

CRPL-F 142 PART A

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PART A
IONOSPHERIC DATA

ISSUED
June 1956

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

CRPL-F142
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
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IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above, plus an additional symbol, R: "Scaling of characteristic is influenced or prevented by absorption in the neighborhood of the critical frequency," (May 1955). Also, beginning with January 1956, additional meanings are assigned to T: A smoothed value which better fits the observations, replacing a doubtful or clearly inconsistent observed value; and to U: f_{oF2} minus f_{oF1} is 0.5 Mc or less (used with (M3000)F2).

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

Values of f_{oF2} (and f_{oE} near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h^*F2 (and h^*E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For f_{oF2} , as equal to or less than f_{oF1} .
2. For h^*F2 , as equal to or greater than the median.

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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

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

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

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

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

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

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

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

- a. Differences in scaling records when spread echoes are present.
- b. Omission of values when f_{oF2} is less than or equal to f_{oF1} , leading to erroneously high values of monthly averages or median values.
- c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

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

Ordinarily, a blank space in the f_{Es} 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 f_{oE} . Blank spaces at the beginning and end of columns of $h'F1$, f_{oF1} , $h'E$, and f_{oE} are usually the result of diurnal variation in these characteristics. Complete absence of medians of $h'F1$ and f_{oF1} is usually the result of seasonal effects.

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

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

<u>Month</u>	<u>Predicted Sunspot Number</u>										
	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946
December		42	11	15	33	53	86	108	114	126	85
November	147	35	10	16	38	52	87	112	115	124	83
October	135	31	10	17	43	52	90	114	116	119	81
September	119	30	8	18	46	54	91	115	117	121	79
August	105	27	8	18	49	57	96	111	123	122	77
July	95	22	8	20	51	60	101	108	125	116	73
June	89	18	9	21	52	63	103	108	129	112	67
May	77	16	10	22	52	68	102	108	130	109	67
April	68	13	10	24	52	74	101	109	133	107	62
March	60	14	11	27	52	78	103	111	133	105	51
February	53	14	12	29	51	82	103	113	133	90	46
January	48	12	14	30	53	85	105	112	130	88	42

The latest available information follows concerning the corresponding observed Zürich numbers (some of which may be subject to minor change) beginning with the minimum of April 1954.

Observed Sunspot Number

<u>Month</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	72	

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 60 and figures 1 to 120 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina

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

Brisbane, Australia
Canberra, Australia
Hobart, Tasmania
Townsville, Australia

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

University of Graz:
Graz, Austria

British Department of Scientific and Industrial Research, Radio
Research Board:
Falkland Is.
Ibadan, Nigeria (University College of Ibadan)
Inverness, Scotland
Port Lockroy
Singapore, British Malaya
Slough, England

Defence Research Board, Canada:
Baker Lake, Canada

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

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

Christchurch Geophysical Observatory, New Zealand Department of
Scientific and Industrial Research:
Christchurch, New Zealand
Rarotonga, Cook Is.

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

Manila Observatory:
Baguio, P. I.

South African Council for Scientific and Industrial Research:
Nairobi, Kenya (East African Meteorological Department)

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Panama Canal Zone
Point Barrow, Alaska
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 61 through 71 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

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

The U is a weight meaning doubtful. Other weights are I, interpolated, D, greater than, and E, less than. Absence of a letter in the upper left position means full weight is given to the observation.

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

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

TABLES OF IONOSPHERIC DATA

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Table 1

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.3					3.6	2.70
01	280	5.9					3.0	2.70
02	280	5.4					2.9	2.75
03	290	5.0					2.9	2.70
04	280	4.5					2.6	2.75
05	280	4.7	---	---	---	---	1.6	2.90
06	280	5.6	250	3.70	f12	2.4	2.4	3.00
07	320	6.4	230	4.30	109	2.8	4.3	3.00
08	380	6.4	220	4.50	105	3.2	4.7	2.90
09	330	6.8	210	4.80	103	3.4	4.5	2.90
10	380	7.3	200	5.00	101	3.6	4.4	2.80
11	360	7.2	205	5.20	101	3.7	4.0	2.80
12	380	7.2	210	5.30	102	3.8	4.0	2.70
13	380	7.2	215	5.20	105	3.7	4.1	2.75
14	370	7.8	220	5.20	105	3.8	4.0	2.70
15	350	7.8	220	5.20	105	3.6	3.9	2.80
16	335	7.8	230	4.80	109	3.3	3.4	2.80
17	310	8.1	235	4.40	109	3.0	3.0	2.80
18	280	7.7	250	3.80	117	2.4	2.7	2.80
19	260	8.4			---	---	1.9	2.90
20	250	7.8					2.9	2.80
21	250	7.4					3.2	2.80
22	270	6.8					3.7	2.75
23	280	6.5					(3.8)	2.75

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	300	5.4				<1.4		2.50
01	305	(5.3)				<1.3		(2.40)
02	310	(4.8)				<1.1		(2.55)
03	320	4.2				<1.2		2.50
04	300	3.8			---	---		2.50
05	295	4.6	---	---	110	1.4		2.70
06	270	5.3	255	---	110	2.0		2.85
07	(270)	6.0	245	---	110	2.6		2.80
08	370	6.4	240	4.1	110	2.9		2.75
09	340	6.8	240	4.4	110	3.1		2.70
10	350	7.2	240	4.6	110	3.4		2.70
11	350	7.6	225	4.7	110	3.4		2.70
12	350	7.8	220	4.9	110	3.5		2.70
13	370	7.8	225	4.8	110	3.4		2.70
14	360	8.0	230	4.9	110	3.4		2.75
15	330	8.0	230	---	110	3.2		2.75
16	295	8.0	245	---	110	3.0		2.80
17	(250)	8.4	250	---	110	2.8		2.85
18	250	8.0	250	---	110	2.3		2.90
19	255	7.8			---	1.8	<2.0	2.90
20	255	7.5					<1.4	2.90
21	255	6.8					<1.4	2.75
22	270	6.2					<1.4	2.60
23	300	5.8					<1.4	2.50

Time: 15.0° E.

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

Table 5

Table 3							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	310	4.8					2.5
01	330	4.6					2.5
02	320	4.6					2.45
03	330	4.2					2.4
04	350	4.2				1.1	2.45
05	310	4.6	320	3.0	---	---	2.5
06	340	5.9	265	3.8	113	(2.4)	2.4
07	360	6.4	250	4.5	110	(2.9)	3.0
08	380	6.6	240	4.8	109	(3.2)	3.6
09	350	7.0	230	4.8	105	(3.4)	4.3
10	420	7.4	220	5.0	104	---	4.3
11	390	7.6	220	5.2	101	---	4.4
12	340	8.0	220	5.2	101	---	4.4
13	350	8.5	225	(5.4)	---	---	2.7
14	330	8.4	230	(5.1)	100	---	2.0
15	330	8.6	240	---	102	---	2.7
16	280	8.5	240	---	107	(3.0)	2.85
17	250	8.4	240	---	109	(2.8)	2.8
18	250	8.4			115	(2.2)	2.5
19	250	7.9					2.9
20	250	7.2					2.85
21	250	6.6					2.8
22	270	5.6					2.65
23	290	5.2					2.55

Time: 100.0°N.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 2

Kiruna, Sweden (67.8°N, 20.3°E)							April 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	355	5.6				5.0	(2.55)
01	340	5.0				5.0	(2.5)
02	350	(5.3)				5.0	(2.5)
03	360	5.1			---	4.0	2.65
04	305	5.0	---	---	110	1.5	2.2
05	300	5.8	260	---	110	2.0	2.7
06	(345)	6.0	250	3.6	110	2.5	2.7
07	375	6.0	240	4.2	110	2.6	2.8
08	(410)	6.3	230	4.4	105	3.0	2.75
09	330	7.0	230	4.8	105	3.1	2.7
10	350	7.8	225	4.9	105	3.1	2.8
11	355	8.0	220	5.0	105	3.2	<3.8
12	365	8.0	220	4.7	105	3.2	3.5
13	(425)	8.0	220	4.8	105	3.1	<3.5
14	350	7.8	225	4.5	105	3.1	<4.0
15	325	7.5	230	4.4	105	3.0	<3.5
16	(285)	7.3	240	---	105	2.8	2.8
17	(280)	7.0	250	---	110	2.5	2.9
18	295	7.0	260	---	110	2.1	3.0
19	310	6.0	---	---	110	1.8	<4.0
20	290	6.0			---	---	<4.0
21	340	5.5			---	4.5	(2.7)
22	390	5.5				4.2	2.6
23	370	5.5				5.0	(2.55)

Time: 15.0° E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 4

Upsala, Sweden (59.8°N, 17.6°E)							April 1956
Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs (M3000)F2
00	315	4.7					2.55
01	320	4.5					2.6
02	330	4.2					2.5
03	330	3.8			---	---	2.4
04	310	3.9			---	E	2.6
05	275	4.6	---	---	---	1.6	2.8
06	290	5.5	260	3.7	115	2.2	2.3
07	310	6.0	240	4.2	110	2.7	2.9
08	350	6.7	240	4.6	110	3.0	3.0
09	350	7.2	235	5.0	105	3.2	2.7
10	345	7.7	230	5.0	105	3.2	3.4
11	340	7.9	225	5.0	105	3.4	2.7
12	340	8.2	220	5.2	105	3.4	2.7
13	335	8.2	225	5.2	105	3.4	2.7
14	340	8.2	230	5.0	105	3.2	2.7
15	330	8.0	230	4.7	105	3.2	2.8
16	290	8.2	240	4.6	105	3.0	2.7
17	265	8.4	250	4.1	110	2.6	2.9
18	260	8.2	---	---	115	2.1	2.8
19	255	7.7			---	1.6	1.9
20	245	7.1			---	E	2.8
21	260	6.7			---	---	2.7
22	280	5.8					2.7
23	300	5.4					2.7

Time: 15.0° E.

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

Table 6

Table 6							April 1956
Time	h°F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	330	6.9					
01	320	6.7					
02	315	6.2					
03	330	5.6					
04	310	5.4					
05	330	5.4					
06	250	6.2	---	(3.5)			
07	250	7.0	250	4.2		---	
08	250	7.6	230	4.9	---	(3.4)	
09	300	8.6	220	5.0	---	3.6	
10	300	9.4	215	5.3	---	3.7	
11	300	10.1	230	5.1	---	3.9	
12	305	10.6	230	5.4	---	(3.9)	
13	300	10.5	220	5.2	---	3.9	
14	300	10.4	220	5.2	---	3.8	
15	250	10.2	230	5.1	---	3.6	
16	240	10.0	240	(4.5)	---		
17	250	9.7	---	(4.0)			
18	250	9.4		(2.4)			
19	250	9.0					
20	260	8.4					
21	280	7.8					
22	300	7.0					
23	330	7.0					

Time: 15.0° E

Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 7

Ft. Monmouth, New Jersey (40.3°N, 74.1°W)							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	290	6.6					2.70
01	290	(6.4)					2.70
02	290	(6.2)				(3.2)	(2.70)
03	290	5.8					2.70
04	300	(5.2)					(3.4)
05	290	(5.0)					(3.1)
06	250	6.0	---	---	120	<2.0	3.05
07	260	6.9	240	---	111	(2.0)	2.8
08	260	8.3	225	4.5	110	(3.2)	3.2
09	290	9.0	215	4.9	109	(3.4)	3.5
10	290	9.3	210	5.1	109	(3.7)	3.7
11	330	9.6	210	5.4	109	(3.8)	2.75
12	330	10.0	215	5.3	109	(3.8)	2.00
13	330	10.5	220	5.4	109	(3.8)	2.75
14	320	10.1	220	5.2	109	3.7	2.75
15	320	9.6	225	5.0	111	(3.5)	3.6
16	300	9.0	230	4.0	111	(3.3)	2.00
17	260	9.5	250	---	119	(2.8)	3.0
18	260	9.6	270	---	121	<1.6	2.90
19	250	9.2					(3.1)
20	260	8.0					(3.7)
21	270	7.7					2.00
22	290	7.3					(2.8)
23	260	(7.0)					(3.2)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Okinawa I. (26.3°N, 127.0°E)							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	270	12.2					2.90
01	260	12.0					3.00
02	240	11.0					3.05
03	220	8.6					3.00
04	240	7.1					2.75
05	270	6.8					2.70
06	280	7.0					2.75
07	240	9.2	---	---	117	2.4	3.5
08	240	10.6	235	---	111	(3.1)	4.9
09	<260	11.6	230	---	111	3.5	5.6
10	(270)	12.4	220	---	111	3.7	5.4
11	---	13.6	225	---	111	3.9	5.6
12	340	14.9	225	---	111	(3.9)	5.1
13	340	15.4	230	---	111	4.0	5.3
14	360	15.4	230	---	111	3.9	5.2
15	340	16.1	230	---	114	3.8	4.7
16	320	16.1	230	---	113	3.5	4.2
17	290	16.3	240	---	115	3.1	4.3
18	250	15.0	250	---	119	2.4	3.8
19	250	14.4					3.3
20	260	13.0					2.80
21	300	13.7					3.00
22	300	12.4					2.65
23	290	12.0					2.5

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Panama Canal Zone (9.4°N, 79.9°W)							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	250	10.2					2.90
01	240	8.9					2.90
02	240	8.2					2.90
03	250	7.6					2.80
04	260	7.2					2.80
05	250	6.6					1.9
06	290	6.2					2.5
07	250	8.8	---	---	121	2.4	3.0
08	250	10.6	235	---	(117)	(3.0)	3.7
09	(280)	11.5	230	---	115	(3.5)	3.6
10	(280)	12.3	225	(5.4)	115	(3.8)	4.2
11	(280)	12.8	220	(5.7)	(111)	(4.0)	4.8
12	(290)	13.6	215	5.7	111	(4.0)	4.8
13	(300)	14.3	215	(5.7)	111	4.0	5.0
14	(300)	14.3	220	(5.4)	111	3.9	4.8
15	(300)	14.4	220	---	109	3.7	5.0
16	(320)	14.0	230	---	111	3.4	4.7
17	(265)	13.1	240	---	115	2.8	4.3
18	260	(12.6)	250	---	---	3.2	(2.75)
19	270	(12.6)				2.9	(2.70)
20	270	(12.6)				2.2	(2.80)
21	250	(11.5)					(2.75)
22	250	(11.0)					(2.80)
23	250	10.4					2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Table 8

White Sands, New Mexico (32.3°N, 106.5°W)							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	305	6.0					2.7
01	300	6.2					2.9
02	290	6.0					2.6
03	290	5.8					2.65
04	290	5.7					2.4
05	290	5.5	---	---			2.3
06	255	6.2	305	---	---	---	2.2
07	250	7.8	240	3.9	111	(2.7)	2.95
08	270	8.8	220	4.6	109	(3.0)	4.4
09	270	9.0	215	4.6	107	3.4	4.5
10	300	10.3	210	(5.0)	109	(3.5)	4.1
11	305	11.0	210	5.4	109	(3.8)	4.0
12	320	11.4	210	5.4	109	(3.9)	2.65
13	330	11.8	215	5.6	111	(3.8)	3.8
14	320	12.0	230	(5.5)	109	(3.7)	3.0
15	320	11.7	230	(5.1)	109	(3.3)	2.75
16	290	11.4	230	---	109	3.1	2.75
17	250	10.8	240	---	111	(2.0)	3.8
18	250	10.4	270	---	(119)	(1.9)	3.3
19	240	9.2					3.4
20	<240	7.0					3.5
21	250	7.0					2.7
22	280	6.4					3.1
23	300	6.2					3.4

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Formosa, China (25.0°N, 121.5°E)							April 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	260	13.7					<1.7
01	260	12.0					<1.7
02	240	10.3					<1.7
03	---						
04	---						
05	---						
06	---						
07	---						
08	250	11.6	240	---	120	3.3	3.9
09	(260)	12.6	230	---	120	3.7	4.1
10	(260)	13.7	---				2.7
11	(270)	15.4	---				5.0
12	(280)	>16.2	---				5.2
13	(270)	>16.4	---				5.0
14	(280)	>16.8	---				2.7
15	(270)	(17.1)	240	---	---		4.1
16	(280)	17.0	240	---	---		3.2
17	280	>16.5	250	---	---		3.6
18	280	>16.2					2.8
19	280	>14.5					2.9
20	280	>15.8					2.5
21	300	(14.8)					2.6
22	290	>14.9					2.4
23	280	>14.0					<1.7

Time: 120.0°E.

Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 12

Point Barrow, Alaska (71.3°N, 156.8°W)							March 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	(4.6)						6.6
01	(4.4)						5.0
02	(4.4)						4.6
03	(4.2)						5.0
04	(3.9)						3.3
05	(4.0)						3.1
06	(4.1)						2.55
07	(4.8)						3.4
08	(5.1)						2.8
09	(5.6)						3.3
10	5.6						2.85
11	6.0						2.80
12	(6.0)						2.85
13	6.4						2.75
14	7.0						2.85
15	8.0						2.80
16	7.8						2.85
17	(7.5)						2.90
18	(7.0)						2.90
19	(5.1)						2.5
20	(4.7)						2.85
21	(4.6)						3.6
22	(4.3)						4.0
23	(4.2)						4.3

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Thule, Greenland (77.0°N, 69.0°W)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(3.7)							
01	(3.8)							
02	(3.4)							
03	---							
04	---							
05	---							
06	(2.6)							
07	(3.6)							
08	(4.2)							
09	(4.5)				(3.20)			
10	(4.8)				(3.10)			
11	(4.5)				(3.00)			
12	(5.4)							
13	(5.9)				(3.00)			
14	(6.3)				(3.05)			
15	(6.8)				(2.95)			
16	(5.4)							
17	(5.0)				(3.10)			
18	(4.8)							
19	(4.9)				(3.00)			
20	(4.2)				(2.90)			
21	(5.4)							
22	(4.0)							
23	(3.8)				2.0			

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15

Lulea, Sweden (65.6°N, 22.1°E)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	---						
01	320	---						
02	320	---						
03	310	(3.1)						
04	310	(2.5)						
05	295	(2.5)						
06	300	2.6						
07	270	4.2						
08	245	5.0	---	---	1.8	3.2		
09	240	6.3	---	---	2.3	2.0	3.2	
10	235	7.0	---	---	2.5	2.0	3.2	
11	240	7.2	---	---	2.6	2.0	3.3	
12	240	7.6	---	---	2.6	2.2	(3.2)	
13	235	7.3	---	---	2.5	2.1	(3.2)	
14	235	7.6	---	---	2.4	2.0		
15	240	7.4	---	---	2.2	1.8		
16	225	(6.8)	---	---	2.2	1.8		
17	230	(5.0)						
18	230	4.5						
19	250	4.4						
20	275	4.0						
21	300	(3.7)						
22	305	---						
23	330	---						

Time: 15.0°E.

Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 17

De Bilt, Holland (52.1°N, 5.2°E)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						
01	295	3.2						
02	300	(3.1)						
03	300	(3.0)						
04	290	(2.8)						
05	280	(2.5)						
06	260	2.8						
07	225	4.8						
08	220	6.8	---	---	110	2.2	3.3	
09	220	7.6	225	3.4	105	2.7	3.25	
10	225	8.6	220	3.7	105	3.0	3.2	
11	230	8.6	225	4.0	105	3.1	3.2	
12	240	9.2	225	4.2	105	3.2	3.2	
13	235	8.8	220	4.0	105	3.1	3.1	
14	240	8.9	220	3.9	105	3.0	3.25	
15	225	9.1	230	3.4	110	2.7	3.2	
16	220	8.5						
17	210	7.1						
18	215	6.4						
19	225	5.3						
20	250	4.0						
21	280	3.8						
22	300	3.7						
23	290	3.6						

Time: 0.0°.

Sweep: 0.8 Mc to 20.0 Mc in 20 seconds.

Table 14

Point Barrow, Alaska (71.3°N, 156.0°W)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02					(3.0)			
03								
04								
05								
06					(3.6)			
07					(3.9)			
08					(4.0)			
09					(4.8)			
10					(5.7)			
11					(6.0)			
12					6.4			
13					6.8			
14					7.4			
15					7.6			
16					(7.2)			
17					(6.7)			
18					(5.2)			
19					(3.8)			
20					(2.9)			
21					(3.3)			
22					(3.6)			
23					--			

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Baker Lake, Canada (64.3°N, 96.0°W)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9						
01	270	3.3						
02	280	3.7						
03	280	3.3						
04	290	3.3						
05	300	3.2						
06	300	3.3						
07	310	3.5	---	---	130	1.9	5.0	2.8
08	310	3.9	---	---	120	2.2	4.4	3.0
09	300	4.4	270	---	120	2.8	4.9	3.0
10	280	5.2	270	3.9	120	2.8	3.9	3.05
11	300	6.2	250	3.9	120	3.0	3.2	3.0
12	280	6.6	260	4.0	125	3.1	3.2	3.0
13	280	7.2	260	4.0	120	2.9	3.1	3.0
14	280	7.9	250	3.6	120	2.8	3.0	2.9
15	270	7.1	260	3.4	130	2.6	2.8	3.0
16	250	6.7	---	---	125	2.5	3.6	3.0
17	270	5.8			130	2.1	4.4	3.0
18	270	5.0			125	2.0	5.0	2.9
19	280	4.4			125	2.0	4.1	3.0
20	270	4.6			130	1.5	5.0	3.0
21	270	4.2			120	1.3	5.0	3.0
22	270	4.2			115	1.4	6.5	2.9
23	270	4.0			120	1.2	5.6	3.0

Time: 90.0°W.

Sweep: 0.6 Mc to 15.0 Mc in 16 seconds.

Table 18

Baquio, P. I. (16.4°N, 120.6°E)								February 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	9.2						
01	220	7.4						
02	220	6.4						
03	220	5.3						
04	230	3.9						
05	250	3.6						
06	280	3.5						
07	250	7.2						
08	240	9.6	240	---	111	3.0		
09	280	11.4	230	---	111	3.4	4.1	3.05
10	300	12.8	220	---	111	3.7	4.5	2.90
11	300	12.7	210	---	109	3.9	5.2	2.65
12	---	11.6	210	---	109	(3.9)	4.6	2.50
13	(320)	11.3	200	---	(110)	(3.8)	5.5	2.40
14	---	11.7	210	---	111	3.7	5.1	2.40
15	---	12.0	220	---	111	(3.4)	4.7	2.50
16	240	12.1	230	---	---	3.0	4.7	2.65
17	250	12.3			119	2.6	3.8	2.70
18	260	11.7						
19	290	11.2						
20	270	11.1						
21	240	11.2						
22	230	11.4						
23	220	10.2						

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

Watheroo, W. Australia (30.3°S, 115.9°E)							February 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.7			3.6	2.9		
01	270	5.8			3.4	2.9		
02	250	5.2			3.4	3.0		
03	250	4.5			2.8	3.0		
04	270	4.3			2.6	2.9		
05	270	4.3			2.2	2.8		
06	270	4.6			1.7	1.9	3.1	
07	250	6.4	250	3.8	2.5	2.7	3.1	
08	290	7.1	230	4.5	3.1	3.7	3.1	
09	315	7.5	230	4.8	3.5	3.9	2.9	
10	350	8.0	220	5.3	3.6	4.3	2.9	
11	345	8.5	210	5.4	3.7	4.4	2.8	
12	350	8.8	210	5.4	3.8	4.3	2.8	
13	350	9.4	230	5.5	3.8	4.2	2.8	
14	350	9.2	240	5.4	3.7	4.3	2.85	
15	340	9.1	240	5.0	3.6	4.2	2.9	
16	310	8.5	240	5.0	3.5	3.9	2.9	
17	300	8.5	250	4.5	3.2	3.9	3.0	
18	260	7.9	240	3.7	2.5	3.6	3.15	
19	250	7.0			1.6	3.1	3.1	
20	250	6.8			3.2	3.1		
21	250	6.6			3.2	2.9		
22	270	6.0			3.0	2.9		
23	290	6.0			2.8	2.8		

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 21

San Francisco, California (37.4°N, 122.2°W)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(275)	(3.2)			2.9	(2.90)		
01	(260)	(3.3)			2.9	(3.00)		
02	(255)	(3.1)			2.6	(3.10)		
03	(250)	3.1			2.4	3.00		
04	(240)	(3.0)			2.6	(3.00)		
05	(265)	(2.9)			3.0	(2.80)		
06	(260)	(3.0)			2.6	(2.95)		
07	250	(3.8)			2.4	(3.10)		
08	225	6.5	---	---	1.9	3.45		
09	230	7.6	225	---	(118)	(2.6)	3.40	
10	245	(8.4)	220	(4.5)	<115	(2.9)	(3.25)	
11	255	10.0	225	(4.5)	(115)	(3.1)	3.3	3.15
12	250	(10.0)	220	(4.5)	(115)	(3.2)	(3.25)	
13	245	(9.8)	215	(4.4)	(115)	(3.2)	3.4	(3.15)
14	250	9.3	220	(4.2)	(115)	(3.1)	3.1	3.10
15	240	9.4	225	(3.7)	(115)	(2.9)	3.0	3.20
16	225	8.7	240	---	(119)	(2.4)	2.4	3.30
17	215	7.1	---	---	2.0	3.30		
18	220	(5.8)			2.8	(3.25)		
19	225	(4.4)			2.8	(3.30)		
20	(230)	3.0			2.7	3.25		
21	(250)	(2.6)			3.0	3.00		
22	275	(2.8)			2.8	2.95		
23	(265)	(3.0)			2.9	(2.90)		

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Watheroo, W. Australia (30.3°S, 115.9°E)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.1			3.6	2.7		
01	280	6.0			3.8	2.7		
02	270	5.2			3.6	2.8		
03	270	5.0			3.6	2.8		
04	290	4.4			3.2	2.7		
05	280	4.2			1.0	2.0	2.7	
06	270	4.7	270	3.6	2.1	2.1	2.9	
07	340	5.8	240	4.0	2.7	3.7	2.95	
08	350	6.1	230	4.6	3.2	4.3	2.9	
09	390	6.3	220	4.9	3.5	4.2	2.7	
10	380	7.2	220	5.2	3.7	4.3	2.7	
11	370	7.6	220	5.2	3.8	4.6	2.7	
12	380	7.8	220	5.1	3.9	4.5	2.7	
13	390	7.8	220	5.2	3.8	4.4	2.7	
14	370	8.0	230	5.1	3.8	4.4	2.7	
15	360	8.0	220	5.0	3.7	4.2	2.8	
16	340	7.6	230	4.8	3.5	3.9	2.8	
17	320	7.2	240	4.5	3.1	3.9	2.8	
18	290	7.1	250	3.8	2.6	3.8	2.9	
19	270	7.0	---	---	1.9	2.1	2.9	
20	260	7.0	---	---	---	2.8		
21	280	6.8			1.8	2.7		
22	290	6.6			2.0	2.6		
23	300	6.2			3.5	2.7		

Time: 120.0°W.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 20

Lulea, Sweden (65.6°N, 22.1°E)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	---						2.7
01	310	---						2.5
02	300	---						2.6
03	300	(2.0)						2.5
04	290	---						2.4
05	280	(2.2)						
06	300	(2.4)						2.0
07	290	---						
08	260	3.0						1.7
09	230	4.8						
10	225	6.0						
11	230	6.6						
12	215	6.8						
13	210	7.0						
14	220	6.2						
15	210	5.5						
16	230	4.8						
17	235	(4.0)						1.8
18	250	3.3						
19	280	---						
20	(295)	---						2.3
21	(300)	---						2.5
22	(315)	---						2.5
23	(310)	---						3.2

Time: 15.0°E.

Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 22

Baguio, P. I. (16.4°N, 120.6°W)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	6.7						3.10
01	240	6.0						3.20
02	230	5.6						3.20
03	230	4.4						3.15
04	250	3.4						3.10
05	270	3.1						3.00
06	270	3.2						2.85
07	250	6.8	235	---	111	2.8	3.7	3.15
08	280	9.7	230	---	109	(3.2)	5.0	3.20
09	280	11.6	230	---	109	(3.4)	6.0	2.95
10	280	12.1	210	---	109	(3.6)	6.4	2.65
11	290	11.6	210	---	109	(3.6)	6.4	2.65
12	340	11.9	200	---	109	(3.6)	7.0	2.50
13	(300)	11.2	200	---	(115)	(3.5)	6.1	2.50
14	(310)	11.2	210	---	111	3.4	5.0	2.60
15	(300)	11.0	220	---	111	3.3	4.8	2.65
16	240	11.7	230	---	115	2.9	4.0	2.75
17	250	11.7			116	2.2	3.3	2.90
18	250	11.5						3.00
19	240	11.0						2.95
20	240	10.6						3.00
21	230	10.3						3.1
22	210	9.2						3.20
23	220	7.6						1.9

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 24

Buenos Aires, Argentina (34.5°S, 58.5°W)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	9.2						4.8
01	280	8.6						3.8
02	260	8.4						3.6
03	270	7.4						3.1
04	280	7.2						2.7
05	270	6.8						1.6
06	240	7.7	---	---	100	2.4	3.8	2.8
07	270	8.2	220	---	100	3.0	4.0	2.9
08	300	8.6	210	---	---	---	5.4	2.8
09	320	9.2	200	---	---	---	5.0	2.6
10	370	10.1	200	---	---	---	4.3	2.5
11	370	11.2	200	---	---	---	4.3	2.6
12	360	11.6	200	---	---	---	4.8	2.8
13	360	11.5	2					

Table 25

Christchurch, New Zealand (43.6°S, 172.0°E)							January 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.5				3.0	2.7	
01	280	5.7				3.7	2.7	
02	(290)	5.4				3.6	2.7	
03	280	4.9				3.8	2.7	
04	(280)	4.8				3.4	2.7	
05	(280)	4.8				1.4	2.9	
06	300	5.3	260	3.8		2.3	-	3.0
07	310	6.0	260	4.3		2.8	4.6	3.0
08	330	6.7	240	4.7		3.2	6.4	2.9
09	350	7.2	---	4.9		3.3	5.5	2.9
10	340	7.2	---	5.0		3.5	5.6	2.9
11	340	7.4	220	5.1		3.6	5.0	2.9
12	340	7.1	220	5.2		3.7	-	2.8
13	370	6.8	220	5.2		3.7	-	2.8
14	360	7.2	220	5.1		3.6	-	2.8
15	360	7.1	240	5.0		3.5	-	2.8
16	360	7.0	240	4.8		3.3	-	2.8
17	320	7.5	250	4.4		3.0	5.0	2.8
18	300	7.7	250	3.8		2.5	5.0	2.9
19	270	7.6	270	2.8		1.8	-	2.9
20	270	7.4				---	4.1	2.7
21	280	7.4					3.2	2.7
22	280	7.2					3.4	2.6
23	(300)	6.7					3.5	2.6

Time: 172.5°E.

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

Table 27

Christchurch, New Zealand (43.6°S, 172.0°E)							December 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.4				2.8	2.7	
01	290	7.0				2.4	2.7	
02	280	6.2				2.7	2.7	
03	270	5.7				2.4	2.8	
04	280	5.3				---	2.8	
05	280	5.7	270	3.3		1.9	2.9	
06	300	6.4	250	4.1		2.5	3.0	
07	300	6.8	240	4.4		2.9	4.7	3.05
08	310	7.0	230	4.7		3.2	5.4	3.0
09	320	7.8	---	4.9		3.4	5.5	2.9
10	350	7.6	210	5.2		3.5	5.9	2.9
11	340	8.0	220	5.2		3.5	5.5	2.9
12	360	8.0	220	5.2		3.5	5.0	2.8
13	360	7.8	220	5.2		3.5	4.5	2.8
14	350	7.7	220	5.2		3.5	4.4	2.8
15	350	7.8	240	5.2		3.5	4.2	2.8
16	340	7.9	240	4.8		3.3	-	2.8
17	330	8.2	260	4.6		3.0	4.6	2.8
18	310	8.5	250	4.0		2.5	5.0	2.8
19	270	8.6	---	---		1.7	4.3	2.8
20	270	8.5					4.2	2.8
21	280	8.1					4.3	2.7
22	280	8.2					3.6	2.7
23	290	7.9					2.9	2.6

Time: 172.5°E.

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

Table 29*

Slough, England (51.5°N, 0.6°W)							November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	3.1				2.4	2.65	
01	295	3.2				2.6	2.65	
02	285	3.1				2.6	2.65	
03	285	2.8				2.6	2.65	
04	285	2.5				2.6	2.75	
05	270	2.5				2.8	2.85	
06	270	2.4				2.6	2.9	
07	245	3.8	(150)	(1.5)		2.7	3.0	
08	230	6.2			135	1.9	3.2	3.35
09	230	7.6	220	(3.5)	125	2.3	3.9	3.35
10	235	8.2	220	3.6	120	2.6	4.0	3.3
11	235	8.9	220	3.8	125	2.8	3.8	3.25
12	235	8.9	220	3.7	125	2.8	4.1	3.25
13	235	8.6	225	3.6	125	2.7	3.9	3.2
14	235	8.7				2.5	3.6	3.25
15	230	8.5				2.1	3.6	3.3
16	220	7.4			145	1.7	3.2	3.25
17	225	6.1				3.0	3.15	
18	235	5.3				2.9	3.1	
19	240	4.0				2.4	3.0	
20	265	3.4				2.2	2.9	
21	295	3.0				2.3	2.75	
22	315	3.0				2.2	2.7	
23	305	3.0					2.65	

Time: 0.0°.

Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.

