IRPL-F1

IONOSPHERIC DATA

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INTERSERVICE RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
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This IRPL-F-series report, issued monthly, serves as one of the three current supplements to IRPL Radio Propagation Handbook, Part 1, (War Dept. TM11-499, Navy Dept. DNC-13-1). The supplements of the IRPL-D series, "Basic Radio Propagation Predictions Three Months in Advance", issued earlier in the month, include basic prediction charts, auxiliary charts and nomograms, as well as examples illustrative of their use. The supplements of the IRPL-E series, "Radio Propagation Predictions One Month in Advance", include revisions two months later of certain of the predictions given in the D series, and nomograms giving predictions in a form for rapid operational use. Before this month, most of the material was combined in a single report, "Radio Propagation Conditions".

NOTE

All three supplements of this month's (September) issue are being furnished to the regular recipients of the discontinued single supplement, "Radio Propagation Conditions." Hereafter, only the D-series supplement will be furnished unless requests are received for the others. Requests should be sent in if future issues of the E and F supplements are desired.

This note does not apply to U.S. Army distribution of TB11-499-1 and U.S.Navy distribution of DNC-13-1(8).

CONTENTS

TERMINOLOGY

Note.- The following symbols are used, conforming to the recommendations of the International Radio Propagation Conference held in Washington, D.C., 17 April to 5 May 1944.

f^oF2 - ordinary-wave critical frequency for the F2 layer. The term night F layer will no longer be used. The term F2 layer is now used for the night F layer as well as the daytime F2 layer.

f^oF1 - ordinary-wave critical frequency of the F1 layer.

f^oE - ordinary-wave critical frequency of the E layer.

h'F2 - minimum virtual height of the F2 layer.

h'F1 - minimum virtual height of the F1 layer.

h'E - minimum virtual height of the E layer.

fEs - highest frequency of Es reflections.

M - maximum usable frequency factor, to be followed by the distance in km. Example: M3500 represents 3500-km maximum usable frequency factor.

muf - maximum usable frequency.

[ ] - interpolated value.

( ) - doubtful value.

A - characteristic not measurable because of blanketing by sporadic E.

B - characteristic not measurable because of loss of trace due to absorption.

C - characteristic not measurable because of equipment failure or interference.

D - characteristic higher than upper limit of recorder.

E - characteristic less than lower limit of recorder.

F - spread echoes.

G - $f^{o}F2 \leqslant f^{o}F1$.

H - stratification observed within region.

J - ordinary-wave critical frequency deduced from measured extraordinary-wave critical frequency.

K - ionosphere storm in progress.

MONTHLY AVERAGES AND MEDIAN VALUES OF IONOSPHERIC DATA.

The tables and graphs of ionospheric data presented here are assembled by the Interservice Radio Propagation Laboratory for analysis and correlation principally incidental to IRPL predictions of radio propagation conditions. These data are furnished by the following:

Carnegie Institution of Washington (Department of Terrestrial Magnetism).
Baffin Is., Canada
Fairbanks, Alaska (University of Alaska, College, Alaska)
Reykjavik, Iceland
Maui, Hawaii
Trinidad, Brit. West Indies
Huancayo, Peru
Watheroo, W. Australia

British National Physical Laboratory, and Inter-Services Ionosphere Bureau.
Radio Research Station, Slough, England
Great Baddow, England
Burghead, Scotland
Delhi, India

Australian Council for Scientific and Industrial Research.
Radio Research Board, Australia
Brisbane, Q., Australia
Mt. Stromlo, Canberra, NSW, Australia.

Canadian Department of National Defence, Naval Service.
Churchill, Canada
Ottawa, Canada

New Zealand Radio Research Committee.
Kermadec Is.
Christchurch (Canterbury University College Observatory)
Campbell Is.

National Bureau of Standards, Washington, D.C.
Stanford University, (San Francisco), California.
Louisiana State University, Baton Rouge, Louisiana.
University of Puerto Rico, San Juan, P.R.

For their timely value, some of the tables presented are provisional data received by telephone or telegraph in which there may be small or infrequent errors. When final values are available such errors will be corrected in later issues of this report.

The final values presented, both in tabular and graphical form, although correct for the quantities stated, may sometimes lead to an erroneous conception of typical values for the quantity under consideration. Even when standard scaling practice is used (this being by no means universal as yet), intrinsically misleading results may arise from the monthly average being determined from only a few observations during the month. Two frequent types of such error, both particularly typical of stations in far northern or far southern latitudes are:

(a) Erroneously high values of monthly average critical frequencies caused by the frequent absence of record for cases where the critical frequency is below the lower frequency limit of the recorder. A median, rather than a mean, value of the critical frequency is more significant in such cases, the median being that for all times at which observations were made, the cases of absent records being counted as less than the lower frequency limit of the apparatus.

(b) Erroneously high values of monthly average F2-layer critical frequencies caused by the frequent occurrence of cases where the F1-layer critical frequency exceeds that of the F2-layer. This is characteristic of summer months during sunspot-cycle minimum, particularly in northern latitudes. In this case, also, median values are more significant than mean values, the median being that for all cases where observations are made, those cases where missing values result because of higher $f^{o}F1$ being counted as less than the $f^{o}F1$. When, as is often the case, no great discrepancy is likely to exist between $f^{o}F1$ and $f^{o}F2$, a typical value of $f^{o}F2$ may be obtained by taking the monthly average of observed $f^{o}F2$ together with observed $f^{o}F1$ for the cases where no $f^{o}F2$ could be measured.

The discrepancy between predicted and observed values of monthly average critical frequencies, particularly for far northern stations, is frequently because of the above reasons, the predictions being intended to represent typical values for the location under consideration.

IONOSPHERIC DATA FOR EVERY DAY AND HOUR

These data, observed at Washington, D.C., follow the scaling practices recommended by the International Radio Propagation Conference held in Washington, D.C., 17 April to 5 May 1944. (Cf. IRPL-C61, pp.36-39).

In order to obtain typical values of monthly average $f^{o}F2$, for cases where the $f^{o}F2$ falls below the $f^{o}F1$, values of $f^{o}F1$ are used in taking the average, such cases being indicated in Table 30 by the symbol G, and a "less than" sign before the $f^{o}F1$ value inserted.

Because of the high variability of observed fEs, mean values are of little practical significance and are not given here.

Mean values of other quantities are given for all days of the month as well as for quiet days only. The criteria for selecting periods of ionospheric storminess, whose data are deleted in obtaining the mean values for quiet days only, are presented in IRPL-R5, "Criteria for Ionospheric Storminess", available to authorized persons upon request.

There is a notable increase in median values of Es reported for Fairbanks, Alaska, over those observed in June, previously presented in the August issue of "Ionospheric Data". This is because of a change in record scaling practice; values of Es reported previous to 1 July 1944 were those for blanketing Es only. Beginning 1 July, following the recommendations of the International Radio Propagation Conference held in Washington, D.C., 17 April to 5 May 1944, values reported are those for the highest frequency at which Es echoes are observed.

It may be noted that a logarithmic grid is used for the graphical presentation of critical frequencies, fEs and F2-M3000. This is for convenience in obtaining muf by means of graphical multiplication (i.e., since the distances above 1 on such a grid are proportional to the logarithm of the quantities represented, two such distances may be added in order to obtain the product, on the same scale, of the two quantities).

IONOSPHERIC DISTURBANCES

Table 39 presents ionospheric character figures and principal storms observed at Washington, D.C., during August 1944, as determined by the criteria presented in IRPL-R5, cited above, together with American magnetic K-figures which are usually covariant with them.

SPORADIC-E TRANSMISSION

Table 40 presents the first comparison which has been made between percentages of time of occurrence of transmission by sporadic-E reflection as observed under practical transmission conditions and those derived for the frequency under consideration by statistical analysis of vertical-incidence data. Observations were made by the Federal Communications Commission Engineering Department of percentages of total time of transmission by means of Es reflections on 44.3 Mc (WGTR, at Paxton, Mass., Eo at one mile = 2460 uv/m) as received above 25 uv/m at Allegan, Mich., Grand Island, Neb., and Atlanta, Ga. These are given in comparison with equivalent percentages of the time derived from vertical-incidence data observed at Washington, D.C., during the same months. A maximum usable frequency factor of 5 was taken and the vertical-incidence probability of Es-reflection at 44.3/5 = 8.86 Mc determined.

Despite the considerable variability exhibited by Es data, as may be seen by inspection of Table 35, and despite the fact that the midpoints of the transmission paths under consideration are not exactly at the location of Washington, D.C., fairly good agreement may be noted between these observations.

Longitude variations in Es are fairly pronounced, greater percentages of Es in temperate latitudes being noted with proximity to the auroral zones. It may be seen from Table 40 that the best agreement with Washington, D.C., vertical-incidence data occurs for the observations made at Atlanta, Ga., where the midpoint of the transmission path is closest to Washington. Similar seasonal variations exist in all cases, with maxima during both winter and summer solstices, the latter being the greater, and minima during equinoctial seasons.

ERRATA

Values of F2-M3000 previously reported from Baton Rouge, Louisiana, for June and July 1944, are generally too low because of error in scaling the records. Correct values will be given in this report, as soon as they are available, for June. The July values are correctly given in this report in the graph, Fig. 13.

Table 1

Baffin Is., Canada (70.5°N, 68.6°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	239	3.41						3.3
01	247	3.10						3.4
02	251	3.02						3.4
03	252	3.15	260	2.50				3.5
04	253	3.38	228	2.92				3.3
05	280	3.65	222	3.13	155	2.27		3.2
06	323	3.63	218	3.28	147	2.35		3.2
07	375	4.05	224	3.41	134	2.44		3.0
08	378	4.50	218	3.54	121	2.49		2.8
09	351	4.49	220	3.73	118	2.62		3.1
10	351	4.65	226	3.83	116	2.69		3.1
11	406	4.40	221	3.78	117	2.62		2.9
12	374	4.64	213	3.79	116	2.86		3.0
13	407	4.44	212	3.74	115	2.68		3.0
14	390	4.40	209	3.72	118	2.59		3.0
15	395	4.35	209	3.63	122	2.50		2.9
16	360	4.43	214	3.50	130	2.42		3.0
17	324	4.34	215	3.35	134	2.40		3.1
18	288	4.23	212	3.16	140	2.26		3.1
19	242	3.99	207	2.98				3.2
20	239	3.80						3.2
21	241	3.78						3.2
22	241	3.67						3.3
23	242	3.49						3.3

Time: 75°W.
Length of time sweep: 2 Mc to 16 Mc in one minute supplemented by manual apparatus with low frequency limit 1.6 Mc.

Table 2

Fairbanks, Alaska (64.9°N, 147.8°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	294	2.53						3.0
01	318	2.58			103	1.50		2.9
02	292	2.76						2.9
03	316	2.87			103	1.30		3.0
04	317	3.22	246	2.90	103	1.74		3.0
05	380	3.54	236	3.10	103	2.00		2.9
06	397	3.82	226	3.29	103	2.05		2.8
07	425	3.96	219	3.48	103	2.38		2.8
08	477	4.02	211	3.60	103	2.55		2.7
09	460	4.20	208	3.73	103	2.70		2.7
10	446	4.36	206	3.82	103	2.80		2.7
11	432	4.43	206	3.90	103	2.84		2.7
12	458	4.40	210	3.90	103	2.84		2.7
13	444	4.37	209	3.90	103	2.81		2.8
14	423	4.34	213	3.88	103	2.71		2.8
15	391	4.28	216	3.79	103	2.59		2.8
16	380	4.28	217	3.69	103	2.50		2.8
17	325	4.23	223	3.45	103	2.15		3.0
18	280	4.09	228	3220	103	1.92		3.1
19	262	3.93	234	3.10	103	1.69		3.1
20	263	3.52			103	1.68		3.1
21	270	3.27			103	1.77		3.1
22	269	2.85			103	1.06		3.1
23	293	2.53			103	1.20		3.0

Time: 150°W.
Length of time sweep: 16 Mc to 0.5 Mc in 15 minutes.

Table 3

At Reykjavik, Iceland (64.1°N, 21.7°W) August, 1944.

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02	305	2.90						3.0
03	260	3.30						3.0
04	265	2.85						3.3
05	244	3.16	260	2.90				3.3
06	217	3.55			115	2.30		3.4
07	252	3.82	212	3.52	110	2.60		3.4
08	281	4.11	204	3.72	110	2.90		3.3
09	314	4.34	210	3.91	110	2.67		3.1
10	344	4.41	206	3.97	110	2.80		3.1
11	326	4.47	209	4.08	110	2.80		3.2
12	333	4.63	199	4.09	110	2.80		3.2
13	350	4.61	205	4.06	110	2.90		3.1
14	344	4.64	214	4.06	110	2.90		3.0
15	358	4.71	214	4.00	110	2.89		3.0
16	328	4.73	205	3.92	110	2.67		3.0
17	325	4.74	214	3.74	112	2.81		3.0
18	288	4.46	227	3.63	111	2.50		3.1
19	259	4.29						3.2
20	268	4.37						3.2
21	310	4.03						3.1
22	330	4.20						2.8
23								

Time: 15°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 4

	Burghead, Scotland (57.7°N, 3.5°W)	Delhi, India (28.6°N, 77.2°E)
Time	f°F2	f°F2
00	3.6	3.4
01	3.3	3.2
02	3.0	3.2
03	2.9	2.9
04	2.9	2.9
05	3.2	3.0
06	3.5	4.2
07	3.9	5.3
08	4.2	5.9
09	4.3	6.0
10	4.6	6.5
11	4.6	7.5
12	4.6	8.4
13	4.7	9.5
14	4.6	10.0
15	4.6	9.8
16	4.6	9.3
17	4.8	8.8
18	4.8	7.4
19	4.9	6.3
20	4.9	5.2
21	4.8	4.4
22	4.4	4.0
23	4.2	3.7
	Time: 0°	Time: 75°E

Table 5

At Maui, Hawaii (20.8°N, 156.5°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	284	4.76						3.0
01	276	4.80						3.1
02	251	4.77						3.3
03	255	3.94						3.3
04	256	3.41						3.3
05	261	3.22						3.2
06	253	3.41						3.3
07	242	5.23	216	3.53				3.4
08	268	5.75	214	4.10	118	2.77		3.4
09	353	5.60	202	4.48	113	2.99		3.0
10	410	6.12	202	4.52	110	3.17		2.7
11	393	7.10	197	4.54	115	3.34		2.7
12	375	7.99	206	4.55	111	3.38		2.8
13	354	8.35	205	4.50	112	3.44		2.9
14	332	9.36	211	4.47	112	3.35		3.0
15	320	9.49	211	4.39	107	3.22		3.0
16	297	9.73	209	4.27	109	3.01		3.1
17	270	9.66	220	4.03	111	2.61		3.2
18	242	9.23	219	3.37				3.4
19	224	7.37						3.4
20	229	6.33						3.3
21	253	5.27						3.1
22	281	4.97						2.9
23	286	4.80						2.9

Time: 150°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 6

At Trinidad, British West Indies (10.6°N, 61.3°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	293	4.52						2.9
01	280	4.62						3.0
02	276	4.46						3.1
03	265	3.86						3.1
04	263	3.70						3.2
05	268	3.50						3.2
06	246	3.89						3.3
07	243	5.00	218	3.55		2.40		3.3
08	309	5.27	228	4.15	115	2.86		3.1
09	365	5.52	228	4.42	113	3.21		3.0
10	419	5.91	223	4.54	112	3.39		2.8
11	391	6.80	222	4.56	111	3.49		2.8
12	375	7.86	232	4.60	113	3.57		2.8
13	350	8.75	230	4.56	114	3.51		2.8
14	332	9.18	224	4.48	110	3.43		9
15	319	9.50	231	4.32	112	3.25		3.0
16	303	9.49	226	4.22	112	2.93		3.0
17	282	9.14	239	3.34	115	2.60		3.1
18	256	8.73	240	2.35				3.2
19	243	7.65						3.2
20	248	5.91						3.0
21	274	5.45						3.0
22	288	4.82						2.9
23	297	4.66						2.9

Time: 60°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 7

At Huancayo, Peru (12.0°S, 75.3°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	235	4.84						3.3
01	234	4.58						3.3
02	241	3.93						3.2
03	242	3.42						3.4
04	249	2.80						3.3
05	263	2.29						3.2
06	254	3.08				1.23		3.1
07	231	5.45				2.25		3.2
08	311	6.43	216	4.09		2.81		3.0
09	360	6.70	206	4.25		3.11		2.7
10	390	6.44	202	4.34		3.40		2.6
11	420	6.25	198	4.39				2.5
12	440	6.19	198	4.41		3.55		2.4
13	411	6.27	195	4.37		3.45		2.5
14	402	6.39	197	4.31		3.26		2.5
15	372	6.50	196	4.19		2.97		2.6
16	316	6.66	204	4.04		2.67		2.6
17	235	6.71				2.17		2.7
18	258	6.64				1.09		2.9
19	286	6.15						2.9
20	279	5.81						2.9
21	257	5.68						3.1
22	237	5.81						3.2
23	230	5.40						3.3

Time: 75°W.
Length of time sweep: 16 Mc to 0.5 Mc in 15 minutes.

Table 8

At Kermadec Is. (29.2°S, 177.9°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	276	3.52						
01								
02								
03	256	3.23						
04								
05	273	2.73						
06	268	2.76						
07	238	4.49	288	3.11				
08	255	5.11	234	3.49	118	2.23		
09	286	5.20	241	3.99	115	2.71		
10	298	5.53	233	4.17	114	2.96		
11	291	5.76	222	4.24	113	3.04		
12	297	5.66	222	4.29	114	3.09		
13	287	5.97	241	4.25	113	3.15		
14	287	5.79	235	4.14	114	3.06		
15	271	5.35	236	3.95	117	2.89		
16	266	5.06	233	3.49	118	2.50		
17	252	4.89			116	2.05		
18	241	4.43						
19	244	4.14						
20	270	3.71						
21	277	3.61						
22								
23								

Time: Local.
Length of time sweep: 1.8 Mc to 12.8 Mc. Manual operation.

Table 9

At Watheroo, Western Australia (30.3°S, 115.9°E) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	243	3.33						3.1
01	239	3.40						3.1
02	241	3.41						3.1
03	234	3.57						3.1
04	223	3.44						3.3
05	223	3.13						3.4
06	230	2.87						3.2
07	232	4.06				1.81		3.5
08	249	4.90				2.30		3.4
09	276	5.27	221	3.88		2.61		3.3
10	302	5.48	220	4.12		2.81		3.3
11	306	5.55	210	4.19		2.94		3.3
12	297	5.94	213	4.19		3.00		3.2
13	301	5.87	210	4.18		2.98		3.2
14	292	5.84	212	4.12		2.89		3.3
15	271	5.72	209	3.88		2.74		3.3
16	258	5.43	212	3.50		2.44		3.4
17	237	5.14				1.92		3.4
18	218	4.47						3.4
19	224	3.47						3.2
20	238	3.11						3.1
21	249	3.26						3.0
22	246	3.37						3.1
23	247	3.34						3.0

Time: 120°E.
Length of time sweep: 16 Mc to 0.5 Mc in 15 minutes.

Table 10

At Christchurch, N.Z. (43.5°S, 172.6°E) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.77						
01		2.83						
02		2.54						
03		2.46						
04		2.18						
05		2.17						
06		1.98						
07	234	3.49						
08	227	4.22						
09	250	4.53		3.55	206			
10	274	4.82	113	3.85	207	2.72		
11	284	4.94	108	3.89	206	2.92		
12	278	5.29	108	3.90	207	2.93		
13	274	5.15	104	3.84	204	2.79		
14	264	5.20	106	3.75	200	2.75		
15	248	5.12	116	3.64	205	2.63		
16	233	4.90		3.06	202			
17	223	4.56						
18	241	3.89						
19	266	3.42						
20	267	3.17						
21	272	2.99						
22	263	2.78						
23		2.72						

Time:
Length of time sweep: 2.5 Mc to 12 Mc in two minutes.

Table 11

At Campbell Island (52.0°S, 169.0°E) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	274	3.18						
08								
09	273	4.27	238	3.16				
10								
11	291	4.43	236	3.54				
12	296	4.61	245	3.65				
13	306	4.62	242	3.51				
14								
15	287	4.85	245	3.11				
16								
17	274	4.37						
18								
19	313	3.20						
20	350	3.10						
21								
22								
23								

Time: Local
Length of time sweep: 1 Mc to 12 Mc. Manual operation.

