

CRPL-F 148 PART A

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PART A
IONOSPHERIC DATA

ISSUED
DECEMBER 1956

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

CRPL-F 148
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
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Issued
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IONOSPHERIC DATA

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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	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							

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 51 and figures 1 to 102 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:

University of Graz:
Graz, Austria

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

Escola Politecnica, University of Sao Paulo:
Sao Paulo, Brazil

British Department of Scientific and Industrial Research, Radio
Research Board:
Falkland Is.
Inverness, Scotland
Singapore, British Malaya
Slough, England

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Resolute Bay, Canada
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University, Tai-
peh, Formosa, China:
Formosa, China

Danish National Committee of URSI:
Godhavn, Greenland

French National Center for Telecommunications Studies:
Djibouti, French Somaliland
Tananarive, Madagascar

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

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

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

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

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

United States Army Signal Corps:
Ft. Monmouth, New Jersey
Okinawa I.
Thule, Greenland
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Anchorage, Alaska
Fairbanks, Alaska (Geophysical Institute of the University of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 52 through 62 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

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

The U is a 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.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
COLLEGE, ALASKA; OCT. 15, 1956

The following ionograms were obtained at the Univ. of Alaska, College, Alaska vertical sounding station. They are typical of day and night conditions for October 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.

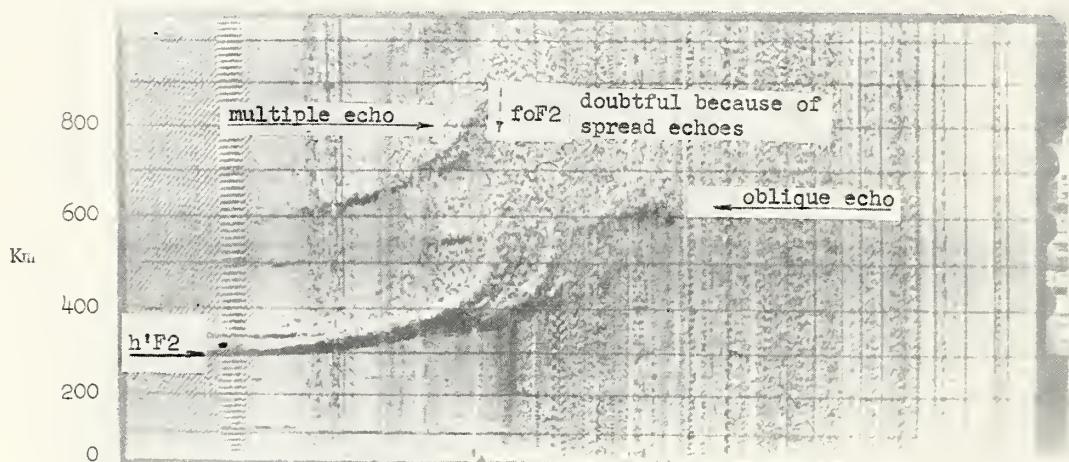


Fig. A. College, Alaska, Oct. 15, 1956, 0100 hours, 150°W time.

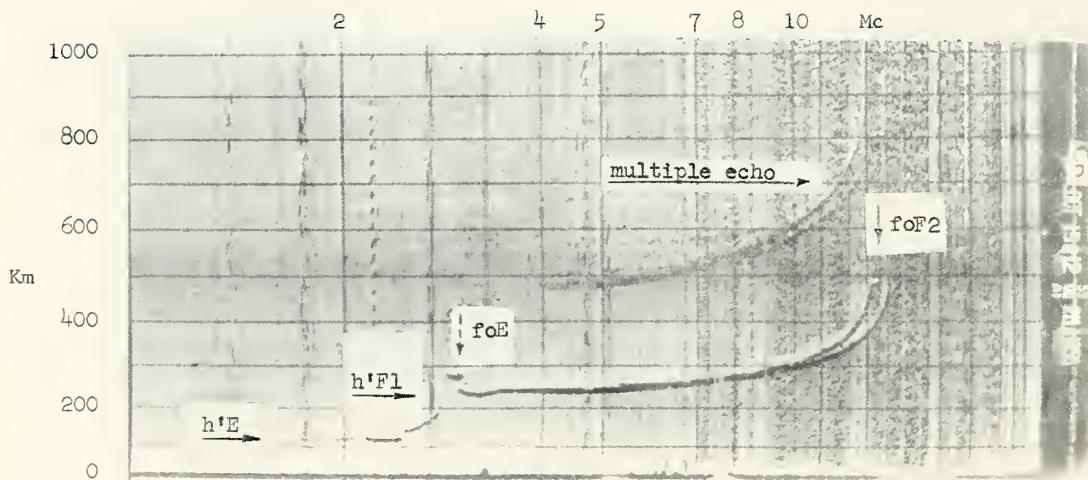
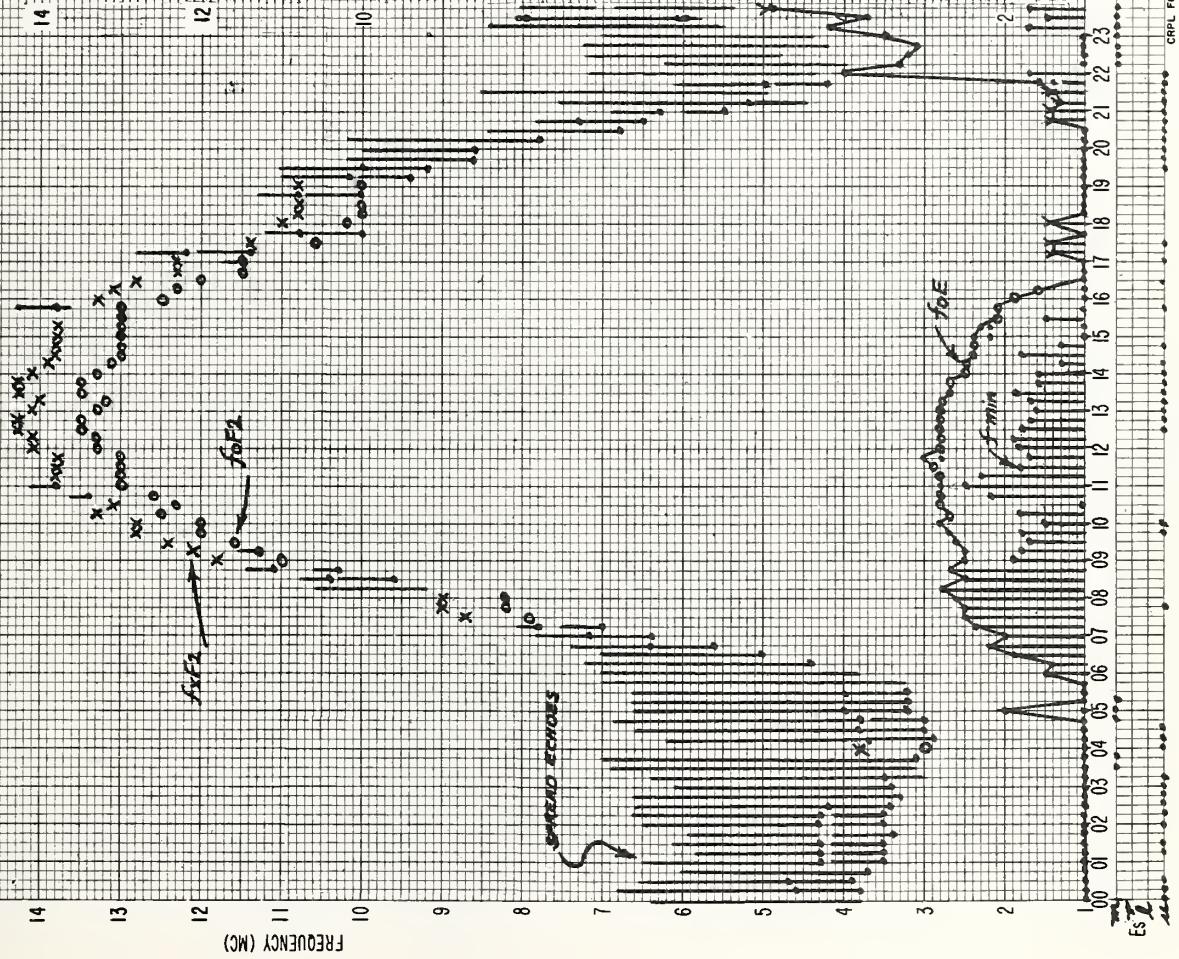


Fig. B. College, Alaska, Oct. 15, 1956, 1200 hours, 150°W time.



INDEX OF IONOSPHERIC DATA PUBLISHED IN 1956
(CRPL-F137(A) THROUGH F148(A))

The following index of tables and graphs of ionospheric data published in the CRPL-F(A) series in 1956 is divided into two parts. Part I is an index of data observed in 1955 and 1956. Part II is an index of data observed prior to 1955.

In general, both table and graphs for a given station for a given month appear in the same issue.

Indexes of ionospheric data published prior to 1956 are in IRPL-F17, CRPL-F28, -F40, -F52, -F64, -F76, -F88, -F100, -F112, -F124, and -F136(A).

The following errata published in 1956 refer to publications prior to 1956:

CRPL-F144(A), p. 8, erratum 1, Washington, D. C., March 1946.

CRPL-F144(A), p. 8, erratum 2, Maui, Hawaii, May 30, 1954, to September 16, 1955.

PART 1

Index of Tables and Graphs of Ionospheric Data Observed in 1955 and 1956
and Published in 1956 (CRPL-F137(A) through F148(A))

Station	1955						1956																			
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N			
Adak, Alaska													137	139					139	140	141	142	143	145		
Ahmedabad, India							137	138	141	141	142								145	147	147					
Akita, Japan									137	139	139	141							141	143	144	146	146			
Anchorage, Alaska									137	137	138	139							139	141	141	143	145	148		
Baguio, P. I.									137	138	139	139							142	142	143	144	145	146		
Baker Lake, Canada										138	140	140							140	142	143	146	148			
Bombay, India							137	138	141	141	142															
Brisbane, Australia							137	140	139	138	138	142	142						145	145	145					
Budapest, Hungary																			142	143	145	145	146			
Buenos Aires, Argentina											138	140	141													
Calcutta, India							137	138	141	141	142															
Canberra, Australia							137	141	139	138	139	140	142	142												
Capetown, Union of S. Africa									137	137	138	139	140	141					141	143	143	146	146			
Casablanca, Morocco							146	144	145	146	146	148	146		148											
Christchurch, New Zealand											139	139	142	142						142		147	147			
Churchill, Canada												138	140	140						140	141	144	146	148		
De Bilt, Holland												130	139	141						140	142	145	145	146	145	
Deception l.												137	137	137						143	144	145				
Delhi, India							137	138	141	141	142															
Elisabethville, Belgian Congo												138	139	140						140	141	143	146	148		
Fairbanks, Alaska												138	138	138	138					139	140	141	143	145	146	
Falkland Is.							138	138	139	142	142	143	144						144	144	148	148				
Formosa, China												137	138						139	140	141	142	143	145		
Ft. Monmouth, New Jersey												137	138						139	140	141	142	143	144		
Godhavn, Greenland							138		141	138	139	139	146	146					147	147	147	147	147	148		
Graz, Austria												137	138						139	140	141	142	143	144		
Guam I.												137	138						139	140	141	143		145		
Hobart, Tasmania							137	141	139	138	139	140	142													
Huancayo, Peru									139	140	140	142							141	141	143	143	145			
Ibadan, Nigeria									139	139	142	142	144	147	147								146	148	148	
Inverness, Scotland							138		138	139	142	142	143						144	144	147	148				
Johannesburg, Union of S. Africa									137	137	138	139	140	141					141	143	143	146	146			
Kiruna, Sweden											130 ^b								141	141	142	148	148			
Kodaikanal, India											142															
Leopoldville, Belgian Congo												138	139	140						140	141	143	146	148		
Lindau/Harz, Germany												139	140	140	140					141	143	143	146	148		
Lulea, Sweden									147	144	145	142							142	142						
Madras, India									137	138	141	141	142													
Maui, Hawaii												137	138													
Nairobi, Kenya									137	138	139	139	141	142					143	145	145					
Narsarssuak, Greenland												137	139						139	140	141	143	144	145		
Okinawa I.												138	138						139	140	141	142	143	144		
Oslo, Norway												137	138						139	140	141	142	144	144		
Ottawa, Canada												137	140	140						140	141	144	146	145		
Panama Canal Zone												137	138						139	140	141	142	144	145		

PART I (CONTINUED)

Station	1955												1956													
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N			
Point Barrow, Alaska							137	138	139	144	143	143	143	143	142	142	144	146	147					148		
Poitiers, France	146	144	145	146	148	146	146		148																	
Port Lockroy					138	138	142	142	143	144	144		144													
Puerto Rico, W. I.										137	138		144													
Rarotonga I.							137	138	139	139	142															
Resolute Bay, Canada									139	140	140		140	141	144	146	148									
Reykjavik, Iceland									137	137	138	140	140	140	143	145	145	145	145	148	148	148				
San Francisco, California									137	138	140	141	141	142	143	147	144	146	146	147	147	147				
Sao Paulo, Brazil							137	137	137	145	145	145	145	145	146	147	148	148	148							
Schwarzenburg, Switzerland											137 ^c	138	139	140	141	141	143	146					146			
Singapore, British Malaya							138	138	139	142	142	143	143	144	144	144	147	148								
Slough, England							138	138	139	142	142	143	143	144	144	144	147	148								
Talara, Peru							146	146					138	140	140	141	141	143	143	144	146	146	146	146	148	
Thule, Greenland																										
Tiruchy, India							137	138	141	141	142															
Tokyo, Japan										137	139	139	141	141	141	141	143	144	146	146						
Townsville, Australia							137	141	139	138	139	140	140	142	142	137 ^d	138	139	140	141	143	144	144	145	147	
Tromso, Norway																										
Upsala, Sweden																										
Wakkanai, Japan																										
Washington, D. C.																	137		138	139	140	141	142	143	144	145 ^e
Watheroo, W. Australia																	137	137	138	139	140	142	143	146	146	147
White Sands, New Mexico																		137	137	138	140	141	142	144	144	145
Winnipeg, Canada																		138	140	140	140	141	145	144	148	145
Yamagawa, Japan																		137	139	139	141	141	143	144	146	146

^aSee erratum in F147(A), p. 7.

^dSee erratum 2 in F138(A), p. 8.

^bSee erratum 1 in F139(A), p. 8.

^eSee erratum in F146(A), p. 8.

^cSee erratum 1 in F138(A), p. 8.

PART II

Index of Tables and Graphs of Ionospheric Data Observed Prior to 1955 and

Published in 1956 (CRPL-F137(A) through F148(A))

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W)							November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.3						2.80
01	260	6.0						2.80
02	260	5.8						2.80
03	270	5.6						2.80
04	270	5.4						2.80
05	270	5.0						2.80
06	260	4.8						2.90
07	240	7.0	230	---	109	(1.9)		3.1
08	240	10.5	230	---	111	2.5		3.20
09	240	12.2	220	---	109	3.0		3.10
10	240	13.0	220	---	107	3.3		3.00
11	240	13.5	220	---	109	3.5		2.95
12	(240)	13.6	220	---	109	3.5	3.5	2.85
13	(240)	13.4	225	---	109	3.5		2.80
14	(240)	13.2	230	---	109	3.3		2.85
15	250	13.2	230	---	110	2.9	3.0	2.80
16	230	12.8	230	---	113	2.4	2.5	2.85
17	240	12.0	220	---				2.90
18	230	10.8					2.4	2.90
19	230	9.4						2.90
20	240	8.6						2.90
21	240	7.6						2.95
22	250	7.2						2.90
23	250	6.8						2.80

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Oslo, Norway (60.0°N, 11.1°E)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	5.55					<1.4	2.60
01	300	5.20					<1.2	2.50
02	290	4.50					1.3	2.50
03	290	4.45					1.6	2.50
04	290	4.40					1.5	2.60
05	280	4.10					<1.4	2.55
06	270	4.30					<1.4	2.65
07	250	5.90	---	---	130	1.75		2.90
08	240	7.90	250	---	120	2.30		3.00
09	250	9.50	240	---	100	2.60	2.7	3.00
10	(240)	10.75	240	---	100	2.80	3.1	3.00
11	---	11.90	235	---	110	2.90	3.3	3.00
12	---	12.40	235	---	110	2.90	3.1	2.85
13	(240)	12.20	240	---	100	3.00		2.90
14	(235)	12.30	240	---	100	2.90		2.95
15	240	12.10	245	---	100	2.65		2.95
16	240	11.35	245	---	110	2.30		3.00
17	230	10.75	---	---	105	1.90		3.05
18	230	9.20					<1.6	2.90
19	235	8.25					<1.6	2.90
20	240	7.90					<1.6	2.80
21	245	6.60					<1.6	2.70
22	290	6.00					<1.6	2.55
23	285	6.05					<1.6	2.65

Time: 15.0°E.

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

Table 5

Graz, Austria (47.1°N, 15.5°E)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	6.3						
01	305	6.0						
02	320	6.0						
03	310	6.0						
04	300	5.6						
05	285	5.0						
06	270	5.9						
07	230	8.1						
08	230	9.3	---	---				
09	220	0	210	---				
10	220	0	215	---	(3.6)	3.8		
11	230	0	210	---	---	3.0		
12	230	0	220	---	(3.6)			
13	220	D	220	---	(3.7)			
14	230	D	---	---				
15	230	D			(3.3)			
16	230	0						
17	230	D						
18	230	9.1						
19	240	8.5						
20	250	7.4						
21	280	6.8						
22	300	6.7						
23	300	6.6						

Time: 15.0°E.

Sweep: 2.5 Mc to 11.0 Mc in 2 minutes.

Table 2

Fairbanks, Alaska (64.9°N, 147.8°W)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00					(4.8)			5.8
01					(5.3)			6.0
02					(4.5)			5.8
03					(5.6)			6.4
04					(5.8)			5.5
05					(4.9)			6.3
06					(4.7)			5.3
07					(5.6)			(2.75)
08					(6.8)			(2.75)
09					7.3			(3.10)
10					7.9			(3.10)
11					8.8			3.10
12					9.2			2.90
13					9.8			2.90
14					10.5			2.95
15					10.8			3.00
16					10.4			3.00
17					9.4			3.00
18					8.4			4.0
19					6.8			3.05
20					(6.0)			(3.05)
21					(4.6)			(3.05)
22					(4.4)			4.6
23					(4.5)			5.2

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Upsala, Sweden (59.8°N, 17.6°E)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	4.9						2.5
01	320	4.8						2.7
02	325	4.4						2.7
03	315	3.7						2.8
04	305	3.9						2.8
05	290	3.8					E	2.8
06	260	4.9					E	2.9
07	245	6.9	---	---	140	1.80		3.0
08	240	8.8	---	---	115	2.30		3.1
09	245	9.8	245	(4.0)	110	2.65		3.1
10	245	12.0	240	4.3	110	2.85		3.0
11	240	12.5	235	(4.6)	110	2.95		3.0
12	240	13.1	240	(5.0)	110	3.00		2.9
13	240	13.5	240	(5.0)	110	2.80		2.9
14	230	13.0	---	---	115	2.45		3.0
15	235	13.0	---	---	130	2.00		3.0
16	225	11.0	---	---	125	2.3		3.1
17	235	9.3	---	---	124	2.4		3.1
18	240	8.2						2.4
19	240	7.0						2.95
20	240	5.8						1.8
21	250	5.2						2.9
22	290	5.2						2.8
23	300	5.1						2.0

Time: 15.0°E.

Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 6

Ft. Monmouth, New Jersey (40.3°N, 74.1°W)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.0						2.75
01	270	6.5						2.70
02	260	6.4						2.75
03	260	6.0						2.80
04	260	5.5						2.80
05	270	5.2						2.75
06	260	5.9	---	---				2.90
07	230	8.8	230	---	117	2.4		3.15
08	240	11.0	230	---	111	2.8		3.15
09	240	12.0	220	---	109	3.2		3.05
10	230	12.5	210	---	109	3.4		3.00
11	240	12.7	215	---	109	3.6		2.90
12	250	13.0	220	---	105	3.6		2.85
13	240	12.8	225	---	111	3.5		2.80
14	250	12.6	230	---	113	3.4		2.80
15	240	12.7	230	---	115	3.2		2.80
16	240	12.5	240	---	118	2.6		2.90
17	230	11.8	---	---	125	---		2.90
18	230	10.6	---	---			(1.7)	2.90
19</								

Table 7

White Sands, New Mexico (32.3°N, 106.5°W)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	5.6			2.1	2.80		
01	260	5.5			2.6	2.70		
02	270	5.4			1.7	2.80		
03	260	5.2			3.3	2.80		
04	270	5.0			3.8	2.65		
05	270	4.9			2.7	2.70		
06	270	5.9			2.8	2.85		
07	230	9.4	---	---	115 (2.5)		3.30	
08	230	11.3	230	---	109 (3.0)	3.6	3.20	
09	240	12.5	220	---	109 (3.3)	3.6	3.10	
10	250	12.7	210	---	109 (3.6)	3.8	2.95	
11	(270)	13.0	215	---	109 (3.9)	3.9	2.90	
12	(290)	13.2	220	---	109 (3.9)		2.80	
13	(300)	13.4	230	---	111 (3.8)		2.75	
14	(290)	13.1	230	---	111 (3.6)	3.6	2.75	
15	(290)	13.1	235	---	111 (3.4)	3.5	2.80	
16	240	12.9	240	---	113 (2.9)	3.5	2.85	
17	230	12.4			117 ---	3.3	2.90	
18	220	11.0				3.2	2.95	
19	220	9.0				3.2	2.90	
20	<240	8.0				2.8	2.90	
21	240	6.8				3.7	2.85	
22	250	6.4				(3.1)	2.85	
23	<260	6.0				2.9	2.85	

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

Table 9

Formosa, China (25.0°N, 121.5°E)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	>15.5			2.4	(2.9)		
01	240	(13.5)			2.4	(2.85)		
02	220	11.0			2.4	2.8		
03	240	(9.5)			2.5	(2.8)		
04	240	(9.4)			2.4	(3.0)		
05	240	(8.8)			2.5	(3.0)		
06	240	(9.2)			2.5	(3.0)		
07	240	9.6			2.7	(3.05)		
08	220	12.4	---	---	110 (3.2)	4.0	3.05	
09	(230)	14.0	220	---	100 (3.5)	4.6	2.9	
10	---	15.1	220	---	100 (3.8)	4.8	2.8	
11	---	16.0	220	---	---	4.8	2.7	
12	(280)	17.2	220	---	---	4.2	2.6	
13	---	17.6	220	---	---	2.6		
14	---	>18.5	240	---	---	2.65		
15	---	18.7	240	---	---	3.9	2.7	
16	(240)	18.0	240	---	120 (3.2)	4.0	2.7	
17	250	17.5	240	---		4.0	2.8	
18	260	(17.7)				3.8	(2.7)	
19	280	>18.2				3.7	(2.7)	
20	270	>19.0				3.1	(2.7)	
21	240	(19.2)				3.0	(2.9)	
22	240	(19.5)				(2.7)	(2.8)	
23	240	17.0				2.5	(2.9)	

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

Table 11

Puerto Rico, W. I. (18.5°N, 67.2°W)							October 1956	
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	8.3				2.90		
01	250	7.8				3.00		
02	240	7.0				3.10		
03	230	5.8			(2.4)	2.90		
04	240	4.8			(3.0)	2.70		
05	290	4.4				2.60		
06	280	5.0				2.80		
07	240	9.0			(127) (2.2)		3.20	
08	240	11.1	235	---	116 (3.0)		3.15	
09	240	12.7	230	---	113 (3.5)		3.05	
10	(260)	13.3	230	---	111 (3.8)		3.00	
11	(270)	13.2	225	---	111 (3.9)		2.90	
12	---	13.0	225	---	111 (4.0)		2.80	
13	---	13.0	230	---	111 (4.1)		2.75	
14	---	13.0	230	---	111 (3.9)	5.2	2.75	
15	---	12.7	235	---	111 (3.6)	4.9	2.70	
16	(250)	12.1	240	---	113 (3.2)	4.5	2.70	
17	240	11.7	245	---	(119) 2.6	4.1	2.75	
18	240	11.1			---	<2.0	3.1	2.80
19	240	10.3				3.2	2.80	
20	250	9.5				3.1	2.80	
21	270	9.3				2.9	2.70	
22	270	9.0					2.80	
23	250	8.6					2.85	

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Okinawa I. (26.3°N, 127.8°E)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	13.7						2.95
01	240	12.8						3.00
02	230	10.6						2.95
03	230	9.5						3.00
04	220	7.4						3.10
05	240	5.8						2.75
06	260	5.6						2.80
07	240	9.7				(122) ---	4.0	3.20
08	240	11.8	230	---	109 (3.0)	4.5	3.20	
09	---	12.9	230	---	(109) (3.4)	5.0	3.00	
10	---	14.3	220	---	109 (3.7)	5.2	2.90	
11	---	14.6	220	---	111 (3.8)	5.6	2.80	
12	---	15.7	220	---	(111) (3.9)	5.4	2.70	
13	(360)	16.4	225	---	111 (3.9)	5.6	2.65	
14	350	17.0	240	---	111 (3.8)	5.5	2.65	
15	(340)	16.8	240	---	111 (3.6)	5.8	2.65	
16	---	16.5	245	---	111 (3.3)	5.3	2.70	
17	(250)	16.3	250	---	113 (2.6)	4.9	2.80	
18	250	16.1					4.4	2.80
19	250	16.7					3.2	2.70
20	260	18.4					3.2	2.70
21	250	18.6					2.8	2.80
22	240	16.6					2.7	2.90
23	240	13.7						2.80

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

Table 10

Maui, Hawaii (20.8°N, 156.5°W)							October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	9.7						3.10
01	230	8.8						3.05
02	240	7.1						3.00
03	240	5.7						2.80
04	260	4.7						2.70
05	280	4.2						2.60
06	320	4.6						2.60
07	250	8.8	240	---	127 (2.3)	3.6	3.15	
08	240	11.6	240	---	116 (3.4)	4.2	3.00	
09	(260)	12.7	230	---	111 (3.7)	4.2	3.00	
10	---	13.4	225	---	111 (3.7)	4.2	2.90	
11	(300)	14.0	220	---	111 (3.8)	4.5	2.90	
12	350	14.6	220	---	111 (4.0)	4.0	2.80	
13	350	15.4	230	---	111 (3.9)	4.3	2.75	
14	350	15.5	240	---	111 (3.8)	4.1	2.75	
15	330	15.4	240	---	111 (3.5)	4.3	2.80	
16	(300)	14.9	240	---	113 (3.2)	4.5	2.80	
17	250	14.0	250	---	119 (2.6)	4.3	2.85	
18	250	13.0					4.2	2.85
19	250	13.0					3.5	3.00
20	250	13.0					2.4	3.00
21	240	13.0					2.4	3.00
22	240	12.5						3.10
23	230	11.0						3.10

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

Table 12

Panama Canal Zone (9.4°N, 79.9°W)							October 1956	
Time	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	9.2						3.20
01	230	8.0						3.25
02	220	6.1						3.15
03	240	4.8						2.90
04	250	4.1						2.80
05	280	3.8						3.4
06	310	5.6						3.5
07	240	9.8	---	---	117 (2.6)	3.2	3.15	
08	240	12.3	235	---	111 (3.2)			
09	---	13.8	230	---	109 (3.7)	3.7	3.00	
10	---	14.0	220	---	109 (4.0)	4.8	2.85	
11	---	14.1	220	---	109 (4.1)	4.9	2.75	
12	(340)	14.4	220	---	109 (4.2)			

Table 13

Time	October 1956						(M3000)F2	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	
00	220	11.6				4.5	2.90	
01	220	10.4				4.2	3.00	
02	230	9.2				3.2	3.00	
03	230	8.0				2.4	3.00	
04	230	6.9				3.0	3.20	
05	240	5.5				3.1	3.10	
06	270	6.0				2.2	2.90	
07	260	10.5			123	2.6	3.3	3.05
08	240	13.3	240	---	119	3.3	3.6	2.90
09	---	14.5	230	---	119	3.7		2.75
10	---	14.4	220	---	114	4.0		2.50
11	---	14.8	215	---	115	4.1		2.35
12	---	14.5	215	---	115	4.2	5.0	2.20
13	---	(13.5)	210	---	113	4.2	4.5	(2.15)
14	---	(12.8)	210	---	113	4.0	4.2	(2.10)
15	(220)	(12.8)	210	---	113	(3.8)	4.6	(2.15)
16	240	(12.7)	---	---	111	3.3	4.4	(2.15)
17	260	(12.6)			119	2.8	3.4	(2.20)
18	290	(12.6)					4.6	(2.30)
19	350	(12.2)					3.3	(2.25)
20	400	(11.8)					2.1	(2.25)
21	320	(12.5)					3.4	(2.40)
22	260	(12.5)					3.2	(2.75)
23	230	12.8					3.9	(2.85)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15

Time	September 1956						(M3000)F2	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	
00							(2.65)	
01		(5.2)					(2.70)	
02		(5.5)					(2.60)	
03		(4.9)					(2.75)	
04		(5.0)						
05		5.0					2.85	
06		5.4					(2.80)	
07		5.9			---	---	(2.90)	
08		6.1			121	(2.0)		
09		6.4			130	(2.2)	2.80	
10		6.6			121	(2.6)	2.80	
11		6.9			119	(2.6)	2.70	
12		6.4			115	2.8	2.70	
13		6.6			114	2.6	2.70	
14		6.4			118	2.6	2.70	
15		6.6			121	2.5	2.65	
16		6.7			129	2.5	2.70	
17		6.8			125	2.4	2.70	
18		6.8			129	2.2	2.70	
19		6.3					2.70	
20		6.6					(2.70)	
21		6.5					(2.65)	
22		6.2					2.70	
23		6.0					(2.70)	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Time	September 1956						(M3000)F2	
	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	
00						4.5	(2.85)	
01		(5.0)				4.8	(2.75)	
02		(4.7)				5.0	(2.80)	
03		(4.5)				5.0	(2.70)	
04		(5.2)				5.2	(2.75)	
05		(5.0)				5.2	(2.80)	
06		(5.2)				5.4	(2.80)	
07		(5.4)			107	2.2	4.5	(3.00)
08		5.8			112	2.5	3.9	2.90
09		6.2			111	2.7	4.0	2.85
10		6.8			105	3.2		2.75
11		6.8			103	3.2		2.70
12		7.3			104	3.2		2.80
13		7.2			105	3.2	3.4	2.80
14		7.6			109	3.1		2.80
15		7.8			111	2.9		2.80
16		8.0			111	2.7		2.90
17		7.6			121	(2.2)		3.00
18		7.6			121	2.1	2.5	3.00
19		7.1					3.0	
20		(6.2)					3.7	(3.00)
21		(5.6)					4.5	(3.00)
22		(4.9)					4.5	(2.90)
23		(4.2)					4.5	(2.90)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Time	October 1956						(M3000)F2	
	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	
00	230	10.3						(5.1)
01	230	8.9						4.6
02	230	8.2						5.6
03	230	7.5						3.00
04	230	6.9						3.15
05	230	5.8						3.15
06	260	8.6						3.10
07	240	11.9						3.10
08	(230)	13.6						3.05
09	---	14.5						13.2
10	---	14.8						2.60
11	---	13.6						2.10
12	---	12.5						2.10
13	---	12.4						2.05
14	---	12.1						2.05
15	---	12.0						2.10
16	240	11.8						2.15
17	260	11.6						2.20
18	300	11.4						3.5
19	420	10.2						2.05
20	430	9.2						2.05
21	370	9.2						2.30
22	280	10.2						2.50
23	260	10.5						2.75

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Time	September 1956						(M3000)F2	
	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	
00		(4.2)						5.0
01		(4.0)						4.8
02		(4.8)						5.0
03		(4.8)						3.8
04		(4.1)						3.4
05		(4.9)						3.0
06		(4.8)						2.60
07		4.9			115	2.2	2.7	2.75
08		5.5			(3.6)	109	2.6	2.80
09		6.1			(4.1)	109	2.9	2.80
10		6.3			4.2	108	2.8	2.70
11		6.5			4.4	111	3.0	2.75
12		6.7			4.4	107	3.0	2.80
13		6.9			4.7	103	3.1	2.75
14		7.2			(4.5)	105	3.0	2.80
15		7.6			(4.4)	105	2.9	2.80
16		7.6			7.6	---	111	2.6
17		7.6			7.6	---	111	2.4
18		6.0			8.3	---	111	3.0
19		6.8			7.7	---	112	2.9
20		(6.8)			(7.6)	---	111	2.8
21		(6.2)			(6.8)	---	111	2.8
22		(4.5)			(6.2)	---	111	2.8
23		(4.2)			(4.5)	---	111	2.8

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 18

Time	September 1956						(M3000)F2	
	h'F2	foF2	b'F1	foF1	h'E	foE	fEs	
00								4.2
01								4.3
02								3.9
03								4.0
04								4.0
05								(2.60)
06								2.6
07								2.90
08								3.00
09								2.90
10								2.85
11								3.2
12								2.85
13								2.80
14								2.75
15								2.75
16								2.80
17								2.85
18								(2.90)
19								2.5
20								(2.70)
21								3.4
22								3.7
23								(2.50)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 19								September 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	300	5.20				<1.4	(2.50)		
01	300	5.10				1.4	2.40		
02	300	4.40				1.4	2.45		
03	320	3.95				2.0	2.45		
04	310	3.70				2.5	2.40		
05	290	3.80				<1.4	2.60		
06	260	4.80	275	---	115	4.70	2.0	2.85	
07	250	6.40	250	---	110	2.30	2.6	2.90	
08	(470)	6.90	240	4.15	110	2.65	3.2	2.80	
09	(540)	7.40	240	---	110	3.00	3.4	2.90	
10	---	8.00	235	---	105	3.20	3.9	2.80	
11	---	8.00	235	---	105	3.25	3.7	2.75	
12	(455)	8.25	235	5.20	105	3.35	3.6	2.75	
13	(455)	8.80	235	5.10	105	3.40	3.5	2.75	
14	---	9.05	240	---	105	3.30		2.80	
15	---	8.65	240	---	105	3.10	<3.5	2.80	
16	---	8.90	245	---	100	2.90	3.2	2.80	
17	(240)	8.20	250	---	110	2.50		2.75	
18	250	8.00	250	---	125	2.15	2.6	2.85	
19	250	8.10	---	---	---	1.6	2.85		
20	245	7.55				<1.6	2.75		
21	250	6.60				<1.6	2.75		
22	260	6.10				<1.6	2.65		
23	300	5.60				<1.6	(2.55)		