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

Table 26

Nairobi, Kenya (1.3°S, 36.0°E)							December 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	>0.9						2.8
01	250	>8.4						2.9
02	270	>7.8						2.9
03	250	7.6						3.1
04	230	6.2						<3.2
05	230	5.0						3.2
06	240	4.0						3.0
07	250	6.3	250	---	130	2.1	2.7	
08	270	7.7	230	4.5	110	2.9		3.0
09	300	9.0	220	5.0	110	3.3		2.8
10	320	9.4	210	5.0	110	3.6		2.55
11	350	10.0	200	5.2	110	3.8		2.5
12	400	10.6	200	5.5	100	3.9		2.4
13	410	>11.0	---	(5.2)	110	---		2.4
14	360	(11.7)	---	5.2	110	---		(2.5)
15	340	11.8	200	5.1	110	3.7		2.55
16	320	11.4	210	4.9	110	3.4		2.5
17	(310)	>11.4	230	4.6	110	2.9		2.5
18	(300)	11.4	250	---	120	2.3		2.6
19	300	11.0						2.6
20	350	10.4						2.5
21	340	>10.3						2.6
22	290	11.0						2.8
23	230	9.8						3.2

Time: 45.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 29*

Singapore, British Malaya (1.3°N, 103.0°E)							November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	7.9						2.8
01	250	7.3						2.8
02	255	7.0						2.9
03	250	6.5						3.0
04	250	5.1						3.1
05	245	4.1						3.1
06	270	5.5						3.0
07	245	7.7						2.9
08	8.9	235						2.7
09	9.4	225						2.3
10	10.2	215						2.2
11	10.9	205						2.2
12	10.9	205						2.2
13	11.0	200						2.2
14	11.2	200						2.2
15	11.4	215						2.3
16	11.4	230						2.3
17	245	11.2						2.3
18	295	11.0						2.2
19	345	10.7						2.3
20	340	10.6						2.4
21	290	11.3						2.6
22	240	11.6						3.1
23	220	8.9						2.9

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 31

Townsville, Australia (19.3°S, 146.7°E)								November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	260	(9.6)				3.7	(3.1)		
01	250	>8.4				3.6	(2.9)		
02	260	>6.8				3.1	(2.9)		
03	255	7.7				3.1	(3.0)		
04	250	6.7				2.6	3.0		
05	250	>6.0				2.6	3.0		
06	240	6.2			130	2.1	3.1	3.25	
07	260	7.0	230	(4.2)	110	2.7	4.0	3.2	
08	300	7.4	220	4.8	110	3.2	4.9	3.1	
09	310	8.1	220	5.0	100	3.4	5.6	2.65	
10	330	9.5	210	5.1	110	3.5	5.0	2.8	
11	340	10.6	200	5.2	(110)	3.7	5.7	2.8	
12	325	11.6	200	5.1	110	3.7	4.0	2.8	
13	315	11.7	200	5.1	110	3.7	4.0	2.9	
14	310	11.6	210	5.0	110	3.6	5.2	2.9	
15	300	11.5	225	4.9	110	3.6	5.7	3.0	
16	300	11.0	250	4.7	110	3.2	5.4	3.0	
17	290	>10.0	---	4.3	110	2.7	5.0	3.0	
18	260	>9.4	---	---	---	4.0	(3.0)		
19	250	(9.2)	---	---	---	3.7	(3.0)		
20	285	>9.0	---	---	---	3.6	---		
21	300	(8.8)	---	---	---	3.0	(2.8)		
22	295	>9.2	---	---	---	3.2	---		
23	280	>9.4	---	---	---	3.0	---		

Time: 150.0°E,

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

Table 33

Brisbane, Australia (27.6°S, 153.0°E)								November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	260	7.9				4.1	2.8		
01	250	7.0				4.0	2.9		
02	260	5.8				2.9	2.8		
03	270	5.6					2.8		
04	270	5.5					2.8		
05	250	5.9			---	E	3.0		
06	240	6.5	---	3.9	120	2.4	3.6	3.15	
07	265	6.8	230	4.4	110	2.9	4.9	3.0	
08	300	7.5	230	4.6	110	3.2	5.5	2.9	
09	320	8.0	---	5.0	110	3.5	6.0	2.8	
10	320	8.5	210	5.1	110	3.6	6.0	2.7	
11	330	9.0	200	5.1	110	3.7	5.5	2.7	
12	310	9.8	---	5.0	110	3.6	5.8	2.8	
13	320	9.8	200	5.0	110	3.6	5.3	2.8	
14	310	10.0	225	5.0	120	3.5	4.6	2.8	
15	300	9.9	235	4.8	115	3.3		2.8	
16	300	9.7	245	4.5	120	3.0	4.4	2.8	
17	270	9.5	---	---	120	2.6	4.6	2.9	
18	250	8.6	---	---	E	4.1	2.9		
19	250	8.4	---	---	---	4.0	2.8		
20	270	8.0	---	---	---	3.1	2.7		
21	295	8.0	---	---	---	3.2	2.7		
22	295	8.0	---	---	---	3.3	2.7		
23	280	7.9	---	---	---	3.1	2.7		

Time: 150.0°E,

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

Table 35

Hobart, Tasmania (42.9°S, 147.3°E)								November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	280	5.1					2.7		
01	270	4.6					2.7		
02	260	4.4					2.7		
03	250	3.6					2.7		
04	280	3.4					2.7		
05	250	4.0			120	1.6		2.95	
06	240	4.6	---	---	100	2.2		2.9	
07	230	5.4	230	4.0	100	2.7		2.9	
08	350	5.6	220	4.5	100	3.0		2.95	
09	380	6.0	200	4.6	100	3.3		2.8	
10	360	6.4	200	4.7	100	3.4		2.8	
11	370	6.7	200	4.8	100	3.5		2.8	
12	370	7.0	200	4.9	100	3.5		2.8	
13	380	7.0	200	4.9	100	3.5		2.8	
14	350	7.0	200	4.8	100	3.4		2.85	
15	350	7.1	210	4.6	100	3.3		2.9	
16	300	7.0	220	4.5	100	3.0		2.9	
17	230	7.0	---	---	100	2.7		2.9	
18	250	7.3	---	---	100	2.1		2.9	
19	250	7.5	---	---	120	1.6		3.0	
20	250	7.0	---	---	---		2.8		
21	260	6.2	---	---	---		2.75		
22	280	6.0	---	---	---		2.7		
23	300	5.5	---	---	---		2.6		

Time: 150.0°E,

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

Table 32

Rarotonga I. (21.3°S, 159.8°W)								November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	280	(9.0)						3.2	(3.1)
01	250	9.0						2.9	3.05
02	250	7.7						1.8	3.0
03	290	(7.1)						1.8	(2.9)
04	280	(7.0)						1.8	(2.95)
05	270	7.3						1.8	3.0
06	260	8.3	---	---	---	---	1.9	3.0	3.2
07	250	8.5	250	4.2	120	2.8			3.3
08	280	8.7	240	5.0	115	3.2			3.1
09	300	9.5	230	5.2	115	3.5			2.9
10	320	11.1	220	5.5	115	3.6			2.8
11	330	12.4	230	5.5	115	3.8			2.8
12	330	13.4	220	5.5	115	3.8			2.9
13	320	14.0	240	5.5	115	3.8			3.0
14	320	13.7	230	5.5	115	3.7			3.0
15	310	13.3	240	5.2	115	3.5			2.9
16	310	12.6	250	5.3	115	3.2			2.9
17	300	(11.9)	(250)	4.5	115	2.7			(2.9)
18	290	(11.0)	---	---	---	1.7			(2.9)
19	280	(9.3)	---	---	---				3.0
20	280	(9.4)	---	---	---				(2.9)
21	300	(9.2)	---	---	---				3.0
22	310	(9.2)	---	---	---				2.9
23	300	(9.5)	---	---	---				(2.9)

Time: 157.5°W,

Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 36

Christchurch, New Zealand (43.6°S, 172.8°E)								November 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	290	6.0							2.7
01	280	5.7							2.8
02	280	5.3							2.8
03	270	4.5							2.8
04	280	4.4							2.8
05	270	4.4	260	---	---	1.5			3.0
06	290	5.5	260	3.7	230	2.3			3.0
07	310	5.7	250	4.3	220	2.6			3.0
08	310	6.5	240	4.6	210	3.1			3.0
09	320	7.2	220	4.8	210	3.3			3.0
10	340	7.4	220	4.9	210	3.4			2.95
11	330	7.6	220	5.0	210	3.5			2.9
12	320	7.7	230	5.0	210	3.5			2.9
13	320	7.7	220	5.0	210	3.5			2.9
14	330	7.7	220	4.8	210	3.3			2.9
15	320	7.7	230	4.7	210	3.1			2.9
16	320	7.6	240	4.4	210	2.9			2.9
17	300	7.8	260	4.2	210	2.6			2.9
18	280	8.0	270	3.6	210	2.1			2.9
19	270	8.2	---	---	---				2.9
20	270	7.8	---	---	---				2.8
21	270	7.4	---	---	---				2.8
22	280	7.0	---	---	---				2.7
23	280	6.5	---	---	---				2.7

Time: 172.5°E,

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

Table 37*

Inverness, Scotland (57.1°N, 4.2°W)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	295	(3.0)						(2.7)	
01	300	(2.8)						(2.0)	
02	310	(2.7)						(2.7)	
03	310	(2.4)						---	
04	300	(2.2)						---	
05	295	(2.2)						---	
06	275	(2.3)						(3.0)	
07	245	3.9						3.2	
08	235	5.4						3.2	
09	250	6.2	(220)	(3.7)	115	2.4		(3.2)	
10	260	6.9	215	(3.8)	110	2.6		3.2	
11	265	7.2	220	(4.0)	110	2.7		(3.2)	
12	260	7.9	215	(4.0)	110	2.8		(3.2)	
13	265	7.9	215	(3.7)	110	2.7		(3.1)	
14	250	7.7	220	(3.7)	110	2.6		(3.2)	
15	240	7.5	(225)		115	2.4		(3.1)	
16	240	7.0	(235)		125	2.0		(3.2)	
17	230	6.9			(135)	(1.9)		(3.1)	
18	235	6.5						(3.1)	
19	235	6.0						(3.1)	
20	240	(4.9)						(3.1)	
21	255	4.1						(3.1)	
22	280	3.5						(2.8)	
23	295	(3.2)						(2.6)	

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 39*

Singapore, British Malaya (1.3°N, 103.8°E)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	220	7.5						2.9	
01	240	6.6						2.9	
02	245	6.0						3.0	
03	240	4.9						3.1	
04	245	4.1						3.3	
05	245	3.3						3.2	
06	255	5.1						3.1	
07	(255)	8.0	245		125	2.5	3.3	2.8	
08	9.2	230			120	3.0	3.9	2.5	
09	9.8	210			115	3.3	3.6	2.2	
10	(370)	10.4	205		110	3.6	4.5	(2.1)	
11	(365)	(10.7)	205		110	3.7	3.9	(2.2)	
12	(360)	(10.3)	200		110	3.7	4.0	2.2	
13	10.2	200			110	3.7	4.0	2.3	
14	(335)	10.9	200		110	3.5	4.4	2.4	
15	(310)	11.4	210		110	3.2	3.8	2.5	
16	11.4	235			115	2.9	3.7	2.4	
17	250	11.4	245		130	2.3	3.5	2.4	
18	285	11.2						2.4	
19	370	11.0						2.4	
20	310	11.1						3.0	
21	265	11.5						3.3	
22	235	11.8						2.3	
23	210	9.7						3.2	

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 41

Brisbane, Australia (27.5°S, 153.0°E)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	260	5.9						2.9	
01	250	5.5						2.9	
02	250	4.7						2.9	
03	275	4.2						2.8	
04	280	4.4						2.8	
05	260	4.6						2.9	
06	250	6.0						3.2	
07	250	7.0	240	4.0	110	2.6	3.6	3.2	
08	290	7.4	230	4.5	110	3.0	3.6	3.0	
09	290	8.2	220	4.6	120	3.2	3.8	3.0	
10	290	8.5	210	4.8	120	3.3	4.5	3.0	
11	300	8.4	200	4.8	120	3.4	3.8	2.95	
12	300	8.5	200	4.8	120	3.5	3.8	2.9	
13	300	8.5	200	4.6	120	3.4	3.7	2.9	
14	300	8.2	210	4.6	120	3.3	4.0	2.9	
15	295	8.4	220	4.5	120	3.0	3.8	2.9	
16	280	8.5	240	4.1	120	2.8	3.0	3.0	
17	250	8.4	---	---	120	2.2	3.6	3.0	
18	250	8.1						2.9	
19	260	7.3						2.9	
20	275	6.8						2.8	
21	290	6.5						2.8	
22	280	6.4						2.8	
23	270	6.0						2.9	

Time: 150.0°E.

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

Table 38*

Slough, England (51.5°N, 0.6°W)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	295	3.0						2.5	2.7
01	295	3.7						2.6	2.7
02	290	3.7						2.6	2.7
03	295	3.5						2.6	2.75
04	290	3.2						2.6	2.0
05	265	2.8						2.6	2.9
06	255	3.2						2.6	2.95
07	250	5.2	235		3.3	135	1.8	2.8	3.3
08	250	6.3	235		3.6	120	2.3	3.2	3.3
09	255	7.2	230		3.9	115	2.5	3.5	3.2
10	260	7.9	220		4.0	115	2.7	4.2	3.2
11	265	8.1	215		4.2	115	2.9	3.8	3.15
12	265	8.4	220		4.2	115	3.0	3.9	3.1
13	260	8.4	225		4.2	120	3.0	3.8	3.15
14	255	8.5	230		4.0	120	2.8	3.2	3.2
15	250	8.0	235		3.9	120	2.6	3.2	3.15
16	240	7.8	(250)	(3.6)	120	2.1	3.2	3.2	
17	235	7.2							
18	235	6.7							
19	235	6.0							
20	245	4.9							
21	260	4.1							
22	285	3.9							
23	290	3.7							

Time: 0.0°.

Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.

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

Table 39*

Townsville, Australia (19.3°S, 146.7°E)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	260	>7.4						2.1	---
01	250	>6.4						2.0	(3.25)
02	240	>5.8						1.5	(3.0)
03	-	265	>5.0					2.0	
04	270	4.8							2.85
05	285	4.8						2.0	
06	260	>5.7						3.2	
07	250	>8.0	240		4.0	110	2.5		(3.3)
08	275	8.5	220		4.6	105	3.0	4.2	3.3
09	275	9.2	210		4.8	100	3.2	4.0	3.25
10	280	9.0	210		4.8	100	3.4	4.1	3.1
11	290	(9.8)	200		4.8			3.5	4.7
12	300	>10.0	200		5.0			3.6	4.0
13	295	9.8	200		5.0			(3.6)	4.0
14	310	9.4	210		4.9			3.5	4.0
15	310	9.4	205		4.9	100	3.3	4.0	3.0
16	290	9.6	225		4.6	110	3.0	4.2	3.0
17	270	>9.4	240		4.0	110	2.5		(3.15)
18	250	>9.4							
19	250	>7.9							
20	275	>7.8							
21	290	--							
22	290	>8.5							
23	270	--							

Time: 150.0°E.

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

*No observations taken from 18th to 26th, inclusive.

Table 42

Canberra, Australia (35.3°S, 149.0°E)								October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(

Table 43

Hobart, Tasmania (42.9°S, 147.3°E)							October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.5						2.7
01	270	4.0						2.7
02	270	3.6						2.8
03	250	3.2						2.8
04	270	2.8						2.8
05	270	3.1						2.8
06	250	4.2			120	1.8		3.0
07	230	5.0			100	2.4		3.1
08	230	5.6	220	4.1	100	2.0		3.0
09	350	5.9	200	4.5	100	3.1		2.9
10	330	6.3	200	4.5	100	3.2		3.0
11	340	6.6	200	4.6	100	3.3		2.9
12	330	7.0	200	4.6	100	3.4		2.9
13	330	7.0	200	4.6	100	3.4		2.95
14	320	7.0	200	4.5	100	3.2		2.95
15	300	7.0	220	4.5	100	3.1		3.0
16	220	6.0	---	---	100	2.0		3.0
17	240	6.6			100	2.4		3.0
18	250	7.0			110	1.7		3.0
19	250	7.0			---	---		3.0
20	250	6.4						2.9
21	250	5.7						2.8
22	270	5.0						2.7
23	280	4.6						2.6

Time: 150.0°E.

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

Table 45

Delhi, India (20.6°N, 77.1°E)							September 1955	
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	200	4.0						3.25
01	280	3.9						3.25
02	(260)	4.0						(3.40)
03								
04	280	3.6						3.25
05	280	3.8						3.25
06	240	5.4						3.60
07	240	7.1						3.60
08	240	>7.9						3.60
09	260	8.5						3.40
10	200	9.4						3.25
11	280	9.7						3.25
12	280	>10.6						3.25
13	300	11.1						3.10
14	200	11.8						3.25
15	280	12.0						3.25
16	200	11.6						3.25
17	260	10.0						3.40
18	240	9.5						3.60
19	240	8.4						3.60
20	260	6.0						3.40
21	280	4.5						3.25
22	300	4.0						3.10
23	280	3.9						3.25

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 47

Calcutta, India (22.9°N, 88.5°E)							September 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	6.0						2.4
01	240	5.8						3.05
02	230	5.4						3.25
03	210	3.5						3.40
04	250	2.8						3.00
05	270	2.3						2.95
06	240	4.8						3.20
07	250	7.0	230	4.0	105	2.6	3.2	3.25
08	270	9.0	220	4.5	100	2.9	4.0	3.15
09	295	10.0	200	4.6	100	3.1	3.6	3.00
10	320	11.3	200	4.7	100	3.3	4.0	2.75
11	340	12.0	200	5.0	100	3.4	4.0	2.70
12	340	12.0	195	4.9	100	3.5	3.8	2.75
13	310	12.4	190	4.7	100	3.4	3.5	2.80
14	300	12.2	200	4.7	100	3.3	3.5	2.90
15	290	12.1	210	4.5	100	3.1		3.05
16	260	12.0	220	4.3	100	2.9		3.15
17	250	12.0	235	3.6	105	2.3	4.0	3.30
18	230	11.7			115	1.8	3.4	3.30
19	220	11.1					3.1	3.30
20	215	10.0					2.1	3.25
21	245	8.5					1.9	3.10
22	255	7.0					2.1	3.00
23	260	6.5					2.0	2.95

Time: 90.0°E.

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

Table 44*

Falkland Is. (51.7°S, 57.8°W)							October 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300							2.6
01	305							2.6
02	295							2.7
03	275							2.7
04	260							2.8
05	250							3.0
06	230							3.0
07	230	7.0			230	3.4	110	2.5
08	275	7.7	220	(4.2)	110	2.8	4.0	3.1
09	275	8.0	220	(4.6)	110	3.1	4.0	3.1
10	205	8.7	220	4.8	105	3.2	4.2	3.0
11	280	9.8	(215)	4.9	105	3.3	4.2	3.1
12	270	9.6	225	5.0	105	3.3	3.9	3.1
13	270	9.5	220	4.8	105	3.3	4.2	3.1
14	265	9.0	215	4.7	105	3.2	3.8	3.1
15	260	8.4	225	4.4	110	3.0	3.4	3.2
16	250	7.6	230	3.9	110	2.7	>3.1	3.3
17	250	7.5	(235)	(2.9)	120	2.3	>3.1	3.3
18	245	7.4			135	2.0	3.2	3.2
19	245	7.0			(130)	(1.9)	2.3	3.0
20	255	6.7					2.2	2.9
21	270	6.4						2.6
22	275	6.1						2.7
23	295	6.3						2.6

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 46

Ahmedabad, India (23.0°N, 72.6°E)							September 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.8						3.5
01	270	4.6						3.10
02	250	4.5						2.5
03	230	3.8						3.45
04	260	2.8						>2.4
05	285	2.6						3.00
06	250	4.3						2.5
07	250	>7.0			230	3.8	110	2.2
08	260	8.0	215	4.2	107	2.7	4.2	3.30
09	275	8.7	210	4.5	105	3.1	4.6	3.20
10	305	10.0	205	4.7	105	3.3	4.5	2.90
11	335	12.3	200	4.8	105	3.4	5.0	2.85
12	335	13.1	205	4.8	105	3.6	4.3	2.90
13	335	13.6	220	4.8	105	3.5	4.4	2.90
14	315	13.6	220	4.8	105	3.4	4.6	3.00
15	300	>13.9	225	4.6	105	3.2	3.7	3.00
16	270	14.0	225	4.4	110	2.9	4.3	3.15
17	260	13.3	(235)	4.0	110	2.4	3.6	3.15
18	240	13.0						3.25
19	220	11.4						3.2
20	210	8.8						2.4
21	240	7.1						3.2
22	300	5.6						>3.0
23	300	4.6						2.80

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

*Height at 0.83 foF2.

Table 48

Bombay, India (19.0°N, 73.0°E)							September 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								3.35
01								3.20
02								3.10
03								2.80
04								2.85
05								2.65
06	270	4.5						2.65
07	285	5.2						2.65
08:30	300	6.4						2.65
09	360	7.1						2.65
10	360	7.9						2.65
11	390	9.0						2.65
12	420	9.8						2.55
13	420	1						

Table 49

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	6.3					3.00	
07	360	7.8					2.80	
08	400	8.8					2.60	
09	440	8.2					2.50	
10	440	>8.1					2.50	
11	480	8.1					2.30	
12	470	8.5					2.35	
13	440	>8.6					2.50	
14	440	8.8					2.50	
15	440	9.2					2.50	
16	400	>9.5					2.60	
17	400	>10.2					2.60	
18	400	10.4					2.60	
19	360	>9.1					2.80	
20	360	8.2					2.80	
21	360	>8.0					2.80	
22	---	>6.2					----	
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 51

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	8.8					3.3	
01	220	7.0					3.4	
02	220	5.0					3.5	
03	230	4.0					3.4	
04	230	3.0					3.5	
05	230	2.6					3.5	
06	240	5.2					3.4	
07	260	7.7	220	---	105	2.6	6.0	3.2
08	295	8.9	200	---	---	10.0	2.8	
09	315	8.6	190	---	---	11.0	2.5	
10	340	7.8	180	4.7	---	12.0	2.5	
11	350	8.0	180	4.9	---	12.0	2.5	
12	350	8.1	180	4.8	---	12.0	2.6	
13	340	8.6	180	4.9	---	12.0	2.6	
14	320	9.3	190	---	105	12.0	2.6	
15	300	9.8	200	---	105	10.6	2.7	
16	290	10.3	210	---	105	3.0	8.3	2.8
17	240	10.4	230	---	105	2.3	6.4	2.8
18	260	10.2					2.7	
19	300	9.3					2.7	
20	280	9.6					2.85	
21	240	9.4					3.1	
22	240	8.6					3.2	
23	235	8.8					3.2	

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 53*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.5					2.6	
01	315	3.5					2.6	
02	300	3.6					2.7	
03	290	3.5					2.8	
04	260	3.7					3.0	
05	245	3.2					3.1	
06	225	4.3			165	1.5	2.2	3.3
07	220	5.3			130	1.9	3.1	3.7
08	230	6.0	225	3.6	120	2.4	3.6	3.5
09	245	6.7	220	(3.8)	115	2.7	5.4	3.4
10	250	6.6	225	4.2	110	2.9	5.6	3.3
11	255	7.4	205	4.4	(110)	3.0	5.2	3.3
12	260	7.8	210	4.5	110	3.0	5.2	3.3
13	255	7.3	215	4.4	110	3.0	5.2	3.4
14	245	7.0	220	4.2	115	2.9	5.4	3.5
15	245	6.9	220	3.8	115	2.7	4.3	3.4
16	240	6.5	225	3.2	120	2.3	3.4	3.5
17	230	6.2			135	1.8	2.9	3.5
18	225	5.3					2.5	3.4
19	240	4.5					2.1	3.1
20	245	4.0					3.0	
21	285	3.6					2.8	
22	305	3.5					2.7	
23	320	3.5					2.6	

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 50

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	6.0						3.00
07	360	8.0						2.00
08	400	8.8						2.60
09	400	8.8						2.60
10	400	8.6						2.60
11	440	8.3						2.50
12	440	8.4						2.50
13	440	8.6						2.50
14	440	9.6						2.50
15	400	10.0						2.60
16	400	10.1						2.60
17	400	10.5						2.60
18	400	9.6						2.60
19	380	9.4						2.70
20	360	8.9						2.80
21	320	8.5						3.00
22	320	7.2						3.00
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 52*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	(8.5)						
01	245	(8.2)						
02	240	6.6						
03	235	5.7						
04	235	4.0						
05	235	2.8						
06	245	6.1						
07	---	7.9	230	---	(130)	(1.8)	6.4	(3.5)
08	---	8.8	220	---	---	3.1	10.0	3.4
09	---	9.2	210	---	---	---	10.0	2.6
10	(355)	8.7	200	(4.8)	---	---	13.0	2.4
11	360	8.1	200	4.9	---	---	13.2	2.4
12	365	8.4	200	4.0	---	---	13.3	2.4
13	350	8.6	200	4.8	---	---	13.6	2.5
14	---	9.1	195	---	---	---	11.1	2.5
15	---	9.2	200	---	---	---	10.4	2.5
16	---	9.4	210	---	(115)	(2.6)	9.2	2.5
17	---	9.4	245	---	(135)	(2.0)	3.8	2.6
18	285	9.5						(2.6)
19	340	(8.4)						(2.4)
20	330	---						---
21	290	---						---
22	270	---						---
23	255	(8.7)						---

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 54*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.6
01	305	3.4						2.6
02	300	3.3						2.6
03	295	3.1						2.7
04	275	3.1						2.8
05	255	2.9						3.0
06	245	3.5	230	2.5				3.2
07	230	4.8	220	2.7	115	1.5		3.5
08	230	5.4	220	3.0	110	1.8		3.6
09	230	5.8			110	2.2	3.2	(3.7)
10	235	>6.0			110	2.5	3.2	(3.5)
11	230	>6.0			110	2.6	3.2	---
12	240	>6.0			115	2.7	3.2	(3.5)
13	240	6.3			115	2.7	---	---
14	245	>6.4			110	2.6	---	---
15	240	6.2			110	2.4		(3.6)
16	240	5.9	230	3.0	110	2.2		(3.5)
17	240	5.6	230	2.8	110	1.9		3.4
18	245	5.4	235	2.5		1.4		3.3
19	240	5.3	235	2.0				3.1
20	250	5.0						3.0
21	265	4.4						2.7
22	280	4.0						2.7
23	285	4.1						2.6

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 55

Lulea, Sweden (65.6°N, 22.1°E)								August 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	265	---							
01	290	(3.9)							
02	290	---							
03	280	---							
04	250	(3.7)	240	3.7	---	1.7	2.2	----	
05	315	3.8	210	3.5	110	2.0	2.3	----	
06	340	4.4	210	3.7	110	2.3	2.3	(3.20)	
07	330	4.6	210	3.8	100	2.5		3.25	
08	345	4.9	210	3.9	100	2.6		3.20	
09	310	5.2	205	4.0	100	2.8	3.1	3.15	
10	300	5.3	200	4.2	100	2.8	3.1	3.20	
11	310	5.4	200	4.2	100	2.5		(3.35)	
12	320	5.3	200	4.2	100	2.6		3.25	
13	300	5.2	200	4.2	100	2.9		3.40	
14	300	5.1	200	4.0	100	2.8		3.25	
15	320	5.0	200	3.7	100	2.7		3.35	
16	290	5.0	210	3.7	100	2.6		3.35	
17	(275)	4.9	220	3.7	110	2.3		3.30	
18	265	4.8	240	3.7	110	2.0	2.4	(3.35)	
19	250	5.0	---	---	---	1.8		----	
20	250	4.9	---	---	---	1.6			
21	250	5.0	---	---	---				
22	250	(4.8)	---	---	---				
23	260	(4.2)	---	---	---				

Time: 15.0°E.

Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 57*

Port Lockroy (64.8°S, 63.5°W)								August 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	330	2.3						2.8	
01	320	2.3						2.8	
02	330	2.3						2.8	
03	325	2.2						2.8	
04	310	2.3						2.9	
05	280	2.3						3.1	
06	270	2.0						3.3	
07	250	2.1						3.3	
08	245	3.4	215	2.3		1.2		3.5	
09	240	4.4	215	2.9		1.8		3.6	
10	235	4.8		3.0		2.2		3.7	
11	235	4.5				2.5		3.7	
12	245	4.9			115	2.4		3.6	
13	240	4.8				2.2		3.8	
14	245	5.0	225	3.0		2.2		3.7	
15	240	4.8	215	2.9		2.0		3.6	
16	250	4.6	220	2.7		1.5	3.1	3.5	
17	245	4.4				2.4	3.4		
18	245	3.2				2.9	3.3		
19	260	2.6				2.4	3.3		
20	315	2.1					2.9		
21	315	2.0				1.3	2.8		
22	340	2.0					2.7		
23	330	2.2					2.7		

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 59*

Port Lockroy (64.8°S, 63.5°W)								July 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
.00	330	2.2						2.9	
01	325	2.3						2.9	
02	325	2.2						3.0	
03	320	2.2						3.0	
04	320	2.2						2.9	
05	310	2.1				1.4		3.1	
06	275	1.8				1.0		3.3	
07	260	1.6						3.4	
08	280	1.7				1.4		3.4	
09	250	3.2	(215)	(2.2)		(1.1)	2.2	3.5	
10	235	3.9	(210)	(2.4)		(1.4)	3.2	3.8	
11	230	4.4	(210)	(2.6)			4.9	3.8	
12	235	4.6	(205)	(2.6)			3.2	3.9	
13	240	4.6				3.1		3.7	
14	235	4.5				2.9		3.7	
15	240	3.9	(230)	2.3		(1.4)	1.4	3.6	
16	245	3.3				2.3		3.5	
17	255	2.6				1.4		3.3	
18	265	2.0				2.2		3.3	
19	310	1.7				1.4		3.2	
20	335	1.6					2.9		
21	345	1.7					2.8		
22	345	1.8					2.8		
23	345	2.1					2.9		

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 56*

Ibadan, Nigeria (7.4°N, 4.0°E)								August 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	300	(5.2)						2.2	(3.1)
01	305	(3.1)						2.6	(3.0)
02	310	2.5						3.3	(2.9)
03	275	2.8						2.4	(3.3)
04	270	(2.1)						3.6	(3.3)
05	260	(1.8)						4.0	(3.3)
06	245	5.0						(130)	1.7
07	280	7.0	225					5.6	3.3
08	305	>8.0	215	(4.3)				7.0	3.1
09	345	8.3	205					10.1	2.9
10	360	8.6	200					12.1	2.7
11	370	8.3	200					12.0	2.5
12	380	8.0	200					11.7	2.5
13	390	7.8	195					12.2	2.5
14	375	7.9	195					10.5	10.6
15	355	8.3	195					10.4	2.5
16	(325)	8.5	195					11.0	2.5
17		8.6	230					2.8	2.6
18	260	8.5						3.8	2.7
19	285	8.0						3.5	2.7
20	280	7.4						3.5	2.9
21	260	6.9						3.4	3.2
22	270	6.2						2.6	3.0
23	290	5.3						2.4	3.1

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 58*

Ibadan, Nigeria (7.4°N, 4.0°E)								July 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	275	(4.6)						2.5	(3.3)
01	265	(4.3)						3.2	(3.3)
02	270	(3.6)						3.1	(3.2)
03	285	(3.0)						3.6	(3.3)
04	275	(2.2)						3.6	(3.3)
05	265	(1.8)						3.8	(3.4)
06	250	5.2						1.7	(3.3)
07	285	6.8	220					3.2	(3.2)
08	315	7.6	210					3.0	3.2
09	340	8.2	205	(4.4)				10.7	2.8
10	370	8.1	205	(4.6)				11.5	2.5
11	390	7.6	200	(4.6)				12.3	2.5
12	400	7.4	195	(4.6)				11.8	2.4
13	395	7.4	195	(4.6)				11.0	2.5
14	395	7.6	195	(4.6)				10.6	2.5
15	355	7.7	195	(4.2)				10.0	2.5
16	330	8.3	200	(4.5)				9.0	2.6
17	(290)	8.4	215					2.8	2.8
18	255	8.4						3.6	2.8
19	270	8.0						3.0	2.8
20	280	7.2						3.5	2.8
21	275	(6.4)						2.6	(3.0)
22	275	(5.8)						2.6	3.1
23	275	(4.8)						2.3	(3.2)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

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

Table 60*

Ibadan, Nigeria (7.4°N, 4.0°E)								June 1955	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	290	5.6						2.4	3.0
01	290	4.8						1.7	3.0
02	295	3.6						2.0	(3.

TABLE 61
IONOSPHERIC DATA

foF2, O.I Mc, May 1956

75°W Mean Time

Station	Washington, D.C.	Lat	38.7°N	Long	77.1°W	Sweep	1.0	Mc to	25.0	Mc in	13.5	sec.	Manual	<input type="checkbox"/>	Automatic	<input checked="" type="checkbox"/>												
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
01		63	59	51	48	45	42	50	49	52	56	64	66	69	71	72	75	71	71	74	72	69	66	62	60			
	F	F	F	F	F	F	F	F	F	F															F J			
02	57	56	53	46	42	45	60	72	76	82	85	93	96	96	96	96	94	95	94	92	92	85	76	72	72			
	F	F	F	F	F	F	F																			F		
03	68	67	64	62	54	49	64	74	75	80	86	94	92	91	92	91	92	92	94	96	96	88	77	72	70			
04	68	64	62	60	52	53	71	89	90	100	90	98	100	102	100	96	94	92	95	100	97	80	77	72				
	F	F	F	F	F	F	F	H	H																			
05	72	67	60	56	58	58	68	78	74	92	95	100	102	100	104	108	108	105	103	98	84	78	76	74				
06	71	64	64	59	55	50	64	72	86	86	90	92	92	94	96	99	93	93	94	92	92	80	75	68				
	F	F	F	F	F	F	F	I A	I A																U F F			
07	66	59	58	56	52	48	59	69	75	78	79	80	85	88	86	86	92	94	96	90	80	74	70	68				
	F	F	F	F	F	F	F										U C U C											
08	66	62	62	61	56	53	59	66	74	80	89	98	94	93	93	92	91	90	90	90	86	78	73	68				
																	U S	U S										
09	67	67	63	62	57	60	80	94	94	101	107	109	111	108	105	106	102	100	102	96	91	85	79	77				
	U C	U C															U S											
10	74	70	67	62	57	59	70	82	87	96	98	102	104	103	100	99	98	96	94	90	85	75	72					
																	H											
11	72	71	70	68	63	62	74	86	97	98	100	100	100	100	98	98	96	96	96	90	86	84	80					
																	I C	U S								U S		
12	72	72	70	70	53	56	53	63	58	62	58	63	60	62	63	63	64	64	64	66	73	71	59	49				
	U S				F U P	F U F	U F																		U S F	F		
13	43	42	43	36	29	35	43	70	72	70	76	80	82	80	78	78	78	79	76	74	77	78	74	70				
	U F	F	F	U F	U F	F	F	F	F	F	F	F	F	F	F	F	U S	U S	U S	U S	U S	U S	U S	U S				
14	66	58	56	51	43	45	52	56	59	60	59	66	64	70	70	73	74	74	73	71	64	67	69					
	U P	F	J F	U P	F	J F	U F	U P	U P	U S							E G E G	E G E G	E G E G	E G E G	E G F	F F	F F	F F				
15	66	63	54	36	29	26	46	49	49	51	53	55	55	58	58	62	63	65	63	64	64	66	59	64				
	F	F	J F	U F	F	F	E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G F	F F	F F	F F					
16	45	30	26	30	28	38	36	38	41	44	45	45	46	48	48	47	43	50	50	38	25	26	29	26				
	U F	F	J F	U F	F	F	E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G F	F F	F F	F F					
17	22	23	25	24	29	31	37	39	44	45	46	47	47	48	48	48	49	50	52	53	53	52	54	49	45			
	F	F	F	F	F	F	E G	C	C																			
18	42	43	39	35	24	29	44	52	51	50	53																	
	I C																											
19	64	60	58	57	52	58	55	73	97	92	98	93	96	90	92	90	90	92	97	90	86	83	79	69				
20	65	65	62	55	49	47	56	47	52	52	57	55	59	62	65	67	69	71	72	72	71	70	66	65				
	C	C	C	F																								
21	56																											
22	65	58	48	50	44	48	55	64	64	62	74	71	72	75	72	76	73	72	74	74	73	70	64	62				
	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F				
23	59	56	55	54	51	52	64	75	95	73	53	99	95	99	95	98	95	96	90	101	102	96	68	64				
	F	F	F	F	U F	F	E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E I F	F I	F I	F I	F I	F I	F I	F I				
24	43	30	32	21	27	21	40	40	41	41	45	45	45	46	45	45	45	47	50	55	54	27	34	32	32	20		
	U F	F	I A	F	J F	F	E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	E G E G	U S	U F	U P	U P	U P	U P	U P	U P				
25	27	22	26	20	15	25	23	42	44	44	50	51	54	51	54	55	56	56	56	54	54	54	52	52	52	52		
26	58	52	45	42	46	25	50	50	44	62	70	71	72	72	72	72	72	72	72	72	72	72	72	72	72	J		
	F																											
27	54	48	45	38	24	40	52	57	52	52	61	66	70	72	72	72	72	76	79	77	74	75	64	64	62			
28	52	55	55	54	42	41	34	31	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	50	
																											U A U A	
29	57	54	50	43	47	50	44	74	25	50	22	20	21	22	27	24	20	20	20	20	20	20	20	20	20	20	66	
30	58	52	52	52	54	48	50	53	49	51	48	54	56	54	56	56	52	52	52	52	52	52	52	52	52	52	62	
31	52	56	49	46	42	44	57	54	54	70	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	74	
MED	53	59	54	50	45	47	56	64	64	65	73	72	72	72	72	78	78	72	81	77	84	78	74	68	65			
NO	21	30	30	30	21	31	31	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	

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

TABLE 62
IONOSPHERIC DATA

foF₂, 0.1 Mc, May 1956

75°W Mean Time

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

	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2300		
01	61	57	51	48	43	45	50	51	59	60	63	67	70	71	75	73	71	72	71	66	64	60	59	F		
	F			F	F		F																	F		
02	56	53	48	44	39	56	69	75	78	84	90	95	96	94	94	96	94	94	92	88	78	74	70	72		
	F			F		F																				
03	68	66	63	58	50	55	66	75	80	85	89	94	92	92	92	90	92	92	94	92	80	76	71	68		
04	68	64	64	57	51	59	78	91	94	92	92	100	100	100	98	96	92	93	96	94	82	78	77	72		
	F	F																								
05	68	63	58	57	58	61	70	84	86	95	97	102	100	102	108	108	106	104	103	92	78	78	74	72		
06	69	64	63	57	53	55	67	79	88	92	94	90	94	94	100	97	91	94	94	88	76	72	67			
																						F	F	U J		
07	62	59	57	54	49	50	64	72	75	80	81	83	90	85	88	88	96	97	94	88	72	70	68	67		
	F	F	F	F																						
08	59	60	60	59	56	53	62	69	80	85	90	96	93	93	94	92	92	91	90	90	80	75	72	66		
																						U S	U J	U S		
09	68	68	64	57	57	74	85	93	101	103	107	112	109	107	107	102	101	104	96	92	88	83	78	77		
10	72	68	64	59	58	67	77	85	87	92	98	100	103	105	100	98	98	95	96	88	80	74	72			
11	71	70	70	64	60	67	78	91	100	97	100	100	100	100	100	98	98	98	96	97	84	85	80	80		
																						U S				
12	72	66	68	65	56	61	59	63	62	61	61	62	60	63	61	63	62	66	66	72	73	63	54	44		
	U A	J S	F	F								I C										U J	U S	U F		
13	38	44	42	32	32	39	54	69	70	72	76	78	78	80	80	80	80	78	78	77	80	78	70	70		
		F	F	F	F	F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U F	U S	U S	U S	U J	U S	U S	U S		
14	64	58	52	47	42	45	52	56	58	64	59	64	66	71	70	72	72	72	72	73	72	66	69	48		
	F	E	E	F	E	G	E	G	E	G	E	E	E	E	E	E	E	E	E	E	E	J				
15	62	65	46	31	33	40	47	44	46	53	53	63	58	62	62	63	64	63	63	64	64	66	58	51		
	I F	F	F	E	G	E	G	E	G	E	G	E	E	E	E	E	E	F	F	F	F					
16	31	31	31	29	29	34	37	42	43	45	46	45	45	47	48	48	46	45	49	46	30	25	25	27	25	
	F	F	F	F	F	F	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	F	F					
17	23	22	25	25	29	34	39	40	45	47	47	47	48	49	47	51	52	52	54	54	52	52	46	45		
	F	F	F	F	F	F	C	C																		
18	44	40	37	35	34	43	50	55	62	63			67	69	72	70	71	75	76	75	76	74	67	64		
19	62	59	57	55	50	62	76	88	96	93	92	86	87	90	90	90	88	90	88	88	82	82	73	69		
							F	F	F	F	F						I C									
20	66	64	58	51	48	50	52	49	56	57	70	72	67	68	72	76	79	86	88	80	75	63	64	60		
	C	C	C	F	F													F	F							
21	52				31	44	53	54	51	54	54	58	62	66	66	70	70	74	74	72	72	68	64	64		
22	64	56	52	47	44	53	56	63	66	70	74	72	76	76	78	77	72	76	74	76	76	76	68	62	60	
	F	F	F	F	F	F	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	U J				
23	56	55	55	52	49	62	71	76	80	86	90	88	98	96	92	86	82	86	97	100	105	80	66	54		
	F	F	F	F	F	F	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	U F	U F	U F	F	U J				
24	39	27	30	33	30	35	34	40	42	44	45	45	46	45	44	47	55	58	50	45	36	25	27	20		
	F	I A	F	F	F	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	E G	J				U F				
25	26	28	30	26	38	35	38	41	42	44	45	47	51	47	55	55	58	61	64	69	76	68	68	56		
26	54	52	45	40	36	45	56	60	62	70	71	74	72	76	78	84	84	88	90	82	76	68	65	56		
												H									F					
27	49	48	41	37	34	48	53	54	57	57	60	64	69	72	72	75	76	80	80	85	70	67	64	58		
28	57	55	48	45	40	44	49	54	56	55	60	60	61	66	64	66	68	68	70	71	72	62	60	58		
	I C	52	49	49	47	57	71	80	80	80	83	80	86	86	88	90	90	96	100	91	84	72	64	57		
29	57											F	E G													
30	61	59	55	53	49	49	52	50	50	52	49	56	58	54	56	56	56	63	63	67	64	64	57			
												J						J				U S	U S			
31	55	50	48	42	41	51	58	64	70	70	76	72	74	72	70	72	74	75	78	80	82	74	74	72		
MED	61	58	52	48	44	50	56	63	66	70	75	73	74	76	78	77	80	83	80	80	76	70	67	60		
NO	31	30	30	30	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31		

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

TABLE 63
IONOSPHERIC DATA

foFI, 0.1Mc, May 1956

Station Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep I.O Mc ta 25.0 Mc in 13.5 sec. Manual Automatic

