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CRPL-F164 PART A

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PART A
IONOSPHERIC DATA

ISSUED
APRIL 1958

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

CRPL-F164
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

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

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

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

There was an expansion in meaning of the following:

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

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

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer critical frequency; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.
 2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.
 3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.
- The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.
- Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.
- The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:
- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
 - b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
 - c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
 - d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

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

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

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1957.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	196			

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

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

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

Brisbane, Australia
Canberra, Australia
Townsville, Australia

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

Watheroo, Western Australia

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

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

Defence Research Board, Canada:

Churchill, Canada
Meanook, Canada
Ottawa, Canada
Victoria, Canada

Danish National Committee of URSI:

Godhavn, Greenland

General Direction of Posts and Telegraphs, Helsinki, Finland:

Nurmijarvi, Finland

Icelandic Post and Telegraph Administration:

Reykjavik, Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:

Calcutta (Institute of Radio Physics and Electronics)
Kodaikanal (India Meteorological Department)

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

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

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

Manila Observatory:
Baguio, P. I.

Institute of Terrestrial Magnetism, Ionosphere and Radio Propagation, Moscow, U.S.S.R.:
Alma-Ata
Irkutsk
Leningrad
Simferopol
Sverdlovsk
Tomsk
Yakutsk

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

Ebro Observatory:
Tortosa, Spain

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

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

United States Army Signal Corps:
Adak, Alaska
Fletchers Ice I.
Ft. Monmouth, New Jersey
Okinawa I.
St. John's, Newfoundland
Thule, Greenland
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Chiclayo, Peru
Chimbote, Peru
Fairbanks, Alaska (Geophysical Institute of the University
of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone

National Bureau of Standards (Central Radio Propagation Laboratory), continued:
Point Barrow, Alaska
Pole Station
Puerto Rico, W. I.

ERRATA

1. CRPL-F160(A), p. 19, table 2: foF2 at 2200 should read >18.0; foEs at 1100 should read 4.8.
2. CRPL-F160(A), p. 20, table 9: foF2 at 1500 should read 17.5.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
 Amundson-Scott (Geographical South Pole); December 23, 1957
 (Geomagnetic Latitude 78°N)

The following ionograms were obtained at the vertical sounding station located at the south geographical pole. They are typical of polar day conditions for December at this geomagnetic latitude. Ionospheric data are scaled directly from these records onto the daily f-plot, a graph of frequency characteristics vs. time. The f-plot for the day represented by these soundings is found on the following page. Medians as found in the Tables of Ionospheric Data are calculated using hourly values taken from the f-plot or directly from the ionogram.

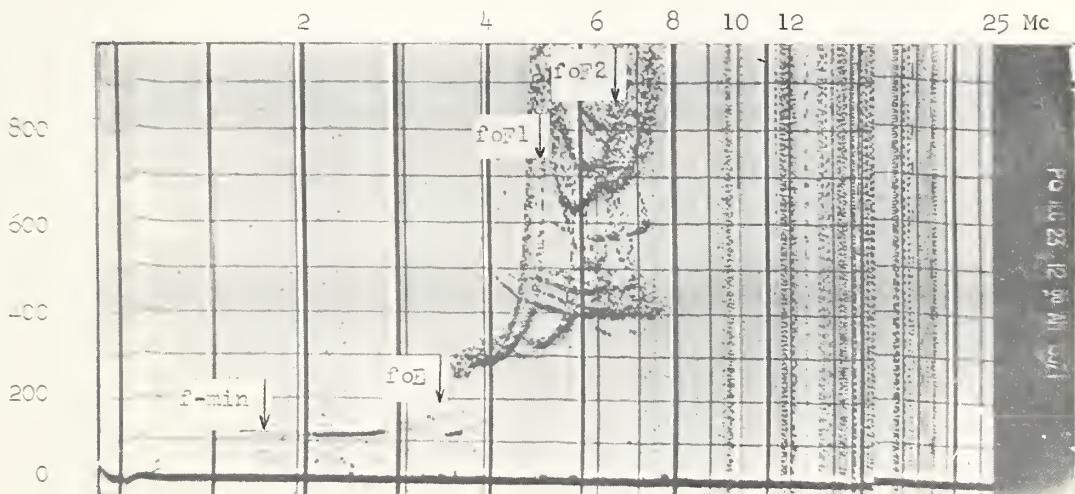


Fig. A. Pole Station, December 23, 1957, 0000 hours, Universal Time

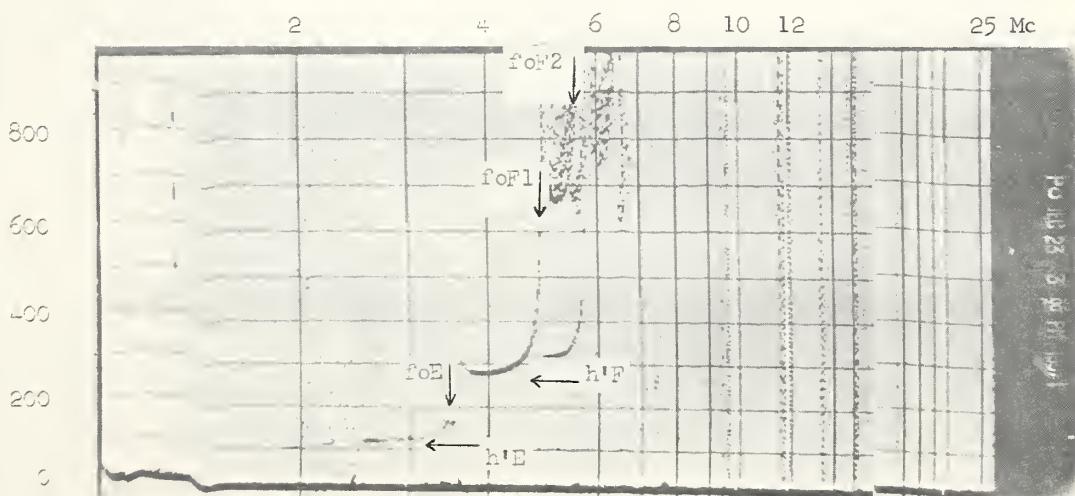


Fig. B. Pole Station, December 23, 1957, 1500 hours, Universal Time.

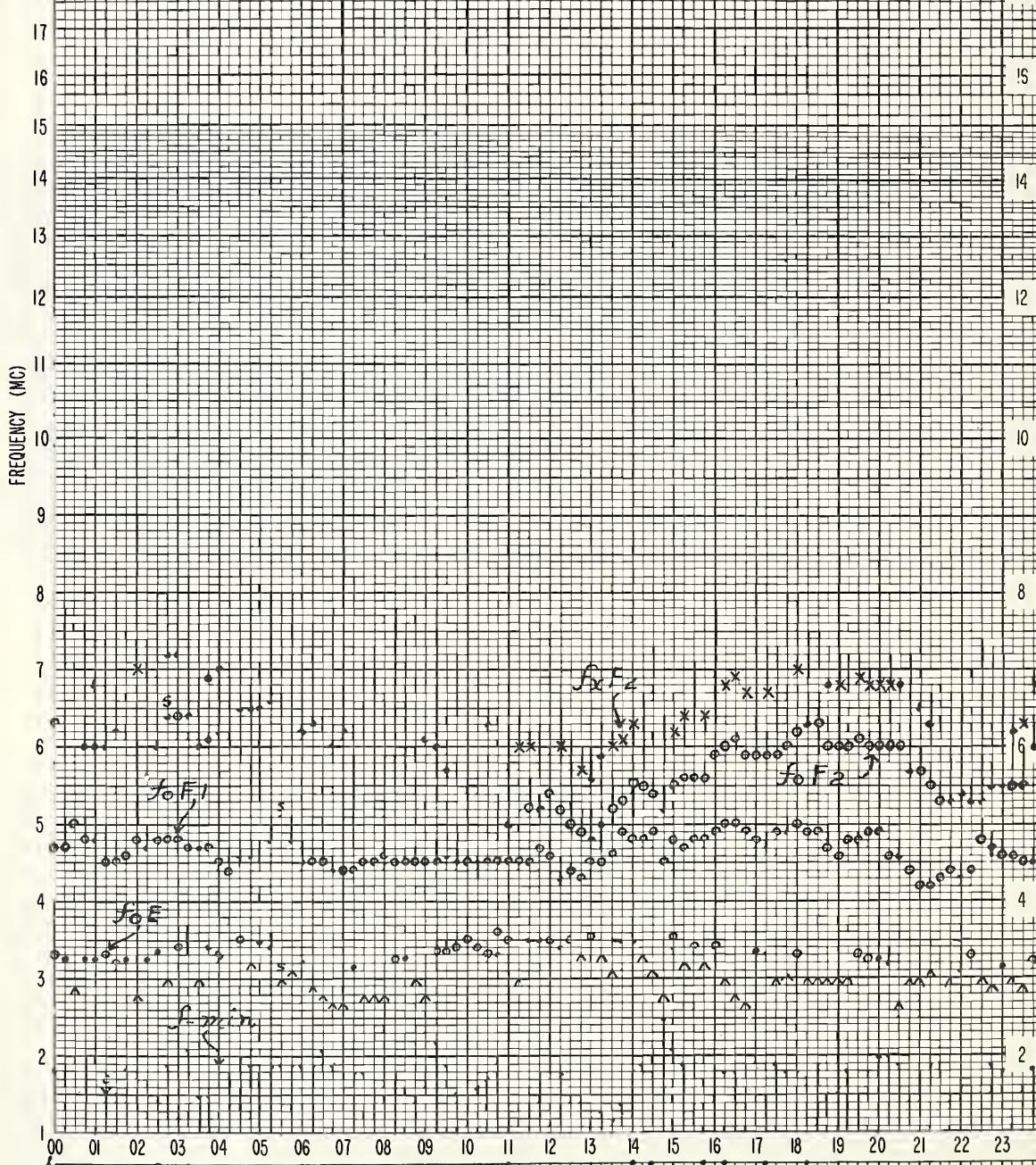
STATION POLE STATION

f - PLOT OF IONOSPHERIC DATA

DATE Dec. 23, 1957

00 01 02 03 04 05 06 07 08 09 10 11 TIME 13 14 15 16 17 18 19 20 21 22 23

		KEY
24	•	f?
23	x	fx
22	o	fa
21	z	fz
20		Spread
19	←	fbEs
	↑	f-min
	^	Greater
	v	Less than



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TABLES OF IONOSPHERIC DATA

DECEMBER 1957 - MARCH 1958

Table 1

Fletchers Ice I. (80.0°N, 114.0°W)*								December 1957		
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2		
00		(6.4)	265		---	---				
01		(6.2)	270		---	---				
02		(6.3)	270		---	---		(2.80)		
03		(5.8)	270		---	---		(2.60)		
04		(6.2)	250		---	---		(2.80)		
05		(6.2)	265		---	---		(2.65)		
06		(5.2)	265		---	---		(2.60)		
07		(5.1)	270		---	---		(2.70)		
08		(5.4)	255		---	---		(2.80)		
09		(7.2)	265		---	---		---		
10		(4.8)	255		---	---		(2.75)		
11		(6.4)	260		---	---		(2.75)		
12		(7.0)	255		---	---		(2.75)		
13		(8.1)	250		---	---		2.80		
14		(9.0)	260		---	---		(2.70)		
15		(7.0)	260		---	---		(2.80)		
16		(7.6)	270		---	---		(2.75)		
17		(7.4)	260		---	---		(2.70)		
18		(9.0)	255		---	---		(2.80)		
19		(7.6)	260		---	---		---		
20		(6.8)	<270		---	---		(2.65)		
21		(6.6)	260		---	---				
22		(8.2)	260		---	---				
23		(6.3)	270		---	---		(2.70)		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

*Preliminary estimated average position.

Table 2

Narsarssuak, Greenland (61.2°N, 45.4°W)								December 1957		
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2		
00			(5.3)	(390)		---	---		4.8	(2.35)
01			(5.4)	(390)		---	---		3.6	(2.40)
02			(5.3)	(375)		---	---		3.7	(2.40)
03			(5.4)	365		---	---		3.7	(2.50)
04			(5.4)	(350)		---	---		3.8	(2.60)
05			(5.6)	340		---	---		>3.7	(2.60)
06			(5.6)	(330)		---	---		3.9	(2.55)
07			(5.4)	(320)		---	---		3.0	(2.65)
08			(6.0)	310		---	---			(2.65)
09			(8.3)	280		120	(1.90)			(2.80)
10			11.1	260		136	(2.30)			2.85
11			13.2	250		135	(2.50)			2.85
12			13.1	250		129	(2.50)			2.85
13			12.6	240		127	2.50			2.05
14			11.5	255		135	(2.20)			2.85
15			(8.2)	260		121	(1.95)			(2.85)
16			(6.2)	300		---	---		2.2	(2.65)
17			(5.7)	330		---	---		3.1	(2.60)
18			(5.5)	(380)		---	---		3.6	(2.45)
19			(4.9)	(330)		---	---		3.6	(2.35)
20			(5.7)	(350)		---	---		4.5	(2.40)
21			(5.6)	(325)		---	---		3.9	(2.40)
22			(6.1)	(380)		---	---		4.2	(2.45)
23			(5.5)	(370)		---	---		5.6	(2.40)

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Oslo, Norway (60.0°N, 11.1°E)								December 1957		
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2		
00		3.9	350					2.30		
01		3.4	340					2.40		
02		3.4	340		1.2	2.40				
03		3.4	315					2.40		
04		3.6	300					2.55		
05		3.7	290					2.55		
06		3.6	260					2.50		
07		3.8	260					2.55		
08		4.8	250	---	(1.35)	(2.50)				
09		8.3	250	---	1.85	3.0	2.80			
10		11.3	250	---	2.25	3.1	2.85			
11		13.5	250	---	2.45	3.1	2.85			
12		14.5	240	135	2.55	3.0	2.85			
13		15.5	240	---	2.50	3.0	2.85			
14		15.1	240	135	2.35	2.8	2.85			
15		>14.0	230	---	2.00		2.85			
16		13.2	220	---	(1.40)		2.85			
17		10.6	225				2.85			
18		9.2	230				2.80			
19		6.9	240				2.70			
20		5.4	260				2.60			
21		4.7	295				2.50			
22		4.7	325				2.40			
23		4.0	350				2.30			

Time: 15.0°E.

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

Table 4

Maui, Hawaii (20.8°N, 156.5°W)								December 1957		
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2		
00			8.4	240					2.80	
01			8.2	250					2.80	
02			7.2	230					2.90	
03			6.0	230					2.80	
04			5.2	255					2.40	
05			4.8	295					2.40	
06			5.2	300					2.55	
07			8.0	290		147	1.80		2.80	
08			12.0	255		119	2.90		2.95	
09			14.5	245		115	3.50		2.95	
10			14.5	240		111	3.85		2.80	
11			14.1	235	---	111	4.00	4.0	2.65	
12			410	14.0	230	7.6	109	4.10	2.50	
13			405	14.3	230	7.2	111	4.05	2.50	
14			420	14.4	240	7.0	(113)	4.00	2.45	
15			410	14.0	245	6.7	(117)	3.80	4.0	2.45
16			(390)	13.5	250	---	<119	3.30	3.7	2.50
17				13.3	260	119	2.50	3.5	2.55	
18				12.7	260			3.8	2.65	
19				12.1	250			3.3	2.70	
20				12.3	270			3.8	2.75	
21				12.3	250			2.7	2.80	
22				12.2	240			1.7	2.95	
23				10.0	235				2.85	

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Pole Station (90.0°S)								December 1957		
Time	h'F2	foF2	h'F	foFl	h'E	foE	foEs	(M3000)F2		
00	610	5.7	260	4.6	109	(3.20)	3.7	2.20		
01	610	6.0	260	4.5	110	(3.20)		2.25		
02	620	(5.8)	<260	4.5	109	(3.20)	3.9	2.20		
03	620	5.8	265	4.5	111	(3.20)	3.9	2.20		
04	625	5.8	255	4.4	109	(3.20)		2.10		
05	640	5.7	265	4.4	109	(3.20)		2.10		
06	640	5.8	<270	4.3	109	(3.15)		2.10		
07	625	(5.6)	<280	4.4	109	(3.20)		2.10		
08	660	5.5	(260)	4.4	109	(3.25)		2.10		
09	690	5.2	245	4.3	109	(3.30)	G			
10	650	4.6	250	4.3	109	(3.30)	G			
11	785	5.0	<260	4.4	109	(3.40)	2.00			
12	640	<4.8	280	4.4	109	3.40	G			
13	650	5.0	280	4.4	109	3.40	2.00			
14	670	5.5	<275	4.5	109	(3.40)	2.10			
15	600	5.9	<280	4.6	109	(3.30)	2.25			
16	595	5.9	(270)	4.6	109	(3.30)	2.20			
17	630	5.8	270	4.5	109	(3.30)	2.15			
18	630	5.6	260	4.5	109	3.30	2.15			
19	620	5.8	270	4.6	109	(3.20)	2.20			
20	640	5.8	<255	4.5	109	(3.20)	2.10			
21	605	5.5	270	4.5	109	(3.20)	3.6	2.20		
22	580	5.7	260	4.7	109	(3.20)	3.8	2.20		
23	645	5.6	265	4.7	109	(3.20)	4.7	2.20		

Time: 0.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Thule, Greenland (76.6°N, 68.7°W)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2
00	(6.0)	275				(2.55)		
01	(6.0)	270				(2.50)		
02	(6.4)	270				(2.60)		
03	--	270				---		
04	(5.0)	275				(2.60)		
05	(5.2)	260				(2.70)		
06	(5.3)	270				(2.70)		
07	(4.8)	265				(2.60)		
08	(4.9)	265				(2.60)		
09	(7.1)	270				(2.65)		
10	(6.6)	265	---	---		(2.60)		
11	(6.3)	270	---	---		(2.60)		
12	(7.3)	265	---	---		(2.65)		
13	(8.2)	260	---	---		(2.75)		
14	(8.2)	260				(2.60)		
15	(8.0)	270				(2.70)		
16	(7.0)	265				(2.60)		
17	(7.2)	270				(2.50)		
18	(6.2)	270				(2.60)		
19	(6.7)	255				(2.50)		
20	(7.0)	260				2.65		
21	(7.8)	270				(2.65)		
22	(6.0)	270				(2.60)		
23	(6.4)	265				(2.70)		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Fairbanks, Alaska (64.9°N, 147.8°W)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2
00	(4.4)					4.6	(2.65)	
01	(4.3)					4.5	(2.50)	
02	(5.5)					4.9	(2.50)	
03	(5.2)					3.8	---	
04	(5.0)					4.2	(2.60)	
05	(5.8)					4.2	(2.60)	
06	(5.2)					4.0	(2.50)	
07	(5.6)						(2.55)	
08	(6.5)	---	---	---			(2.75)	
09	(7.8)	---	---	---			(2.95)	
10	10.1	---	---	---			2.90	
11	11.0	---	---	---			2.90	
12	12.0	---	---	---			2.95	
13	13.0	---	---	---			2.85	
14	13.2	---	---	---			2.90	
15	13.2	---	---	---			2.90	
16	12.3						2.85	
17	11.2						2.85	
18	9.6						2.90	
19	7.4						2.90	
20	(5.8)				2.4	(2.90)		
21	(5.3)				3.0	(2.90)		
22	(4.8)				3.5	(2.80)		
23	(4.3)				5.1	(2.75)		

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Narsarssuak, Greenland (61.2°N, 45.4°W)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2
00	(5.3)	(360)				4.0	(2.40)	
01	(5.1)	(350)				2.8	(2.35)	
02	(5.6)	(355)	127	(2.60)	2.8	(2.40)		
03	(6.0)	355	---	---	3.3	(2.50)		
04	(6.2)	365	---	---	3.7	(2.50)		
05	(5.9)	345	---	---	3.2	(2.50)		
06	(5.8)	330	---	---		(2.60)		
07	(6.0)	310	---	---		(2.60)		
08	(7.4)	280	147	2.05		(2.80)		
09	10.3	255	137	2.20		2.80		
10	12.4	250	131	2.50		2.80		
11	14.3	250	125	(2.60)		2.80		
12	14.0	240	123	2.70		2.80		
13	14.0	240	123	2.55		2.85		
14	10.7	250	127	2.40		2.85		
15	(7.8)	270	127	(2.30)		2.80		
16	(6.2)	285	137	(2.00)	2.8	(2.70)		
17	(6.0)	300	---	---	3.2	(2.70)		
18	(6.0)	330	---	---	3.9	(2.40)		
19	(6.2)	(335)	---	---	4.4	(2.40)		
20	(6.6)	(340)	---	---	4.4	(2.60)		
21	(6.8)	(360)	---	---	4.4	(2.40)		
22	(6.0)	350	---	---	4.3	(2.45)		
23	(6.0)	(345)	---	---	3.9	(2.40)		

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Point Barrow, Alaska (71.3°N, 156.8°W)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2
00			4.7	290				4.6 (2.45)
01			(5.0)	300				4.6 ---
02			>5.0	320				4.5 (2.60)
03			(5.2)	330				3.5 ---
04			(4.8)	330				2.4 (2.45)
05			(6.0)	335				2.6 ---
06			(4.8)	<360				2.8 ---
07			(6.1)	310				3.0 ---
08			(5.2)	330				(2.35)
09			(6.6)	(305)				
10			7.6	280				(2.70)
11			8.2	270				2.80
12			8.5	265				2.80
13			10.2	265				2.80
14			10.8	255				2.85
15			11.4	<255				2.75
16			>10.5	260				2.80
17			10.1	270				2.70
18			7.4	275				2.80
19			(6.2)	295				2.8 (2.70)
20			5.4	300				3.3 (2.75)
21			(5.3)	280				3.7 (2.70)
22			(5.6)	280				3.9 (2.80)
23			(5.1)	290				3.1 ---

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Reykjavik, Iceland (64.1°N, 21.8°W)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	foEs	(M3000)F2
00			365					>3.4 ---
01			360					2.9 ---
02			(4.9)	340				3.2 ---
03			(5.7)	340				
04				325				
05			(5.5)	300				(2.50)
06			(5.3)	310				(2.50)
07			(5.1)	310				(2.60)
08			(6.3)	300				2.60
09			(6.0)	275				
10			(11.9)	250				
11			(11.4)	245				
12			(12.0)	240				
13			(11.3)	240				
14			(11.1)	250				
15			(10.0)	265				
16			(9.2)	260				
17			(8.5)	255				
18			(7.8)	250				
19			(7.2)	240				
20			(6.3)	260				
21			(5.9)	290				
22			(5.4)	300				
23			(5.2)	320				

Time: 15.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 12

Uppsala, Sweden (59.8°N, 17.6°E)							November 1957	
Time	h°F2	foF2	h°F	foF1	h°E	foE	fEs	(M3000)F2
00			5.0	335				3.0 2.4
01			4.8	315				3.1 2.4
02			4.8	320				3.2 2.4
03			4.5	310				3.0 2.4
04			4.4	295				3.0 2.4
05			4.3	265				3.0 2.4
06			4.2	260				3.0 2.5
07			5.8	250				E 3.2 2.6
08			9.0	245				120 2.00 4.1 2.8
09			12.4	240				110 2.30 3.6 2.8
10			14.0	240				110 2.65 3.0 2.8
11			14.7	240				110 2.80 3.0 2.8
12			15.6	240				110 2.80 3.0 2.7
13			15.4	240				110 2.70 3.2 2.7
14			15.0	240				120 2.40 3.0 2.7
15			14.5	230				140 2.00 3.0 2.8
16			13.3	230				
17			11.0	225				
18			9.2	230				
19			7.2	240				
20			6.3	260				
21			5.9	290				
22			5.4	300				
23			5.2	320				

Time: 15.0°E.

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

Table 13

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	3.9	(350)				2.30		
01	3.7	(360)				2.25		
02	3.6	<370				2.30		
03	3.6	(380)				2.30		
04	3.6	(365)				2.25		
05	3.5	(355)				2.30		
06	3.8	(325)				2.30		
07	6.8	260	<119	----	1.3	2.60		
08	10.8	240	----	----		2.95		
09	13.7	235	121	2.90		3.00		
10	15.4	230	121	3.10		2.90		
11	15.5	230	123	3.20		2.85		
12	15.0	230	(122)	3.10		2.80		
13	14.9	230	<121	3.00		2.75		
14	14.5	235	120	2.90		2.75		
15	13.8	230	----	----		2.75		
16	12.9	230	----	----		2.75		
17	11.4	230				2.75		
18	9.3	230				2.80		
19	7.7	240				2.85		
20	5.0	250				2.75		
21	5.1	270				2.70		
22	4.5	280				2.60		
23	4.1	(310)				2.35		

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 15

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	8.0	260				2.75		
01	(7.7)	260				(2.70)		
02	(7.6)	260				(2.70)		
03	(7.3)	260				(2.70)		
04	(7.0)	(250)				(2.75)		
05	(6.4)	(250)				(2.60)		
06	6.4	<260				2.70		
07	9.0	245	111	2.10		3.00		
08	12.1	230	109	(2.75)		3.10		
09	14.0	220	109	3.25		3.00		
10	14.8	220	113	3.50		3.00		
11	15.0	225	<113	3.70		2.80		
12	14.6	220	113	3.70		2.75		
13	14.4	225	113	3.60		2.70		
14	14.0	230	111	3.40		2.70		
15	13.8	230	111	3.00		2.75		
16	13.2	235	112	2.40		2.75		
17	12.4	240				2.80		
18	11.4	240				2.75		
19	10.0	240				2.80		
20	9.4	245				2.75		
21	8.9	250				2.70		
22	8.5	<250				2.70		
23	8.0	260				2.70		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(13.5)	235				(2.80)		
01	11.6	240				2.80		
02	11.2	240				2.85		
03	9.0	230				2.85		
04	7.2	225				2.70		
05	6.1	250				2.60		
06	6.7	270				2.70		
07	10.0	260	<152	2.20		2.95		
08	13.2	240	115	2.90		3.00		
09	14.6	240	112	3.40	3.5	2.95		
10	15.0	235	115	3.70	3.9	2.80		
11	15.1	230	112	3.95	4.1	2.65		
12	(395)	15.6	230	---	111	4.00	4.1	2.55
13	400	16.0	230	(7.8)	112	4.00	4.2	2.50
14	395	15.8	230	7.2	113	3.90	2.50	
15	400	15.7	235	6.8	113	3.65	3.7	2.45
16	---	15.4	245	---	113	3.20	3.2	2.50
17	15.0	255	---	120	(2.60)	2.55		
18	14.8	265			3.0	2.60		
19	(15.4)	285				2.60		
20	17.3	275				2.65		
21	17.1	250				2.70		
22	(15.7)	235				(2.80)		
23	(14.3)	230				(2.80)		

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			(7.0)	290				(2.50)
01			(6.9)	295				(2.40)
02			(6.5)	300				(2.50)
03			(6.4)	280				(2.50)
04			(5.9)	270				(2.60)
05			(5.7)	260				(2.60)
06			6.1	255		---	---	2.70
07			9.0	240	113	2.20		2.95
08			12.4	230	115	2.70		3.00
09			14.0	225	114	3.10		2.95
10			14.9	220	113	3.30		2.90
11			15.0	225	113	3.40		2.85
12			15.0	225	115	3.40		2.80
13			14.8	230	113	3.20		2.75
14			14.4	230	115	2.90		2.80
15			14.1	240	119	2.50		2.80
16			13.4	240	---	---	---	2.75
17			12.0	230				2.75
18			10.4	240				2.75
19			(9.2)	245				(2.70)
20			8.5	270				2.65
21			8.0	280				2.60
22			7.6	280				2.55
23			7.2	280				2.55

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			5.9	<275				2.70
01			5.4	<275				2.65
02			5.2	<285				2.60
03			5.0	<270				2.60
04			4.7	<295				2.45
05			4.6	<320				2.50
06			5.0	<290				2.60
07			8.9	250	(121)	2.30		3.00
08			12.0	240	111	3.00		3.05
09			13.6	230	111	3.40	3.5	2.90
10			14.0	230	109	3.70	4.0	2.80
11			13.9	225	109	3.90		2.70
12			13.9	230	(110)	4.00		2.55
13			13.6	230	---	111	3.90	2.55
14			13.4	235	---	113	3.70	2.50
15			13.0	240	115	3.30	3.5	2.50
16			12.6	240	117	2.70	2.9	2.60
17			12.2	245	---	---	2.0	2.65
18			11.1	240				2.65
19			9.8	245				2.70
20			8.8	(240)				2.75
21			7.8	250				2.75
22			6.9	(250)				2.70
23			6.3	(265)				2.70

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 18

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			11.6	230				2.90
01			10.4	230				2.90
02			8.2	235				2.80
03			6.8	230				2.70
04			5.8	<260				2.50
05			5.3	300				2.45
06			6.2	315		---	E	2.50
07			9.9	280	133	2.20		2.85
08			13.5	250	115	3.00	3.2	2.95
09			15.4	240	113	3.60	3.8	2.85
10			15.8	235	111	3.90	4.0	2.70
11			(385)	16.0	230	110	(4.00)	4.2
12			405	16.1	230	---	109	(4.10)
13			415	16.0	235	7.4	109	(4.05)
14			420	15.8	230	7.2	(111)	4.00
15			390	15.5	240	---	111	(3.75)
16			(380)	14.9	240	---	117	3.30
17			14.2	250	(125)	2.45	3.5	2.55
18			13.9	270	---	---	---	3.8
19			13.6	270				2.60
20			14.1	270				2.65
21			14.8	250				2.70
22			14.0	240				2.80
23			12.6	235				2.90

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			8.5	245				2.85
01			7.4	240				2.85
02			6.6	235				2.85
03			5.4	235				2.70
04			5.2	<290				2.50
05			5.3	285				2.60
06			5.8	270				2.75
07			9.6	260	<130	2.40		3.00
00			12.6	240	111	3.05		3.00
09			13.8	235	109	3.55		2.90
10			13.9	230	109	3.85		2.80
11			13.5	230	109	(4.00)	4.2	2.65
12			13.0	225	109	(4.10)	4.4	2.60
13	---		12.8	230	(7.4)	109	(4.00)	4.4
14	---		12.4	230	(7.3)	109	3.90	4.2
15			11.9	230	---	111	3.75	3.8
16			11.5	240	---	111	3.30	3.4
17			11.6	250	<118	(2.60)	>2.7	2.50
18			11.4	270				2.60
19			10.6	260				2.60
20			10.3	280				2.60
21			10.0	270				2.70
22			9.4	250				2.70
23			9.0	245				2.80

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 21

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			10.0	230				2.80
01			8.7	230				2.80
02			7.0	220				2.65
03			5.9	245				2.55
04			5.1	<270				2.55
05			4.9	290				2.60
06			6.9	305	---	---		2.55
07			11.7	265	121	2.55		2.80
00			14.3	250	111	3.35		2.85
09			14.5	240	111	3.80		2.75
10			14.2	235	109	4.10	4.2	2.60
11	---		13.8	235	109	4.25	4.6	2.50
12	450		13.5	230	7.5	109	4.30	4.6
13	475		13.3	230	7.0	108	(4.20)	4.7
14	465		13.0	(235)	6.8	100	(4.00)	4.4
15	460		12.9	240	---	109	3.80	4.7
16	---		12.6	250	---	111	3.40	4.3
17			12.5	270	---	118	2.80	4.2
18			12.2	290				2.55
19			12.0	270				2.60
20			11.8	280				2.55
21			11.8	270				2.60
22			11.8	250				2.75
23			11.2	230				2.80

Time: 75.0°W.

Sweep: 1.0 to 25.0 Mc in 13.5 seconds.

Table 23

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			7.0	375		(4.1)		2.4
01			6.6	335		(3.5)		2.6
02			6.9	335		(4.0)		2.5
03			6.1	<325		(2.8)		2.5
04			6.0	295	---	---	2.6	2.55
05			5.5	280	---	---		2.6
06			6.2	270	---	1.7		2.7
07			7.8	260	---	1.9		2.7
00			9.4	255	---	2.3		2.8
09			10.8	250	115	2.6		2.8
10			11.5	245	115	2.8		2.75
11			12.5	240	---	115	2.9	2.7
12			12.7	240	---	115	2.9	2.7
13			13.0	240	---	115	2.8	2.7
14			12.9	240	---	120	2.5	2.8
15			12.0	245	---	120	2.4	2.8
16			11.2	245	---	2.0		2.8
17			9.2	250	---	1.6	2.0	2.8
18			7.0	260	---	2.5		2.7
19			6.1	290	(3.1)			2.8
20			6.2	310	(3.3)			2.6
21			6.6	340	(4.3)			2.5
22			6.0	340	(4.3)			2.5
23			7.0	<350	(4.3)			2.6

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 20

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					(11.2)	250		(2.65)
01					11.0	250		2.70
02					10.0	255		2.75
03					8.8	250	1.6	2.70
04					8.0	260		2.60
05					7.4	260		2.70
06					8.6	305		2.60
07					12.6	285	129	(2.80)
08					15.0	270	119	3.40
09					15.8	255	119	3.80
10					15.5	250	119	(4.00)
11					15.2	245	119	(4.10)
12					14.0	245	119	(4.10)
13					13.7	245	119	(4.00)
14					13.6	250	119	(3.85)
15					13.7	265	119	3.60
16					(13.7)	280	121	3.10
17					(13.8)	310	121	2.20
18					(12.8)	365		3.4
19					>12.0	415		2.0
20					(12.1)	380		2.0
21					(12.5)	300		2.45
22					(12.5)	270		(2.50)
23					(12.0)	255		(2.55)

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 22

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					(6.4)			(2.60)
01					(5.6)			(2.50)
02					(5.8)			---
03					(4.6)			(2.25)
04					(4.4)			---
05					(4.5)			---
06					(4.8)			---
07					(5.6)			---
08					(6.2)			---
09					7.6			124
10					9.1			2.70
11					9.8			119
12					(8.4)			117
13					(8.7)			119
14					(8.2)			<121
15					(8.0)			125
16					8.3			121
17					7.4			2.65
18					(7.4)			2.55
19					(6.9)			2.50
20					6.7			2.40
21					7.2			2.45
22					(6.2)			(2.45)
23					(6.9)			---

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 24

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					(6.6)	360	121	4.0
01					(5.2)	375	120	3.3
02					(5.4)	395	119	3.2
03					(4.9)	420	119	2.40
04					(5.8)	370	119	3.2
05					(5.6)	350	119	(2.55)
06					(5.0)	340	119	3.2
07					7.0	300	121	2.75
08					8.7	270	120	2.45
09					10.0	255	119	2.05
10					11.1	240	119	2.75
11					11.3	240	119	3.00
12					11.7	240	119	3.10
13					12.5	245	119	3.00
14					11.5	250	117	2.90
15					10.4	255	121	2.65
16					9.8	280	121	2.40
17					(8.4)	290	125	2.00
18					(7.3)	320	125	2.6
19					(7.0)	340	125	4.0
20					(7.4)	345	125	4.8
21					(6.8)	345	125	4.6
22					(7.2)	340	125	4.2
23					(6.5)	350	125	3.7

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 25

Nurmijarvi, Finland (60.5°N, 24.6°E)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			(6.1)		<2.6	(2.60)		
01			(5.4)		<2.4	(2.60)		
02			(5.2)		<2.3	(2.50)		
03			(5.5)		<2.3	(2.60)		
04			(5.4)		<2.5	(2.60)		
05			(5.1)		<1.9	(2.70)		
06			(5.3)			(2.75)		
07			6.0			2.80		
08			8.9			2.90		
09			11.2			2.90		
10			12.3			2.90		
11			12.2			2.80		
12			12.5			2.75		
13			12.5			2.75		
14			12.6			2.75		
15			13.0			2.75		
16			12.9			2.80		
17			12.6			2.80		
18			11.5			2.80		
19			10.2			2.80		
20			8.8			<3.0		
21			7.6			<2.8		
22			6.4			<2.8		
23			6.2			<2.7		
						2.45		

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 27

Inverness, Scotland (57.4°N, 4.2°W)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			5.5	355		<1.3	2.65	
01			5.4	355		<1.4	2.65	
02			5.3	355		<1.4	2.65	
03			(5.1)	340		<1.4	2.65	
04			4.9	330		<1.4	2.75	
05			4.9	300		<1.3	2.70	
06			4.8	290	140	---	<1.4	2.80
07			6.8	265	145	2.00		3.10
08			9.1	250	115	2.55		3.20
09			11.2	240	110	2.90		3.15
10			12.6	240	110	3.10		3.10
11			13.4	235	110	3.30		3.05
12			375	235	110	3.40		3.00
13			400	235	110	3.40		3.00
14			365	240	105	3.20		2.95
15			13.0	245	110	2.95		3.00
16			12.7	250	110	2.55		3.05
17			12.1	250	120	2.10		3.10
18			11.1	240	145	---	<1.6	3.10
19			8.9	240		<1.6	3.05	
20			(7.8)	255		<1.6	2.85	
21			6.8	280		<1.6	2.70	
22			6.6	300		<1.6	2.65	
23			6.0	335		<1.4	2.65	

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 29

Victoria, Canada (48.4°N, 123.4°W)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00			5.2	300				
01			5.0	300				
02			5.0	320				
03			5.0	320				
04			5.0	320				
05			4.9	300				
06			5.0	300				
07			7.8	250	105	2.3		
08			10.1	230	100	2.9		
09			11.4	220	100	3.3		
10			12.7	220	100	3.5		
11			13.0	220	100	3.7		
12			13.4	230	100	3.8		
13			13.4	220	105	3.8		
14			13.2	220	100	3.6		
15			13.0	230	100	3.3		
16			12.5	240	100	2.8		
17			12.0	230	---	2.3		
18			11.2	230	---	---		
19			9.7	240	---	---		
20			8.6	240	---	---		
21			7.3	240	---	---		
22			6.1	260	---	---		
23			5.6	280	---	---		

Time: 120.0°W.

Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 26

Oslo, Norway (60.0°N, 11.1°E)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					5.5	350		2.40
01					5.4	350		2.40
02					4.9	345		2.35
03					4.6	320		2.40
04					4.3	305		2.40
05					4.3	290		2.40
06					4.8	265	---	2.55
07					6.7	255	---	2.70
08					9.4	250	125	2.80
09					11.4	250	115	2.80
10					13.1	240	115	3.05
11					13.6	240	110	3.20
12					13.9	240	110	3.25
13					13.8	240	110	3.25
14					14.0	240	110	3.10
15					13.2	245	115	2.80
16					13.0	250	120	2.40
17					12.5	250	110	2.00
18					11.4	250	---	2.80
19					9.5	240		1.8
20					8.4	250		2.70
21					7.4	290		1.6
22					6.4	305		2.50
23					6.0	350		2.40

Time: 15.0°E.

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

Table 28

Slough, England (51.5°N, 0.6°W)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00					6.7	335		2.35
01					6.4	325		2.30
02					5.9	320		2.30
03					5.8	320		2.30
04					5.5	295		2.40
05					4.8	290		2.40
06					5.6	275	(190) <1.50	2.55
07					8.6	250	140	2.30
08					11.2	240	125	2.85
09					>12.6	240	115	3.20
10					>13.7	240	115	3.45
11					>14.4	235	115	3.60
12					13.9	235	115	3.65
13					14.0	235	110	3.60
14					13.0	240	115	3.40
15					>13.4	245	115	3.10
16					>12.8	250	120	2.70
17					(12.1)	250	135	<2.10
18					>9.4	250		2.5
19					>9.4	245		2.65
20					8.7	255		<1.6
21					8.1	280		<1.6
22					7.4	290		2.50
23					7.2	310		2.35

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 30

Ottawa, Canada (45.4°N, 75.9°W)							October 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00					6.6	290		2.6
01					6.6	300		2.5
02					6.2	300		2.5
03					5.8	300		2.55
04					5.6	300		2.6
05					5.2	280		2.6
06					6.0	280	---	2.75
07					9.0	250	120	2.3
08					(280)	11.5	240	3.0
09					(260)	12(4)	230	3.3
10					(270)	12(8)	230	3.6
11					(280)	12(9)	230	3.8
12					(300)	12(8)	230	3.8
13					(300)	12(8)	240	3.8
14					(300)	12(7)	240	3.6
15					(300)	12(2)	240	3.3
16					(300)	12(0)	250	2.8
17					(12,0)	260	130	2.1
18					(11,2)	250	---	<1.8
19					9.8	260		<1.7
20					9.0	270		<1.7
21					8.0	270		<1.7
22					7.4	280		<1.7
23					7.2	290		2.6

Time: 75.0°W.

