	270	250	230	240	270	250	240	230	240	240	L	L	250	L	L	220	240	230	220	220	230	270
	30	250	230	240	260	300	250	270	250	220	230	L	L	L	L	L	L	250	230	210	230	210	230	I A 250	270
	31	270	250	240	230	230	260	260	240	230	220	240	250	L	L	L	L	L	230	270	240	250	230	240	260
MED		260	260	270	270	260	250	260	250	230	230	240	240	U 250	U 250	U 250	U 240	240	230	230	230	230	240	250	260
NO		30	31	30	30	30	30	30	31	30	28	19	14	8	8	8	9	22	30	31	31	31	31	31	30

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

TABLE 68

IONOSPHERIC DATA

h'F.I, Km, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Lang. 77.1° W 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									Q	Q	225	230	220	230	230	250	Q							
02									Q	Q	220	230	235	230	230	230	Q							
03									Q	230	220	230	230	240	230	230	230							
04									Q	210	220	220	220	230	230	230	225	240						
05									Q	220	230	U A 230	220	230	225	230	230	Q						
06									Q	Q	220	220	230	230	230	230	Q							
07									Q	220	220	225	230	230	225	235	230							
08									Q	Q	Q	230	230	230	230	230	235							
09									Q	Q	230	225	220	230	230	230	245							
10									Q	225	220	230	230	220	240	230	220							
11									Q	Q	U A 230	230	220	U A 225	U A 235	225	Q							
12									Q	220	230	220	235	225	230	230	Q							
13									Q	225	225	230	225	225	230	Q	Q							
14									Q	225	220	230	220	235	220	220	230							
15									Q	Q	215	215	220	235	235	230	230							
16									Q	Q	225	230	205	240	220	240	235							
17									Q	225	225	Q	225	220	240	Q	Q							
18									Q	Q	Q	Q	220	210	225	Q	Q							
19									215	220	220	220	240	215	215	220	230							
20									Q	Q	Q	230	220	230	235	240	Q							
21									Q	Q	Q	210	240	235	225	Q	Q							
22									235	230	230	225	225	230	230	230	Q							
23									Q	Q	Q	H 215	215	220	225	Q	Q							
24									Q	Q	230	220	245	220	220	235	Q							
25									Q	240	230	235	230	230	230	245	Q							
26									Q	Q	U B 235	230	210	225	230	230	230							
27									Q	Q	Q	Q	Q	230	235	230	Q							
28									Q	Q	230	235	220	225	230	245	235							
29									Q	Q	215	230	220	230	230	230	235							
30									Q	Q	220	220	225	225	230	240	230							
31									Q	Q	225	235	230	240	230	225	230							
MED										225	225	230	225	230	230	230	230							
NO									2	12	25	28	30	31	31	26	16	1						

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

TABLE 69
IONOSPHERIC DATA

h'E, Km, DEC. 1956 — 75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1° W 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									B 125	H 119	H 111	H 119	115	119	119	H 121	A 119							
02									A 109	U A 119	B 111	A 109	U A 121	109	117	119	B 119							
03									U A 109	103	101	109	109	109	H 115	H 119	B 119							
04									A 121	H 109	H 109	H 115	115	121	U A 119	119	B 119	B 119						
05									A 119	A 115	111	A 119	119	H 115	H 119	115	119 111	S 111						
06									B 111	B 111	111	111	111	119	115	111	H 111							
07									A 117	109	H 105	103	U A 117	U A 121	U A 117	119	A 119							
08									B 121	U B 121	B 111	B 109	B 115	B 111	U B 115	B 111	B 111							
09									125 111	121 111	111 111	115 109	115 111	109 119	111 113	119 111	A 111							
10									B 111	101 111	111 111	109 109	111 109	119 109	H 113	B 111	B 111							
11									A 109	H 103	125 111	105 111	109 111	111 111	111 111	115 111	A 111							
12									H 109	U A 119	A 111	A 111	H 101	U A 109	109 111	115 111	119 111							
13									H 119	109	111	109	105	105	H 109	111	119 111							
14									121 111	H 105	109 111	109 111	109 111	H 109 111	A 111	A 111	H 105 111							
15									121 111	H 115 111	H 107 111	H 109 111	H 111 111	115 111	111 111	111 111	109 111							
16									121 111	109 111	109 111	109 111	H 109 111	109 111	109 111	109 111	A 111							
17									H 109	H 109	109 111	I B 105	H 101	110 111	109 111	H 109 111	H 119 111							
18									E S 119	I A 112	105 111	103 111	109 111	107 111	105 111	109 111	B 111							
19									H 111	U A 101	119 111	115 111	109 111	109 111	109 111	109 111	109 111							
20									H 109	110 111	A 111	109 111	100 111	H 109 111	H 111 111	H 109 111	H 115 111							
21									H 121	I A 115	109 111	122 111	110 111	110 111	109 111	110 111	A 111							
22									A 111	A 111	A 111	109 111	109 111	H 109 111	109 111	U A 111 111	119 111							
23									U A 121	H 109	105 111	101 111	103 111	101 111	105 111	109 111	129 111							
24									H 121	A 111	A 111	109 111	109 111	A 111	A 111	A 111	H 119 111							
25									121 111	109 111	109 111	109 111	109 111	109 111	H 109 111	111 111	119 111							
26									B 111	113 111	I B 111 111	109 111	109 111	109 111	H 103 111	I A 111 111	119 111							
27									B 111	E B 119 111	113 111	I A 113 111	E B 113 111	109 111	111 111	109 111	113 111							
28									H 121 111	119 111	U A 111 111	111 111	111 111	113 111	111 111	U B 111 111	131 111							
29									125 111	113 111	117 111	109 111	109 111	109 111	U B 111 111	H 115 111	H 111 111							
30									129 111	115 111	H 109 111	115 111	U A 125 111	119 111	109 111	115 111	H 109 111							
31									H 121 111	111 111	119 111	I A 124 111	129 111	129 111	A 111	A 111	A 111							
MED									121	110	111	109	109	109	111	111	119							
NO									19	26	25	27	29	29	28	26	18							

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

TABLE 70

IONOSPHERIC DATA

(M 3000) F2, DEC. 1956 — 75° W Mean Time

Station Washington, D.C. Lat. 38.7°N Long. 77.1° W 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	F 300	F 290	290	280	F 280	310	F 300	310	310	315	300	U P 300	290	280	285	280	290	280	285	305	U F 295	255	F 270	260
02	270	280	F 295	280	F 285	290	290	310	320	320	295	U P 295	290	280	280	280	285	280	280	295	285	285	280	F 290
03	285	285	290	280	270	F 290	300	290	315	310	310	290	290	280	280	285	280	285	285	U P 295	295	290	280	270
04	270	280	295	310	290	F 290	F 290	F 310	320	290	270	305	285	280	280	280	280	280	290	290	295	285	260	295
05	285	290	290	290	270	270	290	F 310	330	315	305	305	290	275	275	275	280	280	280	U P 280	290	295	295	300
06	300	280	270	270	280	280	290	300	320	310	300	290	290	285	275	280	270	295	275	280	280	290	300	290
07	300	280	F 295	F 295	290	F 280	F 290	290	310	320	290	285	290	280	280	285	285	285	U P 290	290	U P 285	285	275	290
08	280	275	270	280	265	265	265	290	310	320	300	295	290	290	290	280	280	280	285	295	300	280	300	280
09	F 295	U F 290	U F 285	U F 290	U F 300	U F 280	U F 290	U F 295	320	315	305	300	290	280	285	275	295	290	295	300	U F 280	U F 290	U F 295	F 280
10	F 250	U F 270	U F 265	U F 270	U F 280	U F 270	U F 285	290	325	320	305	290	285	285	285	285	280	U P 280	U P 285	285	265	285	290	300
11	280	F 295	U F 270	F 280	U F 290	U F 280	U F 295	290	320	315	310	305	290	U S 265	285	285	285	285	290	295	300	315	290	290
12	295	290	280	290	290	265	285	290	320	310	310	300	290	280	275	275	275	285	275	280	U P 290	285	290	290
13	280	270	F 290	U F 290	U F 280	F 280	U F 280	F 290	310	F 300	290	290	285	285	290	280	280	290	290	295	280	295	275	U F 280
14	F 300	F 280	285	260	270	285	290	310	320	320	320	315	300	295	295	280	290	300	U P 300	290	310	F 295	290	F 280
15	275	265	255	265	270	280	285	290	335	310	300	295	290	285	280	280	290	290	290	305	315	315	285	285
16	F 275	270	F 270	U F 280	F 290	295	F 305	310	330	320	325	300	305	295	280	290	300	295	285	305	300	295	F 300	300
17	290	275	270	270	280	295	295	325	325	310	320	310	295	300	290	295	300	265	295	290	315	U F 320	U S 290	285
18	280	275	280	285	285	295	290	F 310	330	330	315	290	295	295	290	290	285	U S 290	U S 290	U S 290	U S 310	310	290	U S 300
19	300	300	F 300	315	F 300	285	F 290	300	320	320	315	280	305	290	H 290	285	290	305	290	310	300	290	290	300
20	280	275	260	270	270	280	305	310	335	325	320	305	295	295	290	290	305	290	300	300	290	U J 290	U J 285	290
21	295	300	280	290	275	290	300	300	330	315	310	310	305	300	285	290	295	300	300	305	300	295	285	290
22	270	255	265	275	290	290	275	310	330	325	315	285	300	305	295	300	290	295	310	310	310	295	280	290
23	290	290	280	280	290	280	290	295	320	320	310	315	300	275	290	285	300	300	295	300	300	285	270	270
24	270	270	270	275	285	300	U F 270	285	300	320	320	310	300	275	275	270	285	280	290	280	285	270	265	270
25	275	275	C	C	C	C	U A 310	F 290	290	305	300	300	290	290	270	270	275	290	295	295	290	280	F 270	275
26	F 275	F 275	270	F 270	F 280	F 280	U F 310	U F 290	310	320	315	305	305	285	295	290	295	285	295	300	315	F 300	F 295	285
27	290	F 280	F 290	F 290	295	F 290	F 300	F 295	325	315	315	300	300	285	270	270	275	280	285	290	U S 280	U F 280	U S 275	U F 270
28	U F 280	U F 300	300	285	U F 260	F 260	U F 280	F 320	315	310	295	300	290	280	270	270	290	285	285	280	300	F 290	F 280	F 270
29	265	270	270	280	300	F 300	280	300	330	330	300	290	290	290	280	280	290	295	F 290	290	330	295	300	290
30	310	300	U S 295	F 290	F 280	F 290	F 290	F 295	320	325	310	290	280	280	280	280	285	280	S	300	U F 300	F 290	265	290
31	F 280	285	295	320	295	295	300	U F 285	310	330	305	295	290	275	265	280	280	285	290	290	300	295	300	290
MED	280	280	280	280	280	285	290	295	320	320	310	300	290	285	280	280	285	285	290	295	300	290	285	290
NO	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31

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

TABLE 71

IONOSPHERIC DATA

(M3000) F1, DEC. 1956 — 75° W Mean Time

Station Washington, D.C Lat. 38.7°N Long. 77.1° W 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									Q	Q	L	L	L	L	L	L	Q							
02									Q	Q	L	L	L	L	L	L	Q							
03									Q	L	L	L	L	L	L	L	L							
04									Q	L	L	L	L	L	L	L	L	L						
05									Q	L	L	L	L	L	L	L	L	Q						
06									Q	Q	L	L	L	L	L	L	Q							
07									Q	L	L	L	L	L	L	L	L							
08									Q	Q	Q	L	L	L	L	L	L							
09									Q	Q	L	L	L	L	L	L	L							
10									Q	L	L	L	L	L	L	L	L							
11									Q	Q	L	L	L	L	L	L	Q							
12									Q	L	L	L	L	L	L	L	Q							
13									Q	L	L	L	L	L	L	Q	Q							
14									Q	L	L	L	L	L	L	L	L							
15									Q	Q	L	L	L	L	L	L	L							
16									Q	Q	L	L	L	L	L	L	L							
17									Q	L	L	Q	L	L	L	Q	Q							
18									Q	Q	Q	Q	L	L	L	Q	Q							
19									L	L	L	L	L	L	L	L	L							
20									Q	Q	Q	L	L	L	L	L	Q							
21									Q	Q	Q	L	L	L	L	Q	Q							
22									L	L	L	L	L	L	L	L	Q							
23									Q	Q	Q	L	L	L	L	Q	Q							
24									Q	Q	L	L	L	L	L	L	Q							
25									Q	L	L	L	L	L	L	L	Q							
26									Q	Q	L	L	L	L	L	L	L							
27									Q	Q	Q	Q	Q	L	L	L	Q							
28									Q	Q	L	L	L	L	L	L	L							
29									Q	Q	L	L	L	L	L	L	L							
30									Q	Q	L	L	L	L	L	L	L							
31									Q	Q	L	L	L	L	L	L	L							
MED																								
NO																								

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

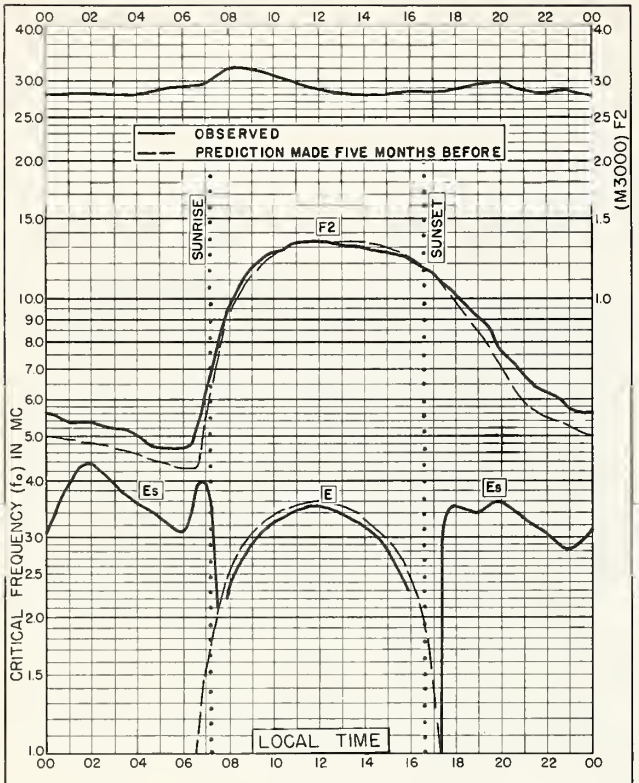


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W DECEMBER 1956

NBS 503

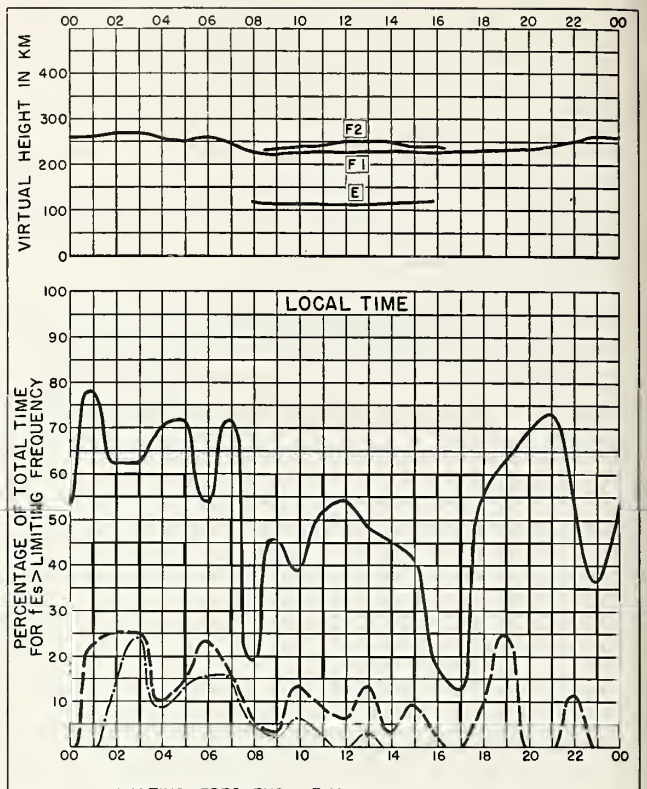


Fig. 2. WASHINGTON, D. C. DECEMBER 1956

NBS 490

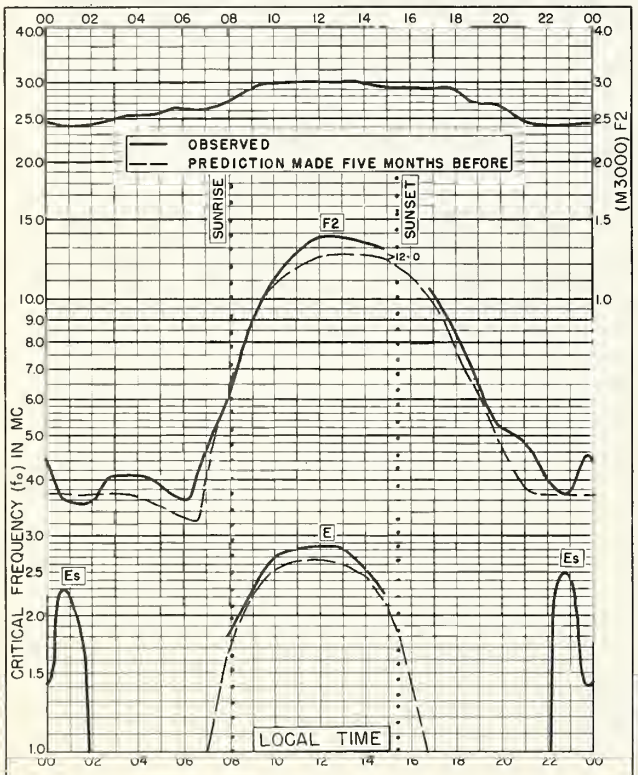


Fig. 3. OSLO, NORWAY
60.0°N, 11.1°E NOVEMBER 1956

NBS 503

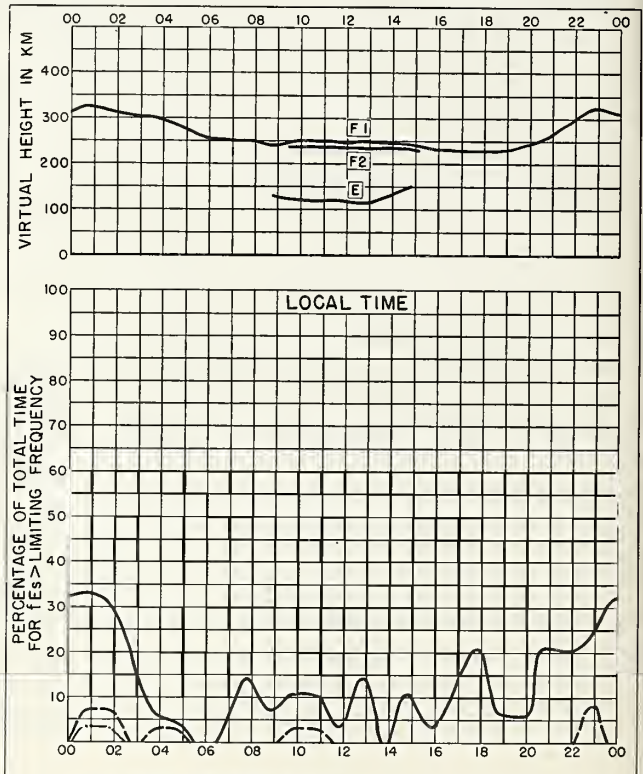


Fig. 4. OSLO, NORWAY NOVEMBER 1956

NBS 490

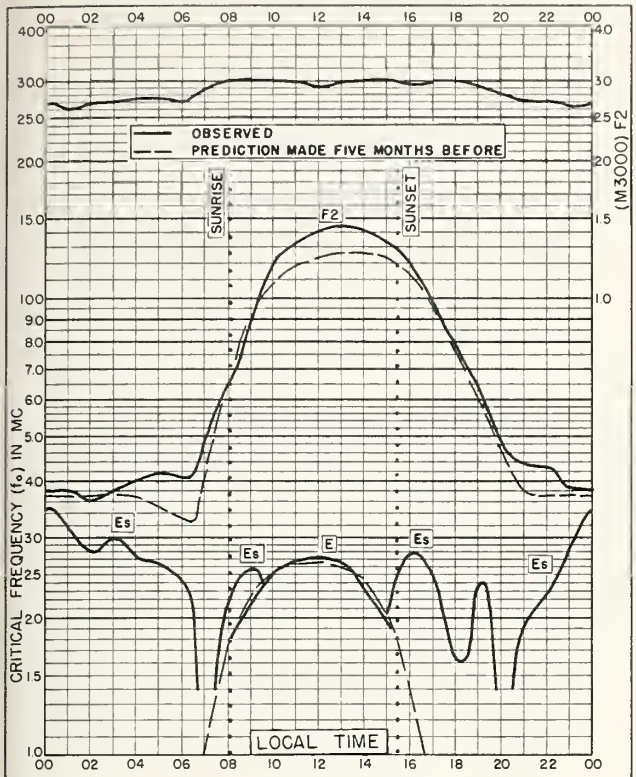


Fig. 5. UPSALA, SWEDEN
59.8°N, 17.6°E NOVEMBER 1956

NBS 503

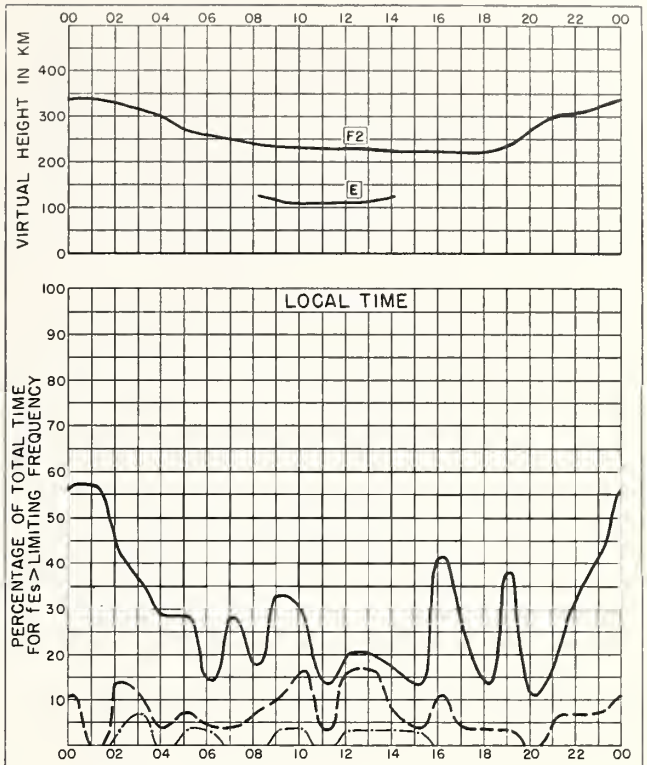


Fig. 6. UPSALA, SWEDEN NOVEMBER 1956

NBS 490

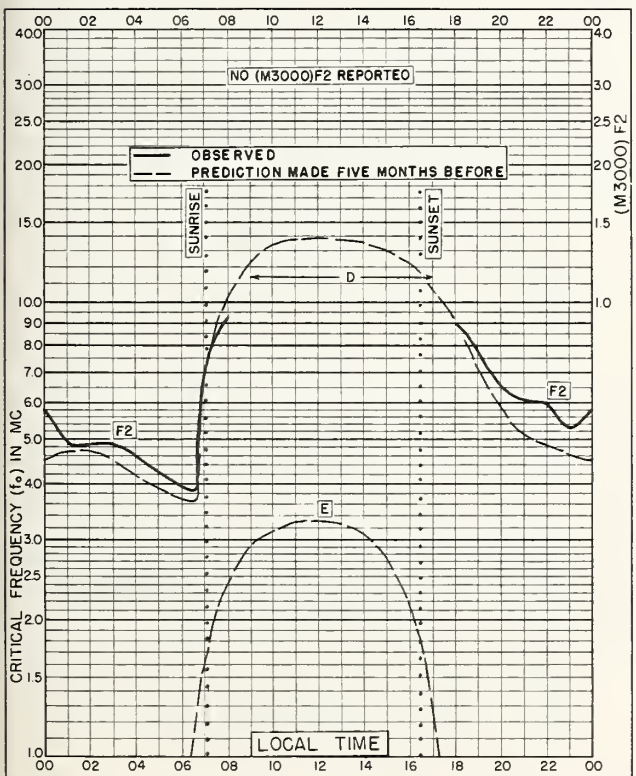


Fig. 7. GRAZ , AUSTRIA
47.1°N, 15.5°E NOVEMBER 1956

NBS 503

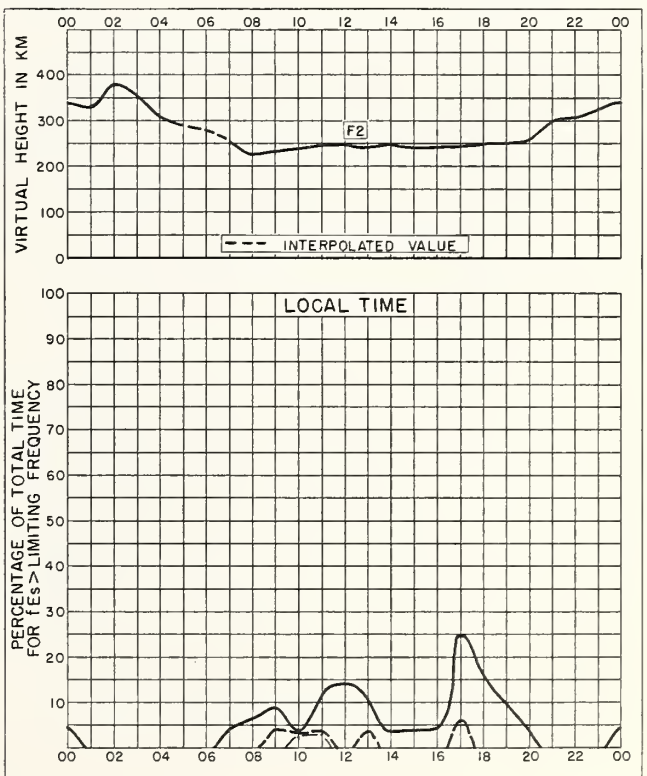


Fig. 8. GRAZ, AUSTRIA NOVEMBER 1956

NBS 490

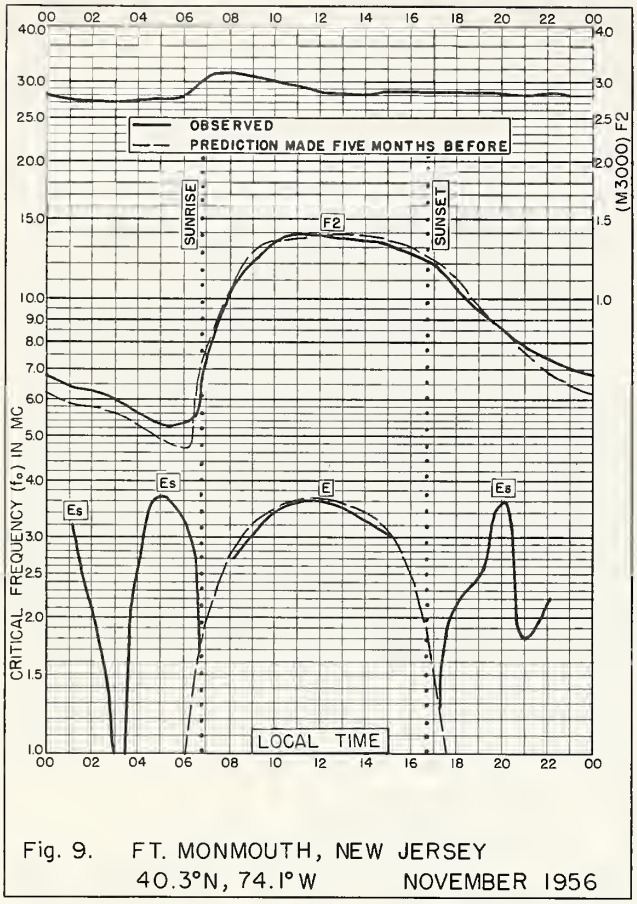
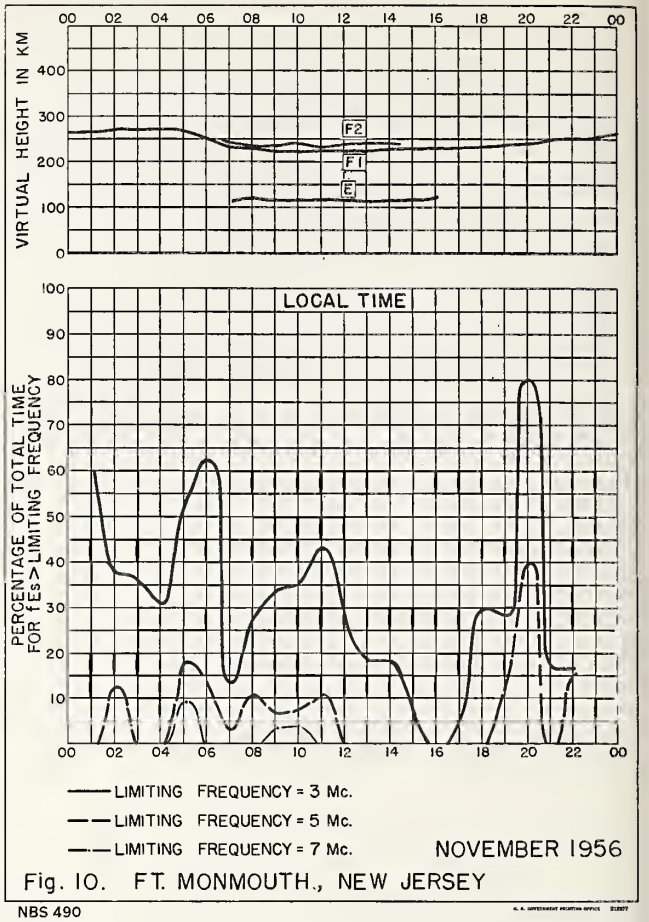


