PART A

IONOSPHERIC DATA

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

CRPL-F 186
PART A

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

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

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

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

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

There was an expansion in meaning of the following:

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

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

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

a. For all ionospheric characteristics:

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

b. For critical frequencies and virtual heights:

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

Values missing because of G are counted:

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

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

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

c. For MUF factor (M-factors):

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

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

d. For sporadic E (Es):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PREDICTED AND OBSERVED SUNSPOT NUMBERS

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

Month	Predicted Sunspot Number										
	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	118	141	150*	150*	95	22	8	20	51	60	101
June	120	143	150*	150*	89	18	9	21	52	63	103
May	125	146	150*	150*	77	16	10	22	52	68	102
April	130	150*	150*	150*	68	13	10	24	52	74	101
March	133	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	173	167	162	158	152					

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 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:

University of Graz:
Graz, Austria

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

Belgian Royal Meteorological Institute:
Lwiro (Central African Institute for Scientific Research)

Universidad Mayor de San Andres:
La Paz, Bolivia

British Department of Scientific and Industrial Research, Radio Research Board:
Falkland Is.
Inverness, Scotland
Slough, England

Universidad de Concepcion:
Concepcion, Chile

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

Danish National Committee of URSI:
Godhavn, Greenland
Narsarssuak, Greenland

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

The Finnish Academy of Sciences and Letters:
Sodankyla, Finland

French National Center for Telecommunications Studies:
Nha-Trang, Indochina

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

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

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Akita, Japan
Yamagawa, Japan

Manila Observatory:
Baguio, P. I.

Institute of Terrestrial Magnetism, Ionosphere and Radio Propagation, Moscow, U.S.S.R.:
Moscow

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

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

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

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Huancayo, Peru (Instituto Geofisico de Huancayo)
Juliaca, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Point Barrow, Alaska
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

ERRATA

1. It is believed that El Cerillo is reporting on the meridian of 90°W instead of 105°W. See tables and graphs in CRPL-F182, 183, and 184 (Part A).

2. F185(A), p. 34, Fig. 86: h'E graph should show readings 100 km higher.

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 704 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.
SCAT	Kilometers	One half of the half-thickness of the parabola best fitting the upper portion of the F region profile. Approximates the scale height near the level HMAX.
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.

Tabulations of the average electron densities each hour, at each 10 km level, for the quiet ionosphere, are also given. These averages include the profiles obtained when the magnetic character figure Kp is less than 4+. The number of profiles entering the average for each hour is given by CNT. The other parameters of the layer, HMIN, SCAT, HMAX, SHMAX, are averaged in a similar way.

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 average estimated integrated electron densities to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

*See Wright, J.W. "A Model of the F-Region Above HMAX F2" J.Geophys.Res. V.65 pp 185-191.

ELECTRON DENSITY

PUERTO RICO 60 W 1 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	229	240	200	200	198	224	188					
SCAT	62.7	43.4	41.8	37.6	78.6	67.3	46.3					
HMAX	365	328	348	384	372	377	307					
SHMAX	333	216	227	139	241	156	134					
KM												
380					214	240						
370	382				214	238						
360	381				216	231						
350	377		389		211	219						
340	367		385		205	202						
330	351	382	371		197	179	198					
320	333	379	346		187	149	167			212*		
310	310	366	310		175	118	141			211*		
300	280	342	267		162	87.*	116			206*		
290	248	310	198	360	149	60.0	102	1	946	1284		
280	209	262	138	360	134	35.*	149	1141	842	1478	1445	
270	172	203	82.*	337	116		167	1153	1150	1711	1	
260	134	127	49.*	295	106		134	1101	1309	1544	1	
250	93.9	60.0	1.*	226	1.*		77.*	1042	1167	1418	1	
240	60.0	3.1		135	40.3		54.*	917	1	1	1	
230	12.4			65.7	17.*		1.*	774	1	1	1	
220				3.1	55.4			667	814	1	1	
210					42.9			624	690	1	1	
200					12.4			589	646	677	1	
190								556	593	611	617	
180								525	574	556	1	
170								457	504	508	1	
160								415	479	460	1	
150								410	450	402	1	
140								405	439	374	1	
130								400	432	356	1	
120								400	431	349	1	
110								400	431	349	1	

ELECTRON DENSITY

PUERTO RICO 60 W 1 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	224	222	262	268	254	293	194	111	110	106	1	
SCAT	45.8	27.5	61.0	47.4	63.7	56.7	47.*	49.1	56.4	46.*	1	
HMAX	321	286	393	454	387	411	471	248	253	1	1	
SHMAX	331	210	300	504	318	258	367	113	166	1	1	
KM												
480							298					
470							297					
460					410		295					
450					410		291					
440					408		285					
430					404		277					
420					397		348	268				
410					389		348	266				
400				362	379		344	341				
390				361	369	375	334	246				
380				358	356	374	317	211				
370				349	337	368	295	195				
360				335	315	357	266	175				
350				316	286	343	232	153				
340				293	251	324	191	129				
330	557			265	215	299	150	104				
320	557			234	175	269	112	81.3				2500
310	549			198	140	232	74.5	56.9				2494
300	527			157	104	191	43.3	28.3		1907	2571	2448
290	495	557	119	74.5	150				1500	1896	2561	2356
280	446	549	71.4	49.6	107				1491	1856	2497	2220
270	371	508	12.4	12.4	63.8				1450	1786	2370	2050
260	286	427			12.4				1379	1688	2199	1810
250	179	310							1274	1556	1957	1555
240	90.5	161							1143	1394	1669	1265
230	40.2	60.0							982	1221	1341	1027
220									814	1027	1004	834
210									625	834	754	679
200									462	643	573	567
190									323	492	446	471
180									219	375	362	403
170									165	292	305	348
160									132	232	259	302
150									111	192	219	262
140									104	165	190	226
130									96.2	149	174	198
120									85.9	134	165	184
110										49.6	132	143

ELECTRON DENSITY

PUERTO RICO 60 W 3 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A		A			A		A		A		A
HMIN	248	223	199	199	298		238		112	110	110	
SCAT	34.6	38.1	30.4	66.4	52.1		42.3		35.0	41.8	37.2	
HMAX	322	305	259	300	408		330		263	281	272	
SHMAX	453	452	255	148	144		154		879	1267	1417	
KM												
410					198							
400					197							
390					193							
380					185							
370					171							
360					155							
350					137							
340					116							
330	1004				95.0		262					
320	1003				73.5		259					
310	972	906			51.7		248					
300	900	902		189	12.4		230					
290	774	870		188			207			1907		
280	590	810		184			173			1906	2327	
270	362	716		179			135		1528	1873	2326	
260	143	573	661	170			92.8		1525	1786	2268	
250	26.3	389	645	162			56.5		1474	1650	2124	
240		179	596	150			12.4		1354	1446	1882	
230		60.0	508	136					1182	1143	1584	
220			362	118					939	875	1143	
210			143	87.2					698	643	794	
200			12.4	12.4					492	477	573	
190									344	362	437	
180									248	270	362	
170									194	209	300	
160									158	170	253	
150									136	151	212	
140									119	140	186	
130									106	134	171	
120									92.8	128	161	
110										40.2	83.8	

ELECTRON DENSITY

PUERTO RICO 60 W 3 NOV 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									188		280	230
SCAT									66.1		41.3	31.8
HMAX									344		370	295
SHMAX									584		342	298
KM												
370											634	
360											625	
350									634		596	
340									633		551	
330									627		484	
320									613		389	
310									592		262	
300									563		135	726
290									528		63.8	721
280									486		3.1	685
270									435			616
260									375			492
250									316			310
240									255			127
230									192			
220									132			
210									88.3			
200									54.8			
190									12.4			

ELECTRON DENSITY

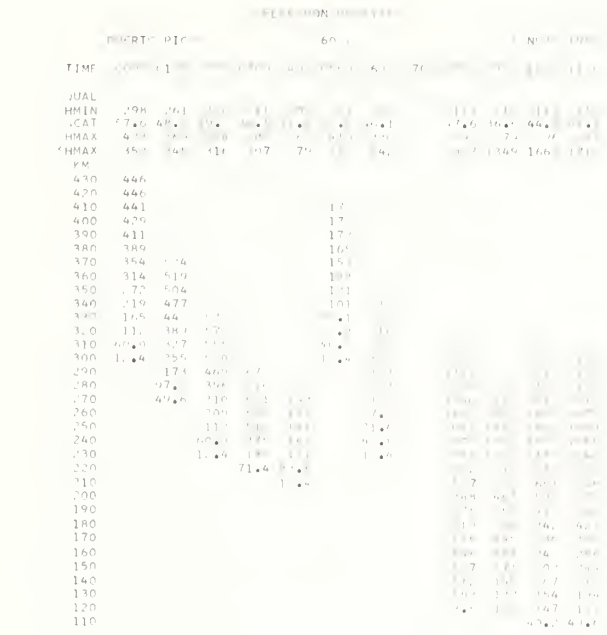
PUERTO RICO 60 W 4 NOV 1959

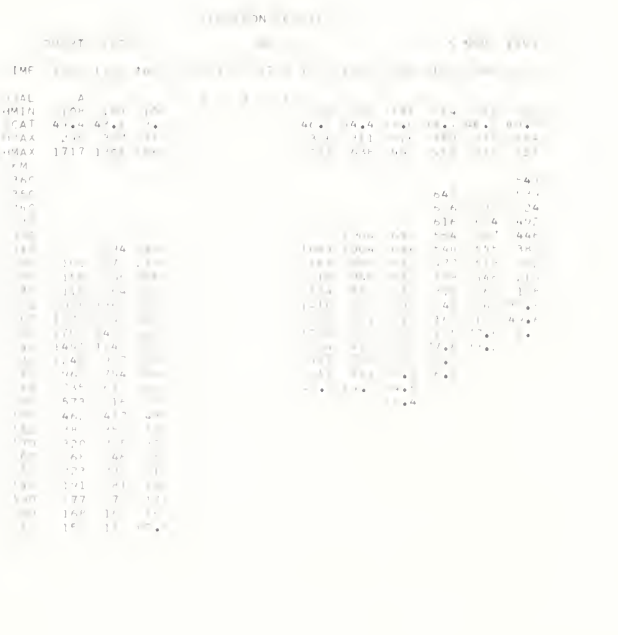
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A	A			
HMIN	199	213	228	238	204	277	214	199		110	117	116
SCAT	32.4	36.8	50.9	31.4	65.6	51.1	50.5	19.1		47.1	50.1	51.6
HMAX	267	293	326	294	312	376	315	246		288	304	302
SHMAX	181	134	178	111	108	101	129	172		1187	1588	1807
KM												
380						148						
370						147						
360						144						
350						138						
340						129						
330			268			117						
320			267		131	102	189					
310			261		131	85.5	188				1907	2128
300		262	251	280	130	67.6	185				1903	2127
290		262	240	279	127	47.7	177			1446	1868	2099
280		254	219	267	123	12.4	167			1435	1795	2032
270	432	235	186	240	117		154			1391	1690	1918
260	426	209	148	202	110		134			1311	1537	1769
250	401	172	107	135	103		112	652		1204	1341	1593
240	355	127	60.0	26.3	93.9		86.5	636		1073	1159	1411
230	286	79.7	12.4		82.1		60.0	540		946	960	1216
220	161	43.3			62.3		34.6	335		820	774	1004
210	67.6				40.2			127		691	625	814
200	12.4							12.4		557	497	625
190										446	408	477
180										353	330	371
170										278	278	304
160										223	240	255
150										186	198	222
140										158	163	190
130										139	152	172
120										127	127	161
110										40.2		

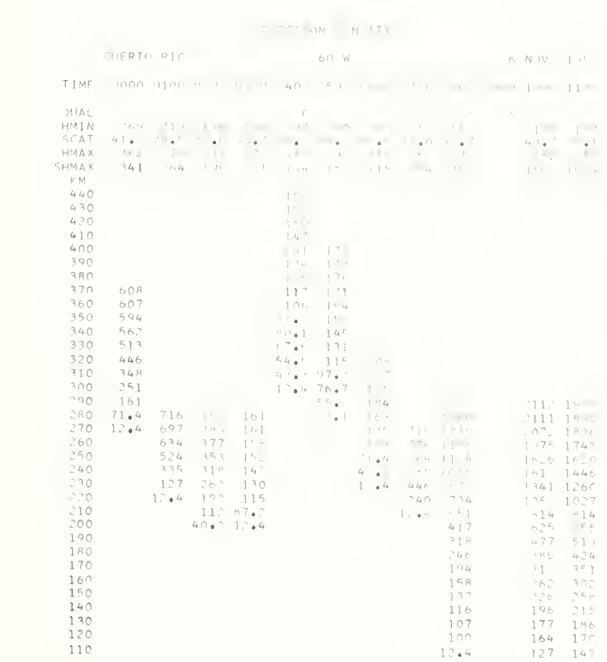
ELECTRON DENSITY

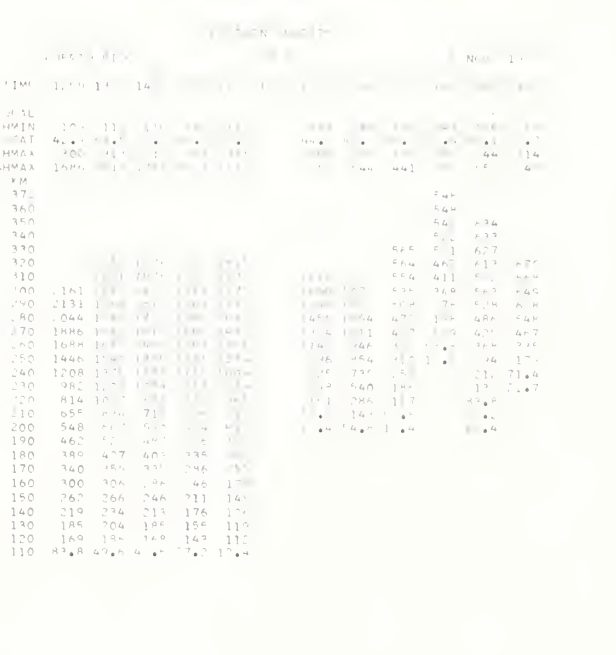
PUERTO RICO 60 W 4 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						B	A					
HMIN	109	111	110	109	111		211	204	198	211	208	218
SCAT	50.7	55.8	60.7	75.1	67.9		55.6	54.7	54.2	45.9	53.7	74.2
HMAX	308	315	322	363	341		338	340	325	312	332	383
SHMAX	2017	1973	1983	2524	2272		1220	995	693	540	398	450
KM												
390												439
380												439
370				2161								436
360				2160								428
350				2146	2294			1316				417
340				2112	2293		1640	1316			540	399
330			2000	2059	2279		1631	1304	928		540	380
320		2161	1999	1988	2239		1596	1271	926	917	533	359
310	2430	2156	1980	1896	2175		1534	1212	910	917	517	332
300	2415	2120	1933	1786	2086		1446	1143	879	902	489	300
290	2353	2050	1851	1654	1969		1341	1038	834	866	454	266
280	2240	1932	1750	1509	1831		1191	903	770	810	411	226
270	2087	1799	1626	1356	1669		1004	754	688	716	355	187
260	1886	1631	1478	1167	1465		794	608	596	590	292	150
250	1669	1425	1324	990	1208		573	446	497	432	224	115
240	1367	1216	1127	847	960		348	286	375	262	152	83.8
230	1073	1004	960	716	754		161	170	251	127	97.2	54.8
220	854	834	807	616	590		65.7	88.3	135	60.0	57.4	12.4
210	679	691	679	524	467			46.5	65.7		12.4	
200	540	573	562	446	362				12.4			
190	439	469	467	371	292							
180	372	382	383	305	229							
170	323	320	323	253	183							
160	276	272	272	212	149							
150	236	227	233	176	126							
140	198	192	201	150	113							
130	178	175	179	139	106							
120	168	165	168	132	100							
110	112		83.8	97.2								









ELECTRON DENSITY

PUERTO RICO 60 W 7 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL									A			
HMIN	219	209	224	213	189	213	230	116	110	110	110	110
SCAT	25.8	29.0	34.3	33.8	37.5	60.4	57.4	39.7	39.2	40.6	50.2	50.1
HMAX	278	269	303	290	259	346	345	261	264	271	281	287
SHMAX	187	128	147	129	91	112	99	364	706	1059	1347	1350
KM												
350						131	127					
340						131	127					
330						129	125					
320						125	121					
310			310			119	115					
300			309			112	107					
290			299	274		101	97.2				1727	1626
280	540		274	268		89.9	85.0			1528	1726	1618
270	528	335	236	251		77.6	72.7	608	1107	1528	1704	1580
260	477	327	184	222	189	66.2	60.0	608	1105	1501	1644	1501
250	389	300	122	179	186	55.9	48.4	596	1073	1425	1564	1400
240	229	255	68.6	127	176	46.8	30.9	565	1004	1312	1446	1269
230	97.2	170	40.2	77.6	163	34.2	.1	519	903	1143	1274	1119
220	12.4	77.6		42.6	140	14.4		437	754	960	1027	939
210		12.4			101			344	573	774	814	754
200					56.5			233	432	590	625	596
190					5.5			149	310	446	477	484
180								93.9	229	348	382	403
170								70.8	179	280	316	341
160								67.6	146	232	272	298
150								64.5	126	196	234	262
140								61.3	119	171	204	223
130								49.6	112	150	175	194
120								41.0	101	134	165	179
110									12.4	49.6	49.6	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 7 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					S	S						
HMIN	110	110	110	110	110		214	199	197	197	234	223
SCAT	41.8	53.5	60.9	52.8	56.8		53.9	39.7	41.4	58.8	39.1	41.9
HMAX	293	300	314	313	320		323	299	307	348	324	315
SHMAX	1451	1534	1645	1493	1541		1010	548	386	372	239	212
KM												
350										432		
340										430		
330							1446			422	446	
320			1669	1669	1669		1445			406	445	375
310		1786	1667	1667	1657		1425		625	386	432	374
300	1907	1786	1647	1641	1619		1380	982	621	362	403	363
290	1904	1769	1605	1586	1555		1307	970	597	328	362	343
280	1860	1721	1539	1496	1465		1216	922	557	293	304	314
270	1760	1638	1455	1381	1353		1096	850	502	253	233	262
260	1612	1528	1341	1240	1212		917	742	432	212	143	209
250	1404	1386	1208	1080	1073		716	608	353	174	75.6	143
240	1182	1216	1065	931	917		508	462	270	131	40.2	79.7
230	982	1004	917	794	754		298	298	198	93.9		43.3
220	774	794	774	655	619		83.8	161	127	65.7		
210	608	643	643	529	497			71.4	65.7	45.8		
200	487	508	532	439	398			12.4	19.3	12.4		
190	417	417	446	362	318							
180	369	353	375	304	262							
170	328	306	323	251	215							
160	290	266	281	209	179							
150	255	231	243	172	151							
140	215	205	205	146	132							
130	193	181	179	137	122							
120	181	166	166	130	114							
110	97.2	40.2	97.2	40.2	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 8 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	J			J								S
HMIN	195	282	248	220	187	196	268	112	113	109	110	110
SCAT	40.0	43.1	38.6	28.6	37.9	78.8	55.3	44.0	35.6	50.7	38.6	37.8
HMAX	310	376	343	284	274	336	376	273	267	287	283	291
SHMAX	191	169	170	125	100	126	97	390	720	1334	1453	1565
KM												
380		286					131					
370		284					131					
360		276					128					
350		260	304				123					
340		235	303			123	117					
330		205	295			123	110					
320	310	164	276			122	98.4					
310	310	123	250			120	83.8					
300	305	83.8	211			117	68.6					2177
290	290	46.5	170	310		113	54.1			1669	2161	2177
280	265		119	308	184	107	40.2	557		1660	2158	2135
270	232		79.7	291	183	102	6.6	556	1143	1619	2101	2014
260	191		49.6	253	177	95.4		544	1130	1546	1969	1810
250	148		12.4	198	164	86.5		517	1073	1446	1786	1555
240	112			143	147	77.1		477	971	1307	1528	1307
230	81.8			71.4	122	66.9		423	847	1143	1240	1073
220	60.0			3.1	94.5	54.8		353	698	939	939	854
210	44.2				69.1	42.5		278	540	735	716	679
200	15.9				47.7	12.4		205	417	562	540	562
190					12.4			152	310	437	427	471
180								115	219	344	342	406
170								88.3	165	276	286	346
160								72.8	130	229	240	298
150								67.0	111	195	198	255
140								62.0	106	168	177	216
130								51.1	102	147	168	195
120								43.1	92.8	132	156	184
110										71.4	49.6	112

ELECTRON DENSITY

PUERTO RICO 60 W 8 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	S			A	A							
HMIN	107	106	108	113		111	219	195	197	232	259	229
SCAT	42.9	52.3	52.7	55.6		57.6	40.6	48.4	48.5	48.0	44.5	38.0
HMAX	298	296	304	316		327	307	301	308	363	354	323
SHMAX	1703	1652	1588	1629		1603	927	705	403	339	297	237
KM												
370										477		
360										476	492	
350										468	491	
340										449	480	
330						1786				417	458	439
320				1786		1780				380	425	438
310			1846	1780		1749	1669	1107	608	330	372	426
300	2161	1969	1843	1746		1691	1656	1107	603	274	310	398
290	2142	1962	1813	1684		1603	1594	1093	587	219	240	362
280	2066	1923	1741	1586		1495	1483	1055	555	167	161	302
270	1934	1848	1643	1471		1356	1321	996	513	119	77.6	233
260	1739	1734	1515	1327		1182	1096	903	454	80.7	12.4	152
250	1501	1588	1359	1184		1019	834	774	389	55.9		88.3
240	1260	1404	1167	1019		854	557	625	310	35.5		49.6
230	1050	1201	982	847		691	310	462	219			6.8
220	854	982	794	679		551	60.0	286	127			
210	698	754	631	557		427		143	71.4			
200	573	573	508	446		327		49.6	19.3			
190	484	446	408	362		248						
180	411	372	335	286		189						
170	356	320	281	236		143						
160	310	282	236	201		114						
150	270	244	201	176		96.0						
140	237	212	181	160		83.8						
130	204	194	172	151		77.9						
120	188	183	163	135		72.0						
110	161	152	127									

ELECTRON DENSITY

PUERTO RICO 60 W NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					J			A				
HMIN	235	238	225	203	218	225	264	118	111	111	110	107
SCAT	39.2	34.0	32.4	24.7	88.1	56.4	43.4	49.6	38.8	33.1	50.8	45.3
HMAX	326	319	295	258	359	350	341	253	224	263	279	290
SHMAX	221	184	174	116	151	105	91	107	70	77	1270	1309
KM												
360												
350					139							
340					139	131	161					
330					138	130	161					
320	403				135	127	158					
310	401	389			131	125	151					
300	386	382			128	113	139					
290	362	358	403		123	103	125					
280	320	315	400		117	92.4	104					1786
270	262	265	381		110	81.3	78.6				1558	1786
260	205	186	346		103	67.4	61.6		1.4	1.4	1744	1764
250	138	117	286	348	94.6	58.2		67	1.4	1567	1.4	1697
240	77.6	60.0	198	340	86.6	47.7		67	1.4	1513	1.4	1580
230	33.2	12.4	92.8	305	73.0	36.6		64	1.4	1386	1.4	1446
220			43.2	240	60.0	12.4		53	1.4	1171	1.4	1.40
220				127	26.3			47	1.4	949	1.4	1004
210				53.1				37	1.4	716	1.4	794
200								27	43.	524	679	625
190								19	32	408	540	500
180								14	24	336	427	417
170								11	19	280	348	362
160								9.4	15	232	295	314
150								8.0	13	196	248	274
140								7.7	1.2	170	214	1.35
130								6.4	11	153	189	207
120								4.6	97.	136	171	188
110											127	143

ELECTRON DENSITY

60 W NOV 1959

TIME	1	13	14	15	16	17	18	19	20	21	22	23
QUAL							A					
HMIN	106	104	100	100	100			120	110	104	94.	91
SCAT	52.8	47.5	60.4	54.	61.			64.7	56.8	41.8	45.7	42.8
HMAX	293	293	306	304	307			436	417	314	446	317
SHMAX	1481	1441	1.4	1.4	1.4			1.4	444	415	404	383
KM												
360												
350											661	
340											658	
330						1727					640	
320						1.4					1379	917
310				1.4	1.4	1.4					1351	917
300	1669	1681	1.4	1.4	1.4	164					905	896
290	1667	1628	1.4	1.4	1.4	1.4					1353	884
280	1641	1640	1.4	1.4	1.4	1.4					1.4	1.4
270	1586	1570	1.4	1.4	1.4	1.4					1.4	1.4
260	1496	1.4	1.4	1.4	1.4	1.4					1.4	1.4
250	1381	1341	1.4	1.4	1.4	1.4					1.4	1.4
240	1240	1184	1.4	1.4	1.4	1.4					1.4	1.4
230	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
220	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
210	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
200	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
190	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
180	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
170	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
160	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
150	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
140	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
130	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
120	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4
110	1.4	1.4	1.4	1.4	1.4	1.4					1.4	1.4

ELECTRON DENSITY

PUERTO RICO 60 W NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A				
HMIN	211	240	210	219	232	270	208	118	110	109	111	110
SCAT	39.0	26.6	32.4	34.1	84.6	59.6	42.4	34.3	33.8	37.6	54.3	54.8
HMAX	314	314	282	286	363	365	338	260	269	266	293	296
SHMAX	212	131	141	108	164	136	146	369	816	1101	1403	1436
KM												
370												
360						179	143					
350						179	143					
340						178	140					
330						174	135	174				
320	355	316				169	128	174				
310	354	315				161	117	170				
300	344	296				154	104	165				
290	323	245	310	240		145	89.4	156				1640
280	293	202	306	239		135	73.4	145				1639
270	249	149	288	229		122	54.6	132				1618
260	203	97.2	255	210		107		117	661	1455	1783	1569
250	161	49.6	209	182		87.2		98.2	661	1396	1671	1493
240	115		149	135		59.6		80.2	661	1164	1478	1.4
230	74.6		90.6	77.6				49.6	532	1.4	1301	1.4
220	43.9		49.6	12.4				34.6	437	698	981	896
210			1.4					6.4	323	501	716	716
200									219	375	492	573
190									149	286	351	462
180									104	219	274	380
170									78.6	172	223	310
160									68.0	141	179	262
150									62.7	120	150	222
140									54.8	109	140	193
130									45.7	104	134	173
120									12.4	98.8	129	156
110										40.2	71.4	

ELECTRON DENSITY

PUERTO RICO 60 W NOV 1959

TIME	12	13	14	15	16	17	18	19	20	21	22	23
QUAL		A							A			
HMIN	104	114	111	110	110	114	114	104	114	229	214	215
SCAT	51.6	60.6	64.8	58.6	54.8	54.6	54.8	54.8	61.6	47.8	56.7	44.1
HMAX	299	311	308	304	307	307	307	440	441	339	325	318
SHMAX	1563	1654	1714	1.4	1.4	1.4	1.4	866	619	539	471	363
KM												
370										794		
360										794		
350										785		
340				1668					1061	764	875	
330			1682	1665			1474	1474	1061	735	768	688
320		1756	1681	1.4	1.4	1.4	1.4	1.4	1.4	679	741	687
310		1756	1660	1.4	1.4	1.4	1.4	1.4	1.4	615	708	673
300	1786	1741	1618	1.4	1.4	1.4	1.4	1.4	1.4	540	732	646
290	1771	1703	1565	1461	1.4	1.4	1.4	1.4	1.4	448	682	631
280	1722	1636	1472	1362	1441	1.4	1.4	1.4	1.4	340	608	553
270	1638	1555	1364	1.4	1.4	1.4	1.4	1.4	1.4	794	214	368
260	1528	1446	1340	1127	1.4	1.4	1.4	1.4	1.4	203	179	398
250	1376	1307	1065	975	1.4	1.4	1.4	1.4	1.4	127	97.2	310
240	1208	1157	917	847	917	754	847	477	80.7	63.1	198	135
230	1034	990	781	716	781	640	375	335	49.6	6.6	104	71.4
220	854	814	661	596	643	445	319	198	1.4		46.6	33.2
210	691	625	565	500	508	335	97.2	92.2				
200	562	457	492	424	408	248	1.4	12.4				
190	477	389	423	355	318	184						
180	406	329	367	298	257	137						
170	351	276	305	249	211	108						
160	300	237	258	202	176	92.8						
150	259	213	212	175	154	83.7						
140	225	197	186	156	141	79.						
130	198	187	175	152	134	74.						
120	181	173	163	145	127	67.6						
110	71.4			12.4	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 11 NOV 1959

TIME	0000	0100	[illegible]	0400	0500	0600	[illegible]	0800	0900	1000	1100
QUAL								C	A		
HMIN	209	200	217	217	278	263	221	206	110	110	110	109
SCAT	35.7	35.6	51.6	48.7	88.9	49.4	48.1	36.4	35.3	40.4	48.7	56.4
HMAX	299	274	315	309	432	383	342	285	264	280	288	292
SHMAX	273	155	145	175	193	130	157	391	816	1264	1361	1615
KM												
440					170							
430					170							
420					169							
410					167							
400					164							
390					160	179						
380					155	179						
370					150	176						
360					144	170						
350					136	159	329					
340					126	142	329					
330					114	125	326					
320			208		101	108	317					
310			208	198	86.8	91.6	295					
300	532		204	197	69.8	73.2	268					1907
290	523		196	191	53.1	57.0	163	824		1669	1662	1906
280	492	323	185	180	12.4	43.7	135	820	1969	1656	1658	1884
270	441	321	171	167		20.7	106	788	1406	1941	1609	1891
260	371	310	151	150			78.9	724	1401	1852	1523	1747
250	294	286	127	123			55.9	631	1349	1702	1401	1643
240	205	249	97.2	87.2			36.7	492	1250	1501	1254	1501
230	112	198	66.2	54.4			20	298	1073	1143	1073	1321
220	56.5	135	44.5	18.0				127	854	836	896	1073
210	9.5	71.4	1.04					44.9	608	625	729	814
200		3.1							432	467	596	619
190									298	362	497	477
180									219	280	408	382
170									175	227	335	323
160									141	183	272	274
150									120	149	226	232
140									109	139	196	198
130									104	134	174	178
120									98.8	128	158	166
110									12.4	12.4	49.6	97.2

ELECTRON DENSITY

PUERTO RICO 60 W 11 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	109	109	110	106	112	110	203	208	209	238	228	213
SCAT	56.0	54.0	53.5	71.0	49.7	56.8	58.0	36.9	50.9	37.5	48.9	45.1
HMAX	312	300	314	337	323	317	326	312	317	335	336	320
SHMAX	1785	1660	1649	1853	1508	1433	1194	677	578	360	385	339
KM												
340				1669						670	599	
330				1665	1876		1569			667	597	540
320	1876		1786	1645	1874	1669	1564	1252	865	644	582	540
310	1876	1846	1783	1608	1844	1663	1538	1252	860	594	555	533
300	1856	1846	1753	1555	1775	1633	1488	1220	840	524	520	513
290	1806	1828	1692	1487	1669	1577	1411	1143	803	437	462	480
280	1723	1779	1597	1408	1519	1486	1319	1019	754	335	380	432
270	1618	1699	1474	1303	1341	1376	1198	875	679	219	294	368
260	1478	1581	1324	1171	1159	1253	1050	679	585	119	198	294
250	1324	1446	1143	1034	939	1080	854	477	467	60.0	112	219
240	1159	1274	975	880	735	931	643	286	335	12.4	60.0	149
230	990	1111	820	767	573	767	403	143	179		12.4	83.8
220	834	939	691	661	437	590	179	65.7	71.4			43.3
210	704	767	590	565	344	446	65.7	12.4	12.4			
200	596	619	508	477	270	310						
190	508	508	435	403	212	219						
180	424	424	372	335	161	165						
170	362	357	320	280	123	127						
160	304	310	274	227	106	107						
150	253	270	237	187	96.8	92.8						
140	214	232	204	159	93.0	82.8						
130	194	198	178	142	89.2	77.6						
120	181	184	165	134	85.4	72.5						
110	127	97.2	40.2	119		12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 12 NOV 1959

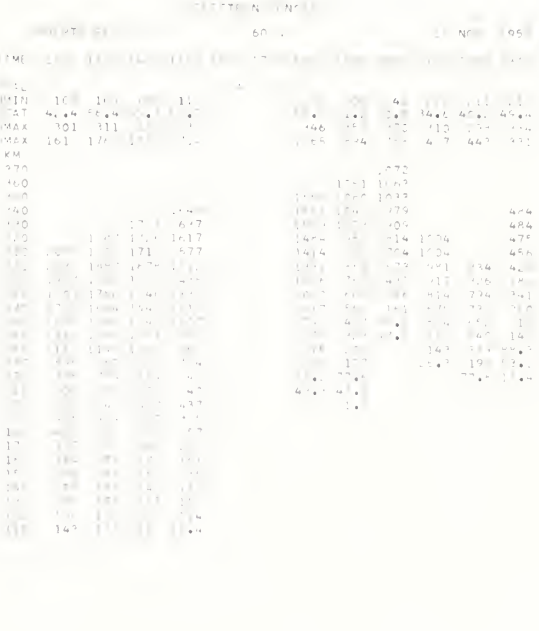
TIME	0000	0100	[illegible]	0300	0400	0500	0600	[illegible]	0800	0900	1000	1100
QUAL								C			A	
HMIN	202	222	219	205	185	221	233		111	108	112	106
SCAT	40.6	49.5	20.1	27.4	89.3	75.0	64.1		36.3	39.8	51.5	43.2
HMAX	301	331	306	265	367	368	341		242	278	290	279
SHMAX	243	212	194	102	167	128	96		974	1784	1668	1329
KM												
370						127						
360					127	127						
350					127	125	131					
340		310			126	122	131					
330		310			124	118	130					
320		306			121	114	126					
310	417	296	286		118	107	119					
300	417	280	283		114	100	112				2161	
290	409	262	265		109	91.9	101		1542		2161	
280	389	229	230		103	82.8	88.7		1540	2096	2140	1786
270	357	195	197	274	97.2	72.5	75.6		1499	2088	2078	1766
260	310	154	138	271	83.3	62.1	62.6		1400	2020	1980	1698
250	255	112	87.1	253	81.2	52.4	48.0		1257	1907	1855	1581
240	194	71.4	46.6	217	72.3	43.0	22.8		1050	1692	1646	1425
230	139	42.7	6.2	155	63.5	22.8			814	1411	1411	1221
220	83.8			83.8	55.2				608	939	1073	982
210	44.9			33.2	47.0				456	643	754	754
200					35.5				344	462	540	590
190					10.4				262	355	432	487
180									207	292	355	410
170									168	240	300	351
160									139	195	258	302
150									121	158	219	262
140									111	141	189	226
130									104	135	171	198
120									97.2	130	148	179
110										83.8		143

ELECTRON DENSITY

PUERTO RICO 60 W 12 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A		A								
HMIN	110	109	107	110	110	119	208	194	198	228	246	232
SCAT	45.3	63.8	62.0	58.8	59.0	48.0	53.6	43.2	46.2	46.6	45.1	45.1
HMAX	299	318	301	328	322	314	331	308	314	356	364	345
SHMAX	1485	1822	1427	1697	1611	1189	1035	718	464	404	362	347
KM												
370											540	
360										582	539	
350										579	527	540
340							1420			565	501	538
330				1727	1756		1419			536	464	525
320		1786		1719	1755	1528	1404		698	492	412	496
310		1779	1473	1688	1747	1525	1364	1143	696	441	355	455
300	1786	1751	1473	1626	1693	1495	1298	1134	681	382	294	403
290	1767	1702	1462	1555	1620	1429	1218	1096	650	316	226	335
280	1705	1628	1425	1446	1531	1341	1096	1019	601	248	161	262
270	1593	1543	1373	1312	1407	1208	946	928	540	179	102	198
260	1446	1420	1307	1171	1257	1050	781	807	462	117	60.0	132
250	1274	1274	1221	1019	1127	889	608	679	380	75.6	23.5	77.6
240	1111	1143	1119	861	946	716	417	524	294	47.2		43.3
230	931	975	1004	716	754	573	219	362	209	7.8		
220	781	820	875	608	590	432	90.5	198	119			
210	643	691	742	516	456	327	26.3	97.2	60.0			
200	548	585	608	439	353	240		46.5	12.4			
190	462	492	477	372	278	179						
180	396	417	389	315	223	141						
170	335	348	316	267	179	116						
160	281	295	267	223	148	97.2						
150	229	249	226	186	132	85.0						
140	196	209	194	161	124	78.8						
130	186	190	176	150	118	73.1						
120	170	175	164	136	112	40.2						
110	40.2	60.0	112	12.4	40.2							


PUERTO RICO
TIME
DUAL
HMIN
SCAT
HMAX
XHMAX
KM




PUERTO RICO
TIME
DUAL
HMIN
SCAT
HMAX
XHMAX
KM

ELECTRON DENSITY

PUERTO RICO 60 W 15 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		A								A		
HMIN	221	211	209	201	233	201	266	114	113	117	110	109
SCAT	38.6	39.2	39.7	40.5	78.7	66.7	52.1	35.1	39.3	38.1	46.2	50.3
HMAX	306	304	276	287	389	348	365	275	268	283	280	276
SHMAX	282	227	143	129	205	146	115	468	880	1331	1408	1404
KM												
390					198							
380					198							
370					197		165					
360					194		165					
350					190		162					
340					184	170	155					
330					176	169	148					
320					167	167	137					
310	540	403			158	163	122					
300	537	399			145	155	103					
290	517	381		222	129	146	81.8			2032		
280	481	354	344	227	110	135	60.0	794		2029	2032	1891
270	423	310	344	213	91.5	121	46.2	790	1406	1973	2006	1885
260	344	257	319	201	71.4	105		759	1392	1853	1907	1845
250	251	194	280	181	51.2	88.8		698	1332	1669	1747	1766
240	143	135	219	159	30.3	72.0		596	1240	1394	1534	1669
230	65.7	79.7	135	119		58.7		462	1073	1073	1265	1501
220		47.2	65.7	80.7		46.1		344	875	814	1004	1291
210			21.7	47.2		26.3		248	661	625	774	960
200								184	477	497	590	679
190								140	335	403	467	492
180								110	235	329	383	389
170								90.8	179	274	323	320
160								77.1	149	224	272	274
150								68.6	125	189	229	233
140								62.9	111	161	196	201
130								48.7	104	146	173	176
120								40.2	97.9	112	158	166
110											49.6	112

ELECTRON DENSITY

PUERTO RICO 60 W 15 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	109	108	108	107	113	109	218	190	200	228	223	224
SCAT	56.4	54.0	61.3	54.0	57.0	58.0	34.1	39.9	43.2	43.5	46.7	40.0
HMAX	310	296	312	317	323	321	297	301	300	336	336	322
SHMAX	1773	1550	1614	1443	1481	1366	747	618	268	266	279	223
KM												
340										424	417	
330					1612	1555				422	415	389
320	1907		1612	1460	1611	1555				410	404	389
310	1907		1611	1453	1592	1542		1050	446	386	383	380
300	1890	1846	1596	1410	1549	1506	1612	1049	446	353	354	359
290	1844	1839	1560	1357	1481	1446	1596	1031	440	305	314	327
280	1766	1803	1498	1282	1383	1351	1512	979	422	251	267	281
270	1669	1735	1425	1179	1274	1240	1376	896	392	198	214	229
260	1524	1631	1319	1068	1127	1131	1143	794	348	138	161	170
250	1371	1501	1191	960	982	982	854	661	292	83.8	115	112
240	1191	1341	1061	844	834	814	508	524	226	52.0	71.4	65.7
230	1004	1096	931	745	679	643	161	362	161	12.4	42.5	34.6
220	820	875	807	665	551	497	28.3	198	97.2			
210	667	679	691	594	454	380		104	54.8			
200	562	540	585	534	362	286		53.1				
190	469	437	497	462	292	219						
180	400	362	403	362	232	165						
170	341	305	335	278	192	132						
160	295	257	281	219	163	108						
150	249	211	232	176	137	94.5						
140	202	183	192	151	114	85.5						
130	178	173	175	139	106	70.0						
120	168	165	166	132	99.2	62.9						
110	143	127	127	97.2		12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 16 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	240	222	224	211	224	203	258	208	108	108	109	109
SCAT	38.5	34.6	38.3	35.8	73.4	66.8	61.7	34.3	24.7	50.1	39.2	45.7
HMAX	309	292	301	286	352	360	371	282	260	290	283	289
SHMAX	182	157	130	104	151	140	130	292	687	1490	1521	1703
KM												
380							161					
370						143	161					
360					161	143	160					
350					161	143	156					
340					160	140	151					
330					157	136	143					
320					153	130	134					
310	375			251		147	123	123				
300	370	348		251		140	114	108		1907		
290	353	348	246	214	132	103	91.5	661		1907	2294	2294
280	327	337	232	212	122	91.1	73.5	660		1887	2290	2271
270	280	315	213	203	110	79.7	58.1	638		1829	2232	2194
260	205	272	179	186	97.5	69.4	42.4	590	1420	1732	2096	2060
250	127	203	139	161	80.7	59.2		508	1366	1604	1882	1866
240	42.4	127	92.8	123	60.0	51.2		375	1208	1425	1612	1612
230		54.8	49.6	72.7	34.6	42.8		209	939	1191	1274	1307
220				46.5		30.9		90.5	679	960	917	1027
210						12.4		26.3	477	735	679	794
200									344	573	529	590
190									262	427	427	469
180									203	335	362	389
170									161	272	306	335
160									134	223	262	290
150									115	189	228	251
140									107	161	196	215
130									102	147	176	192
120									97.2	135	165	179
110									26.3	83.8	97.2	83.8

ELECTRON DENSITY

PUERTO RICO 60 W 16 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						S						
HMIN	110	110	110	110	110	111	230	194	199	189	197	278
SCAT	59.7	58.0	65.9	62.8	53.6	58.3	46.6	39.9	48.5	62.7	42.0	50.0
HMAX	304	306	325	323	313	319	322	294	304	331	314	385
SHMAX	1703	1634	1869	1773	1441	1340	880	615	390	329	193	192
KM												
390												280
380												279
370												274
360												262
350												245
340										382		223
330			1786	1756			1460			382		195
320			1783	1755	1727	1460	1459			379	292	161
310	1786	1697	1763	1737	1726	1451	1437		608	371	291	124
300	1784	1693	1723	1697	1703	1420	1382	1119	607	358	282	87.2
290	1763	1662	1660	1631	1644	1368	1291	1116	595	341	266	54.8
280	1716	1595	1580	1555	1564	1291	1171	1085	570	318	243	12.4
270	1642	1519	1479	1446	1446	1197	1004	1019	536	291	212	
260	1555	1423	1354	1312	1307	1084	794	917	483	258	179	
250	1431	1303	1224	1171	1096	971	508	781	410	219	149	
240	1283	1179	1065	1019	917	847	219	590	327	179	118	
230	1127	1050	917	861	716	716	12.4	403	229	138	91.9	
220	960	903	767	729	557	585		219	127	97.2	66.9	
210	794	754	643	608	437	467		97.2	60.0	65.7	45.8	
200	655	608	532	508	348	362		46.5	5.5	43.9	12.4	
190	540	497	446	417	286	270				3.1		
180	437	410	375	355	236	192						
170	362	346	320	295	195	139						
160	310	298	274	245	161	107						
150	262	259	240	209	124	89.2						
140	226	225	205	181	110	79.9						
130	197	198	179	161	105	73.4						
120	181	181	165	147	100	58.5						
110	49.6	49.6	40.2	40.2	40.2							

ELECTRON DENSITY

PUERTO RICO 60 W 17 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL											[illegible]	
HMIN	291	266	251	[illegible]	198	269	257		[illegible]	[illegible]	[illegible]	[illegible]
SCAT	43.1	37.3	37.4	25.1	69.9	52.5	[illegible]		[illegible]	[illegible]	42.5	41.4
HMAX	380	346	336	279	301	[illegible]	277		262	[illegible]	297	287
SHMAX	166	161	176	119	121	95	118		685	[illegible]	1518	1552
KM												
380	286						139					
370	282					135	139					
360	271					134	137					
350	251	323				131	133					
340	225	321	342			125	128					
330	189	308	340			117	120					
320	148	286	327			108	112					
310	102	249	301		148	[illegible]	[illegible]					
300	60.0	198	266		148	79.7	[illegible]				2161	
290		135	212		147	64.9	[illegible]			[illegible]	2146	[illegible]
280		75.6	149	368	144	47.7	61.4			1611	2076	2176
270		26.3	90.5	356	141	[illegible]	[illegible]		1155	1576	1948	2096
260			[illegible]	320	137		[illegible]		1154	1479	1762	1942
250				229	133				1117	1341	1529	1739
240				112	129				1016	1162	1265	1501
230				26.3	120				875	960	1027	1240
220					99.6				716	774	794	917
210					60.0				540	608	625	716
200					12.4				417	477	497	540
190									318	380	410	437
180									240	310	348	355
170									187	257	295	295
160									152	212	251	249
150									127	182	212	198
140									113	159	179	176
130									106	142	157	170
120									99.2	131	149	164
110									49.6	83.8	97.2	112

ELECTRON DENSITY

PUERTO RICO 60 W 17 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A	A	[illegible]	[illegible]	A						
HMIN	110	110		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SCAT	[illegible]	55.6		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	44.0	40.5
HMAX	290	312		310			316	[illegible]	304	351	370	359
SHMAX	1459	1676		1411			[illegible]	648	[illegible]	[illegible]	[illegible]	[illegible]
KM												
380											389	
370											389	
360										389	384	403
350										389	368	398
340										385	341	380
330										375	306	353
320		1786					[illegible]			358	262	310
310		1784		[illegible]			[illegible]	[illegible]	[illegible]	337	214	248
300		1759		[illegible]			1458	[illegible]	[illegible]	[illegible]	161	179
290	1846	1706		[illegible]			[illegible]	[illegible]	[illegible]	266	[illegible]	104
280	1822	1617		[illegible]			[illegible]	[illegible]	[illegible]	214	[illegible]	12.4
270	1743	1501		[illegible]			[illegible]	950	[illegible]	161		
260	1626	1367		[illegible]			960	754	427	[illegible]		
250	1465	1211		1096			[illegible]	631	[illegible]	12.4		
240	1291	1065		[illegible]			477	519	310			
230	1111	917		[illegible]			198	389	240			
220	931	781		[illegible]			60.0	251	173			
210	754	655		619				125	107			
200	596	540		608				65.7	60.0			
190	477	446		417				[illegible]	[illegible]			
180	396	[illegible]		[illegible]								
170	335	298		[illegible]								
160	282	240		[illegible]								
150	240	198		[illegible]								
140	206	181		[illegible]								
130	190	171		[illegible]								
120	179	162		146								
110	[illegible]	[illegible]		[illegible]								

ELECTRON DENSITY

PUERTO RICO 60 W 18 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A											A
HMIN	253	240	232	205	[illegible]	237	[illegible]	[illegible]	[illegible]	113	[illegible]	[illegible]
SCAT	36.3	38.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41.7	[illegible]
HMAX	320	327	300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	279
SHMAX	201	186	146	[illegible]	156	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
KM												
400					179							
390					179							
380					178							
370					174							
360					169	179	[illegible]					
350					161	179	[illegible]					
340					149	177	[illegible]					
330	432	355			137	[illegible]	158					
320	432	352			[illegible]	164	151					
310	423	337	[illegible]		106	151	[illegible]					
300	397	310	335	[illegible]	[illegible]	137	[illegible]					
290	362	270	327	213	[illegible]	[illegible]	[illegible]	[illegible]			2128	
280	294	219	303	208	[illegible]	101	[illegible]	[illegible]	[illegible]	[illegible]	2116	1876
270	209	155	266	198	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1843	2051	1854
260	97.2	97.2	205	185	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1773
250		49.6	127	165		[illegible]		[illegible]	[illegible]	1696	[illegible]	1631
240			60.0	137		[illegible]		[illegible]	[illegible]	1534	[illegible]	1446
230				101				251	[illegible]	1316	[illegible]	[illegible]
220				[illegible]				[illegible]	754	1004	1004	[illegible]
210				29.1				[illegible]	524	735	735	[illegible]
200									362	508	540	573
190									248	371	403	456
180									179	280	318	382
170									141	224	251	[illegible]
160									116	179	195	272
150									108	150	169	227
140									104	139	157	191
130									99.4	132	151	174
120									88.8	117	145	164
110									12.4		60.0	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 18 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A	A	A		A					A	A
HMIN	110		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	261	[illegible]
SCAT	[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HMAX	[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	414	[illegible]	[illegible]	351
SHMAX	1801		[illegible]		[illegible]		[illegible]	[illegible]	442	[illegible]	47	[illegible]
KM												
380										446		
370										446	417	
360										442	416	[illegible]
350										428	404	524
340										404	377	512
330	[illegible]		[illegible]				[illegible]			373	339	[illegible]
320	[illegible]		[illegible]				1554		[illegible]	[illegible]	[illegible]	[illegible]
310	[illegible]		[illegible]		[illegible]		[illegible]		598	274	240	368
300	1496		[illegible]		[illegible]		1470	[illegible]	[illegible]	212	184	[illegible]
290	1446		[illegible]		1454		1379	[illegible]	[illegible]	135	127	[illegible]
280	1376		[illegible]		1367		[illegible]	[illegible]	[illegible]	[illegible]	77.5	117
270	1291		[illegible]		1253		1111	[illegible]	495		[illegible]	[illegible]
260	1196		[illegible]		1143		960	[illegible]	441			[illegible]
250	1096		[illegible]		1016		754	643	382			
240	993		[illegible]		685		524	477	310			
230	896		[illegible]		754		323	323	240			
220	804		[illegible]		643		161	170	167			
210	716		[illegible]		540		77.6	77.6	102			
200	631		[illegible]		446		[illegible]	[illegible]	56.5			
190	529		417		362				12.4			
180	427		351		286							
170	355		[illegible]		224							
160	295		[illegible]		183							
150	249		198		152							
140	214		181		133							
130	194		172		122							
120	181		165		115							
110	49.6		[illegible]		49.6							

ELECTRON DENSITY

PUERTO RICO 60 W 19 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A											
HMIN	238	229	214	199	209	292	223		111	110	110	110
SCAT	30.6	29.3	28.6	24.4	100	54.1	46.3		45.5	40.6	52.8	49.4
HMAX	306	289	258	244	385	389	313		272	273	296	301
SHMAX	246	208	129	66	125	76	86		870	1117	1432	1729
KM												
390					97.2	108						
380					97.2	107						
370					96.7	105						
360					95.8	100						
350					94.3	93.3						
340					92.4	85.4						
330					90.0	75.6						
320					87.2	63.8	139					
310	599				83.8	50.9	139					2161
300	594				79.4	32.2	136				1669	2160
290	559	557			75.0		130				1662	2133
280	492	543			70.3		121		1380	1669	1628	2062
270	389	500			64.0		110		1379	1666	1564	1944
260	251	417	446		59.4		93.4		1365	1625	1466	1786
250	112	274	434	214	53.3		73.5		1294	1528	1341	1578
240	26.3	97.2	383	212	47.1		53.8		1216	1386	1191	1341
230		12.4	274	196	40.8		30.9		1073	1175	1034	1050
220			83.8	164	32.2				834	939	854	814
210				90.5	21.5				573	735	691	643
200				12.4					362	557	551	508
190									229	427	446	417
180									143	329	362	355
170									112	262	298	300
160									103	211	249	253
150									95.7	174	209	213
140									92.0	150	179	188
130									88.3	137	159	173
120									84.6	129	148	164
110										60.0	49.6	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 19 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A			A		A		J		J
HMIN				110	118		210	201	209	226	209	238
SCAT				57.9	72.8		50.2	53.5	42.6	37.1	39.1	38.4
HMAX				326	332		326	321	316	314	296	327
SHMAX				1936	1929		1101	834	510	385	296	263
KM												
340					1846							
330				2096	1845		1612	1143				484
320				2090	1833		1605	1143	834	754		481
310				2057	1803		1570	1132	830	753		462
300				1992	1756		1502	1101	805	729	548	426
290				1895	1691		1400	1050	759	679	545	372
280				1769	1608		1269	978	686	608	525	310
270				1604	1512		1096	885	596	492	486	240
260				1429	1394		896	774	492	362	429	161
250				1240	1254		661	643	380	209	362	77.6
240				1004	1096		446	508	262	97.2	274	21.7
230				820	946		251	362	143	40.2	170	
220				667	774		97.2	179	71.4		77.6	
210				540	608			71.4	12.4		12.4	
200				437	446							
190				355	310							
180				292	233							
170				236	184							
160				191	149							
150				156	125							
140				140	111							
130				135	103							
120				129	83.8							
110				12.4								

