PART A

IONOSPHERIC DATA

ISSUED
SEPTEMBER 1959

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

CRPL-F 181
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
22 Sept. 1959

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SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

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

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

There was an expansion in meaning of the following:

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

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

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

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

Month	Predicted Sunspot Number										
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950
December		137	150*	150*	150	42	11	15	33	53	86
November		137	150*	150*	147	35	10	16	38	52	87
October		139	150*	150*	135	31	10	17	43	52	90
September		141	150*	150*	119	30	8	18	46	54	91
August		142	150*	150*	105	27	8	18	49	57	96
July		141	150*	150*	95	22	8	20	51	60	101
June		143	150*	150*	89	18	9	21	52	63	103
May		146	150*	150*	77	16	10	22	52	68	102
April		150*	150*	150*	68	13	10	24	52	74	101
March		150*	150*	150*	60	14	11	27	52	78	103
February	135	150*	150*	150*	53	14	12	29	51	82	103
January	136	150*	150*	150*	48	12	14	30	53	85	105

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

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

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183	181	179	179
1959	177	175										

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

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

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

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

Universidad Mayor de San Andres:
- La Paz, Bolivia

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

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

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

Instituto Geofisico de Los Andes Colombianos:
- Bogota, Colombia

Danish National Committee of URSI:
- Narsarssuak, Greenland

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

Ionospheric Institute, Breisach, Germany:
- Freiburg, Germany

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

National Institute of Geophysics, City University, Rome, Italy:
Rome, Italy

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

Manila Observatory:
Baguio, P. I.

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Byrd Station, Antarctica
Chimbote, Peru
Fairbanks (College), Alaska (Geophysical Institute of the University of Alaska)
Ilo, Peru
Maui, Hawaii
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by CRPL and the U. S. Army Signal Corps. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. These data are in place of the standard ionogram reductions formerly provided by this Station. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed for an IBM 650 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

Quantity	Units	Remarks
Electron Density (N)	$x10^3$ = electrons/cm^3	Body of table; given at each 10 km of height.
NMAX	$x10^3$ = electrons/cm^3	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALification	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$x10^{10}$ = electrons/cm^2 column.	Obtained by integration of the profile between the limits HMIN and HMAX.

Two tabulations of arithmetic mean electron densities are also given for each hour. An average for the undisturbed ionosphere includes the soundings taken when the magnetic character figure K_p is less than 4+; the remaining data are combined to form a disturbed average. The latter may have little physical significance because the number of disturbed hours is usually small and the behavior of the ionosphere during disturbed hours is not consistent. On these tabulations the number of profiles in each average is given by CNT.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region. Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the integrated electron densities estimated to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

ELECTRON DENSITY

PUERTO RICO 60 W 1 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL									A			
HMIN	272	232	216	251	246	287	269	110	110	106	111	111
HMAX	376	315	346	363	391	403	376	327	339	368	355	360
SHMAX	1020	730	648	463	523	451	519	1019	1504	2127	1865	1920
KM												
410						661						
400					643	660						
390					643	648						
380	1612				637	622	735					
370	1605			698	620	582	733			1393		
360	1568			697	592	527	719			1392	1473	1583
350	1495		794	682	554	462	693			1385	1472	1575
340	1388		792	652	508	389	655		1367	1372	1459	1549
330	1254		779	601	446	302	608	1096	1362	1355	1434	1506
320	1050	1420	754	548	382	226	540	1091	1344	1332	1397	1446
310	814	1414	716	483	323	135	454	1070	1314	1304	1347	1365
300	540	1371	669	398	262	71.4	353	1029	1272	1271	1276	1277
290	240	1286	613	302	203	19.3	229	973	1216	1231	1203	1167
280	77.6	1171	547	219	149		112	900	1155	1184	1124	1050
270		982	477	127	92.8		12.4	804	1068	1138	1031	928
260		679	398	60.0	56.5			707	960	1089	934	814
250		335	310		23.5			608	847	1024	834	707
240		83.8	209					500	716	952	735	616
230			97.2					417	596	865	643	551
220			40.2					342	487	742	560	500
210								281	398	608	495	463
200								236	329	487	446	432
190								195	276	396	408	404
180								168	237	335	375	379
170								143	202	294	335	353
160								121	170	255	294	324
150								104	143	219	253	295
140								92.8	128	192	212	259
130								85.3	121	174	191	222
120								77.2	115	162	173	198
110								12.4	12.4	129		

ELECTRON DENSITY

PUERTO RICO 60 W 1 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		8							A			
HMIN	111	112	110	109	109	110	119	248	268	279	281	261
HMAX	367	367	355	369	365	350	352	395	387	416	421	364
SHMAX	2008	2134	1926	2124	1921	1732	1416	1291	911	1084	996	716
KM												
430											1215	
420										1290	1215	
410										1287	1206	
400								1420		1268	1180	
390								1418	1290	1231	1158	
380								1402	1283	1177	1080	
370	1612	1815		1727	1640			1372	1251	1104	1004	1215
360	1607	1810	1669	1720	1638		1420	1321	1191	1016	896	1212
350	1588	1786	1666	1698	1620	1583	1419	1253	1105	917	761	1181
340	1549	1741	1647	1657	1585	1575	1407	1180	993	794	655	1113
330	1489	1676	1607	1601	1528	1549	1377	1096	861	667	524	1016
320	1422	1584	1547	1537	1460	1506	1328	982	716	529	375	889
310	1341	1479	1463	1446	1362	1446	1260	847	585	389	229	735
300	1240	1354	1362	1341	1260	1371	1178	716	432	219	112	557
290	1119	1212	1251	1216	1131	1280	1084	562	274	90.5	54.8	362
280	1004	1080	1119	1096	1016	1167	971	389	127	12.4		161
270	889	939	993	960	885	1038	847	240	26.3			65.7
260	784	814	865	824	767	903	716	97.2				
250	688	698	754	707	661	767	585	26.3				
240	615	599	643	608	567	631	467					
230	557	527	557	534	495	524	371					
220	508	477	492	477	442	439	298					
210	470	444	446	435	397	372	245					
200	438	423	415	399	362	323	202					
190	411	399	389	370	333	289	171					
180	383	372	362	343	310	260	143					
170	356	342	335	319	286	232	121					
160	327	302	317	295	259	204	103					
150	294	262	292	268	229	179	88.7					
140	246	237	255	237	201	157	80.8					
130	214	213	219	205	179	141	75.9					
120	200	200	202	186	168	132	60.0					
110			49.6	97.2	97.2	40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 2 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	S	A			
HMIN	236	242	263	279	270	270	265	115	115	107	110	110
HMAX	350	345	376	393	407	399	386	304	330	320	335	350
SHMAX	715	538	472	478	512	622	557	840	1266	1493	1903	1975
KM												
410					643							
400				679	640	735						
390				678	628	732	735					
380			716	668	604	722	733					
370			713	646	573	704	721					
360			695	611	529	679	698					
350	1072	896	656	567	477	646	665					1786
340	1061	893	608	502	411	600	619				1727	1773
330	1025	866	540	424	348	548	560		1240		1724	1737
320	960	817	462	335	280	456	492		1232	1555	1706	1676
310	883	747	371	248	212	353	398	1050	1206	1542	1669	1576
300	781	655	278	152	143	251	298	1048	1164	1500	1606	1468
290	655	540	189	71.4	88.3	152	179	1029	1102	1427	1537	1341
280	524	403	97.2	12.4	49.6	71.4	97.2	988	1031	1329	1446	1208
270	375	274	44.9		1.3	3.1	43.3	929	934	1198	1330	1061
260	219	143						844	834	1065	1216	928
250	104	54.8						729	726	931	1060	814
240	40.2							608	625	807	931	707
230								477	532	688	794	616
220								362	454	585	655	547
210								286	389	500	540	495
200								232	340	435	465	451
190								196	298	378	408	414
180								167	258	331	365	382
170								141	215	293	329	348
160								122	182	260	298	314
150								107	153	234	266	282
140								94.4	139	204	227	246
130								87.3	131	181	197	217
120								54.8	97.2	166	183	202
110										127	49.6	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 2 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					A		A	B	A	A		
HMIN	108	110	109	108		110			279	271	294	300
HMAX	329	371	384	374		365			412	410	436	419
SHMAX	1941	2186	2266	2301		1900			1234	1399	1318	1341
KM												
440											1612	
430											1608	
420									1555		1584	1727
410									1555	1727	1538	1717
400									1539	1715	1471	1684
390			1756						1499	1679	1379	1627
380		1669	1755	1907					1437	1620	1265	1546
370		1668	1738	1905		1640			1351	1536	1143	1446
360		1660	1704	1887		1638			1240	1433	975	1312
350		1637	1647	1850		1622			1111	1298	794	1143
340		1601	1577	1792		1591			960	1127	590	939
330	2032	1548	1492	1710		1543			774	917	375	679
320	2018	1475	1388	1617		1478			608	716	189	417
310	1970	1394	1274	1501		1403			417	524	83.8	198
300	1885	1304	1155	1367		1311			219	323	40.2	12.4
290	1771	1204	1038	1240		1213			97.2	161		
280	1620	1096	917	1096		1119			12.4	65.7		
270	1446	982	807	946		990						
260	1260	875	707	814		854						
250	1034	774	629	698		716						
240	847	679	564	599		596						
230	679	601	517	521		487						
220	573	536	480	468		403						
210	495	494	452	428		341						
200	439	462	432	399		300						
190	406	430	412	375		262						
180	380	398	389	355		231						
170	359	365	362	339		198						
160	329	335	329	310		164						
150	294	292	296	272		138						
140	255	240	259	232		125						
130	224	214	227	201		119						
120	207	203	205	187		114						
110	143	40.2	112	127		12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 3 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL									A	A	A	
HMIN	243	220	219	251	269	258	249	110	109	109	106	107
HMAX	332	303	363	404	395	379	354	302	336	354	348	350
SHMAX	1098	649	702	827	662	566	629	915	1489	1589	1731	1959
KM												
410				896								
400				895	875							
390				887	873							
380				870	860	834						
370			917	843	834	826						
360			916	808	797	801	854			1191		
350			902	764	742	754	853			1190	1528	1669
340	2128		870	709	670	691	843		1393	1181	1523	1659
330	2127		820	636	573	616	820		1391	1162	1504	1629
320	2080		754	557	477	524	794		1377	1132	1469	1581
310	1962	1240	670	462	362	417	749	1191	1351	1096	1413	1501
300	1786	1234	582	362	240	310	686	1191	1304	1044	1348	1404
290	1519	1209	487	262	127	198	608	1177	1251	985	1265	1301
280	1143	1143	389	161	65.7	112	497	1143	1191	923	1178	1191
270	716	1050	302	92.8	5.5	60.0	348	1090	1124	861	1073	1084
260	262	896	226	47.2		12.4	143	1022	1019	794	946	971
250	71.4	698	143				12.4	903	889	733	794	865
240		389	83.8					742	754	679	655	764
230		127	52.2					557	608	630	540	679
220			6.8					375	477	586	462	601
210								262	382	535	408	540
200								198	316	477	371	482
190								158	258	410	345	432
180								132	209	335	318	389
170								108	164	276	281	350
160								93.4	142	232	219	314
150								83.8	131	198	175	276
140								80.3	124	174	162	240
130								76.7	119	158	155	213
120								73.2	114	148	149	192
110								12.4	71.4	97.2	143	135

ELECTRON DENSITY

PUERTO RICO 60 W 3 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A	A	A	A	A		
HMIN	107	117	108	109	110			228	258	300	281	286
HMAX	364	378	369	370	366			386	421	424	426	413
SHMAX	2104	2378	2383	2289	2412			1451	1446	1229	1388	1224
KM												
430									1420	1555	1640	
420									1420	1554	1636	1669
410									1412	1533	1613	1667
400									1393	1489	1569	1646
390								1420	1363	1421	1504	1597
380		2032						1418	1320	1330	1418	1519
370	1846	2024	2032	2032	2063			1404	1265	1216	1316	1420
360	1844	1994	2023	2018	2060			1380	1195	1084	1184	1283
350	1821	1942	1995	1976	2038			1343	1119	931	1034	1127
340	1770	1863	1946	1907	1997			1294	1027	754	854	917
330	1692	1773	1872	1806	1936			1233	907	557	661	643
320	1589	1640	1786	1682	1855			1164	781	375	462	417
310	1471	1493	1679	1540	1762			1077	643	179	262	219
300	1341	1341	1540	1386	1640			978	497	12.4	127	97.2
290	1182	1175	1386	1240	1501			865	362		60.0	40.2
280	1038	1004	1221	1096	1356			742	209			
270	903	861	1034	946	1182			608	90.5			
260	784	742	889	820	1019			446	26.3			
250	688	643	742	704	875			274				
240	615	568	631	608	729			127				
230	554	517	547	534	608			26.3				
220	512	477	482	477	500							
210	480	446	440	435	429							
200	452	422	409	403	380							
190	420	397	384	378	339							
180	385	370	359	356	313							
170	347	341	335	329	288							
160	313	310	307	296	260							
150	268	274	276	265	235							
140	233	233	240	232	209							
130	214	208	216	197	184							
120	202	143	202	183	167							
110	127		127	60.0	49.6							

ELECTRON DENSITY

PUERTO RICO 60 W 4 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S	A		A	
HMIN	261	224	210	218	282	263	249	110	110	110	112	110
HMAX	380	310	303	405	406	411	377	335	311	325	369	374
SHMAX	1388	920	681	698	384	439	503	927	1060	1247	1948	2089
KM												
420						524						
410				557	557	524						
400				556	554	519						
390				553	540	506						
380	1969			547	511	481	573					1555
370	1952			537	472	452	572				1420	1554
360	1901			524	417	417	564				1416	1543
350	1817			511	362	375	550				1402	1518
340	1695			492	298	330	528	834			1378	1480
330	1555			472	233	280	502	833		1143	1345	1428
320	1362			446	170	229	469	823	1072	1141	1296	1366
310	1096	1876	1143	417	117	179	430	804	1072	1126	1245	1291
300	794	1841	1142	385	71.4	132	383	772	1062	1096	1178	1201
290	477	1734	1121	350	42.5	88.3	330	733	1029	1050	1109	1105
280	219	1555	1073	314		57.9	270	688	982	985	1031	1004
270	65.7	1291	1004	274		30.9	198	637	923	917	952	907
260		960	889	227			97.2	579	854	841	867	804
250		573	754	179			12.4	521	774	754	786	707
240		240	573	119				462	686	670	701	622
230		71.4	362	63.8				406	590	582	622	562
220			127	12.4				353	508	508	547	508
210								306	435	442	483	471
200								262	380	394	432	441
190								223	331	350	385	414
180								186	290	314	350	386
170								150	248	279	314	356
160								125	215	246	279	326
150								105	188	219	244	293
140								94.7	165	186	211	259
130								89.8	143	171	151	229
120								84.8	128	162	161	207
110								40.2	12.4	40.2		40.2

ELECTRON DENSITY

PUERTO RICO 60 W 4 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A		A	A	A	A	A				
HMIN	108	109	110		110				289	264	270	268
HMAX	376	394	377		366				429	408	421	379
SHMAX	2228	2487	2282		1958				1300	1340	1357	1268
KM												
430									1528		1612	
420									1520		1611	
410									1493	1640	1600	
400		1727							1447	1632	1568	
390		1726							1381	1599	1517	
380	1640	1714	1786						1295	1539	1446	1846
370	1637	1689	1781		1815				1191	1455	1351	1832
360	1622	1649	1761		1811				1073	1352	1240	1783
350	1593	1600	1723		1786				931	1216	1111	1700
340	1549	1547	1669		1739				754	1080	975	1589
330	1485	1463	1588		1669				573	917	794	1446
320	1414	1370	1496		1574				403	735	608	1257
310	1332	1270	1394		1458				219	557	403	1004
300	1240	1172	1285		1327				97.2	403	219	716
290	1143	1077	1167		1184				12.4	262	112	417
280	1050	971	1050		1027					127	56.5	161
270	960	875	928		861					49.6		26.3
260	875	786	814		704							
250	778	701	716		582							
240	694	636	629		492							
230	622	573	560		434							
220	557	526	508		396							
210	503	484	467		367							
200	451	450	435		341							
190	409	420	405		306							
180	375	394	374		262							
170	352	372	346		215							
160	333	350	320		186							
150	307	324	292		170							
140	267	295	259		159							
130	237	260	222		153							
120	211	234	205		146							
110	161	161	97.2		40.2							

ELECTRON DENSITY

PUERTO RICO 60 W 5 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A	A	A	A	A
HMIN	217	215	286	259	223	218	209					
HMAX	310	337	401	362	338	321	287					
SHMAX	830	715	580	509	563	420	321					
KM												
410			854									
400			854									
390			843									
380			815									
370			766	834								
360			701	833								
350			616	818								
340		1050	519	777	794							
330		1044	417	716	789	679						
320		1017	298	643	770	679						
310	1555	966	189	540	733	669						
300	1528	892	97.2	437	684	643						
290	1446	794	40.2	310	622	602	573					
280	1307	679		179	540	540	570					
270	1119	557		77.6	456	462	555					
260	896	417		12.4	362	362	528					
250	643	286			251	262	495					
240	403	170			127	152	432					
230	143	83.8			54.8	77.6	335					
220	40.2	33.2				21.7	161					
210							12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 5 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A		A			B			A		
HMIN		110	110	109	109	109		270	246	279	280	271
HMAX		376	392	356	381	358		393	403	404	395	391
SHMAX		2132	2427	2065	1939	1384		941	1006	1061	982	1003
KM												
410									1240	1446		
400			1786					1167	1239	1444	1341	1393
390			1785		1367			1166	1223	1422	1338	1393
380		1727	1776		1367			1151	1186	1374	1316	1379
370		1723	1752		1362			1119	1129	1299	1271	1341
360		1703	1714	1756	1349	1143		1063	1050	1204	1203	1280
350		1662	1662	1753	1327	1138		997	960	1080	1119	1191
340		1599	1599	1734	1296	1120		917	847	917	1004	1064
330		1528	1526	1698	1258	1086		834	729	742	854	939
320		1436	1425	1642	1209	1038		729	596	573	679	754
310		1330	1319	1575	1158	979		619	462	389	508	573
300		1218	1204	1486	1096	917		492	335	198	335	362
290		1107	1084	1383	1013	847		362	229	83.8	170	198
280		982	960	1265	926	778		179	143	12.4	12.4	71.4
270		861	834	1131	842	709		12.4	92.8			
260		745	735	990	754	637			57.4			
250		652	643	847	665	573			23.5			
240		567	567	716	594	508						
230		503	508	608	527	456						
220		459	467	516	472	409						
210		426	435	446	422	369						
200		399	408	401	381	335						
190		374	387	362	343	300						
180		347	364	335	307	262						
170		316	338	312	276	229						
160		288	310	290	243	198						
150		265	280	262	207	168						
140		236	250	233	172	139						
130		197	212	205	157	123						
120		181	189	188	148	116						
110		40.2	97.2	112	97.2	83.8						

ELECTRON DENSITY

PUERTO RICO 60 W 6 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A	A			
HMIN	260	257	256	259	246	243	258	110		110	108	110
HMAX	375	361	375	378	365	343	381	339		350	371	379
SHMAX	868	716	760	729	660	528	671	1042		1876	1980	1992
KM												
390							754					
380	1316		1050	1004			754				1367	1446
370	1312	1167	1047	999	939		750				1367	1441
360	1284	1167	1029	977	936		740				1361	1421
350	1227	1149	991	939	919	814	723			1528	1346	1388
340	1143	1101	936	887	884	813	699	896		1522	1322	1341
330	1027	1022	858	810	834	800	672	893		1506	1288	1274
320	875	917	764	704	762	771	634	882		1478	1245	1196
310	698	781	655	585	667	726	585	863		1439	1189	1111
300	508	625	524	467	562	665	516	837		1389	1129	1031
290	335	462	389	335	437	573	437	798		1327	1057	943
280	179	262	251	198	310	462	323	754		1254	990	861
270	71.4	112	127	83.8	179	335	161	711		1169	896	786
260	3.1	40.2	40.2	12.4	83.8	198	26.3	655		1073	820	716
250					40.2	83.8		594		946	754	655
240								527		807	698	603
230								465		667	655	557
220								403		551	608	516
210								342		462	559	480
200								281		400	508	443
190								232		359	446	408
180								191		329	389	379
170								150		296	343	355
160								119		258	310	332
150								97.2		215	283	305
140								85.0		179	259	276
130								79.4		159	222	236
120								74.4		150	194	209
110								12.4		49.6	161	83.8

ELECTRON DENSITY

PUERTO RICO 60 W 6 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A	A		A	A	A	B			A	
HMIN	107		110	114			119		275	282	261	267
HMAX	400		362	371			374		436	398	390	381
SHMAX	2309		2153	2024			1601		1308	998	1118	1122
KM												
440									1420			
430									1417			
420									1400			
410									1368			
400	1669								1316	1555		
390	1661								1253	1543	1555	1555
380	1637			1756			1393		1175	1494	1542	1555
370	1598		1907	1756			1392		1084	1404	1500	1540
360	1541		1906	1743			1379		960	1283	1427	1499
350	1468		1891	1710			1352		834	1127	1330	1433
340	1379		1853	1653			1302		691	939	1208	1341
330	1280		1793	1578			1246		540	716	1050	1226
320	1187		1705	1479			1178		389	508	854	1073
310	1086		1593	1365			1104		251	298	643	875
300	982		1471	1240			1013		152	127	417	643
290	883		1327	1107			917		83.8	54.8	240	417
280	786		1162	946			814		33.2		127	198
270	709		1004	807			716				60.0	40.2
260	637		861	679			608					
250	583		729	582			516					
240	540		616	508			432					
230	501		534	459			362					
220	468		477	424			306					
210	440		433	398			269					
200	419		404	379			237					
190	398		379	362			210					
180	374		356	341			182					
170	347		337	319			156					
160	318		316	294			132					
150	281		282	262			112					
140	236		240	215			96.4					
130	201		212	192			88.0					
120	189		192	179			40.2					
110	161		12.4									

ELECTRON DENSITY

PUERTO RICO 60 W 7 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL									A	A	8	A
HMIN	229	211	199	309	269	236	240	102				
HMAX	322	311	406	416	378	337	320	298				
SHMAX	799	743	703	475	523	537	474	744				
KM												
420				716								
410			643	713								
400			642	697								
390			634	663								
380			620	618	774							
370			598	553	769							
360			573	477	748							
350			536	389	712							
340			495	286	661	716						
330	1500		451	179	590	714						
320	1499	1191	408	90.5	508	703	834					
310	1466	1191	362	12.4	417	683	824					
300	1379	1175	318		302	653	796	754				
290	1254	1133	278		189	615	749	752				
280	1073	1065	240		83.8	573	686	741				
270	834	971	205		12.4	508	585	721				
260	540	847	170			417	432	693				
250	262	679	141			286	219	655				
240	112	477	112			97.2	12.4	608				
230	12.4	262	83.8					553				
220		90.5	60.0					489				
210			41.7					417				
200			4.5					342				
190								268				
180								209				
170								168				
160								135				
150								110				
140								95.8				
130								88.8				
120								81.6				
110								74.3				

ELECTRON DENSITY

PUERTO RICO 60 W 7 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A			A	A	A	A		A	A		
HMIN	117	110	110					249	269	268	261	300
HMAX	378	380	368					400	401	381	403	407
SHMAX	2144	2172	2151					1293	1156	903	932	699
KM												
410									1420		1072	960
400								1420	1420		1072	956
390								1412	1408	1290	1061	938
380	1555	1640						1389	1379	1290	1037	903
370	1552	1633	1815					1351	1328	1276	1000	851
360	1537	1612	1809					1291	1260	1240	948	786
350	1512	1578	1783					1224	1178	1181	887	698
340	1475	1525	1736					1143	1073	1104	810	596
330	1427	1465	1669					1034	946	993	716	477
320	1368	1385	1574					903	794	861	608	348
310	1294	1295	1468					754	608	698	508	209
300	1211	1191	1341					619	389	492	398	49.6
290	1119	1084	1198					462	219	286	274	
280	1027	971	1061					323	104	112	152	
270	934	865	928					198	12.4	26.3	65.7	
260	834	754	804					97.2				
250	747	670	698					12.4				
240	672	594	608									
230	596	529	540									
220	535	484	488									
210	482	450	450									
200	438	424	417									
190	401	401	386									
180	371	374	359									
170	341	342	333									
160	310	307	308									
150	255	267	283									
140	218	232	253									
130	206	213	226									
120	112	202	205									
110		40.2	40.2									

ELECTRON DENSITY

PUERTO RICO 60 W 8 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A				
HMIN	280	267	268	239	243	258	252	110	108	108	105	105
HMAX	386	361	363	378	351	402	388	329	299	328	377	375
SHMAX	584	458	443	510	442	424	517	964	1094	1341	1949	2102
KM												
410						477						
400						477						
390	875					473	540					
380	872			679		463	539				1290	1528
370	851	814	754	675		448	532				1288	1526
360	809	813	753	657	643	426	521				1278	1514
350	754	797	737	623	643	400	504				1260	1491
340	679	754	695	578	636	368	483				1232	1455
330	585	686	636	524	618	327	457	982		1143	1153	1400
320	477	599	557	459	590	286	424	978		1139	1154	1341
310	362	497	467	382	554	235	385	962		1122	1106	1269
300	229	375	362	316	495	189	344	936	1215	1091	1050	1187
290	112	229	240	246	417	138	295	903	1207	1050	992	1096
280	40.2	119	104	179	327	88.3	240	851	1177	992	929	1004
270		40.2	26.3	122	229	54.8	179	778	1125	924	868	917
260				79.7	112	12.4	97.2	688	1050	854	805	824
250				47.7	53.1			590	960	781	748	732
240				6.8				487	847	701	690	650
230								389	735	629	637	573
220								316	625	560	579	513
210								267	524	497	521	469
200								219	437	446	459	433
190								179	355	405	403	403
180								143	298	362	362	375
170								112	255	318	330	351
160								94.3	215	279	301	328
150								84.8	176	246	271	304
140								80.7	148	213	240	270
130								77.3	129	186	210	233
120								73.8	119	170	189	209
110								49.6	97.2	127	161	184

ELECTRON DENSITY

PUERTO RICO 60 W 8 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL											S	
HMIN	109	107	108	110	110	109	117	238	262	272	275	279
HMAX	374	374	373	378	391	366	378	383	404	399	390	406
SHMAX	2147	2244	2264	2248	2437	2130	2005	1406	1320	1076	866	1066
KM												
410									1528			1367
400					2032				1526	1393		1364
390					2032			1555	1509	1385	1265	1342
380	1727	1846	1907	1969	2019		1756	1555	1472	1355	1251	1301
370	1725	1844	1906	1960	1987	1969	1751	1540	1416	1304	1211	1240
360	1708	1823	1888	1927	1934	1964	1731	1508	1341	1231	1143	1165
350	1673	1778	1848	1861	1855	1939	1696	1458	1249	1143	1050	1065
340	1609	1705	1786	1786	1764	1884	1645	1382	1143	1019	928	931
330	1537	1617	1696	1669	1654	1808	1578	1295	1004	875	794	774
320	1446	1512	1581	1542	1515	1717	1497	1197	854	698	643	590
310	1341	1394	1458	1401	1371	1606	1404	1080	679	540	477	417
300	1240	1265	1316	1240	1201	1474	1291	946	524	362	310	219
290	1084	1143	1162	1096	1034	1324	1143	807	348	209	161	90.5
280	960	1016	1019	946	875	1171	1019	655	209	83.8	54.8	12.4
270	847	885	875	807	742	1004	889	477	83.8			
260	745	774	764	688	634	834	754	310				
250	657	679	661	590	553	691	631	143				
240	590	608	582	521	497	573	508	26.3				
230	540	551	524	468	451	477	408					
220	508	508	477	432	414	411	327					
210	484	479	441	404	382	357	255					
200	460	457	413	380	350	314	202					
190	432	438	395	357	323	279	164					
180	393	421	378	335	296	248	135					
170	346	356	363	310	270	221	112					
160	302	327	340	279	240	198	93.6					
150	266	282	310	244	210	167	83.0					
140	238	240	267	214	187	140	79.0					
130	217	206	232	195	174	125	75.0					
120	206	190	212	184	164	118	65.7					
110	127	179	198	49.6	40.2	97.2						

ELECTRON DENSITY

PUERTO RICO 60 W 9 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL										A		A
HMIN	282	255	245	305	291	235	240	115	109	107	107	
HMAX	393	353	368	412	410	312	405	318	361	327	339	
SHMAX	866	734	730	598	690	513	647	497	757	690	795	
KM												
420				917								
410				917	960		524					
400	1240			902	952		524					
390	1239			865	928		521					
380	1220			807	884		515					
370	1179		906	732	827		507		417			
360	1116	1167	902	631	754		496		417			
350	1027	1166	883	524	652		483		416			
340	907	1144	849	403	540		467		413		492	
330	767	1096	799	274	403		450		408	432	491	
320	608	1013	742	143	274	1050	428	375	401	431	486	
310	432	907	672	60.0	143	1049	403	374	393	428	478	
300	274	781	599		60.0	1027	374	371	380	423	462	
290	127	643	516			973	342	366	366	416	444	
280		462	427			885	306	358	351	401	425	
270		262	335			735	266	347	335	386	406	
260		97.2	219			508	219	337	319	371	387	
250			97.2			219	149	322	305	356	371	
240						54.8	12.4	304	291	342	356	
230								283	282	330	343	
220								258	275	318	332	
210								236	268	308	325	
200								214	262	302	317	
190								193	257	295	309	
180								175	253	289	299	
170								157	249	277	289	
160								139	245	260	269	
150								124	241	237	243	
140								112	229	219	219	
130								103	211	176	207	
120								83.8	131	163	189	
110									60.0	112	135	

ELECTRON DENSITY

PUERTO RICO 60 W 9 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		B	B	B	A	A	A	A		A	A	A
HMIN	114						117		302		318	315
HMAX	380						339		473		441	450
SHMAX	1107						848		945		699	865
KM												
480									814			
470									813			
460									809			
450									800		939	939
440									786		938	935
430									767		930	923
420									742		904	903
410									713		869	875
400									679		811	851
390									638		739	814
380	573								590		643	735
370	572								535		540	652
360	569								471		437	551
350	564								403		258	437
340	556						854		342		161	310
330	547						849		268		77.6	143
320	534						831		179		21.7	49.6
310	519						800		83.8			
300	502						759					
290	483						704					
280	463						636					
270	445						565					
260	427						484					
250	411						408					
240	397						335					
230	386						281					
220	379						240					
210	372						210					
200	366						184					
190	357						158					
180	346						135					
170	333						118					
160	310						106					
150	270						97.2					
140	243						92.8					
130	229						88.3					
120	209						83.8					

ELECTRON DENSITY

PUERTO RICO 60 W 10 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A			A	
HMIN	300	294	287	290	268	250	260	115	113	113	110	108
HMAX	409	414	397	403	370	348	344	279	371	371	353	370
SHMAX	682	585	555	571	549	502	409	609	1685	1925	1818	2023
KM												
420		794										
410	917	793		814								
400	911	780	794	813								
390	891	754	790	799								
380	856	716	770	765					1143	1393		
370	809	661	733	716	834				1143	1393		1569
360	747	590	679	650	825				1139	1387	1446	1561
350	661	508	615	580	801	735	716		1130	1371	1446	1522
340	562	417	532	497	759	731	715		1114	1344	1436	1475
330	456	323	446	408	698	715	698		1093	1298	1413	1416
320	335	219	362	310	616	686	661		1062	1250	1378	1341
310	198	119	262	209	519	647	608		1029	1191	1328	1257
300	12.4	54.8	152	104	403	590	532		992	1129	1260	1162
290			60.0	12.4	274	516	437		952	1063	1191	1061
280					143	417	310	794	912	990	1115	969
270					49.6	310	179	786	866	910	1022	867
260						161	12.4	762	817	834	917	784
250						40.2		716	760	762	807	701
240								657	694	691	698	637
230								582	616	622	559	583
220								487	532	560	527	540
210								375	454	495	477	505
200								286	375	429	438	473
190								224	315	380	408	439
180								186	272	339	378	403
170								156	237	303	348	365
160								136	202	266	314	328
150								121	167	233	274	293
140								110	145	201	233	259
130								103	137	176	198	222
120								97.2	130	163	185	202
110											127	83.8

ELECTRON DENSITY

PUERTO RICO 60 W 10 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			B							A	A	
HMIN	106	107		107	104	112	116	272	274	280	278	307
HMAX	374	377		362	355	368	366	393	383	381	384	410
SHMAX	2246	2312		2194	1945	1839	1590-	1121	1075	928	819	697
KM												
410												1072
400								1473				1059
390								1472	1500	1341	1215	1018
380	1727	1876						1450	1499	1341	1213	952
370	1725	1871		1876		1583	1473	1387	1478	1327	1188	865
360	1708	1845		1876	1756	1578	1470	1314	1424	1288	1135	754
350	1673	1798		1862	1753	1555	1452	1218	1349	1222	1057	643
340	1609	1719		1827	1729	1503	1406	1107	1250	1133	960	508
330	1539	1627		1770	1681	1452	1356	982	1127	1019	847	362
320	1455	1519		1692	1599	1383	1287	847	982	889	729	209
310	1352	1394		1589	1501	1301	1208	698	814	735	573	71.4
300	1250	1265		1479	1388	1191	1124	524	608	524	389	
290	1160	1143		1354	1265	1077	1022	335	362	310	198	
280	1050	1004		1216	1131	971	917	161	143	12.4	49.6	
270	949	875		1080	990	847	794					
260	850	764		931	847	735	679					
250	754	665		794	726	634	551					
240	672	594		679	619	548	446					
230	608	536		590	540	477	362					
220	554	497		521	477	417	295					
210	503	466		462	434	366	249					
200	463	440		417	396	324	212					
190	428	419		382	371	289	182					
180	395	400		350	348	256	156					
170	362	382		321	324	225	133					
160	333	363		294	293	196	114					
150	314	320		268	260	171	99.8					
140	288	276		240	229	149	91.9					
130	255	240		209	201	137	85.2					
120	224	222		189	181	128	73.9					
110	186	97.2		143	156							

ELECTRON DENSITY

PUERTO RICO 60 W 11 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	F	A					S	A	A	A	8	8
HMIN	279	279	272	270	260	259	241					
HMAX	376	392	366	358	359	371	327					
SHMAX	675	718	448	390	420	382	388					
KM												
400		896										
390		896										
380	1050	888				557						
370	1045	870	716			557						
360	1021	841	713	679	608	549						
350	971	802	697	673	603	524						
340	900	749	663	647	588	491						
330	810	686	618	596	561	446	608					
320	707	599	548	532	526	400	605					
310	573	497	467	454	477	341	590					
300	389	375	362	371	410	280	563					
290	189	198	240	262	335	219	526					
280	49.6	60.0	97.2	135	262	143	477					
270				12.4	161	77.6	417					
260					40.2	12.4	342					
250							219					

ELECTRON DENSITY

PUERTO RICO 60 W 11 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	8		A	A	A	8	A	A	S	S	
HMIN		105	109					249	279	299	288	291
HMAX		404	387					398	427	425	409	393
SHMAX		2465	2244					1030	946	782	777	731
KM												
430									1119	1096		
420									1115	1093		
410		1640							1093	1070	1143	
400		1639						1119	1054	1021	1132	1119
390		1629	1669					1114	997	952	1097	1118
380		1609	1665					1096	924	854	1034	1097
370		1578	1647					1062	842	754	949	1050
360		1536	1614					1010	745	643	834	969
350		1483	1567					948	652	524	716	875
340		1414	1497					882	557	403	585	767
330		1332	1420					802	456	262	432	643
320		1240	1331					724	335	152	274	508
310		1159	1228					634	229	75.6	161	335
300		1059	1107					548	143	12.4	77.6	179
290		949	993					446	77.6		21.7	
280		854	892					335	12.4			
270		762	794					229				
260		679	701					112				
250		613	625					12.4				
240		564	564									
230		522	517									
220		489	477									
210		465	446									
200		445	424									
190		431	407									
180		417	392									
170		389	371									
160		348	342									
150		306	295									
140		269	260									
130		240	240									
120		222	221									
110		198	71.4									

ELECTRON DENSITY

PUERTO RICO 60 W 12 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL				S			S	A	A	A	A	8
HMIN	271	260	238	229	270	252	235					
HMAX	376	355	323	371	371	349	306					
SHMAX	659	622	508	584	441	404	378					
KM												
380	1027			661	661							
370	1022			661	661							
360	990	1027		656	652							
350	936	1024		643	628	661						
340	858	999		621	595	654						
330	764	946	896	589	546	630						
320	655	867	895	551	489	593						
310	529	764	875	508	398	540	814					
300	375	643	828	452	318	469	808					
290	219	492	762	389	233	380	776					
280	104	310	667	329	127	278	709					
270		143	557	268	40.2	152	619					
260		12.4	417	205		71.4	492					
250			219	143			240					
240			60.0	71.4			60.0					
230				12.4								

ELECTRON DENSITY

PUERTO RICO 60 W 12 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A	A	A					
HMIN		104		106		106		270	243.	283	296	272
HMAX		372		369		385		384	414	425	399	378
SHMAX		2031		1973		1835		1267	1268	1270	981	1012
KM												
430										1528		
420									1316	1525		
410									1314	1504		
400									1300	1463	1528	
390						1420		1528	1270	1397	1513	
380		1528				1418		1526	1221	1321	1461	1640
370		1528		1555		1406		1511	1156	1216	1362	1626
360		1518		1549		1382		1477	1086	1084	1240	1572
350		1494		1528		1345		1426	996	946	1096	1468
340		1456		1492		1291		1357	896	774	917	1324
330		1394		1439		1233		1268	794	608	716	1159
320		1326		1369		1158		1164	698	417	508	960
310		1248		1286		1077		1050	585	262	286	735
300		1160		1191		993		889	477	135	97.2	477
290		1061		1096		900		679	375	54.8		240
280		960		982		810		417	278			71.4
270		865		865		716		40.2	192			
260		764		754		634			117			
250		679		652		553			60.0			
240		608		573		487						
230		551		513		432						
220		508		470		385						
210		474		439		347						
200		446		415		310						
190		420		395		276						
180		394		373		243						
170		369		347		213						
160		343		314		179						
150		310		278		143						
140		270		240		126						
130		237		214		119						
120		211		198		112						
110		184		165		83.8						

ELECTRON DENSITY

PUERTO RICO 60 W 13 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A	A	A	A	A
HMIN	257	240	254	270	250	245	247	107	108			
HMAX	363	353	359	370	344	359	345	301	332			
SHMAX	701	923	684	663	606	658	631	913	1443			
KM												
370	1072			1050								
360	1071	1316	1072	1037		854						
350	1053	1314	1062	999	1004	850	896					
340	1010	1295	1026	934	1002	834	894		1265			
330	943	1252	960	844	980	807	881		1265			
320	854	1185	875	742	929	769	853		1254			
310	742	1096	774	619	858	716	814	1027	1230			
300	619	975	661	477	764	643	760	1027	1191			
290	477	847	508	298	643	557	686	1017	1136			
280	286	679	335	143	508	456	596	989	1065			
270	135	477	161	12.4	310	335	487	944	990			
260	40.2	262	60.0		135	198	286	887	909			
250		97.2			12.4	71.4	60.0	810	834			
240								726	754			
230								634	672			
220								529	601			
210								427	532			
200								335	454			
190								262	389			
180								203	325			
170								164	276			
160								135	232			
150								112	192			
140								96.4	163			
130								92.0	145			
120								87.7	134			
110								79.7	83.8			

ELECTRON DENSITY

PUERTO RICO 60 W 13 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A		A		A	A	A			
HMIN				112	113	118		263	261	300	291	268
HMAX				384	368	386		387	425	419	403	375
SHMAX				2531	2117	2155		1362	1542	1369	1494	1306
KM												
430									1640			
420									1638	1876		
410									1619	1862	2000	
400									1581	1814	1999	
390				2000		1756		1612	1519	1727	1975	
380				1999		1753		1606	1446	1612	1921	1876
370				1982	1815	1735		1581	1351	1462	1837	1872
360				1947	1809	1702		1526	1240	1280	1734	1838
350				1891	1784	1649		1454	1119	1096	1588	1770
340				1816	1740	1582		1374	982	875	1383	1669
330				1727	1676	1501		1274	847	608	1167	1540
320				1623	1584	1404		1155	691	389	875	1362
310				1507	1479	1296		1019	524	179	573	1143
300				1381	1365	1179		875	375	12.4	262	917
290				1240	1240	1050		716	251			608
280				1111	1096	917		508	152			286
270				975	946	794		219	71.4			60.0
260				834	814	679						
250				716	691	582						
240				616	599	502						
230				547	521	442						
220				487	464	394						
210				438	421	355						
200				399	382	324						
190				372	348	295						
180				351	318	268						
170				333	291	237						
160				312	269	198						
150				274	240	164						
140				227	202	142						
130				195	176	133						
120				181	163	112						

ELECTRON DENSITY

PUERTO RICO 60 W 14 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A			A	A	A
HMIN	253	239	228	249	257	245	240	114	108	110	109	108
HMAX	351	325	343	373	351	344	323	283	298	350	375	374
SHMAX	950	879	878	736	620	656	538	797	1038	1673	2114	2251
KM												
380				982							1528	1697
370				981							1526	1696
360	1741			966	1050						1514	1683
350	1741		1215	926	1049	982				1290	1491	1655
340	1707		1214	875	1033	981				1284	1455	1613
330	1598	1583	1197	807	985	965	960			1266	1397	1555
320	1446	1578	1159	726	917	929	959			1235	1334	1478
310	1260	1522	1102	634	814	880	940			1187	1262	1389
300	1027	1435	1013	540	691	810	896		1119	1137	1188	1291
290	716	1307	907	437	557	707	834	1191	1113	1076	1111	1186
280	432	1143	781	327	375	596	735	1189	1087	1004	1022	1084
270	198	917	661	209	161	446	608	1160	1044	939	934	971
260	60.0	608	492	112	40.2	262	417	1096	985	867	850	875
250		240	310	12.4		83.8	161	1004	909	794	764	774
240		40.2	143				12.4	861	818	729	686	679
230			44.9					698	726	667	622	608
220								508	625	608	560	551
210								375	529	546	508	504
200								278	446	487	459	465
190								219	368	432	417	432
180								172	304	383	383	401
170								141	251	335	354	372
160								118	203	286	324	344
150								107	164	240	286	313
140								100	143	202	240	267
130								92.2	136	177	202	222
120								83.8	130	165	185	203
110									71.4	12.4	60.0	60.0

ELECTRON DENSITY

PUERTO RICO 60 W 14 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		A	A	A		8					
HMIN	107	106	104	106	107	112	112	256	285	225	300	275
HMAX	383	376	376	372	358	363	375	411	432	423	398	372
SHMAX	2252	2250	2315	2248	2001	1872	1952	1439	1282	1319	988	984
KM												
440									1500			
430									1500	1612		
420								1393	1485	1610		
410								1393	1450	1588		
400								1385	1393	1532	1697	
390	1669							1362	1311	1454	1682	
380	1668	1756	1876	1907			1612	1320	1208	1352	1618	1697
370	1655	1753	1872	1906		1727	1610	1267	1096	1226	1493	1696
360	1627	1733	1848	1891	1786	1726	1597	1203	960	1080	1361	1662
350	1583	1694	1803	1853	1779	1708	1572	1127	820	931	1143	1578
340	1516	1628	1727	1793	1751	1669	1534	1038	691	767	917	1446
330	1437	1546	1638	1705	1701	1593	1483	970	540	590	643	1260
320	1341	1455	1531	1601	1625	1506	1418	883	375	432	389	1050
310	1249	1352	1411	1474	1534	1404	1348	784	240	298	143	814
300	1143	1240	1283	1341	1420	1291	1258	688	135	198	12.4	508
290	1038	1107	1143	1204	1296	1157	1154	590	60.0	138		262
280	939	993	1016	1065	1159	1019	1050	477		97.2		83.8
270	842	885	885	917	1016	889	928	335		71.4		
260	747	774	774	781	875	754	807	112		55.6		
250	673	688	679	670	729	634	679			44.5		
240	613	615	602	582	625	540	562			30.3		
230	561	564	546	514	540	471	456			10.4		
220	522	522	505	469	472	412	368					
210	489	489	477	435	422	366	298					
200	460	460	456	409	386	332	251					
190	435	433	435	389	357	298	216					
180	411	407	411	366	332	266	190					
170	383	381	381	338	304	234	163					
160	352	356	345	310	274	202	139					
150	319	329	310	278	240	174	121					
140	281	296	272	236	202	150	110					
130	236	257	235	201	178	137	103					
120	209	215	211	188	166	127	93.9					
110	161	198	179	161	112							

ELECTRON DENSITY

PUERTO RICO 60 W 15 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S			A		
HMIN	243	247	227	263	289	286	262	112	106	115	106	106
HMAX	340	324	330	394	397	407	343	334	335	356	369	380
SHMAX	1027	762	707	772	632	663	576	1340	1609	2057	2243	2338
KM												
410						854						
400				960	960	851						
390				959	955	836						
380				947	929	808						1727
370				920	880	772					1756	1719
360				883	810	716				1786	1749	1695
350				827	726	643	1027			1782	1725	1650
340	1815			754	619	562	1026	1316	1393	1761	1684	1587
330	1790	1420	1119	670	508	467	1006	1314	1392	1721	1619	1513
320	1713	1416	1106	573	375	371	960	1300	1379	1660	1546	1429
310	1584	1377	1067	477	219	262	883	1270	1355	1580	1455	1341
300	1404	1291	997	362	97.2	127	794	1222	1318	1486	1352	1249
290	1167	1179	907	240	12.4	49.6	661	1161	1269	1367	1250	1143
280	896	1004	794	143			477	1086	1203	1251	1153	1050
270	508	794	661	60.0			179	996	1127	1096	1050	952
260	219	508	508					896	1050	960	928	858
250	60.0	198	310					794	952	834	824	774
240			127					679	854	716	716	694
230			40.2					551	754	625	629	625
220								446	655	557	562	568
210								362	551	503	513	520
200								292	446	455	473	477
190								236	362	411	425	444
180								195	298	362	397	417
170								161	245	310	353	391
160								135	198	258	310	339
150								118	166	215	262	286
140								108	147	185	219	235
130								101	138	171	196	216
120								90.5	132	161	187	205
110									117		161	179

ELECTRON DENSITY

PUERTO RICO 60 W 15 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	8	8		A			8					
HMIN	111	110	108	109	112	113	113	235	290	293	295	295
HMAX	373	369	386	373	378	360	359	383	430	423	410	413
SHMAX	2278	2333	2487	2126	2064	1784	1567	986	1065	1058	1051	990
KM												
430									1265	1433		
420									1256	1432		1393
410									1229	1410	1446	1392
400									1185	1361	1434	1371
390			1938					1143	1123	1282	1396	1320
380	1907		1934	1786	1669			1142	1041	1186	1332	1247
370	1905	2000	1913	1785	1663			1126	939	1061	1240	1153
360	1885	1990	1873	1768	1642	1555	1528	1090	824	917	1131	1019
350	1840	1954	1814	1732	1604	1548	1518	1030	707	754	990	875
340	1764	1888	1732	1675	1548	1524	1486	960	596	590	834	716
330	1657	1795	1635	1590	1475	1484	1430	883	462	432	661	540
320	1542	1680	1519	1490	1389	1429	1350	802	323	262	446	335
310	1411	1555	1394	1376	1285	1357	1250	716	198	127	251	161
300	1283	1401	1254	1253	1167	1260	1127	634	104	54.8	83.8	49.6
290	1143	1254	1127	1107	1050	1162	1016	540	12.4			
280	1019	1111	990	971	928	1050	917	446				
270	907	960	854	844	814	931	804	335				
260	804	834	742	726	704	794	698	219				
250	709	726	650	634	608	670	596	112				
240	636	650	573	560	535	565	497	43.3				
230	573	588	524	504	477	477	417					
220	526	548	487	468	435	412	348					
210	489	511	457	438	399	366	291					
200	465	477	435	409	370	329	248					
190	444	446	417	381	345	299	212					
180	422	414	401	353	320	273	179					
170	384	379	385	324	294	248	153					
160	340	340	364	298	272	219	131					
150	303	303	328	266	244	191	110					
140	257	269	286	232	202	169	96.7					
130	229	243	248	211	176	154	91.3					
120	202	209	225	194	165	139	86.0					
110		12.4	161	40.2								

