PART A

IONOSPHERIC DATA

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NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

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

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

There was an expansion in meaning of the following:

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

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

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

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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

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

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

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

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

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

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

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

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

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

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

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

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

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

Month	Predicted Sunspot Number										
	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
December		150*	150*	150	42	11	15	33	53	86	108
November		150*	150*	147	35	10	16	38	52	87	112
October		150*	150*	135	31	10	17	43	52	90	114
September	141	150*	150*	119	30	8	18	46	54	91	115
August	142	150*	150*	105	27	8	18	49	57	96	111
July	141	150*	150*	95	22	8	20	51	60	101	108
June	143	150*	150*	89	18	9	21	52	63	103	108
May	146	150*	150*	77	16	10	22	52	68	102	108
April	150*	150*	150*	68	13	10	24	52	74	101	109
March	150*	150*	150*	60	14	11	27	52	78	103	111
February	150*	150*	150*	53	14	12	29	51	82	103	113
January	150*	150*	150*	48	12	14	30	53	85	105	112

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

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183			

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 143 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

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

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

University of Graz:
- Graz, Austria

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

Electronics Directorate of the Brazilian Navy:
- Natal, Brazil

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

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

Instituto Geofisico de Los Andes Colombianos:
- Bogota, Colombia

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

French National Center for Telecommunications Studies:
- Dakar, French West Africa
- Tananarive, Madagascar

Central Institute of Meteorology, Budapest, Hungary:
- Budapest, Hungary

Icelandic Post and Telegraph Administration:
- Reykjavik, Iceland

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

Geophysical and Geodetic Institute, Genoa, Italy:
- Monte Capellino, Italy

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
- Campbell I.
- Cape Hallett (Adare), Antarctica
- Christchurch, New Zealand
- Rarotonga, Cook Is.
- Scott Base, Antarctica

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

Manila Observatory:
- Baguio, P.I.

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

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

United States Army Signal Corps:
- Adak, Alaska
- Ft. Monmouth, New Jersey
- Grand Bahama I.
- Okinawa I.
- White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
- Anchorage, Alaska
- Chiclayo, Peru
- Chimbote, Peru

National Bureau of Standards (Central Radio Propagation Laboratory), continued:
Fairbanks (College), Alaska (Geophysical Institute of the University of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Little America, Antarctica
Point Barrow, Alaska
Talara, Peru (Instituto Geofisico de Huancayo)

TABLES OF IONOSPHERIC DATA

Oecember 1958 - February 1952

Table 1

Fairbanks, Alaska (64.9°N, 147.8°W) — Oecember 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.15)					4.0	(2.70)
01		(4.1)					3.8	(2.60)
02		(4.35)					4.0	(2.50)
03		(4.7)					3.5	(2.50)
04		(4.65)					3.4	(2.50)
05		(4.9)					3.4	(2.60)
06		(4.8)					3.2	(2.58)
07		(4.7)					2.5	(2.60)
08		(4.9)						(2.65)
09		(6.2)						(2.80)
10		8.9			---	----		3.00
11		10.3			---	----		3.00
12		11.7			<141	2.10		3.02
13		12.0			---	----		3.10
14		12.4			---	(1.80)		3.00
15		11.6			---	----		2.90
16		10.65						3.00
17		(8.9)						(2.98)
18		6.9						3.02
19		5.4						3.00
20		4.7						2.95
21		(4.15)					2.2	(2.82)
22		(3.7)					2.8	(2.98)
23		(4.2)					3.4	(2.82)

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

Table 2

Adak, Alaska (51.9°N, 176.6°W) — December 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		2.85	<360					2.50
01		2.9	<340					2.50
02		2.9	<350					2.40
03		2.8	<345					2.45
04		2.9	<330					2.50
05		2.9	340				1.2	2.50
06		2.9	(320)				1.5	2.58
07		4.0	255				1.6	2.60
08		7.8	230		113	----	3.2	3.05
09		11.4	220		(119)	2.50		3.20
10		13.5	220		(121)	2.75		3.20
11		14.0	220		119	2.90		3.10
12		14.2	220		121	2.90		3.08
13		14.45	220		119	2.80		3.00
14		13.8	220		121	2.60		3.00
15		12.6	220		<138	2.10		3.05
16		11.0	215		---	----		3.00
17		9.5	220				>1.9	3.00
18		7.2	215				1.5	3.15
19		4.6	220					3.20
20		3.2	(250)					3.00
21		2.9	(270)					2.90
22		2.8	<310					2.70
23		2.75	<355					2.52

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Okinawa I. (26.3°N, 127.8°E) — Oecember 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.2	240					2.80
01		8.5	240					2.90
02		7.9	230					2.85
03		6.7	230					2.95
04		5.8	225					3.00
05		4.6	240					2.70
06		4.5	(280)					2.68
07		7.1	270					2.90
08		11.5	240		---	----		3.20
09		13.4	230		109	(3.18)		3.20
10	---	14.2	225		109	3.58		3.05
11	---	14.2	220		109	3.82	3.9	2.85
12	---	15.0	220		109	3.95	4.0	2.75
13	---	15.6	230		111	3.90		2.65
14	340	16.1	225	---	111	3.82	3.9	2.65
15	(340)	16.4	230		109	3.60		2.65
16	---	16.0	240		111	3.15		2.70
17		15.7	240					2.80
18		15.5	220					2.80
19		14.6	235					2.80
20		14.5	235					2.85
21		(14.8)	220					2.90
22		(12.5)	210					2.90
23		10.0	220					2.78

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

Table 4

Talara, Peru (4.6°S, 81.3°W) — December 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.1	270				4.6	2.60
01		9.6	280				5.0	2.80
02		8.8	260				4.7	2.75
03		8.4	250				4.5	2.90
04		7.4	230				4.2	3.00
05		6.75	230				3.9	3.15
06		7.3	265				4.0	2.80
07		11.1	260		119	2.68	4.6	2.85
08		13.5	240		111	3.38	4.6	2.80
09		14.35	230		109	3.80	4.3	2.65
10		14.6	215		109	4.05	4.5	2.50
11	---	14.85	220	---	109	4.20	4.6	2.28
12	(520)	14.9	215	---	109	4.30		2.15
13	---	14.65	215	---	107	4.30	4.6	2.10
14	510	14.45	210	6.5	107	4.15	4.5	2.05
15	(500)	14.1	220	---	109	3.95	5.6	2.05
16	---	(13.7)	(240)		111	3.62	4.7	(2.15)
17	---	13.1	260		113	3.18	4.9	2.22
18		13.0	(280)		123	2.35	4.5	2.28
19		12.8	300				4.0	(2.40)
20		12.8	340				2.5	(2.40)
21		12.7	315				2.6	2.38
22		>12.15	300				3.2	(2.45)
23		11.7	275				4.5	2.50

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

Table 5

Huancayo, Peru (12.0°S, 75.3°W) — Oecember 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	375				3.2	2.30
01		7.8	360				4.5	2.40
02		7.75	330				4.0	2.70
03		7.85	265				4.3	2.90
04		7.05	230				4.5	3.02
05		6.3	230				4.3	3.10
06		9.3	260		119	2.25	4.3	2.95
07		11.7	235		105	3.05	5.7	2.85
08		13.2	225		107	(3.60)	8.0	2.65
09		13.9	215		105	(3.95)	9.0	2.45
10	---	14.0	205		---	(4.15)	9.0	2.25
11	---	13.55	200	---	---	----	10.2	2.10
12	---	13.0	200	6.6	---	(4.30)	9.2	2.05
13	(500)	13.15	200	6.6	---	(4.30)	10.2	2.05
14	---	12.4	200	6.2	---	(4.15)	9.0	2.05
15	---	12.3	210	---	---	(3.88)	9.0	2.10
16	---	12.5	225		105	(3.48)	8.8	2.05
17	---	11.85	250		105	(3.00)	7.0	2.05
18		11.5	280		(127)	(2.15)	4.7	2.15
19		11.3	325					2.20
20		10.55	(390)					2.10
21		9.6	(390)					2.05
22		9.1	390				2.4	2.15
23		8.6	390					2.25

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

Table 6

Point Barrow, Alaska (71.3°N, 156.8°W) — November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.65)	270				3.6	(2.90)
01		(4.7)	290				4.5	(2.72)
02		(5.0)	310				4.0	(2.70)
03		(4.8)	315				3.8	(2.70)
04		(5.0)	330				2.7	(2.55)
05		(5.0)	310		---	----	2.7	(2.62)
06		(4.8)	340		---	----	2.9	(2.60)
07		(5.3)	340		---	----	3.2	(2.60)
00		(5.5)	<340		---	----	3.3	2.75
09		(6.2)	300		---	----	3.1	(2.80)
10		7.15	270		---	----	2.6	2.95
11		9.0	250		<140	2.40		3.00
12	---	10.2	250	---	---	----		3.05
13		10.8	250		---	----		3.00
14		11.3	240		---	----		3.00
15		11.8	240		---	----		3.00
16		(11.0)	240		---	----		3.00
17		9.2	235		---	----		2.98
18		7.6	250		---	----		3.00
19		5.8	260		---	----		2.95
20		(4.6)	270		---	----	2.4	(2.95)
21		(4.9)	260		---	----	2.6	(2.90)
22		4.5	280		---	----	2.4	2.85
23		(4.5)	290		---	----	3.4	2.80

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

Table 7

Fairbanks, Alaska (64.9°N, 147.8°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.6)					3.2	(2.65)
01		(3.65)					4.1	(2.60)
02		(4.3)					4.4	(2.55)
03		(4.5)					4.7	(2.50)
04		(4.8)					3.6	(2.55)
05		(4.6)					3.5	(2.50)
06		(4.05)					2.6	(2.60)
07		(4.3)						(2.60)
08		(5.9)						(2.90)
09		(8.0)			---	----		(2.95)
10		(10.2)			<119	2.35		(3.05)
11		(11.6)			(125)	2.30		(3.00)
12		12.4			123	2.30		3.00
13		(13.4)			(131)	2.20		(3.00)
14		(13.7)			<145	2.00		(3.02)
15		13.15			---	E		3.00
16		(12.2)						(2.95)
17		(10.7)						(2.95)
18		(8.55)						(3.00)
19		(7.7)						(3.00)
20		(5.35)						(3.00)
21		(4.4)					2.3	(3.00)
22		(4.2)					2.2	(2.88)
23		(3.6)					2.4	(2.78)

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

Table 8

Reykjavik, Iceland (64.1°N, 21.8°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.4)	370				3.7	----
01		>6.0	370				3.5	----
02		>7.5	350				3.1	----
03		(6.1)	330				2.8	(2.55)
04		>6.4	300					(2.65)
05		>5.9	285					(2.65)
06		5.3	270					2.70
07		5.0	270					2.70
08		5.7	270		---	----		2.70
09		8.0	260		119	----		2.90
10		10.5	245		---	----		2.95
11		12.3	240		---	----		(3.00)
12		>13.0	240		---	----		(2.90)
13		>13.0	240		<126	----		(2.98)
14		13.0	235		<129	----		(2.95)
15		>12.4	240		---	(2.05)		(3.02)
16		>11.0	240		---	----		(2.95)
17		>9.8	250		---	----		2.90
18		8.5	275		---	----		2.90
19		5.8	300					2.70
20		>6.0	315				2.2	(2.80)
21		>5.4	360				2.5	(2.65)
22		>6.5	340				3.4	----
23		>6.4	350				2.6	----

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

Table 9

Anchorage, Alaska (61.2°N, 149.9°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.2						2.50
01		3.1						2.40
02		3.1						2.38
03		3.2						2.42
04		(3.3)						(2.35)
05		(4.0)						(2.40)
06		(3.0)						(2.45)
07		4.1						2.55
08		6.0			---	----		2.98
09		8.6			118	2.02		3.05
10		11.2			127	2.30		3.05
11		12.6			125	2.50		3.00
12		13.5			125	2.50		3.05
13		14.0			129	2.45		3.00
14		14.4			(127)	2.25		3.05
15		14.0			---	----		3.00
16		12.8						3.00
17		11.2						3.00
18		9.3						3.05
19		7.25						3.05
20		5.2						3.00
21		4.4						3.00
22		3.6						2.88
23		(3.2)						2.65

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

Table 10

White Sands, New Mexico (32.3°N, 106.5°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.8	280				2.1	2.75
01		4.7	275					2.72
02		4.5	280					2.75
03		4.5	275					2.68
04		4.5	280					2.65
05		4.3	(300)					2.62
06		4.7	280					2.75
07		8.7	240		<129	2.15		3.12
08		12.0	230		113	2.85	3.0	3.15
09		13.8	225		111	3.30	3.8	3.10
10		14.3	230		(111)	3.60	3.6	2.95
11		14.6	220		111	3.70	4.1	2.85
12		14.7	225		<115	3.70	4.0	2.80
13		14.4	230		<115	3.70	3.9	2.75
14		14.3	230		115	3.50	3.8	2.70
15		13.85	235		115	3.25	3.6	2.70
16		13.5	240		115	2.70	3.0	2.75
17		13.0	235				2.3	2.85
18		11.5	225				2.3	2.85
19		10.0	230					2.90
20		8.2	230					2.95
21		6.5	245					3.00
22		5.5	255					2.90
23		5.1	260				2.4	2.80

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

Table 11

Grand Bahama I. (26.6°N, 78.2°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	250				2.4	2.95
01		5.9	250				2.2	2.90
02		5.15	<255				2.3	2.88
03		5.1	(260)					2.78
04		4.7	(270)				1.9	2.65
05		4.7	(280)				2.4	2.70
06		5.1	(260)				2.9	2.85
07		9.15	240		(131)	2.30	2.7	3.20
08		12.2	230		<115	3.00	3.1	3.15
09		13.4	230		<109	3.50		3.05
10		13.75	225		(109)	3.80		2.95
11	---	13.7	220	---	<109	3.95	4.0	2.85
12	---	13.5	220		<107	4.00	4.1	2.75
13	---	13.3	225		(109)	3.95	4.0	2.70
14	---	13.1	230		109	(3.00)	3.9	2.65
15		13.0	230		(109)	3.42	3.8	2.65
16		12.8	240		111	2.98	3.4	2.68
17		12.2	240		<124	2.18	3.2	2.75
10		11.45	230				3.2	2.72
19		10.0	<250				2.6	2.75
20		9.2	250				2.6	2.85
21		8.3	240				2.4	2.90
22		7.5	<245				2.8	2.90
23		6.95	250				2.6	2.95

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

Table 12

Okinawa I. (26.3°N, 127.8°E) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.75)	225					>2.90
01		11.25	230					3.00
02		10.3	230					2.95
03		8.65	230					3.00
04		7.4	220					3.05
05		5.7	230					2.82
06		5.45	(270)					2.75
07		9.0	255		---	----		3.05
08		12.5	235		(115)	(2.80)		3.15
09		14.45	230		(111)	(3.35)		3.10
10		15.2	225		(111)	(3.70)		3.00
11		15.3	220		109	(4.00)	4.2	2.85
12	---	15.7	220		109	(4.00)	>4.2	2.75
13	(360)	16.5	225		(111)	(3.98)	4.2	2.70
14	(355)	16.95	230		111	(3.82)	>4.0	2.65
15	(350)	17.2	230		113	(3.65)	3.8	2.65
16	---	16.9	235		115	----	3.3	2.70
17		17.0	240		---	----		2.75
18		17.25	240					2.80
19		17.25	250					2.75
20		18.85	250					2.80
21		>17.5	230					2.90
22		17.35	220					2.95
23		>14.25	225					(2.90)

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

Table 13

Baguio, P. I. (16.4°N, 120.6°E) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.2)	250					(2.05)
01		(11.5)	250					(2.90)
02		(10.2)	240					(2.90)
03		0.6	240					2.82
04		7.55	250					2.02
05		6.95	250					2.08
06		7.8	300					2.70
07		11.0	275		129	2.00		2.90
08		14.7	260		121	3.35		2.00
09		16.5	250		121	(3.70)		2.65
10		16.5	245		119	(3.95)		2.40
11		16.4	240		119	(4.00)		2.20
12		15.95	230		117	4.05		2.10
13		(15.5)	240		119	(4.00)	4.0	(2.08)
14		(15.0)	250		119	(3.80)	4.0	(2.10)
15		(15.0)	255		121	3.50		(2.10)
16		(14.9)	270		(126)	3.02	3.0	(2.15)
17		>13.95	300		---	----		(2.10)
18		(13.1)	345					(2.20)
19		(12.5)	400					(2.15)
20		>12.0	<355					(2.30)
21		>12.0	300					(2.60)
22		(12.8)	260					(2.80)
23		>12.25	250					(2.00)

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 14

Huancayo, Peru (12.0°S, 75.3°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		0.8	330					2.52
01		(8.8)	200					(2.68)
02		8.8	260					2.90
03		8.45	220					3.02
04		7.2	220					3.10
05		6.0	220				3.8	3.10
06		9.2	260		121	2.30	4.3	3.00
07		12.1	235		109	3.10	5.6	2.90
00		13.8	225		109	(3.62)	8.4	2.65
09		14.5	215		108	(4.00)	9.0	2.45
10	---	14.7	210		---	(4.22)	9.0	2.30
11	---	14.0	210	---	---	(4.30)	9.0	2.20
12	---	14.4	205	---	109	(4.30)	9.0	2.15
13	---	13.9	200	---	105	(4.30)	9.0	2.10
14	---	13.9	210	---	108	(4.10)	9.0	2.10
15	---	13.3	215		107	(3.80)	0.6	2.10
16		13.0	230		106	(3.30)	0.4	2.05
17		12.4	260		109	(2.00)	6.0	2.05
18		11.0	295		<149	1.80	4.4	2.10
19		10.05	370					2.10
20		9.1	(430)					2.05
21		8.95	(400)					2.10
22		(8.9)	400					(2.15)
23		(8.9)	370					(2.45)

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

Table 15

Chimbote, Peru (9.1°S, 78.6°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.5	240				3.4	2.70
01		9.6	240					2.80
02		9.0	240				2.0	2.90
03		8.5	235				2.0	3.00
04		7.3	230					3.08
05		6.2	235					3.10
06		8.1	275		<145	1.98		2.90
07		11.7	250		121	2.90		2.95
08		14.0	240		119	3.50		2.75
09		14.9	230		119	3.90		2.55
10		15.3	220		117	4.15	5.0	2.30
11		15.2	220		117	4.30	7.4	2.10
12		13.7	215		116	4.30	8.0	2.05
13		13.0	215	---	115	4.30	7.4	2.00
14		12.6	210		115	4.15	7.3	2.05
15		12.5	220		117	3.90	7.4	2.10
16		12.5	240		117	3.45	6.7	2.10
17		12.0	265		119	2.90	5.0	2.05
18		(11.9)	300		<155	2.00	4.5	(2.10)
19		11.4	405					2.00
20		(10.6)	445					2.05
21		(10.5)	360				1.5	2.15
22		10.5	300				2.0	2.45
23		>10.5	250				3.5	2.55

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

Table 16

Huancayo, Peru (12.0°S, 75.3°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.2	235				3.2	2.80
01		9.0	235				3.8	2.80
02		8.8	230				3.5	2.95
03		8.0	225				3.0	3.05
04		7.0	225				3.2	3.15
05		5.5	230				3.6	3.12
06		9.0	265		129	2.18	4.4	3.00
07		12.5	240		111	3.10	4.5	2.95
00		14.2	230		109	3.60	8.0	2.80
09		15.1	225		107	(4.00)	9.0	2.55
10		15.4	215		---	(4.20)	9.0	2.25
11		15.05	210		---	(4.30)	11.0	2.05
12		13.5	210		---	(4.30)	10.0	2.05
13	---	12.5	205	---	---	(4.30)	11.0	2.05
14		12.4	210		---	(4.10)	9.0	2.05
15		12.3	220		---	(3.80)	9.0	2.05
16		12.2	235		---	(3.32)	9.0	2.08
17		11.8	260		109	(2.75)	6.9	2.05
18		11.4	310		<154	1.65	4.4	2.05
19		10.5	420					2.00
20		10.0	(440)					2.05
21		9.7	(375)					2.20
22		9.55	300					2.40
23		9.6	255					2.60

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

Table 17

Tromso, Norway (69.7°N, 19.0°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.6)	350				4.0	----
01		(5.6)	355		---	----	3.3	(2.30)
02		(5.7)	340		---	----	3.2	(2.30)
03		(5.8)	340		---	----	3.2	(2.40)
04	---	5.6	300		---	1.40	2.6	2.40
05	---	6.2	290		110	1.90		2.70
06	(260)	7.0	260		130	2.25		2.70
07	(250)	7.8	255		110	2.70		2.70
08	(250)	8.2	250	---	120	2.75		2.70
09	---	8.6	245	---	110	3.10		2.60
10	---	8.8	245	---	110	3.15		2.55
11	(450)	9.1	245	---	110	3.20		2.55
12	---	9.2	245	---	110	3.20		2.55
13	---	9.2	245	---	110	3.15		2.55
14	---	9.2	250	---	110	3.10		2.55
15	(280)	8.9	250	---	110	2.90		2.65
16	(250)	8.3	255		120	2.80		2.70
17	(250)	7.5	270		115	2.50	2.8	2.70
18	(260)	7.8	260		145	2.05	2.8	2.70
19	---	(6.4)	270		140	2.20		2.55
20		(6.4)	295		---	----		2.50
21		(5.6)	310		---	----	3.2	(2.40)
22		(5.7)	320		---	----	3.4	(2.30)
23		(5.5)	355		---	----	3.9	(2.30)

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

Table 18

Lulea, Sweden (65.6°N, 22.1°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.0)	310				<1.4	(2.3)
01		(5.6)	320				<1.4	(2.3)
02		(5.4)	330				<1.4	(2.4)
03		(5.2)	310				<1.6	(2.5)
04		(5.2)	300	---	---	---	<1.4	(2.5)
05		6.0	270	---	150	1.9		(2.6)
06	---	7.2	260	---	130	2.4		2.6
07	---	8.0	250	---	125	2.7		2.65
08	---	8.2	250	---	120	3.0		2.7
09	(490)	9.1	240	---	115	3.1		2.6
10	---	9.2	240	---	115	3.2		2.6
11	---	10.0	240	5.2	115	3.2		2.6
12	---	9.6	240	---	110	3.2		2.6
13	---	9.6	240	---	110	3.2		2.6
14	---	9.9	240	---	115	3.2		2.6
15	---	9.5	250	---	120	2.9		2.6
16	---	9.2	250	---	125	2.6		2.65
17		9.0	260		140	2.4		2.7
18		8.4	260		---	2.2		2.7
19		8.1	255		---	2.0		2.7
20		8.0	260				<1.7	2.6
21		(6.9)	280				<1.8	2.5
22		(6.9)	290				<1.6	2.4
23		(6.2)	320				<1.6	(2.3)

Time: 15.0°E.
Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 19

Nurmijarvi, Finland (60.5°N, 24.6°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1						2.50
01		5.9						2.45
02		5.6						2.50
03		5.3						2.45
04		5.2						2.50
05		5.2						2.60
06		6.0				---		2.75
07		6.9				2.3		2.80
00		7.7		---		2.9		2.75
09		8.0		---		3.0		2.70
10		9.5		---		3.3		2.70
11		9.7		5.3		3.2		2.65
12		9.7		---		---		2.65
13		9.6		5.4		---		2.60
14		9.7		---		---		2.65
15		9.3		---		---		2.70
16		9.2		---		---		2.70
17		9.6				---		2.70
18		9.6				---		2.75
19		8.9						2.75
20		8.2						2.70
21		8.0						2.70
22		7.0						2.60
23		6.7						2.55

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

Table 20

Inverness, Scotland (57.4°N, 4.2°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.5	300				1.3	2.45
01		5.9	300				1.4	2.40
02		5.6	300				1.1	2.45
03		5.3	300				<1.0	2.40
04		5.0	295				1.2	2.50
05		5.2	300			1.40		2.60
06		6.2	265	---	110	1.90		2.80
07		7.1	250	---	110	2.50	2.0	2.85
00		7.8	250	---	110	2.90		2.85
09	---	8.4	240	---	110	3.20		2.80
10	(495)	9.0	240	5.5	110	3.40		2.70
11	(430	8.6	235	5.4	105	3.55		2.65
12	(460)	9.2	235	---	105	3.55		2.60
13	(465)	9.2	245	---	105	3.55		2.60
14	---	9.5	245	---	105	3.50		2.65
15	---	9.4	250	---	105	3.40		2.65
16	---	10.0	250	---	110	3.10		2.55
17		9.8	250		110	2.60		2.65
18		9.8	260		110	2.20		2.70
19		9.1	250		---	----	<1.6	2.70
20		8.5	250		---		<1.6	2.60
21		7.8	250				<1.6	2.60
22		7.0	270				<1.6	2.50
23		6.8	290				<1.5	2.40

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 21

Graz, Austria (47.1°N, 15.5°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		>6.5	300					
01		>6.7	315					
02		>6.6	310					
03		(6.3)	300					
04		>5.6	300					
05		>5.1	280					
06		>6.7	250					
07		8.4	230			---		
08		>8.9	230			(3.4)	3.4	
09		>9.4	220		110	3.4	3.6	
10		>9.3	220		120	3.5	3.9	
11		(9.9)	230		110	3.6	3.8	
12		>9.3	230		(120)	(3.6)	3.0	
13		(10.3)	220		(125)	(3.7)	3.7	
14		>9.3	230			(3.5)	3.6	
15		>9.3	230					
16		>9.3	230					
17		>8.9	240					
18		>0.9	250					
19		>8.4	250					
20		>8.4	260					
21		(7.6)	270					
22		>6.6	300					
23		>6.8	310					

Time: 15.0°E.
Sweep: 2.0 Mc to 15.0 Mc in 50 seconds.

Table 22

Monte Capellino, Italy (44.6°N, 9.0°E) September 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		7.8						2.53
01		7.6						2.50
02		7.3						2.52
03		6.9						2.55
04		6.6						2.60
05		6.6						2.57
06		7.4				1.5		2.68
07		9.1				2.4		2.92
08		10.4				3.0		2.91
09		10.8				3.4		2.87
10		12.0				3.7		2.81
11		11.9				3.8		2.66
12		11.7				4.0		2.61
13		12.1				3.9		2.54
14		11.7				3.7		2.54
15		11.4				3.6		2.58
16		11.5				3.3		2.62
17		11.6				2.8		2.64
18		11.6				2.3		2.71
19		10.4						2.70
20		9.0						2.66
21		8.4						2.73
22		7.8						2.60
23		7.2						2.54

Time: 15.0°E.

Table 23

Singapore, British Malaya (1.3°N, 103.8°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.5)	230				1.8	(2.60)
01		11.2	245		---	----	<1.3	2.85
02		10.2	240				<1.3	2.85
03		9.0	235				1.2	2.95
04		8.4	230		---	----	<1.2	3.00
05		6.4	235				<1.3	3.10
06	---	7.1	280		---	----		2.90
07	---	11.1	255		120	2.90	3.0	2.95
08	---	13.1	245		115	3.55		2.65
09	---	14.2	230		110	3.90	4.1	2.45
10	---	14.2	220		110	4.20		2.15
11	---	>14.3	210		110	(4.35)		2.10
12	---	>13.6	210		110	4.40		2.05
13	---	13.3	215		110	4.35		2.00
14	---	>13.0	210		110	4.20		2.00
15	---	13.1	220		110	3.90		2.05
16	---	13.4	250		110	3.40		2.10
17	---	13.6	265		115	2.80		2.15
18	---	>13.3	300		110	----		2.15
19		(13.2)	400				<1.5	----
20		----	395				<1.6	----
21		----	300				<1.6	
22		----	255				2.3	----
23		----	230				1.4	----

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

Table 24

Talara, Peru (4.6°S, 81.3°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.3	225				2.0	2.90
01		10.4	230					2.85
02		9.45	230					2.90
03		8.4	230					2.98
04		7.0	230					3.00
05		5.8	235					3.02
06		5.4	270				2.0	2.65
07		9.0	260		121	2.60		2.80
08		11.3	240		113	3.40		2.70
09		13.0	230		111	3.85		2.45
10		14.0	220		109	4.15		2.30
11		14.1	210		109	4.30		2.15
12		14.2	205		109	4.35		2.05
13		13.6	205		107	4.30		2.00
14	---	13.1	205	---	107	4.12		2.05
15		12.9	210		107	3.90	4.2	2.00
16		12.5	220		109	3.60	4.6	2.00
17		12.0	250		111	3.08	4.6	2.05
18		11.5	290		<135	2.28	3.8	2.05
19		11.4	370				2.3	(2.10)
20		(11.5)	410					(2.15)
21		11.5	320				1.8	(2.40)
22		11.8	245				2.1	(2.65)
23		>11.7	225				2.4	2.78

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

Table 25

Chimbote, Peru (9.1°S, 78.6°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.2	230				2.8	2.80
01		8.4	240				1.8	2.80
02		8.1	240					2.92
03		7.0	240					3.00
04		5.75	230					3.00
05		4.9	240					3.00
06		5.7	270		---	----		2.75
07		9.7	260		125	2.75	3.6	2.90
08		12.1	240		119	3.42	5.0	2.70
09		13.65	230		119	3.90	5.0	2.48
10		14.05	220		117	4.10	8.0	2.25
11		13.9	215		115	4.30	8.0	2.15
12		12.6	210		115	4.30	8.0	2.10
13		12.05	210		112	4.30	8.0	2.05
14	---	11.65	215	---	113	4.20	7.0	2.00
15		11.45	215		115	4.00	7.3	2.02
16		11.2	230		115	3.55	7.1	2.05
17		10.9	260		119	3.00	5.0	2.05
18		10.7	300		<149	2.10	3.4	2.10
19		9.75	410					2.00
20		>9.5	(425)					2.15
21		10.5	300					2.40
22		10.15	245				2.0	2.60
23		9.4	235					2.70

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

Table 26

Huancayo, Peru (12.0°S, 75.3°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.5	220					2.88
01		8.15	230					2.90
02		7.4	235					2.95
03		6.7	235					2.98
04		5.75	230					3.05
05		5.4	230					3.10
06		6.85	270		---	----		2.90
07		10.55	245		115	2.85	4.2	2.90
08		12.95	230		109	(3.50)	7.8	2.70
09		14.3	220		109	(3.92)	8.0	2.52
10		14.45	215		107	(4.15)	8.0	2.28
11		14.1	210		---	(4.25)	9.0	2.15
12		12.5	200		---	(4.25)	9.0	2.10
13		11.9	200	---	---	(4.25)	9.0	2.05
14		11.9	200	---	---	(4.08)	8.0	2.05
15		11.6	210		---	(3.82)	8.0	2.05
16		11.2	235		106	(3.40)	7.8	2.10
17		11.0	260		109	(2.80)	7.0	2.08
18		10.7	310		(141)	1.75	4.3	2.15
19		9.55	435					2.02
20		9.4	(410)					2.15
21		9.7	(300)					2.45
22		10.35	235					2.70
23		9.8	225					2.85

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

Table 27

Watheroo, W. Australia (30.3°S, 115.9°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	250					3.05
01		6.8	250					3.05
02		6.5	250					3.05
03		6.1	250					3.10
04		5.9	255					3.00
05		5.8	270					2.95
06		6.6	265		<200	1.40		3.05
07		>8.4	240		110	2.60		----
08		>10.5	230		105	3.20		----
09		>10.5	225		100	3.55		----
10		>10.5	215		100	3.90		----
11		>10.5	(220)		105	4.00		----
12		>10.5	(220)		100	(4.00)		----
13		>10.5	(220)		105	(4.00)		----
14		>10.5	220		105	3.95		(3.00)
15		>10.5	220		105	3.80		----
16		>10.5	230		105	3.35		(2.90)
17		>10.5	245		110	2.85		
18		>7.0	250		120	2.00		
19		>7.0	245					
20		>7.0	245					----
21		>7.0	250					----
22		>7.0	250					(3.05)
23		>7.0	250					(3.00)

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

Table 28

Canberra, Australia (35.3°S, 149.0°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>7.8	250					(2.85)
01		>7.6	250					2.80
02		7.3	240					2.70
03		(6.9)	240					(2.85)
04		>6.6	250					2.70
05		6.5	250		---	----		2.80
06		>7.6	250		150	1.80		3.00
07		10.4	220		105	2.70		3.20
08		12.2	215		100	3.25		3.20
09		13.0	210		100	3.55		3.15
10		13.1	205		100	3.80		2.95
11		13.0	205		100	3.90		2.90
12		12.9	200		100	4.00		2.85
13		12.2	200		100	3.95		2.75
14		11.9	200		100	3.85		2.75
15		11.6	205		100	3.60		2.70
16		11.2	210		100	3.20		2.75
17		11.0	235		110	2.60		2.80
18		11.0	240		100	1.70		2.85
19		>10.0	235					(2.70)
20		>9.5	245					----
21		>9.0	240					(2.85)
22		8.8	245					2.80
23		8.6	250					2.80

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

Table 29

Falkland Is. (51.7°S, 57.8°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3	310					2.30
01		7.4	310				<1.4	2.45
02		7.2	300					2.50
03		7.0	295					2.55
04		6.6	250					2.50
05		6.4	265			1.30		2.35
06		7.9	250		170	2.00		2.70
07		10.2	240		120	2.50		3.00
08		12.0	240		115	3.00		2.95
09		13.6	240		110	3.40	3.7	2.90
10		13.8	240		110	3.55	4.4	2.85
11		13.8	235		105	3.70	5.2	2.70
12		13.6	240		105	3.70	4.0	2.70
13		13.2	240		110	3.60	3.7	2.70
14		12.5	240		110	3.50	3.6	2.70
15		11.8	250		110	3.30	3.4	2.70
16		11.4	250		115	2.90	3.2	(2.90)
17		10.5	250		130	2.30	2.6	2.90
18		9.5	250			1.70	2.5	2.85
19		0.1	250			----	2.3	2.70
20		7.3	250			----	2.1	2.50
21		7.2	270			----	<1.4	2.35
22		7.3	300				<1.5	2.45
23		7.3	305				<1.4	2.35

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

Table 30

Ft. Monmouth, New Jersey (40.4°N, 74.1°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.75	300					2.55
01		6.4	290					2.55
02		6.0	300					2.50
03		5.6	310					2.50
04		5.2	300					2.58
05	---	5.2	290		---	----		2.70
06	---	6.45	250		119	2.45		2.95
07	(305)	7.3	235	---	113	3.10	3.2	2.90
08	405	7.6	230	5.3	112	(3.50)	3.7	2.75
09	440	8.0	220	5.6	111	(3.80)		2.62
10	410	8.2	210	5.7	111	(3.95)		2.65
11	460	8.3	220	5.8	111	>4.02		2.58
12	455	8.4	225	5.9	112	>4.00		2.52
13	440	8.3	225	5.8	113	(4.00)		2.55
14	475	8.1	230	5.6	113	4.00		2.55
15	440	0.1	230	5.6	111	3.85		2.50
16	450	8.1	240	5.4	111	3.60		2.50
17	(345)	8.1	245	---	113	3.20	3.3	2.60
18		8.1	260		121	2.50	2.9	2.65
19		8.0	275				2.3	2.70
20		7.9	275				3.1	2.60
21		7.7	280				3.0	2.60
22		7.2	290					2.60
23		7.0	300					2.60

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

Table 31

Singapore, British Malaya (1.3°N, 103.0°E) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.0	240		---	----	3.0	2.80
01		10.2	240		145	----	2.8	2.75
02		9.3	240		---	----	2.6	2.85
03		8.8	240		---	----	<1.5	2.95
04		7.4	240		---	----	<1.3	3.05
05		6.3	240		---	----	1.9	3.05
06	---	6.9	285		---	----	2.3	2.85
07	---	10.9	260		130	2.80	3.3	2.90
08	---	13.6	245		115	(3.55)	4.0	2.80
09	---	14.5	235		110	4.00	4.7	2.65
10	---	14.0	225		110	4.20	4.8	2.40
11	400	>13.6	215		105	4.35		2.15
12	---	>12.3	215	---	105	4.40		2.00
13	525	>12.3	210	---	105	4.40		1.95
14	---	>11.9	210	---	110	4.25		1.90
15	---	12.0	215		110	<4.05		1.95
16	---	11.8	245		110	3.55		2.00
17	---	12.0	255		115	2.90		2.10
18	---	>12.3	290		110	1.80	2.8	2.10
19		>11.5	350		---	----	2.9	(2.25)
20		11.8	355		---	----	<1.6	(2.35)
21		(12.8)	280		---	----	2.4	(2.60)
22		(11.7)	245				2.0	(2.70)
23		11.2	230				3.2	2.70

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

Table 32

Natal, Brazil (5.3°S, 35.1°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.9)	(390)					(2.75)
01		(8.05)	(305)					(2.80)
02		7.2	270					2.95
03		>6.75	(235)					3.02
04		6.0	(235)					3.10
05		5.65	(230)					3.15
06		4.45	(240)					3.20
07		8.4	260		(117)	2.32		3.15
00		11.3	240		111	(3.20)		3.00
09		12.9	230		109	(3.70)		2.85
10		13.6	215		107	(4.00)		2.60
11		13.9	210		(105)	----		2.40
12		14.1	210		(104)	----		2.25
13	---	13.8	210		(105)	----		2.15
14	---	13.35	210		(105)	----		2.15
15	---	12.9	220	---	(105)	(4.00)		2.20
16		12.8	225		(109)	(3.68)	4.5	2.18
17		>12.6	250		(117)	(3.20)	4.0	2.25
18		(12.5)	280					(2.25)
19		>10.5	(330)					(2.25)
20		>9.2	(410)					(2.05)
21		(8.0)	(460)					(2.08)
22		(7.9)	<450					----
23		(8.4)	<430					(2.50)

Time: 30.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 32.4 seconds.

Table 33

Huancayo, Peru (12.0°S, 75.3°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.8	225					2.95
01		7.9	225					2.95
02		7.5	225					3.00
03		7.0	230					3.00
04		5.8	235					3.05
05		5.15	240					3.05
06		5.6	265					2.85
07		8.8	255		117	2.50	4.5	2.98
08		10.9	235		109	(3.30)	0.0	2.75
09		11.8	220		106	(3.70)	8.2	2.50
10	---	11.7	210		103	(4.05)	8.4	2.35
11	---	11.6	205		103	(4.12)	9.0	2.20
12		11.7	200		---	(4.15)	9.0	2.15
13		11.3	200		---	(4.15)	9.0	2.10
14		11.0	200		103	(4.00)	8.4	2.10
15		10.5	205		103	(3.75)	8.2	2.15
16		10.3	230		105	(3.35)	8.0	2.12
17		10.0	260		107	(2.78)	7.2	2.18
18		9.6	300		<145	1.65	4.5	2.20
19		8.45	400					2.08
20		8.0	385					2.20
21		8.0	300					2.45
22		8.0	240					2.70
23		7.9	225					2.85

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

Table 34

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.2	(255)				<1.4	2.90
01		3.7	<255				1.0	2.80
02		3.8	<255				1.5	2.85
03		3.6	<245				1.9	2.90
04		3.3	<250				1.6	2.80
05		3.2	<250				1.5	2.80
06		3.4	<255				<1.7	2.85
07		7.5	230			2.2		3.20
00		10.2	230			3.0		3.15
09	---	11.8	225			3.6		3.00
10	---	12.6	215			3.9		2.95
11	---	12.5	210			4.0		2.80
12	---	12.4	210			4.1		2.80
13	---	12.0	210	---		4.0		2.60
14	---	11.8	215	---		3.9	4.1	2.65
15	---	11.6	220			3.7	4.0	2.65
16	---	11.4	230			3.2	3.6	2.70
17		11.2	250			2.7		2.80
18		>11.1	240			1.6	1.9	2.85
19		>9.1	220				1.8	2.80
20		>8.0	230				<1.6	<2.90
21		>7.0	235				<1.6	3.00
22		>5.8	240				<1.6	2.90
23		4.4	<250				<1.4	2.90

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

Table 35

Graz, Austria (47.1°N, 15.5°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		>7.5	310					
01		>7.0	335					
02		>6.6	320					
03		>5.5	325					
04		>6.6	300					
05		(7.2)	250					
06	350	>8.2	240	4.6	---	---	4.1	
07	---	8.1	240	4.9	105	3.4	4.6	
08	410	8.6	230	(5.2)	100	3.5	4.5	
09	390	8.7	(210)	(5.8)	100	3.6	5.1	
10	380	>8.6	(220)	---	100	3.8	5.3	
11	390	8.5	200	(6.0)	100	(3.9)	4.4	
12	400	8.8	200	(5.9)	(100)	---	4.4	
13	400	>0.5	215	(5.9)	(115)	---	4.4	
14	390	8.4	210	5.6	---	---	4.4	
15	395	8.4	220	---	100	3.8	4.3	
16	380	8.0	225	5.4	110	3.6	4.0	
17	(340)	(7.8)	230		105	---	4.4	
18		(8.2)	250				4.3	
19		(8.3)	285				4.8	
20		>8.1	270				4.4	
21		>8.3	290					
22		>7.7	310					
23		>7.4	310					

Time: 15.0°E.
Sweep: 2.0 Mc to 21.0 Mc in 50 seconds.

