IRPL-F4

IONOSPHERIC DATA

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PREPARED BY INTERSERVICE RADIO PROPAGATION LABORATORY
National Bureau of Standards
Washington, D.C.

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Note.- This IRPL-F series report, issued monthly, serves as one of two 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.

CONTENTS

Final Data

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.

$f^{o}F2$ - 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.

$f^{o}F1$ - ordinary-wave critical frequency of the F1 layer.

$f^{o}E$ - 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 I., Canada
- Christmas I.
- 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
- Madras, India
- Simonstown, Union of S. Africa

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.

Peoples' Commissar for Postal and Electric Communications, Moscow, U.S.S.R.
Tomsk, U.S.S.R.
Sverdlovsk, U.S.S.R.

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, as reported to this laboratory, may sometimes lead to an erroneous conception of typical values for the quantity under consideration. Standard scaling practice, following recommendations of the International Radio Propagation Conference held in Washington, D.C., 17 April to 5 May, 1944, is not yet universal, deviation from standard practice being most common in the cases of records where spread echoes are present. Even when standard scaling practice is used, 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 such inability to read the 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°F1 being counted as less than the f°F1. When, as is often the case, no great discrepancy is likely to exist between f°F1 and f°F2, a typical value of f°F2 may be obtained by taking the monthly average of observed f°F2 together with observed f°F1 for the cases where no f°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.

It may be noted by inspection of the figures presenting comparison of data received for the months of August, September, October, and November with IRPL predictions made four months in advance, that, generally, the predictions have been in error by being too low, especially in temperate latitudes.

These predictions are based on average trends of solar activity as measured by sunspot number. In the past few months this activity has been somewhat abnormally high. Occurrence of both sunspots and calcium flocculi during the past few months has been slightly more frequent at high than at low solar latitudes, indicating that perhaps the sunspot minimum has just been passed.

Because of great fluctuations in solar activity, however, an observation period of but a few months is so short as to render a final conclusion as to this premature as yet.

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).

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 ordinarily given for all days of the month as well as for quiet days only. No periods of pronounced storminess having occurred during November, only one mean is given here. 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 to the Chief of IRPL, National Bureau of Standards, Washington 25, D.C.

In determining the median values included in Tables 26 through 38, the following procedure has been adopted:

For all characteristics: Where the value is missing because of A, B, or C (see Terminology, above), that hour is omitted from the median count.

In addition,

For critical frequencies:
For all layers, where a value is missing because of E (see Terminology, above), it is counted as less than the lower limit of the recorder.

For virtual heights:
Values missing for any reason are omitted from the median count.

For muf factors:
Values missing for any reason are omitted from the median count.

IONOSPHERE DISTURBANCES

Table 39 presents ionospheric character figures observed at Washington, D.C., during November 1944, as determined by the criteria presented in IRPL-R5, cited above, together with American magnetic K-figures which are usually covariant with them. No major disturbances were noted at Washington, D.C., during November.

NOTE ON LONGITUDE EFFECT

Ionospheric data recently received from Madras, India (13.0°N, 80.2°E) and Christmas I. (2.0°N, 157.0°W), both located near the geomagnetic equator, at geomagnetic latitudes 3°N and 2°N, respectively, affords the possibility of comparison with data observed at Huancayo, Peru (12.0°S, 75.3°W), at geomagnetic latitude 0.6°S. The three stations are thus all near the geomagnetic equator, but with quite different geographic latitudes. This comparison is of particular interest in that the variation of ionospheric characteristics with geomagnetic latitude formed the basis of division of the world into the three zones (E, I, and W) recommended by the International Radio Propagation Conference held in Washington, D.C., 17 April to 6 May 1944, for coverage by prediction charts. This division was adopted 1 September 1944, in the first of the IRPL-D series reports, and f°F2 and F2-4000 muf charts have since been issued separately for the three zones. Madras, India, is located in the "E" zone, Christmas I. in the "I" zone, and Huancayo, Peru, in the "W" zone.

In order to augment the usefulness of actual data in the construction of F2-layer prediction charts, it has been heretofore assumed, in the absence of observed data from certain locations, that the diurnal variations of ionospheric characteristics are similar at places having equal geomagnetic latitudes and equal solar zenith angles or equivalent seasons. For example, after suitable corrections for the effect of changing solar activity and for "hemisphere effect" had been applied, data for a southern hemisphere W-zone station, for a time six months from that for which prediction is made, have been used at an equal north latitude in the E-zone.

Inspection of Figs. 20, 21, and 22 shows that a fair degree of similarity exists for the daytime values of $f^{o}F2$ at Madras and Huancayo for times of approximately equal solar zenith angle at equivalent seasons. The beginning and end points on the Madras curves are considered less reliable than other points, and probably represent fewer observations. It may be noted, by comparing Huancayo observations for January and March, that night values of $f^{o}F2$ may be conspicuously different for equal solar angles even at the same location.

Fig. 23 presents a mass plot of provisional data received telegraphically from Christmas I. for the first fifteen days of December, 1944, in comparison with August and April, 1944, and December, 1943, values of $f^{o}F2$ for Huancayo, Peru. It may be noted that the Christmas I. data for December bear greatest similarity to data from Huancayo, Peru, for the same month (December), and not to the data from Huancayo for months of approximately equal solar zenith angle (April and August), although the curves for these bear some resemblance to each other.

Much further investigation is necessary before any but preliminary speculations concerning the cause of this effect can be made. It is interesting, however, to consider the possibility of its course in the seasonal variation of solar particle radiation arriving on earth. It was previously suggested in "Radio Propagation Conditions", issued August, 1944, p.4, that particle radiation may cause ionization at various levels in the atmosphere. The greater amount of particle radiation received during equinoctial seasons than during solstice seasons, as indicated by greater prevalence of ionospheric storminess during the equinox months, may perhaps explain qualitatively the fact that the night values of $f^{o}F2$ at Huancayo during equinoctial periods are greater than those during the solstice seasons. Ionization at F-layer levels, rather than at the D- or E-layer levels characterizing storminess at higher latitudes might be expected from consideration of space variations in the earth's magnetic field. The comparative lack of difference between daytime values of $f^{o}F2$ for equal solar zenith angles and equal geomagnetic latitudes may be explained by the particle ionization's appearing as increased fEs, rather than as ionization in the F layer (Cf. above reference). High midday values of fEs reported from Huancayo also lend some support to this suggestion.

ERRATA

1. In the second previous issue of this report, IRPL-F2, Table 29, presenting final data for August 1944, observed at Huancayo, Peru, the value of $f^{o}F2$, 6.42 Mc, given for time 0600 should be that for time 0800.

2. In the previous issue of the report, IRPL-F3, the first paragraph, page 8, should be deleted. Missing values were omitted from the median count.

Table 1

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	271	2.66						3.4
01	276	2.79						3.3
02	289	2.63						3.4
03	276	2.48						3.5
04	292	2.36						3.4
05	293	2.47						3.4
06	278	2.65						3.2
07	263	2.91						3.2
08	257	3.46						3.0
09	247	3.95						3.1
10	241	4.27						3.1
11	242	4.47						3.1
12	241	4.47						3.1
13	236	4.43						3.2
14	238	4.41						3.1
15	244	4.10						3.1
16	247	3.94						3.1
17	247	3.99						3.1
18	250	3.75						3.1
19	260	3.28						3.2
20	262	2.92						3.3
21	266	2.56						3.6
22	266	2.56						3.6
23	270	2.38						3.6

Time: 75°W.
Length of time sweep: 2 Mc to 16 Mc in one minute.

Table 2

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	318	1.65						3.00
01	331	1.63						3.00
02	333	1.91						3.00
03	328	2.01						3.00
04	330	2.11						2.99
05	312	2.14			103	1.20		3.02
06	307	2.06			103	1.20		3.05
07	283	2.12			103	1.20		3.15
08	248	3.01			103	1.42		3.25
09	231	4.16			103	1.43		3.31
10	228	5.07			103	1.70		3.38
11	232	5.55		3.20	103	1.84		3.42
12	220	5.72			103	1.88		3.46
13	218	5.84			103	1.77		3.47
14	213	5.43			103	1.48		3.48
15	211	4.55			103	1.06		3.41
16	220	3.61			103	0.90		3.34
17	229	2.62			103	0.90		3.32
18	251	2.03						3.31
19	256	1.63						3.32
20	273	1.32						3.24
21	289	1.33						3.22
22	291	1.34						3.20
23	287	1.45						3.10

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

Table 3

Reykjavik, Iceland (64.1°N, 21.7°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	290	3.50						3.1
01	280	3.40						3.1
02	295	3.50						2.8
03	300	3.20						2.9
04								
05	260	3.50						3.3
06	260	3.25						3.3
07								
08	242	3.32						3.4
09	242	3.74						3.4
10	202	4.68						3.4
11	208	5.18			116	2.40		3.4
12	206	5.35						3.5
13	214	5.58						3.4
14	206	5.45						3.3
15	202	4.87						3.3
16	208	4.43						3.2
17	229	3.92						3.3
18	217	3.82						3.3
19	227	3.27						3.4
20	250	3.40						3.5
21								
22								
23								

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

Table 4

Churchill, Canada (58.8°N, 94.2°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06		3.4						3.1
07								
08		3.5						3.3
09		4.5						3.4
10		5.2						3.3
11		5.6						3.2
12		5.9						3.2
13		6.3						3.3
14		6.3						3.3
15		6.0						3.3
16		5.9						3.3
17		5.2						3.2
18		4.1						3.2
19		3.5						3.1
20		3.5						3.1
21		3.7						3.1
22		3.7						3.1
23								

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

Table 5

Burghead, Scotland (57.7°N, 3.5°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.2						
01		2.2						
02		2.1						
03		2.2						
04		2.2						
05		2.1						
06		1.9						
07		2.3						
08		3.9						
09		4.9						
10		5.6						
11		5.8						
12		5.9						
13		5.8						
14		5.5						
15		5.3						
16		4.9						
17		4.5						
18		3.8						
19		3.3						
20		2.5						
21		2.3						
22		2.3						
23		2.3						

Time: 0°.

Table 6

Delhi, India (28.6°N, 77.2°E) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.9						
01		2.7						
02		2.9						
03		2.7						
04		2.7						
05		2.7						
06		3.4						
07		5.6						
08		6.6						
09		7.2						
10		7.8						
11		7.9						
12		8.3						
13		9.1						
14		9.4						
15		8.2						
16		7.4						
17		6.4						
18		4.7						
19		4.0						
20		3.5						
21		3.1						
22		2.9						
23		2.9						

Time: 75°E.

Table 7

Maui, Hawaii (20.8°N, 156.5°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	251	3.44						4.1
01	242	3.53						3.2
02	233	3.50						3.4
03	224	3.02						3.6
04	245	2.58						3.3
05	282	2.58						3.2
06	302	2.56						3.2
07	233	4.76						3.5
08	239	6.60	221	4.17	125	2.32		3.3
09	266	8.22	214	4.43	114	2.45		3.2
10	270	9.90	211	4.56	109	2.77		3.3
11	268	10.59	206	4.62	110	2.99		3.2
12	269	11.48	206	4.71	110	3.16		3.2
13	262	11.60	207	4.63	109	3.28		3.2
14	258	11.10	209	4.52	108	3.24		3.2
15	246	10.97	208	4.33	108	3.11		3.3
16	232	9.83	220	3.91	105	2.96		3.4
17	218	8.38			108	2.63		3.6
18	201	5.56			102	2.36		3.7
19	209	3.75						3.4
20	262	3.16						3.1
21	261	3.32						3.2
22	242	3.45						3.2
23	253	3.39						3.1

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

Table 8

Trinidad, Brit. West Indies (10.6°N, 61.3°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	262	3.69						3.2
01	247	3.60						3.3
02	236	3.66						3.5
03	237	3.05						3.5
04	315	2.54						3.0
05	300	2.73						3.1
06	245	3.83						3.3
07	245	5.53				2.23		3.4
08	277	6.40	236	3.97	109	2.73		3.3
09	283	7.31	234	4.39	109	3.08		3.3
10	290	7.77	231	4.56	108	3.12		3.2
11	289	8.26	227	4.69	108	3.39		3.2
12	281	8.36	228	4.56	108	3.37		3.2
13	279	8.36	221	4.53	107	3.33		3.3
14	278	7.91	226	4.45	106	3.17		3.2
15	276	7.53	221	4.17	108	2.99		3.3
16	258	7.28	230	3.88	116	2.67		3.3
17	248	7.03	230	2.72	110	2.27		3.4
18	242	5.83				1.80		3.3
19	239	4.65						3.3
20	257	3.34						3.3
21	322	3.13						2.9
22	299	3.37						3.0
23	280	3.34						3.1

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

Table 9

Huancayo, Peru (12.0°S, 75.2°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		5.0						2.7
01		4.1						3.2
02		4.2						3.3
03		3.4						3.2
04		2.8						3.3
05		2.8						3.2
06		5.8						3.3
07		7.5						3.2
08		8.5						3.0
09		8.8						2.7
10		8.7						2.7
11		8.7						2.6
12		8.7						2.6
13		9.1						2.6
14		9.2						2.6
15		9.2						2.6
16		9.0						2.7
17		8.9						2.7
18		8.8						2.8
19		8.6						2.8
20		8.3						2.9
21		7.7						2.9
22		6.8						2.8
23		6.0						2.6

