PART A

IONOSPHERIC DATA

ISSUED
AUGUST 1956

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

CRPL-F 144
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22 Aug. 1956

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above, plus an additional symbol, R: "Scaling of characteristic is influenced or prevented by absorption in the neighborhood of the critical frequency," (May 1955). Also, beginning with January 1956, additional meanings are assigned to T: A smoothed value which better fits the observations, replacing a doubtful or clearly inconsistent observed value; and to U: foF2 minus foF1 is 0.5 Mc or less (used with (M3000)F2).

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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

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

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

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

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

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

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

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

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

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

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

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

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

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

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

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

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

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

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

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

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

Observed Sunspot Number

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

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

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

Republica Argentina, Ministerio de Marina:
Decepcion I.

Commonwealth of Australia, Department of the Interior:
Macquarie I.

University of Graz:
Graz, Austria

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

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

French National Center for Telecommunications Studies:
Djibouti, French Somaliland
Fribourg, Germany

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

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

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

Manila Observatory:
Baguio, P. I.

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

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

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

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

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

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

ERRATA

1. IRPL-F20, table 34: Year should be 1946 instead of 1945.

2. From approximately May 30, 1954 to September 16, 1955, the height of all layers at Maui, Hawaii, was reported high by approximately 12½%.

Table 1

Washington, D. C. (38.7°N, 77.1°W) July 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	6.0					3.8	2.80
01	270	5.8					3.5	2.80
02	270	5.3					3.1	2.80
03	270	4.8					3.0	2.80
04	290	4.2					3.7	2.80
05	290	4.3	---	---	---	---	3.0	2.90
06	315	5.2	240	3.7	115	2.3	3.9	3.00
07	350	5.7	230	4.3	109	2.8	4.4	2.85
08	360	6.3	220	4.7	105	3.2	4.8	2.90
09	370	6.6	210	5.0	103	3.5	5.6	2.80
10	380	6.7	200	5.2	103	3.6	5.4	2.80
11	430	6.6	200	5.2	101	3.8	5.0	2.65
12	410	6.8	200	5.2	101	3.9	4.8	2.70
13	410	6.8	200	5.2	102	3.9	4.5	2.70
14	410	7.0	210	5.2	102	3.8	4.5	2.75
15	390	7.2	210	5.0	105	3.7	4.2	2.75
16	380	7.2	220	4.9	105	3.5	4.0	2.80
17	340	7.2	225	4.6	109	3.1	3.7	2.85
18	305	7.2	240	3.8	112	2.6	3.7	2.90
19	270	7.2	250	---	123	1.9	3.1	2.90
20	250	7.2	---	---			3.9	2.90
21	260	7.0					3.5	2.80
22	270	6.6					3.6	2.75
23	270	6.4					3.8	2.80

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

Table 2

Tromso, Norway (69.7°N, 19.0°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(5.30)					4.0	(2.55)
01	---	(5.10)	---	----			4.0	(2.55)
02	---	4.80	---	----	---	----	4.0	2.40
03	---	5.10	245	----	---	----	4.0	(2.55)
04	(405)	5.50	250	3.80	100	2.55	3.2	2.55
05	445	5.60	245	4.10	100	2.80	2.9	2.55
06	450	5.75	245	4.25	100	2.90	3.2	2.55
07	415	6.05	245	4.50	100	3.05	<3.6	2.60
08	420	6.10	240	4.65	100	3.20		2.60
09	435	6.40	225	4.70	100	3.30		2.70
10	410	6.35	230	4.85	100	3.30	<3.6	2.70
11	420	6.35	215	4.90	100	3.30		2.70
12	445	6.30	215	4.90	100	3.30		2.60
13	450	6.05	215	4.85	100	3.30	<3.5	2.65
14	490	6.00	210	4.70	100	3.30		2.60
15	470	5.90	225	4.60	100	3.20		2.60
16	425	5.85	240	4.60	100	3.10	3.8	2.70
17	(390)	5.90	245	4.40	100	3.00	3.2	(2.75)
18	---	5.90	250	----	105	2.80	3.9	2.80
19	---	6.00	250	----	105	2.40	4.0	2.80
20	---	5.70	295	----	105	----	4.0	2.85
21	---	5.60	---	----	---	----	4.0	2.70
22	---	5.20	---	----			4.0	2.60
23	---	(5.75)	---	----			4.0	(2.60)

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

Table 3

Oslo, Norway (60.0°N, 11.1°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.90					<1.6	2.60
01	300	5.70					<1.3	2.55
02	300	5.50	---	----	---	----	2.0	2.55
03	320	5.40	300	----	110	----	1.7	2.60
04	270	5.55	265	3.15	105	1.85	<2.1	2.65
05	390	5.60	250	3.70	110	2.25	2.5	2.70
06	400	5.80	240	4.10	110	2.60	<2.9	2.70
07	410	6.05	240	4.55	105	2.90	3.1	2.65
08	400	6.30	230	4.65	100	3.10	3.5	2.70
09	415	6.75	225	4.95	100	3.30	3.8	2.75
10	400	6.70	220	5.00	100	3.40	3.8	2.70
11	400	6.80	220	5.10	100	3.45	<3.8	2.70
12	430	6.60	220	5.15	100	----	<3.8	2.70
13	400	6.65	220	5.20	100	3.50	3.4	2.75
14	430	6.50	220	5.10	105	3.50	3.4	2.65
15	410	6.60	220	5.10	100	3.40	3.3	2.70
16	390	6.70	225	4.90	105	3.35	<2.1	2.75
17	350	6.75	235	4.60	105	3.00	3.4	2.80
18	320	6.75	250	----	110	2.80	3.2	2.90
19	310	6.70	250	----	110	2.45	2.8	2.90
20	280	6.70	260	----	---	2.10	<2.6	2.90
21	275	6.50	280	----	---	----	<2.2	2.90
22	280	6.20					<1.7	2.75
23	295	5.90					<1.4	2.65

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

Table 4

Graz, Austria (47.1°N, 15.5°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.9						
01	320	6.4						
02	310	6.5						
03	300	6.1						
04	300	6.0						
05	280	6.6	300	3.7				
06	300	6.8	250	4.0				
07	300	7.4	230	4.8			4.5	
08	330	7.8	230	4.9		(3.6)	4.8	
09	345	8.0	210	5.1		(3.9)	4.4	
10	330	8.0	210	5.2		(3.9)	4.0	
11	340	8.3	200	5.2		(3.9)	4.2	
12	340	8.0	210	5.2			4.5	
13	350	7.9	210	5.2		(3.9)	4.1	
14	355	7.5	220	5.1		(3.7)		
15	360	7.6	220	5.1			3.8	
16	330	7.7	220	5.0			3.8	
17	320	7.5	230	4.9				
18	300	7.8	240	4.1			4.0	
19	270	8.0					3.9	
20	260	8.0					4.2	
21	280	7.8						
22	300	7.4						
23	300	7.2						

Time: 15.0°E.
Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 5

Ft. Monmouth, New Jersey (40.3°N, 74.1°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.2					2.6	2.80
01	280	5.8					3.4	2.70
02	280	5.3					4.0	2.80
03	280	4.8					3.8	2.80
04	280	4.2					3.4	2.80
05	290	4.8	260	---	121	---	2.0	2.90
06	360	5.2	240	4.0	109	(2.6)	2.9	2.80
07	390	5.6	220	4.5	109	(3.0)	3.4	2.70
08	440	5.5	215	4.7	109	(3.3)	3.7	2.70
09	450	5.9	210	5.0	106	(3.5)	4.0	2.65
10	440	6.0	205	5.0	105	3.7	4.2	2.70
11	480	6.0	210	5.2	107	(3.7)	4.0	2.60
12	480	6.2	210	5.2	106	---	4.2	2.60
13	460	6.5	210	5.2	106	(3.9)	4.8	2.60
14	430	6.6	210	5.1	108	3.8	4.0	2.65
15	420	6.6	220	5.0	109	(3.6)	4.5	2.65
16	400	6.9	220	5.0	109	3.4	4.0	2.70
17	350	7.0	230	4.5	109	3.0	3.4	2.80
18	300	7.2	240	---	111	2.6	3.2	2.85
19	270	7.3					4.2	2.90
20	260	7.4					4.3	2.85
21	260	7.2					5.8	2.80
22	270	6.8					4.8	2.80
23	280	6.4					3.9	2.80

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

Table 6

White Sands, New Mexico (32.3°N, 106.5°W) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<300	5.6					4.2	2.60
01	280	5.6					4.1	2.70
02	280	5.4					4.0	2.70
03	270	5.3					2.8	2.70
04	270	5.0					3.0	2.70
05	280	4.9	275	---	120	---	1.6	2.80
06	290	5.7	240	(3.7)	113	(2.3)	3.5	2.90
07	340	6.6	220	4.4	109	(3.0)	4.5	2.80
08	370	6.6	210	4.7	(105)	(3.2)	5.2	2.70
09	400	7.1	200	5.0	(105)	(3.5)	4.9	2.65
10	400	7.6	200	5.0	(105)	(3.7)	6.0	2.60
11	400	7.8	200	5.2	(105)	(3.7)	5.2	2.60
12	400	8.5	200	5.2	(105)	(3.9)	4.9	2.60
13	380	8.0	205	5.2	(105)	(3.8)	4.4	2.65
14	370	7.9	210	5.1	107	(3.7)	4.4	2.65
15	380	7.8	215	5.0	(108)	(3.6)	4.6	2.70
16	370	7.5	220	4.8	107	(3.3)	4.2	2.70
17	340	7.4	235	4.6	109	(3.0)	4.2	2.80
18	<300	7.5	250	---	112	(2.5)	4.2	2.90
19	260	7.6	---	---			4.4	2.95
20	240	7.4					5.2	2.90
21	250	6.6					4.6	2.80
22	260	6.2					4.0	2.75
23	280	5.7					4.4	2.65

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

Table 7

Okinawa I. (26.3°N, 127.8°E) June 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	9.0					3.8	2.65
01	290	9.0					5.2	2.80
02	280	8.5					4.4	2.85
03	270	7.2					3.5	2.80
04	280	7.5					3.8	2.75
05	270	7.1			---	---	3.5	2.80
06	250	7.6	260	---	134	(1.9)	3.4	3.00
07	250	8.2	240	---	113	(2.7)	4.7	3.10
08	(260)	7.9	225	---	111	(3.2)	6.2	3.05
09	(330)	7.9	210	---	111	(3.5)	7.4	2.80
10	370	8.3	210	---	111	(3.8)	7.0	2.70
11	410	9.0	200	(5.8)	111	(3.9)	6.6	2.50
12	400	10.0	220	(5.6)	111	(4.0)	6.5	2.55
13	370	10.8	220	(5.5)	111	(3.9)	5.8	2.65
14	370	11.2	220	(5.4)	111	(3.9)	6.6	2.70
15	360	11.9	225	---	111	(3.8)	7.0	2.70
16	340	11.6	230	---	111	3.5	5.8	2.70
17	320	12.1	235	---	111	(3.2)	5.8	2.80
18	300	11.8	245	---	117	(2.7)	5.8	2.80
19	270	11.2	265	---	---	---	5.1	2.80
20	270	9.9					4.2	2.70
21	310	8.8					3.0	2.50
22	330	8.8					3.2	2.55
23	320	9.0					2.6	2.55

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

Table 8

Tromso, Norway (69.7°N, 19.0°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(5.40)	---	----			3.2	(2.55)
01	---	(6.20)	---	----	---	----	4.0	(2.60)
02	---	6.15	---	----	---	----	4.0	(2.60)
03	(340)	6.00	290	----	---	----	3.2	2.50
04	(385)	6.15	275	3.75	105	2.20	3.0	(2.60)
05	(380)	6.40	255	4.00	105	2.50		2.60
06	380	6.50	250	4.20	105	2.80		2.70
07	415	6.55	245	4.45	105	3.00		2.60
08	400	6.30	240	4.60	105	3.10		2.60
09	420	6.65	235	4.70	105	3.20		2.60
10	445	6.75	230	4.80	105	3.30		2.60
11	405	7.20	225	4.90	105	3.30		2.60
12	410	7.20	225	4.90	105	3.30		2.70
13	400	6.90	220	4.90	105	3.25		2.70
14	(430)	6.85	225	4.75	105	3.15		2.70
15	(370)	6.60	225	4.70	105	3.10		2.70
16	(410)	6.20	240	4.55	105	3.00	3.0	2.80
17	---	6.25	245	----	105	2.85	3.2	2.80
18	---	6.30	250	----	105	2.60	4.0	2.90
19	(260)	6.20	---	----	105	2.25	4.0	2.80
20	(255)	5.65	---	----	110	----	3.2	2.70
21	(290)	5.45			---	----	3.2	2.70
22	(295)	5.35					3.2	2.60
23	.---	(6.20)					3.7	(2.70)

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

Table 9

Narsarssuak, Greenland (61.2°N, 45.4°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---					4.4	---
01		---					4.3	
02		---					3.9	
03		(3.8)					4.3	(2.50)
04		(4.5)			---	---	4.3	(2.85)
05		(4.9)		---	113	2.4	3.5	(3.00)
06		(5.1)		---	110	2.8	3.0	(3.00)
07		5.6		(4.4)	105	3.0		2.90
08		5.8		(4.6)	107	3.2		2.80
09		6.0		(4.7)	103	3.3		2.80
10		6.2		4.8	108	(3.4)		2.80
11		6.4		(4.9)	105	(3.4)		2.70
12		6.7		(5.0)	103	(3.5)		2.70
13		6.7		(5.0)	101	(3.5)		2.70
14		6.8		(4.8)	105	(3.4)		2.70
15		7.0		(4.8)	101	3.3		2.75
16		(6.7)		(4.6)	103	(3.2)		(2.75)
17		(6.7)		(4.4)	109	3.0		(2.80)
18		(6.2)		(4.3)	111	2.7	3.0	(2.80)
19		(5.6)		---	121	2.4	3.2	(2.85)
20		(5.8)			111	---	2.6	(2.85)
21		---					4.3	---
22		---					4.1	---
23							4.4	

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Oslo, Norway (60.0°N, 11.1°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.40					<1.4	2.60
01	290	6.15					<1.3	2.65
02	290	5.55			---	----	1.2	2.65
03	300	5.10			120	----	1.4	2.65
04	290	5.20	295	----	110	----	1.4	2.75
05	290	5.65	260	----	105	2.15	2.3	2.75
06	340	6.15	250	4.00	110	2.50	<2.6	2.80
07	390	6.90	240	4.25	110	2.80	3.0	2.75
08	390	6.90	230	4.55	110	3.10	3.4	2.70
09	375	6.85	230	4.75	105	3.30	3.4	2.75
10	370	7.20	225	4.90	105	3.40	3.6	2.75
11	375	7.55	220	5.20	105	3.50		2.75
12	350	7.60	220	5.00	105	3.45		2.75
13	390	7.50	230	4.95	105	3.45		2.75
14	400	7.50	220	4.95	105	3.50		2.75
15	350	7.50	220	4.95	110	3.40		2.75
16	340	7.50	220	4.70	105	3.20		2.80
17	320	7.50	230	4.55	100	2.90	<3.3	2.85
18	270	7.40	230	----	100	2.60	3.0	2.90
19	250	7.40	250	----	110	2.20	2.8	3.00
20	250	7.10	250	----	---	----	<2.4	3.05
21	260	6.70	---	----	---	----	<1.9	2.90
22	265	6.20					<1.4	2.75
23	280	6.40					<1.4	2.70

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

Table 11

White Sands, New Mexico (32.3°N, 106.5°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.8					3.4	2.60
01	<300	5.8					2.8	2.65
02	300	5.6					2.7	2.65
03	<300	5.4					3.0	2.65
04	280	5.2					3.0	2.65
05	290	5.1	---	---	<121	---	2.1	2.70
06	280	6.0	250	3.6	<117	(2.3)	2.6	3.00
07	330	6.6	225	4.1	107	(2.8)	4.3	2.90
08	330	>7.4	215	4.5	(105)	(3.2)	4.7	2.75
09	370	8.0	200	4.9	(105)	(3.5)	5.0	2.65
10	380	8.5	200	5.3	(105)	(3.7)	4.9	2.60
11	380	9.1	205	5.4	(107)	(3.8)	4.7	2.65
12	350	9.3	205	5.3	(107)	(3.8)	4.0	2.65
13	360	9.7	220	5.4	(107)	(3.8)	4.5	2.65
14	350	9.6	220	5.3	(107)	(3.8)	4.2	2.70
15	340	9.4	<225	5.2	(107)	(3.6)	4.2	2.70
16	<330	9.2	225	4.8	(107)	(3.3)	4.0	2.80
17	300	9.2	235	(4.4)	109	(2.9)	4.1	2.80
18	270	9.1	250	---	114	---	3.7	2.90
19	240	8.4	---	---	---	---	3.4	2.95
20	240	7.6					4.1	2.85
21	230	6.5					4.6	2.75
22	<270	6.0					4.4	2.70
23	<300	5.7					3.4	2.65

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

Table 12

Maui, Hawaii (20.8°N, 156.5°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.4					3.8	2.75
01	280	8.0					3.3	2.85
02	270	7.2					2.2	2.80
03	290	6.8					2.9	2.70
04	310	6.6					3.3	2.65
05	290	6.4					3.1	2.65
06	280	6.2	---	----	---	----	4.0	2.65
07	270	7.7	240	----	119	2.60	5.0	2.70
08	300	8.8	230	----	111	3.10	5.8	2.55
09	330	9.7	225	5.40	109	3.40	7.2	2.40
10	380	10.5	215	5.40	109	3.60	7.0	2.40
11	380	11.6	220	5.60	109	3.80	6.6	2.50
12	370	12.6	215	5.70	109	4.00	6.8	2.65
13	360	12.4	220	5.70	109	4.00	5.7	2.65
14	370	12.3	225	5.90	109	3.90	6.4	2.65
15	350	12.7	220	5.40	109	3.70	5.3	2.70
16	340	12.6	230	5.20	111	3.50	5.7	2.75
17	310	12.5	240	----	118	3.00	4.6	2.85
18	280	12.2	260	----	121	2.30	4.1	2.90
19	260	11.8					4.3	2.90
20	270	10.5					3.7	2.75
21	290	9.4					4.4	2.65
22	310	9.0					4.2	2.60
23	310	9.0					3.8	2.70

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

Table 13

Puerto Rico, W. I. (18.5°N, 67.2°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	9.6					3.1	2.85
01	270	9.2					3.8	2.90
02	250	8.6					3.6	2.90
03	270	8.1					4.8	2.80
04	260	7.7					2.8	2.85
05	260	6.8					(2.8)	2.80
06	270	6.8	---	---	---	---	2.6	2.95
07	250	8.0	245	---	(109)	(2.5)		3.10
08	260	8.7	230	4.0	(109)	(3.1)	3.9	3.00
09	330	9.3	220	5.2	110	3.4	4.1	2.75
10	330	10.0	220	5.3	109	3.7	3.7	2.70
11	350	10.6	220	5.6	108	3.8		2.65
12	340	11.7	220	5.6	(109)	(4.0)	4.1	2.70
13	340	12.0	220	5.5	111	(4.0)		2.75
14	330	12.1	220	5.4	(111)	(3.9)	4.2	2.75
15	330	11.9	230	5.4	(111)	3.7	5.2	2.75
16	310	11.8	225	5.1	109	3.4	4.6	2.80
17	300	11.0	235	---	111	3.0	4.3	2.80
18	270	11.3	250	---	114	2.3	3.5	2.80
19	260	10.7					3.4	2.80
20	270	9.8					3.6	2.75
21	280	9.9					3.6	2.75
22	290	9.7					3.3	2.75
23	290	9.6					3.1	2.75

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

Table 14

Panama Canal Zone (9.4°N, 79.9°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	10.2						2.90
01	250	9.2						2.85
02	260	8.7					2.6	2.80
03	260	8.4					1.7	2.90
04	250	7.6					2.2	3.00
05	240	6.7					3.1	2.90
06	270	6.4					4.2	2.80
07	240	7.3	---	---	119	(2.5)	3.9	2.95
08	(260)	8.7	235	---	(111)	3.1	4.2	2.85
09	(280)	9.5	230	---	111	3.5	4.6	2.65
10	320	10.7	220	5.7	111	3.8	5.0	2.50
11	360	11.4	220	5.8	111	(3.9)	5.2	2.55
12	380	12.0	220	5.9	111	4.0	5.4	2.60
13	380	12.5	220	5.8	111	4.0	5.2	2.60
14	360	13.0	220	5.7	111	3.9	5.4	2.65
15	340	13.0	220	(5.7)	111	3.7	5.5	2.70
16	320	13.1	220	---	111	3.3	5.0	2.75
17	300	(12.3)	240	---	112	2.8	4.7	(2.75)
18	260	11.2	---	---	---	---	3.7	2.75
19	270	(10.5)					3.1	(2.70)
20	290	(10.3)					3.2	(2.60)
21	290	(10.6)					2.4	(2.60)
22	280	(10.7)					1.8	(2.70)
23	270	10.7					1.9	2.80

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

Table 15

Talara, Peru (4.6°S, 81.3°W) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	9.6						2.90
01	240	9.9						3.00
02	245	9.5						3.10
03	230	8.0						3.20
04	235	6.5					2.1	3.15
05	260	5.4					3.4	3.05
06	270	4.6					2.6	3.00
07	260	7.3			123	2.1	3.1	3.00
08	270	9.0	240	---	117	3.0	4.7	2.90
09	(270)	9.9	225	---	111	3.4	4.2	2.60
10	(250)	10.6	220	---	111	3.7	4.6	2.40
11	(225)	10.8	210	---	109	3.8	5.3	2.25
12	240	11.0	205	5.0	109	3.9	5.6	2.25
13	230	11.0	200	5.0	109	3.9	5.6	2.30
14	245	11.2	205	---	109	3.8	5.1	2.20
15	220	11.4	210	---	109	3.5	6.7	2.20
16	230	11.5	220	---	109	3.2	5.4	2.30
17	240	11.1	---	---	112	2.7	5.6	2.30
18	270	11.1					5.2	2.30
19	330	10.7					3.9	(2.25)
20	350	10.7					2.5	2.35
21	310	(10.8)					3.1	2.50
22	270	(10.6)					4.2	2.75
23	230	(9.7)					(3.1)	2.95

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

Table 16

Point Barrow, Alaska (71.3°N, 156.8°W) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(4.7)					6.4	----
01		(4.6)					5.6	----
02		---					5.0	
03		(4.7)			---	---	4.0	----
04		(4.7)			121	(1.6)	2.3	(2.50)
05		(5.3)			118	1.8	2.5	(2.55)
06		(5.3)		(3.4)	111	(2.2)	3.0	---
07		(5.3)		(4.0)	109	---	3.1	---
08		(5.2)		(3.9)	111	2.8	3.9	(2.50)
09		(5.4)		4.3	111	3.0	3.9	(2.40)
10		5.8		(4.3)	111	3.2	3.5	(2.45)
11		6.0		4.4	111	3.2		2.50
12		6.0		4.7	111	(3.3)		2.55
13		6.1		(4.7)	111	3.1		2.60
14		6.5		(4.6)	111	3.1		2.55
15		(6.6)		(4.6)	111	(3.0)		(2.60)
16		(6.6)		(4.3)	111	(2.8)		(2.60)
17		6.6		(4.0)	111	2.6		2.65
18		(6.3)		---	117	(2.3)		2.75
19		(5.2)		---	117	(2.0)	2.5	(2.80)
20		(5.1)			115	(1.8)	3.2	(2.80)
21		(5.1)			---	---	3.8	(2.70)
22		(4.9)			---	---	4.0	(2.65)
23		(4.8)					4.5	----

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

Table 17

Winnipeg, Canada (49.9°N, 97.4°W) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		4.7					2.9	---
01		4.2					<2.8	---
02		4.2					3.0	---
03		4.4					3.0	---
04		4.3					3.2	---
05		4.4			---	---	<1.8	---
06		4.9			---	2.0		---
07		5.6		---	120	2.6		2.9
08		6.1		4.0	115	3.0		2.85
09		6.8		4.6	110	3.2		2.7
10		6.9		4.8	110	3.4		2.7
11		7.0		4.9	110	3.5		2.7
12		7.3		5.0	110	3.6		2.65
13		7.8		5.1	110	3.6		2.65
14		7.8		5.0	110	3.6		2.65
15		8.0		5.0	115	3.4		2.65
16		8.0		4.8	115	3.2		2.65
17		8.4		---	120	3.0		2.7
18		8.4			125	2.6		2.8
19		8.0			130	1.9		2.8
20		7.5			---	---	<1.7	2.8
21		6.8			---	---	<1.8	2.7
22		6.0			---	---	<1.6	2.7
23		5.2					<1.8	2.7

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 18

San Francisco, California (37.4°N, 122.2°W) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<300	5.6					2.6	2.55
01	<300	5.4					2.5	2.50
02	(285)	5.4					2.4	2.55
03	(285)	5.2					2.4	2.55
04	<285	5.0					2.9	2.55
05	310	4.8	---	---	---	---	2.6	2.60
06	265	5.9	<270	(3.2)	<115	(1.9)	3.0	2.85
07	260	7.0	240	(4.1)	(109)	(2.5)	3.5	2.90
08	290	8.4	220	(4.4)	105	(3.0)	4.0	2.85
09	300	8.9	215	(4.6)	(105)	(3.3)	4.0	2.80
10	310	9.7	210	(4.8)	(105)	(3.4)	4.0	2.65
11	320	10.8	210	(5.2)	(105)	(3.6)	4.2	2.60
12	330	11.3	215	5.4	(105)	(3.6)	3.6	2.65
13	315	11.6	215	(5.4)	(105)	(3.6)		2.70
14	325	11.4	220	(5.6)	(105)	(3.5)		2.70
15	310	11.3	220	(5.1)	(105)	(3.4)		2.75
16	300	11.0	230	---	(107)	(3.2)		2.80
17	250	10.6	240	---	(109)	(2.8)	3.2	2.85
18	245	10.0	---	---	(115)	(2.1)	3.3	2.95
19	235	9.3					2.9	3.00
20	225	7.8					2.8	2.90
21	240	6.6					2.9	2.75
22	260	6.0					2.8	2.70
23	280	5.7					2.8	2.60

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

Baguio, P. I. (16.4°N, 120.6°E) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	14.6						3.20
01	230	12.3						3.30
02	220	9.0						3.00
03	230	7.6						2.90
04	260	7.1					2.3	2.80
05	250	6.5					1.8	2.85
06	270	7.5			---	---	2.6	2.90
07	250	9.9			115	(2.7)	4.0	2.95
08	240	11.5	---	---	111	3.2	6.0	2.70
09	(240)	12.8	230	---	111	3.5	5.9	2.50
10	---	12.7	220	---	(111)	(3.8)	5.6	2.40
11	---	13.0	220	---	---	4.0	4.5	2.30
12	---	13.0	210	---	---	4.0		2.35
13	---	13.0	215	---	---	4.0		2.30
14	---	13.5	220	---	---	3.9		2.40
15	---	14.0	230	---	---	3.6		2.40
16	240	13.5	240	---	114	(3.2)	3.5	2.50
17	260	13.7			119	2.6	3.8	2.50
18	280	13.4					2.8	2.40
19	360	(13.0)					2.0	(2.30)
20	360	13.5					2.0	2.40
21	310	13.5					2.0	2.60
22	280	14.0						2.80
23	260	15.2						3.10

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 20

Resolute Bay, Canada (74.7°N, 94.9°W) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.7					<1.2	2.9
01		5.8						2.9
02		5.0						2.9
03		5.4			---	---		2.9
04		5.0			---	1.2		(3.0)
05		5.0			115	1.4		3.0
06		5.0			110	1.7		3.0
07		4.9		---	115	1.9		3.0
08		5.2		---	110	2.1		3.0
09		5.3		3.8	110	2.3		3.0
10		5.6		3.9	105	2.5		3.0
11		5.8		3.9	105	2.6		3.0
12		6.0		3.9	100	2.7		2.9
13		5.8		4.0	105	2.6		2.9
14		6.0		3.7	105	2.6		3.0
15		6.2		3.9	105	2.5		2.95
16		7.2		3.5	105	2.3		2.85
17		6.9		3.4	110	2.1		2.85
18		6.3			110	1.9		2.9
19		6.5			110	1.8		2.9
20		6.0			120	1.4		2.85
21		6.0			---	1.2		2.9
22		6.0			---	---		2.9
23		5.3					<1.1	2.75

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

Table 21

Churchill, Canada (58.8°N, 94.2°W) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		4.4			---	---	5.8	---
01		5.0			---	---	5.6	---
02		4.8			---	---	5.0	(2.8)
03		4.3			---	---	4.3	(2.85)
04		3.7			---	---	4.1	(2.8)
05		3.9			---	2.6	3.5	(2.8)
06		4.0			130	2.8	4.0	---
07		5.1			120	2.8	3.4	3.0
08		6.2		---	120	2.9		3.25
09		6.1		---	120	3.1	<3.2	3.1
10		6.8		4.5	115	3.1		3.0
11		7.5		4.7	110	3.3		3.0
12		8.2		4.8	110	3.2		3.0
13		9.0		4.6	115	3.2		2.95
14		9.5		4.7	110	3.2		3.0
15		8.6		4.4	110	3.2		3.0
16		7.0		4.0	120	2.9		3.0
17		7.2		---	120	2.6		3.0
18		6.6			130	2.1		3.0
19		6.0			120	2.4	3.3	2.95
20		5.0			125	2.0	4.5	2.9
21		4.8			---	---	4.0	(3.05)
22		5.0			---	---	5.5	(2.8)
23		4.8			---	---	5.0	(3.0)

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

Table 22

Ottawa, Canada (45.4°N, 75.9°W) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		4.5					<1.6	2.8
01		4.2			---	---	<1.6	2.8
02		4.0			---	---	<1.6	2.8
03		3.8			---	---	<1.6	2.8
04		3.6			---	---	<1.6	2.9
05		3.2			---	---	<1.6	2.9
06		3.9			---	1.8		3.1
07		6.1		---	115	2.2		3.1
08		7.2		4.0	110	2.9		3.2
09		8.0		4.7	110	3.2		3.1
10		9.0		4.9	110	3.4		3.1
11		9.8		5.0	110	3.7		3.0
12		10.1		5.0	110	3.7		3.0
13		10.2		5.1	110	3.7		2.9
14		10.4		4.9	110	3.6		2.95
15		10.3		4.9	110	3.4		3.0
16		10.0		4.5	110	3.0		3.0
17		9.9		4.0	115	2.6		3.0
18		9.2		---	125	1.8		3.0
19		8.2			---	---	<1.6	3.0
20		7.1			---	---	<1.6	3.0
21		6.6			---	---	<1.6	3.0
22		6.0			---	---	<1.6	2.9
23		5.0			---	---	<1.6	2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 15.0 Mc in 15 seconds.

Table 23

Wakkanai, Japan (45.4°N, 141.7°E) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.2						
01	290	6.2						
02	280	6.0						
03	270	6.0						
04	280	5.7						
05	280	5.7						
06	240	7.3						
07	230	8.6						
08	240	10.3						
09	250	10.7						
10	250	11.5						
11	250	11.8						
12	260	12.4						
13	250	12.1						
14	250	11.8						
15	250	11.4						
16	250	10.8						
17	240	10.4						
18	220	9.8						
19	230	8.3						
20	250	7.5						
21	250	7.0						
22	270	6.7						
23	290	6.5						

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 24

Akita, Japan (39.7°N, 140.1°E) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	6.4					2.4	
01	340	6.5					2.4	
02	310	6.3					2.4	
03	300	6.0					2.5	
04	310	5.8					2.4	
05	320	5.7					2.2	
06	270	7.6					2.2	
07	250	9.5						
08	260	10.6						
09	260	11.5						
10	270	11.8						
11	280	12.0						
12	280	12.0						
13	290	12.6						
14	280	12.0						
15	280	11.8						
16	260	11.5						
17	270	11.0						
18	260	10.4					2.5	
19	250	8.5					2.5	
20	280	7.6					2.3	
21	290	7.2					2.0	
22	310	6.9					2.2	
23	310	6.5					2.2	

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 25

Tokyo, Japan (35.7°N, 139.5°E) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.6						2.8
01	300	6.5						2.8
02	270	6.4					1.8	2.85
03	250	6.0					1.8	2.8
04	270	5.5					1.6	2.7
05	280	5.5						2.7
06	250	7.4			150	1.9		3.0
07	230	9.6	240	---	120	2.5	2.4	3.3
08	240	10.6	240	4.6	110	3.1	3.1	3.2
09	250	11.0	230	4.8	110	3.3	3.9	3.1
10	250	11.8	230	4.8	110	3.5	3.8	3.0
11	250	12.5	230	5.0	110	3.6	4.0	3.0
12	260	12.5	230	5.0	110	3.7	3.8	2.9
13	260	12.9	230	5.0	110	3.8	3.7	2.9
14	260	12.6	230	4.8	110	3.7	3.7	2.9
15	260	12.0	240	4.8	110	3.4	3.5	3.0
16	250	11.8	240	---	110	3.0	3.5	3.0
17	250	11.0	---	---	120	2.4	2.2	3.0
18	240	10.4			---	---	2.4	3.1
19	230	9.0					2.4	3.0
20	250	7.8						2.9
21	260	7.5						2.8
22	280	7.1						2.8
23	290	6.9						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 26

Yamagawa, Japan (31.2°N, 130.6°E) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.5					2.0	
01	280	7.0						
02	260	7.0						
03	240	7.0						
04	240	6.0					2.0	
05	250	5.6						
06	270	5.7						
07	240	8.2						
08	230	10.0						
09	240	11.0						
10	240	12.0						
11	250	12.8					4.7	
12	250	13.5						
13	250	13.6						
14	250	14.4						
15	250	13.7						
16	250	13.6						
17	240	13.2					3.2	
18	240	12.5					3.0	
19	240	11.0					3.0	
20	230	9.5					2.4	
21	250	8.6					2.3	
22	250	8.2					2.2	
23	270	8.1						

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 27

Decepcion I. (63.0°S, 60.7°W) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	5.8						3.0
01	340	5.4						3.0
02	350	5.2					2.4	3.0
03	350	5.0					2.4	2.9
04	350	4.7					2.9	2.9
05	350	4.6					3.0	3.0
06	350	4.6					2.8	3.1
07	280	6.0					3.1	3.4
08	270	6.2					3.2	3.6
09	260	7.3					3.5	3.55
10	250	8.3					3.7	3.6
11	250	9.0					3.8	3.6
12	250	9.1					3.8	3.6
13	240	9.4					3.5	3.6
14	250	9.6					3.5	3.6
15	250	9.7					3.4	3.6
16	250	9.0					3.4	3.6
17	250	8.8					3.4	3.6
18	250	9.2					3.3	3.6
19	250	8.6					3.3	3.6
20	260	8.2					3.2	3.5
21	280	7.0					2.4	3.35
22	300	7.1					3.2	3.2
23	310	6.6						3.0

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 28*

Inverness, Scotland (57.4°N, 4.2°W) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	(3.2)						---
01	325	(3.0)						---
02	320	(2.3)						---
03	325	(2.4)						---
04	310	(2.2)						---
05	300	2.3						(2.7)
06	285	2.4						---
07	260	2.9						---
08	240	4.9			140	1.7	2.3	3.0
09	235	6.4	---	---	120	2.1	2.7	(3.1)
10	235	7.1	---	---	115	2.4	2.8	3.2
11	245	7.8	225	---	115	2.7		3.2
12	245	8.1	230	(3.7)	115	2.8		3.1
13	240	8.3	(230)	(3.7)	115	2.8		3.1
14	240	8.8	220	---	115	2.7		3.2
15	240	8.2	235	---	120	2.4		3.2
16	235	8.5			125	2.2	2.3	3.2
17	225	7.6			(140)	1.8		3.1
18	220	6.6						3.1
19	240	5.2						(2.9)
20	260	3.8						---
21	295	3.2						---
22	310	2.7						---
23	315	3.0						---

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 29*

Slough, England (51.5°N, 0.6°W) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	3.6					2.0	2.6
01	295	3.5					2.4	2.6
02	290	3.3					2.4	2.6
03	295	3.2					2.4	2.6
04	285	2.7					2.5	2.65
05	280	2.7					2.3	2.7
06	275	2.6					2.3	2.75
07	255	4.0			(170)	1.6	2.6	2.9
08	240	6.3			130	2.0	3.1	3.2
09	235	7.5	(240)	(3.7)	120	2.5	3.3	3.2
10	245	8.8	230	4.0	120	2.9	3.6	3.15
11	250	8.8	225	4.1	120	3.1	3.6	3.15
12	250	9.2	230	4.1	120	3.2	3.2	3.15
13	245	9.2	225	4.1	120	3.1		3.1
14	245	9.4	225	4.0	120	3.0	3.5	3.05
15	240	9.3	230	3.7	125	2.8	2.9	3.05
16	235	9.3			125	2.4	3.5	3.15
17	225	8.1			130	1.8	2.5	3.15
18	225	6.9					2.2	3.05
19	240	6.0					2.3	3.0
20	250	4.6						2.85
21	280	4.0						2.7
22	300	3.6						2.65
23	300	3.7						2.6

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 30*

Singapore, British Malaya (1.3°N, 103.8°E) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	7.9						2.9
01	250	7.6						2.8
02	250	6.9						2.9
03	250	6.2						2.9
04	250	5.9						3.0
05	250	5.4						3.0
06	255	4.3						3.1
07	250	7.5			130	2.4	3.2	3.1
08		9.1	240		120	3.1	3.8	2.8
09		9.5	225		110	3.5	4.8	2.5
10		10.3	215		110	3.8	4.4	2.2
11		10.8	210		110	3.9		2.1
12		(11.0)	205	(5.0)	110	4.0		(2.2)
13		(10.7)	200		110	4.0	4.7	(2.2)
14		11.3	210		110	3.9		2.2
15		10.9	210		110	3.7	4.4	2.2
16		10.9	225		110	3.3	4.8	2.2
17	(255)	11.3	240		115	2.7	4.4	2.3
18	280	11.2			160	2.2	3.3	2.3
19	335	10.8					3.0	2.3
20	340	10.4					2.0	2.4
21	290	11.0					2.6	(2.7)
22	245	11.3					3.2	3.0
23	220	9.8						3.1

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 31*

Falkland Is. (51.7°S, 57.8°W) February 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	7.6					>3.1	2.6
01	310	7.4					2.9	2.5
02	305	7.3					3.1	2.5
03	300	7.0					2.4	2.6
04	300	6.6					2.4	2.5
05	305	6.8	290		(140)	(1.6)	2.2	2.6
06	255	7.3	250		125	2.1	4.0	2.8
07	315	8.2	240	(4.3)	115	2.7	5.2	2.8
08	300	8.7	235		110	3.1	4.8	2.8
09	315	9.1	235	5.0	110	3.4	5.0	2.8
10	350	8.7	225	(4.9)	105	3.5	5.1	2.8
11	320	9.6	225	5.0	105	3.6	5.3	2.8
12	315	9.8	230	5.1	105	3.7	5.4	2.9
13	310	9.3	225	5.1	105	3.6	4.9	2.9
14	310	9.4	230	5.1	105	3.5	4.9	2.9
15	305	8.7	235	5.0	105	3.4	4.8	3.0
16	290	8.1	240	(4.7)	110	3.2	5.0	3.0
17	270	8.4	(245)		115	2.8	5.0	3.1
18	260	7.9			120	2.2	4.7	3.0
19	260	8.1					4.8	3.0
20	265	7.7					4.6	2.8
21	275	7.5					4.0	2.7
22	285	7.6					3.9	2.6
23	290	7.9					3.1	2.6