Table 36

Chiclayo, Peru (6.8°S, 79.8°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.6	240					2.70
01		8.8	250					2.80
02		8.85	250					2.90
03		8.2	235					3.00
04		7.0	240					3.05
05		5.95	240					2.98
06		5.6	260					2.90
07		7.6	270		<129	2.30		2.85
00		8.9	245		115	3.10		2.75
09		9.8	230		111	3.60		2.50
10		10.3	225		111	3.90		2.30
11		10.2	<220		115	(4.05)		2.20
12	---	10.3	<215		111	(4.10)		2.15
13	---	10.5	215	---	111	(4.05)		2.15
14	---	10.35	220	---	111	(4.00)		2.15
15	---	10.1	225	---	111	(3.70)		2.15
16	---	10.0	230		110	3.40	3.8	2.10
17		10.1	260		115	2.80		2.15
18		9.55	300		---	2.02	2.6	2.10
19		>9.0	360				2.4	2.15
20		8.6	370					2.20
21		>8.95	340					2.32
22		>8.95	285					2.55
23		>8.6	250					2.65

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

Table 37

Tromso, Norway (69.7°N, 19.0°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.9	(380)				3.2	(2.25)
01		5.6	---				3.2	(2.40)
02		(5.6)	---				3.8	(2.40)
03		(5.2)	---		---	----	4.0	(2.25)
04		(5.7)	---		---	----	4.1	(2.35)
05		5.0	(295)		---	----	3.0	(2.55)
06		(5.9)	(295)		---	----		(2.60)
07		6.4	(275)		---	----		2.70
08	---	8.0	---		---	----		(2.75)
09	---	8.4	---		---	----		2.70
10	---	9.2	255		---	2.70		2.60
11	---	9.8	255	---	140	2.80		2.55
12	---	9.8	250		140	2.90		2.55
13	---	9.5	255		140	2.85		2.70
14	---	8.7	(260)		---	----		2.70
15	---	8.6	(280)		---	2.80		2.70
16	---	6.9	(250)		---	----		2.70
17		6.7	295		---	----		2.70
18		5.9	(250)				2.8	2.55
19		5.9	(300)				3.1	(2.40)
20		5.7	(320)				3.9	2.40
21		5.4	(345)				4.0	(2.40)
22		(5.7)	(360)				3.1	(2.40)
23		(5.2)	(350)				2.6	(2.40)

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

Table 38

Oslo, Norway (60.0°N, 11.1°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.1	360				1.3	2.35
01		4.0	360				2.0	2.30
02		4.1	350				1.4	2.30
03		4.2	355				1.2	2.30
04		4.2	340					2.30
05		4.0	310					2.50
06		4.3	295		---	1.70		2.55
07		5.6	265		130	2.10		2.70
00	---	6.9	255		120	2.50		2.80
09	---	7.8	250	---	115	2.90		2.80
10	---	9.2	250	---	115	3.15		2.75
11	---	9.4	245	---	110	3.30		2.70
12	---	10.0	240	---	110	3.30		2.70
13	---	10.4	250	---	115	3.30		2.70
14	---	10.8	245		115	3.25		2.70
15	---	11.0	250		115	3.10		2.70
16	---	11.0	250		120	2.85		2.75
17	---	10.4	250		125	2.55		2.80
18		10.1	250		125	1.95		2.00
19		9.2	250		---	(1.70)		2.75
20		8.8	260					2.70
21		7.2	300					2.60
22		6.7	340					2.50
23		5.4	360					2.40

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

Table 39

Budapest, Hungary (47.4°N, 19.2°E) March 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.0	340					
01		5.9	340					
02		5.6	330					
03		5.2	340					
04		5.0	310					
05		>5.7	290					
06	---	8.0	250	---	130	2.7		
07	---	>9.3	240	---	120	3.0		
08	---	11.1	240	---	120	3.2		
09	---	12.2	235	---	115	3.5		
10	---	>12.9	235	---	120	3.4		
11	(320)	13.2	235	6.2	120	3.7		
12	---	13.0	240	---	120	3.7		
13	---	12.9	245	---	125	3.5		
14	---	>11.8	245	---	125	3.3		
15		11.3	250		125	3.0		
16		>10.6	250		130	2.6		
17		9.3	255		---	---		
18		>7.4	255					
19		>6.0	265					
20		>5.8	290					
21		5.9	310					
22		5.8	325					
23		5.8	335					

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 40

Townsville, Australia (19.3°S, 146.7°E) March 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>7.2	290					----
01		>7.3	280					----
02		>7.0	260					----
03		>7.0	290					(2.60)
04		>6.5	300					(2.55)
05		(7.0)	310					(2.45)
06		>7.0	305		---	<1.60		
07		----	250		120	2.60		
00		>12.0	250		110	3.25	3.4	----
09		>13.0	240		110	3.65	4.2	2.95
10		13.6	240		110	3.80	4.3	2.90
11		14.0	230		110	4.00		2.70
12		14.0	240		110	4.10		2.65
13		14.0	230		110	4.10		2.60
14		13.9	240		110	(4.00)		2.60
15		(13.0)	240		110	3.85	4.3	2.60
16		>12.4	250		110	3.60	5.1	(2.60)
17		>10.6	250		110	3.10	4.2	
18		>10.0	270		105	<2.15	4.3	
19		----	280				3.8	
20		----	300				2.3	
21		----	300					
22		----	300					
23		>7.5	280					

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

Table 41

Rarotonga I. (21.2°S, 159.8°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		----	260				1.2	
01		----	270				1.6	----
02		(10.4)	270					----
03		(8.9)	290					(2.40)
04		(8.7)	300					2.52
05		(9.0)	300				1.3	(2.55)
06		(11.0)	270		---	1.9	2.8	(2.84)
07		13.4	250		112	3.0	3.4	2.97
00		14.3	240		110	3.6	3.8	2.85
09		14.7	240		110	3.9	4.1	2.75
10	---	15.5	<240		110	4.1		2.68
11	---	16.1	230		110	4.2		2.60
12	---	16.1	230		110	(4.3)		2.60
13	390	15.3	240		110	4.2		2.50
14	380	15.6	240		110	4.0		2.50
15	380	(15.0)	250		110	3.8	4.2	(2.55)
16	---	(14.5)	250		110	3.4	4.0	(2.55)
17		(14.2)	<270		114	2.6	4.3	(2.56)
18		(14.1)	<300		---	---	4.0	(2.57)
19		(13.7)	<300				4.0	(2.60)
20		(13.4)	<300				3.6	----
21		(13.9)	280				2.5	(2.65)
22		(13.4)	280				<1.3	(2.65)
23		----	250					----

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 42

Sao Paulo, Brazil (23.5°S, 46.5°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(15.0)	260				<2.0	(3.10)
01		(14.8)	260				<2.1	(3.15)
02		14.4	250				<2.0	3.05
03		11.3	235				<2.1	2.90
04		10.0	250				<2.1	2.80
05		8.1	265				<2.2	2.60
06		7.5	270				<2.2	2.70
07		10.5	260			2.60		2.95
08		12.2	250			3.30		2.95
09		13.0	250			3.60		2.85
10		13.8	245			3.90		2.65
11		14.0	240	---		----	4.6	2.60
12		(14.2)	<255	---		----	5.0	(2.50)
13	---	(14.6)	---	---		----	5.6	(2.50)
14	(445)	(14.4)	<250	(7.8)		----	5.0	(2.50)
15	(440)	(14.4)	260	(7.2)		----	4.4	(2.55)
16	(410)	(14.4)	260	---		----	3.9	(2.60)
17	---	(14.4)	270			(3.20)	3.6	2.60
18		(14.4)	285			----	3.0	(2.50)
19		>14.0	330				4.0	(2.50)
20		(14.2)	370				<2.2	(2.50)
21		>14.0	300				<2.1	(2.60)
22		(14.2)	280				<2.1	(2.85)
23		>14.4	260				<2.1	(2.95)

Time: 45.0°W.
Sweep: 1.75 Mc to 20.0 Mc in 2 minutes 30 seconds.

Table 43

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.7	260				2.6	2.75
01		6.1	(270)				<1.8	2.70
02		5.8	<270				<1.7	2.70
03		5.0	<265				<1.7	2.60
04		4.8	(290)				<1.8	2.60
05		4.6	<310				<1.6	2.50
06		5.7	285			<1.7	<1.7	2.70
07		9.4	240			2.6		3.05
00	---	11.4	230			3.3		3.00
09	---	12.6	230			3.7	4.0	2.85
10	---	13.1	225			3.9	4.2	2.75
11	---	13.3	225			---	4.4	2.65
12	---	13.6	(215)			---	4.5	2.60
13	---	13.5	---			---	4.6	2.50
14	---	13.4	(230)			---		2.50
15	---	13.3	240			---		2.50
16		13.1	245			3.6	3.9	2.55
17		12.8	250			3.1	3.7	2.60
18		12.1	250			---	3.0	2.70
19		11.4	245			<1.7	<2.1	2.75
20		10.3	245				<2.0	2.80
21		9.4	250				<1.9	2.80
22		8.4	250				2.0	2.80
23		7.4	255				2.5	2.75

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

Table 44

Brisbane, Australia (27.5°S, 152.9°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.4	290					2.60
01		8.0	280					2.60
02		7.9	280					2.55
03		7.3	290					2.50
04		6.8	300					2.50
05		7.0	300		---	E		2.50
06		7.8	260		120	<2.10		2.75
07		9.9	240		120	2.75		2.85
00		>11.0	230		120	3.30	>3.4	2.85
09		>11.0	240		120	(3.55)		2.85
10		>11.0	240		120	>3.70		(2.80)
11		>11.0	250		120	>3.80		(2.70)
12		>10.9	250		110	>3.55		(2.70)
13		>11.0	250		110	>3.50		(2.60)
14		(11.0)	250		---	>3.50		(2.65)
15		(10.7)	250		120	>4.35		(2.60)
16		(10.0)	240		120	3.40	>3.5	(2.60)
17		>9.6	250		130	2.70	2.9	2.75
18		>9.5	250		---	(2.00)	2.5	2.75
19		>9.0	250				2.4	2.65
20		>9.0	290					2.60
21		9.0	290					2.70
22		8.8	290					2.60
23		8.4	290					2.55

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

Table 45

Watheroo, W. Australia (30.3°S, 115.9°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.8)	290				1.5	(2.90)
01		(6.6)	285				1.6	2.90
02		(6.4)	280				1.6	(3.00)
03		(6.0)	280				1.4	(2.90)
04		(5.9)	290					----
05		(5.8)	270					----
06		(6.0)	295		---	E		----
07		>7.0	250		110	(2.30)		----
00		8.0	240	---	100	3.15	3.6	(3.35)
09	---	(9.2)	225	6.0	100	3.50	3.8	(3.20)
10	---	(9.9)	220	(7.0)	100	3.00	3.9	(3.20)
11	(350)	>10.0	(225)	(7.0)	100	>3.80		(3.00)
12	(360)	>10.0	(240)	7.0	100	3.90		<2.90
13	(365)	(9.8)	---	(7.0)	100	3.95		----
14	(360)	>9.9	(240)	7.0	110	(3.90)		----
15	(370)	(10.0)	(240)	6.6	100	3.85		(2.90)
16	---	(9.8)	240	6.5	100	3.60	3.8	----
17		>8.9	245	---	105	3.10	3.3	----
18		>8.5	250		115	2.20		----
19		>7.0	250		---	----	1.7	----
20		>7.0	250				1.3	----
21		(7.2)	250					2.90
22		>7.0	260					(2.90)
23		(6.8)	280					(2.80)

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

Table 46

Capetown, Union of S. Africa (34.1°S, 18.3°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	<265				<1.9	2.70
01		5.1	<280				<2.0	2.60
02		5.0	<300				<1.7	2.50
03		4.0	<310				<1.6	2.55
04		4.6	<300				<1.6	2.50
05		4.4	<320				<1.6	2.45
06		4.1	<315				<1.5	2.50
07		7.0	255			2.0		2.85
00		9.7	245			2.8		3.00
09		11.5	240			3.4		2.05
10		12.4	235			3.7	4.0	2.80
11		12.9	230			3.9	4.2	2.70
12		13.4	(230)			---	4.5	2.65
13	---	13.6	(230)			---	4.4	2.55
14	---	13.6	(230)			---		<2.55
15	---	13.3	240			---		2.50
16	---	13.2	250			3.8		2.50
17		>12.8	250			3.4		2.60
18		12.5	250			2.9		2.65
19		11.6	250			2.0	2.3	2.75
20		10.4	240				<1.8	2.75
21		9.3	245				<1.8	2.80
22		8.2	250				2.0	2.85
23		6.9	(250)				1.9	2.00

Time: 30.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 47

Christchurch, New Zealand (43.6°S, 172.8°E) March 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3	300				<1.7	2.45
01		7.0	310				<1.6	2.35
02		7.0	300				<1.3	2.40
03		6.3	310				1.2	2.40
04		6.0	300				1.4	2.40
05		5.6	300		---	---	1.5	2.40
06		5.2	310		---	---	<1.7	2.50
07	---	6.7	270	---	110	2.2		2.70
00	---	0.3	250	---	105	2.9		2.75
09	---	9.6	250	---	100	3.3	3.3	2.85
10	(470)	10.5	240	5.1	100	3.6	3.6	2.00
11	(450)	11.0	230	5.2	100	3.0	3.8	2.70
12	(480)	11.0	230	---	100	3.9		2.70
13	(420)	11.0	240	---	100	3.9		2.65
14	---	11.1	240	---	100	3.9		2.65
15	---	10.8	250	---	100	3.8		2.65
16	---	10.6	250	---	100	3.4		2.65
17		10.4	250		100	3.0		2.70
18		10.5	250		110	2.5		2.70
19		10.4	260		---	---	2.0	2.70
20		9.5	250				<1.7	2.60
21		8.6	260				<1.9	2.55
22		8.2	290				<1.7	2.50
23		0.0	300				<1.6	2.45

Time: 100.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 48

Cape Hallett (72.3°S, 170.3°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.4)	355		---	1.3	<1.6	(2.35)
01		(3.5)	400		291	1.5		(2.25)
02		(3.5)	400		291	1.4	<1.9	(2.25)
03		(3.6)	395		220	1.5		(2.20)
04		(3.6)	355		124	(1.8)		(2.35)
05	---	(4.8)	315	---	117	1.9		(2.35)
06	---	(6.4)	290	---	115	(2.4)		(2.60)
07	(415)	6.8	200	---	113	2.6		(2.55)
00	(380)	8.0	260	---	111	2.9		2.60
09	(410)	(7.5)	255	(4.3)	109	3.0		(2.60)
10	(460)	(7.2)	250	4.5	109	3.1		(2.60)
11	470	>7.0	250	4.3	109	3.0		(2.70)
12	430	7.6	250	4.2	108	3.1		2.65
13	---	7.4	245	4.6	108	3.0		2.65
14	(475)	7.6	250	4.4	109	3.0	<3.5	2.65
15	---	7.2	255	---	109	2.8	<3.7	2.60
16	---	>7.6	265	---	109	2.6	(3.2)	2.55
17	---	0.0	270	---	113	2.4	<3.0	2.50
18	---	(8.4)	200	---	114	2.2	<2.7	(2.55)
19	---	(0.5)	295		114	1.8	<1.9	(2.50)
20		(7.4)	290		150	1.5		(2.40)
21		(7.8)	290		---	1.2	<1.3	(2.45)
22		(6.0)	310		---	1.0	<1.4	(2.35)
23		(4.2)	340		---	1.3	<1.5	(2.30)

Time: 165.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 49

Scott Base (77.0°S, 166.8°E) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.8	370		---	---	<2.0	2.30
01		4.0	350		---	---		2.15
02		3.8	380		---	---		2.20
03	---	4.5	340	---	---	---		2.30
04	---	5.5	340	---	---	---	<2.0	2.40
05	---	5.6	300	---	---	---	<2.0	2.55
06	---	5.6	300	---	120	2.4		2.55
07	---	6.5	280	---	---	---	<2.6	2.50
08	---	6.8	260	---	130	2.6		2.70
09	---	(7.0)	260	---	---	2.8		2.50
10	(350)	6.6	250	4.3	---	2.9		2.70
11	(340)	7.1	250	4.3	---	---		2.60
12	(340)	7.3	250	4.6	---	---	<2.9	2.60
13	(350)	7.4	270	4.3	---	---		2.55
14	380	7.3	260	4.4	---	3.0		2.45
15	(380)	7.4	(260)	4.2	---	---		2.50
16	(350)	7.6	280	4.2	---	2.7		2.50
17	(420)	7.5	<290	3.9	---	2.5		2.45
18	(400)	7.8	300	3.8	140	2.4		2.50
19	---	8.4	300	---	---	---	<2.7	2.50
20	---	6.8	300	---	---	---	<2.5	2.40
21	---	6.2	320	---	---	---	<1.9	2.50
22		5.2	330		---	---	<1.8	2.30
23		4.3	350		---	---		2.20

Time: 165.0°E.

Table 50

Bogota, Colombia (4.5°N, 74.2°W) October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.15	220					3.00
01		8.6	210					2.92
02		7.0	230					2.80
03		6.1	245					2.75
04		5.6	250					2.78
05		5.1	260					2.75
06		8.6	270		(135)	2.22	4.2	2.90
07		12.3	245		115	3.20	3.9	2.90
08		14.3	240		111	3.80		2.85
09		14.8	235		111	4.10		2.75
10	---	14.4	230		113	4.40		2.60
11	(430)	14.9	<230		111	4.50		2.50
12	440	15.1	(230)	---	112	(4.50)	4.9	2.50
13	460	14.5	(240)	7.4	111	4.40	5.1	2.40
14	<465	14.9	<245	---	111	----	5.4	2.38
15	450	14.8	<255		109	(3.80)	5.1	2.35
16	430	>15.0	250		109	3.35	4.1	2.40
17		>15.0	(270)		119	2.70	4.2	2.40
18		>15.0	300				3.3	2.50
19		17.2	310					(2.58)
20		(18.1)	280					(2.55)
21		>17.5	230					(2.70)
22		(16.7)	230					(2.65)
23		>14.2	235					(2.90)

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

Table 51

Little America (70.2°S, 162.2°W) September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.8)	(330)					(2.55)
01		(5.4)	(310)				1.8	(2.55)
02		(4.7)	310		---	----	2.2	(2.60)
03		(5.0)	310		---	----	2.2	(2.60)
04		(4.85)	310		---	----	2.6	(2.70)
05		(5.45)	300		105	----	2.6	(2.88)
06		(5.8)	270		---	----		(2.90)
07	---	(7.3)	260		108	(2.30)		(2.90)
08	---	(8.85)	<270		109	(2.45)		2.90
09	---	(8.45)	260		111	(2.65)		(2.90)
10	---	(7.75)	260	---	111	(2.70)		(2.98)
11	---	(7.4)	260	---	(111)	(2.65)		(2.90)
12	---	(7.9)	255	---	(111)	(2.80)		(3.02)
13	---	(7.8)	(260)	---	<117	(2.75)		(2.90)
14	---	(8.0)	250	---	<115	(2.65)		(2.02)
15	---	(8.2)	250	---	(116)	----		(2.70)
16	---	(8.3)	260	---	105	----		(2.80)
17	---	(8.6)	<285	---	119	(1.75)		(2.72)
18	---	(8.8)	270	---	125	----		(2.62)
19		(0.2)	(280)	---	---	----		(2.70)
20		(8.0)	290		---	----		(2.65)
21		(6.1)	(285)		---	----		(2.42)
22		(5.4)	285					(2.40)
23		(6.6)	305				1.5	----

Time: 165.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 52

Little America (78.2°S, 162.2°W) August 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.6)	280		---	----		(2.75)
01		(4.5)	295		121	----	1.8	(2.70)
02		(4.3)	(280)		107	----	1.9	(2.80)
03		(4.4)	280		---	----	2.6	(2.80)
04		(4.2)	(290)		---	----	3.0	(2.95)
05		(3.8)	300		---	----	2.8	(2.98)
06		(3.8)	285		---	----	1.9	(3.00)
07		(4.1)	300		---	----	1.7	(2.85)
00		(4.8)	290		115	----	1.3	(3.00)
09		(5.0)	280		109	(1.80)	1.9	(3.00)
10		(4.8)	<265		104	(1.90)	1.9	(2.90)
11		(5.15)	250		111	(1.85)	2.2	(3.00)
12		(5.2)	265		109	(1.98)		(2.95)
13		(5.5)	260		110	(2.08)		(2.92)
14		(5.3)	260		111	----		(2.90)
15		(5.7)	255		111	----	1.9	(2.90)
16		(6.4)	<260		---	----	1.8	(2.90)
17		(6.2)	250		---	----	1.9	(2.80)
18		(6.8)	260				1.1	(2.85)
19		(6.95)	240					(2.70)
20		(6.9)	260					(2.75)
21		(5.6)	270					(2.70)
22		(5.4)	280					(2.60)
23		(4.8)	(285)					(2.60)

Time: 165.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 53

Delhi, India (28.6°N, 77.1°E) July 1957

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	400	8.7						2.60
01	380	8.6						2.70
02	390	8.1						2.60
03								
04	400	7.6						2.60
05	360	7.4						2.80
06	320	8.2						3.00
07	340	9.2						2.90
08	360	9.6						2.80
09	400	10.0						2.60
10	440	10.8						2.45
11	410	11.9						2.55
12	420	12.5						2.50
13	440	13.0						2.45
14	400	13.6						2.60
15	400	>13.5						2.60
16	400	13.2						2.60
17	380	12.9						2.70
18	360	11.8						2.80
19	360	11.5						2.80
20	380	>9.5						2.70
21	400	>9.0						2.60
22	400	8.9						2.60
23	400	8.8						2.60

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

Table 54

Ahmedabad, India (23.0°N, 72.6°E) July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.4	325				2.1	2.50
01		8.3	300				1.6	2.60
02		7.8	280				1.5	2.65
03		7.4	280				1.4	2.55
04		7.0	280				1.4	2.60
05		6.8	270				1.6	2.60
06		7.3	265	---	125	1.8	2.0	2.90
07	260	9.1	250	4.6	110	2.8	3.0	3.00
00	265	9.8	230	5.1	105	3.4	3.7	2.80
09	285	10.2	225	5.5	105	3.7	4.3	2.55
10	310	11.0	200	5.8	105	4.0	4.4	2.45
11	400	12.2	<250	6.3	---	4.2	4.5	2.35
12	405	12.9	<250	6.3	---	---		2.35
13	410	14.1	(250)	6.2	---	---		2.40
14	400	14.3	(250)	6.2	---	---	3.8	2.40
15	400	14.4	235	6.0	105	4.0		2.45
16	380	14.7	235	5.8	107	3.7		2.45
17	340	15.0	250	5.4	108	3.3	3.7	2.55
18	300	14.6	255	4.8	120	2.6	4.2	2.65
19	---	13.4	280		---	---	3.0	2.60
20		12.0	300				2.9	2.50
21		10.2	315				2.4	2.45
22		9.4	330				2.3	2.40
23		8.8	330				2.0	2.45

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

Table 55

Calcutta, India (22.9°N, 88.5°E) July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.0	300				1.5	3.2
01		10.2	295					3.35
02		8.4	270					3.3
03		7.5	265					3.2
04		7.4	250				2.2	3.3
05		6.8	270		---	---	2.1	3.2
06	---	7.7	250	---	110	2.5	2.6	3.5
07	---	9.4	250	5.0	110	3.0	3.0	3.55
00	(300)	9.8	<245	5.5	110	3.2	3.5	3.35
09	(300)	10.8	230	6.0	105	3.4	5.2	3.0
10	(380)	11.5	<240	6.4	105	3.6	5.1	2.75
11	400	0	220	6.5	100	3.8	5.0	2.95
12	425	0	200	6.5	100	4.0	5.3	(2.75)
13	420	D	210	6.5	100	3.9	5.3	
14	430	D	220	6.5	100	3.7	5.4	
15	400	0	<240	6.4	105	3.5	3.6	---
16	390	0	250	6.0	100	3.2		(3.0)
17	350	0	250	5.5	105	3.0		3.1
18	320	0	260	5.1	110	2.6	3.3	3.1
19		13.0	300		110	2.0	3.0	3.2
20		12.0	315				2.9	3.0
21		11.7	310				2.6	3.1
22		11.5	310					3.1
23		11.2	300					3.1

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

Table 56

Bombay, India (19.0°N, 73.0°E) July 1957

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	300	7.5						3.10
07	320	9.3						3.00
08:30	390	10.3						2.65
09	400	10.7						2.60
10	460	11.4						2.40
11	490	11.9						2.30
12	480	12.7						2.30
13	480	13.1						2.30
14	500	13.4						2.25
15	490	13.5						2.30
16	480	13.6						2.30
17	400	13.7						2.60
18	(380)	>13.3						(2.70)
19	400	12.7						2.60
20	(360)	(10.5)						(2.80)
21	(440)	10.6						(2.45)
22	420	9.4						2.50
23								

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

Table 57

Madras, India (13.0°N, 80.2°E) July 1957

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	420	<10.5						2.50
01	(400)	<10.0						(2.60)
02	(400)	>9.0						(2.60)
03	(380)	(8.2)						(2.70)
04	320	<7.7						3.00
05	320	6.7						3.00
06	320	9.3						3.00
07	360	11.0						2.80
08	440	11.6						2.45
09	480	11.7						2.25
10	520	11.4						2.20
11	520	11.1						2.20
12	520	11.0						2.20
13	540	11.4						2.20
14	550	11.6						2.10
15	520	11.8						2.20
16	480	12.3						2.30
17	480	12.2						2.30
18	480	(12.2)						2.30
19	530	>11.5						2.15
20	(520)	10.7						(2.20)
21	(500)	<10.4						(2.20)
22	(480)	<10.5						(2.30)
23	420	(11.0)						2.50

Time: 75.0°E.
Sweep: 0.75 Mc to 21.5 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 58

Tiruchy, India (10.8°N, 78.8°E) July 1957

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(440)	(9.5)						(2.45)
01	(400)	(8.8)						(2.60)
02	400	8.4						2.60
03	360	7.8						2.80
04	330	7.8						2.95
05	320	6.5						3.00
06	340	9.1						2.90
07	360	10.8						2.80
08	440	11.7						2.45
09	480	11.5						2.30
10	520	10.9						2.20
11	560	10.6						2.10
12	560	10.6						2.10
13	560	10.9						2.10
14	560	11.0						2.10
15	560	11.0						2.10
16	520	11.5						2.20
17	520	11.2						2.20
18	520	10.6						2.20
19	520	10.6						2.20
20	560	10.2						2.10
21	520	10.1						2.20
22	(480)	(9.9)						(2.30)
23	(440)	(10.0)						(2.45)

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

Table 59

Kodaikanal, India (10.2°N, 77.5°E) July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(9.6)	320					(2.65)
01		8.6	300					2.60
02		8.5	295					2.80
03		7.8	280					2.90
04		7.2	250					3.00
05		6.3	240					3.10
06		8.1	270		120	2.1	2.5	3.00
07		10.4	250		115	3.0	8.7	2.80
00	---	11.5	230		110	---	10.8	2.55
09	---	11.5	220	---	100	---	12.0	2.25
10	---	10.8	210	---	100	---	12.6	2.20
11	---	10.4	210	---	---	---	12.7	2.15
12	---	10.5	210	---	105	---	12.6	2.10
13	(450)	10.7	210	---	110	---	12.6	2.10
14	---	10.8	215	---	110	---	12.4	2.10
15	---	11.3	225	---	110	---	12.0	2.10
16	---	11.6	235		110	---	11.3	2.20
17	---	11.7	260		120	2.9	9.0	2.25
18		(11.8)	290		---	---	4.4	>2.30
19		11.4	365					2.20
20		10.2	400					2.15
21		10.0	395					2.25
22		9.6	380				3.4	2.35
23		9.8	360				2.9	2.50

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

Table 60

Trivandrum, India (8.4°N, 77.0°E) July 1957

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	>9.4						----
01	---	>9.3						----
02	---	>8.9						----
03	---	>8.5						----
04	(280)	(7.8)						(3.25)
05	280	6.0						3.25
06	300	8.0						3.10
07	340	>10.5						2.90
08	400	12.2						2.60
09	470	(12.4)						2.35
10	480	11.4						2.30
11	480	10.8						2.30
12	520	10.8						2.20
13	520	10.9						2.20
14	520	11.1						2.20
15	520	11.4						2.20
16	520	>11.5						2.20
17	480	>11.5						2.30
18	440	>10.0						2.45
19	440	9.6						2.45
20	(510)	9.6						(2.20)
21	(500)	>10.3						(2.25)
22	---	>10.7						----
23	---	>9.9						----

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

Table 61

Dakar, French W. Africa (14.7°N, 17.4°W) July 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.0	350				3.3	2.55
01		5.5	325				3.0	2.62
02		5.2	320				2.8	2.65
03		5.1	300				2.4	2.62
04		4.9	290				2.3	2.70
05		4.8	<270					2.79
06		6.6	250		125	1.80	2.2	3.20
07	260	7.6	240	(4.10)	113	2.70	3.7	3.14
08	290	8.4	230	4.55	111	3.25	4.5	2.94
09	330	9.4	220	5.15	109	3.65	4.8	2.74
10	380	10.2	210	5.30	109	3.80	4.4	2.61
11	420	11.1	210	5.50	109	4.00	4.6	2.60
12	430	11.9	210	5.50	109	4.00	4.4	2.56
13	440	12.6	210	5.50	109	4.00	4.3	2.47
14	430	12.8	215	5.50	109	3.85	4.0	2.52
15	410	13.0	220	5.40	111	3.70	3.7	2.62
16	385	12.8	230	5.00	111	3.40	4.0	2.71
17	370	12.3	240	4.50	111	2.90		2.65
18	390	11.8	260	4.00	119	2.10	3.3	2.59
19		10.8	305				3.5	2.51
20		9.0	385				3.4	2.37
21		7.4	400				2.6	2.37
22		6.7	<400				3.0	(2.43)
23		6.5	370				3.4	2.50

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

Table 62

Tananarive, Madagascar (10.9°S, 47.6°E) July 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		3.0	<265					3.04
01		2.7	---					2.08
02		2.7	---					2.92
03		2.7	---					3.16
04		2.4	---					2.83
05		2.4	---					2.06
06		2.7	---				2.0	2.80
07		>6.5	250		149	2.15	2.9	3.22
08	(275)	>9.0	240		115	2.85	3.0	3.20
09	270	>10.0	235	5.25	111	3.30	3.0	3.14
10	270	(10.2)	225	5.25	111	3.55		3.12
11	275	>10.0	220	5.30	110	3.70		3.11
12	200	9.0	(220)	(5.20)	109	(3.00)		2.97
13	205	>9.5	---	5.20	109	3.80		2.07
14	280	9.4	(230)	5.20	111	3.65		2.88
15	280	>9.5	240	5.20	111	3.45	2.4	2.93
16	270	9.0	240	----	115	3.05	3.4	2.92
17	---	9.0	245		121	2.40	3.3	3.02
18		8.0	230		---	1.50	3.1	3.11
19		6.5	225				3.1	3.17
20		4.4	<230				3.0	3.06
21		4.0	250				2.8	3.11
22		4.2	(240)				2.6	3.22
23		3.5	(230)				1.8	3.29

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

Table 63

Delhi, India (28.6°N, 77.1°E) October 1955

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						3.10
01	300	3.7						3.10
02	280	3.7						3.25
03								
04	300	3.5						3.10
05	280	3.4						3.25
06	240	5.4						3.60
07	220	8.4						3.80
08	240	9.1						3.60
09	240	>9.3						3.60
10	260	9.9						3.40
11	280	11.0						3.25
12	300	11.8						3.10
13	280	12.8						3.25
14	280	12.9						3.25
15	280	13.1						3.25
16	260	13.2						3.40
17	240	>12.0						3.60
18	240	7.2						3.60
19	240	6.4						3.60
20	280	5.3						3.25
21	280	4.7						3.25
22	300	3.9						3.10
23	320	3.6						3.00

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

Table 64

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.5					3.7	2.00
01	270	4.4					3.6	3.00
02	260	4.4					3.7	3.15
03	240	4.2					3.6	3.35
04	235	3.3					3.4	3.40
05	250	3.0					3.0	3.15
06	255	4.2					>3.0	3.20
07	235	0.2	---	---	114	2.2	3.6	3.55
08	235	>9.0	225	4.0	107	2.0	4.6	3.55
09	250	9.1	210	4.4	105	3.1	6.0	3.30
10	275	10.2	210	4.8	105	3.3	5.3	3.15
11	200	11.4	210	4.9	105	3.4	6.0	3.00
12	300	12.8	220	4.9	105	3.5	4.0	2.85
13	325	14.3	230	5.0	105	3.5	4.8	2.90
14	305	14.6	230	5.0	105	3.3	4.0	3.10
15	275	14.6	240	4.6	107	3.2	4.0	3.15
16	255	14.4	240	4.3	110	2.8	4.0	3.25
17	240	14.2	---	3.4	115	2.1	4.2	3.35
18	225	13.7					4.2	3.40
19	215	12.9					3.6	3.25
20	215	10.9					3.4	3.05
21	230	9.5					3.8	3.05
22	240	6.1					3.3	3.00
23	300	4.8					3.3	2.80

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

Table 65

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

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.4						3.05
01	260	5.0						3.10
02	250	4.7						3.15
03	220	4.5						3.30
04	225	3.6						3.25
05	250	3.1						3.10
06	250	4.5			120	1.5	2.0	3.15
07	240	7.2	(235)	---	110	2.4		3.20
08	250	9.5	225	4.2	100	2.7	3.5	3.25
09	290	10.2	210	4.5	100	3.1		3.05
10	290	11.0	210	4.7	100	3.3		3.00
11	300	11.7	200	4.8	100	3.5		(3.05)
12	300	12.0	200	5.0	100	3.6		3.00
13	310	12.5	200	5.0	100	3.6		3.00
14	300	12.0	210	4.8	100	3.5		(3.10)
15	280	11.7	220	4.5	100	3.3		3.15
16	255	11.5	220	4.3	100	2.8	3.2	3.15
17	240	11.2	---	---	100	2.5	3.6	3.25
18	230	11.2			110	2.0	3.0	3.30
19	230	10.8					3.1	3.40
20	205	10.3					2.2	3.35
21	215	9.5					2.0	3.30
22	240	7.2					2.0	3.25
23	260	6.0						3.10

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

Table 66

5ao Paulo, Brazil (23.5°S, 46.5°W) October 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	12.6						3.2
01	240	>13.0						3.4
02	220	11.2						3.5
03	220	7.8						3.35
04	230	6.6						3.2
05	230	6.0						3.3
06	220	7.2						3.4
07	230	7.8	220	---	110	2.6		3.4
08	260	8.5	210	---	100	3.0		3.2
09	280	9.7	200	---	100	3.2		2.9
10	310	10.4	200	---	100	3.3		---
11	310	11.2	200	4.8	100	---		---
12	320	12.0	200	4.8	100	---		(2.7)
13	310	13.0	180	---	100	---		(2.9)
14	300	13.3	200	4.5	110	---	4.2	(3.0)
15	280	13.8	210	---	110	3.1	3.2	3.05
16	270	14.0	220	---	120	2.9		3.1
17	240	(14.0)	230	---	120	2.4	3.0	3.1
18	230	(14.0)					3.0	3.2
19	240	(13.4)					2.3	3.2
20	240	(13.0)						(3.2)
21	240	12.4						(3.2)
22	240	13.1						3.1
23	240	(12.3)						3.25

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

Table 67*

Campbell I. (52.5°S, 169.2°E) July 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	E						---
06	---	E						---
07	330	2.0						3.1
08	250	3.8	220	2.8	130	2.2		3.3
09	250	4.6	230	3.3	130	2.3		3.4
10	260	4.9	230	3.5	130	2.4		3.4
11	260	5.2	230	3.5	130	2.5		3.3
12	270	5.6	240	3.6	130	2.6		3.3
13	260	5.4	230	3.5	130	2.5		3.3
14	250	5.2	230	3.2	130	2.3		3.3
15	250	5.0	230	2.4	130	2.0		3.25
16	250	4.6	230	2.3	---	---		3.2
17	250	3.8						3.1
18	270	3.2						3.1
19	280	2.6						3.0
20	300	2.2						3.0
21	340	1.9						3.0
22	---	E						3.0
23	---	E						---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

Table 68*

Campbell I. (52.5°S, 169.2°E) June 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	E						(3.0)
06	---	E						(3.0)
07	320	2.0			---	---		3.0
08	250	3.8	240	(1.7)	---	---		3.3
09	250	4.6	230	3.4	130	2.1		3.4
10	250	4.9	240	3.4	130	2.5		3.3
11	270	5.2	240	3.6	130	2.6		3.3
12	270	5.4	240	3.6	130	2.7		3.2
13	260	5.3	240	3.5	130	2.5		3.3
14	260	5.4	240	3.2	130	2.4		3.2
15	250	5.2	240	3.2	130	1.8		3.3
16	(260)	4.8	240	---	---	---		3.2
17	260	4.2	240	---				3.1
18	270	3.2						3.0
19	310	2.4						2.9
20	340	2.0						3.0
21	350	2.0						3.0
22	380	1.9						3.0
23	---	E						(3.0)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

Table 69*

Campbell I. (52.5°S, 169.2°E) November 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	4.1	230	2.8	125	2.0		3.1
06	300	4.5	230	3.4	115	2.4		3.1
07	320	4.7	230	3.8	110	2.7		3.1
08	350	5.1	230	4.1	110	3.0		3.0
09	340	5.5	220	4.2	110	3.2		3.0
10	340	5.5	220	4.3	110	3.2		3.1
11	350	5.5	220	4.3	110	3.2		3.0
12	330	5.6	230	4.3	110	3.3		3.1
13	320	5.6	220	4.2	110	3.2		3.0
14	330	5.5	220	4.2	110	3.1		3.0
15	320	5.6	230	4.0	110	2.9		3.1
16	310	5.6	230	3.9	115	2.8		3.1
17	290	5.7	240	3.6	115	2.5		3.05
18	280	5.6	240	3.3	125	2.2		3.1
19	250	5.4	---	---	---	1.7		3.1
20	250	5.6						3.0
21	260	4.7						3.0
22	---	4.2						2.9
23	---	3.8						2.9

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

Table 70*

Campbell I. (52.5°S, 169.2°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	3.8	240	---	110	2.1		3.1
06	320	4.2	240	3.5	110	2.4		3.1
07	350	4.6	230	3.7	110	2.6		3.0
08	350	5.0	220	4.0	110	2.8		2.9
09	340	5.2	220	4.1	110	3.0		3.0
10	340	5.4	220	4.1	110	3.1		3.0
11	340	5.5	210	4.2	110	3.1		3.0
12	330	5.6	210	4.2	110	3.1		3.0
13	320	5.6	220	4.1	110	3.1		3.1
14	320	5.6	220	4.1	110	3.0		3.1
15	310	5.5	210	4.0	110	2.8		3.0
16	310	5.5	220	3.8	110	2.6		3.0
17	300	5.7	240	3.5	120	2.4		3.1
18	270	5.7	250	3.0	130	2.0		3.1
19	260	5.7	250	2.5	140	1.5		3.1
20	250	5.2			---	---	1.7	3.0
21	250	4.8						3.0
22	260	4.1						3.0
23	280	3.6					2.8	2.9