ELECTRON DENSITY

PUERTO RICO 60 W 20 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A			A			A	A				
HMIN	227	219	218	194	287	308	216		116	109	111	110
SCAT	43.9	34.5	26.4	23.5	60.4	48.4	47.2		31.1	29.2	50.0	47.4
HMAX	329	296	275	244	405	390	327		264	250	281	283
SHMAX	284	196	146	75	116	98	143		786	946	1329	1426
KM												
410					143							
400					143							
390					141	161						
380					137	159						
370					131	154						
360					123	145						
350					114	133						
340					102	118						
330	477				88.3	99.3	214					
320	472				73.0	73.9	212					
310	454				58.5	21.7	207					
300	424	417			44.2		195					
290	380	414			12.4		181				1697	1786
280	323	395	417				161				1697	1783
270	248	362	414				135		1569		1677	1751
260	167	304	384				106		1562		1623	1678
250	97.2	229	327	240			78.9		1485	1907	1534	1567
240	57.4	135	219	238			58.3		1291	1854	1416	1411
230	19.3	65.7	104	219			42.9		1073	1688	1257	1240
220		12.4	26.3	179			12.4		754	1411	1073	1050
210				97.2					508	1004	875	861
200				46.5					323	679	679	698
190									226	462	508	562
180									165	323	389	446
170									127	251	304	362
160									105	207	246	298
150									95.6	173	202	249
140									91.7	149	169	209
130									87.8	138	155	179
120									83.8	129	147	166
110										71.4		49.6

ELECTRON DENSITY

PUERTO RICO 60 W 20 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			A									
HMIN	109	110	109	109	110	198	199	200	196	234	234	231
SCAT	43.9	57.1	49.8	59.7	50.7	58.8	47.9	43.4	44.9	48.5	46.7	36.5
HMAX	293	302	306	311	306	334	305	298	292	347	338	314
SHMAX	1490	1595	1549	1716	1445	1343	917	571	352	306	268	210
KM												
350										454		
340						1669				452	417	
330						1667				441	414	
320				1846		1646				420	401	417
310		1727	1861	1846	1669	1601	1446			389	378	416
300	1846	1726	1854	1831	1662	1530	1442	939	599	348	348	402
290	1844	1708	1813	1791	1625	1446	1410	930	599	300	305	372
280	1806	1661	1727	1720	1555	1327	1346	896	589	240	251	329
270	1717	1586	1612	1635	1446	1175	1251	841	563	179	198	262
260	1588	1490	1462	1515	1303	1004	1127	762	526	117	135	189
250	1411	1367	1274	1359	1171	820	960	661	469	68.6	75.6	107
240	1240	1224	1065	1191	1034	625	754	540	389	40.2	40.2	54.8
230	1061	1065	875	1004	875	432	508	417	294			
220	889	896	698	814	729	262	251	262	179			
210	729	742	562	655	596	104	97.2	97.2	90.5			
200	596	608	467	524	487	26.3	12.4		40.2			
190	487	497	389	427	389							
180	410	410	330	348	310							
170	348	346	276	292	246							
160	295	295	227	249	202							
150	251	249	184	213	170							
140	215	209	154	185	146							
130	186	177	140	163	126							
120	169	165	133	150	116							
110	97.2	49.6	83.8	97.2	40.2							

ELECTRON DENSITY

PUERTO RICO 60 W [illegible] NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	A										
HMIN		276	258	[illegible]	224	254	258		114	118		114
SCAT		36.2	36.2	42.1	82.2	49.6	61.1		18.2	39.7		38.9
HMAX		348	329	286	374	344	367		273	284		295
SHMAX		150	150	122	200	99	124		880	1257		1546
KM												
380					189							
370					188		156					
360					187		156					
350		310			185	151	153					
340		306			181	150	149					
330		290	310		174	149	142					
320		262	305		168	143	132					
310		223	288		161	134	[illegible]					
300		173	262		152	123	110					193
290		112	219	229	141	108	93.7			1907		196
280		44.7	167	228	127	85.9	75.6		1446	1902		[illegible]
270			104	221	113	69.1	54.9		1445	1847		1960
260			26.7	208	95.3	44.7	17.4		1407	1734		1766
250				191	75.6				1319	1574		1528
240				161	54.8				1182	1316		1265
230				117	12.4				982	1073		982
220				60.0					754	814		754
210				12.4					540	590		520
200									389	437		477
190									262	335		396
180									198	262		335
170									157	209		286
160									127	164		240
150									110	140		204
140									104	127		179
130									97.2	120		168
120									74.5	113		148

ELECTRON DENSITY

PUERTO RICO 60 W [illegible] NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A			J	A						
HMIN			106	112	110		110	[illegible]	128	108	128	[illegible]
SCAT			57.	65.	[illegible]		[illegible]	[illegible]	[illegible]	47.	48.	[illegible]
HMAX			319	321	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HMAX			1908	168.	[illegible]		[illegible]	[illegible]	[illegible]	570	[illegible]	[illegible]
KM												
360												310
350								[illegible]				309
340								[illegible]				304
330				168	[illegible]		[illegible]	[illegible]	[illegible]			293
320			[illegible]	168	[illegible]		[illegible]	1191	[illegible]			276
310			2018	1671	[illegible]		[illegible]	111	[illegible]	[illegible]		254
300			1973	1640	[illegible]		[illegible]	990	[illegible]	[illegible]	46	[illegible]
290			1896	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	468	[illegible]
280			1786	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	45	[illegible]
270			1640	1415	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	428	[illegible]
260			1483	1307	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	41	[illegible]
250			[illegible]	1175	[illegible]		[illegible]	[illegible]	44	40	37	71.4
240			[illegible]	1014	[illegible]		[illegible]	[illegible]	240	417	31	[illegible]
230			[illegible]	[illegible]	[illegible]		[illegible]		112	286	24	[illegible]
220			74	754	[illegible]		[illegible]		[illegible]	15	15	
210			[illegible]	[illegible]	467		[illegible]			75.6	77.6	
200			[illegible]	[illegible]	[illegible]					40.2	21.	
190			[illegible]	[illegible]	304							
180			[illegible]	[illegible]	246							
170			314	[illegible]	[illegible]							
160			270	202	161							
150			[illegible]	16	13							
140			[illegible]	147	111							
130			175	137	105							
120			167	129	[illegible]							
110			127		[illegible]							

ELECTRON DENSITY

PUERTO RICO 60 W [illegible] NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	273	247	225	200	195	260	257	[illegible]	113	114	117	110
SCAT	42.4	34.6	29.	32.4	71.	[illegible]	[illegible]	[illegible]	47.4	[illegible]	47.7	[illegible]
HMAX	369	327	289	264	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	286	288	286
SHMAX	222	210	181	89	14.	[illegible]	[illegible]	[illegible]	[illegible]	1156	[illegible]	[illegible]
KM												
410							152					
400							151					
390						119	150					
380						119	148					
370	382					117	144					
360	378					114	140					
350	364				143	107	136					
340	340				143	101	131					
330	302	432			142	92.1	127					
320	251	428			139	81.2	116					
310	192	405			135	[illegible]	104					
300	132	366			129	54.1	[illegible]	670				
290	79.7	310	477		121	40.	[illegible]	660		1528	1612	[illegible]
280	43.3	240	466		112	[illegible]	[illegible]	625	[illegible]	[illegible]	1601	[illegible]
270		167	427	208	[illegible]		[illegible]	573	[illegible]	[illegible]	1555	[illegible]
260		83.8	362	208	[illegible]		[illegible]	477	1361	1430	1472	1747
250		30.9	240	198	80.1			323	1262	1349	1365	[illegible]
240			112	181	68.3			97.2	1179	1216	1212	[illegible]
230			46.5	152	57.				1004	1065	1065	1175
220				107	47.				735	854	854	917
210				54.8	37.7				477	661	661	698
200					12.4				323	462	492	540
190									226	335	371	[illegible]
180									165	240	294	[illegible]
170									130	179	240	310
160									107	146	198	262
150									95.9	126	167	223
140									91.6	121	154	193
130									87.3	116	147	173
120									79.7	112	71.4	161
110												40.2

ELECTRON DENSITY

PUERTO RICO 60 W [illegible] NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						[illegible]	[illegible]				J	J
HMIN	110	112	114	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SCAT	[illegible]	[illegible]	[illegible]	71.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.
HMAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HMAX	[illegible]	1444	[illegible]	1697	[illegible]	[illegible]	[illegible]	[illegible]	407	[illegible]	[illegible]	[illegible]
KM												
440												[illegible]
430												[illegible]
420											[illegible]	[illegible]
410											45	[illegible]
400											441	
390											42	
380											38	[illegible]
370											348	248
360										42	300	186
350										431	246	[illegible]
340				[illegible]						42	194	[illegible]
330				1527	168	[illegible]	[illegible]			40	143	[illegible]
320			[illegible]	[illegible]	1678	[illegible]	[illegible]			274	97.	
310	[illegible]	[illegible]	[illegible]	[illegible]	1644	[illegible]	[illegible]		[illegible]	[illegible]	61.	
300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
290	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
280	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
270	1446	1476	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	127		
260	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
250	1260	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	430	[illegible]		
240	1143	[illegible]	[illegible]	[illegible]	794	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
230	1019	[illegible]	745	[illegible]	[illegible]	742	[illegible]	[illegible]	[illegible]			
220	889	781	652	[illegible]	540	[illegible]	[illegible]	310	[illegible]			
210	754	[illegible]	[illegible]	[illegible]	437	446		112	[illegible]			
200	625	[illegible]	[illegible]	446	362	323			60.			
190	497	[illegible]	[illegible]	368	305	226						
180	396	[illegible]	[illegible]	315	[illegible]	165						
170	316	[illegible]	320	270	219	130						
160	[illegible]	[illegible]	[illegible]	[illegible]	187	108						
150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.3						
140	193	196	[illegible]	[illegible]	138	81.8						
130	174	[illegible]	173	[illegible]	124	[illegible]						
120	165	165	[illegible]	145	114	[illegible]						
110	60.0	[illegible]		12.4	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 23 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL							A	A	A	A		
HMIN	288	245	221	191	358	318	226		111		115	110
SCAT	47.0	45.1	38.1	70.9	60.2	53.7	39.3		51.6		47.6	52.4
HMAX	406	347	304	309	481	436	311		280		296	233
SHMAX	339	334	256	193	179	189	212		1070		1640	1739
KM												
490					219							
480					219							
470					217							
460					212							
450					205							
440					193	251						
430					180	250						
420					163	246						
410	500				143	237						
400	498				119	225						
390	485				95.0	209						
380	460				73.5	185						
370	425				49.6	158						
360	378				12.4	130						
350	325	540				100						
340	268	537				71.4						
330	198	521				49.6						
320	135	492				12.4	410					
310	83.8	451	508	219			410					
300	52.2	395	607	218			402				2144	2096
290	12.4	323	491	215			381				2136	2094
280		240	458	209			353		1446		2085	2062
270		152	406	202			298		1433		1986	1984
260		83.8	335	192			219		1393		1855	1880
250		43.3	240	180			127		1326		1646	1735
240			127	166			71.4		1248		1394	1555
230			56.5	150			26.3		1111		1143	1341
220				129					946		896	1119
210				103					735		679	875
200				65.7					492		508	698
190									335		398	540
180									229		330	417
170									175		286	342
160									143		245	291
150									124		207	240
140									110		174	202
130									103		155	178
120									83.8		135	164
110												40.2

ELECTRON DENSITY

PUERTO RICO 60 W 23 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL						S						
HMIN	110	110	115	111	113	117	220	209	220	229	213	209
SCAT	52.9	46.7	50.6	58.5	58.8	53.9	56.1	51.9	51.3	42.4	48.8	46.9
HMAX	320	324	325	318	318	317	330	324	328	333	309	323
SHMAX	1900	1916	1847	1769	1640	1280	1039	699	504	370	326	303
KM												
340							1446			616		
330	2032	2177	2096				1446	1004	726	615		461
320	2032	2173	2090	1907	1727	1569	1434	1003	721	601		461
310	2013	2127	2047	1897	1719	1562	1399	987	703	569	524	452
300	1957	2032	1964	1859	1688	1530	1341	952	671	524	519	434
290	1863	1886	1831	1794	1620	1470	1263	903	628	454	503	403
280	1742	1688	1669	1698	1536	1373	1155	826	567	380	479	365
270	1574	1501	1468	1581	1435	1253	1004	726	492	286	442	315
260	1383	1301	1260	1431	1316	1127	834	608	408	189	389	248
250	1201	1073	1080	1274	1191	960	608	477	310	107	318	186
240	1004	903	896	1080	1050	794	389	335	198	60.0	229	122
230	861	767	742	896	917	625	179	179	104	5.5	119	75.6
220	735	670	619	729	767	477	12.4	83.8	12.4		54.8	47.7
210	634	582	527	585	619	348		12.4				6.8
200	548	508	454	477	497	248						
190	477	439	382	380	380	173						
180	406	368	316	304	294	124						
170	351	304	257	246	235	95.5						
160	300	251	203	202	187	80.7						
150	258	207	167	167	155	71.0						
140	209	181	156	147	131	66.9						
130	178	171	149	137	119	62.9						
120	166	162	127	129	101	40.2						
110	83.8	49.6										

ELECTRON DENSITY

PUERTO RICO 60 W 24 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL	J				S							
HMIN	214	219	216	209	184	251	209	198	115	110	107	109
SCAT	41.4	42.1	27.7	26.1	131	57.2	65.4	31.6	57.0	40.0	45.4	41.1
HMAX	312	318	281	256	418	362	341	280	283	276	280	275
SHMAX	190	181	126	67	189	89	113	260	914	1172	1423	1300
KM												
420					112							
410					111							
400					111							
390					110							
380					109							
370					108	115						
360					106	115						
350					104	114	127					
340					102	111	127					
330					99.0	106	126					
320	323	304			95.6	100	124					
310	322	301			91.7	93.4	120					
300	316	291			87.8	83.8	115					
290	300	271	331		83.8	70.2	108		1119		1922	
280	274	243	331		79.1	57.7	99.6	590	1118	1741	1922	1922
270	240	207	318		74.3	46.1	89.4	576	1104	1730	1898	1915
260	198	161	286	198	69.5	26.3	78.2	534	1072	1669	1827	1859
250	152	119	226	196	64.8		66.4	456	1021	1555	1708	1735
240	102	77.6	143	179	60.0		54.8	348	960	1376	1537	1572
230	63.8	47.7	71.4	148	54.8		44.9	209	865	1119	1321	1341
220	34.6	6.8	26.3	97.2	49.6		27.6	119	742	896	1073	1027
210				12.4	43.7		3.3	63.8	619	679	834	774
200					32.2			12.4	477	529	643	573
190					12.4				353	417	497	446
180									251	335	398	368
170									184	276	330	305
160									146	229	281	258
150									122	192	237	219
140									108	161	204	189
130									100	141	178	174
120									77.6	129	162	166
110										49.6	112	127

ELECTRON DENSITY

PUERTO RICO 60 W 24 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL											A	A
HMIN	109	110	109	109	108	110	199	223	206	220	199	
SCAT	62.5	52.8	52.2	61.0	56.2	49.5	50.6	37.2	41.8	40.8	42.4	
HMAX	305	302	300	305	299	286	315	312	302	305	288	
SHMAX	1643	1494	1596	1530	1350	956	745	487	382	323	217	
KM												
320							1084	939				
310	1654	1669	1907	1683			1081	938	670	599		
300	1652	1668	1907	1681	1640		1059	911	670	597		
290	1632	1645	1888	1659	1631	1252	1016	847	657	579	382	
280	1590	1593	1835	1615	1595	1248	953	754	623	540	379	
270	1526	1501	1743	1546	1532	1209	867	631	573	489	366	
260	1454	1381	1620	1455	1454	1158	754	492	500	408	341	
250	1352	1253	1462	1341	1341	1086	625	335	408	310	306	
240	1216	1096	1280	1191	1167	982	477	161	298	209	262	
230	1080	931	1027	1019	982	861	310	60.0	179	90.5	198	
220	917	781	834	875	794	729	170		90.5		135	
210	767	655	643	704	608	590	77.6		43.3		67.6	
200	643	540	508	540	432	446	12.4				12.4	
190	540	462	417	403	310	310						
180	454	389	351	302	240	212						
170	382	330	298	240	186	148						
160	325	281	249	184	147	112						
150	276	237	211	151	122	94.8						
140	237	202	181	140	110	83.2						
130	204	178	172	135	106	77.0						
120	184	167	164	130	101	69.5						
110	112	83.8	71.4	97.2	77.6	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 25 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	A				S						
HMIN	252	247	245	206	226		210	239	112	110	110	110
SCAT	76.5	51.6	38.3	55.6	78.2		68.3	29.4	37.1	35.5	61.8	61.8
HMAX	388	353	328	318	376		363	292	262	266	287	317
SHMAX	185	145	118	148	205		176	251	822	1118	1541	1881
KM												
390	189											
380	188				198							
370	186				198		184					
360	182	208			196		184					
350	176	208			193		182					
340	170	205			188		178					
330	163	198	224		181		172					
320	152	186	222	198	173		165					1876
310	139	172	210	197	163		157					1870
300	125	154	194	193	152		146	679				1840
290	108	130	169	186	139		131	679			1786	1786
280	88.3	104	135	176	124		115	659			1780	1702
270	64.6	74.5	101	165	105		95.5	590	1420	1907	1753	1601
260	42.1	47.7	63.8	149	87.2		79.7	477	1418	1894	1703	1474
250		12.4	34.2	124	66.9		65.7	310	1380	1811	1628	1327
240				97.2	46.5		53.8	49.6	1291	1646	1543	1184
230				71.4	16.4		43.9		1143	1420	1416	1027
220				47.7			28.0		939	1073	1240	861
210				16.4					679	794	1004	704
200									446	573	754	590
190									302	417	540	492
180									229	318	403	417
170									179	251	318	348
160									146	202	262	294
150									124	170	219	255
140									110	147	187	219
130									103	137	172	195
120									89.2	130	162	181
110										12.4	40.2	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 25 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			A	A	A	A					A	A
HMIN	109	109	138				199	199	194	214	207	
SCAT	61.4	53.5	62.7				47.6	54.8	50.8	41.3	50.7	
HMAX	310	313	337				318	329	317	319	339	
SHMAX	1962	1740	2076				1045	1002	684	397	335	
KM												
340			2000								454	
330			1994					1341			450	
320	2032	1861	1963				1569	1332	917	634	438	
310	2032	1860	1907				1559	1300	913	627	417	
300	2017	1835	1826				1515	1247	892	600	389	
290	1975	1776	1727				1436	1167	852	557	348	
280	1907	1678	1588				1327	1073	799	492	305	
270	1806	1567	1429				1175	939	724	417	251	
260	1682	1420	1257				1004	794	643	348	198	
250	1537	1274	1111				794	625	557	278	148	
240	1359	1096	946				573	462	462	209	104	
230	1175	946	807				362	286	362	138	69.1	
220	982	807	688				189	151	262	60.0	47.7	
210	794	688	585				83.4	67.6	152		12.4	
200	643	573	500				12.4	12.4	60.0			
190	529	477	417									
180	439	396	348									
170	372	330	281									
160	320	276	232									
150	276	237	187									
140	237	204	164									
130	204	179	145									
120	186	168	149									
110	112	127	112									

ELECTRON DENSITY

PUERTO RICO 60 W 26 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	A	A	A	A	S						
HMIN	228		248	198	196		216	201	115	110	110	110
SCAT	44.0		33.8	36.8	56.2		53.6	37.0	41.2	53.6	46.3	54.4
HMAX	317		316	273	325		343	284	276	293	295	295
SHMAX	220		162	129	144		151	288	866	1270	1821	1764
KM												
350							194					
340							194					
330					179		192					
320	389		368		179		185					
310	386		365		176		175					
300	374		347		170		161			1500	2430	2063
290	351		314		162		145	573		1499	2423	2059
280	321		262	262	150		127	572	1265	1477	2367	2024
270	274		179	262	137		106	553	1259	1428	2254	1955
260	205		90.5	254	119		86.1	513	1212	1366	2026	1846
250	127		26.1	236	101		68.1	454	1143	1274	1858	1712
240	63.8			212	82.3		52.6	371	1028	1127	1584	1537
230	12.4			170	66.1		40.1	274	896	975	1274	1341
220				117	52.1		12.4	143	742	807	960	1079
210				63.8	40.2			69.7	573	631	735	875
200				12.4	12.4				432	497	551	691
190									310	403	437	551
180									233	329	362	437
170									174	268	300	355
160									141	219	253	295
150									120	182	215	246
140									107	155	185	210
130									98.9	139	160	185
120									83.8	130	149	166
110										40.2	49.6	97.2

ELECTRON DENSITY

PUERTO RICO 60 W 26 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A				C						
HMIN	109	108	108	107	112	116	101	198	207	245	254	238
SCAT	51.5	56.8	66.4	60.2	62.8	54.6	50.0	54.4	54.4	53.7	63.8	43.9
HMAX	302	306	326	321	326	314	316	321	338	365	394	344
SHMAX	1616	1567	1813	1653	1715	1507	1161	640	466	359	385	286
KM												
400											446	
390											446	
380											441	
370										484	431	
360										483	415	
350										475	393	461
340									608	458	367	461
330			1756	1727	1756			834	604	432	335	450
320			1753	1726	1763	1474	1551	834	590	399	294	425
310	1786	1683	1736	1714	1731	1544	1362	825	563	357	246	392
300	1785	1678	1691	1675	1680	1823	1587	803	526	310	198	346
290	1760	1648	1626	1613	1612	1750	1479	766	481	251	149	286
280	1701	1593	1555	1526	1526	1643	1400	716	429	192	97.2	224
270	1607	1506	1446	1420	1420	1509	1319	650	368	127	62.9	161
260	1487	1400	1327	1283	1291	1341	1198	573	310	71.4	34.6	97.2
250	1324	1269	1191	1111	1157	1171	1060	487	240	33.2		56.5
240	1171	1096	1065	931	1004	960	834	398	170			12.4
230	1004	946	896	791	847	716	608	310	107			
220	847	807	742	655	691	508	362	219	62.9			
210	716	667	608	540	551	335	127	127	19.3			
200	608	557	497	446	427	209		44.9				
190	516	462	408	375	335	139						
180	439	382	335	310	255	103						
170	368	323	268	257	202	81.9						
160	315	272	229	211	164	72.4						
150	270	232	186	172	138	68.6						
140	233	193	163	146	125	65.5						
130	205	175	156	137	118	62.5						
120	189	168	149	131	107	49.6						
110	127	127	127	97.2								

ELECTRON DENSITY

PUERTO RICO 60 W 27 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												A
HMIN	219	207	207	228	325	253	201	219	115	116	113	111
SCAT	33.3	34.5	70.6	99.7	78.4	72.4	50.4	28.1	51.5	48.7	51.4	53.5
HMAX	292	282	347	413	491	393	317	279	283	291	282	302
SHMAX	222	162	232	299	199	194	142	282	1023	1502	1376	1625
KM												
500					184							
490					184							
480					183							
470					180							
460					175							
450					169							
440					163							
430					155							
420				235	145							
410				235	134							
400				234	122	203						
390				232	109	203						
380				228	94.2	202						
370				224	79.2	198						
360				218	64.3	192						
350			251	211	50.9	186						
340			251	205	37.7	180						
330			248	197	12.4	169						
320			242	187		154	198					
310			234	174		135	197					1786
300	500		226	159		115	192			2032		1785
290	499	355	215	141		95.0	184		1393	2031	1756	1762
280	483	355	198	120		73.6	171	794	1392	2005	1755	1707
270	450	344	176	97.2		53.1	155	771	1371	1936	1732	1617
260	380	316	149	75.6		28.3	134	698	1323	1830	1676	1507
250	286	276	121	56.5			109	557	1249	1685	1584	1359
240	170	212	91.9	40.2			86.1	310	1153	1468	1460	1212
230	71.4	127	66.9	5.5			65.7	112	1004	1240	1307	1050
220	12.4	65.7	45.8				48.3	12.4	814	896	1096	875
210		19.3	12.4				27.8		625	661	896	729
200									432	477	661	608
190									298	353	497	508
180									205	280	380	432
170									148	232	302	367
160									117	192	240	310
150									101	161	198	258
140									93.9	142	181	219
130									89.1	134	171	193
120									84.3	112	162	180

ELECTRON DENSITY

PUERTO RICO 60 W 27 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					A	A				J		
HMIN	106	110	108	108			199	199	198	234	205	307
SCAT	63.8	61.8	71.0	54.3			54.4	60.9	50.4	39.3	71.3	82.4
HMAX	317	323	351	321			313	333	328	327	345	489
SHMAX	1826	1916	2214	1722			1183	1011	590	412	458	496
KM												
490												446
480												445
470												440
460												432
450												421
440												405
430												389
420												368
410												343
400												313
390												278
380												237
370												198
360			1907									161
350			1907								492	127
340			1896					1215			491	93.9
330		1876	1866	1907				1215	814	754	486	64.6
320	1786	1875	1817	1906			1697	1202	808	749	477	44.9
310	1781	1855	1747	1886			1696	1173	787	720	460	12.4
300	1755	1810	1669	1833			1671	1127	750	661	442	
290	1708	1735	1555	1743			1619	1065	698	590	417	
280	1634	1646	1433	1626			1537	987	629	487	389	
270	1545	1528	1303	1478			1446	885	548	375	354	
260	1433	1386	1143	1324			1291	774	456	251	314	
250	1298	1224	1004	1119			1096	655	362	119	268	
240	1157	1065	875	917			834	540	262	49.6	212	
230	1004	903	764	742			540	389	170		152	
220	847	767	679	596			240	240	104		77.6	
210	704	661	601	497			97.2	112	60.0		33.2	
200	590	573	532	417			12.4	12.4	12.4			
190	487	492	454	355								
180	410	417	362	300								
170	351	356	292	253								
160	302	306	240	215								
150	262	262	202	182								
140	228	228	183	157								
130	198	203	173	142								
120	185	184	166	134								
110	97.2	40.2	119	112								

ELECTRON DENSITY

PUERTO RICO 60 W 28 NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					F	J						
HMIN	288	259	238	333		330	288	220	112	112	114	110
SCAT	46.6	45.6	50.0	80.5		73.1	61.3	52.1	61.0	48.8	54.5	46.3
HMAX	403	359	331	561		490	417	304	358	290	312	294
SHMAX	335	397	265	360		447	325	504	1220	1632	2365	1893
KM												
570				292								
560				292								
550				290								
540				287								
530				281								
520				273								
510				262								
500				248		454						
490				234		454						
480				217		452						
470				198		445						
460				177		434						
450				159		419						
440				140		400						
430				122		376						
420				106		350	403					
410	508			91.9		317	402					
400	507			79.3		281	395					
390	498			68.3		236	382					
380	477			58.3		189	365					
370	442			49.6		138	342					
360	398	661		42.9		90.5	316		1143			
350	346	655		29.8		60.0	278		1138			
340	280	632	424	12.4		40.2	232		1119			
330	212	593	424			.5	184		1082			
320	138	540	419				132		1033		2941	
310	83.8	462	406				87.2	834	968		2940	
300	52.2	362	383				49.6	833	892		2904	2430
290	12.4	251	354				12.4	819	810	2227	2820	2426
280		135	314					790	724	2204	2680	2375
270		65.7	248					749	634	2134	2491	2264
260		12.4	170					686	548	2016	2260	2096
250			83.8					596	477	1846	1938	1882
240			21.7					446	417	1640	1555	1623
230								198	356	1341	1182	1367
220								12.4	310	1027	875	1096
210									266	716	625	875
200									223	492	467	698
190									183	389	371	551
180									143	304	304	437
170									116	253	253	353
160									100	215	219	286
150									94.3	186	187	237
140									90.7	165	161	202
130									87.1	152	152	178
120									79.7	135	143	166
110												60.0

ELECTRON DENSITY

PUERTO RICO 60 W 28 NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A			J		A				J	J	A
HMIN		110	112	109	110		199	198	230	201	188	228
SCAT		52.7	68.9	61.0	55.2		56.0	47.7	57.5	44.8	57.6	65.6
HMAX		331	322	327	330		326	334	343	301	351	369
SHMAX		1989	1953	1870	1803		1233	844	696	489	406	360
KM												
370												410
360											446	408
350									939		446	402
340		2048						1191	938		443	390
330		2047	1907	1846	1969		1555	1189	927		432	374
320		2027	1906	1840	1954		1552	1165	901		415	356
310		1969	1893	1811	1907		1527	1116	861	824	391	329
300		1870	1859	1757	1820		1479	1041	811	824	362	296
290		1735	1806	1678	1708		1406	939	739	811	324	253
280		1572	1727	1576	1570		1319	820	643	779	286	209
270		1394	1635	1446	1394		1198	679	540	727	248	165
260		1201	1519	1298	1212		1050	557	417	652	212	119
250		1034	1386	1175	1034		896	432	262	540	179	80.7
240		885	1240	1034	861		729	286	112	417	152	52.2
230		764	1080	875	704		540	170		262	127	12.4
220		665	917	735	562		362	102		127	102	
210		587	716	616	462		161	56.9		60.0	74.5	
200		524	524	508	382		12.4	12.4			49.6	
190		472	408	417	320						12.4	
180		422	329	348	267							
170		371	272	286	222							
160		315	231	236	186							
150		267	203	198	158							
140		229	181	170	134							
130		201	170	156	121							
120		179	155	147	113							
110		71.4		60.0	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 9 NOV 1955

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	228	246	186	231	279	246	231	117	111	186		318
SCAT	5.+0	6.+0	6.+0	7.+0	7.+0	7.+0	6.+0	4.+0	1.+0	1.+0	1.+0	1.+0
HMAX	456	382	390	426	426	390	186	114	111	186		318
SHMAX	288	191	174	170	198	198	174	123	123	138		198
KM												
400					246							
390					246	246						
380					242	246						
370					234	246						
360	386				234	246						
350	388				213	226						
340	380				198	258						
330	365	417		390	179	198						
320	342	417		390	159	186	174					
310	313	403		390	147	174	174					216
300	278	369	186	390	138	162	174		174			204
290	236	318	186	390	126	138	174		174	174		198
280	186	258	186	390	114	126	174		174	174		198
270	143	167	174	174	102	114	174		174	174		198
260	102	126	174	174	90	102	174	174	174	174		198
250	65.7	90	174	174	78	90	174	174	174	174		198
240	44.+		174	174	66.7		174	174	174	174		198
230	7.+0		90.+	90.+			174	174	174	174		198
220			40.+	1.+0			174	174	174	174		198
210							174	174	174	174		198
200								174	174	174		198
190								174	174	174		198
180								174	174	174		198
170								174	174	174		198
160								174	174	174		198
150								174	174	174		198
140								111	156	174		198
130								102	138	174		198
120								87.+	126	174		198
110									46.+	126		198

ELECTRON DENSITY

PUERTO RICO 60 W 30 NOV 1955

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200
QUAL													
HMIN	210	239	210	201	210	210	210	111	111	102	102	102	102
SCAT	5.+0	4.+0	3.+0	3.+0	4.+0	5.+0	5.+0	4.+0	4.+0	4.+0	4.+0	4.+0	4.+0
HMAX	444	336	303	291	318	318	318	114	114	210	210	210	210
SHMAX	246	18	120	104	102	102	102	102	114	138	180	180	180
KM													
400						101							
390						101							
380						100							
370					98.+	17							
360					94.7	170							
350	310				90.+	167							
340	310	310			86.+	162	540						
330	306	309			81.1	153	530						
320	297	301			102	74.+	14	522					1626
310	282	286	240		102	66.0	123	504					1581
300	267	265	240		90.+	58.+	90.+	474			1707	1707	1458
290	237	233	234	198	78.+	45.+	51.+	426		1361	1800	1800	1457
280	210	189	216	198	66.1	1.+6		408	1716	1800	186	1800	1394
270	179	143	192	1.+	76.0			402	1716	1832	1794	1794	1374
260	147	88.+	156	184	65.7			312	1680	1754	1698	1698	1040
250	115	52.+	115	165	53.+			114	1560	1636	1578	1578	1124
240	81.3	6.8	71.+	143	47.1			1.+6	1341	1478	1383	1383	1024
230	57.7		40.+	112	6.+			1.+6	1073	1290	1175	1175	917
220	40.+			75.6					794	989	960	960	814
210	6			44.9					573	754	735	735	716
200									417	573	573	573	626
190									302	437	446	446	534
180									229	327	368	368	446
170									179	248	305	305	374
160									146	195	253	253	310
150									1.5	159	207	207	257
140									110	14.	175	175	212
130									102	136	158	158	142
120									86.5	130	149	149	170
110										97.2	97.2	97.2	143

AVERAGE ELECTRON DENSITY — KP BELOW 4.5

PUERTO RICO — 60 W — NOV 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
COUNT	23	23	22	22	22	21	23	17	24	22	22	26
HMIN	232	233	225	208	232	253	233	185	112	111	110	109
RATIO	6.2	6.8	7.2	7.3	4.1	4.6	4.9	7.4	5.3	5.2	4.7	4.5
SCAT	41.7	37.1	35.7	38.8	74.6	58.6	55.0	33.3	41.9	42.1	48.0	49.1
NMAX	428	378	337	241	163	156	178	679	1330	1813	1982	1984
HMAX	324	315	302	285	373	371	345	275	277	279	289	292
SHMAX	235	185	157	119	156	124	131	315	880	1229	1517	1591
SHINF	1442	1250	1109	800	614	564	633	2230	4631	6345	7109	7188
KM												
950	30.7	25.8	21.7	14.5	15.4	14.4	14.2	38.5	75.9	104	120	122
900	39.4	33.2	27.8	18.5	19.8	18.4	18.1	49.4	97.4	134	154	157
850	50.5	42.5	35.6	23.7	25.3	23.6	23.3	63.4	125	172	198	201
800	64.8	54.5	45.7	30.4	32.4	30.2	29.8	81.3	160	220	254	258
750	82.9	69.8	58.5	39.0	41.4	38.6	38.2	104	205	282	325	330
700	106	89.2	74.9	49.9	52.6	49.2	48.7	133	263	362	416	423
650	135	114	95.5	63.7	66.5	62.4	61.9	171	336	462	531	540
600	171	144	121	81.0	83.1	78.4	78.3	217	428	589	676	687
550	215	181	153	102	102	97.3	97.9	275	542	746	856	869
500	266	226	191	128	122	118	120	346	681	937	1073	1088
490	277	235	200	133	126	122	125	362	711	979	1120	1136
480	288	245	208	139	130	126	130	378	743	1023	1170	1186
470	300	255	217	145	134	130	135	395	776	1068	1220	1236
460	311	264	226	151	137	134	139	412	809	1114	1271	1288
450	322	274	235	157	140	138	144	429	843	1161	1324	1341
440	334	284	244	163	143	141	149	447	878	1209	1377	1394
430	345	294	253	170	146	145	153	465	913	1257	1431	1448
420	356	304	262	176	148	148	157	483	949	1306	1485	1502
410	366	314	271	182	149	150	161	502	984	1356	1539	1556
400	376	323	279	188	150	152	165	520	1020	1405	1592	1609
390	386	331	288	194	150	153	168	539	1056	1454	1645	1661
380	394	340	296	200	150	153	171	557	1091	1502	1696	1712
370	401	347	303	206	148	152	173	574	1125	1549	1745	1761
360	407	353	310	211	146	149	174	591	1158	1594	1792	1806
350	411	357	317	216	143	145	175	608	1189	1637	1835	1849
340	411	360	322	221	138	138	174	623	1217	1676	1875	1886
330	407	359	326	225	132	129	171	637	1243	1712	1909	1919
320	399	355	328	228	125	118	166	649	1265	1744	1938	1946
310	384	346	326	231	118	103	159	659	1283	1770	1959	1965
300	364	330	320	232	109	87.9	148	667	1296	1790	1972	1975
290	335	307	308	232	98.5	72.6	134	673	1305	1803	1973	1971
280	298	276	286	230	87.3	55.0	116	671	1307	1804	1950	1939
270	252	241	256	224	79.4	41.1	95.0	656	1297	1778	1889	1868
260	197	198	215	211	70.7	31.7	69.4	616	1265	1712	1783	1755
250	141	153	166	190	61.8	21.7	50.8	546	1195	1599	1632	1601
240	88.2	97.5	116	160	52.3	16.1	36.8	431	1084	1426	1437	1415
230	47.3	54.1	69.1	120	39.7	11.4	22.0	301	923	1198	1215	1199
220	21.9	21.1	30.2	76.1	29.1	7.0	10.0	192	735	931	974	970
210	7.1	5.0	8.7	34.2	20.3	3.9	1.6	113	550	699	758	766
200	1.2	.1	1.8	4.4	11.0	.6		67.0	401	518	580	604
190					2.5			46.4	291	394	453	485
180								33.6	214	309	365	398
170								26.2	166	250	300	333
160								22.4	135	205	251	282
150								20.3	116	172	212	240
140								18.6	107	151	183	205
130								15.1	100	139	166	183
120								11.0	89.1	127	151	170
110									6.9	36.3	51.2	74.2

AVERAGE ELECTRON DENSITY — KP BELOW 4.5

PUERTO RICO — 60 W — NOV 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
COUNT	23	23	23	23	19	12	26	26	24	23	24	23
HMIN	109	109	110	109	111	120	209	202	205	227	226	231
RATIO	4.2	4.1	3.9	3.9	4.1	4.4	5.2	5.4	5.2	5.4	5.5	5.8
SCAT	52.8	55.5	60.0	61.2	57.8	55.8	50.9	46.7	49.6	47.0	46.4	44.2
NMAX	1881	1854	1810	1745	1728	1584	1520	1099	745	632	534	479
HMAX	304	309	319	323	321	317	322	315	322	338	332	332
SHMAX	1675	1710	1760	1729	1594	1340	1036	713	514	401	337	287
SHINF	6982	6939	6865	6652	6469	5808	5325	3814	2614	2183	1842	1638
KM												
950	123	125	127	126	123	111	109	76.2	54.2	48.2	40.0	35.7
900	158	160	163	161	158	142	139	97.7	69.5	61.8	51.3	45.7
850	202	205	209	207	202	183	179	125	89.1	79.2	65.8	58.6
800	260	263	269	265	259	234	229	161	114	102	84.3	75.1
750	333	336	344	340	332	300	293	206	146	130	108	96.1
700	425	430	440	434	424	383	375	263	187	166	138	123
650	543	549	560	553	541	489	478	335	238	211	175	156
600	690	697	711	701	686	620	606	426	302	267	222	198
550	871	879	895	882	863	781	762	536	379	335	279	249
500	1087	1095	1112	1095	1072	971	947	667	470	414	344	308
450	1333	1340	1353	1328	1304	1182	1150	812	569	499	415	371
440	1384	1390	1402	1375	1351	1225	1191	842	589	515	429	384
430	1435	1440	1451	1422	1397	1268	1232	871	609	532	442	397
420	1486	1490	1499	1468	1443	1310	1272	900	628	547	455	409
410	1537	1540	1546	1512	1487	1351	1311	929	646	562	468	420
400	1586	1587	1591	1554	1530	1390	1348	956	664	576	480	431
390	1634	1633	1633	1594	1570	1428	1383	982	680	589	491	441
380	1679	1677	1673	1630	1607	1463	1416	1006	695	601	500	451
370	1722	1717	1708	1663	1641	1494	1445	1029	708	610	508	458
360	1761	1754	1740	1691	1670	1522	1470	1048	719	617	514	464
350	1796	1785	1766	1713	1694	1545	1490	1065	727	621	516	468
340	1826	1812	1785	1728	1711	1563	1505	1077	730	620	514	468
330	1850	1832	1797	1736	1722	1574	1513	1084	729	613	506	464
320	1866	1844	1800	1732	1723	1578	1510	1083	722	595	491	453
310	1874	1843	1787	1712	1705	1566	1487	1072	706	567	468	433
300	1867	1825	1753	1671	1663	1532	1439	1045	678	526	438	404
290	1836	1779	1693	1607	1592	1473	1363	997	636	468	401	364
280	1772	1701	1606	1518	1499	1389	1255	923	579	398	354	313
270	1668	1599	1495	1405	1381	1277	1114	825	508	317	301	260
260	1533	1469	1363	1276	1245	1145	936	708	428	234	243	198
250	1370	1320	1214	1136	1098	997	729	573	338	158	186	133
240	1195	1155	1058	983	939	838	507	428	246	101	130	78.7
230	1020	987	902	834	781	676	288	286	162	51.4	75.2	35.0
220	852	828	759	699	633	521	133	156	93.6	23.0	38.4	14.5
210	704	683	629	582	505	388	44.8	69.6	45.7	10.7	14.3	3.7
200	585	561	522	481	399	280	3.8	17.3	14.7	4.2	4.5	1.1
190	489	466	434	395	313	201		.5	1.6	.1	.5	
180	411	390	361	324	250	147						
170	349	331	302	268	202	113						
160	298	282	253	222	167	92.0						
150	255	241	215	187	141	79.7						
140	218	209	186	163	124	72.4						
130	192	186	169	148	116	66.7						
120	178	173	158	138	107	55.5						
110	100	78.0	74.2	57.0	21.2	3.1						

TABLES OF IONOSPHERIC DATA

September 1959 - January 1956

Table 1*

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.0)	<294					2.65
01		(5.8)	(300)					2.68
02		(5.5)	<300					2.65
03		4.7	<300					2.62
04		(4.2)	(314)					(2.45)
05		(4.0)	<306					2.70
06		(5.45)	262		---	----		3.00
07	---	7.0	238	---	(119)	2.75		3.10
08	(406)	7.95	225	4.6	112	3.20		3.05
09	(347)	8.75	216	4.9	110	3.50		3.00
10	(395)	9.3	210	5.0	110	(3.70)		2.90
11	342	9.75	205	5.2	110	3.80		2.80
12	335	9.8	211	5.3	109	3.90		2.80
13	(430)	9.9	218	5.5	109	(3.80)		2.80
14	(450)	9.8	220	5.3	109	3.68		2.75
15	(435)	9.9	230	5.3	110	3.40		2.75
16	---	9.85	236	---	<115	3.00		2.80
17	---	9.9	248	---	<121	2.70		2.80
18		9.9	250		---	----		2.85
19		9.0	240					2.85
20		8.3	254					2.75
21		7.15	265					2.65
22		6.9	(290)					2.65
23		6.5	<300					2.65

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.
*Virtual heights measured experimentally to nearest km.

Table 2

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	280					2.70
01		5.8	280					2.70
02		5.5	290					2.60
03		4.9	(295)					2.65
04		4.75	(290)					2.65
05		4.2	(280)					2.70
06		(5.0)	270		(129)	(1.90)	1.8	(2.98)
07	---	7.05	240	---	109	2.60		3.15
08	---	8.0	230	---	105	3.10	2.4	3.10
09	(380)	8.9	215	---	105	3.40	3.2	3.00
10	350	9.2	210	---	101	3.60		2.90
11	400	9.85	210	5.4	101	3.75		2.85
12	390	9.8	210	6.0	101	3.80		2.80
13	425	10.0	215	5.4	101	3.80		2.80
14	(475)	10.05	220	5.3	103	3.60		2.80
15	(455)	9.9	225	---	103	3.40		2.80
16	---	9.8	230	---	105	3.10		2.80
17	---	9.95	240	---	109	2.60		2.85
18		9.6	250		125	1.95		2.90
19		9.0	240					2.85
20		8.15	245					2.80
21		7.4	260					2.75
22		6.9	270					2.70
23		6.4	280					2.70

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

Table 3

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>14.0	260					(2.70)
01		>13.2	260					(2.70)
02		13.0	255					(2.75)
03		11.1	240					2.00
04		8.8	230					2.80
05		>7.2	240					2.85
06		>6.9	270					2.75
07		10.0	240		(119)	----	2.6	3.15
08		10.8	225		113	----	3.5	3.15
09		11.4	220		109	----	4.2	3.00
10		12.1	210		109	----	4.5	2.70
11		13.6	210		109	----	>4.4	2.70
12	---	14.6	(215)		109	----	4.6	2.75
13	345	15.0	220		109	----	4.6	2.70
14	340	14.95	220	---	109	----	4.1	2.70
15	340	(14.9)	230	---	109	----	4.3	2.70
16	320	>15.0	235		111	3.50	3.9	2.70
17	---	>15.0	245		113	2.90	3.8	2.80
18		>14.4	250		---	----	4.0	(2.95)
19		>14.3	245				3.3	(2.80)
20		>13.8	245				2.7	(2.60)
21		>13.65	245					----
22		>14.2	270					----
23		>14.15	260					----

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

Table 4

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(13.2)	280					3.00
01		>13.0	250					3.15
02		11.5	230					3.10
03		8.5	230					2.98
04		7.4	250					2.85
05		6.4	260					2.82
06		8.0	285		---	----		2.90
07		10.2	260		119	(2.80)	3.5	2.90
08		11.45	240		117	(3.35)	5.0	2.60
09		12.7	235		117	(3.65)	4.7	2.40
10		13.35	(230)		117	(3.90)	4.7	2.28
11		13.0	225		117	4.02	4.5	2.20
12		13.3	220		117	4.10		2.20
13	---	13.75	225		119	4.05		2.20
14	---	13.9	230		119	3.90		(2.30)
15		(14.2)	245		119	3.65		(2.40)
16		>14.3	255		119	3.28	3.4	(2.40)
17		(13.9)	270		121	2.50	3.8	(2.35)
18		>12.0	300		---	----	3.2	(2.25)
19		(11.5)	305					(2.15)
20		>11.5	360					(2.30)
21		(12.45)	320					(2.50)
22		(12.6)	300					(2.72)
23		>12.0	290					(2.80)

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

Table 5

Huancayo, Peru (12.0°S, 75.3°W) — September 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.7	225					3.00
01		8.2	235					3.00
02		7.5	240					3.00
03		6.85	245					3.00
04		5.8	245					3.05
05		5.7	250					3.05
06		6.9	270		---	1.80		2.95
07		10.3	245		120	2.75	3.0	3.02
08		11.95	230		113	(3.30)	7.4	2.80
09		>12.5	220		---	(3.80)	8.6	2.50
10	---	>12.65	210		---	(4.00)	8.6	2.35
11	---	>11.7	210		---	(4.10)	9.0	2.30
12	---	>11.55	205	---	---	(4.15)	9.4	2.20
13	---	11.4	200	---	---	(4.10)	9.0	2.20
14		11.0	200		---	(3.95)	8.5	2.15
15		11.0	210		---	(3.68)	7.8	2.15
16		10.7	230		---	(3.30)	7.3	2.15
17		10.75	260		---	(2.70)	6.4	2.25
18		10.45	300		---	----		2.30
19		>9.2	400					2.10
20		9.0	375					2.32
21		9.1	270					2.50
22		>9.4	230					2.85
23		9.8	220					3.00

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

Table 6

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.75)	270		(129)	1.90		(2.80)
01	---	(5.55)	270		<132	1.85		(2.75)
02	---	(5.0)	260		(121)	2.05		(2.80)
03	---	(5.4)	265	---	119	2.20	2.2	(2.80)
04	0	(5.2)	255	3.8	115	2.30		(2.70)
05	(470)	(4.85)	250	3.0	113	2.50		(2.70)
06	400	5.3	245	4.0	111	2.70		(2.60)
07	440	5.8	235	4.2	109	2.90		2.65
08	475	(4.7)	230	4.2	109	3.00		(2.40)
09	485	(5.7)	230	4.3	109	3.10	3.2	(2.40)
10	455	(5.6)	230	4.5	105	3.15		(2.55)
11	525	5.5	230	4.6	109	3.20		(2.32)
12	520	5.15	230	4.5	107	3.20	3.9	(2.50)
13	490	(5.3)	230	4.5	109	3.20	4.0	(2.45)
14	510	(5.5)	220	4.4	109	3.10	3.3	(2.35)
15	500	(5.25)	230	4.4	109	3.00	3.8	(2.35)
16	400	(5.65)	235	(4.3)	109	2.90		(2.55)
17	450	(5.45)	240	(4.2)	111	2.80		(2.60)
18	420	(5.8)	250	4.0	117	2.60		(2.65)
19	---	(5.4)	255	---	119	2.35	3.0	2.65
20	---	(5.8)	260		<120	2.10	2.7	(2.78)
21	---	5.6	270		(121)	2.00	2.7	(2.85)
22		(5.5)	<200		<129	1.95	2.3	(2.80)
23		(5.45)	280		<139	1.00		(2.62)

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

Table 7

Point Barrow, Alaska (71.3°N, 156.8°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.95)					7.0	2.68
01		(5.15)					4.7	2.65
02		4.7					4.5	2.75
03		(5.6)					4.6	(2.55)
04		(5.5)					3.8	(2.65)
05		(5.7)						2.65
06		(5.4)						(2.40)
07		5.0						2.35
08		5.7						2.30
09		5.9						2.45
10		5.7						2.50
11		5.9						2.40
12		5.6						2.30
13		5.7						2.45
14		6.1						2.50
15		5.9						2.50
16		6.0						2.55
17		5.95						2.50
18		5.8						2.65
19		5.6						2.65
20		5.35						2.75
21		5.2						2.80
22		(5.3)					4.6	2.78
23		5.15					4.6	2.62

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

Table 8

Godhavn, Greenland (69.3°N, 53.5°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.3)			---	----		(2.65)
01		(4.8)			---	----		----
02		(5.4)			---	----		----
03		(4.65)			---	----		----
04		(3.95)		---	<128	----		----
05		(4.6)		(3.2)	<111	(2.12)		----
06		(4.8)		(3.8)	(105)	(2.40)		(2.50)
07		(4.8)		(4.0)	103	2.70		(2.55)
08		(5.45)		(4.2)	103	(2.95)		G
09		(6.2)		(4.3)	101	(3.10)		----
10		(6.4)		(4.5)	101	(3.25)		----
11		(6.9)		(4.8)	101	3.30		(2.60)
12		(6.9)		(4.6)	101	(3.35)		(2.70)
13		---		(4.4)	101	3.38		----
14		(5.8)		(4.6)	101	3.35	4.5	----
15		(5.75)		(4.6)	101	3.25	4.9	(2.30)
16		(6.0)		(4.7)	103	(3.10)	3.9	(2.75)
17		(5.65)		(4.4)	103	(3.00)	4.8	----
18		(5.65)		(3.9)	(105)	(2.75)	4.0	(2.70)
19		(5.8)		---	<107	(2.48)	4.1	(2.65)
20		(5.5)		---	<113	(2.20)		(2.70)
21		(5.65)			(111)	(1.88)		(2.75)
22		(4.95)			<127	----		(2.70)
23		(4.8)			---	----		(2.68)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 9