Table 31

Wakkanai, Japan (45.4°N, 141.7°E)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			7.0	305		2.5	2.45	
01			6.8	305		2.5	2.45	
02			6.6	305		2.40		
03			6.5	300		2.45		
04			6.1	300		2.45		
05			6.2	290		2.50		
06			8.5	250		2.00	2.85	
07			11.9	240		2.70	3.5	2.95
08			13.0	235		3.20	3.5	3.05
09			13.3	235		3.50	4.1	3.05
10	---		13.2	235	---	3.55	4.5	2.90
11	---		13.0	235	---	3.55	4.5	2.90
12	---		12.8	240	---	3.60	2.80	
13			12.7	240		3.50	2.65	
14			12.5	245		3.40	2.65	
15			12.2	250		3.00	3.4	2.70
16			12.0	250		2.40	3.0	2.65
17			11.3	250		---	3.8	2.65
18			10.0	250			3.4	2.65
19			9.0	260			3.5	2.65
20			8.2	270			3.5	2.70
21			7.6	270			2.65	
22			7.3	280			2.60	
23			7.0	290			2.50	

Time: 135.0°E.

Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 33

Tokyo, Japan (35.7°N, 139.5°E)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			7.9	295			2.60	
01			7.7	300			2.60	
02			7.1	300			2.60	
03			6.8	290			2.50	
04			6.4	300			2.45	
05			6.3	300			2.50	
06			9.0	265	E		2.85	
07			12.3	250	2.75		2.95	
08			13.5	250	3.35		2.85	
09	---		14.0	250	3.70		2.75	
10	---		14.4	250	3.90	4.0	2.60	
11	---		14.0	250	(4.00)		2.50	
12	---		13.8	250	(4.00)		2.45	
13	---		13.6	250	---	3.90	2.45	
14			13.2	250	3.70	3.7	2.40	
15			12.4	255	3.30	3.8	2.45	
16			12.2	265	2.70	3.6	2.50	
17			11.8	270	E	3.0	2.60	
18			10.8	275		3.2	2.60	
19			9.8	295		2.4	2.55	
20			9.6	300		2.9	2.55	
21			9.2	295			2.60	
22			8.5	300			2.55	
23			8.2	300		2.1	2.55	

Time: 135.0°E.

Sweep: 2.0 Mc to 20.0 Mc in 20 seconds.

Table 35

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

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			12.4	270	100	---	<1.2	2.30
01			12.0	280	130	---	<1.2	2.55
02			11.5	255	130	---	<1.1	2.65
03			10.9	250	100	---	<1.0	2.70
04			9.9	245	115	---	<1.0	2.80
05			8.5	240	130	1.20	2.90	
06			8.5	280	140	2.10	2.75	
07			11.2	255	125	3.10	3.1	2.70
08			12.2	245	120	3.70	3.9	2.40
09			13.2	240	115	4.10	4.3	2.10
10			13.8	235	115	4.40	4.4	1.95
11			13.8	225	---	115	(4.55)	1.85
12	600		13.5	225	---	115	(4.50)	1.80
13	550		13.4	<235	---	110	4.45	<4.7
14	570		13.6	>240	---	110	4.20	1.80
15	560		13.8	245	---	110	3.90	4.1
16			13.9	255	115	3.50	3.6	1.90
17			>13.6	285	120	2.80	3.0	1.90
18			>13.4	335	150	1.60	3.1	1.85
19			(13.2)	440	---	---	<1.3	1.80
20			>13.2	410	140	---	2.2	---
21			>13.0	350	130	1.25	1.7	---
22			13.4	290	110		2.2	(2.20)
23			>12.6	255	---	<1.2	2.30	

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 32

Akita, Japan (39.7°N, 140.1°E)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			7.2	295				2.0
01			7.0	295				2.0
02			6.8	295				2.1
03			6.6	290				2.0
04			6.2	290				2.0
05			6.3	290				2.1
06			8.9	250				1.95
07			12.0	240				2.70
08			---	13.4	240			3.30
09			---	13.8	240			3.00
10			(250)	14.2	240			2.85
11			(245)	13.6	240	---		3.70
12			---	13.1	240	---		3.90
13			---	13.0	245			3.75
14				12.5	245			3.50
15				12.1	250			3.20
16				11.9	250			2.50
17				11.4	255			3.8
18				10.1	260			2.60
19				9.1	255			3.5
20				8.5	270			2.70
21				8.1	280			3.0
22				7.6	290			2.5
23				7.4	290			2.0

Time: 135.0°E.

Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 34

Yamagawa, Japan (31.2°N, 130.6°E)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			10.0	245				3.1
01			(9.5)	240				2.6
02			8.6	250				1.4
03			7.4	240				2.2
04			6.8	245				2.3
05			6.2	250				2.5
06			6.9	265				2.70
07			10.9	230				(2.4)
08			13.0	220				2.30
09			14.5	220				3.15
10			14.6	220				3.30
11			14.6	215				3.10
12			14.8	220				3.65
13			14.6	225				3.9
14			14.4	225				3.65
15			14.3	230				4.2
16			13.5	240				3.20
17			13.2	250				3.6
18			13.0	250				2.75
19			11.9	250				3.6
20			11.8	255				2.70
21			(11.9)	250				3.2
22			(11.5)	250				3.4
23			(10.8)	250				3.2

Time: 135.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 36

Chiclayo, Peru (6.8°S, 79.8°W)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			11.0	260				5.0
01			9.7	260				4.7
02			9.2	250				4.8
03			8.6	240				4.0
04			7.6	240				3.0
05			6.2	245				3.6
06			7.5	285				2.70
07			>11.6	260				2.80
08			14.0	245				2.65
09			14.7	235				2.50
10			<116	4.05				2.20
11			15.0	225				1.30
12			>15.0	220				1.45
13			14.5	220				1.50
14			14.0	(220)				1.50
15			13.0	220				1.20
16			12.6	230				1.10
17			>12.5	245				1.05
18			>12.2	270				1.00
19			>11.5	315				0.95
20			11.3	400				0.90
21			>10.5	450				0.85
22			>10.8	400				0.80
23			10.6	320				0.75

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 37

Huancayo, Peru (12.0°S, 75.3°W)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	8.9	255			4.4	2.70			
01	8.6	250			4.6	2.75			
02	8.4	250			4.2	2.80			
03	8.2	240			4.0	2.90			
04	7.6	235			4.0	3.05			
05	6.4	240			4.5	3.00			
06	9.2	275	133	2.20	4.8	2.85			
07	12.6	250	119	3.20	5.0	2.65			
08	14.2	240	111	3.70	9.0	2.65			
09	15.0	230	110	(4.15)	11.0	2.45			
10	---	15.0	109	(4.45)	11.5	2.20			
11	---	14.1	109	(4.45)	12.0	2.05			
12	---	12.8	109	----	11.8	2.10			
13	---	12.3	215	----	11.8	2.05			
14	11.7	215	109	(4.15)	12.0	2.05			
15	11.8	220	109	----	11.0	2.00			
16	11.5	250	109	(3.50)	9.0	2.00			
17	>11.2	275	111	(2.90)	7.4	2.00			
18	10.8	330	----	1.70	4.6	2.05			
19	>9.2	450	----	E	1.95				
20	>9.1	(455)	----	(2.6)	2.00				
21	8.9	(405)	----		4.2	2.10			
22	8.9	335	----		3.4	2.25			
23	9.0	280	----		4.4	2.55			

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

Table 39

Johannesburg, Union of S. Africa (26.2°S, 28.0°E)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	7.5	275			<2.0	2.60			
01	6.6	275			<1.8	2.65			
02	6.2	<275			<1.8	2.55			
03	5.8	<290			<1.6	2.55			
04	5.6	<300			<1.9	2.50			
05	5.6	<320			<1.6	2.50			
06	8.8	250			2.4	2.90			
07	---	10.9	240		3.2	2.90			
08	---	12.1	235		3.7	2.75			
09	---	12.4	230		4.0	2.60			
10	(400)	12.7	220	----	4.6	2.50			
11	425	12.8	(215)	7.6	4.7	2.45			
12	430	12.9	---	7.0	4.9	2.40			
13	440	12.7	(220)	7.2	4.8	2.35			
14	440	12.4	230	----	4.5	2.35			
15	410	12.2	230	6.6	4.0	2.35			
16	(400)	11.9	245	----	3.6	4.0	2.40		
17	11.6	250			3.0	3.6	2.45		
18	11.7	270	----		2.6	2.55			
19	11.2	265			<2.2	2.60			
20	10.6	260			<2.0	2.65			
21	10.0	265			<2.1	2.70			
22	9.0	265			<2.0	2.70			
23	8.2	270			<2.0	2.70			

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

Table 41

Watheroo, W. Australia (30.3°S, 115.9°E)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	>6.8	280			2.0	2.80			
01	6.6	280			1.6	2.80			
02	6.5	<300				2.75			
03	6.4	<300				2.70			
04	6.0	<300				2.70			
05	6.0	310	----	----		2.70			
06	>7.2	270	115	2.15		<3.05			
07	8.3	250	105	3.00		<3.10			
08	---	9.3	240	----	3.55	2.90			
09	(490)	>9.9	240	5.9	100	3.90			
10	475	10.2	<250	6.3	100	3.90			
11	460	10.3	<240	7.0	100	>3.70			
12	435	10.8	<250	7.0	100	3.75			
13	450	11.2	<250	7.0	105	3.60			
14	450	10.4	<250	7.0	105	3.90			
15	450	10.0	<250	6.7	105	4.00			
16	430	9.6	<250	6.3	110	3.55			
17	---	9.5	250	----	110	3.00			
18	(8.0)	260	----	----	110	2.20			
19	>7.0	260	----	----		(2.85)			
20	>7.2	260	----	----		(2.75)			
21	>7.0	260	----	----		(2.80)			
22	>7.0	270	----	----		(2.75)			
23	>7.0	275	----	----		1.2			

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

Table 38

Townsville, Australia (19.3°S, 146.7°E)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			>8.5		280			1.9	
01			>8.0		270			---	
02			>7.5		300			---	
03			>8.0		310			(2.50)	
04			>8.0		310			(2.60)	
05			>8.0		300			(2.60)	
06			>8.4		270			---	
07			>11.0		250			---	
08			12.8		240			3.3	
09			13.0		230			4.0	
10			(435)		13.1			2.75	
11			430		13.5			2.65	
12			430		13.4			2.55	
13			450		13.0			2.45	
14			440		13.0			2.40	
15			450		12.2			2.40	
16			(12.0)		250			2.40	
17			>11.0		250			---	
18			>10.0		290			4.0	
19			>10.0		300			3.2	
20			---		310			3.1	
21			---		310			2.8	
22			>8.5		300			2.2	
23			>9.5		300			2.1	

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

Table 40

Brisbane, Australia (27.5°S, 152.9°E)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			8.5		290			2.40	
01			8.0		280			2.40	
02			7.5		300			2.40	
03			7.5		320			2.35	
04			7.5		320			2.40	
05			8.0		310			2.50	
06			---		250			2.80	
07			9.7		250			2.80	
08			11.4		240			2.80	
09	(500)	12.0	240		5.8			2.70	
10	(520)	12.0	230		---			2.60	
11	(500)	12.2	230		---			2.50	
12	420	12.2	230		6.9			2.45	
13	420	12.1	240		7.2			2.45	
14	440	11.9	230		6.9			2.45	
15	(420)	11.6	250		6.6			2.45	
16	(390)	11.1	250		---			2.45	
17	10.7	250			120			2.45	
18	10.3	260			130			2.50	
19	9.9	270			---			2.60	
20	9.5	290			---			2.55	
21	9.4	300			---			2.60	
22	9.0	290			---			2.55	
23	8.9	290			8.9			2.50	

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

Table 42

Capetown, Union of S. Africa (34.1°S, 18.3°E)							October 1957		
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			6.8		<280			<1.7	
01			6.2		<300			2.50	
02			5.9	(295)				<1.5	
03			5.7	<300				2.50	
04			5.2	<310				<1.4	
05			5.1	<340				<1.5	
06			6.2	300				2.40	
07			9.3	250				2.90	
08			11.0	250				2.80	
09			12.0	240				3.7	
10			---	12.6	235			2.65	
11	(430)	12.8	(230)	---	7.1			2.45	
12	440	12.9	---	---	4.6			(4.5)	
13	450	12.9	---	---	4.4			2.40	
14	445	12.8	(220)	6.9	---			2.35	
15	450	12.5	240	6.9	---			2.35	
16	430	12.2	245	6.8	3.8			2.35	
17	---	11.7	250	---	3.4				

Table 43

Canberra, Australia (35.3°S, 149.0°E)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			7.6	290		2.6	2.40	
01			7.4	300		2.40		
02			7.2	<300		2.40		
03			7.0	310		2.35		
04			6.9	315		2.35		
05			7.0	320	140	1.50	2.50	
06			8.0	265	125	2.50	2.70	
07	---		8.3	245	---	115	3.20	3.4
08	(520)		9.2	240	5.8	110	3.70	3.9
09	530		>9.6	230	6.0	110	4.00	4.3
10	(465)		10.6	230	(7.0)	105	4.10	4.4
11	475		10.8	230	7.0	105	4.20	4.3
12	450		11.2	(230)	7.1	110	4.15	2.40
13	460		10.4	230	6.6	110	4.10	2.35
14	470		10.6	240	(6.6)	110	4.05	2.35
15	480		10.1	235	(6.4)	110	3.90	2.40
16	(470)		10.0	240	6.0	110	3.55	2.40
17	---		9.8	260	120	3.00	2.50	
18			9.6	280	135	2.10	2.50	
19			>9.4	280			2.50	
20			>8.8	290			2.45	
21			>9.0	300			2.40	
22			8.6	310		2.2	2.45	
23			>8.0	300		2.6	2.40	

Time: 150.0°E.

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

Table 45

Lulea, Sweden (65.6°N, 22.1°E)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			>5.5	---		3.8		
01			>4.8	(340)		3.0		
02			>4.5	(300)		<2.2		
03			>4.2	(300)		<1.7		
04			>4.2	(290)				
05			>5.2	(270)	---	---	<2.2	
06			(7.0)	(260)	---	2.5	---	
07			>7.5	(250)	---	2.9	---	
08	---		>8.0	245	---	3.2	<3.6	---
09	---		>8.0	(230)	---	3.4	<3.6	---
10	---		>8.0	(240)	---	3.5	<3.6	---
11	---		>8.0	(240)	---	---	<3.7	---
12	---		>8.5	(230)	---	---	<3.6	---
13	---		7.8	(225)	4.6	110	3.5	---
14	---		>7.2	---	---	---	<3.6	---
15	---		>7.2	---	---	---	<3.1	---
16	---		>8.0	(245)	---	3.0	---	
17	---		>8.0	(255)	---	2.7	<3.2	
18	---		>7.8	(250)	---	(2.8)		
19	---		>7.0	---	---	(3.4)		
20	---		>6.0	(270)	---	3.1		
21	---		>6.0	(280)	---	3.8		
22	---		>6.0	---	---	<2.0		
23	---		>5.6	(280)		3.4		

Time: 15.0°E.

Sweep: 1.5 Mc to 10.0 Mc in 9 minutes, automatic operation.

Table 47

Chiclayo, Peru (6.8°S, 79.8°W)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			8.9	230			(2.80)	
01			9.0	235			2.80	
02			9.0	240			2.90	
03			7.7	245			2.95	
04			6.9	230			(3.05)	
05			6.6	250			2.90	
06			6.6	265	---	---	2.75	
07			9.8	255	<123	2.70	2.90	
08	---		11.6	240	119	3.40	2.80	
09	---		13.0	(230)	119	3.95	2.50	
10	---		>13.1	<225	118	4.15	2.45	
11	---		>13.0	<225	115	4.40	2.30	
12	---		(13.0)	215	---	(115)	4.40	(2.15)
13	---		>12.2	<220	---	111	4.35	2.10
14	---		(12.5)	<220	109	---	2.05	
15	---		>11.8	<230	111	(3.90)	2.00	
16	---		>11.4	<240	114	(3.50)	2.05	
17	---		>11.0	260	115	3.05	2.10	
18	---		>10.5	290	---	---	(2.10)	
19	---		>10.0	395		2.10		
20	---		>9.4	400			(2.20)	
21	---		(11.2)	370		---		
22	---		>10.2	285			(2.65)	
23	---		(9.0)	240			(2.80)	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 44

Falkland Is. (51.7°S, 57.8°W)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			9.4	345			2.0	2.25
01			9.3	335			1.4	2.30
02			9.0	320			1.7	2.20
03			8.5	340			2.20	
04			8.3	350			2.15	
05			9.2	275		160	2.00	2.20
06			10.7	245		120	2.50	2.70
07			11.9	240		110	3.10	2.55
08			13.0	240		110	3.60	3.9
09			13.8	235		105	3.80	4.4
10			14.2	235		105	3.95	4.8
11			14.0	240		105	4.00	5.6
12			13.9	235		105	3.90	5.0
13			13.7	240		105	3.90	4.7
14			13.1	240		105	3.85	4.4
15			12.4	250		105	3.70	3.9
16			11.7	250		110	3.20	2.50
17			11.4	250		115	2.75	3.1
18			11.0	270		135	2.10	2.65
19			10.2	275			3.5	2.55
20			9.4	290			3.1	2.35
21			9.2	305			2.3	2.25
22			9.3	330			2.2	2.20
23			9.2	340			2.6	2.20

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 46

Churchill, Canada (50.8°N, 94.2°W)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00			5.2	310		125	1.6	4.4
01			4.6	320		125	1.4	4.2
02			5.2	300		125	1.4	4.4
03			5.0	310		125	1.6	4.0
04			4.9	340		130	2.0	4.0
05			4.5	320		120	2.2	4.0
06			5.0	330		120	2.6	3.5
07			6.0	300		115	3.2	3.2
08	(690)		6.4	280	4.1	110	3.2	4.2
09	490		6.8	250	4.7	110	3.4	4.0
10	410		7.1	240	5.0	110	3.5	2.65
11	390		7.6	240	5.2	110	3.5	2.65
12	450		8.2	240	5.2	110	3.6	2.5
13	390		8.8	230	5.2	110	3.5	2.6
14	380		9.0	230	5.0	110	3.5	2.55
15	(360)		9.8	240	4.9	110	3.3	(2.5)
16	420		9.3	250	4.5	110	3.1	2.55
17	(340)		9.1	260	4.3	120	2.9	<3.0
18			8.2	280		120	2.6	(2.65)
19			6.5	300		120	2.5	3.0
20			6.5	310		130	2.3	3.8
21			6.1	300		130	1.7	5.2
22			5.4	280		120	1.8	6.0
23			5.5	320		120	(1.6)	5.2

Time: 90.0°W.

Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 48

Huancayo, Peru (12.0°S, 75.3°W)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			8.1	230				2.80
01			7.6	230				2.90
02			7.4	<240				2.95
03			6.9	<245				3.00
04			6.4	245				3.05
05			5.8	240				3.10
06			7.2	270			4.8	2.90
07			10.6	250	119	3.00	5.0	2.95
08			12.8	235	111	3.55	8.0	2.80
09			13.9	225	109	4.00	9.1	2.60
10			>14.0	<220	109	4.15	10.0	2.35
11			>13.6	215	109	4.00	10.3	2.20
12			>13.0	215	109	4.30	10.8	2.10
13			>12.0	210	107	4.00	10.1	2.05
14			11.6	215	109	4.00	10.0	2.05
15			11.5	225	109	3.90	9.3	2.05
16			11.2	240	109	3.50	9.0	2.10
17			10.9	265	111	2.80	7.4	2.10
18			9.8	310	---	1.70	4.4	2.15
19			8.8	460	---			2.00
20								

Table 49

Townsville, Australia (19.3°S, 146.7°E)								September 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	>7.0	250					3.00		
01	>7.4	240					(3.00)		
02	6.9	240					2.90		
03	6.2	260					2.80		
04	>6.0	290					2.60		
05	5.8	300				1.8		2.65	
06	>7.5	295			150	1.80		(2.80)	
07	>9.2	250			100	2.70		---	
08	(260)	13.2	240	---	100	3.30		3.05	
09	---	13.3	230	---	100	3.75		3.00	
10	(260)	13.2	220	---	100	3.90	4.1	2.90	
11	290	13.2	210	---	100	4.10	4.4	2.80	
12	---	13.0	210	---	100	4.10	4.6	2.70	
13	(360)	12.4	210	6.8	100	4.00	4.3	2.65	
14	(400)	>12.0	210	6.5	110	3.85		2.60	
15	(390)	11.9	240	6.5	110	3.70		2.60	
16	>11.0	240	---	---	110	3.50		2.60	
17	>11.4	250			100	<3.00		---	
18	>8.4	270			110	2.00		---	
19	>8.4	270		---	---	---			
20	>7.9	270							
21	>7.5	270							
22	>7.5	270							
23	>7.5	250							

Time: 150.0°E.

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

Table 51

Meanook, Canada (54.6°N, 113.3°W)								August 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	5.0	270					----		
01	4.7	310					----		
02	4.4	300							
03	4.2	310							
04	---	4.2	300	---					
05	---	4.3	290	---	100	2.3		----	
06	---	5.0	250	---	100	2.8		----	
07	440	5.7	230	4.3	100	2.8		(2.85)	
08	410	6.1	220	4.6	100	3.1		2.7	
09	450	6.4	200	4.8	100	3.4		2.7	
10	430	6.6	200	5.0	100	3.6		(2.6)	
11	440	6.9	200	5.2	100	3.8		(2.6)	
12	440	7.0	200	5.1	100	3.8		(2.6)	
13	430	6.8	200	5.3	100	3.9		2.55	
14	440	6.9	200	5.3	100	3.8		2.5	
15	450	7.0	200	5.1	100	3.7		(2.6)	
16	400	6.9	200	5.0	100	3.4		(2.7)	
17	400	6.9	220	4.9	100	3.2		2.7	
18	(360)	6.8	230	4.5	100	2.8		2.7	
19	---	6.7	250	---	100	2.5		2.8	
20	6.3	250	---	---	100	2.0		----	
21	5.9	260	---	---	---	---			
22	5.8	260							
23	5.2	280							

Time: 105.0°W.

Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 53

Singapore, British Malaya (1.3°N, 103.8°E)								August 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	11.7	230				3.0		2.90	
01	9.4	220				<1.9		2.95	
02	8.7	235				1.7		2.90	
03	7.2	235				<1.6		3.00	
04	6.6	240				1.4		3.00	
05	5.1	240				2.6		3.15	
06	5.9	290		110	----	3.0		2.90	
07	10.0	255		130	2.75	3.4		2.05	
08	12.8	240		110	3.40	3.9		2.65	
09	13.8	225		110	3.80	5.6		2.50	
10	14.1	210		110	4.10	4.8		2.30	
11	14.1	205		110	4.25			2.10	
12	13.8	205		110	4.30			1.90	
13	12.6	200		110	4.25			1.90	
14	12.5	200		110	4.10			1.90	
15	12.5	210		110	3.05			2.00	
16	12.5	220		110	3.50			2.05	
17	>12.7	250		115	2.80			2.15	
18	12.6	280		120	1.80	2.2		2.20	
19	12.8	345		---	<1.4	2.20			
20	(13.8)	350		---	<1.3	(2.40)			
21	(12.8)	260		---	<1.3	(2.45)			
22	>12.9	240		---	1.7	(2.70)			
23	12.2	225		---	2.8	2.70			

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 50

Falkland Is. (51.7°S, 57.8°W)								September 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			6.5		340				2.30
01			6.3		345				2.30
02			6.2		320				2.35
03			5.9		300				2.50
04			5.7		300				2.40
05			5.8		295				2.45
06			7.4		250			155	1.9
07			9.4		235			120	2.3
08			11.1		230			115	3.0
09			11.9		240			110	3.4
10			12.9		235			110	3.5
11			13.2		235			110	4.2
12			13.0		235			110	3.7
13			12.8		235			105	3.6
14			11.7		240			110	3.6
15			10.4		250			110	3.0
16			9.9		250			120	2.3
17			9.4		250			---	3.1
18			7.9		245				2.75
19			7.0		250				2.55
20			6.8		265				2.50
21			6.6		265				2.50
22			>6.9		295				2.50
23			6.7		300				2.45

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 52

Tortosa, Spain (40.8°N, 0.5°E)								August 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			7.7		310				2.60
01			7.5		300				2.4
02			7.1		290				2.65
03			6.5		290				2.65
04			6.2		280				2.70
05			6.1		280				2.80
06			7.1		245			120	1.6
07	(275)	8.2	235	4.5	110	2.9		2.8	3.10
08	295	8.2	225	5.0	100	3.3		4.4	2.95
09	310	8.8	215	5.3	100	3.5		4.4	3.10
10	330	9.0	205	5.9	100	3.7		4.8	2.80
11	345	9.2	215	6.2	100	3.8		4.6	2.70
12	360	>9.4	215	6.1	100	3.9		4.3	2.70
13	350	9.6	215	6.0	100	3.8		4.5	2.80
14	340	>9.0	225	5.7	100	3.7		4.0	2.80
15	345	>9.0	235	5.5	100	>3.3		4.0	2.80
16	305	9.0	240	4.9	<110	3.0		3.7	2.85
17	---	9.0	260		115	2.3		2.8	2.90
18	10.9	250						2.4	(2.90)
19	8.6	250						2.4	2.80
20	8.3	270						2.3	2.65
21	(7.8)	290						2.4	(2.65)
22	(7.8)	290						2.4	2.60
23	7.6	290						1.0	(2.29)

Time: Local.

Table 54

Ibadan, Nigeria (7.4°N, 3.9°E)								July 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			(5.2)		410				(2.30)
01			(5.2)		400				(2.30)
02			(4.6)		350				(2.46)
03			(4.6)		300				(2.50)
04			(4.6)		250				

Table 55

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

July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	11.8	240			3.4	2.90		
01	10.7	235			3.4	2.90		
02	9.0	235			3.0	3.00		
03	7.4	230			1.4	2.95		
04	6.6	235			<1.9	2.95		
05	5.3	240			2.2	3.05		
06	6.2	290			1.50	2.8		
07	10.7	255	120	(2.70)	3.4	2.85		
00	13.4	245	110	3.40	4.2	2.70		
09	14.2	230	110	3.75	4.7	2.50		
10	14.6	220	105	4.00	4.4	2.25		
11	14.0	210	105	4.20		1.95		
12	13.3	210	110	4.20		1.90		
13	12.8	210	105	4.20		1.90		
14	12.4	215	110	4.10		1.95		
15	12.4	215	110	3.85		1.90		
16	12.2	230	110	3.50		2.00		
17	12.4	250	115	2.85	3.0	2.05		
18	12.6	275	<135	2.00	3.0	2.15		
19	12.7	310			3.3	2.20		
20	13.0	350			1.4	2.25		
21	13.0	250			1.8	2.40		
22	12.7	250			3.1	2.60		
23	12.7	240			4.0	2.70		

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 57

Chimbote, Peru (9.1°S, 78.6°W)

July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	8.5	240			2.90			
01	8.4	230			2.95			
02	8.1	230			3.05			
03	7.2	230			3.15			
04	6.0	225			3.10			
05	4.8	240			3.10			
06	4.1	250			3.00			
07	7.4	265	133	2.25		2.95		
08	9.4	240	119	3.00	5.9	2.75		
09	10.0	230	115	3.50	7.0	2.55		
10	10.1	220	114	3.90	7.9	2.40		
11	10.0	215	114	4.05	8.0	2.25		
12	10.0	210	---	113	(4.10)	8.0		
13	10.0	210	---	113	4.05	7.6	2.20	
14	10.0	210	---	115	3.95	8.0	2.15	
15	10.0	210	---	113	3.80	6.9	2.15	
16	9.8	225	---	114	3.35	5.8	2.20	
17	9.6	255	121	2.80		2.15		
18	9.2	290	---	----	4.0	2.20		
19	8.8	360				2.15		
20	8.6	350				2.25		
21	8.8	305				2.45		
22	8.8	250				2.65		
23	8.6	235				2.80		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 59

Leningrad, U.S.S.R. (59.9°N, 30.7°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	200	5.9						
01	290	6.1						
02	290	(5.8)						
03	290	(7.3)	240	2.9	---	E		
04	330	7.4	220	3.7	100	E		(2.6)
05	360	7.6	220	4.3	100	2.8		2.6
06	400	7.5	220	4.8	100	2.9		2.6
07	400	8.0	220	5.0	100	3.2		2.6
08	400	8.0	220	5.0	100	3.4		2.6
09	440	7.0	220	5.2	100	3.5		2.6
10	440	8.0	220	5.4	100	3.6		2.6
11	440	7.8	210	5.3	100	3.7		2.5
12	460	8.0	210	5.4	100	3.7		2.5
13	450	7.5	210	5.5	100	3.7		2.6
14	440	7.4	220	5.4	100	3.6		2.6
15	440	7.3	220	5.3	100	3.6		2.6
16	410	7.2	220	5.2	100	3.5		2.7
17	390	7.5	220	5.1	100	3.3		2.8
18	340	7.8	220	4.8	100	2.9		
19	300	7.6	240	4.2	100	2.8		
20	240	7.4			100	E		
21	240	(7.7)						
22	240	7.8						
23	250	7.4						

Time: 30.0°E.

Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 56

Chiclayo, Peru (6.0°S, 79.8°W)

July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			9.2		230			2.90
01			9.2		230			2.90
02			8.8		230			3.00
03			8.2		230			3.10
04			6.6		225			3.20
05			5.4		235			3.20
06			4.6		240			3.00
07			7.3		260	123	2.30	2.90
08			9.4		240	113	3.05	2.80
09			9.8		225	109	3.50	2.50
10			10.0		220	111	3.85	2.30
11			10.2		210	112	4.00	2.20
12			10.2		210	111	4.10	2.15
13			10.0		205	111	(4.10)	2.15
14			10.5		210	107	(4.00)	2.15
15			10.2	<205	---	112	(3.85)	2.10
16			10.0		220	115	3.40	2.15
17			9.8		250	117	(3.00)	2.10
18			9.7		280	---	---	2.15
19			9.4		350			2.15
20			9.3		370			2.15
21			9.6		310			2.35
22			10.1		270			2.55
23			9.5		230			2.80

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 58

Yakutsk, U.S.S.R. (62.0°N, 129.7°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	8.2			---	---		2.7
01	280	8.0						2.7
02	300	7.5						2.6
03	300	7.2	(300)	---	---	E		2.6
04	330	7.2	250	3.4	100	2.3		2.7
05	350	7.1	250	3.8	100	2.6		2.7
06	390	7.0	230	4.4	90	2.9		2.7
07	(350)	7.6	230	5.0	80	3.2		2.7
08	220				80	3.4		
09	220				80	3.5		
10	220				(230)	80	3.4	
11	220				(220)	80	3.5	
12	220				(220)	80	3.4	
13	230				230	80	3.4	
14	210				210	80	3.6	
15	210				210	80	(2.7)	
16	210				210	80	3.4	
17	210				210	80	3.2	
18	380	(7.1)	230	4.8	80	3.2		2.7
19	350	(7.2)	230	4.4	90	2.9		2.6
20	300	(7.5)	250	---	100	2.6		2.6
21	260	(7.6)	230	---	140	2.2		2.7
22	260	7.9			---	E		2.7
23	260	8.0			150	2.1		2.6

Time: 135.0°E.

Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 60

Sverdlovsk, U.S.S.R. (56.7°N, 61.1°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	7.0						2.5
01	320	6.9						2.5
02	330	6.5						2.5
03	340	6.2						2.5
04	320	6.8	---	---	150	2.1		2.5
05	370	7.4	280		130	2.5		2.4
06	390	7.5	270	4.6	120	3.0		2.5
07	440	7.6	250	5.0	120	3.3		2.4
08	460	7.4	250	5.2	120	3.5		2.4
09	480	7.4	240	5.4	120	3.7		2.4
10	480	7.7	240	5.5	110	3.8		2.4
11	490	7.6	240	5.6	110	3.8		2.4
12	400	8.0	240	5.7	110	3.9		2.4
13	480	7.6	240	5.7	110	3.9		2.4
14	480	7.6	250	5.5	120	3.8		2.4
15	440	7.6	240	5.4	120	3.7		2.4
16	420	7.4	250	5.2	120	3.5		2.5
17	390	7.2	250	4.9	120	3.3		2.5
18	340	7.2	270		120	3.0		2.6
19	280	7.0	---	---	130	2.6		2.6
20	300	6.9			150	2.1		2.6

Table 61

Tomsk, U.S.S.R. (56.5°N, 84.9°E)								June 1957
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.2						2.6
01	300	7.0						2.5
02	300	6.8						2.6
03	300	6.4						2.6
04	300	6.5						2.5
05	350	6.0	270	(3.8)	120	2.2		2.5
06	370	7.0	250	4.5	110	2.7		2.6
07	410	7.0	240	4.8	110	3.0		2.5
08	420	7.2	240	5.0	100	3.3		2.5
09	450	7.2	240	5.2	100	3.5		2.5
10	460	7.3	230	5.5	100	3.7		2.4
11	460	7.4	220	5.6	100	3.8		2.4
12	460	7.5	220	5.6	100	3.8		2.4
13	460	7.3	220	5.6	100	3.8		2.4
14	460	7.4	220	5.6	100	3.7		2.5
15	440	7.4	230	5.5	100	3.6		2.5
16	430	7.4	240	5.3	100	3.5		2.5
17	400	7.3	240	5.0	100	3.2		2.6
18	350	7.2	240	(4.8)	100	3.0		2.7
19	300	7.1	250		110	2.7		2.6
20	270	7.1			120	2.1		2.6
21	280	7.1					E	2.6
22	280	7.2						2.6
23	280	7.4						2.6

Time: 90.0°E.
Sweep: 1.8 Mc to 16.0 Mc in 10 minutes, manual operation.

Table 63

Alma-Ata, U.S.S.R. (43.2°N, 76.9°E)								June 1957
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.7						2.6
01	300	7.4						2.6
02	300	7.1						2.6
03	300	6.8						2.6
04	300	6.9			100	1.5		2.6
05	280	7.7	(250)	(3.3)	100	2.2		2.6
06	280	8.6	230	4.4	100	2.9		2.6
07	300	9.2	230	5.1	100	3.5		2.6
08	340	9.6	230	5.7	100	4.2		2.7
09	340	10.0	230	6.1	100	4.6		2.7
10	360	10.2	230	6.1	100	4.6		2.6
11	380	10.5	230	6.2	100	4.7		2.6
12	380	10.4	230	6.2	100	4.7		2.6
13	380	10.2	230	6.0	100	4.6		2.6
14	380	9.8	230	5.9	100	4.5		2.6
15	350	9.4	230	5.7	100	4.4		2.7
16	340	9.2	220	5.6	100	4.1		2.7
17	320	9.0	240	5.1	100	3.6		2.7
18	300	8.8	240	4.7	100	3.0		2.0
19	270	8.6	(240)	(4.2)	100	2.4		2.8
20	260	8.4			100	1.7		2.7
21	280	8.2						2.6
22	300	8.1						2.6
23	300	7.9						2.6

Time: 75.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 65

Falkland Is., (51.7°S, 57.8°W)								June 1957
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00					(1.9)			2.30
01								(2.35)
02								2.30
03								2.35
04								2.35
05								2.50
06								2.80
07								3.7
08								---
09								(2.2)
10								---
11								---
12								---
13								---
14								---
15								---
16								---
17								---
18								---
19								---
20								---
21								---
22								---
23								---

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 62

Simferopol, U.S.S.R. (44.4°N, 34.0°E)								June 1957
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.9						2.6
01	302	7.5						2.4
02	300	7.2						2.5
03	300	6.8						2.6
04	295	7.0			---	---	(100)	(1.8)
05	260	8.0			---	---	100	2.5
06	245	8.8	242		---	100	3.1	2.6
07	362	9.0	247	(5.3)	100		3.5	2.6
08	400	9.1	245	(5.8)	100		3.7	2.6
09	410	9.4	(227)	5.9	100		3.9	2.4
10	402	9.6	237	6.1	100		4.0	2.5
11	400	9.2	215	6.2	100		4.1	2.5
12	415	9.2	225	6.0	100		4.2	2.4
13	415	9.2	235	6.0	100		4.1	2.5
14	410	9.1	232	6.0	100		4.0	2.6
15	400	8.8	235	5.9	100		3.7	2.6
16	395	8.4	235	5.6	100		3.7	2.6
17	342	8.5	260	(5.3)	100		3.3	2.6
18	315	8.2	260	---	100		2.8	2.7
19	290	8.3			100		1.9	2.0
20	282	8.6			---	(1.1)		2.7
21	295	8.4					---	2.6
22	300	7.6						2.5
23	300	8.3						2.5

Time: 30.0°E.
Sweep: 0.5 Mc to 25.0 Mc in 12 seconds.