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

Table 71

Leopoldville, Belgian Congo (4.3°S, 15.3°E) January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.2						2.7
01	250	3.9						2.8
02	250	3.1						2.8
03	255	2.7						2.9
04	250	2.7						2.9
05	250	3.4	---	---	---	---	1.9	3.0
06	250	5.3	225	---	115	2.2	2.9	3.0
07	300	6.0	220	4.0	110	2.8	2.8	2.8
08	340	6.7	210	4.4	110	3.1		2.5
09	375	7.8	210	4.5	110	3.3		2.3
10	410	9.0	200	4.5	110	3.5		2.4
11	390	10.0	200	4.6	110	3.5		2.4
12	360	10.4	200	4.5	110	3.5		2.4
13	350	10.1	200	4.5	110	3.4		2.5
14	360	9.3	220	4.5	110	3.3		2.4
15	360	8.6	225	4.3	110	3.0	3.5	2.4
16	330	8.9	240	4.0	115	2.4	3.0	2.5
17	290	8.6	250	---	---	2.0	2.6	2.5
18	265	8.0					2.1	2.6
19	280	7.6						2.6
20	250	8.1						2.8
21	225	7.1						3.0
22	220	5.5						2.8
23	250	4.7						2.7

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

Table 72

Leopoldville, Belgian Congo (4.3°S, 15.3°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.4						2.7
01	(270)	3.9						2.7
02	(260)	3.5					1.9	2.7
03	265	3.4					1.8	2.8
04	250	3.2					1.9	3.0
05	240	4.0					2.3	3.0
06	250	6.7	230	---	115	2.1	2.8	3.1
07	270	7.6	220	---	110	2.9	3.4	2.9
08	300	8.4	215	4.3	110	3.2	4.0	2.6
09	340	9.5	200	4.5	110	3.5	3.9	2.5
10	400	11.0	200	4.6	110	3.6	3.6	2.4
11	400	11.5	200	4.8	110	3.6	3.7	2.4
12	390	12.1	210	4.5	110	3.7		2.3
13	365	12.6	210	4.6	110	3.6	4.0	2.4
14	330	12.4	220	4.5	110	3.3	3.6	2.5
15	330	11.8	220	---	110	3.0	3.7	2.5
16	330	11.0	240	---	110	2.5	3.3	2.6
17	270	11.6	---	---	---	---	2.8	2.6
18	255	11.0					2.4	2.65
19	240	10.9						2.8
20	230	>9.5						3.0
21	220	9.2						2.95
22	220	6.5						3.0
23	220	5.0						2.7