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 32*

Inverness, Scotland (57.4°N, 4.2°W) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	335	(2.0)						---
01	330	(2.0)						---
02	325	(1.8)						---
03	330	(1.7)						---
04	315	1.8						(2.6)
05	295	2.0						(2.7)
06	285	(2.2)						(2.9)
07	270	(2.2)						---
08	255	3.0			150	1.2		---
09	235	5.1			120	1.7	2.4	3.2
10	230	6.6			130	2.0	2.8	3.3
11	230	7.2			125	2.2	2.8	3.4
12	230	8.0	(220)	---	120	2.3	2.7	3.3
13	235	8.2	(240)	---	130	2.2	2.8	3.3
14	235	7.8			135	2.2	2.8	3.4
15	230	7.3			(130)	1.9		3.3
16	225	6.8			---	1.7	2.4	3.3
17	235	6.0						3.2
18	245	4.5						2.9
19	280	2.9						3.0
20	290	2.4						---
21	325	(2.3)						---
22	335	(2.1)						---
23	335	(2.0)						---

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 33*

Slough, England (51.5°N, 0.6°W) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	3.0					2.1	2.6
01	300	2.8					2.6	2.65
02	310	2.7					2.4	2.6
03	305	2.3					2.4	2.6
04	305	2.3					2.6	2.65
05	290	2.4					2.5	2.7
06	290	2.3					2.5	2.75
07	275	2.4					2.6	2.75
08	235	5.0			145	1.7	3.2	3.2
09	230	6.8			140	2.1	3.9	3.3
10	235	7.7	235	3.6	130	2.5	4.1	3.35
11	240	8.5	225	3.7	130	2.7	4.0	3.25
12	240	8.7	225	3.7	130	2.8	4.2	3.3
13	235	8.5	225	3.6	130	2.7	4.2	3.2
14	240	8.4	235	3.5	130	2.6	4.1	3.2
15	230	7.7			135	2.3	3.8	3.25
16	225	7.0			145	1.8	3.3	3.25
17	225	6.4					2.4	3.2
18	230	5.3					1.8	3.1
19	255	4.0					2.2	2.9
20	280	3.2						2.75
21	305	3.0					2.1	2.65
22	320	3.1						2.6
23	310	3.0						2.6

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 34*

Singapore, British Malaya (1.3°N, 103.8°E) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	7.2					1.6	2.7
01	265	7.3						2.8
02	260	6.6						2.9
03	255	5.4						3.0
04	265	4.4						2.9
05	270	4.0					2.0	2.9
06	285	4.4				(1.2)	2.1	2.9
07	245	7.0			125	2.3	3.3	3.0
08	(240)	8.3	235		115	3.0	4.0	2.7
09		9.0	225		110	3.4	4.3	2.4
10		9.4	210		110	3.7	5.4	2.1
11		10.0	210		110	3.8	5.1	2.0
12	400	10.4	200	(5.3)	110	3.8	5.4	2.1
13	380	10.4	205		110	3.8	5.2	(2.2)
14	(375)	(10.2)	205		110	3.7	5.0	(2.2)
15		10.2	210		110	3.5	4.4	2.1
16		10.3	235		110	3.1	4.2	2.1
17	(250)	10.2	245		120	2.6	4.2	2.4
18	280	10.1			(150)	2.0	3.4	2.4
19	330	9.9					3.5	2.3
20	335	9.5					3.3	2.3
21	295	9.7					3.0	2.5
22	250	9.6					2.8	2.9
23	235	7.6						2.8

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 35*

Falkland Is. (51.7°S, 57.8°W) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	7.9					3.1	2.5
01	270	7.6					2.3	2.6
02	300	7.2					2.6	2.6
03	305	7.1					1.8	2.6
04	290	7.2	300			(1.5)	1.8	2.5
05	345	7.4	260	(3.8)	135	2.1	3.1	2.5
06	340	7.3	245	(4.2)	120	2.6	4.4	2.5
07	385	7.1	235	4.6	110	3.0	5.2	2.5
08	385	7.2	225	4.9	110	3.2	4.9	2.6
09	380	7.8	225	5.0	105	3.5	5.5	2.6
10	355	7.8	220	5.1	105	3.6	5.3	2.6
11	345	8.2	220	5.2	105	3.6	4.9	2.6
12	340	8.6	220	5.2	105	3.7	5.0	2.7
13	330	8.2	230	5.1	105	3.6	5.0	2.8
14	335	8.0	235	5.1	105	3.6	4.9	2.8
15	340	7.8	230	4.9	105	3.4	5.2	2.8
16	325	7.8	230	4.8	110	3.2	5.3	2.9
17	315	7.8	245	4.6	115	2.9	4.9	2.9
18	310	8.0	(245)	4.3	120	2.5	5.1	2.9
19	290	7.7	260	3.7	130	2.0	4.7	2.9
20	280	7.6					4.5	2.8
21	280	7.8					3.1	2.6
22	290	8.2					2.4	2.6
23	305	8.0					2.5	2.6

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 36*

Port Lockroy (64.8°S, 63.5°W) January 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---	300	2.3			3.1	---
01		(6.4)	315	2.3			2.8	---
02	(370)	6.3	330	2.5			2.2	---
03	(375)	6.4	300	2.8				---
04	(360)	6.2	270	3.1			2.2	2.6
05	370	6.2	260	3.8		2.3	3.4	2.6
06	385	6.5	250	4.1		2.5	4.3	2.5
07	380	7.0	240	4.3		2.3	4.1	2.6
08	380	6.6	240	4.1	105	3.0	5.2	2.7
09	410	6.1	230	4.6	105	3.1	5.2	2.8
10	385	6.0	(225)	4.7	105	3.2	5.6	2.7
11	395	5.9	230	4.9	105	3.2	5.4	2.9
12	415	5.9	245	4.9	105	3.3	5.4	2.9
13	395	6.0	230	4.9	(105)	(3.4)	4.8	2.8
14	390	6.0	240	4.8	(105)	(3.3)	5.3	2.8
15	375	6.3	245	4.7	105	3.2	5.0	2.8
16	360	6.5	235	4.6	105	3.1	4.7	2.8
17	330	6.6	240	4.5	105	2.9	5.3	2.8
18	360	6.8	240	4.3	105	2.7	5.2	2.9
19	310	6.8	245	3.9		2.4	5.5	2.9
20	300	7.1	255	3.4		2.1	4.7	2.8
21	(300)	7.7	275	2.9		(1.8)	2.3	2.7
22	(300)	(7.7)	285	2.8		(1.3)	2.5	2.7
23		---	295	2.4			3.0	---

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 37*

Falkland Is. (51.7°S, 57.8°W) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.7	---	---	---	---	3.4	2.5
01	305	8.8	---	---	---	---	3.1	2.5
02	305	8.6	---	---	---	---	3.6	2.6
03	315	8.3					2.6	2.5
04	310	8.8	275	3.1	145	1.6	2.7	2.5
05	330	9.0	250	3.9	125	2.1	3.4	2.5
06	335	9.8	240	4.5	110	2.7	4.8	2.5
07	340	9.8	240	5.0	105	3.1	5.5	2.5
08	340	9.8	230	5.1	105	3.3	5.4	2.5
09	350	9.8	220	5.1	105	3.5	5.5	2.6
10	350	9.9	220	5.3	100	3.6	5.5	2.6
11	345	10.1	220	5.3	100	3.6	5.4	2.7
12	350	9.8	220	5.3	100	3.6	5.2	2.7
13	340	9.4	230	5.3	105	3.7	5.3	2.7
14	335	9.0	230	5.2	105	3.6	5.2	2.8
15	330	8.4	230	5.1	105	3.5	5.6	2.8
16	320	8.1	235	5.0	105	3.2	5.6	2.8
17	310	8.0	240	4.7	110	2.9	5.8	2.9
18	305	7.9	245	4.4	115	2.5	5.3	2.8
19	285	8.5	260	3.9	130	1.9	4.6	2.8
20	275	8.4			145	1.6	3.5	2.7
21	295	8.8	---	---			3.3	2.6
22	300	8.9	---	---	---	---	3.1	2.6
23	305	8.9	---	---	---	---	3.3	2.5

Time: 60.0°W.
5weep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 38

Port Lockroy (64.8°S, 63.5°W) December 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---	295	2.2			(5.4)	---
01	---	---	285	2.3			5.2	---
02	---	(8.1)	300	2.4			3.9	---
03	---	---	280	2.8			3.7	---
04	---	---	255	3.2	(110)	(2.1)	3.8	---
05	(325)	8.3	245	3.9	105	2.4	4.0	2.6
06	(325)	8.4	235	4.2	105	2.7	5.0	2.6
07	325	8.5	235	4.4	100	2.9	5.8	2.7
08	335	8.1	225	4.7	100	3.1	5.5	2.7
09	340	8.1	(220)	4.7	100	3.1	5.9	2.8
10	360	7.6	(210)	5.0	100	3.1	6.2	2.7
11	350	7.0	(220)	4.9	(100)	(3.3)	6.1	2.8
12	345	6.8	(205)	4.9	(100)	(3.2)	6.1	2.8
13	350	6.6	210	5.0	(100)	(3.3)	6.4	2.9
14	350	6.6	220	4.9	(100)	(3.3)	6.2	2.9
15	345	6.7	(225)	4.9	(100)	(3.2)	5.6	2.9
16	340	6.6	(245)	4.8	100	3.1	6.0	2.9
17	330	6.8	235	4.5	105	3.0	5.6	2.8
18	320	7.1	240	4.4	100	2.8	5.9	2.8
19	305	7.6	(240)	4.0	105	2.4	5.6	2.8
20	300	7.9	(255)	(3.3)	105	2.1	5.6	2.8
21	295	8.4	265	2.7	(105)	1.8	3.9	2.7
22	(305)	8.0	280	2.5	(110)	(1.6)	3.7	2.6
23	---	---	290	2.4			(2.9)	---

Time: 60.0°W.
5weep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 39*

Port Lockroy (64.8°S, 63.5°W) November 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	(6.7)	285	2.1			(2.5)	---
01	310	(6.1)	295	2.1			1.3	---
02	335	(6.3)	290	2.6				---
03	(345)	(5.5)	290	2.6				2.4
04	(335)	(5.6)	265	3.0	(105)	(1.7)		2.6
05	(355)	(5.6)	255	3.4	105	2.2		2.7
06	(370)	5.6	245	4.2	105	2.5	3.2	2.8
07	(350)	6.3	(235)	4.4	105	2.8	4.3	2.8
08	310	7.0	(230)	4.5	105	3.0	5.3	2.8
09	315	6.8	(225)	4.6	105	3.1	5.2	2.9
10	(320)	6.2	(220)	(4.7)	95	3.2	4.8	2.9
11	350	6.6	(220)	(4.8)	(105)	(3.3)	5.3	3.1
12	350	6.4	(225)	(4.7)	(105)	(3.3)	4.9	3.0
13	315	6.4	(220)	(4.7)	(105)	(3.4)	5.2	3.1
14	320	6.4	(215)	(4.7)	(105)	(3.4)	5.2	3.0
15	310	6.5	(230)	(4.6)	105	3.2	4.0	3.0
16	310	6.7	(245)	(4.3)	105	3.0	4.1	3.1
17	295	6.8	(245)	(4.6)	105	2.8	5.4	3.1
18	290	7.2	(245)	(4.2)	105	2.5	4.3	3.0
19	290	7.6	255	3.3	105	2.0	2.8	2.9
20	275	7.5	270	2.7	105	1.9	2.4	2.9
21	(300)	(8.5)	270	2.5			2.0	2.7
22	(310)	(8.0)	280	2.3			2.0	---
23	(295)	(7.0)	285	2.2			2.9	---

Time: 60.0°W.
5weep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 40

Point Barrow, Alaska (71.3°N, 156.8°W) October 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		---					6.6	
01		---					5.6	---
02		---					5.8	---
03		---					4.6	---
04		---					4.3	---
05		---					4.4	---
06		(3.3)					4.4	---
07		(3.7)					4.3	---
08		(4.0)			---	---	3.7	(3.1)
09		4.5		---	---	---	3.4	3.1
10		4.8		---	---	---	3.9	3.2
11		4.8		(3.4)	120	2.0	3.0	3.15
12		5.0		---	110	2.0	2.9	3.2
13		5.4		---	---	---	<2.4	3.2
14		5.4		---	---	---	<2.4	3.2
15		5.6			---	---	1.8	3.2
16		5.6			---	---	<2.0	3.2
17		(5.4)			---	---	<1.9	3.2
18		(4.7)					2.4	(3.15)
19		(3.5)					2.8	(3.2)
20		(3.0)					3.7	(3.0)
21		---					4.2	---
22		---					5.4	---
23							5.7	

Time: 150.0°W.
5weep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41*

Ibadan, Nigeria (7.4°N, 4.0°E) October 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	236	(8.5)					5.2	---
01	234	8.3					5.4	(3.0)
02	231	(6.7)					6.4	(3.3)
03	232	(5.2)					6.8	---
04	233	(4.4)					6.8	(3.3)
05	237	(2.6)					8.6	(3.3)
06	248	6.7	---	----	129	1.90	8.8	---
07	267	9.0	226	----	119	2.72	9.8	3.1
08	295	9.8	211	----	115	3.18	12.9	2.7
09	315	9.5	206	----	111	3.38	14.0	2.4
10	328	9.2	203	4.90	110	3.57	14.2	2.5
11	329	9.1	200	(4.86)	109	3.64	14.0	2.5
12	384	9.7	200	(4.90)	110	3.65	13.8	2.4
13	326	10.2	200	(4.74)	111	3.55	13.3	2.5
14	(308)	10.6	204	----	110	3.35	13.2	2.5
15	---	10.8	202	----	118	3.08	13.3	2.4
16	---	10.8	211	----	113	2.58	12.6	2.3
17	250	10.4	---	----	120	1.80	7.2	2.3
18	318	9.8	---	----	---	(1.04)	6.6	2.2
19	342	(8.9)					4.6	---
20	307	(8.6)					3.1	---
21	271	(9.8)					3.6	---
22	257	---					3.8	---
23	239	(9.0)					4.6	---

Time: 0.0°.
5weep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 42

Lulea, Sweden (65.6°N, 22.1°E) June 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	---	---	---			2.5	
01								
02	255	---	---	---	---	---	2.6	
03								
04	340	4.5	210	3.5	110	2.2		
05								
06	375	4.6	205	3.8	100	2.5		
07								
08	380	5.0	210	4.2	100	2.7		
09								
10	365	4.9	200	4.2	100	2.6		
11								
12	375	5.1	210	4.3	100	2.5		
13								
14	360	4.8	210	4.2	100	2.5		
15								
16	350	4.8	200	4.0	100	2.6		
17								
18	300	4.7	210	3.7	110	2.3		
19								
20	240	(4.5)	---	---	---	1.8	2.6	
21								
22	260	---	---	---				
23								

Time: 15.0°E.
5weep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 43

Poitiers, France (46.6°N, 0.3°E) February 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.4						---
01	<260	3.4						(3.05)
02	260	3.4						(3.0)
03	260	3.4						3.0
04	260	3.2						---
05	250	2.8						---
06	235	2.6						---
07	225	3.6	---	---	---	E		3.4
08	225	4.8	205	2.6	---	1.9	1.9	3.65
09	230	5.4	200	3.4	110	2.3	2.4	3.7
10	245	5.8	210	3.8	105	2.6	2.6	3.6
11	250	6.2	210	4.0	105	2.8		3.6
12	245	6.2	210	4.0	105	2.9		3.65
13	245	5.9	200	3.9	105	2.9		3.55
14	240	5.9	215	3.8	105	2.8		3.65
15	240	5.9	220	3.8	110	2.5		3.5
16	230	5.8	225	(3.0)	115	2.1	2.5	3.55
17	220	5.5	225	(2.1)	---	E	2.4	3.6
18	220	4.8					2.3	3.35
19	230	4.6					2.1	(3.3)
20	<230	4.0						(3.3)
21	<235	3.5					1.8	(3.2)
22	250	3.4						(3.15)
23	250	3.4						(3.1)

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 44

Casablanca, Morocco (33.6°N, 7.6°W) February 1955

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.2						3.0
01	---	3.1						3.0
02	---	3.1						3.05
03	---	3.1						3.1
04	---	3.1						3.1
05	---	3.0						3.15
06	---	2.6						3.3
07	225	3.2						3.3
08	230	5.5	225	(2.9)	135	1.9	2.4	3.7
09	235	6.2	215	3.8	110	2.5		3.7
10	250	6.4	205	4.1	105	2.8	3.2	3.6
11	250	7.0	205	4.3	105	3.0		3.6
12	260	6.7	200	4.4	105	3.1		3.5
13	260	6.4	200	4.4	105	3.1		3.5
14	260	6.5	205	4.4	105	3.1		3.5
15	255	6.5	225	4.2	110	2.9		3.4
16	250	6.6	225	4.0	110	2.7		3.4
17	245	(6.7)	240	(3.4)	120	2.2	3.6	3.55
18	230	6.4					2.9	3.7
19	<205	(5.1)					2.4	(3.5)
20	---	3.9					2.5	3.3
21	---	3.5					3.0	3.3
22	---	3.3					2.9	3.25
23	---	3.1					2.1	3.1

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

Table 45

Macquarie I. (54.5°S, 159.0°E) October 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	---					4.0	(2.9)
01	(310)	2.5					2.7	(3.0)
02	(300)	2.3					2.0	2.9
03	(290)	(2.5)						(2.9)
04	280	2.2			---	---		3.15
05	260	2.8	---	---	120	---		3.2
06	260	3.4	230	3.0	110	2.1		3.2
07	320	3.8	230	3.5	110	2.5		3.1
08	320	4.0	230	3.8	110	2.7		3.1
09	370	4.2	220	3.8	110	3.0		2.95
10	380	4.4	220	3.9	100	3.0		2.9
11	380	4.5	220	4.0	100	3.0		2.9
12	380	4.6	220	4.0	100	3.0		2.95
13	360	4.5	210	4.0	100	3.0		2.9
14	350	4.7	200	4.0	110	3.0		3.0
15	340	4.9	220	3.8	110	2.8		3.1
16	330	4.6	230	3.7	110	2.5		3.0
17	290	4.8	240	3.4	120	2.4		3.0
18	270	4.6	240	2.7	120	2.0		3.1
19	250	4.1	---	---			2.4	3.1
20	260	3.6	---	---			2.5	3.1
21	280	2.9					2.8	3.1
22	320	2.7					2.4	2.9
23	(300)	(3.1)					3.3	(2.9)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 46

Macquarie I. (54.5°S, 159.0°E) September 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.6	----
01	---	---					3.3	----
02	---	---					3.1	----
03	---	---					2.6	----
04	---	---						----
05	---	---						----
06	280	2.7	---	---	---	---	2.2	3.1
07	270	3.4	230	2.7	120	2.0		3.2
08	320	3.7	240	3.3	120	2.4		3.1
09	380	3.9	220	3.7	120	2.7		2.9
10	420	4.0	220	3.7	120	2.7		2.9
11	420	4.1	230	3.8	110	2.8		2.8
12	430	4.2	220	3.8	105	2.8		2.8
13	380	4.2	220	3.8	100	2.8		2.9
14	380	4.3	220	3.7	110	2.7		2.9
15	340	4.4	230	3.5	120	2.5		3.0
16	320	4.1	240	3.3	120	2.2		3.0
17	270	4.0	240	2.6	130	2.0		3.1
18	280	3.4	---	---	---	---	3.0	2.9
19	300	2.9					3.7	3.0
20	300	2.4					4.1	3.0
21	300	2.2					3.5	2.95
22	---	---					4.0	----
23	(330)	(2.0)					3.2	(3.1)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 47

Macquarie I. (54.5°S, 159.0°E) August 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.3	----
01	---	---					3.9	----
02	---	---					3.4	----
03	---	---					2.9	----
04	---	---					3.2	----
05	---	---					2.5	----
06	---	---					2.1	----
07	250	2.5	230	---	---	1.7	2.0	3.3
08	250	3.4	220	2.5	100	1.9		3.4
09	250	3.7	220	3.0	100	2.4		3.3
10	300	3.8	220	3.3	100	2.5		3.2
11	310	4.0	220	3.5	100	2.5		3.2
12	300	4.1	220	3.5	110	2.6		3.2
13	300	4.1	210	3.5	110	2.5		3.2
14	290	4.2	220	3.5	100	2.4		3.2
15	270	4.1	220	3.2	110	2.1		3.3
16	250	3.9	220	2.6	120	2.0		3.3
17	250	3.5	230	2.4	100	1.8		3.2
18	270	2.7	---	---				3.1
19	305	2.2					2.7	3.15
20	340	2.1					3.0	3.0
21	(295)	(2.2)					3.3	(3.2)
22	(320)	(2.4)					3.8	(3.0)
23	---	---					4.2	---

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 48

Macquarie I. (54.5°S, 159.0°E) July 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(320)	(2.0)					3.7	(3.1)
01	---	---					2.3	----
02	---	---					2.3	----
03	---	---					2.5	----
04	---	---					1.8	----
05	---	---					1.7	
06	---	---						
07	---	---	---	---				----
08	240	2.6	---	---	110	1.6	2.0	3.3
09	240	3.4	220	2.6	110	1.8	2.2	3.4
10	240	3.7	220	2.8	100	2.1	2.4	3.5
11	270	3.8	220	3.1	100	2.1	2.5	3.3
12	260	4.0	230	3.2	100	2.1	2.7	3.35
13	250	4.0	220	3.1	100	2.1	2.8	3.5
14	240	4.0	220	3.0	110	2.0		3.4
15	250	3.9	220	(2.7)	110	1.9		3.3
16	230	3.8	210	(2.6)	120	1.8		3.3
17	240	3.0	---	---	---	---		3.1
18	270	2.0						3.15
19	(330)	(1.8)						(3.1)
20	(320)	(2.0)					2.2	(3.0)
21	(300)	(2.0)					2.2	(3.0)
22	---	---					4.1	----
23	---	---					3.8	----

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 49

Macquarie I. (54.5°S, 159.0°E) June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(320)	(2.0)					3.4	(3.2)
01	(340)	(2.0)					2.9	(3.2)
02	(340)	(2.0)					2.2	(3.1)
03	(300)	(1.8)					2.0	(3.2)
04	---	---						----
05	---	---						----
06	---	---					2.2	----
07	---	---					2.2	----
08	230	2.5	---	---	---	---		3.35
09	230	3.5	230	2.5	100	1.9	2.1	3.55
10	240	3.9	220	2.8	100	2.0		3.5
11	240	4.1	220	3.2	100	2.1	2.4	3.4
12	250	4.3	230	3.2	100	2.1	2.5	3.5
13	250	4.4	230	3.1	100	2.1	2.2	3.5
14	250	4.2	230	3.0	120	2.0		3.4
15	240	4.2	230	3.0	110	1.8	2.2	3.4
16	220	3.8	---	---	(130)	1.6		3.3
17	230	3.2	---	---	---	---	2.1	3.2
18	250	2.1					1.8	3.3
19	300	1.8					1.8	3.3
20	(350)	(1.8)					2.0	(3.2)
21	(300)	(2.0)					2.2	----
22	(300)	(2.0)					2.2	(3.0)
23	(300)	(2.0)					3.4	3.2

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50

Macquarie I. (54.5°S, 159.0°E) May 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(2.1)					4.0	(3.0)
01	(350)	(1.9)					3.2	(3.0)
02	(320)	1.8					2.8	3.1
03	300	1.8					2.6	3.1
04	300	1.8					2.2	3.2
05	300	1.8					2.0	(3.2)
06	(320)	(1.7)					2.1	---
07	270	2.0	---	---	---	---	2.2	3.3
08	240	3.1	220	(2.3)	100	1.8	2.2	3.5
09	240	3.7	220	2.8	100	2.0	2.1	3.6
10	250	4.0	210	3.0	100	2.1	2.2	3.45
11	250	4.3	220	3.5	100	2.4	2.5	3.4
12	260	4.5	220	3.5	100	2.5	2.5	3.4
13	260	4.5	220	3.4	100	2.4	2.4	3.3
14	250	4.3	220	3.0	100	2.1		3.3
15	250	4.5	230	3.0	100	2.0	2.0	3.4
16	230	4.1	220	3.0	100	1.5	1.6	3.3
17	240	3.6	---	---	---	---	1.7	3.2
18	250	2.4					1.7	3.2
19	280	2.0					2.2	3.3
20	300	2.0					2.5	3.2
21	320	2.0					3.0	3.1
22	320	2.0					3.9	(3.2)
23	290	2.0					4.0	3.2

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 51

Fribourg, Germany (48.1°N, 7.8°E) April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<290	3.1						2.87
01	285	3.1						2.88
02	285	3.1						2.92
03	265	2.8						2.97
04	270	2.7						3.03
05	250	3.0						3.14
06	(290)	3.8	240	----	135	1.65	1.8	3.40
07	310	4.2	235	3.50	119	2.15		3.23
08	345	4.5	230	3.75	115	2.50		3.14
09	340	5.0	220	3.95	110	2.75	3.4	3.19
10	320	5.0	220	4.10	109	2.90	3.2	3.19
11	320	5.1	210	4.15	111	3.05	3.2	3.25
12	340	5.3	215	4.20	111	3.10	3.2	3.15
13	350	5.1	210	4.15	109	3.05	3.2	3.09
14	330	5.2	230	4.10	111	3.00	3.3	3.12
15	310	5.4	230	4.00	111	2.85	3.1	3.22
16	310	5.2	240	3.75	111	2.65	3.1	3.20
17	285	5.4	245	3.50	119	2.25	2.5	3.24
18	275	5.3	250	----	135	1.70	2.1	3.17
19	250	5.8					2.0	3.19
20	240	5.5					2.0	3.20
21	240	4.6						3.21
22	245	3.8						3.11
23	280	3.1						2.96

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

Table 52

Macquarie I. (54.5°S, 159.0°E) April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.0)					3.7	(3.1)
01	---	(2.0)					2.7	----
02	(290)	(2.0)					3.1	(3.2)
03	(300)	1.9					3.0	(3.1)
04	(290)	(1.6)					2.9	(3.1)
05	(330)	(1.4)	---	---			2.4	----
06	260	2.2	---	---			2.4	3.1
07	250	3.1	230	2.6	100	1.8		3.45
08	240	3.7	210	3.0	100	2.2		3.4
09	250	4.0	210	3.4	100	2.4		3.3
10	280	4.3	200	3.5	100	2.5		3.2
11	280	4.5	200	3.6	100	2.6		3.3
12	280	4.7	200	3.7	100	2.7		3.3
13	280	5.0	210	3.7	100	2.6		3.3
14	260	4.8	200	3.5	100	2.5		3.4
15	250	4.7	220	3.3	100	2.3		3.4
16	240	4.5	230	3.0	100	2.0		3.4
17	240	4.2	230	2.8	100	1.7	1.7	3.3
18	240	3.8			---	---	2.2	3.25
19	250	3.0					2.8	3.2
20	240	2.5					3.2	3.3
21	280	2.0					4.5	3.2
22	---	(2.4)					4.6	----
23	---	---					4.5	----

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 53

Fribourg, Germany (48.1°N, 7.8°E) March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<280	3.0						2.89
01	<280	2.9					1.8	2.90
02	275	2.9						2.87
03	265	2.8						2.96
04	260	2.6						3.04
05	<250	2.2						3.20
06	260	2.6			---	E	1.8	3.11
07	250	3.9	240	----	131	1.75	2.0	3.39
08	270	4.4	235	3.52	121	2.20	2.3	3.47
09	295	4.9	220	3.78	118	2.55	3.1	3.33
10	290	5.2	215	3.90	113	2.75	3.4	3.40
11	290	5.4	220	4.00	113	2.85	3.1	3.39
12	300	5.4	220	4.10	113	2.95	3.3	3.33
13	295	5.5	220	4.00	115	2.90	2.9	3.34
14	280	5.7	225	3.90	113	2.80		3.36
15	270	5.4	225	3.75	115	2.65		3.38
16	270	5.4	240	3.60	119	2.40	2.8	3.40
17	265	5.4	245	----	127	1.95	2.3	3.33
18	240	5.2			---	1.55	2.1	3.31
19	240	4.8					2.0	3.18
20	245	4.3					1.8	3.15
21	250	3.7					1.8	3.09
22	265	3.2						3.01
23	275	3.0						2.87

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

Table 54

Macquarie I. (54.5°S, 159.0°E) March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.2	----
01	---	---					4.2	----
02	(300)	(2.0)					3.1	(3.1)
03	---	---					3.0	----
04	(290)	(1.9)					2.5	(3.5)
05	(280)	(2.0)	---	---	---	---	2.5	(3.15)
06	300	2.8	240	3.0	100	1.8	2.2	3.1
07	G	3.5	230	3.5	100	2.2		G
08	400	3.8	220	3.5	100	2.5		2.75
09	380	4.1	220	3.7	100	2.6		2.95
10	380	4.3	200	3.8	100	2.8		3.0
11	380	4.4	200	3.8	100	2.9		3.0
12	370	4.5	210	3.9	100	3.0		3.0
13	360	4.6	200	3.9	100	2.9		3.05
14	340	4.6	210	3.8	100	2.8		3.1
15	300	4.8	220	3.8	100	2.8		3.1
16	280	4.7	220	3.5	100	2.5		3.1
17	270	4.6	230	3.3	100	2.1		3.1
18	250	4.6	250	3.0	100	2.0	2.6	3.1
19	250	4.0	---	---	---	---	4.0	3.1
20	250	3.4					4.4	3.1
21	260	3.0					4.5	3.1
22	(250)	(2.5)					4.7	(3.1)
23	(300)	(2.9)					4.5	(3.1)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 55

Fribourg, Germany (48.1°N, 7.8°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<260	3.0						2.97
01	265	3.2						2.98
02	260	3.0						2.97
03	<255	3.0						3.03
04	<260	2.6						3.00
05	<245	2.3						3.13
06	<240	2.0						3.18
07	230	3.3						3.34
08	230	4.5	225	----	129	1.65	2.0	3.54
09	235	4.9	225	----	119	2.20	2.9	3.64
10	250	5.1	222	3.60	117	2.50	2.9	3.50
11	260	5.6	220	3.70	113	2.70	3.1	3.50
12	260	5.7	218	3.75	113	2.76		3.48
13	250	5.3	220	(3.75)	113	2.70		3.55
14	255	5.5	220	3.60	119	2.60		3.47
15	250	5.4	230	----	119	2.35		3.49
16	235	5.2	230	----	125	2.00	2.0	3.47
17	---	4.8	230	----	---	1.55	1.8	3.49
18	225	4.1					<2.0	3.26
19	240	3.6						3.14
20	230	3.6					1.8	3.18
21	252	3.0						3.06
22	260	3.1						3.03
23	260	3.0						3.00

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

Table 56

Macquarie I. (54.5°S, 159.0°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(2.6)					4.4	(3.1)
01	(300)	(2.8)					3.3	(3.05)
02	(280)	(2.4)					3.2	(3.15)
03	(300)	(2.3)			---	---	3.0	(3.15)
04	(270)	(2.4)	---	---	---	---	3.0	(3.1)
05	300	3.0	240	3.0	100	2.0	2.4	3.1
06	300	3.4	230	3.3	100	2.2	2.2	3.1
07	420	3.6	220	3.5	100	2.4		2.8
08	400	4.1	220	3.6	100	2.6	2.8	2.8
09	350	4.5	210	3.7	100	2.9		3.1
10	350	4.8	200	3.9	100	3.0	3.0	3.1
11	360	4.9	200	4.0	100	3.0	3.0	3.1
12	340	4.8	200	4.0	100	3.0		3.1
13	330	4.9	200	4.0	100	3.0		3.1
14	340	4.8	200	3.9	100	3.0		3.1
15	340	4.7	210	3.9	100	2.9		3.1
16	340	4.6	200	3.7	100	2.7	2.8	3.1
17	300	4.5	220	3.5	100	2.5	3.0	3.1
18	280	4.6	230	3.1	100	2.1	2.8	3.2
19	250	4.6	250	3.0	100	2.0	3.5	3.2
20	250	4.0	---	---	---	---	3.8	3.1
21	270	3.3					4.3	3.1
22	(270)	3.0					5.0	3.1
23	(280)	(2.6)					4.6	(3.1)

Time: 157.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 57

Fribourg, Germany (48.1°N, 7.8°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<255	3.2					2.0	3.00
01	250	3.3						3.04
02	<260	3.3					1.6	3.04
03	260	3.2						3.04
04	<245	2.7						3.08
05	230	2.8						3.24
06	230	2.1						3.29
07	225	2.3						3.30
08	220	4.2			---	(1.50)	2.0	3.62
09	---	5.3	220	---	128	1.95	2.1	3.64
10	230	5.6	230	---	121	2.25	2.5	3.56
11	240	6.0	225	(3.60)	122	2.45	2.5	3.54
12	230	5.8	220	(3.60)	121	2.55	2.6	3.66
13	230	5.5	220	3.60	123	2.50	2.5	3.60
14	235	5.6	225	---	123	2.30		3.57
15	230	5.1	230	---	125	2.05	2.1	3.63
16	---	4.9	220	---	127	1.55	2.0	3.60
17	215	3.9					2.4	3.44
18	230	3.4					2.6	3.29
19	235	3.2					2.1	3.26
20	230	3.0					2.3	3.24
21	255	3.0					2.2	3.00
22	255	3.2					2.0	3.00
23	255	3.2						2.97

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

Table 58

Ojibouti, French Somaliland (11.5°N, 43.1°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(3.9)						(3.26)
01	255	3.9					1.7	(3.24)
02	250	3.6						(3.32)
03	255	3.1						3.44
04	240	2.2						(3.46)
05	270	1.9						3.36
06	---	4.6	240	----	133	1.70	2.8	3.37
07	280	6.6	230	----	111	2.50	3.8	(3.22)
08	315	7.3	220	4.20	110	2.75	4.0	2.96
09	355	7.5	200	4.30	107	3.10	4.7	2.72
10	360	7.4	200	4.35	---	3.30	6.6	2.75
11	350	7.6	200	4.40	---	3.35	6.8	2.79
12	345	7.9	195	4.30	110	3.35	7.0	2.85
13	335	8.4	210	4.30	111	3.25	4.0	2.90
14	320	8.6	215	4.25	115	3.10	5.5	3.00
15	305	8.6	220	4.00	113	2.80	4.0	3.06
16	280	>8.4	235	----	108	2.30	4.0	3.14
17	---	>8.4	240	----	---	1.70	3.5	3.19
18	240	7.8					3.3	3.15
19	250	>7.0					3.0	----
20	275	6.0					2.7	(2.71)
21	300	>5.0					1.9	(2.96)
22	290	>4.4					1.9	(3.22)
23	280	(4.0)					1.9	(3.34)

Time: 35.6°E.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 59

Ojibouti, French Somaliland (11.5°N, 43.1°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	>5.0						(3.12)
01	250	>5.0						(3.30)
02	235	4.0						3.48
03	230	3.3						3.44
04	240	2.6						3.45
05	270	2.2						3.24
06	---	5.8	240	----	---	1.90	3.2	(3.40)
07	280	7.4	225	----	109	2.45	3.6	3.21
08	310	8.4	210	4.40	109	2.90	4.0	2.94
09	320	8.2	200	4.40	---	3.20	4.7	2.88
10	340	8.2	200	4.50	---	3.40	4.8	2.78
11	325	>8.5	200	4.50	---	3.40	5.8	2.78
12	330	9.3	200	4.50	---	3.45	4.6	2.82
13	310	9.9	210	4.45	---	(3.35)	4.5	2.89
14	305	>10.0	210	4.30	---	3.10	4.3	2.84
15	300	>10.0	220	----	111	2.80	3.9	2.92
16	(280)	9.8	235	----	---	2.30	4.0	2.98
17	---	>9.0	250	----	---	----	3.7	2.95
18	255	8.1					2.9	2.92
19	270	7.4					2.8	(2.86)
20	290	>6.5					2.0	(2.81)
21	290	6.4						----
22	260	---						----
23	255	5.5						----

Time: 35.6°E.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 60

Ojibouti, French Somaliland (11.5°N, 43.1°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	2.6						2.60
01	395	(2.6)						----
02	420	1.8						----
03	335	<1.8						----
04	280	<1.8						(3.68)
05	290	2.1						3.05
06	(255)	5.6	240	----	---	2.10	3.4	3.45
07	280	6.6	235	----	---	2.60	4.0	3.30
08	325	7.3	220	4.30	113	3.00	3.8	3.03
09	370	7.8	210	4.40	111	3.20	4.4	2.77
10	370	7.8	210	4.50	109	3.35	5.5	2.58
11	390	7.6	210	4.50	---	3.50	4.5	2.52
12	380	7.7	210	4.50	---	3.45	6.9	2.53
13	380	7.9	215	4.50	109	3.40	6.9	2.62
14	370	8.5	220	4.40	---	3.20	6.7	2.73
15	340	9.0	225	4.20	111	3.10	4.0	2.87
16	320	9.5	225	4.00	---	2.75	4.4	2.90
17	290	9.8	240	----	---	----	4.2	3.06
18	240	9.6					3.6	(3.13)
19	240	8.0					3.2	3.17
20	245	>6.0					<2.3	(3.23)
21	260	>5.0					1.8	3.11
22	275	4.0					<2.0	2.90
23	345	3.5					2.2	2.65

Time: 35.6°E.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

TABLE 61
IONOSPHERIC DATA

foF2, 0.1 Mc, July 1956 — 75° W Mean Time

Station Woshington, 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	58	51	50	F 43	36	39	49	54	58	58	60	62	63	68	68	62	64	71	73	67	67	68	60	58
02	54	50	49	42	40	43	54	62	66	66	63	67	69	70	70	72	75	74	69	75	72	73	66	64
03	62	66	55	45	40	39	46	U J 48	50	E G 59	57	56	56	55	56	58	59	59	66	67	63	60	U F 60	56
04	53	53	48	48	43	48	59	67	65	64	H 70	66	H 66	62	67	68	66	66	69	68	70	69	68	67
05	66	60	54	52	48	50	62	72	72	H 80	P 84	J 80	78	76	78	76	74	76	84	80	77	77	74	64
06	58	62	56	52	52	50	54	56	68	69	69	U S 74	H 72	86	78	H 78	76	72	74	72	73	70	69	64
07	62	62	56	50	46	49	63	H 64	64	63	74	78	70	70	70	72	68	68	68	70	72	73	70	70
08	70	63	U F 62	U F 54	F 48	44	52	49	50	E G 48	A	56	57	I A 58	59	59	61	64	68	70	72	70	71	64
09	57	58	56	50	44	42	53	56	60	69	70	72	73	76	75	78	78	78	78	76	78	74	72	66
10	I A 61	F 56	F 62	F 57	F 48	49	57	55	58	67	65	64	64	66	72	73	76	80	85	83	U F 78	84	72	65
11	61	62	53	34	33	40	51	58	62	59	58	U J 39	U A 60	62	63	64	65	65	68	64	66	66	66	62
12	60	56	54	53	47	47	57	67	U S 70	76	67	76	72	76	74	74	74	76	77	78	U F 75	U F 80	74	U S 72
13	72	63	56	49	44	47	58	60	62	62	57	65	64	68	68	72	79	87	82	78	78	76	65	74
14	58	F 50	44	F 42	F 36	39	47	49	53	E G 49	55	E G 52	55	59	62	62	62	63	64	59	60	67	68	67
15	58	57	50	47	41	45	52	57	F 62	F 70	68	66	68	67	66	68	72	70	70	70	70	70	68	65
16	68	67	60	57	51	49	58	70	73	72	74	72	76	76	76	74	74	75	78	81	80	76	72	72
17	70	64	62	60	C	C	C	C	75	77	78	H 77	76	76	78	78	80	78	80	80	80	72	72	70
18	64	62	59	56	49	49	56	60	63	63	64	67	68	69	72	70	68	72	69	72	70	68	64	60
19	58	53	53	49	43	45	60	63	70	H 68	70	76	76	75	76	77	76	77	80	83	U S 80	U S 78	F 76	U S 78
20	70	66	53	49	44	43	52	64	63	70	72	72	72	74	74	74	79	77	78	78	72	67	59	56
21	55	52	48	46	40	42	50	57	63	63	67	65	68	68	66	68	70	72	70	70	69	68	63	62
22	61	61	60	48	42	43	60	67	F 70	77	82	85	80	82	78	78	75	74	76	74	75	72	68	66
23	67	58	64	U S 53	49	43	53	H 62	F 68	68	72	76	76	78	81	84	90	92	90	78	84	70	58	60
24	49	39	33	30	U F 29	F 27	E G 39	E G 40	45	E G 44	E G 46	E G 47	E G 47	57	57	58	58	58	60	60	U F 67	F 68	67	67
25	63	58	F 46	F 43	38	35	E G 37	43	E G 43	E G 43	54	59	63	60	58	57	58	62	65	64	F 70	68	60	54
26	47	49	42	34	F 25	F 30	E G 34	F 42	43	E G 45	E G 46	E G 47	E G 48	E G 48	50	54	53	52	F 53	54	J 60	62	57	F 56
27	53	F 47	U F 44	F 35	U F 25	F 29	F 39	E G 40	49	49	E G 49	52	55	56	57	F 56	60	62	64	64	U F 66	64	62	54
28	55	48	F 40	F 38	F 32	F 33	42	47	E G 46	55	57	58	F 55	62	61	65	67	70	72	74	76	70	62	56
29	53	50	45	41	F 34	38	48	59	64	70	74	80	88	88	88	82	76	78	75	74	73	69	64	62
30	60	60	52	F 43	42	38	F 50	54	H 64	70	72	72	73	72	72	72	76	71	74	75	72	66	66	61
31	59	54	49	46	44	43	53	53	52	H 56	56	E G 50	58	57	59	59	58	59	63	67	65	60	59	59
MED	60	58	53	48	42	43	52	57	63	66	67	66	68	68	70	72	72	72	72	72	72	70	66	64
NO	31	31	31	31	30	30	30	30	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31

