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CRPL-F 150 PART A

FOR OFFICIAL USE

*Reference is made to be
taken from the title page.*

PART A
IONOSPHERIC DATA

ISSUED
FEBRUARY 1957

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

RPL-F150
ART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

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

Beginning with data for January 1957, the following symbols are used:

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

- A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example, Es.
- B Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.
- C Measurement influenced by, or impossible because of, any nonionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.

(This symbol applies, for example, to the case of foF2 near or less than foF1, or of foEs near or less than foE. Do not use this symbol in cases where the lower frequency limit of the recorder gives the limitation; in these cases "E" should be used.)

- H Measurement influenced by, or impossible because of, the presence of a stratification.
 - L Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.
 - N Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.
 - O Measurement refers to the ordinary component.
 - R Measurement influenced by, or impossible because of, absorption in the vicinity of a critical frequency.
 - S Measurement influenced by, or impossible because of, interference or atmospherics.
 - V Forked trace which may influence the measurement.
 - W Measurement influenced or impossible because the echo lies outside the height range recorded.
 - X Measurement refers to the extraordinary component.
 - Y Intermittent trace.
 - Z Third magneto-ionic component present.
- b. Qualifying Symbols

Used as a preceding symbol on monthly tabulation sheets.

- D greater than . . .
- E less than . . .
- I Missing value has been replaced by an interpolated value.
- J Ordinary component characteristic deduced from the extraordinary component.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- U Uncertain or doubtful numerical value.

These symbols are taken from 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.

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

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

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

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

1. If the count is four or less, the data are considered insufficient and no median value is computed.
2. For the F2 layer, 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 median are doubtful (either doubtful or interpolated), the median is considered doubtful.

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

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

- a. Differences in scaling records when spread echoes are present.
- b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

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

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

Ordinarily, a blank space in the fEs 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 Zurich sunspot numbers were used in constructing the contour charts:

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

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

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

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	72	80
1956	88	97	108	119	128	137	145					

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 140 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina
Deception I.

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

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

University of Graz:
Graz, Austria

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

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

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

Radio Wave Research Laboratories, National Taiwan University,
Taipeh, Formosa, China:
Formosa, China

Danish National Committee of URSI:
Godhavn, Greenland

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

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

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

Delhi (All India Radio)
Madras (All India Radio)
Tiruchy (All India Radio)
Kodaikanal (India Meteorological Department)

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

Ministry of Postal Services, Radio Research Laboratories,
Tokyo, Japan:
Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

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

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

Manila Observatory:
Baguio, P. I.

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Fairbanks, Alaska (Geophysical Institute of the
University of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 through 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

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

The U is a qualifying symbol meaning doubtful. Other qualifying symbols are I, interpolated, D, greater than, E, less than, J, ordinary component deduced from extraordinary, and T, value determined by a sequence of observations. Absence of a letter in the upper left position means full weight is given to the observation.

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

There should be no difficulty in the placing of the decimal point. For the time being, a final zero will be found in each value of f_{oF1} . Thus at a later date it will be possible to register more closely scaled values of this characteristic, whenever such are reported.

ERRATA

1. CRPL-F149 (Part A), pp. 21 through 31: Certain of these tables of Washington data for December 1956 are improperly aligned.
2. CRPL-F149 (Part A), p. 57, fig. 103: The (M3000)F2 curve should read 3.0 from the 14th through the 18th hour lines.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
BELVOIR, VIRGINIA; DEC. 19, 1956
(Geomagnetic Latitude 50°N)

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

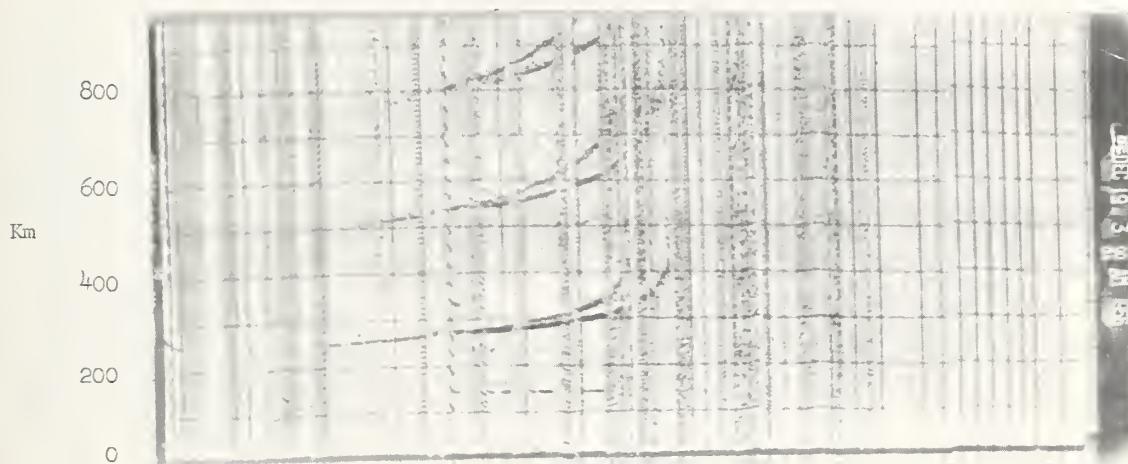


Fig. A. Belvoir, Virginia, Dec. 19, 1956, 0300 hours, 75°W time.

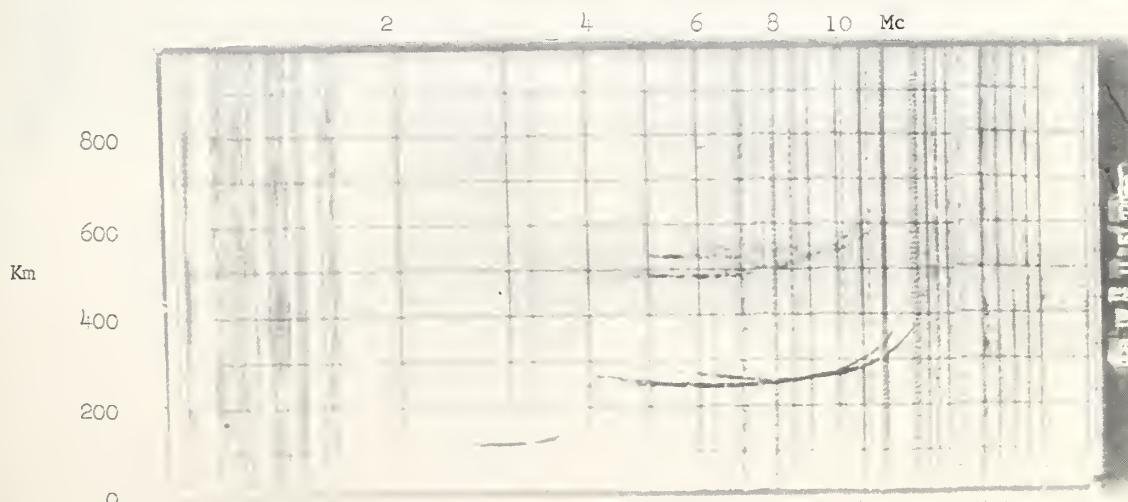
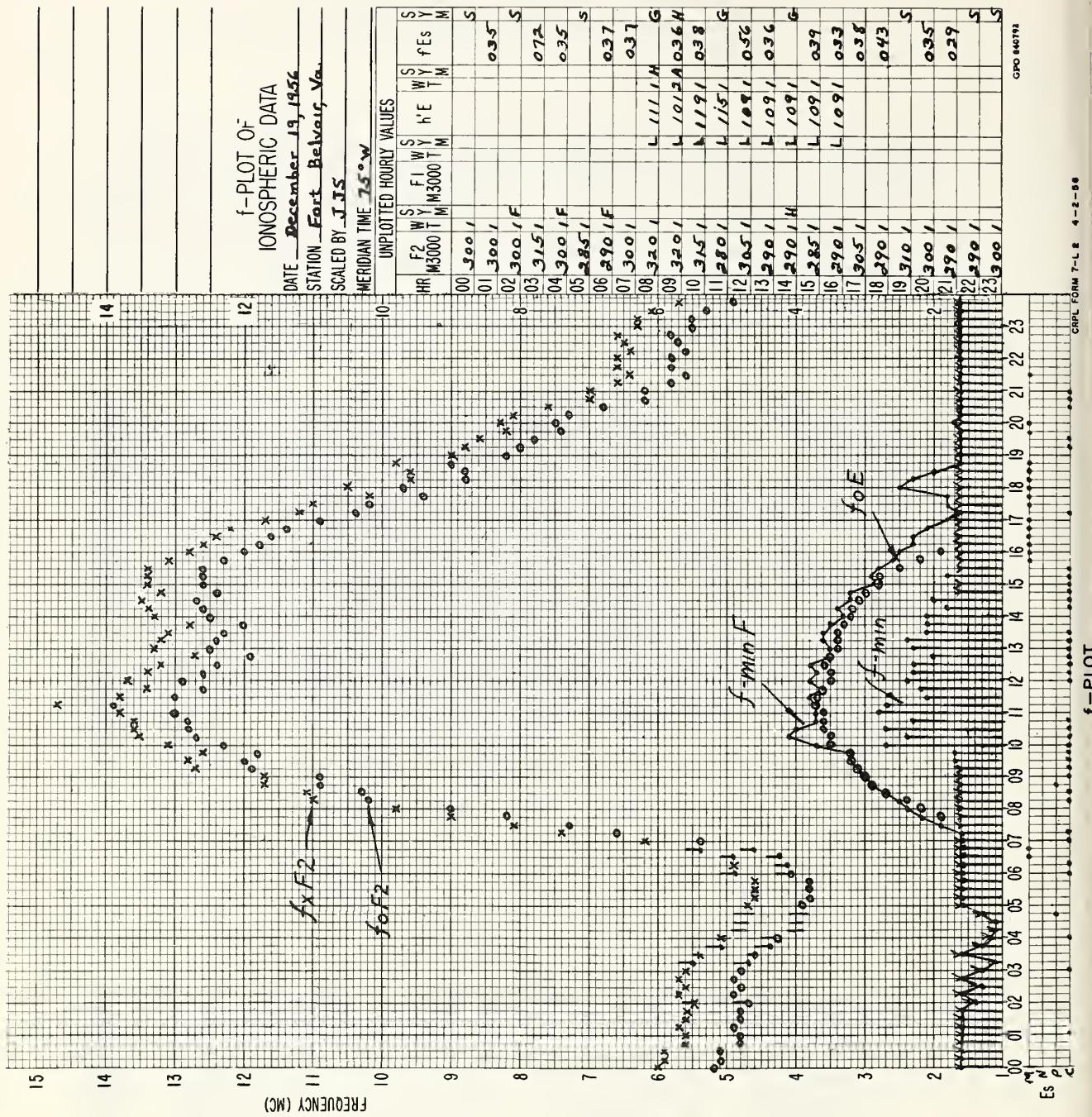


Fig. B. Belvoir, Virginia, Dec. 19, 1956, 1130 hours, 75°W time.



TABLES OF IONOSPHERIC DATA

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Table 1

Time	Washington, O. C. (38.7°N, 77.1°W)							January 1957	
	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		5.6	270				2.85		
01		5.5	270				2.80		
02		5.4	275				2.75		
03		5.5	270				2.90		
04		5.2	255			(3.1)	2.90		
05		4.6	260				2.80		
06		4.3	260				2.85		
07		5.0	260				2.95		
08	---	8.6	230		121	2.20		3.20	
09	(240)	10.7	230		115	2.80		3.20	
10	240	11.7	225		111	3.25		3.10	
11	250	12.7	230		115	3.40		3.00	
12	245	13.0	225		114	3.45		2.90	
13	250	12.8	230		114	3.50		2.90	
14	(260)	12.5	230		111	3.30		2.85	
15	(245)	12.5	235		115	3.00		2.80	
16	(250)	12.3	240		118	2.45		2.85	
17	---	11.6	230		---	---		2.85	
18		10.6	225					2.90	
19		9.4	230				2.6	2.95	
20		8.2	230				2.4	2.95	
21		7.1	240					2.95	
22		6.5	250					2.90	
23		5.8	260					2.90	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Time	Graz, Austria (47.1°N, 15.5°E)							December 1956	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	---	4.2							
01	---	4.2							
02	---	4.3							
03	---	4.1							
04	---	3.8							
05	---	3.8							
06	---	3.8							
07	270	4.9							
08	230	8.5							
09	240	0							
10	240	0							
11	240	0							
12	240	0							
13	250	0							
14	240	0							
15	245	0							
16	230	0							
17	230	9.4							
18	250	8.3							
19	250	7.0							
20	260	5.4							
21	---	4.6							
22	---	4.3							
23	---	4.1							

Time: 15.0°E.

Sweep: 2.5 Mc to 11.0 Mc in 2 minutes.

Table 5

Time	Formosa, China (25.0°N, 121.5°E)							December 1956	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	240	9.4					2.9		
01	260	8.2					2.8		
02	280	7.4					2.7		
03	280	8.0					2.7		
04	280	7.1					2.7		
05	<280	6.4					2.7		
06	270	9.2					2.8		
07	260	11.6					2.9		
08	260	13.3			120	3.0		3.0	
09	250	14.4	250	---	120	3.3		3.0	
10	240	14.4	240	---	120	3.7	4.0	2.9	
11	(240)	14.7	240	---	120	3.9	4.0	2.7	
12	---	15.3	240	---	120	4.0	4.2	2.6	
13	---	15.8	240	---	---	---	4.0	2.5	
14	---	16.0	240	---	---	---	4.0	2.6	
15	---	16.0	240	---	---	---	3.5	2.6	
16	(260)	16.1	240	---	120	2.9		2.7	
17	260	16.2	---	---	---	2.6		2.8	
18	240	15.7					(3.1)	2.9	
19	240	16.0					2.8	2.8	
20	260	16.0					(2.8)	2.9	
21	240	15.0						3.0	
22	240	13.0						2.95	
23	240	11.1						2.9	

Time: 120.0°E.

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

Table 2

Time	Point Barrow, Alaska (71.3°N, 156.8°W)							December 1956	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00								7.0	---
01								5.6	---
02								4.8	---
03								4.1	---
04								2.6	(2.60)
05								3.0	---
06								3.2	(2.70)
07								4.2	(2.80)
08								3.0	(2.75)
09								2.9	2.90
10								3.0	(3.10)
11								2.9	2.95
12								3.0	3.00
13								3.0	3.00
14								3.0	3.00
15								3.0	3.00
16								3.05	
17								3.05	
18								2.90	
19								2.9	
20								2.8	
21								2.8	
22								2.8	
23								4.9	---

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Time	Ft. Monmouth, New Jersey (40.3°N, 74.1°W)							December 1956	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	270	5.9						(3.2)	2.70
01	<270	5.8						(2.2)	2.80
02	270	5.7						(2.6)	2.75
03	270	5.7						(3.7)	2.75
04	250	5.4						(3.8)	2.75
05	250	5.0						(4.9)	2.75
06	260	4.6						(4.8)	2.85
07	250	6.6	---	---	---	---	---		2.95
08	230	9.8	---	---	119	(2.5)			3.20
09	230	12.0	220	---	111	2.8	3.0		3.15
10	(230)	13.0	220	---	112	3.3			3.05
11	(250)	13.6	220	---	111	3.4	3.7		2.95
12	(250)	13.5	220	---	111	(3.5)	3.6		2.90
13	(240)	13.4	230	---	111	(3.4)			2.85
14	(240)	13.0	230	---	111	3.2			2.85
15	---	12.9	230	---	115	(2.8)			2.80
16	230	12.5	230	---	125	2.3			2.85
17	230	11.5	220	---	123	---	---		2.90
18	230	10.2							2.90
19	230	9.2							(3.6)
20	230	8.0							2.90
21	240	6.9							(3.0)
22	<260	6.3							(2.6)
23	260	6.0							(3.1)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Time	Maui, Hawaii (20.8°N, 156.5°W)							December 1956	
	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	230	7.8							2.90
01	240	7.3							2.95
02	230	6.4							3.05
03	230	5.3							3.0
04	230	4.2							2.75
05	280	3.7							2.60
06	290	4.0							2.60
07	290	7.0							2.90
08	250	11.3	---	---	119	2.7			3.10
09	270	13.6	245	---	111	3.3			3.10
10	260	14.2	240	---	111	3.6			3.00
11	(270)	13.4	230	---	10				

Table 7

Puerto Rico, W. I. (18.5°N, 67.2°W)							December 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	6.6			(3.6)		2.90	
01	250	5.7			(2.8)		2.95	
02	240	5.2			3.0		2.90	
03	260	4.6			3.0		2.80	
04	300	4.5			2.9		2.50	
05	280	4.6			(2.7)		2.65	
06	270	5.0			(3.2)		2.80	
07	260	7.6			(3.2)		3.00	
08	240	11.4	---	---	<1.7		3.00	
09	240	13.2	240	---	115	2.7	3.10	
10	(240)	13.3	230	---	109	3.7	2.95	
11	(240)	12.6	230	---	109	3.9	2.90	
12	---	11.7	225	7.5	109	4.0	2.70	
13	---	11.5	230	7.4	109	4.0	2.65	
14	---	11.3	230	6.7	111	3.8	2.60	
15	---	11.1	230	6.7	115	3.6	2.60	
16	(250)	10.9	240	---	117	3.3	4.2	
17	250	10.9	250	---	(119)	2.6	4.0	2.65
18	250	10.4					4.0	2.75
19	240	9.2					3.7	2.70
20	260	8.9					2.9	2.70
21	260	8.6					2.9	2.60
22	250	8.2					(2.6)	2.85
23	240	7.2					(3.1)	2.95

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Thule, Greenland (76.6°N, 68.7°W)							November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00							(2.75)	
01							(2.60)	
02							(2.50)	
03							(2.55)	
04							(2.50)	
05							(2.60)	
06							(2.60)	
07							(2.65)	
08							(2.70)	
09							(2.70)	
10							(2.80)	
11							(2.80)	
12							(2.80)	
13							(2.70)	
14							(2.75)	
15							(2.55)	
16							(2.55)	
17							(2.55)	
18							(2.60)	
19							(2.55)	
20							(2.60)	
21							(2.55)	
22							(2.60)	
23							(2.70)	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Fairbanks, Alaska (64.9°N, 147.8°W)							November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00							4.5	(2.80)
01							5.0	(2.75)
02							5.6	(2.70)
03							5.9	(2.60)
04							5.7	(2.65)
05							4.8	(2.70)
06							5.5	(2.80)
07							3.8	(2.75)
08							(3.00)	
09							3.00	
10							105	2.5
11							103	3.00
12							2.6	3.00
13							2.95	
14							(119)	2.3
15							2.95	
16							2.95	
17							3.00	
18							(3.00)	
19							3.5	(3.00)
20							2.8	(3.10)
21							3.0	(3.10)
22							5.2	(3.10)
23							6.0	(2.80)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Panama Canal Zone (9.4°N, 79.9°W)							December 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220		10.0					2.2
01	200		7.5					(2.4)
02	210		5.8					3.0
03	250		5.0					3.6
04	290		4.8					2.65
05	290		5.0					5.4
06	280		7.0					4.5
07	260		10.9					4.2
08	250		13.5	240	---	125	2.5	3.00
09	250		14.0	235	---	107	3.6	2.90
10	(290)		13.9	230	---	107	4.0	2.85
11	---		13.0	230	---	105	4.1	2.70
12	380		12.9	220	7.2	105	4.2	2.60
13	400		12.4	220	7.0	105	4.1	2.55
14	410		12.3	220	6.9	105	4.0	2.50
15	<380		12.0	230	6.6	106	3.8	2.45
16	---		11.8	240	---	109	3.4	2.50
17	(260)		11.5	250	---	119	2.8	2.55
18	270		11.4	---	---	---	4.2	2.70
19	240		10.5				3.5	2.80
20	240		9.5				3.4	2.75
21	250		9.7				3.0	2.75
22	240		10.6				3.0	2.95
23	230		10.6				2.7	3.00

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Point Barrow, Alaska (71.3°N, 156.8°W)							November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00							(4.4)	3.7
01							(4.4)	5.1
02							(4.4)	3.2
03							(4.2)	4.0
04							(4.2)	3.1
05							(4.2)	2.7
06							4.8	3.1
07							(4.6)	3.5
08							(5.6)	4.0
09							6.5	3.2
10							7.4	3.00
11							7.6	3.00
12							8.2	3.00
13							9.4	3.00
14							10.4	3.00
15							10.6	3.00
16							9.8	3.00
17							(8.4)	3.00
18							(6.5)	2.90
19							(4.8)	2.0
20							(4.4)	2.2
21							(4.5)	4.2
22							(4.4)	4.0
23							4.8	4.2

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Adak, Alaska (51.9°N, 176.6°W)							November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340		3.7					2.50
01	340		3.6					2.50
02	350		3.6					2.45
03	360		3.4					2.45
04	340		3.5					2.40
05	<340		3.2					2.40
06	<300		3.4					2.60
07	260		5.6				2.9	2.90
08	240		9.0	---	---	119	2.4	3.10
09	230		12.0	---	---	120	2.7	3.10
10	230		13.8	235	---	117	(3.0)	3.05
11	230		14.4	230	---	119	3.2	3.00
12	230		14.5	230	---	119	(3.1)	2.95
13	230		14.0	235	---	119	(3.0)	2.90
14	230		13.8	230	---	121	(2.7)	2.95
15	230		13.1	---	---	118	2.3	2.90
16	220		12.0	---	---	---	---	2.95
17	220		9.7					2.95
18	220		7.8					3.00
19	230		5.7					3.05
20	240		4.0					3.00
21	260		3.9					2.75
22	300		3.4					2.65
23	<320		3.4					2.60

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 13

White Sands, New Mexico (32.3°N, 106.5°W)								November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	270	4.8				3.1		2.70	
01	270	4.8				2.8		2.70	
02	280	4.6				2.3		2.65	
03	260	4.6				3.8		2.60	
04	290	4.2				3.0		2.55	
05	<300	4.2				2.9		2.55	
06	270	4.8				3.0		2.70	
07	240	8.0	---	---	---	2.2	2.2	3.10	
08	230	11.2	230	---	111	(3.0)		3.15	
09	(230)	13.2	230	---	109	3.3	3.4	3.05	
10	(240)	13.6	225	---	(109)	3.6		2.95	
11	(280)	13.7	225	---	(111)	(3.7)	3.7	2.85	
12	(300)	13.6	225	---	(111)	(3.8)	3.8	2.75	
13	(320)	13.7	230	---	111	(3.7)	3.8	2.70	
14	(310)	13.5	230	---	111	(3.6)	4.0	2.70	
15	(320)	13.0	235	---	111	(3.3)	3.5	2.70	
16	(240)	13.0	235	---	115	(2.7)	2.9	2.75	
17	240	12.4	---	---			3.0	2.80	
18	230	10.9				3.3		2.80	
19	230	9.6				3.0		2.90	
20	230	7.9				2.7		2.95	
21	230	6.5				2.7		2.85	
22	250	5.6				3.1		2.85	
23	(270)	4.9				2.4		2.70	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15

Puerto Rico, W. I. (18.5°N, 67.2°W)								November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	240	7.8				(3.5)		2.95	
01	240	6.8				(3.0)		3.00	
02	240	5.8				(2.8)		2.80	
03	250	5.0				(3.0)		2.80	
04	300	4.8				(2.8)		2.50	
05	280	4.8				(2.5)		2.60	
06	270	5.0				(2.6)		2.80	
07	250	8.8	---	---	<1.9			3.10	
08	240	12.0	---	---	117	3.0		3.10	
09	240	13.4	240	---	115	<3.5	2.7	3.05	
10	240	13.9	230	---	114	3.8		3.00	
11	---	13.4	230	---	111	3.9	3.2	2.85	
12	---	13.1	230	---	110	4.0	3.2	2.75	
13	---	12.9	230	---	111	3.9	4.4	2.65	
14	---	12.3	230	7.4	113	3.8	3.9	2.60	
15	---	12.0	235	---	114	3.6	4.0	2.60	
16	---	12.0	240	---	117	3.2	3.7	2.60	
17	250	11.9	250	---	119	2.5	3.2	2.70	
18	250	11.3				3.3		2.80	
19	250	10.2				3.4		2.80	
20	260	9.6				3.2		2.75	
21	270	9.2				3.1		2.80	
22	260	9.0				(2.8)		2.80	
23	250	8.6				(3.0)		2.90	

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Point Barrow, Alaska (71.3°N, 156.8°W)								October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00		4.6				6.1		(2.75)	
01	(4.4)					5.2		(2.80)	
02	(5.2)					4.5		(2.70)	
03	(3.9)					3.8		---	
04	(4.2)					2.9		---	
05	(4.4)					2.8		(2.50)	
06	(4.3)					3.0		(2.60)	
07	(4.7)		---	---	---	3.3		(2.70)	
08	5.1		---	---	---	3.2		(2.85)	
09	6.8		---	---	122	2.0	3.0		
10	7.1		---	---	117	2.3	2.4		
11	7.8		---	---	115	2.4		3.00	
12	8.2		---	---	119	2.5		3.00	
13	8.6		---	---	117	2.4		2.95	
14	9.5		---	---	117	2.3		2.95	
15	10.0		120	2.1			3.00		
16	9.7		129	1.9			3.00		
17	9.4		---	---	2.0		3.00		
18	7.9		---	---			3.00		
19	6.3				2.4		2.90		
20	4.3				3.5		2.80		
21	(4.2)				3.5		(2.80)		
22	(4.2)				4.3		(2.80)		
23	(4.4)				5.0		(2.70)		

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Okinawa I. (26.3°N, 127.0°E)								November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	240	10.3							2.00
01	250	9.4							2.05
02	240	8.0							2.95
03	240	7.2							2.90
04	240	6.4							2.90
05	250	5.2							2.50
06	300	5.4							2.60
07	270	9.4							3.00
08	250	12.6	250	---	115	(2.8)	4.4		3.10
09	(240)	14.6	245	---	111	(3.4)	4.7		3.00
10	---	15.0	240	---	111	(3.6)	5.2		2.90
11	---	14.9	235	---	111	(3.0)	5.6		2.75
12	---	15.3	235	---	111	(3.9)	5.2		2.65
13	380	15.7	235	---	111	(3.9)	5.2		2.60
14	---	15.0	240	---	111	(3.0)	5.0		2.55
15	---	16.2	245	---	111	(3.5)	5.0		2.60
16	---	16.2	250	---	113	(3.1)	5.0		2.60
17	250	14.9	255	---	129	---	4.2		2.65
18	260	14.8							3.1
19	260	15.0							2.65
20	260	16.8							2.75
21	230	16.7							2.80
22	230	13.4							2.85
23	240	11.5							2.80

Time: 135.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 16

Thule, Greenland (76.6°N, 68.7°W)								October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00					(5.9)				(2.60)
01					(5.8)				(2.75)
02					(5.4)				(2.65)
03					(5.2)				(2.65)
04					(5.9)				(2.75)
05					(5.0)				(2.60)
06					(5.5)				(2.80)
07					(5.7)				(2.80)
08					6.8				(2.85)
09					(6.8)				(2.85)
10					7.6				2.80
11					(7.2)				(2.90)
12					(7.6)				(2.75)
13					7.6				(2.70)
14					(7.9)				(2.80)
15					(7.8)				(2.70)
16					7.4				2.75
17					(7.4)				2.70
18					(7.4)				2.60
19					7.2				2.70
20					(6.4)				2.70
21					(6.6)				(2.65)
22					(6.4)				(2.80)
23					(5.8)				(2.70)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 18

Baguio, P. I. (16.4°N, 120.6°E)								October 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	230	13.5							3.20
01	220	12.6							3.20
02	210	11.2							3.30
03	210	7.8							3.05
04	230	6.4							3.00
05	240	5.8							2.90
06	270	7.5							2.90
07	240	10.7			111	(2.7)	3.5		

Table 19

De Bilt, Holland (52.1°N, 5.2°E)							September 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.5					2.6	
01	310	5.2					2.5	
02	315	4.8					2.5	
03	315	4.6					2.5	
04	305	4.4					2.5	
05	270	4.9					2.8	
06	250	6.0	240	---	120	2.1	3.0	3.0
07	230	7.4	230	4.3	110	2.8	3.3	3.0
08	250	8.3	220	4.7	105	3.2	3.5	3.0
09	250	8.6	215	5.2	100	3.5	3.9	2.9
10	270	9.4	220	5.0	100	3.6	4.0	2.9
11	300	9.6	220	5.6	100	3.8	3.9	2.9
12	320	10.0	220	6.0	100	3.8	3.8	2.85
13	300	9.4	220	5.5	100	3.7	3.8	2.8
14	275	9.7	220	5.4	100	3.5	3.5	2.8
15	240	9.6	230	4.9	105	3.2	3.5	2.9
16	240	9.5	230	4.3	110	2.9	3.3	2.9
17	250	9.6	---	---	115	2.3	3.2	2.9
18	240	9.4					3.2	3.0
19	240	8.7					3.2	2.9
20	240	7.4					2.8	2.8
21	270	6.6					2.8	
22	280	6.0					2.7	
23	300	5.8					2.6	

Time: 0.0°.

Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 21

Point Barrow, Alaska (71.3°N, 156.8°W)							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(5.3)					3.8	(2.90)
01		(5.0)					4.0	---
02		(5.7)					4.3	---
03		(5.5)					3.9	---
04		(5.3)					3.5	---
05		(5.5)					3.2	(2.80)
06		(6.5)					115 (2.2)	(2.80)
07		(5.4)					114 (2.5)	4.0
08		(5.8)					111 (2.8)	4.0
09		5.8					109 3.2	3.5
10		(6.0)					107 3.3	(2.60)
11		5.9					106 3.4	2.55
12		5.9					107 3.4	2.55
13		5.9					111 (3.3)	2.55
14		5.9					111 3.2	2.50
15		6.3					111 3.2	2.60
16		6.2					111 3.0	2.70
17		6.2					111 2.9	2.75
18		6.2					111 (2.7)	2.70
19		6.2					114 (2.3)	2.9
20		5.8					117 (2.2)	3.5
21		(5.2)					3.0	(2.95)
22		(5.0)					4.2	(2.90)
23		(5.0)					3.8	

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Godhavn, Greenland (69.2°N, 53.5°W)							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(5.6)						(2.65)
01		(4.9)						---
02		(5.0)						(2.80)
03		(4.7)						---
04		(4.9)						---
05		(5.1)						---
06		(5.4)						---
07		(6.0)						---
08		(6.2)						---
09		(6.6)						---
10		(6.8)						---
11		(6.8)						---
12		(6.8)						---
13		(6.5)						---
14		(6.5)						---
15		(6.3)						---
16		(6.1)						---
17		6.2						---
18		6.3						---
19		(6.2)						---
20		(5.8)						---
21		(5.6)						---
22		(5.9)						---
23		(5.6)						---

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 20

Huancayo, Peru (12.0°S, 75.3°W)							September 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	9.0						3.00
01	230	8.7						3.00
02	230	8.0						3.00
03	230	7.4						3.10
04	240	6.0						3.10
05	240	5.0						3.15
06	270	6.8						2.95
07	240	10.5						3.00
08	---	12.5	225		---		3.3	9.6
09	---	13.4	215		---		12.6	2.50
10	---	13.5	205		---		13.2	2.30
11	---	12.0	200		---		13.5	2.20
12	---	11.8	200		---		13.7	2.20
13	---	11.6	200		---		13.4	2.15
14	---	11.5	200		---		13.0	2.15
15	---	11.4	210		---		12.0	2.15
16	230	11.3	225		---		10.1	2.20
17	260	10.9					8.2	2.25
18	300	10.2					2.6	2.20
19	420	9.3						2.10
20	420	9.0						2.20
21	300	9.1						2.50
22	260	9.7						2.75
23	230	9.2						2.95

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 22

Tromso, Norway (69.7°N, 19.0°E)							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(310)	5.60						3.2 (2.50)
01	(290)	5.50						3.6 (2.55)
02	(300)	5.80						3.8 (2.55)
03	(295)	5.80						4.0 (2.60)
04	(295)	5.85						4.0 (2.70)
05	(355)	6.10						2.75
06	(405)	6.05	245	4.20	100	2.60	2.8	(2.70)
07	(440)	6.25	245	4.50	100	2.90	3.0	2.70
08	390	6.50	240	4.75	100	3.00	3.2	2.70
09	395	6.75	245	4.90	100	3.10	3.4	2.70
10	350	6.80	220	4.90	100	3.20	3.6	2.70
11	350	7.0	210	5.0	100	3.1	4.1	2.7
12	385	7.0	210	5.0	100	3.1	4.9	2.7
13	(390)	7.2	210	5.0	100	3.0	4.0	2.7
14	(420)	7.0	215	5.0	100	3.0	4.0	2.7
15	(395)	6.8	220	4.9	105	3.0	3.9	2.8
16	(350)	6.6	230	4.6	100	2.9	4.0	2.8
17	---	6.8	240	4.3	100	2.7	4.0	2.85
18	---	6.5	245	---	105	2.4	4.0	2.9
19	270	6.4	250	---	105	1.7	3.5	2.9
20	265	6.4	---		---		E 3.2	2.8
21	275	6.1	---		---		E 4.0	2.8
22	300	(6.0)	---		---		4.5	2.7
23	300	5.8	---		---		4.8	2.7

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 25

De Bilt, Holland (52.1°N, 5.2°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	290	6.2						2.7	
01	300	5.9						2.7	
02	300	5.7						2.6	
03	295	5.2						2.6	
04	290	5.0			---	---	2.2	2.8	
05	250	5.7	240	---	110	2.1	3.2	3.0	
06	245	6.4	220	---	100	2.6	4.1	3.0	
07	(280)	7.3	220	4.6	100	3.0	4.7	3.0	
08	325	7.5	210	5.2	100	3.3	4.1	2.9	
09	335	7.7	205	5.3	100	3.5	4.2	2.85	
10	310	7.5	200	5.4	100	3.6	4.8	2.9	
11	350	8.0	200	5.5	100	3.7	4.4	2.8	
12	360	7.8	200	5.6	100	3.7	5.0	2.9	
13	350	7.9	210	5.5	100	3.8	4.1	2.8	
14	350	7.8	210	5.3	100	3.7	3.8	2.8	
15	(350)	8.0	210	5.3	100	3.5	3.8	2.8	
16	(340)	8.0	220	5.1	100	3.3	4.0	2.9	
17	(260)	8.2	225	---	100	2.8	4.0	2.9	
18	250	8.5	---	---	100	2.3	3.9	2.9	
19	250	8.2					3.8	2.9	
20	240	7.8					3.6	2.9	
21	250	7.2					3.4	2.8	
22	275	6.7					2.8	2.7	
23	285	6.4						2.6	

Time: 0.0°.

Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 27

Monte Capellino, Italy (44.6°N, 9.0°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00		6.7							
01		6.2							
02		6.2							
03		6.0							
04		5.5							
05		5.6							
06		6.7							
07		7.5							
08		8.9							
09		8.5							
10		9.4							
11		9.3							
12		9.4							
13		9.3							
14		9.2							
15		9.1							
16		9.0							
17		8.8							
18		9.2							
19		9.3			E				
20		8.8							
21		7.6							
22		6.9							
23		6.8							

Time: Local.

Table 29

Tokyo, Japan (35.7°N, 139.5°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	300	7.7					3.0	2.7	
01	310	7.5					3.6	2.7	
02	300	7.2					3.0	2.7	
03	290	6.9					3.0	2.7	
04	280	6.5					2.4	2.7	
05	280	6.8	---	---	---	---	2.4	2.7	
06	260	8.0	250	---	120	2.4	3.4	2.9	
07	260	9.0	240	4.9	120	3.0	3.8	3.0	
08	280	9.0	240	5.0	110	3.4	5.2	3.0	
09	300	9.0	220	5.5	110	3.7	5.8	2.8	
10	310	9.2	220	5.6	110	3.8	6.3	2.7	
11	330	9.5	240	5.7	110	3.8	5.7	2.7	
12	350	10.0	230	5.6	110	3.8	5.7	2.7	
13	350	10.2	240	5.8	110	3.9	5.3	2.7	
14	350	10.3	230	5.5	110	3.8	5.7	2.7	
15	330	10.1	250	5.5	110	3.7	5.2	2.0	
16	320	9.6	250	5.0	120	3.4	5.7	2.8	
17	300	9.9	260	---	120	2.8	5.0	2.8	
18	280	9.6	260	---	---	1.9	4.4	2.9	
19	260	9.0					3.6	2.9	
20	280	8.2					3.9	2.7	
21	300	8.3					3.4	2.6	
22	300	8.1					3.6	2.6	
23	310	8.0					3.8	2.65	

Time: 135.0°E.

Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 26

Wakkanai, Japan (45.4°N, 141.7°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	300	7.0							3.0
01	280	6.8							2.3
02	280	6.5							2.2
03	280	6.4							2.2
04	280	6.1							2.2
05	280	6.4							
06	280	7.3							
07	280	7.8							4.6
08	290	8.1							5.8
09	300	8.2							5.5
10	320	8.0							5.0
11	320	8.3							
12	350	8.5							
13	340	8.3							
14	320	8.5							
15	310	8.2							
16	300	8.3							
17	280	8.3							4.1
18	260	8.3							3.5
19	260	8.0							
20	270	7.9							
21	280	7.6							
22	290	7.3							4.0
23	280	7.3							3.2

Time: 135.0°E.

Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 28

Akita, Japan (39.7°N, 140.1°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	300	7.4							3.5
01	300	6.9							3.1
02	290	6.7							3.2
03	280	6.6							3.1
04	290	6.3							3.1
05	280	6.5							3.2
06	260	8.0							3.5
07	270	8.6							4.1
08	280	8.7							5.2
09	310	8.6							5.4
10	330	8.9							5.6
11	350	9.0							4.9
12	350	9.1							4.5
13	350	9.0							4.4
14	340	9.4							4.3
15	340	9.2							4.3
16	310	9.0							4.3
17	290	8.9							4.4
18	280	9.0							4.0
19	260	8.5							3.5
20	280	8.0							4.2
21	300	8.0							4.2
22	300	7.7							4.0
23	300	7.5							3.5

Time: 135.0°E.

Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 30

Yamagawa, Japan (31.2°N, 130.6°E)								August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	290	7.9							3.2
01	290	8.0							3.1
02	280	7.8							3.0
03	250	7.4							2.4
04	260	7.2							2.3
05	260	6.8							2.3
06	250	7.6							2.3
07	240	8.7							4.6
08	250	9.0							5.7
09	260	9.0							5.9
10	290	9.2							5.9
11	320	10.0							5.9
12	340	10.6							5.9
13	340	11.1							

Table 31							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	11.7					3.00	
01	240	11.0					3.15	
02	230	10.3					3.20	
03	220	8.8					3.20	
04	220	7.4				1.3	3.15	
05	220	6.0				2.0	3.15	
06	250	7.0	---	---		3.0	3.10	
07	230	8.7	---	---	101	(2.8)	5.1	3.10
08	220	9.3	---	---	108	(3.3)	6.8	2.75
09	---	10.1	210	---	109	(3.7)	6.4	2.50
10	---	10.8	210	---	107	3.9	5.7	2.30
11	---	11.4	210	---	107	4.0	5.9	2.30
12	---	11.5	205	---	107	(4.1)	5.4	2.20
13	---	11.6	210	---	107	4.0	5.2	2.20
14	(430)	11.7	210	---	108	4.0	4.7	2.25
15	(400)	11.8	210	---	107	3.8	5.2	2.30
16	(240)	12.0	220	---	107	3.3	4.8	2.40
17	240	11.9	---	---	109	(2.7)	4.2	2.45
18	270	11.7	---	---		4.2	2.45	
19	320	11.2					2.40	
20	350	10.4					2.2	2.35
21	300	10.4					2.0	2.55
22	290	11.2					2.70	
23	280	11.5					2.85	

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 32							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220		10.3					3.00
01	230		9.6					3.10
02	230		8.8					3.15
03	240		7.8					3.15
04	240		6.2					3.15
05	230		4.9					3.20
06	250		4.0					3.20
07	260		6.6					3.20
08	240		8.4	235	---	129	2.1	3.00
09	---		9.4	225	---	115	3.0	2.80
10	---		10.0	215	---	113	3.4	2.50
11	---		10.3	210	---	111	4.0	2.35
12	---		10.7	205	---	111	4.0	2.20
13	---		11.0	200	---	111	4.0	2.15
14	---		11.0	205	---	111	3.9	2.20
15	---		11.0	205	---	111	3.7	2.10
16	---		10.9	215	---	111	3.4	2.20
17	240		11.0	235	---	115	2.9	3.1
18	270		10.7					2.30
19	340		(10.3)					2.5
20	400		10.2					2.30
21	310		10.2					2.50
22	260		(10.3)					2.70
23	230		10.8					2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 33							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<260	3.3					2.8	
01	---	3.3					2.8	
02	<260	3.4					2.9	
03	240	3.3					3.0	
04	---	3.2					2.8	
05	---	3.1					2.8	
06	250	3.3					2.9	
07	230	7.1	130		2.2		3.3	
08	230	9.1	230	---	110	2.8	3.3	
09	250	9.9	220	4.4	110	3.3	3.2	
10	260	11.0	220	5.0	110	3.6	3.1	
11	260	11.4	210	5.0	110	3.8	3.0	
12	260	11.4	210	5.0	110	3.9	2.9	
13	270	11.1	200	4.9	110	3.8	4.2	2.9
14	260	11.0	220	5.0	110	3.7	4.2	2.8
15	260	10.9	220	---	110	3.5	4.2	2.8
16	250	10.8	230	---	120	3.1	3.7	2.8
17	250	11.0	240	---	120	2.4	2.8	2.9
18	230	10.6	---	---		2.2	3.1	
19	220	8.6					3.1	
20	230	6.5					3.1	
21	230	5.1					3.2	
22	240	3.8					3.1	
23	<250	3.4					2.9	

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 34							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(260)		3.0					2.8
01	---		3.0					2.7
02	---		3.1					2.8
03	<260		3.2					2.9
04	<270		3.1					2.9
05	(250)		3.1					2.8
06	250		3.0					2.9
07	250		3.8					2.9
08	230		7.3	---	---	130	2.3	3.3
09	250		8.7	240	---	120	2.9	3.2
10	250		9.6	230	---	110	3.2	3.1
11	260		10.9	230	---	110	3.5	3.0
12	260		(11.4)	220	---	110	3.6	(2.9)
13	260		(11.8)	220	---	110	3.7	(2.8)
14	260		(11.9)	220	---	120	3.6	3.9
15	260		11.5	230	---	120	3.5	3.8
16	250		(11.8)	240	---	120	3.2	3.3
17	250		11.4	240	---	120	2.7	3.2
18	240		10.9	---	---	120	2.1	3.0
19	220		9.6					3.05
20	220		6.6					3.1
21	230		4.5					1.6
22	<240		3.3					3.2
23	250		2.9					2.9

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 35							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.5					2.9	
01	260	7.1					3.0	
02	240	6.7					3.0	
03	220	6.4					3.2	
04	200	5.1					3.2	
05	240	4.0					3.0	
06	250	4.2					3.0	
07	210	7.5					3.4	
08	210	9.4	---	---			3.4	
09	220	9.7	200	---			3.3	
10	250	10.4	210	---	---		3.2	
11	250	11.1	210	---			3.2	
12	260	11.2	210	---			3.1	
13	270	11.0	210	---			3.0	
14	260	11.2	210	---			3.1	
15	240	11.1	210	---			3.1	
16	220	11.0	220	---			3.1	
17	210	10.9					3.3	
18	200	10.1					3.3	
19	210	10.1					3.15	
20	210	9.0					3.2	
21	210	9.3					3.1	
22	220	8.7					3.1	
23	240	8.0					3.0	

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 36							August 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290		5.2					2.6
01	280		5.0					2.7
02	280		4.9					2.8
03	270		4.5					2.7
04	260		4.4					2.85
05	260		4.0					2.8
06	250		3.9					2.9
07	250		5.8					3.1
08	240		8.0	---	---			3.3
09	240		9.3	230	---			3.3
10	240		9.8	220	---			3.2
11	250		10.3	230	---			3.1
12	250		10.6	220	---			3.5
13	250		10.4	230	4.5	---		3.0
14	250		10.0	220	---			3.0
15	250		9.5	230	---			3.1
16	240		9.1	---	---			3.1
17	240		8.6	---	---			3.0
18	240		8.0					2.9
19	250		7.3					2.9
20	250		6.6					2.9
21	270		6.0					2.7
22	280		5.8					2.8
23	280		5.4					2.7

Table 37

Deception I. (63.0°S, 60.7°W)						August 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	390	3.0			10.0	2.9		
01	390	3.2				2.9		
02	390	3.0			10.0	2.85		
03	380	2.8				2.9		
04	400	2.8				2.9		
05	360	2.8				3.0		
06	330	2.9				3.1		
07	310	2.9			10.0	3.3		
08	260	3.8				6.2	3.5	
09	220	6.0					3.6	
10	220	7.5			3.7	3.8		
11	220	8.0			3.7	3.8		
12	220	8.2			3.6	3.8		
13	220	9.0			5.2	3.8		
14	220	8.6			5.4	3.8		
15	220	8.8			4.6	3.8		
16	230	7.9			10.0	3.8		
17	220	7.0			4.6	3.7		
18	220	6.6			10.0	3.7		
19	220	4.4			10.0	3.7		
20	250	3.9			10.0	3.5		
21	300	3.6					3.3	
22	320	3.6			3.5	3.1		
23	350	3.2				3.0		

Time: 60.0°W.

Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 39

Point Barrow, Alaska (71.3°N, 156.8°W)						July 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(5.4)		---	(115)	(2.0)	5.0	(2.90)	
01	(4.8)		---	(2.0)	4.2	---		
02	(5.0)		---	---	5.0	(2.85)		
03	(5.2)		---	---	(2.2)	4.0	(2.65)	
04	(5.2)		(3.6)	120	2.2	3.9	---	
05	(5.6)		(3.8)	113	(2.4)	4.0	---	
06	(5.7)		(4.0)	109	2.7	3.3	(2.55)	
07	(5.4)		(4.1)	109	3.0	3.7	(2.50)	
08	(5.7)		>4.3	109	3.2	3.8	(2.50)	
09	4.8		4.6	107	3.2	4.1	2.45	
10	(5.4)		4.7	109	3.4	3.7	2.40	
11	(5.3)		4.7	109	(3.4)	2.45		
12	(5.6)		4.8	109	(3.4)	2.40		
13	5.8		4.8	107	3.5	2.45		
14	(5.9)		4.7	109	3.4	(2.55)		
15	6.0		4.7	109	3.3	2.60		
16	6.0		(4.6)	109	3.2	2.60		
17	5.8		4.4	109	3.0	(2.60)		
18	(5.8)		(4.2)	111	2.9	(2.75)		
19	5.6		(4.0)	111	(2.7)	2.80		
20	5.5		(3.9)	115	(2.5)	3.2	2.90	
21	(5.5)		---	117	2.4	3.3	(2.90)	
22	(5.4)		---	119	(2.5)	4.2	(2.90)	
23	(5.2)			(127)	(2.4)	4.3	(2.85)	

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Churchill, Canada (58.8°N, 94.2°W)						July 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	5.0				6.0	---		
01	5.0		---	---	6.0	---		
02	5.0		---	---	6.0			
03	4.8		---	---	5.2	---		
04	4.9		---	110	2.4	4.6	---	
05	4.9		3.6	110	2.6	4.5	---	
06	5.0		4.2	105	3.2	5.0	G	
07	5.4		4.5	100	3.4	4.7	2.65	
08	5.5		4.7	100	3.5	4.9	2.55	
09	6.0		4.8	100	3.5	4.8	2.7	
10	6.0		5.0	100	3.6	4.2	2.6	
11	6.1		5.0	100	3.7	2.7		
12	6.1		5.0	100	3.8	2.6		
13	6.2		5.0	100	3.7	2.6		
14	6.4		5.0	100	3.6	2.7		
15	6.5		4.9	100	3.5	2.8		
16	6.6		4.8	105	3.4	2.7		
17	6.5		4.7	105	3.2	2.7		
18	6.3		4.5	110	3.0	2.7		
19	6.0		4.0	110	2.9	4.2	2.9	
20	6.0		---	115	2.9	4.5	2.8	
21	5.4		---	110	2.5	6.0	(2.85)	
22	5.2		---	---	8.0	---		
23	5.0		---	---	9.6	---		

Time: 90.0°W.

Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 38

Resolute Bay, Canada (74.7°N, 94.9°W)						July 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00					5.2	3.3	105	2.2
01					5.6	3.3	105	2.2
02					5.4	3.4	110	2.2
03					5.3	3.5	105	2.3
04					5.3	3.8	105	2.9
05					5.2	4.0	105	2.8
06					5.1	4.0	100	2.9
07					5.2	4.2	100	2.9
08					5.1	4.3	100	3.0
09					5.2	4.3	100	3.2
10					5.3	4.4	100	3.2
11					5.2	4.5	100	3.3
12					5.3	4.5	100	3.3
13					5.3	4.6	100	3.3
14					5.2	4.6	100	3.3
15					5.3	4.5	100	3.2
16					5.6	4.5	100	3.2
17					5.3	4.3	100	3.0
18					5.6	4.2	100	3.0
19					5.4	4.0	105	2.8
20					5.5	4.0	105	2.7
21					5.3	3.8	105	2.5
22					5.5	3.6	110	2.3
23					5.3	3.4	110	2.2

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 40

Baker Lake, Canada (64.3°N, 96.0°W)						July 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00					5.2	1.4	1.6	2.8
01					5.0	(1.3)	1.7	2.8
02					4.9	(1.5)	<2.0	2.8
03					4.9	1.0	1.9	2.9
04					5.0	3.4	2.0	2.8
05					5.0	3.8	2.3	2.9
06					5.1	4.0	2.5	2.6
07					5.2	4.3	3.0	(2.6)
08					5.2	4.5	3.2	2.65
09					5.3	4.6	3.5	2.4
10					5.4	4.8	3.6	(2.55)
11					5.4	4.8	3.7	2.4
12					5.9	4.8	3.8	2.6
13					6.2	4.9	3.8	2.6
14					6.2	4.8	3.7	2.6
15					6.5	4.8	3.5	2.6
16					6.2	4.8	3.4	2.7
17					6.0	4.6	3.2	2.7
18					6.0	4.5	3.0	2.7
19					6.0	4.2	2.7	2.8
20					5.9	(3.8)	2.4	2.9
21					5.6	---	2.0	2.8
22					5.6	---	1.8	2.9
23					5.4	115	1.4	5.0

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16 seconds.

Table 42

Winnipeg, Canada (49.9°N, 97.4°W)						July 1956		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00					4.3	---	<1.9	(2.80)
01					4.2	---	2.8	(2.70)
02					3.9	---	3.0	(2.70)
03					3.8	---	2.9	---
04					3.8	---	3.0	(2.70)
05					4.4	---	2.7	---
06					5.0	3.7	2.5	2.60
07					5.2	4.2	1.0	2.70
08					5.4	4.5	1.0	2.60
09					5.5	4.8	1.0	2.50
10					5.8	4.9	1.0	2.50
11					6.0	4.9	1.0	2.50
12					6.0	5.0	1.0	2.50
13					6.0	5.0	1.0	2.50
14					6.0	5.0	1.0	2.50
15					6.2	4.9	1.0	2.50
16					6.0	4.9	1.0	2.60
17					6.3	4.7	1.0	2.65
18					6.3	4.3	1.0	2.60
19					6.4	120	2.5	2.80
20					6.7	130	2.0	2.80
21					6.3	---	&	

Table 43

Ottawa, Canada (45.4°N, 75.9°W)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	5.2					2.8	2.7	
01	4.8					3.0	2.8	
02	4.0					3.0	2.7	
03	3.7					2.7	2.6	
04	3.7					<1.6	2.6	
05	4.3	---	120	2.0			2.9	
06	5.0	3.9	110	2.7			2.9	
07	5.5	4.4	105	3.0			2.9	
08	5.8	4.8	105	3.4			2.8	
09	6.0	5.0	105	3.6			2.75	
10	6.2	5.0	105	3.9			2.65	
11	6.2	5.1	105	4.0			2.7	
12	6.2	5.1	105	4.0			2.7	
13	6.6	5.1	105	4.0			2.7	
14	6.6	5.0	105	3.9			2.7	
15	6.7	5.0	105	3.8			2.7	
16	6.8	4.9	105	3.6			2.7	
17	6.9	4.7	105	3.1			2.8	
18	6.9	4.1	110	2.8			2.8	
19	7.0	3.2	115	2.1	<3.0		2.9	
20	7.0	---	1.6	<1.7			2.9	
21	7.0				<1.6		2.9	
22	6.4				<1.6		2.8	
23	5.8				<1.7		2.8	

Time: 75.0°W.

Sweep: 1.0 Mc to 15.0 Mc in 15 seconds.

Table 45

Leopoldville, Belgian Congo (4.4°S, 15.2°E)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	210	9.0				2.5	2.9	
01	220	6.6				2.7	2.7	
02	230	6.0				2.6	2.7	
03	240	5.0				2.3	2.7	
04	235	3.7				2.6	2.8	
05	260	5.0	---	---		2.4	2.7	
06	255	8.7	240	---	110	2.5	3.0	
07	265	10.7	235	---	110	3.1	4.0	2.9
08	275	11.0	220	---	105	3.6	4.5	2.8
09	280	11.0	215	---	105	3.8	4.6	2.7
10	300	11.0	210	5.0	105	4.0	4.5	2.6
11	340	11.5	210	---	105	3.9	4.4	2.5
12	340	11.8	250	5.2	105	3.8	4.5	2.4
13	365	12.6	250	5.5	105	3.7	4.5	2.4
14	350	13.0	250	---	105	3.5	4.2	2.4
15	320	13.1	230	---	105	3.1	3.8	2.4
16	290	13.5	240	---	110	2.5	3.5	2.5
17	250	>13.8				3.5	2.7	
18	240	>14.0				3.2	<2.8	
19	240	>13.5				3.0	<3.0	
20	210	>13.2				2.4	<2.9	
21	210	>13.2				2.2	2.8	
22	220	>13.2				2.8	2.9	
23	210	>11.2				2.5	2.9	

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 47

Rarotonga I. (21.3°S, 159.8°W)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.4				1.8	2.8	
01	270	5.5					2.9	
02	250	4.8					3.0	
03	250	4.1					3.1	
04	250	3.4					2.9	
05	300	3.1				1.7	2.7	
06	290	3.6					2.8	
07	260	7.0	---	---	---	1.9	3.2	
08	250	9.7	250	4.0	115	2.6	3.3	
09	260	11.4	240	5.0	110	3.1	4.5	3.2
10	250	11.6	240	5.0	110	3.5	3.3	
11	260	10.3	220	5.2	110	3.6	5.0	3.2
12	270	9.5	220	5.3	110	3.7	3.1	
13	280	10.0	220	5.4	110	3.7	5.2	3.0
14	300	10.1	240	5.3	110	3.5	4.0	3.0
15	300	10.5	250	5.2	110	3.4	4.7	3.0
16	270	10.1	240	4.6	115	3.0	4.2	3.0
17	260	(9.8)	---	---	120	2.2	3.5	(3.1)
18	250	(9.7)	---	---	---	3.0	(3.1)	
19	240	8.5				3.5	3.0	
20	250	7.5				2.4	3.0	
21	250	7.5				2.2	2.8	
22	250	6.8				2.0	2.9	
23	260	6.0				1.8	2.85	

Time: 157.5°W.

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

Table 44

Monte Capellino, Italy (44.6°N, 9.0°E)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00							7.2	
01							7.1	
02							6.8	
03							6.2	
04							5.8	
05							5.6	2.0
06							6.1	2.7
07							6.4	3.2
08							7.0	3.4
09							7.9	3.6
10							8.0	3.6
11							8.2	3.8
12							8.3	3.8
13							8.2	3.7
14							8.0	3.7
15							8.0	3.6
16							7.8	3.5
17							7.9	3.2
18							8.5	2.7
19							8.6	2.0
20							(7.8)	
21							7.0	
22							7.2	
23							7.1	

Time: Local.

Table 46

Elisabethville, Belgian Congo (11.6°S, 27.5°E)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.0						1.8
01	250	2.7						2.7
02	300	2.3						1.6
03	285	2.3						2.7
04	255	3.0	---	---	---			2.65
05	240	7.2	250	---	---			3.0
06	250	9.2	230	---	110	3.0		3.0
07	260	10.2	230	---	110	3.3		3.0
08	260	10.0	220	---	105	3.6		2.9
09	275	10.1	215	5.0	105	3.8		2.8
10	290	10.0	220	5.0	100	3.8		2.7
11	300	10.1	220	4.9	105	3.7		2.6
12	315	10.2	230	5.0	105	3.7	3.9	2.5
13	305	10.2	240	---	110	3.5	3.8	2.5
14	300	10.1	230	---	110	3.1	3.8	2.6
15	260	10.2	245	---	110	2.6	3.7	2.7
16	240	10.5						3.0
17	225	10.2						2.9
18	220	8.3						3.0
19	220	7.0						2.7
20	230	6.7						2.3
21	230	5.8						2.2
22	230	4.6						1.8
23	240	3.8						2.0

Time: 0.0°.

Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 48

Watheroo, W. Australia (30.3°S, 115.9°E)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.0						2.8
01	250	3.8						2.8
02	250	4.0						2.9
03	250	4.1						3.0
04	230	3.9						3.1
05	220	3.7						2.95
06	220	3.5						
07	240	4.7	---	---	---			3.2
08	220	7.7	---	---	---			3.5
09	230	9.0	220	4.0	4.0			3.5
10	240	10.0	210	4.4	4.4			3.5
11	240	9.6	200	4.7	4.7			3.7
12	250	9.6	200	4.7	4.7			3.3
13	250	9.7	200	4.8	4.8			3.3
14	250	9.7	200	4.6	4.6			3.1
15	250	9.6	220	4.4	4.4			3.1
16	230	9.6	220	3.7	3.7			3.2
17	220	9.2	---	---	---			2.4
18	210	7.3</						

Table 49

Deception I. (63.0°S, 60.7°W)							July 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	400	2.6			3.4	2.9		
01	390	2.7			3.2	2.9		
02	380	2.8			3.4	3.0		
03	390	2.7			3.0	3.0		
04	380	2.6			2.8	3.0		
05	360	2.6			2.8	3.0		
06	320	2.7			2.8	3.2		
07	330	2.8			3.4	3.4		
08	300	3.0			2.9	3.3		
09	250	3.9			3.4	3.7		
10	(220)	(5.3)			3.4	(3.8)		
11	(220)	(5.8)			3.4	(3.7)		
12	(220)	(6.1)			3.4	(3.7)		
13	(210)	(6.6)			3.4	(3.9)		
14	230	(7.1)			3.4	(3.9)		
15	(220)	(7.4)				(3.8)		
16	(220)	(6.4)			(3.2)	(3.8)		
17	(220)	(5.2)			3.2	(3.6)		
18	220	4.4			3.1	3.7		
19	250	3.4				3.7		
20	300	3.0				3.4		
21	340	2.6				3.2		
22	380	2.6				3.0		
23	390	2.6				2.9		

Time: 60.0°W.

Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 51

Sao Paulo, Brazil (23.5°S, 46.5°W)							June 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	7.0			<2.1	3.1		
01	240	6.3			<2.1	3.15		
02	240	5.7				3.2		
03	240	5.4				3.15		
04	<260	4.5				3.0		
05	260	4.0				2.9		
06	280	3.3				2.9		
07	250	7.0	---	---	<2.2	3.3		
08	240	8.6	240	---	<125	2.6		
09	270	10.4	230	---	120	3.0		
10	270	11.8	220	---	120	3.3		
11	280	11.9	210	4.5	120	3.5		
12	260	12.5	210	4.5	120	3.6		
13	260	13.0	210	4.4	120	3.5		
14	260	13.0	220	4.0	120	3.3		
15	280	13.6	240	(3.8)	120	3.0		
16	260	13.8	240	---	<130	2.6	2.8	3.0
17	240	13.4	---	---	<2.2	2.8	3.1	
18	220	12.1				<2.5	3.3	
19	220	10.4				<2.2	3.3	
20	230	9.0				<2.1	3.05	
21	240	9.2				<2.5	3.1	
22	230	8.8				<2.2	3.2	
23	230	7.8				<2.0	3.2	

Time: Local.

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

Table 53

Monte Capellino, Italy (44.6°N, 9.0°E)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		7.1						
01		7.0						
02		6.6						
03		6.2						
04		6.0						
05		6.2			2.00			
06		7.0			2.60			
07		7.0			3.10			
08		8.0			3.30			
09		8.2			3.50			
10		9.2			3.65			
11		9.4			3.80			
12		9.6			3.80			
13		9.8			3.70			
14		9.3			3.60			
15		9.0			3.60			
16		8.8			3.40			
17		8.6			3.00			
18		8.6			2.30			
19		(9.1)						
20		8.4						
21		8.2						
22		(7.8)						
23		7.0						

Time: Local.

Table 49

Table 50

Monte Capellino, Italy (44.6°N, 9.0°E)							June 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00					7.0			
01					6.9			
02					6.8			
03					6.5			
04					6.2			
05					6.7			2.20
06					7.0			2.75
07					7.5			3.20
08					8.4			3.40
09					8.6			3.55
10					8.3			3.60
11					8.3			3.70
12					8.4			3.70
13					8.6			3.70
14					8.0			3.60
15					7.9			3.60
16					8.0			3.40
17					8.2			3.10
18					8.2			2.70
19					8.2			2.00
20					(8.8)			
21					8.2			
22					8.0			
23					7.3			

Time: Local.

Table 53

Table 52

Christchurch, New Zealand (43.6°S, 172.8°E)							June 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		300	3.8					2.8
01		300	3.7					2.8
02		300	3.6					2.8
03		290	3.8					2.9
04		280	3.7					3.0
05		260	3.4					3.0
06		250	3.0					3.0
07		250	3.5				---	3.1
08		230	6.5			120	1.8	3.4
09		230	8.2	240	---	120	2.5	3.4
10		230	9.0	230	---	120	2.9	3.4
11		230	9.4	240	4.0	120	3.0	3.3
12		240	9.6	230	(4.4)	115	3.0	3.3
13		250	10.0	240	(4.5)	120	3.0	3.25
14		240	9.6	240	3.9	120	2.9	3.3
15		240	(9.2)	240	3.4	120	2.4	3.3
16		230	8.7					3.3
17		230	7.0					3.1
18		250	6.2					3.05
19		250	5.5					3.0
20		260	4.8					3.0
21		270	4.5					3.0
22		290	4.2					2.85
23		300	3.9					2.9

Time: 172.5°E.

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

Table 53

Table 54

Rarotonga I. (21.3°S, 159.8°W)							May 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		260	5.4					2.9
01		270	5.1					2.9
02		280	4.7					2.9
03		280	4.7					2.75
04		250	3.8					2.8
05		300	3.9					2.8
06		300	4.5					2.8
07		250	8.7	---	---	130	1.8	2.0
08		250	(11.2)	250	4.4	120	2.8	3.6
09		250	13.0	240	5.2	110	3.2	3.2
10		260	13.0	230	5.5	110	3.5	3.2
11		270	12.9	230	5.5	110	3.6	3.0
12		280	12.8	230	5.8	110	3.7	3.0
13		290	12.9	230	5.8	110	3.7	4.0
14		290	11.8	240	5.5	110	3.5	5.0
15		300	12.4	240	5.6	110	3.3	4.6
16		280	12.3	250	4.8	110	3.0	4.4
17		260	(12.6)	---	---	2.1	4.0	3.0
18		250	(10.8)				3.5	(3.1)
19		250	(9.5)				3.5	(3.1)
20		250	7.9				2.6	2.9
21		250	8.0				2.0	2.95
22		250	7.0					3.0
23		260	6.2					2.95

Time: 157.5°W.

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

Table 55

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00	330	3.2						2.95	
01	320	3.2						3.00	
02	(340)	(3.1)						(2.90)	
03									
04	300	3.1						3.10	
05	300	>2.8						3.10	
06	280	3.3						3.25	
07	240	6.2						3.60	
08	240	8.5						3.60	
09	240	9.2						3.60	
10	280	10.4						3.25	
11	280	11.4						3.25	
12	280	11.6						3.25	
13	280	12.2						3.25	
14	280	12.0						3.25	
15	280	10.8						3.25	
16	260	10.5						3.40	
17	240	9.2						3.60	
18	270	7.1						3.30	
19	280	7.2						3.25	
20	240	6.0						3.60	
21	280	4.5						3.25	
22	320	3.5						2.90	
23	340	3.2						2.90	

Time: 75.0°E.

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

*Height at 0.83 foF2.

Table 56

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00	280	4.4							2.80
01	270	4.5							2.90
02	265	4.4							3.00
03	250	3.8							3.30
04	240	3.2							3.20
05	290	2.4							2.90
06	300	2.4							2.95
07	260	5.7							2.95
08	250	9.2	240	4.0				---	3.25
09	250	10.2	225	4.4	107	2.9	3.6	3.40	3.40
10	250	10.7	215	4.7	105	3.2	4.0		3.35
11	265	11.0	205	4.8	105	3.4	4.0		3.15
12	290	12.2	220	5.0	105	3.5	3.8		2.95
13	280	13.6	225	5.0	105	3.5	4.0		3.00
14	270	14.4	225	4.8	105	3.4	4.0		3.05
15	265	14.3	225	4.7	107	3.2	4.1		3.00
16	250	14.1	230	4.2	110	2.8	3.8		3.05
17	240	14.5					115	2.2	3.10
18	210	12.4							3.25
19	215	11.1							3.00
20	230	11.4							2.4
21	215	10.4							3.30
22	225	7.0							3.10
23	250	5.1							2.80

Time: 75.0°E.

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

Table 57

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00	255	4.8						3.0	
01	<250	4.8						3.3	
02	250	4.2						3.1	
03	235	4.0						3.3	
04	250	3.0						3.0	
05	<255	3.0						3.0	
06	<295	2.6						2.95	
07	250	6.0	(125)	1.9	2.1			3.25	
08	250	9.5	240	4.3	110	2.6		3.4	
09	260	10.2	235	4.5	110	3.0		3.6	
10	255	10.5	220	4.5	110	3.3		3.5	
11	280	10.6	200	4.6	105	3.5		3.3	
12	300	11.0	195	(5.0)	100	3.5		<3.3	
13	300	11.0	210	4.9	100	3.5		<3.3	
14	280	11.0	220	4.7	100	3.4		3.3	
15	270	10.7	215	4.5	100	3.1		3.4	
16	250	10.5	230	4.3	100	2.8		3.5	
17	240	10.5			100	2.1		3.6	
18	210	10.1				3.2		3.65	
19	220	10.0				3.0		3.4	
20	225	9.6				2.2		3.5	
21	210	9.5				2.1		3.5	
22	220	5.5						3.5	
23	250	4.9						3.1	

Time: 90.0°E.

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

Table 58

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00									
01									
02									
03									
04									
05									
06		270	4.6						3.35
07		300	5.4						3.10
08:30		300	6.8						3.10
09		330	7.8						2.95
10		360	9.3						2.80
11		360	10.6						2.80
12		390	11.7						2.65
13		420	12.3						2.55
14		450	12.6						2.45
15		450	12.7						2.55
16		420	11.8						2.60
17		390	10.6						2.65
18		360	9.6						2.80
19		330	8.5						2.95
20		(330)	(7.4)						(2.95)
21		300	6.0						3.10
22		270	5.0						3.35
23									

Time: 75.0°E.

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

*Height at 0.83 foF2.

Table 59

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00									
01									
02									
03									
04									
05									
06	300	5.9				3.10			
07	320	8.4				3.00			
08	370	10.3				2.75			
09	400	10.8				2.60			
10	440	10.8				2.50			
11	440	10.3				2.50			
12	440	10.3				2.50			
13	460	10.4				2.40			
14	440	10.4				2.50			
15	440	10.5				2.50			
16	440	10.7				2.50			
17	410	10.5				2.55			
18	400	10.3				2.60			
19	400	10.0				2.60			
20	360	10.0				2.80			
21	320	9.5				3.00			
22	---	>9.0				----			

Time: 75.0°E.

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

*Height at 0.83 foF2.

Table 60

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	January 1956
00									
01									
02									
03									
04									
05									
06		320	5.3						3.00
07		360	7.9						2.80
08		360	9.1						2.80
09		420	9.6						2.55
10		440	9.8						2.50
11		480	9.9						2.30
12		480	10.1						2.30
13		480	10.1						2.30
14		480	10.0						2.30
15		480	10.0						2.30
16		480	9.8						2.30
17		480	9.8						2.30
18		480	9.5						2.30
19		480	9.5						2.30
20		480	9.5						2.30
21		(400)	(8.6)						(2.60)
21:30		---	---						---
23									

Time: 75.0°E.

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

*Height at 0.83 foF2.

Table 61

Kodaikanal, India (10.2°N, 77.5°E)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	7.2					3.15	
01	240	6.7					3.2	
02	240	5.7					3.15	
03	250	4.8					3.1	
04	260	3.9					3.2	
05	250	3.4					3.2	
06	270	4.0					2.9	
07	250	7.5	---	---	115	2.4	3.1	
08	280	9.4	230	---	110	3.0	8.0	2.9
09	300	10.4	220	---	105	---	10.4	2.6
10	310	10.0	210	---	105	---	11.4	2.5
11	320	9.9	205	---	105	---	12.0	2.4
12	320	9.8	200	---	105	---	12.0	2.35
13	(335)	9.8	200	---	105	---	12.0	2.3
14	360	9.8	200	---	105	---	12.0	2.3
15	---	9.8	220	---	105	---	10.4	2.3
16	255	9.9	230	---	110	---	9.0	2.4
17	260	9.9	---	---	115	2.4	7.0	2.5
18	295	9.6						2.5
19	320	9.4						2.5
20	300	9.5						2.5
21	280	9.0						2.7
22	250	8.4						3.0
23	240	8.4						3.1

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 63

Rarotonga I. (21.3°S, 159.8°W)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	(8.6)					3.2	(2.9)
01	280	(9.0)					3.4	(2.7)
02	290	(8.5)					3.1	(2.9)
03	290	(7.9)					3.0	(2.8)
04	290	(7.0)					2.4	(2.9)
05	260	(6.9)					2.0	(2.9)
06	260	(7.0)					3.4	(3.0)
07	250	7.3	---	---	---	2.8	3.8	3.3
08	280	8.0	230	4.8	105	3.0	4.4	3.0
09	330	9.5	250	5.2	105	3.4	4.6	2.8
10	340	10.5	240	5.5	100	3.6	5.7	2.7
11	360	11.8	220	5.5	---	---	5.4	2.8
12	350	12.8	250	5.4	105	3.8	5.9	2.7
13	340	13.5	230	5.5	110	---	4.6	2.8
14	330	14.2	240	5.4	110	3.8	4.6	3.0
15	300	13.7	220	5.2	105	3.6	4.5	3.0
16	290	11.6	240	5.0	100	3.4	5.1	3.0
17	280	10.3	230	4.9	105	3.0	3.9	2.95
18	260	9.8	250	4.0	110	2.3	3.6	2.8
19	290	9.5					3.5	(2.8)
20	320	(8.5)					(2.8)	
21	330	(9.2)					3.2	(2.7)
22	300	(9.5)					3.1	(2.8)
23	280	(9.4)					2.0	(2.9)

Time: 157.5°W.

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

Table 65

Canberra, Australia (35.3°S, 149.0°E)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	6.8					3.6	2.8
01	250	(6.6)					3.6	(2.8)
02	---	5.6					3.6	2.8
03	---	5.0					3.1	2.7
04	---	4.6					2.5	2.8
05	270	4.5	---	---	(1.6)	3.0	2.8	
06	260	5.0	250	(3.6)		2.3	2.8	2.9
07	340	5.9	240	4.2		2.9	3.6	3.0
08	365	6.0	230	4.6		3.2	5.7	2.9
09	340	7.0	210	4.7		3.5	5.6	2.9
10	360	6.9	215	5.0		3.6	5.6	2.9
11	370	7.4	220	5.0	(3.6)	5.6	2.9	
12	360	7.5	220	5.1		3.6	5.8	2.8
13	360	7.6	215	5.0	(3.6)	4.7	2.8	
14	360	7.5	220	5.0	(3.6)	4.1	2.8	
15	340	7.6	220	4.9		3.6	4.5	2.9
16	330	7.4	220	4.8		3.3	4.0	2.9
17	310	7.6	220	(4.5)		3.0	4.3	2.9
18	280	7.4	240	(3.6)		2.5	4.0	3.0
19	255	7.1					3.7	3.0
20	---	7.1					3.6	2.8
21	---	7.0					3.6	2.7
22	---	7.2					3.6	2.7
23	---	(6.9)					3.3	(2.7)

Time: 150.0°E.

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

Table 62

Townsville, Australia (19.3°S, 146.7°E)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(8.7)						
01	270	>8.4						
02	260	>7.9						
03	270	>7.4						
04	270	6.9						
05	260	6.0						
06	250	6.3						
07	250	6.7	230	4.0				
08	330	>7.0	230	4.7				
09	345	7.8	210	4.9				
10	340	8.8	200	5.2				
11	340	9.4	200	5.2				
12	350	10.4	---	---	5.2			
13	350	10.8	210	5.3				
14	340	11.3	210	5.2				
15	325	11.5	215	4.9				
16	300	11.4	230	4.7				
17	280	8.8	235	4.4				
18	250	>7.9	240	---				
19	270	>7.0						
20	300	>8.4						
21	310	>8.4						
22	300	>8.4						
23	290	>8.4						

Time: 150.0°E.

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

Table 64

Brisbane, Australia (27.5°S, 153.0°E)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	7.7						
01	260	7.5						
02	270	6.5						
03	280	6.5						
04	270	5.9						
05	270	5.4						
06	260	6.0	250	3.7				
07	300	6.6	220	4.3				
08	315	7.4	210	4.8				
09	325	7.8	210	5.0				
10	350	8.2	210	5.0				
11	335	8.6	210	5.2				
12	340	9.0	220	5.2				
13	330	9.0	205	5.2				
14	340	9.0	205	5.1				
15	320	9.1	220	5.0				
16	300	9.0	230	4.7				
17	285	8.5	230	4.3				
18	250	8.0	---	---				
19	260	7.5						
20	300	7.6						
21	300	7.5						
22	300	8.0						
23	280	8.2						

Time: 150.0°E.

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

Table 66

Hobart, Tasmania (42.9°S, 147.3°E)								January 1956
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.0						
01	280	5.3						
02	280	4.5						
03	280	3.6						
04	270	4.0						
05	250	4.5						
06	240	5.0	---	---				
07	240	5.5	220	4.4				
08	300	6.0	200	4.6				
09	380	6.0	200	4.8				
10	350	6.6	210	5.0				
11	360	7.0	210	5.0				
12	350	6.8	200	5.0				
13	360	6.8	200	5.0				
14	350	7.0	220	4.9				
15	340	7.0	220	4.8				
16	280	6.9	200	4.7				
17	240	7.0	---	---				
18	250	7.0						
19	250	7.0						
20	250							

Table 67

Poitiers, France (46.6°N, 0.3°E)								November 1955		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2		
00	<295	3.6				2.0	2.85			
01	295	3.6				1.8	(2.85)			
02	<290	3.6					(2.80)			
03	<285	3.6					2.80			
04	255	3.2					2.95			
05	250	3.1					3.00			
06	<245	3.0					3.00			
07	230	4.9	180	1.8	---	---	E (3.25)			
08	220	6.8	215	2.4	<115	2.0	----			
09	230	7.6	220	3.5	110	2.5	2.8	----		
10	230	(8.6)	215	3.7	110	2.8	3.2	----		
11	235	8.8	210	3.8	<110	2.9	3.2	----		
12	235	(9.1)	220	4.0	105	3.0	----			
13	235	(8.5)	225	3.9	105	3.0				
14	245	9.0	235	3.5	110	2.7				
15	230	(9.1)	230	2.5	115	2.3	2.3			
16	220	(7.2)	---	1.8	---	E	2.3			
17	210	6.2			---	E	2.3	(3.30)		
18	<225	5.0				2.0	3.30			
19	<235	4.2					3.20			
20	240	3.7					3.15			
21	255	3.6					3.05			
22	275	3.5					2.85			
23	<280	3.6					(2.90)			

Time: 0.0°.

Sweep: 1.6 Mc to 16.0 Mc in 1 minute.

Table 69*

Campbell I. (52.5°S, 169.2°E)								July 1954		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2		
00										
01										
02										
03										
04										
05	---	E								
06	---	E								
07	---	E								
08	240	3.1	---	---	---	1.6	3.3	(2.9)		
09	240	3.8	230	2.9	120	2.2	3.4			
10	250	4.1	230	3.2	115	2.4	3.3			
11	260	4.4	230	3.4	120	2.5	3.3			
12	270	4.6	230	3.5	110	2.6	3.3			
13	260	4.5	230	3.4	120	2.5	3.4			
14	250	4.4	230	3.2	120	2.3	3.3			
15	250	4.2	230	2.7	120	1.9	3.3			
16	230	3.9		---	1.4		3.1			
17	250	3.0					3.0			
18	---	2.4					2.9			
19	---	1.9					2.75	(2.9)		
20	---	E								
21	---	E								
22	---	E								
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 71*

Campbell I. (52.5°S, 169.2°E)								July 1953		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2		
00										
01										
02										
03										
04										
05	---	E								
06	---	E								
07	---	1.8								
08	250	3.0	---	---	110	1.5	2.0	3.3	(2.6)	
09	240	3.5	230	3.1	110	1.9		3.3	(2.5)	
10	250	3.7	230	3.2	110	2.2		3.2		
11	260	4.0	230	3.3	110	2.3		3.2		
12	270	4.2	240	3.3	110	2.4		3.2		
13	270	4.3	240	3.2	110	2.3		3.3		
14	260	4.3	240	3.1	110	2.2		3.3		
15	250	4.2	240	2.6	120	1.8		3.3		
16	240	3.7		130	1.4	3.8		3.2		
17	250	3.0					3.0			
18	---	2.2					3.0			
19	---	1.8					2.8			
20	---	1.8					2.7			
21	---	1.8					2.6			
22	---	(1.6)					2.8	---		

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

*Observations taken on an 18-hour working schedule.

Table 68

Casablanca, Morocco (33.6°N, 7.6°W)								November 1955		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2		
00	---		4.00							3.00
01	---		3.90							3.00
02	---		3.90							2.95
03	---		4.00							3.00
04	---		4.25							3.20
05	---		3.50							3.35
06	---		3.15							3.00
07	240	4.90								3.40
08	225	7.90	230	2.65	120	2.10	2.5			3.55
09	235	8.90	230	(4.00)	110	2.70	3.4			3.50
10	240	9.20	215	4.35	110	2.95	3.5			3.60
11	245	9.30	220	(4.50)	105	3.10	3.5			3.45
12	245	8.80	205	4.55	105	3.30	3.5			3.40
13	250	9.10	220	(4.60)	110	3.25	3.5			3.30
14	260	9.50	225	----	105	3.10	3.5			3.30
15	250	9.90	230	(4.45)	110	2.95	3.5			3.35
16	240	9.50	235	(3.50)	110	2.50	3.5			3.40
17	225	9.00								3.50
18	205	6.60								3.35
19	---	4.80								3.20
20	---	4.60								3.20
21	---	>4.55								3.15
22	---	4.30								3.10
23	---	4.20								3.05

Time: 0.0°.

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

Table 72*

Campbell I. (52.5°S, 169.2°E)								June 1953		
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2		
00										
01										
02										
03										
04										
05	---		1.1							2.7
06	---		1.3							2.6
07	---		1.7							2.8
08	240	3.1								3.3
09	240	3.8	220	---	110	1.4	2.0			3.4
10	240	4.2	220	3.0	110	2.1				3.4
11	250	4.4	230	3.1	110	2.3				3.35
12	250	4.6	230	3.2	110	2.3				3.4
13	250	4.6	230	3.2	110	2.3				3.4
14	250	4.6	240	3.0	120	2.1				3.3
15	240	4.7	---	---	120	1.7				3.4
16	230	4.2				120	1.3			3.2
17	240	3.4								3.1
18	270	2.6								1.7
19	---	2.1								2.0
20	---	1.9								2.0
21	---	1.7								2.0
22	---									2.0
23	---	1.4								2.4

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

*Observations taken on an 18-hour working schedule.

TABLE 73
IONOSPHERIC DATA

foF2, 0.1 Mc, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
01	F	F	F	F	F	F	F	F	86	133	138	145	135	129	134	133	131	127	111	95	97	75	70	69					
01	55	52	44	44	43	44	45	44	86	133	138	145	135	129	134	133	131	127	111	95	97	75	70	69					
02	F	F	F	F	F	F	F	F	92	120	127	141	135	132	131	123	121	122	120	109	107	90	74	56					
02	66	58	50	45	45	46	41	50	92	120	127	141	135	132	131	123	121	122	120	109	107	90	74	56					
03	U	A	A	A	A	36	36	48	86	123	129	131	130	130	127	127	119	112	107	96	94	72	67	59					
03	45	38																											
04	F	F	F	F	F	F	F	F	100	125	132	136	140	139	136	130	128	121	108	99	90	78	69	64					
04	63	58	57	52	47	48	48	56	100	125	132	136	140	139	136	130	128	121	108	99	90	78	69	64					
05	F	F	F	F	F	F	F	F	93	119	128	137	130	135	126	127	124	115	106	92	93	75	69	60					
05	59	59	55	50	52	47	45	53	93	119	128	137	130	135	126	127	124	115	106	92	93	75	69	60					
06	F	F	F	F	F	F	F	F	50	98	111	130	126	137	125	123	121	123	114	106	91	96	67	61	50				
06	53	50	52	52	55	45	41	50	98	111	130	126	137	125	123	121	123	114	106	91	96	67	61	50					
07	56	57	53	57	55	50	50	52	87	115	130	C	C	C	C	C	C	123	107	95	82	72	68	60					
08	69	66	64	67	59	49	45	52	85	113	130	133	141	132	127	125	130	127	116	95	90	86	76	62					
09	56	51	50	52	54	53	43	49	83	103	115	127	136	133	132	127	128	118	103	94	88	82	76	70					
10	U	F	F	F	F	F	F	F	84	108	113	112	136	142	142	142	137	132	120	107	97	83	78	74					
10	64	64	59	60	60	59	56	57	84	108	113	112	136	142	142	142	137	132	120	107	97	83	78	74					
11	J	F	J	F	C	C	C	C	25	37	76	103	115	130	133	139	133	126	130	116	105	102	70	68	58	54			
12	50	55	55	58	52	46	45	49	85	103	114	126	128	126	127	126	120	108	100	86	75	66	55	52					
13	51	47	48	46	44	41	38	47	82	99	119	129	132	127	123	120	125	117	105	99	92	67	58	53					
14	49	44	44	44	47	43	46	50	84	105	116	125	129	120	125	125	119	117	103	93	80	63	55	53					
15	51	49	52	49	47	44	40	49	84	107	115	127	138	135	131	132	127	122	106	99	76	74	57	52					
16	F	F	F	F	F	F	F	F	92	104	117	127	128	129	124	121	114	101	101	92	77	59	47						
16	51	49	51	55	54	51	50	56	92	104	117	127	128	129	124	121	114	101	101	92	77	59	47						
17	U	F	G	F	48	49	56	91	106	114	127	125	125	125	125	120	117	110	101	88	72	58	51	47					
18	42	45	47	50	49	48	49	56	91	106	114	121	126	118	118	114	110	100	88	76	66	58	47	45					
19	42	38	39	40	41	38	37	46	84	90	108	114	114	114	112	128	C	C	105	86	75	66	65	66					
20	60	53	46	44	42	38	37	46	86	114	115	122	123	116	118	115	112	106	94	84	71	62	54	53					
21	52	56	58	63	48	45	44	54	90	103	109	108	103	117	122	127	126	114	J S	F	U	F	B	U	B				
21	U	F	J	F	F	F	F	F	86	103	113	124	125	115	110	105	106	93	88	82	68	60	59	58					
22	30	34	36	32	31	28	29	46	86	103	113	124	125	115	110	105	106	93	88	82	68	60	59	58					
23	57	57	62	59	49	38	33	45	78	103	112	120	122	128	122	125	125	125	110	100	80	67	65	60					
24	F	F	F	F	F	F	F	F	92	107	112	134	128	128	124	116	119	112	98	82	74	72	80	76					
24	60	66	72	70	66	59	54	58	92	107	112	134	128	128	124	116	119	112	98	82	74	72	80	76					
25	J	S	U	S	U	F	F	F	78	72	68	62	66	70	63	57	85	107	123	132	131	125	123	115	102	89	81	59	54
26	58	61	66	60	61	50	50	61	94	110	120	126	123	125	120	124	120	111	109	96	85	72	68	66					
27	59	56	60	58	55	48	39	50	86	106	125	136	131	121	119	120	118	113	106	96	80	74	61	58					
28	56	56	56	56	54	47	43	54	90	112	128	128	124	120	119	122	122	118	110	95	86	66	65	56					
29	55	57	56	58	58	53	43	48	81	103	113	111	117	118	123	122	125	120	110	98	90	80	80	70					
29	U	F	J	F	J	F	F	F	92	110	128	136	137	135	133	132	132	126	112	98	87	71	60	67					
30	54	42	53	60	48	44	38	54	92	110	128	136	137	135	133	132	132	126	112	98	87	71	60	67					
31	F	F	F	F	F	F	F	F	96	121	132	140	133	134	132	132	128	125	118	102	92	81	68	57					
MED	56	55	54	55	52	46	43	50	86	107	117	127	130	128	125	125	123	116	106	94	82	71	65	58					
NO	31	31	30	29	29	30	31	31	31	31	30	30	30	30	30	30	30	30	30	31	31	31	31	31					

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

TABLE 74
IONOSPHERIC DATA

foF2, O.I Mc, January 1957

75° W Mean Time

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

	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	
01	F		F		F	F	F	F																	F
52	48	44	44		43	45	41	66	115	137	140	140	133	135	135	130	131	116	103	88	80	68	69	68	
02	F																								F
61	57	46	44		44	42	39	72	107	126	136	138	135	131	129	120	124	125	117	104	98	88	62	53	
03	F	I A	I A		39	36	35	36	37	71	111	126	122	136	129	127	130	122	115	105	104	96	80	70	69
42																									69
04	F	F	F		F	F																			C
59	58	52	49		47	49	47	73	112	122	133	142	137	129	132	130	126	118	106	90	86				63
05	F	F	F		F	F																			F
62	58	53	51		50	44	41	75	118	125	131	135	136	131	125	126	122	113	98	94	84	72	66	58	
06	F	F	F		F																				F
48	50	58	56		50	44	42	68	103	130	123	132	130	126	123	120	117	110	101	87	72	67	62	59	
07	57	59	58	56	52	50	44	68	110	123	95		C	C	C	C	C	C			95	92	78	70	67
08	66	67	67	64	55	46	43	72	106	126	132	139	136	128	126	125	130	126	106	90	88	76	70	59	
09	F																								F
51	52	50	53	54	47	42	69		88	107	125	130	139	137	132	125	124	116	102	90	82	78	72	66	
10	U F																								F
66	60	61	58	62	58	55	69	96	109	124	128	140	144	142											59
11	C	C	C	U F	U F	F																			F
54	48			25	26	63	94	115	123	131	132	136	129	128	125	115	103	89	74	58	58	52			
12	52	55	56	55	48	44	45	67	101	113	116	125	125	127	130	126	117	107	98	82	72	59	56	51	
13	49	48	45	43	42	42	38	65	94	117	115	132	130	130	120	125	123	112	95	86	78	66	56	51	
14	47	42	44	44	42	44	43	67	102	106	120	120	124	125	122	124	118	111	98	84	70	58	55	54	
15	47	51	52	49	46	42	42	67	99	113	118	138	132	135	129	128	126	115	101	80	70	61	55	48	
16	F	F	F		F	U F	U F																		F
49	51	53	55	51	50	51	71	106	108	114	135	131	126	122	118	111	109	98	84	66	53	48	44		
17	F	F	F						H																
45	47	48	47	48	48	52	73	97	113	122	126	127	125	124	118	113	108	92	78	62	54	47	47		
18	F	F	F		F																				
45	44	44	44	41	36	38	68	92	112	118	125	126	119	114	112	106	92	80	70	60	52	48	43		
19	39	38	41	42	41	37	36	62	92	100	116	110	114	110	120	124	120	115	98	78	72	66	62	62	
20	57	50	45	43	40	37	37	70	103	115	120	123	119	114	116	116	108	102	88	78	66	55	53	53	
21	52	57	61	60	45	45	45	71	93	103	108	105	109	120	119	125	120	B	B						
28	F	U F	F	U F	U F	F																			
22	29	31	31	31	29	28	35	68	69	121	108	121	120	113	105	107	103	92	84	70	J S				
23	56	59	58	54	42	24	36	62	98	112	116	120	124	127	125	127	124	118	104	97	74	67	64	60	
24	58	69	74	68	62	56	55	74	103	117	125	130	129	125	124	118	117	105	94	84	77	76	76	73	
25		J S																							
75	74	68	62	66	68	55	76	103	115	128	134	127	122	122	120	112	115	95	87	72	59	56	56		
26	58	64	63	50	57	49	50	77	103	114	124	126	126	120	123	122	120	106	102	90	77	69	65	62	
27	F				F																				
58	57	60	57	51	45	39	70	100	124	135	131	123	116	120	119	114	115	105	87	77	71	63	56		
28	57	56	56	55	49	45	43	76	100	122	125	127	121	120	120	122	120	115	104	90	74	67	59	56	
29	55	57	58	59	54	47	37	66	93	116	108	116	116	122	124	125	123	116	105	96	80	80	74	65	
30	U F	F	F	U F	U F	U F	F																		F
38	47	59	59	45	45	42	73	107	123	130	137	137	134	130	132	127	123	102	94	83	68	62	55		
31	59	55	55	57	54	53	52	80	111	127	140	142	137	131	136	130	126	120	107	96	88	72	60	56	
MED	54	55	54	54	48	45	42	70	102	116	123	130	129	126	124	124	120	115	102	87	77	67	62	58	
NO	31	31	30	30	30	31	31	31	31	31	30	30	30	30	30	30	30	29	30	31	31	30	31	31	

