

CRPL-F 220 PART A

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PART A  
IONOSPHERIC DATA

ISSUED  
DECEMBER 1962

SEE PAGE 55 FOR INDEX OF OBSERVED  
IONOSPHERIC DATA BEGINNING JANUARY 1957

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



## IONOSPHERIC DATA

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## IONOSPHERIC DATA

The CRPL-F series bulletins are issued as part of the responsibility of the Central Radio Propagation Laboratory for the exchange and dissemination of ionospheric and related geophysical data. While originally a by-product of the collection of data by the CRPL for use in radio propagation studies, the CRPL-F series bulletins, Part A, "Ionospheric Data," and Part B, "Solar-Geophysical Data," have provided useful service by collecting and making available a wide variety of data in convenient form for use in research, not only on radio propagation and the ionosphere, but also on a wide variety of geophysical problems. Beginning with CRPL-F211, Part A, "Ionospheric Data," a number of changes have been made in the tables of ionospheric data which, by providing more information, should increase their usefulness.

The current form of the tables of ionospheric data provides the monthly medians and, in addition, the number of values entering into median determination (count) for all ionospheric characteristics listed. Also, the upper and lower quartile values, indicated by UQ and LQ in the tables, are listed for foF2, h'F2, h'F, and M(3000)F2. Quartile values are not listed for the other characteristics because of space limitations. The tables are prepared by IBM machine methods, which, by improving the speed and efficiency of preparation, permit earlier publication of the data.

Graphs of critical frequencies and M(3000)F2 will continue to appear. Graphs of percentage of time of occurrence for fEs and virtual heights of the regular ionospheric layers are no longer included. This change was necessary to provide space for the enlarged tables. Data on percentage of time of occurrence of fEs above 3, 5, and 7 Mc are still available from the CRPL and the IGY World Data Center A for Airglow and Ionosphere.

For many years, the tables of ionospheric data appearing in the F series, Part A, listed values of medians recomputed at CRPL. While this practice enforced a certain uniformity, it was subject to some valid criticism for tampering with original data. The tables and graphs now show the ionospheric data just as they are provided by the originating laboratory. Responsibility for the accuracy and reliability of the data now rests entirely with the originator.

Gaps in the tables when data normally might be expected indicate the data were not provided by the originator. Following the recommendation of the World-Wide Soundings Committee, only values of median foEs are listed. In the few cases where fEs is still reported instead of foEs, the data will not be printed. Data will appear in the F series, Part A, only when the complete daily-hourly tabulations have been received by the CRPL or the IGY World Data Center A for Airglow and Ionosphere.

Information on symbols, terminology, and conventions may be found in the "URSI Handbook of Ionogram Interpretation and Reduction, of the World-Wide Soundings Committee," edited by W. R. Piggott and K. Rawer (Elsevier, 1961), which supersedes previous documents. A list of symbols is available from CRPL on request.

The following table contains the latest available information on smoothed observed Zurich sunspot numbers, beginning with the minimum of April 1954. Final numbers are listed through June 1961, the succeeding values being based on provisional data.

Smoothed Observed Zurich Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	185	184	182	181	180
1959	179	177	174	169	165	161	156	151	146	141	137	132
1960	129	125	122	120	117	114	109	102	98	93	88	84
1961	80	75	69	64	60	56	53	52	52	51	50	48
1962	44	41	39	38	38							

Units of Ionospheric Data Tables

foF2, foEs - - - Tenths of a megacycle  
 foF1, FoE - - - Hundredths of a megacycle  
 h'F2, h'F, h'E - Kilometers  
 (M3000)F2 - - - Hundredths

NOTE: Occasionally, when the median falls between two of the observed values, the median is carried an extra decimal place beyond these units. Those cases are easily identifiable by the extra digit appearing to the right of the number, in a column usually left blank.

MED - Median  
 CNT - Count  
 UQ - Upper Quartile  
 LQ - Lower Quartile

## WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 100 and figures 1 to 100 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:

Meteorological Service, Province of Macau, Asia:  
Macau

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

University of Graz:  
Graz, Austria

Defence Research Board, Canada:  
St. John's, Newfoundland

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

Heinrich Hertz Institute, German Academy of Sciences, Berlin:  
Juliusruh/Rugen, Germany

Icelandic Post and Telegraph Administration:  
Reykjavik, Iceland

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

Christchurch Geophysical Observatory, New Zealand Department of  
Scientific and Industrial Research:  
Cape Hallett (Adare), Antarctica  
Scott Base, Antarctica

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

Post, Telephone and Telegraph Administration, Berne, Switzerland:  
Sottens, Switzerland

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

National Bureau of Standards (Central Radio Propagation Laboratory):  
Fairbanks (College), Alaska (Geophysical Institute of the  
University of Alaska)  
Maui, Hawaii  
Washington, D. C.



TABLES OF IONOSPHERIC DATA

March 1962 - January 1959

TABLE 1  
1200-00H, 1500-00H, 198-7N, 77-1W

HOUR	WASHINGTON, D.C.																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
f <sub>o</sub> F <sub>2</sub>	MED	305	315	315	32	33	315	27	405	575	605	685	70	735	745	73	755	72	66	59	505	43	35	335	315
	CNT	28	28	26	26	27	26	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
	U	26	25	26	26	27	26	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	LO	24	23	23	23	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
h'F <sub>2</sub>	MED								430	235	250	260	265	67	665	250	245	240	245	240	240	240	240	240	240
	CNT								42	31	20	25	25	27	26	24	24	24	24	24	24	24	24	24	24
	U								230	240	260	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	LO								215	230	250	250	260	260	255	245	240	240	240	240	240	240	240	240	240
h'F <sub>1</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
h'F <sub>o</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
M3000F <sub>2</sub>	MED	305	306	311	310	315	320	330	360	375	400	335	330	330	330	330	340	335	340	335	340	350	310	305	300
	CNT																								
	U																								
	LO																								
f <sub>o</sub> F <sub>1</sub>	MED																								
	CNT																								
	U																								
	LO																								
f <sub>o</sub> E	MED																								
	CNT																								
	U																								
	LO																								
h'E	MED																								
	CNT																								
	U																								
	LO																								
f <sub>o</sub> E <sub>s</sub>	MED																								
	CNT																								
	U																								
	LO																								

SWEEP 14.0 MC TO 25.0 MC IN 134.5 SECONDS

SWEEP 14.0 MC TO 25.0 MC IN 134.5 SECONDS

TABLE 2  
1200-00H, 1500-00H, 198-7N, 77-1W

HOUR	WASHINGTON, D.C.																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
f <sub>o</sub> F <sub>2</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
h'F <sub>2</sub>	MED																								
	CNT																								
	U																								
	LO																								
h'F <sub>1</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
h'F <sub>o</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
M3000F <sub>2</sub>	MED	305	306	311	310	315	320	330	360	375	400	335	330	330	330	340	335	340	335	340	350	310	305	300	
	CNT																								
	U																								
	LO																								
f <sub>o</sub> F <sub>1</sub>	MED																								
	CNT																								
	U																								
	LO																								
f <sub>o</sub> E	MED																								
	CNT																								
	U																								
	LO																								
h'E	MED																								
	CNT																								
	U																								
	LO																								
f <sub>o</sub> E <sub>s</sub>	MED																								
	CNT																								
	U																								
	LO																								

SWEEP 14.0 MC TO 25.0 MC IN 134.5 SECONDS

TABLE 3  
1200-00H, 1500-00H, 198-7N, 77-1W

HOUR	WASHINGTON, D.C.																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
f <sub>o</sub> F <sub>2</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
h'F <sub>2</sub>	MED																								
	CNT																								
	U																								
	LO																								
h'F <sub>1</sub>	MED	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
	CNT																								
	U																								
	LO																								
h'F <sub>o</sub>	MED	270	270	270</																					

TABLE 5  
135-35-145-0E1

CANBERRA, AUSTRALIA

TIME 150-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16F2	MED	52	48	42	38	34	33	45	50	58	57	58	60	64	62	63	62	65	67	68	68	61	56	54	51
	CNT	23	22	26	20	25	23	23	19	17	12	16	18	17	20	21	24	23	28	27	29	29	28	26	26
	U																								
16F2	MED																								
	CNT																								
	U																								
16F	MED																								
	CNT																								
	U																								
M13000IF2	MED	300	315	315	305	310	335	340	335	340	300	310	305	300	295	300	310	310	325	320	305	300	290	290	
	CNT	10	8	13	12	16	17	22	19	16	12	7	11	13	11	17	20	20	22	25	23	11	9	14	11
	U																								
16F1	MED																								
	CNT																								
	U																								
16E	MED																								
	CNT																								
	U																								
16E	MED																								
	CNT																								
	U																								

TABLE 6  
135-35-145-0E1

CANBERRA, AUSTRALIA

TIME 150-0E

SWEEP 1.0 MC TO 25.0 MC IN 10 SECONDS.

FT\* MONMOUTH NEW JERSEY

TIME 75-0W

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED	245	25	30	32	335	315	285	35	61	665	345	755	76	705	66	66	555	46	35	29	26	23	23
	CNT	24	25	23	25	26	22	24	25	28	27	28	48	30	30	30	31	30	28	45	29	30	49	26
	U	26	30	33	36	36	33	31	38	57	66	71	80	80	81	75	72	68	60	48	40	32	27	24
	U	20	22	26	28	30	30	23	23	23	28	62	68	70	65	64	65	48	38	34	60	23	22	20
16F2	MED																							
	CNT																							
	U																							
16F	MED																							
	CNT																							
	U																							
M13000IF2	MED	300	300	310	310	325	330	330	330	360	350	3475	340	340	345	348	3425	335	325	330	3225	310	300	295
	CNT	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	U	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
16F1	MED																							
	CNT																							
	U																							
16E	MED																							
	CNT																							
	U																							

TABLE 7  
135-35-145-0E1

CANBERRA, AUSTRALIA

TIME 150-0E

SWEEP 1.0 MC TO 25.0 MC IN 13.5 SECONDS.

FT\* MONMOUTH NEW JERSEY

TIME 75-0W

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED	245	25	30	32	335	315	285	35	61	665	345	755	76	705	66	66	555	46	35	29	26	23	23
	CNT	24	25	23	25	26	22	24	25	28	27	28	48	30	30	30	31	30	28	45	29	30	49	26
	U	26	30	33	36	36	33	31	38	57	66	71	80	80	81	75	72	68	60	48	40	32	27	24
	U	20	22	26	28	30	30	23	23	23	28	62	68	70	65	64	65	48	38	34	60	23	22	20
16F2	MED																							
	CNT																							
	U																							
16F	MED																							
	CNT																							
	U																							
M13000IF2	MED	300	300	310	310	325	330	330	330	360	350	3475	340	340	345	348	3425	335	325	330	3225	310	300	295
	CNT	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	U	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
16F1	MED																							
	CNT																							
	U																							
16E	MED																							
	CNT																							
	U																							

TABLE 5  
127-55-152-NE1

BRISBANE, AUSTRALIA

TIME 150-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED	51	56	50	43	38	40	50	36	59	62	67	70	71	73	76	80	78	70	64	58	77	54	74
	CNT	13	12	17	23	26	30	29	26	25	27	30	29	29	30	30	29	29	29	29	26	27	20	17
	U																							
16F2	MED																							
	CNT																							
	U																							
16F	MED																							
	CNT																							
	U																							
M13000IF2	MED	285	270	245	245	285																		

TABLE 9

MAUI, HAWAII (120-0N, 156-5W)

TIME 150.0H

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	28	28	28	28	25	185	185	39	62	80	94	100	88	90	101	106	90	71	56	365	32	35	355	305
MEQ	26	21	22	23	19	22	24	30	31	31	31	31	31	31	31	31	31	31	31	31	30	28	30	26
CNT	34	34	35	35	31	71	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
UQ	24	24	24	24	20	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
LO	24	24	24	24	20	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
h'F2																								
MEQ																								
CNT																								
UQ																								
LO																								
h'F																								
MEQ																								
CNT																								
UQ																								
LO																								
MIDOOOIF2																								
MEQ																								
CNT																								
UQ																								
LO																								
f6F1																								
MEQ																								
CNT																								
UQ																								
LO																								
f6E																								
MEQ																								
CNT																								
UQ																								
LO																								
h'E																								
MEQ																								
CNT																								
UQ																								
LO																								
f6Ea																								
MEQ																								
CNT																								
UQ																								
LO																								

SWEEP 1.0 MC TO 25.0 MC IN 13.5 SECONDS

NOVEMBER, 1961

TABLE 10

THULE, GREENLAND (76-0N, 68-0W)

TIME 75.0H

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	29	27	23	29	26	26	26	31	39	33	39	46	48	49	53	49	49	35	44	35	29	34	29	25
MEQ	7	13	13	15	12	16	10	10	9	15	19	15	16	14	8	4	13	8	12	11	16	6	12	13
CNT	24	18	18	23	18	20	18	23	25	28	30	38	44	45	46	35	43	30	40	24	26	31	42	20
UQ																								
LO																								
h'F2																								
MEQ																								
CNT																								
UQ																								
LO																								
h'F																								
MEQ																								
CNT																								
UQ																								
LO																								
MIDOOOIF2																								
MEQ																								
CNT																								
UQ																								
LO																								
f6F1																								
MEQ																								
CNT																								
UQ																								
LO																								
f6E																								
MEQ																								
CNT																								
UQ																								
LO																								
h'E																								
MEQ																								
CNT																								
UQ																								
LO																								
f6Ea																								
MEQ																								
CNT																								
UQ																								
LO																								

SWEEP 1.0 MC TO 25.0 MC IN 13.5 SECONDS

NOVEMBER, 1961

TABLE 11

MAUI, HAWAII (120-0N, 156-5W)

TIME 150.0H

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
B F2	ME	44	28	32	31	24	24	30	82	88	99	110	114	121	127	131	133	1129	102	80	67	54	52	50	U
	CH	2	8	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	U	
	LO	36	31	28	27	22	21	22	60	78	82	94	100	106	114	121	127	1129	102	80	67	54	52	U	
B F2	ME								475	575	4825	425	4875	500	500	475	480	4375							
	CH								11	14	18	24	22	24	27	28	27	16							
	LO								250	450	270	420	270	420	270	420	270	420							
B F	ME	335	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	U
	CH	24	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	U
	LO	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	U
M3000F2	ME	110	825	3345	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	U
	CH	27	28	28	29	29	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	U
	LO	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	U
B F1	ME																								U
	CH																								U
	LO																								U
B E	ME																								U
	CH																								U
	LO																								U
B E	ME																								U
	CH																								U
	LO																								U

SWEEP 0.25 MC TO 20.0 MC IN 27 SECONDS.

SWEEP 1.0 MC TO 25.0 MC IN 16.2 SECONDS.

TABLE 16

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
B F2	ME	45	46	46	375	32	31	3345	67	76	85	88	88	1045	1115	115	122	127	126	1145	94	715	65	57	295
	CH	25	24	27	28	29	28	29	49	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	U
	LO	58	50	50	40	35	32	36	72	80	85	91	105	112	119	123	128	133	134	130	108	80	72	63	29
B F2	ME																								U
	CH																								U
	LO																								U
B F	ME	325	250	240	230	260	2875	2725	260	260	210	205	2025	205	210	215	225	230	230	2225	225	4425	260	2725	U
	CH	27	26	28	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	U
	LO	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	U
M3000F2	ME	310	320	325	340	300	295	300	335	375	305	2775	2725	2825	2875	290	305	320	335	340	3425	315	3025	285	290
	CH	21	24	26	28	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	U
	LO	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	U
B F1	ME																								U
	CH																								U
	LO																								U
B E	ME																								U
	CH																								U
	LO																								U
B E	ME																								U
	CH																								U
	LO																								U
B E	ME																								U
	CH																								U
	LO																								U

SWEEP 0.25 MC TO 20.0 MC IN 31.5 SECONDS.

SWEEP 1.0 MC TO 25.0 MC IN 16.2 SECONDS.



TABLE 22  
MAUI, HAWAII  
1200-0N, 150-05-W

Table with columns: HOUR, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23. Rows include f6F2, h'F2, h'F, M130001F2, f6FI, f6E, h'E, f6Ea.

3-SWEEP 1.0 MC TO 25.0 MC IN 13.5 SECONDS  
JUNE, 1961

TABLE 24  
MAUI, HAWAII  
120-08N, 150-05-W

Table with columns: HOUR, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23. Rows include f6F2, h'F2, h'F, M130001F2, f6FI, f6E, h'E, f6Ea.

3-SWEEP 1.0 MC TO 25.0 MC IN 13.5 SECONDS  
MAY, 1961

TABLE 21  
REPAJAVIA, ICELAND  
106-14N, 21-00-W

Table with columns: HOUR, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23. Rows include f6F2, h'F2, h'F, M130001F2, f6FI, f6E, h'E, f6Ea.

3-SWEEP 1.0 MC TO 25.0 MC IN 18.2 SECONDS  
JUNE, 1964

TABLE 23  
REPAJAVIA, ICELAND  
106-14N, 21-00-W

Table with columns: HOUR, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23. Rows include f6F2, h'F2, h'F, M130001F2, f6FI, f6E, h'E, f6Ea.

3-SWEEP 1.0 MC TO 25.0 MC IN 18.2 SECONDS  
MAY, 1964















TABLE 54

CUTT B&E		177x55, 166x83																							
HR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	60	61	37	46	45	49	56	51	52	60	60	52	58	60	61	61	60	60	61	60	56	51	50	41
		24	17	21	16	17	14	13	12	18	18	17	20	20	18	21	22	21	24	22	24	23	21	21	20
16F2	16F2																								
16F	MED CNT UO LO																								
M130001F2	MED CNT UO LO	238	240	245	235	252	235	230	245	232	230	240	238	230	228	230	232	230	230	232	230	230	230	230	225
		18	24	21	17	16	14	12	13	18	16	17	20	20	18	21	22	21	24	24	24	23	21	21	20
16F1	MED CNT																								
16E	MED CNT																								
16E	MED CNT																								
16Ea	MED CNT	23	21	23	19	19	17	17	17	17	17	19	20	21	21	24	23	22	23	25	23	24	22	21	21

NOVEMBER, 1959

SLEEP 14.0 MC TO 22.0 MC IN 7 SECONDS.

TABLE 55

AMHIDABAD, INDIA		123x90, 72x61																							
HR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	120	110	154	85	58	34	61	104	124	131	144	150	152	153	160	171	170	168	170	170	156	153	148	124
		20	21	22	18	20	19	20	18	23	24	26	14	21	23	12	22	25	13	14	14	22	19	19	19
16F2	16F2																								
16F	MED CNT UO LO																								
M130001F2	MED CNT UO LO	240	260	245	245	235	235	230	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
		24	23	24	21	21	22	21	21	21	18	18	18	15	13	10	23	6	15	23	63	24	24	24	22
16F1	MED CNT																								
16E	MED CNT																								
16E	MED CNT																								
16Ea	MED CNT	23	21	23	19	19	17	17	17	17	17	19	20	21	21	24	23	22	23	25	23	24	22	21	21

NOVEMBER, 1959

SLEEP 14.0 MC TO 25.0 MC IN 5 MINUTES, AUTOMATIC.

TABLE 53

CAPE MALLET		172x35, 170x21																							
HR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	38	38	38	62	63	50	34	62	68	77	60	70	64	60	62	62	65	64	63	64	60	52	54	46
		10	16	13	12	9	8	11	12	13	9	8	11	18	14	18	18	22	25	19	18	13	16	15	14
16F2	16F2																								
16F	MED CNT UO LO																								
M130001F2	MED CNT UO LO	270	265	275	280	285	265	270	260	265	265	262	262	250	250	240	260	255	255	255	255	250	270	285	270
		10	15	12	10	9	7	10	11	12	8	8	10	17	16	17	18	22	25	19	17	12	16	15	14
16F1	MED CNT																								
16E	MED CNT																								
16E	MED CNT																								
16Ea	MED CNT	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

NOVEMBER, 1959

SLEEP 14.0 MC TO 25.0 MC IN 13.5 SECONDS.

TABLE 52

DELHI, INDIA		128x90, 77x261																							
HR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	84	57	11																					
		12	12	10	10	22	21	19	20	22	25	17	20	21	22	19	21	12	10	10	11	12	10	10	11
16F2	16F2																								
16F	MED CNT UO LO																								
M130001F2	MED CNT UO LO																								
16F1	MED CNT																								
16E	MED CNT																								
16E	MED CNT																								
16Ea	MED CNT																								

NOVEMBER, 1959

SLEEP 14.0 MC TO 18.0 MC IN 5 MINUTES, MANUAL.

OCTOBER, 1959

TABLE 58  
BOMBAY, INDIA  
(1140H, 724RE)

HOUR	TIME 79-DE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6F2	U 120	U 100	U 68	U 52	U 50	U 60	U 110	U 7	U 7	U 6	U 0													
MED	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N F2																								
MED																								
UO																								
LO																								
N F																								
MED																								
UO																								
LO																								
M13000IF2																								
MED																								
UO																								
LO																								
6F1																								
MED																								
CNT																								
6E																								
MED																								
CNT																								
N E																								
MED																								
CNT																								
6E*																								
MED																								
CNT																								

SHEEP 145 MG TO 184.0 MG IN 8 MINUTES - MANUAL

OCTOBER, 1959

TABLE 59  
CALCUTTA, INDIA  
(1240H, 884RE)

HOUR	TIME 80-DE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6F2	U 120	U 100	U 68	U 52	U 50	U 60	U 110	U 7	U 7	U 6	U 0													
MED	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N F2																								
MED																								
UO																								
LO																								
N F																								
MED																								
UO																								
LO																								
M13000IF2																								
MED																								
UO																								
LO																								
6F1																								
MED																								
CNT																								
6E																								
MED																								
CNT																								
N E																								
MED																								
CNT																								
6E*																								
MED																								
CNT																								

SHEEP 145 MG TO 134.0 MG IN 1 MINUTE 55 - MANUAL

OCTOBER, 1959

TABLE 60  
BOMBAY, INDIA  
(1140H, 724RE)

HOUR	TIME 79-DE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6F2	U 120	U 100	U 68	U 52	U 50	U 60	U 110	U 7	U 7	U 6	U 0													
MED	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N F2																								
MED																								
UO																								
LO																								
N F																								
MED																								
UO																								
LO																								
M13000IF2																								
MED																								
UO																								
LO																								
6F1																								
MED																								
CNT																								
6E																								
MED																								
CNT																								
N E																								
MED																								
CNT																								
6E*																								
MED																								
CNT																								

SHEEP 145 MG TO 184.0 MG IN 8 MINUTES - MANUAL

OCTOBER, 1959

TABLE 61  
BOMBAY, INDIA  
(1140H, 724RE)

HOUR	TIME 79-DE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6F2	U 120	U 100	U 68	U 52	U 50	U 60	U 110	U 7	U 7	U 6	U 0													
MED	120	100	68	52	50	60	110	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UO	120	100	68	52	50	60	110																	



TABLE 65

JULLIUBURG/RUSEN, GERMANY (19+0N, 13+0E)

TABLE 66

DELHI, INDIA (28+0N, 77+20E)

TABLE 67

AMMEDABAD, INDIA (23+0N, 72+0E)

TABLE 68

AMMEDABAD, INDIA (23+0N, 72+0E)

HOURL	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f0F2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MED	80	72	1	1	61	62	80	101	117	119	131	138	144	149	146	148	143	140	131	118	102	96	90	87
CNT	24	23	1	1	20	16	18	14	17	15	17	18	20	22	19	19	16	21	17	16	22	20	22	21
UO																								
UO																								
nF2																								
MED																								
CNT																								
UO																								
UO																								
nF																								
MED																								
CNT																								
UO																								
UO																								
M130001F2																								
MED																								
CNT																								
UO																								
UO																								
f0FI																								
MED																								
CNT																								
UO																								
UO																								
f0E																								
MED																								
CNT																								
UO																								
UO																								
nE																								
MED																								
CNT																								
UO																								
UO																								
f0Ea																								
MED																								
CNT																								
UO																								
UO																								

SWEEP 0.75 MC TO 20.0 MC IN 5 MINUTES, MANUAL SEPTEMBER, 1959

HOURL	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f0F2	53	51	49	46	43	41	47	57	63	70	72	77	81	82	85	84	84	84	88	84	80	69	59	55
MED	27	27	21	24	23	29	30	28	29	28	30	29	30	30	30	30	30	30	28	30	28	28	29	30
CNT																								
UO																								
UO																								
nF2																								
MED																								
CNT																								
UO																								
UO																								
nF																								
MED																								
CNT																								
UO																								
UO																								
M130001F2																								
MED																								
CNT																								
UO																								
UO																								
f0FI																								
MED																								
CNT																								
UO																								
UO																								
f0E																								
MED																								
CNT																								
UO																								
UO																								
nE																								
MED																								
CNT																								
UO																								
UO																								
f0Ea																								
MED																								
CNT																								
UO																								
UO																								

SWEEP 0.45 MC TO 20.0 MC IN 20 SECONDS, SEPTEMBER, 1959

TABLE 69

AMMEDABAD, INDIA (23+0N, 72+0E)

TABLE 70

FORMOSA, CHINA (25+0N, 121+50E)

TABLE 70

BOMBAY, INDIA  
119-0N, 72-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 104 CNT 8	U 107 U 5	U 95 U 7	U 90 U 14	U 83 U 26	U 94 U 19	U 94 U 23																	
N'F2	MED CNT UO LO																							
N'F	MED CNT UO LO																							
M10000F2	MED CNT UO LO																							
f6FI	MED CNT																							
f6E	MED CNT																							
N'E	MED CNT																							
f6Ea	MED CNT																							

SHEEP 2.5 MC TO 20.0 MC IN 5 MINUTES, MANUAL  
SEPTEMBER, 1959

TABLE 71

TIRUCHIRAPPALLI, INDIA  
130-0N, 78-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 115 CNT 9	U 114 U 9	U 95 U 6	U 86 U 9	U 85 U 15	U 86 U 19	U 86 U 21	U 86 U 23																
N'F2	MED CNT UO LO																							
N'F	MED CNT UO LO																							
M10000F2	MED CNT UO LO																							
f6FI	MED CNT																							
f6E	MED CNT																							
N'E	MED CNT																							
f6Ea	MED CNT																							

SHEEP 2.5 MC TO 20.0 MC IN 5 MINUTES, MANUAL  
SEPTEMBER, 1959

TABLE 69

CALCUTTA, INDIA  
12-0N, 88-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 95 CNT 5	U 95 U 5	U 98 U 5	U 108 U 5																				
N'F2	MED CNT UO LO																							
N'F	MED CNT UO LO																							
M10000F2	MED CNT UO LO																							
f6FI	MED CNT																							
f6E	MED CNT																							
N'E	MED CNT																							
f6Ea	MED CNT																							

SHEEP 1.0 MC TO 13.0 MC IN 1 MINUTE 55 SECONDS  
SEPTEMBER, 1959

TABLE 71

MADRAS, INDIA  
11-0N, 80-0E

HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 130 CNT 20	U 122 U 20	U 112 U 20	U 96 U 15	U 79 U 17	U 73 U 24	U 92 U 28	U 162 U 34	U 148 U 24	U 174 U 28	U 177 U 28	U 183 U 28												
N'F2	MED CNT UO LO																							
N'F	MED CNT UO LO																							
M10000F2	MED CNT UO LO																							
f6FI	MED CNT																							
f6E	MED CNT																							
N'E	MED CNT																							
f6Ea	MED CNT																							

SHEEP 2.5 MC TO 20.0 MC IN 5 MINUTES, MANUAL  
SEPTEMBER, 1959



TABLE 76

(77+95+106+8E)