ELECTRON DENSITY

PUERTO RICO 60 W 16 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL			A	A		A	S	A	A	A	A	A
HMIN	277	283	275	279	270	260	276		104		104	
HMAX	382	383	383	400	369	356	370		368		356	
SHMAX	978	836	771	823	704	689	710		2184		1916	
KM												
400				1119								
390	1555	1290	1167	1109								
380	1555	1289	1166	1073								
370	1528	1267	1144	1021	1191		1096		1500			
360	1464	1212	1096	952	1176	1119	1084		1498		1612	
350	1353	1143	1022	854	1126	1114	1050		1490		1608	
340	1212	1034	917	754	1038	1085	990		1476		1584	
330	1050	903	807	652	928	1027	909		1456		1554	
320	854	754	679	524	794	943	824		1430		1461	
310	625	573	524	375	643	834	704		1397		1376	
300	389	335	335	229	462	698	557		1358		1280	
290	179	112	179	104	262	540	362		1309		1175	
280	60.0		65.7	12.4	112	362	83.8		1256		1073	
270					12.4	161			1200		960	
260						12.4			1143		847	
250									1061		745	
240									928		657	
230									781		590	
220									643		536	
210									519		499	
200									427		468	
190									362		441	
180									314		414	
170									276		372	
160									240		325	
150									210		276	
140									184		233	
130									164		201	
120									151		187	
110									119		164	

ELECTRON DENSITY

PUERTO RICO 60 W 16 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	8	A	A	A	A	A	A	S	S		
HMIN					114	112		259	279	288	277	261
HMAX					377	366		378	425	408	386	373
SHMAX					2076	1833		973	1217	1007	910	915
KM												
430									1367			
420									1365			
410									1349	1393		
400									1317	1384		
390									1270	1347	1473	
380					1669			1290	1205	1276	1466	1393
370					1664	1612		1284	1133	1186	1423	1392
360					1645	1608		1259	1027	1073	1341	1366
350					1608	1589		1210	907	946	1212	1299
340					1555	1549		1149	781	807	1065	1208
330					1478	1489		1068	643	655	896	1096
320					1394	1420		960	508	477	698	960
310					1296	1330		834	348	310	477	794
300					1186	1221		691	198	161	262	608
290					1073	1119		508	97.2	49.6	104	403
280					949	990		251	12.4		40.2	219
270					834	861		112				83.8
260					716	729		12.4				
250					629	608						
240					553	516						
230					497	446						
220					451	394						
210					417	354						
200					386	319						
190					359	286						
180					330	256						
170					303	225						
160					278	195						
150					252	179						
140					225	165						
130					195	155						
120					167	146						

ELECTRON DENSITY

PUERTO RICO 60 W 17 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S			A	A	8
HMIN	259	250	248	248		247	250	114	114	116	107	
HMAX	357	348	332	332		334	333	296	299	308	363	
SHMAX	847	804	617	537		413	538	886	1121	1221	1851	
KM												
370											1265	
360	1420										1265	
350	1411	1290									1258	
340	1368	1280	1167	896		794	875				1243	
330	1286	1240	1166	895		791	874				1219	
320	1179	1171	1135	880		767	861				1187	
310	1027	1080	1059	844		716	830			1167	1147	
300	834	939	946	794		631	782	1050	1240	1163	1096	
290	608	774	807	707		524	723	1045	1232	1147	1038	
280	335	590	643	608		403	631	1021	1206	1114	979	
270	127	389	446	487		251	508	971	1160	1073	917	
260	12.4	179	262	335		104	310	900	1096	1024	857	
250		12.4	71.4	112		30.9	12.4	826	1013	967	799	
240								739	917	889	745	
230								652	794	794	643	
220								557	661	691	569	
210								446	529	573	529	
200								353	417	467	495	
190								278	342	389	462	
180								219	286	331	424	
170								175	244	286	385	
160								146	210	240	347	
150								126	184	206	310	
140								112	163	192	276	
130								103	140	182	237	
120								87.2	129	161	210	
110											179	

ELECTRON DENSITY

PUERTO RICO 60 W 17 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	8		S	A	A		8			A		S
HMIN	107	104			108	110	117	287	249	280	295	288
HMAX	391	399			375	377	378	410	409	429	406	377
SHMAX	2432	2678			1780	1914	1734	1239	1344	1386	1100	848
KM												
430										1555		
420										1548		
410								1528	1500	1521	1640	
400	1727	1727						1517	1492	1476	1633	
390	1727	1723						1483	1464	1406	1551	
380	1718	1710			1500	1555	1473	1422	1417	1321	1501	1612
370	1694	1688			1498	1552	1468	1341	1349	1218	1381	1595
360	1652	1657			1477	1535	1449	1240	1258	1107	1240	1507
350	1595	1610			1431	1503	1401	1131	1154	949	1073	1371
340	1530	1566			1356	1457	1351	990	1038	820	896	1191
330	1446	1504			1268	1394	1287	847	917	679	698	982
320	1351	1438			1178	1324	1216	698	794	524	477	754
310	1258	1357			1084	1240	1133	524	655	348	262	477
300	1162	1274			982	1133	1041	335	497	219	97.2	219
290	1061	1187			875	1038	949	127	362	104		49.6
280	952	1096			774	939	844		229			
270	858	987			679	824	745		135			
260	774	885			599	716	643		71.4			
250	701	784			535	608	540		12.4			
240	638	688			482	519	454					
230	590	608			443	441	378					
220	548	551			411	384	327					
210	511	500			383	343	286					
200	477	462			357	310	253					
190	440	429			333	283	224					
180	408	403			312	254	198					
170	377	379			290	225	171					
160	347	354			267	196	148					
150	314	324			219	170	125					
140	272	286			172	150	111					
130	239	248			158	138	101					
120	224	226			150	130	60.0					
110	198	189			127	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 18 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL									A		A	A
HMIN	278	266	270	242	214	255	116	110	113	111		
HMAX	373	383	398	361	325	374	389	357	351	363		
SHMAX	1104	1141	1159	1086	731	600	939	1207	1436	1741		
KM												
400			1367									
390		1473	1362				735					
380	1669	1472	1343			774	733					
370	1667	1456	1308	1367		773	723			1341		
360	1641	1419	1258	1367		763	705	1004	1119	1341		
350	1583	1362	1195	1356		741	681	1002	1119	1330		
340	1492	1282	1124	1328		708	652	991	1113	1308		
330	1376	1186	1004	1283	1119	664	618	971	1098	1272		
320	1221	1065	854	1218	1116	608	581	940	1070	1223		
310	1027	896	679	1143	1091	540	540	903	1037	1166		
300	794	716	524	1038	1043	454	500	854	995	1096		
290	508	477	335	903	969	353	459	799	944	1004		
280	97.2	286	161	735	861	251	413	732	887	917		
270		97.2	40.2	540	735	161	371	661	827	824		
260				348	590	71.4	327	582	754	735		
250				143	432		286	508	691	657		
240					286		248	439	622	596		
230					143		212	383	553	545		
220					54.8		182	335	489	504		
210							153	296	423	470		
200							129	262	375	435		
190							110	231	331	399		
180							94.8	201	290	365		
170							82.9	171	251	331		
160							73.3	146	219	293		
150							65.7	126	195	251		
140							59.2	112	179	214		
130							55.0	105	171	194		
120							50.9	98.5	162	182		
110								12.4				

ELECTRON DENSITY

PUERTO RICO 60 W 18 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		A		A	A	A	A			F	A
HMIN		111		110				290	288	280	300	341
HMAX		374		384				412	418	396	461	454
SHMAX		2251		2135				1115	1072	988	1270	940
KM												
470											1215	
460											1215	1393
450											1209	1391
440											1192	1364
430											1165	1307
420								1316	1341		1126	1218
410								1315	1335		1078	1107
400								1304	1309	1341	1017	960
390				1528				1278	1264	1337	952	794
380		1846		1527				1235	1195	1312	867	631
370		1844		1516				1178	1115	1265	774	446
360		1826		1494				1104	1004	1195	679	240
350		1788		1459				1013	875	1107	582	71.4
340		1730		1408				907	735	990	487	
330		1650		1352				781	590	847	389	
320		1555		1274				643	446	679	286	
310		1433		1195				462	274	508	161	
300		1303		1119				286	135	335	12.4	
290		1159		1027				49.6	44.9	161		
280		1019		934						12.4		
270		889		842								
260		767		754								
250		670		673								
240		594		608								
230		540		554								
220		501		512								
210		468		473								
200		442		441								
190		417		411								
180		395		379								
170		373		343								
160		349		310								
150		286		255								
140		235		210								
130		214		194								
120		204		184								
110				40.2								

ELECTRON DENSITY

PUERTO RICO 60 W 19 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL				A			S	A	A	A	A	
HMIN	280	250	250		268	240	222	115	113	110	103	108
HMAX	384	354	375		354	339	317	285	341	376	377	402
SHMAX	1109	974	880		553	711	712	712	1265	1865	2125	2623
KM												
410												1727
400												1726
390	1697											1719
380	1695		982							1240	1528	1701
370	1664		981							1239	1525	1673
360	1600	1393	972		1004					1231	1509	1634
350	1501	1392	953		1002				917	1216	1479	1584
340	1371	1372	925		974	1072			917	1193	1425	1519
330	1201	1332	888		909	1065			914	1164	1380	1446
320	960	1271	843		824	1039	1050		905	1126	1316	1365
310	661	1191	787		704	993	1045		890	1082	1230	1277
300	389	1096	716		557	931	1025		869	1033	1135	1175
290	179	917	619		389	844	985	917	842	977	1050	1077
280	12.4	679	508		219	716	929	914	810	917	960	978
270		417	362		60.0	557	858	893	776	847	867	883
260		179	198			362	754	849	737	781	786	794
250		12.4	49.6			143	619	786	693	716	709	716
240						12.4	446	707	651	650	643	650
230							240	616	608	590	588	598
220								519	564	529	544	550
210								417	513	481	511	508
200								327	452	438	480	470
190								251	395	397	446	438
180								195	335	358	413	408
170								157	276	323	373	377
160								127	227	292	335	345
150								108	187	262	303	310
140								96.1	159	228	259	262
130								90.2	141	201	228	229
120								74.4	132	188	213	210
110										71.4	202	179

ELECTRON DENSITY

PUERTO RICO 60 W 19 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	A	8	A	A	A	A	A	A	A	A	A	A
HMIN	105	109	108	107	109	109		250	269	300		
HMAX	386	384	378	394	380	378		393	434	432		
SHMAX	2442	2374	2181	2347	1944	2005		1370	1477	1241		
KM												
440									1420	1473		
430									1419	1473		
420									1408	1460		
410									1385	1429		
400				1727				1433	1351	1380		
390	1786	1786		1725				1432	1305	1307		
380	1783	1784	1786	1713	1669	1640		1421	1246	1221		
370	1767	1769	1779	1687	1659	1635		1396	1178	1119		
360	1736	1736	1755	1642	1629	1616		1356	1096	982		
350	1691	1687	1711	1588	1581	1583		1297	993	834		
340	1623	1612	1640	1524	1505	1530		1232	885	661		
330	1547	1526	1546	1446	1415	1466		1151	767	492		
320	1463	1425	1446	1351	1307	1385		1059	643	323		
310	1362	1321	1341	1240	1175	1295		946	497	161		
300	1260	1218	1208	1143	1038	1184		824	362	12.4		
290	1131	1107	1061	1027	907	1061		691	240			
280	1016	993	928	903	781	939		557	127			
270	896	875	804	784	667	814		389	12.4			
260	794	774	698	679	573	704		198				
250	698	686	622	601	503	599		12.4				
240	622	613	557	536	455	514						
230	564	559	512	490	417	451						
220	520	516	473	453	391	403						
210	490	483	441	423	371	362						
200	466	459	411	397	351	329						
190	444	437	383	373	329	298						
180	417	411	356	350	294	268						
170	389	383	327	323	253	240						
160	354	356	281	289	216	205						
150	317	328	246	240	194	179						
140	274	290	226	211	179	159						
130	237	250	214	195	172	143						
120	214	229	205	187	165	134						
110	198	83.8	161	161	71.4	97.2						

ELECTRON DENSITY

PUERTO RICO 60 W 20 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL	A							A	A	A	A	A
HMIN		258	260	248	258	239	239		110	114		
HMAX		368	346	368	369	339	326		324	373		
SHMAX		961	745	925	821	598	510		1292	1814		
KM												
380										1316		
370		1341		1119	1096					1315		
360		1334		1114	1089					1308		
350		1305	1341	1096	1067					1292		
340		1253	1334	1062	1029	875				1267		
330		1180	1292	1014	979	868	917		1143	1231		
320		1084	1211	953	900	844	913		1142	1187		
310		960	1096	875	804	803	887		1133	1143		
300		794	931	784	688	742	839		1113	1076		
290		625	716	679	551	672	762		1080	1004		
280		417	477	562	403	590	655		1040	917		
270		219	219	432	219	487	508		988	834		
260		49.6	40.2	274	60.0	362	310		924	745		
250				83.8		219	112		850	661		
240						49.6	12.4		770	587		
230									686	524		
220									599	481		
210									516	446		
200									439	422		
190									368	392		
180									305	353		
170									253	298		
160									211	240		
150									172	198		
140									149	178		
130									137	169		
120									129	152		
110									12.4			

ELECTRON DENSITY

PUERTO RICO 60 W 20 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	A	A	A		A	A	A	A		A		
HMIN		113		107					280	294	305	280
HMAX		397		402					432	421	421	395
SHMAX		2398		2639					1388	1180	1174	1309
KM												
440									1446			
430									1446	1583	1612	
420									1436	1583	1611	
410				1969					1411	1567	1595	
400		1786		1968					1372	1524	1549	1815
390		1781		1956					1314	1455	1480	1812
380		1761		1927					1247	1352	1381	1781
370		1723		1876					1160	1226	1253	1720
360		1669		1816					1061	1080	1096	1627
350		1588		1741					949	917	917	1515
340		1496		1646					834	716	698	1359
330		1394		1531					698	508	462	1162
320		1285		1407					557	310	240	917
310		1182		1278					403	143	83.8	643
300		1073		1131					262	60.0		375
290		960		1004					143			161
280		854		875					12.4			12.4
270		754		754								
260		672		661								
250		602		587								
240		550		529								
230		508		484								
220		477		455								
210		451		434								
200		433		415								
190		414		391								
180		385		368								
170		350		341								
160		310		313								
150		269		279								
140		245		250								
130		231		224								
120		219		209								
110				161								

ELECTRON DENSITY

PUERTO RICO 60 W 21 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A					A	A	A				
HMIN		234	241	254	274	264			113	109	117	115
HMAX		347	367	374	384	371			374	316	367	367
SHMAX		983	781	743	653	695			1556	1151	1611	1904
KM												
390					1072							
380				1096	1070	1004			1004			
370			1240	1094	1038	1004			1004		1143	1367
360			1228	1071	975	994			1001		1140	1365
350		1420	1170	1017	885	968			995		1129	1354
340		1414	1050	943	781	922			985		1107	1333
330		1383	913	854	655	861			972		1074	1303
320		1327	861	745	508	774			954	1027	1034	1263
310		1254	729	625	362	667			934	1025	982	1210
300		1154	590	492	219	540			912	1014	923	1149
290		1004	432	348	104	389			887	989	863	1088
280		834	286	209	49.6	198			856	956	800	1012
270		643	170	97.2		60.0			816	917	735	934
260		389	90.5	46.5					761	863	673	850
250		127	49.6						694	794	618	770
240		49.6							616	716	569	686
230									529	634	520	608
220									439	548	501	540
210									372	477	477	482
200									324	417	451	440
190									294	371	427	409
180									269	332	396	381
170									243	296	353	356
160									209	259	310	328
150									176	219	266	295
140									152	187	219	255
130									138	161	191	217
120									128	151	161	179
110										127		

ELECTRON DENSITY

PUERTO RICO 60 W 21 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A				A		A	A	A	A		
HMIN		117	114	114	111	111				278	283	288
HMAX		390	391	366	379	385				415	430	413
SHMAX		2181	2145	1848	1734	1621				948	1030	759
KM												
430											1167	
420										1191	1160	1072
410										1189	1139	1071
400			1583							1170	1104	1053
390		1583	1583			1215				1133	1055	1010
380		1577	1575		1341	1214				1078	990	946
370		1559	1552	1528	1336	1204				1004	917	858
360		1528	1515	1525	1318	1184				917	814	764
350		1484	1464	1506	1288	1154				807	716	643
340		1424	1394	1470	1245	1113				691	596	524
330		1349	1316	1411	1185	1061				573	477	403
320		1258	1229	1341	1119	1004				432	348	286
310		1175	1119	1257	1041	931				274	229	161
300		1077	1016	1154	949	850				135	119	71.4
290		971	907	1038	844	770				65.7	54.8	21.7
280		865	804	928	745	686				12.4		
270		764	709	814	652	608						
260		672	636	707	573	534						
250		602	573	616	508	472						
240		550	528	547	464	422						
230		508	492	496	429	386						
220		475	466	462	403	357						
210		454	444	435	378	333						
200		440	425	412	352	308						
190		428	402	385	329	283						
180		417	374	352	310	257						
170		348	344	319	282	229						
160		300	316	291	250	203						
150		265	278	259	216	181						
140		221	234	229	193	159						
130		208	212	210	176	143						
120		161	198	186	166	132						

ELECTRON DENSITY

PUERTO RICO 60 W 22 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A		A	A	A	A
HMIN	275	272	269	249	219	207		114		103	106	107
HMAX	407	390	381	345	292	383		320		347	377	384
SHMAX	759	757	656	648	476	551		922		1571	2065	2201
KM												
410	1072											
400	1067											
390	1038	1072	1004			492						1555
380	985	1061	1004			492					1341	1554
370	917	1022	990			489					1339	1543
360	824	967	949			482					1331	1518
350	716	883	883	1096		471				1240	1316	1480
340	596	794	794	1092		457				1237	1294	1425
330	467	698	691	1067		438				1223	1265	1355
320	335	585	573	1016		417		875		1198	1227	1279
310	198	462	446	934		389		871		1161	1185	1196
300	119	310	335	807	982	362		858		1115	1143	1111
290	67.6	179	198	667	982	328		836		1056	1082	1022
280	33.2	65.7	83.8	492	960	293		806		985	1017	934
270			12.4	262	910	255		767		917	953	842
260				112	820	219		721		841	882	762
250				12.4	679	183		661		762	814	686
240					477	147		594		686	742	628
230					219	108		516		619	672	573
220					12.4	65.7		446		553	599	537
210						19.3		368		495	527	503
200								292		441	471	477
190								229		389	421	451
180								179		344	379	417
170								146		306	347	381
160								120		266	316	343
150								102		227	282	307
140								93.9		191	244	270
130								89.1		159	211	233
120								84.3		151	191	208
110										143	170	161

ELECTRON DENSITY

PUERTO RICO 60 W 22 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A	A	A		A	A	
HMIN	109	113	109	109	109	109	110	246	257	290	313	286
HMAX	383	390	387	393	396	393	387	407	431	440	437	422
SHMAX	2241	2418	2350	2493	2400	2138	1862	1526	1348	1396	1165	1186
KM												
440									1393	1500	1473	
430									1393	1493	1468	1446
420									1385	1469	1444	1446
410								1500	1361	1430	1399	1433
400				1907	1756	1697		1497	1324	1375	1333	1401
390	1669	1846	1786	1906	1754	1697	1583	1481	1272	1302	1248	1351
380	1668	1836	1782	1893	1740	1685	1580	1452	1205	1221	1153	1282
370	1655	1807	1762	1863	1713	1659	1565	1410	1133	1119	1004	1191
360	1627	1753	1727	1818	1673	1618	1538	1354	1027	1004	854	1084
350	1583	1688	1675	1756	1621	1562	1498	1279	917	861	679	939
340	1519	1603	1601	1677	1555	1485	1446	1196	784	716	477	781
330	1446	1501	1516	1576	1478	1403	1371	1105	667	557	240	608
320	1351	1388	1415	1468	1394	1307	1291	993	540	389	71.4	417
310	1250	1274	1307	1341	1291	1205	1205	875	403	198		219
300	1143	1143	1184	1208	1167	1107	1115	742	274	77.6		97.2
290	1038	1027	1061	1061	1038	990	1004	608	170			40.2
280	934	907	939	917	917	861	875	462	102			
270	834	804	824	794	804	742	754	310	60.0			
260	747	716	716	688	698	634	608	152	19.3			
250	672	643	636	599	608	540	487	44.9				
240	608	588	568	535	540	465	380					
230	554	548	520	486	486	408	302					
220	512	520	481	452	443	362	246					
210	477	498	452	428	408	326	202					
200	449	479	430	409	378	295	161					
190	431	446	408	392	352	262	127					
180	412	408	384	369	328	222	97.2					
170	385	362	359	341	301	179	83.8					
160	350	328	328	313	269	148	76.9					
150	310	298	290	282	237	135	70.8					
140	267	258	254	248	204	125	67.8					
130	226	217	227	219	179	121	64.8					
120	206	200	207	202	168	116	61.8					
110	127		112	97.2	112	83.8	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 23 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S					A
HMIN	249	240	254	248	252	252	248	105	110	109	106	
HMAX	373	381	359	358	393	396	343	298	324	349	407	
SHMAX	1043	974	636	614	692	654	538	899	1269	1537	2289	
KM												
410											1290	
400					794	754					1289	
390		1167			793	753					1283	
380	1500	1167			786	743					1271	
370	1499	1157			769	724					1255	
360	1477	1132	1027	896	743	696					1230	
350	1428	1090	1017	890	712	661	875			1143	1195	
340	1350	1030	981	868	664	613	874			1140	1160	
330	1250	960	917	829	608	553	858		1096	1129	1125	
320	1111	865	834	774	532	477	819		1095	1111	1087	
310	939	754	716	698	454	403	761		1084	1086	1045	
300	735	643	590	608	371	327	686	1167	1062	1053	995	
290	508	524	446	497	286	240	590	1159	1025	1013	946	
280	262	403	274	375	192	143	477	1127	980	965	896	
270	112	262	127	219	112	83.8	323	1069	923	912	844	
260	53.1	135	49.6	90.5	54.8	46.5	143	987	861	857	794	
250	5.5	65.7		21.7			26.3	885	794	794	744	
240		3.1						767	729	729	653	
230								631	661	665	647	
220								477	602	594	558	
210								353	540	524	550	
200								262	483	439	497	
190								194	417	367	446	
180								143	344	315	394	
170								106	274	279	347	
160								91.7	227	244	306	
150								83.8	193	198	271	
140								80.9	168	157	240	
130								78.1	149	142	195	
120								75.2	135	134	173	
110								72.3	49.6	127	162	

ELECTRON DENSITY

PUERTO RICO 60 W 23 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		S	A	A	A	A	A				
HMIN	108	110	113					229	279	308	263	268
HMAX	394	388	418					430	422	433	372	374
SHMAX	2395	2262	2651					1868	1422	1434	1443	1272
KM												
440										1876		
430								1640	1697	1875		
420			1846					1633	1697	1851		
410			1841					1612	1681	1799		
400	1669		1824					1578	1641	1718		
390	1668	1669	1792					1525	1579	1608		
380	1657	1664	1747					1465	1492	1462	2227	2032
370	1633	1643	1689					1390	1388	1291	2226	2028
360	1598	1607	1612					1301	1254	1096	2193	1985
350	1549	1555	1526					1197	1111	875	2114	1895
340	1489	1483	1425					1086	939	608	1985	1769
330	1420	1399	1319					982	754	348	1820	1578
320	1332	1301	1198					875	540	143	1584	1341
310	1240	1205	1065					764	362	26.3	1307	1050
300	1159	1107	949					655	179		960	716
290	1068	1004	844					540	83.8		608	417
280	969	896	745					437	12.4		240	143
270	865	802	665					335			71.4	26.3
260	778	709	602					240				
250	701	636	550					152				
240	636	573	508					71.4				
230	578	526	477					12.4				
220	524	489	453									
210	472	460	432									
200	430	437	410									
190	389	417	386									
180	353	395	359									
170	326	368	332									
160	303	332	300									
150	262	296	259									
140	217	262	231									
130	197	240	213									
120	188	228	202									
110	170	60.0										

ELECTRON DENSITY

PUERTO RICO 60 W 24 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S		A	A	A	
HMIN	260	259	228	229	213	235	269	116	108	102		108
HMAX	402	399	404	362	289	370	390	336	340	365		383
SHMAX	1426	1370	1441	1150	539	423	469	806	1167	1498		1826
KM												
410	1697		1446									
400	1697	1640	1445									
390	1682	1631	1432				524					1240
380	1644	1602	1406				522					1240
370	1585	1552	1365	1420		540	515			1119		1233
360	1505	1481	1309	1419		535	503			1118		1217
350	1411	1389	1240	1406		520	487			1107		1192
340	1283	1278	1159	1375		477	465	698	982	1083		1159
330	1127	1143	1061	1325		449	441	696	977	1053		1115
320	939	990	946	1256		413	410	690	960	1009		1061
310	735	794	820	1169		371	371	677	936	960		1004
300	557	590	691	1061		325	323	657	896	899		936
290	348	348	562	917	1119	274	251	631	842	834		867
280	161	161	432	754	1102	214	127	600	794	767		794
270	71.4	71.4	310	573	1041	165	12.4	561	735	694		724
260	3.1	12.4	189	389	939	117		517	672	622		657
250			107	198	794	67.6		467	608	560		590
240			60.0	83.8	608	33.2		411	534	503		540
230			12.4	12.4	335			356	471	459		502
220					112			305	412	424		471
210								259	366	395		444
200								219	328	367		417
190								187	293	344		391
180								158	260	320		364
170								135	231	292		332
160								115	198	255		294
150								101	172	222		255
140								93.5	152	191		219
130								88.1	139	170		198
120								71.4	131	156		188
110									83.8	147		161

ELECTRON DENSITY

PUERTO RICO 60 W 24 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL				A			A	A	A	A	A	A
HMIN	110	109	115	108	113	110		269				269
HMAX	414	395	376	398	375	375		418				424
SHMAX	2219	2021	1755	1918	1603	1510		1051				1053
KM												
430												1240
420	1316							1050				1239
410	1315							1047				1223
400	1310	1341		1341				1035				1191
390	1298	1340		1338				1015				1141
380	1281	1330	1341	1326	1240	1215		986				1073
370	1257	1311	1339	1304	1238	1214		946				987
360	1226	1283	1324	1272	1226	1202		898				889
350	1190	1244	1296	1230	1202	1178		846				774
340	1154	1191	1255	1179	1166	1143		781				655
330	1106	1137	1195	1123	1117	1100		709				524
320	1050	1073	1127	1050	1056	1042		625				389
310	975	990	1050	960	978	968		529				262
300	903	909	960	858	900	885		408				155
290	827	826	867	764	810	794		262				92.8
280	754	747	774	670	726	707		97.2				53.1
270	679	673	679	590	643	616		12.4				5.5
260	619	608	608	521	567	532						
250	564	559	540	468	502	459						
240	517	519	490	430	451	405						
230	483	486	453	404	414	365						
220	456	463	427	385	387	335						
210	435	444	407	374	364	312						
200	416	425	391	363	345	290						
190	400	404	371	346	325	265						
180	383	383	353	321	302	242						
170	364	362	337	282	276	216						
160	335	343	307	250	255	191						
150	291	316	276	232	234	169						
140	245	278	237	220	202	151						
130	217	243	212	211	176	139						
120	204	224	179	203	163	131						
110	60.0	143		143		40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 25 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	S											
HMIN	276	230	229	230	256	253	119	115	109	110	109	110
HMAX	393	360	351	372	386	345	280	303	349	340	333	397
SHMAX	1091	1017	722	673	564	504	598	638	1208	1356	1317	2049
KM												
400	1473											1341
390	1472				754							1339
380	1453			794	752							1327
370	1409			793	737							1306
360	1340	1341	960	786	708							1276
350	1247	1332	960	768	665	854			896			1235
340	1131	1304	951	737	613	852			893	1143	1143	1181
330	993	1257	928	700	547	831			882	1136	1142	1123
320	834	1191	889	649	467	788			860	1117	1129	1056
310	661	1105	839	587	380	729		643	834	1083	1100	982
300	446	1004	770	516	286	643		642	800	1038	1050	903
290	179	847	679	439	198	519		635	759	979	990	834
280	49.6	679	562	362	119	389	854	619	716	917	917	767
270		477	446	286	63.8	219	847	592	669	834	834	711
260		219	323	189	26.3	71.4	825	557	621	754	754	658
250		77.6	161	97.2			789	516	578	670	672	608
240		12.4	71.4	49.6			742	468	533	587	594	567
230			12.4				667	422	496	521	527	534
220							551	372	458	468	477	506
210							389	327	421	425	435	481
200							229	281	381	389	403	452
190							138	236	340	356	379	417
180							94.5	191	302	327	360	379
170							71.4	155	262	298	341	340
160							59.3	129	223	268	313	302
150							51.8	110	192	237	278	259
140							47.0	96.6	163	207	257	229
130							43.2	90.2	143	179	204	212
120							12.4	83.8	134	164	186	200
110									71.4	12.4	97.2	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 25 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	J			A		A	A	A	A			A
HMIN	109	110	109		110	109				284	309	309
HMAX	388	390	390		388	368				421	441	436
SHMAX	2138	2290	2255		2068	1821				1000	897	918
KM												
450											1167	
440											1167	1215
430										1240	1155	1212
420										1240	1124	1190
410										1228	1073	1148
400										1196	1004	1088
390	1500	1612	1612		1669					1144	917	1004
380	1497	1606	1605		1663					1073	807	903
370	1481	1581	1587		1642	1612				982	691	774
360	1453	1559	1555		1604	1606				885	557	631
350	1404	1517	1503		1548	1582				774	417	492
340	1352	1465	1452		1475	1537				643	256	335
330	1283	1394	1379		1389	1477				519	152	179
320	1210	1316	1299		1285	1403				375	71.4	77.6
310	1133	1230	1208		1175	1311				240	12.4	12.4
300	1041	1133	1105		1061	1198				135		
290	952	1038	1004		939	1073				54.8		
280	867	939	907		807	946						
270	778	834	814		688	807						
260	704	745	732		585	679						
250	643	652	650		508	573						
240	590	580	590		451	484						
230	548	526	540		411	417						
220	514	484	496		381	369						
210	480	452	460		358	335						
200	446	430	427		337	307						
190	414	409	395		318	278						
180	386	389	367		299	251						
170	359	366	342		278	226						
160	330	348	310		250	203						
150	298	324	274		209	179						
140	262	281	240		171	157						
130	237	240	217		156	142						
120	220	221	205		148	132						
110	49.6	12.4	97.2		40.2	60.0						

ELECTRON DENSITY

PUERTO RICO 60 W 26 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	A	A		A	A
HMIN	269	243	252	319	303	288	269			110		
HMAX	388	329	418	437	445	429	408			323		
SHMAX	893	676	825	588	646	651	825			1530		
KM												
450					794							
440				834	792							
430				830	781	774						
420			834	810	757	770						
410			831	772	723	756	875					
400			820	722	679	732	873					
390	1341		801	650	619	698	863					
380	1331		773	565	548	653	845					
370	1292		737	477	469	601	819					
360	1221		693	362	389	532	790					
350	1119		643	262	294	446	750					
340	993		573	170	198	362	698					
330	847	1265	508	83.8	117	278	629			1393		
320	679	1250	432	12.4	67.6	189	557			1393		
310	508	1200	362		40.2	112	456			1380		
300	310	1115	292			60.0	353			1353		
290	161	990	226			12.4	229			1302		
280	67.6	814	161				104			1246		
270	12.4	573	92.8				12.4			1173		
260		262	49.6							1086		
250		71.4								996		
240										896		
230										784		
220										679		
210										573		
200										492		
190										423		
180										367		
170										323		
160										278		
150										233		
140										198		
130										178		
120										166		
110										40.2		

ELECTRON DENSITY

PUERTO RICO 60 W 26 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A	A	A	A	A	A	A	A
HMIN	110				107	110				258	270	281
HMAX	391				373	366				408	426	404
SHMAX	2380				1668	1584				1004	1095	938
KM												
430											1265	
420											1262	
410										1290	1244	1316
400	1640									1283	1211	1314
390	1640									1253	1161	1292
380	1633				1341					1197	1096	1247
370	1616				1341	1393				1135	1012	1177
360	1588				1329	1391				1031	907	1084
350	1550				1302	1375				917	781	960
340	1500				1261	1345				781	655	814
330	1439				1201	1296				643	529	643
320	1364				1135	1245				508	403	477
310	1282				1050	1167				348	262	310
300	1191				960	1077				233	161	135
290	1086				865	971				152	90.5	60.0
280	982				754	844				97.2	49.6	
270	875				661	716				57.4		
260	774				573	608				12.4		
250	686				508	500						
240	608				459	424						
230	546				421	371						
220	500				398	332						
210	465				379	305						
200	437				362	281						
190	414				338	257						
180	396				310	226						
170	375				270	189						
160	351				229	166						
150	323				201	153						
140	292				185	142						
130	262				174	136						
120	233				166	130						
110	40.2				135	49.6						

ELECTRON DENSITY

PUERTO RICO 60 W 27 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S		A		A	A
HMIN	269	241	228	241	236	247	270	113	110			
HMAX	387	342	357	349	359	364	356	292	321			
SHMAX	1022	835	647	536	505	419	449	728	1167			
KM												
390	1393											
380	1388											
370	1363					608						
360	1316		854		661	607	698					
350	1248	1265	850	794	657	596	695					
340	1160	1264	830	788	642	573	682					
330	1050	1249	794	767	617	540	656		1050			
320	875	1211	744	732	581	492	619		1049			
310	698	1150	679	684	535	432	573		1043			
300	477	1068	599	615	482	355	508	917	1027			
290	240	946	516	519	410	278	408	917	1001			
280	90.5	774	432	417	335	189	262	903	967			
270	12.4	590	344	298	251	112	12.4	870	917			
260		362	251	161	161	60.0		820	861			
250		112	161	60.0	79.7	18.0		747	794			
240			83.8		40.2			655	716			
230			21.7					551	636			
220								437	560			
210								335	477			
200								262	403			
190								215	335			
180								179	274			
170								149	223			
160								127	186			
150								109	161			
140								97.2	146			
130								90.8	138			
120								84.5	131			
110									40.2			

ELECTRON DENSITY

PUERTO RICO 60 W 27 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		A	A	A	A	A	A		J		
HMIN	108	107	107					274	318	311	279	270
HMAX	391	429	434					467	491	426	406	376
SHMAX	2213	2564	2697					1420	1534	1098	1535	1274
KM												
500									1555			
490									1555			
480									1547			
470								1265	1524			
460								1262	1487			
450								1250	1433			
440			1786					1226	1367			
430		1669	1785					1192	1291	1612		
420		1664	1773					1148	1197	1606		
410		1646	1747					1090	1080	1570	2032	
400	1612	1617	1709					1027	939	1503	2026	
390	1611	1576	1655					952	794	1403	1990	
380	1604	1515	1589					867	631	1270	1922	1938
370	1584	1446	1510					784	462	1096	1822	1931
360	1550	1371	1418					698	310	917	1695	1888
350	1501	1286	1319					608	179	698	1534	1807
340	1451	1186	1213					524	97.2	477	1341	1682
330	1374	1086	1119					432	56.5	198	1096	1519
320	1291	996	1016					335	12.4	71.4	794	1316
310	1197	909	907					251			540	1050
300	1096	824	814					170			286	774
290	990	739	732					90.5			104	446
280	875	673	657					46.5			12.4	112
270	774	613	596									
260	679	566	545									
250	594	530	504									
240	536	501	472									
230	494	479	449									
220	464	459	433									
210	439	437	419									
200	415	415	403									
190	393	393	386									
180	369	371	362									
170	345	342	332									
160	294	304	298									
150	219	251	258									
140	193	228	222									
130	177	214	198									
120	169	206	189									
110	161	179	179									

ELECTRON DENSITY

PUERTO RICO 60 W 28 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		A	A			A	A		A	A		A
HMIN	266	269		279	255	256	289	119	110	109	110	
HMAX	360	399		370	394	392	401	308	374	349	340	
SHMAX	913	1192		697	826	636	518	601	968	985	1034	
KM												
410							661					
400		1420			917	679	661					
390		1413			916	679	656					
380		1389			907	674	643		540			
370		1348		1240	886	663	621		540			
360	1583	1291		1222	852	644	590		538			
350	1561	1216		1166	811	619	553		534	716		
340	1496	1131		1073	760	585	508		528	713	735	
330	1388	1016		946	698	544	446		520	701	732	
320	1240	875		781	625	503	371		509	681	722	
310	1050	729		608	548	451	262	590	493	652	704	
300	814	540		362	467	395	112	588	477	615	683	
290	540	310		143	380	329	12.4	579	459	573	655	
280	219	97.2		40.2	274	257		563	441	531	619	
270	44.9	12.4			161	179		540	423	488	581	
260					71.4	49.6		511	406	450	540	
250								472	390	415	500	
240								423	379	389	462	
230								372	368	369	427	
220								320	355	354	399	
210								267	340	342	377	
200								219	321	331	359	
190								187	298	321	349	
180								161	269	310	338	
170								142	240	286	318	
160								126	211	249	289	
150								115	188	210	253	
140								107	168	187	219	
130								100	155	173	197	
120								49.6	147	163	186	
110									40.2	71.4	40.2	

ELECTRON DENSITY

PUERTO RICO 60 W 28 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A		A	A	A	A	A				A
HMIN			109					276	285	297	289	292
HMAX			359					445	422	428	359	421
SHMAX			1333					1082	917	919	789	987
KM												
450								1004				
440								1003				
430								996	1096	1143		1191
420								980	1095	1137		1191
410								956	1084	1113		1182
400								924	1057	1071	1191	1158
390								883	1015	1011	1180	1120
380								838	953	931	1143	1067
370								781	882	842	1073	1004
360			960					716	794	735	987	909
350			956					643	707	631	875	804
340			942					565	608	519	742	679
330			917					477	497	403	590	540
320			879					389	375	274	432	389
310			834					298	251	143	262	209
300			782					205	135	49.6	112	83.8
290			723					119	54.8		12.4	
280			667					54.8				
270			613									
260			564									
250			520									
240			484									
230			455									
220			434									
210			417									
200			401									
190			385									
180			367									
170			341									
160			303									
150			262									
140			226									
130			201									
120			188									
110			127									

ELECTRON DENSITY

PUERTO RICO 60 W 29 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		A	A	A	A	A	A					
HMIN	289	261	268	355	327	317		110	110	108	108	107
HMAX	399	377	390	465	429	469		415	402	347	334	286
SHMAX	816	931	854	586	579	627		716	771	814	830	629
KM												
470				834		608						
460				832		606						
450				815		599						
440				779		588						
430				727	814	571						
420				665	808	551		375				
410				582	790	525		375	362			
400	1215			497	758	494		373	362			
390	1205		1027	398	716	455		370	361			
380	1167	1191	1021	298	655	408		365	359			
370	1104	1187	1004	189	580	357		357	357			
360	1013	1170	976	71.4	487	305		349	354			
350	903	1137	936		389	251		341	350	492		
340	767	1090	885		240	186		331	345	491	508	
330	608	1030	826		60.0	104		317	339	488	508	
320	462	949	729			40.2		301	331	482	505	
310	286	834	619					282	322	473	500	
300	127	704	492					264	313	460	452	
290	40.2	524	348					248	302	446	482	446
280		310	161					233	291	428	466	446
270		112	44.9					219	281	409	448	444
260								209	270	389	428	440
250								200	261	369	408	435
240								195	255	351	389	427
230								192	248	334	375	418
220								188	241	321	361	407
210								184	235	309	352	396
200								180	229	302	344	382
190								172	223	295	335	365
180								163	214	288	325	345
170								150	198	274	314	325
160								137	179	255	295	305
150								125	159	231	270	287
140								114	146	206	243	256
130								105	137	183	215	225
120								93.9	129	168	191	209
110								12.4	12.4	112	161	189

ELECTRON DENSITY

PUERTO RICO 60 W 29 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A	A	A	A	A	A		
HMIN			109							338	288	279
HMAX			355							463	417	398
SHMAX			1138							875	1027	940
KM												
470										1143		
460										1142		
450										1127		
440										1095		
430										1043		
420										975	1265	
410										885	1261	
400										784	1240	1240
390										667	1201	1234
380										524	1145	1208
370										375	1068	1162
360			716							219	978	1096
350			716							104	865	1013
340			710							26.3	742	903
330			700								596	781
320			685								446	643
310			662								286	492
300			636								143	323
290			604								49.6	161
280			570									40.2
270			534									
260			502									
250			474									
240			446									
230			425									
220			408									
210			393									
200			383									
190			375									
180			367									
170			353									
160			332									
150			294									
140			260									
130			237									
120			223									
110			112									

ELECTRON DENSITY

PUERTO RICO 60 W 30 JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S		A			
HMIN	262	245	239	260	274	252	240		109		108	109
HMAX	383	354	397	375	393	370	346		326		360	353
SHMAX	909	683	730	540	477	425	436		1080		1388	1572
KM												
400			754		643							
390	1167		752		642							
380	1166		743	735	633							
370	1153		725	734	613	557						
360	1122	939	700	723	580	553					875	1191
350	1075	937	671	701	540	540	557				873	1190
340	1012	925	628	667	483	515	556				868	1181
330	926	898	573	623	417	488	549		854		860	1161
320	834	857	513	565	353	451	534		853		849	1127
310	698	805	446	484	274	400	515		846		834	1085
300	562	732	382	389	198	342	491		833		815	1030
290	417	643	316	286	112	280	458		814		796	960
280	262	519	257	152	54.8	212	411		787		770	889
270	97.2	375	198	71.4		127	355		754		742	810
260		179	138			60.0	274		716		708	735
250		65.7	83.8				143		674		665	665
240			12.4				12.4		631		618	603
230									588		568	554
220									535		513	515
210									477		459	477
200									417		409	446
190									355		366	411
180									300		332	384
170									253		298	359
160									215		253	329
150									185		213	298
140									159		190	251
130									141		176	217
120									130		167	200
110									83.8		143	112

ELECTRON DENSITY

PUERTO RICO 60 W 30 JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A		A				F
HMIN	108	126	113	108	109		110	268	267	278	269	287
HMAX	438	376	352	346	351		372	431	407	401	389	401
SHMAX	2232	1820	1854	1594	1420		1291	1247	1110	1029	875	704
KM												
440	1143							1119				
430	1141							1119				
420	1136							1115				
410	1127							1103	1240	1290		982
400	1113							1083	1237	1290		982
390	1096							1056	1220	1279	1119	971
380	1071	1528					1050	1019	1190	1251	1112	943
370	1046	1524					1049	978	1147	1206	1089	893
360	1014	1503	1612		1143		1043	928	1089	1143	1049	834
350	981	1462	1611	1341	1143		1028	861	1019	1065	990	754
340	943	1397	1600	1339	1135		1004	794	934	960	917	655
330	900	1323	1571	1324	1114		970	709	824	834	824	540
320	854	1228	1523	1296	1077		930	625	704	679	716	417
310	804	1107	1468	1255	1029		880	540	573	524	596	262
300	754	982	1394	1197	973		820	437	432	348	477	135
290	702	861	1296	1135	903		748	323	286	179	335	54.8
280	656	745	1171	1050	834		679	189	143	49.6	179	
270	608	643	1034	949	761		599	49.6	54.8		40.2	
260	570	573	875	834	686		524					
250	534	513	742	726	615		446					
240	503	474	619	619	551		378					
230	481	446	532	532	495		320					
220	466	430	468	467	446		276					
210	453	415	425	417	410		240					
200	437	403	397	384	377		214					
190	417	391	376	360	350		190					
180	394	365	358	342	325		170					
170	365	332	339	321	300		152					
160	332	294	315	293	272		134					
150	294	253	281	255	240		117					
140	249	217	234	219	204		102					
130	219	198	211	198	179		93.0					
120	205		192	186	166		85.9					
110	179			127	112		12.4					

AVERAGE ELECTRON DENSITY KP BELOW 4.5

PUERTO RICO 60 W JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
COUNT	27	29	28	27	25	21	23	16	19	19	17	15
HMIN	264	249	246	258	259	250	241	112	110	109	108	108
NMAX	1406	1232	990	915	862	793	795	889	1133	1247	1373	1482
HMAX	371	354	367	377	372	365	352	312	335	345	363	368
SHMAX	901	808	718	666	585	556	564	836	1339	1559	1854	1992
SHINF	4868	4283	3511	3248	3016	2792	2808	3342	4533	5076	5728	6173
KM												
950	128	103	88.8	85.8	78.9	70.1	66.1	60.5	86.7	101	121	136
900	164	132	114	110	101	89.8	84.8	77.6	111	130	155	175
850	210	169	146	141	130	115	109	99.5	143	166	199	224
800	269	217	187	181	166	147	139	128	183	213	255	287
750	343	278	239	231	212	189	178	163	234	272	326	367
700	437	354	305	294	270	240	227	209	299	348	415	468
650	555	450	387	373	343	305	289	266	380	442	527	594
600	698	567	486	468	431	384	364	338	481	558	664	746
550	866	708	604	580	534	477	454	426	603	698	826	926
500	1052	866	734	701	646	580	555	530	745	858	1007	1123
490	1090	899	760	726	669	600	576	553	774	891	1044	1163
480	1127	932	786	750	692	621	597	576	805	925	1082	1203
470	1163	964	812	773	713	642	618	599	835	959	1118	1241
460	1199	996	837	795	734	662	638	623	865	992	1154	1279
450	1233	1028	861	816	754	681	658	647	896	1025	1188	1314
440	1265	1058	883	836	773	699	677	671	925	1056	1221	1348
430	1294	1087	904	854	790	716	696	694	954	1087	1252	1378
420	1321	1113	923	870	805	731	713	718	982	1113	1280	1406
410	1344	1138	940	882	817	744	728	741	1009	1143	1305	1429
400	1362	1159	953	890	826	755	742	763	1033	1168	1327	1448
390	1374	1177	962	921	893	851	776	784	1056	1189	1344	1461
380	1378	1190	966	916	890	852	784	804	1076	1207	1356	1468
370	1368	1195	962	904	879	847	789	823	1093	1221	1363	1468
360	1339	1192	950	880	857	834	788	839	1106	1230	1362	1457
350	1289	1180	924	843	822	812	781	853	1115	1233	1353	1434
340	1215	1153	884	791	774	780	768	864	1119	1228	1334	1398
330	1118	1110	829	726	711	738	745	871	1118	1215	1303	1349
320	991	1048	762	647	637	682	714	874	1109	1193	1262	1288
310	835	965	678	560	550	613	668	872	1092	1162	1209	1214
300	653	858	582	464	456	532	607	864	1066	1119	1145	1133
290	465	722	475	360	398	518	555	1101	1030	1121	1077	1045
280	290	570	362	261	305	407	455	1061	984	1053	1003	957
270	164	415	262	171	211	292	342	1003	928	977	922	867
260	85.3	256	179	100	142	175	236	928	861	898	839	782
250	42.4	128	106	41.1	94.5	81.3	139	837	786	815	757	702
240	20.5	50.5	54.8	12.2	61.5	26.0	85.9	732	702	733	677	631
230	5.7	18.7	25.9	3.2	30.0	8.8	63.2	621	615	655	605	572
220	1.4	4.2	8.3	.4	7.1	4.1	38.8	509	532	581	542	524
210			1.4			.9	24.1	414	456	513	492	484
200			.1				15.5	335	390	454	449	449
190							10.7	287	334	402	411	417
180							8.2	235	287	357	376	387
170							6.7	193	245	316	341	357
160							5.7	163	209	276	304	324
150							5.1	141	179	237	267	291
140							4.6	127	158	205	231	253
130							4.2	119	144	182	202	222
120							2.7	105	130	169	183	201
110								22.8	45.3	71.7	116	103