TABLE 75
IONOSPHERIC DATA

foF1, O.I Mc, January 1957

75° W Mean Time

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

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

TABLE 76
IONOSPHERIC DATA

foE, 0.05 Mc, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1									A		U B					U A															
										290	330	350	370	370	350	270															
2												I A																			
3										230	300	330	330	345	360	340	310	230													
4											230	290	335	350	360	355	325	250													
5											B U A	I B																			
6											280	310	315	320	340	320	300	260													
7											A U A U A I A U A U A																				
8											290	330	335	340	360	330	290	280													
9											U A	I A					I A														
10											230	310	330	350	360	340	320	320													
11												C C	C C	C C	C C	C C															
12											210	310	350																		
13												185	300	315	350	350	340	330	300	225											
14												200	250	320	340	345	350	320	290	240											
15												B					U A	H H													
16												250	290	330	335	335	300	300	250												
17												H H	H H	H H	H H	H H															
18												190	260	305	335	330	350	340	300	240											
19												175	260	310	325	360	350	330	300	245											
20												A H	I A																		
21												255	300	325	345	340	330	290		A											
22												U A	H H	H H	H H	H H															
23												185	250	310	330	340	345	325	285	240											
24												H					H H H														
25												200	270	300	320	330	330	315	285	245											
26												190	280	310	310	320	330	295	275	245											
27												U H	H H	H H	H H	I A															
28												210	280	330	340	340	320	320	290	A											
29												220	280	320	340	350	350	330	310	260											
30													220	280	320	330	340	340	350	330	230										
31													225	270	320	330	340	350	355	330	300	230									
MED													220	280	325	340	345	350	330	300	245										
NO													20	29	30	29	29	27	28	21	1										

TABLE 77
IONOSPHERIC DATA

foEs, 0.1 Mc, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
01	S	S	S	S	S	S	S	28	S	29	42	48	45	46	45	37	43	59	75	50	50	38	S	S	S	
02	S	S	S	S	S	S	S	S	G	G	35	35	51	42	37	G	G	B	S	S	S	S	S	B		
03	B	84	66	70	90	B	S	34	47	61	62	71	73	46	45	30	44	21	37	43	39	B	S	S		
04	B	S	S	S	J	S	S	S	B	S	22	31	34	B	G	G	G	G	20	27	18	22	S	J	J	
05	S	S	S	S	J	60	35	S	S	21	32	36	40	39	43	G	G	G	B	S	S	S	S	J		
06	S	S	S	S	S	S	S	S	S	30	38	39	G	G	43	35	32	30	18	S	S	S	29	B	B	S
07	B	B	S	S	S	S	S	S	S	74	28	G	G	C	C	C	C	S	S	S	S	26	19	S	42	
08	S	S	40	48	31	18	18	S	G	G	G	39	G	48	G	G	29	63	B	S	S	S	S	B	S	
09	S	S	S	S	S	S	S	S	S	22	30	G	41	34	G	G	G	B	S	S	S	S	S	S	S	
10	S	S	20	27	J	S	S	S	G	G	G	G	G	G	37	35	G	G	B	S	S	S	S	S	S	
11	S	S	S	C	C	C	S	S	G	G	G	G	G	35	G	G	G	G	B	S	40	S	24	S	S	
12	S	S	S	S	S	S	S	S	G	G	G	G	G	36	36	34	27	B	S	62	37	S	S	S	S	
13	E	26	23	25	44	38	29	36	36	25	43	53	38	37	36	38	40	E	S	S	S	S	S	S	S	
14	S	S	37	33	S	S	S	S	G	38	26	30	36	38	43	G	31	29	34	31	28	35	22	S	S	
15	S	S	S	S	S	S	S	S	G	G	42	G	G	G	30	G	B	S	S	S	S	S	S	S		
16	S	S	S	S	43	S	S	S	B	G	32	40	39	37	35	31	G	B	S	S	S	S	S	S		
17	S	S	S	S	S	S	S	S	G	G	68	G	G	34	G	30	52	44	S	S	S	S	S	37		
18	S	S	S	S	S	E	S	S	G	G	G	G	G	G	G	G	G	S	S	B	S	B	S	B		
19	B	B	B	B	S	B	B	S	G	29	G	B	37	B	B	G	C	C	37	S	S	S	S	38		
20	S	S	E	B	E	B	B	B	G	G	G	G	39	40	G	G	23	B	B	B	S	B	B	B		
21	S	S	B	B	E	B	S	B	B	G	G	G	G	G	36	G	G	B	B	B	B	42	B	B		
22	B	B	B	B	B	B	B	B	27	29	34	G	G	G	G	G	G	B	B	S	S	S	S	S		
23	S	S	E	S	13	14	S	17	35	G	G	G	G	G	G	G	17	S	S	S	S	S	S	S		
24	S	S	S	E	S	S	S	S	G	G	G	41	38	35	G	29	195	S	B	S	S	S	S	29		
25	S	S	E	S	S	S	S	S	G	25	31	G	G	G	G	G	B	B	S	S	S	S	S	S		
26	B	S	S	S	S	36	36	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	S		
27	S	S	S	S	S	S	S	S	B	G	G	B	G	G	G	G	B	B	B	B	B	S	B	B		
28	B	S	B	S	S	B	B	S	B	G	G	G	G	G	G	G	B	B	S	S	S	S	B	S		
29	30	26	S	S	S	E	S	S	G	G	33	35	G	G	G	G	G	B	B	S	S	S	S	S		
30	S	S	S	E	S	S	S	S	G	G	G	G	G	G	G	G	G	S	S	S	S	S	S	S		
31	S	S	S	S	S	S	S	S	G	G	35	36	36	G	G	G	36	34	41	33	S	42	S	S		
MED					U	31		18												26	24					
NO	9	6	12	12	9	16	10	11	31	31	31	30	30	30	30	30	29	29	16	13	11	9	12	8		

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

TABLE 78
IONOSPHERIC DATA

f min, O.I Mc, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	20	22	30	28	37	26	23	22	E S	E S	E S	E S	E S
02	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	13	11	13	13	16	16	19	21	22	26	27	23	22
03	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	24	23	13	16	20	16	16	23	24	26	30	30	34	29
04	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	17	16	13	13	13	18	16	20	24	25	40	29	38	27
05	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	13	16	13	13	11	16	16	17	17	23	23	24	18	16
06	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	14	16	15	13	16	16	16	23	23	27	25	24
07	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	20	17	13	12	16	16	16	17	26	23	C	C	C	C
08	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	13	13	13	16	16	17	26	24	28	27	28	25
09	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	13	11	16	15	16	16	21	23	27	30	26	25
10	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	14	14	16	16	16	17	18	19	23	20	21	22
11	E S	E S	E S	C	C	C	C	E S	E S	E S	15	13	11	11	13	16	16	16	18	20	20	26	26	24
12	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	13	15	13	11	13	16	16	19	20	21	30	24	24
13	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	13	13	13	13	16	16	16	17	16	23	20	22	19
14	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	12	11	11	16	16	16	16	17	20	21	21	16
15	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	15	11	16	16	13	16	16	15	16	20	23	22	23
16	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	16	16	14	16	16	20	21	20	20	26	23	21
17	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	15	16	12	16	16	16	16	21	22	19	24	26	25
18	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	16	16	15	13	13	16	16	18	22	28	24	24	27	25
19	E S	E S	E S	E S	E S	E S	E S	E S	E S	E S	22	19	23	22	16	20	20	20	25	28	39	35	39	49
20	E S	E S	E	E	E	E	E	E	E	E	16	15	22	18	18	19	20	19	23	31	33	32	36	30
21	E S	E S	E	E	E	E	E	E	E	E	16	16	20	20	17	16	20	25	22	24	27	23	27	22
22	E S	E S	E	E	E	E	E	E	E	E	19	22	20	19	23	19	21	27	28	31	28	23	29	44
23	E S	E S	E	E	E	E	E	E	E	E	15	13	11	13	12	16	16	16	16	21	22	23	19	16
24	E S	E S	E	E	E	E	E	E	E	E	15	15	13	13	13	15	16	20	21	20	22	28	24	23
25	E S	E S	E	E	E	E	E	E	E	E	16	16	16	16	16	16	16	24	25	26	30	28	27	29
26	E S	E S	E	E	E	E	E	E	E	E	17	16	11	13	16	14	16	25	31	35	38	42	45	37
27	E S	E S	E	E	E	E	E	E	E	E	16	15	11	13	13	15	16	26	25	29	29	39	40	37
28	E S	E S	E	E	S	E	S	E	S	E	19	13	17	13	15	19	18	25	27	28	31	27	26	27
29	E S	E S	E	E	S	E	S	E	S	E	13	12	13	13	13	16	16	16	19	23	24	25	21	29
30	E S	E S	E	E	S	E	S	E	S	E	16	13	11	11	11	12	15	18	16	16	23	25	22	23
31	E S	E S	E	E	S	E	S	E	S	E	16	13	13	13	16	13	15	17	19	23	23	24	25	22
MED																								
NO																								

TABLE 79
IONOSPHERIC DATA

HF2, Km, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
01											250		L	280		L	L										
02												L	L	L		L	L										
03												L	L	L		260	340		320								
04											250	240	250		L	L	L	L	L								
05												U	L	L			L	L	L								
06											240	250	250	260		L	L	L	260								
07											L	L	C	C	C	C	C	C	C								
08											L	L	L	L	L	L	L	L	L								
09												L	L	L	L	L	L	L	285								
10												L	U	L	L	L	L	L									
11												250	240														
12											L	L	L	L	L	L	L	L	L								
13												L	L	L	L	L	L	L	L								
14											U	L	235	245	255	260	270	240									
15											L	L	240		L	L	L	L									
16												U	L	L	L	U	L	L	L								
17												240		235	L	270											
18												250	250	230	240	240	240	240	250								
19											240	240	250	260	290	270	260	260		C	C						
20												230	240	240	240	240	260	260	250	260							
21												260		L	260		260										
22												270	250	250		H	L	L	L	L							
23												L	L	L	L	L	L	L	L								
24												L	L	L	L	L	L	L	L								
25												L	240	250	235	230	250		L	L							
26												L	L	L	L	L	L	L	L								
27												L	L	L	L	L	L	L									
28												L	L	L	L	L	L	L	L								
29												L	L	L	L	L	L	L	L								
30												L	L	L	L	L	L	L	L	L							
31												240		245	240	U	L	245	245	245							
MED												U	240	240	250	245	250	U	260	U	245	U	250				
NO												1	7	11	14	13	13	9	5	5	1						

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

TABLE 80
IONOSPHERIC DATA

$h'F_1$ Km, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
01	260	260	250	270	270	260	250	230	230	230	230	220	220	235	240	240	250	240	230	240	240	240	240	250			
02	240	230	240	290	310	260	270	280	230	230	230	235	230	230	230	250	260	270	250	220	240	240	240	270			
03	280		U A	A	A	A			300	260	280	230	250	225	250	255	230	230	245	220	245	250	250	230	230	250	
04	250	250	260	270	250	260	260	240	240	220	220	230	220	230	235	220	235	230	230	230	240	230	250	260			
05	230	235	260	250	250	240	250	260	235	220	220	220	230	220	240	250	230	220	220	235	240	240	240	240			
06	250	285	290	275	250	220	250	270	240	220	230	235	230	235	235	240	245	240	240	230	240	250	260	270			
07	280	300	260	280	270	250	250	240	235	230	235								230	220	240	230	250	250	270		
08	280	280	280	260	240	240	255	290	240	230	230	230	240	240	240	240	240	250	230	215	250	245	245	235			
09	260	290	280	280	275	240	245	265	240	245	235	235	235	245	230	230	240	235	230	235	235	250	260	270			
10	250	260	310	335	320	280	275	260	250	230	225	235	220	230	230	230	240	240	215	230	225	225	250	225			
11	235	270	270		C	C	C	U S	325	270	235	225	225	225	245	230	230	225	240	225	220	230	225	230	240	250	
12	280	280	270	260	240	240	270	240	225	225	215	235	220	230	225	235	225	220	220	230	235	230	235	240			
13	265	250	280	260	270	260	250	240	225	215	220	215	230	225	220	200	230	225	220	220	230	225	240	240			
14	250	260	280	275	265	265	250	240	220	235	225	215	220	215	210	230	235	235	235	230	225	230	250	260			
15	250	290	280	260	250	260	250	240	225	230	220	210	230	220	230	230	230	230	210	215	220	220	250	240			
16	270	280	300	270	255	250	260	240	230	225	230	250	225	225	230	235	225	215	220	230	220	220	250	250			
17	280	280	280	275	265	260	260	240	230	230	220	225	220	210	220	H	U A	U A	250	240	220	210	220	220	240	245	260
18	260	260	275	250	235	240	270	260	225	230	230	230	210	230	230	230	240	240	205	220	230	240	260	260			
19	280	290	320	300	260	260	290	270	230	220	240	250	230	230	B		C	C		220	230	240	250	260	250		
20	240	235	235	270	250	260	260	270	220	230	220	235	220	220	235	220	230	235	240	225	235	230	240	265	300		
21	285	300	300	260	250	300	270	275	240	235	240	235	225	230	240	245	270		500	530	300				435		
22	400	315	350	280	300	495	340	290	240	225	220	190	205	220	220	230	240	225	240	240	230	230	260	260			
23	270	270	270	270	260	300	290	270	250	220	230	205	215	240	220	235	230	230	215	230	225	250	250	250			
24	280	270	265	250	230	230	245	240	235	230	230	240	230	230	230	240	245	225	250	260	215	270	280	260			
25	260	240	250	285	300	250	210	235	225	220	220	215	215	220	240	230	230	230	215	225	225	225	265	275			
26	300	290	270	255	250	250	280	260	235	230	235	235	235	240	230	250	250	240	220	250	230	235	235	270	270		
27	270	270	270	250	240	240	240	280	235	220	230	230	225	235	230	245	240	235	225	225	230	255	250	260			
28	290	260	275	260	240	260	265	260	225	225	225	220	220	220	230	235	240	245	225	225	240	220	260	255			
29	300	275	285	275	240	240	230	250	230	220	235	240	230	230	245	240	240	240	240	235	245	250	240	250	290		
30	305	320	330	280	260	350	310	270	240	220	210	240	220	225	215	240	240	230	210	235	230	210	230	260			
31	260	260	250	260	280	260	265	260	230	235	225	215	230	230	235	230	230	240	240	240	230	225	230	245			
MED	270	270	275	270	255	260	260	260	230	230	225	230	225	230	230	235	240	230	225	230	230	240	250	260			
NO	31	31	29	29	29	29	31	31	31	31	30	30	30	30	29	30	29	29	31	31	31	30	30	31			

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

TABLE 81
IONOSPHERIC DATA

nE, Km, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	I.O.	11	12	13	14	15	16	17	18	19	20	21	22	23	
01									A		U B														
									115	111	119	117	119	111	111										
02												I A													
									129	115	109	109	106	103	103	103									
03												I B													
									129	119	119	117	115	113	115	115									
04									B		I B														
									119	119	119	119	119	115	119	125	125								
05									A	A	U A														
									111	109	109	117	111	111	109										
06									119	111	111	111	111	111	113	115		I A	U A	A					
											C	C	C	C	C	C	C								
07									121	115	111														
									U B																
08									119	119	111	115	115	115	115	115	119								
									U A			I A													
09									125	109	109	117	118	119	117	119									
									B		H	H				E B									
10									117	115	115	109	109	111	111	111	117								
									H	H	H					H									
11									129	109	111	111	115	111	111	115	117								
											H					U B		H	H						
12									119	109	109	109	121	115	115	119	119								
									A	A	A	A	U A				A								
13											H	H				111	103	111	109						
									119	111	109	109	109	109	113	109	119	119							
14										H	H	H					H								
									119	111	109	109	109	109	109	105	105	119							
15									131	109	103	109	109	113	109	109	119	119							
																	H								
16									119	111	109	115	115	115	115	109	111	105							
									E B	E B	H	H	I A			H E B									
17									119	119	111	109	111	109	109	111	121								
18									129	111	119	113	111	111	109	111	127	135							
											B	A	B	B	U B	C									
19									145	131	121						117								
																		B							
20									161	121	127	127	121	119	119	119	131								
									B									B							
21									119	115	119	119	115	115	113	119									
									B	B				H											
22										109	109	139	109	111	111	111	111								
									A																
23									111	113	111	111	119	115	115	115	111								
									U B	U B	H					H									
24									121	115	109	109	111	111	111	115	115								
									B		H	H													
25									119	116	119	113	111	111	119	119	119								
									B	B	B	B	B	B	B	B	B								
26																									
									B	U B	U B	U B	I B	U B	B	B	B								
27									119	119	119	119	119	119											
									B	U B	U B	U B	U B	U B	U B	U B	U B								
28									121	119	119	119	115	115	117	119	115								
									H	U A	U A	U A	U B												
29									115	111	111	112	119	119	121	119	119								
30									119	109	109	117	115	115	115	115	115	120							
												I A													
31									121	117	115	113	111	109	107	105	105								
MED									121	115	111	115	114	114	111	115	118								
NO									19	26	29	27	28	28	27	28	20	3							

TABLE 82
IONOSPHERIC DATA

h'Es, Km, January 1957

75° W. Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
01	S	S	S	S	S	S	S	S	105	145	129	119	119	111	119	105	105	103	101	101	101	S	S	S	
02	S	S	S	S	S	S	S	S	G	G	127	119	105	119	119	G	G	B	S	S	S	S	S	B	
03	B				B	S			129	121	125	119	115	117	115	111	115	111	107	101	101	101	B	S	S
04	B	S	S	S	S	B	S		133	123	129		B	G	G	G	G	G	101	101	101	101	S	109	109
05	S	S	S	S	115	101	S	S	119	111	119	115	115	115	115	G	G	P	S	S	S	101	101	105	
06	S	S	S	S	S	S	S	S	121	129	115		G	G	109	103	117	103	103	S	S	101	E	B	S
07	B	B	S	S	S	S	S	S	115	131		G	G	C	C	C	C	C	S	S	S	105	103	109	
08	S	S	101	109	109	109	S	S	103	G	G	G	115	119	G	G	G	127	111	S	S	S	B	S	
09	S	S	S	S	S	S	S	S	129	111		G	119	119	G	G	G	B	S	S	S	S	S	S	
10	S	S	115	115	S	S	S	G	G	G	G	G	G	119	115	G	G	B	S	S	S	S	S	S	
11	S	S	S	C	C	C	S	S	G	G	G	G	125		G	G	G	G	B	S	101	S	S	S	
12	S	S	S	S	S	S	S	S	109	G	G	G	G	135	130	129	121		B	S	109	109	S	S	S
13	E	109	109	109	109	109	105	103	109	109	101	101	110	129	129	125	111		E	S	S	S	S	S	
14	S	S	119	101	S	S	S	S	111	G	119	109	141	125	121	131	121	101	101	101	101	101	103	S	S
15	S	S	S	S	S	S	S	S	103	S	G	G	G	G	G	131		G	B	S	S	S	S	S	
16	S	S	S	S	101	S	S	S	B	G	119	109	115	115	109	107	G	B	S	101	S	S	S	S	
17	S	S	S	S	S	S	S	S	G	G	105	G	G	113	G	131	111	111	S	S	S	S	S	109	
18	S	S	S	S	S	E	S	S	G	G	G	G	G	G	G	G	G	G	S	B	S	B	S		
19	B	B	B	B	S	B	B	S	G	129	G	B	130	B	B	G	C	C	119	S	S	S	S	121	
20	S	S	E	B	E	B	B	B	G	G	G	G	129	121		G	G	B	B	B	S	B	B	B	
21	S	S	B	B	E	B	S	B	B	G	G	G	G	121	G	G	B	B	B	B	B	115	B	B	
22	B	B	B	B	B	B	B	B		G	G	G	G	G	G	G	G	G	B	B	B	S	S	S	
23	S	S	E	S	109	105	S	S	101	101	G	G	G	G	G	G	G	135	S	B	S	S	S	S	
24	S	S	S	E	S	S	S	S	G	G	G	G	140	131	125	G	G	G	119	125	S	S	S	S	131
25	S	S	E	S	S	S	S	S	G	G	G	G	G	G	G	G	G	B	B	B	S	S	S	S	
26	B	S	S	S	S	S	S	S	121	121	151	141				B	B	B	B	B	B	B	B	B	
27	S	S	S	S	S	S	S	S	105	S	B	G	G	B	B	B	B	B	B	B	B	S	B	B	
28	B	S	B	S	S	B	B	S	B	G	G	G	G	G	G	G	G	G	B	B	B	S	S	B	
29	101	101	S	S	S	E	S	S	G	G	119	119	G	G	G	G	G	G	G	G	S	S	S	S	
30	S	S	S	E	S	S	S	S	G	G	G	G	G	G	G	G	G	G	G	S	S	S	S	S	
31	S	S	S	S	S	S	S	S	G	G	151	141	111	G	G	G	G	111	107	103	105	S	111	S	S
MED			109	109	109	109	109	105	106	129	125	119	119	118	119	119	125	111	107	101	101	101			
NO	2	2	5	6	6	8	5	8	11	11	14	12	12	14	10	9	11	10	7	8	8	4	4	4	4

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

TABLE 83
IONOSPHERIC DATA

(M3000)F2, January 1957

75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
01	F	F	F	F	F	F	F	F	300	310	315	310	300	295	285	290	285	295	285	280	295	300	295	300		
02	F	F	310	255	250	270	275	285	320	310	295	295	280	275	275	235	260	260	275	280	280	285	285	275		
03	280	280	A	A	A	280	270	280	305	330	300	300	310	285	280	280	290	285	280	280	290	290	280	280		
04	F	F	F	F	F	F	F	F	300	300	300	300	290	280	320	325	295	290	290	285	280	275	285	290		
05	300	280	300	290	300	300	290	290	330	330	310	300	290	290	270	280	280	275	290	285	290	290	290	295		
06	305	270	275	295	290	310	290	300	310	295	310	285	285	280	270	280	290	280	280	290	285	290	275	270		
07	270	255	275	270	275	275	315	290	295	300	320		C	C	C	C	C		285	280	290	310	300	290	275	
08	280	270	270	290	300	310	280	280	295	315	305	305	285	280	270	275	280	280	300	270	300	290	290	290		
09	270	270	280	270	290	305	290	300	315	330	310	300	300	295	290	295	295	290	285	295	290	290	300	295		
10	295	290	260	255	260	260	285	295	320	325	300	295	290	285	275	290	295	285	285	300	280	290	280	310		
11	U	F	U	F	U	F	C	C	U	F	U	F	270	310	320	315	330	285	300	285	285	290	295	300	290	305
12	270	270	275	290	300	280	285	315	325	325	300	300	305	295	290	285	305	300	290	310	305	300	300	295		
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19	300	285	275	290	290	295	280	285	355	305	335	325	305	290	290	285			295	295	300	295	295	300		
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21	270	260	285	300	285	255	255	280	350	325	310	295	290	270	265	255	260	S	F	U	F	B	U	B	F	
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25	J S	J S	J S	J F	J F	255	260	270	290	295	310	310	305	300	295	290	285	280	280	290	280	280	290	280	265	
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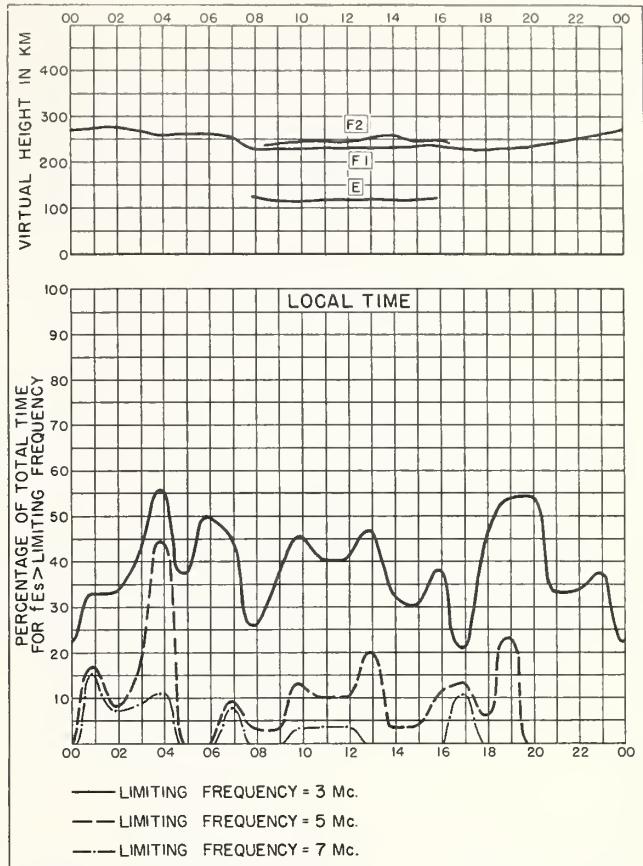
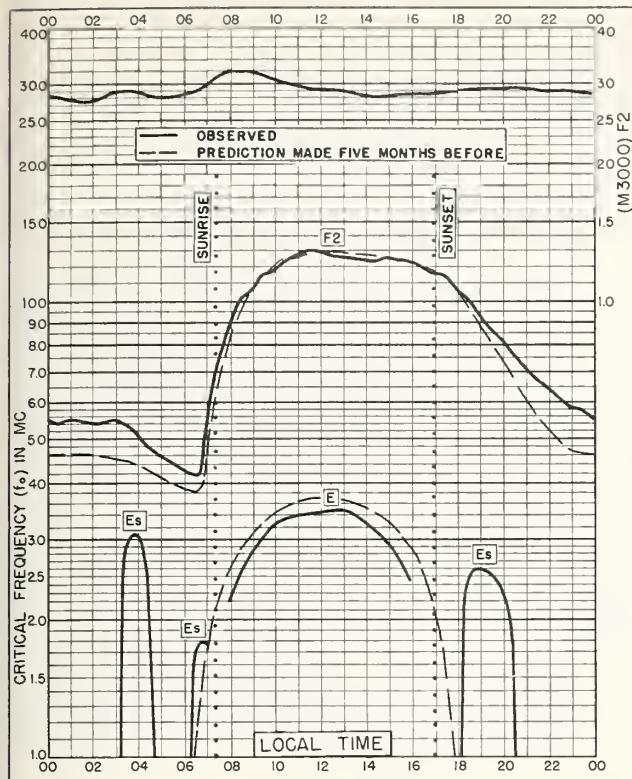
TABLE 84
IONOSPHERIC DATA

(M3000)Fl, January 1957

75° W Mean Time

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

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



NBS 503

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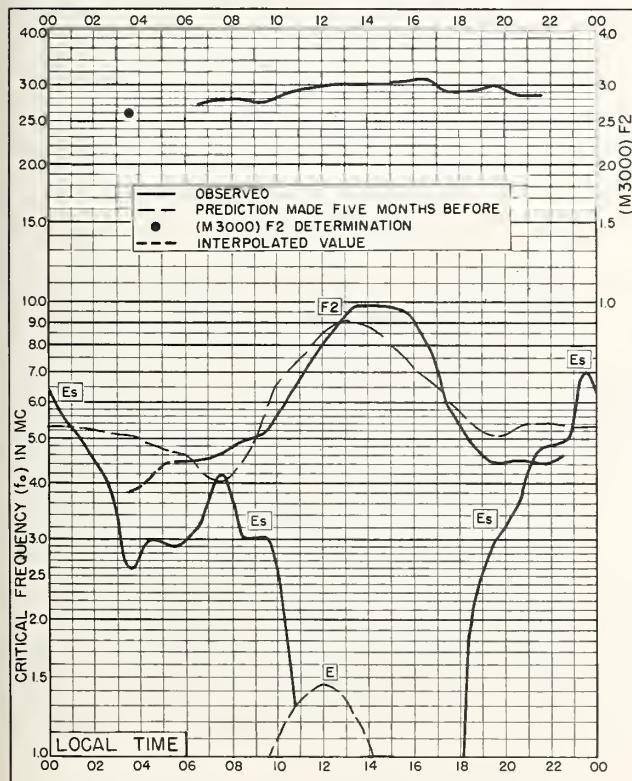
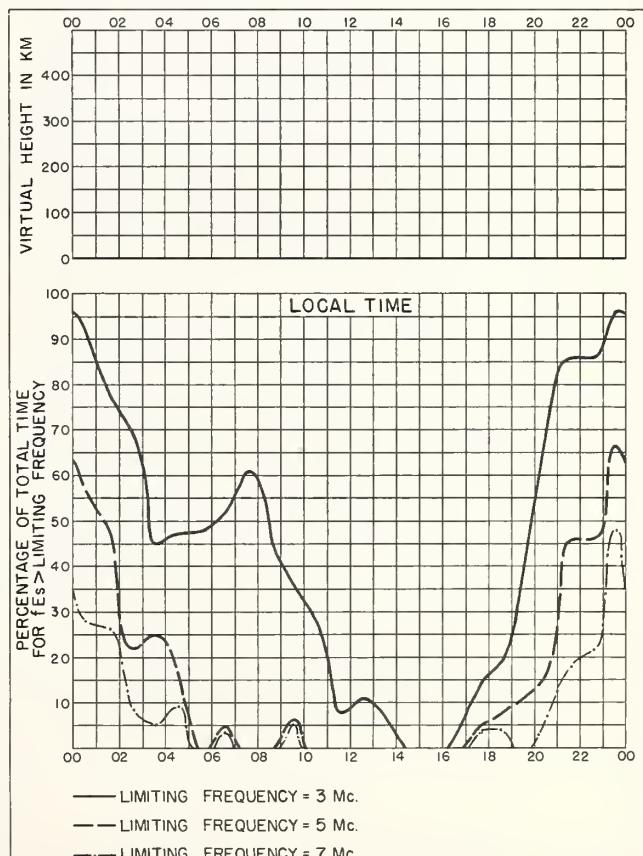
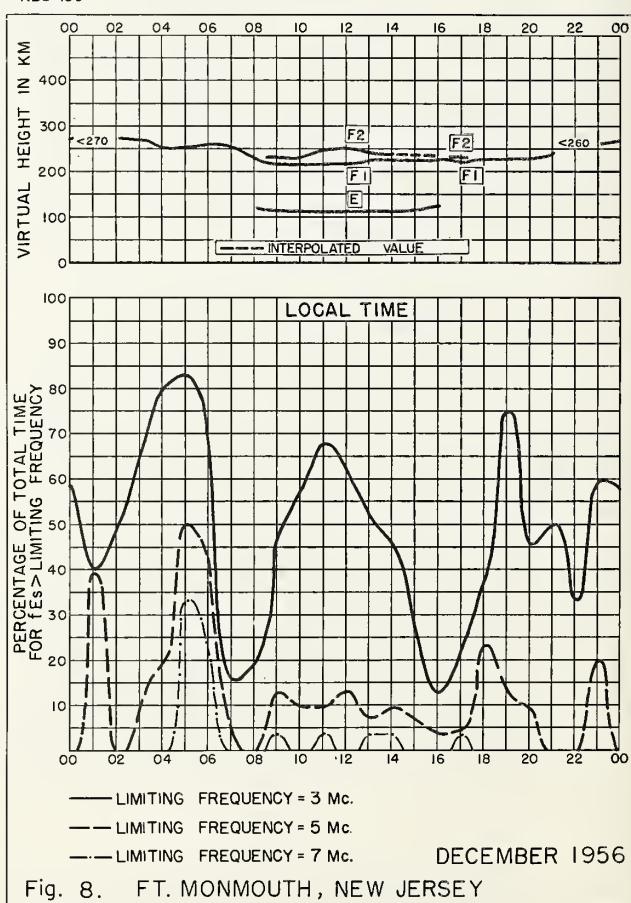
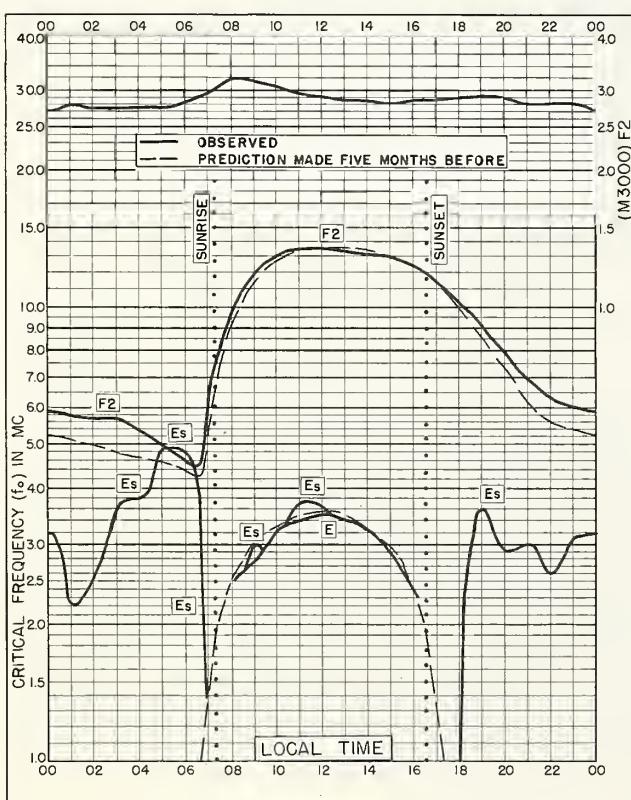
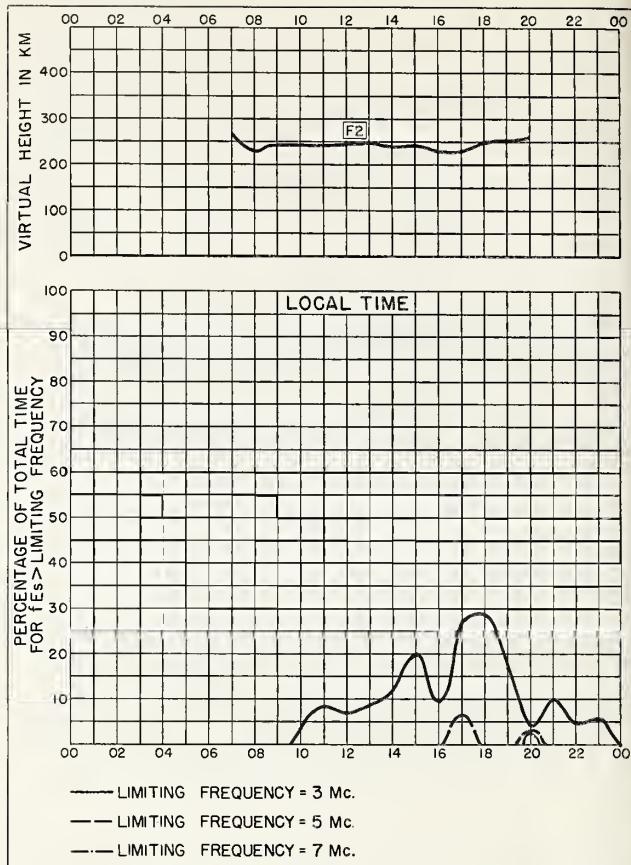
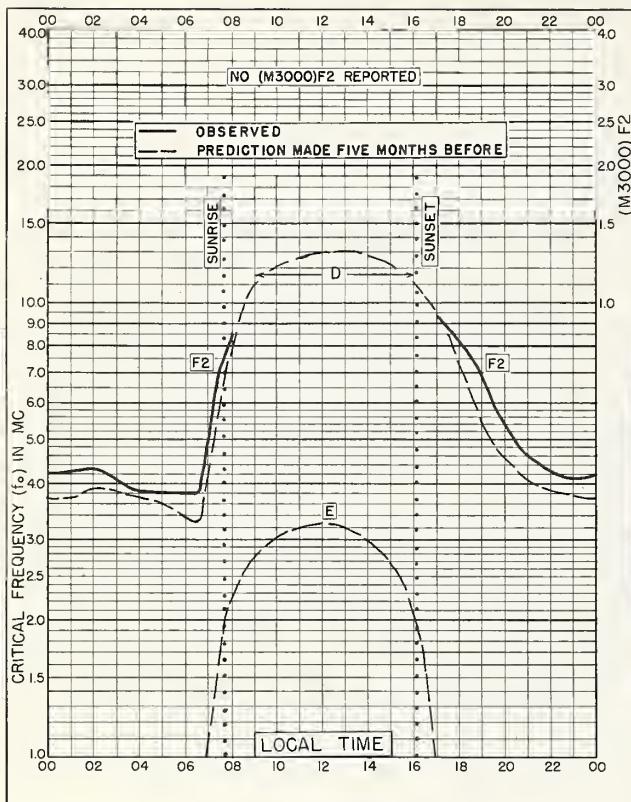


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W DECEMBER 1956



NBS 503

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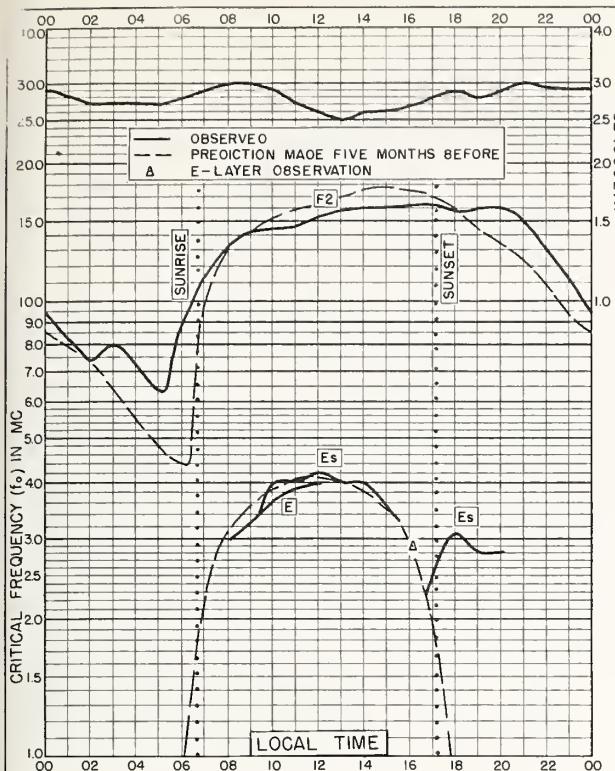