Table 63

Singapore, British Malaya (1.3°N, 103.8°E)								June 1957
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00					12.6	240		(3.1)
01					11.2	235		(2.7)
02					9.0	230		2.95
03					7.3	235		(2.0)
04					6.4	235		2.95
05					5.1	245		(2.1)
06					6.8	235		2.00
07					11.1	255		2.00
08					14.0	250		2.80
09					15.0	240		2.60
10					15.0	225		2.35
11					>14.6	215		2.15
12					13.6	210		2.05
13					12.8	215		1.90
14					12.6	215		1.90
15					12.5	225		1.90
16					12.4	240		2.05
17					12.5	255		2.15
18					12.8	280		2.25
19					13.2	310		2.35
20					13.3	310		2.45
21					13.2	260		2.55
22					12.7	250		2.60
23					13.0	245		(3.6)

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 66

Irkutsk, U.S.S.R. (52.5°N, 104.0°E)								May 1957
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.9						---
01	290	(6.6)						---
02	290	(6.6)						---
03	300	(6.6)						---
04	280	(6.4)						---
05	270	(7.6)						---
06	290	(8.2)	230	(4.4)	110	3.0		(2.8)
07	260	8.7	230	4.6	110	3.2		2.0
08	300	9.1	220	4.8	110	3.4		2.8
09	300	9.3	220	6.0	110	3.6		2.7
10	310	10.4	220	---	110	---		2.8
11	310	10.7	---	---	110	---		2.7
12	340	10.6	---	6.4	110	---		2.7
13	320	11.0	220	6.0	110	---		2.7
14	320	10.8	---	5.6	110	3.7		2.7
15	310	11.0	230	---	110	3.6		2.7
16	300	10.7	220	5.2	110	3.4		2.8
17	300	9.5	---	---	110	(3.0)		2.0
18	270	9.2	---	---	110	(2.7)		2.8
19	260	9.0	---	---	110	(2.2)		---
20	250	8.8						---
21	270	8.7						---
22	270	8.3						---
23	270	8.0		</				

Table 67

Singapore, British Malaya (1.3°N, 103.8°E)							May 1957
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es (M3000)F2
00	12.7	235			(1.0)	2.85	
01	10.8	225			(1.2)	3.00	
02	8.7	230			(1.0)	2.90	
03	7.0	235			(1.9)	3.00	
04	6.0	235			(1.4)	2.95	
05	5.4	230			(2.2)	3.10	
06	7.3	280	---	---	(2.0)	2.05	
07	11.4	255	125	2.8	3.0	2.90	
00	13.8	245	115	3.4	3.6	2.75	
09	14.6	230	110	3.0	(4.2)	2.55	
10	15.0	215	110	4.1		2.25	
11	14.8	210	110	4.2		2.00	
12	13.0	205	110	4.2		1.95	
13	12.4	205	110	4.2		1.90	
14	12.4	210	110	4.1		1.90	
15	12.7	225	110	3.8	4.1	2.00	
16	13.0	240	115	3.4		2.05	
17	13.0	255	120	2.7		2.15	
18	13.4	290	---	(1.5)	(2.5)	2.20	
19	13.5	340			(2.4)	2.20	
20	13.7	335			(0.9)	(2.30)	
21	13.4	265			(1.8)	(2.50)	
22	13.8	230			(3.4)	2.60	
23	13.3	240			(2.4)	2.70	

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 69

Falkland Is. (51.7°S, 57.8°W)							April 1957
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es (M3000)F2
00	5.8	340				2.4	
01	5.9	340				2.4	
02	5.6	335				2.4	
03	5.2	350				2.3	
04	5.1	350				2.3	
05	5.0	345				2.2	
06	5.3	315				2.4	
07	0.4	245	155	1.9		3.0	
00	11.5	235	120	2.5	2.6	3.0	
09	13.2	230	110	2.9	3.4	3.0	
10	14.3	230	105	3.1	(4.0)	(3.0)	
11	14.9	225	105	3.3	(4.4)	---	
12	>14.9	230	105	3.4	3.7	(2.9)	
13	>14.4	225	105	3.3		2.9	
14	>13.6	230	105	3.2		2.9	
15	13.2	235	110	2.8	(2.6)	2.9	
16	11.9	240	125	2.5	(2.6)	3.1	
17	10.8	230	(135)	1.8	(2.6)	3.1	
18	9.0	235			(2.3)	3.0	
19	7.6	230			(2.1)	3.1	
20	6.0	245				2.9	
21	5.6	275			(2.0)	2.5	
22	5.7	325			1.5	2.3	
23	5.9	345				2.3	

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 71

Calcutta, India (22.3°N, 88.5°E)							March 1956
Time	h'F2	f0F2	h'F1	f0F1	h'E	f0E	f0Es (M3000)F2
00	250	9.0				3.2	
01	250	8.0			2.0	3.4	
02	240	6.6			2.0	3.3	
03	225	6.1				3.2	
04	240	4.8				3.2	
05	240	4.0			2.0	2.05	
06	270	4.6			2.1	3.0	
07	250	7.7			110	2.5	3.3
08	250	10.0	240	(4.5)	105	3.0	3.3
09	290	10.5	230	4.9	100	3.4	3.2
10	300	10.7	220	5.0	100	3.6	3.2
11	310	11.0	210	5.2	100	3.6	3.2
12	310	11.2	210	5.5	100	3.7	3.15
13	315	11.2	205	5.5	100	3.7	3.15
14	320	11.0	200	5.3	100	3.5	3.2
15	315	11.0	230	5.0	100	3.4	3.2
16	300	11.0	240	4.6	100	3.1	3.2
17	260	11.0			110	2.6	3.5
18	260	10.7				3.4	
19	285	10.5			2.1	3.3	
20	245	10.3				3.2	
21	230	10.2				3.5	
22	230	9.9				3.5	
23	240	9.4				3.2	

Time: 90.0°E.

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

Table 68

Falkland Is. (51.7°S, 57.8°W)							May 1957
Time	h'F2	f0F2	h'F	f0F1	h'E	f0E	f0Es (M3000)F2
00	3.9	330					2.3
01	3.8	330					2.4
02	3.8	340					2.3
03	3.7	340					2.3
04	3.5	330					2.3
05	3.3	305					2.5
06	3.2	280					2.5
07	>5.1	260					---
00	8.2	230					---
09	11.2	225					---
10	12.2	225					---
11	12.3	225					---
12	12.3	235					---
13	11.2	225					---
14	11.2	225					---
15	10.5	235					---
16	9.8	230					---
17	8.7	225					---
18	6.8	215					---
19	4.2	235					---
20	3.6	255					2.9
21	3.4	290					2.6
22	3.7	320					2.5
23	3.7	340					2.3

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 70

Kodaikanal, India (10.2°N, 77.5°E)							April 1956
Time	h'F2	f0F2	h'F1	f0F1	h'E	f0E	f0Es (M3000)F2
00	260	12.2					2.90
01	260	10.8					2.90
02	260	10.0					2.90
03	255	9.6					3.00
04	240	7.7					3.10
05	235	6.1					3.20
06	270	7.6					3.05
07	260	10.8	250		120	2.9	2.90
08	(260)	12.4	240		115	---	9.0
09	(280)	12.7	230		---		11.0
10	(300)	11.8	220		---		12.0
11	300	11.4	220		---		12.0
12	(295)	11.4	220		---		12.0
13	280	11.7	220		---		12.0
14	12.0	220			115	3.7	11.0
15	12.0	220			115	3.2	9.0
16	255	12.8	240		115	3.2	9.0
17	270	12.8			---		8.0
18	310	12.7					2.20
19	420	11.5					2.10
20	430	(10.9)					(2.15)
21	380	(11.2)					(2.30)
22	320	(11.8)					(2.50)
23	280	12.2					(2.70)

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 72

Kodaikanal, India (10.2°N, 77.5°E)							March 1956
Time	h'F2	f0F2	h'F1	f0F1	h'E	f0E	f0Es (M3000)F2
00	240	12.1					3.00
01	240	11.0					3.05
02	245	9.3					3.05
03	240	8.9					3.00
04	240	7.0					3.10
05	240	5.2					3.10
06	280	6.4					3.00
07	260	9.8	---		120	2.7	2.90
08	270	11.8	240		115	---	9.4
09	290	12.7	225		---		11.0
10	300	11.8	220		---		12.0
11	290	11.2	220		---		12.2
12	300	11.0	215		---		12.2
13	(300)	11.4	210		110	---	12.0
14	---	11.7	210		105	---	12.0
15	---	12.1	220		---		11.4
16	240	12.3	235		115	10.0	2.25
17	270	12.1			120	---	8.0
18	310	11.6					2.20
19	420	9.3					2.10
20	440	(8.8)					(2.20)
21	360	(9.0)					(2.60)
22	300	(9.9)					(2.70)
23	260	11.5					2.80

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

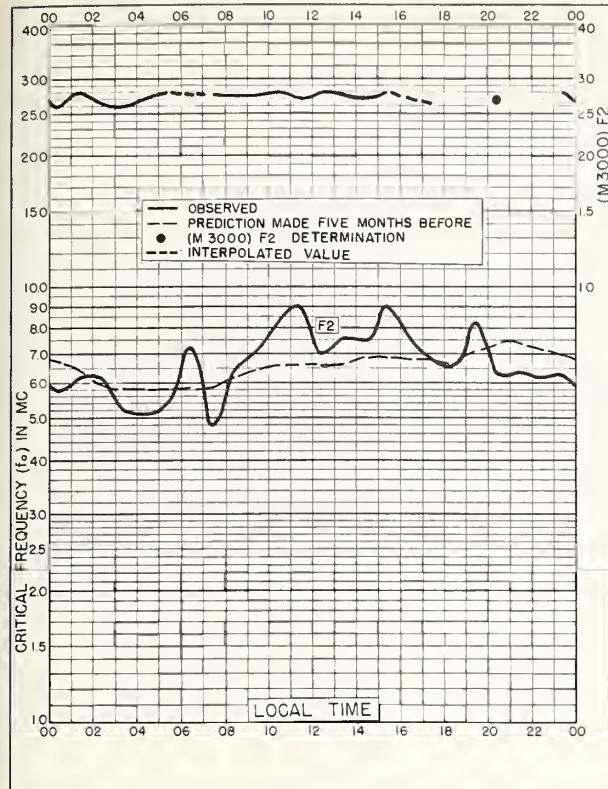


Fig. I. FLETCHERS ICE I.
80.0°N, 114.0°W DECEMBER 1957

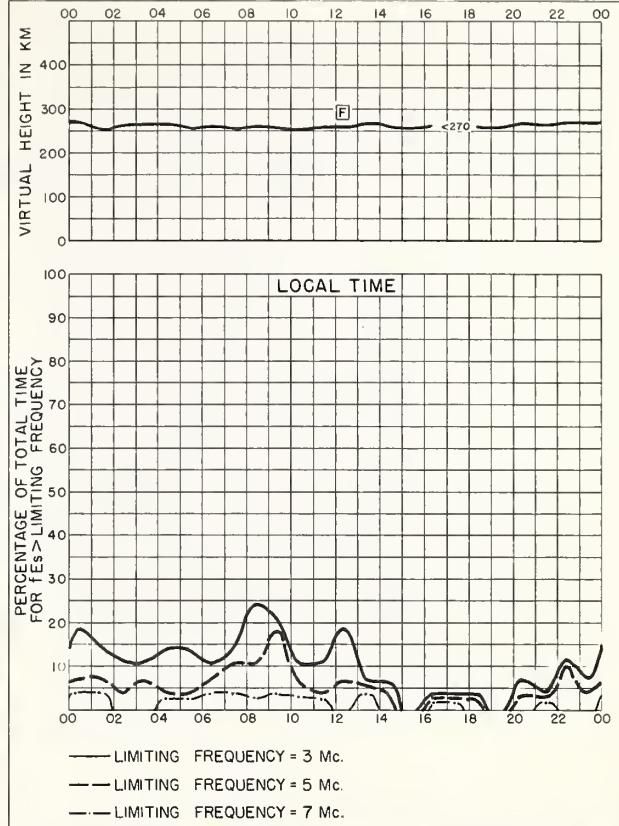


Fig. 2. FLETCHERS ICE I. DECEMBER 1957

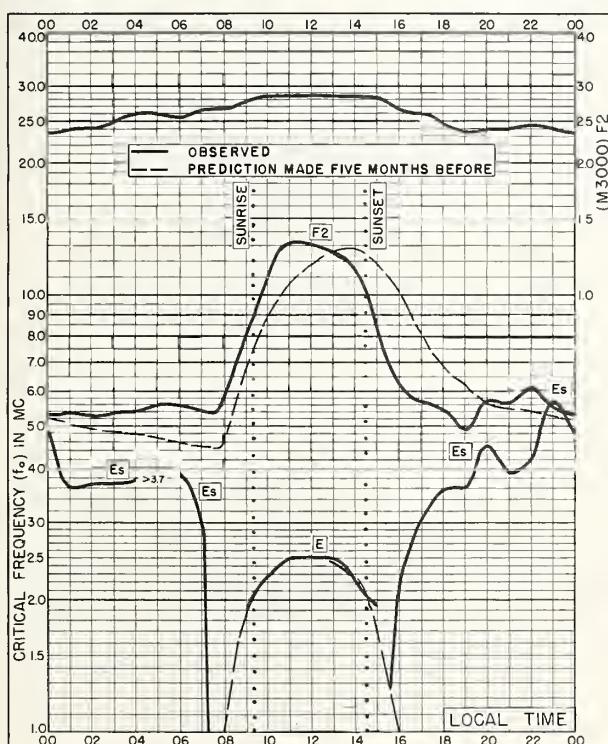
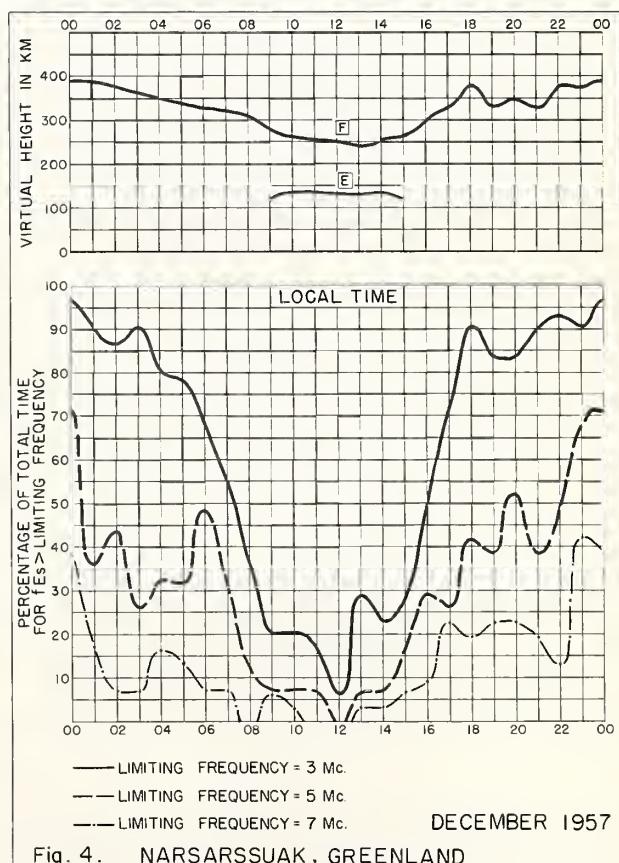
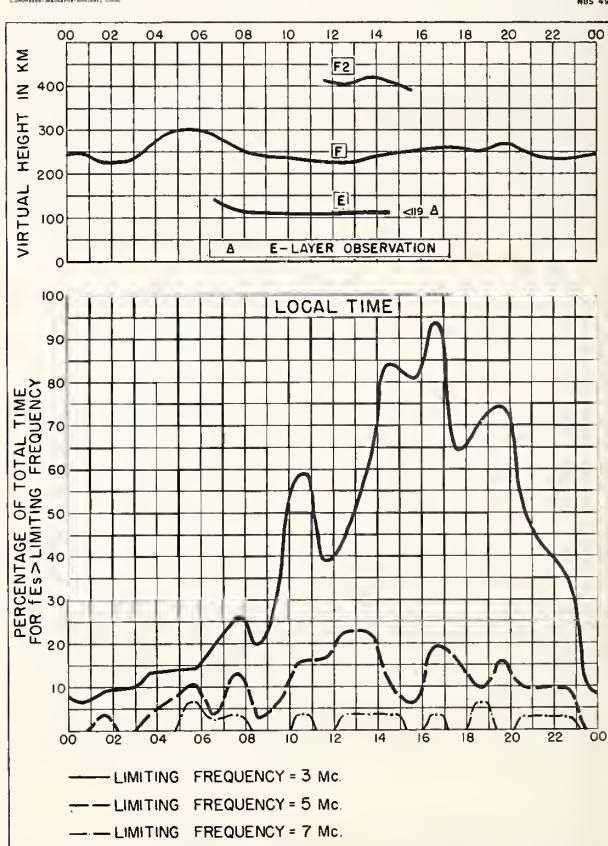
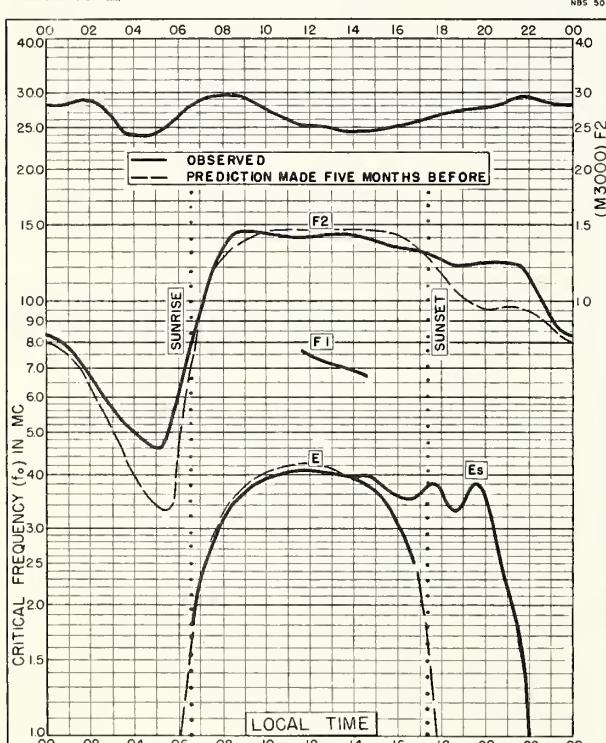
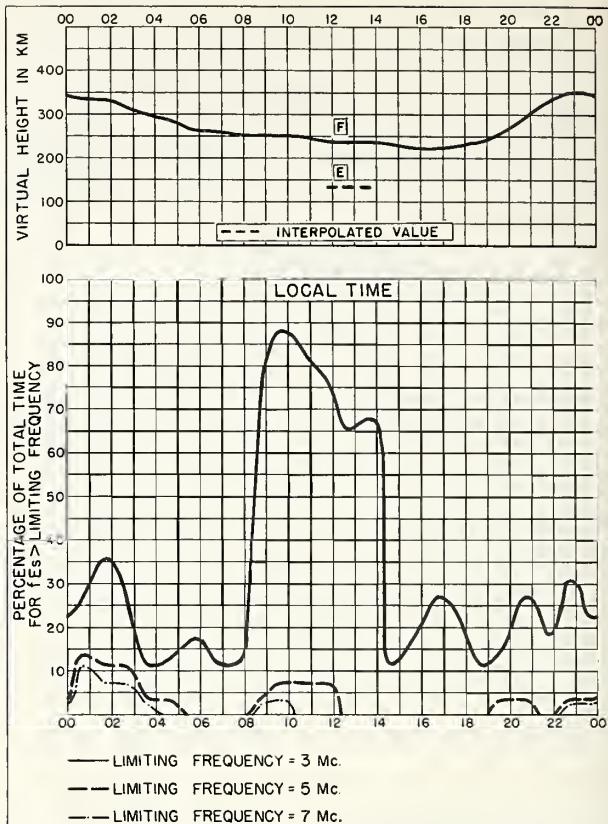
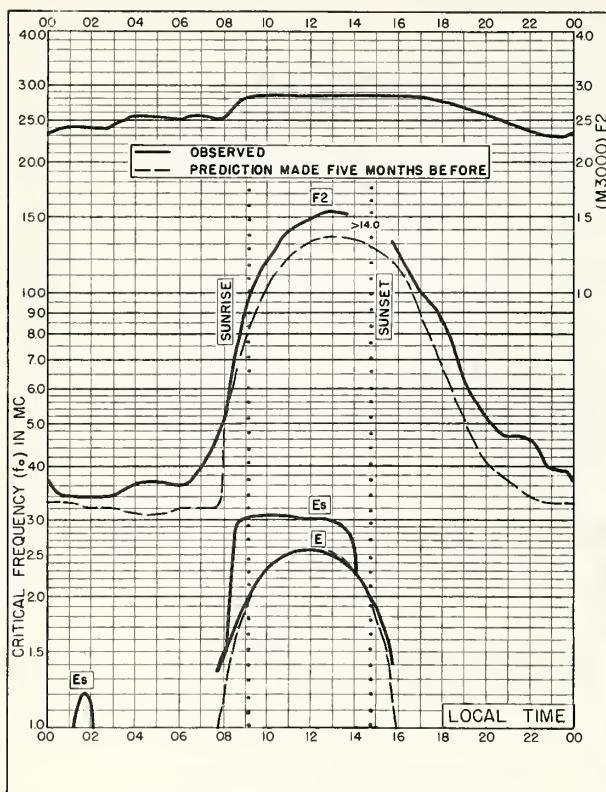
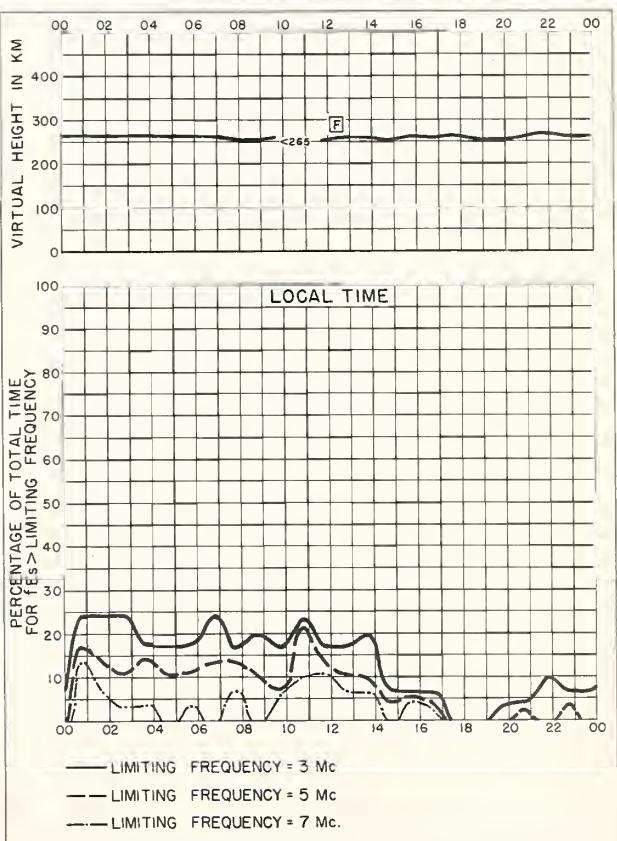
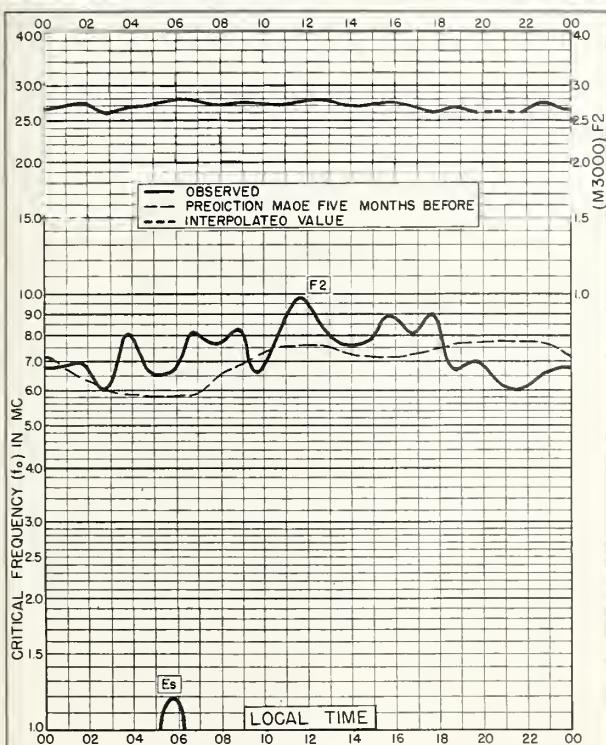
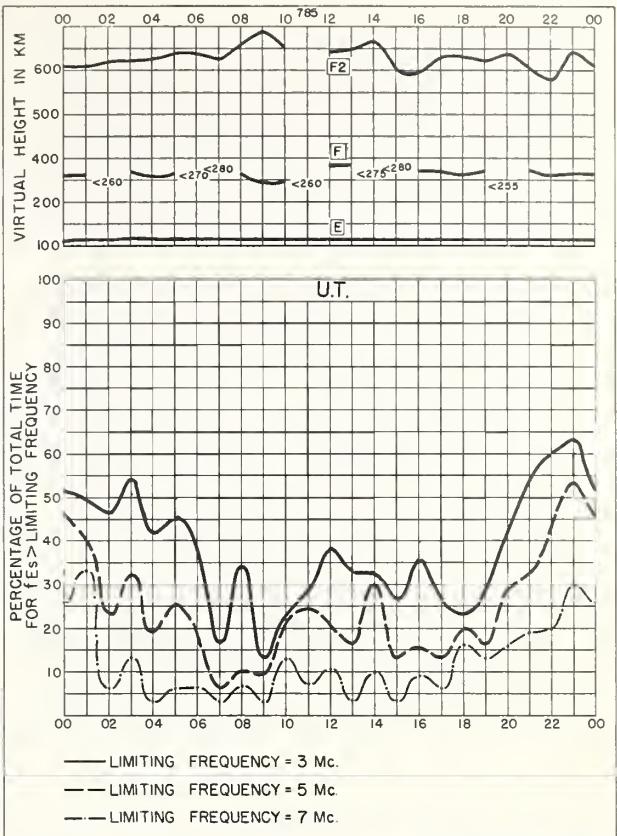
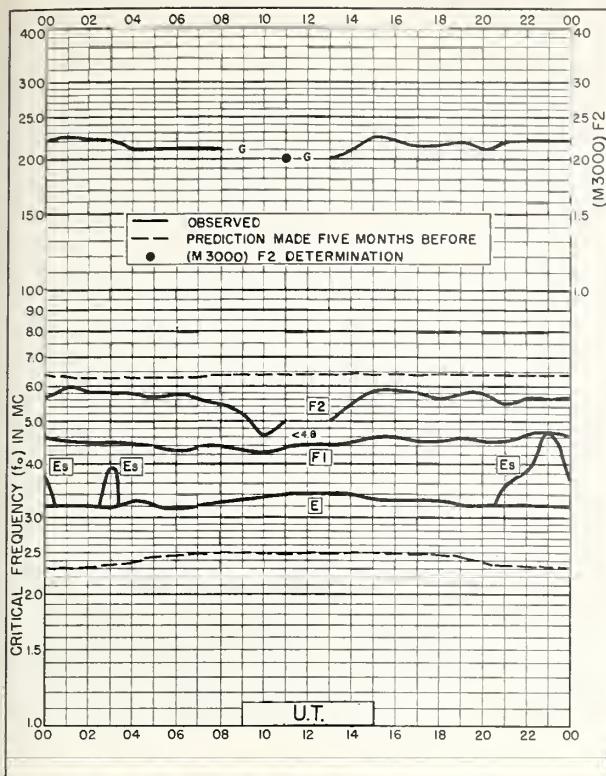