Table 12

At Churchill, Canada (58.8°N, 94.2°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	268	4.3					7.2	3.0
01	258	4.6	233				6.9	2.9
02	301	4.2	255				4.9	3.1
03	234	4.0	270				4.7	3.0
04	297	4.0	240		113		5.1	2.9
05	266	4.0	251	3.6	108	3.0	3.8	3.0
06	292	4.3	252	3.7	102	3.2	4.2	3.2
07	394	4.1	231	3.9	101	3.3	4.6	2.9
08	443	4.3	234	3.9	97	3.5	3.6	2.8
09	471	4.4	214	4.0	100	3.2	**	2.7
10	427	4.6	215	4.0	98	3.2	**	2.8
11	429	4.7	209	4.1	98	3.3	**	2.8
12	408	4.8	214	4.1	99	3.3	**	2.8
13	416	4.8	211	4.1	100	3.1	**	2.9
14	411	4.8	213	4.1	101	3.1	**	2.8
15	405	4.9	218	4.0	101	3.0	**	2.8
16	366	5.1	219	4.0	103	2.9	**	2.9
17	327	5.1	240	3.8	107	3.0	**	3.1
18	318	5.1	252	3.6	110	3.2	**	3.0
19	295	4.9	246	3.3	114	3.0	4.0	3.0
20	293	4.6	270		115	3.0	4.8	3.1
21	336	4.0			107	3.3	5.2	2.9
22	273	4.5					9.9	3.1
23	292	4.4					6.6	3.0

Time: 90°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 13

At Ottawa, Canada (45.5°N, 75.8°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	346	2.7					**	2.8
01	375	2.6					**	2.7
02	375	2.6					2.7	2.7
03	387	2.7					3.0	2.7
04	370	3.0	273	2.9	135		3.2	2.8
05	333	3.2	250	3.1	142	2.5	**	2.9
06	325	3.9	236	3.4	138	2.5	3.0	3.1
07	365	4.3	224	3.7	132	2.7	**	3.0
08	360	4.7	220	4.0	126	3.0	4.4	3.0
09	375	4.9	218	4.1	120	3.2	4.6	3.0
10	384	5.0	209	4.2	123	3.2	4.3	3.0
11	385	5.1	204	4.3	124	3.2	4.6	2.9
12	400	5.0	205	4.3	124	3.3	4.3	2.9
13	410	5.0	207	4.3	124	3.3	**	2.8
14	402	5.0	215	4.2	124	3.2	**	2.9
15	380	5.0	221	4.1	125	3.1	**	2.9
16	353	5.0	229	3.9	127	2.9	**	2.9
17	324	5.0	232	3.5	139	2.6	**	3.0
18	284	5.2	250	3.0	138	2.4	2.2	3.0
19	261	5.2	250		137		**	3.0
20	260	4.7	250				**	3.0
21	275	3.9					**	2.8
22	293	3.2					**	2.8
23	326	2.8					**	2.8

Time: 75°W.
Length of time sweep: 1.93 Mc to 13.5 Mc. Manual operation.

Table 14

At Washington, D.C. (39.0°N, 77.5°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	273	2.78					2.5	3.1
01	276	2.50					2.5	3.1
02	273	2.30					2.5	3.0
03	273	2.07					2.5	3.0
04	275	1.95					2.6	3.0
05	272	2.19					2.6	3.1
06	241	3.56			124	1.85	2.8	3.3
07	341	4.28	227	3.62	120	2.41	3.0	3.1
08	366	4.76	219	3.93	118	2.78	3.9	3.0
09	367	5.06	214	4.13	116	3.00	4.1	3.0
10	387	5.10	206	4.23	116	3.16	3.6	3.0
11	402	5.02	203	4.32	115	3.28	4.2	2.9
12	434	4.99	200	4.34	117	3.32	3.9	2.6
13	423	5.04	211	4.32	116	3.29	3.7	2.8
14	399	5.08	217	4.27	115	3.22	3.9	2.9
15	400	5.04	225	4.16	117	3.11	4.0	2.9
16	372	5.05	229	4.01	118	2.92	4.0	2.9
17	334	5.06	230	3.73	118	2.57	4.0	3.0
18	285	5.12	234	3.30	119	1.99	3.4	3.1
19	244	5.34					3.7	3.2
20	246	5.16					3.4	3.2
21	254	4.32					3.2	3.1
22	267	3.62					2.7	3.1
23	271	3.23					2.5	3.0

Time: 75°W.
Length of time sweep: 0.8 Mc to 14.0 Mc in two minutes.

Table 15

At San Francisco, California (37.4°N, 122.2°W) August, 1944.

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	273	3.27					2.7	3.0
01	277	3.21					2.4	2.9
02	281	3.14					1.9	2.9
03	275	3.09					1.9	2.9
04	271	2.96					2.3	2.9
05	273	2.92					2.4	3.0
06	277	3.82	244	3.16	114	1.96	2.9	3.1
07	361	4.65	217	3.65	110	2.43	3.3	3.0
08	350	5.05	210	3.93	109	2.76	3.3	3.0
09	368	5.26	204	4.08	108	3.04	3.4	2.9
10	365	5.44	205	4.18	106	3.15	3.6	2.9
11	380	5.59	198	4.26	106	3.20	**	2.9
12	383	5.67	199	4.26	107	3.24	**	2.7
13	365	5.65	206	4.24	106	3.23	**	3.0
14	358	5.58	220	4.22	107	3.22	**	2.9
15	348	5.52	226	4.13	104	3.10	3.2	3.0
16	339	5.26	221	3.97	106	2.85	3.4	3.0
17	316	5.08	229	3.64	108	2.43	3.4	3.0
18	261	4.86	236	3.16	108	1.94	3.3	3.1
19	244	4.84		2.30			2.6	3.1
20	237	4.71					2.5	3.1
21	250	4.13					2.9	3.0
22	256	3.69					2.9	3.0
23	261	3.44					2.7	3.0

Time: Local.
Length of time sweep: 0.8 Mc to 12 Mc in six minutes. Record centered on the hour.

Table 16

At Baton Rouge, Louisiana (30.5°N, 91.2°W) August, 1944

Note: NR 1300 August 1 through 1200 August 21.

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	302	3.46					**	3.0
01	303	3.31					**	3.0
02	300	3.24					**	3.0
03	298	3.16					**	3.1
04	284	3.00					**	3.1
05	282	2.94					**	3.2
06	272	4.00					**	3.2
07	338	4.98	231	3.60	130	2.18	**	3.1
08	324	5.33	222	4.12	120	2.70	**	3.2
09	357	5.31	216	4.36	120	3.02	**	3.1
10	400	5.49	223	4.47	120	3.12	**	3.0
11	410	5.61	220	4.52	120	3.16	**	2.9
12	381	5.93	220	4.56	120	3.18	**	2.9
13	376	5.89	233	4.54	120	3.20	**	3.0
14	353	6.22	233	4.50	120	3.20	**	3.0
15	351	6.36	236	4.42	120	3.08	**	3.0
16	330	6.41	240	4.26	120	2.80	**	3.0
17	300	6.47	238	3.76	123	2.35	**	3.1
18	277	6.59	246	2.94	130	2.00	**	3.2
19	235	6.35					**	3.2
20	236	5.50					**	3.2
21	259	4.34					**	3.1
22	281	3.75					**	3.0
23	291	3.71					**	2.7

Time: 90°W.
Length of time sweep: 1.9 Mc to 9.8 Mc in 3.5 minutes. Record centered on the hour.

Table 17

At San Juan, Puerto Rico (18.4°N, 66.1°W) August, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.92					**	2.8
01		3.88					**	2.8
02		3.88					**	3.0
03		3.33					**	3.1
04		3.15					**	3.0
05		3.07					**	3.2
06		3.95					**	3.2
07	288	5.02		3.44			***	3.3
08	364	4.99	244	4.04		3.00	**	3.0
09	414	5.13	218	4.30		3.12	**	2.8
10	448	5.38	228	4.37		3.26	**	2.7
11	436	5.97	229	4.41		3.37	**	2.7
12	413	6.62	245	4.39		3.36	**	2.7
13	374	7.41	242	4.41		3.41	**	2.7
14	364	7.90	241	4.36		3.34	**	2.8
15	354	7.64	252	4.20		3.22	**	2.8
16	335	7.90	251	4.03		3.04	**	2.9
17	312	7.72	256	3.65			**	3.0
18	280	7.30					**	3.2
19	260	6.24					**	3.3
20		5.33					**	3.1
21		4.97					**	3.0
22		4.11					**	2.9
23		4.05					**	2.8

Time: Local
Length of time sweep: 3 Mc to 12 Mc in 14 minutes. Record centered on the hour.

Table 18

At Reykjavik, Iceland (64.1°N, 21.7°W) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	267	3.73					3.3	3.0
01	260	3.70					3.6	3.2
02	250	3.30					3.3	3.3
03	280	3.05					3.4	3.0
04	258	3.35					3.2	3.2
05	262	3.50	196	3.15			**	3.2
06	278	3.77	225	3.45			**	3.3
07	306	3.88	213	3.58	112	2.80	**	3.3
08	334	4.05	212	3.78	114	2.88	**	3.1
09	389	4.09	214	3.77	112	2.75	**	3.4
10	322	4.34	208	3.94	111	2.78	**	3.3
11	327	4.33	211	3.98	111	2.80	**	3.3
12	352	4.29	217	4.01	112	2.95	**	3.1
13	373	4.37	216	4.03	111	2.97	**	3.0
14	394	4.37	216	3.99	111	2.93	**	3.0
15	404	4.43	223	3.94	111	2.88	**	3.0
16	390	4.42	222	3.88	112	2.79	**	2.9
17	368	4.48	227	3.83	112	2.72	**	3.0
18	320	4.37	227	3.66	113	2.62	2.3	3.0
19	330	4.29	226	3.45	110	3.30	3.1	3.0
20	281	4.27	238	3.40	110	3.05	3.2	3.1
21	281	4.30					3.6	3.0
22	272	3.74					3.0	3.3
23	265	3.75					3.3	3.2

Time: 15°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 19

At Churchill, Canada (58.8°N, 94.2°W) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	268	4.1					8.4	3.2
01	286	4.1					6.2	3.1
02	271	4.0					6.3	3.1
03	270	4.2					4.8	3.1
04	274	3.9	293		117	2.8	4.2	3.2
05	266	4.1	218	3.3	121	2.8	3.9	3.3
06	292	4.2	233	3.7	111	3.1	3.8	3.3
07	432	4.2	238	3.8	111	2.9	3.9	2.8
08	438	4.2	223	3.9	106	3.1	**	2.8
09	420	4.4	211	4.0	108	3.0	**	2.8
10	415	4.5	218	4.1	107	3.1	**	2.9
11	423	4.6	206	4.1	106	3.0	**	2.8
12	407	4.5	206	4.1	105	3.1	**	2.9
13	427	4.6	204	4.1	107	3.0	**	2.9
14	432	4.8	209	4.1	106	3.0	**	2.8
15	398	4.8	214	4.0	108	3.0	**	2.9
16	383	4.9	219	4.0	107	3.0	**	2.9
17	351	5.0	233	3.9	108	3.0	**	3.0
18	333	5.0	249	3.7	116	3.1	**	3.0
19	315	4.7	255	3.5	119	2.9	**	3.1
20	306	4.5	265		118	3.1	4.0	3.0
21	290	4.2			124	2.9	6.0	3.1
22	282	4.4					10.2	3.0
23	278	4.4					10.5	3.1

Time: 90°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 20

	At Great Baddow, England (51.7°N, 0.5°E)				Burghead, Scotland (57.7°N, 3.5°W)
Time	f°F2	f°F1	f°E	F2-M3000	f°F2
00	3.9			3.0	4.02
01	3.6			3.0	3.61
02	3.3			3.0	3.30
03	3.1			3.0	3.21
04	3.3			3.0	3.37
05	3.8	3.0	1.8	3.0	3.60
06	4.1	3.4	2.2	3.0	3.99
07	4.6	3.7	2.5	3.0	4.14
08	4.7	3.9	2.7	3.1	4.38
09	4.9	4.1	2.9	3.1	4.41
10	4.8	4.1	3.0	3.0	4.62
11	4.9	4.2	3.0	3.1	4.60
12	4.8	4.2	3.1	3.0	4.56
13	4.7	4.2	3.1	2.9	4.54
14	4.7	4.1	3.1	2.8	4.47
15	4.7	4.0	3.0	2.9	4.44
16	4.6	3.9	2.8	2.9	4.49
17	4.7	3.7	2.5	2.9	4.82
18	4.9	3.5	2.2	3.0	4.68
19	5.3	3.0	1.8	3.1	4.74
20	5.9			3.1	4.83
21	5.7			3.1	4.87
22	5.1			3.1	4.83
23	4.5			3.1	4.60

Time: 0°
Slough, England (51.5°N, 0.6°W)
Noon h'F2 = 158. Noon f°F2 = 4.84

Time: 0°

Table 21

At Ottawa, Canada (45.5°N, 75.8°W) July, 1944

Time	h'F2	foF2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	316	2.9					3.0	3.1
01	336	2.3					3.1	3.0
02	356	2.7					3.5	3.0
03	370	2.3					3.6	3.2
04	350	3.4	266	3.1	128	2.4	3.5	3.0
05	342	3.3	238	3.2	126	2.3	3.5	3.1
06	342	3.9	222	3.5	127	2.6	4.0	3.2
07	360	4.3	215	3.8	122	2.6	4.2	3.2
08	357	4.6	209	4.0	115	2.8	4.7	3.3
09	381	4.7	206	4.1	114	2.9	4.8	3.2
10	360	4.8	202	4.2	114	3.0	5.1	3.3
11	381	4.8	196	4.3	112	3.1	4.8	3.1
12	388	4.8	199	4.3	113	3.1	4.9	3.1
13	428	4.8	203	4.3	112	3.1	4.8	3.0
14	403	4.7	211	4.2	114	3.1	4.6	3.0
15	392	4.7	216	4.1	116	3.0	4.4	3.1
16	363	4.8	219	4.0	117	2.9	4.3	3.1
17	340	4.8	224	3.8	121	2.7	4.3	3.2
18	294	4.9	231	3.4	130	2.5	4.4	3.2
19	258	5.1	242	2.9	122	2.4	3.8	3.3
20	244	5.0					3.2	3.2
21	250	4.5					4.0	3.2
22	264	3.8					3.1	3.1
23	292	3.1					3.0	3.1

Time: 75°W.
Length of time sweep: 1.93 Mc to 13.5 Mc. Manual operation.

Table 22

At Brisbane, [illegible], Australia (27.5°S, 153.0°E) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	281	3.35						3.2
01	288	3.46						3.2
02	282	3.52						3.2
03	267	3.54						3.3
04	245	3.38						3.5
05		2.93						3.5
06		2.70						3.4
07	235	4.12						3.7
08	255	4.65						3.8
09	280	4.96	248	3.79		2.48		3.5
10	303	5.18	244	4.01	121	2.73		3.5
11	305	5.22	230	4.14	119	2.63		3.4
12	290	5.37	230	4.12	119	2.69		3.4
13	293	5.20	220	4.00	122	2.64		3.5
14	297	5.12	217	3.92	126	2.71		3.5
15	280	5.42	225	3.66		2.52		3.5
16	255	5.03						3.5
17	246	4.60						3.5
18	250	3.77						3.4
19	266	3.27						3.2
20	284	3.29						3.1
21	289	3.50						3.1
22	287	3.48						3.2
23	279	3.37						3.2

Time: 150°E.
Length of time sweep: 2.2 Mc to 12.5 Mc in two minutes thirty seconds.

Table 23

Kermadec Is. (29.2°S, 177.9°W) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
2345	268	3.26						
0100								
0200								
0245	257	3.51						
0400								
0500	227	3.07						
0600	247	2.99						
0700	228	3.78			110	1.33		
0800	234	4.45	217	3.02	119	2.04		
0900	265	4.74	231	3.69	115	2.44		
1000	296	5.00	243	4.01	114	2.77		
1100	283	5.17	237	4.03	112	2.94		
1200	290	5.09	229	4.04	112	2.99		
1300	279	5.19	226	4.01	111	2.97		
1400	271	5.26	224	3.69	110	2.88		
1500	264	5.04	216	3.68	111	2.63		
1600	257	4.84	224	3.16	111	2.26		
1700	235	4.70						
1800	227	4.06						
1845	232	3.72						
2000	243	3.31						
2045	257	3.25						
2200								
2300								

Time: Local
Length of time sweep: 1.8 Mc to 12.8 Mc. Manual operation.

Table 24

Mt. Stromlo, N.S.W., Australia (35.3°S, 149.0°E) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	266	3.26						3.1
01	274	3.36						3.1
02	263	3.51						3.1
03	262	3.48						3.2
04	253	3.49						3.2
05	240	3.32						3.3
06	241	2.74						3.3
07	244	3.16						3.3
08	240	4.28				2.04		3.4
09	253	4.69	219	3.27	116	2.36		3.4
10	274	4.86	220	3.67	112	2.64		3.4
11	284	5.13	224	3.97	110	2.85		3.4
12	285	5.05	212	4.00	110	2.96		3.4
13	293	5.26	210	3.96	110	2.86		3.3
14	273	5.34	217	3.87	109	2.73		3.4
15	257	5.16	211	3.55	110	2.54		3.4
16	249	4.90			117	2.20		3.4
17	236	4.42						3.4
18	242	3.62						3.3
19	251	3.18						3.3
20	254	3.26						3.2
21	253	3.23						3.2
22	257	3.14						3.1
23	260	3.08						3.1

Time: 150°E.
Length of time sweep: 1.6 Mc to 12.5 Mc in two minutes.

Table 25

Christchurch, N.Z. (43.5°S, 172.6°E) July, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.13						
01								
02		3.22						
03		2.96						
04								
05		2.78						
06		2.57						
07		2.53						
08	215	4.04						
09	221	4.49						
10	242	4.66	206	3.56				
11	255	4.94	217	3.77				
12	258	5.07	210	3.75				
13	254	5.29	208	3.74				
14	246	5.37	204	3.65				
15	220	5.31	206					
16	212	4.79						
17	226	4.13						
18	266	3.09						
19		2.93						
20		3.15						
21		3.06						
22		3.10						
23		3.17						

Time:
Length of time sweep: 2.5 Mc to 12 Mc in two minutes.

Table 26

Campbell Is. (52.0°S, 169.0°E) July, 1944.

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07								
08	269	3.05						
09	267	3.78				2.31		
10								
11	288	4.14	225	3.29	139	2.38		
12	292	4.46	239	3.31	134	2.53		
13	284	4.43	231	3.15	133	2.37		
14								
15	261	4.47		2.65				
16								
17	297	3.22						
18								
19	396	2.48						
20								
21								
22								
23								

Time: Local
Length of time sweep: 1 Mc to 12 Mc. Manual operation.

Table 27

July, 1944

Time	Baffin Island, Canada. (70.5°N, 68.6°W)	Fairbanks, Alaska (64.9°N, 147.8°W)	Maui, Hawaii (20.8°N, 156.5°W)	Trinidad, British West Indies (10.6°N, 61.3°W)	Huancayo, Peru (12.0°S, 75.3°W)	Watheroo, Western Australia (30.3°S, 115.9°E)
Time	fEs	fEs	fEs	fEs	fEs	fEs
00		3.5	3.2	**	**	2.8
01		3.8	2.9	**	**	2.9
02	**	4.9	3.5	**	**	2.9
03		4.9	2.8	**	**	2.8
04	**	4.6	2.9	**	**	2.9
05		3.6	2.8	**	**	2.9
06	**	3.3	3.0	**	2.7	2.9
07		3.3	3.3	2.6	3.7	2.9
08	**	3.3	4.4	3.2	4.5	2.9
09		3.3	5.5	3.6	4.5	3.0
10	**	3.6	5.1	3.9	4.5	3.2
11		3.3	5.0	4.2	4.5	3.4
12	**	3.3	4.8	4.4	4.5	3.5
13		3.2	5.0	5.4	4.5	3.6
14	**	3.2	5.0	5.3	4.5	3.4
15		3.0	4.9	4.7	4.5	3.2
16	**	3.0	4.8	5.0	4.4	3.0
17		3.1	5.5	4.2	3.4	2.9
18	**	3.1	4.6	4.0	**	3.0
19		3.3	4.0	3.5	**	2.9
20	**	3.4	3.2	3.2	**	2.8
21		4.1	3.7	2.6	**	2.8
22	**	3.2	3.6	**	**	2.8
23		3.9	3.0	**	**	2.8
	Time: 75°W. 2 Mc to 16 Mc in 1 minute supplemented by manual apparatus with low frequency limit 1.6 Mc.	Time: 150°W 16Mc to 0.5 Mc in 15 minutes	Time: 150°W 2 Mc to 16 Mc in 1 minute	Time: 60°W 2 Mc to 16 Mc in 1 minute	Time: 75°W 16 Mc to 0.5 Mc in 15 minutes	Time: 120°E 16 Mc to 0.5 Mc in 15 minutes.