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>4.8	(395)				4.4	----
01		>4.35	415				4.3	----
02		>4.4	<420				4.4	----
03		(4.1)	(420)				4.3	(2.45)
04		5.05	(340)		---	----	3.7	2.68
05	---	5.15	<310		---	----	3.1	2.72
06	---	5.4	260	---	113	2.60		2.90
07	---	5.6	(250)	---	<115	(2.72)		2.85
08	500	5.8	250	4.4	111	3.08		2.75
09	460	5.9	230	4.7	111	3.25		2.72
10	<445	6.3	230	4.9	107	(3.40)		2.68
11	450	6.25	220	5.0	109	3.50		2.62
12	445	6.4	220	5.0	109	>3.52		2.62
13	450	6.6	220	5.0	109	3.50		2.55
14	450	6.8	220	5.0	107	3.50		2.60
15	450	6.6	230	4.9	109	3.40		2.55
16	410	6.6	240	4.8	111	(3.30)		2.68
17	420	6.3	(250)	4.5	111	3.00		2.75
18	---	6.2	(265)	---	119	(2.75)	3.5	2.80
19	---	5.8	290	---	<131	2.72	3.2	2.80
20		>5.1	300		<133	----	2.7	2.75
21		5.0	(355)				3.6	2.70
22		(5.0)	(350)				3.6	(2.50)
23		>4.6	<415				5.0	(2.45)

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

Table 10

Anchorage, Alaska (61.2°N, 149.9°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.1)						(2.50)
01		(4.35)						(2.50)
02		(4.2)					2.2	(2.45)
03		(4.15)			---	----	2.1	(2.40)
04		(4.55)			---	----	1.8	(2.50)
05		(5.0)		3.5	<129	2.02	2.2	2.55
06		5.3		3.9	113	2.55		2.40
07		5.6		4.1	107	2.90		2.40
08		5.9		4.4	105	(3.15)		2.50
09		5.85		4.7	105	3.38		2.40
10		6.0		4.7	103	3.50		2.42
11		6.0		5.0	103	3.60		2.40
12		6.0		5.0	103	3.60		2.38
13		5.9		5.0	104	3.62		2.35
14		5.95		5.0	103	3.60		2.45
15		6.0		4.9	105	3.40		2.55
16		>6.0		4.7	106	3.20		2.62
17		6.0		4.4	107	2.90		2.70
18		>6.05		---	115	2.65		2.80
19		6.0		---	125	(2.45)		2.80
20		5.75			<135	----	2.3	2.80
21		5.7			---	----		2.80
22		(4.7)					1.9	(2.70)
23		4.15						2.52

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

Table 11

Narsarssuak, Greenland (61.2°N, 45.4°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.6)					4.6	(2.50)
01		(4.7)					4.6	(2.50)
02		(4.0)					3.8	(2.48)
03		(4.4)			---	----	3.9	(2.50)
04		(4.3)			---	----	3.6	(2.50)
05		4.5		---	114	2.95	3.6	2.75
06		4.8		3.8	107	3.00		2.70
07		5.0		4.4	109	3.20		2.70
08		5.6		4.6	110	3.40		2.70
09		5.75		4.9	107	3.50		2.52
10		6.0		5.0	105	3.50		2.55
11		6.1		5.0	105	3.60		2.52
12		6.5		5.1	103	3.65		2.50
13		6.8		5.0	101	3.70		2.50
14		7.0		5.1	103	3.60		2.55
15		6.3		4.9	103	3.50		2.65
16		6.3		4.8	103	3.30		2.60
17		6.4		4.5	105	3.00		2.60
18		(6.2)		---	113	2.95	3.2	(2.70)
19		(5.7)			(121)	2.80	3.2	(2.70)
20		(5.55)			(115)	(2.70)	3.9	(2.65)
21		(5.45)			---	----	6.0	(2.65)
22		(4.7)					4.4	(2.60)
23		(4.9)					5.3	(2.50)

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

Table 12

Adak, Alaska (51.9°N, 176.6°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.2	300		---	----	1.2	2.55
01		4.8	310		---	----		2.50
02		4.6	320					2.40
03		4.2	335				1.6	2.40
04	---	4.1	350		121	----	1.6	2.40
05	(470)	4.9	285	3.4	110	----	2.5	2.42
06	470	5.7	260	3.9	107	2.60	3.0	2.45
07	470	6.1	(250)	4.3	101	3.00	3.6	2.48
08	470	6.2	230	4.6	101	3.30	4.0	2.52
09	480	6.2	220	4.8	101	(3.50)	4.0	2.55
10	500	6.4	215	5.0	101	(3.65)	4.1	2.50
11	530	6.0	(215)	5.1	101	3.78	4.2	2.50
12	520	6.2	<220	5.2	101	3.80	4.0	2.48
13	490	6.2	215	5.3	101	3.75	4.1	2.52
14	470	6.6	220	5.2	101	3.70	4.0	2.60
15	520	6.2	225	5.0	101	3.50	3.4	2.68
16	440	6.3	240	4.7	101	3.22	3.4	2.70
17	---	6.3	<245		103	2.95	3.5	2.80
18	---	6.3	(260)		111	(2.45)	3.6	2.85
19		6.3	<280		120	----	3.6	2.85
20		6.4	280		---	----	3.0	2.78
21		6.4	265		---	----	2.9	2.78
22		6.0	270		---	----	3.0	2.70
23		>5.65	(290)		---	----	2.6	2.60

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

Table 13

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	300					2.65
01		6.1	300					2.65
02		5.7	<310					2.70
03		5.35	(305)					2.60
04		4.9	(310)					2.65
05		4.5	<300					2.70
06	---	5.8	(250)	---	(115)	----		3.00
07	(330)	6.35	235	4.5	111	3.00	>3.0	2.95
08	430	6.5	225	4.8	109	3.60	3.6	2.80
09	450	6.7	220	5.3	109	3.80	3.8	2.72
10	490	6.95	210	5.4	106	4.00		2.65
11	440	6.9	205	5.5	105	4.10		2.60
12	445	7.3	<220	5.6	109	(4.10)		2.65
13	455	6.75	(220)	5.6	105	(4.05)		2.55
14	445	7.15	220	5.6	109	4.00		2.58
15	450	7.0	<230	5.4	109	3.80		2.60
16	410	7.2	230	5.0	111	3.58		2.65
17	395	7.4	(240)	4.7	111	3.00		2.70
18	---	7.6	(260)	---	122	----	2.6	2.75
19		7.9	265					2.80
20		7.8	265					2.70
21		7.7	270				2.8	2.70
22		6.9	280					2.70
23		6.7	<300					2.65

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

Table 14

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.3	290				2.4	2.65
01		5.8	300					2.65
02		5.7	300				1.7	2.62
03		5.25	290					2.60
04		4.9	300					2.60
05		4.5	300					2.75
06	(270)	5.7	260	---	119	2.20	2.5	2.90
07	(325)	6.2	235	---	105	2.85	3.5	2.90
08	425	6.5	230	5.0	105	3.30	3.6	2.80
09	445	6.6	220	5.2	105	3.50	3.9	2.65
10	460	7.2	215	5.3	101	3.80	4.3	2.68
11	510	7.2	205	5.4	103	3.95	4.0	2.50
12	460	7.3	215	5.6	105	4.00	4.3	2.55
13	460	7.7	215	5.4	103	4.00	4.1	2.55
14	455	7.4	220	5.5	103	4.00	4.0	2.55
15	440	7.2	220	5.4	103	3.85		2.60
16	455	7.45	230	5.2	105	3.50	3.8	2.60
17	390	7.4	240	4.6	105	3.15	3.6	2.65
18	(320)	7.7	260	---	111	2.50	2.8	2.75
19	---	7.7	270		125	1.82	2.1	2.80
20		7.6	260				2.5	2.70
21		7.5	265				2.4	2.70
22		7.0	280				2.5	2.65
23		6.5	290					2.62

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

Table 15

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	330				2.5	2.50
01		5.9	330				2.5	2.50
02		5.9	<320				2.3	2.50
03		5.7	315					2.50
04		5.35	310					2.58
05		4.95	310					2.58
06	---	6.3	270	---	125	2.20	2.4	2.85
07	(500)	7.7	245	4.3	115	2.90	3.2	2.90
08	430	8.0	230	4.7	111	3.35	3.8	2.65
09	510	8.5	225	5.0	111	(3.70)	4.0	2.52
10	410	9.0	225	5.4	111	3.92	4.7	2.50
11	410	9.1	<230	5.7	113	4.00	4.7	2.50
12	420	9.5	225	5.6	112	4.02	4.4	2.50
13	405	9.6	230	5.7	111	4.10	4.4	2.50
14	390	9.6	(230)	5.6	111	4.00	4.2	2.52
15	415	9.2	230	5.6	113	3.90	4.0	2.55
16	400	8.8	245	5.1	115	3.50	4.2	2.60
17	(400)	8.3	<250	---	115	3.10	3.8	2.65
18	---	8.5	265		119	----	3.3	2.75
19		8.2	255				2.7	2.80
20		7.3	<255				3.0	2.72
21		6.8	265				3.2	2.65
22		6.5	(280)				3.1	2.60
23		6.0	(330)				4.2	2.50

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

Table 16

Grand Bahama I. (26.6°N, 78.2°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.1	290				3.0	2.68
01		7.1	285				2.2	2.70
02		6.8	280				1.6	2.70
03		6.6	280					2.70
04		6.3	280					2.60
05		5.9	290					2.65
06		6.7	270		131	2.00	2.4	2.90
07	<345	8.0	240	---	111	2.90	4.0	3.00
08	(395)	8.6	230	5.3	109	3.40	4.3	2.90
09	340	9.7	220	5.6	109	3.80	5.0	2.80
10	395	9.7	215	5.4	109	4.00	4.6	2.70
11	395	10.1	<220	5.9	109	(4.10)	4.3	2.65
12	390	10.2	220	6.2	111	(4.30)	4.5	2.62
13	380	10.35	(225)	6.0	111	4.22	4.6	2.65
14	380	10.35	(230)	(5.9)	110	4.10	4.6	2.65
15	365	10.0	230	(5.8)	109	4.00	4.5	2.65
16	370	9.55	(235)	5.5	111	3.70	4.8	2.70
17	(355)	9.25	(245)	4.9	111	3.20	4.1	2.75
18	---	>9.0	260		117	(2.55)	3.2	2.85
19		>0.7	255		---	----	3.0	(2.80)
20		0.3	260				2.8	2.70
21		(7.9)	275				3.0	(2.70)
22		>7.5	<295				3.0	2.65
23		7.3	(300)				3.1	2.65

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

Table 17

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.5	300					2.65
01		>11.1	285					2.70
02		10.25	270					2.80
03		9.1	280					2.70
04		8.55	270					2.68
05		7.35	265				2.3	2.75
06		7.5	270				3.0	2.80
07		8.95	240		---	----	3.3	3.05
08		9.3	230		<115	----	3.9	3.10
09	---	9.6	220		(113)	----	4.9	2.80
10	---	10.15	(220)		(109)	----	5.4	2.60
11	380	11.6	(225)	---	109	----	5.3	2.50
12	380	12.8	(220)	---	109	----	5.2	2.60
13	360	13.4	(235)	---	109	----	5.6	2.65
14	370	13.2	230	---	109	----	5.3	2.65
15	355	13.4	230	(6.5)	109	----	5.0	2.65
16	335	13.8	<240		(111)	(3.75)	5.0	2.70
17	320	13.3	(240)		111	3.35	5.3	2.75
18	---	12.9	260		---	----	4.0	2.80
19		12.8	265				3.6	2.85
20		11.8	270				3.0	2.65
21		12.4	280				2.7	(2.52)
22		12.85	300				2.5	2.52
23		>11.5	300					2.55

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

Table 18

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.6	308				2.0	2.72
01		8.2	280				2.4	2.85
02		7.5	270				2.1	2.95
03		7.8	260					2.85
04		6.2	280					2.75
05		5.9	285				1.8	2.70
06		5.9	280		125	(1.50)	2.2	2.80
07	---	7.6	245	---	113	2.62	4.0	2.95
08	(485)	8.6	230	5.2	107	3.30	4.4	2.80
09	380	9.5	220	5.6	105	3.70	5.1	2.50
10	395	10.3	220	6.2	105	3.95	4.8	2.40
11	395	11.4	215	6.2	107	4.10	4.8	2.50
12	395	12.0	<220	6.2	107	4.20	5.0	2.60
13	388	12.2	220	(6.3)	107	4.20	4.7	2.65
14	380	12.1	220	6.1	107	4.12	4.7	2.70
15	370	12.3	230	6.0	106	4.00	4.4	2.70
16	345	12.4	(230)	6.0	107	3.70	4.5	2.75
17	320	12.1	(245)	---	107	3.30	4.7	2.80
18	<285	11.8	260		115	2.42	4.6	2.90
19		11.2	260		---	----	4.5	2.90
20		10.4	<270				4.3	2.85
21		9.85	280				3.7	2.75
22		9.2	290				4.3	2.70
23		9.0	295				3.0	2.68

Time: 158.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>11.05	300					(2.80)
01		10.9	265					2.90
02		9.65	250					3.00
03		9.1	250					2.85
04		7.35	250					2.85
05		6.15	260					2.90
06		7.3	285		---	----	2.7	2.85
07		9.2	255		121	(2.90)	4.0	2.85
08		10.0	250		117	(3.40)	5.5	2.60
09		(10.6)	(240)		117	(3.85)	6.6	(2.35)
10		11.7	(240)		117	(4.00)	5.9	2.22
11		12.1	(230)		(119)	(4.15)	4.9	2.25
12	---	12.5	<240		119	(4.20)	5.6	2.25
13	---	12.9	<240	---	117	(4.10)	5.2	2.25
14	(470)	12.8	(240)	---	117	(4.00)	5.6	(2.30)
15	---	(12.9)	(250)		116	(3.80)	4.4	(2.30)
16	---	>13.0	(250)		117	(3.50)	4.5	(2.35)
17		>12.25	(270)		<121	(2.90)	4.6	(2.40)
18		>11.0	300				4.1	(2.50)
19		>10.8	360				3.1	(2.30)
20		>10.0	410				2.2	(2.25)
21		>10.0	360					(2.45)
22		(10.3)	350					(2.48)
23		10.5	330					(2.60)

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

Table 20

Huancayo, Peru (12.0°S, 75.3°W) August 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.5	220					3.02
01		8.3	220					3.10
02		7.6	220					3.15
03		6.8	230					3.10
04		5.8	240					3.05
05		4.8	260					3.10
06		5.7	280		---	1.42		2.85
07		8.6	250		117	2.52	5.8	3.00
08		10.6	235		111	(3.30)	7.2	2.80
09	---	11.6	220		109	(3.65)	8.0	2.55
10	---	11.5	210		---	(3.90)	8.2	2.40
11	---	11.2	205		---	(4.10)	8.6	2.32
12	---	11.2	200		---	(4.10)	8.5	2.25
13	---	11.0	200	---	---	(4.10)	8.5	2.20
14	---	10.9	200	---	---	(3.95)	7.8	2.20
15	---	10.7	205	---	107	(3.70)	7.8	2.15
16	---	10.2	225	---	109	(3.30)	7.3	2.20
17		9.7	255		111	(2.70)	6.0	2.25
18		9.5	295		---	(1.65)		2.25
19		8.6	370					2.20
20		8.6	330					2.35
21		8.9	255					2.62
22		8.8	230					2.90
23		8.55	225					2.90

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

Table 21

Thule, Greenland (76.6°N, 68.7°W) July 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(355)	(6.0)	250	---	112	2.30		(2.90)
01	(360)	(5.5)	250	---	112	2.30		(2.88)
02	(365)	(5.0)	240	---	111	2.38		----
03	430	(5.2)	240	3.9	111	2.50		(2.70)
04	435	(5.3)	230	4.1	109	2.70		(2.75)
05	420	5.4	230	4.2	109	2.75		(2.75)
06	470	(5.8)	235	4.2	107	2.90		(2.82)
07	480	5.2	220	4.3	107	3.00		G
08	430	---	220	4.5	104	3.18		----
09	470	(5.4)	220	4.5	105	3.20		----
10	575	(5.2)	210	4.6	103	3.25		(2.15)
11	(600)	<5.4	220	4.7	105	3.30		(2.08)
12	540	5.4	210	4.7	101	3.28		(2.42)
13	530	(5.3)	210	4.5	101	3.30		(2.50)
14	515	(5.5)	220	4.5	102	3.20		(2.50)
15	480	(5.9)	220	4.5	105	3.20		(2.58)
16	440	5.6	220	4.5	105	3.08		2.52
17	420	(6.1)	230	4.4	109	3.00		(2.70)
18	440	(5.65)	235	4.2	109	2.80		(2.60)
19	415	(5.55)	230	4.1	111	2.65		(2.58)
20	(400)	(6.5)	250	4.0	111	2.55		(2.70)
21	---	(5.7)	260	---	111	2.40		(2.70)
22	---	(6.0)	250	---	(111)	(2.30)		(2.90)
23	---	(5.8)	260	---	<121	(2.28)		(2.85)

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

Table 22

Godhavn, Greenland (69.3°N, 53.5°W) July 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.15)			<111	----		(2.80)
01		(5.2)		---	(105)	----		(2.72)
02		(4.65)		---	<110	(2.10)		(2.65)
03		(5.2)		---	<107	----		(2.70)
04		(4.85)		(3.4)	(105)	(2.25)		----
05		(5.0)		(3.8)	(105)	(2.45)		(2.60)
06		(4.65)		4.0	(105)	(2.70)		----
07		----		4.2	103	(2.95)		
08		----		(4.1)	103	(3.10)		----
09		----		(4.3)	103	(3.25)		----
10		(6.4)		(4.5)	101	3.40		----
11		(6.8)		(4.7)	101	3.40		----
12		(6.6)		(4.7)	101	3.45		----
13		(6.5)		(4.8)	101	(3.40)	3.6	----
14		(5.9)		(4.7)	101	3.38	5.8	----
15		(5.65)		(4.7)	101	(3.32)	6.2	----
16		(5.5)		(4.6)	103	3.20	5.0	----
17		(5.6)		(4.5)	103	3.10	5.7	(2.50)
18		(5.45)		(4.4)	(103)	(2.92)	3.5	(2.70)
19		(5.6)		(4.1)	104	(2.70)	4.0	(2.68)
20		(6.0)		---	<108	(2.50)		(2.68)
21		(5.5)		---	(106)	----	2.1	(2.80)
22		(5.4)		---	(106)	----		(2.70)
23		(5.1)			107	----		(2.70)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 23

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	<365				4.3	----
01		---	<390				4.2	----
02		(4.8)	<420				3.2	(2.55)
03	---	(5.15)	(340)				4.0	(2.60)
04	---	(4.8)	<300		---	----	3.8	(2.75)
05	(540)	(4.85)	(260)	---	---	----		(2.60)
06	(555)	5.0	(255)	4.0	---	2.85	(2.9)	(2.55)
07	(400)	5.4	240	4.7	109	3.05		2.70
08	405	5.8	235	4.7	109	3.10		2.70
09	440	5.8	220	4.8	---	----		2.65
10	445	6.0	230	5.0	101	3.50		2.62
11	440	6.2	220	5.1	103	----		2.60
12	460	6.2	220	5.0	109	(3.60)		2.52
13	460	6.4	220	5.2	101	3.60		2.60
14	440	6.4	220	5.0	109	3.50		2.58
15	450	6.6	225	5.0	107	(3.40)		2.55
16	410	6.4	230	4.8	109	3.40		2.68
17	<430	5.95	240	4.7	109	3.30		2.60
18	<405	6.05	(255)	(4.5)	109	3.10		2.70
19	<500	6.0	270	---	(117)	----	3.3	2.72
20	---	6.0	(300)		---	----	3.3	2.75
21	---	5.4	(320)		---	----	3.6	(2.70)
22		(5.3)	(350)				4.4	(2.65)
23		(5.0)	360				3.4	(2.60)

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

Table 24

Anchorage, Alaska (61.2°N, 149.9°W) July 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.3)					3.0	(2.45)
01		(4.55)					3.2	2.50
02		(4.7)					1.6	(2.50)
03		(5.1)			---	----		(2.50)
04		5.5		(3.5)	(111)	2.20		2.50
05		(5.6)		3.8	(113)	2.50		(2.50)
06		5.6		4.1	115	>2.80		(2.42)
07		(5.95)		4.4	109	3.15		(2.45)
08		5.9		4.5	107	3.30		2.45
09		6.0		4.7	105	3.40		2.45
10		5.9		4.9	103	(3.55)	3.6	2.45
11		6.0		4.9	103	(3.58)	3.8	2.40
12		5.9		5.0	103	(3.65)	3.7	2.40
13		6.05		5.0	103	(3.60)	>3.6	2.45
14		6.2		5.0	103	3.55		2.45
15		6.0		4.9	105	3.48		2.50
16		6.1		4.8	106	3.30		2.60
17		6.0		4.6	107	3.00		2.65
18		>5.8		(4.5)	109	2.82		2.70
19		6.0		---	118	2.60		2.75
20		5.9		---	(125)	2.20		2.80
21		5.35			---	----		2.80
22		(4.75)						(2.75)
23		(4.3)					2.0	(2.60)

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

Table 25

Narsarssuak, Greenland (61.2°N, 45.4°W) July 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.9)					4.8	(2.50)
01		(4.85)			---	----	3.5	(2.58)
02		(4.7)			---	----	3.6	(2.55)
03		(4.6)			---	----	3.4	(2.70)
04		4.5			---	----	3.2	2.52
05		4.8		---	104	2.70	4.0	(2.65)
06		5.15		---	103	3.10	3.1	2.70
07		5.6		4.4	103	3.30		2.60
08		5.6		4.7	100	3.50		2.60
09		6.1		4.8	101	3.60		2.50
10		6.1		5.0	101	3.60		2.58
11		6.3		5.1	101	3.65		2.55
12		6.6		5.2	101	(3.70)		2.55
13		6.8		5.1	103	3.65		2.55
14		6.6		5.1	104	3.60		2.50
15		6.3		4.9	103	3.60		2.52
16		6.3		4.8	102	3.50		2.60
17		6.2		4.7	107	3.40		2.62
18		6.25		(4.4)	109	3.25	3.5	2.72
19		6.1		---	113	(2.95)	4.6	2.70
20		(5.55)		---	119	----	4.0	(2.75)
21		(5.5)		---	---	----	4.2	(2.70)
22		(5.3)		---	---	----	3.8	(2.58)
23		(5.25)			---	----	3.7	(2.55)

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

Table 26

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.9	320				3.1	2.60
01		11.0	285				2.8	2.70
02		10.1	270					2.75
03		8.6	250		---	---		2.75
04		7.8	260					2.70
05		7.05	280					2.60
06		7.4	265				2.3	2.80
07		6.4	240		111	(3.00)	3.0	2.95
08	---	8.75	(230)	---	109	(3.45)	4.3	2.95
09	(410)	9.15	(220)	---	109	----	5.5	2.80
10	(410)	9.4	(225)	---	109	----	6.6	2.50
11	<410	10.1	<230	---	109	----	6.0	2.45
12	395	10.7	(220)	6.1	109	----	5.4	2.50
13	390	11.0	(225)	6.1	109	----	5.6	2.55
14	385	11.6	(230)	5.9	109	----	5.0	2.50
15	380	12.2	230	(5.8)	109	(4.10)	5.6	2.60
16	360	12.7	(230)	---	109	3.80	4.5	2.65
17	335	12.7	235	---	111	3.40	4.0	2.70
18	315	12.4	(245)		111	----	4.0	2.70
19		12.1	<270		---	----	4.3	2.70
20		10.6	(280)				3.0	2.65
21		10.2	300				3.0	2.45
22		9.6	320				2.8	2.45
23		10.0	330					2.50

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

Table 27

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.65	240					2.92
01		9.3	240					3.00
02		8.45	240					3.05
03		8.0	240					3.10
04		7.1	230		---	----	1.9	3.20
05		6.0	235					3.00
06		5.1	250				3.2	2.90
07		6.9	265		131	2.20	3.3	2.85
08		8.6	240		115	3.00	3.2	2.80
09		9.4	230		109	3.50	3.6	2.60
10	---	9.8	220		109	3.80	4.0	2.30
11	---	10.1	210	---	109	4.00	4.1	2.20
12	---	10.5	210	(5.0)	109	4.05		2.15
13	(440)	10.7	210	5.9	109	4.10		2.10
14	---	10.7	205	(5.9)	109	4.00		2.10
15	---	11.0	215	---	109	3.80	3.9	2.15
16	---	11.2	220	---	111	3.45	3.6	2.20
17	---	11.0	240		115	3.00	3.5	2.20
18		10.6	270		130	2.20	4.1	2.20
19		10.4	330				3.2	2.15
20		>10.05	355				2.4	2.25
21		10.15	335				2.5	2.35
22		11.0	280				2.6	2.65
23		9.9	235				2.0	2.80

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

Table 28

Huancayo, Peru (12.0°S, 75.3°W) July 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	220					3.00
01		7.0	225					3.15
02		7.4	225					3.15
03		6.7	230					3.10
04		5.8	225					3.20
05		5.3	235					3.20
06		4.9	260		---	E		2.90
07		7.7	255		113	2.30	6.0	2.90
08		9.75	235		105	(3.05)	7.0	2.85
09		10.6	220		---	(3.50)	0.0	2.60
10		10.6	210		---	(3.70)	8.2	2.48
11		10.7	200		---	(3.95)	8.5	2.35
12		10.5	200		---	(4.00)	9.0	2.28
13		10.1	200	---	---	(4.00)	8.9	2.25
14	---	9.95	200	---	---	(3.85)	8.0	2.25
15	---	9.95	210	---	---	(3.55)	7.8	2.25
16		10.05	230		---	(3.15)	7.2	2.30
17		9.85	255		109	(2.55)	6.0	2.30
18		9.1	295		---	----		2.30
19		8.7	320					2.30
20		8.45	305					2.40
21		8.2	265					2.60
22		8.25	235					2.80
23		8.0	230					2.90

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

Table 29

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.1	310					2.75
01		10.3	290					2.80
02		9.6	270					2.85
03		8.2	260					2.85
04		7.1	255					2.82
05		7.0	270					2.80
06		8.15	280		(139)	2.40	2.6	2.88
07		9.15	260		119	(3.05)	4.9	2.78
08	---	9.7	250		117	(3.50)	5.9	2.50
09	---	10.2	(240)	---	117	(3.92)	6.7	2.20
10	---	10.8	(240)	---	117	(4.00)	6.4	2.20
11	---	11.45	(230)	---	119	(4.10)	5.9	2.15
12	<510	12.0	(230)	(6.0)	119	(4.15)	4.6	2.15
13	(515)	12.25	230	(6.0)	119	(4.08)	4.4	2.15
14	(500)	12.35	(240)	(5.9)	119	(4.05)	4.6	2.15
15	<510	12.5	(240)	---	119	3.85	4.1	2.15
16	---	(12.5)	250	---	119	(3.50)	4.5	(2.20)
17	---	>12.0	(270)		119	(3.00)	5.2	(2.25)
18		(11.8)	(300)		127	----	5.4	(2.25)
19		>11.0	(350)				4.6	(2.15)
20		(10.95)	<420				3.0	(2.20)
21		(10.5)	415				3.0	(2.20)
22		10.5	390				2.3	(2.30)
23		10.0	360					2.50

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

Table 30

Talara, Peru (4.6°S, 81.3°W) May 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.2	230					2.75
01		10.2	235					2.85
02		10.0	235					2.95
03		8.6	235					3.00
04		7.2	230					3.00
05		6.5	235					3.00
06		5.0	250		---	----	1.6	2.90
07		8.4	260		125	2.40	3.6	2.95
08		10.2	240		115	3.15	3.6	2.00
09		11.0	230		111	3.60		2.40
10		11.4	220		111	3.90		2.30
11		11.8	215		110	4.08	4.2	2.20
12	---	11.6	210		111	4.20	4.3	2.15
13	---	11.5	210	---	109	4.10	4.2	2.10
14	---	11.6	<210	---	109	4.00	4.5	2.10
15	---	12.0	215		109	3.75	4.0	2.15
16		11.9	225		111	3.40	3.6	2.15
17		11.6	250		119	2.95	4.3	2.15
18		11.6	285		145	2.10	4.2	2.10
19		11.3	360				2.1	2.10
20		11.4	380				1.9	2.18
21		>11.6	320				2.3	(2.40)
22		11.75	260				2.1	2.00
23		11.0	220				1.9	2.00

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

Table 31

Nurmijarvi, Finland (60.5°N, 24.6°E) April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4						2.55
01		6.4						2.60
02		5.8						2.50
03		(5.6)						(2.60)
04		(5.2)						(2.60)
05		5.2						2.70
06		5.8		---				2.90
07		6.3		---				2.80
08		7.0		---				2.70
09		7.6		5.0				2.70
10		8.7		5.2				2.70
11		9.2		5.2				2.70
12		9.0		5.4				2.70
13		9.4		5.4				2.70
14		9.6		5.4				2.70
15		9.4		---				2.70
16		9.5		---				2.75
17		9.8						2.80
18		9.6						2.80
19		9.0						2.80
20		8.4						2.80
21		7.9						2.75
22		7.2						2.70
23		6.8						2.50

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

Table 32

Graz, Austria (47.1°N, 15.5°E) April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		>6.7	320					
01		>6.5	335					
02		(5.9)	320					
03		(5.8)	310					(2.6)
04		>5.4	(300)					(2.5)
05		>5.7	300					(2.7)
06		(6.4)	250					(3.0)
07	---	(7.7)	240	---				3.0
08	---	(8.8)	240	---				2.8
09	(430)	(9.1)	230	5.1				(2.8)
10	---	(11.0)	230	(5.6)				(2.8)
11	380	>10.5	240	5.9				(2.8)
12	<380	(10.8)	240	(5.5)				(2.7)
13	365	>10.3	240	(5.9)				(2.6)
14	320	>11.1	240	5.4				(2.7)
15	---	>10.1	240	---				2.8
16	---	>9.0	240	---				2.7
17		>8.9	250					
18		>8.9	260					
19		>8.9	260					
20		>8.8	270					(2.8)
21		>8.4	285					
22		>6.6	320					
23		>6.6	330					

Time: 15.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 50 seconds.

Table 33

Rome, Italy (41.8°N, 12.5°E) April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.2)	330					(2.45)
01		(7.8)	320					(2.40)
02		(7.4)	310					(2.50)
03		(7.2)	300					(2.50)
04		6.7	300					2.55
05		6.6	310		---	---		2.60
06		7.1	260		140	2.1		2.90
07	---	8.2	250	---	120	2.8		2.90
08	---	9.2	240	---	110	3.3		2.90
09	---	10.9	230	---	110	3.6		2.85
10	(480)	(11.3)	220	5.6	110	3.8		(2.75)
11	(460)	11.9	220	5.9	110	3.9		2.70
12	---	(12.3)	230	---	110	4.0		(2.65)
13	---	(12.3)	230	---	110	4.0		(2.70)
14	---	(12.3)	240	---	110	3.9		(2.70)
15	---	11.8	240	---	110	3.7		2.70
16	---	(11.7)	250	---	110	3.5	4.2	(2.75)
17		(11.6)	250		110	3.0	3.8	2.75
18		(11.2)	260		120	2.4	3.9	(2.75)
19		(10.9)	260		---	1.8	2.7	(2.95)
20		(9.2)	260				2.5	(2.75)
21		(8.4)	280				2.3	(2.50)
22		8.6	290					2.50
23		(8.2)	310					(2.50)

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

Table 34

Lwiro, Belgian Congo (2.3°S, 28.8°E) April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>14.0	220					<3.47
01		>12.4	210					(3.10)
02		(11.0)	225					(2.92)
03		10.8	230					3.00
04		>9.9	220				(1.7)	3.12
05		>7.6	220				(1.6)	3.26
06		7.1	245		---	E	2.0	3.01
07	260	10.5	250		121	2.65	3.0	3.10
08	260	12.7	240		115	3.30	3.9	3.04
09	---	13.4	230	---	111	3.75	4.4	2.88
10	---	13.5	220	(5.0)	109	4.00		2.68
11	(425)	14.6	220	(5.1)	109	4.20		2.60
12	410	15.0	215	---	109	4.25		2.60
13	415	15.1	220	(5.2)	109	4.20		(2.57)
14	425	(15.1)	220	(5.0)	111	4.00		(2.50)
15	420	(15.2)	235	---	111	3.80		(2.484)
16	400	(15.0)	245		111	3.35	3.8	(2.50)
17	(365)	(15.1)	255		115	2.80	3.5	(2.54)
18		(14.9)	285		---	1.40	(2.8)	(2.59)
19		>12.4	340				(2.4)	----
20		>10.0	315				(1.7)	----
21		>10.6	240				(1.8)	----
22		>10.0	225				(1.7)	<3.29
23		>13.5	225				(1.6)	<3.45

Time: 30.0°E.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 35

Falkland Is. (51.7°S, 57.8°W) April 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	305				<1.4	2.3
01		6.0	305					2.35
02		6.0	300					2.35
03		5.9	305					2.35
04		5.7	320					2.3
05		5.3	320					2.3
06		5.8	300		195	1.30		(2.7)
07		8.6	240		140	2.10		3.1
08		11.2	220		115	2.60		3.15
09		13.0	230		110	3.00	3.7	3.15
10		14.4	235		105	3.25	4.3	(3.0)
11		14.7	235		105	3.30		(2.95)
12		14.4	235		105	3.40	3.9	2.95
13		14.0	235		105	3.30		2.9
14		13.0	235		105	3.20		2.9
15		12.5	245		115	2.90	3.1	2.95
16		11.5	240		---	2.50	3.5	3.1
17		10.4	240		---	1.80	3.0	3.1
18		9.0	235			----	3.6	3.15
19		7.0	235				2.1	3.05
20		6.1	245				1.9	(2.9)
21		6.0	255				<1.5	2.6
22		5.8	275				<1.6	2.5
23		5.8	300				<1.6	2.5

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

Table 36

Inverness, Scotland (57.4°N, 4.2°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	300				<1.4	2.40
01		5.6	295				<1.4	2.40
02		5.7	305				<1.4	2.35
03		5.7	310				<1.0	2.30
04		5.3	320				<1.4	2.35
05		5.0	305				<1.4	2.35
06		5.2	285		---	----	<1.4	2.50
07		6.7	255		120	1.95		2.80
08		7.9	250		120	2.55		2.90
09		8.6	250		115	2.90		2.85
10		9.4	240		110	3.10		2.80
11		9.9	240		110	3.25		2.70
12		10.3	240		110	3.30		2.75
13		10.8	240		110	3.30		2.75
14		11.2	245		110	3.20		2.70
15		11.6	245		110	3.10		2.70
16		11.4	250		110	2.90		2.70
17		10.9	250		115	2.55		2.80
18		11.2	245		---	2.00		<2.80
19		10.1	240				<1.6	2.70
20		8.8	245				<1.6	2.60
21		8.5	245				<1.6	2.55
22		7.2	250				<1.6	2.55
23		6.3	290				<1.6	2.35

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

Table 37

Slough, England (51.5°N, 0.6°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.9	295				<1.6	2.50
01		6.6	285				<1.4	2.45
02		6.3	285				<1.4	2.50
03		6.0	290				<1.4	2.45
04		5.4	300				<1.4	2.50
05		4.9	275				<1.6	2.60
06		5.6	270		---	1.90	2.3	2.70
07		7.7	245		110	2.40		2.95
08		9.2	235		110	2.90	2.9	2.95
09		10.2	230		105	3.20	3.2	2.90
10		11.0	225		105	3.40		2.90
11		11.5	225		105	3.55		2.85
12		11.6	225		105	3.60		2.80
13		12.0	230		105	3.60		2.75
14		11.9	230		105	3.50		2.75
15		12.0	235		110	3.35		2.75
16		11.7	240		110	3.05		2.80
17		11.6	240		115	2.60		2.80
18		11.4	240		---	1.95	2.3	2.85
19		10.2	230				2.2	2.80
20		(8.9)	235				2.1	(2.75)
21		8.4	245				<1.6	2.65
22		(7.2)	255				<1.6	2.50
23		(6.8)	270				<1.6	(2.50)

Time: 0.0°.
Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 38

Graz, Austria (47.1°N, 15.5°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		>6.7	330					(2.5)
01		>6.7	340					2.5
02		>6.6	340					2.5
03		6.5	340					2.5
04		(5.9)	340					2.5
05		>5.7	335					2.5
06		6.3	300					2.7
07		8.4	260					3.0
08		9.3	250					2.9
09		11.4	250					2.9
10		12.2	250					2.8
11		13.0	250					2.8
12		13.1	250					2.7
13		13.2	250					2.7
14		12.9	250					2.7
15		12.5	250					2.7
16		12.1	250					2.7
17		11.9	250					2.8
18		(11.2)	260					2.8
19		>8.9	260					(2.8)
20		8.8	280					2.7
21		(8.3)	300					2.7
22		(7.4)	310					(2.7)
23		(6.8)	320					(2.6)

Time: 15.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 50 seconds.

Table 39

Schwarzenburg, Switzerland (46.8°N, 7.3°E) March 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	7.2						3.0
01	290	7.3						2.9
02	290	6.8						2.9
03	290	6.7						2.9
04	280	6.3						3.0
05	290	6.0						2.95
06	260	5.7						3.0
07	240	7.5			110	2.1		3.4
08	230	9.6			100	2.6		3.4
09	220	11.2			100	3.1		3.4
10	210	12.2			100	3.3		3.3
11	200	13.2			100	3.5		3.2
12	210	13.2			100	3.5		3.1
13	220	13.2			100	3.5		3.1
14	220	12.9			100	3.5		3.2
15	220	12.7			100	3.4		3.1
16	230	12.3			100	3.1		3.2
17	230	12.2			100	2.7		3.2
18	(230)	(11.5)			100	2.4		(3.2)
19	(220)	(10.1)						(3.3)
20	230	9.5						3.3
21	230	8.8						3.2
22	260	8.2						3.0
23	280	7.7						3.05

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

Table 40

Rome, Italy (41.8°N, 12.5°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.3)	280					(2.50)
01		(7.6)	300					(2.55)
02		(7.0)	290					(2.60)
03		(6.8)	290					(2.70)
04		(6.6)	290					(2.60)
05		6.3	290					2.70
06		(6.4)	280		---	1.8		(2.95)
07		(8.3)	240		120	2.3		(3.20)
08	---	(11.0)	240	---	120	3.0		(3.25)
09	---	(11.9)	240	---	110	3.3		(3.15)
10	---	(12.4)	230	---	110	3.6		(3.05)
11	---	(13.5)	230	---	110	3.8		----
12		(13.9)	230		110	3.9		(2.90)
13		(13.4)	230		110	3.9		(2.85)
14		(13.0)	240		110	3.8		(2.85)
15		(12.9)	240		110	3.6		(2.90)
16		(12.2)	240		120	3.3		(2.85)
17		(11.9)	250		120	2.8		(2.95)
18		(10.4)	240		140	2.0	2.0	(3.05)
19		(10.0)	240					(3.10)
20		(9.1)	250					----
21		9.0	260					2.90
22		(8.8)	270					(2.80)
23		(8.4)	280					(2.70)

Time: 15.0°E.
Sweep: 1.4 Mc to 15.0 Mc in 6 minutes, automatic operation.

Table 41

Akita, Japan (39.7°N, 140.1°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	290					2.70
01		7.6	290					2.70
02		7.4	280					2.70
03		7.0	280					2.60
04		6.7	295					2.60
05		6.6	280					2.60
06		8.2	250			2.00		2.95
07		11.2	240			2.55		3.05
08		12.6	240			3.20		3.05
09	---	13.5	230	---		3.55	3.6	2.95
10	(245)	14.0	230	---		3.75	3.9	2.90
11	(245)	14.3	230	---		3.90		2.85
12	(245)	14.2	230	---		3.95		2.80
13	---	14.1	240	---		3.95		2.75
14	---	13.8	240			3.80		2.75
15	---	13.2	245			3.55		2.75
16		12.9	245			3.05		2.80
17		12.3	245			2.40		2.85
18		11.4	245					2.85
19		9.9	245				2.0	2.80
20		9.1	250				2.1	2.75
21		8.8	260				2.0	2.75
22		8.6	265					2.70
23		8.2	285					2.70

Time: 135.0°E.
Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 42

Yamagawa, Japan (31.2°N, 130.6°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.0	250					2.80
01		9.4	250					2.85
02		8.9	245					2.90
03		8.2	240					2.90
04		7.0	230					2.70
05		6.4	250					2.75
06		6.7	260					2.75
07		9.4	240			2.35		3.10
08		12.0	230			3.00		3.15
09		12.6	225			3.40	3.6	3.05
10		13.5	225			3.70	4.0	2.95
11		14.2	220			3.90	4.2	2.90
12		14.6	210			3.90	4.2	2.85
13		15.1	225			4.00	4.3	2.80
14		15.0	225			3.95	4.3	2.80
15		15.0	230			3.80	4.0	2.80
16		14.4	240			3.45	3.8	2.80
17		14.0	240			2.95	3.5	2.80
18		13.6	245			2.00	2.8	2.90
19		13.3	240				2.3	2.85
20		12.4	250					2.80
21		12.2	250					2.75
22		11.5	250					2.80
23		10.6	250					2.80

Time: 135.0°E.
Sweep: 1.0 Mc to 19.4 Mc in 1 minute.

Table 43

Formosa, China (25.0°N, 121.5°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		16.5	240					2.95
01		13.5	220					3.10
02		>11.4	220					3.10
03		9.4	220					3.00
04		7.5	220					2.75
05		6.8	240					2.80
06		7.5	270					2.80
07		10.7	240			(2.70)		3.10
08		12.9	240			----		3.00
09		14.4	230			----	3.9	2.90
10		>15.0	220			----	4.4	2.80
11		15.8	220			----	4.5	2.75
12	---	16.4	220			----	4.5	2.65
13	---	17.2	220	---		----		2.65
14	---	17.2	230			----	4.4	2.65
15	360	17.5	230			----	4.1	2.65
16	---	17.5	240			----	4.1	2.65
17		17.7	250			----	3.8	2.70
18		>17.4	260					2.75
19		18.2	290					2.65
20		>18.4	280					2.75
21		18.8	250					2.80
22		18.2	240					2.90
23		17.5	240					2.90

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

Table 44

Lwiro, Belgian Congo (2.3°S, 28.8°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(13.6)	210					(2.90)
01		>10.6	225					(2.79)
02		(11.2)	240				(1.3)	2.81
03		>10.6	235				(1.3)	2.90
04		10.4	220					3.02
05		8.5	215				(1.4)	3.19
06		5.8	240		---	E	(1.6)	3.02
07	---	9.9	250	---	121	2.55		3.18
08	---	11.3	240	---	115	3.30		2.99
09	---	12.5	230	---	111	3.75		2.68
10	---	13.5	225	---	---	4.05		2.61
11	---	14.5	220	(5.1)	---	4.20		2.48
12	---	14.8	220	---	---	4.30		2.43
13	445	15.0	215	(5.2)	---	4.20		2.46
14	440	15.0	220	---	109	4.05		2.45
15	440	15.0	230	---	111	3.80		2.46
16	440	15.0	240	---	111	3.50		2.45
17	425	15.1	250	---	115	2.95	3.1	(2.45)
18		(15.0)	290		---	1.90	(2.4)	(2.47)
19		>12.6	350				(1.8)	(2.69)
20		>11.3	340				(1.7)	----
21		>10.8	255				(1.6)	----
22		>14.0	220				(1.5)	<3.13
23		>14.0	215				(1.4)	<3.35

Time: 30.0°E.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 45

Leopoldville, Belgian Congo (4.4°S, 15.2°E) March 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	13.0						2.59
01	240	>11.2						2.58
02	240	10.0						2.72
03	230	8.0						<2.89
04	220	5.6						2.90
05	250	5.5	245	---	135	---		2.68
06	---	>9.0	245	---	120	2.6	3.4	2.81
07	(255)	10.6	240	---	120	3.4		2.66
08	(255)	11.8	230	---	115	3.8		2.39
09	---	12.8	235	---	110	4.0		2.28
10	---	13.8	250	---	110	---		2.21
11	(400)	>14.7	250	---	---	---		2.20
12	430	15.6	250	---	110	---		2.17
13	410	16.0	240	---	115	4.0		2.18
14	405	15.7	240	---	115	3.9		2.18
15	400	>15.1	250	---	120	3.4	3.8	2.21
16	(400)	15.1	260	---	120	3.0	3.6	2.24
17	(290)	15.5	295	---	---	---	2.4	2.25
18	335	(16.5)					2.0	(2.24)
19	300	----						----
20	240	----						----
21	230	(16.0)						(2.51)
22	230	(16.8)						<2.67
23	230	15.0						2.62

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 46

Juliaca, Peru (15.5°S, 70.2°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.8	220				3.7	3.05
01		9.4	220				3.6	3.02
02		8.1	225				3.1	3.00
03		6.85	230				3.2	3.00
04		6.1	220				3.6	3.15
05		5.1	230				3.2	3.20
06		7.5	265		(132)	2.00	3.0	3.00
07		11.2	240		111	2.95	4.7	3.05
08		13.4	230		104	(3.50)	7.2	2.85
09		14.45	220		---	(3.90)	8.3	2.55
10		(14.35)	210		---	----	8.6	(2.30)
11		13.3	210		---	----	8.8	2.25
12		12.8	210		---	----	8.7	2.20
13		13.0	205		---	----	8.6	2.25
14	---	13.45	210		106	----	8.7	2.20
15	---	13.1	215		---	----	8.0	2.25
16		13.3	240		---	(3.35)	7.5	2.25
17		12.8	260		109	(2.70)	5.7	2.20
18		(12.3)	310		---	1.70	3.6	(2.12)
19		>10.9	405					(2.00)
20		10.85	(380)					2.20
21		(10.9)	320				3.1	2.50
22		10.7	265				3.2	2.70
23		(11.4)	230				3.3	(2.95)

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

Table 47

Johannesburg, Union of S. Africa (26.1°S, 28.1°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	245				1.9	2.75
01		5.9	250				1.9	2.75
02		5.4	<255				1.8	2.70
03		5.0	<245				1.6	2.70
04		4.8	<250				1.3	2.70
05		4.6	(265)				1.1	2.70
06		5.7	275			1.5		2.75
07		9.1	240			2.6		3.10
08	---	11.3	230			3.3	3.5	3.05
09	---	12.2	220			3.7	3.8	2.90
10	---	12.7	210			3.9	4.0	2.75
11	---	13.0	210			4.1	4.3	2.65
12	---	13.1	210	---		4.1	4.2	2.60
13	---	13.2	215			4.1		2.55
14	---	13.1	220			4.0	4.1	2.55
15	340	12.9	230			3.9	4.0	2.55
16		12.7	235			3.6	4.0	2.55
17		12.4	245			3.0	3.6	2.60
18		12.1	250			2.2	2.6	2.70
19		11.5	240			<1.4	2.2	2.80
20		10.5	235				2.0	2.80
21		9.4	240				1.8	2.85
22		8.5	240				2.0	2.85
23		7.4	240				1.8	2.85

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

Table 48

Capetown, Union of S. Africa (34.1°S, 18.3°E) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.8	<255				<1.5	2.75
01		5.2	<270				<1.5	2.65
02		4.9	<295				<1.5	2.50
03		4.8	<280				<1.5	2.65
04		4.6	<260				<1.4	2.65
05		4.4	<280				<1.4	2.60
06		4.4	<295				<1.4	2.50
07		6.8	255			2.0		2.90
08		9.8	245			2.8		3.00
09	---	11.2	235			3.3		2.95
10	---	12.5	235			3.7	3.8	2.80
11	---	13.0	230			3.9	4.0	2.70
12	---	13.3	225			4.0	4.1	2.60
13	---	13.4	230			4.1		2.60
14	---	13.4	235			4.0		2.55
15	---	13.0	240			3.9		2.55
16	---	12.8	240			3.7		2.50
17	---	12.7	240			3.3		2.60
18		12.3	250			2.8		2.65
19		11.8	245			1.8	2.4	2.75
20		10.6	230				2.2	2.75
21		9.2	235				2.0	2.85
22		8.2	<245				1.9	2.85
23		6.8	<245				<1.5	2.85

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

Table 49

Falkland Is. (51.7°S, 57.8°W) March 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.9	325				2.4	2.35
01		7.8	320				2.3	2.35
02		7.6	310				2.2	2.35
03		7.3	310				1.4	2.30
04		6.9	335					2.35
05		6.7	330		---	1.10	2.2	2.30
06		8.1	250		150	2.00	2.3	2.60
07		10.1	245		120	2.60	2.9	2.90
08		12.0	240		110	3.00	3.7	2.95
09		12.9	235		105	3.38	4.4	2.95
10		13.4	240		105	3.50	4.8	2.80
11		13.6	235		105	3.70	4.8	2.70
12		13.9	235		105	3.70	4.4	2.70
13		14.1	240		105	3.70	4.5	2.70
14		13.6	240		105	3.60	4.4	2.70
15		12.9	245		105	3.40	3.9	2.70
16		12.2	250		105	3.00	3.4	2.85
17		11.4	250		115	2.50	3.4	2.90
18		10.8	250		---	2.00	3.7	2.95
19		9.4	250		---	----	3.6	2.90
20		8.2	250				3.4	2.70
21		7.7	250				3.3	2.50
22		7.7	295				3.0	2.45
23		7.8	300				2.8	2.35

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

Table 50

Sodankyla, Finland (67.4°N, 26.6°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	325				4.0	----
01		---	330				4.2	----
02		---	340				4.0	----
03		---	340				4.1	----
04		(4.2)	330				3.4	(2.65)
05		---	300				3.0	----
06		(4.9)	300				3.2	(2.70)
07		(5.6)	300		---	----	2.6	(2.65)
08		5.8	280		---	E	3.9	2.75
09		6.8	260		---	E	4.0	2.90
10		8.2	250		130	2.30	4.0	2.90
11		9.3	250		130	2.50		2.90
12		11.0	250		130	2.55	3.9	2.95
13		11.9	245		125	2.55		2.95
14		12.0	235		135	2.55		3.00
15		10.4	240		145	2.40	4.0	2.95
16		9.9	255		160	1.90	4.0	3.10
17		(10.4)	290		---	E	3.9	(3.05)
18		(7.4)	290		---	E	3.8	(3.00)
19		---	310				3.6	----
20		(4.9)	310				3.9	(2.80)
21		---	370				3.8	----
22		---	360				3.8	----
23		---	335				4.0	----

Time: 30.0°E.
Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 51

Nurmijarvi, Finland (60.5°N, 24.6°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.0)						(2.65)
01		4.1						(2.65)
02		(4.4)						(2.60)
03		---						----
04		---						----
05		(3.6)						----
06		---						----
07		---						----
00		5.6						3.00
09		8.0						3.10
10		9.8						3.10
11		11.2						3.10
12		11.8						3.00
13		12.4						3.00
14		13.0						3.00
15		12.5						3.00
16		11.9						3.00
17		11.0						3.10
18		9.6						3.10
19		7.5						3.00
20		6.4						2.90
21		6.0						2.90
22		5.1						2.70
23		4.8						2.70

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

Table 52

Moscow, U.S.S.R. (55.5°N, 37.3°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.2	290				<1.3	2.60
01		3.9	290				<1.3	2.60
02		3.8	290					2.60
03		3.4	300					2.55
04		3.4	280					2.55
05		3.2	270				<1.1	2.70
06		3.6	260			E		2.75
07		5.8	250			1.00		3.00
08		8.8	230			2.30		3.10
09	---	10.9	225	---		2.80		3.10
10	---	12.6	220	---		3.00		3.05
11	---	13.0	220	---		3.20		3.00
12	---	13.2	220	---		3.20		3.00
13	---	13.0	220			3.10		2.95
14		13.0	225			3.00		3.00
15	---	12.4	220			2.60		3.00
16		11.8	220			2.15		3.00
17		10.3	215			1.50		3.05
18		8.4	210			E	<1.4	3.00
19		6.6	220				<1.3	2.90
20		5.3	245				<1.3	2.80
21		5.0	245				<1.4	2.80
22		4.6	275				<1.3	2.60
23		4.2	290				<1.3	2.55

Time: 30.0°E.
Sweep: 1.0 Mc to 18.0 Mc in 20 seconds.