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

Table 20								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00					(4.7)			4.8	(2.90)
01					(4.9)			5.8	(2.70)
02					(4.6)			4.6	(2.80)
03					(4.8)			5.2	(2.75)
04					(5.0)			5.4	(2.75)
05					(5.8)			5.4	(2.75)
06					(5.9)			5.3	(2.65)
07					6.2			2.7	2.65
08					(4.2)			6.3	2.65
09					6.4			3.1	2.70
10					6.4			5.8	2.70
11					6.2			5.0	2.70
12					6.1			3.3	2.55
13					6.0			3.4	2.50
14					6.2			4.1	2.65
15					6.2			4.4	2.60
16					6.2			3.6	2.70
17					6.2			3.5	2.75
18					6.4			4.1	2.80
19					6.2			3.7	2.90
20					6.2			3.5	(2.95)
21					(6.4)			3.0	(3.00)
22					121			3.8	(3.00)
23					(4.9)			4.4	(2.90)

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

Table 21								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00		(4.8)				4.4	(2.55)		
01		(4.7)				4.9	(2.60)		
02		(5.0)				5.0	(2.70)		
03		4.5				4.4	(2.65)		
04		(4.9)				3.9	(2.80)		
05		5.3				3.7	2.90		
06		5.4	---	111	2.5	2.8	2.95		
07		6.0	4.3	111	2.8		2.90		
08		6.2	4.4	109	(3.1)		2.90		
09		6.5	4.8	107	3.2		2.90		
10		6.6	4.9	101	3.4		2.85		
11		6.9	5.0	101	3.5		2.80		
12		6.9	5.0	101	3.5		2.75		
13		7.0	(5.0)	101	3.5		2.75		
14		7.0	5.0	101	3.5		2.70		
15		7.0	5.0	103	3.5		2.75		
16		7.0	4.8	105	3.3		2.80		
17		6.8	---	109	(3.1)		2.85		
18		6.7	---	108	3.0	3.2	2.90		
19		(6.3)	120	---	3.6	(2.90)			
20		(5.8)	---	---	3.7	(2.90)			
21		(5.4)			3.7	(2.75)			
22		(5.0)			4.0	(2.75)			
23		(3.7)			4.1	(2.50)			

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

Table 22								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00					(4.2)			3.5	(2.60)
01					(4.1)			3.7	(2.55)
02					4.0			3.4	2.55
03					4.2			3.8	2.55
04					4.4			2.4	2.60
05					5.0			2.0	2.35
06					5.6			2.0	2.60
07					5.8			2.7	2.50
08					6.0			3.0	2.50
09					6.2			3.2	2.50
10					6.4			3.4	2.50
11					6.2			3.5	2.50
12					6.3			3.4	2.50
13					6.4			3.5	2.50
14					6.3			3.4	2.50
15					6.3			3.4	2.50
16					6.4			3.3	2.60
17					6.4			2.8	2.80
18					6.3			2.7	2.85
19					6.1			2.6	2.85
20					5.8			2.0	2.85
21					5.6			1.1	2.80
22					4.9			2.5	2.70
23					4.5			1.8	2.70

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

Table 23								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00		220	8.2				3.05		
01		220	7.4				3.10		
02		220	6.7				3.20		
03		230	6.0				3.15		
04		230	5.1				3.20		
05		240	4.1				3.20		
06		280	4.6				2.90		
07		250	8.0	117	2.5	7.6	3.00		
08		(230)	10.0	225	3.2	9.2	2.75		
09		---	10.8	215	---	10.6	2.60		
10		---	10.3	205	---	10.9	2.45		
11		---	10.4	200	---	11.0	2.35		
12		---	10.4	200	---	11.1	2.25		
13		---	10.4	200	---	11.0	2.25		
14		---	10.1	200	---	11.0	2.20		
15		---	10.1	210	---	10.6	2.20		
16		(230)	10.2	220	---	10.4	2.25		
17		250	10.1	---	---	8.6	2.30		
18		300	9.7				2.30		
19		390	8.4				2.20		
20		370	9.3				2.35		
21		290	8.9				2.60		
22		240	8.8				2.85		
23		220	8.4				3.00		

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

Table 24								July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00					5.0	---	---	2.80	
01					5.1	---	---	(2.90)	
02					5.1			(2.75)	
03					5.1			2.80	
04					5.1			2.90	
05					5.0			2.80	
06					5.1			2.90	
07					5.3			2.70	
08					5.4			2.60	
09					5.4			2.55	
10					5.4			2.40	
11					5.4			2.55	
12					5.2			2.55	
13					5.4			2.40	
14					5.6			2.70	
15					5.5			2.60	
16					5.6			2.75	
17					5.5			2.70	
18					5.7			(2.70)	
19					5.6			(2.80)	
20					5.4			2.75	
21					5.4			2.80	
22					5.6			2.80	
23					5.4			2.80	

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

Table 25

Godhavn, Greenland (69.2°N, 53.5°W)						July 1956		
Time	h'F2	foF2	h'Fl	foFl	h'E	foE	fEs	(M3000)F2
00	(5.2)				131	1.9		(2.80)
01	(5.3)				136	(1.8)		(2.80)
02	(4.9)				131	(1.8)		(2.80)
03	(4.8)				121	2.0		(2.80)
04	(4.8)				(3.3)	115	(2.2)	(2.80)
05	(4.7)				(3.6)	109	(2.4)	---
06	(5.0)				3.8	107	2.6	2.7
07	(5.0)				4.1	104	2.9	---
08	(5.4)				(4.3)	101	(3.1)	---
09	(5.6)				(4.5)	101	(3.2)	3.2
10	(5.7)				(4.6)	101	3.3	(2.70)
11	(6.0)				(4.8)	101	3.3	(2.70)
12	(6.2)				(4.8)	101	3.3	(2.60)
13	(6.1)				4.8	101	3.3	(2.65)
14	(6.1)				4.8	101	3.3	4.5
15	(5.6)				4.7	101	3.2	5.1
16	(5.7)				4.6	101	3.1	4.7
17	(5.6)				4.5	101	3.0	4.0
18	(5.6)				4.3	104	2.8	4.2
19	(5.6)				4.2	(107)	2.7	3.6
20	(5.5)				3.7	(111)	2.4	4.0
21	(5.4)				---	(113)	2.2	3.9
22	(5.4)				---	119	2.0	(2.75)
23	(5.2)				---	(128)	---	(2.80)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 26

Reykjavik, Iceland (64.1°N, 21.8°W)						July 1956		
Time	h'F2	foF2	h'Fl	foFl	h'E	foE	fEs	(M3000)F2
00					(4.9)			(2.65)
01					(3.8)			3.9
02					(4.4)			(2.60)
03					(4.6)			4.4
04					4.6			(2.65)
05					4.8	---	108	2.4
06					5.2	3.8	111	2.7
07					5.5	4.3	109	(3.0)
08					5.7	4.7	107	3.2
09					5.9	4.8	101	3.3
10					6.0	4.9	101	3.5
11					6.2	5.0	101	3.6
12					6.0	5.0	101	3.6
13					6.2	5.0	101	3.6
14					6.3	5.0	101	3.6
15					6.3	4.9	103	(3.5)
16					6.3	4.8	103	3.4
17					6.3	4.6	107	(3.3)
18					6.2	(4.4)	108	3.1
19					5.9	---	111	3.2
20					5.5	---	---	3.1
21					5.4	---	---	5.3
22					5.0	---	---	4.2
23					(4.8)	---	---	4.0

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 27

Anchorage, Alaska (61.2°N, 149.9°W)						July 1956		
Time	h'F2	foF2	h'Fl	foFl	h'E	foE	fEs	(M3000)F2
00					4.8		2.3	2.70
01	4.4					3.7		2.60
02	4.4					3.7		2.65
03	4.5		---	---	---	2.8		2.60
04	4.9		3.3	132	1.9	2.8		2.60
05	5.4		3.8	117	2.4	3.7		2.60
06	5.7		4.1	109	2.6	3.5		2.50
07	6.0		4.4	109	3.0	3.4		2.55
08	6.2		4.5	109	3.1	3.4		2.50
09	6.2		4.6	109	3.2	3.5		2.50
10	6.1		4.7	109	3.3	3.7		2.50
11	6.1		4.8	(109)	(3.4)	3.8		2.45
12	6.0		4.9	109	(3.4)	3.8		2.50
13	5.9		4.9	109	(3.4)	3.5		2.50
14	5.9		4.8	111	3.4	3.6		2.50
15	5.8		4.8	109	3.2			2.60
16	5.8		4.6	109	(3.2)	3.0		2.70
17	5.8		4.5	109	3.0			2.70
18	5.9		(4.4)	111	2.7			2.80
19	5.9		---	117	2.4			2.85
20	5.8		---	129	(2.0)	2.6		2.90
21	5.8		---	---	2.0			2.90
22	4.9				2.0			2.80
23	4.6				2.5			2.70

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 29

Godhavn, Greenland (69.2°N, 53.5°W)						June 1956		
Time	h'F2	foF2	h'Fl	foFl	h'E	foE	fEs	(M3000)F2
00					(4.9)	---	---	(2.80)
01	(4.9)		---	---	1.8			(2.70)
02	(4.7)		(3.0)	119	1.8			(2.75)
03	(4.8)		(3.3)	119	1.9			(2.75)
04	(4.8)		(3.5)	111	2.2			(2.70)
05	(4.7)		(3.7)	107	2.5			(2.70)
06	(4.6)		(3.8)	103	2.7			(2.60)
07	(4.9)		(4.2)	101	2.9			---
08	(5.0)		(4.3)	101	3.1			---
09	(5.6)		(4.4)	101	3.2			(2.70)
10	(6.0)		(4.6)	101	3.3			(2.70)
11	(6.1)		(4.7)	101	3.3			(2.65)
12	(6.0)		(4.7)	101	3.3			(2.60)
13	(6.0)		(4.7)	101	3.3	4.0		(2.60)
14	(6.0)		(4.7)	101	3.3	3.8		(2.70)
15	(5.6)		4.7	101	3.2	4.7		(2.60)
16	(5.4)		4.6	101	3.1	3.9		(2.50)
17	(5.5)		4.6	101	3.0	3.0		(2.60)
18	(5.5)		4.3	103	2.8	3.9		(2.60)
19	(5.5)		4.1	105	2.5	2.8		(2.75)
20	(5.4)		(3.9)	107	2.3	3.0		(2.80)
21	(5.5)		3.6	109	2.2			(2.75)
22	(5.2)		---	112	2.1			(2.80)
23	(5.0)		---	121	2.0			(2.80)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 30

Kiruna, Sweden (67.8°N, 20.3°E)						June 1956		
Time	h'F2	foF2	h'Fl	foFl	h'E	foE	fEs	(M3000)F2
00					355	5.1	---	5.0
01					350	5.4	---	4.0
02					400	5.2	260	3.1
03					395	5.2	260	3.5
04					415	5.4	250	3.9
05					420	5.6	240	4.0
06					425	5.9	230	4.2
07					425	6.0	225	4.5
08					405	6.1	220	4.7
09					410	6.3	215	4.9
10					405	6.3	215	5.0
11					410	6.3	210	5.0
12					420	6.2	210	5.0
13					425	6.0	210	5.0
14					440	6.0	210	4.9
15					435	6.0	210	4.8
16					405	6.0	220	4.6
17					345	6.0	230	4.5
18					345	6.0	240	4.2
19					(340)	6.0	250	4.0
20					(370)	5.8	265	3.8
21					340	5.5	275	---
22					340	5.2	---	4.2
23					345	5.2	---	4.0

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 31

Anchorage, Alaska (61.2°N, 149.9°W)							June 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	4.4				1.6	(2.65)	
01	(4.5)				1.6	(2.60)	
02	4.4		---	---	1.8	2.60	
03	4.5	(3.0)	123	(1.6)	1.9	2.55	
04	4.8		3.4	121	2.0	2.5	2.60
05	5.4		3.8	113	2.4	2.6	(2.60)
06	5.5		4.0	111	2.7	3.1	2.50
07	5.6		4.2	109	3.0	3.4	2.50
08	5.7		4.4	107	3.1	2.45	
09	5.8		4.5	107	3.3	2.50	
10	5.8		4.6	107	(3.3)	3.6	2.45
11	5.9		4.8	107	3.4	3.6	2.50
12	5.6		4.8	107	3.4	3.5	2.50
13	5.8		4.8	105	(3.4)	2.55	
14	5.8		4.8	109	3.4	2.55	
15	5.8		4.7	109	3.3	2.55	
16	5.8		4.6	111	3.1	2.60	
17	5.9		4.5	113	2.9	2.70	
18	5.8		4.2	117	2.6	3.2	2.80
19	5.9		---	119	2.4	3.5	2.80
20	6.0		---	<131	2.0	3.1	2.85
21	5.8		---	(1.7)	3.4	2.90	
22	5.6				2.2	2.85	
23	4.8				2.4	2.75	

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

Table 33

Kiruna, Sweden (67.8°N, 20.3°E)							May 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	335	5.5			4.0	2.6	
01	330	5.7		---	4.0	2.7	
02	340	5.8	---	---	E	4.0	2.6
03	345	5.9	275	3.1	110	1.8	3.2
04	380	5.9	255	3.8	110	2.0	4.0
05	410	6.0	250	4.0	105	2.3	3.0
06	395	6.4	240	4.2	105	2.6	3.0
07	395	6.4	235	4.4	105	2.9	<3.6
08	390	6.7	225	4.6	105	3.0	3.0
09	405	7.0	220	4.8	100	3.2	<3.4
10	405	7.2	215	5.0	105	3.2	<3.6
11	395	7.2	215	5.0	105	3.2	4.0
12	400	7.0	220	5.0	105	3.3	<3.5
13	390	6.9	215	5.0	100	3.2	<4.0
14	380	7.0	220	4.8	105	3.1	3.4
15	380	6.7	220	4.6	105	3.0	3.8
16	(425)	6.2	230	4.5	105	3.0	4.0
17	(310)	6.2	240	4.3	105	2.7	3.7
18	(300)	6.2	250	---	105	2.4	4.0
19	310	6.0	250	---	105	2.0	4.0
20	300	6.0	260	---	110	1.8	4.0
21	305	5.3	---	---	E	4.0	2.8
22	330	5.4	---	---	E	4.0	2.75
23	320	6.0				4.3	(2.7)

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

Table 35

Churchill, Canada (58.8°N, 94.2°W)							May 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	5.6		---	---	7.0	(2.7)	
01	4.9		---	---	6.0	---	
02	4.8		---	---	5.2	---	
03	4.5		120	1.9	5.0	---	
04	4.7		110	2.0	5.0	---	
05	5.0		3.4	110	2.8	4.3	(2.75)
06	5.0		4.0	110	2.9	4.4	2.65
07	5.6		4.4	105	3.0	5.0	2.8
08	5.7		4.7	100	3.2	5.0	2.8
09	6.0		4.8	100	3.5	5.0	2.7
10	6.0		4.9	100	3.6	4.2	2.6
11	6.4		5.0	100	3.7	2.7	
12	6.8		5.0	100	3.7	2.7	
13	7.0		5.0	100	3.7	2.7	
14	7.0		4.9	100	3.5	2.7	
15	7.2		4.9	100	3.5	2.7	
16	7.0		4.8	100	3.3	2.7	
17	6.8		4.5	105	3.1	2.7	
18	6.8		4.2	110	3.0	2.8	
19	6.5		3.9	110	2.8	3.8	2.8
20	6.0		120	2.7	4.5	2.8	
21	5.8		120	2.6	6.0	(2.7)	
22	5.4		---	---	6.0	2.8	
23	5.7		---	---	6.3	---	

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

Table 32

Resolute Bay, Canada (74.7°N, 94.9°W)							May 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00					5.8	---	110
01					5.4	---	110
02					5.7	3.5	110
03					5.4	3.4	105
04					5.3	3.7	105
05					5.8	3.9	105
06					5.6	4.0	100
07					5.3	4.1	100
08					5.8	4.3	100
09					5.8	4.4	100
10					5.6	4.4	100
11					5.5	4.4	100
12					5.7	4.4	100
13					5.6	4.3	100
14					5.8	4.5	100
15					5.7	4.3	100
16					5.4	4.3	100
17					5.6	4.2	100
18					5.7	4.1	100
19					5.6	4.0	100
20					5.8	3.7	105
21					5.6	3.4	105
22					5.8	3.3	110
23					5.7	---	110

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

Table 34

Baker Lake, Canada (64.3°N, 96.0°W)							May 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00					5.4	---	1.1
01					5.3	---	1.2
02					5.0	---	1.4
03					4.8	1.6	1.7
04					4.9	1.1	2.0
05					4.7	3.6	2.2
06					5.0	3.9	2.5
07					5.3	4.2	3.0
08					5.0	4.3	3.2
09					5.0	4.4	3.4
10					5.7	4.6	3.5
11					5.8	4.8	3.6
12					6.1	4.8	3.7
13					6.6	4.8	3.6
14					6.7	4.8	2.5
15					6.3	4.8	3.4
16					6.0	3.8	2.5
17					6.0	4.0	2.8
18					6.0	3.8	110
19					5.9	---	2.3
20					5.7	---	110
21					5.7	---	110
22					5.9	---	110
23					5.5	135	1.3

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

Table 36

Lindau/Harz, Germany (51.6°N, 10.1°E)							May 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00					290	6.75	2.3
01					290	6.50	2.3
02					290	6.20	2.0
03					280	5.60	2.2
04					290	5.50	2.7
05					270	5.80	2.65
06					280	6.30	2.45
07					330	6.60	2.80
08					350	6.95	2.70
09					340	7.70	2.75
10					360	7.85	2.50
11					340	8.10	2.55
12					365	8.50	2.5
13					360	8.45	2.30
14					345	8.50	2.15
15					340	8.40	2.00
16					310	8.30	2.25
17					300	8.30	2.30
18					290	8.55	2.50
19					270	8.30	2.05
20					260	8.60	2.35
21					250	8.10	2.9
22					255	7.50	2.3
23					275	7.05	2.3

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

Table 37

Winnipeg, Canada (49.9°N, 97.4°W)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00						<1.7		(2.60)
01	4.6					<1.7		---
02	4.4					<1.6		(2.60)
03	4.0					3.0		---
04	3.9					<2.0		---
05	3.9					2.0		---
06	4.3		---	---	1.9	<2.0		(2.70)
07	4.8		3.6	120	2.4			2.70
08	5.2		4.1	110	2.9			2.70
09	5.7		4.4	110	3.0			2.70
10	6.0		4.8	110	3.4			2.60
11	6.3		4.8	110	3.5			2.60
12	6.3		4.9	110	3.8			2.50
13	6.4		5.0	110	3.8			2.50
14	6.3		5.0	110	3.8			2.50
15	6.4		5.0	110	3.8			2.60
16	6.8		5.0	110	3.6			2.50
17	7.1		4.8	110	3.3			2.60
18	7.0		4.5	110	3.1			2.60
19	7.2		---	120	2.9			2.70
20	7.0		125	2.3	2.5			2.75
21	7.0		---	1.8	<2.4			2.80
22	6.4							2.75
23	5.6					2.0		2.65

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 39

Elisabethville, Belgian Congo (11.6°S, 27.5°E)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.0						2.7
01	255	3.5						2.7
02	255	2.8						2.7
03	250	2.8						2.8
04	260	3.9	---	---	---	---		2.6
05	240	B.5	240	---	120	2.2	2.6	3.0
06	245	10.4	230	---	110	3.0		3.0
07	255	11.6	230	---	110	3.5		2.9
08	265	12.0	220	---	110	3.6		2.8
09	280	12.0	235	---	110	3.8		2.7
10	285	12.5	240	---	110	3.8		2.6
11	300	12.8	250	---	110	3.6	4.0	2.6
12	300	12.6	245	---	110	3.6	3.9	2.6
13	305	12.0	240	---	110	3.4	3.9	2.5
14	280	11.6	240	---	110	3.1	3.6	2.5
15	255	11.8	245	---	120	2.4	3.4	2.6
16	240	11.8	---	---	---	3.1		2.8
17	230	11.3				3.0		2.9
18	215	10.0				2.7		2.8
19	230	8.2				2.6		2.7
20	235	8.0				2.4		2.8
21	225	6.7						2.8
22	235	5.2						2.7
23	250	4.6						2.7

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 41*

Inverness, Scotland (57.4°N, 4.2°W)							April 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	335	5.1						2.4
01	340	4.7						(2.4)
02	330	4.3				1.2		(2.4)
03	340	4.0				2.3		(2.4)
04	330	3.7						(2.4)
05	300	4.4			130	1.5		2.6
06	265	5.3			125	2.0		2.8
07	290	5.9	245	(4.2)	115	2.5		2.8
08	345	6.6	235	(4.5)	110	2.9		2.7
09	335	7.0	230	4.8	110	3.1		2.7
10	360	7.3	225	5.0	110	3.3		2.7
11	355	7.5	220	5.2	105	3.4		2.7
12	370	7.4	225	5.3	105	3.5		2.6
13	375	7.6	225	5.2	110	3.5		2.6
14	350	7.8	235	5.2	105	3.4		2.7
15	345	7.8	235	5.1	110	3.3		2.7
16	315	7.8	245	4.9	110	3.1		2.7
17	280	8.2	250	(4.2)	110	2.8		2.8
18	265	B.0	255	---	120	2.3		2.8
19	260	7.9			140	1.9		2.8
20	265	7.3	---	---				2.7
21	270	6.8						2.6
22	295	5.9						2.5
23	315	5.5						2.4

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 38

Leopoldville, Belgian Congo (4.4°S, 15.2°E)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	215		12.8					<3.0
01	210		9.0					2.9
02	220		6.5					2.8
03	230		4.8					2.7
04	240		3.3					2.8
05	255		5.6		---	---	---	2.8
06	260		9.5		240	---	115	2.7
07	270		11.9		230	---	110	3.2
08	270		12.6		220	---	110	3.5
09	280		13.0		210	5.0	110	3.7
10	300		13.1		205	---	110	3.9
11	330		>13.6		210	5.1	110	4.0
12	335		>14.0		220	---	110	3.7
13	335		>14.0		220	---	110	3.7
14	350		>14.0		240	---	115	4.0
15	320		>14.0		240	---	115	3.1
16	300		14.0		255	---	120	2.4
17	260		>13.9					3.4
18	250		>13.9					3.0
19	240		>13.6					2.8
20	215		>13.5					--
21	215		>14.0					(2.8)
22	220		>14.0					(2.7)
23	215		>13.3					1.8

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 40

Sao Paulo, Brazil (23.5°S, 46.5°W)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240		8.9					2.4
01	240		9.0					2.4
02	230		7.2					2.4
03	230		6.1					2.3
04	240		4.7					3.0
05	250		4.0					3.0
06	260		4.0					2.65
07	250		7.8				---	2.5
08	250		10.6				---	3.2
09	260		12.4		240	---	120	3.1
10	260		13.4		230	---	120	3.4
11	(270)		14.0		220	---	120	(3.5)
12	270		14.0		220	---	120	3.6
13	(280)		>14.0		220	---	120	3.6
14	(270)		>14.0		220	---	120	3.5
15	250		>14.0		240	---	130	3.2
16	250		>14.0		240	---	120	2.7
17	250		>14.0					(2.2)
18	230		14.0					<2.8
19	230		12.4					3.1
20	240		12.6					<2.5
21	240		11.6					3.0
22	230		11.0					<2.5
23	230		9.3					3.1

Time: Local.

Sweep: 1.75 Mc to 20.0 Mc in 7 minutes 18 seconds.

Table 42*

Slough, England (51.5°N, 0.6°W)							April 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330		6.0					2.4
01	325		5.8					2.4
02	320		5.4					2.4
03	320		4.8					2.4
04	320		4.4					3.0
05	315		4.7		(290)	(3.4)	135	1.7
06	300		6.0		275	3.7	135	2.2
07	320		6.7		250	4.2	120	2.7
08	345		7.3		245	4.6	120	3.1
09	345		7.7		240	4.9	115	3.4
10	360		B.1		235	5.3	115	3.5
11	345		8.7		230	5.5	115	3.6
12	345		B.7		235	5.5	115	3.7
13	340		9.0		230	5.5	115	3.6
14	320		9.2		2			

Table 43*

Singapore, British Malaya (1.3°N, 103.8°E)							April 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	(13.1)				2.2	3.0	
01	230	10.6					3.0	
02	235	9.1					3.0	
03	230	8.6					3.0	
04	230	7.2					3.1	
05	230	5.5				2.1	3.1	
06	270	6.0			1.6	2.6	2.8	
07	250	10.0			125	2.6	3.4	2.9
08		12.7	245		115	3.2	3.9	2.7
09		13.6	230		110	3.6	4.5	2.5
10		13.8	215		110	3.8	4.5	2.3
11		13.5	210		110	4.0	4.7	2.1
12		13.2	205		110	4.0	4.6	2.2
13		13.2	210		110	4.0	4.2	2.2
14		13.4	220		110	3.9		2.2
15		(240)	215		110	3.7	4.2	2.2
16		245	14.2	235	110	3.3	3.9	2.2
17		255	14.4		115	2.7	3.8	2.2
18		265	14.5				2.6	---
19		340	>14.2				3.0	---
20		330	>13.9				---	
21		260	13.9				2.6	---
22		230	(14.0)				2.9	---
23		230	13.2				2.9	(2.6)

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 45

Poitiers, France (46.6°N, 0.3°E)							October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<285	4.0					2.90	
01	285	3.9					2.85	
02	280	4.0					2.85	
03	280	3.8					2.90	
04	255	3.9					3.10	
05	<230	3.3					3.25	
06	240	3.7			---	E	3.20	
07	225	5.5	220	2.2	---	1.9	2.1	3.50
08	230	6.5	220	3.6	110	2.5	2.7	(3.35)
09	245	7.2	215	4.0	105	2.8	3.1	(3.30)
10	250	7.7	210	4.3	105	2.9	3.4	(3.30)
11	250	(6.0)	210	4.4	100	2.9	3.6	---
12	250	8.5	210	4.5	100	3.0	3.3	---
13	250	8.4	215	4.4	105	3.0	3.2	---
14	250	8.6	230	4.1	105	2.9	---	
15	250	(9.0)	235	3.9	110	2.6	---	
16	240	(8.5)	245	3.1	110	2.2	2.5	
17	230	(7.0)	---	(2.2)	---	E	2.9	---
18	220	6.0	---	---	---	E	2.6	---
19	225	5.7	---	---	---	2.4	(3.30)	
20	230	4.8	---	---	---	2.4	3.20	
21	250	4.4	---	---	---	2.2	3.05	
22	<260	4.0	---	---	---	2.0	2.90	
23	270	4.0	---	---	---	2.0	2.85	

Time: 0.0°.

Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 47

Poitiers, France (46.6°N, 0.3°E)							May 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.5				2.2	----	
01	260	4.2				1.9	(2.95)	
02	275	3.9				2.0	(2.95)	
03	265	3.7				2.0	(3.00)	
04	255	3.4			---	E	1.9	3.05
05	250	3.9	240	2.7	---	E	2.0	3.20
06	270	4.5	225	3.5	110	2.2	2.8	3.25
07	300	5.0	225	4.0	100	2.6	3.3	(3.30)
08	300	5.4	210	4.2	100	2.8	3.6	3.35
09	320	5.6	205	4.3	100	3.0	3.6	3.30
10	310	5.7	210	4.4	100	3.2	4.8	(3.25)
11	315	5.7	210	4.5	100	3.3	4.4	3.30
12	350	5.7	195	4.5	100	3.2	3.8	3.10
13	350	5.6	210	4.5	100	3.2	3.9	3.05
14	330	5.8	210	4.4	100	3.2	4.4	(3.20)
15	325	5.8	210	4.3	100	3.0	4.2	3.10
16	310	5.9	220	4.2	100	2.8	3.6	(3.10)
17	300	6.0	230	3.9	105	2.5	4.3	(3.10)
18	265	5.9	230	3.3	110	2.1	4.0	----
19	255	(5.8)	260	2.7	---	E	3.2	----
20	240	(6.3)	---	---	---	2.7	----	
21	240	5.4	---	---	---	3.4	----	
22	245	4.9	---	---	---	2.6	----	
23	250	4.6	---	---	---	2.4	----	

Time: 0.0°.

Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 44*

Falkland Is. (51.7°S, 57.8°W)							March 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	6.6						2.8
01	325	6.4						2.4
02	315	6.4						2.6
03	310	6.4						2.4
04	310	6.0						2.0
05	320	5.6						2.5
06	285	6.7						2.7
07	245	8.4						2.7
08	295	9.3	245	(4.2)	115	2.8	4.0	3.1
09	305	10.6	240		110	3.1	5.0	2.9
10	325	10.8	230	(4.8)	105	3.3	5.2	2.9
11	280	11.5	230	(4.8)	105	3.4	5.2	2.9
12	260	12.3	220		105	3.4	5.6	2.9
13	260	12.4	230		105	3.4	5.2	3.0
14	255	12.5	230		105	3.3	5.2	3.0
15	245	11.4	235		110	3.1	5.2	3.0
16	245	10.6	245		110	2.8	4.8	3.1
17	245	9.2	240		120	2.3	4.4	3.1
18	240	8.9						3.1
19	240	8.4						3.1
20	260	7.2						2.8
21	270	6.7						3.1
22	300	6.7						2.5
23	310	6.5						2.4

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 48

Casablanca, Morocco (33.6°N, 7.6°W)							May 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	4.30						3.4
01	---	4.30						3.0
02	---	4.30						3.1
03	---	3.95						3.10
04	---	4.00						3.10
05	---	3.65						3.20
06	235	4.50	240	---	---	---	2.8	3.40
07	250	5.40	235	3.60	110	2.20	3.5	3.55
08	250	5.90	225	4.00	105	2.70	4.0	3.60
09	285	5.80	205	4.30	105	3.00	4.5	3.40
10	(300)	5.90	210	4.40	105	3.10	4.3	3.30
11	320	6.00	205	4.40	105	3.20	4.1	3.20
12	340	6.20	---	---	105	3.20	3.5	3.10
13	330	6.70	---	---	105	3.20	3.2	3.00
14	335	7.00	---	(4.50)	110	3.20	4.0	3.00
15	330	7.45	220	4.40	110	3.10	4.5	3.00
16	305	8.00	---	4.30	110	3.00	5.1	3.10
17	295	8.10	225	4.00	110	2.70	5.0	3.15
18	280	8.55	240	3.60	115	2.20	4.4	3.20
19	250	8.65	245	2.90	---	---	4.2	3.30
20	235	7.80	---	---	---	---	3.6	(3.30)
21	---	6.70	---	---	---	---	3.9	3.25
22	---	4.70	---	---	---	---	3.5	3.15
23	---	5.00	---	---	---	---	3.5	3.00

Time: 0.0°.

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

Table 49
Tananarive, Madagascar (18.8°S, 47.8°E)

October 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<250	4.2				1.8	3.07	
01	220	3.8				1.8	3.34	
02	<220	3.0				2.0	3.03	
03	<260	2.7				3.2	2.88	
04	<260	2.7				2.4	3.00	
05	<260	2.6				2.0	2.98	
06	240	4.5			<131	1.80	1.9	3.33
07	270	5.5	230	3.90	109	2.40		3.23
08	295	6.6	220	4.15	107	2.85	3.0	3.13
09	290	7.7	215	4.40	105	3.15		3.17
10	295	7.9	215	4.50	105	3.30		3.05
11	315	8.0	210	4.55	106	3.40		2.94
12	300	8.6	210	4.55	105	3.40		2.98
13	290	8.5	200	4.45	107	3.35		3.06
14	290	7.8	220	4.40	106	3.25		3.04
15	290	7.3	220	4.25	105	3.05		3.00
16	280	7.6	230	4.00	105	2.70		3.05
17	260	7.3	240	---	115	2.20	2.8	3.14
18	240	7.8		---		1.40	2.4	3.22
19	225	6.5					2.3	3.17
20	230	5.4					1.9	3.06
21	<250	4.6					1.7	3.00
22	250	4.2					1.5	2.97
23	260	4.1					1.6	2.93

Time: Local.

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

Table 51
Leopoldville, Belgian Congo (4.4°S, 15.2°E)

April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	230	5.7						2.4
01	230	4.1						2.4
02	260	3.2						2.4
03	240	2.8						2.5
04	235	2.6						2.8
05	240	4.0			---	---	2.9	2.6
06	235	6.6	230	---	120	2.3	3.4	2.8
07	260	7.6	220	---	110	2.8	3.8	2.5
08	290	8.6	215	---	110	3.2	4.0	2.4
09	290	9.6	210	4.6	110	3.4	4.1	2.3
10	330	9.8	200	4.6	110	3.5	3.5	2.1
11	330	11.0	210	4.7	110	3.6		2.2
12	310	12.7	220	4.6	110	3.5		2.2
13	300	12.8	220	4.4	110	3.4	3.6	2.2
14	290	12.8	225	---	110	3.2	4.0	2.2
15	295	12.7	230	---	110	2.7	3.7	2.2
16	270	12.7	240	---	120	2.2	3.7	2.3
17	240	>13.1					3.4	2.4
18	230	12.8					3.1	<2.5
19	215	12.0					2.5	2.6
20	210	9.8						2.6
21	215	9.0						2.4
22	230	7.0						2.4
23	230	6.8						2.4

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 50

Djibouti, French Somaliland (11.5°N, 43.1°E)

October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								2.7 (2.92)
01	245	6.2						(3.23)
02	230	>5.7						3.22
03	230	4.1						3.39
04	240	3.6						3.43
05	250	2.8						3.33
06	240	6.2						3.40
07	270	7.6	230	---		125	2.10	3.8
08	305	8.4	220	4.50	---	113	2.70	3.8
09	320	8.8	210	4.60	---	3.25	6.2	2.74
10	330	8.8	205	4.60	---	3.40	6.7	2.68
11	340	8.8	205	4.75	---	3.45	6.4	2.68
12	335	9.4	215	4.70	---	---	6.8	2.78
13	320	>10.0	210	4.55	---	3.30	4.8	2.90
14	305	11.0	215	4.40	---	---	6.6	2.92
15	300	11.2	220	---	---	2.90	4.3	2.98
16	290	10.8	240	---	---	---	4.1	<2.92
17	245	(9.8)				1.70	4.0	(2.79)
18	260	9.2						3.3 (2.82)
19	260	8.8						2.6 (2.76)
20	260	>8.4						<3.00
21	260	7.8						3.1 (3.05)
22	270	(6.5)						3.3 (2.94)
23	270	>6.0						3.6 (2.95)

Time: 35.6°E.