Fig. 3. NARSARSSUAK, GREENLAND
 61.2°N, 45.4°W DECEMBER 1957







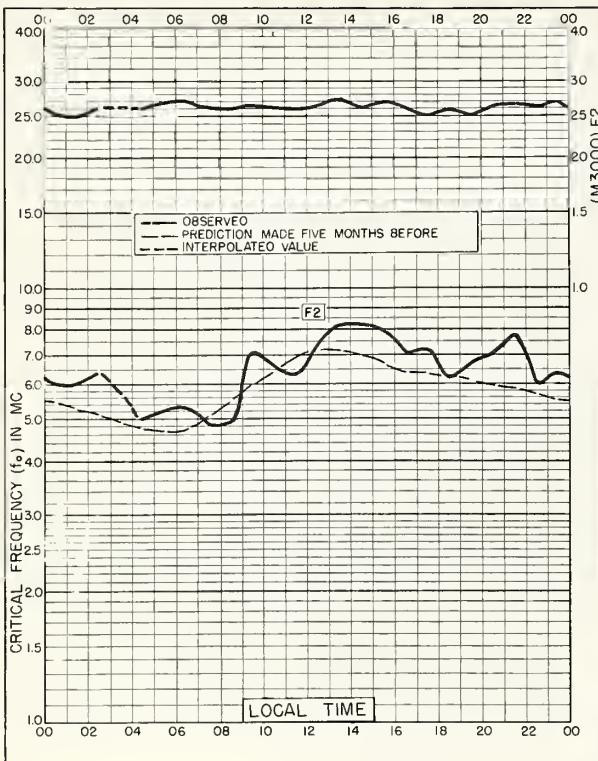


Fig. 13. THULE, GREENLAND
76.6°N, 68.7°W NOVEMBER 1957

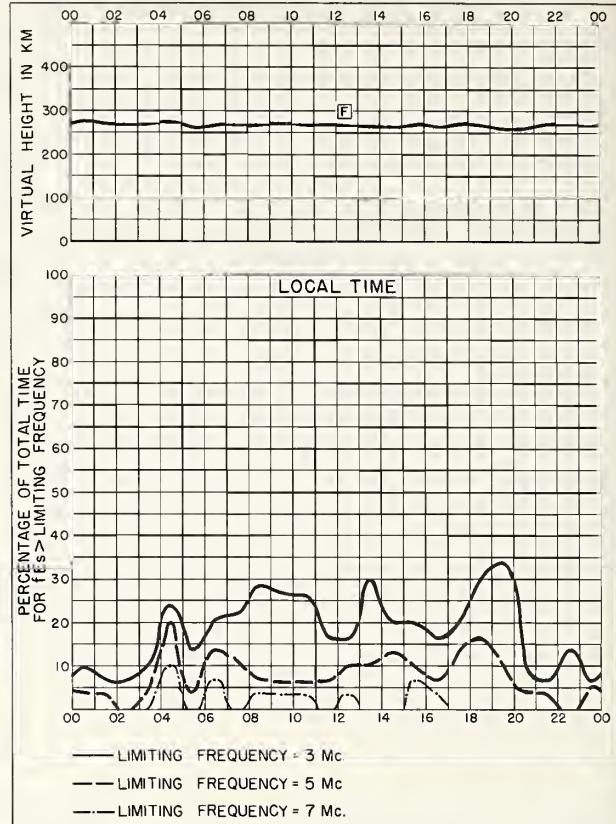


Fig. 14. THULE, GREENLAND NOVEMBER 1957

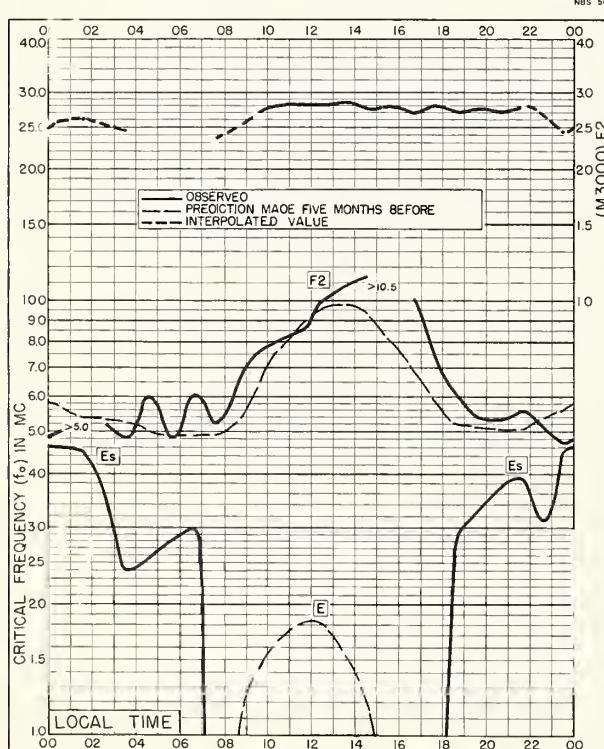


Fig. 15. POINT BARROW, ALASKA
71.3°N, 156.8°W NOVEMBER 1957

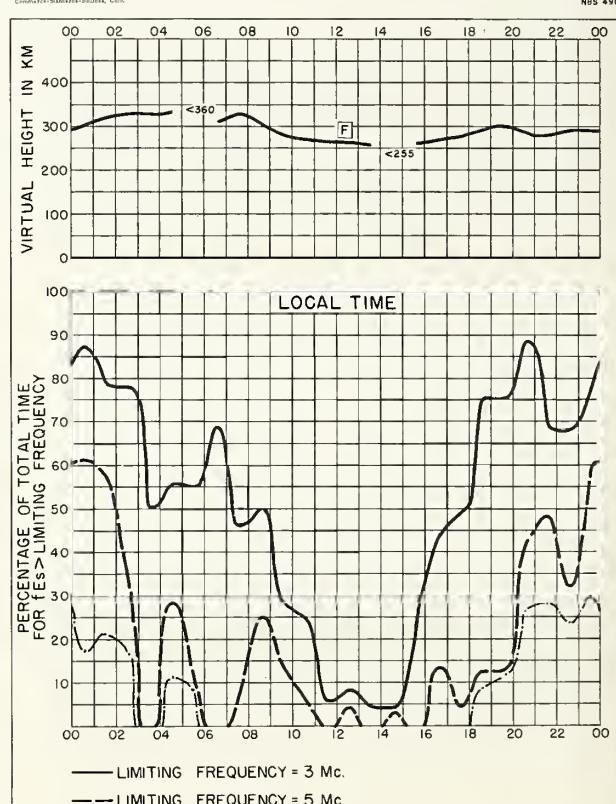


Fig. 16. POINT BARROW, ALASKA NOVEMBER 1957

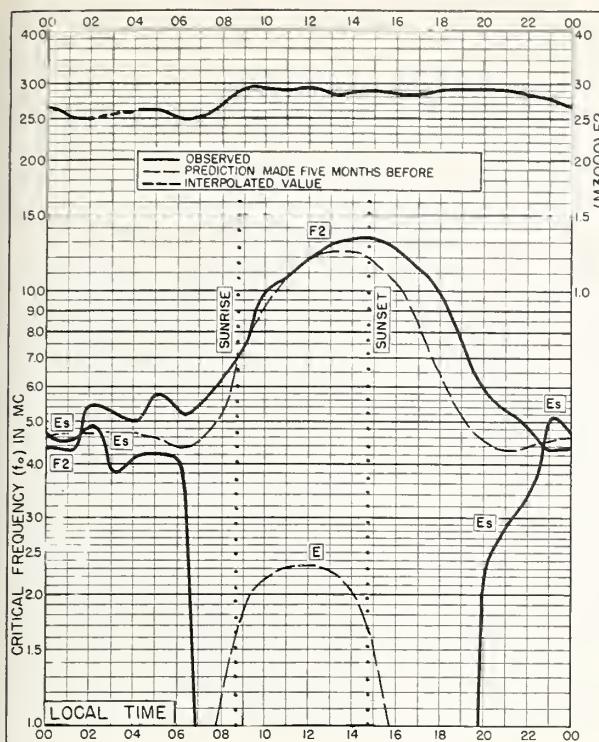


Fig. 17. FAIRBANKS, ALASKA
64.9°N, 147.8°W NOVEMBER 1957

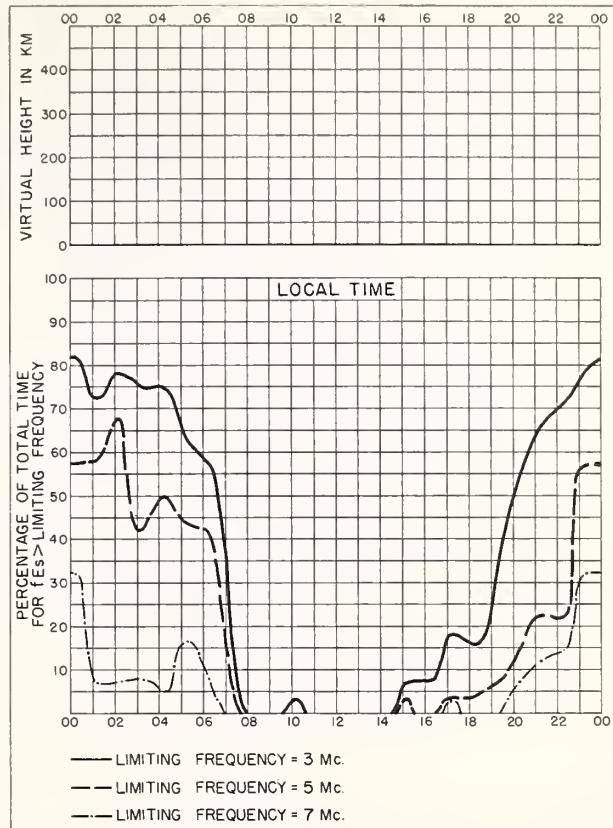


Fig. 18. FAIRBANKS, ALASKA NOVEMBER 1957

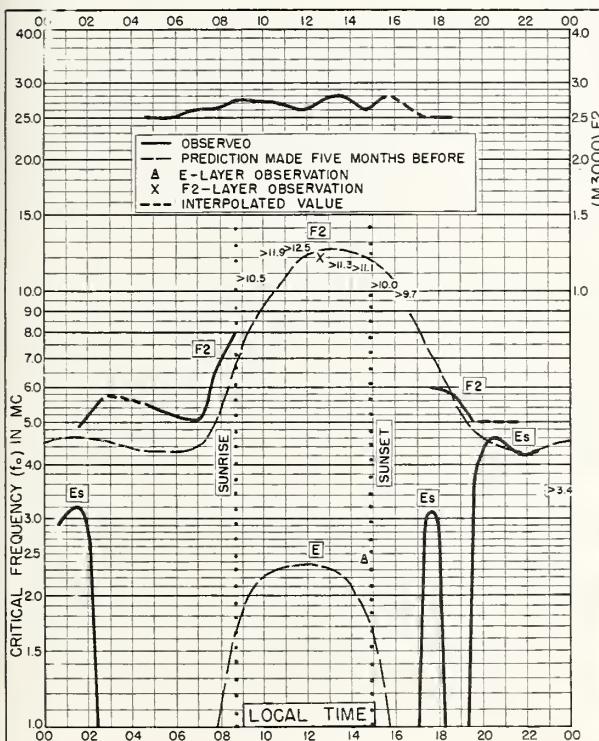


Fig. 19. REYKJAVIK, ICELAND
64.1°N, 21.8°W NOVEMBER 1957

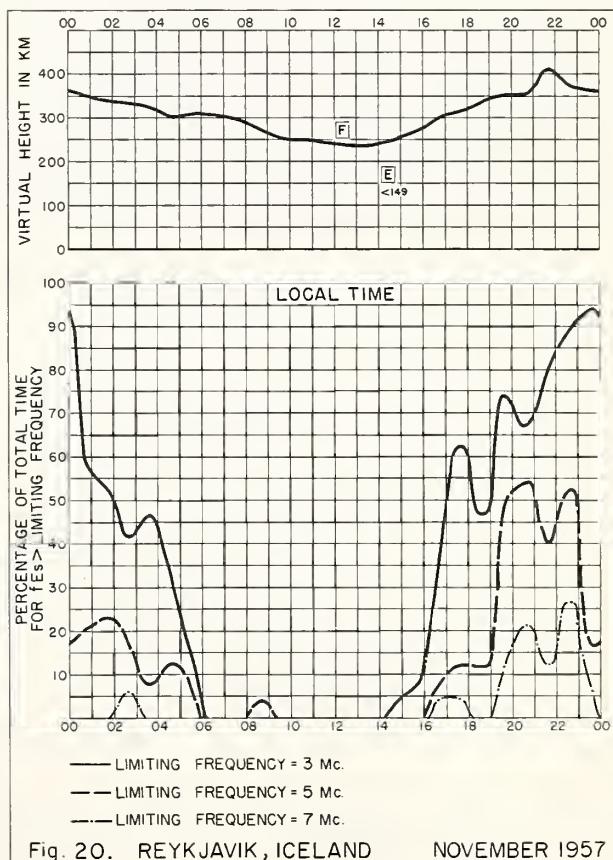


Fig. 20. REYKJAVIK, ICELAND NOVEMBER 1957

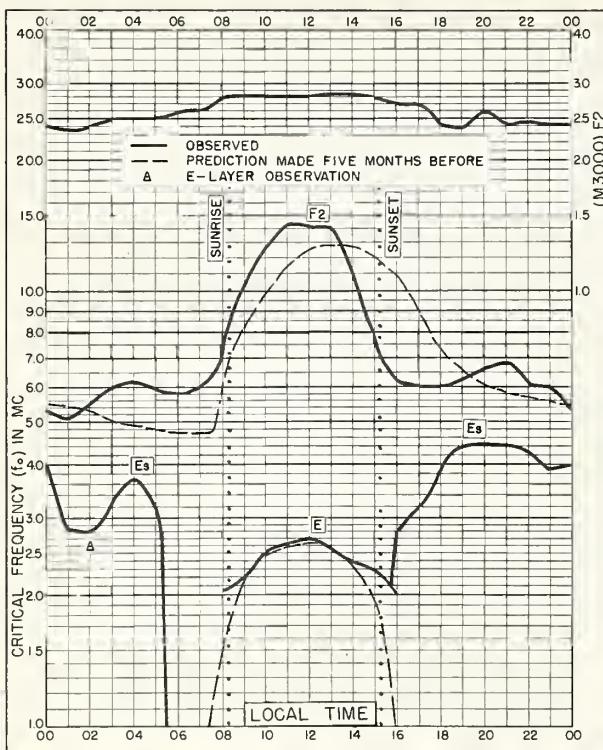


Fig. 21. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W NOVEMBER 1957

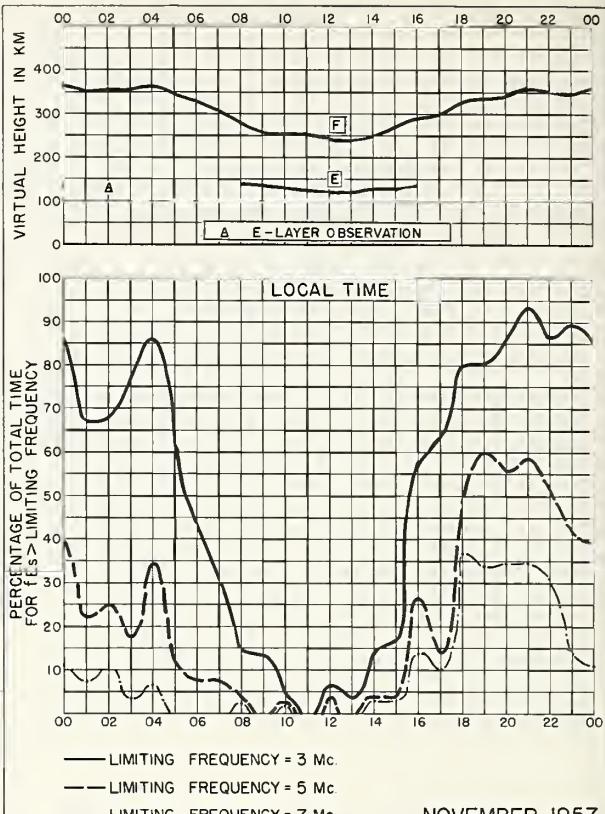


Fig. 22. NARSARSSUAK, GREENLAND

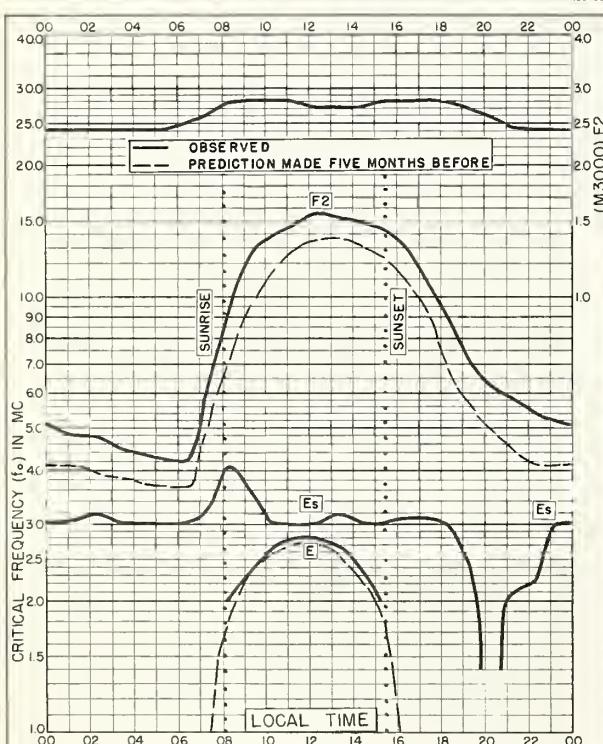


Fig. 23. UPSALA, SWEDEN
59.8°N, 17.6°E NOVEMBER 1957

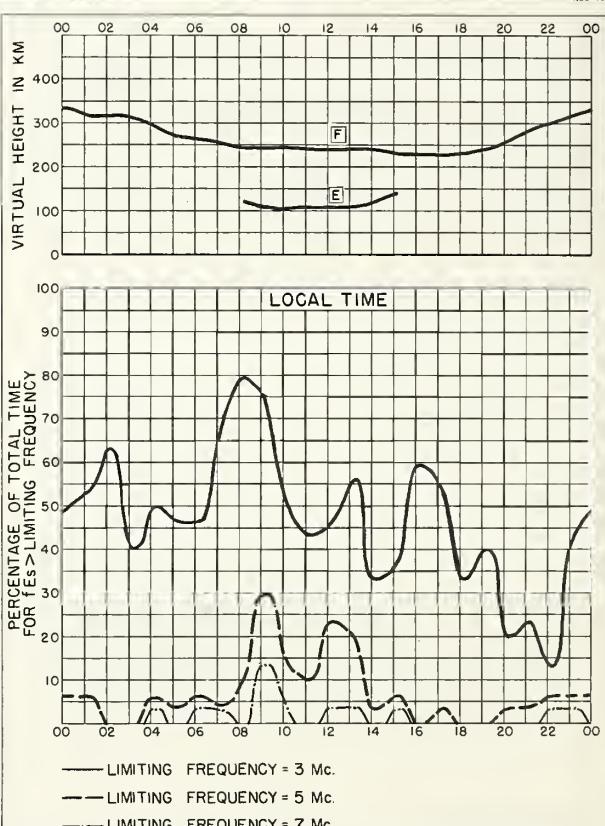


Fig. 24. UPSALA, SWEDEN NOVEMBER 1957

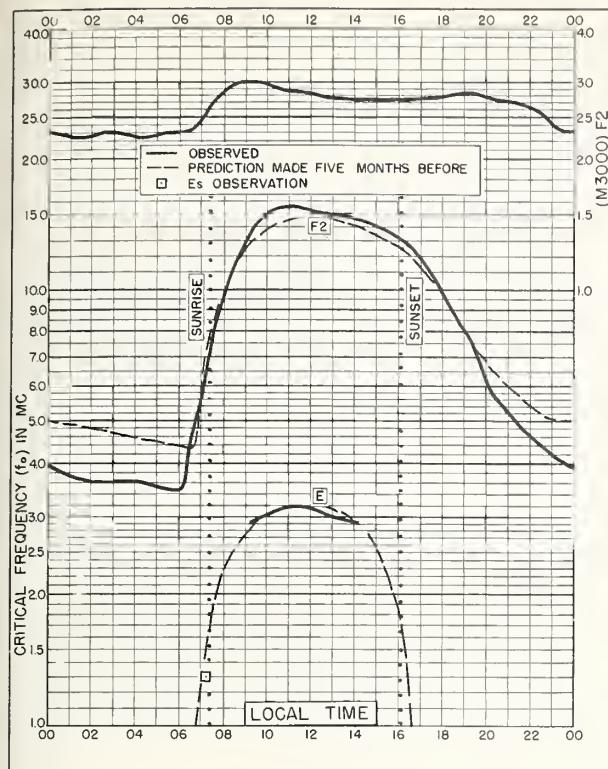


Fig. 25. ADAK, ALASKA
51.9°N, 176.6°W NOVEMBER 1957

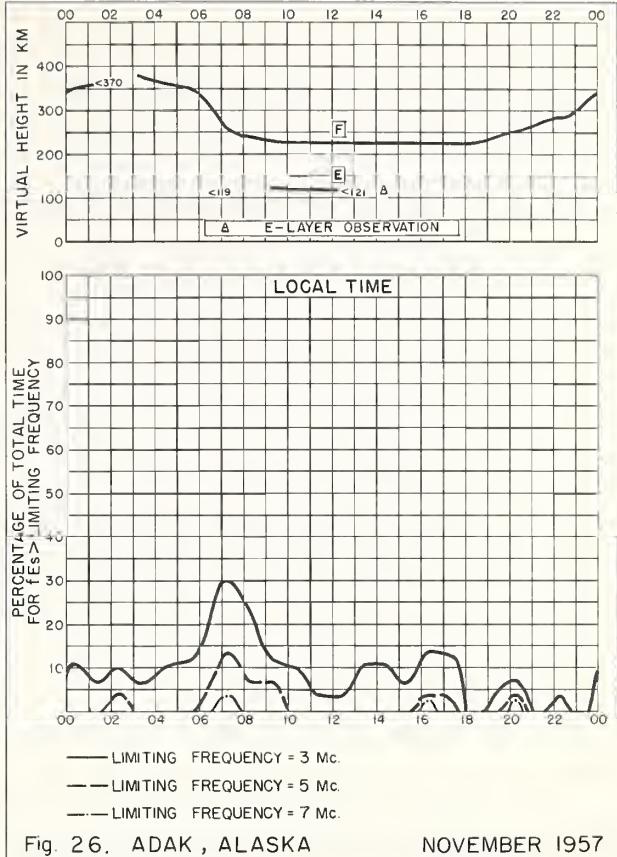


Fig. 26. ADAK, ALASKA NOVEMBER 1957

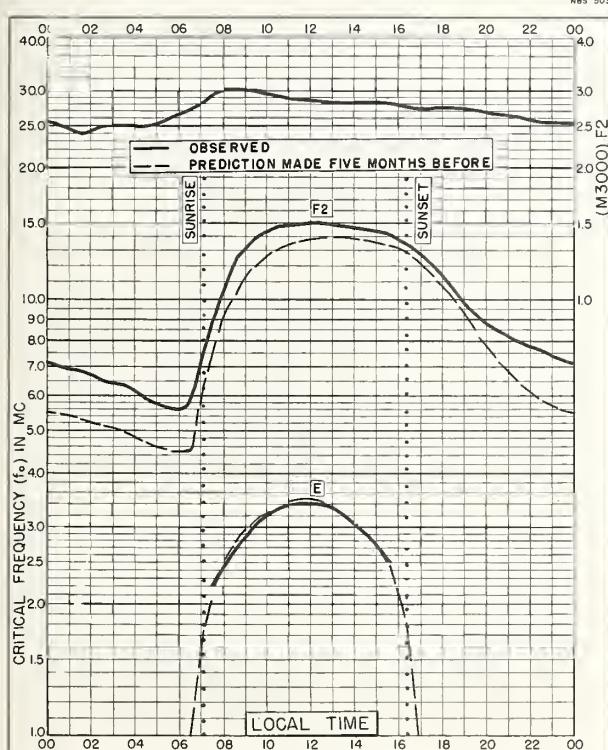


Fig. 27. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W NOVEMBER 1957

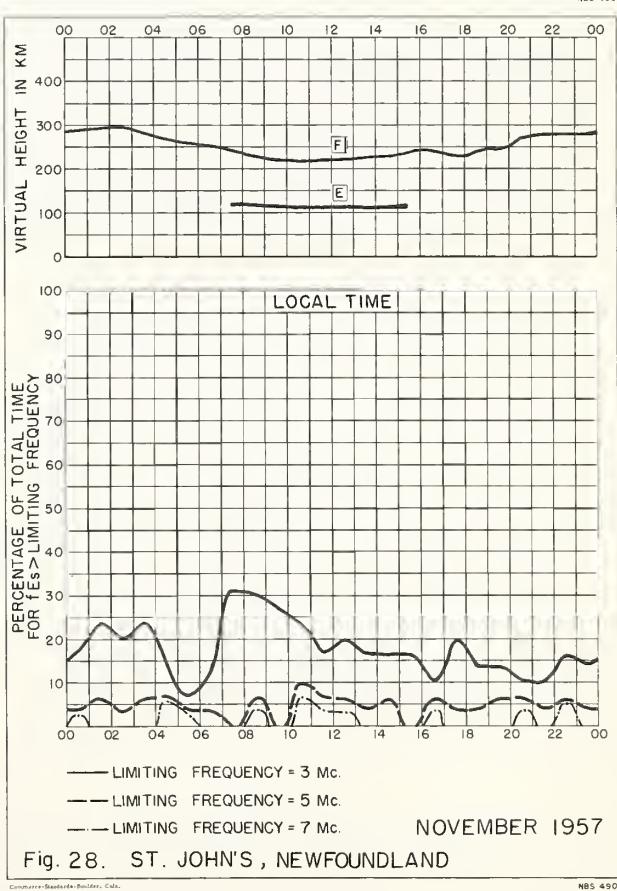
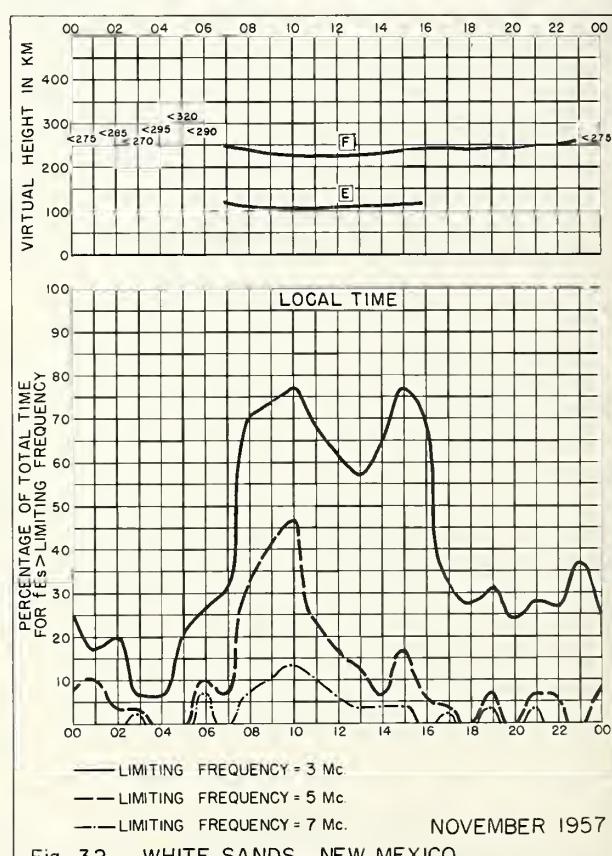
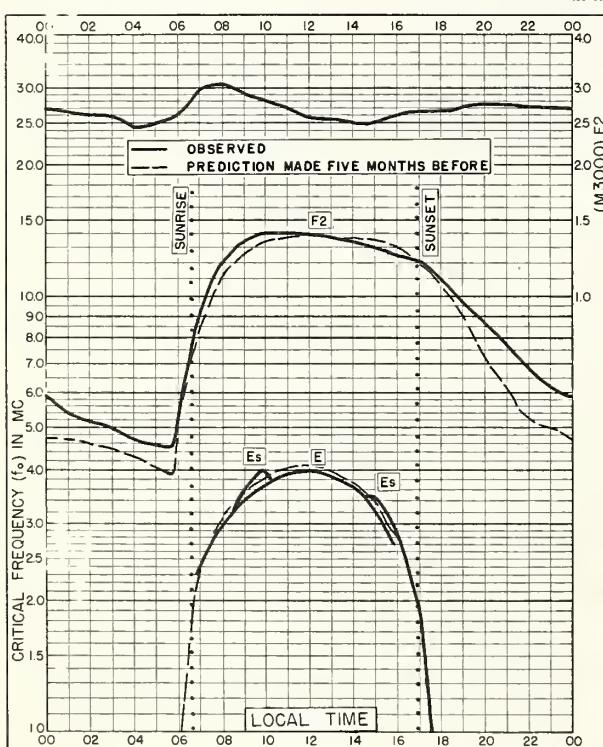
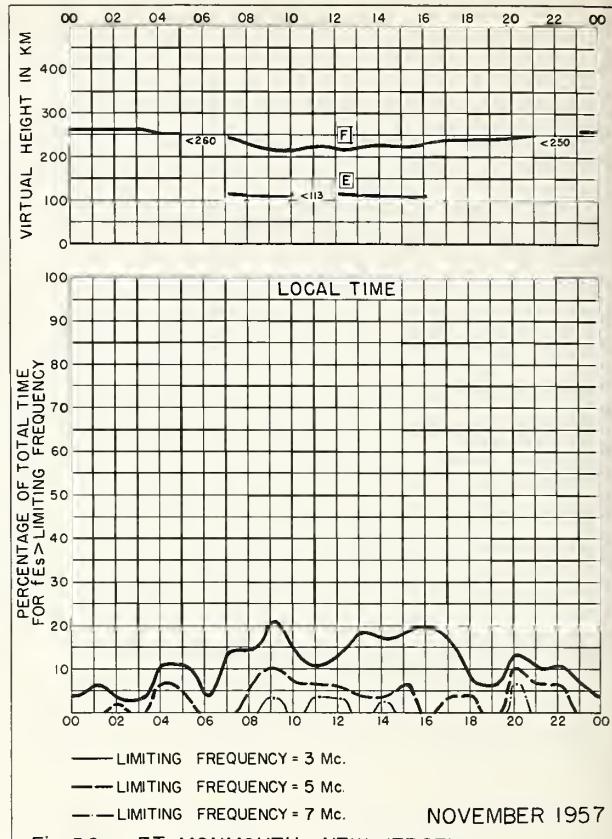
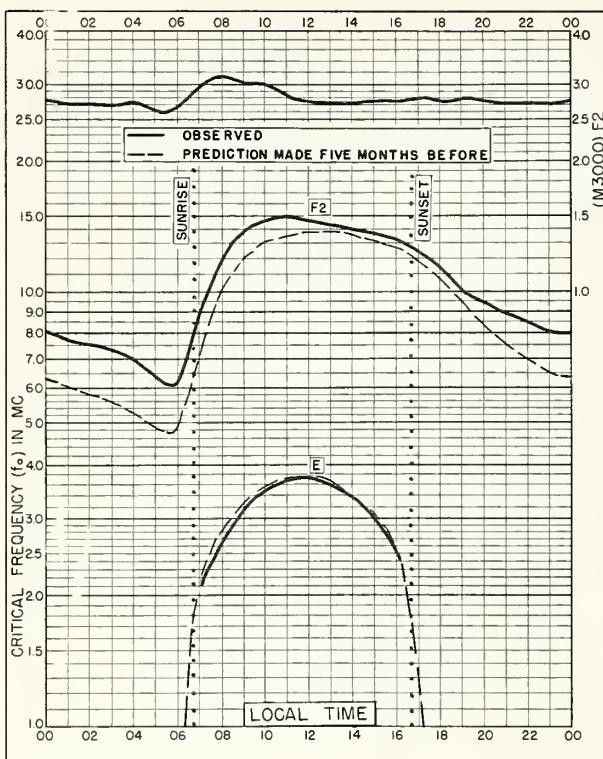


Fig. 28. ST. JOHN'S, NEWFOUNDLAND NOVEMBER 1957



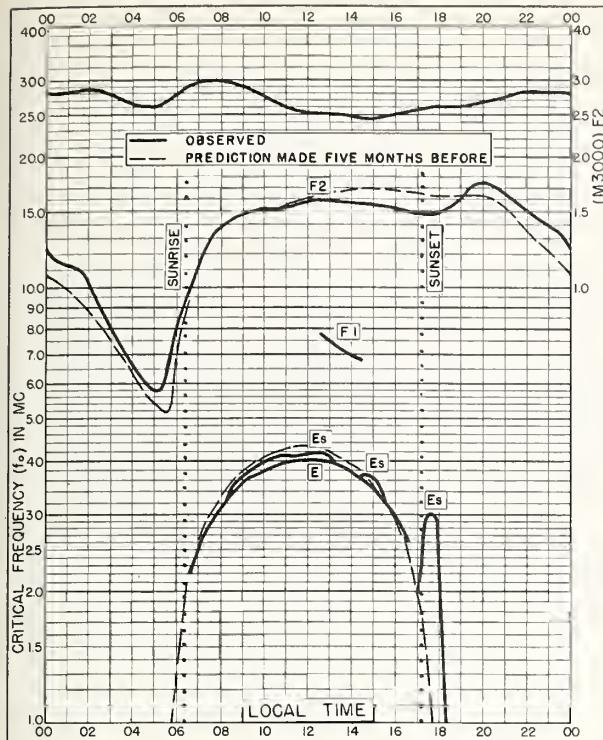


Fig. 33. OKINAWA I.
26.3°N, 127.8°E NOVEMBER 1957

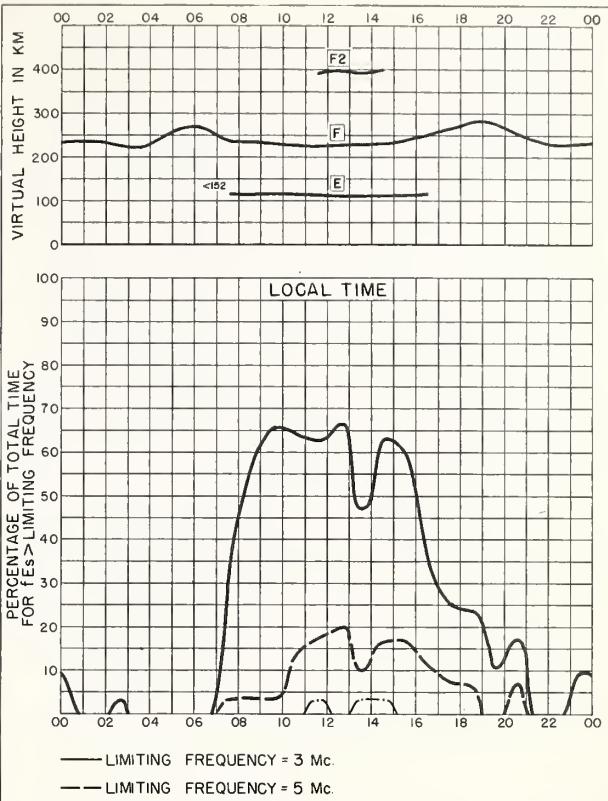


Fig. 34. OKINAWA I. NOVEMBER 1957

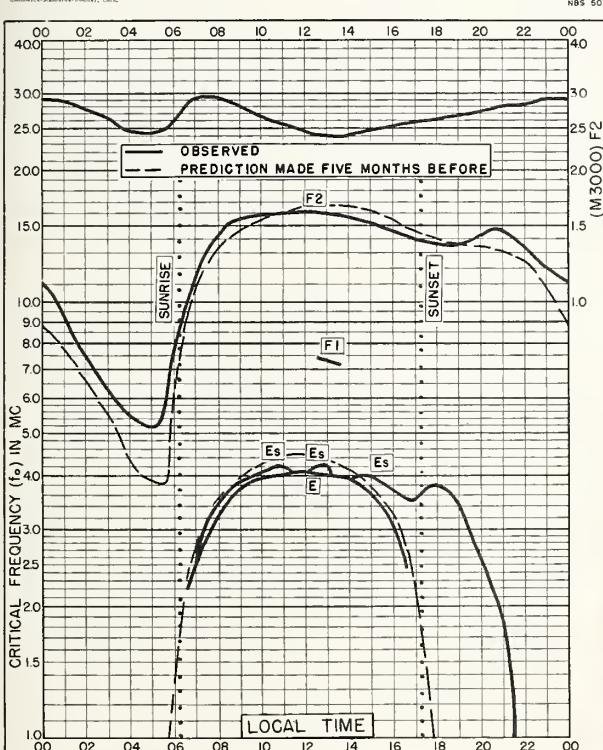


Fig. 35. MAUI, HAWAII
20.8°N, 156.5°W NOVEMBER 1957

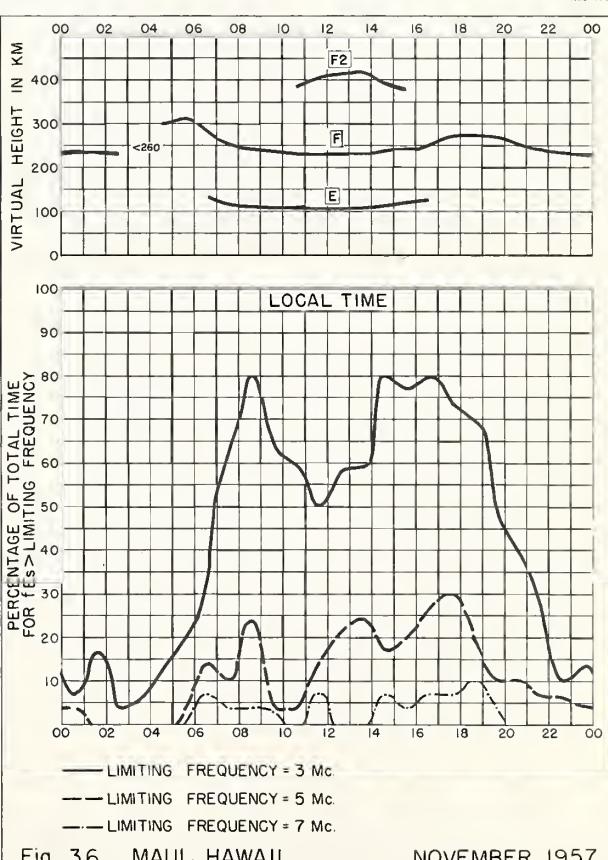
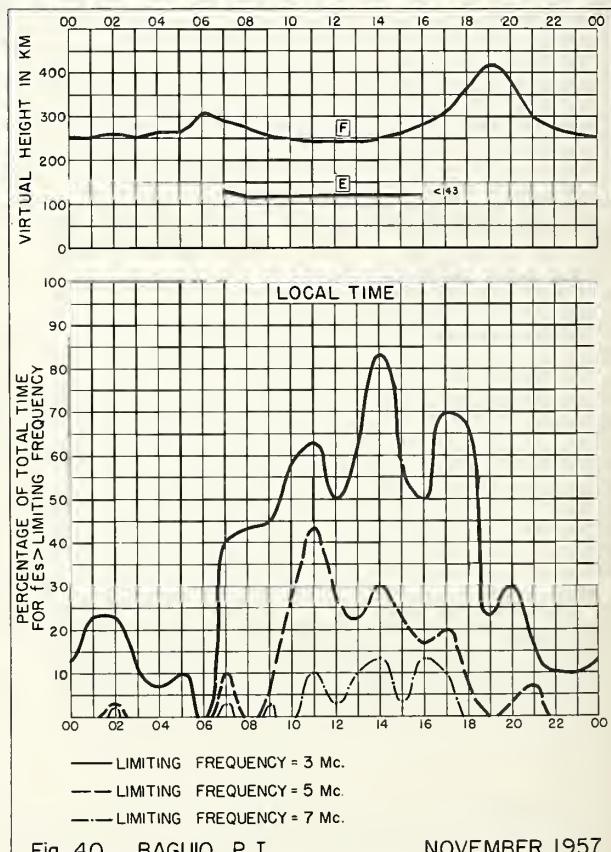
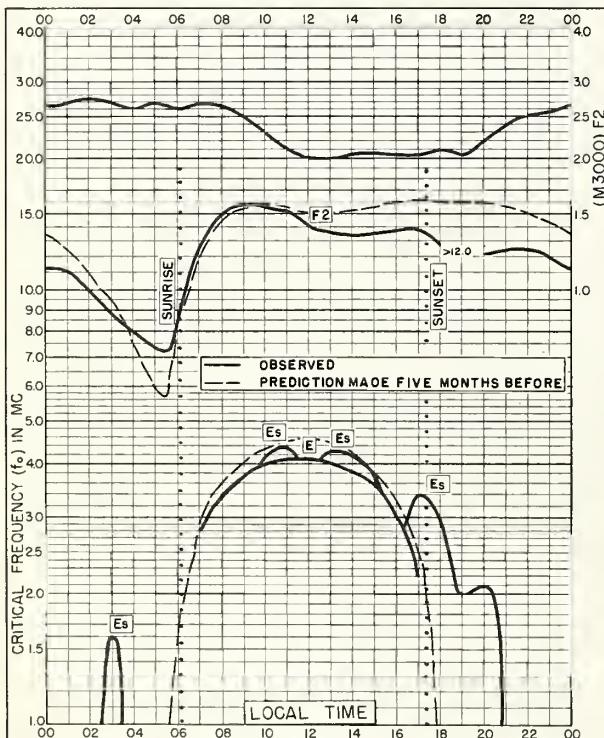
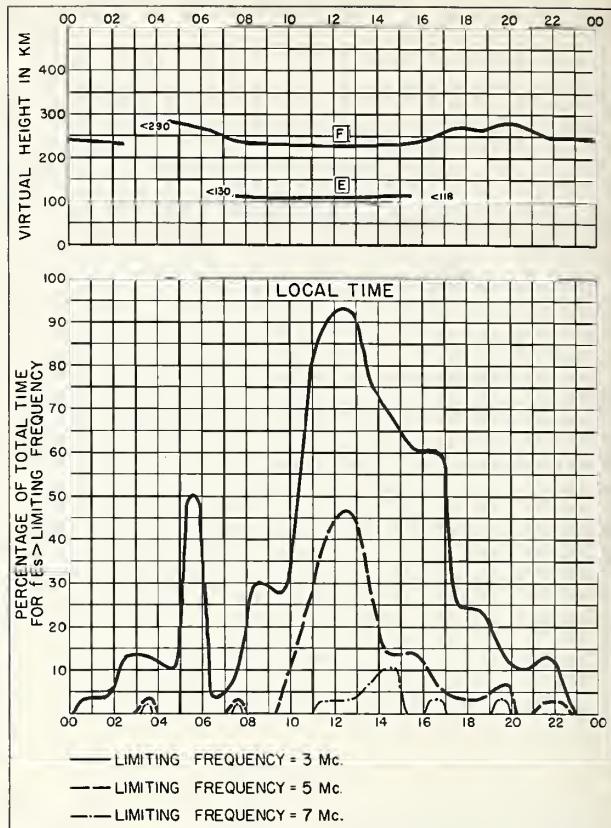
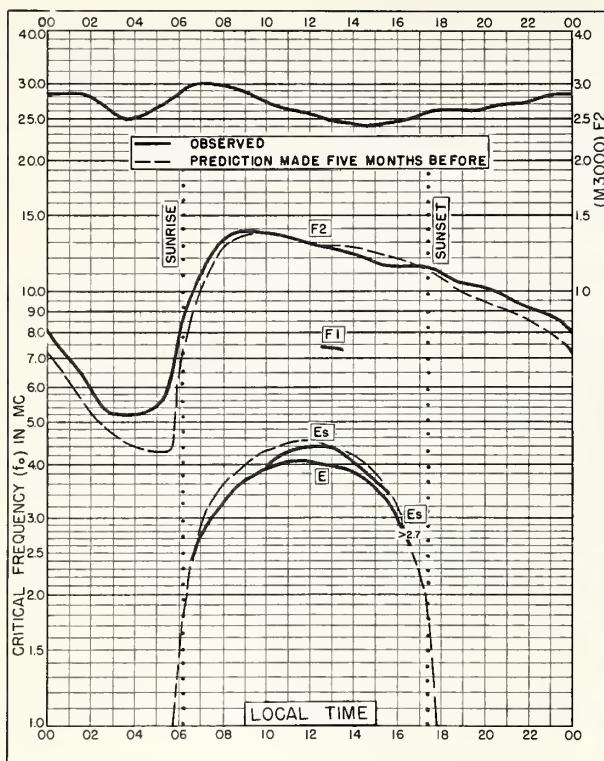


Fig. 36. MAUI, HAWAII NOVEMBER 1957



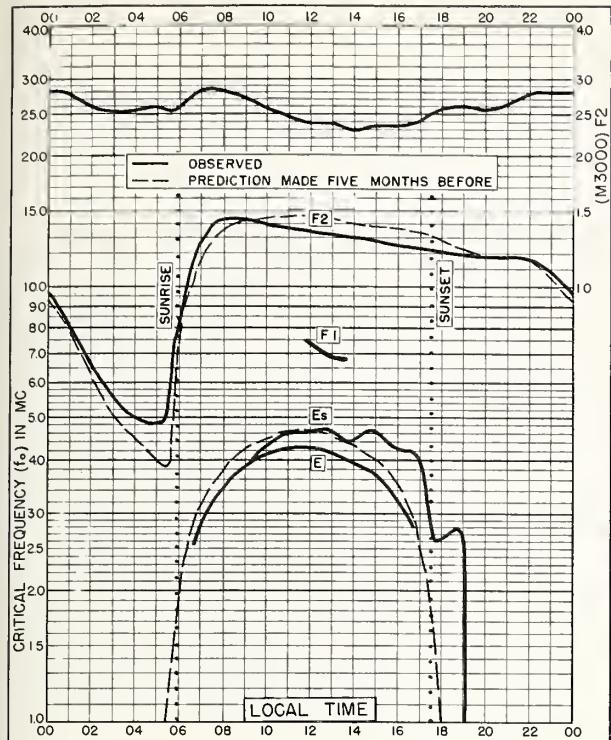


Fig. 41. PANAMA CANAL ZONE
9.4°N, 79.9°W NOVEMBER 1957

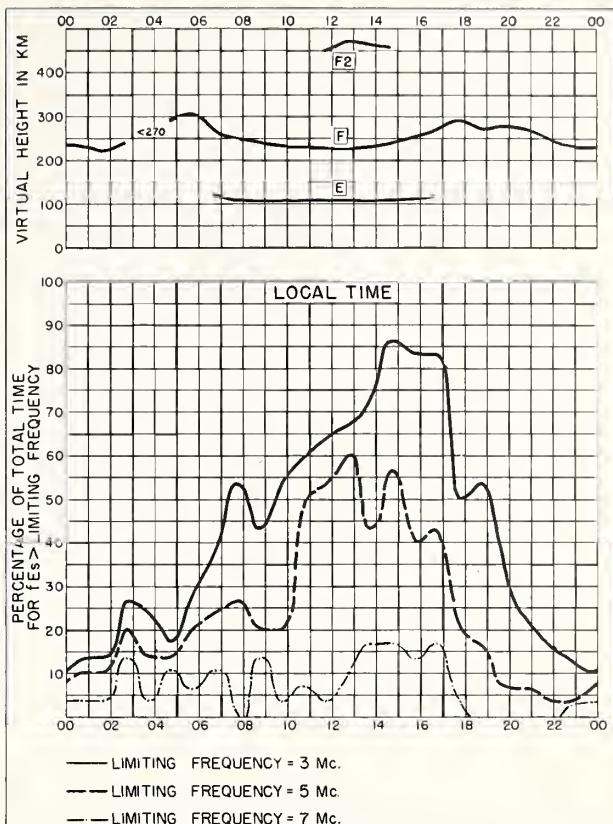


Fig. 42. PANAMA CANAL ZONE NOVEMBER 1957

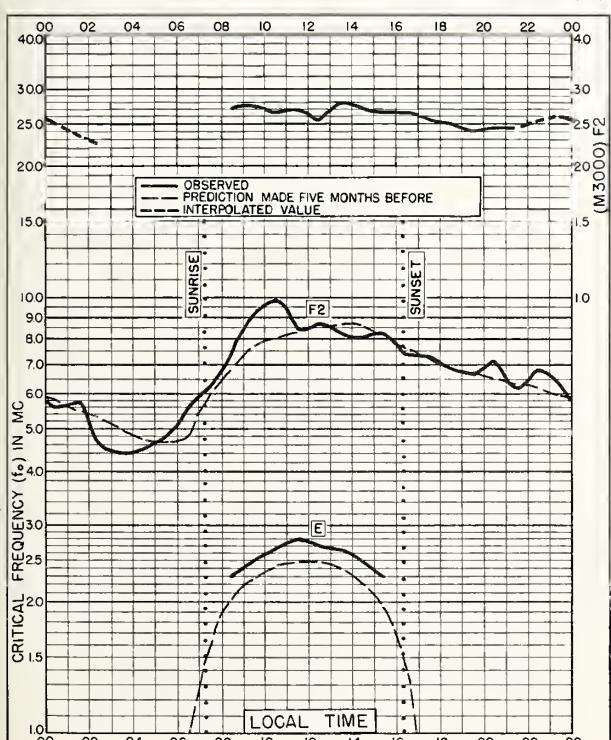


Fig. 43. GODHAVN, GREENLAND
69.3°N, 53.5°W OCTOBER 1957

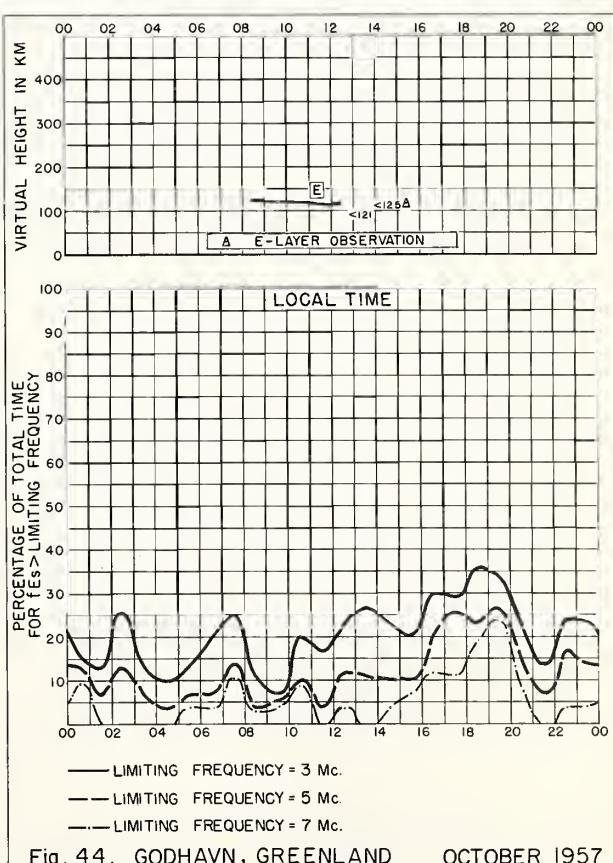


Fig. 44. GODHAVN, GREENLAND OCTOBER 1957

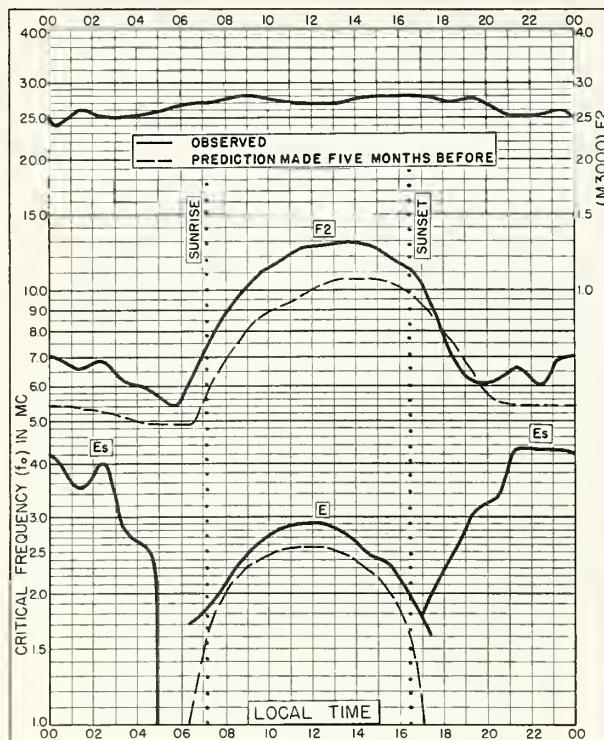


Fig. 45. KIRUNA, SWEDEN
67.8°N, 20.3°E OCTOBER 1957

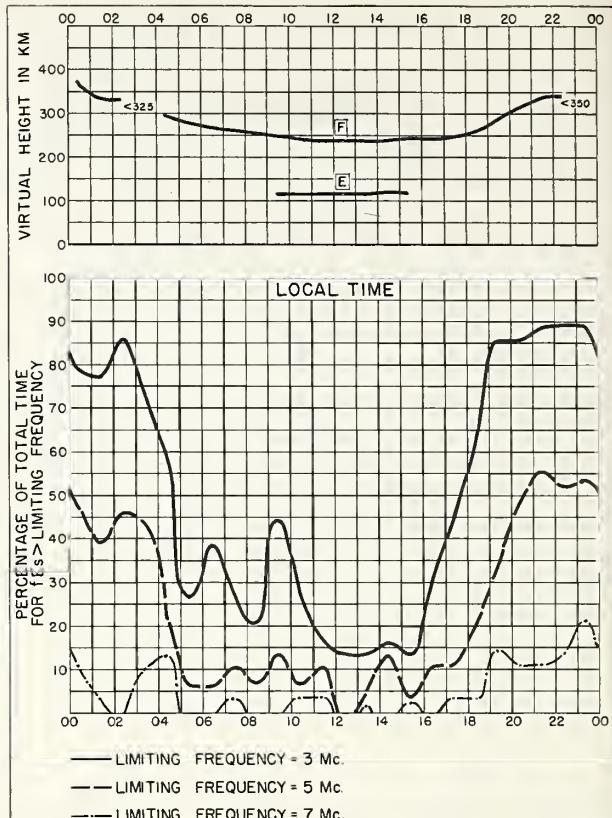


Fig. 46. KIRUNA, SWEDEN OCTOBER 1957

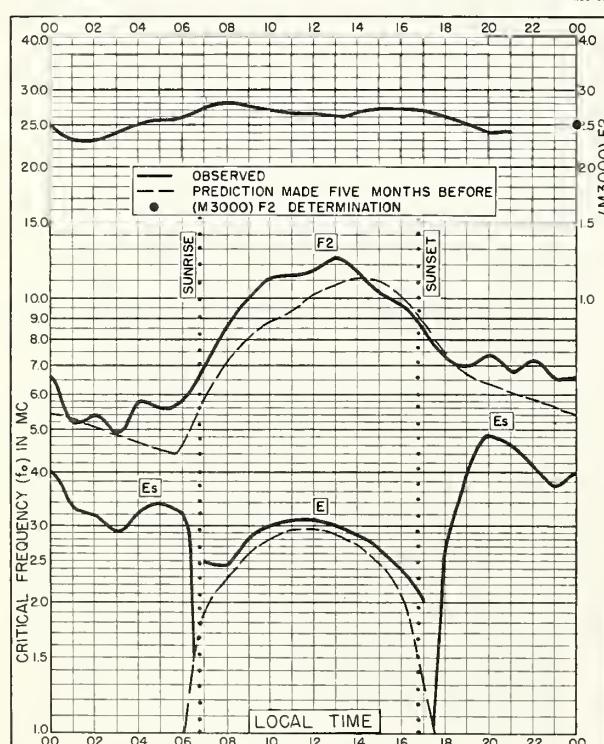
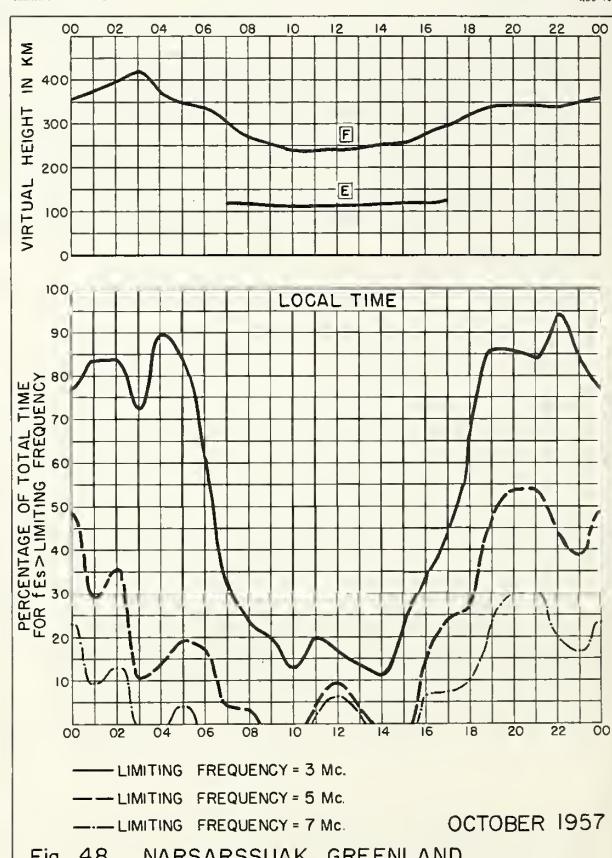