Fig. 9. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W NOVEMBER 1956

NBS 503



NOVEMBER 1956

Fig. 10. FT. MONMOUTH., NEW JERSEY

NBS 490

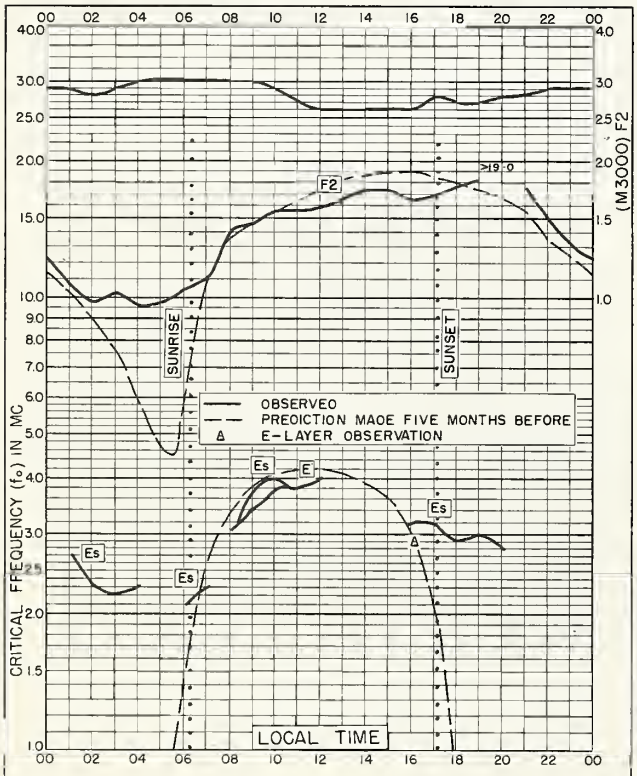
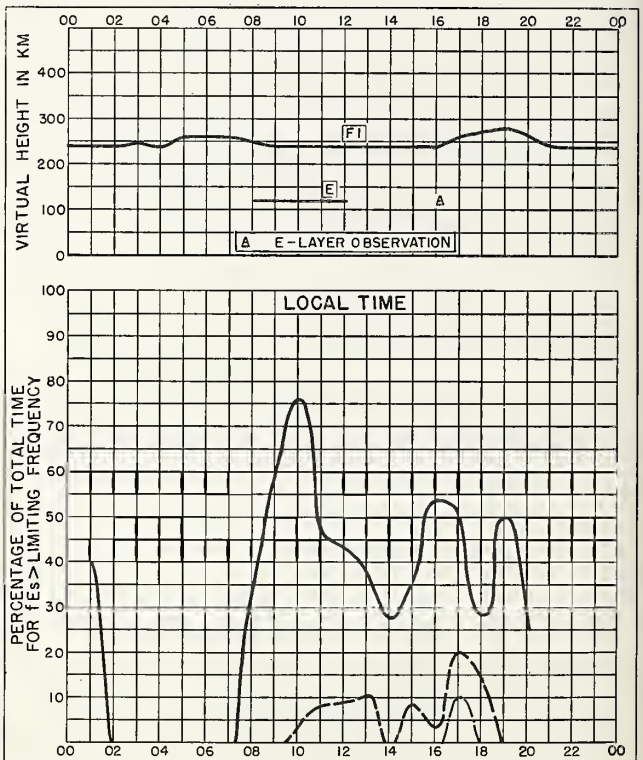