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

Table 10

Brisbane, Q., Australia (27.5°S, 153.0°E) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		5.7						3.1
01		5.6						3.3
02		5.0						3.4
03		4.2						3.3
04		3.7						3.2
05		4.0						3.5
06		4.9						3.6
07		5.6						3.3
08		6.1						3.2
09		6.6						3.2
10		7.2						3.1
11		8.0						3.1
12		8.3						3.1
13		8.3						3.1
14		8.2						3.2
15		8.0						3.3
16		7.8						3.3
17		7.6						3.3
18		7.2						3.3
19		6.6						3.1
20		6.2						3.0
21		6.0						3.0
22		5.9						3.0
23		5.9						3.0

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

Table 11

Simonstown, Union of S. Africa (33.9°S, 18.7°E) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.8						2.9
01		3.9						3.0
02		3.8						3.0
03		3.7						3.0
04		3.7						3.1
05		3.8						3.1
06		4.7						3.1
07		5.6						3.0
08		6.4						3.1
09		6.9						3.0
10		7.3						2.8
11		7.7						2.9
12		8.9						3.0
13		9.0						3.0
14		8.9						3.0
15		8.7						3.0
16		8.3						3.0
17		7.8						3.1
18		7.7						3.1
19		7.0						3.2
20		6.2						3.1
21		5.2						3.2
22		4.0						3.0
23		4.0						3.0

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

Table 12

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.9						2.9
01		4.7						3.1
02		4.3						3.2
03		3.7						3.1
04		3.4						3.0
05		3.7						3.2
06		4.5						3.2
07		5.1						3.1
08		5.5						3.1
09		6.0						3.0
10		6.3						3.0
11		6.7						3.1
12		6.5						3.0
13		6.6						3.0
14		6.7						3.1
15		6.6						3.1
16		6.5						3.1
17		6.3						3.2
18		6.2						3.2
19		6.0						3.1
20		5.7						3.1
21		5.2						3.0
22		5.0						3.0
23		4.9						2.9

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

Table 13

Christchuroh, N.Z. (43.5°S, 172.6°E) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	283	5.18						
01	263	4.73						
02	263	4.26						
03	255	3.63						
04	246	3.52						
05	244	4.10						
06	249	4.71	234	2.91	103	2.67		
07	312	5.31	235	4.01	100	2.74		
08	325	5.76	238	4.23	99	2.51		
09	331	6.12	226	4.37	99	3.09		
10	308	6.20	226	4.42	100	3.20		
11	304	6.27	202	4.49	100	3.20		
12	300	6.41	206	4.45	98	3.18		
13	322	6.20	211	4.50	101	3.20		
14	344	6.07	216	4.44				
15	322	6.24	229	4.32	100	3.07		
16	303	6.35	232	4.08	100	2.89		
17	288	6.46	240	3.76	102	2.61		
18	261	6.61	244	3.21	104	2.07		
19	251	7.04						
20	223	6.83						
21	245	6.20						
22	252	5.86						
23	246	5.54						

Time: 172.5°E.
Length of time sweep: 2.5 Mc to 12 Mc in two minutes.

Table 14

Ottawa, Canada (45.5°N, 75.8°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	362	2.7					2.8	2.8
01	358	2.6					3.0	2.9
02	348	2.7					3.0	2.9
03	343	2.7					2.9	2.8
04	321	2.6					2.9	3.0
05	316	2.8					2.9	3.0
06	308	3.0					3.0	3.0
07	244	4.2	226	3.1	122	2.5	3.0	3.3
08	235	5.4	222	3.2	130	2.4	3.7	3.5
09	243	5.9	210	3.5	127	2.5	4.1	3.4
10	249	6.3	208	3.6	122	2.7	4.2	3.4
11	254	6.7	210	3.9	121	2.6	4.4	3.3
12	257	6.9	210	3.9	121	2.6	4.5	3.4
13	256	6.6	219	3.8	120	2.8	4.4	3.3
14	251	6.7	224	3.5	130	2.5	4.0	3.3
15	238	6.6	231	3.2	134	2.4	3.7	3.4
16	227	6.0	226	3.4	116	2.3	3.6	3.4
17	231	5.0	230	3.1			2.7	3.3
18	242	4.3					--	3.2
19	256	3.5					2.3	3.2
20	278	3.0					2.5	3.1
21	318	2.8					2.4	2.9
22	352	2.7					2.5	2.9
23	349	2.7					2.6	2.9

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

Table 15

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	276	2.50					3.0	3.0
01	271	2.57					3.0	3.0
02	264	2.81					2.9	3.1
03	254	2.97					2.7	3.1
04	248	3.07					3.0	3.2
05	240	3.00					2.9	3.3
06	240	2.81					3.3	3.2
07	228	4.10			120		3.3	3.4
08	232	5.64	206		120	2.07	3.7	3.5
09	237	6.10	209	3.50	116	2.53	3.4	3.5
10	246	6.30	208	3.78	115	2.78	3.2	3.4
11	251	6.48	208	3.97	115	2.93	3.4	3.3
12	255	6.63	213	4.04	112	3.00	3.8	3.3
13	258	6.77	216	3.97	116	2.96	3.5	3.3
14	253	6.79	224	3.76	115	2.77	3.2	3.4
15	242	6.65	226	3.50	114	2.47	3.2	3.4
16	228	6.38			117	1.99	3.1	3.4
17	216	5.51			110		3.0	3.5
18	223	3.86					2.9	3.3
19	238	3.30					3.1	3.3
20	248	2.78					2.4	3.2
21	266	2.48					2.3	3.1
22	275	2.37					2.4	3.0
23	280	2.40					2.4	3.0

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

Table 16

San Francisco, Calif. (37.4°N, 122.2°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	261	3.16					2.7	3.0
01	252	3.26					2.7	3.1
02	251	3.20					2.3	3.0
03	256	3.25					1.9	3.1
04	251	3.25						3.1
05	248	3.20						3.1
06	250	3.19						3.1
07	230	4.75				1.75		3.4
08	233	6.56	215	3.16	112	2.28	2.9	3.5
09	235	6.96	212	3.73	110	2.61	3.3	3.5
10	250	7.25	214	4.01	108	2.89	3.1	3.4
11	246	7.22	220	4.10	108	3.03	1.6	3.4
12	253	7.37	213	4.14	107	3.09		3.4
13	256	7.40	220	4.10	108	3.01		3.4
14	249	7.28	234	3.97	108	2.85		3.4
15	240	7.01	232	3.62	106	2.55	2.8	3.5
16	228	6.48			111	2.09	2.2	3.5
17	207	4.93					2.3	3.4
18	216	2.99						3.3
19	246	2.75						3.2
20	236	2.78						3.3
21	252	2.65					2.6	3.2
22	254	2.96					2.4	3.1
23	256	3.09					2.6	3.0

Time: 120°W.
Length of time sweep: 0.8 Mc to 12 Mc in six minutes. Record centered on the hour.

Table 17

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	297	3.46						3.0
01	288	3.63						3.0
02	290	3.81						3.0
03	278	3.98						3.1
04	268	3.82						3.2
05	278	3.44						3.0
06	277	3.50						3.1
07	258	5.47			140	2.0		3.3
08	269	6.28	248	3.55	133	2.29		3.3
09	284	6.98	244	3.70	124	2.76		3.2
10	289	7.05	242	4.31	120	2.98		3.2
11	288	7.30	243	4.45	120	3.16		3.2
12	298	7.43	244	4.46	118	3.17		3.1
13	292	7.88	248	4.46	119	3.16		3.1
14	280	7.80	253	4.32	120	2.98		3.2
15	274	7.24	250	3.65	128	2.68		3.2
16	260	6.60	249	3.28	136	2.19		3.3
17	240	5.58						3.4
18	239	4.11						3.4
19	288	2.96						3.0
20	286	3.04						3.0
21	291	3.10						3.0
22	293	3.27						3.0
23	289	3.41						3.0

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

Table 18

San Juan, Puerto Rico (18.4°N, 68.1°W) November, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.94						3.1
01		4.05						3.2
02		4.28						3.3
03		3.95						3.4
04		3.31						3.3
05		3.10						2.9
06		3.27						3.1
07	257	5.18						3.4
08	265	6.54	241	3.82				3.3
09	285	8.96	240	4.07		3.04		3.2
10	283	7.42	232	4.23		3.15		3.2
11	288	7.71	223	4.37		3.26		3.2
12	286	7.78	230	4.38		3.30		3.2
13	281	7.83	234	4.30		3.29		3.2
14	284	7.80	228	4.20		3.19		3.2
15	270	7.48	234	3.98		3.03		3.3
18	266	7.28	249	3.77				3.3
17	241	6.79		3.18				3.4
18	238	5.26						3.5
19	252	3.67						3.3
20		3.24						3.0
21		3.40						2.9
22		3.62						3.0
23		3.80						3.0

Time: 80°W.
Length of time sweep: 3 Mc to 12 Mc in eleven minutes. Record centered on the hour.

Table 19

(Corrections and additions to previously issued provisional data)

Trinidad, British West Indies (10.6°N, 81.3°W) October, 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					117			
08				4.28				
09								
10								
11								
12								
13		10.02					4.0	
14							4.3	
15							4.6	
16							4.1	
17							3.8	
18							3.4	
19							3.0	3.2
20							2.8	
21								
22								
23								2.9

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

Table 20

(Corrections and additions to previously issued provisional data)

Brisbane, Q., Australia (27.5°S, 153.0°E) October, 1944

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	274	5.0					3.1	3.2
01	256	4.7						3.4
02	254	4.0						
03	274	3.5						3.1
04	274							
05	268							
06	242	5.0						
07	272	5.9	229	3.94	116	2.45		3.3
08	288	6.8	216	4.28	113	2.80		3.2
09	280		201	4.46	112	3.03		
10	288		206	4.55	111	3.15		
11	298	7.7	199	4.60	111	3.24	3.7	
12	292		198	4.58	111	3.29	3.7	
13	294		190	4.54	112	3.27	3.4	
14	290		203	4.48	115	3.17		
15	278	7.3	219	4.27	118	2.95		
16	267		229	3.87	120	2.60		
17	247	8.5						
18	257						3.4	
19	251	5.9					3.0	
20	278	5.5					2.8	3.0
21	286							
22	277						2.6	
23	280	5.2					3.0	

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

Table 21

(Corrections and additions to previously issued provisional data)

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	285							
01	267							3.1
02	256	3.9						
03	266							
04	279							
05	273	3.4						
06	253	4.4				1.98		
07	304		239	3.82	109	2.47		
08	309	5.7	225	4.12	104	2.84		
09	326	6.4	219	4.37	103	3.10		
10	320		212	4.45	104	3.28		
11	317		212	4.52	102	3.39		
12	321	6.9	208	4.52	102	3.49		
13	318		208	4.47	102	3.40		
14	312		208	4.42	103	3.30		
15	299		219	4.26	104	3.11		3.2
16	285		232	3.97	106	2.80		3.2
17	264		241	3.38	111	2.35		
18	252							
19	255	5.6						
20	267							
21	275							
22	281							
23	284							

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

Table 22

(Corrections and additions to previously issued provisional data)

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

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03	254							
04								
05								
06								
07						2.52		
08			211		100	2.68		
09					99	2.90	3.1	
10							3.3	
11							3.0	
12			196				2.9	
13	280				99	3.13	3.2	
14					99	3.07		
15								
16				3.59				
17								
18								
19	238							
20							2.7	
21		4.75					2.6	
22		4.52					2.3	
23							2.4	

Time: 172.5°E.
Length of time sweep: 2.5 Mc to 12 Mc in two minutes.

Table 23

Madras, India (13.0°N, 80.2°E) July, 1944
(Note: Extraordinary-ray critical frequency reported)

Time	h'F2	f^{x}F2	h'F1	f°F1	h'E	f°E
00						
01						
02						
03						
04						
05						
06						
07		4.26				
08		5.18				
09		6.02				
10		6.76				
11		6.81				
12		6.70				
13		6.76				
14		7.04				
15		7.21				
16		7.45				
17		7.59				
18		8.20				
19		8.42				
20		8.02				
21		6.50				
22		4.78				
23						

Time: 97.5°E.

Table 24

Madras, India (13.0°N, 80.2°E) August, 1944
(Note: Extraordinary-ray critical frequency reported)

Time	h'F2	f^{x}F2	h'F1	f°F1	h'E	f°E
00						
01						
02						
03						
04						
05						
06						
07		4.73				
08		5.74				
09		6.56				
10		7.09				
11		7.41				
12		7.46				
13		7.62				
14		7.93				
15		7.88				
16		8.08				
17		8.26				
18		8.37				
19		8.46				
20		8.20				
21		7.46				
22		6.01				
23						

Time: 97.5°E.

Table 25

Madras, India (13.0°N, 80.2°E) September, 1944
(Note: Extraordinary-ray critical frequency reported)

Time	h'F2	f^{x}F2	h'F1	f°F1	h'E	f°E
00						
01						
02						
03						
04						
05						
06						
07		4.50				
08		6.27				
09		7.04				
10		7.76				
11		7.97				
12		7.81				
13		8.00				
14		8.20				
15		8.54				
16		9.16				
17		9.56				
18		9.83				
19		9.30				
20		9.04				
21		7.94				
22		5.98				
23						

Time: 97.5°E.

TABLE 26

IONOSPHERE DATA - I

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of $h'F_2$ in (km) for November (Month) 1944

Records measured by: S.M.O. M.R.R.