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

TABLE 52
IONOSPHERIC DATA

foF₂, 0.1 Mc, Nov. 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	70	66	62	64	59	53	52	76	115	122	131	130	127	128	126	126	117	111	105	94	76	76	73	73	
02	64	60	52	52	49	47	50	74	111	122	140	138	140	136	132	132	130	125	108	92	85	85	78	72	
03	66	63	60	62	63	56	57	86	115	136	142	142	140	136	134	133	130	120	107	94	80	78	72	69	
04	70	68	58	54	52	51	55	89	109	134	136	134	136	134	131	128	125	119	105	92	85	74	71	66	
05	63	63	58	58	54	48	48	78	110	120	133	133	132	132	125	127	120	110	104	90	88	80	72	66	
06	62	59	63	62	58	50	48	80	112	136	135	136	135	128	134	132	125	123	108	92	88	87	77	72	
07	66	67	67	68	61	55	50	84	116	129	137	135	132	130	128	128	120	117	109	96	86	84	74	68	
08	63	60	57	58	59	53	48	80	112	128	140	137	138	136	130	128	125	118	112	102	90	77	76	72	
09	72	72	68	66	61	52	50	80	117	134	141	138	135	131	130	130	131	117	105	98	88	92	84	73	
10	74	82	79	74	68	64	62	68	86	106	113	118	125	127	114	124	128	120	100	82	68	56	42	43	
11	U F	U F	F	F	F	F	U F	F	70	99	113	126	129	140	140	136	135	133	123	102	86	72	74	78	68
12	64	58	57	55	48	45	49	82	105	114	123	133	140	144	142	142	134	133	115	100	88	86	86	54	56
13	U F	U F	U F	U F	U F	U F	U F	F	70	113	133	135	135	137	136	136	135	128	119	108	98	86	71	62	62
14	56	38	51	53	56	55	52	59	82	96	114	124	128	129	126	123	117	115	95	65	63	55	47	45	
15	41	45	50	44	40	30	32	37	42	49	52	67	76	78	86	91	96	92	80	67	62	54	41	38	
16	34	31	34	38	40	48	43	67	96	108	120	125	128	128	126	127	125	124	110	89	76	70	62	56	
17	50	48	47	43	39	39	42	72	103	105	126	126	132	134	135	135	135	127	113	96	82	78	76	73	
18	70	60	60	58	56	64	62	75	112	128	137	144	152	141	135	130	125	117	105	96	85	72	66	64	
19	56	50	44	40	40	37	38	68	103	120	130	140	144	140	138	135	128	120	106	92	85	72	69	64	
20	61	60	56	52	44	43	43	66	100	130	138	138	143	141	135	135	130	125	110	95	90	84	76	83	
21	76	68	70	65	57	50	50	60	90	102	111	132	135	137	135	134	135	128	113	92	86	75	70	67	
22	62	47	43	44	42	42	43	68	98	109	127	136	138	140	137	136	130	130	115	105	94	84	90	95	
23	83	75	74	70	63	54	50	61	99	117	125	138	140	140	138	136	132	123	114	98	85	74	66	58	
24	55	52	47	48	46	44	43	63	C	C	C	C	C	C	C	C	C	C U F	105	99	92	78	76	70	
25	59	55	53	51	47	48	48	70	102	110	114	129	135	140	132	132	130	123	107	102	90	84	72	66	
26	68	61	66	57	48	48	49	67	106	130	138	140	140	134	131	133	129	120	110	96	86	73	57	59	
27	55	46	54	52	54	50	47	70	113	122	133	137	139	132	132	127	117	112	108	83	70	68	71	76	
28	69	64	63	58	60	60	58	71	103	123	126	137	140	139	136	136	135	125	109	94	88	82	77	68	
29	65	63	62	61	60	56	49	66	100	110	130	136	136	130	121	121	120	119	105	88	78	78	72	63	
30	59	58	62	61	56	49	47	63	105	126	130	132	131	131	127	125	123	116	107	104	88	74	72	68	
MED	63	60	58	56	54	50	48	70	105	122	130	135	136	134	132	132	128	120	108	94	86	76	72	68	
NO	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	

TABLE 53
IONOSPHERIC DATA

foF2, 0.1 Mc, Nov. 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	67	64	63	62	56	50	63	94	114	124	125	131	I C	128	126	126	123	114	107	97	74	76	76	72	69
02	61	58	51	50	47	48	60	91	120	139	140	140	136	136	133	131	125	120	105	92	83	83	76	68	
03	68	62	64	63	60	56	68	104	127	142	145	142	139	137	133	135	125	115	105	85	79	74	70	69	
04	69	65	58	52	52	50	67	96	123	130	136	134	135	131	128	123	120	113	96	88	80	72	68	67	
05	63	60	58	57	51	48	59	94	120	131	132	135	133	130	125	125	120	110	98	90	82	78	70	66	
06	60	60	63	61	55	48	60	96	124	135	138	135	134	130	135	129	120	119	102	88	86	86	76	67	
07	64	68	69	66	58	49	62	104	124	123	136	134	133	130	128	126	117	113	104	93	86	80	69	67	
08	60	59	56	58	58	49	58	96	119	135	138	138	H H H	137	132	130	122	123	115	110	98	85	74	71	72
09	72	68	68	64	56	52	63	98	122	136	142	135	132	131	130	129	128	110	92	90	92	93	84	70	
10	U S	U S	F	U S	F	U S	F	U S	I C	U S	I C	U S	U S	U S	U S	U S	U S	J	F U J	U F	U F	U F	U F	U F	
11	F	U F	U F	F	F	U F	U F	F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F
12	64	57	58	52	45	47	58	102	111	112	129	136	143	145	143	136	130	127	106	92	86	78	49	57	
13	U F	U F	U F	U F	U F	U F	F	F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F
14	50	45	33	44	41	33	50	92	124	136	137	135	138	136	134	132	127	113	104	94	80	67	60	58	
15	45	36	51	45	53	52	57	75	90	105	118	128	123	126	125	125	115	101	64	63	46	55	45	42	
16	U J	U F	U F	U F	U F	U F	F	F	U F	U F	U F	F	F	F	F	F	F	F	U S	U S	U F	U F	F	F	F
17	35	34	35	42	44	46	50	84	98	115	125	126	129	126	129	125	122	120	98	80	71	68	60	52	
18	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
19	50	47	42	40	39	37	48	86	115	129	135	146	141	140	135	132	125	108	100	86	74	69	67	64	
20	F	U F	U F	F	F	U F	F	F	U F	U F	U F	F	F	F	F	F	F	F	U F	U F	U F	U F	U F	U F	U F
21	69	71	66	64	41	50	51	72	93	101	127	133	140	137	133	134	132	121	109	90	78	70	70	64	
22	U F	F	F	F	F	F	F	F	108	126	131	142	137	140	140	131	130	121	112	104	90	81	68	64	60
23	84	76	72	68	63	54	48	88	107	115	129	141	143	140	140	134	130	127	107	95	77	73	66	60	
24	U F	F	F	F	F	F	U F	F	C	C	C	C	C	C	C	C	C	C	F	F	F	F	F	F	F
25	63	54	51	49	49	48	54	87	103	108	120	135	140	135	134	130	128	116	99	96	87	76	66	68	
26	66	63	60	50	47	47	54	84	123	139	135	146	137	136	133	130	128	110	102	90	80	68	58	52	
27	49	52	56	52	51	48	53	92	112	130	137	139	135	135	132	125	117	109	98	82	70	68	72	70	
28	F	63	62	61	58	57	61	90	116	125	128	137	140	140	136	136	130	116	103	90	84	76	70	65	
29	63	68	60	62	58	52	52	86	106	125	132	132	135	135	120	123	119	113	93	88	78	78	69	61	
30	60	62	61	58	51	47	49	81	116	121	135	130	129	128	126	128	118	117	106	94	80	74	72	68	
MED	62	60	58	52	51	48	54	89	115	125	132	135	136	135	133	130	125	114	102	90	80	74	70	66	
NO	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	

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

TABLE 54
IONOSPHERIC DATA

foFI, 0.1 Mc, Nov. 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	L	L	L	L	L	L	L	Q	Q							
02									Q	L	L	L	L	L	L	L	L	L	Q						
03									L	L	L	L	L	L	L	L	L	L	L						
04									L	L	L	L	L	L	L	L	L	L	L						
05									L	L	L	L	L	L	L	L	L	L	L						
06																									
07																									
08																									
09																									
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23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
MED																									
NO																									

TABLE 55
IONOSPHERIC DATA

foE, O.I Mc, Nov. 1956

75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep I.O 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	B	320	340	360	350	360	330	310	240							
02									B	R	U	A	I	A	H	H			S						
03									U	R	A	A	H	H					A	S					
04									190		330	340	360	370	360	350	310	260		F	A				
05										B	A	I	R						A	A					
06										310	340	360	370	360	350	310			A	A					
07										B	U	R	A	A					U	P		A			
08										260	310			370	370	350	330								
09										B	H		H						A	A					
10										270	320	350	370	360	370	350	310								
11										B	U	A	H	I	A	U	I	A							
12										250	330	360	380	380	370	350	320	250							
13										B	U	R	A	A	U	A			A	A	B				
14										310				360	370	360									
15										B	U	H	H	H	U	R			H	U	A	U	A	S	
16										250	290	320	340	350	340	340	340	310	290						
17										B	R	R	B	R	U	P	H	H	F		S				
18										190				350	360	360	350	310	240						
19										S	R	H	H			H		H		S					
20										310	340	360	360	360	360	350	320	250		H	S				
21										A	A	A	A		U	A	F								
22										370	360	350	330	330	330	330	300	240							
23										B	H	H	H	H	H	H									
24										270	310	330	350	350	350	350	330	290	240						
25										190	250	300	330	350	350	350	340	320	280	240					
26										S	B			H	H	I	A	I	A	H	H	S			
27										240	280	320	350	350	350	340	320	290	230						
28										S	240	290	310	340	350	350	340	320	280	240					
29										S	A	F	U	F	I	A									
30										290	320	330	340	340	330	320	290	210							
MED										S	C	C	C	C	C	C	C	C							
NO										U	190	250	300	330	350	350	350	330	290	240					
										5	18	26	25	25	28	29	28	25	19						

TABLE 56
IONOSPHERIC DATA

fEs, 0.1 Mc, Nov. 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	B	B	B	B	B	31	26	B	G	G	Y	98	37	42	34	27	B	S	B	B	B	B	
02	B	B	B	B	B	B	B	G	40	G	36	51	G	G	G	G	19	S	B	S	S	B	B	
03	S	S	B	S	S	S	S	G	26	30	30	G	30	G	G	G	68	S	S	S	S	33	S	B
04	S	S	S	S	S	S	B	S	B	G	G	G	G	G	G	25	22	20	39	43	S	S	B	
05	B	B	S	B	B	S	S	B	G	G	H	H	G	26	S	H	38	25	B	B	S	B	B	
06	S	B	S	B	B	S	B	B	G	G	G	29	28	27	32	40	44	38	30	B	B	B	S	B
07	19	17	S	B	B	S	B	B	H	H	G	28	33	43	37	48	35	G	G	25	39	B	B	B
08	B.	B	B	B	B	S	S	B	B	G	32	34	37	G	33	28	B	23	31	B	B	B	B	
09	B	S	S	B	B	S	S	B	G	Y	G	28	37	31	36	21	39	48	20	Y	S	S	S	S
10	S	S	S	S	S	S	S	B	G	Y	Y	37	28	G	G	G	Y	Y	S	S	S	S	S	
11	S	S	S	S	S	S	S	G	G	B	G	G	G	G	G	70	S	S	S	S	S	S	S	
12	35	S	S	S	S	E	S	G	G	45	45	38	G	35	36	G	G	S	S	S	S	S	S	
13	38	S	S	44	35	S	74	58	66	115	70	40	45	G	G	G	30	34	18	S	68	75	36	S
14	S	S	S	S	S	S	S	G	G	G	G	G	G	G	F	31	23	S	S	S	S	S	S	
15	S	S	S	30	B	B	S	21	B	G	G	G	Y	G	G	32	17	S	E	S	Y	S	S	
16	S	S	31	E	S	E	44	G	47	29	G	G	35	25	19	18	G	20	S	S	S	S	S	S
17	S	S	S	S	S	S	H	S	G	26	22	G	G	G	G	G	32	S	S	S	S	S	S	
18	S	S	S	35	S	S	S	20	30	33	33	25	H	72	35	32	27	G	G	S	S	S	S	45
19	S	S	S	E	E	S	S	B	G	18	G	38	45	39	41	47	G	G	Y	G	B	S	S	
20	30	40	42	29	27	33	31	31	33	32	18	74	94	G	G	G	38	B	S	S	S	S	S	
21	S	S	S	S	E	S	S	B	G	G	G	G	34	36	G	G	24	S	S	S	S	S	S	
22	S	S	S	S	S	S	S	S	G	B	G	G	34	36	49	47	G	S	S	S	E	S	S	
23	S	E	S	S	S	E	S	18	39	37	G	H	68	50	34	36	36	G	S	S	S	S	S	
24	S	S	45	S	E	S	S	110	C	C	C	C	C	C	C	C	C	C	S	S	S	S	S	
25	S	S	54	S	S	37	68	30	36	36	35	G	G	78	49	39	32	B	66	S	S	S	S	
26	S	S	E	E	E	E	H	H	G	G	76	35	54	34	31	28	H	G	S	S	E	S	18	
27	S	S	28	S	S	S	S	G	Y	G	G	G	35	G	G	G	G	G	S	S	S	C	S	
28	S	S	S	S	S	S	S	G	G	31	34	35	25	G	G	30	21	G	B	S	S	S	S	
29	B	S	S	B	29	29	Y	S	G	G	G	35	33	40	56	48	35	25	28	58	39	39	41	42
30	S	S	E	E	S	S	B	B	G	G	35	37	40	56	48	35	25	28	58	39	39	41	35	
MED							31						35				30	25		24				
NO	10	8	12	16	15	12	10	29	29	29	29	29	29	29	29	29	27	22	10	9	8	10	7	12

TABLE 57
IONOSPHERIC DATA

f min. 0.1 Mc, Nov. 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	20	20	23	22	21	19	19	24	31	17	19	19	20	26	19	18	17	24	16	18	24	23	23	21
02	21	19	20	20	22	20	23	26	24	26	24	21	22	21	20	21	16	16	16	20	16	16	18	19
03	E	E	S	E	E	S	E	S	E	S	E	S	E	S	E	E	S	E	S	E	S	E	S	
04	16	16	20	16	16	16	16	16	20	20	20	21	21	22	25	20	16	16	16	16	16	16	16	20
05	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
06	20	20	13	18	18	16	16	23	22	24	18	23	23	21	18	16	16	16	20	20	19	16	19	18
07	17	16	16	19	19	16	17	23	22	24	25	24	24	21	23	22	19	19	18	23	18	25	21	19
08	22	24	23	22	18	14	15	23	29	26	24	23	24	27	25	23	19	23	21	19	21	18	18	21
09	20	16	16	20	17	16	16	20	23	17	19	21	19	18	19	16	16	16	20	16	16	17	16	16
10	16	16	16	13	17	16	16	22	17	22	20	21	21	26	22	19	17	16	17	16	16	16	16	16
11	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
12	16	15	17	16	16	12	13	17	22	31	30	28	24	25	21	18	16	18	15	16	16	16	16	16
13	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
14	16	12	13	13	12	16	16	21	19	19	16	19	21	21	19	16	16	16	16	16	15	15	16	16
15	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
16	15	16	16	22	21	16	17	27	23	25	24	17	16	20	16	16	16	16	16	16	16	16	16	13
17	E	E	S	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	
18	15	11	12	18	11	15	16	16	17	19	20	22	22	24	21	22	20	16	16	16	16	15	16	18
19	E	E	S	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
20	13	16	12	11	12	11	15	16	16	16	16	18	16	25	16	16	17	17	16	16	16	15	16	16
21	E	E	S	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
22	16	13	11	11	12	16	16	16	20	44	17	24	24	24	21	21	19	16	16	16	16	16	16	14
23	E	E	E	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
24	16	12	15	12	13	11	16	E	S	E	S	C	C	C	C	C	C	C	C	E	S	E	S	
25	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	
26	E	E	S	E	E	E	E	S	E	S	E	S	E	S	E	E	S	E	S	E	S	E	S	
27	16	11	13	15	11	13	15	19	16	16	16	21	21	22	19	17	16	16	16	16	20	16	19	
28	12	12	13	13	13	13	16	22	25	27	29	29	23	24	23	22	18	17	20	17	13	20	16	16
29	18	15	14	19	20	12	14	17	24	24	27	28	28	27	27	25	20	17	16	13	11	16	17	
30	13	13	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	E	S	
MED																								
NO																								

TABLE 58
IONOSPHERIC DATA

h^1F_2 , Km, Nov. 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	270	270	290	280	250	250	240	230	250	240	240	L	L	L	L	230	220	240	240	250	250	260	250	
02	245	250	260	270	285	300	270	230	235	240	230	U	L	L	L	L	230	220	240	230	240	240	240	240
03	250	250	300	280	260	240	240	L	L	L	230	L	L	L	L	250	240	230	210	240	250	250	260	
04	250	250	240	270	280	270	250	250	250	240	240	U	L	L	L	L	240	250	220	230	240	230	240	250
05	250	250	240	250	240	240	230	L	L	240	250	L	L	L	L	270	230	230	240	230	250	250	250	
06	250	290	280	250	250	230	260	240	230	250	U	L	L	L	L	L	L	230	240	240	250	230	250	
07	260	280	270	250	240	240	240	240	240	240	U	L	L	L	L	L	L	230	250	240	250	250	230	240
08	250	280	300	300	270	220	220	240	240	240	240	U	L	U	L	U	U	U	U	U	U	U	U	270
09	260	260	250	250	250	240	240	240	240	250	240	230	230	220	250	230	230	230	240	250	260	270	270	280
10	340	300	290	290	280	310	340	280	240	230	230	230	230	230	240	260	240	230	230	240	250	330	420	370
11	F	F	F	F	F	F	F	320	300	280	450	380	330	300	270	230	220	230	220	230	240	250	270	280
12	280	240	230	240	270	280	250	250	L	L	L	L	L	L	L	L	250	240	220	250	250	270	300	380
13	320	300	270	260	280	300	290	240	240	240	L	L	L	L	L	L	L	220	230	230	240	240	280	320
14	350	360	400	340	310	320	310	270	L	L	L	L	L	L	L	L	260	240	280	350	320	270	270	410
15	430	340	310	340	270	520	440	360	320	300	290	U	L	U	L	L	250	240	240	230	230	250	300	340
16	340	350	310	320	310	310	300	260	240	250	250	U	L	L	L	L	250	220	220	220	240	240	240	240
17	250	250	250	280	270	330	280	230	240	L	240	L	L	L	L	L	220	230	230	250	250	260	280	
18	270	300	310	320	310	290	250	230	240	L	250	L	L	L	L	H	250	230	220	230	220	230	240	260
19	240	250	230	250	260	280	270	240	L	L	L	240	240	L	L	L	250	220	240	220	230	240	250	250
20	250	250	240	240	250	250	280	L	230	L	F	L	L	L	L	L	220	230	240	250	240	270	250	250
21	280	290	260	300	280	300	310	280	250	260	250	L	U	L	L	L	240	230	220	220	220	250	240	240
22	240	250	270	280	280	270	260	260	230	L	L	L	L	L	L	L	250	240	240	250	250	270	270	250
23	220	210	250	240	210	190	230	250	240	230	L	L	L	L	L	240	240	220	220	210	250	210	230	
24	230	250	260	260	240	230	230	230	C	C	C	C	C	C	C	C	C	C	C	220	240	230	230	240
25	230	230	250	260	280	250	260	250	L	L	L	L	L	L	L	L	240	220	240	230	230	230	250	250
26	240	230	240	230	220	270	260	240	L	L	L	L	L	L	L	250	220	230	220	240	210	230	240	
27	260	270	290	280	260	250	250	240	220	220	230	220	250	240	230	230	240	250	220	250	240	290	240	240
28	US	UL	L	L	L	L	L	240	240	220	220	210	250	210	230									
29	260	260	270	270	270	250	240	240	220	L	260	240	250	L	L	L	250	230	240	230	220	250	240	250
30	260	260	260	260	250	250	270	250	230	220	L	250	L	L	L	L	240	240	230	240	260	270		
MED	260	260	260	270	270	270	260	240	240	240	U	240	U	U	U	240	250	230	240	230	230	240	250	250
NO	30	30	30	30	30	30	30	27	19	19	13	10	7	7	6	11	12	24	30	30	30	30	30	30

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

TABLE 59
IONOSPHERIC DATA

h'FI, Km, Nov. 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	Q									
02									Q	235	230	215	220	225	230	225	225										
03											230	220	220	200	225	225	225	230	225								
04											235	210	215	215	210	230	220	225	230	225	220						
05											230	230	225	220	220	220	230	230	225	230	220						
06											230	230	220	215	225	220	230	230	230	235	250						
07											Q	220	220	215	225	220	230	230	235	240							
08											Q	225	215	215	215	210	210	230	225	230							
09											Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q						
10											Q	0	Q	Q	0	Q	Q	Q	Q	Q	Q	Q	Q	Q			
11											Q	Q	Q	H	H	H	H	H	H	H	H	H	H	H			
12											Q	220	220	225	220	230	230	240	230	230	215						
13											Q	A	A	A	220	210	220	220	230	235	230	230	230	230	230	230	
14											Q	H	H	H	240	205	230	225	230	230	230	240	240	240	240	240	
15											Q	U	B	B	260	240	230	240	230	240	235	235	235	235	235	235	
16											Q	Q	Q	Q	Q	220	220	190	210	215	230	235	230	240	240	240	
17											Q	230	230	220	225	220	230	230	230	230	220	220	220	220	220		
18											Q	Q	Q	Q	Q	220	215	220	220	220	225	225	210	210	210	210	
19											Q	Q	Q	Q	Q	225	220	220	210	220	220	220	220	215	215	215	
20											Q	Q	Q	Q	245	230	230	220	225	230	240	225	230	230	230	230	230
21											Q	Q	Q	Q	Q	240	230	230	220	225	230	235	230	240	240	240	240
22											Q	I	B	B	230	225	220	220	230	220	230	230	230	230	230	230	
23											Q	Q	Q	Q	Q	235	210	210	210	225	230	225	220	220	220	220	220
24											Q	C	C	C	C	C	C	C	C	C	C	C	C	C			
25											Q	H	H	H	220	215	215	220	220	215	220	225	230	220	220	220	
26											Q	220	220	220	220	210	220	210	220	215	220	220	230	230	230		
27											Q	Q	Q	Q	Q	210	Q	Q	Q	225	215	220	Q	Q	Q	Q	
28											Q	Q	Q	Q	Q	220	215	220	215	220	230	230	225	225	225	225	225
29											Q	Q	Q	Q	Q	215	215	220	210	225	220	220	220	Q	Q	Q	
30											Q	Q	Q	Q	Q	220	220	215	235	230	230	230	235	235	235	235	235
MED															230	230	220	220	220	220	225	230	230	230	220		
NO															5	17	25	27	27	28	29	28	25	21	9		

TABLE 60
IONOSPHERIC DATA

$h^{\prime}E$, Km, Nov. 1956

75° W Mean Time

Station: Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep 1.0 Mc ta 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	B	121	99		99	111	99	101	109									
02									B		109	101	101	101	101	103	101	109	111	S							
03									U	B	121	115	107	101	101	101	101	111	109	111	S						
04									B	A			101	101	105	109	105	109	111	111	A						
05									B	U	U	109	109	B	A	A	A	A	U	A	A	A					
06									B	H	113	101	101	109	111	111	I	A	A	A	A						
07									B	U	115	105	108	111				109	111	119	A						
08									B	U	109	109	109	109	109	109	109	111	111	B							
09									B	E	123	121	111	101	117	121	111	E	A	U	A	A	A	A			
10									B	H	107	109	107	107	105	117	109	109	117	S							
11									E	B	127	121	123	125	119	111	111	109	109	111	S						
12									S	U	119	109	109	109	105	105	109	115	115	S							
13									A	A	A	A	A	A	U	A	109	109	107	109	119	H	S				
14									H		109	109	109	109	105	109	111	111	111								
15									B	H	109	115	119	109	101	101	109	111	119	H	S						
16									H	H	109	101	101	103	101	101	111	111	109	119	S						
17									H	H	109	103	111	111	109	109	111	109	115	121	S						
18									S	B	109	103	115	109	109	109	111	111	111	H	H	S					
19									B	H	121	109	105	109	101	101	103	115	119	U	A	S					
20									A		111	101	101	109	109	109	115	109	111	H	S						
21									B	H	111	109	109	109	109	109	109	115	119	S							
22									S	I	115	113	111	111	111	115	115	119	129	H	H	S					
23									S	H	109	101	101	101	101	109	111	109	111	S							
24									S	C	C	C	C	C	C	C	C	C	C	C	C						
25									S		111	105	105	105	105	101	109	105	109	115	S						
26									A	H	111	105	105	109	109	109	109	109	109	109	U	A	S				
27									S		107	107	105	105	105	109	109	107	109	113	S						
28									S		129	115	113	111	111	111	111	111	111	111	S						
29									S	H	120	111	109	109	109	109	109	103	109	A							
30									B		121	121	115	115	111	109	111	109	113	A	A						
MED											109	111	109	107	109	109	109	109	109	110							
NO											5	23	27	27	26	26	26	29	28	23							

TABLE 61
IONOSPHERIC DATA

(M3000) F2, Nov. 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	280	280	265	275	285	285	300	310	315	320	315	280	285	280	280	290	285	290	295	U R R	310	295	310	315
02	310	290	300	275	275	275	280	320	325	340	300	290	285	280	285	290	285	285	285	300	275	280	300	285
03	280	270	250	260	270	270	260	300	310	300	300	295	285	285	280	285	280	280	295	290	285	290	295	275
04	290	290	295	280	275	280	280	270	330	310	305	300	290	280	280	280	280	280	290	290	300	285	285	285
05	295	295	285	290	300	300	300	320	330	330	305	290	290	280	275	270	280	275	285	295	295	285	300	290
06	285	275	270	290	300	290	280	310	320	300	300	295	275	275	275	280	275	275	280	290	280	280	300	290
07	270	260	275	285	295	295	295	310	310	305	300	280	285	280	275	270	285	280	280	290	290	300	295	280
08	295	280	270	265	280	295	290	320	325	320	315	300	300	280	285	280	280	290	290	295	290	285	275	280
09	280	295	290	300	295	290	290	315	320	315	310	295	285	280	270	280	270	280	275	270	275	260	250	250
10	240	240	250	250	230	225	230	270	290	305	295	280	270	270	265	265	280	285	270	285	230	240	260	250
11	260	250	240	230	240	240	260	285	325	305	295	285	290	280	275	275	270	280	265	270	250	245	280	250
12	280	280	275	285	270	260	290	300	320	310	295	280	275	275	265	285	285	285	285	280	295	270	260	240
13	270	290	280	290	270	290	290	320	320	315	310	305	300	280	280	280	295	290	295	290	290	295	280	260
14	250	250	245	260	245	250	260	280	290	300	290	285	280	275	275	270	270	290	245	245	260	290	280	220
15	230	250	270	250	300	220	230	240	305	295	300	275	280	290	285	295	300	300	300	290	290	270	240	250
16	260	245	280	260	260	270	280	300	325	310	300	290	285	290	285	285	290	295	295	300	285	295	295	290
17	290	300	295	285	280	270	280	300	340	315	305	300	285	280	290	285	280	300	285	290	290	285	280	260
18	270	250	240	260	270	250	280	320	330	310	310	305	295	295	295	295	290	300	295	295	290	320	300	305
19	310	300	300	290	290	280	290	305	330	320	310	310	300	290	295	300	295	300	300	305	300	300	300	300
20	300	305	300	310	300	280	290	310	320	320	305	300	285	295	290	295	290	290	295	300	285	295	290	280
21	270	280	260	255	270	265	270	310	310	310	295	300	300	290	290	280	285	290	295	315	290	300	290	295
22	295	300	280	280	270	265	270	310	330	305	300	300	290	290	285	280	285	280	280	275	280	250	280	285
23	270	270	280	275	290	280	320	290	315	315	295	295	290	290	295	285	290	290	295	290	295	295	310	310
24	305	290	295	295	305	300	310	310	C	C	C	C	C	C	C	C	C	C	C	U F	300	300	310	295
25	310	300	290	290	290	290	315	320	320	300	260	295	300	285	280	285	290	285	295	300	310	290	275	F F
26	290	290	295	320	300	290	295	310	315	320	310	295	280	295	295	290	290	300	300	300	310	320	310	300
27	290	300	280	285	290	290	310	305	320	315	305	300	305	295	300	300	300	290	295	290	260	270	260	285
28	280	270	265	260	265	260	290	305	320	320	305	300	290	295	285	290	290	290	295	290	290	295	290	280
29	290	275	265	265	280	285	290	300	320	310	310	310	300	300	285	285	290	285	275	295	295	290	270	
30	265	265	275	290	290	275	270	290	320	305	295	300	280	280	280	275	280	275	285	295	305	295	295	300
MED	280	280	280	280	280	280	290	310	320	310	300	295	285	280	285	280	285	290	290	290	290	295	290	280
NO	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30

TABLE 62
IONOSPHERIC DATA

(M3000) FI, Nov. 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	L	L	L	L	L	L	L	Q	Q						
02									Q	L	L	L	L	L	L	L	L	Q						
03									L	L	L	L	L	L	L	L	L	L						
04									L	L	L	L	L	L	L	L	L	L						
05									L	L	L	L	L	L	L	L	L	L						
06									L	L	L	L	L	L	L	L	L	L						
07									Q	L	L	L	L	L	L	L	L	Q						
08									Q	L	L	L	L	L	L	L	L	L	Q					
09									Q	Q	L	L	L	L	L	Q	Q	Q	Q					
10									Q	Q	Q	Q	Q	Q	Q	L	L	Q	Q	Q				
11									Q	Q	Q	L	L	L	L	L	L	L	Q					
12									Q	L	L	L	L	L	L	L	L	L	Q					
13									Q	A	A	L	L	L	L	L	L	L	Q					
14									Q	L	L	L	L	L	L	L	L	Q						
15									Q	L	L	L	L	L	L	L	L	Q	Q	Q				
16									Q	Q	L	L	L	L	L	L	L	L	L	L				
17									Q	L	L	L	L	L	L	L	L	L	Q					
18									Q	Q	L	L	L	L	L	L	L	L	L	Q				
19									Q	L	L	L	L	L	L	L	L	L	Q					
20									L	L	L	L	L	L	L	L	L	L	Q					
21									Q	Q	L	L	L	L	L	L	L	L	Q	Q				
22									Q	L	B	L	L	L	L	L	L	L	L	Q				
23									Q	Q	L	L	L	L	L	L	L	L	L	L				
24									O	C	C	C	C	C	C	C	C	C	C	C				
25									Q	L	L	L	L	L	L	L	L	L	L	L				
26									Q	L	L	L	L	L	L	L	L	L	Q					
27									Q	Q	L	Q	Q	L	L	L	L	Q	Q	Q				
28									Q	Q	L	L	L	L	L	L	L	L	L	L				
29									Q	Q	L	L	L	L	L	L	L	L	Q					
30									Q	Q	Q	L	L	L	L	L	L	L	L	L				
MED																								
NO																								