Fig. 11. FORMOSA, CHINA
25.0°N, 121.5°E NOVEMBER 1956

NBS 503



NOVEMBER 1956

Fig. 12. FORMOSA, CHINA

NBS 490

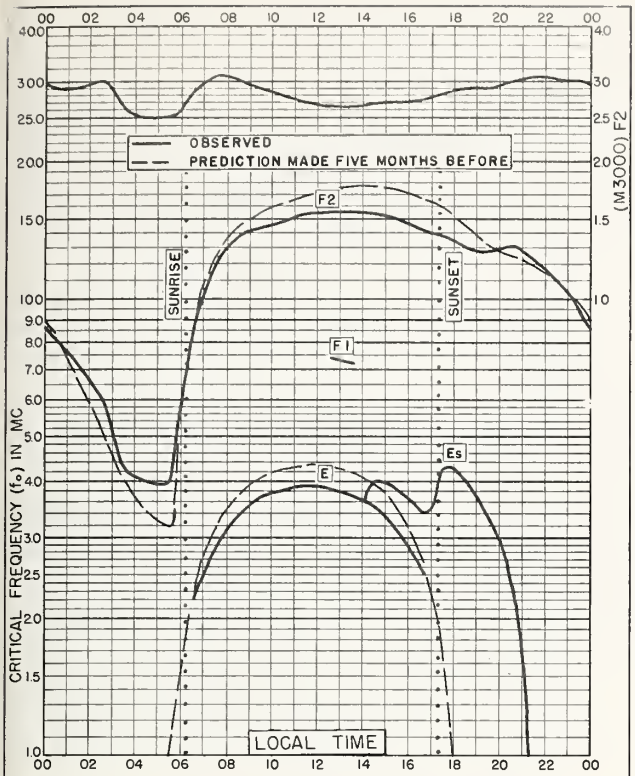


Fig. 13. MAUI, HAWAII
20.8°N, 156.5°W NOVEMBER 1956

NBS 503

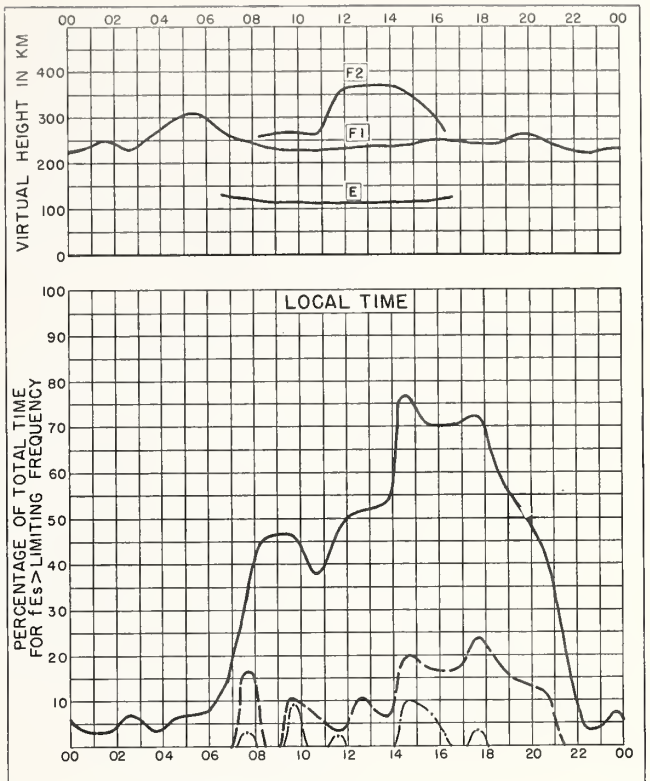


Fig. 14. MAUI, HAWAII NOVEMBER 1956

NBS 490

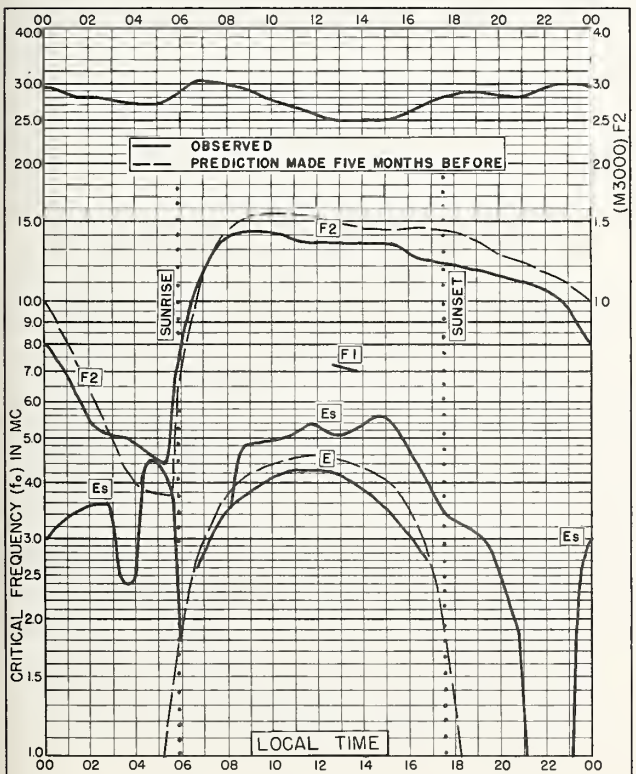


Fig. 15. PANAMA CANAL ZONE
9.4°N, 79.9°W NOVEMBER 1956

NBS 503

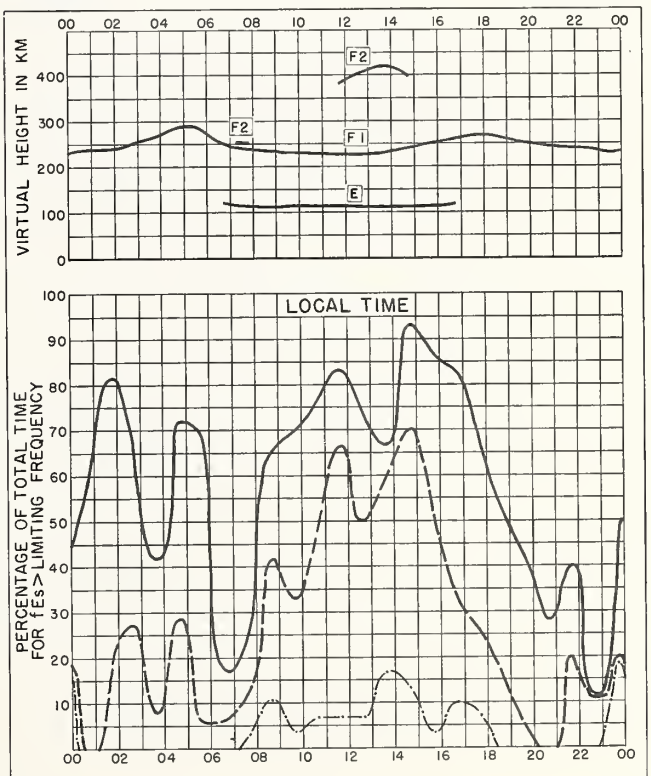


Fig. 16. PANAMA CANAL ZONE NOVEMBER 1956

NBS 490

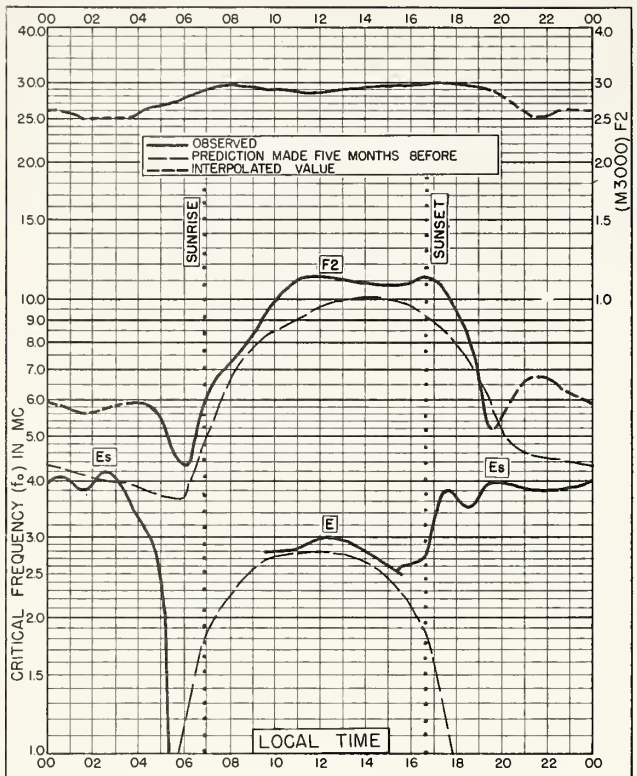


Fig. 17. REYKJAVIK, ICELAND
64.1°N, 21.8°W OCTOBER 1956

NBS 503

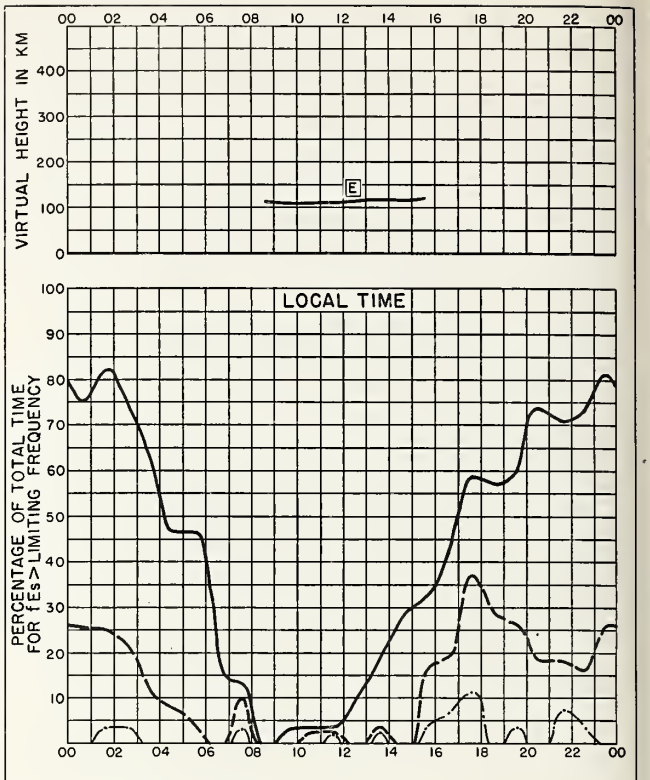


Fig. 18. REYKJAVIK, ICELAND OCTOBER 1956

NBS 490

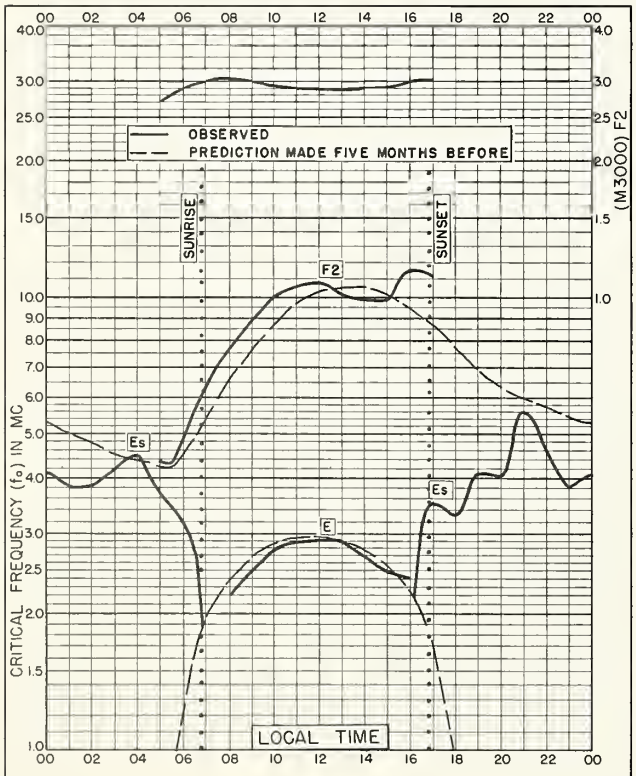


Fig. 19. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W OCTOBER 1956

NBS 503

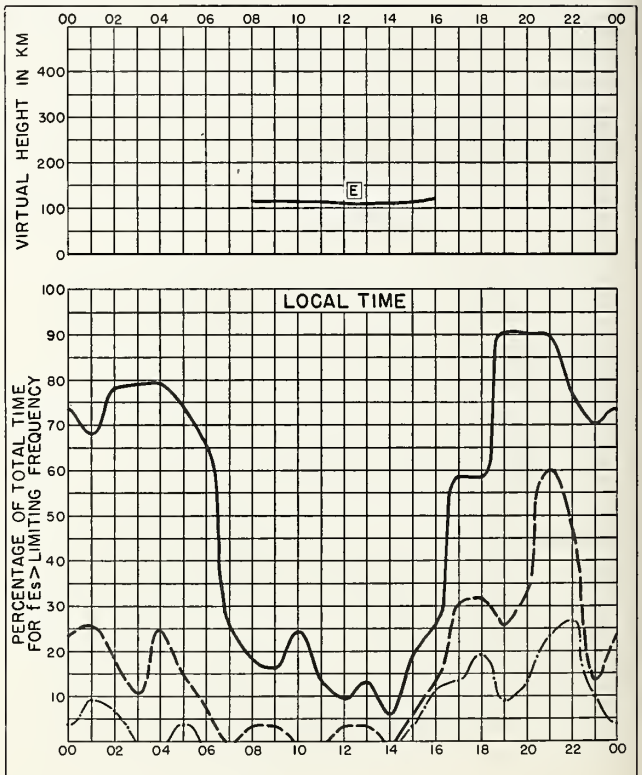


Fig. 20. NARSARSSUAK, GREENLAND OCTOBER 1956

NBS 490

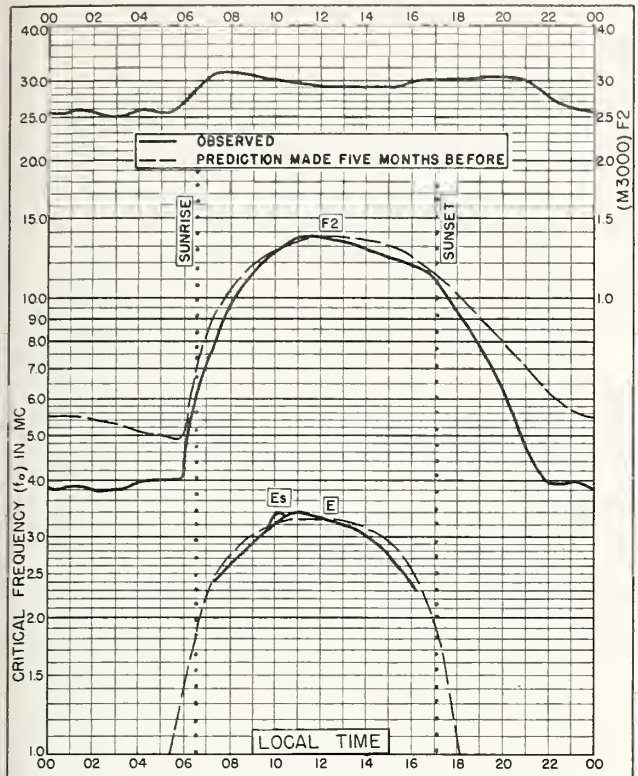


Fig. 21. ADAK, ALASKA
51.9°N, 176.6°W OCTOBER 1956

NBS 503

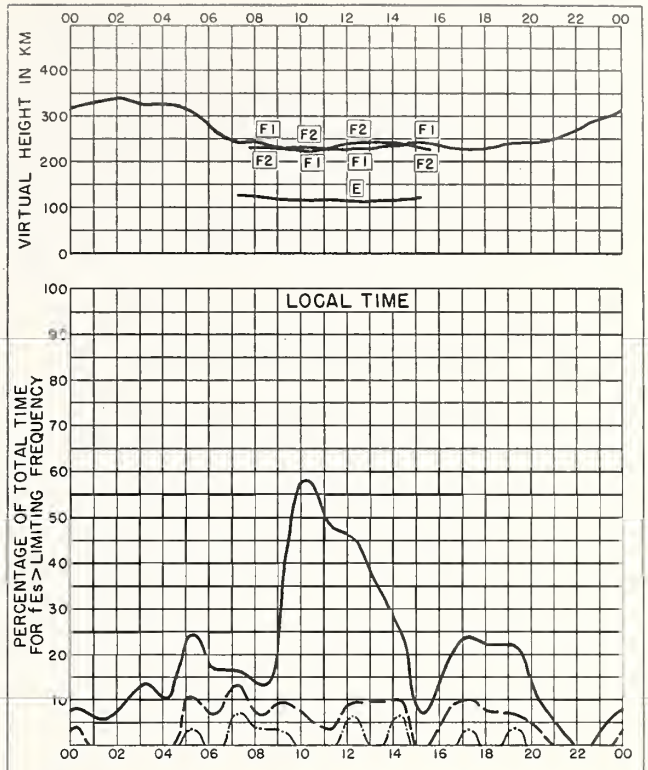


Fig. 22. ADAK, ALASKA OCTOBER 1956

NBS 490

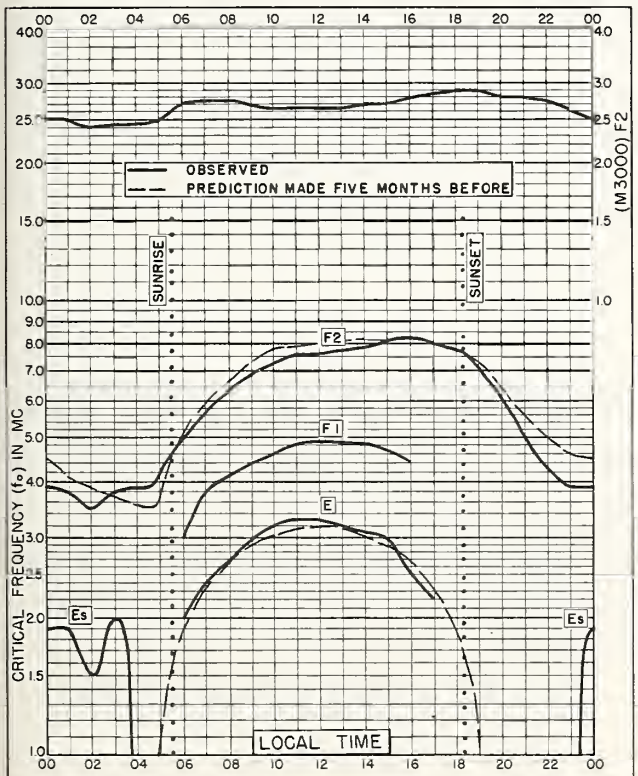


Fig. 23. ANCHORAGE, ALASKA
61.2°N, 149.9°W SEPTEMBER 1956

NBS 503

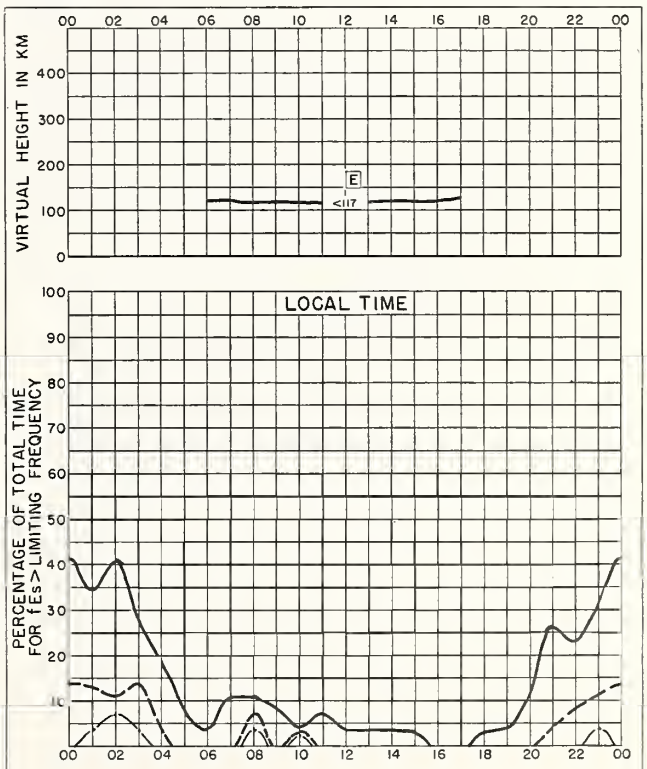


Fig. 24. ANCHORAGE, ALASKA SEPTEMBER 1956

NBS 490

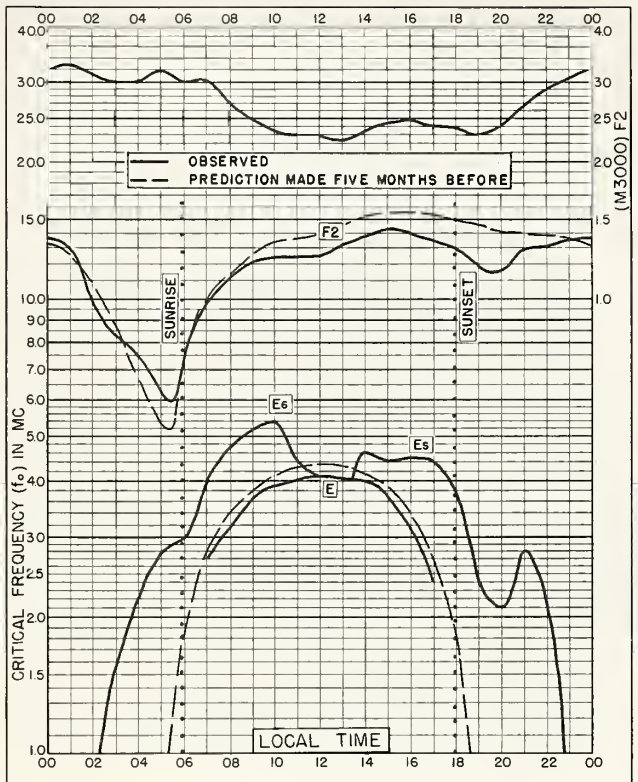


Fig. 25. BAGUIO, P. I.
16.4°N, 120.6°E SEPTEMBER 1956

NBS 503

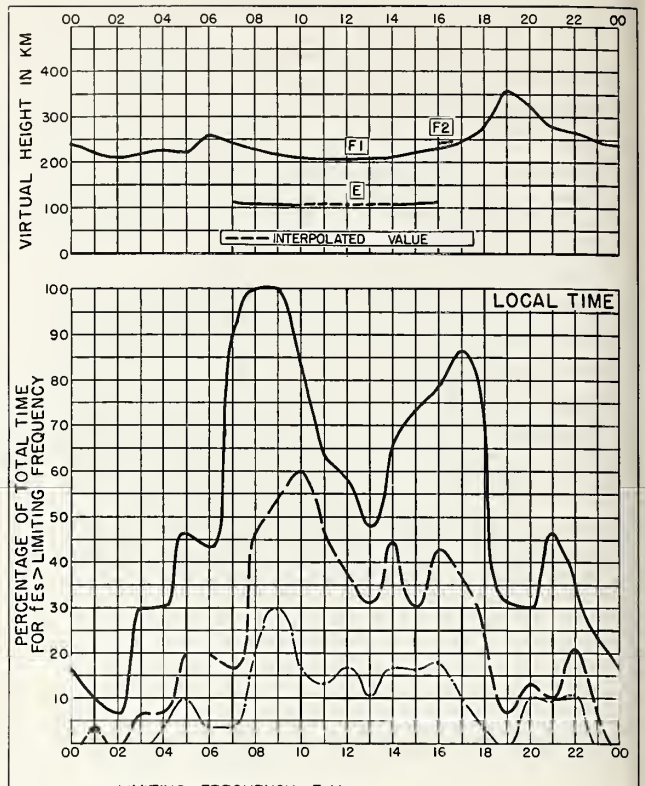


Fig. 26. BAGUIO, P. I. SEPTEMBER 1956

NBS 490

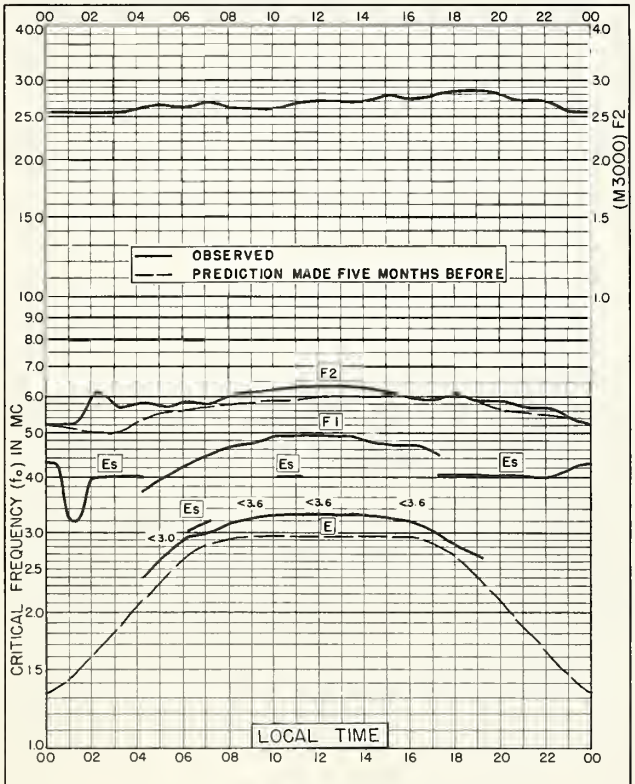


Fig. 27. TROMSO, NORWAY
69.7°N, 19.0°E JULY 1956

NBS 503

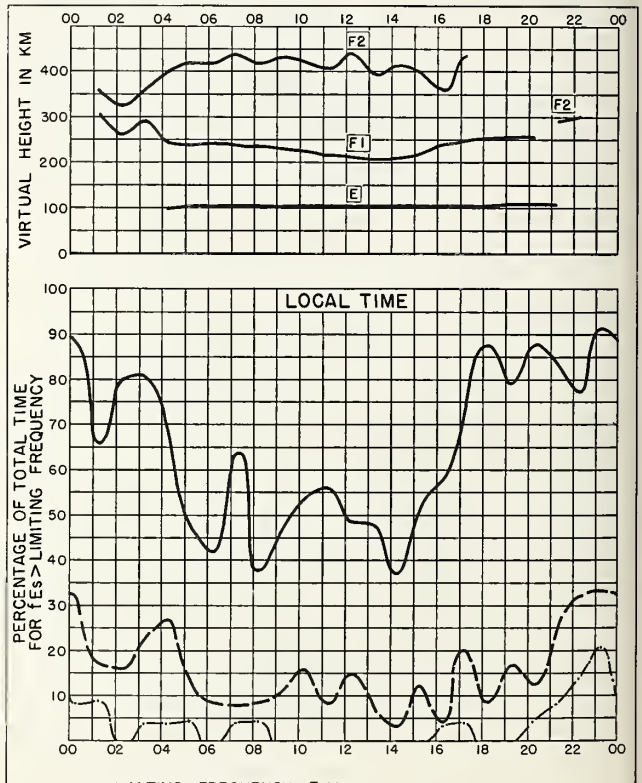


Fig. 28. TROMSO, NORWAY JULY 1956

NBS 490

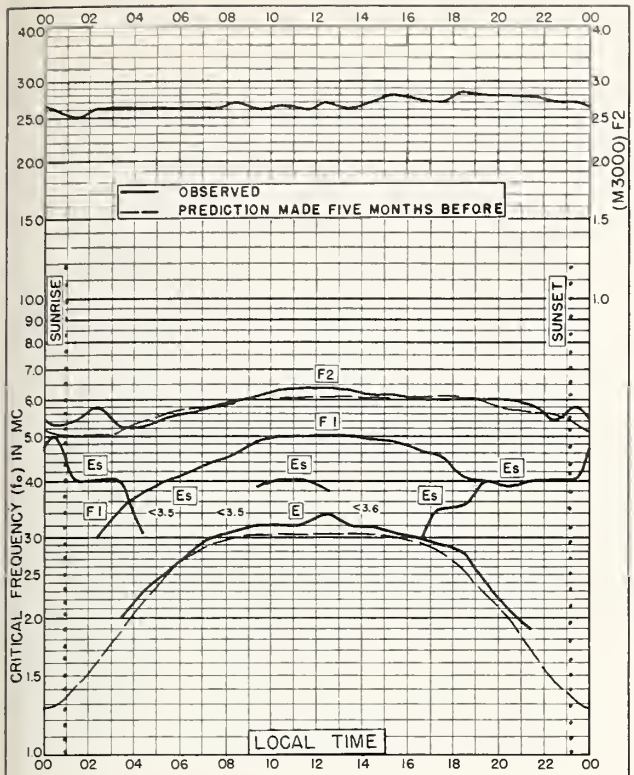


Fig. 29. KIRUNA, SWEDEN
67.8°N, 20.3°E JULY 1956