AVERAGE ELECTRON DENSITY KP BELOW 4.5

PUERTO RICO 60 W JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	220	2300
COUNT	18	20	20	18	18	17	8	18	19	22	25	28
HMIN	109	109	109	109	109	110	115	257	270	278	287	285
NMAX	1626	1741	1723	1756	1626	1548	1382	1331	1378	1432	1384	1404
HMAX	380	382	380	375	373	371	365	399	419	411	412	401
SHMAX	2167	2276	2205	2172	1971	1826	1522	1219	1225	1117	1044	992
SHINF	6753	7186	7065	7125	6558	6193	5421	4974	5113	5156	4948	4953
KM												
950	155	167	166	164	150	131	124	106	151	113	156	148
900	198	215	213	211	193	168	159	136	193	145	199	190
850	254	275	273	270	247	215	204	175	247	186	256	244
800	326	352	349	346	316	276	261	223	316	238	327	311
750	416	450	446	442	404	353	334	285	403	303	416	398
700	530	573	567	563	515	450	425	363	511	385	528	505
650	671	726	719	713	653	571	540	495	644	484	666	638
600	843	911	902	897	822	718	680	618	847	602	829	796
550	1043	1128	1115	1112	1020	893	845	759	1030	811	1011	977
540	1086	1174	1161	1158	1062	930	881	788	1067	841	1048	1014
530	1129	1221	1206	1205	1106	969	918	818	1104	870	1085	1052
520	1173	1268	1253	1252	1149	1007	955	847	1140	899	1122	1089
510	1217	1315	1299	1300	1193	1047	992	876	1175	976	1158	1127
500	1261	1363	1345	1347	1238	1086	1029	905	1209	1005	1193	1163
490	1305	1409	1391	1395	1282	1125	1067	932	1241	1033	1226	1198
480	1347	1455	1436	1441	1325	1164	1104	959	1271	1059	1257	1232
470	1389	1500	1479	1487	1368	1203	1140	984	1297	1083	1285	1264
460	1429	1543	1521	1531	1409	1240	1176	1007	1321	1104	1311	1293
450	1466	1583	1560	1573	1448	1276	1211	1028	1340	1121	1332	1320
440	1501	1620	1596	1612	1485	1310	1243	1047	1355	1136	1350	1342
430	1533	1654	1628	1648	1519	1342	1274	1139	1364	1210	1361	1359
420	1560	1682	1656	1679	1550	1370	1301	1151	1365	1288	1364	1369
410	1583	1706	1677	1705	1576	1395	1326	1158	1355	1283	1357	1372
400	1600	1723	1693	1726	1596	1515	1346	1319	1333	1396	1338	1364
390	1610	1734	1701	1740	1611	1531	1361	1395	1548	1531	1302	1342
380	1613	1735	1701	1746	1618	1540	1372	1373	1481	1458	1244	1304
370	1605	1724	1690	1740	1616	1541	1375	1335	1395	1361	1161	1247
360	1584	1698	1664	1721	1601	1531	1369	1280	1285	1240	1056	1164
350	1549	1655	1623	1685	1571	1507	1352	1209	1161	1099	929	1058
340	1498	1592	1565	1632	1522	1465	1319	1125	1021	935	784	930
330	1434	1514	1491	1559	1457	1408	1272	1029	865	755	623	779
320	1358	1421	1401	1470	1375	1338	1212	919	700	568	456	616
310	1270	1319	1299	1366	1279	1254	1139	794	523	384	298	442
300	1176	1207	1187	1251	1171	1155	1053	658	357	220	165	277
290	1072	1092	1069	1130	1054	1049	1218	503	219	110	75.5	147
280	968	975	950	1004	933	936	1090	347	108	31.5	28.8	52.9
270	868	862	834	878	815	818	955	198	43.7	9.3	6.6	10.0
260	774	759	732	760	705	704	815	97.5	15.3	3.0		
250	688	670	643	659	611	599	680	35.4	5.0	2.0		
240	617	599	570	576	537	512	557	10.9		1.3		
230	558	542	515	513	478	443	457	1.4		.4		
220	512	501	474	466	432	389	379					
210	474	469	442	430	397	348	318					
200	443	443	417	402	366	314	271					
190	415	419	394	377	339	282	232					
180	388	394	371	352	312	252	198					
170	360	362	347	326	283	222	170					
160	330	332	318	297	255	192	147					
150	294	297	283	263	224	167	128					
140	255	259	247	229	194	147	116					
130	227	229	220	204	175	136	108					
120	203	206	202	190	163	126	88.9					
110	106	72.0	91.0	93.5	66.1	38.8	3.1					

AVERAGE ELECTRON DENSITY KP ABOVE 4.5

PUERTO RICO 60 W JUNE 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	100	1100
COUNT	1	1	1	1	1	3		1	4	2	3	1
KP	6	6	6	6	6			6				5
DATE	24	24	29	29	29			29				30
HMIN	260	259	268	355	327	276		110	109	108	108	109
NMAX	1697	1640	1027	834	814	574		375	702	604	706	1191
HMAX	402	399	390	465	429	403		415	355	348	344	353
SHMAX	1426	1370	854	586	579	478		716	996	899	1084	1572
SHINF	6213	5996	3751	2938	2875	2097		1773	2975	2602	3075	4931
KM												
950	180	172	103	121	98.9	63.8		42.5	56.2	49.1	57.1	99.2
900	231	220	132	155	127	81.6		54.5	72.2	63.0	73.2	127
850	296	282	169	198	162	105		69.8	92.5	80.7	93.8	163
800	379	361	216	253	207	134		89.3	118	103	120	209
750	484	461	276	321	264	171		114	152	133	154	267
700	615	586	351	405	335	216		144	193	169	197	341
650	777	740	445	504	421	272		182	246	215	250	434
600	970	926	557	615	521	337		227	311	272	316	548
590	1013	966	582	638	543	350		236	325	284	330	573
580	1056	1008	608	660	565	365		246	340	298	346	599
570	1101	1051	634	683	587	379		256	356	311	362	627
560	1146	1094	661	705	609	394		266	372	326	378	655
550	1191	1138	688	726	631	408		277	388	340	395	684
540	1237	1183	715	746	653	423		287	405	355	413	714
530	1284	1227	743	765	675	437		297	422	370	430	744
520	1330	1272	771	783	696	451		307	440	386	449	775
510	1376	1316	799	798	717	465		317	458	402	467	807
500	1421	1360	827	812	736	478		326	476	418	486	839
490	1464	1403	854	822	754	490		336	495	434	505	872
480	1506	1444	881	829	770	502		344	514	451	524	904
470	1546	1483	907	833	784	512		352	532	467	543	937
460	1582	1519	931	832	796	521		359	551	484	562	969
450	1615	1552	953	815	806	528		365	568	500	581	1000
440	1644	1580	974	779	812	533		370	586	515	600	1031
430	1667	1605	991	727	814	535		373	603	531	617	1060
420	1684	1623	1006	665	808	536		375	619	545	634	1088
410	1694	1635	1017	582	790	534		375	634	559	650	1113
400	1697	1640	1025	497	758	529		373	647	571	664	1136
390	1682	1631	1027	398	716	520		370	659	582	677	1155
380	1644	1602	1021	298	655	507		365	670	591	687	1171
370	1585	1552	1004	189	580	490		357	678	598	696	1183
360	1505	1481	976	71.4	487	469		349	685	602	701	1189
350	1411	1389	936		389	438		341	689	604	704	1190
340	1283	1278	885		240	397		331	691	602	703	1181
330	1127	1143	826		60.0	346		317	690	595	700	1161
320	935	990	729			297		301	686	582	692	1127
310	735	794	619			247		282	676	563	679	1085
300	557	590	492			207		264	663	539	663	1030
290	348	348	348			166		248	644	510	644	960
280	161	161	161			118		233	622	480	618	889
270	71.4	71.4	44.9			68.2		219	594	449	590	810
260	3.1	12.4				24.1		209	563	420	559	735
250								200	530	392	524	665
240								195	495	370	490	603
230								192	460	352	457	554
220								188	423	338	424	515
210								184	382	326	396	477
200								180	343	317	371	446
190								172	303	308	350	411
180								163	264	299	332	384
170								150	229	280	310	359
160								137	198	252	279	329
150								125	173	221	245	298
140								114	155	197	217	251
130								105	143	178	196	217
120								93.9	134	166	181	200
110								12.4	44.1	91.7	115	112

AVERAGE ELECTRON DENSITY KP ABOVE 4.5

PUERTO RICO 60 W JUNE 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	220	2300
COUNT	2	3	1					2	2	2	3	1
KP			5									6
DATE			29									23
HMIN	108	112	109					251	298	324	276	268
NMAX	1378	1612	716					1453	1626	1378	1841	2032
HMAX	414	403	355					448	456	444	398	374
SHMAX	2222	2283	1138					1644	1478	986	1335	1272
SHINF	6108	6831	3157					5741	6064	4872	6529	7004
KM												
950	154	174	60.2					193	228	96.5	190	188
900	197	223	77.2					248	292	124	243	241
850	252	286	99.0					317	374	159	312	309
800	323	365	127					404	477	203	399	395
750	411	466	162					514	605	258	509	505
700	522	592	207					649	762	327	647	644
650	658	747	263					811	948	411	818	816
600	819	931	332					998	1157	510	1023	1027
590	854	972	348					1036	1200	531	1068	1074
580	890	1013	364					1075	1242	553	1114	1122
570	926	1055	380					1115	1284	1040	1161	1172
560	962	1097	397					1154	1325	1077	1209	1223
550	999	1140	415					1192	1366	1113	1258	1275
540	1036	1184	433					1230	1404	1149	1307	1329
530	1073	1227	451					1265	1440	1184	1357	1383
520	1109	1270	470					1300	1473	1217	1407	1438
510	1145	1313	489					1332	1503	1249	1456	1493
500	1180	1355	509					1360	1529	1278	1505	1548
490	1212	1395	528					1386	1551	1304	1552	1604
480	1244	1433	548					1408	1565	1326	1598	1658
470	1272	1468	567					1424	1570	1344	1642	1712
460	1298	1501	586					1435	1566	1357	1683	1764
450	1320	1530	605					1438	1550	1359	1720	1813
440	1337	1554	623					1431	1526	1350	1753	1860
430	1350	1574	641					1416	1493	1327	1780	1903
420	1359	1586	657					1391	1447	1291	1802	1941
410	1363	1591	672					1351	1381	1228	1816	1974
400	1361	1588	685					1303	1290	1144	1818	2001
390	1354	1575	697					1239	1187	1839	1800	2019
380	1338	1550	706					1166	1062	1628	1763	2030
370	1315	1516	712					1087	925	1381	1705	2028
360	1282	1470	716					1000	782	1116	1622	1985
350	1241	1410	716					903	645	839	1504	1895
340	1197	1332	710					805	518	556	1356	1769
330	1137	1247	700					707	405	273	1171	1578
320	1073	1155	685					605	276	107	941	1341
310	1001	1058	662					508	181	13.1	711	1050
300	925	955	636					413	89.5		463	716
290	846	850	604					315	41.9		254	417
280	766	757	570					242	6.2		84.1	143
270	691	673	534					168			23.8	26.3
260	625	606	502					120				
250	564	552	474					76.0				
240	520	513	446					35.7				
230	488	482	425					6.2				
220	465	459	408									
210	446	439	393									
200	426	421	383									
190	405	405	375									
180	382	384	367									
170	355	354	353									
160	313	315	332									
150	257	270	294									
140	221	238	260									
130	198	217	237									
120	187	143	223									
110	170	126	112									

TABLES OF IONOSPHERIC DATA

April 1959 - November 1951

Table 1

Fairbanks, Alaska (64.9°N, 147.8°W) — April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.1)					2.5	(2.40)
01		(4.0)					3.3	(2.35)
02		(4.0)					3.6	(2.35)
03		(3.8)					2.8	(2.35)
04		(3.9)			---	----	2.8	(2.40)
05		(4.3)		---	---	E	2.3	(2.40)
06		(5.05)		2.8	<130	1.35		(2.35)
07		(4.9)		3.2	111	1.85		(2.30)
08		5.85		3.6	109	2.00		2.48
09		5.6		3.6	105	2.20		2.35
10		5.95		3.8	104	2.35		2.50
11		6.3		3.8	101	2.40		2.52
12		6.4		3.9	103	2.50		2.50
13		6.25		4.0	101	2.50		2.45
14		6.65		3.8	103	2.40		2.50
15		6.8		(3.9)	107	2.20		2.55
16		6.8		(3.5)	109	1.90		2.60
17		6.6		---	115	1.75		2.65
18		6.6			---	E		2.70
19		6.15			---	E	1.9	2.80
20		5.3			---	----		2.70
21		(5.45)					2.0	(2.68)
22		(5.05)					1.8	(2.60)
23		(3.95)					2.4	(2.38)

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

Table 2

Anchorage, Alaska (61.2°N, 149.9°W) — April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.5)						2.50
01		(4.5)						(2.40)
02		(4.8)						(2.35)
03		(4.6)						(2.40)
04		(4.45)			---	----		(2.35)
05		(4.9)		3.3	(129)	1.92		(2.42)
06		5.5		(3.7)	115	2.30		2.40
07		6.1		4.3	111	2.75		2.45
08		6.15		4.4	111	3.05		2.40
09		6.6		4.6	109	3.30		2.40
10		7.1		4.9	107	3.42		2.45
11		7.4		4.8	107	3.50		2.50
12		7.85		5.0	107	3.55		2.48
13		7.35		5.1	107	3.55		2.45
14		7.8		5.1	107	3.50		2.58
15		8.2		4.9	109	3.30		2.60
16		8.2		---	109	3.05		2.70
17		8.0		---	111	2.80		2.75
18		7.95			115	2.35		2.78
19		7.9			<135	2.05		2.80
20		7.5			---	----		2.80
21		6.7						2.75
22		(5.75)						(2.70)
23		(4.9)						(2.55)

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

Table 3

Ft. Monmouth, New Jersey (40.4°N, 74.1°W) — April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.4	<290					2.60
01		7.2	(290)					2.65
02		6.9	<290					2.65
03		6.45	<285					2.68
04		5.85	<295					2.62
05		5.6	290		---	----		2.70
06		6.9	250		120	2.38		3.00
07	---	8.2	240		115	2.92		3.00
08	(280)	8.95	230		111	3.30		2.90
09	(260)	10.0	220	---	111	3.60		2.80
10	(440)	10.45	220	5.6	111	3.85		2.75
11	(385)	11.0	215	5.5	109	4.00		2.68
12	390	11.05	225	5.5	111	(4.00)		2.65
13	395	11.0	230	---	109	4.00		2.65
14	(430)	10.85	230	---	111	3.90		2.60
15	(425)	10.9	230	5.4	111	3.65		2.65
16	(375)	10.7	235	---	115	3.32		2.70
17	---	10.6	250	---	119	2.90		2.70
18		10.35	260		(121)	2.28		2.75
19		10.2	250					2.75
20		9.2	(250)					2.65
21		8.5	<270					2.65
22		7.95	<280					2.60
23		7.5	(290)					2.60

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

Table 4

Thule, Greenland (76.6°N, 68.7°W) — March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.45)	260					(2.70)
01		(6.4)	260					(2.68)
02		(5.2)	270					(2.70)
03		4.85	270		<151	----		(2.60)
04		6.0	260		---	----		(2.70)
05	---	5.05	250	---	135	(1.75)		2.85
06	---	(5.6)	265	---	<135	2.00		(2.80)
07	---	(5.8)	265	---	121	2.10		(2.98)
08	---	6.4	265	---	119	2.22		2.85
09	---	(7.7)	255	---	119	2.45		(3.00)
10	---	(6.8)	260	---	(113)	2.48		2.95
11	(420)	(7.15)	255	4.2	<119	2.50		(2.80)
12	(360)	7.65	250	---	117	2.72		2.80
13	---	8.2	250	---	(119)	2.60		2.72
14	(570)	7.8	250	---	(119)	2.55		2.75
15	(400)	(8.0)	255	---	<121	2.50		2.85
16	(430)	8.2	255	---	(121)	2.32		2.70
17	---	9.0	265	---	(129)	2.00		2.85
18		(8.0)	260		(131)	(1.85)		(2.75)
19		(6.2)	265		123	----	1.9	(2.80)
20		(5.65)	265		139	----	2.0	(2.75)
21		(7.1)	265		---	----		(2.70)
22		(6.0)	260					(2.60)
23		(5.8)	265					(2.65)

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

Table 5

Anchorage, Alaska (61.2°N, 149.9°W) — March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.4)						(2.50)
01		(3.95)					2.0	(2.50)
02		(3.9)						(2.40)
03		(4.0)						(2.40)
04		(3.5)						(2.40)
05		(3.65)						(2.40)
06		(4.5)			---	----		(2.55)
07		5.7		---	119	2.20		2.75
08		6.5		4.2	115	2.60		2.82
09		7.2		---	115	2.92		2.80
10		8.0		---	112	3.10		2.78
11		8.9		5.1	111	3.25		2.75
12		9.8		---	113	3.40		2.70
13		10.0		---	112	3.35		2.80
14		10.4		---	113	3.20		2.80
15		10.8		---	115	2.95		2.80
16		11.0			115	2.75		2.85
17		11.0			119	2.40		2.95
18		11.0			<134	1.90		2.92
19		9.4			---	----		2.95
20		7.7						2.92
21		(6.2)						(2.90)
22		(5.0)						(2.75)
23		(4.7)						(2.65)

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

Table 6

Adak, Alaska (51.9°N, 176.6°W) — March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.75	<310		---	----		2.50
01		4.55	<330		---	----		2.45
02		4.6	320		---	----		2.45
03		4.5	315		---	----		2.50
04		4.5	<325		---	----		2.45
05		4.3	320		---	----		2.45
06	---	5.5	275	---	145	1.70		2.75
07	---	7.6	235	---	113	2.40		3.05
08	---	9.0	225	---	<108	2.90		3.05
09	---	11.2	225	---	107	3.20	3.2	3.00
10	---	12.5	220	---	107	3.40		2.95
11	---	13.5	220		107	3.50		2.95
12	---	13.5	225		105	3.60		2.90
13	---	13.3	220		109	3.60		2.88
14	---	13.0	230		109	3.45		2.85
15	---	12.6	230		109	3.20		2.85
16		12.0	230		111	2.85		2.90
17		11.5	230		119	2.30		2.95
18		10.7	230		<124	1.85		2.95
19		9.0	220		---	----		2.95
20		7.45	220		---	----		2.95
21		6.45	230		---	----		2.90
22		5.6	250		---	----		2.80
23		5.2	285					2.60

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

Table 7

St. John's, Newfoundland (47.6°N, 52.7°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	290					2.55
01		6.5	295					2.50
02		6.05	300					2.58
03		5.65	300					2.60
04		5.0	285					2.58
05		4.05	280		---	----		2.60
06		6.4	255		(123)	2.05		2.92
07	---	8.3	240	---	117	2.78		3.05
00	---	10.0	235	---	111	3.10		3.00
09	---	11.1	230	---	111	3.40		2.92
10	---	11.4	230	---	111	3.60		2.80
11	---	12.0	230	---	109	3.70		2.80
12	---	12.4	230	---	111	3.80		2.75
13	---	12.2	235	---	111	3.70		2.70
14	---	12.2	230	---	111	3.50		2.70
15	---	12.0	240	---	115	3.30		2.70
16	---	11.9	245		119	2.82		2.75
17	---	11.8	255		(127)	2.30		2.80
18		10.0	250		---	----		2.72
19		10.2	250					2.70
20		9.15	250					2.70
21		8.7	260					2.60
22		8.15	285					2.58
23		7.5	280					2.60

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

Table 8

Washington, D. C. (38.7°N, 77.1°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.2	270					2.70
01		7.1	275					2.65
02		6.8	280					2.60
03		6.6	280					2.60
04		6.3	265					2.60
05		5.8	280					2.60
06		5.8	275		---	----		2.75
07		8.3	240		119	2.30		3.05
00	---	10.8	230	---	109	2.90		3.05
09	---	12.0	230	---	107	3.35		2.95
10	---	12.8	220	---	106	3.60		2.90
11	---	13.2	215	---	105	3.75		2.00
12	---	13.2	220	---	105	3.85		2.75
13	---	13.0	225	---	106	3.88		2.75
14	---	13.2	230	---	107	3.75		2.70
15	---	12.9	230	---	107	3.50		2.70
16	---	12.7	235	---	109	3.25		2.70
17	---	12.4	240	---	115	2.75		2.75
18	---	11.8	240		(135)	1.95		2.80
19		10.9	235					2.80
20		9.6	240					2.00
21		8.8	245					2.75
22		8.0	260					2.70
23		7.6	265					2.70

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

Table 9

White Sands, New Mexico (32.3°N, 106.5°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.75	285					2.60
01		6.7	290					2.65
02		6.5	<285					2.65
03		6.25	<280					2.65
04		6.1	<285					2.60
05		5.8	<290					2.60
06		6.1	<290		---	----		2.65
07		8.95	245		<121	2.45		3.05
00		11.3	235		112	3.05		3.00
09	---	12.6	230		111	3.45	3.5	2.95
10	---	13.5	225		111	3.80		2.85
11	---	13.6	220		109	3.90		2.75
12	---	13.8	225		111	4.00		2.70
13	---	14.0	230		111	4.00		2.70
14	---	13.8	235	---	(111)	3.90		2.65
15	---	13.6	235		113	3.70		2.65
16	---	13.1	240		113	3.35		2.70
17		12.8	245		117	2.75		2.75
10		12.0	235		<131	2.10	2.2	2.80
19		10.5	225					2.80
20		8.95	235					2.75
21		8.2	250					2.80
22		7.5	255					2.75
23		6.9	275					2.75

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

Table 10

Okinawa I. (26.3°N, 127.8°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		14.3	240					(2.88)
01		>14.0	240					(2.90)
02		(12.8)	230					(2.95)
03		10.4	230					3.05
04		8.3	220					2.85
05		6.7	245					2.75
06		6.5	260					2.65
07		8.7	250		---	----		2.95
00		11.4	230		113	3.00		3.05
09		12.7	230		109	(3.30)		2.90
10		14.0	225		108	----		2.85
11		14.7	220		---	----		2.78
12	---	15.7	220		---	----		2.70
13	(355)	16.6	220		---	----		2.65
14	355	17.3	225		---	----		2.60
15	350	17.5	230	---	111	----	3.0	2.60
16	(335)	17.3	235		<113	----	>3.7	2.60
17		16.7	240		(111)	3.00	3.5	2.65
10		16.7	250				>2.6	2.70
19		17.0	260					2.70
20		(18.4)	280					(2.65)
21		18.6	250					(2.70)
22		17.9	245					(2.80)
23		(16.3)	240					(2.85)

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

Table 11

Maui, Hawaii (20.8°N, 156.5°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.3	230					3.10
01		8.5	240					3.10
02		7.45	240					3.08
03		5.65	230					3.00
04		4.9	250					2.65
05		4.8	<275					2.65
06		4.55	300		---	----		2.65
07		7.8	260		123	2.35		3.05
00		10.7	240		109	3.05		3.10
09		12.2	230		109	3.52		2.95
10		13.2	225		107	3.80		2.85
11	---	14.0	220		109	4.00		2.80
12	---	15.0	215		109	(4.10)		2.75
13	(370)	15.4	<220		109	(4.10)		2.70
14	370	15.5	220	---	109	4.00		2.70
15	360	15.85	<230		109	3.90		2.68
16	(340)	15.45	230		111	3.50		2.65
17		14.9	240		(113)	3.10		2.75
10		13.95	250		<127	2.40	2.6	2.80
19		13.9	260				2.5	2.85
20		14.2	260				1.9	2.90
21		13.15	245					3.00
22		12.3	240					3.00
23		11.6	235					3.10

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

Table 12

Baguio, P. I. (16.4°N, 120.6°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>10.2	250					----
01		(10.85)	240					(3.08)
02		>10.0	230					2.95
03		7.95	240					2.88
04		7.2	260					2.70
05		7.2	275					2.80
06		6.7	290				1.9	2.80
07		10.0	270		<128	(2.65)	2.8	2.85
00		>12.5	260		119	3.35		(2.72)
09		>14.0	250		119	3.80		(2.50)
10		>14.1	<245		119	(4.00)		(2.35)
11		(13.7)	235		119	(4.10)		(2.20)
12		(13.5)	<240		119	(4.15)		(2.18)
13		(13.15)	230		119	(4.10)		2.10
14		(13.55)	(240)		119	(4.00)		2.20
15		>13.65	250		119	3.85		(2.26)
16		>13.0	260		119	3.45	3.6	(2.20)
17		>10.15	275		<125	2.90	3.4	----
18		>11.0	300		---	----	2.0	----
19		>10.0	430					----
20		>10.5	(400)					
21		>10.0	320					
22		>10.5	285					----
23		>10.0	260					

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

Table 13

Talara, Peru (4.6°S, 81.3°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.85	210				2.8	2.80
01		11.3	230				2.5	2.82
02		9.7	230				1.8	3.00
03		8.8	230				1.6	3.00
04		7.55	220				2.2	3.10
05		6.4	230				2.2	3.15
06		5.0	240				3.0	3.05
07		8.5	260		(125)	2.35	4.0	3.00
08		11.8	240		111	3.20	3.9	2.85
09		13.5	230		111	3.70		2.60
10		14.0	220		109	4.00	4.2	2.40
11		14.5	220		111	4.25		2.25
12		14.6	210		111	4.38		2.20
13		14.0	210		109	4.35		2.20
14		14.0	210		109	4.22		2.15
15		14.0	210		108	4.00	4.1	2.15
16		14.0	220		109	3.70	4.0	2.20
17		13.9	240		111	3.20	4.4	2.20
18		13.55	270		(129)	2.45	4.6	(2.20)
19		>13.0	330				3.2	(2.20)
20		(12.85)	415					(2.05)
21		>13.0	345					(2.32)
22		(13.8)	250				2.0	(2.82)
23		11.9	220				2.4	(2.65)

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

Table 14

Chimbote, Peru (9.1°S, 78.6°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.4	230				2.2	2.80
01		9.5	240					2.85
02		8.9	245				1.6	3.00
03		8.0	235					3.05
04		7.0	230					3.12
05		5.8	235					3.20
06		5.2	250					2.98
07		9.3	260		129	2.55		3.00
00		12.1	245		121	3.25	4.0	2.85
09		13.8	235		121	3.75	4.2	2.50
10		14.4	225		121	4.08	6.5	2.30
11		13.7	220		119	(4.25)	7.0	2.25
12		13.0	220		119	4.30	6.5	2.20
13		12.9	220		121	(4.25)	5.2	2.22
14		12.7	220	---	118	4.15	5.0	2.20
15		12.8	225		119	4.00	4.5	2.18
16		13.2	235		119	(3.60)	4.9	2.20
17		12.8	255		121	(3.12)	4.6	2.20
18		(12.2)	285		<139	2.30	3.4	2.15
19		(11.3)	370					(2.10)
20		(10.4)	(435)					(2.08)
21		(11.3)	(390)					(2.30)
22		>11.0	(290)				1.7	(2.45)
23		>10.8	250				2.0	2.62

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

Table 15

Reykjavik, Iceland (64.1°N, 21.8°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.0	(360)				3.3	----
01		(5.7)	380				3.2	(2.60)
02		5.6	<365				2.7	(2.55)
03		(5.2)	<420					----
04		(5.55)	<370				2.8	(2.65)
05		(4.75)	<325					(2.70)
06		(5.2)	(300)					(2.62)
07		(4.7)	<315					(2.75)
08		(5.45)	(285)					(2.95)
09		6.5	(280)					2.95
10		7.85	<270					3.00
11		9.6	270					2.85
12	---	9.95	<260					2.80
13	---	10.3	<270	---				2.90
14	---	10.1	250	---				2.95
15	---	7.9	(250)	---				2.92
16		7.65	(265)					3.00
17		(6.8)	260					(2.95)
18		>6.85	<290					(2.95)
19		>5.2	(325)					(2.88)
20		>5.5	<330					----
21		>5.8	(360)					(2.75)
22		>5.75	(380)					----
23		(5.6)	<385					----

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

Table 16

St. John's, Newfoundland (47.6°N, 52.7°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.6	300					2.55
01		5.1	310					2.52
02		4.6	310					2.50
03		(4.6)	315					(2.50)
04		(4.6)	290					(2.60)
05		(4.4)	270					2.60
06		4.7	280					2.68
07		7.2	250		120	2.00		3.05
08		9.7	240		121	2.60		3.10
09	---	11.4	235		119	3.00		3.05
10	---	12.3	230	---	119	3.30		2.95
11	---	13.0	230	---	117	3.40		2.90
12	---	13.2	230	---	117	3.40		2.90
13	---	13.0	230	---	118	3.40		2.80
14	---	13.1	235	---	117	3.15		2.85
15	---	13.05	240		119	2.80		2.85
16		12.85	240		121	2.40		2.90
17		11.7	240		<145	----		2.85
18		10.6	235					2.85
19		9.2	240					2.80
20		7.7	250					2.72
21		7.0	285					2.70
22		6.0	285					2.65
23		6.0	300					2.55

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

Table 17

Chimbote, Peru (9.1°S, 78.6°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.3	<265				2.0	2.75
01		9.95	250				2.0	2.80
02		9.4	245				2.1	3.00
03		8.9	235				1.6	3.10
04		7.7	230					3.20
05		5.4	230					3.10
06		5.65	255					2.82
07		9.4	265		125	2.55		2.88
08		12.0	245		121	(3.25)		2.75
09		13.75	235		117	(3.75)	4.5	2.60
10		14.1	<230		119	4.02	5.7	2.35
11		14.05	220		119	4.20	4.6	2.30
12		14.15	220		119	4.30	4.6	2.20
13		13.65	215	---	119	4.25	4.8	2.20
14	---	13.65	220	---	120	(4.15)	4.6	2.22
15	---	13.4	220	---	119	(4.00)	6.2	2.20
16	---	13.7	230		121	(3.65)	4.8	2.15
17	---	(12.9)	250		121	(3.20)	4.0	2.15
18		>11.5	280		131	2.50	2.8	2.20
19		10.85	325					(2.25)
20		10.25	420					2.12
21		(10.35)	(370)					2.30
22		10.7	(300)					2.45
23		10.7	270				1.8	2.50

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

Table 18

Ilo, Peru (17.4°S, 71.2°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.7	285				1.8	2.80
01		11.15	260					2.90
02		10.25	250					2.85
03		9.45	235					2.90
04		9.0	240					3.15
05		6.85	240					3.15
06		7.9	265		(124)	2.05		3.08
07		11.0	250		119	2.92		3.02
08		12.3	235		117	3.50		2.85
09		13.2	235		117	3.85	4.3	2.55
10		13.9	(230)		(115)	----	(6.1)	2.32
11		13.9	<230		116	----	4.8	2.30
12		13.55	<250		113	----		2.25
13	---	13.5	<240		112	----		2.25
14	---	13.85	<225		(113)	----	4.7	2.20
15	---	13.9	<225		(115)	(3.85)	5.2	2.20
16	---	13.75	<250		115	3.50	4.8	2.15
17		13.1	(265)		<119	(3.00)	5.0	2.10
18		12.5	(290)		<126	2.22	5.4	2.15
19		>11.35	375					2.05
20		(10.0)	440					2.05
21		10.15	400					2.18
22		11.05	365					(2.35)
23		11.1	340				2.2	2.55

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

Table 19

Reykjavik, Iceland (64.1°N, 21.8°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	(365)				3.6	----
01		>6.3	<400				3.4	----
02		>5.6	(360)					----
03		---	340					----
04		>6.0	<315					(2.75)
05		>5.6	(300)					----
06		>5.25	<300					2.80
07		(4.85)	<300					(2.82)
08		(4.5)	(290)					2.80
09		5.75	265					2.85
10		8.3	260					3.00
11		10.75	240					3.00
12		12.15	240					3.02
13		12.5	235					3.05
14		11.4	<235					3.10
15		>11.5	240					3.00
16		>10.4	245		---	---		(3.10)
17		(6.1)	(270)					(3.00)
18		>5.4	(300)					(2.90)
19		>5.4	<330					----
20		>6.0	300					----
21		(5.8)	300					----
22		>6.05	310					(2.85)
23		>6.3	(340)					----

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

Table 20

Resolute Bay, Canada (74.7°N, 94.9°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.2	250					(2.6)
01		6.0	250					---
02		6.2	260					---
03		6.0	250					---
04		5.8	260					---
05		5.3	260				2.5	(2.5)
06		5.6	260		---	---	1.8	---
07		6.0	260		---	---	3.0	---
08		6.2	260		---	1.2	3.1	(2.55)
09		7.0	250		---	1.3	3.2	---
10		7.8	250		---	1.5	2.0	---
11		7.6	250		---	1.6		---
12		7.9	250		---	1.6		---
13		8.8	250		130	1.5		---
14		8.5	250		---	1.4	3.0	---
15		(9.0)	240		---	1.2		---
16		(8.2)	250		---	E		
17		7.2	250					(2.8)
18		(7.2)	250					---
19		6.6	260					---
20		6.5	260					---
21		7.0	250					---
22		7.0	250					---
23		6.4	250					---

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

Table 21

Baker Lake, Canada (64.3°N, 96.0°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.0	260				6.0	
01		6.2	250				5.1	
02		5.5	270				5.2	
03		(5.5)	270		---	---	4.8	
04		(5.1)	290		---	1.5	4.6	
05		(5.0)	280		---	1.6	5.0	
06		5.1	280		---	1.8	4.9	
07		5.0	280		140	1.9	4.8	
08		(5.2)	280		120	2.0	4.2	
09		(6.2)	280		120	2.2	4.5	
10		7.0	270		115	2.5	4.0	
11		8.2	260		120	2.8	4.0	---
12		10.8	250		115	2.7	3.4	(2.9)
13		12.4	250		120	2.5		(2.9)
14		13.2	250		120	2.3		---
15		10.0	260		115	2.1		---
16		(7.4)	270		125	2.0	3.5	
17		(6.5)	280		130	2.0	3.8	
18		(6.5)	280		130	2.0	4.5	
19		(6.8)	270		130	1.9	5.0	
20		(6.7)	260		130	1.9	5.4	
21		(6.0)	260		---	1.5	6.4	
22		6.2	270		---	---	6.1	
23		6.0	250				6.0	

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

Table 22

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.1						2.60
01		4.3						2.60
02		4.2						2.60
03		4.0						2.55
04		3.8						2.70
05		3.6						2.85
06		3.4						2.80
07		3.4						2.75
08		6.0						2.80
09		10.0						3.00
10		12.3						3.10
11		13.5						3.05
12		14.1						3.10
13		14.5						3.00
14		14.5						3.00
15		14.2						3.00
16		13.5						3.00
17		12.3						3.00
18		10.0						3.00
19		8.2						3.05
20		6.4						2.90
21		5.3						2.90
22		5.0						2.70
23		4.4						2.70

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

Table 23

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.4	300				<1.2	2.45
01		4.2	300				<1.0	2.45
02		4.0	300				<1.0	2.5
03		3.8	290				<1.1	2.55
04		3.8	275				<1.2	2.65
05		3.8	260				<1.4	2.6
06		3.4	240				<1.6	2.6
07		>4.1	250				<1.6	2.6
00		7.4	240		115	1.85		2.95
09		11.4	230		115	2.25		3.0
10		13.4	225		115	2.6		3.0
11		14.7	230		115	2.75		2.95
12		>15.0	230		110	2.8		(2.9)
13		>15.0	225		110	2.8		2.8
14		15.0	235		115	2.55		2.8
15		14.6	230		110	2.25		2.85
16		13.5	225		---	1.9		2.9
17		11.8	225		---	---	<1.7	2.9
18		9.9	220				<1.7	2.9
19		8.1	225				<1.6	2.85
20		6.5	240				<1.6	2.7
21		5.6	260				<1.6	2.6
22		5.1	275				<1.6	2.5
23		4.5	300				<1.6	2.45

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

Table 24

Schwarzenburg, Switzerland (46.8°N, 7.3°E) November 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	5.2						3.0
01	300	5.2						3.0
02	280	5.0						3.0
03	280	5.0						3.1
04	250	4.8						3.2
05	240	4.2						3.2
06	240	4.0						3.2
07	230	4.6			105	2.1		3.2
08	210	8.5			130	2.2		3.5
09	200	12.0			100	2.6		(3.4)
10	200	13.8			100	3.0		3.4
11	210	14.0			100	3.2		3.3
12	210	14.0			100	3.3		3.3
13	210	13.8			100	3.2		3.2
14	210	13.5			100	3.1		3.2
15	210	13.6			100	2.8		3.3
16	210	11.5			100	2.4	3.0	(3.3)
17	200	11.2			---	---	2.4	(3.3)
18	210	10.0						3.3
19	210	8.5						3.3
20	220	7.0						3.3
21	240	6.3						3.3
22	260	5.2						3.1
23	270	5.1						3.0

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 25

Rome, Italy (41.8°N, 12.5°E) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	290					2.70
01		6.2	290					2.60
02		(6.1)	300					(2.70)
03		6.2	290					2.80
04		5.8	260					3.00
05		4.8	240					2.85
06		4.4	270					2.65
07		8.0	250		170	2.0		(3.00)
08		(12.0)	230		120	2.6		(3.10)
09		13.5	230		110	3.1		(3.05)
10		(14.7)	230		110	3.4		(2.90)
11		(14.5)	230		110	3.6		(2.85)
12		(14.1)	230		110	3.6		(2.80)
13		13.6	240		110	3.5		2.75
14		13.6	240		110	3.3		2.75
15		(13.6)	240		110	3.0		(2.80)
16		12.8	240		110	2.4		2.85
17		(11.7)	230		100	---	3.4	(2.75)
18		(10.2)	240				2.2	(2.75)
19		(9.2)	250				2.3	(2.85)
20		(8.1)	240					(2.80)
21		(7.3)	250					(2.80)
22		6.9	270					2.70
23		6.4	260					2.75

Time: 15.0°E.
Sweep: 1.4 Mc to 15.0 Mc in 5 minutes, automatic operation.

Table 26

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.8	265				<1.2	2.50
01		11.7	275				(1.1)	2.65
02		11.3	270				<1.0	2.65
03		10.6	260				<1.0	2.85
04		9.8	250				<1.0	2.90
05		7.9	240				<1.1	3.05
06	---	8.0	275	---	---	----	1.2	2.85
07	---	10.4	250	---	120	2.95		2.85
08	---	11.2	245	---	115	3.60		2.50
09	---	11.9	235	---	110	3.90		2.25
10	---	12.6	230	---	110	4.15		2.15
11	---	13.1	225	---	110	4.30		2.10
12	---	13.2	220	---	110	(4.30)		2.10
13	---	13.3	215	---	110	4.25		2.05
14	---	13.5	220	---	110	4.05		2.00
15	---	13.5	230	---	110	3.70		2.00
16	---	13.4	250	---	115	3.30	3.4	2.10
17	---	>13.0	275	---	120	2.50	3.1	2.05
18	---	>12.8	330	---	---	----	3.1	2.05
19		>12.6	410		---	----	2.9	(2.05)
20		>12.3	400		---	----	2.3	----
21		>12.3	330		130	----	<1.8	
22		>11.4	275		---	----	<2.0	----
23		>11.4	250		---	----	<1.3	2.40

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

Table 27

Townsville, Australia (19.3°S, 146.7°E) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>7.5	275					
01		>7.5	290					
02		>7.0	300					
03		>7.5	300					
04		>7.5	300					----
05		>7.3	300					
06		----	260		120	2.30		
07	---	>10.8	250	---	100	3.05	3.4	
08	---	>11.1	230	---	110	3.50	4.2	(2.80)
09	---	(11.6)	230	---	110	3.80	4.5	2.65
10	---	(12.0)	225	6.6	110	3.90	5.2	2.50
11	(400)	12.5	220	7.0	110	(4.10)		2.50
12	400	13.0	220	7.0	110	4.20	4.8	2.50
13	400	12.6	230	6.8	110	(4.20)	4.7	2.50
14	400	>12.0	230	6.6	110	4.00	4.7	2.50
15	400	>12.0	235	6.3	110	3.85	4.6	2.50
16	---	>11.0	240	---	110	3.50	4.8	----
17		>11.0	250		110	3.00	4.1	----
18		----	<290		120	(2.20)	4.3	
19		----	(310)				3.8	
20		----	330				3.4	
21		----	320				3.8	
22		----	300				3.6	
23		----	290					

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

Table 28

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(11.1)	280				2.8	(2.50)
01		(10.1)	300				2.6	(2.45)
02		(10.1)	300				<1.7	(2.45)
03		(10.3)	300				<1.5	(2.50)
04		(9.8)	290				<1.3	(2.40)
05		(10.3)	280		110	1.5	1.8	(2.60)
06		11.8	250		110	2.7	3.0	2.80
07		12.1	250		110	3.4	4.0	2.80
08		12.3	240		110	3.7	4.3	2.55
09		12.9	230		110	4.0	4.7	2.40
10	(400)	13.9	230		110	4.2	5.0	2.40
11	420	14.8	240	---	110	(4.3)	5.0	2.40
12	410	15.2	240	(7.1)	110	4.3	4.8	2.40
13	400	15.3	<240	(6.8)	110	4.2	4.4	2.40
14	400	15.3	<240	---	110	4.0	4.3	2.40
15	390	14.7	250		110	3.7	4.2	2.40
16	380	14.2	250		110	3.3	4.4	2.40
17		13.4	(280)		110	2.6	4.7	2.40
18		13.0	(310)		---	---	4.0	2.40
19		(12.4)	<350				4.1	(2.35)
20		(12.9)	<350				3.5	(2.40)
21		(13.0)	<330				3.0	(2.45)
22		(13.1)	300				3.0	(2.50)
23		(12.0)	290				3.0	(2.60)

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

Table 29

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.2	290				3.0	2.60
01		8.6	290				3.4	2.50
02		8.5	300				2.7	2.50
03		8.4	300				2.6	2.50
04		8.4	300					2.50
05		8.6	270		150	2.00		2.60
06		9.0	250		120	2.70	3.2	2.70
07	---	9.7	240	---	120	3.30	4.0	2.70
08	(450)	10.4	240	5.6	120	3.70	4.5	2.60
09	420	10.9	240	6.4	110	3.90	4.9	2.55
10	420	11.0	<245	6.4	110	4.00	5.4	2.50
11	430	11.9	<240	6.6	110	4.10	5.2	2.50
12	400	11.6	(240)	6.6	120	(4.15)	4.7	2.45
13	405	11.8	<250	6.5	120	4.20	>4.7	2.45
14	410	11.2	240	6.4	120	4.00	4.5	2.45
15	405	10.8	240	6.0	120	3.80	4.2	2.45
16	---	10.4	250	---	120	3.40	4.2	2.50
17		9.9	260		130	2.80	4.0	2.55
18		9.8	290		---	<2.20	3.9	2.55
19		9.6	300				3.1	2.55
20		>9.7	320					2.50
21		10.1	320				2.8	2.55
22		>10.0	305				3.0	2.55
23		9.8	300				2.8	2.60

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

Table 30

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	10.3	<340				2.8	2.30
01	---	10.1	315				2.5	2.30
02	---	9.8	310				1.8	2.30
03	---	9.6	320		---	----	1.1	2.30
04	---	10.0	300		---	1.80	2.0	2.20
05	---	11.0	255		115	2.40	2.8	2.30
06	---	11.7	250	---	105	2.80	3.5	2.20
07	445	12.3	245	5.8	105	3.30	4.0	2.30
08	445	12.7	235	6.1	100	3.60	5.7	2.35
09	420	12.8	240	6.4	100	3.80	6.3	2.35
10	420	13.1	235	6.4	100	3.90	5.7	2.35
11	405	13.1	225	6.5	100	4.00	5.2	2.45
12	405	12.8	235	6.5	100	4.00	4.8	2.50
13	395	12.2	240	6.4	100	3.90	4.8	2.50
14	420	11.3	235	6.3	100	3.90	5.2	2.50
15	405	10.5	250	6.1	100	3.70	5.0	2.55
16	---	9.8	250	---	105	3.45	5.4	2.60
17	---	9.2	250	---	105	3.00	4.6	2.65
18	---	9.2	260		---	2.30	4.7	2.65
19	---	9.3	295		---	----	5.0	2.50
20	---	9.3	300				4.6	2.35
21	---	9.6	310				4.2	2.30
22	---	10.1	<330				3.6	2.30
23	---	10.3	<345				2.9	2.30

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

Table 31

Baker Lake, Canada (64.3°N, 96.0°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(6.4)	270				4.8	
01		6.2	270				5.0	
02		(5.5)	280		---	---	5.0	
03		(5.0)	290		---	1.6	4.7	
04		(5.0)	300		---	1.5	4.7	
05		(4.8)	300		---	(1.6)	4.7	
06		(5.0)	300		---	(1.8)	5.0	
07		5.5	290		130	2.0	4.2	
08		6.0	270		120	2.4	4.5	
09		6.7	260	---	120	2.7	4.8	
10	---	7.7	260	---	115	3.0	4.5	---
11	---	8.2	260	---	115	3.0		---
12	---	9.8	250	(4.5)	110	3.0	3.7	2.8
13	---	11.9	250	---	115	3.0		2.7
14	---	11.0	250	---	115	2.9		(2.7)
15		9.5	260	---	115	2.6		---
16		(8.3)	260		125	2.3	3.5	
17		7.7	280		130	2.2	4.2	
18		7.0	280		130	2.1	3.7	
19		7.0	280		140	(1.9)	4.7	
20		(6.7)	280		130	1.9	5.5	
21		6.5	270		---	---	6.0	
22		(6.5)	270		---	---	6.0	
23		(6.8)	270		---	---	4.8	

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

Table 32

Narsarssuak, Greenland (61.2°N, 45.4°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.85)			111	3.10	3.9	(2.45)
01		(6.6)			---	----	3.5	(2.45)
02		(5.7)			---	----	3.3	(2.50)
03		(6.0)			---	----	3.4	(2.45)
04		(5.25)		---	---	----	3.7	(2.45)
05		(5.8)		---	---	----	>3.2	(2.55)
06		6.0		---	127	2.12	3.3	2.68
07		7.2		---	127	2.00		2.85
08		8.7		---	117	2.48		2.90
09		9.65		---	115	2.80	3.3	2.85
10		10.2		---	115	2.95	3.2	2.80
11		11.3		---	115	3.10	3.3	2.75
12		11.8		---	111	3.10		2.75
13		12.05		---	111	3.10		2.72
14		11.1		---	111	2.90		2.70
15		10.9		---	115	2.60		2.75
16		9.7		---	117	2.40		2.75
17		(8.25)			133	2.30		2.72
18		(7.05)			125	2.30	3.0	(2.60)
19		(6.9)			---	----	4.9	(2.55)
20		(7.1)			125	2.50	6.3	(2.50)
21		(7.0)			123	2.68	5.3	(2.45)
22		(7.0)			---	----	3.6	(2.45)
23		(6.9)			---	----	3.9	(2.55)

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

Table 33

Churchill, Canada (58.8°N, 94.2°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.1	280		---	---	5.0	
01		6.2	320		---	2.1	5.0	
02		5.8	330		---	2.0	5.0	
03		5.4	340		135	1.8	4.3	
04		5.2	340		130	2.0	4.2	
05		5.3	350		125	2.3	4.0	
06		5.7	350		120	2.4	4.3	
07		6.4	300		120	2.6	4.4	----
08		7.7	270		120	3.0	4.4	(2.8)
09	---	9.0	260	---	115	3.0	4.3	2.9
10	---	10.2	250	---	110	3.1	4.2	2.75
11	---	11.0	240	---	115	3.2	4.0	2.7
12	---	11.5	240	---	115	3.2		2.7
13	---	12.0	240	---	110	3.2	3.7	2.7
14	---	12.0	240	---	120	3.0	4.0	2.6
15		12.0	250	---	115	2.8	4.0	2.7
16		11.4	260		120	2.5	3.3	(2.7)
17		9.0	260		125	2.0	3.4	(2.75)
18		7.9	270		125	2.0	4.0	----
19		7.0	310		125	2.3	3.9	
20		7.0	300		125	2.3	4.0	
21		6.3	300		130	2.0	6.0	
22		6.0	310		130	2.0	6.0	
23		6.0	320		---	2.2	5.2	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 34

Winnipeg, Canada (49.9°N, 97.4°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	290				2.2	(2.75)
01		5.4	300				2.8	(2.75)
02		5.2	300				3.0	2.6
03		5.0	300					(2.75)
04		5.0	300				2.1	(2.75)
05		4.8	290					(2.7)
06		4.9	280					(2.8)
07		6.2	260		---	1.9		(3.0)
08		8.4	240		110	2.5		3.2
09		10.3	230		100	3.0		3.1
10		11.3	220		100	3.2		(3.0)
11		12.0	220		100	3.4		(2.9)
12	---	12.8	230	---	100	3.5		(2.8)
13	---	12.7	230	---	100	3.5		(2.7)
14	---	12.8	230	---	100	3.4		---
15	---	12.9	230		100	3.1		---
16		12.9	230		110	2.8		---
17		12.0	230		120	2.3		
18		11.5	230		---	1.8		
19		10.6	230					
20		9.2	230					---
21		8.2	240					(2.9)
22		7.2	240					2.9
23		6.4	280					2.8

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

Table 35

Freiburg, Germany (48.1°N, 7.6°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.2	<290					2.50
01		6.9	300					2.45
02		6.5	300					2.45
03		6.4	285					2.45
04		6.1	265					2.55
05		5.5	250					2.60
06		7.6	250		---	1.45		2.85
07		10.4	230		115	2.55		2.95
08		12.4	230		111	3.10	3.2	2.90
09		13.6	230		109	3.35	3.6	2.85
10	---	14.2	230	---	107	3.50	3.8	2.80
11	---	14.4	230		107	3.50	3.8	2.70
12		14.2	230		107	3.55		2.65
13		13.8	230		106	3.50		2.65
14		13.2	235		108	3.30		2.65
15		13.2	240		109	2.95		2.70
16		13.0	240		120	2.30	2.6	2.75
17		12.2	240		---	E	(2.6)	2.75
18		10.8	240				(2.1)	2.80
19		9.4	240				1.5	2.70
20		8.4	245					2.70
21		7.9	260					2.65
22		7.5	270					2.60
23		7.3	280					2.45

Time: 0.0°.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 36

Schwarzenburg, Switzerland (46.8°N, 7.3°E) October 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.2						2.9
01	280	7.0						2.9
02	280	6.8						2.9
03	300	6.5						3.0
04	280	6.5						3.0
05	250	6.0						3.1
06	240	5.5			---	---		3.1
07	220	7.6			100	2.2		3.4
08	210	9.8			100	2.6		3.4
09	210	12.3			100	3.0	3.6	3.4
10	210	13.2			100	3.3	4.4	3.3
11	210	13.8			100	3.3	4.6	3.2
12	210	13.9			100	3.4	4.5	3.1
13	210	13.8			100	3.5	4.3	3.1
14	210	13.2			100	3.4		3.1
15	210	13.1			100	3.2		3.0
16	220	12.7			100	2.9		3.2
17	220	12.2			100	2.3	2.9	(3.2)
18	(220)	(11.8)			---	---	2.6	(3.2)
19	220	9.6						(3.3)
20	220	8.9						3.2
21	240	8.3						3.1
22	250	7.7						3.1
23	250	7.3						3.0

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 37

Rome, Italy (41.8°N, 12.5°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.7	300					2.55
01		7.7	290					2.50
02		7.3	290					2.55
03		7.0	290					2.55
04		6.8	290					2.50
05		6.3	260					2.55
06		6.8	260		---	---		2.70
07		(9.4)	240		130	2.3		3.00
08		(12.5)	240		120	3.0		3.00
09		(13.8)	240		110	3.4		3.00
10		14.0	230		110	3.5		2.90
11		14.2	230		110	3.6	4.6	2.80
12		13.9	230		110	3.7	4.7	2.70
13		13.7	230		110	3.7		2.65
14		13.5	240		110	3.6		2.65
15		13.4	240		110	3.4	3.6	2.65
16		13.2	250		110	3.0	3.5	2.75
17		12.8	250		120	2.2	3.6	2.85
18		(12.0)	240		---	---	3.1	2.90
19		(10.3)	250				3.1	2.80
20		9.1	250				2.9	2.70
21		8.8	260				2.9	2.75
22		8.6	260					2.70
23		7.9	280					2.65

Time: 15.0°E.
Sweep: 1.4 Mc to 15.0 Mc in 5 minutes, automatic operation.