HOUR	SCOTT BASE																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16F2	MED	45	36	41	44	44	37	45	40	44	52	60	66	70	70	70	80	80	84	84	77	75	70	63	54
	CNT	13	17	7	7	6	9	8	9	15	16	21	24	18	20	26	40	23	16	24	40	20	19	18	13
	LD																								
16F2	MED																								
	CNT																								
	LD																								
16F	MED																								
	CNT																								
	LD																								
M13000IF2	MED	245	250	235	250	252	255	260	260	265	255	260	260	260	255	245	240	250	240	260	240	240	250	260	
	CNT	11	15	1	1	1	4	6	5	5	14	14	17	13	12	14	17	12	15	9	16	13	11	15	
	LD																								
16F1	MED																								
	CNT																								
	LD																								
16E	MED																								
	CNT																								
	LD																								
16E*	MED	12	14	14	13	14	14	15	13	14	14	15	17	18	17	18	16	14	13	14	13	15	13	13	
	CNT	5	10	10	10	10	10	10	10	7	10	9	12	12	14	16	17	9	14	11	12	11	12	10	
	LD																								

SWEEP 1+0 MC TO 22+0 MC IN 7 SECONDS\*

AUGUST, 1959

TABLE 77

(72+35+170+2E)

HOUR	SCOTT BASE																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16F2	MED	34	33	36	33	37	34	36	38	48	54	57	50	70	84	65	64	66	74	70	90	67	50	38	34
	CNT	11	11	10	4	5	10	7	8	14	6	11	10	13	10	16	17	17	18	15	15	11	15	9	
	LD																								
16F	MED																								
	CNT																								
	LD																								
M13000IF2	MED	260	255	260	270	260	285	260	278	285	269	285	275	260	275	260	275	262	272	270	270	275	275	270	
	CNT	11	11	10	4	5	10	7	8	14	6	11	10	13	10	16	17	17	18	15	15	11	15	9	
	LD																								
16F1	MED																								
	CNT																								
	LD																								
16E	MED																								
	CNT																								
	LD																								
16E*	MED	20	20	23	27	26	28	27	27	27	27	26	19	27	29	29	30	28	28	27	25	21	21	20	25
	CNT																								
	LD																								

SWEEP 1+0 MC TO 25+0 MC IN 13+5 SECONDS\*

AUGUST, 1959

TABLE 78

(77+95+106+8E)

HOUR	SCOTT BASE																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16F2	MED	46	40	32	34	35	41	37	37	48	40	53	65	63	65	65	65	69	80	72	73	70	67	54	33
	CNT	9	10	10	6	4	8	5	1	6	5	8	9	9	13	15	15	16	14	16	11	12	5	10	8
	LD																								
16F	MED																								
	CNT																								
	LD																								
M13000IF2	MED	270	250	250	255	260	260	270	240	270	275	260	240	260	260	275	260	280	280	275	280	265	275	240	
	CNT	9	10	10	6	4	8	5	1	6	5	8	9	9	13	15	15	16	14	16	11	12	5	10	8
	LD																								
16F1	MED																								
	CNT																								
	LD																								
16E	MED																								
	CNT																								
	LD																								
16E*	MED	15	16	15	16	18	18	16	22	25	23	28	43	35	48	51	59	56	50	46	47	46	41	31	
	CNT	20	15	20	20	19	16	15	11	15	15	19	17	21	21	21	21	22	22	22	21	20	17	11	
	LD																								

SWEEP 1+0 MC TO 25+0 MC IN 13+5 SECONDS\*

AUGUST, 1959

TABLE 79

(77+95+106+8E)

HOUR	SCOTT BASE																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16F2	MED	46	40	32	34	35	41	37	37	48	40	53	65	63	65	65	69	80	72	73	70	67	54	33	
	CNT	9	10	10	6	4	8	5	1	6	5	8	9	9	13	15	15	16	14	16	11	12	5	10	8
	LD																								
16F	MED																								
	CNT																								
	LD																								
M13000IF2	MED	270	250	250	255	260	260	270	240	270	275	260	240	260	260	275	260	280	280	275	280	265	275	240	
	CNT	9	10	10	6	4	8	5	1	6	5	8	9	9	13	15	15	16	14	16	11	12	5	10	8
	LD																								
16F1	MED																								
	CNT																								
	LD																								
16E	MED																								
	CNT																								
	LD																								
16E*	MED	15	16	15	16	18	18	16	22	25	23	28	43	35	48	51	59	56	50	46	47	46	41	31	
	CNT	20	15	20	20	19	16	15	11	15	15	19	17	21	21	21	21	22	22	22	21	20	17	11	
	LD																								

SWEEP 1+0 MC TO 25+0 MC IN 13+5 SECONDS\*

AUGUST, 1959

TABLE B2  
AHMEDABAD, INDIA  
(23+0N, 72+0E)

HOUR	TIME 75.0E																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2 MED CNT UQ UO LQ	86	81	80	75	70	70	82	74	76	102	109	117	128	134	141	145	143	143	139	129	110	98	89	89
n7F2 MED CNT UQ UO LQ	250	325	360	400	435	420	415	400	375	350	325	285	26	26	26	27	27	26	26	26	26	26	26	26
n7F MED CNT UQ UO LQ	340	405	310	305	300	300	250	250	250	240	250	250	275	400	470	250	250	460	465	300	302	340	350	350
M13000IF2 MED CNT UQ UO LQ	250	455	255	455	255	280	300	450	275	455	440	235	235	240	240	245	250	455	260	255	450	240	240	240
f6FI MED CNT	580	600	610	640	600	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610
f6E MED CNT	210	300	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
n7E MED CNT	117	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
f6Ea MED CNT	26	27	24	24	23	25	23	24	23	25	27	24	22	20	20	20	20	20	20	20	20	20	20	20

SLEEP 0.6 MC TO 25.0 MC IN 5 MINUTES, AUTOMATIC.

TABLE B1  
DELHI, INDIA  
(28+0N, 77+0E)

HOUR	TIME 75.0E																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2 MED CNT UQ UO LQ	89	87	84	81	84	90	95	99	101	110	116	122	126	124	126	125	119	116	105	95	81	70	63	63
n7F2 MED CNT UQ UO LQ	280	310	305	300	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
n7F MED CNT UQ UO LQ	340	405	310	305	300	300	250	250	250	240	250	250	275	400	470	250	250	460	465	300	302	340	350	350
M13000IF2 MED CNT UQ UO LQ	250	455	255	455	255	280	300	450	275	455	440	235	235	240	240	245	250	455	260	255	450	240	240	240
f6FI MED CNT	580	600	610	640	600	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610
f6E MED CNT	210	300	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
n7E MED CNT	117	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
f6Ea MED CNT	26	27	24	24	23	25	23	24	23	25	27	24	22	20	20	20	20	20	20	20	20	20	20	20

SLEEP 1.5 MC TO 18.0 MC IN 5 MINUTES, MANUAL.

TABLE B4  
MADRAS, INDIA  
(13+0N, 80+0E)

HOUR	TIME 75.0E																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2 MED CNT UQ UO LQ	100	93	90	88	78	72	94	107	113	114	116	116	114	112	117	118	121	122	122	110	103	100	100	100
n7F2 MED CNT UQ UO LQ	250	325	360	400	435	420	415	400	375	350	325	285	26	26	26	27	27	26	26	26	26	26	26	26
n7F MED CNT	340	405	310	305	300	300	250	250	250	240	250	250	275	400	470	250	250	460	465	300	302	340	350	350
M13000IF2 MED CNT UQ UO LQ	250	455	255	455	255	280	300	450	275	455	440	235	235	240	240	245	250	455	260	255	450	240	240	240
f6FI MED CNT	580	600	610	640	600	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610
f6E MED CNT	210	300	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
n7E MED CNT	117	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
f6Ea MED CNT	26	27	24	24	23	25	23	24	23	25	27	24	22	20	20	20	20	20	20	20	20	20	20	20

SLEEP 1.5 MC TO 18.0 MC IN 5 MINUTES, MANUAL.

TABLE B3  
BOMBAY, INDIA  
(19+0N, 72+0E)

HOUR	TIME 75.0E																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2 MED CNT UQ UO LQ	94	92	81	74	88	78	85	96	106	114	124	127	133	132	134	134	134	134	129	114	110	105	105	105
n7F2 MED CNT UQ UO LQ	250	325	360	400	435	420	415	400	375	350	325	285	26	26	26	27	27	26	26	26	26	26	26	26
n7F MED CNT	340	405	310	305	300	300	250	250	250	240	250	250	275	400	470	250	250	460	465	300	302	340	350	350
M13000IF2 MED CNT UQ UO LQ	250	455	255	455	255	280	300	450	275	455	440	235	235	240	240	245	250	455	260	255	450	240	240	240
f6FI MED CNT	580	600	610	640	600	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610
f6E MED CNT	210	300	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
n7E MED CNT	117	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
f6Ea MED CNT	26	27	24	24	23	25	23	24	23	25	27	24	22	20	20	20	20	20	20	20	20	20	20	20

SLEEP 1.5 MC TO 18.0 MC IN 5 MINUTES, MANUAL.

HOURL	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	75 86 89 95	76 82 85 91	75 82 85 91																				
16F2	MED CNT UO LO	75 86 89 95	76 82 85 91	75 82 85 91																				
16F2	MED CNT UO LO	75 86 89 95	76 82 85 91	75 82 85 91																				
16F	MED CNT UO LO	327 245 267 277	320 245 267 277																					
M130001F2	MED CNT UO LO	227 141 151 141																						
16F1	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							

SHEEP 14.0 MC TO 25+0 MC IN 27 SECONDS.

JUNE, 1959

SHEEP 14.5 MC TO 18+0 MC IN 8 MINUTES. MANUAL

JUNE, 1959

TABLE 88

HOURL	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO				1	4	9	10	18	20	19	19	20	16	3									
16F2	MED CNT UO LO																							
16F2	MED CNT UO LO																							
16F	MED CNT UO LO				1	4	270	455	260	250	450	250	250	250	250	250	250	250	250	250	250	250	250	
M130001F2	MED CNT UO LO				1	4	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	
16F1	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							

SHEEP 14.0 MC TO 20+0 MC IN 15 SECONDS.

JUNE, 1959

SHEEP 14.5 MC TO 18+0 MC IN 8 MINUTES. MANUAL

JUNE, 1959

TABLE 9

HOURL	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	MED CNT UO LO	100 86 86 86																						
16F2	MED CNT UO LO	100 86 86 86																						
16F2	MED CNT UO LO	100 86 86 86																						
16F	MED CNT UO LO																							
M130001F2	MED CNT UO LO																							
16F1	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							
16E	MED CNT UO LO																							

SHEEP 14.5 MC TO 18+0 MC IN 8 MINUTES. MANUAL

JUNE, 1959

TABLE 90

SCOTT BASE  
1774.95, 186.8(EI)

TIME 1854-0E

HOOR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 42 34 46 27 34 38 42 57 59 64 65 70 70 69 80 84 70 68 55 52	CNT 15 11 9 8 6 8 7 7 11 10 16 18 15 40 18 18 19 19 15 16 16 14	UO UO																					
h'F2	MED CNT UO LO																							
h'F	MED CNT UO LO																							
M13000IF2	MED 240 240 245 235 240 238 265 250 245 255 240 245 245 245 245 245 245 245 245 245 245 245 245 245 245	CNT 15 11 9 8 6 8 7 7 11 10 16 18 15 40 18 18 19 19 15 16 16 14	UO UO																					
f6FI	MED CNT																							
f6E	MED CNT																							
h'E	MED CNT																							
f6EA	MED CNT UO LO																							

SCOTT BASE  
1774.95, 186.8(EI)

TIME 1854-0E

SHEEP 14.0 MC TO 22.0 MC IN 7 SECONDS.

JUNE, 1959

TABLE 89

CAPE HALLETT  
1724.35, 170.2(EI)

TIME 1854-0E

HOOR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 45 45 54 50 52 38 48 40 51 64 65 68 70 71 73 80 86 80 80 78 74 72 54 53	CNT 10 14 10 13 10 8 12 10 11 11 17 19 19 19 19 18 21 42 23 21 18 16 19 20 14	UO UO																					
h'F2	MED CNT UO LO																							
h'F	MED CNT UO LO																							
M13000IF2	MED 260 265 260 255 270 275 280 280 290 280 280 280 280 280 280 280 280 280 280 280 280 280 280 280 280	CNT 19 12 16 10 8 11 13 15 14 14 20 16 20 15 18 20 21 22 25 25 23 19 21 17	UO UO																					
f6FI	MED CNT																							
f6E	MED CNT																							
h'E	MED CNT																							
f6EA	MED CNT UO LO																							

CAPE HALLETT  
1724.35, 170.2(EI)

TIME 1854-0E

SHEEP 14.0 MC TO 25.0 MC IN 13.5 SECONDS.

JUNE, 1959

TABLE 92

SCOTT BASE  
1774.95, 186.8(EI)

TIME 1854-0E

HOOR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 45 45 54 50 52 38 48 40 51 64 65 68 70 71 73 80 86 80 80 78 74 72 54 53	CNT 10 14 10 13 10 8 12 10 11 11 17 19 19 19 19 18 21 42 23 21 18 16 19 20 14	UO UO																					
h'F2	MED CNT UO LO																							
h'F	MED CNT UO LO																							
M13000IF2	MED 228 230 232 234 235 238 232 240 245 240 255 258 250 245 245 240 240 255 242 248 245 245 250 242	CNT 10 14 10 10 10 8 8 13 10 9 13 10 15 10 12 11 11 11 11 11 11 11 11 11 11 11	UO UO																					
f6FI	MED CNT																							
f6E	MED CNT																							
h'E	MED CNT																							
f6EA	MED CNT UO LO																							

SCOTT BASE  
1774.95, 186.8(EI)

TIME 1854-0E

SHEEP 14.0 MC TO 24.0 MC IN 7 SECONDS.

JUNE, 1959

TABLE 91

CAPE HALLETT  
1724.35, 170.2(EI)

TIME 1854-0E

HOOR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED 45 45 54 50 52 38 48 40 51 64 65 68 70 71 73 80 86 80 80 78 74 72 54 53	CNT 10 14 10 13 10 8 12 10 11 11 17 19 19 19 19 18 21 42 23 21 18 16 19 20 14	UO UO																					
h'F2	MED CNT UO LO																							
h'F	MED CNT UO LO																							
M13000IF2	MED 260 265 260 255 270 275 280 280 290 280 280 280 280 280 280 280 280 280 280 280 280 280 280 280 280	CNT 19 12 16 10 8 11 13 15 14 14 20 16 20 15 18 20 21 22 25 25 23 19 21 17	UO UO																					
f6FI	MED CNT																							
f6E	MED CNT																							
h'E	MED CNT																							
f6EA	MED CNT UO LO																							

CAPE HALLETT  
1724.35, 170.2(EI)

TIME 1854-0E

SHEEP 14.0 MC TO 25.0 MC IN 13.5 SECONDS.

JUNE, 1959

Table 9a  
177+95+100+0E1

HOUR	TIME 195+G																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
	UD	15	10	15	15	15	15	15	12	15	15	15	15	15	15	15	15	15	15	15	15	15	15	16
	LO																							
N'F2	MED																							
	CNT																							
	LO																							
N'F	MED																							
	CNT																							
	LO																							
M10000IF2	MED	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30
	UD	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	LO																							
f6FI	MED																							
	CNT																							
	LO																							
f6E	MED																							
	CNT																							
	LO																							
N'E	MED																							
	CNT																							
	LO																							
f6Ea	MED	9	5	15	14	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	CNT																							
	LO																							

SHEEP 140 MC TO 25+0 MC IN 7 SECONDS.

APRIL 1959

SHEEP 140 MC TO 25+0 MC IN 13+5 SECONDS.

APRIL 1959

Table 9b  
177+95+100+0E1

HOUR	TIME 195+G																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED	37	49	44	40	34	30	27	24	21	18	15	12	9	6	3	0	0	0	0	0	0	0	0
	UD	18	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	LO																							
N'F2	MED																							
	CNT																							
	LO																							
N'F	MED																							
	CNT																							
	LO																							
M10000IF2	MED	145	145	139	134	128	123	117	112	106	101	95	90	84	79	73	68	62	57	51	46	40	35	30
	UD	16	14	15	14	16	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	LO																							
f6FI	MED																							
	CNT																							
	LO																							
f6E	MED																							
	CNT																							
	LO																							
N'E	MED																							
	CNT																							
	LO																							
f6Ea	MED	14	33	37	34	18	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0
	CNT	22	23	22	24	15	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0
	LO																							

SHEEP 140 MC TO 25+0 MC IN 15 SECONDS.

APRIL 1959

Table 9c  
172+35+170+0E1

HOUR	TIME 195+G																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
f6F2	MED	54	46	41	44	45	54	62	72	87	84	78	80	78	80	79	80	88	87	80	80	70	74	50
	CNT	22	18	17	18	16	18	26	26	27	28	24	24	27	27	27	27	27	27	27	27	27	27	20
	LO																							
N'F2	MED																							
	CNT																							
	LO																							
N'F	MED																							
	CNT																							
	LO																							
M10000IF2	MED	250	250	230	240	260	270	280	290	280	270	270	270	270	270	265	260	260	260	250	260	265	260	255
	UD	22	18	17	18	16	18	26	26	27	28	24	24	27	27	27	27	27	27	27	27	27	27	20
	LO																							
f6FI	MED																							
	CNT																							
	LO																							
f6E	MED																							
	CNT																							
	LO																							
N'E	MED																							
	CNT																							
	LO																							
f6Ea	MED	17	27	27	26	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	CNT	25	27	25	27	21	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	LO																							

SHEEP 140 MC TO 25+0 MC IN 13+5 SECONDS.

APRIL 1959

Table 9d  
122+2N+113+0E1

TABLE 97  
177x35x, 169x8EJ

HOUR	SCOTT BASE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	54	38	45	44	46	60	57	56	66	68	70	70	74	76	71	79	81	80	80	76	71	68	66	66
CNT	12	10	13	12	12	16	14	16	21	20	17	20	43	42	22	21	22	22	23	42	16	16	14	9
UQ																								
LO																								
16F2																								
CNT																								
UQ																								
LO																								
16F1																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								

MARCH, 1959

TABLE 98  
172x35x, 170x2EJ

HOUR	CAPE HALLETT																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	44	42	40	37	47	53	54	63	64	74	71	68	67	64	68	66	67	70	67	70	70	64	60	45
CNT	16	20	24	18	16	18	20	22	19	26	21	24	25	25	26	27	28	28	28	28	25	25	20	21
UQ																								
LO																								
16F2																								
CNT																								
UQ																								
LO																								
16F1																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								

FEBRUARY, 1959

TABLE 99  
177x35x, 169x8EJ

HOUR	SCOTT BASE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	42	42	40	39	33	54	68	72	56	44	69	71	74	U	U	U	U	U	U	U	U	U	U	U
CNT	2	5	5	5	3	3	4	2	2	1	3	3	2	U	U	U	U	U	U	U	U	U	U	U
UQ																								
LO																								
16F2																								
CNT																								
UQ																								
LO																								
16F1																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								

MARCH, 1959

TABLE 100  
177x35x, 169x8EJ

HOUR	SCOTT BASE																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
16F2	55	55	53	50	52	55	62	55	65	58	58	56	57	60	63	64	64	68	66	62	58	60	59	52
CNT	13	14	11	12	11	14	15	19	19	19	11	14	13	12	15	15	16	14	14	12	15	15	11	12
UQ																								
LO																								
16F2																								
CNT																								
UQ																								
LO																								
16F1																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								
UQ																								
LO																								
16E																								
CNT																								