Table 28

Watheroo, Western Australia (30.3°S, 115.9°E)

Time	June 1944 fEs	April 1944 fEs	March 1944 fEs
00	2.8	2.9	2.9
01	2.8	2.9	2.9
02	2.8	2.9	3.0
03	2.8	2.9	2.9
04	2.8	2.8	2.8
05	2.8	2.9	2.5
06	2.8	2.9	2.2
07	2.8	2.8	3.0
08	2.9	3.0	3.1
09	**	3.0	3.6
10	**	3.4	3.8
11	3.4	3.5	3.3
12	4.4	3.6	3.3
13	4.6	3.5	3.6
14	4.0	3.4	3.5
15	4.4	**	**
16	3.8	3.0	3.3
17	3.0	3.0	3.0
18	3.0	2.9	2.9
19	3.0	2.9	2.7
20	2.8	2.9	2.3
21	2.8	2.8	2.6
22	2.8	2.9	2.8
23	2.8	2.9	2.8

Time: 120°E.
Length of time sweep: 16 Mc to 0.5 Mc in 15 minutes.

TABLE 29

IONOSPHERIC DATA-I

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of $h'F_2$ in km ... August 1944 (Month)

Records measured by: S.M.O.
P.A.G.

RESTRICTED

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	[illegible]	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	280	300	300	280	290	260	220	590	(560)	380	320	400	[illegible]	460	G	400	[370]C	340	240	240	240	240	250	260	7710	
2	300	260	230	230	270	240	240	420	300	430	[390]A	400	[illegible]	460	380	C	C	C K	C K	C K	C K	C K	C K	C K	5390	
3	C K	C K	C K	C K	C K	C K	C K	C K	C K	G K	G K	G K	[illegible] K	G K	G K	G K	500K	520K	240K	240K	260K	240K	260K	270K	2570	
4	280K	280K	C K	C K	C K	C K	240K	G K	460K	G K	C K	C K	[illegible] K	G K	480K	520K	460K	390K	350K	260K	310K	280K	280K	260K	4850	
5	2[illegible]K	280K	C K	C K	C K	C	C	C	C	C	590	440	380	440	C	C	C	C	C	C	C	C	C	300	[illegible]	
6	270	260	260	210	300	260	240	C	C	C	440	[400]	(360)	[400]C	360	400	360	370	310	250	240	240	270	220	6540	
7	270	280	260	270	(280)	250	240	440	320	280	C	C	(490)	[540]C	360	(400)	(370)	340	300	240	220	230	240	260	6900	
8	240	260	240	260	260	260	220	330	300	260	(520)	380	540	400	280	400	340	[330]A	300	240	240	240	(320)	[300]A	7610	
9	280	280	260	260	270	250	230	410	(360)	[360]A	350	340	(400)	360	320	320	300	310	280	240	240	220	260	260	7160	
10	270	260	280	300	290	260	240	[400]A	(510)	320	(320)	[480]C	(570)	460	360	(340)	340	340	280	240	230	280	280	270	7970	
11	260	260	230	260	270	260	240	340	320	350	A	A	[550]A	(360)	440	[420]A	330	(330)	280	250	240	260	280	270	6860	
12	240	280	260	260	260	280	240	380	380	540	430	G	500	G	[540]A	450	400	(320)	300	260	240	260	260	240	7330	
13	260	260	260	260	240	230	200	(340)	G	A	A	A	A	460	[440]A	[430]A	440	340	340	260	260	240	260	260	5980	
14	280	280	310	270	260	240	240	300	340	340	G	(470)	480	G	(590)	440	400	320	[290]A	260	240	250	260	230	7140	
15	280	300	300	280	260	260	220	320	360	420	580	(480)	390	460	450	460	C	C	C	C	C	C	C	C	5820	
16	C	C	260	240	260	280	220	360	320	320	[330]A	410	400	360	400	(430)	(400)	(320)	300	260	240	240	250	270	6870	
17	270	270	260	[300]A	[300]A	(290)	260	C	C	(640)	350	340	420	400	350	360	340	310	280	240	240	240	240	260	6960	
18	260	280	290	240	280	290	240	380	300	420	(420)	(590)	480	490	460	400	370	(360)	310	260	(290)	260	[300]A	290	8450	
19	260	[310]A	300	260	[320]A	320	[240]C	340	400	400	(520)	320	520	420	[420]A	400	400	340	280	240	250	(300)	290	250	8090	
20	260	280	260	260	240	240	240	300	400	(440)	360	420	(390)	500	460	[410]A	380	340	280	240	240	[270]A	280	[270]A	7760	
21	280	230	(300)	[300]A	(260)	(260)	(230)	(300)	360	300	320	330	450	370	340	310	360	330	300	240	240	240	260	280	7240	
22	300	260	260	260	270	260	260	C	C	280	320	360	380	360	360	380	340	330	300	240	240	260	260	290	6560	
23	260	250	260	270	260	320	260	G K	(620)K	(520)K	360K	520K	G K	G K	520K	(540)K	(460)K	380K	290	240	250	(290)	280	(330)	7480	
24	340	290	280	280	300	300	270	G K	520K	340K	540K	G K	560K	A K	G K	(580)K	460K	350	240	240	260	260	(300)	[illegible]A	7000	
25	300	320	280	260	260	280	260	290	300	320	380	380	(360)	360	340	400	340	320	260	240	240	240	270	260	7250	
26	280	260	260	270	260	260	240	260	280	280	280	360	380	380	360	340	330	290	280	240	240	240	240	240	6850	
27	260	260	260	280	260	260	240	250	240	280	300	380	310	330	340	320	320	300	260	240	240	240	240	260	6670	
28	260	280	320	340	300	(320)	260	230	340	500	400	440	500	400	360	380	360	300	270	240	250	260	260	260	7830	
29	260	280	280	260	300	270	260	260	280	280	280	340	340	340	320	300	300	280	260	250	250	240	260	260	6750	
30	260	260	280	[290]A	(300)	300	240	280	280	280	300	300	320	310	340	340	300	300	260	220	230	240	260	250	6740	
31	280	280	270	270	280	320	260	280	300	260	280	380	380	[360]C	310	320	300	260	240	220	240	260	280	280	6910	
Sum	7930	8000	7650	7650	7700	7620	6990	7840	9150	9540	9670	9660	11730	10580	10780	11210	10420	9360	7970	6830	6900	7100	7480	7850	207610	
Mean[1]	273	276	273	273	275	272	241	341	366	367	387	402	434	423	399	400	372	334	285	244	246	254	267	271		
Mean[2]	274	276	273	273	275	272	241	341	343	362	381	397	430	423	391	383	356	323	284	243	243	252	267	271		

[1] For all days of the month

[2] For quiet days

$h'F_2$

August, 1944

TABLE 30

IONOSPHERE DATA-2

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of $f^{\circ}F_2$ in {Mc / Kc} for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	1.8 F	1.7 F	1.7	1.6	1.6	2.3	3.1	3.7	(3.9)	4.6	5.0	4.5	(4.6)	(4.7)	<4.2 G	4.5	[4.7] C	4.6	4.7	4.8	4.8	4.2	3.3	2.8	87.4	
2	2.5	2.3	2.2 F	1.9 F	1.8 F	2.3	(3.8)	(4.0)	4.8	4.5	[4.7] A	5.1	4.7	4.8	5.4	C	C	C K	C K	C K	C K	C K	C K	C K	54.8	
3	C K	C K	C K	C K	C K	C K	C K	C K	C K	<3.7 G K	<(3.9) G K	<(3.8) G K	<(3.9) G K	<(3.9) G K	<(3.7) G K	<3.7 G K	(4.0) K	3.8 K	3.7 K	3.9 K	3.7 K	3.2 K	2.8 K	2.4 K	54.3	
4	2.0 K	1.6 K	C K	C K	C K	C K	(3.3) K	<3.6 G K	4.0 K	<4.0 G K	C K	C K	<(4.1) G K	(4.1 G K	(4.3) K	4.2 K	4.2 K	4.2 K	4.2 K	4.5 K	4.1 K	3.5 K	(3.3) F	2.6 F K	65.8	
5	(2.1) F K	1.7 F K	C K	C K	C K	C	C	C	C	C	4.5	4.6	4.8	(4.4)	C	C	C	C	C	C	C	C	C	3.5	25.6	
6	3.1	2.9	1.9 F	1.9 F	1.8	2.3	3.4	C	C	C	4.8	[4.8] C	5.0	[4.8] C	(5.0)	4.9	4.8	4.7	4.8	4.4	4.8	4.2	3.3	3.2	81.2	
7	2.9	2.2	2.0	1.7	1.7	2.0	3.4	3.9	4.8	5.2	C	C	(5.1)	[5.1] C	5.1	(5.0)	(5.0)	5.0	5.1	5.4	5.6	4.6	3.5	3.1	87.4	
8	2.8	2.4 F	2.1 F	1.4 F	2.0 F	2.3 F	3.4	(4.4)	4.7	(5.2)	(4.8)	5.4	5.1	(5.4)	5.4	5.1	5.5	(5.5)	5.7	5.6	(5.4)	4.8	3.8	(3.6)	102.6	
9	3.2	3.0	2.9	2.3 F	1.9 F	2.4	3.6	4.3	4.3	[5.0] A	5.7	5.8	(5.8)	(5.7	6.0	5.7	5.8	5.7	5.7	5.8	5.2	4.1	3.2	3.0	106.2	
10	2.5	2.4	1.7 F	1.8 F	1.7 F	2.0 F	3.3	[4.2] A	(4.4)	5.2	(5.2)	[4.7] C	4.7	(5.6	(5.3	(5.0)	4.7	4.8	4.7	4.5	3.8	3.4	3.4	3.3	91.9	
11	3.0	2.8	2.3 F	2.0 F	1.8 F	2.2 F	3.6	(4.3)	4.6	4.9	A	A	[4.9] A	(5.5	5.0	[5.0] A	5.0	5.2	5.1	5.5	5.2	4.0	3.3	3.1	88.9	
12	(2.9)	2.4 F	2.4 F	1.9 F	1.8 F	2.2 F	3.6	4.1	(4.5)	4.6	(5.0)	<4.5 G	(4.6	<4.7 G	(4.8)	5.0	4.9	5.0	4.8	5.1	5.3	4.2	3.9	3.4	95.3	
13	2.7	2.5	2.2 F	2.2 F	2.2 F	2.3 F	3.5	(4.2)	<4.2 G	A	A	A	A	(4.7)	[4.8] A	[4.8] A	4.7	4.9	5.3	6.0	5.7	4.8	3.7	3.1 F	78.5	
14	2.7	2.5 F	2.3 F	2.7	2.9	3.0	4.0	4.4	4.8	5.0	(4.4) G	4.7	4.8	<4.4 G	(4.6)	4.8	(4.7)	5.0	(4.8)	5.2	5.6	4.8	3.5 F	3.2 F	98.8	
15	2.7 F	2.4 F	2.3 F	2.2 F	2.2 F	2.6 F	3.5	4.1	4.5	4.7	4.4	(4.7)	(5.1)	4.8	(4.8)	4.8)	C	C	C	C	C	C	C	C	60.0	
16	C	C	(2.3)	(2.1) F	2.0	2.3	3.8	4.2	(5.4)	(5.7)	[5.7] A	5.1	5.2	5.2	(5.5)	4.8)	(4.8)	[5.2] C	4.7	(4.9)	(5.3)	(4.7)	3.9	3.6	76.1	
17	(2.9)	2.6	(2.3)	[2.0] F	[1.8] A	(2.0)	3.4	C	C	(4.7)	5.4	(5.3)	5.2	5.2	5.4	5.1	5.2	5.4	5.5	6.2	5.6	4.7	4.1	3.2	93.7	
18	3.0	2.6	2.2 F	2.0 F	(1.2) F	1.8 F	3.0	4.0	(4.7)	4.8	4.7	(4.6)	(4.7)	(4.7)	4.8	4.4	(4.8)	4.6	4.5	4.8	4.6	3.6	(3.3)	3.1 F	91.0	
19	2.4 F	[2.0] A	2.3 F	1.8 F	[1.7] A	1.7 F	[3.3] C	4.0	4.4	4.8	(4.6)	5.1	4.7	4.8	[4.8] A	4.7	4.8	5.0	4.9	4.6	4.4 F	4.1 F	3.6 F	3.3 F	91.8	
20	2.6 F	(2.2) F	2.1 F	2.2 F	2.2 F	2.3 F	3.7	(4.4)	4.3	(4.5)	4.9	4.8	(4.8)	4.7	4.8	[4.9] A	4.8	5.0	5.2	5.1	4.8 F	3.8 F	3.5 F	(2.7) F	94.3	
21	2.6 F	2.4 F	2.0 F	[1.9] A	1.8 F	2.2 F	4.0	(4.6)	5.0	5.6	(5.3)	5.3	5.1	5.6	5.5	5.5	5.1	5.1	5.2	5.7	5.8	5.0	3.4 F	3.2 F	103.4	
22	2.8 F	2.8 F	2.6 F	2.1 F	2.0 F	2.1 F	3.4	C	C	5.5	5.7	5.4	5.1	5.2	5.0	(5.2)	5.0	4.8	5.1	5.8	5.5	4.6	3.4	3.6	93.7	
23	3.4	2.8	2.5	2.1 F	1.8 F	1.9 F	3.0	<3.3 G K	(4.1) K	(4.3) K	4.8 K	(4.8) K	4.3 G K	(4.3) G K	(4.4) K	4.5 K	(4.6) K	4.4 K	4.5	4.2	4.6	2.9	2.5	2.2 F	86.2	
24	2.1 F	2.2 F	2.3 F	2.3 F	2.2 F	2.3	3.6	<3.7 G K	4.1 K	5.2 K	4.9 K	<(4.2) G K	(4.8) K	4.8 K	4.2 G K	4.0 K	4.4 K	4.6	4.5	4.6 F	4.7 F	3.7 F	2.8 F	(2.7)	84.6	
25	2.6	2.8	2.8	2.6 F	(2.5) F	2.3 F	3.8	5.1	4.8	5.4	5.2	5.2	5.6	5.4	5.6	5.0	5.0	5.1	5.1	5.1	5.1	4.1 F	3.6 F	3.5 F	103.3	
26	3.2 F	3.0 F	2.9	2.8 F	2.8 F	2.9 F	4.0	4.7	5.5	6.2	6.0	5.4	5.1	5.2	5.2	5.4	5.4	5.0	5.4	6.2	6.2	5.4	4.5	3.9	112.3	
27	3.2	2.8 F	2.5 F	2.3 F	2.2 F	2.2 F	4.1	5.6	6.6	6.1	5.7	5.5	5.8	5.6	5.6	5.6	5.7	5.5	6.1	6.3	6.4	5.3	4.2	3.5	114.3	
28	3.2	2.7	1.7 F	1.2 F	1.4 F	1.7 F	3.1	4.0	4.8	4.5	4.8	(4.8)	4.6	5.1	5.1	4.8	4.8	4.9	5.0	4.9	4.9	4.2	3.7	3.3	93.2	
29	2.8	2.3 F	2.2 F	2.0 F	1.8 F	2.0 F	3.7	5.1	(5.7)	6.2	6.2	5.7	5.7	6.2	6.1	5.3	5.8	5.6	5.4	5.9	6.1	5.7	4.9	4.3	113.7	
30	3.7	3.3	2.8	2.3	1.9	2.0	3.4	4.8	5.8	5.9	6.1	5.8	6.0	6.2	5.6	5.8	6.4	6.6	7.2	7.6	6.6	5.3	4.2	3.9	114.0	
31	3.3	3.2	2.8	2.3	1.8 F	1.8 F	3.5	4.7	5.0	5.6	5.4	5.6	5.8	[6.1] C	6.9	6.5	6.8	6.4	6.0	6.5	4.8	3.9	3.7	3.4	111.8	
Sum	80.7	72.5	64.3	58.0	54.5	61.4	103.3	111.4	123.7	141.6	137.8	135.6	149.7	151.1	152.5	146.3	141.4	141.6	143.5	149.6	134.6	121.0	101.3	93.7	2781.1	
Mean[1]	2.78	2.50	2.30	2.07	1.95	2.19	3.56	4.28	4.76	5.06	5.10	5.02	4.79	5.04	5.08	5.07	5.05	5.06	5.12	5.34	5.16	4.32	3.62	3.23		
Mean[2]	2.84	2.56	2.3	2.07	1.95	2.19	3.57	4.38	4.85	5.18	5.18	5.12	5.10	5.14	5.22	5.18	5.18	5.17	5.22	5.43	5.26	4.43	3.66	3.28		

[1] For all days of the month

[2] For quiet days

$f^{\circ}F_2$

August, 1944

TABLE 31

IONOSPHERE DATA-3

RESTRICTED

Washington, D.C. (Location) — Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of $h'F_1$ in (km) for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1								200	220	220	(200)	180	(200)	200	200	220	(250)	(220)	220						2530	
2								(240)	220	210	[210]A	200	200	240	(240)	C	C	C K	C K						1760	
3								C K	C K	240K	200K	200K	(220)K	200K	(200)K	240K	[240]AK	(240)K							1980	
4								220K	220K	200K	C K	C K	200K	220K	200K	220K	220K	230K	(230)K						2160	
5								C	C	C	200	(240)	200	[200]A	C	C	C	C	C						840	
6								C	C	C	200	200	(220)	210	200	240	240	220	240						1970	
7								230	[230]A	220	[210]C	220	(200)	[220]C	220	(220)	200	[230]C	220						2620	
8								220	200	190H	260	200	(190)	(230)	[220]A	(230)	220	[240]A	240						2640	
9								240	[220]A	[220]A	220	200	A	200	220	220	240	240	[240]A						2460	
10								[220]A	220	(220)	(220)	[200]C	180	200	210	220	220	240	240						2590	
11								240	230	(240)	A	A	A	A	A	"A	A	A	240						950	
12								(250)	220	220	[200]A	200	180	[210]A	[220]A	220	(240)	A	A						2160	
13								220	200	A	A	A	A	220	A	A	A	A	A						640	
14								230	200	240	200	(220)	200	200	200	220	250	A	A						2160	
15								200	210	200	200	180H	(180)	(220)	220	220	C	C	C						1830	
16								230	(210)	[210]A	[200]A	200	220	220	230	(240)	C	C	240						2200	
17								C	C	220	180	200	200	200	220	220	220	220	240						2120	
18								220	220	200	220	180	(190)	220	220	[220]A	240	[230]A	240						2600	
19								240	[230]A	[220]A	(200)	220	200	220	[220]A	220	220	230	A						2420	
20								220	200	200	190	200	190	(200)	220	[230]A	220	210	[230]A						2510	
21								210	230	220	210	200	(200)	190	220	220	220	220	220						2560	
22								C	C	200	200	180	180	220	210	220	240	220	240						2110	
23								220K	220K	220K	220K	200K	220K	210K	230K	240K	240K	[240]AK	240						2700	
24								240K	220K	(220)K	220K	(220)K	220K	[220]AK	200K	220K	220K	240							2440	
25								230	(220)	220	200	200	190	200	210	220	230	240	240						2600	
26								230	220	200	200	220	200	200	220	220	220	220	240						2590	
27								220	230	200	200	(200)	190	220	220	220	230	220	240						2590	
28									220	240	220	220	210	200	220	230	220	250	240						2470	
29								230	240	220	180	200	200	220	220	220	240	240	220						2630	
30								240	220	200	200	200	200	200	230	220	220	220	220						2570	
31								230	220	180	220	200	220	[220]C	240	240	220	230	220						2640	
Sum								5670	5690	5990	5780	5680	5600	6330	6080	6070	5720	5290	5140						69040	
Mean[1]								227	219	214	206	203	200	211	217	225	229	230	234							
Mean[2]								227	219	213	206	202	198	211	219	224	228	229	234							

[1]For all days of the month. [2]For quiet days.

h'_F.