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	280	[300]A	300	260	260	220	240	230	240	260	260	240	270	240	260	260	240	220	220	240	240	240	260	280	6060	
2	270	280	260	280	240	220	240	220	240	240	260	260	260	260	270	260	240	220	220	230	240	240	260	280	5990	
3	270	280	280	260	260	240	220	220	220	240	240	260	260	260	260	240	220	220	230	220	240	280	270	280	5970	
4	280	280	240	280	260	280	280	260	280	280	280	280	280	300	260	[250]C	250	240	(260)	250	260	260	300	(300)	6490	
5	300	270	(280)	280	280	(300)	260	(240)	C	C	C	C	C	C	C	(280)	[250]C	(240)	(240)	[250]C	280	280	270	280	4580	
6	260	260	(280)	280	260	(260)	(290)	240	[270]A	(280)	[280]C	[280]C	280	280	280	270	240	230	220	230	240	260	260	260	6290	
7	260	280	260	260	240	240	250	230	240	240	260	260	280	270	280	C	C	C	C	220	250	270	260	270	5120	
8	280	280	260	260	260	260	(240)	240	220	220	280	260	270	270	260	240	230	210	200	220	(240)	290	280	300	6070	
9	300	260	270	260	270	260	240	220	240	240	240	250	270	260	260	240	240	220	220	230	260	280	290	280	6100	
10	300	280	280	270	260	240	240	220	220	240	240	260	270	270	260	240	220	220	220	220	220	260	280	280	6010	
11	280	260	260	260	240	220	240	220	240	240	240	260	240	270	260	240	230	200	220	220	250	270	280	260	5900	
12	260	260	270	260	240	230	220	220	220	240	240	240	250	260	250	240	230	210	220	220	260	[290]M	(320)	300	5950	
13	(300)	280	280	240	240	240	230	220	220	220	220	240	260	240	240	240	220	210	220	240	240	240	280	280	5840	
14	260	260	260	250	240	230	220	220	220	220	(240)	260	260	270	240	240	220	220	240	240	220	240	280	280	5830	
15	(280)	280	260	240	220	220	220	210	220	240	240	240	240	270M	260	240	220	200	200	220	(230)	(300)	(300)	300	5850	
16	280	280	260	260	260	240	220	220	220	240	240	250	250M	260	260	240	220	200	220	230	220	240	260	260	5830	
17	240	240	240	240	240	240	220	220	220	240	240	260	240	240	260	240	220	200	200	240	230	240	250	260	5660	
18	300	260	240	240	240	230	240	220	220	220	240	240	260	270	240	220	240	220	220	240	240	260	260	280	5840	
19	280	260	260	240	240	220	220	220	240	230	240	250	240	260	240	240	230	200	220	240	240	280	280	260	5830	
20	260	280	240	240	240	240	240	240	240	240	280	260	C	C	C	C	C	C	C	C	C	C	C	C	3000	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	260	260	260	780	
22	260	240	240	240	250	260	250	220	240	C	C	C	260	[250]C	240	250	220	220	240	250	240	260	260	270	5160	
23	260	260	240	240	240	240	240	240	240	240	240	240	240	260	240	240	220	220	240	(280)	(260)	(280)	[280]A	280	5970	
24	290	300	(300)	280	260	260	250	230	220	220	220	220	(240)	220	240	220	220	220	220	(280)	280	[280]A	300	310	6080	
25	300	270	260	240	240	240	240	220	210	220	240	240	240	C	C	220	220	220	220	240	280	300	280	300	5440	
26	290	260	260	240	240	220	220	240	240	220	240	260	240	230	240	240	230	200	220	240	(300)	280	280	300	5930	
27	280	280	280	230	240	220	260	230	220	220	220	240	(230)	C	C	240	220	220	220	240	280	260	270	280	5380	
28	290	260	270	250	240	220	240	240	230	240	240	(240)	240	240	250	240	220	210	220	240	240	260	260	(320)	5900	
29	280	280	280	240	230	220	(260)	230	220	240	230	260	260	240	240	240	220	220	220	270	250	260	280	260	5930	
30	260	270	260	260	250	240	240	230	240	220	240	240	260	260	240	240	230	230	240	240	220	240	260	260	5870	
31																										
Sum	8050	7850	7670	7380	7180	6950	6970	6610	6490	6390	6630	6790	6890	6750	6330	6550	6160	5840	6030	6680	6950	7700	7980	8130	166650	
Mean[1]	278	271	264	254	248	240	240	228	232	237	246	251	255	258	253	242	228	216	223	238	248	266	275	280		
Median	278	271	264	254	248	240	240	228	232	237	246	251	255	258	253	242	228	216	223	238	248	266	275	280		

[1] For all days of the month

[2] For quiet days

$h'F_2$

November, 1944

TABLE 27

IONOSPHERE DATA-2

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

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

Records measured by: S.M.O., M.R.R.

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	2.8 F	2.8	2.9 F	3.2	3.4	3.2	3.2	4.9	6.1	6.8	6.6	6.8	7.4	7.0	6.6	(7.0)	7.0	6.0	4.9	4.8	3.9	3.1	2.6	2.5	115.5	
2	2.8	3.3	3.4	3.6 F	3.6	3.5	2.9	4.6	(6.0)	7.1	6.6	7.2	7.0	7.0	6.7	(7.1)	7.0	(6.0)	3.9	3.8	(3.4) F	3.1	(2.5) F	(2.5) A	114.6	
3	2.7 F	2.6 F	3.0 F	3.4	3.4 F	3.5	3.5 F	4.9	5.6	6.1	6.7	(7.4)	8.1	8.2	8.8	8.0	7.0	5.6	5.1	4.1	3.4	3.0	3.0	3.1	119.9	
4	3.3	3.4	3.4	2.3 F	2.3 F	2.1 F	2.2 F	3.7	4.8	5.5	6.4	6.4	6.8	6.7	7.0	[6.6] C	(6.1)	(5.2)	[4.5] C	(3.6)	3.1	(2.5)	(3.0)	(3.3)	104.2	
5	3.3	(3.3)	2.9	(2.7)	2.8	(2.2)	(3.8)	C	C	C	C	C	C	C	C	(6.9)	[6.7] C	(6.2)	(6.0)	[4.5] C	(3.9)	3.4	(3.1)	(3.4)	65.1	
6	(3.7)	2.9	(3.4)	3.8	3.8	2.8	2.7	C	C	(6.6)	[6.6] C	[6.5] C	6.2	5.6	6.2	6.0	5.6	5.2	4.3	3.6 F	2.8 F	2.5 F	2.1 F	(2.1) F	94.7	
7	(2.1) F	1.7 F	1.7 F	(1.9) F	1.8 F	1.9 F	2.1 F	4.5	6.0	(6.2)	6.3	6.3	6.7	6.8	(7.3)	C	C	C	C	3.8	2.7	2.8 F	3.1	2.9 F	78.6	
8	2.6 F	2.5	3.0 F	2.9 F	2.2 F	2.1 F	[1.5] F	4.3 F	5.4	6.4	6.4	6.4	6.6	6.6	6.8	6.6	6.8	5.9	3.8 F	3.0 F	2.2 F	2.0 F	2.0 F	1.9 F	99.9	
9	(1.9) F	(1.9) F	(1.9) F	1.7 F	1.6 F	(1.8) F	(1.7) F	4.2	5.5	6.6	5.6	6.4	7.0	7.7	7.5	7.2	7.4	5.6	3.8 F	2.5 F	2.1 F	1.9 F	1.8 F	(1.8) F	97.1	
10	1.7 F	1.6 F	(1.9) F	(1.9) F	2.8 F	3.2	3.3	4.4	6.6	6.7	6.6	7.2	(7.8)	(7.8)	(7.9)	(7.8)	7.2	6.7	4.9 F	4.5 F	3.3 F	2.6 F	2.3 F	(2.5) F	113.2	
11	2.2 F	(2.7) F	2.8 F	3.1 F	3.3 F	3.2 F	2.6 F	4.0	5.6	5.9	6.4	6.7	7.0	6.3	7.2	7.2	7.1	5.6	3.6 F	3.3 F	2.3 F	2.2 F	2.3 F	2.6 F	105.2	
12	2.6 F	2.3 F	1.9 F	2.2 F	2.8 F	3.2 F	3.0 F	4.3	5.8	6.2	6.6	6.0	6.7	7.0	6.7	6.7	6.7	5.6	3.2 F	2.8 F	2.1 F	[2.0] A	(2.0)	1.8 F	100.2	
13	2.0 F	2.2 F	2.3 F	2.7 F	2.8 F	2.9 F	2.7 F	4.4	5.4	6.2	6.6	6.2	6.5	6.6	5.8	6.4	6.2	5.6	3.7 F	2.9 F	2.8 F	2.6 F	2.3 F	(2.3) F	100.1	
14	2.3 F	2.4 F	3.1 F	3.3	3.3 F	3.2 F	3.2	4.4	5.7	5.9	5.9	6.6	7.1	6.9	7.0	7.3	6.8	5.4	3.8	3.3	3.2	2.6	2.2 F	2.0 F	106.9	
15	1.9 F	2.2 F	2.9 F	3.3	3.4	3.4	2.6	4.2	6.2	5.7	6.2	6.1	6.1	6.6 H	6.4	6.6	6.6	5.3	3.5	3.2	2.5	1.7	1.8	1.9	100.3	
16	2.0 F	2.4 F	2.8	2.8 F	2.8	3.1	2.6	4.1	5.2	5.4	6.0	6.3	(6.2) H	7.0	6.2	6.9	6.4	5.6	4.2	3.4	3.3	2.7	2.4	2.7	102.5	
17	2.9	2.9 F	3.2	3.4	3.7 F	3.8	3.5	4.9	6.2	5.7	(6.4)	7.0	6.4	5.6	6.7	6.8	6.2	5.4	(3.1) F	3.0	2.6	2.6	2.5	2.2 F	106.7	
18	2.1 F	2.7	3.4	3.4	3.5	3.7	3.5	4.4	6.5	6.7	6.3	6.4	6.5	7.4	7.2	6.6	6.1	5.4	3.8	3.2	2.8	2.6	2.7	3.2	110.1	
19	3.3	3.5	3.5	3.7	3.8	3.7	2.9	4.1	(5.7)	5.8	6.5	6.4	6.8	(6.8)	6.8	(6.4)	(6.3)	5.8	3.8	3.2	2.9	2.4	2.5 F	2.9	109.5	
20	3.2 F	3.3 F	3.4 F	3.6 F	3.4	2.6 F	3.2	3.8	(5.6)	(5.7)	(7.0)	(7.4)	C	C	C	C	C	C	C	C	C	C	C	C	52.2	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.5 F	2.4 F	2.2 F	7.1	
22	2.4 F	(2.7)	2.8 F	3.0 F	3.3 F	3.3	3.1	3.7	5.4	C	C	C	6.2	[6.2] C	6.3	6.2	5.8	4.9 F	3.4 F	3.2 F	2.9 F	2.5 F	2.3 F	2.3 F	81.9	
23	(3.0) F	3.1	3.4	3.4 F	3.7 F	3.4 F	3.0 F	3.6 F	5.4	5.6	6.1	6.2	6.2	7.2	7.0	6.2	6.2	6.1	4.1	3.2	3.0	2.8	[2.7] A	2.4 F	107.0	
24	2.2 F	2.1 F	2.2 F	2.3 F	2.5 F	2.8 F	2.6 F	3.5 F	4.9	5.4	5.9	6.2	6.2	6.2	6.6	6.0	5.6	4.2	(3.0) F	(2.4) F	2.3	[2.2] A	2.0 F	2.0 F	91.4	
25	2.1 F	2.0 F	2.3 F	2.7 F	2.8 F	2.9 F	2.9 F	3.7 F	5.1	5.7	6.0	6.1	6.1	C	C	6.2	5.5	5.1	(2.7) F	2.9 F	2.6 F	2.3 F	2.4 F	2.5 F	82.6	
26	(3.1) F	2.6 F	2.7 F	3.2 F	3.2 F	3.6 F	3.2 F	3.7 F	(6.1)	6.2	6.2	6.4	6.4	6.7	6.4	6.2	6.0	5.7	3.2	(2.4) F	2.2	2.1	(2.2)	2.3 F	102.0	
27	2.6 F	2.8 F	3.3 F	3.4	3.5	3.0	2.4 F	3.6 F	5.6	6.1	5.7	6.6	(5.4)	C	C	6.4	6.2	5.2	3.2 F	2.6 F	2.3 F	2.3 F	2.1 F	2.1 F	86.4	
28	2.0 F	2.2 F	2.3 F	2.8 F	(3.1) F	2.9	2.3 F	3.6	5.4	6.2	6.0	(6.0)	6.5	(6.2)	6.3	5.7	6.2	5.1	3.7	3.2	(2.4) F	2.3	2.1 F	1.9 F	96.4	
29	1.9 F	2.1 F	3.1 F	3.7 F	3.9	3.3	2.6 F	(3.3) F	4.8	6.0	6.0	5.8	6.0	6.1	6.3	6.4	5.2	5.5	(3.3) F	2.8	2.3	2.3 F	2.2 F	2.2 F	97.1	
30	2.2 F	2.3 F	2.6 F	2.8 F	(2.5) F	2.8 F	2.7 F	3.8 F	(5.6)	6.2	(6.6)	6.0	7.1	7.0	6.1	6.2	6.4	(4.9) F	(3.8) F	3.2 F	2.6 F	2.3 F	2.2 F	2.2 F	100.1	
31																										
Sum	72.4	74.5	81.5	86.2	89.0	87.1	81.5	110.6	152.2	164.6	170.2	175.0	179.0	169.2	169.8	179.6	172.3	148.8	104.3	92.4	77.9	71.9	68.8	69.7	2848.5	
Mean[1]	2.50	2.57	2.81	2.97	3.07	3.00	2.81	4.10	5.64	6.10	6.30	6.48	6.63	6.77	6.79	6.65	6.38	5.51	3.86	3.30	2.78	2.48	2.37	2.40		
Median	2.50	2.57	2.81	2.97	3.07	3.00	2.81	4.10	5.64	6.10	6.30	6.48	6.63	6.77	6.79	6.65	6.38	5.51	3.86	3.30	2.78	2.48	2.37	2.40		

[1] For all days of the month

[2] For quiet days

$h'F_2$

November, 1944

TABLE 28

IONOSPHERE DATA-3

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Half hourly values of $f^{\circ}F_2$ in [illegible] for November 1944
(Month)

[illegible] measured by S.M.O. M.R.R.