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

US COMM-NBS-BL

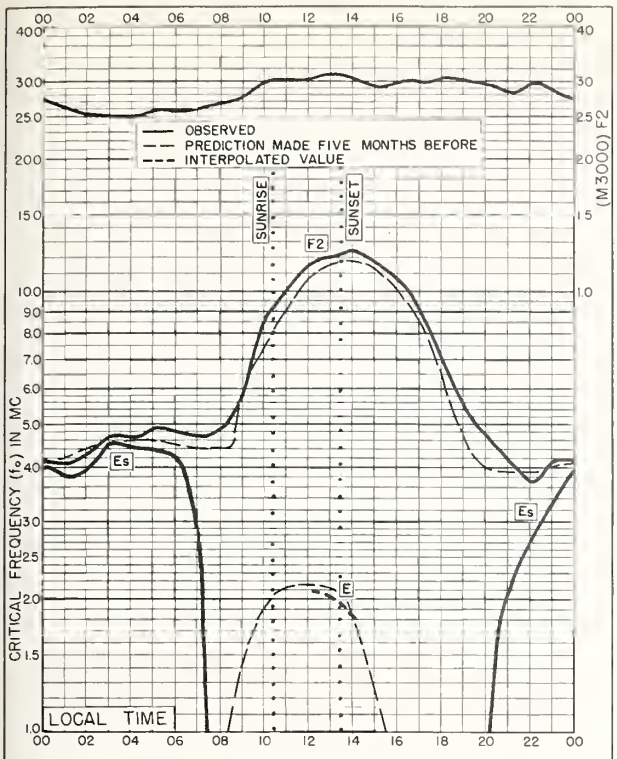

Fig. 1. FAIRBANKS, ALASKA
64.9°N, 147.8°W DECEMBER 1958

NBS 503

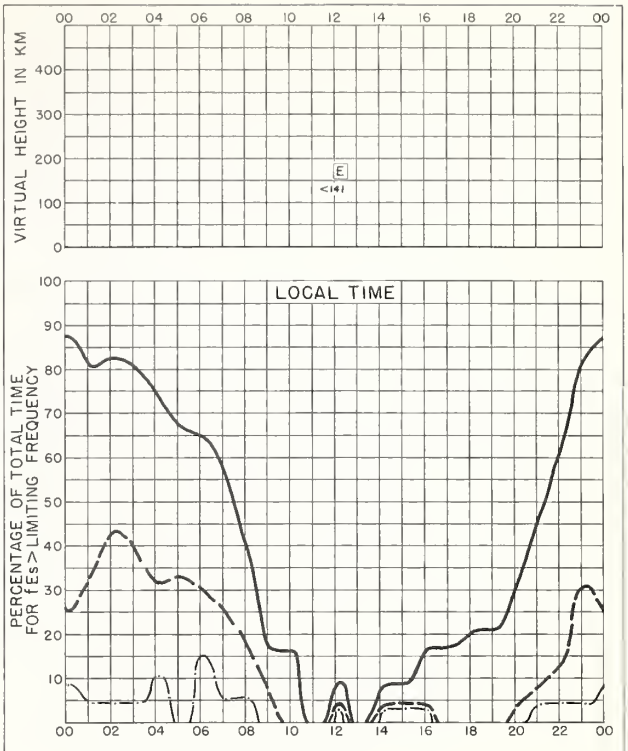

Fig. 2. FAIRBANKS, ALASKA DECEMBER 1958

NBS 490

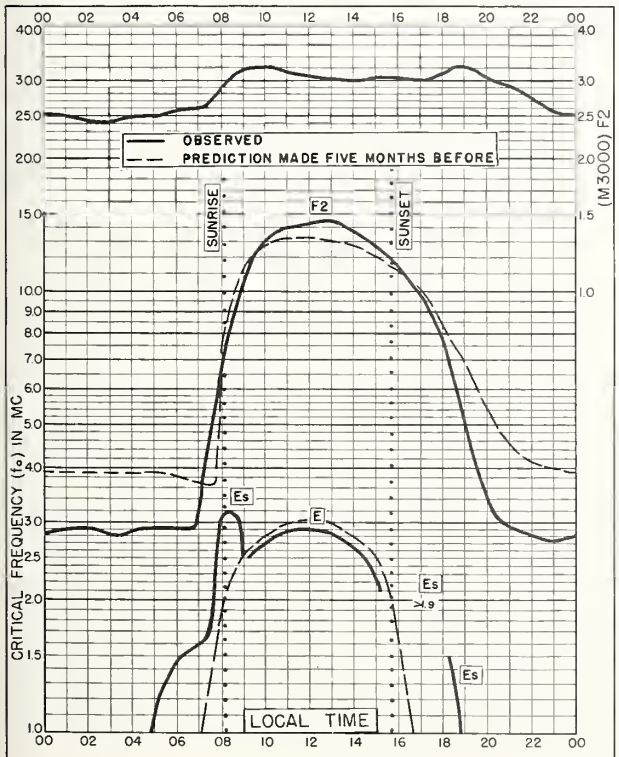

Fig. 3. ADAK, ALASKA
51.9°N, 176.6°W DECEMBER 1958

NBS 503

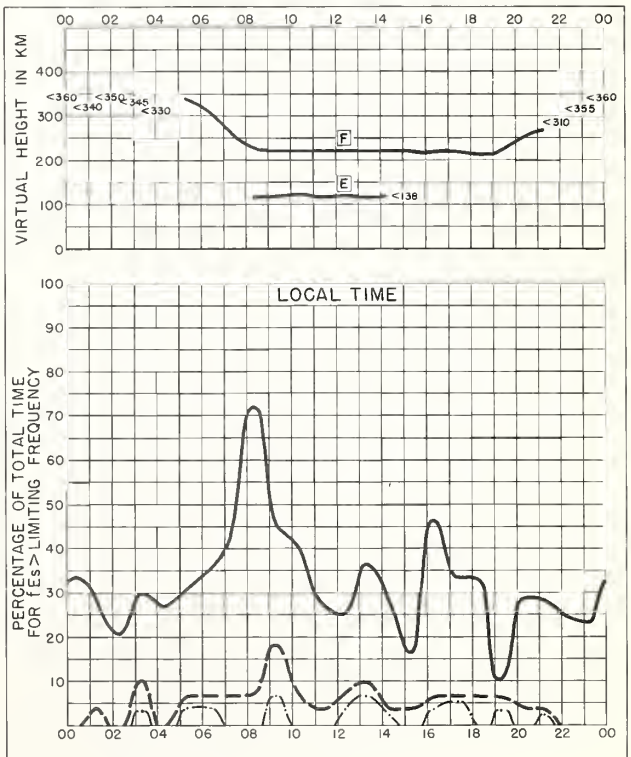

Fig. 4. ADAK, ALASKA DECEMBER 1958

NBS 490

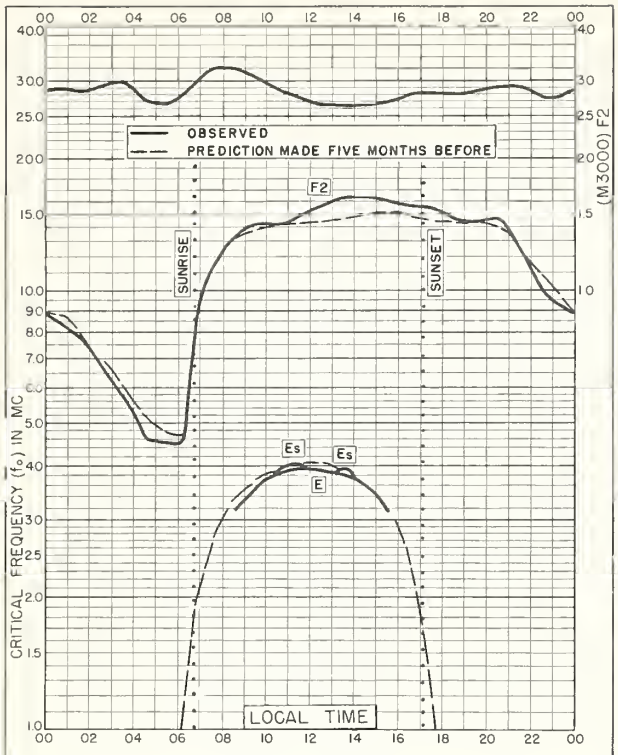

Fig. 5. OKINAWA I.
26.3°N, 127.8°E DECEMBER 1958

NBS 503

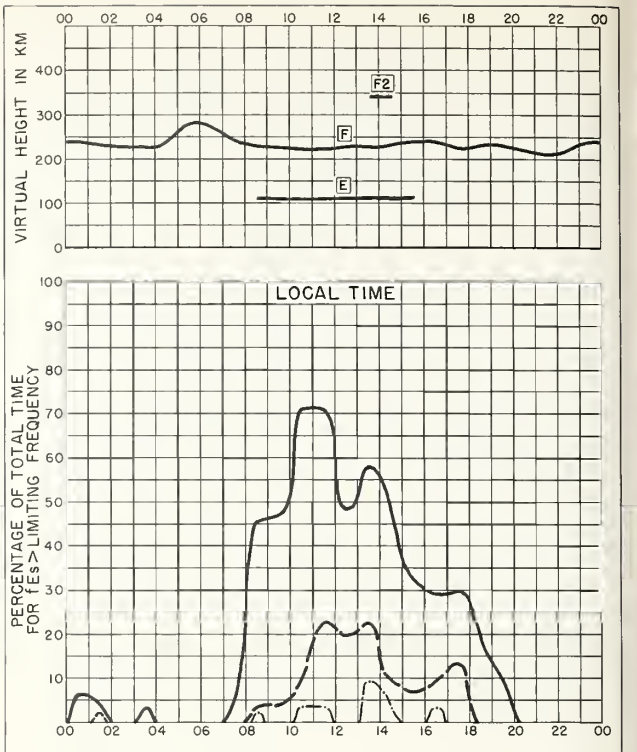

Fig. 6. OKINAWA I. DECEMBER 1958

NBS 490

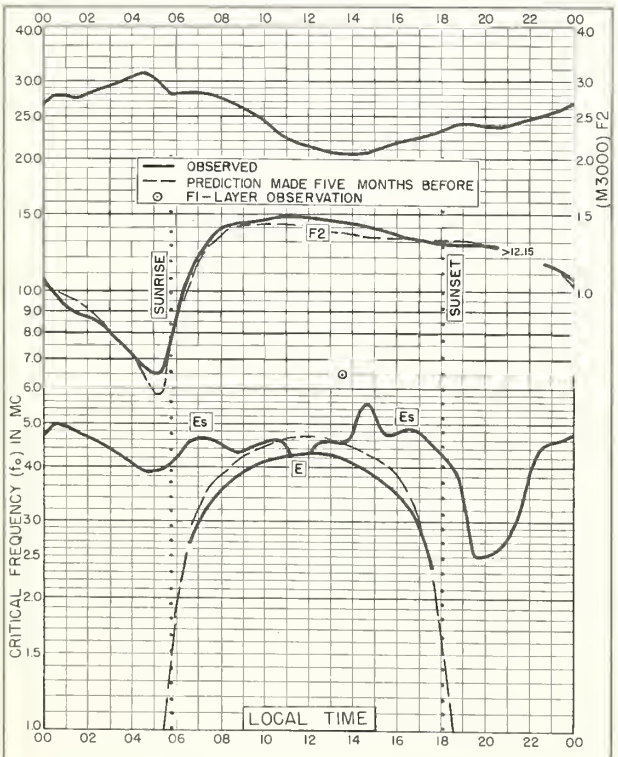

Fig. 7. TALARA, PERU
4.6°S, 81.3° W DECEMBER 1958

NBS 503

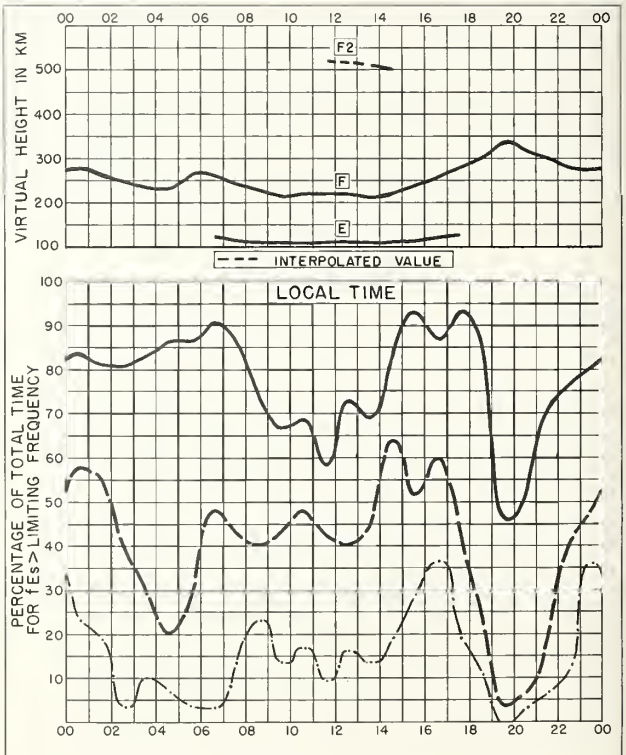

Fig. 8. TALARA, PERU DECEMBER 1958

NBS 490

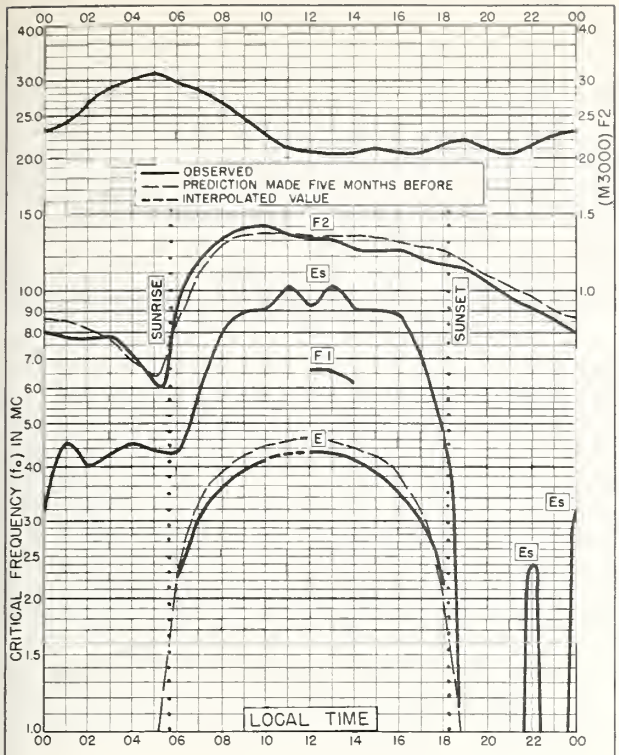

Fig. 9. HUANCAYO, PERU
12.0°S, 75.3°W DECEMBER 1958

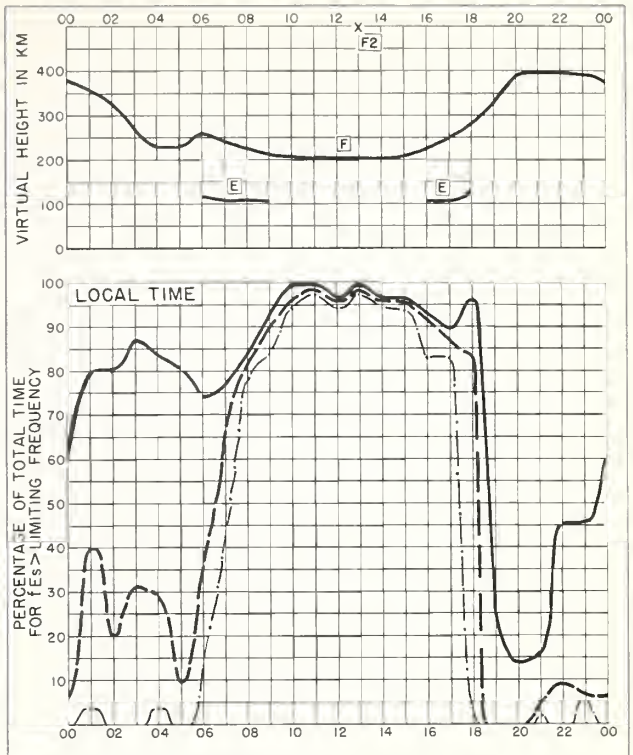

Fig. 10. HUANCAYO, PERU DECEMBER 1958

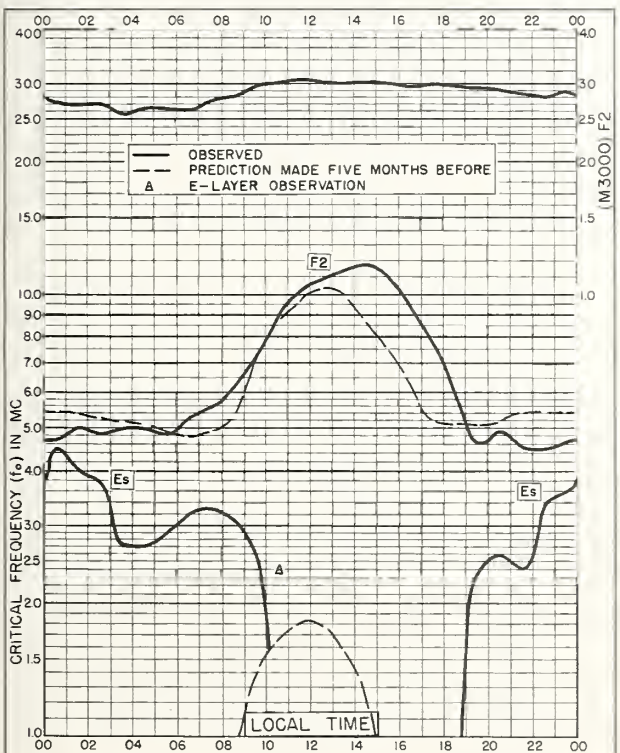

Fig. 11. POINT BARROW, ALASKA
71.3°N, 156.8°W NOVEMBER 1958

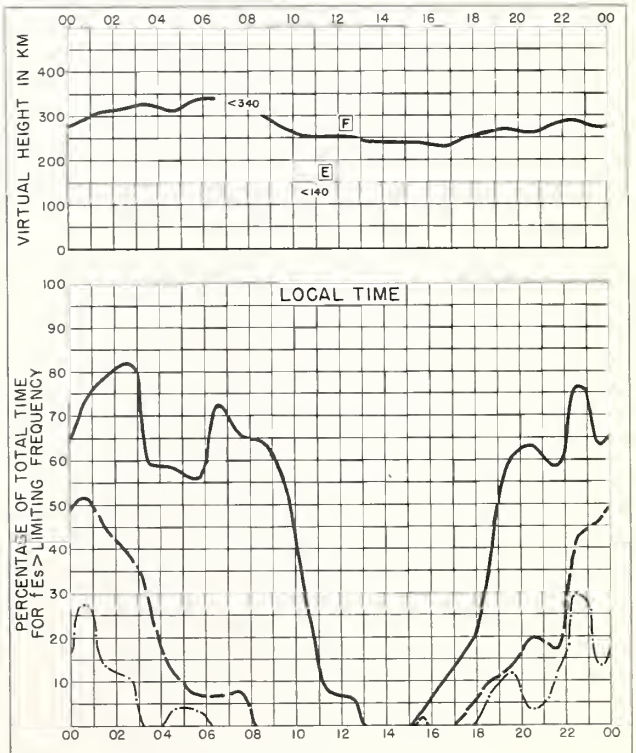

Fig. 12. POINT BARROW, ALASKA NOVEMBER 1958

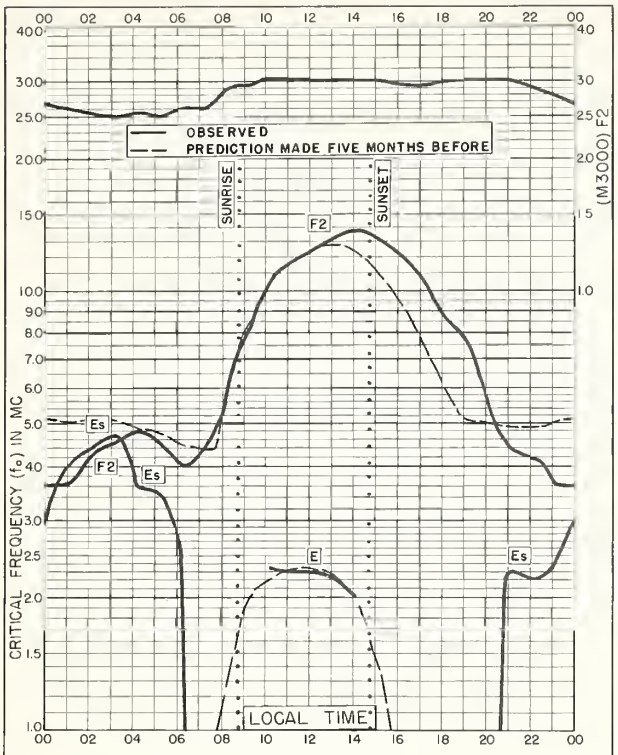

Fig. 13. FAIRBANKS, ALASKA
64.9°N, 147.8°W NOVEMBER 1958

NBS 503

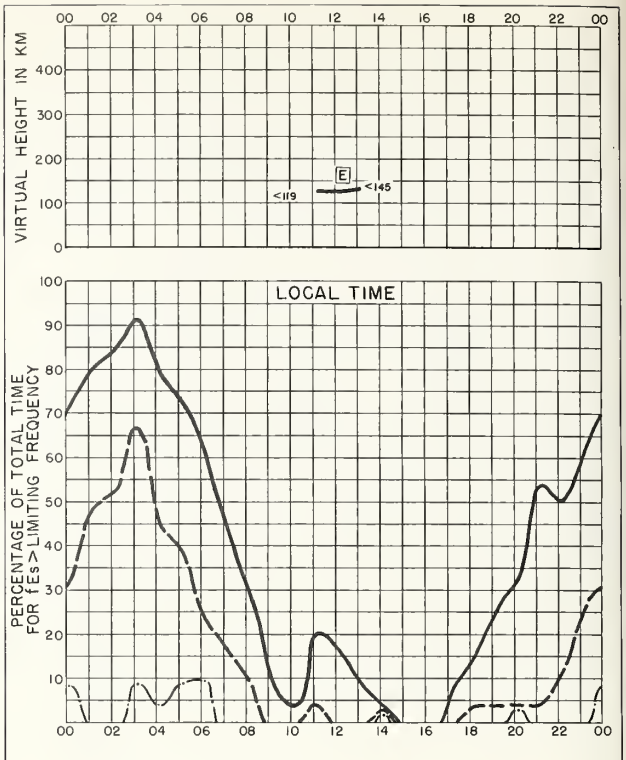

Fig. 14. FAIRBANKS, ALASKA NOVEMBER 1958

NBS 490

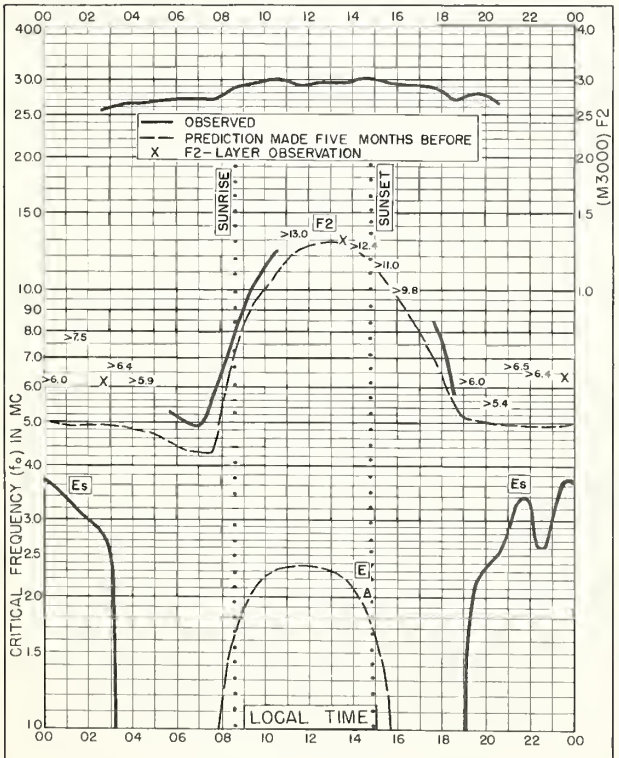

Fig. 15. REYKJAVIK, ICELAND
64.1°N, 21.8°W NOVEMBER 1958

NBS 503

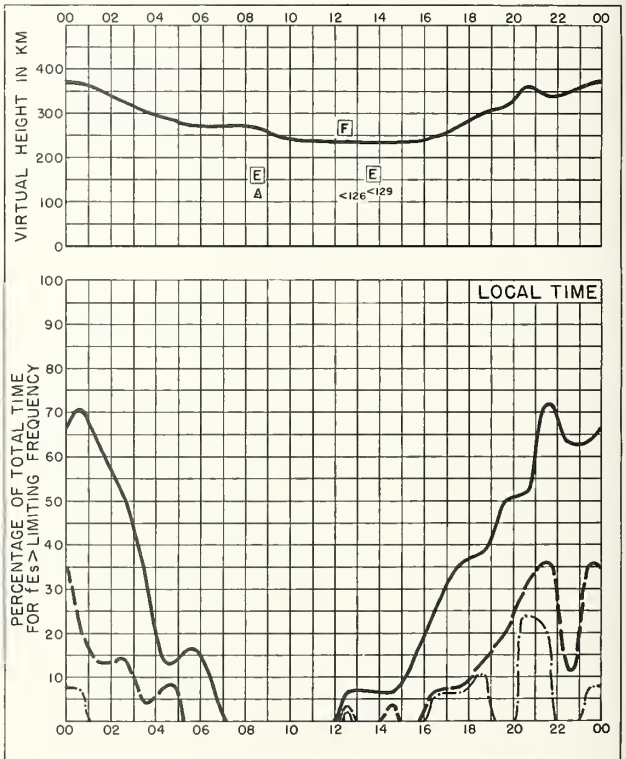

Fig. 16. REYKJAVIK, ICELAND NOVEMBER 1958

NBS 490

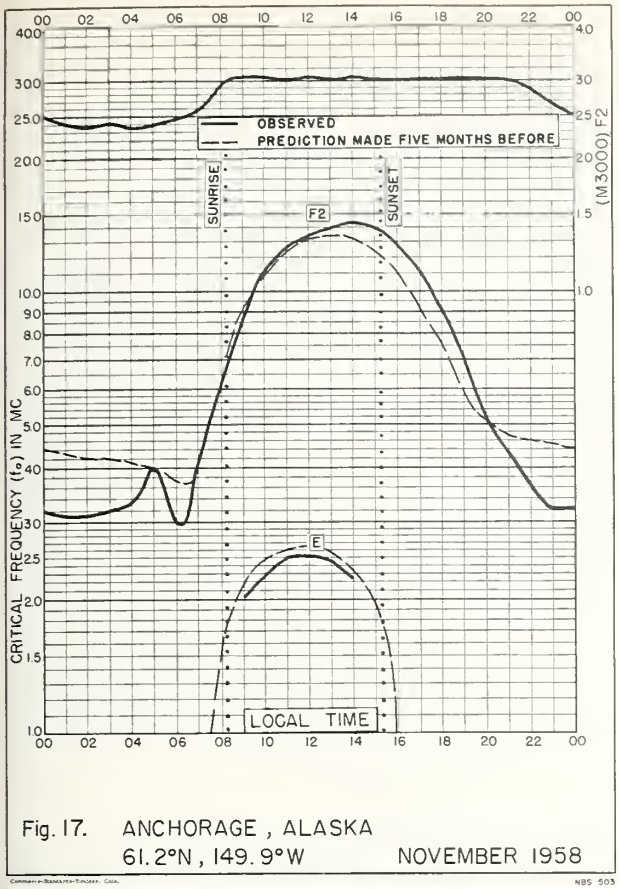

Fig. 17. ANCHORAGE, ALASKA
61.2°N, 149.9°W NOVEMBER 1958

NBS 503

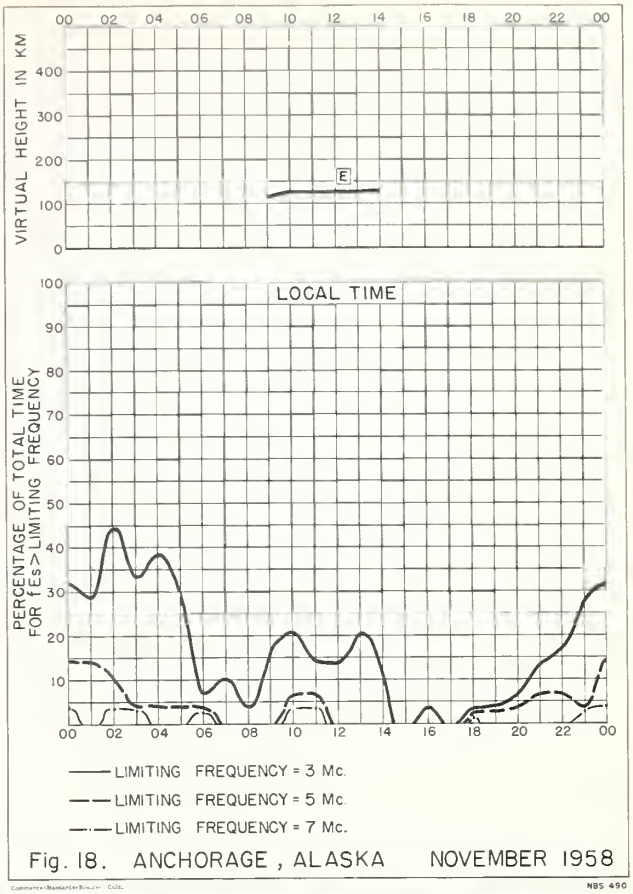

Fig. 18. ANCHORAGE, ALASKA NOVEMBER 1958

NBS 490

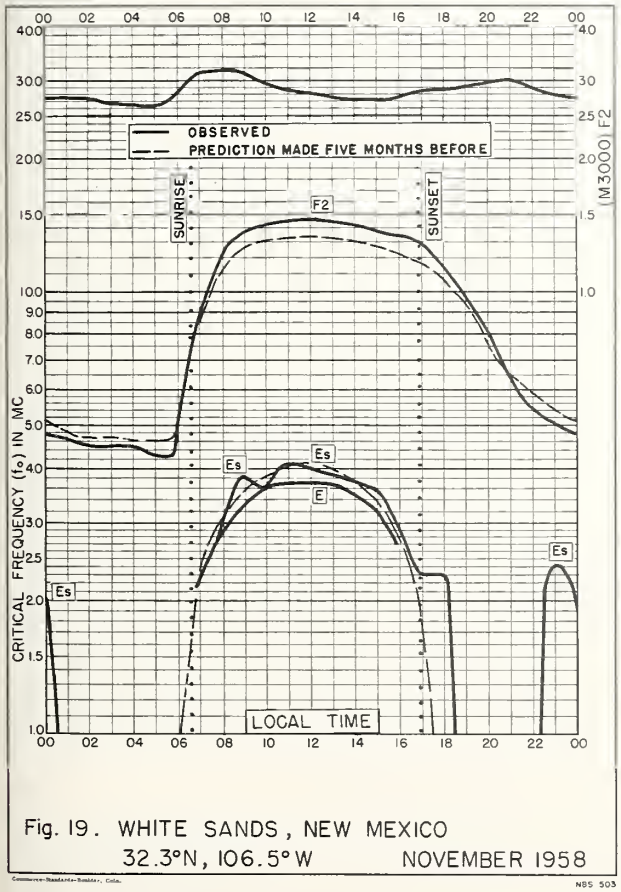

Fig. 19. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W NOVEMBER 1958

NBS 503

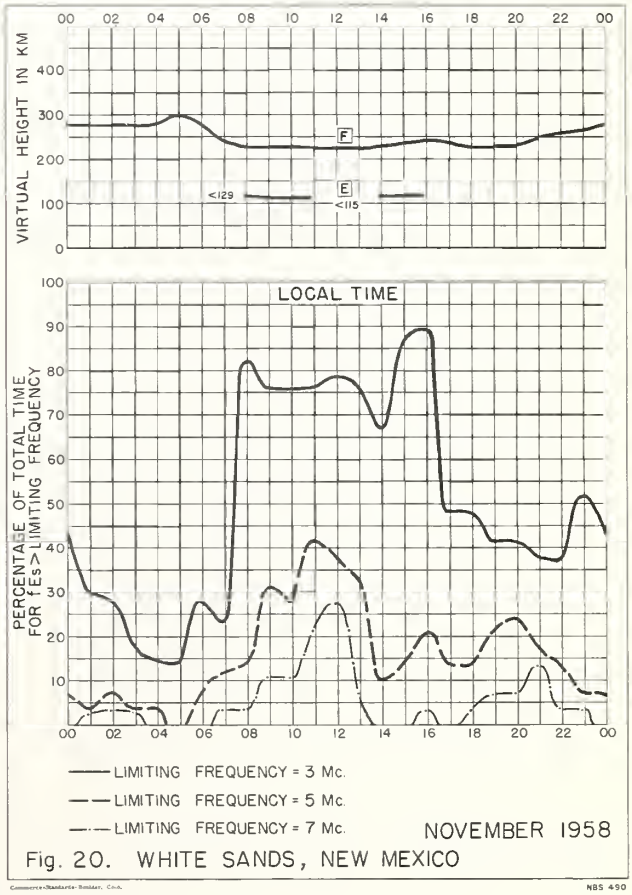

Fig. 20. WHITE SANDS, NEW MEXICO NOVEMBER 1958

NBS 490

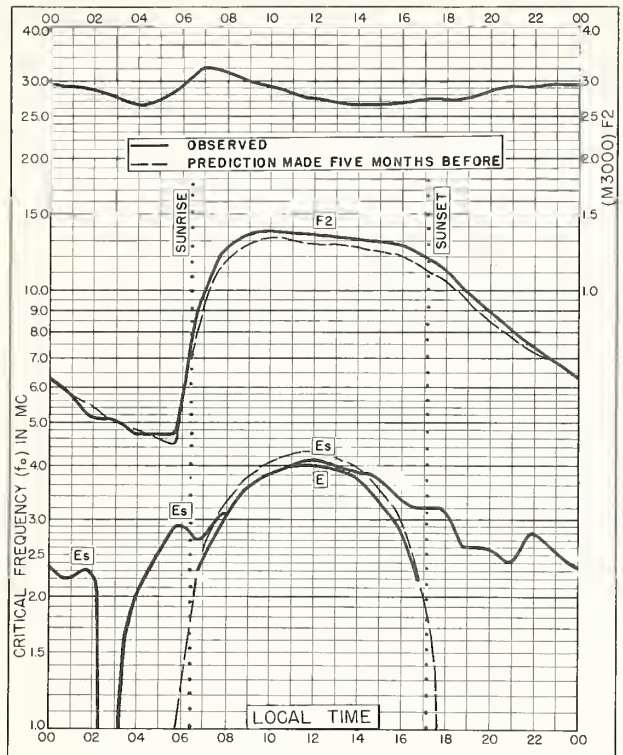

Fig. 21. GRAND BAHAMA I.
26.6°N, 78.2°W NOVEMBER 1958

NBS 503

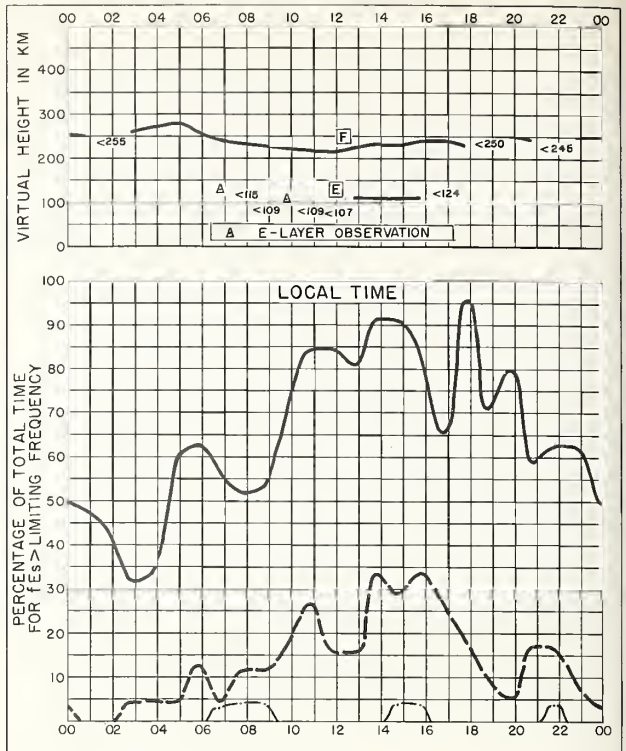

Fig. 22. GRAND BAHAMA I. NOVEMBER 1958

NBS 490

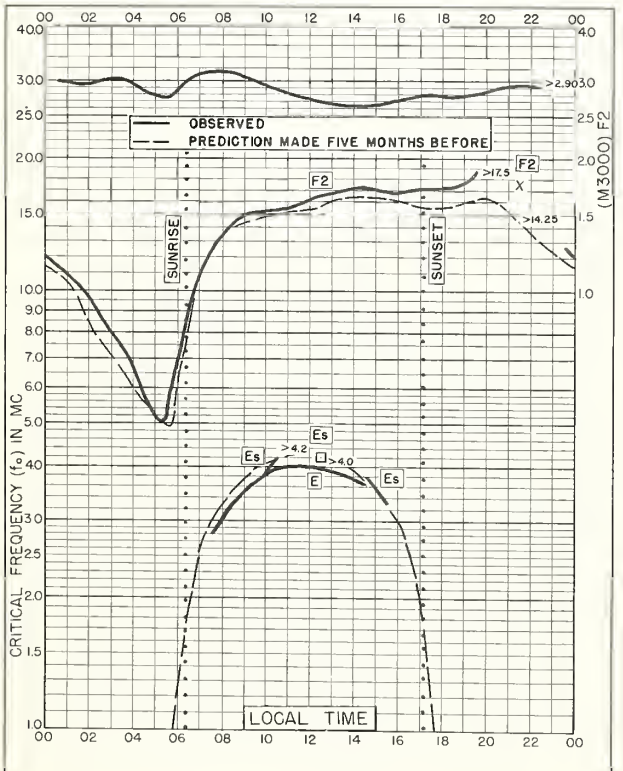

Fig. 23. OKINAWA I.
26.3°N, 127.8°E NOVEMBER 1958

NBS 503

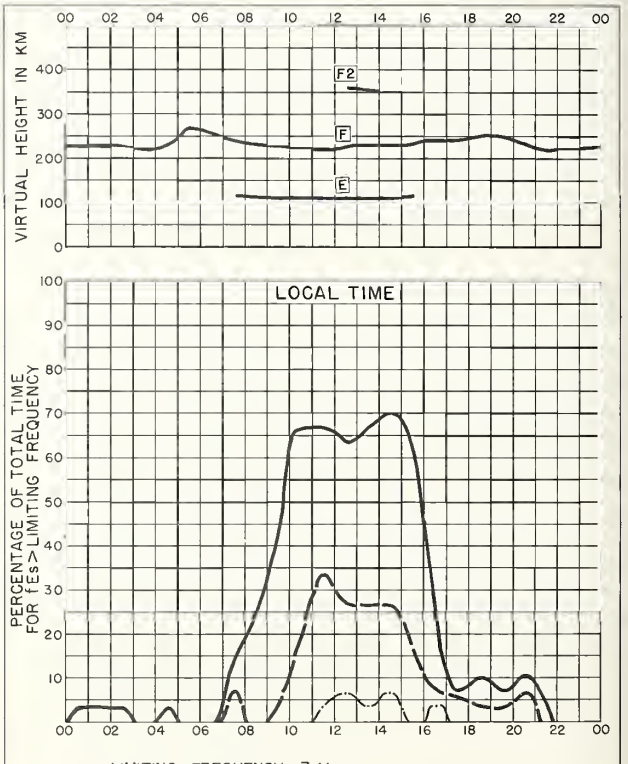

Fig. 24. OKINAWA I. NOVEMBER 1958

NBS 490

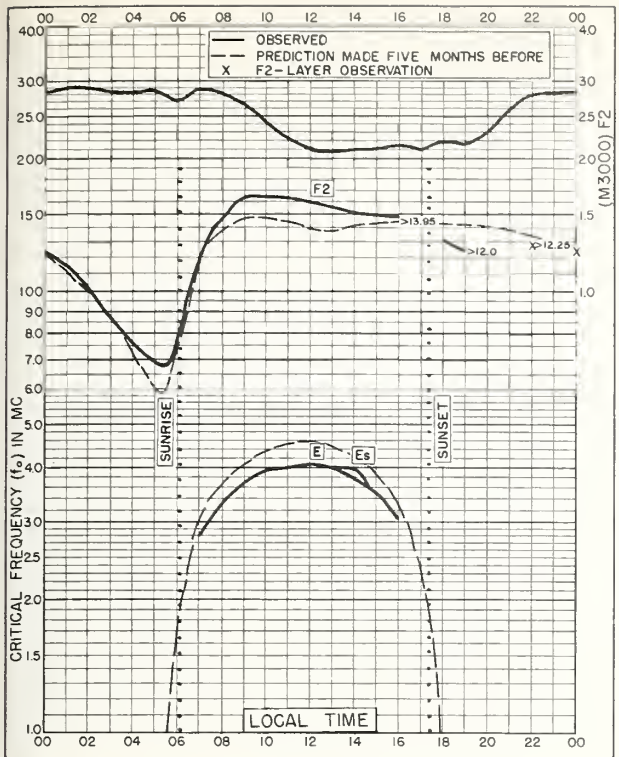

Fig. 25. BAGUIO, P. I.
16.4°N, 120.6°E NOVEMBER 1958

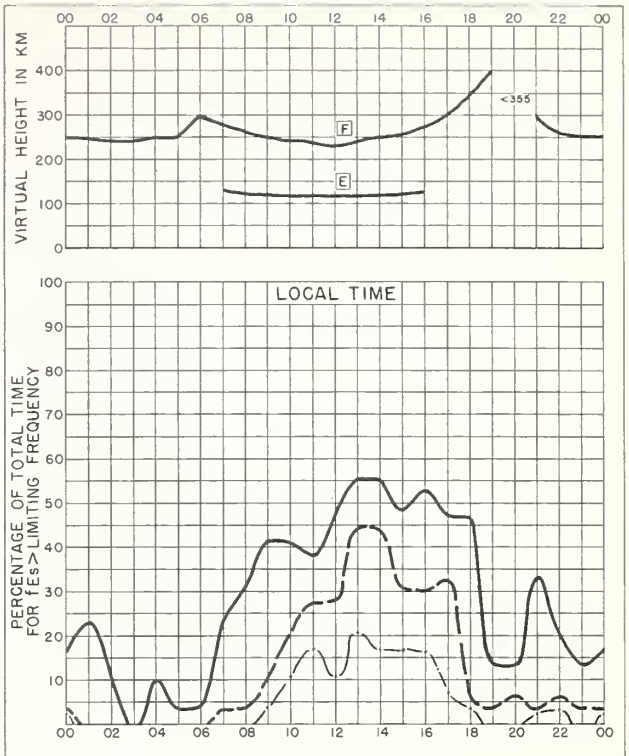

Fig. 26. BAGUIO, P. I. NOVEMBER 1958

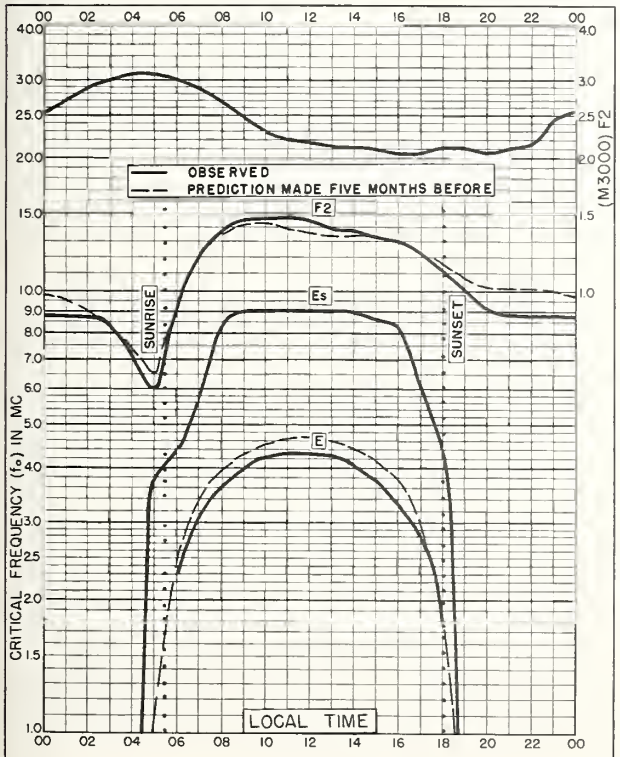

Fig. 27. HUANCAYO, PERU
12.0°S, 75.3°W NOVEMBER 1958

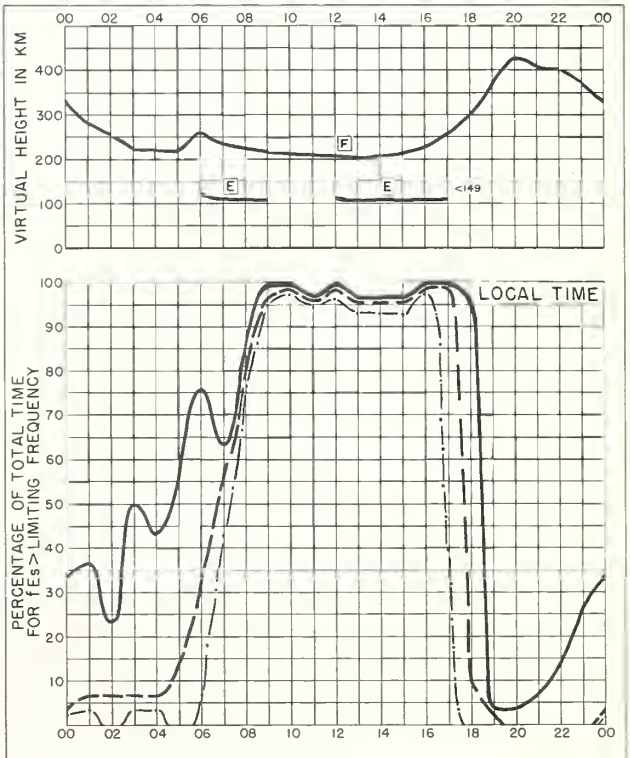

Fig. 28. HUANCAYO, PERU NOVEMBER 1958

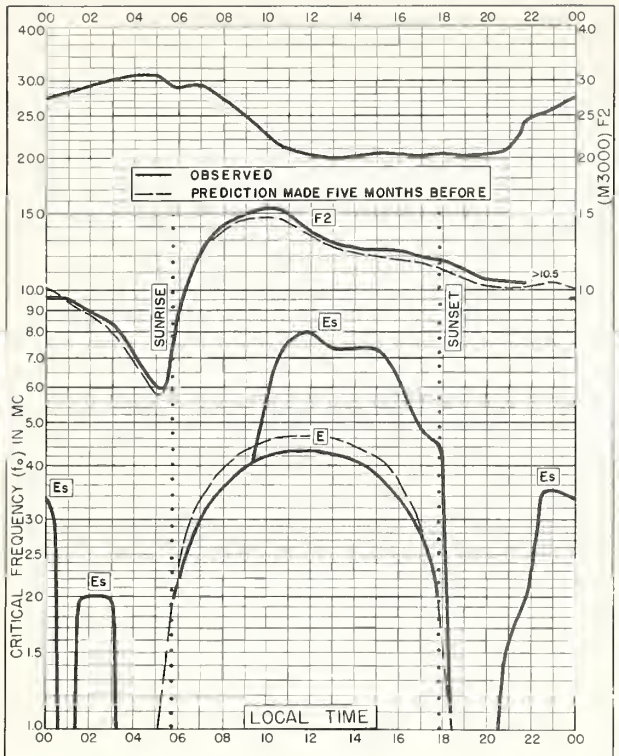

Fig. 29. CHIMBOTE, PERU
9.1°S, 78.6°W OCTOBER 1958

NBS 503

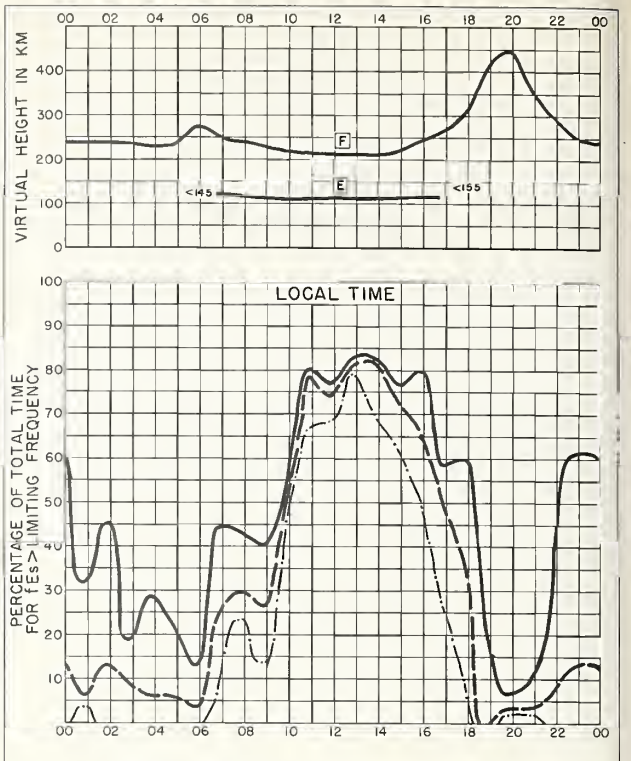