Table 38

Formosa, China (25.0°N, 121.5°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>17.0	230					2.95
01		14.2	220					2.95
02		12.6	220					3.05
03		10.2	220					3.10
04		6.9	220					2.80
05		6.3	240					2.70
06		9.3	270					2.80
07		>12.7	230					3.05
08		>14.5	230			---	4.0	2.90
09		15.2	230			---	4.6	2.80
10		16.3	230			---	5.0	2.70
11		17.0	230			---	4.8	2.55
12	(400)	17.4	<230	---		---	4.7	2.50
13	(420)	18.1	(220)	---		---		2.55
14	(400)	(18.4)	230	---		---		(2.55)
15	---	18.6	230			---		2.55
16	---	18.0	240			---	4.2	(2.55)
17		18.1	260				3.4	2.60
18		18.1	<280				2.6	2.60
19		18.4	300					2.50
20		(18.8)	280					2.65
21		>19.2	260					(2.80)
22		>18.4	240					(2.80)
23		>18.0	240					(2.85)

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 39

Ibadan, Nigeria (7.4°N, 3.9°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.2	270					(2.60)
01		10.4	250					(2.70)
02		(10.5)	245					(3.00)
03		9.4	240					(3.00)
04		8.6	220					(3.15)
05		6.4	215					3.30
06		8.9	260		140	2.30		3.05
07		(12.0)	245		110	3.15		(2.95)
08		13.8	235		105	3.60	5.2	(2.60)
09		14.2	230		105	(4.00)	6.9	(2.30)
10		>13.7	215		105	(4.30)	7.0	(2.20)
11		13.3	210		105	(4.40)	7.0	(2.15)
12		13.2	210		105	(4.40)	7.0	2.10
13		13.3	210		105	(4.30)	7.0	2.10
14		13.1	210		105	(4.00)	7.0	2.05
15		(13.2)	230		105	(3.60)	7.0	(2.05)
16		(12.9)	245		110	3.20	7.0	2.05
17		>11.4	280		115	2.40		(2.05)
18		>10.2	380		---	(1.30)		<1.95
19		(8.5)	490					(1.85)
20		8.1	450					(2.10)
21		8.5	395					(2.20)
22		8.6	335					<2.55
23		8.8	310					(2.50)

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

Table 40

Bogota, Colombia (4.5°N, 74.2°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.8	215				3.0	3.08
01		8.0	210				1.6	3.00
02		7.0	240					2.85
03		6.3	240				2.7	2.80
04		5.7	250				2.7	2.85
05		5.3	270				2.6	2.80
06		8.7	270		(131)	2.20	2.5	2.92
07		12.15	245		116	3.05	3.2	3.00
08		14.1	235		109	3.65		3.00
09		15.15	230		109	4.00		2.90
10		14.95	220		109	4.20		2.70
11	---	14.95	220	---	108	4.30		2.60
12	(430)	15.15	220	---	107	4.32		2.55
13	435	15.3	220	(7.6)	108	4.22		2.50
14	440	15.15	225	---	105	4.00	4.4	2.42
15	430	15.5	230	---	109	3.70	4.3	2.45
16	(410)	15.3	250		109	(3.20)	4.5	2.45
17		15.45	260		113	2.55	4.3	2.50
18		16.4	290				4.4	2.55
19		17.5	295				4.2	2.60
20		18.5	255				3.2	2.65
21		17.15	220				2.8	2.75
22		16.0	225				2.5	2.80
23		15.0	230				2.5	3.00

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

Table 41

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.2	245		---	----	<1.2	2.50
01		11.3	260		---	----	<1.2	2.65
02		11.2	260		---	----	<1.2	2.75
03		10.3	250		---	----	<1.1	2.75
04		10.4	245		---	----	<1.1	2.95
05		8.5	235		---	----	<1.3	3.05
06	---	9.0	270	---	---	----		3.00
07	---	11.2	255	---	120	2.85		2.90
08	---	12.6	245	---	115	>3.55	3.6	2.65
09	---	13.4	235	---	110	3.90	4.1	2.35
10	---	13.8	230	---	115	(4.20)	<4.7	2.20
11	380	14.0	225	---	110	(3.50)	4.4	2.00
12	---	>13.6	225	---	110	(4.40)		1.95
13	---	13.2	220	---	110	(4.30)		2.05
14	---	13.2	230	---	110	(4.10)		2.05
15	---	13.3	240	---	110	(3.80)		2.10
16	---	13.3	250	---	110	(3.40)		2.10
17	---	13.4	270	---	120	2.60		2.10
18	---	(13.2)	330	---	---	----	2.9	2.15
19		>12.9	430		---	----	<1.3	(2.10)
20		----	400		---	----	<1.5	----
21		----	305		---	----	<1.6	----
22		----	260		---	----	2.2	----
23		(12.6)	235		---	----	1.4	(2.55)

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

Table 42

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.7	270					2.65
01		8.4	270					2.55
02		8.0	280					2.50
03		8.0	300					2.50
04		7.9	300					2.50
05		8.4	300		---	<1.70		2.60
06	---	10.1	250	---	125	<2.45		2.85
07	---	11.9	240	---	120	3.15	3.4	2.85
08	---	12.7	230	---	120	3.60	4.0	2.80
09	---	12.6	230	---	120	3.80	4.4	2.75
10	---	13.0	230	---	115	4.00	>4.4	2.60
11	(390)	13.0	230	6.5	120	4.00	4.4	2.55
12	(400)	12.8	240	6.4	120	4.00	4.2	2.55
13	(410)	12.4	<250	6.5	120	4.00	4.3	2.50
14	---	12.0	240	---	120	3.90	4.4	2.45
15	---	11.8	240	---	120	3.80	4.0	2.50
16	---	11.5	250	---	125	3.30	3.9	2.45
17		11.3	260		130	2.65	3.5	2.55
18		11.0	270		---	<2.05	2.0	2.55
19		10.5	280				2.5	2.55
20		10.5	295					2.60
21		10.4	290					2.60
22		10.1	290					2.70
23		9.5	280					2.65

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

Table 43

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>7.0	<270					(3.00)
01		>7.0	<270					(3.10)
02		(6.8)	<260					3.00
03		(6.5)	(290)					2.80
04		(6.2)	<290					2.90
05		>6.0	295		---	E		(2.75)
06		>7.0	255		125	>2.10		(3.20)
07		>8.4	240		100	2.90		(3.30)
08	---	>8.4	230	---	100	3.40		----
09	<450	>8.4	225	7.0	100	3.75	3.7	(2.65)
10	(400)	>8.4	<245	6.5	100	(3.90)		(2.50)
11	<350	>8.4	<250	7.0	100	(3.90)		----
12	370	>8.4	<250	8.0	100	>3.80		----
13	<360	>8.4	(245)	7.2	100	(3.90)		----
14	<360	>8.4	<250	7.4	100	3.85		
15	<360	>8.4	(230)	7.4	100	3.80	3.8	----
16	<350	>8.4	240	(6.8)	100	3.55		----
17		>8.4	245		105	3.00		
18		>7.2	250		110	>2.10		
19		>7.0	250		---	E		
20		>7.0	(250)					
21		>7.0	(250)					
22		>7.0	<260					
23		>7.0	<260					----

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

Table 44

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	255					2.75
01		>7.6	255					2.70
02		7.5	255					2.60
03		7.2	270					2.60
04		7.0	275					2.60
05		7.2	285		---	E		2.70
06	---	8.6	245	---	115	2.35		3.00
07	---	10.2	230	---	100	3.00	3.3	3.00
08	---	11.1	215	---	100	3.50	3.7	3.00
09	---	11.6	210	6.3	100	3.70	4.1	2.85
10	(405)	11.9	210	6.5	100	3.90	4.2	2.75
11	(410)	12.1	200	6.8	100	4.00	4.2	2.70
12	400	12.0	200	7.0	100	4.00	4.2	2.65
13	390	11.8	200	7.0	100	4.00		2.60
14	400	11.3	205	6.8	100	3.95		2.60
15	(410)	11.1	210	6.2	100	3.70	3.8	2.60
16	---	11.0	225	(5.6)	100	3.40	3.4	2.65
17		>10.7	240	---	105	2.90		2.75
18		10.2	245		125	2.00		2.75
19		>9.7	<250					(2.70)
20		(9.1)	255					(2.65)
21		>9.0	250					2.70
22		>8.7	260					(2.60)
23		8.6	265					2.70

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

Table 45

Hobart, Tasmania (42.9°S, 147.2°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>7.0	300					2.50
01		(6.8)	300					2.40
02		>6.0	300					2.40
03		>5.7	300					2.40
04		>5.5	300					(2.40)
05	---	>5.5	310	---	---	1.25		2.40
06	---	(7.1)	270	---	120	2.35		2.80
07	---	8.6	250	---	120	2.95		2.80
08	---	9.3	240	---	120	3.40		2.70
09	---	9.8	230	---	110	3.70		2.65
10	(590)	>10.0	230	---	110	3.80		2.65
11	(510)	>10.2	230	5.3	110	4.00		2.55
12	460	>10.5	230	---	110	3.95		2.50
13	440	>10.5	230	6.1	110	3.90		2.45
14	490	10.5	230	5.3	110	3.85		2.45
15	(540)	10.0	230	---	110	3.70		2.50
16	---	9.8	240	---	110	3.40		2.50
17	---	(9.6)	250	---	120	2.90		2.55
18		>7.5	260		120	2.20		2.55
19		>9.0	270		---	----		(2.55)
20		>8.6	270					2.60
21		(8.1)	280					2.50
22		(7.4)	300					(2.55)
23		>7.0	300					(2.40)

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 46

Christchurch, New Zealand (43.6°S, 172.8°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(7.8)	300				<1.6	(2.50)
01		7.3	300				<1.6	2.45
02		7.0	300				<1.3	2.45
03		6.6	300				<1.3	2.40
04		6.4	300				<1.1	2.40
05	---	6.3	300	---	---	1.5		2.50
06	---	7.0	300	---	130	2.0		2.65
07	---	7.9	250	---	105	2.8		2.70
08	---	8.5	250	---	105	3.3		2.65
09	---	9.3	240	---	100	3.6		2.65
10	(450)	9.9	240	5.8	100	3.8		2.60
11	(440)	10.4	230	6.2	100	4.0		2.60
12	(440)	10.4	230	6.5	100	4.0		2.55
13	450	10.4	230	6.4	100	4.0		2.50
14	430	10.4	230	6.2	100	3.9		2.55
15	440	10.2	240	6.2	100	3.7		2.55
16	(470)	9.4	250	5.3	105	3.5		2.55
17	---	8.6	250	---	105	3.0		2.55
18	---	8.4	260	---	115	2.5		2.60
19		(8.6)	280		---	---	(1.9)	(2.55)
20		(8.2)	280				<1.5	(2.50)
21		(7.8)	300				<1.6	(2.45)
22		(8.4)	300				<1.7	2.50
23		(8.0)	300				<1.8	2.50

Time: 180.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 47

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.8	305				<1.4	2.30
01		9.6	315					2.30
02		9.4	320					2.30
03		9.1	320					2.30
04		9.1	335		---	1.4		2.30
05		10.0	260		185	2.1		2.35
06		11.5	245		110	2.7		2.60
07		12.6	245		105	3.1		2.60
08		13.5	245		105	3.5		(2.50)
09		>13.8	240		100	3.7	4.1	(2.50)
10		>14.0	240		100	3.8	4.2	----
11		>14.1	240		100	3.9	4.2	----
12		14.2	230		100	3.9	4.1	(2.40)
13		14.1	235		100	3.9		(2.40)
14		13.7	245		100	3.75		2.45
15		13.1	250		---	3.5		2.45
16		12.7	250		105	3.2		2.50
17		12.0	250		110	2.8	3.0	2.70
18		11.6	260		---	2.1	2.6	2.65
19		10.8	265		---	---	2.6	2.70
20		9.9	265				2.4	2.50
21		9.3	280				<1.6	2.35
22		9.5	300				<1.6	2.30
23		9.6	315				<1.4	2.30

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

Table 48

Scott Base (77.8°S, 166.8°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.4	330		150	1.7	1.9	2.30
01		5.4	330	---	145	1.8	2.5	2.40
02	---	5.5	320	---	130	1.8	2.9	2.35
03	---	5.3	300	3.3	120	2.0	2.6	2.40
04	---	5.0	290	3.2	115	2.2	2.6	2.45
05	---	7.1	280	---	115	2.2	3.5	2.45
06	(430)	6.2	280	3.8	110	2.6	2.6	2.55
07	(450)	7.0	260	4.2	110	2.8		2.60
08	(410)	7.6	260	4.3	110	2.8		2.50
09	420	8.4	250	4.8	105	3.0		2.55
10	400	8.1	250	4.8	105	3.0		2.50
11	380	8.1	240	4.9	110	3.1		2.45
12	400	8.3	240	5.1	110	3.1		2.50
13	360	8.7	240	4.9	105	3.1		2.45
14	380	8.8	240	4.8	110	3.0		2.40
15	400	9.0	250	4.4	110	2.9		2.40
16	370	8.8	260	4.3	110	2.8		2.40
17	420	8.5	260	4.2	110	2.6		2.40
18	(400)	8.6	270	(4.0)	115	2.4		2.40
19	---	8.6	280	---	115	2.3		2.40
20	---	7.7	290	---	120	2.0		2.35
21	---	6.4	300	---	140	1.8		2.35
22	---	6.5	300	---	150	1.6		2.30
23	---	5.6	310	---	150	1.7		2.40

Time: 165.0°E.

Table 49

La Paz, Bolivia (16.5°S, 68.0°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.3	225					2.92
01		9.0	220				2.5	2.95
02		>8.2	220					2.90
03		7.0	240					2.90
04		6.6	250					2.90
05		6.15	240				2.0	2.95
06		5.7	245					2.98
07		9.4	260		<125	2.40	3.5	3.00
08		12.3	240		111	3.15	4.6	3.00
09		14.2	230		109	3.65	4.8	2.80
10		>15.0	220		109	(4.00)	5.2	2.60
11		15.0	215		109	4.20	5.5	2.25
12	---	(14.0)	(220)		---	----	3.5	2.22
13		13.3	<220		---	----	7.0	2.15
14		12.8	<220		---	----	7.0	2.05
15		>12.8	<220		(105)	(4.00)	8.2	2.08
16		(12.0)	(235)		108	(3.62)	7.2	(2.05)
17		11.9	250		109	(3.15)	6.0	2.05
18		(11.25)	285		<124	2.30	4.5	(2.10)
19		(9.85)	375					(2.15)
20		(8.9)	435					(2.00)
21		>9.0	350					2.28
22		9.6	270				3.6	2.52
23		(10.95)	250				3.0	2.75

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

Table 50

Bogota, Colombia (4.5°N, 74.2°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.9	260				3.0	2.75
01		8.5	265				2.9	2.70
02		8.0	265				2.5	2.75
03		7.9	250				2.0	2.08
04		7.0	240				2.7	2.90
05		5.9	255				3.0	2.75
06		6.3	270		<134	2.00	3.5	2.85
07		7.95	235	---	105	2.90	3.4	2.90
08		8.95	225	---	104	3.50	3.0	2.68
09	---	9.9	220	---	105	3.90	4.1	2.45
10	(385)	10.8	215	(5.9)	107	4.10	4.5	2.30
11	(440)	11.65	210	(6.2)	105	4.20	4.4	2.30
12	480	12.1	(215)	6.2	105	4.25	4.7	2.35
13	460	12.7	<225	6.1	105	4.20	5.2	2.35
14	440	13.2	(225)	6.0	103	4.05	5.0	2.45
15	420	13.45	(220)	(6.1)	105	3.80	4.6	2.45
16	430	12.95	225	---	105	3.35	4.3	2.40
17	(410)	12.6	250		<111	2.85	3.8	2.45
18		12.15	<290		<157	(1.90)	4.0	2.45
19		11.5	320				3.3	2.45
20		11.0	325				3.2	2.50
21		11.3	300				3.0	2.60
22		11.35	270				2.7	2.72
23		10.0	260				3.0	2.75

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

Table 51

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.4)	295		---	1.1		(2.60)
01		(4.4)	(290)		232	1.4		(2.50)
02		(4.2)	290		204	(1.5)		(2.60)
03		(3.9)	(310)		122	(1.7)	<2.1	(2.55)
04		(3.7)	305		182	(1.4)	1.8	(2.45)
05		(3.0)	(310)		---	1.4		(2.40)
06		(4.2)	(280)		165	(1.4)	2.0	(2.70)
07		(4.2)	(265)		118	(1.5)	2.0	(2.75)
08		(4.9)	260		169	(1.7)	2.0	(2.75)
09		(4.8)	(255)		185	1.4	2.0	(2.75)
10		(5.1)	245		152	(1.4)	<2.0	(2.75)
11		(6.8)	240		135	(1.5)	3.4	(2.95)
12		(7.2)	250		129	1.5	<2.3	(2.85)
13		(6.0)	250		---	1.4	3.8	(2.65)
14		(6.6)	245		---	(1.4)	5.2	(2.80)
15		(7.4)	250		---	1.5	4.8	(2.70)
16		(7.0)	(250)		---	1.0	3.4	(2.70)
17		(7.6)	245		---	1.1	2.8	(2.70)
18		(8.4)	240		---	E	<1.9	(2.80)
19		(7.2)	245		---	E	1.3	(2.70)
20		(7.0)	240		---	E		(2.70)
21		(6.4)	255		---	E		(2.60)
22		(5.3)	270		---	E		(2.55)
23		(6.0)	270		---	E		(2.55)

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

Table 52

Byrd Station (80.0°S, 120.0°W) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.4)	(380)				3.2	(2.30)
01		(5.6)	390				3.2	(2.25)
02		(6.1)	435				3.2	(2.25)
03		(6.1)	(400)				3.5	(2.35)
04		6.15	(370)				3.1	2.40
05		6.1	(365)				2.0	2.45
06		5.75	310				2.5	2.50
07		5.4	310		---	----		2.60
08		6.3	310		---	----		2.60
09		7.4	275		---	----		2.70
10		9.25	280		---	----		2.78
11		9.85	285		---	----		2.75
12	---	9.05	330		<126	2.50		2.60
13	---	(6.0)	335		---	----		(2.58)
14		(5.8)	<345		---	----	4.0	(2.65)
15		(5.75)	335		---	----	4.1	(2.65)
16		(6.2)	360		---	----	4.0	(2.55)
17		(6.2)	340				4.6	(2.45)
18		(6.6)	340				4.5	(2.45)
19		(6.4)	335				4.6	(2.35)
20		(6.75)	320				4.0	(2.35)
21		(6.85)	320				4.2	(2.40)
22		(6.5)	330				4.3	(2.35)
23		(6.35)	360				3.9	(2.30)

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

Table 53

Bogota, Colombia (4.5°N, 74.2°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		14.1	240					3.10
01		11.4	215				1.9	3.15
02		8.5	210				2.1	2.98
03		6.9	240				2.1	2.75
04		6.6	255				2.4	2.75
05		6.1	260				2.6	2.82
06		8.0	290		<159	1.90	3.0	2.82
07		11.7	250		121	2.85	3.4	3.10
08		13.7	240		113	3.50	3.7	3.00
09		14.5	235		114	3.92		2.90
10		14.65	225		(112)	4.15		2.75
11		15.0	225		111	4.30		2.65
12	---	15.5	<230		111	4.40		2.55
13	400	15.8	225	---	111	4.35		2.55
14	420	16.55	(230)		111	4.20		2.50
15	420	16.45	(235)		111	3.90	4.2	2.55
16	405	16.4	250		(113)	3.50	4.3	2.55
17	---	16.5	260		113	(2.95)	4.2	2.50
18		16.8	<275		---	----	3.1	2.55
19		17.55	300				3.2	2.50
20		>19.35	280				2.8	2.70
21		19.55	240					2.80
22		18.55	230					2.90
23		15.95	230					3.00

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

Table 54

Byrd Station (80.0°S, 120.0°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.8)	(385)		---	----	2.2	(2.30)
01		(4.8)	<400		---	----	3.2	(2.30)
02		(5.1)	<430		---	----	3.5	(2.30)
03		(4.8)	(360)		---	----	3.2	(2.50)
04		(5.1)	(355)		---	----	2.7	2.50
05		5.4	(340)		---	----	3.9	2.65
06	---	5.45	<320	---	---	----		2.70
07	---	5.5	300	---	---	----		2.75
08	---	6.0	(285)	---	113	----		2.80
09	---	6.7	275	---	111	2.65		2.75
10	(440)	7.4	(280)	(4.0)	(110)	2.70		2.70
11	(450)	8.4	(270)	(4.0)	<114	(2.75)		2.70
12	(360)	8.5	270	---	117	2.85		2.72
13	---	7.05	290	---	112	2.80		2.65
14	---	6.65	(305)	---	(113)	3.00		2.70
15	---	(6.4)	(320)	---	119	3.05		(2.68)
16	---	(6.7)	(300)	---	114	----		(2.70)
17	---	(6.35)	<350	---	139	2.95		(2.60)
18		(6.3)	(350)		<139	(2.95)		(2.48)
19		(6.5)	(325)		---	----	3.2	(2.50)
20		(6.5)	340		---	----		(2.45)
21		(6.75)	355		---	----	3.6	(2.50)
22		(6.0)	(370)				3.8	(2.30)
23		(6.1)	<380				3.0	(2.35)

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

Table 55

Byrd Station (80.0°S, 120.0°W) October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(6.6)	430		131	---	3.0	(2.15)
01	---	(6.45)	(460)	---	133	---	3.0	(2.15)
02	---	5.8	(470)	---	139	---	3.6	2.12
03	---	5.4	(440)	---	---	---	3.5	2.10
04	---	6.0	(385)	---	137	---	2.4	2.20
05	---	6.3	(350)	---	131	2.50		2.35
06	---	6.3	(320)	---	131	(2.58)		2.35
07	---	6.85	315	---	129	2.75		2.40
00	---	7.4	300	4.8	(131)	(2.80)		2.38
09	---	7.65	300	---	130	3.00		2.35
10	(460)	8.2	300	4.5	131	3.00		2.30
11	(475)	8.8	300	5.0	129	3.05		2.25
12	500	0.5	300	5.0	129	3.10		2.25
13	(580)	8.0	300	(4.6)	129	(3.08)		2.28
14	(560)	8.0	310	4.8	128	3.02		2.20
15	(535)	8.45	310	4.7	127	3.00		2.30
16	(495)	(7.4)	320	---	131	(2.80)		2.25
17	---	(7.25)	335	---	129	(2.92)		(2.25)
10	---	(7.0)	345	(4.3)	131	(2.00)		(2.22)
19	---	(7.45)	365	---	133	(2.60)	2.8	(2.20)
20	---	(6.8)	360	---	(131)	(2.70)	3.6	(2.25)
21	---	(7.0)	400		(137)	----	3.6	(2.20)
22	---	(6.9)	400		129	----	2.9	(2.15)
23	---	(6.7)	(445)		137	(2.00)	3.5	(2.20)

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

Table 56*

Campbell I. (52.5°S, 169.2°E) October 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	3.2			130	1.9		3.1
06	250	3.7	---	---	120	2.2		3.2
07	(450)	4.0	240	3.6	110	2.5		3.1
08	400	4.3	230	3.9	110	2.8		2.9
09	400	4.6	210	4.0	110	2.9		2.9
10	390	4.7	210	4.0	110	3.0		3.0
11	380	4.9	210	4.1	110	3.1		2.9
12	400	4.8	210	4.1	110	3.1		2.8
13	370	5.0	220	4.1	110	3.1		2.9
14	370	4.8	220	4.0	110	3.0		2.9
15	340	5.2	220	4.0	110	2.8		2.95
16	330	5.2	240	3.6	110	2.6		3.0
17	290	5.2	250	3.3	120	2.3		3.0
18	250	5.0			---	1.8		3.05
19	260	4.7						2.9
20	250	4.6						2.9
21	270	3.8						2.9
22								
23	320	3.0						(2.8)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
* Observations taken on an 18-hour working schedule.

Table 57*

Campbell I. (52.5°S, 169.2°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	(330)	2.2						(2.7)
06								
07	290	3.1	250	---	---	---		2.9
00	260	4.1	250	---	130	1.9		3.2
09	(260)	4.5	250	---	130	2.2		3.2
10	290	4.8	240	3.4	130	2.4		3.1
11	290	5.2	250	3.6	130	2.5		3.1
12	280	5.4	240	3.5	130	2.5		3.1
13	280	5.5	240	3.4	130	2.4		3.1
14	280	5.5	250	3.2	130	2.3		3.1
15	260	5.5	260	---	130	1.9		3.1
16	260	5.0			120	1.6		3.0
17	270	4.4						2.75
10	270	3.8						2.8
19	300	3.6						2.7
20								
21	330	3.2						2.6
22								
23	340	3.2					1.6	2.5

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
* Observations taken on a 16-hour working schedule.

Table 58*

Campbell I. (52.5°S, 169.2°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	4.4	240	---	120	2.5	2.7	3.0
06								
07	390	5.1	240	4.2	120	3.1		2.8
00	400	5.5	250	4.4	120	3.2		2.8
09	380	5.6	230	4.5	120	3.4	3.4	2.85
10	410	5.6	240	4.6	120	3.4	3.6	2.8
11	430	5.7	230	4.6	120	3.4	3.6	2.8
12	420	5.4	240	4.6	120	3.5		2.8
13	420	5.6	240	4.6	120	3.4		2.75
14	390	5.8	240	4.5	125	3.4		2.8
15	380	5.8	240	4.4	125	3.2		2.8
16	360	6.0	240	4.2	130	3.1		2.8
17	340	6.4	250	4.1	130	3.0		2.8
10	290	6.2	250	3.6	130	2.4		2.9
19	290	6.3	---	---	140	2.0	2.0	2.8
20								
21	280	6.0					2.0	2.7
22								
23	290	5.2					2.8	2.7

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 16-hour working schedule.

Table 59*

Campbell I. (52.5°S, 169.2°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	270	4.8	240	---	120	2.5		2.95
06								
07	340	5.8	240	4.4	120	3.1		2.9
00	340	6.2	240	4.5	120	3.2	3.6	2.9
09	350	6.4	240	4.6	120	3.4		2.85
10	360	6.4	240	4.7	120	3.4		2.9
11	370	6.6	240	4.8	120	3.4		2.8
12	380	6.6	240	4.8	120	3.4		2.8
13	370	6.4	240	4.7	120	3.5		2.8
14	360	6.6	240	4.6	120	3.4		2.75
15	370	6.6	240	4.6	120	3.2		2.8
16	340	6.8	250	4.3	120	3.0		2.7
17	320	7.0	250	4.1	120	2.8	2.8	2.8
18	270	7.2	250	3.9	130	2.4	3.4	2.8
19	270	6.9			---	---	2.8	2.8
20								
21	270	6.7						2.7
22								
23	300	6.0					2.2	2.6

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 16-hour working schedule.

Table 60*

Campbell I. (52.5°S, 169.2°E) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	270	4.9	230	3.5	120	2.2		3.0
06								
07	320	5.8	250	4.3	120	3.0		2.8
08	360	6.2	240	4.6	110	3.2		2.8
09	350	6.2	240	4.7	110	3.3		2.9
10	360	6.4	240	4.8	110	3.3		2.8
11	340	6.8	230	4.7	110	3.5		2.9
12	360	6.7	240	4.8	110	3.4		2.8
13	340	6.8	230	4.7	110	3.4		2.85
14	340	6.8	240	4.6	115	3.3		2.8
15	350	6.8	240	4.5	110	3.2		2.8
16	320	6.0	240	4.2	120	3.0		2.9
17	300	7.2	260	4.0	120	2.7		2.0
18	280	7.0	250	3.4	120	2.3		2.8
19	280	6.8			130	1.8	2.1	2.8
20								
21	200	6.6						2.7
22								
23	300	6.0					3.2	2.7

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 16-hour working schedule.

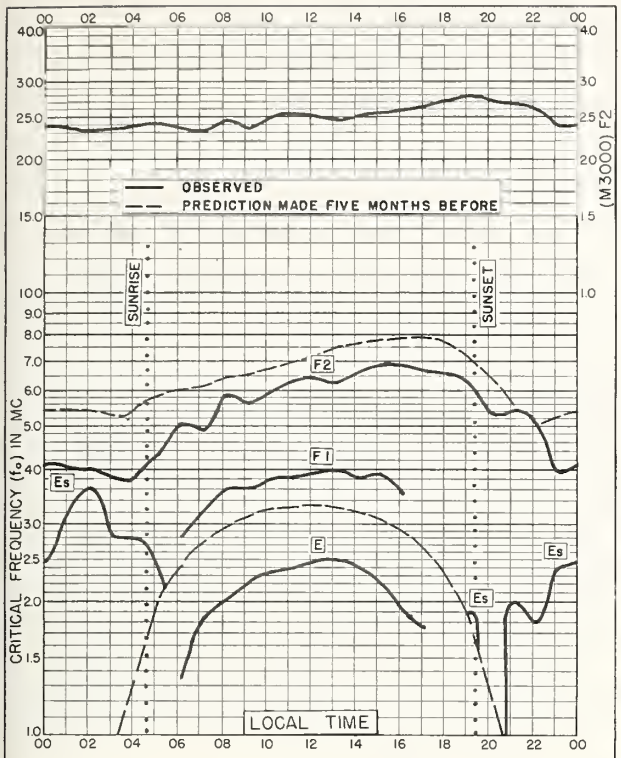


Fig. 1. FAIRBANKS, ALASKA
64.9°N, 147.8°W APRIL 1959

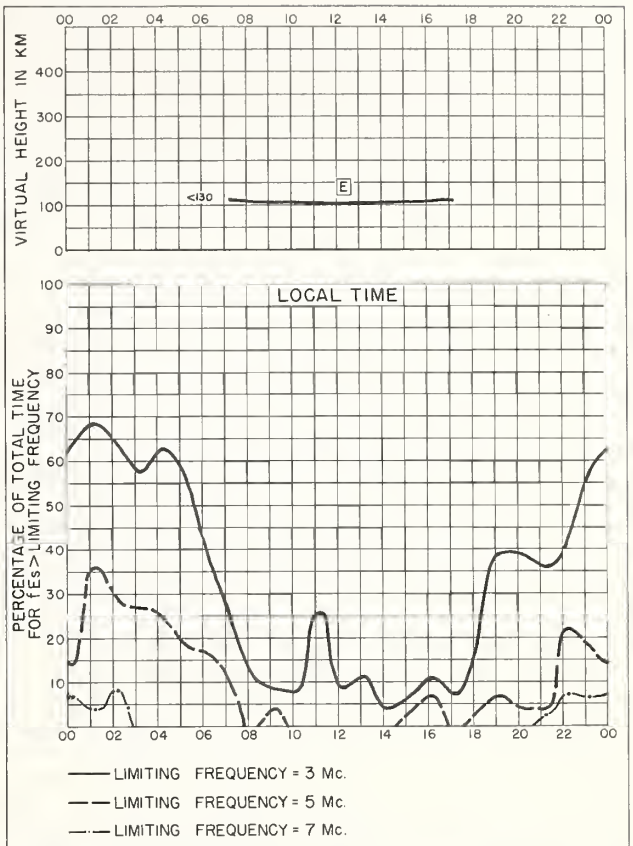


Fig. 2. FAIRBANKS, ALASKA APRIL 1959

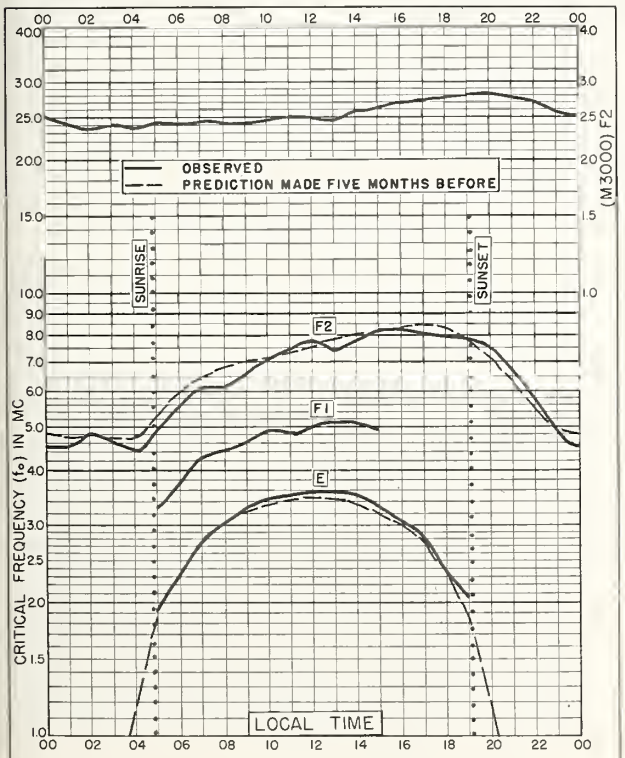


Fig. 3. ANCHORAGE, ALASKA
61.2°N, 149.9°W APRIL 1959

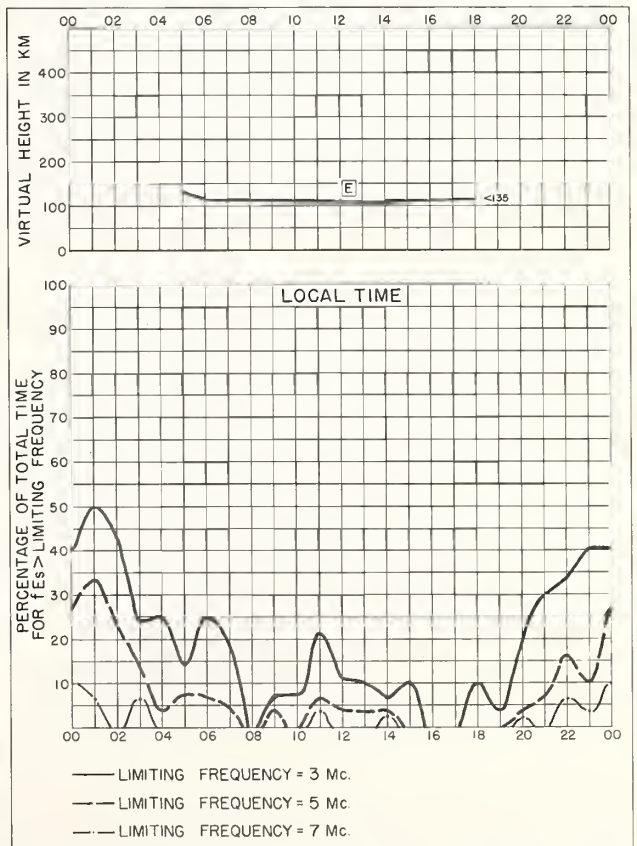


Fig. 4. ANCHORAGE, ALASKA APRIL 1959

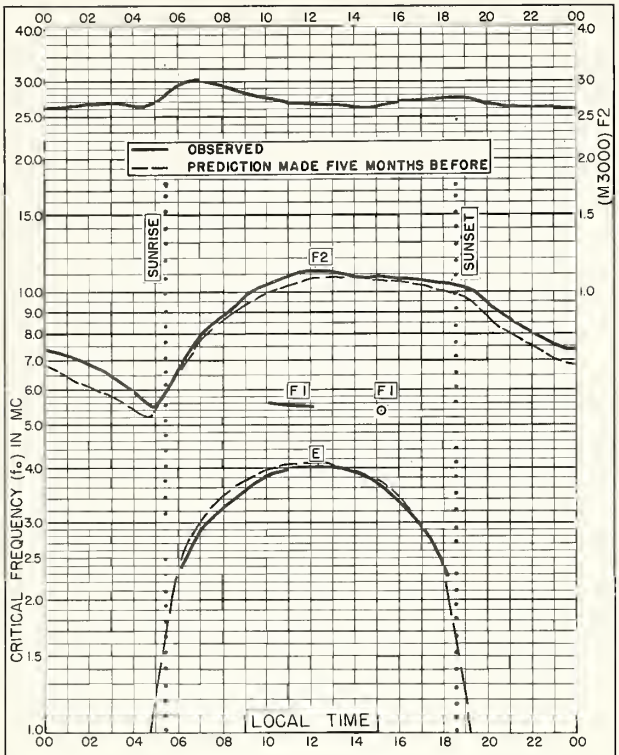
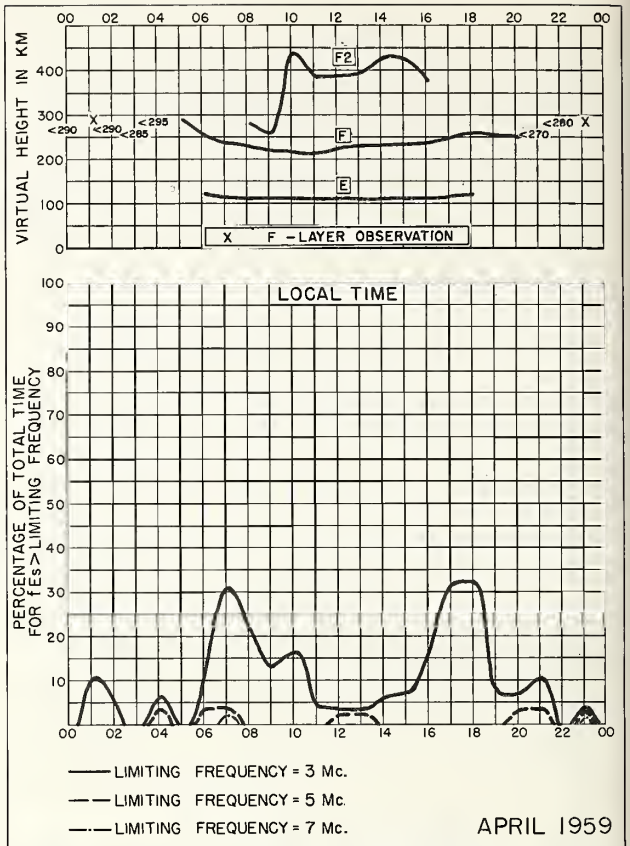


Fig. 5. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W APRIL 1959

Commerce-Standards-Boulder, Colo. NBS 503



APRIL 1959

Fig. 6. FT. MONMOUTH, NEW JERSEY

Commerce-Standards-Boulder, Colo. NBS 490

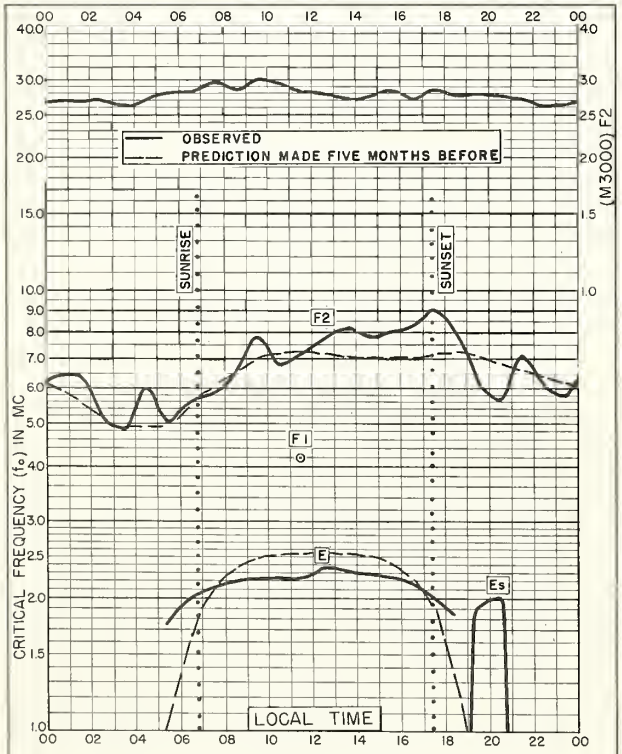


Fig. 7. THULE, GREENLAND
76.6°N, 68.7°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503

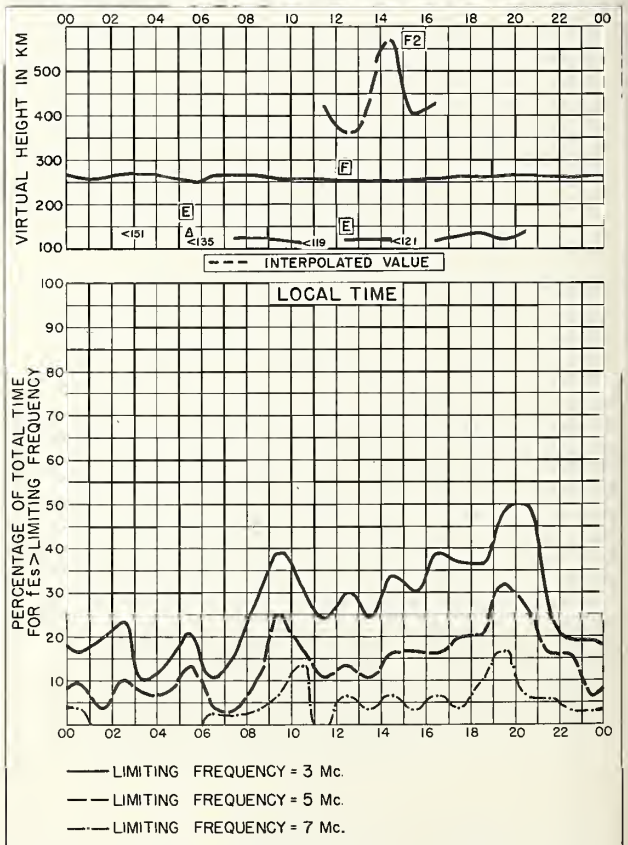


Fig. 8. THULE, GREENLAND MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 490