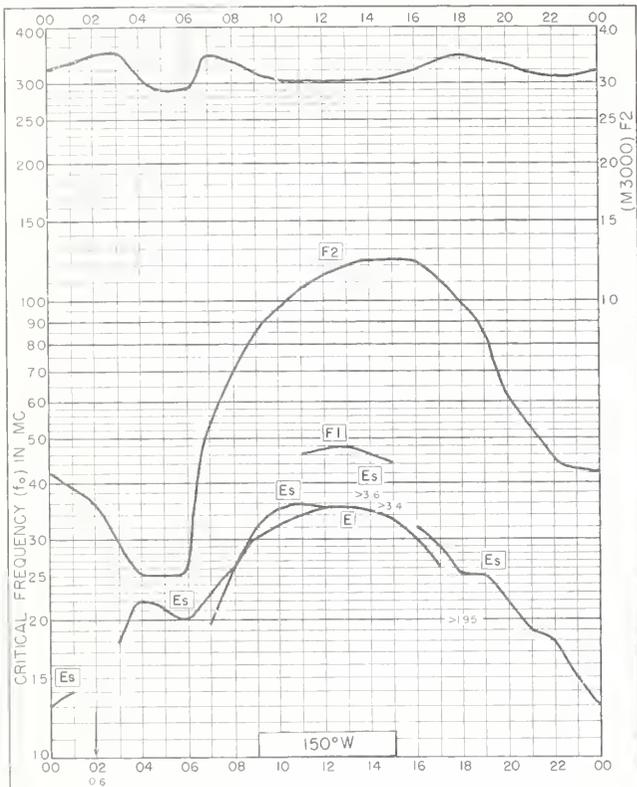


Fig. 1. MAUI, HAWAII  
20.8°N, 156.5°W  
MARCH 1962

NBS 503

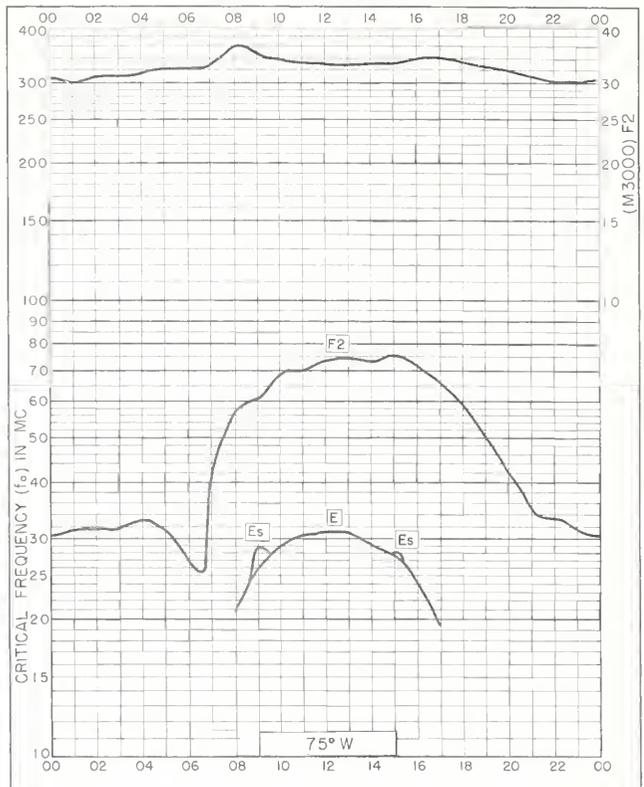


Fig 2. WASHINGTON, D.C.  
38.7°N, 77.1°W  
FEBRUARY 1962

NBS 503

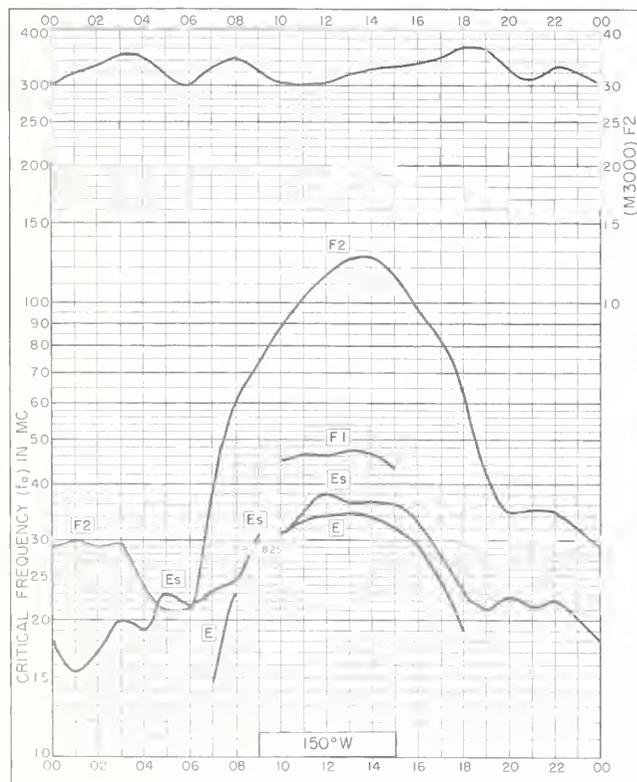


Fig 3. MAUI, HAWAII  
20.8°N, 156.5°W  
FEBRUARY 1962

NBS 503



Fig. 4. MAUI, HAWAII  
20.8°N, 156.5°W  
JANUARY 1962

NBS 503

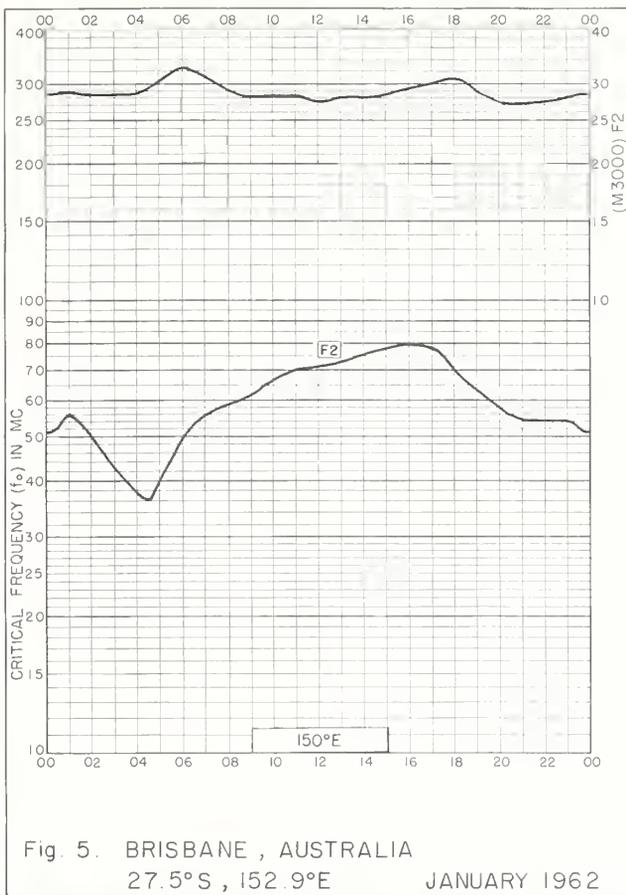


Fig. 5. BRISBANE, AUSTRALIA  
27.5°S, 152.9°E  
JANUARY 1962

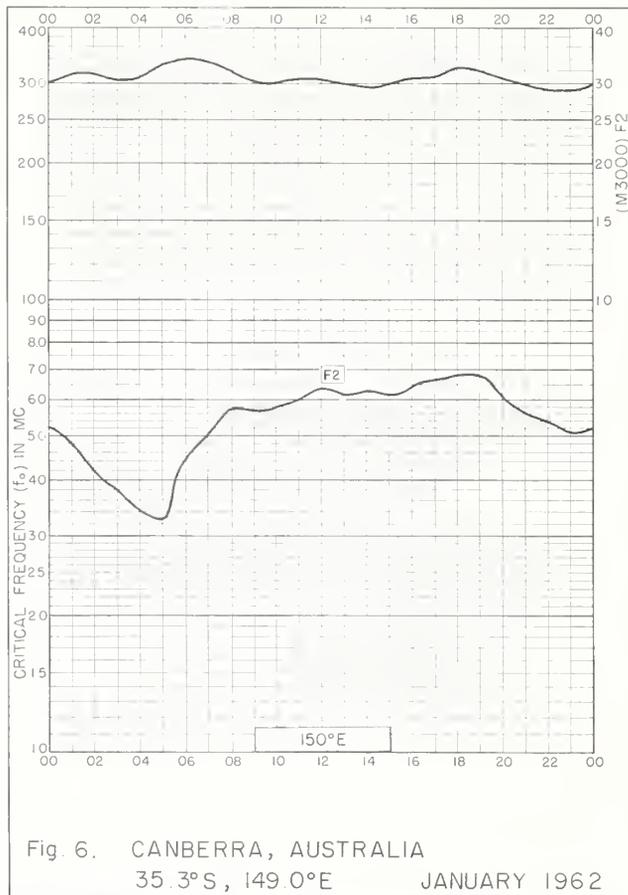


Fig. 6. CANBERRA, AUSTRALIA  
35.3°S, 149.0°E  
JANUARY 1962

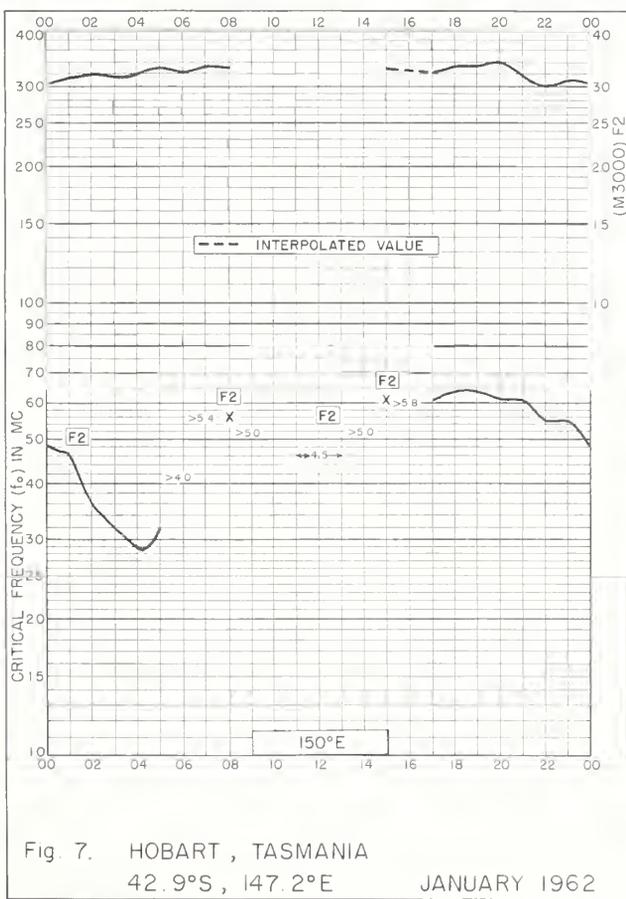


Fig. 7. HOBART, TASMANIA  
42.9°S, 147.2°E  
JANUARY 1962

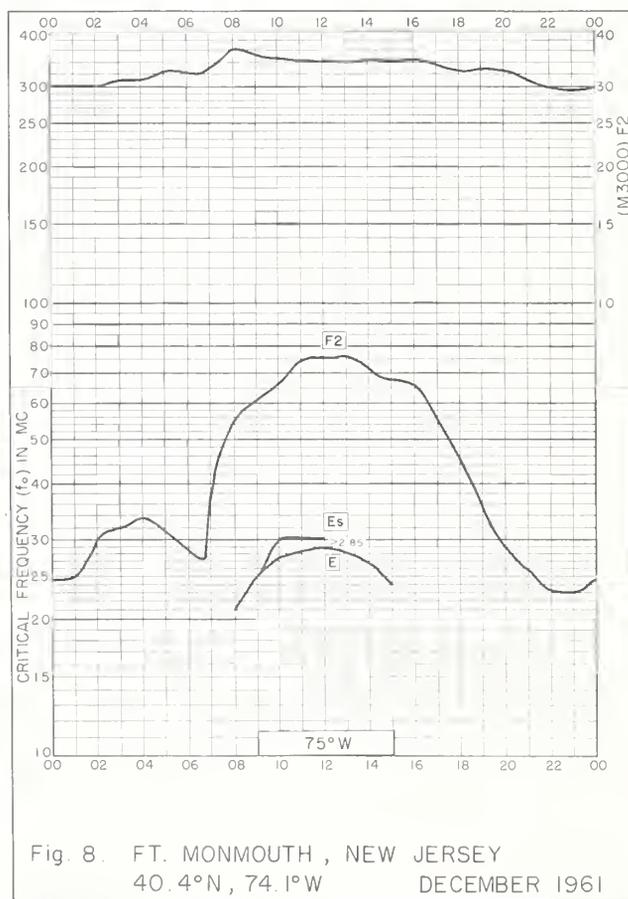


Fig. 8. FT. MONMOUTH, NEW JERSEY  
40.4°N, 74.1°W  
DECEMBER 1961

NBS 503

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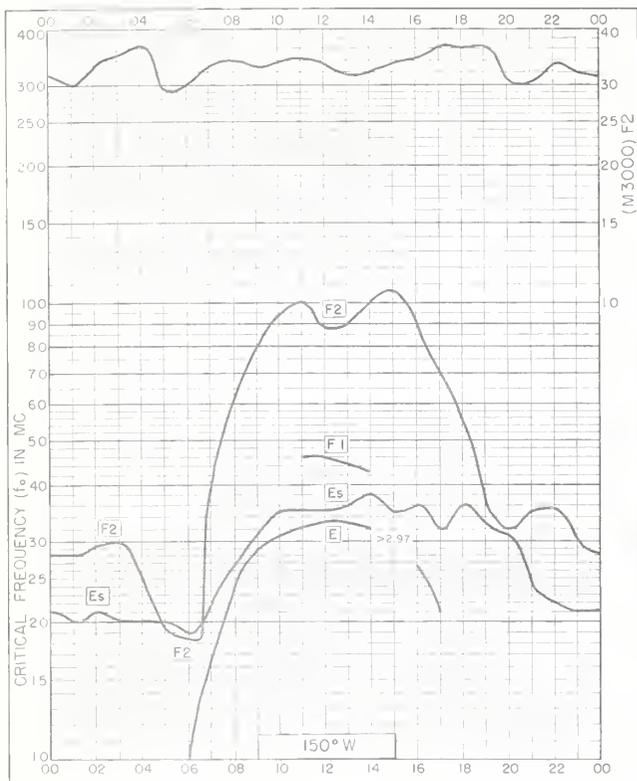


Fig. 9. MAUI, HAWAII  
20.8°N, 156.5°W DECEMBER 1961

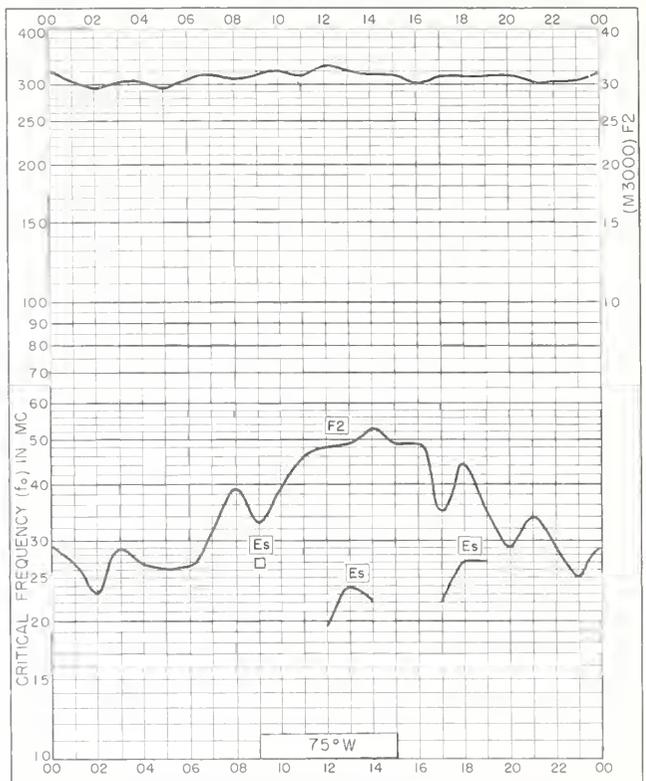


Fig. 10. THULE, GREENLAND  
76.0°N, 68.0°W NOVEMBER 1961

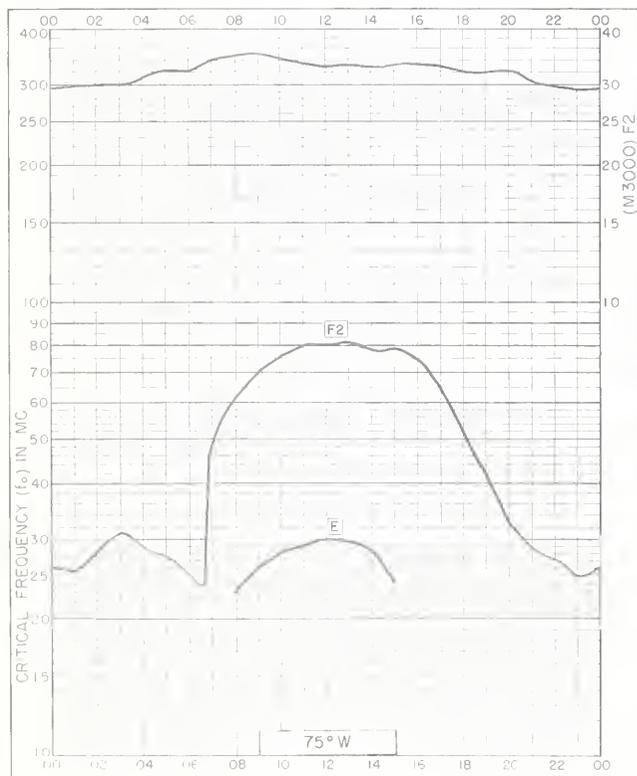


Fig. 11. FT. MONMOUTH, NEW JERSEY  
40.4°N, 74.1°W NOVEMBER 1961

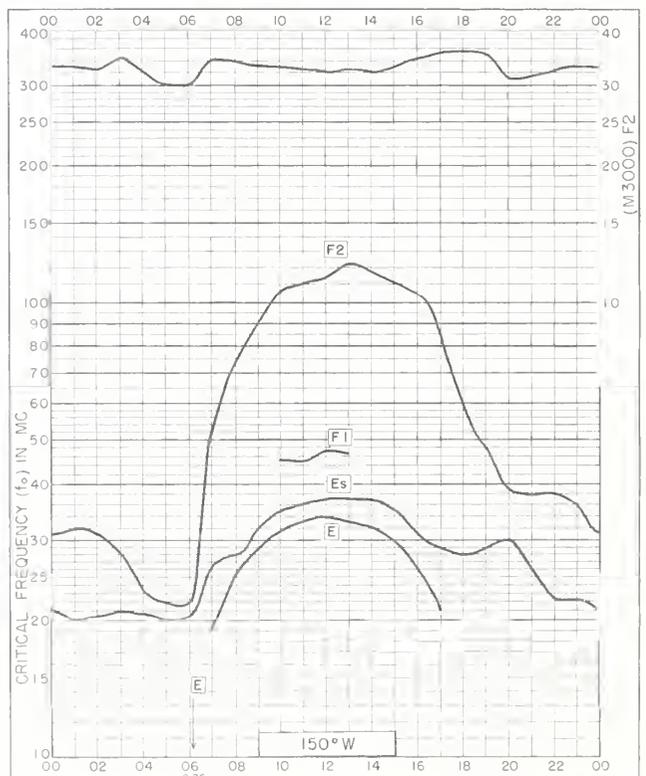


Fig. 12. MAUI, HAWAII  
20.8°N, 156.5°W NOVEMBER 1961

NBS 504

NBS 504

NBS 504

NBS 504

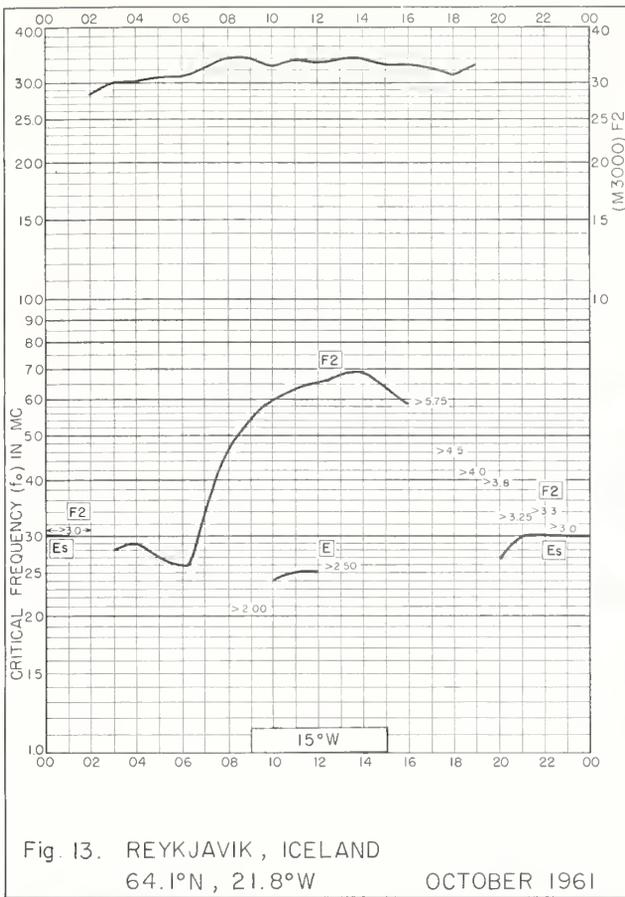


Fig. 13. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
OCTOBER 1961

NBS 503

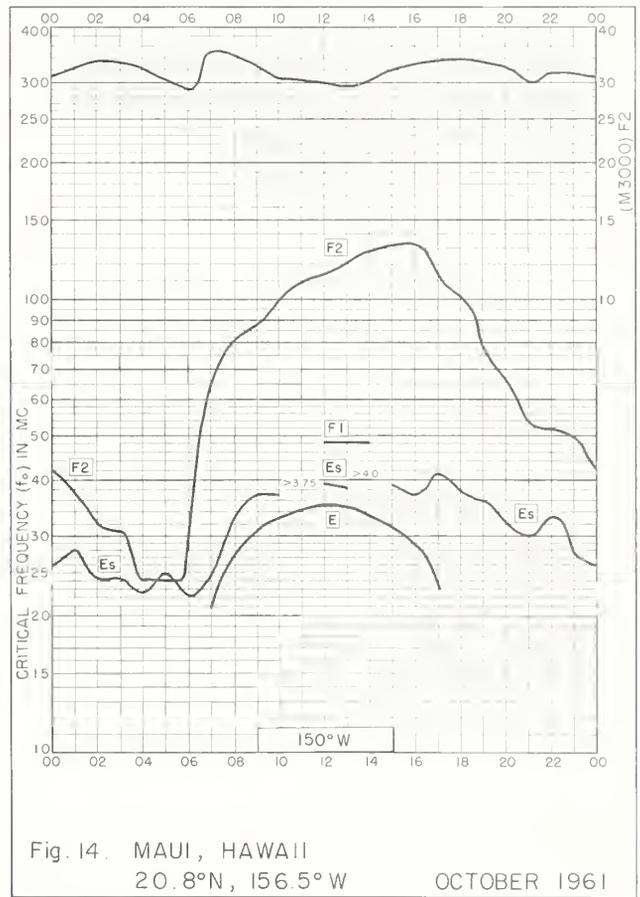


Fig. 14. MAUI, HAWAII  
20.8°N, 156.5°W  
OCTOBER 1961

NBS 503

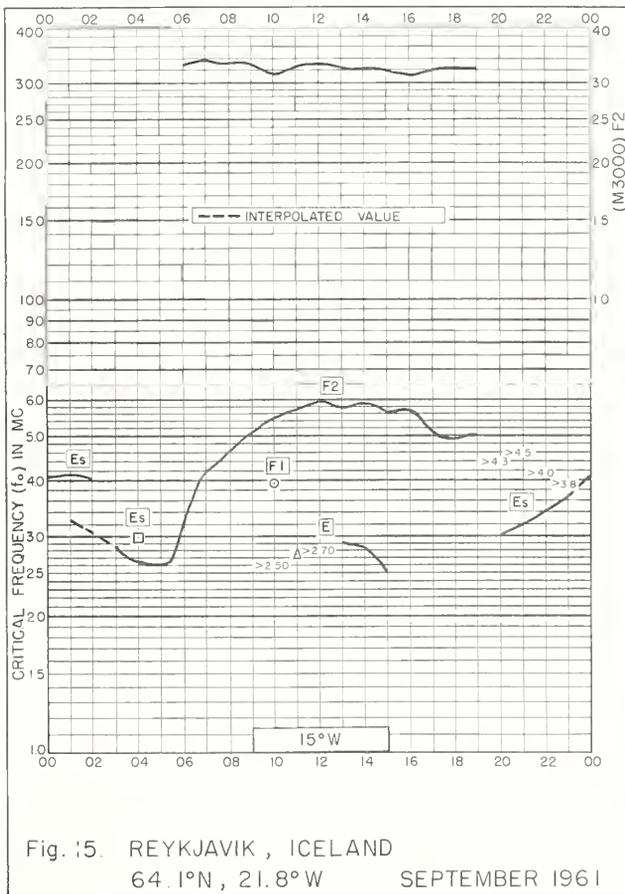


Fig. 15. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
SEPTEMBER 1961

NBS 503

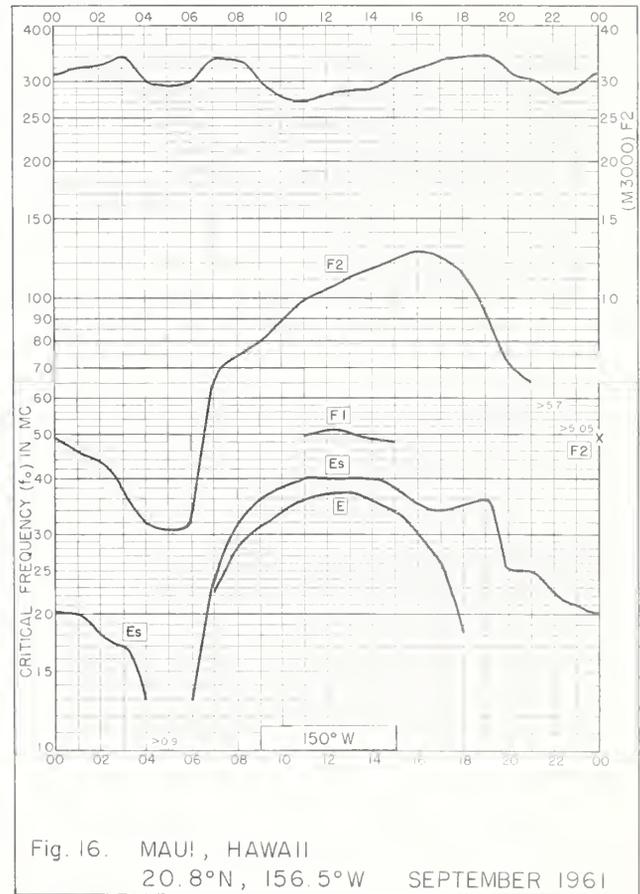


Fig. 16. MAUI, HAWAII  
20.8°N, 156.5°W  
SEPTEMBER 1961

NBS 503



Fig. 17. FAIRBANKS, ALASKA  
64.9°N, 147.8°W  
AUGUST 1961

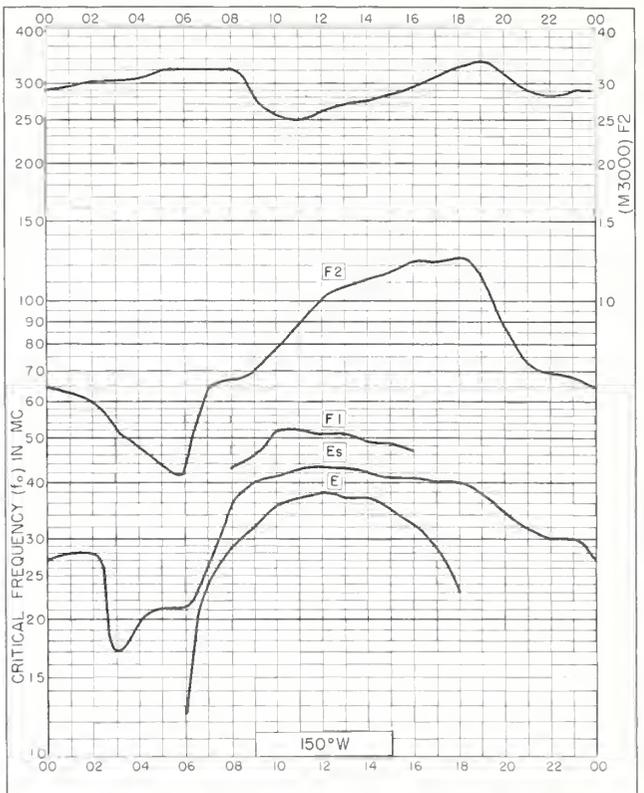


Fig. 18. MAUI, HAWAII  
20.8°N, 156.5°W  
AUGUST 1961



Fig. 19. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
JULY 1961

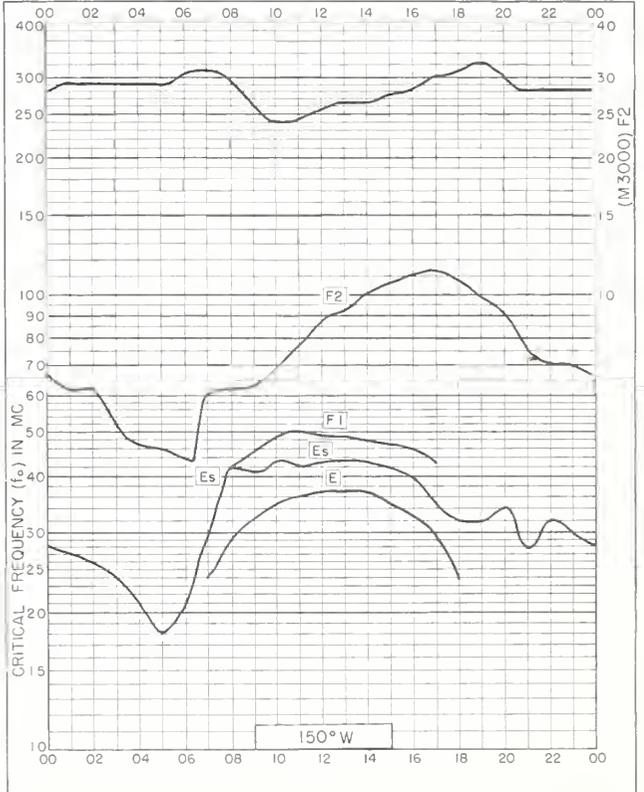


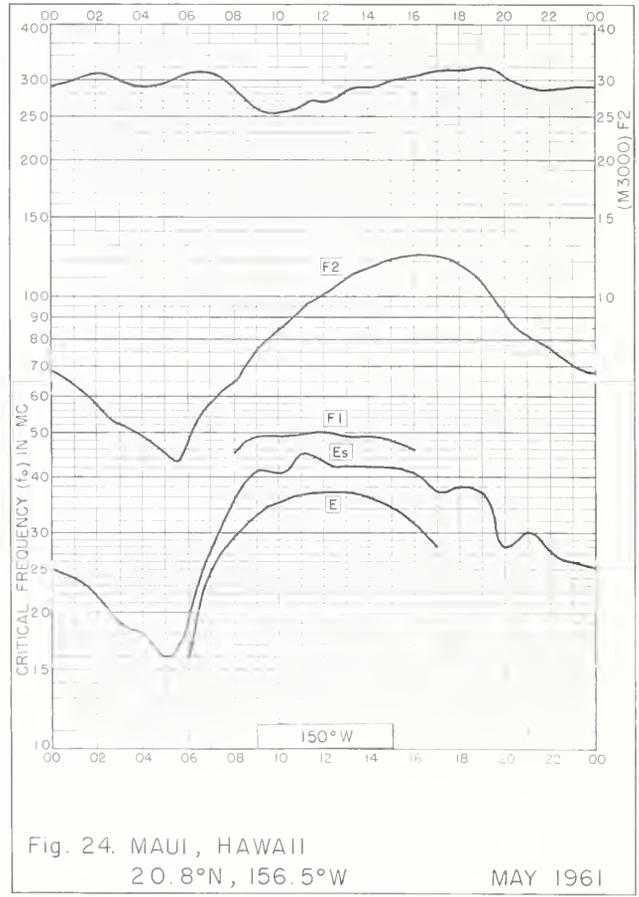
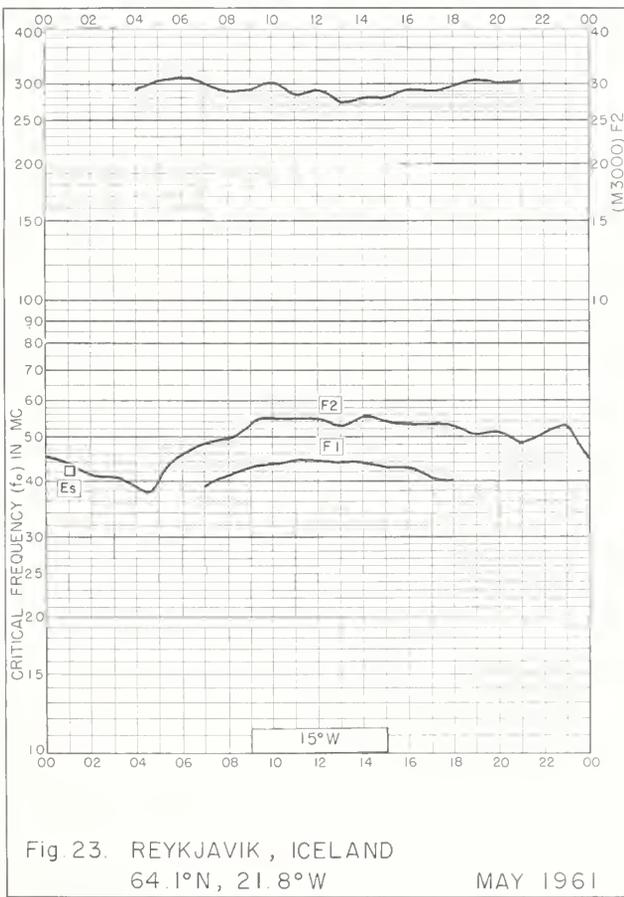
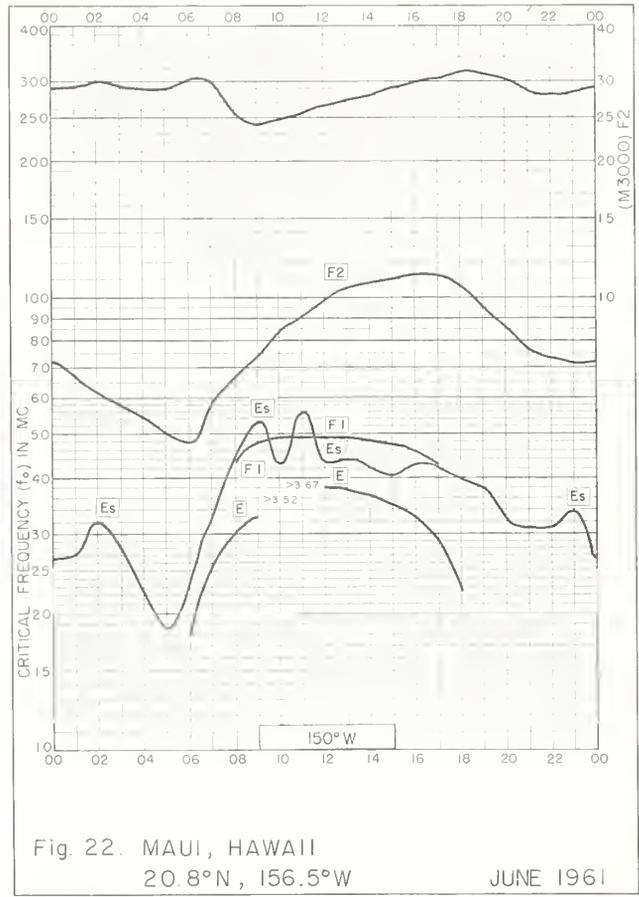
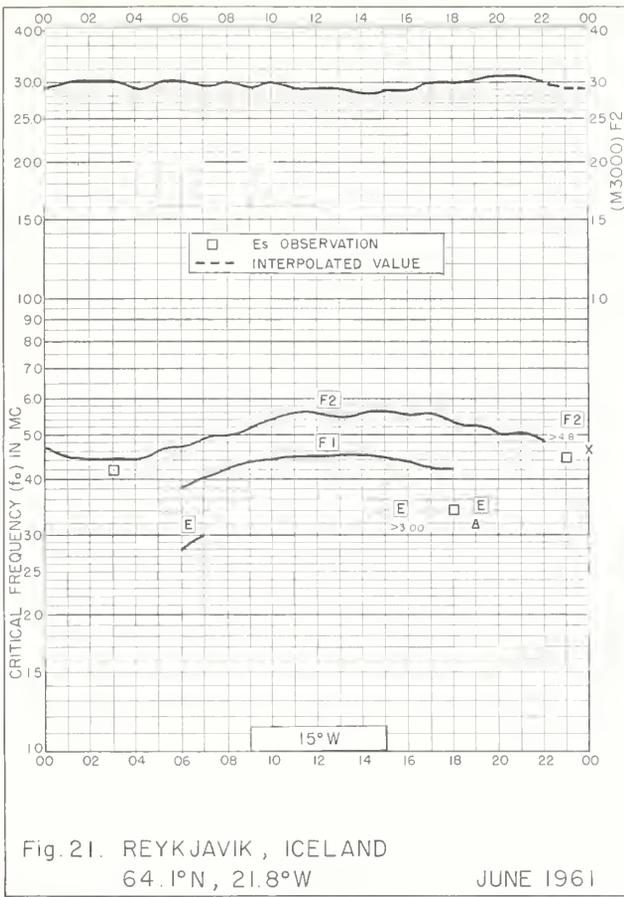
Fig. 20. MAUI, HAWAII  
20.8°N, 156.5°W  
JULY 1961