75°W Mean Time

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
01							L	L	450	490	500	520	530	530	520	510	480	L	L													
02							Q	L	L	L	L		H	U A	L	L	L	L	L													
03							L	L	L	L		500	550	490																		
04							L	L	L	U L	H	H	H	H			L	L	L													
05										500	560	500	500	500	490																	
06										500	570	520	550	560	540			L	L	L												
07											L	L	L	L				A	L	A												
08											Q	A	A	U L	H	H	H	H U H	U C	L	L											
09												550	570	570	540	550	580	560	470													
10												L	L	L	U L	H	U L	U H	L	L	L											
11												560	520	530	520	530	520															
12												Q	L	A	L	L																
13													560	520	530	520	530	520														
14													L	L	U L	U F	F	F	U H	U F	U F	H	U H	L								
15													480	440	470	490	500	500	500	490	490	460	450	370		Q						
16														270	380	410	440	450	450	460	480	480	470	430	400	370						
17														350	390	430	460	460	470	480	480	480	460	460	450	440						
18														440	440	480	500	530		C	C	H		L	Q							
19															480	500		520	530	580	560	560	520	540								
20															U L	F	F							L	Q							
21																380	440	460	480	480	500	520	520	500	470			L				
22																L	L	H	H	U L	H		H	L	L							
23																	500	520	530	550	540	540	540	500	480							
24																	270	350	400	410	430	440	450	450	440	420	420	340		Q		
25																		F	H	H	H	H			L							
26																		360		480	500	520	540	520	520	520	490			L	L	
27																		Q	H	H	H	H	H									
28																		360	430	450	480	490	520	520	500	470	450					
29																		Q	H	H	H	H	H	H	H	L	Q					
30																		400	430	440	470	480	480	500	490	480					380	
31																		L	L	520	490	500	540	500	520	480	470					
MED																		370	430	450	480	500	520	530	520	520	480	440	380			
NO																		1	13	12	19	25	23	25	29	29	31	28	21	13	6	

TABLE 64
IONOSPHERIC DATA

foE, O.I Mc, May 1956

75°W Mean Time

Station Washington, D.C. Lat. 38.7°N Lang. 77.1°W Sweep 1.0 Mc ta 25.0 Mc in 13.5 sec. Manual Automatic

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
01							220	270	310	330	350	360	360	360	360	330	320	290	220										
02							H	200	250	300	320	A	A	A	A	A	A	A	A	A	A	A	A						
03									A	A	A	H	A	A	U	A	U	A											
04								B	A			330	A	A	A	U	A	H											
05									B			270	320	340	360	370	360	350	360	360	340	300	230						
06											220	280	310	A	A	A	A	A	H										
07											200	260	290	A	A	340	390	380	380	360	320	260							
08											B	270	I A	I	H	H	A	A	A	A	U C								
09												270	310	330	370	390	400					300	240						
10												H	U A	U A	U A	U C	A I R	U H	I A	H	H	H	U A						
11												250																	
12												230	A	U A	C	A	A	A	A	A	A	A	U R	U A					
13												220	280	310	320	340	360	380	390	380	360	330	300	A					
14												A	A	U A	U A	U A	R	R	A	R	U H	U H							
15												330	340	360									360	340	290	250			
16												240	290	320	340	350	I A	U R	U A	U A	370	370	370	350	360	290	250		
17												230	270	310	330	380	370	370	360	360	340	320	300	250					
18												240	290	320	390	360	H	C	C										
19												240	290																
20												H	U A	H	380	380	390	390	350	U A	A	A	H	B	B				
21												H	240	290	320	330	370	380	380	370	370	350	340	300	240				
22												A	280	320	340	350	350												
23												A	U A	A	A	A	A	370	380	380	370	350	320	290	240				
24												290	190	250	320	310	320	340	340	370	360	360	350	320	280	230	190		
25												250	270	300	340	340	B	A	U P	U A	U A	360	350	340	320	290	250	190	
26												180	240	200															
27												B	240	280	320	320													
28												S	H	H	240	290	320	340	350	370	360	380	380	370	320	280	250		
29												160	250	290	330	340	360	U A	380	390	380	380	350	330	320	290	260		
30												A	H	U A				U S		I A		U P	H	H	C	C	C		
31												230	300	320	340	370	360	350	360	350	350	340	320	300	260	I R			
MED												220	280	330	350														
NO												240	280	320	340	360	370	380	370	380	360	330	300	240					

TABLE 65
IONOSPHERIC DATA

fEs, O.1Mc, May 1956

75°W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
01	S	E	E	E	S	G	G	G	37	40	40	40	38	36	35	31	G	17	S	37	40	36				
02	76	54	32	23	26	16	30	44	60	37	35	38	47	52	54	49	45	45	43	30	23	Y	S	S		
03	E	S	S	S	Y	16	30	22	68	39	40	44	37	43	41	88	40	G	41	25	19	32	S	S		
04	40	39	32	19	14	S	24	43	37	46	45	48	38	35	G	48	64	32	48	19	S	E	E	S		
05	S	S	E	E	E	C	B	31	44	44	42	40	42	42	48	56	40	31	29	19	16	S	S			
06	S	E	S	29	45	14	47	43	54	59	52	52	37	60	42	G	G	G	39	48	46	S	S	S		
07	B	E	E	S	S	16	38	38	35	45	36	36	G	40	50	39	60	84	74	31	16	E	17	60		
08	35	52	68	43	64	36	45	72	104	47	49	33	G	52	42	49	43	G	25	17	E	S	S	24		
09	23	S	S	S	E	S	25	37	47	80	47	48	38	G	40	64	37	46	41	17	25	33	S	S		
10	36	S	S	S	S	S	35	46	52	48	46	45	52	45	39	88	29	24	26	17	S	E	S	S		
11	S	S	E	Y	Y	34	23	29	19	62	70	46	47	48	42	38	40	49	64	64	74	74	29	S	S	
12	S	S	S	S	S	B	35	79	48	C	Y	45	53	37	46	H	52	39	37	G	26	22	S	S	S	
13	S	H	S	S	S	C	24	80	70	H	H	71	44	44	40	G	G	G	G	36	42	19	47	Y	Y	
14	Y	Y			S	Y	24	41	52	44	47	Y	6	G	58	G	Y	G	G	18	S	S	S	S	S	
15	S	E	E	E	Y	G	H	Y	G	G	G	45	40	G	G	G	G	G	G	S	S	S	S	S		
16	S	B	12	43	16	G	G	G	35	G	37	G	37	50	G	G	G	G	B	S	S	S	S	S		
17	S	S	S	S	C	C	24	G	G	76	37	72	72	76	G	G	68	31	27	C	21	36	S	S		
18	S	S	E	E	S	B	G	47	48	38	C	C	37	40	46	G	33	39	42	43	38	S	S	S		
19	S	15	27	29	11	B	G	50	44	51	38	40	37	37	G	G	33	33	38	S	S	S	C			
20	S	S	E	E	E	20	34	G	G	90	76	40	40	153	54	47	G	G	30	B	S	S	S	S		
21	S	C	C	C	S	C	S	G	G	34	40	44	G	G	G	G	G	G	27	19	37	52	38	30		
22	32	39	43	33	13	16	39	31	44	50	54	68	63	45	G	G	47	64	G	36	40	32	52	40		
23	53	35	30	40	37	40	84	45	106	60	80	74	68	74	40	G	G	G	G	S	S	S	S	S		
24	.S	.S	S	B	S	G	G	50	33	37	35	38	37	G	G	G	G	G	G	S	S	B	B			
25	S	S	58	47	31	20	G	G	32	36	41	54	60	52	49	G	G	G	G	36	G	S	S	S	S	
26	S	E	S	S	S	G	33	50	52	38	48	47	72	47	86	G	G	G	G	38	18	28	27	S		
27	S	30	25	E	S	14	G	31	70	43	47	39	38	40	G	50	30	G	23	13	S	S	S			
28	S	S	S	37	44	12	23	31	50	36	37	37	37	36	34	33	41	34	16	S	S	S	S			
29	S	S	S	S	S	G	26	64	72	38	38	42	40	45	G	G	35	30	G	C	S	38	120	92		
30	78	46	36	S	39	H	18	39	68	57	68	100	55	51	53	47	G	C	C	C	40	59	72	50	37	
31	31	22	60	43	35	B	38	46	66	45	41	72	41	41	G	50	43	44	44	40	U	37	38	8		
MED	36	30	29	29	26	16	24	43	47	45	44	40	40	41	40	39	34	30	27	19	29	32	37	38		
NO	12	17	19	20	19	23	30	31	31	30	31	30	31	31	30	30	30	30	30	28	17	14	11	8		

TABLE 66
IONOSPHERIC DATA

f min, 0.1 Mc, May 1956

75°W Mean Time

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

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

TABLE 67
IONOSPHERIC DATA

h'F2, Km, May 1956

Station Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep 1.0 Mc to 25.0 Mc in 13.5 sec. 75°W Mean Time

Manual Automatic

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
01	280	280	290	290	280	300	270	270	570	490	390	400	400	410	380	340	325	300	270	250	250	280	290	290				
					F				F				L															
02	300	290	270	260	280	250	230	380			320	320	300	305	330	310	310	290	280	260	240	240	250	260	270			
													L															
03	270	270	270	240	240	250	260	260	290		300	320	300	300	340	310	310	310	290	260	250	240	240	270	220			
													U L															
04	300	290	280	240	240	270	290	280	270	270	300	320	330	300	305	305	300	270										
													L	U L														
05	270	280	300	300	280	280	240	260		280	270	320	310	340	330	310	290	260	250	240	230	250	250	260	270			
													H	L														
06	260	280	270	270	250	260	280	280	270	280	310		300	340	310	340	310	290	290	270	260	250	230	250	270			
													L	U L														
07	290	280	280	290	280	300					270	290	300		330	330	310	340	330	330		270	250	220	250	260	290	
													L	U L														
08	290	290	320	300			270	280			320	330	320	310	320	350	340	300	280	270	250	240	250	250	280			
													A	A														
09	290	280	270	250	270	270	250	250	250	250	270	320	280	310	310	320	320	280	260	250	230	250	250	270				
	U A	U S			U C									U A														
10	280	250	270	260	260	260	250	260	250	320	330	330	320	320	320	320	310		L	L		250	230	240	250	270		
													L															
11	280	280	270	250	260	270	240			280	280	330	310	320	340	340	340	320	280	270	260	240	270	270	280			
													L	U L	U L	I C	U S	H										
12	290	300	290	280	280	310				320	470	490	540	640	490	570	490	470	440	430	370	320	280	270	270	290		
	U S	E A	U S	S U S	S U S	S E C								U L														
13	370	400	350	330	370	320	350			310	270	310	340	360	360	360	420	370	340	310	280	270	260	270	300			
	U A	J A	U A	U A	U A					L	L	F	F	U F	U F	F												
14	270	270	270	300	300	270	270			450	470	430	530	420	420	450	410	340	300	270	250	260	310	270	U S			
15	300	280	290	300	340	310	390	490	550	700	660	620	650	570	570	500	450	430	360	290	260	260	300	280				
										G	G	G	G	G	G	G	G	G										
16	340	510	450	430	470	330	310																					
		S	E B	F	E B																							
17	470	420			390	400	340	700			890		G	G	G	G	G		830	620	440		290	270	290	280	290	
													G	L	C	C												
18	310	300	330	330	320	290				410	360	450							440	410	370	410	360	300	270	260	290	250
19	260	280	280	270	270	260				270	290	280		300	320	360	360	330	330	300	270	250	240	260	250	280		
													L															
20	290	290	250	270	270	300					620	420	500	370	420	430	500	400	380	380	280	290	250	250	270	300		
			C	C	C																							
21	290										320	300	350	420	480	610	480	570	550	550	440	460	390	360		270	250	
																											310	
22	280	280	300	300	310	260	260	300	370	380	370				400	410	400	370	350	340	290	280	260	250	270	270		
23	270	300	270	300	300	250	240	290	290	330	330	340		360	305	320	315	310	310	330	300	300	260	280	280			
24	310	360	400	410	330	400	500			G	G	G	G	G	G	G		660	600	470	430	330	350	370	380	B		
			F	A	F	F												630	750	600	500	450	380	320	280	270	280	
25	430	450			310	370	330	530			G	G	G	G	G													
26	300	290	270	300	320	290	360	320			320	350	360	380	380	370	380	340	300	280	250	230	250	270	270			
27	280	300	270	270	290	300	300	340	390	390	440	450	420	390	360	350	330	290	280	260	230	270	270	280				
			H																									
28	290	280	270	250	280	280	360	390	400	460	550	570	490	440	420	390	360	340	290	270	250	250	270	270	270			
29	270	250	270	280	270	270	280	290	300	310	330	380	340	360	350	340	340	320	280	250	230	240						
30	300	290	280	300	300	350	440	370	650	630		580	580	650	480	470			350	310	300	320	320	280				
			I A																									
31	260	270	280	280	290	280	280	290	440	310	350	350	350	350	340	340	320		280	260	260	270	280	270				
MED	290	280	280	290	280	280	320	380	330	380	360	380	380	370	350	335	310	280	260	250	250	270	280					
NO	31	28	28	30	29	30	27	28	26	29	28	29	30	31	31	31	30	27	27	31	31	31	30	29				

TABLE 68
IONOSPHERIC DATA

h'Fl, Km, May 1956

75°W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
01							240	220	210	220	205	200	210	210	230	210	220	225	240														
02							Q		240	240	210	200	290	210	220	205	215	230	240	250													
03							240	250	215	220	230	200	200	200	210	230	230	250	250	250													
04							250	235	215	215	205	195	220	220	225	225	210	230	250														
05							Q		230	220	205	205	205	210	210	220	230	250	250	250													
06							A		240	240	250	215	210	190	210	230	220	225	240	260													
07							255	235	220	205	190	210	210	215	250	215	230	240		A													
08							Q	A	A	215	200	220	200	220	200	220	215	230	250														
09							245	225	215	210	210	205	210	205	225	210	235	250		A													
10							Q	I	230	220	215	200	200	205	200	210	225	220	230	250													
11							Q		230	215	205	210	205	200	200	220	220	220	220	A	A	A											
12							240	235	235	210	205	220	220	230	220	220	225	225	260														
13							270	235	210	215	200	200	210	220	210	230	230	240	250														
14							210	230	220	190	195	200	200	215	210	230	230	230	250														
15							235	240	220	185	215	210	220	230	225	220	230	240	240	Q													
16							250	230	240	235	235	220	250	215	210	225	235	235	275														
17							280	250	220	220	200	205	200	210	225	220	240	235	260														
18							250	225	230	215	200		C	C		230	215	210	225	230	250	Q											
19							245	225	205	210	200	210	205	205	210	220	210	225	250														
20							250	230	200	210	200	200	240	220	220	230	240	240	250	Q													
21							250	245	220	205	205	200	210	215	210	230	225	240	240														
22							240	215	205	230	230	225	200	225	215	220	235	240	250														
23							235	230	230		A	A	A	A		230	220	220	220	225	260	Q											
24							325	250	235	205	200	210	200	240	205	235	230	235	240	280													
25							270	250	220	220	200	240	240	220	230	220	220	230	250														
26							280	U A	250	250	200	200	200	200	210	210	230	230	240	240	U A												
27							Q	245	225	220	220	190	200	205	215	225	220	215	220	240		Q											
28							Q	250	235	220	210	200	190	215	235	210	220	230	230		A	Q											
29							Q	245	230	220	205	200	190	200	215	220	225	230	240														
30							300	250	230	220	205	220		E A	A	250	250	250	210	280													
31							230	250	220	200	220	230	205	210	210	220	230	240		A													
MED							250	230	220	210	200	205	210	215	220	220	230	235	250														
NO							2	25	30	30	30	29	28	20	31	31	31	29	29	26													

TABLE 69
IONOSPHERIC DATA

h'E, Km, May 1956

Station Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep 1.0 Mc to 25.0 Mc in 13.5 sec. 75°W Mean Time

Manual Automatic

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
01							109	109	101	109	105	101	105	101	101	105	111	109	119							
							H							A	A	A	A	A	A							
02							109	109	107	105	109	101	109													
							A	I	A	H	U	A		T	A											
03								109	105	101	101	101	101	111	106	101	101	109	109							
							B																			
04								111	107	105	101	107	101	105	109	101	101	103	111							
							S																			
05								109	109	103	105	105	101	101	101	101	101	105	119							
														U	S	U	A									
06								117	109	105	103	101	101	109	105	107	101	101	109	109	113					
07									113	105	101	101	101	101	101	101	101	91	102	111						
08										8	I	A		E												
09										111	109	105	105	101	101	109	109	107	101	101	119					
10										119	109	105	103	101	103	105	107	101	105	107	115					
11										115	107	105	101	101	101	103	103	105	115	120	115					
12											U	A	A	A												
13											131		101	101	101	103	101	101	103	117	109	117				
14												103	105	103												
15													103	105	105	105	101	101	109	101	109	109	109	119		
16																										
17													107	105	105	107	107	107	107	113	111	113				
18														U	S	U	A	U	A	U	A	U	A	U		
19																										
20																										
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										
31																										
MED																										
NO																										
	3	26	30	30	29	29	26	30	30	30	30	30	30	30	30	30	30	28	29	23	3					

TABLE 70
IONOSPHERIC DATA

(M3000)F2, May 1956

75°W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	270	280	290	285	275	300	330	330	240	250	280	280	275	270	280	255	295	290	300	300	280	275	275	285
02	290	280	310	310	300	320	340	325	310	300	290	285	290	285	290	290	290	290	300	300	290	285	290	290
03	290	280	290	295	290	310	290	330	310	300	290	290	280	275	280	280	290	285	280	300	290	285	275	270
04	270	270	270	290	280	290	310	305	300	310	300	285	275	290	290	290	290	280	280	300	290	280	270	280
05	275	270	260	250	260	275	305	310	290	290	280	290	280	275	270	285	280	290	300	300	280	280	280	280
06	280	260	275	275	280	290	300	290	310	290	285	290	285	285	280	290	290	290	290	300	300	290	290	275
07	270	265	265	270	270	270	300	300	310	295	285	285	285	285	285	290	280	285	300	300	310	275	290	280
08	F	F	F	F	A	U	A	A	A	A	A	A	A	A	A	A	U	C	U	C	U	U	F	F
09	270	290	280	285	285	300	305	290	285	290	290	280	275	275	280	280	280	290	300	305	290	280	275	275
10	265	270	280	280	275	285	275	305	310	290	285	280	280	285	250	280	280	280	280	285	300	290	290	270
11	290	275	270	270	275	305	315	310	285	295	280	280	285	250	280	280	280	280	285	280	290	265	270	280
12	275	275	275	290	285	290	305	310	300	300	270	280	270	280	280	270	275	285	285	280	290	265	270	280
13	260	250	260	265	260	270	270	280	250	245	225	255	235	255	260	260	250	260	270	260	260	280	270	260
14	U	S	U	S	U	F	F	F	U	F	U	F	U	F	U	F	U	F	U	S	U	S	U	F
15	235	225	240	240	240	260	290	300	285	325	305	290	280	280	290	260	280	280	290	280	270	275	285	270
16	225	255	250	250	240	285	300	G	G	G	G	G	G	G	G	G	G	G	G	F	F	F	F	F
17	230	250	240	260	250	280	220	G	200	G	G	G	G	G	G	G	200	225	270	270	280	270	280	280
18	260	260	260	250	260	290	275	295	270	260	C	C	255	265	280	260	270	285	285	275	275	270	275	C
19	270	270	270	280	280	300	300	310	310	305	280	275	270	280	275	280	280	285	285	290	280	275	280	280
20	260	260	270	270	280	280	280	G	230	275	250	290	260	260	245	270	265	260	280	290	290	270	250	260
21	255		C	C	C	260	300	300	280	260	230	260	240	240	240	260	260	270	270	280	280	280	270	260
22	280	270	280	265	270	290	330	300	290	280	285	270	270	260	260	270	280	275	280	280	280	280	290	280
23	275	285	285	280	275	320	295	320	300	300	290	265	265	285	285	290	290	280	270	260	265	305	265	265
24	280	250	250	250	280	265	250	G	G	G	G	G	G	G	G	G	220	230	250	250	260	250	280	B
25	245	240		320	270	300	250	G	G	G	G	G	G	G	G	G	230	210	230	250	265	280	290	275
26	260	270	275	260	270	290	290	290	300	290	280	280	275	280	280	270	280	280	290	300	285	290	285	290
27	275	280	290	265	275	300	310	300	285	290	270	265	270	275	280	285	285	275	290	290	300	270	265	260
28	250	265	250	265	265	280	285	280	285	275	240	230	255	265	270	275	285	290	290	290	290	290	285	275
29	275	290	280	280	280	305	310	310	310	290	300	290	280	280	270	280	270	270	280	290	290	280	270	285
30	270	270	280	270	275	270	260	290	220	230	G	235	235	220	255	255	C	C	270	285	275	285	280	275
31	280	280	280	290	280	300	300	310	260	295	295	290	295	280	290	280	290	285	295	290	290	275	270	285
MED	270	270	275	270	275	290	300	300	290	290	280	280	280	270	275	270	280	280	280	290	280	280	275	275
NO	31	29	29	30	31	31	31	31	30	30	31	30	30	31	31	31	30	30	31	31	30	31	30	29

TABLE 7I
IONOSPHERIC DATA

(M3000) FI, May 1956

Station Washington, D.C. Lat. 38.7°N Long. 77.1°W Sweep I.O Mc to 25.0 Mc in 13.5 sec. 75°W Mean Time

Manual Automatic

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
01						L	L		H						H		L	L							
									360	350	355	350	355	345	360	340	365								
02						Q	L	L	L	H	S	H	H	H	H	U	S	H	L	L	L				
03						L	L	H	H	H	H	H	H	H	H	H		L	L	L					
04						L	L	L	H	H	H	H	H	H	H	H	H	L	L	L	L				
05						Q	L	L	L	H		H	H	H	H	L	L	L	L	L	L				
06						A	L	L	L	A	H	A					L	L	L						
07						L	L	L	L	H		H					A	L	A						
08						Q	A	A	U	H	H	H	H	H	H	H	H	C	H	L					
									350	340	350	360	365	330	340	365									
09						L	L	L	L	U	C	L	U	L	H	U	H	L	L	A					
10						Q	L	A	L	L	L						L	L	L	L					
11						Q	L	L	H	H	H	H					A	A	A						
									380																
12						L	U	U	A	I	C	H	U	A			H	H	H	H	H	U	L		
									355	350		350	365	350	350	360	365	350	335	320					
13						U	L	L	U	L	U	L					L	L							
									325	380	385	340	340	360	345	330	340	340							
14						H	H	A	U	H	U	F	F	U	H	I	A	F	U	F	H	H	L		
									365	375	365	370	370	350	370	375	355	350	360						
15						U	H	F	U	H		H					H	H						Q	
									330	360	375	385	380	360	370	360	360	360	360	325	330				
16						370	370	360	370	385	390	375	385	360	360	360	360	360	360	360	350	320			
17						320	340	360	385	400	400	400	400	380	370	360	360	340	320	305					
18						300	335	350	360	350															
19						L	L	H	H	H															
									370	390		380	370	330	340	365	350								
20						F	H	H	H	H															
									330	350	360	370	380	340	320	350	350	330	320						
21																									
						340	340	370	380	390	390	370	360	360	350	340	340	330							
22						L	L	H	H	U	U	A	A	H											
									360	360	350	340	340	360	350	340	350	350							
23						L	L	L	U	A	A	A	A	A	A	L		L	L						
24																									
						290	340	360	380	400	380	400	360	380	370	360	360	360	340	320					
25						F	H	F	H	H	H	H													
									240	250	380	385	390	380	310	375	360	350	330						
26																									
						330																			
27						Q	H																		
									260	350	360	370	380	360	360	360	360	355	340						
28						Q	H	H	H	H	H	H	H	H	H	H	H	H	A	Q					
									230	340	350	365	385	380	370	370	360	380	355	350					
29						Q	L	L																	
30						L	U	A	U	A		U	A		A										
									310	340	360	380	380	390	365										
31						L	L																		
MED									330	350	360	370	380	365	360	360	360	350	350	335	320				
NO									1	12	12	10	2	25	29	28	30	27	21	13	6				

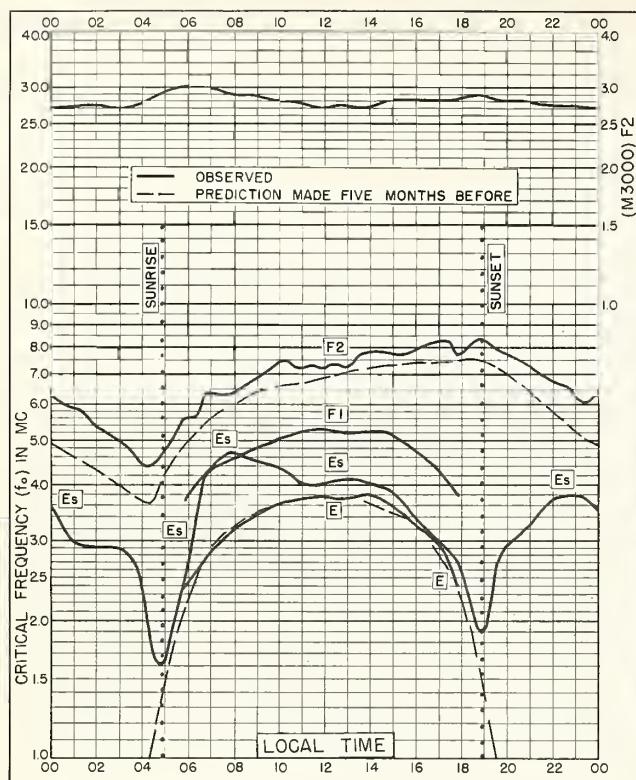


Fig. 1. WASHINGTON, D. C.

38.7°N, 77.1°W

MAY 1956

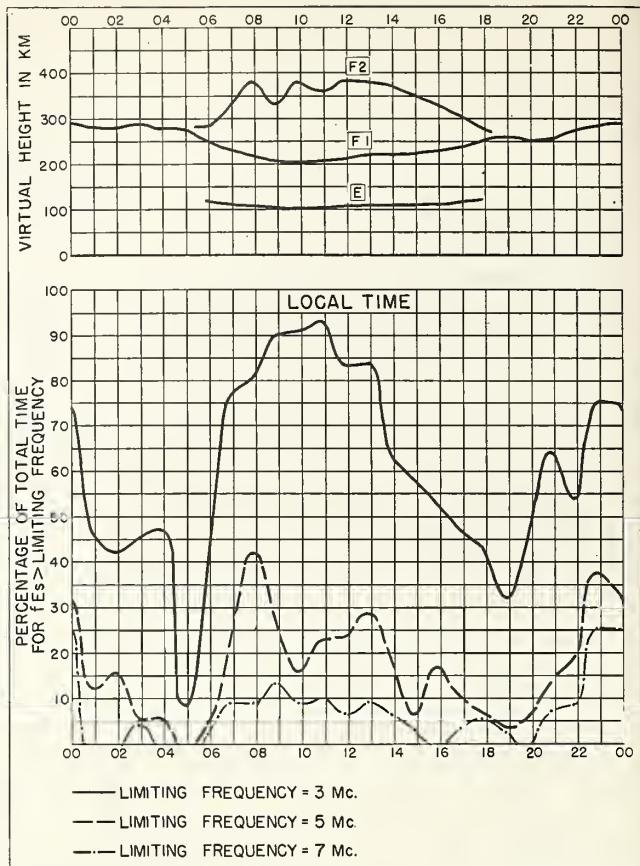


Fig. 2. WASHINGTON, D. C.