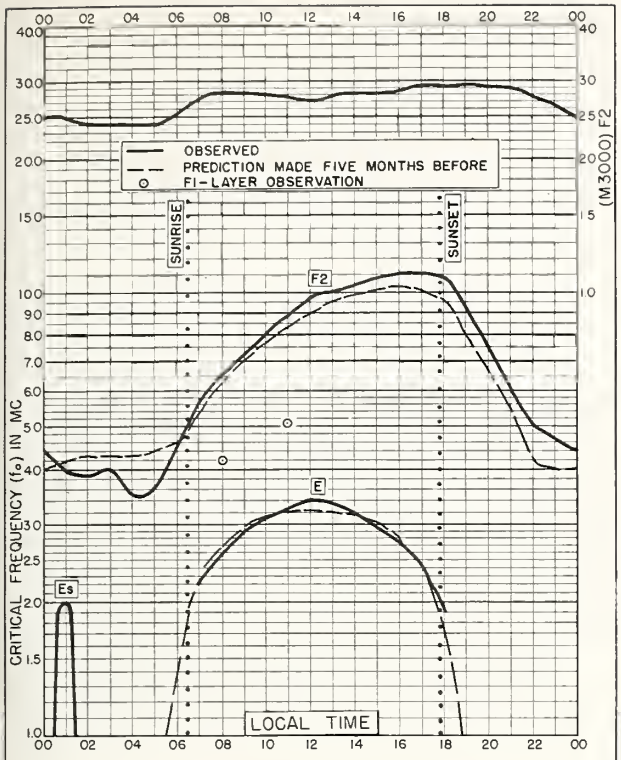


Fig. 9. ANCHORAGE, ALASKA
61.2°N, 149.9°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503

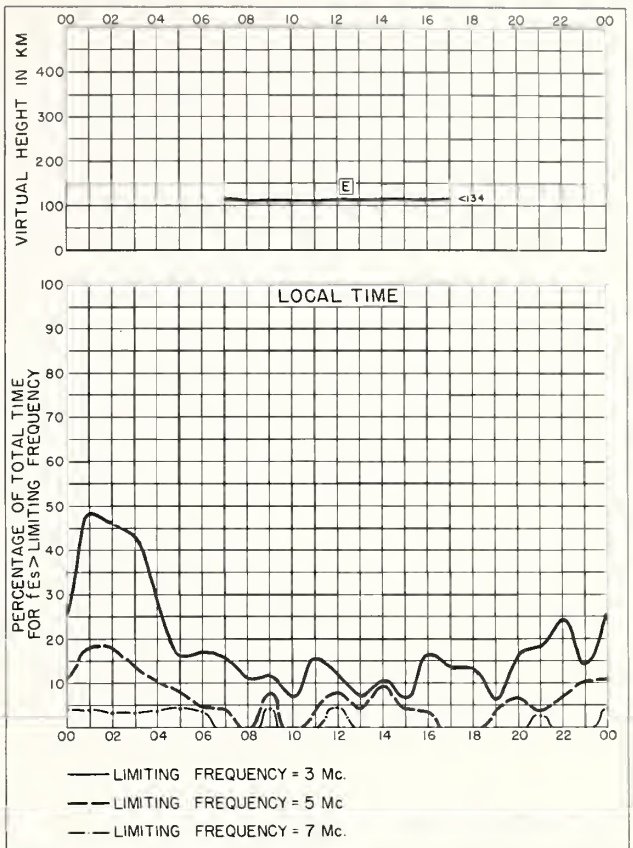


Fig 10. ANCHORAGE, ALASKA MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 490

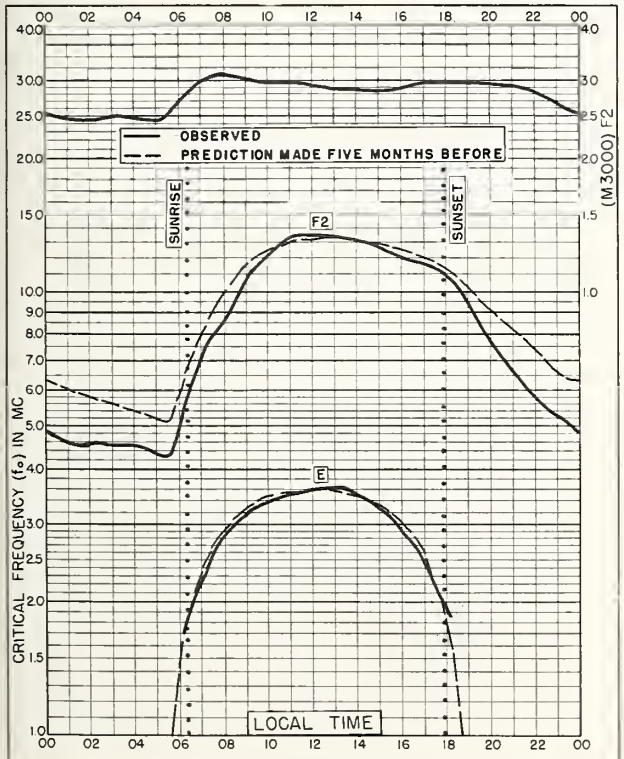


Fig. 11. ADAK, ALASKA
51.9°N, 176.6°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503

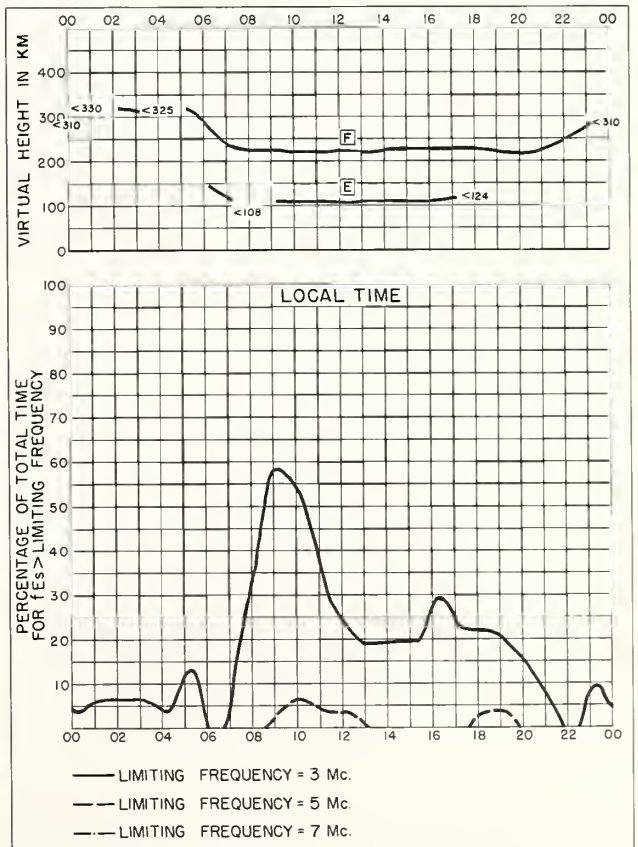


Fig. 12. ADAK, ALASKA MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 490

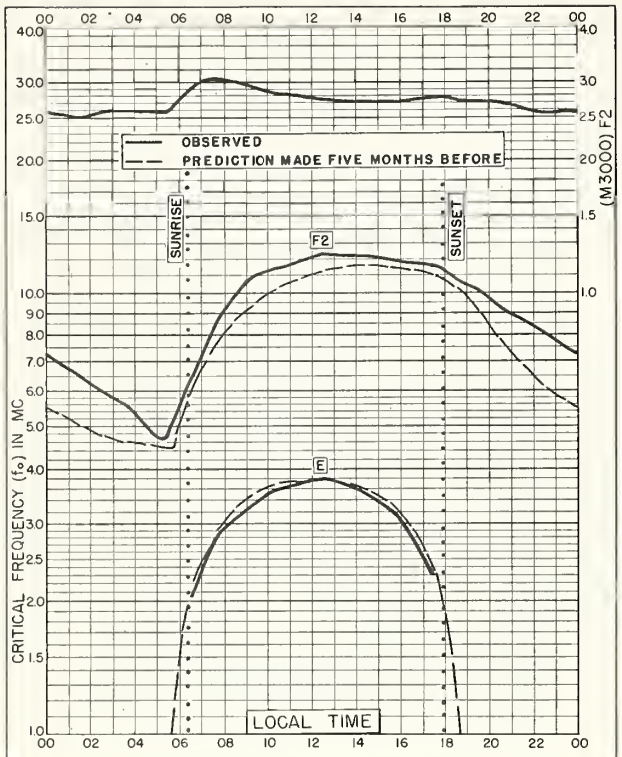
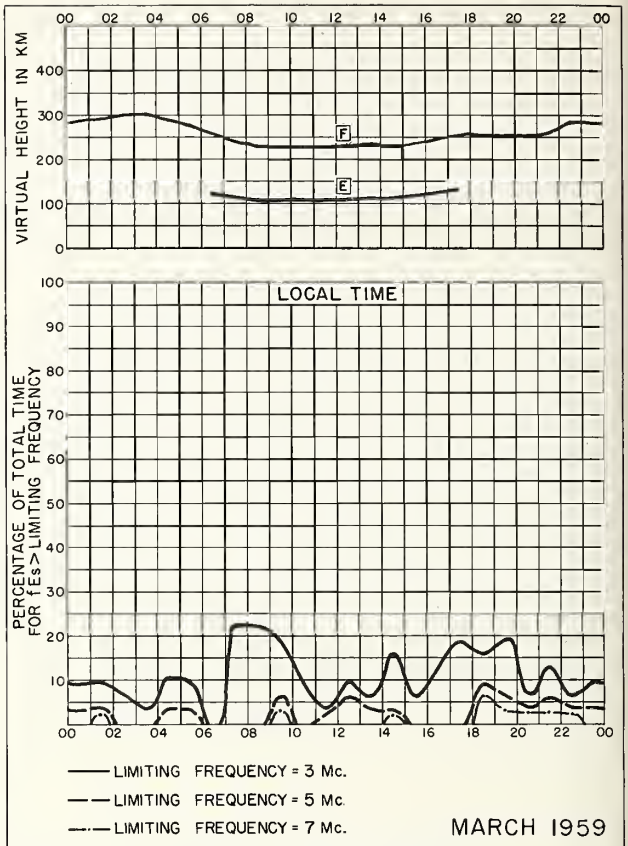


Fig. 13. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503



MARCH 1959

Fig. 14. ST. JOHN'S, NEWFOUNDLAND

Commerce-Standards-Boulder, Colo. NBS 490

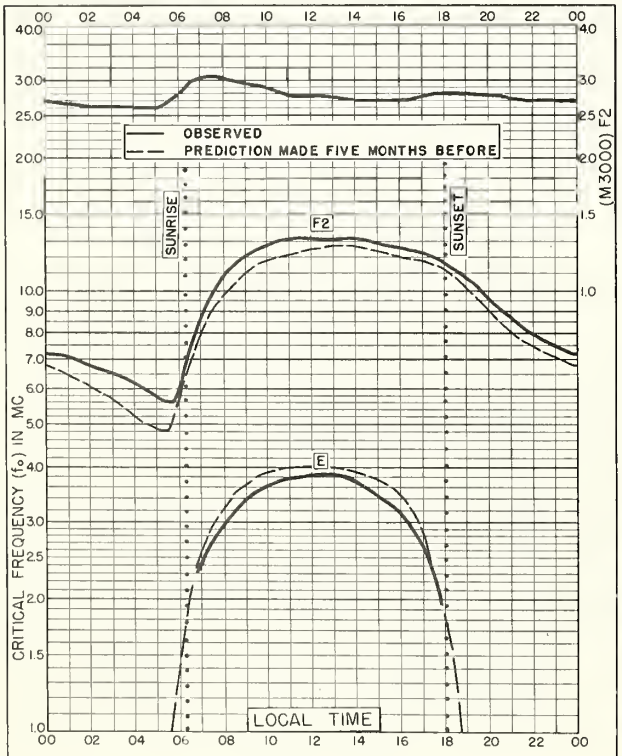


Fig. 15. WASHINGTON, D.C.
38.7°N, 77.1°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503

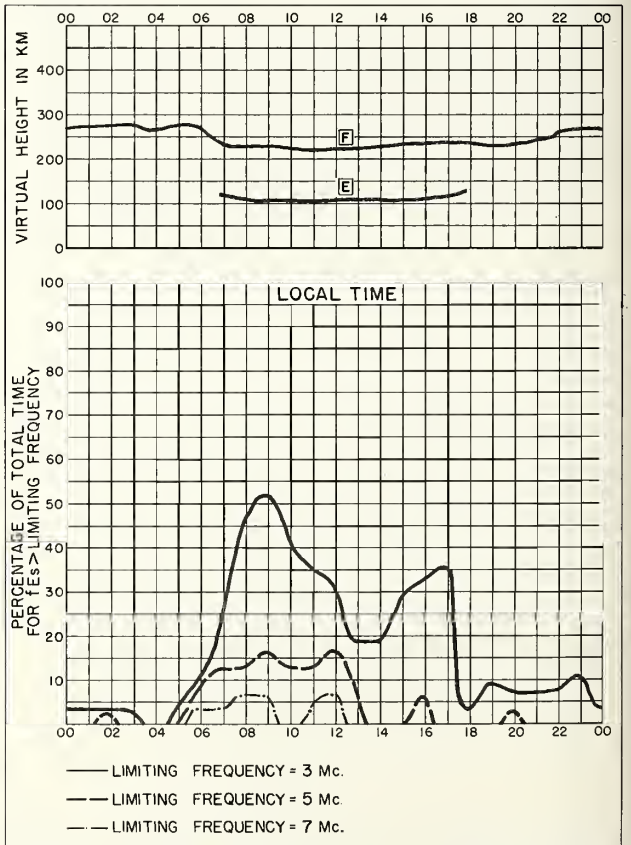


Fig. 16. WASHINGTON, D.C. MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 490

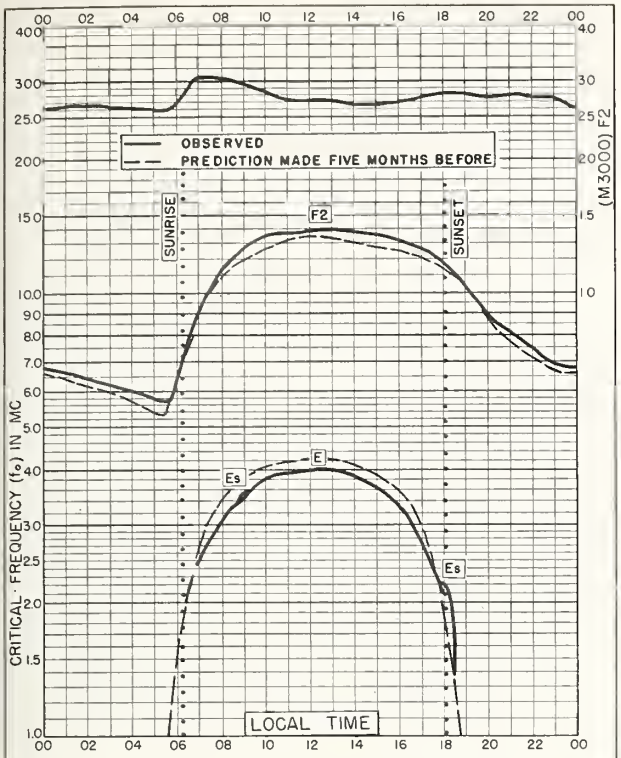
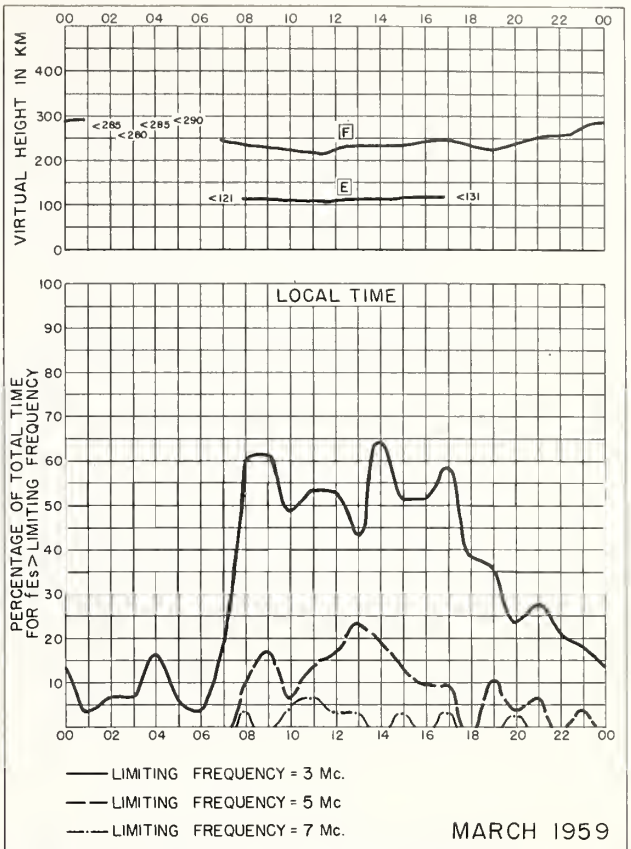


Fig. 17. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503



MARCH 1959

Fig. 18. WHITE SANDS, NEW MEXICO

Commerce-Standards-Boulder, Colo. NBS 490

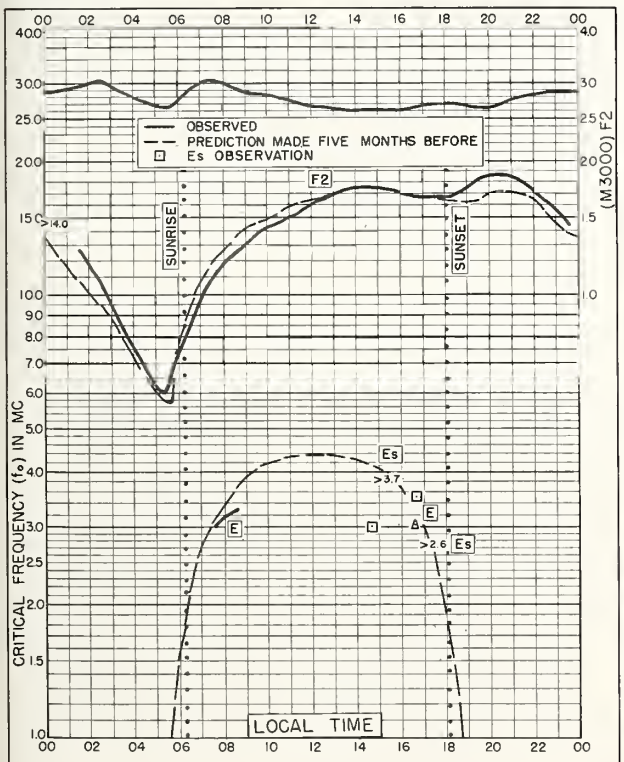


Fig. 19. OKINAWA I.
26.3°N, 127.8°E MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 503

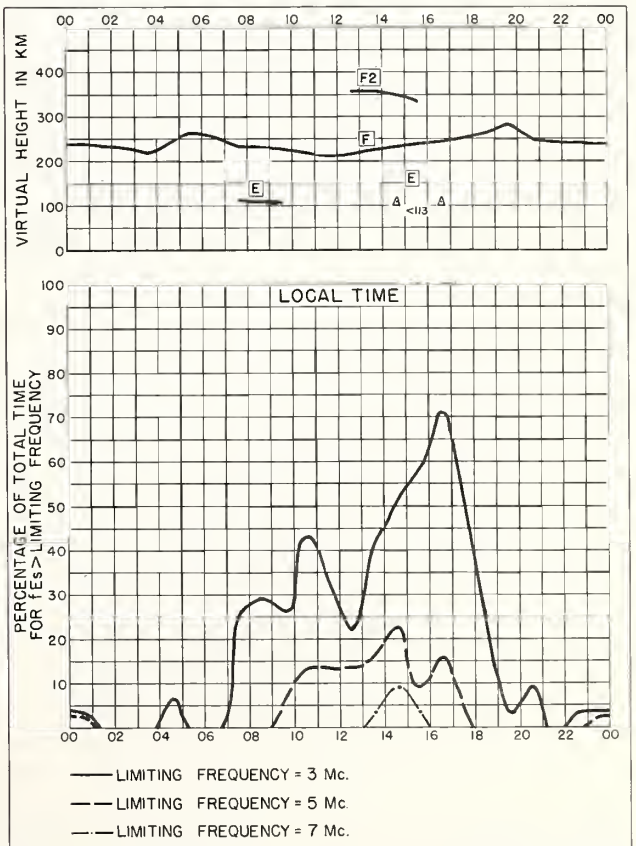


Fig. 20. OKINAWA I. MARCH 1959

Commerce-Standards-Boulder, Colo. NBS 490

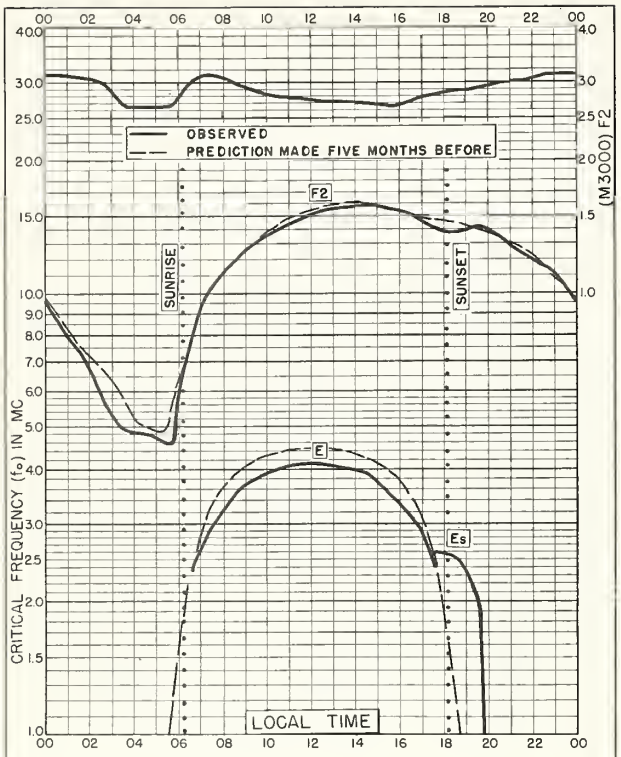


Fig. 21. MAUI, HAWAII
20.8°N, 156.5°W MARCH 1959

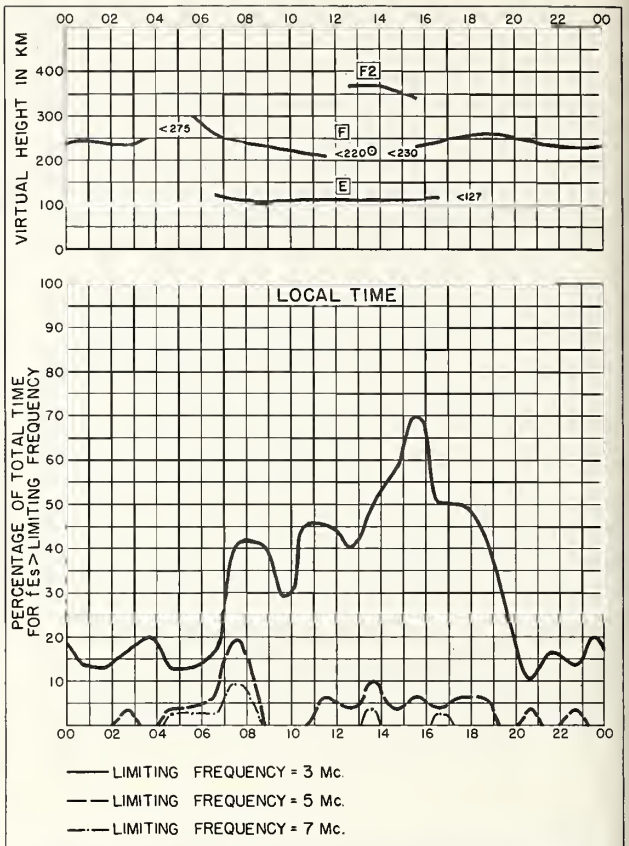


Fig. 22. MAUI, HAWAII MARCH 1959

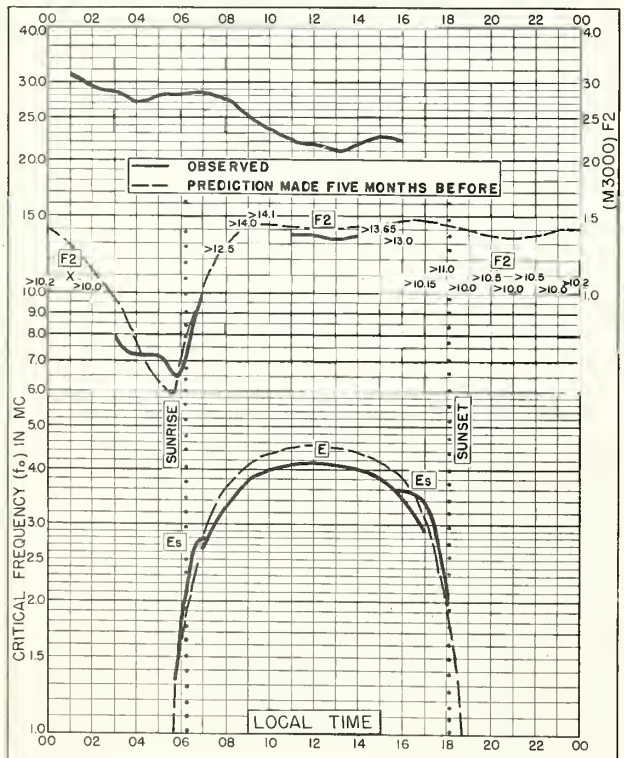


Fig. 23. BAGUIO, P. I.
16.4°N, 120.6°E MARCH 1959

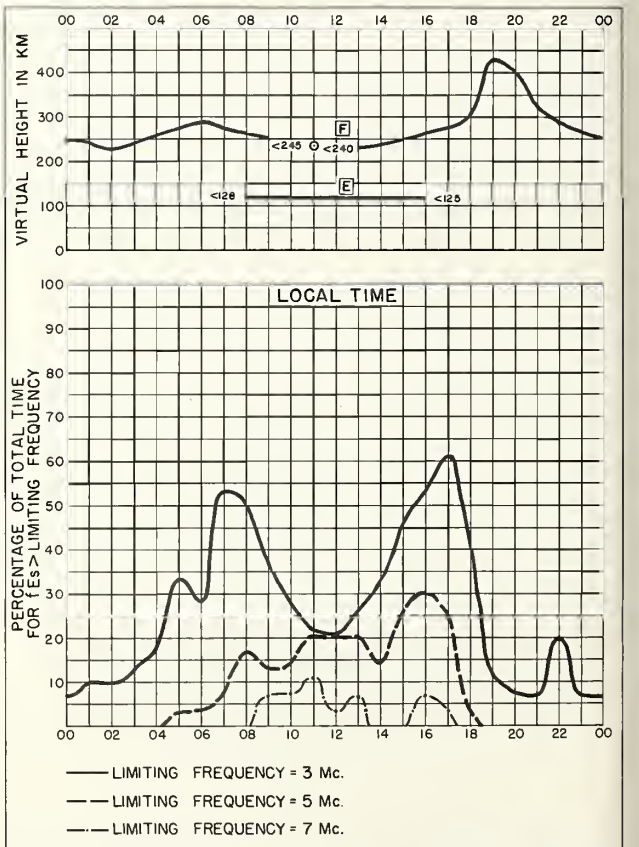


Fig. 24. BAGUIO, P. I. MARCH 1959

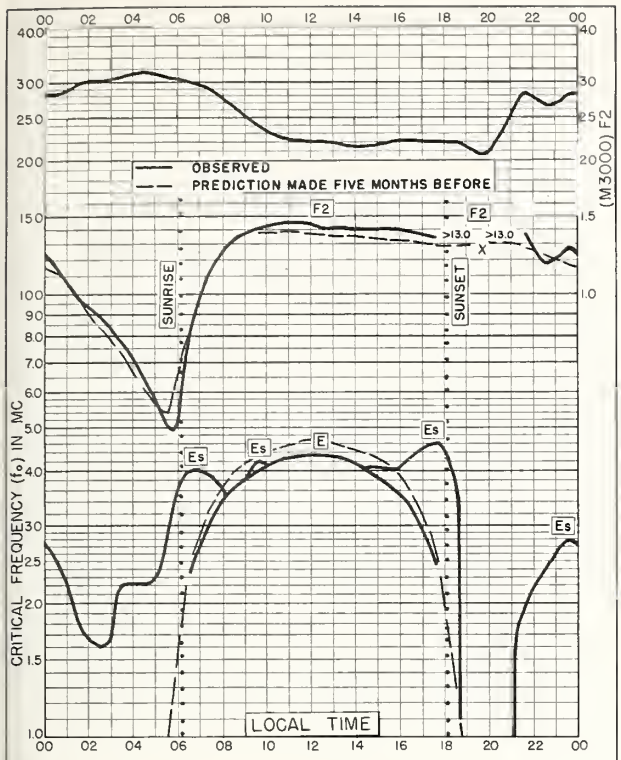


Fig. 25. TALARA, PERU
4.6°S, 81.3°W MARCH 1959

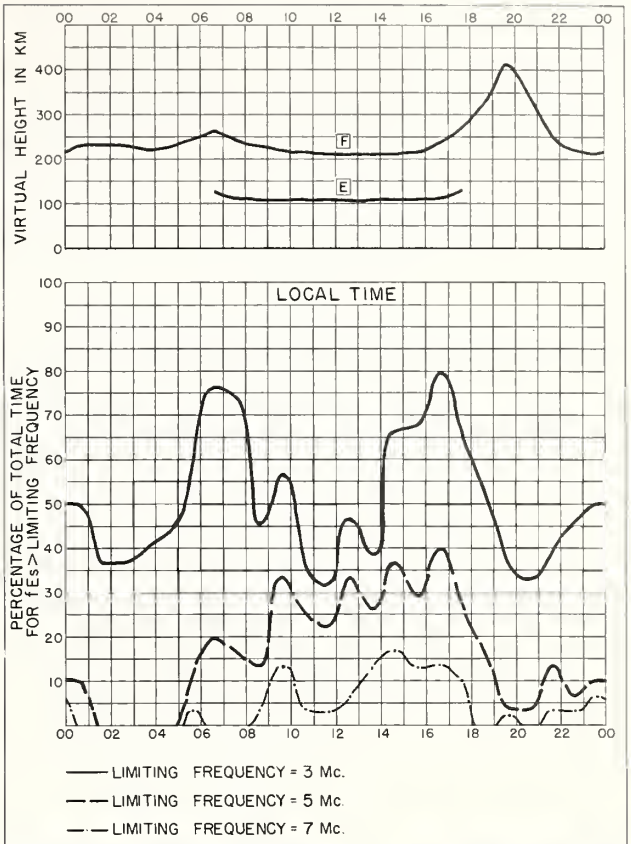


Fig. 26. TALARA, PERU MARCH 1959

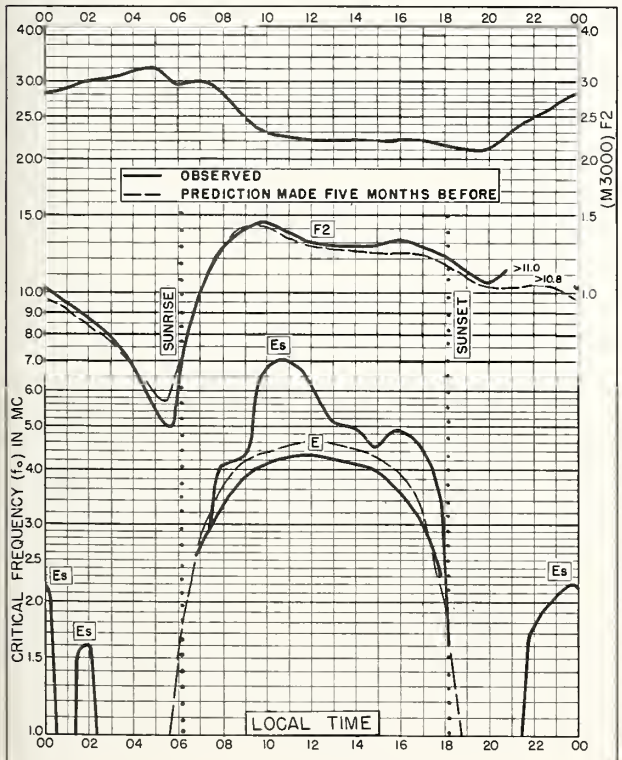


Fig. 27. CHIMBOTE, PERU
9.1°S, 78.6°W MARCH 1959

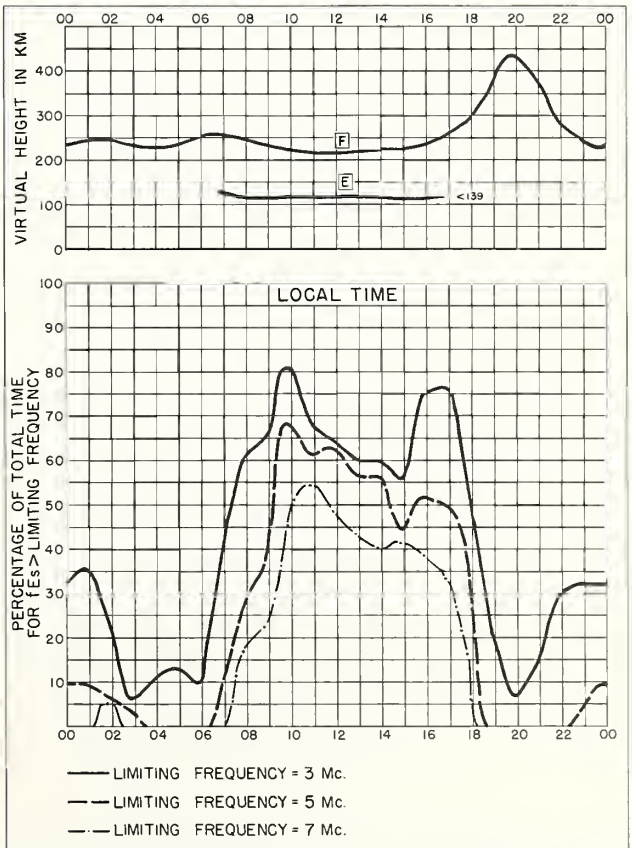


Fig. 28 CHIMBOTE, PERU MARCH 1959

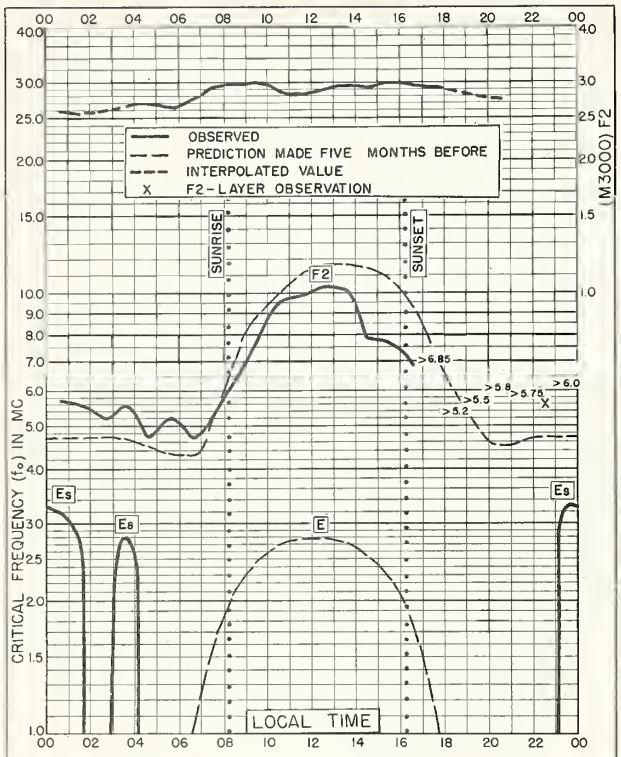


Fig. 29. REYKJAVIK, ICELAND
64.1°N, 21.8°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503

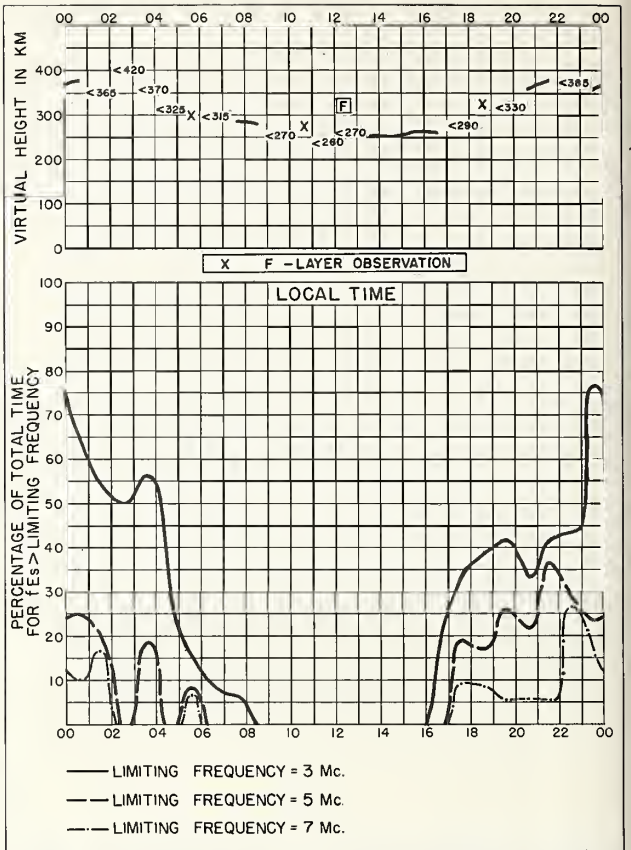


Fig. 30. REYKJAVIK, ICELAND FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 490

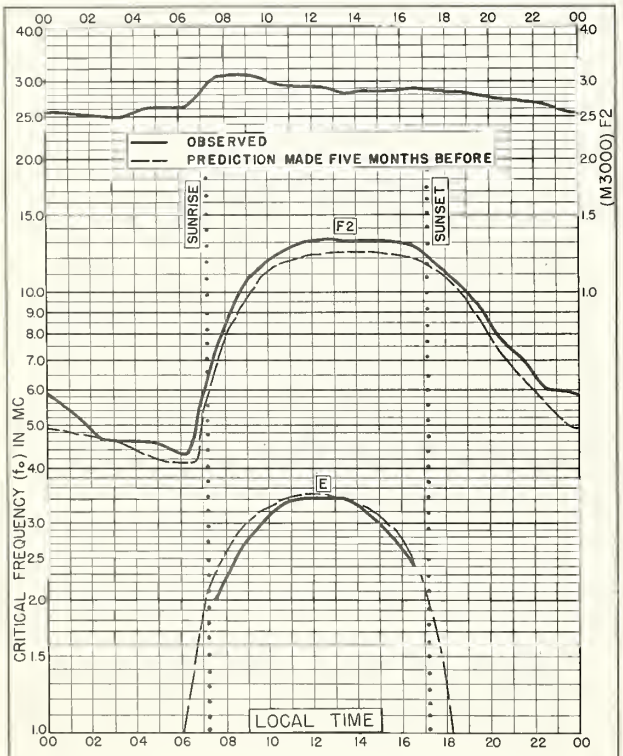
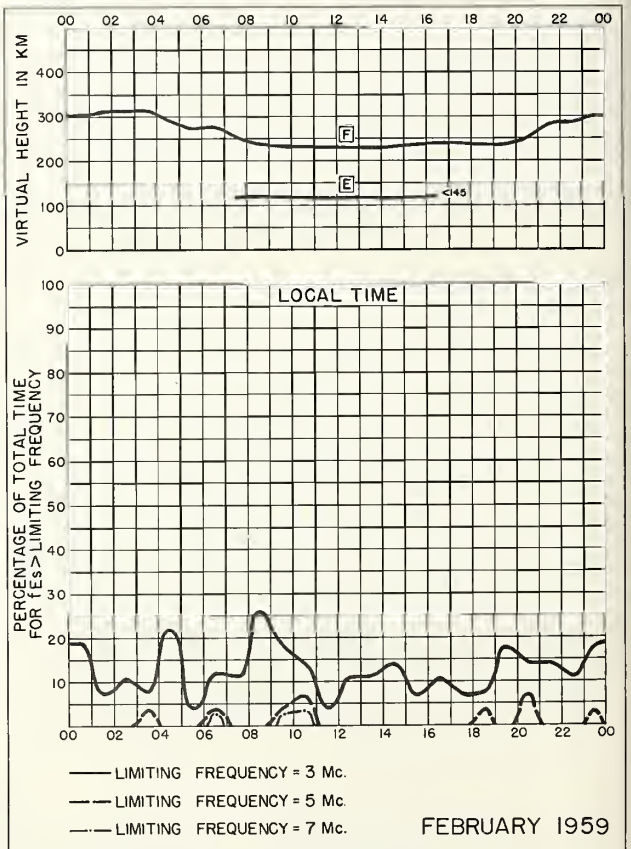