Fig. 47. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W OCTOBER 1957



OCTOBER 1957
Fig. 48. NARSARSSUAK, GREENLAND

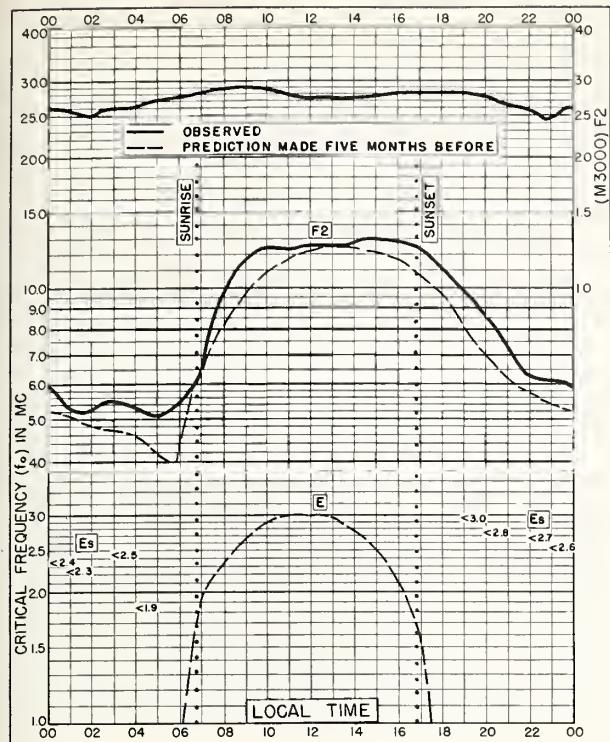


Fig. 49. NURMIJARVI, FINLAND
60.5°N, 24.6°E OCTOBER 1957

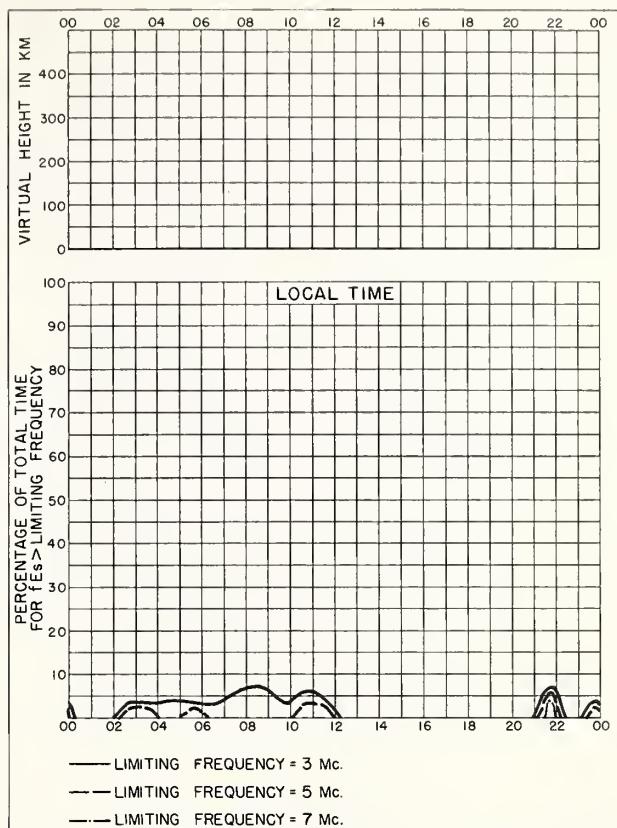


Fig. 50. NURMIJARVI, FINLAND OCTOBER 1957

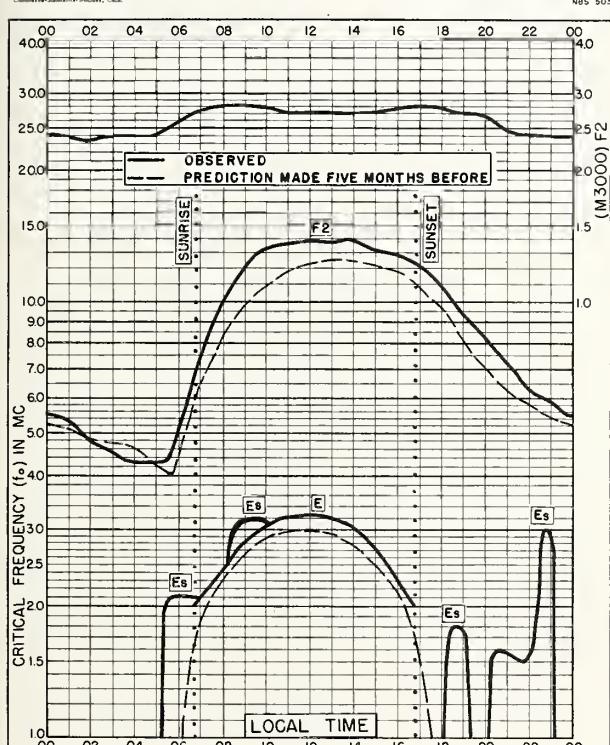


Fig. 51. OSLO, NORWAY
60.0°N, 11.1°E OCTOBER 1957

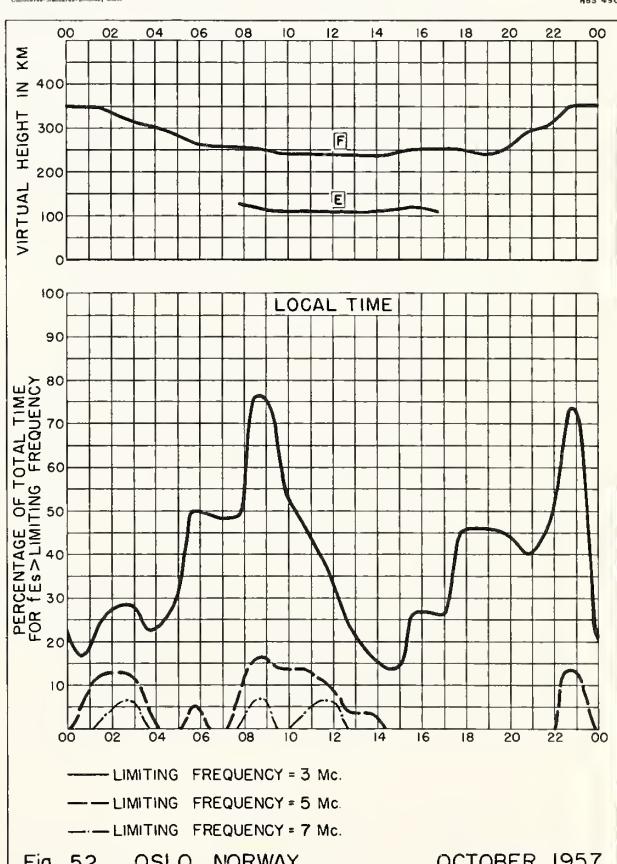


Fig. 52. OSLO, NORWAY OCTOBER 1957

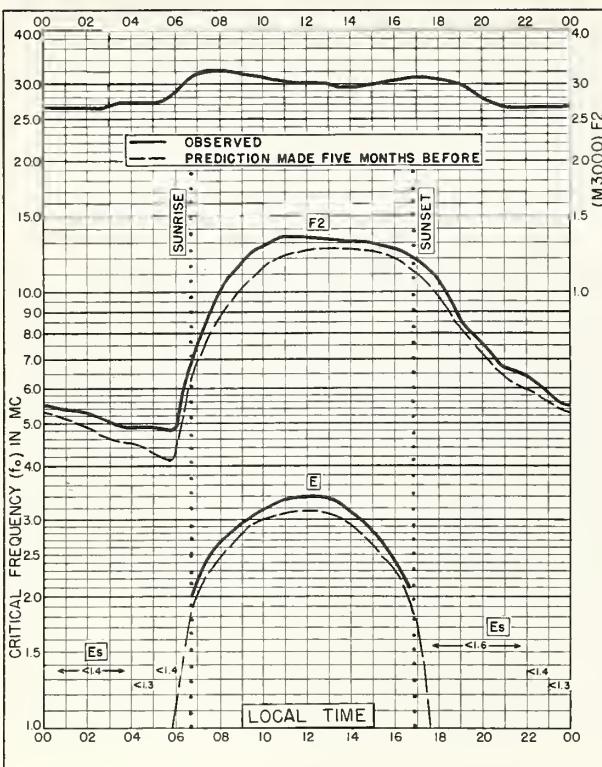


Fig. 53. INVERNESS, SCOTLAND
57.4°N, 4.2°W OCTOBER 1957

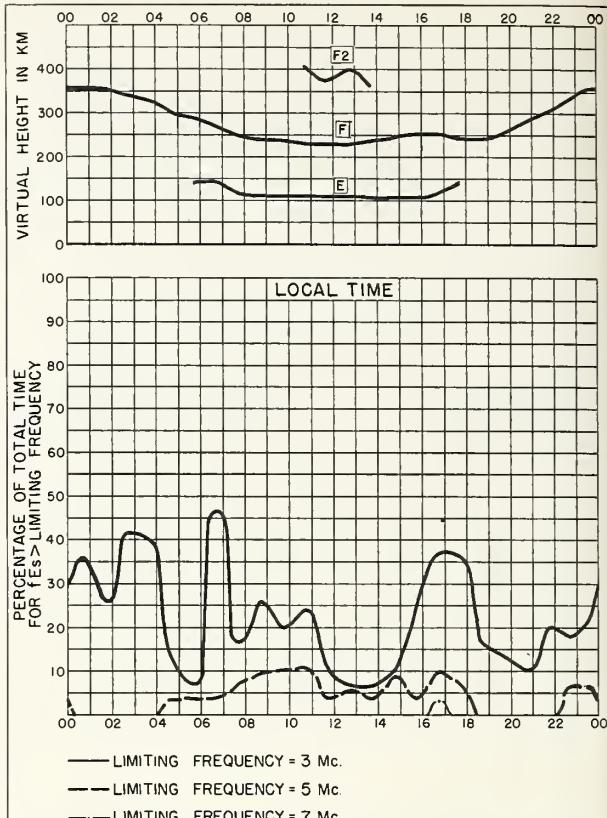


Fig. 54. INVERNESS, SCOTLAND OCTOBER 1957

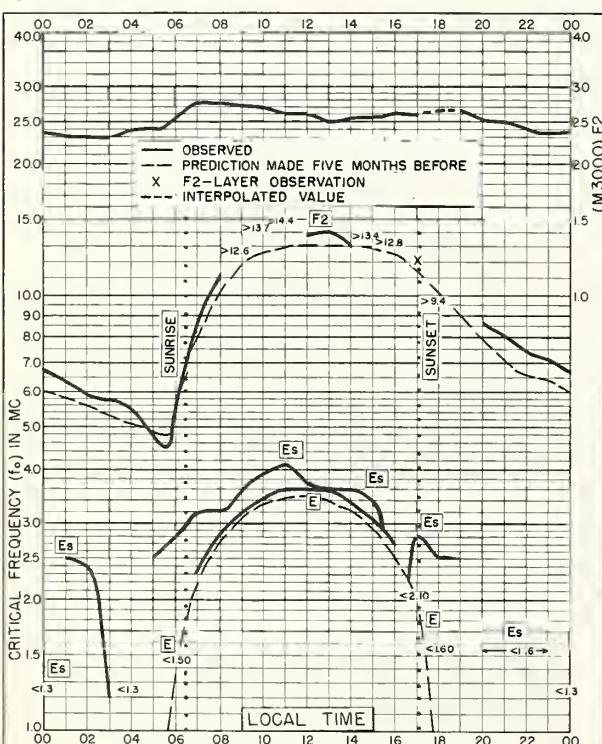


Fig. 55. SLOUGH, ENGLAND
51.5°N, 0.6°W OCTOBER 1957

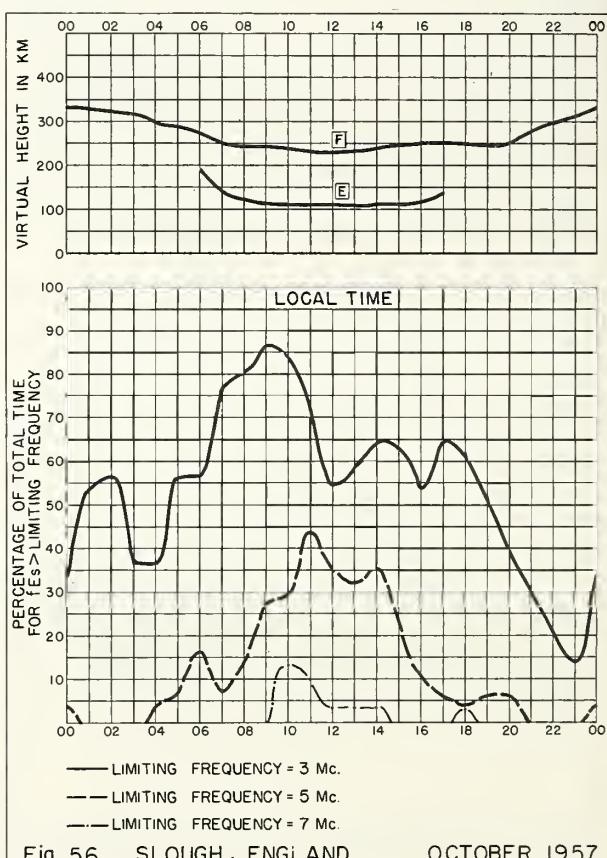
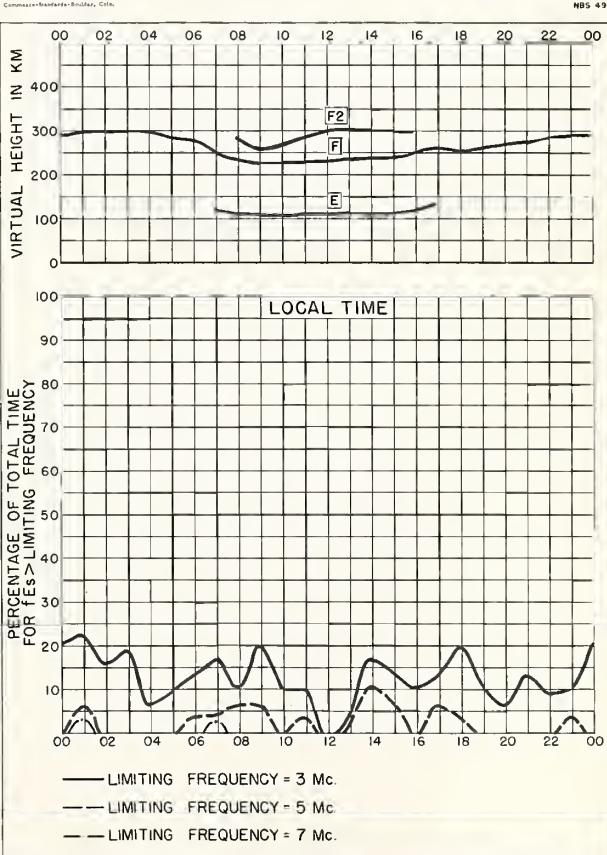
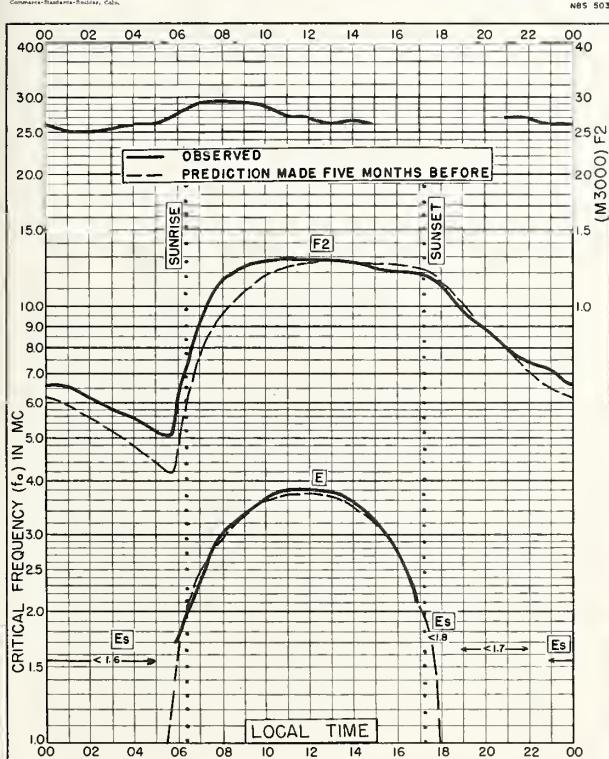
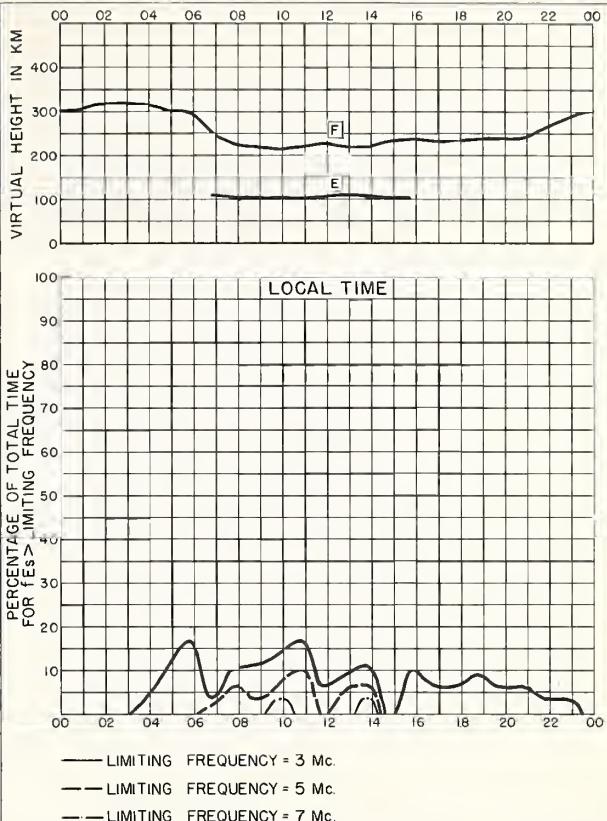
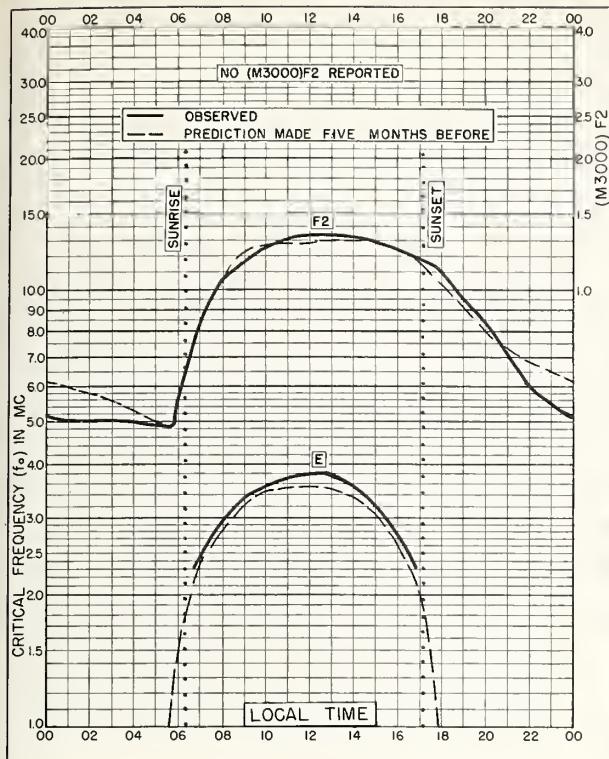


Fig. 56. SLOUGH, ENGLAND OCTOBER 1957



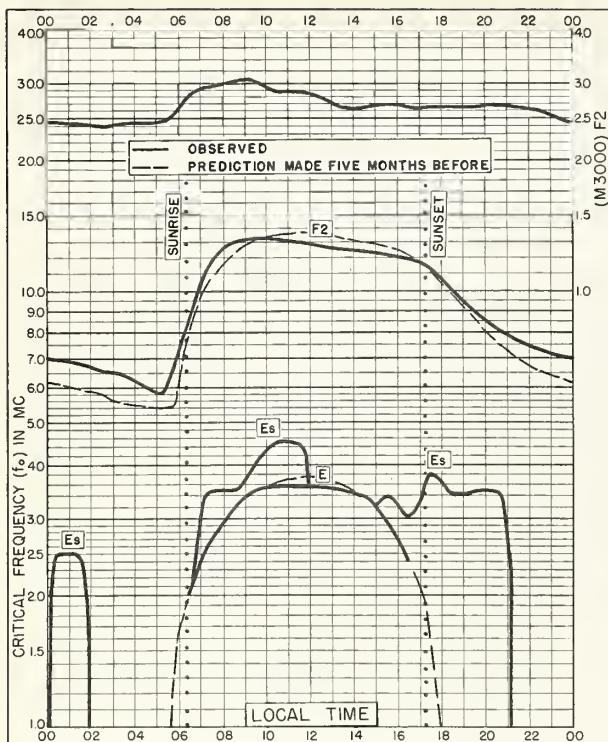


Fig. 61. WAKKANAI, JAPAN
45.4°N, 141.7°E OCTOBER 1957

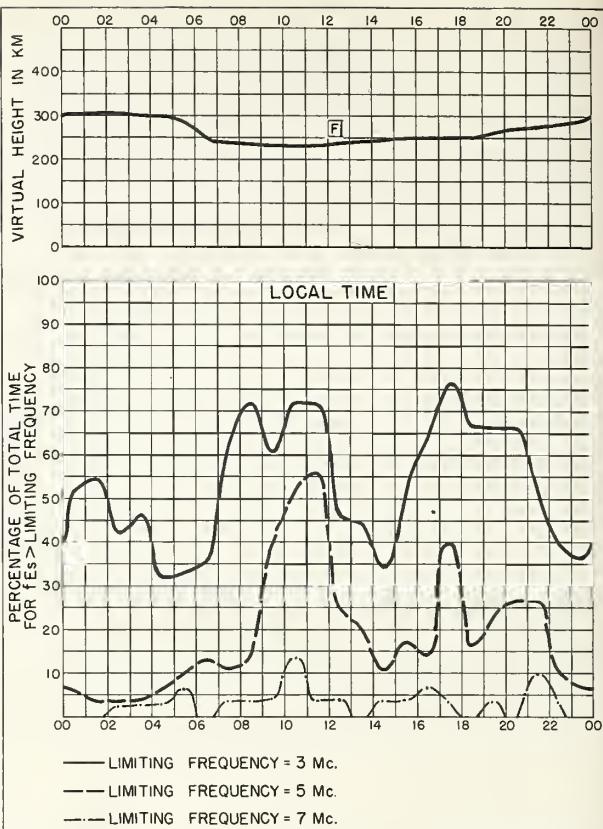


Fig. 62. WAKKANAI, JAPAN OCTOBER 1957

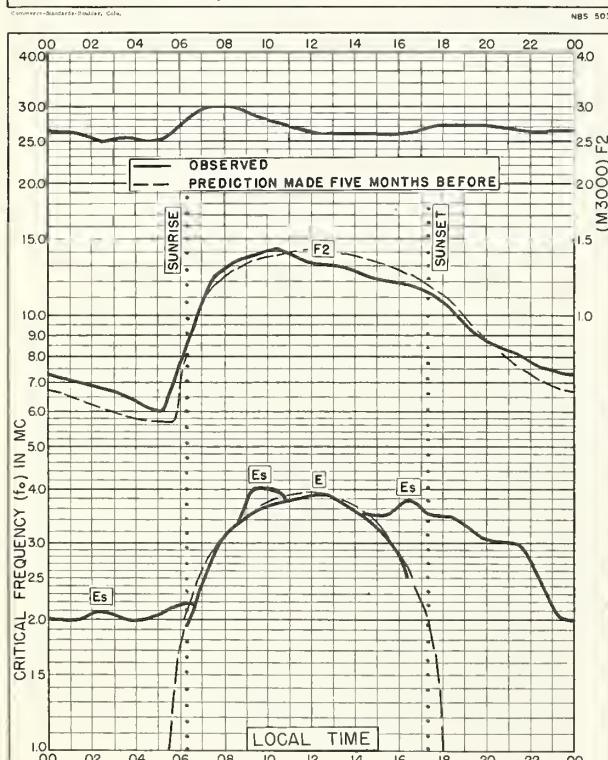


Fig. 63. AKITA, JAPAN
39.7°N, 140.1°E OCTOBER 1957

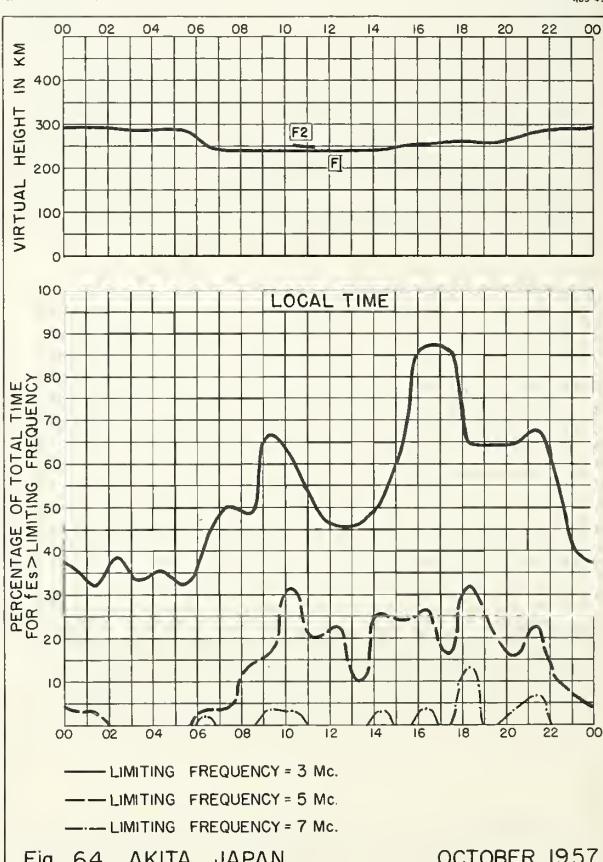


Fig. 64. AKITA, JAPAN OCTOBER 1957

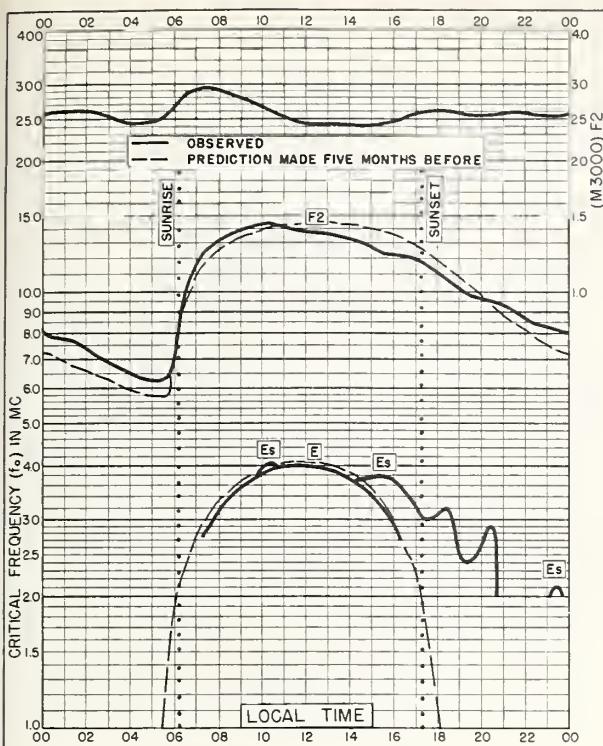


Fig. 65. TOKYO, JAPAN
35.7°N, 139.5°E OCTOBER 1957

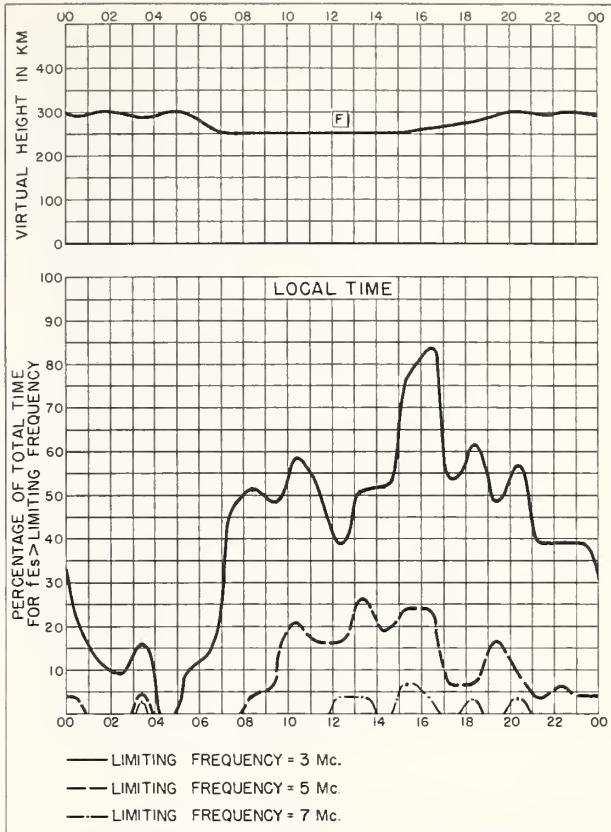


Fig. 66. TOKYO, JAPAN OCTOBER 1957

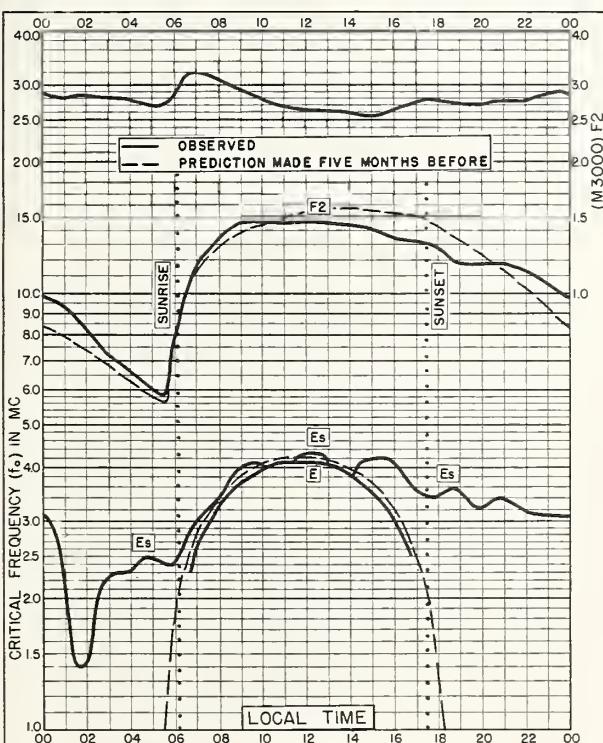


Fig. 67. YAMAGAWA, JAPAN
31.2°N, 130.6°E OCTOBER 1957

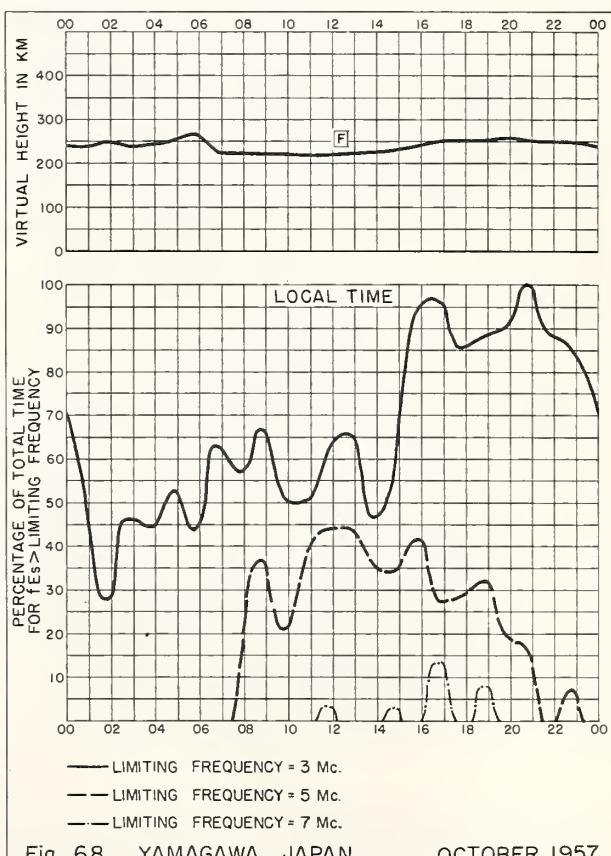


Fig. 68. YAMAGAWA, JAPAN OCTOBER 1957

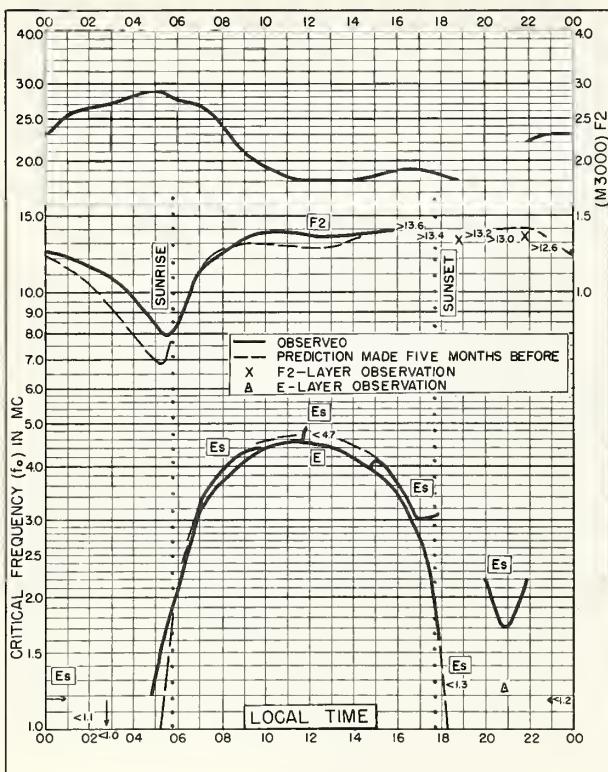
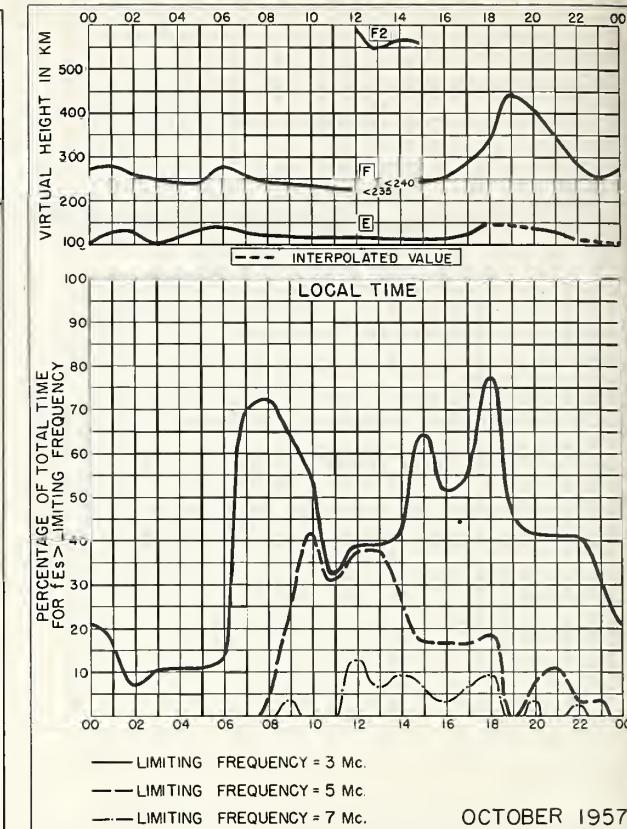