NBS 503

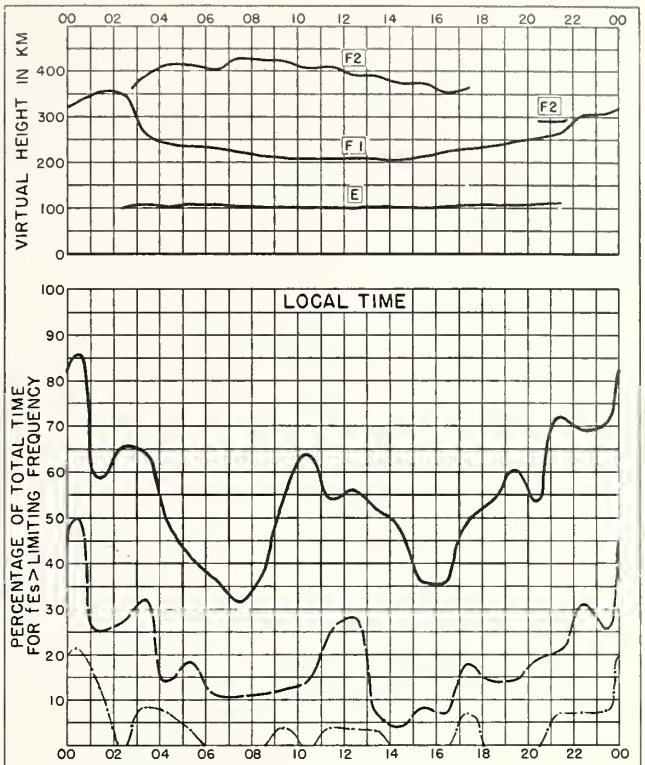


Fig. 30. KIRUNA, SWEDEN JULY 1956

NBS 490

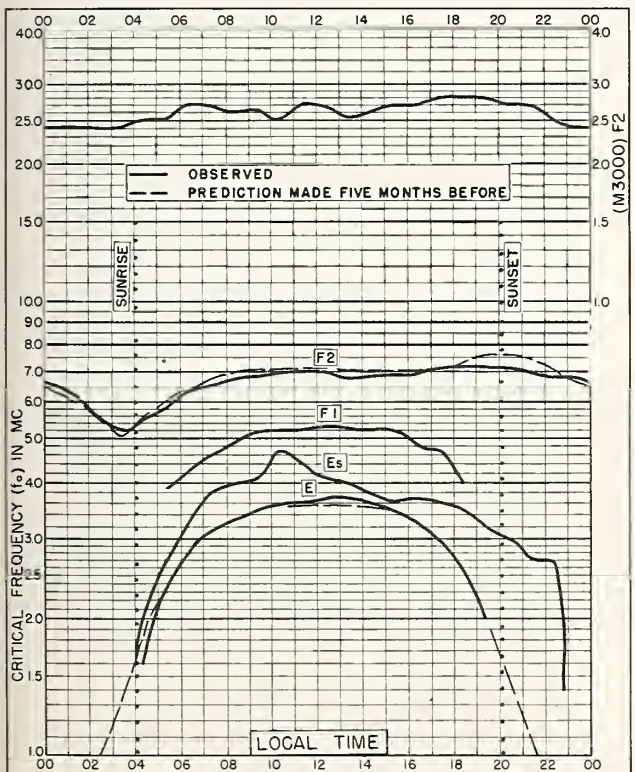


Fig. 31. De BILT, HOLLAND
52.1°N, 5.2°E JULY 1956

NBS 503

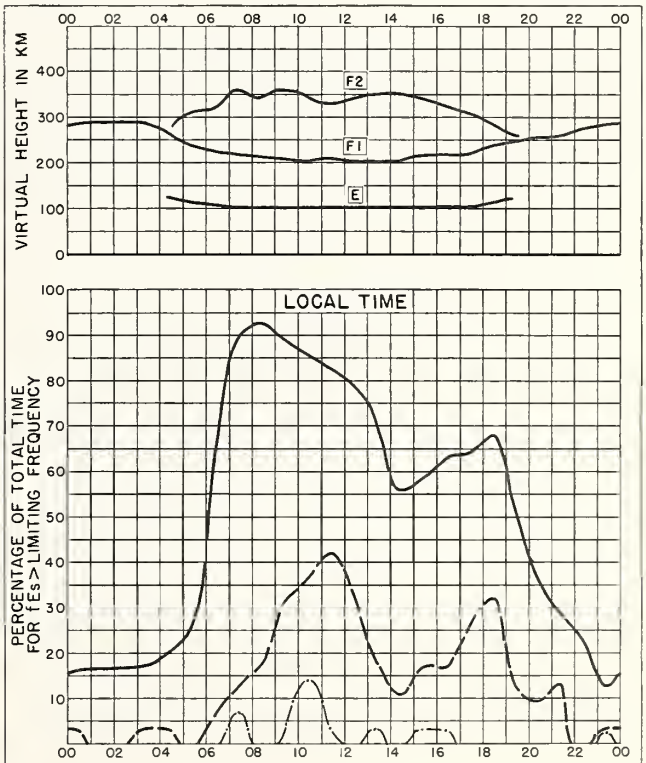


Fig. 32. De BILT, HOLLAND JULY 1956

NBS 490

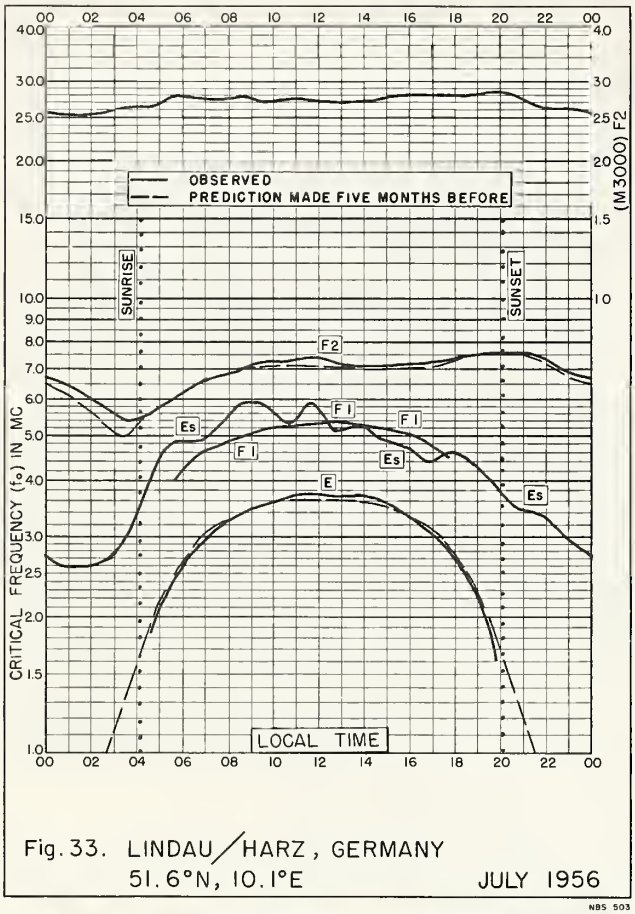


Fig. 33. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JULY 1956

NBS 503

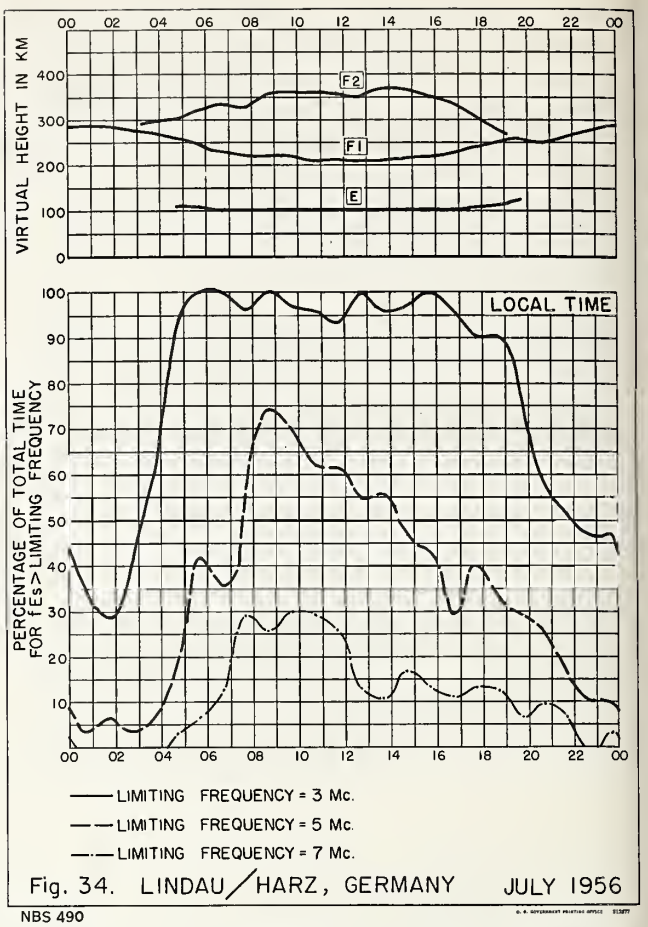


Fig. 34. LINDAU/HARZ, GERMANY JULY 1956

NBS 490

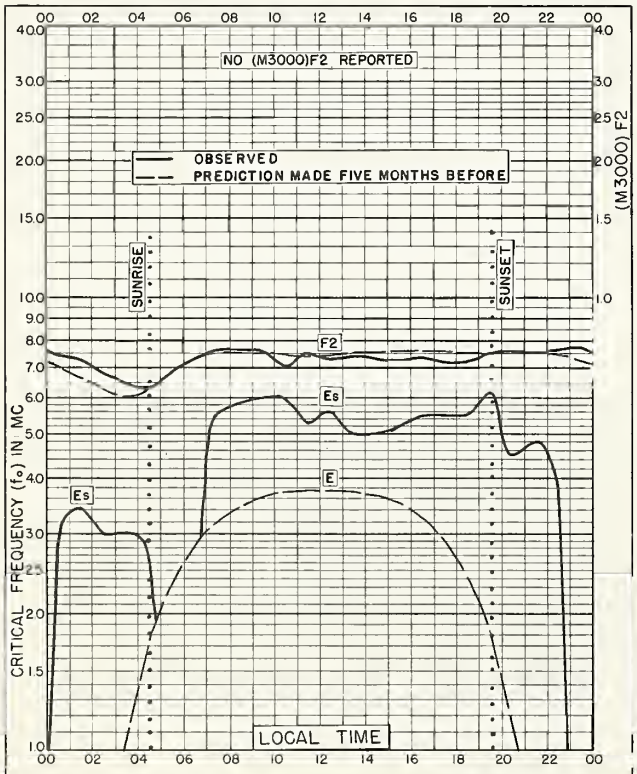


Fig. 35. WAKKANAI, JAPAN
45.4°N, 141.7°E JULY 1956

NBS 503

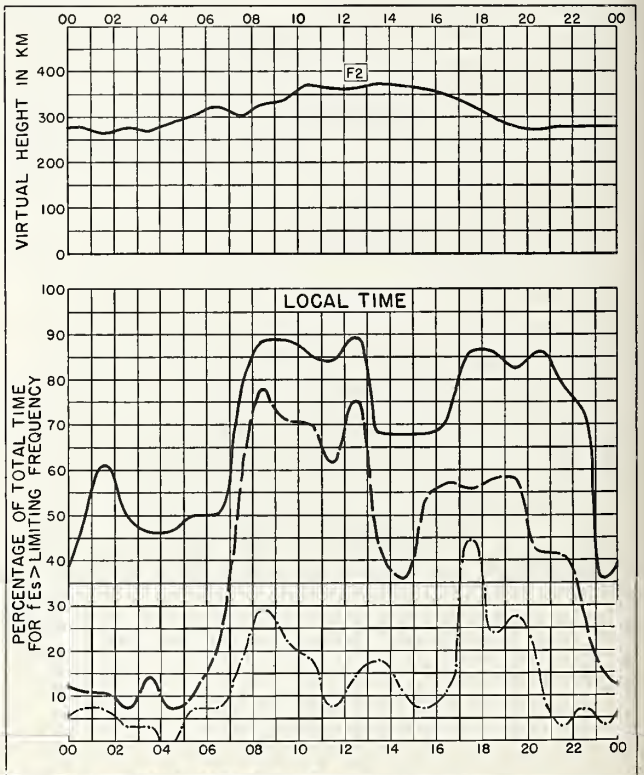


Fig. 36. WAKKANAI, JAPAN JULY 1956

NBS 490

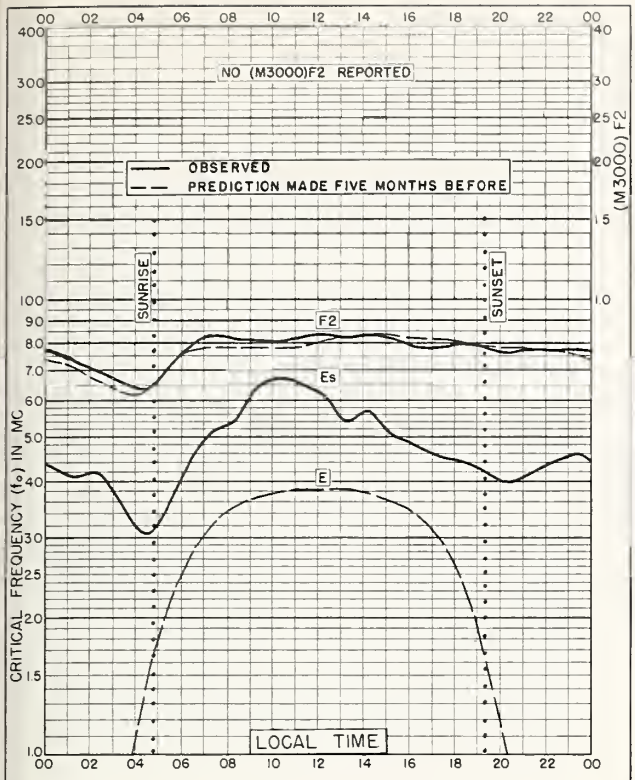


Fig. 37. AKITA, JAPAN
39.7°N, 140.1°E JULY 1956

NBS 503

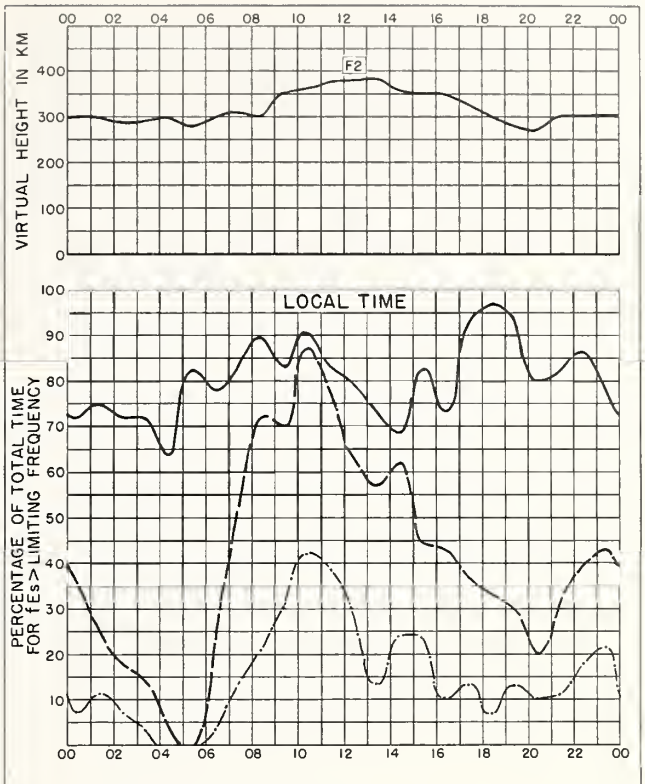


Fig. 38. AKITA, JAPAN JULY 1956

NBS 490

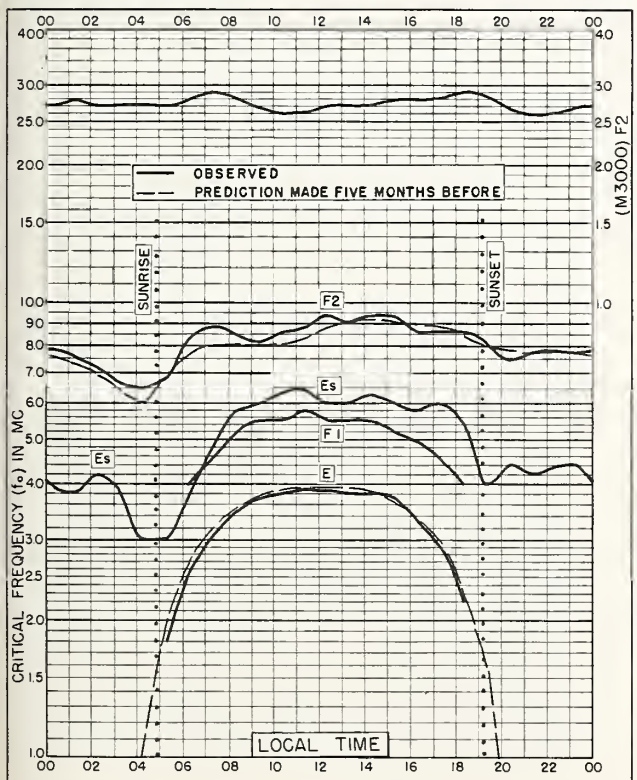


Fig. 39. TOKYO, JAPAN
35.7°N, 139.5°E JULY 1956

NBS 503

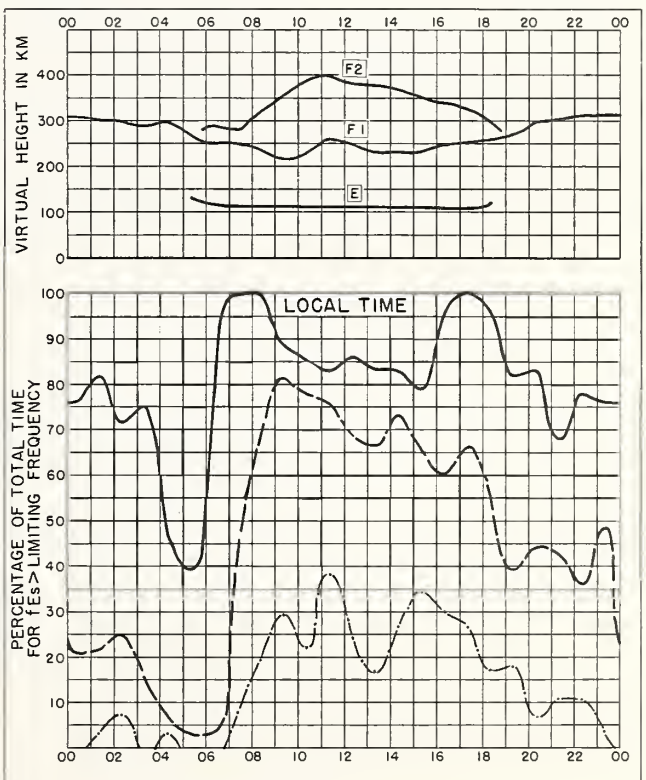


Fig. 40. TOKYO, JAPAN JULY 1956

NBS 490

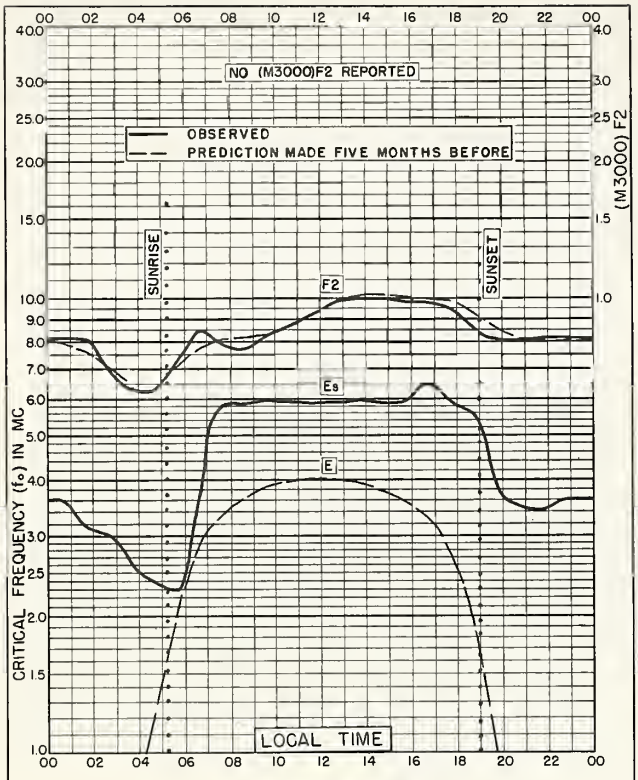


Fig. 41. YAMAGAWA, JAPAN
31.2°N, 130.6°E JULY 1956

NBS 503

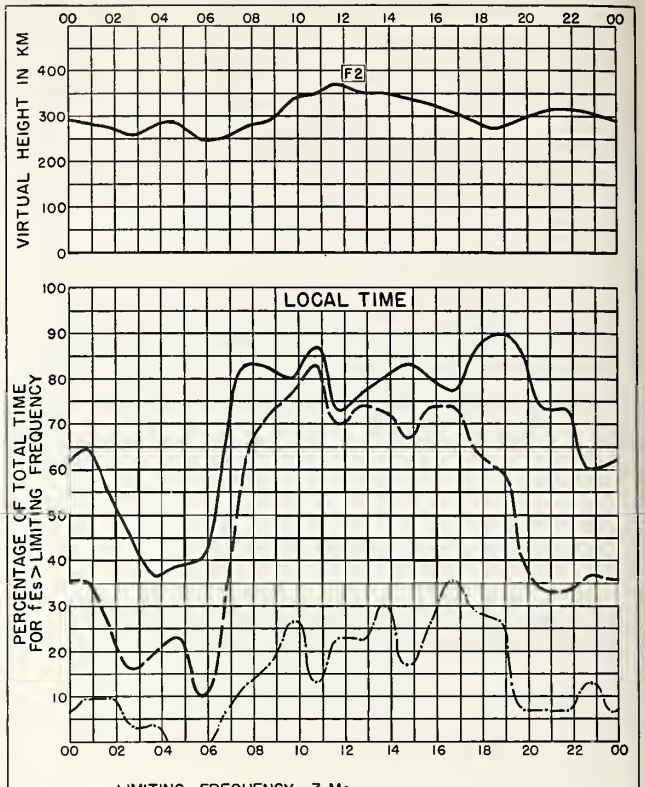


Fig. 42. YAMAGAWA, JAPAN JULY 1956

NBS 490

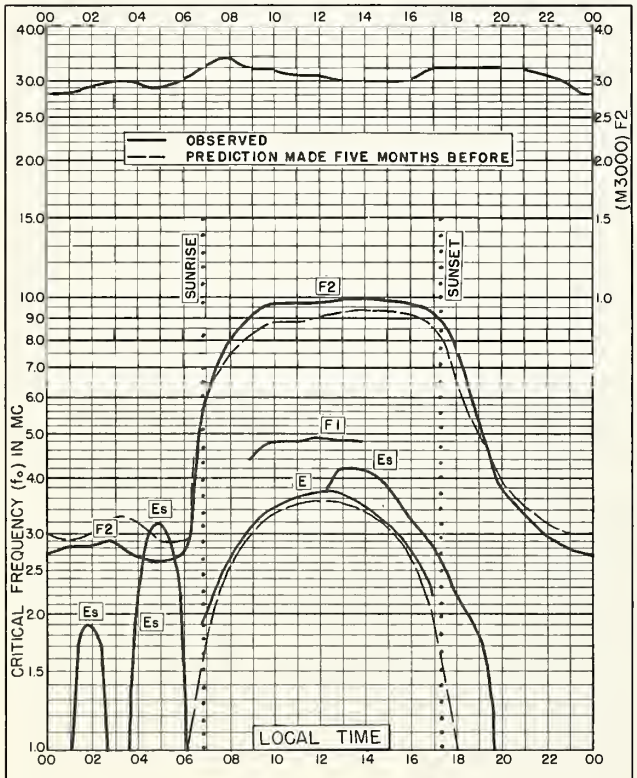


Fig. 43. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E JULY 1956

NBS 503

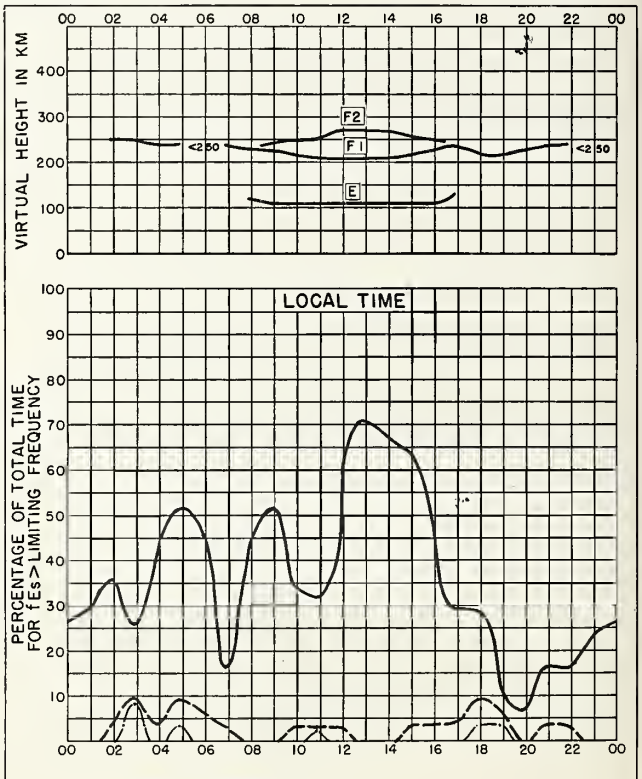


Fig. 44. JOHANNESBURG, UNION OF S. AFRICA JULY 1956

NBS 490

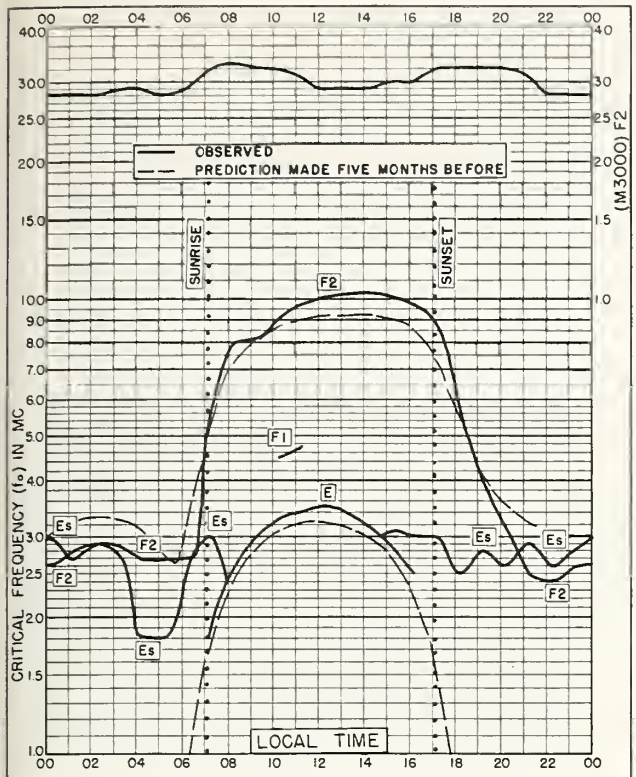


Fig. 45. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E JULY 1956

NBS 503

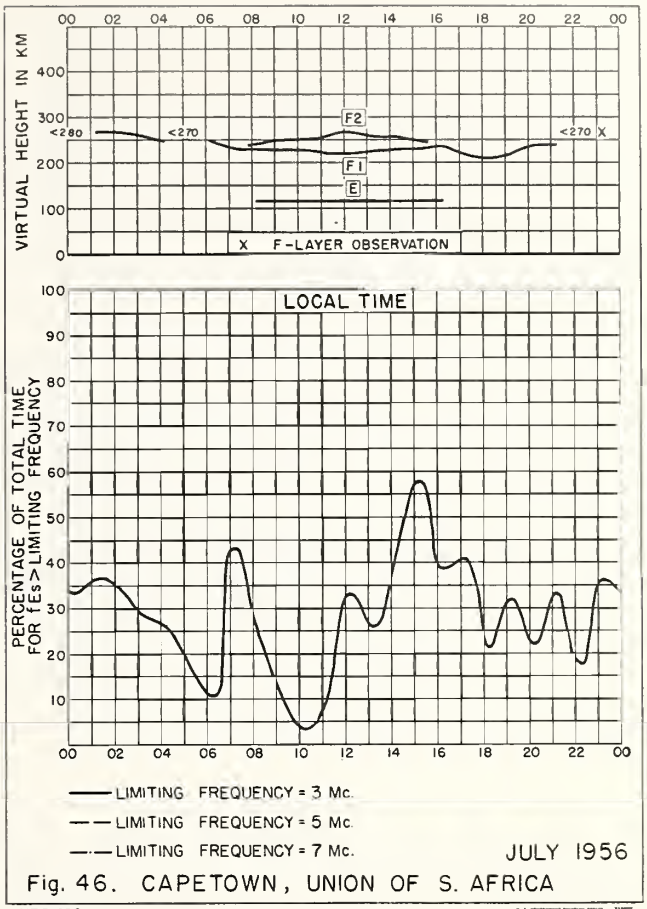


Fig. 46. CAPETOWN, UNION OF S. AFRICA JULY 1956

NBS 490

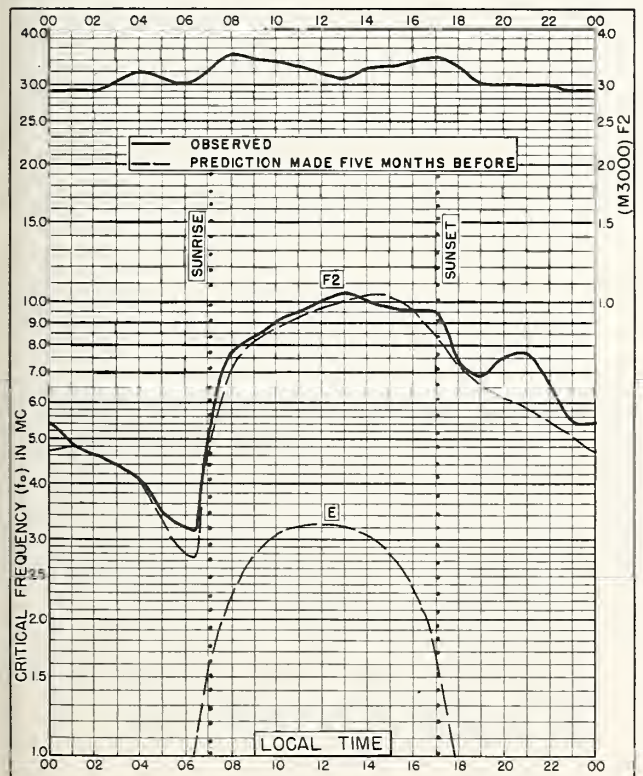