August, 1944

TABLE 32

IONOSPHERE DATA-4

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of $f^{\circ}F_1$ in Mc for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1								3.5	3.7	3.9	4.0	4.2	4.2	4.1	4.2	4.0	4.0	3.5	3.3						46.6	
2								(3.5)	3.8	4.0	[4.0]A	4.2	4.2	4.1	4.1	C	C	C K	C K						31.9	
3								C K	C K	3.7 K	(3.9) K	(3.8) K	(3.9) K	(3.9) K	(3.9) K	3.7 K	3.7 K	3.5 K	K						34.0	
4								3.6 K	3.8 K	4.0 K	C K	C K	(4.1) K	4.1 K	(4.0) K	3.9 K	3.8 K	3.6 K	3.3 K						38.2	
5								C	C	C	4.1	4.1	4.2	4.1	C	C	C	C	C						16.5	
6								C	C	C	4.1	(4.3)	4.3	4.3	(4.2)	4.2	4.0	3.7	(3.2)						36.3	
7								3.5	3.9	4.2	[4.4]C	4.4	4.4	[4.4]C	4.3	(4.2)	(4.1)	3.9	3.2						48.9	
8								3.8	3.7	4.4	(4.4)	4.5	4.4	4.3	(4.2)	4.3	4.1	[3.9]A	3.6						49.6	
9								(3.8)	4.0	[4.2]A	4.3	4.5	(4.5)	4.4	4.4	4.3	4.2	3.8	3.5						49.9	
10								A	4.0	4.0	(4.2)	[4.3]C	(4.3)	4.4	4.3	4.2	3.9	3.8	3.4						44.8	
11								3.7	4.0	4.2	A	A	[4.3]A	(4.4)	4.4	[4.2]A	4.1	3.9	3.5						40.7	
12								3.8	4.0	4.2	4.3	4.5	4.3	4.4	[4.3]A	4.2	4.2	[3.8]A	A						46.0	
13								(3.7)	4.2	A	A	A	A	(4.4)	[4.4]A	[4.3]A	4.1	A	A						25.1	
14								3.7	4.0	4.3	(4.4)	4.3	4.4	4.4	4.2	4.2	4.0	3.9	A						45.8	
15								3.7	3.9	4.1	4.2	4.4 H	4.4	4.4	4.3	4.2	C	C	C						37.6	
16								3.6	3.9	4.2	[4.2]A	4.3	4.4	4.3	4.2	4.2	3.9	[3.7]C	(3.4)						48.3	
17								C	C	(4.2)	4.2	4.4	4.4	4.4	4.3	4.1	4.0	3.8	(3.3)						41.1	
18								3.6	3.8	4.1	4.2	4.2	4.3	4.3	4.2	4.1	4.2	(3.7)							44.7	
19								(3.6)	3.8	4.2	4.2	4.3	4.3	4.3	[4.3]A	4.2	4.0	3.8	A						45.0	
20								3.6	3.9	4.2	4.2	4.3	4.3	4.3	4.3	[4.1]A	4.0	3.6	3.4						48.2	
21								(3.8)	4.2	4.2	4.3	4.3	(4.4)	4.5	4.3	4.2	4.0	3.8	3.5						49.5	
22								C	C	4.1	4.3	4.3	(4.4)	4.3	4.3	4.2	4.2	3.7	3.4						41.2	
23								3.3 K	3.8 K	4.0 K	4.1 K	4.3 K	4.3 K	(4.3) K	4.1 K	4.0 K	3.8 K	3.6 K	3.2						46.8	
24								3.7 K	3.8 K	4.0 K	4.2 K	(4.2) K	4.3 K	[4.2]K	4.2 K	4.1 K	3.9 K	3.7							44.3	
25								3.6	3.9	4.2	4.3	4.4	4.3	4.3	4.3	4.1	4.0	3.8							45.2	
26								3.6	4.0	4.1	4.3	4.4	4.5	4.3	4.4	4.4	4.1	3.6	(3.1)						48.8	
27								3.6	4.0	4.1	4.3	4.4	4.5	4.4	4.3	4.2	4.0	3.7	3.0						48.5	
28									3.9	4.2	4.2	4.2	4.3	4.3	4.2	4.2	3.9	3.7	3.1						44.2	
29								3.6	4.1	4.2	4.5	4.5	4.5	4.6	4.5	4.3	4.2	3.8							46.8	
30								3.6	4.0	4.4	4.4	4.5	4.5	4.6	4.4	4.2	4.0	3.9	3.1						49.6	
31								3.5	4.0	4.1	4.3	4.5	4.6	[4.5]C	4.5	4.2	4.0	3.6							45.8	
Sum								87.0	102.1	115.7	118.5	121.0	130.2	134.0	128.0	120.7	112.4	100.8	59.5						1329.9	
Mean[1]								3.62	3.93	4.13	4.23	4.32	4.34	4.32	4.27	4.16	4.01	3.73	3.30							
Mean[2]								3.64	3.94	4.17	4.25	4.35	4.37	4.35	4.30	4.20	4.05	3.75	3.30							

[1]For all days of the month [2]For quiet days

TABLE 33

IONOSPHERE DATA-5

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of h'_E in km for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1							120	120	120	120	120	120	110	120	110	120	120	120	120						1540	
2							120	120	120	120	110	100	120	120	120	C	C	C K	C K						1050	
3							C K	C K	C K	120 K	110 K	120 K	110 K	120 K	120 K	120 K	120 K	120 K	K						1060	
4							K	120 K	120 K	120 K	C K	C K	110 K	120 K	120 K	120 K	120 K	120 K	120 K						1190	
5							C	C	C	C	120	120	120	120	C	C	C	C	C						480	
6							120	C	C	C	110	110	110	110	100	120	120	120	120						1140	
7							130	120	120	110	[120] C	120	120	[120] C	110	120	100	120	120						1510	
8							120	120	120	110	120	120	120	110	110	120	120	120	120						1530	
9							120	120	110	120	120	120	120	120	110	120	120	120	120						1540	
10							120	120	120	120	120	[120] C	120	120	110	120	120	120	120						1550	
11							120	120	120	120	110	120	120	120	120	110	110	120	120						1530	
12							120	120	120	120	120	120	120	120	120	120	110	120	120						1550	
13							120	120	120	120	120	120	120	120	120	120	120	120	120						1560	
14							·	120	120	110	120	110	110	120	120	120	120	120	120						1410	
15							120	120	120	110	120	120	120	120	120	120	C	C	C						1190	
16							140	120	120	120	120	120	110	100	100	110	120	120	120						1520	
17							120	C	C	110	110	110	120	110	120	120	120	120	120						1280	
18							120	120	100	110	110	110	110	120	120	120	120	120	120						1500	
19								120	120	110	110	110	120	120	110	110	120	120	120						1390	
20								120	110	110	100	110	110	120	120	110	120	120	120						1330	
21							120	120	120	110	120	110	120	120	120	120	120	110	110						1520	
22							130	C	C	110	120	110	110	100	110	100	110	120	120						1240	
23							120	120 K	110 K	110 K	120 K	120 K	110 K	120 K	110 K	100 K	100 K	120 K	120						1480	
24							120	120 K	120 K	120 K	110 K	120 K	120 K	120 K	120 K	120 K	120 K	120	120						1550	
25							120	120	120	120	120	120	120	100	110	120	120	120	120						1530	
26								120	120	120	120	110	120	120	120	120	120	120	120						1430	
27							140	120	120	120	120	110	120	120	120	120	120	110	120						1560	
28							140	120	120	120	120	120	120	110	110	110	120	120	110						1540	
29							120	120	120	110	110	120	120	120	120	120	120	120	120						1540	
30								120	120	110	120	110	120	120	120	120	120	120	120						1420	
31							140	120	120	120	120	110	120	[120] C	120	120	120	120	120						1570	
Sum							2860	3120	3070	3350	3490	3460	3620	3600	3470	3390	3290	3320	3220						43830	
Mean[1]							124	120	118	116	116	115	117	116	115	117	118	118	119							
Mean[2]							124	120	118	115	117	115	117	116	114	117	118	118	119							

[1] For all days of the month

[2] For quiet days

TABLE 34

IONOSPHERE DATA-6

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of $f^{\circ}E$ in Mc for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1							(1.8)	[2.4]A	[2.7]A	(2.9)	[3.1]B	[3.2]B	[3.3]B	[3.2]B	[3.1]B	(3.0)	[2.9]C	(2.5)	2.1						36.2	
2							(1.9)	(2.5)	A	A	A	(3.3)	A	3.4)	(3.3)	C	C	C K	C K						1+	
3							C K	C K	C K	(2.8) A	[2.9] A K	(2.9) A	A K	A K	B K	[3.0] B K	A K	A K	K						11.6	
4							K	(2.3) K	(2.6) K	(2.7) K	C K	C K	C K	[3.2] A K	(3.2) K	[3.1] C K	(2.8) K	[2.5] A K	A K						22.6	
5							C	C	C	C	A	(3.3)	(3.2)	[3.2] A	C	C	C	C	C						27	
6							(1.8)	C	C	C	3.1	(3.3)	[3.3] C	3.3)	[3.2] A	[3.1] A	(2.9] A	(2.5)	[2.1] A						28.6	
7							1.8	(2.5)	(2.8)	A	C	A	A	C	A	A	.2.7)	[2.7] A	A						12.7	
8							1.7	2.5	2.9	[3.1] A	(3.3)	[3.4] A	(3.4)	3.2)	(3.1)	(3.1)	3.1	A	A						33.0	
9							1.9	2.5	3.0	(3.2)	3.2)	(3.3)	A	[3.3] A	[3.3] A	3.3	(3.1)	2.8	2.1						35.0	
10							1.9	A	A	A	A	C	A	C	(3.2)	(3.2)	(2.7)	[2.5] A	2.3						15.8	
11							1.9	2.5	(2.9)	(3.1)	(3.2)	[3.2] A	(3.2)	[3.2] A	(3.1)	3.3	3.1	2.5	(2.0)						37.2	
12							1.9	A	A	A	A	(3.3)	[3.4] A	3.+	[3.3] A	3.2	(3.0)	(2.6)	A						24.1	
13							(1.9)	(2.7)	A	A	A	A	A	A	A	A	A	(2.8)	A						7.4	
14								A	B	B	B	B	(3.3)	A	A	A	(3.0)	(2.8)	A						7.1	
15							1.8	A	A	A	A	A	A	A	A	(3.2)	C	C	C						5.0	
16							1.9	[2.5] A	[2.9] A	A	A	A	3.2)	A	C	(3.0)	[2.8] C	(2.5)	(2.0)						20.8	
17							(1.9)	C	C	(3.1)	[3.3] A	3.4	[3.4] A	3.4	3.+	3.2	(3.1)	2.6	(2.0)						32.7	
18							(1.8)	2.5	2.7	3.0	(3.2)	3.+	[3.+] A	[3.+] B	[3.2] A	[3.1] A	2.8	2.5)	(1.7)						36.7	
19								(2.3)	2.6	A	A	A	A	A	A	A	A	A	A						4.7	
20								2.3	2.7	A	A	A	A	A	A	3.2	(2.7)	2.6)	A						13.5	
21							A	(2.+)	. A	A	A	A	(3.3)	3.3	[3.2] C	3.1	3.0	2.5	2.1						22.7	
22							1.8	C	C	(3.1)	3.2)	(3.+)	[3.+] A	(3.3)	(3.2)	3.1	2.9	2.0	2.1						32.1	
23							1.8	2.5 K	(2.8) K	3.0 K	[3.2] A K	(3.+) K	3.3) K	C K	C K	[3.1] A K	(2.+) K	2.5 K	A						25.5	
24							(2.0)	2.+ K	2.7 K	(2.+) K	3.1 K	A K	A K	A K	A K	3.0 K	A K	A	A						16.1	
25							A	2.3	2.7	[3.0] A	A	A	A	A	A	[3.0] A	(2.9)	2.6	1.9						18.+	
26								2.3	[2.8] A	3.0	A	A	A	A	3.2)	3.2	[3.1] A	(2.+)	(1.9)						22.0	
27							(1.9)	(2.3)	[2.9] A	(3.0)	(3.2)	[3.2] A	[3.3] A	(3.2)	3.2)	[3.1] A	(2.8)	A	A						32.1	
28							1.8	2.5	2.8	2.9	A	A	A	(3.3)	[3.2] A	3.0	2.9	2.6	1.7						26.7	
29							1.8	2.+	[2.9] A	A	A	A	(3.3)	(3.3)	[3.2] B	3.1	(3.0)	2.5	(1.9)						27.+	
30								(2.3)	2.8	3.1	A	B	3.+	[3.3] A	3.3	3.1	2.7	2.5)	1.8						28.5	
31							(1.7)	(2.2)	[2.7] A	3.0	A	A	A	C	3.3)	3.0	2.7	2.3							30.1	
Sum							38.+	53.0	52.9	51.1	37.9	46.0	53.1	55.9	61.2	77.8	70.0	59.1	24.+						586.8	
Mean[1]							1.85	2.+1	2.78	3.00	3.16	3.28	3.32	3.29	3.22	3.11	2.92	2.57	1.+4							
Mean[2]							1.85	2.+1	2.80	3.0+	3.19	3.31	3.32	3.29	3.22	3.12	2.92	2.58	1.+4							

[1]For all days of the month [2]For quiet days

$f^{\circ}E$

August, 1944

TABLE 35

IONOSPHERE DATA-7

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of E_s in {Mc / km} for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	2.3/120	2.5/110		2.2/120	2.3/120	2.7/120	3.3/120	2.7/120	3.9/120			4.2/160	4.0/160						3.7/120	3.8/120	3.3/120	3.8/120	2.6/120	3.0/110		
2	4.0/120	2.5/120	2.7/110	3.5/120	2.9/120	2.7/120	3.5/120	3.5/120	5.0/120	5.7/120	5.7/110		4.2/120	4.2/120	3.9/140	C	C	C	C	C	C	C	C	C		
3	C	C	C	C	C	C	C	C	C	3.6/140	4.0/110	3.3/120	3.9/110	3.5/120	2.9/120	3.3/120	4.2/120	3.7/120	4.0/120	1.8/130		4.0/120		2.2/120		
4	2.3/110		C	C	C	C	4.1/120	3.8/120	3.7/120	3.1/120	C	C		4.1/110			2.8/120	3.7/120	2.5/120	4.0/120	4.1/110	4.7/120	4.5/120	4.2/120		
5	3.5/120	3.8/120	C	C	C	C	C	C	C	3.6/110	3.7/120		3.6/120	3.7/120	C	C	C	C	C	C	C	C	4.8/120	4.1/120		
6	2.5/120	2.4/120	2.9/120	3.0/110	2.4/110	2.9/120	2.7/120	C	C	3.6/110	3.7/160				4.0/100	3.5/120	4.0/120	3.0/120	2.7/130			3.0/120	2.5/130	2.0/130		
7	2.5/110	2.5/120	2.2/120	1.9/120	2.0/120	2.5/120	2.4/130	3.5/120	4.6/120	3.5/110		4.8/110	3.6/110	C	4.3/120	4.2/120		4.3/100	3.4/110	2.8/120	3.7/120	3.7/120	3.5/120			
8			4.4/100	2.5/100	1.9/120	1.7/120		3.0/40		3.3/110	3.5/120	3.8/120	4.0/120	3.8/140	7.1/120	6.0/120	6.9/120	7.2/120	4.6/120	4.7/120	3.7/120	4.2/120	5.7/120	5.0/120		
9	5.0/120	1.9/120	2.5/140	2.5/120	3.4/120	2.6/120	2.6/120	4.7/110	5.7/120	6.0/120	7.3/120	4.2/120	4.4/120	4.4/120	5.7/110	4.3/120	4.3/120	4.0/120	4.8/120	4.0/120	3.6/120	2.8/120				
10		2.4/120	2.5/120	4.2/120	4.5/120	4.2/110	4.1/120	4.8/120	4.5/120	4.1/110	4.4/120	4.3/120	3.9/120	4.4/120	4.8/120	4.5/120	4.3/120	3.9/120	3.0/120	4.1/120	2.9/120	2.2/140	2.8/120	2.3/120		
11		3.8/140		2.3/120	2.6/110	2.9/110	4.1/110	3.9/120	4.8/120	5.7/120	7.2/110	7.3/120	7.2/120	5.5/120	6.1/110	8.3/120	7.2/120	7.2/120	4.7/120	4.1/130	3.4/120	2.5/140		3.0/100		
12	3.0/120	0.9/120	0.9/120	4.4/120	4.4/120	2.7/120	3.9/120	4.3/120	4.3/120	4.8/120	4.9/110	3.8/120	4.4/120	4.1/140	7.6/120	4.7/120	4.8/120	7.0/120	4.2/120	3.6/120	3.6/120	4.7/120	2.5/120	2.9/110		
13	3.7/110	2.5/110	2.5/110	7.0/110	4.2/110	2.5/120	2.9/140	3.6/120	5.0/120	7.2/120	7.2/120	6.1/120	6.0/120	5.3/110	5.7/110	6.0/120	4.9/120	7.0/120	7.8/120	7.3/110	5.9/120	4.9/100	4.3/120	2.7/120		
14	3.2/110	3.7/110	4.0/100	3.2/100	4.5/100	2.7/120	3.9/120	2.8/120	3.9/120	7.2/100		4.4/160	4.3/110	4.3/120	4.3/110	4.1/110		6.8/120	7.2/120	4.4/120	4.2/120	3.0/120	3.4/120	3.5/110		
15	3.0/120	3.7/110	3.3/110	3.9/110	3.0/100	1.6/120	4.1/120	4.7/120	4.9/120	4.3/110	4.7/120	3.9/120	3.7/120	4.0/120	3.7/120		C	C	C	C	C	C	C	C		
16	C	C						3.5/120		3.7/120	5.6/120	3.6/120	3.6/120	3.5/100				2.9/140	2.4/140				2.5/120			
17				2.5/140	2.5/130	1.9/120	2.5/120	C	C	4.2/110	4.2/110	4.2/110	4.4/110				3.1/140	3.6/120	3.5/120	2.7/120	2.6/120	3.2/120	2.6/110			
18			2.1/100			2.3/120						4.1/110	4.2/110		5.1/110	5.7/120	4.1/130	7.2/120	7.0/120	4.0/140	7.2/120	5.9/120	7.4/120	7.3/110		
19	5.0/100	7.2/100	4.7/110	4.0/120	4.6/100	2.8/120	2.5/120	2.9/120	7.2/120	7.2/110	6.0/110	7.9/110	6.0/100	5.9/120	5.8/120	4.8/110	4.6/120	4.3/110	7.2/120	7.2/120	5.1/120	5.3/120	4.2/120	2.3/100		
20			2.4/120	2.5/110	3.6/100	2.5/120	3.8/120	4.2/110	3.8/110	4.4/110	4.3/100	4.3/110	3.7/110	5.1/110	4.8/120	7.6/120	7.0/120	4.1/120	6.0/120	5.9/120	7.1/120	5.0/120	4.7/120	5.1/120		
21	4.8/110	3.8/120	4.2/100	4.6/100	4.0/100	4.8/100	2.6/120	2.7/110	3.9/120	4.5/110	4.5/100	4.2/110						3.5/110	2.7/110	2.7/100	2.4/100	2.1/100	4.1/120	3.8/110		
22	3.8/100	3.1/100	2.5/100	2.5/100	2.2/100	2.4/140	3.2/120	C	C				3.9/110						2.9/130			2.7/120	2.5/120	2.4/130		
23			2.0/100	2.5/100	2.2/130	2.7/120	2.8/120				3.4/110		3.9/110			4.4/100	4.8/120	4.1/110	3.8/120	4.0/120	3.4/120	3.8/120	2.7/100	2.6/120		
24	3.0/100	2.5/120	2.5/100	3.5/120	4.2/100	3.5/120	2.7/120	2.6/120		3.1/130	3.4/130	4.9/120	5.7/120	5.7/120	3.5/120	4.0/120	4.0/120	4.2/120	2.8/120	7.0/120	5.6/120	3.6/120	5.1/120	4.1/120		
25	4.2/120	4.2/120			2.8/120	3.0/100	4.3/120	2.9/120	4.3/120	4.4/120	3.7/120	3.7/120	4.0/120	4.0/100	3.9/120	3.9/120	3.8/120	3.0/120	2.2/120	2.3/120		3.1/120	2.8/120	3.5/120		
26	3.1/120	2.5/120	3.2/130	2.5/120	2.2/140	2.5/140	3.3/120	3.5/120	3.7/120	3.9/120	3.9/120	3.8/110	3.7/120	3.7/120	4.1/120	4.1/120	4.0/120	3.4/120								
27	2.0/120	2.5/120	2.4/120		2.4/110	2.4/140	2.9/130	2.6/120	3.1/120	3.3/120	4.1/120	5.3/110	3.7/120			3.8/120	4.1/120	4.2/110	2.7/120	3.0/110	2.7/120	2.6/120	2.7/110	2.4/120		
28	1.9/120	2.5/140	2.9/130	2.3/120	2.5/120	2.5/120	2.7/120	2.9/120	4.0/130	4.2/120	3.8/110	6.5/120	4.0/120		3.9/110			4.1/120	3.4/120	3.2/120	2.3/120	2.6/130				
29	2.4/120		2.5/100	2.5/120		2.5/120	2.5/120		3.0/120	4.1/110	3.9/110	3.7/120	3.4/120					2.7/140	2.4/120	2.8/120	2.5/120		2.4/120			
30		2.7/120	3.6/120	4.5/110	4.2/100	3.0/110	2.7/120	2.6/120	3.3/140	4.3/120	3.6/120			3.5/120	3.8/140	3.3/130	3.2/120	2.6/120		4.9/120	3.0/120	3.5/120	3.0/120	2.5/120		
31	2.4/100	2.3/110		2.5/110		2.6/100	2.5/120	2.8/120	3.0/120	3.4/120	3.7/120	5.4/110	6.0/120		5.4/120	4.3/120	4.1/120	3.6/120	2.9/120	2.7/120	2.9/120	2.4/100		2.3/120		
Sum																										
Mean[1]																										
Mean[2]																										