Fig. 31. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503



FEBRUARY 1959

Fig. 32. ST. JOHN'S, NEWFOUNDLAND

Commerce-Standards-Boulder, Colo. NBS 490

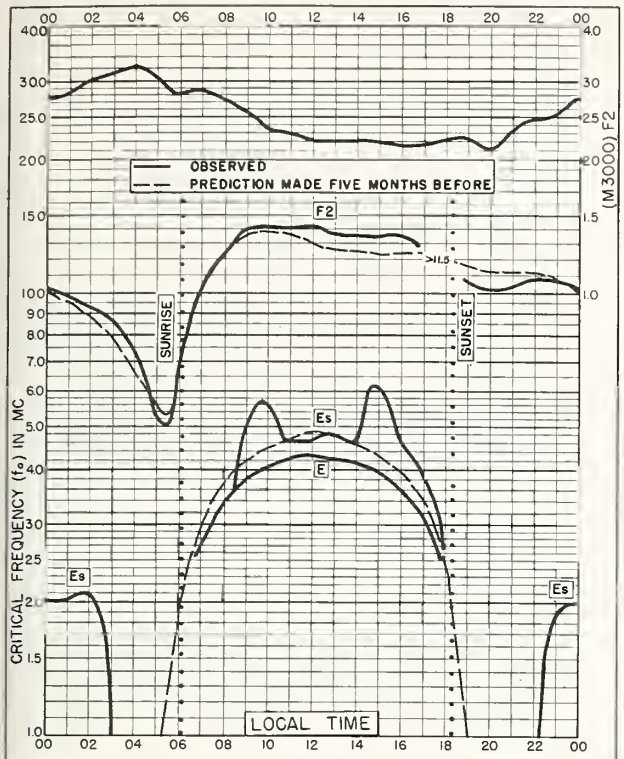


Fig. 33. CHIMBOTE, PERU
9.1°S, 78.6°W FEBRUARY 1959

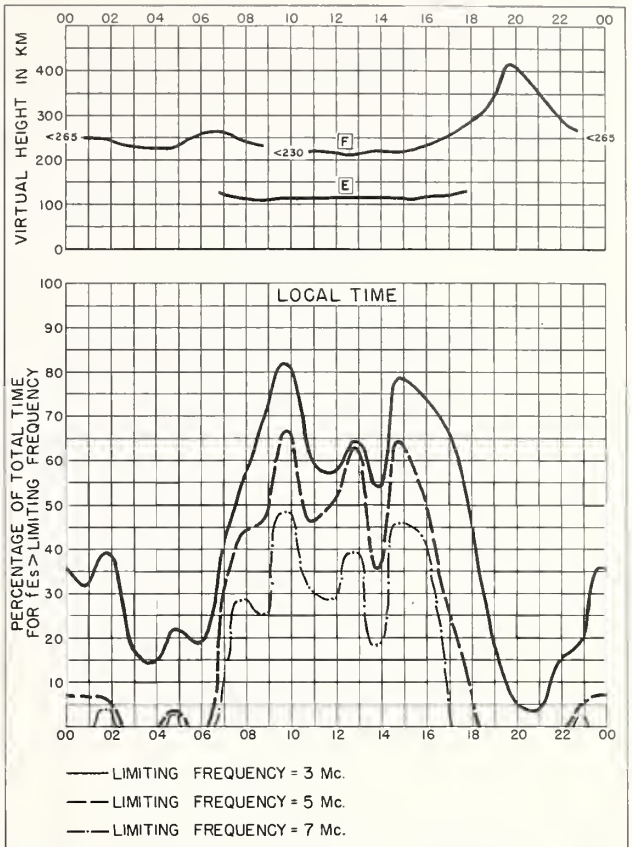


Fig. 34. CHIMBOTE, PERU FEBRUARY 1959

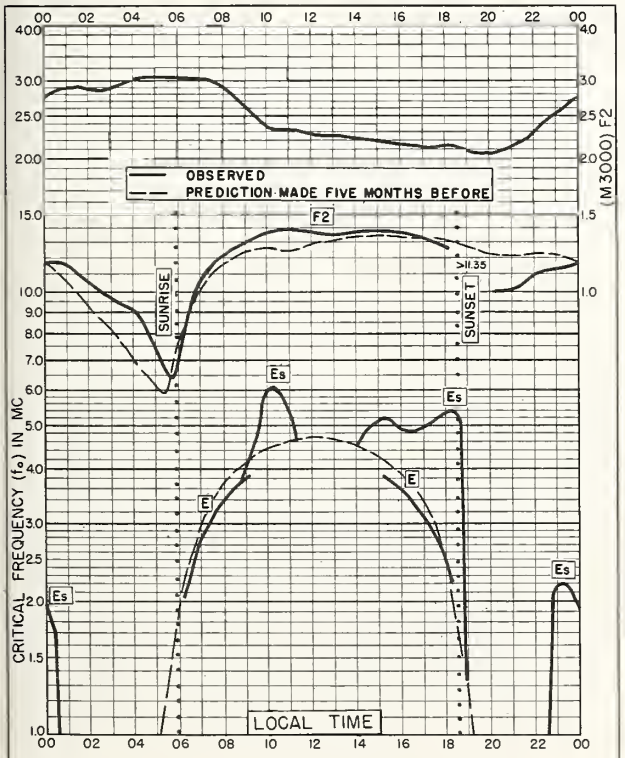


Fig. 35. ILO, PERU
17.4°S, 71.2°W FEBRUARY 1959

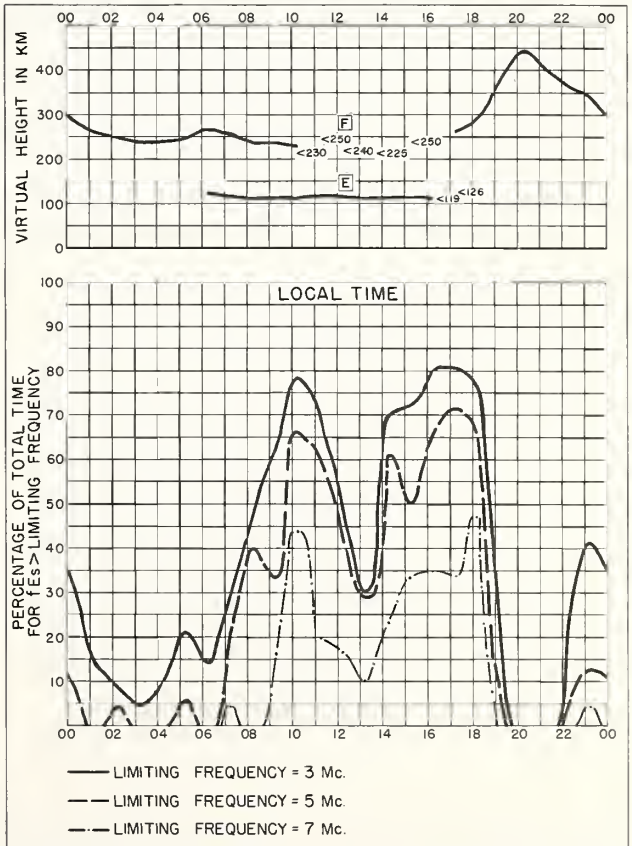


Fig. 36. ILO, PERU FEBRUARY 1959

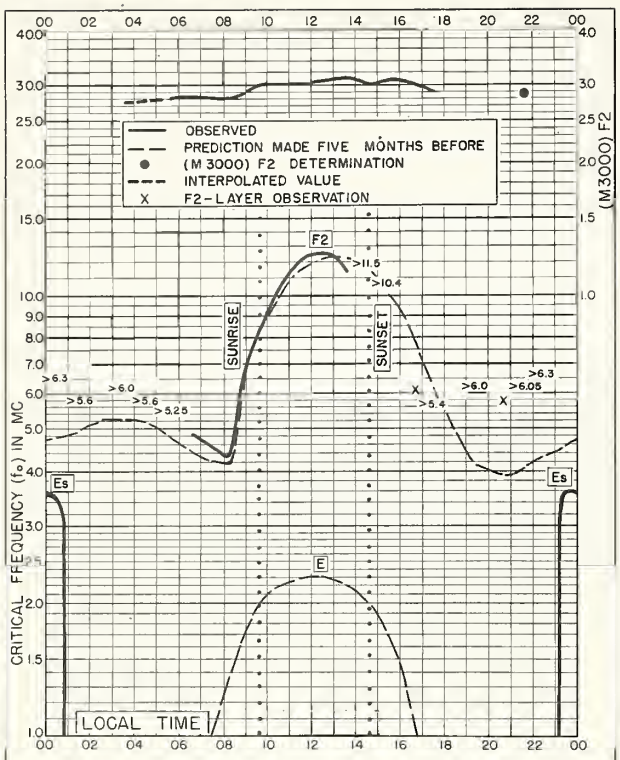


Fig. 37. REYKJAVIK, ICELAND
64.1°N, 21.8°W JANUARY 1959

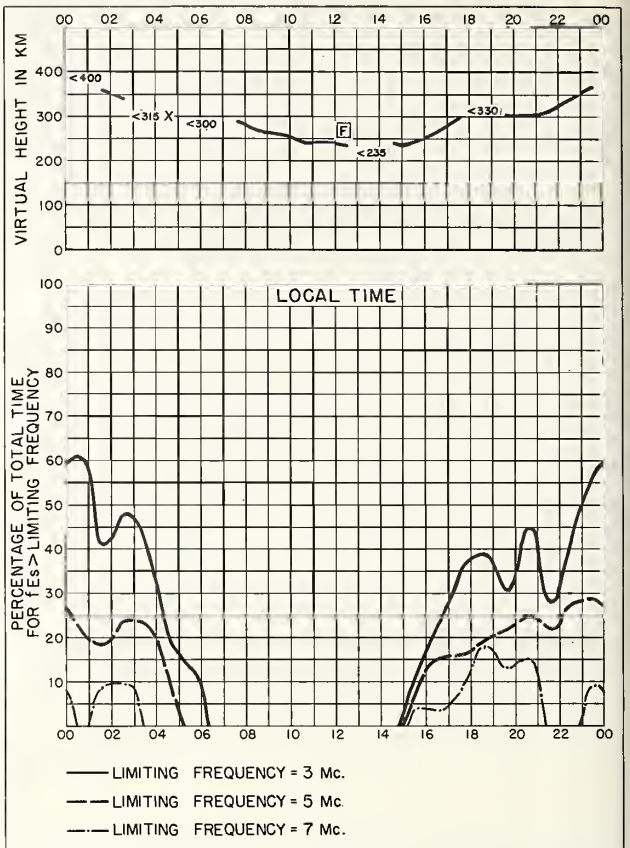


Fig. 38. REYKJAVIK, ICELAND JANUARY 1959

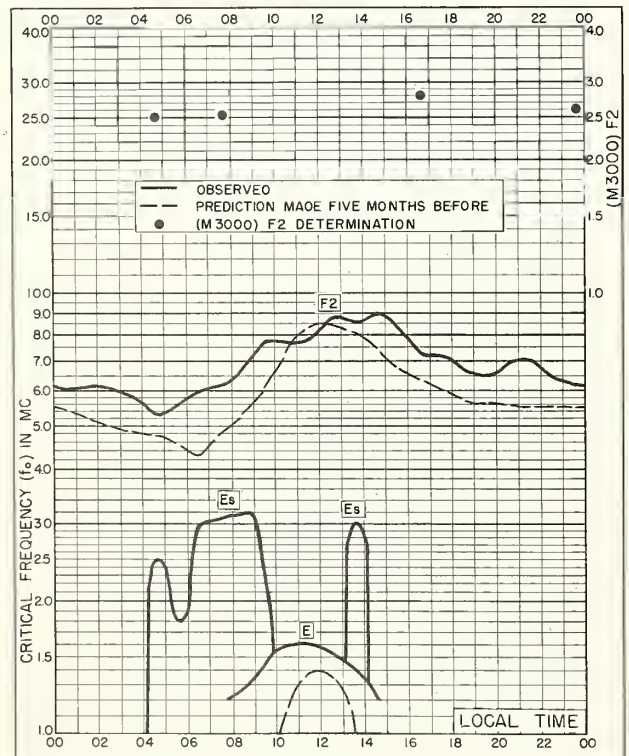


Fig. 39 RESOLUTE BAY, CANADA
74.7°N, 94.9°W NOVEMBER 1958

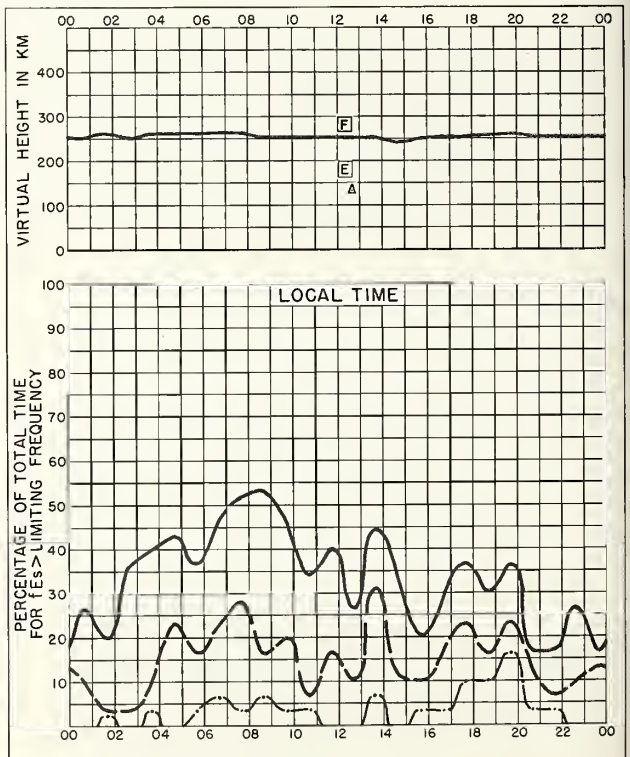


Fig. 40. RESOLUTE BAY, CANADA NOVEMBER 1958

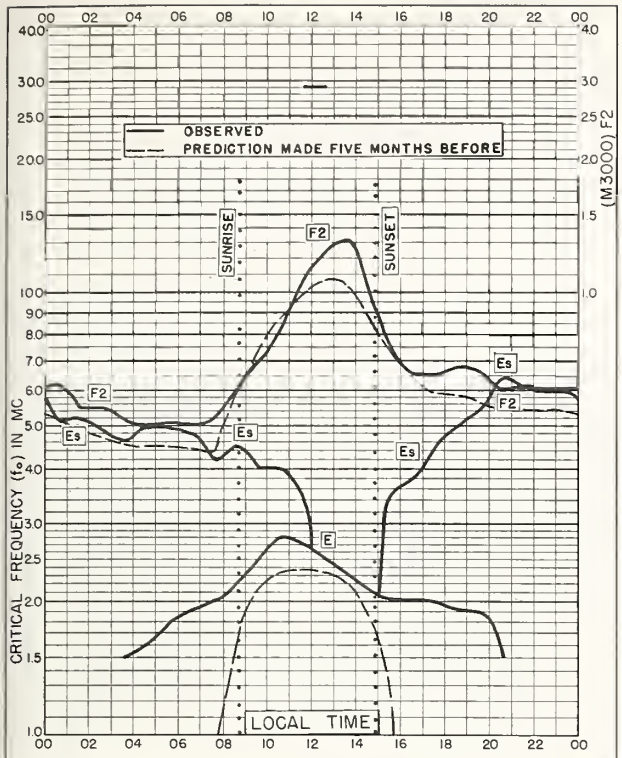


Fig. 41. BAKER LAKE, CANADA
64.3°N, 96.0°W NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

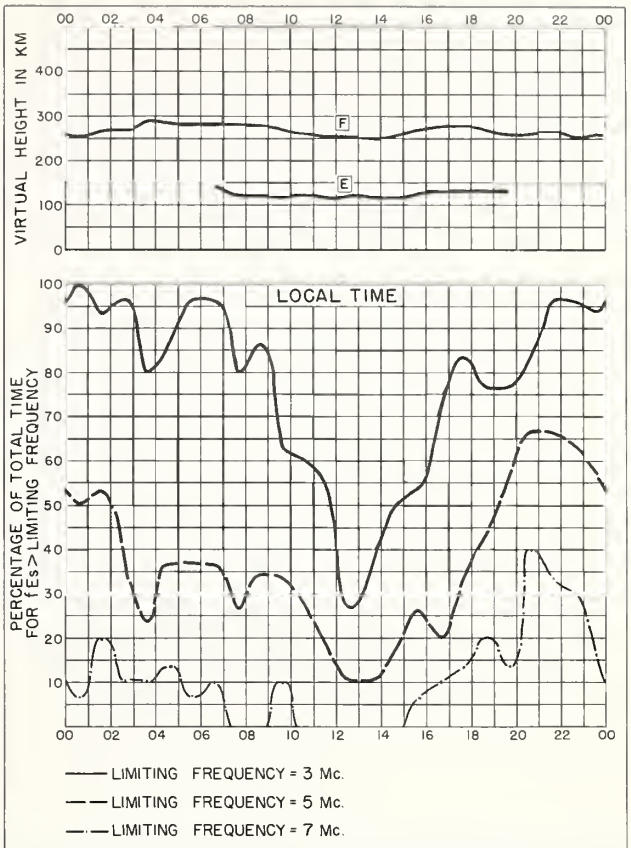


Fig. 42. BAKER LAKE, CANADA NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

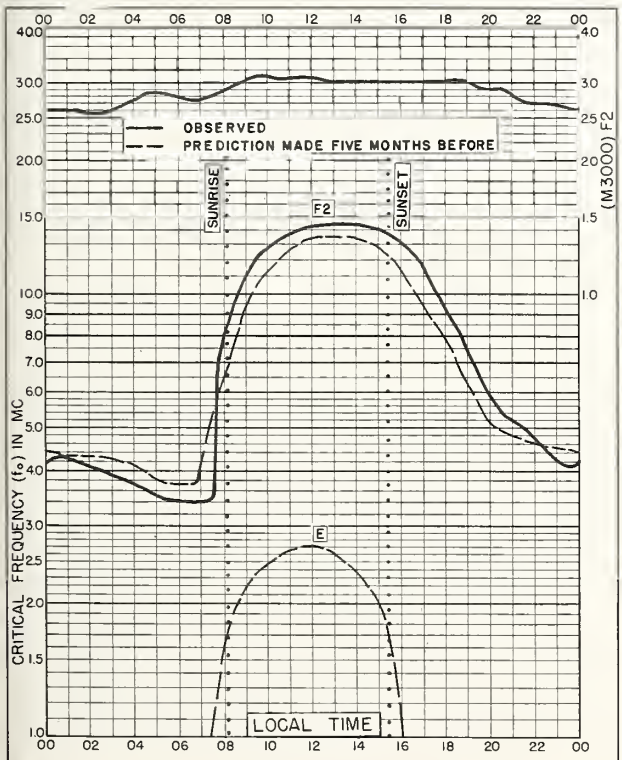


Fig. 43. NURMIJARVI, FINLAND
60.5°N, 24.6°E NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

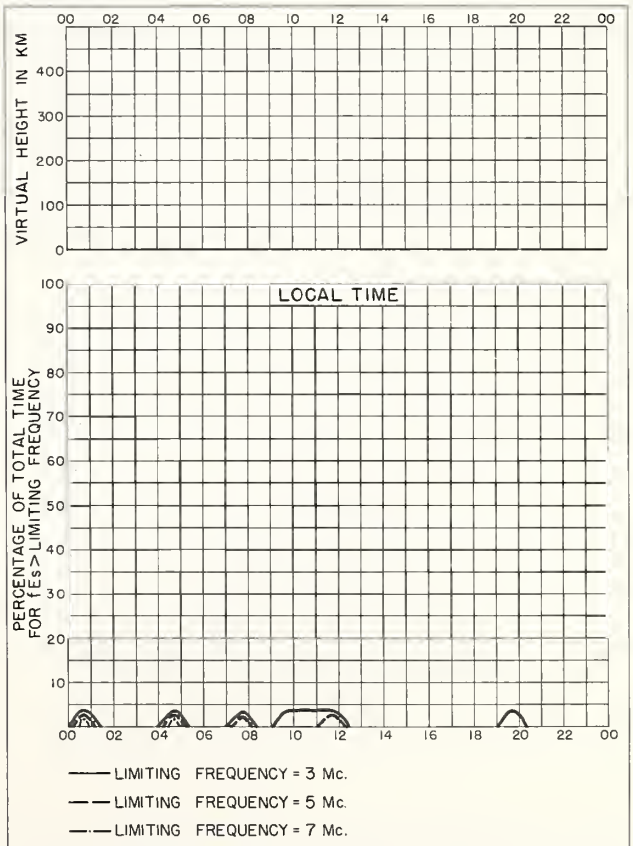


Fig. 44. NURMIJARVI, FINLAND NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

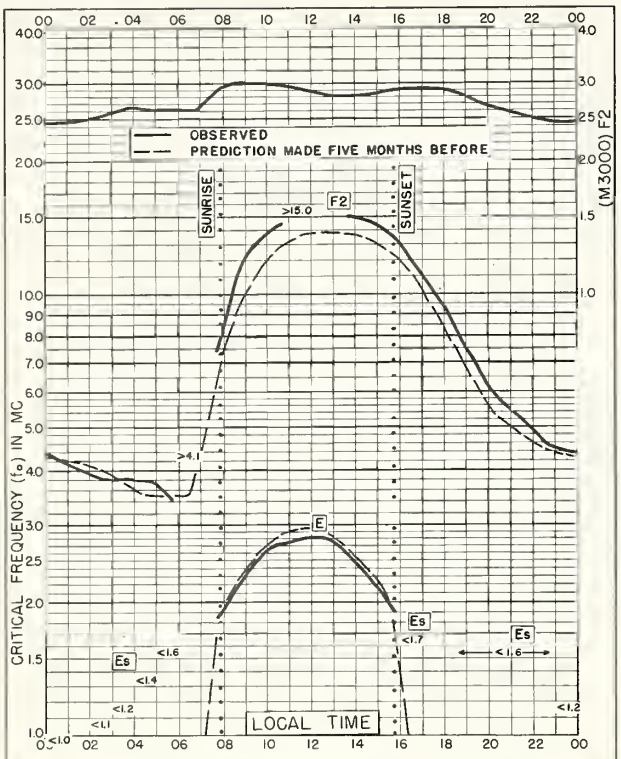


Fig. 45. INVERNESS, SCOTLAND
57.4°N, 4.2°W NOVEMBER 1958

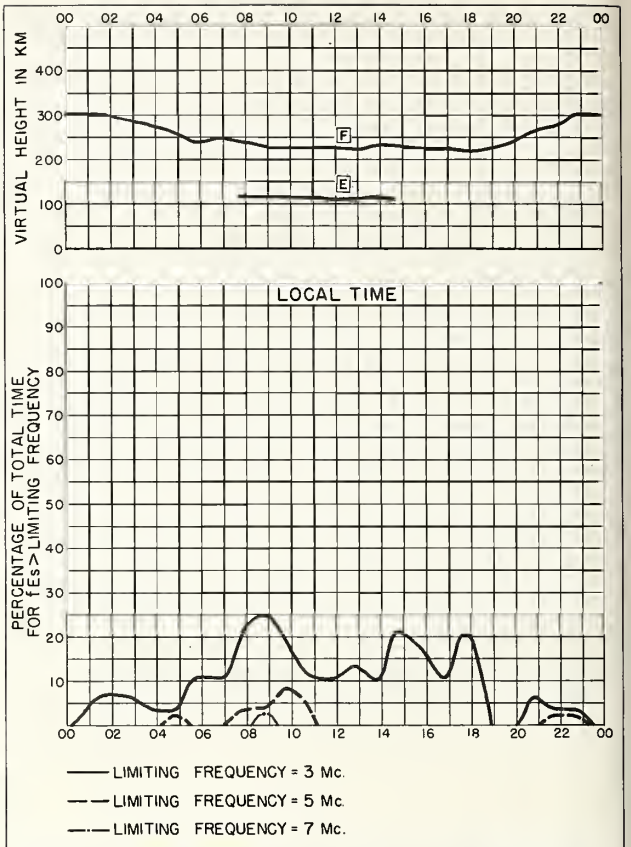


Fig. 46. INVERNESS, SCOTLAND NOVEMBER 1958

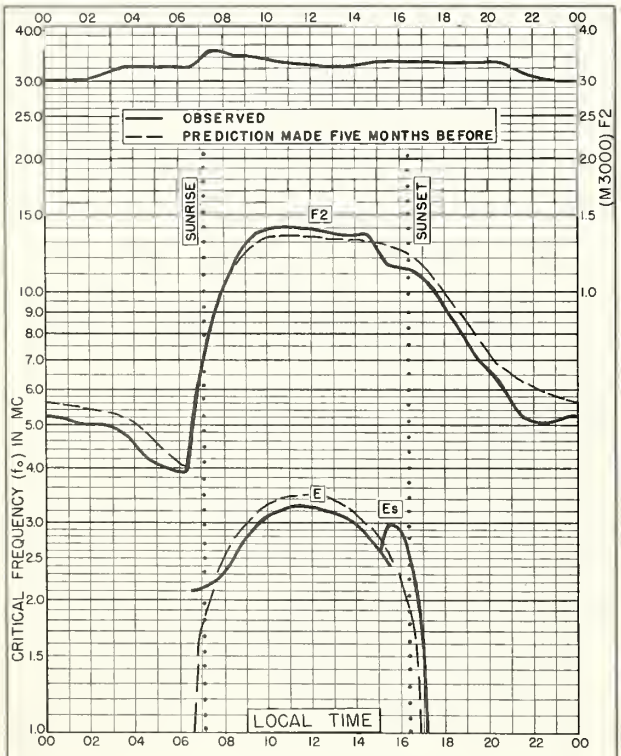
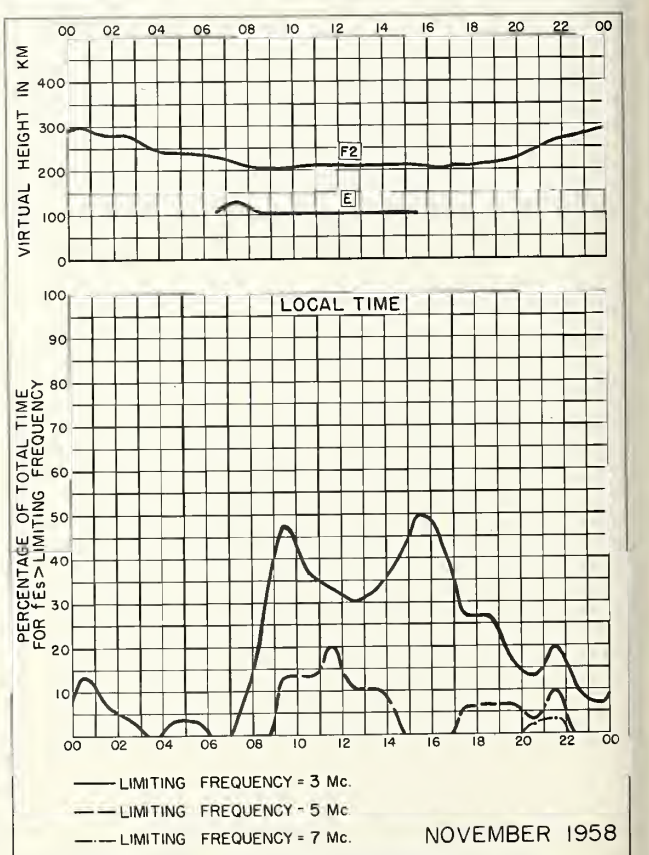


Fig. 47. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E NOVEMBER 1958



NOVEMBER 1958

Fig. 48. SCHWARZENBURG, SWITZERLAND

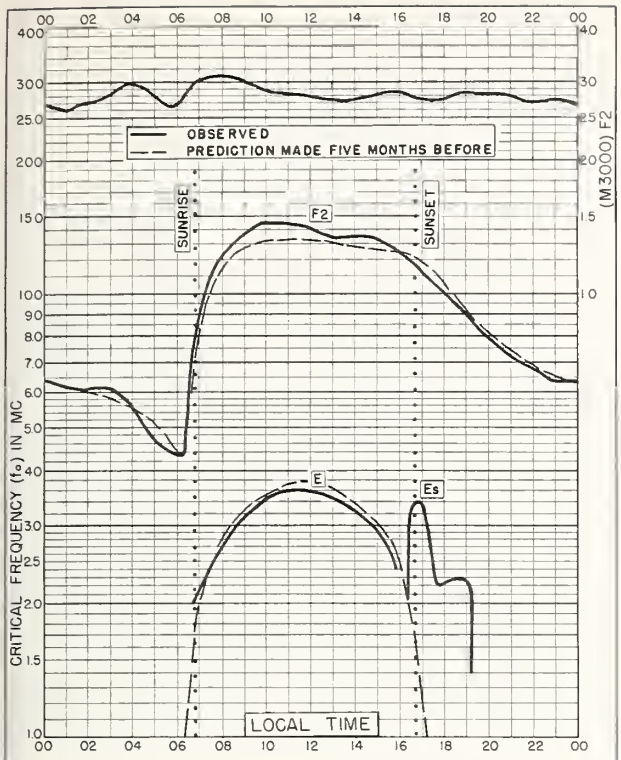


Fig. 49. ROME, ITALY
41.8°N, 12.5°E NOVEMBER 1958

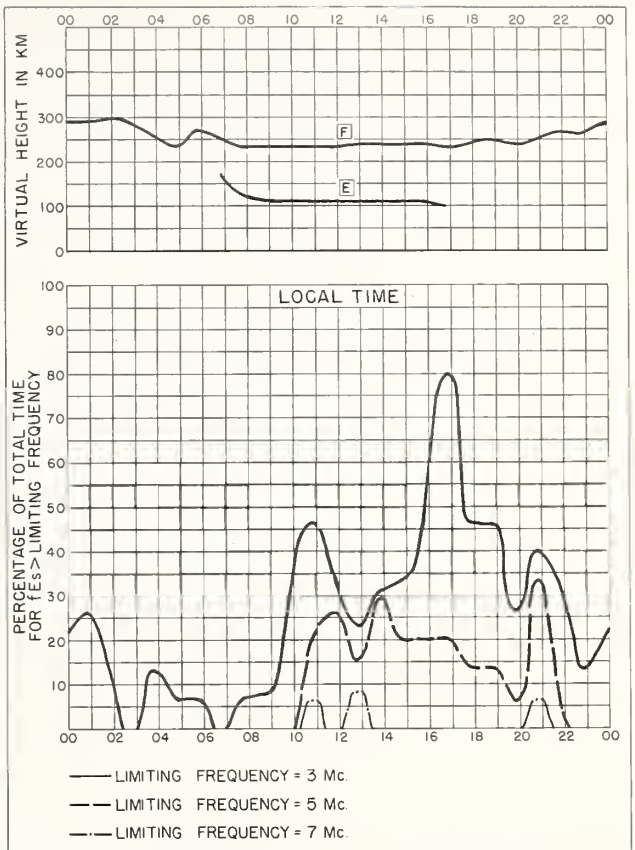


Fig. 50. ROME, ITALY NOVEMBER 1958

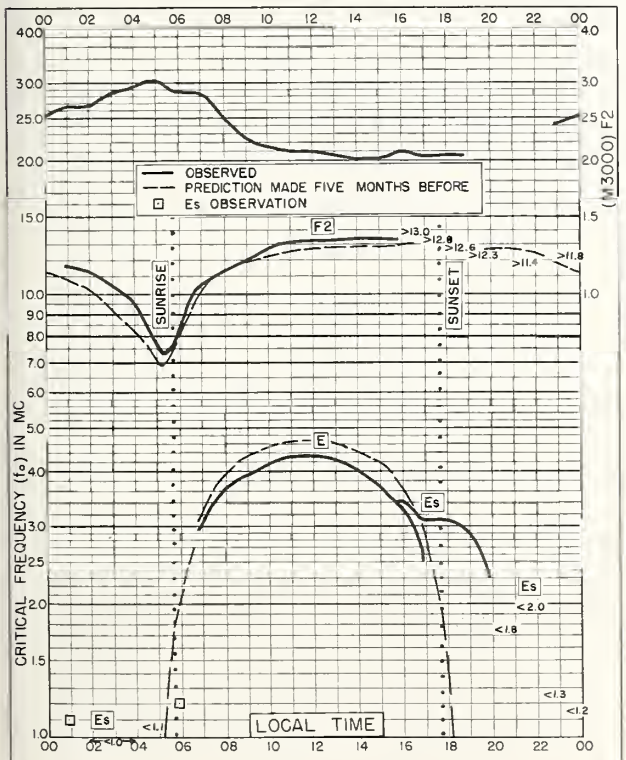


Fig. 51. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E NOVEMBER 1958

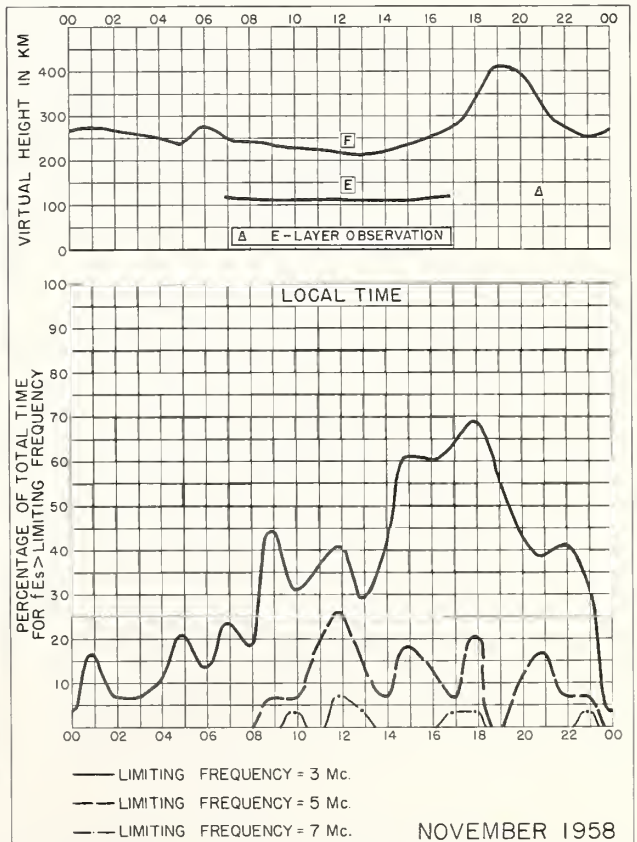


Fig. 52. SINGAPORE, BRITISH MALAYA NOVEMBER 1958

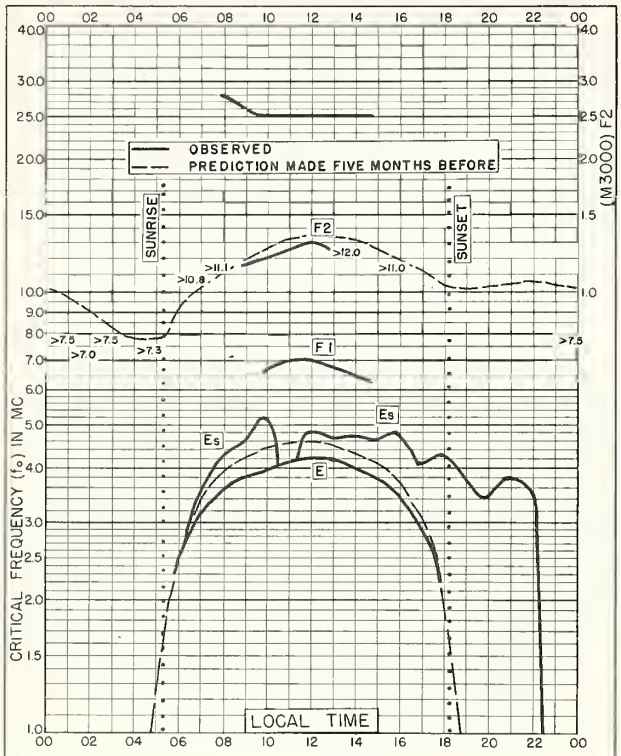
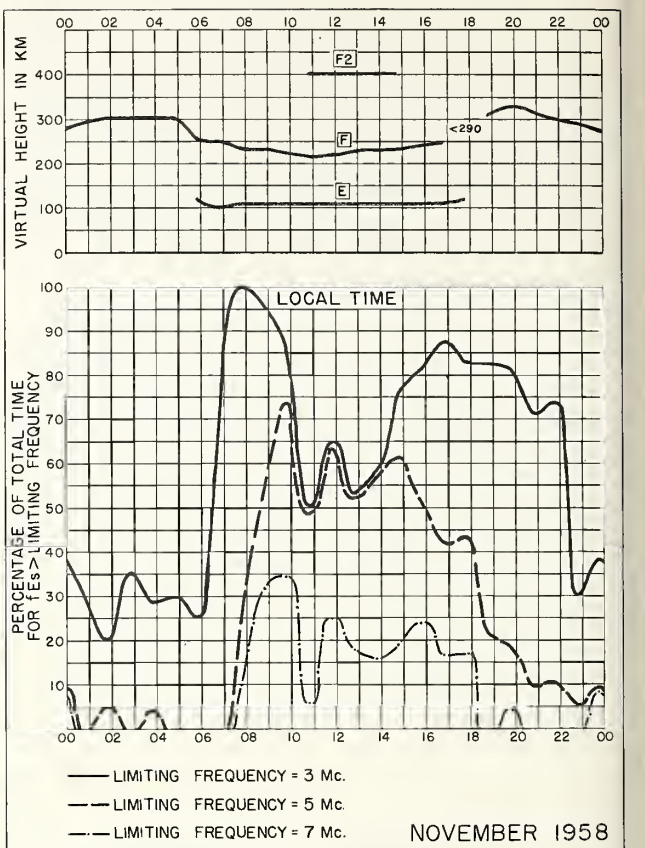


Fig. 53. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E NOVEMBER 1958

Commerce-Stanford-Boulder, Colo. NBS 503



NOVEMBER 1958

Fig. 54. TOWNSVILLE, AUSTRALIA

Commerce-Stanford-Boulder, Colo. NBS 490

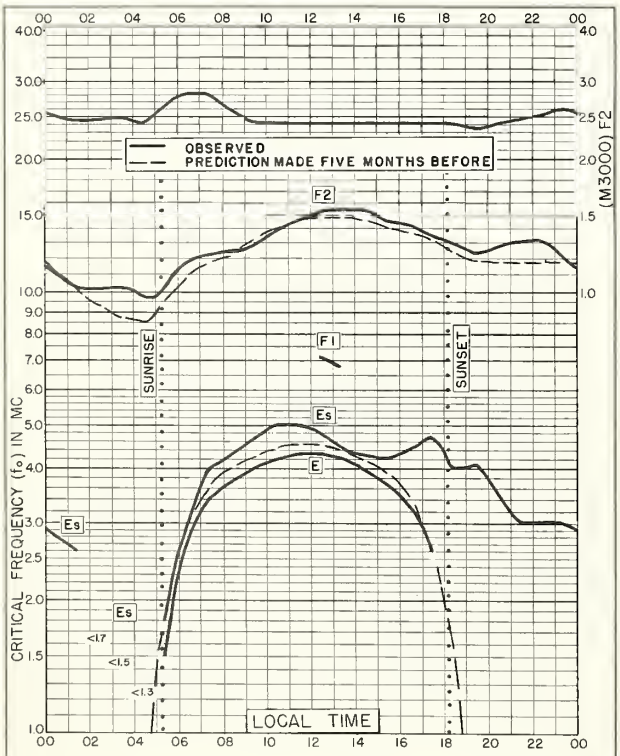


Fig. 55. RAROTONGA I.
21.2°S, 159.8°W NOVEMBER 1958

Commerce-Stanford-Boulder, Colo. NBS 503

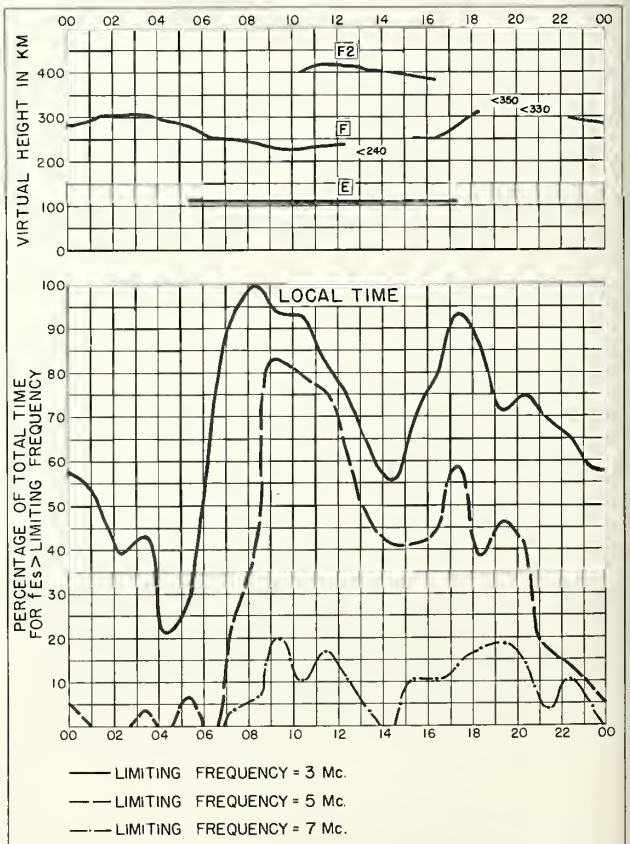


Fig. 56. RAROTONGA I. NOVEMBER 1958

Commerce-Stanford-Boulder, Colo. NBS 490

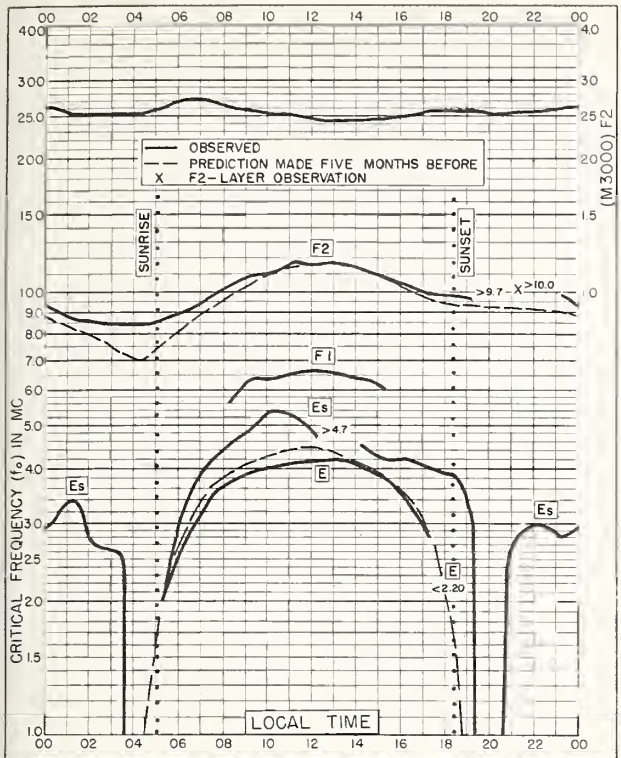


Fig. 57. BRISBANE, AUSTRALIA
27.5°S, 152.9°E NOVEMBER 1958

NBS 503

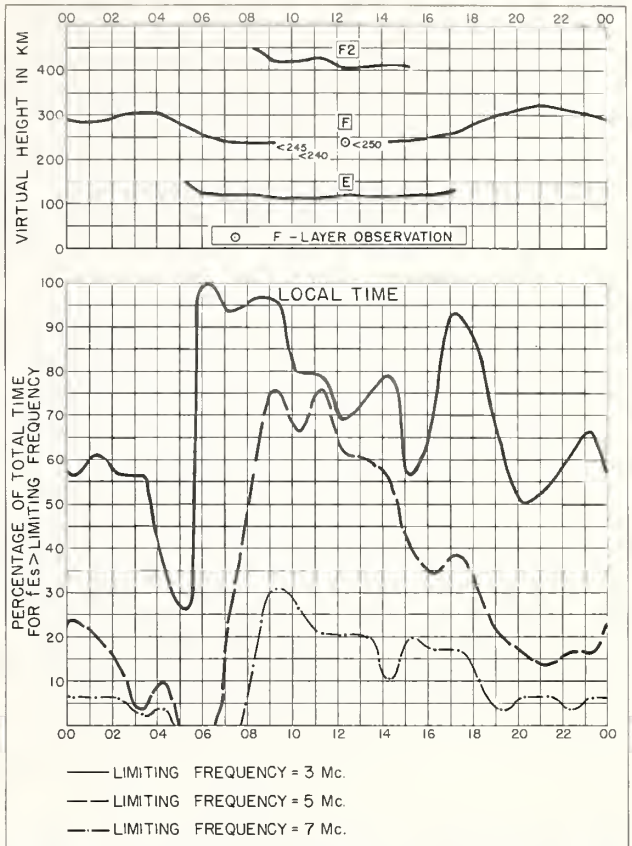


Fig. 58. BRISBANE, AUSTRALIA NOVEMBER 1958

NBS 490

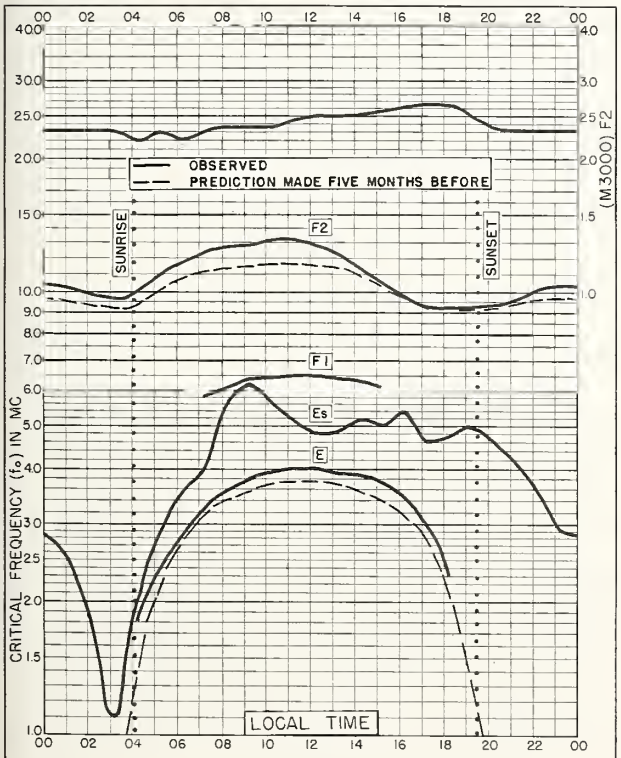


Fig. 59. FALKLAND IS.
51.7°S, 57.8°W NOVEMBER 1958

NBS 503

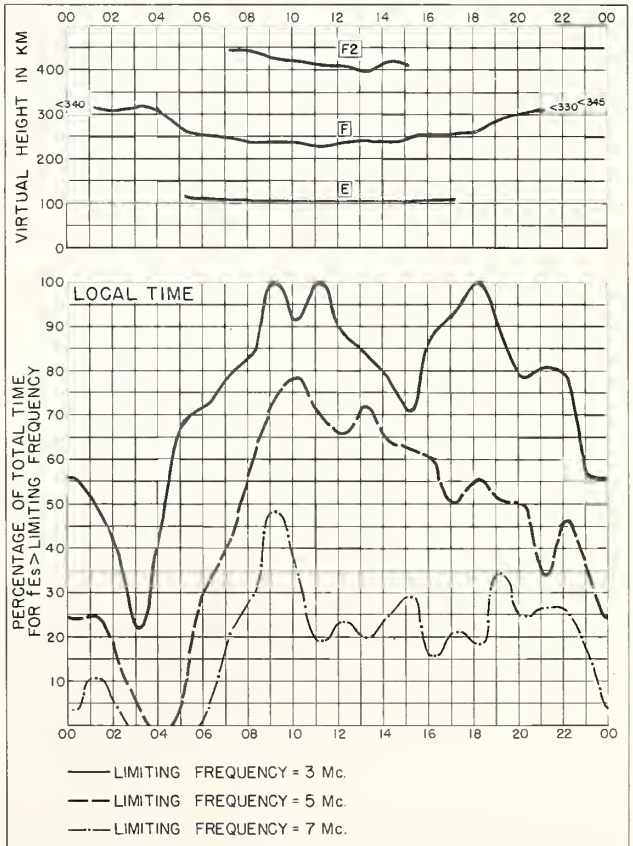


Fig. 60. FALKLAND IS. NOVEMBER 1958

NBS 490

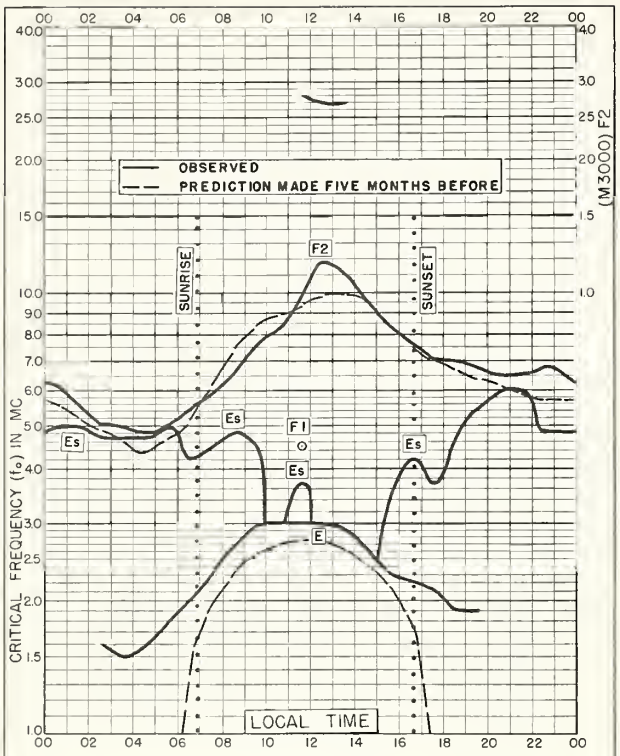


Fig. 61. BAKER LAKE, CANADA
64.3°N, 96.0°W OCTOBER 1958

NBS 503

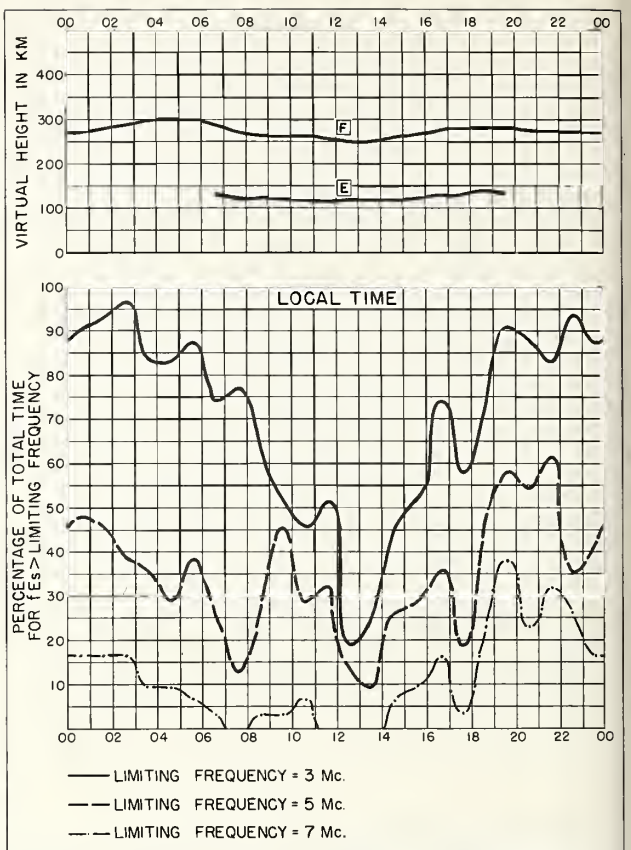


Fig. 62. BAKER LAKE, CANADA OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

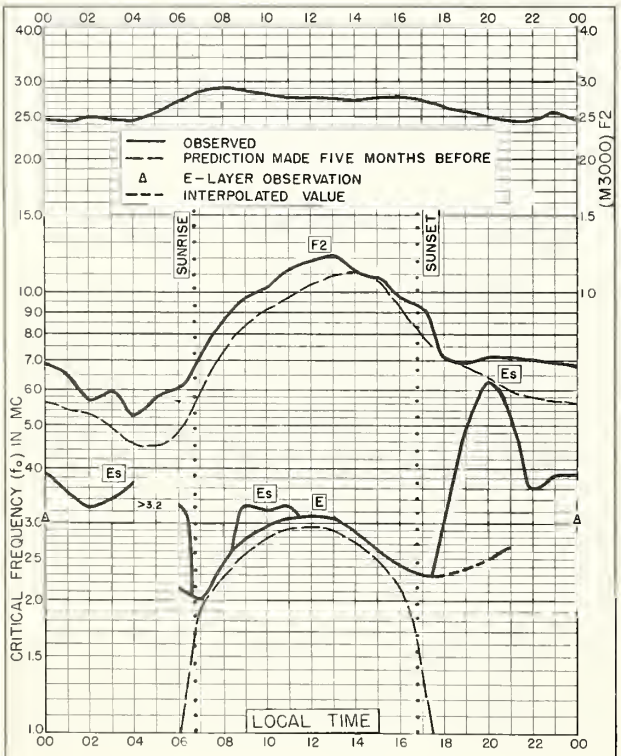
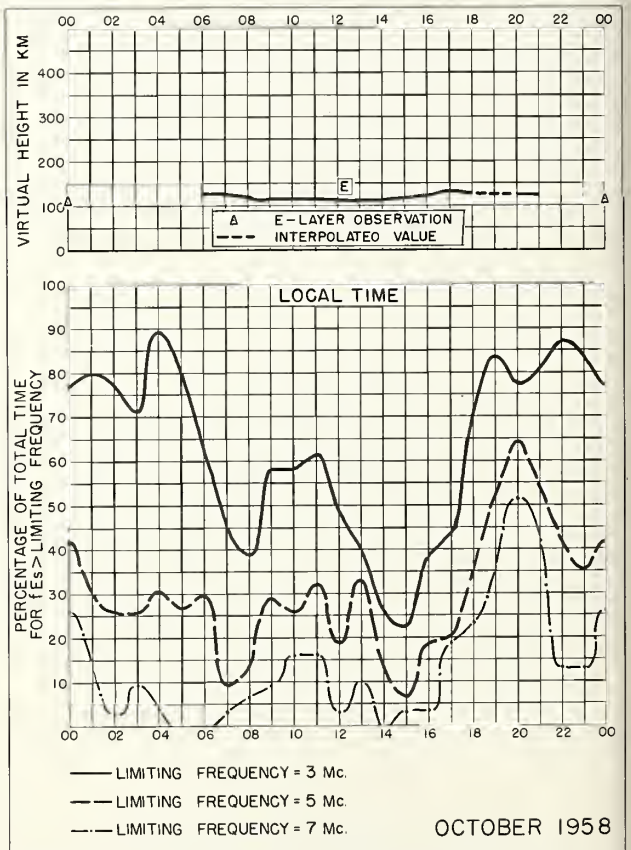