TIME: 75° W MERIDIAN

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Sum	Mean
1	2.8	3.0 F	3.0 F	3.3	3.6	3.1	3.7	5.5	6.4	6.4	(6.9)	7.2	7.4	7.0	6.8	7.0	6.5	5.4	4.6	4.4	3.4	2.8	2.5 F	2.6	115.2	
2	3.0 F	3.4	3.5 F	3.7	3.7	3.1	3.5	5.2 M	6.7	6.2	7.0	7.4	7.2	6.8	7.0	7.3	6.7	4.9	3.9	3.7	3.2 F	2.8	2.5	(2.4) F	114.8	
3	2.3 F	2.7	3.3	3.4 F	3.5 F	3.7	3.8	6.0	6.2	6.5	7.1	8.0	(7.6)	(8.6)	8.8	7.4	6.4	5.4	4.7	3.7	3.2	3.1	3.0 F	3.3	121.7	
4	3.4	3.4	2.8 F	2.2 F	2.2 F	2.1 F	2.9 F	4.4	5.2	6.0	6.8	6.6	6.5	7.2	[6.9] C	[6.4] C	6.0	(5.0)	(3.9)	3.3	(2.5)	(2.8)	(3.1)	3.3	104.9	
5	3.5	(2.8)	(2.7)	(2.9)	(2.8)	(3.0)	C	C	C	C	C	C	C	C	C	(6.9)	[6.4] C	[6.2] C	(5.4)	(3.8)	(3.6)	(3.5)	(3.4)	(3.4)	60.3	
6	(2.8)	[3.1] C	3.7	3.8	3.2	(2.6)	3.3	C	C	[6.6] C	6.6	[6.3] C	6.0	[6.0] C	5.9	5.8	5.4	4.8	4.0	3.2	2.6 F	2.2 F	(2.2) F	(2.1) F	92.2	
7	1.9 F	(1.7) F	(2.0) F	1.7 F	1.8 F	2.0 F	3.2 F	5.4	6.0	6.3	(6.2)	6.6	6.8	6.7	(7.0)	C	C	C	C	3.3	2.6 F	2.8 F	3.0 F	2.9 F	79.9	
8	2.1 F	2.8 F	(3.2) F	(2.4) F	2.1 F	1.9 F	2.7 F	5.4	5.4	6.1	6.0	6.4	6.6	6.8	7.0	7.1	6.6	5.0	3.2 F	2.6 F	2.0 F	1.9 F	1.9 F	1.9 F	99.1	
9	1.9 F	1.7 F	1.7 F	(1.6) F	(1.6) F	1.8 F	2.7 F	5.1	6.1	6.6	6.4	6.6	7.0	7.2	7.2	7.0	7.3	(4.5)	2.9 F	2.2 F	2.0 F	(1.9) F	1.9 F	(1.7) F	96.6	
10	1.6 F	(1.6) F	(1.7) F	(2.3) F	2.8 F	3.3	3.5	5.4	6.1	6.3	6.6	7.3	7.5	7.7	7.8	7.6	6.8	5.8	4.9 F	3.8 F	2.6 F	2.3 F	2.5 F	(2.1) F	109.9	
11	(2.4) F	(2.7) F	(2.9) F	3.2 F	3.3 F	2.8 F	2.9 F	5.1	5.6	[6.2] C	6.1	(6.9)	6.0	[6.8] C	7.2	7.0	6.6	4.6	3.5 F	2.7 F	2.4 F	2.3 F	2.5 F	2.7 F	104.4	
12	2.5 F	2.1 F	2.0 F	2.6 F	3.2 F	3.3 F	3.3 F	5.3	6.1	6.6	6.5	6.5	7.1	6.9	6.5	6.6	6.3	3.9 F	3.2 F	(2.4) F	(2.1)	(1.9)	[1.9] A	1.9 F	100.7	
13	2.1 F	2.2 F	2.6 F	2.8 F	2.8 F	2.8 F	3.3 F	5.3	(6.1)	6.4 M	6.5	6.2	(7.0)	6.5	6.2	6.2	5.9	4.1	3.0 F	2.9 F	2.8 F	2.3 F	2.3 F	2.3 F	100.6	
14	2.3 F	2.8 F	3.3	3.4 F	3.3 F	3.2	3.3	5.1	6.0	5.4	6.3	6.6	6.6	7.0	7.3	6.6	6.3	4.1	3.5	(3.3)	2.7	2.1 F	2.0 F	1.9 F	104.4	
15	2.0 F	2.6 F	3.1	3.3	3.5	2.9	2.7 F	5.6	5.6	6.1	6.2	7.2	6.3	6.4 M	6.6	7.0	6.3	(4.5)	3.7	2.7	2.0	(1.7)	1.8	1.9 F	101.7	
16	2.1 F	2.6 F	2.7 F	2.8 F	3.1	3.0	3.2	5.3	5.6	6.2	6.4	6.8	6.6	[6.4] C	7.0	6.7	5.7	5.0	3.7	3.4	3.0	2.5	2.4	2.8	105.0	
17	2.9	3.2	3.3	3.7	3.8	3.8	3.7 F	5.6	5.6	6.4	5.8	7.0	6.3	6.2	6.8	(7.0)	7.0	3.8	3.3	2.8	2.6	2.6	2.3	2.1	107.6	
18	2.4 F	3.0 F	3.3	3.4 F	3.6	3.5 F	3.7	5.7	6.0	6.1	6.6	6.4	6.8	7.4	7.1	6.6	5.8	4.6	3.2	3.1	2.7	2.6	3.0	3.1	109.7	
19	3.5	3.5	3.6	3.6	3.8	3.3	3.3	5.0	(6.0)	6.2	6.2	(6.5)	(6.2)	(7.2)	(6.7)	6.5	6.2	4.5	3.3	3.0	2.4 F	2.3	2.8 F	3.0	108.6	
20	2.9 F	3.5 F	3.6	3.4	3.3 F	2.6 F	3.3	4.9	(6.2)	6.4	[7.3] C	(7.2)	C	C	C	C	C	C	C	C	C	C	C	C	54.6	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.0	2.4 F	2.3 F	2.3 F	10.0	
22	(2.1)	2.7 F	2.9 F	3.4 F	3.4 F	3.2	3.0	4.9	C	C	C	C	[6.2] C	[6.3] C	6.0	6.1	5.2	4.5	3.5 F	3.1 F	2.7 F	2.4 F	2.3 F	2.6 F	77.1	
23	3.2 F	3.3	3.3	3.5 F	3.5 F	3.2 F	3.2	4.6 F	5.4	5.9	6.7	6.0	6.8	7.3	6.7	6.3	5.4	(4.4)	3.5 F	2.8 F	2.9	(2.8)	2.6 F	2.3 F	105.6	
24	2.3 F	(2.2) F	2.3 F	2.5 F	2.7 F	2.8 F	2.7 F	4.6	5.0	6.0	5.7	5.2	5.7	7.3	6.4	6.3	6.0	3.8 F	(2.6) F	2.3 F	[2.3] A	2.0 F	1.9 F	2.0 F	92.6	
25	2.1 F	2.1 F	2.5 F	2.6 F	2.8 F	2.9 F	2.9	4.6 F	6.0	6.4	5.7	6.2	C	C	C	5.4	6.1	4.3	2.9 F	2.9	2.3 F	2.3 F	2.5 F	3.0 F	77.5	
26	(2.5) F	2.6 F	3.0 F	3.1 E	3.6 F	3.3 F	3.1 F	4.9	6.1	5.7 M	6.4	6.7	6.8	7.0	6.3	6.1	5.8	3.3 F	(2.7) F	[2.3] A	2.2	2.1	2.2 F	2.4 F	100.2	
27	2.9 F	3.0 F	3.4 F	3.4 F	3.3	2.6	2.6 F	4.7	5.7	5.4	6.4	6.8	C	C	C	6.4	5.9	4.0 F	3.0 F	2.3 F	2.3 F	2.3 F	2.1 F	2.0 F	80.5	
28	2.1 F	2.3 F	(2.4) F	3.1	3.1 F	2.5	2.2 F	4.7	6.6	6.2	6.2	6.1	6.2	6.2	6.1	6.2	5.9	3.7 F	3.6	3.0	2.2 F	2.1 F	1.8 F	1.8 F	96.3	
29	2.0 F	2.8	3.5 F	3.9	3.8	2.6 F	2.6 F	4.7	5.1	[6.1] C	5.7	6.4	[6.0] C	6.1	5.6	6.5	5.4	4.7	(2.8)	2.6	2.2 F	2.2 F	2.2 F	2.1 F	97.6	
30	2.3 F	2.6 F	2.5 F	2.8 F	2.6 F	2.8 F	3.0 F	4.8	5.4	6.3	6.2	6.8	6.6	6.4	6.2	6.4	5.7	4.0 F	3.5 F	3.1 F	2.3 F	2.3 F	2.2 F	2.3 F	99.1	
31																										
Sum	72.5	78.0	83.8	87.8	89.7	83.7	87.3	137.8	152.2	167.0	172.5	179.9	165.8	171.4	169.1	178.4	164.6	122.8	96.0	84.7	74.8	69.3	69.1	70.2	2828.4	
Mean[1]	2.50	2.69	2.89	3.03	3.09	2.89	3.12	5.10	5.85	6.18	6.39	6.66	6.63	6.86	6.76	6.61	6.10	4.55	3.56	3.02	2.58	2.39	2.38	2.42		
Median	2.50	2.69	2.89	3.03	3.09	2.89	3.12	5.10	5.85	6.18	6.39	6.66	6.63	6.86	6.76	6.61	6.10	4.55	3.56	3.02	2.58	2.39	2.38	2.42		

[1] For all days of the month

[2] For quiet days

TABLE 29

IONOSPHERE DATA-4

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

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

Records measured by: S.M.O. M.R.R.

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	200	200	220	210	220	240									1490	
2										220"	220	220	220	220	220	240									1560	
3										200	220	200"	(220)	220	210	(230)									1500	
4									220	220	220	210	200	220	220	C	C								1510	
5									C	C	C	C	C	C	C	C	C									
6									C	C	C	[210]C	[220]C	210	220	230									1100	
7										200	200	200	200	220	(240)	C	C								1260	
8									[210]A	220	200	190	(190)"	240	240	220									1710	
9									200	200	220	200	200	200"	240	A	A								1460	
10										200	200	200	200	240	230	220									1490	
11										210	220	200	220	200	220	220									1490	
12										220	220	220	220	220	220	220									1540	
13										200	220	200	220	220	220										1280	
14											200	200	220	220	230	220									1290	
15										210	180"	180"	220	200	240	220									1450	
16										210	220	230	200	200	240	230									1530	
17										200	180	200	220	200	230	220									1450	
18										210	200	220	220	240	220										1310	
19									220	200	200	200	200"	220	200	220									1660	
20											220	240	C	C	C	C	C								460	
21									C	C	C	C	C	C	C	C	C									
22									180	C	C	C	200	[210]C	220	240									1050	
23										220	220	200	(210)	200	210	220									1480	
24											A	A	A	A	220										220	
25											200	240	(220)	C	C	A									660	
26											200	(180)	220	230	220										1050	
27										A	200	220	220	C	C	220									860	
28										220	220	210	220	230	220	230									1550	
29										(220)	220	200	220	220	220										1300	
30											210	220	220	200	220										1070	
31																										
Sum									1030	3980	5210	5400	5540	5190	5590	3840									35780	
Mean[1]									206	209	208	208	213	216	224	226										
Median									206	209	208	208	213	216	224	226										

[1] For all days of the month

[2] For quiet days

TABLE 30

IONOSPHERE DATA—5

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

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

Records measured by: S.M.O. M.R.R.