Table 53

Graz, Austria (47.1°N, 15.5°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		>5.6	(350)					(2.6)
01		5.6	(360)					2.5
02		5.5	360					2.5
03		(5.4)	(380)					(2.6)
04		(5.2)	(350)					(2.6)
05		(4.9)	(330)					(2.7)
06		(5.0)	(350)					(2.8)
07		6.0	300					2.7
08		>9.0	250					3.1
09		>10.7	245					(3.0)
10		>12.6	240					(2.8)
11		>13.0	240					(2.9)
12		>13.2	245					2.8
13		13.0	250					2.8
14		>12.6	250					(2.8)
15		(12.1)	240					(2.9)
16		>11.5	250					(2.8)
17		(11.1)	250					(2.9)
18		>8.9	255					(2.7)
19		8.4	270					2.8
20		>6.3	290					(2.8)
21		>5.6	300					(2.6)
22		>5.6	315					(2.6)
23		>5.6	(340)					2.5

Time: 15.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 50 seconds.

Table 54

Rome, Italy (41.8°N, 12.5°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.0)	290					(2.85)
01		6.0	290					2.80
02		5.8	300					2.80
03		(5.7)	300					(2.80)
04		(5.4)	290					(2.70)
05		(5.0)	260					(2.75)
06		4.6	280					2.80
07		(6.0)	260		---	1.8		(2.90)
08		(9.5)	240		130	2.5		(3.15)
09		---	230		120	3.0		----
10		---	230		110	3.4		----
11		---	230		110	3.5		----
12		---	230		110	3.7		----
13		---	230		110	3.7		----
14		(11.8)	230		110	3.6		(3.00)
15		----	240		110	3.3		----
16		(11.6)	240		120	2.9		(2.90)
17		----	240		130	2.4		----
18		(10.2)	240		---	---		(3.05)
19		(9.0)	240					3.00
20		(8.3)	240					(3.00)
21		6.8	260					2.80
22		(6.5)	260					(2.90)
23		(6.2)	260					2.80

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

Table 55

Akita, Japan (39.7°N, 140.1°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.6	290					2.60
01		5.4	295					2.60
02		5.4	300					2.60
03		5.4	290					2.65
04		5.2	265					2.60
05		4.9	300					2.60
06		5.4	265					2.80
07		9.0	240			2.00		3.10
08		11.8	240			2.70		3.15
09	---	13.0	230	---		3.20		3.10
10	---	13.8	230	---		3.55		3.00
11	(245)	14.2	230	---		3.70		2.90
12	(245)	13.9	230	---		3.75		2.90
13	---	13.5	230	---		3.70		2.85
14	---	12.6	230	---		3.50		2.80
15	---	12.2	240	---		3.20		2.85
16		11.8	240			2.60		2.85
17		11.0	240			----		2.90
18		9.9	240					2.95
19		8.6	240					3.00
20		7.2	240					2.80
21		6.7	260					2.70
22		6.4	275					2.70
23		5.9	280					2.60

Time: 135.0°E.
Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 56

Formosa, China (25.0°N, 121.5°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.3	240					2.80
01		10.0	240					2.95
02		9.0	240					2.95
03		8.2	230					3.15
04		6.0	220					3.05
05		4.4	<270					2.65
06		5.0	280					2.60
07		9.2	250			---		3.05
08		12.5	240			3.0		3.10
09		13.8	240			3.5		3.00
10		14.9	230			---	4.0	2.95
11		15.2	230			---	4.3	2.85
12		15.8	230			---	4.6	2.65
13		16.4	230			---	4.4	2.65
14	---	17.2	230			---	4.2	2.65
15	---	16.9	230	---		---	4.3	2.60
16		17.4	240			---	3.6	2.65
17		17.3	250			2.6	3.2	2.65
18		17.6	260				2.3	2.70
19		17.9	280					2.65
20		>18.1	270					2.70
21		>18.5	240					2.80
22		16.5	240					2.80
23		14.6	240					2.85

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

Table 57

Bunia, Belgian Congo (1.5°N, 30.2°E) February 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	10.6					1.6	2.66
01	250	10.0					1.6	<2.74
02	230	9.4					1.5	2.90
03	220	>7.0					1.9	2.94
04	240	6.0			---	---	2.0	2.76
05	(260)	9.0	255	---	120	2.6	3.2	2.78
06	---	11.2	240	---	110	3.2	4.0	2.58
07	---	12.2	230	---	110	3.6		2.39
08	---	13.0	240	---	110	4.0		2.24
09	---	13.4	245	---	110	4.0		2.11
10	---	13.6	250	---	110	4.1		2.08
11	---	13.8	250	---	110	4.1		2.06
12	460	14.3	250	---	110	4.0		2.09
13	490	14.2	240	---	110	3.9		2.08
14	485	14.2	240	---	115	3.4		2.08
15	490	14.0	260	---	120	3.0	3.2	2.10
16	---	13.6	290	---	130	---	3.0	2.08
17	380	13.4					2.0	1.96
18	385	>13.5						(2.03)
19	315	(13.8)						(2.19)
20	250	(13.1)						<2.60
21	230	>11.4					2.0	(2.54)
22	250	11.5						(2.47)
23	260	>11.4					1.7	2.55

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 58

Leopoldville, Belgian Congo (4.4°S, 15.2°E) February 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	11.0						2.51
01	265	10.0						2.62
02	250	8.3						2.70
03	240	7.0						2.72
04	230	6.6					1.5	2.78
05	265	6.4	---	---	---	---	2.0	2.73
06	250	8.7	250	---	120	2.6		2.78
07	255	10.4	240	---	110	3.3		2.58
08	---	11.7	230	---	110	3.7		2.42
09	---	12.0	230	---	110	4.0		2.25
10	---	12.6	250	---	110	---		2.14
11	(410)	13.4	230	---	110	---		2.18
12	440	14.1	240	---	110	---		2.15
13	425	14.2	240	---	110	4.0		2.14
14	430	14.0	250	---	110	3.9		2.13
15	410	14.4	240	---	115	3.5		2.19
16	400	14.4	255	---	120	2.9	3.0	2.21
17	(290)	14.8	280	---	---	---	1.7	2.20
18	335	13.6						2.19
19	330	----						----
20	200	16.6						2.44
21	240	16.6						2.58
22	230	14.7						2.62
23	230	13.5						2.47

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 59

Elisabethville, Belgian Congo (11.6°S, 27.5°E) February 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.6						2.59
01	270	7.0						2.60
02	270	6.3						<2.63
03	270	5.0					1.5	2.54
04	275	6.1			---	---	2.0	2.64
05	255	8.6	250	---	120	2.5		2.85
06	260	10.0	240	---	110	3.1	3.5	2.67
07	290	11.0	240	---	110	3.7		2.56
08	310	12.0	235	---	110	4.0		2.47
09	350	12.6	230	---	110	4.0		2.34
10	380	12.8	240	---	110	4.1		2.31
11	380	13.1	240	---	110	4.0		2.29
12	385	13.1	240	---	110	4.0		2.29
13	390	13.0	240	---	110	4.0		2.20
14	375	13.0	245	---	110	3.6		2.29
15	360	12.7	250	---	110	3.0	3.6	2.30
16	(320)	12.4	270	---	120	2.4	3.0	2.34
17	290	12.0					2.6	2.40
18	300	>11.2					2.2	2.51
19	270	12.0					2.2	2.52
20	260	11.6						2.56
21	250	11.0						2.58
22	250	10.0					1.6	2.61
23	250	8.5						2.58

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 60

Moscow, U.S.S.R. (55.5°N, 37.3°E) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.4	280				<1.3	2.55
01		3.4	280					2.55
02		3.4	290					2.55
03		3.1	290					2.55
04		3.1	280			E		2.60
05		3.2	265					2.65
06		3.0	250				<1.1	2.80
07		4.5	240			1.20		2.00
08		8.1	225			2.00		3.10
09		11.2	220			2.15		3.15
10		13.0	220			2.80		3.20
11		13.9	220			3.00		3.10
12		13.9	220			3.00		3.10
13		14.0	220			2.90		3.05
14		13.4	220			2.50		3.00
15		12.8	220			2.10		3.05
16		11.7	210			1.50		3.10
17		9.4	200				<1.4	3.10
18		7.2	210				<1.3	3.10
19		5.0	220				<1.3	3.00
20		4.6	235				<1.4	2.85
21		4.2	245				<1.3	2.80
22		3.9	275				<1.3	2.70
23		3.6	285				<1.3	2.60

Time: 30.0°E.
Sweep: 1.0 Mc to 18.0 Mc in 20 seconds.

Table 61

Graz, Austria (47.1°N, 15.5°E) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	340					(2.7)
01		5.1	<330					(2.6)
02		4.8	<370					(2.5)
03		>4.9	<400					(2.5)
04		5.1	<360					(2.5)
05		>5.0	<350					
06		(4.9)	(370)					(2.8)
07		5.2	320					2.7
00		>9.0	250					3.1
09		12.4	240					(3.0)
10		(13.2)	230					(3.0)
11		13.7	230					3.0
12		>13.1	240					2.8
13		>12.9	250					2.8
14		>12.9	240					2.8
15		12.6	240					2.8
16		11.7	240					2.9
17		>10.0	250					2.9
10		8.8	260					2.9
19		>6.7	280					(2.8)
20		>5.6	300					2.8
21		(5.4)	300					(2.6)
22		5.3	(300)					2.6
23		5.2	(320)					(2.6)

Time: 15.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 50 seconds.

Table 62

Formosa, China (25.0°N, 121.5°E) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.4	240					2.90
01		9.1	240					3.00
02		7.9	230					3.05
03		6.2	220					3.00
04		5.1	250					2.70
05		5.0	300					2.65
06		5.2	280					2.80
07		9.8	260			---		3.05
08		13.4	240			(2.9)		3.20
09		14.1	240			---	3.7	3.10
10		14.2	230			---	4.2	2.90
11	---	15.2	230			---	4.4	2.70
12	---	16.1	<240	---		---	4.7	2.65
13	---	>16.4	230	---		---	4.6	2.60
14	(390)	16.4	230	---		---	4.4	2.55
15	---	>16.4	230			---	4.2	2.60
16		16.5	240			---	3.7	2.65
17		16.3	250			---	3.1	2.70
10		16.1	240				>2.6	2.70
19		>15.8	260				2.4	2.75
20		17.5	240					2.90
21		16.0	230					2.95
22		13.6	230					2.90
23		11.8	240					2.95

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

Table 63

Bunia, Belgian Congo (1.5°N, 30.2°E) January 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	9.1						2.55
01	250	9.0						2.51
02	250	9.0						2.61
03	240	>7.3					1.7	<2.73
04	260	6.6			---	---	2.0	2.76
05	260	9.5	260	---	120	2.6	3.0	2.72
06	---	10.6	250	---	110	3.3	3.6	2.50
07	---	11.0	235	---	110	3.8		2.17
08	---	11.5	230	---	110	4.0		2.01
09	---	12.4	240	---	110	4.1		2.02
10	(450)	12.9	250	---	110	4.2		2.03
11	(450)	12.3	250	6.6	110	4.2		1.95
12	570	12.3	250	6.2	110	4.0		1.93
13	520	12.6	235	6.0	110	3.9		1.95
14	460	>12.6	250	5.6	110	3.5		2.02
15	---	12.4	270	---	120	3.0	3.0	2.01
16	(610)	11.3	310	---	140	---	3.0	(2.02)
17	410	11.3					2.3	<1.93
18	410	>11.3					2.1	(2.03)
19	340	>11.4					2.0	<2.23
20	280	11.0					1.6	(2.38)
21	260	11.0						2.39
22	260	10.9						2.45
23	250	>10.8						<2.48

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 64

Iwiro, Belgian Congo (2.3°S, 28.6°E) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.3	245				(1.8)	2.70
01		10.9	255				(1.6)	2.82
02		>10.0	245				(1.5)	2.84
03		8.8	240				(1.3)	2.70
04		8.2	250				(1.5)	2.76
05		7.0	245				(1.7)	2.90
06		6.7	255		---	E	(1.7)	2.92
07	---	9.1	250		119	2.65		2.99
08	---	10.4	240		111	3.35	3.5	2.84
09	---	10.6	235		111	3.80		2.58
10	---	>11.1	230	5.1	109	4.10		2.32
11	(465)	12.0	220	---	109	4.20		2.33
12	455	13.3	220	5.3	109	4.30		2.38
13	470	13.1	220	---	110	4.25		2.34
14	505	12.9	230	---	111	4.10		2.25
15	500	13.0	230	---	111	3.90		2.28
16	475	12.9	240		111	3.55		2.31
17	(430)	12.6	260		114	3.10		2.34
10		12.5	285		---	2.00	(2.5)	2.30
19		>11.6	370				(2.5)	2.24
20		(12.2)	370				(1.8)	2.34
21		>13.3	305				(2.3)	2.59
22		(13.0)	255				(1.7)	2.81
23		11.9	230				(2.3)	2.71

Time: 30.0°E.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 65

Leopoldville, Belgian Congo (4.4°S, 15.2°E) January 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	11.0						2.50
01	255	10.0						2.50
02	250	8.0						2.39
03	260	8.0						2.53
04	250	7.4					1.8	2.63
05	265	7.0			140	1.9	2.3	2.70
06	(270)	>8.9	250	---	120	2.0	3.4	2.67
07	---	10.0	240	---	115	3.6	3.8	2.50
08	---	10.5	240	---	110	3.9		2.29
09	---	11.0	235	---	110	4.0		2.04
10	(465)	12.3	235	---	110	4.2		2.02
11	450	12.9	250	---	110	---		2.08
12	465	13.0	230	---	110	---		2.02
13	505	13.0	235	6.0	110	4.1		1.96
14	500	13.0	230	6.0	115	4.0		2.00
15	450	13.0	240	5.6	115	3.6		2.07
16	420	13.0	265	---	120	3.0		2.10
17	(320)	12.6	300	---	130	2.0	2.9	2.10
18	360	13.0					2.0	2.06
19	340	14.0					2.0	2.23
20	290	14.6						2.47
21	250	14.0						2.50
22	230	13.2						2.49
23	245	12.0						2.41

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 66

Elisabethville, Belgian Congo (11.6°S, 27.5°E) January 1959

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	7.4						2.56
01	260	7.0						2.54
02	270	6.2						2.45
03	290	5.9						2.42
04	300	6.4			140	1.6	2.4	2.56
05	(270)	0.5	260	---	120	2.9		2.62
06	300	9.0	250	---	110	3.5		2.55
07	350	10.4	240	---	110	4.0		2.45
08	380	10.6	235	---	110	4.0		2.24
09	440	11.0	240	---	110	4.4		2.16
10	440	11.7	230	6.0	110	4.3		2.21
11	420	11.9	250	6.0	110	4.3		<2.24
12	445	11.4	240	6.0	110	4.2		2.20
13	455	11.0	250	6.0	110	4.0		2.14
14	440	10.0	245	5.6	110	3.7		2.17
15	410	10.6	250	---	115	3.2		2.19
16	360	10.6	285	---	125	2.5	3.0	2.26
17	320	>10.2					2.6	2.29
18	330	>10.5					2.5	<2.34
19	300	11.0					1.5	2.42
20	280	11.0					1.7	2.55
21	270	10.1						2.55
22	260	8.9						2.52
23	260	8.5						2.51

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 67

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

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	(455)					----
01		---	(465)					----
02		---	(430)				(3.2)	----
03		---	(410)				(2.6)	----
04		---	(340)					----
05		---	(260)					----
06		(8.9)	(270)		---	----	(4.3)	(2.65)
07		11.0	245		111	2.90	3.6	2.75
08		12.8	235		101	3.48	5.2	2.60
09		13.5	<225		---	(3.80)	6.6	2.42
10		13.7	220		---	----	7.5	2.25
11		13.4	(210)	---	---	----	7.6	2.15
12		13.35	(210)	---	---	----	7.6	2.10
13	---	13.05	<210	6.6	---	----	7.2	2.00
14	---	>13.0	<215	6.4	---	----	7.6	2.00
15	---	>13.2	<225	(6.3)	---	----	7.2	2.08
16	---	13.2	(235)	---	---	----	6.7	2.05
17	---	12.75	240		---	(3.35)	7.6	2.05
18		(12.7)	265		---	(2.68)	5.3	(1.90)
19		>12.0	310		---	----	2.3	(1.90)
20		>10.4	410					1.92
21		(9.9)	470					(2.00)
22		(8.6)	500					(2.00)
23		---	(480)					----

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.
*Observations taken 1st through 14th only.

Table 68

Concepcion, Chile (36.6°S, 73.0°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.65	290					2.65
01		6.3	290					2.70
02		6.1	290					2.70
03		5.8	260					2.78
04		5.4	250					2.75
05		4.85	260		---	----		2.62
06		4.85	280		---	E		2.75
07		8.4	240		(131)	2.26		3.20
08		10.8	230		115	3.00		3.30
09		11.75	230		109	3.40		3.20
10	---	12.2	225		110	3.70	3.7	3.05
11	---	12.75	220	---	111	3.85		3.00
12	---	12.0	220	---	111	3.90	4.1	2.90
13	(335)	12.2	215	---	111	3.80	4.0	2.90
14	(320)	12.15	230	---	111	3.65		2.90
15	---	11.9	230	---	111	3.35	3.6	2.85
16		11.7	240		119	2.85		2.95
17		11.5	245		(141)	2.22	2.4	3.00
18		11.0	225				2.4	2.95
19		9.4	240				2.1	2.80
20		9.0	240					2.85
21		8.35	240					2.80
22		7.6	<265					2.70
23		7.5	290					2.62

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

Table 69

Nha-Trang, Indochina (12.2°N, 109.2°E) April 1956*

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(11.6)	<230				2.4	(3.15)
01		10.2	<225				2.5	3.15
02		7.9	<230				2.4	3.00
03		7.5	235				2.3	2.90
04		7.5	240				3.1	3.00
05		6.5	230				3.5	3.10
06		7.4	260				4.2	2.95
07		10.8	250		---	2.65	4.4	2.90
08		12.0	230		---	(3.20)	4.8	2.60
09		11.9	220		119	3.50	6.8	2.45
10	---	11.5	220	---	119	3.85	6.9	2.40
11	(285)	11.2	210	---	---	3.95	7.0	2.35
12	---	11.2	210	---	---	4.05	4.7	2.30
13	---	11.7	210	---	119	4.00	4.7	2.40
14	---	12.6	210	---	119	3.90	4.4	2.40
15	---	13.2	220	---	119	3.65	4.5	2.35
16	---	13.5	235		119	3.30	4.7	2.40
17	---	13.5	250		---	2.80	4.7	2.40
18		(12.1)	260		---	E	3.0	(2.30)
19		(11.2)	370				2.0	(2.15)
20		(11.2)	(370)					(2.30)
21		(10.5)	320				2.1	(2.50)
22		10.6	260				2.2	2.70
23		11.6	230				2.2	3.00

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.
*Observations taken from 1st through 10th only.

Table 70

Nha-Trang, Indochina (12.2°N, 109.2°E) March 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		10.0	230				2.8	3.10
01		10.1	225				2.3	3.20
02		8.6	220				2.3	3.20
03		6.8	230				2.2	3.10
04		6.1	235				2.2	3.05
05		5.2	235				2.3	3.15
06		5.4	250		---	----	2.5	2.90
07		9.2	250		121	2.45	4.1	3.05
08		11.6	240		119	3.15	4.4	2.90
09	----	12.8	230	----	119	3.50	4.6	2.60
10	----	12.6	220	5.15	(120)	3.80	4.5	2.50
11	(2.85)	11.7	210	5.25	119	4.00	4.7	2.40
12	----	>11.0	210	5.35	119	4.05	4.6	2.35
13	(2.85)	11.4	210	5.30	(119)	4.00	4.6	2.35
14	----	11.6	210	----	119	3.90	4.6	2.35
15	----	12.0	220	----	119	3.60	4.6	2.35
16	----	12.0	230		119	3.30	4.2	2.30
17		12.4	250		119	2.75	4.3	2.35
18		(11.4)	280		---	E	4.1	(2.40)
19		(9.7)	370				2.2	(2.15)
20		9.2	(385)				1.8	2.30
21		9.5	(315)				2.1	2.50
22		10.6	(250)				2.4	2.80
23		10.8	240				2.5	(3.00)

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

Table 71

Nha-Trang, Indochina (12.2°N, 109.2°E) February 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		8.1	230				3.7	3.20
01		7.3	230				3.5	3.20
02		6.6	230				3.4	3.25
03		5.0	230				2.5	3.20
04		4.2	240				2.5	3.15
05		3.3	250				2.4	3.05
06		3.2	260				3.1	2.85
07		7.4	260		129	2.25	3.6	3.05
08	---	10.2	240		119	3.00	4.1	3.00
09	(300)	11.2	230	----	119	3.45	4.4	2.80
10	310	11.5	220	4.95	119	3.70	4.5	2.55
11	325	10.4	215	5.05	119	3.95	4.5	2.40
12	(330)	9.6	210	5.15	119	4.00	5.0	2.40
13	(345)	9.4	210	5.05	118	3.90	5.4	2.35
14	(360)	10.0	210	4.90	119	3.70	4.5	2.35
15	----	10.3	220	----	119	3.50	4.2	2.45
16	---	10.7	235		119	3.20	4.1	2.40
17	---	10.9	250		119	2.70	4.2	2.45
18	---	10.4	280		---	E	3.5	2.50
19		9.8	330				2.6	2.40
20		10.0	(300)				3.2	2.60
21		9.4	(275)				2.8	2.70
22		9.4	240				3.8	3.00
23		9.0	230				3.5	3.15

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

Table 72

Nha-Trang, Indochina (12.2°N, 109.2°E) January 1956

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.0	230				3.4	3.15
01		6.3	230				2.5	3.20
02		5.4	230				2.2	3.25
03		4.5	240				2.3	3.15
04		3.9	250				2.3	3.10
05		3.6	250				2.3	3.10
06		3.2	250				2.3	2.95
07		7.1	255		129	2.15	3.3	3.10
08	---	9.8	235		119	2.85	4.5	2.90
09	280	11.0	220	----	117	(3.25)	4.8	2.75
10	310	11.0	220	4.85	119	3.50	5.4	2.45
11	(320)	9.8	210	5.05	119	3.65	5.0	2.40
12	(335)	9.4	205	5.00	119	3.75	5.8	2.35
13	(345)	9.2	200	4.90	119	3.65	7.0	2.35
14	(330)	9.5	215	4.80	119	3.50	5.1	2.35
15	---	9.5	220	----	119	3.40	4.6	2.40
16	---	10.0	230		119	3.00	4.7	2.50
17	---	10.3	250		119	2.35	4.2	2.65
18		10.3	265		---	----	3.3	2.70
19		9.8	285				2.4	2.60
20		9.6	275				3.1	2.70
21		9.2	260				3.5	2.90
22		8.3	240				4.2	3.05
23		7.6	225				3.6	3.15

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

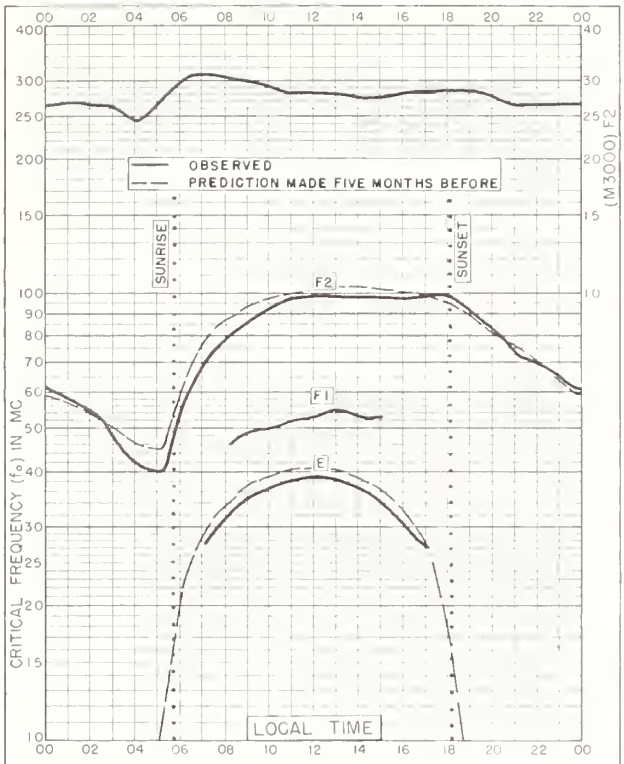
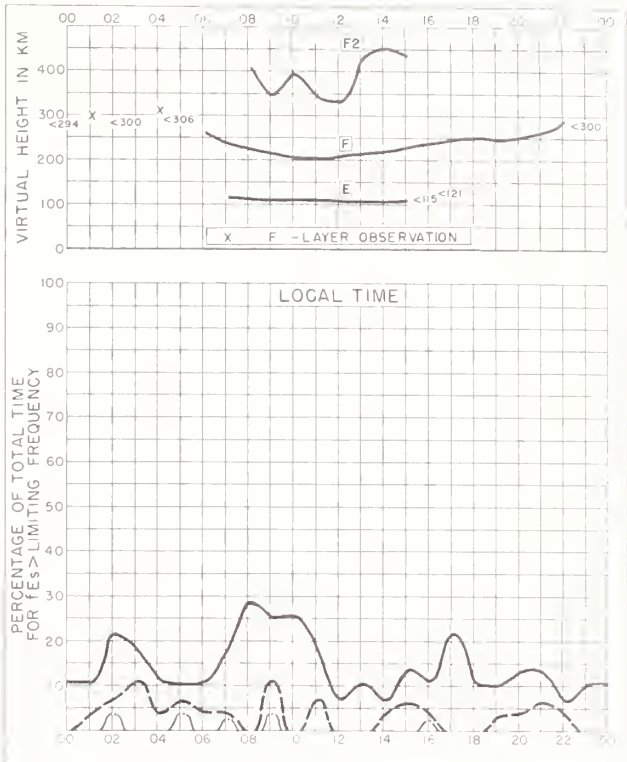


Fig. 1. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W SEPTEMBER 1959



SEPTEMBER 1959
Fig. 2. FT. MONMOUTH, NEW JERSEY

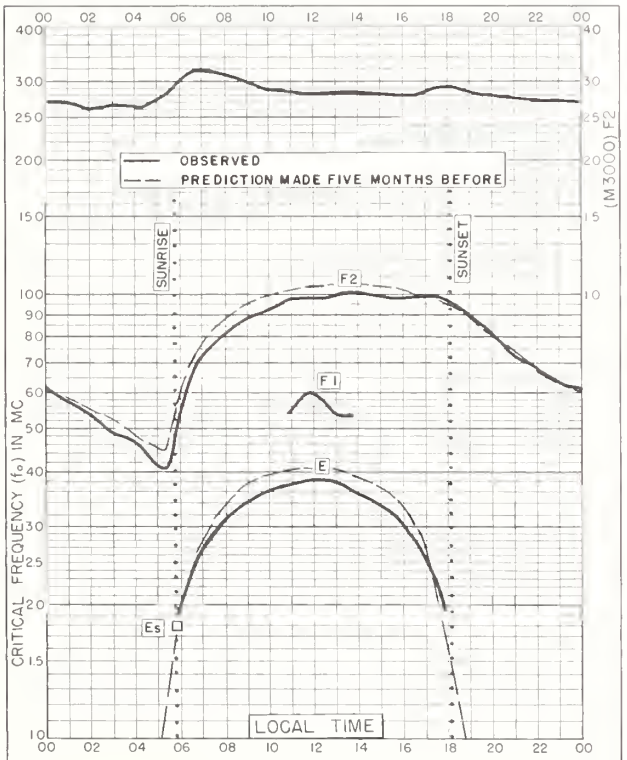


Fig. 3. WASHINGTON, D. C.
38.7°N, 77.1°W SEPTEMBER 1959

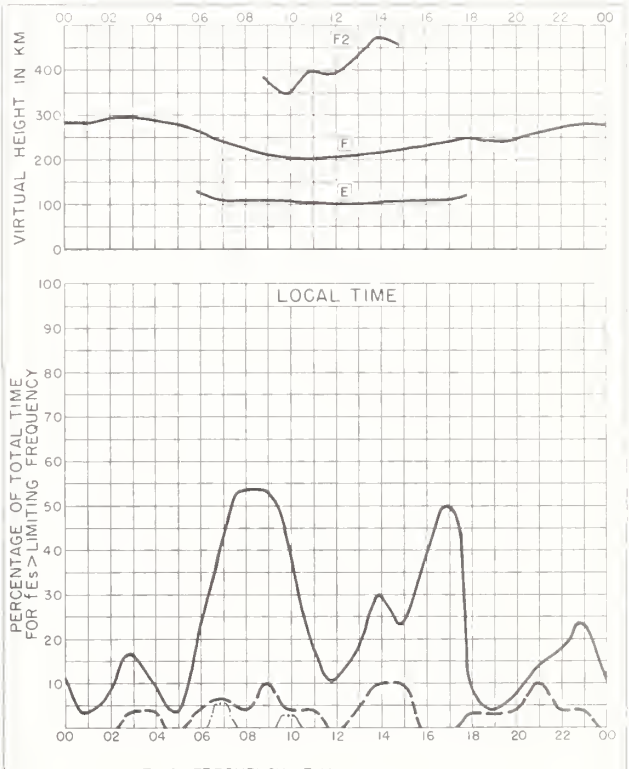


Fig. 4. WASHINGTON, D. C. SEPTEMBER 1959

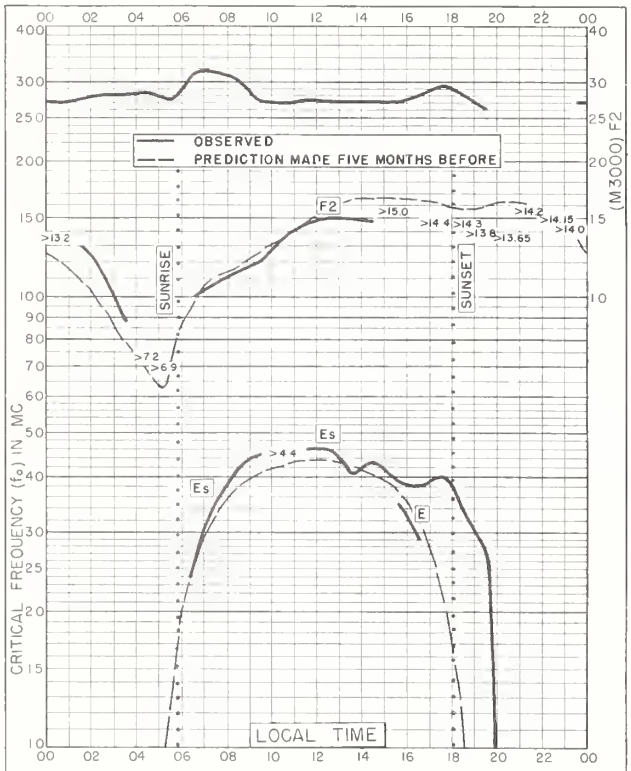


Fig. 5. OKINAWA I.
26.3°N, 127.8°E SEPTEMBER 1959

NBS 503

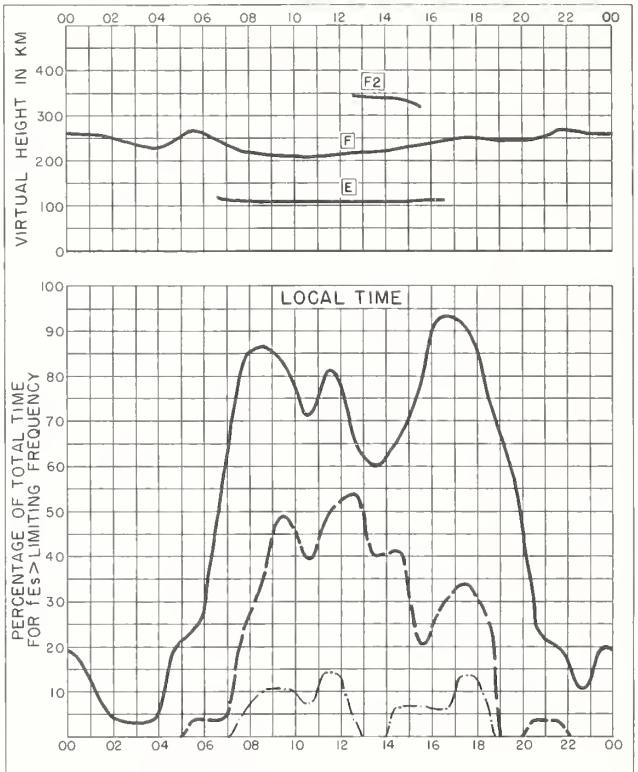


Fig. 6. OKINAWA I. SEPTEMBER 1959

NBS 490

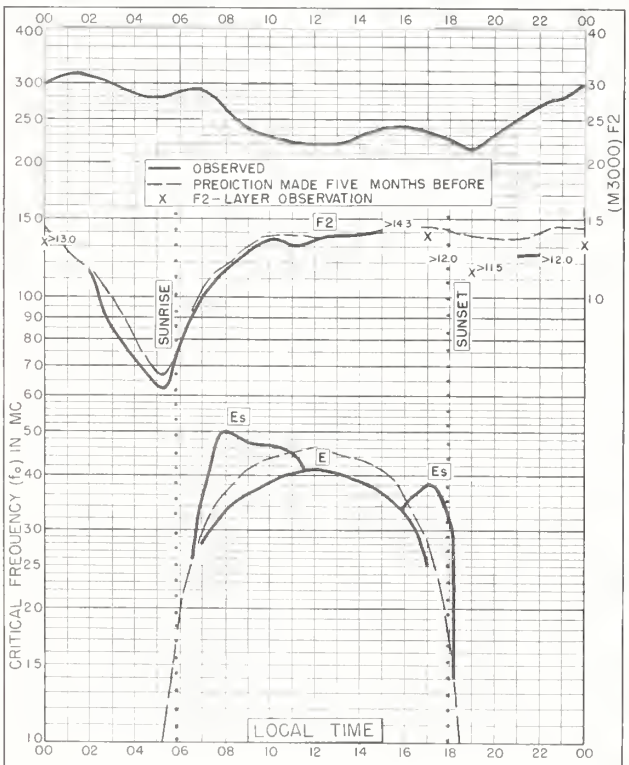


Fig. 7. BAGUIO, P.I.
16.4°N, 120.6°E SEPTEMBER 1959

NBS 503

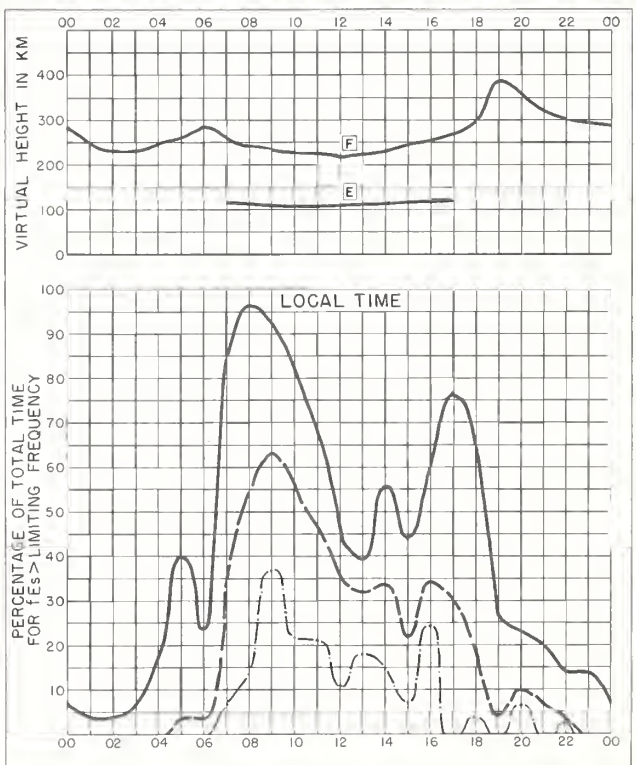


Fig. 8. BAGUIO, P.I. SEPTEMBER 1959

NBS 490

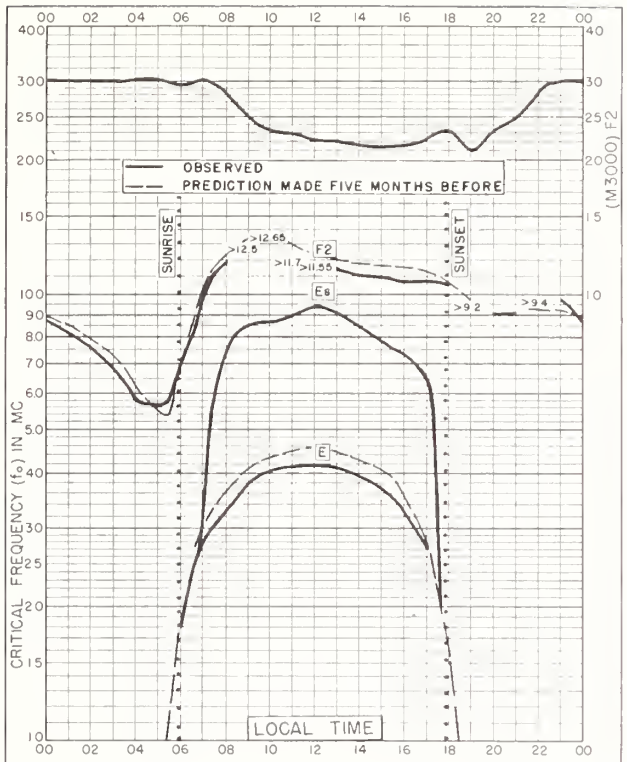


Fig. 9. HUANCAYO, PERU
12.0°S, 75.3°W SEPTEMBER 1959

NBS 503

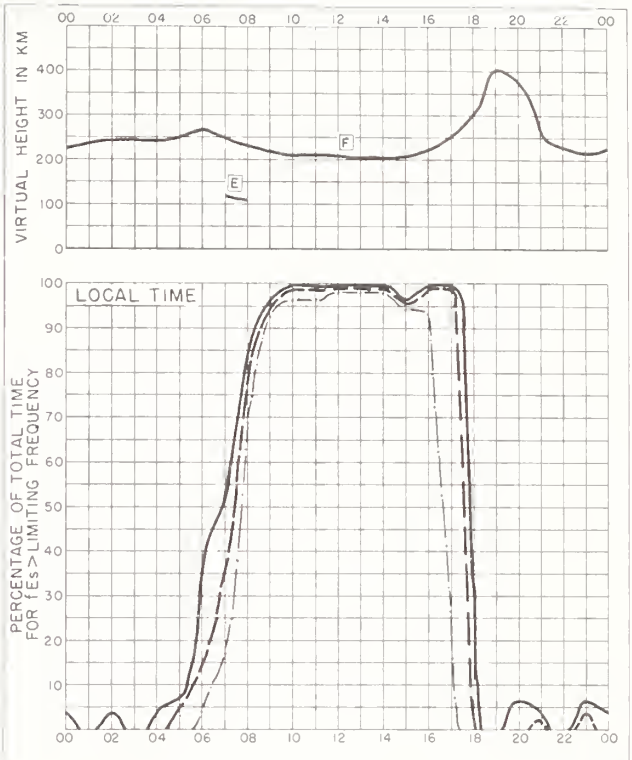


Fig. 10. HUANCAYO, PERU SEPTEMBER 1959

NBS 490

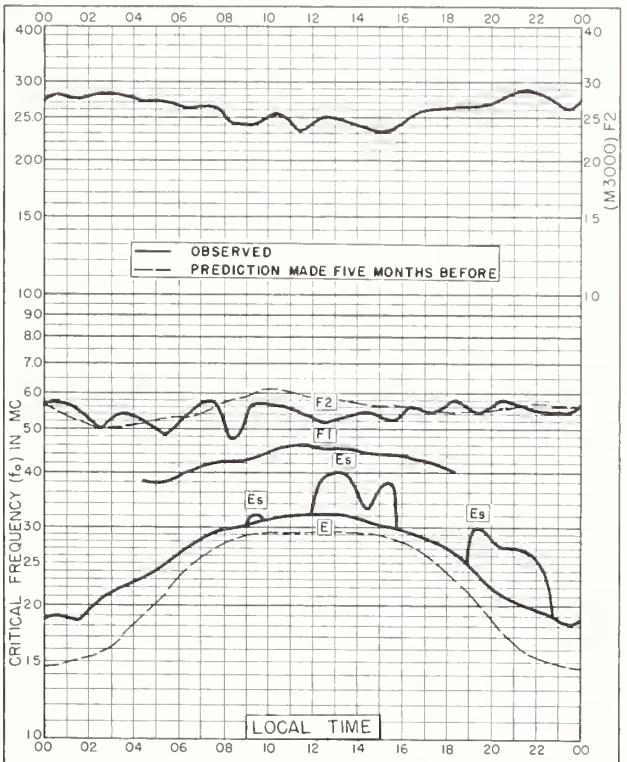


Fig. 11. THULE, GREENLAND
76.6°N, 68.7°W AUGUST 1959

NBS 503

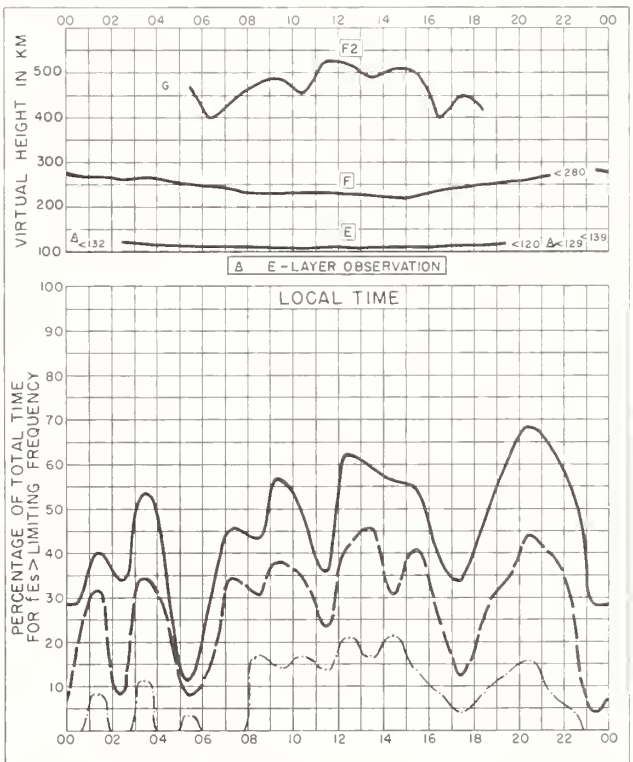


Fig. 12. THULE, GREENLAND AUGUST 1959

NBS 490

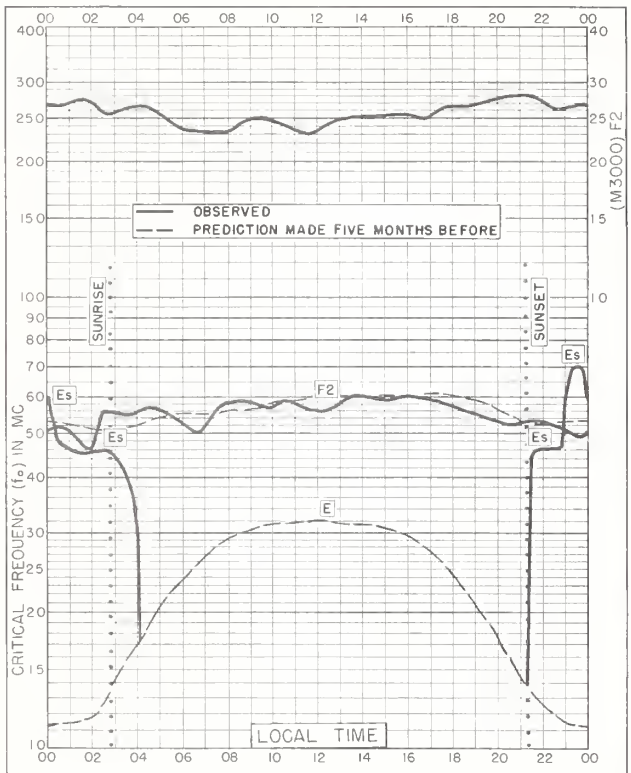


Fig. 13. POINT BARROW, ALASKA
71.3°N, 156.8°W AUGUST 1959

NBS 503

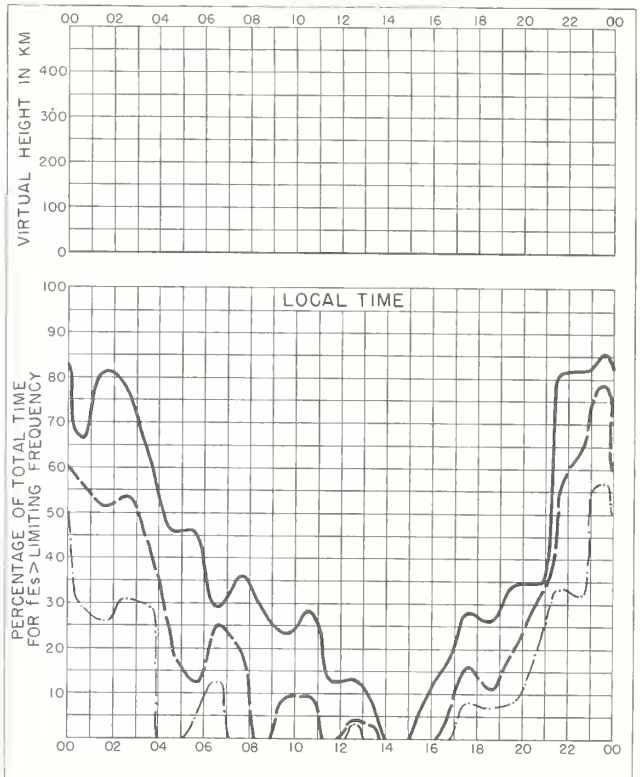


Fig. 14. POINT BARROW, ALASKA AUGUST 1959

NBS 490

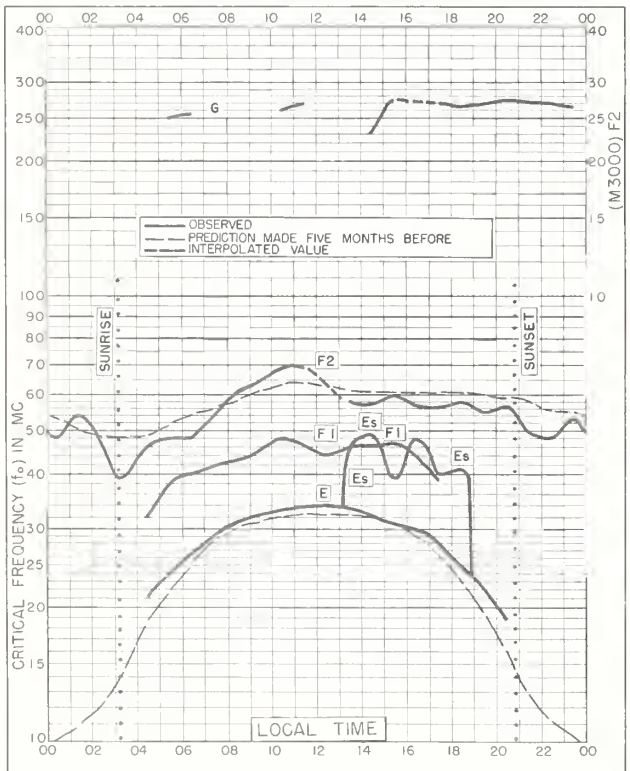


Fig. 15. GODHAVN, GREENLAND
69.3°N, 53.5°W AUGUST 1959

NBS 503

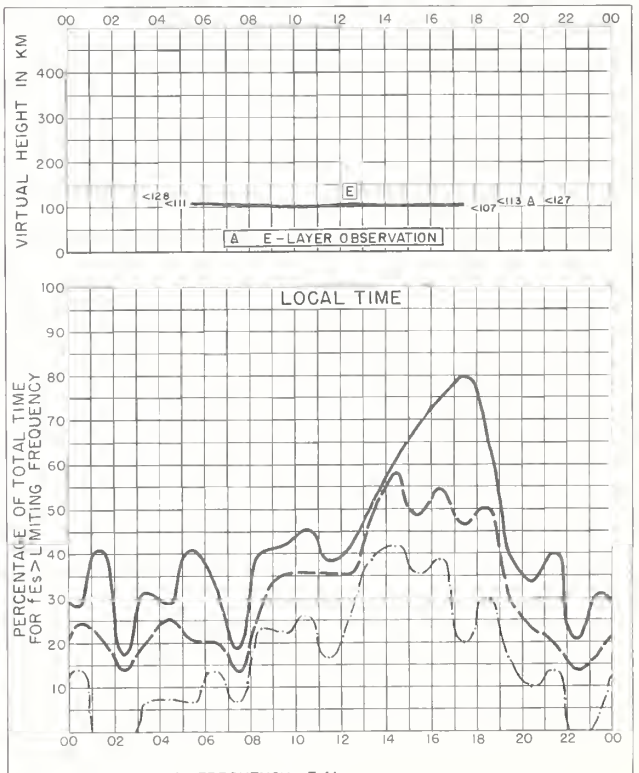


Fig. 16. GODHAVN, GREENLAND AUGUST 1959

NBS 490

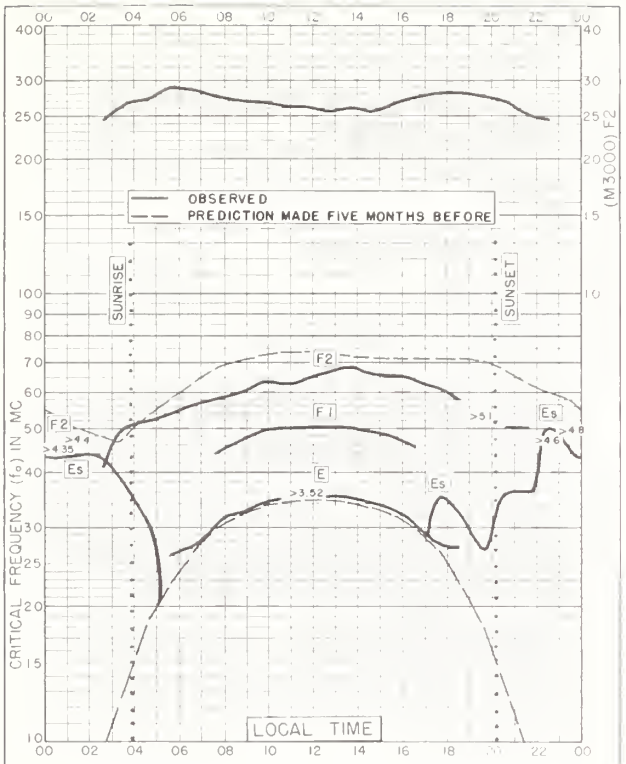


Fig. 17. REYKJAVIK, ICELAND
64.1°N, 21.8°W AUGUST 1959

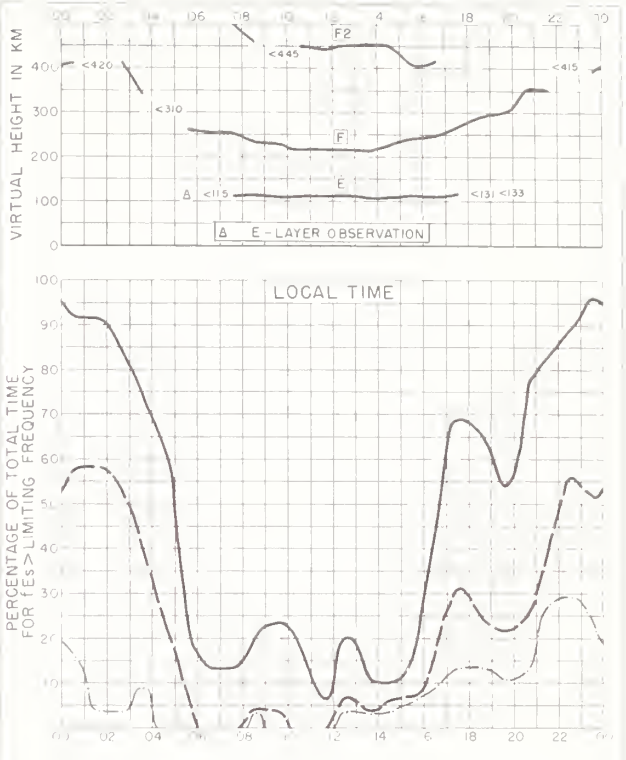


Fig. 18. REYKJAVIK, ICELAND AUGUST 1959

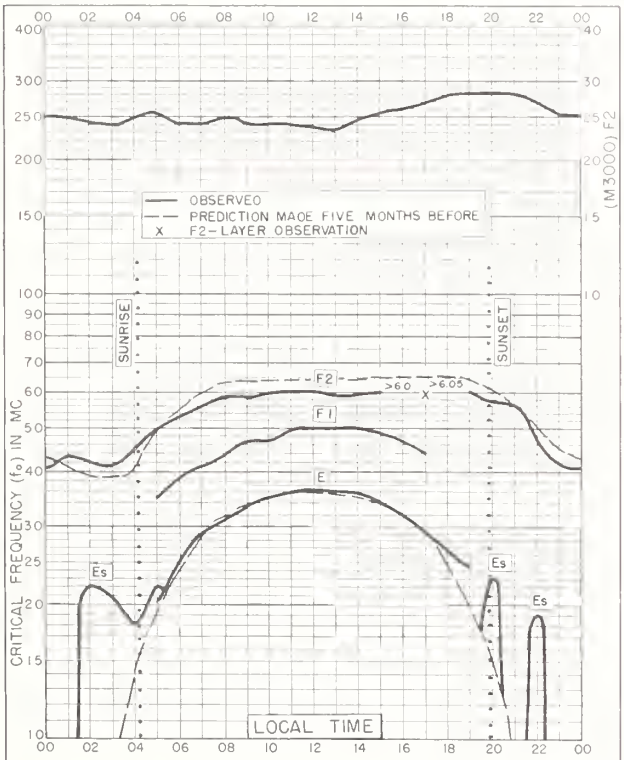


Fig. 19. ANCHORAGE, ALASKA
61.2°N, 149.9°W AUGUST 1959

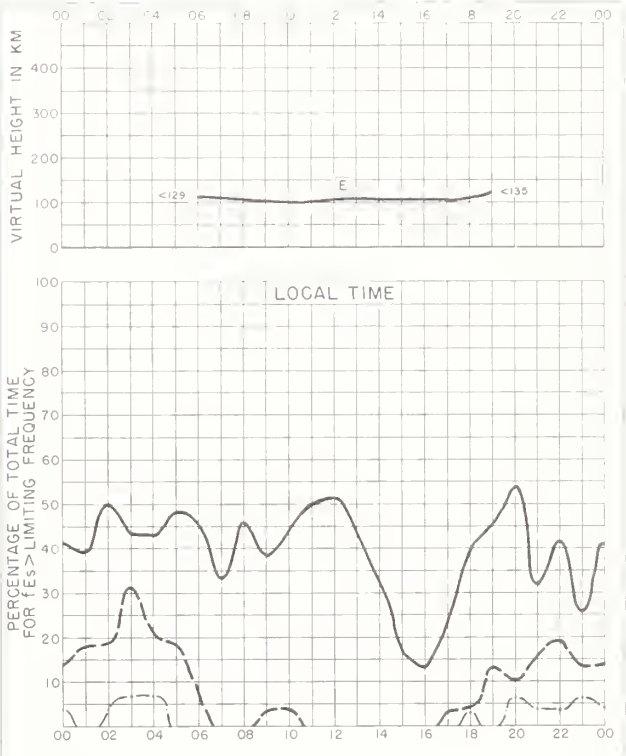


Fig. 20. ANCHORAGE, ALASKA AUGUST 1959

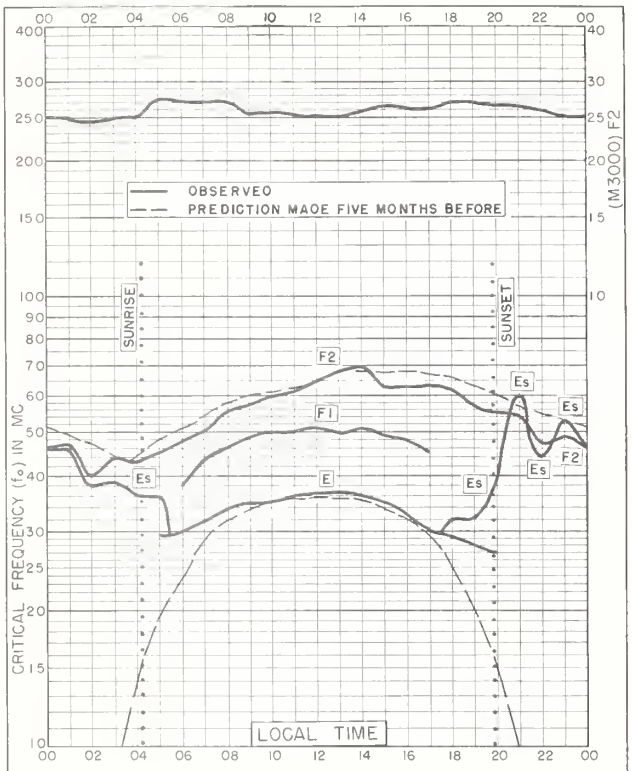
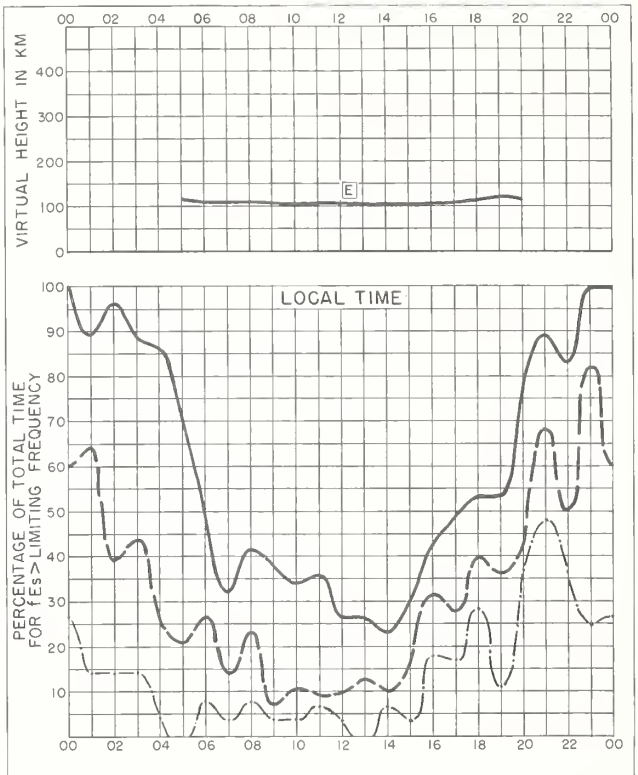