Fig. 9. FORMOSA, CHINA
25.0°N, 121.5°E DECEMBER 1956

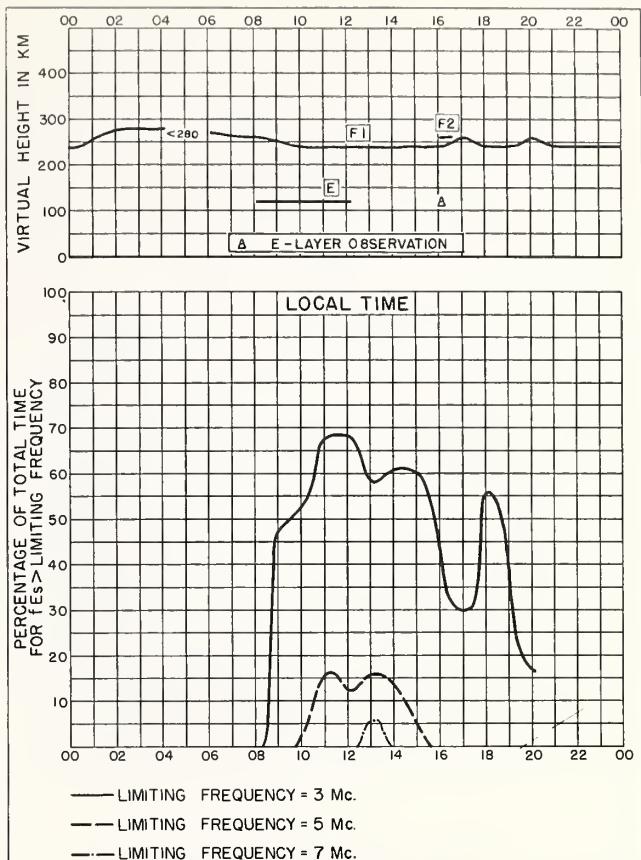


Fig. 10. FORMOSA, CHINA DECEMBER 1956

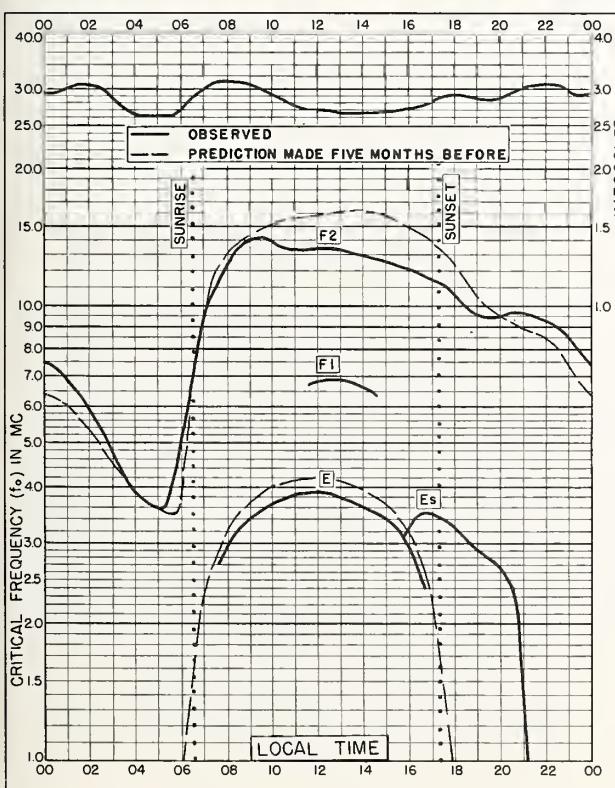


Fig. 11. MAUI, HAWAII
20.8°N, 156.5°W DECEMBER 1956

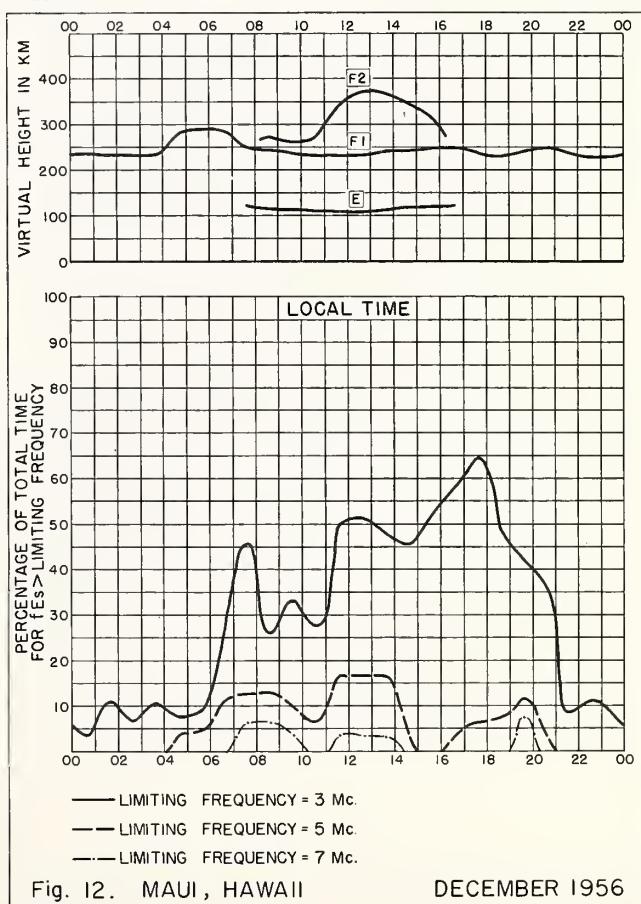


Fig. 12. MAUI, HAWAII DECEMBER 1956

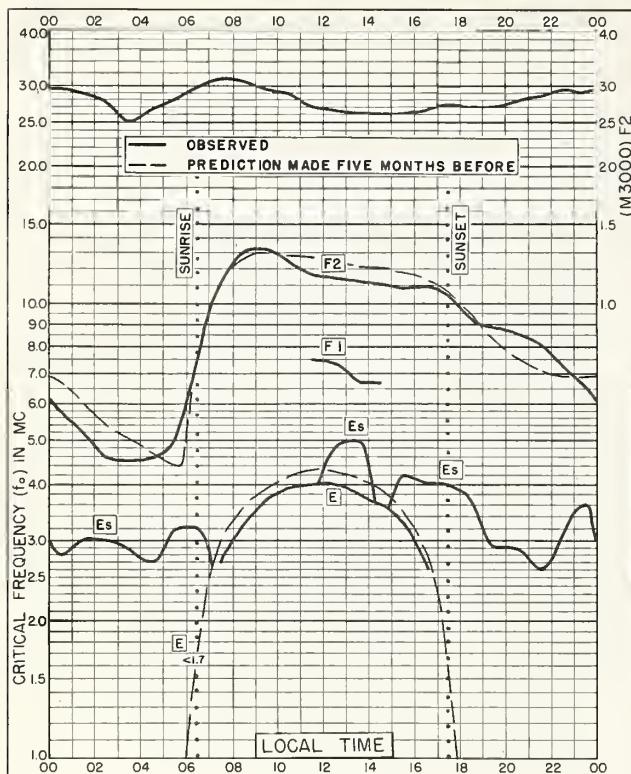


Fig. 13. PUERTO RICO, W.I.
18.5°N, 67.2°W DECEMBER 1956

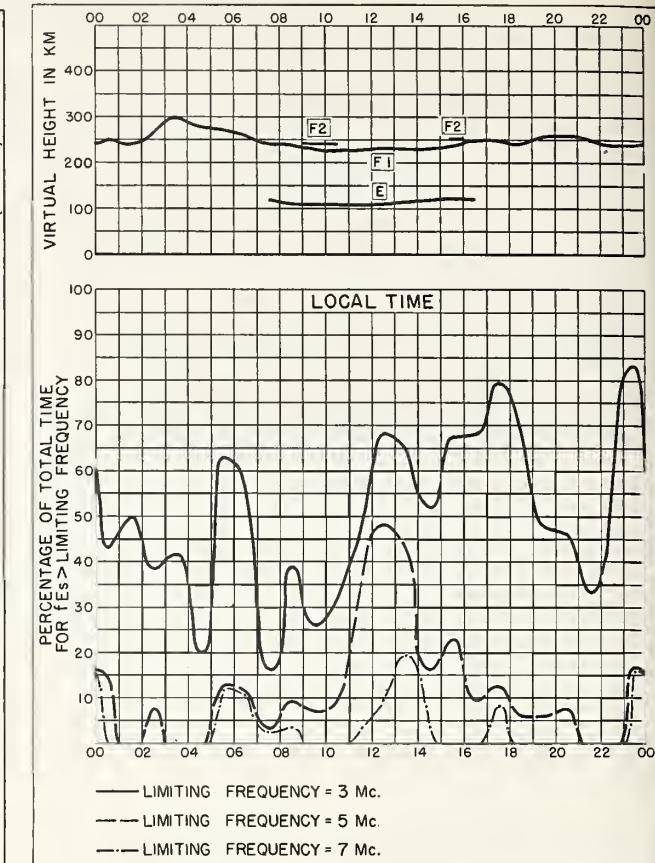


Fig. 14. PUERTO RICO, W.I. DECEMBER 1956

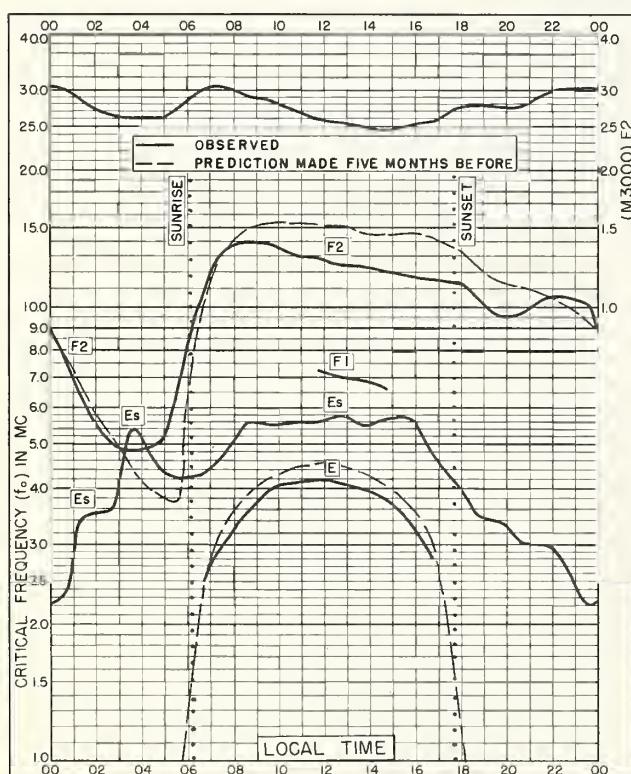


Fig. 15. PANAMA CANAL ZONE
9.4°N, 79.9°W DECEMBER 1956

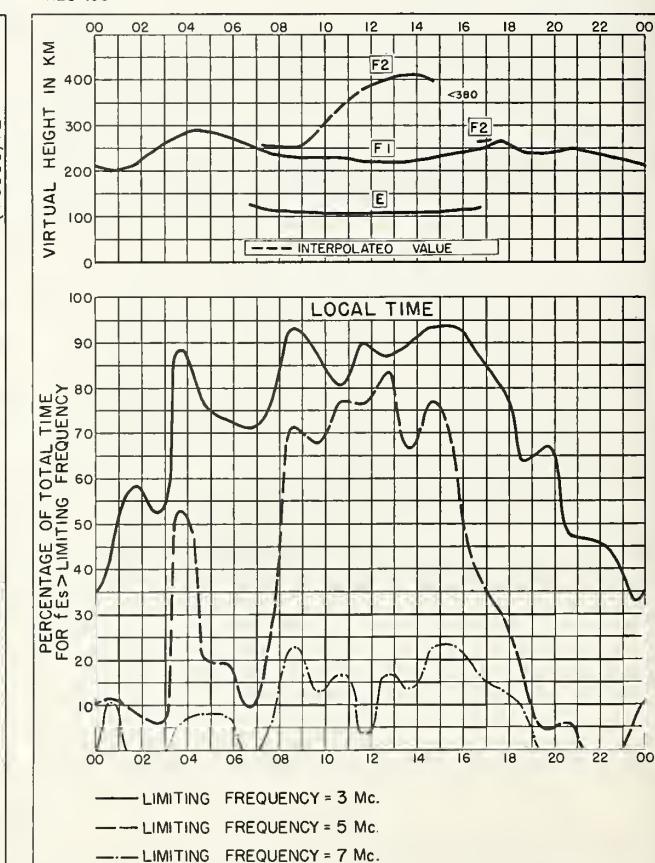


Fig. 16. PANAMA CANAL ZONE DECEMBER 1956

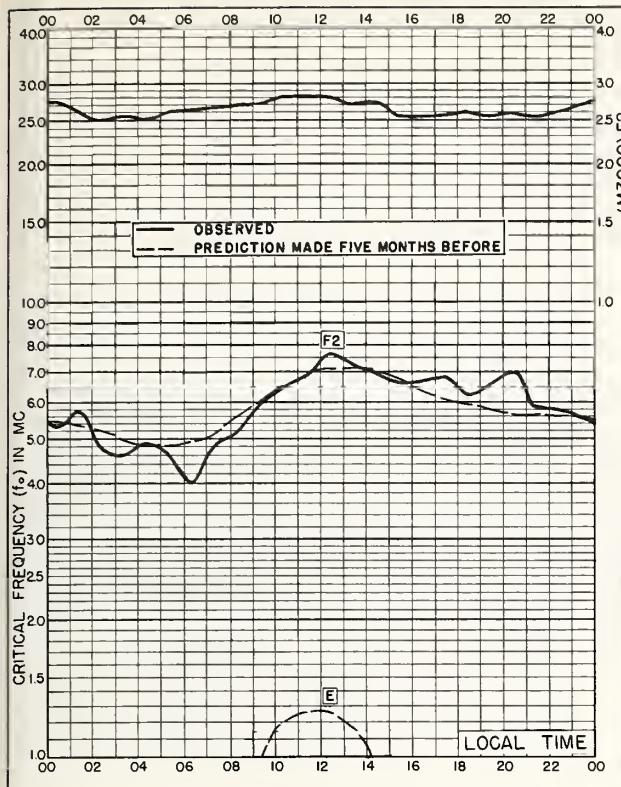


Fig. 17. THULE, GREENLAND
76.6°N, 68.7°W NOVEMBER 1956

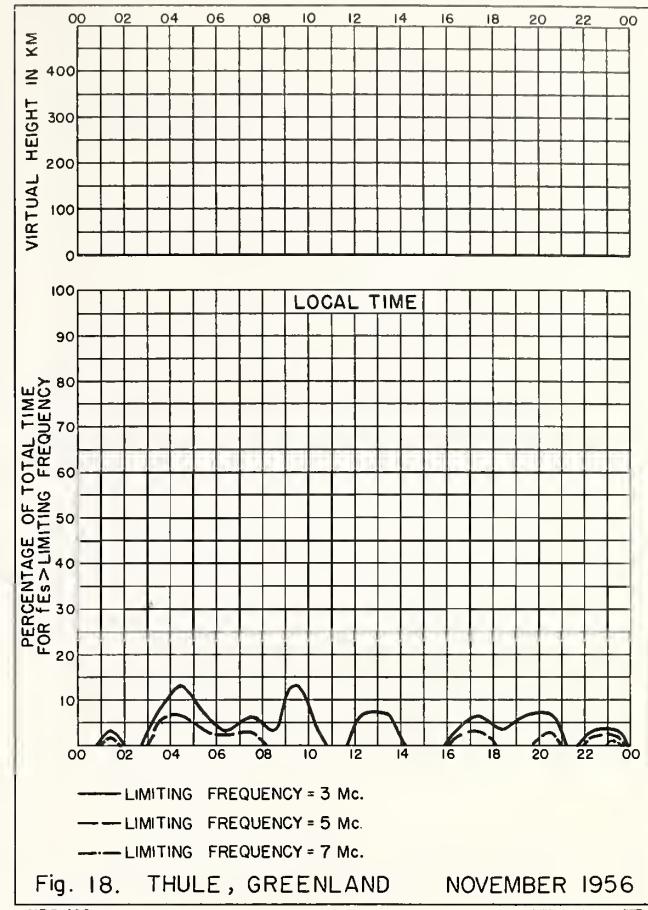


Fig. 18. THULE, GREENLAND NOVEMBER 1956

NBS 490

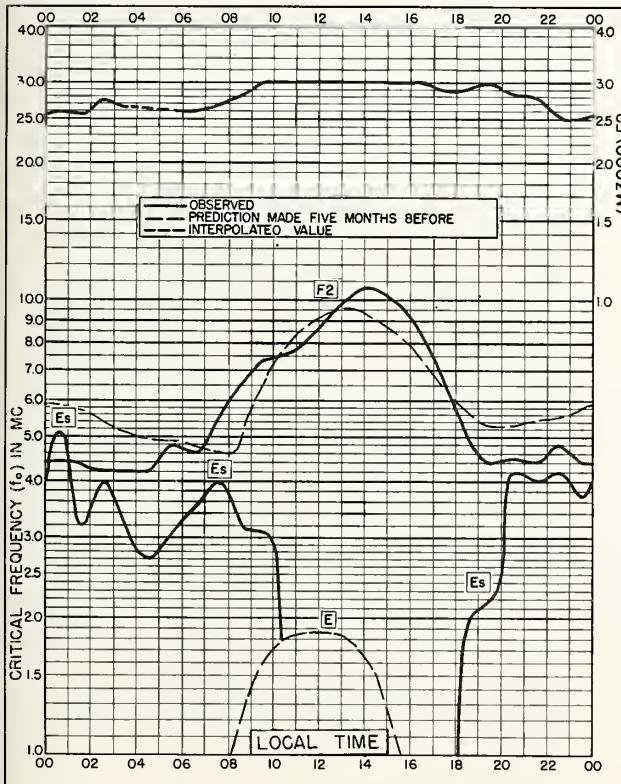


Fig. 19. POINT BARROW, ALASKA
71.3°N, 156.8°W NOVEMBER 1956

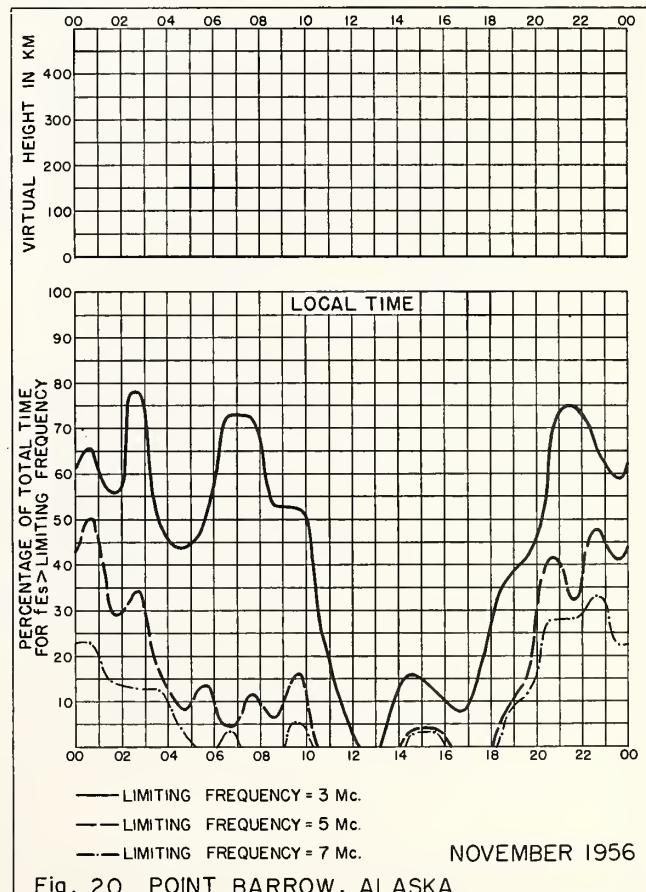
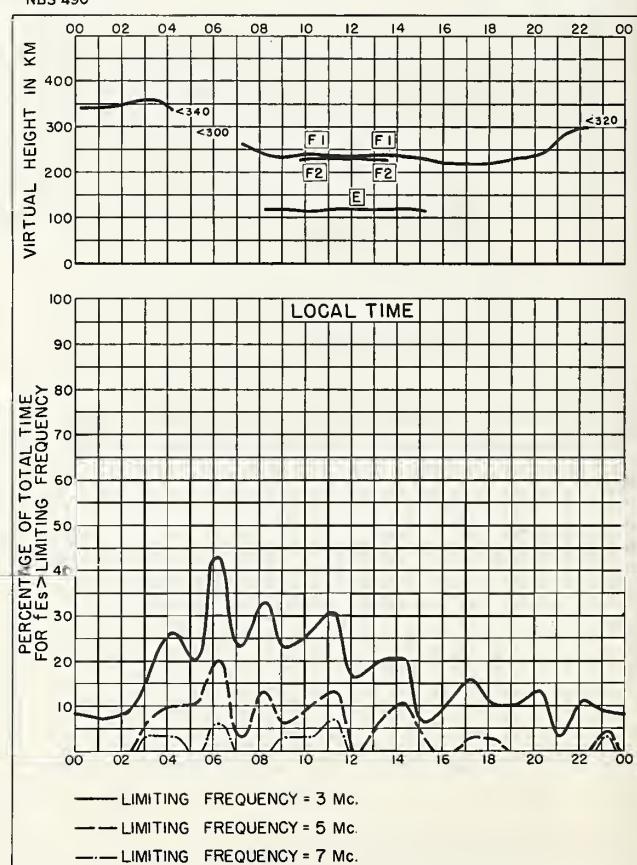
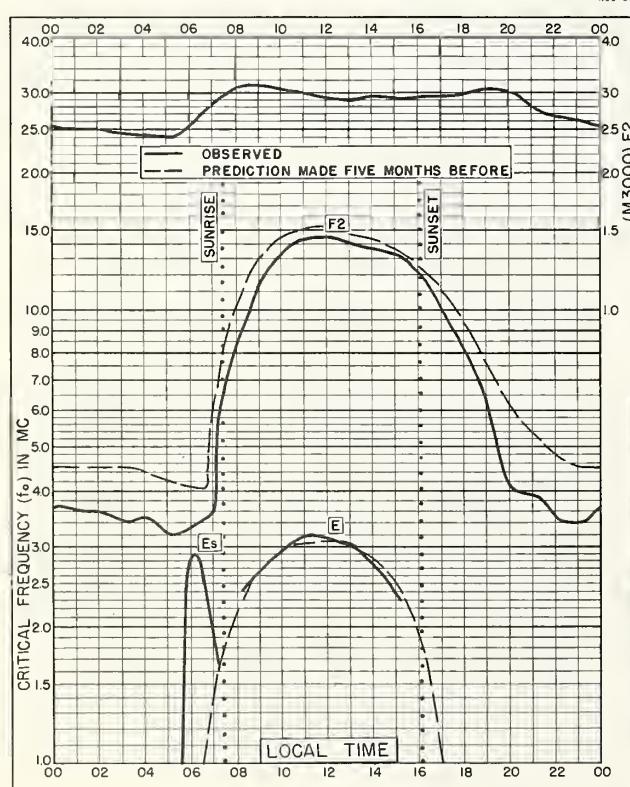
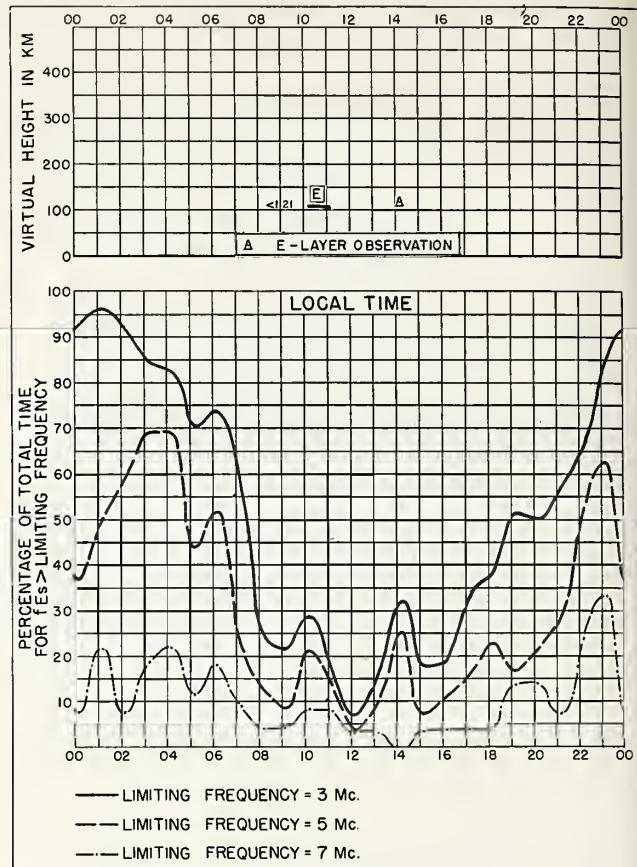
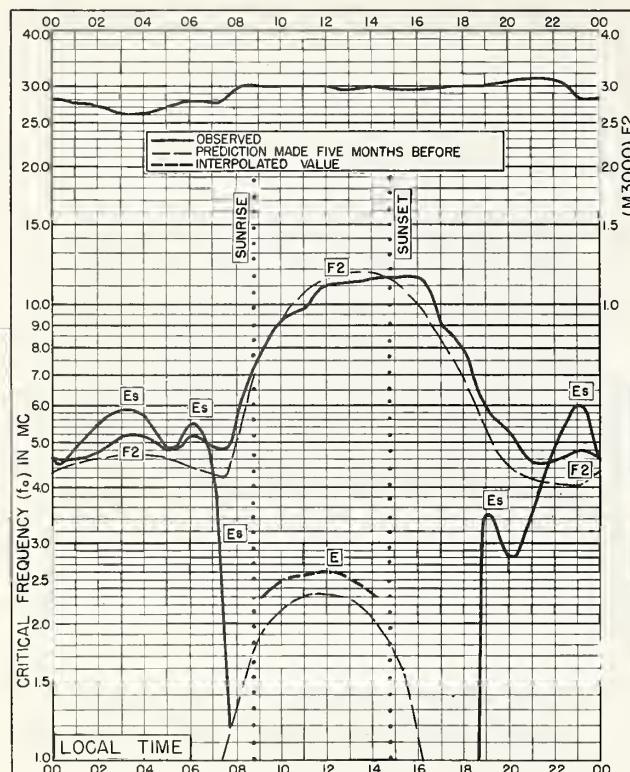


Fig. 20. POINT BARROW, ALASKA NOVEMBER 1956

NBS 490



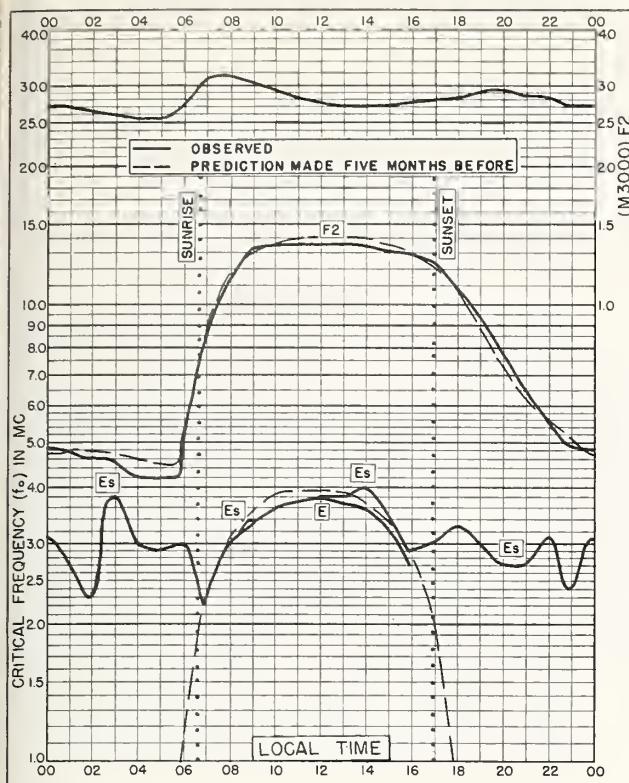
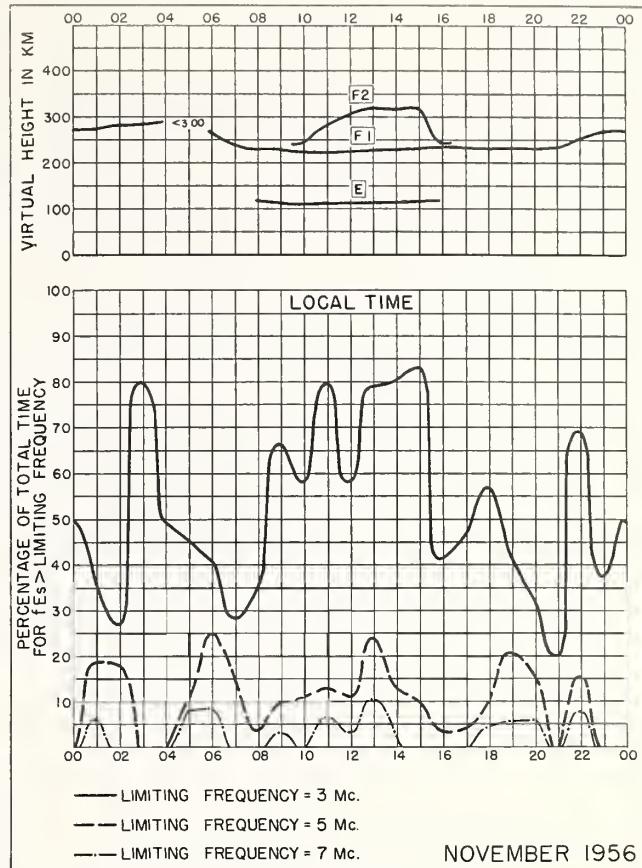


Fig. 25. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W NOVEMBER 1956



NOVEMBER 1956
Fig. 26. WHITE SANDS, NEW MEXICO
NBS 490

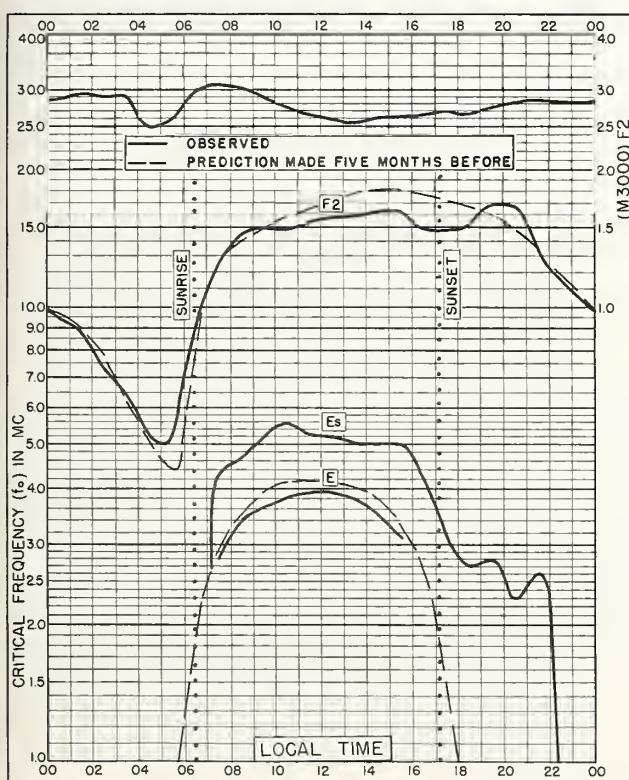
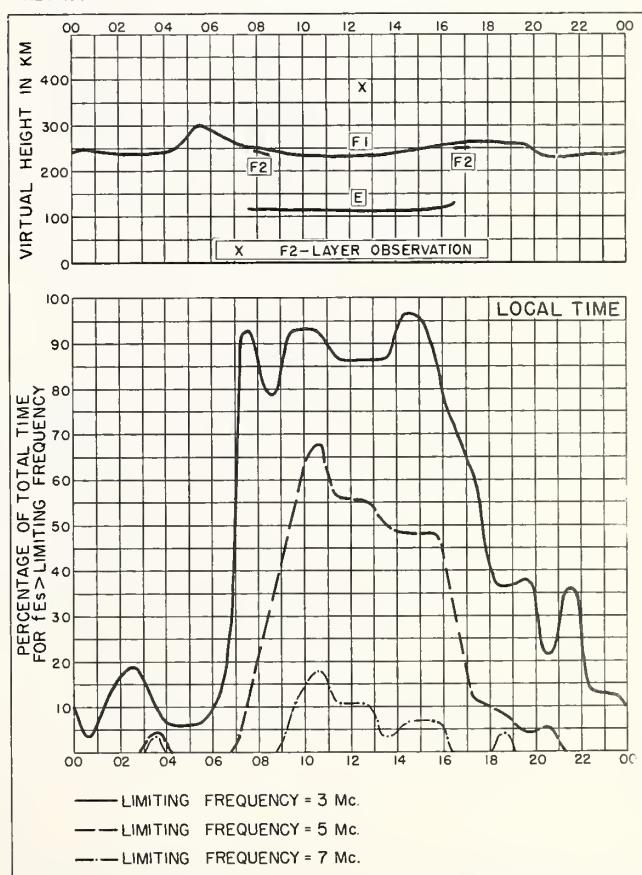


Fig. 27. OKINAWA I.
26.3°N, 127.8°E NOVEMBER 1956



NOVEMBER 1956
Fig. 28. OKINAWA I.
NBS 490

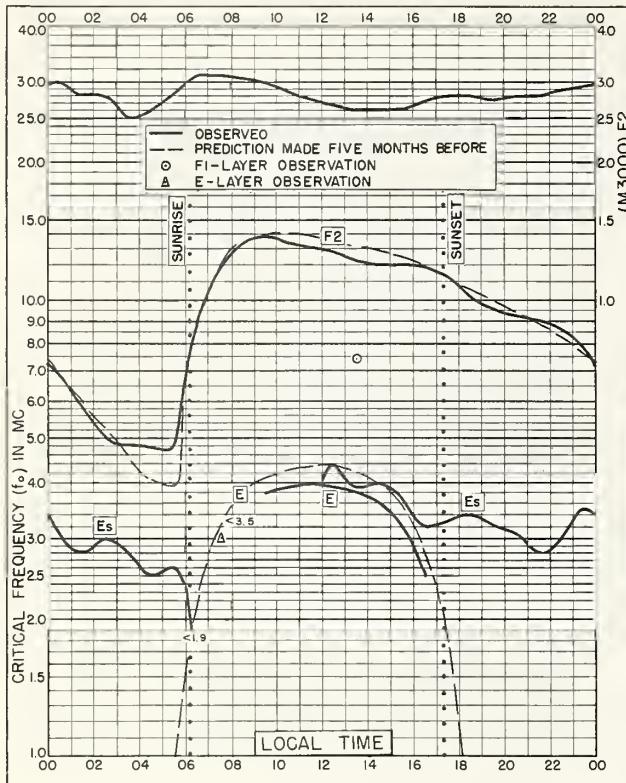


Fig. 29. PUERTO RICO, W. I.
18.5°N, 67.2°W NOVEMBER 1956

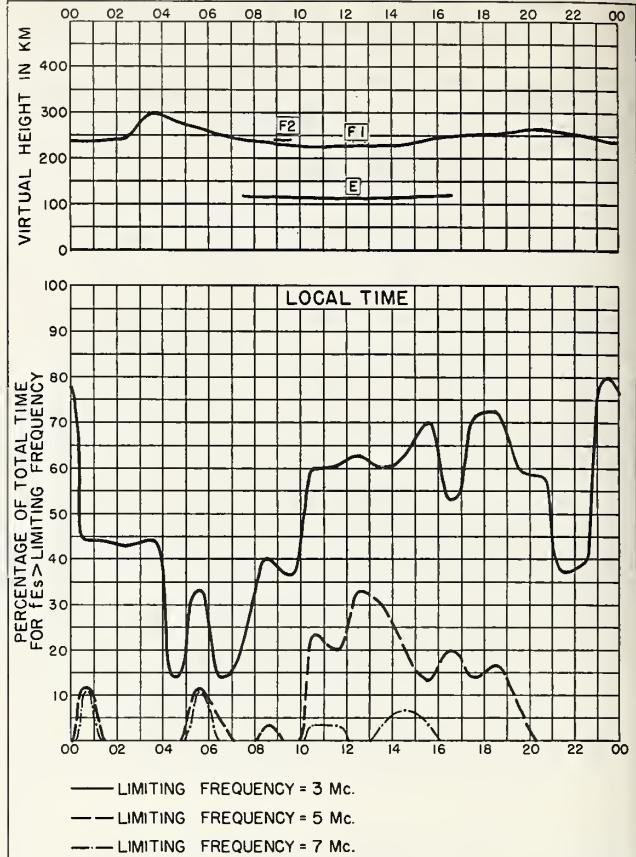


Fig. 30. PUERTO RICO, W. I. NOVEMBER 1956

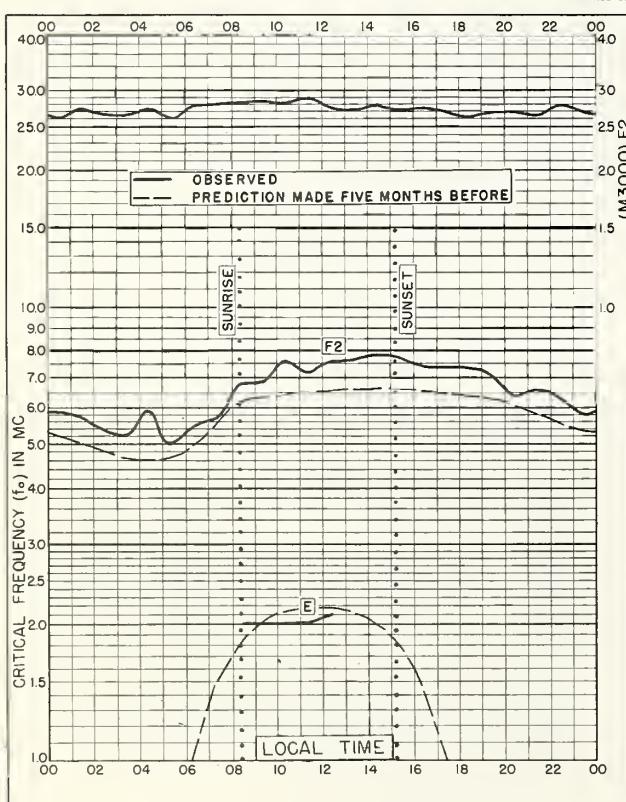


Fig. 31. THULE, GREENLAND
76.6°N, 68.7°W OCTOBER 1956

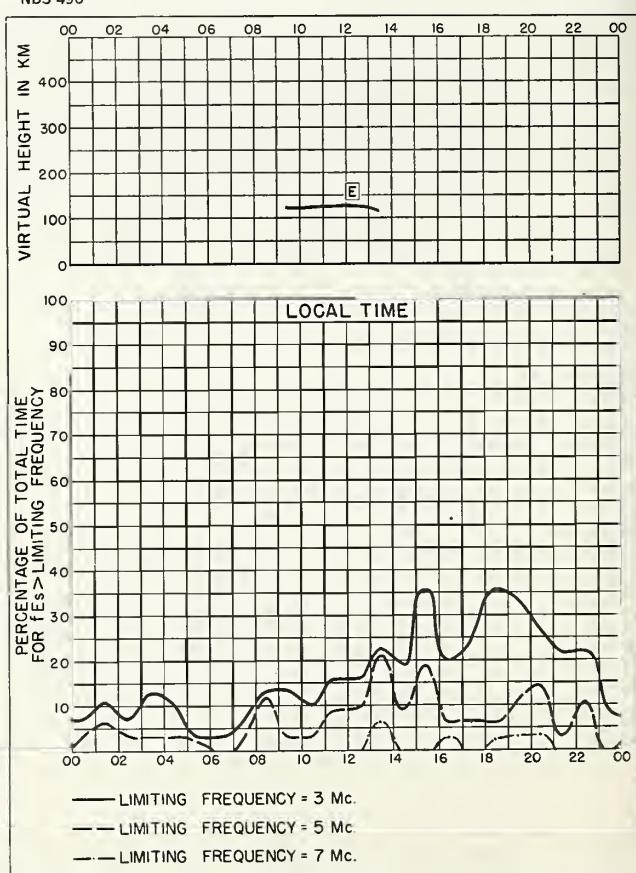
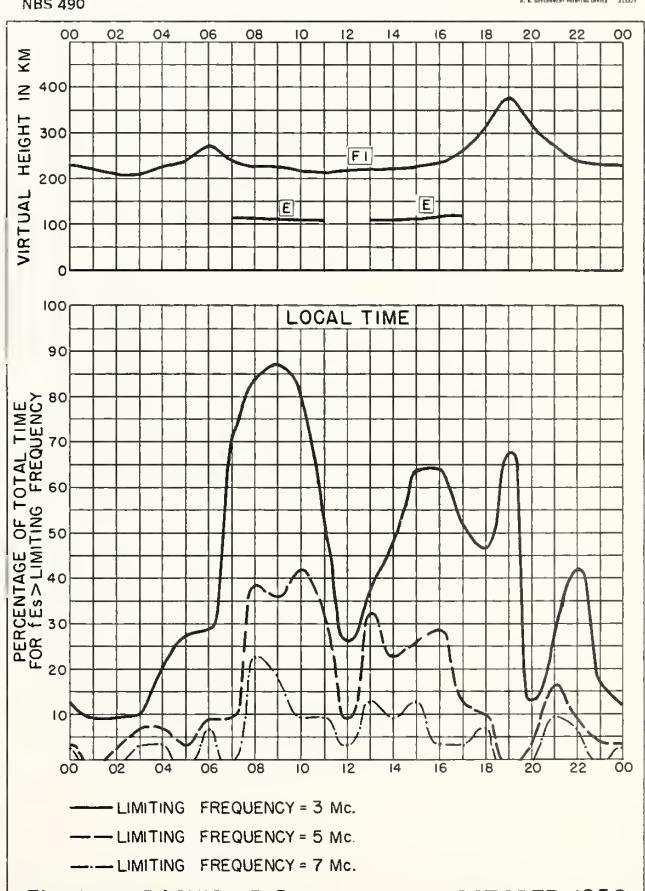
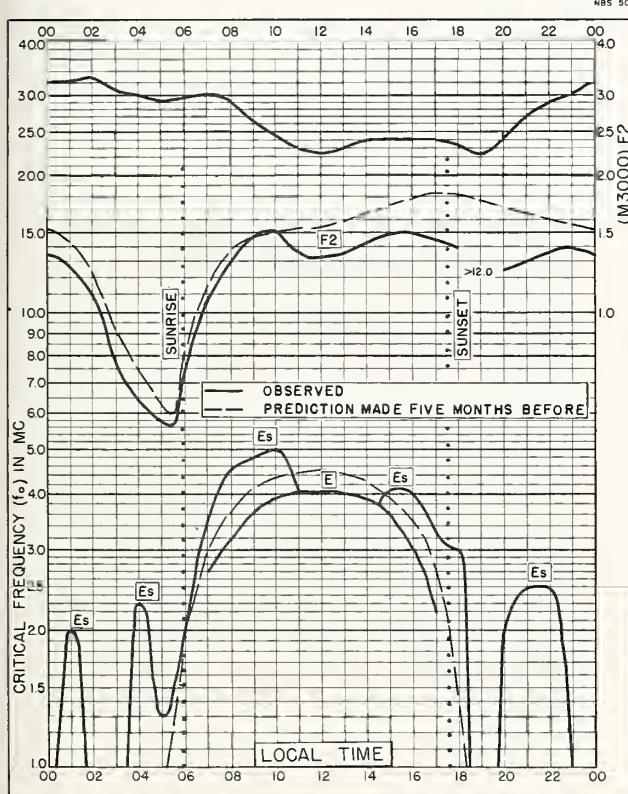
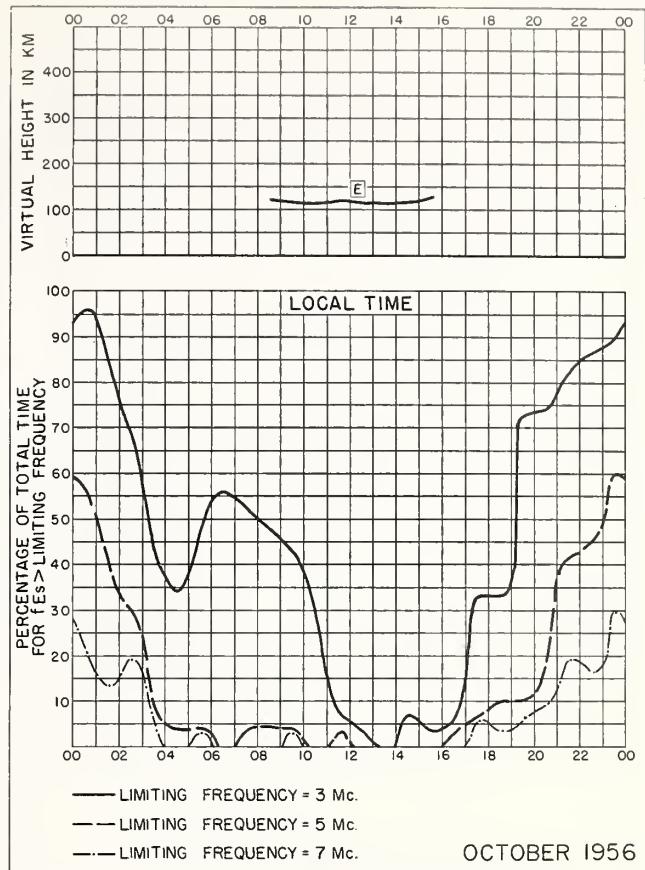
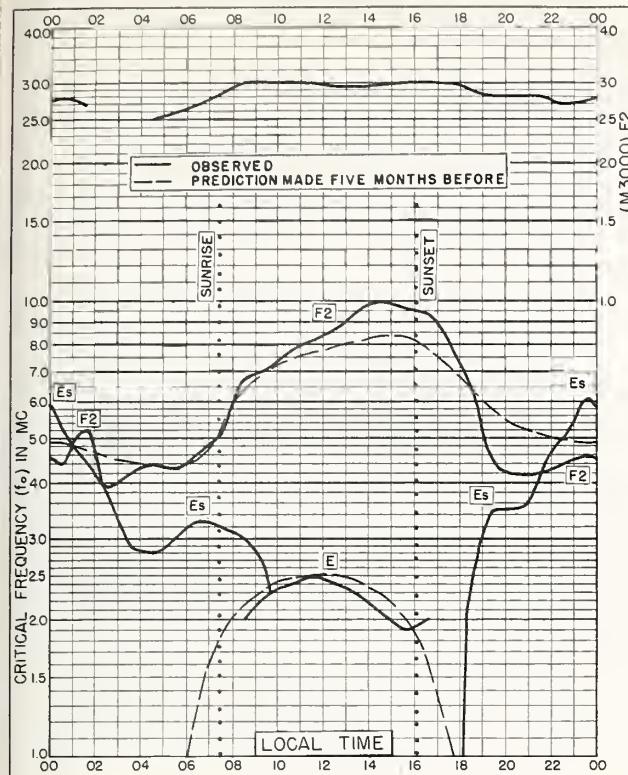