Fig. 63. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W OCTOBER 1958

NBS 503



OCTOBER 1958

Fig. 64. NARSARSSUAK, GREENLAND

Commerce-Standards-Boulder, Colo. NBS 490

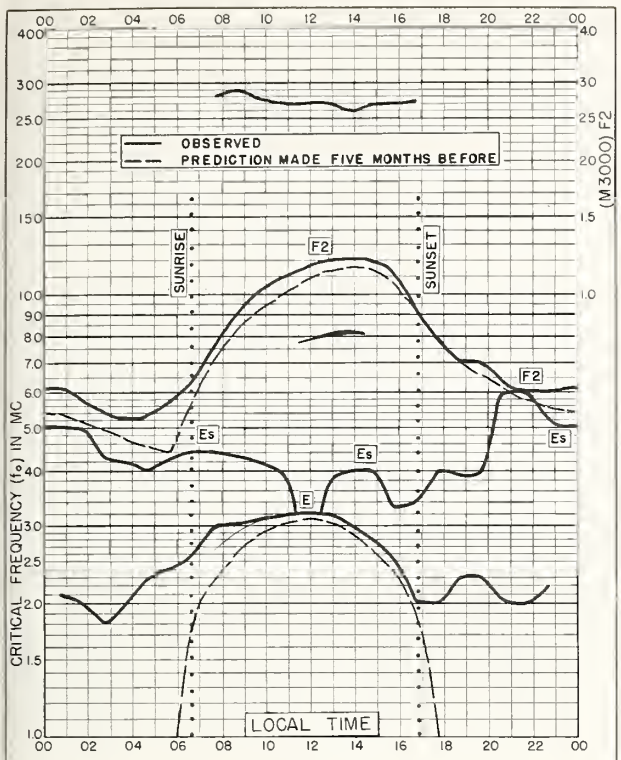


Fig. 65. CHURCHILL, CANADA
58.8°N, 94.2°W OCTOBER 1958

NBS 503

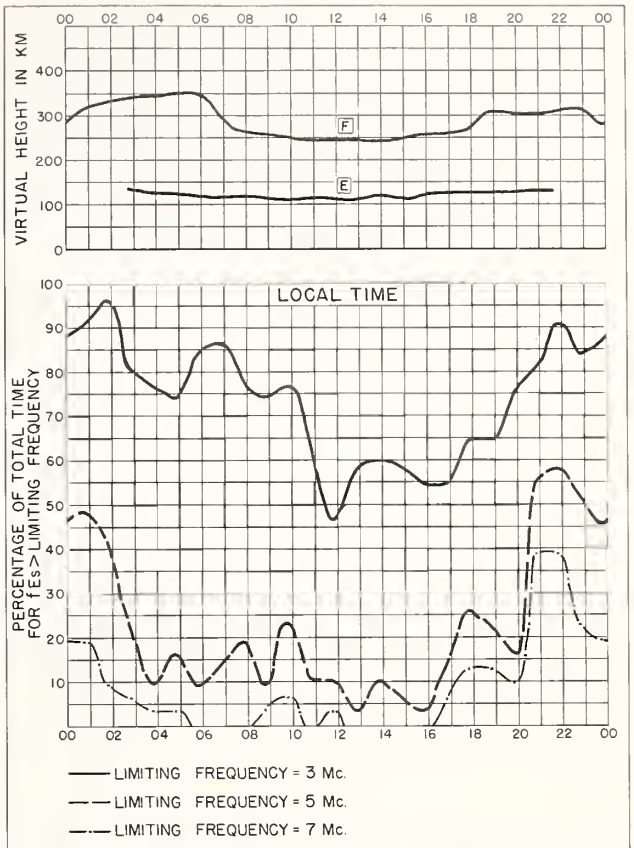


Fig. 66. CHURCHILL, CANADA OCTOBER 1958

NBS 490

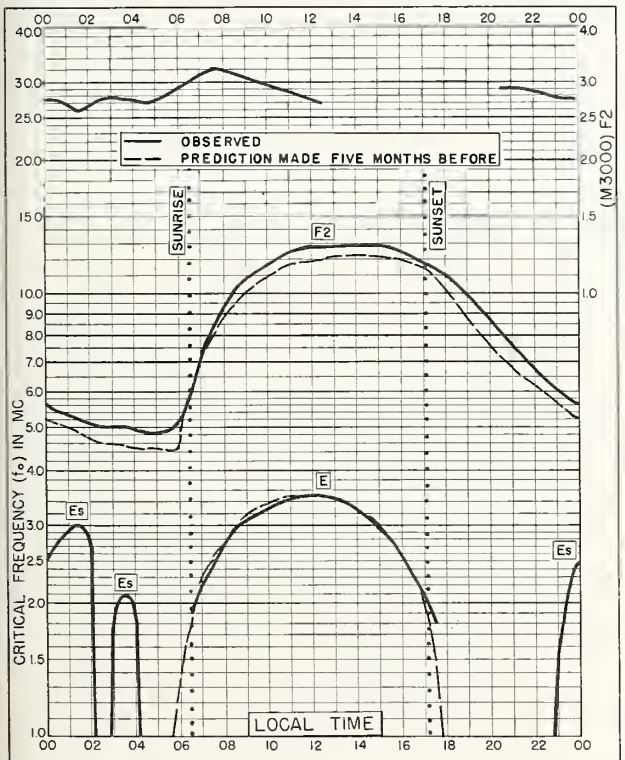


Fig. 67. WINNIPEG, CANADA
49.9°N, 97.4°W OCTOBER 1958

NBS 503

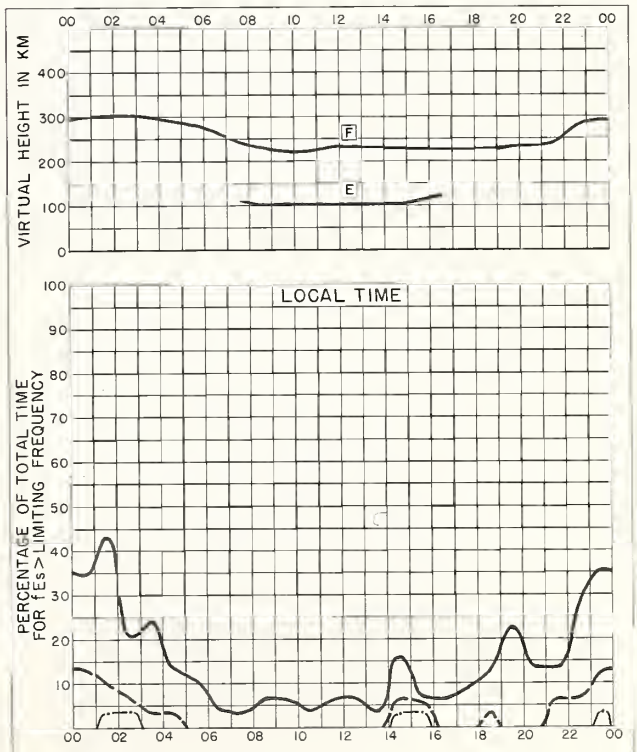


Fig. 68. WINNIPEG, CANADA OCTOBER 1958

NBS 490

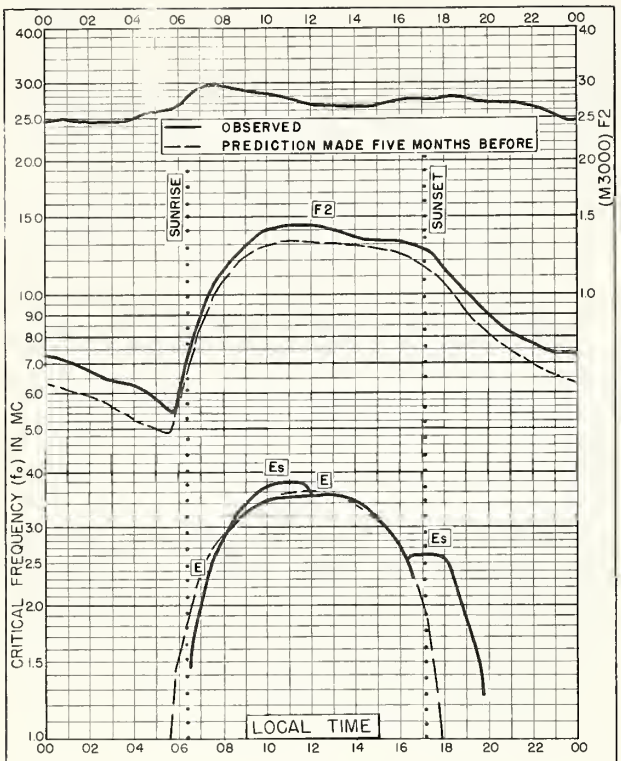


Fig. 69. FREIBURG, GERMANY
48.1°N, 7.6°E OCTOBER 1958

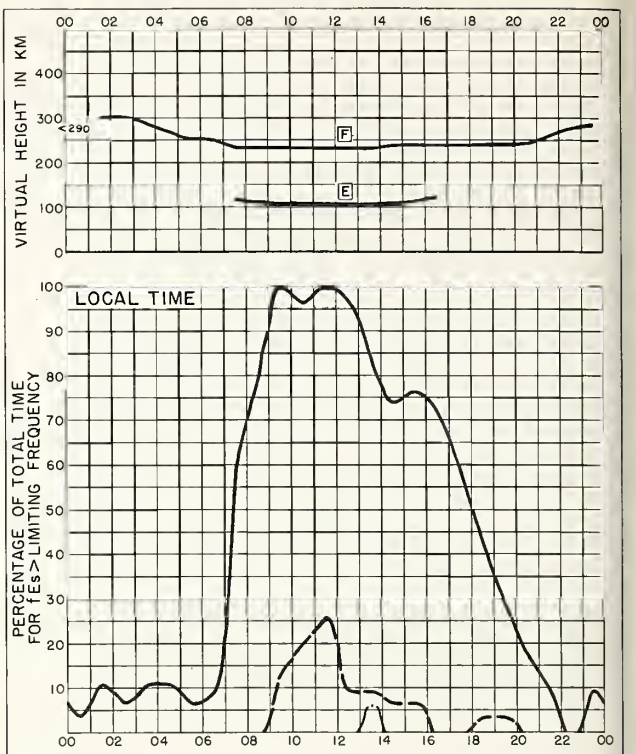


Fig. 70. FREIBURG, GERMANY OCTOBER 1958

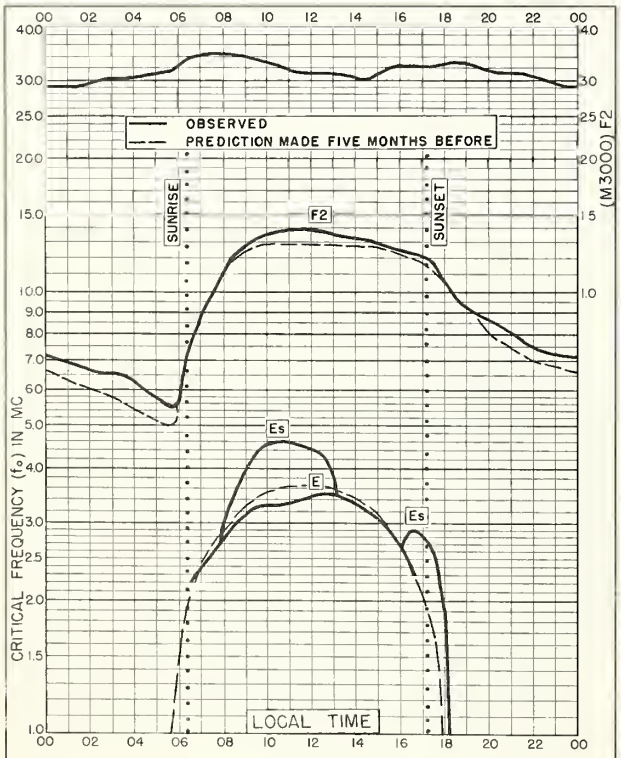


Fig. 71. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E OCTOBER 1958

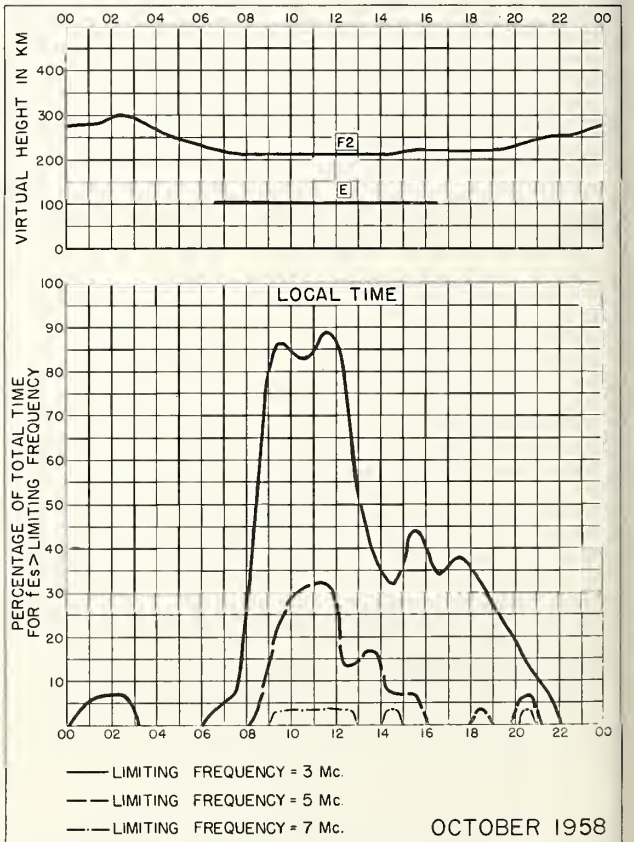


Fig. 72. SCHWARZENBURG, SWITZERLAND OCTOBER 1958

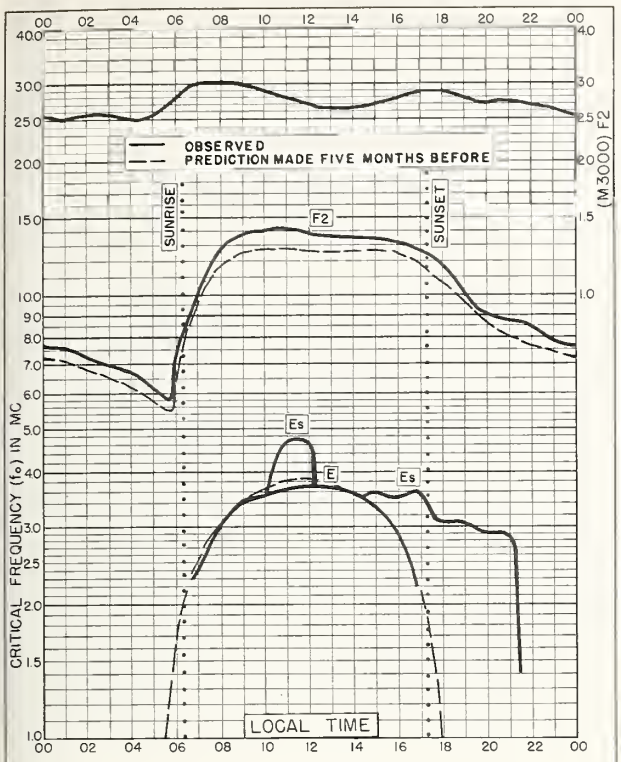


Fig. 73. ROME, ITALY
41.8°N, 12.5°E OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

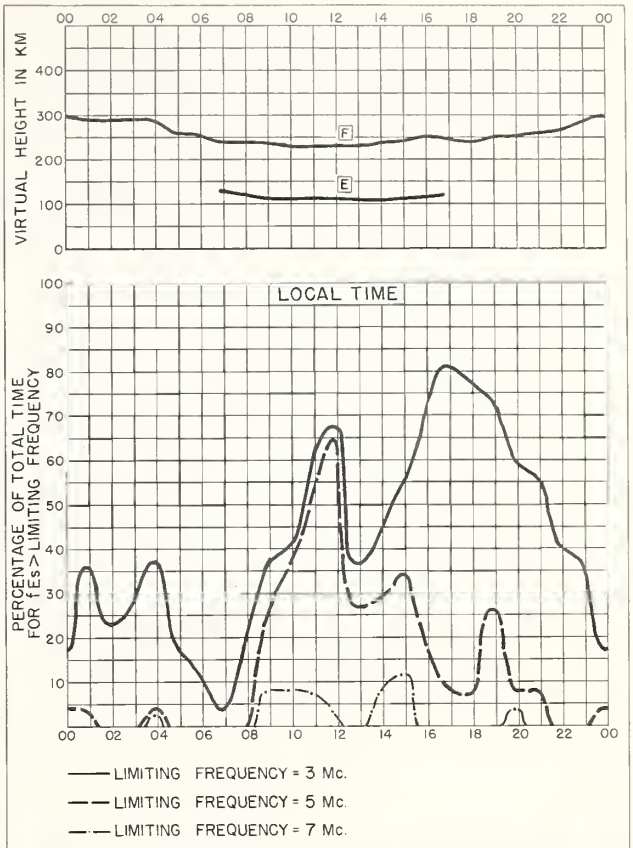


Fig. 74. ROME, ITALY OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

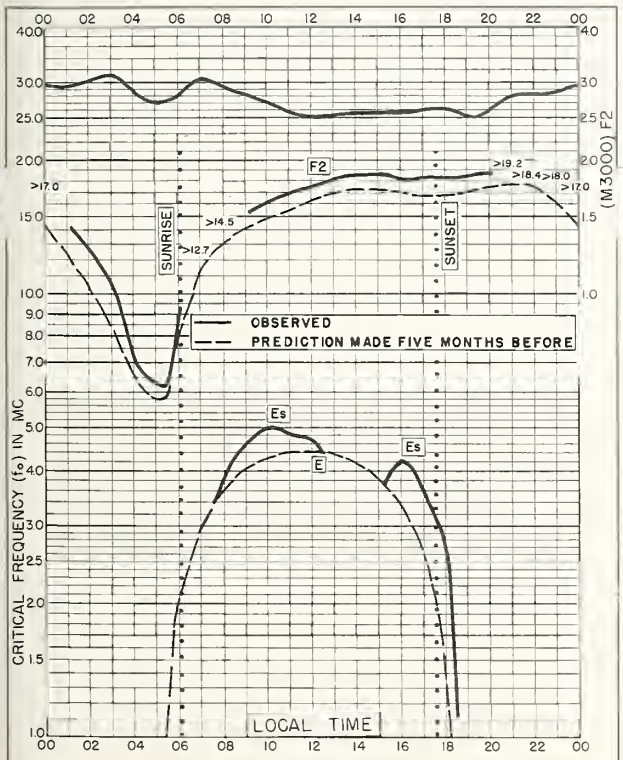


Fig. 75. FORMOSA, CHINA
25.0°N, 121.5°E OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

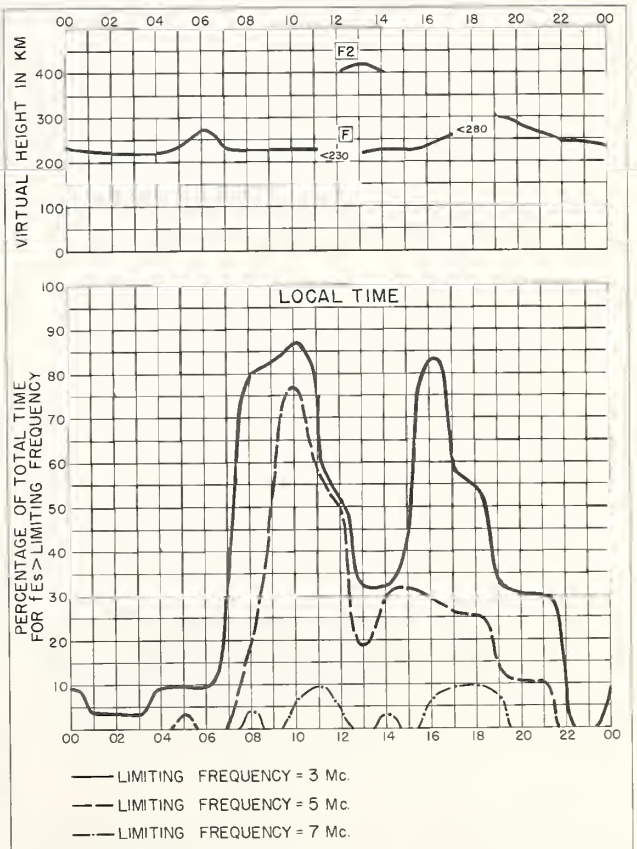


Fig. 76. FORMOSA, CHINA OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

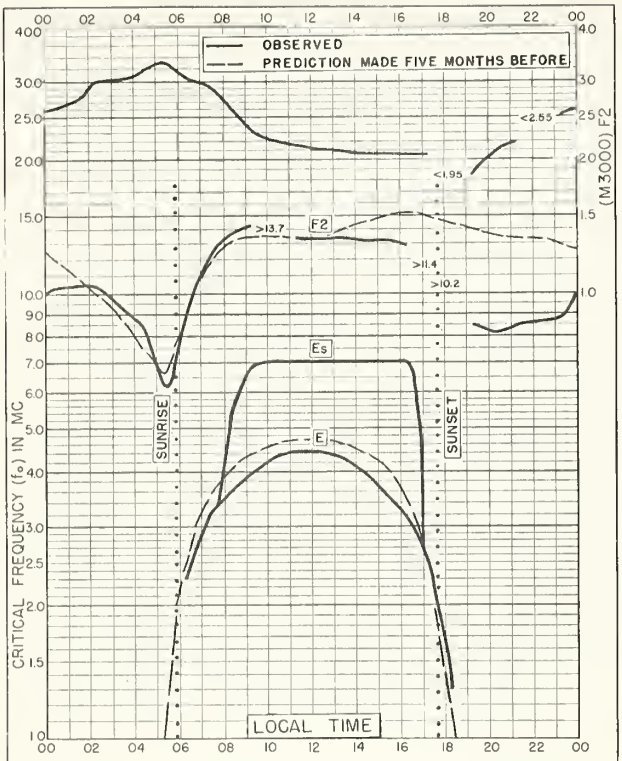


Fig. 77. IBADAN, NIGERIA
7.4°N, 3.9°E OCTOBER 1958

NBS 503

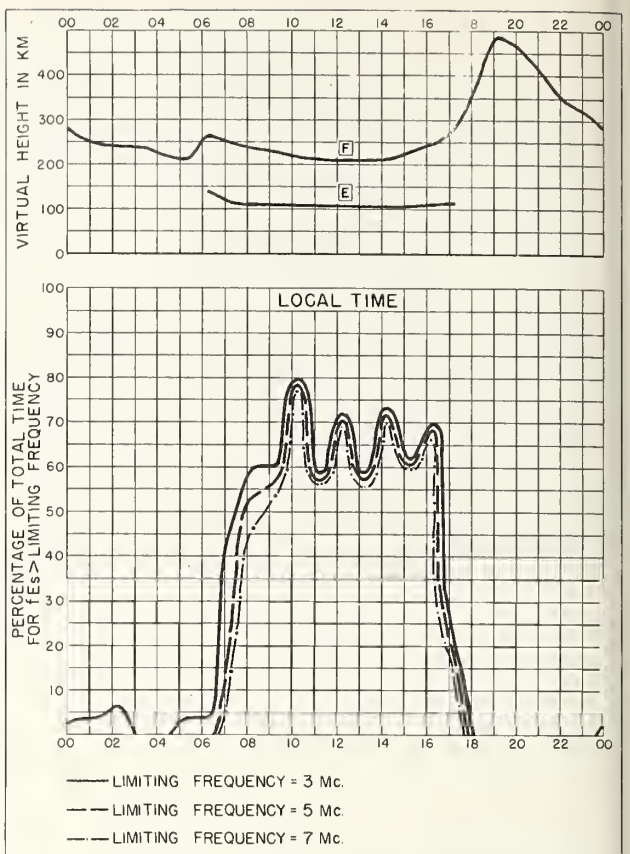


Fig. 78. IBADAN, NIGERIA OCTOBER 1958

NBS 490

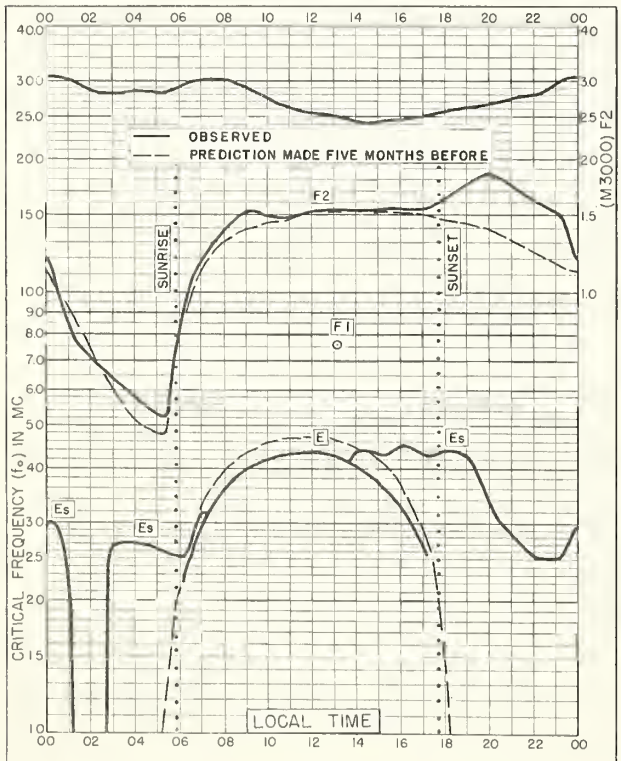


Fig. 79. BOGOTA, COLOMBIA
4.5°N, 74.2°W OCTOBER 1958

NBS 503

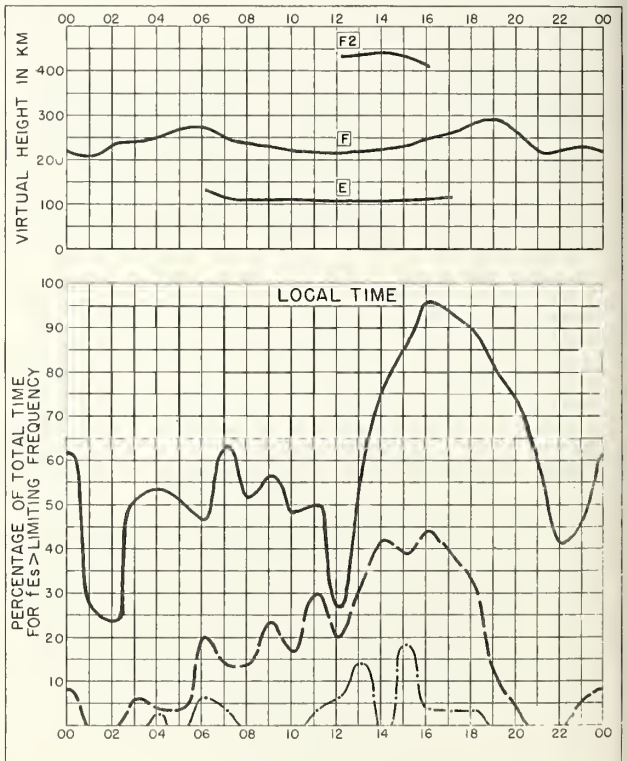


Fig. 80. BOGOTA, COLOMBIA OCTOBER 1958

NBS 490

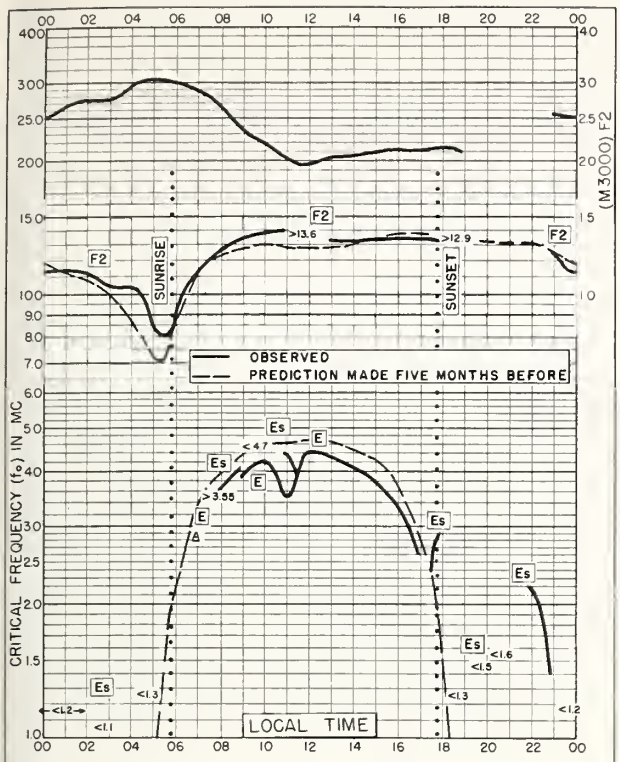
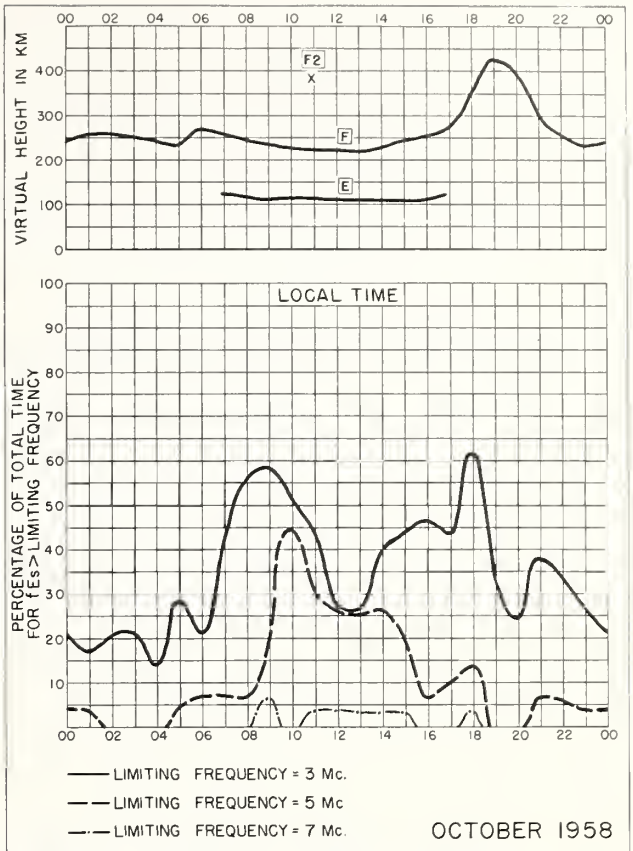


Fig. 81. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E OCTOBER 1958



OCTOBER 1958

Fig. 82. SINGAPORE, BRITISH MALAYA

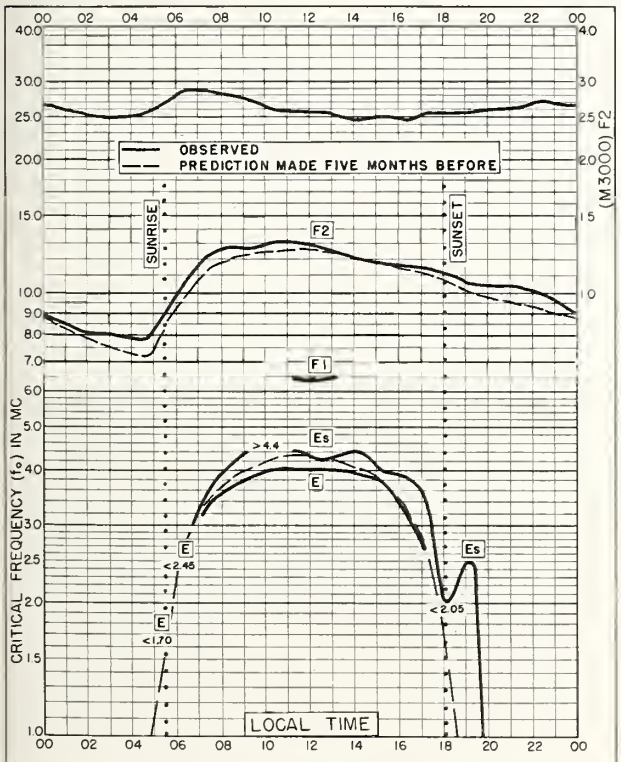


Fig. 83. BRISBANE, AUSTRALIA
27.5°S, 152.9°E OCTOBER 1958

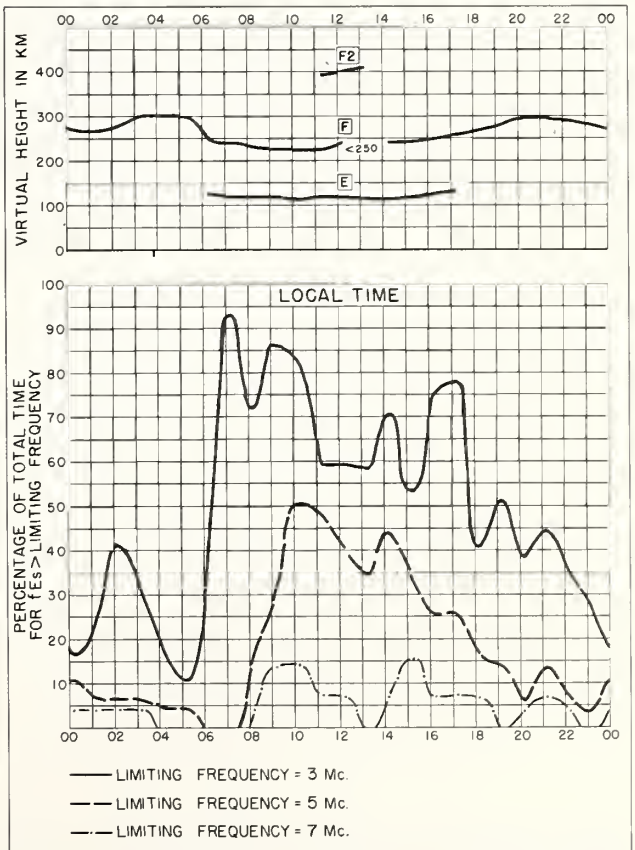


Fig. 84. BRISBANE, AUSTRALIA OCTOBER 1958

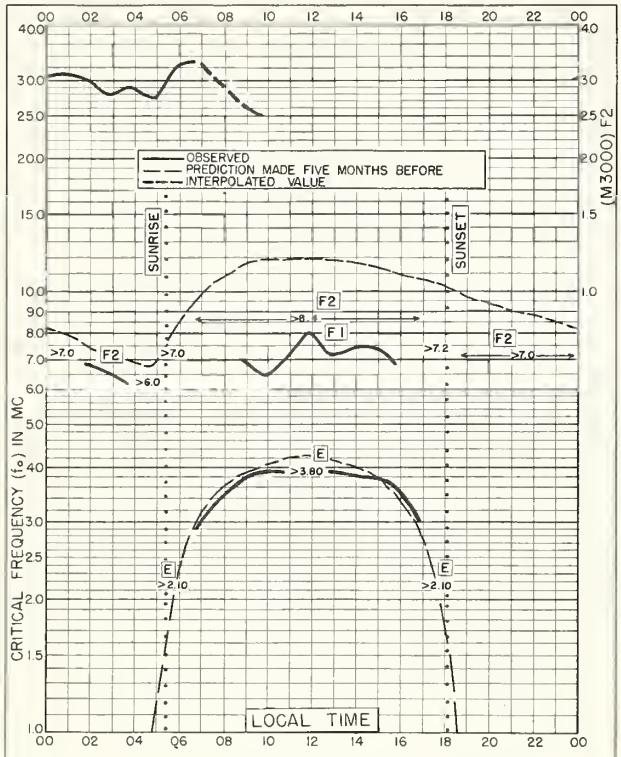


Fig. 85. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E OCTOBER 1958

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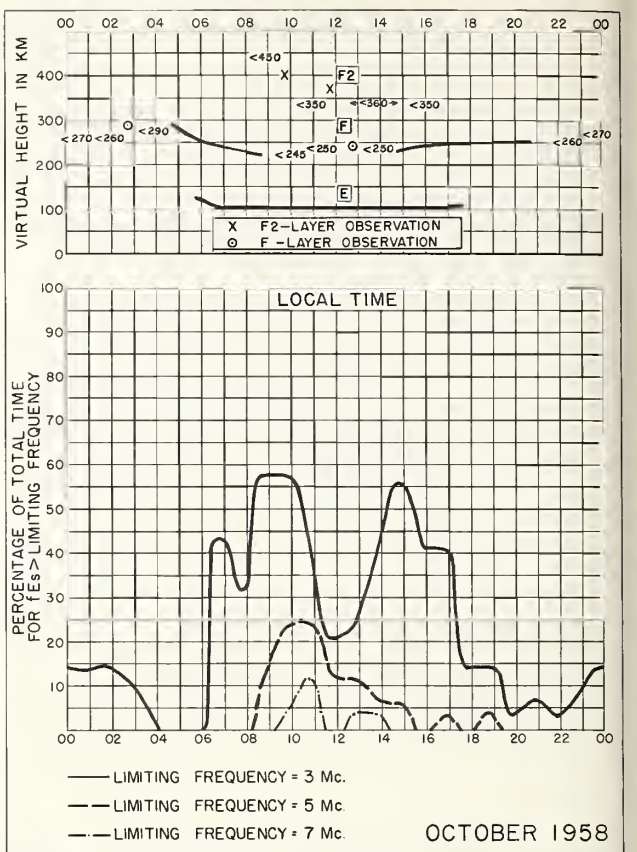

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Fig. 86. WATHEROO, W. AUSTRALIA

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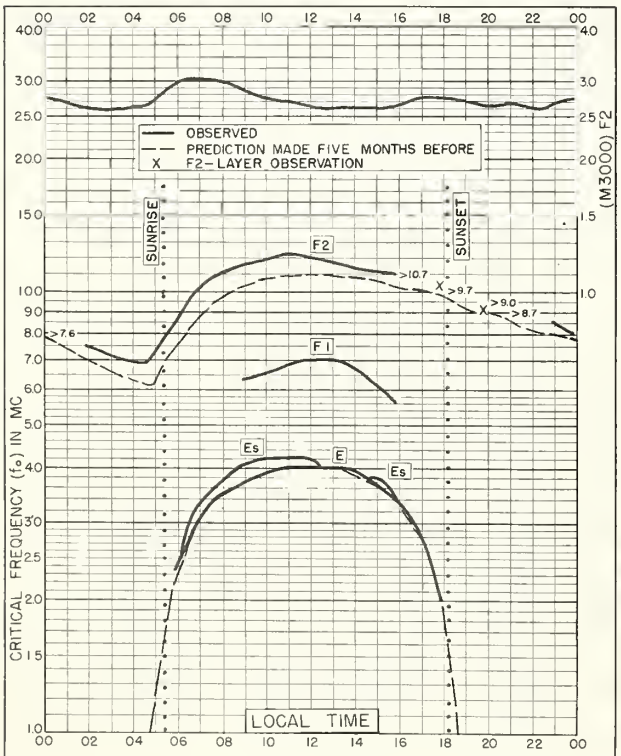

Fig. 87. CANBERRA, AUSTRALIA
35.3°S, 149.0°E OCTOBER 1958

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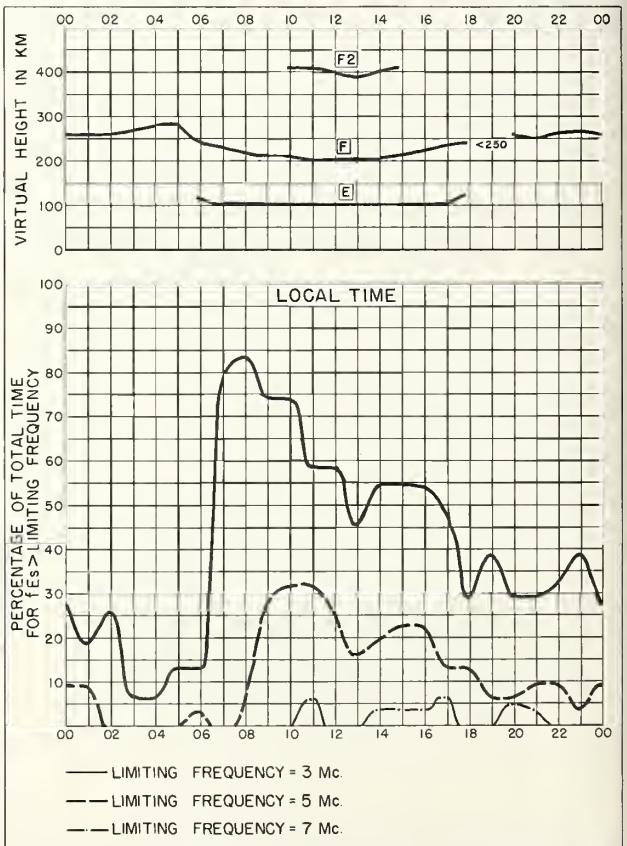

Fig. 88. CANBERRA, AUSTRALIA OCTOBER 1958

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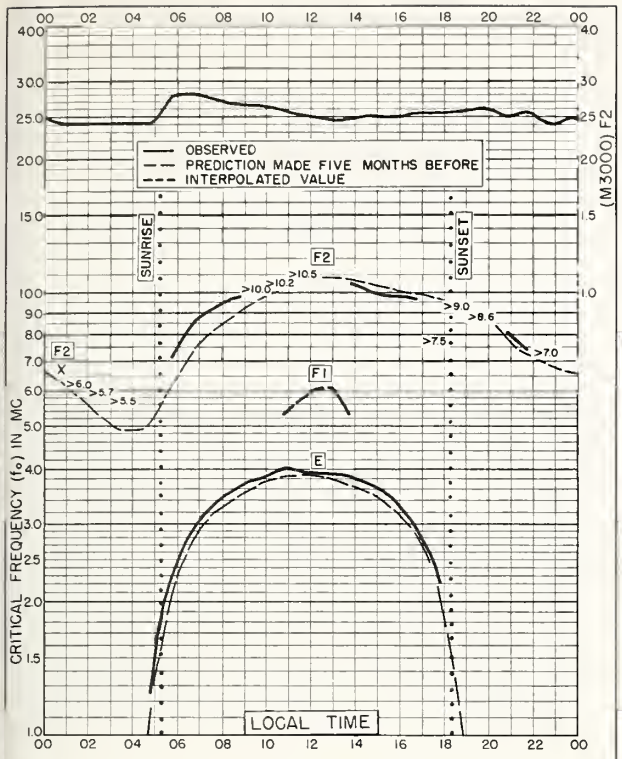

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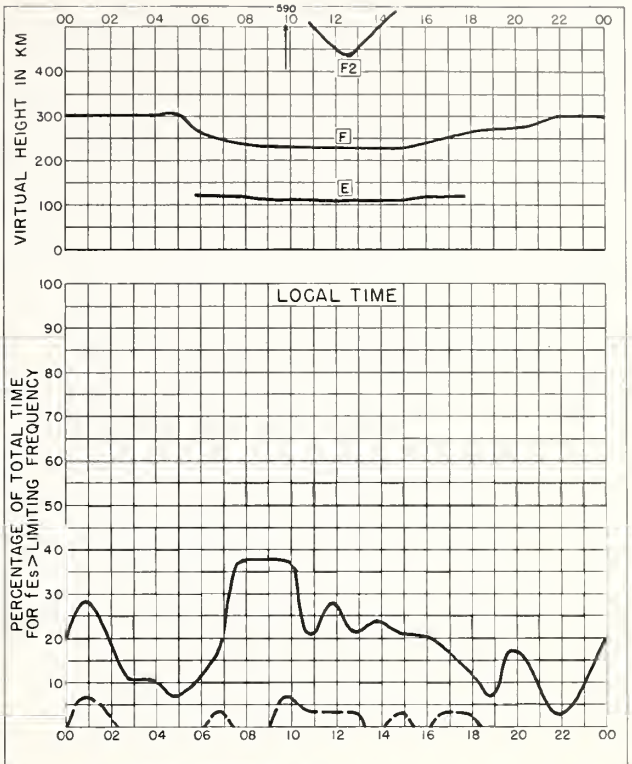
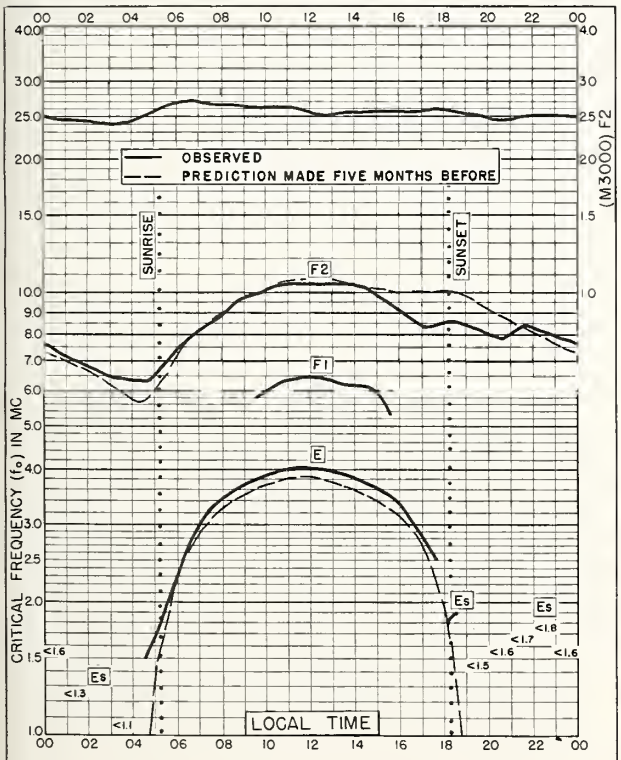


Fig. 90. HOBART, TASMANIA OCTOBER 1958



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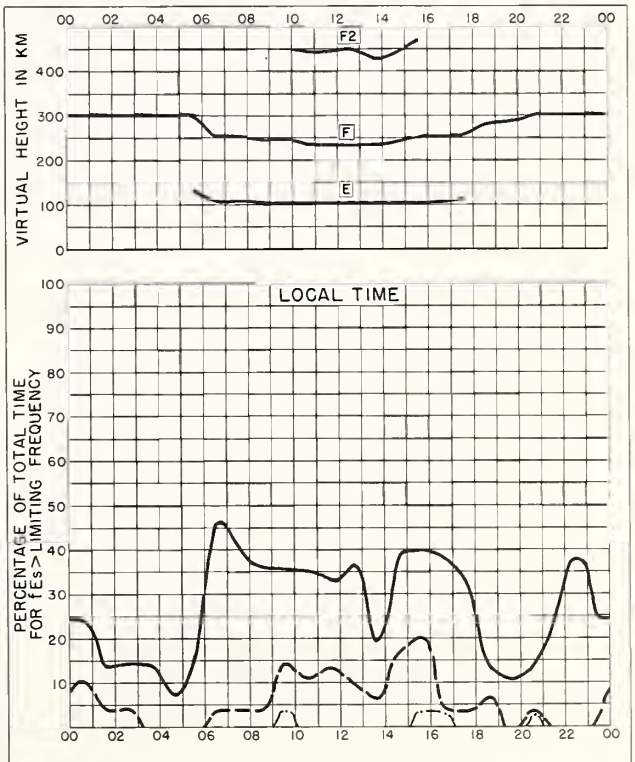