Fig. 21. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W AUGUST 1959

NBS 503



AUGUST 1959

Fig. 22. NARSARSSUAK, GREENLAND

NBS 490

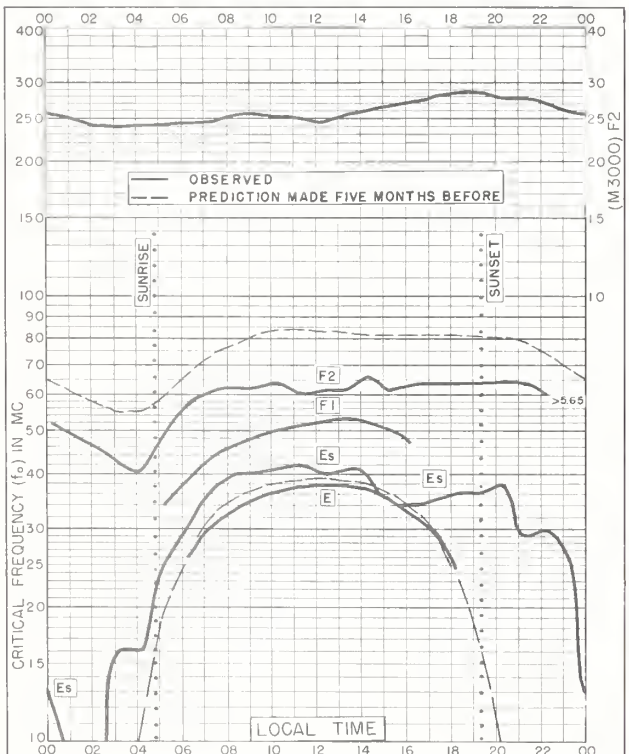


Fig. 23. ADAK, ALASKA
51.9°N, 176.6°W AUGUST 1959

NBS 503

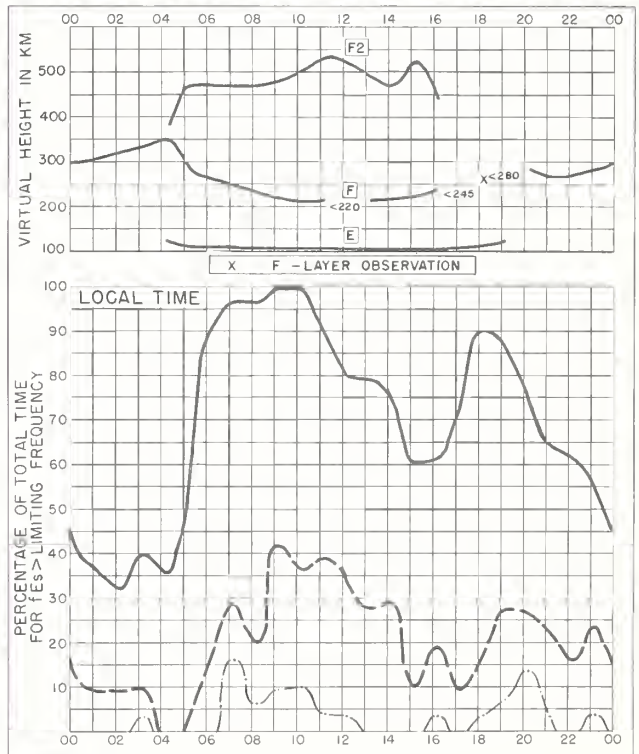


Fig. 24. ADAK, ALASKA AUGUST 1959

NBS 490

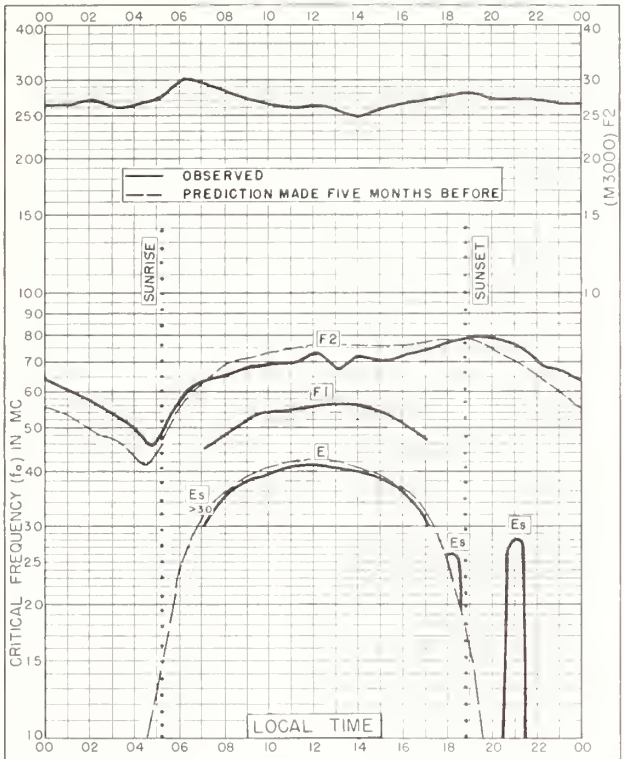
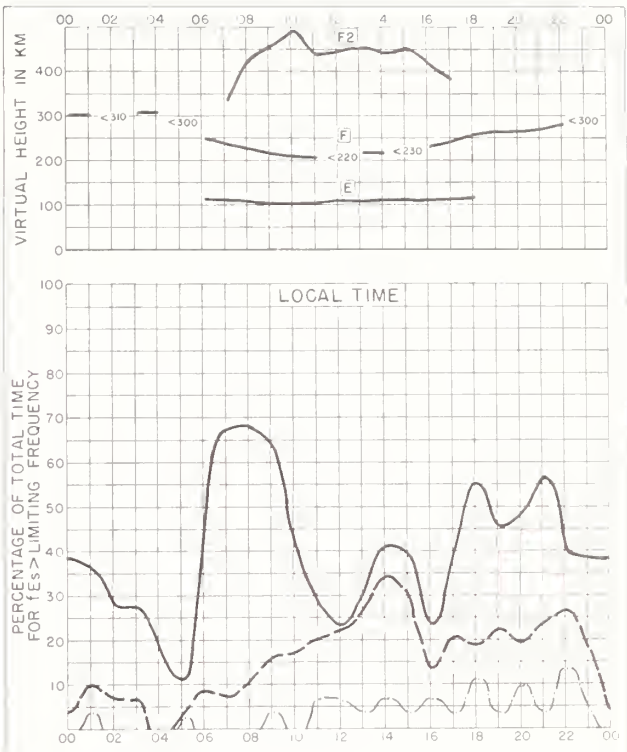


Fig. 25. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W AUGUST 1959



AUGUST 1959

Fig. 26. FT. MONMOUTH, NEW JERSEY

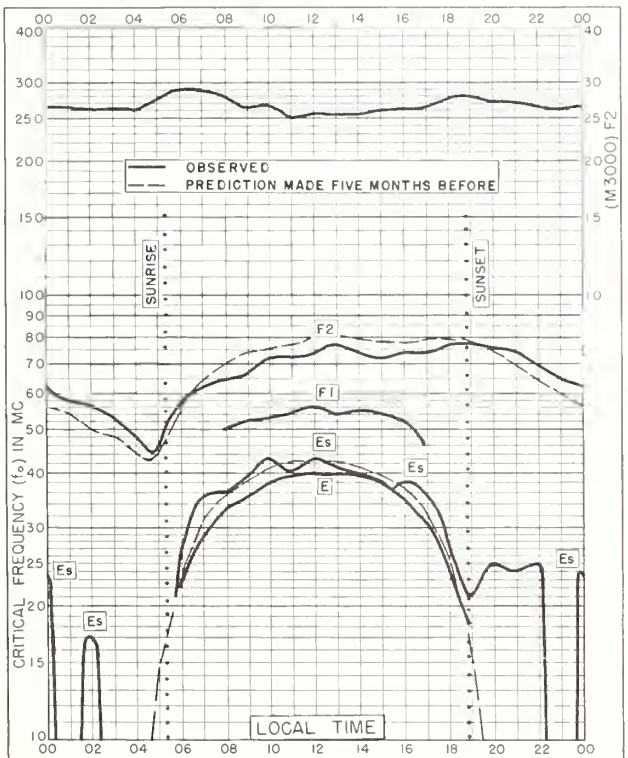


Fig. 27. WASHINGTON, D.C.
38.7°N, 77.1°W AUGUST 1959

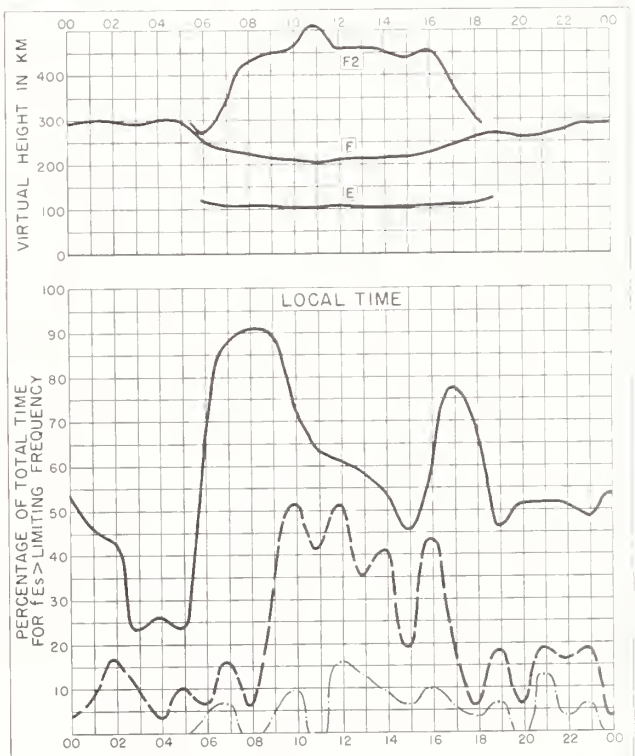


Fig. 28. WASHINGTON, D. C. AUGUST 1959

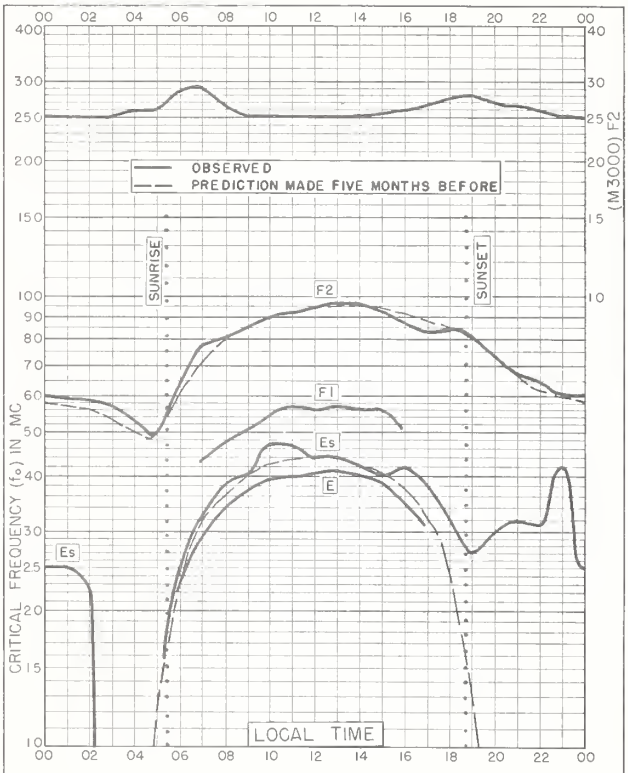
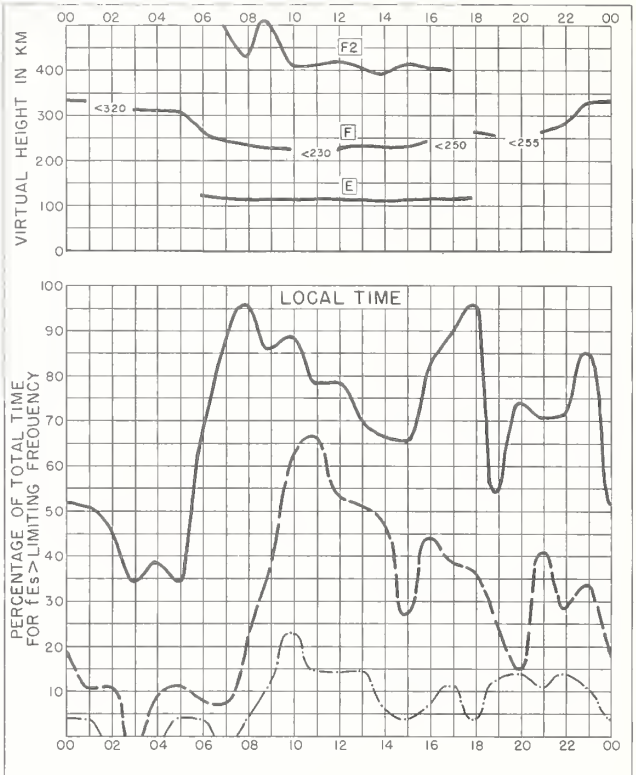