Fig. 47. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JULY 1956

NBS 503

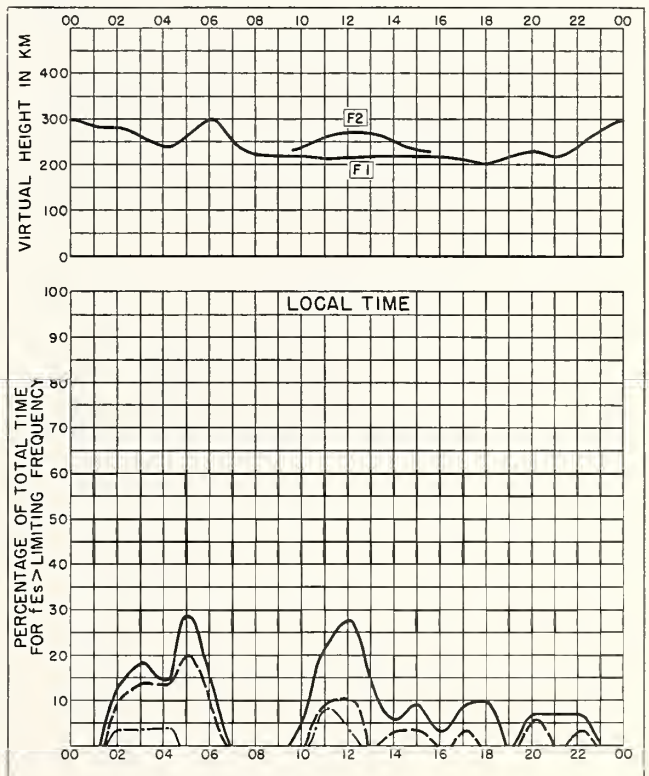


Fig. 48. BUENOS AIRES, ARGENTINA JULY 1956

NBS 490

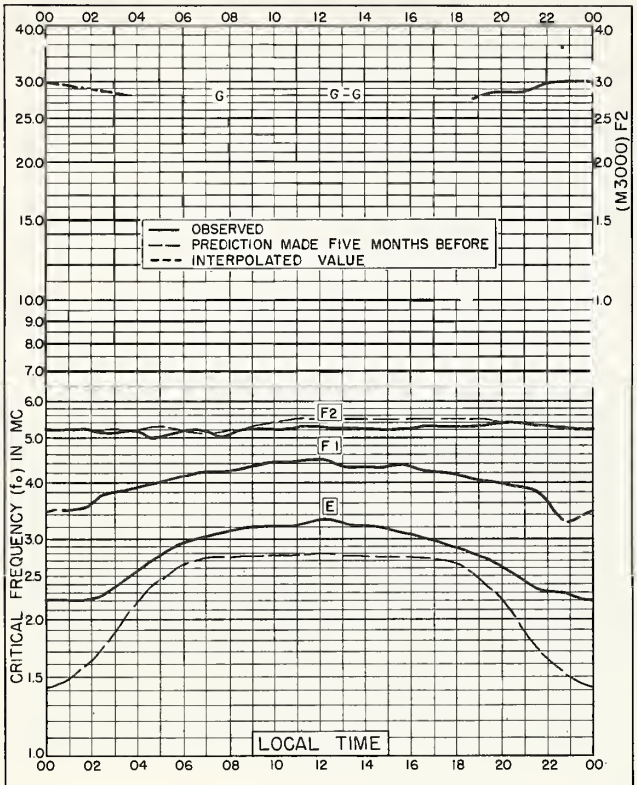


Fig. 49. RESOLUTE BAY, CANADA
74.7°N, 94.9°W JUNE 1956

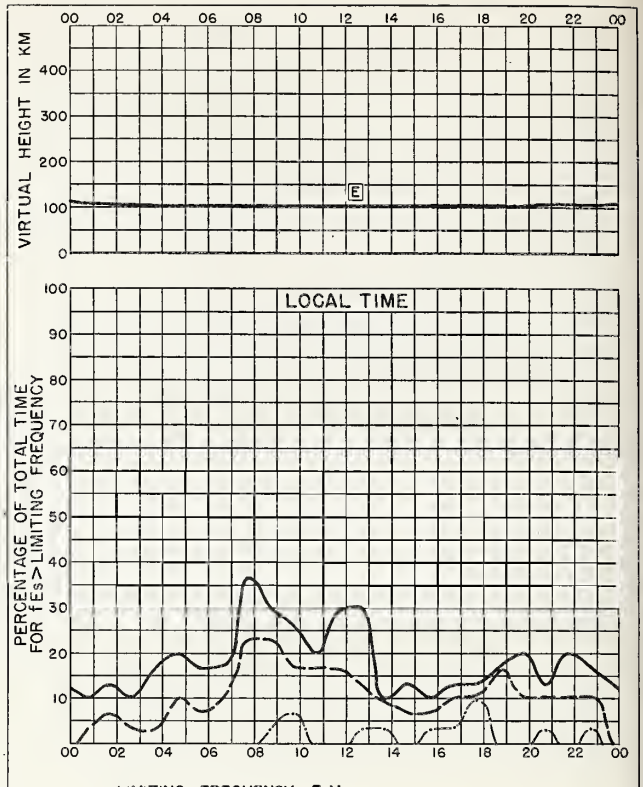


Fig. 50. RESOLUTE BAY, CANADA JUNE 1956

NBS 490

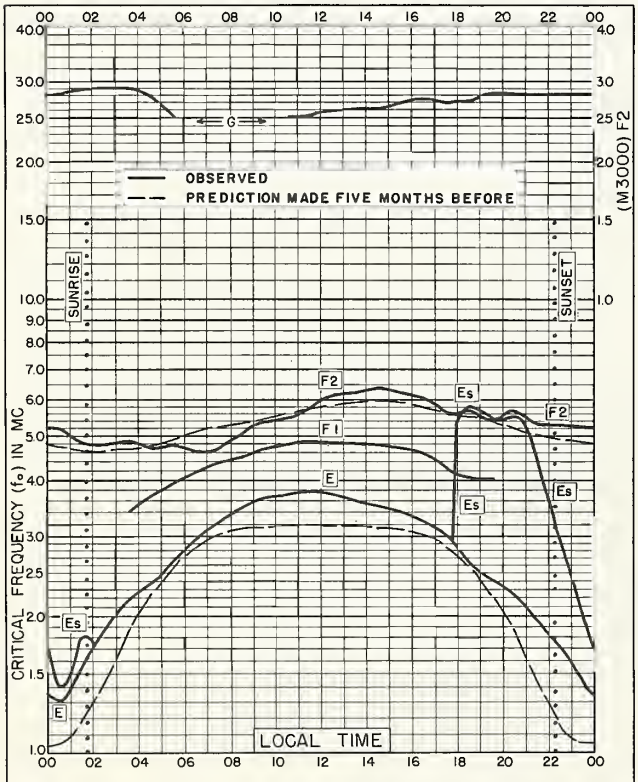


Fig. 51. BAKER LAKE, CANADA
64.3°N, 96.0°W JUNE 1956

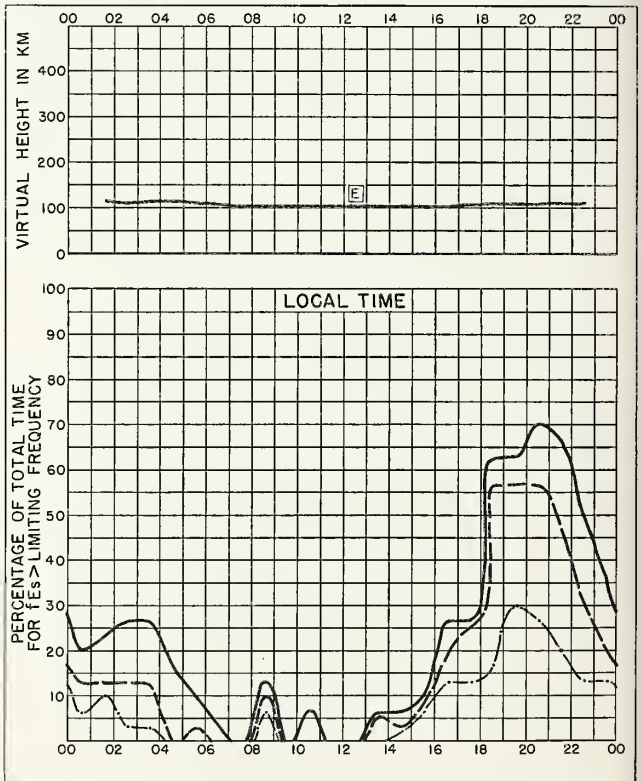


Fig. 52. BAKER LAKE, CANADA JUNE 1956

NBS 490

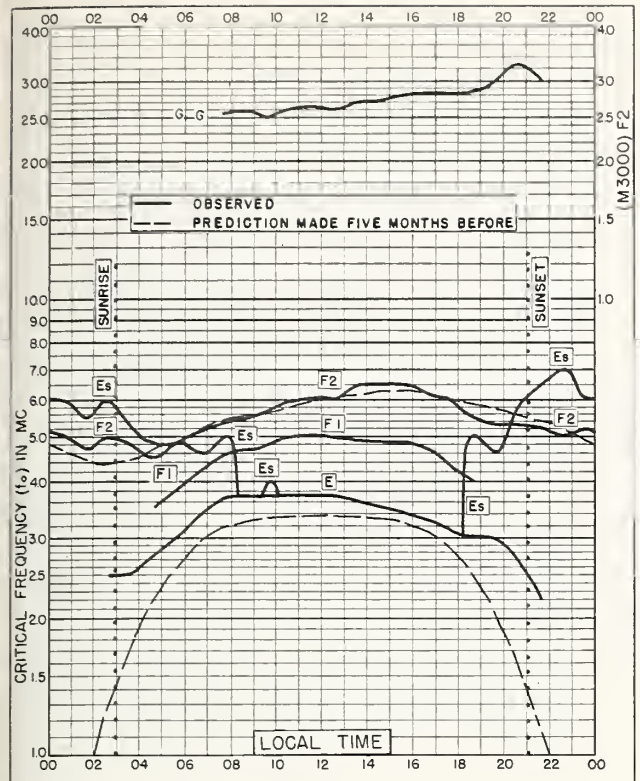


Fig. 53. CHURCHILL, CANADA
58.8°N, 94.2°W JUNE 1956

NBS 503

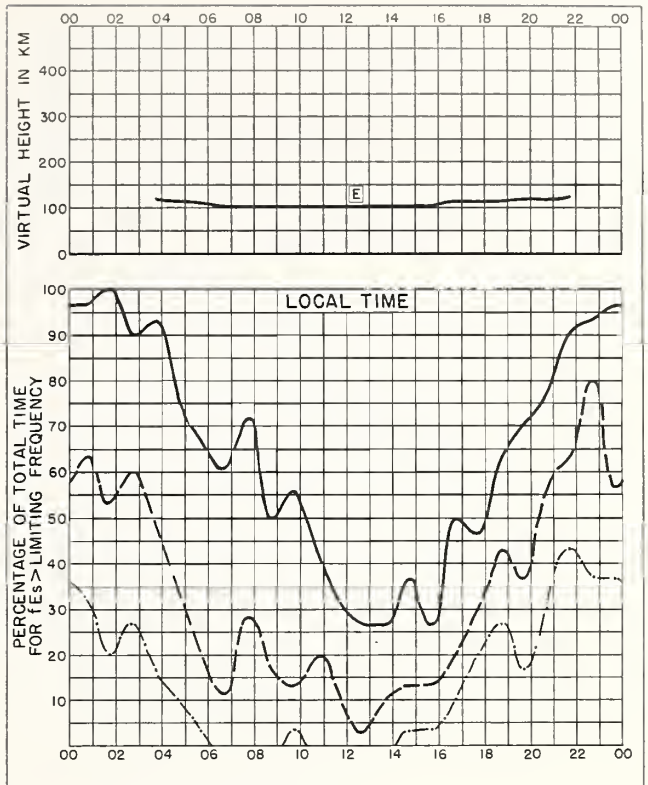


Fig. 54. CHURCHILL, CANADA JUNE 1956

NBS 490

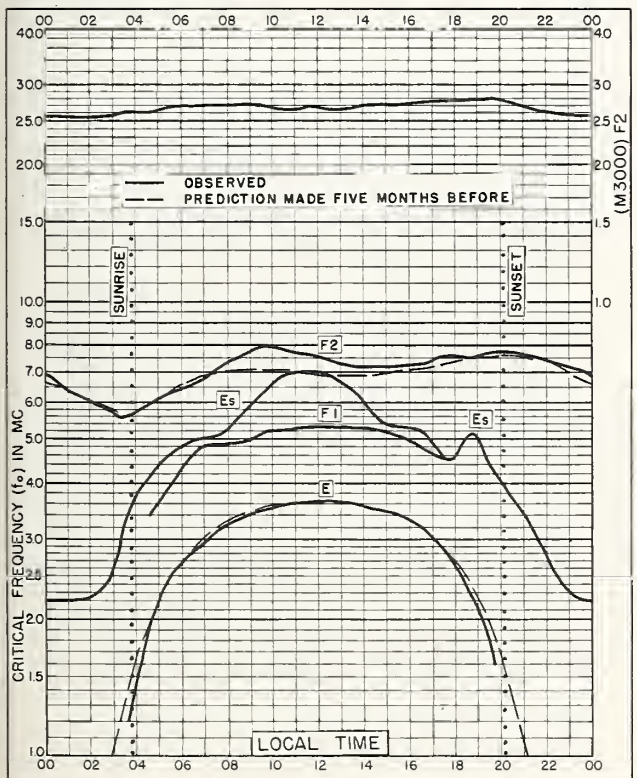


Fig. 55. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JUNE 1956

NBS 503

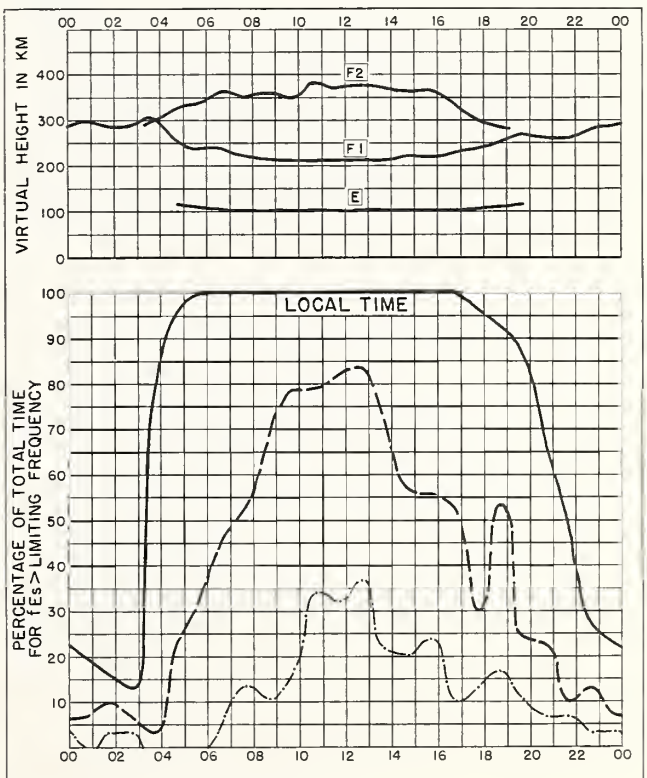


Fig. 56. LINDAU/HARZ, GERMANY JUNE 1956

NBS 490

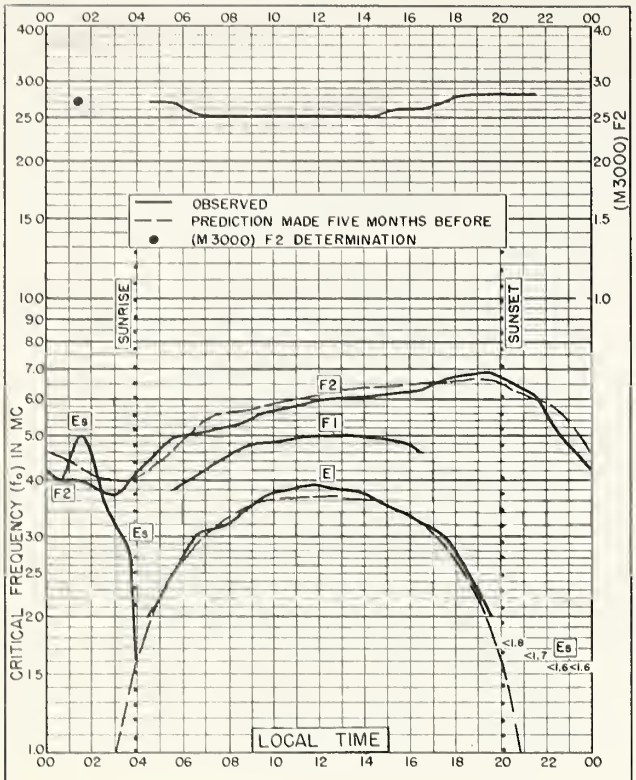


Fig. 57. WINNIPEG, CANADA
49.9°N, 97.4°W JUNE 1956

NBS 503

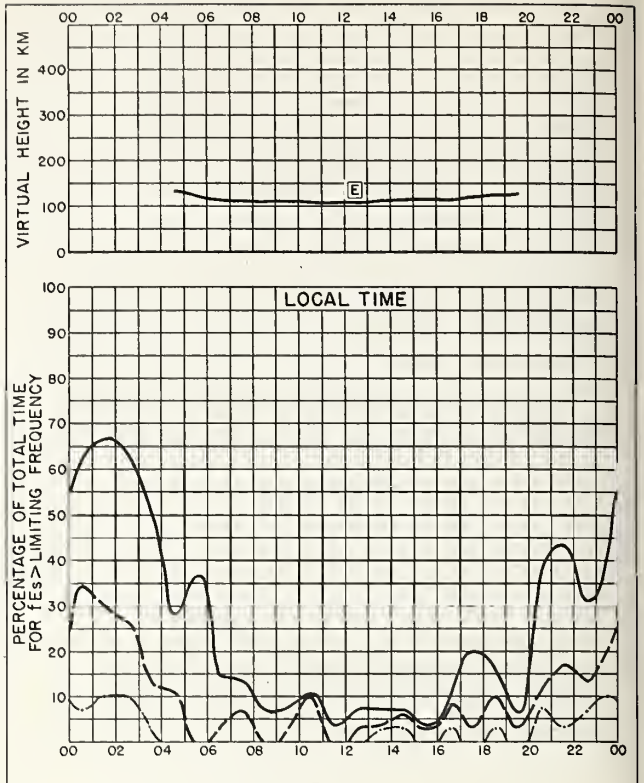


Fig. 58. WINNIPEG, CANADA JUNE 1956

NBS 490

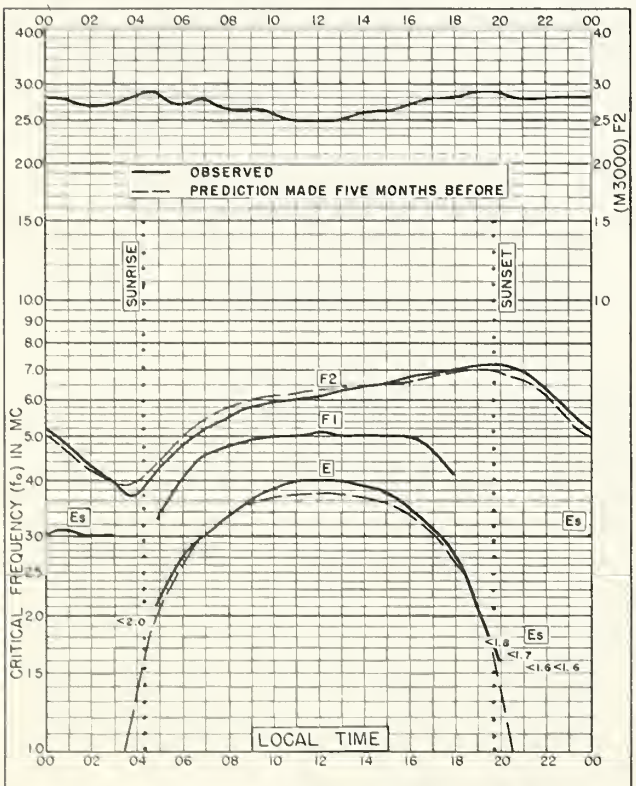


Fig. 59. OTTAWA, CANADA
45.4°N, 75.9°W JUNE 1956

NBS 503

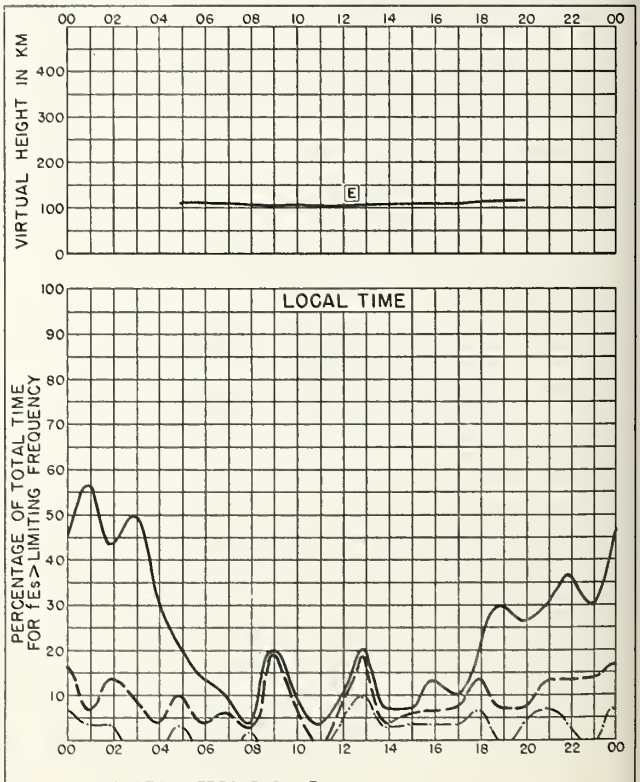


Fig. 60. OTTAWA, CANADA JUNE 1956

NBS 490

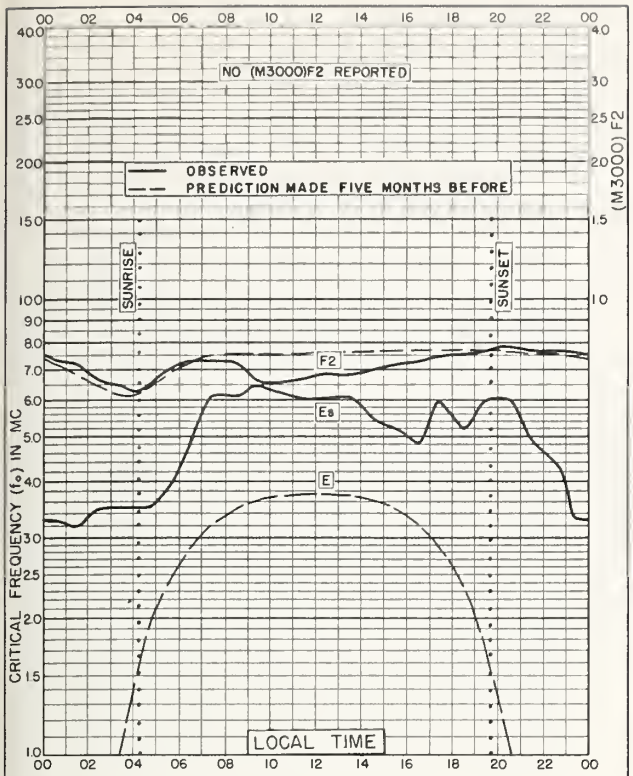


Fig. 61. WAKKANAI, JAPAN
45.4°N, 141.7°E JUNE 1956

NBS 503

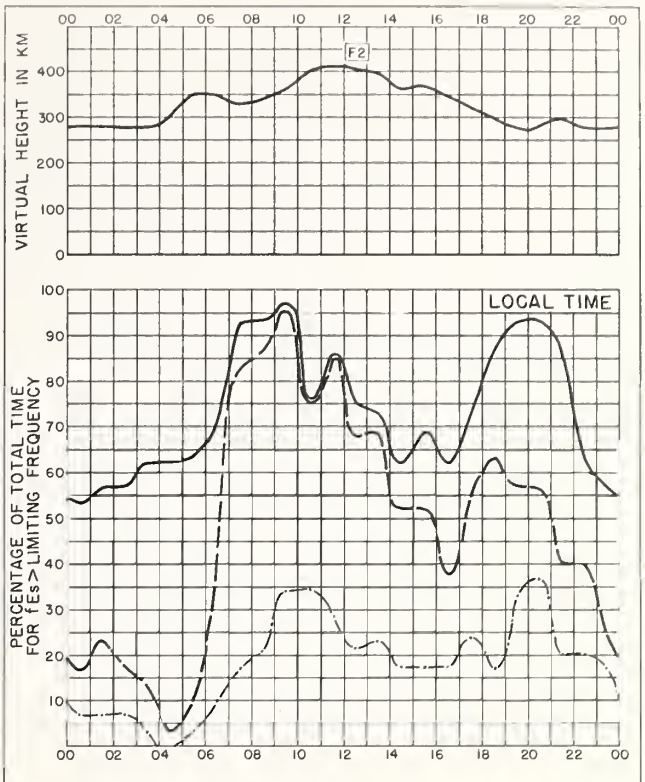


Fig. 62. WAKKANAI, JAPAN JUNE 1956

NBS 490

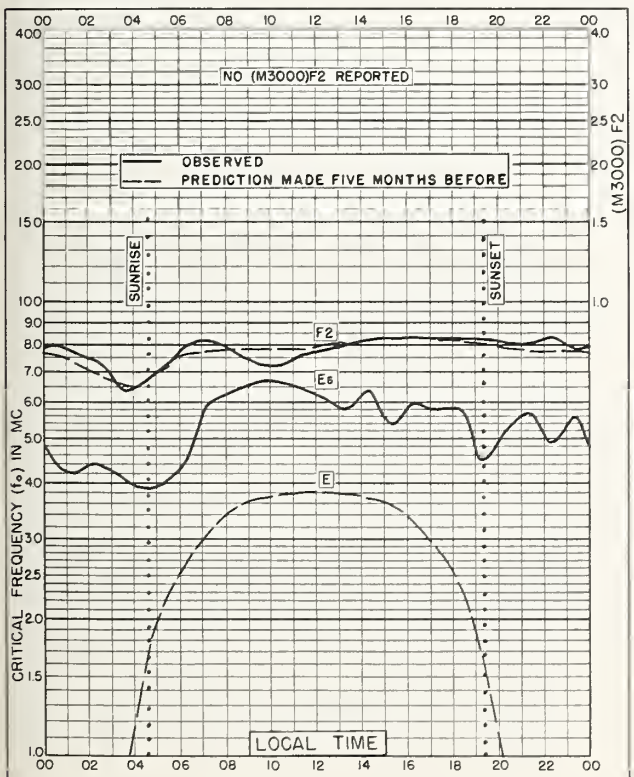


Fig. 63. AKITA, JAPAN
39.7°N, 140.1°E JUNE 1956

NBS 503

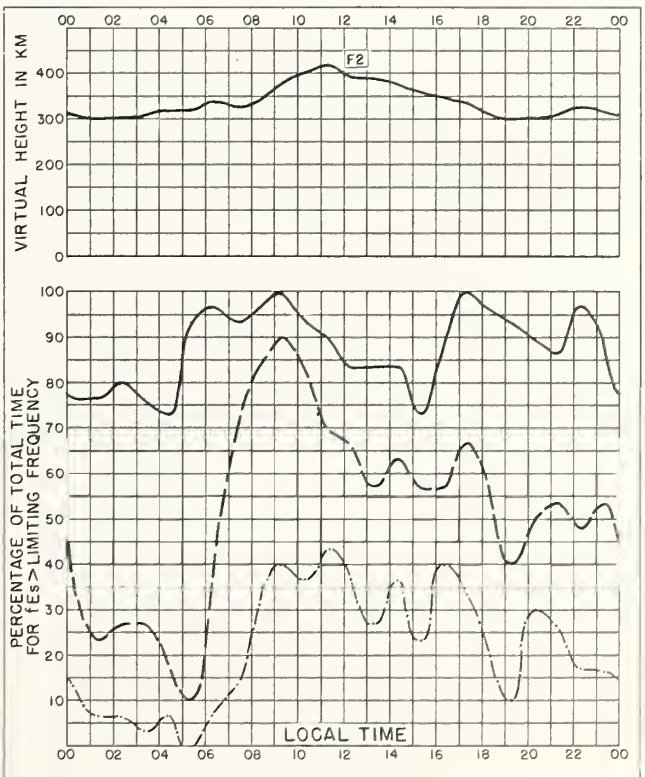


Fig. 64. AKITA, JAPAN JUNE 1956

NBS 490

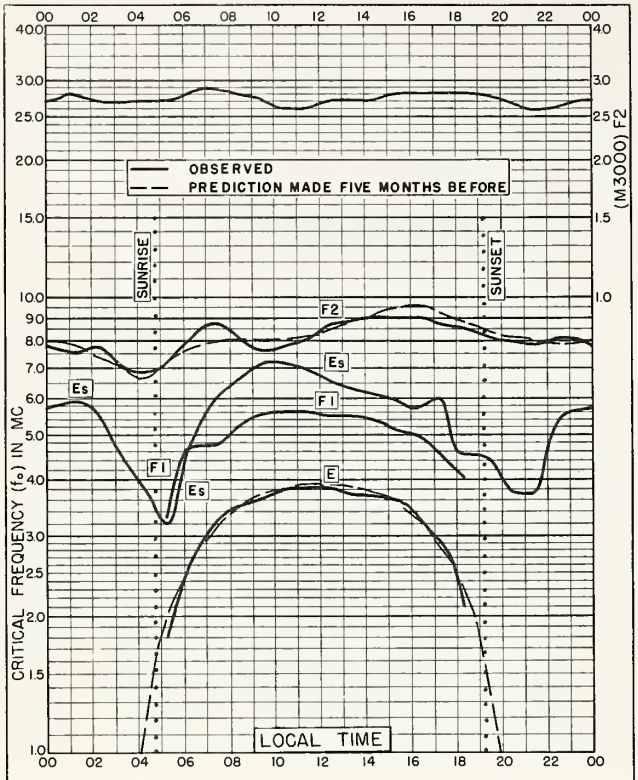


Fig. 65. TOKYO, JAPAN
35.7°N, 139.5°E JUNE 1956

NBS 503