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

TABLE 62
IONOSPHERIC DATA

foF2, 0.1 Mc, July 1956 — 75° W Mean Time

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

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

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

TABLE 63
IONOSPHERIC DATA

foF1, 0.1 Mc, July 1956 — 75° W Mean Time

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

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

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

TABLE 64

IONOSPHERIC DATA

foE, 0.1 Mc, July 1956 — 75°W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01						A				I A	U A		I A	H		A	A	A	A	A				
							240	290	320	340	350	370	380	380	370									
02						S		I A		I A	U S		A	A	A									
							230	270	310	330	350	380				360	330	290	270	180				
03						S	F	I A		I A			H							A				
							230	280	330	360	380	390	390	390	350	350	340	310	260					
04						A			U A	U A	A	A	A					H	U A					
							230	290	310	320				380	380	350	330	310	240	190				
05							A		U A	A	A	U A			I A	U A	I A		U A					
								270	280			400	400	400	390	380	340	310	250					
06							U A	U A	U A				U A		U A	U A		H	H					
							250	310	330	350	380	390	380	390	380	350	350	320	280	190				
07						S	A	H	A	A	A					H	H			A				
								280				380	400	390	380	380	350	320	270					
08								U A			I A							U A	A	A				
								270	320	350	370	390	380	370	380	370	350	300						
09						S	A					I A				A	A			A				
								300	330	350	360	380	400	400	390			320	270					
10							A	H				H			I A									
								300	340	370	380	390	390	360	380	390	350	320	270	210				
11						S	H				I A		A	A	A	A	A		A					
							250	310	350	350	350	350						310						
12											A	A	A	A	U A	A	A			U R				
							250	300	330	370					360			330	290	200				
13									A	A		A	A	A	A	A			H					
							220	320			350						350	320	270	220				
14							U A			U A		A	A	U A	I A		I A		H					
							230	290	330	350	370			370	370	370	340	320	270	200				
15							H					A	A							S				
							240	290	350	350	360			370	390	370	350	310	250					
16						S		A	A	A	A	U A	I A	U A	I A				A					
							240					330	330	330	360	380	360	340						
17							C	C	U A			U A	A	A	U A					S				
									330	350	370	370			340	360	350	320	250					
18							A				A	A	H	H		H	H	H		A				
								290	310	320			390	380	390	380	350	320	260					
19									U A	U A			I A				H			R				
							230	280	310	350	380	400	400	400	400	370	350	300	260					
20							A	A	U A		A	A	A	A					I A					
									310	340					370	370	330	300	240	170				
21							U A			A	A	A	I A	H										
							230	260				380	390	400	380	370	350	310	260					
22											A	A	B	A	A	A	A	A	A					
							250	300	330	370														
23							A	A	A	A		A	A		U A		I A							
											390			390	380	370	340	300	230					
24							A	A	U A	U A	A	A	A							H				
									320	330				400	390	370	390	320	280	210				
25						S	A	A	F	A	A	A	A											
									320					390	390	370	350	300	260	190				
26									H	I A	U A	A	A	U A					I A	U A				
							220	270	330	330	330			390	390	370	350	300	250	190				
27							U C		A	A	A	A	A	A		U S				S				
							220	230							350	350	330	290	250					
28							A	H		U A	A	A	A	H	H	H								
								270	300	330				360	360	360	350	320	250					
29							A		A	A	A				H		U A	I A						
								280				380	380	380	370	360	340	280	250					
30						U S		H	A	A	A	H	I A	U A	H									
						150	200	270				380	380	380	370	360	340	310	250					
31							A			U A	I A	H	I A						A					
								260	300	340	360	380	380	390	390	370	340	360						
MED							230	280	320	350	360	380	390	390	380	370	350	310	260	190				
NO						1	17	25	23	21	16	17	15	23	27	25	26	29	25	11				

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

TABLE 65
IONOSPHERIC DATA

fEs, 0.1 Mc, July 1956 — 75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	44	23	31	27	37	42	56	80	H 110	94	48	51	50	40	49	64	47	44	30	20	S	42	55	31
02	S	S	E	S	S	S	64	43	64	64	72	39	46	45	44	37	G	36	G	20	33	31	28	S
03	S	S	S	S	72	68	48	70	47	H 68	66	50	42	72	G	42	38	53	58	35	H 33	40	S	S
04	40	31	15	S	H 37	H 70	44	45	H 80	72	103	70	58	48	34	40	38	32	39	35	38	S	33	S
05	24	31	S	S	23	46	49	56	56	56	58	40	G	47	46	42	48	50	54	50	50	S	S	S
06	S	S	S	28	31	42	58	44	47	50	47	66	50	G	49	46	G	G	G	G	46	40	33	24
07	S	S	31	S	S	29	39	41	49	64	66	70	68	G	G	G	49	51	52	64	45	52	37	25
08	68	49	64	96	54	34	43	44	78	56	80	82	108	86	88	56	46	47	50	40	39	16	S	S
09	S	33	34	29	40	16	35	50	58	52	74	53	45	G	50	50	45	33	39	43	58	62	23	34
10	70	86	50	29	29	30	40	49	62	68	54	70	53	52	60	G	G	G	G	G	S	S	24	21
11	33	S	S	S	41	22	40	52	55	H 78	54	H 72	H 100	82	62	42	45	43	47	74	28	31	30	47
12	60	45	15	S	S	S	S	45	36	39	90	50	52	56	52	50	48	29	39	G	S	34	37	S
13	S	S	S	S	S	17	25	39	46	70	120	68	59	H 50	54	58	37	39	G	24	S	25	62	54
14	80	72	74	35	51	35	26	60	49	72	68	62	48	54	49	82	39	33	18	28	S	35	25	S
15	29	29	S	S	S	14	G	37	G	49	39	50	38	G	G	G	37	41	35	18	S	S	S	S
16	S	S	S	S	S	G	47	41	64	50	H 77	50	48	42	50	G	48	G	84	80	88	90	70	30
17	S	S	S	S	C	C	C	C	46	H 45	47	47	45	47	45	G	G	61	84	53	27	33	56	43
18	39	35	33	22	S	30	39	42	47	54	53	54	40	G	G	G	G	G	30	60	27	S	S	S
19	S	S	S	S	S	S	33	48	46	47	47	47	56	35	29	43	G	37	62	31	30	S	S	S
20	S	S	S	S	S	17	37	44	63	46	48	H 50	62	66	G	G	70	72	54	38	40	30	S	S
21	S	S	S	S	E	S	33	39	98	43	43	44	50	G	45	70	40	45	29	20	S	30	S	40
22	30	41	17	29	30	76	G	G	80	100	39	39	B	41	47	50	33	36	46	60	23	37	38	39
23	38	33	38	32	45	49	68	49	52	44	44	52	44	90	41	G	35	36	30	21	S	34	36	50
24	47	S	33	37	37	40	42	41	44	44	44	40	47	G	42	64	62	G	G	G	62	82	76	45
25	35	39	S	S	S	19	39	38	39	H 80	H 48	70	47	41	40	62	72	70	G	G	S	S	S	39
26	S	36	28	30	S	38	G	G	G	37	36	39	37	39	G	G	50	39	35	G	S	S	S	S
27	S	S	S	S	S	S	25	39	48	56	45	38	72	39	44	45	115	34	37	22	39	S	S	37
28	37	46	30	48	54	45	42	55	43	80	72	60	45	39	34	41	G	G	G	56	30	39	S	S
29	S	S	S	S	44	15	31	39	H 46	50	H 70	44	104	93	55	78	60	42	28	20	S	S	S	25
30	24	24	29	S	S	G	39	38	47	45	105	43	48	59	41	39	G	34	43	38	50	40	24	42
31	36	F 30	31	31	21	27	35	43	47	65	67	45	49	65	57	70	74	40	76	54	H 53	24	50	33
MED	38	35	31	30	37	30	39	44	48	56	54	50	48	45	45	42	40	37	37	31	39	35	36	38
NO	17	17	17	13	17	25	29	30	31	31	31	31	31	31	31	31	31	31	31	31	20	21	18	18

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

TABLE 66

IONOSPHERIC DATA

f min, 0.1 Mc, July 1956 — 75° W Meon Time

Stotion: Washington, D.C. Lat. 38.7°N Long. 77.1° W Sweep 1.0 Mc to 25.0 Mc in 13.5 sec. Monuol ☐ Automotic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	E S 15	E S 13	E S 13	E S 13	E S 13	E S 13	E S 13	F S 16	E S 16	E S 16	E S 16	E S 16	20	20	20	18	17	17	E S 16	E S 16	E S 16	E	E S 12	E S 12
02	E S 12	E S 11	E	E S 12	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	18	19	19	17	19	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 17
03	E S 16	E S 13	E S 13	E S 13	E S 13	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	18	E S 16	17	20	22	22	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
04	E S 16	E S 16	E S 13	E S 13	E S 12	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	17	E S 16	20	20	23	19	18	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16
05	E S 15	E S 16	E S 13	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	E S 16	18	22	E S 16	E S 21	23	22	E S 17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
06	E S 16	E S 12	E S 13	E S 12	E S 16	E S 14	E S 16	E S 16	E S 16	E S 17	E S 16	18	E S 16	22	20	18	17	17	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16
07	E S 16	E S 16	E S 13	E S 13	E S 13	E S 15	E S 16	E S 16	E S 16	E S 16	17	E S 17	E S 16	19	20	20	18	21	E S 16	E S 13	E S 15	E S 16	E S 16	E S 16
08	E S 16	E S 12	E S 12	E	E S 12	E S 11	E S 12	E S 16	17	E S 17	21	24	26	27	20	E S 16	19	E S 16	E S 16	E S 16	E S 15	E	E S 15	E S 16	E S 16
09	E S 17	E S 13	E S 11	E	E	E S 12	E S 16	E S 18	E S 16	E S 16	17	17	19	19	20	E S 16	E S 16	17	E S 16	E S 16	E	E S 16	E S 16	E S 16
10	E S 15	E S 13	E S 12	E S 13	E S 13	E S 13	E S 16	E S 16	17	E S 16	E S 16	20	E S 16	25	17	19	20	16	E S 13	E S 16	E S 15	E S 16	E S 16	E S 16
11	E S 17	E S 16	E S 16	E S 16	E S 19	E S 16	E S 16	E S 16	E S 16	17	17	17	18	21	21	20	H 20	18	25	E S 16	E S 16	E S 16	E S 16	E S 16
12	E S 16	E S 16	E S 12	E S 14	E S 16	E S 17	E S 16	E S 17	18	18	18	20	22	21	22	E S 17	18	E S 17	17	E S 16	E S 16	E S 13	E S 16	E S 16
13	E S 16	E S 16	E S 14	E S 11	E S 13	E S 13	E S 16	E S 16	E S 16	E S 16	17	E S 16	18	20	21	E S 16	21	16	20	E S 16	E S 16	E S 12	E S 16	E S 16
14	E S 12	E S 16	E S 13	E S 14	E S 11	E S 15	E S 16	E S 16	18	E S 16	18	19	19	21	18	E S 16	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
15	E S 16	E S 15	E S 13	E S 13	E S 13	E S 12	E S 13	E S 16	E S 16	E S 16	18	21	21	19	21	E S 16	23	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
16	E S 14	E S 14	E S 16	E S 16	E S 12	E S 16	E S 16	E S 16	E S 16	17	20	20	21	21	21	19	21	20	E S 16	E S 16	E S 13	E S 16	E S 16	E S 16
17	E S 16	E S 11	E S 16	E S 13	C	C	C	C	E S 16	E S 16	E S 16	20	21	20	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
18	E S 16	E S 16	E S 16	E S 14	E S 12	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	21	21	23	E S 16	18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
19	E S 16	E S 16	E S 13	E S 13	E S 13	E S 17	E S 16	E S 16	E S 16	E S 16	19	19	E S 16	20	19	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
20	E S 16	E S 16	E S 16	E S 12	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	18	20	20	20	20	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 15	E S 16	E S 17
21	E S 16	E S 16	E S 13	E S 13	E	E S 16	E S 16	E S 16	E S 16	E S 16	20	18	22	22	20	21	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 13
22	E S 13	E S 13	E S 12	E S 17	E	E S 13	E S 17	E S 16	19	21	E S 16	22	52	24	22	20	22	18	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 12	E S 12	E S 13	E S 13	E S 11	E S 15	E S 16	E S 16	18	20	22	17	E S 16	18	19	20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16
24	E S 12	E S 12	E S 13	E	E S 12	E S 13	E S 16	E S 16	19	E S 16	17	20	23	22	20	21	E S 16	23	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
25	E S 13	E S 12	E S 13	E S 11	E S 13	E S 16	E S 16	E S 16	E S 16	E S 16	17	17	21	21	20	21	17	18	E S 16	E S 16	E S 15	E S 15	E S 19	E S 13
26	E S 16	E	E S 13	E S 13	E S 13	E S 16	E S 15	E S 16	E S 16	24	19	21	20	25	22	20	18	E S 16	20	E S 16	E S 16	E S 16	E S 16	E S 16
27	E S 16	E S 16	E S 16	E S 12	E S 13	E S 15	E S 16	E S 16	E S 16	E S 16	19	21	18	E S 17	E S 16	E S 16	E S 17	20	17	16	E S 15	E S 11	E S 16	E S 16
28	E S 16	E S 13	E	E	E	E S 11	E S 12	E S 18	E S 16	E S 16	20	20	17	20	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 12	E S 13	E S 14	E S 16
29	E S 16	E S 16	E S 11	E S 16	E S 13	E S 11	E S 13	E S 16	E S 16	17	E S 16	E S 16	E S 16	17	17	19	17	23	18	E S 16	E S 16	E S 16	E S 16	E S 16
30	E S 11	E S 14	E S 12	E S 11	E S 14	E S 13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	19	E S 16	20	E S 16	E S 16	17	E S 16	E S 14	E S 14	E S 12	E S 16	E S 16
31	E S 16	E S 12	E S 11	E S 12	E S 14	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 14	E S 14	E S 16	E S 16	E S 16	E S 13	E S 13
MED																								
NO																								

TABLE 67

IONOSPHERIC DATA

h' F2, Km, July 1956 — 75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	290	260	280	280	320	U A 360	330	L	420	440	380	430	430	380	410	380	370	330	300	270	250	270	310	270
02	250	270	250	300	320	280	320	290	330	320	380	360	460	380	380	370	310	310	300	280	250	260	250	300
03	300	260	270	250	270	390	440	I S 540	550	G	450	440	450	510	520	440	400	390	320	280	250	260	270	260
04	290	300	270	300	260	270	270	310	320	370	H 330	U S 500	U L 400	400	420	380	380	360	290	260	260	250	270	270
05	260	250	270	260	260	250	250	270	310	H 370	320	330	300	320	360	340	360	340	290	260	240	260	250	240
06	280	275	260	290	U A 300	300	A	420	460	340	400	H 320	H 480	380	340	H 360	340	330	L	260	260	250	270	260
07	250	260	250	250	250	260	280	H 310	410	390	360	420	400	420	410	370	410	360	330	280	250	260	270	300
08	U A 270	300	I A 280	260	300	340	380	450	620	G	A	600	520	I A 510	500	500	440	410	330	280	U A 250	270	270	270
09	300	310	270	280	270	300	L	410	320	370	380	450	400	420	410	380	360	320	L	260	250	280	260	250
10	A	360	F 300	250	270	280	270	L	340	380	380	560	510	470	440	430	400	370	L	270	210	260	260	270
11	290	250	230	260	330	290	L	340	390	380	520	I A 530	U A 540	530	530	490	460	400	330	280	260	270	280	300
12	300	330	290	270	290	290	270	350	360	340	300	390	400	410	400	410	380	350	310	250	260	270	280	270
13	260	250	270	270	280	280	270	370	420	L	L	520	530	510	490	510	420	340	290	250	260	290	I A 290	290
14	U A 280	270	290	F 320	290	280	350	510	530	G	610	G	680	530	510	450	490	420	L	270	260	290	260	270
15	260	280	260	260	270	290	240	390	410	350	400	470	430	440	500	470	390	L	290	U L 270	270	260	290	290
16	280	260	290	260	280	280	L	330	300	370	370	420	380	410	380	380	350	340	L	270	U A 280	U A 290	I A 280	280
17	280	280	300	270	C	C	C	C	280	320	340	H 330	400	380	400	380	360	360	280	250	240	260	270	260
18	260	270	260	270	260	280	290	L	350	410	420	430	430	420	390	410	420	350	330	270	250	250	270	280
19	270	300	290	300	290	290	320	350	310	U H 350	400	400	390	410	400	350	340	320	280	280	240	260	250	280
20	270	250	260	270	270	280	230	350	290	350	330	380	340	370	280	380	320	310	290	250	230	230	260	280
21	270	280	270	280	270	270	L	350	320	370	370	450	410	390	420	390	360	310	310	270	240	250	280	290
22	290	300	250	240	270	280	280	300	350	300	320	350	330	350	340	330	340	340	290	250	250	280	280	300
23	290	250	280	290	280	270	L	H 350	U L 300	340	390	370	410	380	370	370	350	290	290	240	240	250	290	290
24	280	280	310	350	U F 400	F 350	G	G	U S 700	G	G	G	G	470	460	410	410	340	320	270	290	290	270	290
25	270	270	290	300	310	310	G	600	G	G	470	430	390	400	430	420	420	380	330	270	260	220	290	250
26	290	260	260	250	U S 330	320	G	640	730	G	G	G	G	G	U C 630	510	460	430	380	260	280	270	270	270
27	260	280	290	270	350	310	340	G	400	650	G	700	540	470	450	500	380	350	310	250	240	260	290	260
28	290	270	260	U A 300	310	U A 310	L	460	G	480	370	500	370	440	410	410	390	320	310	U A 290	240	240	250	250
29	270	280	300	300	290	290	330	280	310	280	340	350	340	340	310	310	320	290	260	250	250	250	280	290
30	270	260	250	270	300	270	L	360	280	280	340	370	350	410	380	370	340	300	300	260	240	260	280	270
31	270	250	250	290	300	300	310	310	360	H 430	720	G	600	620	510	420	F 400	380	320	280	250	260	330	290
MED	275	270	270	270	290	290	315	350	360	370	380	430	410	410	410	390	380	340	305	270	250	260	270	270
NO	30	31	31	31	30	30	22	27	31	30	29	31	31	31	31	31	31	30	26	31	31	31	31	31

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

TABLE 68
IONOSPHERIC DATA

h'F1, Km, July 1956 — 75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01						A	U A 260	I A 240	U A 220	U A 220	H 200	H 180	H 190	H 205	H 240	200	205	230	240	260				
02						Q	235	H 210	H 200	190	H 200	H 200	H 190	H 200	210	215	H 215	H 205	230	250				
03						305	H 220	H 230	230	U A 200	210	H 190	H 200	230	210	190	215	U A 240	I A 245	250				
04						Q	240	230	H 210	220	260	H 220	H 190	H 180	H 190	H 215	225	H 205	235	250	295			
05							A 230		200	I A 210	220	210	200	190	210	220	210	270	A					
06							A 240		220	220	210	H 200	H 200	H 200	H 190	H 200	220	H 220	235	250				
07						Q	260	245	220	200	190	H 180	H 210	200	210	H 205	H 210	H 200	A	A				
08								U A 220	I A 220	U A 220	A	A	A	A	A	210	U A 220	U A 280	U A 240	U A 270				
09						Q	250	235	A	A	H 205	210	200	H 205	210	H 220	H 220	H 225	240	Q				
10							U A 255	U A 250	I A 240	230	I A 215	H 200	240	200	200	220	H 220	H 220	H 240	260				
11						Q	250	I A 235	U A 210	I A 205	H 200	U A 205	I A 215	225	H 220	210	H 205	230	A					
12							240	H 220	230	220	210	U A 200	220	210	210	200	U A 210	210	U H 230	Q				
13							240	240	215	210	A	A	200	210	I A 215	220	H 220	215	235	Q				
14							H 230	210	250	220	200	H 170	H 170	U A 220	190	220	H 205	225	240	250				
15							Q 220		220	210	200	H 200	H 220	200	210	210	220	225	220	245				
16						250	250	H 235	U A 240	210	H 200	210	H 200	H 180	H 230	220	H 250	H 230	U A 260					
17							C	C	A	230	205	H 180	H 190	H 190	H 200	215	H 210	A	A	Q				
18							U A 230	H 210	H 220	U A 210	210	H 200	220	H 200	210	H 210	H 220	220	240	A				
19							240	245	U A 200	200	190	200	U A 200	H 200	230	200	210	230	230	250				
20							Q	240	I A 225	210	200	H 200	200	210	H 190	H 200	230	250	230	Q				
21							230	220	220	200	200	205	H 190	220	220	220	225	240	220					
22							250	230	225	205	H 200	H 180	I B 185	H 190	H 200	H 205	H 205	H 225	240					
23							250	220	230	H 205	H 190	U A 240	H 190	210	220	210	230	230	230					
24							270	240	215	H 190	200	200	215	H 210	220	I A 220	220	230	240	Q				
25						Q	240	H 230	210	190	200	H 210	H 225	230	230	U A 230	I A 240	250	260	260				
26							280	225	230	H 210	H 190	H 215	H 200	H 230	H 200	H 200	U A 215	F 210	H 230	Q				
27							250	225	210	200	H 200	210	205	225	205	H 190	230	H 220	240	Q				
28							240	I A 220	H 200	H 205	H 200	U A 210	H 210	H 200	190	220	210	H 230	220					
29							250	220	190	190	205	210	I A 210	210	210	220	220	210	230					
30						Q	240	220	220	205	210	205	H 205	180	H 200	H 210	H 210	240	260					
31							240	U A 220	220	H 220	I A 210	200	H 250	200	U A 240	220	220	225	A					
MED							240	230	220	210	200	200	200	200	210	210	220	225	240	250				
NO						2	25	30	29	30	29	29	30	30	30	31	31	30	26	11	1			

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

TABLE 69

IONOSPHERIC DATA

h'E, Km, July 1956 — 75° W Mean Time

Station: Woshington, D.C. Lat. 38.7° N Long. 77.1° W Sweep 1.0 Mc to 25.0 Mc in 13.5 sec. Monual ☐ 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						A	109	109	107	103	107	101	101	105	101	105	109	I A 109	109	119				
02						S	109	109	105	103	101	101	U A 103	109	101	103	105	109	111	130				
03						S	105	U A 101	U A 101	I A 101	101	101	H 101	101	103	109	109	109	115	A				
04						A	115	105	105	101	105	U A 105	101	A	A	101	109	H 109	109	121				
05							109	107	105	105	105	105	101	105	U A 109	105	U A 105	111	U A 115					
06							U A 121	115	105	105	105	105	105	107	103	103	105	H 109	H 111	121				
07						S	111	H 109	105	103	101	101	101	101	105	109	H 105	111	115	A				
08								109	109	105	109	111	111	111	109	109	109	111	111	A				
09						S	117	U A 111	111	107	109	107	109	105	I A 107	U A 109	U A 109	109	113	A				
10							111	111	105	105	109	H 105	105	109	105	109	109	109	109	125				
11						S	H 115	109	109	101	101	101	101	101	101	101	101	107	119					
12							109	109	109	105	101	101	101	101	101	101	101	U A 119	115	123				
13							117	111	105	105	103	U A 101	U A 101	U A 101	A	A	105	109	H 119	121				
14							119	115	111	101	107	101	101	101	109	A	U A 109	U A 119	H 119	129				
15							H 115	111	109	101	109	U A 103	105	101	105	101	111	101	111	S				
16						S	119	109	109	101	109	109	109	109	109	109	111	109	119					
17							C	C	109	109	105	109	U A 105	U A 105	101	105	109	109	109	S				
18							107	109	109	109	103	109	H 109	H 101	101	H 101	H 101	H 101	109	A				
19							111	109	101	101	U A 109	U A 115	I A 115	U A 115	U A 109	101	H 101	101	105	113				
20							115	101	103	101	101	101	A	A	101	101	101	103	111	127				
21							109	109	101	101	101	101	I A 101	101	101	U A 101	101	101	115					
22							119	109	109	105	101	105	I B 105	105	105	105	A	A	A					
23							111	A	U A 101	101	103	101	101	101	101	109	103	103	119					
24							A	U A 109	105	101	101	109	109	109	105	109	103	111	109	119				
25						S	A	A	101	101	101	101	101	101	101	109	109	109	115	129				
26							111	109	H 109	U A 109	103	A	A	109	101	101	101	111	103	131				
27							U C 117	109	U A 101	U A 101	A	A	U A 101	101	101	103	101	109	115	S				
28							119	111	109	109	107	101	101	U A 103	U A 101	U A 103	101	119	111					
29							U A 119	111	105	109	U A 101	101	101	101	H 101	103	105	115	119					
30						U S 139	119	H 109	107	105	105	H 105	109	A	A	U A 109	109	111	111					
31							121	109	103	101	101	U A 101	101	101	105	109	105	109	117					
MED							115	109	105	103	103	101	101	102	102	105	105	109	112	123				
NO						1	27	28	31	31	30	29	29	28	28	29	30	30	30	13				

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

TABLE 70
IONOSPHERIC DATA

(M3000)F2, July 1956 — 75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	280	275	280	280 F	260	270	290	260	270	270	290	270	270	280	280	285	280	285	290	290	280	280	280	280
02	280	280	290	265	260	270	300	330	310	310	290	300	250	280	280	280	300	300	290	285	280	275	275	265
03	270	290	280	280	270	265	260	S	240	G	270	280	275	255	250	270	280	280	290	310	300	290	U F 290	280
04	275	270	280	270	280	300	310	300	315	290	H 300	260	H 265	290	275	280	290	280	290	295	290	275	290	285
05	285	280	280	290	280	310	340	320	H 300	H 280	310	S 295	275	280	290	290	280	290	290	300	300	285	290	285
06	260	280	280	275	275	290	280	260	290	300	270	U H 290	H 250	280	290	H 270	285	290	290	300	290	275	280	280
07	280	285	290	310	280	300	330	H 290	265	280	280	260	275	270	270	280	270	275	290	285	290	275	270	270
08	290	255	U F 260	U F 270	F 280	290	280	270	230	G	A	230	260	A	255	250	265	270	280	290	285	275	265	280
09	245	260	275	280	275	290	290	280	310	280	280	260	275	265	265	270	280	285	285	280	300	290	280	280
10	A	F 270	F 280	F 290	F 280	300	310	250	310	285	290	235	250	255	255	260	270	280	280	295	U F 270	280	275	265
11	260	290	300	280	270	290	300	290	280	300	250	A	U A 245	245	240	255	255	270	280	270	275	260	270	265
12	275	260	260	270	270	290	300	285	U S 270	295	315	290	290	280	280	275	275	290	295	290	U S 280	U S 280	280	U S 290
13	290	290	285	295	280	300	300	295	280	260	270	245	245	240	245	235	255	275	290	300	270	260	285	270
14	270	F 290	270	F 270	F 290	300	300	255	250	G	230	G	220	245	250	270	250	265	280	280	270	270	275	280
15	280	275	280	280	280	300	300	280	F 270	F 300	285	260	265	270	250	250	270	270	295	280	275	270	270	260
16	270	280	265	270	280	290	280	300	310	285	280	270	280	270	280	275	280	285	280	290	290	290	290	280
17	275	270	270	290	C	C	C	C	320	300	300	H 310	270	280	275	275	280	280	285	280	300	290	280	290
18	275	280	280	285	285	295	300	290	280	275	270	260	270	265	275	260	260	280	290	300	290	280	270	265
19	270	260	260	265	265	250	305	285	320	280	280	275	280	270	275	290	290	290	295	290	U S 310	U S 280	F 285	U S 280
20	290	300	280	290	285	305	295	300	295	295	310	280	280	290	275	275	290	285	290	300	300	285	275	275
21	280	280	280	285	280	300	310	290	310	295	290	260	270	280	270	275	280	300	285	300	285	280	270	270
22	275	285	300	300	280	290	330	310	300	310	295	280	290	270	285	295	280	290	300	290	295	275	275	260
23	285	285	270	U S 275	290	290	310	H 270	F 290	290	275	270	270	290	275	265	270	290	295	300	290	300	275	290
24	300	270	260	250	U F 260	F 300	G	G	U S 220	G	G	G	G	260	265	280	280	290	290	290	U S 285	290	270	265
25	285	285	270	270	270	275	G	235	G	G	270	280	290	280	280	275	270	270	290	290	F 290	290	270	285
26	270	300	280	280	250	290	G	F 230	210	G	G	G	G	G	230	260	260	270	280	290	270	280	265	275
27	285	280	U F 280	280	U S 265	290	320	G	300	220	G	220	250	270	270	260	280	295	290	300	U F 285	285	280	300
28	280	300	F 290	F 280	F 290	F 300	310	270	G	265	300	250	290	270	280	270	280	290	290	280	300	280	290	280
29	280	275	280	265	280	270	300	315	320	330	300	290	290	290	300	300	285	300	295	290	290	280	275	270
30	275	295	295	280	275	300	H 300	285	290	330	300	290	270	280	280	270	280	290	300	300	280	270	270	280
31	275	280	280	270	265	290	310	305	310	265	215	G	235	250	250	275	285	280	280	290	290	270	270	270
MED	280	280	280	280	280	290	300	285	290	280	280	265	270	270	275	275	280	285	290	290	290	280	275	280
NO	30	31	31	31	30	30	30	29	31	31	30	30	31	30	31	31	31	31	31	31	31	31	31	31

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

TABLE 71
IONOSPHERIC DATA

(M3000) F1, July 1956 — 75° W Mean Time

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01				-		A	340	U A 330	370	370	H 370	H 430	H 390	H 380	H 360	390	360	370	380	L				
02						Q	L	H 370	H 370	380	H 360	H 390	H 380	H 360	360	360	H 370	H 390	380	L				
03						L	H 320	H 360	380	360	390	400	H 400	380	380	380	H 370	360	A	L				
04						Q	L	360	H 360	390	340	H 345	H 360	H 380	H 350	H 370	350	H 350	L	L	L			
05							A	L	L	A	370	380	400	420	380	360	360	U A 350	A					
06							A	U A 340	360	360	370	H 366	H 380	H 370	H 370	H 340	350	H 340	L	L				
07						Q	L	370	350	370	380	H 350	H 380	380	370	H 360	H 315	H 340	A	A				
08								380	A	A	A	A	A	A	U A 350	370	370	340	330	L				
09						Q	L	340	A	350	H 360	H 370	370	350	360	H 370	H 350	L	L	Q				
10							L	330	A	360	360	H 365	370	390	360	360	H 330	H 340	U H 360	L				
11						Q	L	A	370	U A 380	H 380	A 400	A	390	H 390	370	H 360	340	A					
12							L	H 360	H 360	350	U L 380	360	380	360	U H 380	U H 360	H 350	H 350	L	Q				
13							L	340	365	350	A	A	390	380	U A 365	360	H 350	350	L	Q				
14							H 320	390	360	390	410	H 400	H 400	380	380	370	H 350	350	L	L				
15							Q	350	360	380	380	380	H 380	390	360	350	370	360	400	L				
16						L	L	L	L	360	H 360	360	360	H 360	H 370	350	350	360	L					
17							C	C	350	340	370	380	380	H 360	H 360	340	330	A	A	Q				
18							L	H 330	H 360	350	390	H 380	380	370	370	H 360	H 340	340	340	A				
19							340	330	340	360	350	360	370	H 360	350	350	380	U L 340	L	L				
20							Q	330	A	H 350	380	H 370	380	360	H 370	H 340	360	340	L	Q				
21							L	380	360	370	390	370	H 380	370	360	360	350	350	360					
22							L	370	350	390	360	400	B	H 400	H 390	H 370	H 370	340	360					
23							L	F 370	380	370	H 390	H 350	H 370	370	370	345	360	350	L					
24							F 310	350	380	H 400	420	400	390	375	370	A	370	345	L	Q				
25						Q	330	H 340	390	420	370	H 370	H 360	345	365	370	A	340	340	L				
26							F 330	F 370	380	H 380	390	H 380	H 420	H 390	H 400	380	380	F 360	H 330	Q				
27							340	370	380	390	H 380	380	380	380	390	H 380	360	H 350	L	Q				
28							L	A	F 370	F 380	H 380	400	H 370	H 400	U S 370	370	360	H 340	370					
29							350	345	360	380	360	370	A	350	360	360	360	350	L					
30						Q	L	355	370	365	370	370	H 370	380	H 360	H 350	H 350	L	L					
31							350	360	360	H 360	370	380	H 380	390	365	370	350	350	L					
MED							335	360	360	370	370	380	380	380	370	360	360	350	360					
NO							10	26	25	29	29	29	27	30	31	30	30	28	11					