Fig. 30. CHIMBOTE, PERU OCTOBER 1958

NBS 490

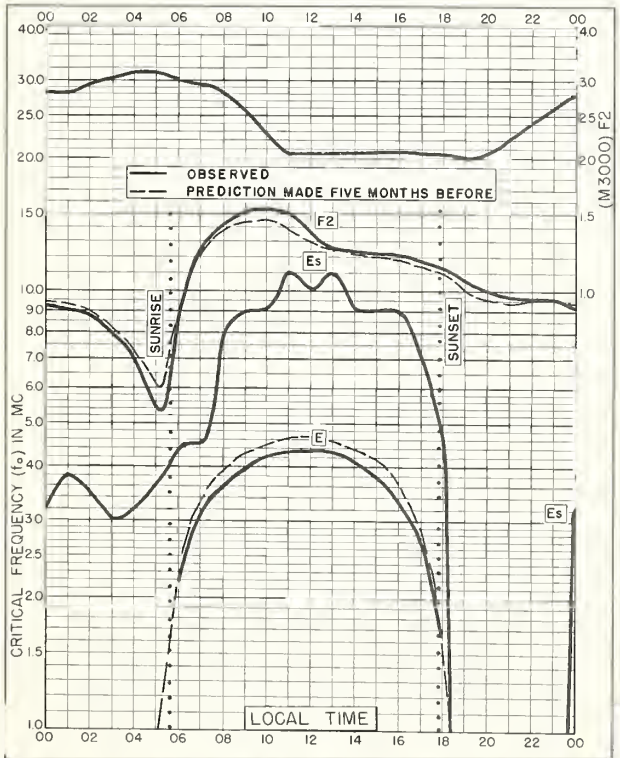

Fig. 31. HUANCAYO, PERU
12.0°S, 75.3°W OCTOBER 1958

NBS 503

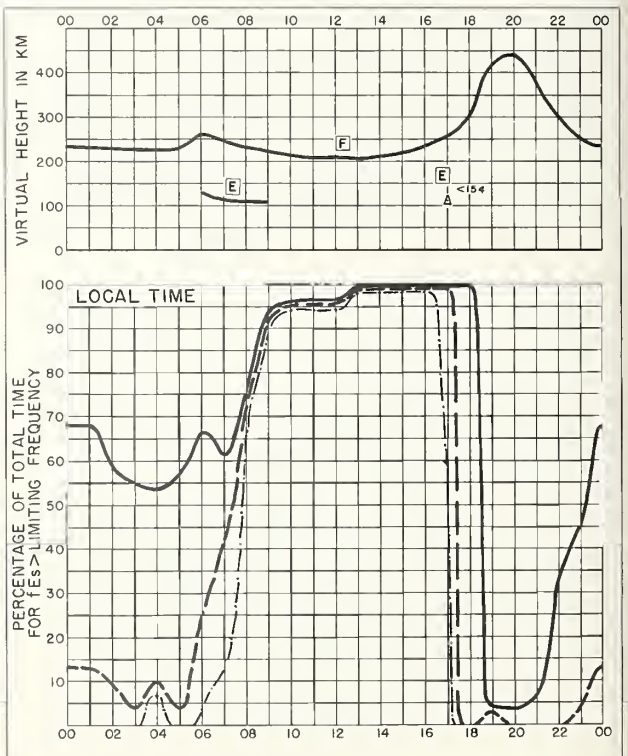

Fig. 32. HUANCAYO, PERU OCTOBER 1958

NBS 490

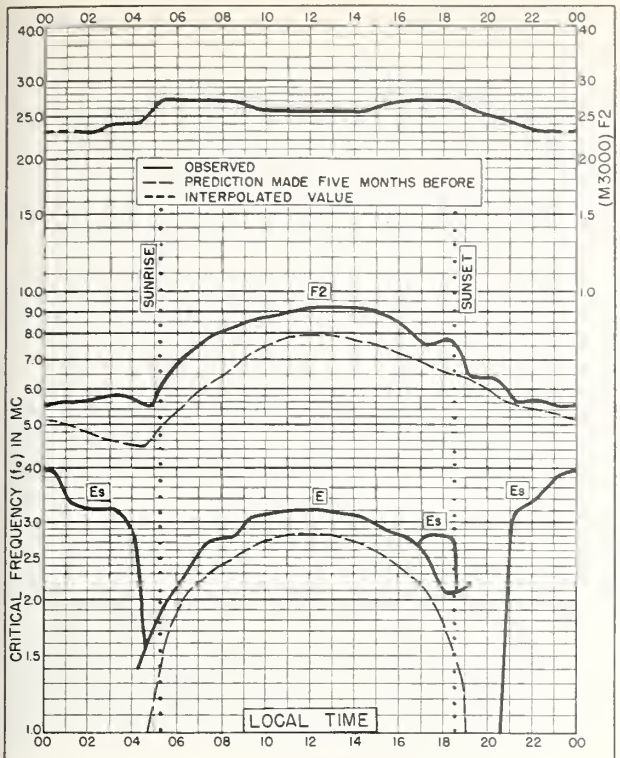

Fig. 33. TROMSO, NORWAY
69.7°N, 19.0°E SEPTEMBER 1958

NBS 503

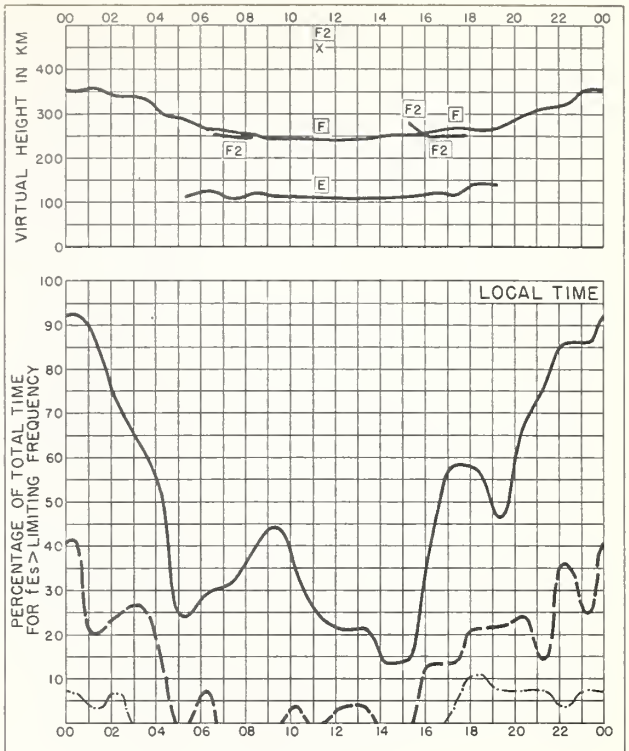

Fig. 34. TROMSO, NORWAY SEPTEMBER 1958

NBS 490

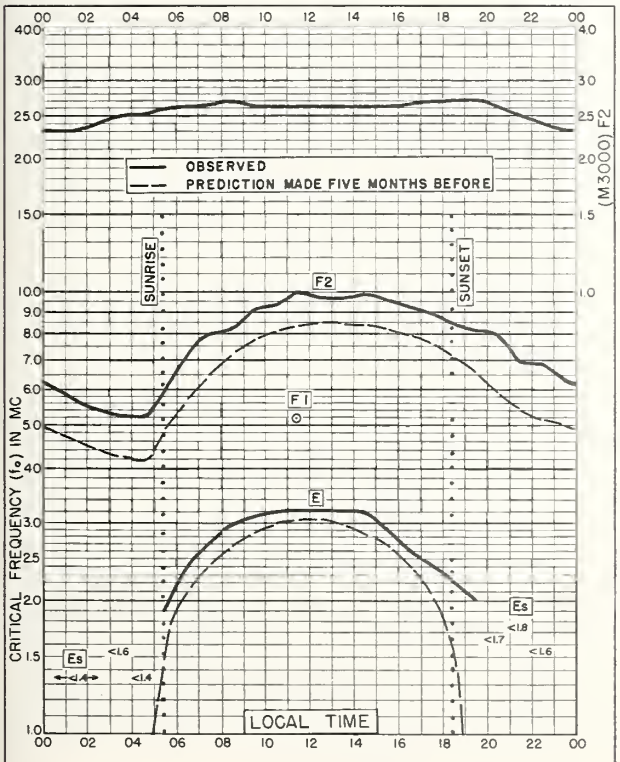

Fig. 35. LULEA, SWEDEN
65.6°N, 22.1°E SEPTEMBER 1958

NBS 503

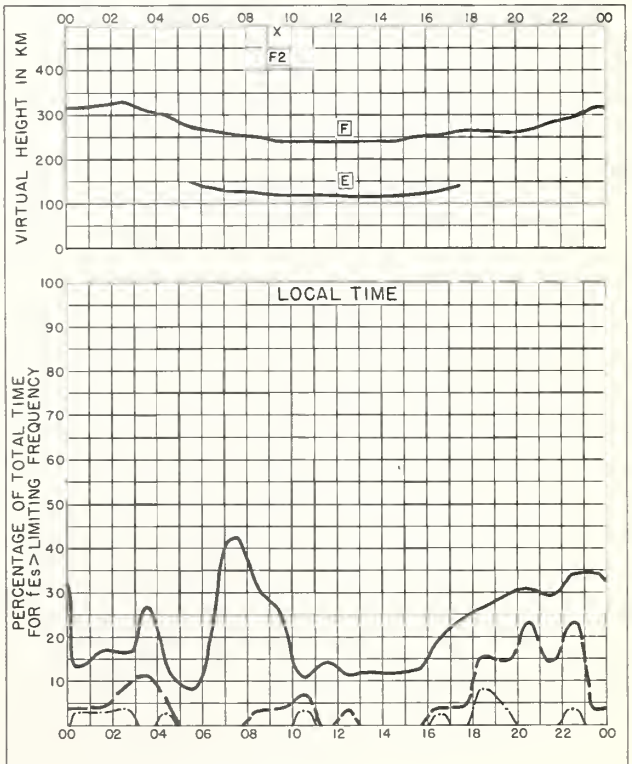

Fig. 36. LULEA, SWEDEN SEPTEMBER 1958

NBS 490

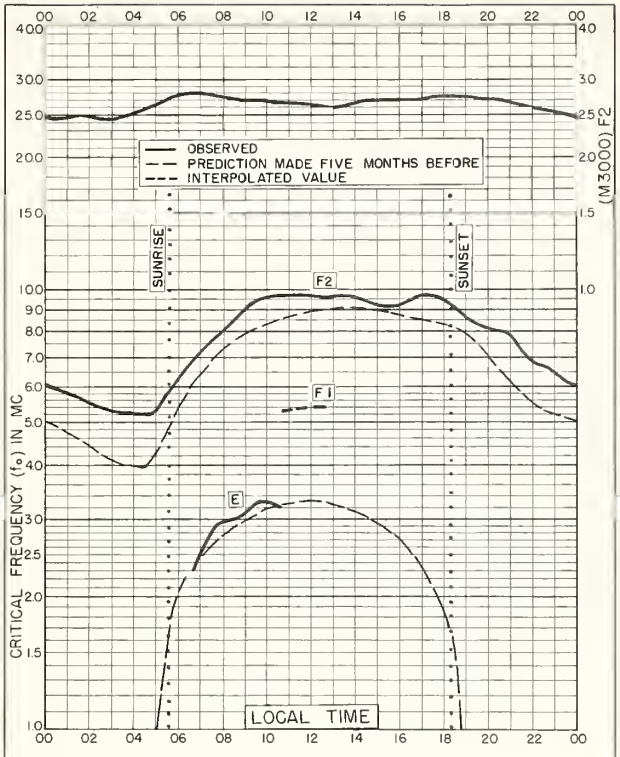

Fig. 37. NURMIJARVI, FINLAND
60.5°N, 24.6°E SEPTEMBER 1958

NBS 503

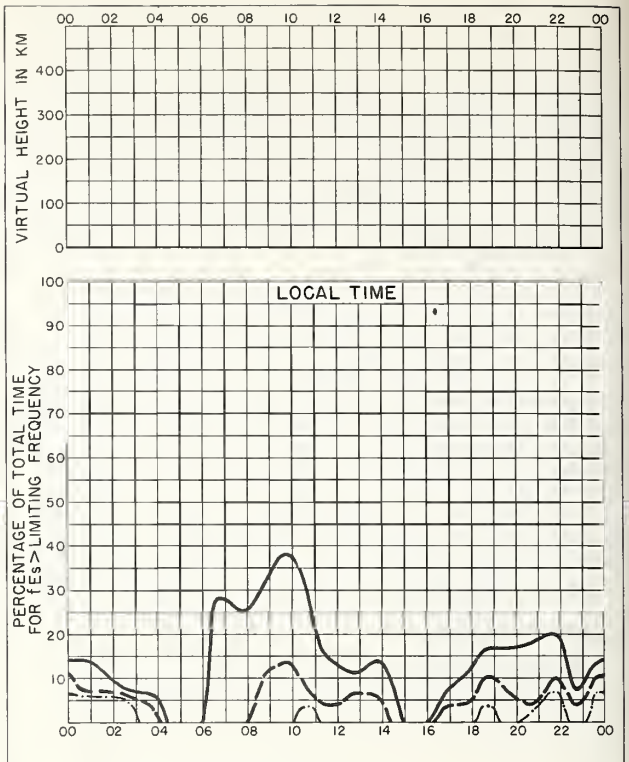

Fig. 38. NURMIJARVI, FINLAND SEPTEMBER 1958

NBS 490

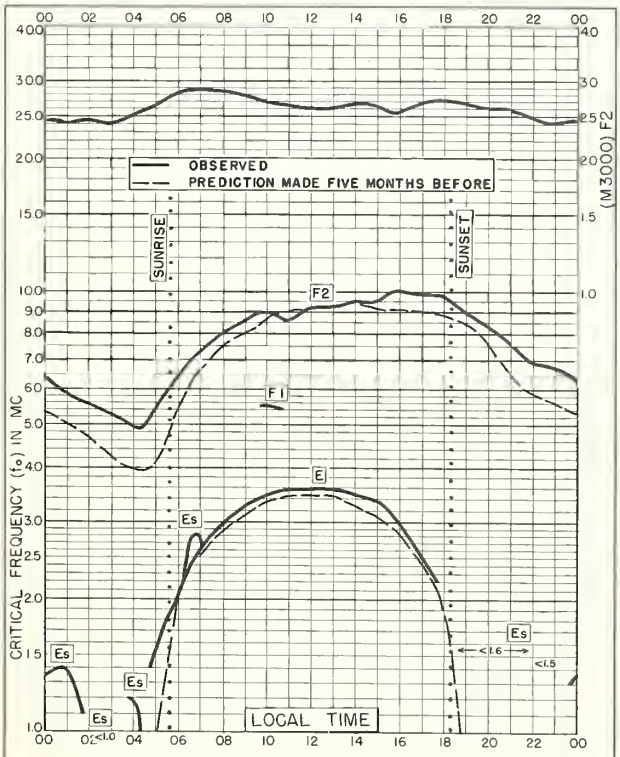

Fig. 39. INVERNESS, SCOTLAND
57.4°N, 4.2°W SEPTEMBER 1958

NBS 503

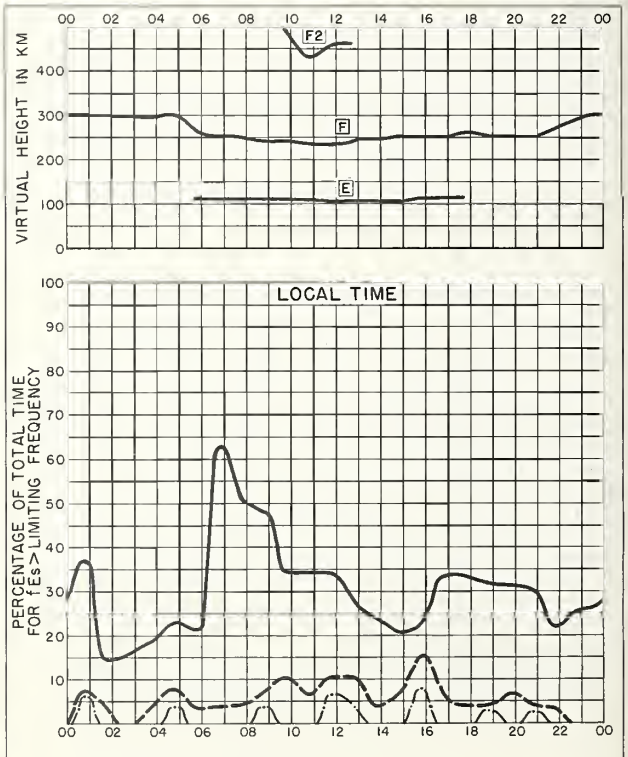

Fig. 40. INVERNESS, SCOTLAND SEPTEMBER 1958

NBS 490

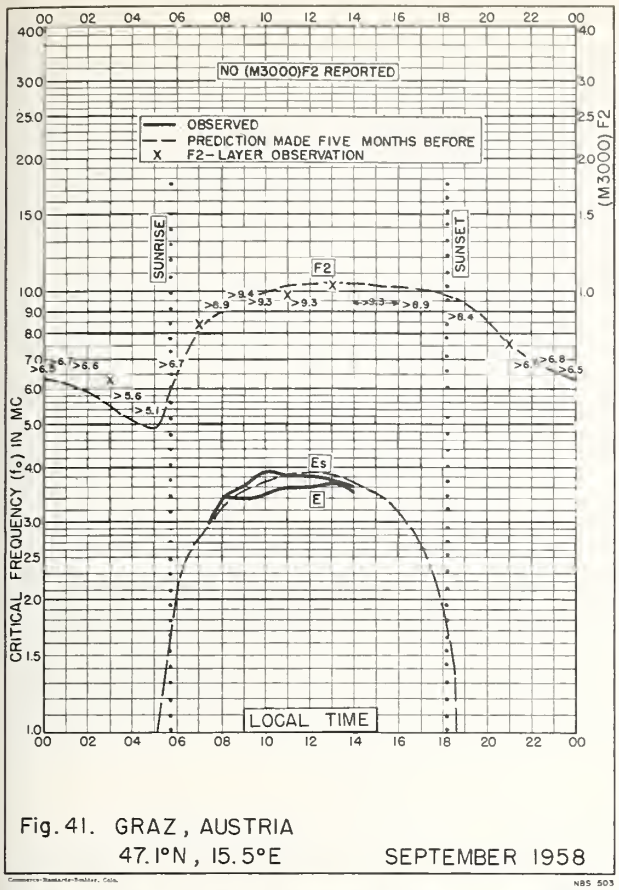

Fig. 41. GRAZ, AUSTRIA
47.1°N, 15.5°E SEPTEMBER 1958

NBS 503

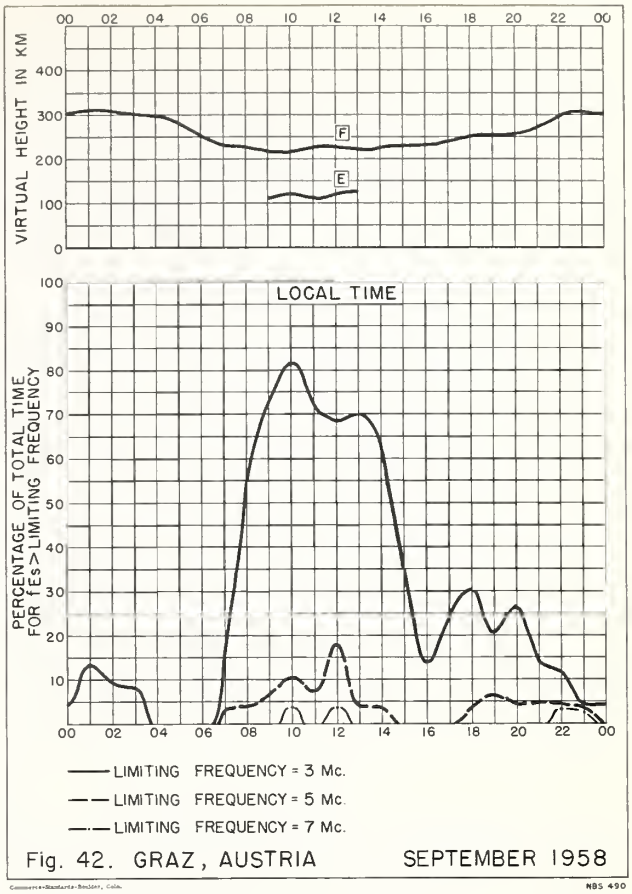

Fig. 42. GRAZ, AUSTRIA SEPTEMBER 1958

NBS 490

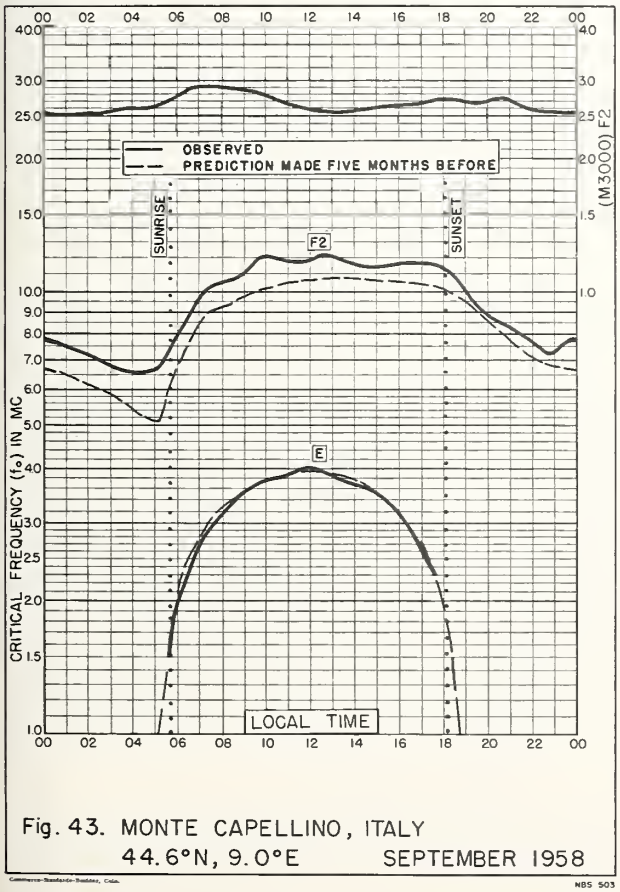

Fig. 43. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E SEPTEMBER 1958

NBS 503

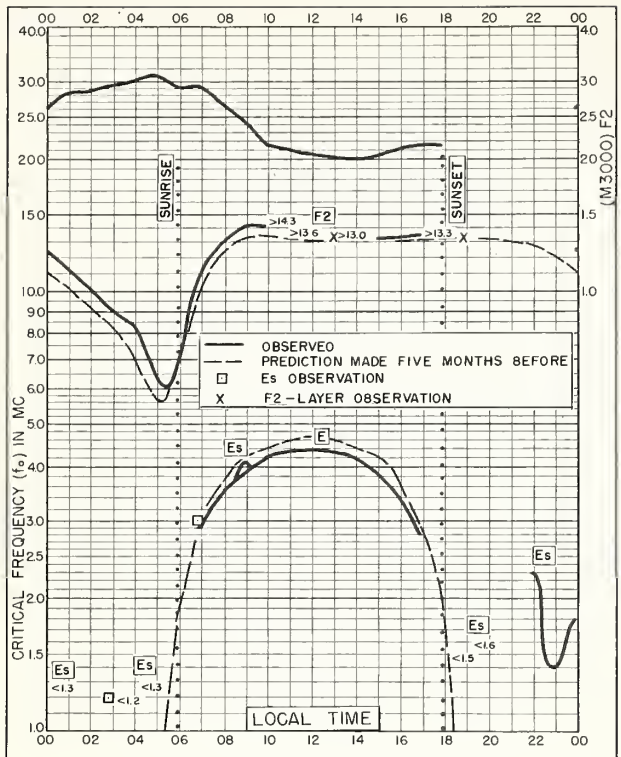

Fig. 44. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E SEPTEMBER 1958

NBS 503

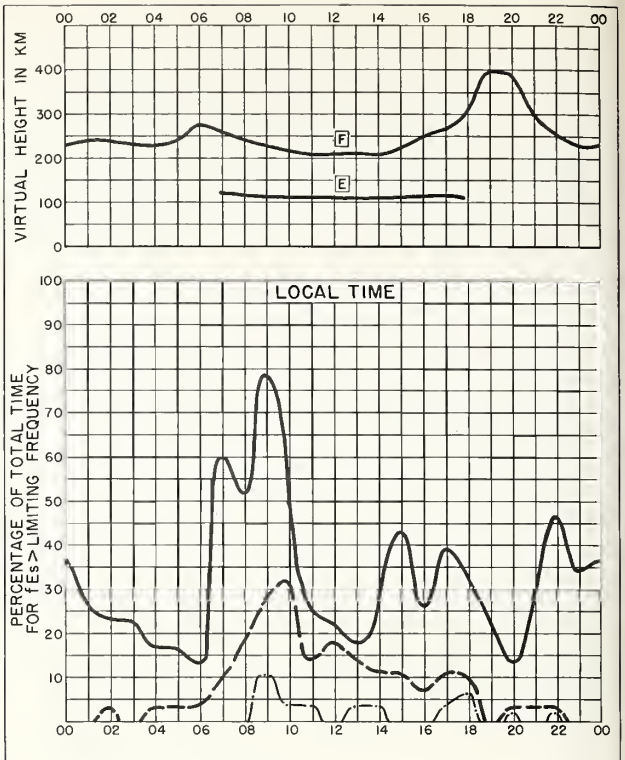

Fig. 45.. SINGAPORE, BRITISH MALAYA SEPTEMBER 1958

NBS 490

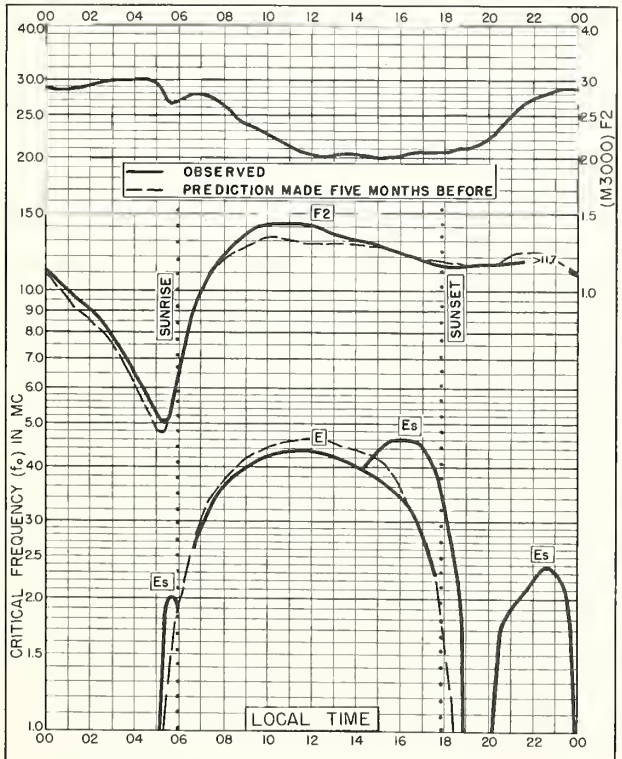

Fig. 46. TALARA, PERU
4.6°S, 81.3°W SEPTEMBER 1958

NBS 503

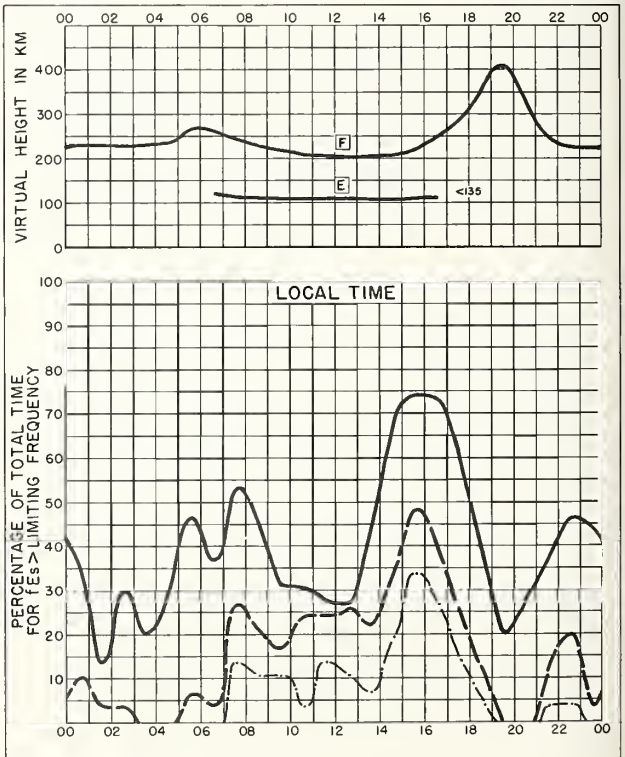

Fig. 47. TALARA, PERU SEPTEMBER 1958

NBS 490

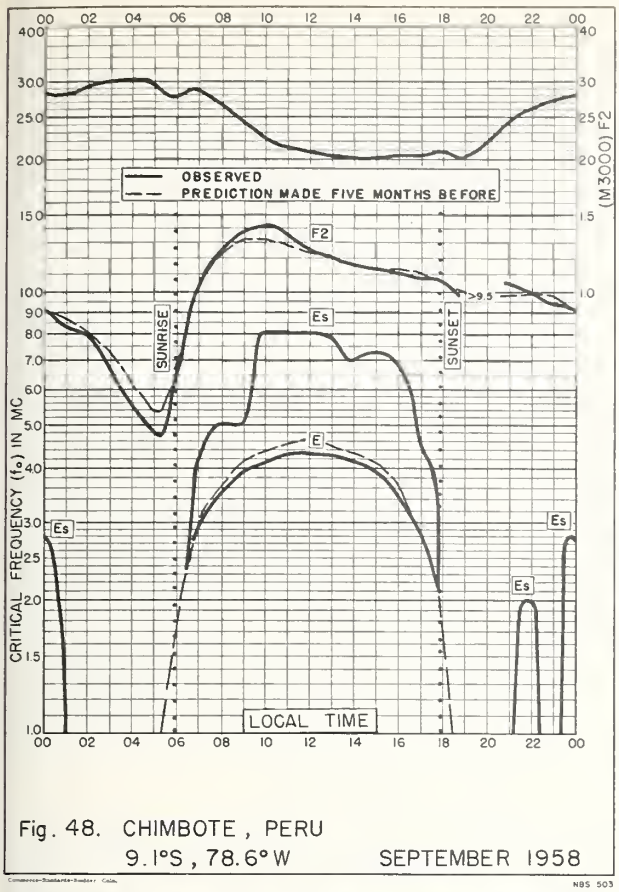

Fig. 48. CHIMBOTE, PERU
9.1°S, 78.6° W SEPTEMBER 1958

NBS 503

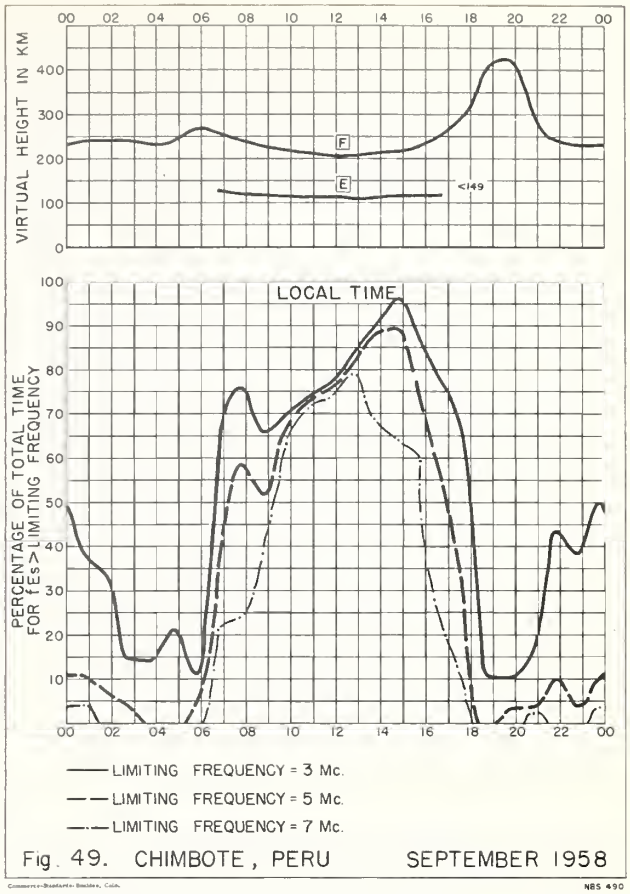

Fig. 49. CHIMBOTE, PERU SEPTEMBER 1958

NBS 490

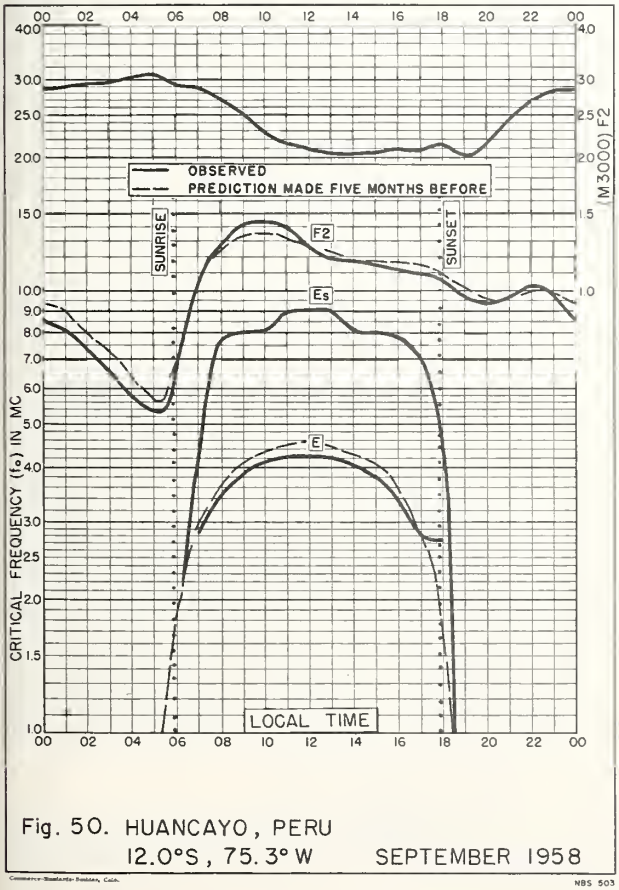

Fig. 50. HUANCAYO, PERU
12.0°S, 75.3° W SEPTEMBER 1958

NBS 503

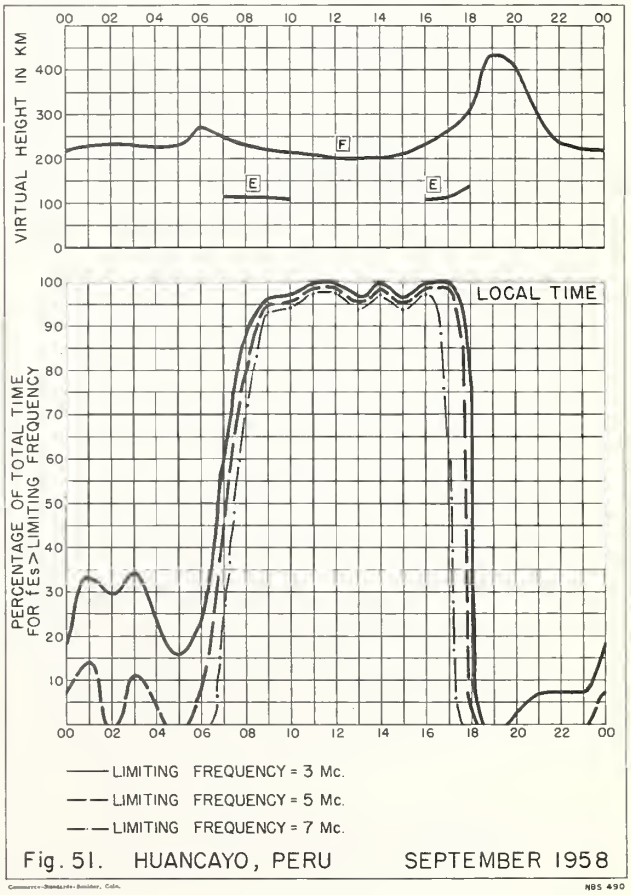

Fig. 51. HUANCAYO, PERU SEPTEMBER 1958

NBS 490

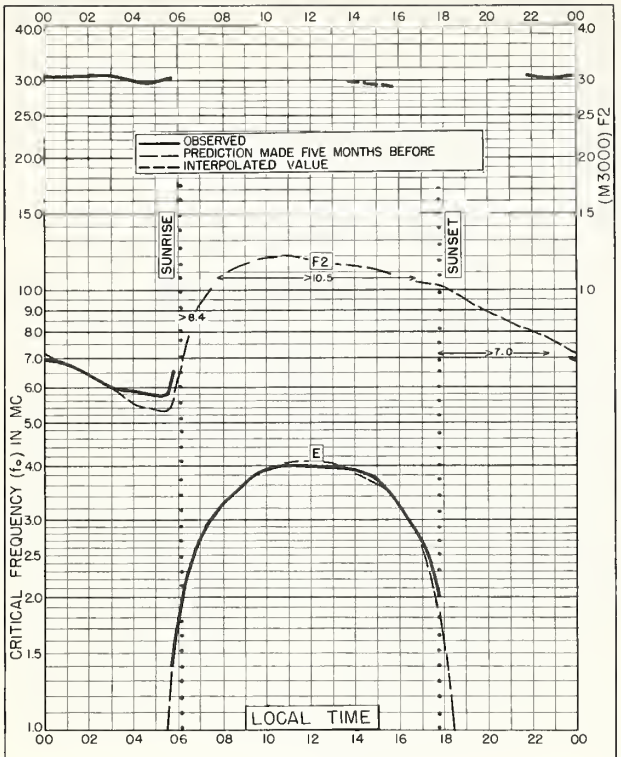

Fig. 52. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E SEPTEMBER 1958

NBS 503

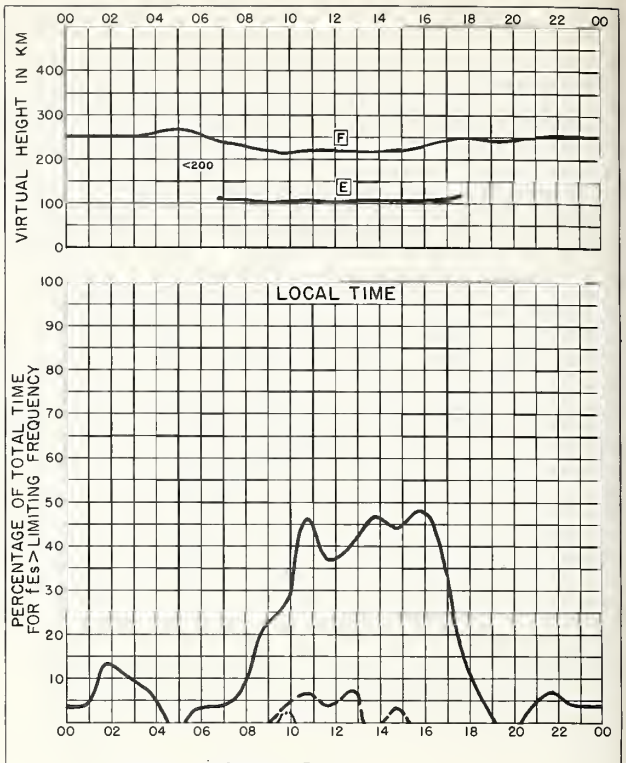

Fig. 53. WATHEROO, W. AUSTRALIA SEPTEMBER 1958

NBS 490

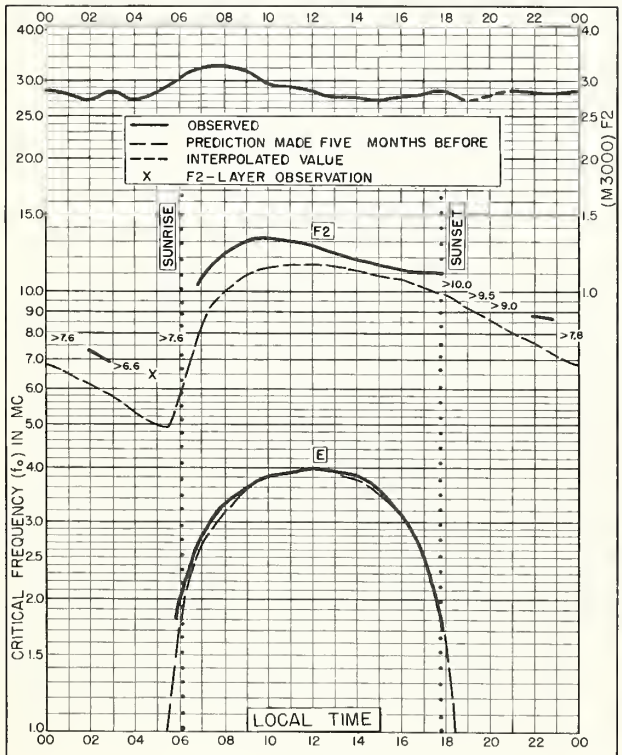

Fig. 54. CANBERRA, AUSTRALIA
35.3°S, 149.0°E SEPTEMBER 1958

NBS 503

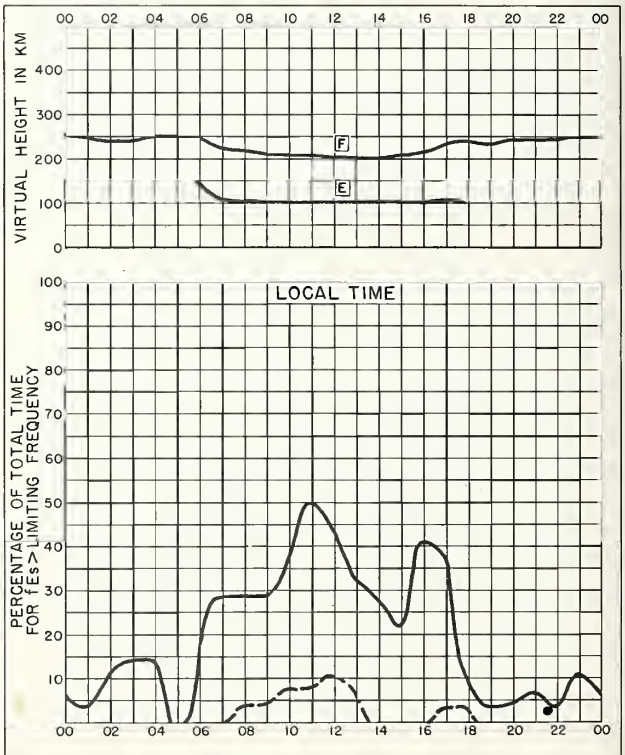

Fig. 55. CANBERRA, AUSTRALIA SEPTEMBER 1958

NBS 490

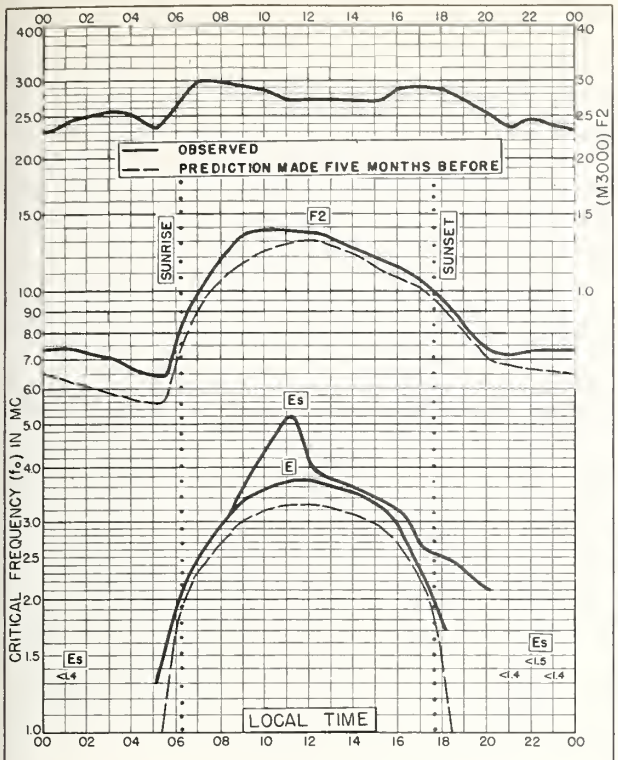

Fig. 56. FALKLAND IS.
51.7°S, 57.8°W SEPTEMBER 1958

NBS 503

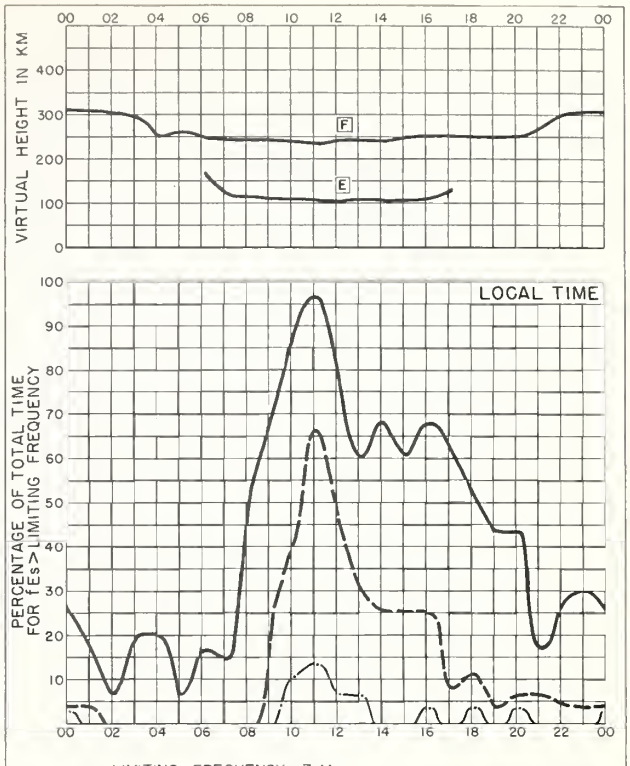

Fig. 57. FALKLAND IS. SEPTEMBER 1958

NBS 490

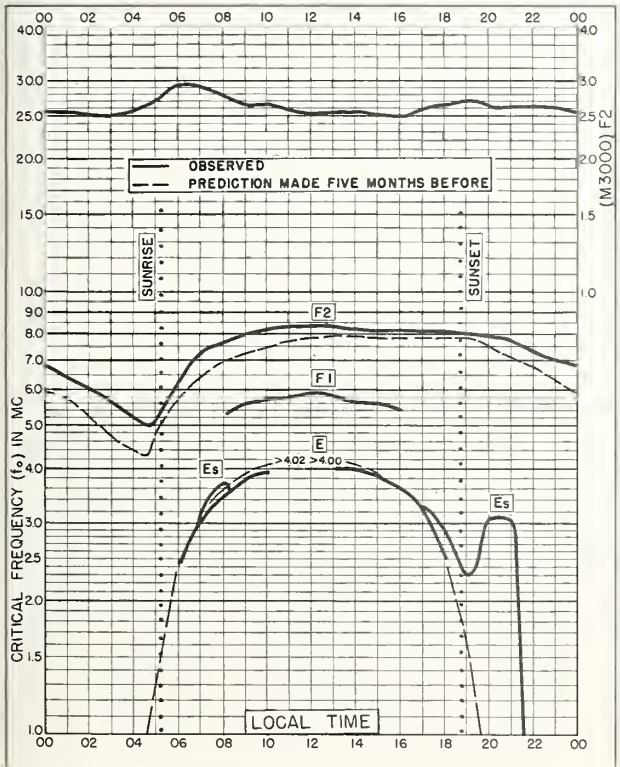

Fig. 58. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W AUGUST 1958