MAY 1956

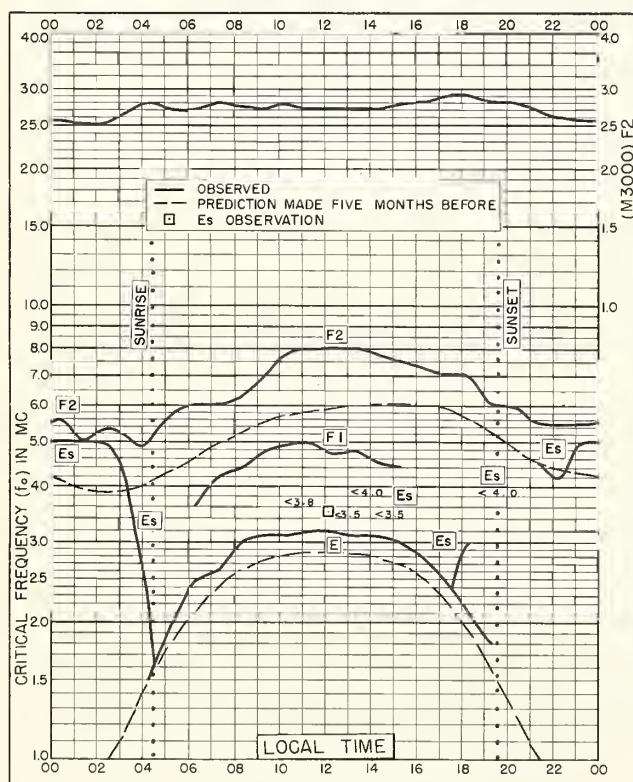


Fig. 3. KIRUNA, SWEDEN

67.8°N, 20.3°E

APRIL 1956

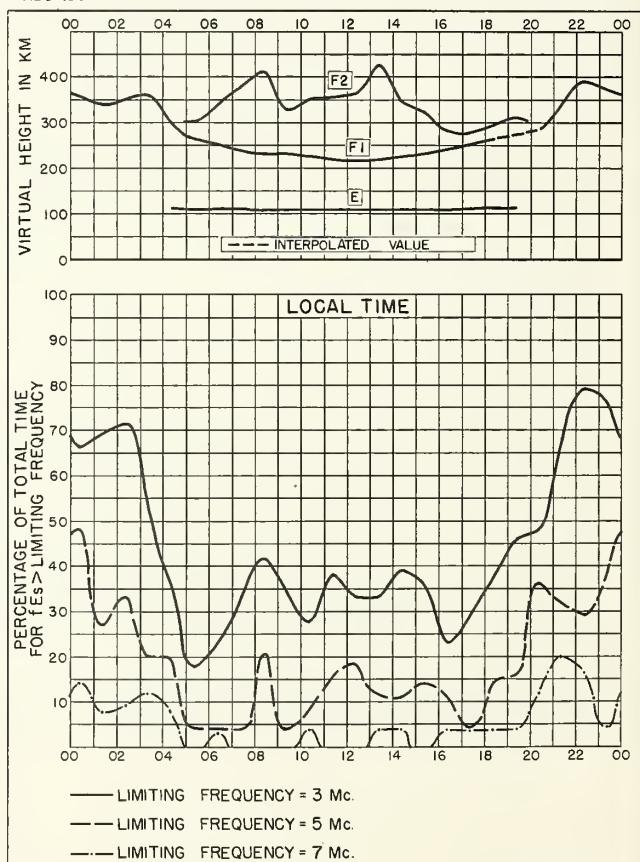


Fig. 4. KIRUNA, SWEDEN

APRIL 1956

NBS 490

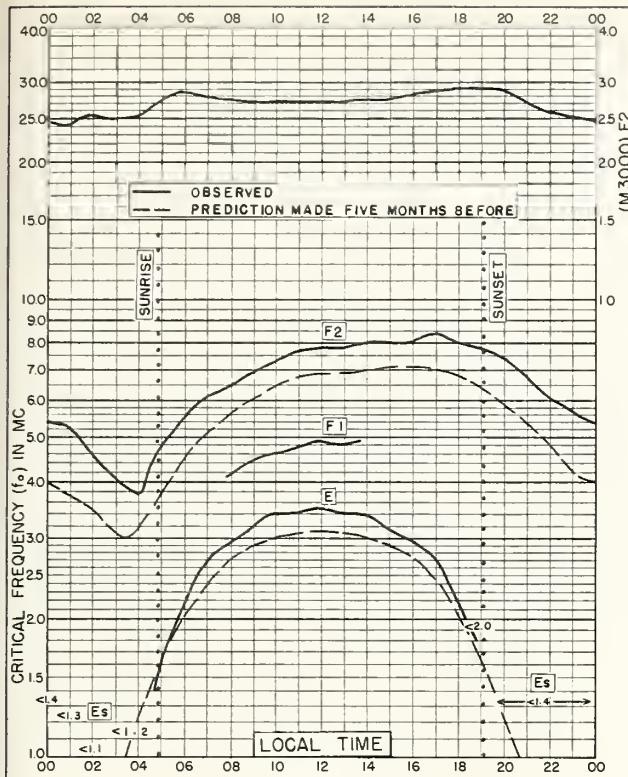


Fig. 5. OSLO, NORWAY
60.0°N, 11.1°E

APRIL 1956

NBS 503

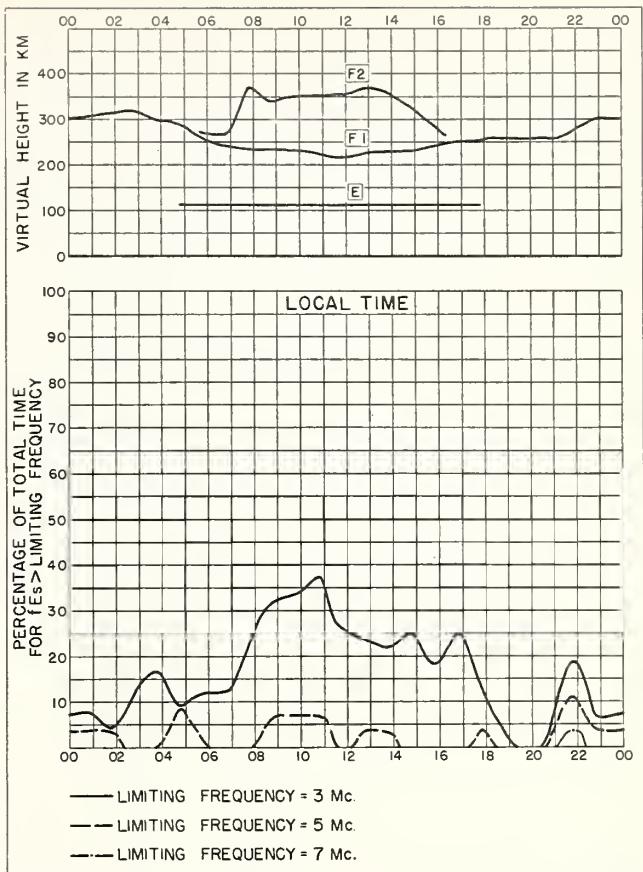


Fig. 6. OSLO, NORWAY

APRIL 1956

NBS 490

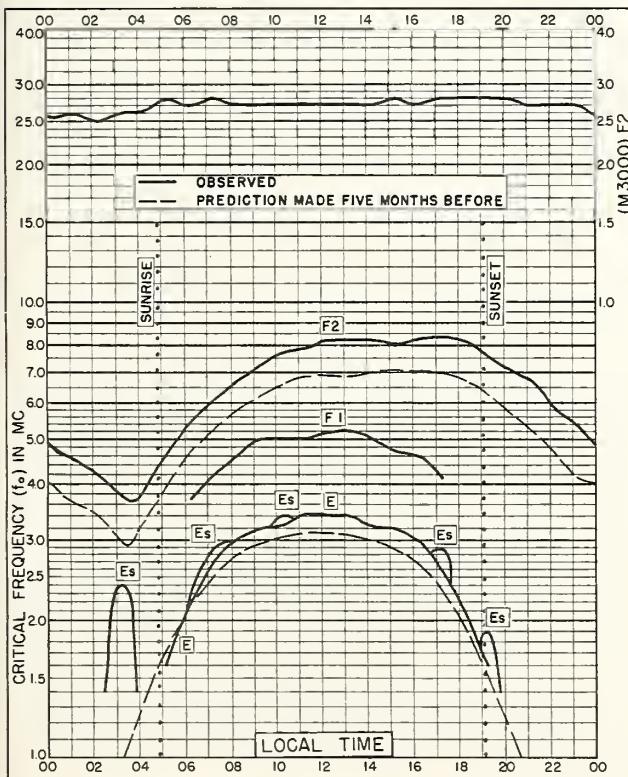


Fig. 7. UPSALA, SWEDEN
59.8°N, 17.6°E

APRIL 1956

NBS 503

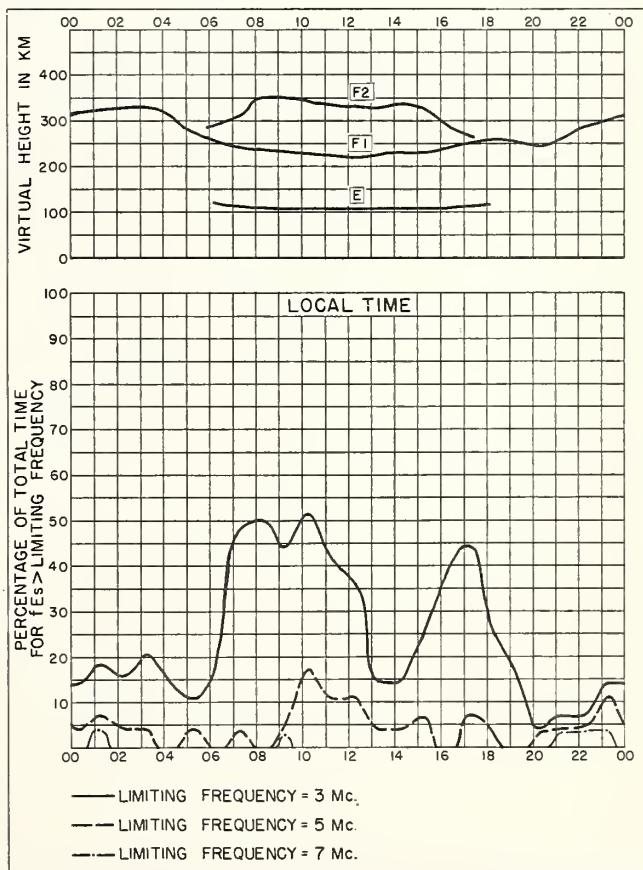


Fig. 8. UPSALA, SWEDEN

APRIL 1956

NBS 490

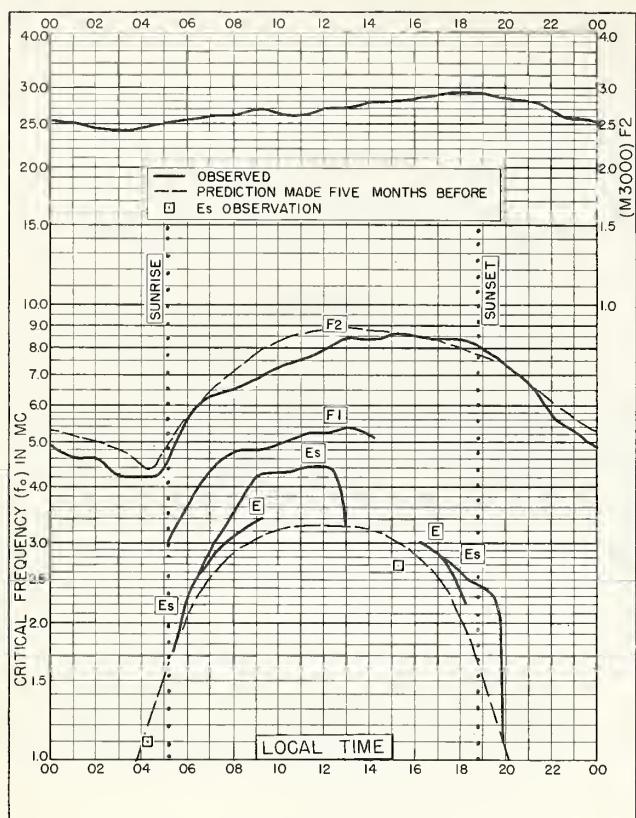


Fig. 9. ADAK, ALASKA

51.9°N, 176.6°W

APRIL 1956

NBS 503

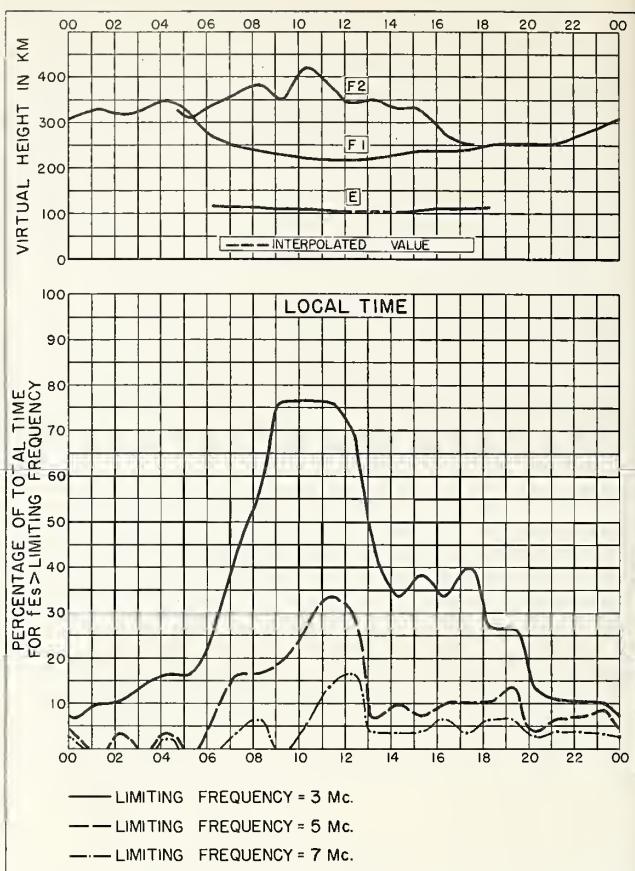


Fig. 10. ADAK, ALASKA

APRIL 1956

NBS 490

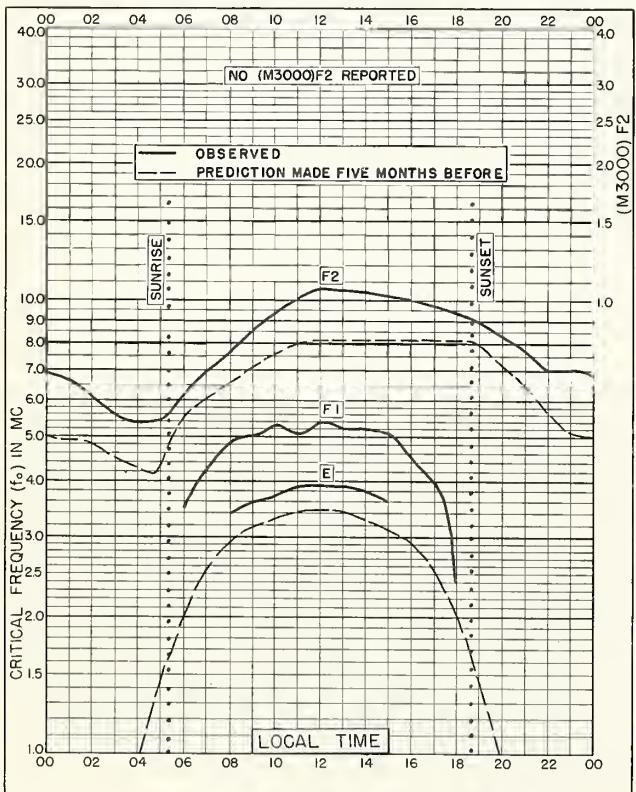


Fig. 11. GRAZ, AUSTRIA

47.1°N, 15.5°E

APRIL 1956

NBS 503

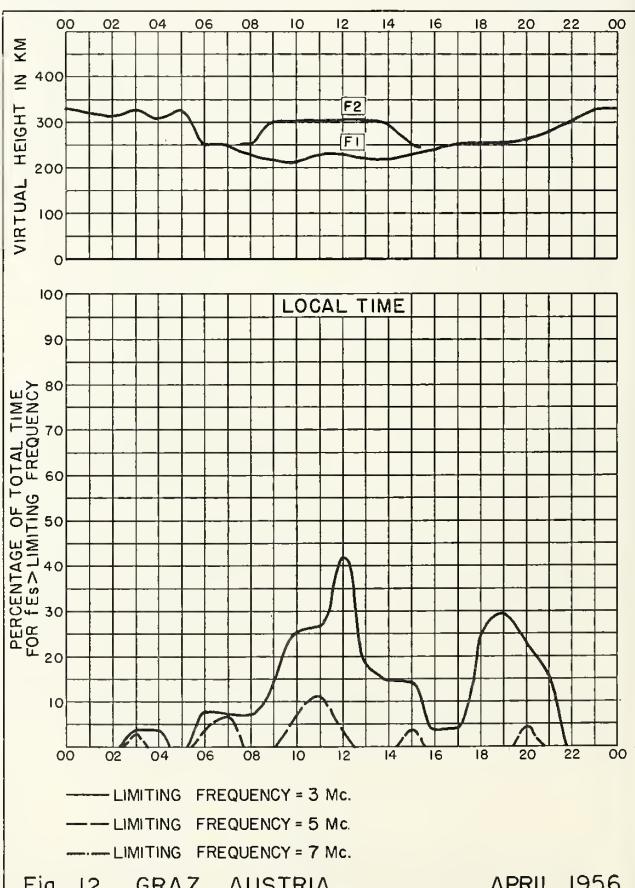


Fig. 12. GRAZ, AUSTRIA

APRIL 1956

NBS 490

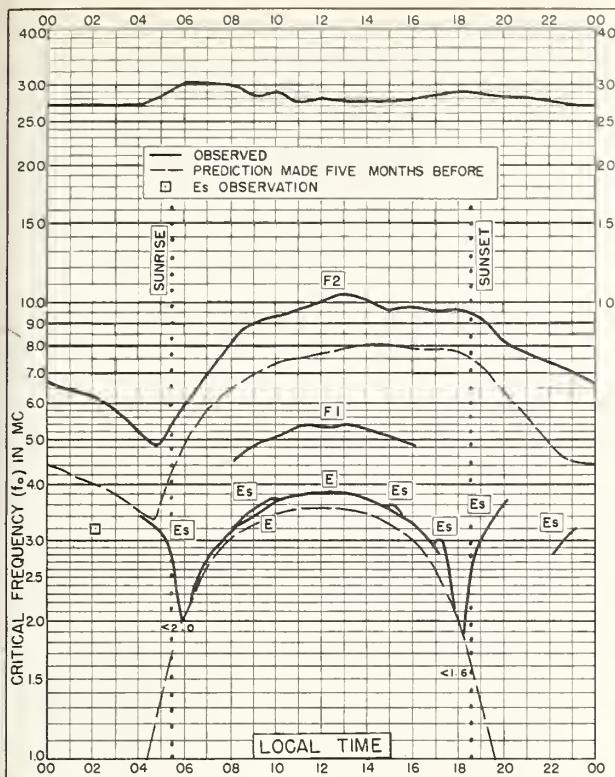


Fig. 13. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W APRIL 1956

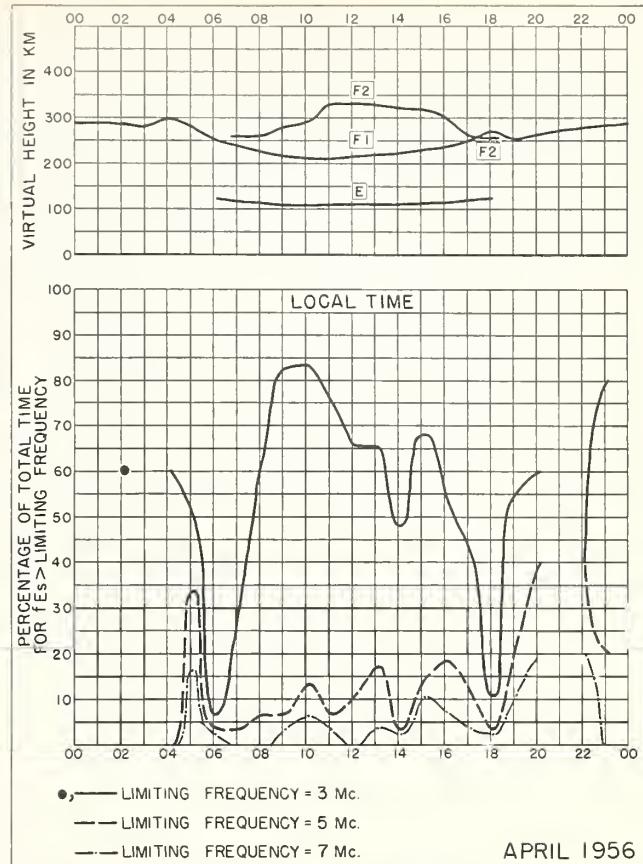


Fig. 14. FT. MONMOUTH, NEW JERSEY

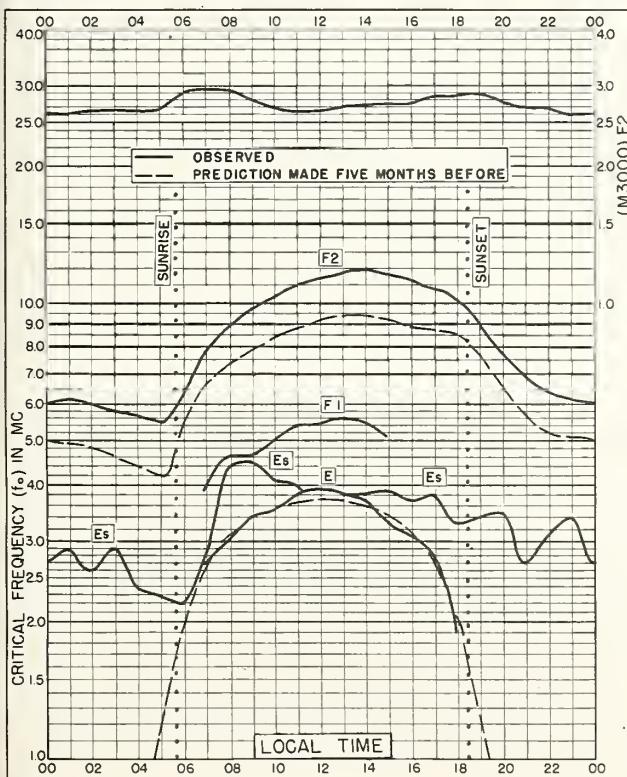


Fig. 15. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W APRIL 1956

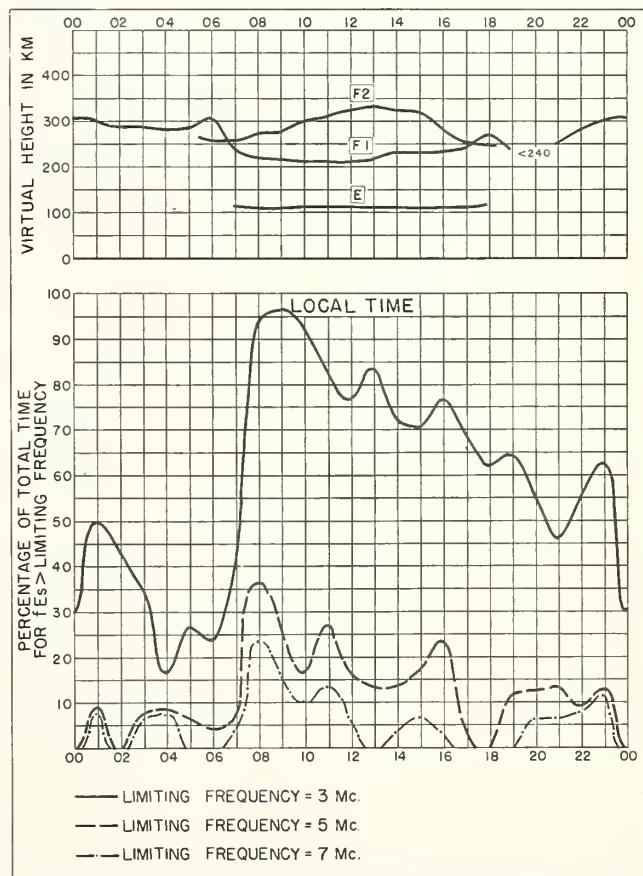


Fig. 16. WHITE SANDS, NEW MEXICO APRIL 1956

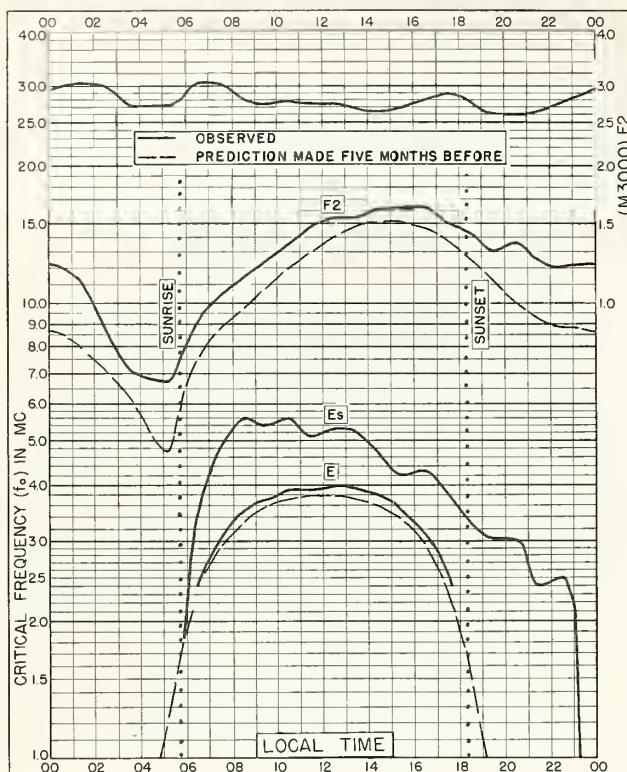


Fig. 17. OKINAWA I.
26.3°N, 127.8°E APRIL 1956

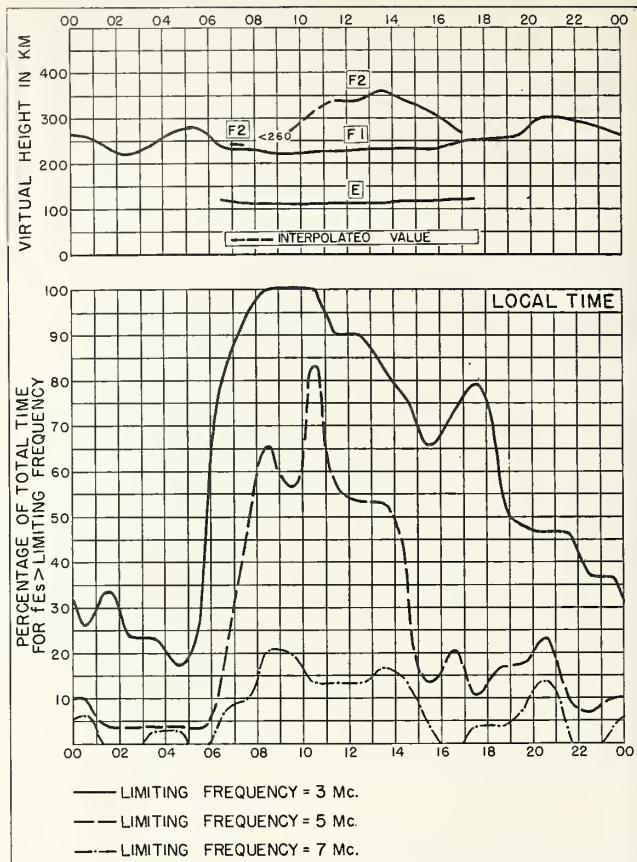


Fig. 18. OKINAWA I. APRIL 1956

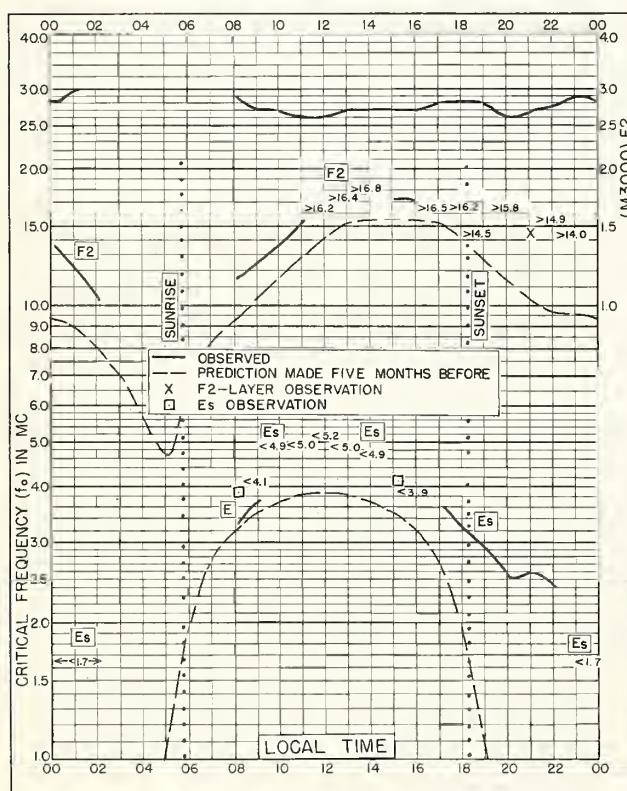


Fig. 19. FORMOSA, CHINA
25.0°N, 121.5°E APRIL 1956

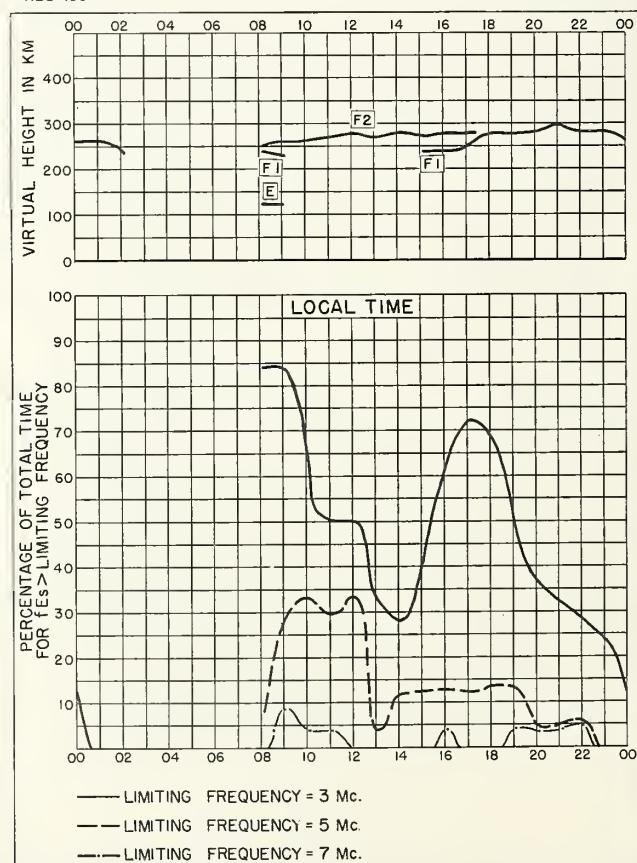


Fig. 20. FORMOSA, CHINA APRIL 1956

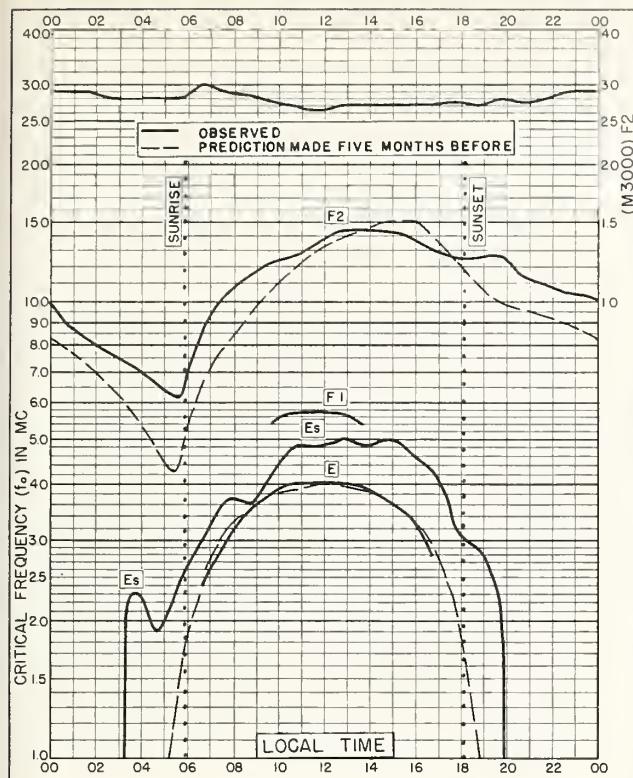


Fig. 21. PANAMA CANAL ZONE
9.4°N, 79.9°W APRIL 1956

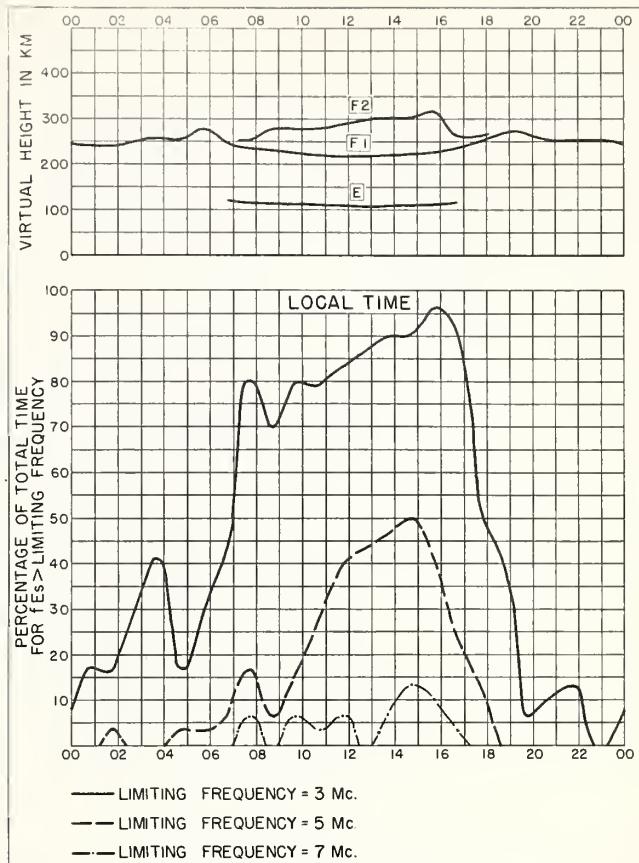


Fig. 22. PANAMA CANAL ZONE APRIL 1956

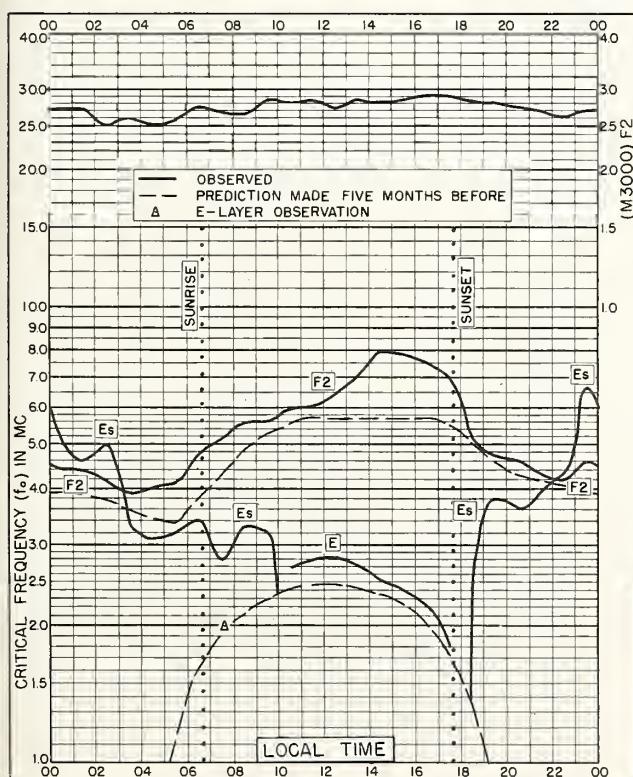


Fig. 23. POINT BARROW, ALASKA
71.3°N, 156.8°W MARCH 1956

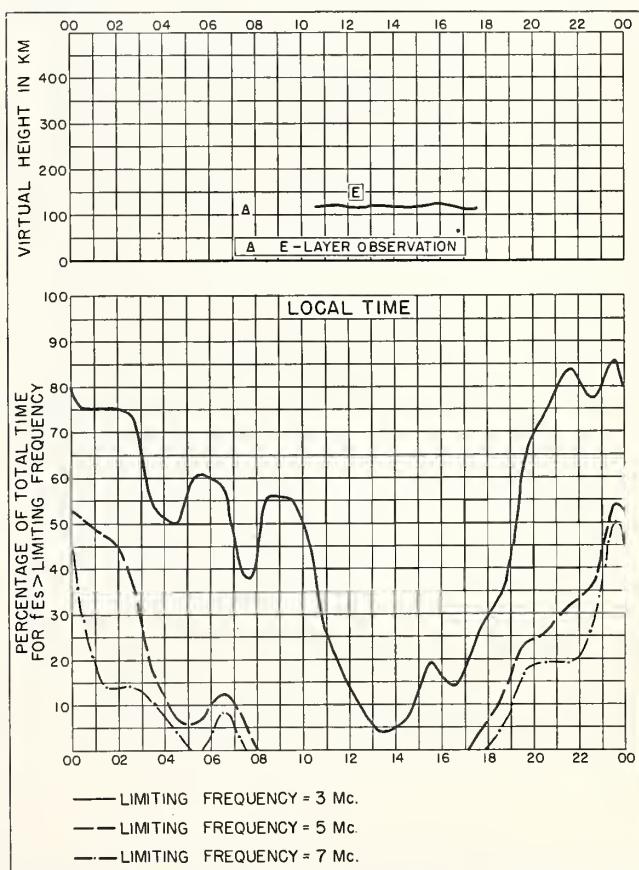
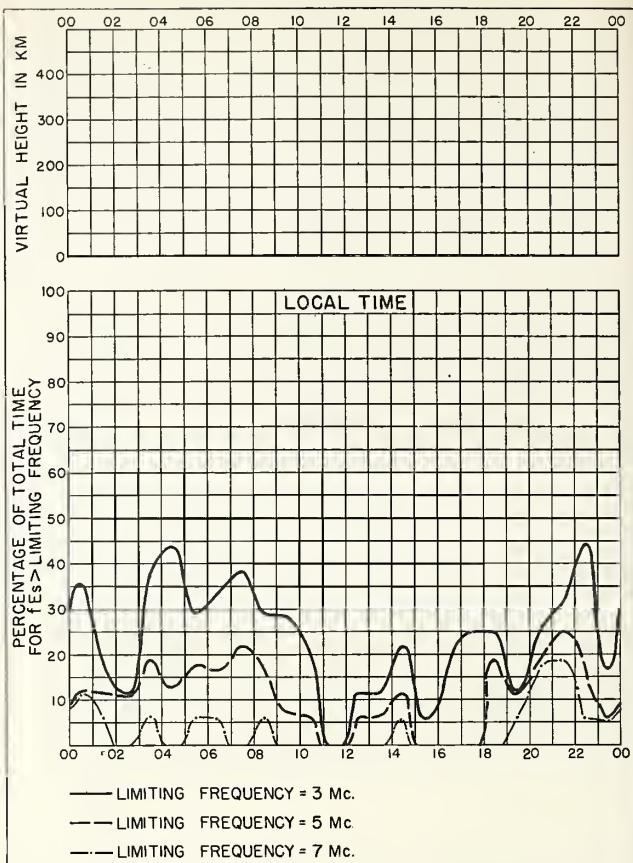
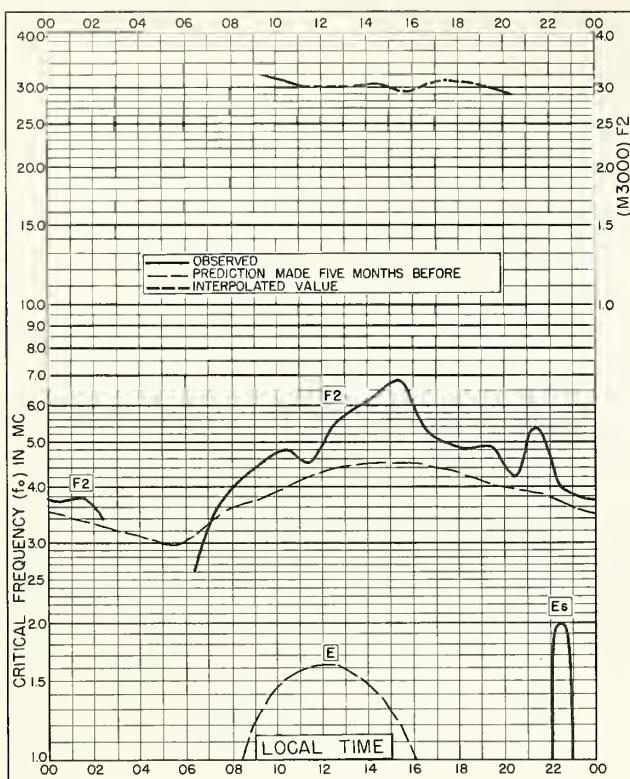


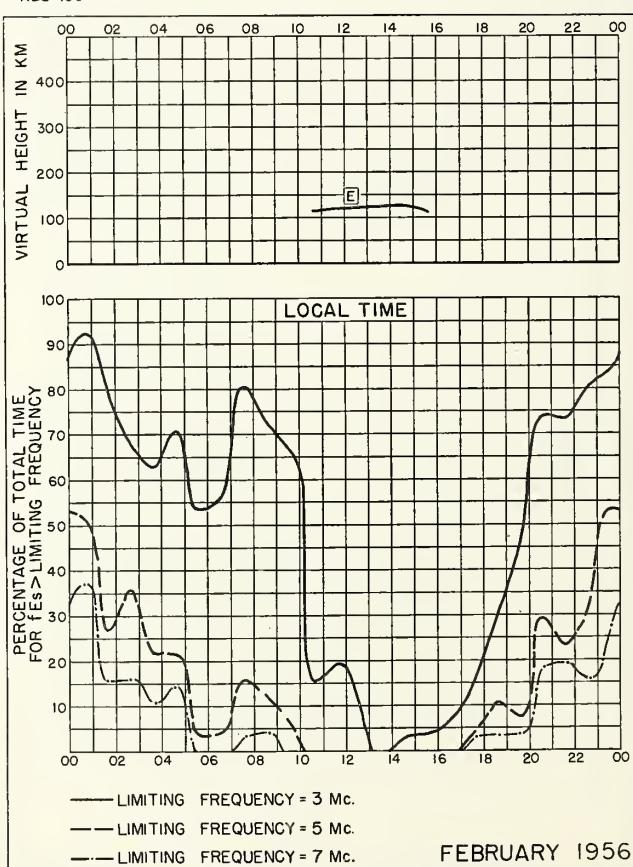
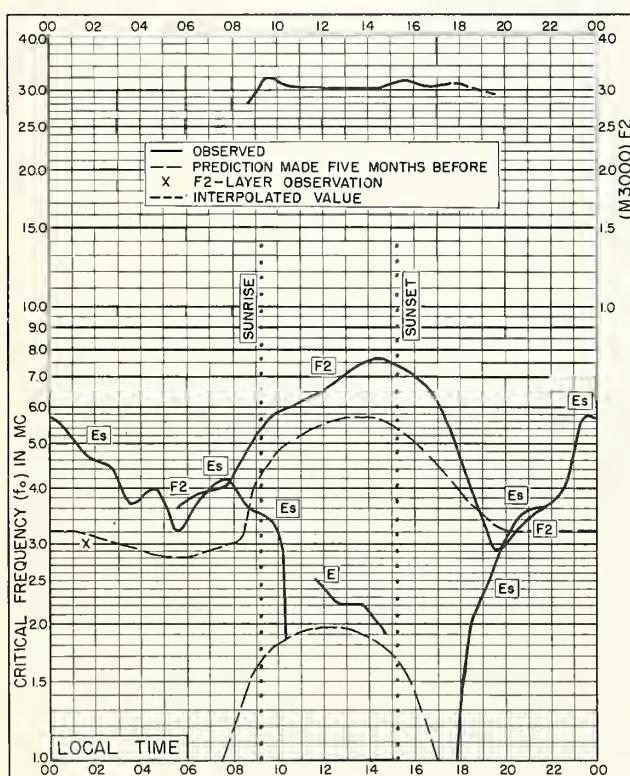
Fig. 24. POINT BARROW, ALASKA MARCH 1956

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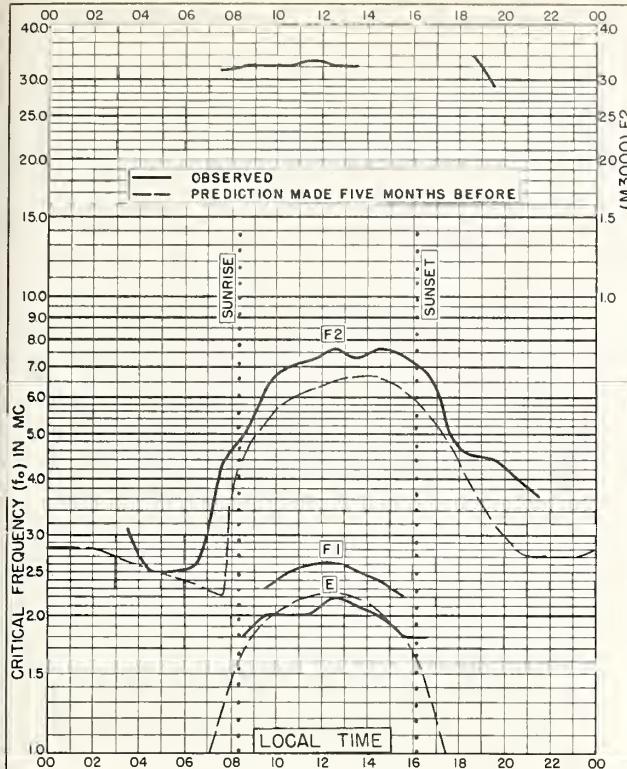