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

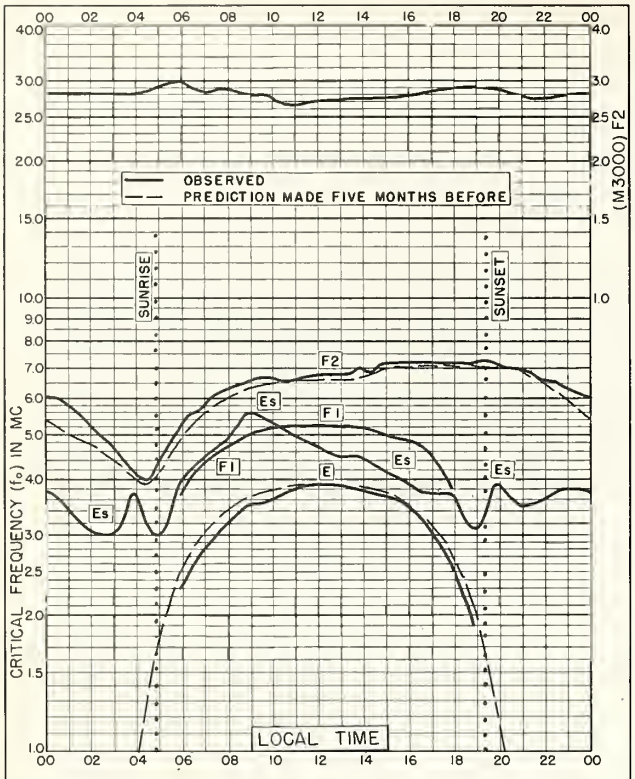

Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W JULY 1956

NBS 503

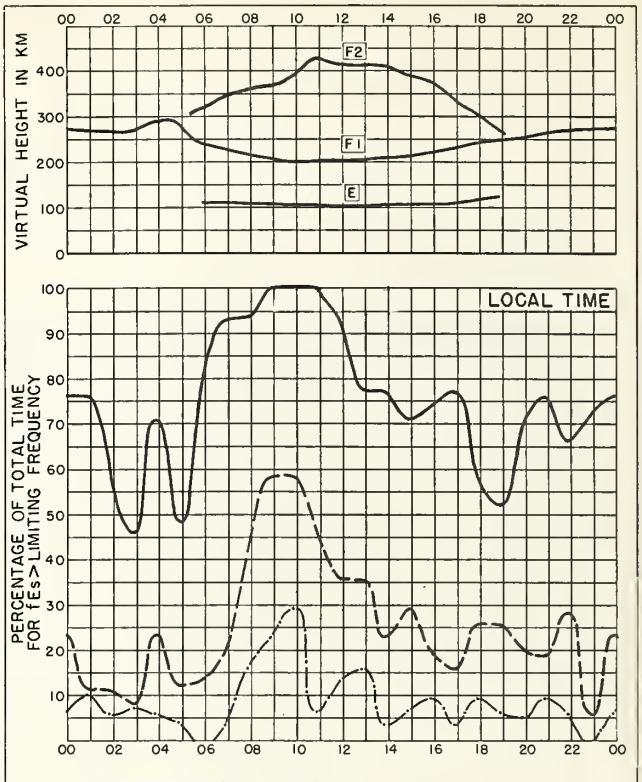

Fig. 2. WASHINGTON, D. C. JULY 1956

NBS 490

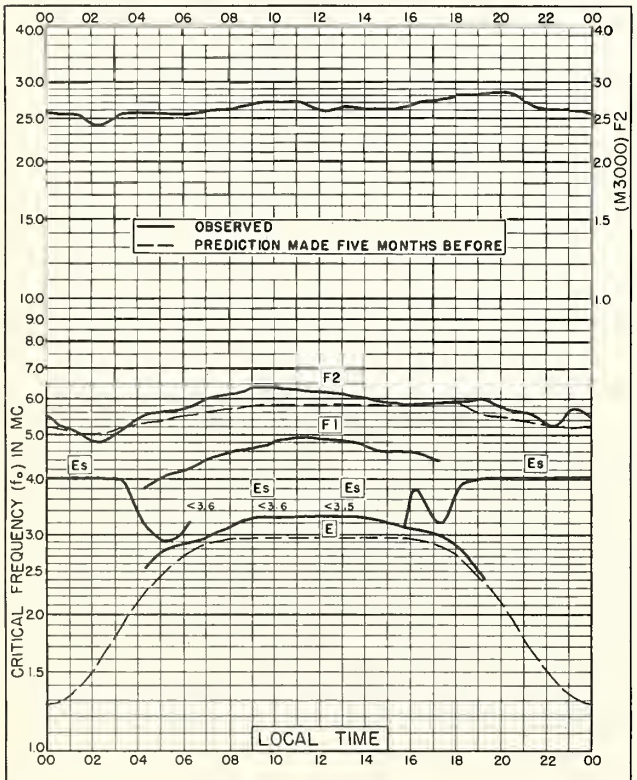

Fig. 3. TROMSO, NORWAY
69.7°N, 19.0°E JUNE 1956

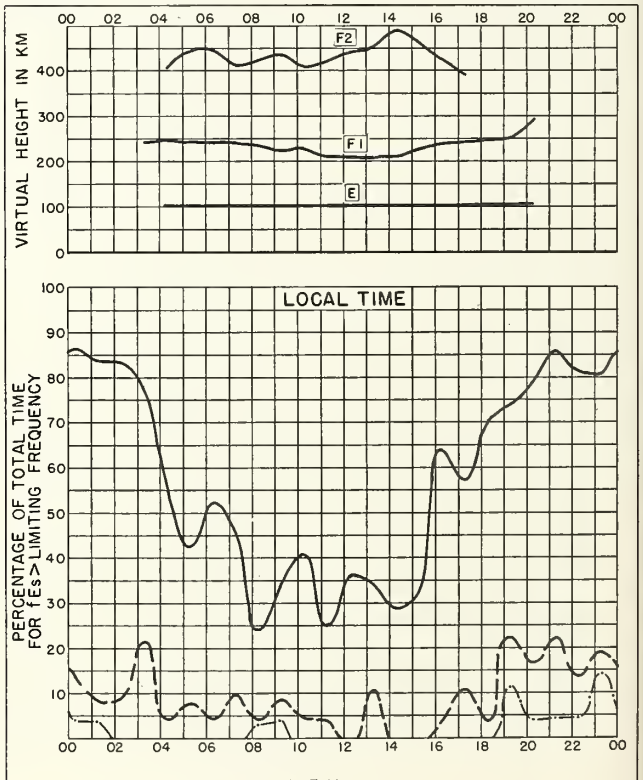

Fig. 4. TROMSO, NORWAY JUNE 1956

NBS 490

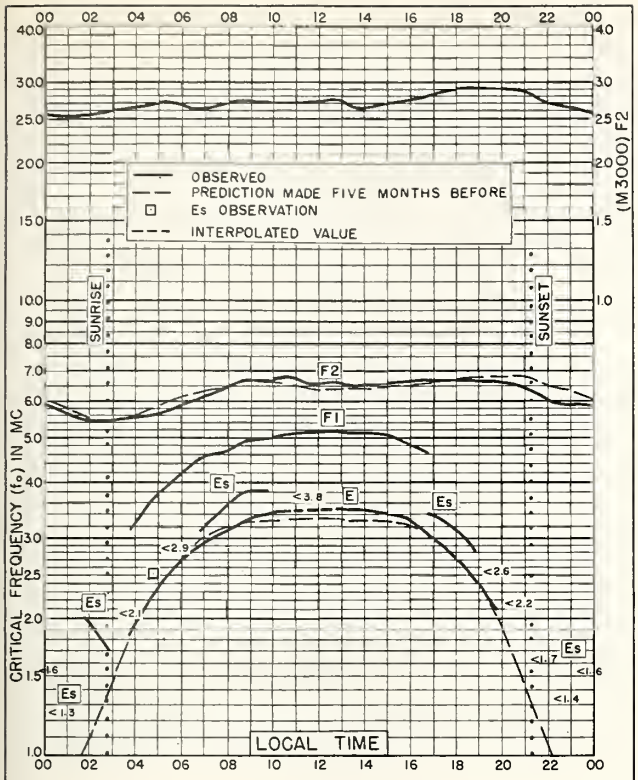

Fig. 5. OSLO, NORWAY
60.0°N, 11.1°E JUNE 1956

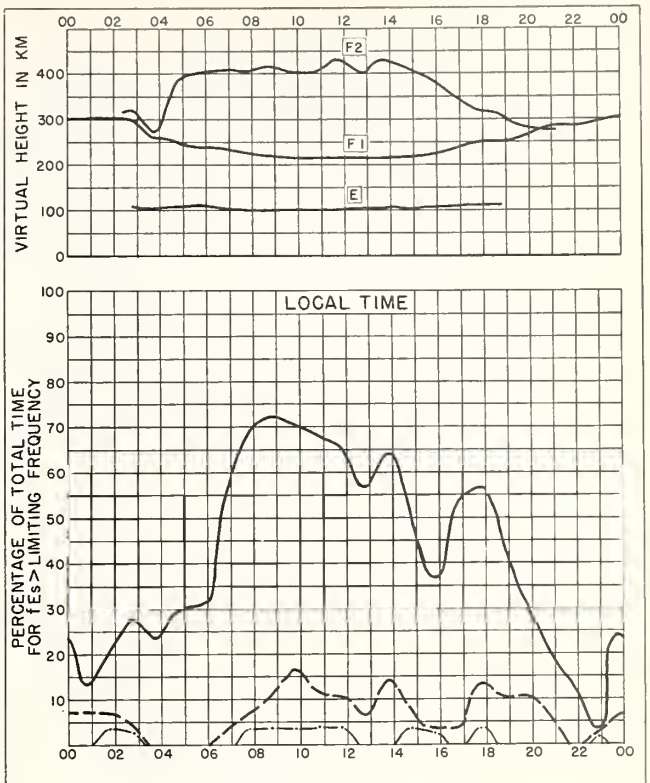

Fig. 6. OSLO, NORWAY JUNE 1956

NBS 490

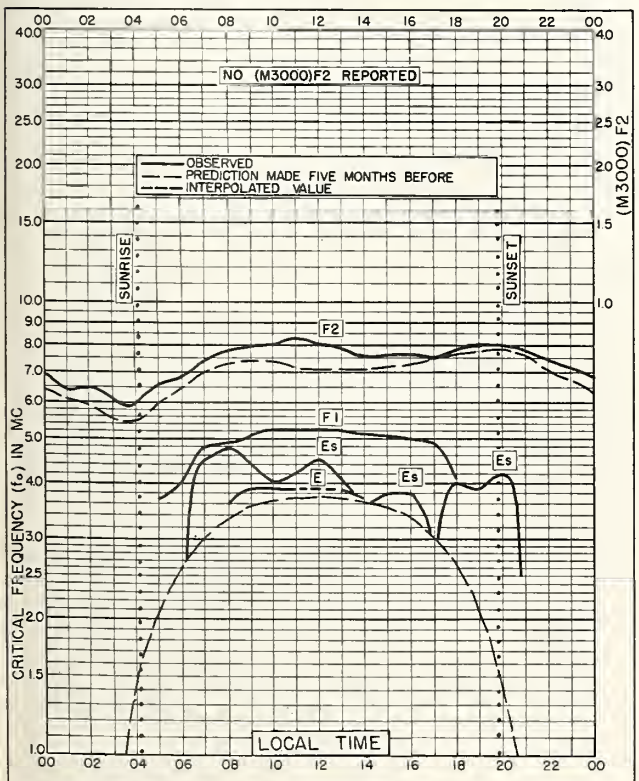

Fig. 7. GRAZ, AUSTRIA
47.1°N, 15.5°E JUNE 1956

NBS 503

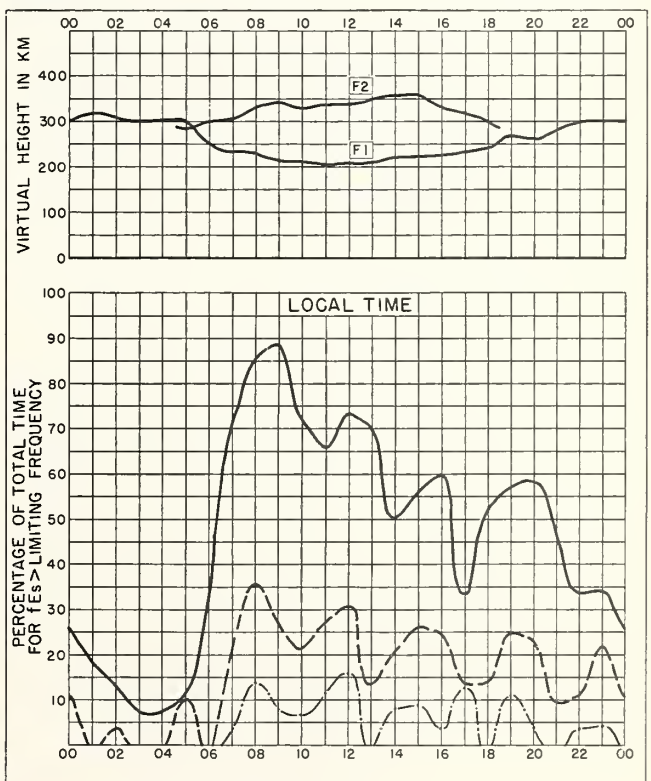

Fig. 8. GRAZ, AUSTRIA JUNE 1956

NBS 490

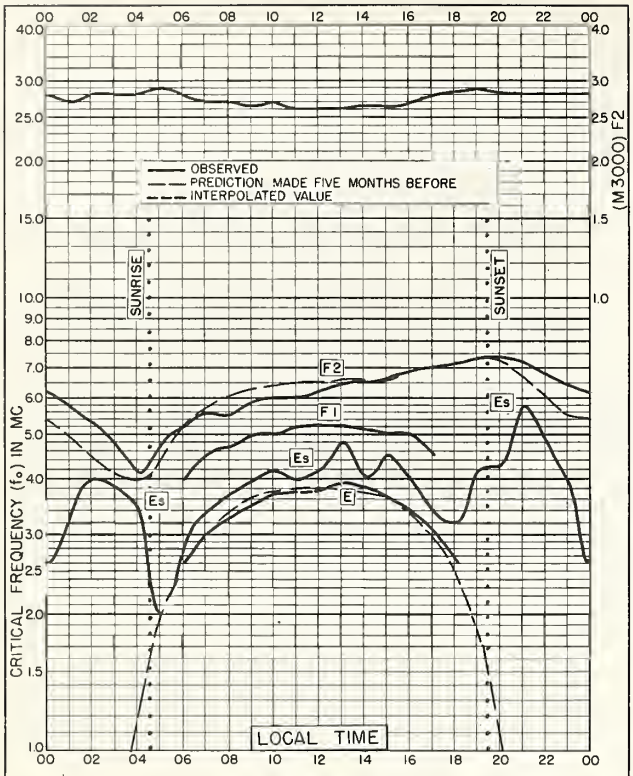

Fig. 9. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W JUNE 1956

NBS 503

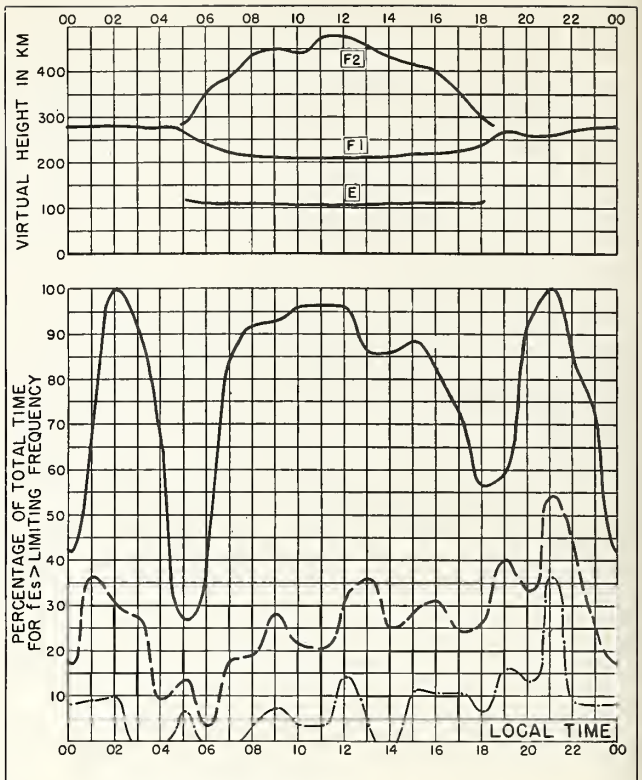

Fig. 10. FT. MONMOUTH, NEW JERSEY JUNE 1956

NBS 490

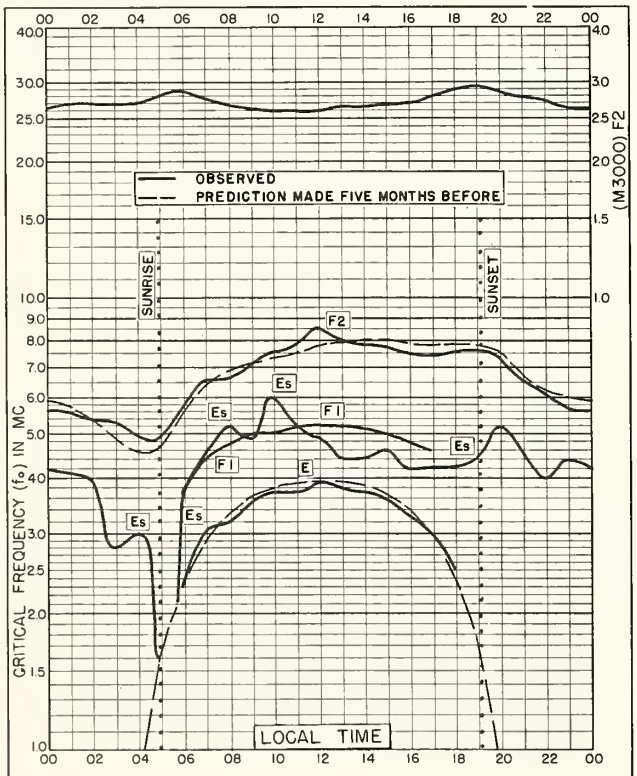

Fig. 11. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W JUNE 1956

NBS 503

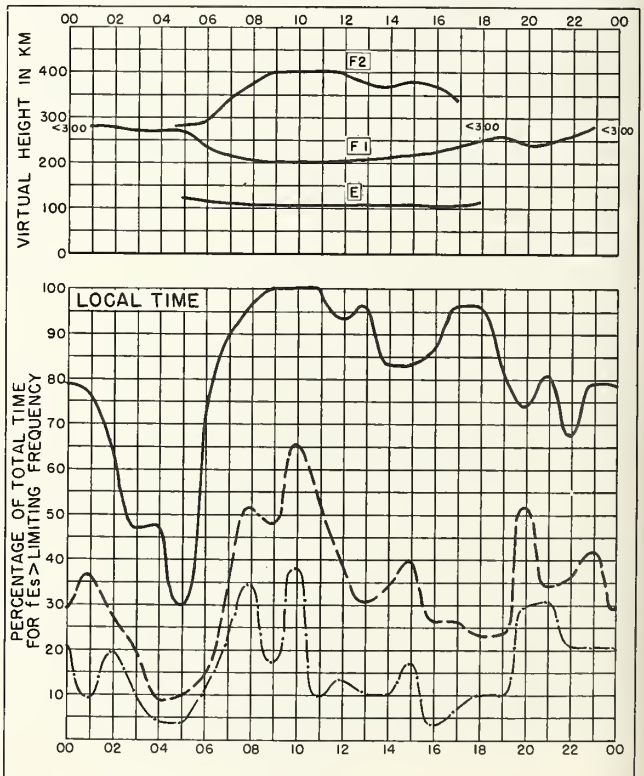

Fig. 12. WHITE SANDS, NEW MEXICO JUNE 1956

NBS 490

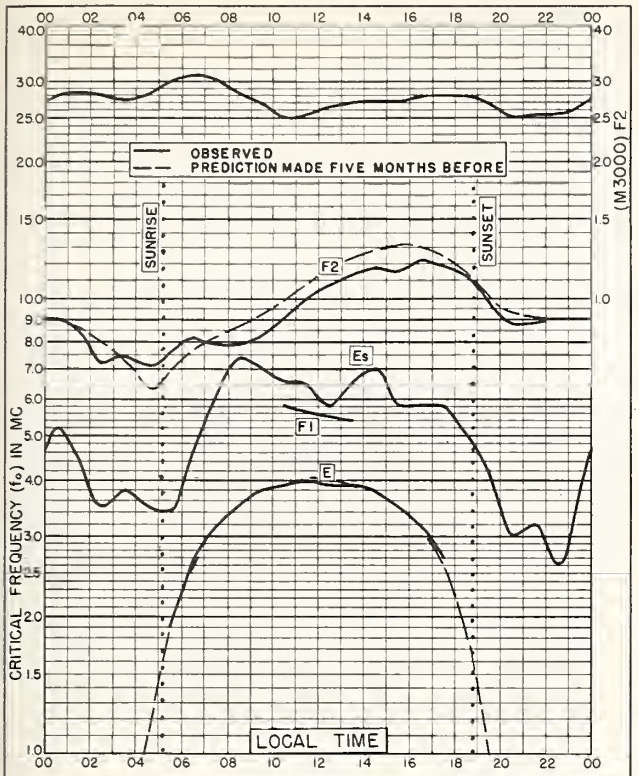

Fig. 13. OKINAWA I.
26.3°N, 127.8°E JUNE 1956

NBS 503

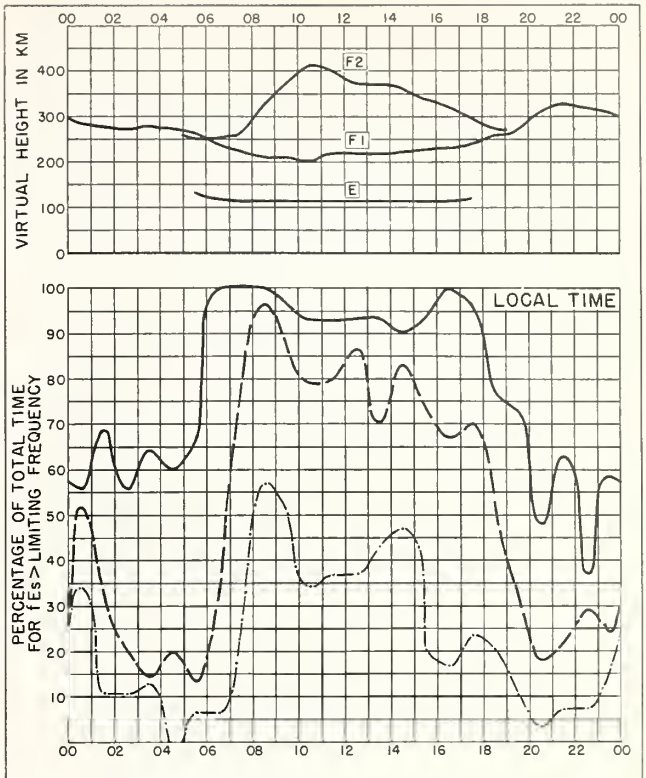

Fig. 14. OKINAWA I. JUNE 1956

NBS 490

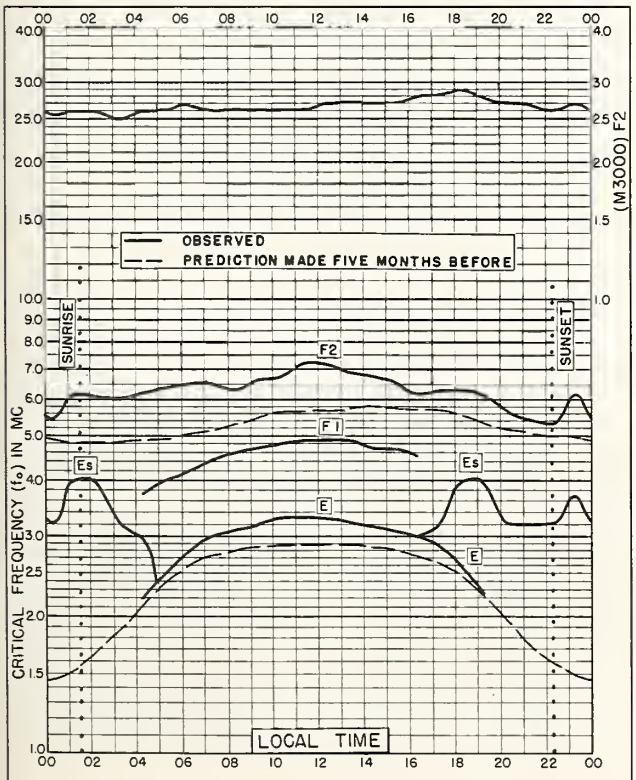

Fig. 15. TROMSO, NORWAY
69.7°N, 19.0°E MAY 1956

NBS 503

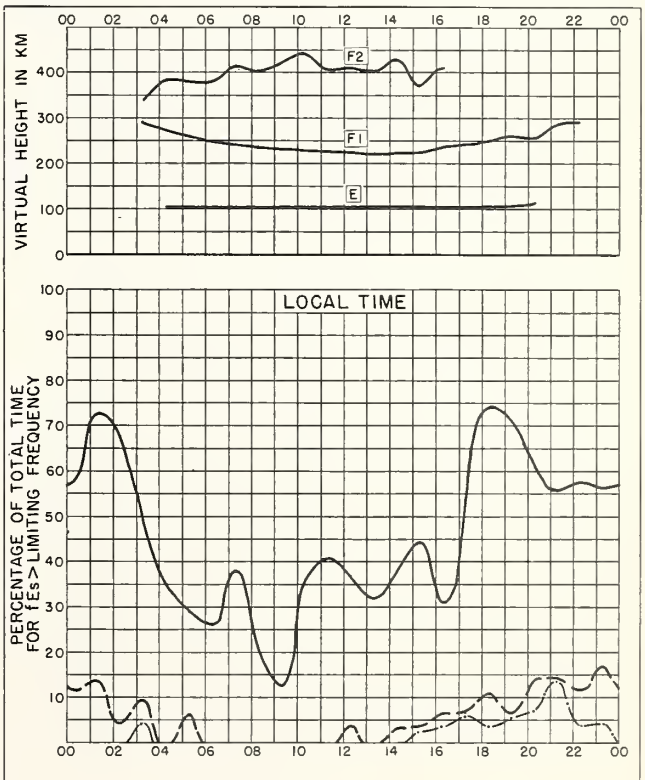

Fig. 16. TROMSO, NORWAY MAY 1956

NBS 490•

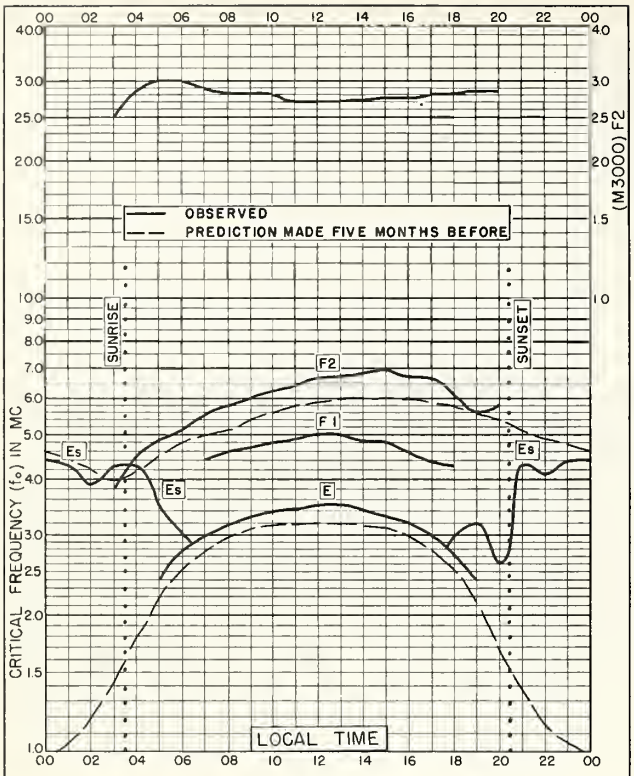

Fig. 17. NARSARSSUAK, GREELAND
61.2°N, 45.4°W MAY 1956

NBS 503

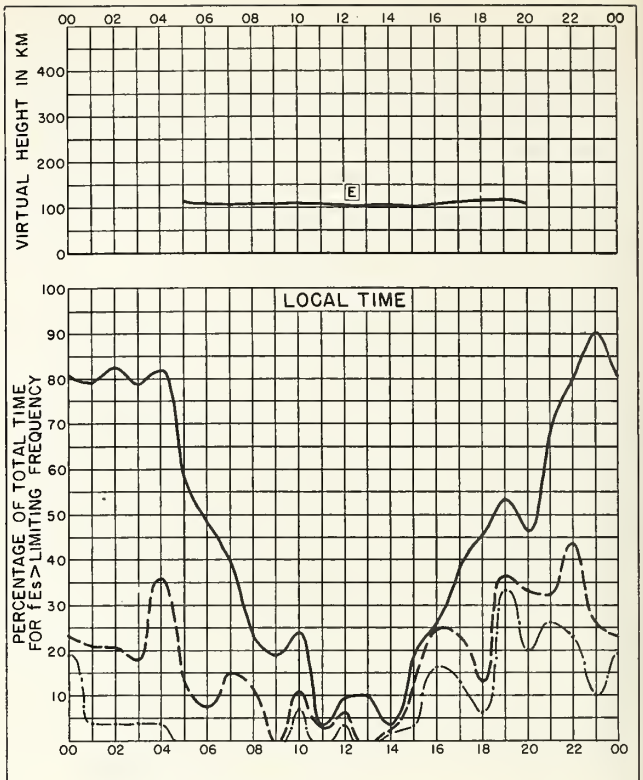

Fig. 18. NARSARSSUAK, GREENLAND MAY 1956

NBS 490

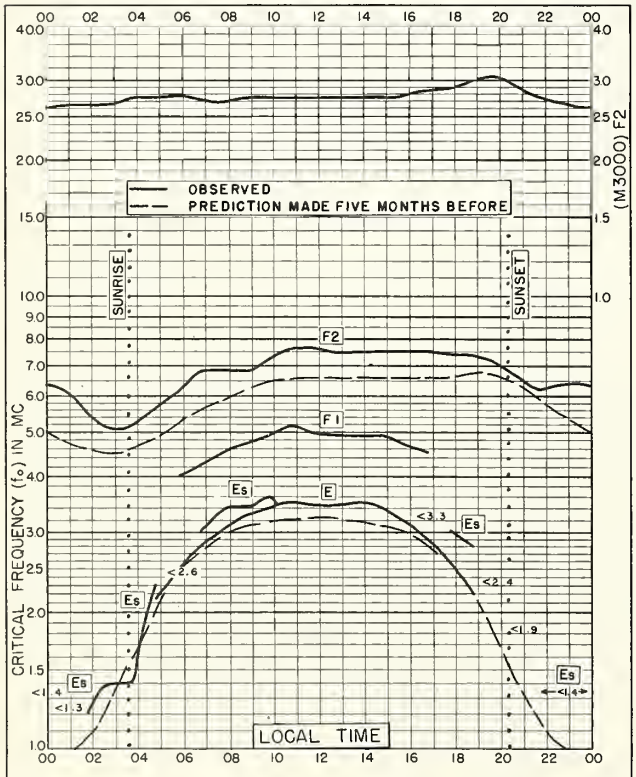

Fig. 19. OSLO, NORWAY
60.0°N, 11.1°E MAY 1956

NBS 503

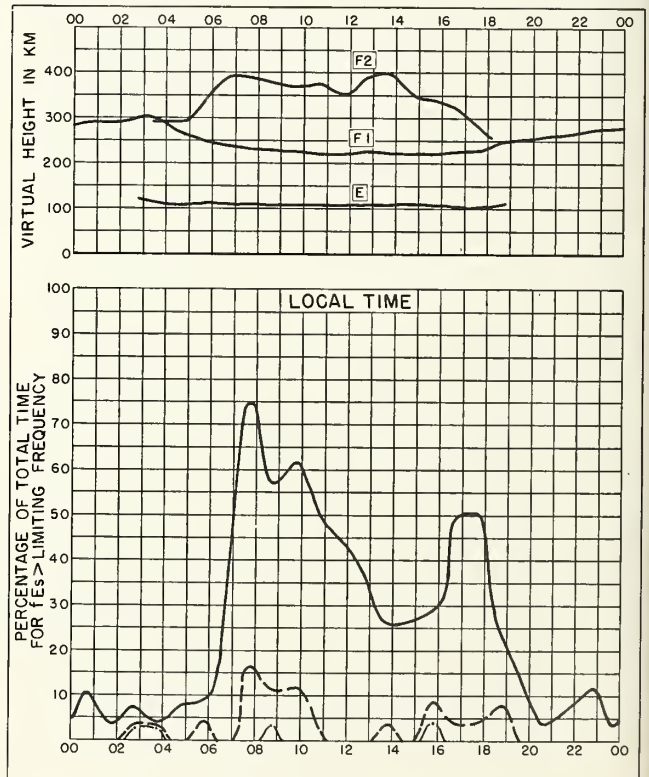

Fig. 20. OSLO, NORWAY MAY 1956

NBS 490

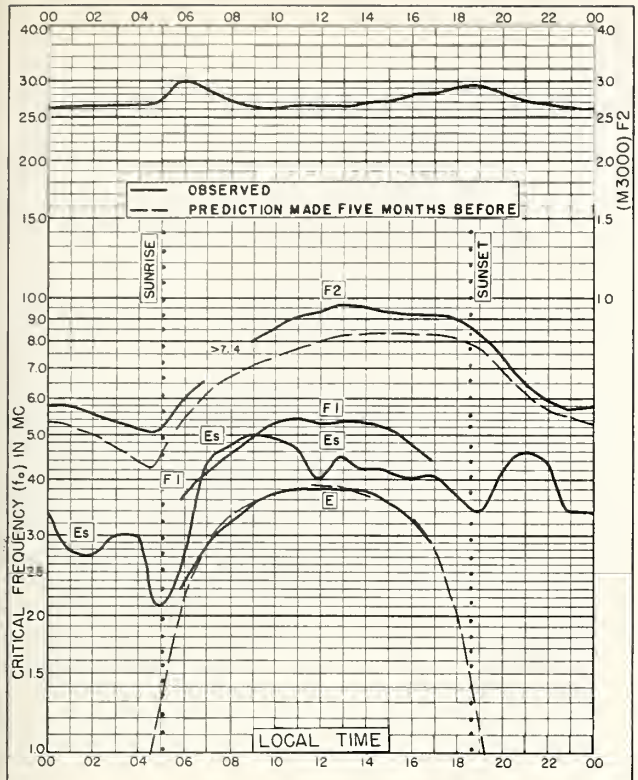

Fig. 21. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MAY 1956

NBS 503

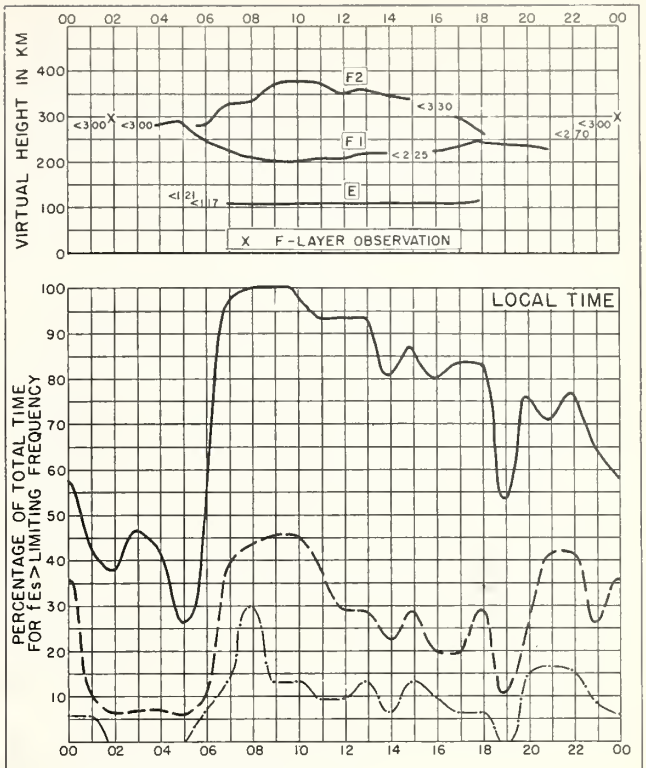

Fig. 22. WHITE SANDS, NEW MEXICO MAY 1956

NBS 490

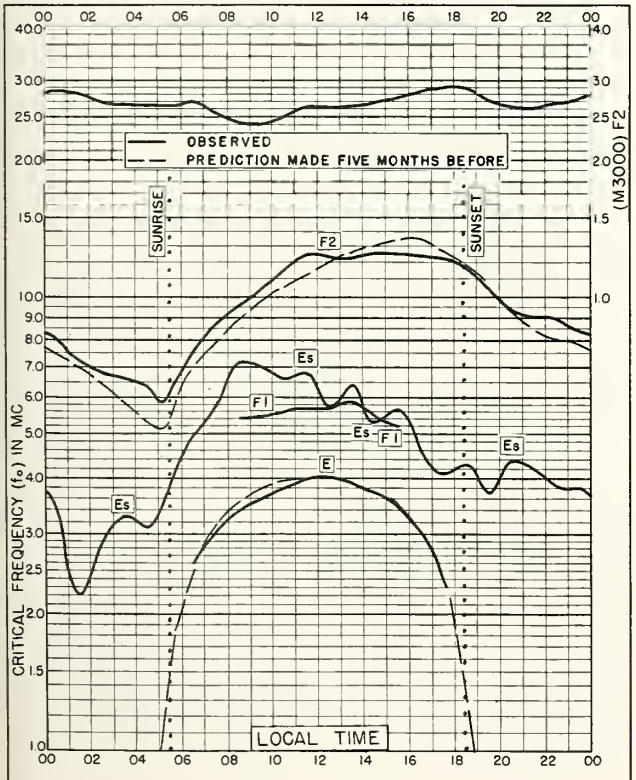

Fig. 23. MAUI, HAWAII
20.8°N, 156.5°W MAY 1956

NBS 503

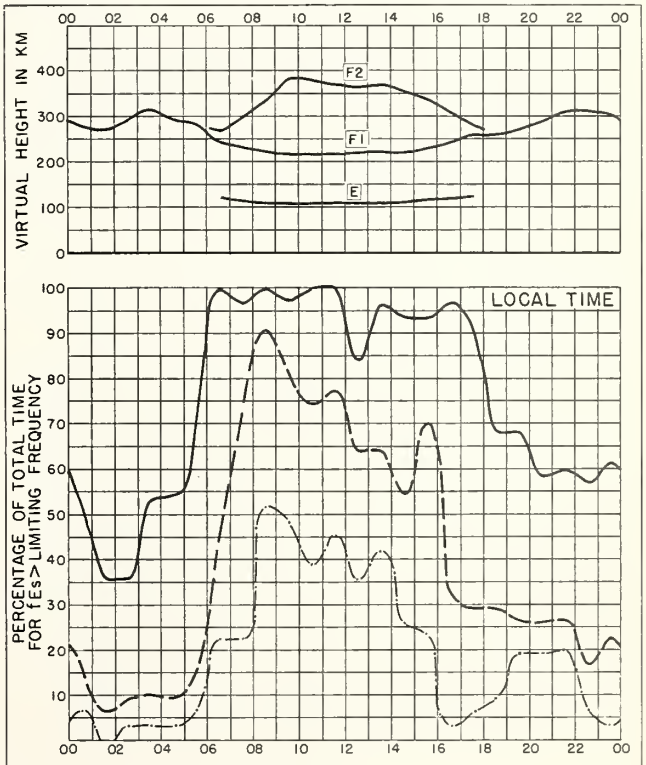

Fig. 24. MAUI, HAWAII MAY 1956