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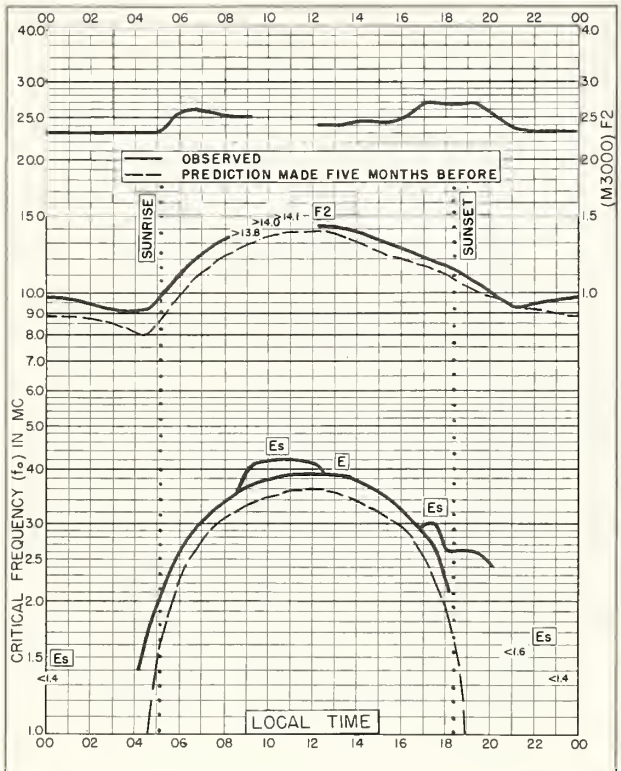
Fig. 92. CHRISTCHURCH, NEW ZEALAND



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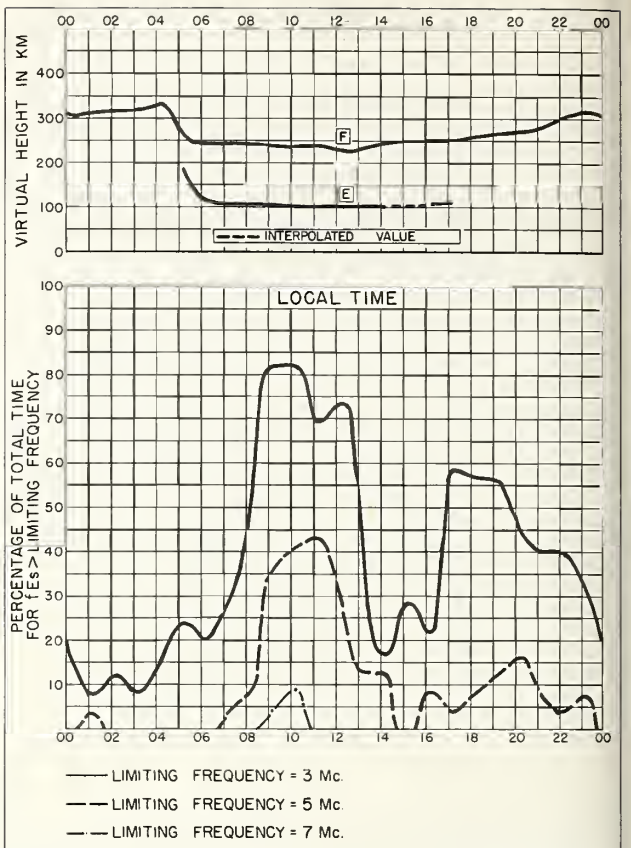

Fig. 94. FALKLAND IS. OCTOBER 1958

NBS 490

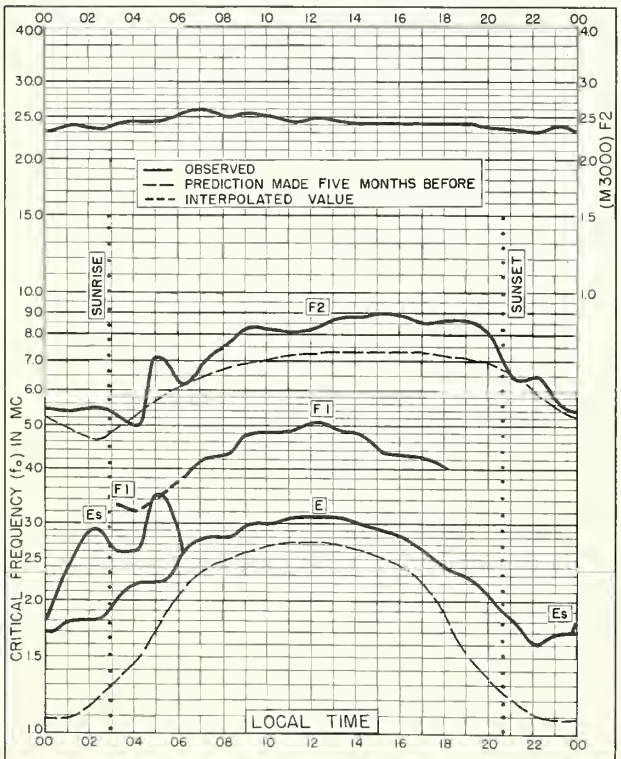

Fig. 95. SCOTT BASE
77.8°S, 166.8°E OCTOBER 1958

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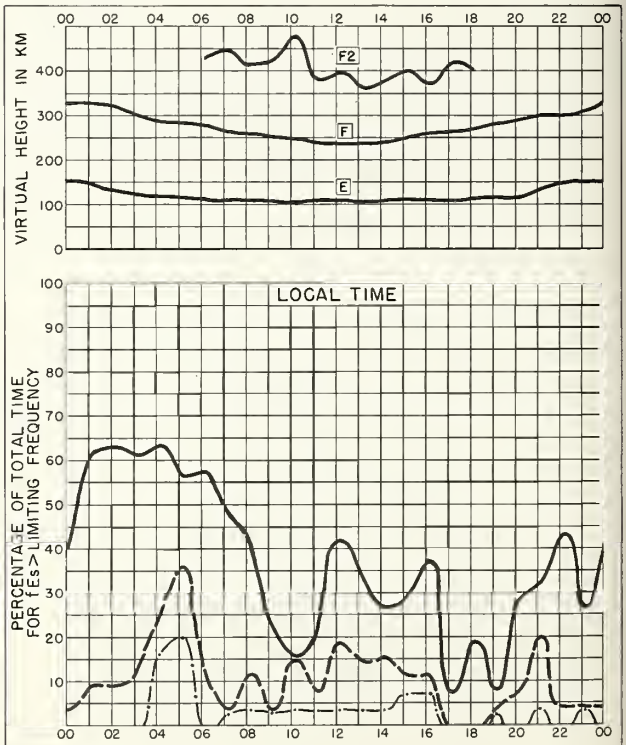

Fig. 96. SCOTT BASE OCTOBER 1958

NBS 490

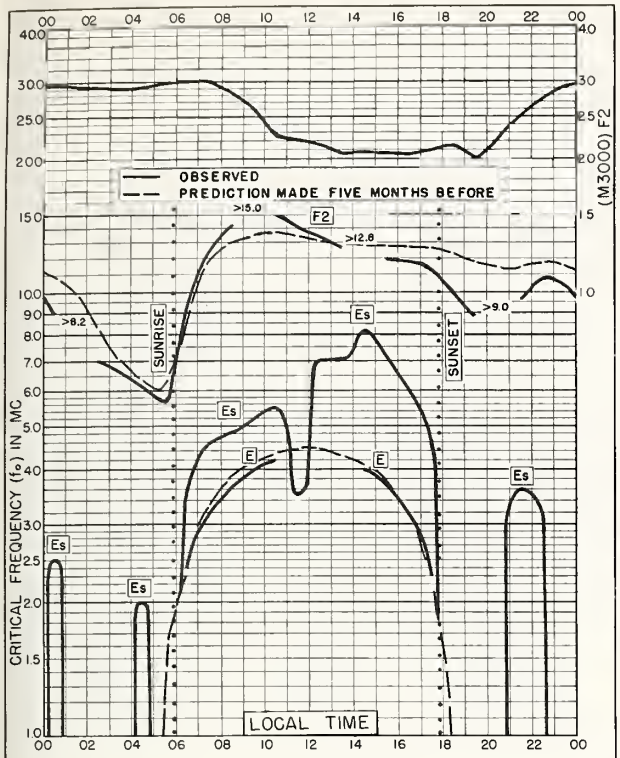

Fig. 97. La PAZ, BOLIVIA
16.5°S, 68.0°W SEPTEMBER 1958

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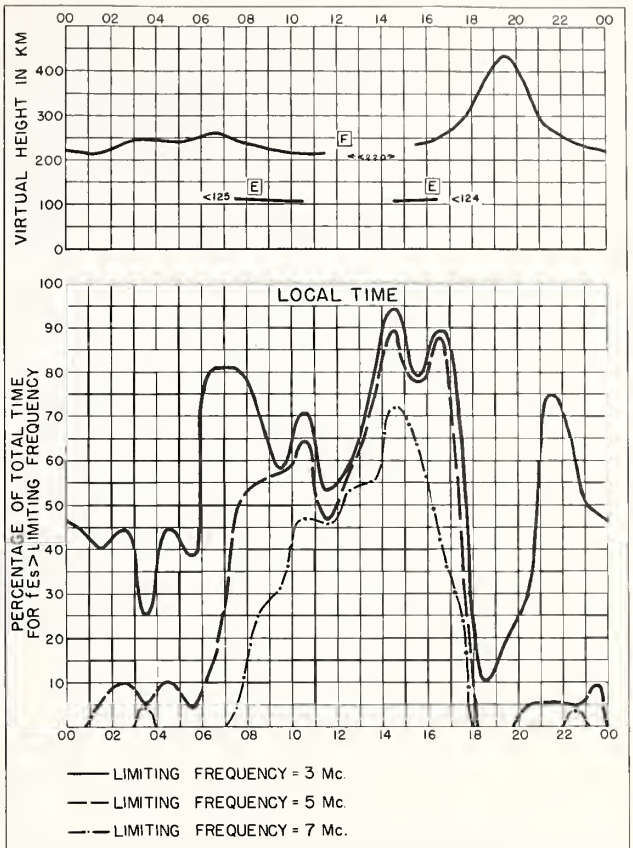

Fig. 98. La PAZ, BOLIVIA SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

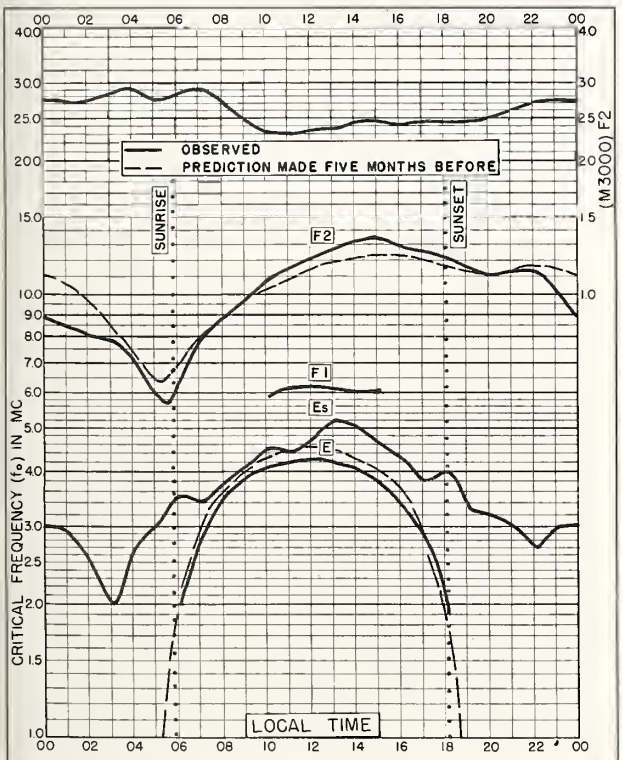

Fig. 99. BOGOTA, COLOMBIA
4.5°N, 74.2°W JUNE 1958

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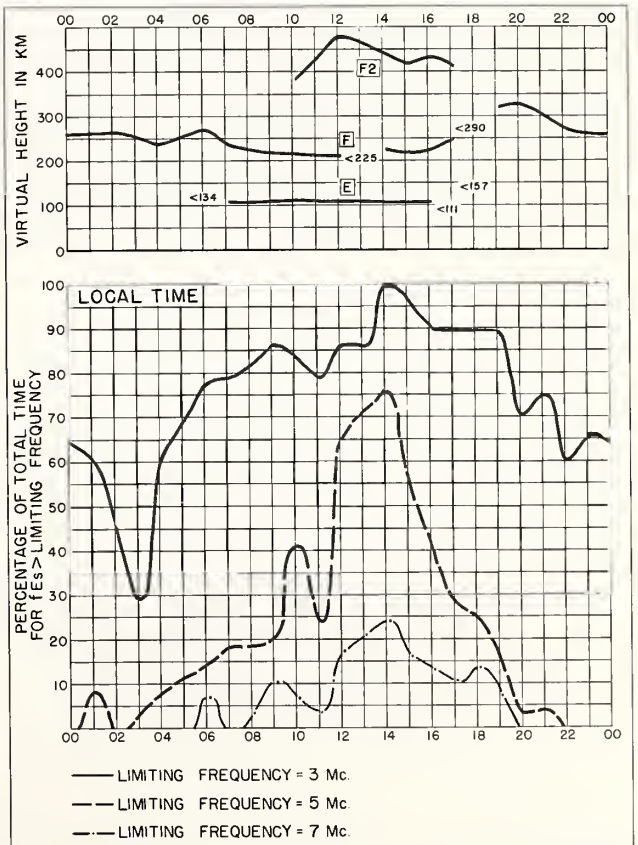

Fig. 100. BOGOTA, COLOMBIA JUNE 1958

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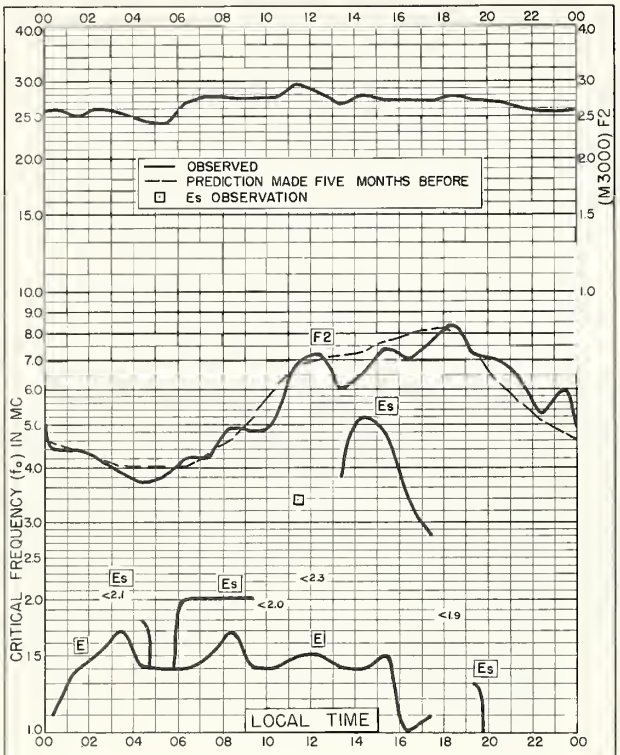

Fig. 101. CAPE HALLETT
72.3°S, 170.3°E JUNE 1958

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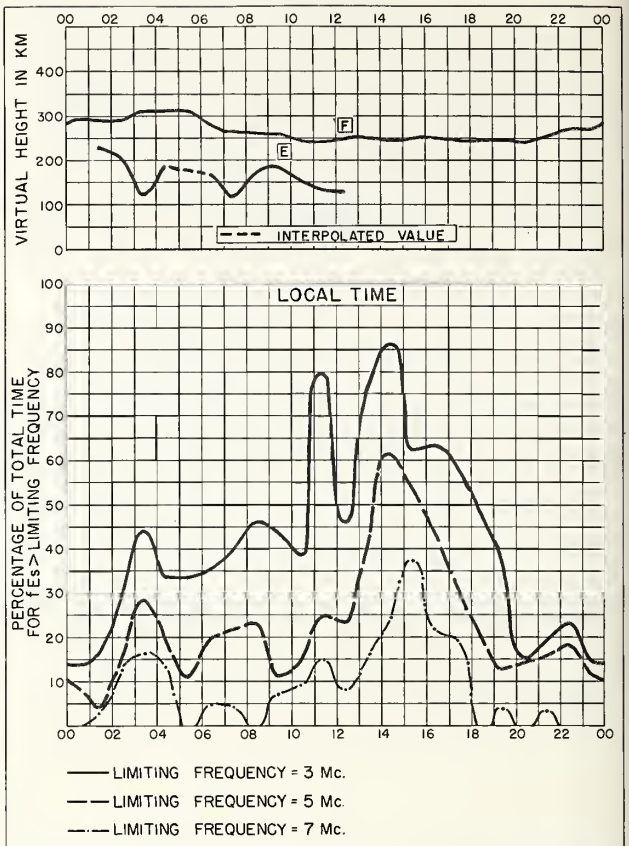

Fig. 102. CAPE HALLETT JUNE 1958

NBS 490

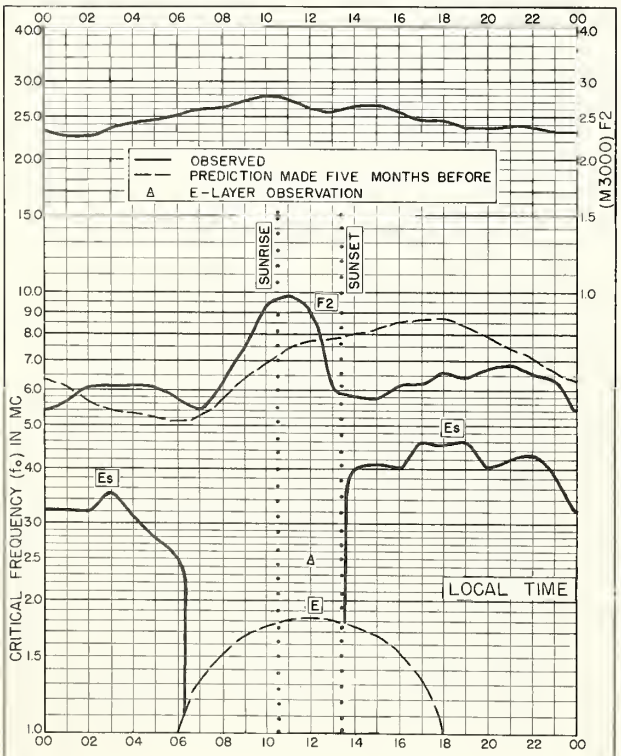

Fig. 103. BYRD STATION
80.0°S, 120.0°W APRIL 1958

NBS 503

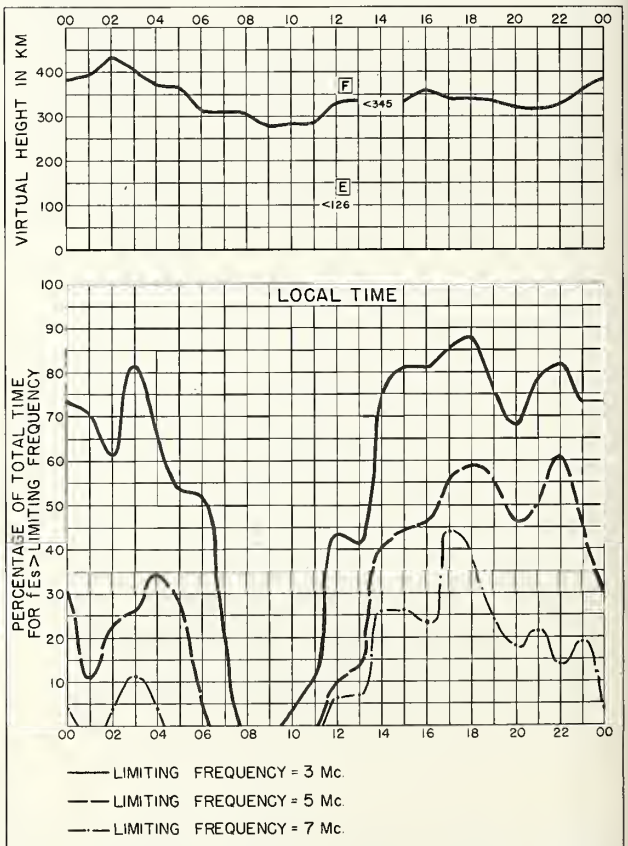

Fig. 104. BYRD STATION APRIL 1958

NBS 490

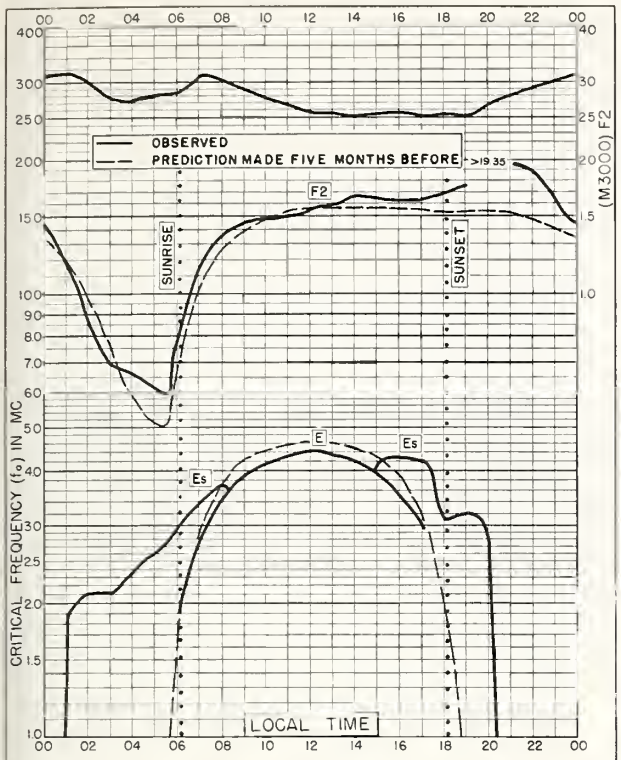

Fig. 105. BOGOTA, COLOMBIA
4.5°N, 74.2°W MARCH 1958

NBS 503

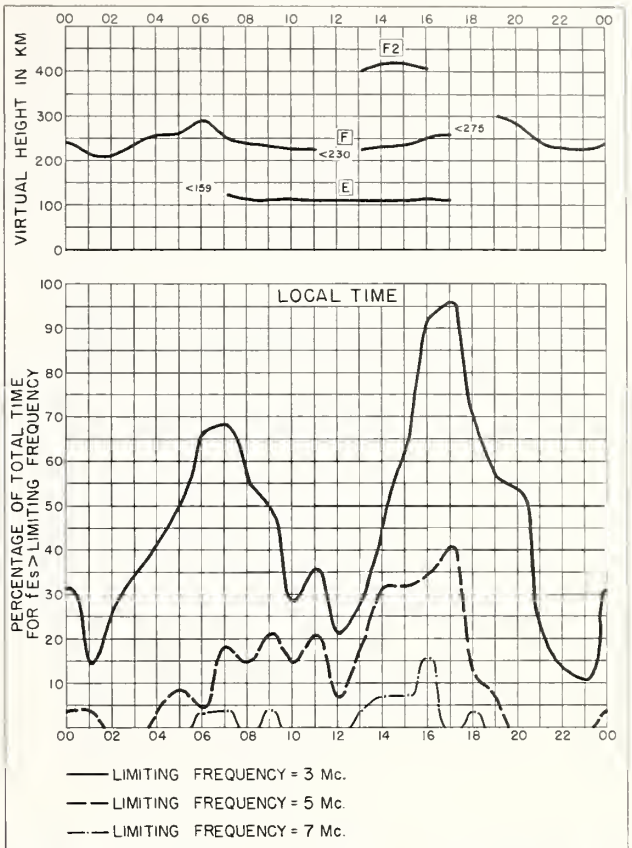

Fig. 106. BOGOTA, COLOMBIA MARCH 1958

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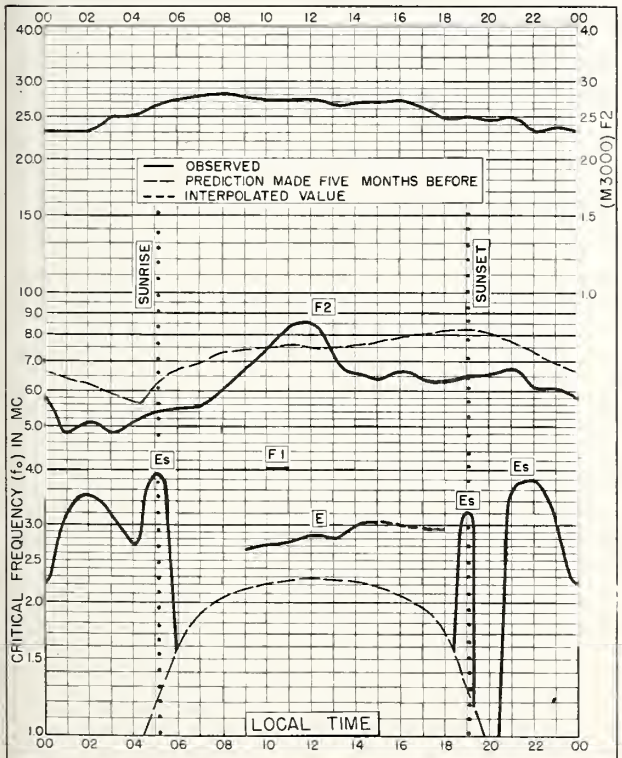

Fig. 107. BYRD STATION
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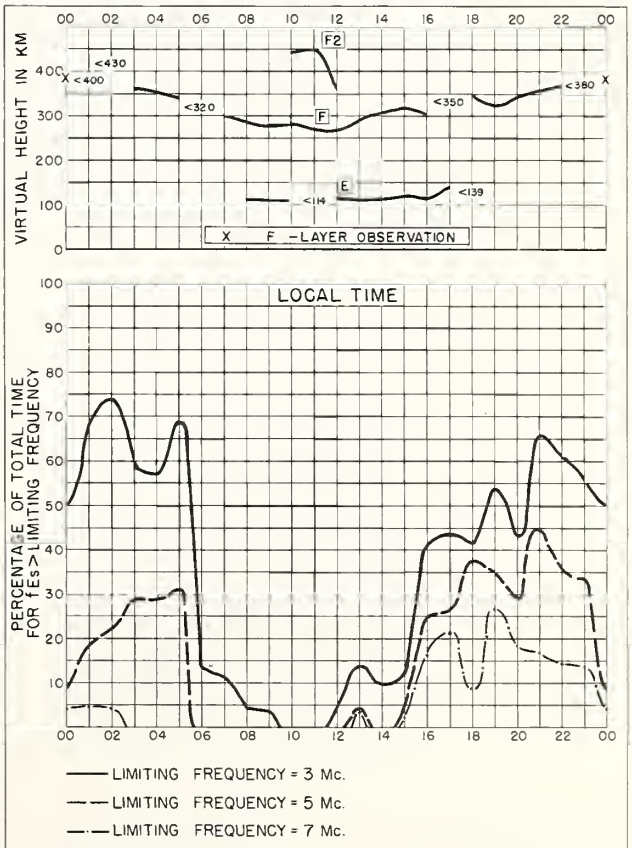

Fig. 108. BYRD STATION MARCH 1958

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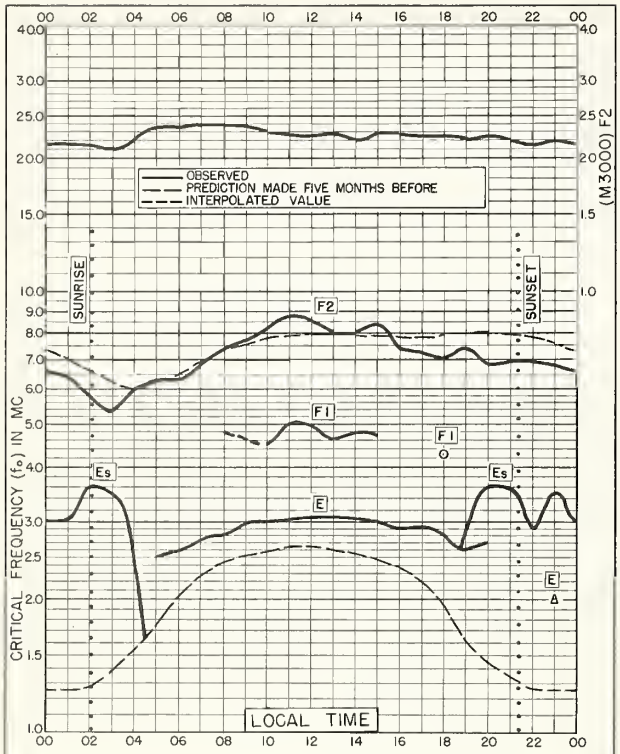

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NBS 503

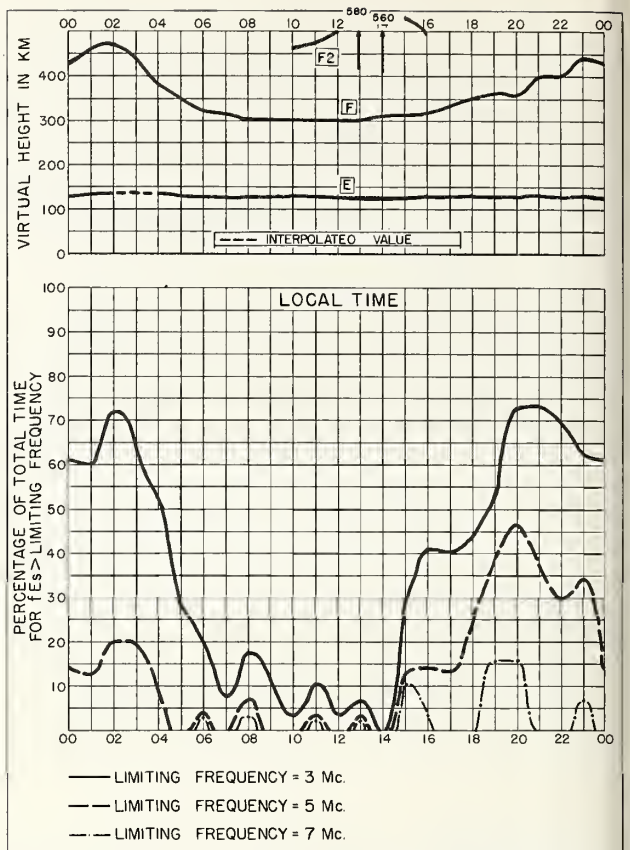

Fig. 110. BYRD STATION OCTOBER 1957

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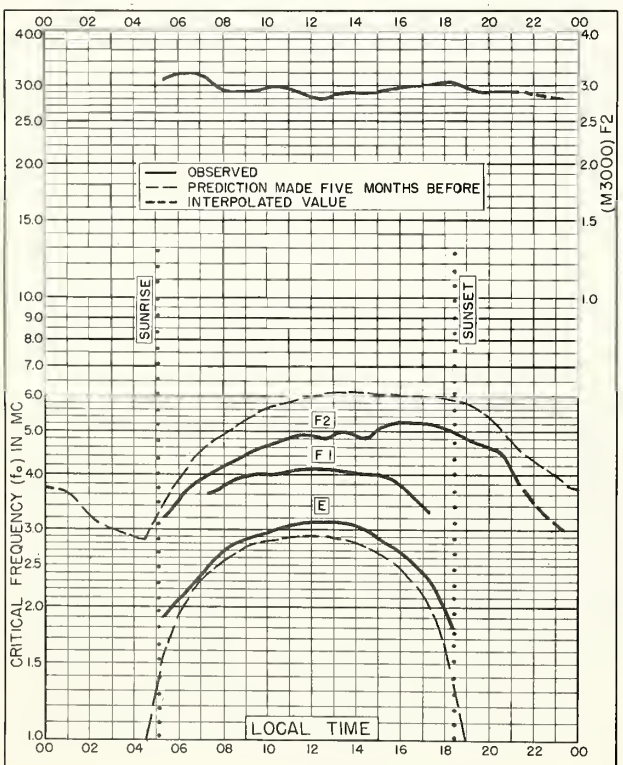

Fig. 111. CAMPBELL I.
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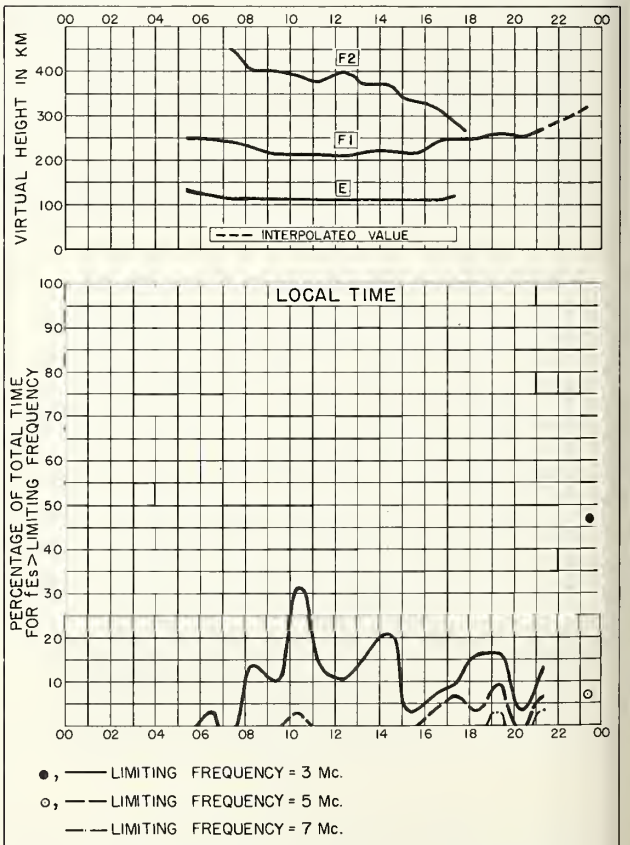

Fig. 112. CAMPBELL I. OCTOBER 1952

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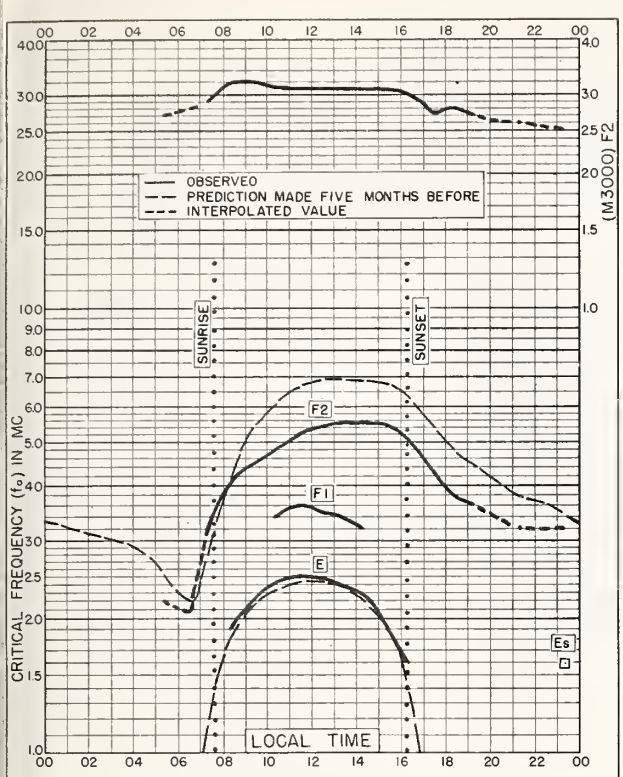

Fig. 113. CAMPBELL I.
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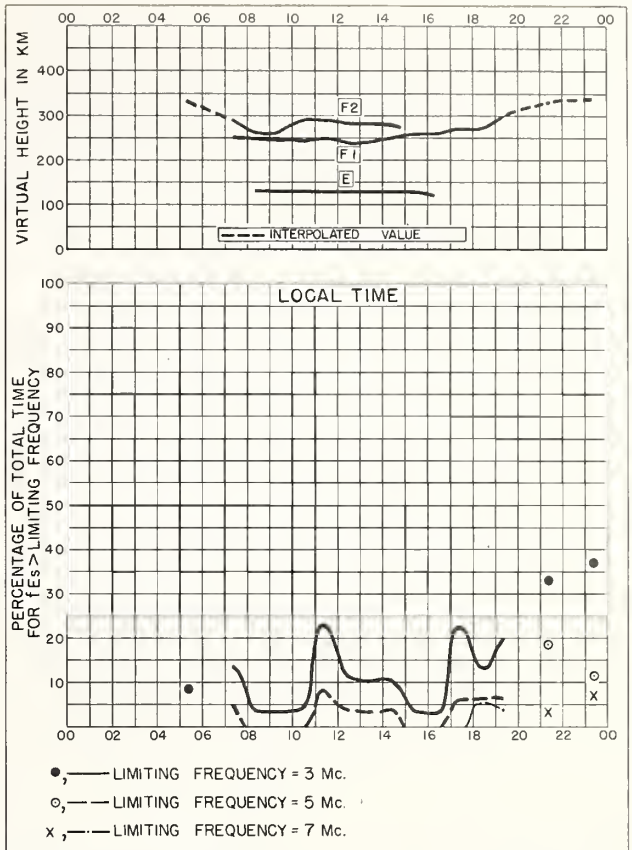

Fig. 114. CAMPBELL I. MAY 1952

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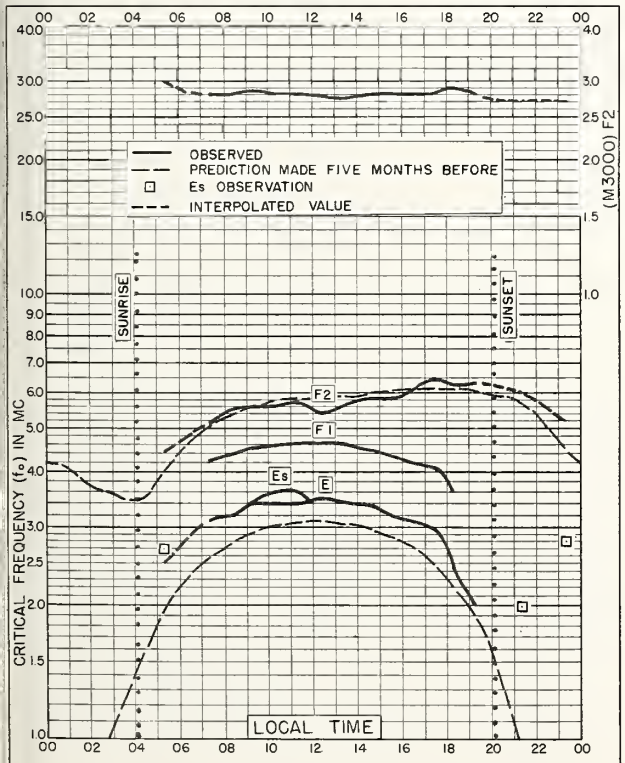

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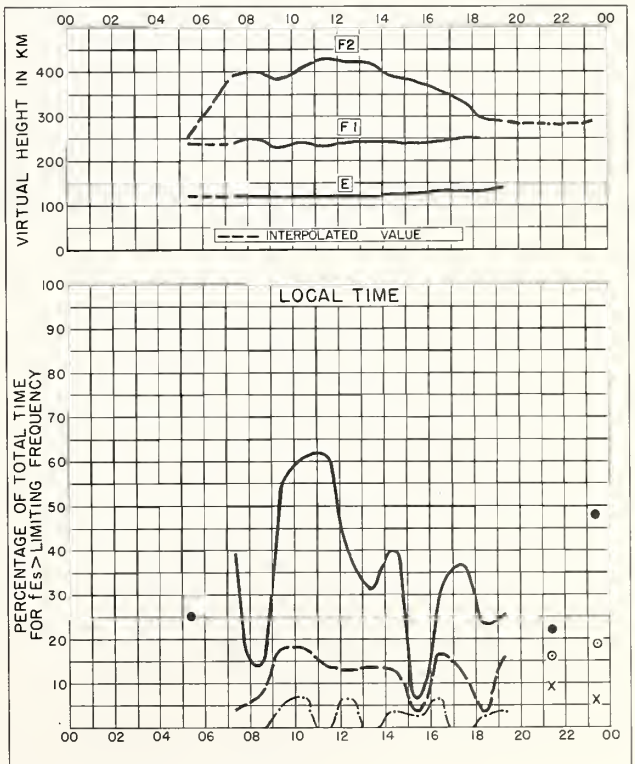

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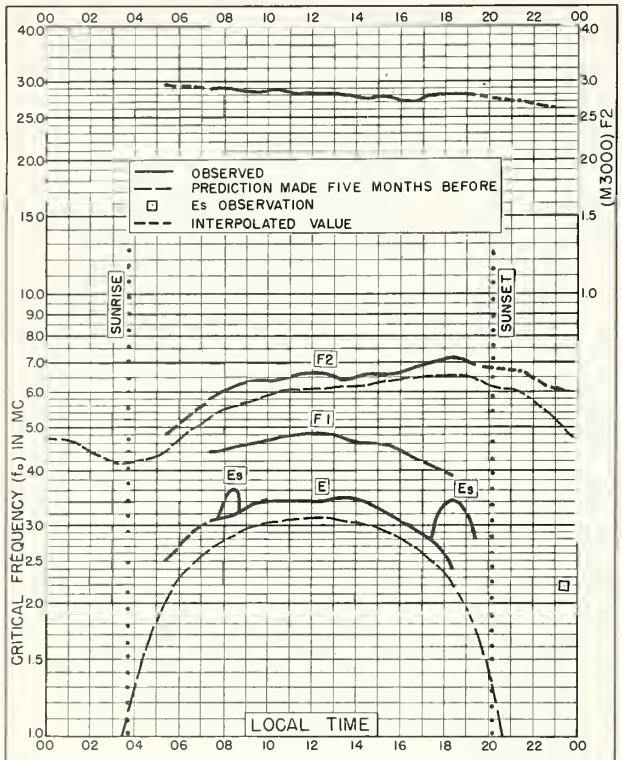

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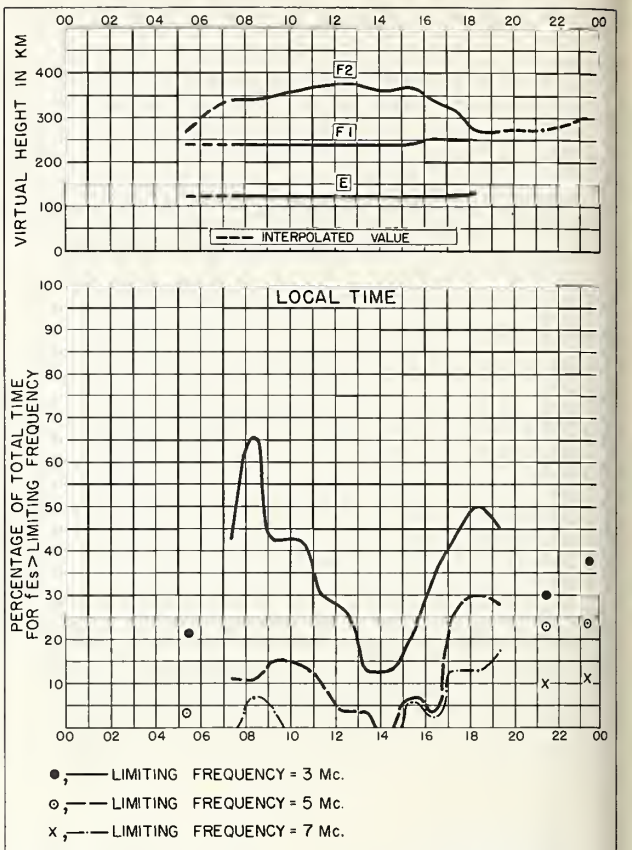

Fig. 118. CAMPBELL I. DECEMBER 1951

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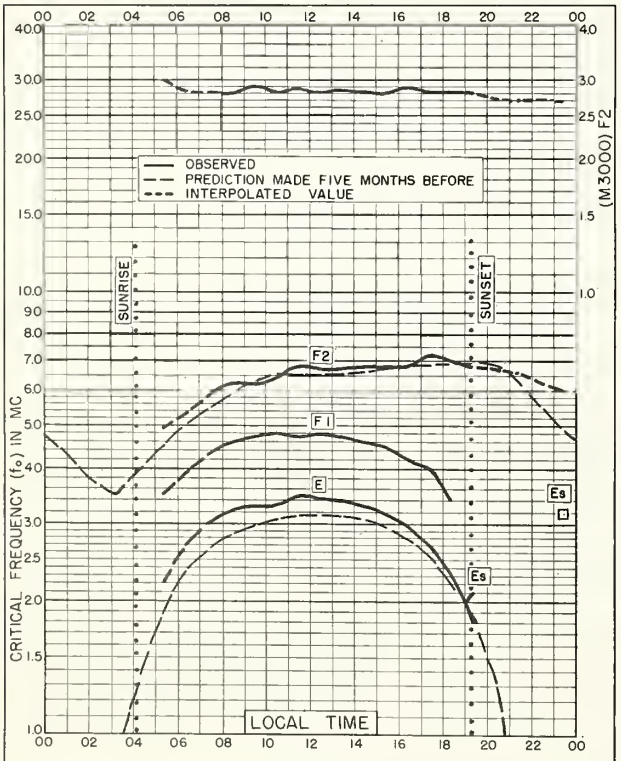

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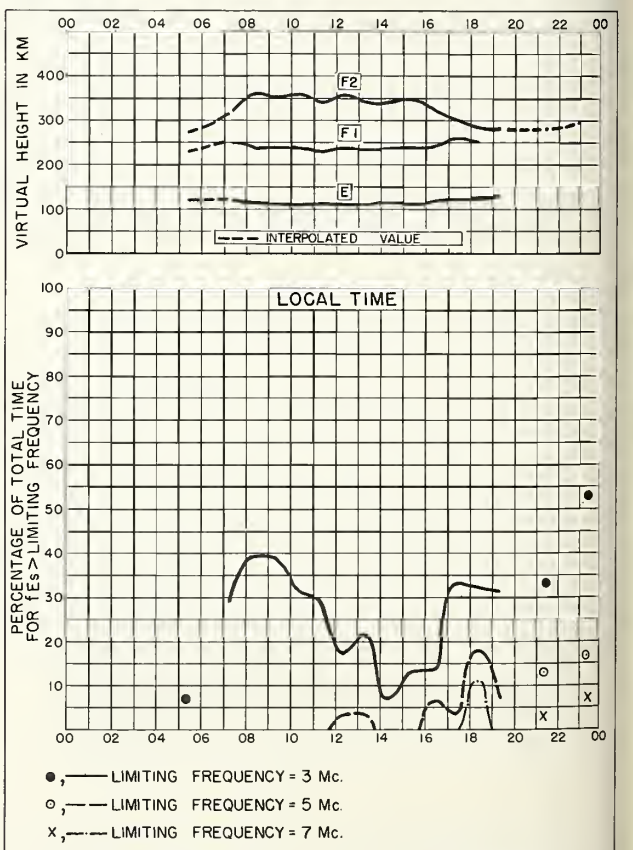

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CRPL Reports

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

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Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Semiweekly:

CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

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.

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.

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