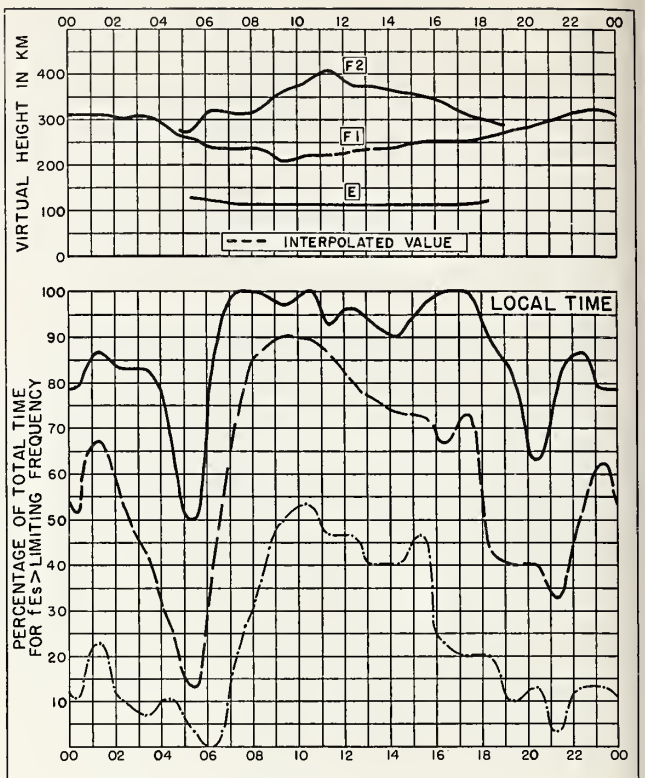


Fig. 66. TOKYO, JAPAN JUNE 1956

NBS 490

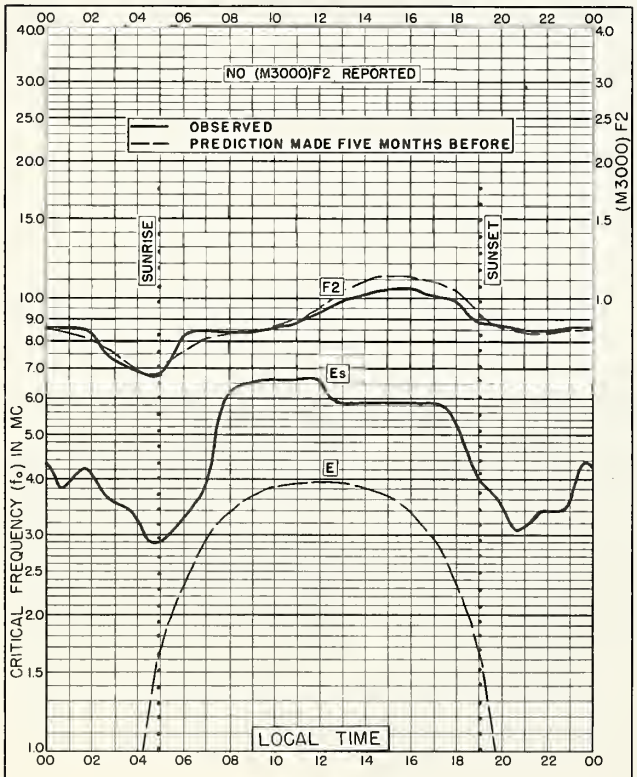


Fig. 67. YAMAGAWA, JAPAN
31.2°N, 130.6°E JUNE 1956

NBS 503

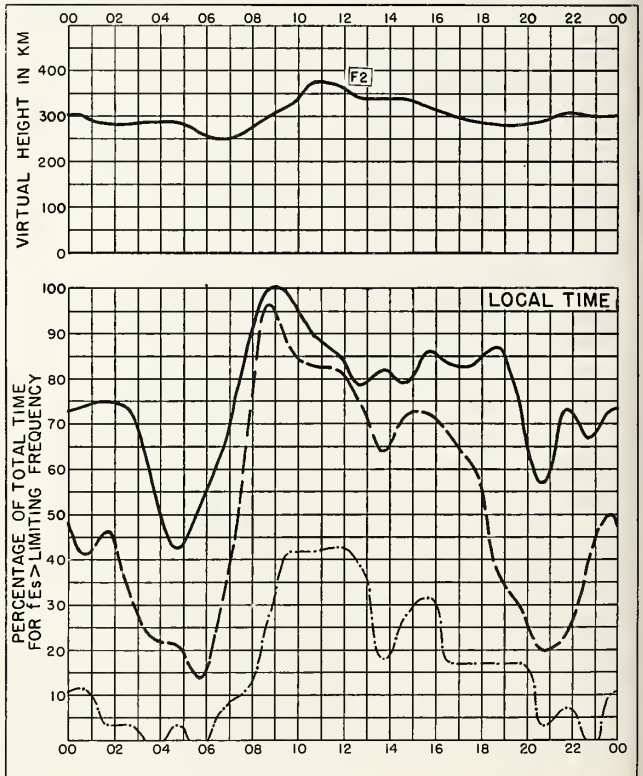


Fig. 68. YAMAGAWA, JAPAN JUNE 1956

NBS 490

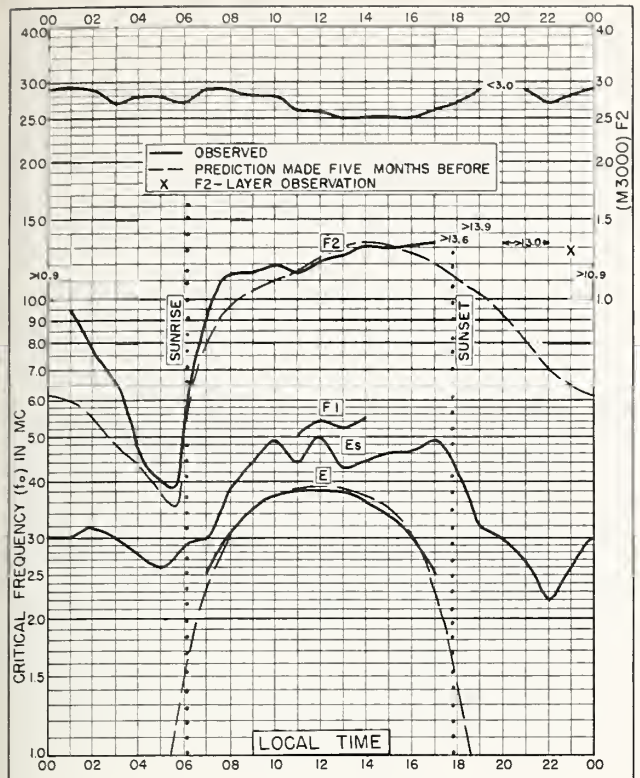


Fig. 69. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E JUNE 1956

NBS 503

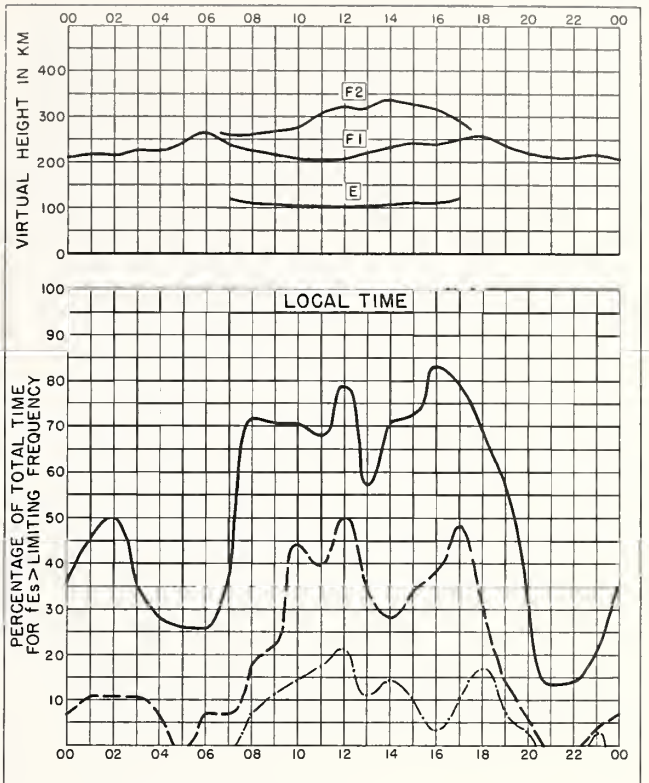


Fig. 70. LEOPOLDVILLE, BELGIAN CONGO JUNE 1956

NBS 490

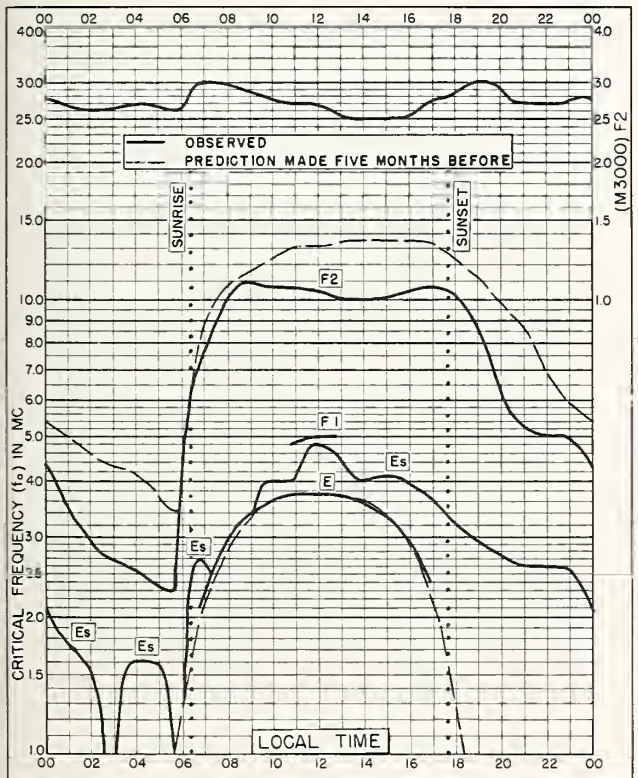


Fig. 71. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E JUNE 1956

NBS 503

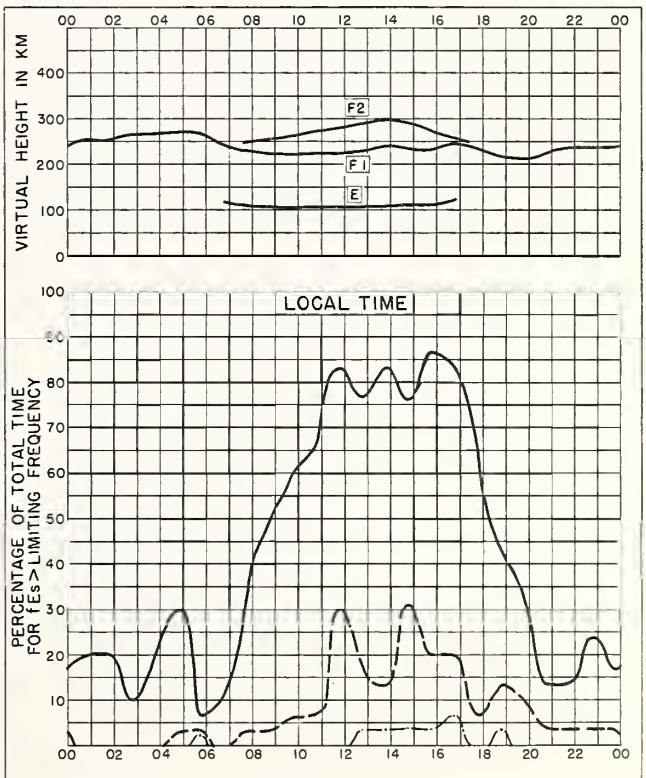


Fig. 72. ELISABETHVILLE, BELGIAN CONGO JUNE 1956

NBS 490

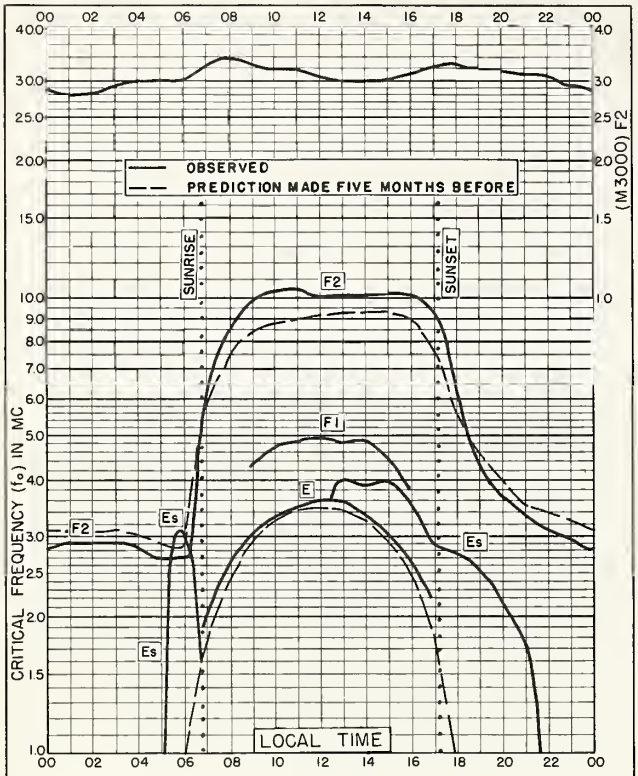


Fig. 73. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E JUNE 1956

NBS 503

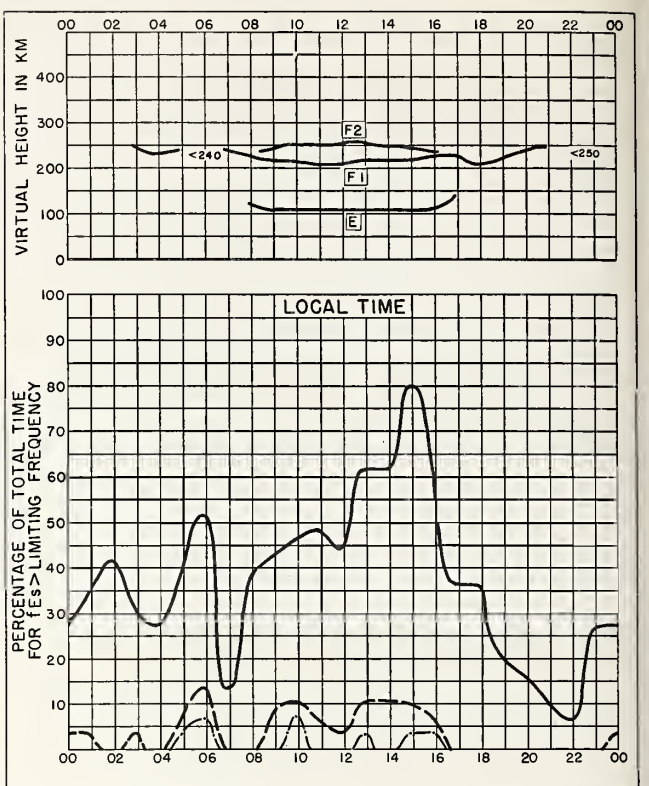


Fig. 74. JOHANNESBURG, UNION OF S. AFRICA JUNE 1956

NBS 490

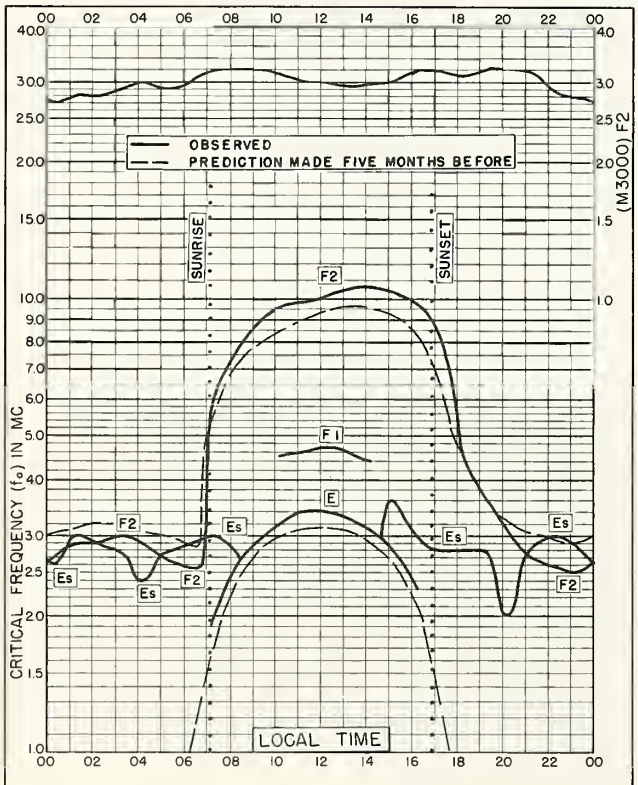


Fig. 75. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E JUNE 1956

NBS 503

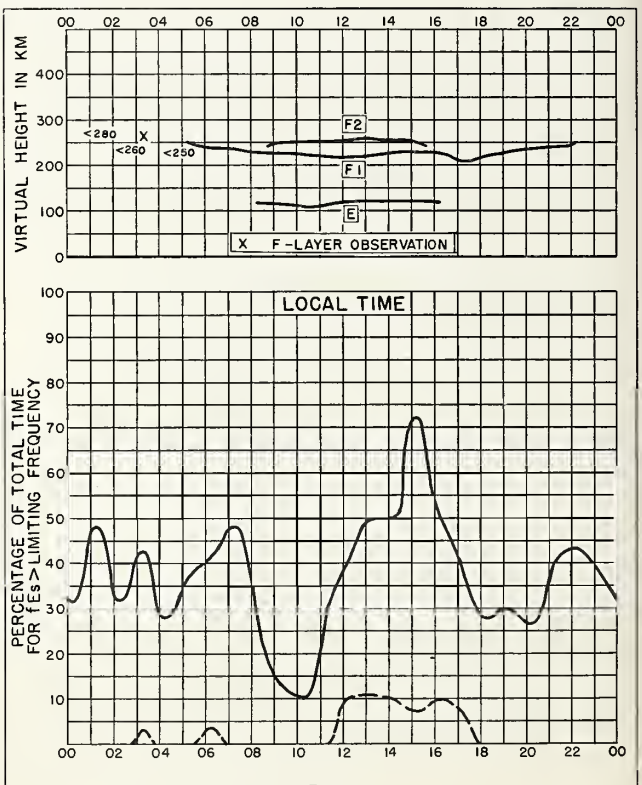


Fig. 76. CAPETOWN, UNION OF S. AFRICA JUNE 1956

NBS 490

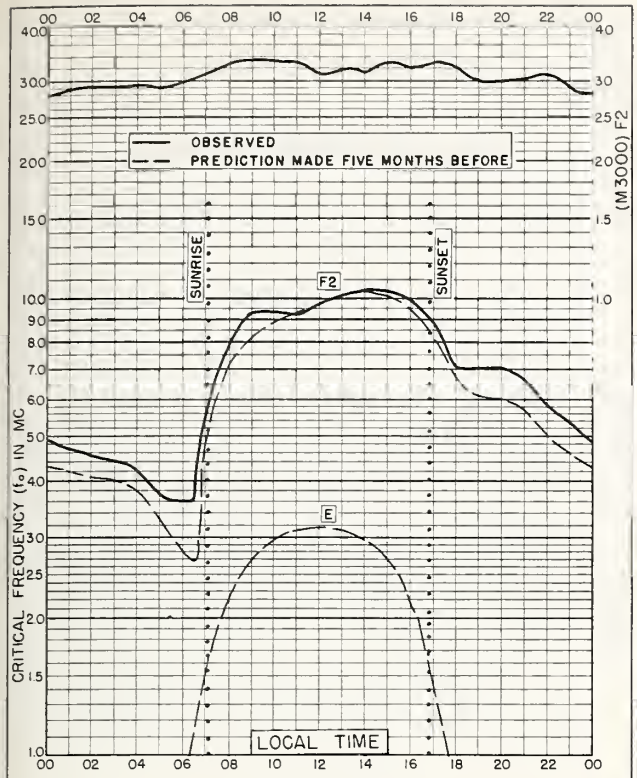


Fig. 77. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JUNE 1956

NBS 503

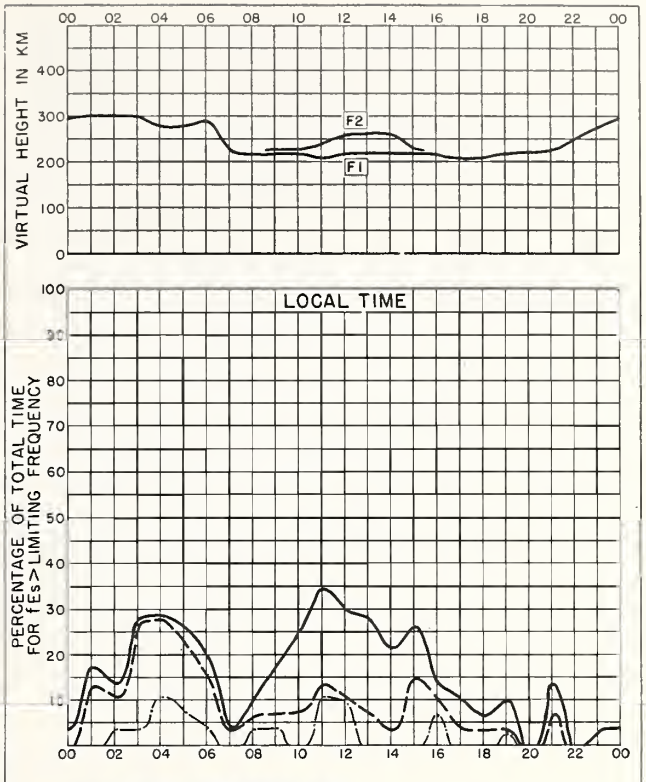


Fig. 78. BUENOS AIRES, ARGENTINA JUNE 1956

NBS 490

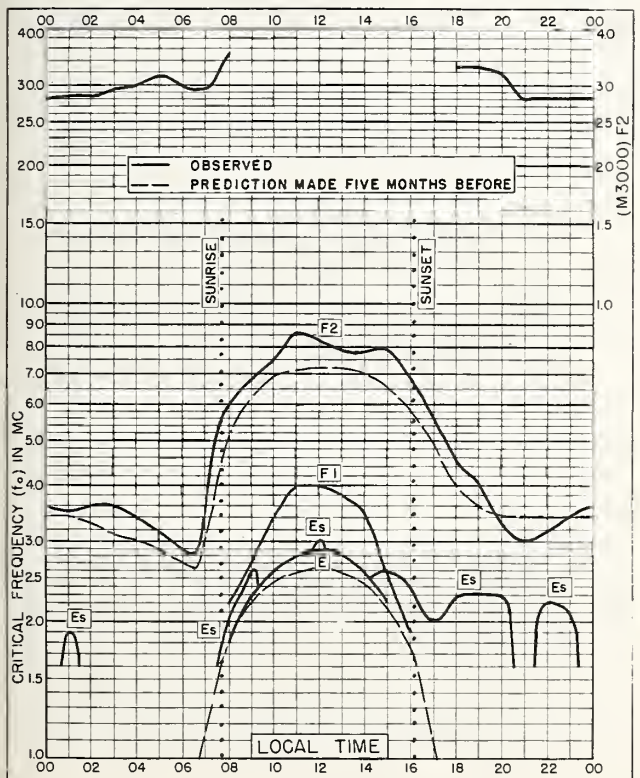


Fig. 79. POITIERS, FRANCE
46.6°N, 0.3°E DECEMBER 1955

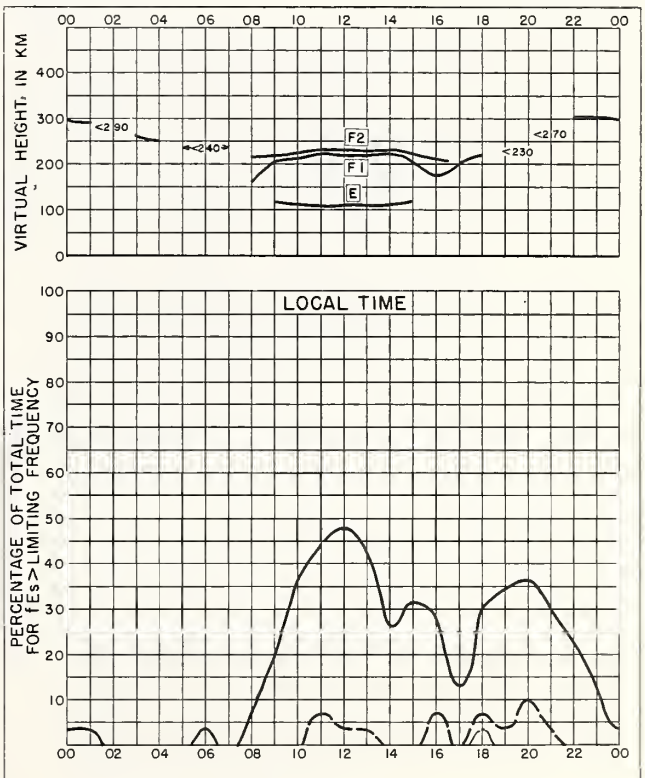


Fig. 80. POITIERS, FRANCE DECEMBER 1955

NBS 490

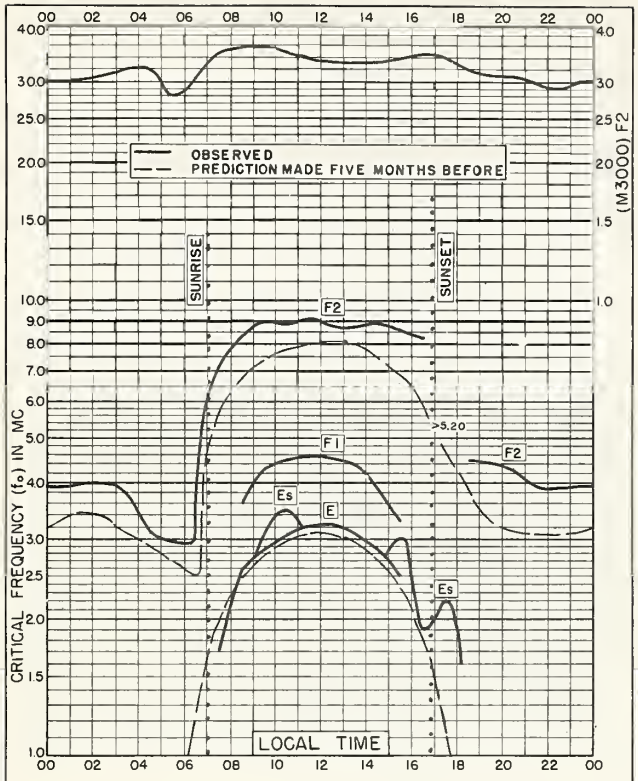


Fig. 81. CASABLANCA, MOROCCO
33.6°N, 7.6° W DECEMBER 1955

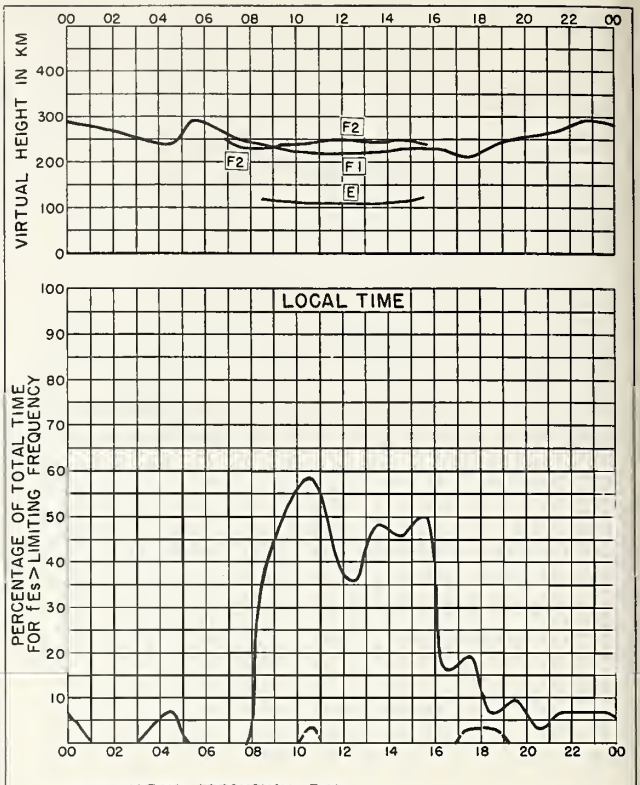


Fig. 82. CASABLANCA, MOROCCO DECEMBER 1955

NBS 490

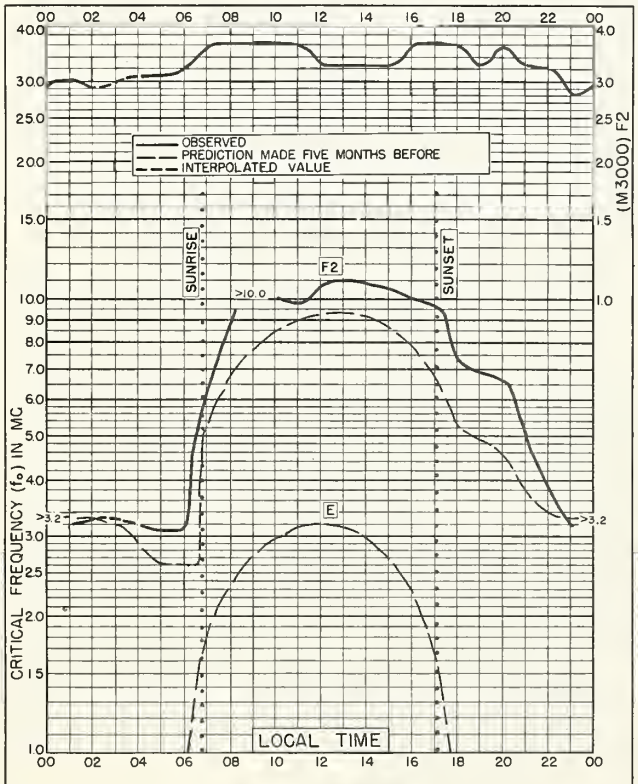