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											(4.0)	(3.9)	(4.2)	[4.1]	[4.2]										20.2	
2										(3.9)M	3.9	4.2	4.1	[4.1]											20.2	
3												[4.1]M	4.2	3.9											12.2	
4									3.4	3.8	4.1	4.1	4.0	[4.2]	[4.2]		C								27.3	
5									C	C	C	C	C	C	C	C	C									
6									C	C	C	[4.1]	(4.1)	3.8	3.9	3.5									19.4	
7										(3.7)	(3.8)	[4.0]	[4.1]				C								15.6	
8									A	3.6	3.9	3.9	H												11.4	
9									2.8	3.2	(3.8)	3.9		H		A	A								13.7	
10										3.3	(3.5)														6.8	
11										(3.3)	[3.8]	4.0	4.1	(4.2)	[3.9]	3.5									26.8	
12													[4.0]	3.8											7.8	
13											(3.5)	(3.8)													7.3	
14												4.0	(4.0)												8.0	
15											H	H	3.9	[3.9]	3.8	3.6									15.2	
16										3.1			(4.0)												7.1	
17										3.5	[3.8]	4.0	4.0												15.3	
18											[3.8]	[3.9]	3.9	4.2											15.8	
19										[3.5]	3.8		H		3.5										10.8	
20												(3.9)	C	C	C	C	C								3.9	
21									C	C	C	C	C	C	C	C	C									
22										C	C	C		C	3.6										3.6	
23											(3.7)	3.9													7.6	
24											3.8	(3.9)	H	A											7.7	
25													(3.9)	C	C										3.9	
26											(3.8)														3.8	
27										A	3.6			C	C	3.4									7.0	
28										(3.4)	[3.6]	[3.9]	[4.0]	3.8	[3.5]										22.2	
29										3.7	[3.9]	4.0	[4.0]	3.9											19.5	
30											3.8														3.8	
31																										
Sum									6.2	42.0	71.9	75.4	60.6	43.7	30.1	14.0									343.9	
Mean[1]									3.10	3.50	3.78	3.97	4.04	3.97	3.76	3.50										
Median									3.10	3.50	3.78	3.97	4.04	3.97	3.76	3.50										

[1] For all days of the month

[2] For quiet days

TABLE 31

IONOSPHERE DATA-6

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of h'_E in (mm / km) for November (Month) 1944

Records measured by: S.M.O. M.R.R.

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	110	110	110	110	120								1160	
2									120	120	120	100	110	100	100	120	120	120							1130	
3									120	120	120	120	110	100	100	100	120								1010	
4									120	120	120	120	120	120	120	C	C								840	
5								C	C	C	C	C	C	C	C	C	C	C								
6									C	C	C	[120]^C	[120]^C	120	120	120	120								720	
7									120	120	110	120	120	120	120	C	C	C							830	
8									120	120	120	120	120	120	120	120	100								1060	
9									120	120	120	120	110	120	110	100	100	100							1120	
10									120	110	120	110	100	120	120	(110)	100								1010	
11									120	110	110	120	100	120	120	120	110								1030	
12									120	110	120	120	120	120	120	110	110								1050	
13									120	120	120	120	100	110	100	100	110								1000	
14								120	120	120	110	110	110	110	110	(100)	120								1130	
15									110	100	100	100	100	110	120	120	120								980	
16									120	120	110	120	110	120	120^H	110^H	120								1050	
17								120	120	110	100	120	120	120	120	110	120								1160	
18									120	120	120	110	120	120	120	120	130								1080	
19									120	120	110	110	120	120	120	120	120								1060	
20									120	120	120	120	C	C	C	C	C	C							480	
21								C	C	C	C	C	C	C	C	C	C	C								
22									130^H	C	C	C	100	[110]^C	120	120	120								700	
23									120	120	110	100	110	120	120	120	120								1040	
24									120	110	110	120	110	120	120	120	110								1040	
25									120	120	110	110	110	C	C	120	120								810	
26									120	120	120	120	110	120	120	120	130								1080	
27									120	120	120	110	110	C	C	120	120								820	
28									120	120	120	120	120	120	100	120	120								1060	
29									110	100	110	110	120	120	120	120	120								1030	
30									120	110	110	120	110	110	110	110	120								1020	
31																										
Sum								360	3230	3020	2980	3110	3020	2900	2880	2860	2920	220							27500	
Mean[1]								120	120	116	115	115	112	116	115	114	117	110								
Median								120	120	116	115	115	112	116	115	114	117	110								

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

TABLE 32

IONOSPHERE DATA-7

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of $f^{o}E$ in {Mc / Mo} for November 1944
(Month)

Records measured by: S.M.O. M.R.R.

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								A	[2.2]A	(2.6)	2.9	3.0	3.1	3.1	2.9	2.6	2.3								24.7	
2									(2.3)	(2.7)	2.9	3.0	3.1	3.1	2.9	[2.6]A	2.2	A							24.8	
3									2.1	2.6	2.8	3.0	(3.1)	3.0	2.9	2.6	A								22.1	
4									2.1	2.5	2.7	2.9	3.0	3.0	2.8	C	C								19.0	
5								C	C	C	C	C	C	C	C	C	C	C								
6								C	C	C	C	[2.9]C	[2.9]C	2.9	(2.6)	2.4	(2.0)								15.7	
7									A	2.5	(2.7)	(2.8)	3.0	2.9	2.7	C	C	C							16.6	
8									A	2.4	(2.7)	2.8	2.9	3.1	(2.9)F	(2.5)	A								19.3	
9									(2.1)	(2.5)	2.7	2.9	3.0	2.9	2.9	A	A	A							19.0	
10									2.2	2.6	2.8	2.9F	2.9	3.0	2.8	2.5	(2.0)F								22.7	
11									A	(2.5)	2.8	(3.0)F	3.1	3.0	(2.8)	2.6	(2.0)F								21.8	
12									(2.0)	2.5	2.8	3.0	(3.0)	(3.0)	2.8	A	A								19.1	
13									A	2.6	(2.8)	2.9	3.0	(3.0)	(2.8)	(2.6)	(2.0)F								21.7	
14								A	(2.1)F	(2.6)F	(2.8)F	(2.9)	3.0	2.9	[2.7]A	(2.6)	1.9								23.5	
15									A	[2.6]A	(2.7)	(2.9)	3.0	2.9	2.7	(2.5)	2.1								21.4	
16									2.1	2.5	(2.7)	3.0	3.0	2.9	2.7H	2.4H	2.0								23.3	
17								A	2.2F	2.7	2.8	2.9	3.1	3.0	2.8	2.5	2.0								24.0	
18									(2.2)F	(2.7)F	2.9	(3.0)	3.0	3.0	2.8	2.5	(2.0)								24.1	
19									2.0	2.5	(2.8)	3.0	3.0	2.9	2.7	2.4	(1.9)								23.2	
20									2.0	(2.4)	(2.7)	(3.0)	C	C	C	C	C	C							10.1	
21								C	C	C	C	C	C	C	C	C	C	C								
22									1.9H	C	C	C	3.1	[2.4]C	2.7	(2.4)	(2.0)								15.0	
23									1.9	2.2	2.7	(2.8)	2.9	[2.8]A	(2.8)	2.3	A								20.4	
24									A	A	(2.7)	2.9	2.9	2.9	(2.7)	2.4	(2.1)F								18.6	
25									(2.0)F	2.6	2.9F	3.0	(3.0)F	C	C	A	(1.8)								15.3	
26									[2.0]F	2.5F	(2.8)	3.0	(3.0)	3.0	2.8	(2.4)	1.9								23.4	
27									[2.0]A	[2.4]A	[2.7]A	(2.9)	3.0	C	C	(2.4)	1.8								17.2	
28									(2.1)F	(2.6)F	2.9	2.9	3.0	2.9	2.7	2.4	(1.8)F								23.3	
29									(2.0)F	A	A	(2.9)	(3.0)	[2.9]A	[2.6]C	2.3	A								15.7	
30									(2.0)F	[2.5]A	2.7	2.9	[2.9]A	2.9	(2.8)	(2.5)F	A								21.2	
31																										
Sum									43.5	60.8	69.4	79.1	81.0	73.9	69.3	54.4	35.8								567.2	
Mean[1]									2.07	2.53	2.78	2.93	3.00	2.96	2.77	2.47	1.99									
Median									2.07	2.53	2.78	2.93	3.00	2.96	2.77	2.47	1.99									

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

TABLE 33

IONOSPHERE DATA-8

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

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

Records measured by: S.M.O. M.R.R.

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	38/100	41/100	37/100	29/100	30/110	26/110	45/120	30/120	33/120	33/120	31/120		46/100	36/110	31/120	28/120	20/110	29/120		31/110	20/120	29/120		33/120		
2	34/110	33/100	27/110	31/120	29/120	33/100 M	33/120						33/100	37/100		29/120	28/120	24/120	30/110			23/120		22/100		
3	24/100	30/110	34/110	28/110	29/100	29/100	23/120	33/110							31/100	33/100	23/120			30/120	30/120	31/120	27/110	33/120		
4	30/120	28/100	29/100	29/120	29/100	27/100	29/120	29/120	29/120	33/120	29/120					C	C	C								
5								C	C	C	C	C	C	C	C	C	C	C		C						
6								C	C	C	C	C	34/120	31/120	30/120			35/110	30/100	30/120		22/120				
7	20/100	23/100	27/100	10/110	30/100	45/120	22/120	33/120	40/120	31/120	31/110	31/120				C	C	C	C	C		30/110	18/120			
8	24/100	24/100	24/120	23/100	31/100	24/110	30/120	31/120	32/120	34/120				35/120	34/120	31/110	31/100	28/100	21/100	24/110	27/110	18/100	18/100	17/120		
9	31/100	30/100		10/110	29/100	31/100		24/120	31/120	31/120	33/110	30/130			34/100	37/100	40/100	38/100	23/100	31/100	32/100					
10	10/120	14/120	30/120	25/110	24/100	29/100		31/110	30/120	33/120		32/110	35/110		31/110	32/110	21/110	30/100	19/120		23/120	22/100	33/100	47/120		
11	45/120	31/120	33/120	35/120	39/120	36/110	36/120	31/120	37/110	35/110	37/110	34/120	(35)/120	32/120	47/120	30/110	41/110	33/120	33/120	22/100	29/100	30/100	32/100	31/110		
12	40/120	42/120	43/120	38/110	35/110	34/110	39/110	47/100	37/120	34/110	32/120	36/120	39/120	42/120	30/110	43/110	40/110	36/110	(38)/120	43/120	47/120	49/120	45/120	41/100		
13	41/100	40/110	41/100	39/110	47/110	46/110	45/110	54/120	43/110	31/120	39/120	40/140	39/100	42/100	45/100	31/100	35/110	36/100	38/110	21/110						
14	37/100	35/100	22/100	24/100	26/100	45/100	(49)/120	40/120	41/120	36/120	31/110	34/110	39/110	40/110	36/100	30/100	38/110	20/120	29/100	29/120			38/110	30/100		
15	43/100	34/100	37/110	40/110	39/110	27/100	31/120	40/120	39/110	40/100	34/120	42/100	39/100	38/110	39/120	38/100	31/120	19/120		35/120	28/110	40/100	31/100	39/100		
16	38/100	31/100	29/120	24/120	19/120	24/110	36/110	41/110	48/120	37/120	42/110	32/140		35/120		24/100	35/120	31/120	39/120	40/100	24/100	24/100	26/100			
17	18/100		21/100	40/120	37/120	30/110	21/100	39/120	44/120	31/120	31/120					36/130	27/100		29/120	24/120		20/100		22/100		
18	24/100	40/120	10/110	21/120	30/110	18/100	(23)/100	33/120	37/120	30/110		37/110	38/110						27/120	23/120	19/110	21/110	23/120	25/110		
19	30/110	30/120	31/110		(25)/110	(19)/110	42/100	(26)/100	42/120										43/110	39/120						
20			10/120	30/120		28/110	31/100	(30)/100	40/120				C	C	C	C	C	C	C	C	C	C	C	C		
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(48)/120					
22			29/110	23/100	(23)/120	(29)/120		25/120		C	C	C		C	40/120	37/120	36/120	24/120	24/120	39/120 H	26/120	36/120	24/120	22/120		
23	34/110 H	34/120	09/120	27/100	41/110 H	38/110	42/120	38/120	37/120	40/120	40/110	40/100	45/110	39/110	36/110	31/120	42/120	24/120	55/120	57/120	50/110	58/110	46/110	41/110		
24	39/120	39/120	36/120	41/120	47/110	29/120	40/120	54/120	49/120	40/110	42/140	45/120	53/120	46/120	39/120	42/120	40/110	41/140	87/120	90/120	68/120	65/120	41/120	37/110		
25	40/120	38/120	31/100	32/120	24/100	29/120	44/120	43/110	31/120	31/110	41/110	42/110	47/110	C	C	40/120	34/120	38/120	40/120	45/120	32/120	35/120	30/120	39/120		
26	37/110	27/120	30/120		39/110	39/120	39/110	41/120	41/120	50/120	47/120	41/110	41/110	41/110	32/110	30/120	30/130	31/120	29/120	57/120	47/120	57/120	30/120	24/120		
27	39/110	31/120	39/110	29/120	30/120	44/110	42/110	36/120	41/120	46/110	48/120	42/110	41/110	C	C	36/120	31/120	30/100	38/100 H	43/120	35/110		27/110	24/120		
28	21/110	29/120	29/120	(30)/100	37/100	39/110	58/110	41/120	37/120	39/120	39/120	49/120	39/120		41/100	32/140		30/110	29/110	23/120	26/100	29/120	20/110	24/110		
29	27/110	23/120	24/120	23/120	35/110	40/120	41/120	32/120	51/110	42/100	44/110	39/110	39/120	39/120	41/120	39/120	36/120	38/120	44/120	58/120	22/120	22/120	28/120	22/110		
30	39/100	23/110	31/120	20/110	34/120	38/120	39/120	38/110	41/120	40/110	34/120	41/120	41/110	40/110	32/110	41/110	33/110	35/110	47/120	37/120	31/120	24/120	20/100	28/100		
31																										
Sum																										
Mean[1]																										
Median																										

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

TABLE 34

IONOSPHERE DATA-9

RESTRICTED

Washington, D.C — Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of F2-MI500 for November 1944
(Month)

S.M.O.
M.R.R.