Fig. 29. WHITE SANDS, NEW MEXICO
32.3°N, 106.5° W AUGUST 1959

NBS 503



AUGUST 1959

Fig. 30. WHITE SANDS, NEW MEXICO

NBS 490

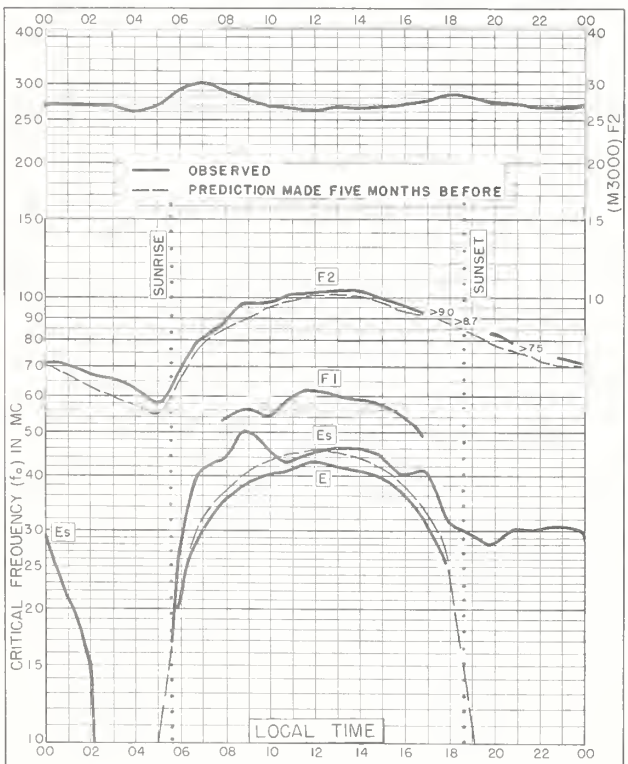


Fig. 31. GRAND BAHAMA I.
26.6°N, 78.2° W AUGUST 1959

NBS 503

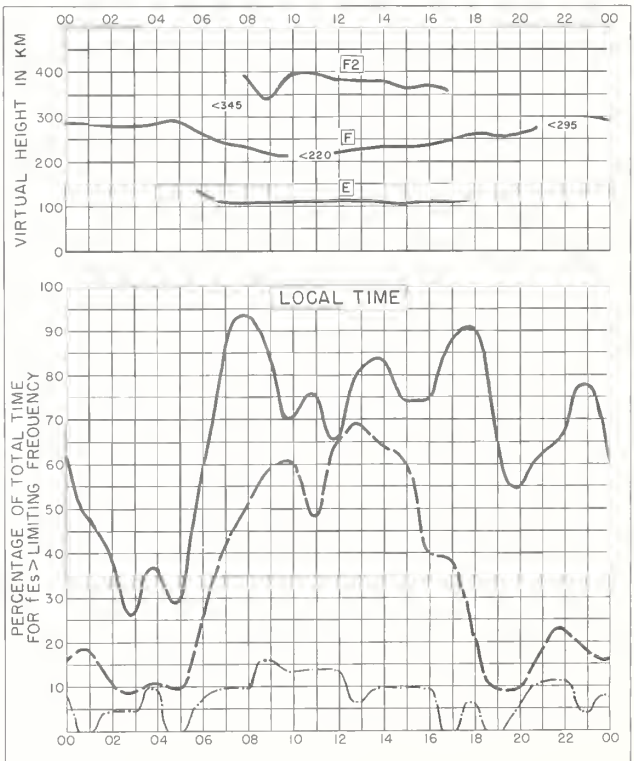


Fig. 32. GRAND BAHAMA I. AUGUST 1959

NBS 490

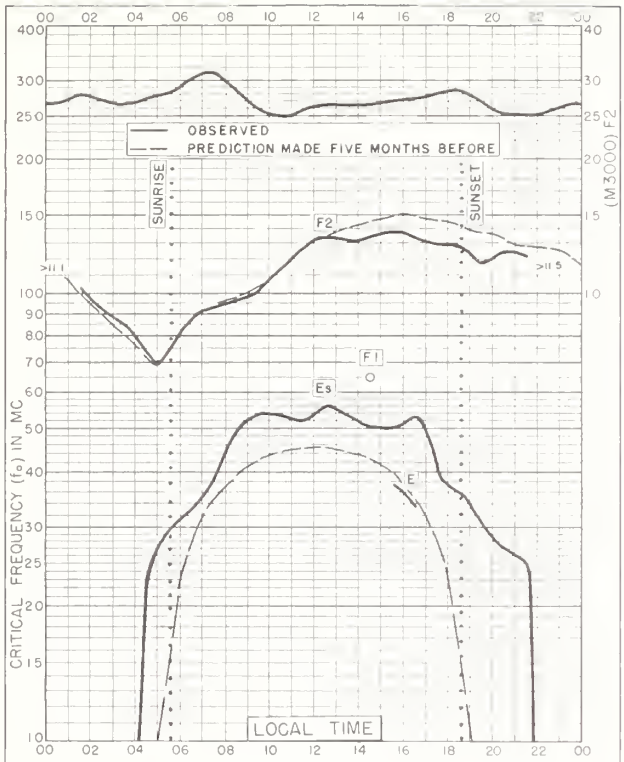


Fig. 33. OKINAWA I.
26.3°N, 127.8°E AUGUST 1959

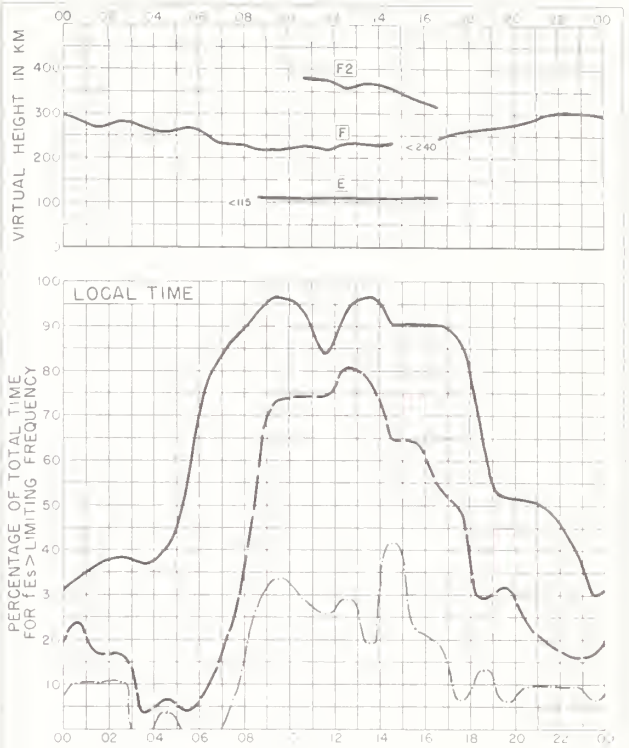


Fig. 34. OKINAWA I. AUGUST 1959

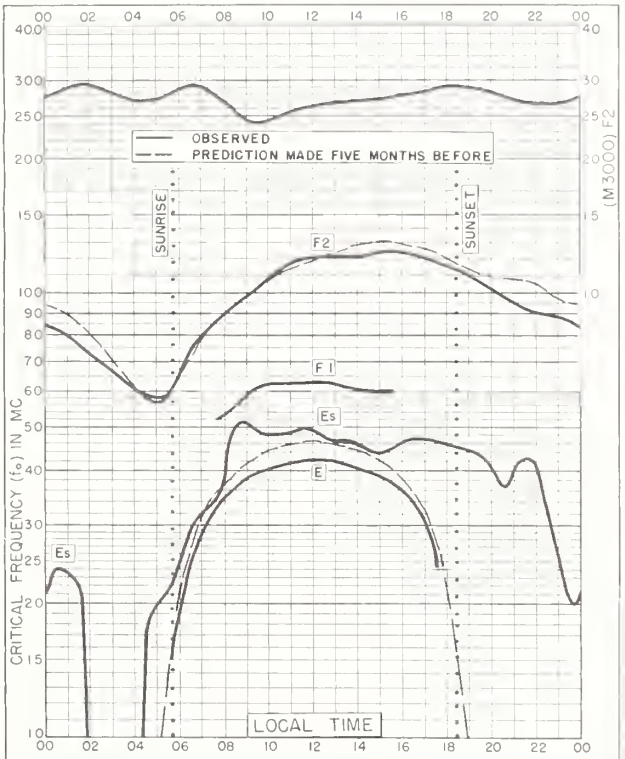


Fig. 35. MAUI, HAWAII
20.8°N, 156.5°W AUGUST 1959

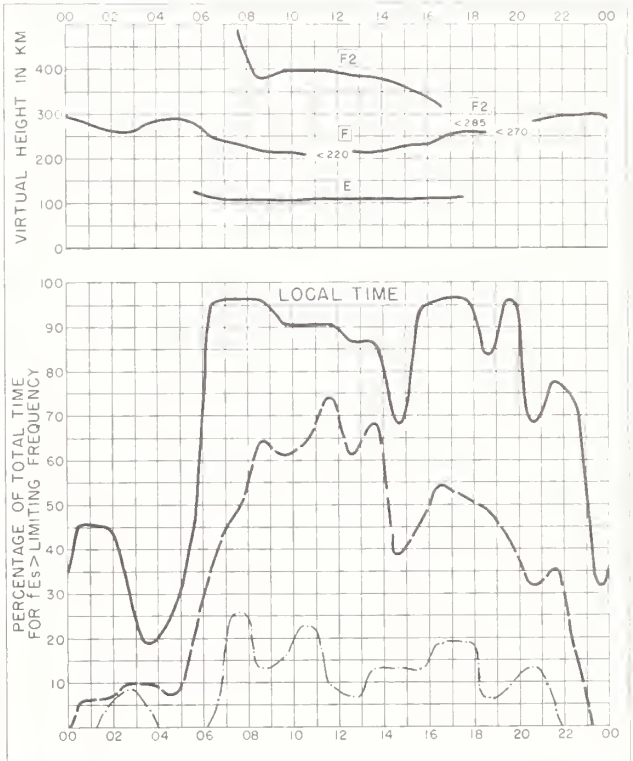


Fig. 36. MAUI, HAWAII AUGUST 1959

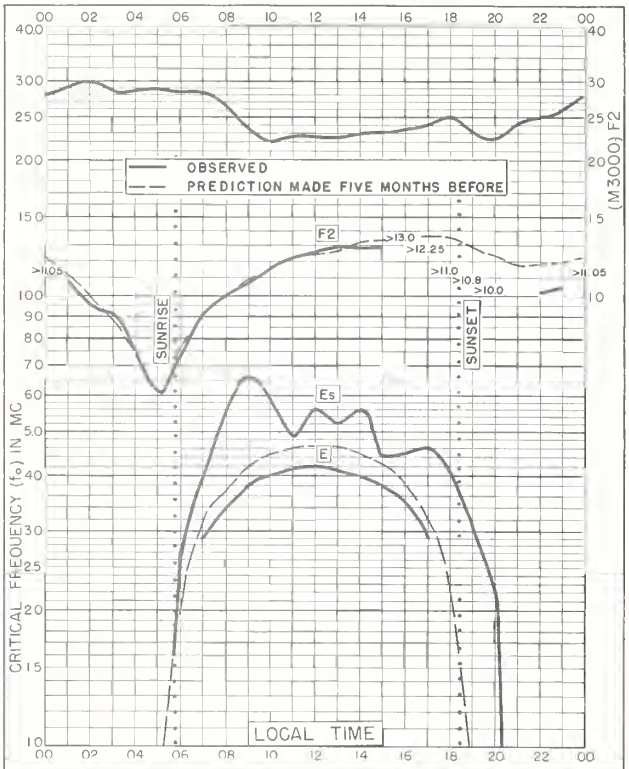


Fig. 37. BAGUIO, P. I.
16.4°N, 120.6°E
AUGUST 1959

NBS 503

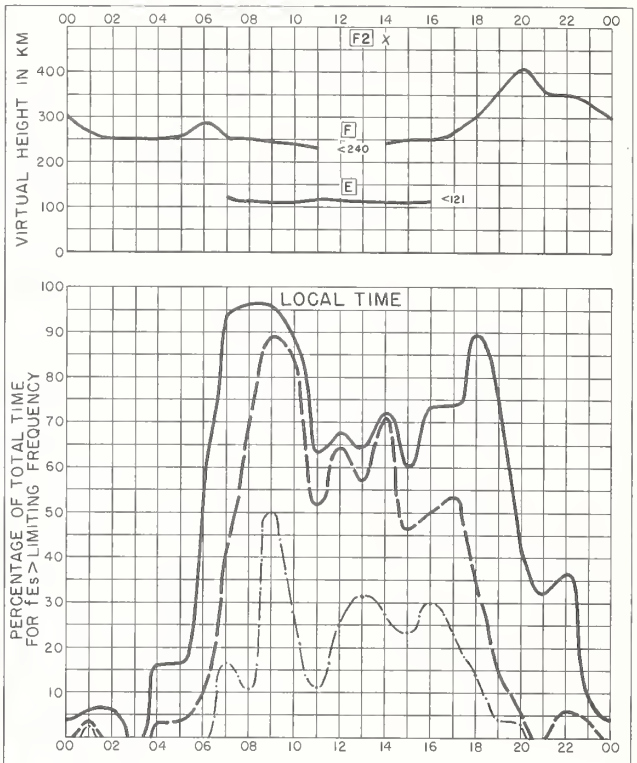


Fig. 38. BAGUIO, P. I. AUGUST 1959

NBS 490

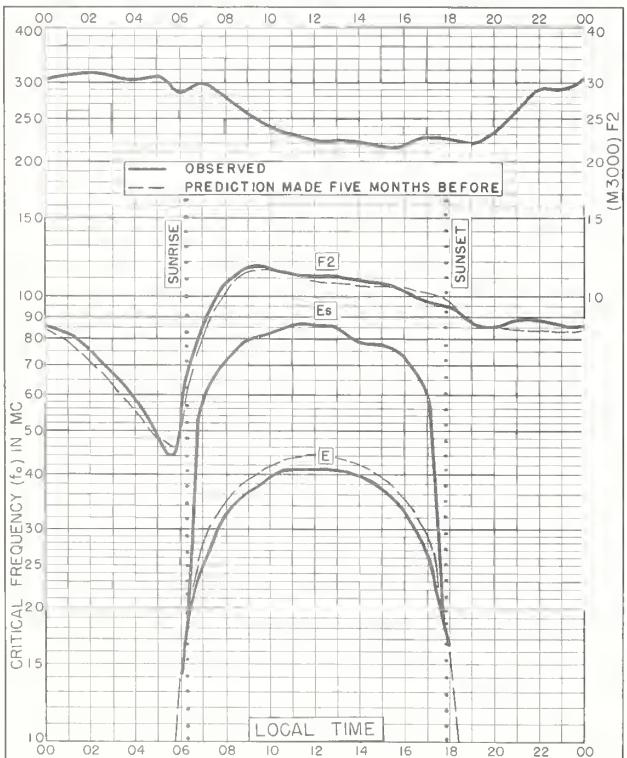


Fig. 39. HUANCAYO, PERU
12.0°S, 75.3°W
AUGUST 1959

NBS 503

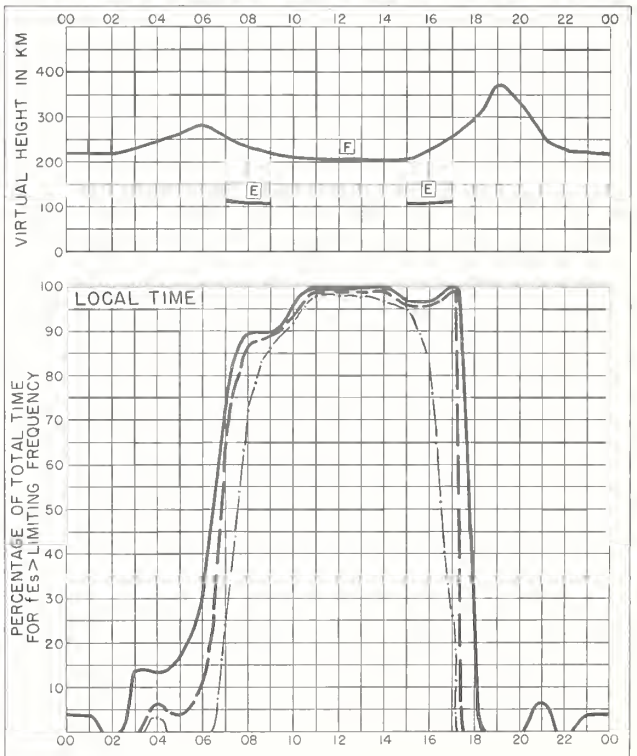


Fig. 40. HUANCAYO, PERU AUGUST 1959

NBS 490

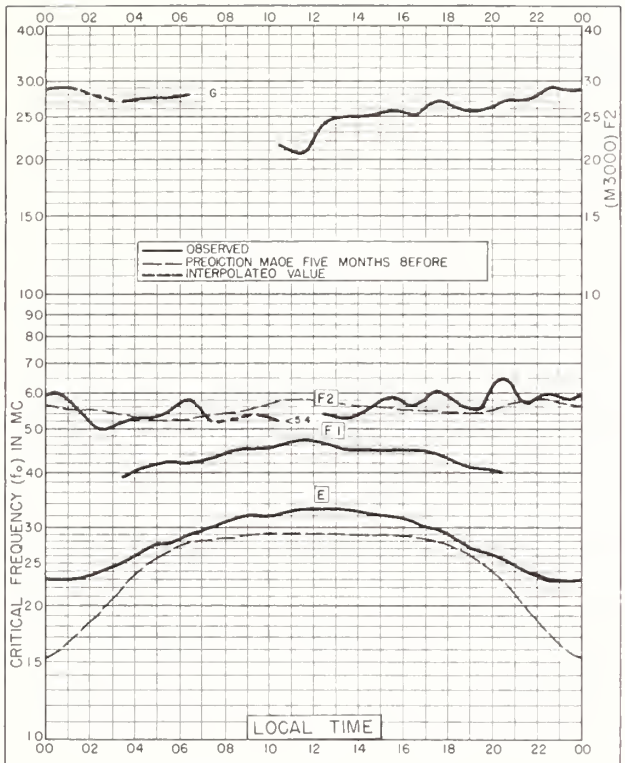


Fig. 41. THULE, GREENLAND
76.6°N, 68.7°W JULY 1959

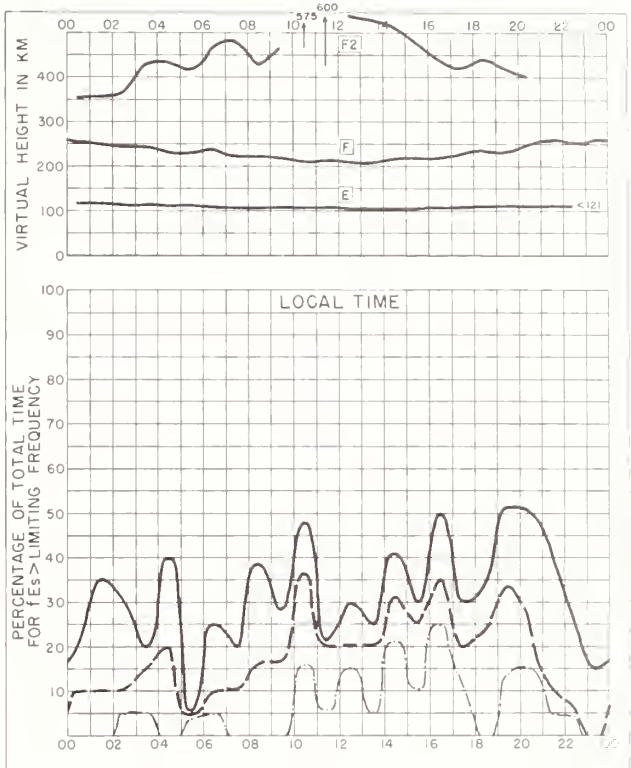


Fig. 42. THULE, GREENLAND JULY 1959

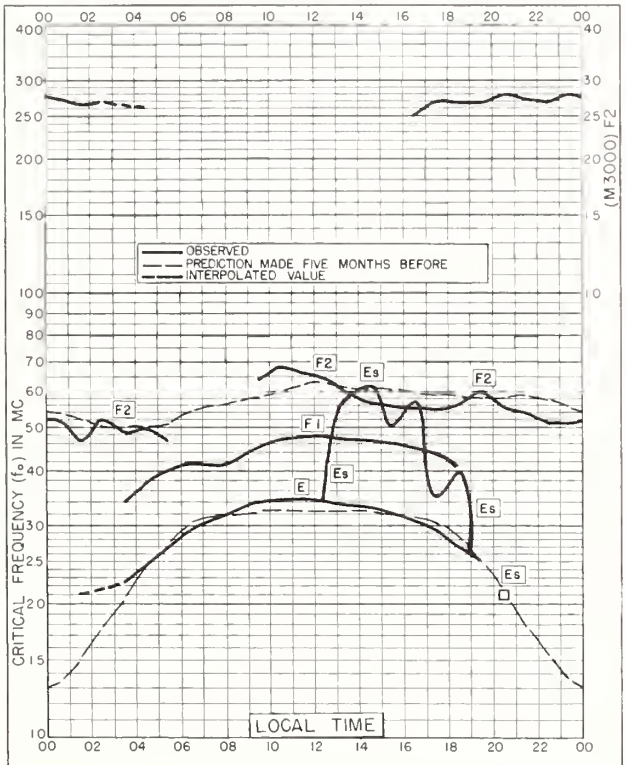


Fig. 43. GODHAVN, GREENLAND
69.3°N, 53.5°W JULY 1959

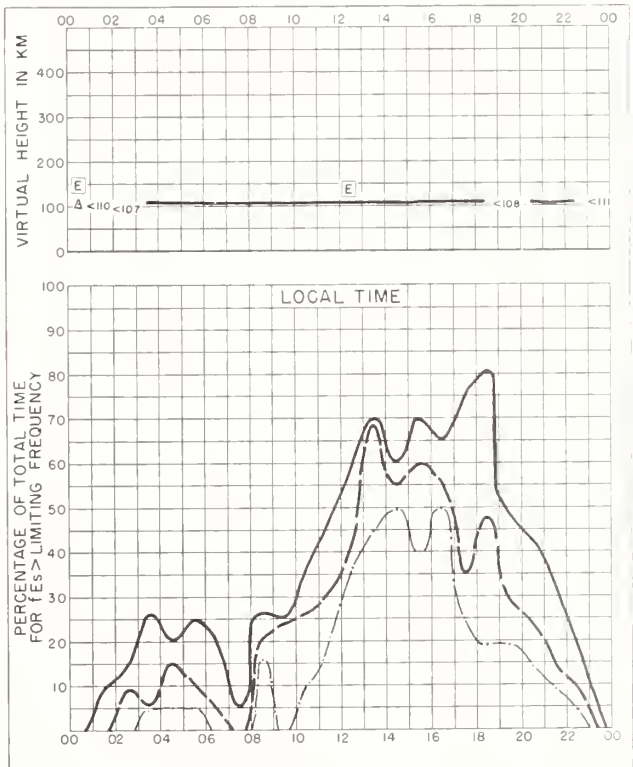


Fig. 44. GODHAVN, GREENLAND JULY 1959

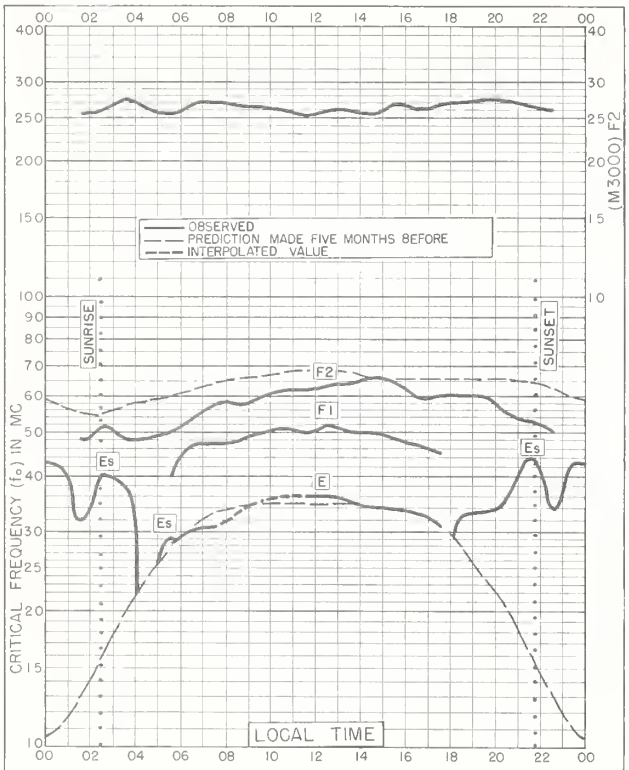


Fig. 45. REYKJAVIK, ICELAND
64.1°N, 21.8°W JULY 1959

NBS 503

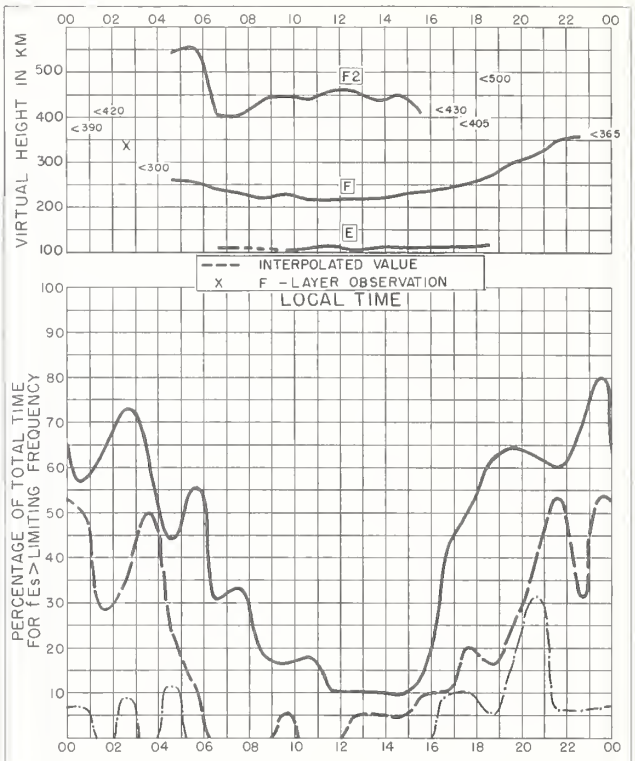


Fig. 46. REYKJAVIK, ICELAND JULY 1959

NBS 490

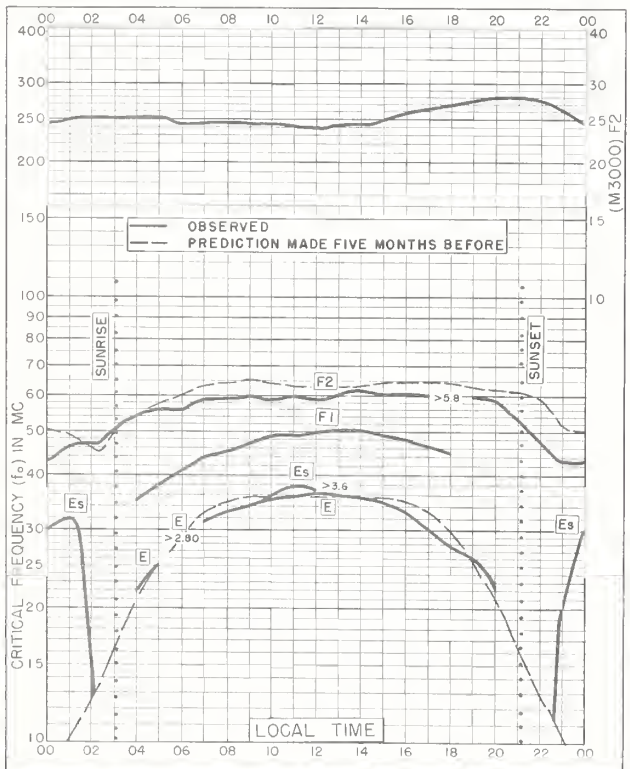


Fig. 47. ANCHORAGE, ALASKA
61.2°N, 149.9°W JULY 1959

NBS 503

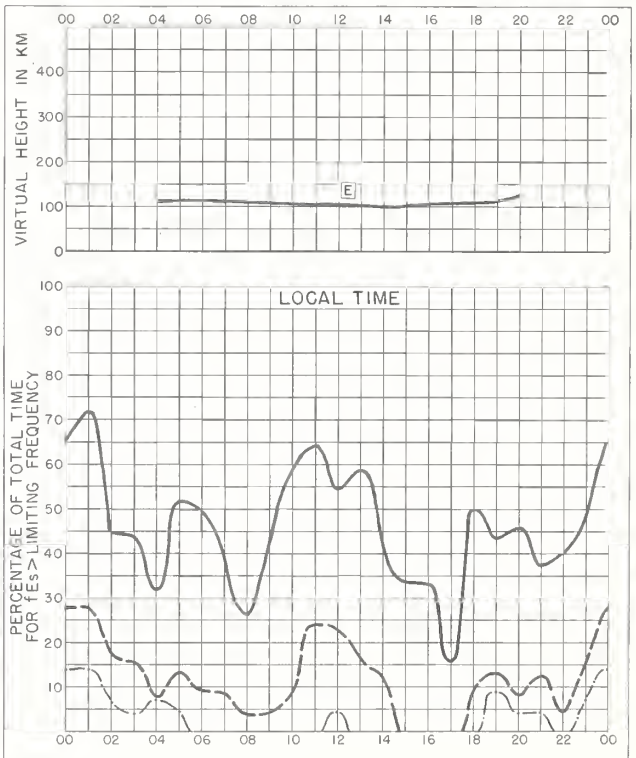


Fig. 48. ANCHORAGE, ALASKA JULY 1959

NBS 490

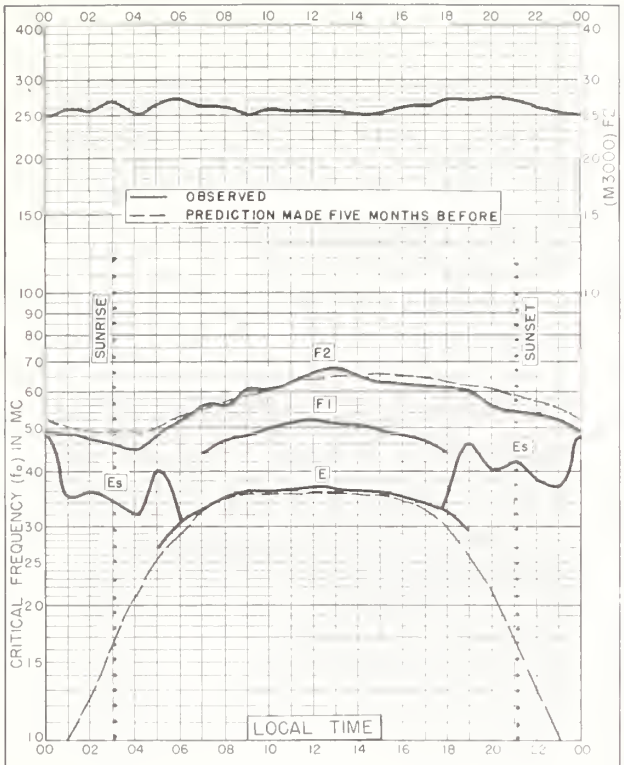


Fig. 49. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W JULY 1959

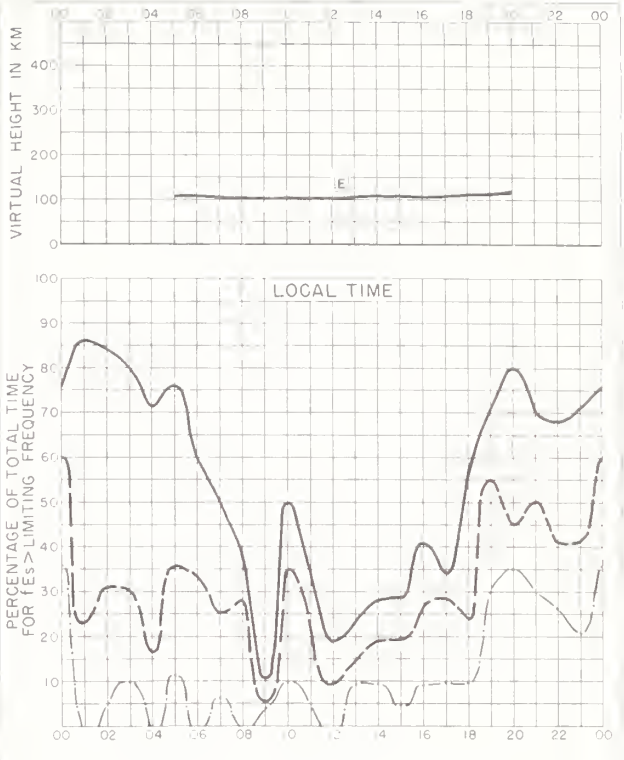


Fig. 50. NARSARSSUAK, GREENLAND JULY 1959

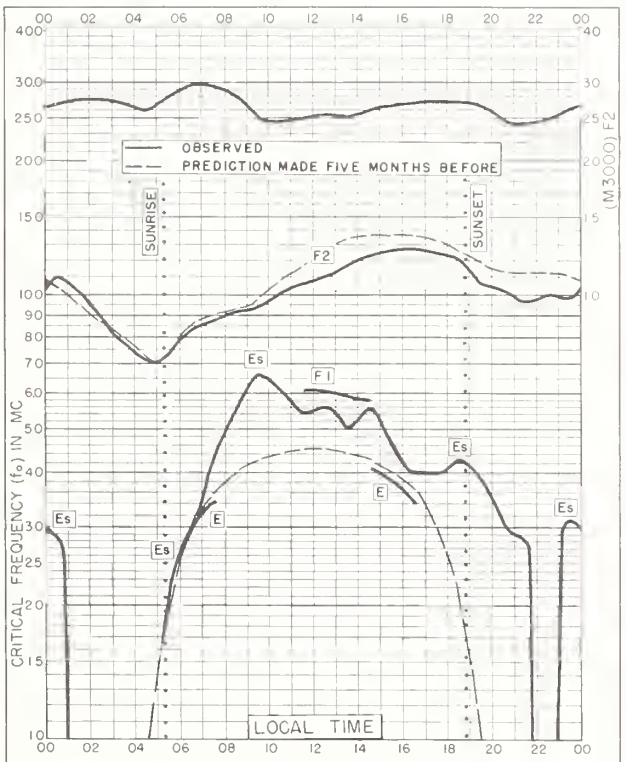


Fig. 51. OKINAWA I.
26.3°N, 127.8°E JULY 1959

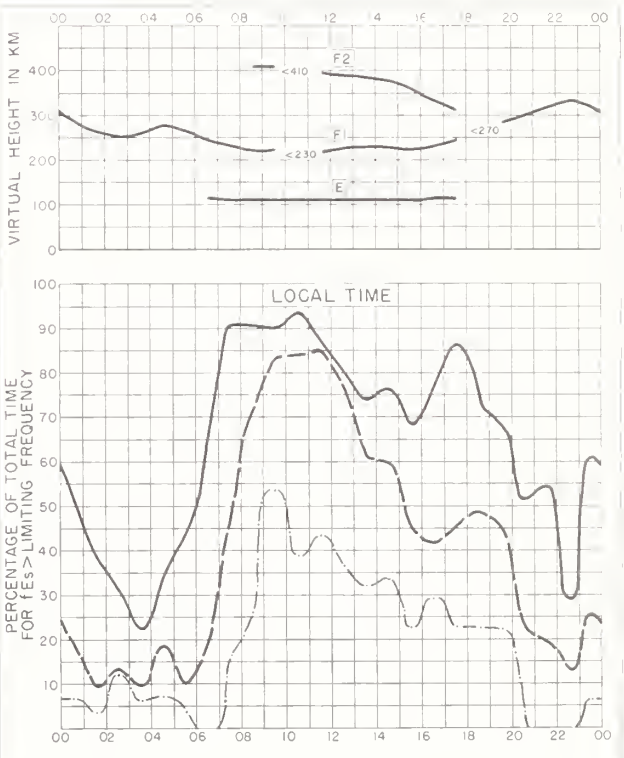


Fig. 52. OKINAWA I. JULY 1959

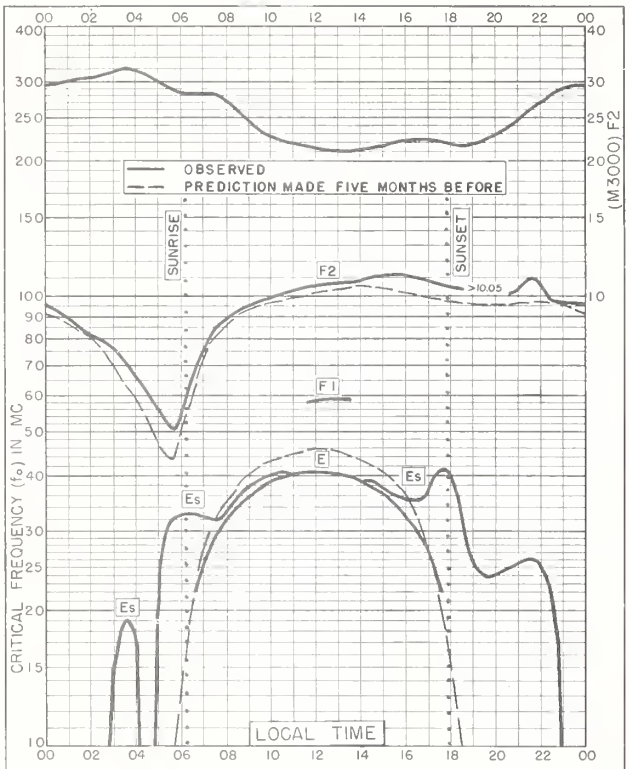


Fig. 53. TALARA, PERU
4.6°S, 81.3°W
JULY 1959

NBS 503

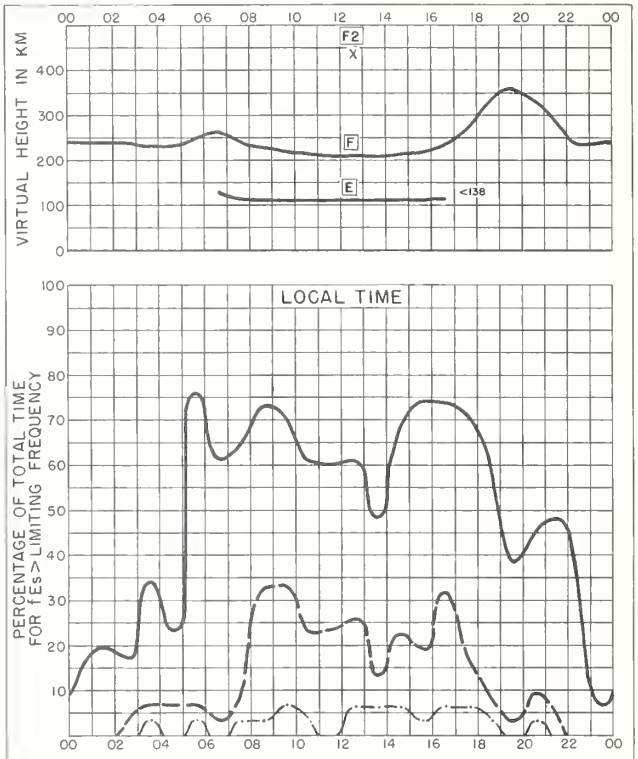


Fig. 54. TALARA, PERU
JULY 1959

NBS 490

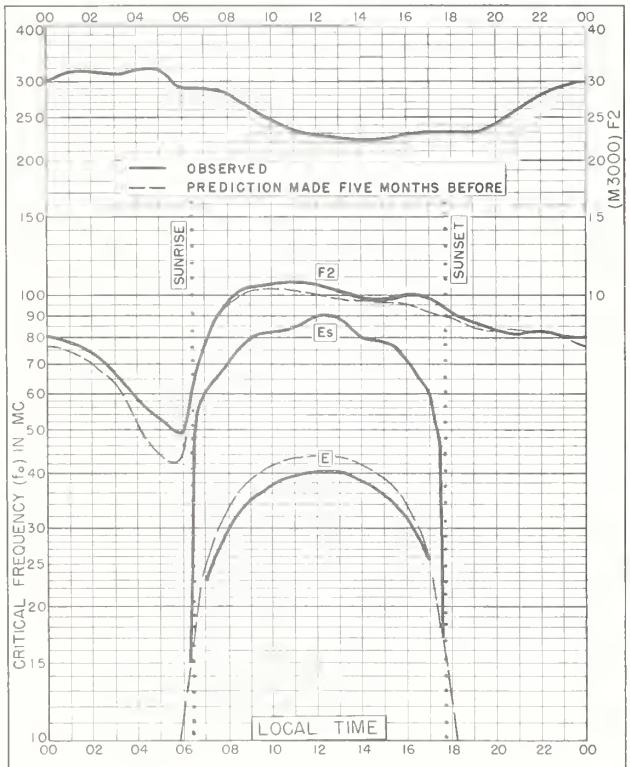


Fig. 55. HUANCAYO, PERU
12.0°S, 75.3°W
JULY 1959

NBS 503

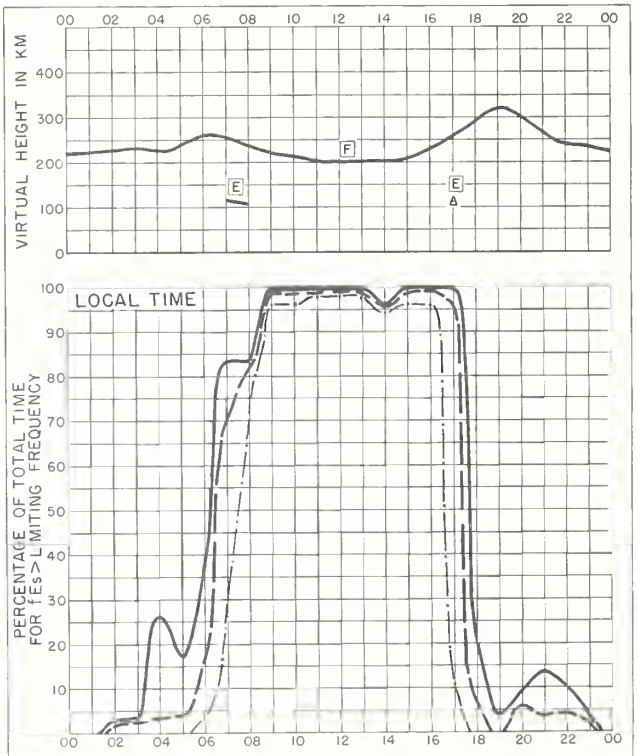


Fig. 56. HUANCAYO, PERU
JULY 1959

NBS 490

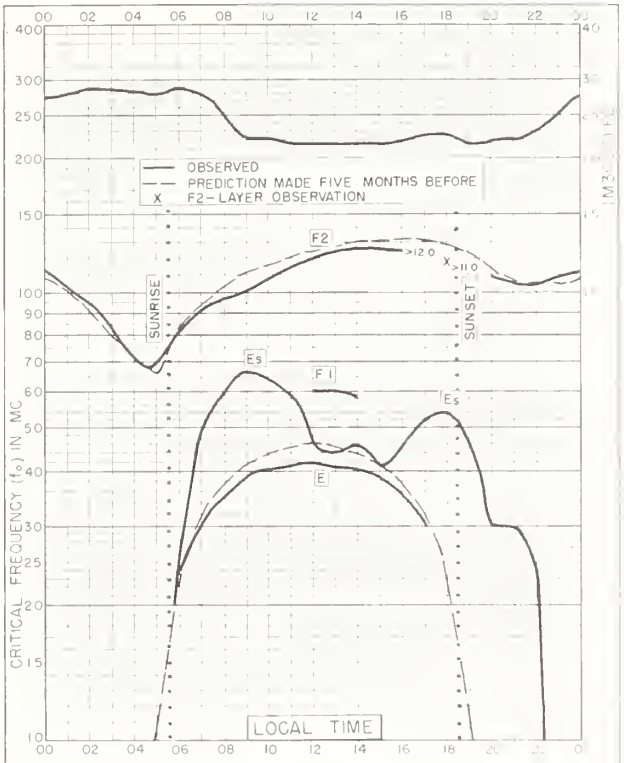


Fig. 57. BAGUIO, P. I.
16.4°N, 120.6°E JUNE 1959

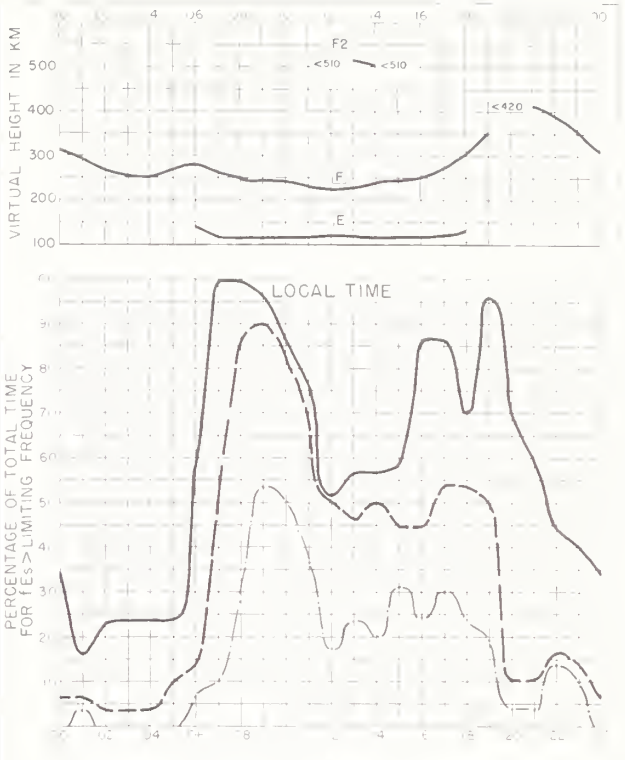


Fig. 58. BAGUIO, P. I. JUNE 1959

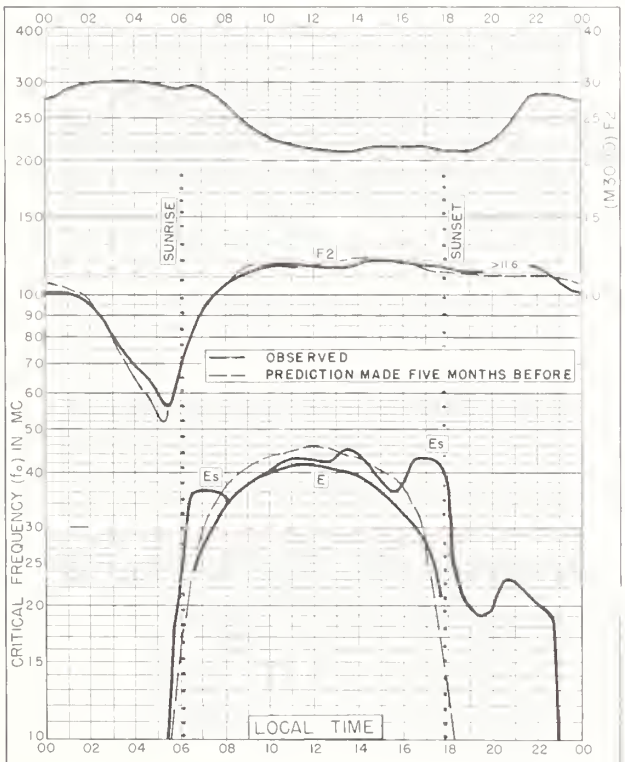


Fig. 59. TALARA, PERU
4.6°S, 81.3°W MAY 1959

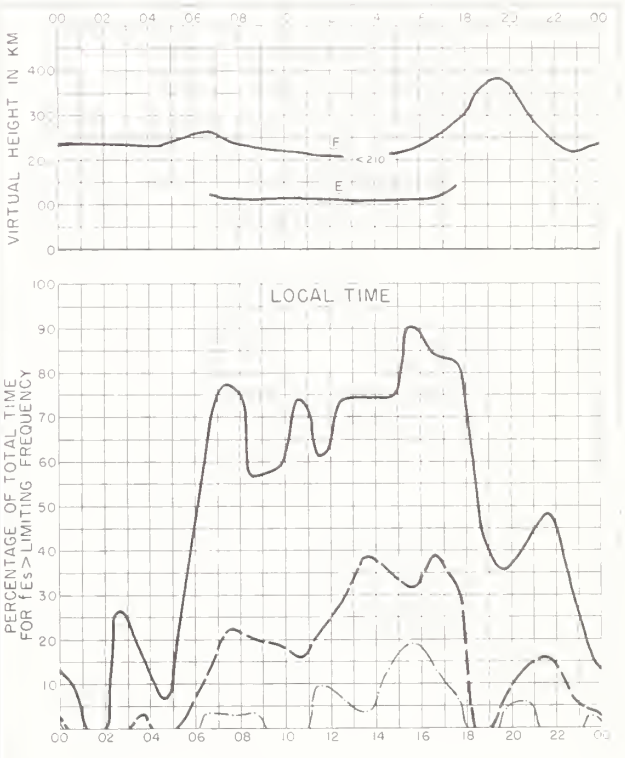


Fig. 60. TALARA, PERU MAY 1959

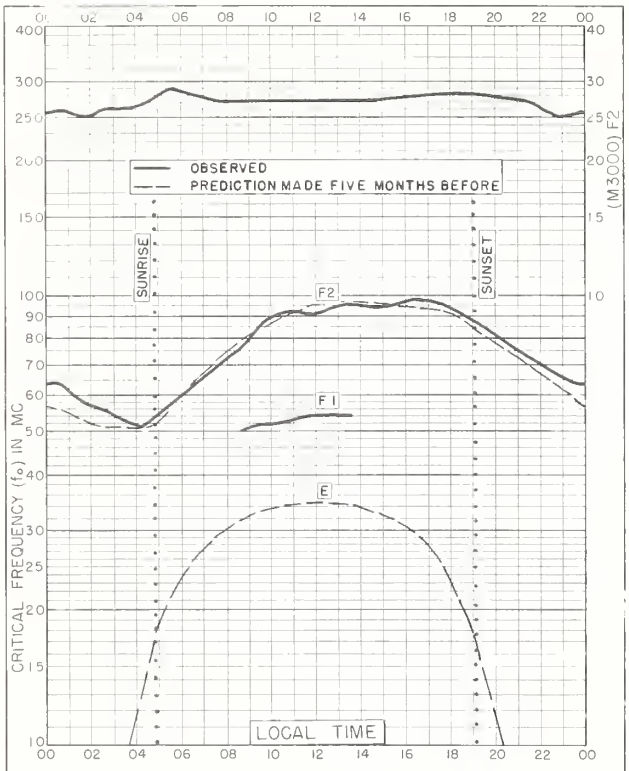


Fig. 61. NURMIJARVI, FINLAND
60.5°N, 24.6°E APRIL 1959

NBS 503

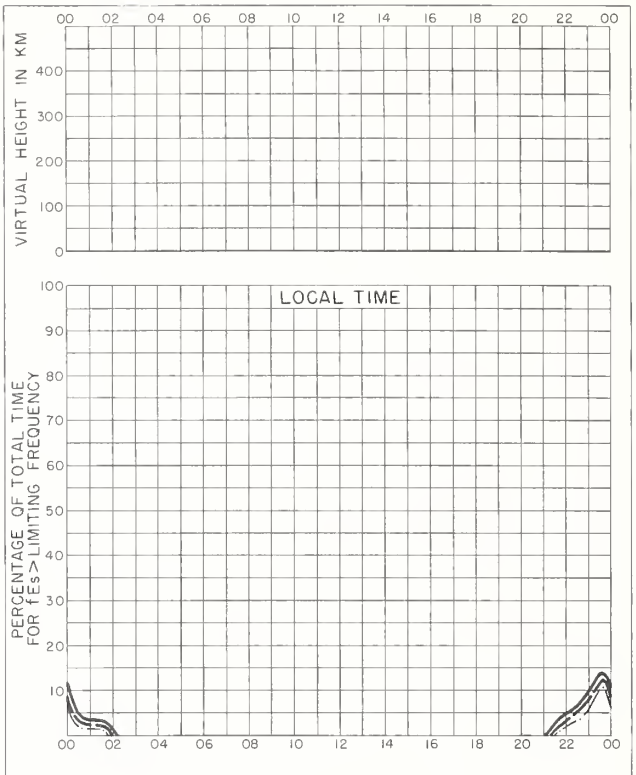


Fig. 62. NURMIJARVI, FINLAND APRIL 1959

NBS 490

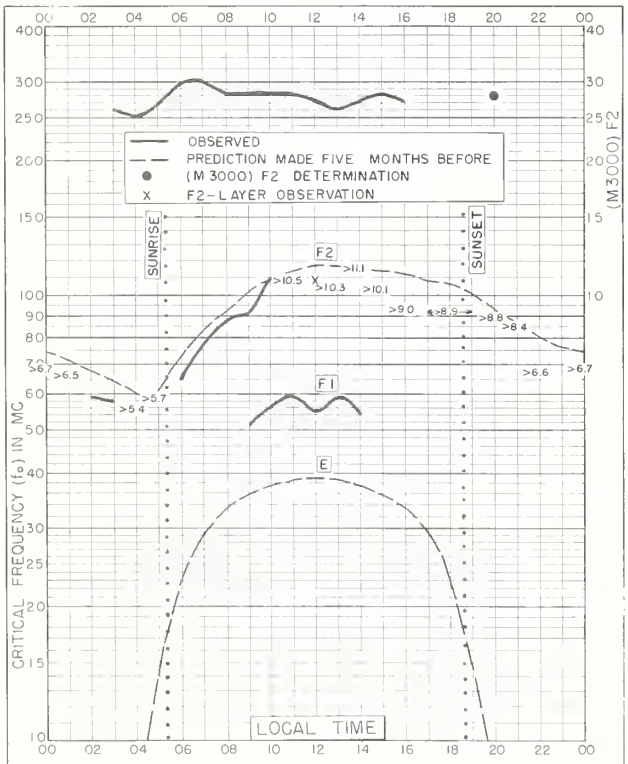


Fig. 63. GRAZ, AUSTRIA
47.1°N, 15.5°E APRIL 1959

NBS 503

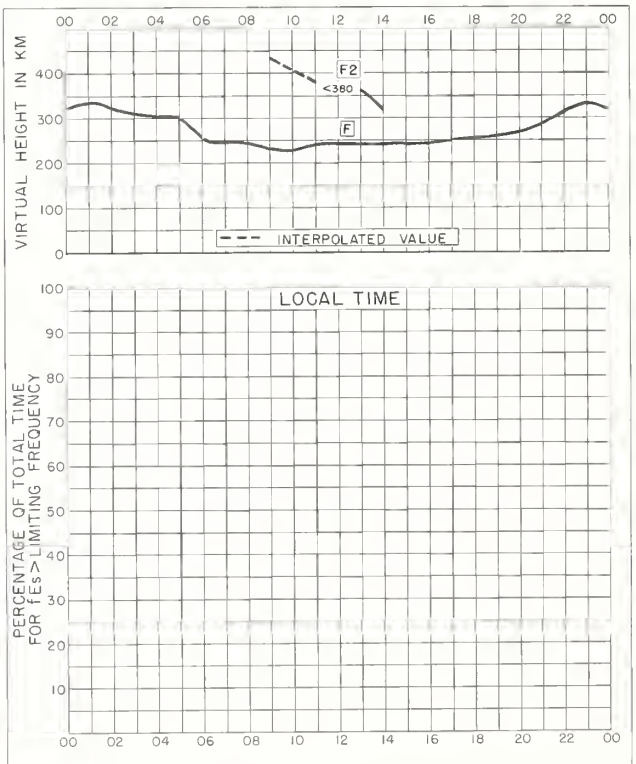


Fig. 64. GRAZ, AUSTRIA APRIL 1959

NBS 490

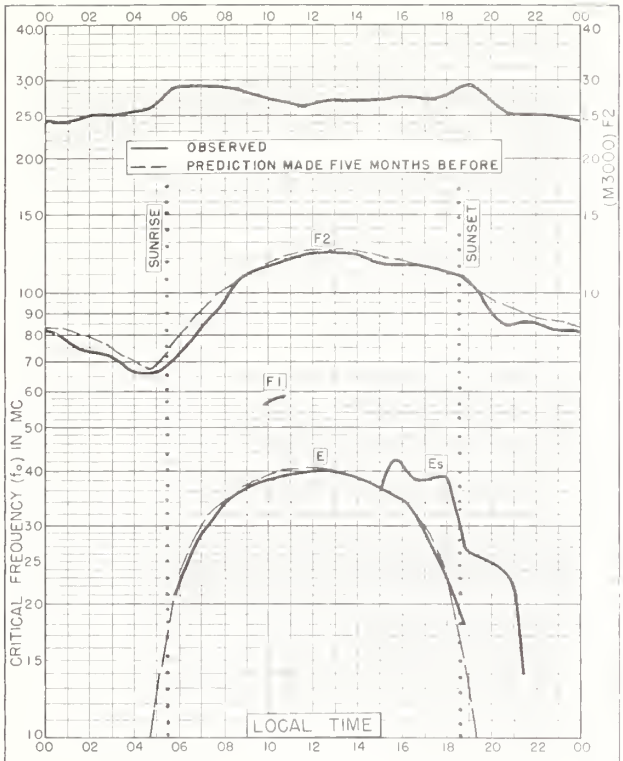


Fig. 65. ROME, ITALY
41.8°N, 12.5°E
APRIL 1959

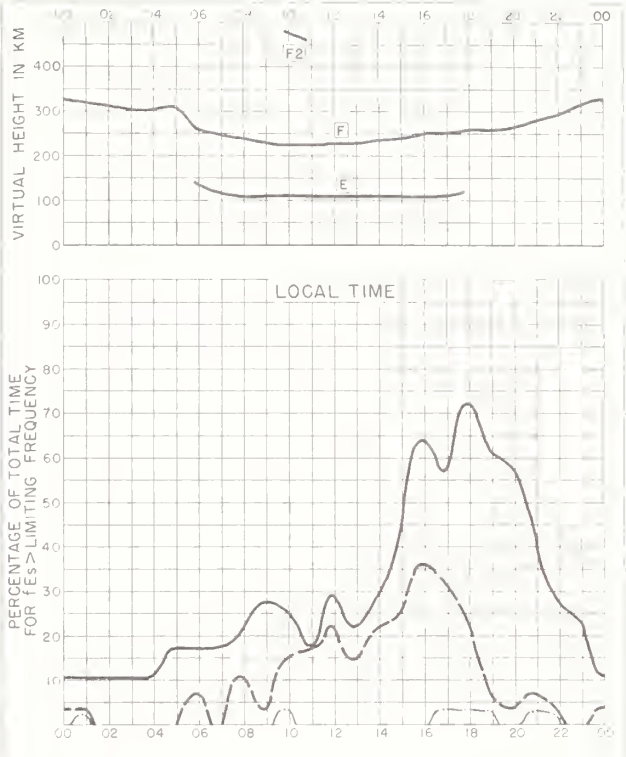


Fig. 66. ROME, ITALY
APRIL 1959

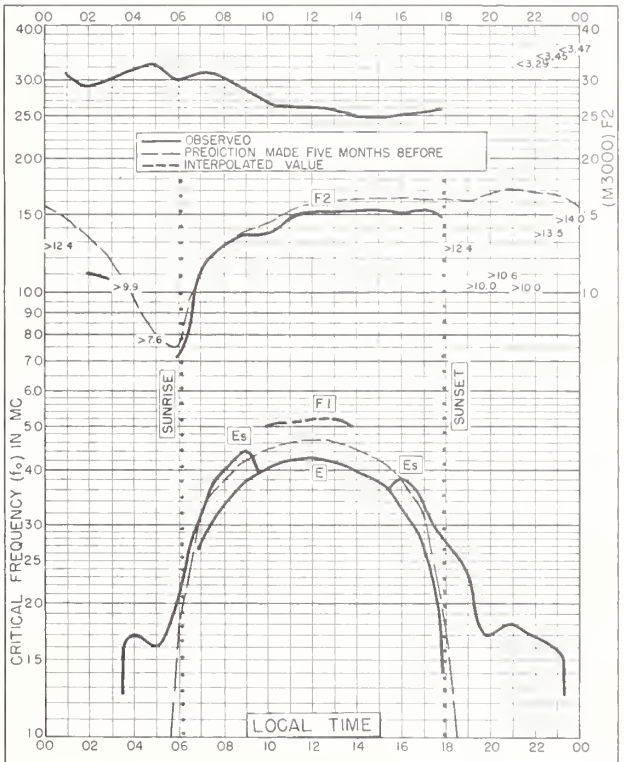


Fig. 67. LWIRO, BELGIAN CONGO
2.3°S, 28.8°E
APRIL 1959

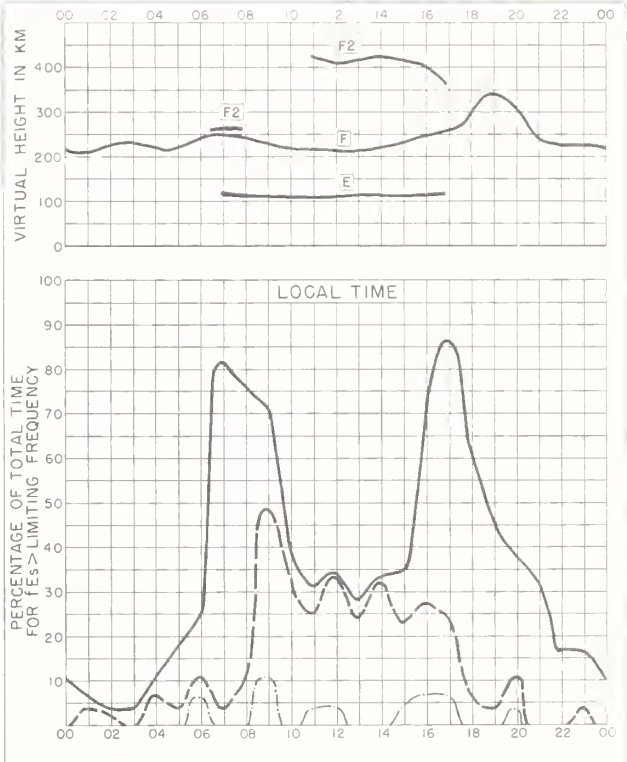


Fig. 68. LWIRO, BELGIAN CONGO
APRIL 1959

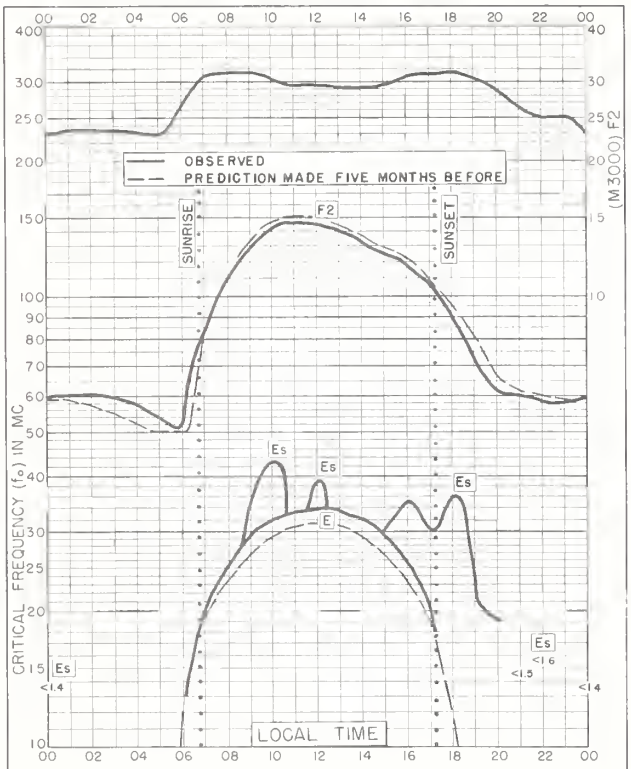


Fig. 69. FALKLAND IS.
51.7°S, 57.8°W APRIL 1959

NBS 503

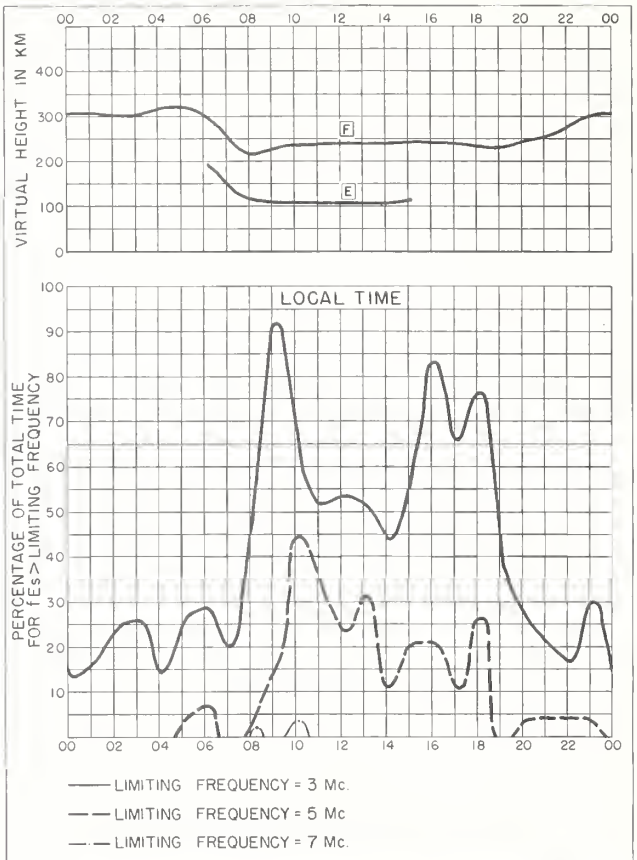


Fig. 70. FALKLAND IS. APRIL 1959

NBS 490

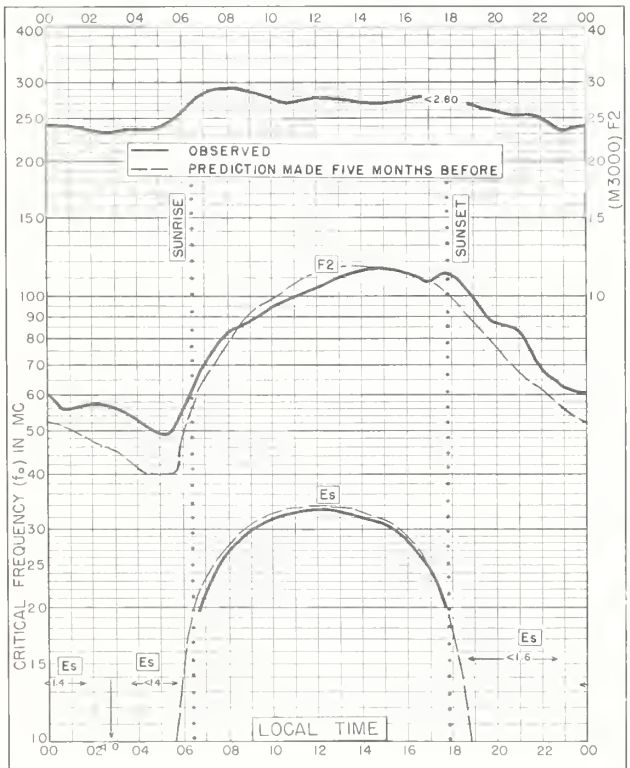


Fig. 71. INVERNESS, SCOTLAND
57.4°N, 4.2°W MARCH 1959

NBS 503

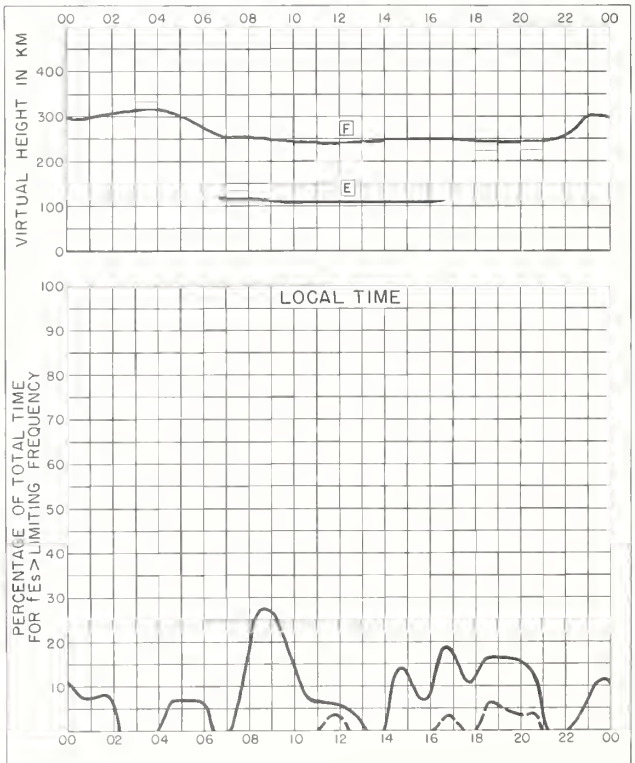


Fig. 72. INVERNESS, SCOTLAND MARCH 1959

NBS 490

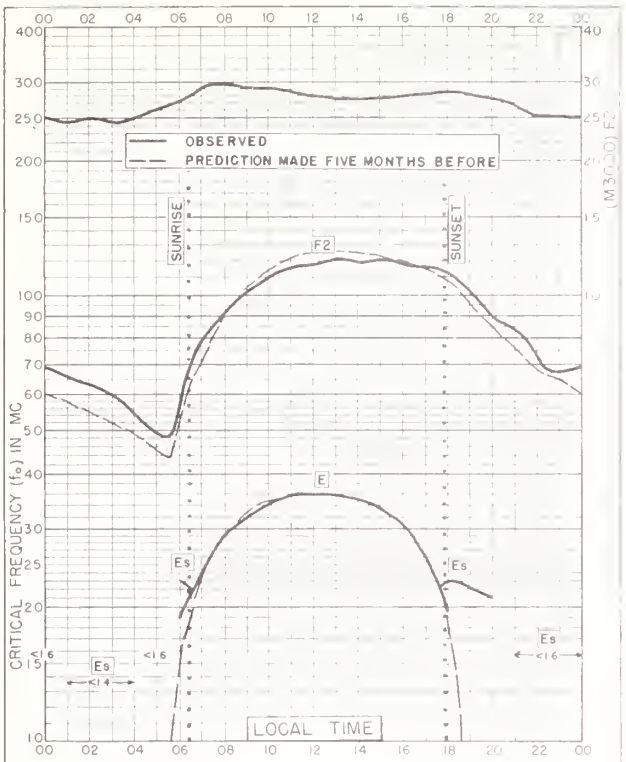


Fig. 73. SLOUGH, ENGLAND
51.5°N, 0.6°W MARCH 1959

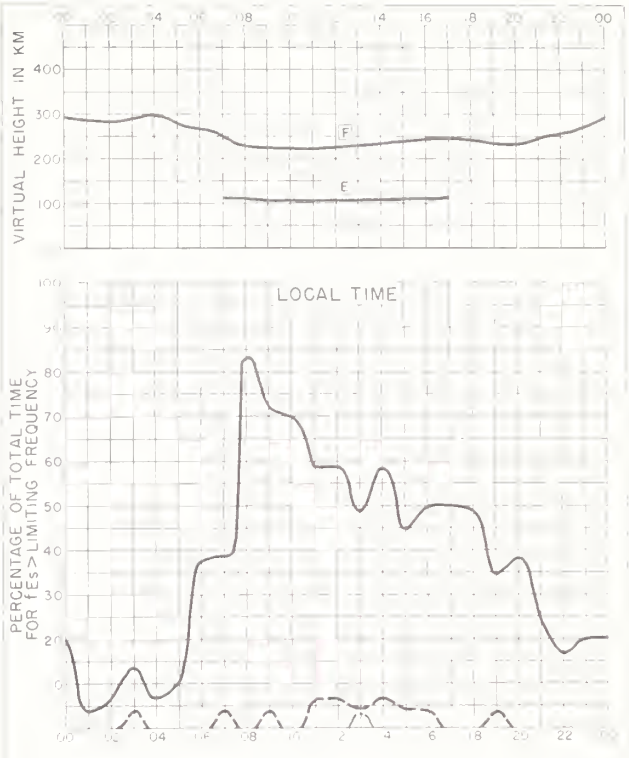


Fig. 74. SLOUGH, ENGLAND MARCH 1959

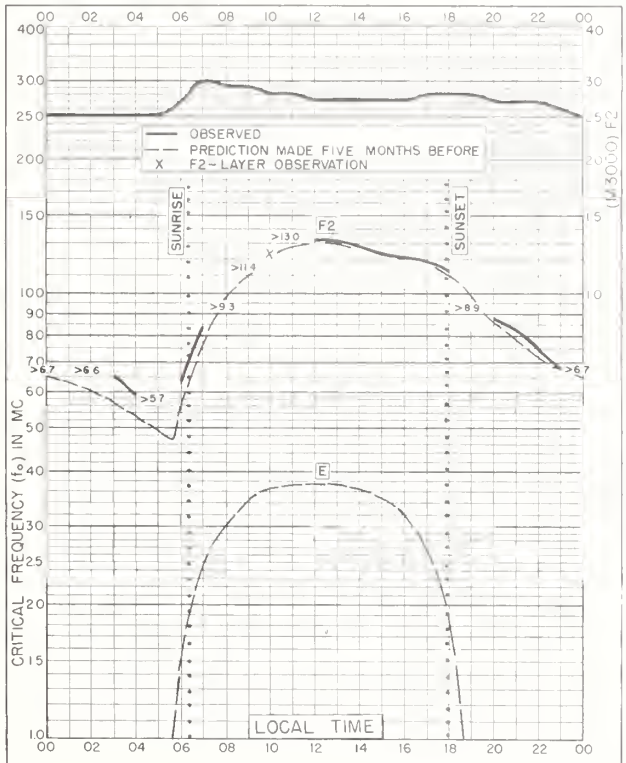


Fig. 75. GRAZ, AUSTRIA
47.1°N, 15.5°E MARCH 1959

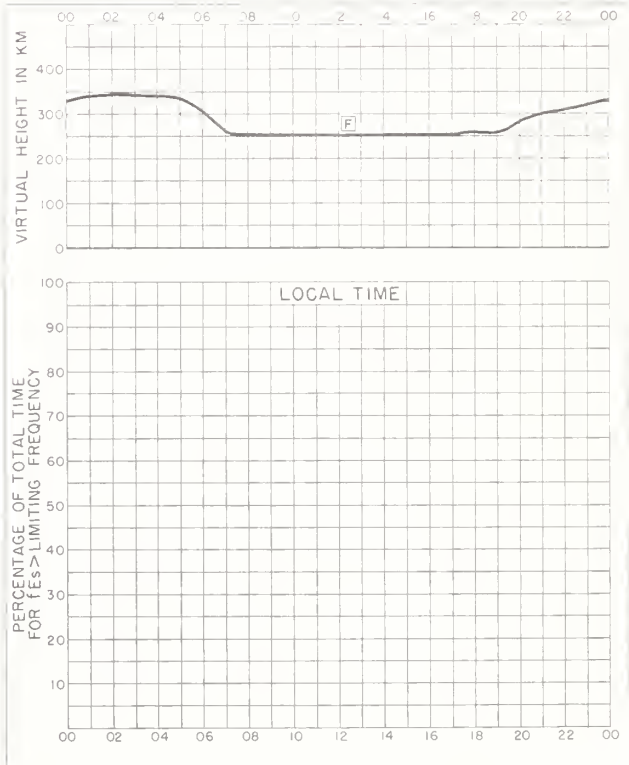


Fig. 76. GRAZ, AUSTRIA MARCH 1959

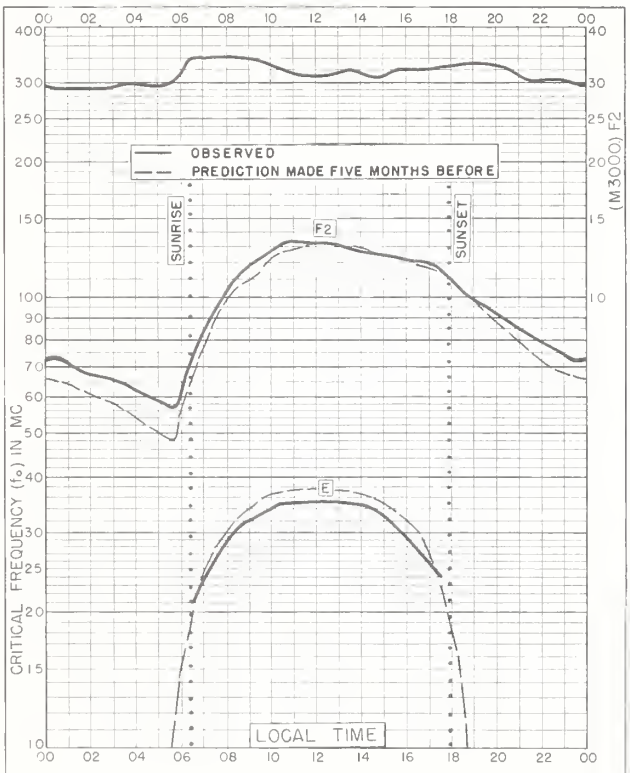
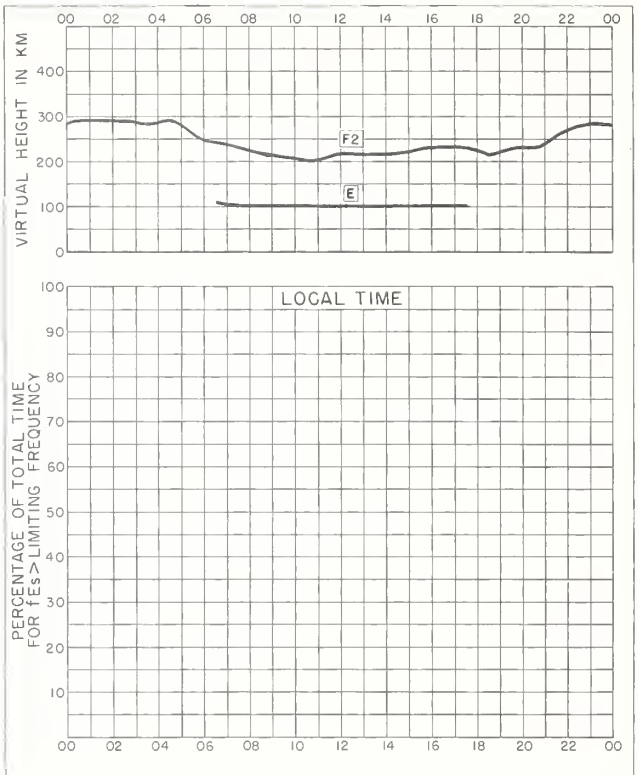


Fig. 77. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MARCH 1959

NBS 503



MARCH 1959

Fig. 78. SCHWARZENBURG, SWITZERLAND

NBS 490

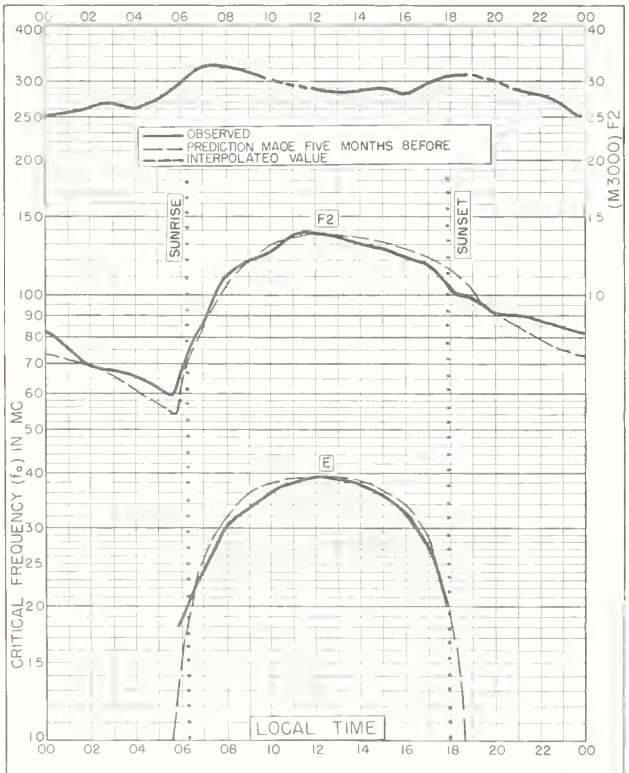
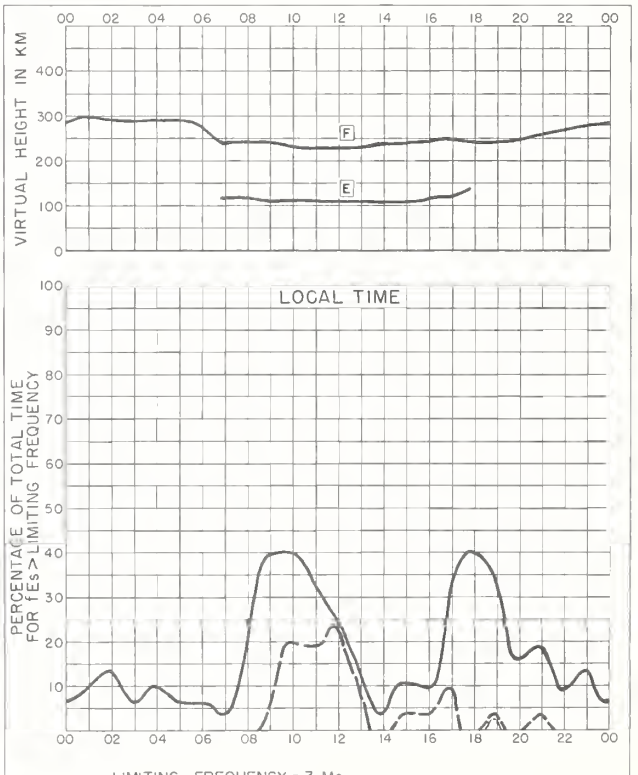