Fig. 83. DELHI, INDIA
28.6°N, 77.1°E DECEMBER 1955

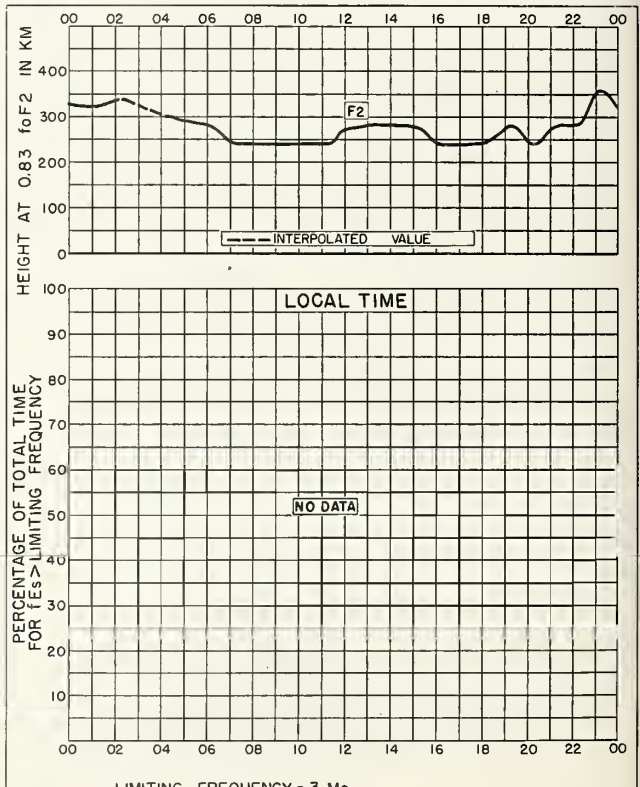


Fig. 84. DELHI, INDIA DECEMBER 1955

NBS 490

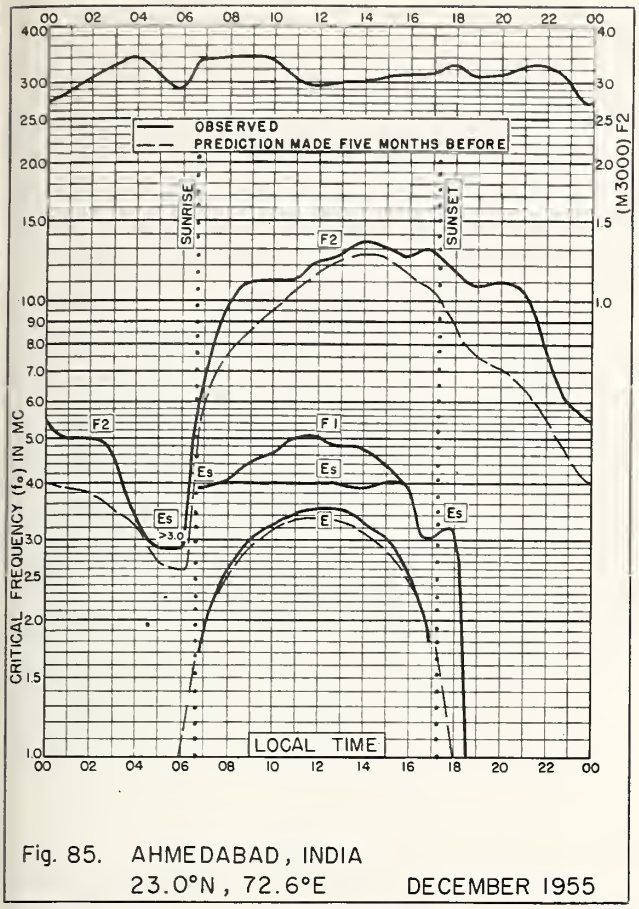


Fig. 85. AHMEDABAD, INDIA
23.0°N, 72.6°E DECEMBER 1955

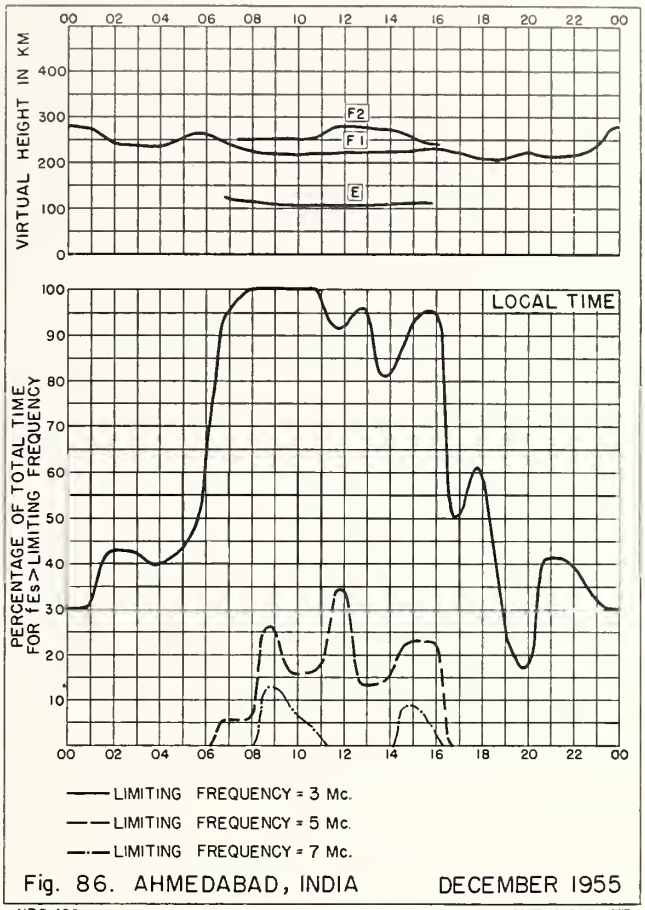


Fig. 86. AHMEDABAD, INDIA DECEMBER 1955

NBS 490

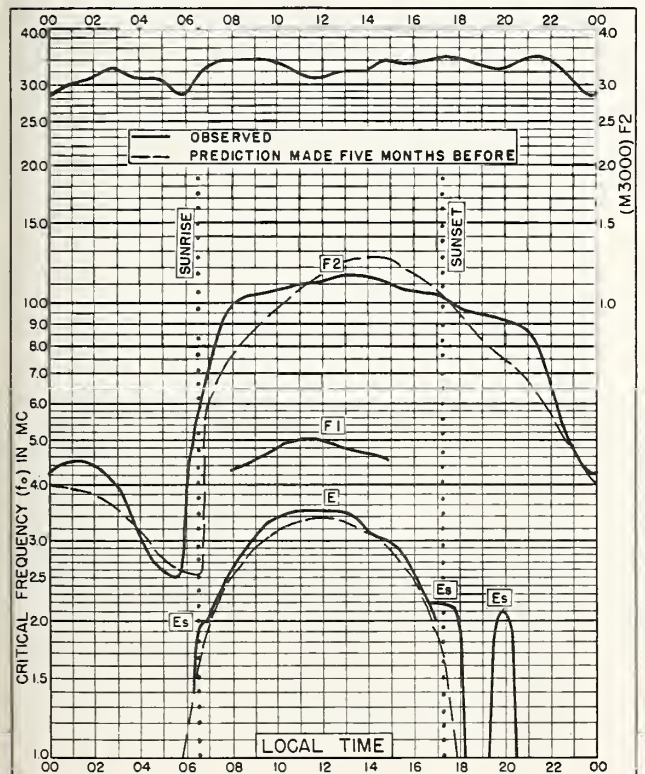


Fig. 87. CALCUTTA, INDIA
22.9°N, 88.5°E DECEMBER 1955

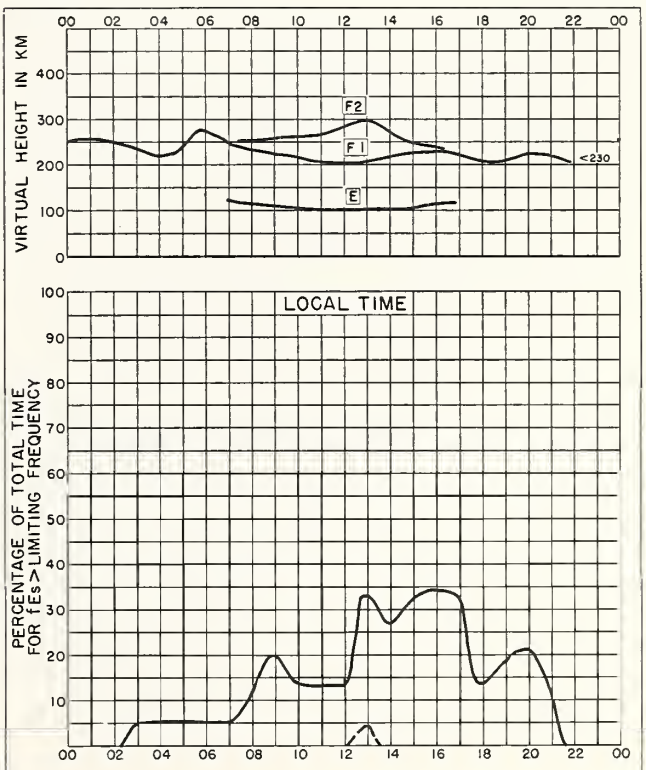


Fig. 88. CALCUTTA, INDIA DECEMBER 1955

NBS 490

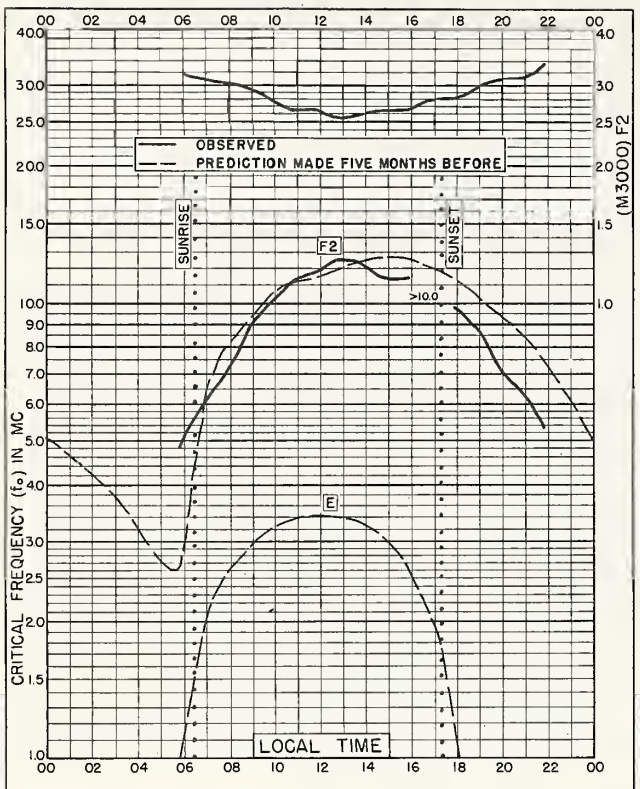


Fig. 89. BOMBAY, INDIA
19.0°N, 73.0°E DECEMBER 1955

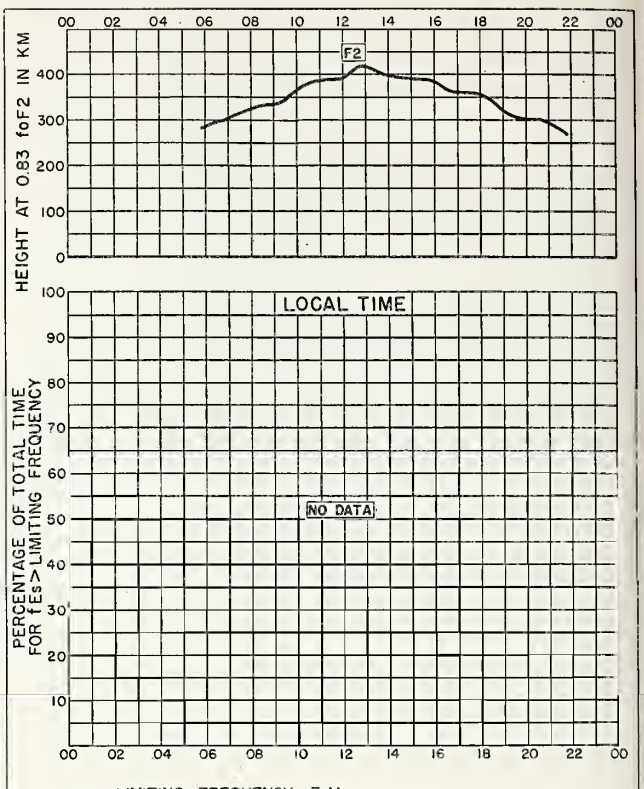


Fig. 90. BOMBAY, INDIA DECEMBER 1955

NBS 490

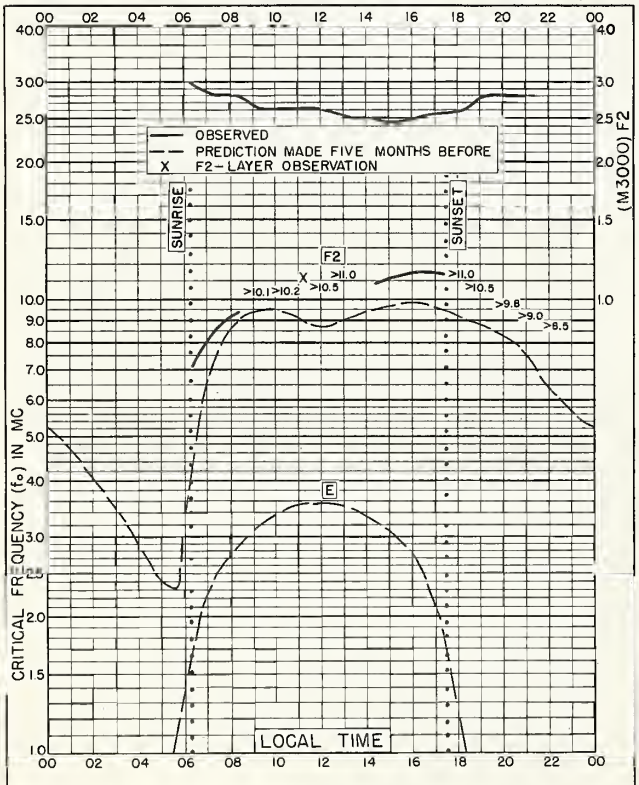


Fig. 91. MADRAS, INDIA
13.0°N, 80.2°E DECEMBER 1955

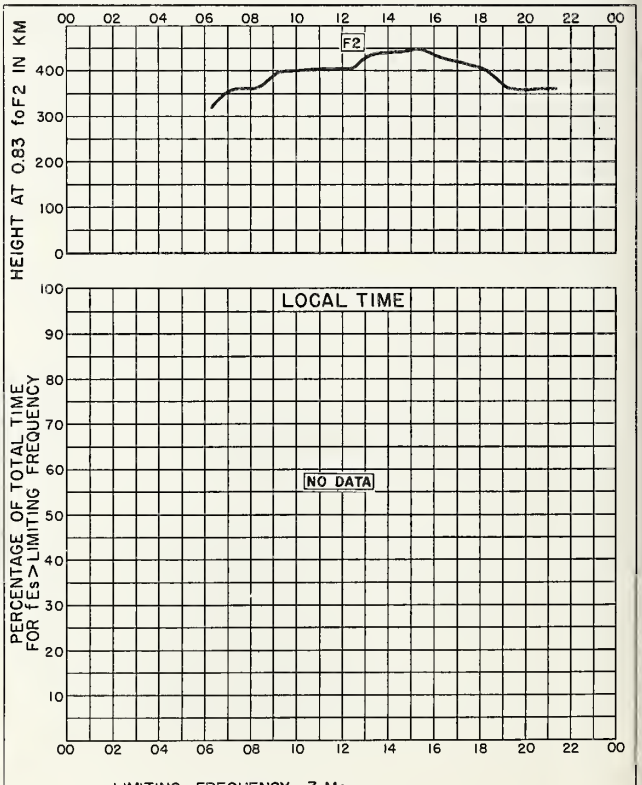


Fig. 92. MADRAS, INDIA DECEMBER 1955

NBS 490

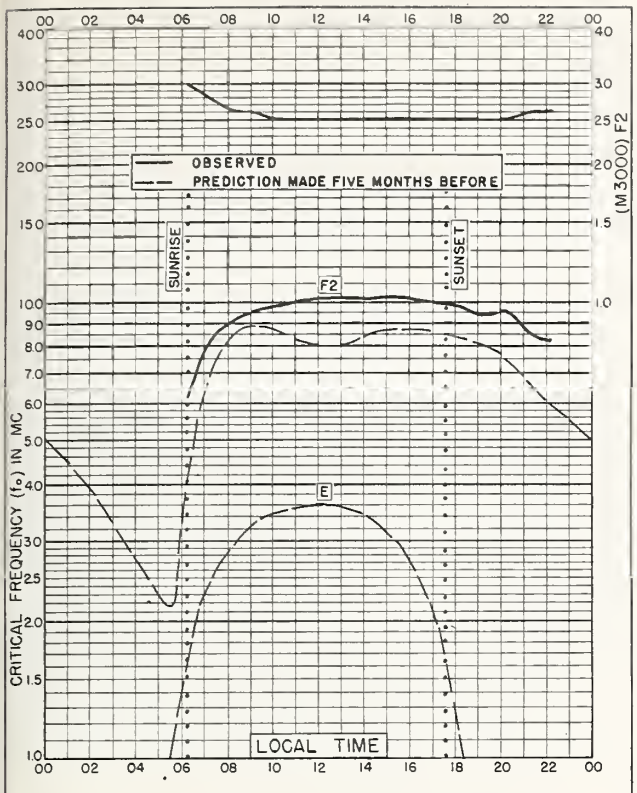


Fig. 93. TIRUCHY, INDIA
10.8°N, 78.8°E DECEMBER 1955

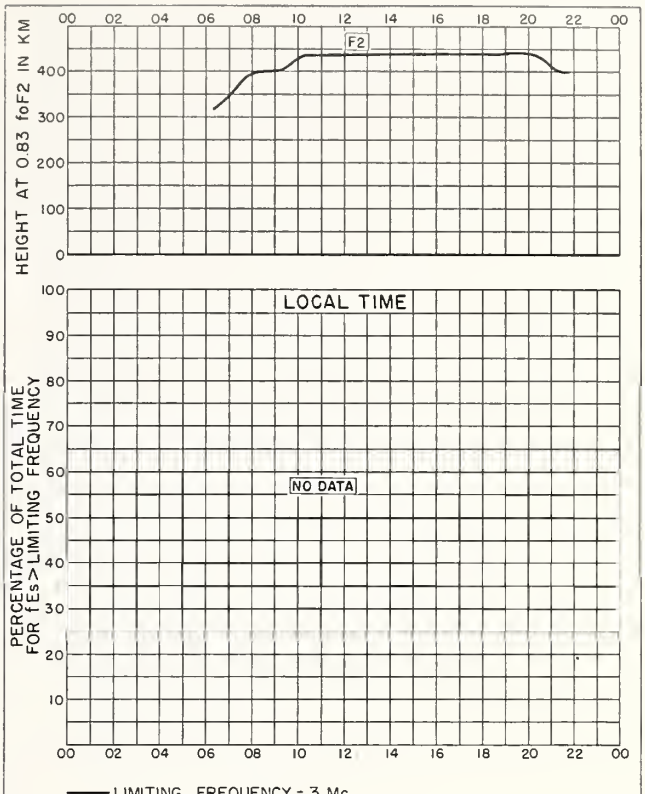


Fig. 94. TIRUCHY, INDIA DECEMBER 1955

NBS 490

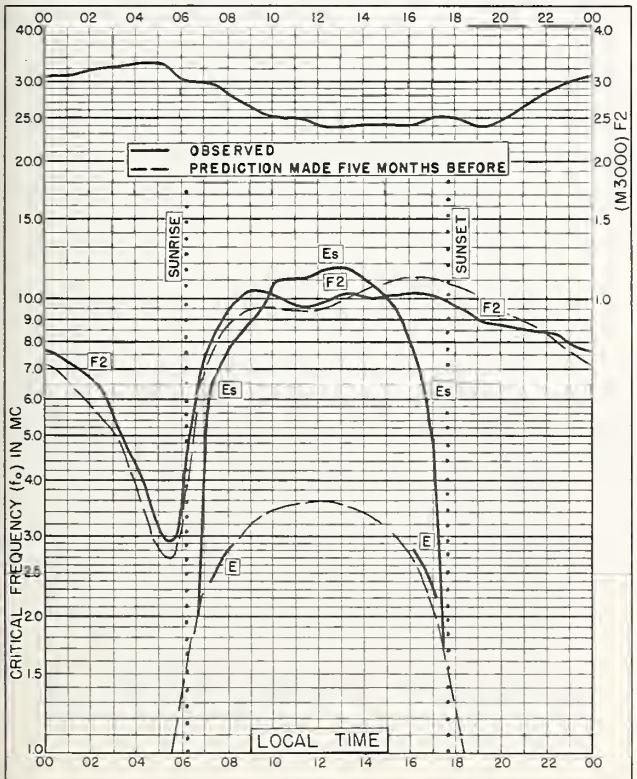


Fig. 95. KODAIKANAL, INDIA
10.2°N, 77.5°E DECEMBER 1955

NBS 503

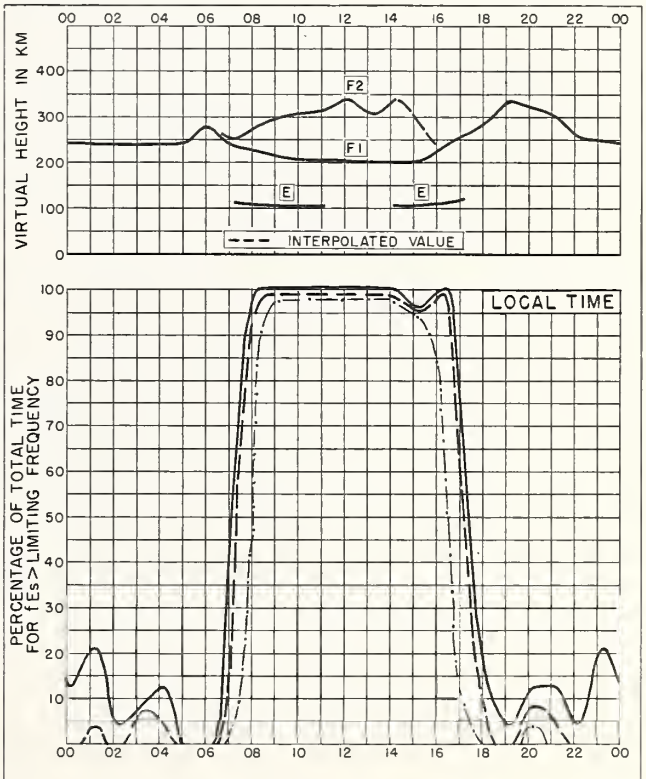


Fig. 96. KODAIKANAL, INDIA DECEMBER 1955

NBS 490

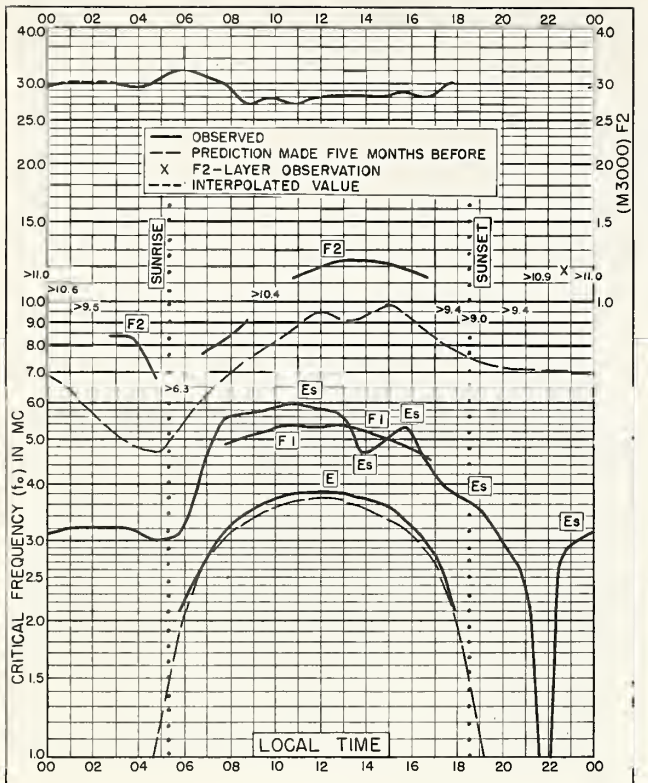
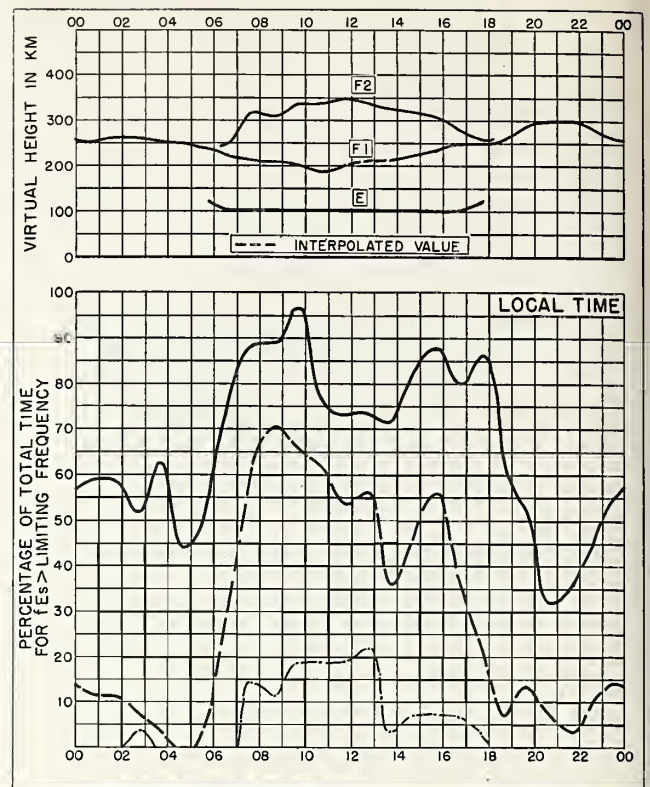


Fig. 97. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E DECEMBER 1955



DECEMBER 1955

Fig. 98. TOWNSVILLE, AUSTRALIA

NBS 490

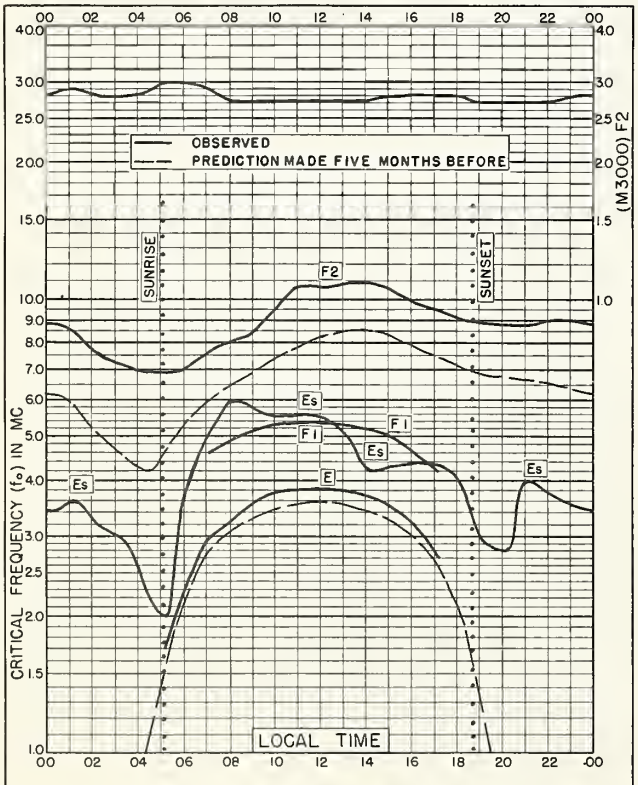


Fig. 99. BRISBANE, AUSTRALIA
27.5°S, 153.0°E DECEMBER 1955

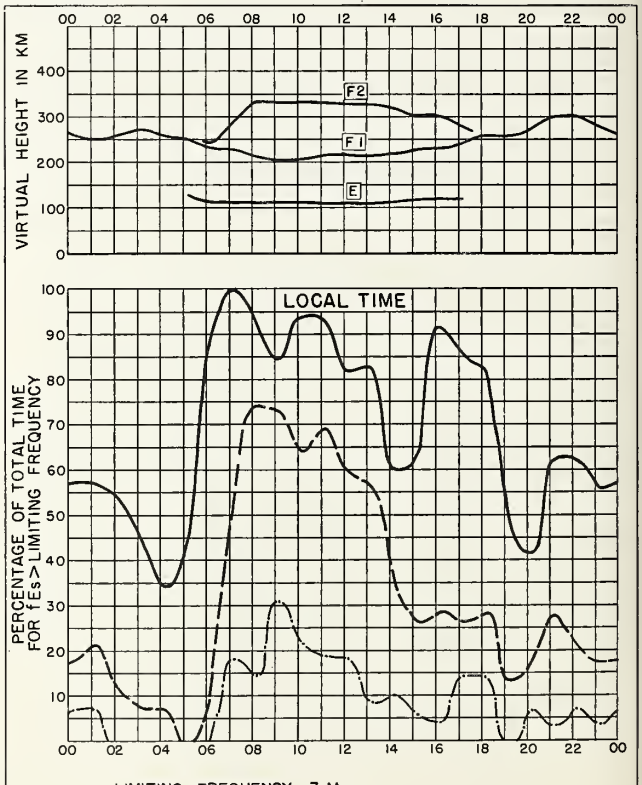


Fig. 100. BRISBANE, AUSTRALIA DECEMBER 1955

NBS 490

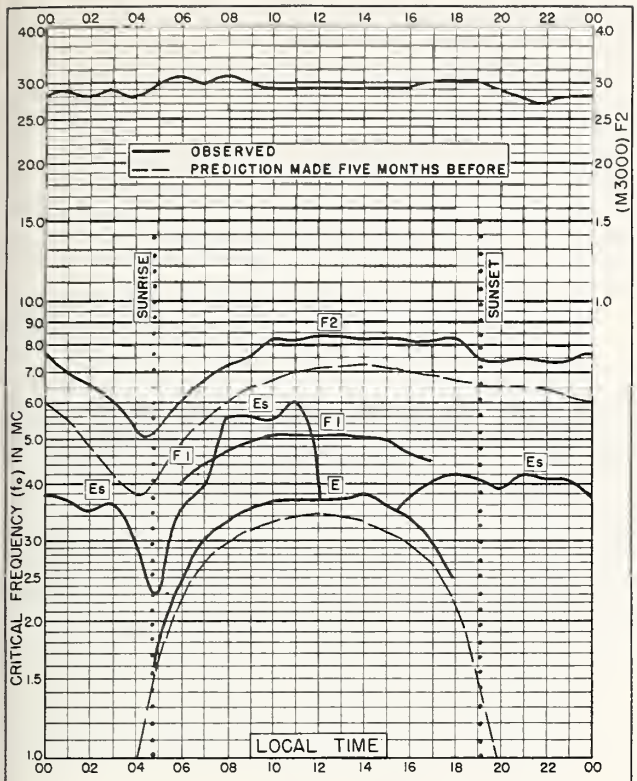
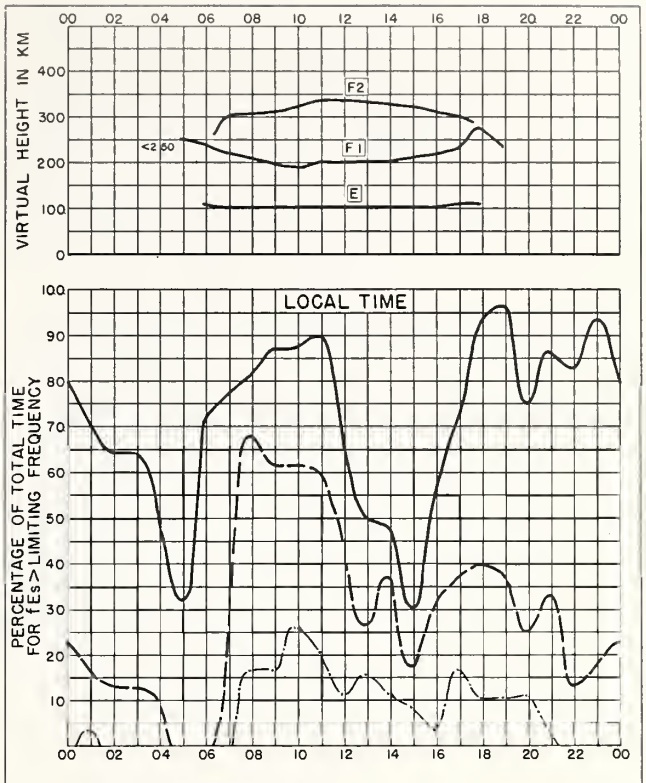