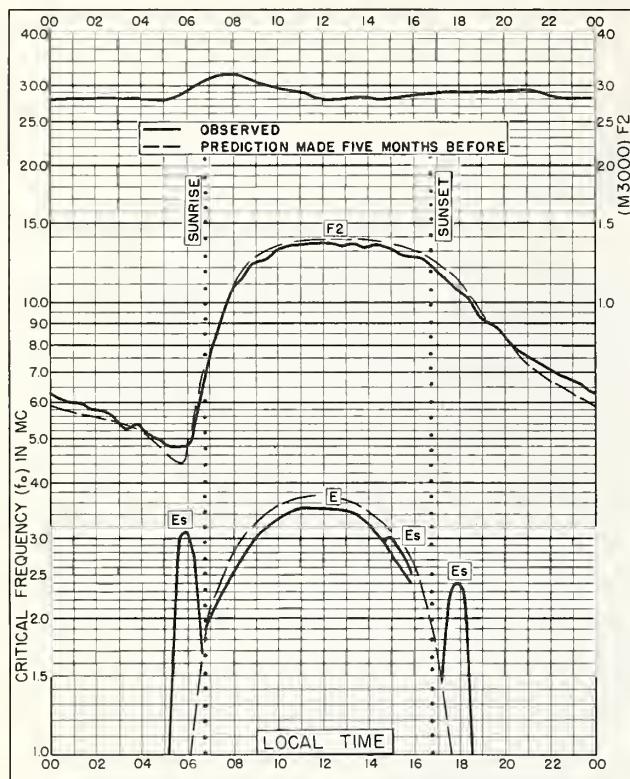


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W NOVEMBER 1956

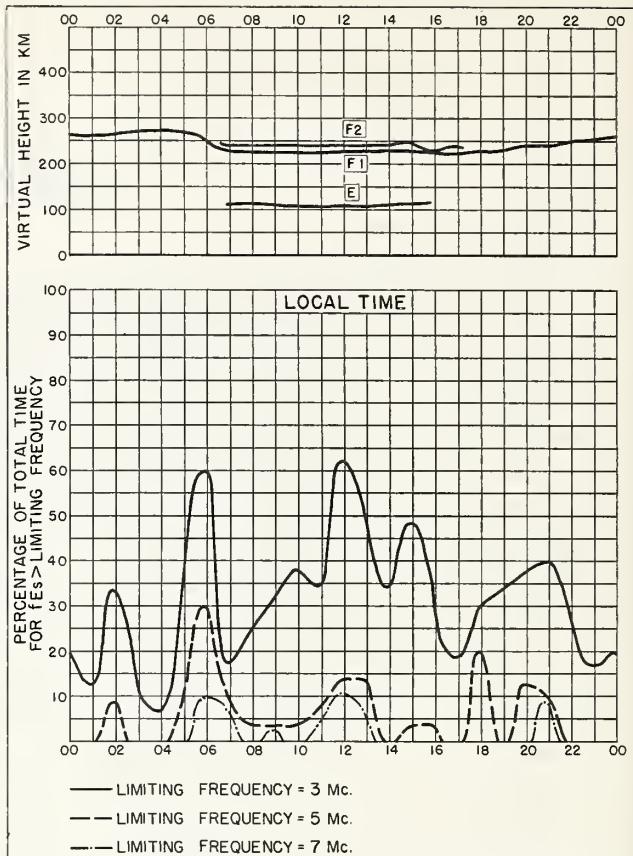


Fig. 2. WASHINGTON, D. C. NOVEMBER 1956

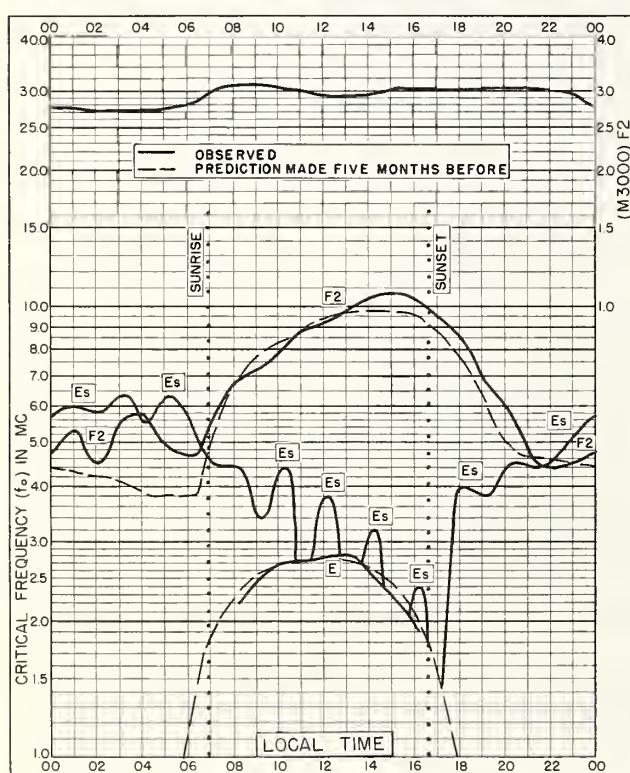


Fig. 3. FAIRBANKS, ALASKA
64.9°N, 147.8°W OCTOBER 1956

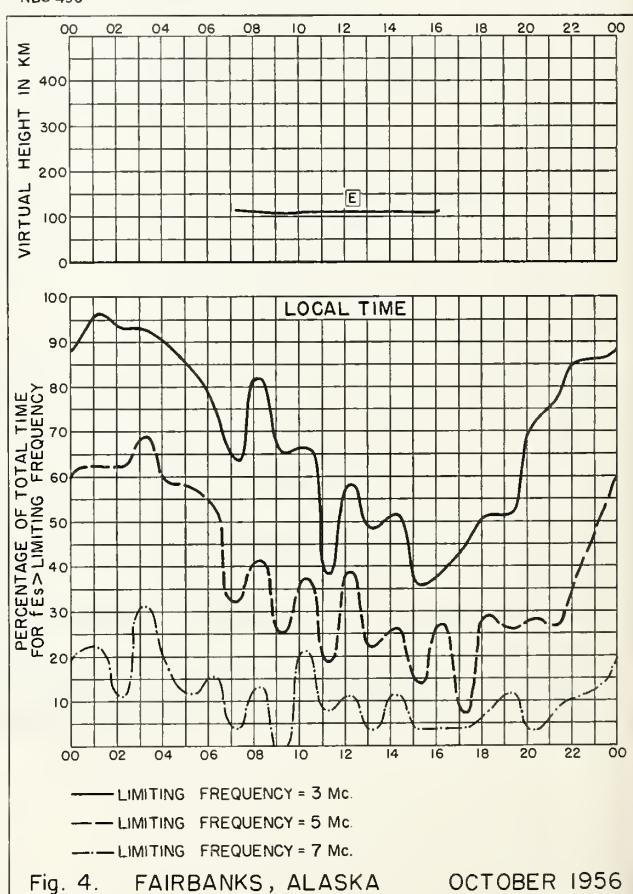
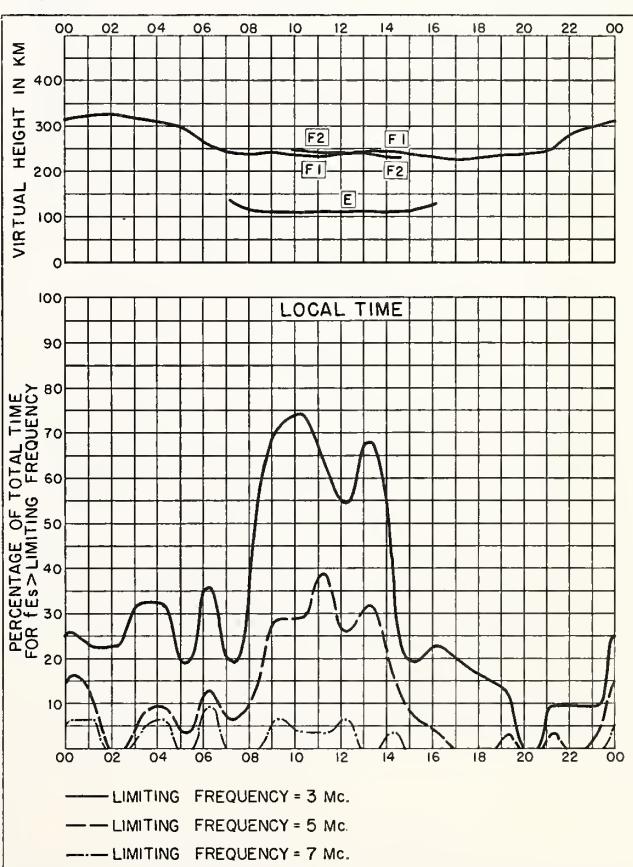
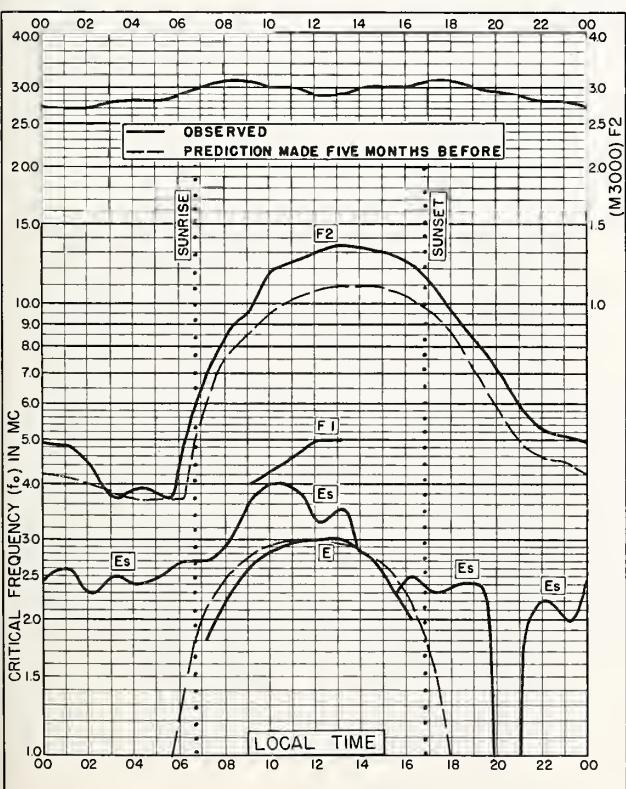
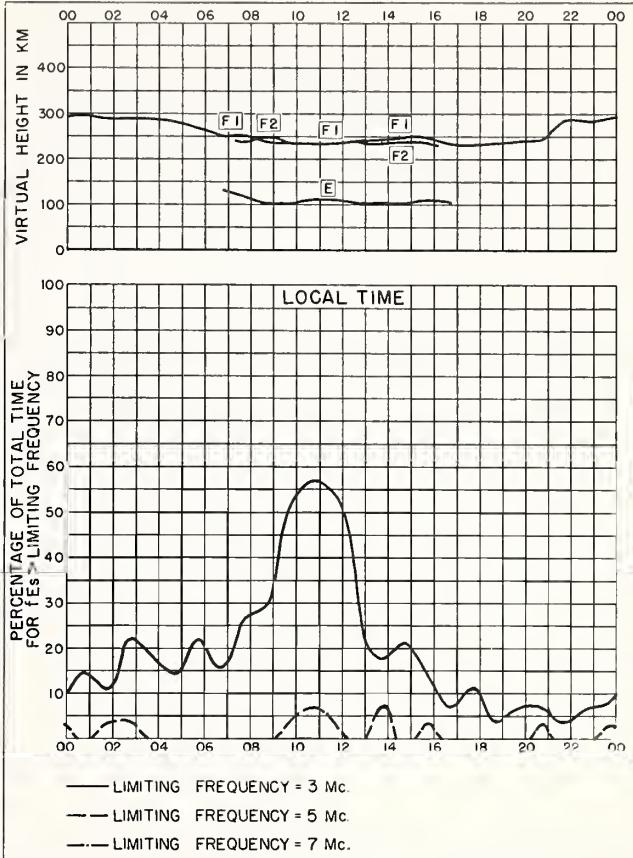
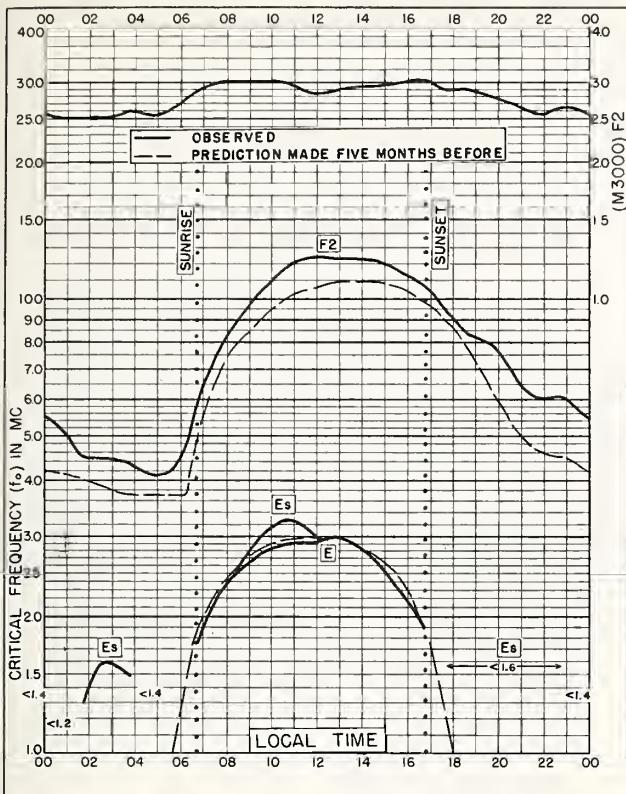


Fig. 4. FAIRBANKS, ALASKA OCTOBER 1956



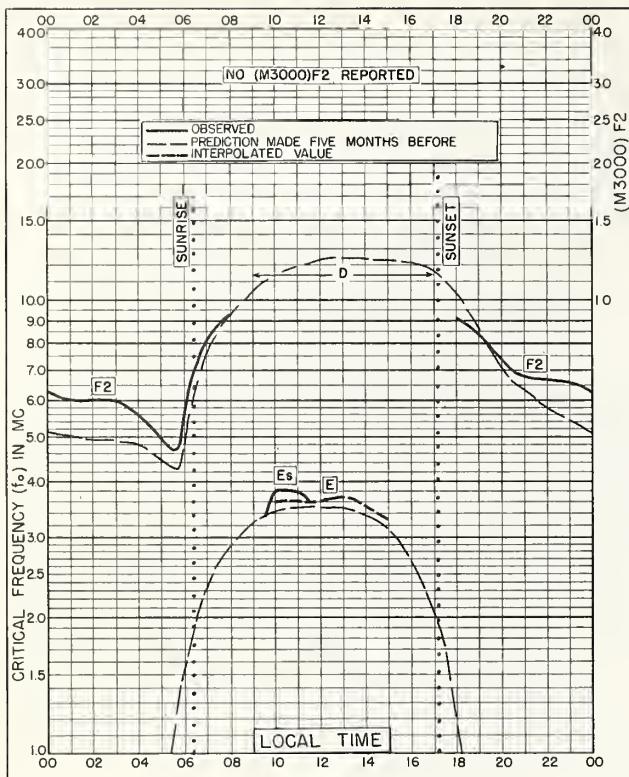


Fig. 9. GRAZ, AUSTRIA
47.1°N, 15.5°E OCTOBER 1956

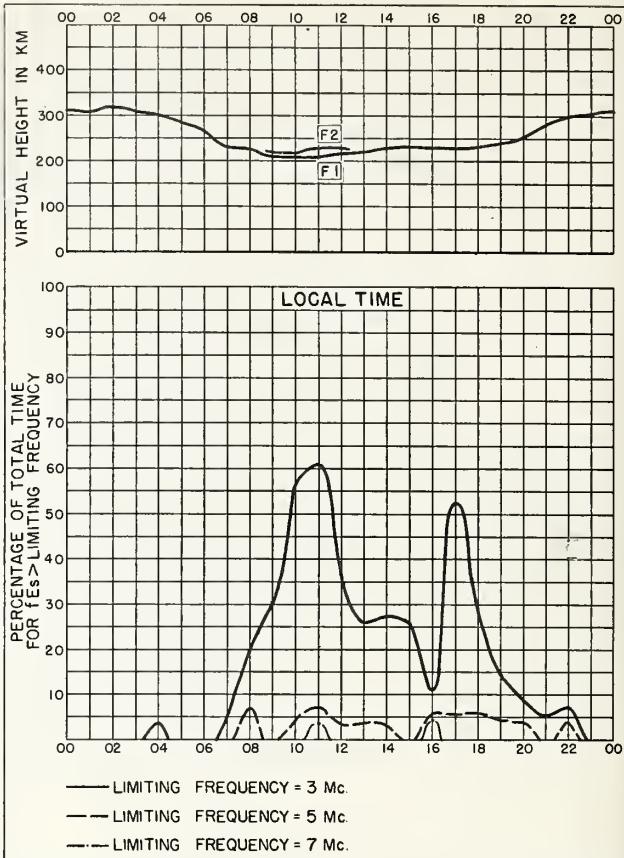


Fig. 10. GRAZ, AUSTRIA OCTOBER 1956

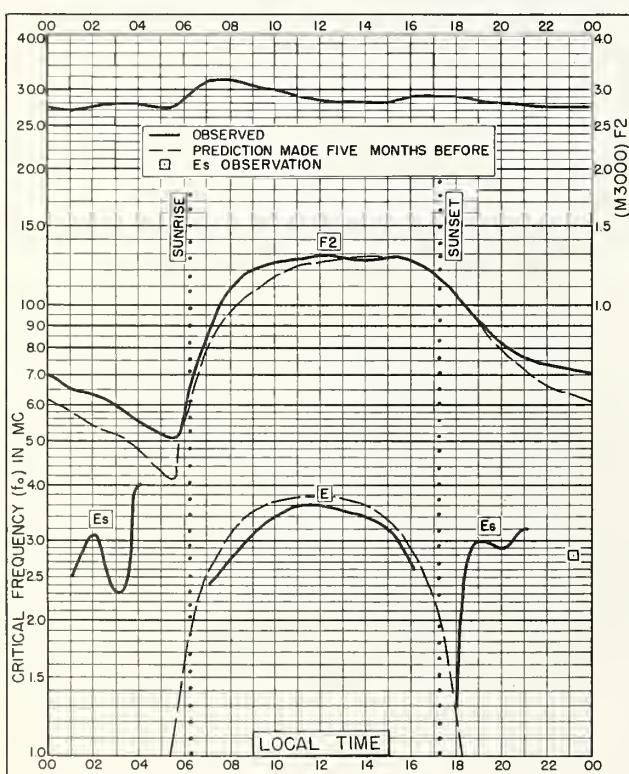
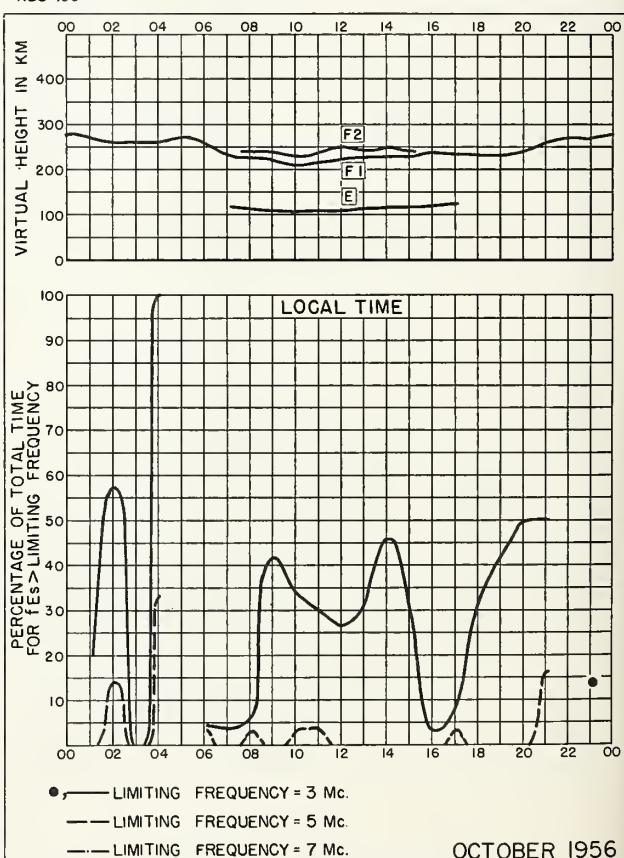


Fig. 11. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W OCTOBER 1956



OCTOBER 1956

Fig. 12. FT. MONMOUTH, NEW JERSEY

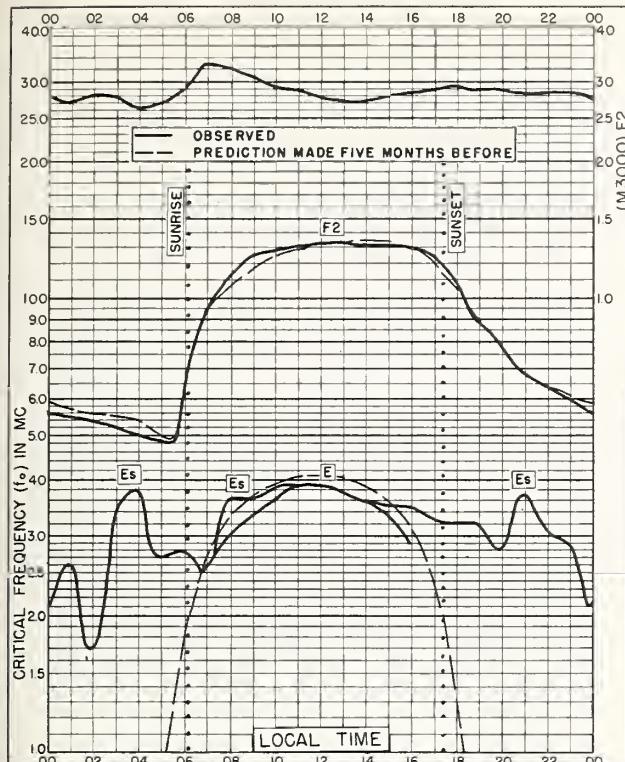
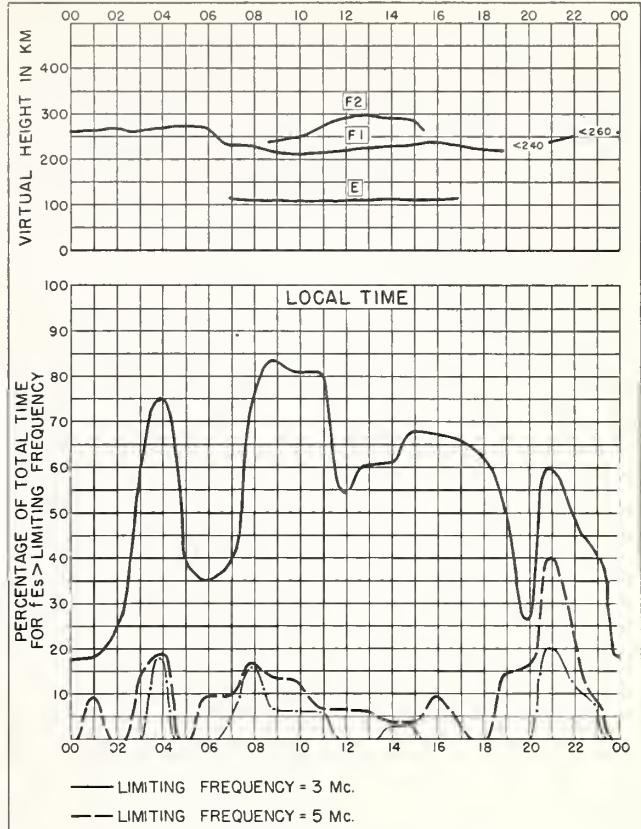


Fig. 13. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W OCTOBER 1956



OCTOBER 1956
Fig. 14. WHITE SANDS, NEW MEXICO

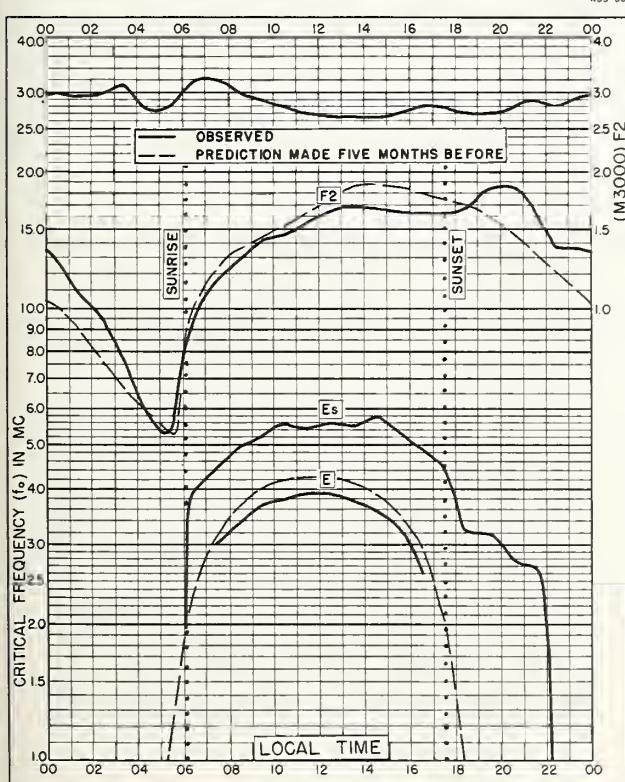
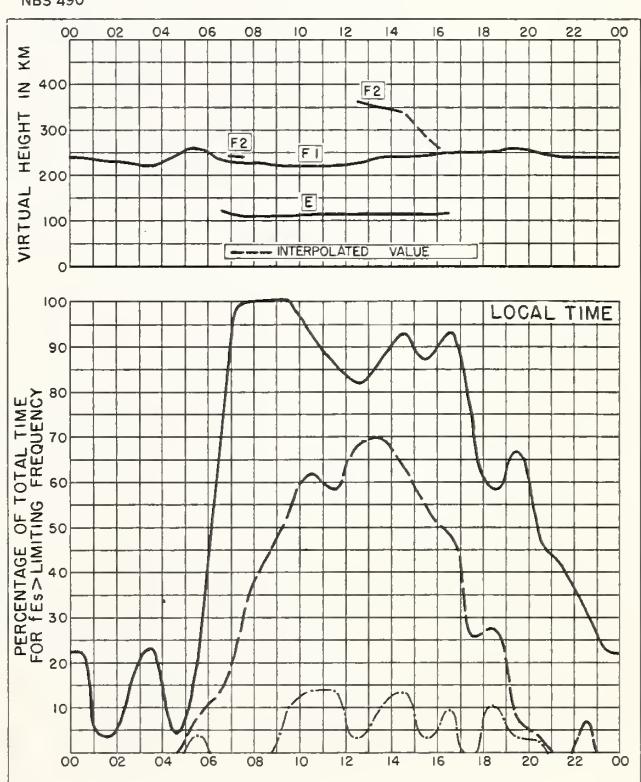


Fig. 15. OKINAWA I.
26.3°N, 127.8°E OCTOBER 1956



OCTOBER 1956
Fig. 16. OKINAWA I.