NBS 503

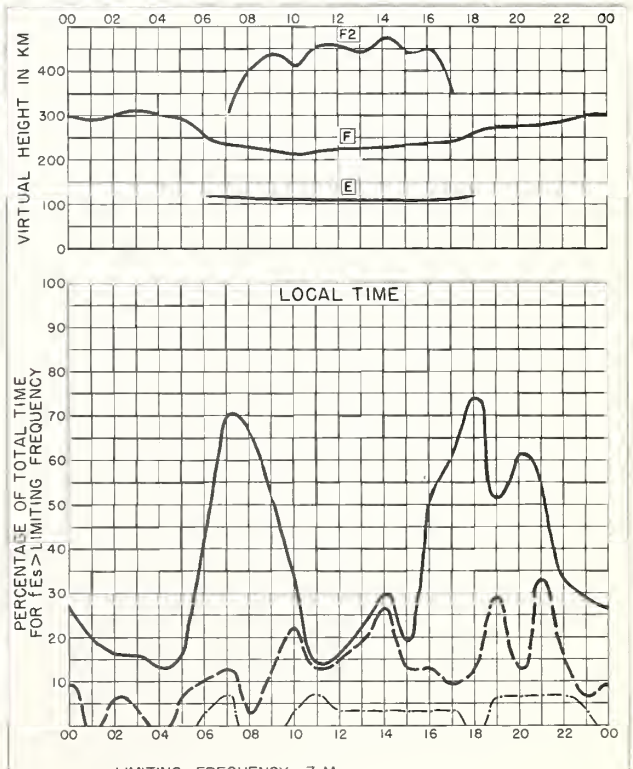

Fig. 59. FT. MONMOUTH, NEW JERSEY AUGUST 1958

NBS 490

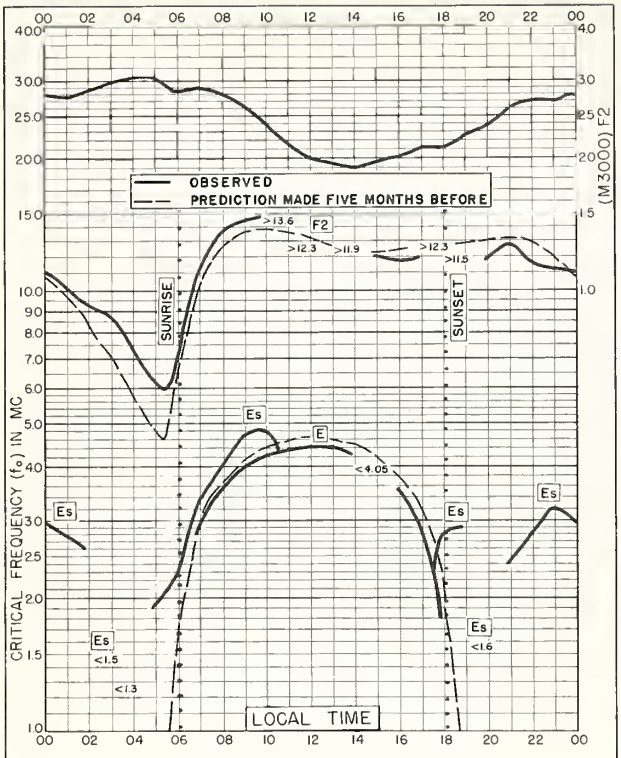

Fig. 60. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E AUGUST 1958

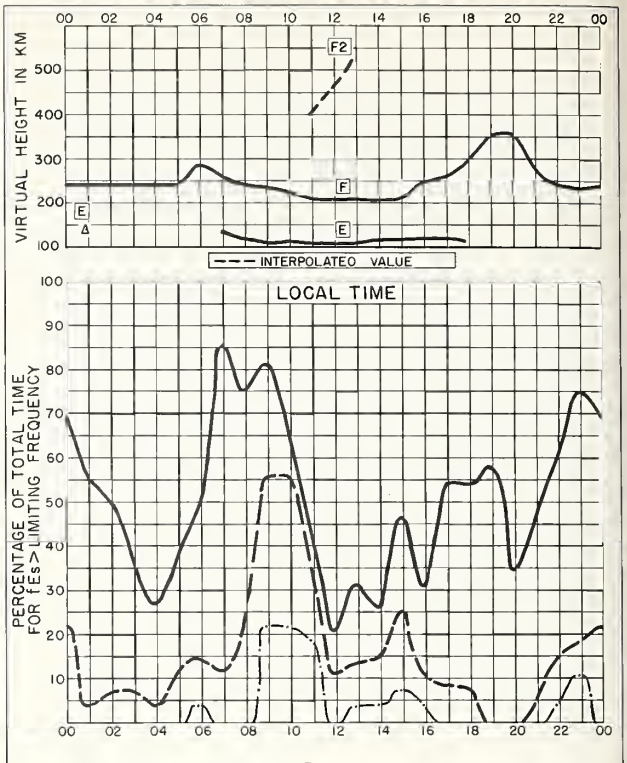

Fig. 61. SINGAPORE, BRITISH MALAYA AUGUST 1958

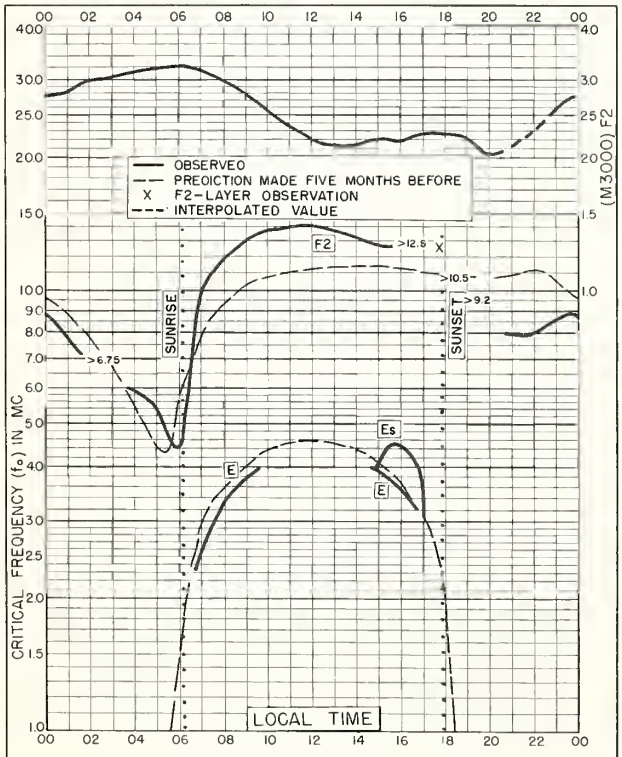

Fig. 62. NATAL, BRAZIL
5.3°S, 35.1° W AUGUST 1958

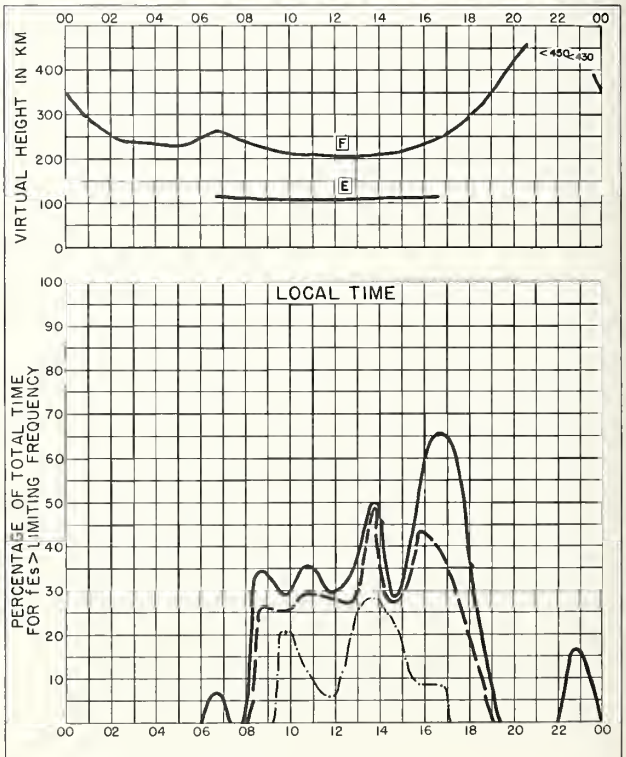

Fig. 63. NATAL, BRAZIL AUGUST 1958

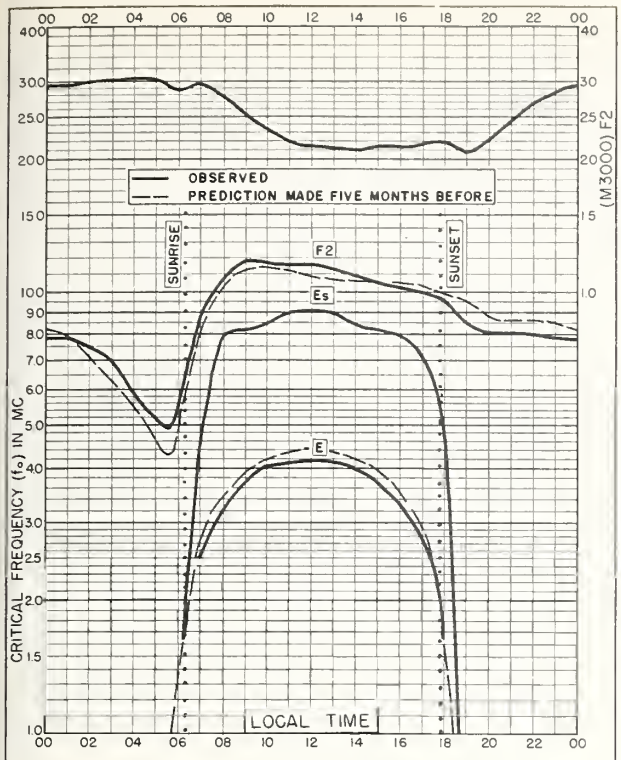

Fig. 64. HUANCAYO, PERU
12.0°S, 75.3° W AUGUST 1958

NBS 503

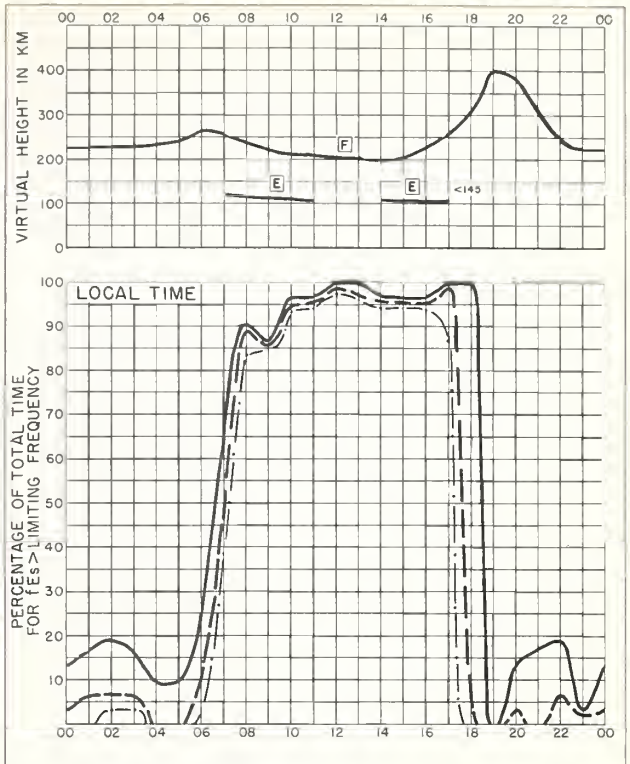

Fig. 65. HUANCAYO, PERU AUGUST 1958

NBS 490

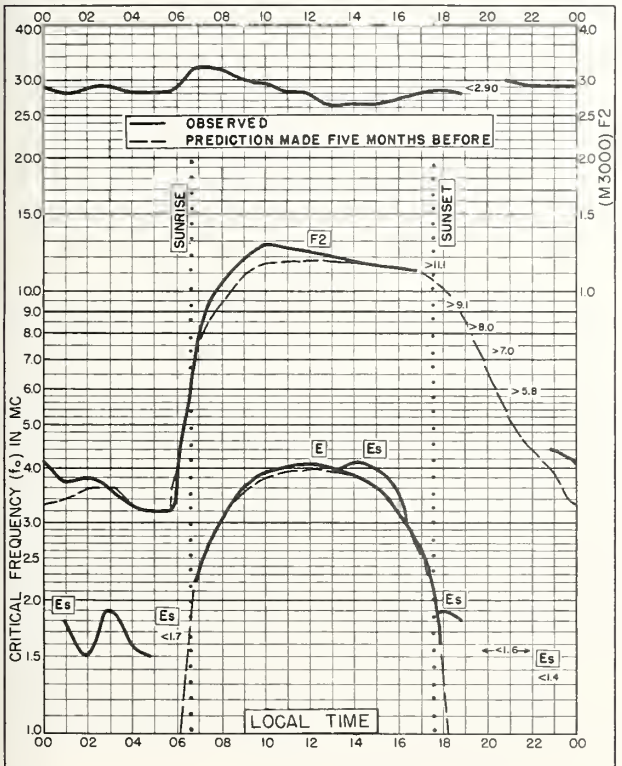

Fig. 66. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E AUGUST 1958

NBS 503

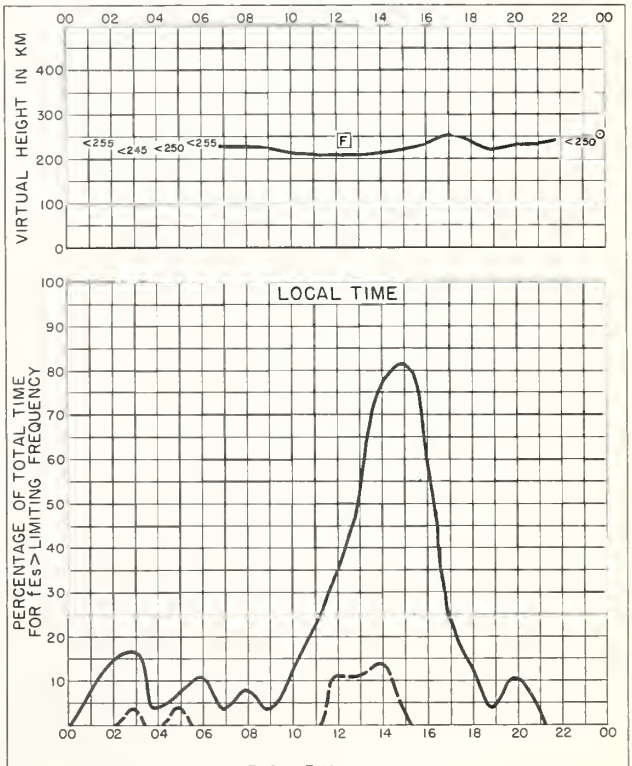

Fig. 67. JOHANNESBURG, UNION OF S. AFRICA AUGUST 1958

NBS 490

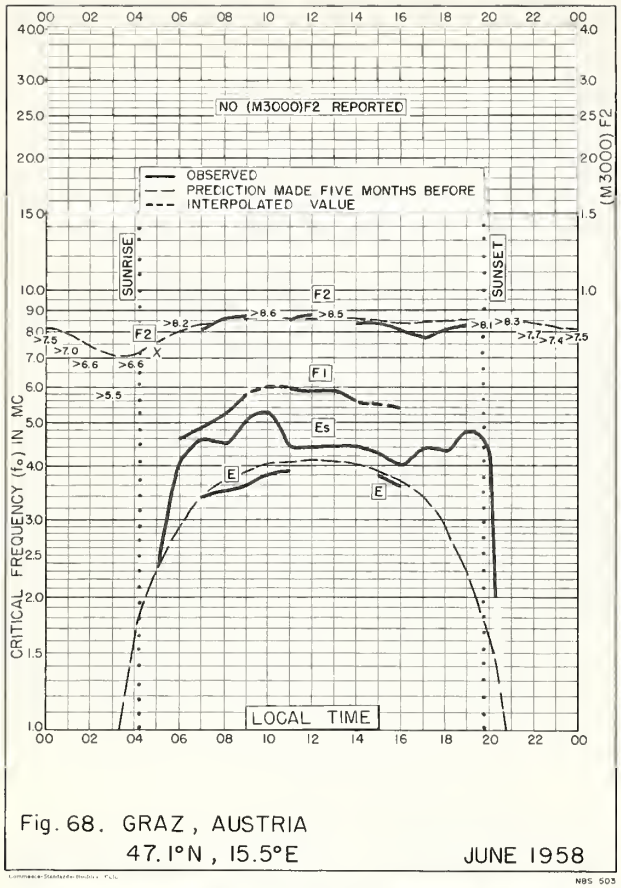

Fig. 68. GRAZ, AUSTRIA
47.1°N, 15.5°E JUNE 1958

NBS 503

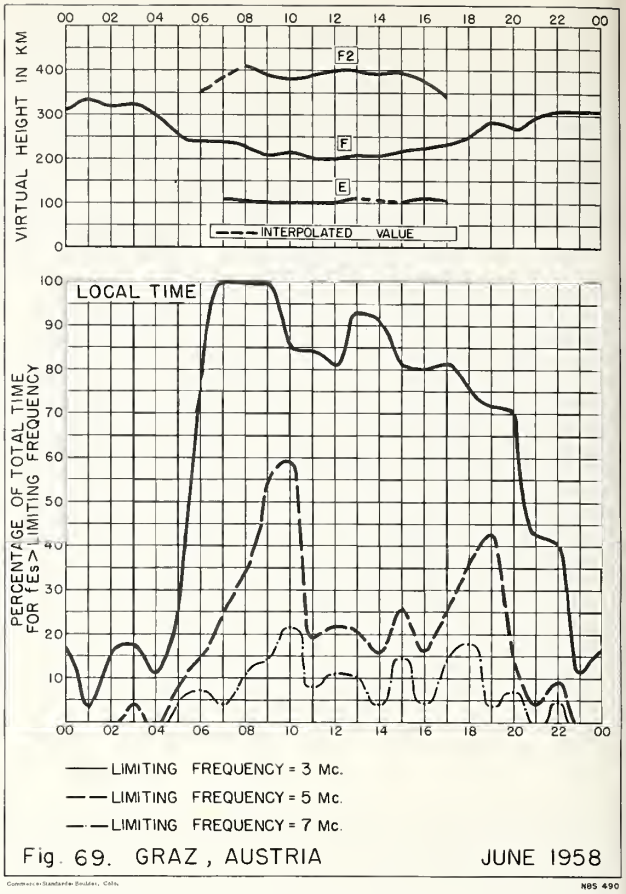

Fig. 69. GRAZ, AUSTRIA JUNE 1958

NBS 490

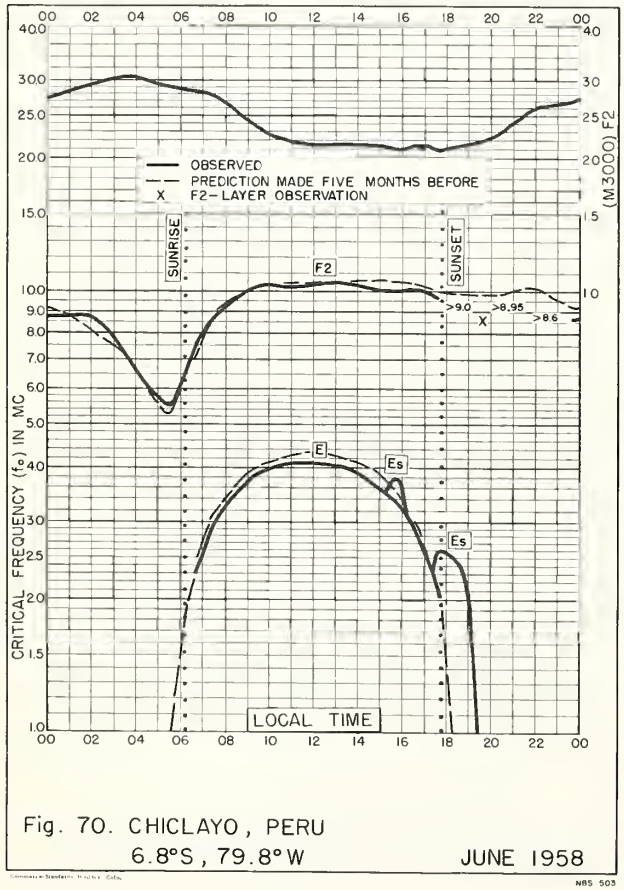

Fig. 70. CHICLAYO, PERU
6.8°S, 79.8°W JUNE 1958

NBS 503

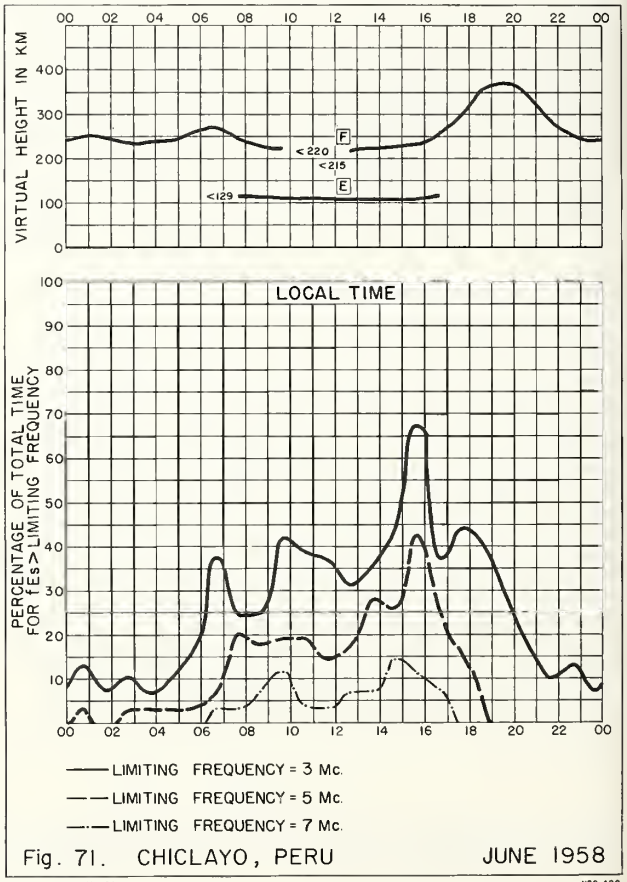

Fig. 71. CHICLAYO, PERU JUNE 1958

NBS 490

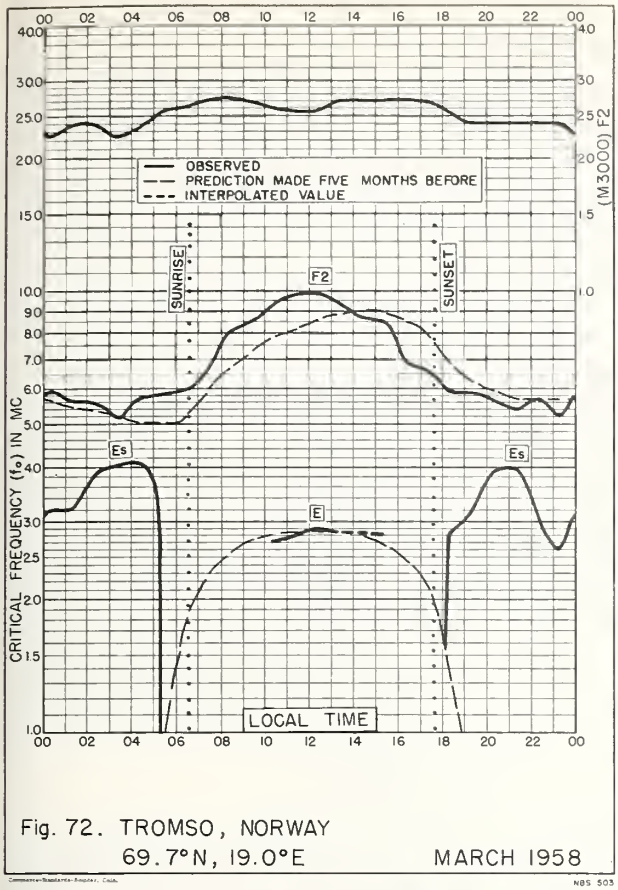

Fig. 72. TROMSO, NORWAY
69.7°N, 19.0°E MARCH 1958

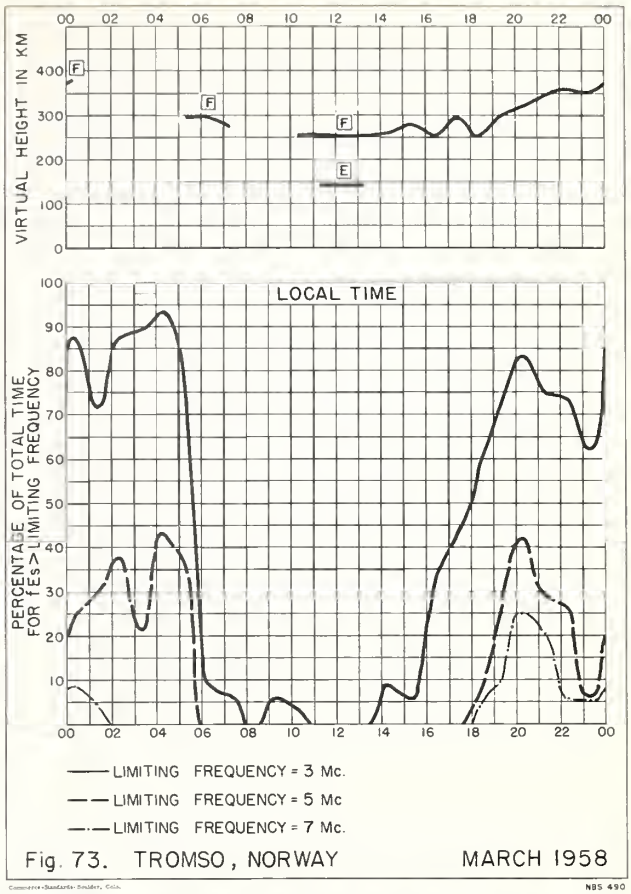

Fig. 73. TROMSO, NORWAY MARCH 1958

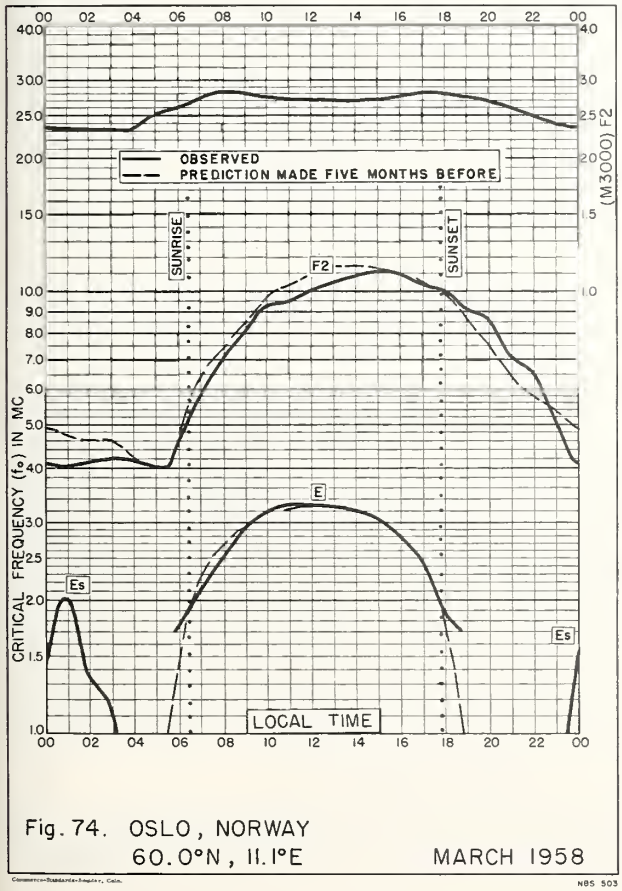

Fig. 74. OSLO, NORWAY
60.0°N, 11.1°E MARCH 1958

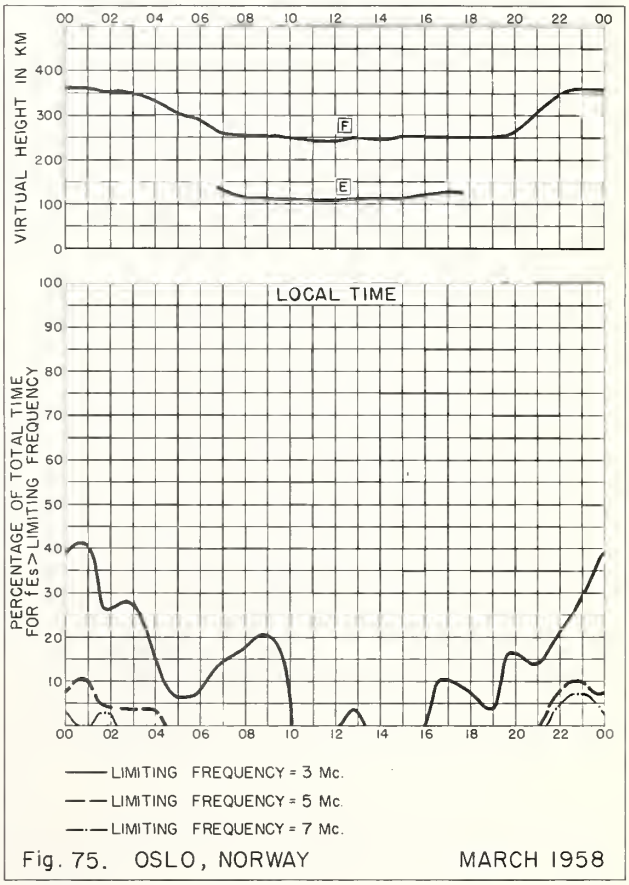

Fig. 75. OSLO, NORWAY MARCH 1958

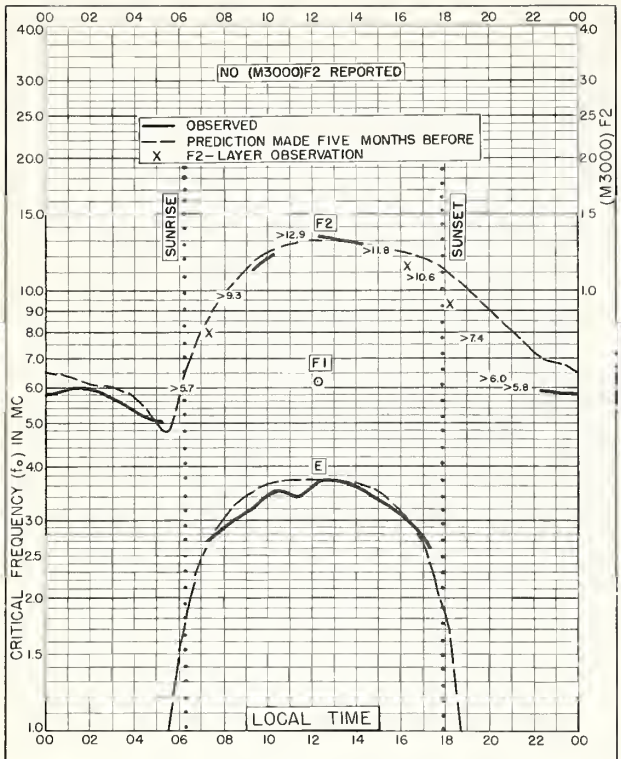

Fig. 76. BUDAPEST, HUNGARY
47.4°N, 19.2°E MARCH 1958

NBS 503

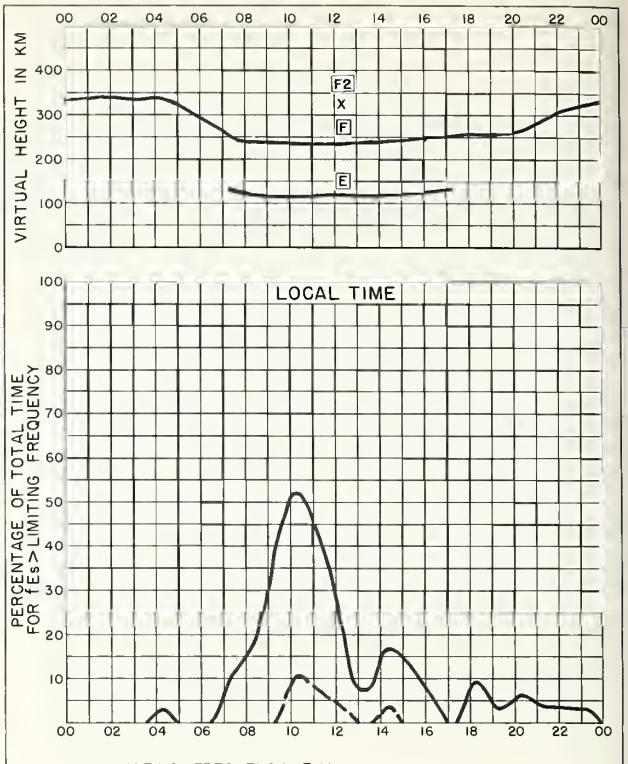

Fig. 77. BUDAPEST, HUNGARY MARCH 1958

NBS 490

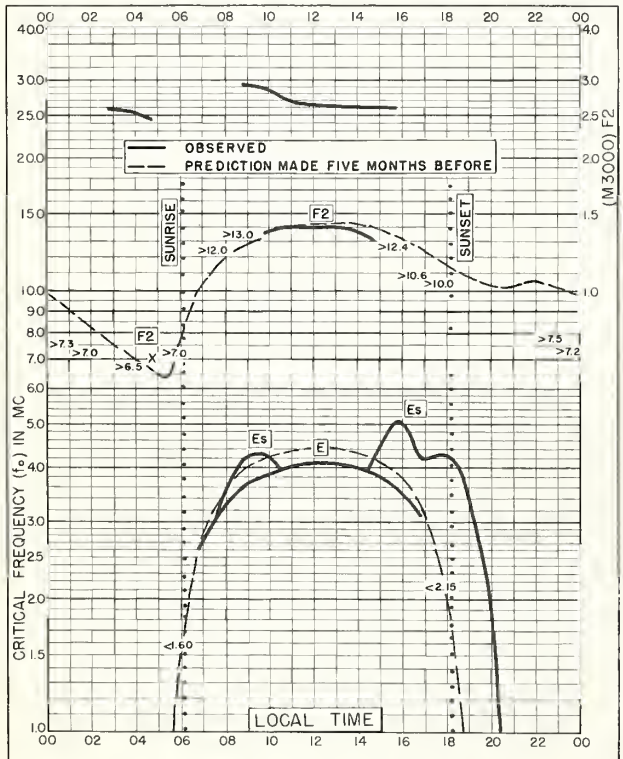

Fig. 78. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MARCH 1958

NBS 503

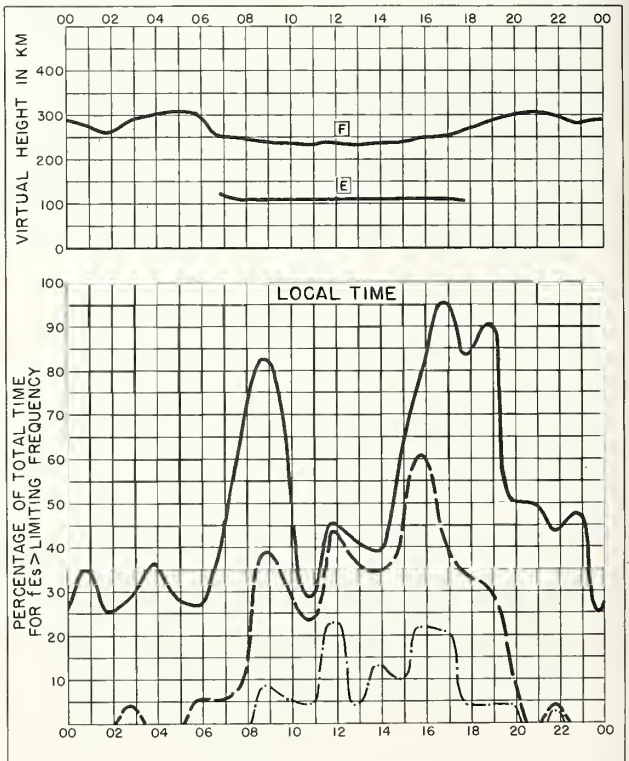

Fig. 79. TOWNSVILLE, AUSTRALIA MARCH 1958

NBS 490

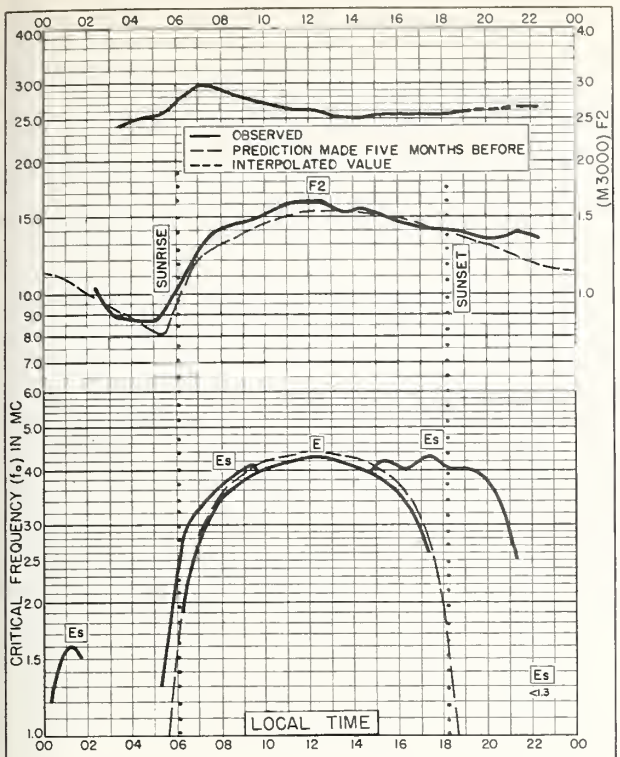

Fig. 80. RAROTONGA I.
21.2°S, 159.8°W MARCH 1958

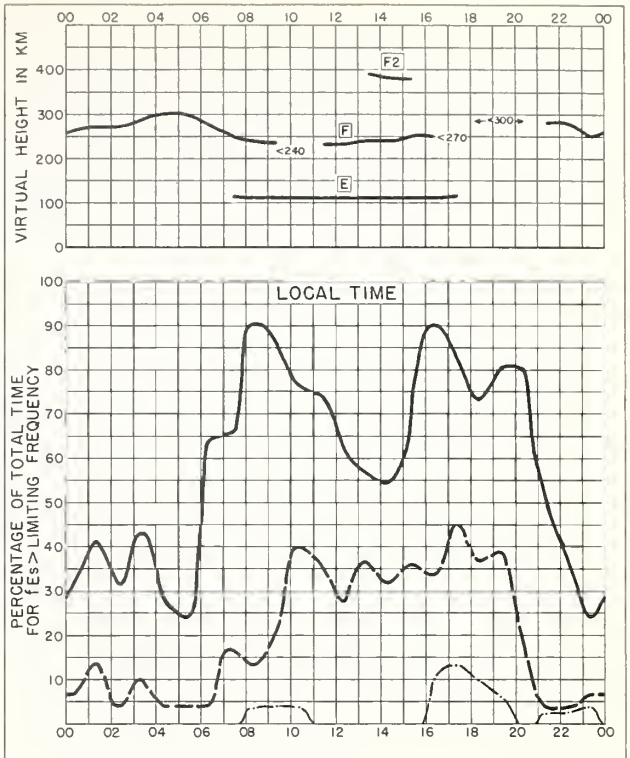

Fig. 81. RAROTONGA I. MARCH 1958

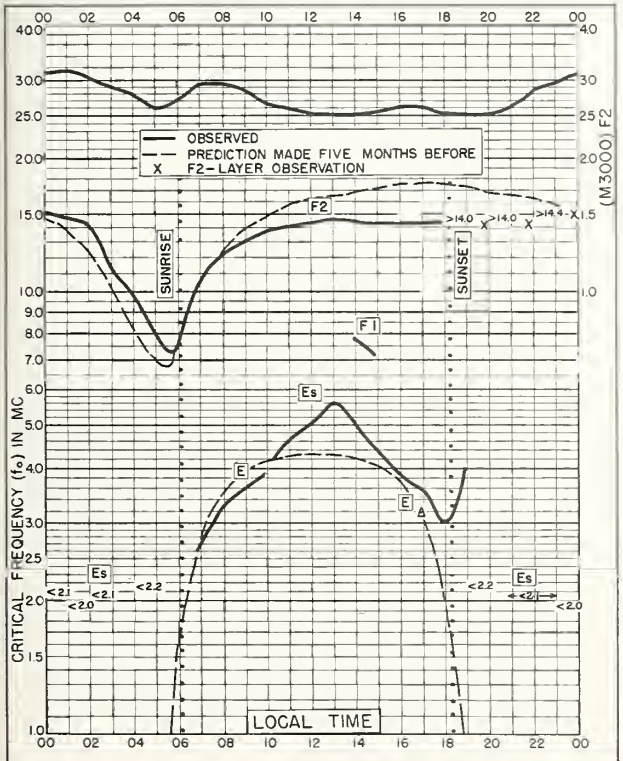

Fig. 82. SAO PAULO, BRAZIL
23.5°S, 46.5°W MARCH 1958

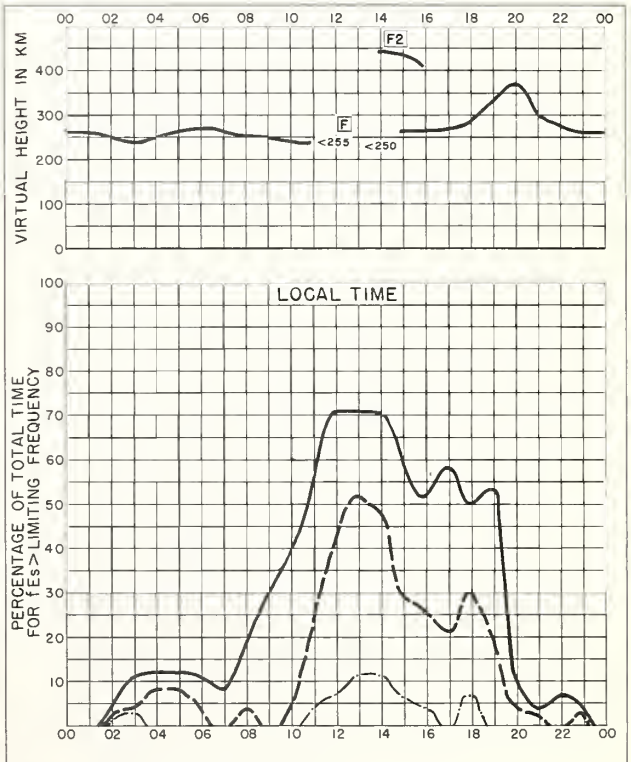

Fig. 83. SAO PAULO, BRAZIL MARCH 1958

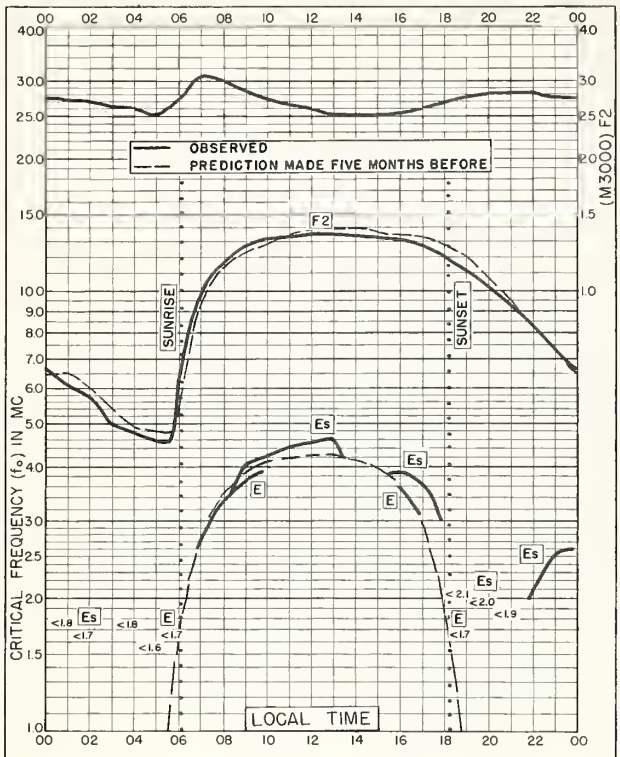

Fig. 84. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E MARCH 1958

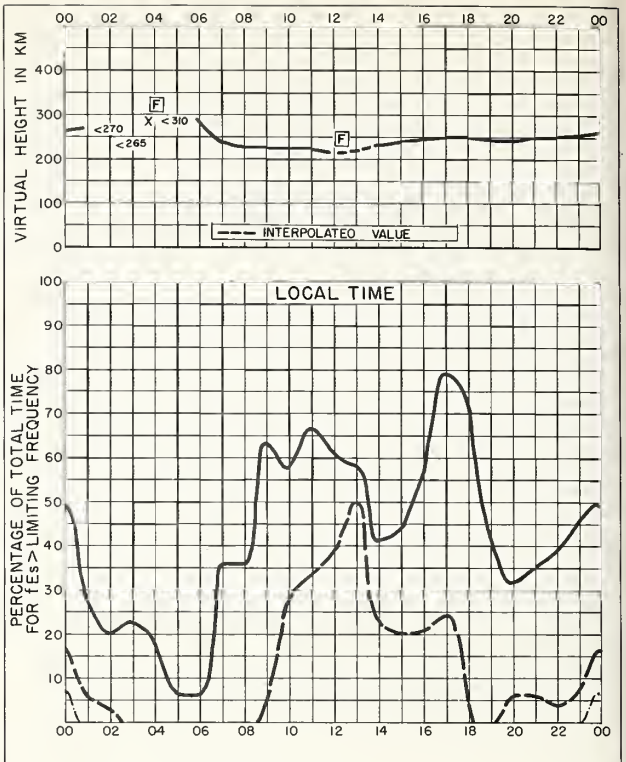

Fig. 85. JOHANNESBURG, UNION OF S. AFRICA MARCH 1958

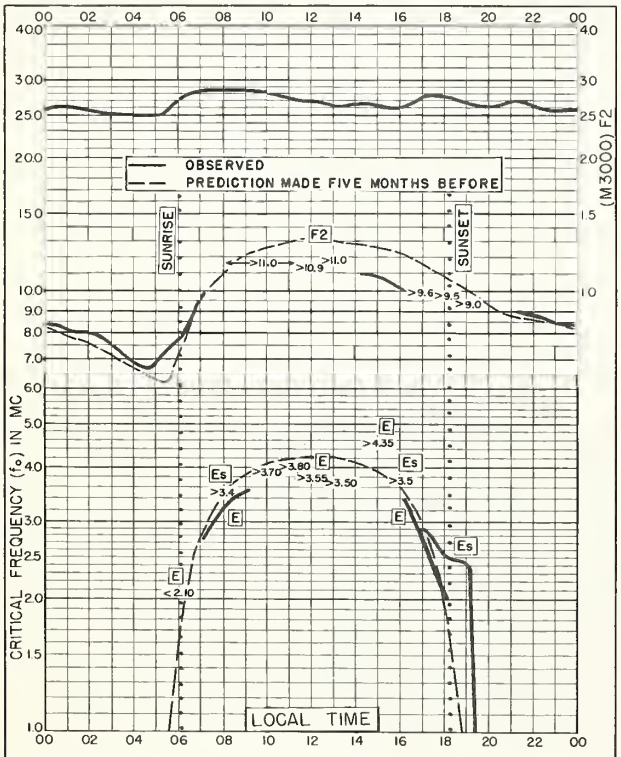

Fig. 86. BRISBANE, AUSTRALIA
27.5°S, 152.9°E MARCH 1958

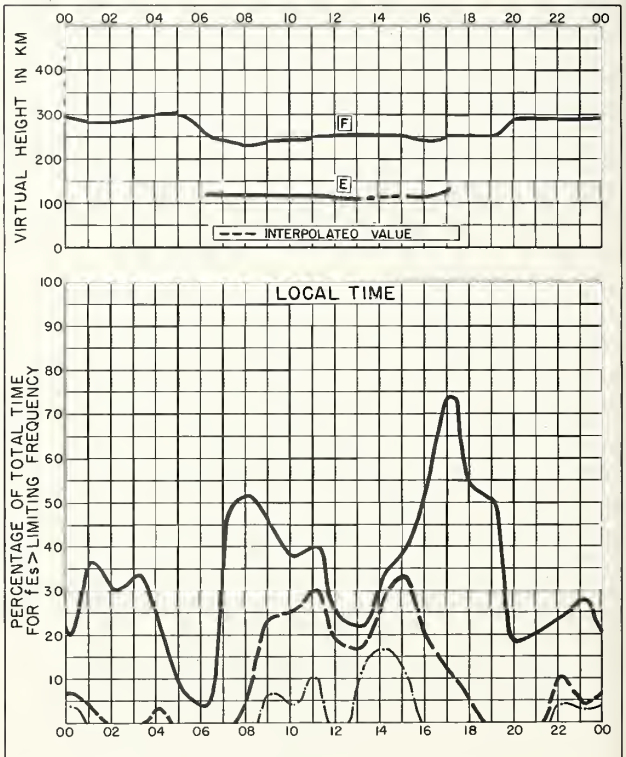

Fig. 87. BRISBANE, AUSTRALIA MARCH 1958

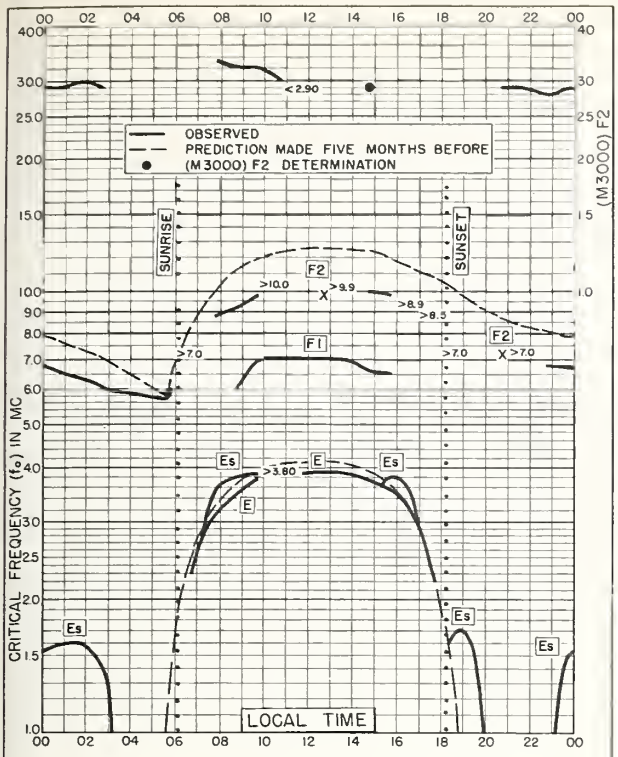

Fig. 88. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E MARCH 1958