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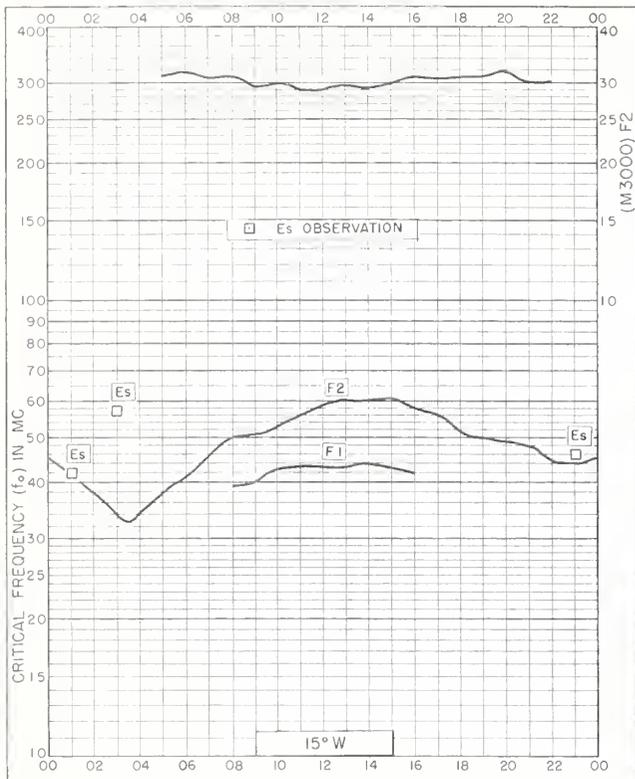


Fig. 25. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
APRIL 1961



Fig. 26. WHITE SANDS, NEW MEXICO  
32.3°N, 106.5°W  
APRIL 1961

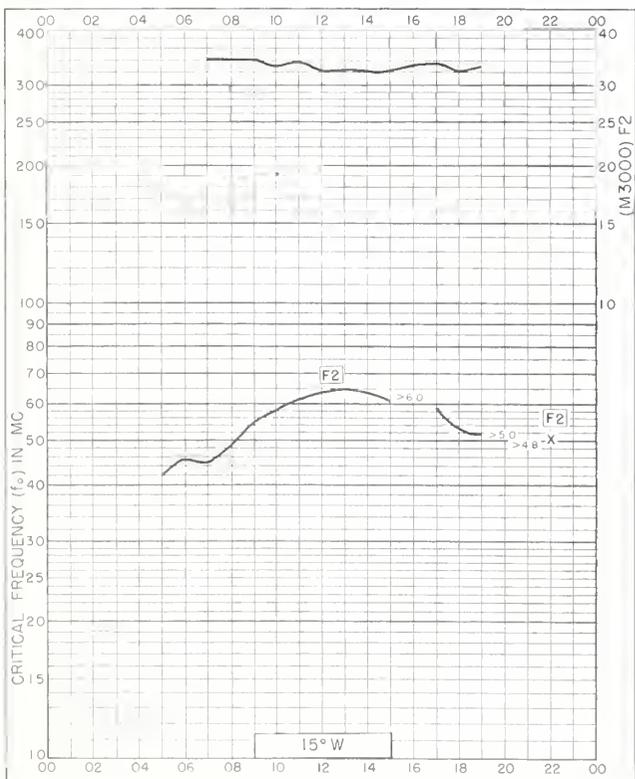


Fig. 27. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
MARCH 1961

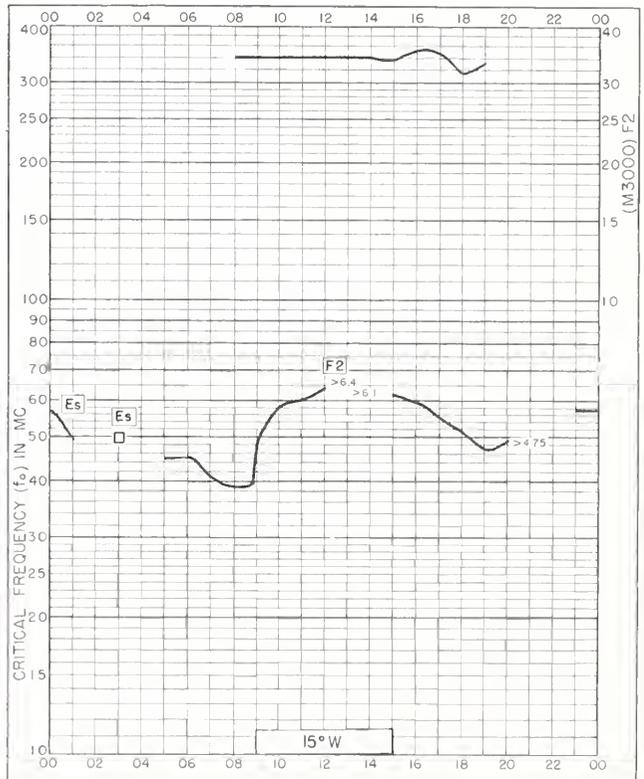
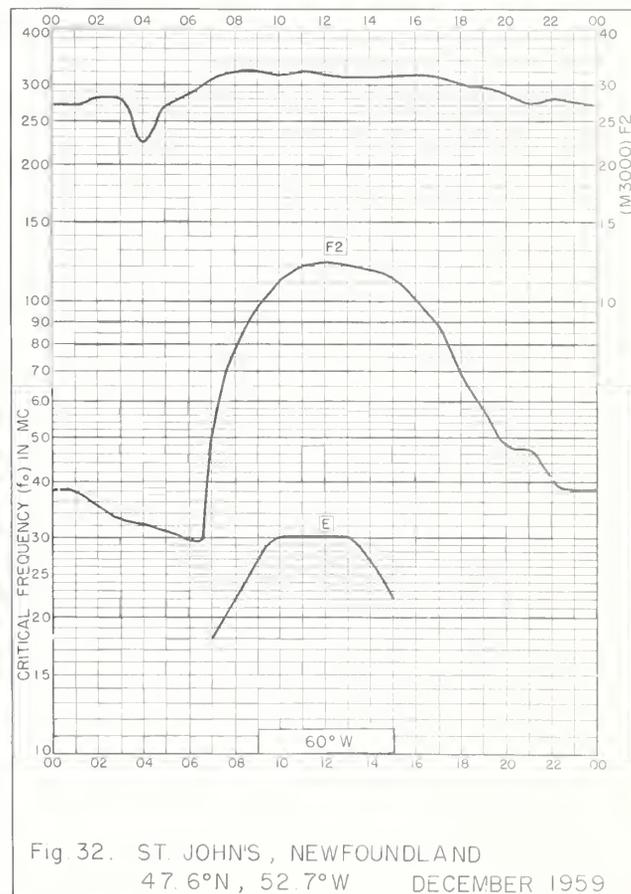
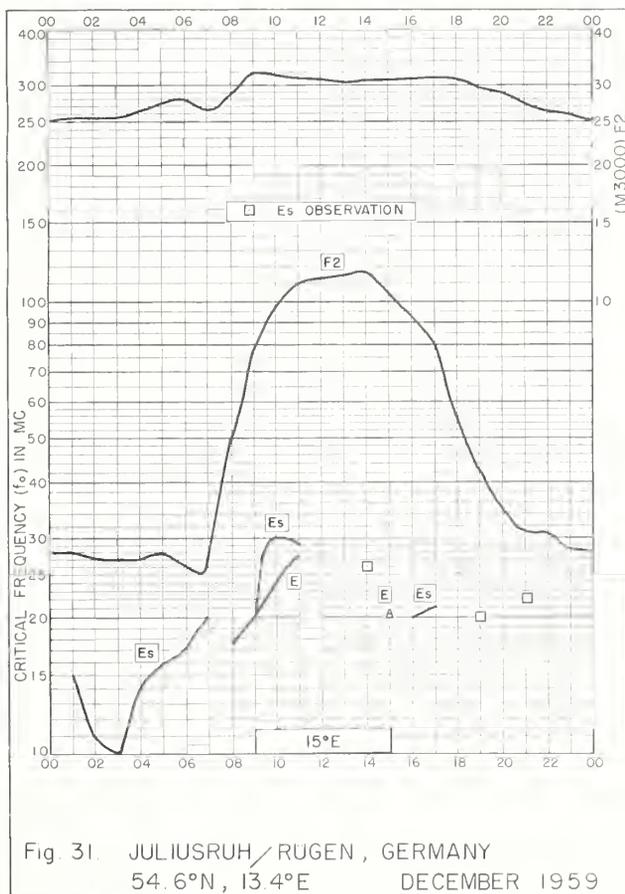
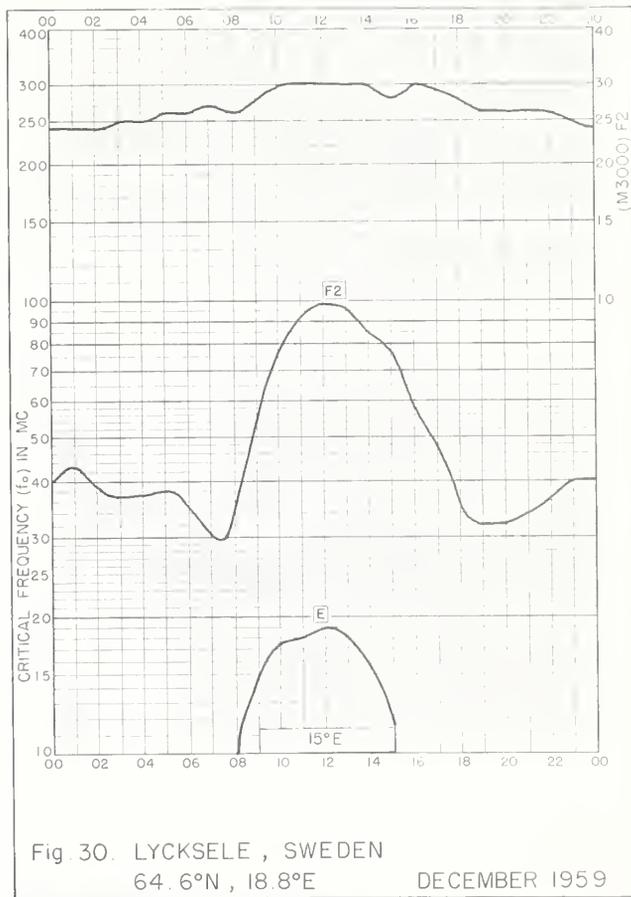
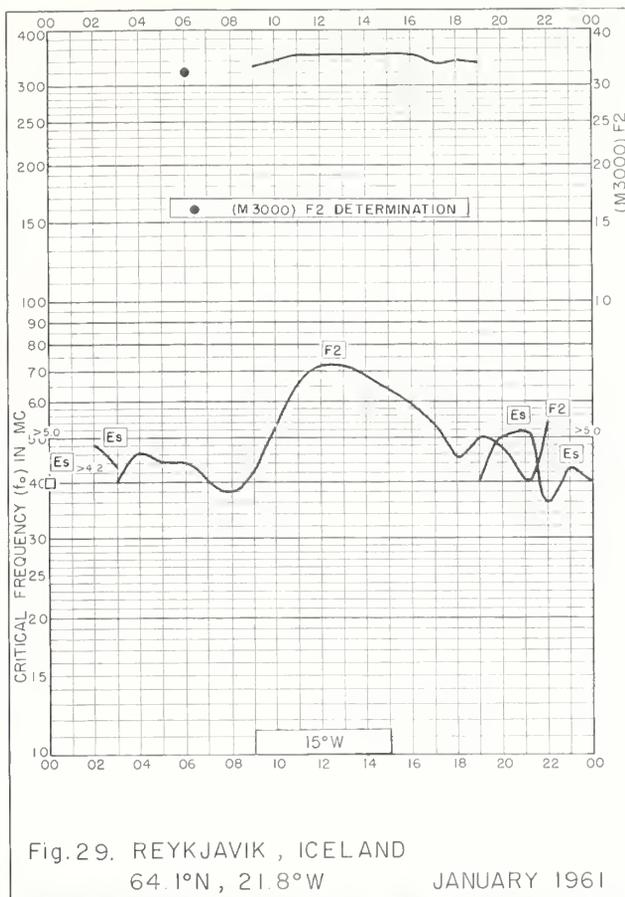


Fig. 28. REYKJAVIK, ICELAND  
64.1°N, 21.8°W  
FEBRUARY 1961



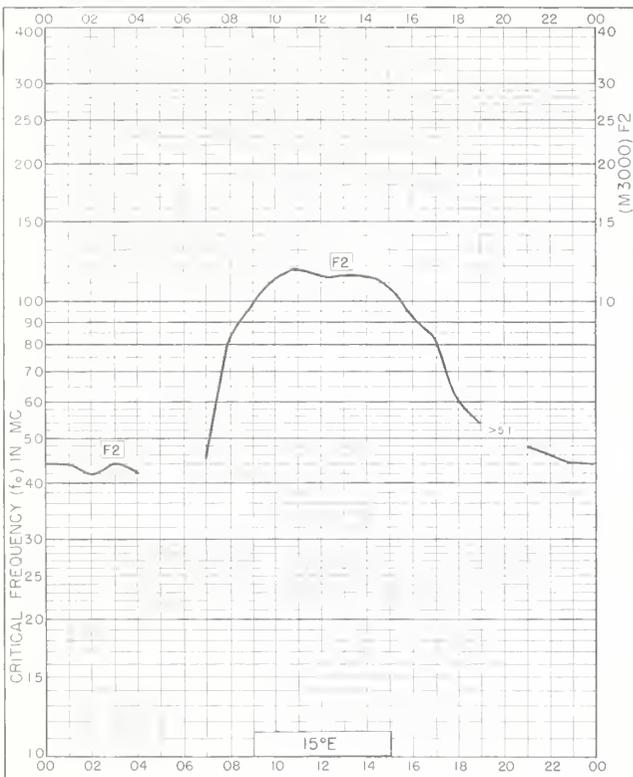


Fig. 33. GRAZ , AUSTRIA  
47.1°N, 15.5°E  
DECEMBER 1959

NBS 503

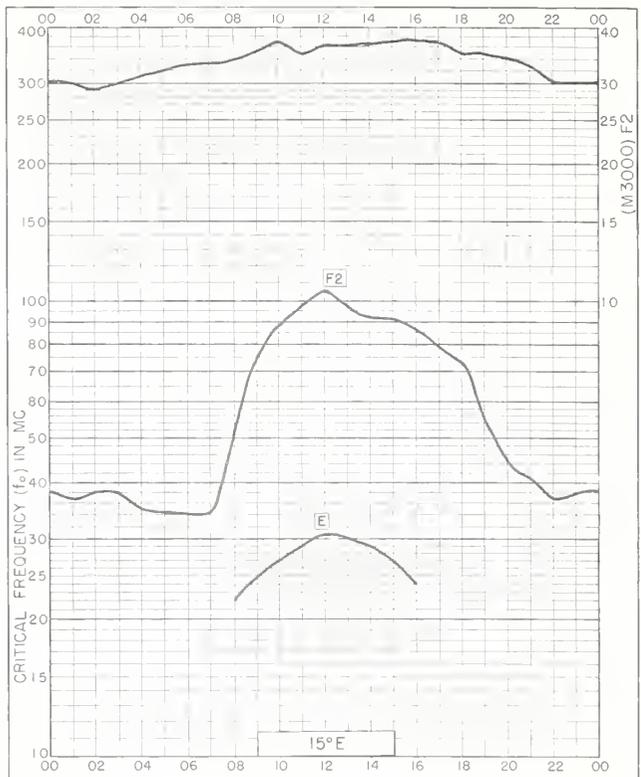


Fig. 34. SOTTENS, SWITZERLAND  
46.6°N, 6.7°E  
DECEMBER 1959

NBS 503

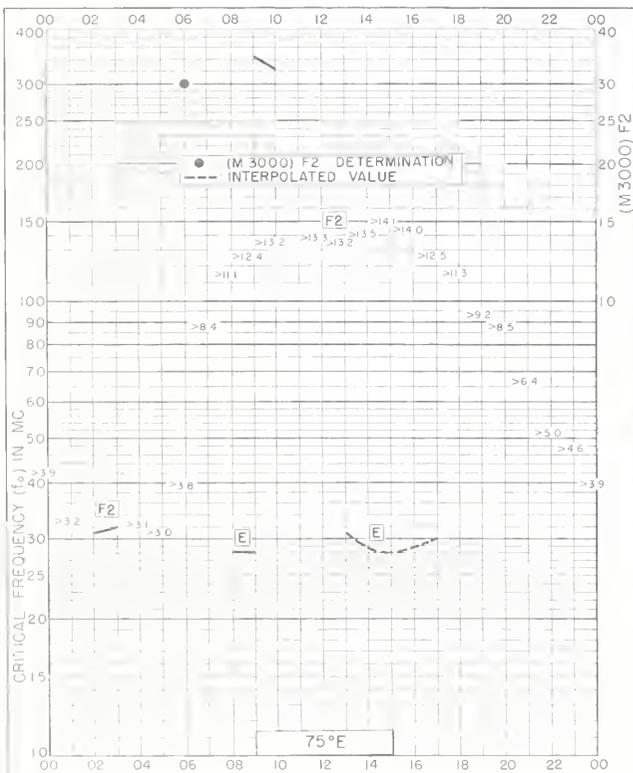


Fig. 35. DELHI , INDIA  
28.6°N, 77.2°E  
DECEMBER 1959

NBS 511

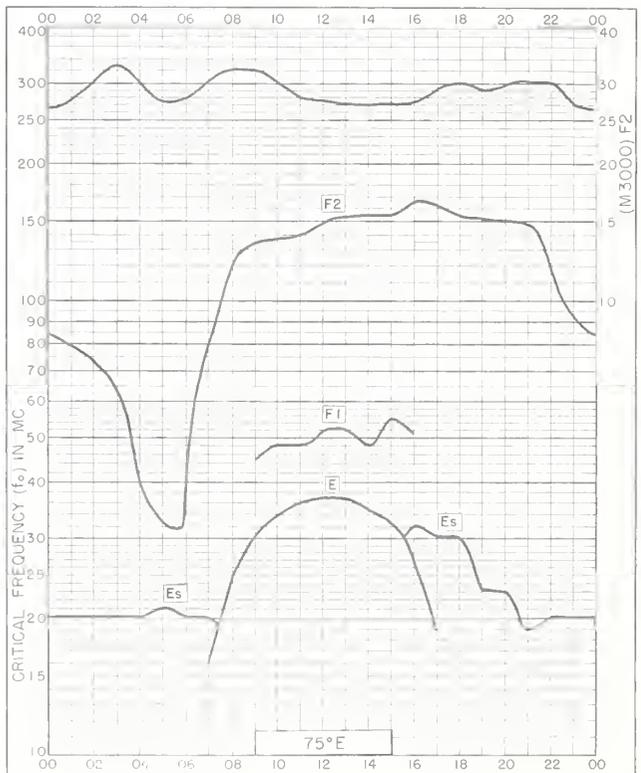


Fig. 36. AHMEDABAD, INDIA  
23.0°N, 72.6°E  
DECEMBER 1959

NBS 503

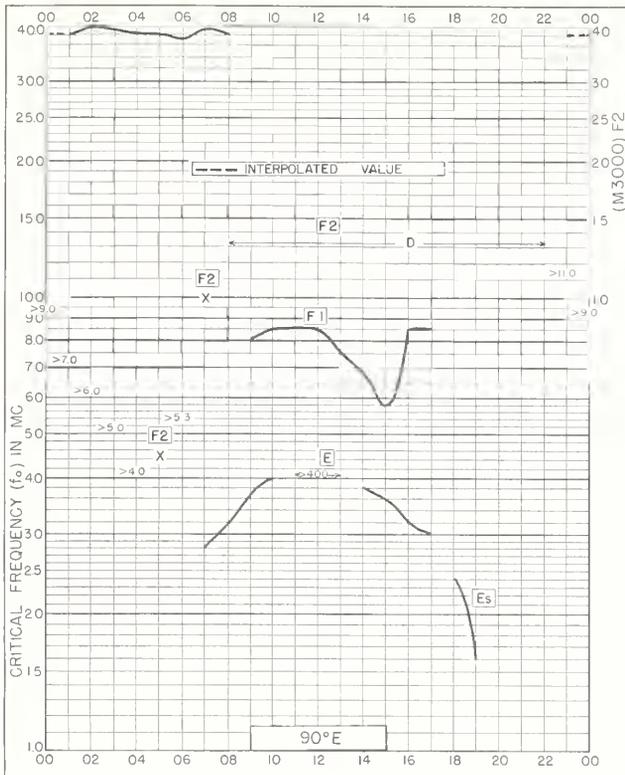


Fig. 37. CALCUTTA, INDIA  
23.0°N, 88.6°E DECEMBER 1959

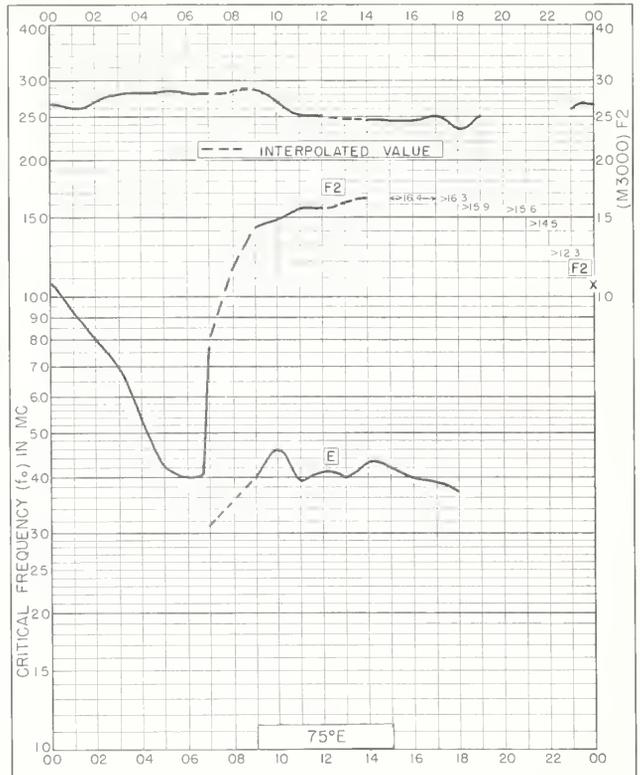


Fig. 38. BOMBAY, INDIA  
19.0°N, 72.8°E DECEMBER 1959

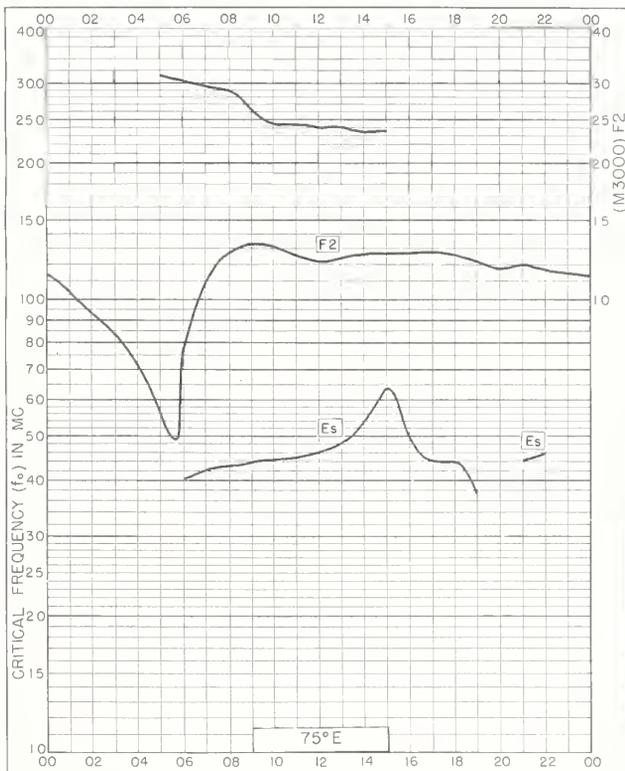


Fig. 39. MADRAS, INDIA  
13.1°N, 80.3°E DECEMBER 1959

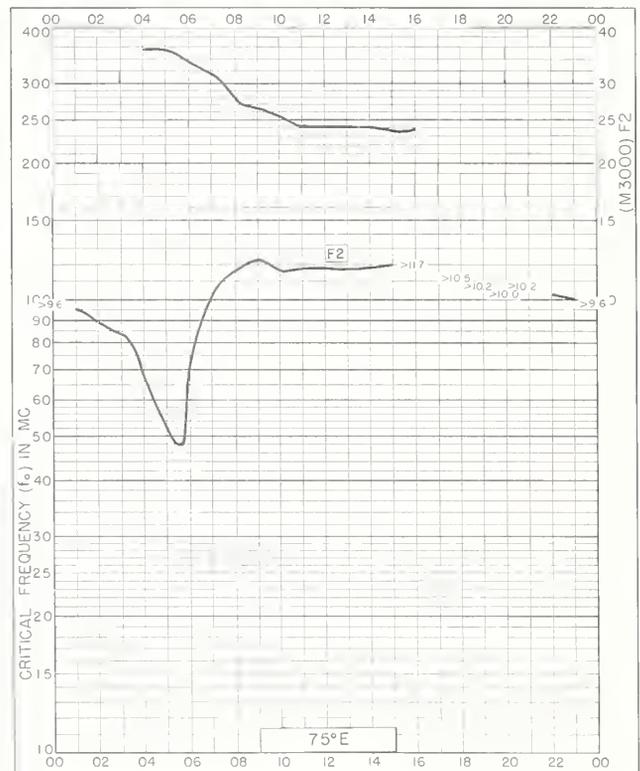


Fig. 40. TIRUCHY, INDIA  
10.8°N, 78.7°E DECEMBER 1959

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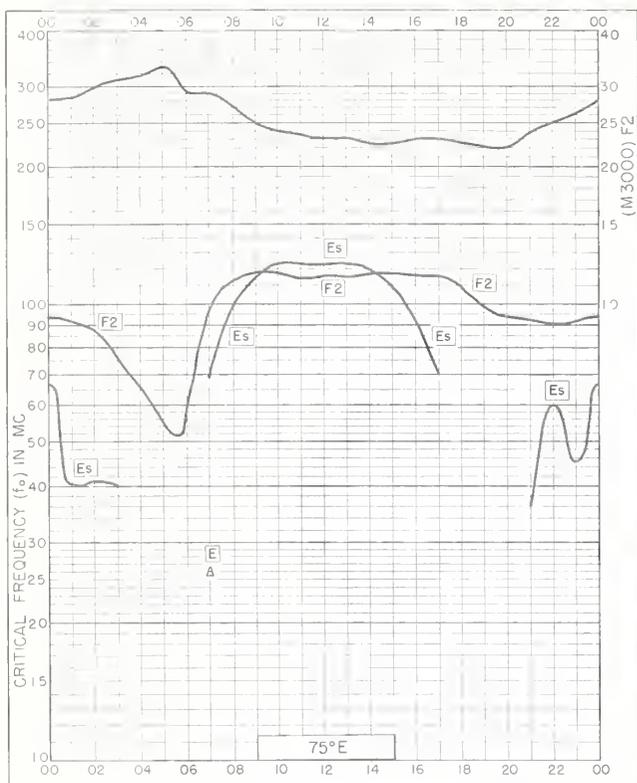