Fig. 32. THULE, GREENLAND OCTOBER 1956



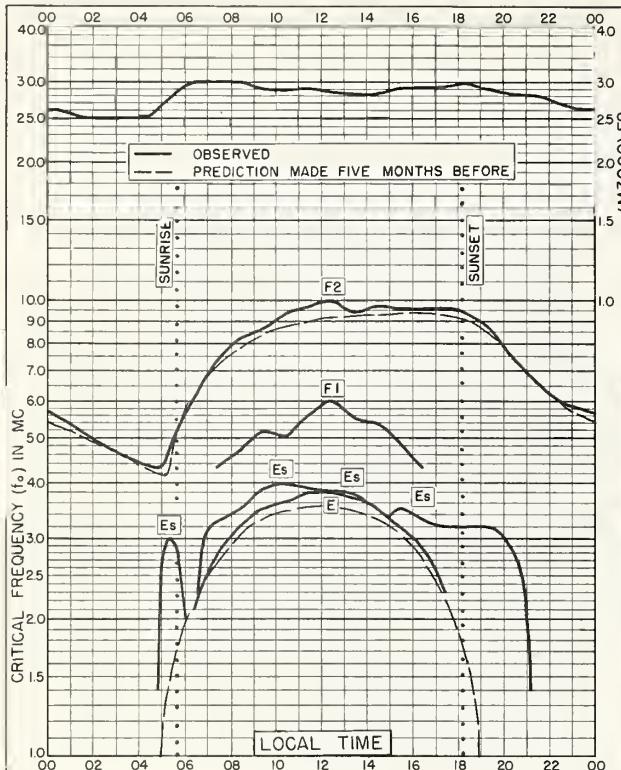


Fig. 37. De BILT, HOLLAND
52.1°N, 5.2°E SEPTEMBER 1956

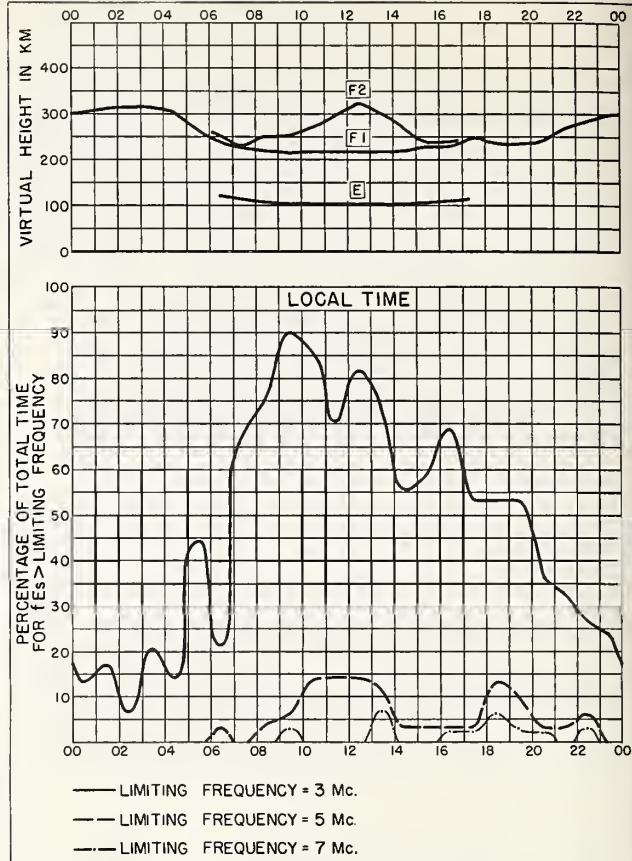


Fig. 38. De BILT, HOLLAND SEPTEMBER 1956

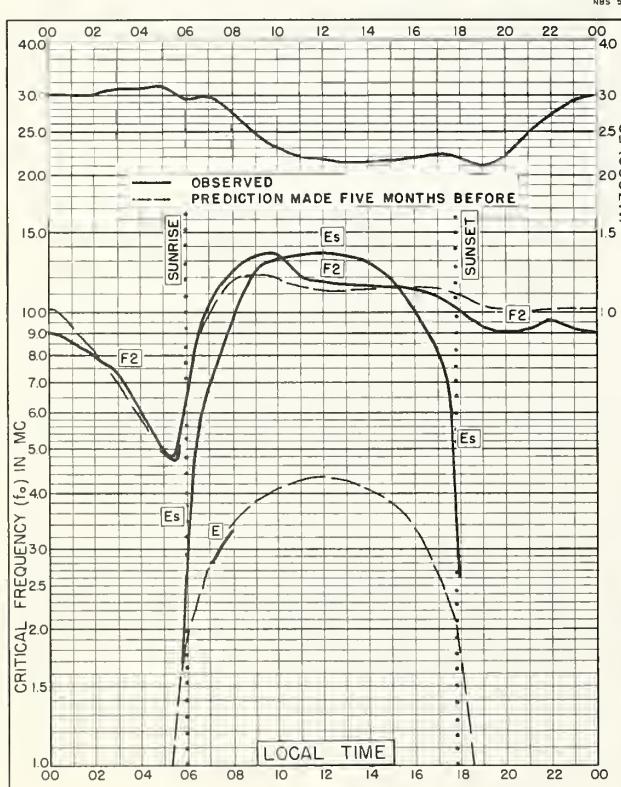


Fig. 39. HUANCAYO, PERU
12.0°S, 75.3°W SEPTEMBER 1956

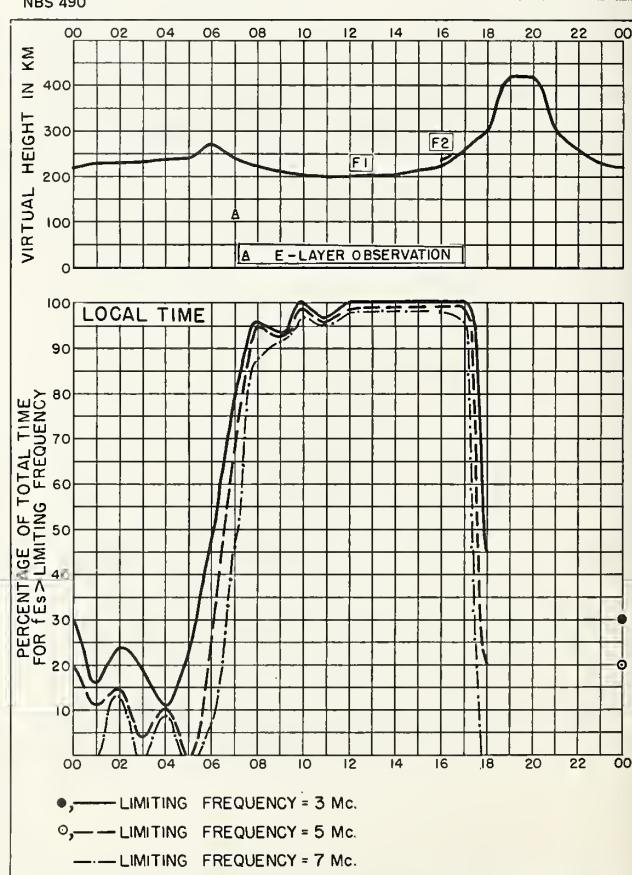


Fig. 40. HUANCAYO, PERU SEPTEMBER 1956

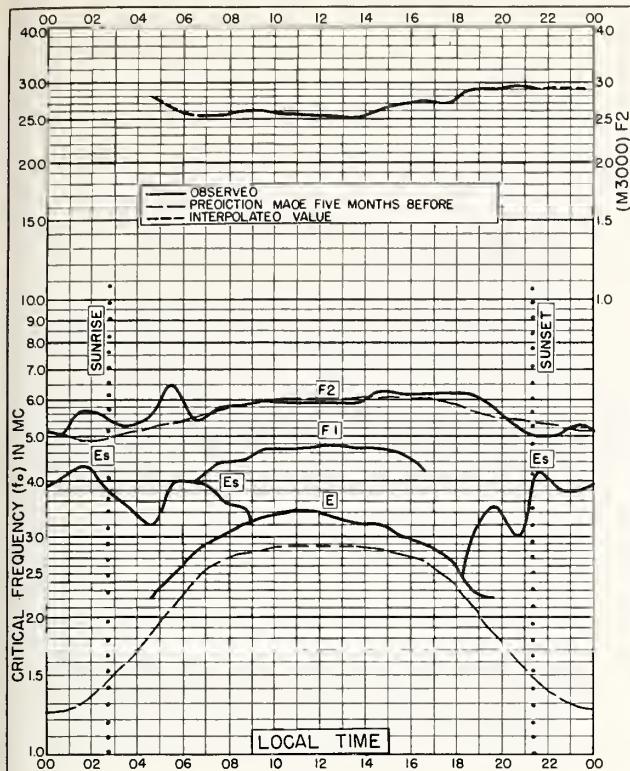


Fig. 41. POINT BARROW, ALASKA
71.3°N, 156.8°W AUGUST 1956

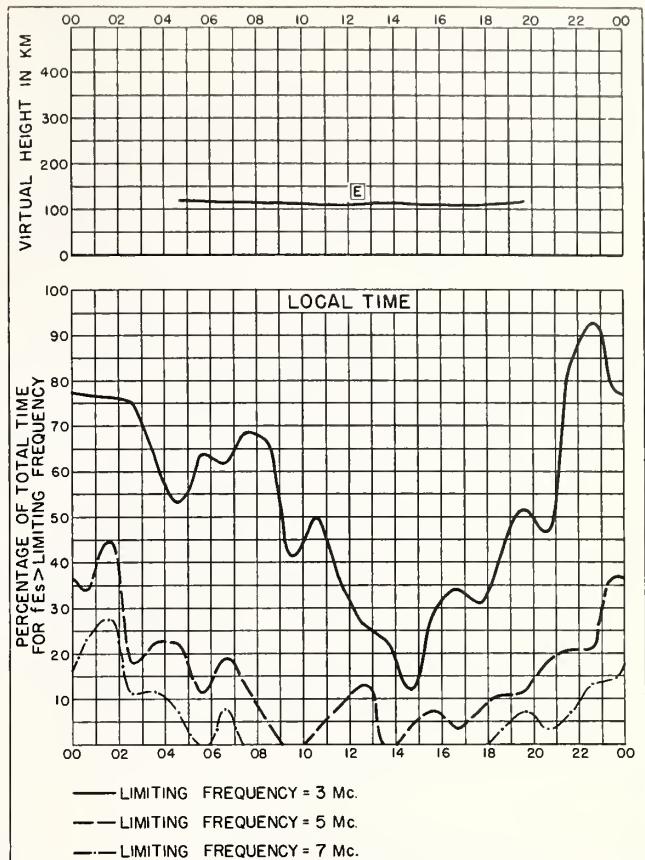


Fig. 42. POINT BARROW, ALASKA AUGUST 1956

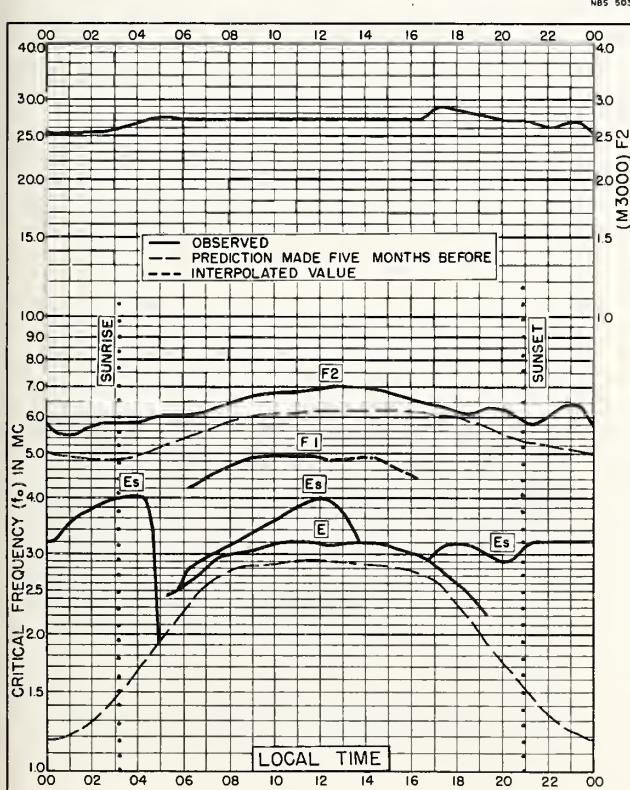


Fig. 43. TROMSO, NORWAY
69.7°N, 19.0°E AUGUST 1956

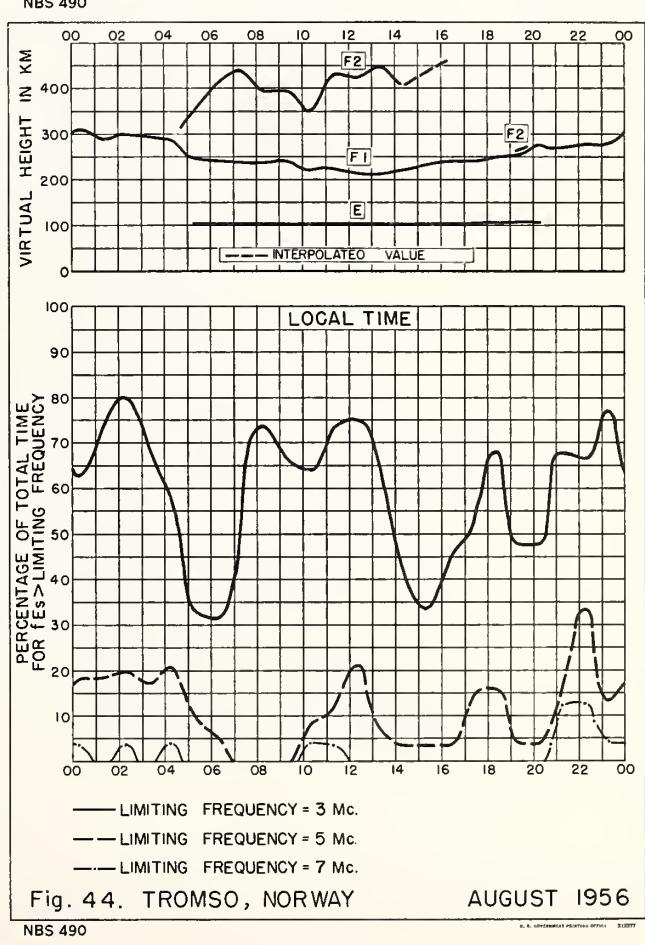
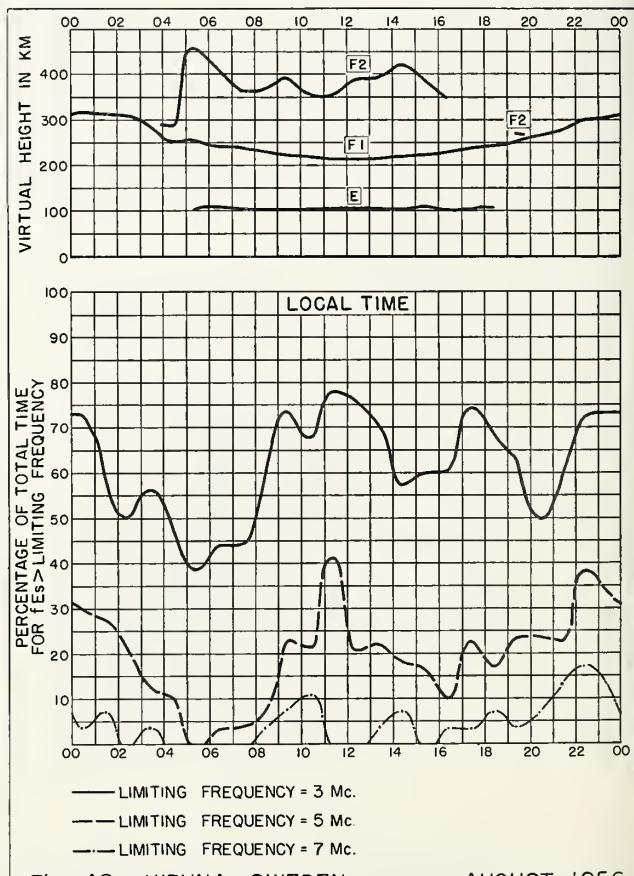
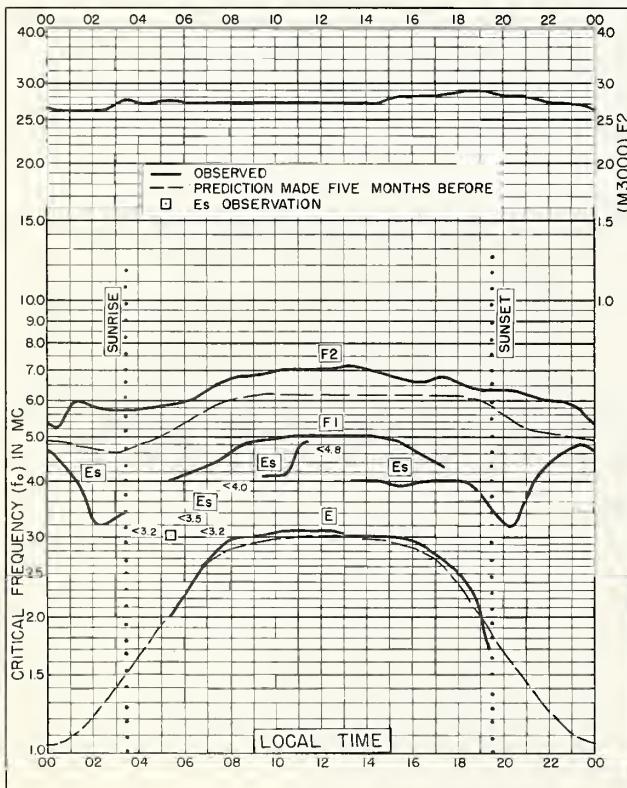
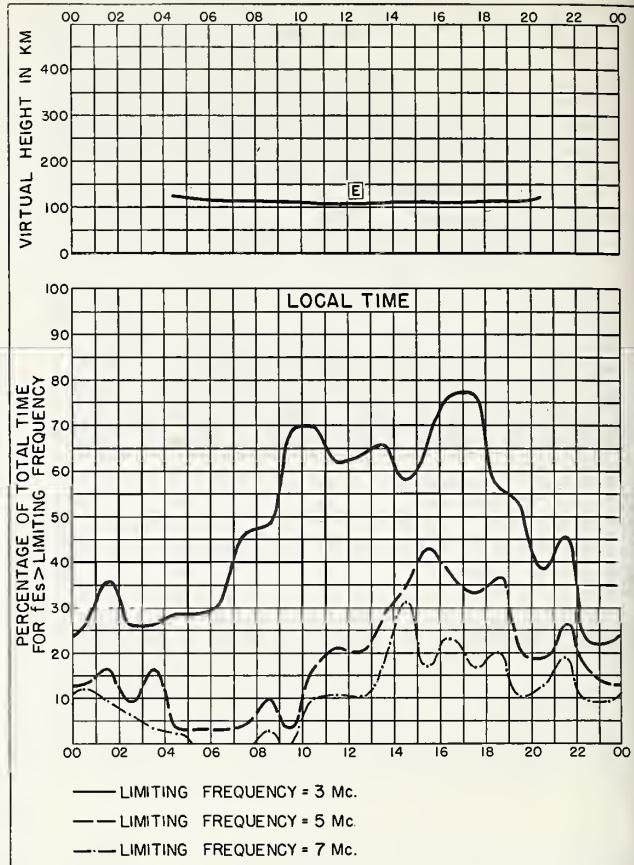
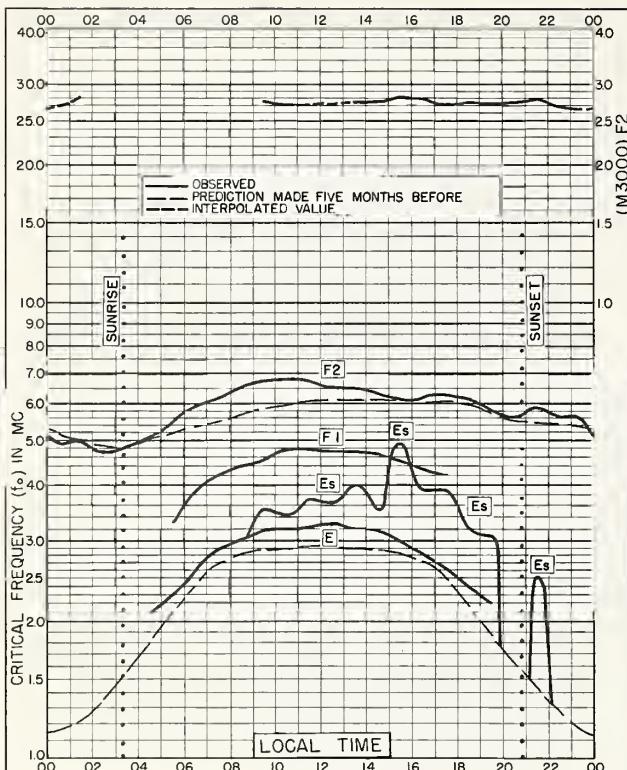


Fig. 44. TROMSO, NORWAY AUGUST 1956



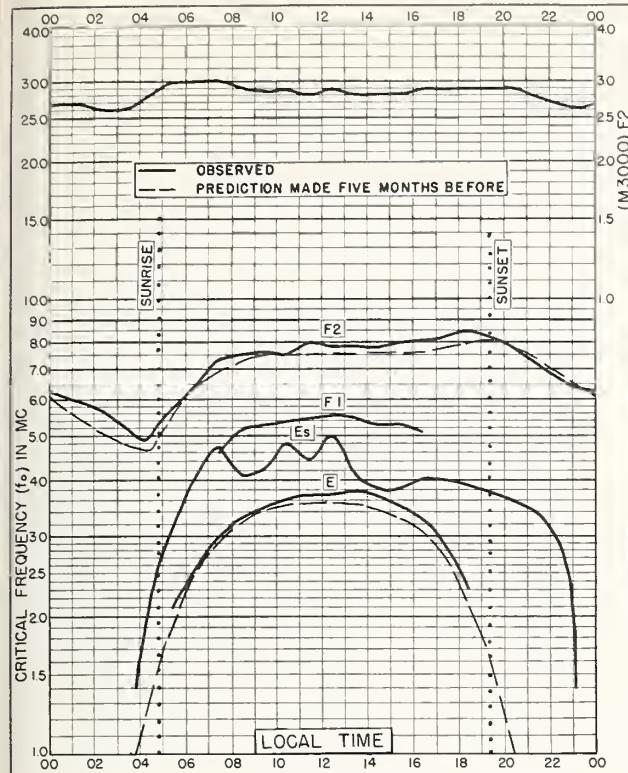


Fig. 49. De BILT, HOLLAND
 52.1°N, 5.2°E AUGUST 1956

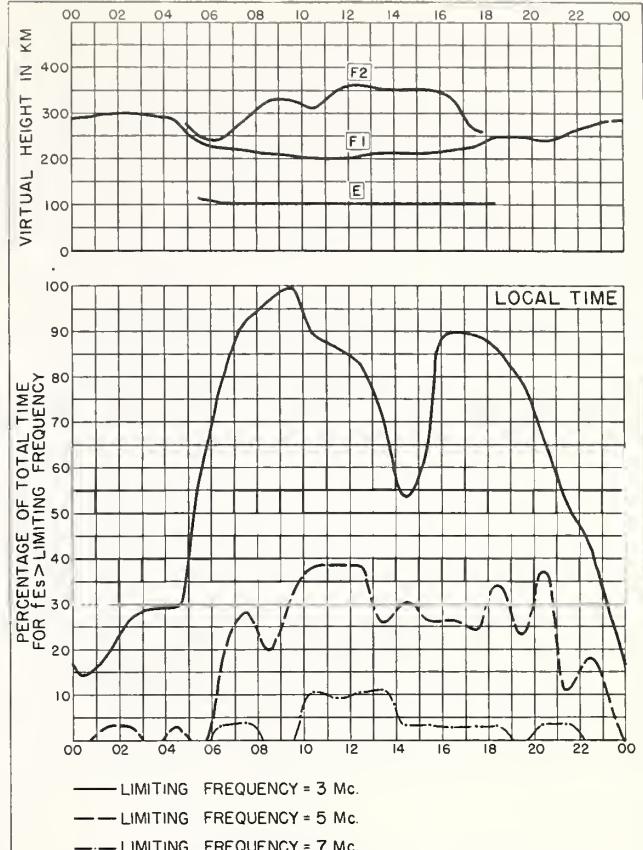


Fig. 50. De BILT, HOLLAND AUGUST 1956

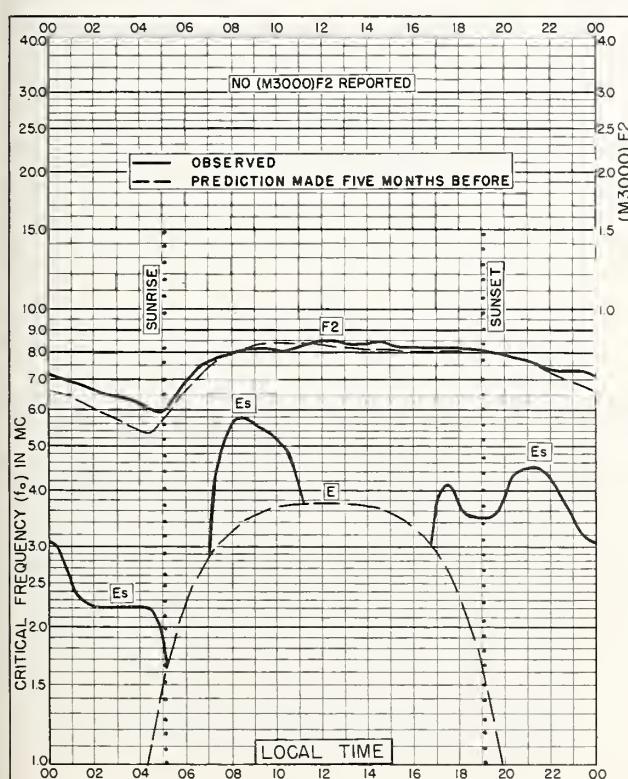


Fig. 51. WAKKANAI, JAPAN
 45.4°N, 141.7°E AUGUST 1956

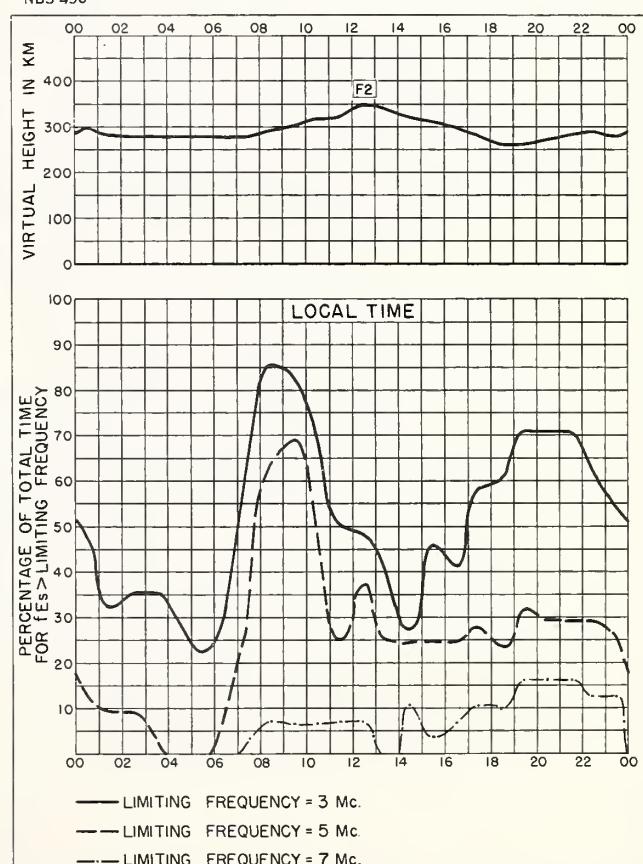


Fig. 52. WAKKANAI, JAPAN AUGUST 1956

50

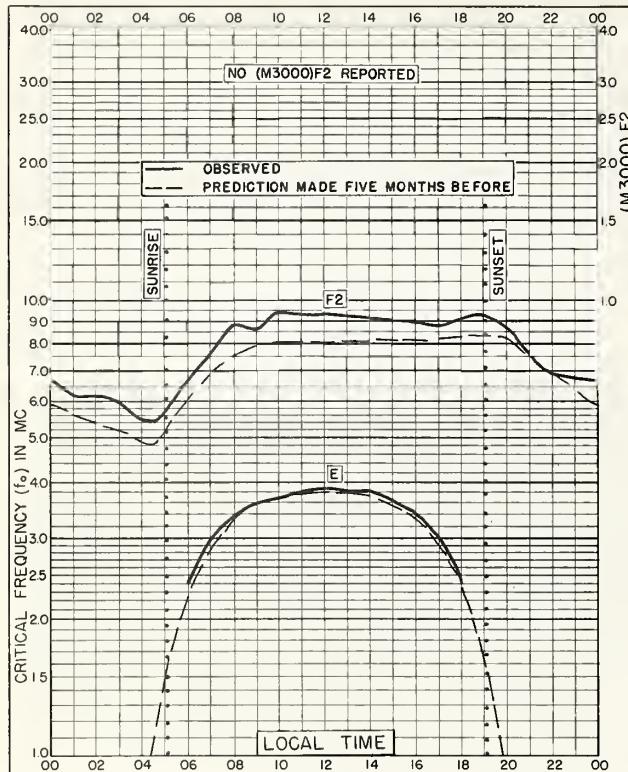


Fig. 53. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E AUGUST 1956

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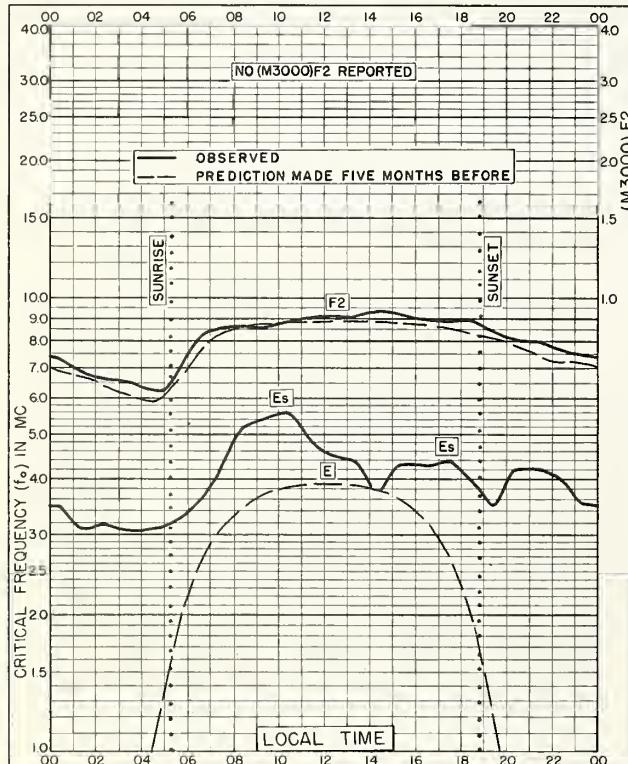
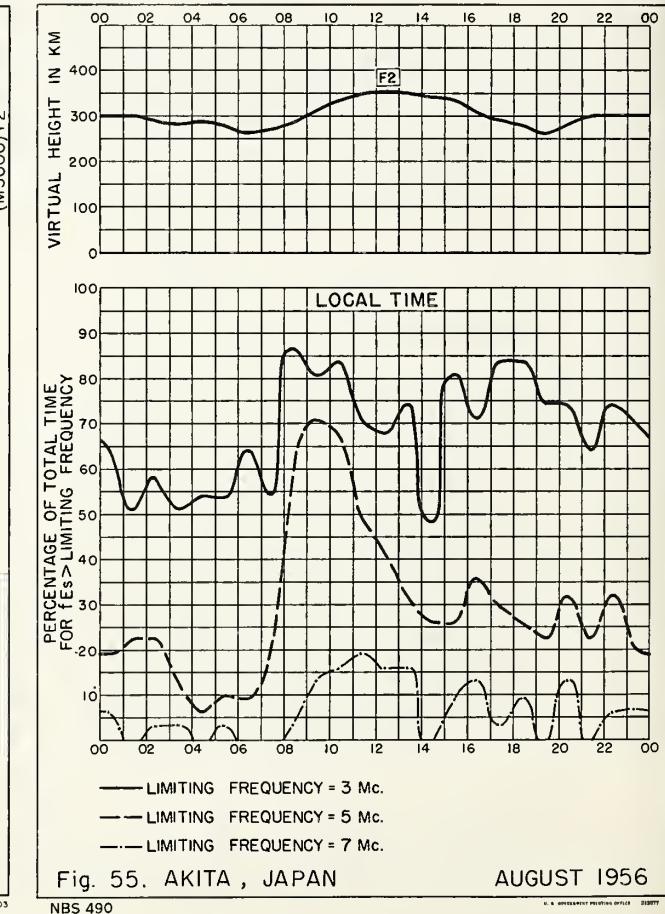


Fig. 54. AKITA, JAPAN
39.7°N, 140.1°E AUGUST 1956



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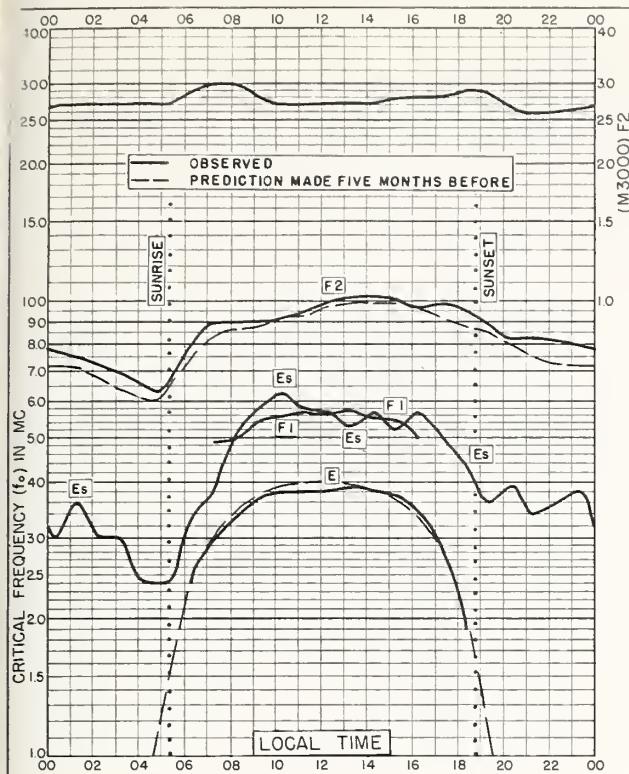