Fig. 79. ROME, ITALY
41.8°N, 12.5°E MARCH 1959

NBS 503



MARCH 1959

Fig. 80. ROME, ITALY

NBS 490

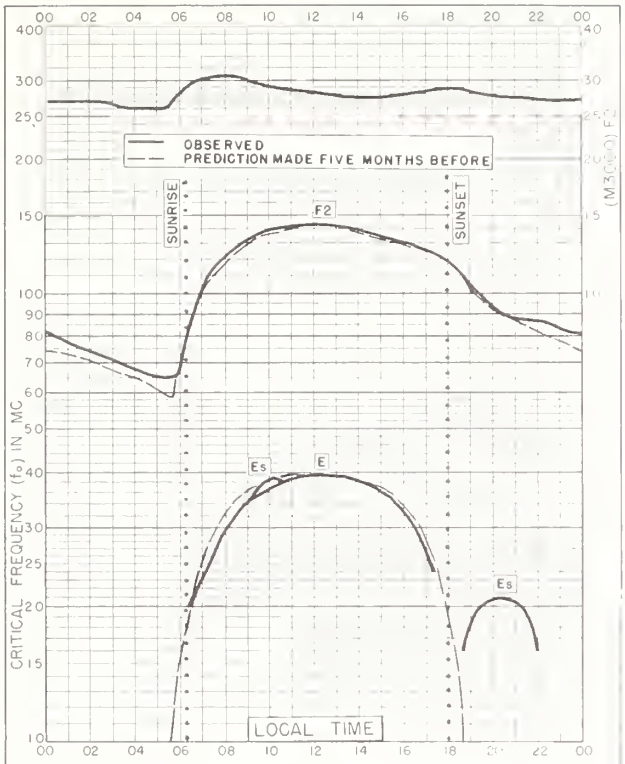


Fig. 81. AKITA, JAPAN
39.7°N, 140.1°E MARCH 1959

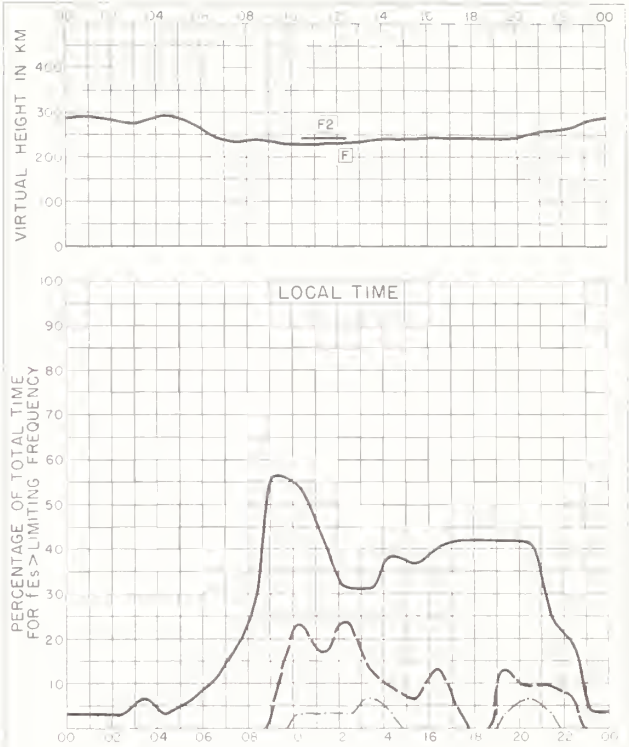


Fig. 82. AKITA, JAPAN MARCH 1959

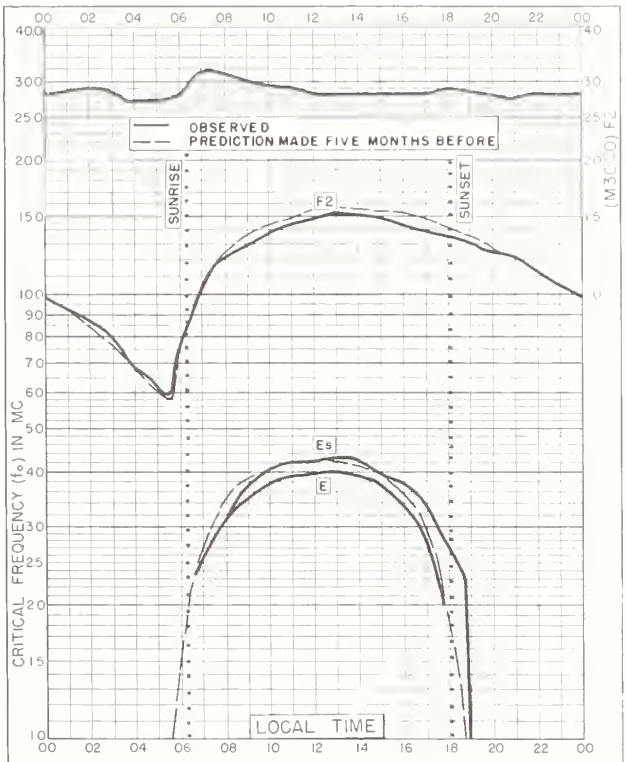


Fig. 83. YAMAGAWA, JAPAN
31.2°N, 130.6°E MARCH 1959

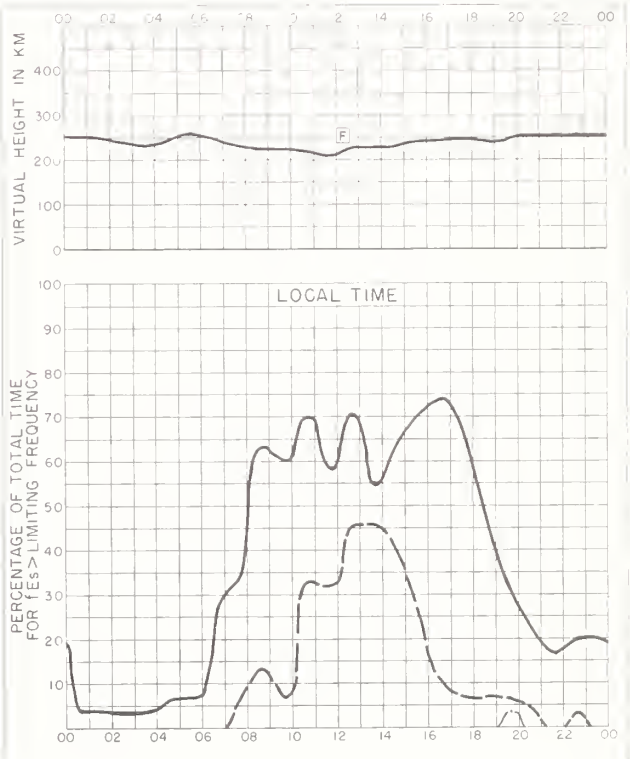


Fig. 84. YAMAGAWA, JAPAN MARCH 1959

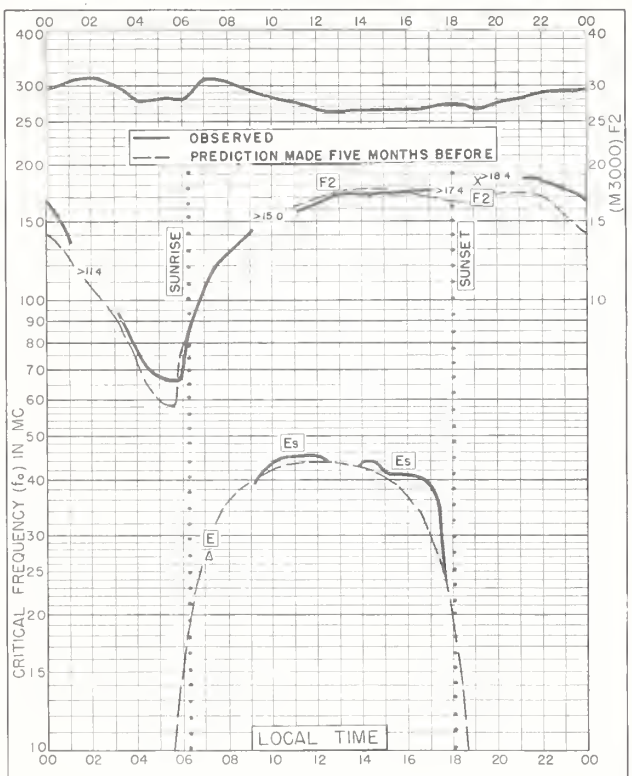


Fig. 85. FORMOSA, CHINA
25.0°N, 121.5°E MARCH 1959

NBS 503

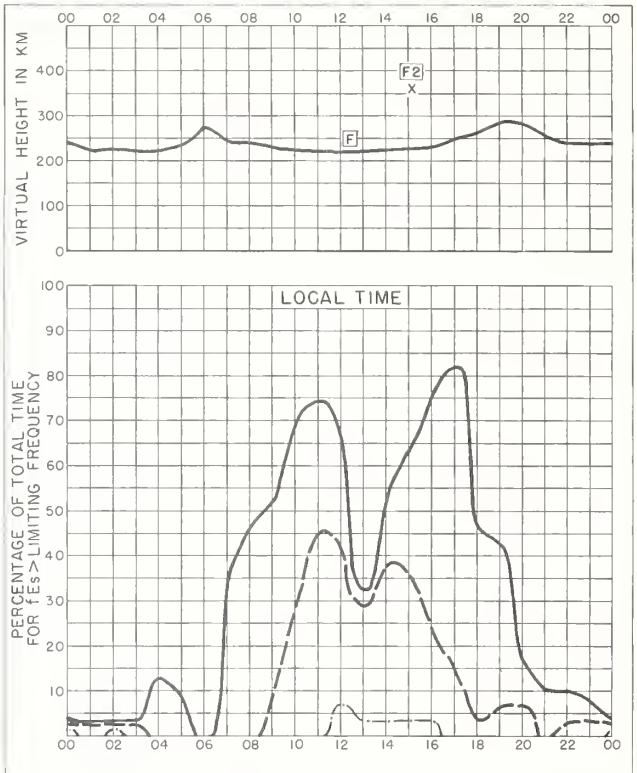


Fig. 86. FORMOSA, CHINA MARCH 1959

NBS 490

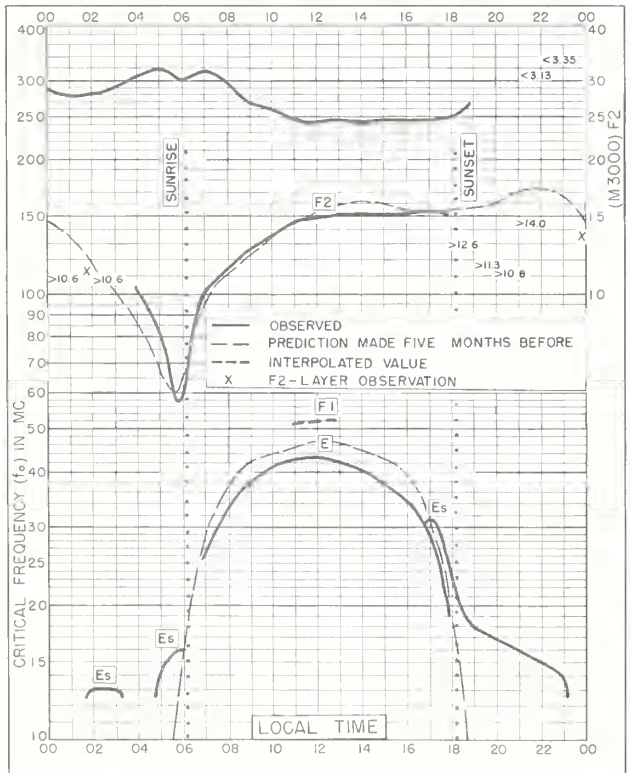


Fig. 87. LWIRO, BELGIAN CONGO
2.3°S, 28.8°E MARCH 1959

NBS 503

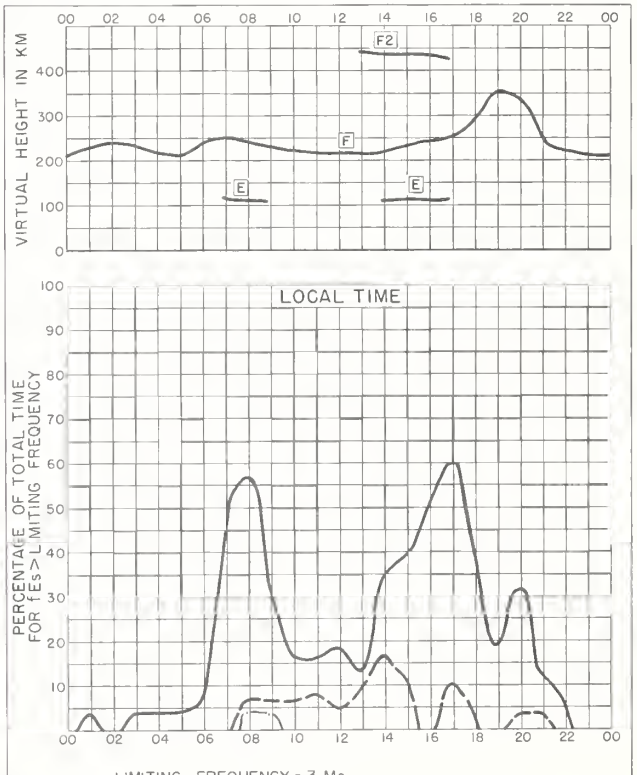


Fig. 88. LWIRO, BELGIAN CONGO MARCH 1959

NBS 490

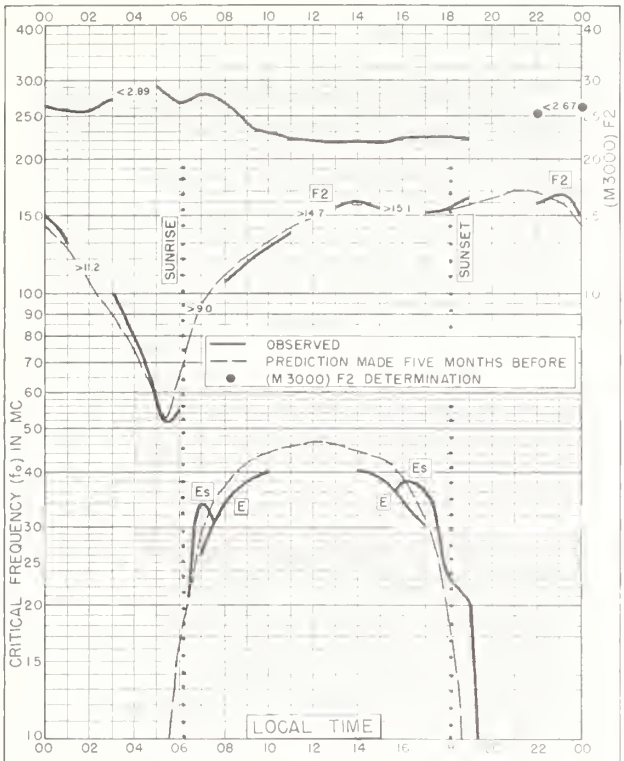
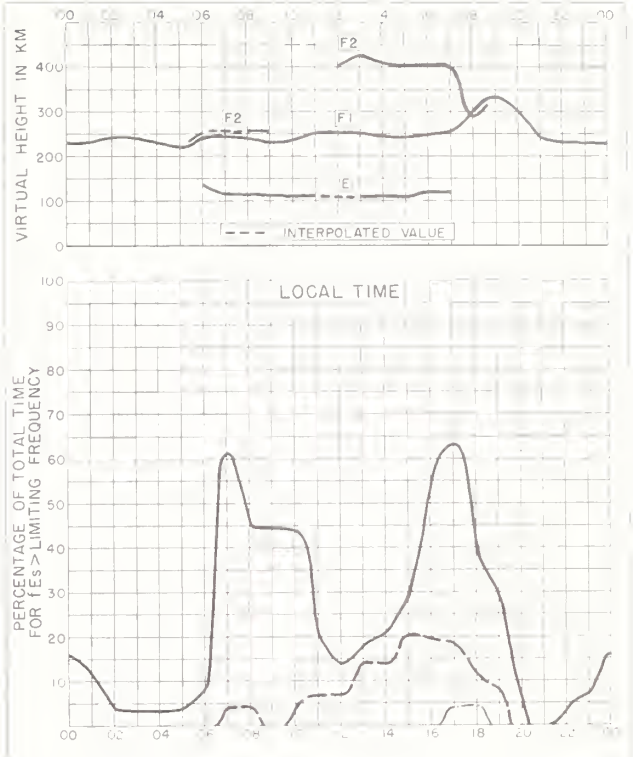


Fig. 89. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E MARCH 1959



MARCH 1959

Fig. 90. LEOPOLDVILLE, BELGIAN CONGO

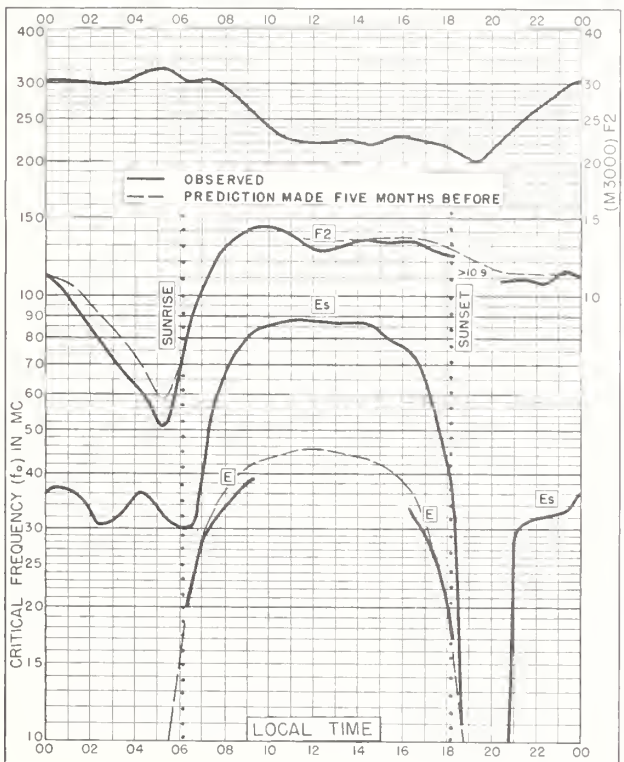
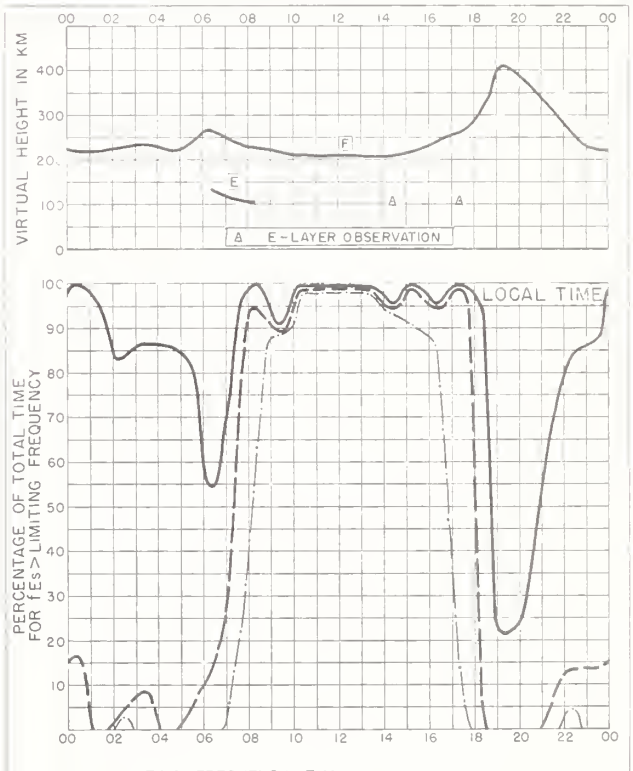


Fig. 91. JULIACA, PERU
15.5°S, 70.2°W MARCH 1959



MARCH 1959

Fig. 92. JULIACA, PERU

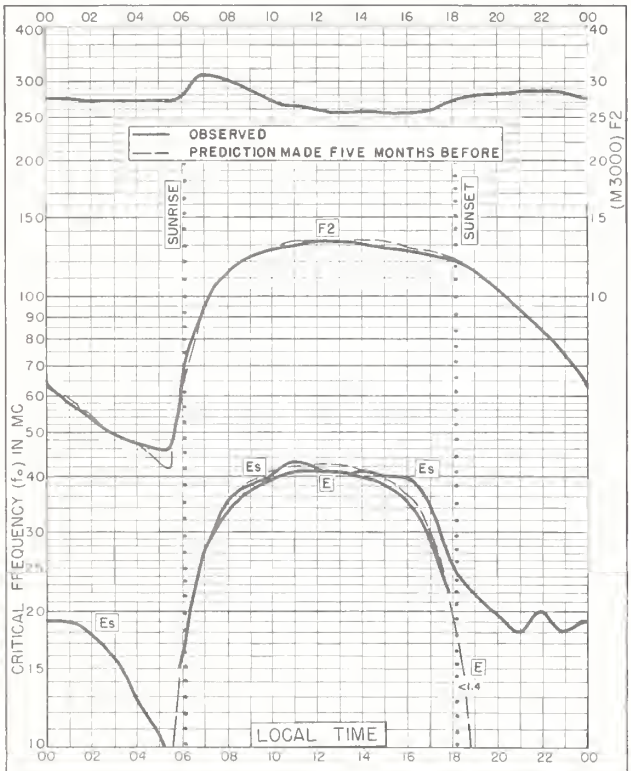
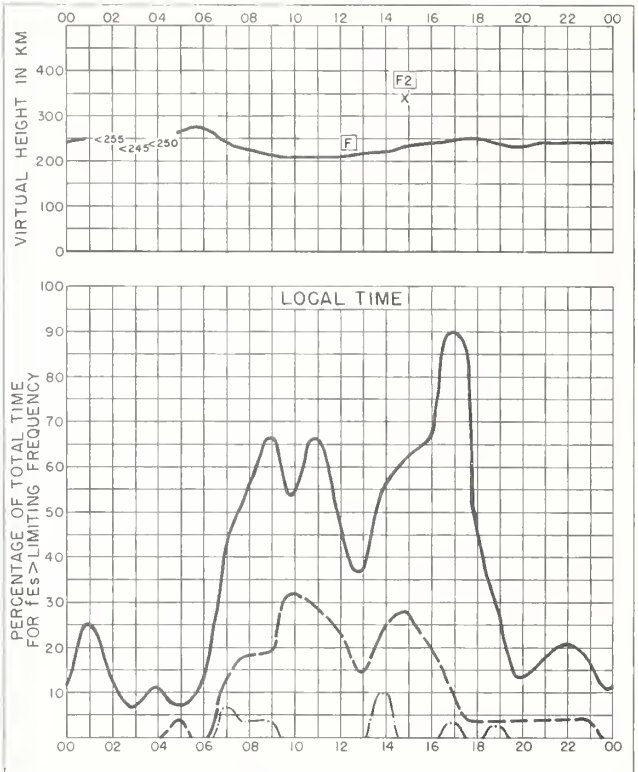


Fig. 93. JOHANNESBURG, UNION OF S. AFRICA
26.1°S, 28.1°E MARCH 1959

NBS 503



MARCH 1959

Fig. 94. JOHANNESBURG, UNION OF S. AFRICA

NBS 490

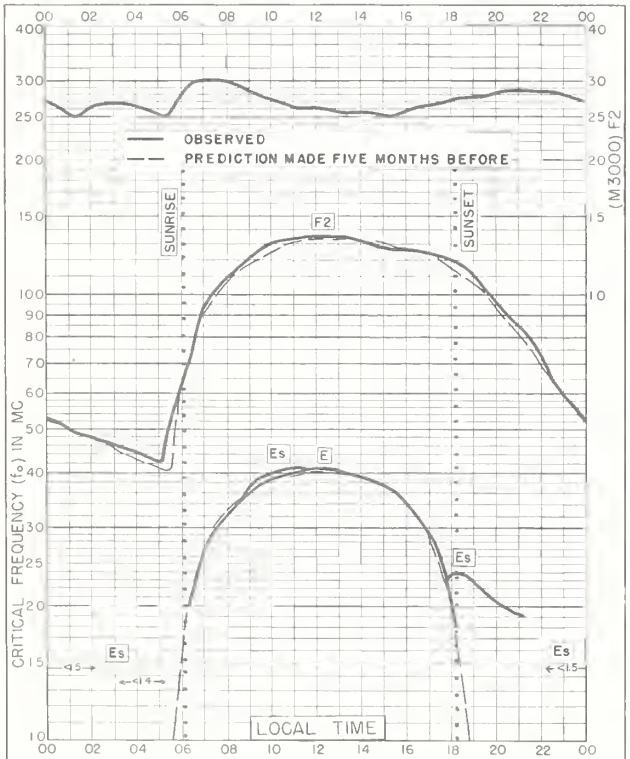
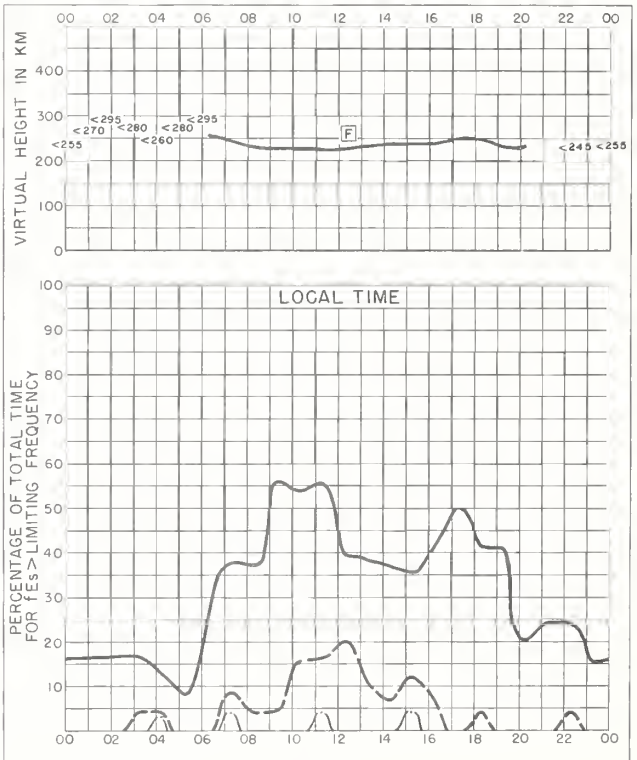


Fig. 95. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E MARCH 1959

NBS 503



MARCH 1959

Fig. 96. CAPETOWN, UNION OF S. AFRICA

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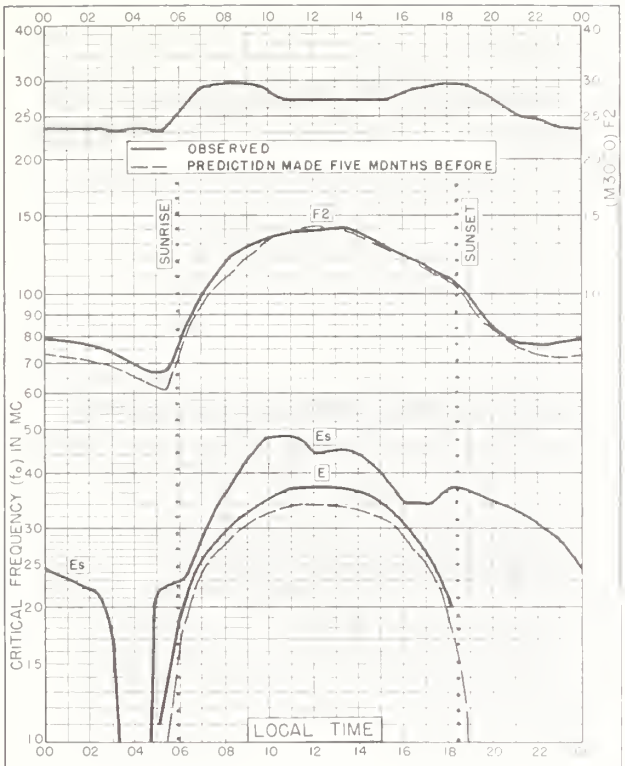

Fig. 97. FALKLAND IS.
51.7°S, 57.8°W MARCH 1959

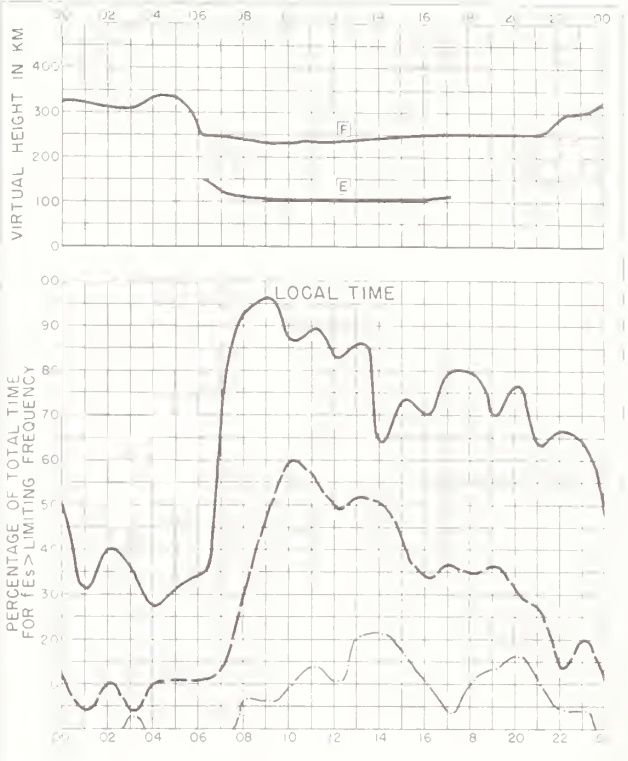

Fig. 98. FALKLAND IS. MARCH 1959

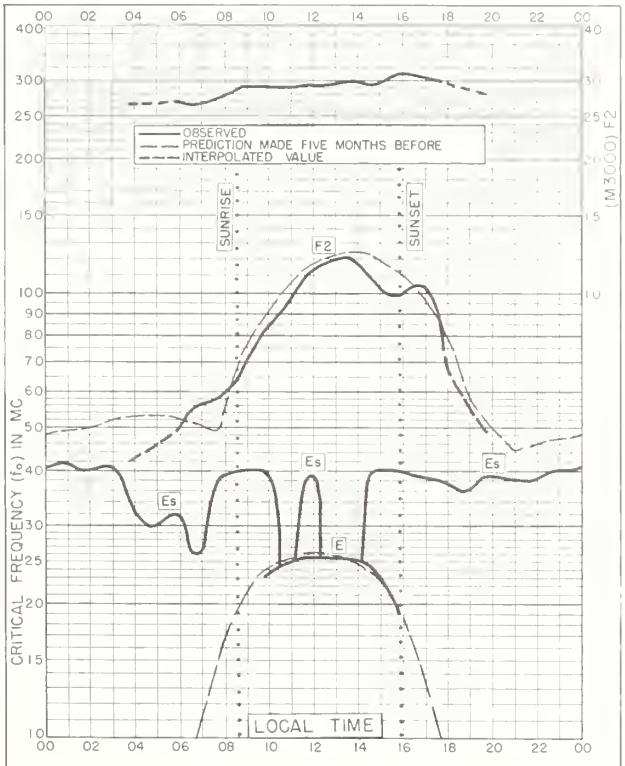

Fig. 99. SODANKYLA, FINLAND
67.4°N, 26.6°E FEBRUARY 1959

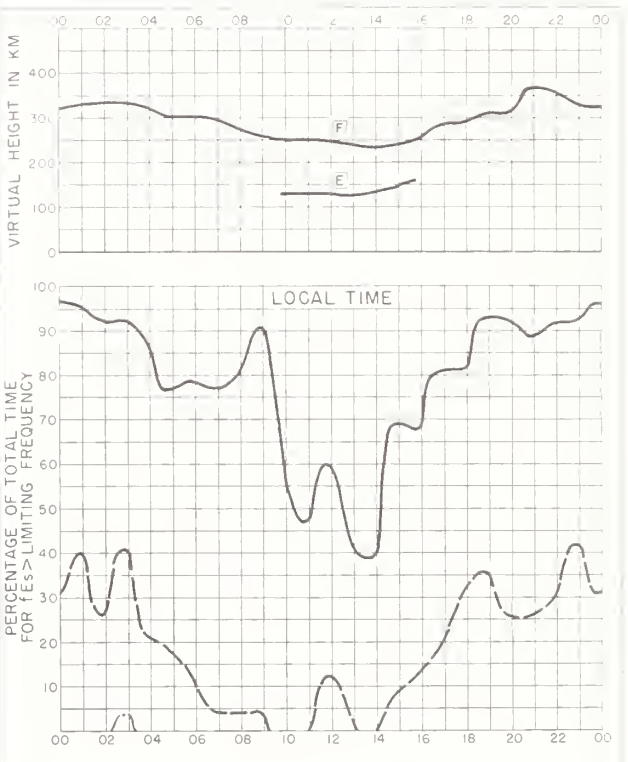

Fig. 100. SODANKYLA, FINLAND FEBRUARY 1959

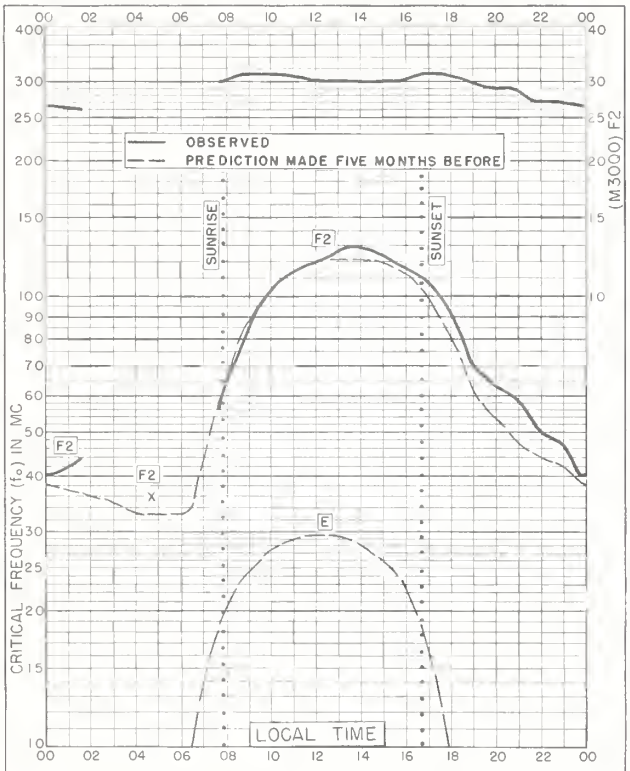

Fig. 101. NURMIJARVI, FINLAND
60.5°N, 24.6°E FEBRUARY 1959

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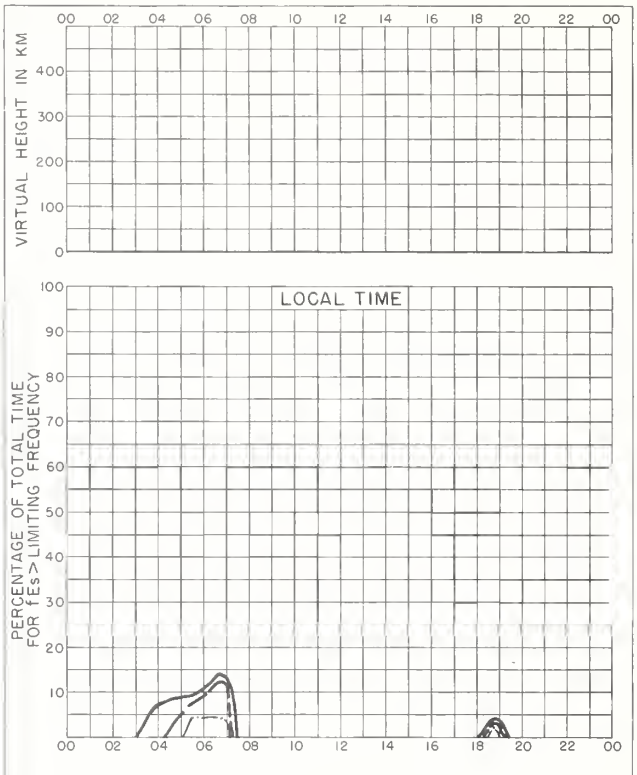

Fig. 102. NURMIJARVI, FINLAND FEBRUARY 1959

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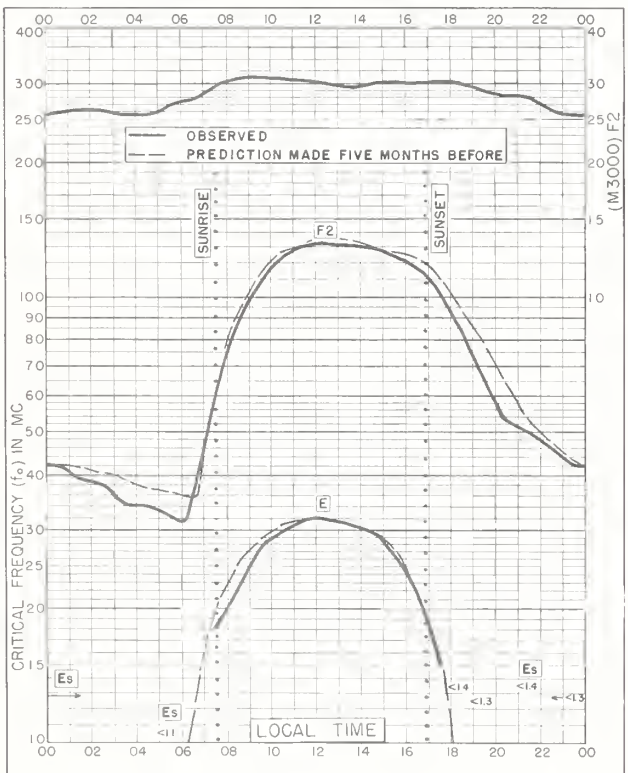

Fig. 103. MOSCOW, U.S.S.R.
55.5°N, 37.3°E FEBRUARY 1959

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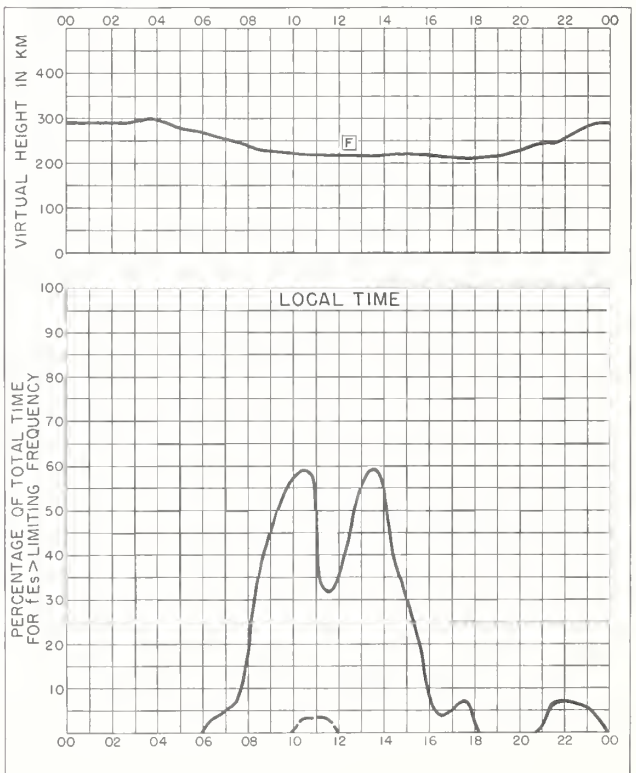

Fig. 104. MOSCOW, U.S.S.R. FEBRUARY 1959

NBS 490

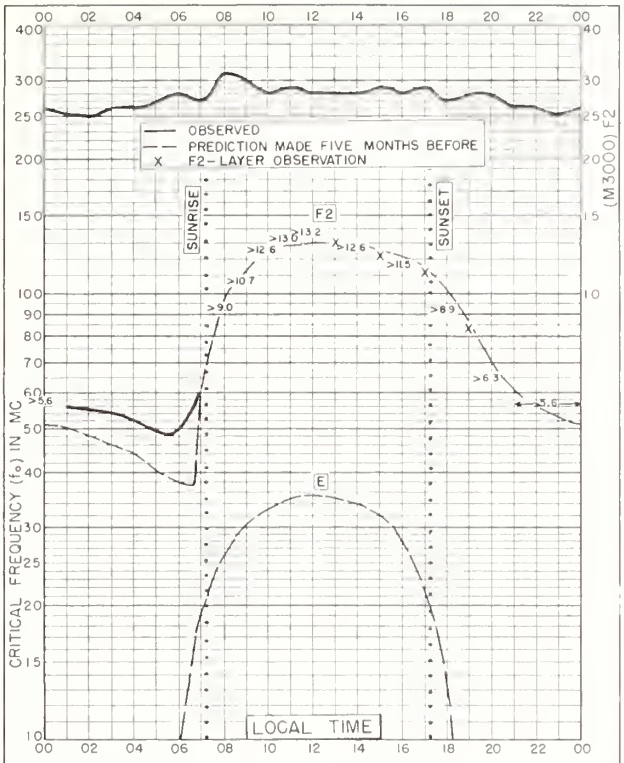

Fig. 105. GRAZ, AUSTRIA
47.1°N, 15.5°E FEBRUARY 1959

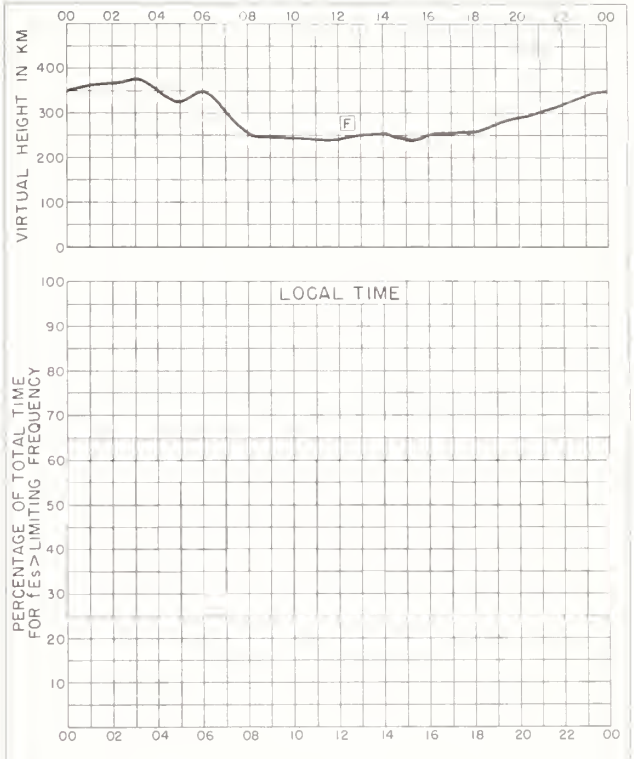

Fig. 106. GRAZ, AUSTRIA FEBRUARY 1959

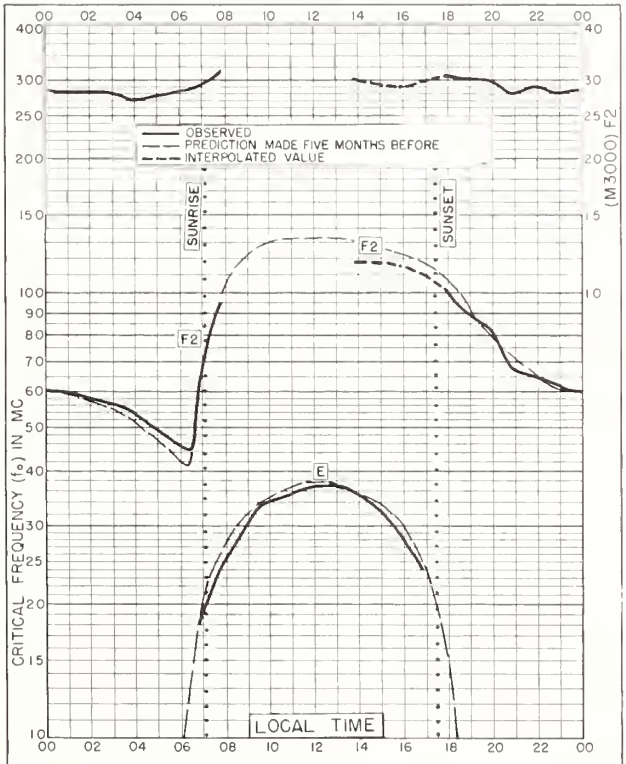

Fig. 107. ROME, ITALY
41.8°N, 12.5°E FEBRUARY 1959

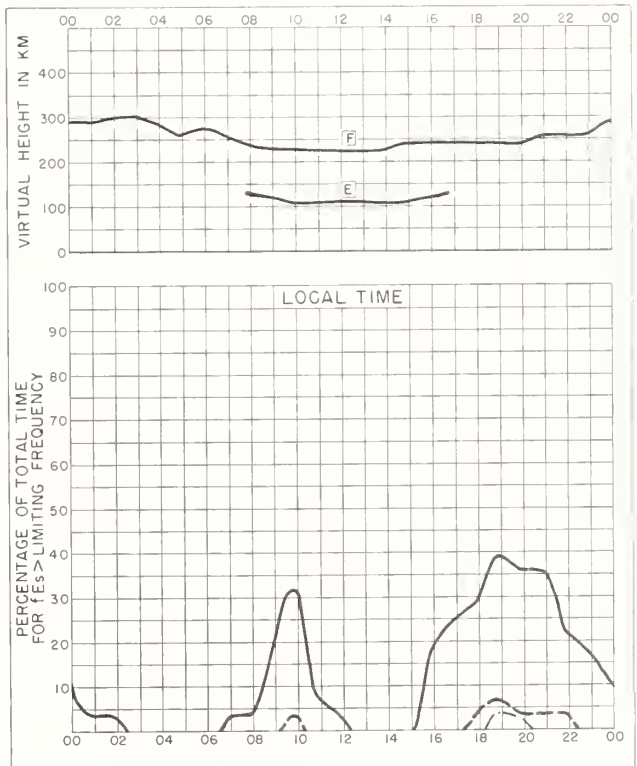

Fig. 108. ROME, ITALY FEBRUARY 1959

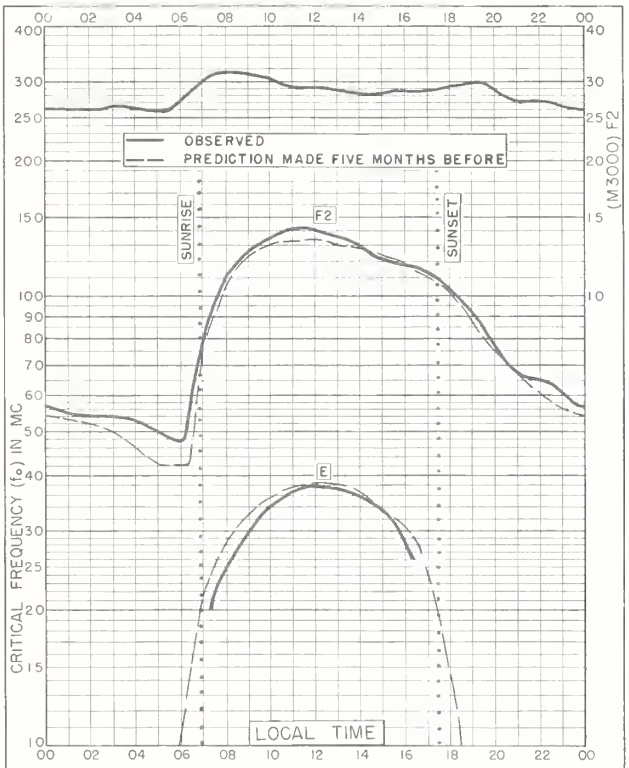

Fig. 109. AKITA, JAPAN
39.7°N, 140.1°E FEBRUARY 1959

NBS 503

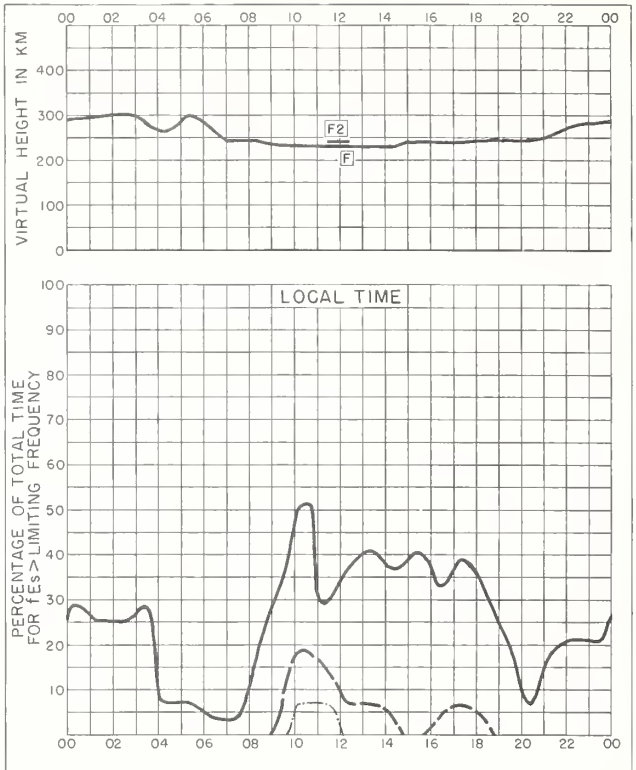

Fig. 110. AKITA, JAPAN FEBRUARY 1959

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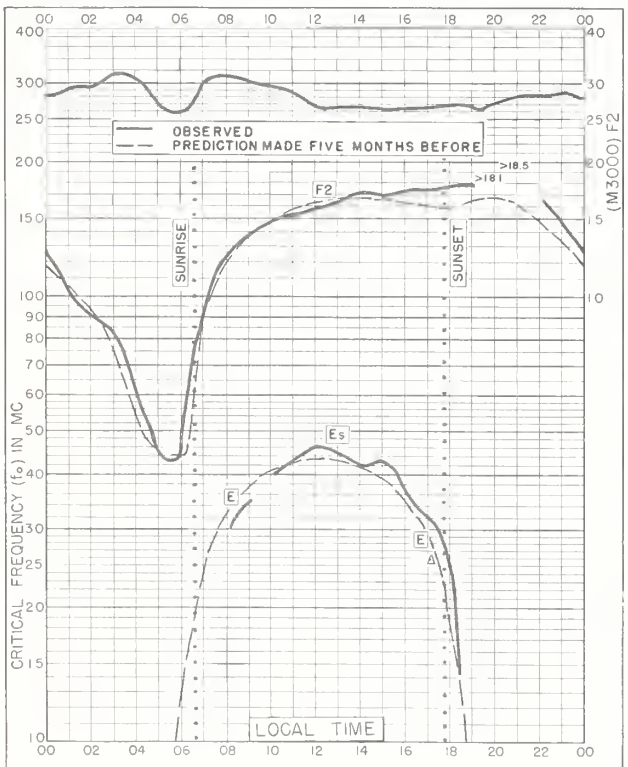

Fig. 111. FORMOSA, CHINA
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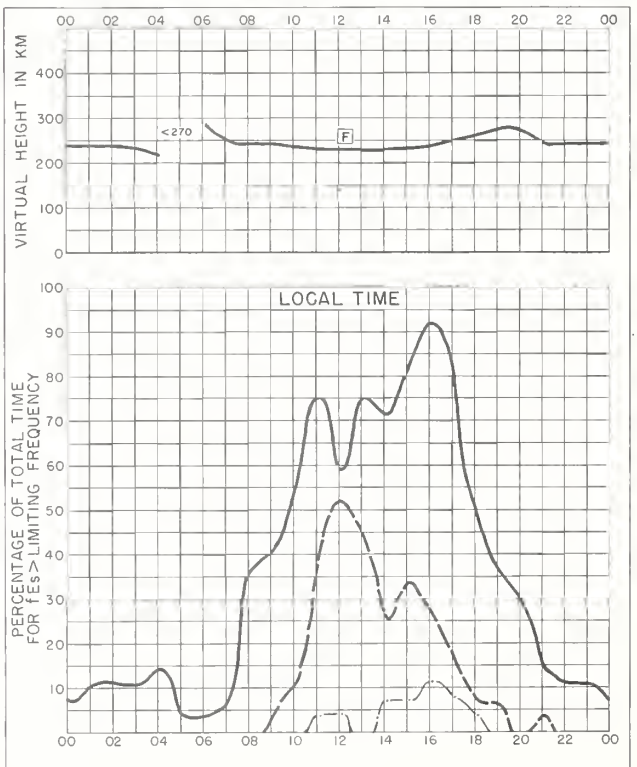