Fig. 41. KODAIKANAL, INDIA  
10.2°N, 77.5°E DECEMBER 1959

NBS 503

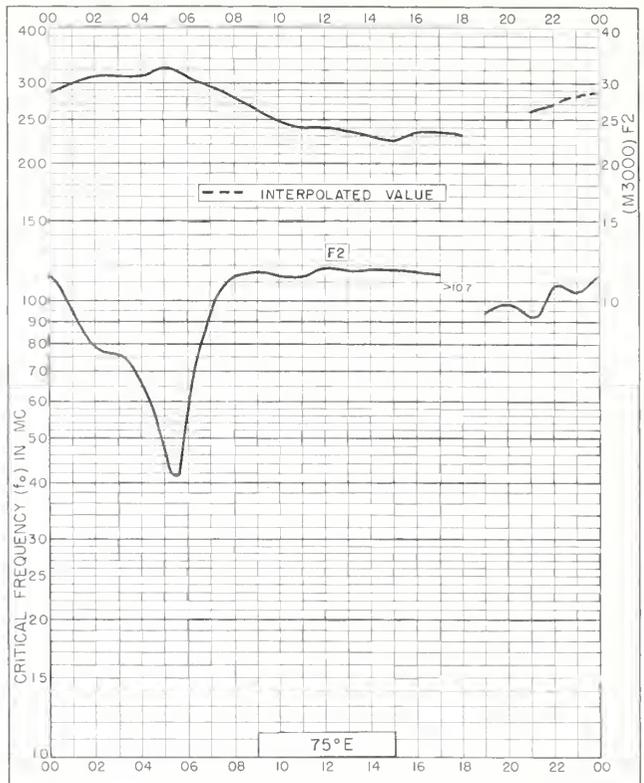


Fig. 42. TRIVANDRUM, INDIA  
8.5°N, 77.0°E DECEMBER 1959

NBS 503

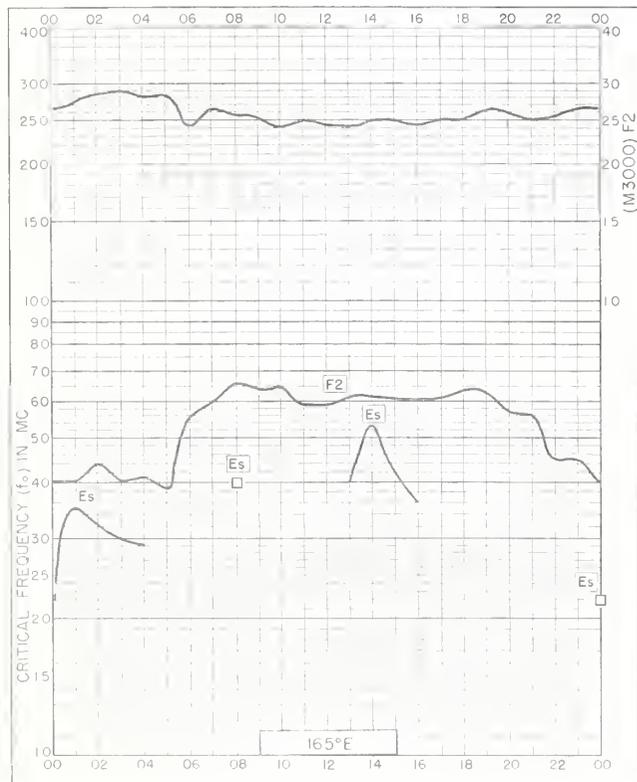


Fig. 43. CAPE HALLETT  
72.3°S, 170.2°E DECEMBER 1959

NBS 503

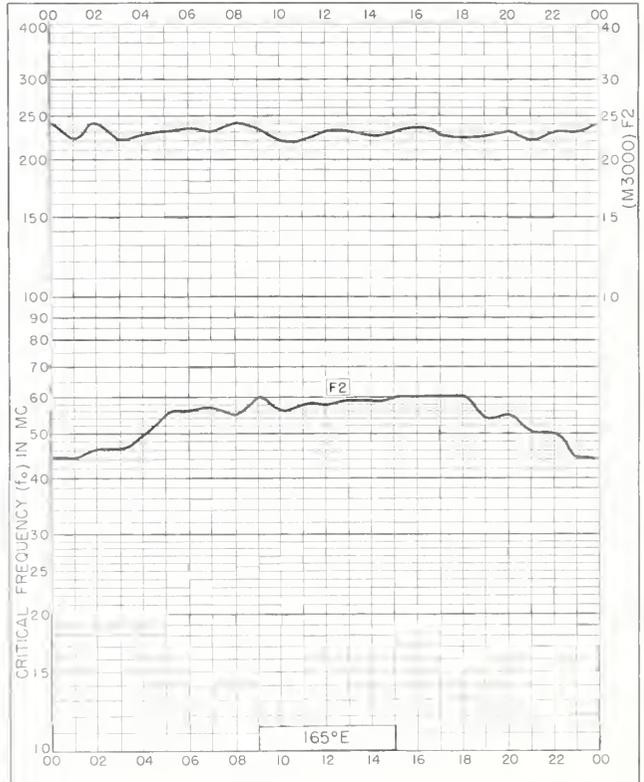


Fig. 44. SCOTT BASE  
77.9°S, 166.8°E DECEMBER 1959

NBS 503

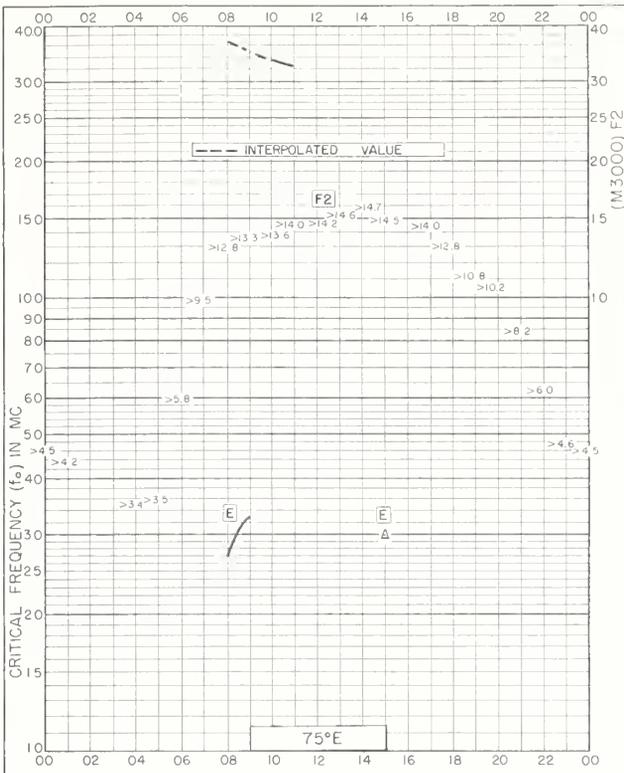


Fig 45. DELHI, INDIA  
28.6°N, 77.2°E NOVEMBER 1959

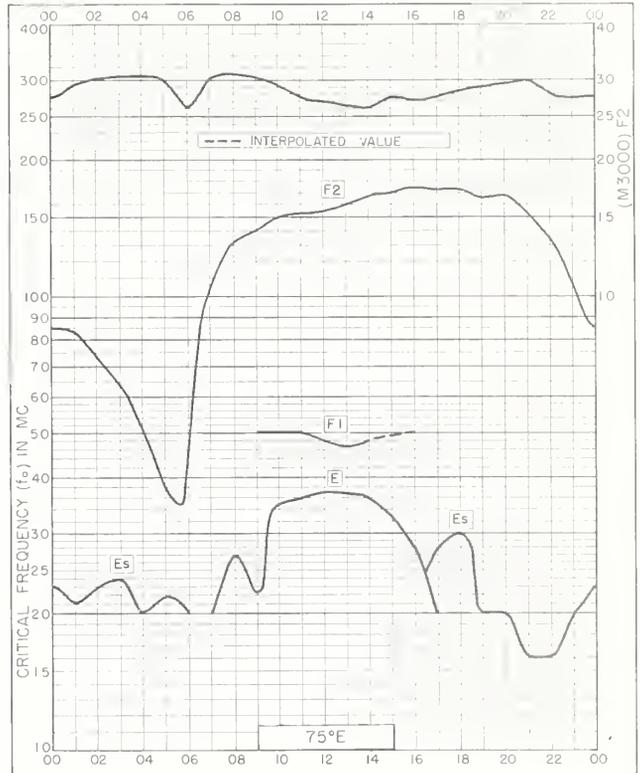


Fig 46. AHMEDABAD, INDIA  
23.0°N, 72.6°E NOVEMBER 1959

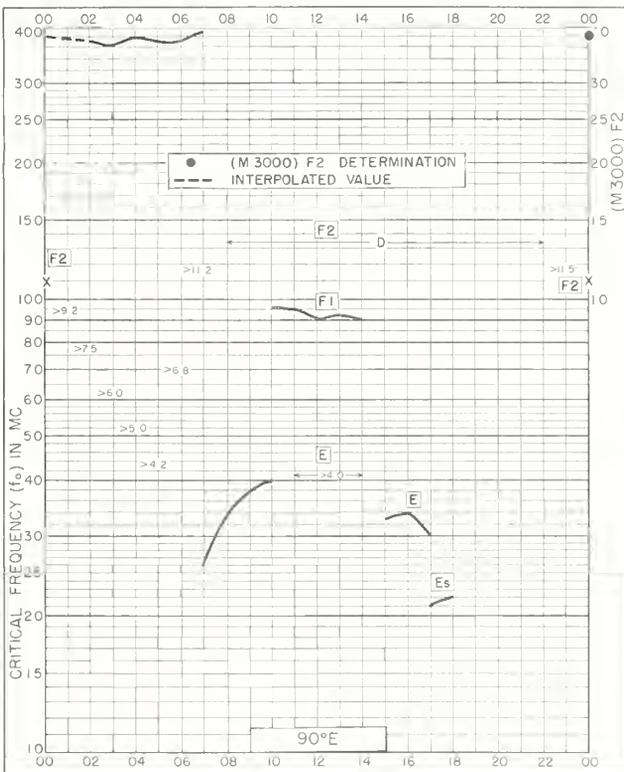


Fig 47. CALCUTTA, INDIA  
23.0°N, 88.6°E NOVEMBER 1959

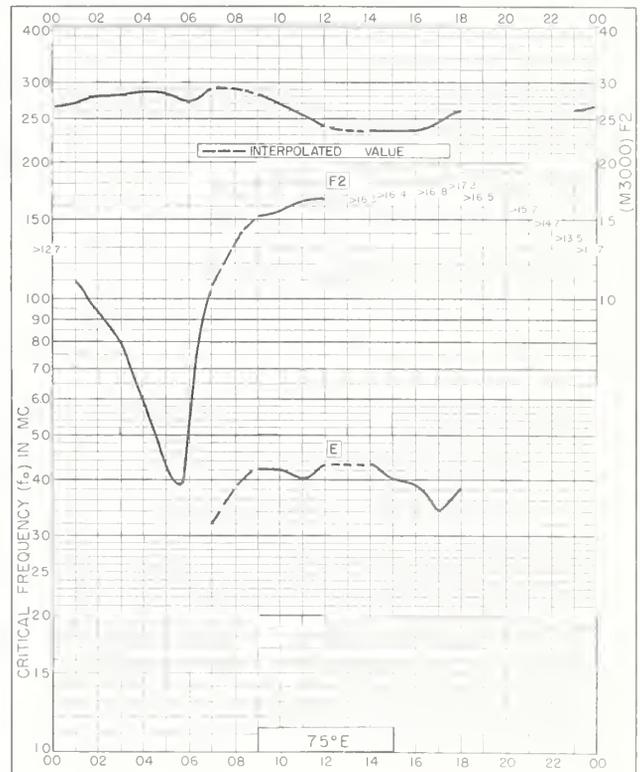


Fig 48. BOMBAY, INDIA  
19.0°N, 72.8°E NOVEMBER 1959

NBS 501

NBS 513

NBS 501

NBS 513

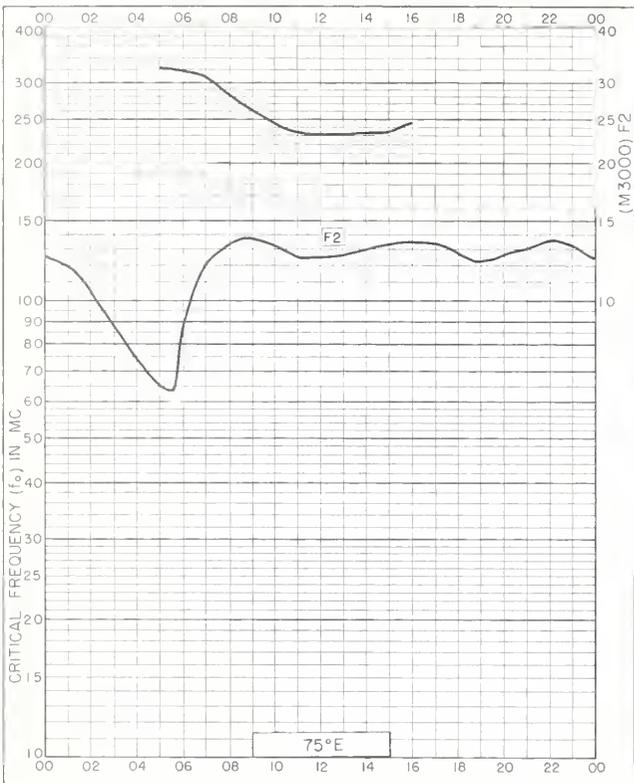


Fig. 49. MADRAS, INDIA  
13.1°N, 80.3°E  
NOVEMBER 1959

NBS 501

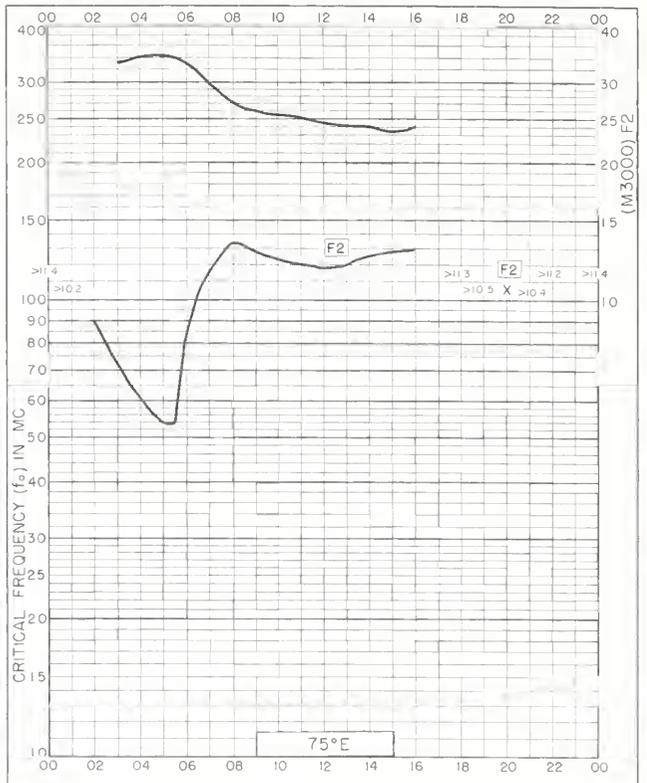


Fig. 50. TIRUCHY, INDIA  
10.8°N, 78.7°E  
NOVEMBER 1959

NBS 501



Fig. 51. KODAIKANAL, INDIA  
10.2°N, 77.5°E  
NOVEMBER 1959

NBS 501

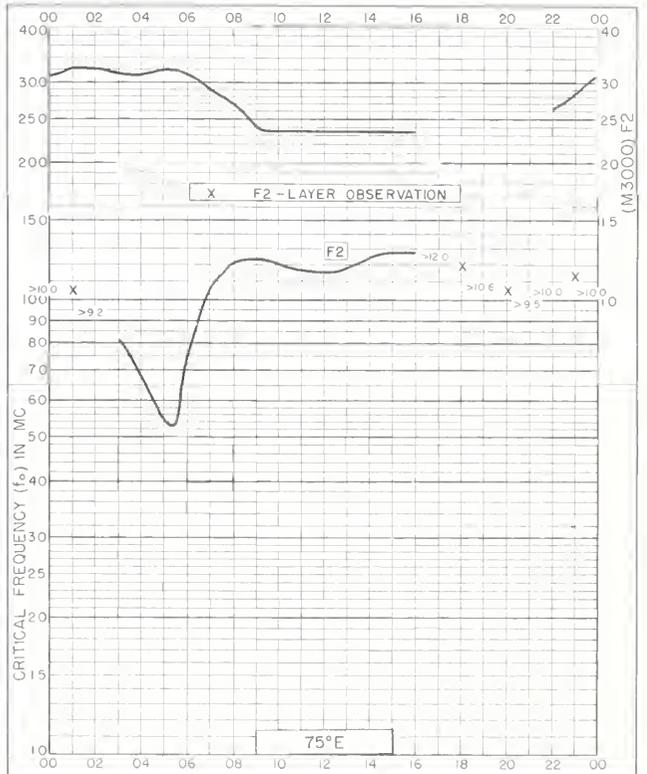


Fig. 52. TRIVANDRUM, INDIA  
8.5°N, 77.0°E  
NOVEMBER 1959

NBS 501

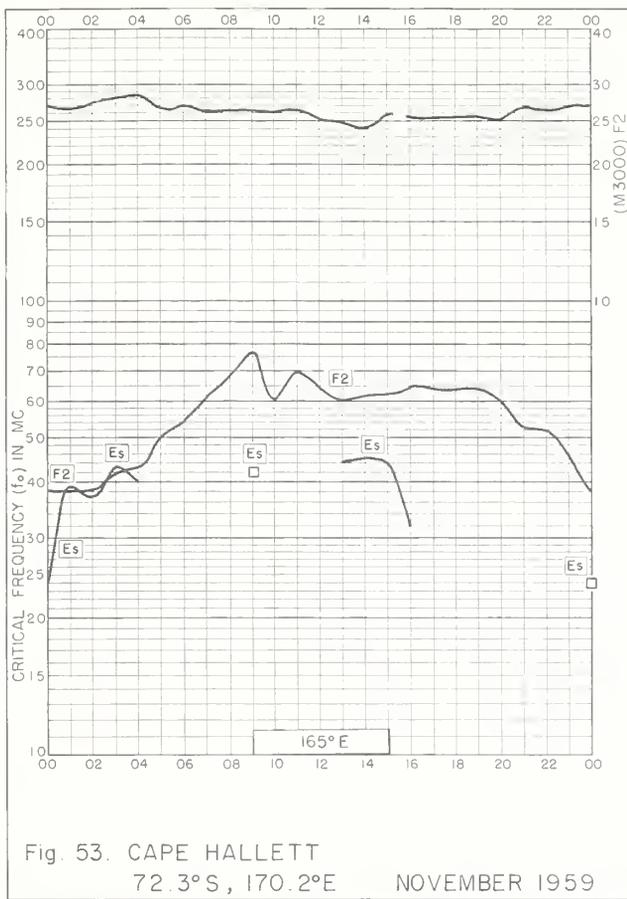


Fig. 53. CAPE HALLETT  
72.3°S, 170.2°E NOVEMBER 1959

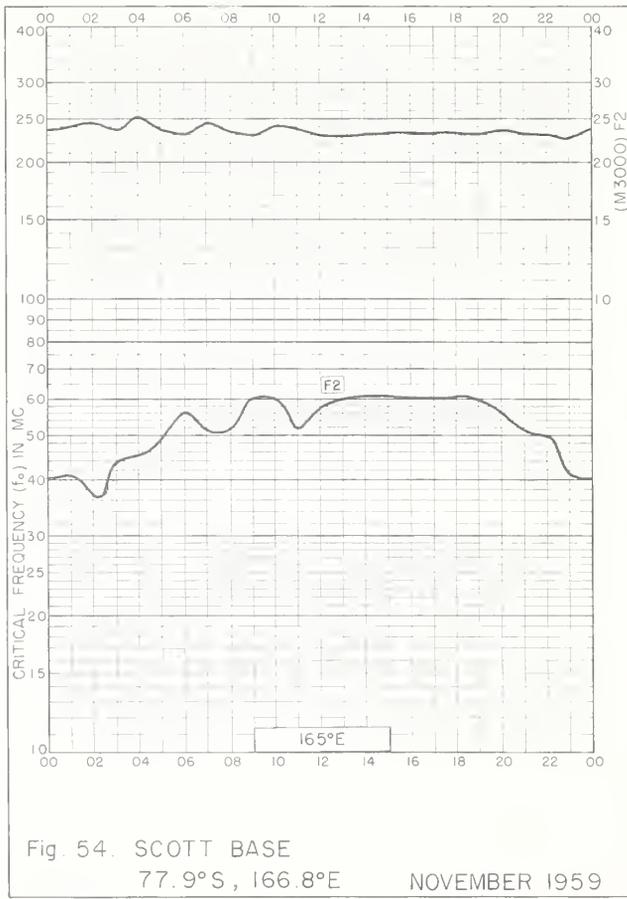


Fig. 54. SCOTT BASE  
77.9°S, 166.8°E NOVEMBER 1959

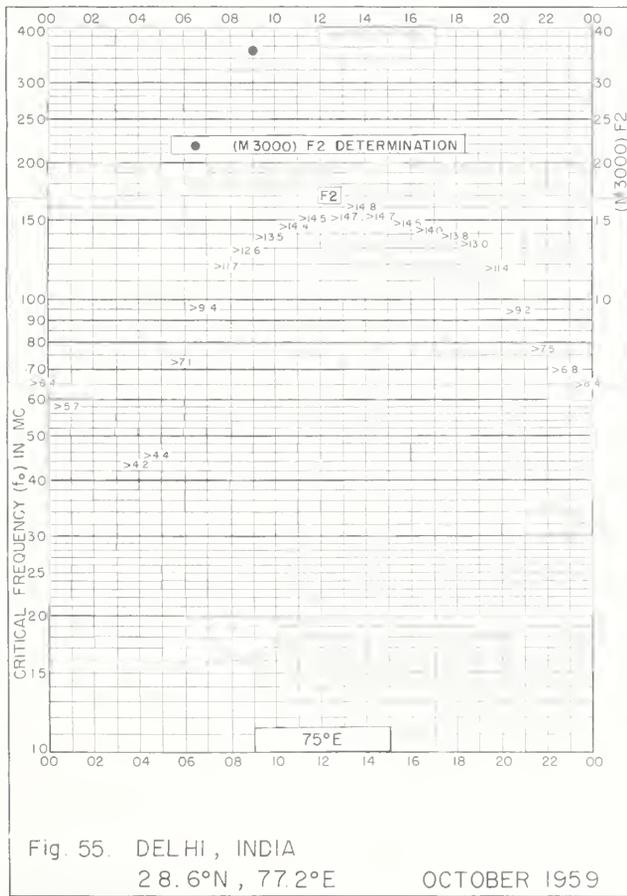


Fig. 55. DELHI, INDIA  
28.6°N, 77.2°E OCTOBER 1959

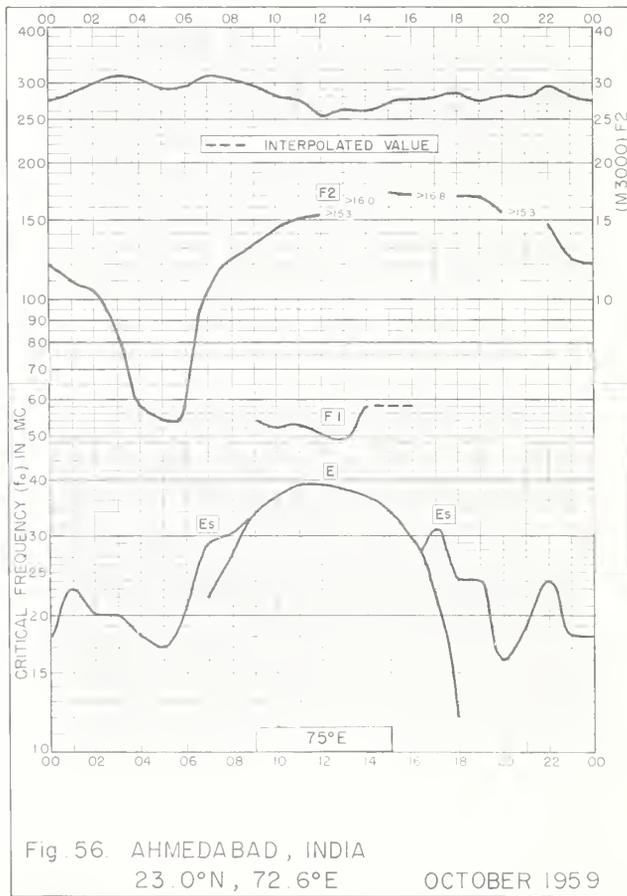


Fig. 56. AHMEDABAD, INDIA  
23.0°N, 72.6°E OCTOBER 1959

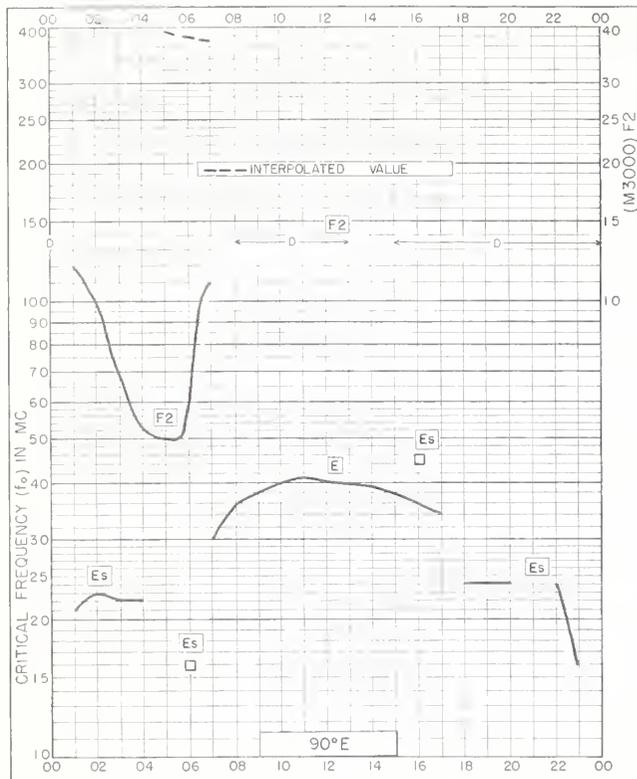


Fig 57. CALCUTTA, INDIA  
23.0°N, 88.6°E  
OCTOBER 1959