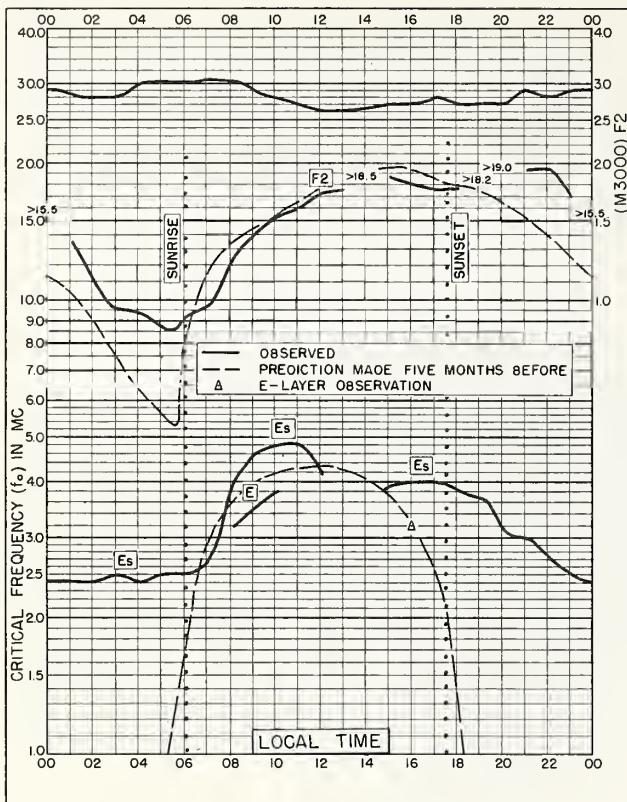


Fig. 17. FORMOSA, CHINA
25.0°N, 121.5°E OCTOBER 1956

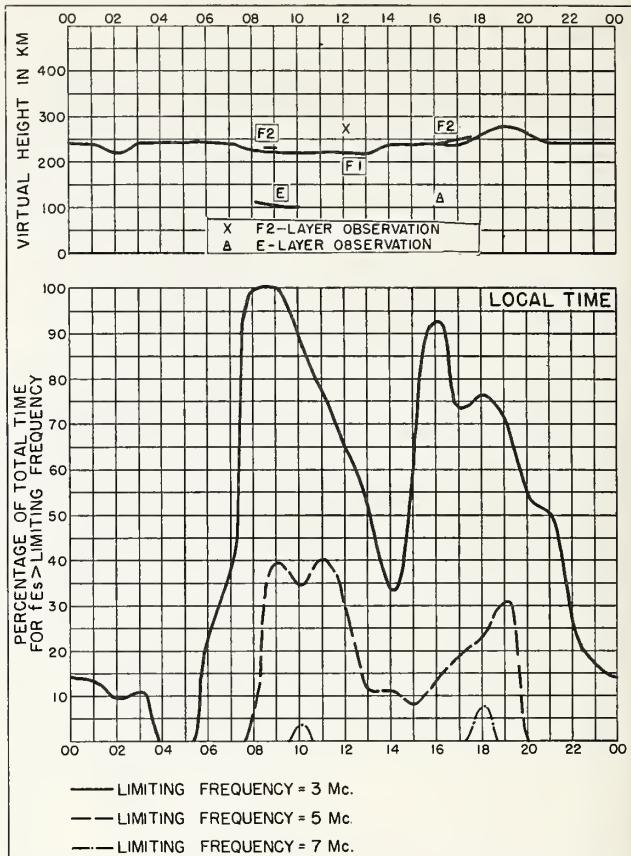


Fig. 18. FORMOSA, CHINA OCTOBER 1956

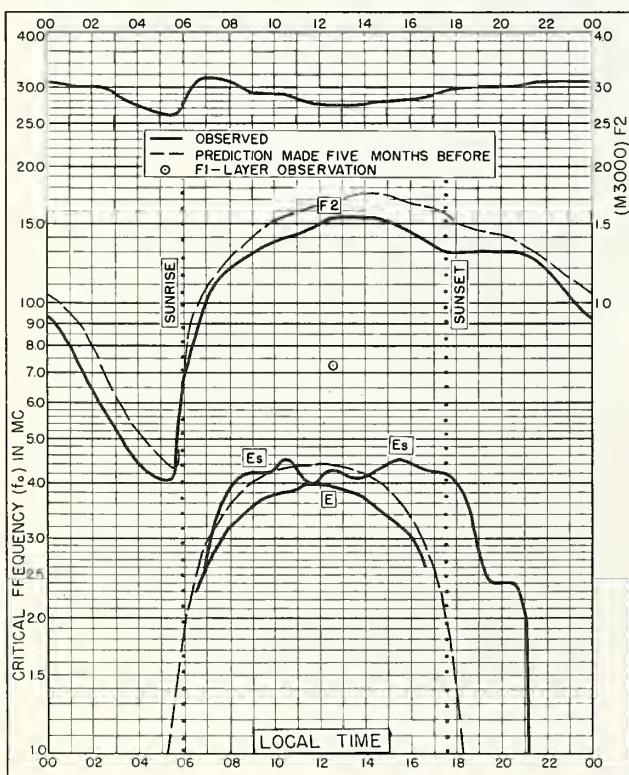


Fig. 19. MAUI, HAWAII
20.8°N, 156.5°W OCTOBER 1956

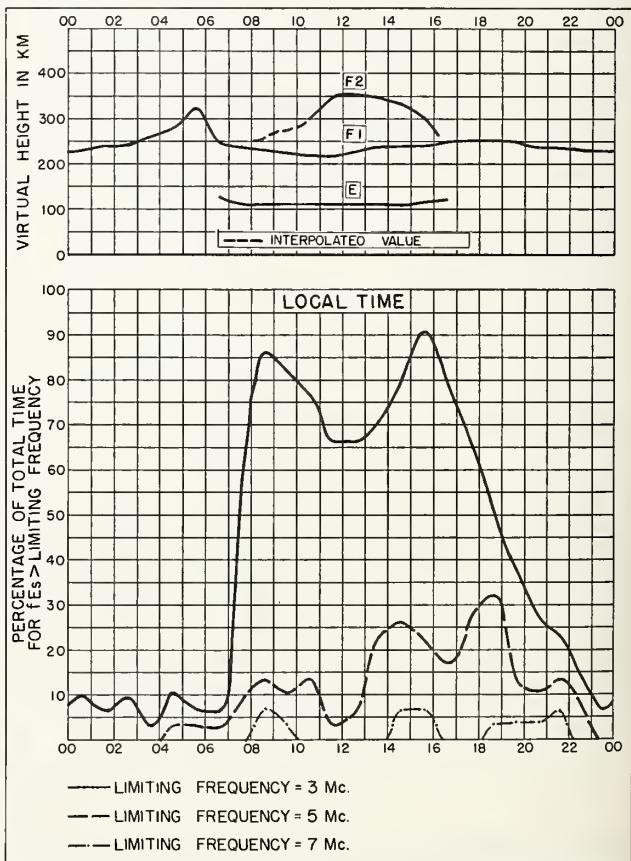


Fig. 20. MAUI, HAWAII OCTOBER 1956

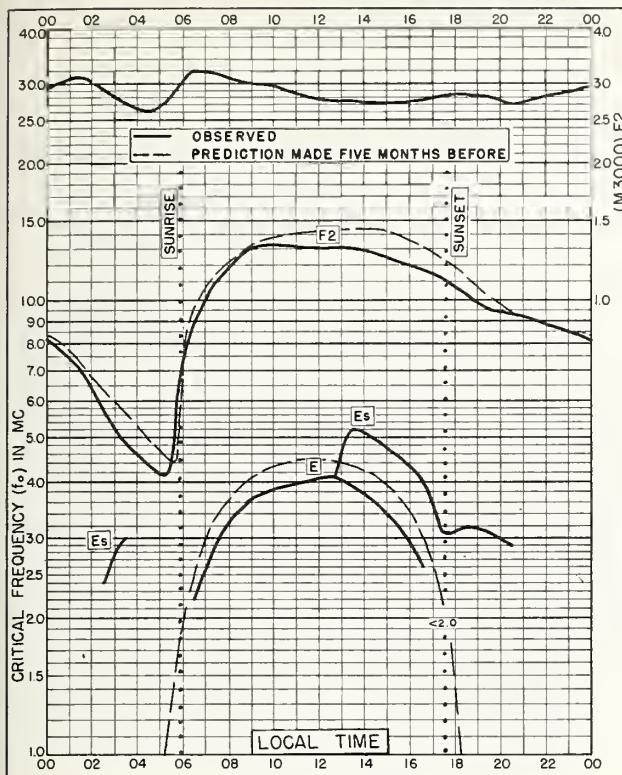


Fig. 21. PUERTO RICO, W. I.
18. 5°N, 67.2°W OCTOBER 1956

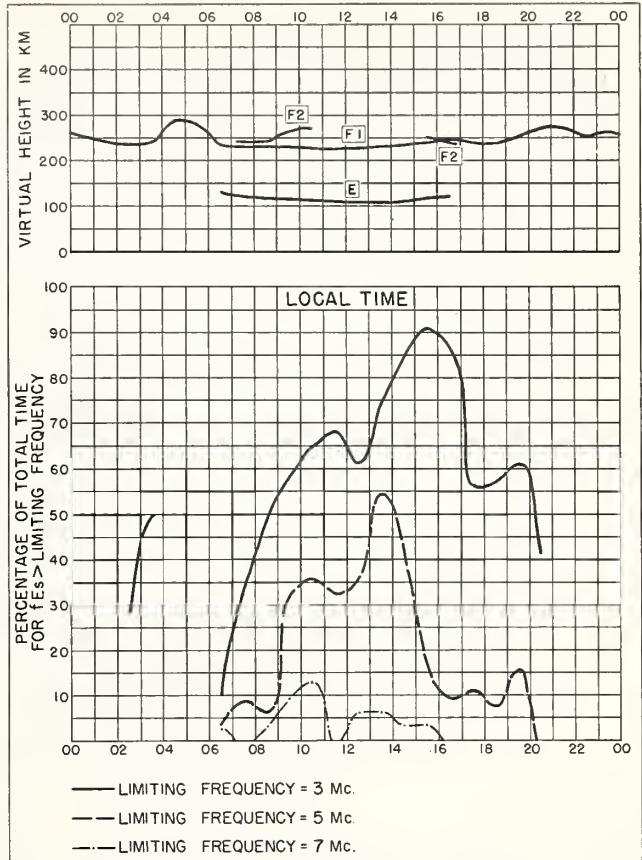


Fig. 22. PUERTO RICO, W. I. OCTOBER 1956

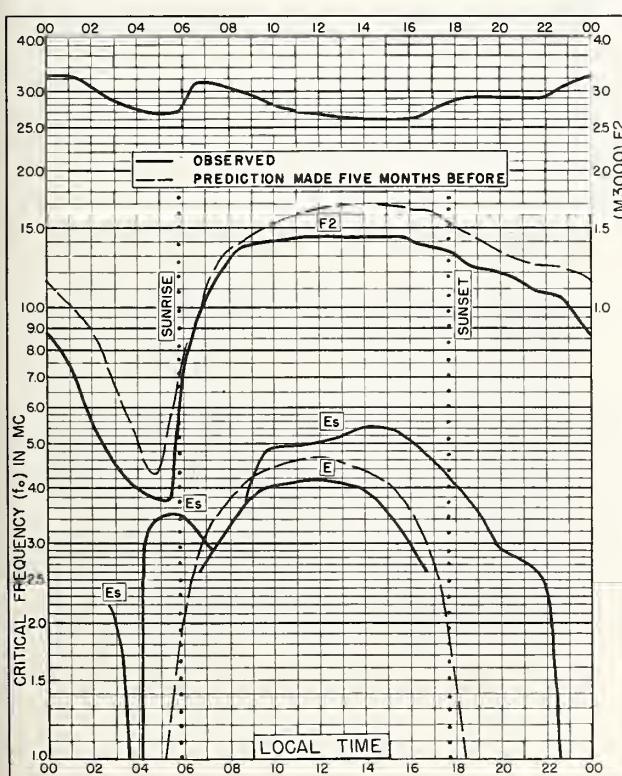


Fig. 23. PANAMA CANAL ZONE
9.4°N, 79.9°W OCTOBER 1956

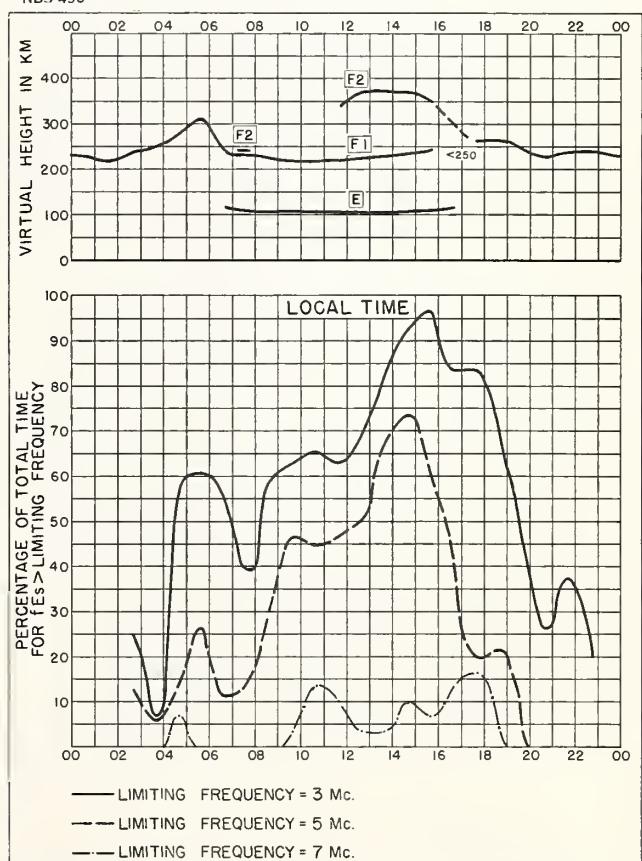
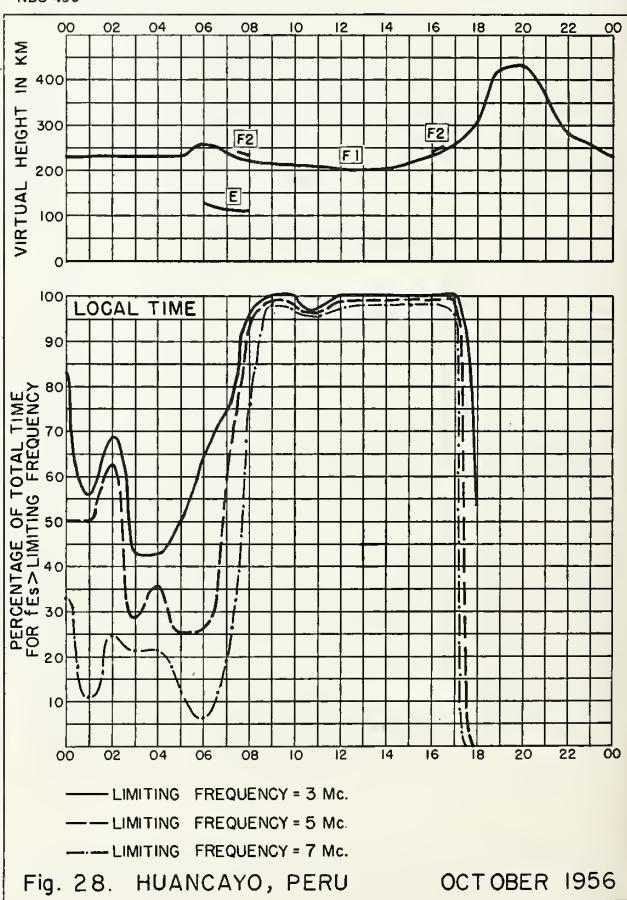
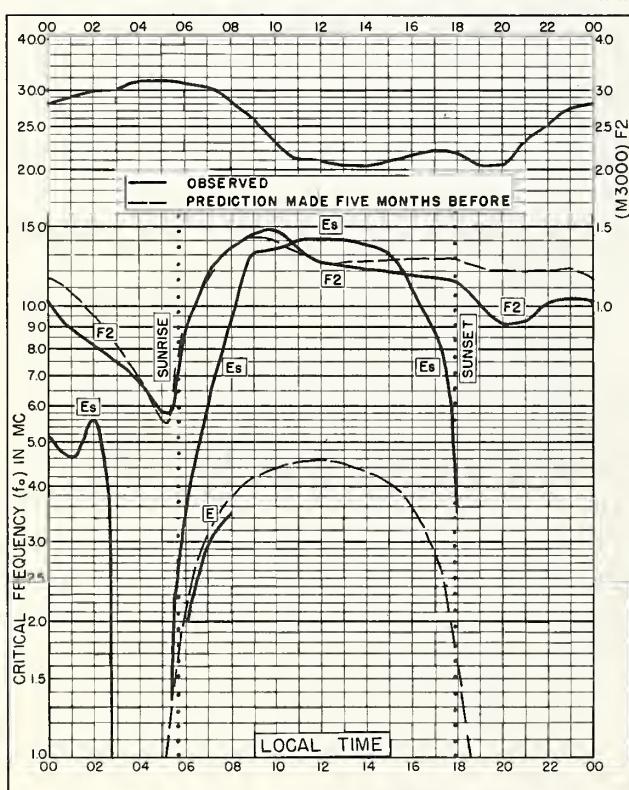
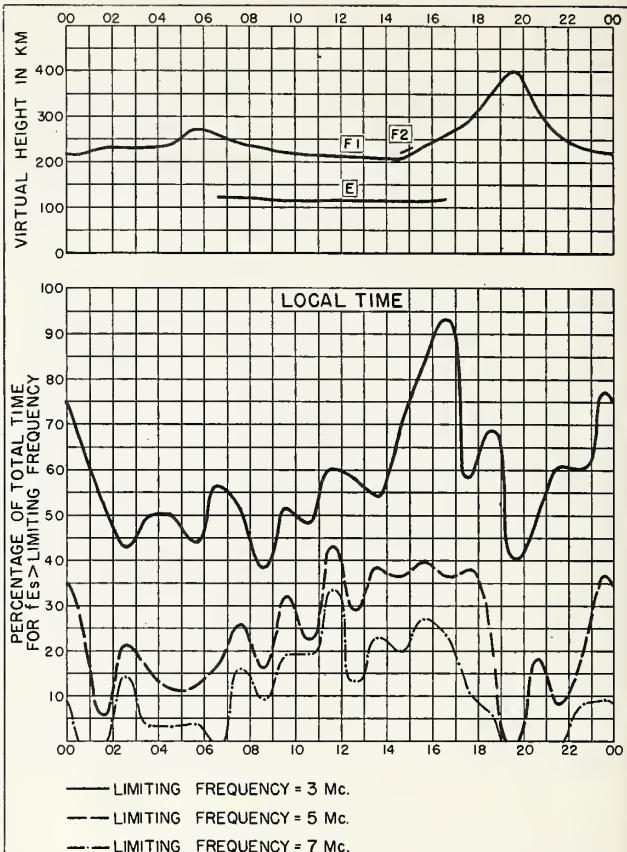
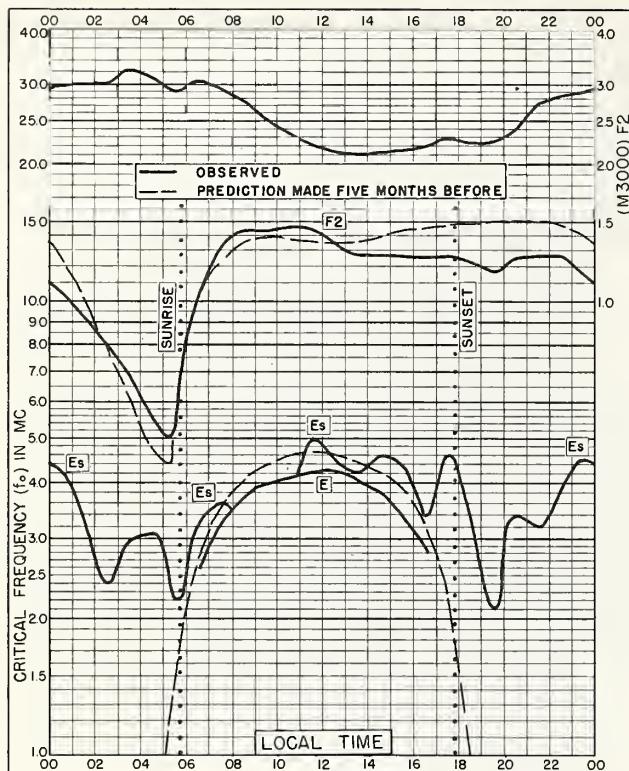


Fig. 24. PANAMA CANAL ZONE OCTOBER 1956



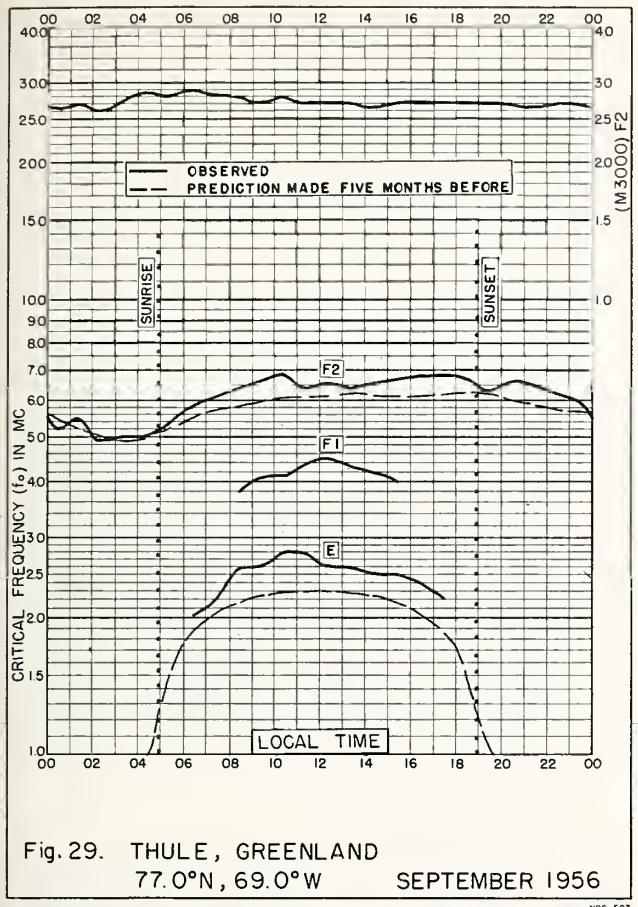


Fig. 29. THULE, GREENLAND
77.0°N, 69.0°W SEPTEMBER 1956

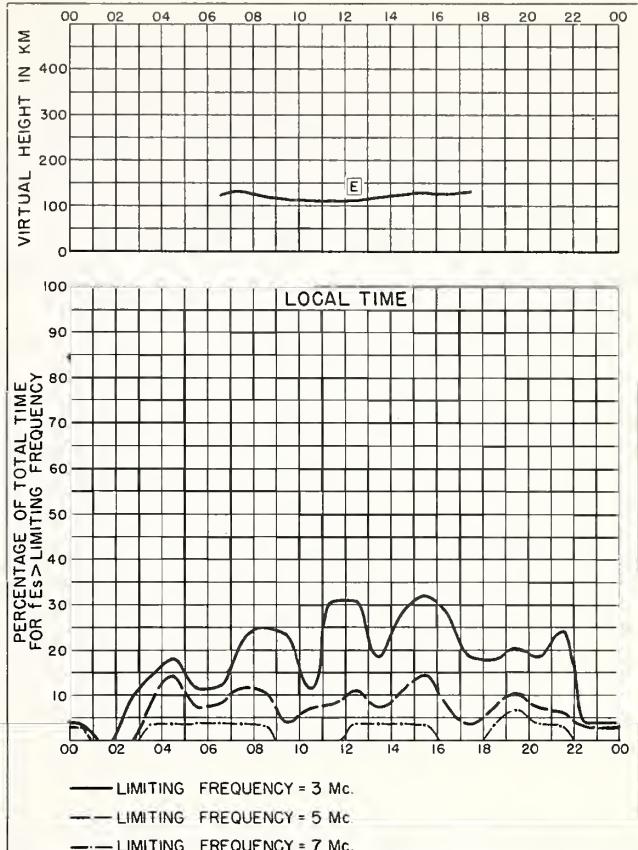


Fig. 30. THULE, GREENLAND SEPTEMBER 1956

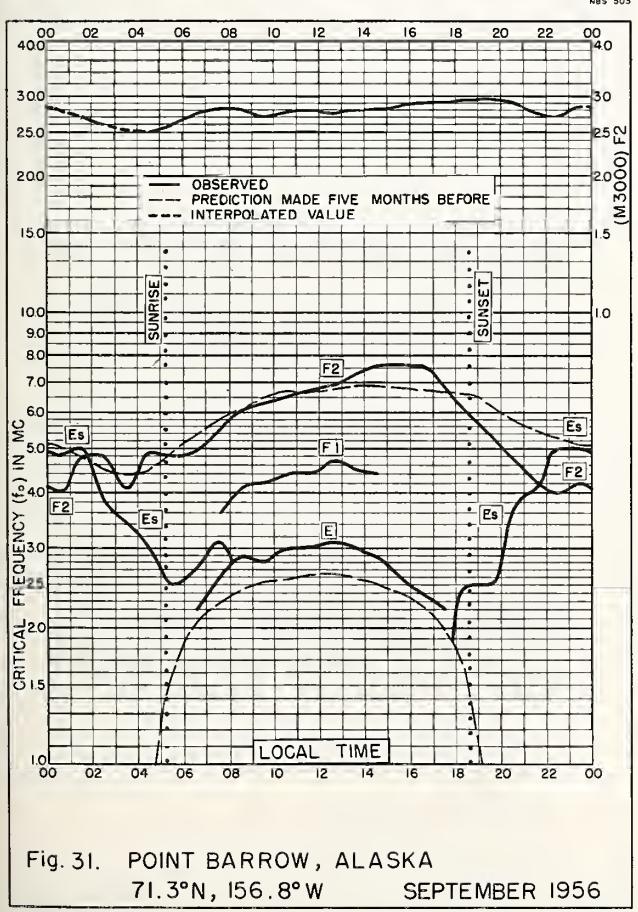


Fig. 31. POINT BARROW, ALASKA
71.3°N, 156.8°W SEPTEMBER 1956

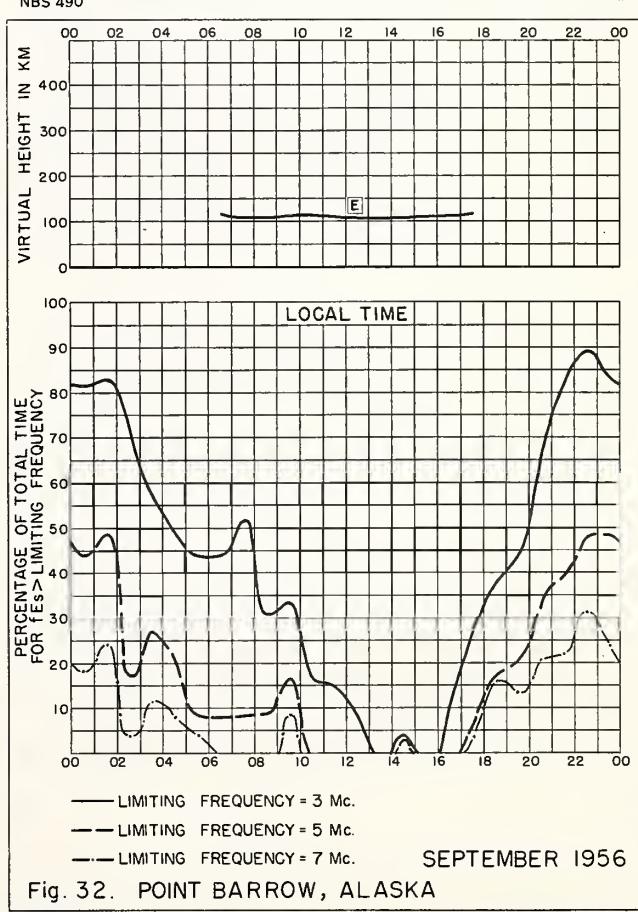
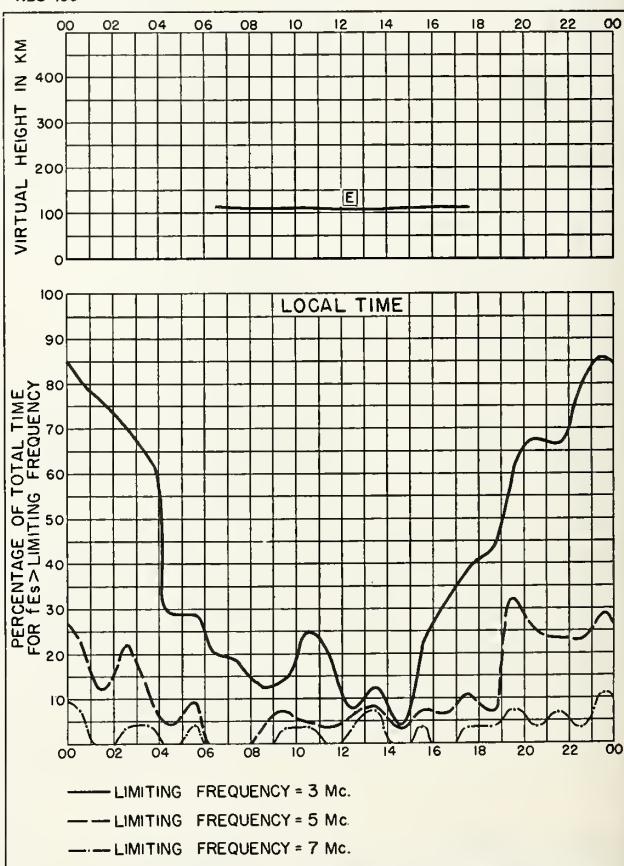
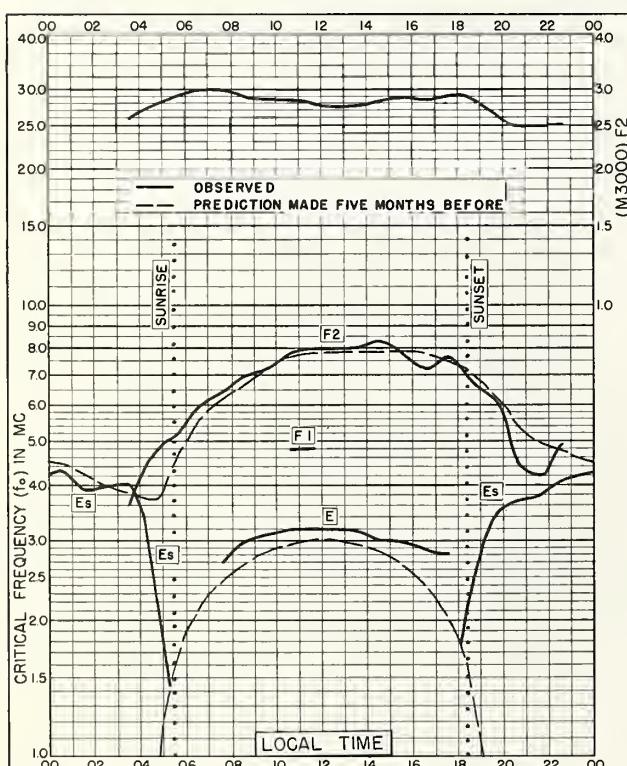
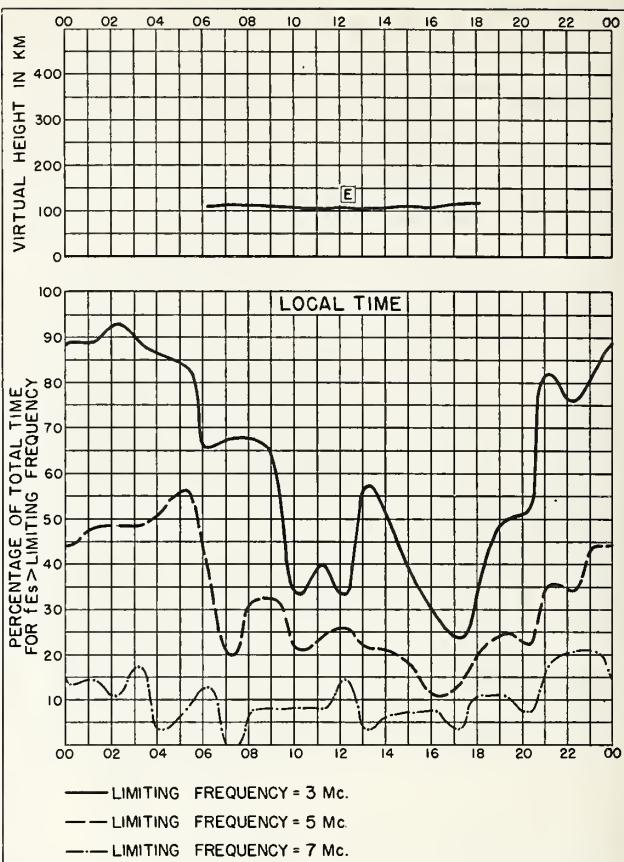
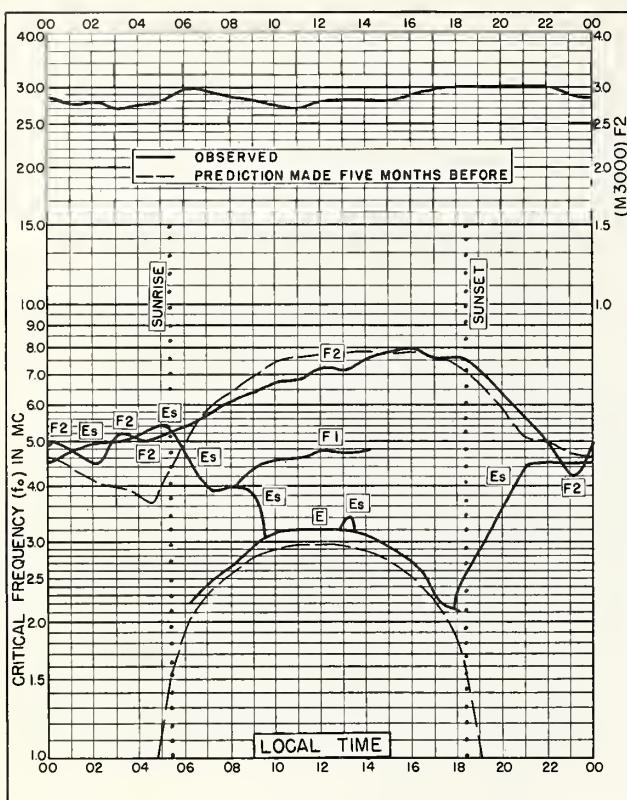