NBS 490

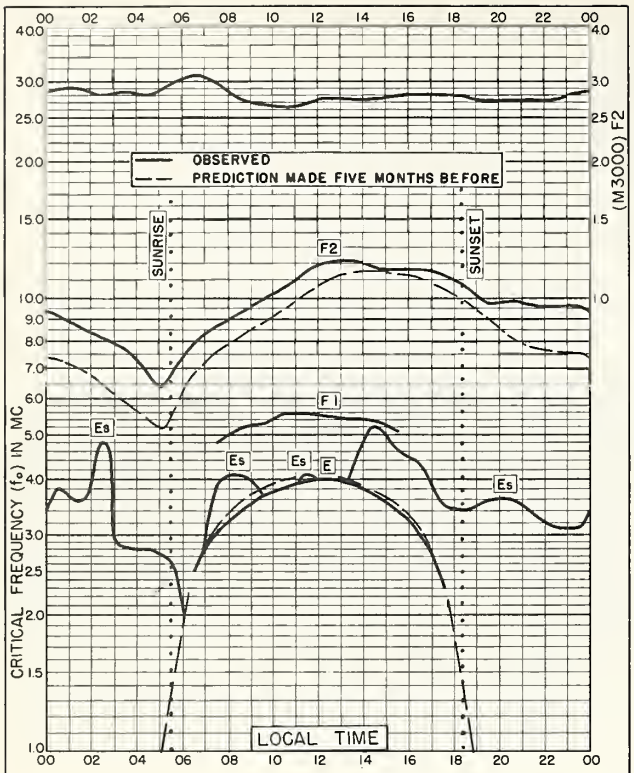

Fig. 25. PUERTO RICO, W. I.
18.5°N, 67.2°W MAY 1956

NBS 503

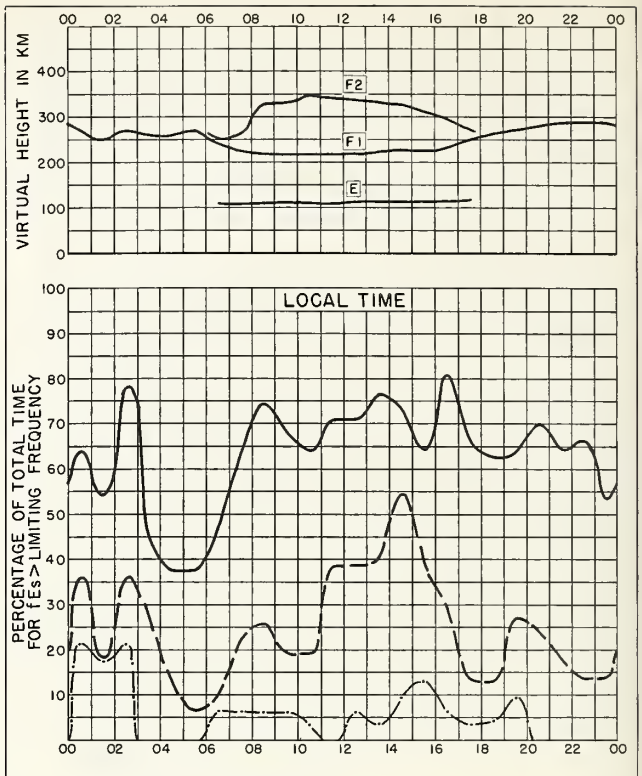

Fig. 26. PUERTO RICO, W. I. MAY 1956

NBS 490

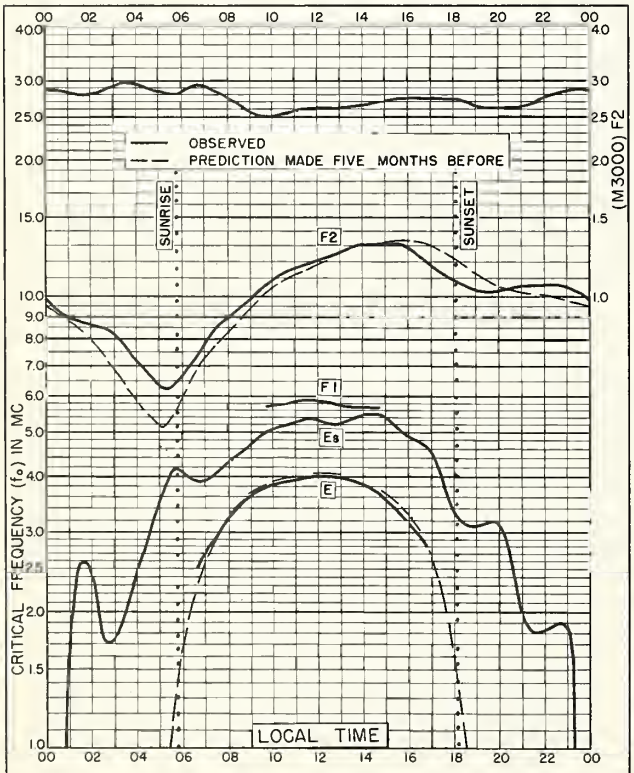

Fig. 27. PANAMA CANAL ZONE
9.4°N, 79.9°W MAY 1956

NBS 503

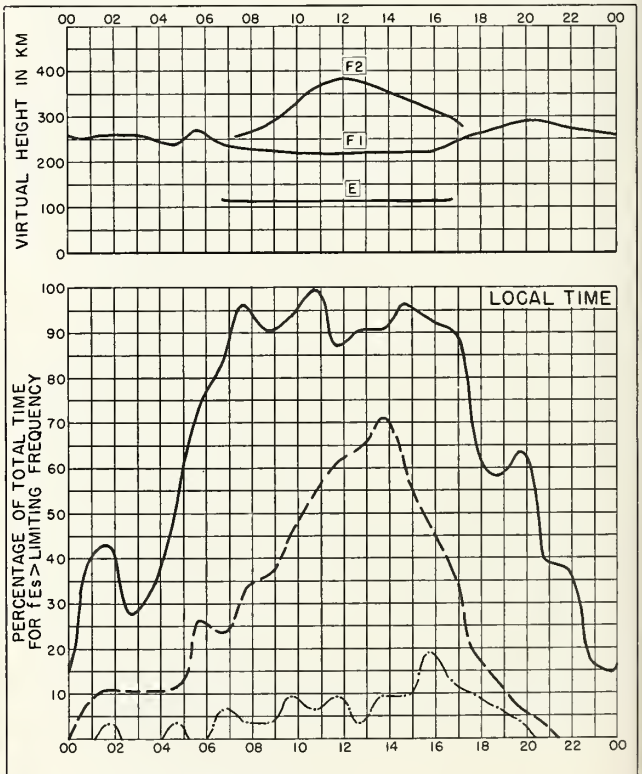

Fig. 28. PANAMA CANAL ZONE MAY 1956

NBS 490

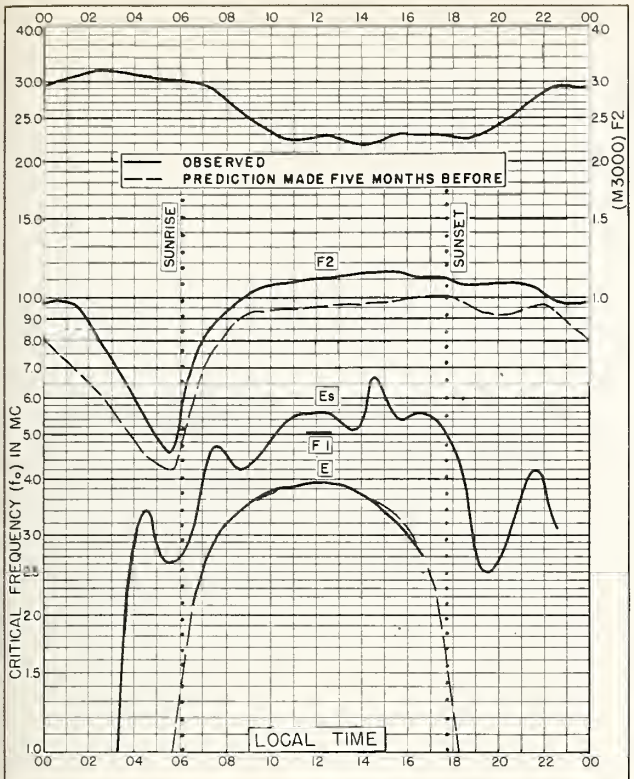

Fig. 29. TALARA, PERU
4.6°S, 81.3°W MAY 1956

NBS 503

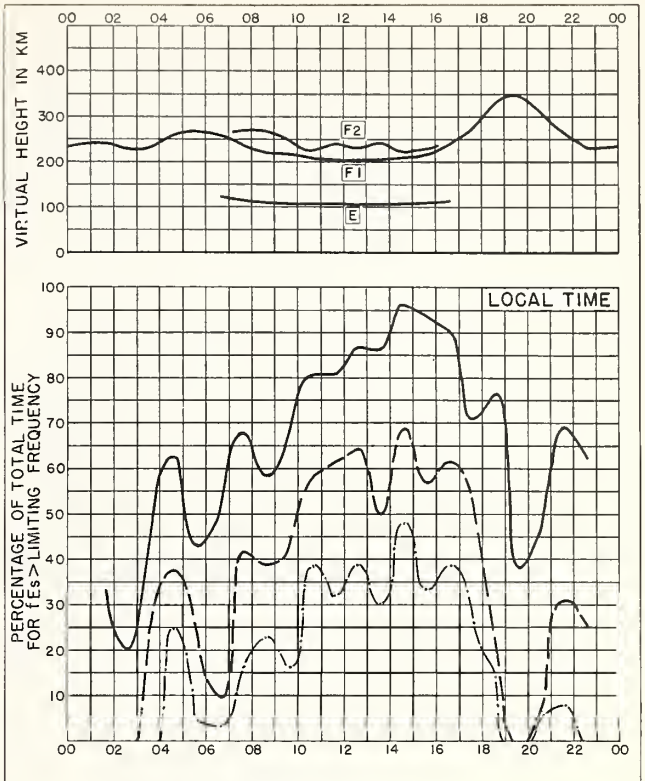

Fig. 30. TALARA, PERU MAY 1956

NBS 490

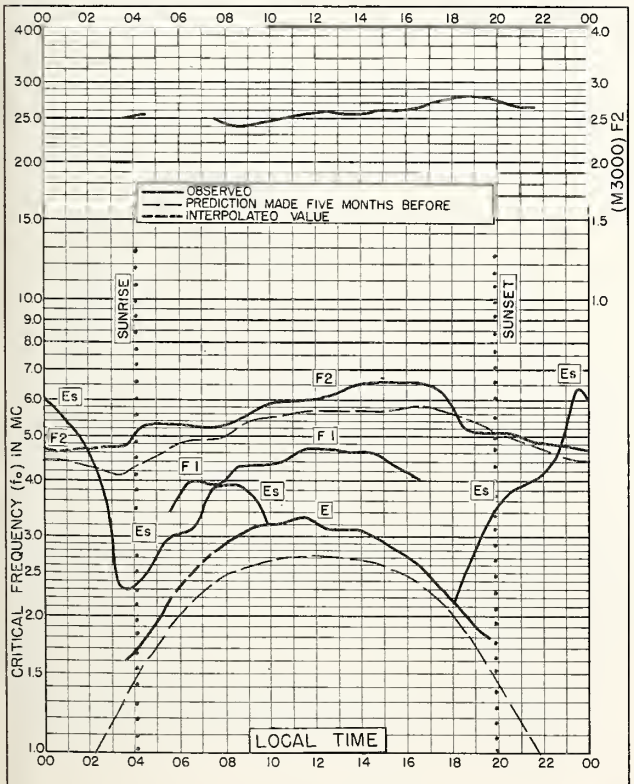

Fig. 31. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1956

NBS 503

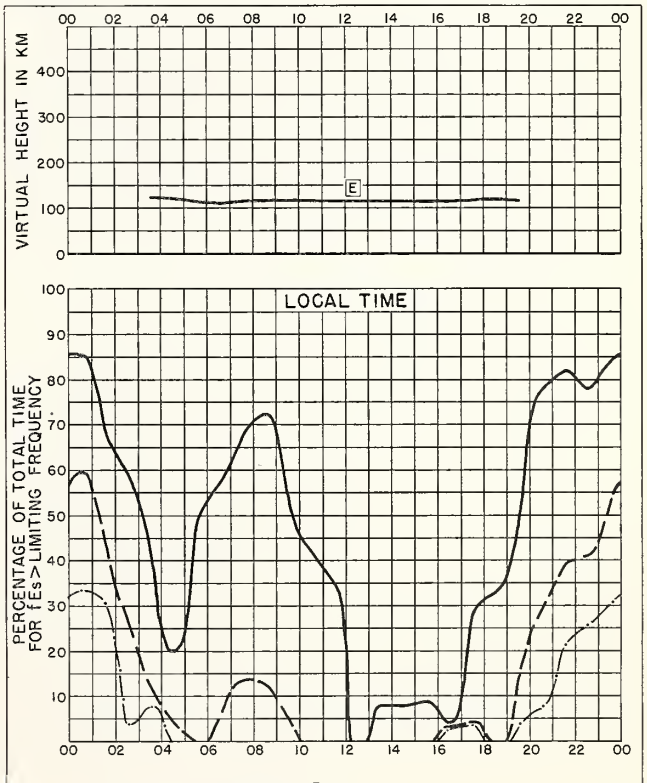

Fig. 32. POINT BARROW, ALASKA APRIL 1956

NBS 490

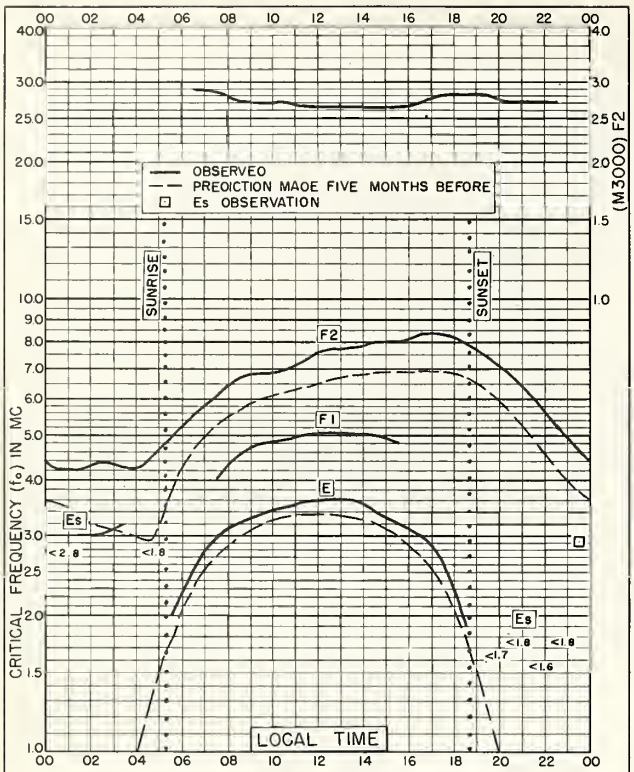

Fig. 33. WINNIPEG, CANADA
49.9°N, 97.4°W APRIL 1956

NBS 503

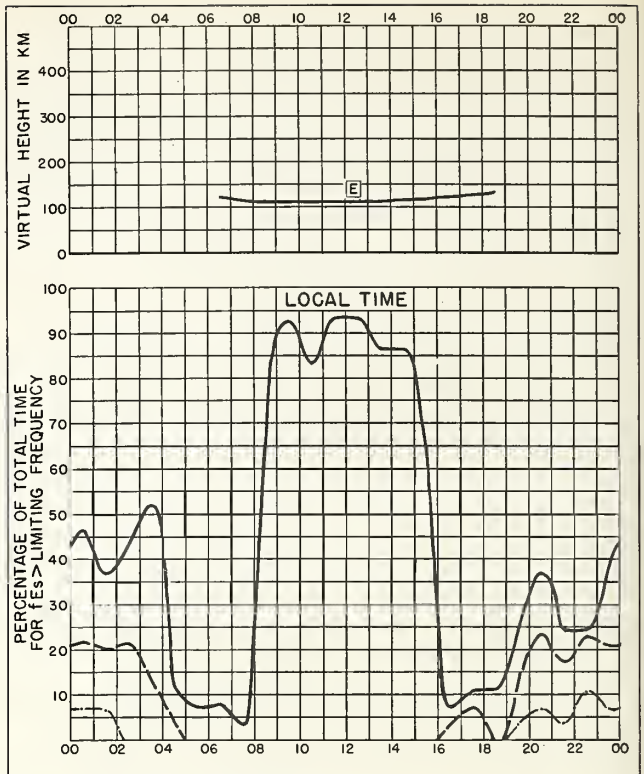

Fig. 34. WINNIPEG, CANADA APRIL 1956

NBS 490

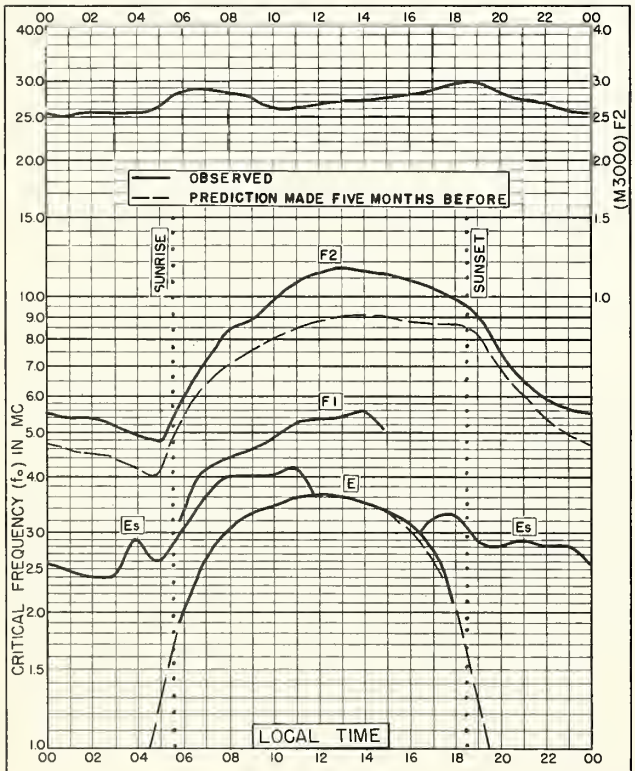

Fig. 35. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W APRIL 1956

NBS 503

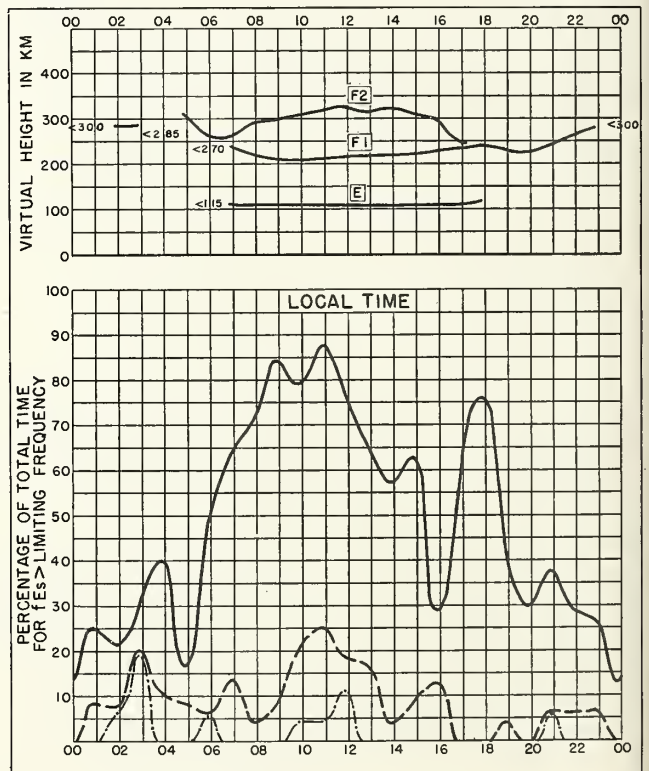

Fig. 36. SAN FRANCISCO, CALIFORNIA APRIL 1956

NBS 490

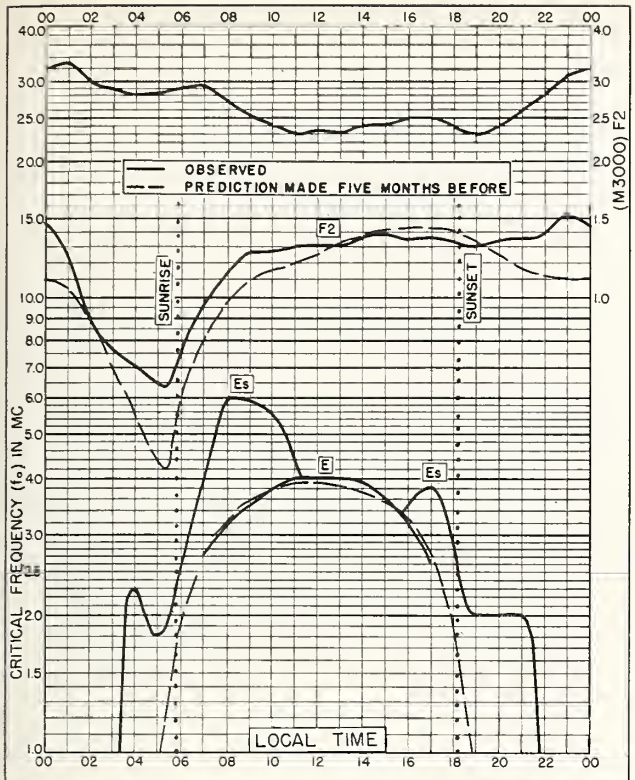

Fig. 37. BAGUIO, P.I.
16.4°N, 120.6°E APRIL 1956

NBS 503

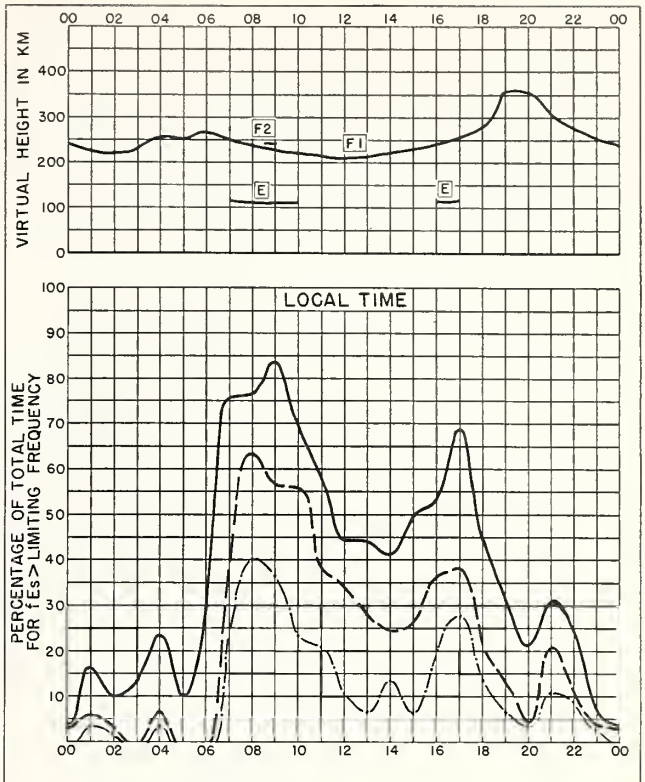

Fig. 38. BAGUIO, P.I. APRIL 1956

NBS 490

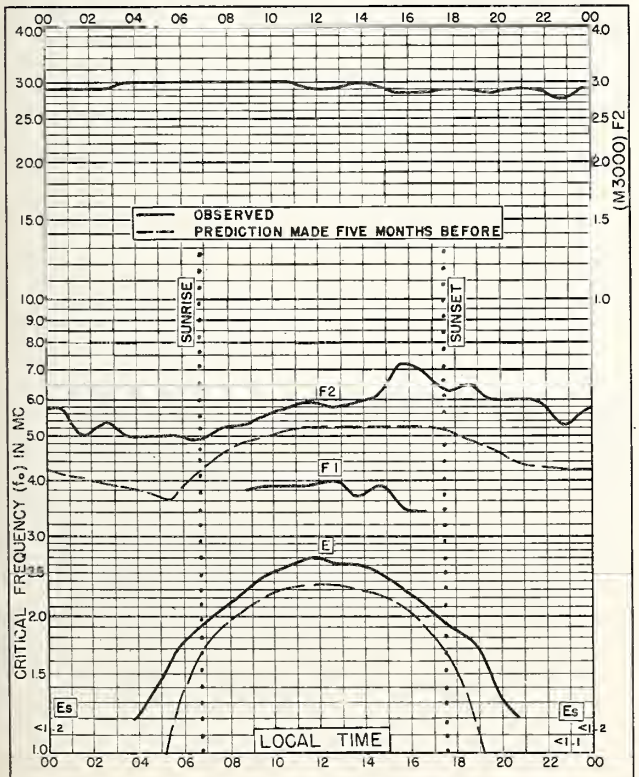

Fig. 39. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MARCH 1956

NBS 503

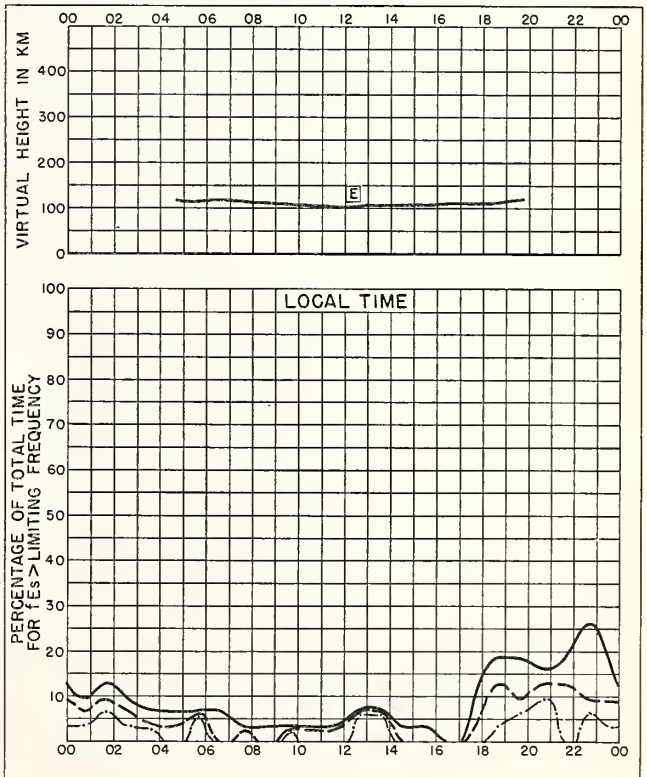

Fig. 40. RESOLUTE BAY, CANADA MARCH 1956

NBS 490

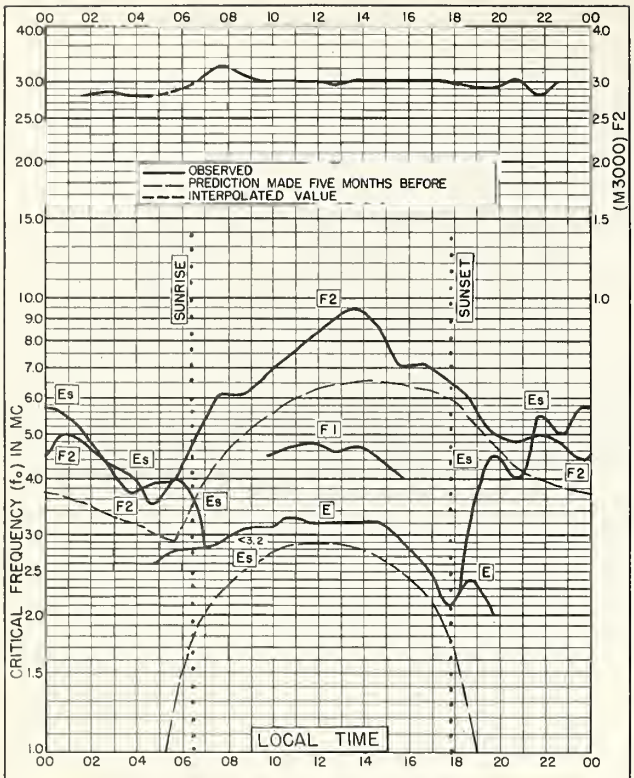

Fig. 41. CHURCHILL, CANADA
58.8°N, 94.2°W MARCH 1956

NBS 503

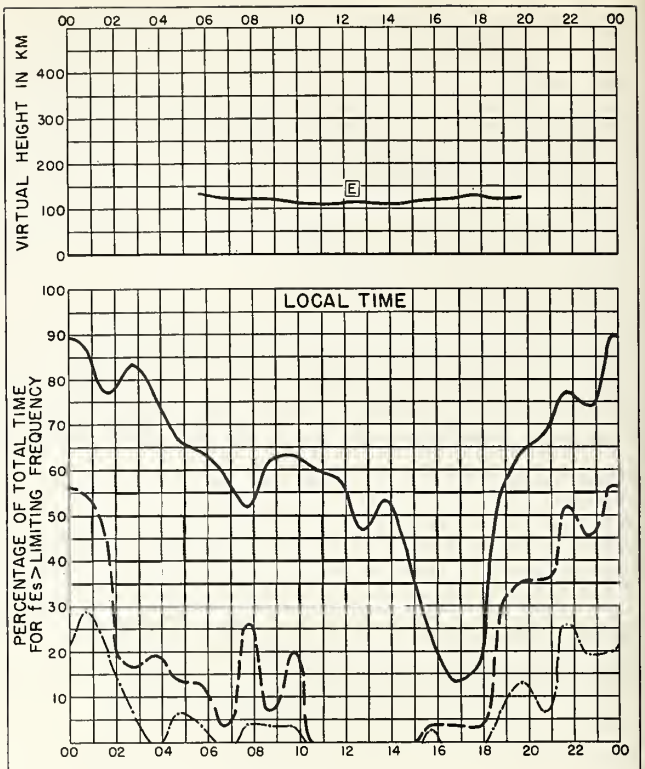

Fig. 42. CHURCHILL, CANADA MARCH 1956

NBS 490

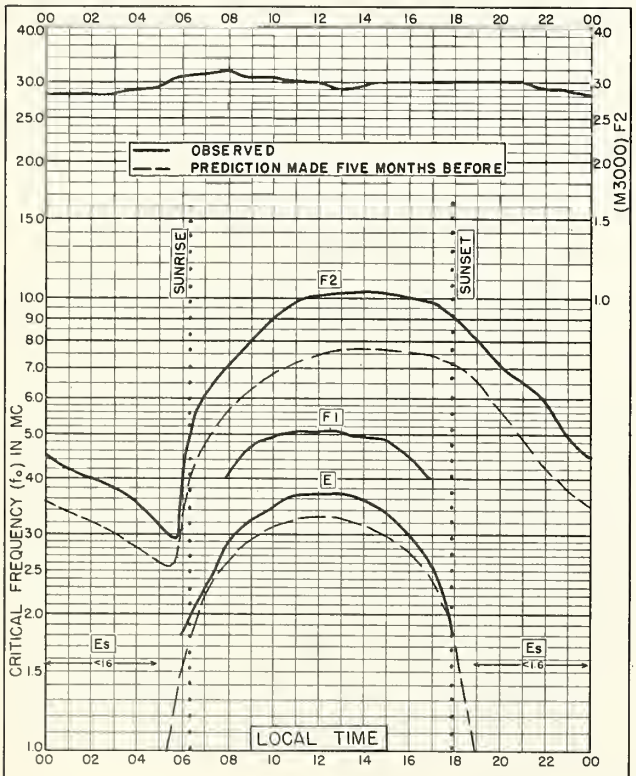

Fig. 43. OTTAWA, CANADA
45.4°N, 75.9°W MARCH 1956

NBS 503

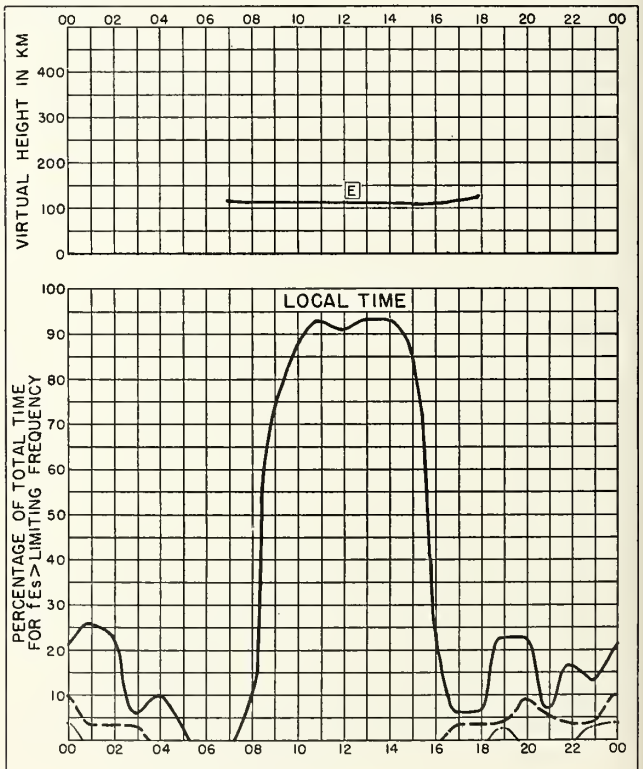

Fig. 44. OTTAWA, CANADA MARCH 1956

NBS 490

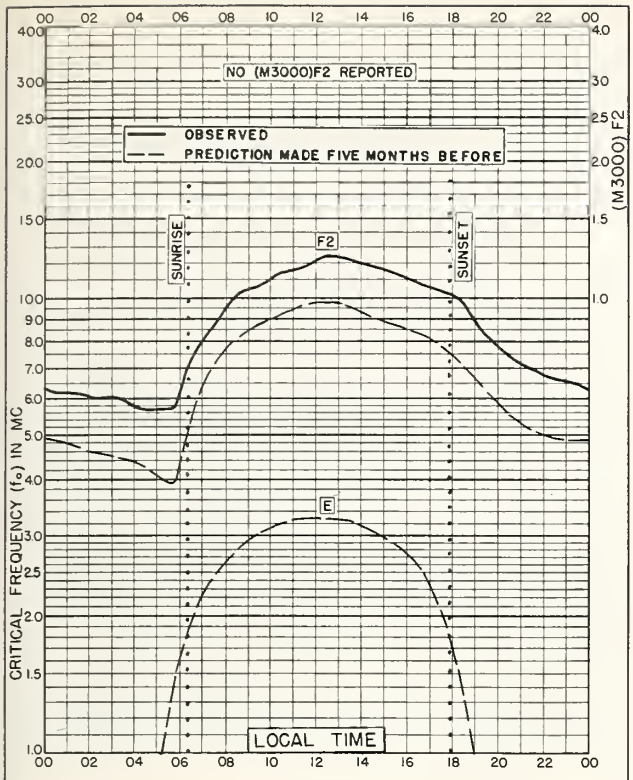

Fig. 45. WAKKANAI, JAPAN
45.4°N, 141.7°E MARCH 1956

NBS 503

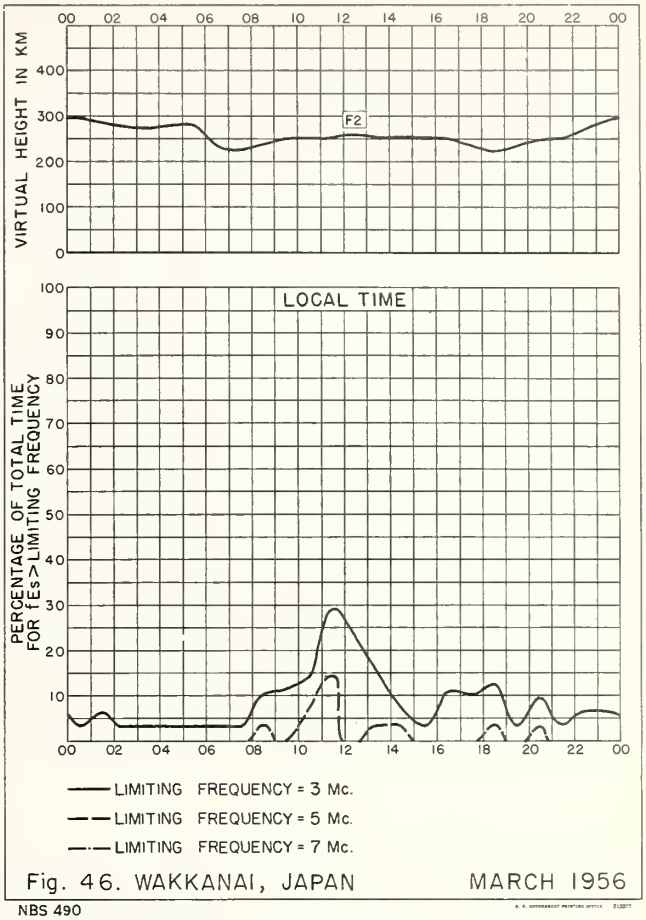

Fig. 46. WAKKANAI, JAPAN MARCH 1956

NBS 490

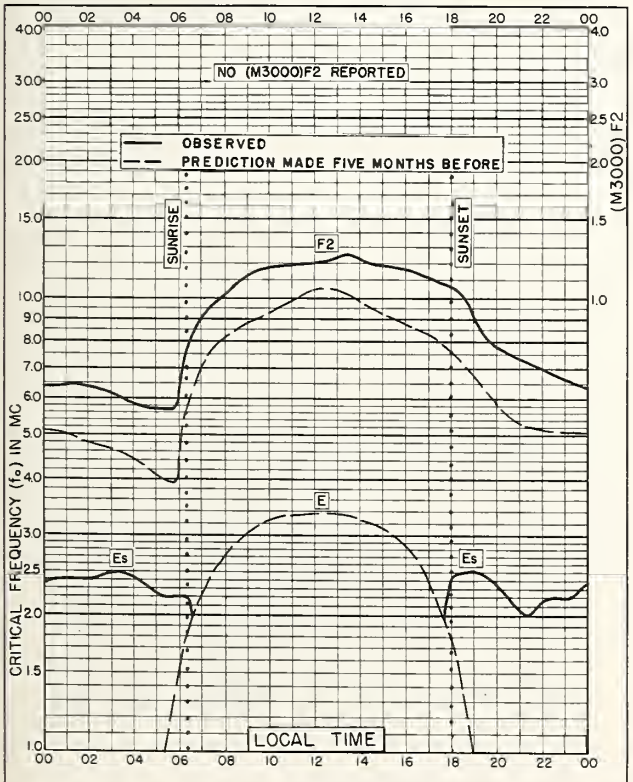

Fig. 47. AKITA, JAPAN
39.7°N, 140.1°E MARCH 1956

NBS 503

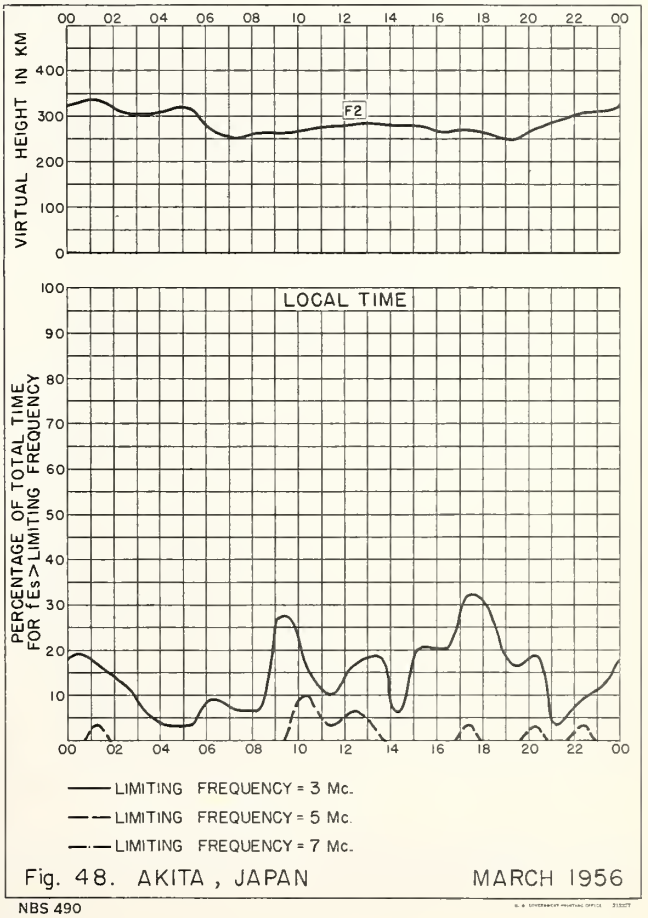