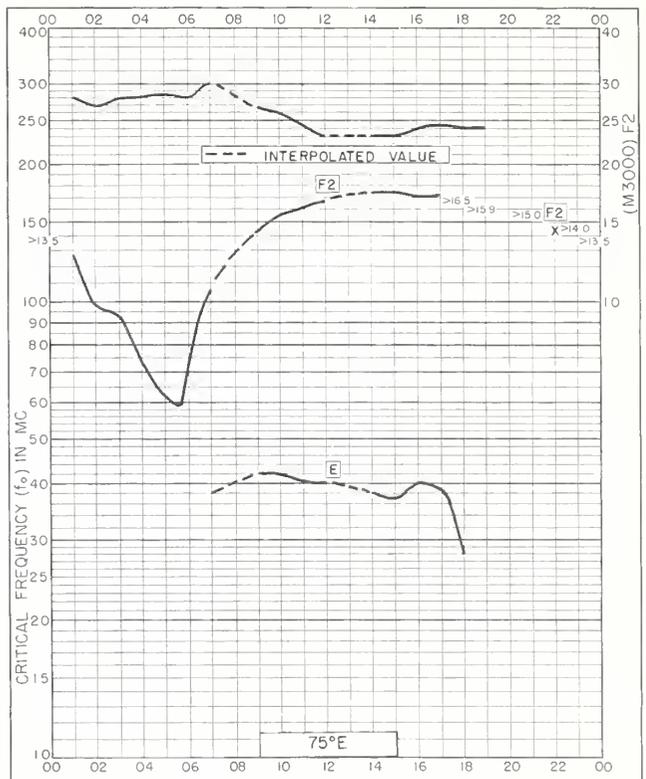


Fig 58. BOMBAY, INDIA  
19.0°N, 72.8°E  
OCTOBER 1959

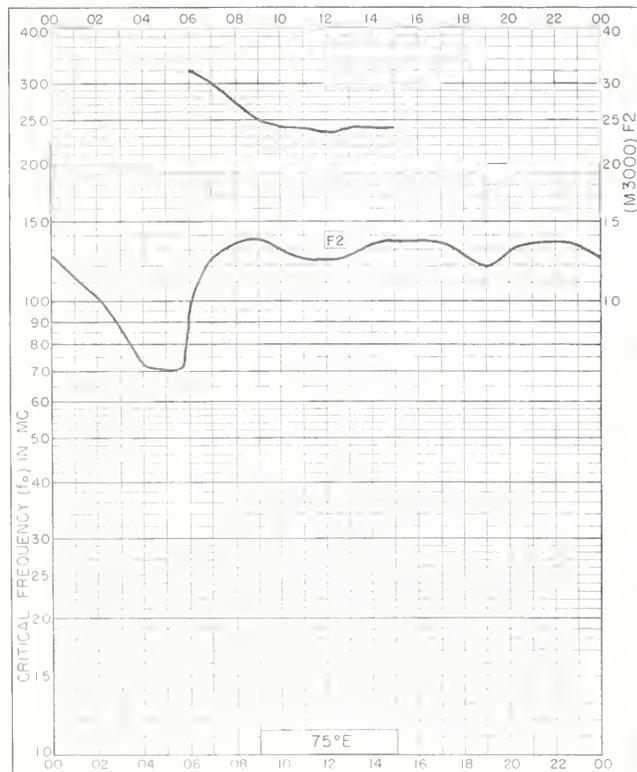


Fig 59. MADRAS, INDIA  
13.1°N, 80.3°E  
OCTOBER 1959

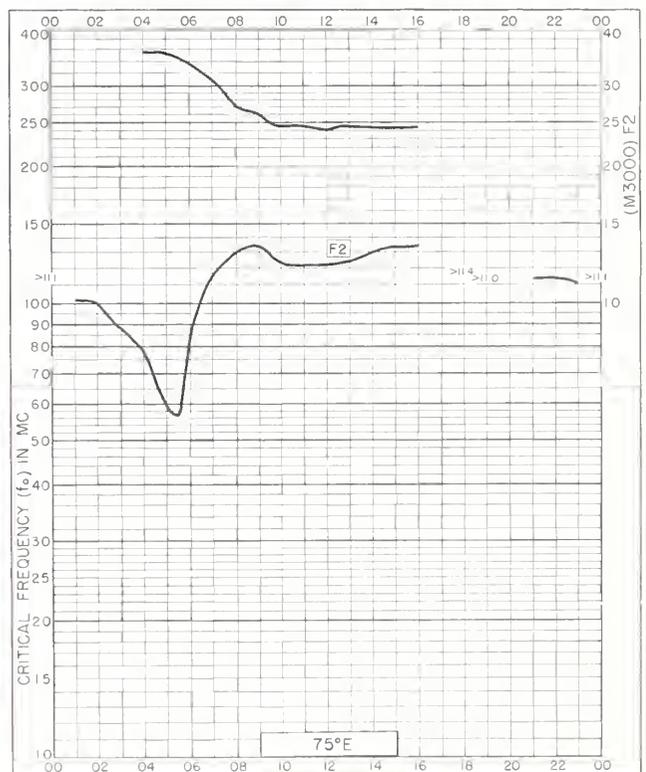


Fig 60. TIRUCHY, INDIA  
10.8°N, 78.7°E  
OCTOBER 1959



Fig. 61. KODAIKANAL, INDIA  
10.2°N, 77.5°E  
OCTOBER 1959

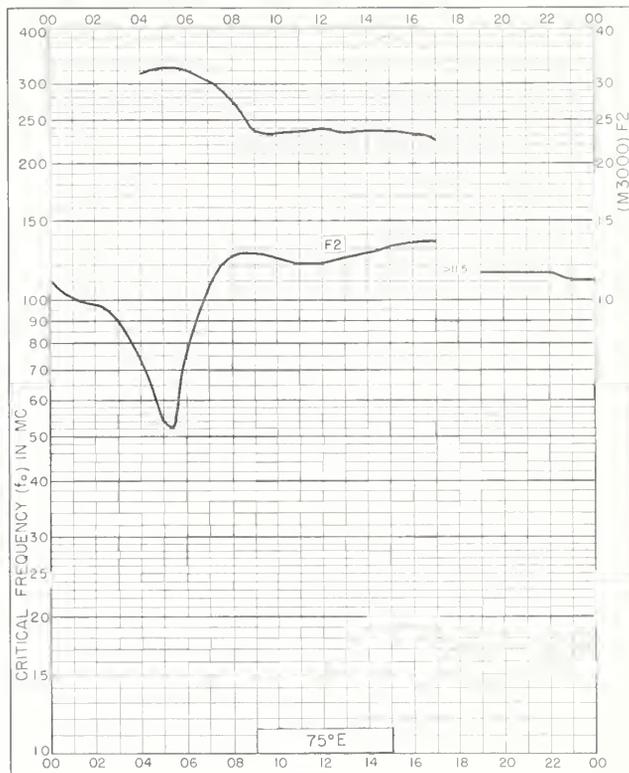


Fig. 62. TRIVANDRUM, INDIA  
8.5°N, 77.0°E  
OCTOBER 1959

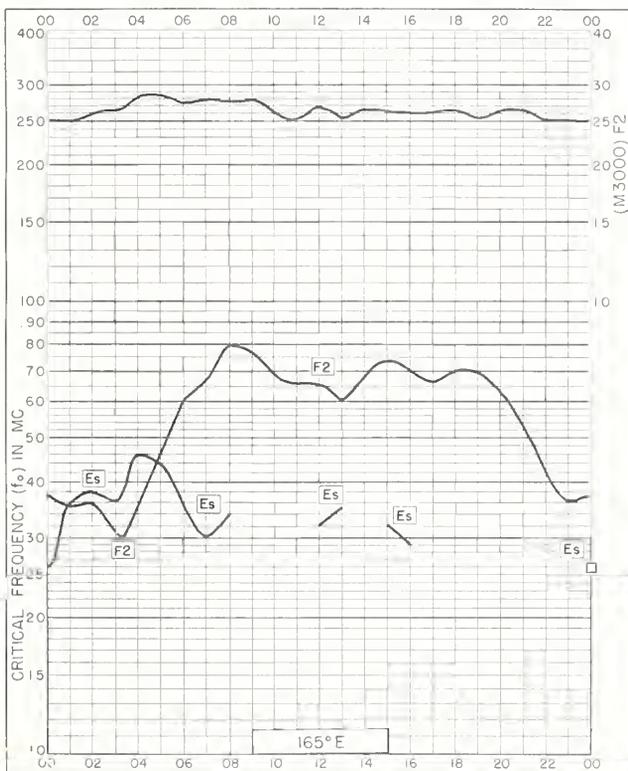


Fig. 63. CAPE HALLETT  
72.3°S, 170.2°E  
OCTOBER 1959

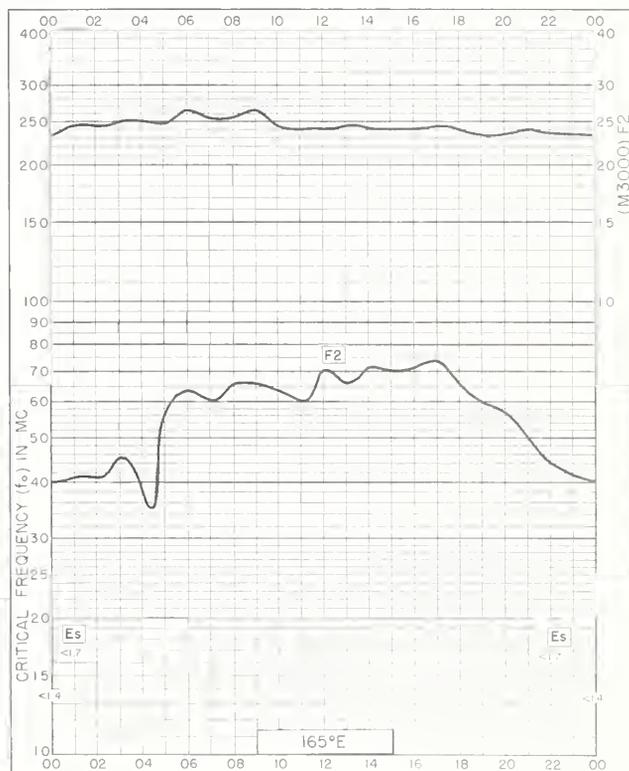


Fig. 64. SCOTT BASE  
77.9°S, 166.8°E  
OCTOBER 1959

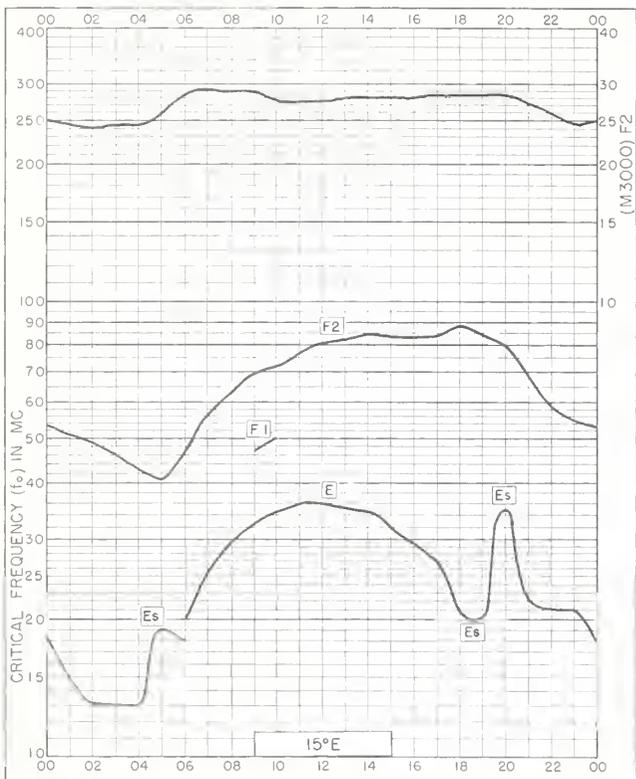


Fig. 65. JULIUSRUH/RÜGEN, GERMANY  
54.6°N, 13.4°E SEPTEMBER 1959

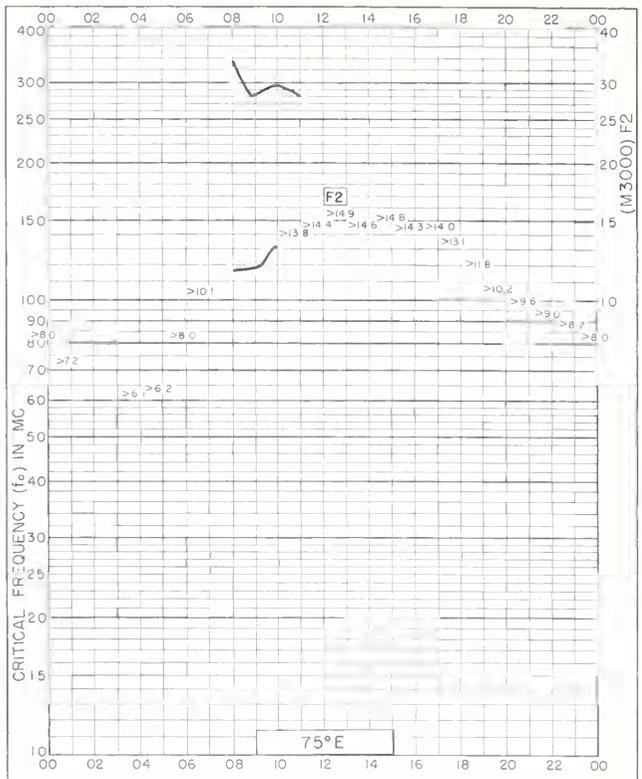


Fig. 66. DELHI, INDIA  
28.6°N, 77.2°E SEPTEMBER 1959

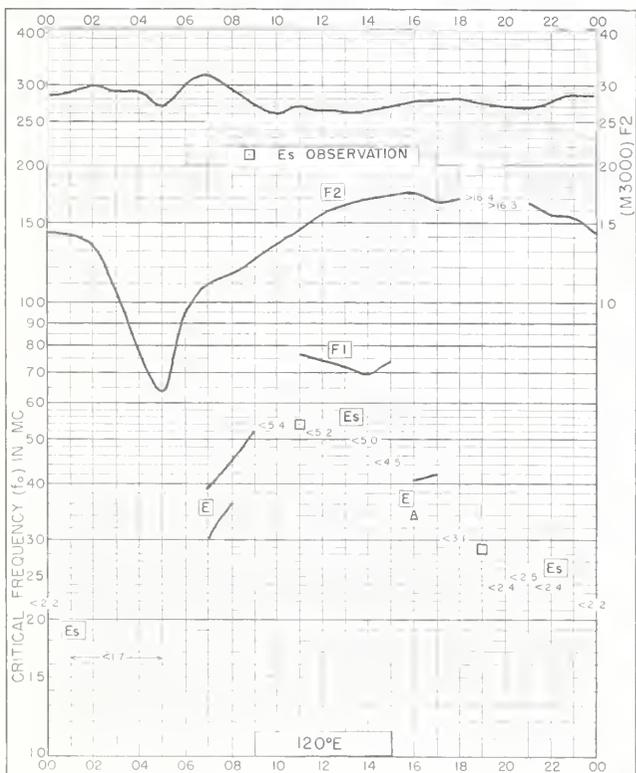


Fig. 67. FORMOSA, CHINA  
25.0°N, 121.5°E SEPTEMBER 1959

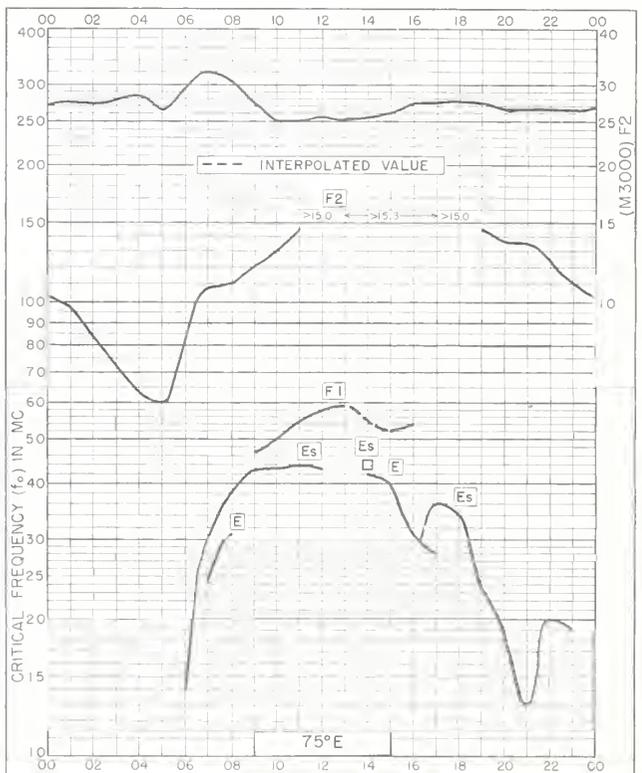


Fig. 68. AHMEDABAD, INDIA  
23.0°N, 72.6°E SEPTEMBER 1959

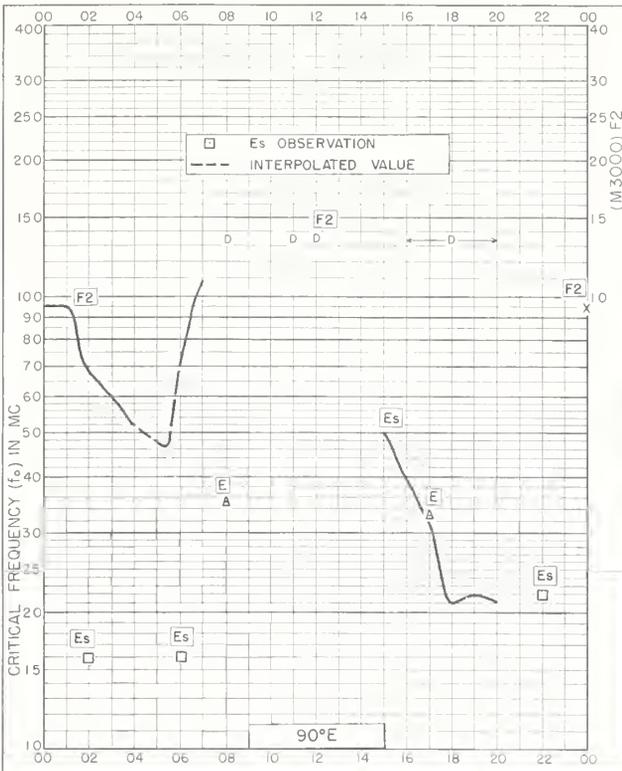


Fig 69. CALCUTTA, INDIA  
23.0°N, 88.6°E SEPTEMBER 1959

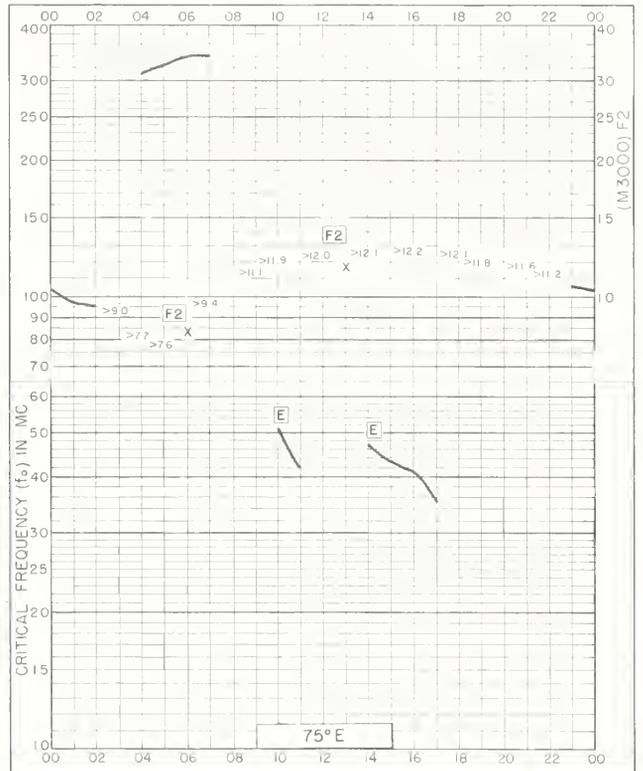


Fig 70. BOMBAY, INDIA  
19.0°N, 72.8°E SEPTEMBER 1959

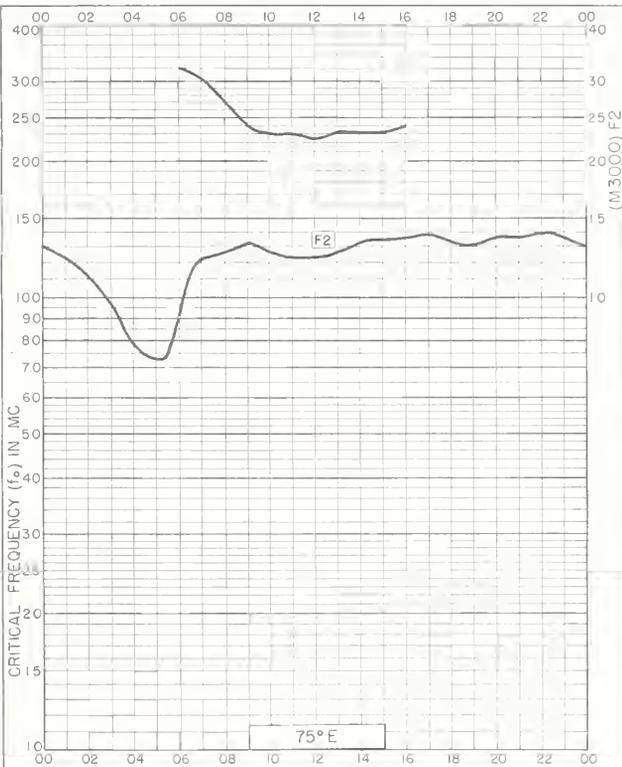


Fig 71. MADRAS, INDIA  
13.1°N, 80.3°E SEPTEMBER 1959

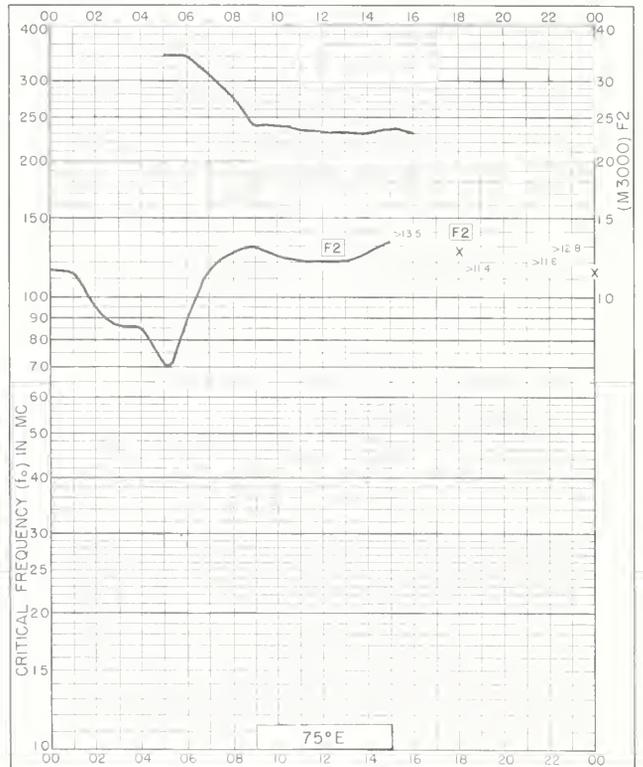


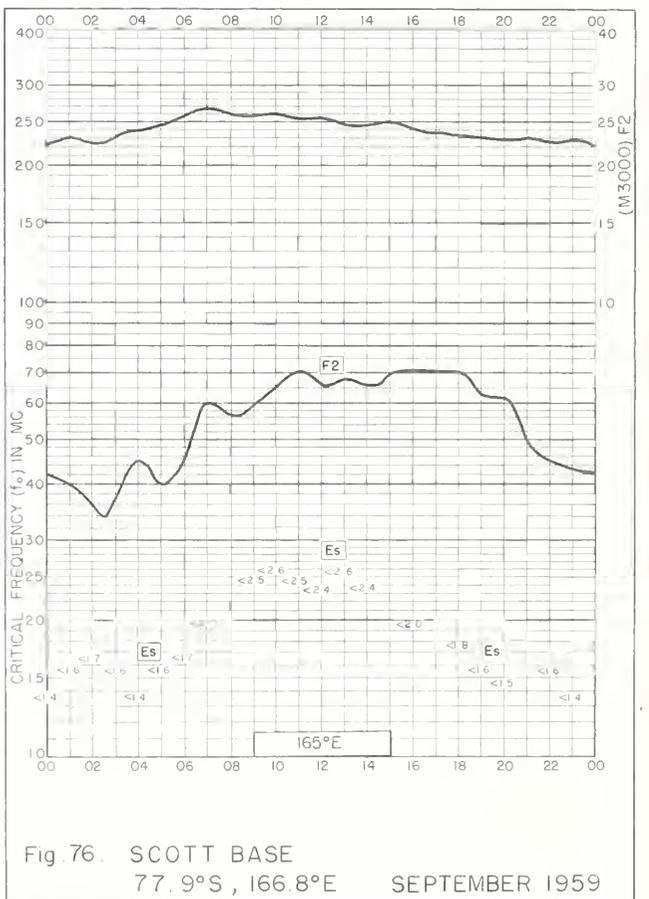
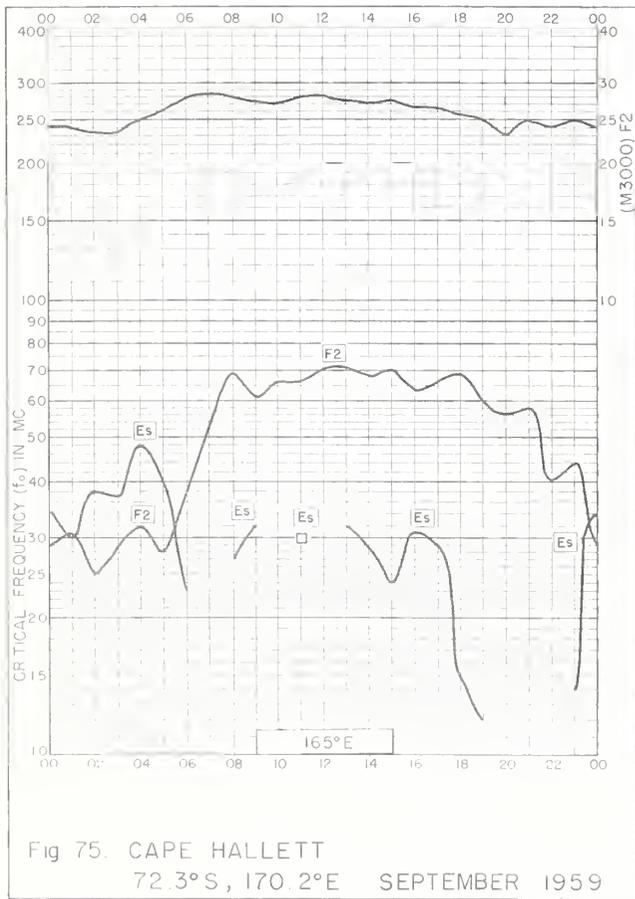
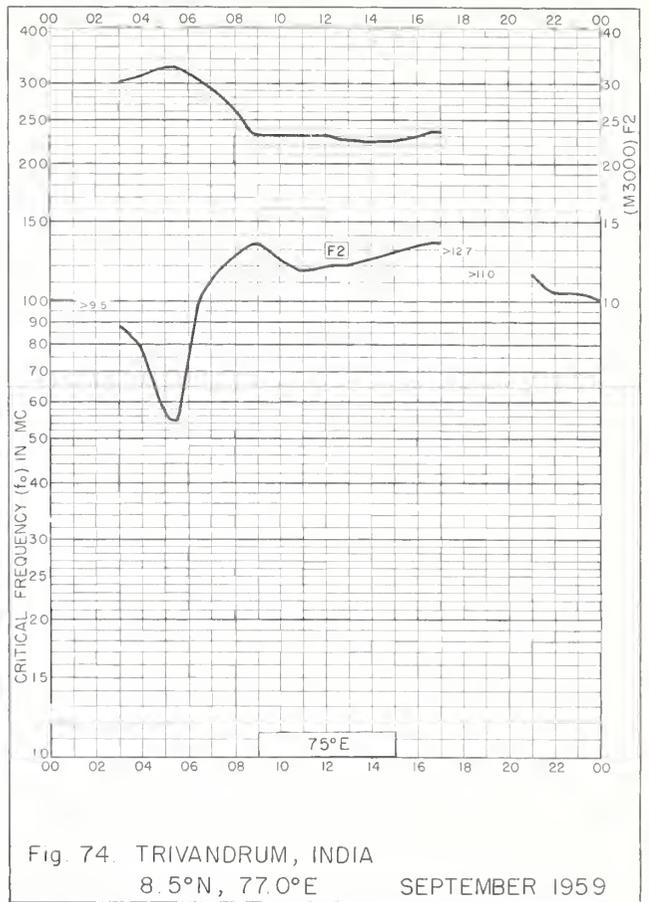
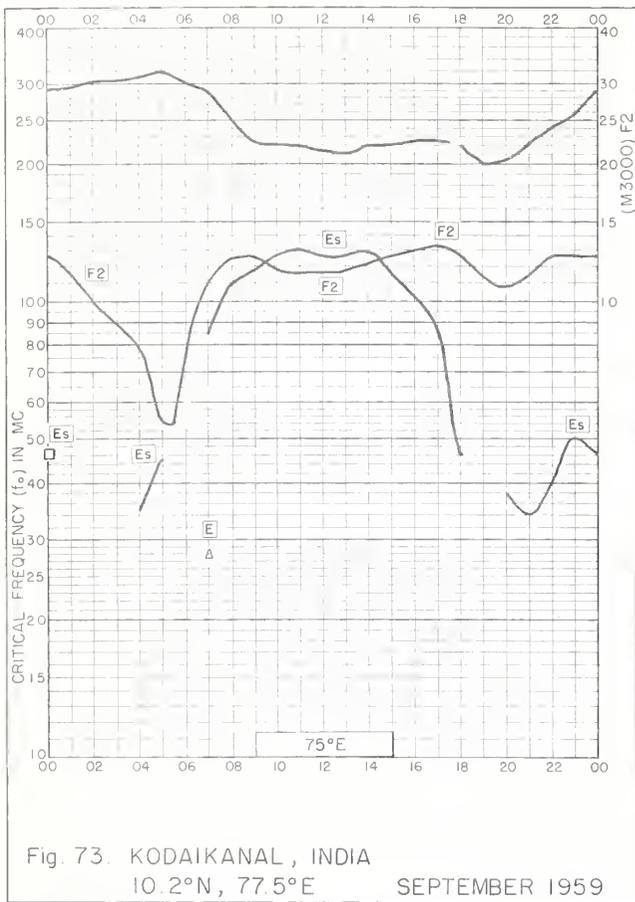
Fig 72. TIRUCHY, INDIA  
10.8°N, 78.7°E SEPTEMBER 1959

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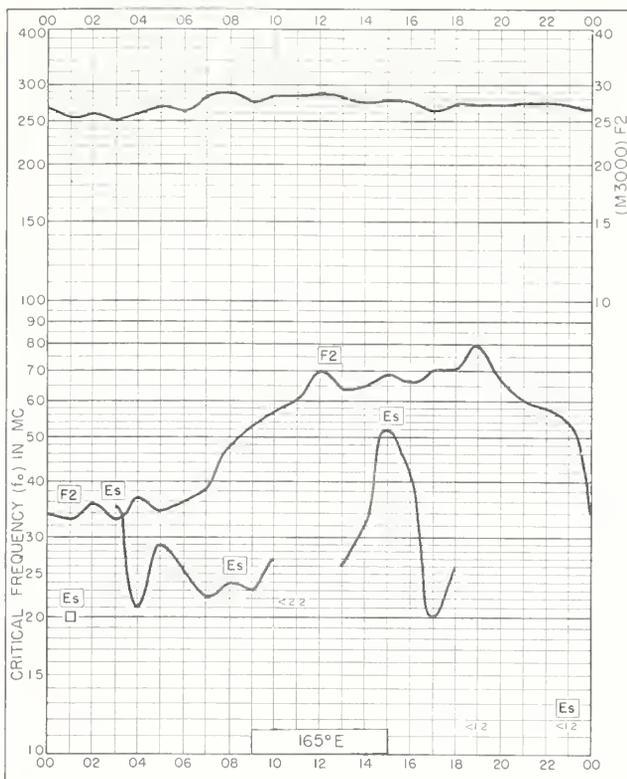