Fig. 32. POINT BARROW, ALASKA SEPTEMBER 1956



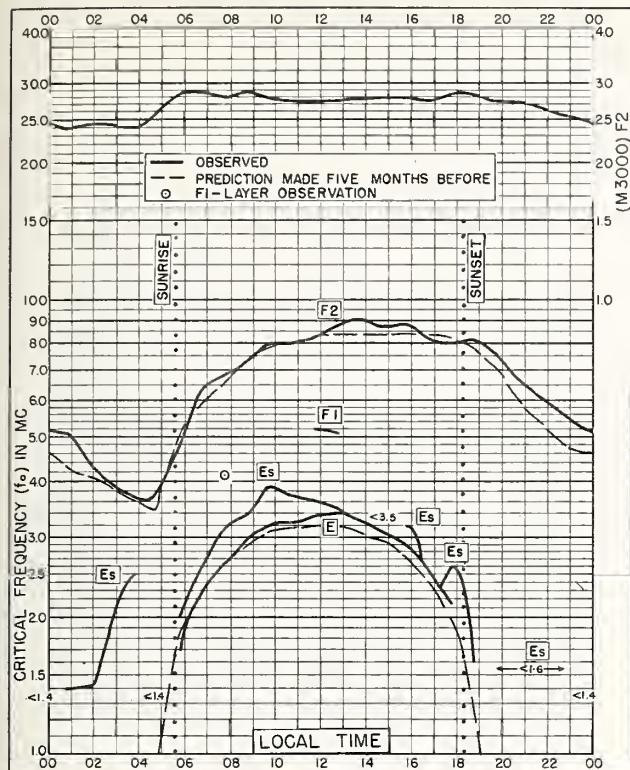


Fig. 37. OSLO, NORWAY
60.0°N, 11.1°E SEPTEMBER 1956

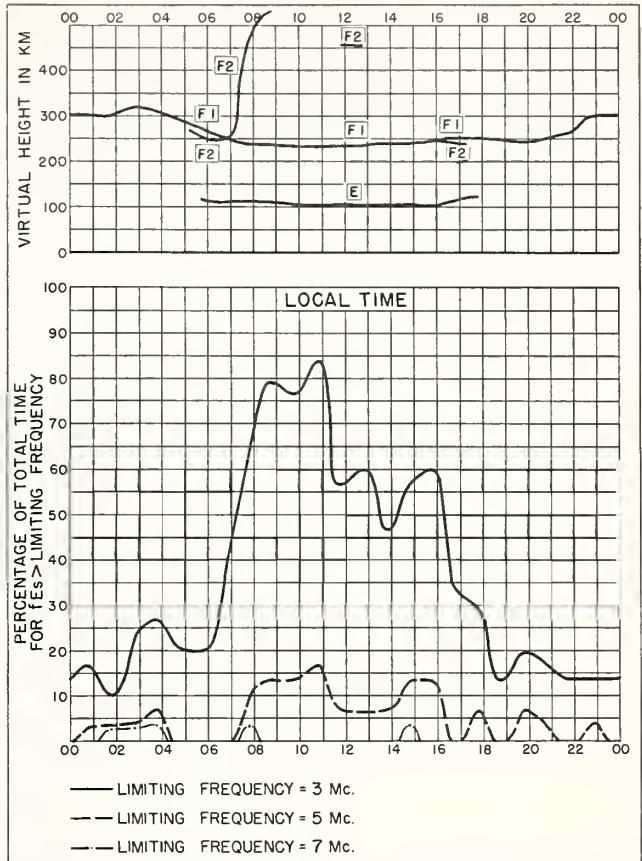


Fig. 38. OSLO, NORWAY SEPTEMBER 1956

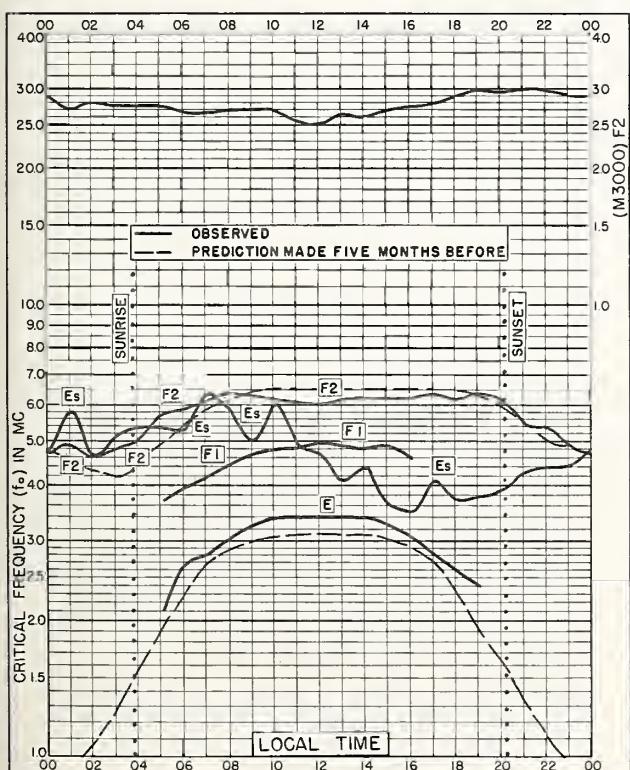


Fig. 39. FAIRBANKS, ALASKA
64.9°N, 147.8°W AUGUST 1956

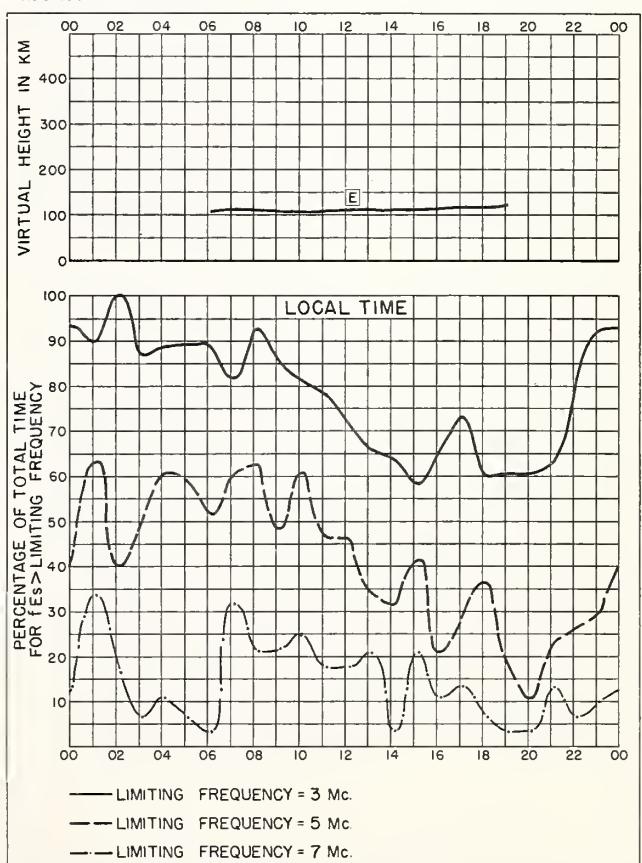


Fig. 40. FAIRBANKS, ALASKA AUGUST 1956

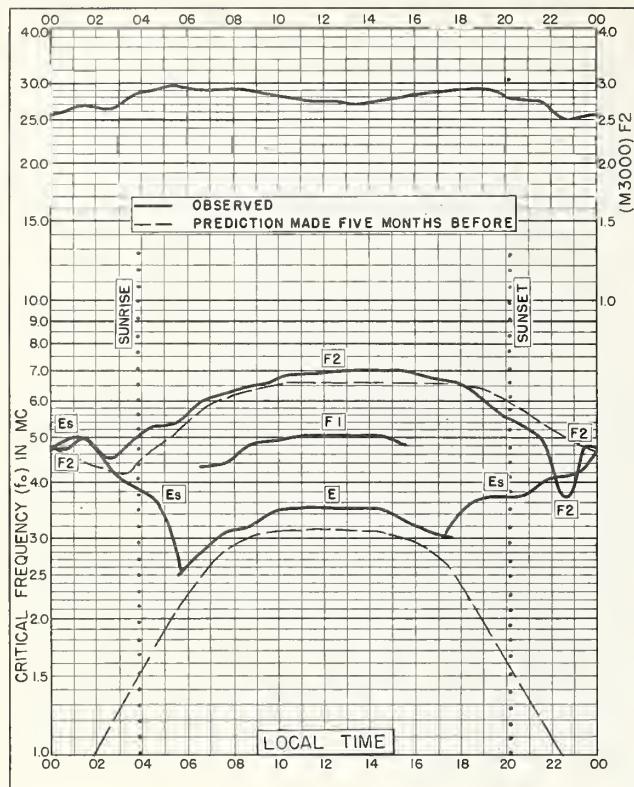


Fig. 41. REYKJAVIK, ICELAND
64.1°N, 21.8°W AUGUST 1956

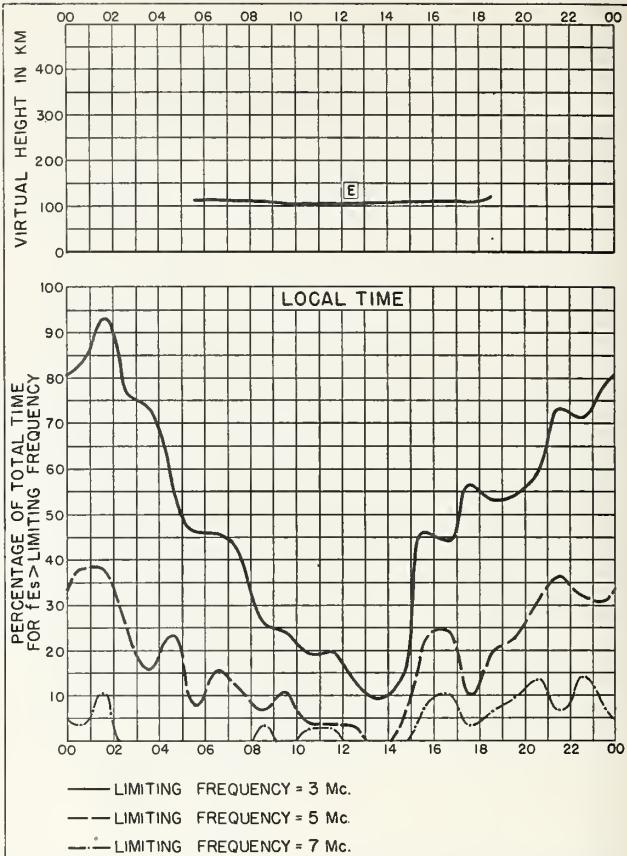


Fig. 42. REYKJAVIK, ICELAND AUGUST 1956

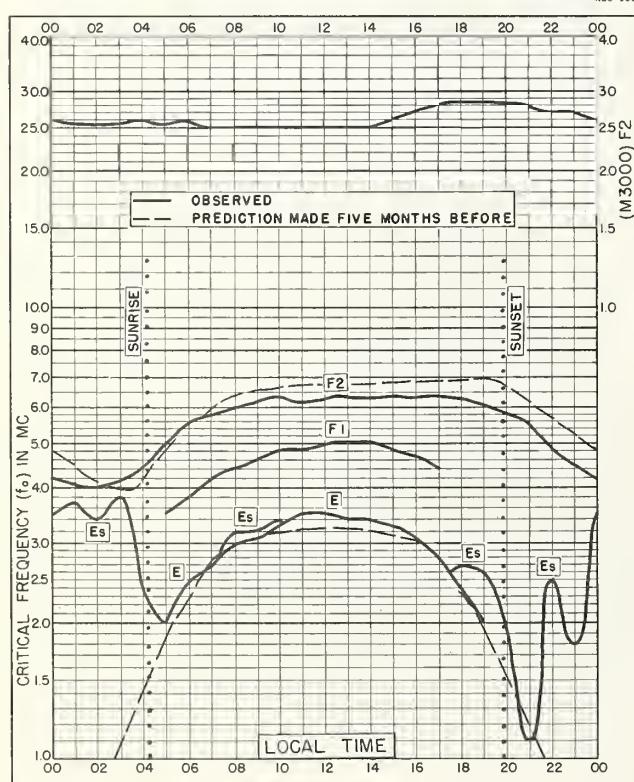


Fig. 43. ANCHORAGE, ALASKA
61.2°N, 149.9°W AUGUST 1956

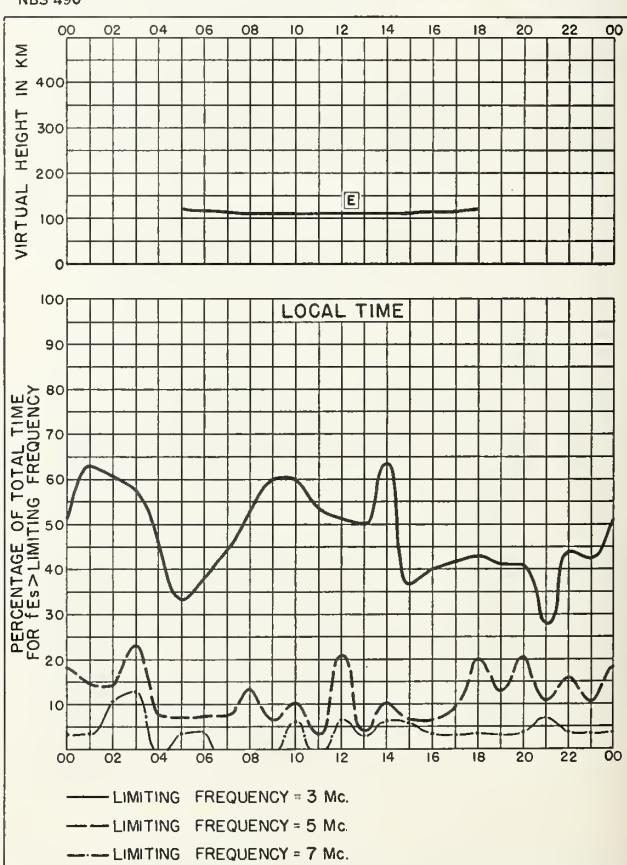


Fig. 44. ANCHORAGE, ALASKA AUGUST 1956

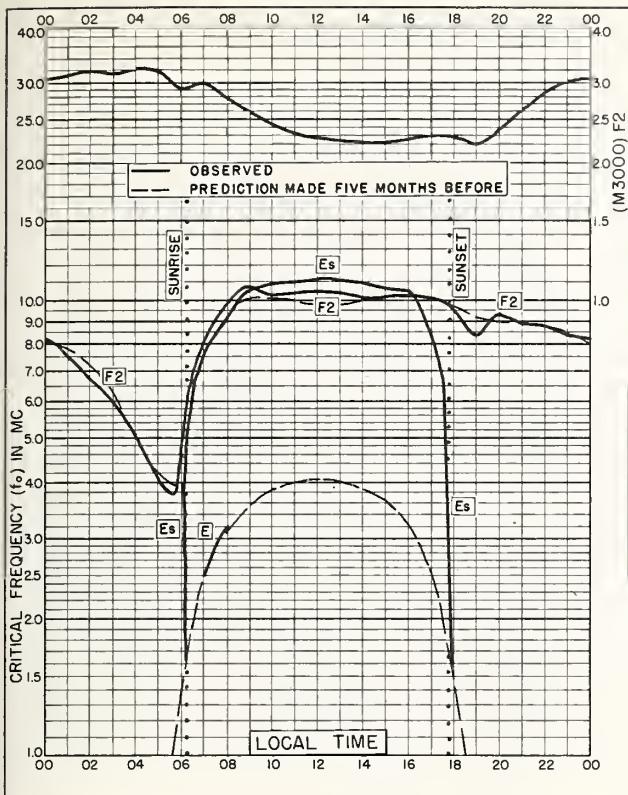


Fig. 45. HUANCAYO, PERU
 12.0°S, 75.3°W AUGUST 1956

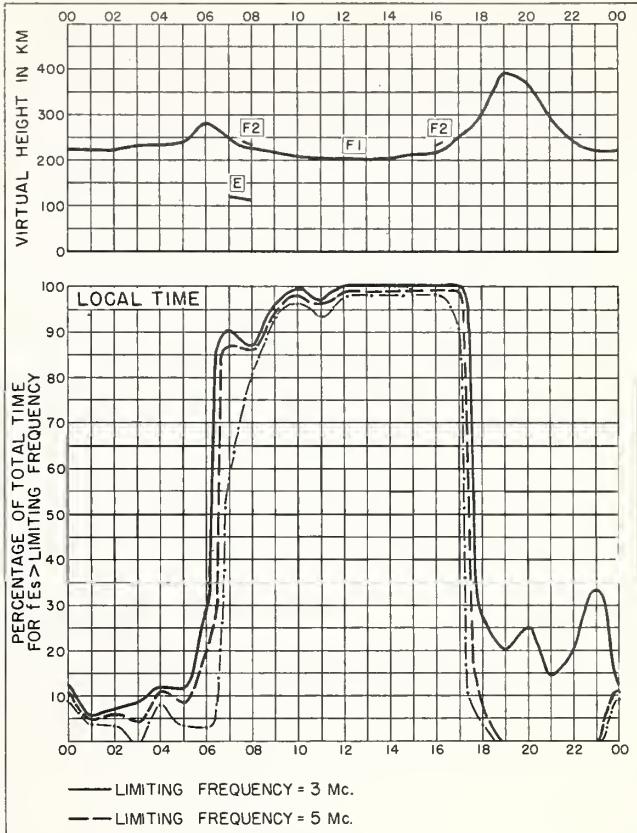


Fig. 46. HUANCAYO, PERU AUGUST 1956

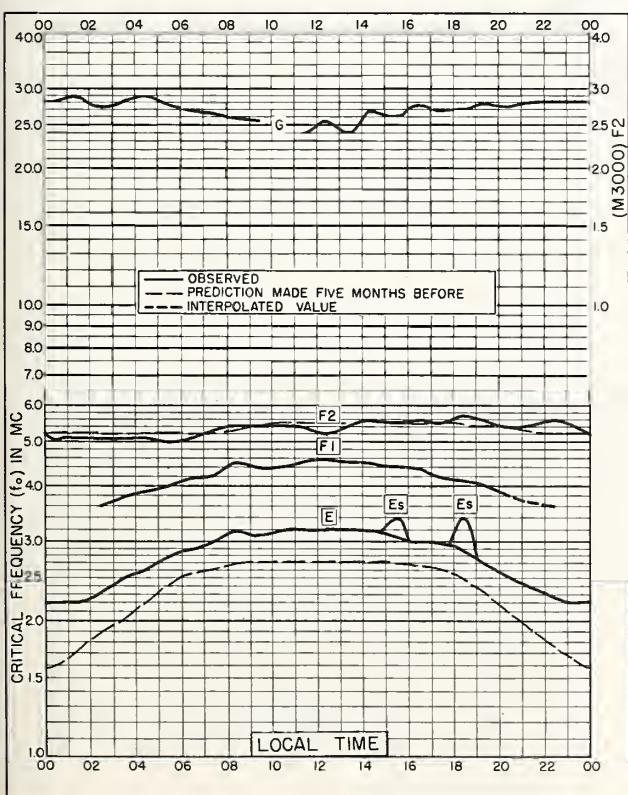


Fig. 47. THULE, GREENLAND
 77.0°N, 69.0°W JULY 1956

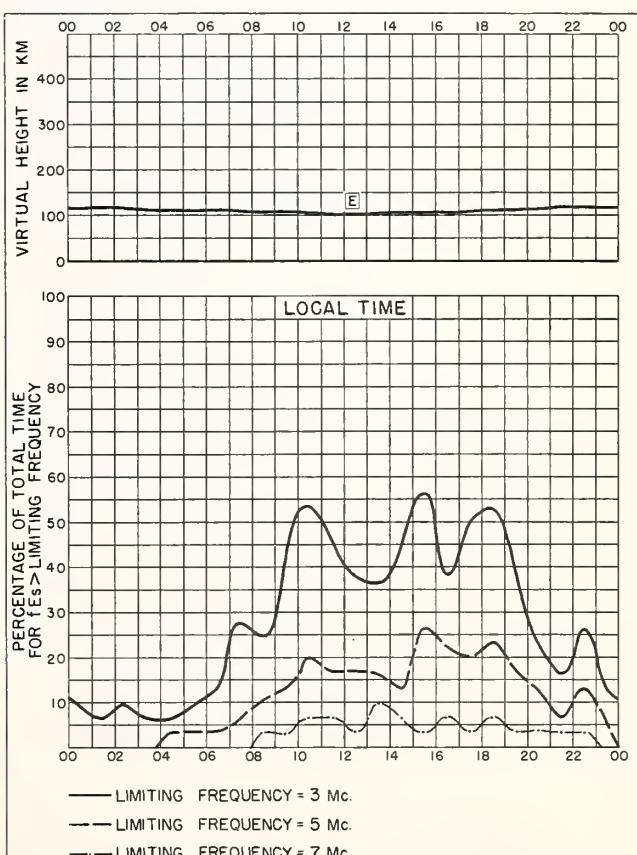
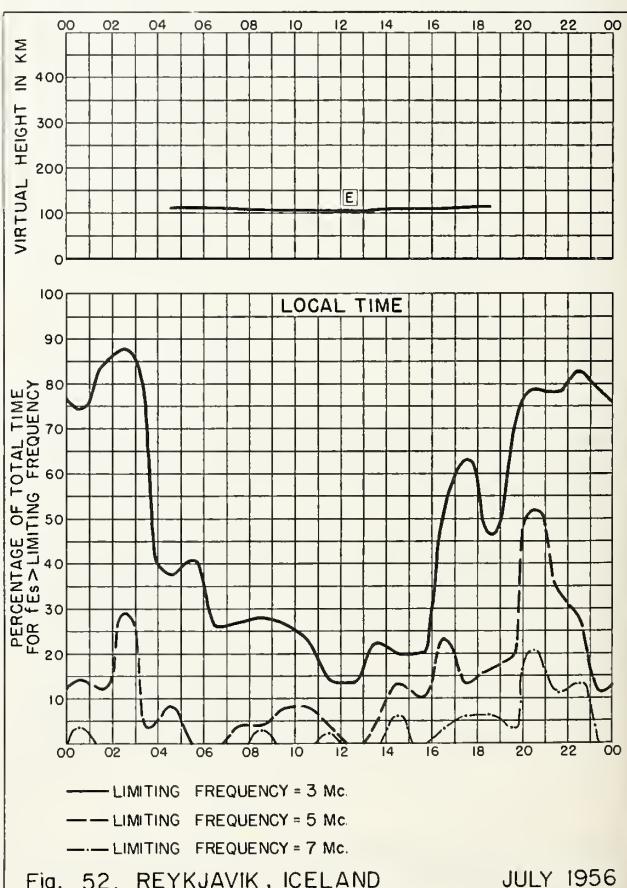
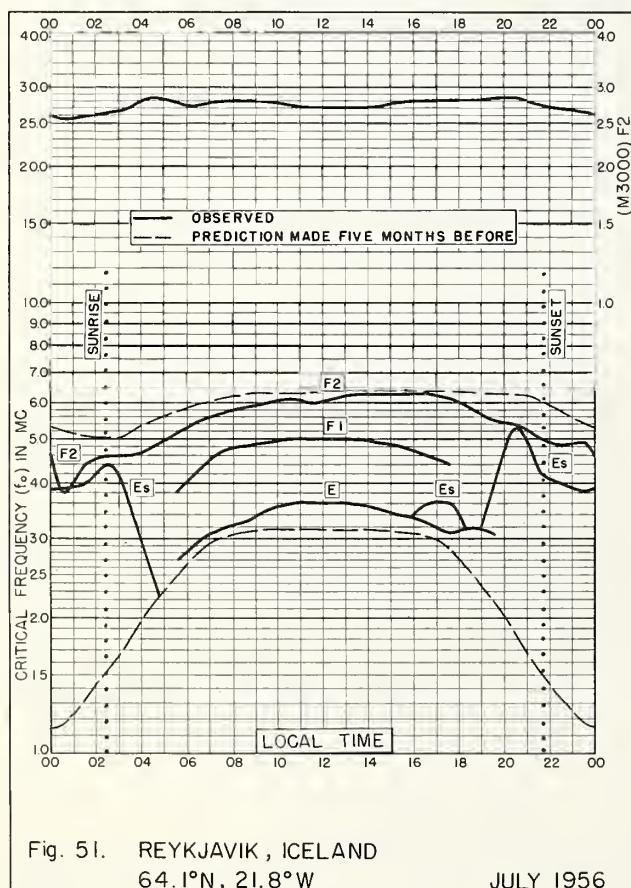
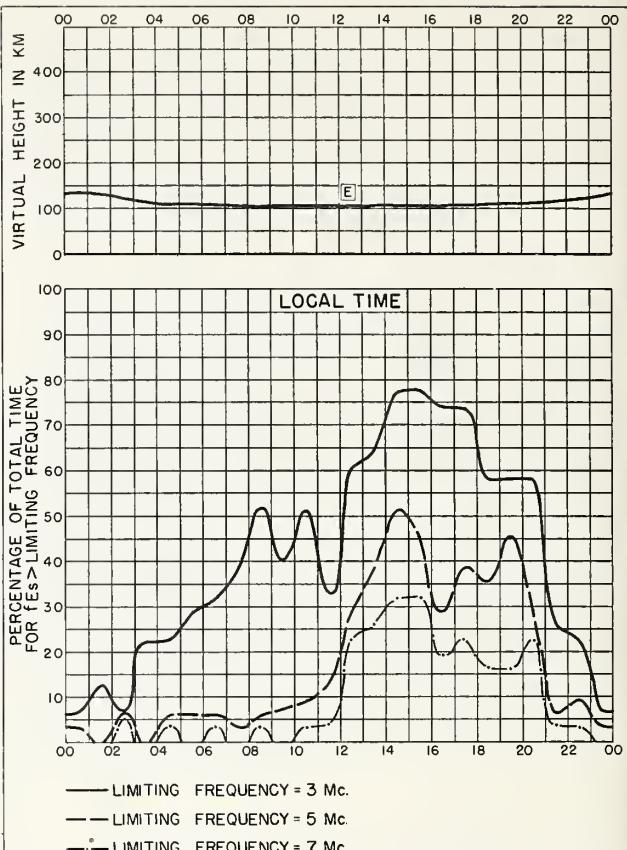
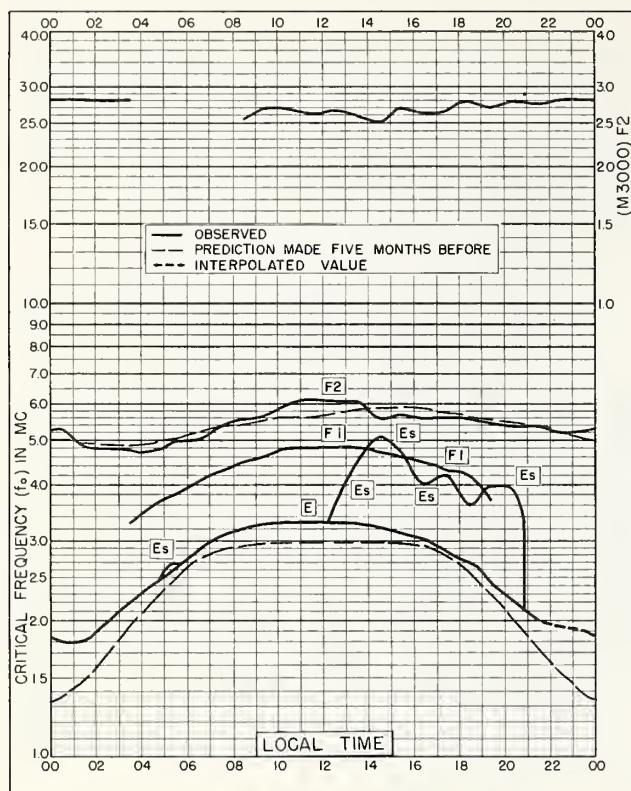
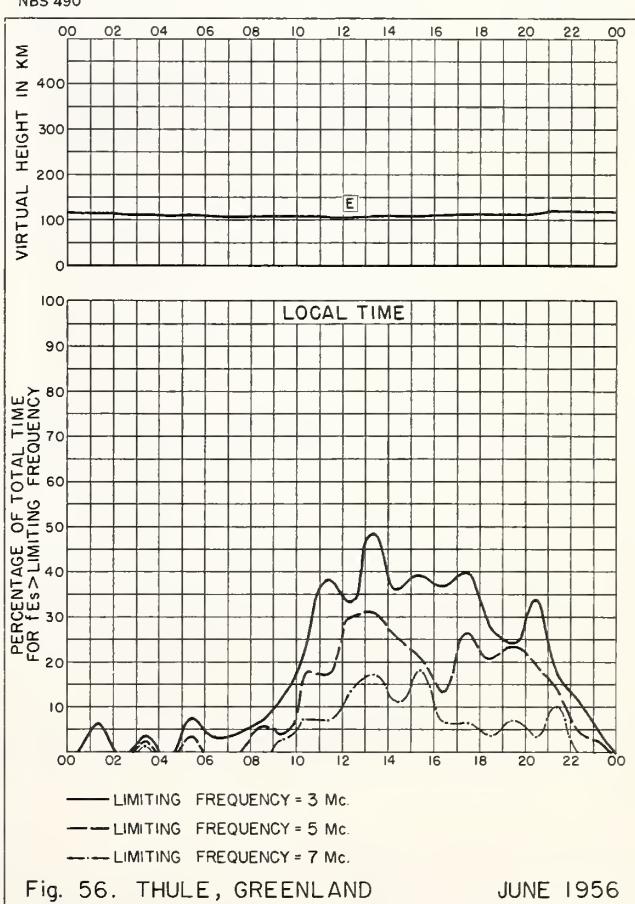
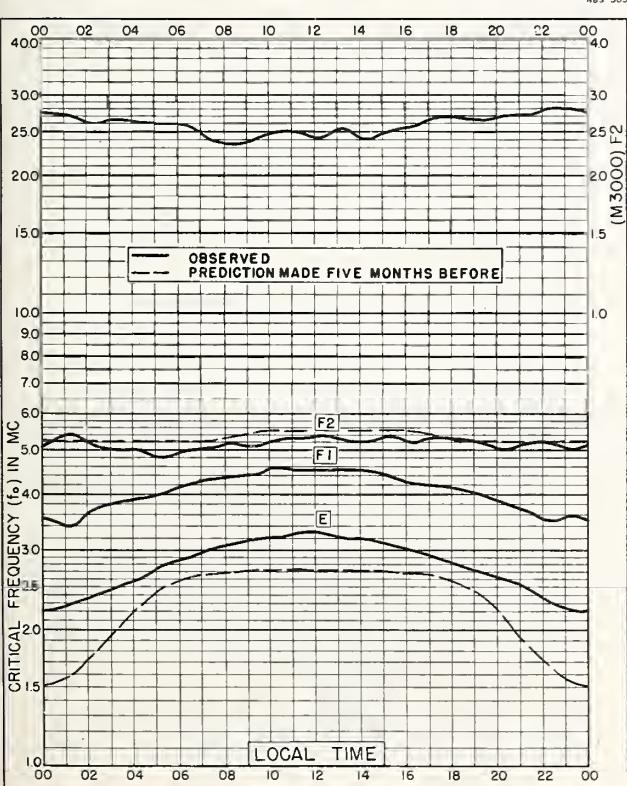
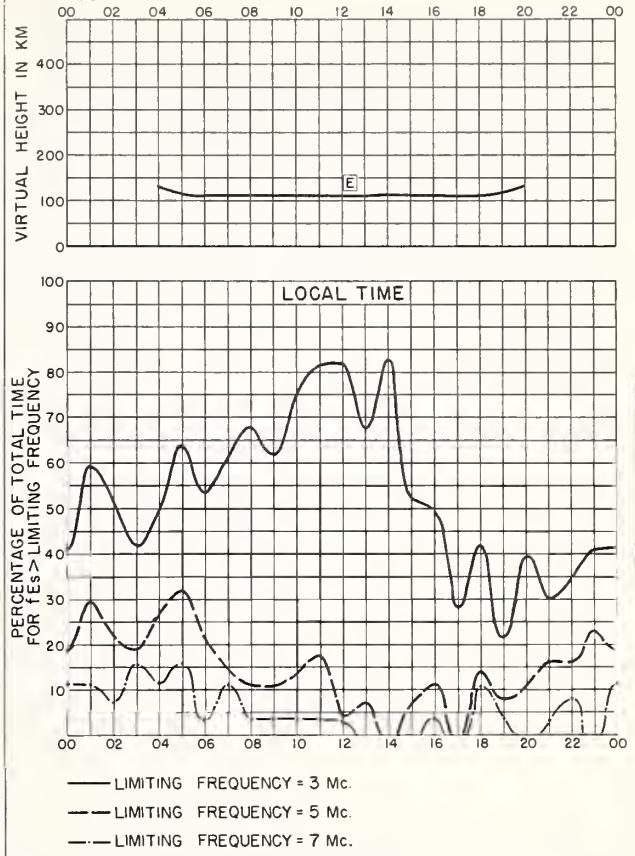
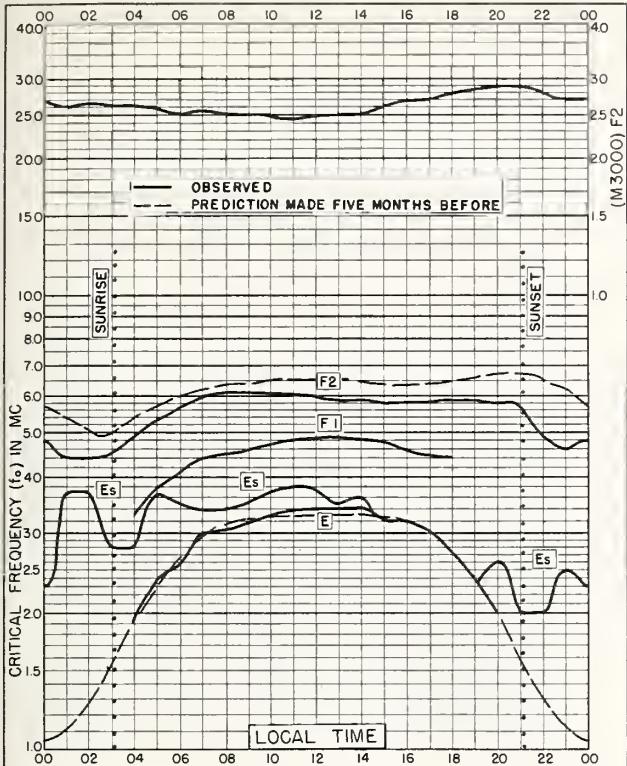
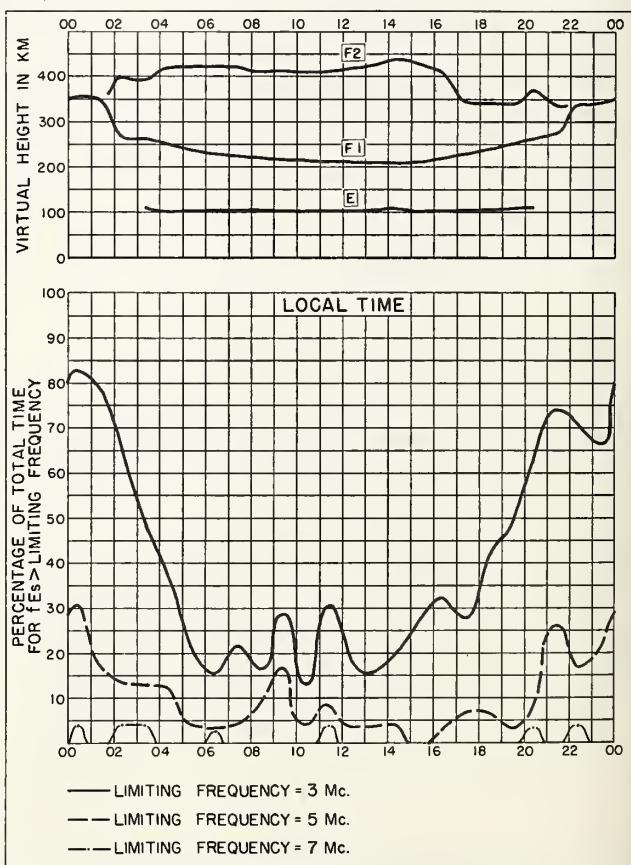
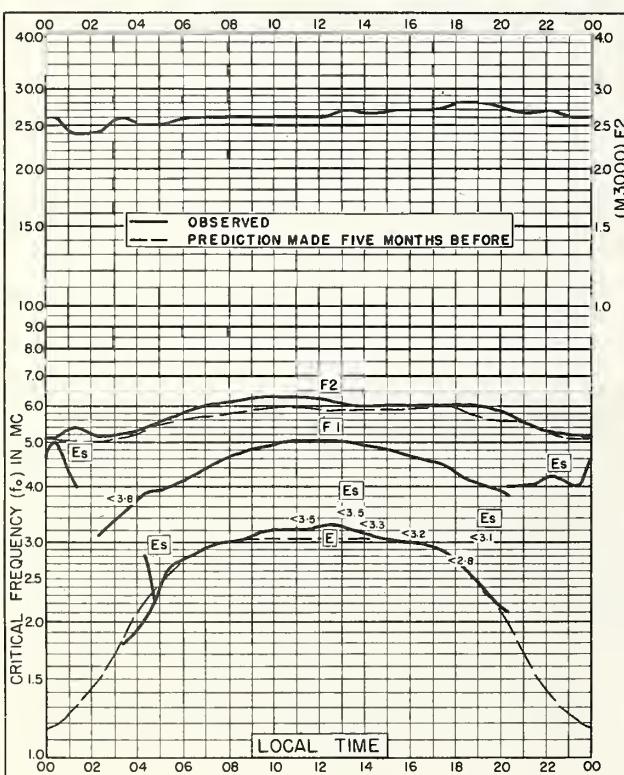
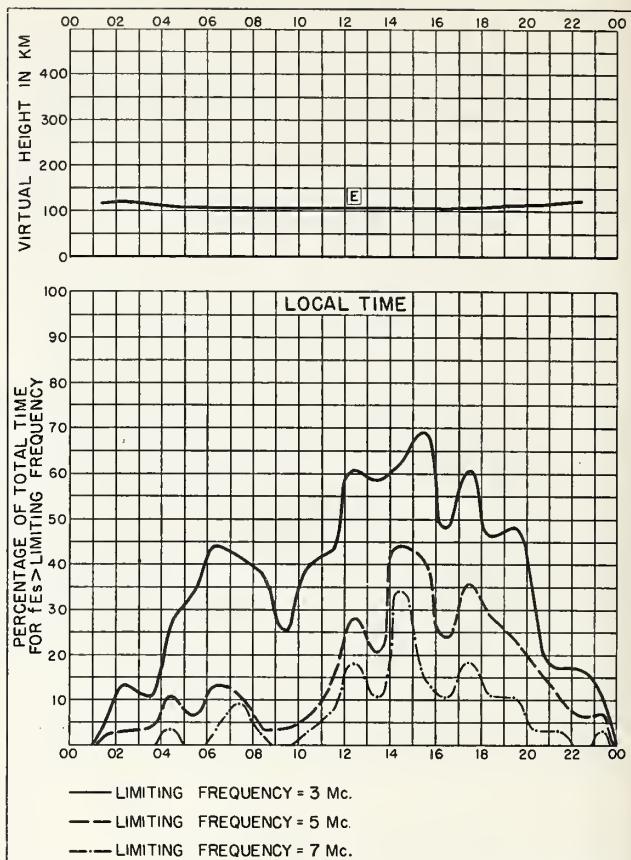
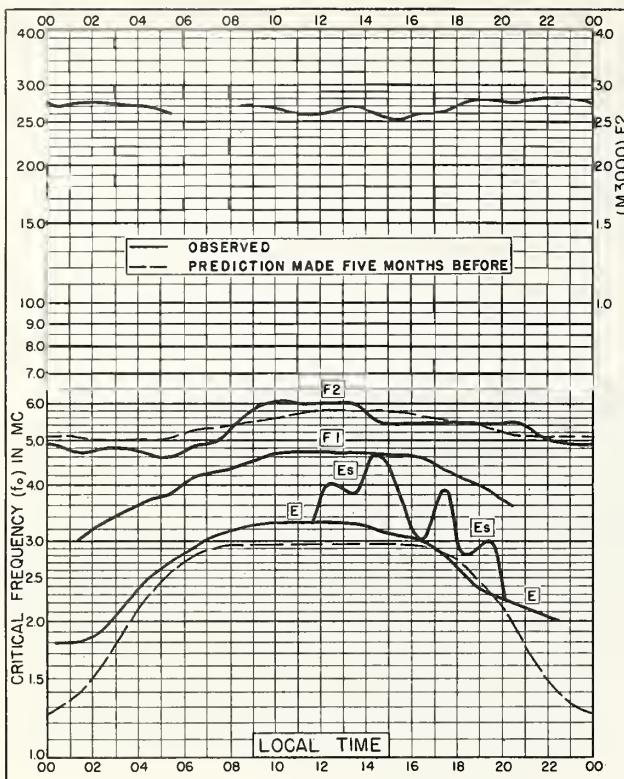