[1] For all days of the month

[2] For quiet days

TABLE 36

IONOSPHERE DATA - 8

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of F2-M 1500 for August (Month) 1944

Records measured by: S.M.O.
P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	2.17F	1.82F	1.94	2.02	1.99	2.20	2.40	1.55	(1.64)	1.94	2.15	1.91	(1.84)	(1.76)	G	1.95	C	2.03	2.11	2.15	2.15	2.17	2.14	2.04	47.07	
2	1.90	2.10	1.90F	2.02F	2.07	2.25	(2.40)	(1.85)	2.11	1.85	A	1.84	1.79	1.72	1.85	C	C	C K	C K	C K	C K	C K	C K	C K	27.65	
3	C K	C K	C K	C K	C K	C K	C K	C K	C K	G K	G K	G K	G K	G K	G K	G K	(1.65) K	1.65 K	2.12 K	1.97 K	1.91 K	1.94 K	1.97 K	2.01 K	15.22	
4	1.98 K	2.02 K	C K	C K	C K	C K	(2.46) K	G K	1.72 K	G K	C K	C K	G K	G K	(1.70) K	1.65 K	1.75 K	1.85 K	1.86 K	2.24 K	2.12 K	2.00 K	1.98 K	2.12 K	27.45	
5	(2.15) K	2.15 K	C K	C K	C K	C	C	C	C	C	(1.58)	(1.85)	1.95	(1.80)	C	C	C	C	C	C	C	C	C	2.30	13.78	
6	2.19	2.06	2.20F	2.02F	1.84	2.14	2.31	C	C	C	1.80	C	(2.00)	C	(2.00)	1.85	2.05	1.91	2.00	2.10	2.10	2.20	2.10	1.99	38.86	
7	2.00	1.95	1.95	1.91	1.92	2.21	2.10	1.82	2.18	2.35	C	C	(1.70)	C	1.98	(1.93)	(1.95)	2.03	2.03	2.17	2.20	2.10	2.15	2.10	42.73	
8	1.98	2.01F	2.15F	(2.00)F	1.96F	2.20F	2.21	(1.93)	2.12	(2.48)	(1.65)	1.85	(1.60)	(1.84)	1.87	1.91	2.01	A	1.94	2.15	(2.20)	2.05	1.96	A	44.07	
9	1.94	1.94	1.95	1.95F	2.00F	2.05	2.26	1.85	(2.03)	A	2.00	2.10	(1.90)	2.01	2.08	2.11	2.18	2.10	2.15	2.31	2.15	2.12	2.01	1.98	47.17	
10	2.10	2.05	2.00F	1.95F	2.05F	2.21F	2.12	A	(1.65)	2.05	(2.23)	C	1.55	(1.78)	1.97	(1.88)	2.04	2.05	2.21	2.22	2.10	1.90	2.00	2.03	44.16	
11	1.99	2.09	2.20F	1.97F	(2.01)F	2.15F	2.21	(2.00)	2.18	2.05	A	A	A	(2.01)	1.82	A	1.91	2.05	2.17	2.20	2.04	2.09	2.02	1.95	41.11	
12	2.08	2.00F	2.15F	2.10F	2.19F	2.10F	2.20	1.98	(1.94)	1.64	(1.82)	G	(1.68)	G	A	1.82	1.86		2.07	2.11	2.01	2.01	2.14	2.20	40.10	
13	2.00	2.08	2.08F	2.00F	2.11F	2.21F	2.36	(1.98)	G	A	A	A	A	(1.47)	A	A	1.74	1.98	1.98	2.08	2.21	2.21	2.22	2.03F	34.76	
14	1.94	2.05F	2.10F	2.08	2.10	2.23	2.32	2.31	2.12	2.12	G	(1.76)	1.75	G	(1.55)	1.80	(1.90)	2.08	A	2.17	2.20	2.24	2.15F	1.98F	42.95	
15	2.17F	2.00F	(2.08)F	(2.02)F	(1.97)F	2.17F	2.31	2.16	2.01	1.85	1.55	(1.74)	(1.92)	1.73	(1.78)	(1.75)	C	C	C	C	C	C	C	C	31.21	
16	C	C	2.20	(2.20)F	2.10	2.06	2.34	2.00	(2.10)	(2.10)	A	1.82	1.92	2.00	(1.96)	(1.82)	(1.90)	C	(2.06)	(2.15)	(2.28)	(2.10)	2.12	1.97	41.20	
17	(1.96)	2.06	(1.92)	A	A	(2.20)	2.12	C	C	(1.56)	2.03	(2.00)	1.83	1.85	2.00	1.95	2.05	2.13	2.17	2.02	2.10	2.09	2.15	2.05	40.24	
18	2.01	1.99	2.00F	2.21F	(1.99)F	2.00F	2.40	1.89	(2.30)	1.85	(1.90)	(1.55)	(1.70)	(1.44)	(1.76)	1.88	(1.98)	1.97	2.01	2.15	2.05	2.02	A	2.03F	44.99	
19	(2.33)F	A	(2.11)F	2.11F	A	(2.02)F	C	2.11	1.90	1.95	(1.65)	2.14	1.65	1.85	A	1.95	1.85	1.95	2.16	2.22	2.10F	2.05F	2.13F	2.15F	40.40	
20	2.11F	(2.02)F	(2.02)F	2.02F	(2.18)F	(2.18)F	2.49	(2.20)	1.91	1.86	2.00	1.91	(1.98)	1.69	(1.75)	A	1.96	1.95	2.12	2.18	2.17F	A	2.13F	A	42.83	
21	2.02F	2.06F	2.08F	A	(2.30)F	(2.16)F	2.40	(2.18)	1.96	2.21	(2.12)	2.12	1.78	1.95	2.10	2.10	1.94	1.98	1.98	2.14	2.15	2.20	(2.25)F	2.00F	48.18	
22	2.08F	2.15F	2.02F	2.07F	2.00F	2.10F	2.21	C	C	2.30	2.18	1.97	1.94	2.00	2.01	1.94	2.04	2.10	2.00	2.20	2.16	1.95	1.90	1.95	45.27	
23	2.18	2.00	2.11	2.07F	2.10F	1.89F	2.09	G K	(1.49) K	(1.68) K	2.01 K	(1.64) K	G K	G K	(1.68) K	1.58 K	(1.73) K	1.95 K	2.02	2.17	2.11	2.03	2.09	1.88F	40.50	
24	(2.03)F	2.04F	2.07F	1.91F	1.90F	2.10	2.27	G K	1.56 K	2.01 K	1.60 K	G K	(1.55) K	A K	G K	(1.55) K	(1.68) K	2.01	2.04	2.13F	2.14F	2.22F	2.05F	A	36.86	
25	2.00	1.92	1.95	1.97F	(2.00)F	(2.02)	2.21	2.27	2.21	2.14	1.92	1.88	1.87	1.98	2.07	1.83	2.00	2.11	2.19	2.14	2.26	(2.18)F	(2.13)F	(2.00)F	49.25	
26	(1.97)	2.09F	1.96	2.08F	(2.10)F	2.10F	2.20	2.17	2.38	2.25	2.26	1.96	1.96	1.93	2.05	2.00	2.05	2.19	2.07	2.12	2.07	2.18	2.10	2.20	50.46	
27	2.05	2.01F	2.09F	2.10F	2.01F	2.05F	2.30	2.30	2.43	2.20	2.18	1.93	2.17	2.13	2.06	2.03	1.97	2.10	2.18	2.08	2.18	2.24	2.17	2.01	50.97	
28	2.06	1.98	1.96F	1.84F	2.05F	(2.06)F	2.10	2.20	2.00	1.65	1.90	(1.80)	1.68	1.88	2.05	1.92	1.95	2.10	2.06	2.05	1.98	2.00	2.00	1.97	47.24	
29	2.08	2.08F	2.06F	2.02F	1.90F	1.94F	2.18	2.10	(2.26)	2.13	2.17	2.04	2.01	1.96	2.00	2.12	2.10	2.11	2.19	2.03	2.01	2.11	1.95	1.97	49.52	
30	2.10	1.94	2.00	A	(1.99)	1.98	2.13	2.21	2.20	2.27	2.15	2.19	2.05	2.10	2.03	2.00	2.07	1.98	2.08	2.05	2.14	2.16	1.98	1.99	47.79	
31	1.97	1.98	1.90	1.90	2.00F	2.02F	2.20	2.18	2.24	2.29	2.29	1.89	1.92	C	2.10	1.97	2.00	2.20	2.19	2.28	2.06	1.86	1.95	1.95	47.34	
Sum	59.59	56.64	57.15	50.54	52.74	59.00	63.30	45.24	50.64	50.78	45.16	41.89	47.69	40.88	46.22	47.29	52.31	50.56	56.16	59.98	59.35	56.42	55.94	52.87	1258.33	
Mean[1]	2.05	2.02	2.04	2.02	2.03	2.11	2.26	2.06	2.02	2.03	1.96	1.90	1.83	1.86	1.92	1.89	1.94	2.02	2.08	2.14	2.12	2.09	2.07	2.03		
Mean[2]	2.05	2.02	2.04	2.02	2.03	2.11	2.25	2.06	2.08	2.05	1.98	1.92	1.84	1.86	1.95	1.93	1.98	2.05	2.09	2.14	2.13	2.10	2.08	2.03		

[1]For all days of the month [2]For quiet days

TABLE 37

IONOSPHERE DATA-9

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of F2-M3000 for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	3.23F	2.78F	2.90	3.05	2.98	3.21	3.49	2.35	(2.44)	2.96	3.22	2.90	(2.80)	(2.70)	G	2.92	C	3.10	3.20	3.16	3.19	3.20	3.21	3.10	66.09	
2	2.85	3.20	2.90F	3.08F	3.10	3.25	(3.48)	(2.80)	3.20	2.80	A	2.80	2.70	2.60	2.80	C	C	C K	C K	C K	C K	C K	C K	C K	41.56	
3	C K	C K	C K	C K	C K	C K	C K	C K	C K	G K	G K	G K	G K	G K	G K	G K	(2.50)K	2.50K	3.12K	2.95K	2.88K	2.90K	2.95K	3.10K	22.90	
4	3.00K	3.10K	C K	C K	C K	C K	(3.54)K	G K	2.62K	G K	C K	C K	G K	G K	(2.58)K	2.50K	2.65K	2.81K	2.85K	3.30K	3.14K	3.05K	2.97FK	3.20FK	41.31	
5	(3.10)K	3.20FK	C K	C K	C K	C	C	C	C	C	(2.38)	(2.75)	2.94	(2.75)	C	C	C	C	C	C	C	C	C	3.00	20.12	
6	3.20	3.04	3.26F	3.04F	2.80	3.22	3.49	C	C	C	2.70	C	(3.01)	C	(3.05)	2.81	3.10	2.90	2.95	3.10	3.12	3.26	3.10	3.00	58.15	
7	3.00	3.00	2.90	2.90	(2.85)	3.30	3.15	2.80	3.20	3.45	C	C	(2.55)	C	3.01	(2.95)	(2.95)	3.05	3.05	3.16	3.25	3.12	3.20	3.19	64.03	
8	3.15	3.19F	3.10F	(3.00)F	2.92F	3.21F	3.22	(2.90)	3.15	(3.65)	(2.50)	2.80	(2.40)	(2.82)	2.85	2.90	3.05	A	3.00	3.19	(3.25)	3.05	(2.98)	A	66.28	
9	3.02	2.90	2.90	2.93F	2.99F	3.05	3.36	2.80	(3.10)	A	3.01	3.12	(2.85)	3.05	3.10	3.15	3.22	3.14	3.22	3.35	3.21	3.20	3.10	2.95	70.72	
10	3.15	3.10	3.00F	2.90F	3.03F	3.25F	3.18	A	(2.49)	3.10	(3.35)	C	(2.39)	(2.70)	3.00	(2.85)	3.10	3.10	3.29	3.29	3.12	2.90	3.02	3.11	66.42	
11	2.96	3.10	3.20F	2.98F	(3.05)F	3.15F	3.30	(3.01)	3.21	3.10	A	A	A	(3.05)	2.75	A	2.90	(3.10)	3.25	3.29	3.08	3.11	3.02	2.97	61.58	
12	(3.11)	3.00F	3.20F	3.17F	3.25F	3.08F	3.18	3.01	(2.95)	2.49	(2.75)	G	(2.56)	G	A	2.77	2.83		3.09	3.15	3.04	3.05	3.16	3.25	60.09	
13	3.00	3.10	3.10F	3.00F	3.12F	3.30F	3.45	(2.95)	G	A	A	A	A	(2.19)	A	A	2.65	3.00	3.00	3.11	3.30	3.28	3.30	3.05F	51.90	
14	3.00	3.10F	3.11F	3.10	3.19	3.28	3.40	3.45	3.17	3.15	G	(2.69)	2.62	G	(2.38)	2.73	(2.85)	3.10	A	3.24	3.28	3.30	3.20F	3.00F	64.34	
15	3.26F	3.01F	(3.10)F	(3.00)F	(2.90)F	3.21F	3.39	3.20	3.09	2.80	2.32	(2.65)	(2.89)	2.66	(2.73)	(2.70)	C	C	C	C	C	C	C	C	46.91	
16	C	C	(3.30)	(3.25)F	3.11	3.08	3.40	3.06	(3.14)	(3.12)	A	2.76	2.90	3.00	(2.95)	(2.75)	(2.84)	C	(3.09)	(3.25)	(3.39)	(3.14)	3.14	3.00	61.67	
17	(3.00)	3.10	(2.96)	A	A	(3.20)	3.15	C	C	(2.33)	3.07	(3.00)	2.78	2.80	3.02	2.90	3.10	3.20	3.22	3.04	3.15	3.10	3.15	3.10	60.37	
18	3.08	3.00	3.00F	3.26F	(2.86)F	3.00F	3.45	2.89	(3.40)	2.80	(2.88)	(2.29)	(2.60)	(2.12)	(2.69)	2.82	(3.00)	3.02	3.06	3.15	(3.21)	3.05	A	3.05F	67.59	
19	(3.40)F	A	(3.15)F	3.10F	A	(3.02)F	C	3.19	2.90	2.98	(2.50)	3.19	2.52	2.85	A	2.80	2.80	2.93	3.21	3.30	3.11F	(3.05)F	3.20F	3.20F	60.40	
20	3.10F	(3.00)F	(2.95)F	3.02F	(3.05)F	(3.15)F	3.50	(3.25)	2.90	(2.81)	3.03	2.90	(3.01)	2.55	(2.62)	A	3.00	3.00	3.17	3.15	3.21F	A	3.21F	A	63.58	
21	3.08F	3.10F	(3.10)F	A	(3.30)F	(3.12)F	3.48	(3.25)	2.95	3.29	(3.21)	3.20	2.69	2.90	3.16	3.18	2.92	2.95	3.00	3.16	3.17	3.25	(3.30)F	3.00F	71.76	
22	3.11F	3.15F	3.02F	3.15F	2.90F	3.12F	3.26	C	C	3.40	3.30	2.99	2.92	3.05	3.09	(2.98)	3.10	3.10	3.01	3.22	3.24	2.95	2.90	2.98	67.94	
23	3.20	3.01	3.15	3.10F	3.19F	2.84F	3.04	G K	(2.21)K	(2.54)K	3.07K	(2.50)K	G K	G K	(2.50)K	(2.49)K	(2.60)K	2.97K	3.03	3.20	3.17	(3.02)	3.10	(2.80)F	60.64	
24	(3.01)F	2.98F	3.16F	2.86F	2.90F	3.14	3.35	G K	2.49K	3.07K	2.43K	G K	(2.37)K	A K	G K	(2.37)K	2.55K	3.00	3.07	3.17F	3.24F	3.22F	(3.10)F	A	55.48	
25	3.00	2.89	2.91	3.00F	(3.00)F	(2.99)F	3.28	3.31	3.28	3.20	2.90	2.88	(2.80)	3.04	3.10	2.75	3.02	3.17	3.24	3.20	3.37	(3.23)F	(3.18)F	(2.95)F	73.69	
26	(3.00)F	3.11F	2.95	3.15F	(3.10)F	3.18F	3.30	3.21	3.44	3.30	3.36	2.98	2.99	2.92	3.10	3.02	3.10	3.24	3.10	3.20	3.15	3.15	3.11	3.21	75.37	
27	3.10	3.01F	3.11F	3.13F	3.01F	3.10F	3.38	3.30	3.55	3.25	3.20	2.92	3.19	3.25	3.10	3.08	2.95	3.16	3.24	3.12	3.20	3.31	3.13	3.04	75.82	
28	3.12	3.00	2.95F	2.90F	3.10F	(3.05)F	3.06	3.17	3.00	2.55	2.86	(2.74)	2.55	2.81	3.11	2.91	2.98	3.14	3.04	3.05	3.00	3.02	3.00	2.98	71.09	
29	3.09	3.19F	3.05F	3.08F	2.88F	2.90F	3.20	3.10	(3.30)	3.15	3.20	3.05	3.04	2.94	3.02	3.15	3.19	3.13	3.25	3.05	3.05	3.12	2.90	2.92	73.95	
30	3.11	3.24	3.00	A	(2.95)	3.01	3.27	3.29	3.30	3.30	3.20	3.26	3.08	3.10	3.05	3.01	3.07	2.96	3.10	3.09	3.15	3.19	3.00	3.01	71.74	
31	3.01	3.01	2.86	2.90	3.00F	3.00F	3.30	3.28	3.30	3.33	3.40	2.86	2.95	C	3.12	2.98	3.01	3.29	3.25	3.30	3.10	2.82	2.92	2.99	70.98	
Sum	89.44	85.61	85.29	76.04	78.53	87.41	93.05	67.57	75.78	75.92	67.84	63.23	72.10	61.85	69.88	71.38	79.03	76.06	84.10	88.94	88.68	84.04	83.55	79.15	1884.47	
Mean[1]	3.08	3.06	3.05	3.04	3.02	3.12	3.32	3.07	3.03	3.04	2.95	2.87	2.77	2.81	2.91	2.86	2.93	3.04	3.11	3.18	3.17	3.11	3.09	3.04		
Mean[2]	3.09	3.05	3.05	3.04	3.02	3.12	3.32	3.07	3.11	3.06	2.97	2.89	2.79	2.81	2.94	2.91	2.99	3.08	3.12	3.18	3.18	3.12	3.10	3.04		