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	2.07[F]	A	(2.10)[F]	2.04	2.20	2.18	2.10	2.36	(2.27)	2.37	2.27	2.18	2.22	2.12	2.20	(2.29)	(2.30)	2.40	2.30	2.15	2.29	2.12	2.02	1.97	50.52	
2	2.02	1.96	2.01	2.09[F]	2.30	2.38	2.12	2.47	(2.40)	(2.50)	2.31	2.27	2.20	2.20	2.15	(2.23)	(2.33)	(2.43)	2.13	2.14	2.38[F]	2.17	(1.99)[F]	(1.94)[F]	53.12	
3	1.95[F]	1.90[F]	1.98[F]	1.97	(2.02)[F]	2.15	(2.30)[F]	2.45	2.63	2.35	2.22	(2.27)	2.17	2.21	2.23	2.33	2.30	2.38	2.14	2.15	2.19	1.93	1.95	1.99	52.16	
4	1.90	1.99	2.10	(2.05)[F]	(2.10)[F]	(1.96)[F]	(1.95)[F]	2.34	2.20	2.17	2.14	2.12	2.12	2.06	2.19	C	(2.28)	(2.31)	C	(2.10)	(1.97)	(1.88)	(1.88)	(1.92)	45.73	
5	1.92	(2.04)	(1.95)	(2.00)	1.90	(1.89)	(2.20)	C	C	C	C	C	C	C	C	(2.19)	C	(2.35)	(2.10)	C	(2.05)	1.96	(2.04)	(2.10)	28.69	
6	(2.19)	(1.98)	(2.04)	2.01	2.20	(2.19)	(1.95)	C	C	(2.15)	C	C	2.20	2.20	2.14	2.15	2.27	2.28	2.13	2.19[F]	(2.19)[F]	(1.98)[F]	(2.20)[F]	(2.18)[F]	42.82	
7	(1.92)[F]	(2.11)[F]	(2.07)[F]	F	(2.07)[F]	(2.12)[F]	(2.12)[F]	2.25	2.45	(2.40)	2.24	2.30	2.18	2.17	(2.20)	C	C	C	C	2.37	2.01	1.97[F]	2.09	2.08[F]	41.12	
8	(1.85)[F]	(1.95)	(2.00)[F]	(2.10)[F]	(2.22)[F]	(2.10)[F]	F	2.37[F]	2.67	2.59	2.31	2.29	2.13	2.21	2.30	2.31	2.33	2.51	2.45[F]	(2.30)[F]	(2.18)[F]	(1.97)[F]	(2.00)[F]	(2.02)[F]	51.16	
9	(1.98)[F]	(2.05)[F]	(1.99)[F]	(2.10)[F]	(2.00)[F]	(2.22)[F]	(2.40)[F]	2.41	2.53	2.39	2.44	2.30	2.25	2.30	(2.12)	2.30	2.39	2.50	(2.47)[F]	2.25[F]	(2.10)[F]	(2.12)[F]	(2.18)[F]	(2.01)[F]	53.80	
10	(1.98)[F]	(2.06)[F]	(2.03)[F]	F	(2.02)[F]	2.14	2.19	2.41	2.55	2.40	2.28	2.13	(2.18)	(2.17)	(2.35)	(2.33)	2.41	2.55	2.34[F]	2.30[F]	(2.30)[F]	(1.99)[F]	2.00[F]	(1.95)[F]	51.06	
11	(2.07)[F]	(2.21)[F]	(2.03)[F]	2.05[F]	(2.06)[F]	(2.27)[F]	(2.21)[F]	2.37	2.42	2.40	2.42	2.17	2.40	2.13	2.28	2.34	2.44	2.49	(2.38)[F]	(2.47)[F]	2.24[F]	(2.03)[F]	2.07[F]	2.10[F]	54.05	
12	(1.94)[F]	1.88[F]	(2.10)[F]	(2.12)[F]	(2.26)[F]	(2.21)[F]	(2.18)[F]	2.43	2.49	2.41	2.45	2.36	2.35	2.23	2.32	2.33	2.44	2.40	2.04[F]	(2.34)[F]	(2.19)[F]	A	(1.97)	(1.97)[F]	51.41	
13	(2.00)[F]	1.99[F]	(2.03)[F]	2.07[F]	(2.08)[F]	(2.21)[F]	(2.20)[F]	2.41	(2.50)	2.40	2.63	2.50	2.25	2.39	2.37	2.44	2.39	2.54	(2.44)[F]	2.11[F]	(2.29)[F]	2.26[F]	2.01[F]	(2.08)[F]	54.59	
14	2.08[F]	2.01[F]	2.05[F]	2.23	2.18[F]	2.22[F]	2.25	2.41	2.48	2.56	(2.41)	2.25	(2.30)	2.24	2.21	2.22	2.45	2.50	2.25	2.12	2.14	2.22	1.98[F]	2.00[F]	53.79	
15	(2.04)[F]	(2.01)[F]	2.14[F]	2.10	2.20	2.50	2.30	2.35	2.35	2.34	2.41	2.21	2.40	(2.14)[H]	2.31	2.34	2.27	2.45	2.34	2.42	(2.39)	(2.04)	(1.86)	1.94	53.85	
16	2.00[F]	1.96[F]	2.00	2.06[F]	2.09	2.08	2.29	2.37	2.34	2.43	2.25	2.27	(2.11)[H]	2.20	2.31	2.37	2.60	2.43	2.27	2.27	2.21	2.16	2.07	1.95	53.09	
17	2.00	2.03[F]	2.03	2.11	2.18[F]	2.24	2.27	2.37	2.56	2.36	(2.35)	(2.20)	(2.40)	(2.23)	2.20	2.35	2.53	2.52	(2.43)[F]	2.13	2.13	2.17	2.10	2.20[F]	54.09	
18	1.95[F]	1.90	2.25	2.17	2.22	2.27	2.22	2.30	(2.55)	2.57	2.45	2.42	2.23	2.18	2.39	2.40	2.30	2.45	2.41	2.17	2.24	1.95	2.10	1.92	54.01	
19	1.84	2.08	2.05	2.10	2.14	2.34	2.20	2.40	(2.24)	2.40	(2.42)	2.30	2.20	(2.25)	2.41	(2.37)	(2.33)	2.49	2.50	2.26	2.20	2.03	2.05[F]	2.10	53.70	
20	1.99[F]	2.00[F]	2.17[F]	2.20[F]	2.32	(2.50)[F]	2.19	2.20	(2.43)	(2.35)	(2.22)	(2.27)	C	C	C	C	C	C	C	C	C	C	C	C	26.84	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(2.18)[F]	2.20[F]	2.24[F]	6.62	
22	(2.20)[F]	(2.45)	(2.24)[F]	2.10[F]	2.19[F]	2.16	2.15	2.48	2.44	C	C	C	2.31	C	2.36	2.37	2.37	2.31[F]	2.10[F]	2.09[F]	(2.17)[F]	(2.26)[F]	(2.07)[F]	(2.00)[F]	44.79	
23	(2.00)[F]	1.94	1.98	2.10[F]	2.06[F]	2.24[F]	(2.13)[F]	2.29[F]	2.29	2.41	2.36	2.43	2.20	2.20	2.27	2.48	2.43	2.38	2.20	(2.14)	(2.25)	(2.00)	A	1.95[F]	50.73	
24	2.02[F]	2.03[F]	(2.01)[F]	1.95[F]	(1.97)[F]	2.21[F]	2.04[F]	2.38[F]	2.57	2.30	2.63	2.45	(2.40)	2.41	2.38	(2.48)	2.50	2.20	(2.30)[F]	(2.15)[F]	(2.18)	A	1.92[F]	1.95[F]	51.43	
25	1.98[F]	2.00[F]	(1.98)[F]	(2.20)[F]	(2.21)[F]	2.15[F]	2.11[F]	2.29[F]	2.52	2.48	2.32	2.32	2.35	C	C	2.45	2.53	2.41	(2.18)[F]	2.14[F]	2.08[F]	1.95[F]	1.97[F]	1.97[F]	48.59	
26	(1.98)[F]	(2.04)[F]	(1.98)[F]	2.19[F]	(2.38)[F]	2.24[F]	2.15[F]	2.30[F]	(2.46)	2.35	2.40	2.31	2.43	2.36	2.40	2.26	2.33	2.50	2.30	(2.18)[F]	(2.01)	1.98	(1.95)	1.85[F]	53.33	
27	(2.01)[F]	2.07[F]	1.98[F]	2.22	2.24	2.19	1.97[F]	2.42[F]	2.42	2.58	2.34	2.30	(2.33)	C	C	2.40	2.26	2.28	2.15[F]	(2.10)[F]	2.01[F]	2.08[F]	2.07[F]	(2.03)[F]	48.45	
28	1.94[F]	2.00[F]	2.07[F]	2.11[F]	(2.19)[F]	2.48	2.15[F]	2.30	2.31	2.40	(2.50)	(2.35)	2.43	2.32	2.29	2.32	2.32	2.17	2.12	2.45	(2.20)[F]	2.08	2.11[F]	(1.88)[F]	53.49	
29	1.98[F]	1.89[F]	1.96[F]	2.11[F]	2.21	2.31	(2.07)[F]	2.44[F]	2.43	2.40	(2.50)	2.25	2.18	2.16	2.38	2.41	2.42	2.32	(2.30)[F]	2.17	2.17	(2.15)[F]	(2.02)[F]	(1.94)[F]	53.17	
30	(2.12)[F]	(2.10)[F]	(2.01)[F]	(1.93)[F]	(2.08)[F]	(2.10)[F]	(2.08)[F]	(2.25)[F]	(2.45)	2.37	(2.29)	2.22	2.22	2.17	2.31	2.22	2.44	(2.30)[F]	(2.11)[F]	(2.35)[F]	(2.39)[F]	(2.04)[F]	(2.04)[F]	(2.01)[F]	52.60	
31																										
Sum	57.92	56.63	59.33	56.48	62.29	64.25	60.49	63.82	65.95	64.83	61.56	59.44	61.14	53.25	57.07	60.65	61.96	64.85	58.88	60.01	61.15	55.67	56.91	58.24	1442.77	
Mean[1]	2.00	2.02	2.04	2.09	2.15	2.22	2.16	2.36	2.44	2.40	2.37	2.29	2.26	2.22	2.28	2.33	2.38	2.40	2.26	2.22	2.18	2.06	2.03	2.01		
Median	2.00	2.02	2.04	2.09	2.15	2.22	2.16	2.36	2.44	2.40	2.37	2.29	2.26	2.22	2.28	2.33	2.38	2.40	2.26	2.22	2.18	2.06	2.03	2.01		

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

TABLE 35

IONOSPHERE DATA—IO

RESTRICTED

Washington, D. C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

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

Records measured by: S.M.O. M.R.R.