Fig. 112. FORMOSA, CHINA FEBRUARY 1959

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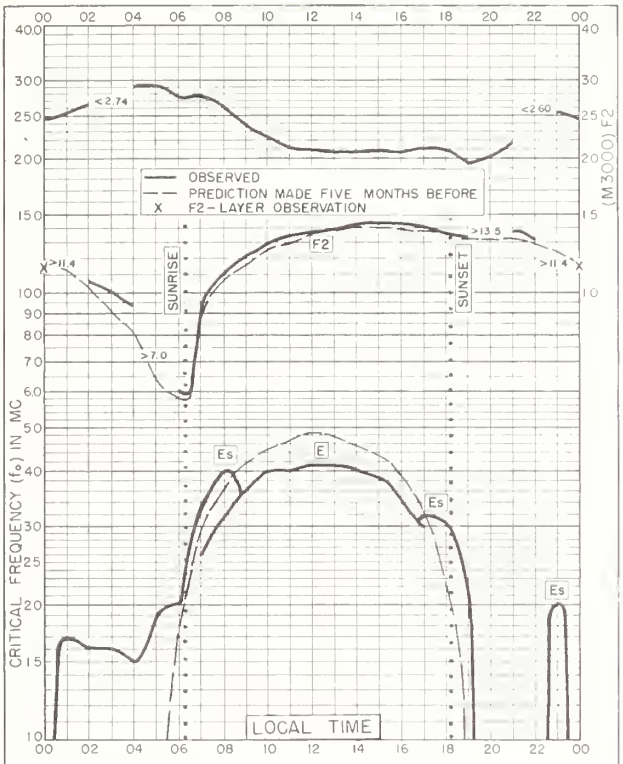

Fig. 113. BUNIA, BELGIAN CONGO
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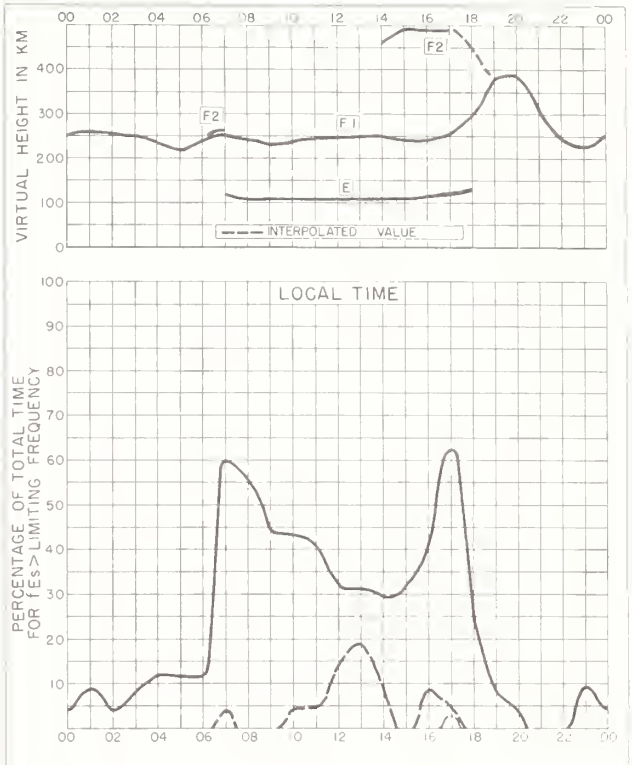

Fig. 114. BUNIA, BELGIAN CONGO FEBRUARY 1959

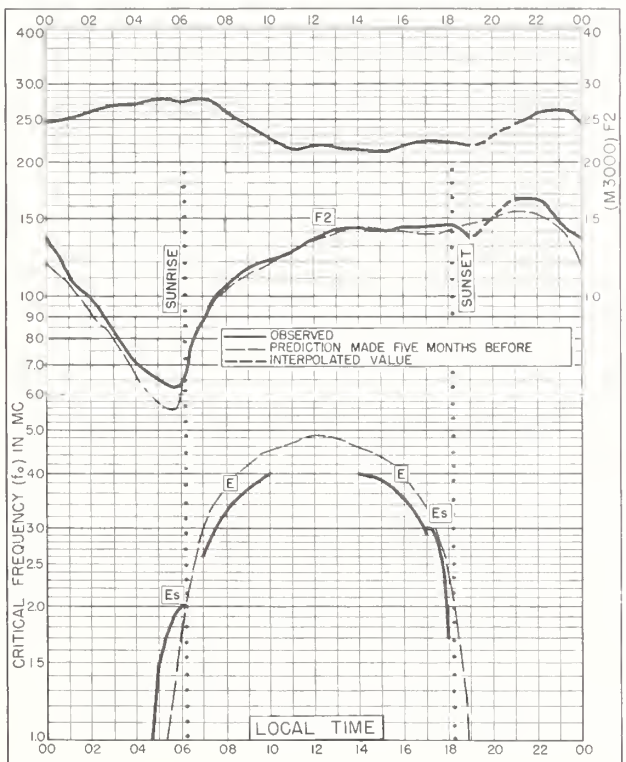

Fig. 115. LEOPOLDVILLE, BELGIAN CONGO
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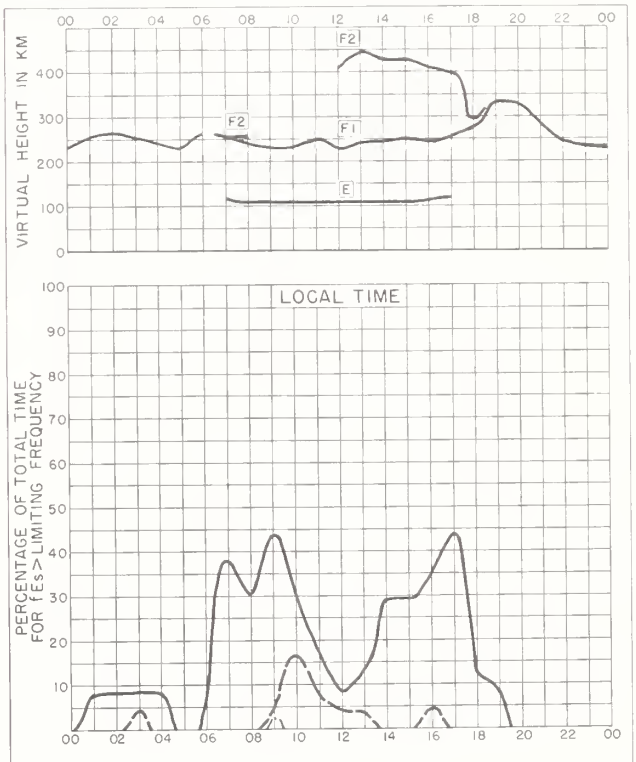

Fig. 116. LEOPOLDVILLE, BELGIAN CONGO FEBRUARY 1959

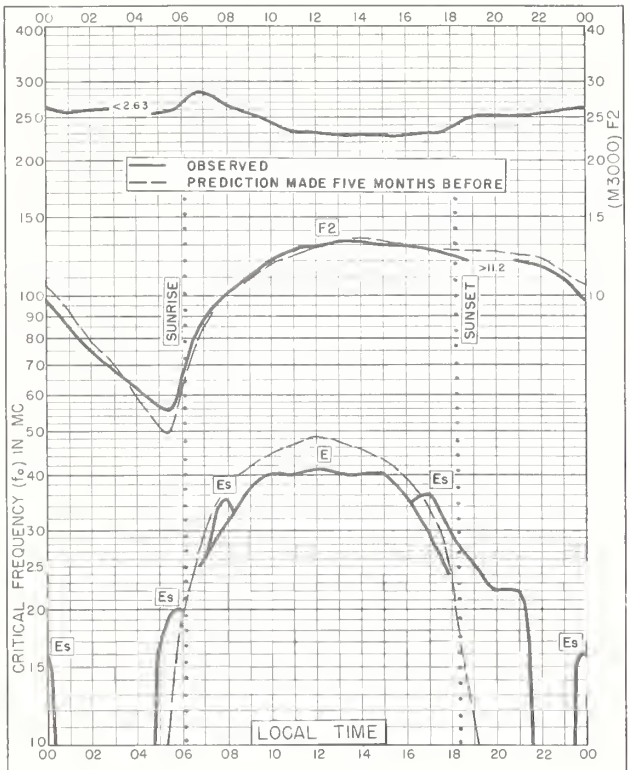

Fig. 117. ELISABETHVILLE, BELGIAN CONGO
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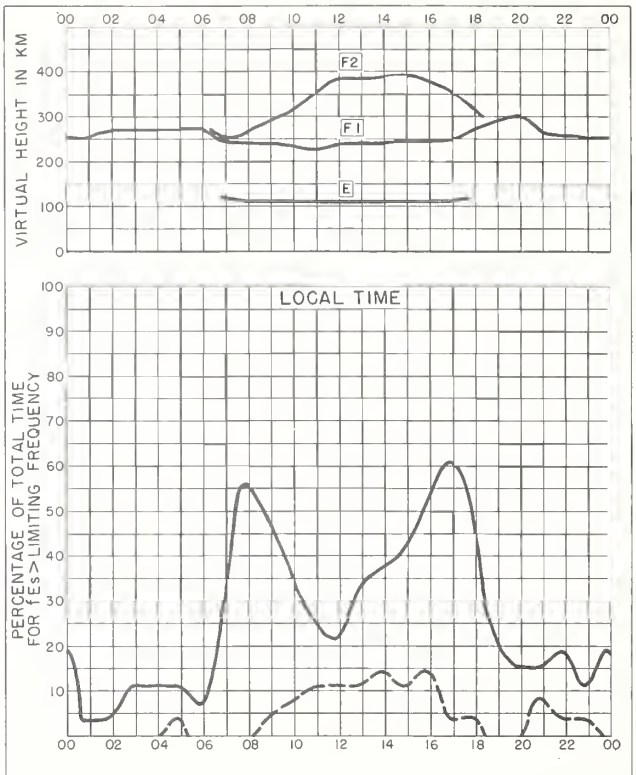

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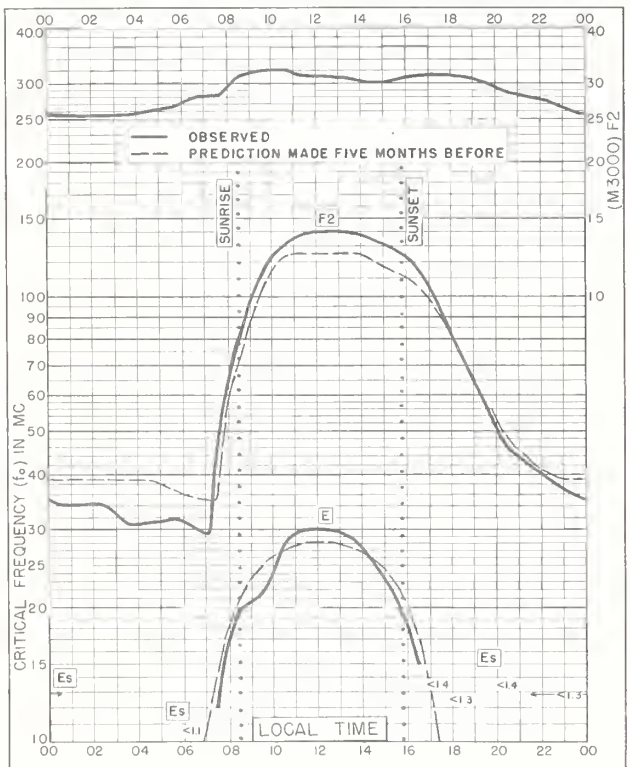

Fig. 119. MOSCOW, U.S.S.R.
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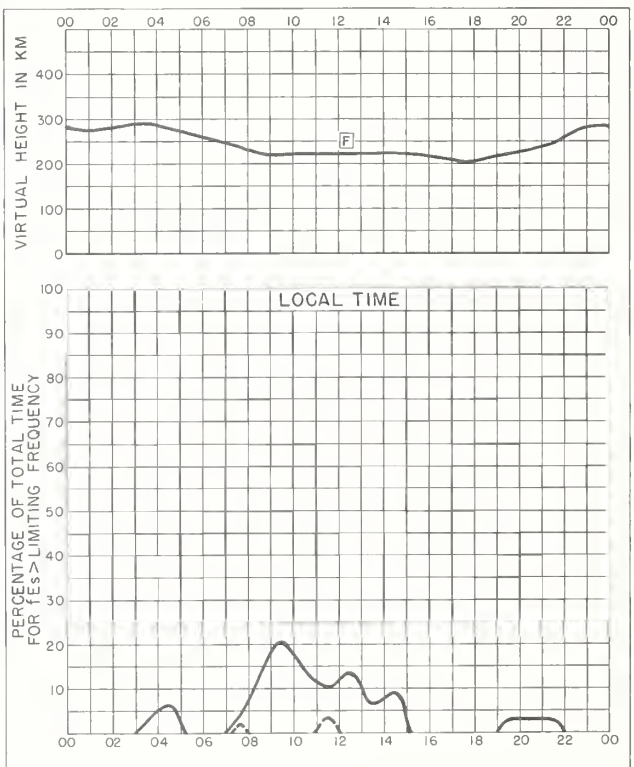

Fig. 120. MOSCOW, U.S.S.R. JANUARY 1959

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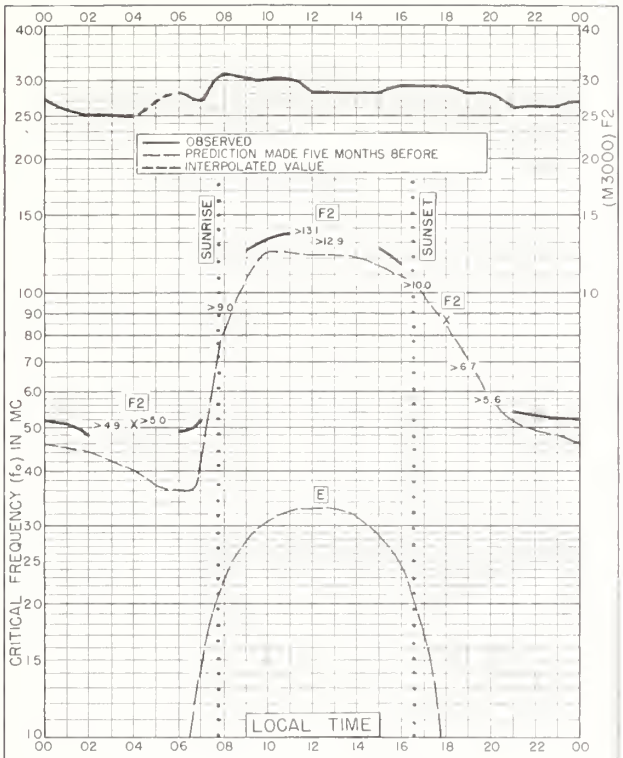

Fig. 121. GRAZ, AUSTRIA
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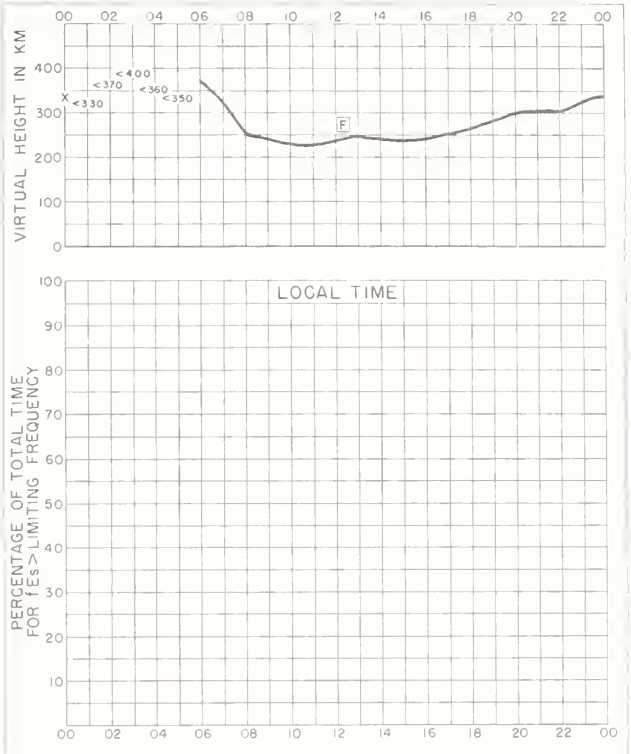

Fig. 122. GRAZ, AUSTRIA JANUARY 1959

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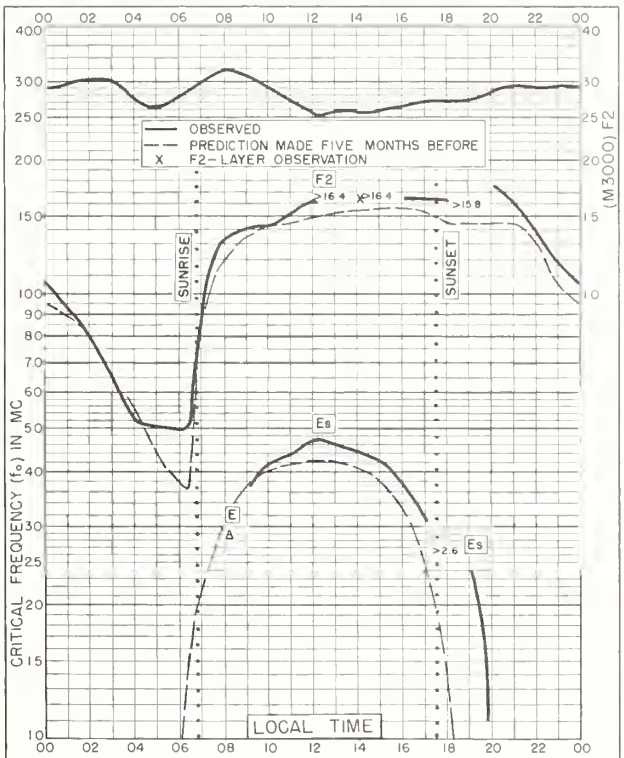

Fig. 123. FORMOSA, CHINA
25.0°N, 121.5°E JANUARY 1959

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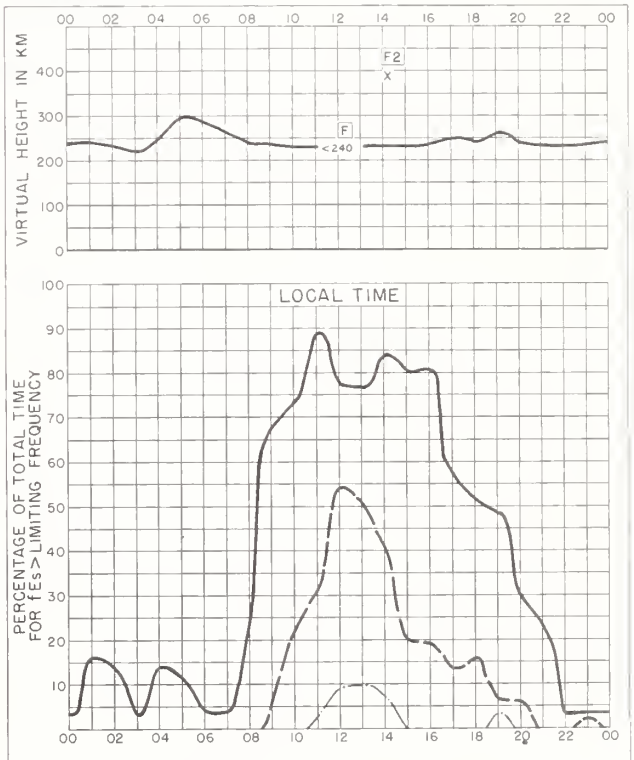

Fig. 124. FORMOSA, CHINA JANUARY 1959

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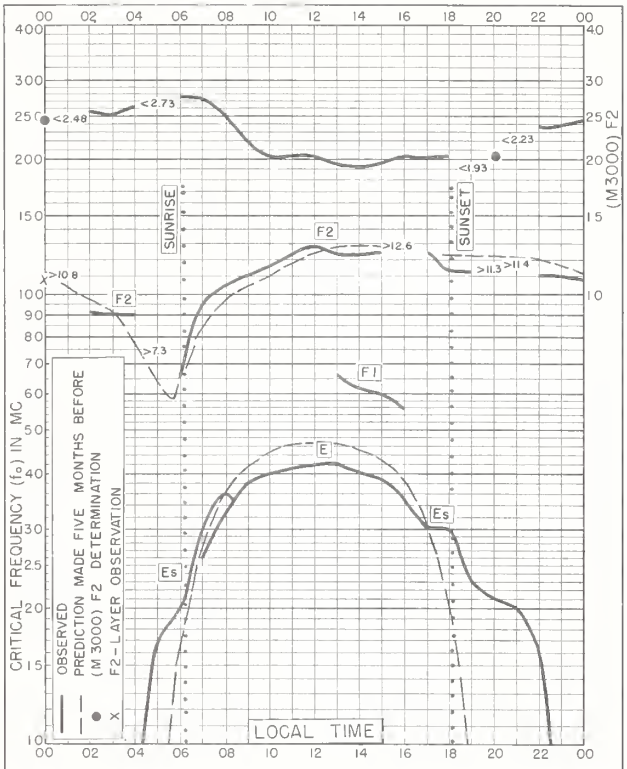

Fig. 125. BUNIA, BELGIAN CONGO
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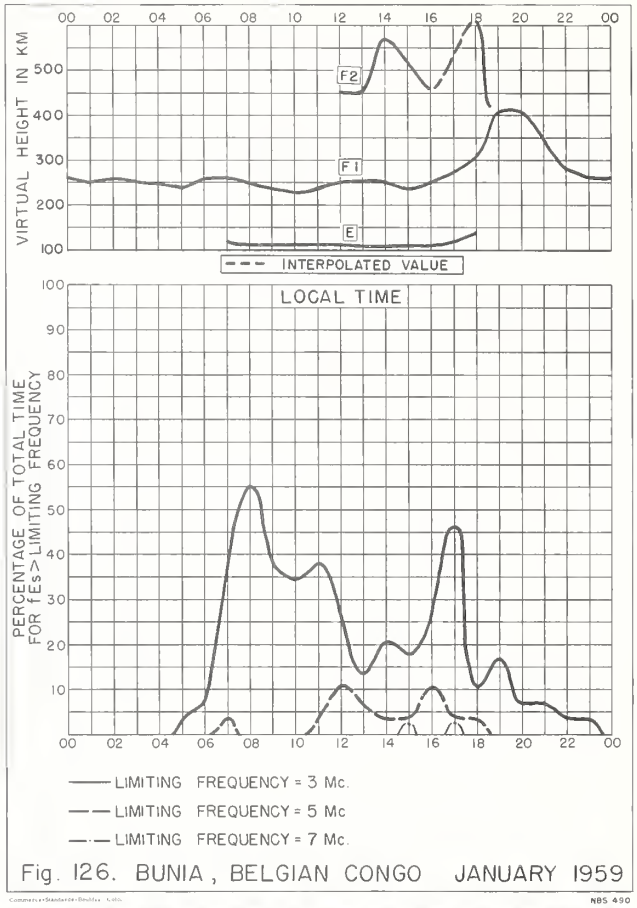

Fig. 126. BUNIA, BELGIAN CONGO JANUARY 1959

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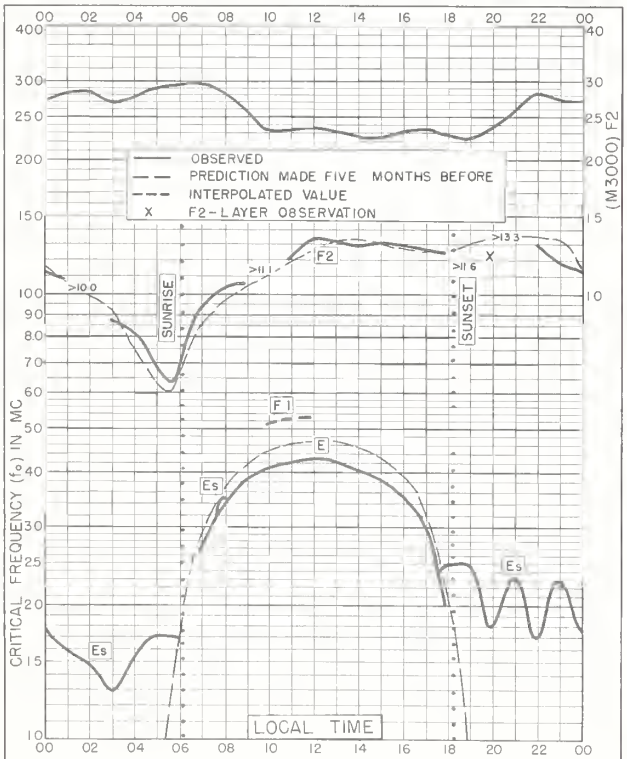

Fig. 127. LWIRO, BELGIAN CONGO
2.3°S, 28.8°E JANUARY 1959

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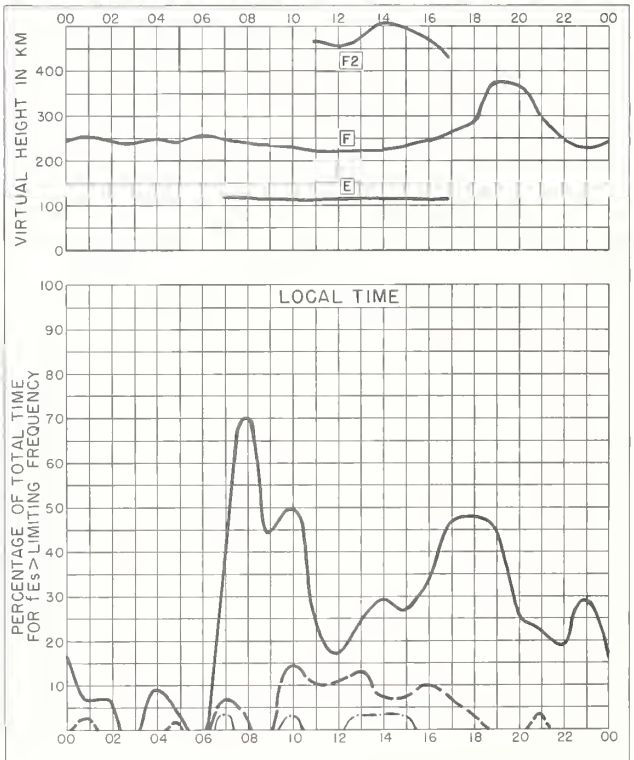

Fig. 128. LWIRO, BELGIAN CONGO JANUARY 1959

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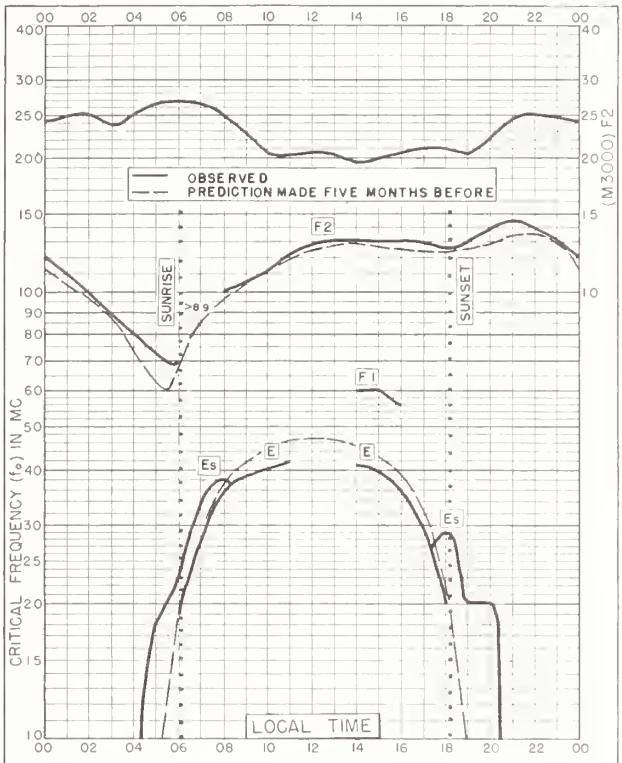

Fig. 129. LEOPOLDVILLE, BELGIAN CONGO
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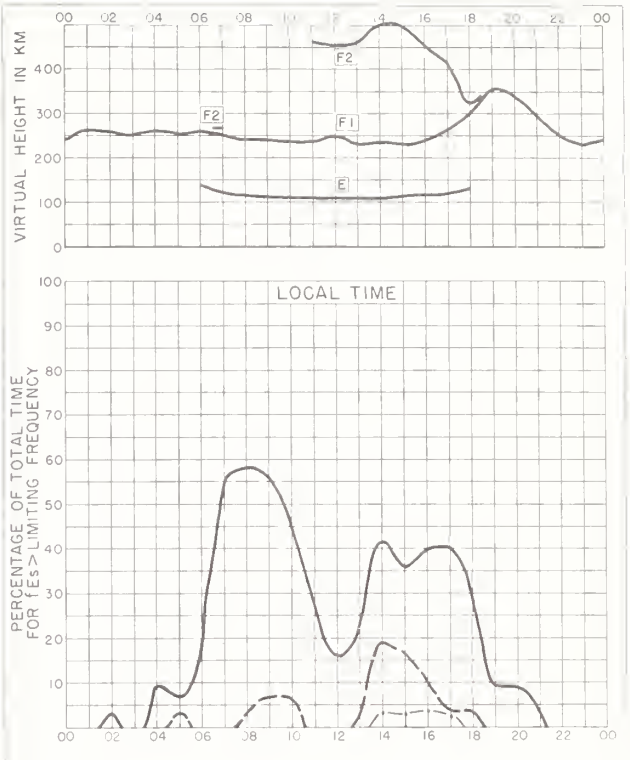

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Fig. 130. LEOPOLDVILLE, BELGIAN CONGO

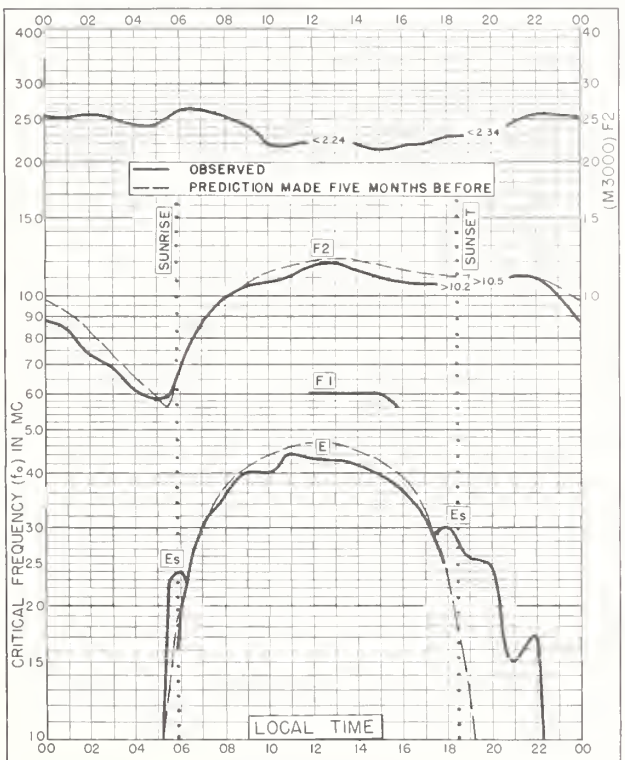

Fig. 131. ELISABETHVILLE, BELGIAN CONGO
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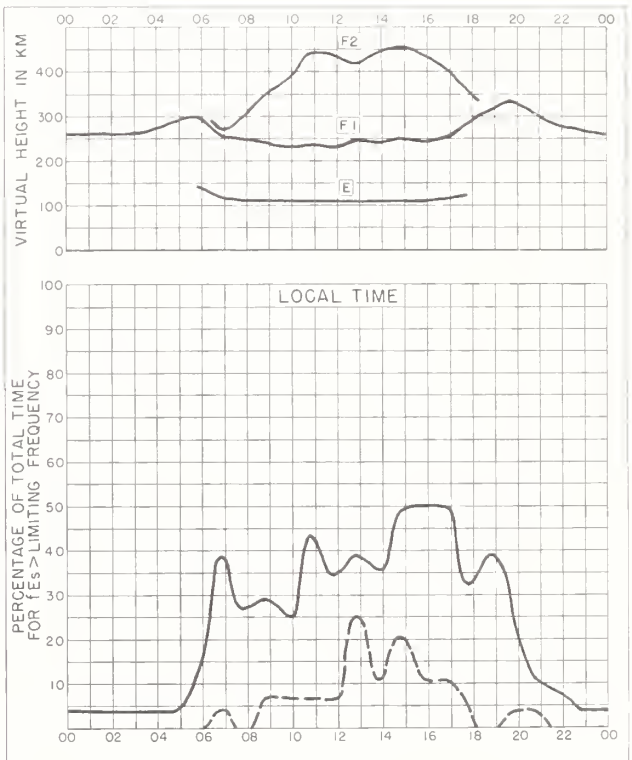

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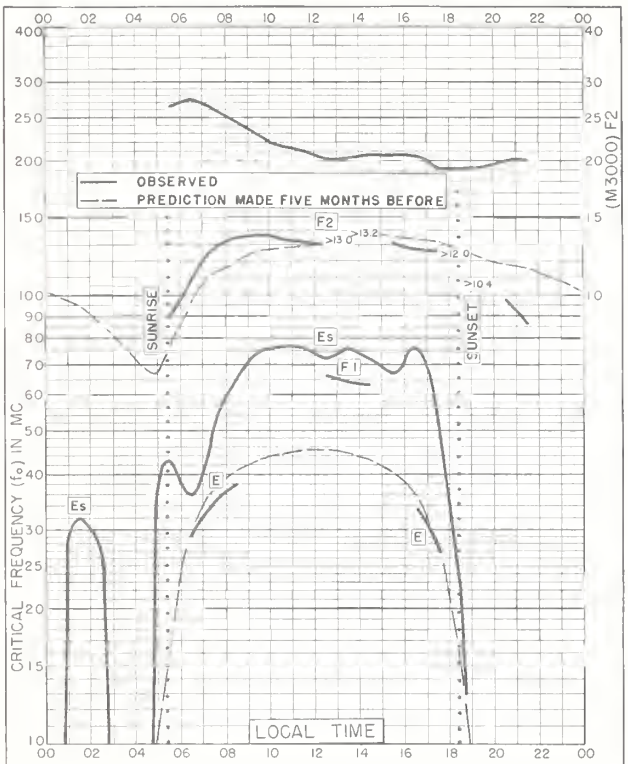

Fig. 133. La PAZ, BOLIVIA
16.5°S, 68.0°W DECEMBER 1958

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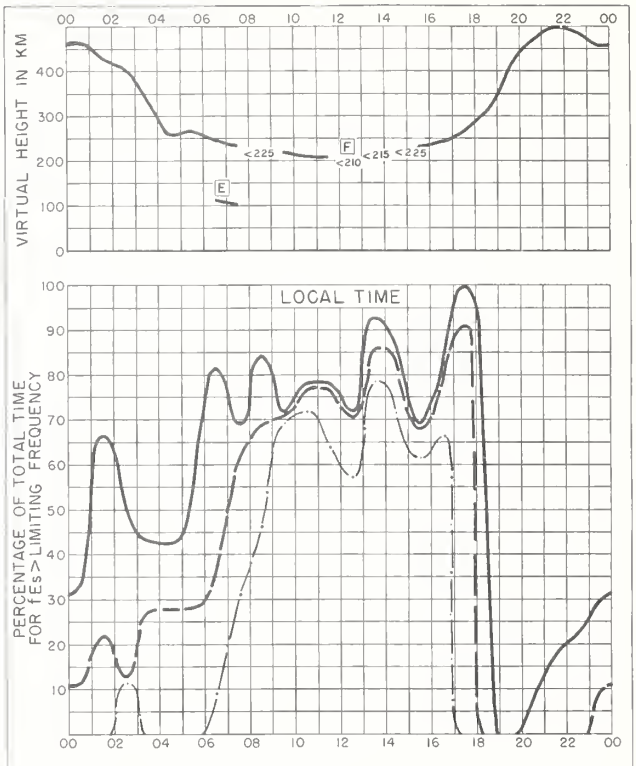

Fig. 134. La PAZ, BOLIVIA DECEMBER 1958

NBS 490

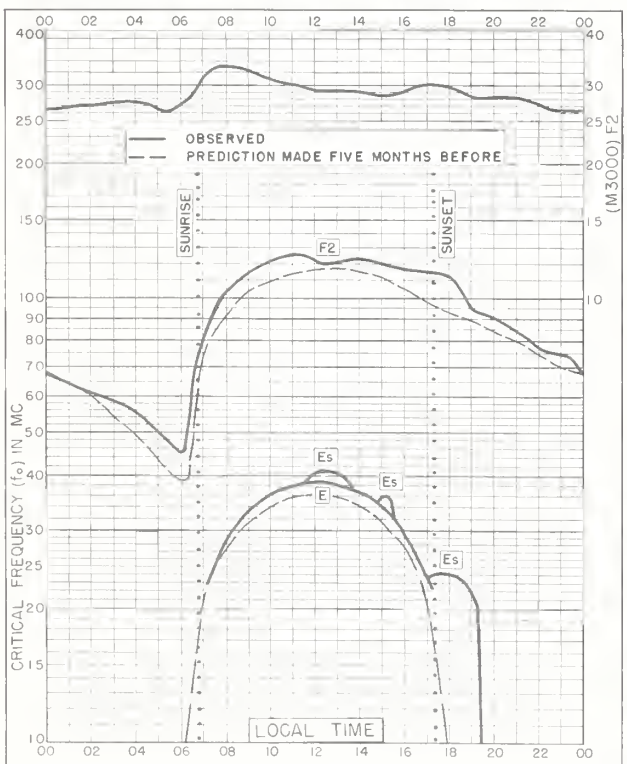

Fig. 135. CONCEPCION, CHILE
36.6°S, 73.0°W AUGUST 1958

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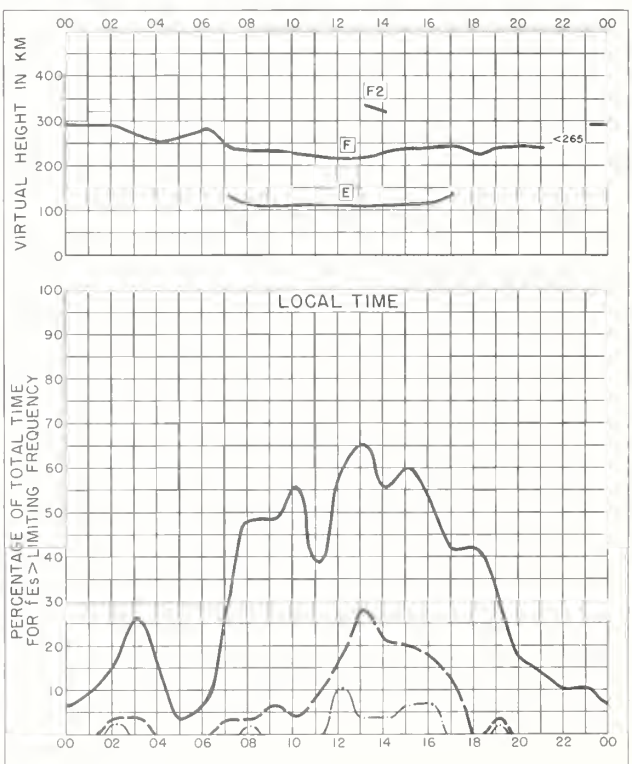

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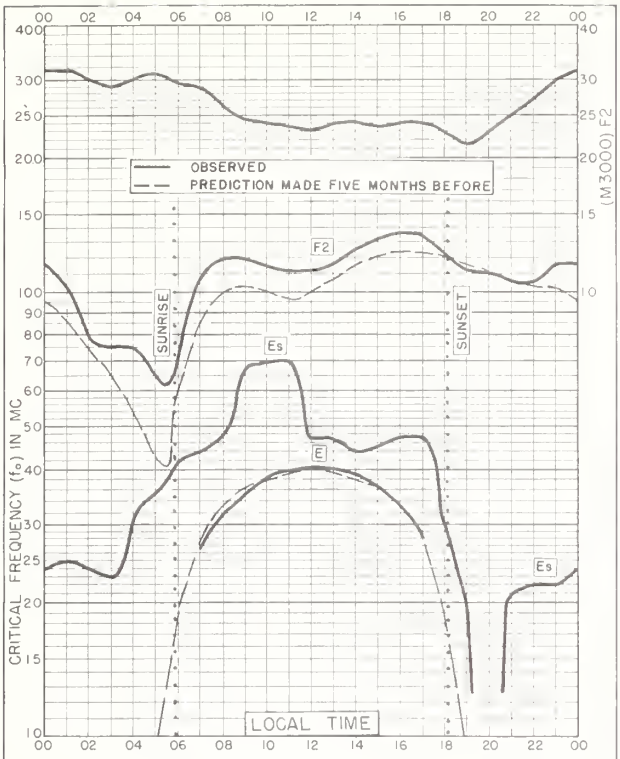

Fig. 137. NHA-TRANG, INDOCHINA
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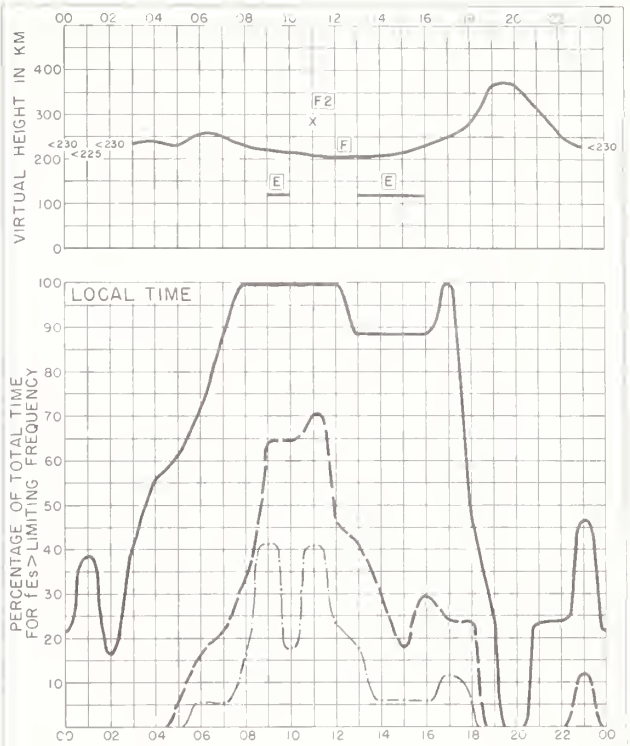

Fig. 138. NHA-TRANG, INDOCHINA APRIL 1956

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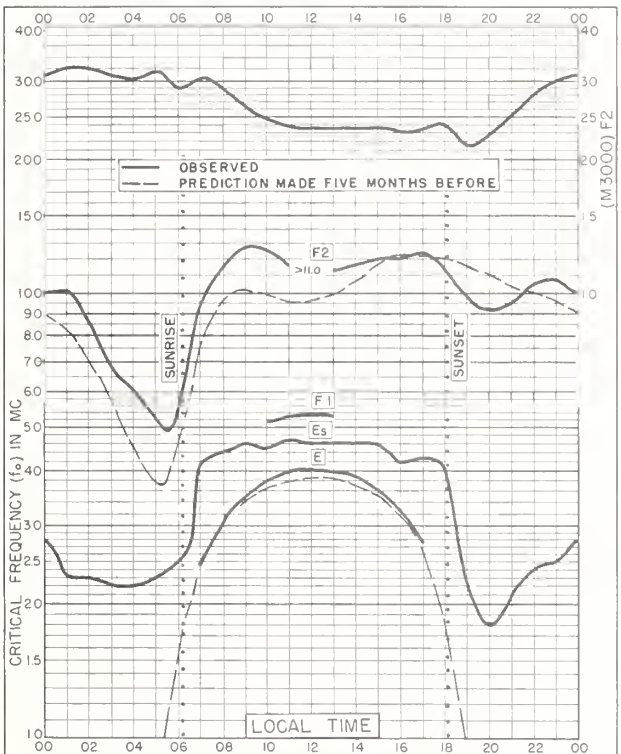

Fig. 139. NHA-TRANG, INDOCHINA
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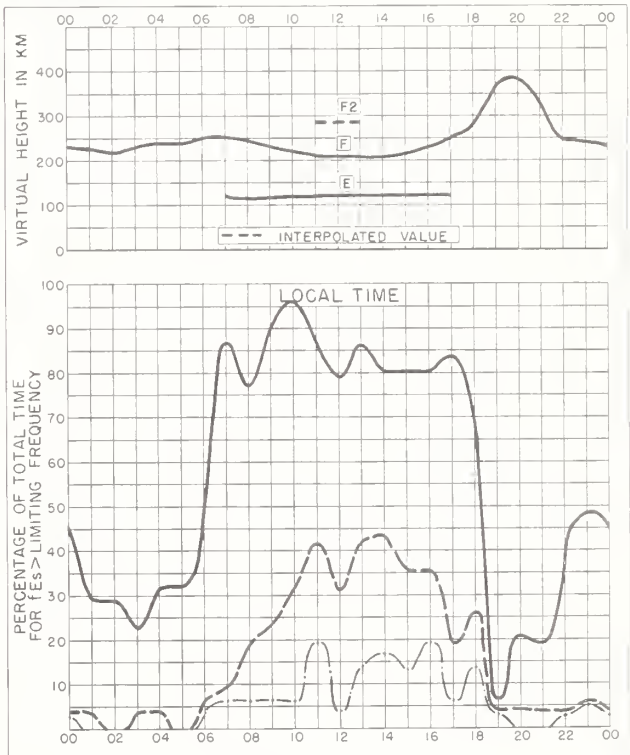

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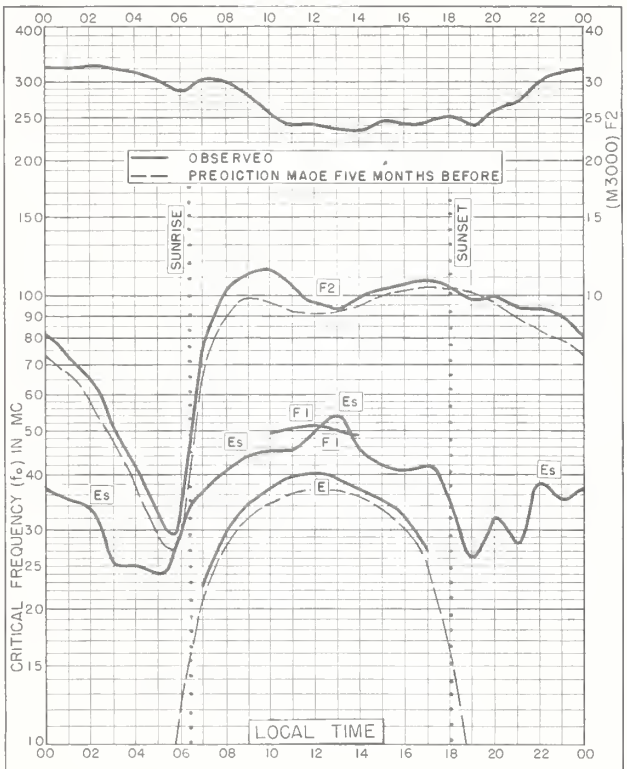

Fig. 141. NHA–TRANG, INDOCHINA
12.2°N, 109.2°E FEBRUARY 1956

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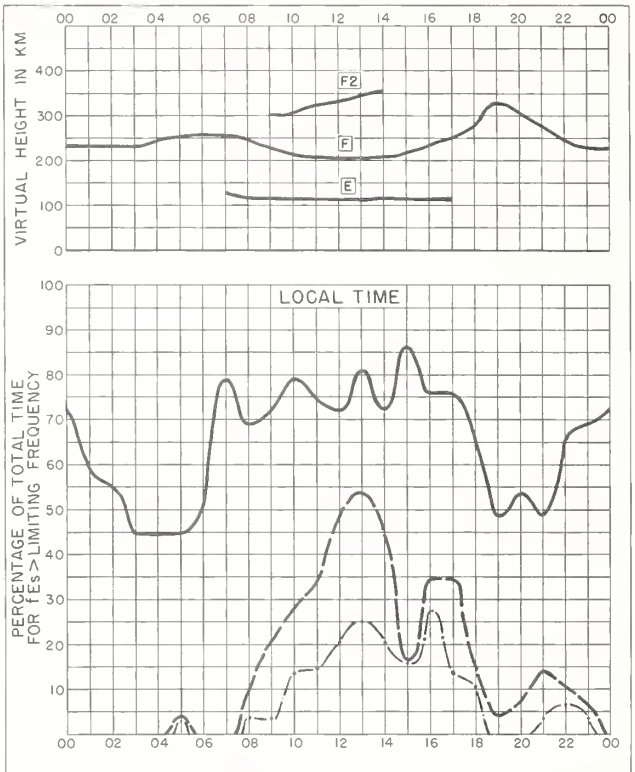

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Fig. 142. NHA–TRANG, INDOCHINA

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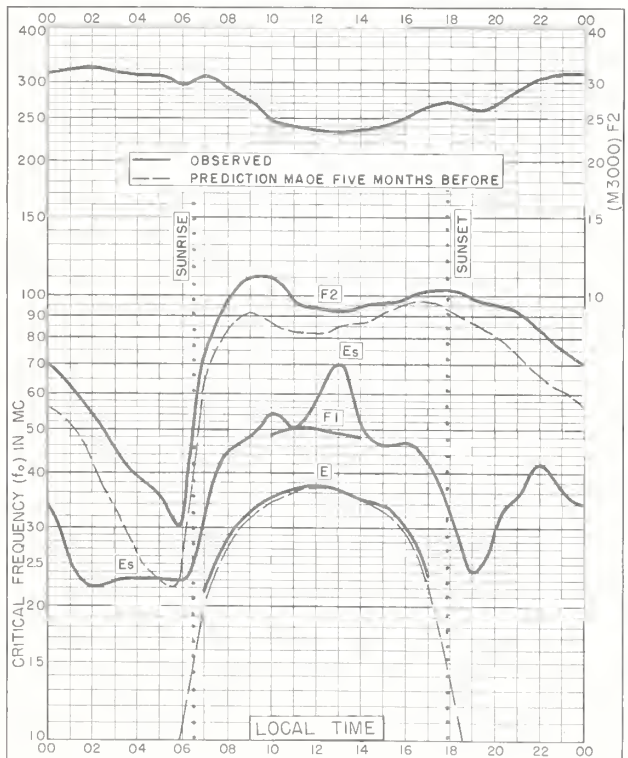

Fig. 143. NHA–TRANG, INDOCHINA
12.2°N, 109.2°E JANUARY 1956

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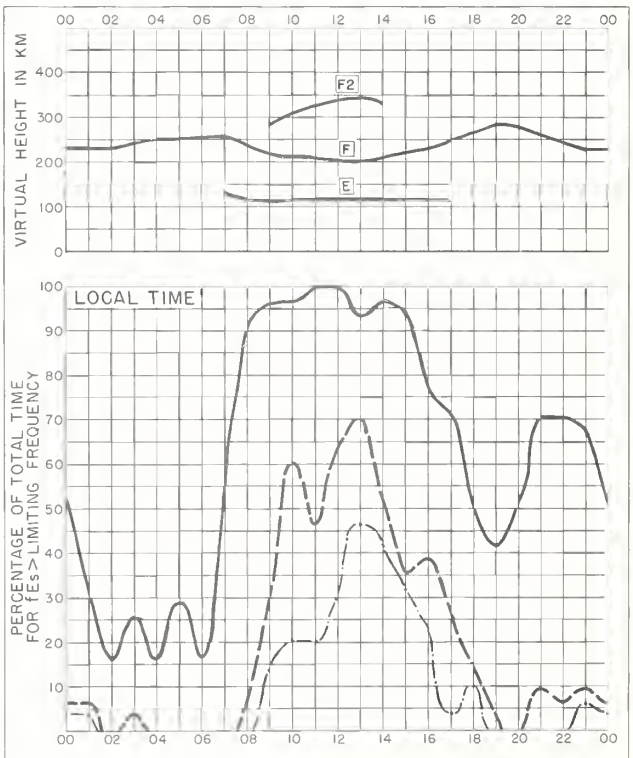

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CRPL Reports

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

Daily:

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.

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

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.
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