Fig. 29. LULEA, SWEDEN
65.6°N, 22.1°E FEBRUARY 1956

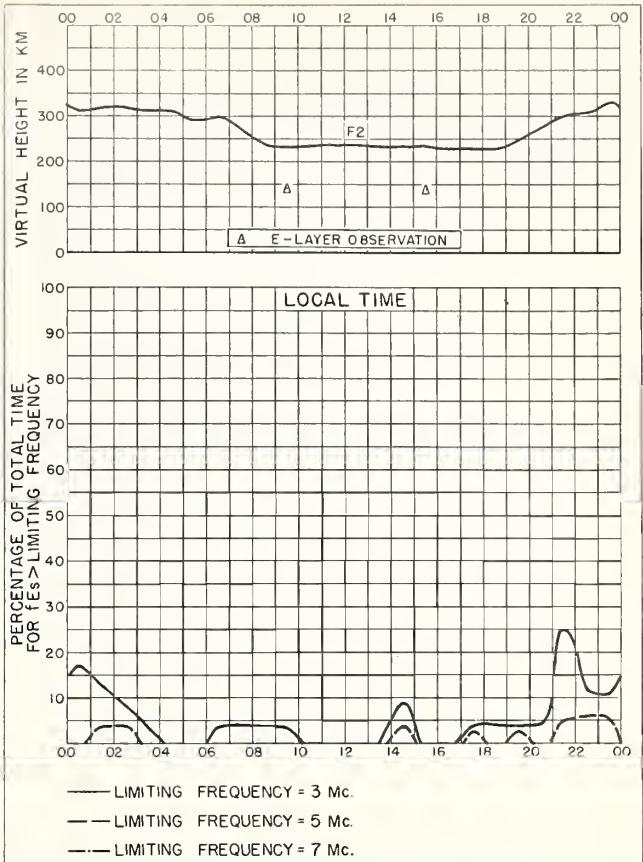


Fig. 30. LULEA, SWEDEN FEBRUARY 1956

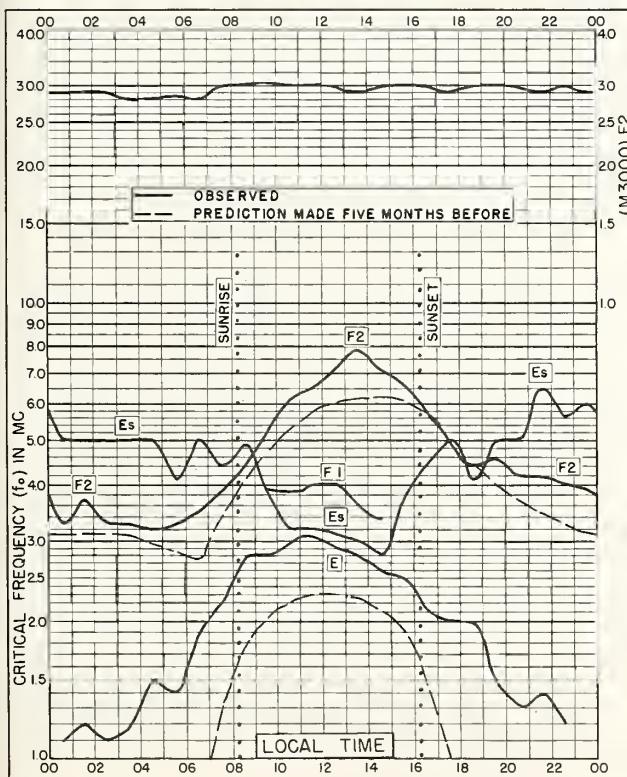


Fig. 31. BAKER LAKE, CANADA
64.3°N, 96.0°W FEBRUARY 1956

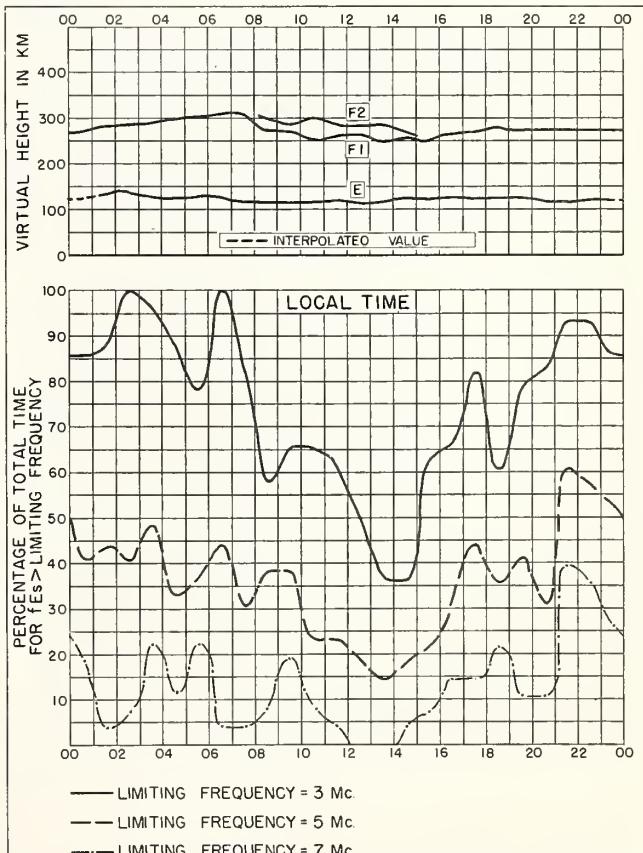


Fig. 32. BAKER LAKE, CANADA FEBRUARY 1956

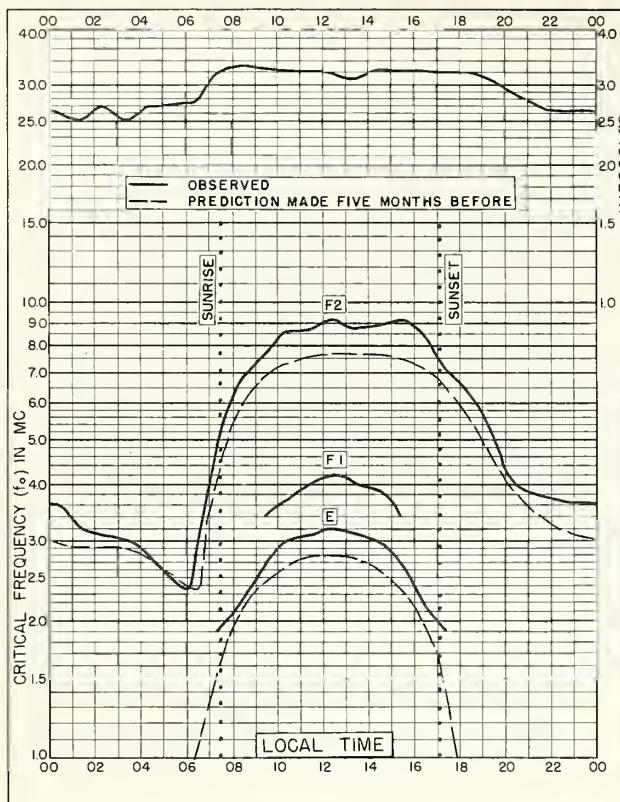


Fig. 33. De BILT, HOLLAND
52.1°N, 5.2°E FEBRUARY 1956

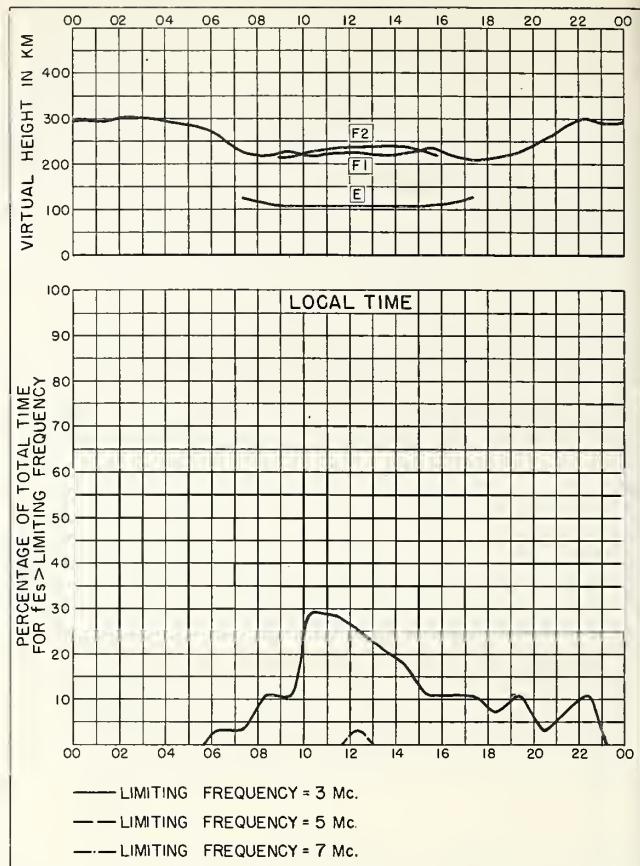


Fig. 34. De BILT, HOLLAND FEBRUARY 1956

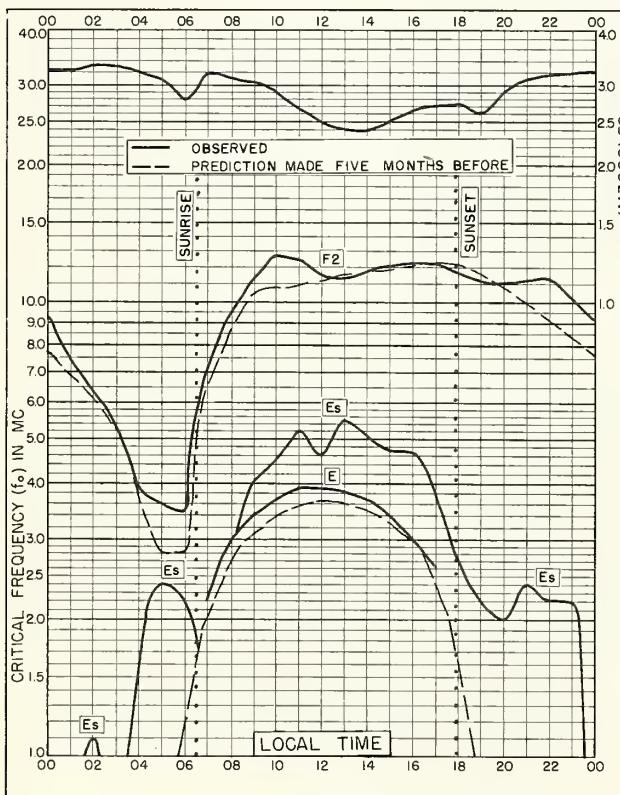


Fig. 35. BAGUIO, P. I.
16.4°N, 120.6°E FEBRUARY 1956

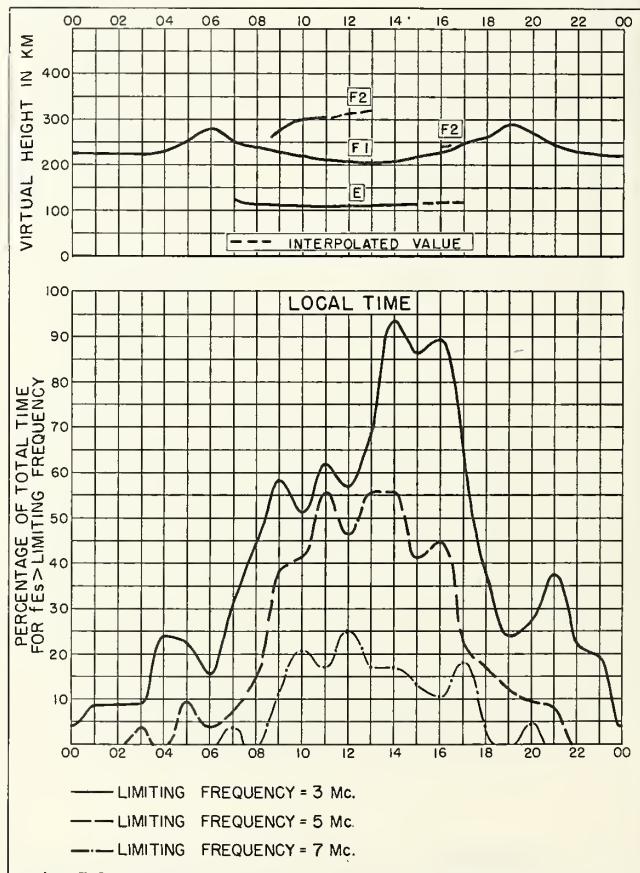


Fig. 36. BAGUIO, P. I. FEBRUARY 1956

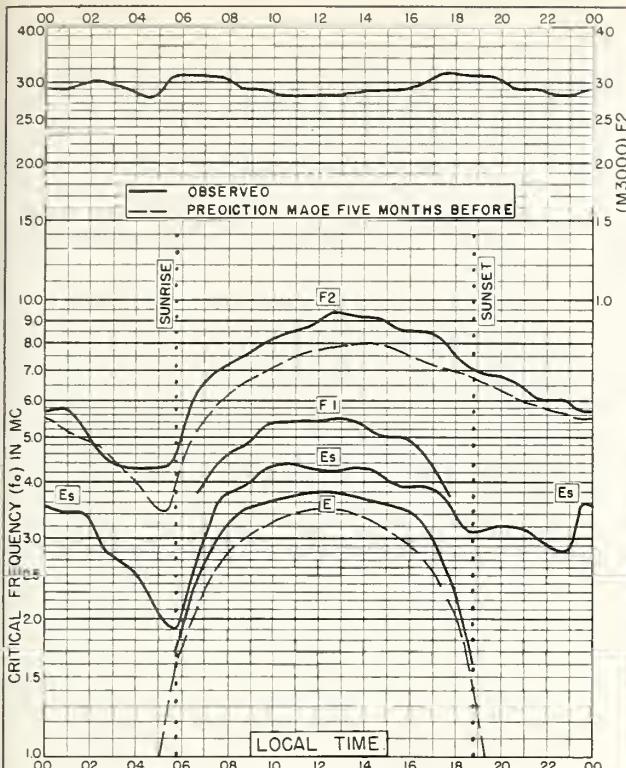


Fig. 37. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E FEBRUARY 1956

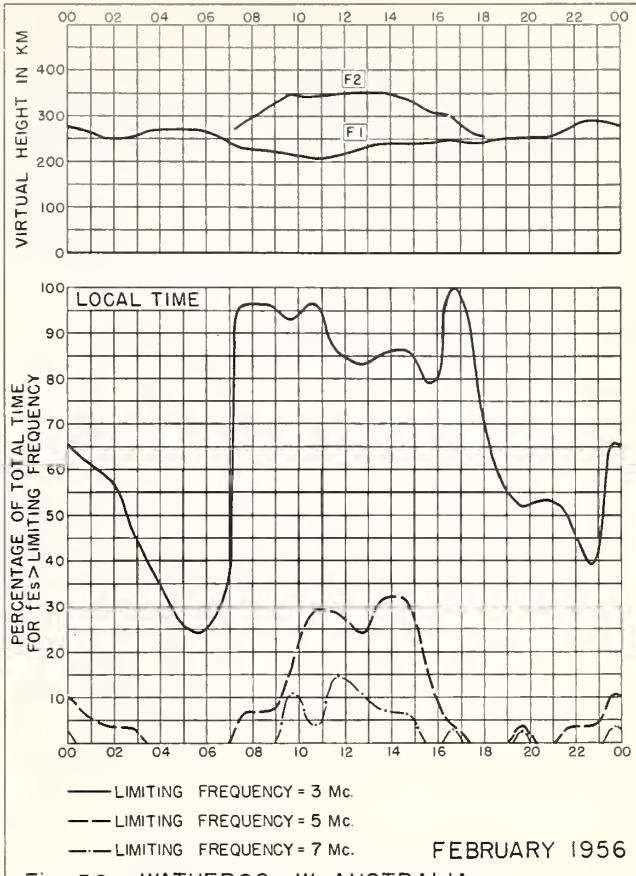


Fig. 38. WATHEROO, W. AUSTRALIA

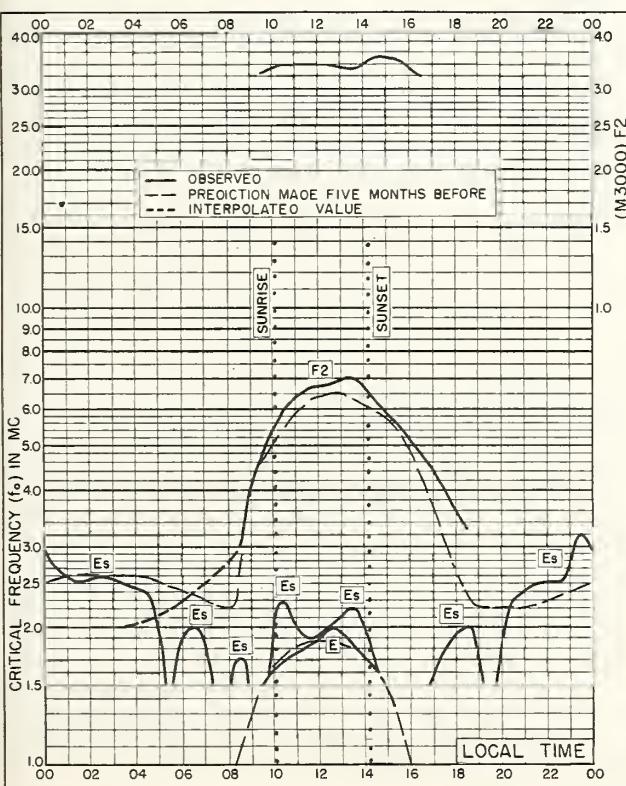


Fig. 39. LULEA, SWEDEN
65.6°N, 22.1°E JANUARY 1956

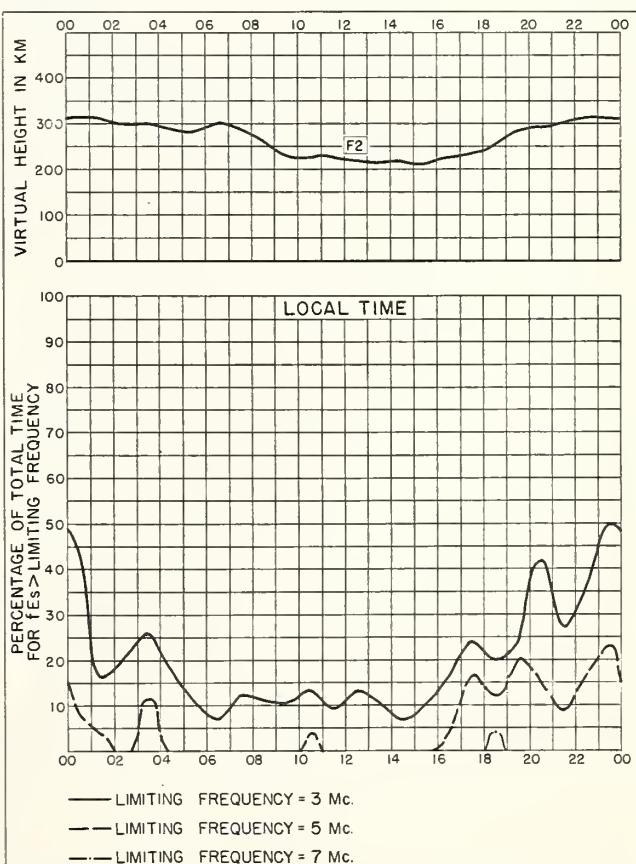


Fig. 40. LULEA, SWEDEN JANUARY 1956

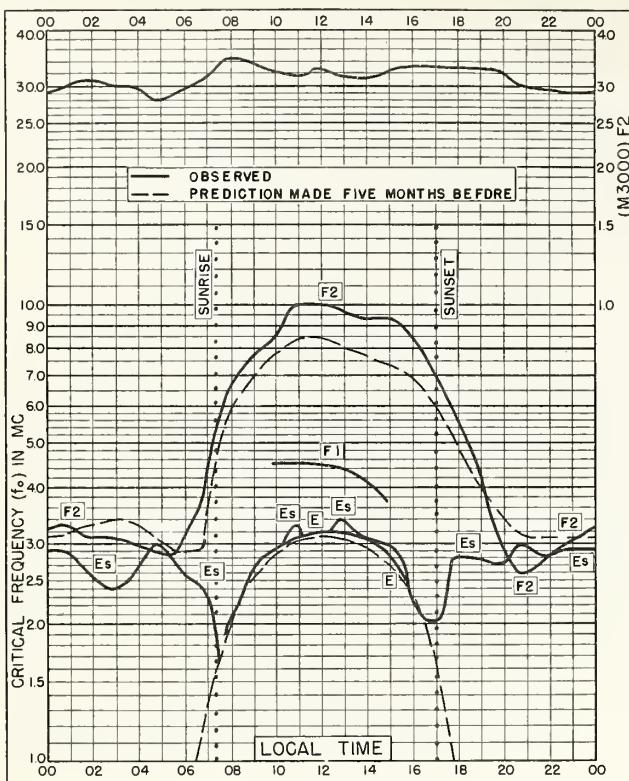


Fig. 41. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W JANUARY 1956

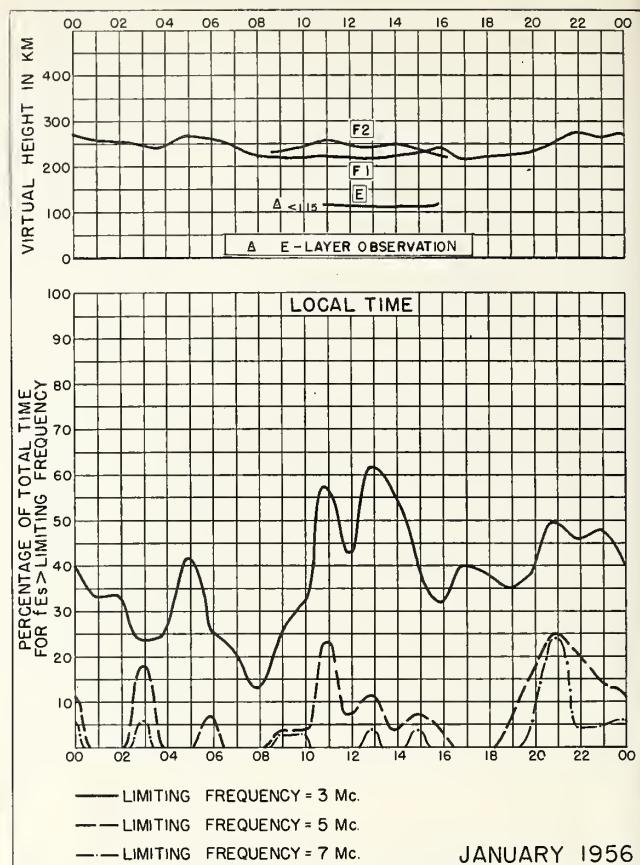


Fig. 42. SAN FRANCISCO, CALIFORNIA JANUARY 1956

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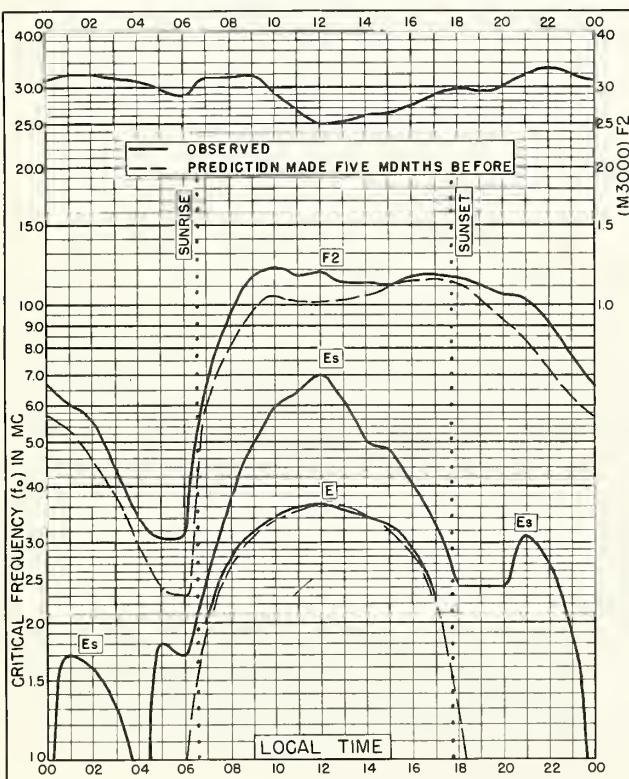


Fig. 43. BAGUIO, P. I.
16.4°N, 120.6°E JANUARY 1956

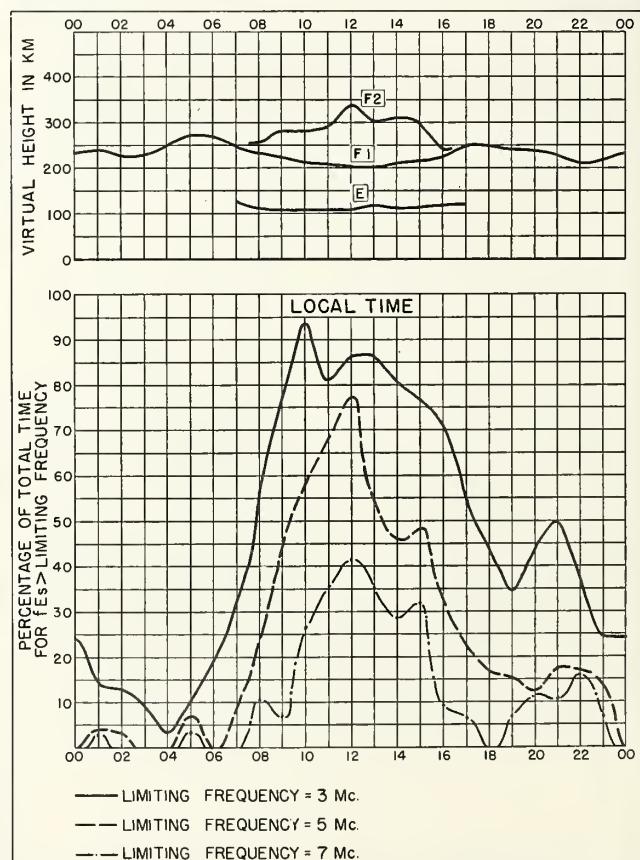
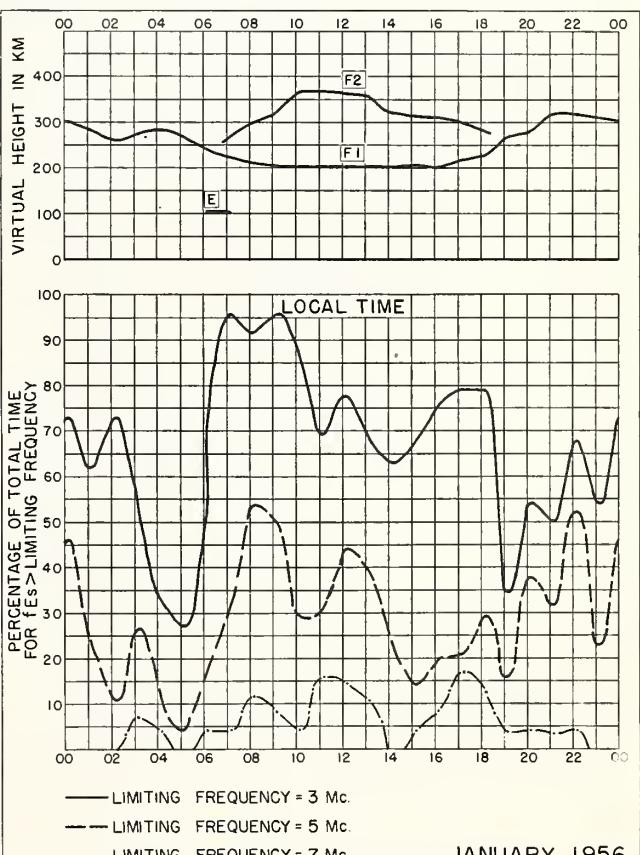
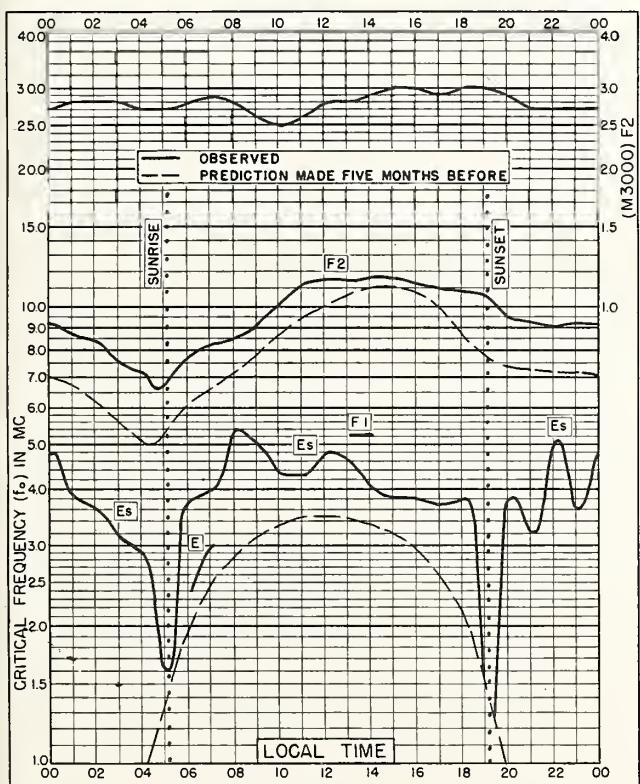
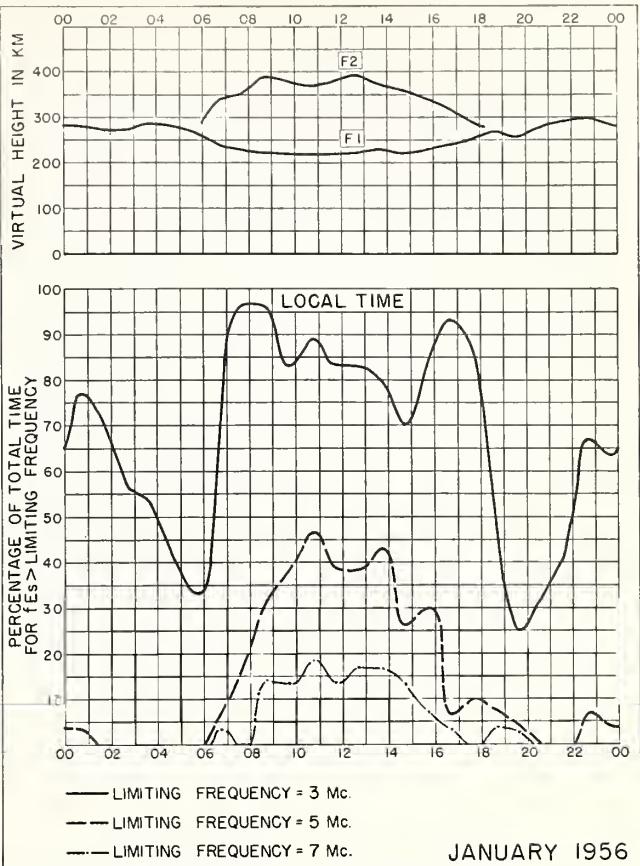
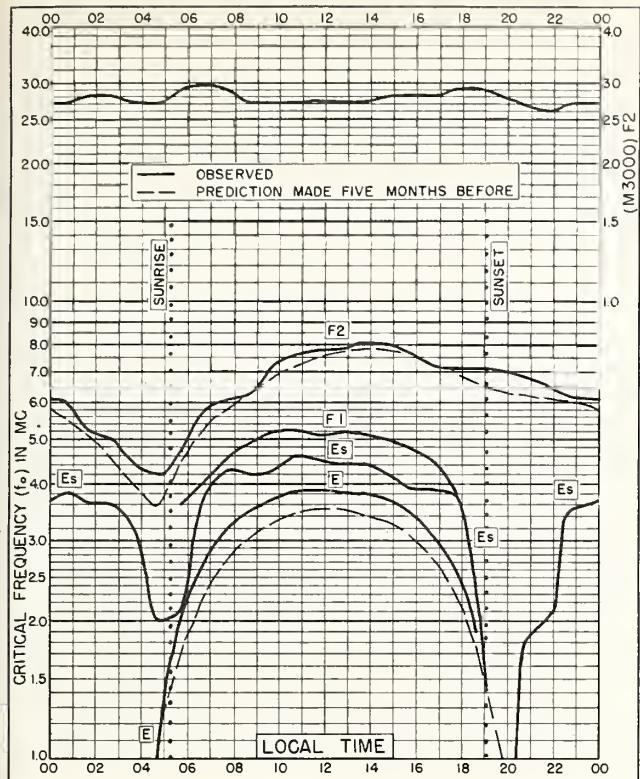


Fig. 44. BAGUIO, P. I.

JANUARY 1956

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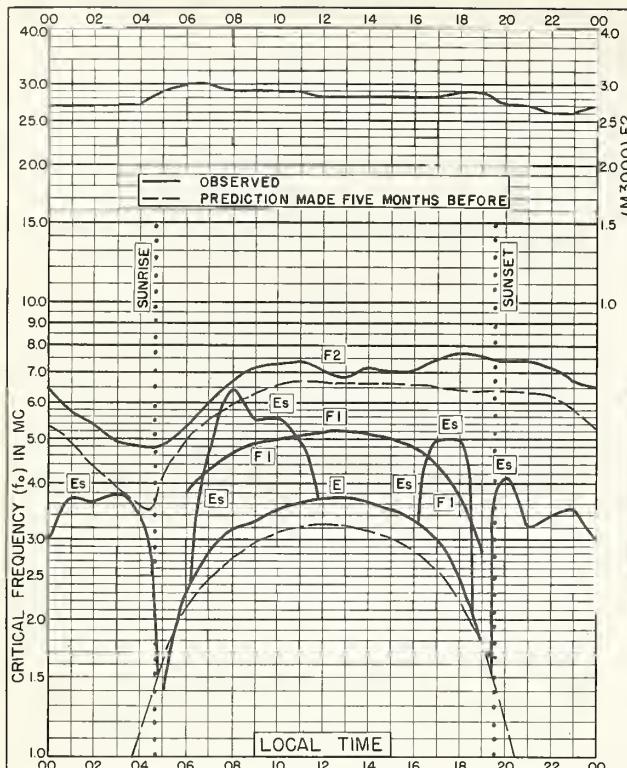
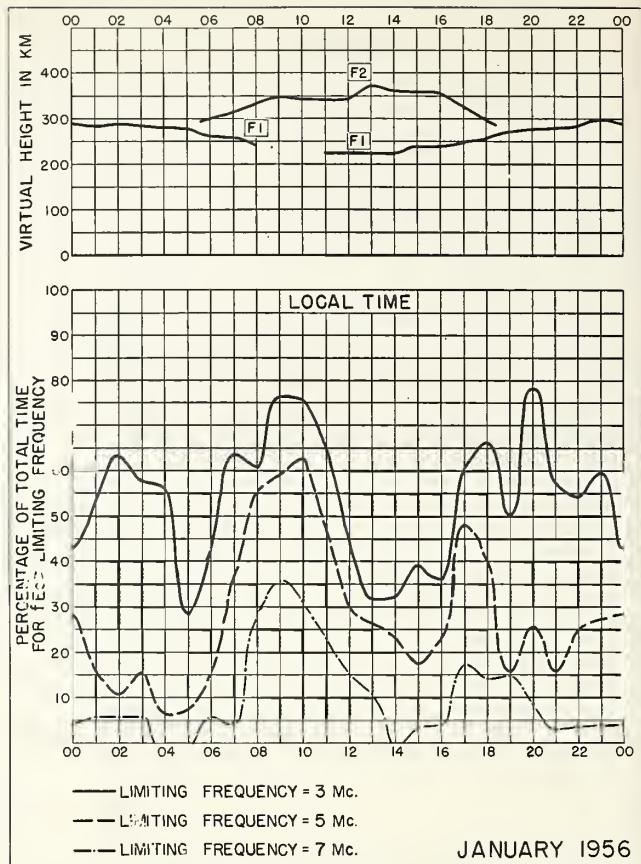


Fig. 49. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E JANUARY 1956



JANUARY 1956
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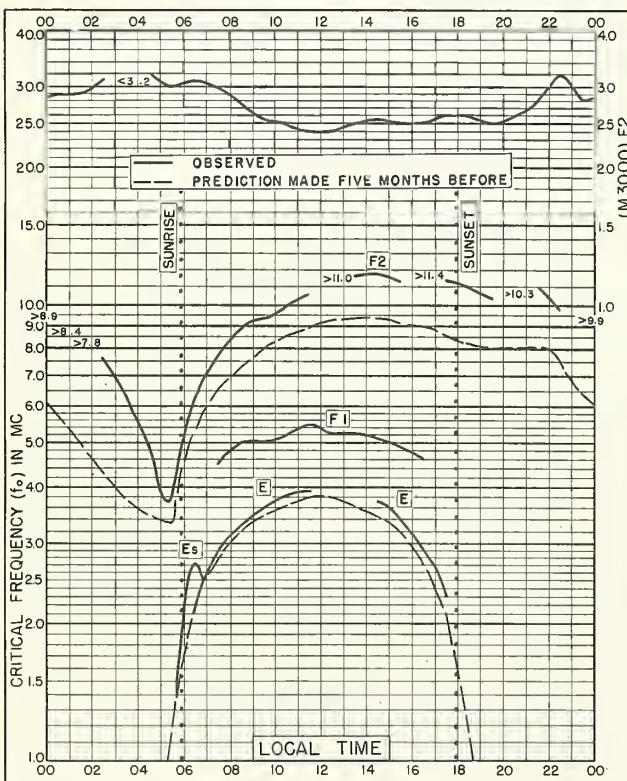
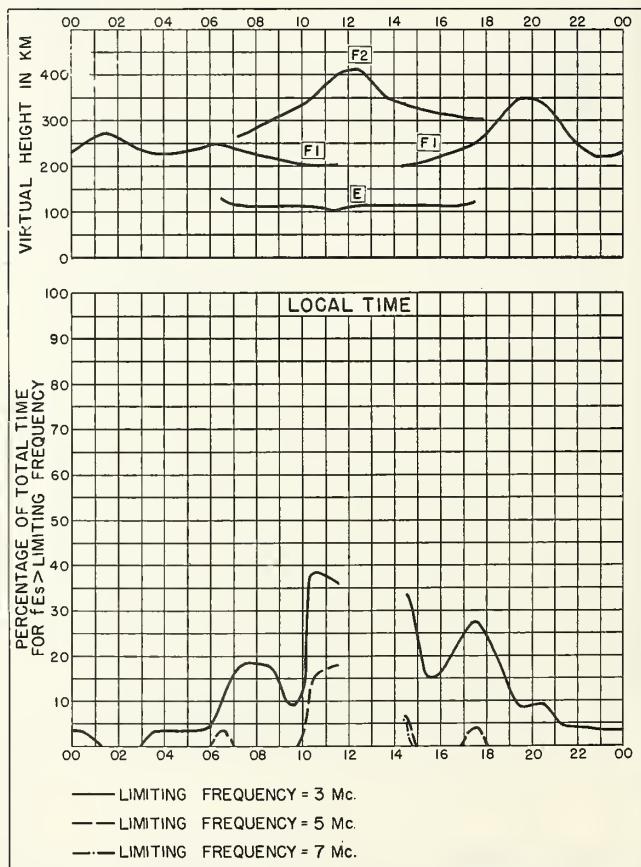
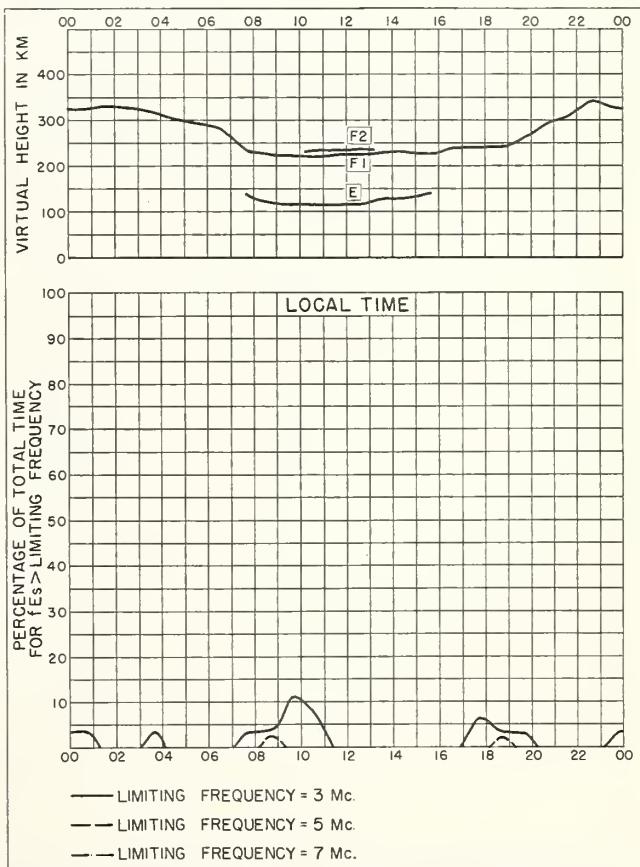
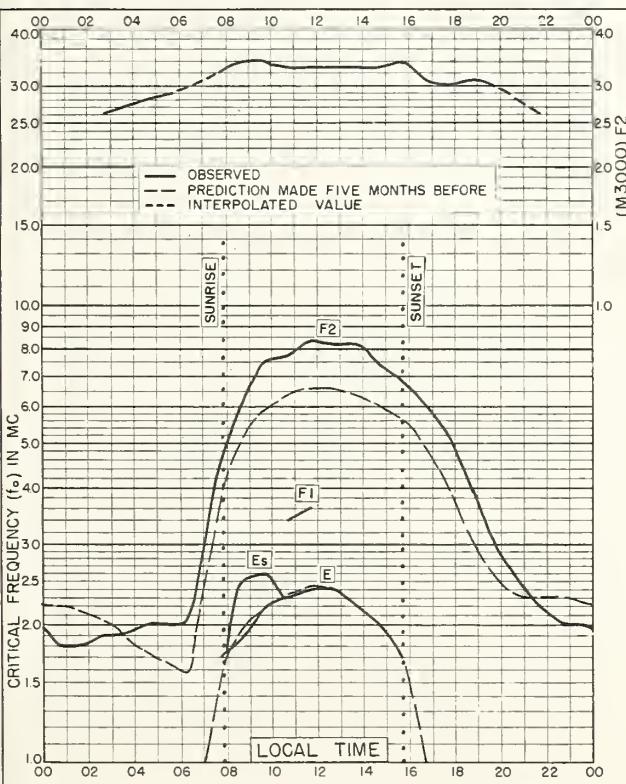
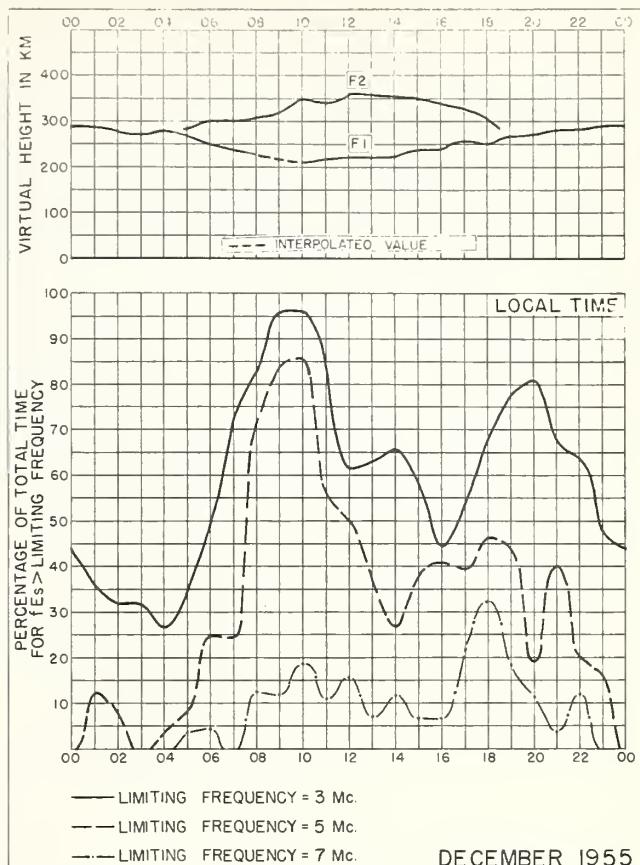
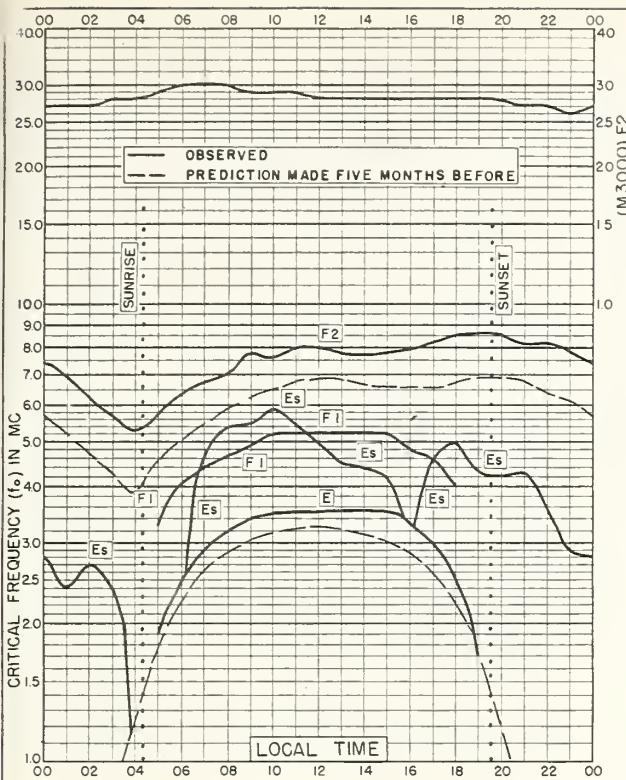