Fig. 56. TOKYO, JAPAN
35.7°N, 139.5°E AUGUST 1956

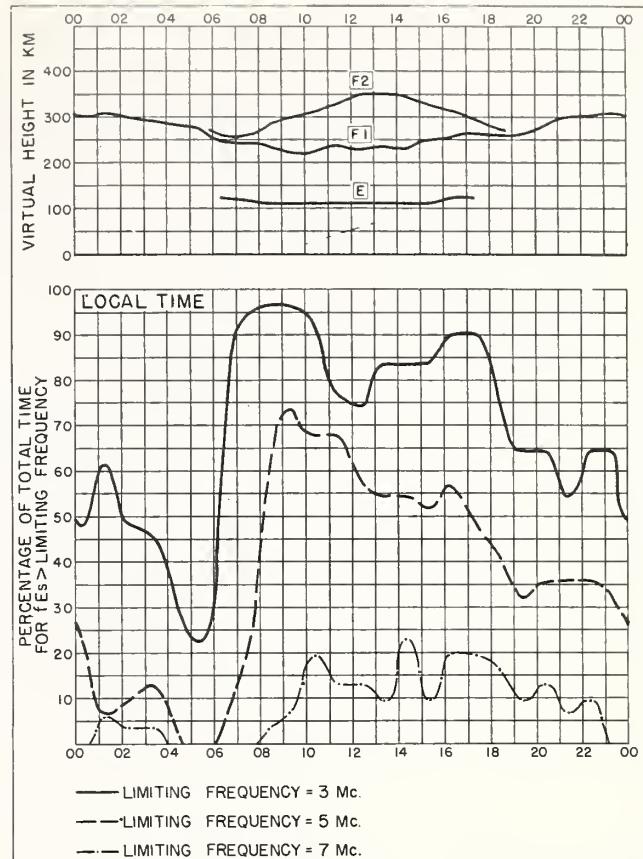


Fig. 57. TOKYO, JAPAN AUGUST 1956

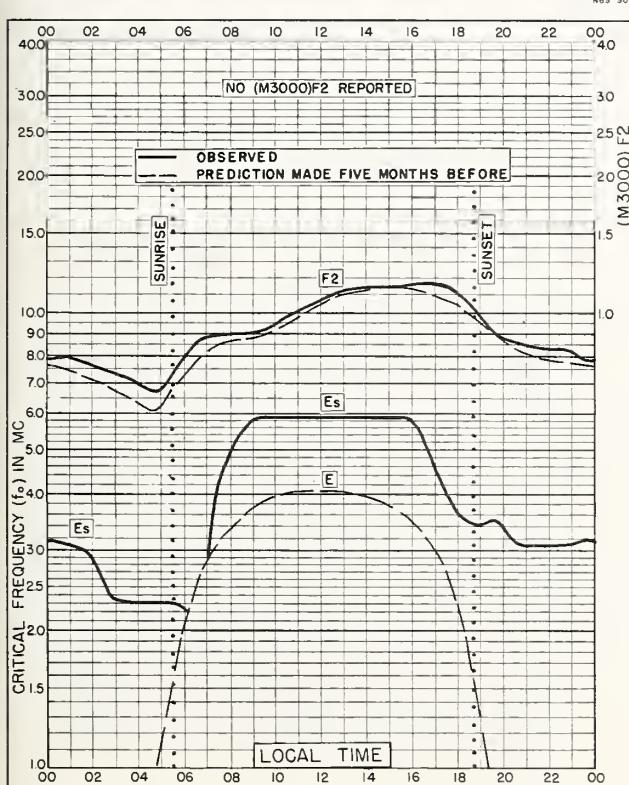


Fig. 58. YAMAGAWA, JAPAN
31.2°N, 130.6°E AUGUST 1956

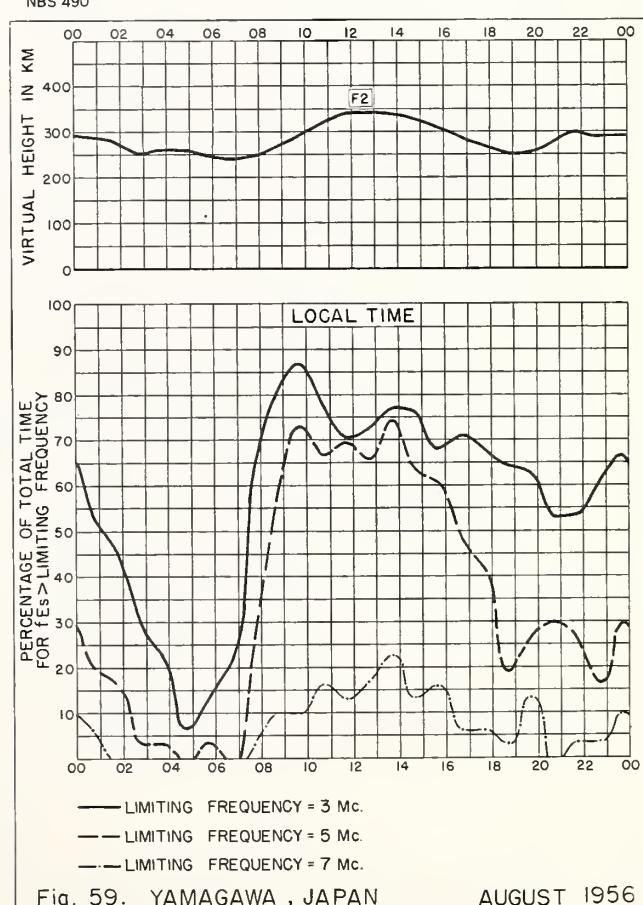


Fig. 59. YAMAGAWA, JAPAN AUGUST 1956

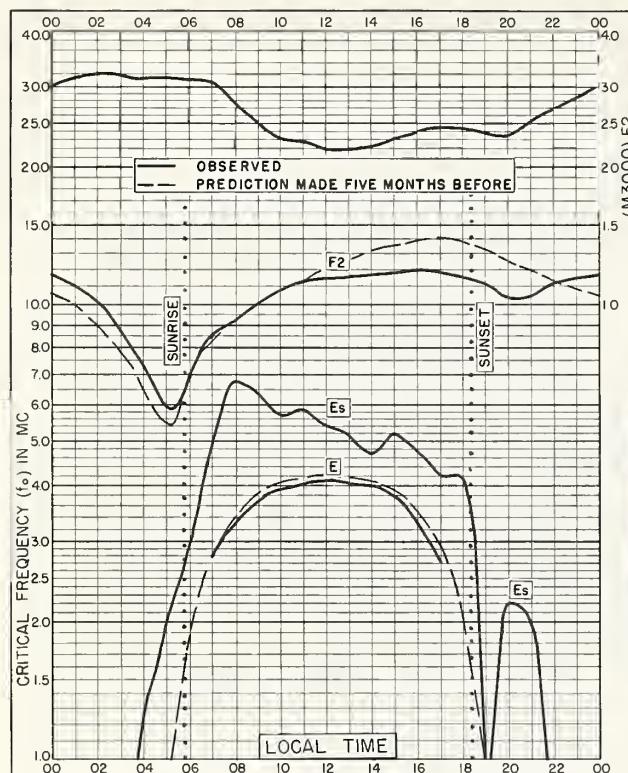


Fig. 60. BAGUIO, P.I.
16.4°N, 120.6°E AUGUST 1956

NBS 503

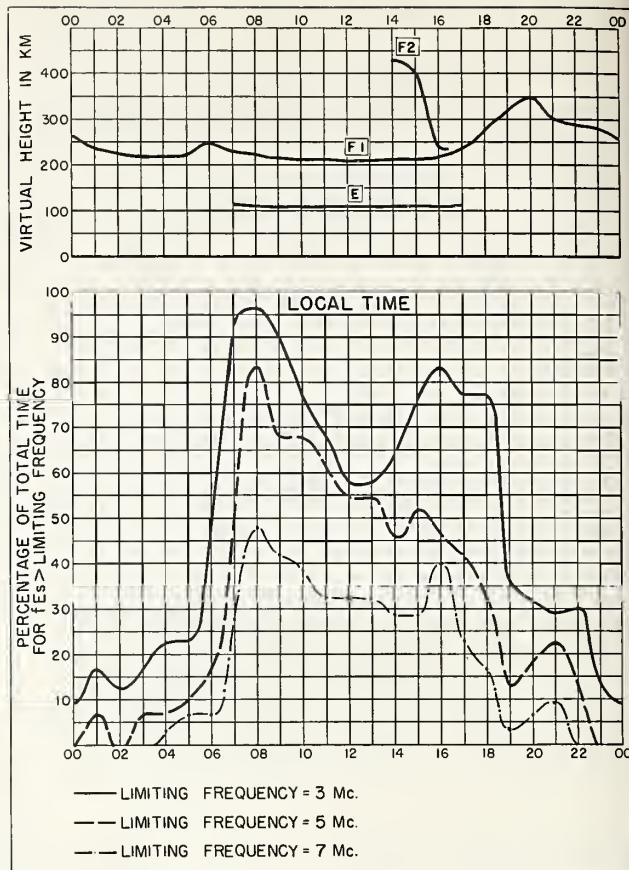


Fig. 61. BAGUIO, P.I. AUGUST 1956

NBS 490

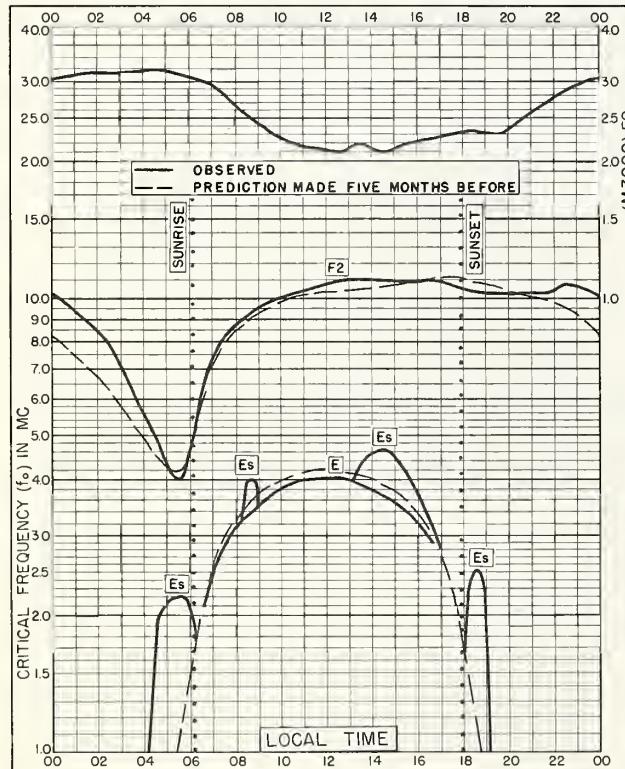


Fig. 62. TALARA, PERU
4.6°S, 81.3°W AUGUST 1956

NBS 503

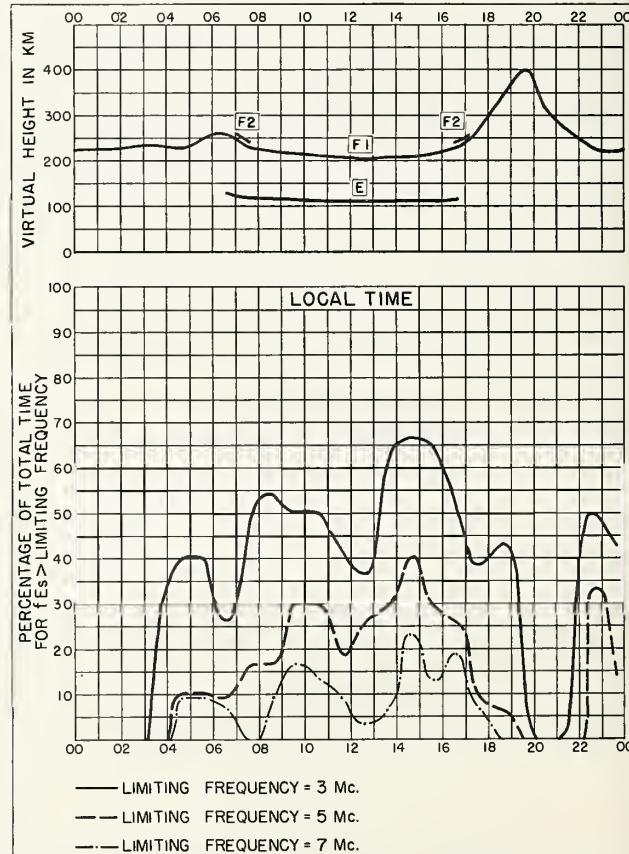


Fig. 63. TALARA, PERU AUGUST 1956

NBS 490

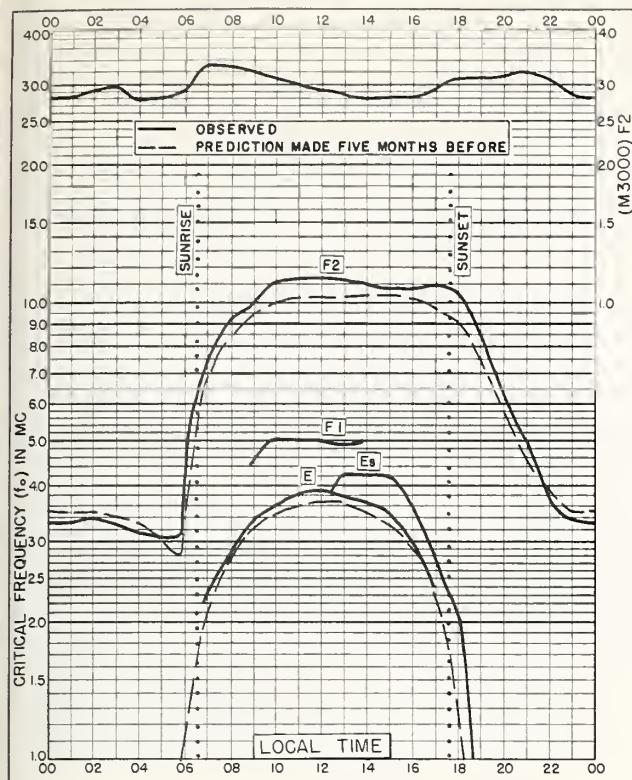


Fig. 64. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E AUGUST 1956

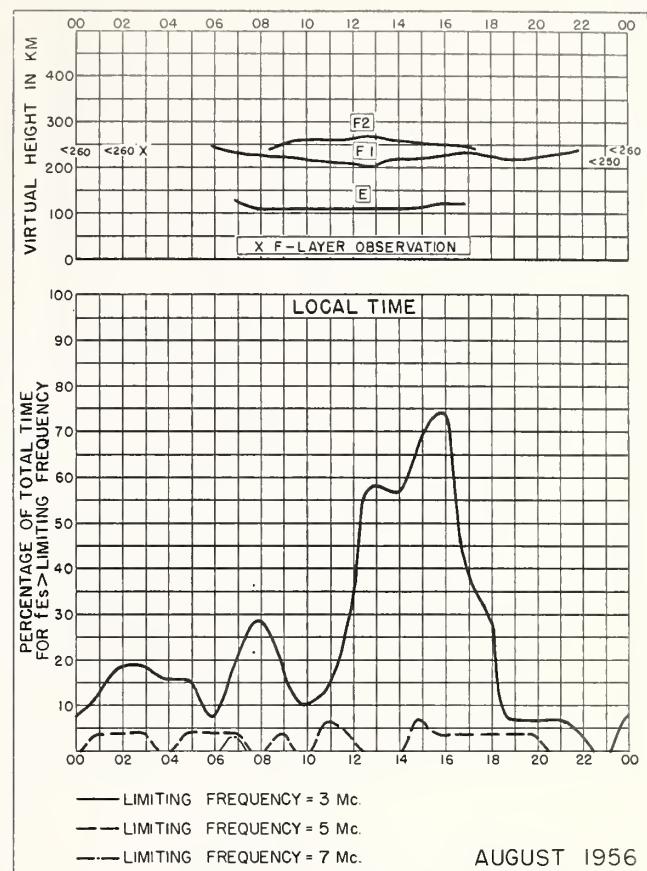


Fig. 65. JOHANNESBURG, UNION OF S. AFRICA AUGUST 1956

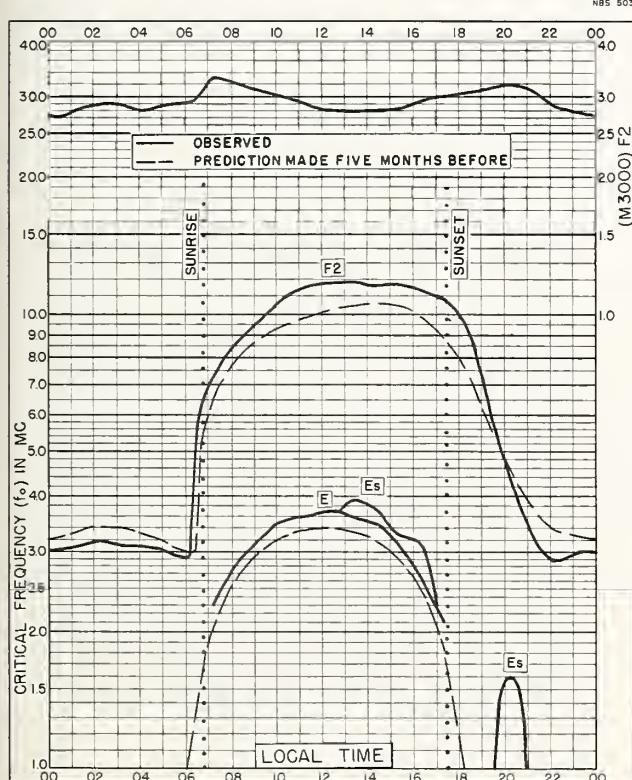


Fig. 66. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E AUGUST 1956

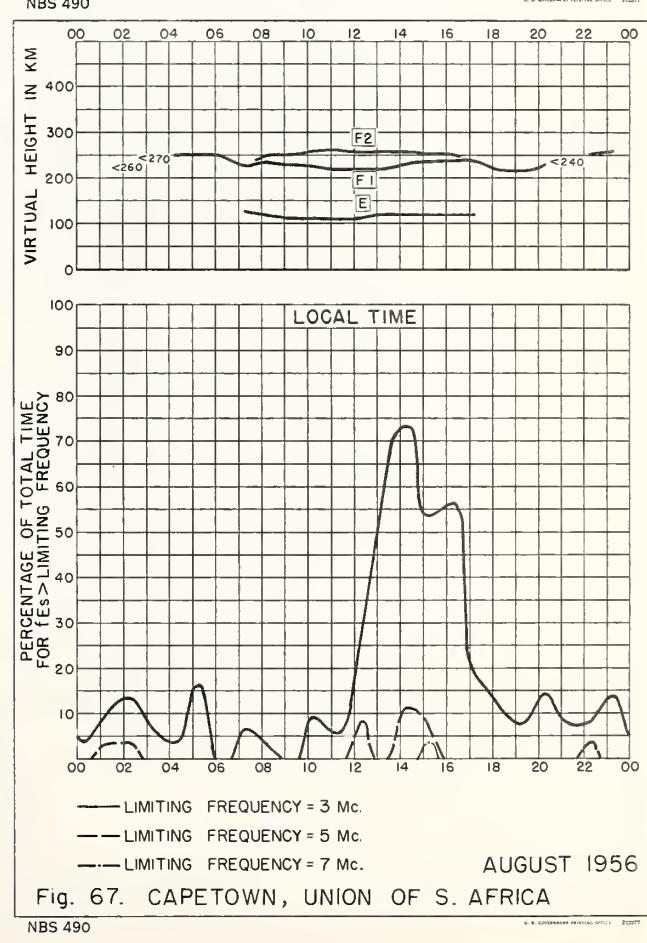


Fig. 67. CAPETOWN, UNION OF S. AFRICA AUGUST 1956

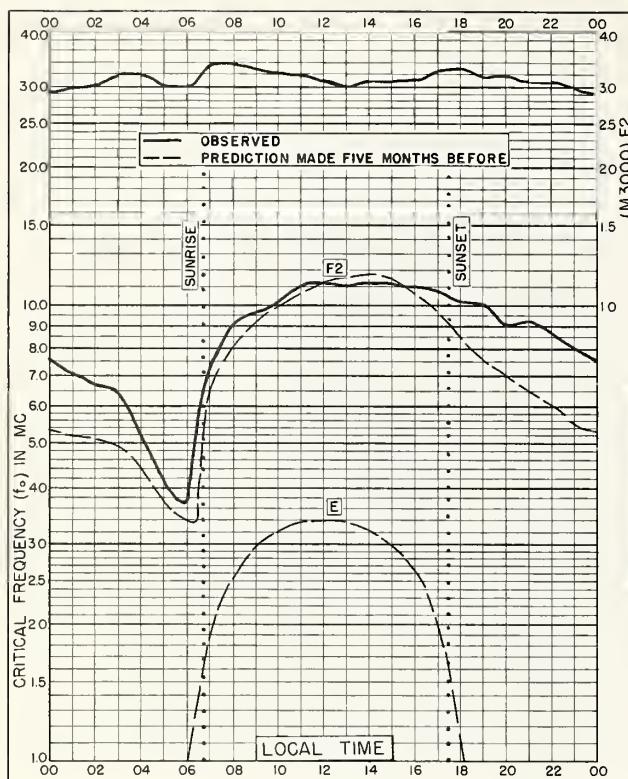


Fig. 68. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W AUGUST 1956

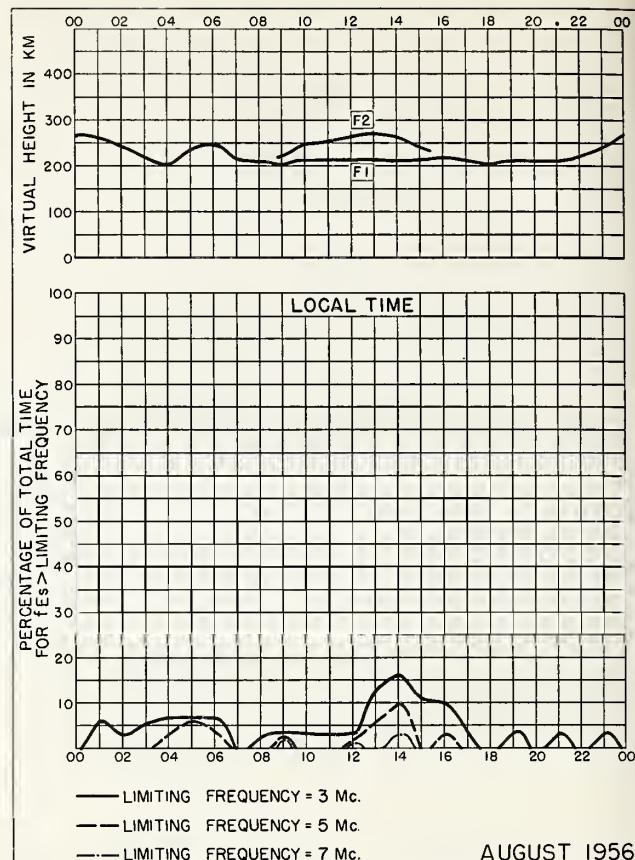


Fig. 69. BUENOS AIRES, ARGENTINA

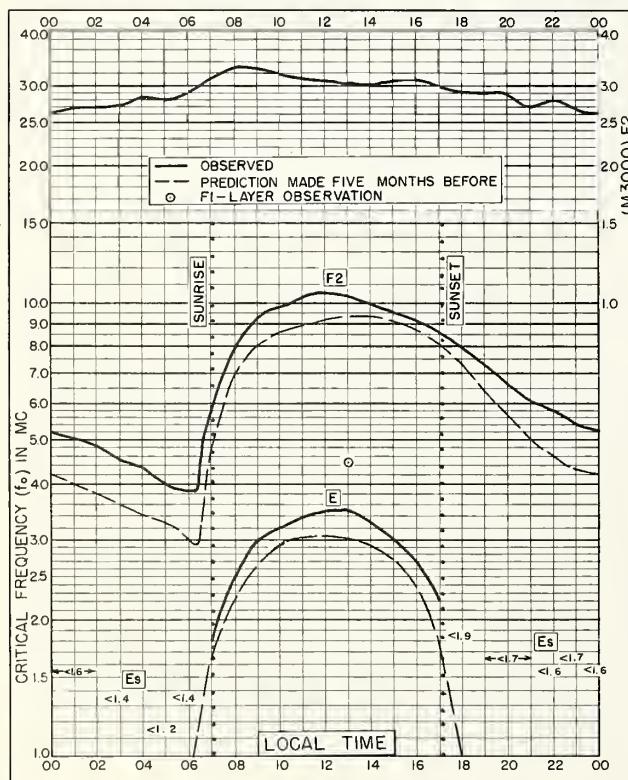


Fig. 70. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E AUGUST 1956

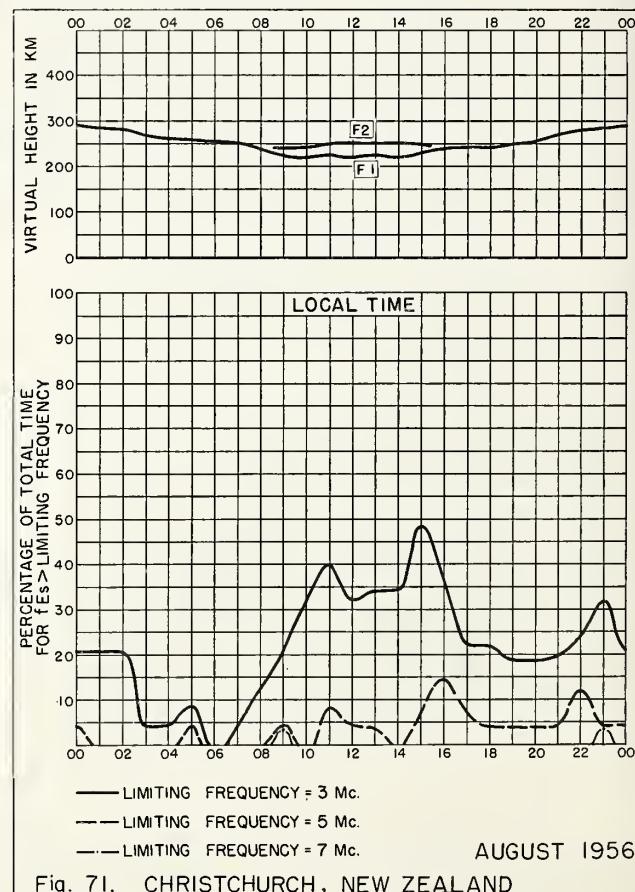


Fig. 71. CHRISTCHURCH, NEW ZEALAND

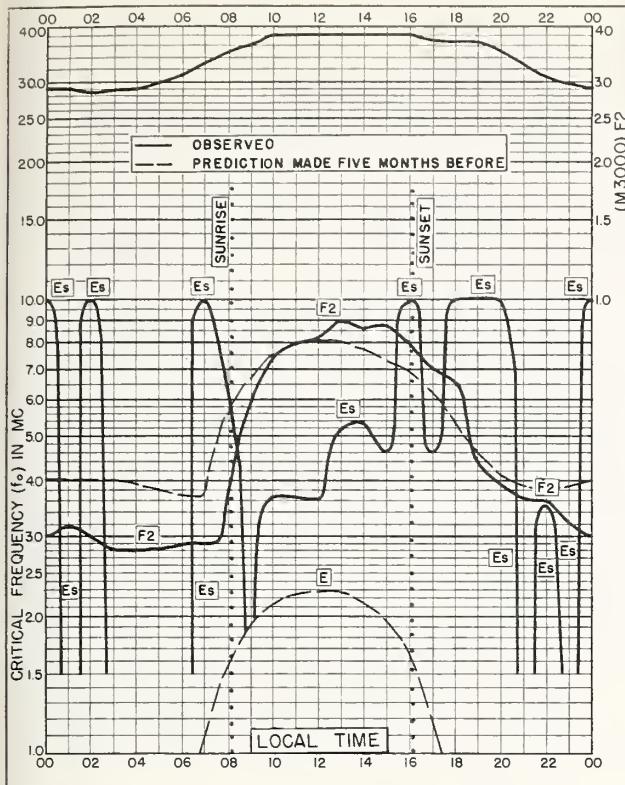


Fig. 72. DECEPTION I.
63.0°S, 60.7°W AUGUST 1956

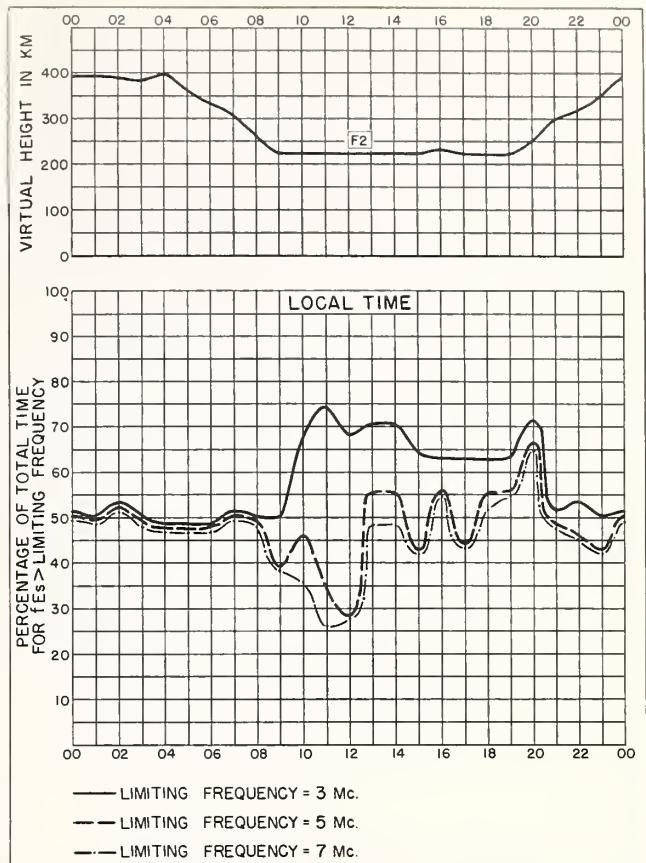


Fig. 73. DECEPTION I. AUGUST 1956

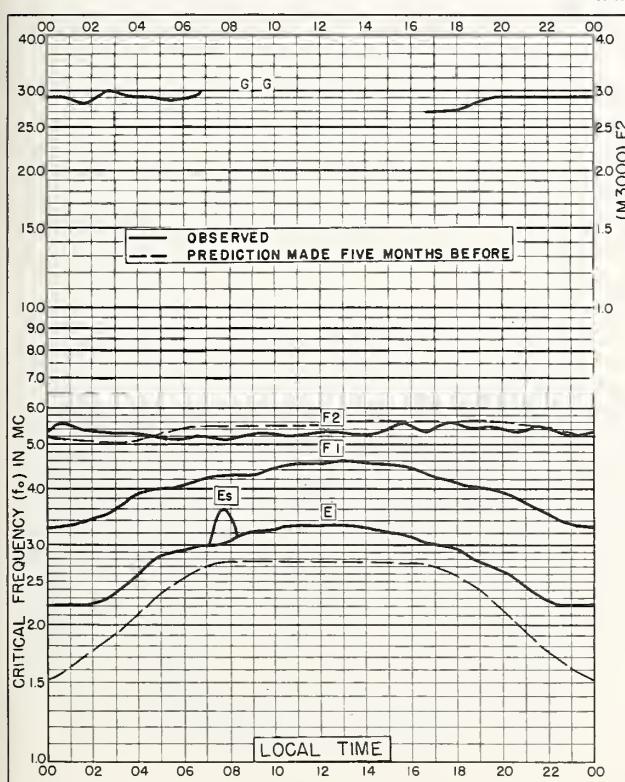


Fig. 74. RESOLUTE BAY, CANADA
74.7°N, 94.9°W JULY 1956

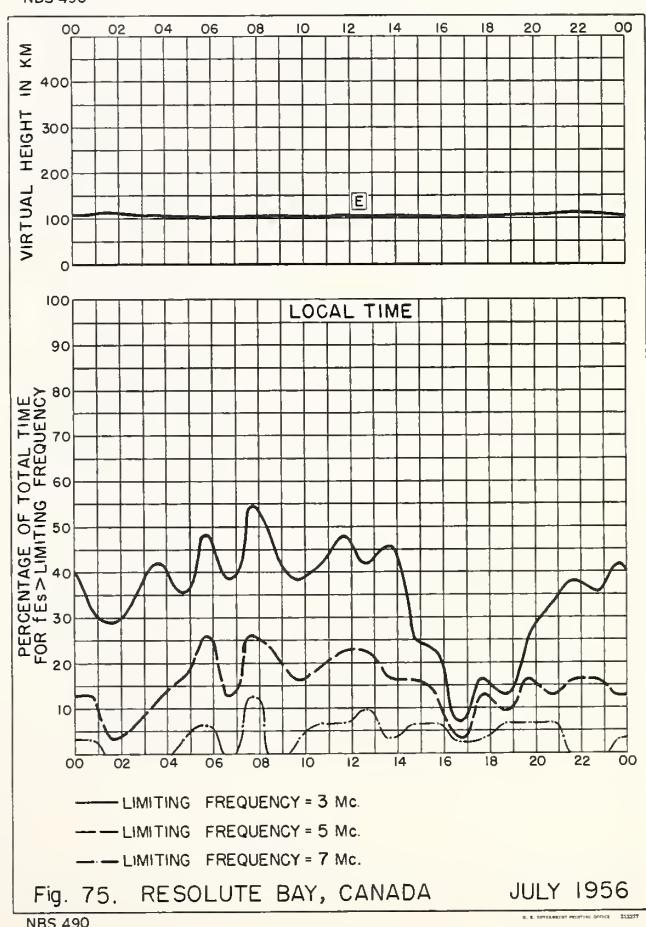


Fig. 75. RESOLUTE BAY, CANADA JULY 1956

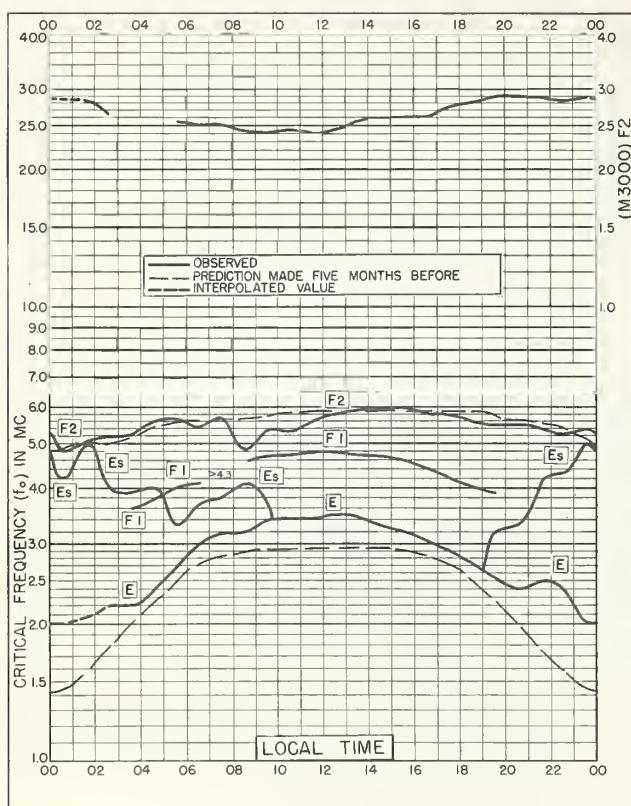


Fig. 76. POINT BARROW, ALASKA

71.3°N, 156.8°W

JULY 1956

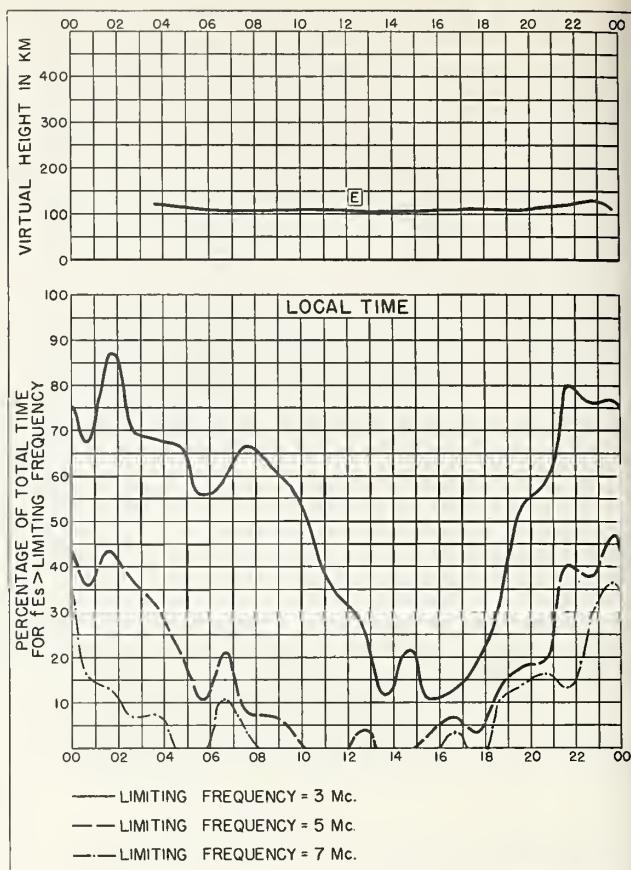


Fig. 77. POINT BARROW, ALASKA

JULY 1956

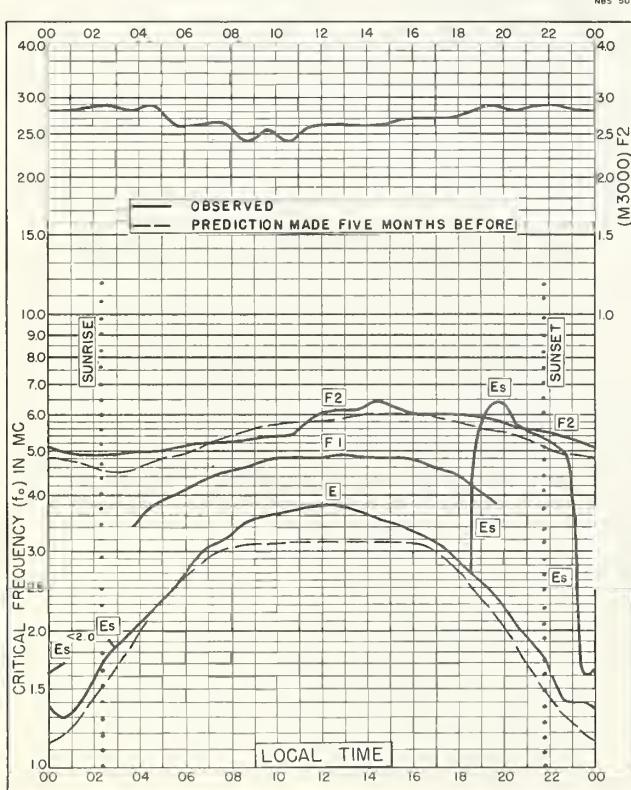


Fig. 78. BAKER LAKE, CANADA

64.3°N, 96.0°W

JULY 1956

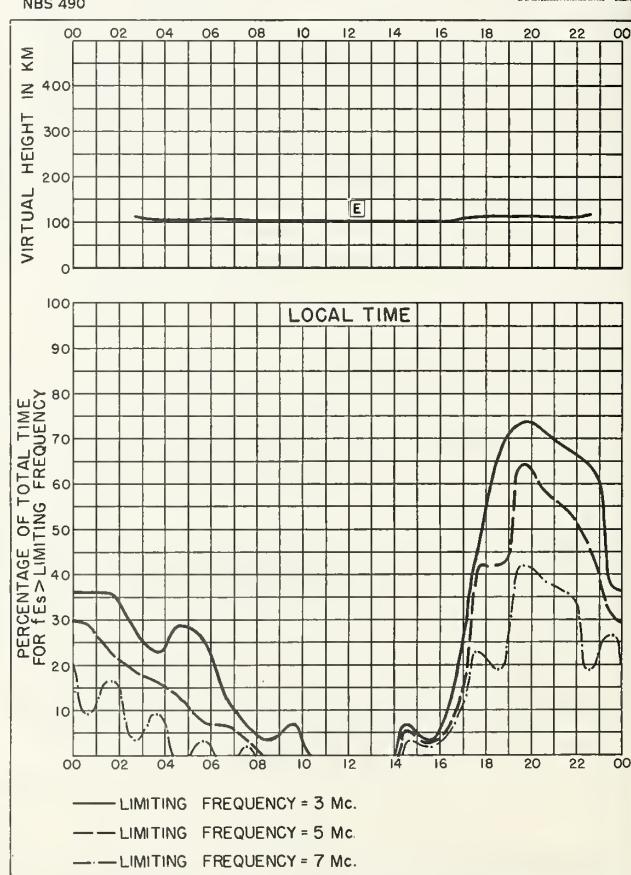


Fig. 79. BAKER LAKE, CANADA

JULY 1956

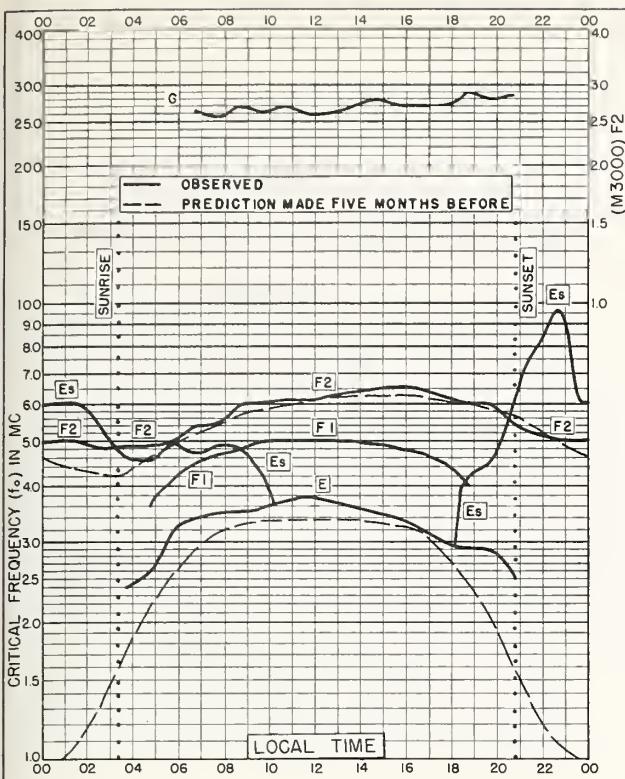


Fig. 80. CHURCHILL, CANADA
58.8°N, 94.2°W JULY 1956

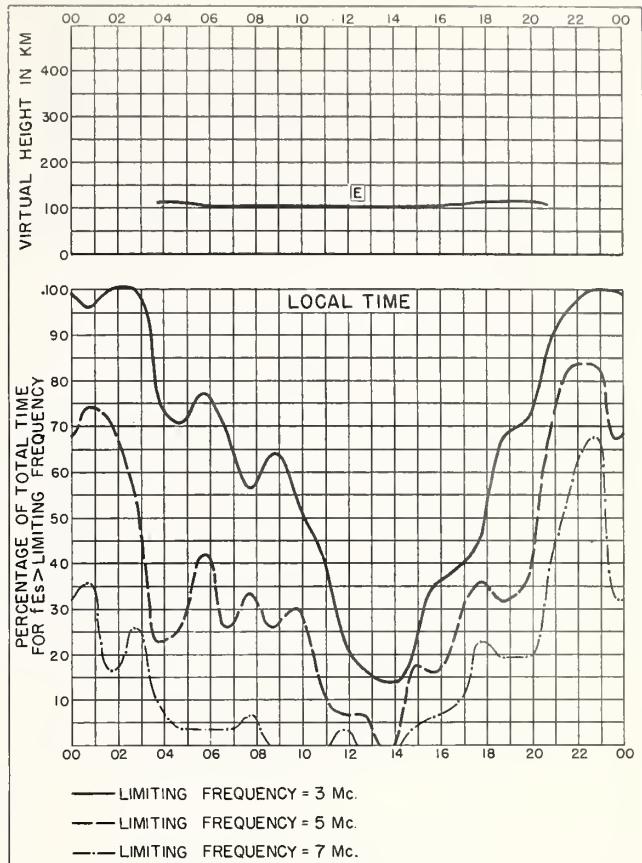


Fig. 81. CHURCHILL, CANADA JULY 1956

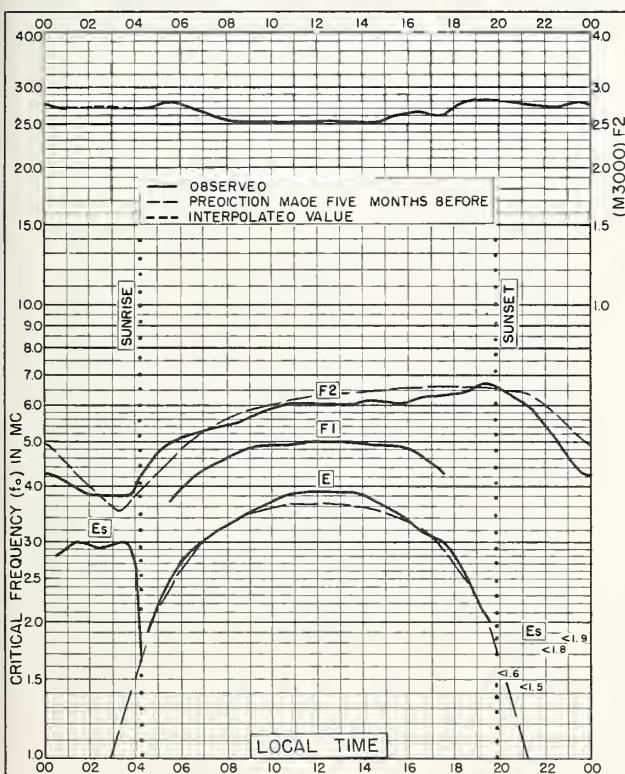


Fig. 82. WINNIPEG, CANADA
49.9°N, 97.4°W JULY 1956

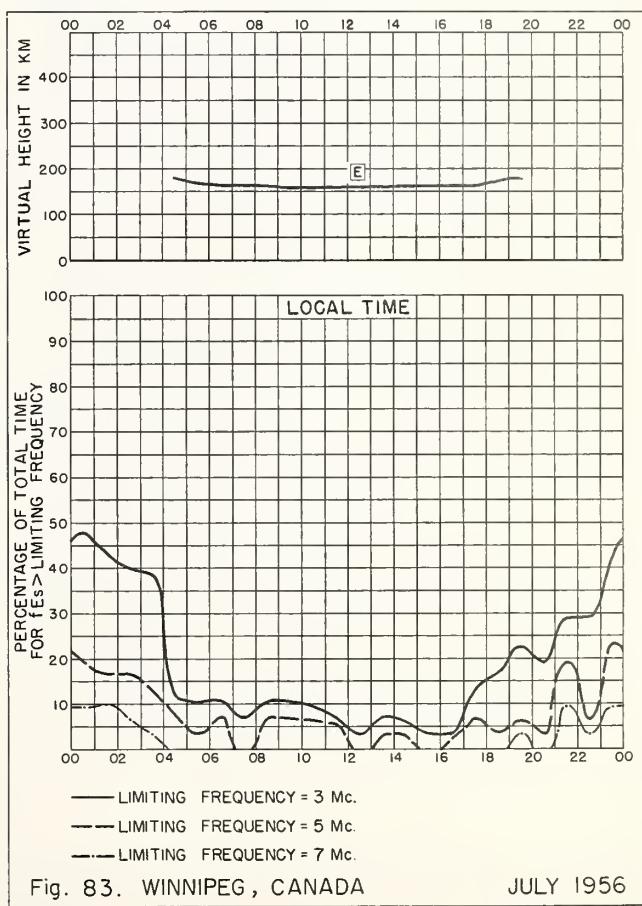


Fig. 83. WINNIPEG, CANADA JULY 1956

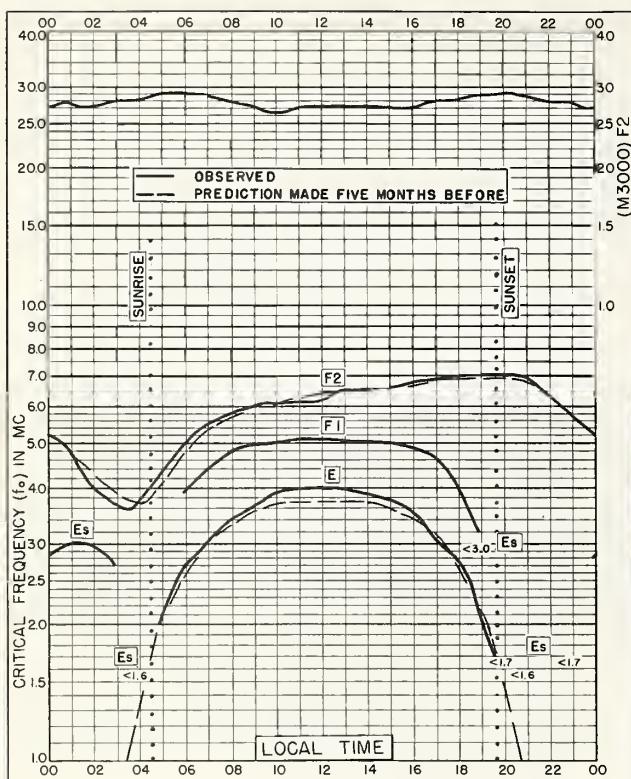
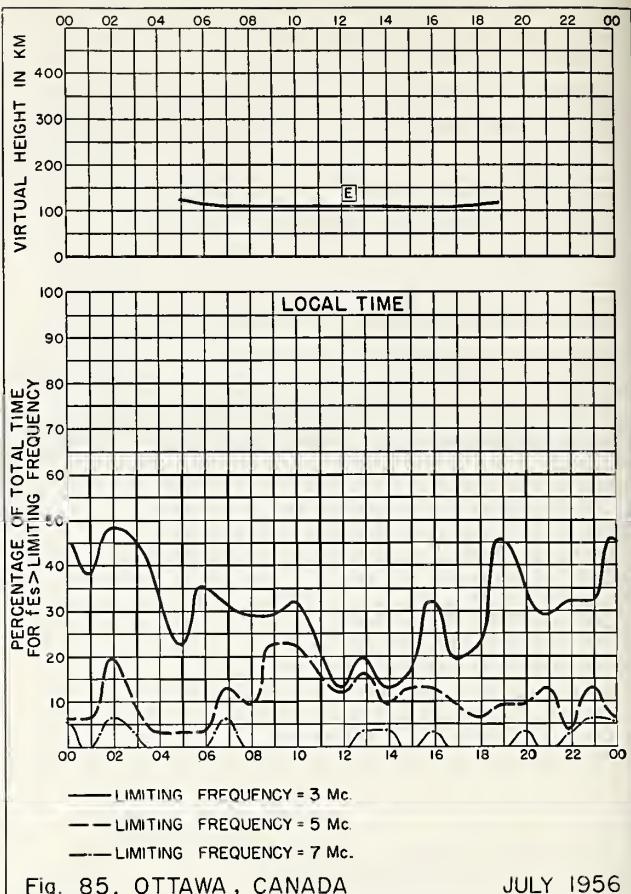