[1]For all days of the month [2]For quiet days

TABLE 38

IONOSPHERE DATA-10

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of F2-M3500 for August (Month) 1944

Records measured by: S.M.O. P.A.G.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum	Mean
1	3.45F	2.95F	3.11	3.25	3.20	3.40	3.41	2.52	(2.65)	3.13	3.42	3.12	(3.00)	(2.90)	G	3.17	C	3.30	3.36	3.30	3.35	3.31	3.40	3.28	70.18	
2	3.05	3.35	3.05F	3.24F	3.30	3.45	(3.40)	(3.00)	3.40	3.04	A	3.01	2.91	2.82	3.02	C	C	C K	C K	C K	C K	C K	C K	C K	74.24	
3	C K	C K	C K	C K	C K	C K	C K	C K	C K	G K	G K	G K	G K	G K	G K	G K	(2.70) K	2.70 K	3.22 K	3.15 K	3.04 K	3.10 K	3.15 K	3.28 K	24.34	
4	3.15 K	3.30 K	C K	C K	C K	C K	(3.70) K	G K	2.91 K	G K	C K	C K	G K	G K	(2.80) K	2.70 K	2.90 K	3.02 K	3.04 K	3.45 K	3.30 K	3.22 K	3.16 F K	3.35 F K	74.00	
5	(3.30) F K	3.35 F K	C K	C K	C K	C	C	C	C	C	(2.58)	(3.00)	3.15	(2.95)	C	C	C	C	C	C	C	C	C	3.15	21.48	
6	3.40	3.20	3.40F	3.25F	3.00	3.40	3.60	C	C	C	2.90	C	(3.25)	C	(3.25)	3.05	3.32	3.15	3.20	3.25	3.30	3.40	3.25	3.20	61.77	
7	3.20	3.15	3.13	3.10	3.10	3.45	3.35	3.02	3.40	3.60	C	C	(2.80)	C	3.25	(3.10)	(3.12)	3.25	3.29	3.31	3.41	3.30	3.40	3.40	68.13	
8	3.35	3.40F	3.30F	(3.20)F	3.12F	3.40F	3.40	(3.14)	3.35	(3.75)	(2.70)	3.00	(2.63)	(3.00)	3.05	3.10	3.25	A	3.14	3.37	(3.45)	3.20	3.16	A	70.46	
9	3.11	3.10	3.10	3.17F	3.15F	3.20	3.50	3.00	(3.30)	A	3.20	3.30	(3.12)	3.22	3.25	3.35	3.35	3.30	3.40	3.48	3.42	3.38	3.25	3.14	74.79	
10	3.40	3.30	3.20F	3.10F	3.23F	3.41F	3.38	A	(2.71)	3.25	(3.50)	C	2.59	(2.90)	3.18	(3.08)	3.29	3.30	3.47	3.47	3.30	3.10	3.20	3.30	70.66	
11	3.19	3.30	3.40F	3.20F	(3.22)F	3.40F	3.50	(3.25)	3.40	3.30	A	A	A	(3.22)	2.99	A	3.12	3.28	3.40	3.40	3.20	3.29	3.22	3.18	65.46	
12	3.33	3.15F	3.40F	3.30F	3.50F	3.30F	3.35	3.20	(3.18)	2.66	(2.99)	G	(2.78)	G	A	3.00	3.06		3.28	3.32	3.21	3.26	3.30	3.44	64.31	
13	3.21	3.30	3.34F	3.20F	3.30F	3.50F	3.43	(3.18)	G	A	A	A	A	(2.40)	A	A	2.89	3.20	3.16	3.30	3.48	3.45	3.43	3.25F	55.22	
14	3.16	3.28F	3.30F	3.30	3.40	3.50	3.52	3.60	3.38	3.35	G	(2.91)	2.83	G	(2.57)	2.98	(3.06)	3.25	A	3.40	3.45	3.47	3.43F	3.21F	68.37	
15	3.45F	3.25F	(3.30)F	(3.21)F	(3.11)F	3.41F	3.50	3.41	3.29	3.02	2.55	(2.86)	(3.11)	2.87	(2.94)	(2.88)	C	C	C	C	C	C	C	C	50.16	
16	C	C	3.50	(3.44)F	3.35	3.25	3.60	3.21	(3.40)	(3.30)	A	2.98	3.12	3.21	(3.12)	(3.00)	(3.07)	C	(3.20)	(3.42)	(3.50)	(3.34)	3.30	3.20	65.51	
17	(3.19)	3.30	(3.19)	A	A	(3.40)	3.35	C	C	(2.52)	3.28	(3.20)	3.00	3.00	3.20	3.15	3.30	3.40	3.43	3.20	3.31	3.30	3.35	3.26	64.33	
18	3.20	3.15	3.20F	3.45F	(3.10)F	3.24F	3.40	3.10	(3.55)	3.01	(3.10)	(2.50)	(2.81)	(2.82)	(2.90)	3.10	(3.21)	3.20	3.21	3.28	3.26	3.25	A	3.22F	72.46	
19	(3.60)F	A	(3.31)F	3.29F	A	(3.31)F	C	3.38	3.13	3.10	(2.70)	3.40	2.75	3.08	A	3.11	3.03	3.13	3.40	3.47	3.31F	3.25F	3.38F	3.40F	64.53	
20	3.39F	(3.20)F	(3.15)F	3.20F	(3.31)F	(3.35)F	3.75	(3.49)	3.13	(3.09)	3.22	3.12	(3.20)	2.75	(2.85)	A	3.16	3.20	3.32	3.35	3.42F	A	3.40F	A	68.25	
21	3.20F	3.30F	3.30F	A	(3.50)F	(3.31)F	3.60	(3.40)	3.20	3.45	(3.40)	3.40	2.90	3.13	3.37	3.31	3.12	3.15	3.16	3.30	3.37	3.40	(3.45)F	3.23F	75.92	
22	3.34F	3.40F	3.24F	3.25F	3.10F	3.29F	3.38	C	C	3.50	3.48	3.16	3.13	3.23	3.25	3.12	3.25	3.27	3.20	3.40	3.42	3.15	3.10	3.11	71.77	
23	3.40	3.20	3.30	3.29F	3.40F	3.04F	3.20	G K	(2.48) K	(2.78) K	3.25 K	(2.71) K	G K	G K	(2.74) K	2.60 K	(2.82) K	3.18 K	3.20	3.35	3.33	3.25	3.30	3.05F	64.87	
24	(3.20)F	3.19F	3.33F	3.08F	3.05F	3.35	3.53	G K	2.58 K	3.27 K	2.62 K	G K	(2.55) K	A K	G K	(2.53) K	2.72 K	3.20	3.21	3.40F	3.38F	3.40F	3.24F	A	58.83	
25	3.14	3.10	3.10	3.25F	(3.13)F	(3.20)	3.41	3.50	3.42	3.34	3.12	3.09	3.02	3.20	3.30	2.96	3.20	3.39	3.40	3.38	3.50	(3.40)F	(3.31)F	(3.20)F	78.06	
26	(3.19)F	3.29F	3.18	3.30F	(3.32)F	3.35F	3.46	3.44	3.41	3.42	3.50	3.12	3.19	3.10	3.23	3.22	3.23	3.42	3.28	3.32	3.29	3.34	3.30	3.40	79.50	
27	3.27	3.22F	3.30F	3.32F	3.24F	3.23F	3.52	3.48	3.49	3.40	3.40	3.14	3.39	3.33	3.26	3.37	3.11	3.34	3.39	3.28	3.37	3.46	3.25	3.20	79.96	
28	3.30	3.18	3.10F	3.15F	3.30F	(3.30)F	3.20	3.29	3.21	2.75	3.10	(2.98)	2.78	3.08	3.29	3.11	3.12	3.30	3.20	3.25	3.20	3.18	3.18	3.15	75.70	
29	3.28	3.32F	3.25F	3.30F	3.05F	3.11F	3.40	3.25	(3.45)	3.30	3.38	3.25	3.20	3.15	3.23	3.32	3.31	3.30	3.40	3.21	3.34	3.29	3.10	3.12	78.31	
30	3.21	3.13	3.25	A	(3.81)	3.19	3.41	3.45	3.42	3.47	3.35	3.43	3.29	3.29	3.25	3.19	3.23	3.14	3.25	3.29	3.34	3.34	3.14	3.20	76.12	
31	3.20	3.25	3.10	3.14	3.20F	3.22F	3.45	3.41	3.49	3.45	3.53	3.06	3.18	C	3.31	3.15	3.20	3.42	3.40	3.45	3.25	3.02	3.11	3.15	75.14	
Sum	94.86	90.61	90.83	80.98	84.49	92.96	97.50	71.72	80.73	80.25	72.27	67.74	77.68	66.65	74.60	76.65	84.14	80.79	88.61	93.55	93.50	88.87	88.31	84.04	2002.33	
Mean[1]	3.27	3.24	3.24	3.24	3.25	3.32	3.48	3.26	3.23	3.21	3.14	3.08	2.99	3.03	3.11	3.07	3.12	3.23	3.28	3.34	3.34	3.29	3.27	3.23		
Mean[2]	3.27	3.23	3.24	3.24	3.25	3.32	3.47	3.26	3.31	3.23	3.16	3.10	3.00	3.03	3.14	3.13	3.17	3.27	3.24	3.34	3.35	3.30	3.28	3.22		

[1]For all days of the month [2]For quiet days

Table 39

Ionospheric Storminess, August, 1944

Day	Ionospheric Character* 00-12 GCT	12-24 GCT	Principal Storms Beginning GCT	End GCT	Magnetic Character 00-12 GCT	12-24 GCT
August						
1	3	3			2	2
2	2	3		//	2	3
3	***	5	----/	---	5	2
4	4	5	---	---	1	1
5	4	2	///		1	2
6	2	2			2	1
7	2	2			1	1
8	1	0			1	2
9	1	3			2	1
10	2	3			3	2
11	1	3			2	2
12	2	3			3	2
13	2	3			2	1
14	1	3			1	2
15	2	3			2	1
16	1	2			1	2
17	2	1			1	1
18	2	3			3	2
19	3	3			2	1
20	2	3			1	1
21	2	1			1	1
22	2	2			1	1
23	1	5	1130	2300	3	2
24	3	5	1130	2200	3	2
25	2	1			0	1
26	1	2			0	2
27	1	2			2	2
28	3	3			3	3
29	2	2			1	1
30	1	1			2	2
31	1	2			3	2

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D.C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of American magnetic K-figure, determined by a number of observatories, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

***No record.

/ Dashes indicate continuance of ionospheric storminess.

// Exact time unknown because recorder not operating. Probably about 2200.

/// Exact time unknown because recorder not operating. Probably about 1000.

Table 40

Comparison of percentage of total time of Es-transmission as observed by the Federal Communications Commission Engineering Department with that derived from analysis of IRPL vertical-incidence data at Washington, D.C.

Date	FCC Transmission Data for 44.3 Mc (WGTR, Paxton, Mass.) Eo for 1 mile = 2460 μv/m Percentage of total time for Es transmission > 25 μv/m as observed at			Corresponding percentage of total time for Es transmission as derived from IRPL vertical-incidence data observed at Washington, D.C.
	Allegan, Mich.	Grand Island, Neb.	Atlanta, Ga.	
Sept. 1943	0.003	-	0.003	0.026
Oct.	0	0.006	0.045	0.044
Nov.	0	-	0	0.026
Dec.	0.22	-	0.46	0.115
Jan. 1944	0	-	0.023	0.024
Feb.	0.003	-	0.06	0.037
Mar.	0	-	0	0.003
Apr.	0.006	-	0.23	0.05
May	0.17	1.2	3.0	0.94
June	1.7	2.5	5.8	2.0
July	2.9	4.0	12.0	5.7
Aug.	0.092	0.013	0.99	0.93