Fig. 51. NAIROBI, KENYA
1.3°S, 36.8°E DECEMBER 1955



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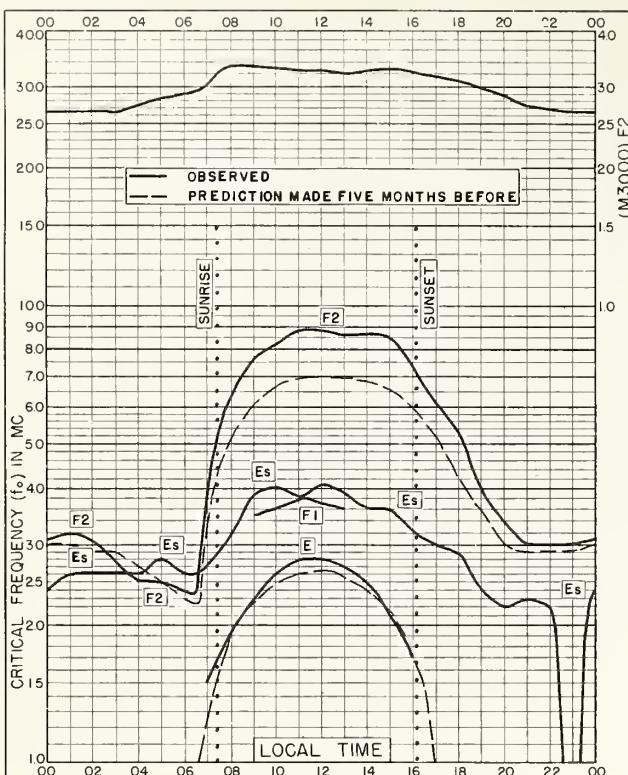


Fig. 57. SLOUGH, ENGLAND
51.5°N, 0.6°W NOVEMBER 1955

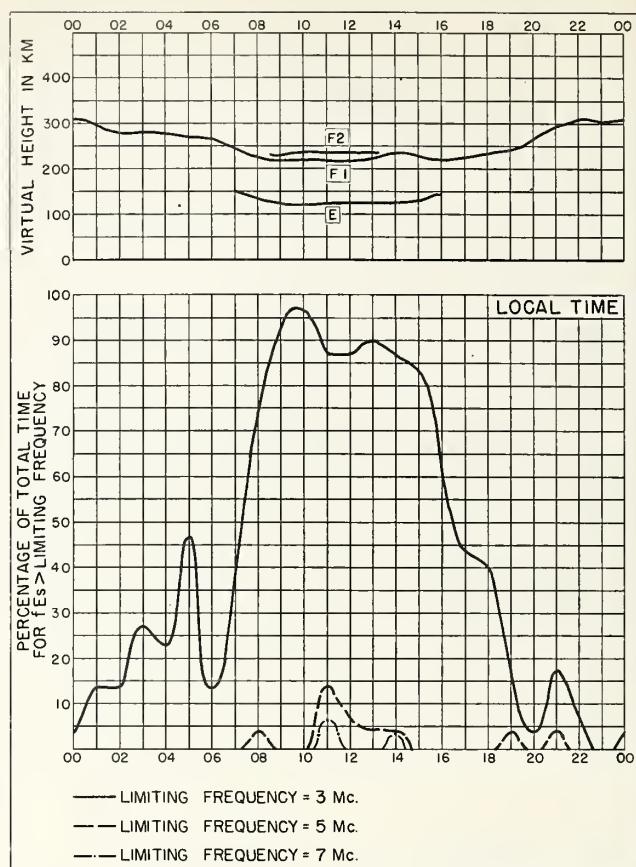


Fig. 58. SLOUGH, ENGLAND NOVEMBER 1955
NBS 490

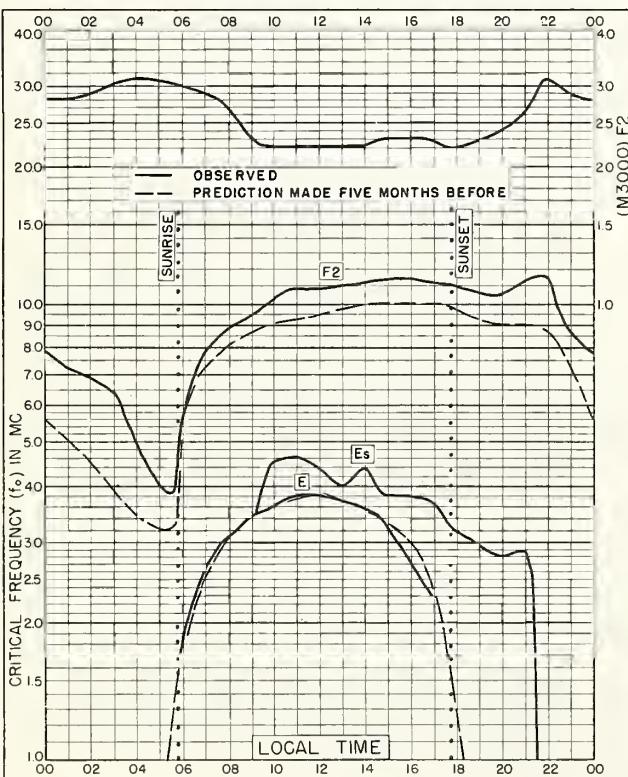


Fig. 59. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E NOVEMBER 1955

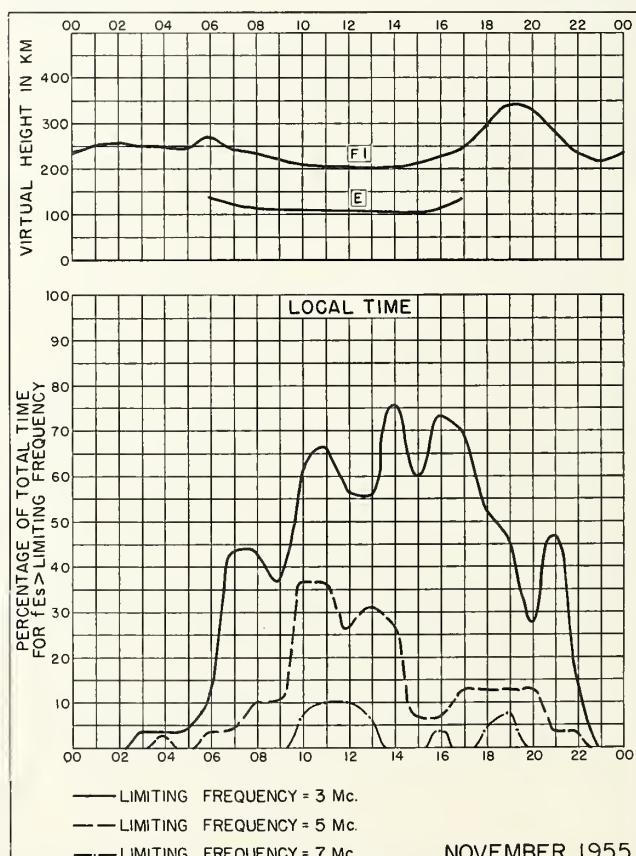
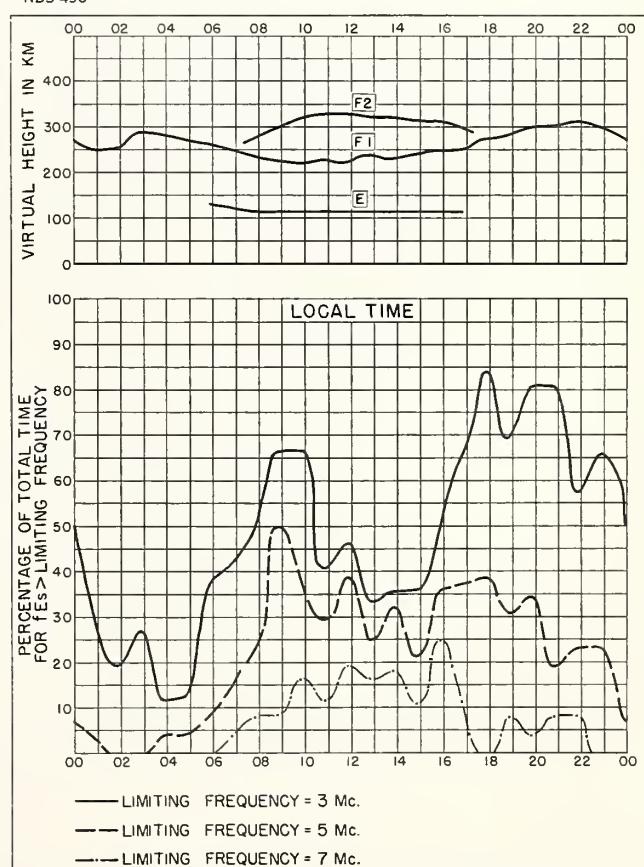
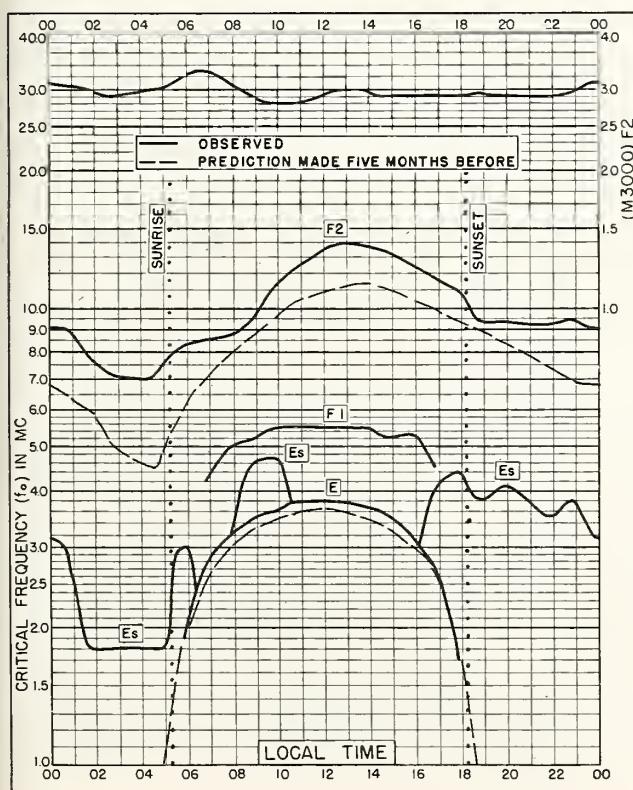
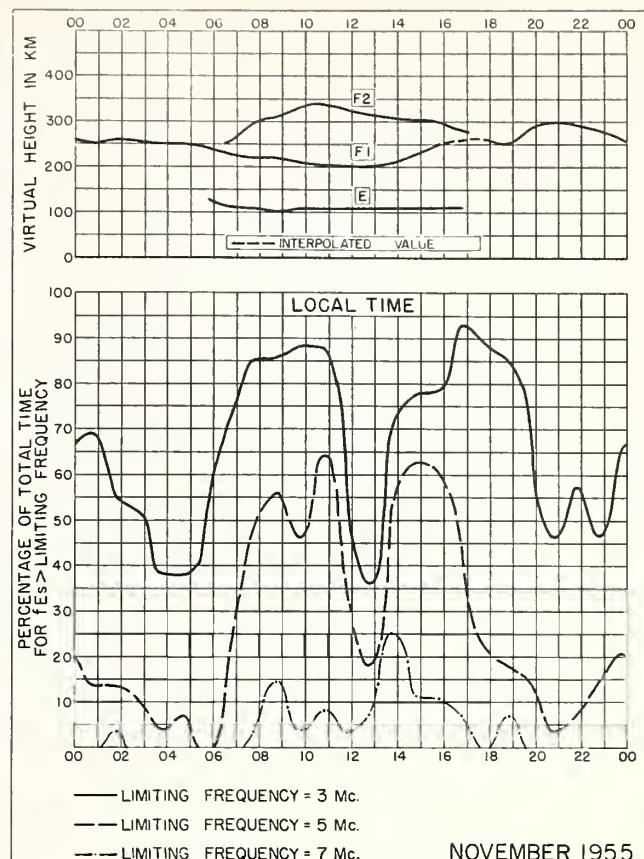
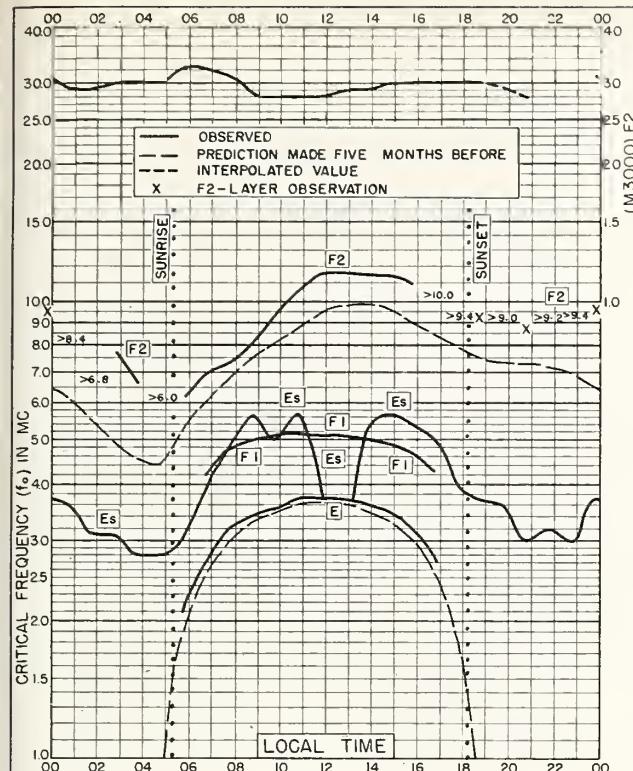


Fig. 60. SINGAPORE, BRITISH MALAYA NOVEMBER 1955
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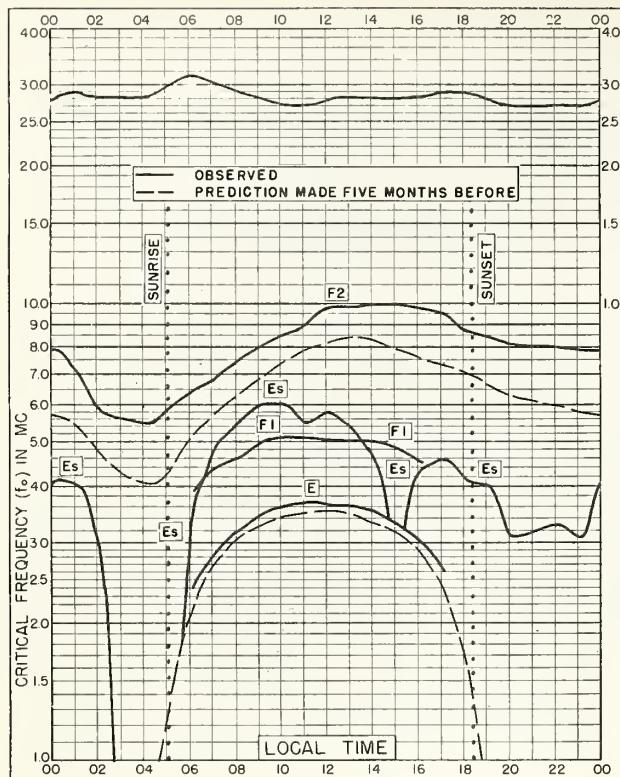


Fig. 65. BRISBANE, AUSTRALIA
27.5°S, 153.0°E NOVEMBER 1955

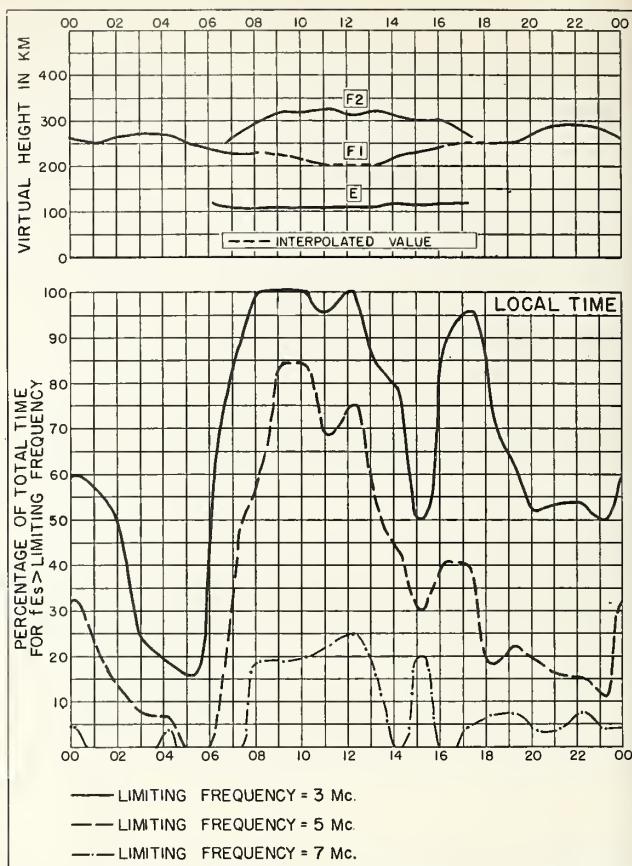


Fig. 66. BRISBANE, AUSTRALIA NOVEMBER 1955

NBS 490

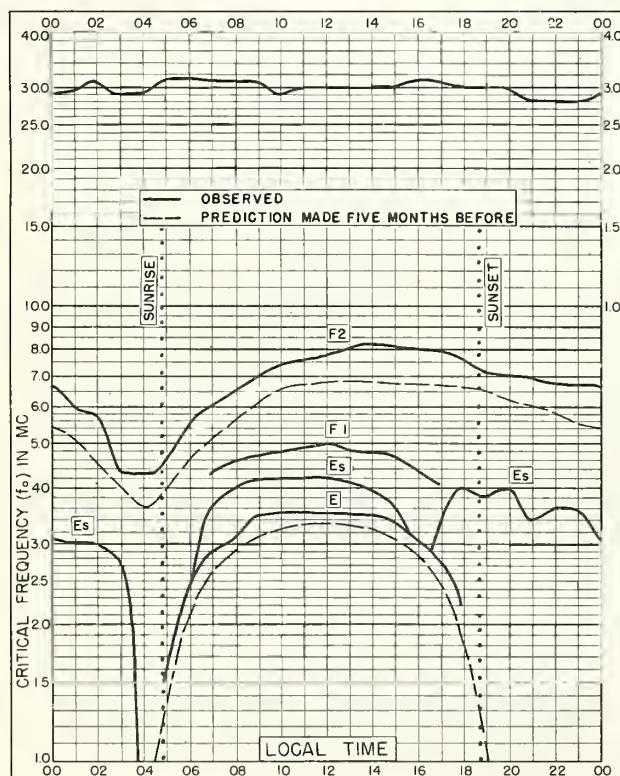


Fig. 67. CANBERRA, AUSTRALIA
35.3°S, 149.0°E NOVEMBER 1955

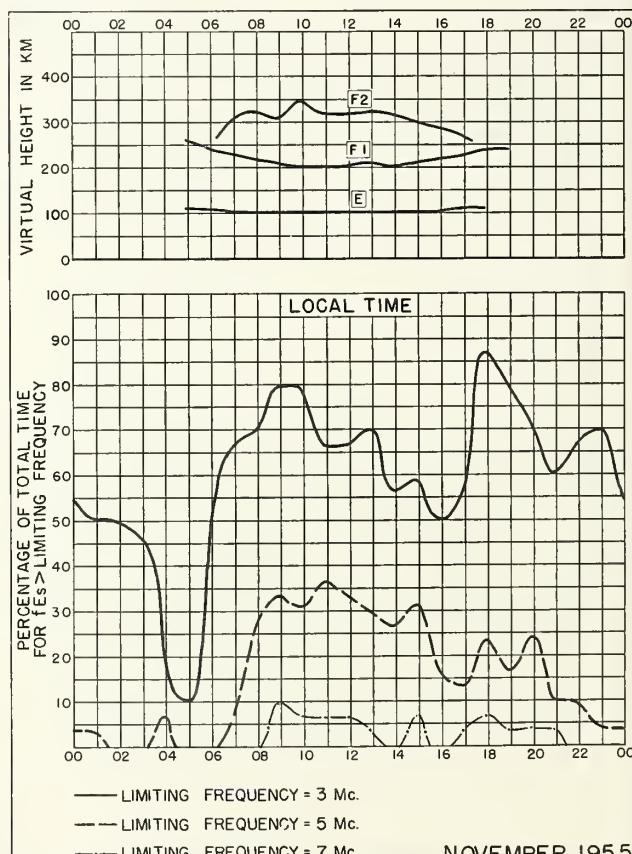


Fig. 68. CANBERRA, AUSTRALIA NOVEMBER 1955

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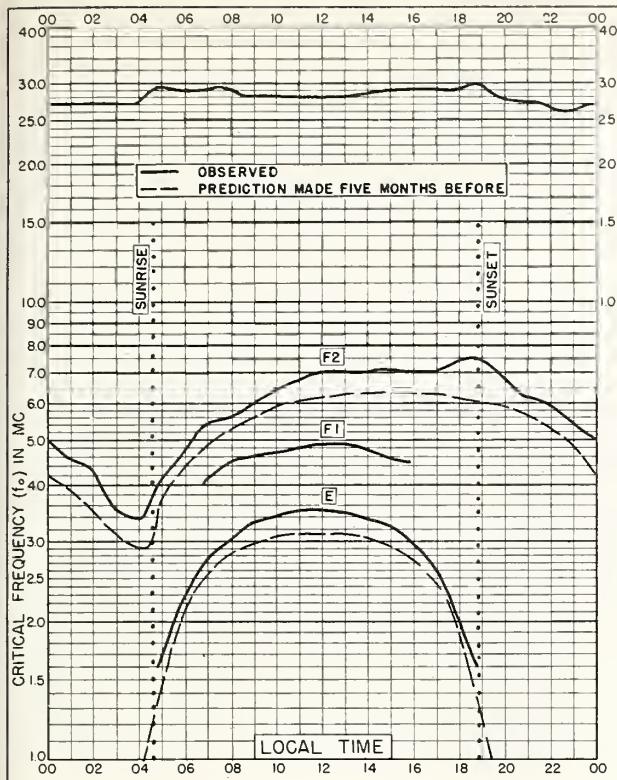


Fig. 69. HOBART, TASMANIA
42.9°S, 147.3°E NOVEMBER 1955

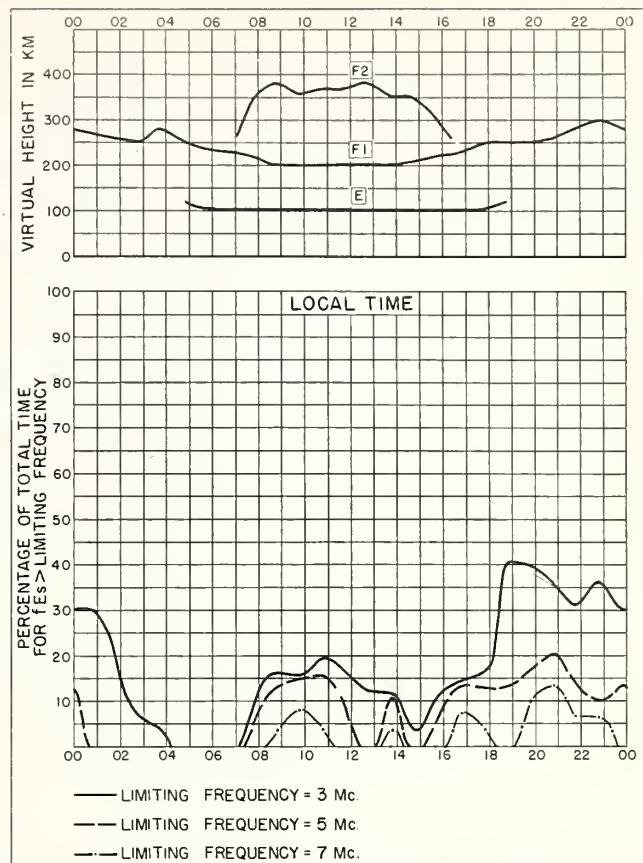


Fig. 70. HOBART, TASMANIA NOVEMBER 1955

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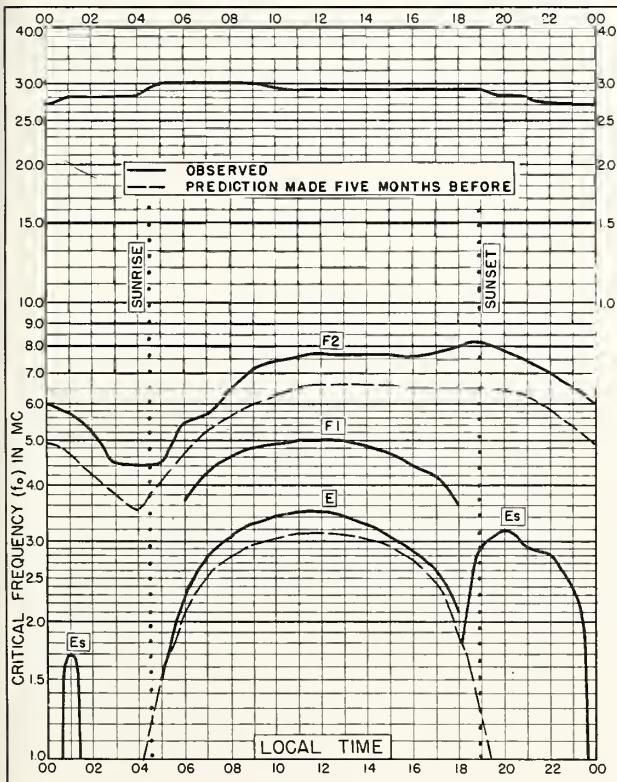


Fig. 71. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E NOVEMBER 1955

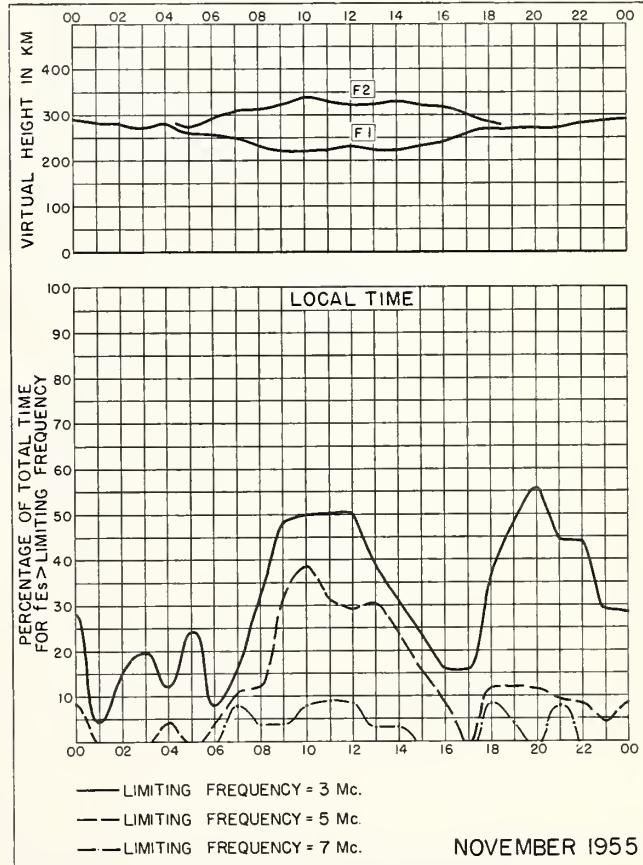


Fig. 72. CHRISTCHURCH, NEW ZEALAND NOVEMBER 1955

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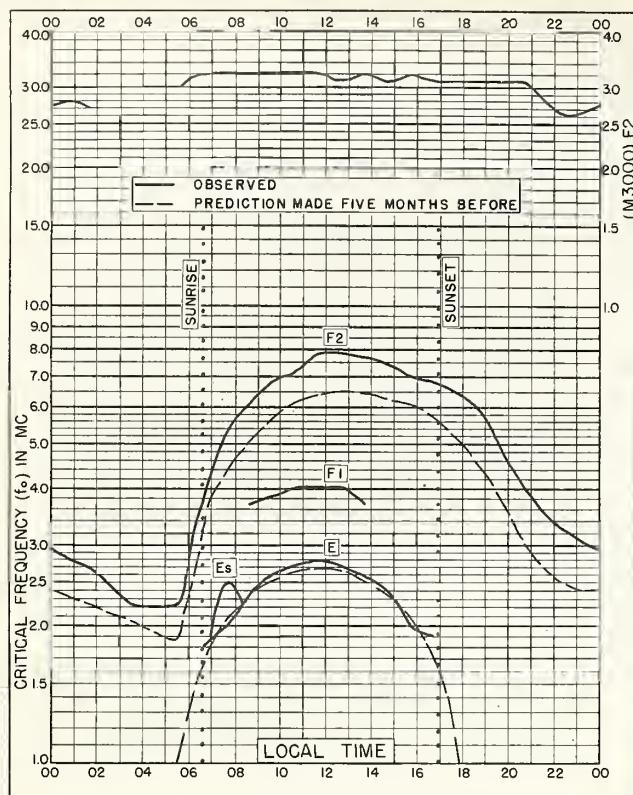