Fig. 69. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E OCTOBER 1957



OCTOBER 1957

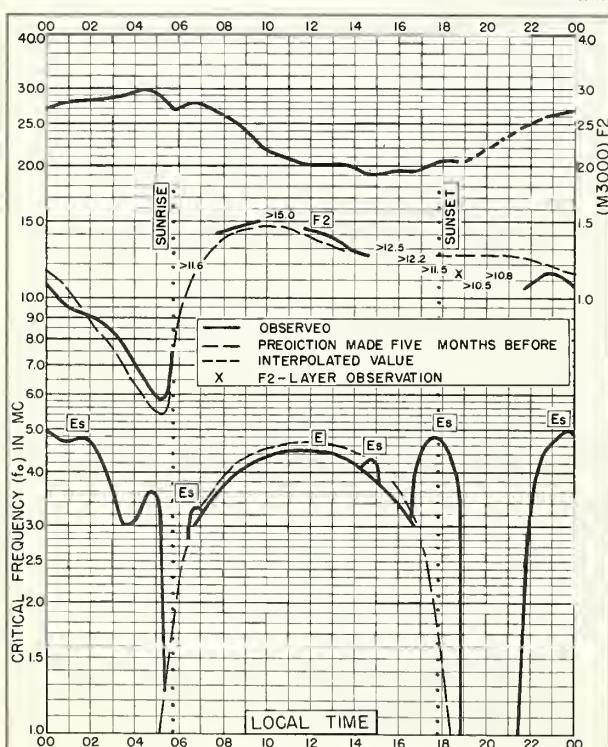
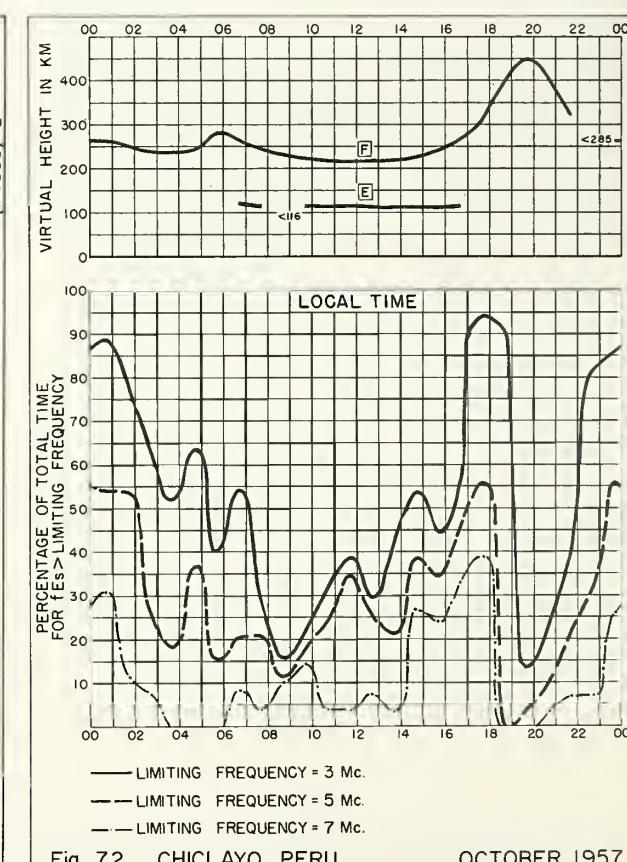


Fig. 71. CHICLAYO, PERU
6.8°S, 79.8°W OCTOBER 1957



OCTOBER 1957

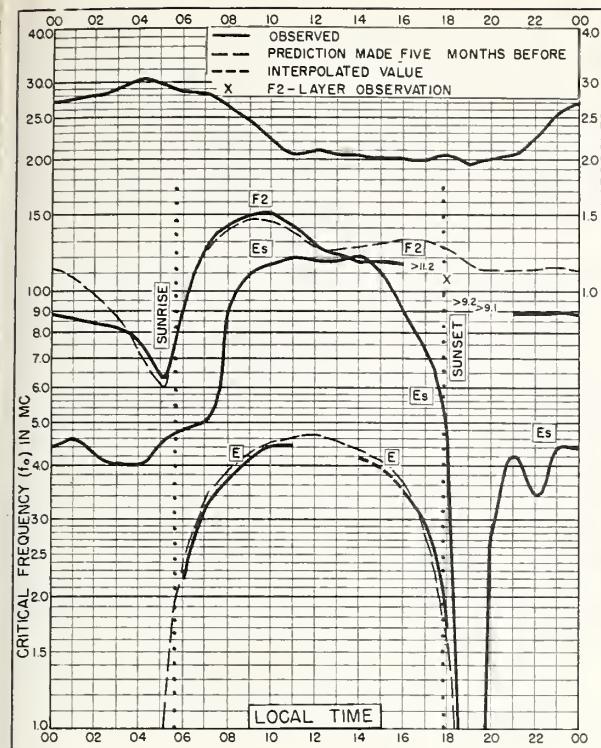


Fig. 73. HUANCAYO, PERU
12.0°S, 75.3°W OCTOBER 1957

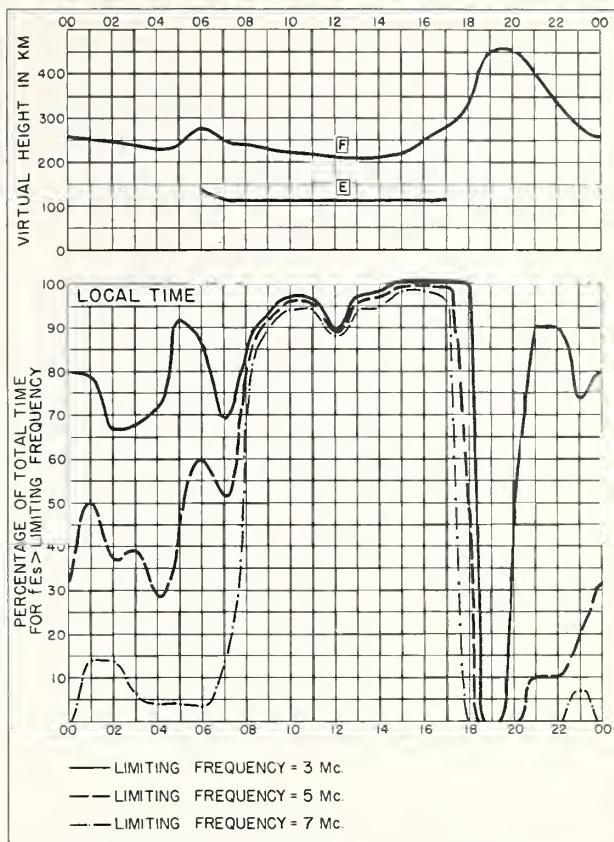


Fig. 74. HUANCAYO, PERU OCTOBER 1957

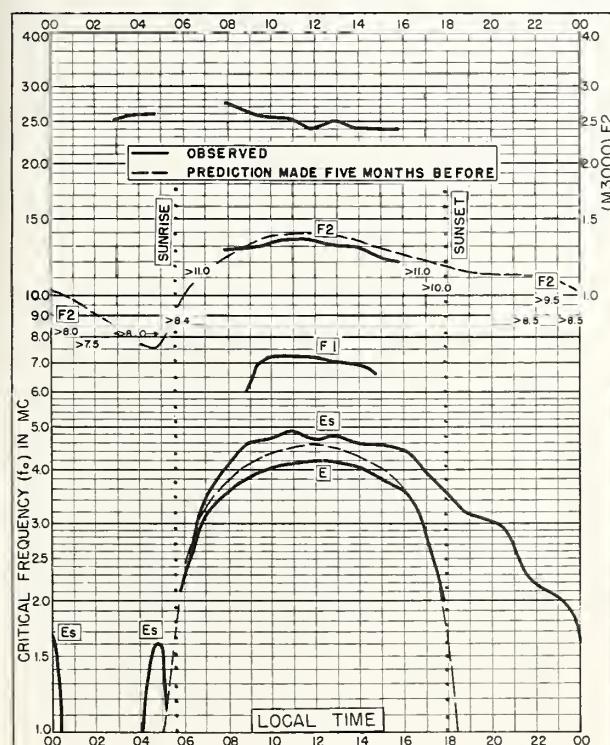


Fig. 75. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E OCTOBER 1957

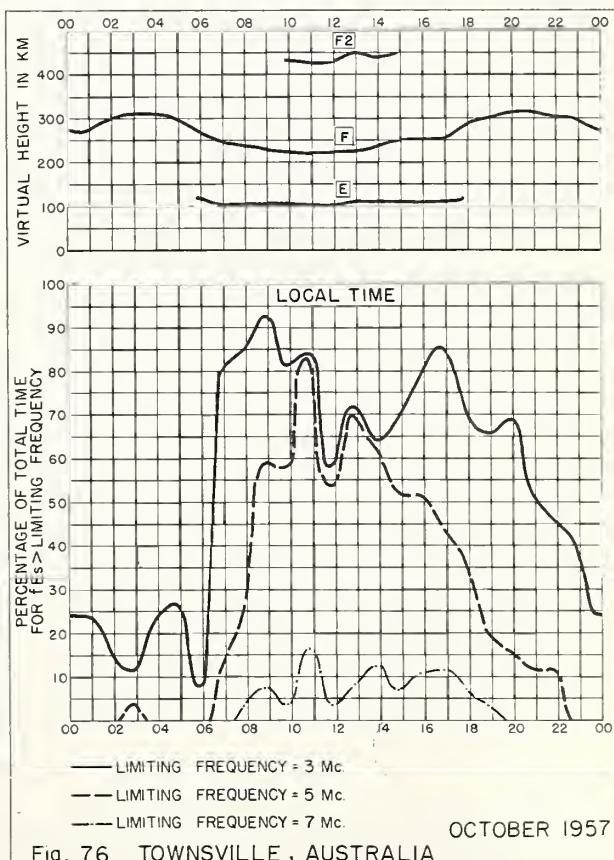


Fig. 76. TOWNSVILLE, AUSTRALIA OCTOBER 1957

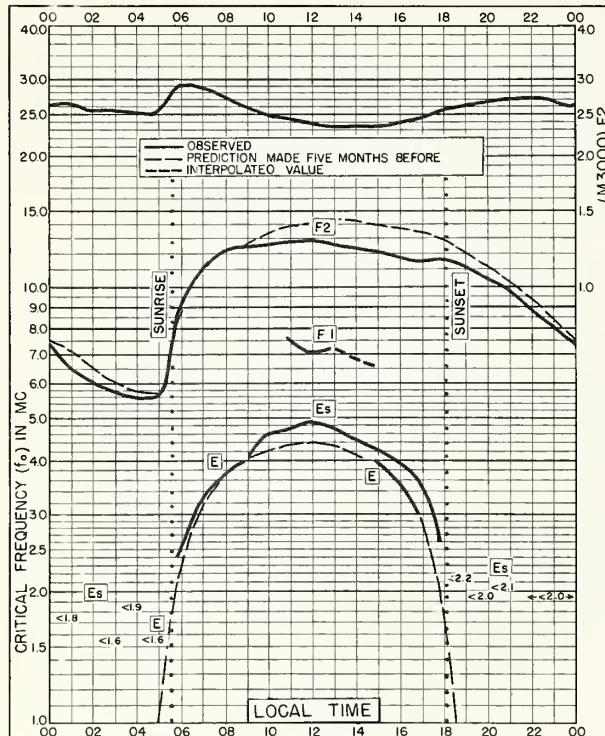
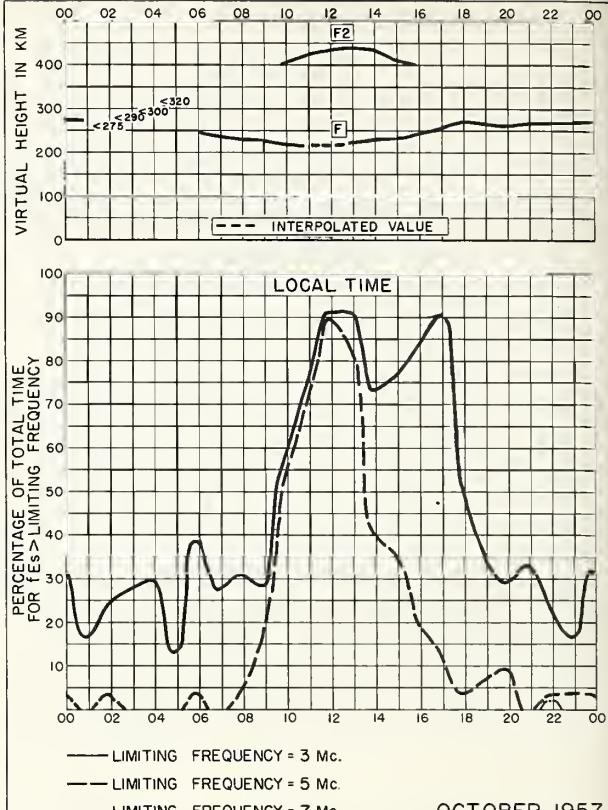


Fig. 77. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E OCTOBER 1957



OCTOBER 1957
Fig. 78. JOHANNESBURG, UNION OF S. AFRICA

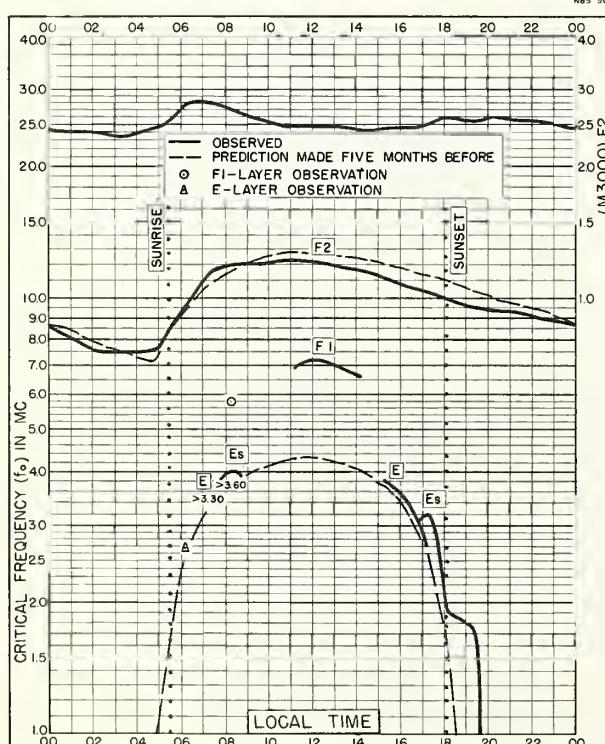
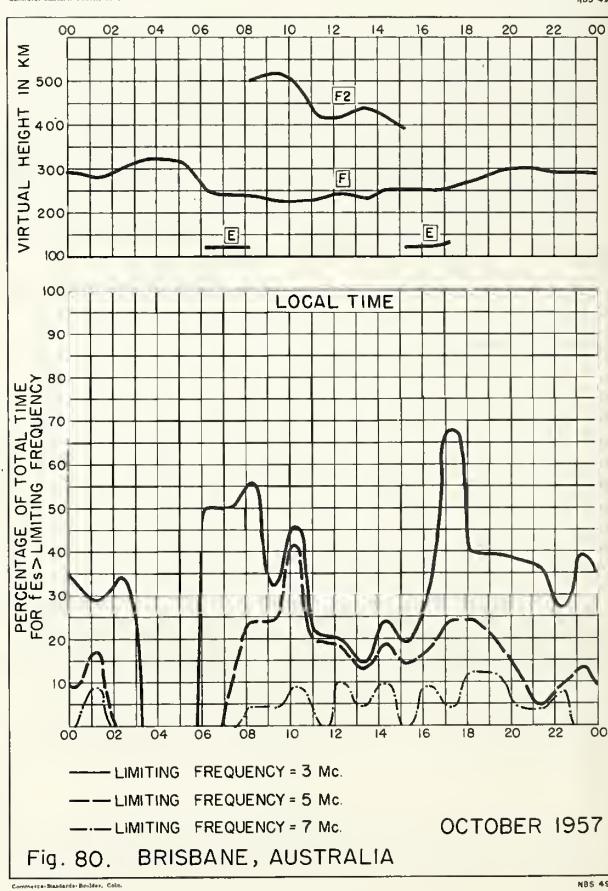


Fig. 79. BRISBANE, AUSTRALIA
27.5°S, 152.9°E OCTOBER 1957



OCTOBER 1957
Fig. 80. BRISBANE, AUSTRALIA

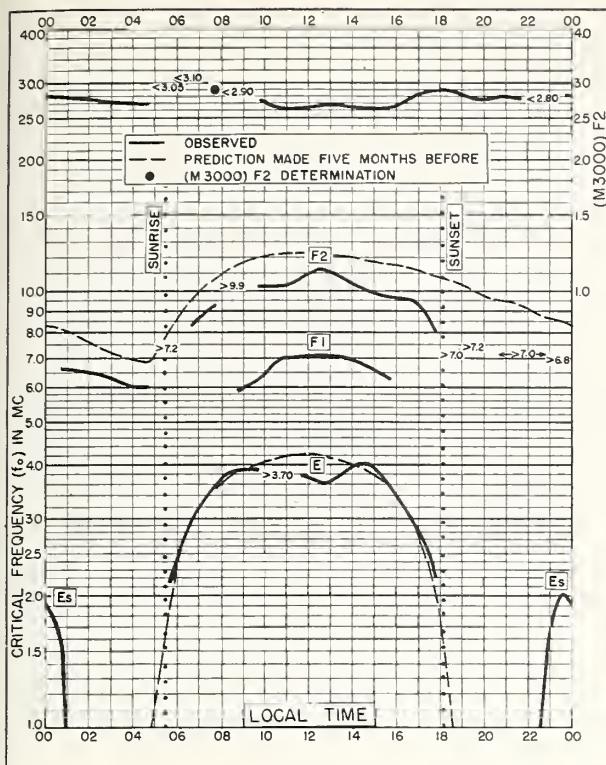


Fig. 81. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E OCTOBER 1957

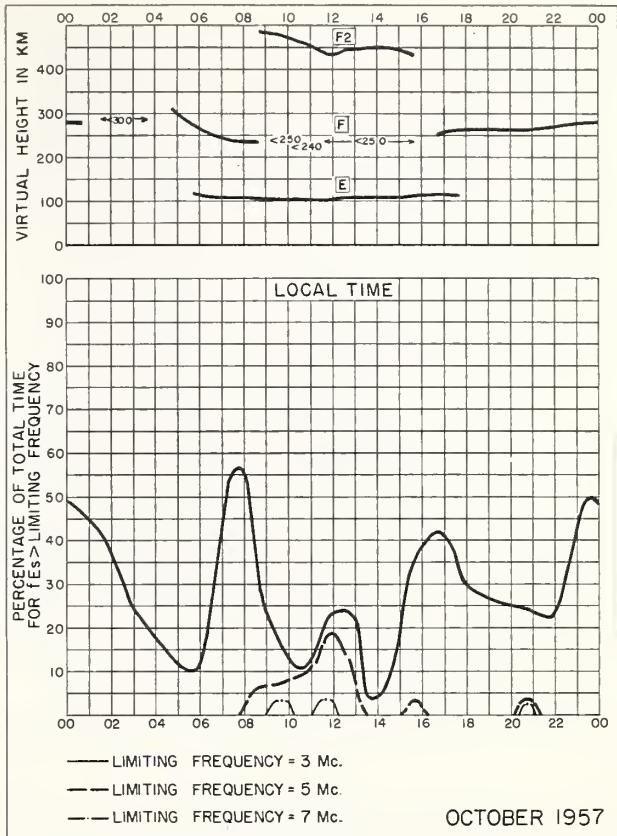


Fig. 82. WATHEROO, W. AUSTRALIA OCTOBER 1957

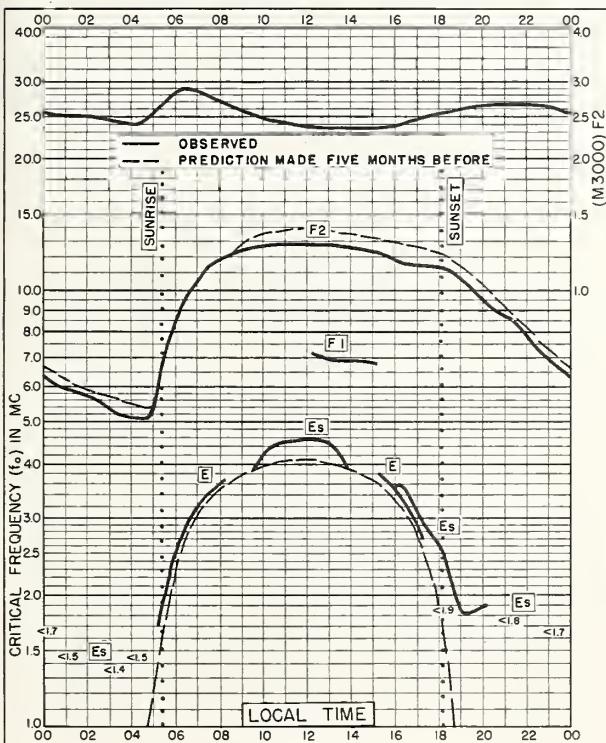


Fig. 83. CAPE TOWN, UNION OF S. AFRICA
34.1°S, 18.3°E OCTOBER 1957

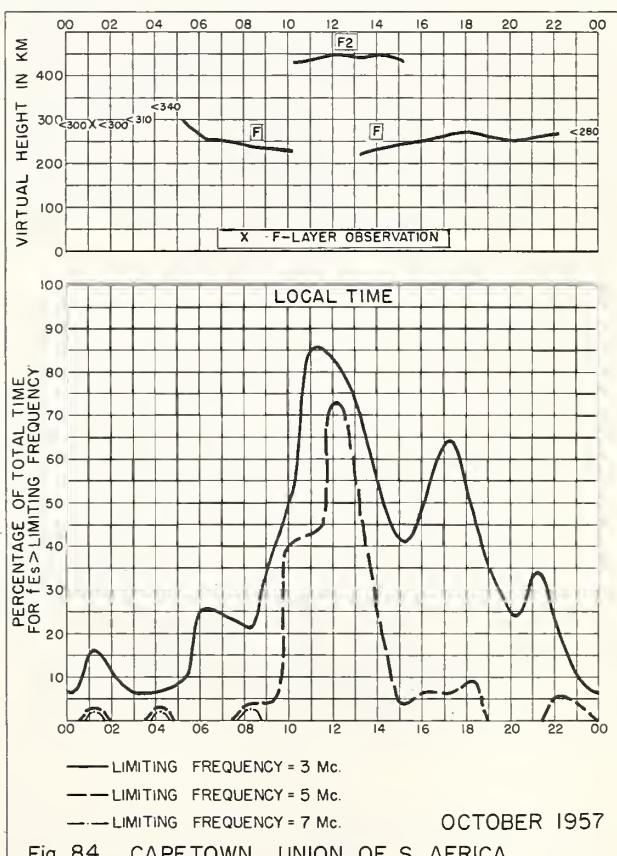
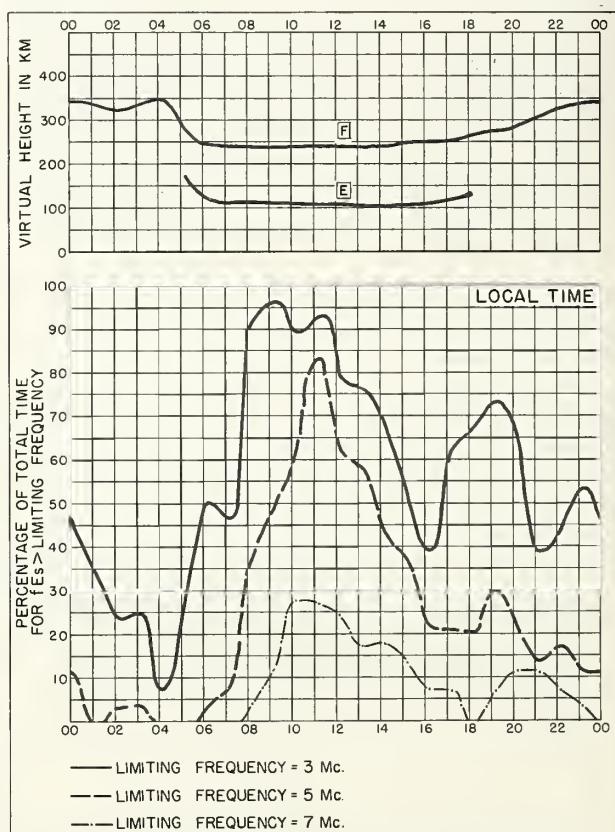
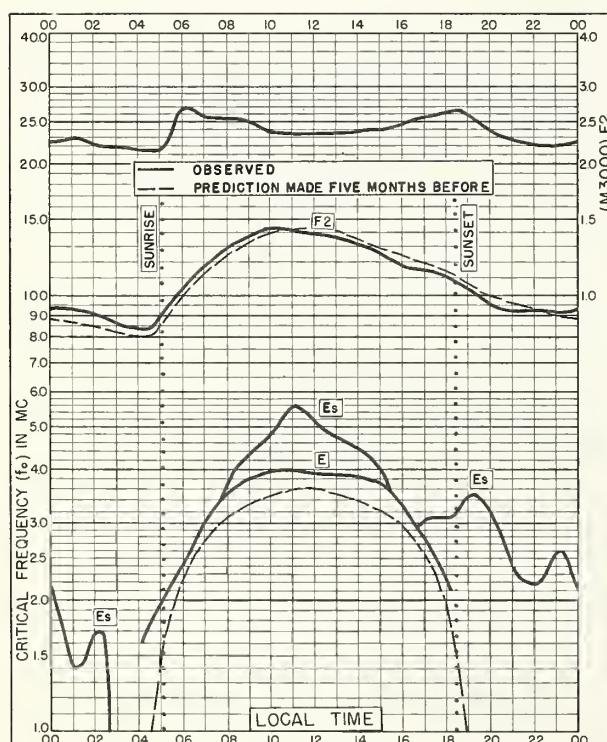
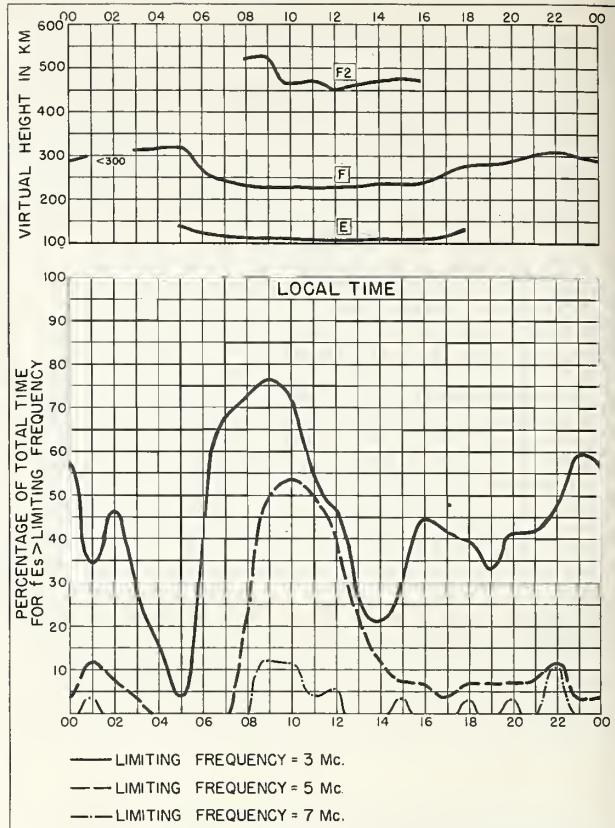
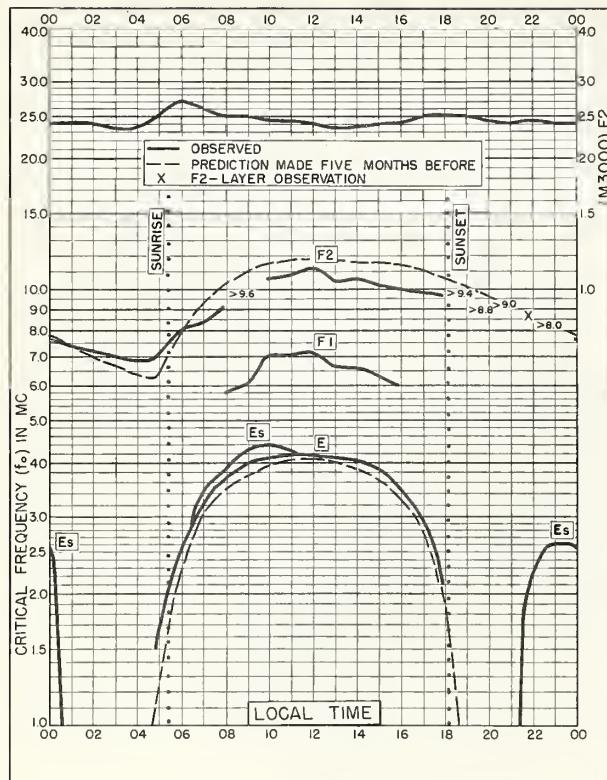
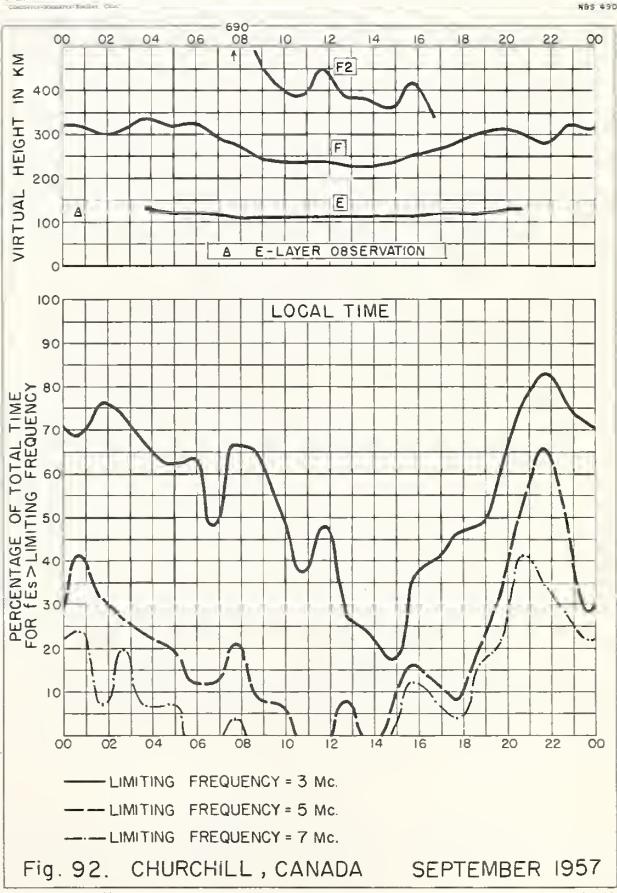
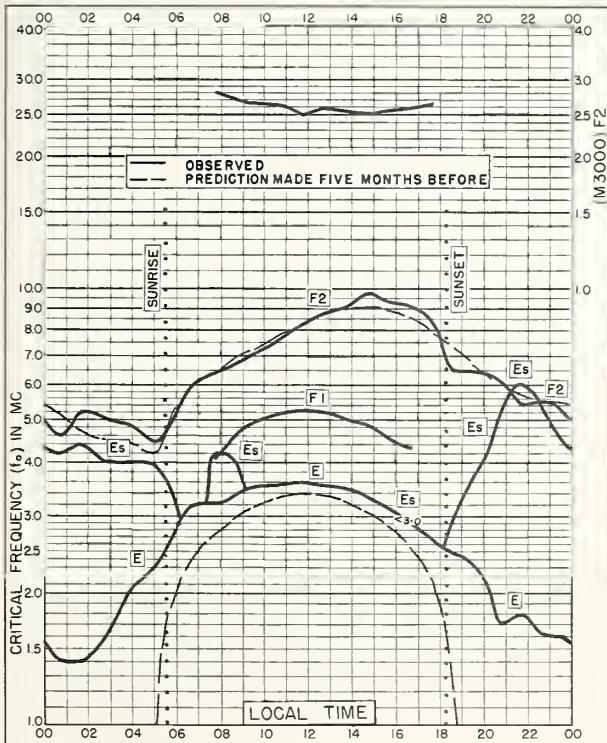
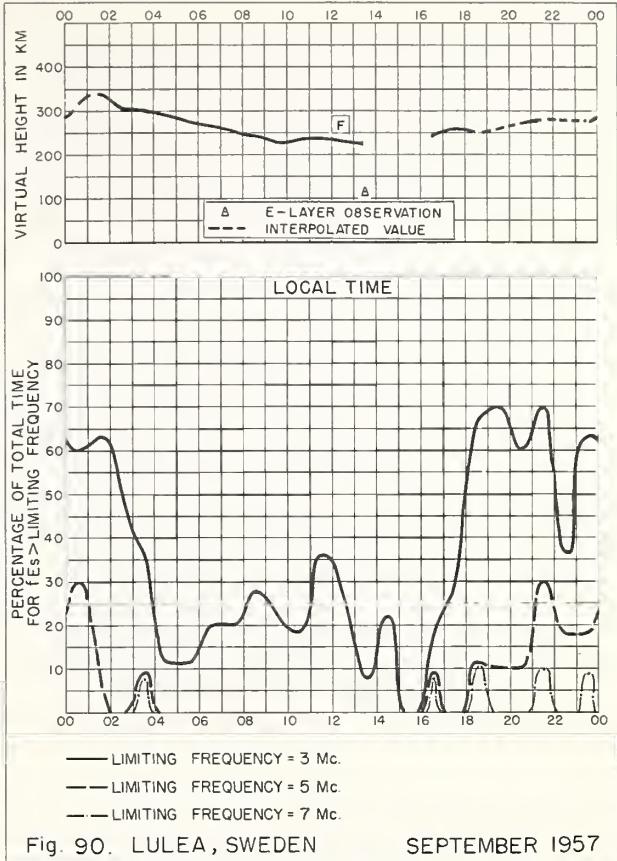
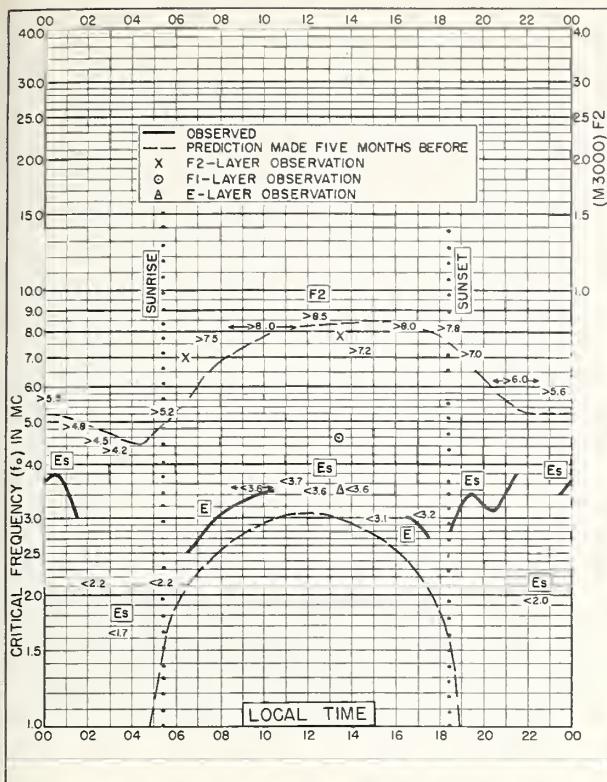