Fig. 48. AKITA, JAPAN MARCH 1956

NBS 490

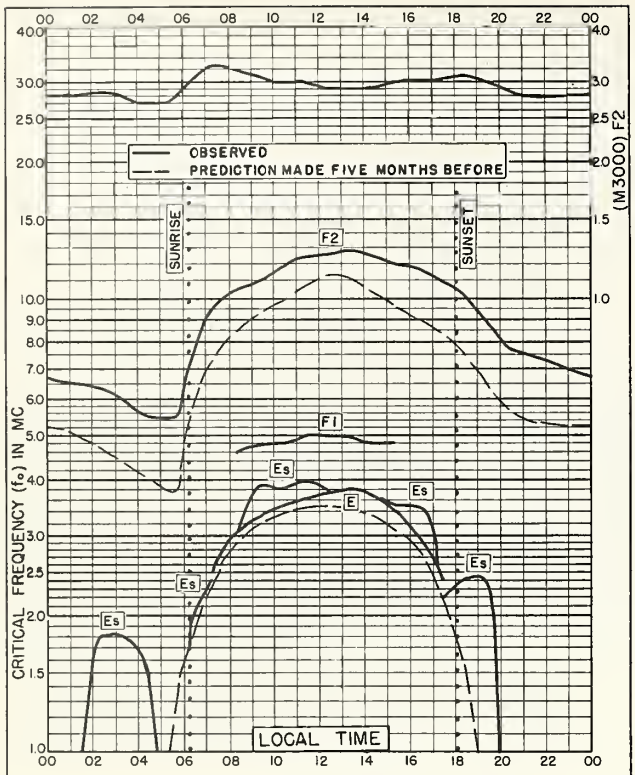

Fig. 49. TOKYO, JAPAN
35.7°N, 139.5°E MARCH 1956

NBS 503

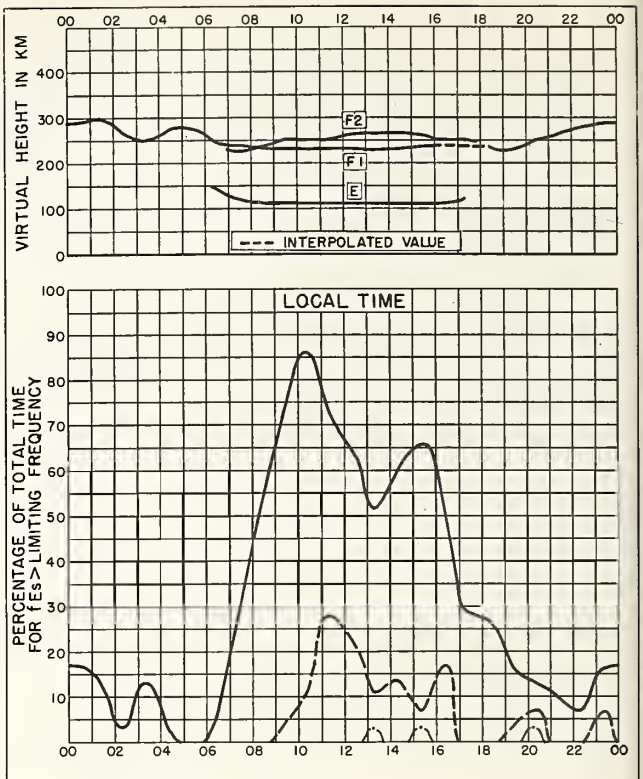

Fig. 50. TOKYO, JAPAN MARCH 1956

NBS 490

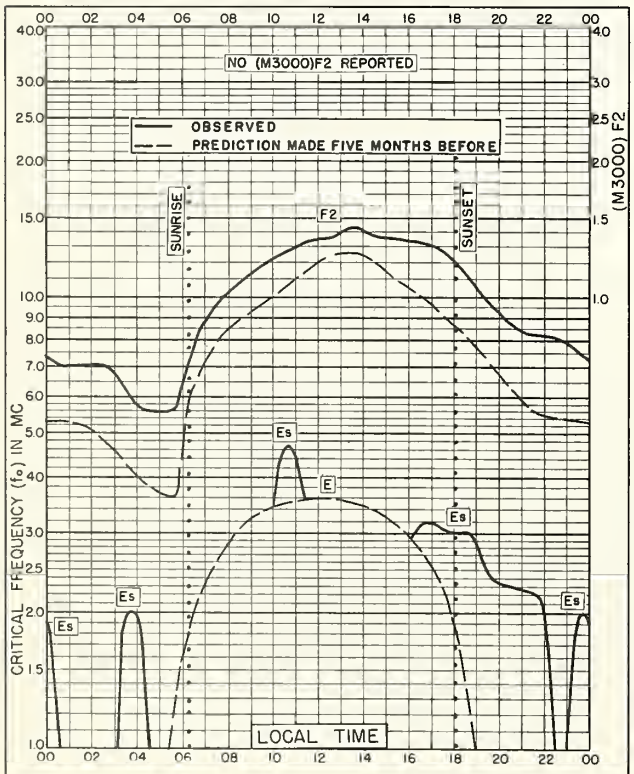

Fig. 51. YAMAGAWA, JAPAN
31.2°N, 130.6°E MARCH 1956

NBS 503

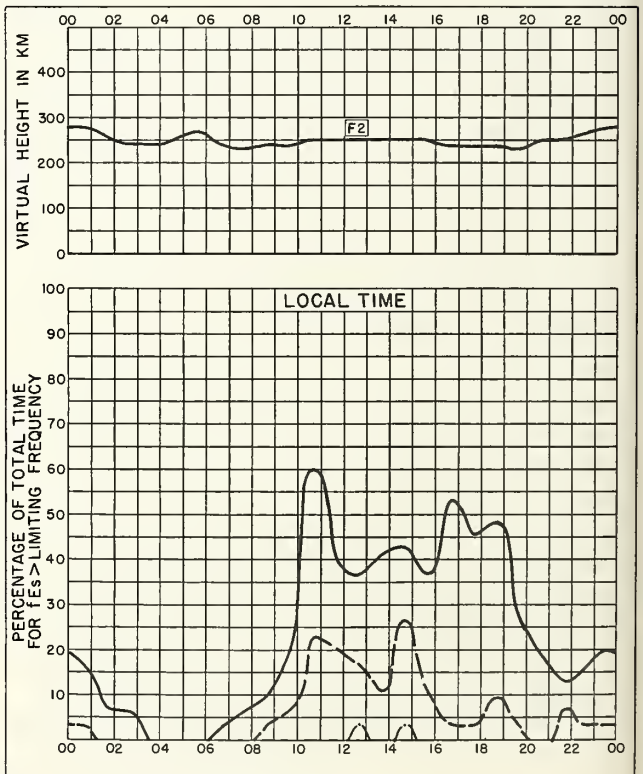

Fig. 52. YAMAGAWA, JAPAN MARCH 1956

NBS 490

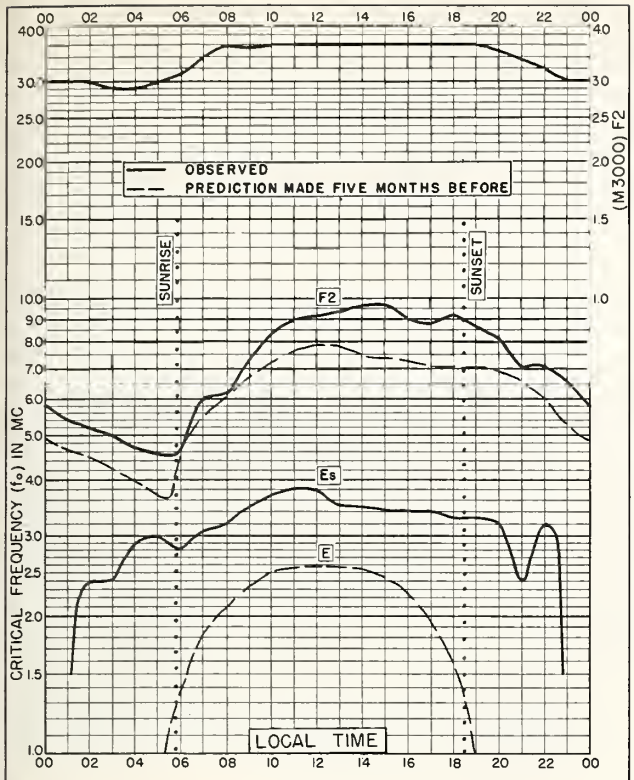

Fig. 53. DECEPCION I.
63.0°S, 60.7°W MARCH 1956

NBS 503

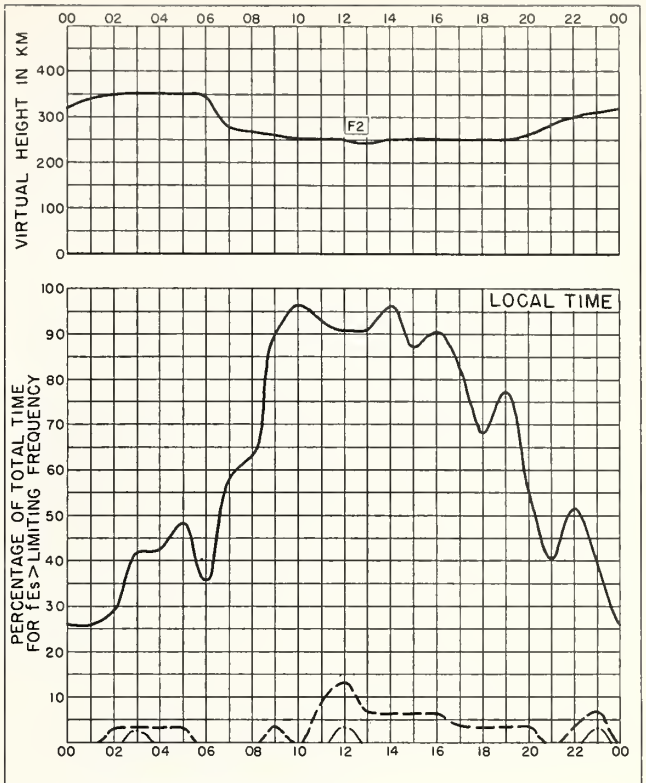

Fig. 54. DECEPCION I. MARCH 1956

NBS 490

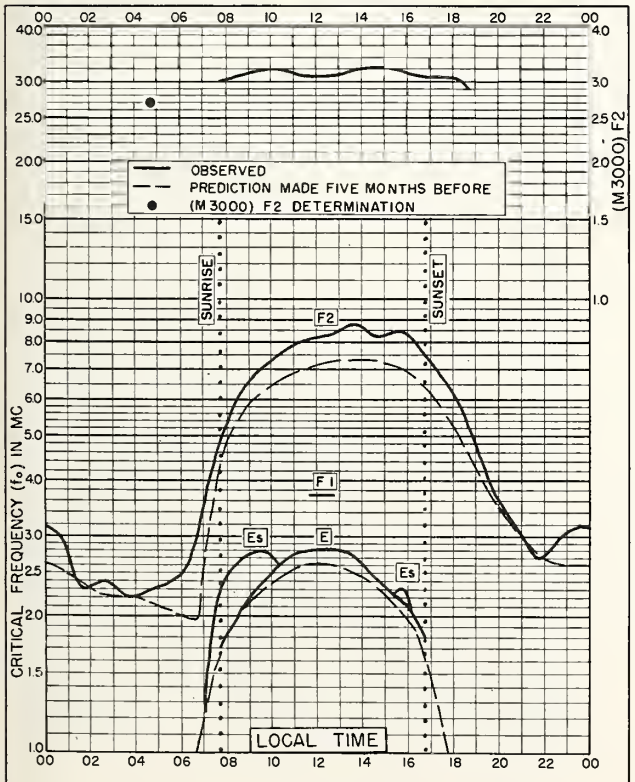

Fig. 55. INVERNESS, SCOTLAND
57.4°N, 4.2°W FEBRUARY 1956

NBS 503

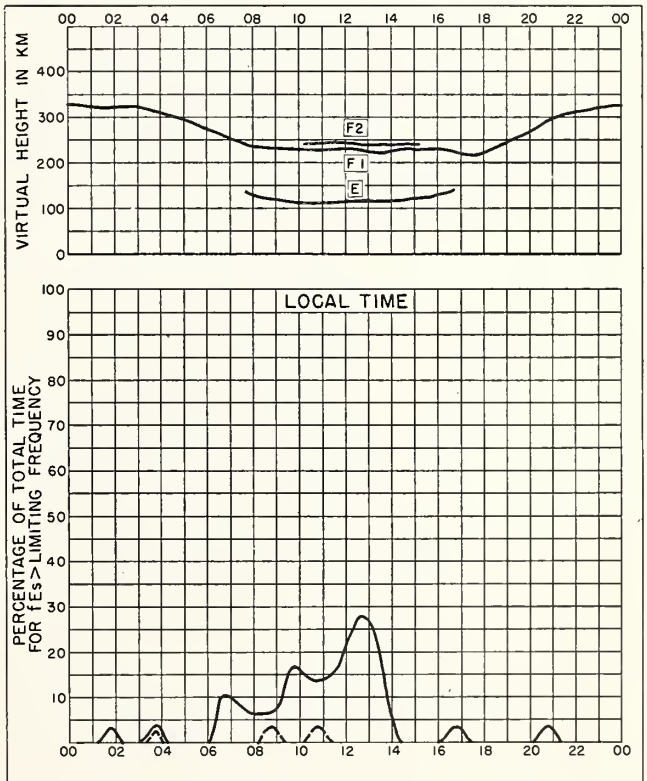

Fig. 56. INVERNESS, SCOTLAND FEBRUARY 1956

NBS 490

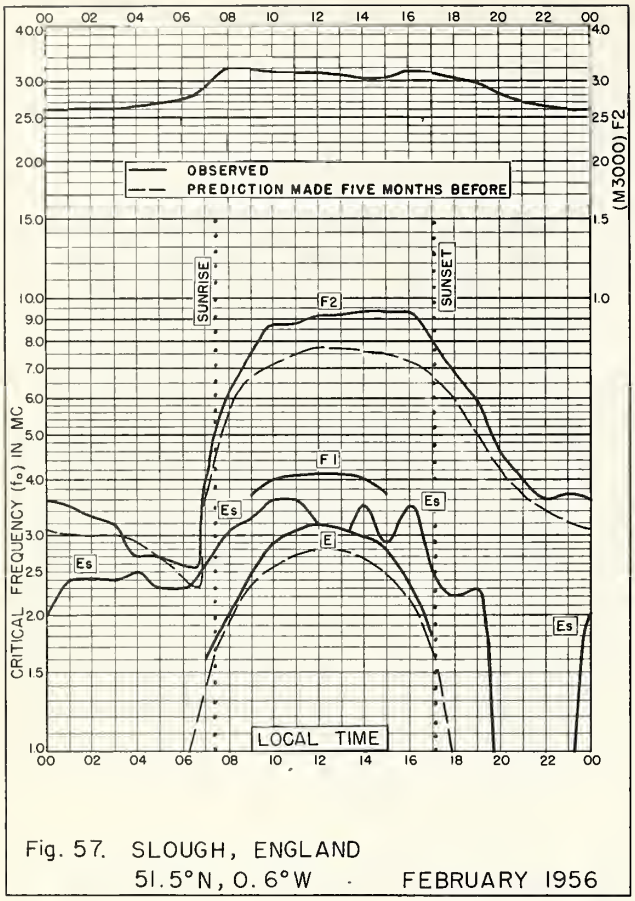

Fig. 57. SLOUGH, ENGLAND
51.5°N, 0.6°W FEBRUARY 1956

NBS 503

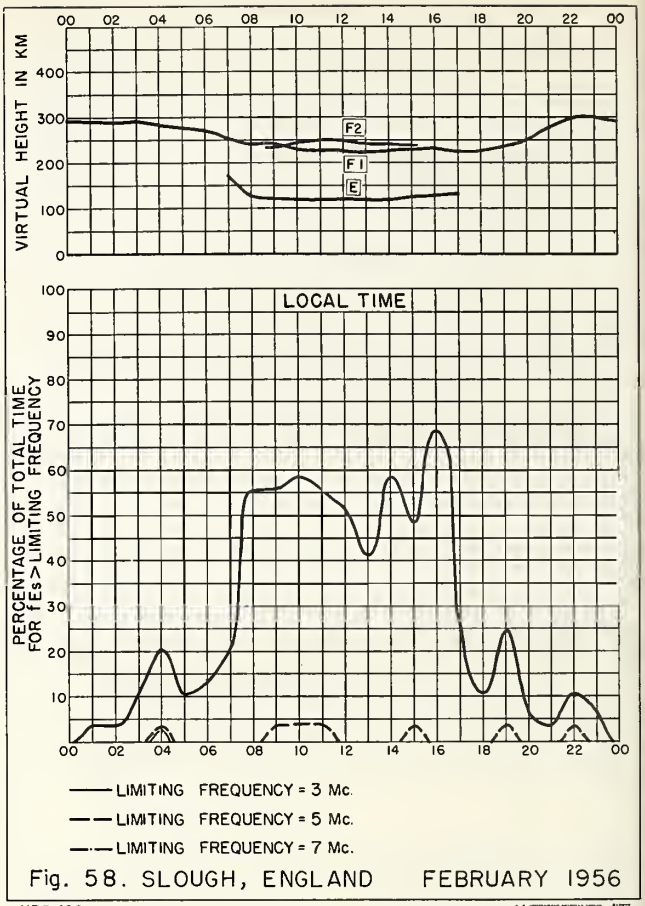

Fig. 58. SLOUGH, ENGLAND FEBRUARY 1956

NBS 490

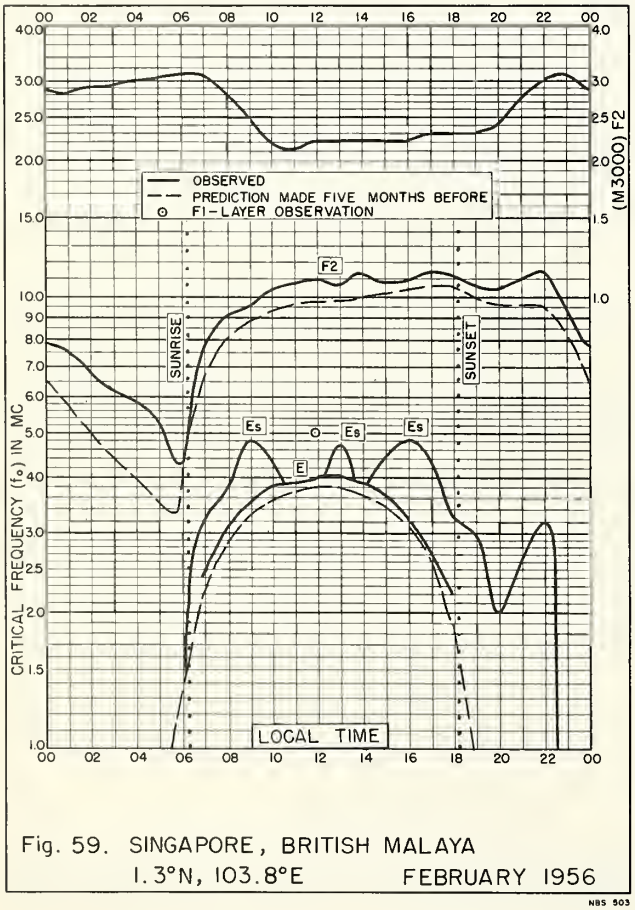

Fig. 59. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E FEBRUARY 1956

NBS 503

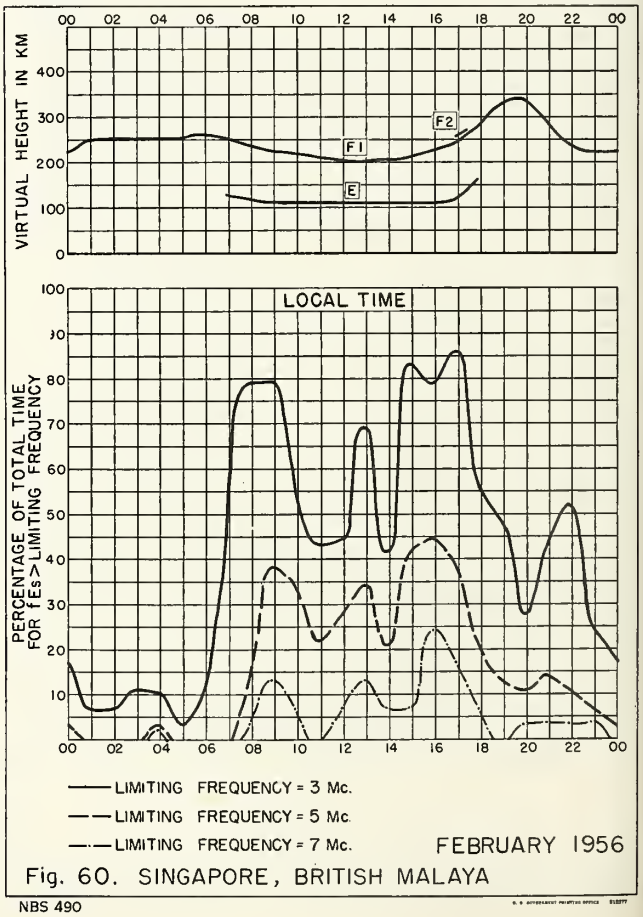

Fig. 60. SINGAPORE, BRITISH MALAYA FEBRUARY 1956

NBS 490

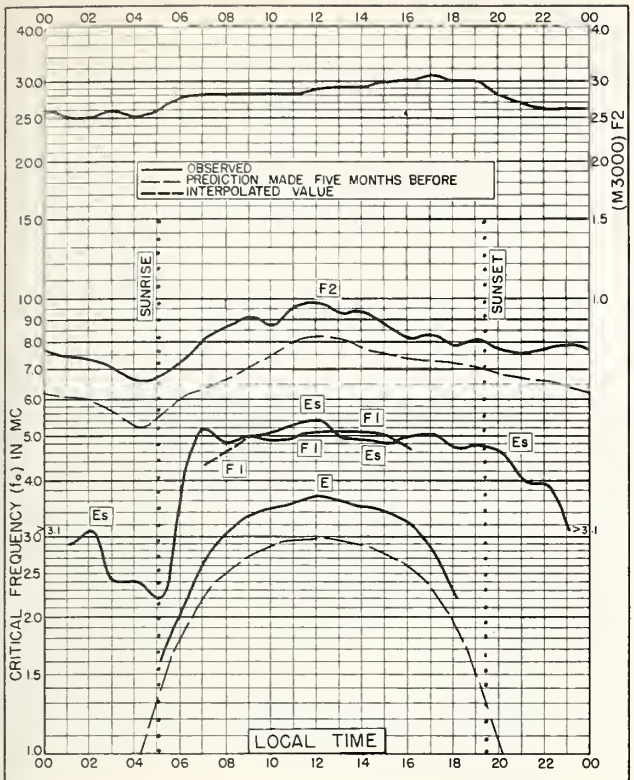

Fig. 61. FALKLAND IS.
51.7°S, 57.8°W FEBRUARY 1956

NBS 503

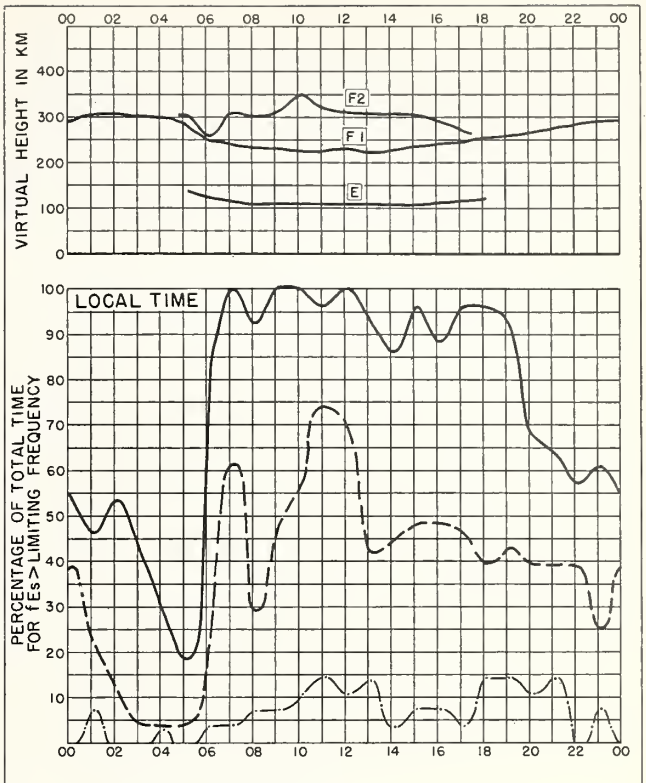

Fig. 62. FALKLAND IS. FEBRUARY 1956

NBS 490

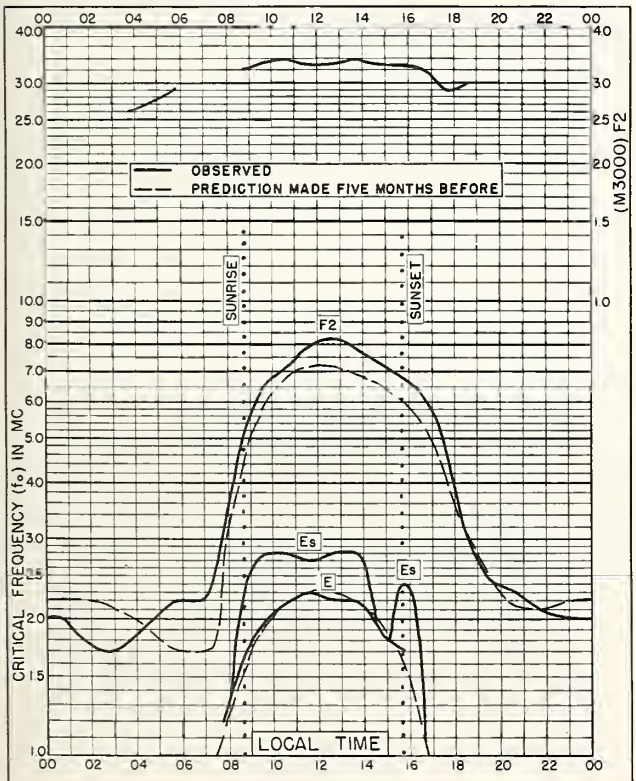

Fig. 63. INVERNESS, SCOTLAND
57.4°N, 4.2°W JANUARY 1956

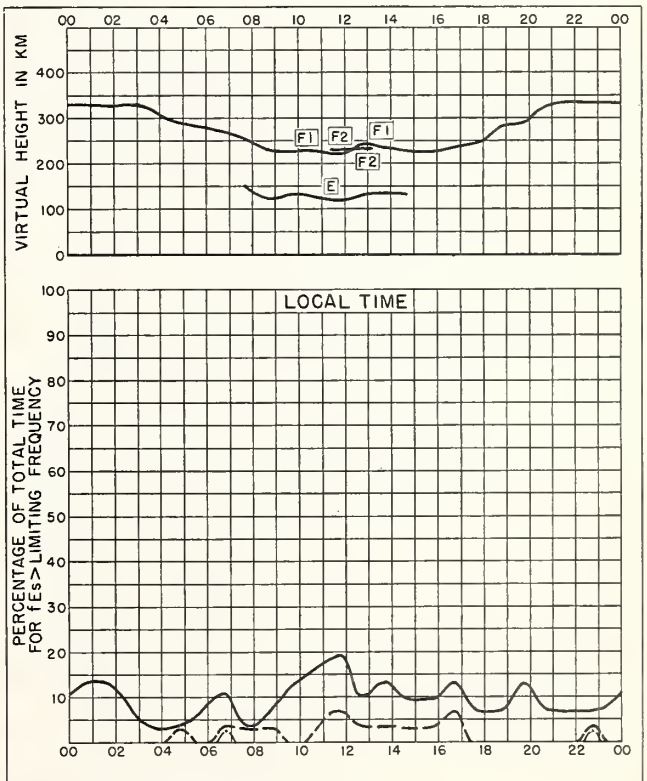

Fig. 64. INVERNESS, SCOTLAND JANUARY 1956

NBS 490

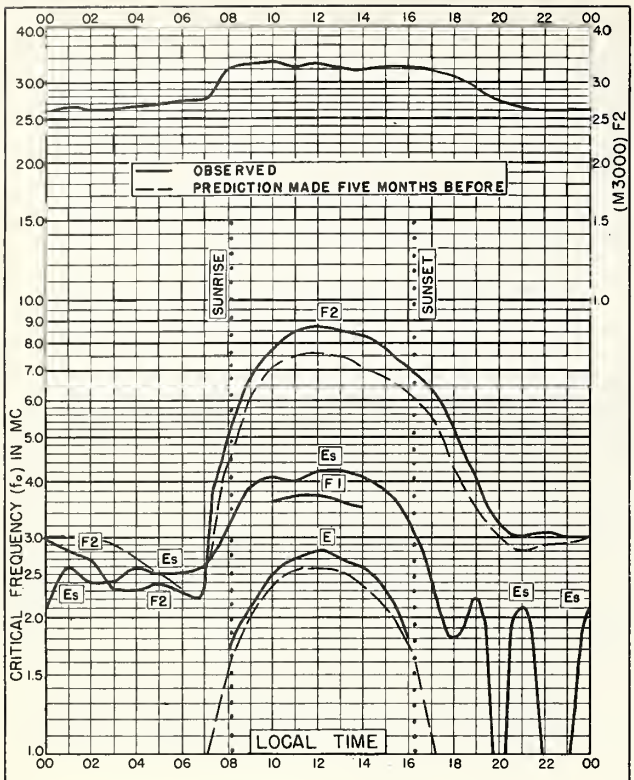

Fig. 65. SLOUGH, ENGLAND
51.5°N, 0.6°W JANUARY 1956

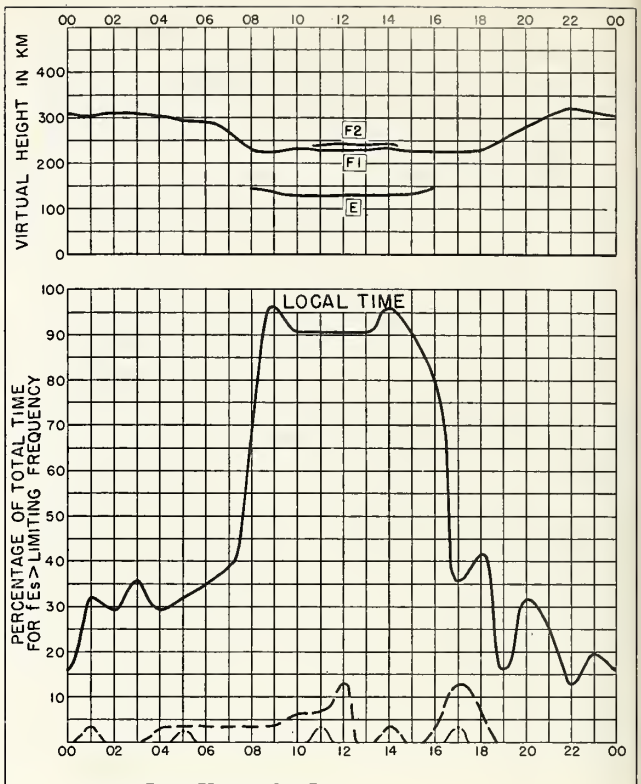

Fig. 66. SLOUGH, ENGLAND JANUARY 1956

NBS 490

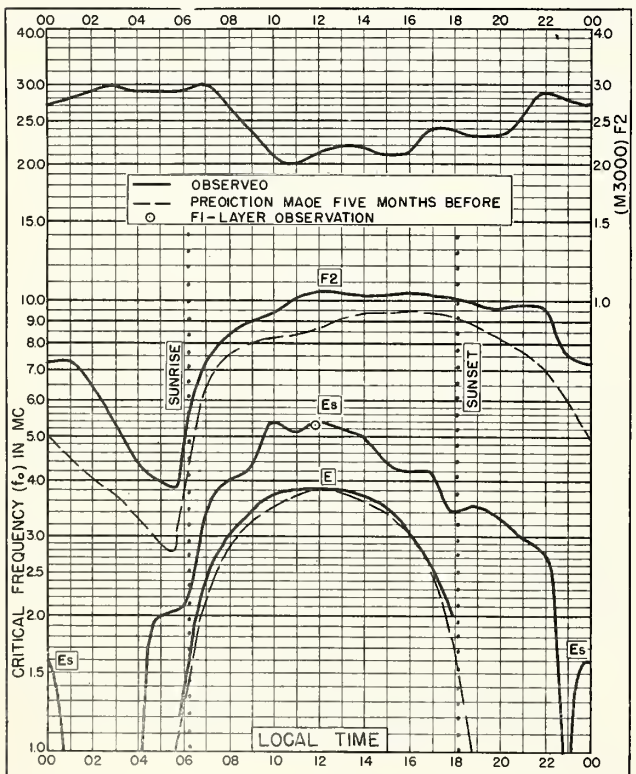

Fig. 67. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JANUARY 1956

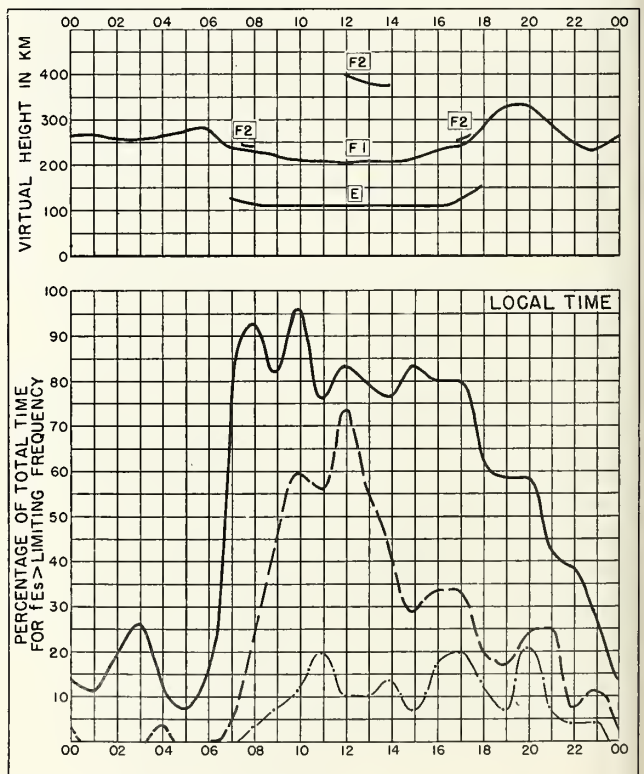

Fig. 68. SINGAPORE, BRITISH MALAYA JANUARY 1956

NBS 490

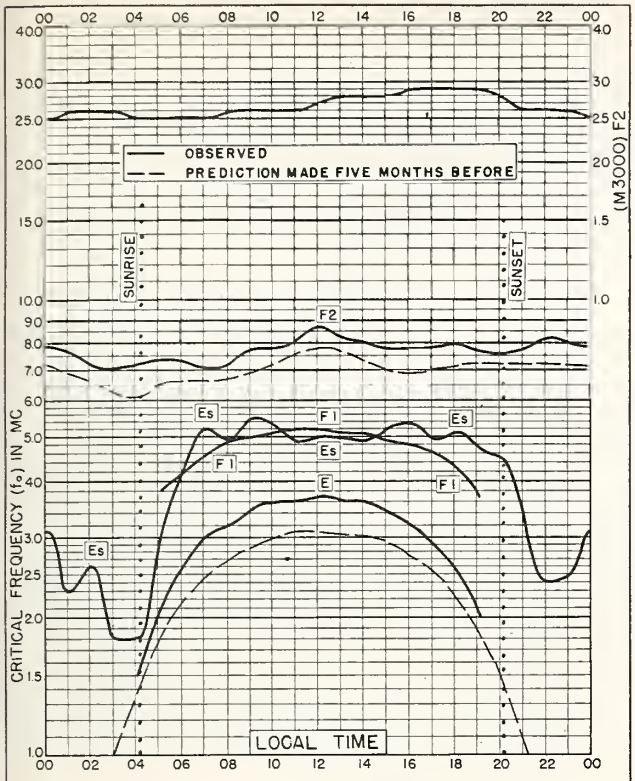

Fig. 69. FALKLAND IS.
51.7°S, 57.8°W JANUARY 1956

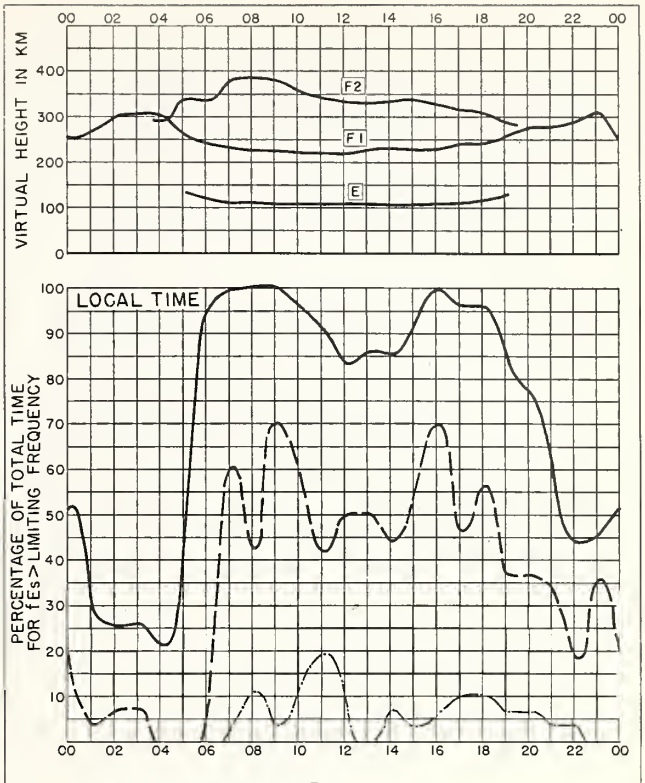

Fig. 70. FALKLAND IS. JANUARY 1956

NBS 490

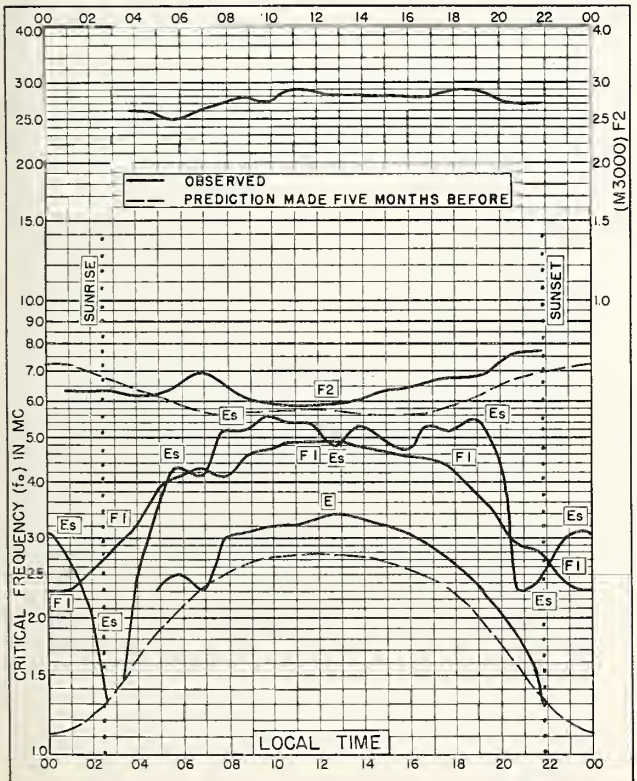

Fig. 71. PORT LOCKROY
64.8°S, 63.5°W JANUARY 1956

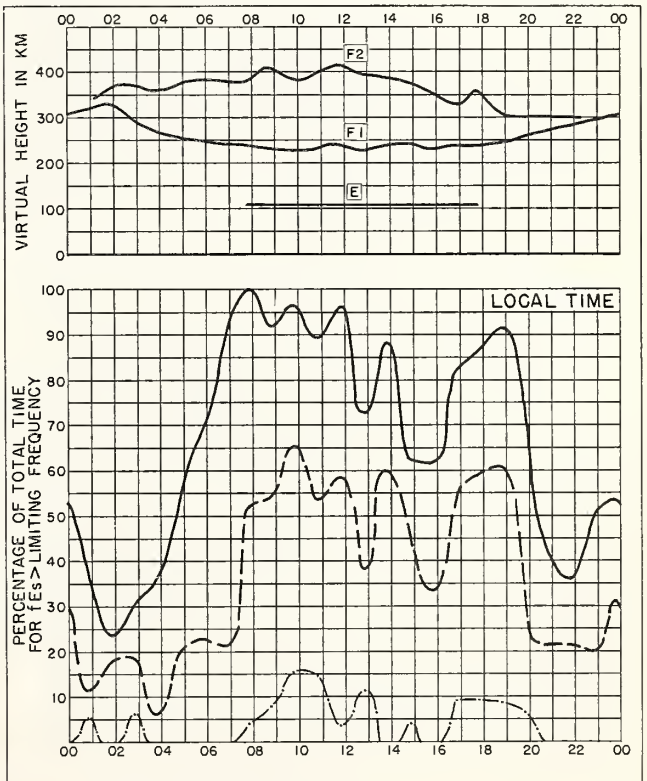

Fig. 72. PORT LOCKROY JANUARY 1956