Fig. 84. OTTAWA, CANADA
45.4°N, 75.9°W JULY 1956



NBS 490

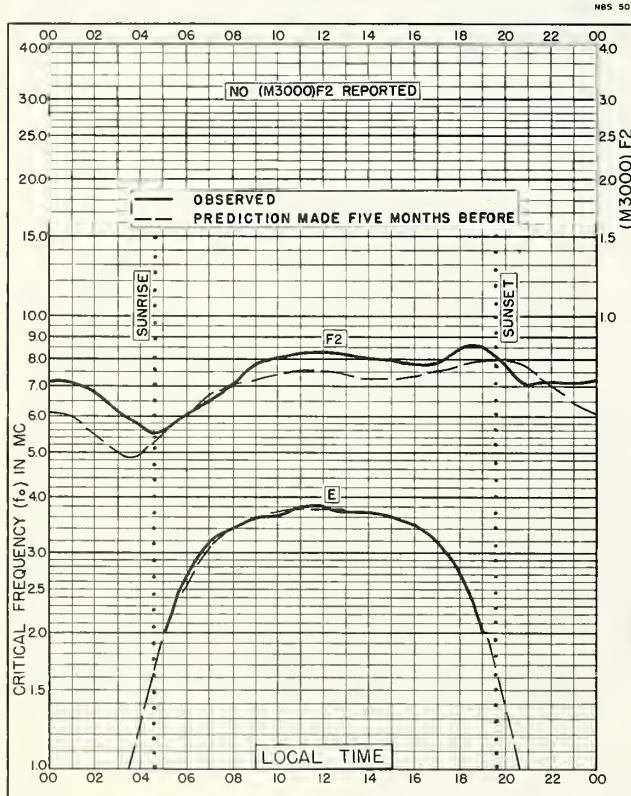


Fig. 86. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E JULY 1956

NBS 503

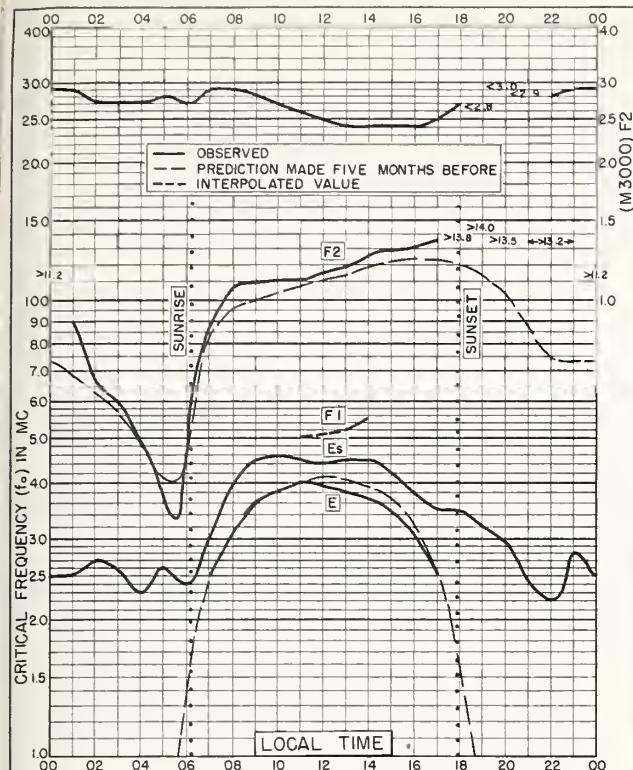


Fig. 87. LEOPOLDVILLE, BELGIAN CONGO
 4.4°S, 15.2°E JULY 1956

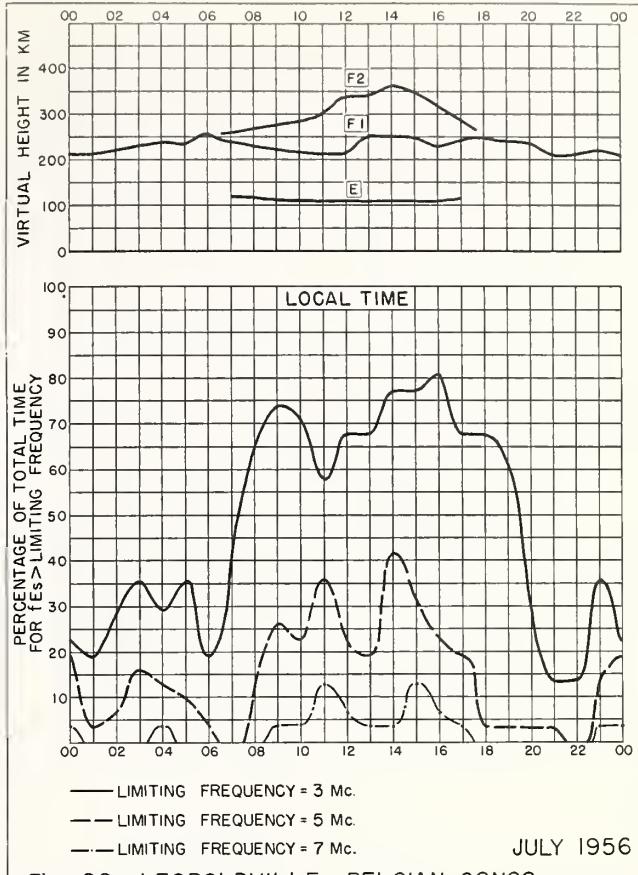


Fig. 88. LEOPOLDVILLE, BELGIAN CONGO

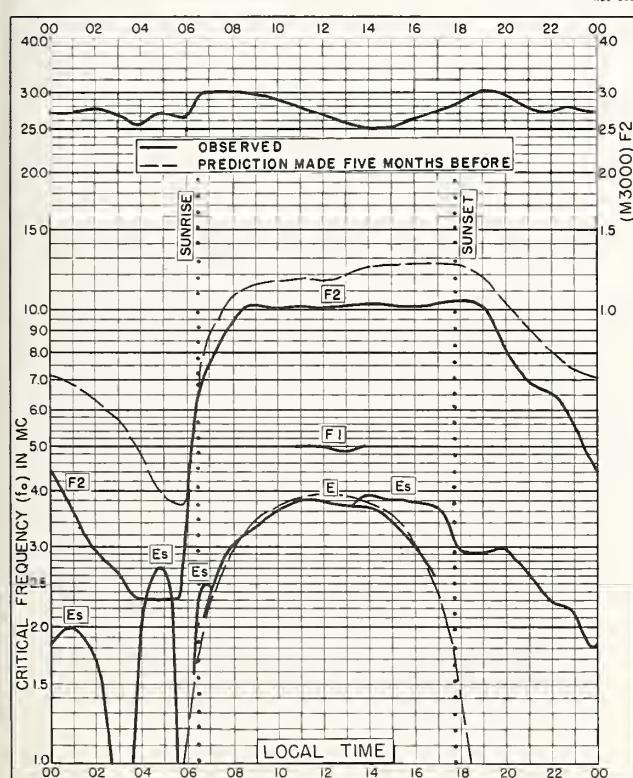


Fig. 89. ELISABETHVILLE, BELGIAN CONGO
 11° 6'S, 27.5°E JULY 1956

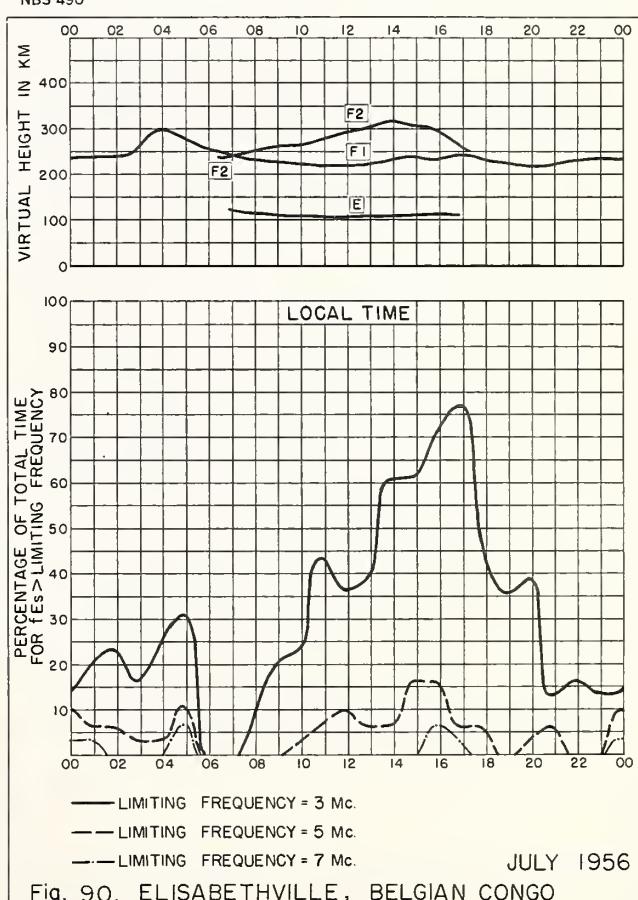
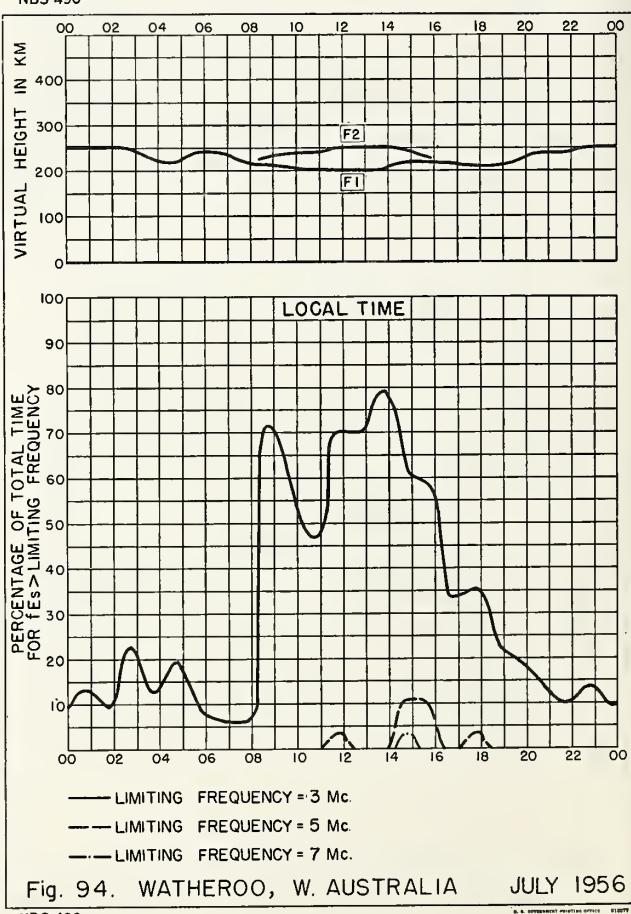
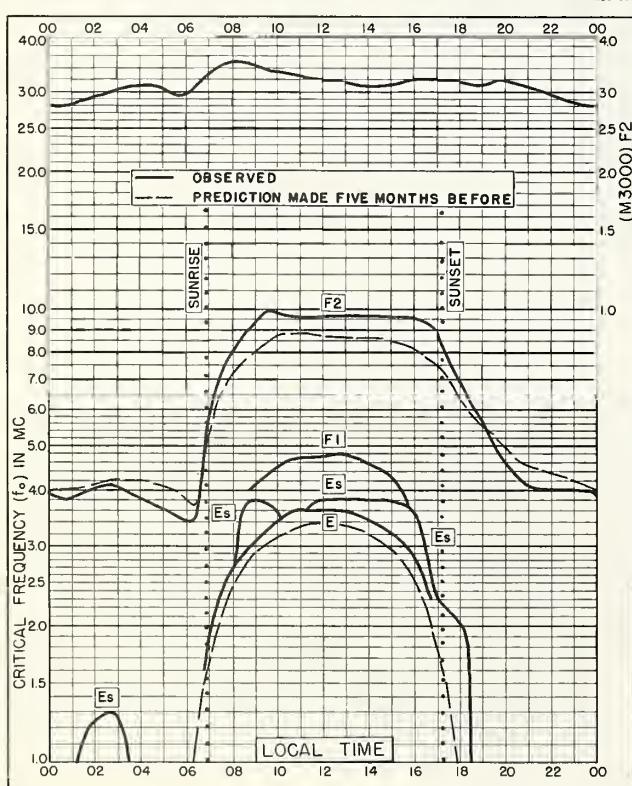
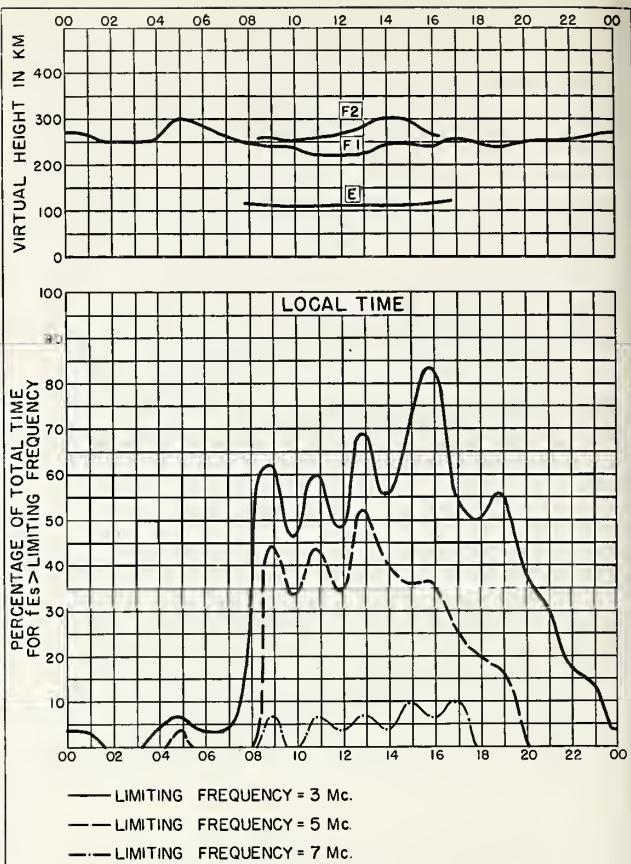
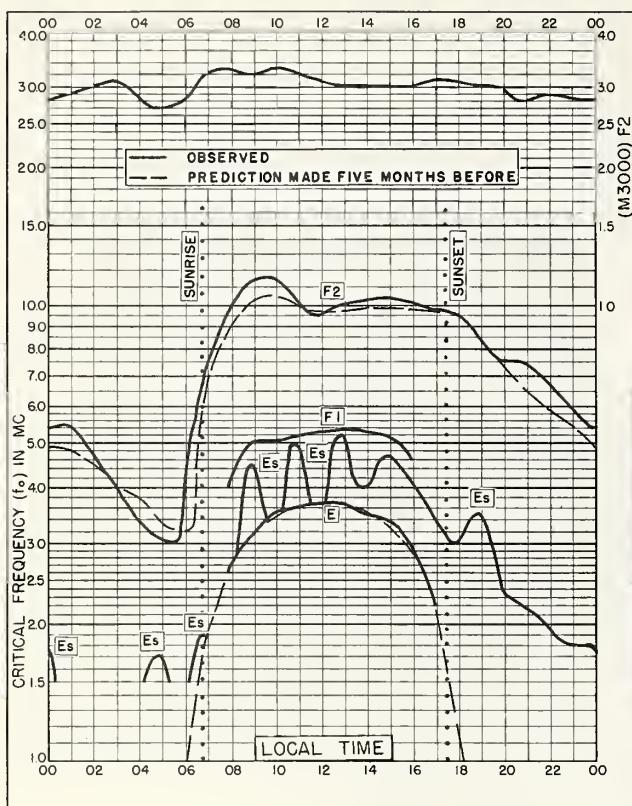


Fig. 90. ELISABETHVILLE, BELGIAN CONGO



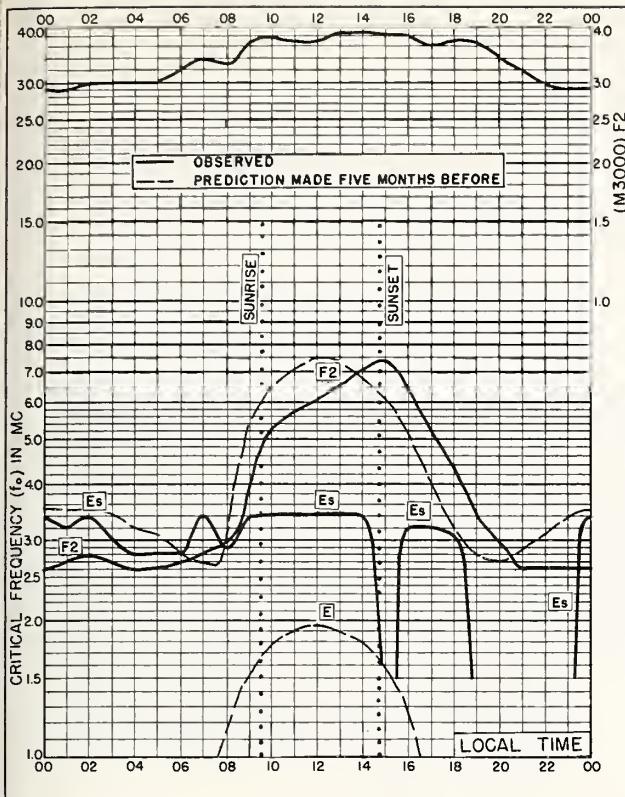


Fig. 95. DECEPCION I.

63.0°S, 60.7°W

JULY 1956

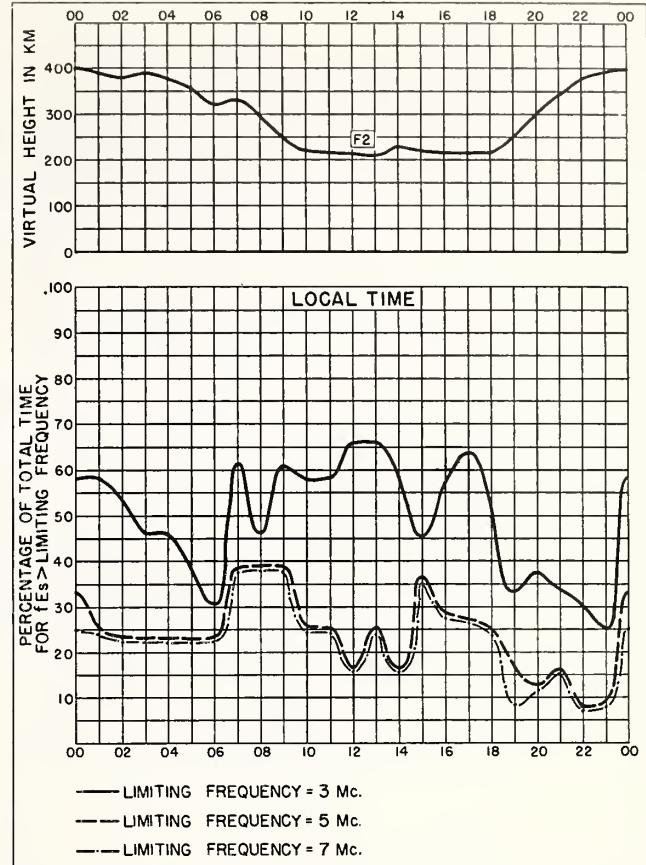


Fig. 96. DECEPCION I.

JULY 1956

N.B. INFORMATION PERTAINS TO 2100Z

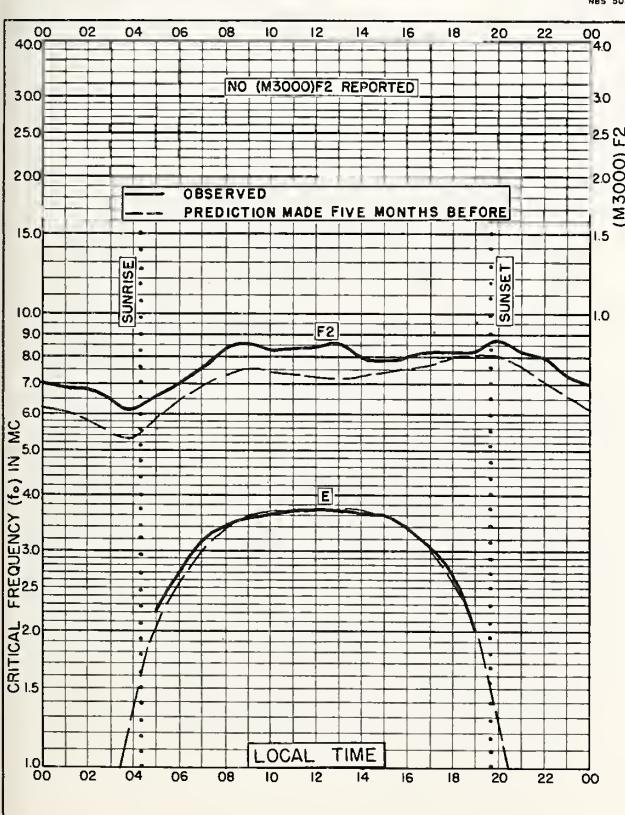


Fig. 97. MONTE CAPELLINO, ITALY

44.6°N, 9.0°E

JUNE 1956

NBS 503

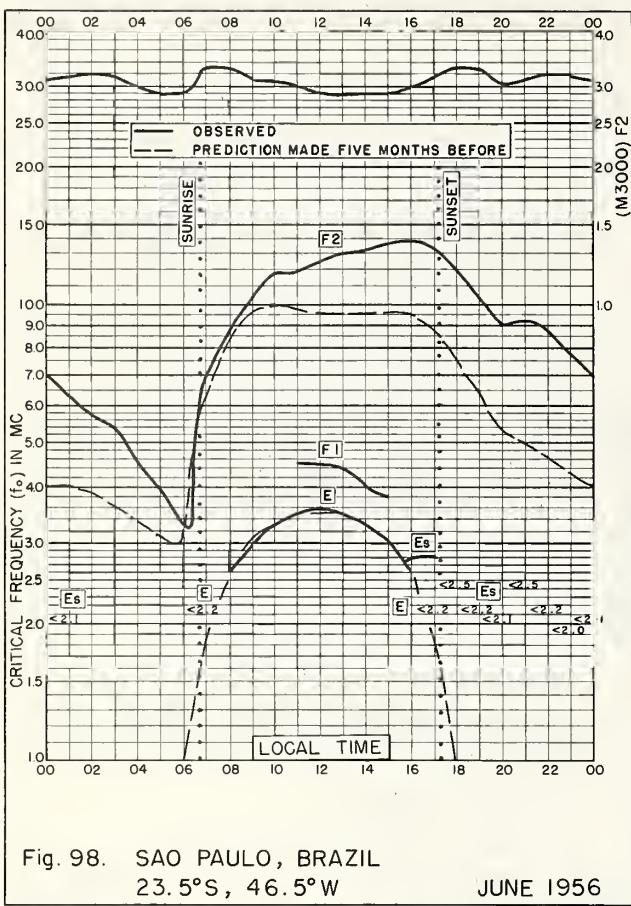


Fig. 98. SAO PAULO, BRAZIL

23.5°S, 46.5°W

JUNE 1956

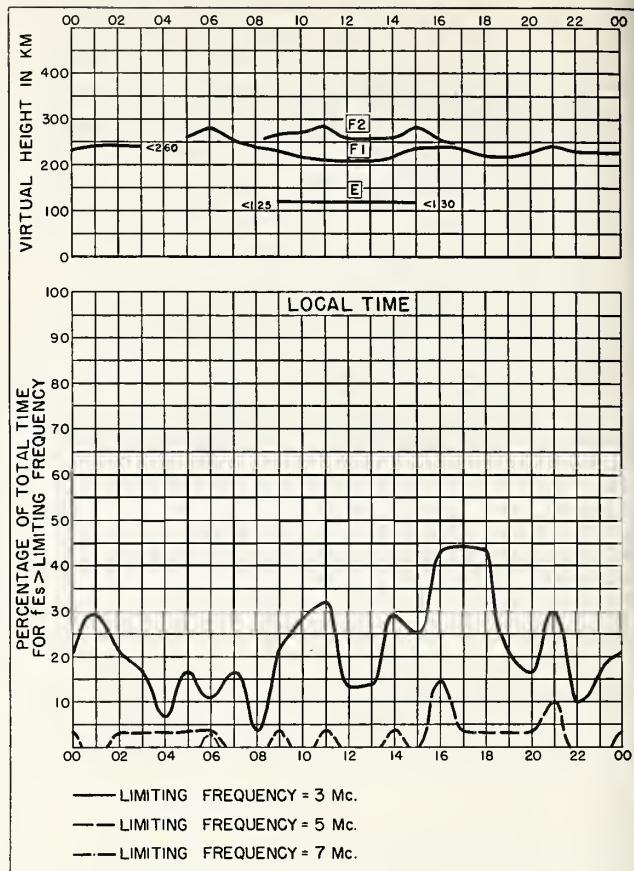


Fig. 99. SAO PAULO, BRAZIL

JUNE 1956

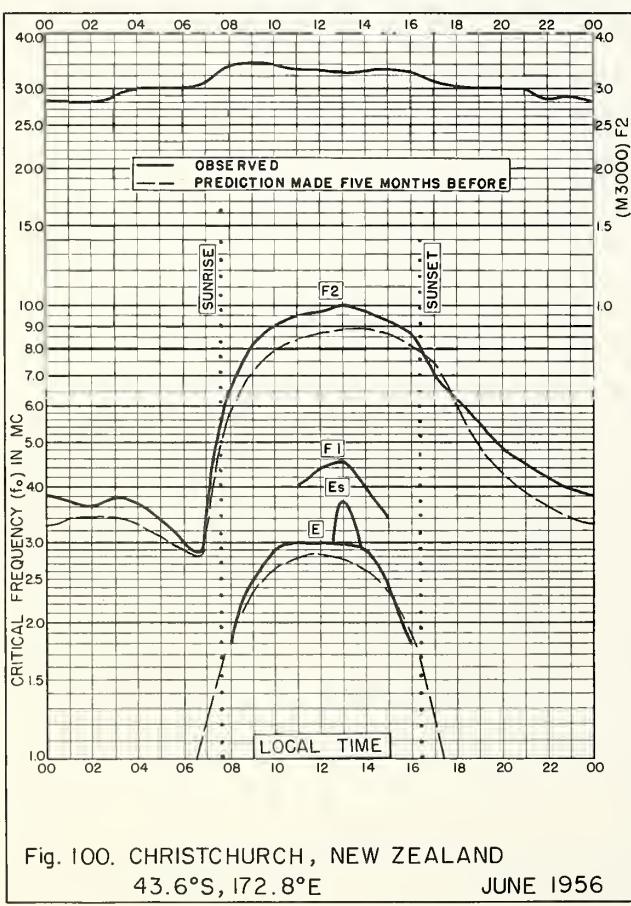


Fig. 100. CHRISTCHURCH, NEW ZEALAND

43.6°S, 172.8°E

JUNE 1956

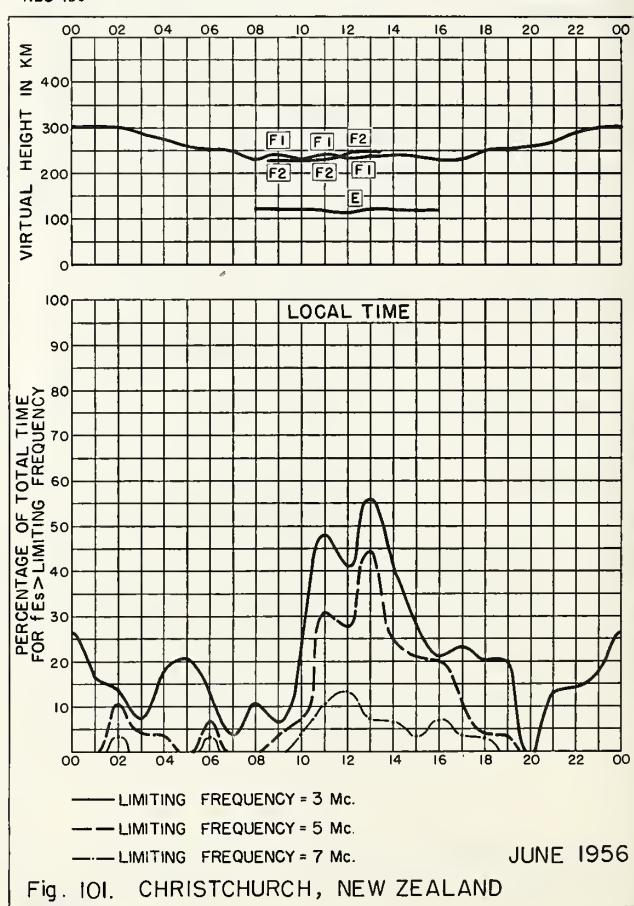


Fig. 101. CHRISTCHURCH, NEW ZEALAND

JUNE 1956

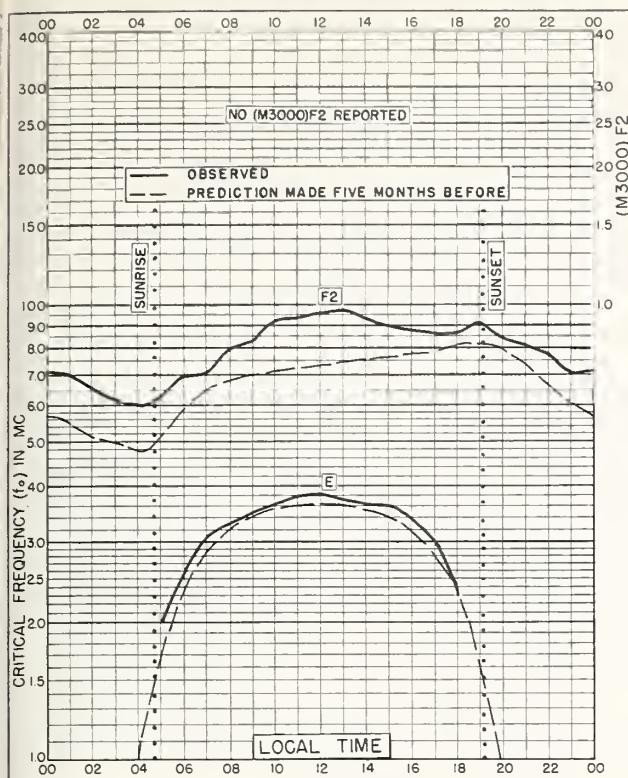


Fig. 102. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E MAY 1956

NBS 503

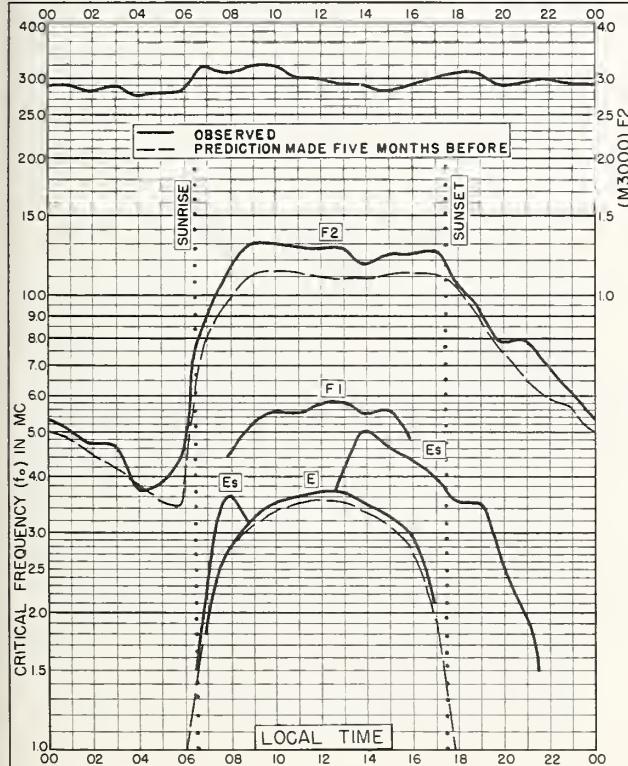


Fig. 103. RAROTONGA I.
21.3°S, 159.8°W MAY 1956

NBS 503

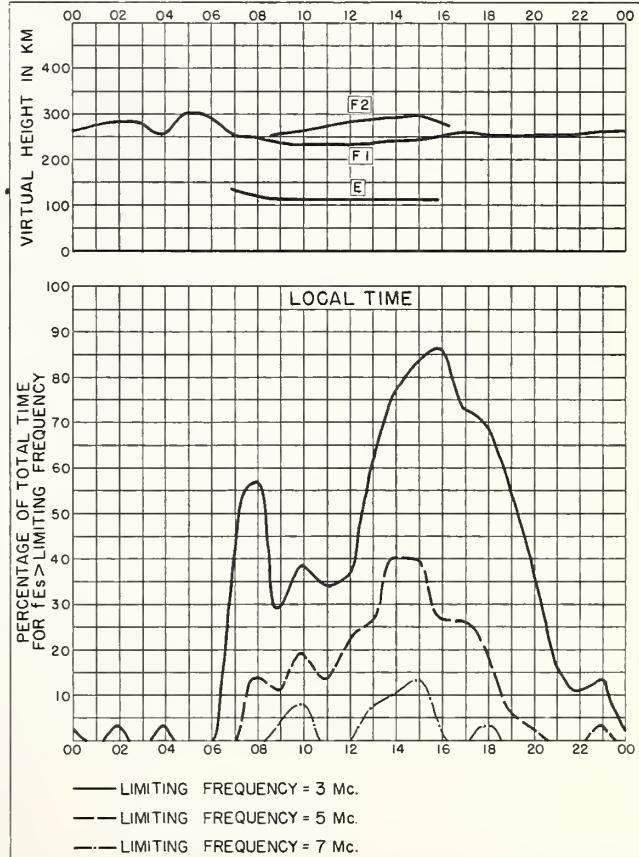
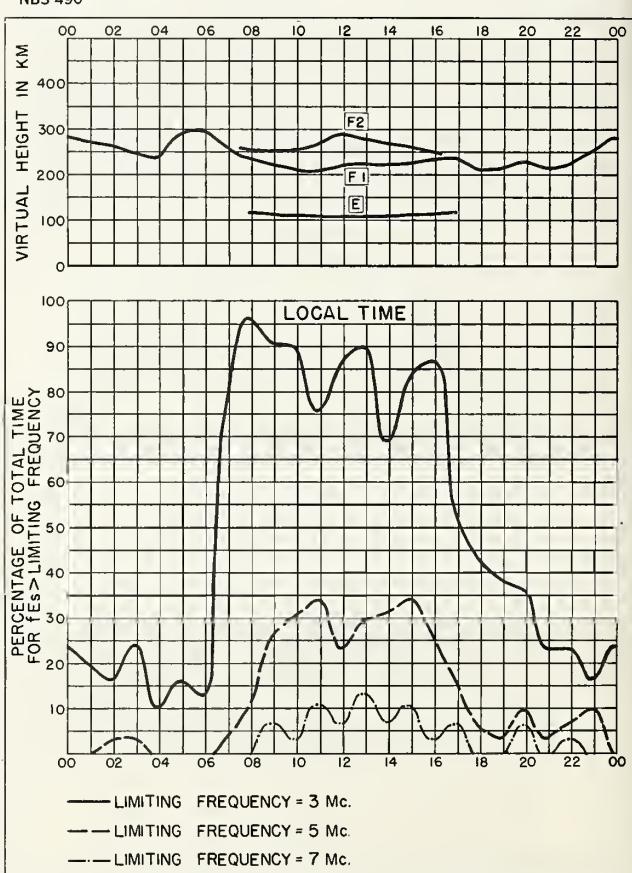
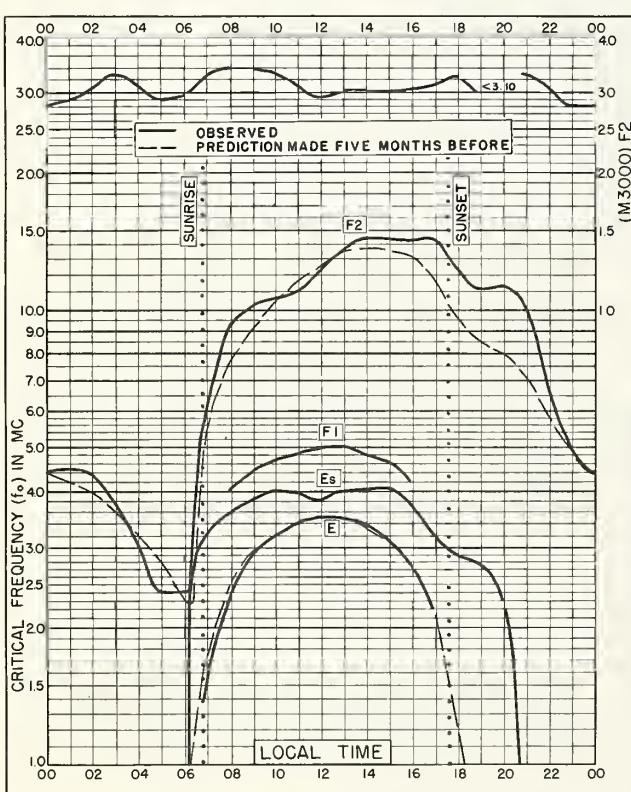
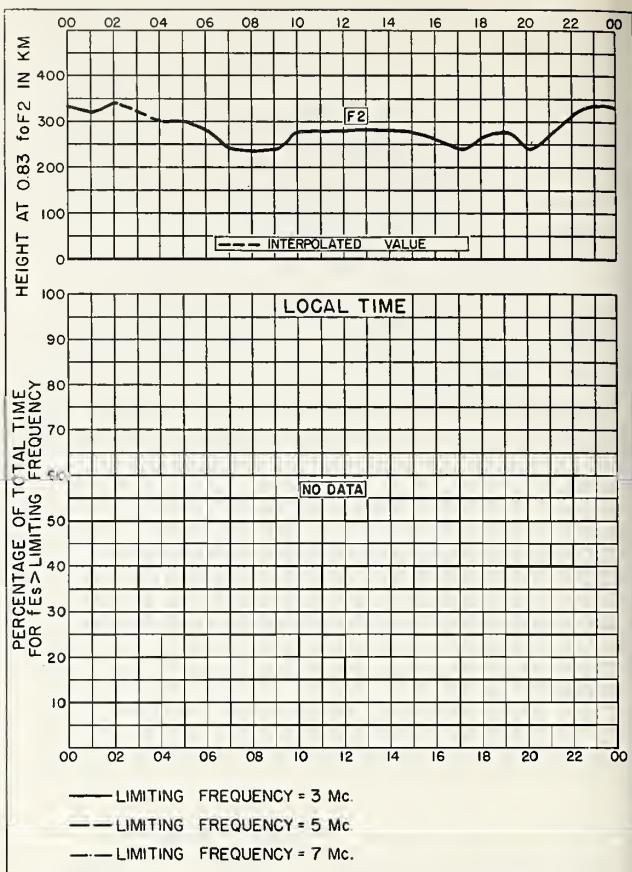
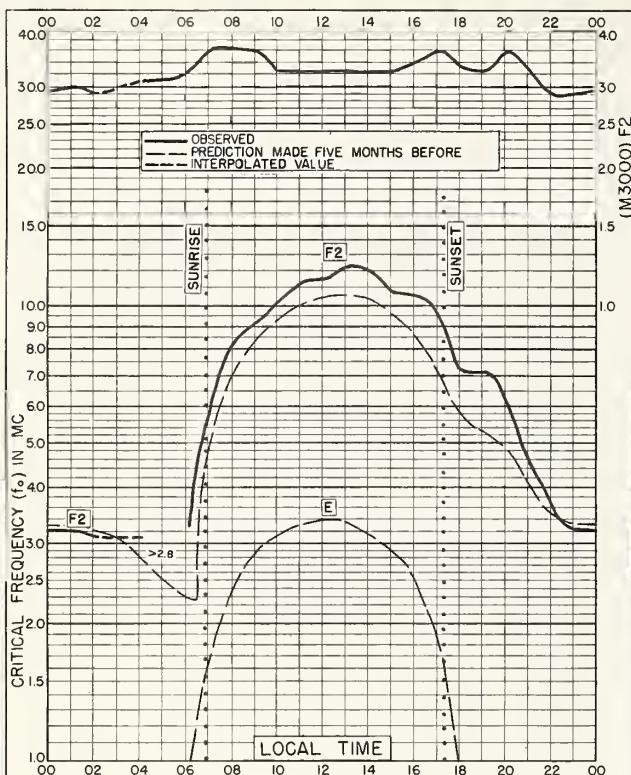
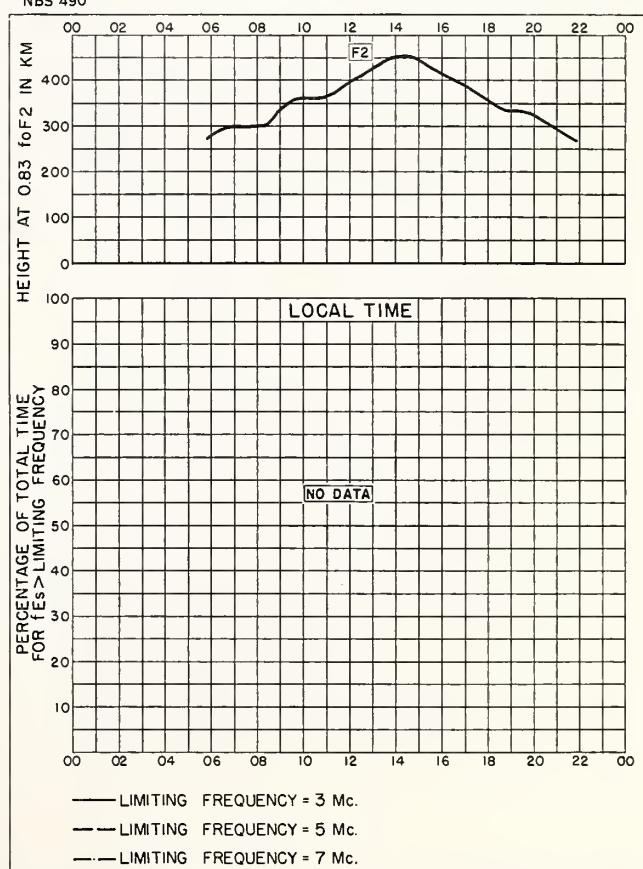
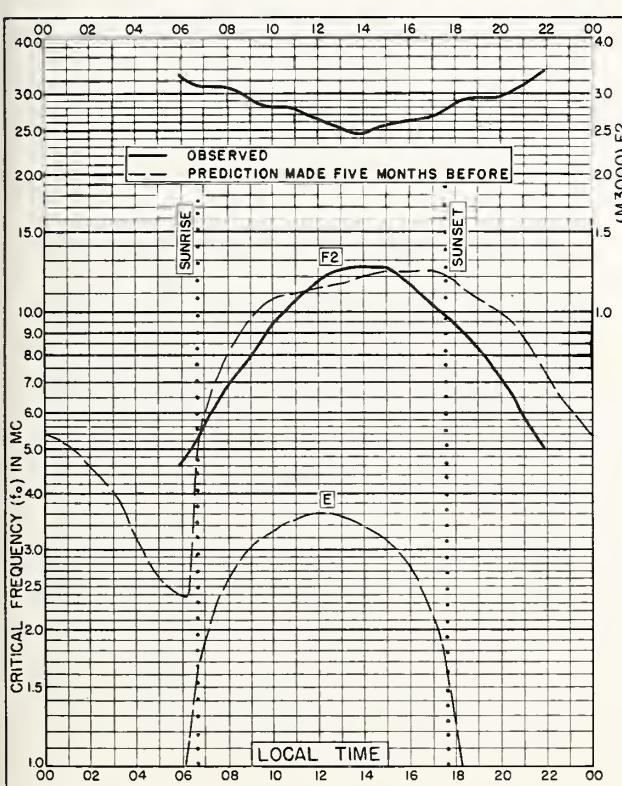
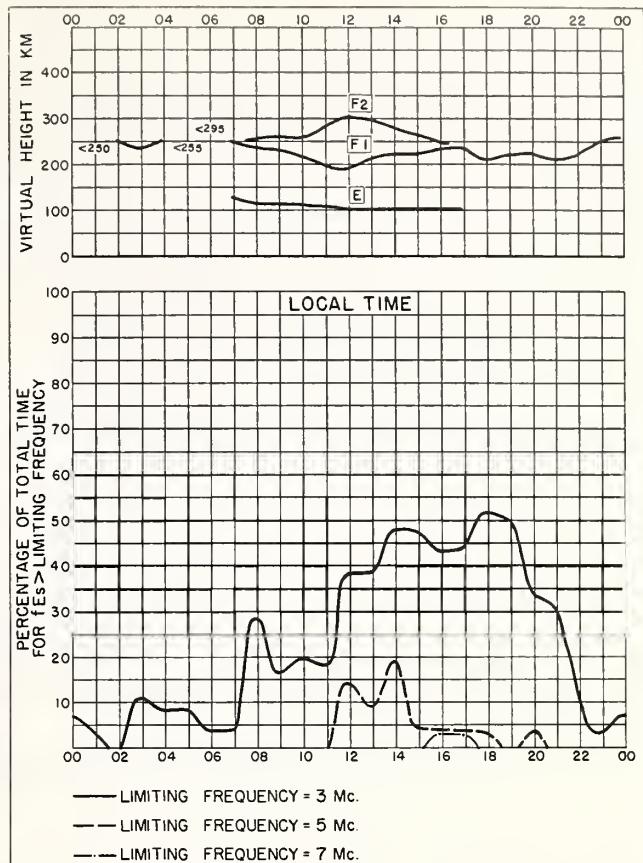
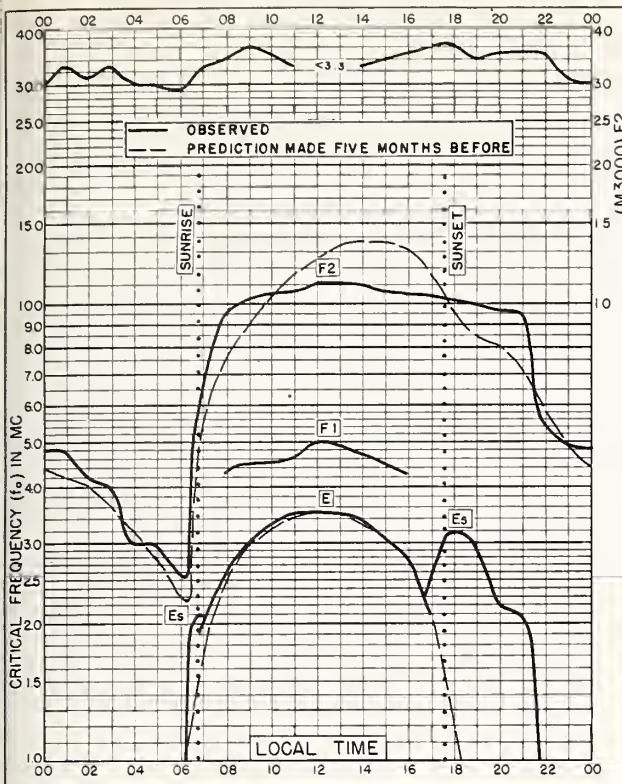


Fig. 104. RAROTONGA I. MAY 1956

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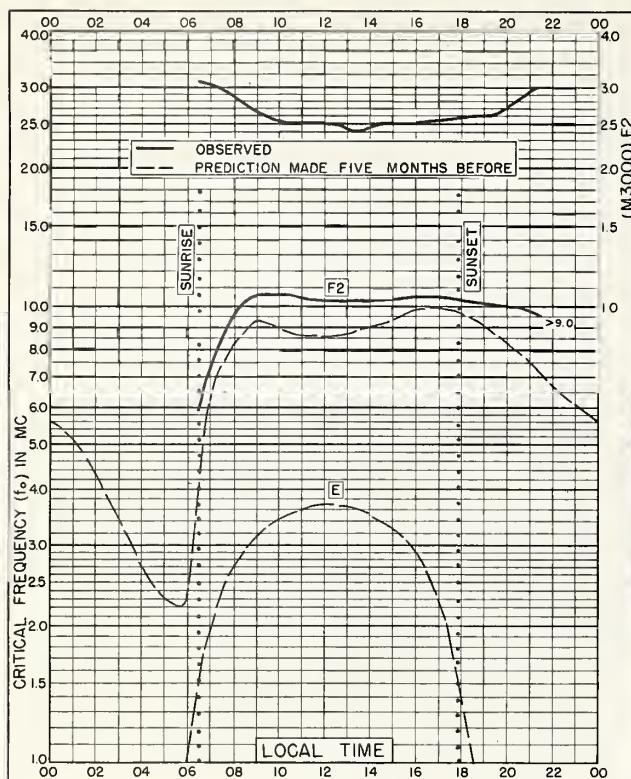