Fig. 73. INVERNESS, SCOTLAND
57.4°N, 4.2°W OCTOBER 1955

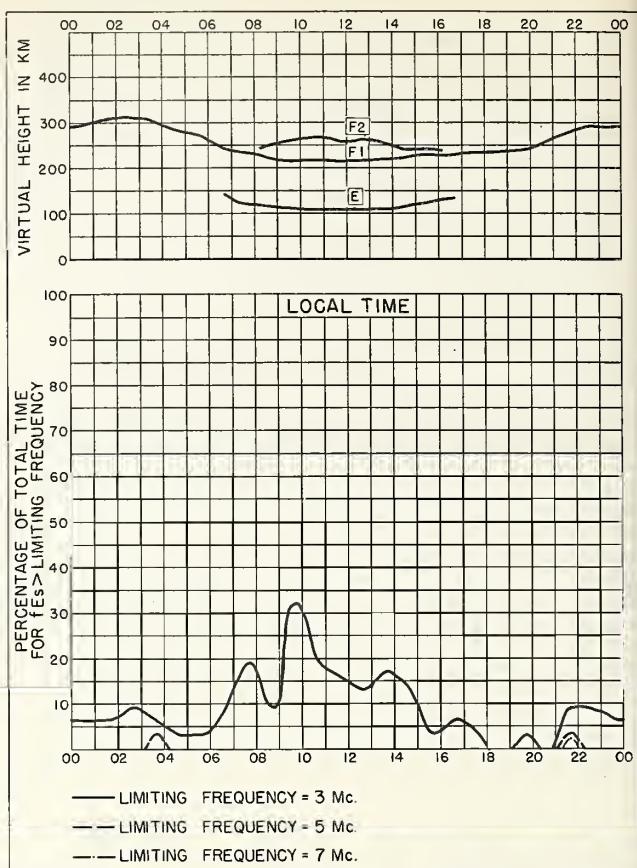


Fig. 74. INVERNESS, SCOTLAND OCTOBER 1955
NBS 490

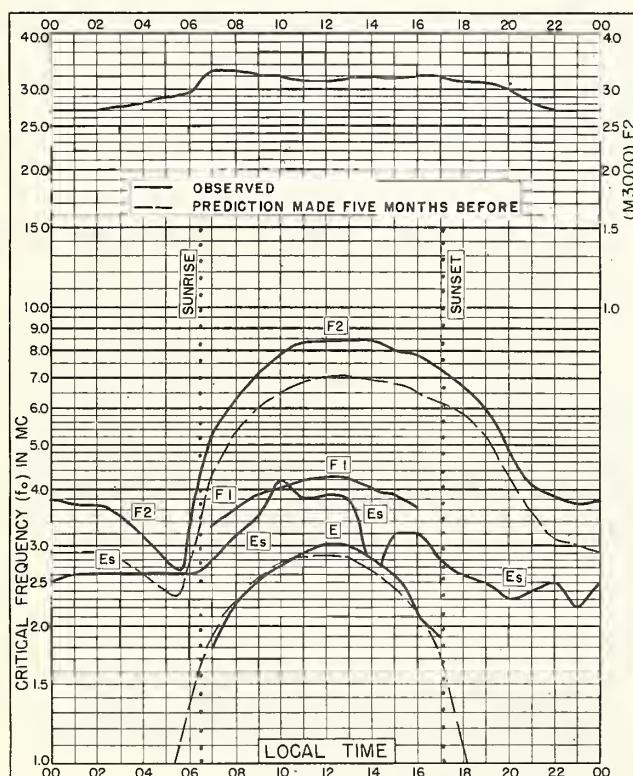


Fig. 75. SLOUGH, ENGLAND
51.5°N, 0.6°W OCTOBER 1955

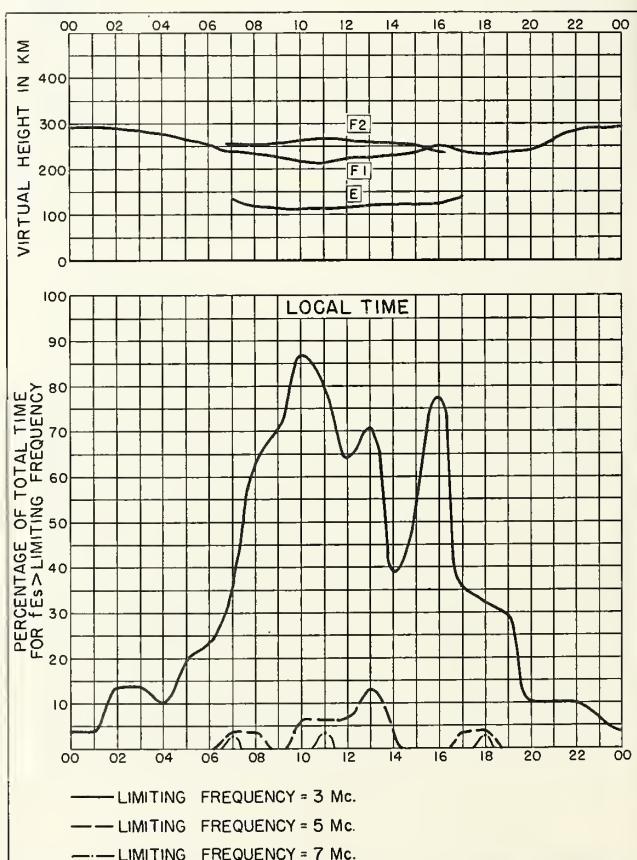


Fig. 76. SLOUGH, ENGLAND OCTOBER 1955
NBS 490

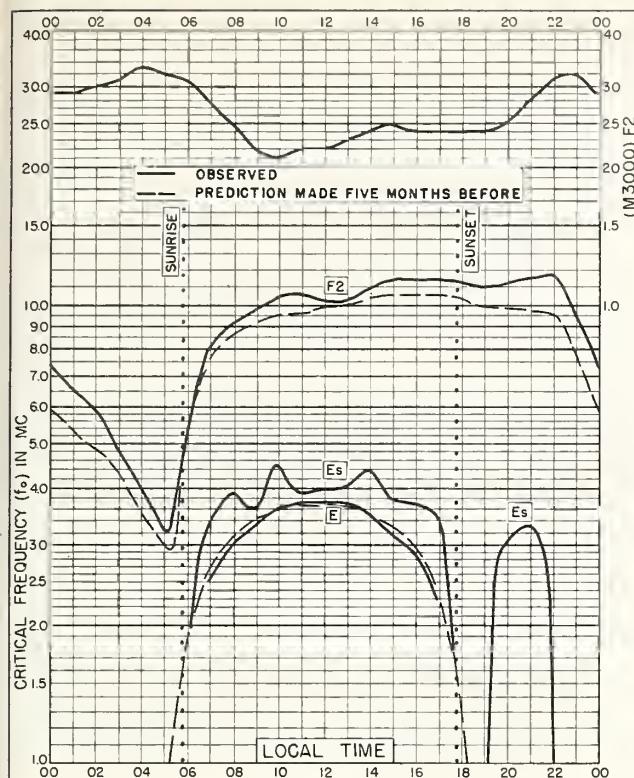


Fig. 77. SINGAPORE, BRITISH MALAYA
I. 3°N , 103.8°E OCTOBER 1955

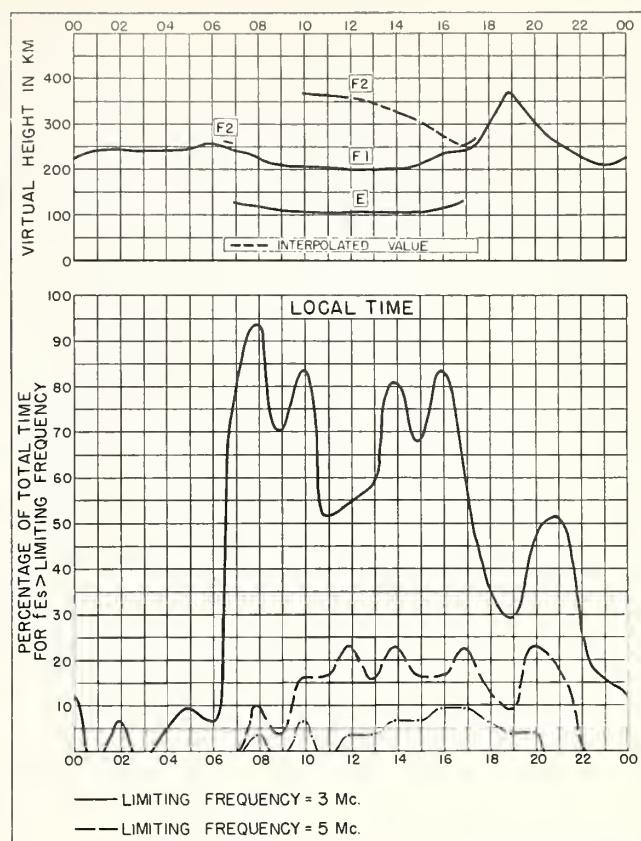


Fig. 78. SINGAPORE, BRITISH MALAYA

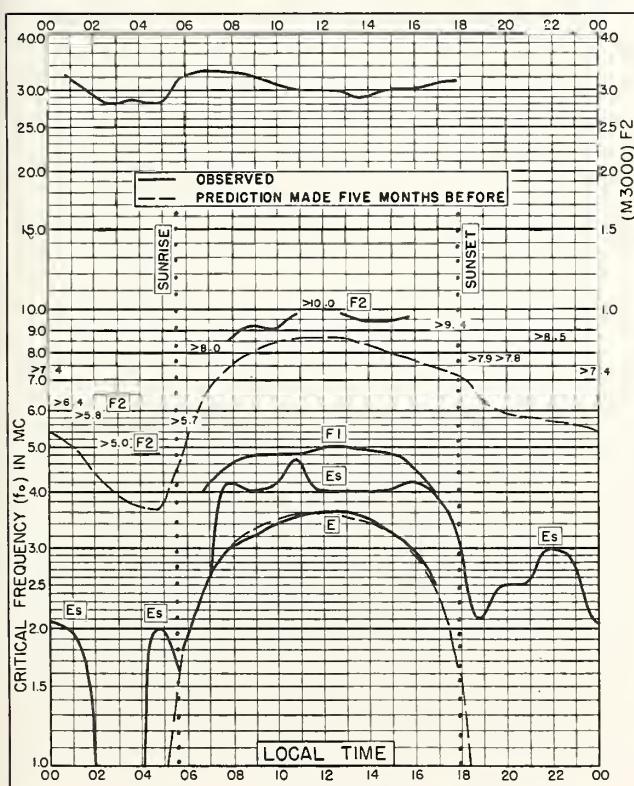


Fig. 79. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E OCTOBER 1955

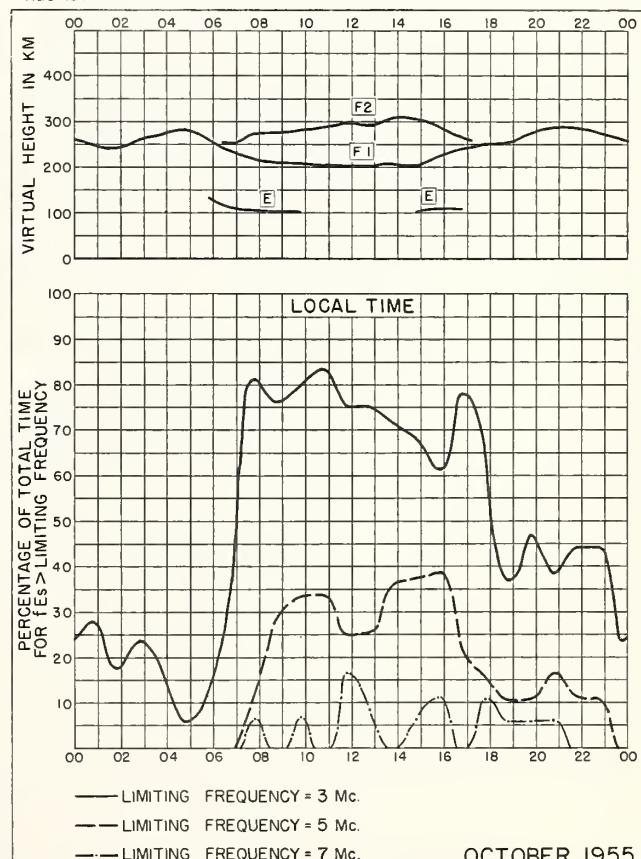


Fig. 80. TOWNSVILLE, AUSTRALIA

50

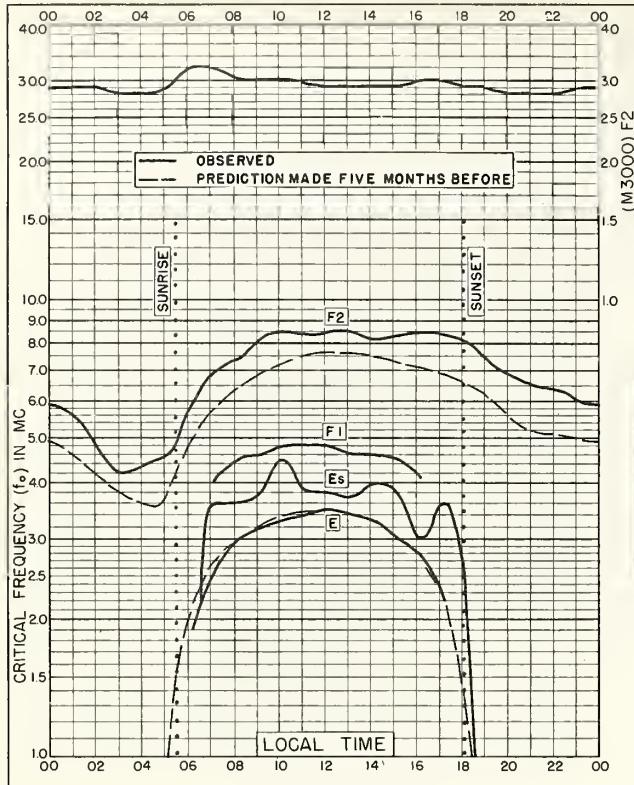
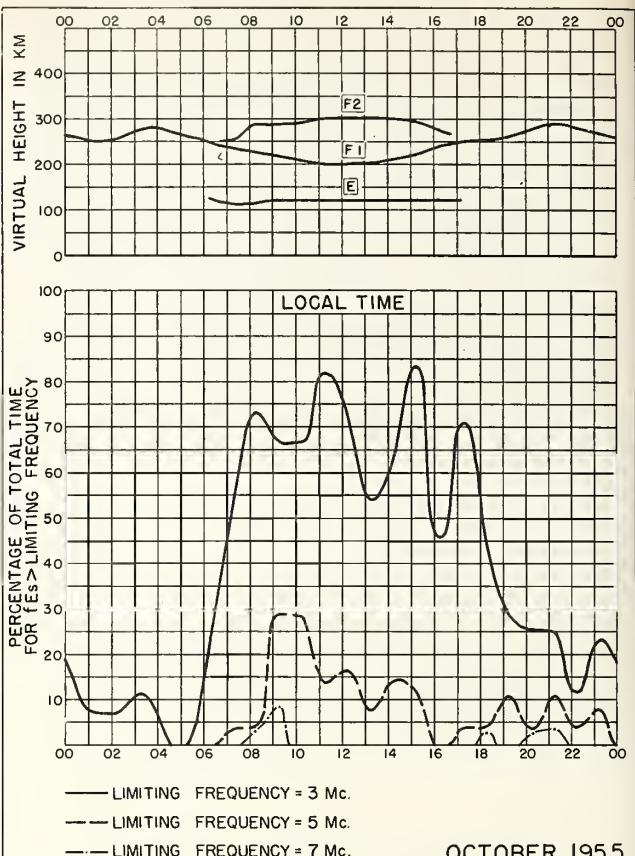


Fig. 81. BRISBANE, AUSTRALIA
27.5°S, 153.0°E OCTOBER 1955



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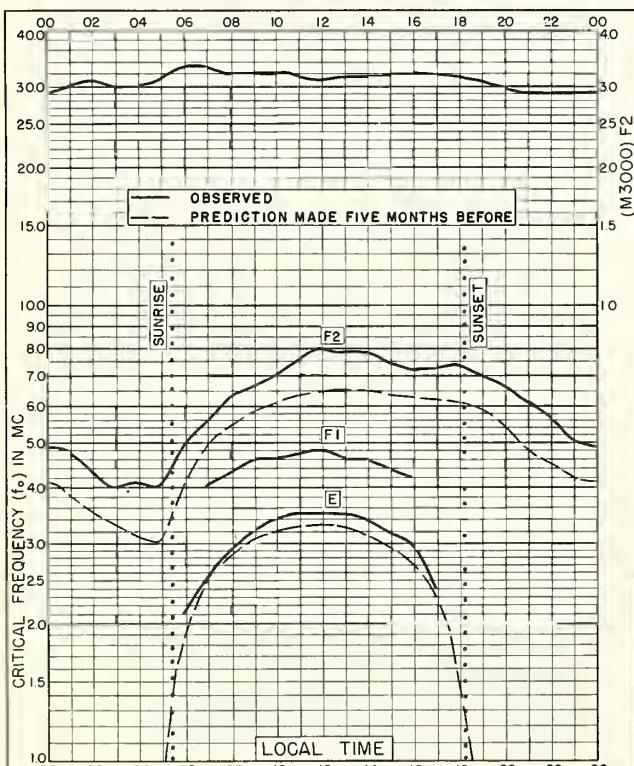
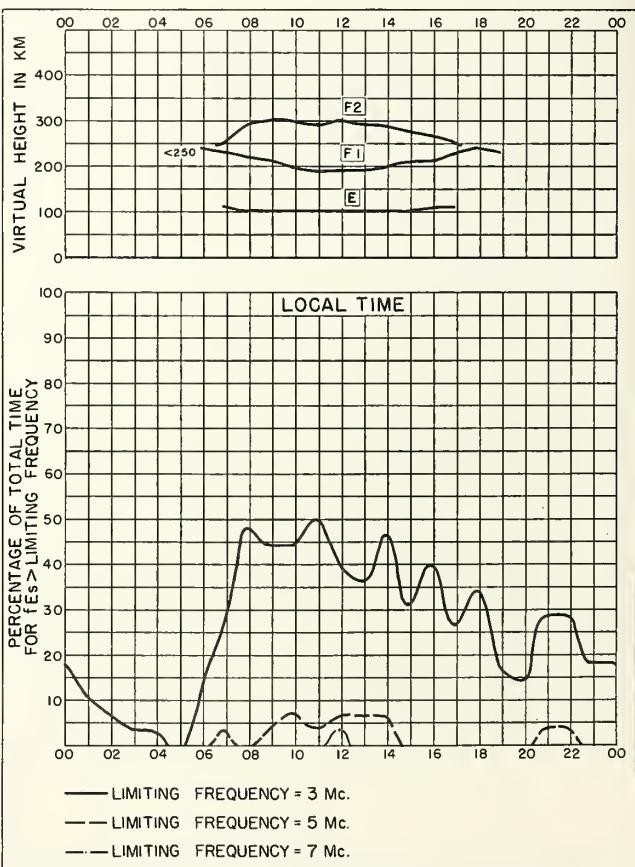


Fig. 83. CANBERRA, AUSTRALIA
35.3°S, 149.0°E OCTOBER 1955



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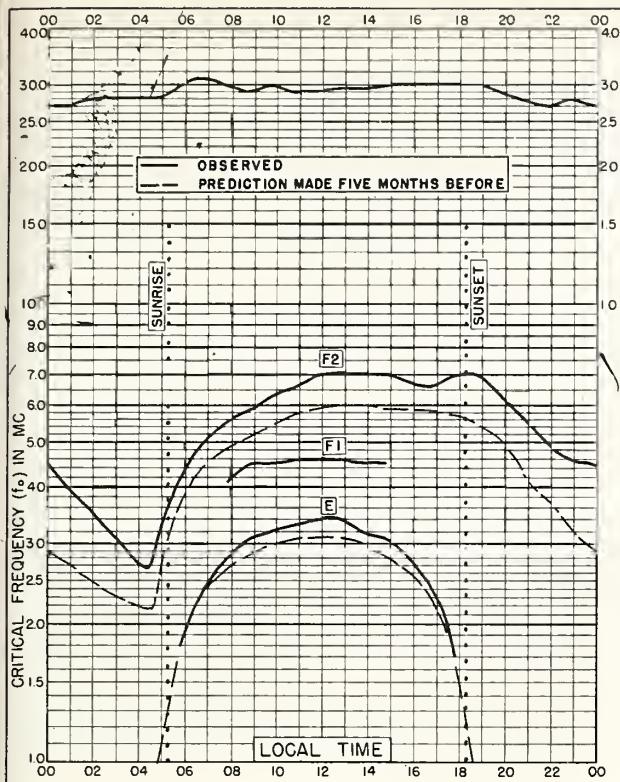


Fig. 85. HOBART, TASMANIA
42.9°S, 147.3°E OCTOBER 1955

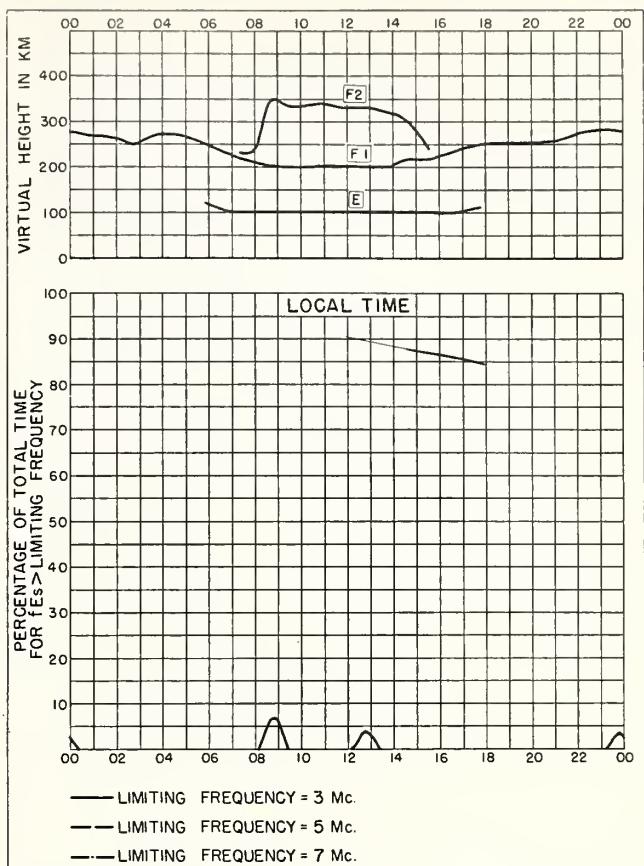


Fig. 86. HOBART, TASMANIA OCTOBER 1955

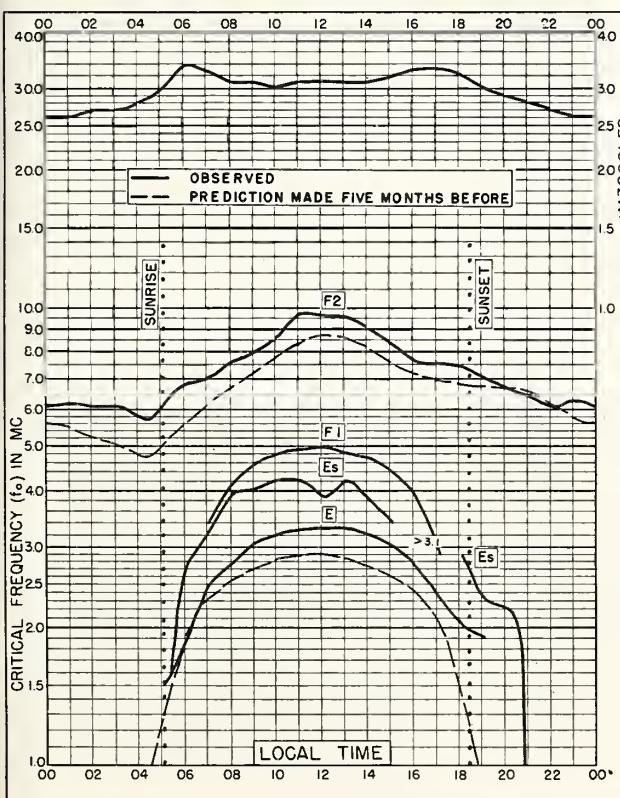


Fig. 87. FALKLAND, IS.
51.7°S, 57.8°W OCTOBER 1955

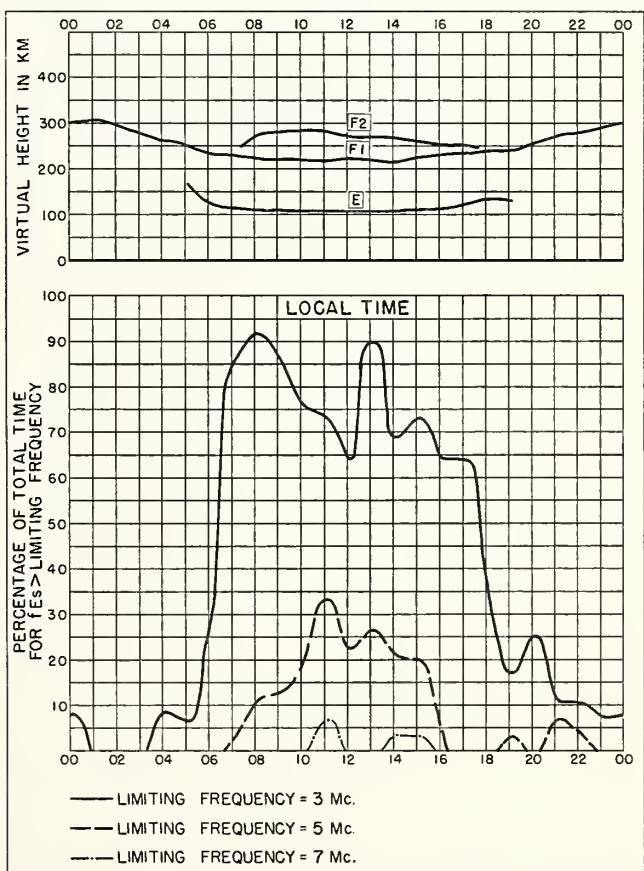


Fig. 88. FALKLAND IS. OCTOBER 1955

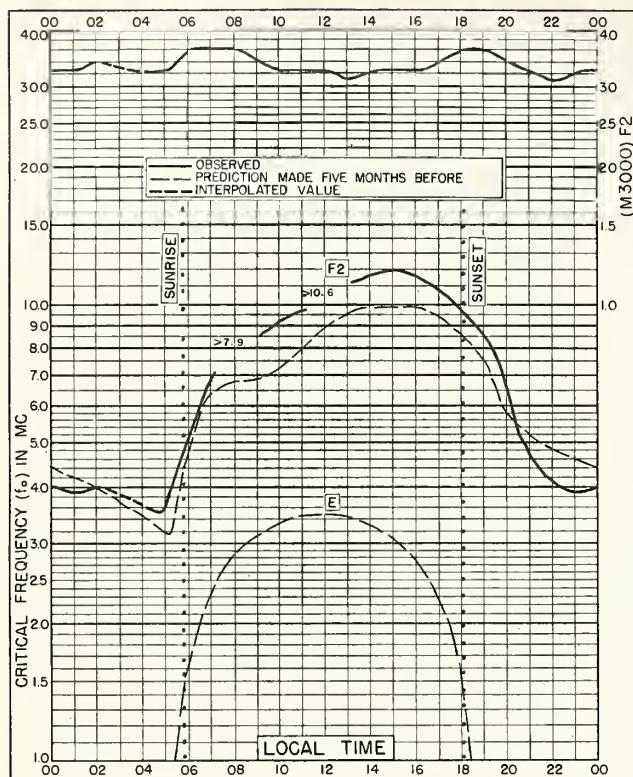


Fig. 89. DELHI, INDIA

28.6°N, 77.1°E

SEPTEMBER 1955

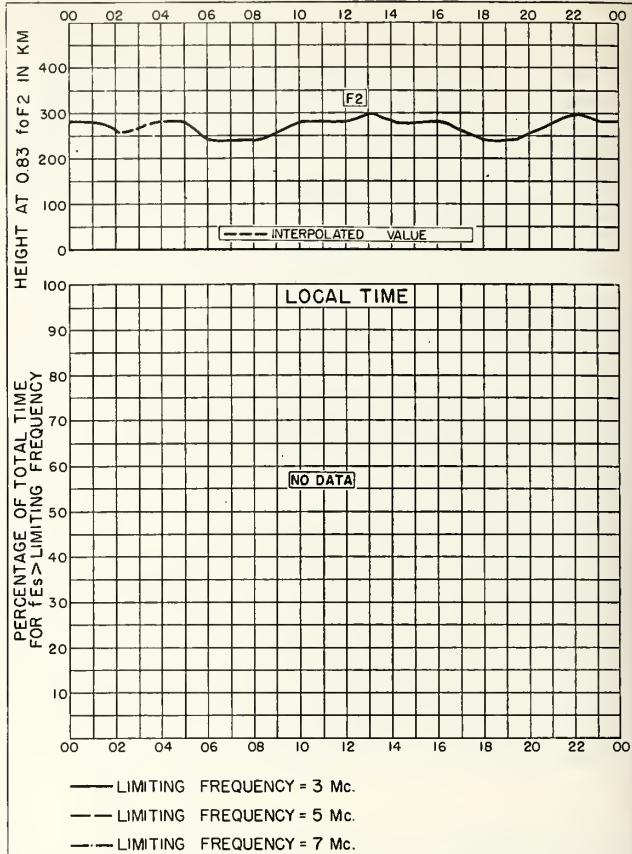


Fig. 90. DELHI, INDIA

SEPTEMBER 1955

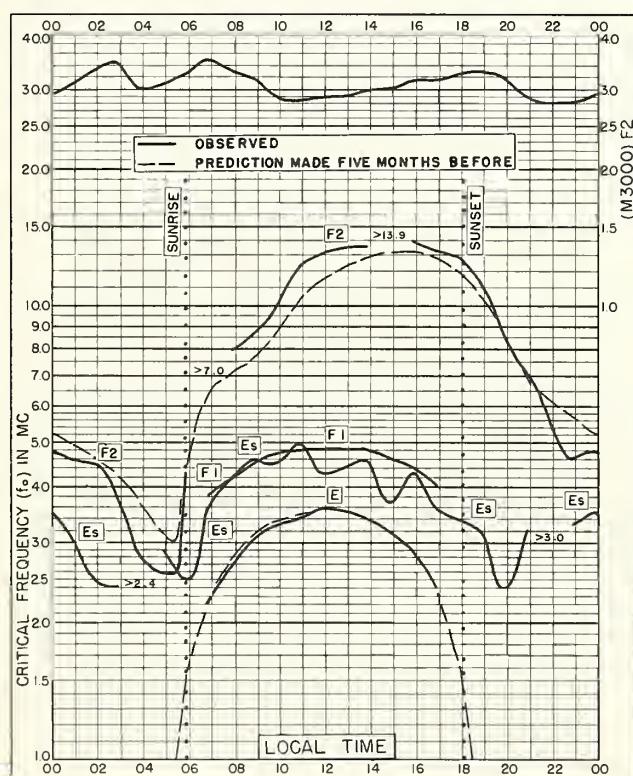


Fig. 91. AHMEDABAD, INDIA

23.0°N, 72.6°E

SEPTEMBER 1955

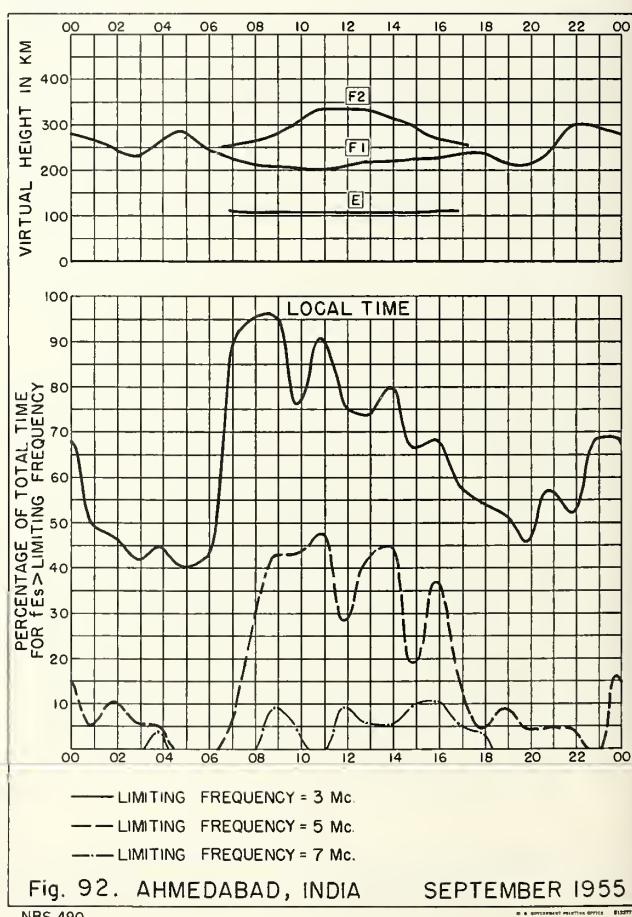


Fig. 92. AHMEDABAD, INDIA

SEPTEMBER 1955

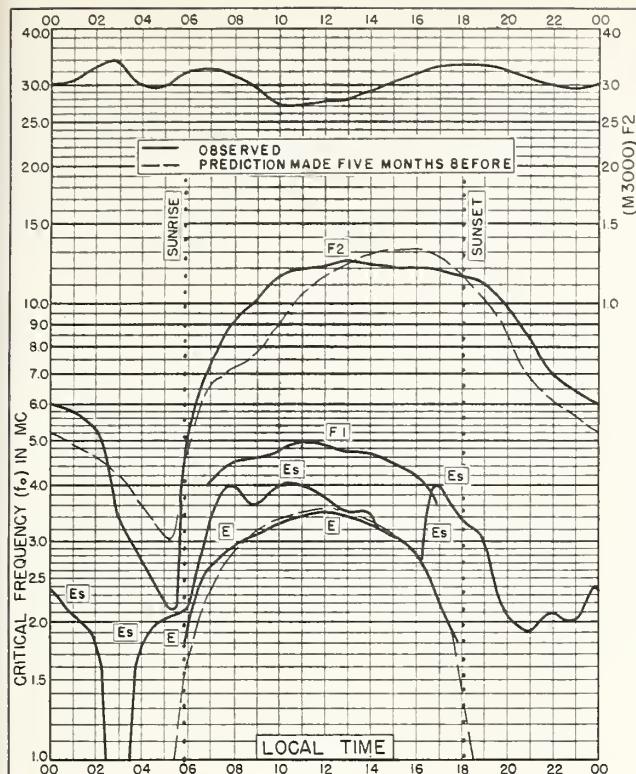


Fig. 93. CALCUTTA, INDIA
22.9°N, 88.5°E SEPTEMBER 1955

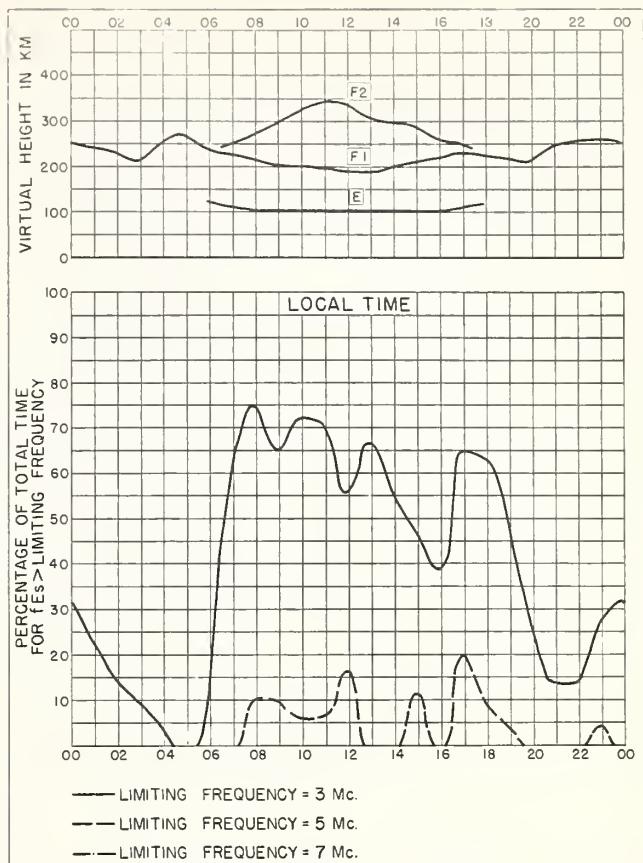


Fig. 94. CALCUTTA, INDIA SEPTEMBER 1955

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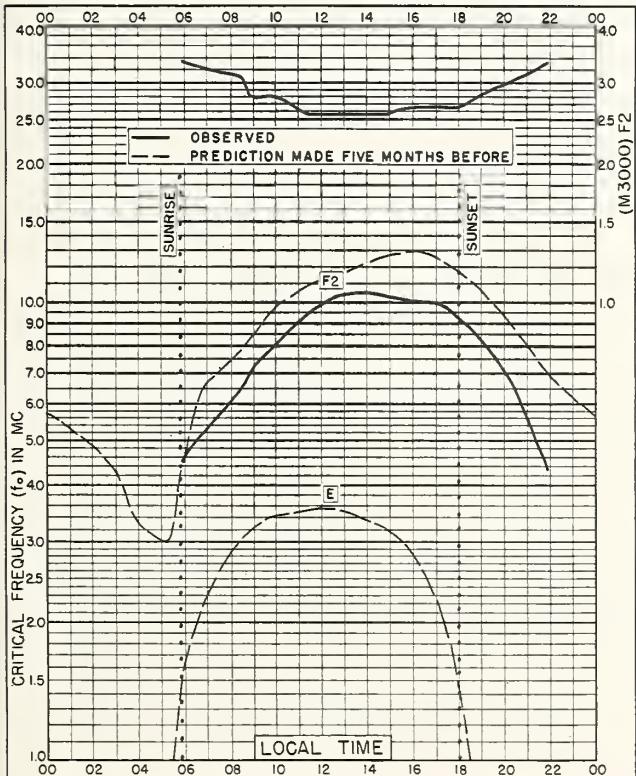


Fig. 95. BOMBAY, INDIA
19.0°N, 73.0°E SEPTEMBER 1955

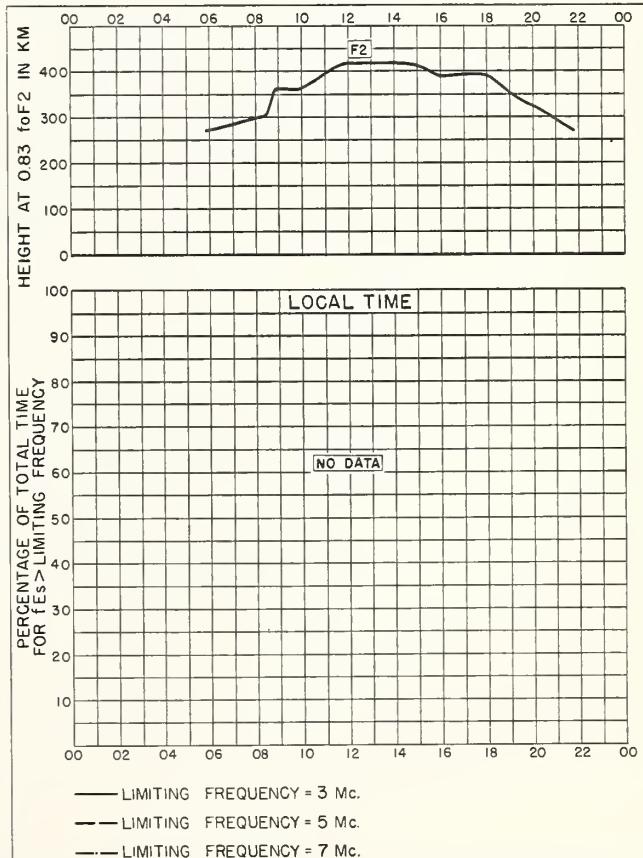


Fig. 96. BOMBAY, INDIA SEPTEMBER 1955

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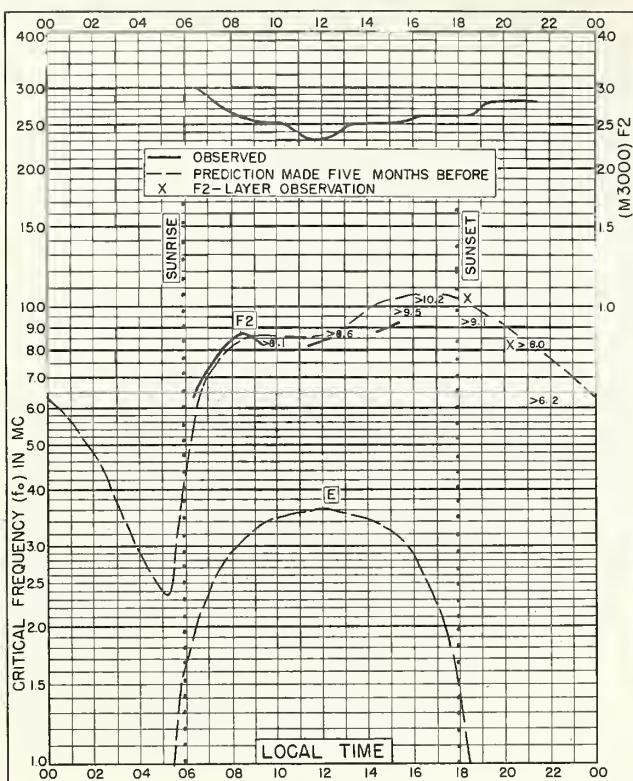