NBS 490

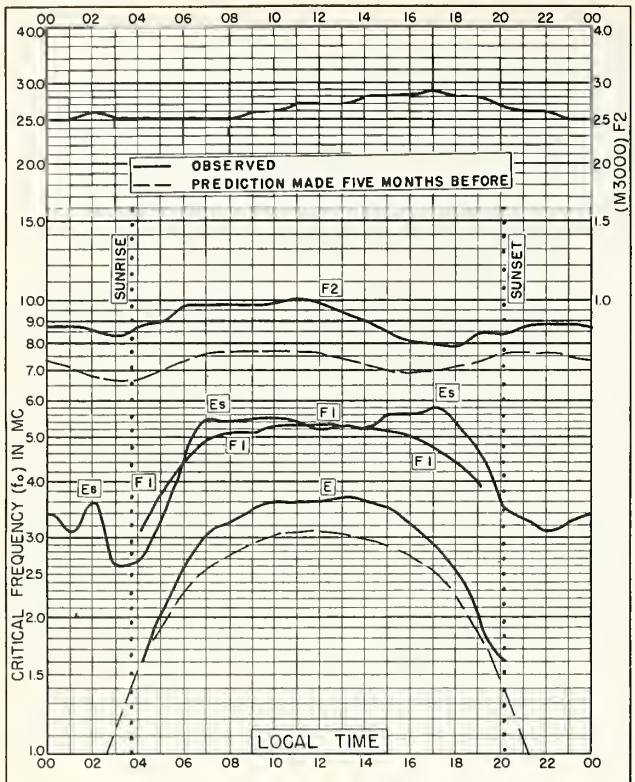

Fig. 73. FALKLAND IS.
51.7°S, 57.8°W DECEMBER 1955

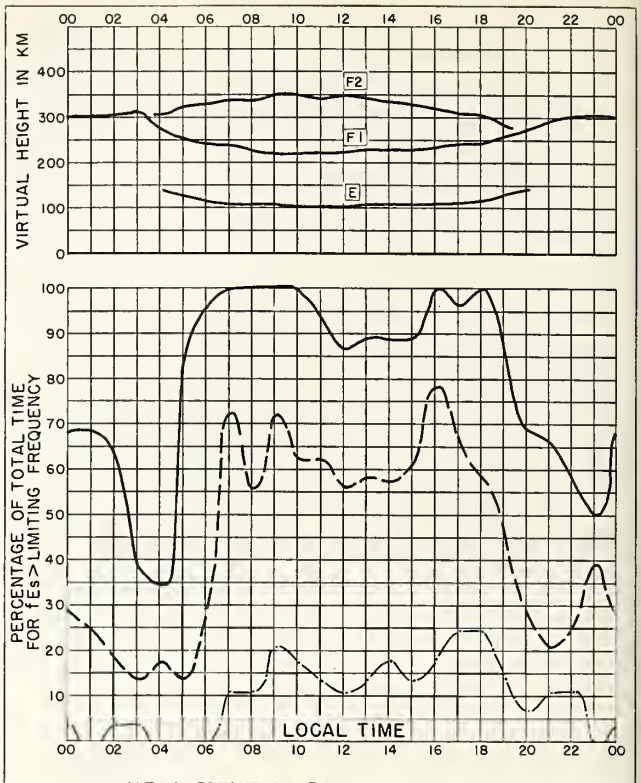

Fig. 74. FALKLAND IS. DECEMBER 1955

NBS 490

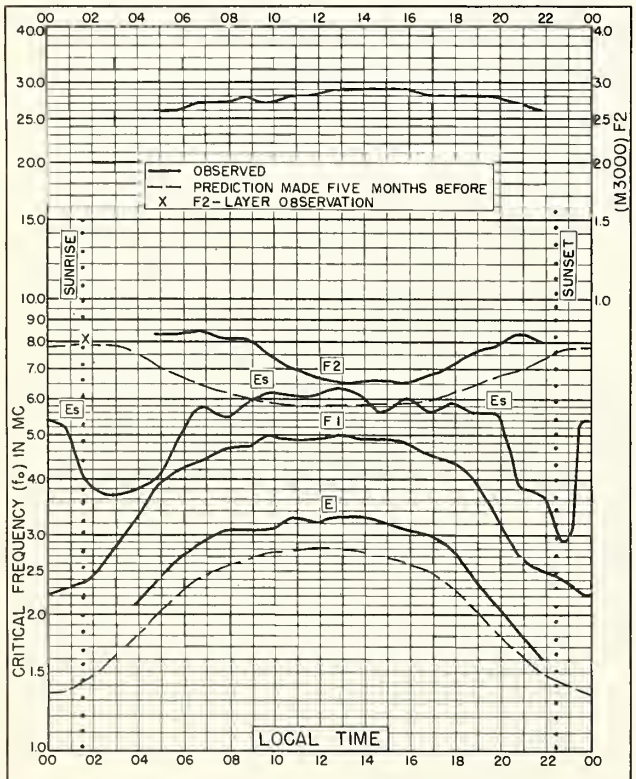

Fig. 75. PORT LOCKROY
64.8°S, 63.5°W DECEMBER 1955

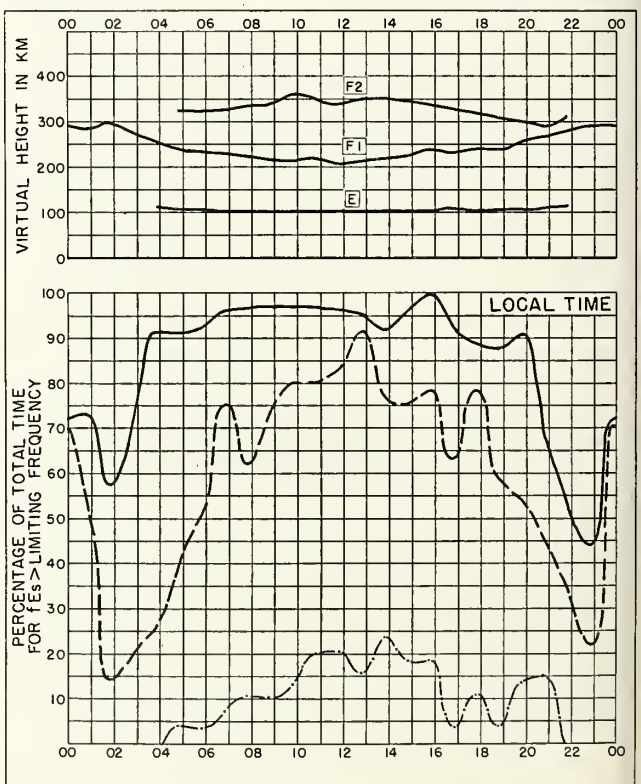

Fig. 76. PORT LOCKROY DECEMBER 1955

NBS 490

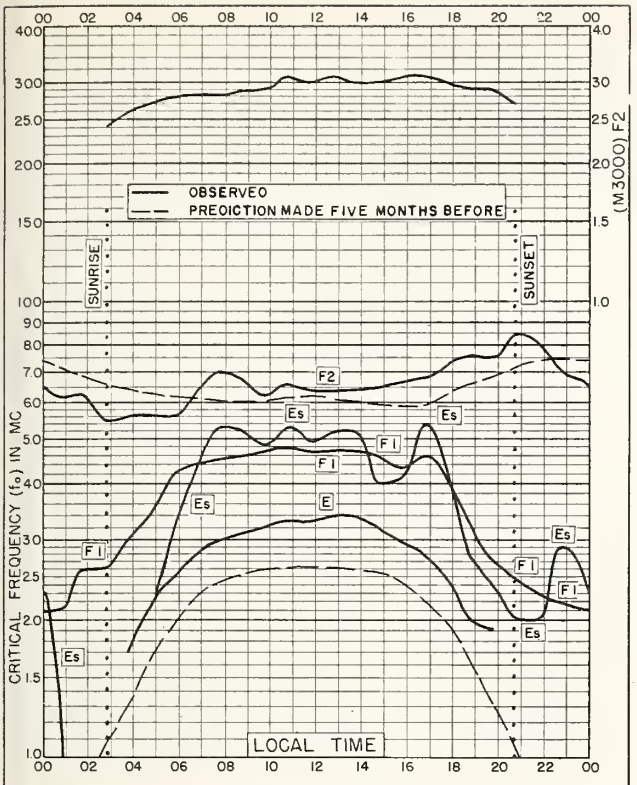

Fig. 77. PORT LOCKROY
64.8°S, 63.5°W NOVEMBER 1955

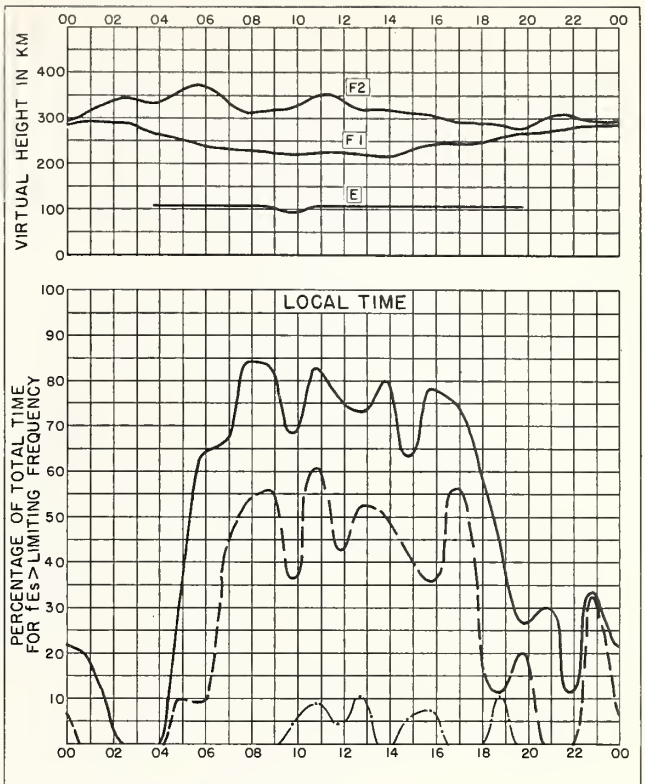

Fig. 78. PORT LOCKROY NOVEMBER 1955

NBS 490

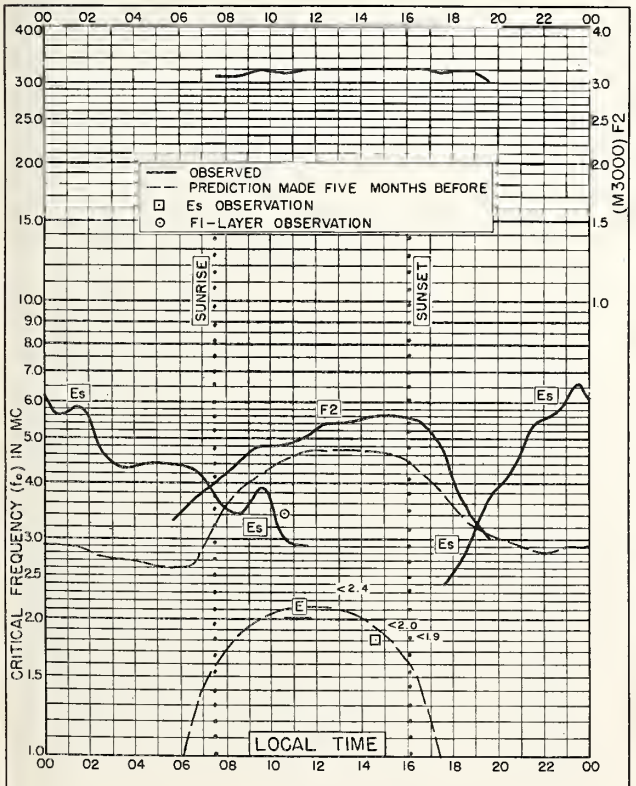

Fig. 79. POINT BARROW, ALASKA
71.3°N, 156.8° W OCTOBER 1955

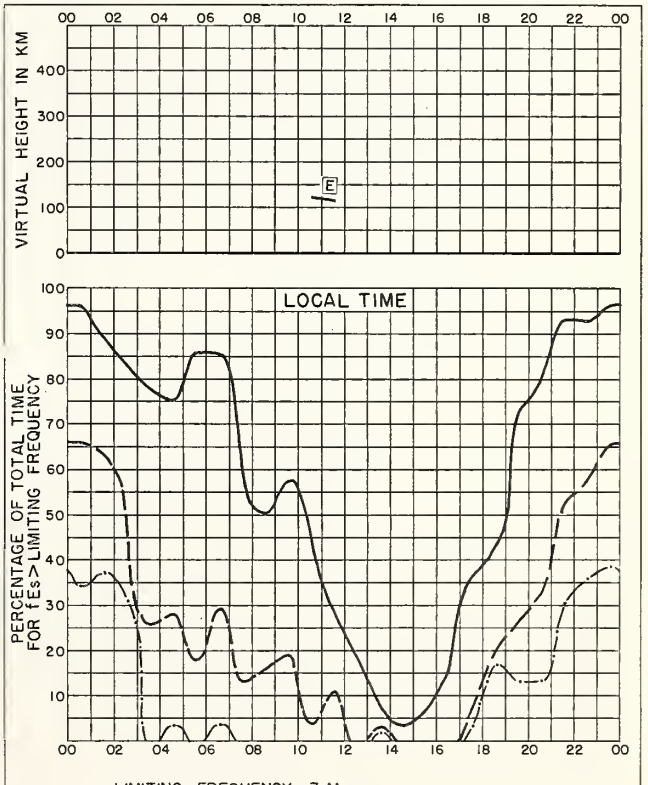

Fig. 80. POINT BARROW, ALASKA OCTOBER 1955

NBS 490

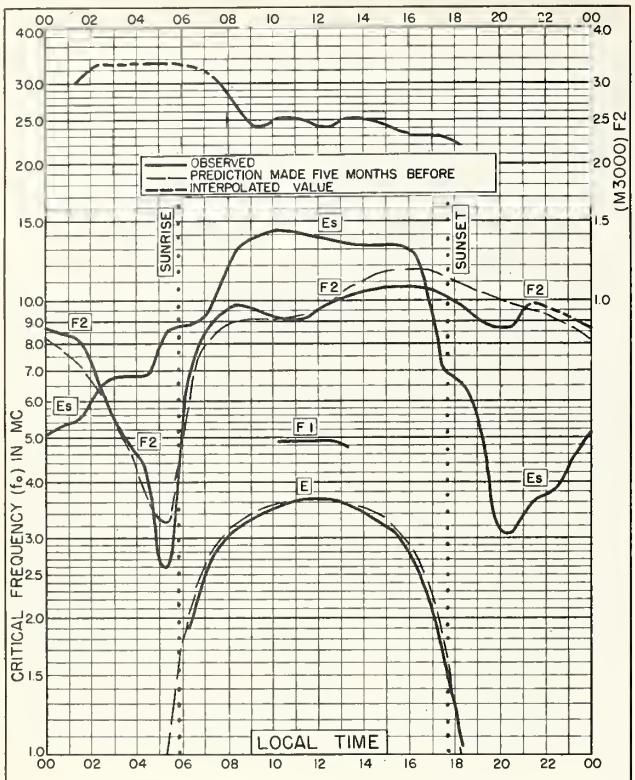

Fig. 81. IBADAN, NIGERIA
7.4°N, 4.0°E OCTOBER 1955

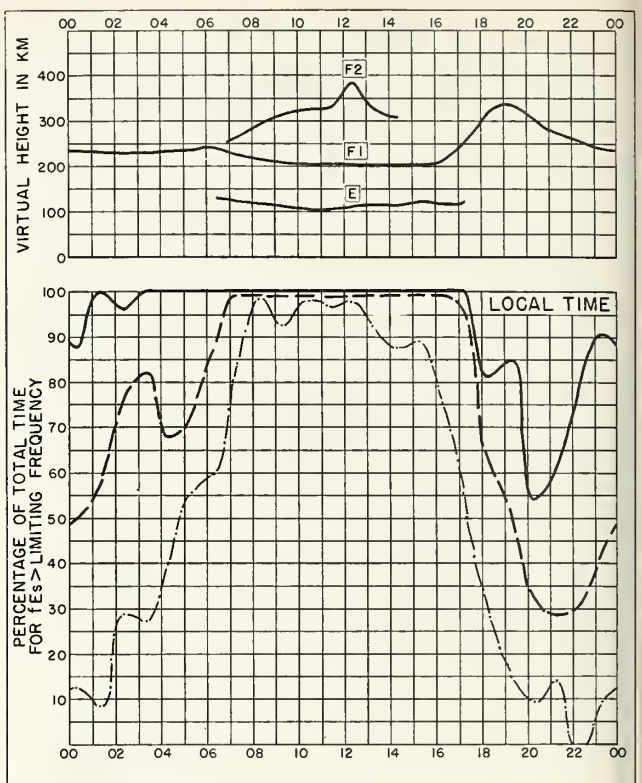

Fig. 82. IBADAN, NIGERIA OCTOBER 1955

NBS 490

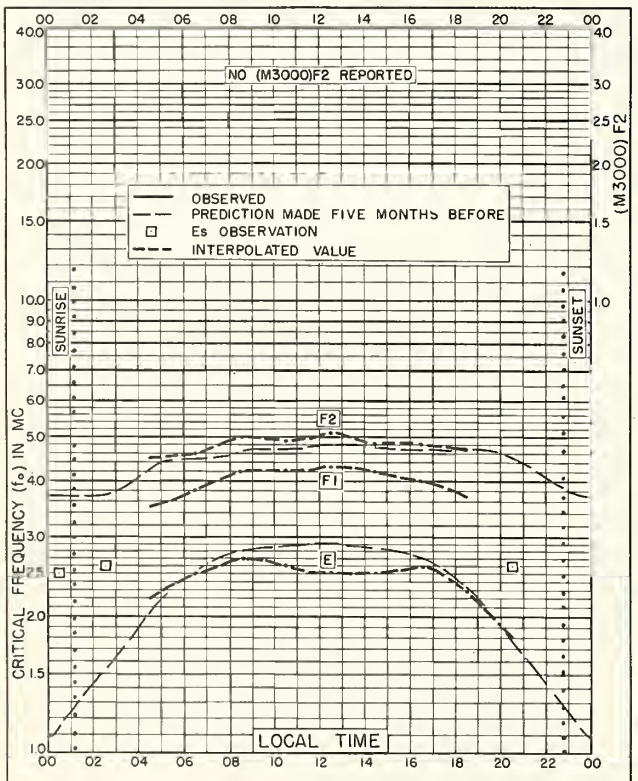

Fig. 83. LULEA, SWEDEN
65.6°N, 22.1°E JUNE 1955

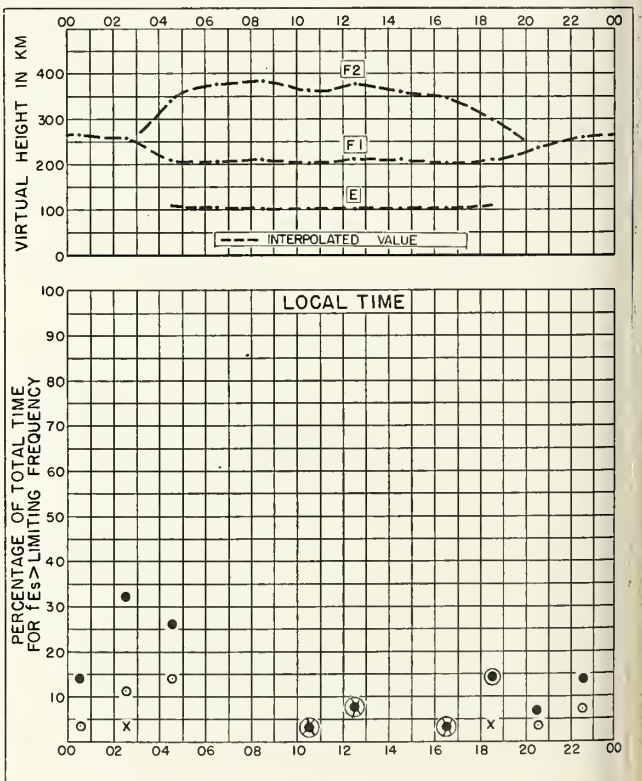

Fig. 84. LULEA, SWEDEN JUNE 1955

NBS 490

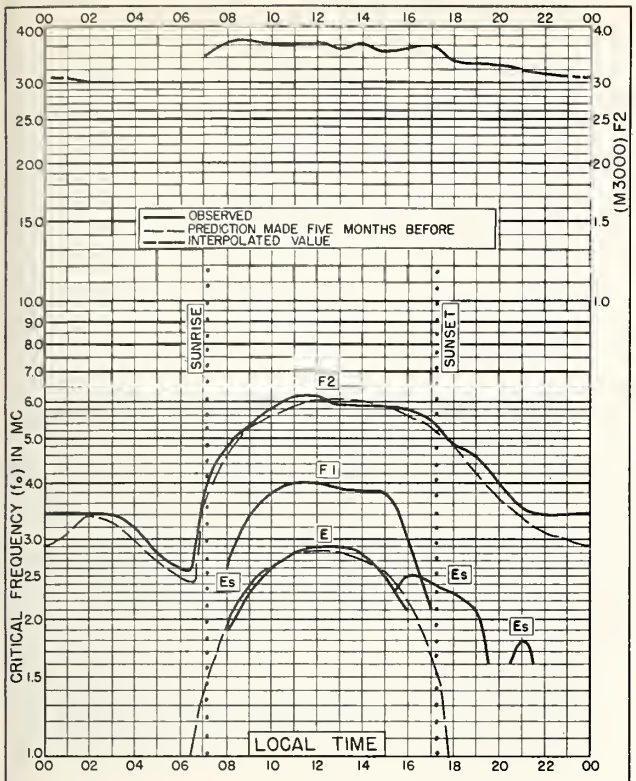

Fig. 85. POITIERS, FRANCE
46.6°N, 0.3°E FEBRUARY 1955

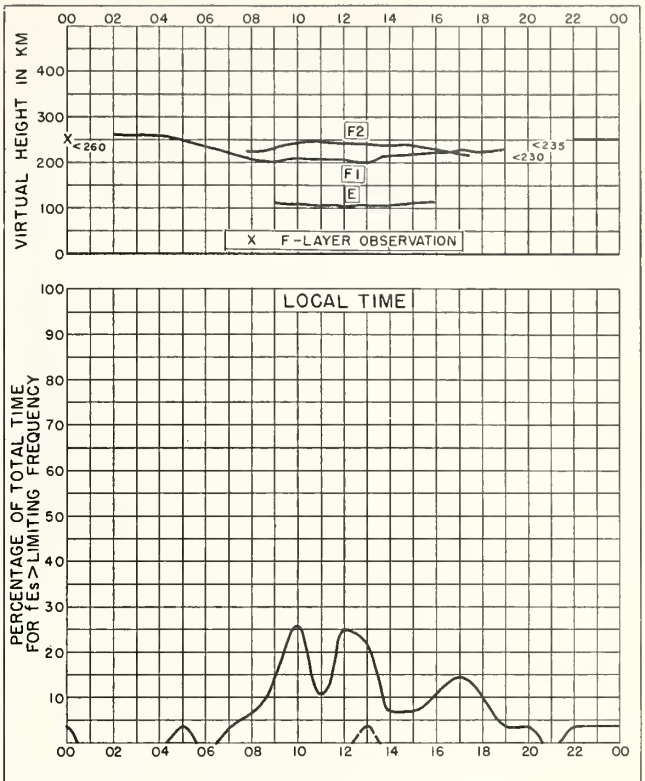

Fig. 86. POITIERS, FRANCE FEBRUARY 1955

NBS 490

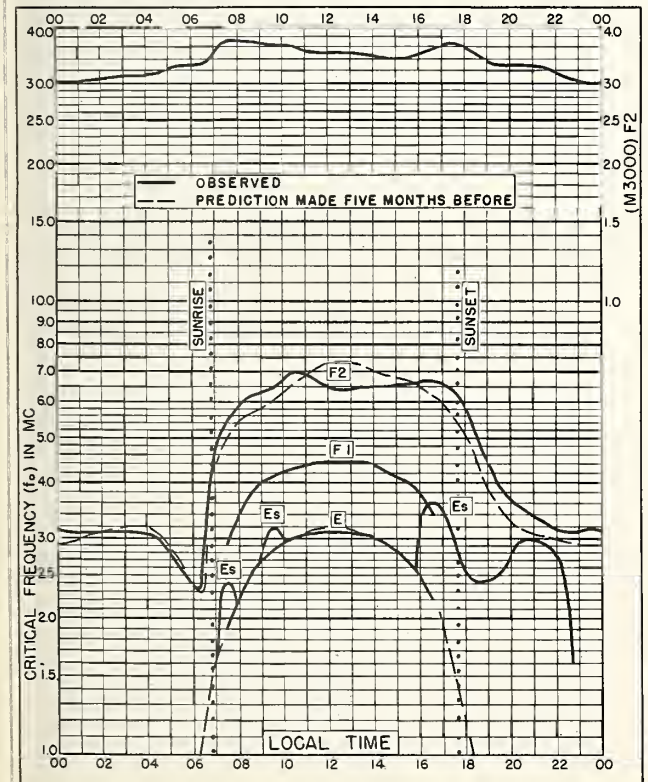

Fig. 87. CASABLANCA, MOROCCO
33.6°N, 7.6°W FEBRUARY 1955

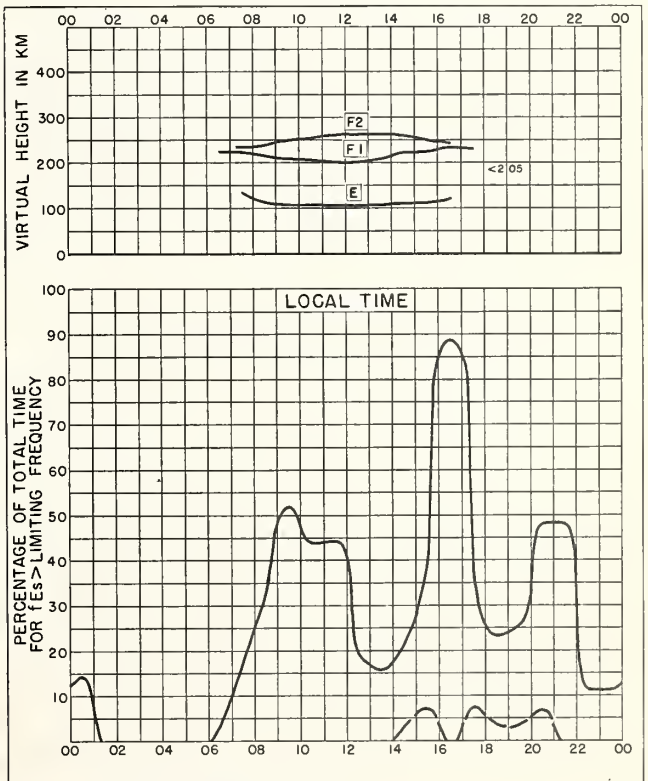

Fig. 88. CASABLANCA, MOROCCO FEBRUARY 1955

NBS 490

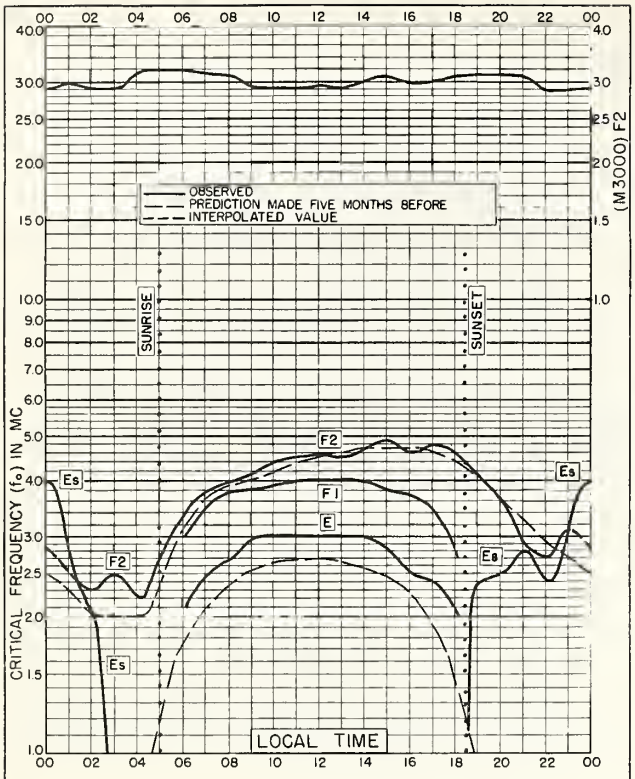

Fig. 89. MACQUARIE I.
54.5°S, 159.0°E OCTOBER 1954

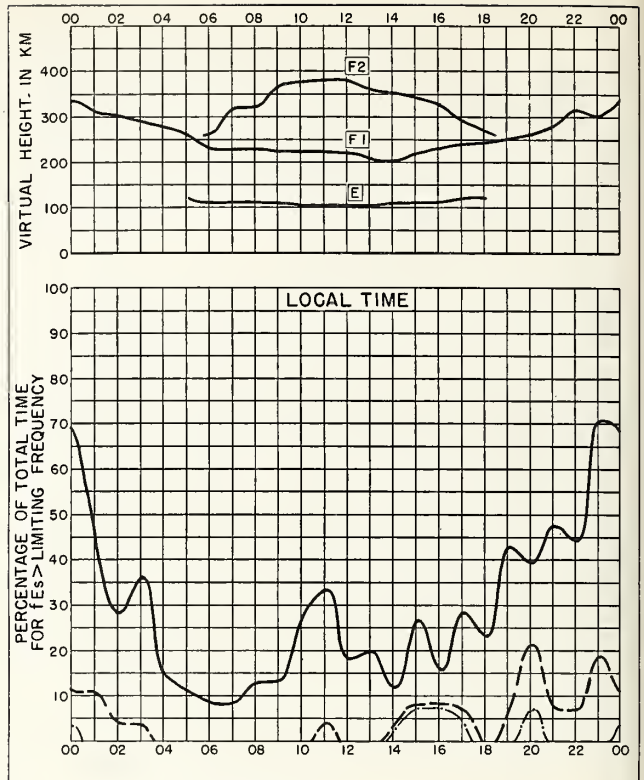

Fig. 90. MACQUARIE I. OCTOBER 1954

NBS 490

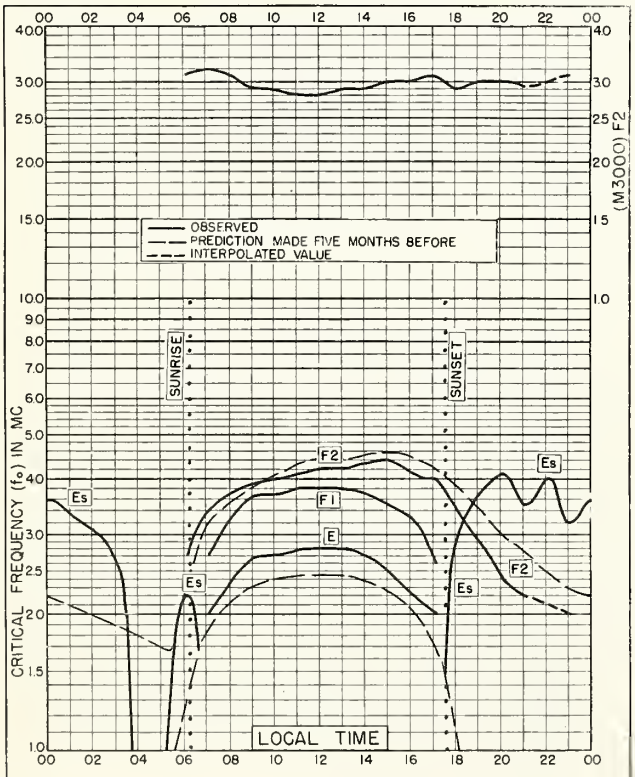

Fig. 91. MACQUARIE I.
54.5°S, 159.0°E SEPTEMBER 1954

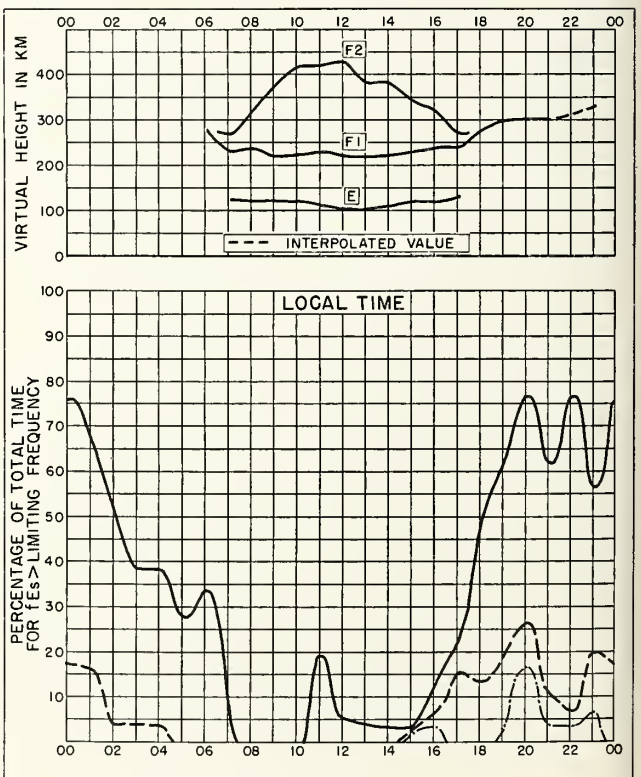

Fig. 92. MACQUARIE I. SEPTEMBER 1954

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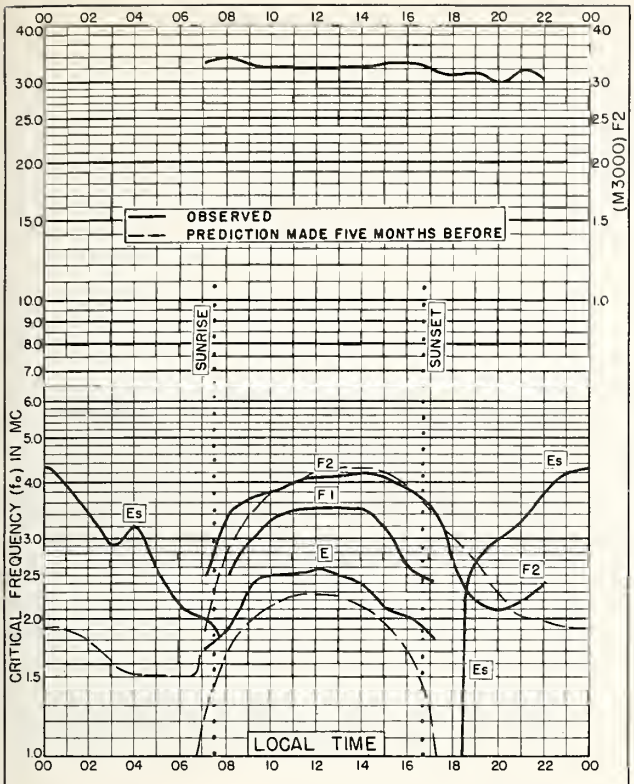

Fig. 93. MACQUARIE I.
54.5°S, 159.0°E AUGUST 1954

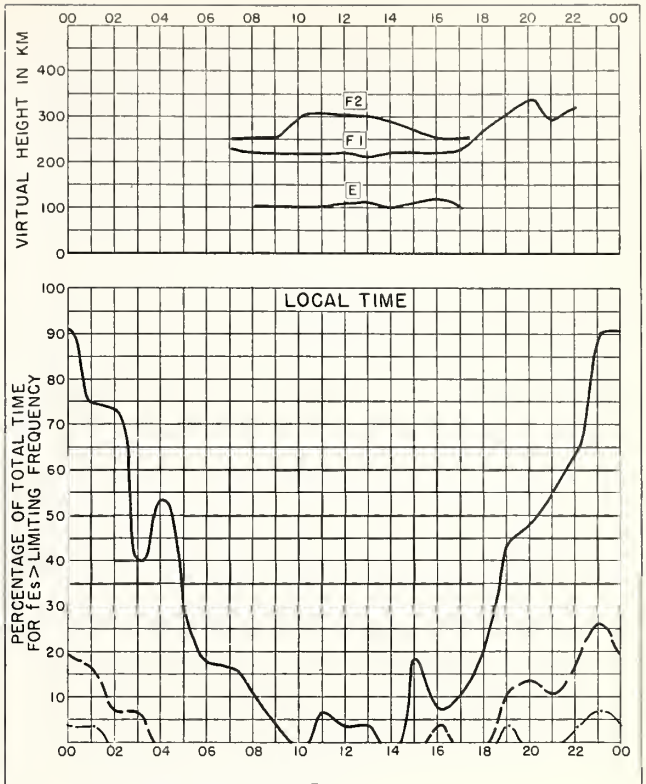

Fig. 94. MACQUARIE I. AUGUST 1954

NBS 490

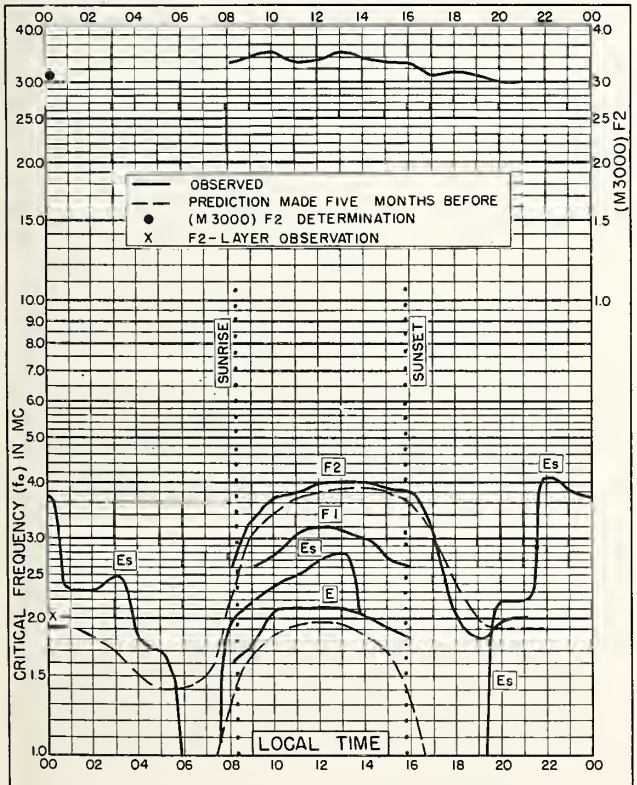

Fig. 95. MACQUARIE I.
54.5°S, 159.0°E JULY 1954

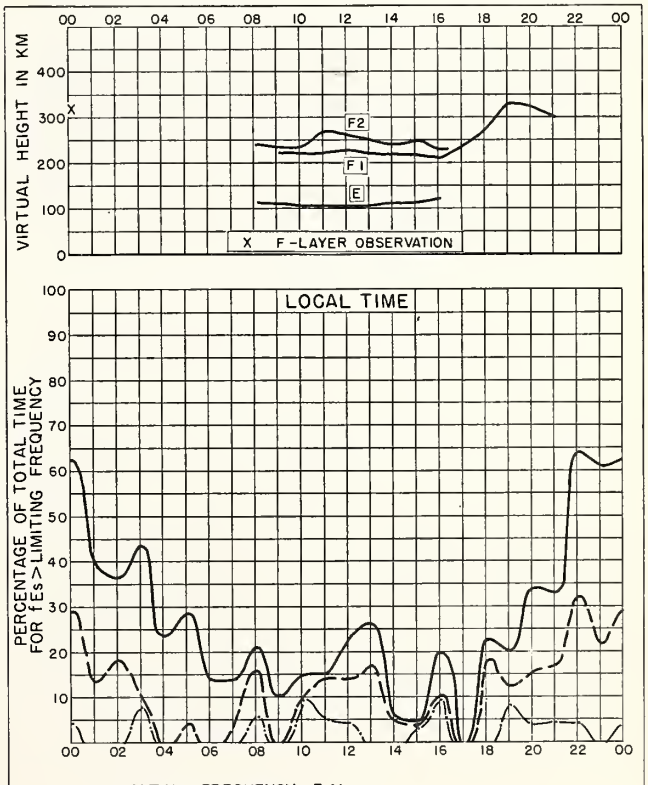

Fig. 96. MACQUARIE I. JULY 1954

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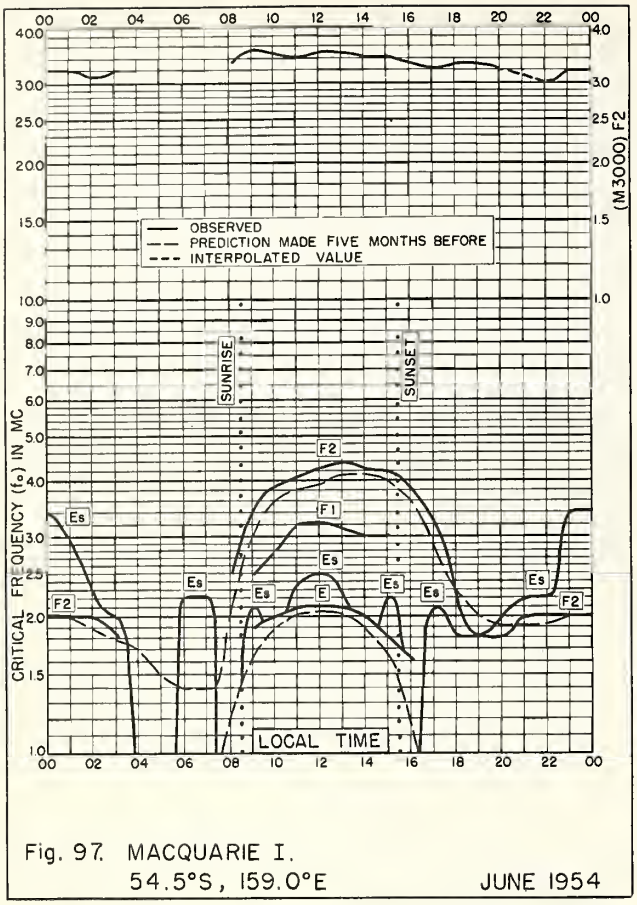