Fig. 77. CAPE HALLETT  
72.3°S, 170.2°E  
AUGUST 1959

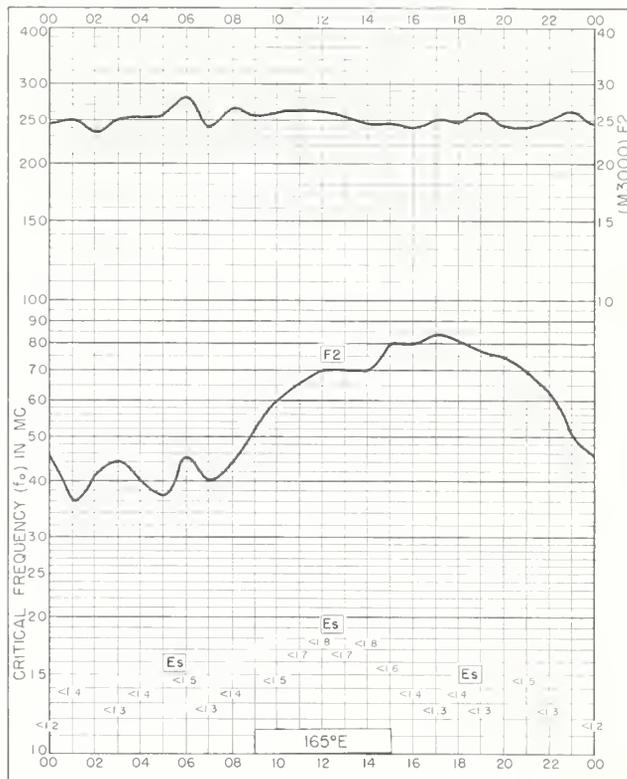


Fig. 78. SCOTT BASE  
77.9°S, 166.8°E  
AUGUST 1959

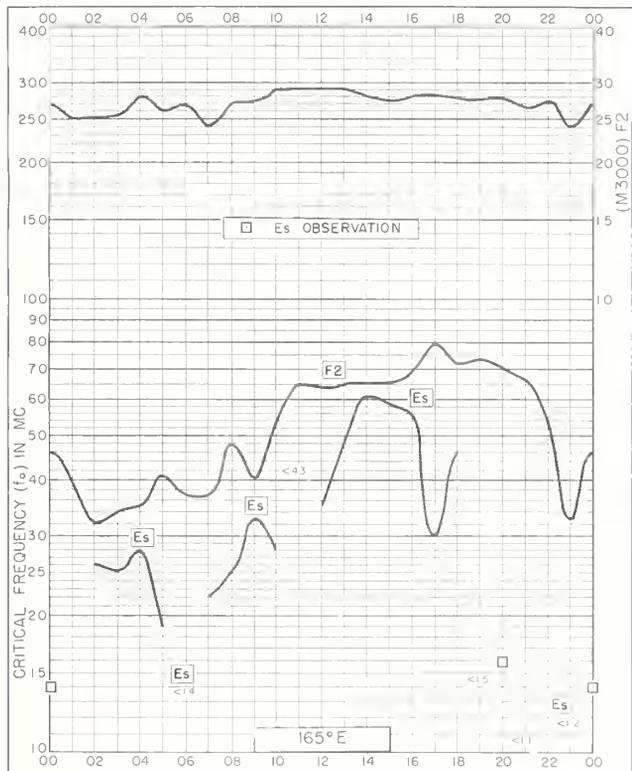


Fig. 79. CAPE HALLETT  
72.3°S, 170.2°E  
JULY 1959

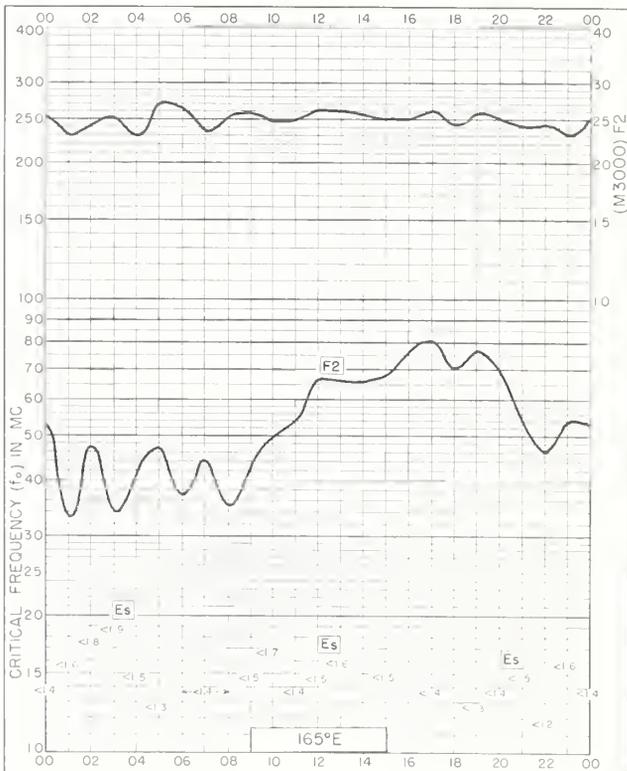


Fig. 80. SCOTT BASE  
77.9°S, 166.8°E  
JULY 1959

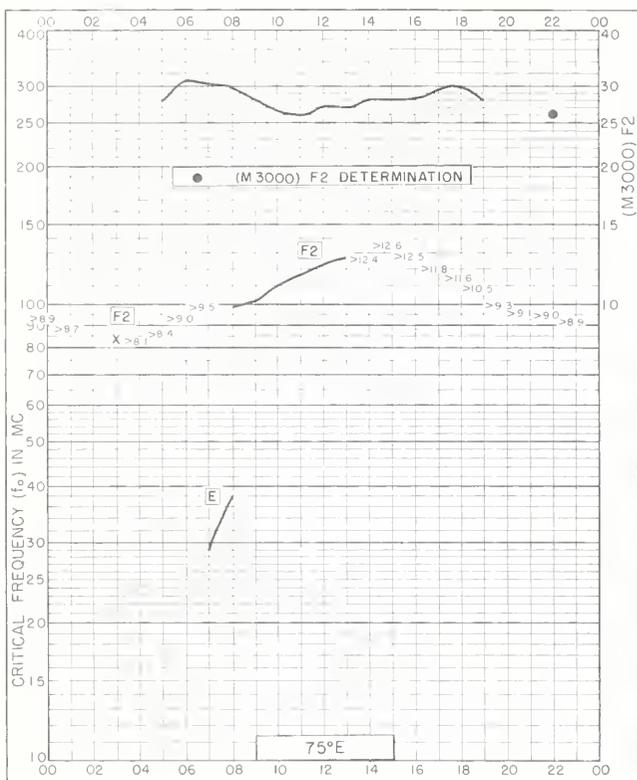


Fig. 81. DELHI, INDIA  
28.6°N, 77.2°E  
JUNE 1959

NBS 503



Fig. 82. AHMADABAD, INDIA  
23.0°N, 72.6°E  
JUNE 1959

NBS 503

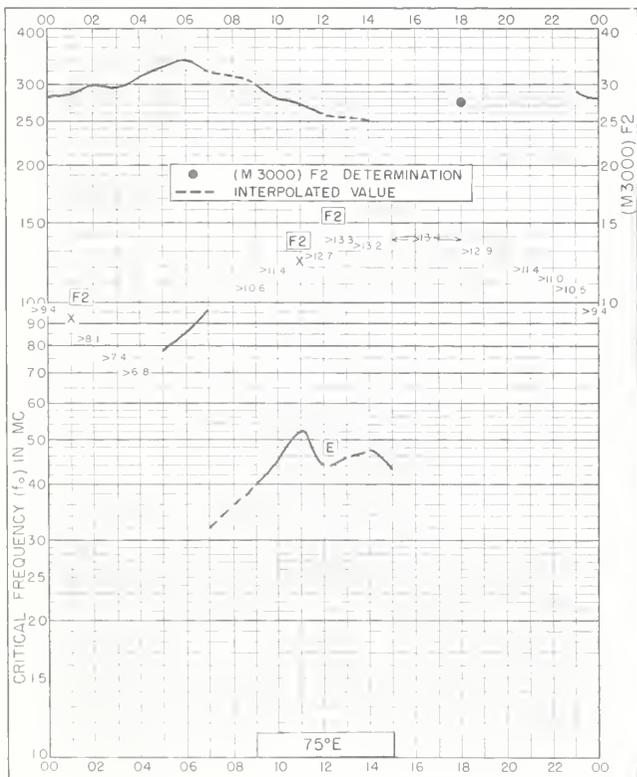


Fig. 83. BOMBAY, INDIA  
19.0°N, 72.8°E  
JUNE 1959

NBS 503

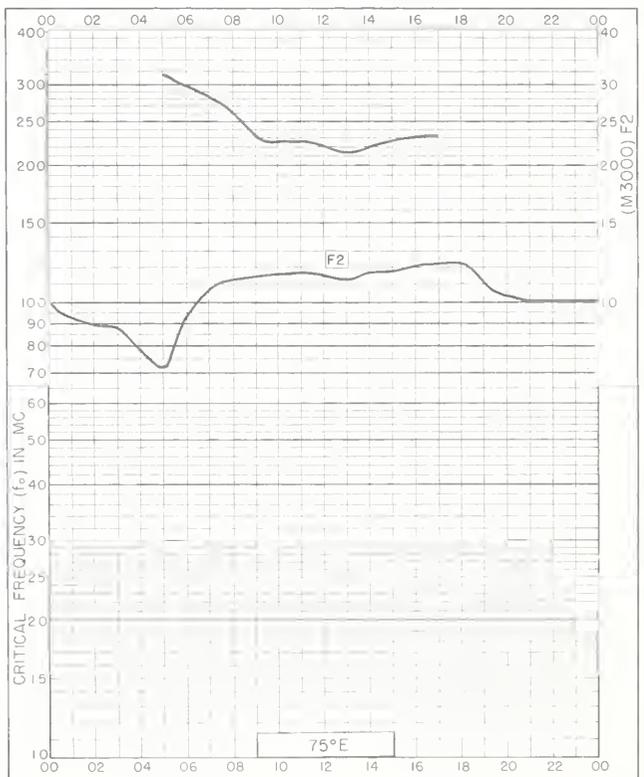


Fig. 84. MADRAS, INDIA  
13.1°N, 80.3°E  
JUNE 1959

NBS 503

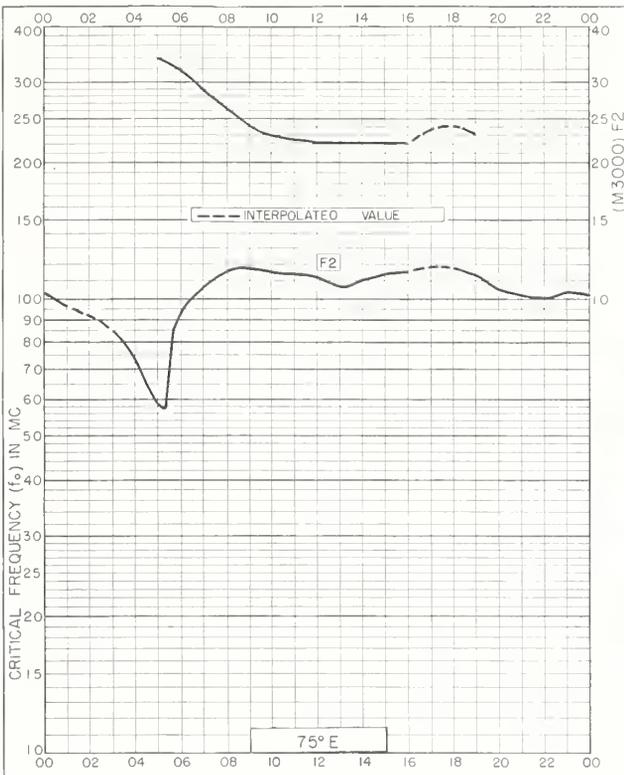


Fig. 85. TIRUCHY, INDIA  
10.8°N, 78.7°E  
JUNE 1959

NBS 503

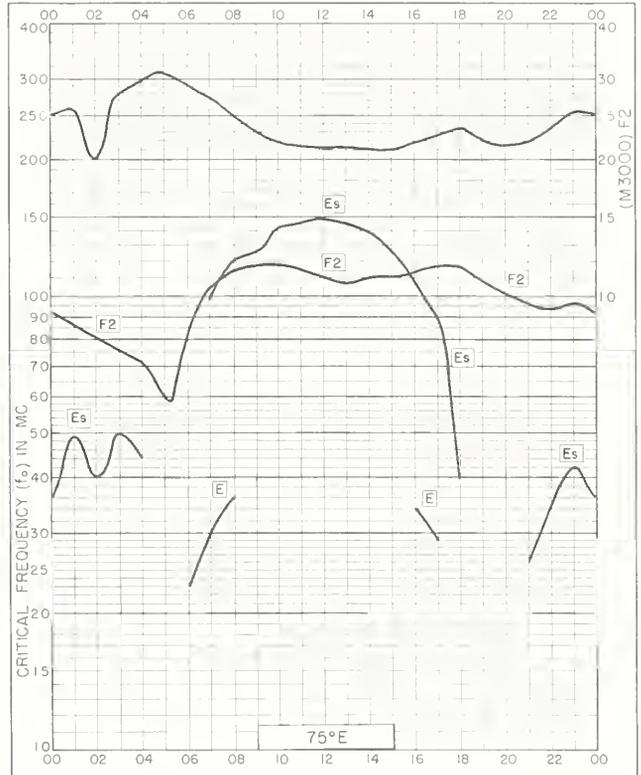


Fig. 86. KODAIKANAL, INDIA  
10.2°N, 77.5°E  
JUNE 1959

NBS 503

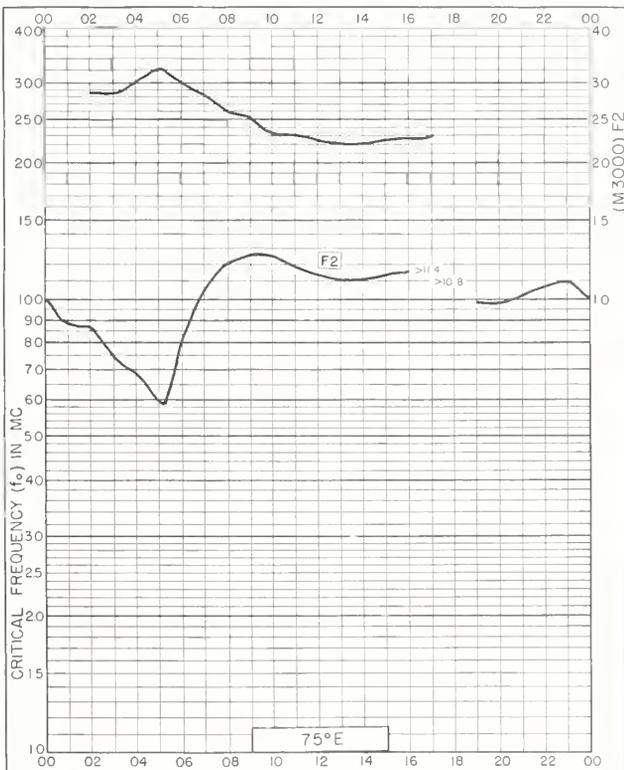


Fig. 87. TRIVANDRUM, INDIA  
8.5°N, 77.0°E  
JUNE 1959

NBS 503

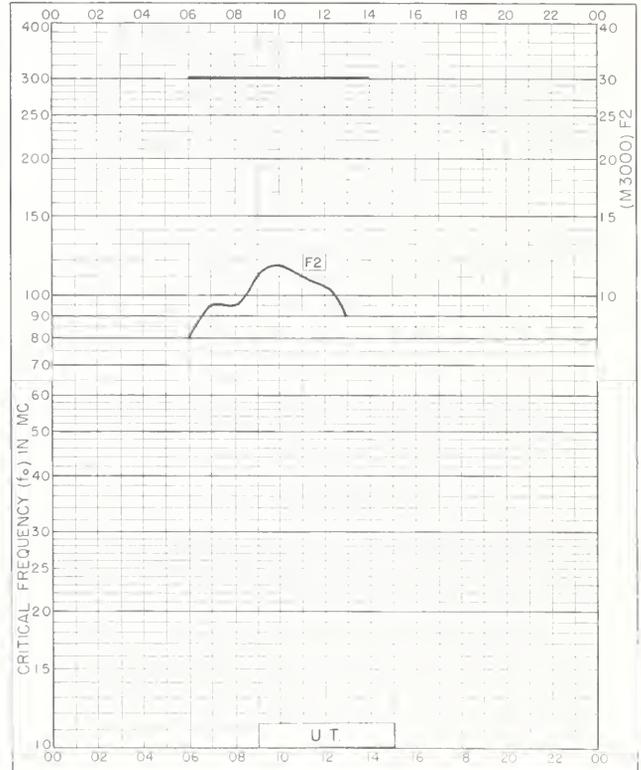


Fig. 88. MAWSON  
67.6°S, 62.9°E  
JUNE 1959

NBS 503

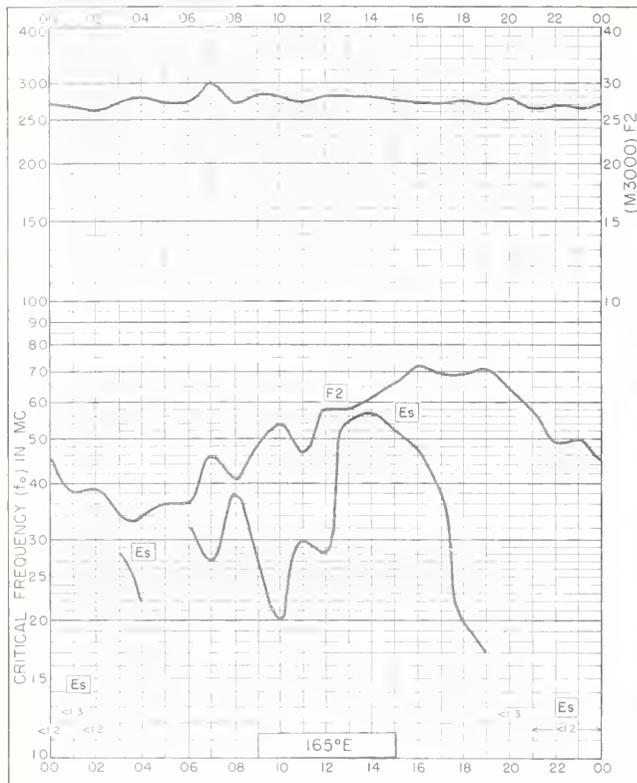


Fig. 89. CAPE HALLETT  
72.3°S, 170.2°E  
JUNE 1959

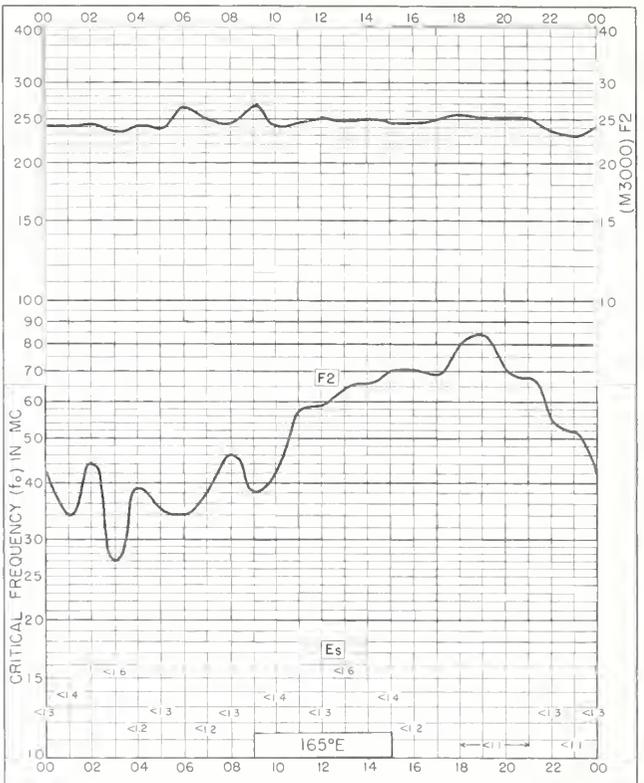


Fig. 90. SCOTT BASE  
77.9°S, 166.8°E  
JUNE 1959

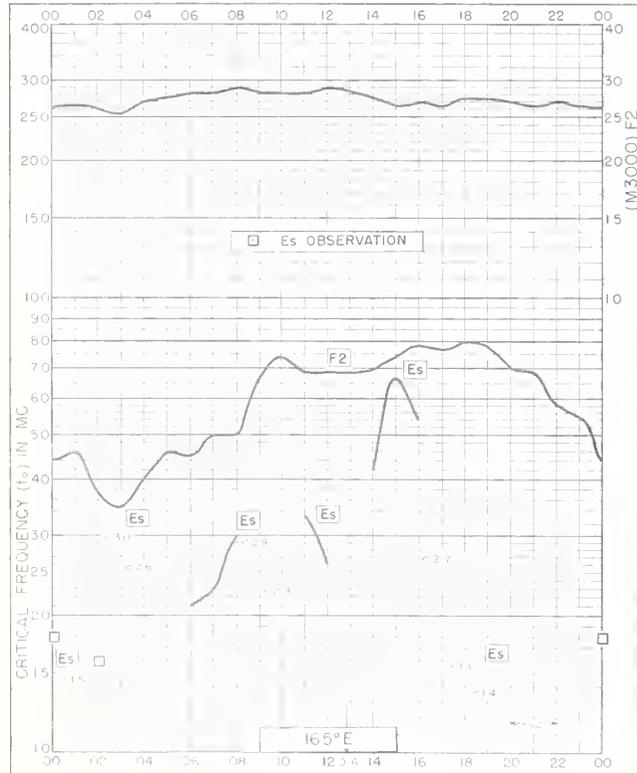


Fig. 91. CAPE HALLETT  
72.3°S, 170.2°E  
MAY 1959

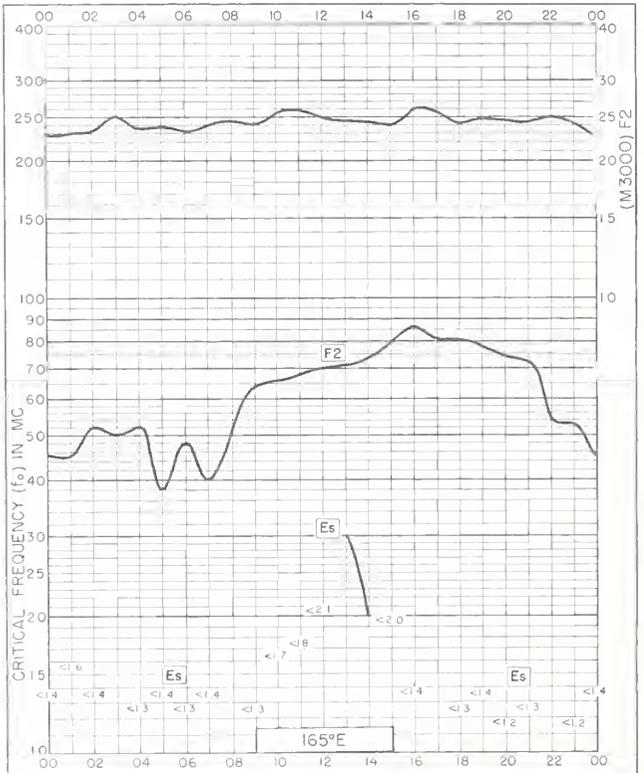


Fig. 92. SCOTT BASE  
77.9°S, 166.8°E  
MAY 1959

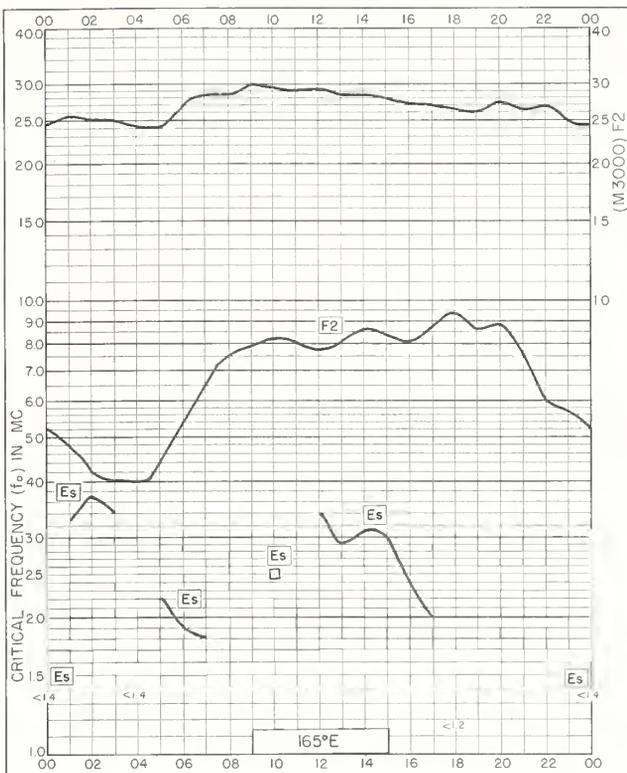


Fig. 93. CAPE HALLETT  
72.3°S, 170.2°E  
APRIL 1959

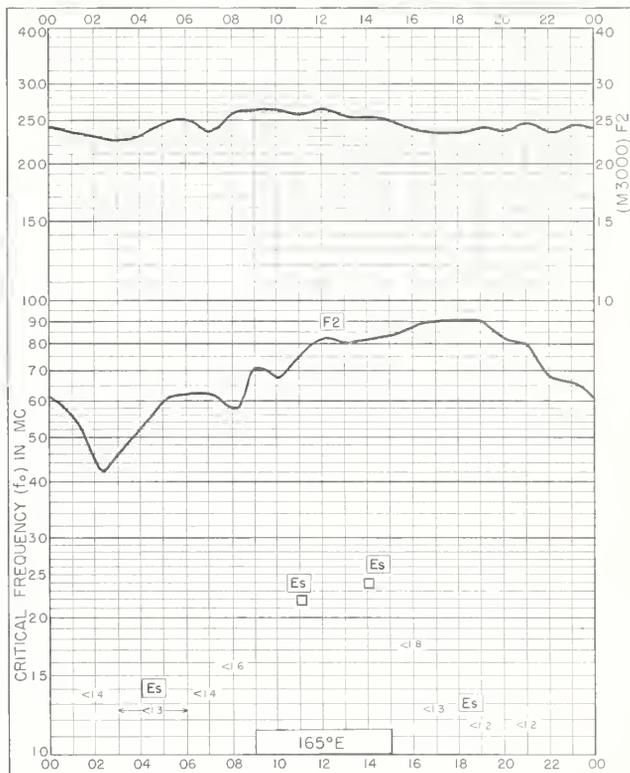


Fig. 94. SCOTT BASE  
77.9°S, 166.8°E  
APRIL 1959

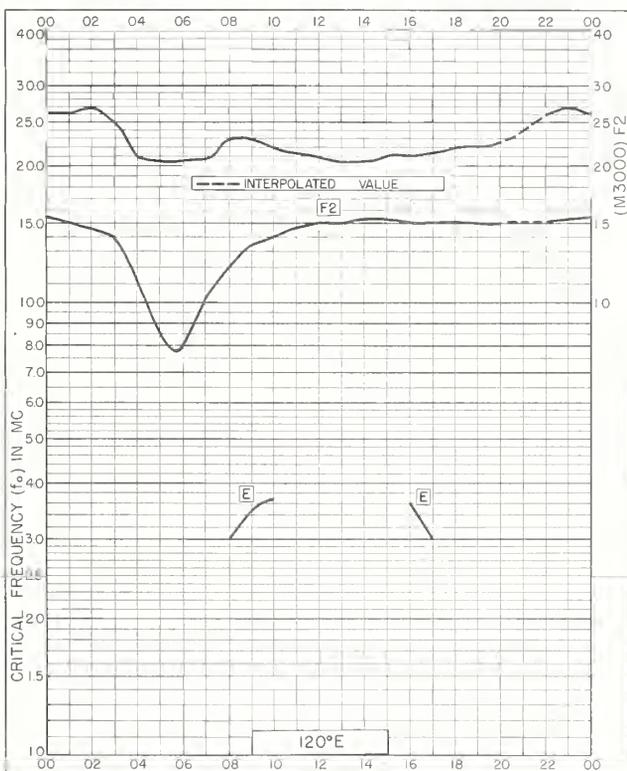


Fig. 95. MACAU  
22.2°N, 113.6°E  
MARCH 1959

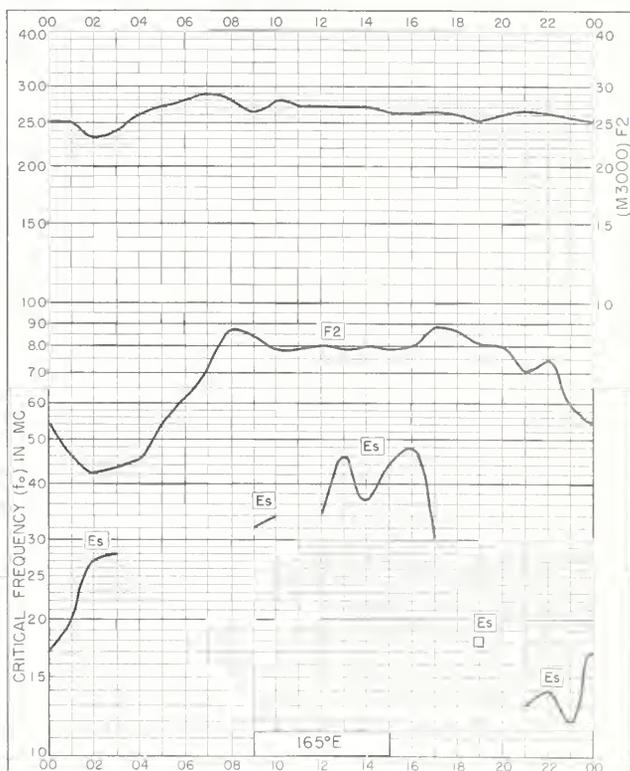


Fig. 96. CAPE HALLETT  
72.3°S, 170.2°E  
MARCH 1959

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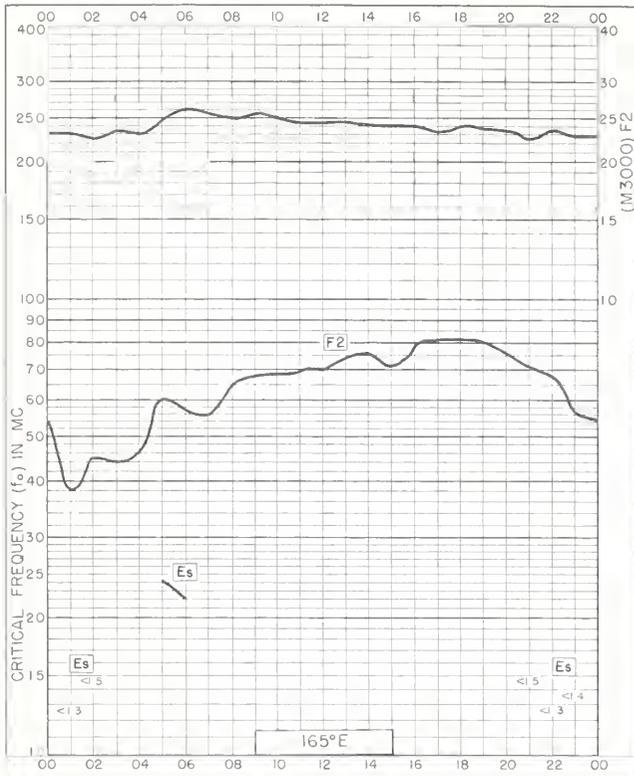


Fig. 97. SCOTT BASE  
77.9°S, 166.8°E  
MARCH 1959

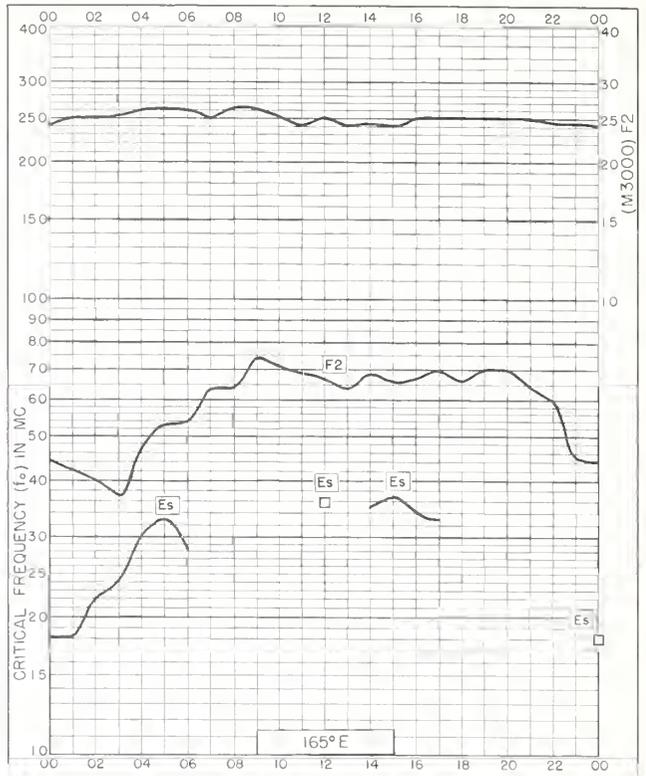


Fig. 98. CAPE HALLETT  
72.3°S, 170.2°E  
FEBRUARY 1959

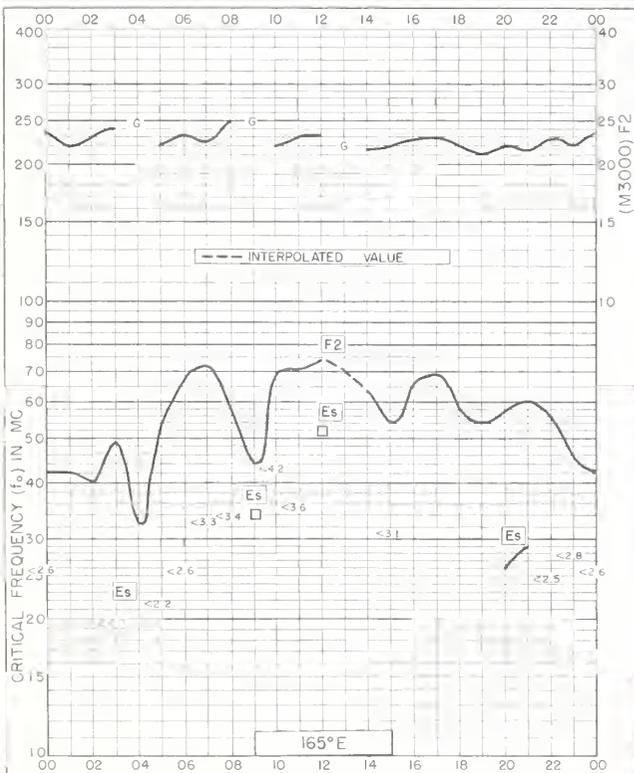


Fig. 99. SCOTT BASE  
77.9°S, 166.8°E  
FEBRUARY 1959

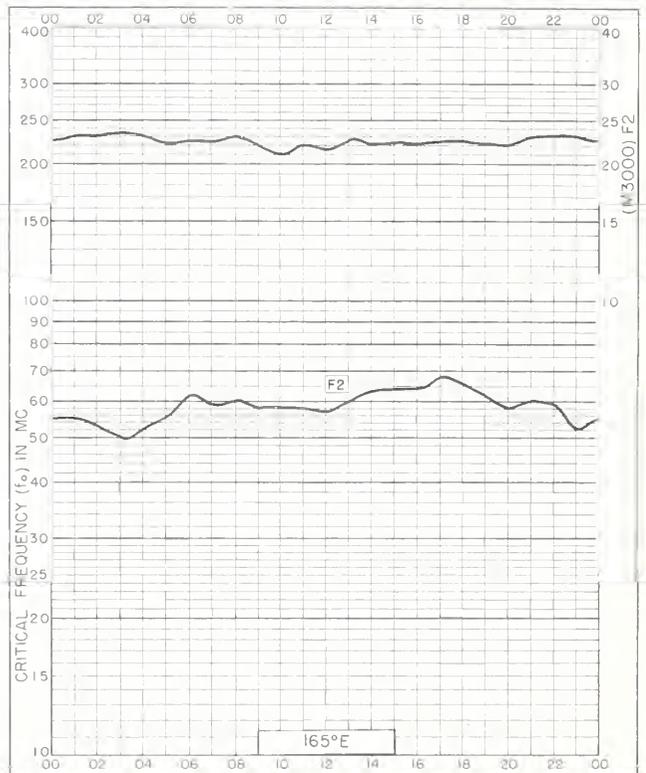


Fig. 100. SCOTT BASE  
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	1959	OCT.	15	40
	1959	NOV.	12	37
	1959	DEC.	10	35
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	1959	OCT.	15	40
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Hobart, Tasmania	158	168	171	171	159	159						215	194	194	194	196	197	198	199	199	200	202	202	203				
Hollandia, Netherlands New Guinea							159	163	164	164	165	165	167	167	168	169	169	170	170	176	176	176	176	176				
Huancayo, Peru	155	155	157	158	158	158	164	211	170	168	170	169	170	173	173	173	172	173	174	178	191	181	204	191				
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Irkutsk, USSR	155		157	162	168	164	160	162	163	164	166	166	166	169	176	172	172	178	179	176	180	180	182	183				
Johannesburg, Union of S. Africa	154	155	157	157	158	160	163	163	163	215	215	215	217	192	217	197					198	217	216					
Juliusruh/Rugen, Germany						160	211	211	211	211	211	211	205	212	212	212	212	212	217	217	217	217	217	217				
Kerguelen I.	213	213	196	199	19																							

Station	1957												1958												
	J	F	M	A	M	J	Jy	A	S	O	N	D	J	F	M	A	M	J	Jy	A	S	O	N	D	
Ottawa, Canada	154	155	155	157	158	159	160	160	163	164	165	166	166	167	177	208	171	172	174	179	179	180	182	182	
Panama Canal Zone	153	154	154	155	156	158	160	161	161	162	164	165	166	167	167	168	169	170	170	171	172	173	174	177	
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Poitiers, France	216	216	216	216	216	216	219	219	213	213	219	219	195	194	195	197	197	211	199	200	201	202	202	203	
Pole Station							172	173	173	173	171	164	180	180	182	182	183	183	183	183	184	184	190	191	
Port Lockroy	158	158		196	195	195	219	177	189	190	189	190	189	189	189	195	197	211	199	200		205	203	191	
Providenie Bay, USSR				160	161	168																			
Pruhonice, Czechoslovakia																									
Puerto Rico (San Juan), W. I.	152	152	154	156	156	156	159	160	162	162	164	165	167	167	168	169	169	170	170	171	172	173	174	177	
Rabat, Morocco														193	195	197	197	211	199	200	201	202	203	203	
Rarotonga I.	154	169	157	158	163	161	161	162	163	168	170	168	167	168	176	177	177	178	179	178	180	180	181	183	
Resolute Bay, Canada	154	155	155	158	158	159	161	161	163	163	165	165	166	167	168	170	172	172	174	179	179	180	181	182	
Reykjavik, Iceland	154	155	155	156	157	157	159	162	162	163	164	165	167	167	168	170	170	170	171	172	174	174	176	177	
Rome, Italy												169	166	173	171	174	172	172	174	179	180	181	181	183	
Rostov-on-Don, USSR	155		160	167	168		170																		
St. John's, Newfoundland		154	154	156	157	157	159	160	161	162	164	165	166	167	167	168	169	170	175	175	172	174	174	177	
Salehard, USSR							170																		
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San Francisco, California	152	153	155	155	156	158	159	161	173	169	170	170	169	170	170	170	171	172	173	173	174	177	177		
San Juan, Puerto Rico	152	152	154	156	156	156	159	160	162	162	164	165	167	167	168	169	169	170	170	171	172	173	174	177	
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Sao Paulo, Brazil	214	214	214	214	214	219	161	162	163	166	170	166	171	171	176	177	173	192	192	194	216	216	216	216	
Schwarzenburg, Switzerland	154	155	156	157	158	159	159	159	160	166	166	165	167	168	169	173	172	172	173	179	179	181	181	183	
Scott Base			156	158	158	161	160	162	163	167	169	167	166	171	176	177	172	172	178	178	180	181	182	204	
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Slough, England	156	157	158	160	160	160	161	162	163	164	166	169	168	171	169	170	172	173	174	203	179	180	183	183	
Sodankyla, Finland							162	163	168	168	168	168	167	168	171	171	172	178	173	179	180	180	182	182	
Sottens, Switzerland	154	155	156	157	158	159	159	159	160	166	166	165	167	168	169	173	172	172	173	179	179	181	181	183	
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Sverdlovsk, USSR	155		160	161	168	164							219	195	193	195	197	197	211	199	200	201	202	203	
Tahiti, Society Is.																									
Talara, Peru	158	155	158	158	158	159	163	163	163	165	165	165	166	168	168	170	170	170	171	175	176	177	178	176	
Tananarasset, French W. Africa	216	216	216	216			219	219	213		219			193	195	197	197	211	199	201	201	202	203		
Tananarive, Madagascar	216	216	216	216	216	216	219	219	213	213	219	219	195	194	195	197	197	211	200	200	201	202	203	203	
Terre Adelie	216		196	199	198	193	211	211	211	211	211	211	205	212	212	212	212	212	217	217	217	217	217	217	
Thule, Greenland	152	153	155	155	157	158	160	161	162	162	164	165	165	167	168	168	170	173	175	175	175	174	174	177	
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Tokyo, Japan	156	155	157	157	158	161	163	162	163	164	165	166	168	169	170	178	172	173	179	179	180	180	182	183	
Tomsk, USSR	155		157	161	164		170																		
Tortosa, Spain							174	164			166						174			179	179				
Townsville, Australia	158	158	158	158	158	160	160	162	164	164	166	168	169	183	176	177	178	173	175	190	215	180	181	182	
Trelew, Argentina							171										194	216	192	191	191	215	215	215	
Trivandrum, India						171	176	177	213	214	214	214		191										215	
Tromso, Norway	154	155	156	157	158	159	159	160	161	163	163	165	166	168	176	177	179	178	173	179	176	180	182	182	
Tsumeb, South W. Africa							171	212	215	212	212	212	198	195	194	197	193	198	198	200	200	202	203	203	
Tucuman, Argentina							170	177	214	214	214	214	216	189	216	190	215	215	192	192	192	215	215	215	
Uppsala, Sweden	154	152	153	156	155	159	158	158	160	161	164	165	168	165	169	170	168	178	179	179	180	180	182	183	