Fig. 84. CAPE TOWN, UNION OF S. AFRICA OCTOBER 1957





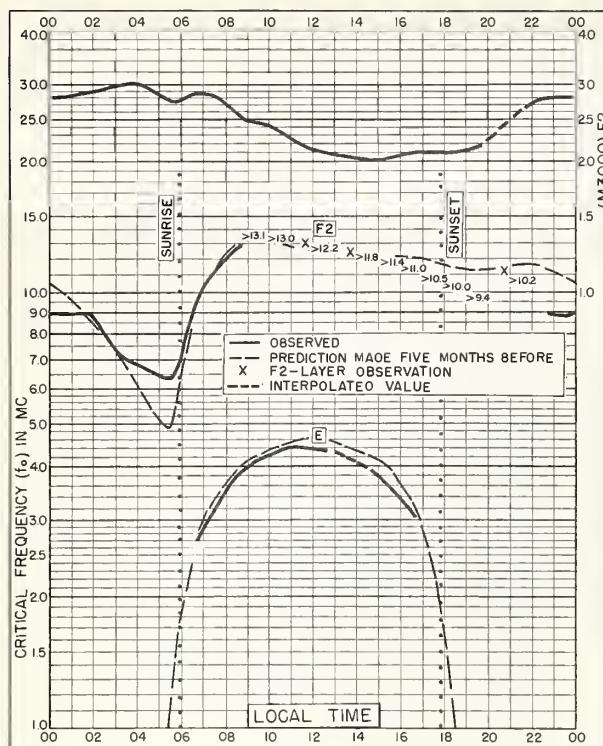


Fig. 93. CHICLAYO, PERU
6.8°S, 79.8°W SEPTEMBER 1957

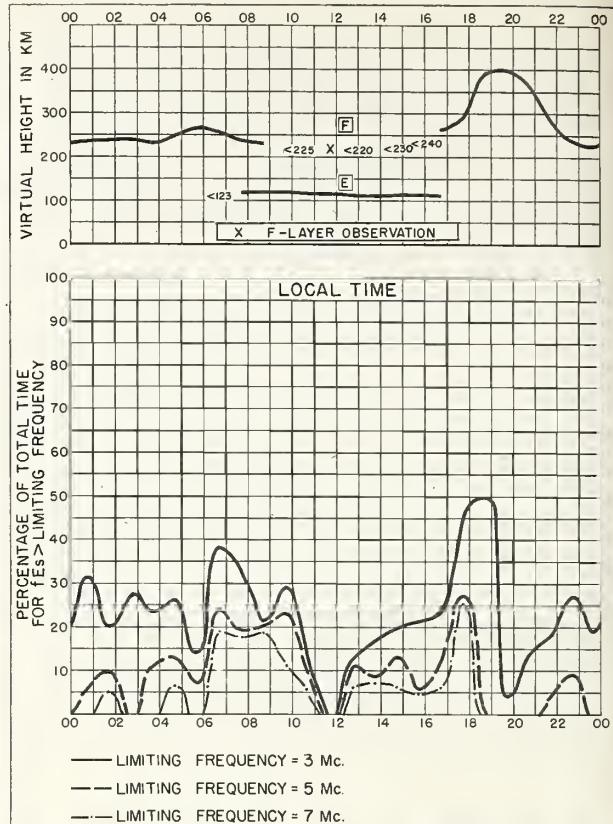


Fig. 94. CHICLAYO, PERU SEPTEMBER 1957

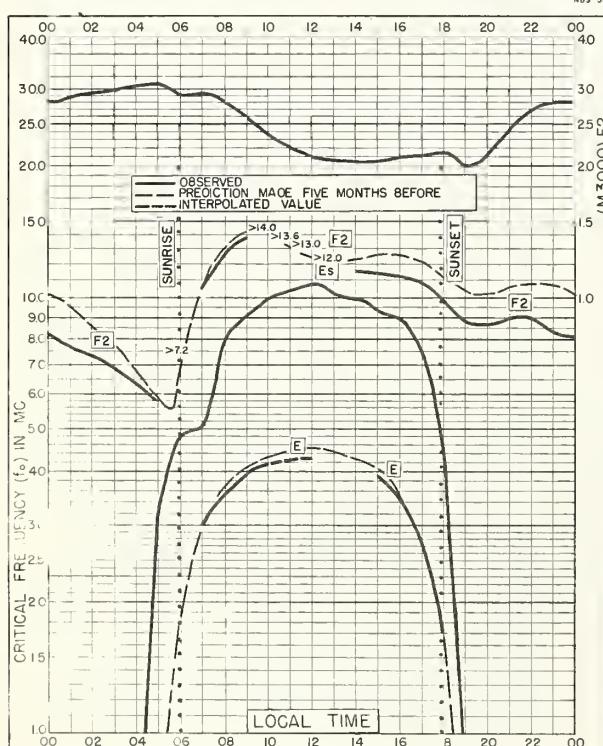


Fig. 95. HUANCAYO, PERU
12.0°S, 75.3°W SEPTEMBER 1957

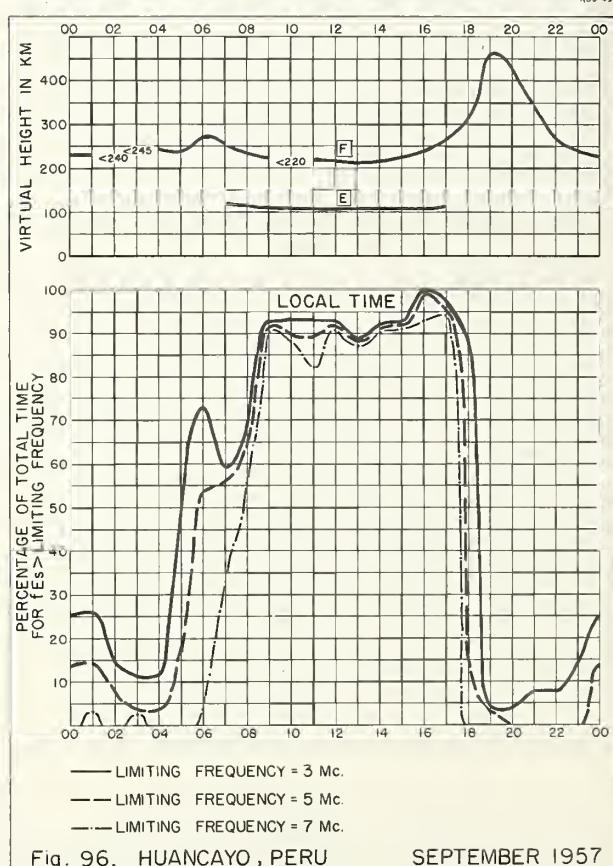
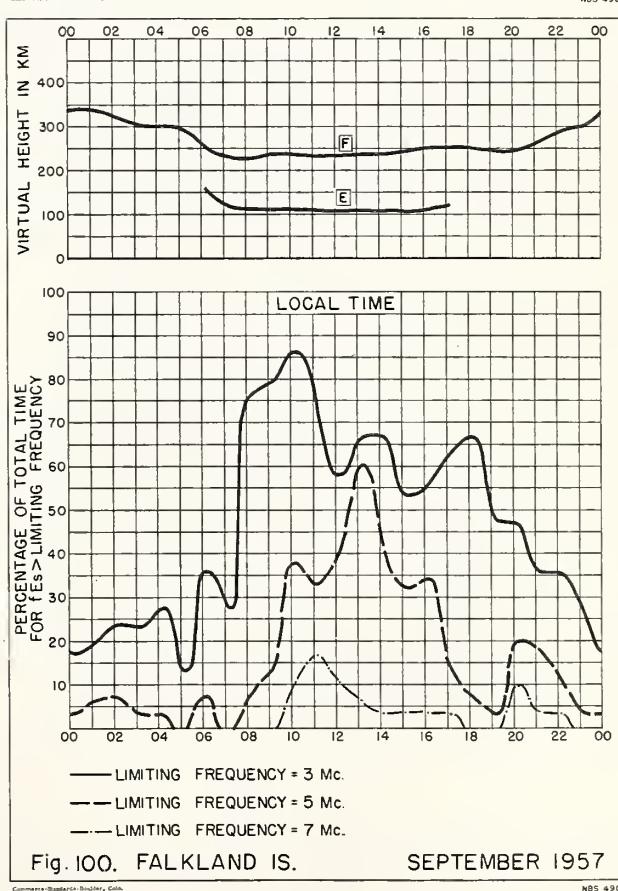
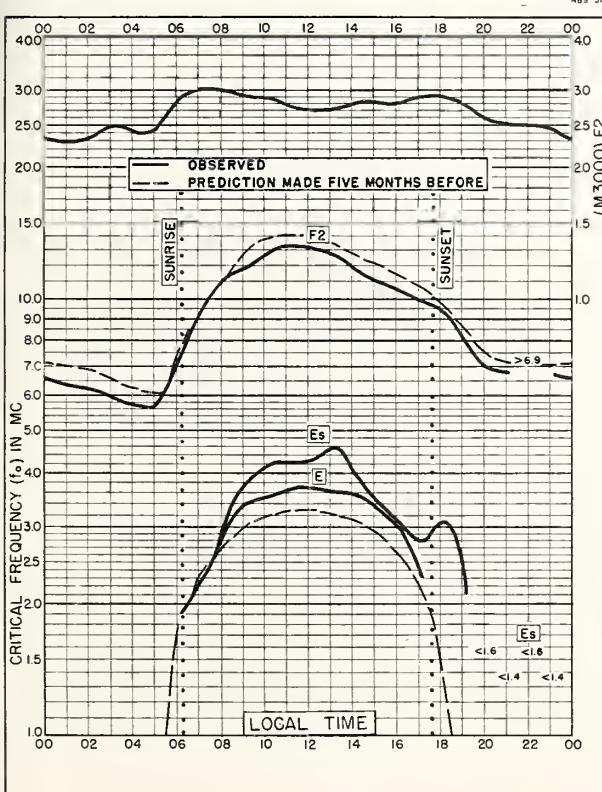
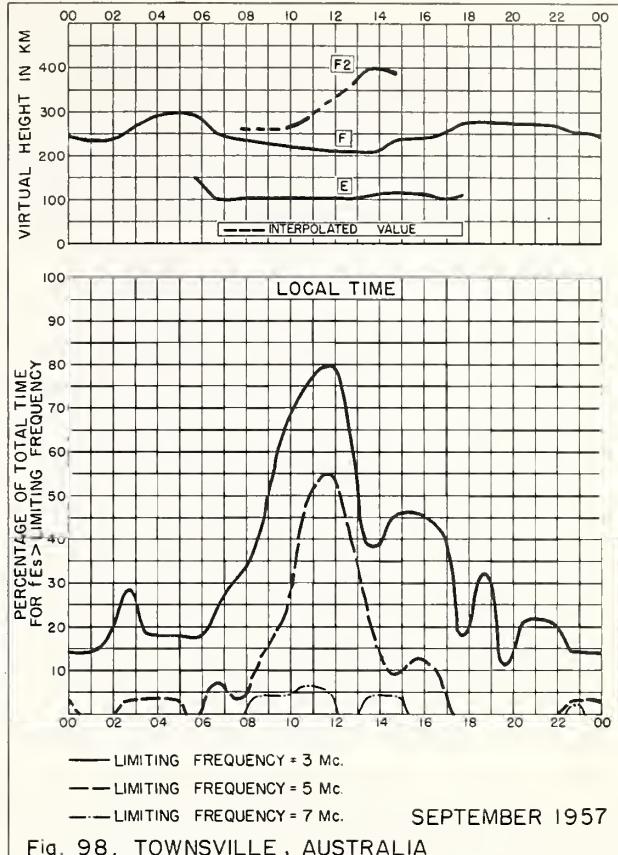
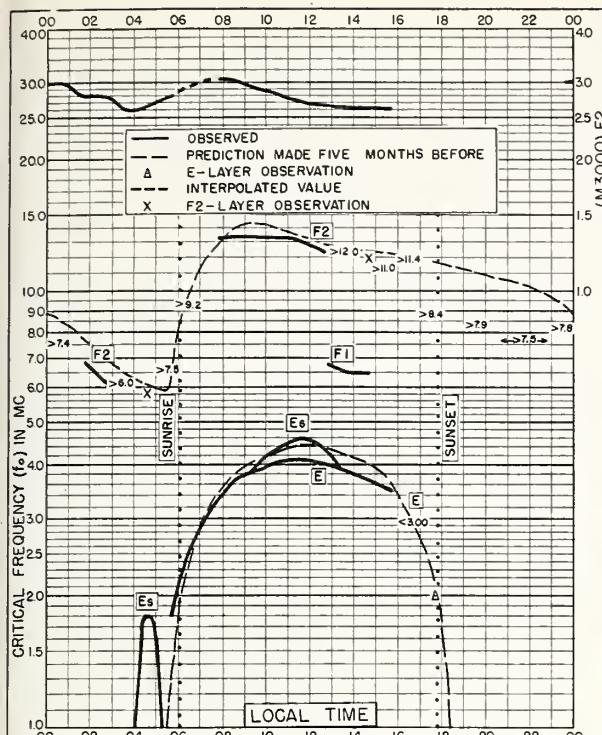


Fig. 96. HUANCAYO, PERU SEPTEMBER 1957



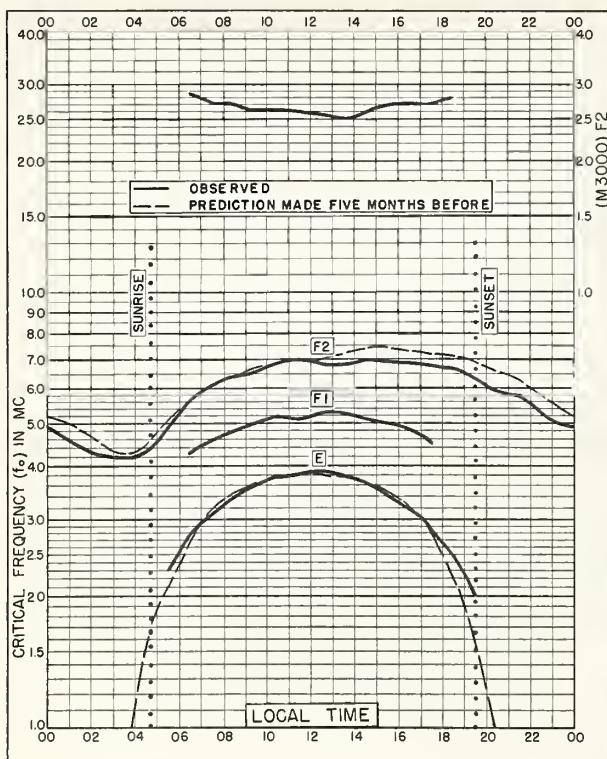


Fig. 101. MEANOOK, CANADA

54.6°N, 113.3°W

AUGUST 1957

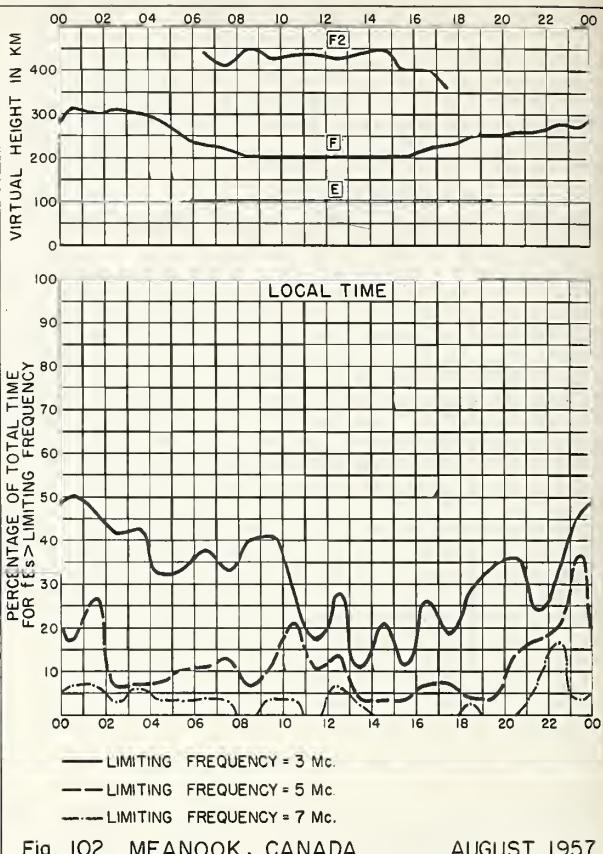


Fig. 102. MEANOOK, CANADA

AUGUST 1957

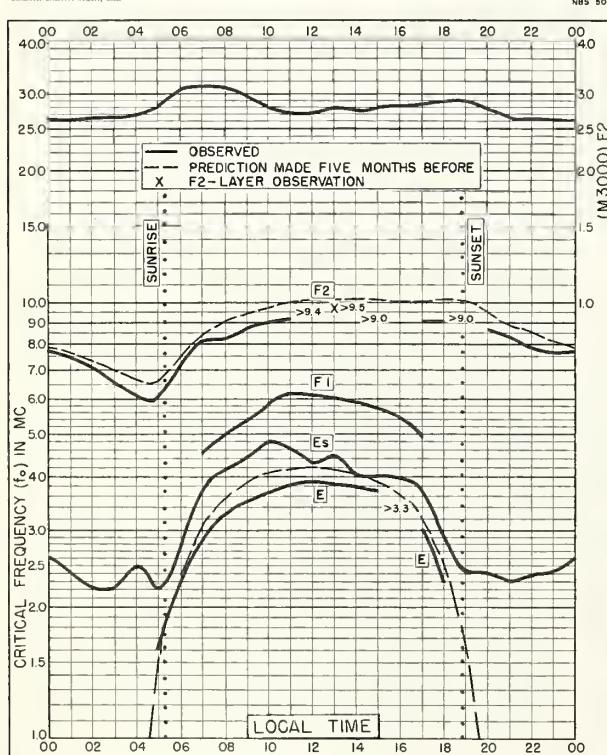


Fig. 103. TORTOSA, SPAIN

40.8°N, 0.5°E

AUGUST 1957

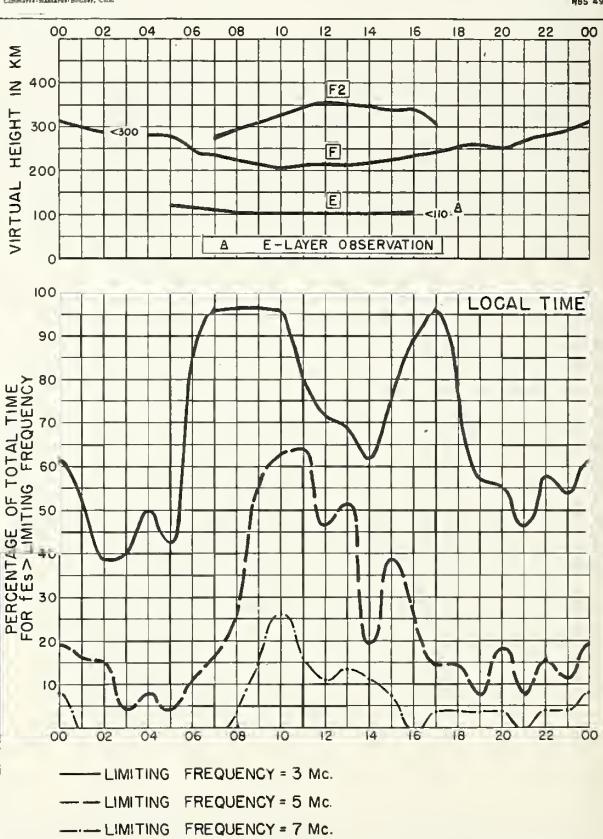
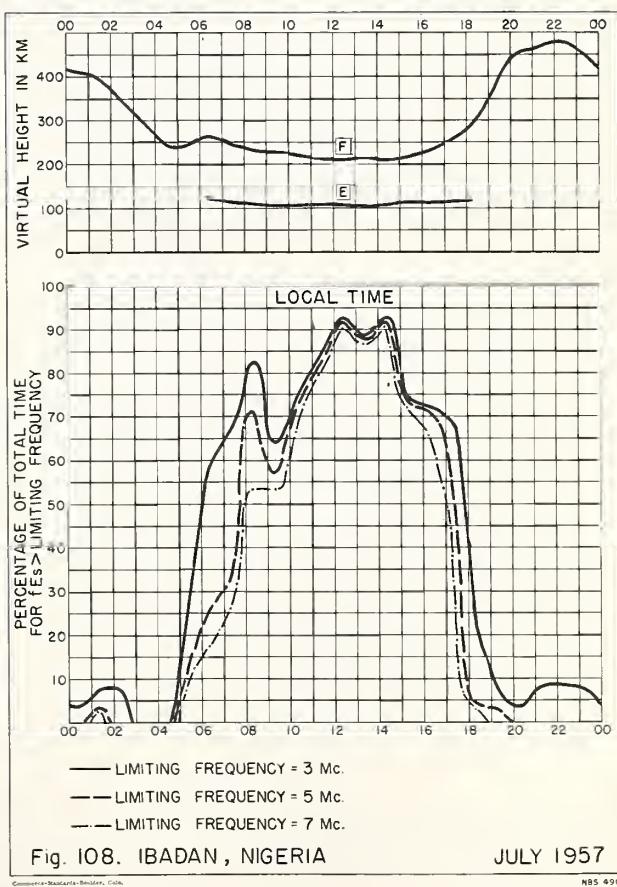
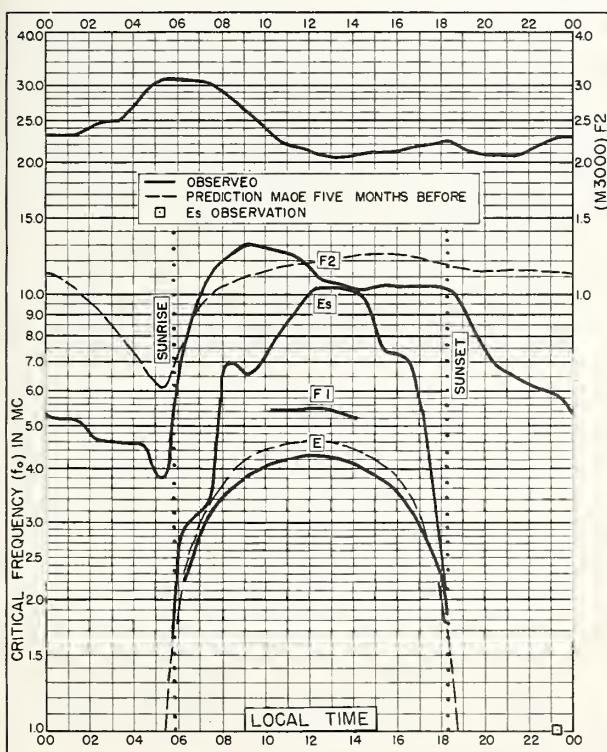
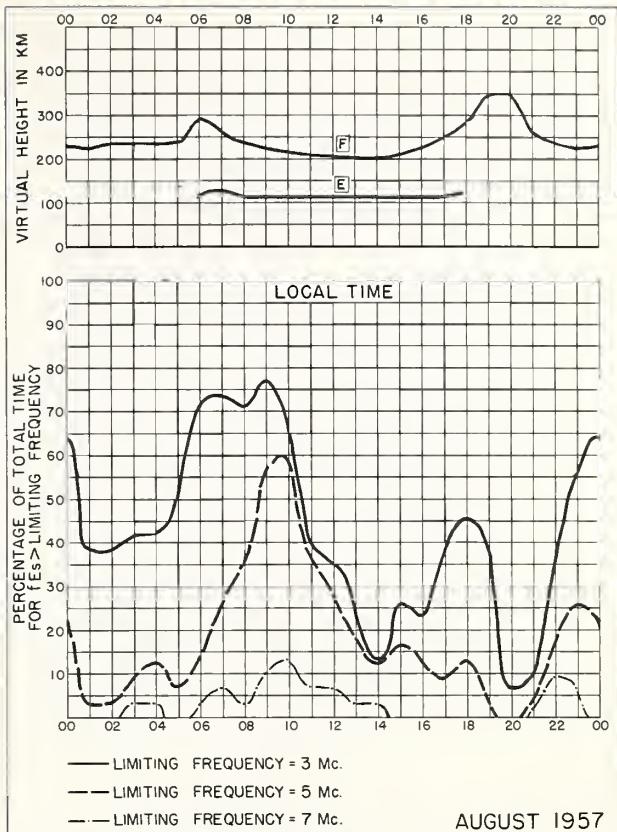
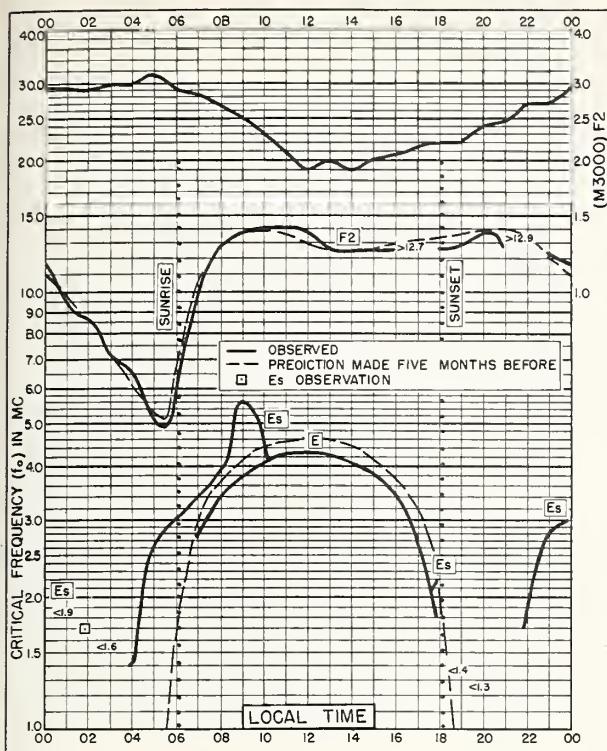


Fig. 104. TORTOSA, SPAIN

AUGUST 1957



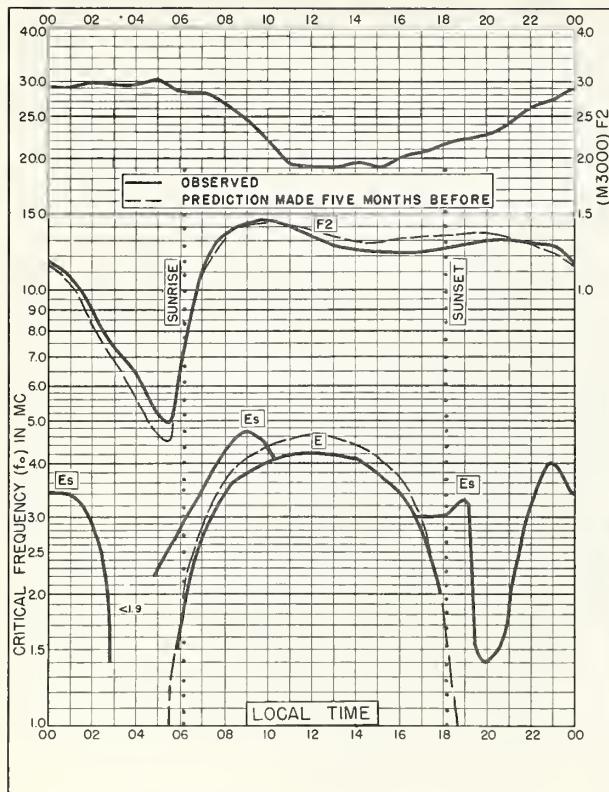


Fig. 109. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JULY 1957

NBS 503

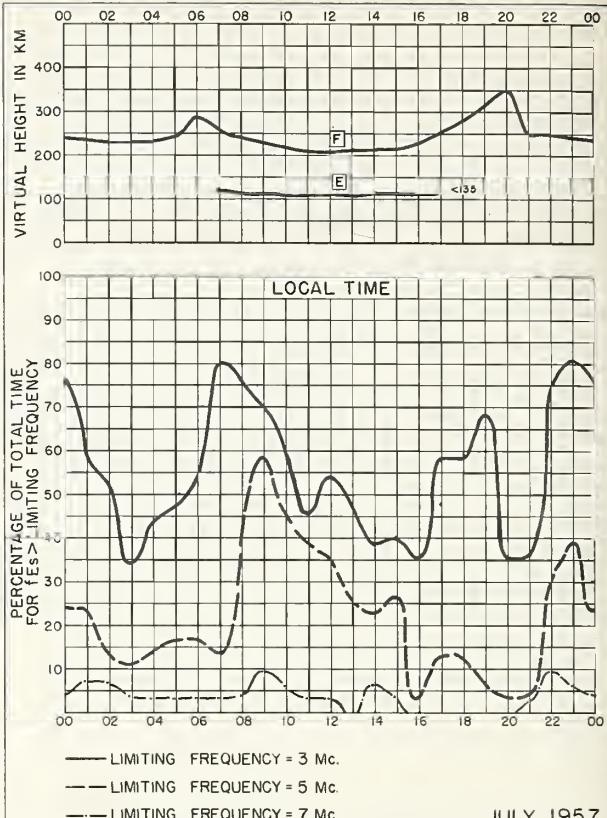


Fig. 110. SINGAPORE, BRITISH MALAYA JULY 1957

NBS 490

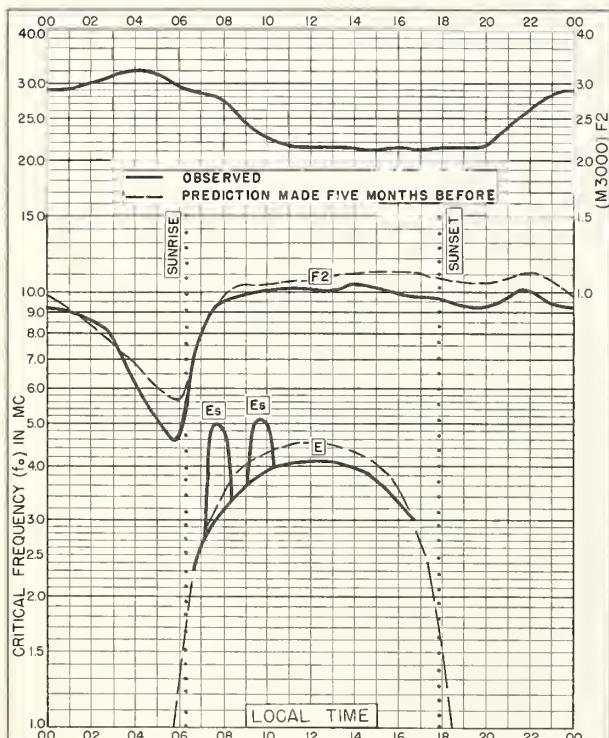


Fig. III. CHICLAYO, PERU
6.8°S, 79.8°W JULY 1957

NBS 503

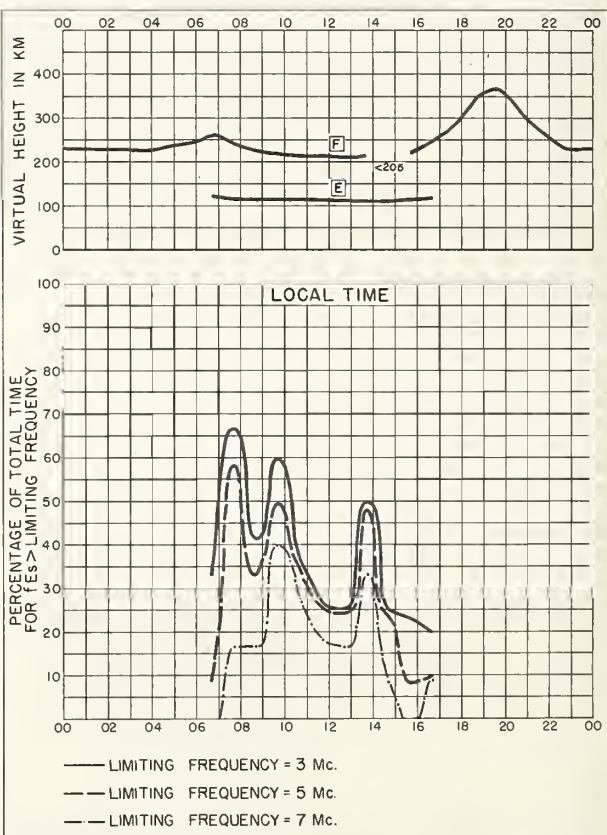
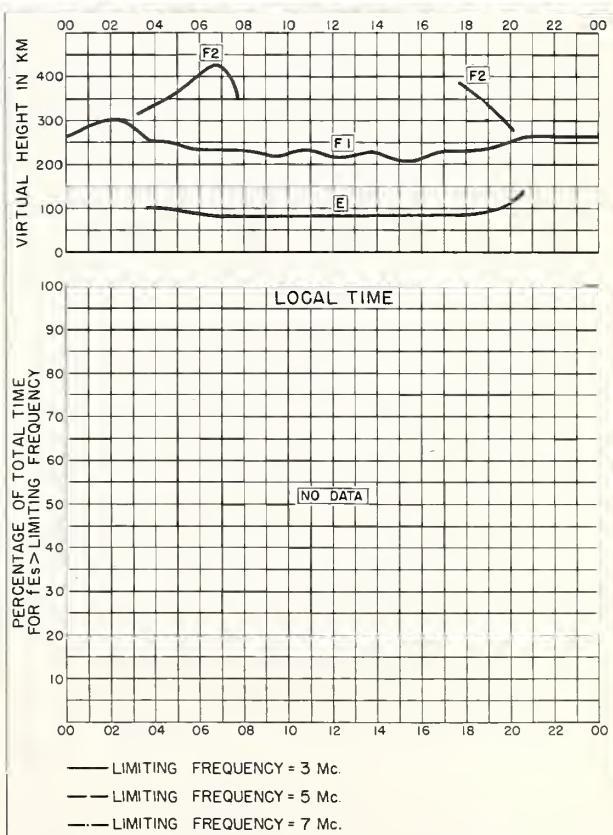
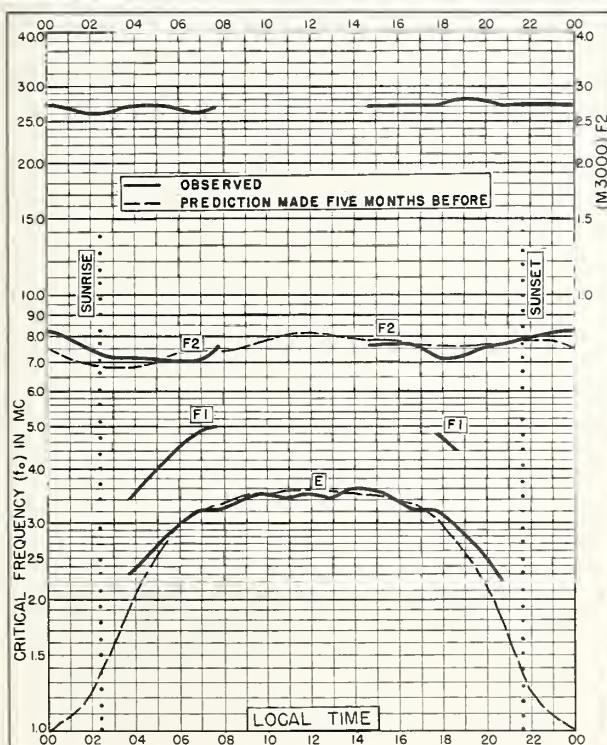
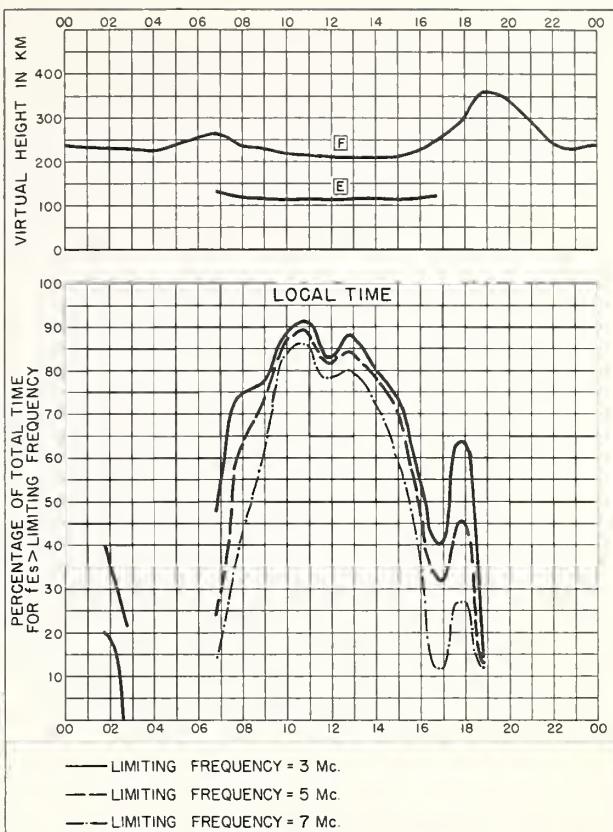
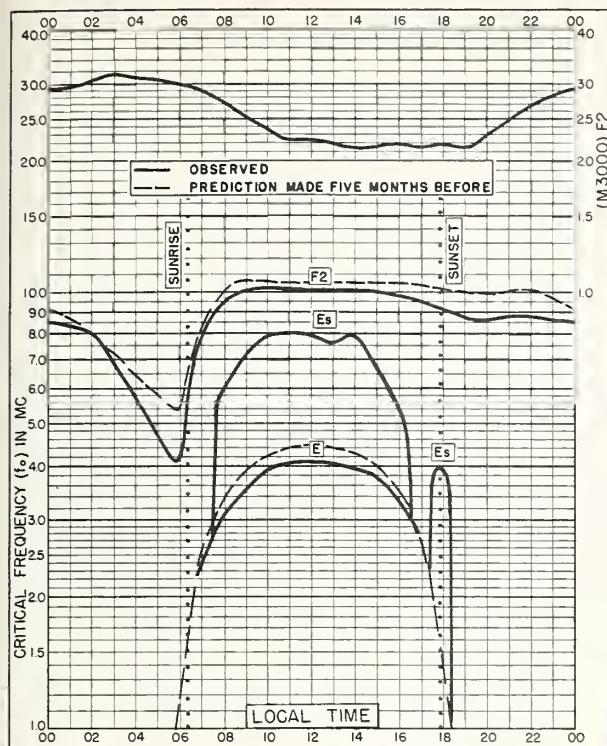


Fig. 112. CHICLAYO, PERU JULY 1957

NBS 490



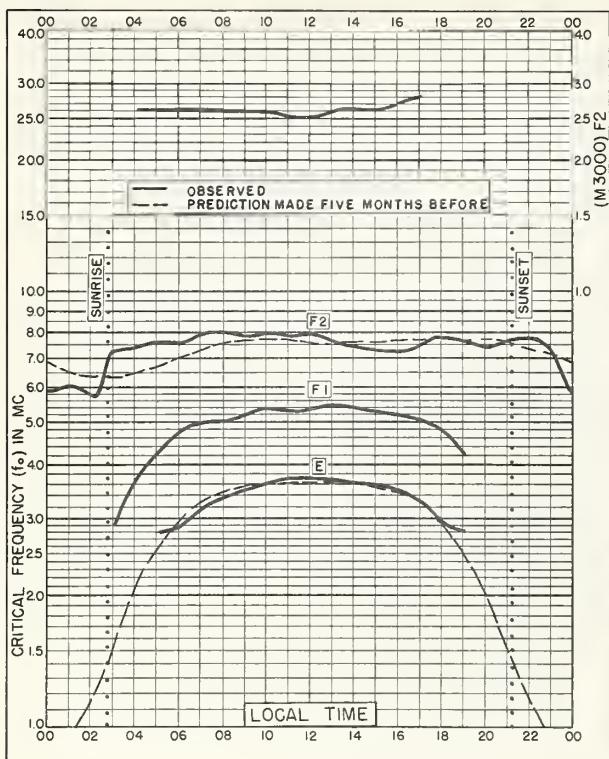


Fig. 117. LENINGRAD, U.S.S.R.

59.9°N, 30.7°E

JUNE 1957

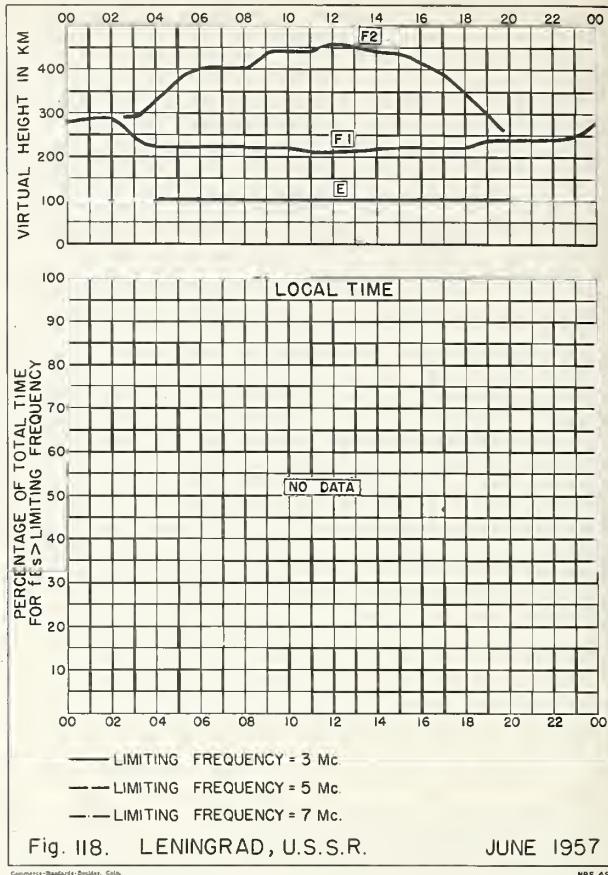


Fig. 118. LENINGRAD, U.S.S.R.

JUNE 1957

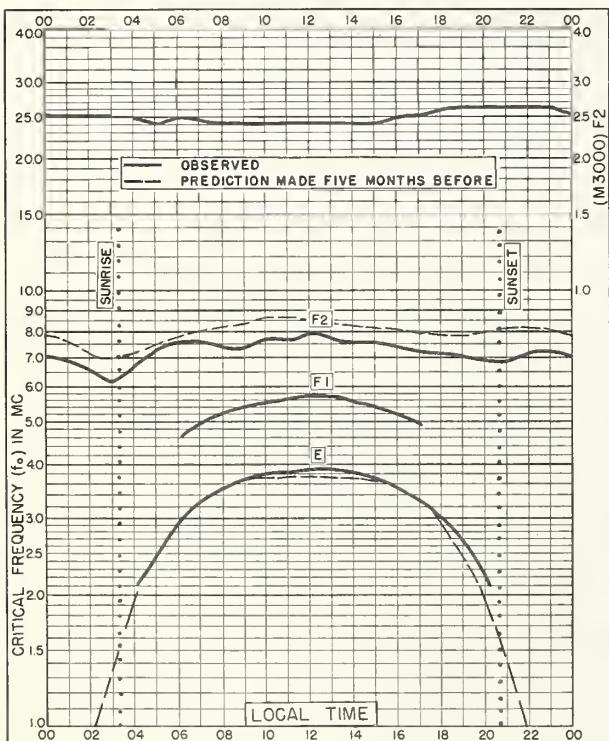


Fig. 119. SVERDLOVSK, U.S.S.R.

56.7°N, 61.1°E

JUNE 1957

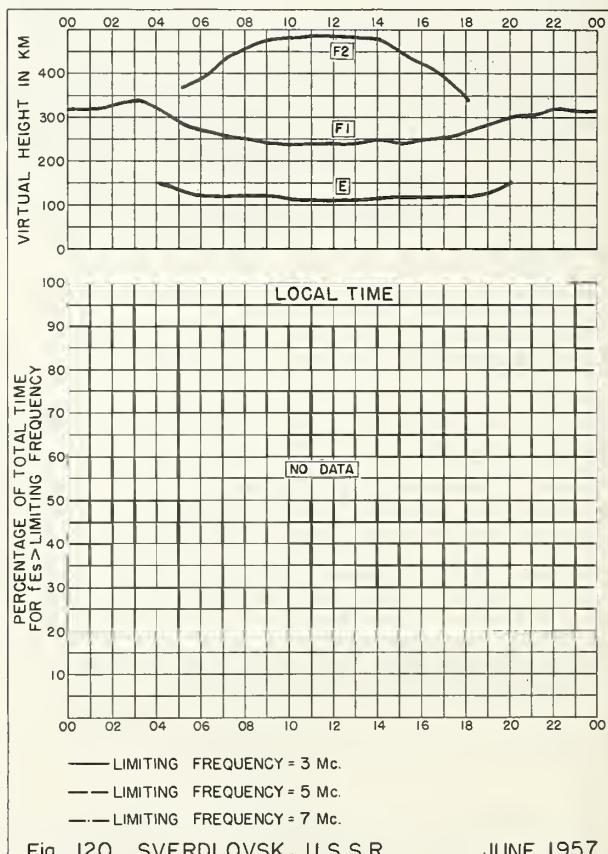


Fig. 120. SVERDLOVSK, U.S.S.R.