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	3.07^{F}	A	(3.09)^{F}	3.00	3.24	3.24	3.11	3.45	(3.33)	3.46	3.31	3.20	3.30	3.16	3.30	(3.33)	(3.39)	3.45	3.35	3.18	3.32	3.24	3.05	2.95	74.52	
2	3.02	2.99	3.06	3.09^{F}	3.32	3.44	3.17	3.50	(3.50)	(3.58)	3.40	3.30	3.22	3.25	3.23	(3.25)	(3.40)	(3.45)	3.20	3.15	(3.48)^{F}	3.17	(2.98)^{F}	(2.90)^{F}	78.05	
3	2.91^{F}	2.80^{F}	3.00^{F}	2.95	(3.06)^{F}	3.20	(3.33)^{F}	3.50	3.73	3.45	3.25	(3.30)	3.25	3.29	3.27	3.39	3.33	3.40	3.13	3.19	3.23	2.91	2.92	3.00	76.79	
4	2.90	3.00	3.11	(3.11)^{F}	(3.06)^{F}	(2.91)^{F}	(2.93)^{F}	3.41	3.21	3.24	3.17	3.20	3.21	3.12	3.21	C	(3.35)	(3.39)	C	(3.14)	(2.95)	(2.83)	(2.83)	(2.90)	68.18	
5	2.90	(3.10)	(2.98)	(2.95)	2.89	(2.80)	(3.25)	C	C	C	C	C	C	C	C	(3.25)	C	(3.43)	(3.15)	C	(3.07)	2.99	(3.10)	(3.13)	42.99	
6	(3.20)	(2.87)	(3.10)	3.05	3.25	(3.28)	(2.87)	C	C	(3.20)	C	C	3.25	3.25	3.18	3.21	3.35	3.36	3.17	3.30^{F}	(3.11)^{F}	(2.95)^{F}	(3.20)^{F}	(3.22)^{F}	63.37	
7	(2.85)^{F}	(3.16)^{F}	(3.02)^{F}	F	(3.02)^{F}	(3.08)^{F}	(3.15)^{F}	3.30	3.50	(3.45)	3.32	3.40	3.25	3.21	(3.21)	C	C	C	C	3.40	3.01	2.98^{F}	3.10	3.10^{F}	60.51	
8	(2.80)^{F}	(2.97)	(3.00)^{F}	(3.10)^{F}	(3.27)^{F}	(3.10)^{F}	F	3.48^{F}	3.70	3.69	3.35	3.37	3.19	3.27	3.38	3.35	3.39	3.62	3.47^{F}	(3.32)^{F}	(3.11)^{F}	(2.97)^{F}	(3.00)^{F}	(3.03)^{F}	74.93	
9	(2.99)^{F}	(3.04)^{F}	(2.94)^{F}	(3.10)^{F}	(3.00)^{F}	(3.24)^{F}	(3.45)^{F}	3.50	3.61	3.46	3.56	3.37	3.35	3.45	(3.15)	3.35	3.48	3.61	(3.50)^{F}	3.22^{F}	(3.11)^{F}	(3.13)^{F}	(3.20)^{F}	(3.01)^{F}	78.82	
10	(2.97)^{F}	(3.10)^{F}	(3.02)^{F}	F	(3.00)^{F}	3.21	3.24	3.43	3.68	3.50	3.32	3.19	(3.37)	(3.35)	(3.42)	(3.40)	3.47	3.65	3.46^{F}	3.28^{F}	(3.35)^{F}	(2.98)^{F}	3.01^{F}	(2.87)^{F}	75.27	
11	(3.10)^{F}	(3.30)^{F}	(3.18)^{F}	3.09^{F}	(3.07)^{F}	(3.35)^{F}	(3.30)^{F}	3.40	3.51	3.43	3.50	3.25	3.49	3.20	3.38	3.40	3.50	3.56	(3.43)^{F}	(3.50)^{F}	3.28^{F}	(3.04)^{F}	3.07^{F}	3.11^{F}	79.44	
12	(2.87)^{F}	2.87^{F}	(3.10)^{F}	(3.07)^{F}	(3.31)^{F}	(3.21)^{F}	(3.19)^{F}	3.48	3.60	3.50	3.53	3.42	3.42	3.25	3.42	3.40	3.51	3.44	3.00^{F}	(3.37)^{F}	(3.21)^{F}	A	(2.96)	(2.93)^{F}	75.06	
13	(2.99)^{F}	3.00^{F}	(3.00)^{F}	3.15^{F}	(3.11)^{F}	(3.24)^{F}	(3.28)^{F}	3.47	(3.68)	3.41	3.73	3.56	3.30	3.47	3.40	3.50	3.42	3.70	(3.45)^{F}	3.18^{F}	(3.35)^{F}	3.28^{F}	3.08^{F}	(3.15)^{F}	79.90	
14	3.12^{F}	3.08^{F}	3.10^{F}	3.21	3.26^{F}	3.35^{F}	3.35	3.47	3.55	3.62	(3.48)	3.22	(3.40)	3.32	3.22	3.25	3.50	3.55	3.30	3.24	3.20	3.25	3.00^{F}	3.01^{F}	79.05	
15	(3.03)^{F}	(3.09)^{F}	3.14^{F}	3.14	3.25	3.61	3.35	3.40	3.42	3.40	3.47	3.22	3.46	(3.13)^{H}	3.35	3.40	3.25	3.50	3.35	3.54	(3.43)	(3.10)	(2.79)	2.92	78.74	
16	3.00^{F}	3.01^{F}	3.00	3.10^{F}	3.18	3.13	3.34	3.42	3.42	3.48	3.30	3.32	(3.17)^{H}	3.25	3.40	3.41	3.71	3.49	3.30	3.32	3.30	3.23	3.07	2.95	78.30	
17	3.05	3.02^{F}	3.10	3.15	3.16^{F}	3.32	3.30	3.46	3.68	3.40	(3.39)	(3.22)	(3.42)	(3.29)	3.25	3.43	3.62	3.59	(3.42)^{F}	3.19	3.20	3.20	3.11	3.23^{F}	79.20	
18	2.95^{F}	2.90	3.30	3.21	3.30	3.30	3.30	3.30	(3.65)	3.59	3.52	3.50	3.26	3.25	3.43	3.41	3.40	3.55	3.48	3.25	3.24	2.86	3.11	2.90	78.93	
19	2.90	3.07	3.11	3.10	3.20	3.30	3.25	3.49	(3.40)	3.44	(3.52)	3.32	3.21	(3.30)	3.48	(3.42)	(3.42)	3.52	3.31	3.37	3.20	3.07	3.10^{F}	3.13	78.63	
20	2.98^{F}	3.00^{F}	3.23^{F}	3.25^{F}	3.40	(3.64)^{F}	3.24	3.25	(3.45)	(3.43)	(3.25)	(3.43)	C	C	C	C	C	C	C	C	C	C	C	C	39.55	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(3.25)^{F}	3.22^{F}	(3.21)^{F}	9.68	
22	(3.20)^{F}	(3.55)^{F}	(3.30)^{F}	3.15^{F}	3.25^{F}	3.21	3.20	3.52	3.45	C	C	C	3.40	C	3.40	3.40	3.42	3.37^{F}	3.14^{F}	3.09^{F}	(3.22)^{F}	(3.17)^{F}	(3.14)^{F}	(3.08)^{F}	65.66	
23	(3.00)^{F}	2.97	3.01	3.17^{F}	3.10^{F}	3.32^{F}	(3.20)^{F}	3.33^{F}	3.32	3.47	3.44	3.52	3.25	3.20	3.29	3.50	3.46	3.46	3.24	(3.20)	(3.30)	(3.09)	A	2.92^{F}	74.76	
24	3.02^{F}	3.10^{F}	(3.03)^{F}	2.90^{F}	(2.90)^{F}	3.25^{F}	3.09^{F}	3.45^{F}	3.60	3.37	3.43	3.52	(3.48)	3.47	3.87	(3.50)	3.60	3.23	(3.27)^{F}	(3.20)^{F}	(3.30)	A	2.89^{F}	2.92^{F}	75.39	
25	3.00^{F}	3.02^{F}	(2.99)^{F}	(3.20)^{F}	(3.30)^{F}	3.23^{F}	3.14^{F}	3.38^{F}	3.61	3.55	3.41	3.40	3.46	C	C	3.55	3.59	3.50	(3.27)^{F}	3.18^{F}	3.17^{F}	2.95^{F}	3.00^{F}	2.98^{F}	71.88	
26	(2.98)^{F}	(3.10)^{F}	(3.00)^{F}	3.29^{F}	(3.50)^{F}	3.30^{F}	3.15^{F}	3.35^{F}	(3.60)	3.45	3.42	3.40	3.41	3.35	3.46	3.37	3.44	3.60	3.35	(3.20)^{F}	(3.00)	3.00	(2.94)	2.85^{F}	78.55	
27	(3.03)^{F}	3.11^{F}	2.90^{F}	3.31	3.30	3.25	2.98^{F}	3.50^{F}	3.47	3.62	3.41	3.30	(3.38)	C	C	3.43	3.31	3.31	3.20^{F}	(3.11)^{F}	3.04^{F}	3.05^{F}	3.07^{F}	(3.09)^{F}	71.17	
28	2.94^{F}	2.99^{F}	3.09^{F}	3.19^{F}	(3.21)^{F}	3.59	3.19^{F}	3.45	3.40	3.47	(3.59)	(3.45)	3.50	(3.37)	3.35	3.37	3.45	3.22	3.24	3.55	(3.19)^{F}	3.10	3.04^{F}	(2.86)^{F}	78.80	
29	3.00^{F}	2.84^{F}	2.99^{F}	3.14^{F}	3.38	3.41	(3.15)^{F}	(3.54)^{F}	3.54	3.45	(3.52)	3.35	3.21	3.20	3.47	3.60	3.47	3.30	(3.24)^{F}	3.22	3.25	(3.21)^{F}	(3.01)^{F}	2.88)^{F}	78.37	
30	(3.21)^{F}	(3.20)^{F}	(3.01)^{F}	(2.94)^{F}	(3.14)^{F}	(3.16)^{F}	(3.11)^{F}	(3.33)^{F}	(3.60)	3.42	(3.37)	3.20	3.25	3.22	3.29	3.30	3.56	(3.37)^{F}	(3.10)^{F}	(3.39)^{F}	(3.45)^{F}	(3.10)^{F}	(3.10)^{F}	(3.20)^{F}	77.82	
31																										
Sum	86.98	85.25	88.90	84.11	92.43	94.67	89.61	92.56	95.21	93.53	88.97	86.93	89.86	78.62	83.81	88.17	89.79	93.62	85.52	88.28	90.07	83.10	85.09	87.23	2122.31	
Mean[1]	3.00	3.04	3.06	3.12	3.19	3.26	3.20	3.43	3.53	3.46	3.42	3.34	3.33	3.28	3.35	3.39	3.45	3.47	3.29	3.27	3.22	3.08	3.04	3.01		
Median	3.00	3.04	3.06	3.12	3.19	3.26	3.20	3.43	3.53	3.46	3.42	3.34	3.33	3.28	3.35	3.39	3.45	3.47	3.29	3.27	3.22	3.08	3.04	3.01		

[1] For all days of the month

[2] For quiet days

TABLE 36

IONOSPHERE DATA—II

RESTRICTED

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

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

S.M.O.
M.R.R.