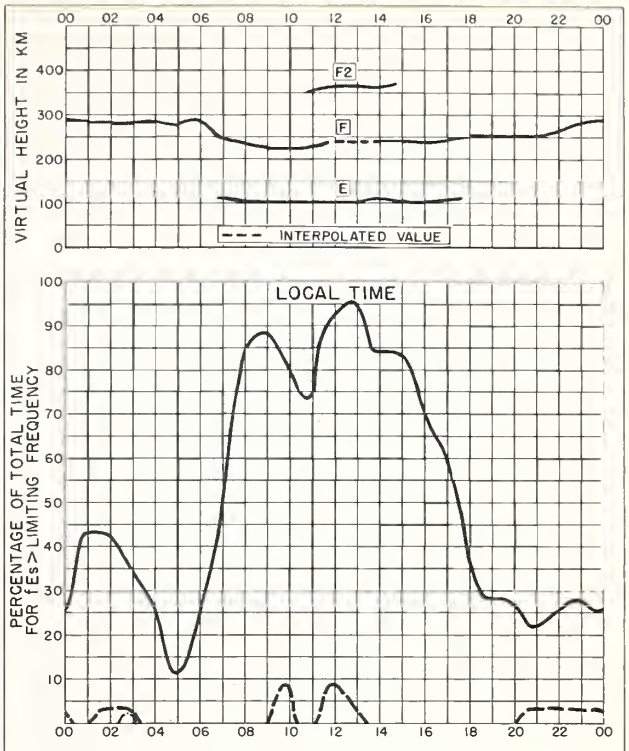

Fig. 89. WATHEROO, W. AUSTRALIA MARCH 1958

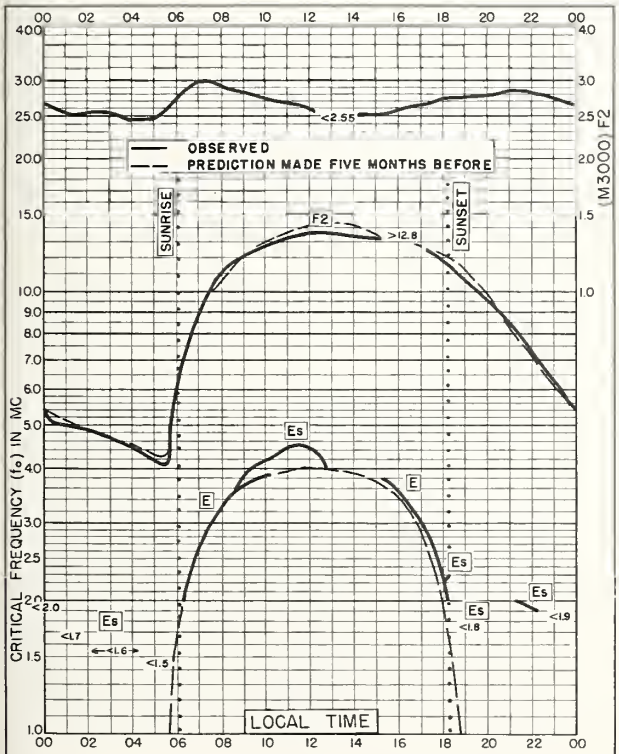

Fig. 90. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E MARCH 1958

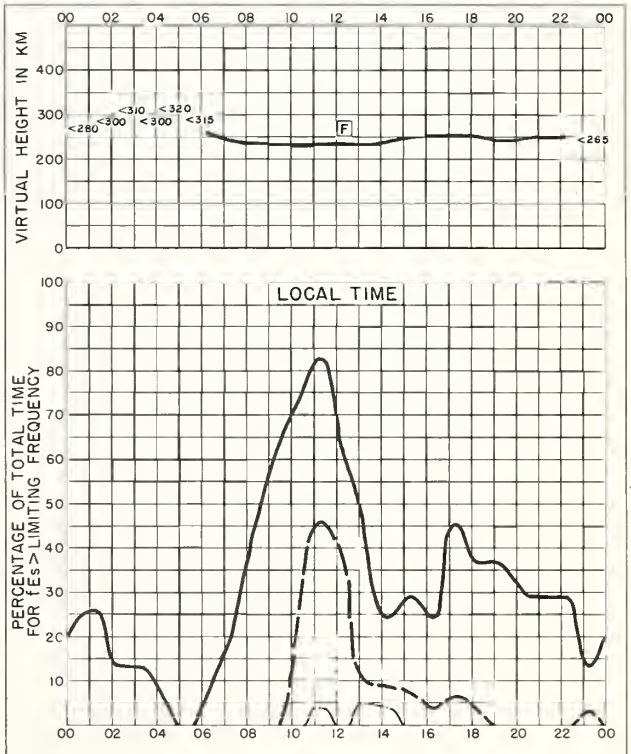

Fig. 91. CAPETOWN, UNION OF S. AFRICA MARCH 1958

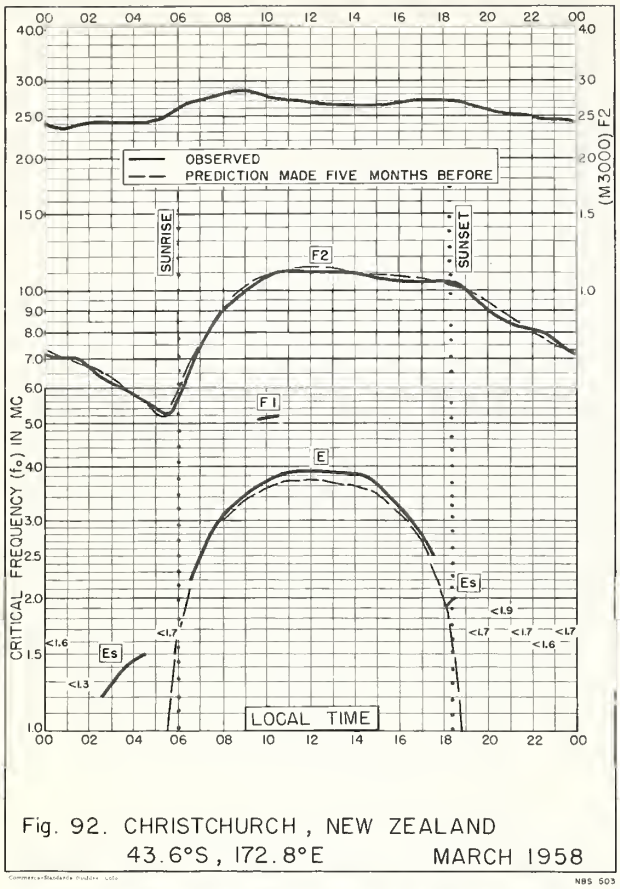

Fig. 92. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E MARCH 1958

NBS 503

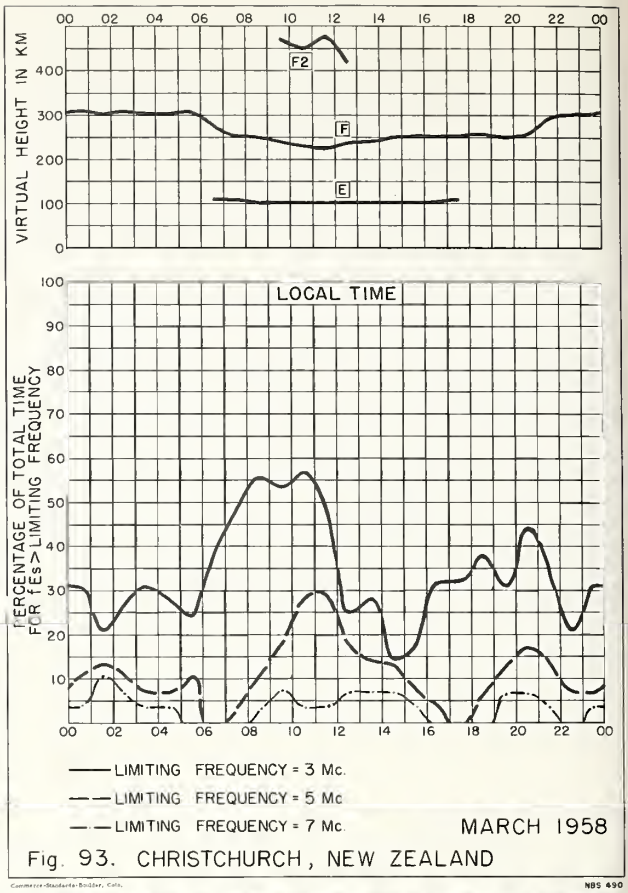

Fig. 93. CHRISTCHURCH, NEW ZEALAND MARCH 1958

NBS 490

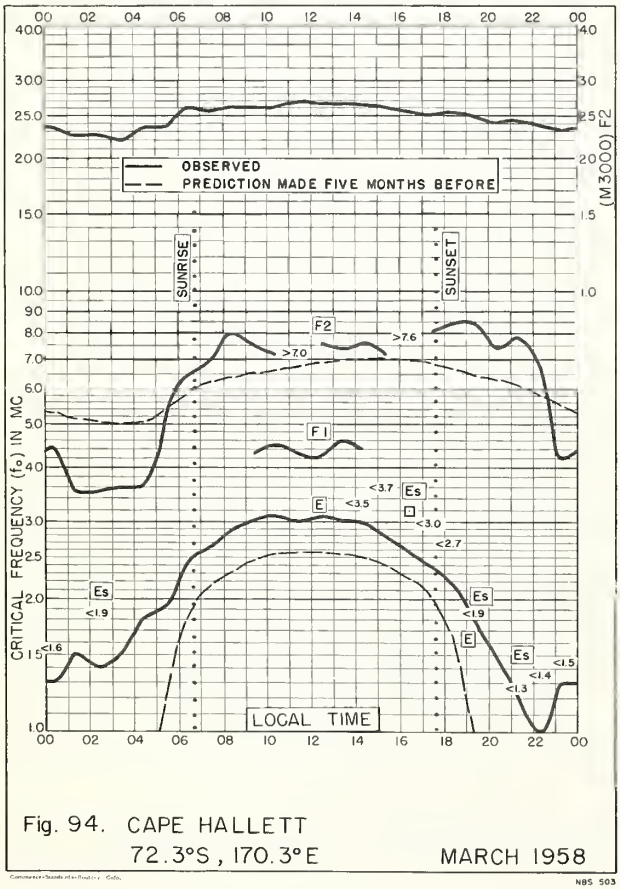

Fig. 94. CAPE HALLETT
72.3°S, 170.3°E MARCH 1958

NBS 503

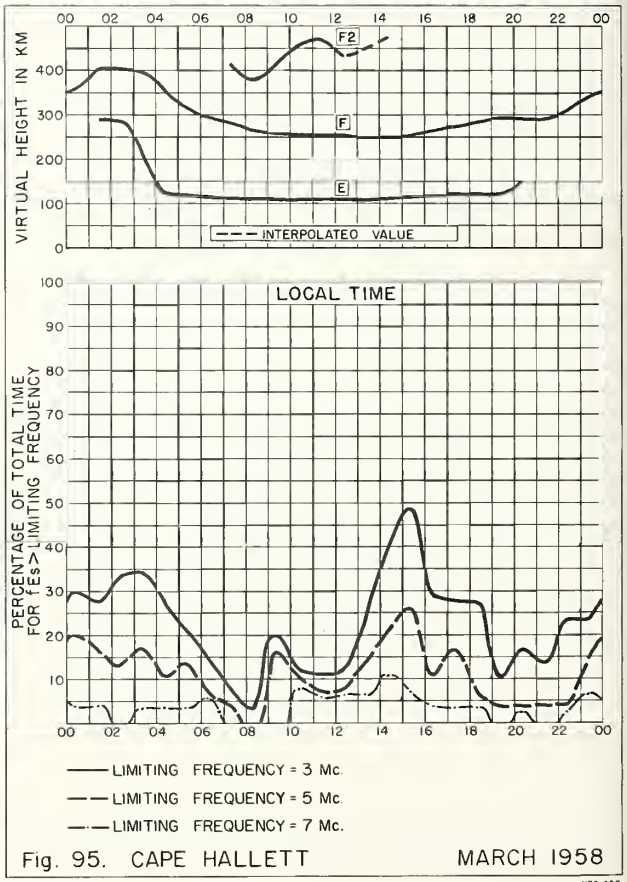

Fig. 95. CAPE HALLETT MARCH 1958

NBS 490

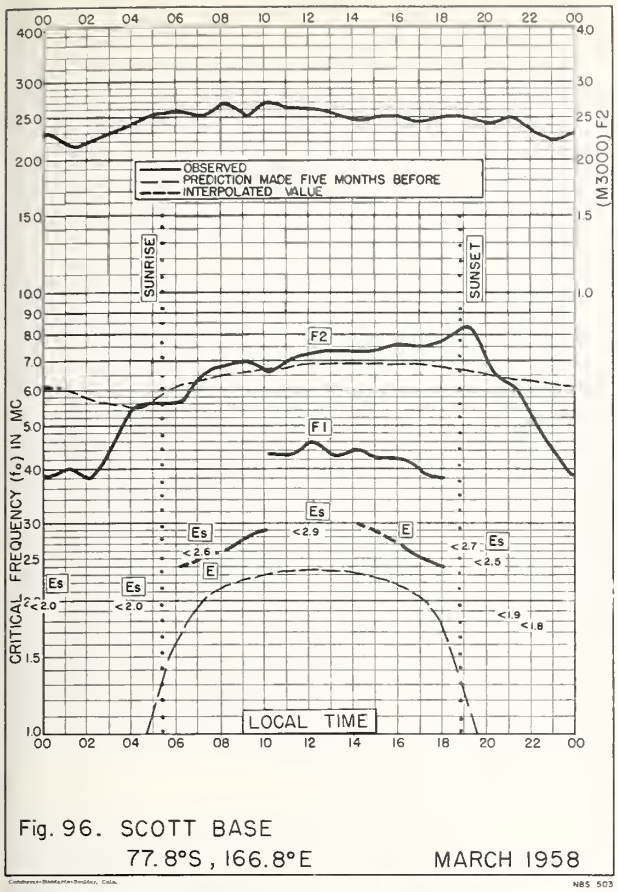

Fig. 96. SCOTT BASE
77.8°S, 166.8°E MARCH 1958

Commerce-Standards-Boulder, Colo. NBS 503

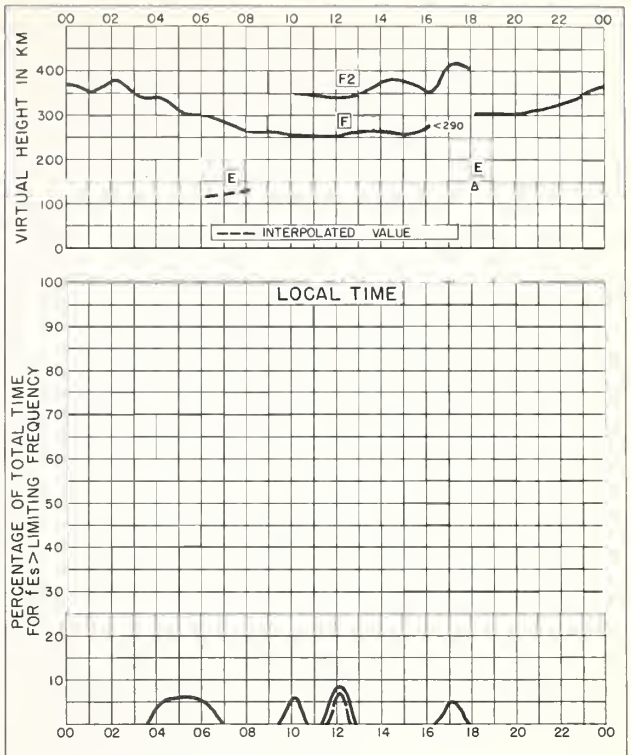

Fig. 97. SCOTT BASE MARCH 1958

Commerce-Standards-Boulder, Colo. NBS 490

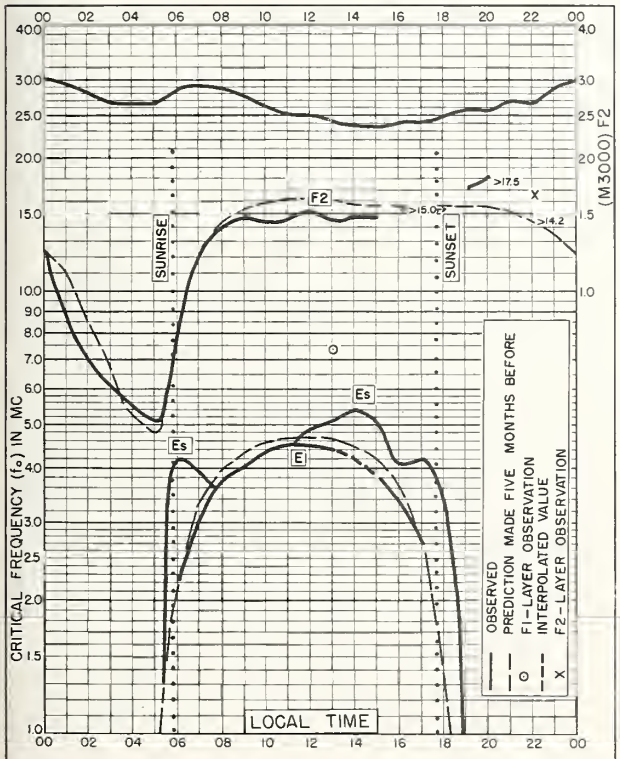

Fig. 98. BOGOTA, COLOMBIA
4.5°N, 74.2°W OCTOBER 1957

Commerce-Standards-Boulder, Colo. NBS 503

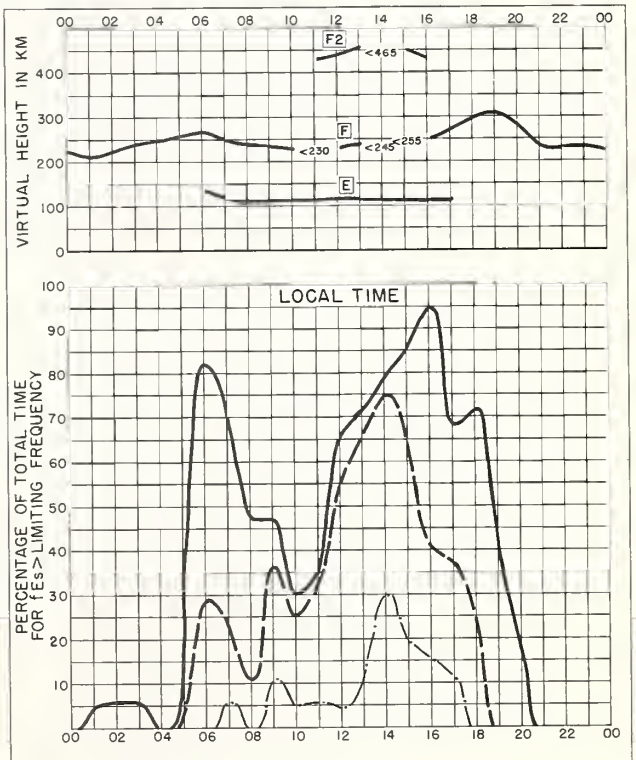

Fig. 99. BOGOTA, COLOMBIA OCTOBER 1957

Commerce-Standards-Boulder, Colo. NBS 490

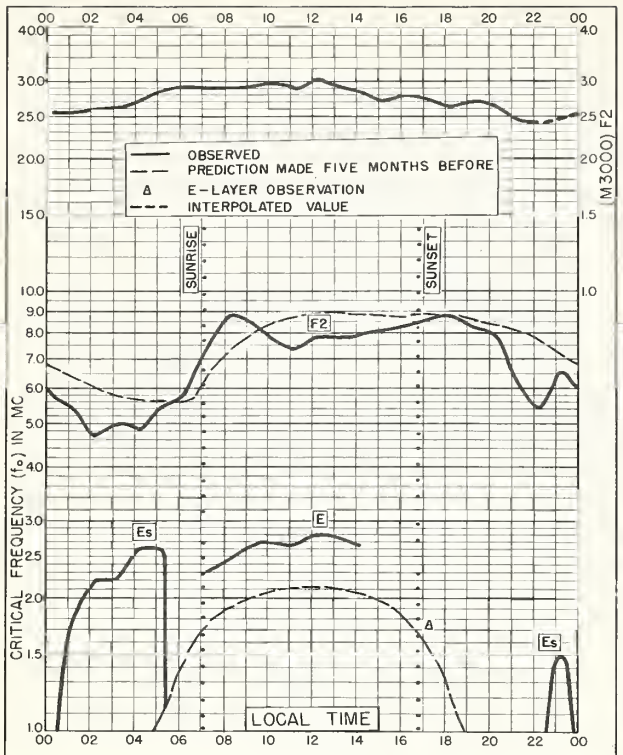

Fig. 100. LITTLE AMERICA
78.2°S, 162.2°W SEPTEMBER 1957

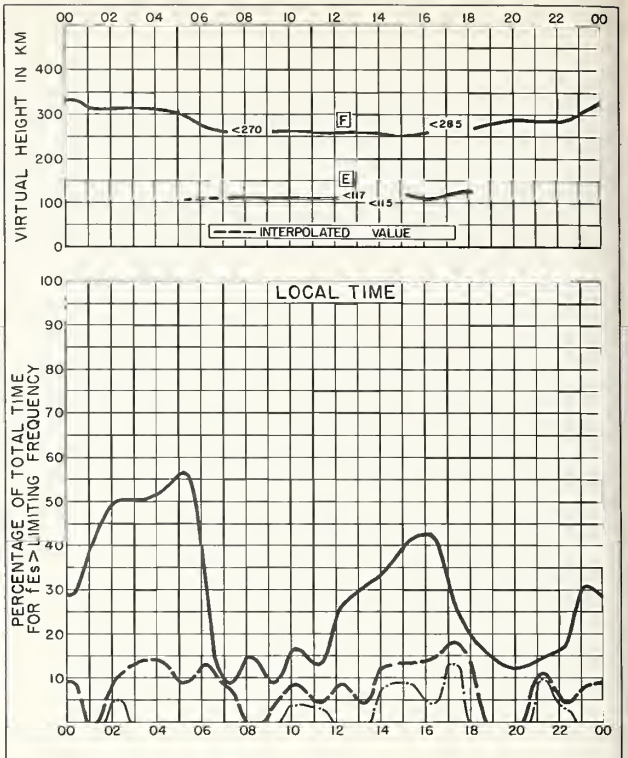

Fig. 101. LITTLE AMERICA SEPTEMBER 1957

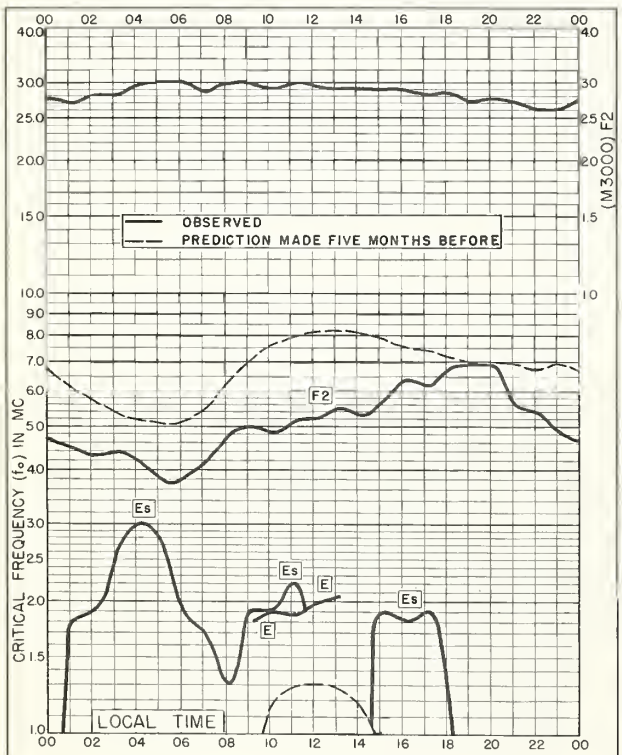

Fig. 102. LITTLE AMERICA
78.2°S, 162.2°W AUGUST 1957

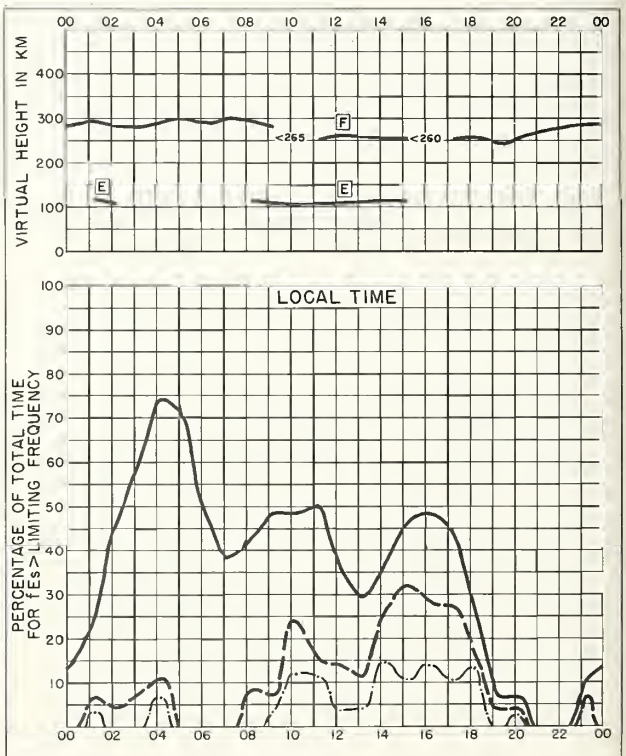

Fig. 103. LITTLE AMERICA AUGUST 1957

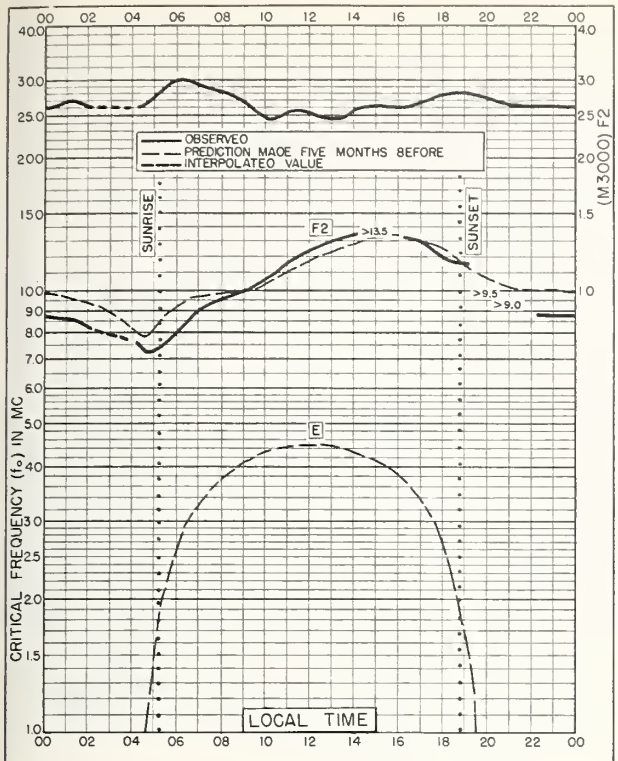

Fig. 104. DELHI, INDIA
28.6°N, 77.1°E JULY 1957

NBS 503

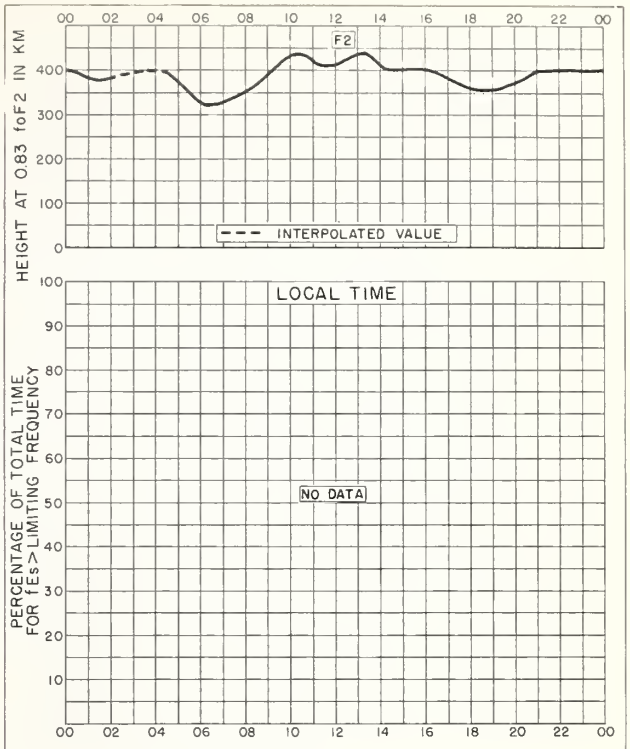

Fig. 105. DELHI, INDIA JULY 1957

NBS 490

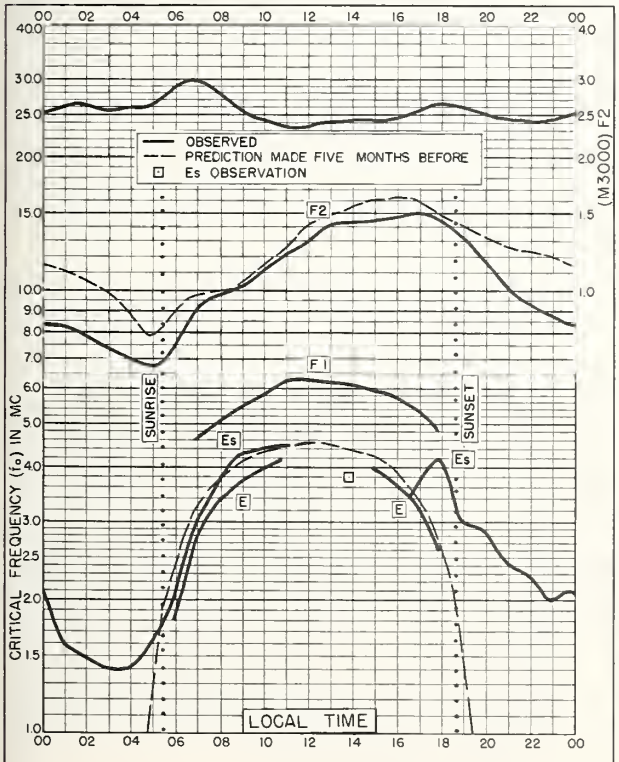

Fig. 106. AHMEDABAD, INDIA
23.0°N, 72.6°E JULY 1957

NBS 503

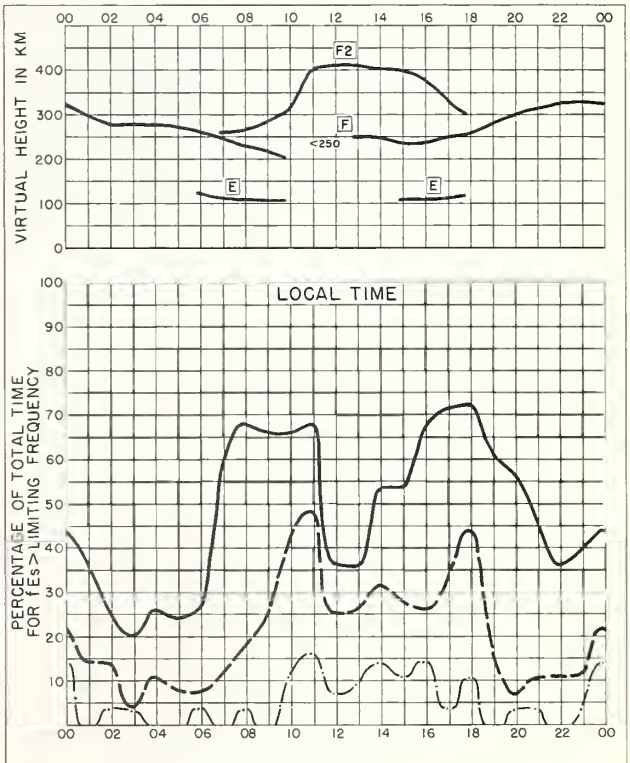

Fig. 107. AHMEDABAD, INDIA JULY 1957

NBS 490

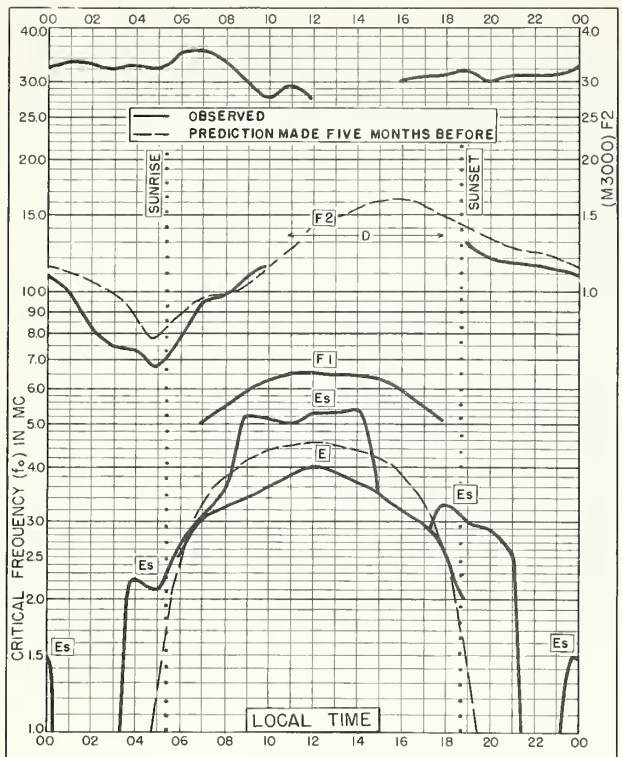

Fig. 108. CALCUTTA, INDIA
22.9°N, 88.5°E JULY 1957

NBS 503

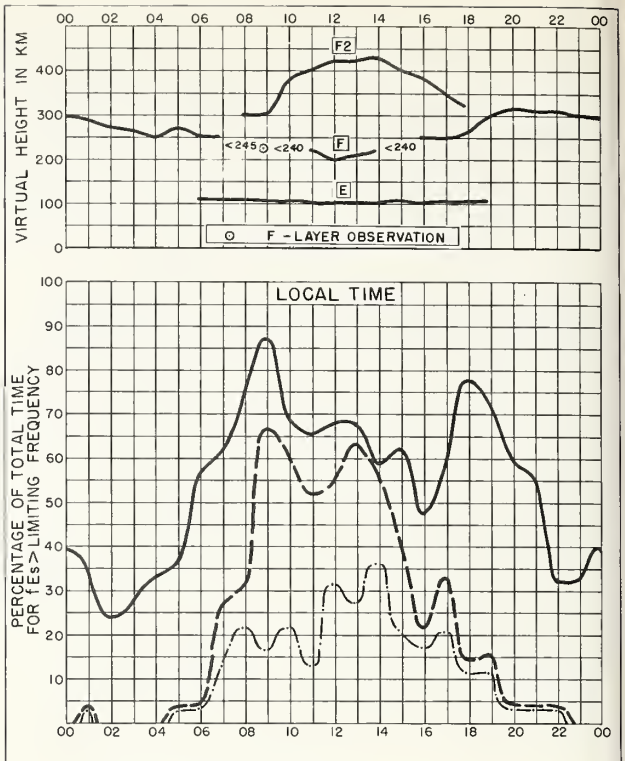

Fig. 109. CALCUTTA, INDIA JULY 1957

NBS 490

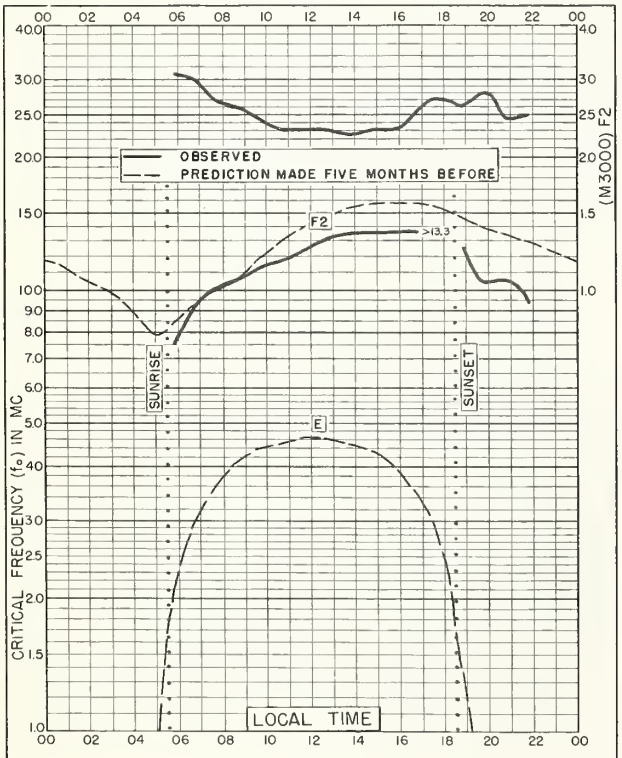

Fig. 110. BOMBAY, INDIA
19.0°N, 73.0°E JULY 1957

NBS 503

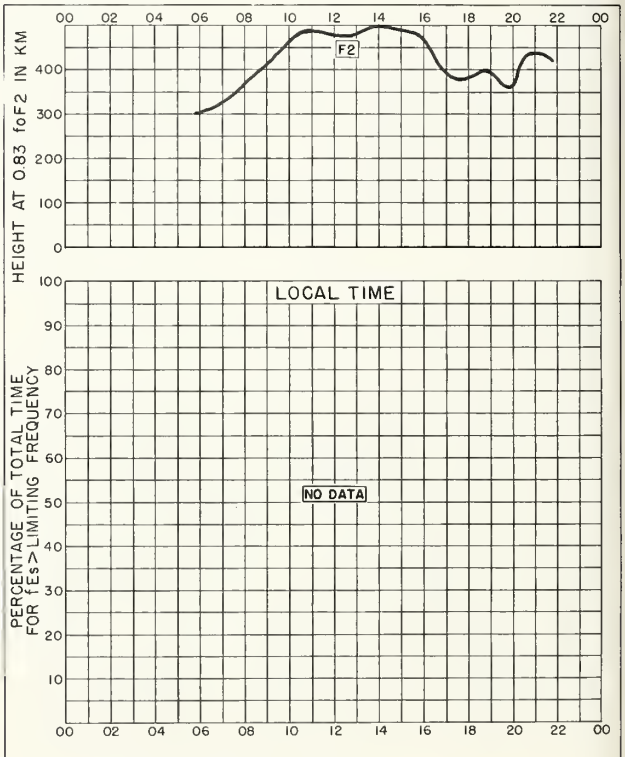

Fig. 111. BOMBAY, INDIA JULY 1957

NBS 490

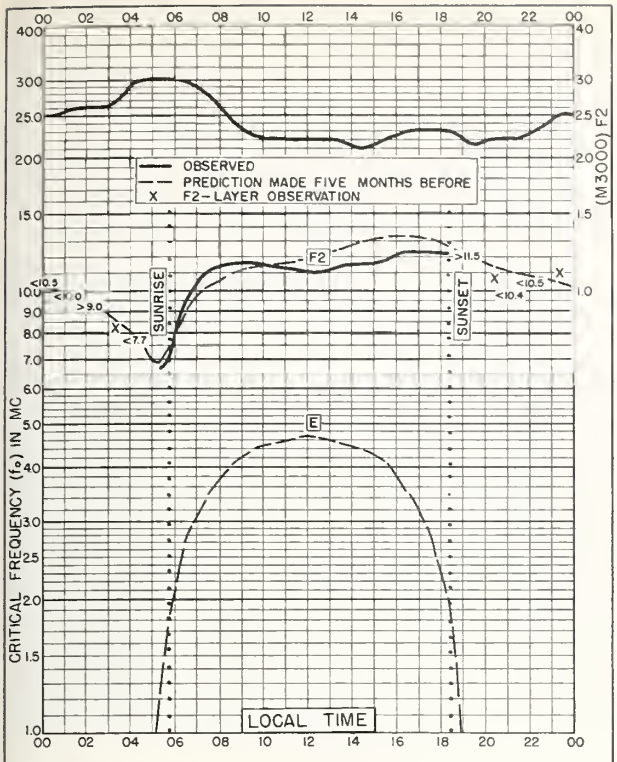

Fig. 112. MADRAS, INDIA
13.0°N, 80.2°E JULY 1957

NBS 503

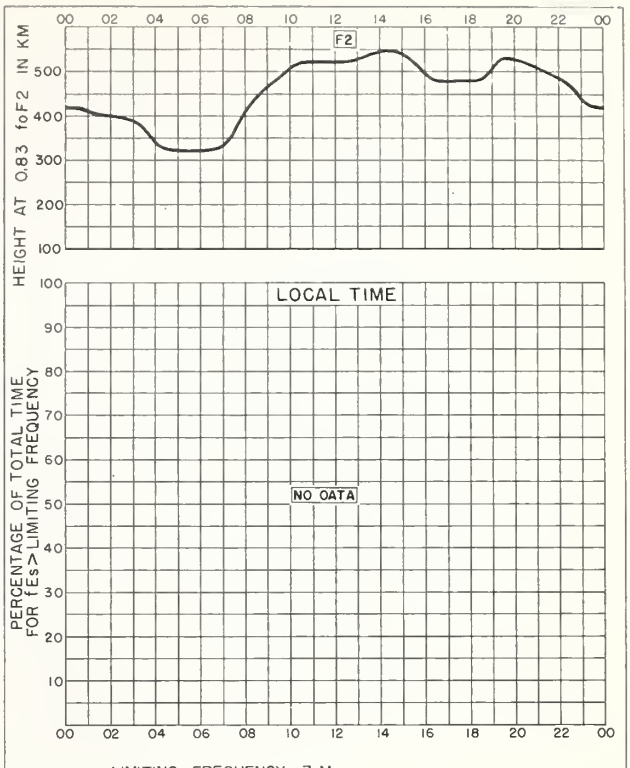

Fig. 113. MADRAS, INDIA JULY 1957

NBS 490

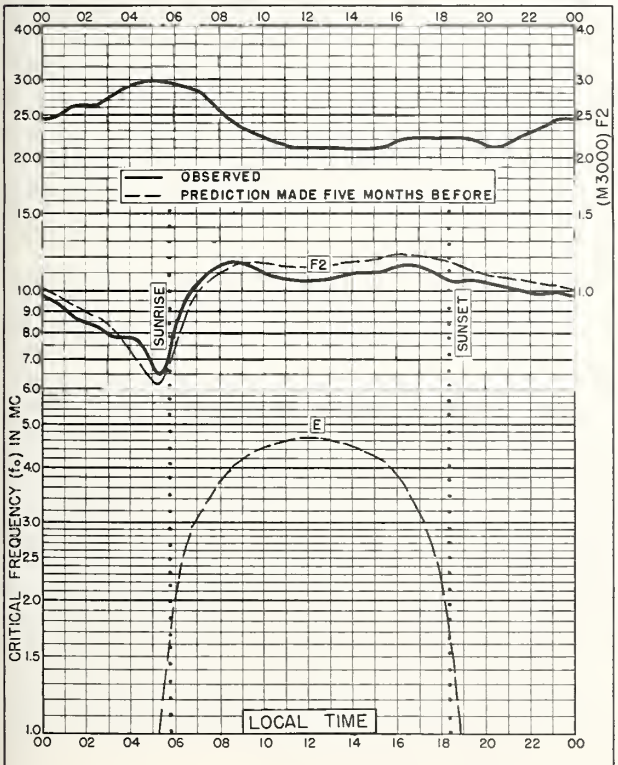

Fig. 114. TIRUCHY, INDIA
10.8°N, 78.8°E JULY 1957

NBS 503

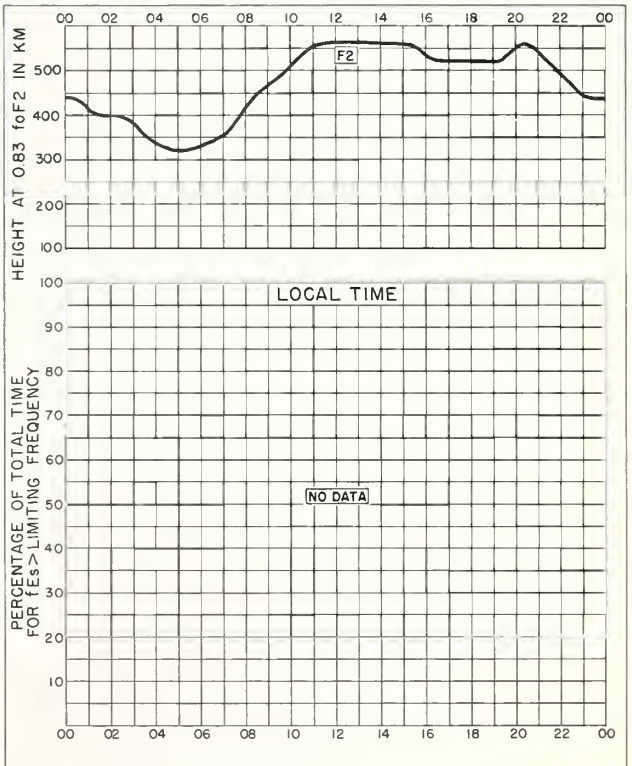

Fig. 115. TIRUCHY, INDIA JULY 1957

NBS 490

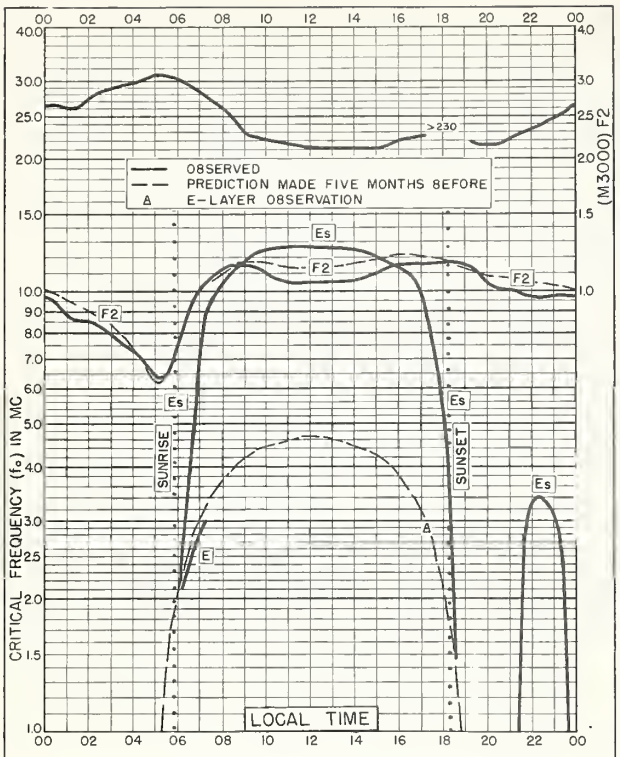

Fig. 116. KODAIKANAL, INDIA
10.2°N, 77.5°E JULY 1957

NBS 503

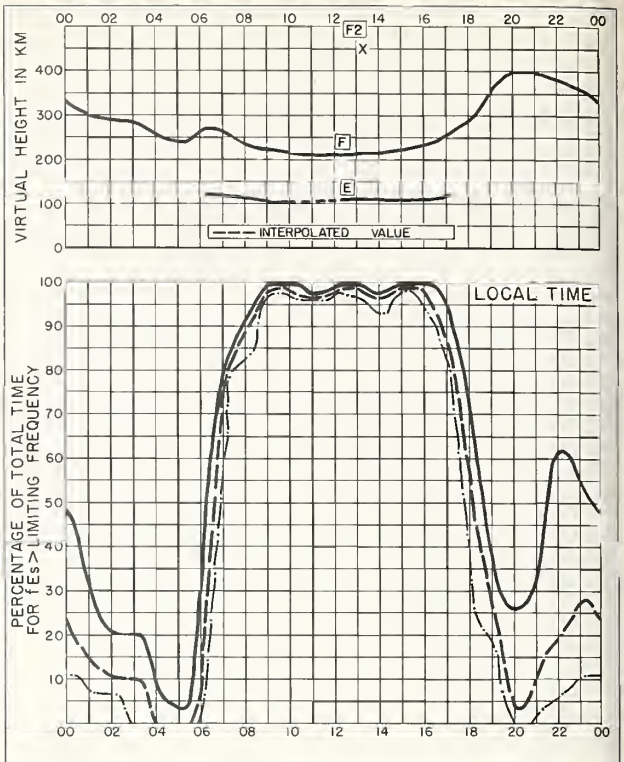

Fig. 117. KODAIKANAL, INDIA JULY 1957

NBS 490