JUNE 1957

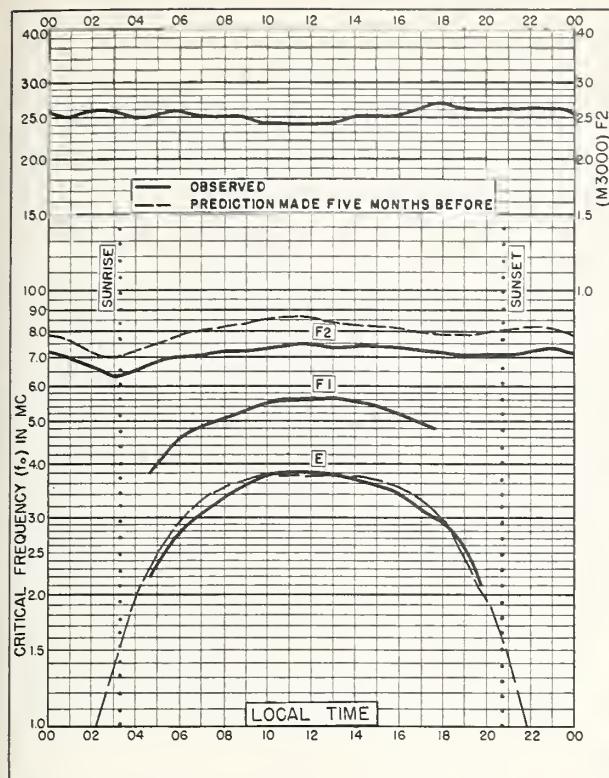


Fig. 121. TOMSK, U.S.S.R.

56.5°N, 84.9°E

JUNE 1957

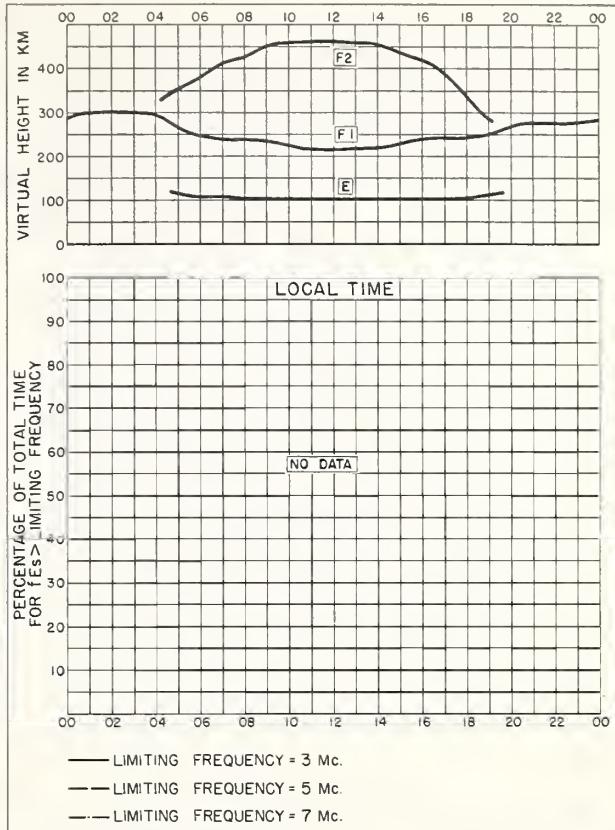


Fig. 122. TOMSK, U.S.S.R.

JUNE 1957

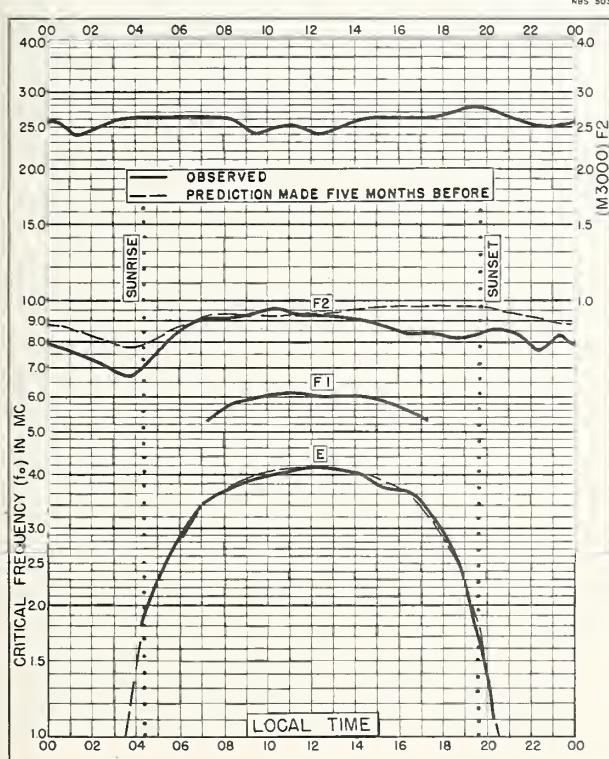


Fig. 123. SIMFEROPOL, U.S.S.R.

44.4°N, 34.0°E

JUNE 1957

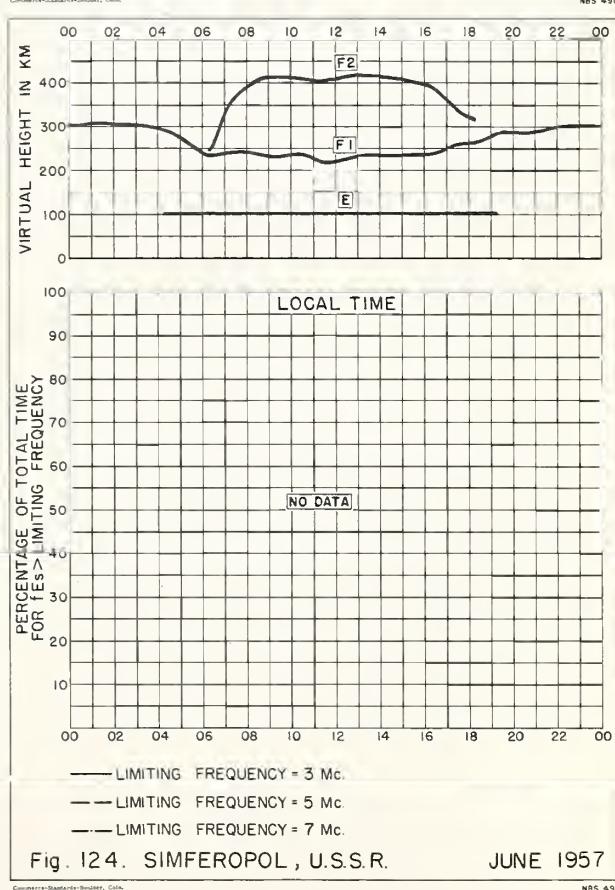
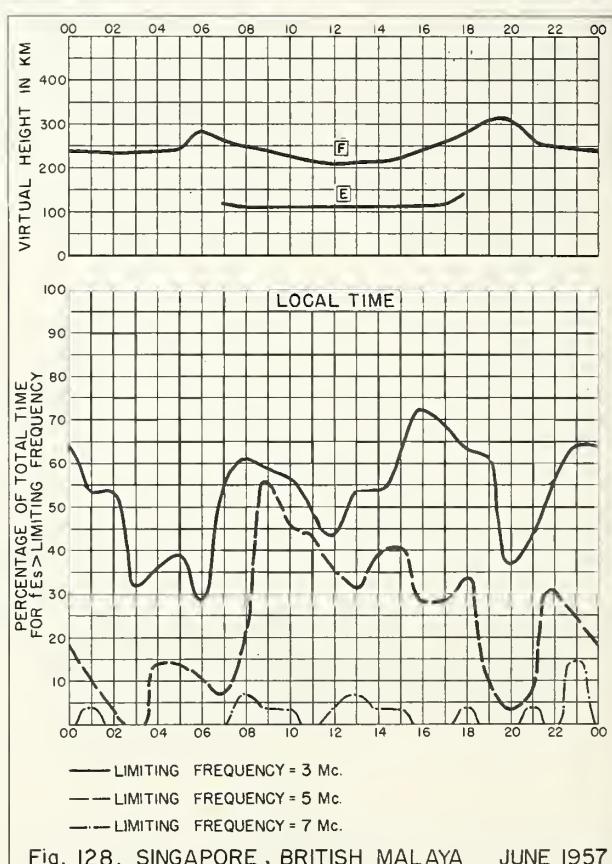
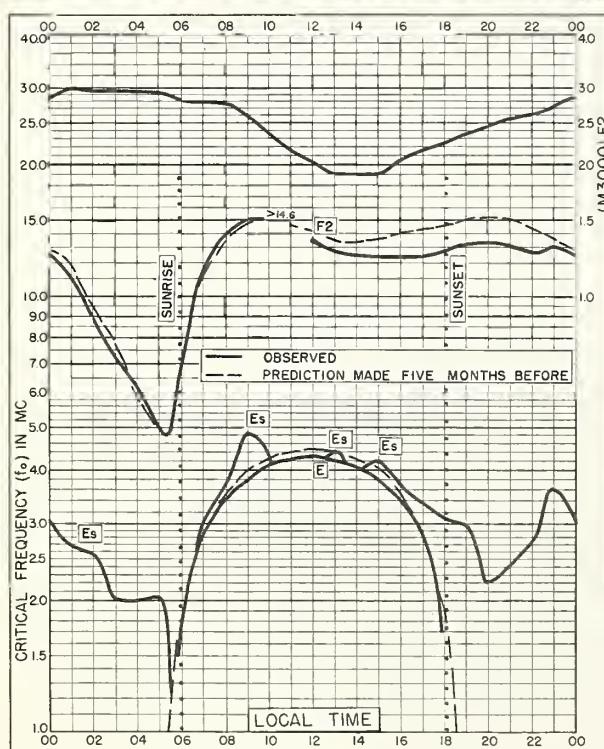
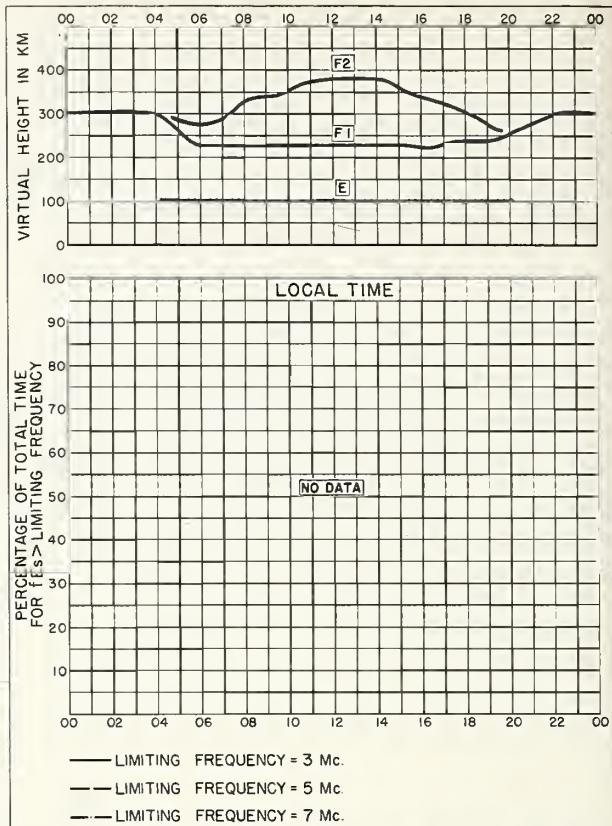
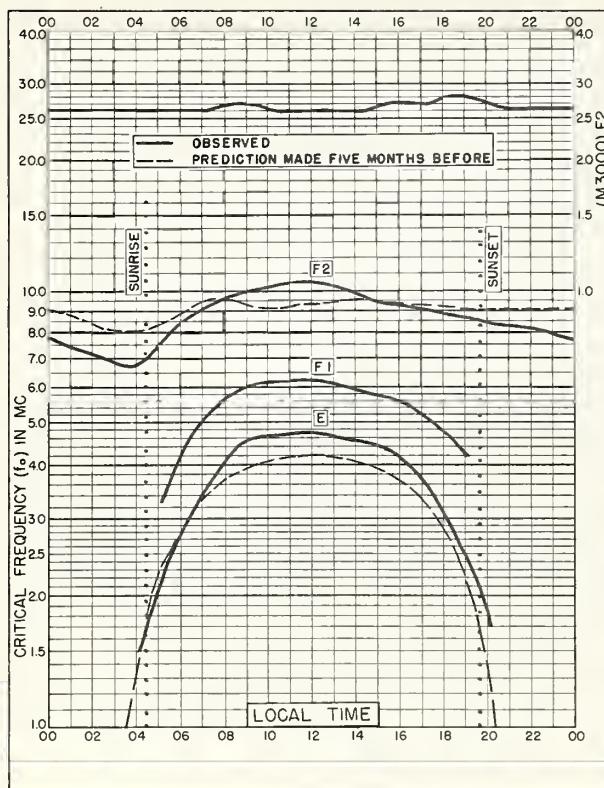


Fig. 124. SIMFEROPOL, U.S.S.R.

JUNE 1957



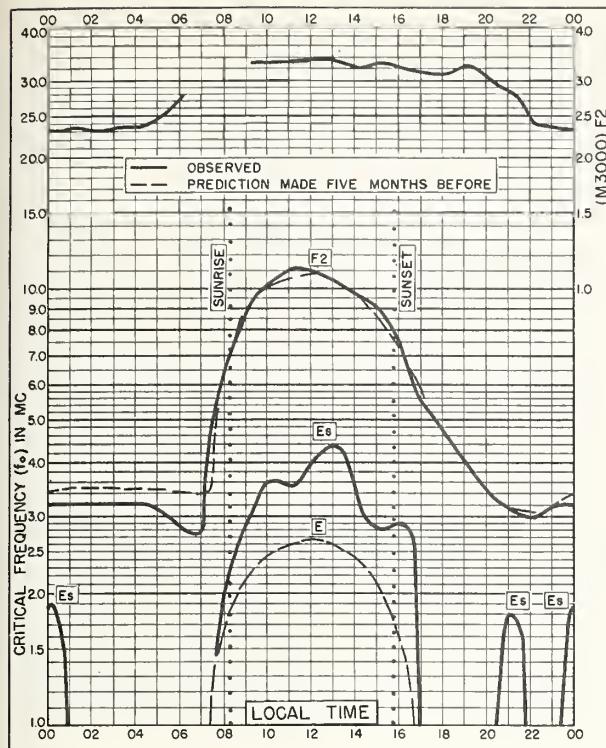


Fig. 129. FALKLAND IS.
51.7°S, 57.8°W

JUNE 1957

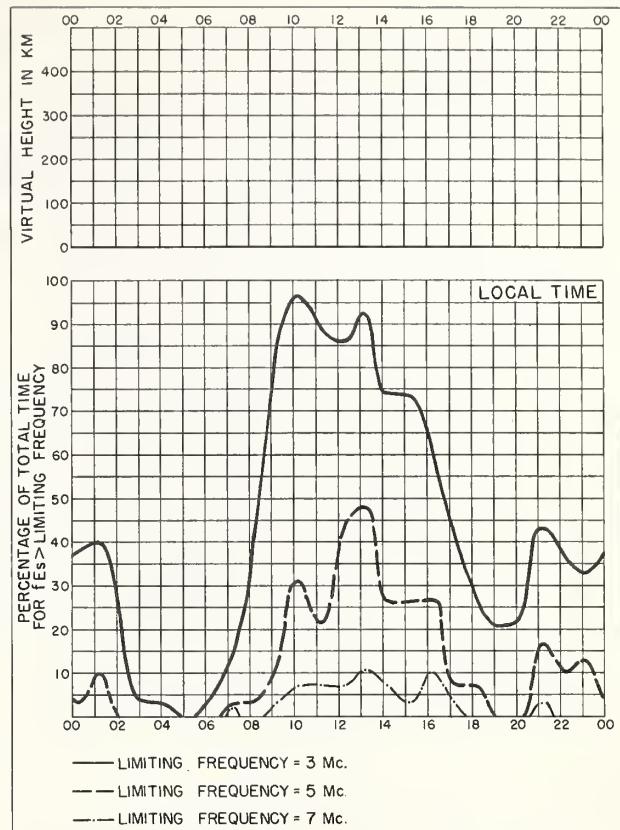


Fig. 130. FALKLAND IS.

JUNE 1957

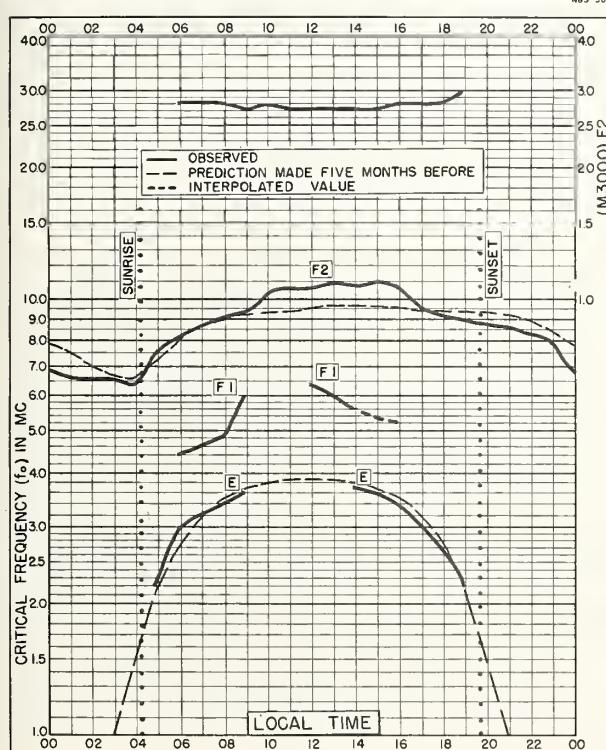


Fig. 131. IRKUTSK, U.S.S.R.
52.5°N, 104.0°E

MAY 1957

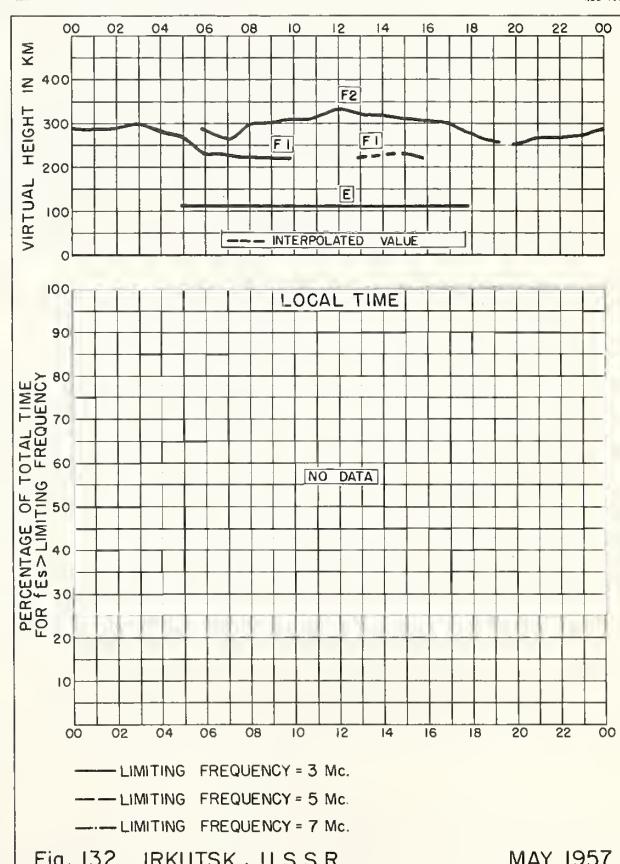
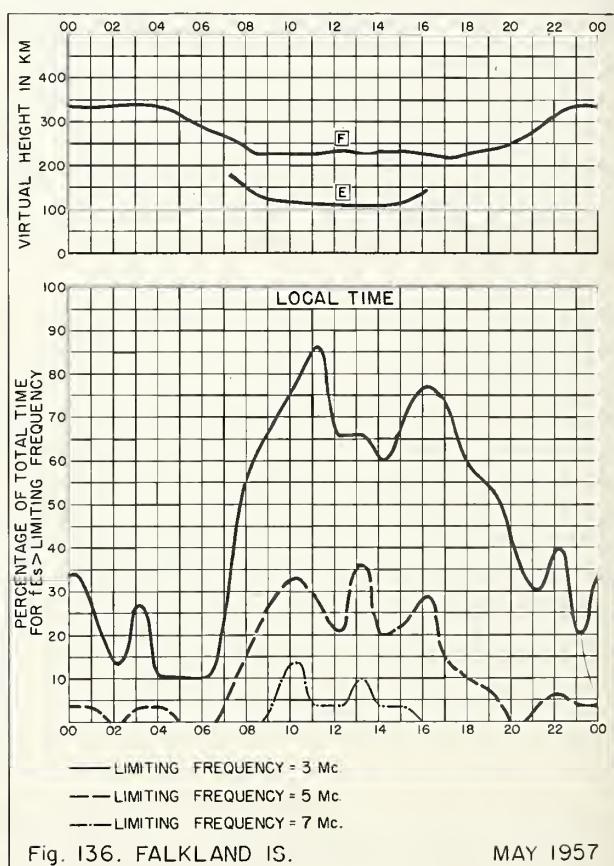
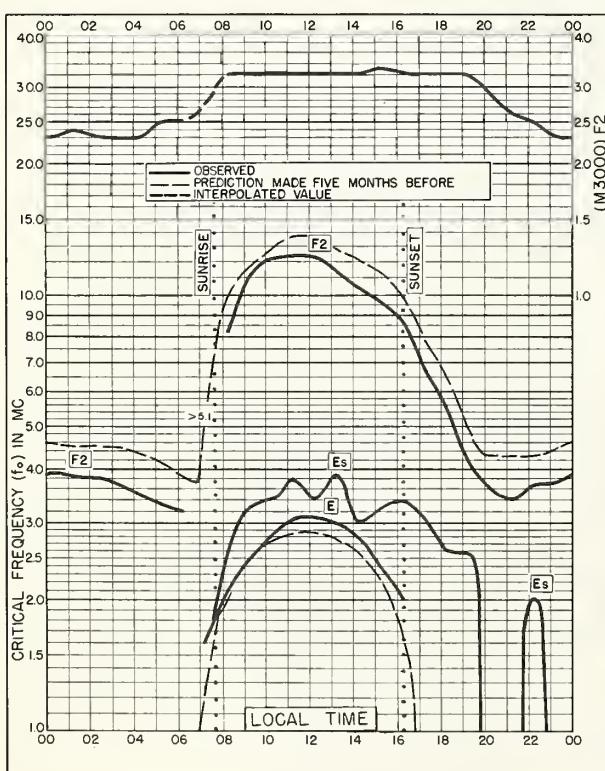
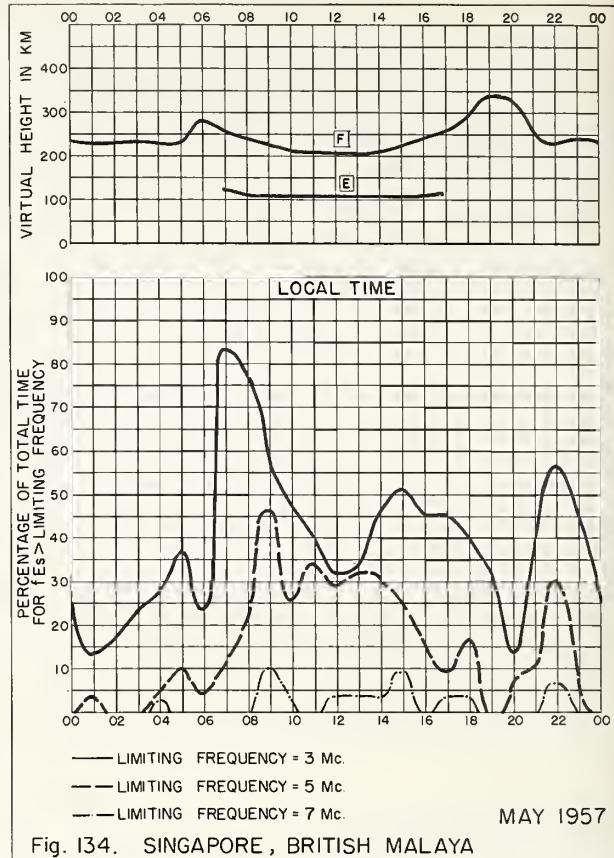
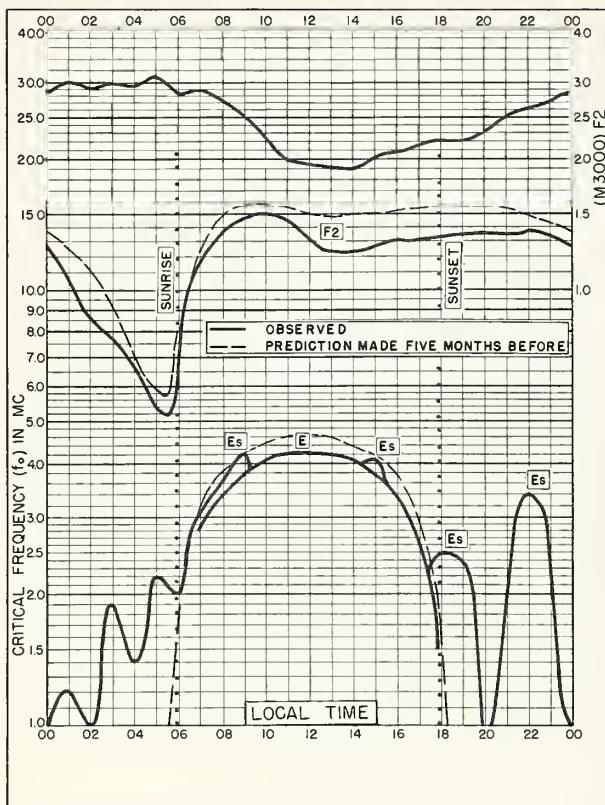


Fig. 132. IRKUTSK, U.S.S.R.

MAY 1957



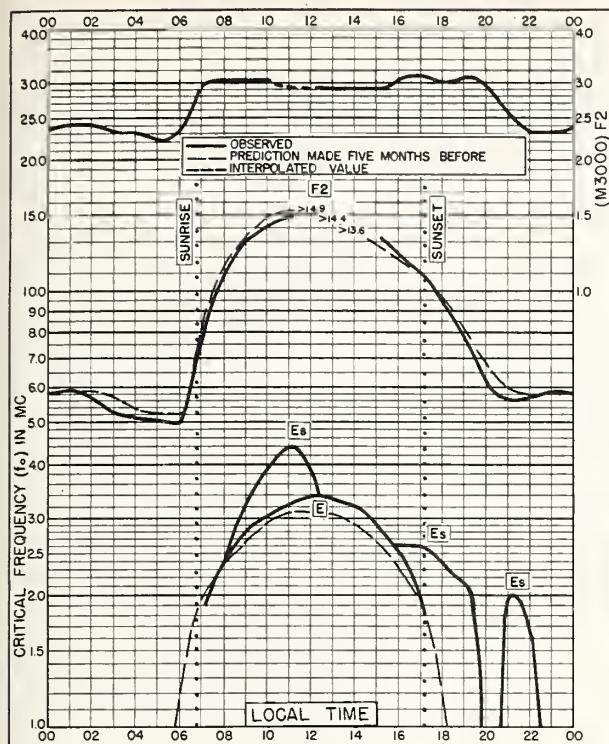


Fig. 137. FALKLAND IS.

51.7°S, 57.8°W

APRIL 1957

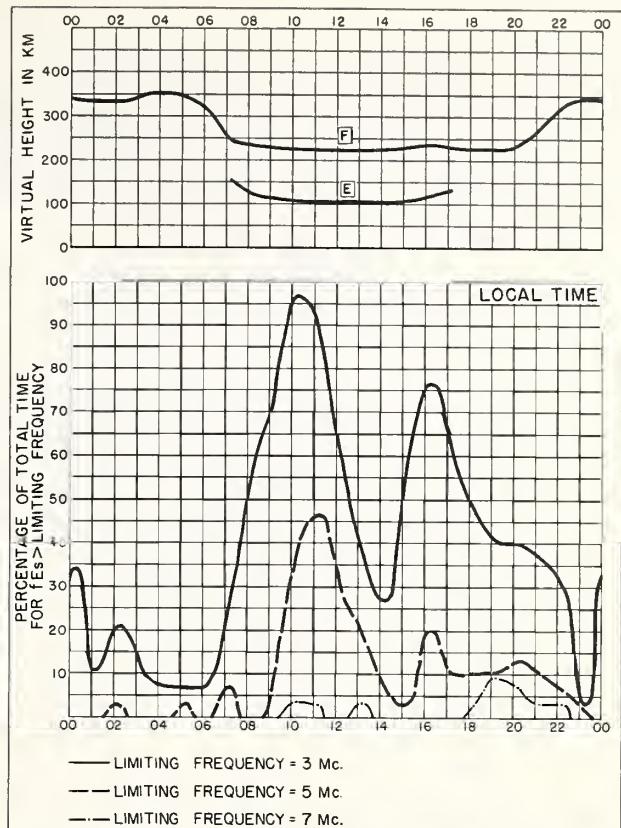


Fig. 138. FALKLAND IS.

APRIL 1957

NBS 490

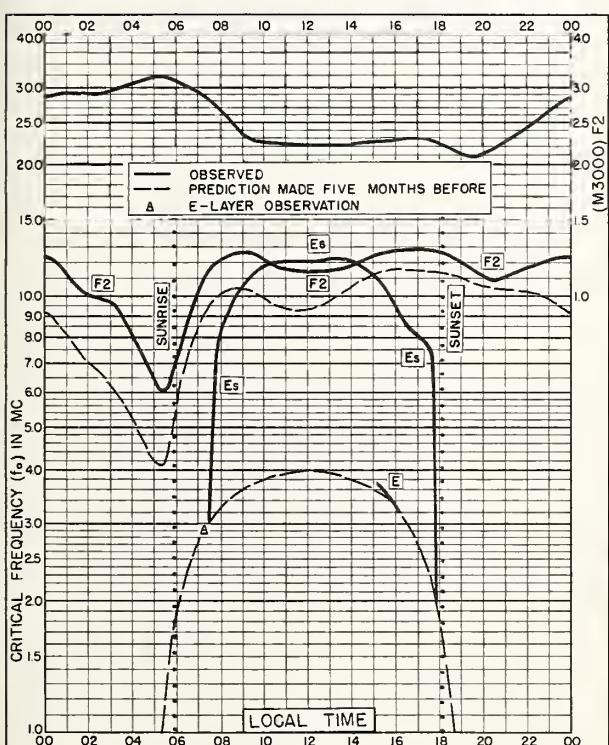


Fig. 139. KODAIKANAL, INDIA

10.2°N, 77.5°E

APRIL 1956

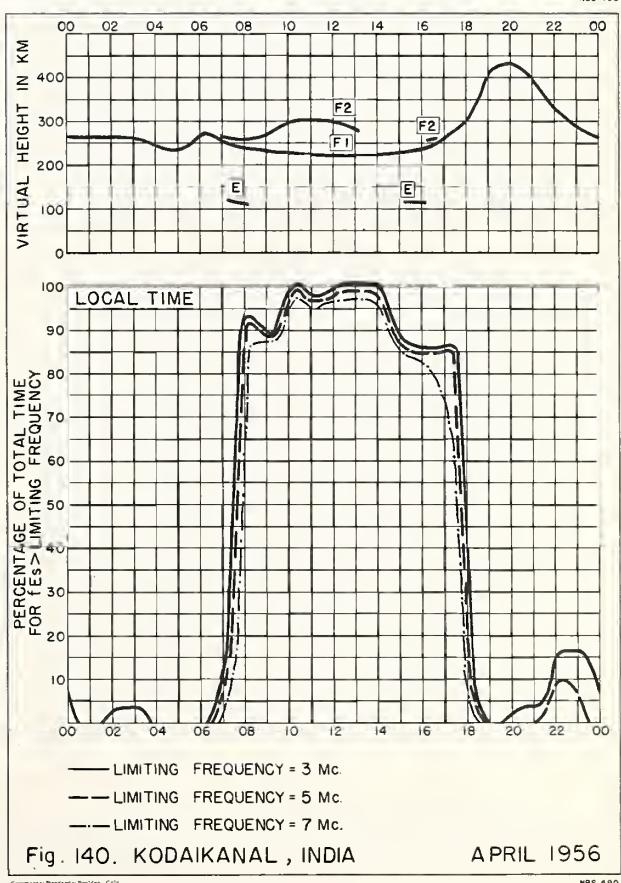


Fig. 140. KODAIKANAL, INDIA

APRIL 1956

NBS 490

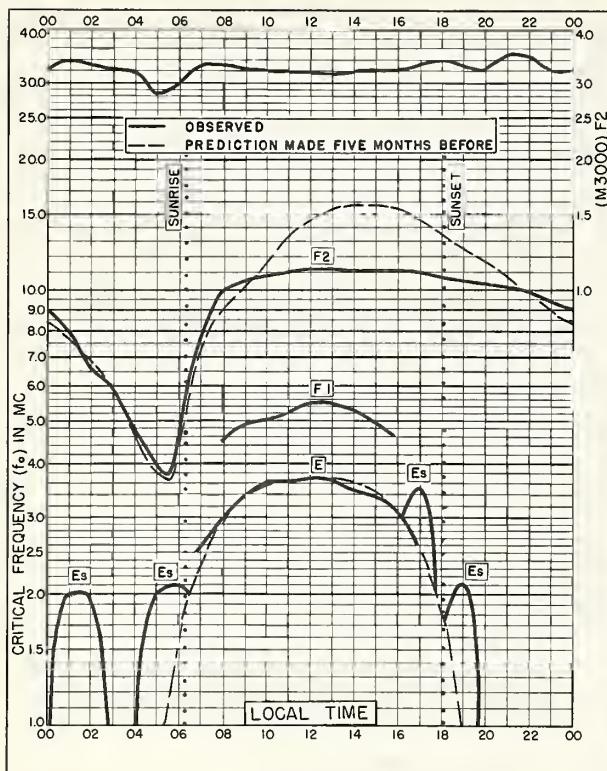


Fig. 141. CALCUTTA, INDIA

22.9°N, 88.5°E

MARCH 1956

NBS 503

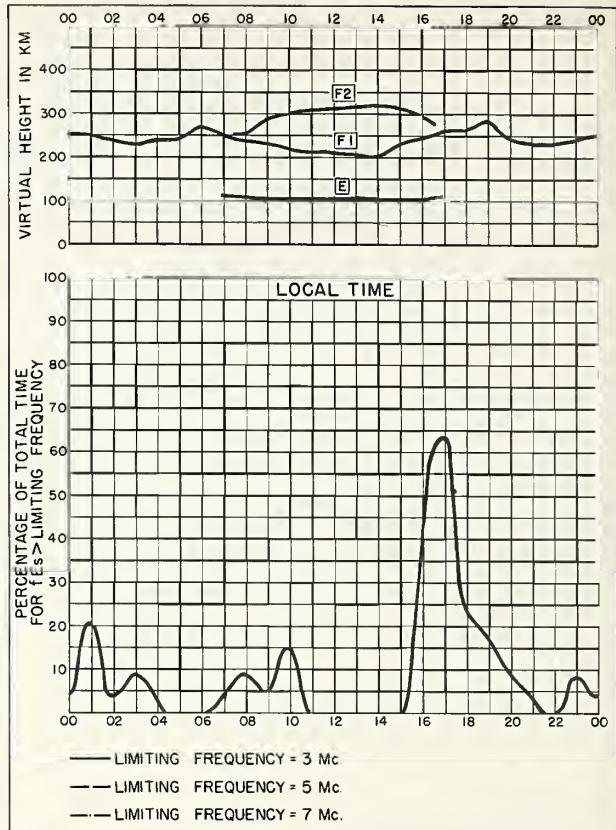


Fig. 142. CALCUTTA, INDIA

MARCH 1956

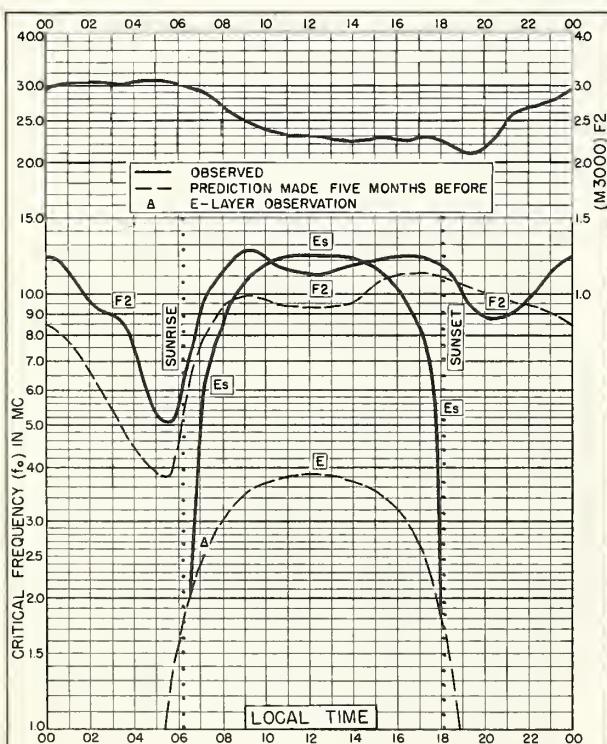


Fig. 143. KODAIKANAL, INDIA

10.2°N, 77.5°E

MARCH 1956

NBS 503

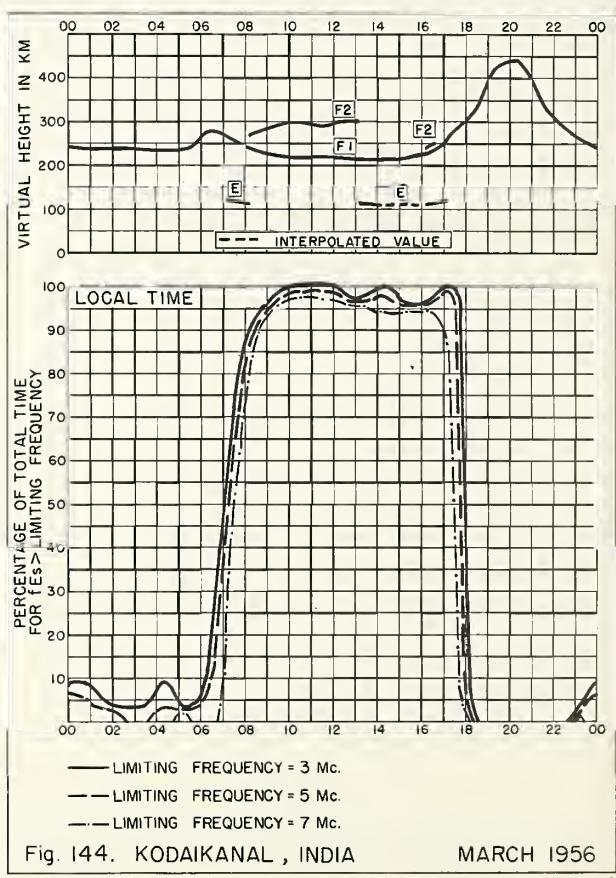


Fig. 144. KODAIKANAL, INDIA

MARCH 1956

NBS 490

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