Fig. 101. CANBERRA, AUSTRALIA
35.3°S, 149.0°E DECEMBER 1955



DECEMBER 1955

Fig. 102. CANBERRA, AUSTRALIA

NBS 490

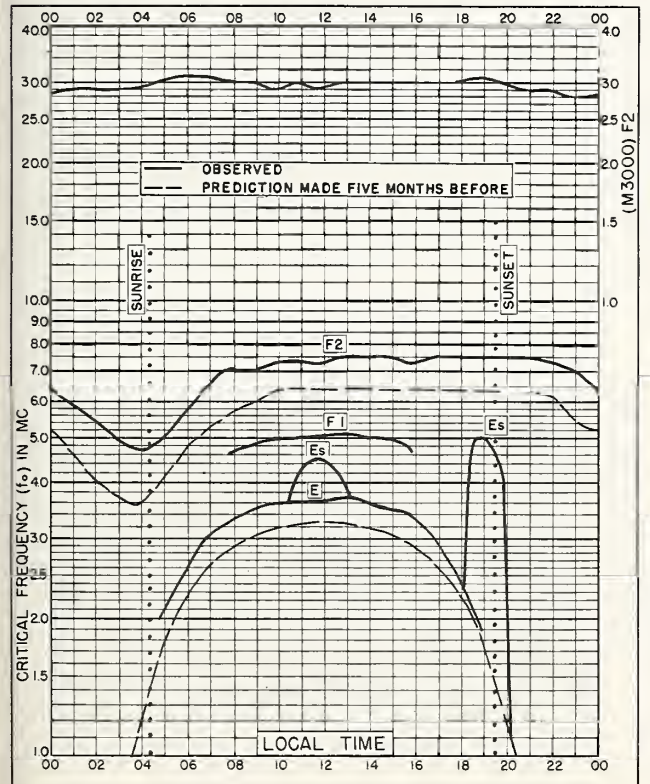


Fig. 103. HOBART, TASMANIA
42.9°S, 147.3°E DECEMBER 1955

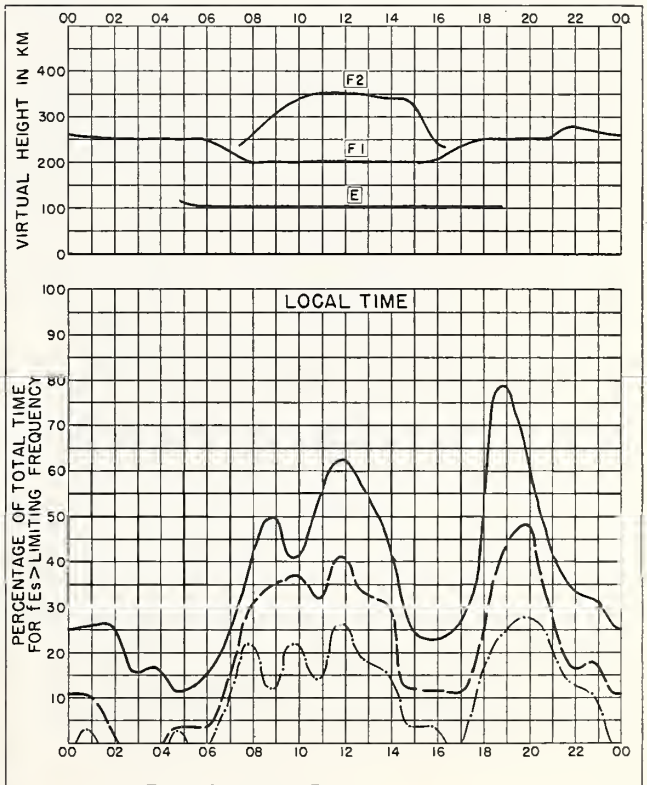


Fig. 104. HOBART, TASMANIA DECEMBER 1955

NBS 490

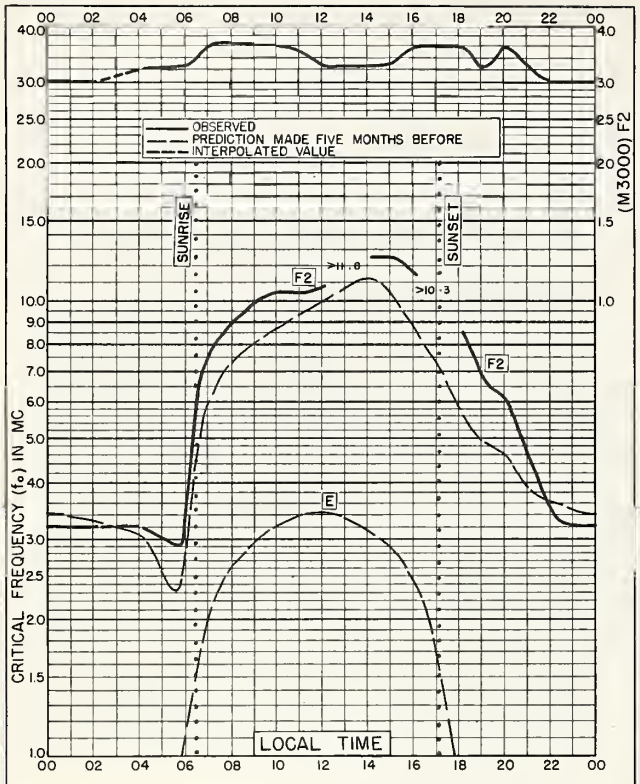


Fig. 105. DELHI, INDIA
28.6°N, 77.1°E NOVEMBER 1955

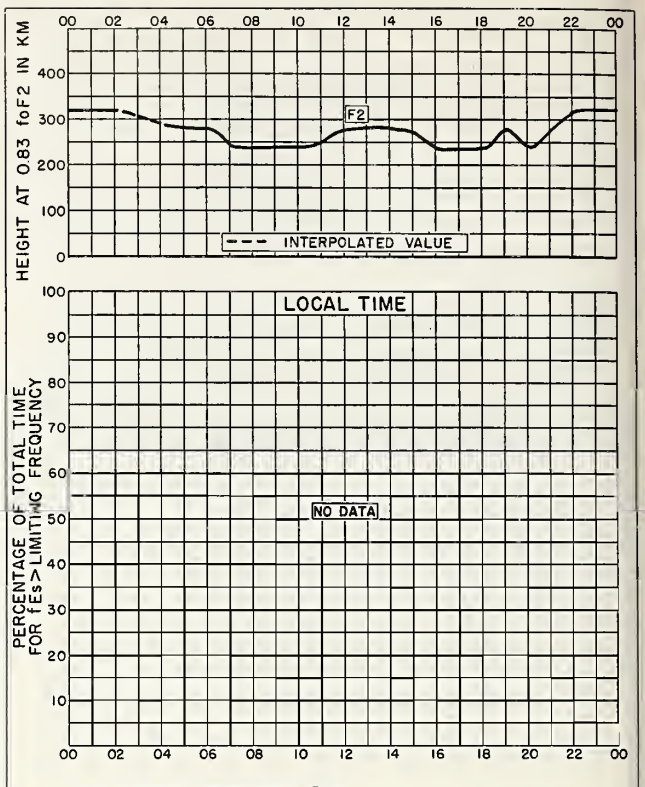


Fig. 106. DELHI, INDIA NOVEMBER 1955

NBS 490

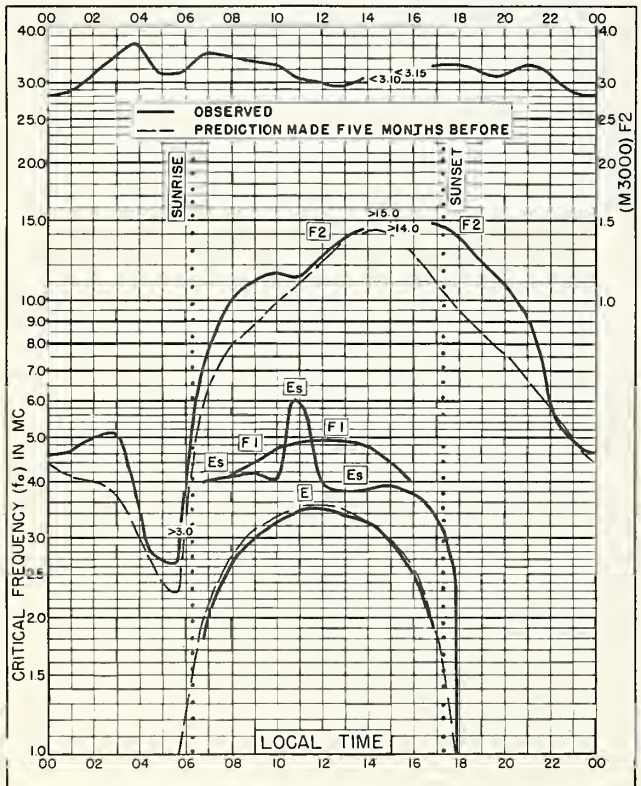


Fig. 107. AHMEDABAD, INDIA
23.0°N, 72.6°E NOVEMBER 1955

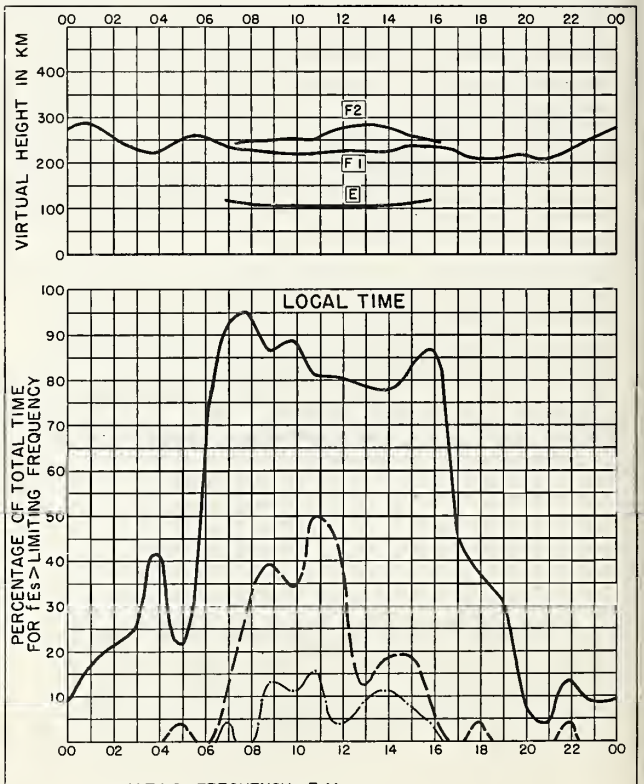


Fig. 108. AHMEDABAD, INDIA NOVEMBER 1955

NBS 490

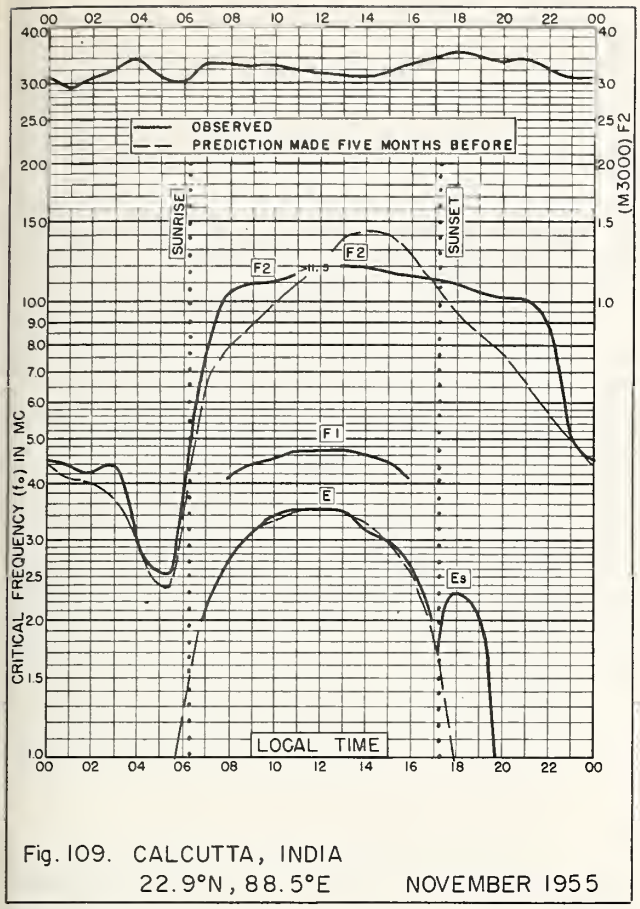


Fig. 109. CALCUTTA, INDIA
22.9°N, 88.5°E NOVEMBER 1955

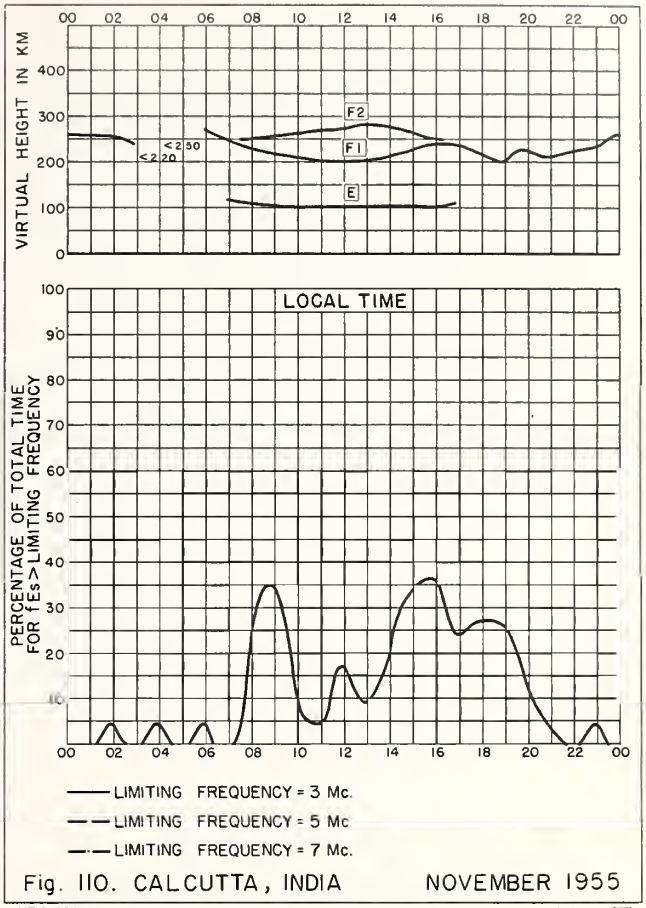


Fig. 110. CALCUTTA, INDIA NOVEMBER 1955

NBS 490

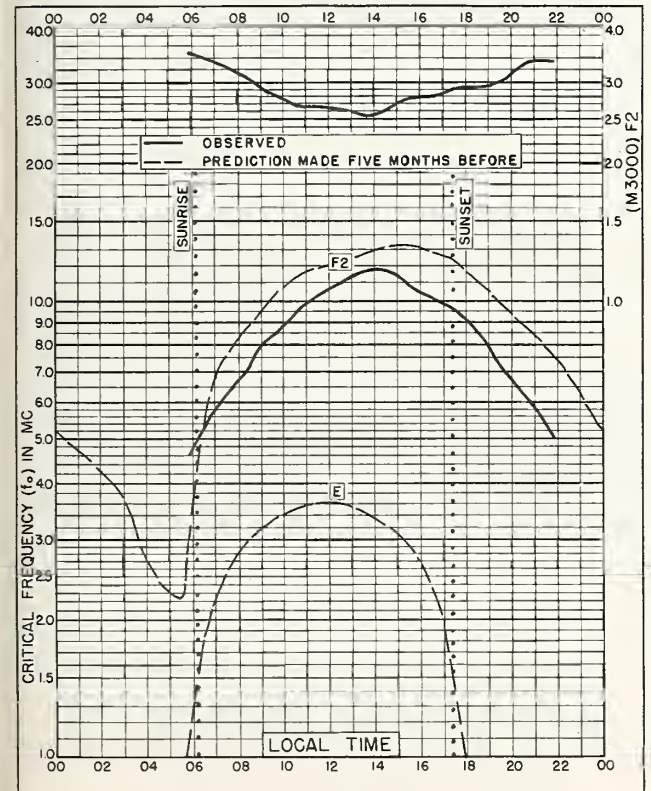


Fig. 111. BOMBAY, INDIA
19.0°N, 73.0°E NOVEMBER 1955

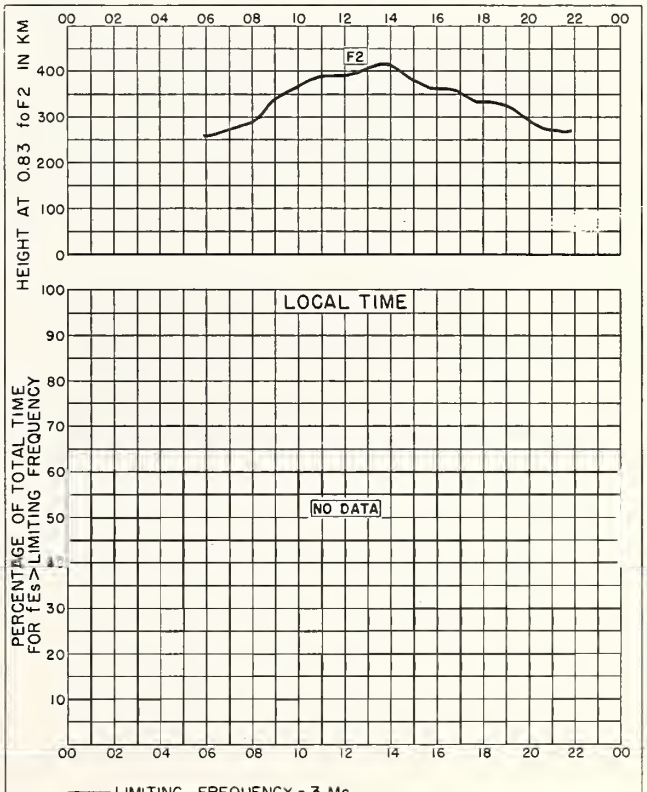


Fig. 112. BOMBAY, INDIA NOVEMBER 1955

NBS 490

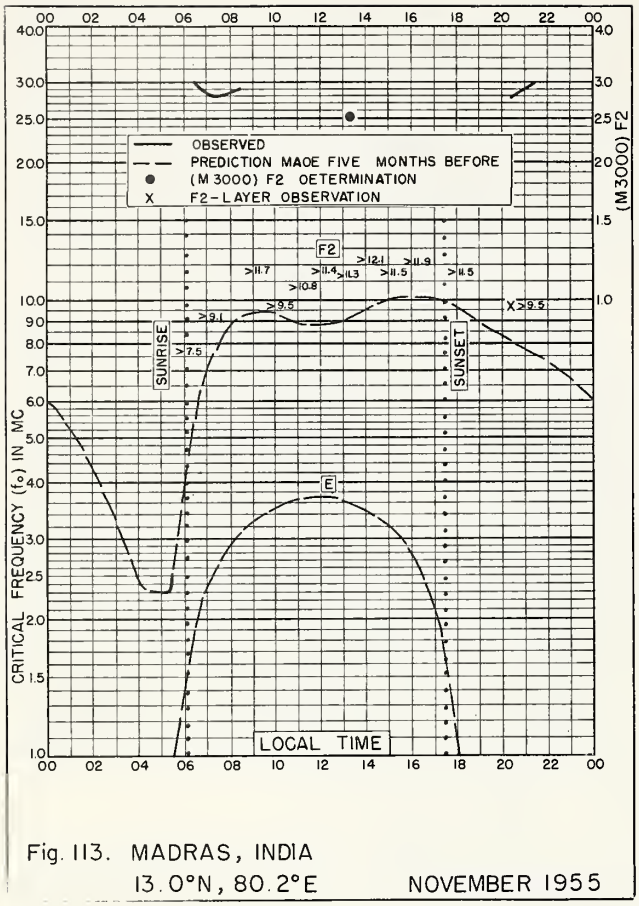


Fig. 113. MADRAS, INDIA
13.0°N, 80.2°E NOVEMBER 1955

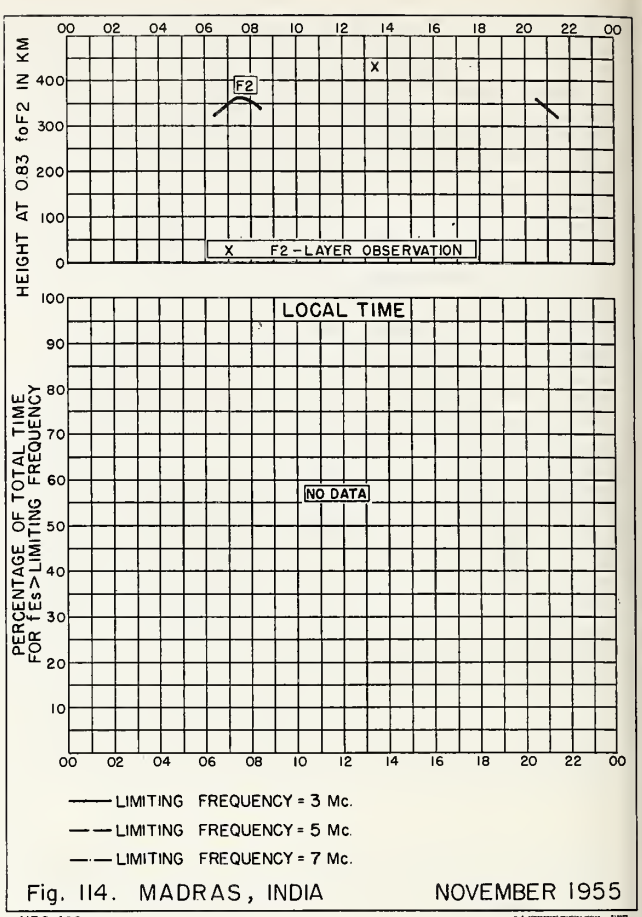


Fig. 114. MADRAS, INDIA NOVEMBER 1955

NBS 490

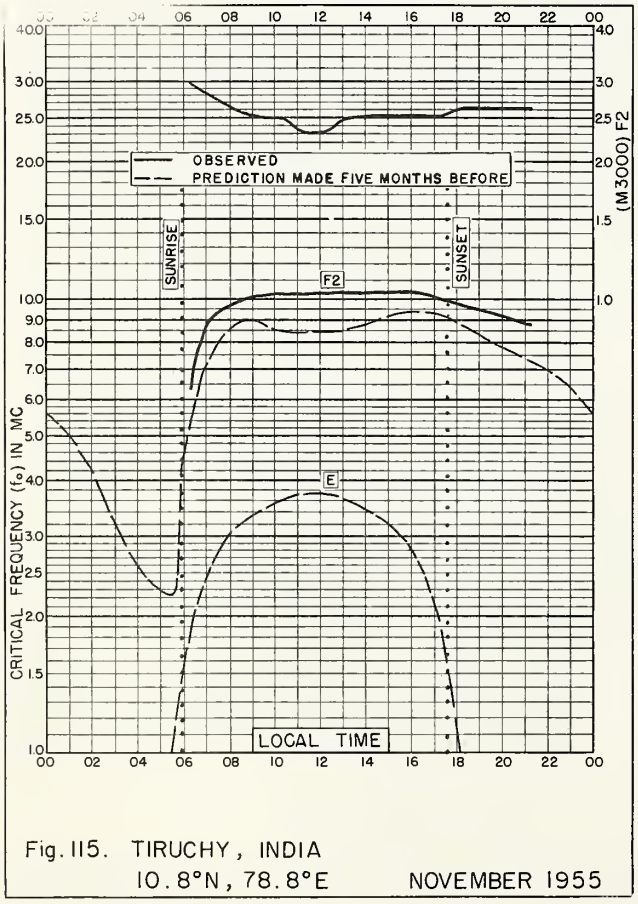


Fig. 115. TIRUCHY, INDIA
10.8°N, 78.8°E NOVEMBER 1955

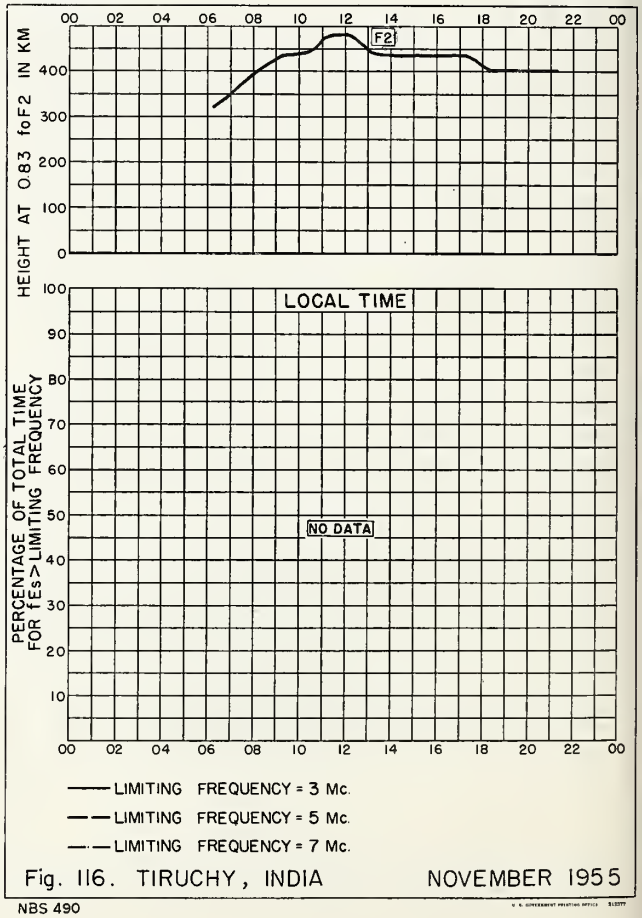


Fig. 116. TIRUCHY, INDIA NOVEMBER 1955

NBS 490

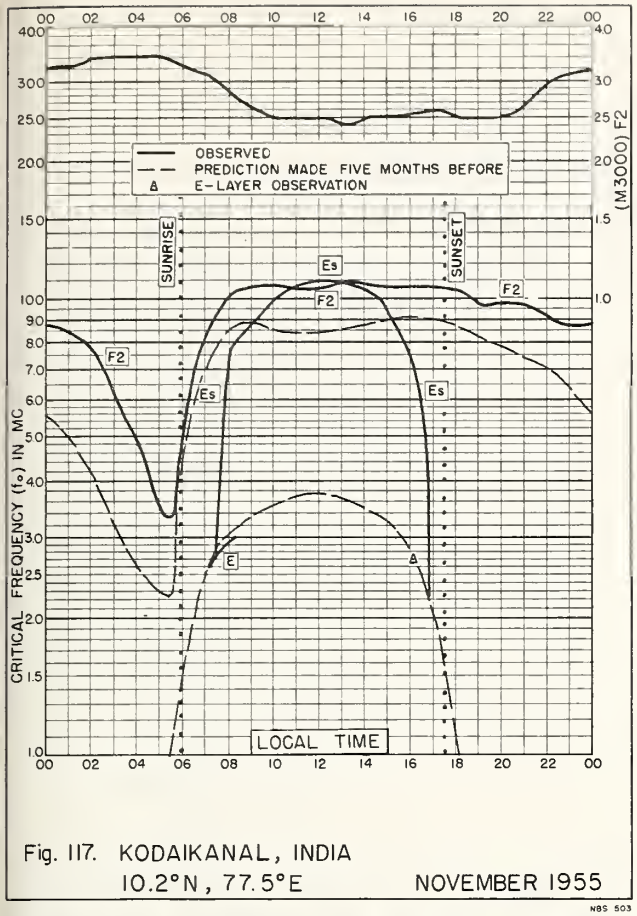


Fig. 117. KODAIKANAL, INDIA
10.2°N, 77.5°E NOVEMBER 1955

NBS 503

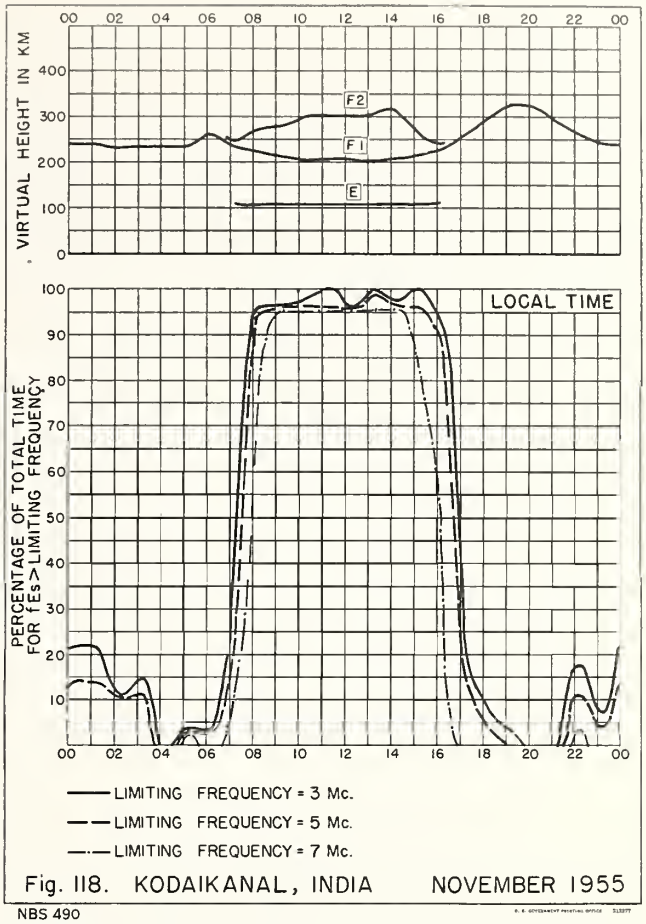


Fig. 118. KODAIKANAL, INDIA NOVEMBER 1955

NBS 490

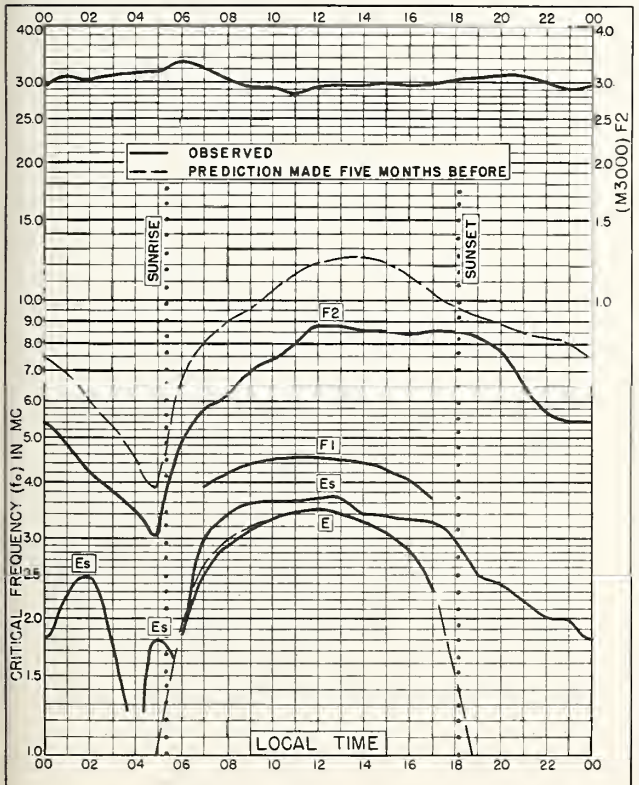


Fig. 119. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E NOVEMBER 1954

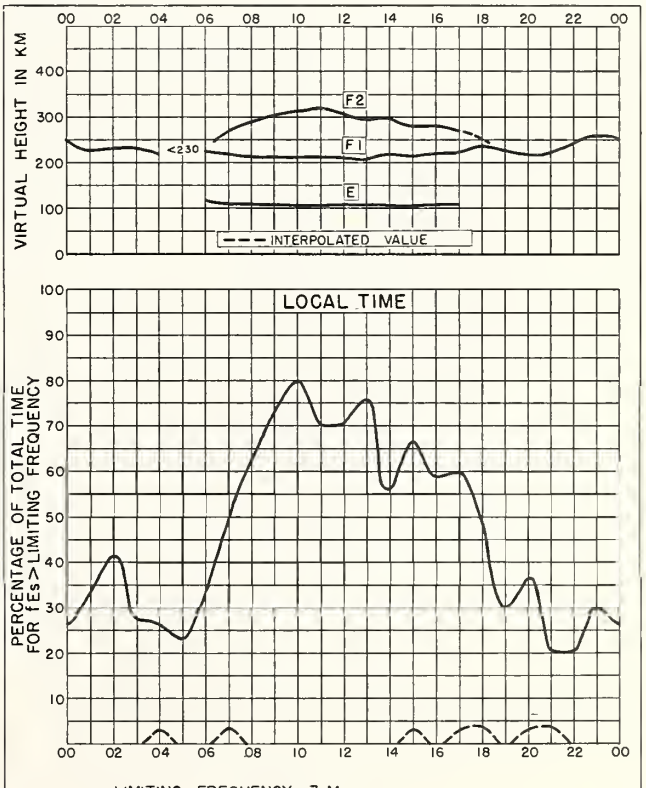


Fig. 120. TANANARIVE, MADAGASCAR NOVEMBER 1954

NBS 490

Index of Tables and Graphs of Ionospheric Data

in CRPL-F149 (Part A)

Index (CRPL-F149 (Part A), continued)

Index (CRPL-F149 (Part A), concluded)

CRPL Reports

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

Daily:

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

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

Semiweekly:

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

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

Semimonthly:

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

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Air Force, TO 31-3-28 series). On sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address cognizant military office.

CRPL—F. (Part A). Ionospheric Data.
(Part B). Solar-Geophysical Data.

Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic or other radio propagation data or in exchange for copies of publications on radio, physics, and geophysics for the CRPL library.

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

NBS Circular 462. Ionospheric Radio Propagation.

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

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

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

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, unless otherwise indicated.