Fig. 97. MACQUARIE I.
54.5°S, 159.0°E JUNE 1954

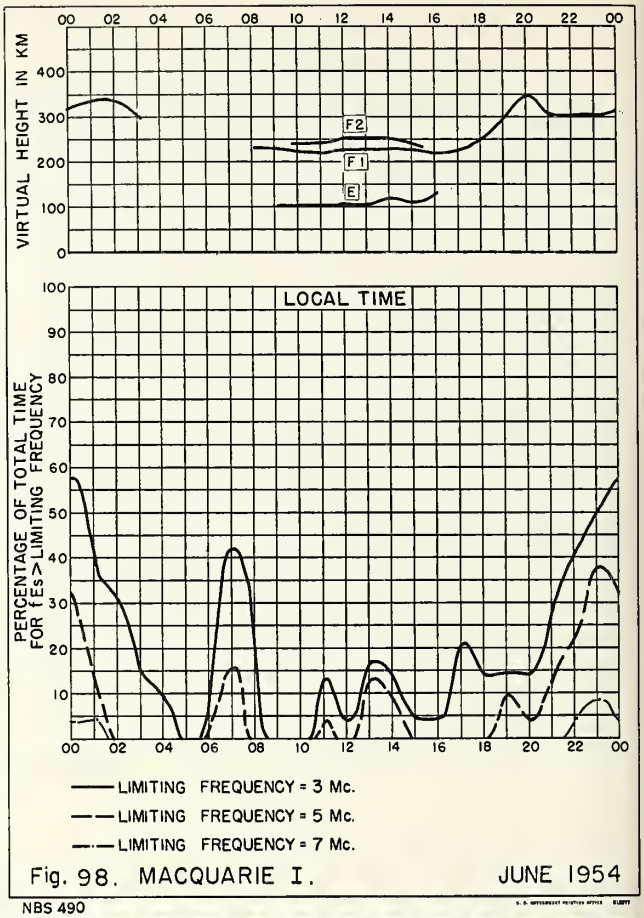

Fig. 98. MACQUARIE I. JUNE 1954

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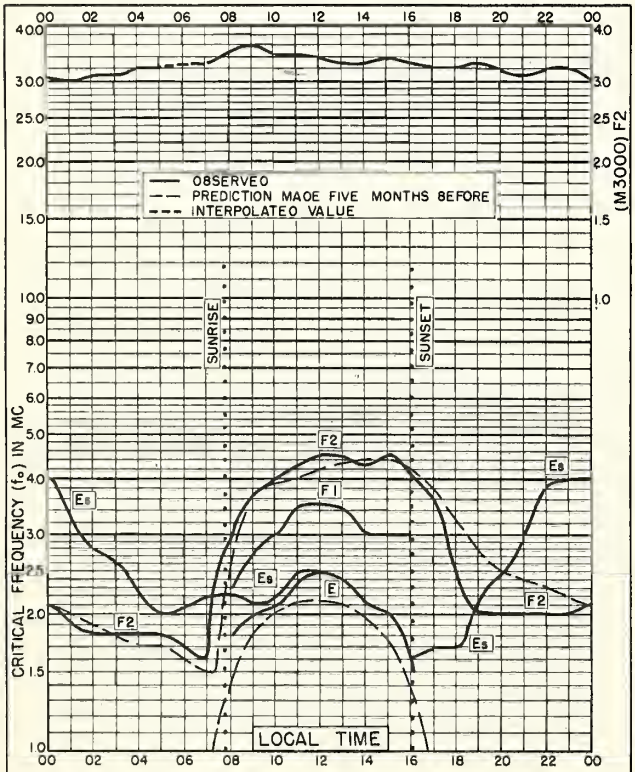

Fig. 99. MACQUARIE I.
54.5°S, 159.0°E MAY 1954

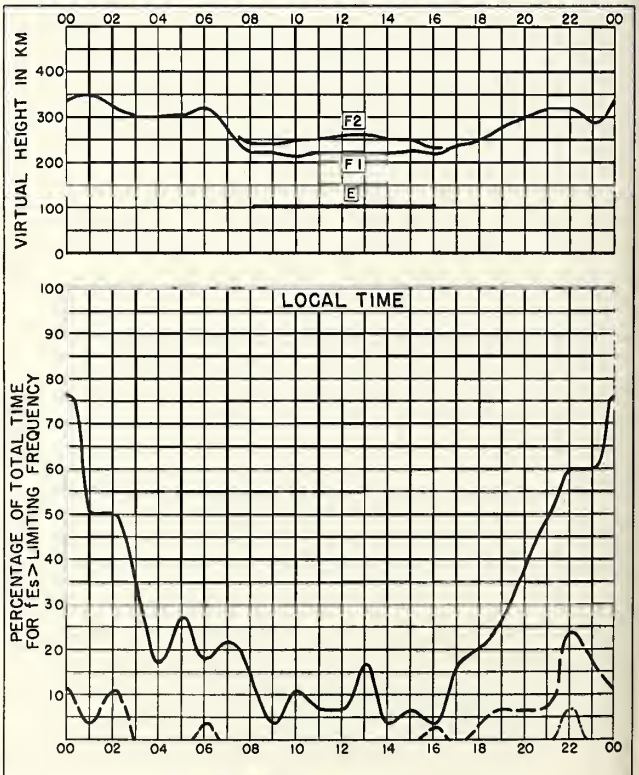

Fig. 100. MACQUARIE I. MAY 1954

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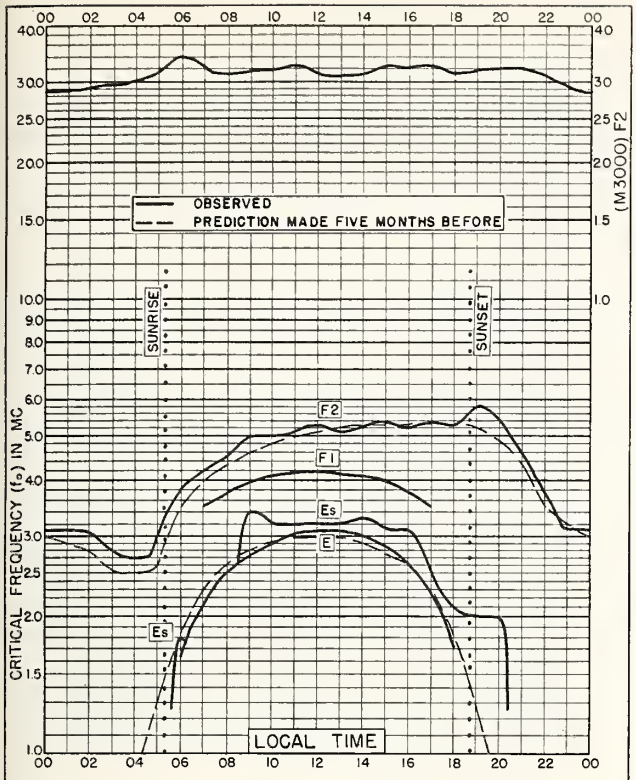

Fig.101. FRIBOURG, GERMANY
48.1°N, 7.8°E APRIL 1954

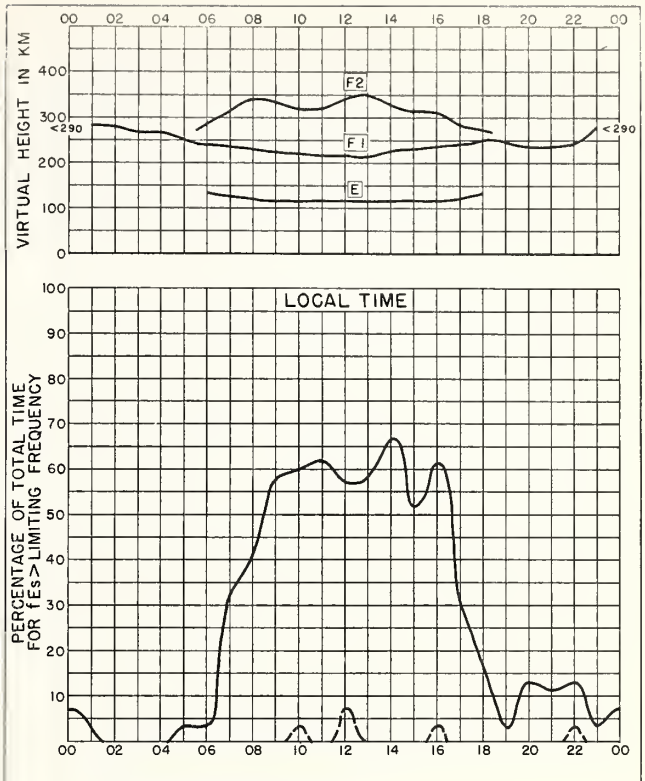

Fig. 102. FRIBOURG, GERMANY APRIL 1954

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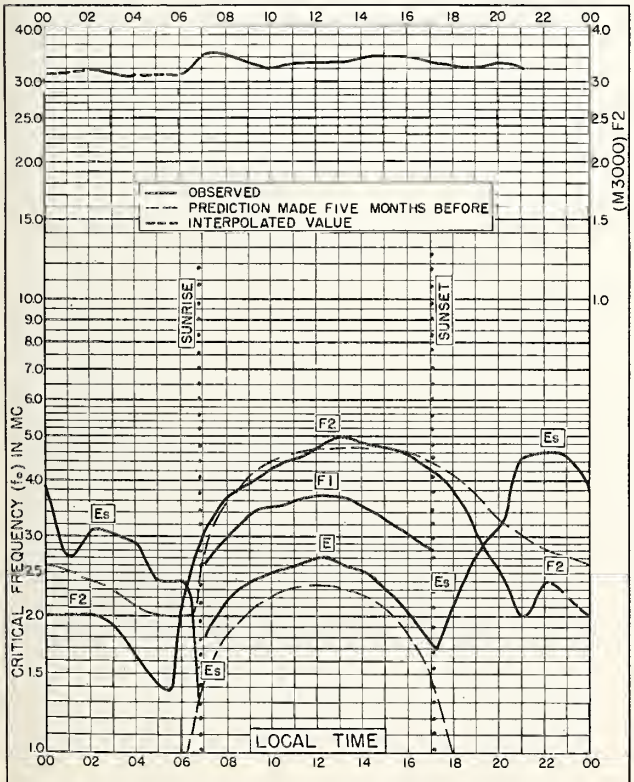

Fig. 103. MACQUARIE I.
54.5°S, 159.0°E APRIL 1954

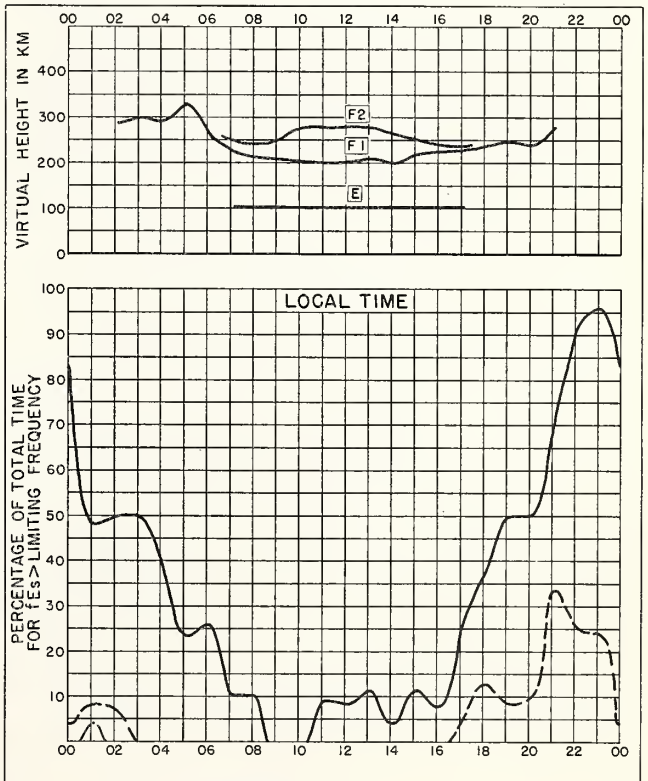

Fig. 104. MACQUARIE I. APRIL 1954

NBS 490

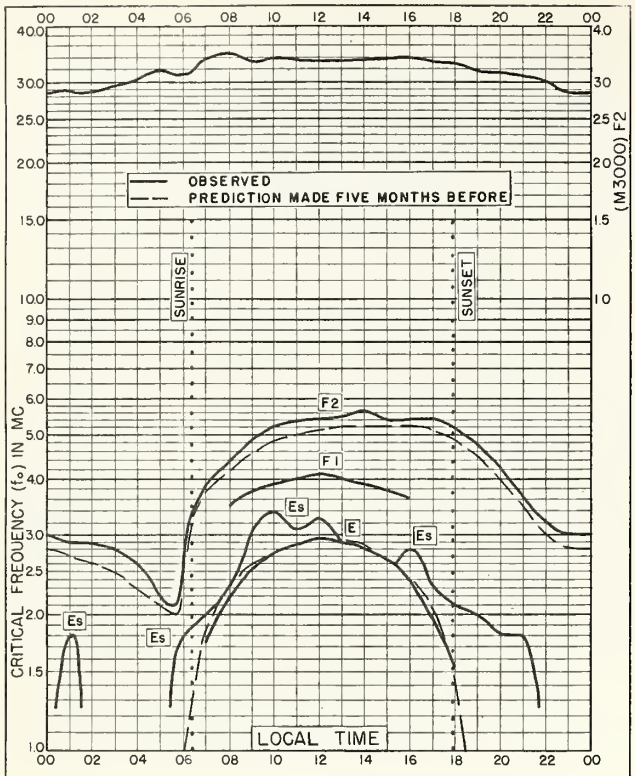

Fig. 105. FRIBOURG, GERMANY
48.1°N, 7.8°E MARCH 1954

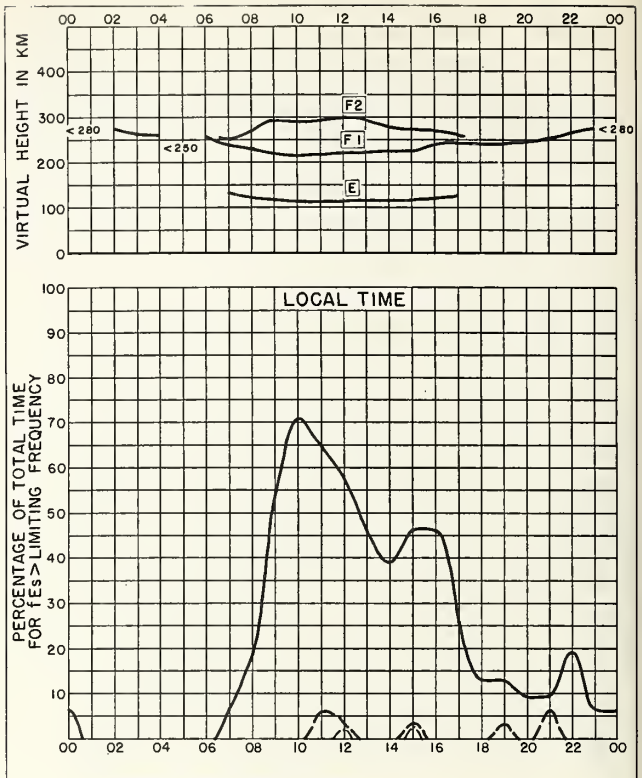

Fig. 106. FRIBOURG, GERMANY MARCH 1954

NBS 490

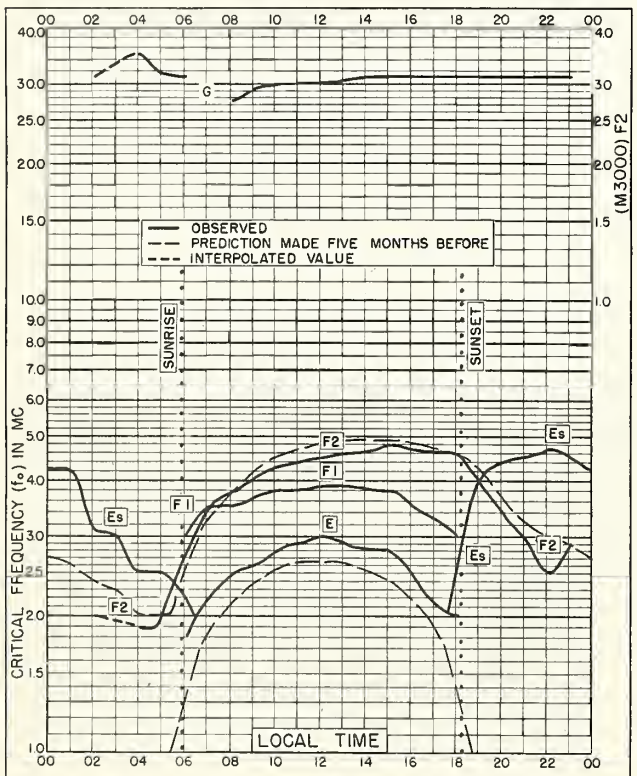

Fig. 107. MACQUARIE I.
54.5°S, 159.0°E MARCH 1954

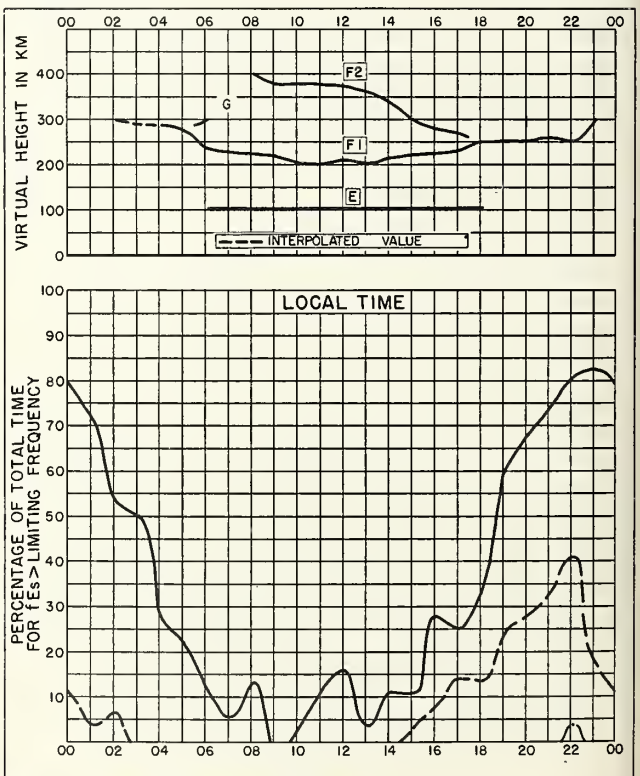

Fig. 108. MACQUARIE I. MARCH 1954

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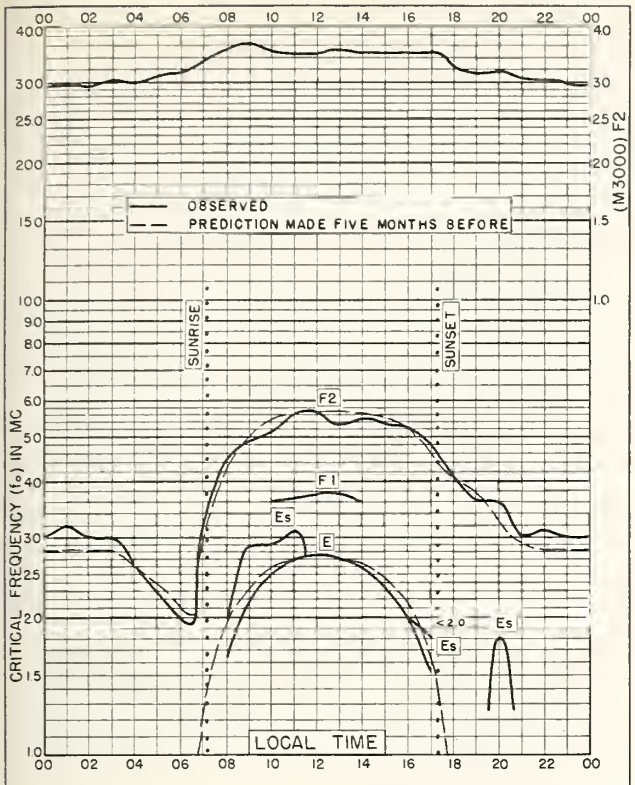

Fig. 109. FRIBOURG, GERMANY
48.1°N, 7.8°E FEBRUARY 1954

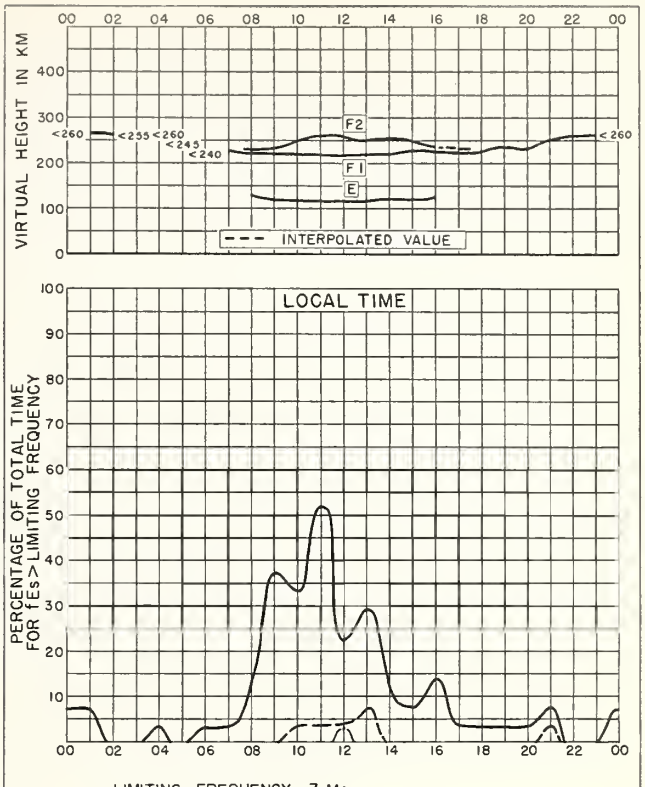

Fig. 110. FRIBOURG, GERMANY FEBRUARY 1954

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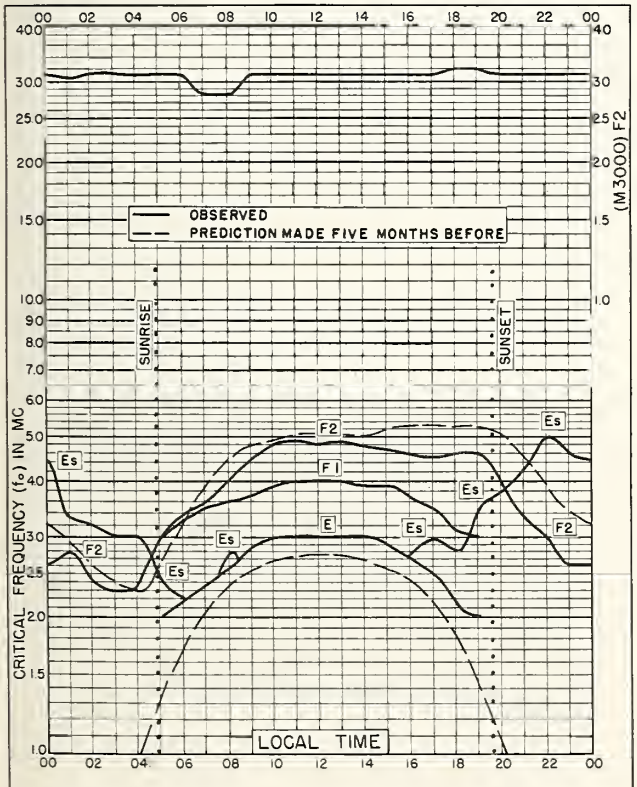

Fig. 111. MACQUARIE I.
54.5°S, 159.0°E FEBRUARY 1954

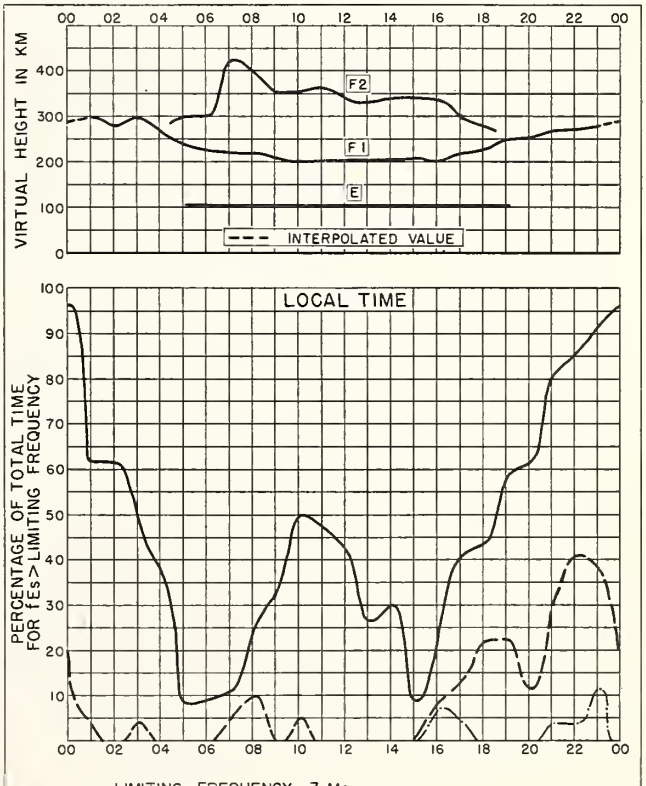

Fig. 112. MACQUARIE I. FEBRUARY 1954

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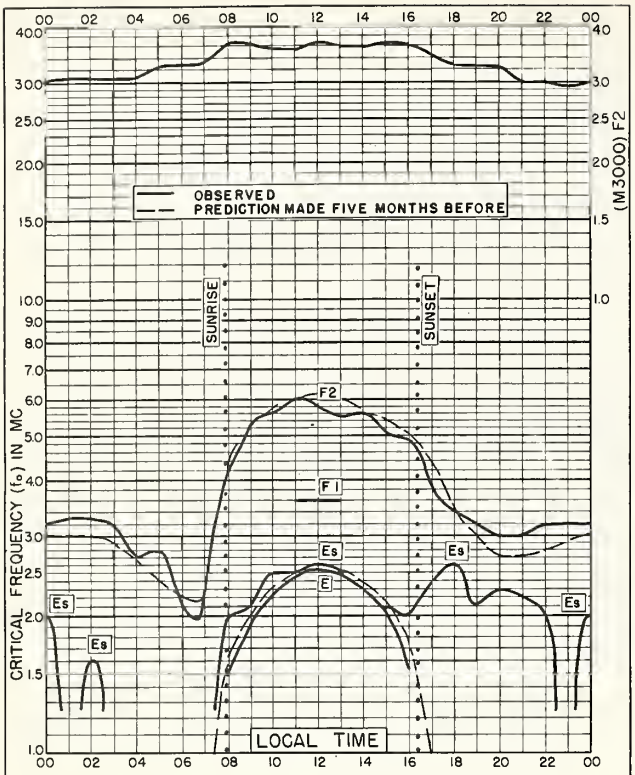

Fig. 113. FRIBOURG, GERMANY
48.1°N, 7.8°E JANUARY 1954

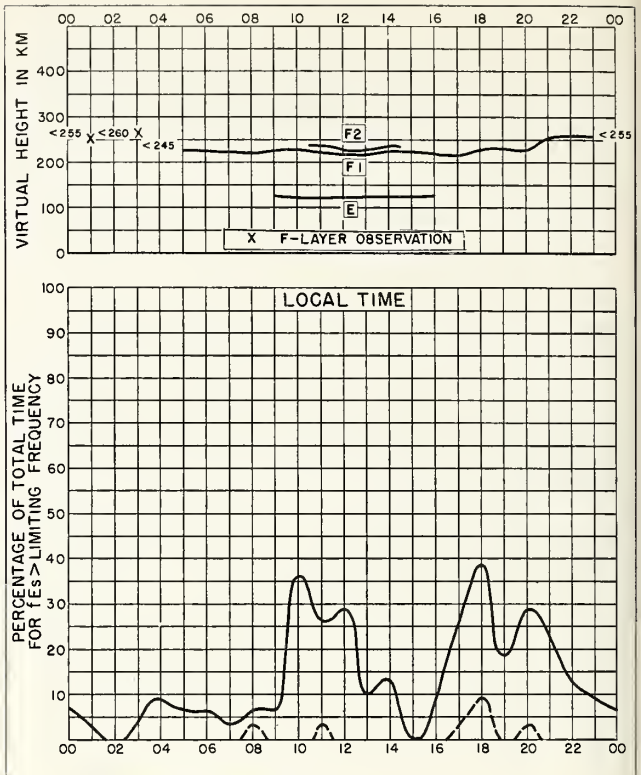

Fig. 114. FRIBOURG, GERMANY JANUARY 1954

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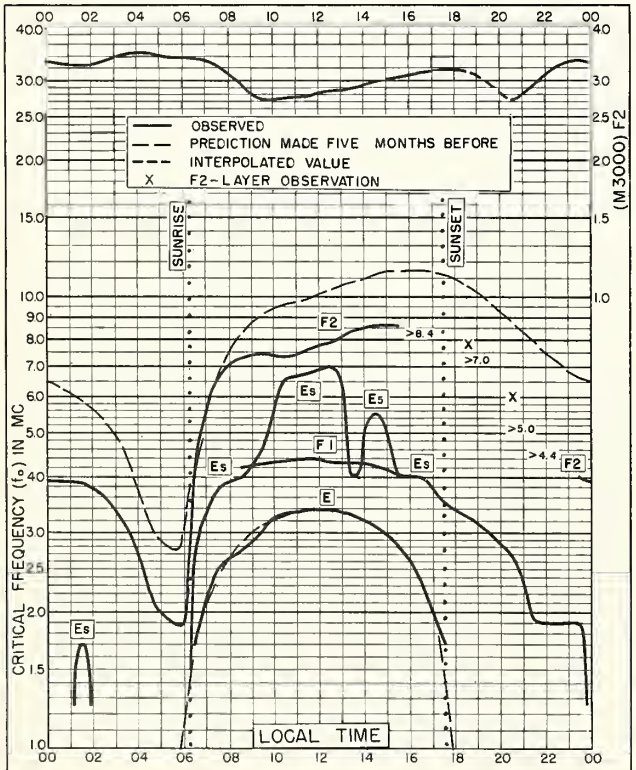

Fig. 115. DJIBOUTI, FRENCH SOMALILAND
11.5°N, 43.1°E DECEMBER 1953

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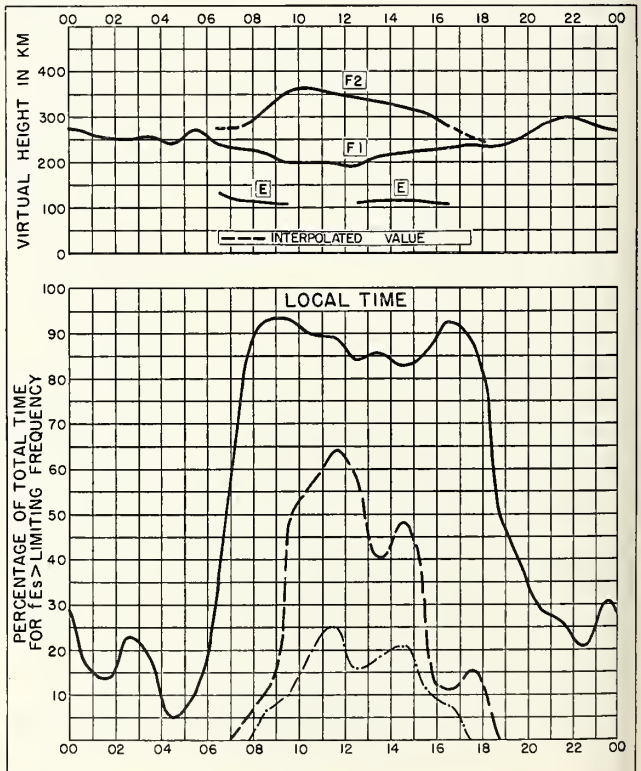

Fig. 116. DJIBOUTI, FRENCH SOMALILAND DECEMBER 1953

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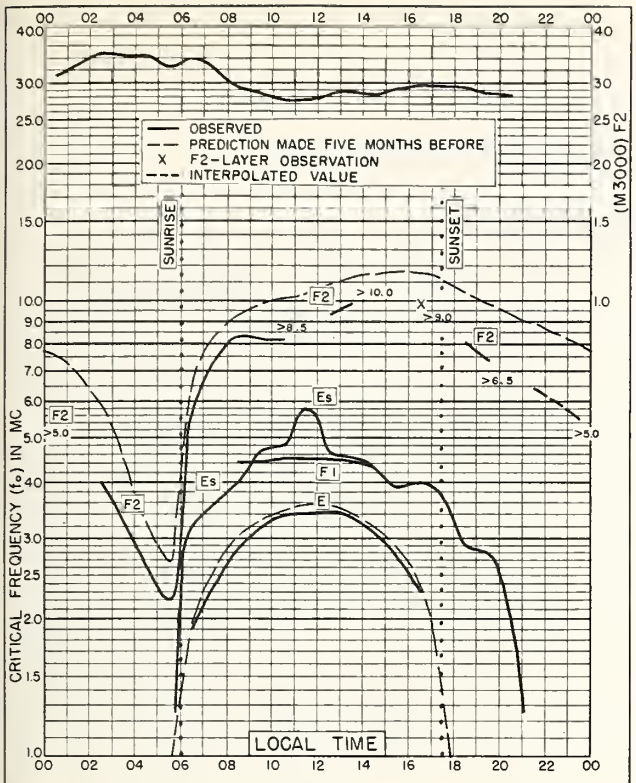
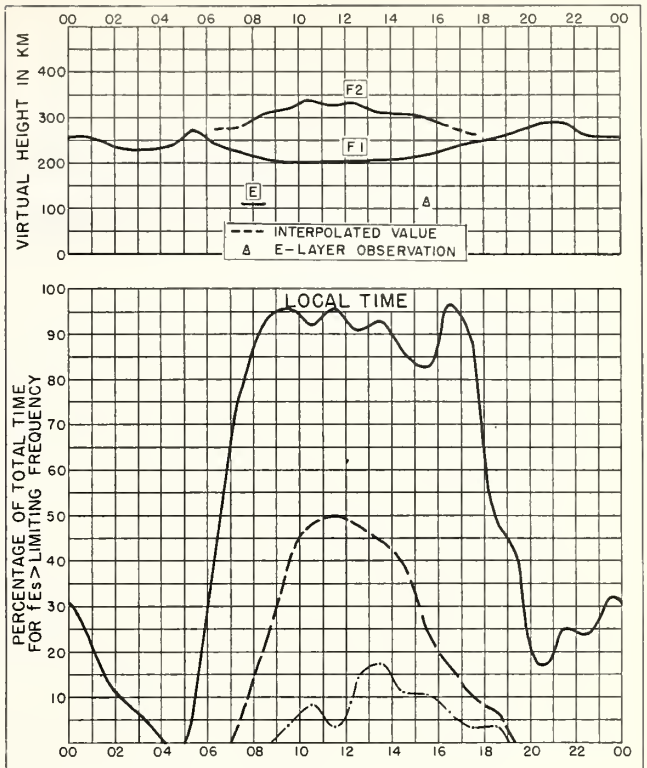


Fig. 117. DJIBOUTI, FRENCH SOMALILAND
11.5°N, 43.1°E NOVEMBER 1953



NOVEMBER 1953

Fig. 118. DJIBOUTI, FRENCH SOMALILAND

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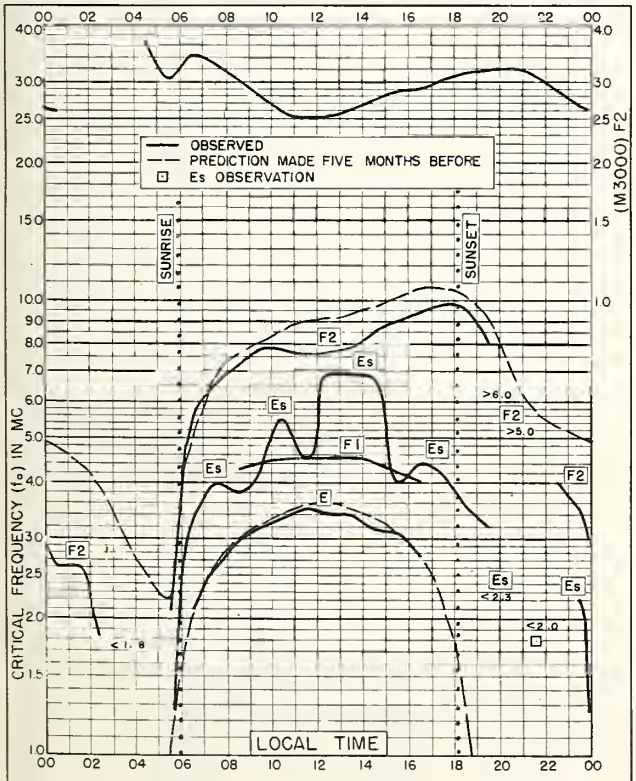
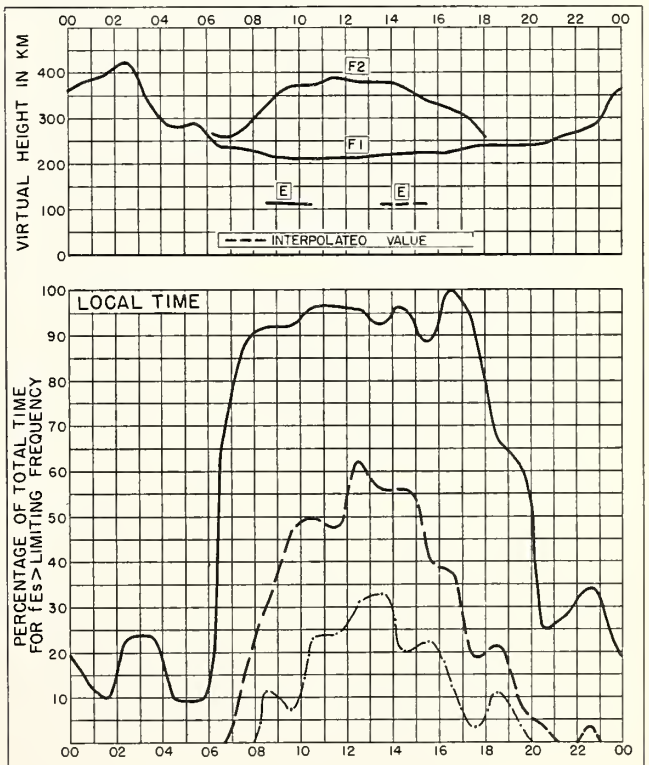


Fig. 119. DJIBOUTI, FRENCH SOMALILAND
11.5°N, 43.1°E AUGUST 1953



AUGUST 1953

Fig. 120. DJIBOUTI, FRENCH SOMALILAND

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Index (CRPL-F144 (Part A), concluded)

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