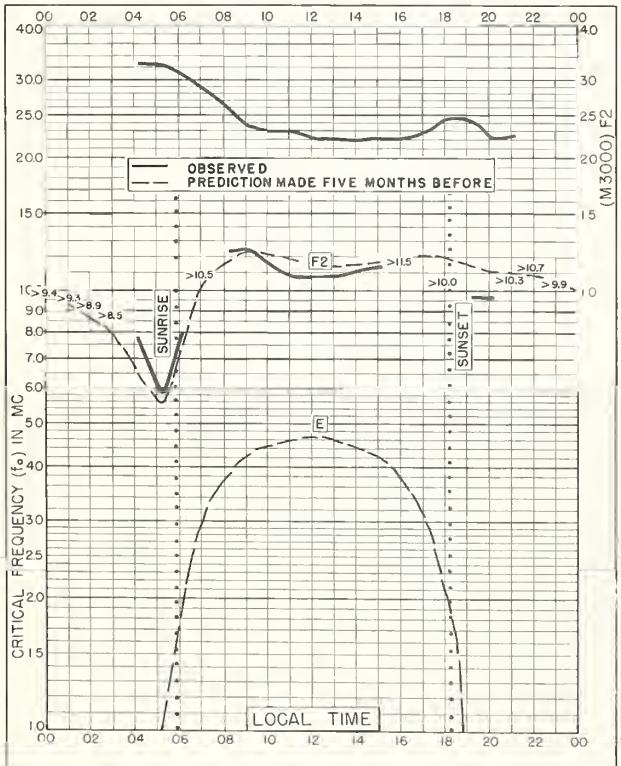

Fig 118. TRIVANDRUM, INDIA
8.4°N, 77.0°E JULY 1957

NBS 503

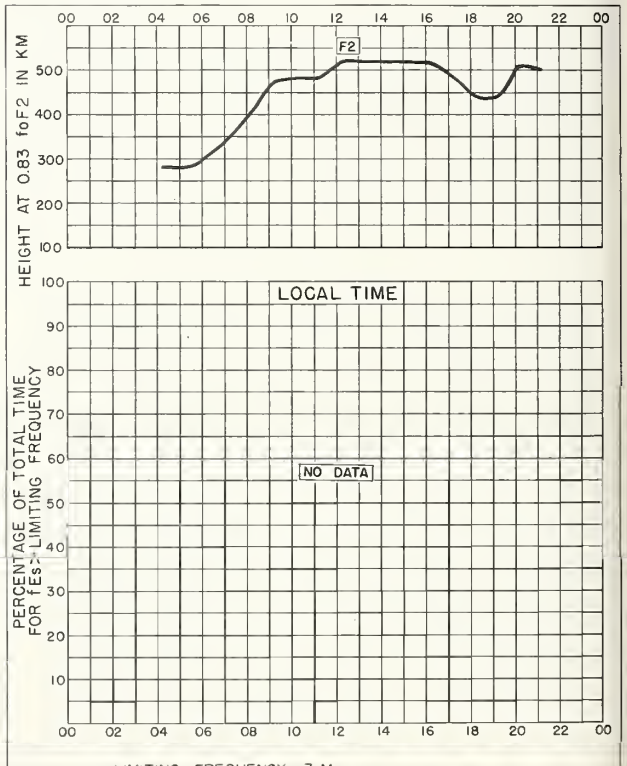

Fig. 119. TRIVANDRUM, INDIA JULY 1957

NBS 490

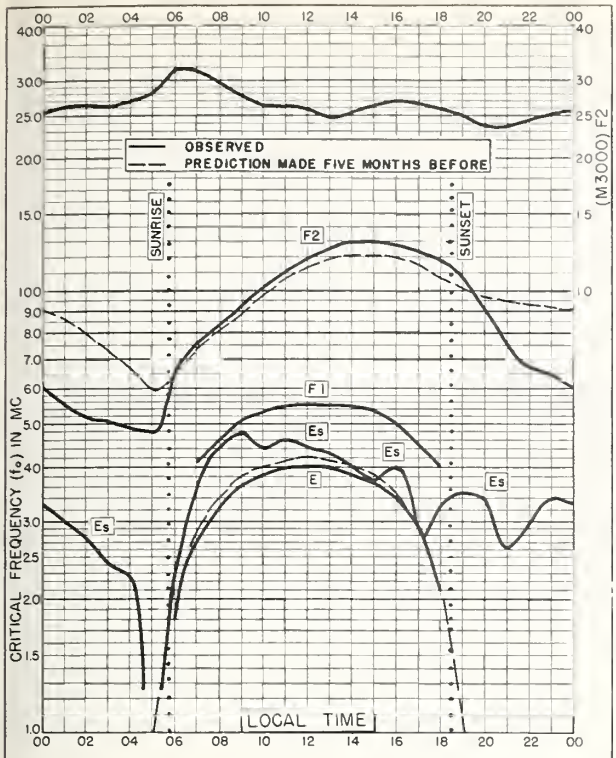

Fig. 120. DAKAR, FRENCH W. AFRICA
14.7°N, 17.4°W JULY 1956

NBS 503

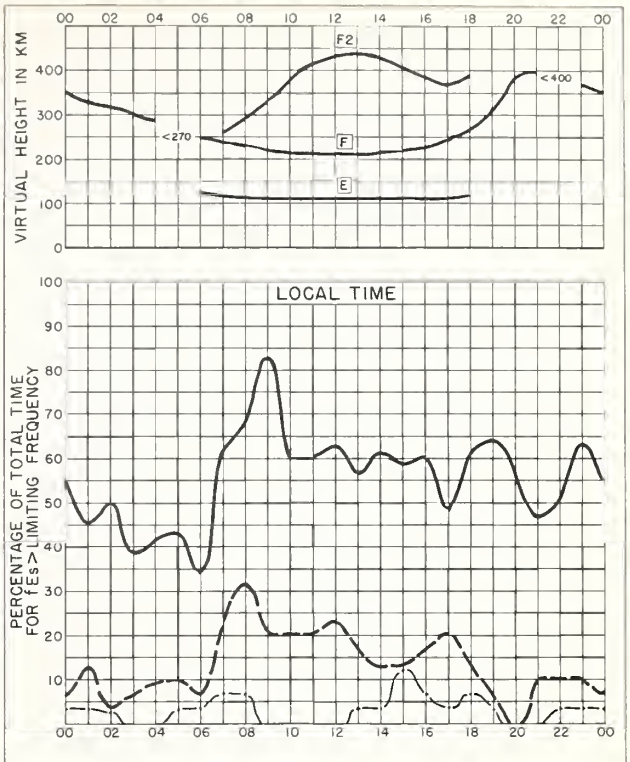

Fig. 121. DAKAR, FRENCH W. AFRICA JULY 1956

NBS 490

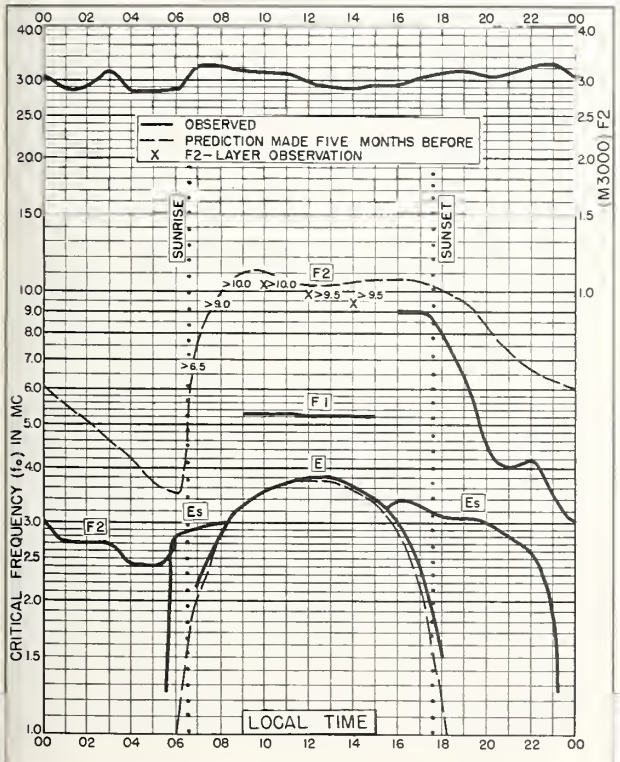

Fig. 122. TANANARIVE, MADAGASCAR
18.9°S, 47.6°E JULY 1956

NBS 503

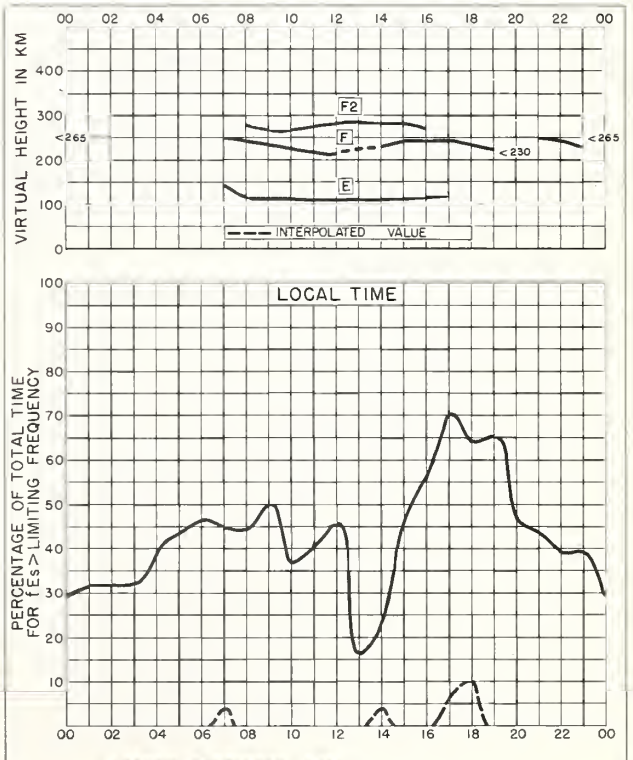

Fig. 123. TANANARIVE, MADAGASCAR JULY 1956

NBS 490

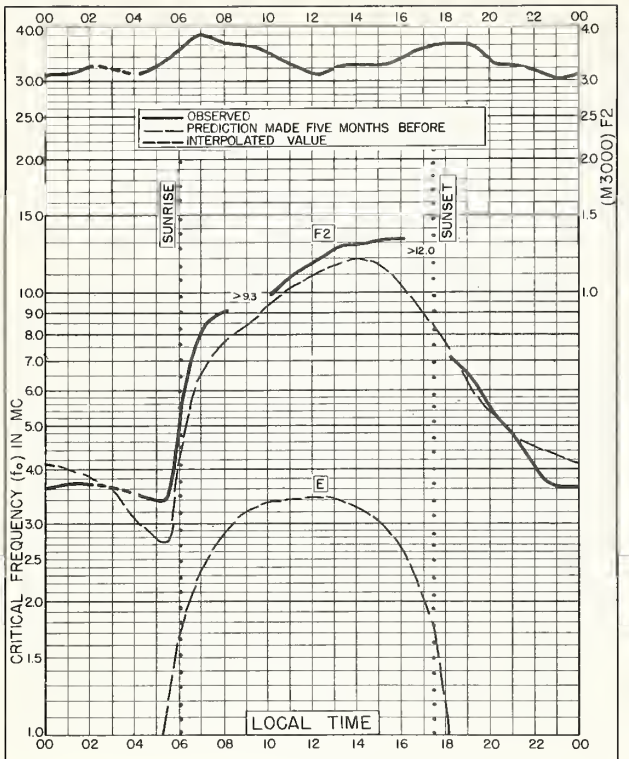

Fig. 124. DELHI, INDIA
28.6°N, 77.1°E OCTOBER 1955

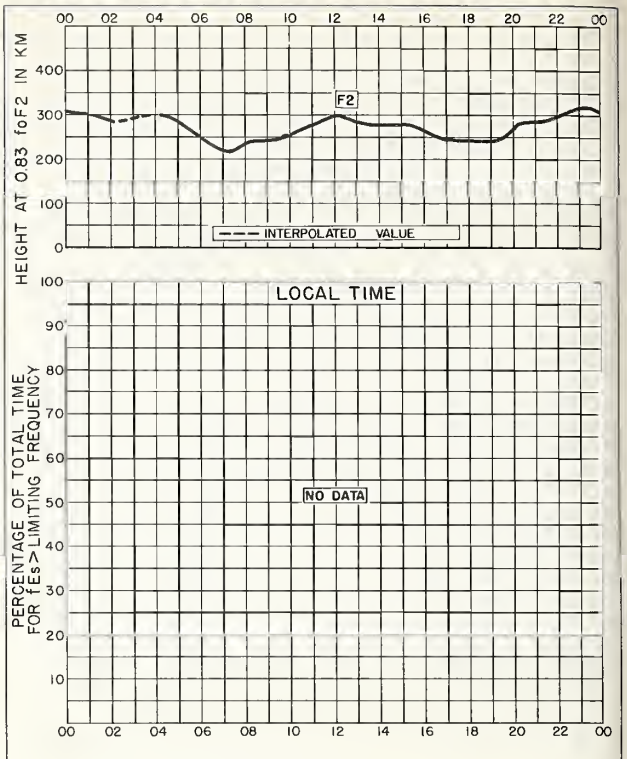

Fig. 125. DELHI, INDIA OCTOBER 1955

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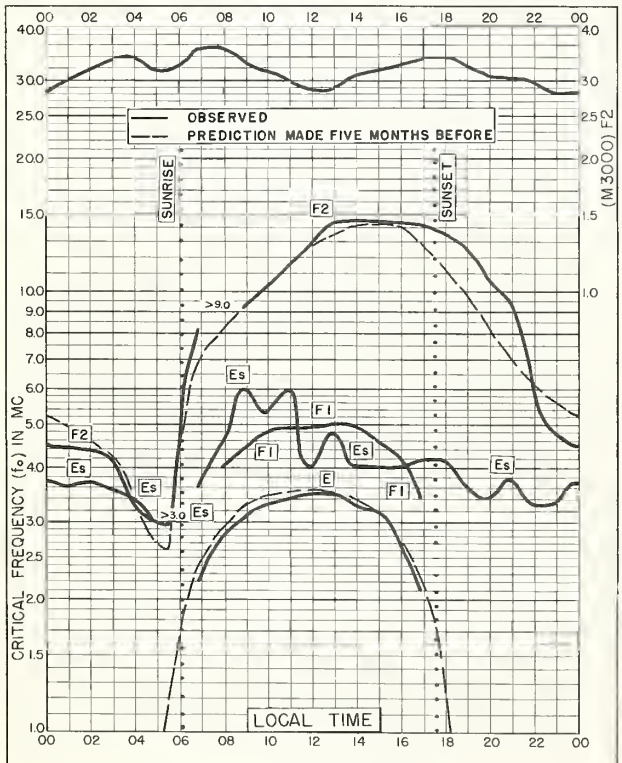

Fig. 126. AHMEDABAD, INDIA
23.0°N, 72.6°E OCTOBER 1955

Commerce-Standards-Boulder, Colo.

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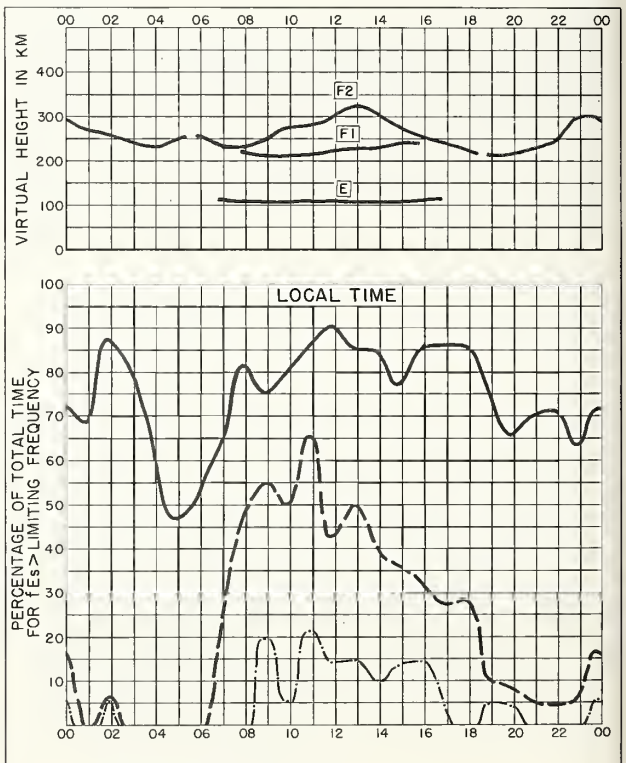

Fig. 127. AHMEDABAD, INDIA OCTOBER 1955

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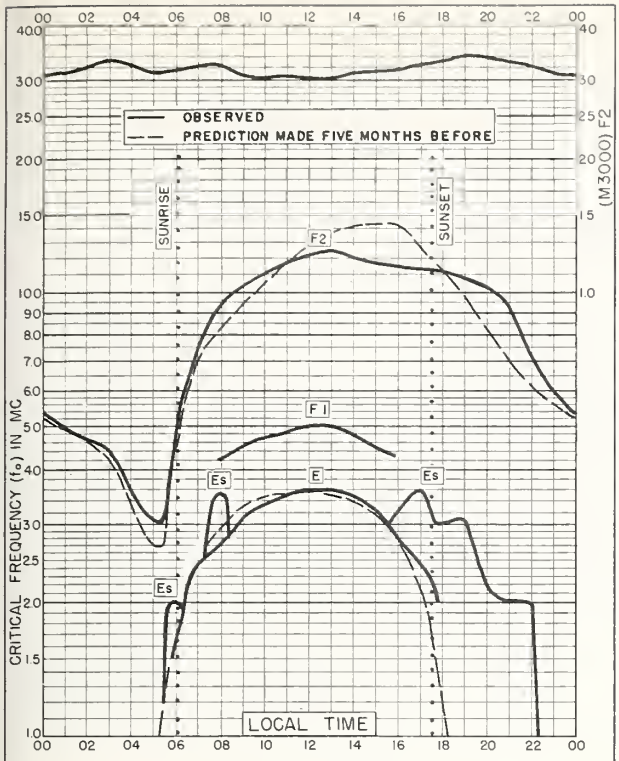

Fig. 128. CALCUTTA, INDIA
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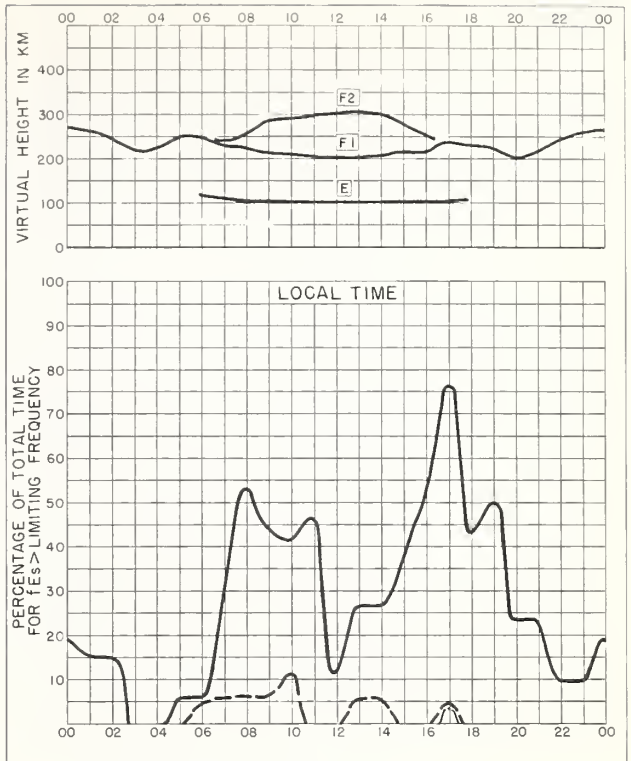

Fig. 129. CALCUTTA, INDIA OCTOBER 1955

NBS 490

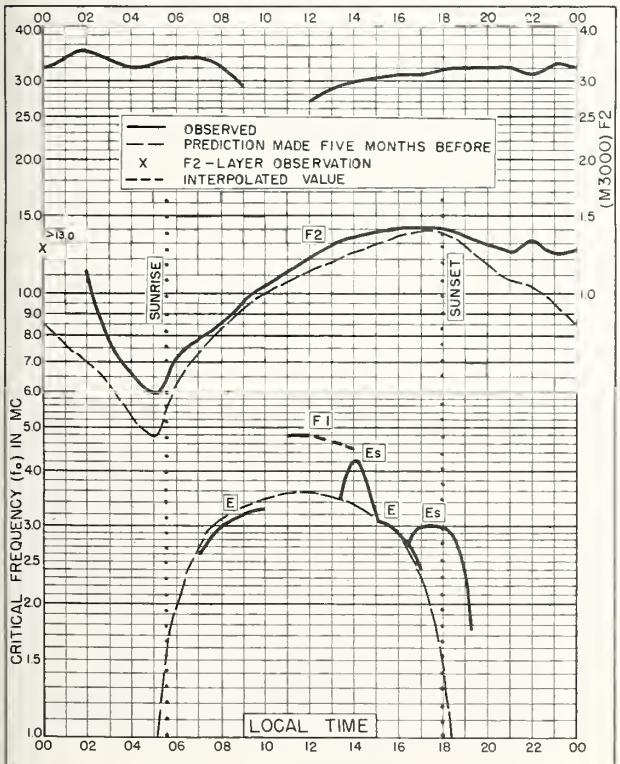

Fig. 130. SAO PAULO, BRAZIL
23.5°S, 46.5°W OCTOBER 1955

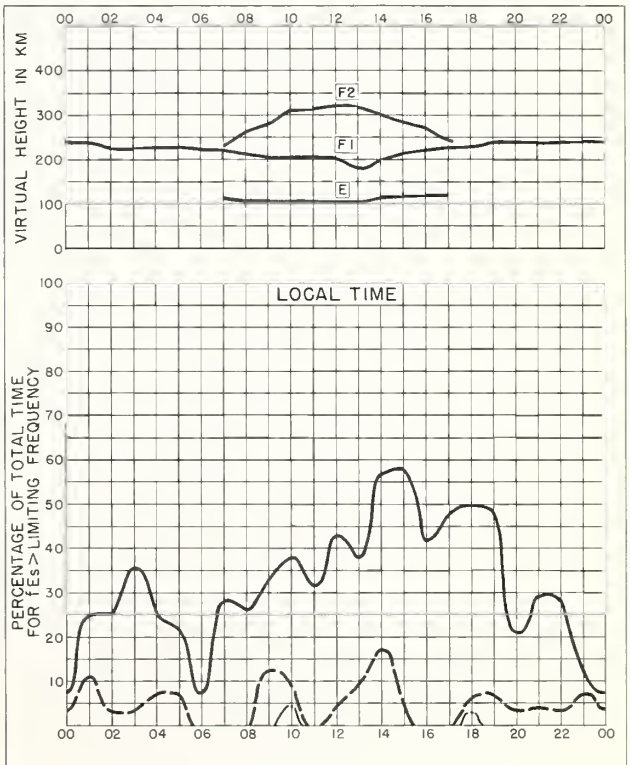

Fig. 131. SAO PAULO, BRAZIL OCTOBER 1955

NBS 490

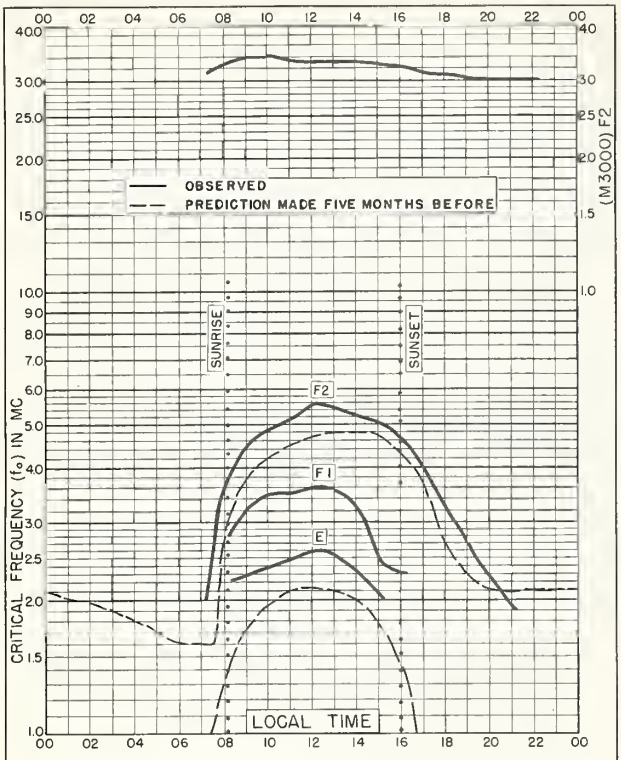

Fig. 132. CAMPBELL I.
52.5°S, 169.2°E JULY 1955

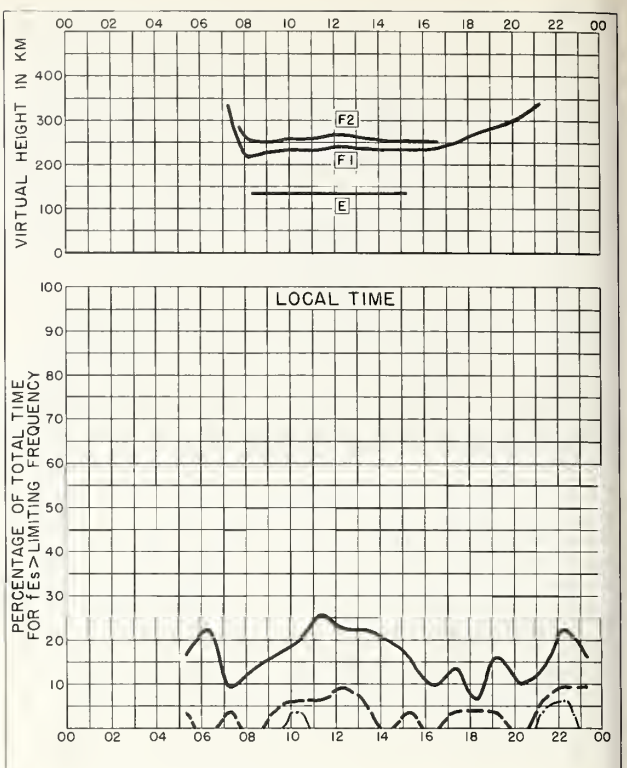

Fig. 133. CAMPBELL I. JULY 1955

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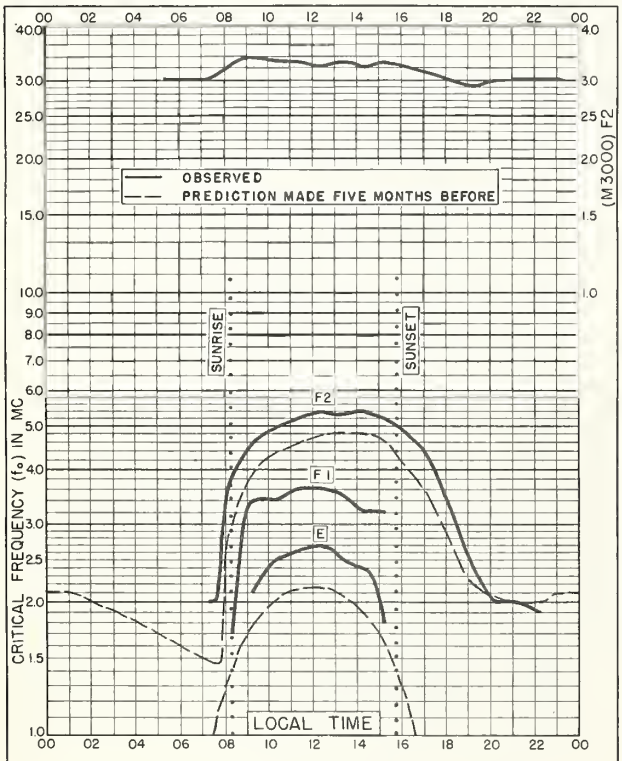

Fig. 134. CAMPBELL I.
52.5°S, 169.2°E JUNE 1955

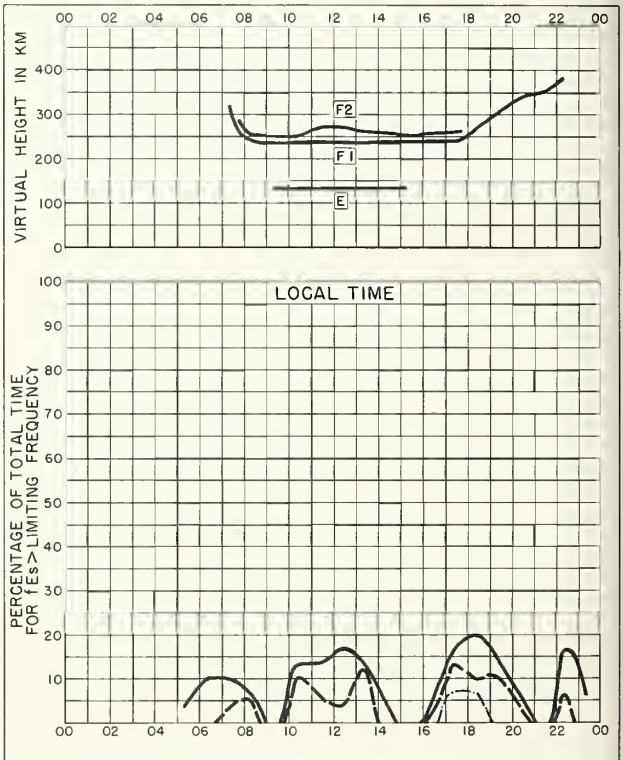

Fig. 135. CAMPBELL I. JUNE 1955

Commerce-Standards-Boulder, Colo. NBS 490

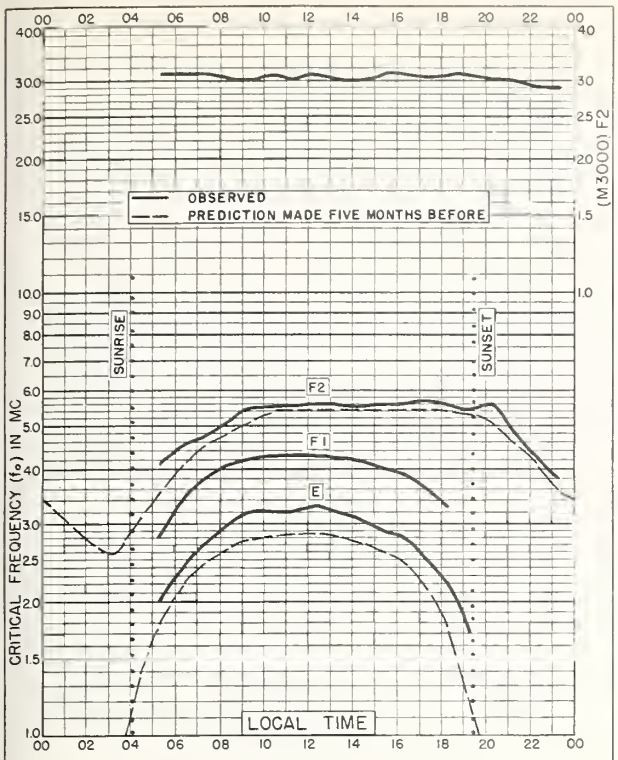

Fig. 136. CAMPBELL I.
52.5°S, 169.2°E NOVEMBER 1954

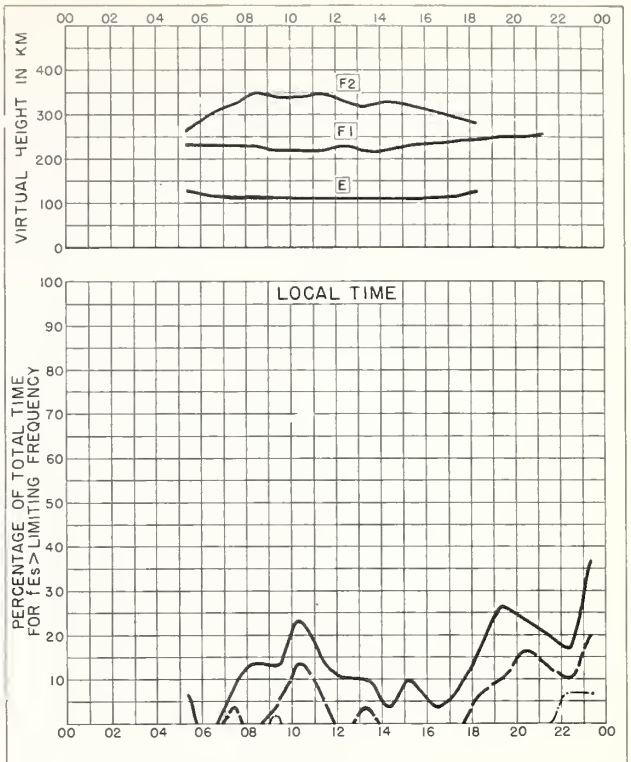

Fig. 137. CAMPBELL I. NOVEMBER 1954

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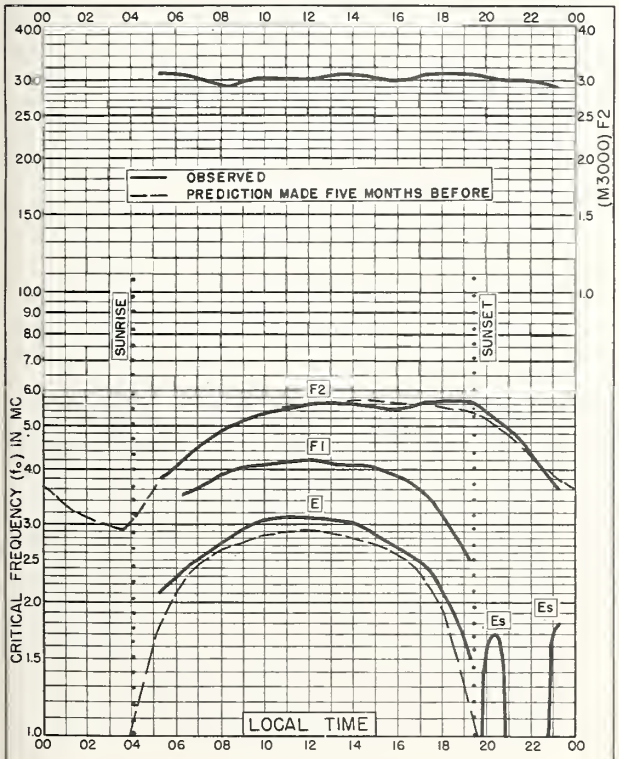

Fig. 138. CAMPBELL I.
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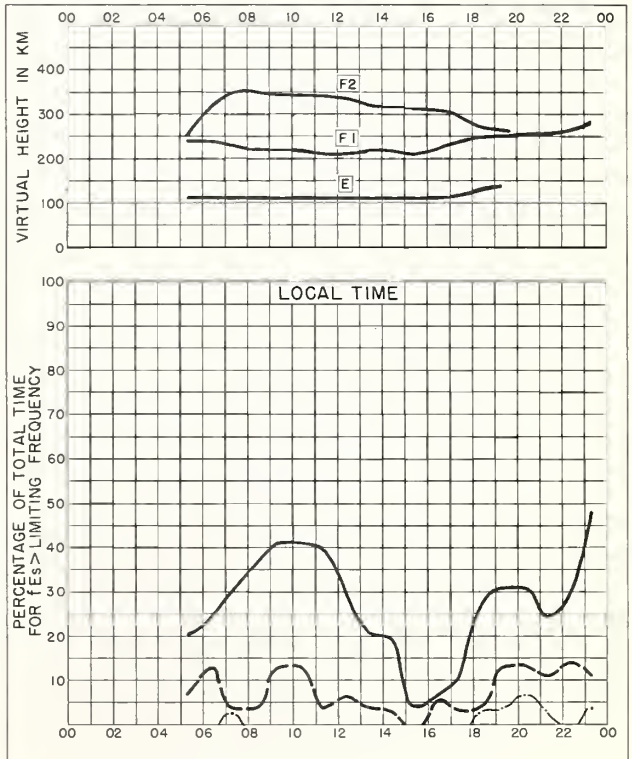

Fig. 139. CAMPBELL I. NOVEMBER 1953

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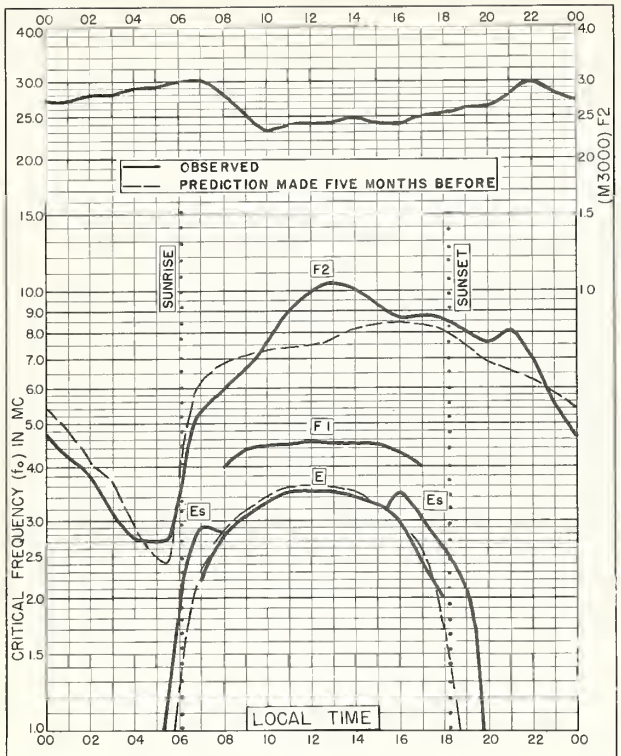

Fig. 140. LEOPOLDVILLE, BELGIAN CONGO
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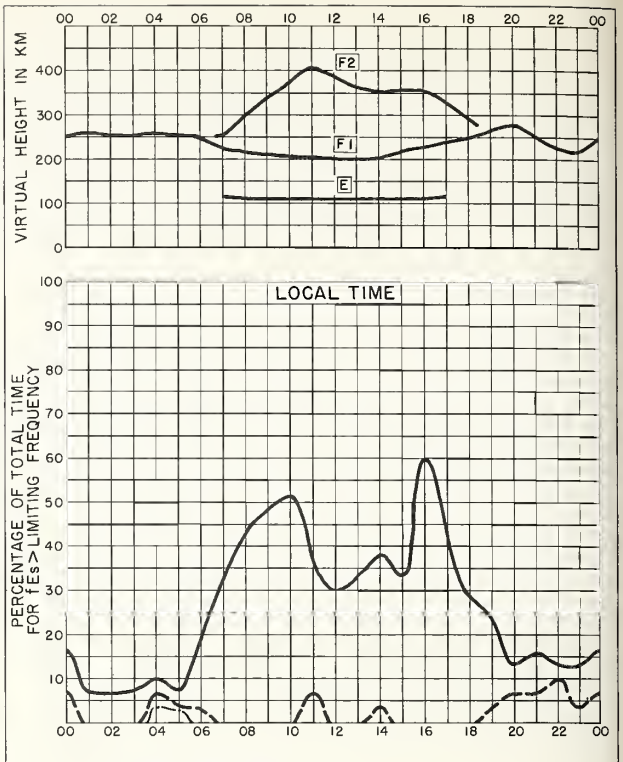

Fig. 141. LEOPOLDVILLE, BELGIAN CONGO
JANUARY 1953

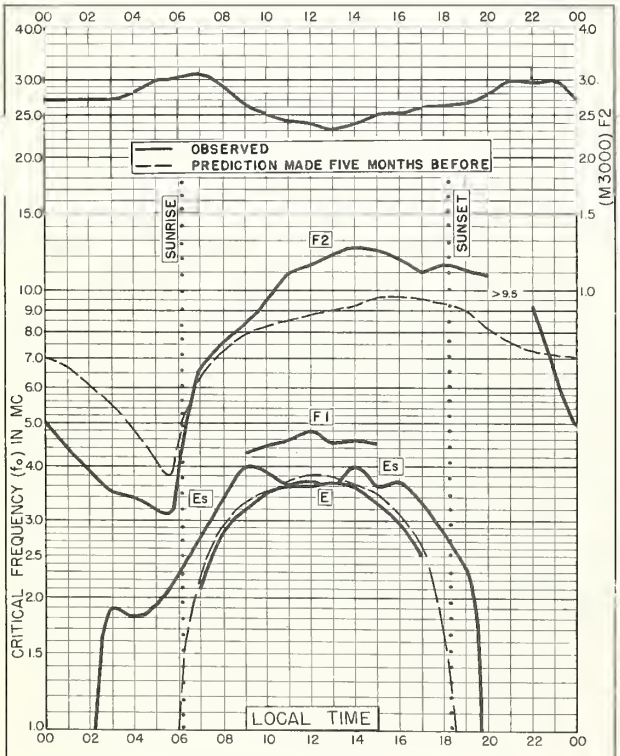

Fig. 142. LEOPOLDVILLE, BELGIAN CONGO
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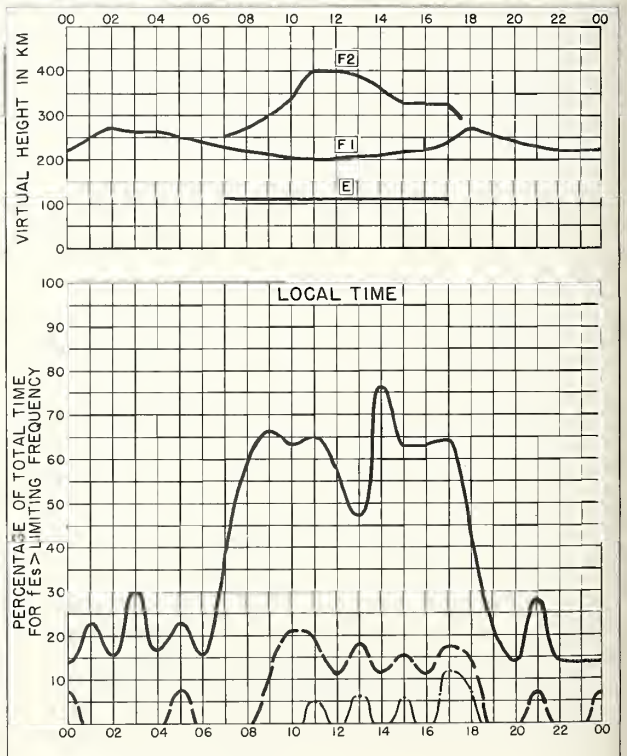

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