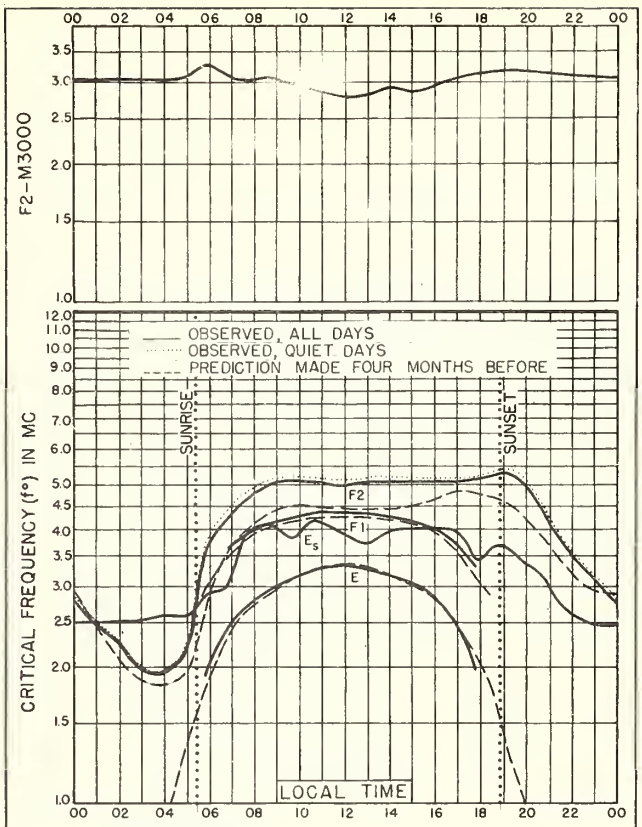

Fig. 1. WASHINGTON, D.C.
39.0°N, 77.5°W
AUGUST, 1944

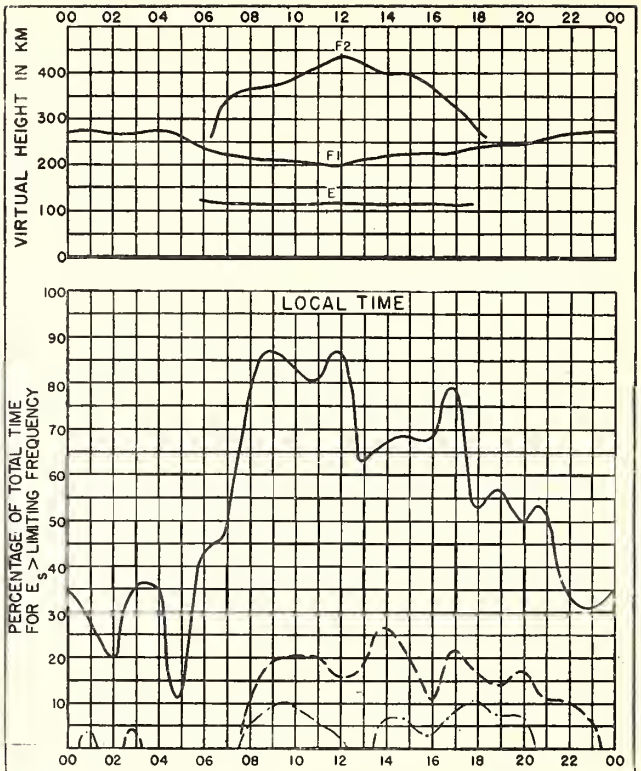

Fig. 2. WASHINGTON, D.C.
AUGUST, 1944

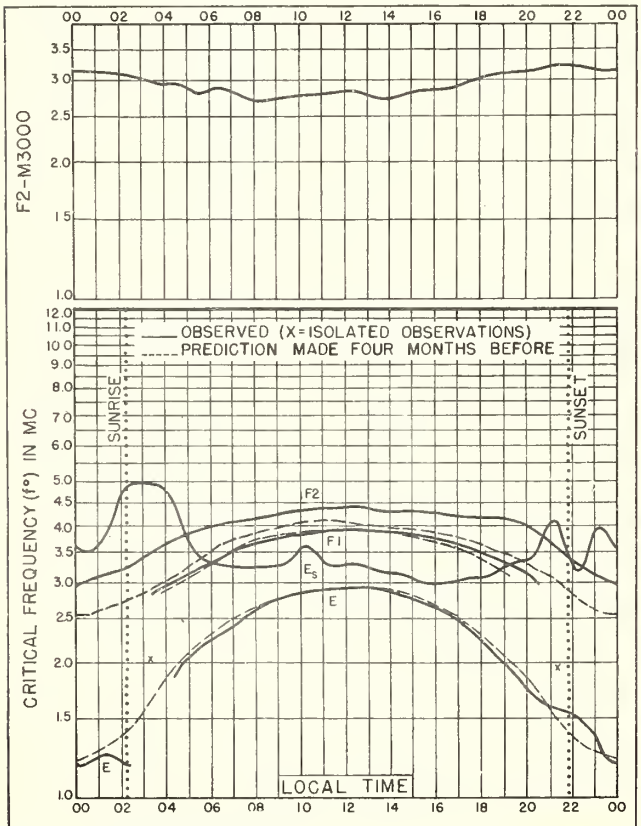

Fig. 3. FAIRBANKS, ALASKA
64.9°N, 147.8°W
JULY, 1944

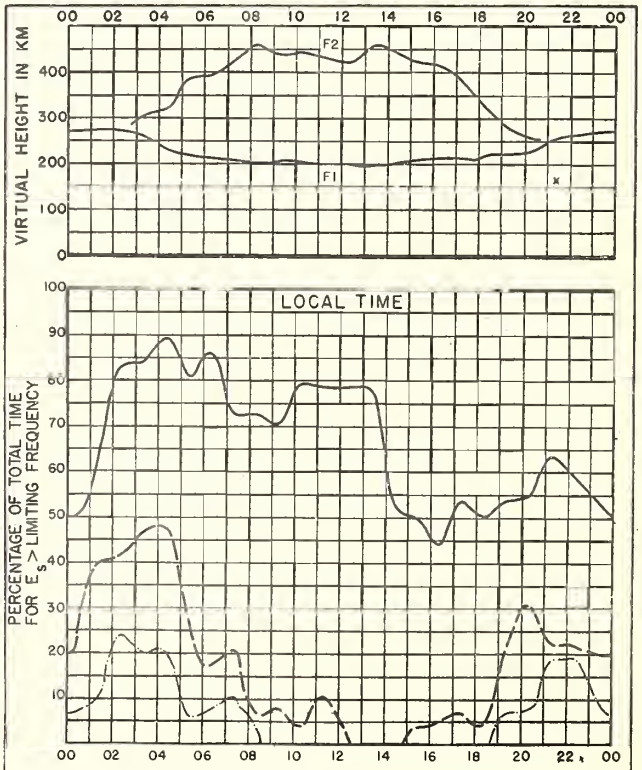

Fig. 4. FAIRBANKS, ALASKA
JULY, 1944

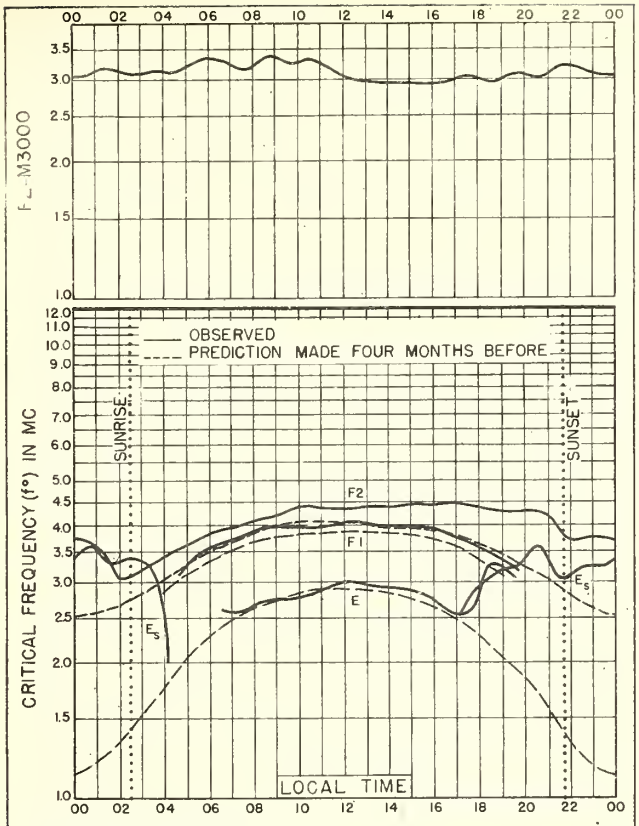

Fig. 5. REYKJAVIK, ICELAND
64.1°N, 21.7°W
JULY, 1944

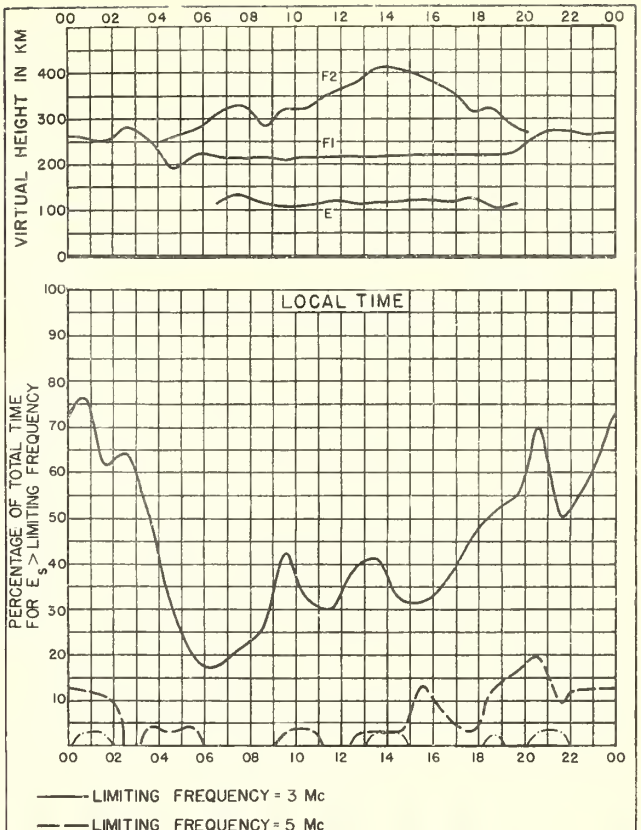

Fig. 6. REYKJAVIK, ICELAND
JULY, 1944

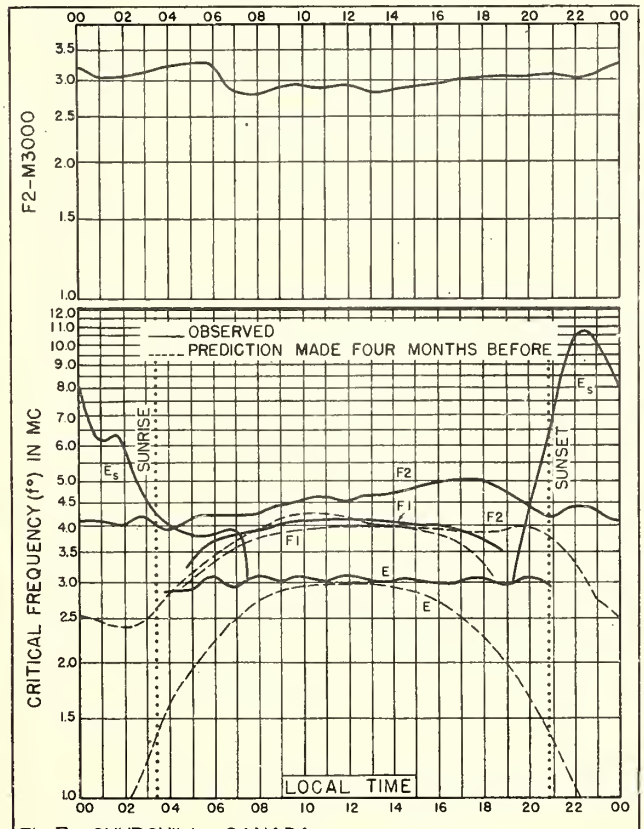

Fig. 7. CHURCHILL, CANADA
58.8°N, 94.2°W
JULY, 1944

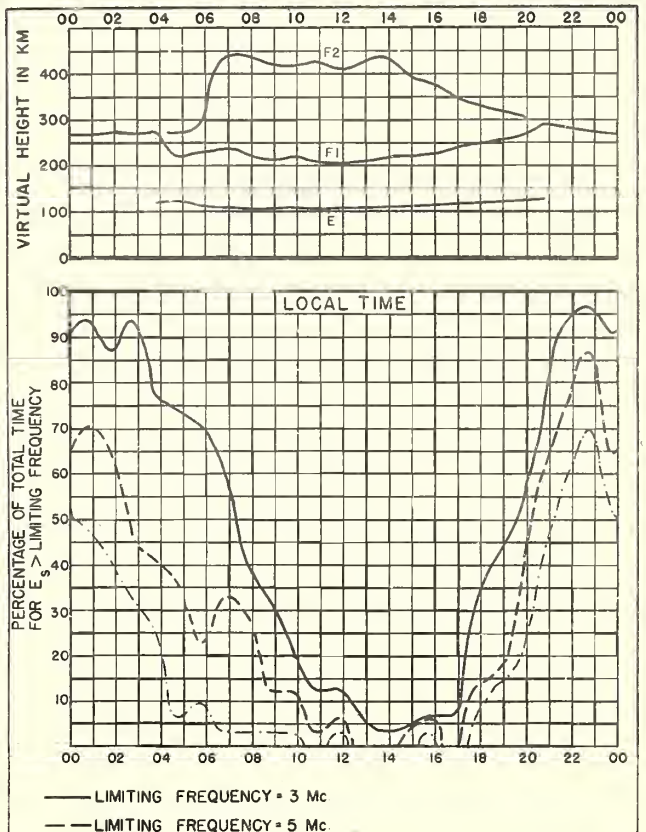

Fig. 8. CHURCHILL, CANADA
JULY, 1944

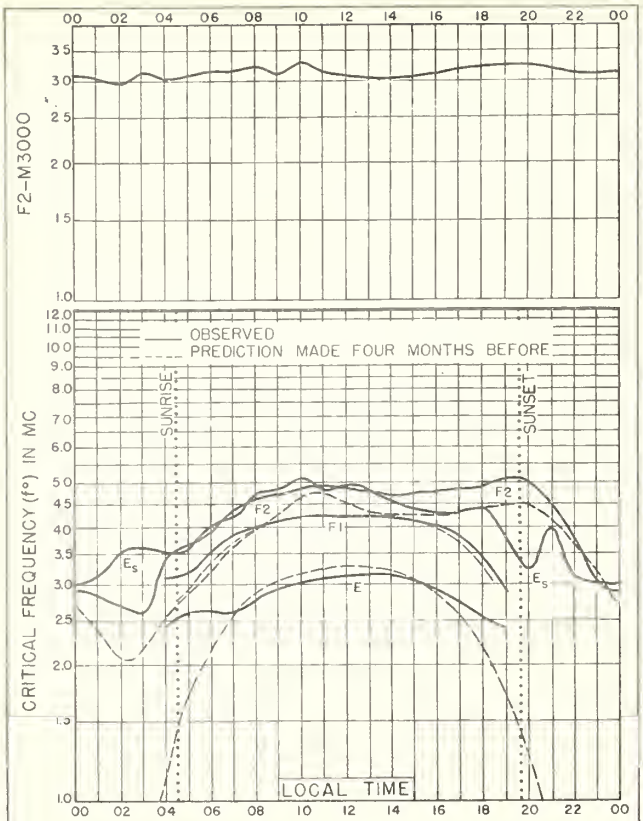

Fig.9. OTTAWA, CANADA
45.5°N, 75.8°W
JULY, 1944

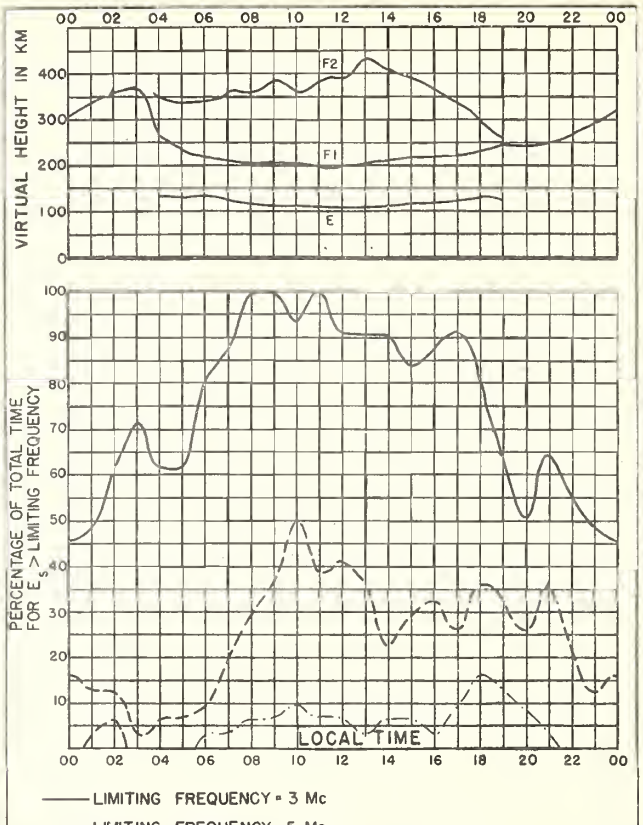

Fig.10. OTTAWA, CANADA
JULY, 1944

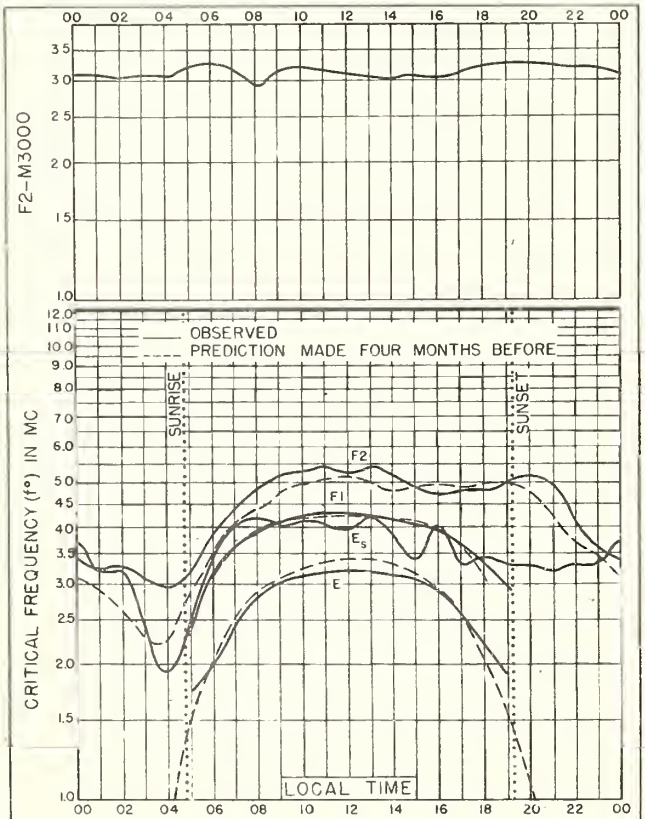

Fig.11. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W
JULY, 1944

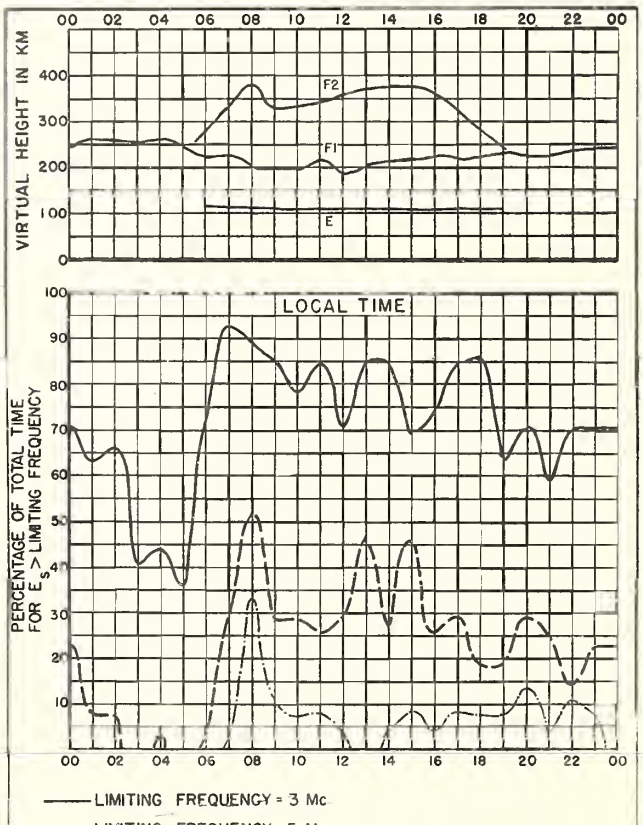

Fig.12. SAN FRANCISCO, CALIFORNIA
JULY, 1944

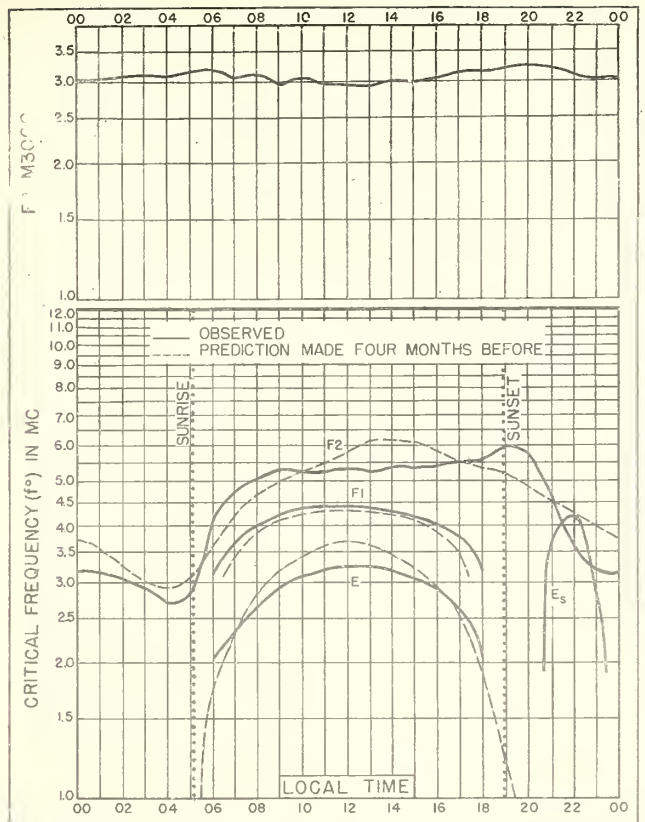

Fig.13. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W
JULY, 1944

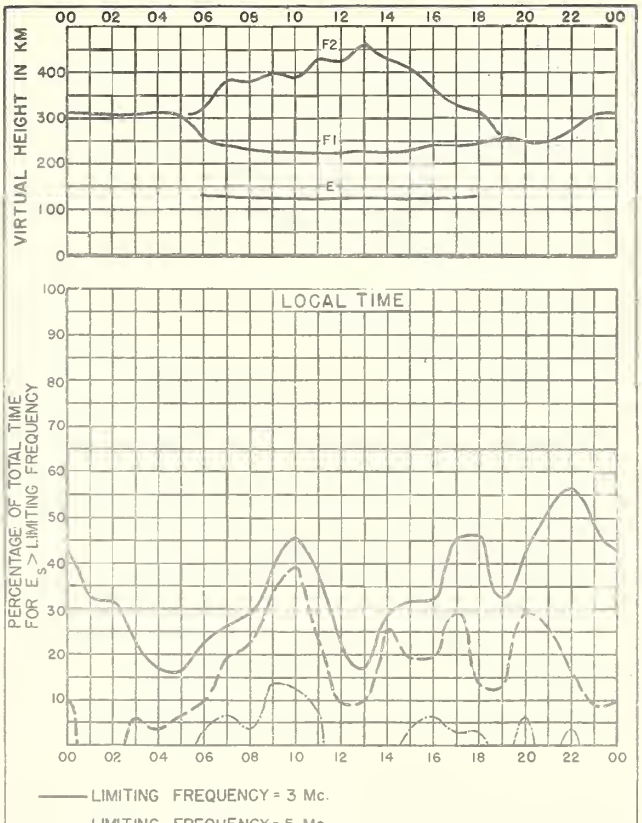

Fig.14. BATON ROUGE, LOUISIANA
JULY, 1944

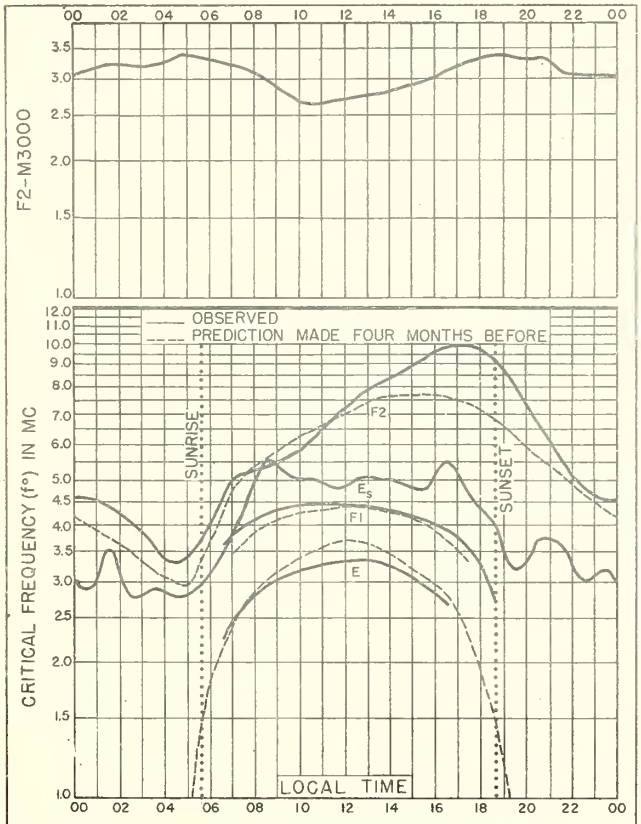