Fig. 48. THULE, GREENLAND JULY 1956







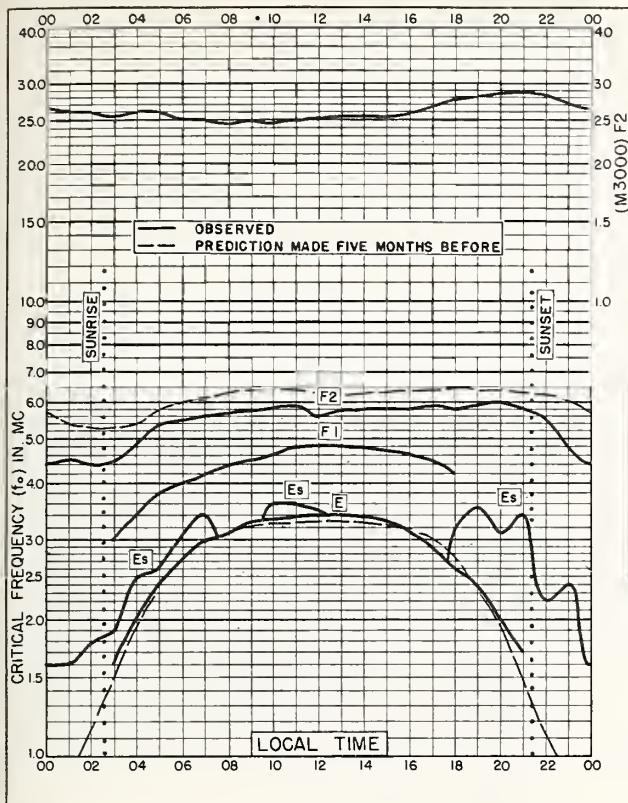


Fig. 61. ANCHORAGE, ALASKA
61.2°N, 149.9°W JUNE 1956

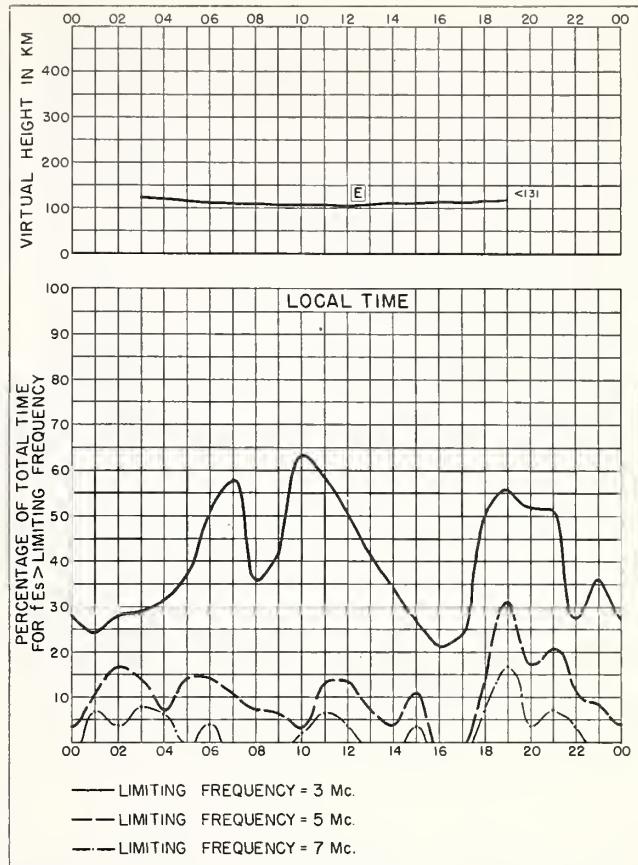


Fig. 62. ANCHORAGE, ALASKA JUNE 1956

NBS 490

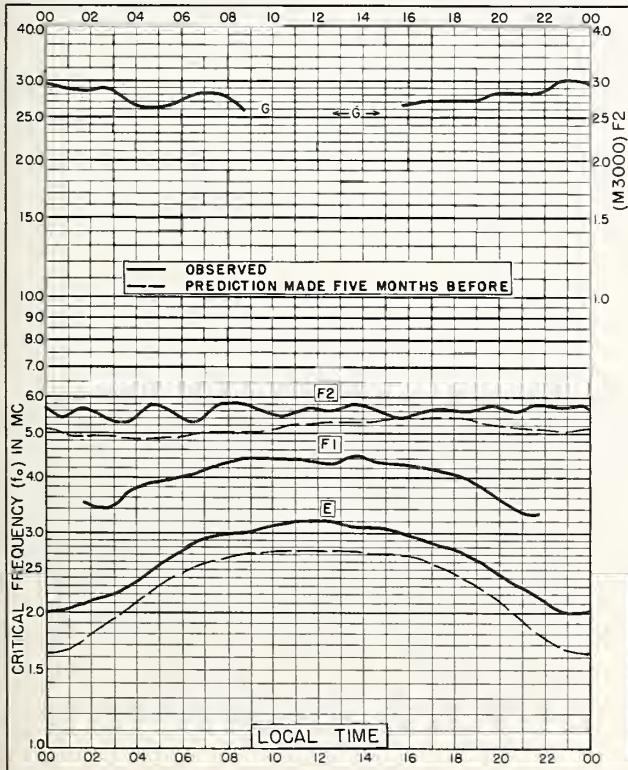


Fig. 63. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MAY 1956

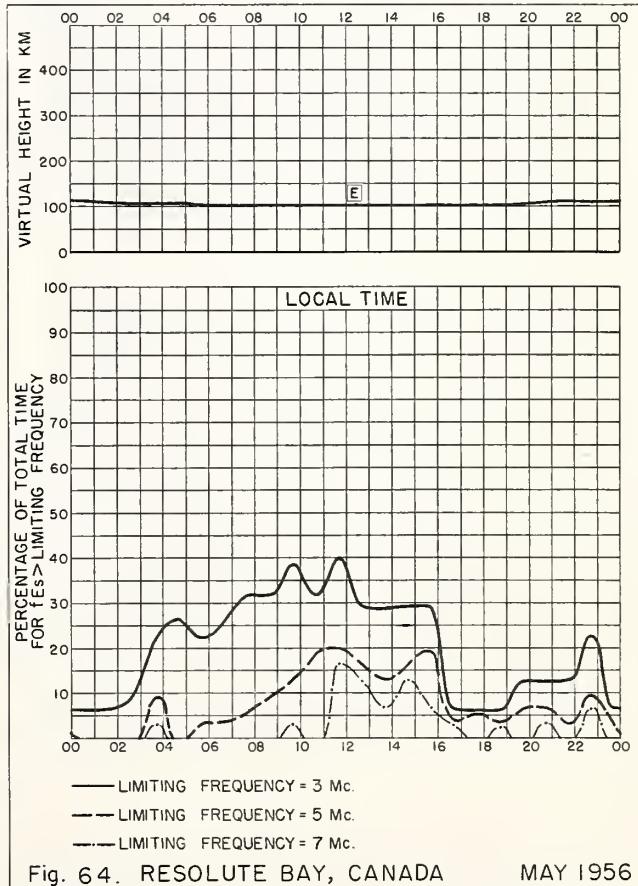


Fig. 64. RESOLUTE BAY, CANADA MAY 1956

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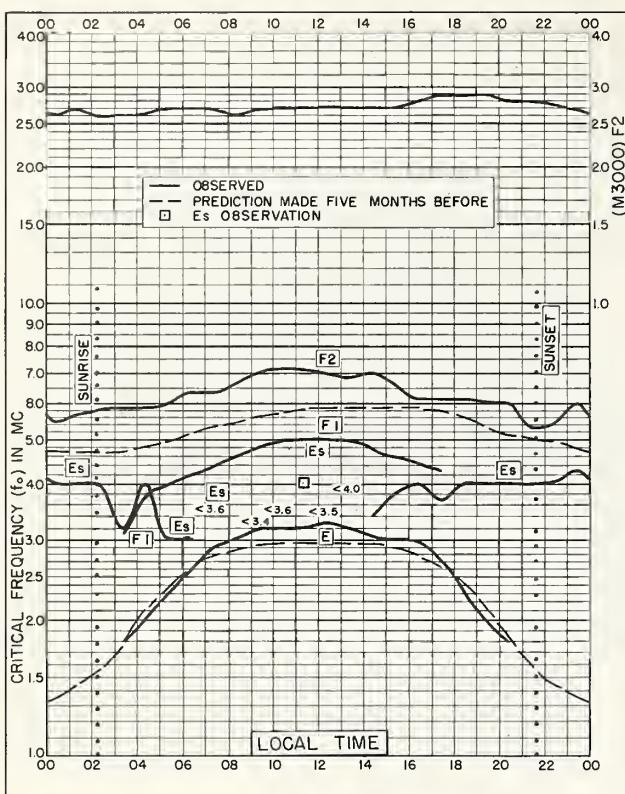


Fig. 65. KIRUNA, SWEDEN
67.8°N, 20.3°E MAY 1956

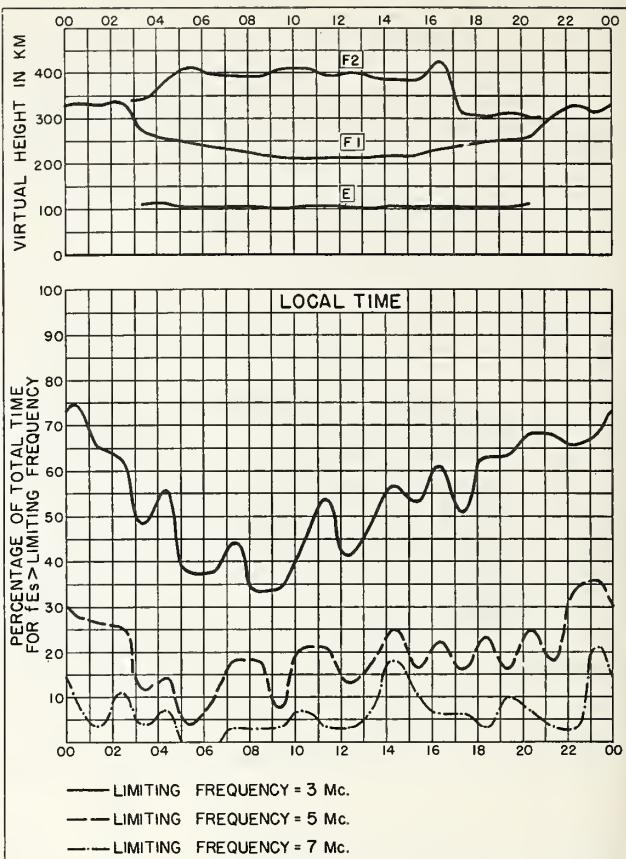


Fig. 66. KIRUNA, SWEDEN MAY 1956

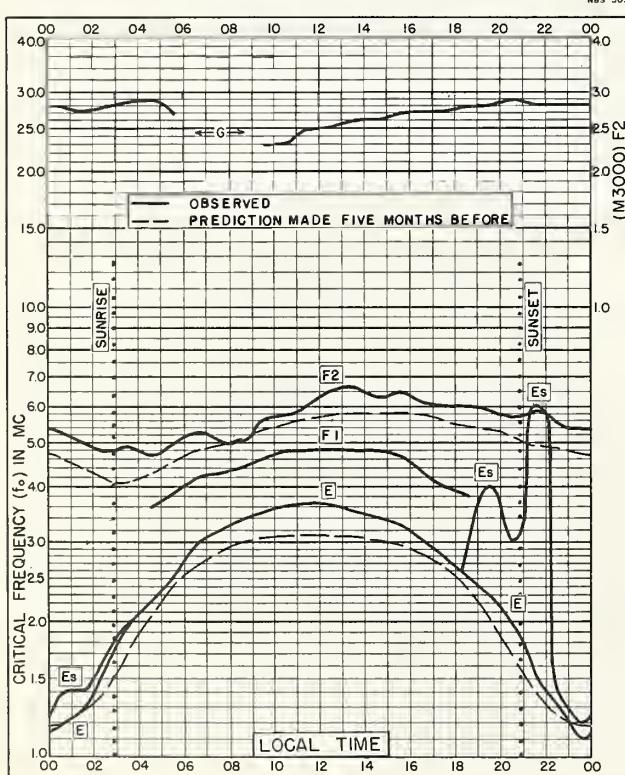


Fig. 67. BAKER LAKE, CANADA
64.3°N, 96.0°W MAY 1956

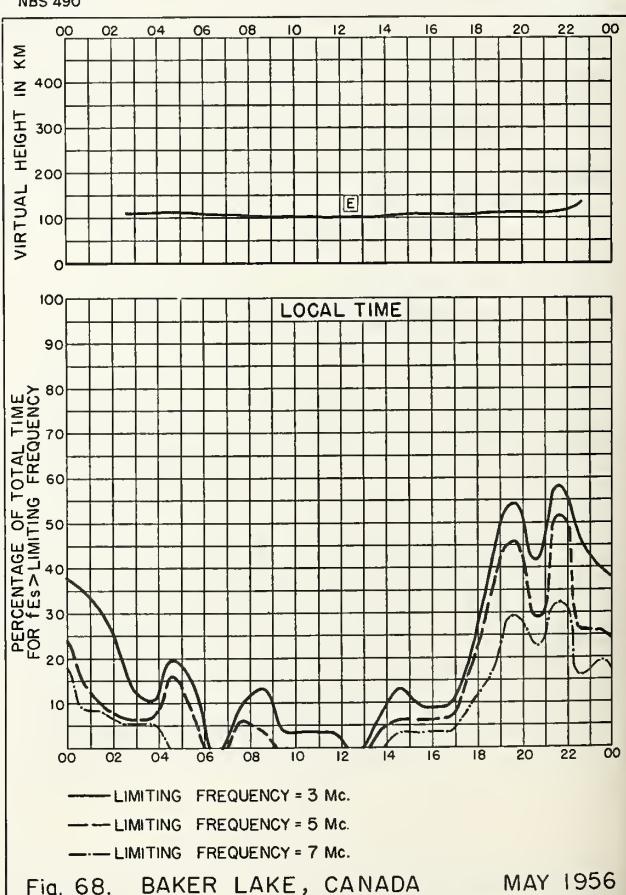
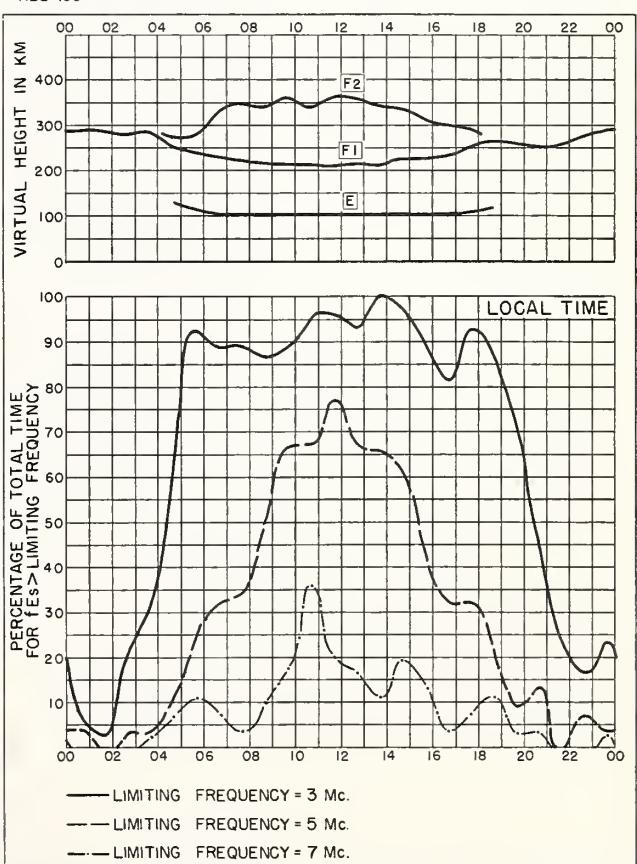
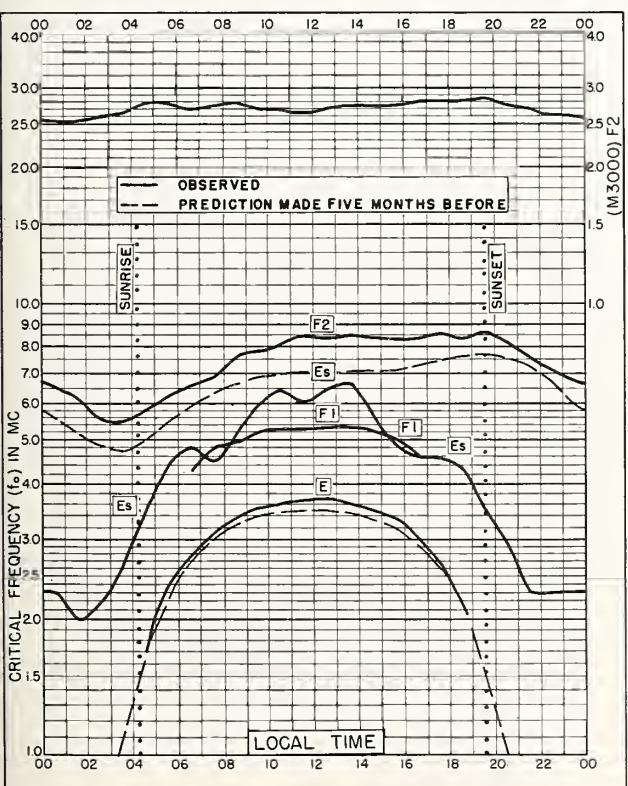
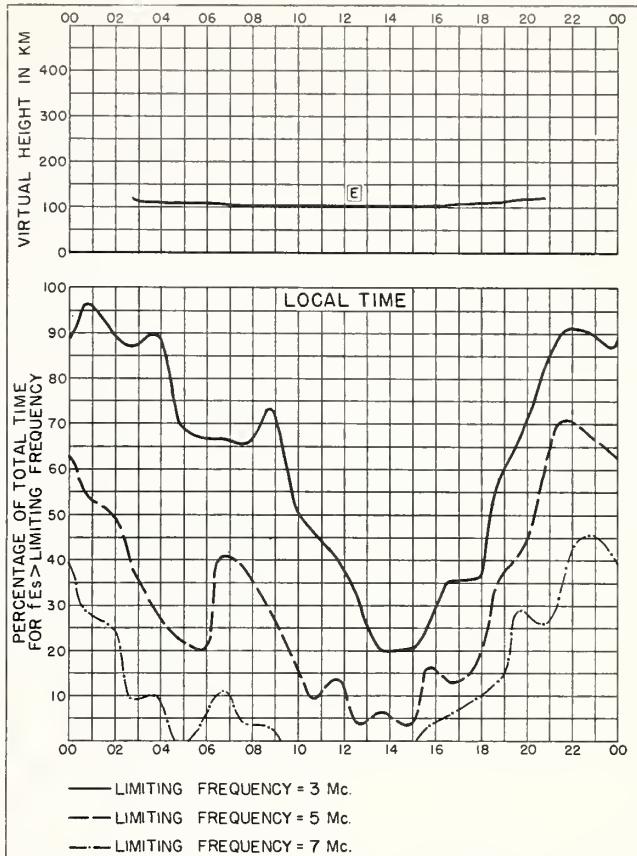
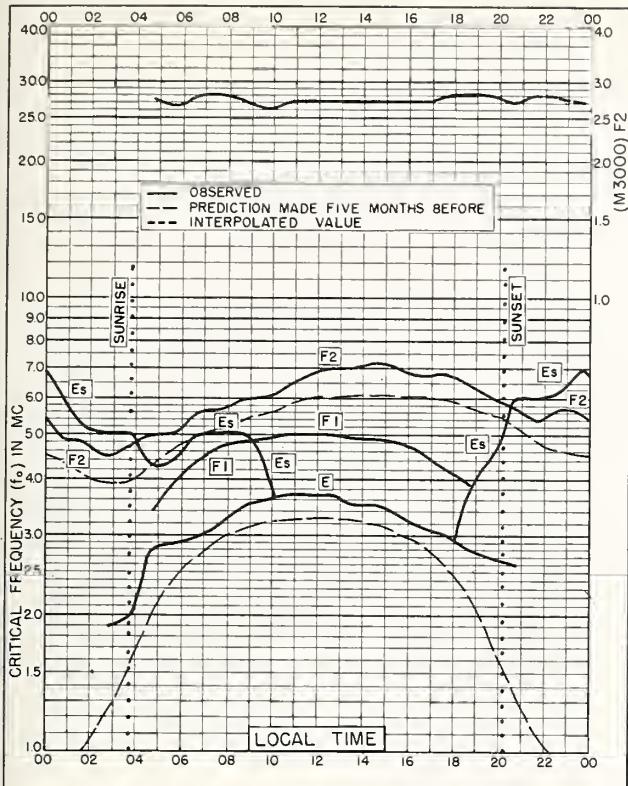
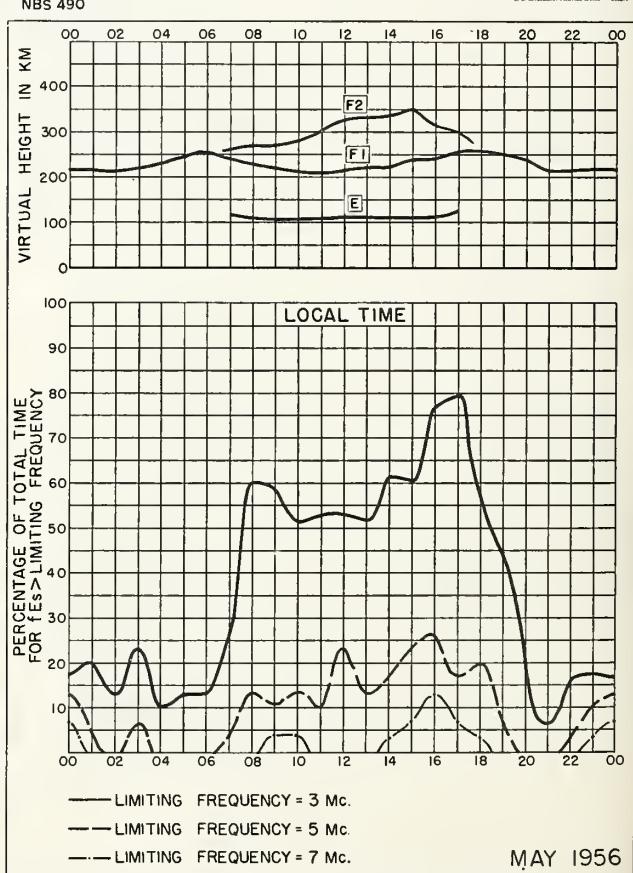
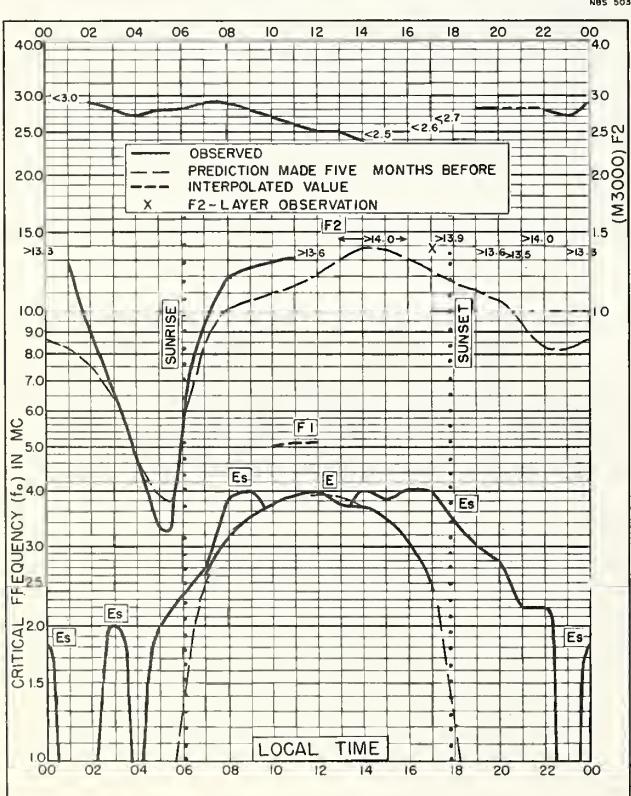
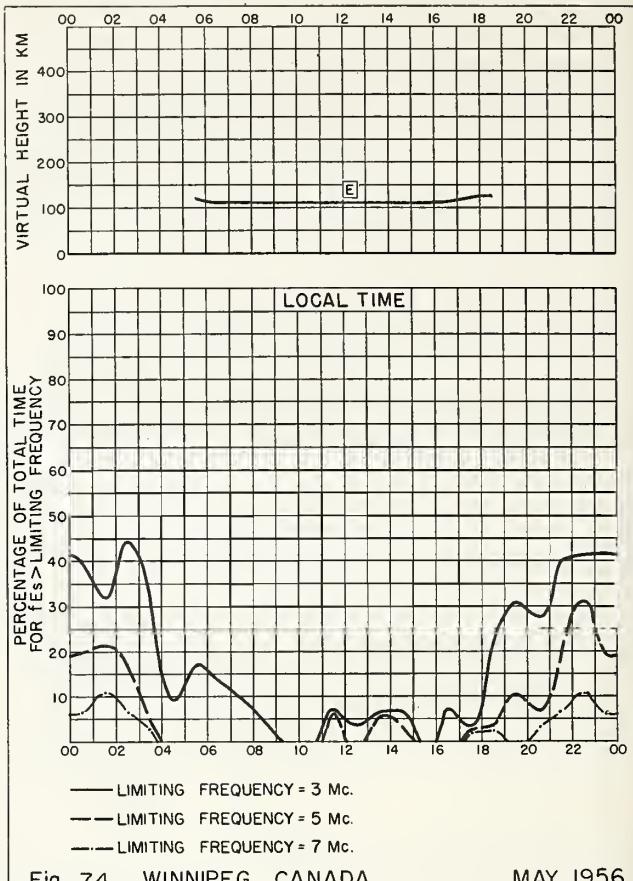
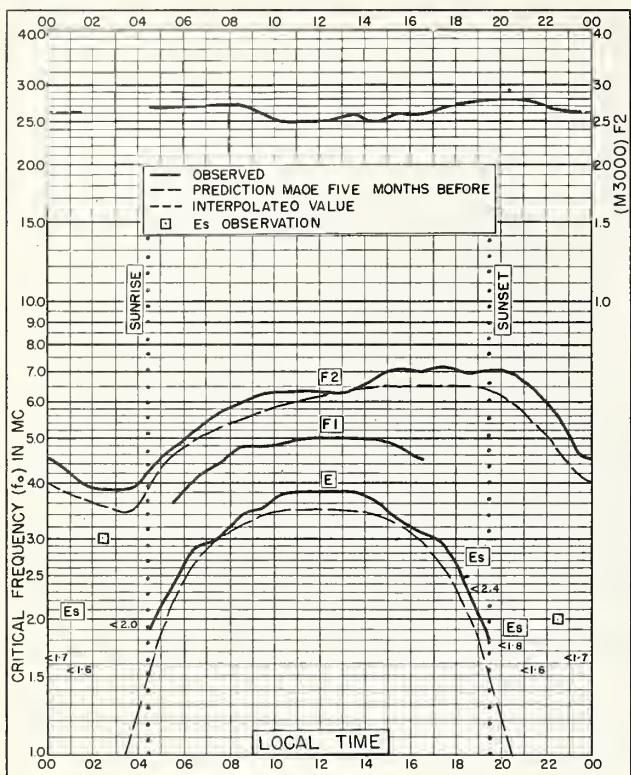