Fig. 113. MADRAS, INDIA
13.0°N, 80.2°E JANUARY 1956

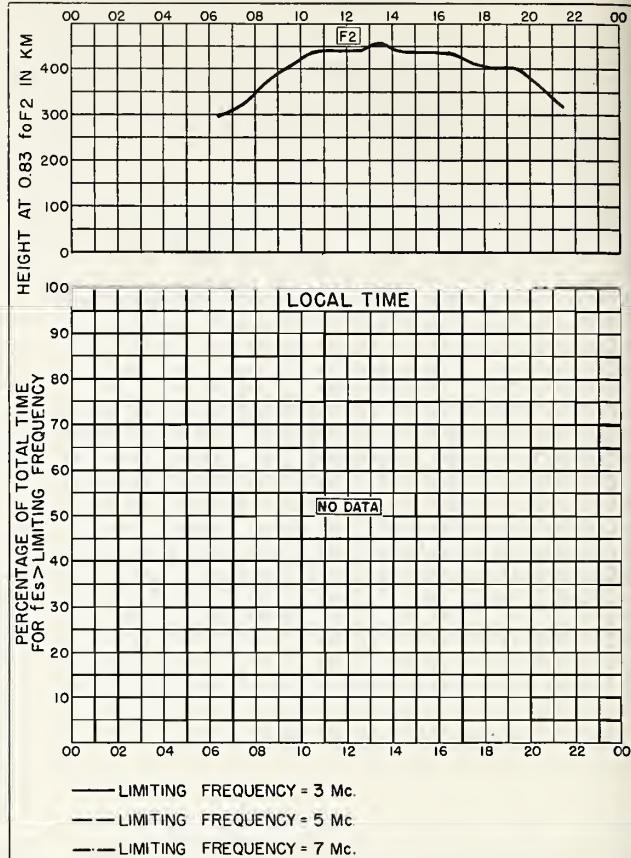


Fig. 114. MADRAS, INDIA JANUARY 1956

NBS 490

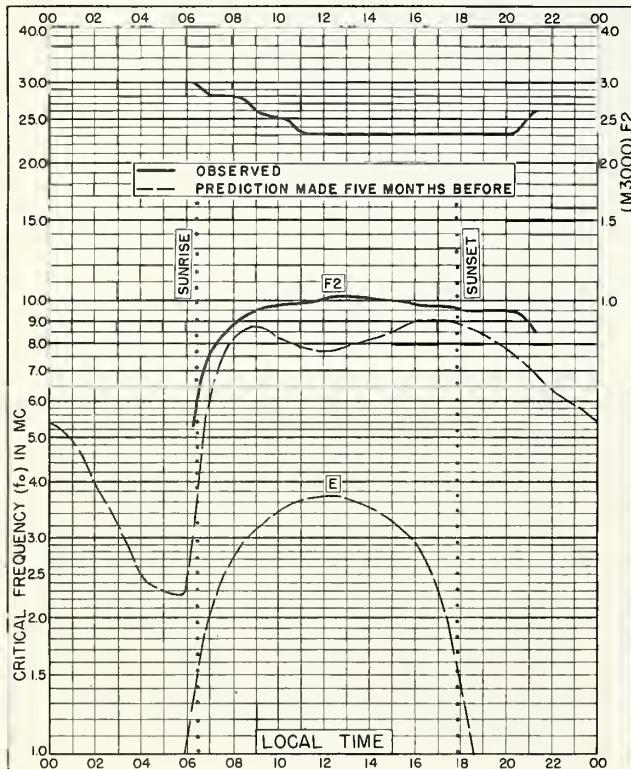


Fig. 115. TIRUCHY, INDIA
10.8°N, 78.8°E JANUARY 1956

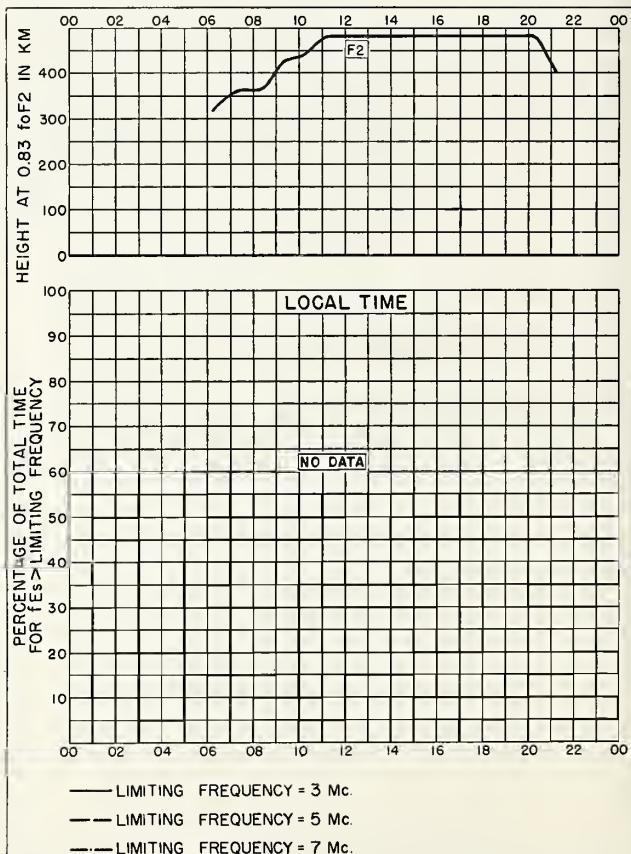


Fig. 116. TIRUCHY, INDIA JANUARY 1956

NBS 490

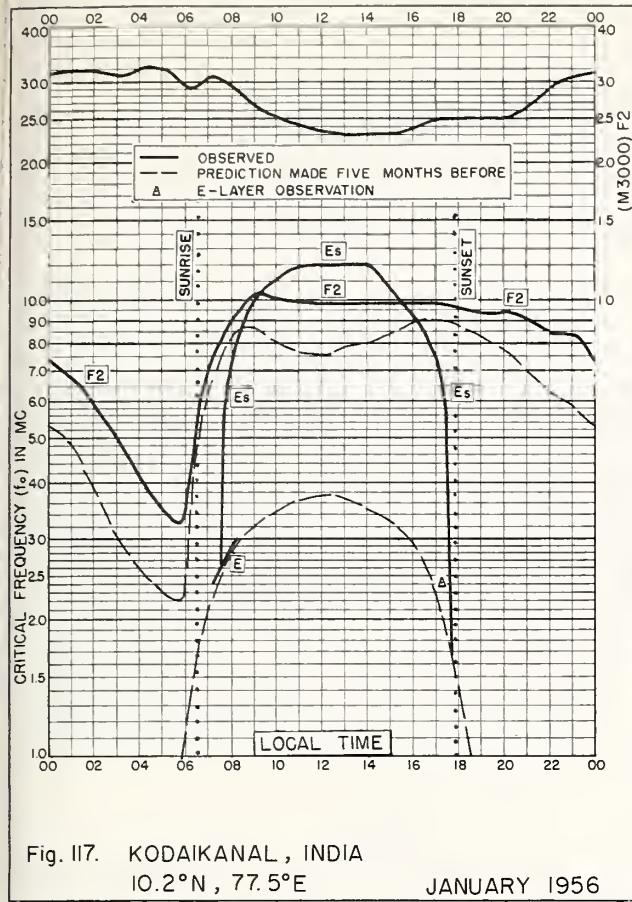


Fig. II7. KODAIKANAL, INDIA

10.2°N, 77.5°E

JANUARY 1956

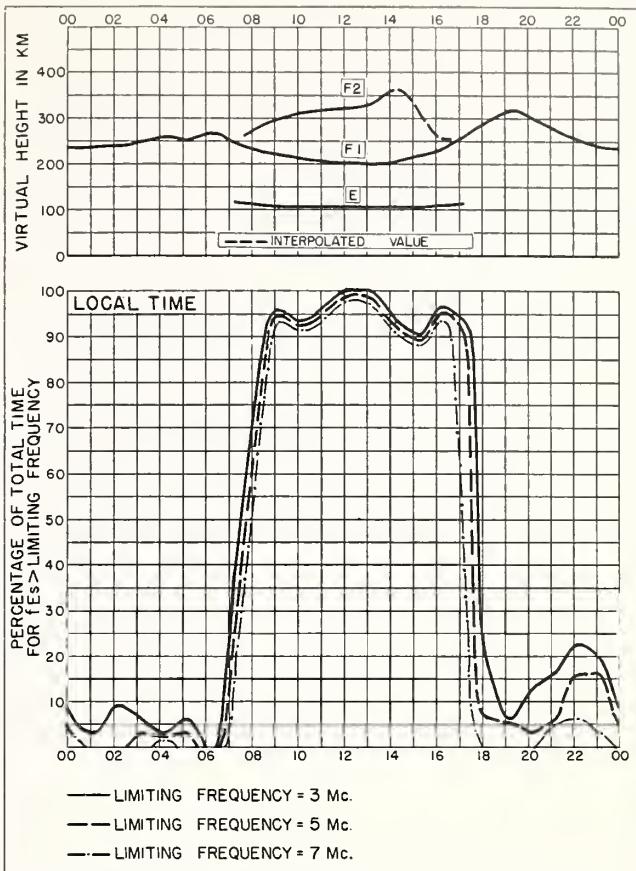


Fig. II8. KODAIKANAL, INDIA

JANUARY 1956

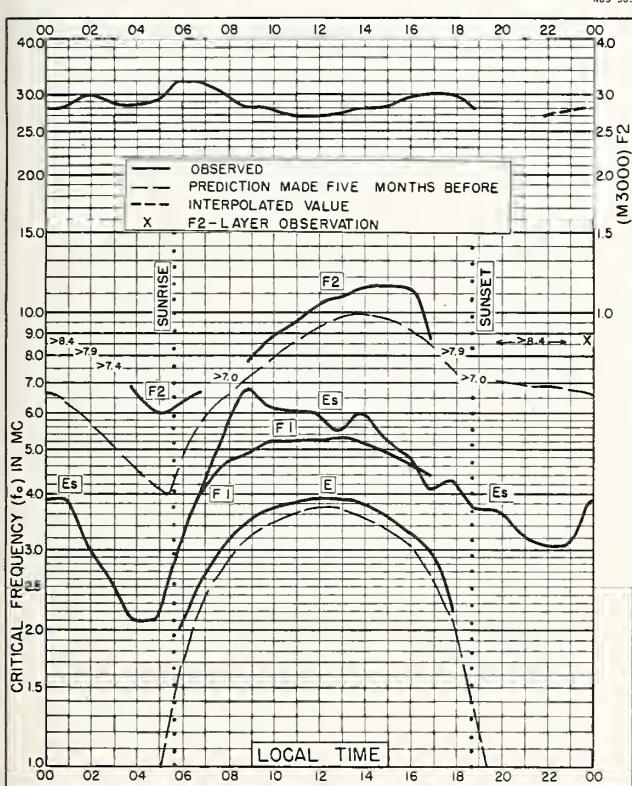


Fig. II9. TOWNSVILLE, AUSTRALIA

19.3°S, 146.7°E

JANUARY 1956

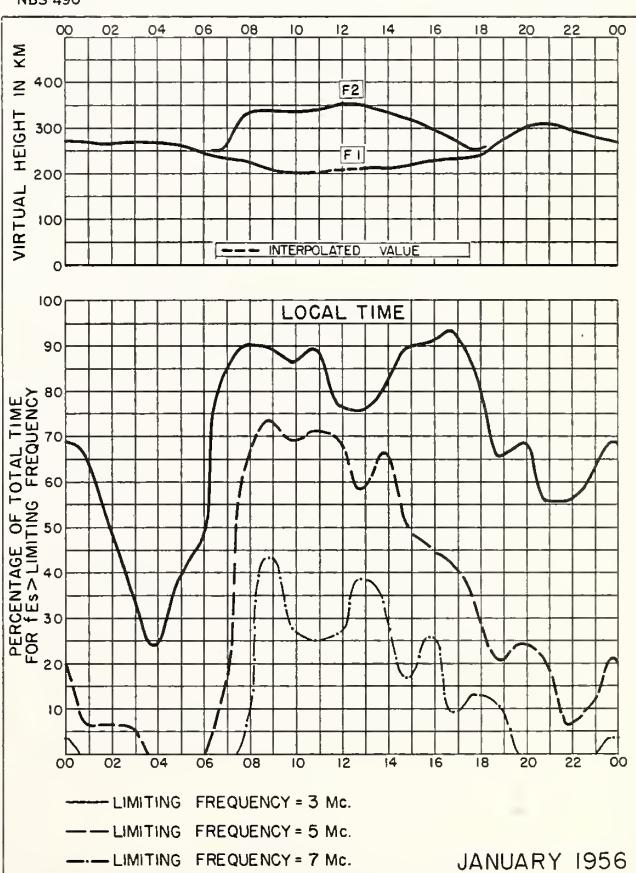


Fig. I10. TOWNSVILLE, AUSTRALIA

JANUARY 1956

NBS 490

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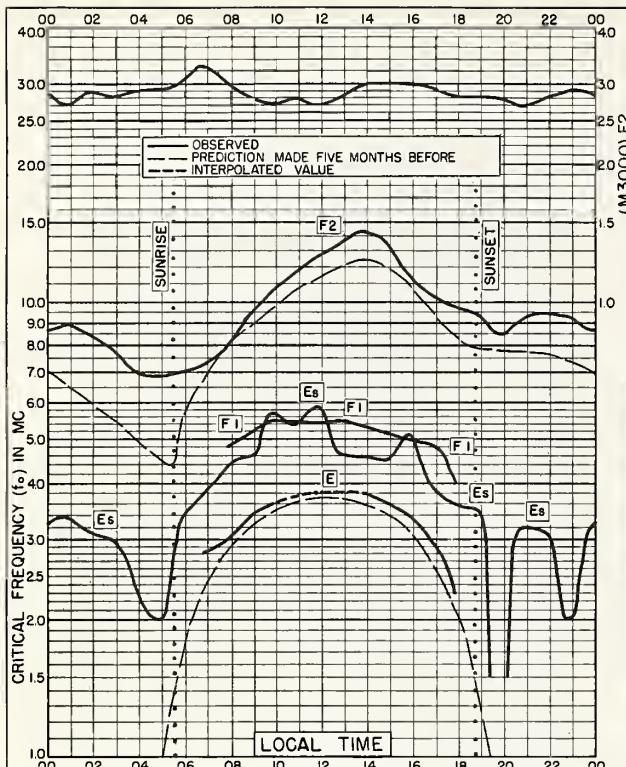


Fig. 121. RAROTONGA I.
21.3°S, 159.8°W JANUARY 1956

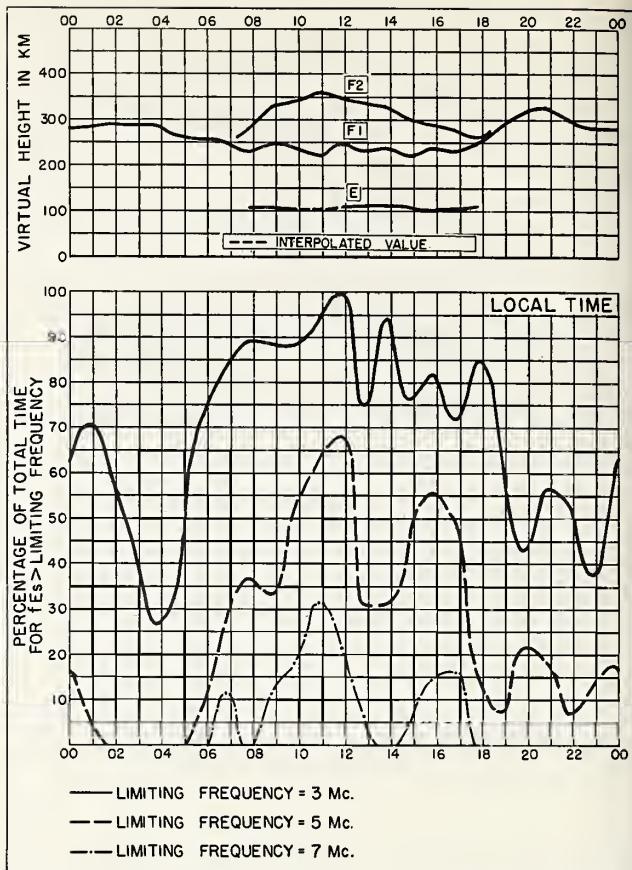


Fig. 122. RAROTONGA I. JANUARY 1956

NBS 490

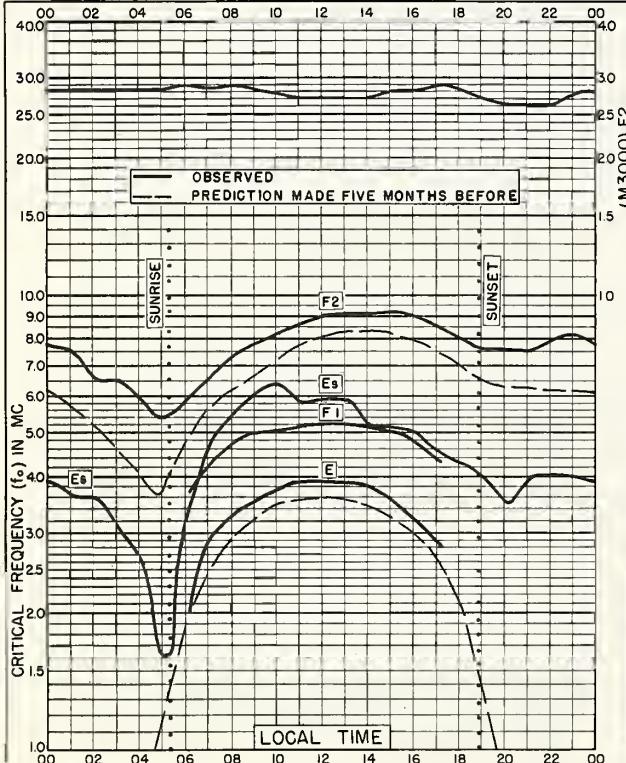


Fig. 123. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JANUARY 1956

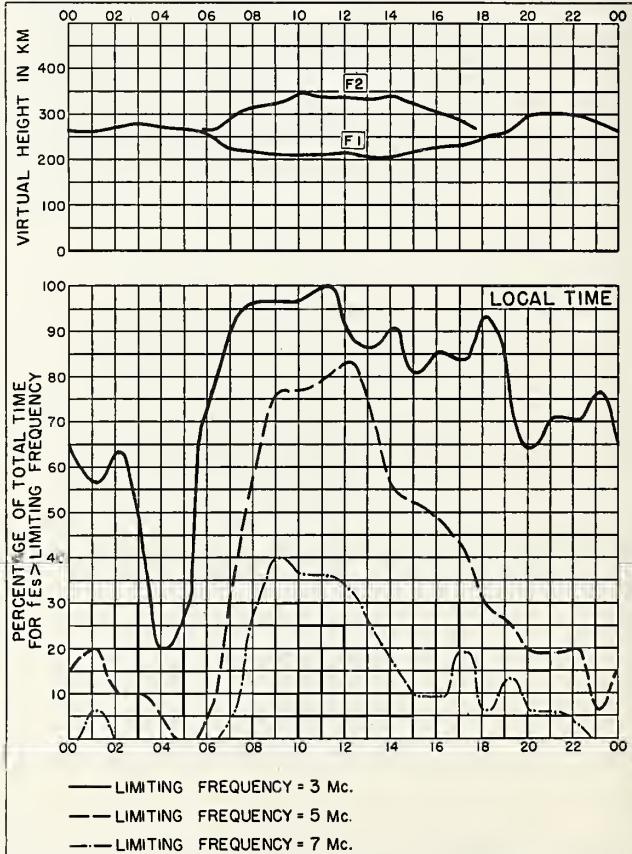


Fig. 124. BRISBANE, AUSTRALIA JANUARY 1956

NBS 490

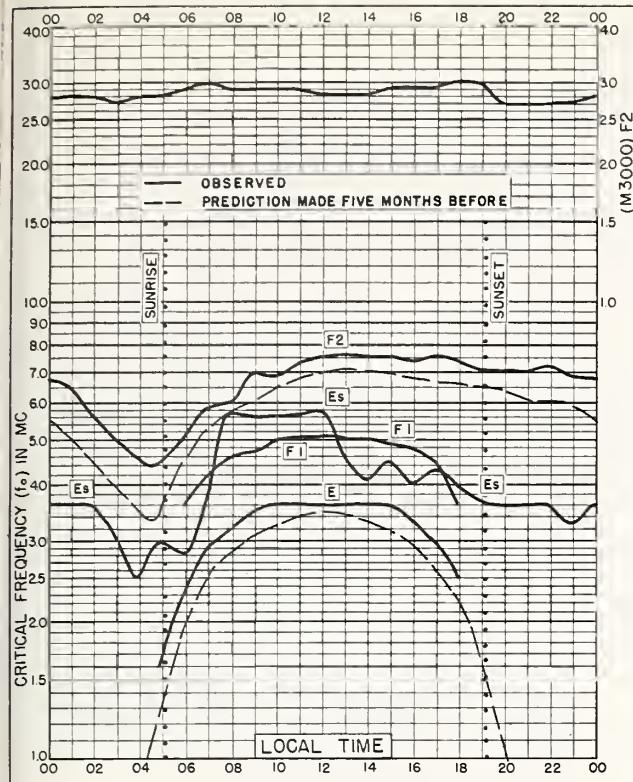


Fig. 125. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JANUARY 1956

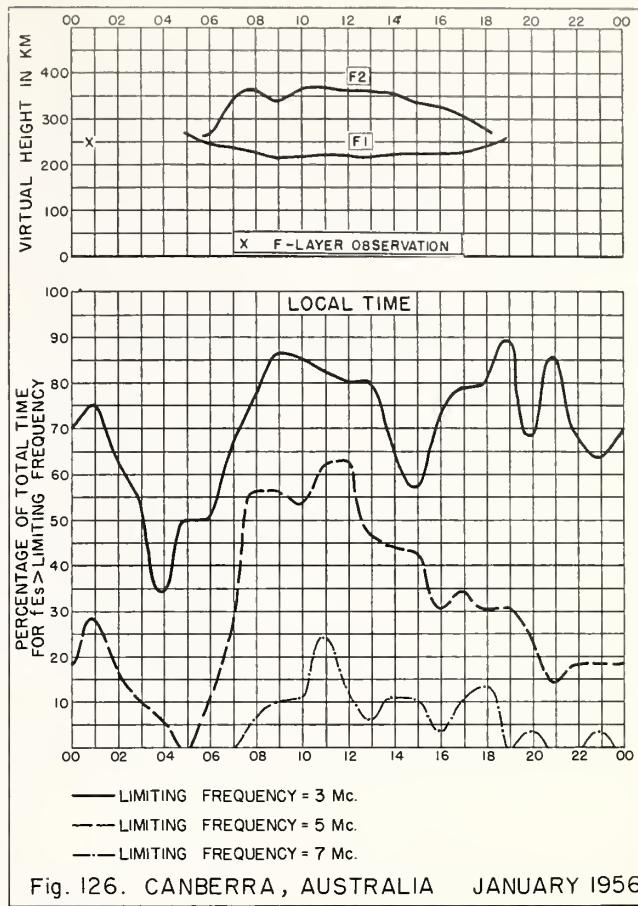


Fig. 126. CANBERRA, AUSTRALIA JANUARY 1956

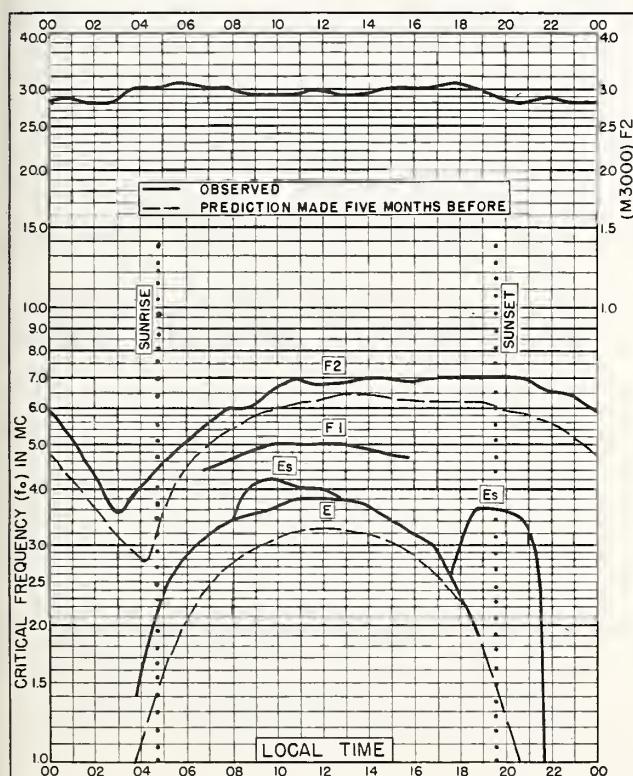


Fig. 127. HOBART, TASMANIA
42.9°S, 147.3°E JANUARY 1956

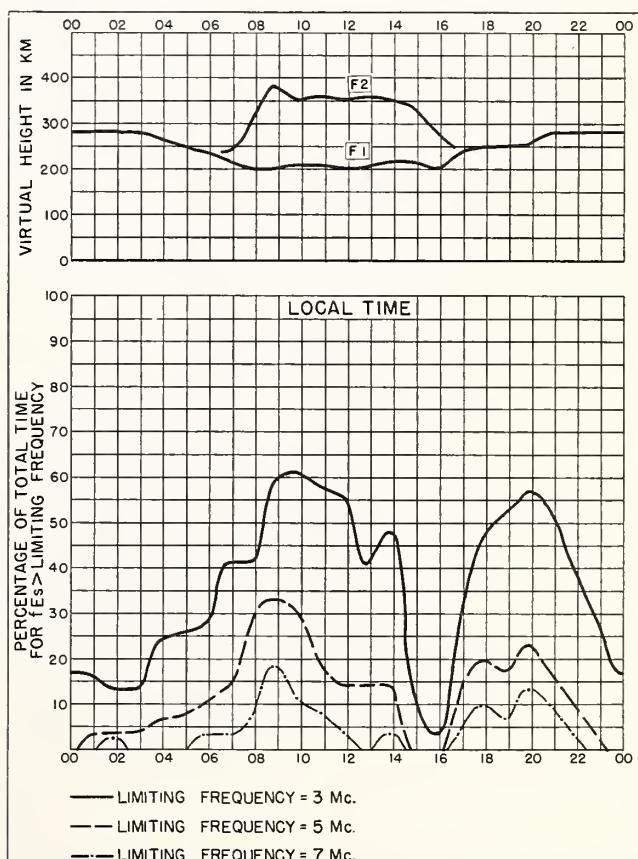


Fig. 128. HOBART, TASMANIA JANUARY 1956

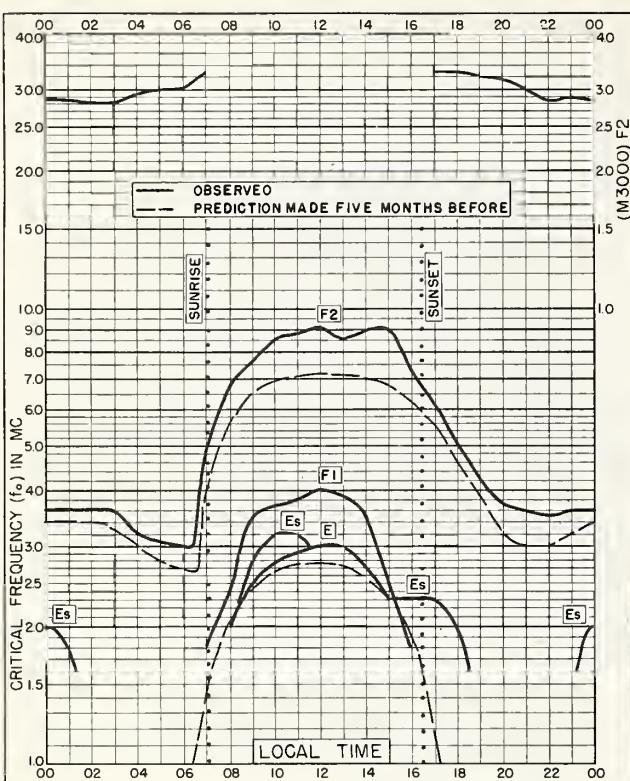


Fig. 129. POITIERS, FRANCE

46.6°N, 0.3°E

NOVEMBER 1955

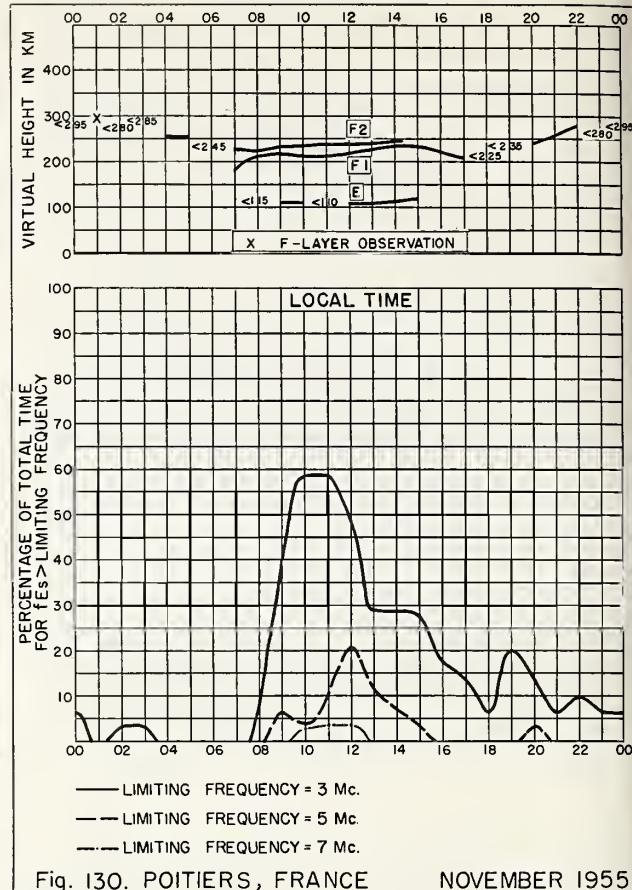


Fig. 130. POITIERS, FRANCE

NOVEMBER 1955

NBS 490

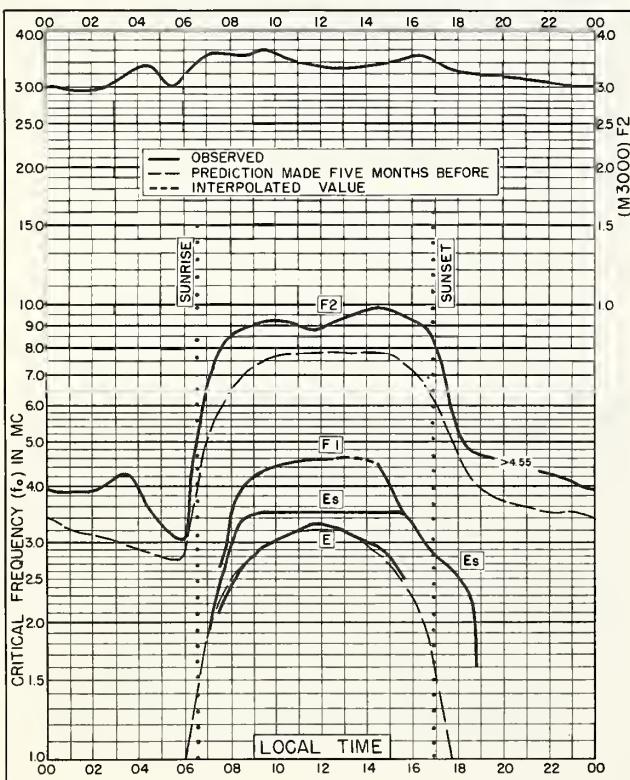


Fig. 131. CASABLANCA, MOROCCO

33.6°N, 7.6°W

NOVEMBER 1955

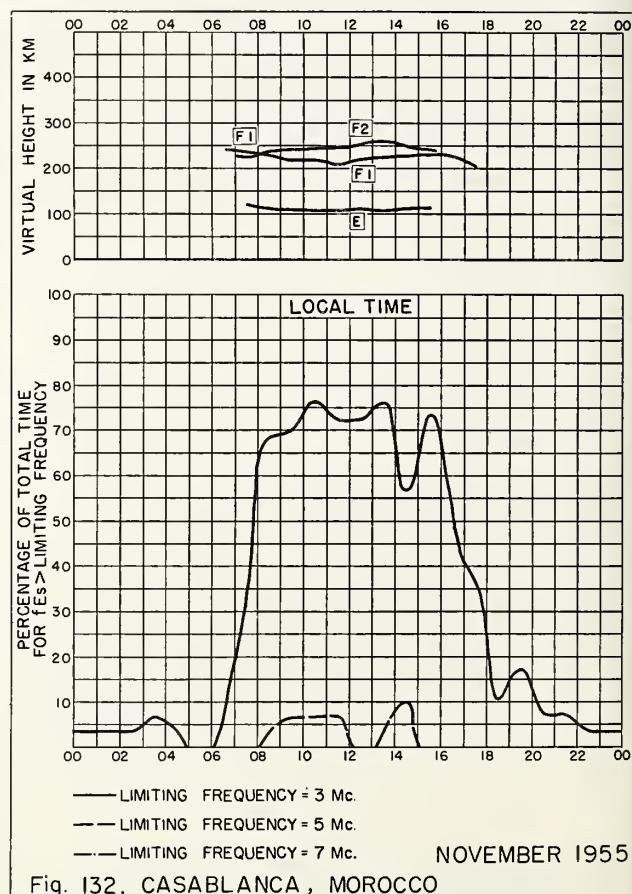


Fig. 132. CASABLANCA, MOROCCO

NOVEMBER 1955

NBS 490

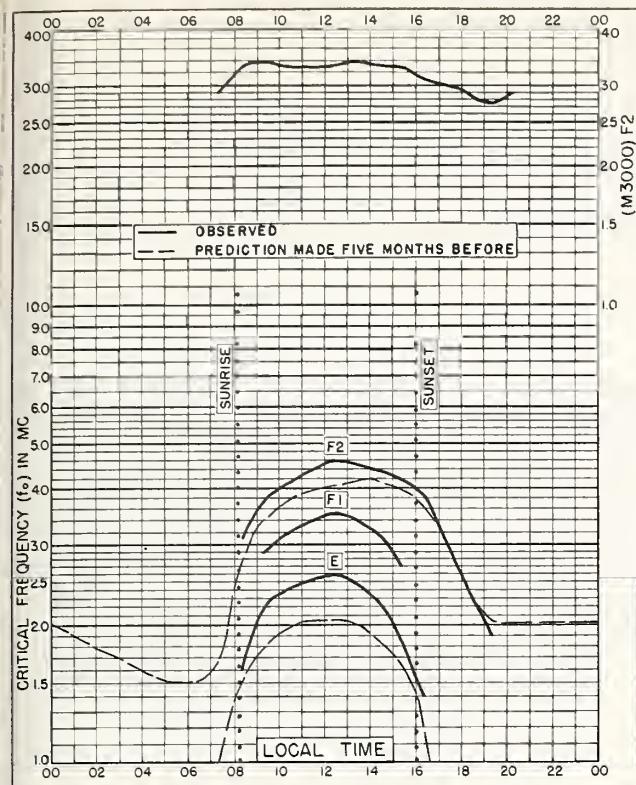


Fig. 133. CAMPBELL I.
52.5°S, 169.2°E

JULY 1954

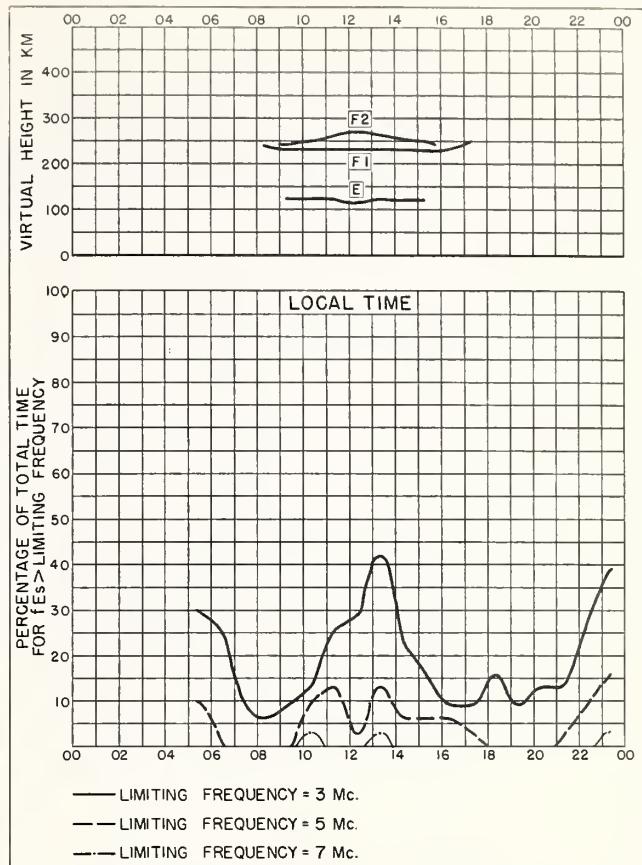


Fig. 134. CAMPBELL I.

JULY 1954

NBS 490

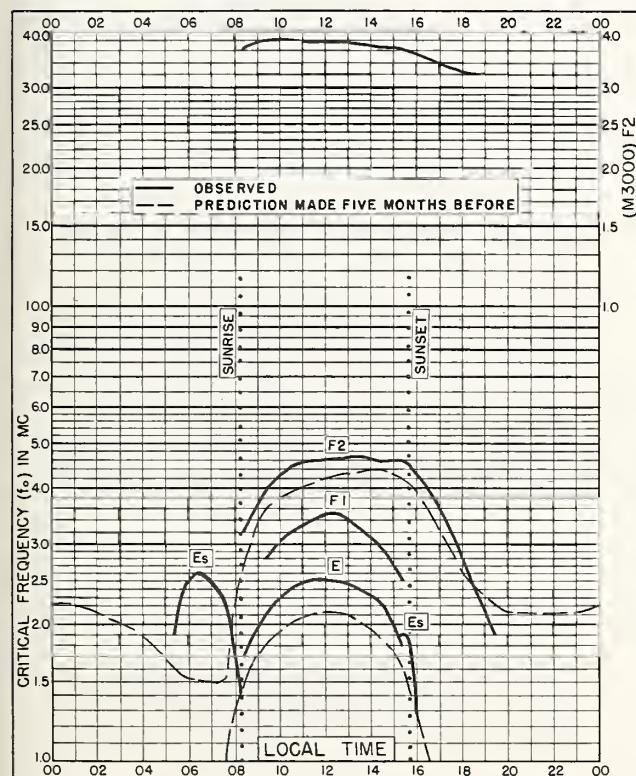


Fig. 135. CAMPBELL I.
52.5°S, 169.2°E

JUNE 1954

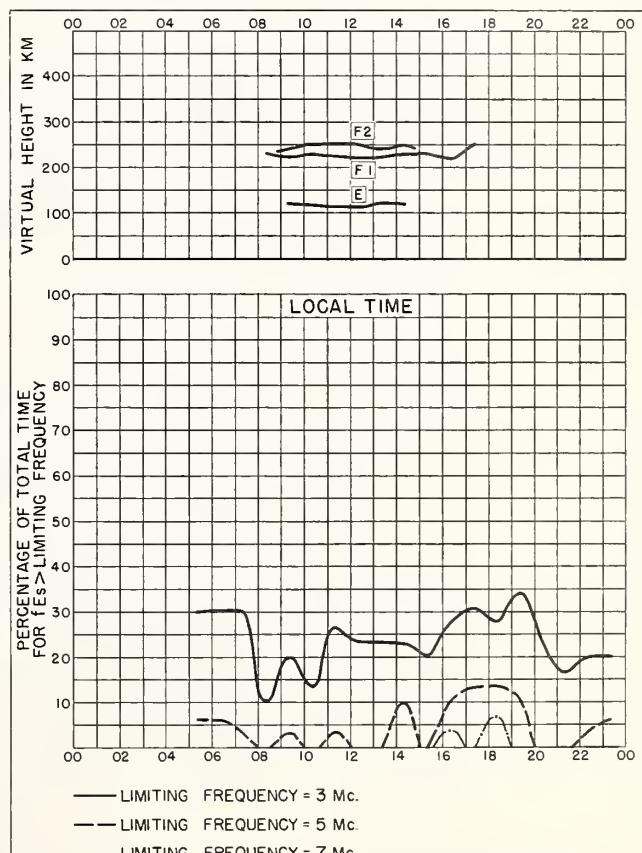


Fig. 136. CAMPBELL I.

JUNE 1954

NBS 490

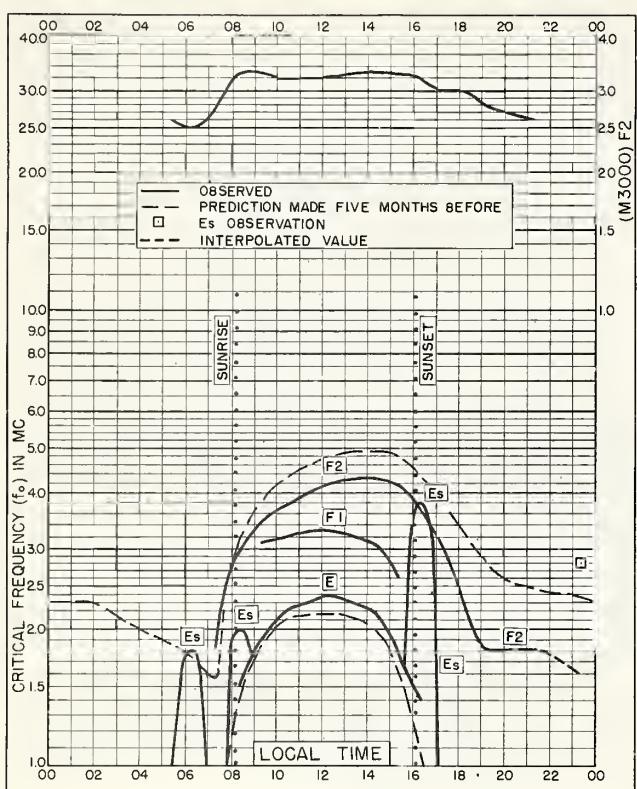


Fig. I37. CAMPBELL I.
52.5°S, 169.2°E JULY 1953

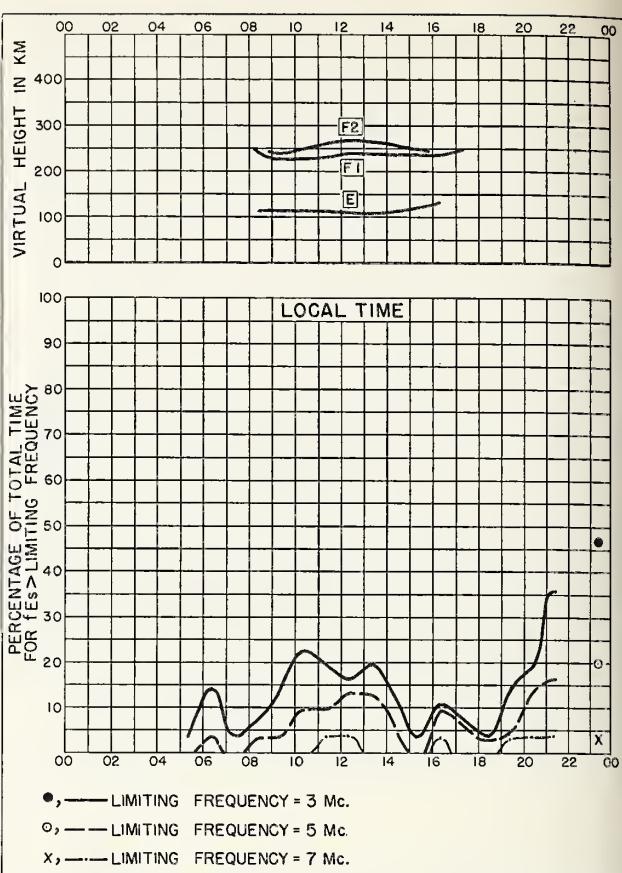


Fig. I38. CAMPBELL I. JULY 1953

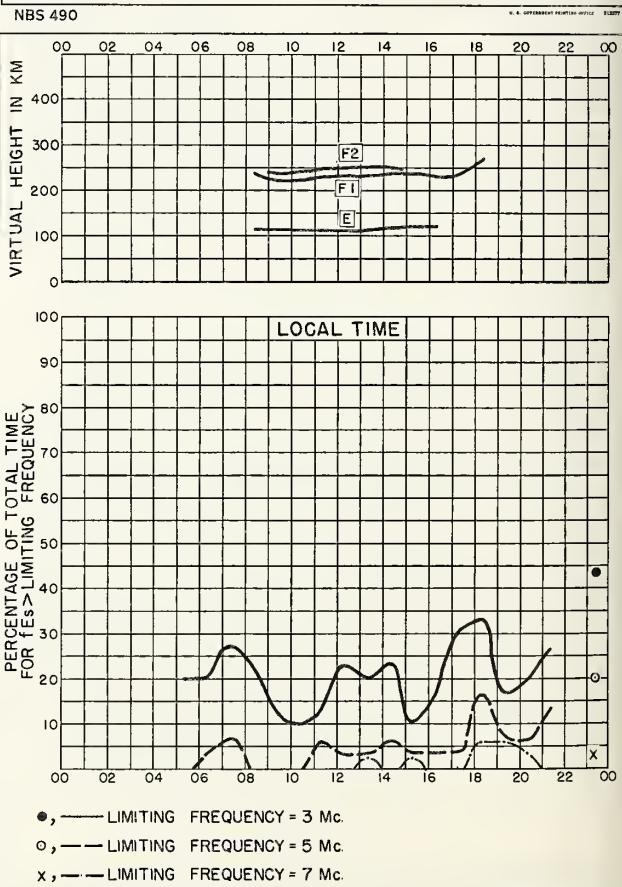


Fig. I39. CAMPBELL I.
52.5°S, 169.2°E JUNE 1953

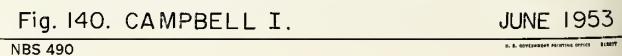


Fig. I40. CAMPBELL I. JUNE 1953

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