Fig.15. MAUI, HAWAII
20.8°N, 156.5°W
JULY, 1944

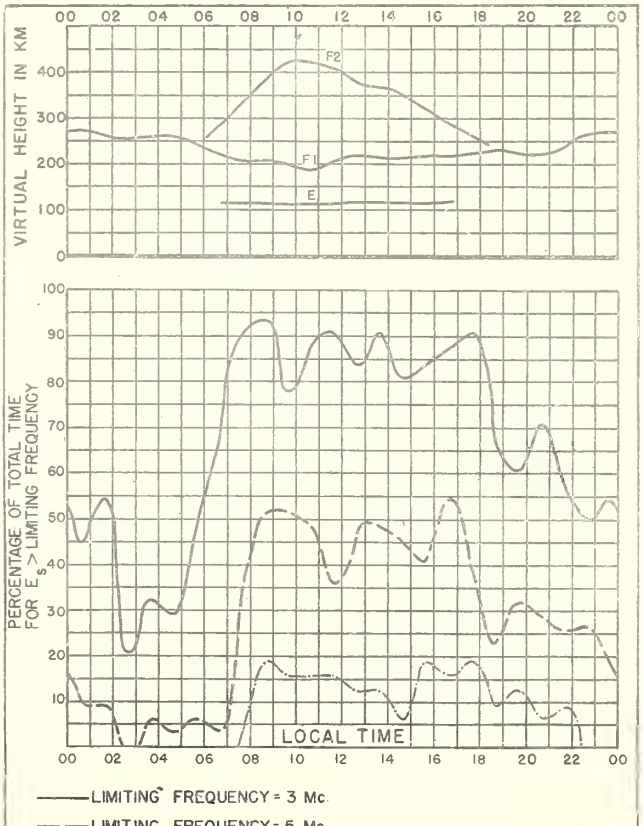

Fig.16. MAUI, HAWAII
JULY, 1944

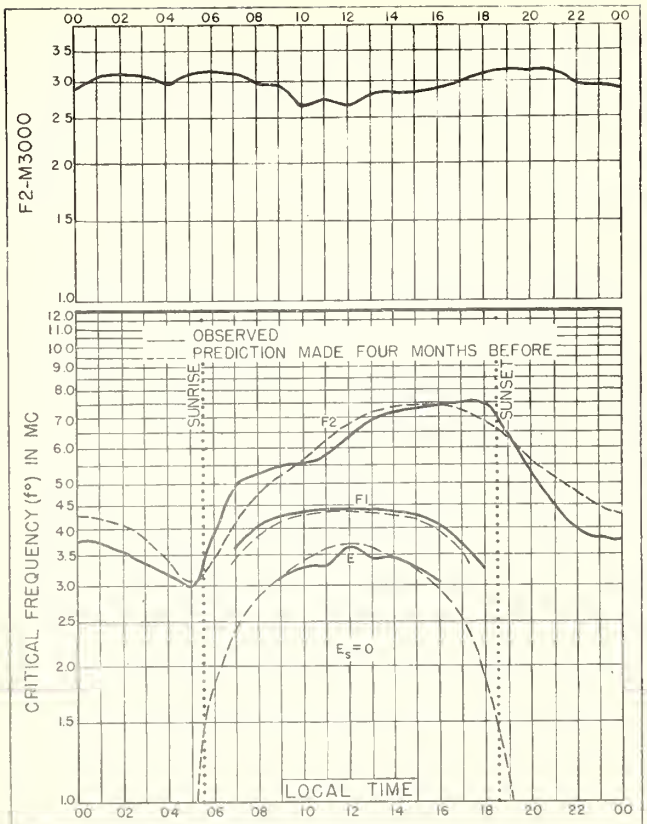

Fig.17. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W
JULY, 1944

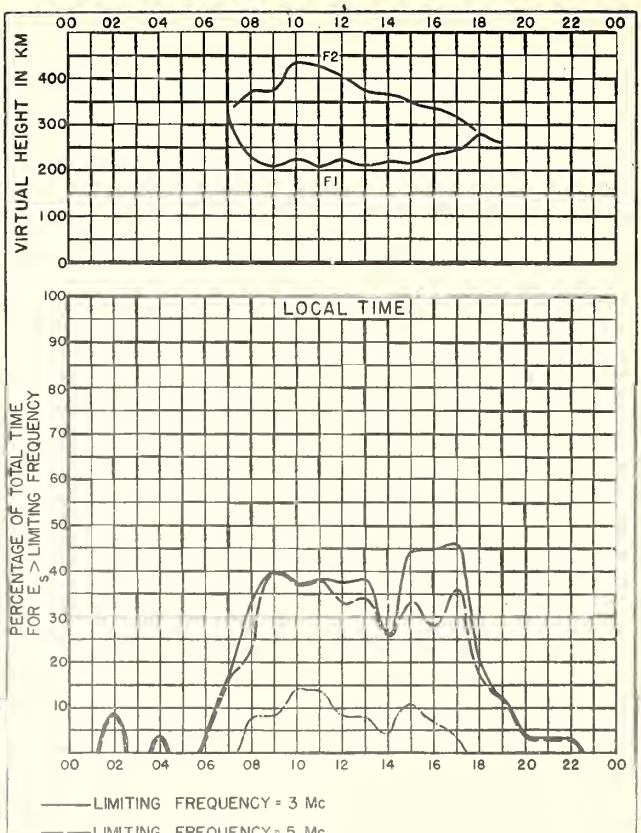

Fig.18. SAN JUAN, PUERTO RICO
JULY, 1944

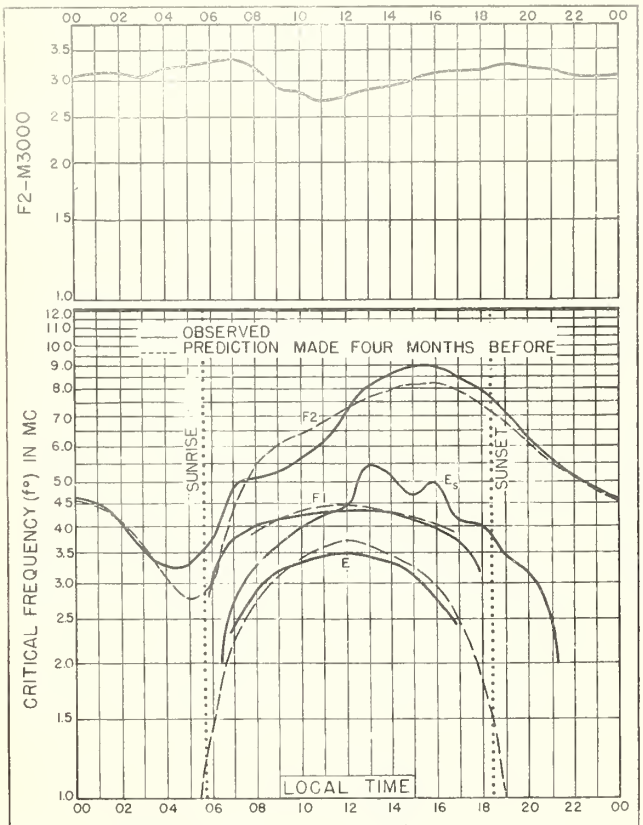

Fig.19. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.3°W
JULY, 1944

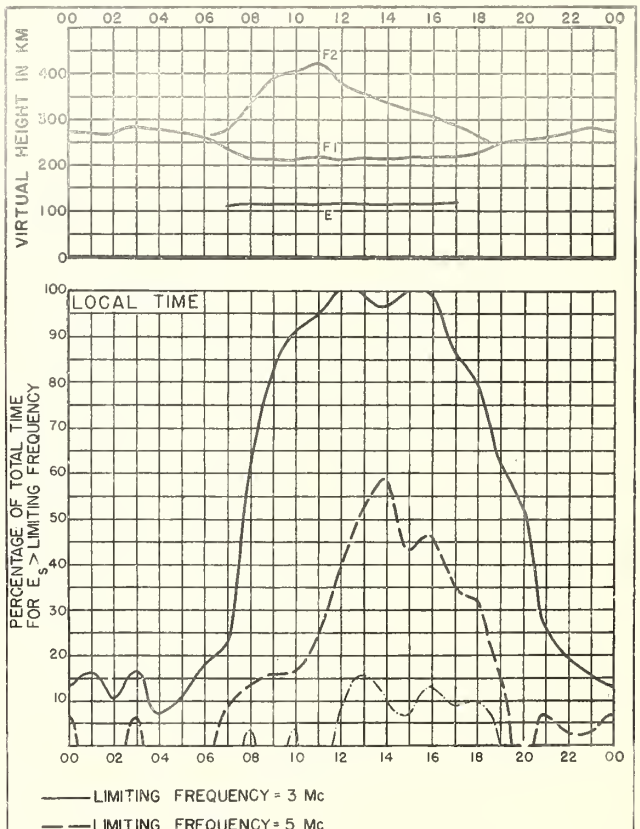

Fig.20. TRINIDAD, BRIT. WEST INDIES
JULY, 1944

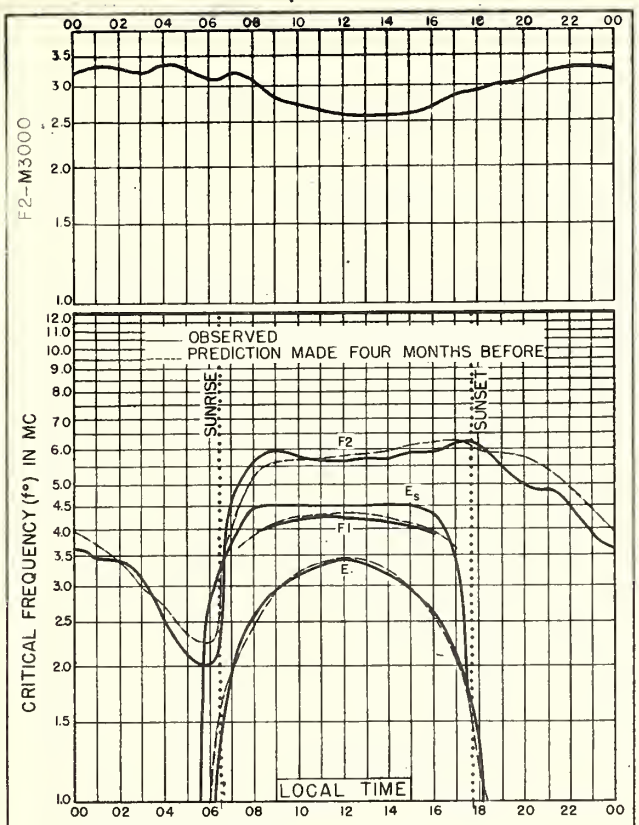

Fig 21. HUANCAYO, PERU
12.0°S, 75.3°W
JULY, 1944

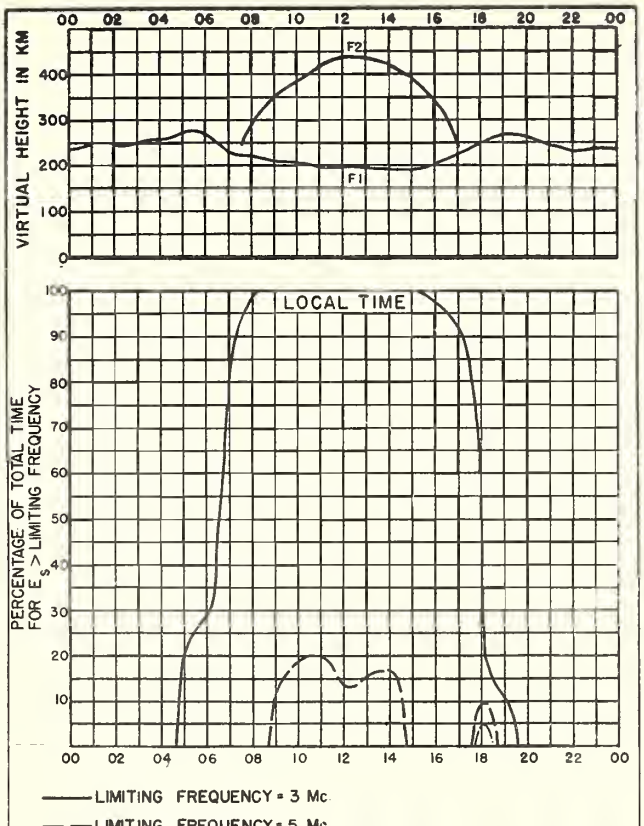

Fig.22. HUANCAYO, PERU
JULY, 1944

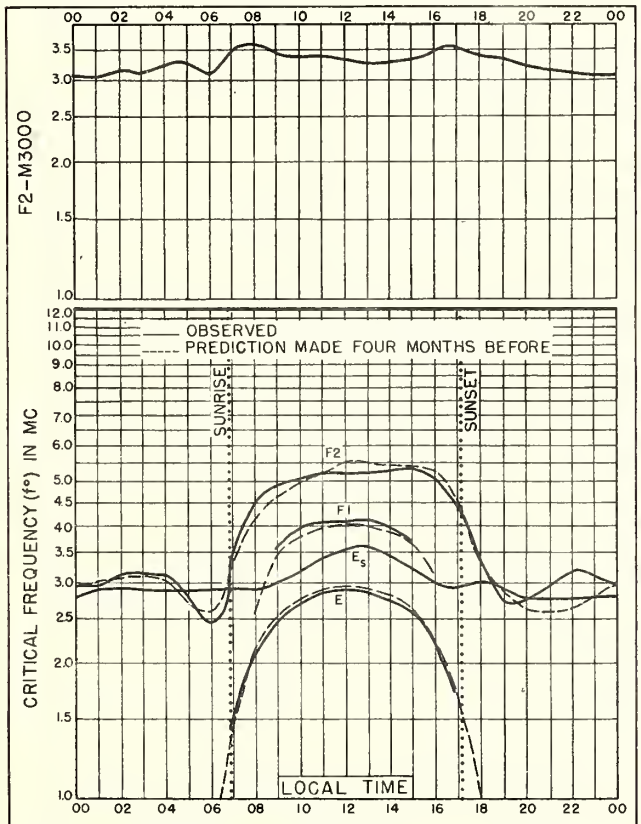

Fig 23. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E
JULY, 1944

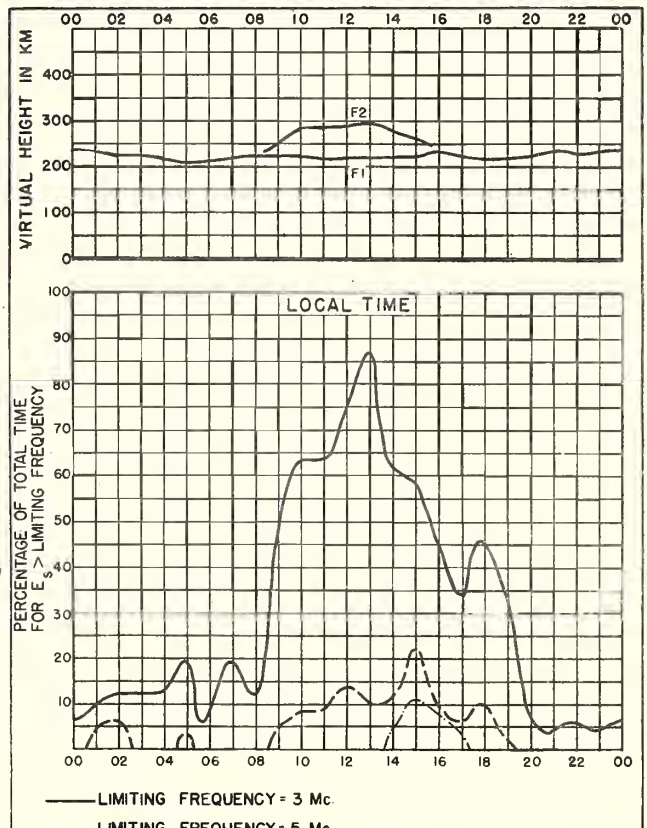

Fig.24. WATHEROO, W. AUSTRALIA
JULY, 1944

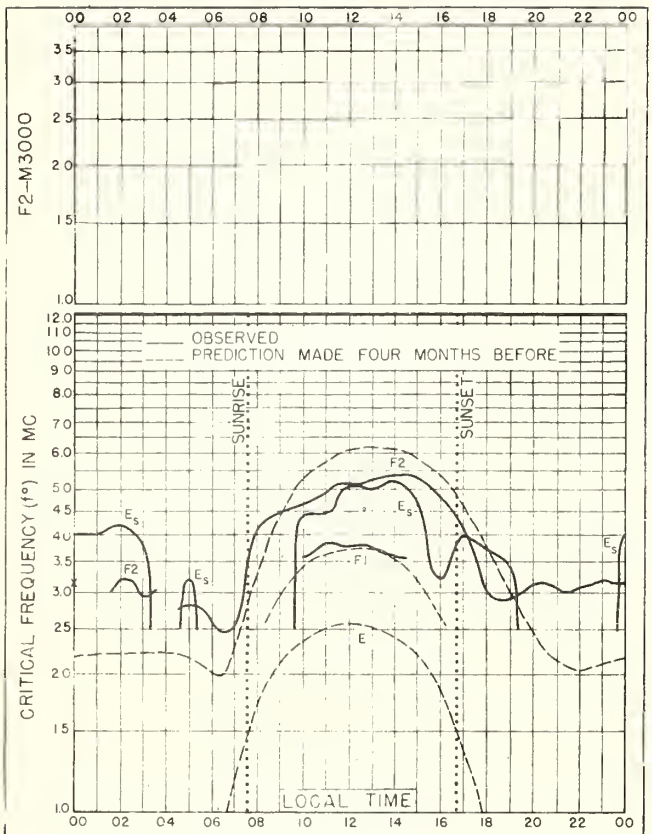

Fig.25. CHRISTCHURCH, NEW ZEALAND
43.5°S, 172.6°E JULY, 1944

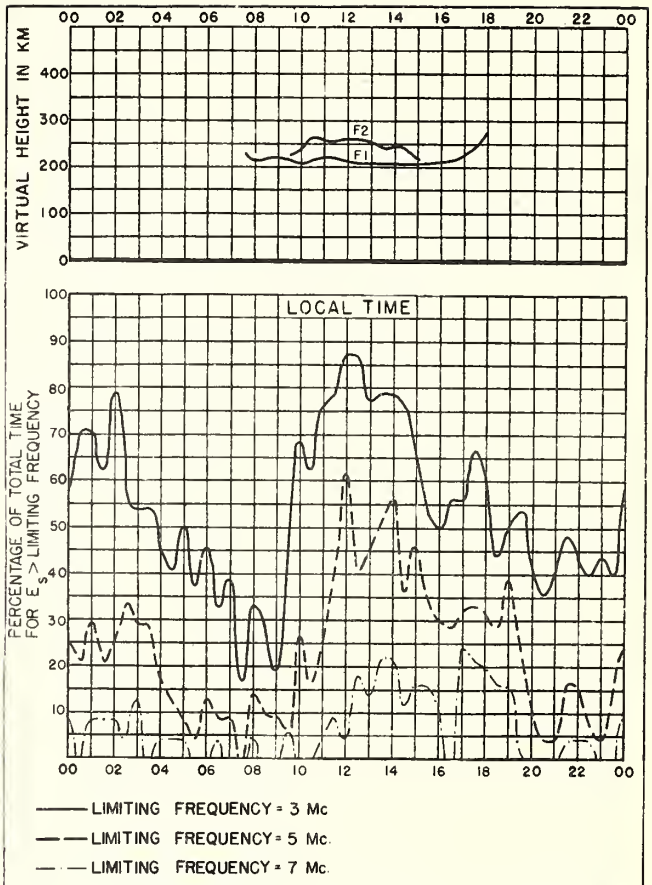

Fig.26. CHRISTCHURCH, NEW ZEALAND JULY, 1944

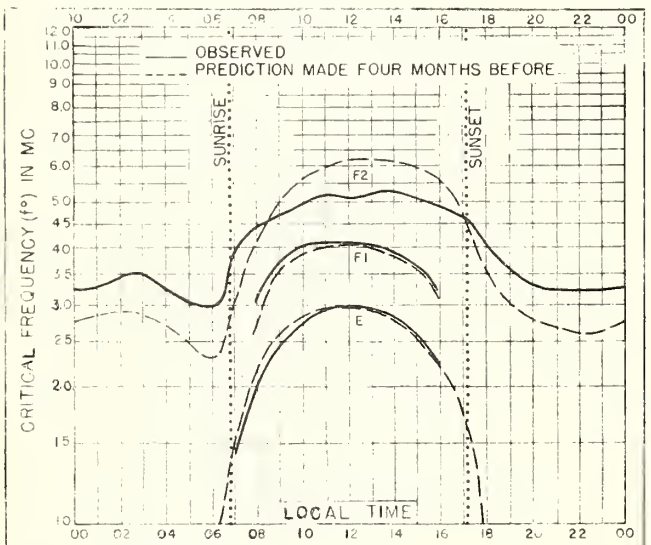

Fig.27 KERMADEC IS
29.2°S, 177.9°W JULY, 1944

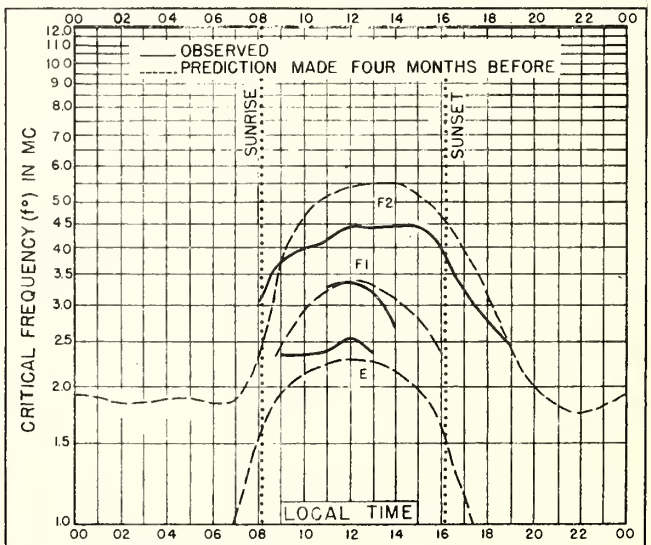

Fig.28 CAMPBELL IS.
52.0°S, 169.0°E JULY, 1944

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