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Watheroo, W. Australia	154	155	156	156	157	159	161	160	163	164	166	166	168	169	176	187	172	178	178	175	176	181	183	182	
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Wilkes Station, Antarctica							177	177	178	178	178	178	180	182			183	183	184	184	184	184	184	184	
Winnipeg, Canada	154	155	156	157	158	159	159	162	163	163	165	165	166	166	177	177	172	178	173	179	179	181	182	182	
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Yamagawa, Japan	156	155	157	157	158	161	163	162	163	164	165	166	168	168	170	178	172	173	179	179	180	180	182	183	
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Ahmedabad, India	205	206	210	213	218	220	218	217	220	220	220	220	218	217	220	220	220	220						
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Station	1959												1960											
	J F M A M J						Jy A S O N D						J F M A M J						Jy A S O N D					
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Concepcion, Chile	188	190	194	207	208	209	210	211	212	188	189	189	205	205	206	207	208	209	210	211	212	213	213	214
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De Bilt, Holland	185	185	187	210	210	207	216	210	209	205	204	191	207	193	194	195	196	197	198	199	203	201	202	
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Dourbes, Belgium	192	193	195	196	215	198	215	211	214	201	202	204	204	205	206		208							
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Elisabethville, Congo	186	186	185	187	188	189	191	191	193	209	204	202	192	193	195	196	196							
Eureka, Canada	192																							
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Falkland Is.	185	185	186	186	188	188	191	213	191	193	193	209	207	207	194	195	196	197	198	199				
Formosa, China	186	186	186	188	189	191	193	190	220	216	216		207	207	194	195	197	197	198	199				
Ft. Monmouth, New Jersey	180	180	182	181	183	185	185	186	186	187	187	187	189	189	193	195	217	217	218	218	218	219	219	219
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Ilo, Peru		181	183	182	184																			
Inverness, Scotland	185	185	186	207	209	210	210	213	207	207	202	191	192	207	194	195	196	197	198	199	200	201		206
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Juliaca (La Paz), Peru			186	184	187																			
Juliusruh/Rugen, Germany	192	193	194	195	196	198	199	199	220	216	216	220	204	205	207		208							
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Kodaikanal, India	205	206	210	213	218	220	218	217	220	220	220	220												
La Paz, Bolivia													190	193	206		208	209	210	217	212	217	213	214
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Lindau/Harz, Germany	192	193	194	195	197	198	199	200	200	194	202	203	204	206	206	207	208							
Lulea, Sweden	185	185	185	187	188	189	190	190	192	191	214	194	192	193	194	195	196	197	198			201	202	203
Lwiro, Congo	186	184	186	186	191	190	205	191	191	205	203	204	192	205			196	198						
Lycksele, Sweden	185	185	185	185	188	201	192	191		191	216	220	207	207	194	195	196	197	198	199	200	201	202	203
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Narsarsuaq, Greenland	184	182	182	182	183	185	186	186	187	188	188	188	192	191	216	207	215	216	210	212	212	213	213	214
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Nurmijarvi, Finland	185	186	185	186	188		190	192	191	201	194	193	203	193	194	195	196	197	198	199	200	201	202	203
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Oslo, Norway	185																							
Ottawa, Canada	185	185	185	217	217		216	216	200	201	216		192	193	195	195	196	197	198	199	200	201	202	203
Paramaribo, Surinam	212	214																						
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Point Barrow, Alaska	180	180	182	182	183	183	196	196	196	196	191	191	191	212	214	216	216	215	211	212	213			214
Pole Station	193	193	193	193	195	195	199	200	200	201	202	203	204	205										
Port Lockroy	192	206	207	207	214	214	191																	
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Pruhonice, Czechoslovakia				196	197	214	218	218	218	218	218	218												
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Scott Base	220	220	220	220	220	220	220	220	220	220	220	220												
Sim																								

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Watheroo, W. Australia	185	184																						
White sands, New Mexico	179	179	181	182	183	185	187	186	187	187	188	189	189	191	193	193	208	216	210	211	201	201	202	203
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Winnipeg, Canada	188	219	185		219		205	199	200	201	209	208	192	193	195	195	196	197	198	199	200	201	202	203
Yamagawa, Japan	185	185	186	187	188	188	207	210	215	209	205	204	206	193	194	195	196	198	199	199	200	201	202	203
Yellowknife, Canada	192																							

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Adak, Alaska	214	214	214	216	216	215	210	212			218	218												
Akita, Japan	204	205	206	209	208	210	211	211																
Anchorage, Alaska	214	214	216	216	215	216	210	212	213	217		218												
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Dourbes, Belgium			206	207		208	209	210	211															
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Resolute Bay, Canada	204	205	206	209	208	209	210	211																
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## CRPL Reports

[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

### Daily:

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.  
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

### Weekly:

CRPL—J. North Atlantic Radio Propagation Forecast.  
CRPL—Jp. North Pacific Radio Propagation Forecast.

### Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

### Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11—499—, monthly supplements to TM 11—499; Dept. of the Air Force, TO 31—3—28 series). On sale by Superintendent of Documents. Members of the Armed Forces should address cognizant military office.  
CRPL—F. (Part A). Ionospheric Data.  
(Part B). Solar-Geophysical Data.  
Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic, or other radio propagation data.

### Catalog of Data:

A catalog of records and data on file at the U. S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

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### Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:

NBS Circular 462. Ionospheric Radio Propagation. \$1.25.  
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.  
NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 megacycles. 30 cents.  
NBS Circular 582. Worldwide Occurrence of Sporadic E. \$3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

### Selected Technical Notes of the National Bureau of Standards:

NBS Tech. Note 2. PB151361. World Maps of F2 Critical Frequencies and Maximum Usable Frequency Factors. \$3.50. PB151361-2. \$3.50.  
NBS Tech. Note 13. PB151372. Technical Considerations Leading to an Optimum Allocation of Radio Frequencies in the Band 25 to 60 Mc. \$2.50.  
NBS Tech. Note 18. PB151377. Radio Noise Data for the IGY. \$2.50.  
18-2. PB151377-2. Quarterly Radio Noise Data (Mar.-May 1959). \$1.00.  
18-3. PB151377-3. (June-Aug. 1959). \$1.00.  
18-4. PB151377-4, etc. (Sept.-Nov. 1959). \$1.50.  
NBS Tech. Note 31. PB151390. An Atlas of Oblique-Incidence Ionograms. \$2.25.  
NBS Tech. Note 40-1. PB151399-1. Mean Electron Density Variations of the Quiet Ionosphere, 1: March 1959. \$1.25.  
40-2. PB151399-2, etc. 2: April 1959. \$1.25.  
NBS Tech. Note 117. PB161618. Variations in Frequency of Occurrence of Sporadic E, 1949—1959. \$0.75.  
These Technical Notes are on sale by the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Order by PB number.

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