Fig. 68. BAKER LAKE, CANADA MAY 1956





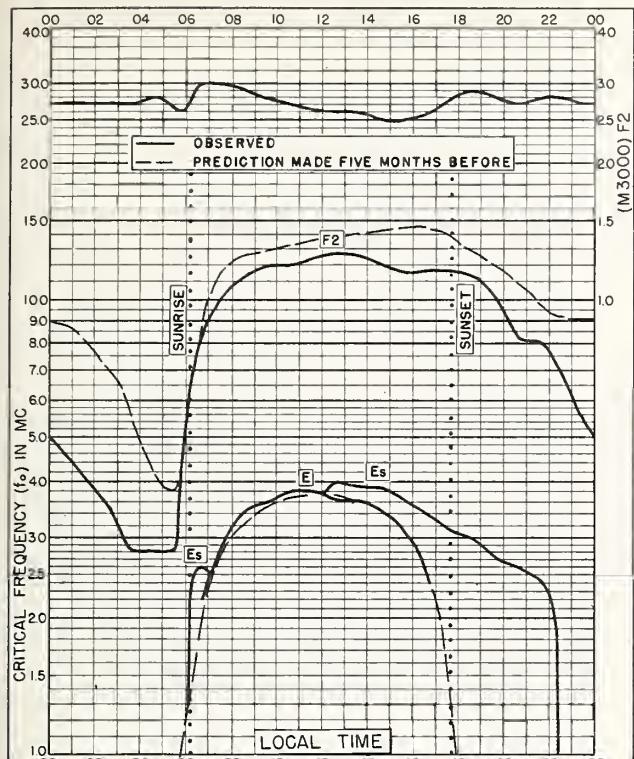


Fig. 77. ELISABETHVILLE, BELGIAN CONGO
II. 6° S, 27.5° E MAY 1956

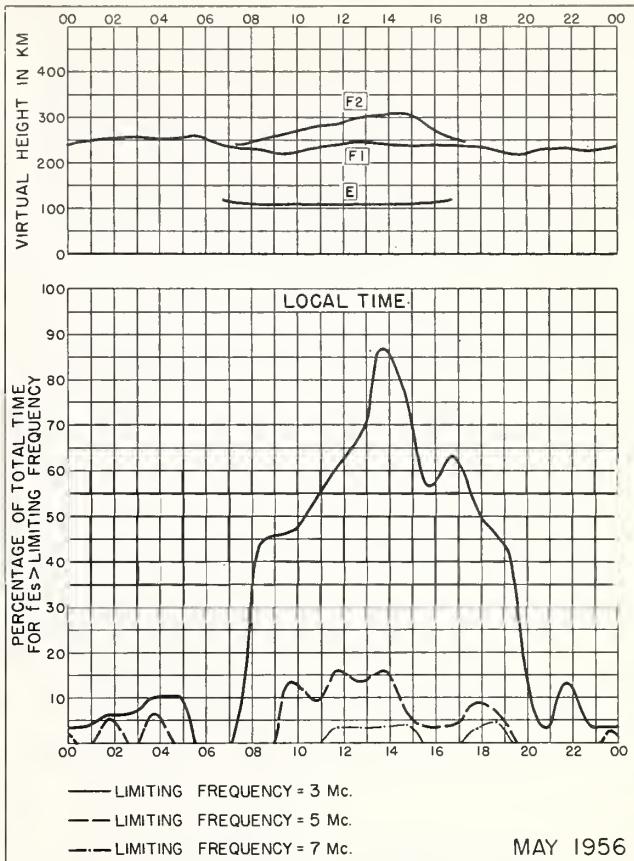


Fig. 78. ELISABETHVILLE, BELGIAN CONGO

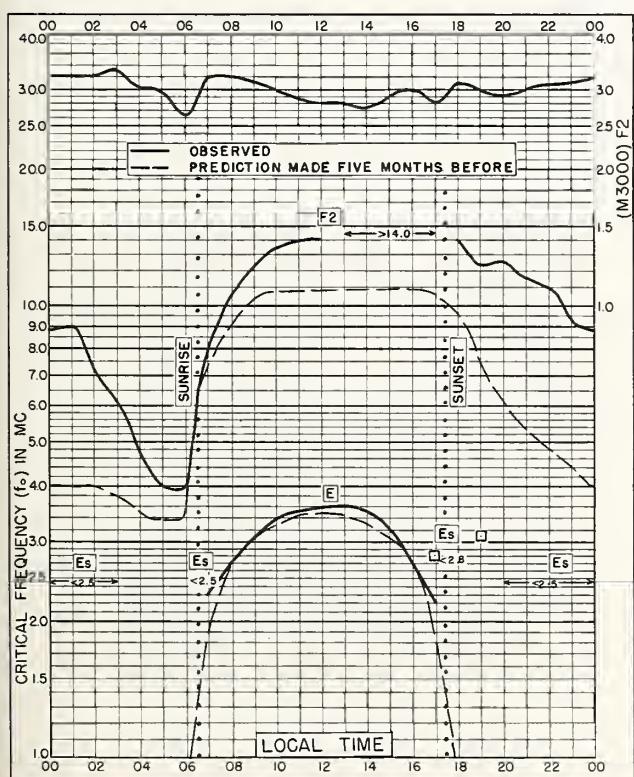


Fig. 79. SAO PAULO, BRAZIL
23.5 $^{\circ}$ S, 46.5 $^{\circ}$ W MAY 1956

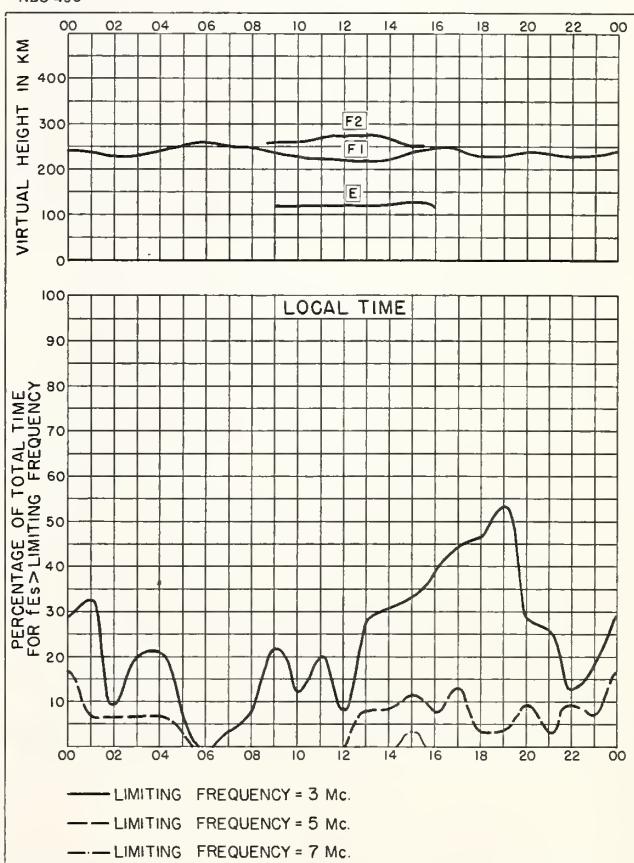


Fig. 80. SAO PAULO, BRAZIL

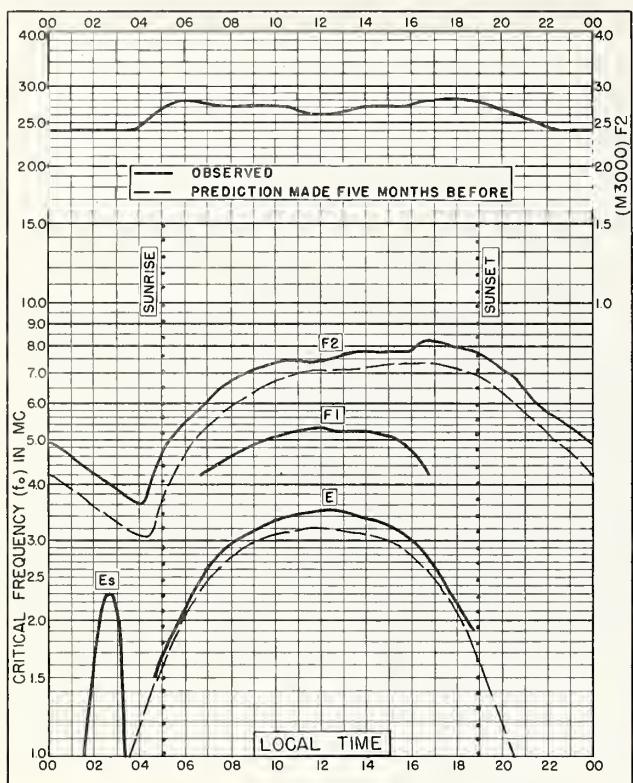


Fig. 81. INVERNESS, SCOTLAND
57.4°N, 4.2°W APRIL 1956

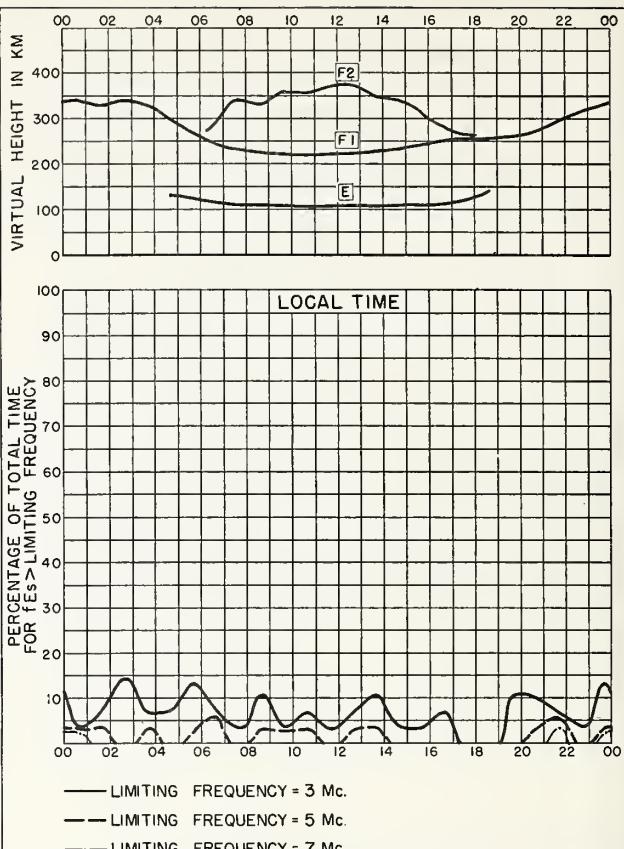


Fig. 82. INVERNESS, SCOTLAND APRIL 1956

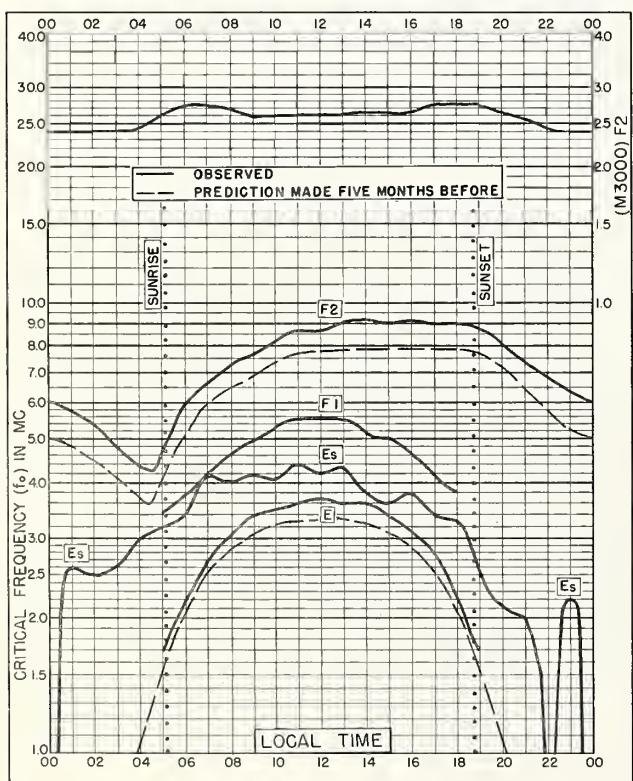


Fig. 83. SLOUGH, ENGLAND
51.5°N, 0.6°W APRIL 1956

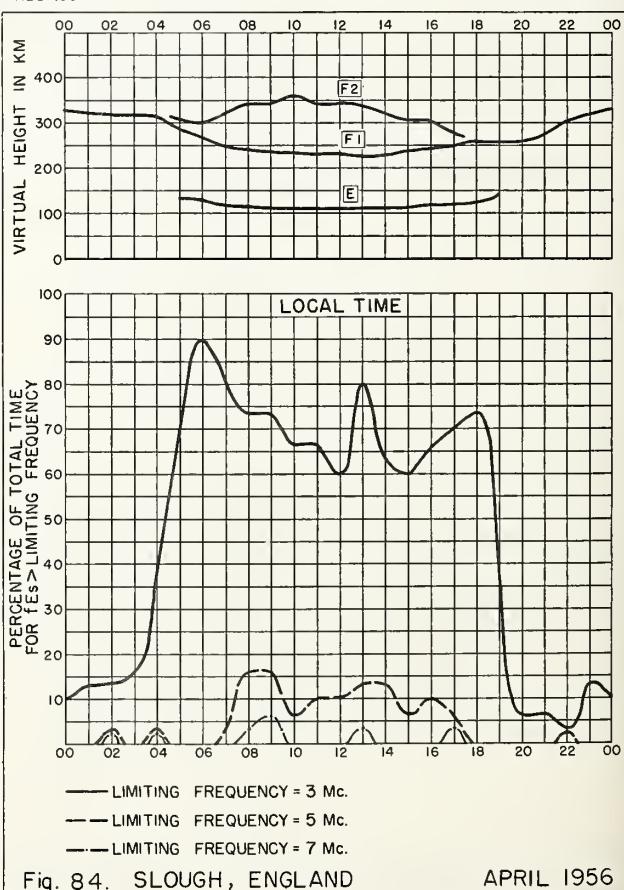


Fig. 84. SLOUGH, ENGLAND APRIL 1956

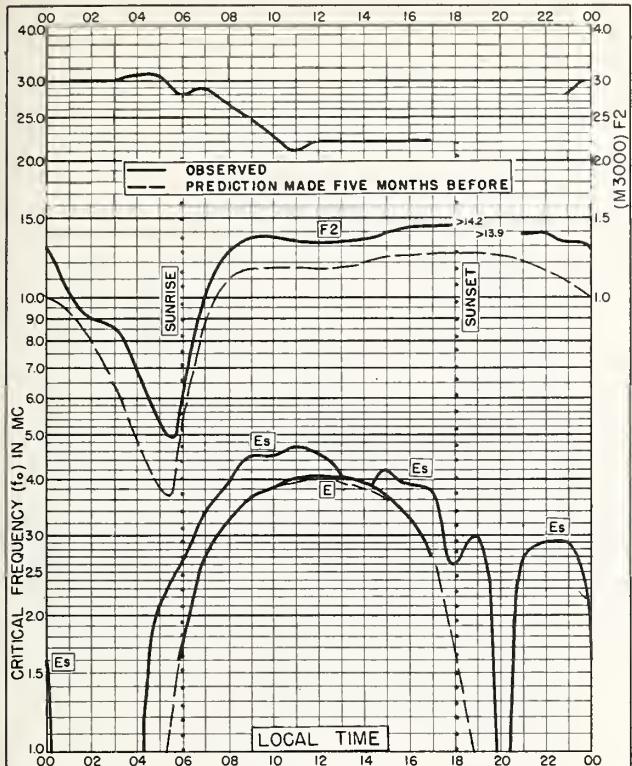


Fig. 85. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E APRIL 1956

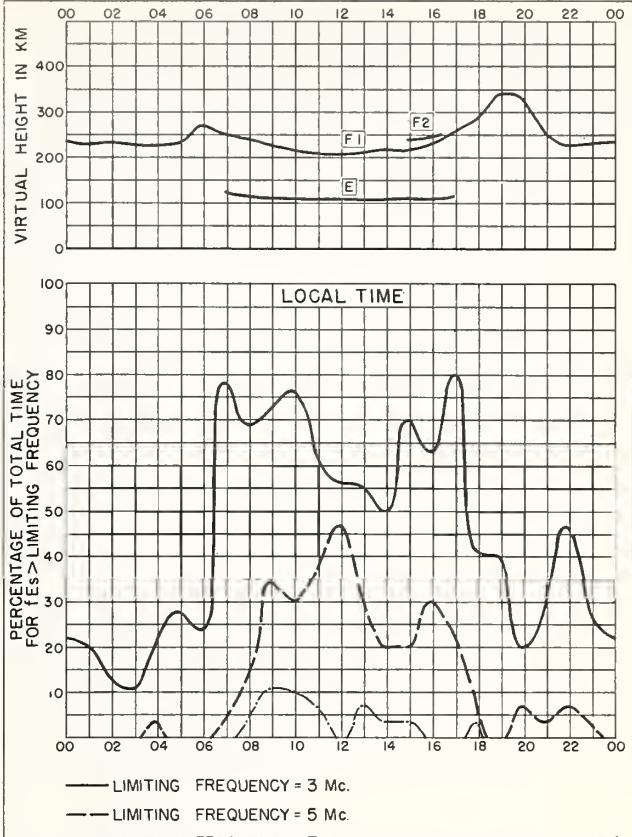


Fig. 86. SINGAPORE, BRITISH MALAYA APRIL 1956

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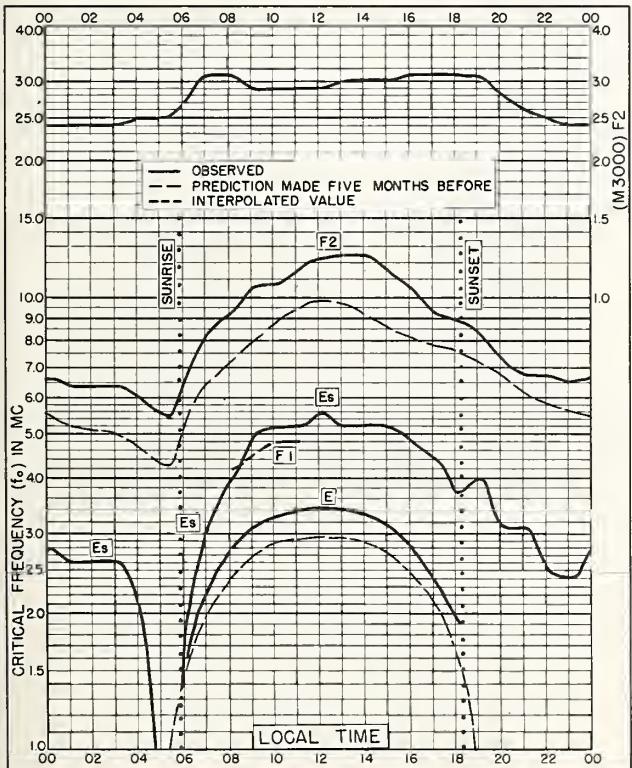


Fig. 87. FALKLAND IS.
51.7°S, 57.8°W MARCH 1956

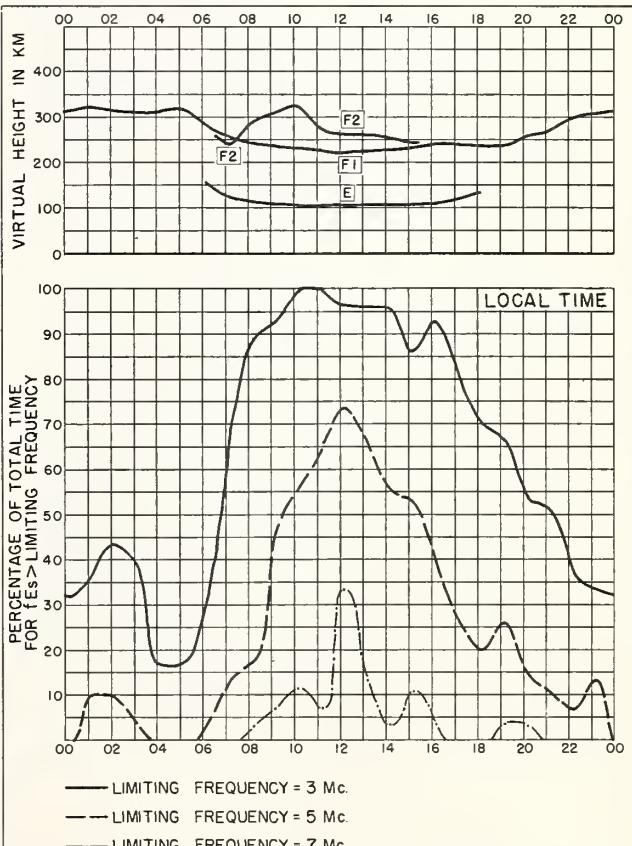
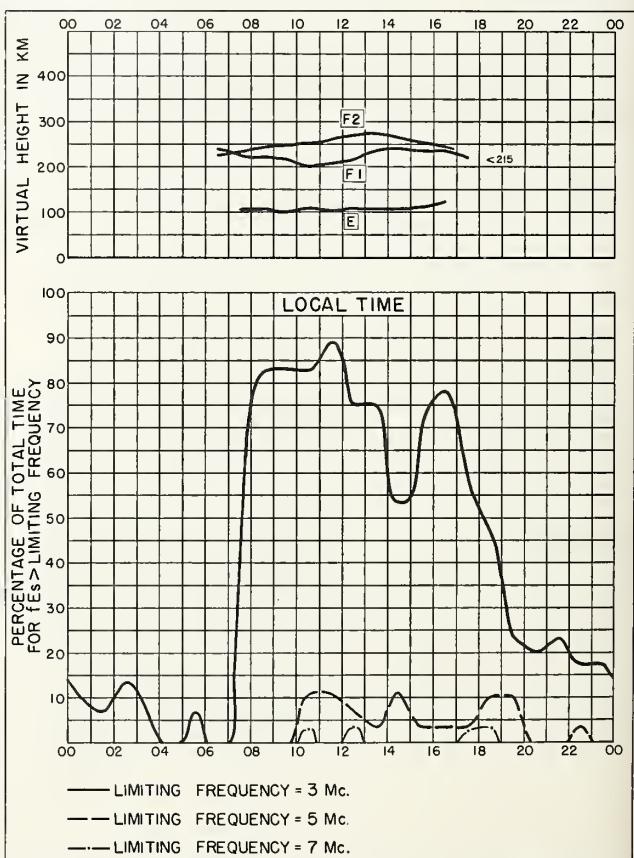
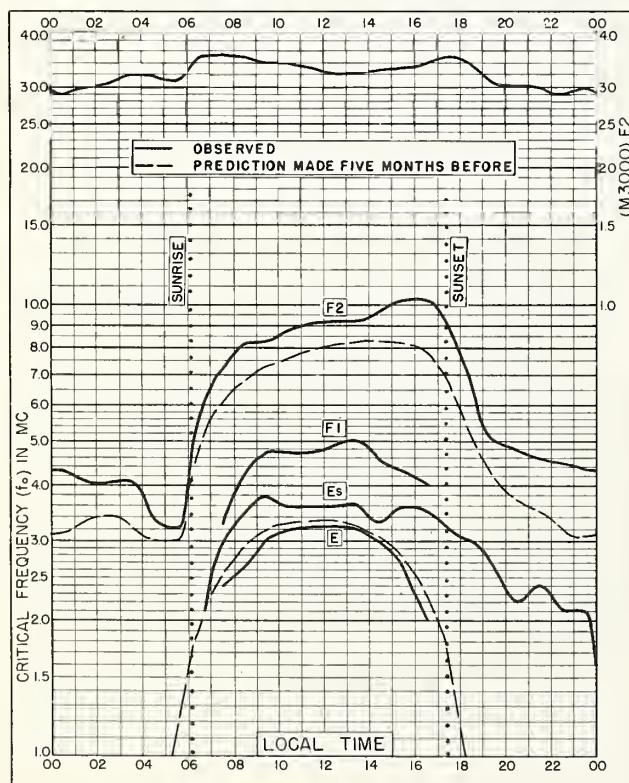
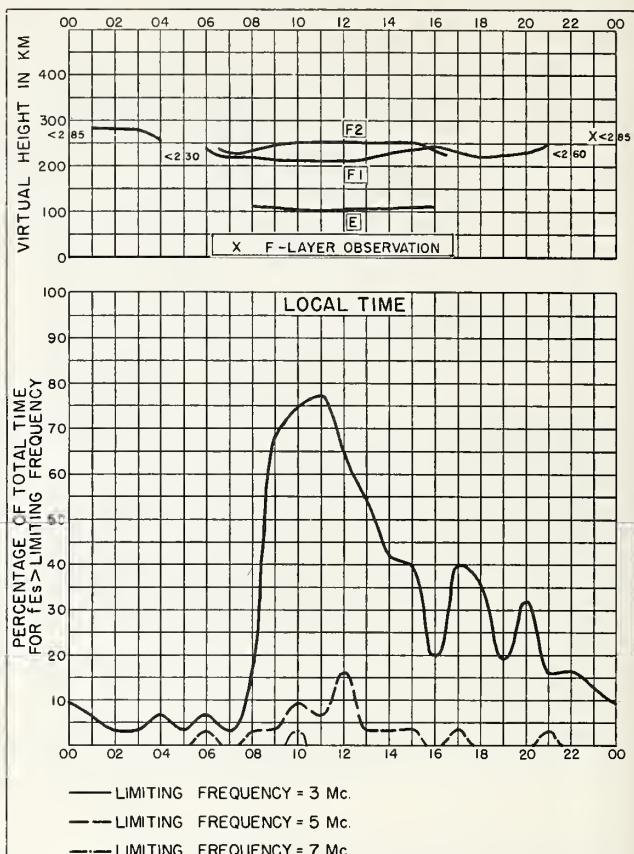
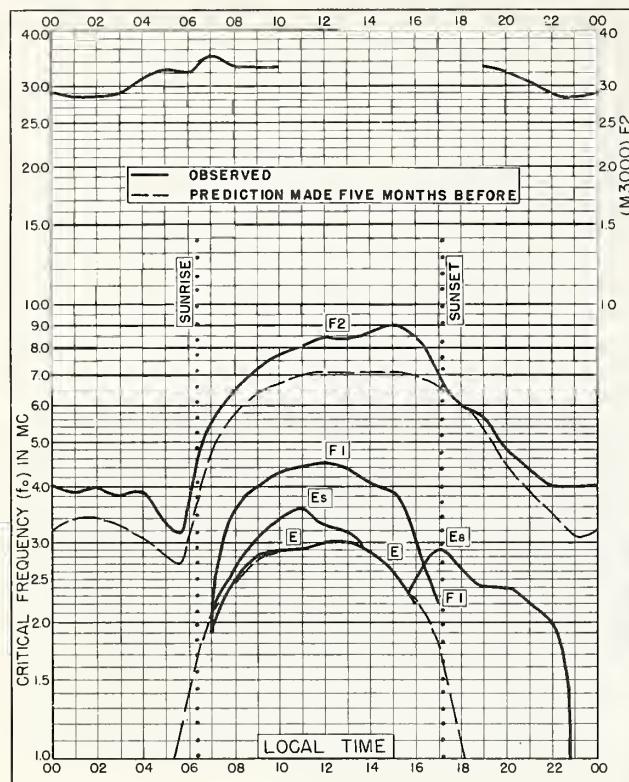
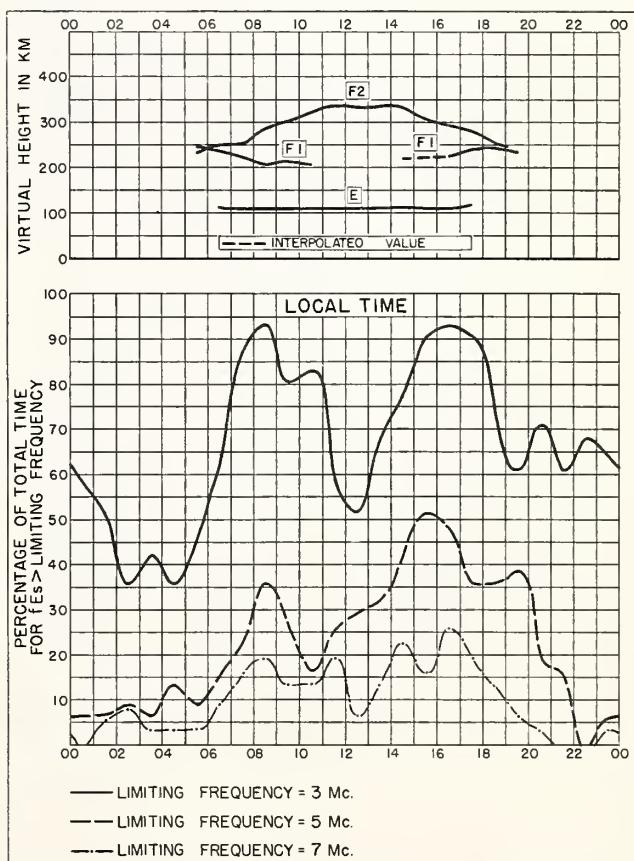
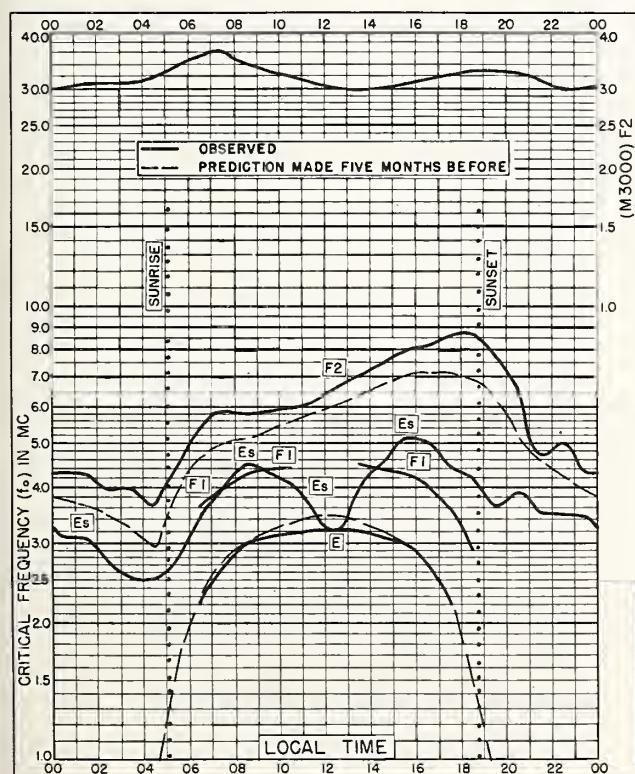
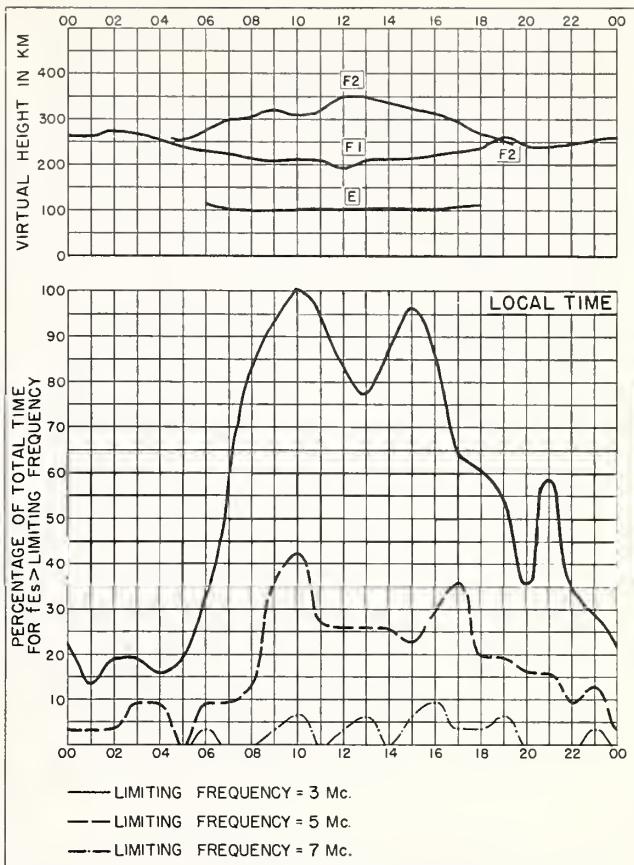
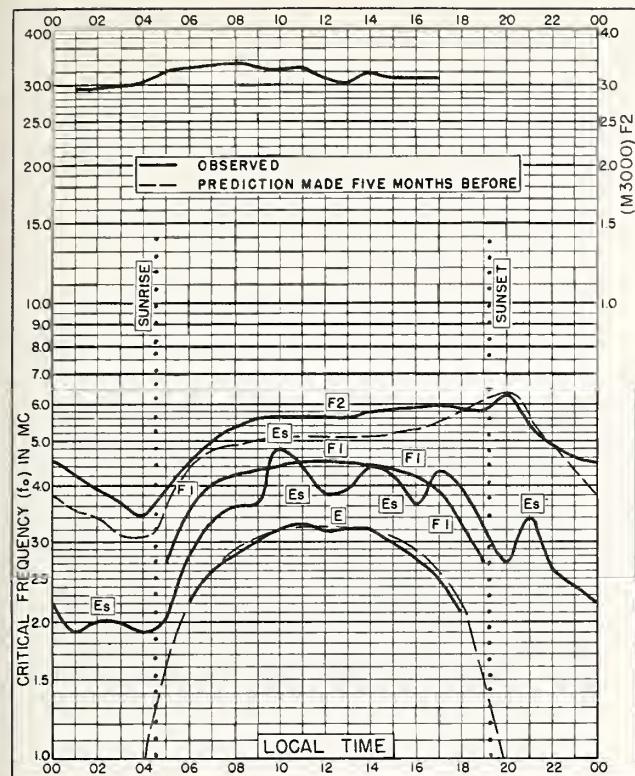


Fig. 88. FALKLAND IS. MARCH 1956

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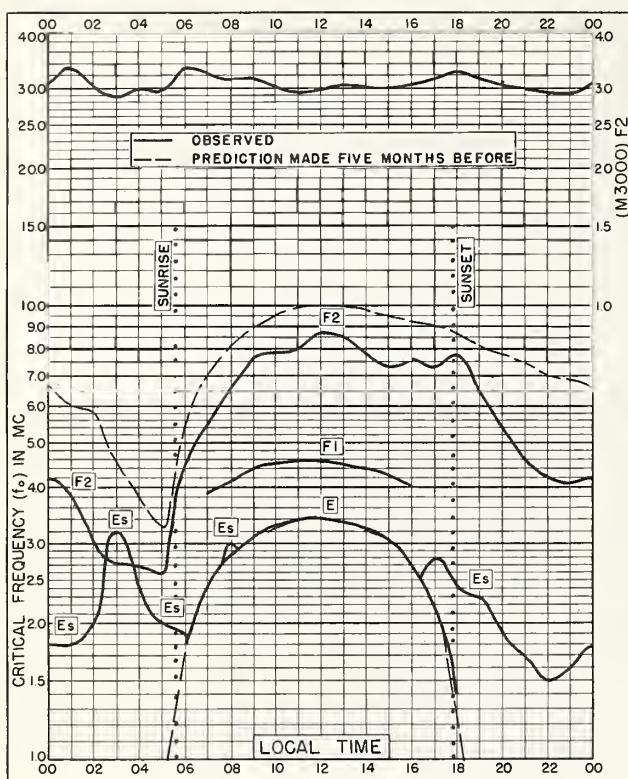


Fig. 97. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E OCTOBER 1954

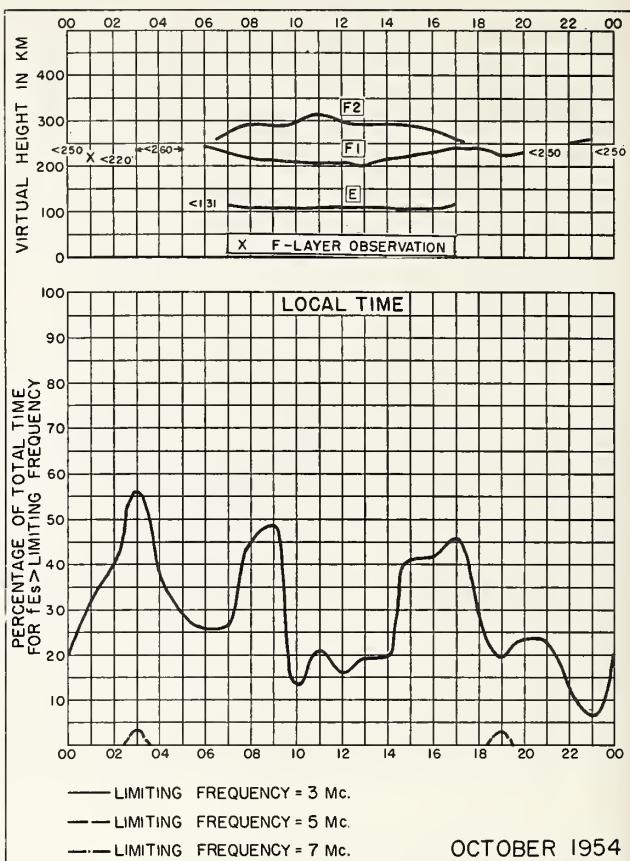


Fig. 98. TANANARIVE, MADAGASCAR

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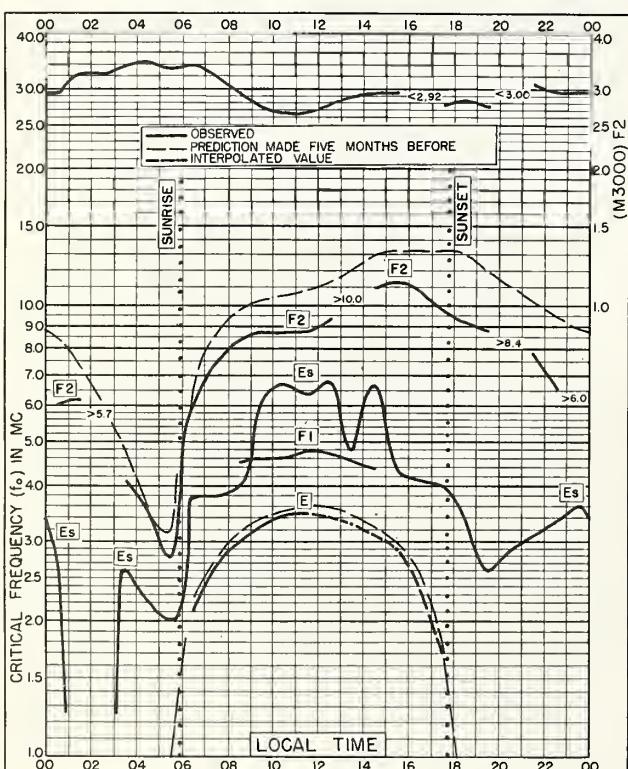


Fig. 99. DJIBOUTI, FRENCH SOMALILAND
11.5°N, 43.1°E OCTOBER 1953

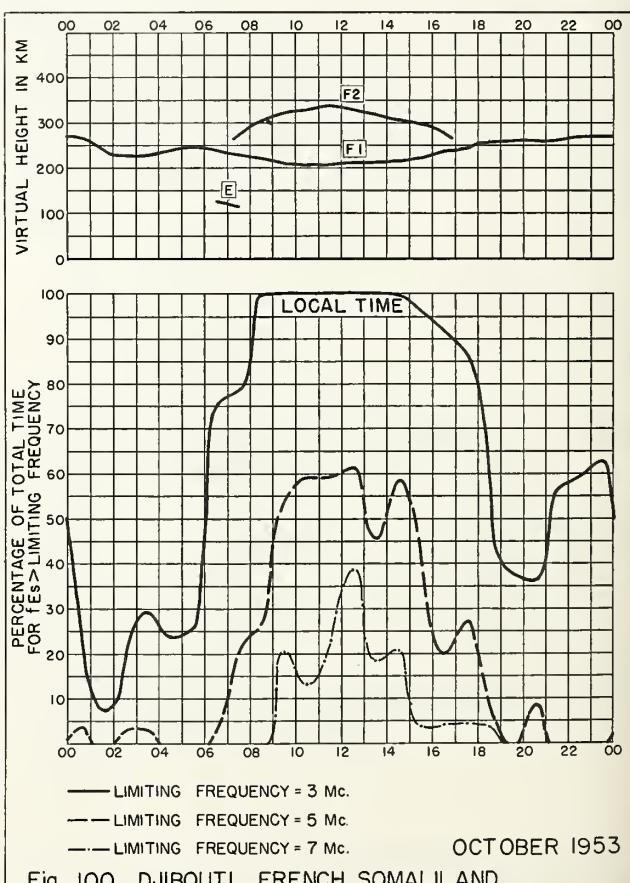
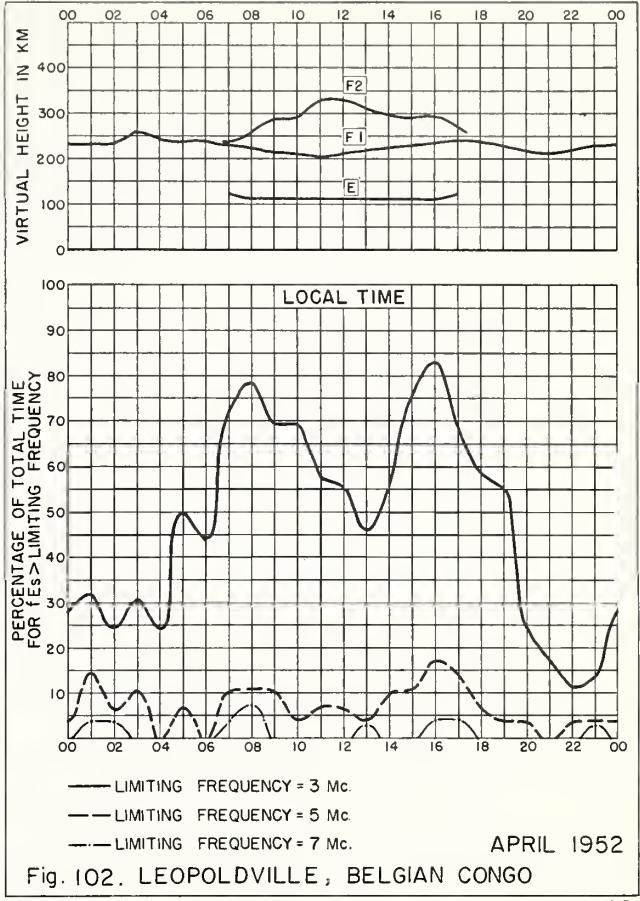
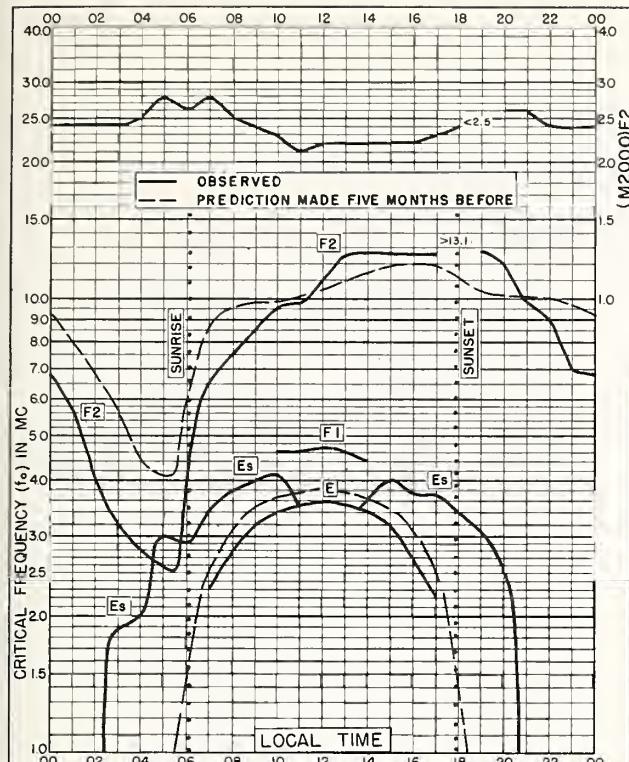


Fig. 100. DJIBOUTI, FRENCH SOMALILAND

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