Fig. 97. MADRAS, INDIA
13.0°N, 80.2°E SEPTEMBER 1955

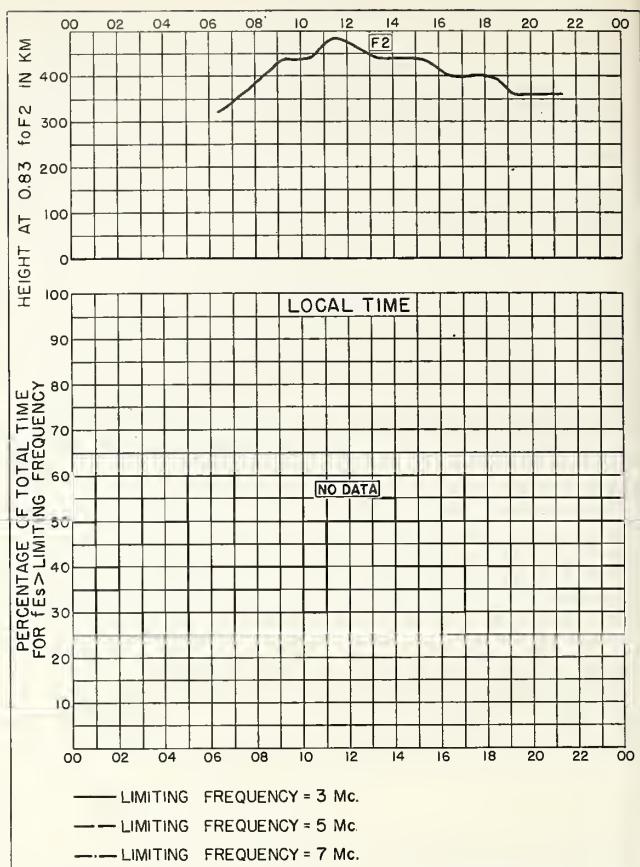


Fig. 98. MADRAS, INDIA SEPTEMBER 1955

NBS 490

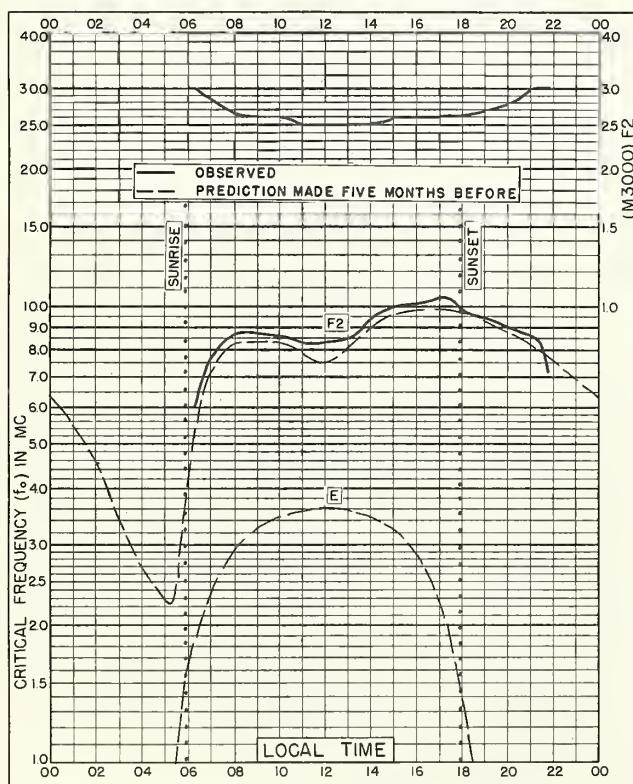


Fig. 99. TIRUCHY, INDIA
10.8°N, 78.8°E SEPTEMBER 1955

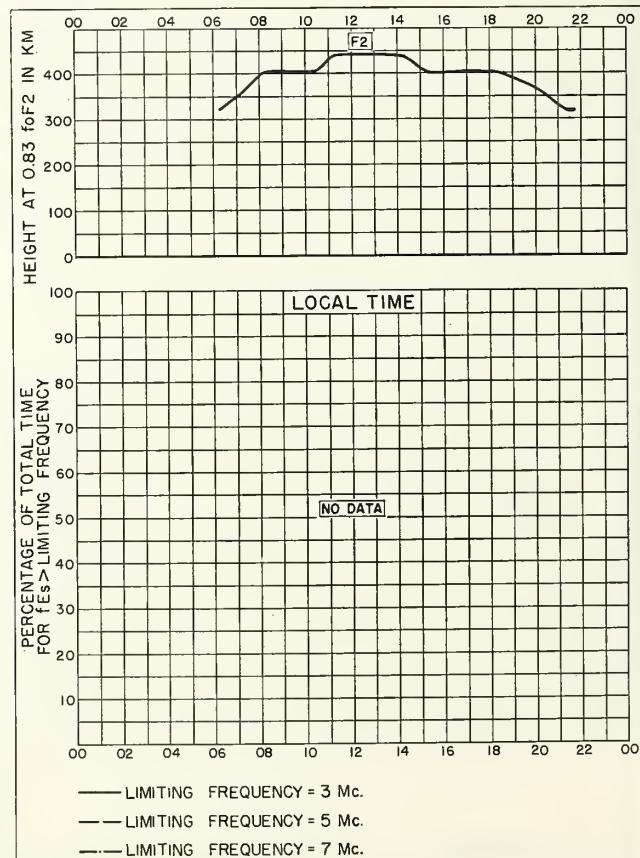
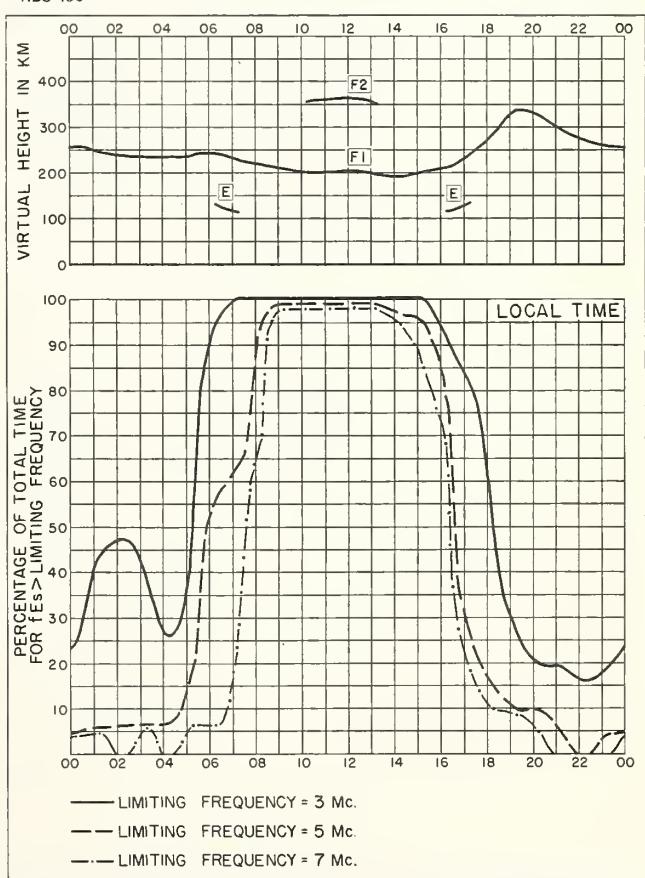
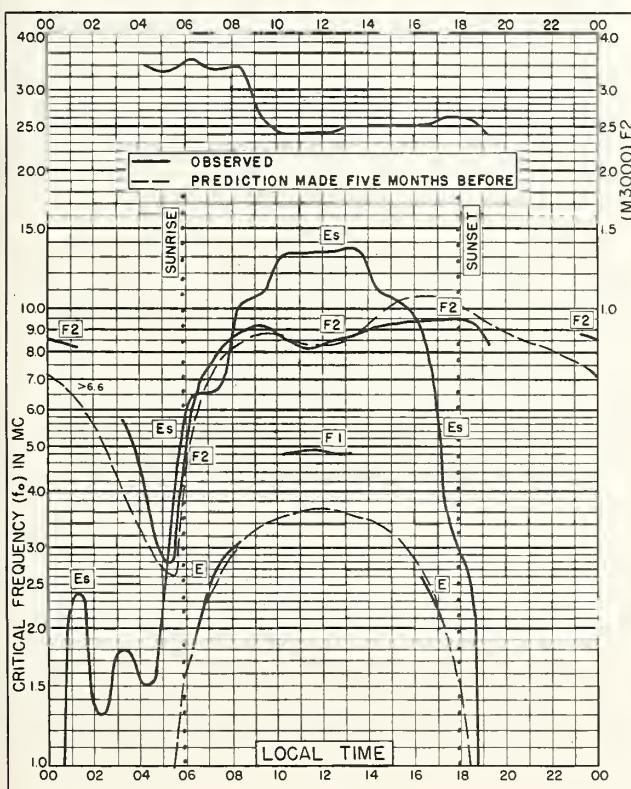
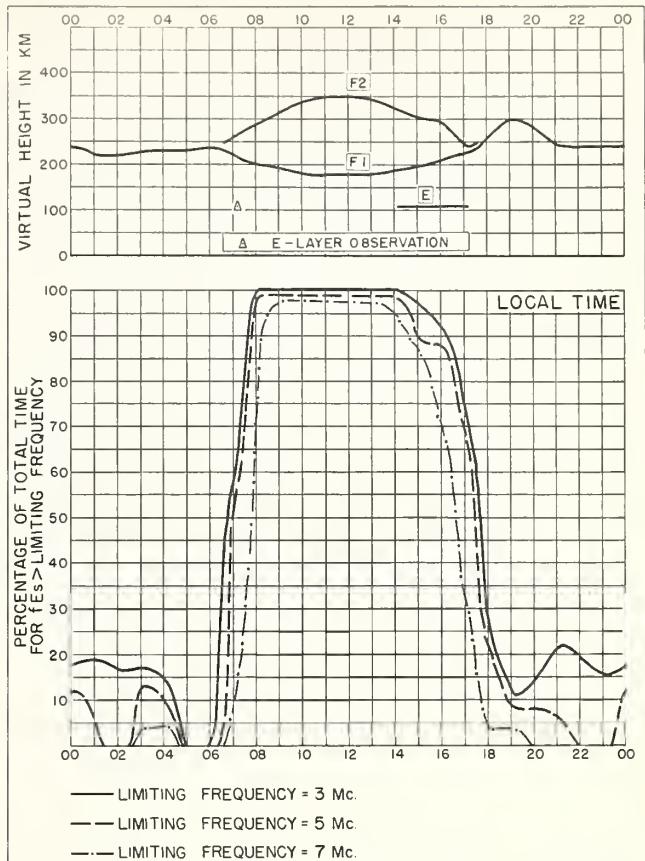
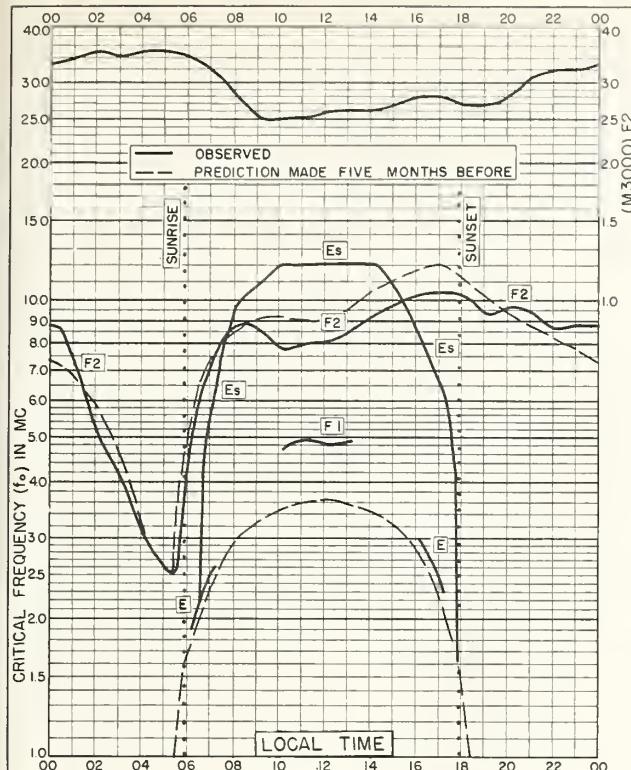


Fig. 100. TIRUCHY, INDIA SEPTEMBER 1955

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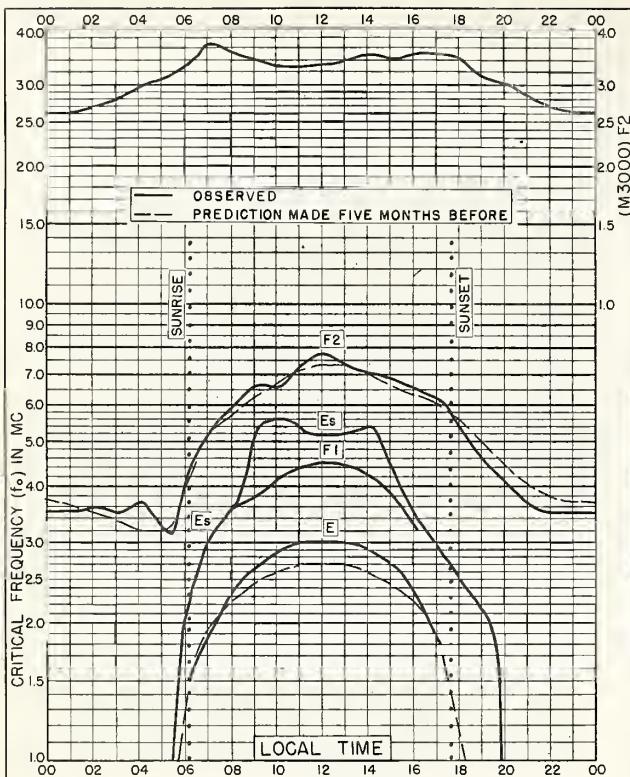


Fig. 105. FALKLAND IS.
51.7°S, 57.8°W SEPTEMBER 1955

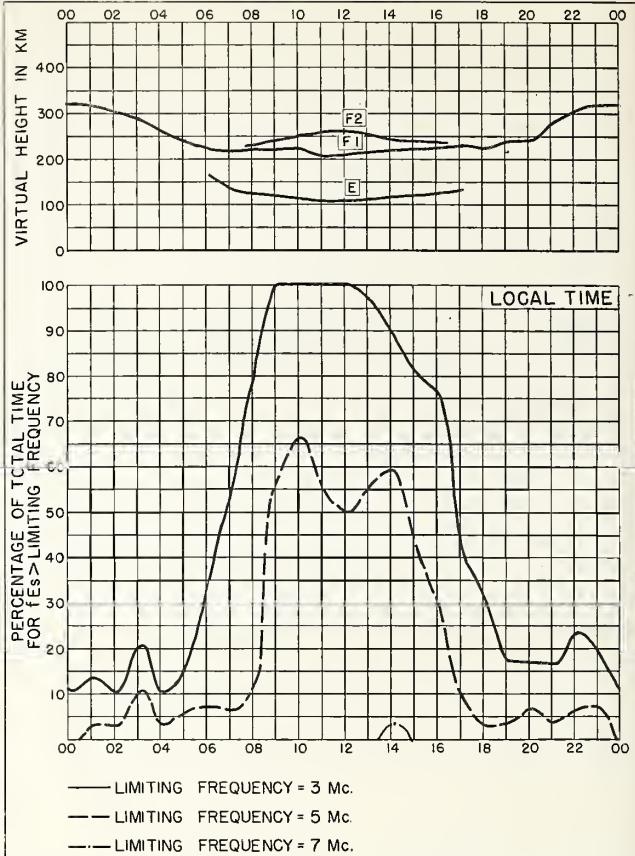


Fig. 106. FALKLAND IS. SEPTEMBER 1955

NBS 490

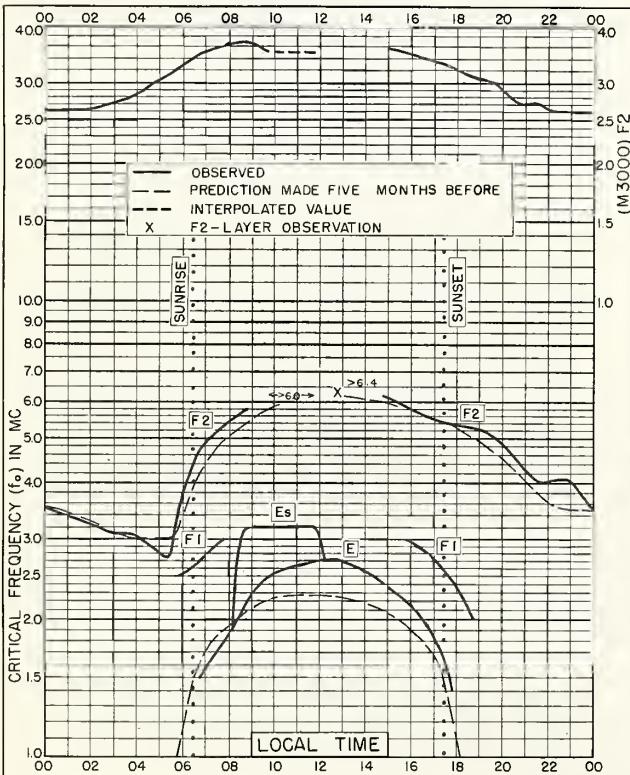


Fig. 107. PORT LOCKROY
64.8°S, 63.5°W SEPTEMBER 1955

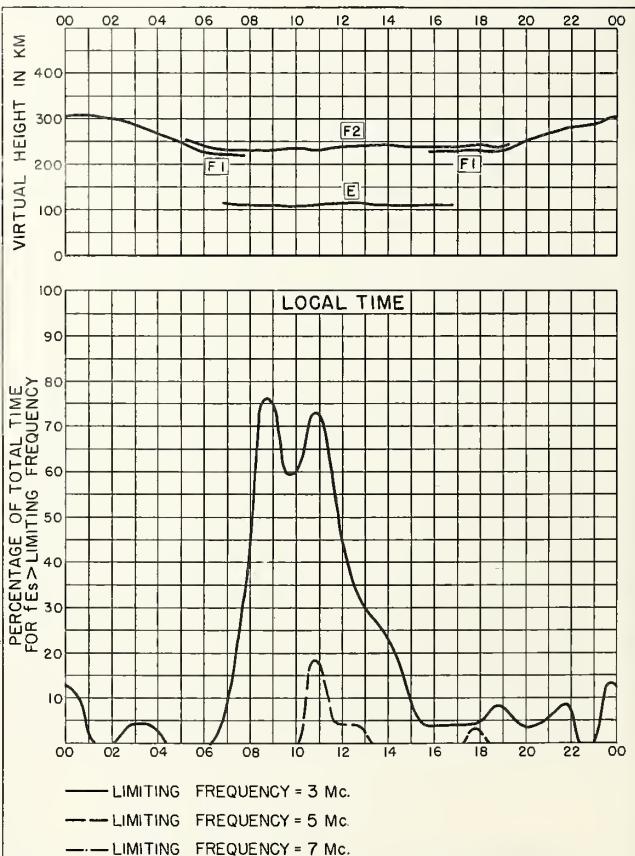


Fig. 108. PORT LOCKROY SEPTEMBER 1955

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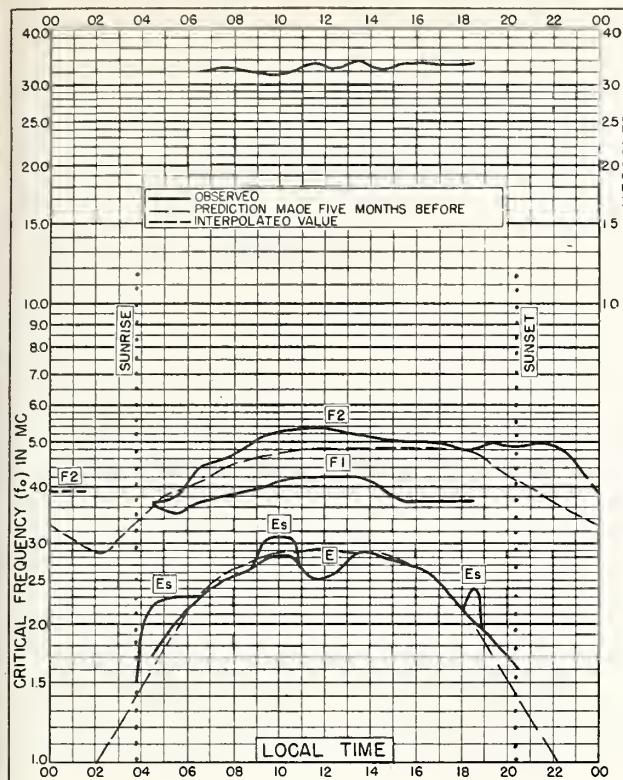


Fig. 109. LULEA, SWEDEN

65.6°N, 22.1°E

AUGUST 1955

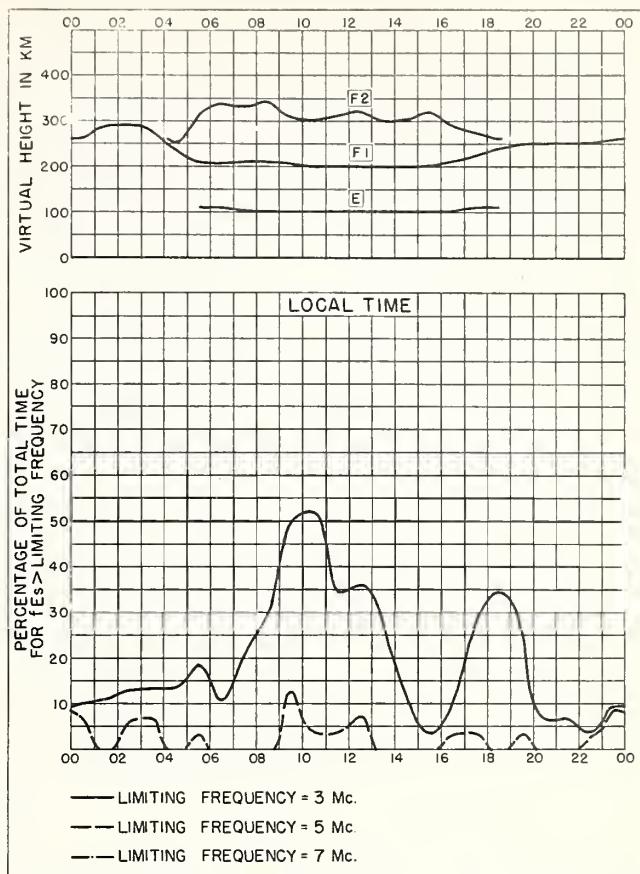


Fig. 110. LULEA, SWEDEN

AUGUST 1955

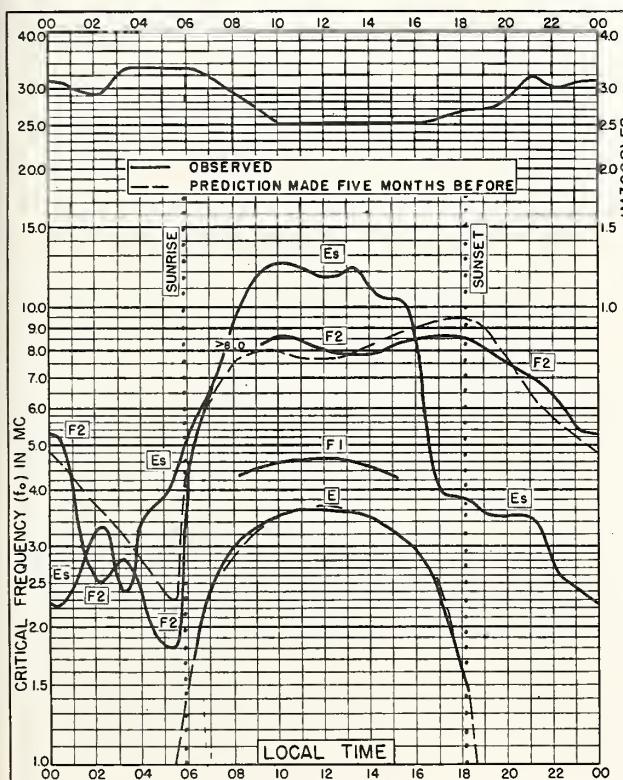


Fig. 111. IBADAN, NIGERIA

7.4°N, 4.0°E

AUGUST 1955

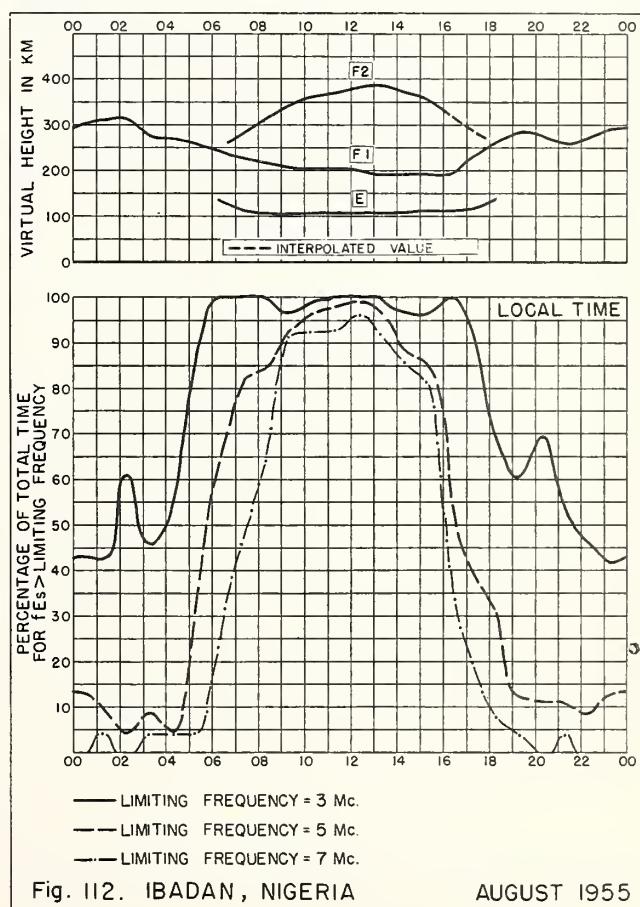


Fig. 112. IBADAN, NIGERIA

AUGUST 1955

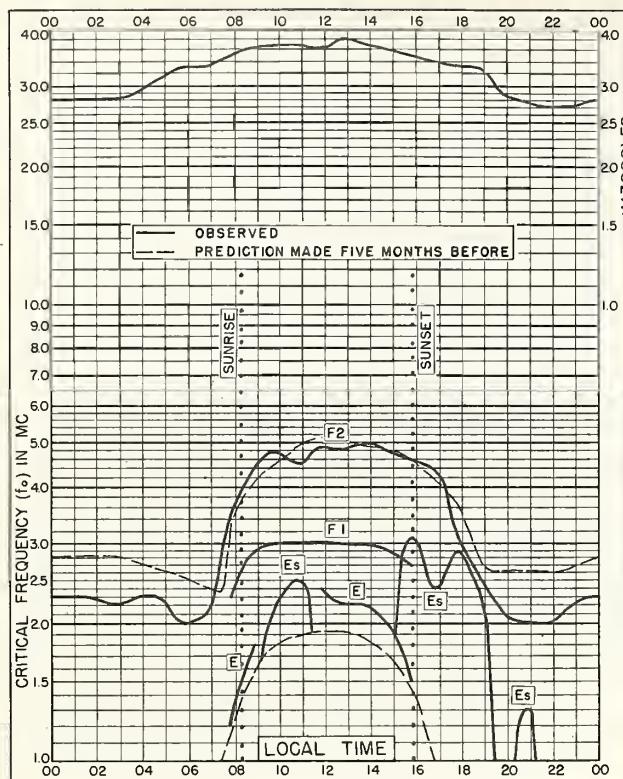


Fig. 113. PORT LOCKROY
64.8°S, 63.5°W AUGUST 1955

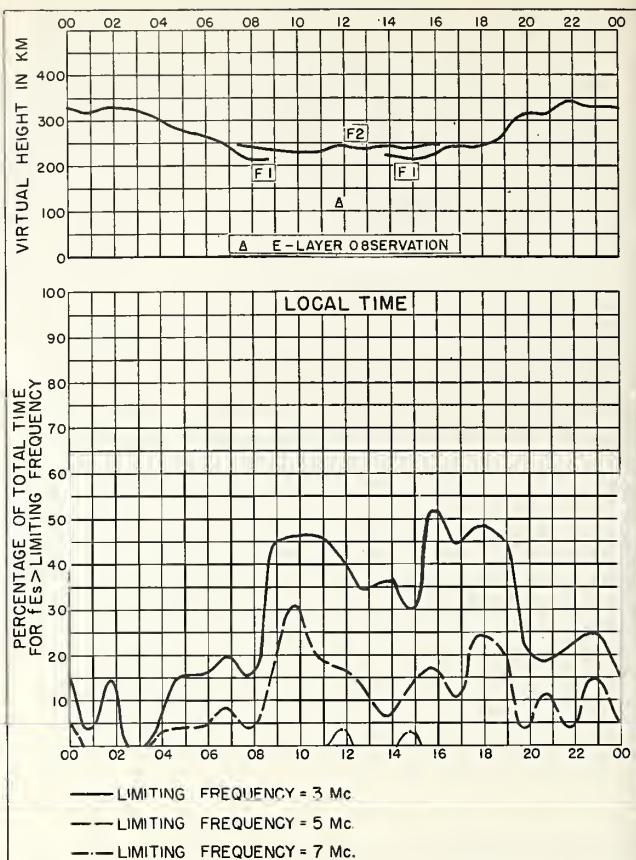


Fig. 114. PORT LOCKROY AUGUST 1955

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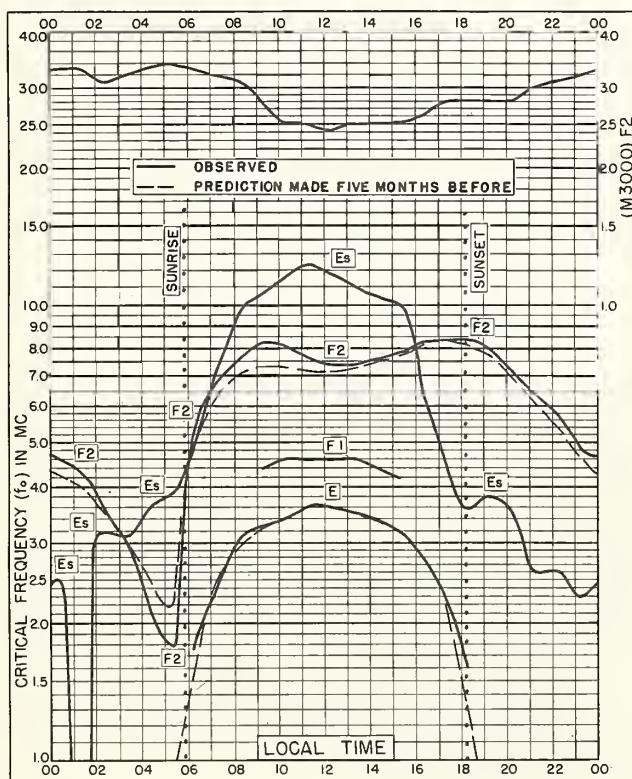


Fig. 115. IBADAN, NIGERIA
7.4°N, 4.0°E JULY 1955

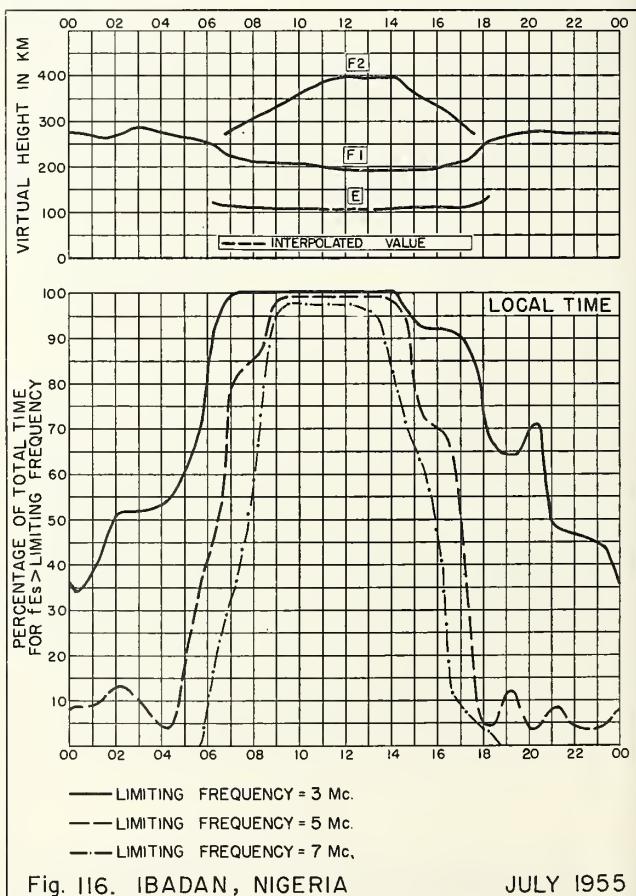


Fig. 116. IBADAN, NIGERIA JULY 1955

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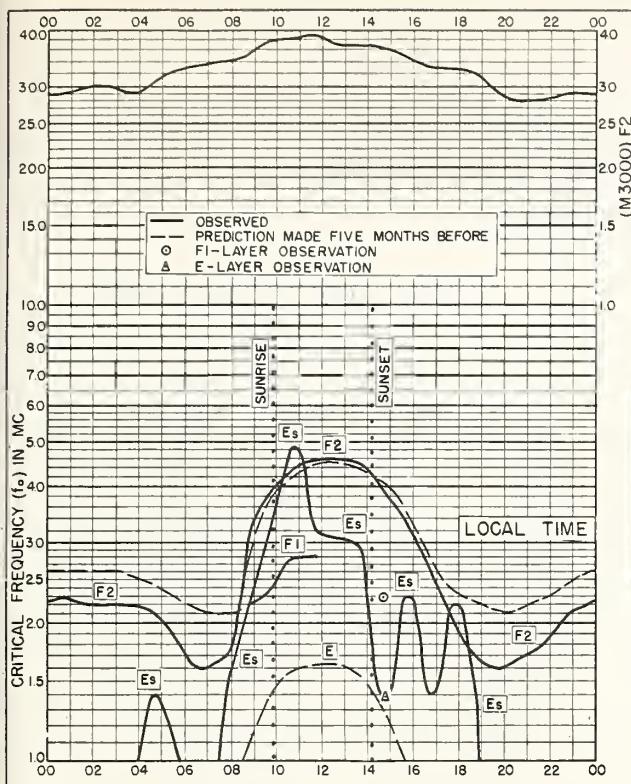


Fig. 117. PORT LOCKROY
64.8°S, 63.5°W JULY 1955

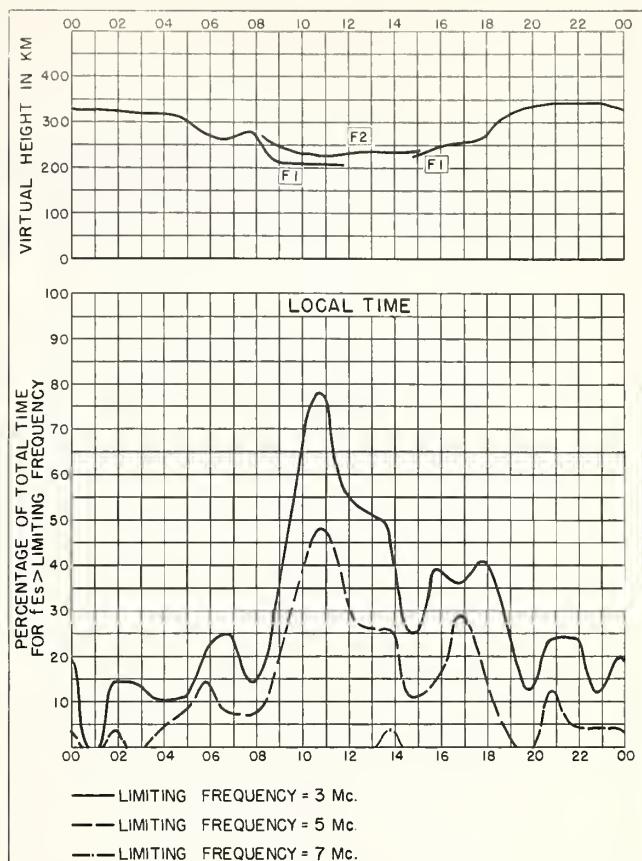


Fig. 118. PORT LOCKROY JULY 1955

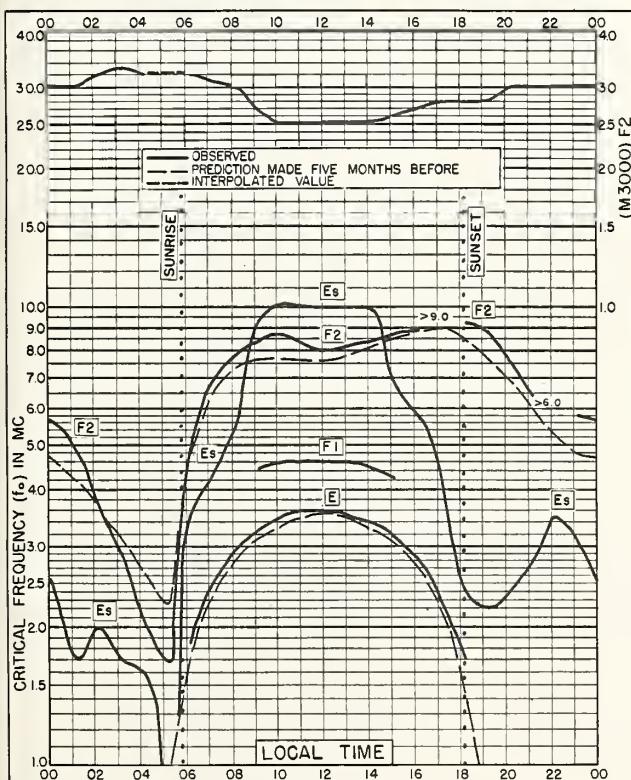


Fig. 119. IBADAN, NIGERIA
7.4°N, 4.0°E JUNE 1955

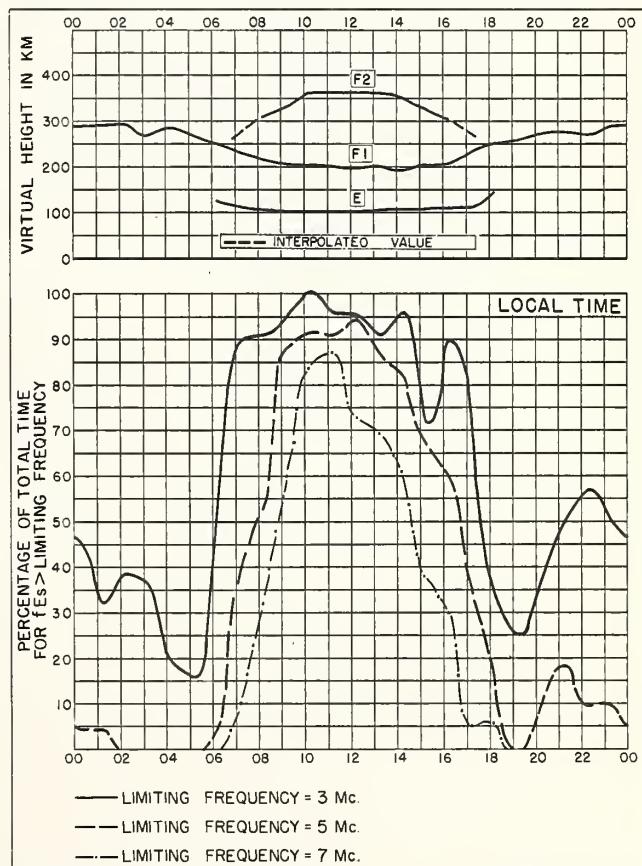


Fig. 120. IBADAN, NIGERIA JUNE 1955

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