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	3.27F	A	(3.31)F	3.21	3.43	3.42	3.30	3.59	(3.50)	3.65	3.45	3.31	3.48	3.32	3.50	(3.47)	(3.51)	3.60	3.50	3.34	3.50	3.44	3.20	3.13	78.43	
2	3.20	3.19	3.26	3.30F	3.45	3.60	3.38	3.68	(3.70)	(3.71)	3.55	3.47	3.40	3.43	3.39	(3.44)	(3.54)	(3.61)	3.35	3.30	(3.61)F	3.38	(3.19)F	(3.31)F	82.26	
3	3.18F	3.02F	3.20F	3.12	(3.23)F	3.35	(3.50)F	3.66	3.80	3.60	3.40	(3.51)	3.40	3.46	3.47	3.55	3.47	3.55	3.32	3.38	3.41	3.09	3.12	3.20	80.99	
4	3.13	3.20	3.30	(3.29)F	(3.30)F	(3.11)F	(3.12)F	3.60	3.43	3.43	3.33	3.35	3.39	3.31	3.43	C	(3.50)	(3.52)	(C)	(3.34)	(3.15)	(3.05)	(3.07)	(3.11)	72.46	
5	3.10	(3.30)	(3.12)	(3.18)	3.10	(3.08)	(3.45)	C	C	C	C	C	C	C	C	(3.44)	C	(3.60)	(3.30)	C	(3.25)	3.18	3.30	(3.32)	75.72	
6	(3.71)	(3.04)	3.30	3.21	3.43	(3.41)	(3.10)	C	C	(3.40)	C	C	3.42	3.40	3.30	3.39	3.50	3.49	3.40	3.47F	(3.30)F	(3.10)F	(3.40)F	(3.42)V	86.95	
7	3.00)F	(3.35)F	(3.23)F	F	(3.22)F	3.34F	(3.30)F	3.51	3.65	(3.59)	3.50	3.55	3.40	3.40	(3.44)	C	C	C	C	3.54	3.21	3.19F	3.29	3.30F	84.01	
8	(3.00)F	(3.15)	(3.22)F	(3.30)F	(3.42)F	(3.30)F	F	3.60F	3.88	3.81	3.50	3.52	3.34	3.47	3.51	3.50	3.53	3.75	3.64F	(3.50)F	(3.31)F	(3.20)F	(3.19)F	(3.25)F	78.89	
9	3.19)F	(3.26)F	3.16)F	(3.30)F	(3.21)F	3.48F	3.60)F	3.70	3.80	3.60	3.70	3.50	3.50	(3.58)	(3.32)	3.50	3.65	3.76	(3.72)F	3.43F	(3.35)F	(3.33)F	(3.45)F	(3.21)F	83.30	
10	3.19)F	(3.29)F	(3.20)F	F	3.21)F	3.40	3.48	3.60	3.79	3.69	3.48	3.39	(3.46)	(3.50)	(3.65)	(3.52)	3.60	3.80	3.62F	3.48F	(3.57)F	(3.14)F	3.13F	(3.10)F	79.29	
11	(3.29)F	(3.47)F	(3.30)F	3.29F	(3.24)F	(3.50)F	(3.50)F	3.60	3.67	3.62	3.70	3.43	3.62	3.35	3.50	3.55	3.65	3.75	(3.60)F	(3.71)F	3.48F	(3.23)F	3.29F	3.34F	83.68	
12	3.06)F	3.17F	3.28)F	(3.22)F	(3.59)F	(3.45)F	(3.41)F	3.65	3.74	3.70	3.65	3.52	3.60	3.47	3.58	3.54	3.69	3.60	3.19F	(3.55)F	(3.40)F	A	(3.20)	(3.15)F	79.45	
13	3.20)F	3.20F	3.21)F	3.30F	(3.29)F	(3.43)F	(3.46)F	3.70	(3.80)	3.59	3.85	3.74	3.48	3.63	3.55	3.66	3.59	3.82	(3.64)F	3.35F	(3.55)F	3.50F	3.23F	(3.30)F	84.07	
14	3.30F	3.25F	3.29F	3.41	3.44F	3.49F	3.52	3.60	3.70	3.75	(3.68)	3.40	(3.58)	3.50	3.40	3.45	3.67	3.70	3.44	3.42	3.38	3.40	3.20F	3.20F	83.17	
15	(3.22)F	(3.26)F	3.33F	3.35	3.46	3.81	3.50	3.54	3.60	3.60	3.60	3.38	3.62	(3.31)H	3.55	3.54	3.35	3.63	3.50	3.71	(3.60)	(3.25)	(3.00)	3.10	82.81	
16	3.20F	3.22F	3.19	3.27F	3.34	3.30	3.48	3.54	3.56	3.62	3.44	3.49	(3.36)H	3.41	3.55	3.60	3.85	3.63	3.45	3.49	3.49	3.40	3.25	3.15	82.28	
17	3.21	3.20F	3.29	3.32	3.31F	3.48	3.47	3.60	3.80	3.55	(3.50)	(3.40)	(3.56)	(3.47)	3.40	3.64	3.76	3.74	(3.58)F	3.34	3.36	3.40	3.26	3.40F	83.04	
18	3.17F	3.10	3.50	3.40	3.48	3.44	3.49	3.50	(3.80)	3.70	3.70	3.67	3.45	3.43	3.58	3.54	3.59	3.69	3.70	3.43	3.52	3.11	3.30	3.10	83.39	
19	3.12	3.29	3.29	3.30	3.40	3.45	3.41	3.62	(3.55)	3.58	(3.68)	3.52	3.40	(3.45)	3.65	(3.55)	(3.62)	3.65	3.50	3.53	3.40	3.24	3.30F	3.30	82.80	
20	3.20F	(3.20)F	3.42F	3.42F	3.60	(3.78)F	3.40	3.43	(3.60)	(3.60)	(3.48)	(3.60)	C	C	C	C	C	C	C	C	C	C	C	C	41.73	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(3.51)F	3.42F	(3.42)F	10.35	
22	(3.43)F	(3.74)	(3.49)F	3.30F	3.45F	3.42	3.40	3.70	3.66	C	C	C	3.57	C	3.60	3.53	3.62	3.50F	3.28F	3.24F	(3.39)F	(3.35)F	(3.33)F	(3.30)F	69.32	
23	(3.18)F	3.14	3.21	3.32F	3.28F	3.48F	(3.43)F	3.50F	3.49	3.60	3.62	3.69	3.41	3.40	3.44	3.70	3.63	3.61	3.38	(3.39)	(3.49)	(3.25)	A	3.21F	78.85	
24	3.25F	3.24F	(3.27)F	3.10F	(3.68)F	3.45F	3.30F	3.60F	3.75	3.50	3.54	3.68	(3.64)	3.67	3.68	(3.65)	3.74	3.42	(3.48)F	(3.39)F	(3.46)	A	3.10F	3.11F	79.70	
25	3.21F	3.30F	(3.20)F	(3.42)F	(3.50)F	3.44F	3.30F	3.40F	3.75	3.67	3.55	3.54	(3.59)	C	C	3.73	3.75	3.70	(3.45)F	3.41F	3.39F	3.17F	3.21F	3.19F	75.87	
26	(3.21)F	(3.32)F	(3.20)F	3.41F	(3.70)F	3.49F	3.33F	3.52F	(3.75)	3.61	3.65	3.54	3.60	3.49	3.60	3.55	3.60	3.70	3.48	(3.48)F	(3.18)	3.17	(3.16)F	3.04F	82.78	
27	(3.23)F	3.34F	3.20F	3.50	3.50	3.43	3.17F	3.68F	3.47	3.81	3.60	3.47	(3.60)	C	C	3.60	3.48	3.47	3.40F	(3.40)F	3.28F	3.23F	3.29F	(3.24)F	75.59	
28	3.15F	3.19F	3.23F	3.32F	(3.40)F	3.72	3.40F	3.52	3.54	3.60	(3.72)	(3.60)	3.69	(3.50)	3.49	3.53	3.58	3.46	3.43	3.75	(3.42)F	3.28	3.26F	(3.09)F	82.87	
29	3.20F	3.05F	3.11F	3.31F	3.47	3.57	(3.30)F	3.70F	3.66	3.56	(3.72)	3.46	3.38	3.40	3.62	3.73	3.68	3.49	(3.48)F	3.41	3.42	(3.42)F	(3.23)F	(3.08)F	82.45	
30	(3.42)F	(3.40)F	(3.22)F	(3.17)F	(3.35)F	(3.33)F	(3.25)F	(3.50)F	(3.76)	3.62	(3.62)	3.39	3.43	3.42	3.46	3.48	3.69	(3.54)F	(3.29)F	(3.59)F	(3.61)F	(3.45)F	(3.28)F	(3.20)F	82.47	
31																										
Sum	92.98	90.88	94.53	89.08	98.48	99.95	94.75	96.84	99.40	97.76	93.21	91.12	94.37	82.77	87.66	92.38	93.84	97.78	90.12	93.37	95.48	88.46	90.67	93.09	2238.97	
Mean[1]	3.21	3.24	3.26	3.30	3.40	3.45	3.38	3.59	3.68	3.62	3.58	3.50	3.50	3.45	3.51	3.55	3.61	3.62	3.47	3.46	3.41	3.28	3.24	3.21		
Median	3.21	3.24	3.26	3.30	3.40	3.45	3.38	3.59	3.68	3.62	3.58	3.50	3.50	3.45	3.51	3.55	3.61	3.62	3.47	3.46	3.41	3.28	3.24	3.21		

[1] For all days of the month

[2] For quiet days

TABLE 37

IONOSPHERE DATA—12

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of FI-M3000 for November (Month) 1944

Records measured by: S.M.O. M.R.R.

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											(3.70)	(3.84)	(3.70)												11.24	
2										(3.73)"	3.72	3.66	3.68												14.79	
3												H	(3.70)	(3.71)											3.71	
4									(3.63)	3.60	3.57	3.53	3.48		(3.70)	C	C								21.51	
5									C	C	C	C	C	C	C	C	C									
6									C	C	C	C	C	3.81	3.52	(3.60)									10.93	
7										(3.75)	(3.80)					C	C								7.55	
8									A	(3.84)	(3.80)	3.80	H												11.44	
9									4.05	4.00	(3.70)	3.80		H		A	A								15.55	
10										3.98	(4.00)														7.98	
11										(4.00)		3.84	3.63	(3.61)		3.89									18.97	
12														3.75											3.75	
13											(3.90)	(3.95)													7.85	
14												3.70	(3.71)												7.41	
15											H	H	3.90		(3.42)	(3.74)									11.08	
16										3.99			(3.74)												7.73	
17										3.97		3.75	3.89												11.61	
18													3.90	(3.60)											7.50	
19											3.89		H		3.90										7.79	
20												(3.73)	C	C	C	C	C								3.73	
21									C	C	C	C	C	C	C	C	C									
22										C	C	C		C	3.79										3.79	
23											(3.69)	(3.68)													7.37	
24											A	A	A	A												
25													(3.64)	C	C	A									3.64	
26											(3.90)														3.90	
27										A	4.10			C	C	3.62									7.72	
28										(3.94)				(3.74)											7.68	
29										3.79		3.62		3.70											11.11	
30											3.78														3.78	
31																										
Sum									76.8	42.59	49.65	44.90	40.97	22.22	18.33	14.87									2411.1	
Mean[1]									3.84	3.87	3.81	3.74	3.72	3.70	3.67	3.72										
Median									3.84	3.87	3.81	3.74	3.72	3.70	3.67	3.72										

[1] For all days of the month

[2] For quiet days

TABLE 38

IONOSPHERE DATA-13

RESTRICTED

Washington, D.C. (Location) Ionosphere Station

National Bureau Of Standards (Institution)

Hourly values of E-MI500 for November (Month) 1944

Records measured by: S.M.O. M.R.R.

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								A	A	A	3.74	3.89	3.90	(3.95)	3.84	4.00	(3.70)								27.02	
2									(3.44)	(3.30)	3.50	(3.84)	3.90	(3.82)	3.91	A	(3.67)	A							29.38	
3									3.90	(3.81)	3.77	3.60	(3.70)	3.85	3.95	(3.89)	A								30.47	
4									3.98	(3.62)	3.95	3.71	3.72	3.76	3.91	C	C								26.65	
5								C	C	C	C	C	C	C	C	C	C	C								
6								C	C	C	C	C	C	(3.82)	A	3.83	(3.90)								11.55	
7									A	4.00	A	A	3.72	3.84	3.78	C	C	C							15.34	
8									A	A	3.89	3.88	3.76	3.60	(3.78)F	(3.90)	A								22.81	
9									(3.90)	(3.72)	3.75	(3.80)	(3.95)	(3.91)	(3.81)	A	A	A							26.84	
10									3.55	3.70	3.71	(3.75)F	3.84	3.52	(3.74)	(3.80)	(3.95)F								33.56	
11									A	A	3.75	(3.80)F	(3.96)	(3.80)	(3.79)	3.78	AF								22.88	
12									A	A	(3.76)	(3.80)	(3.90)	(3.67)	(3.79)	A	A								18.92	
13									A	(3.95)	(3.80)	(3.90)	3.74	(3.72)	A	A	(3.86)F								22.97	
14								A	(3.50)F	3.70F	(3.90)F	(4.00)	3.80	A	A	A	(3.90)								22.80	
15									A	A	A	A	3.89	3.70	(3.88)	A	3.80								15.27	
16									3.72	3.70	(3.72)	3.56	3.81	3.80	3.82H	3.92H	(3.66)								33.71	
17								A	3.64F	3.78	3.89	3.75	3.77	3.80	3.73	(3.80)	3.71								33.87	
18									(3.65)F	(3.55)F	3.75	(3.90)	3.85	3.68	3.93	(3.80)	(3.53)								33.64	
19									3.80	3.76	(3.91)	3.91	3.84	3.80	3.78	(3.94)	(3.90)								34.54	
20									3.83	(3.92)	(3.82)	(3.72)	C	C	C	C	C	C							15.29	
21								C	C	C	C	C	C	C	C	C	C	C								
22									3.71H	C	C	C	4.10	C	(3.90)	A	(3.68)								15.39	
23									A	(3.73)	A	(3.85)	(3.89)	A	(3.84)	A	A								15.31	
24									A	A	A	(3.60)	3.77	3.71	(3.90)	A	AF								14.98	
25									F	3.68	3.70F	(3.75)	A-F	C	C	A	(3.88)								15.01	
26									F	F-A	(3.60)	(3.80)	(3.80)	(3.50)	3.60	(3.75)	3.60								25.65	
27									A	A	A	(3.70)	A	C	C	(3.80)	3.83								11.33	
28									F	F	(3.60)	(3.68)	3.62	3.90	3.78	3.70	(3.60)F								25.88	
29									F	A	A	A	A	A	C	3.62	A								3.62	
30									F	A	(3.70)	3.79	A	3.67	3.78	A-F	A								14.94	
31																										
Sum									44.62	55.92	75.11	86.98	84.23	78.82	80.24	53.53	60.17								619.62	
Mean[1]									3.72	3.73	3.76	3.78	3.83	3.75	3.82	3.82	3.76									
Median									3.72	3.73	3.76	3.78	3.83	3.75	3.82	3.82	3.76									

[1] For all days of the month

[2] For quiet days

Table 39

Ionospheric Storminess, November, 1944

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

/No major disturbances were observed at Washington, D.C., during November, 1944.

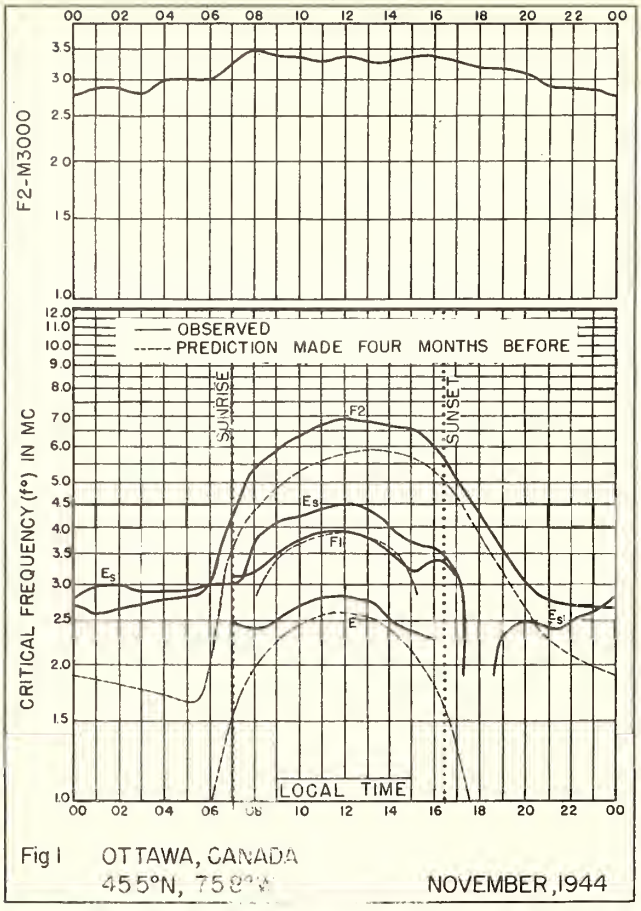

Fig I OTTAWA, CANADA
455°N, 758°W NOVEMBER, 1944

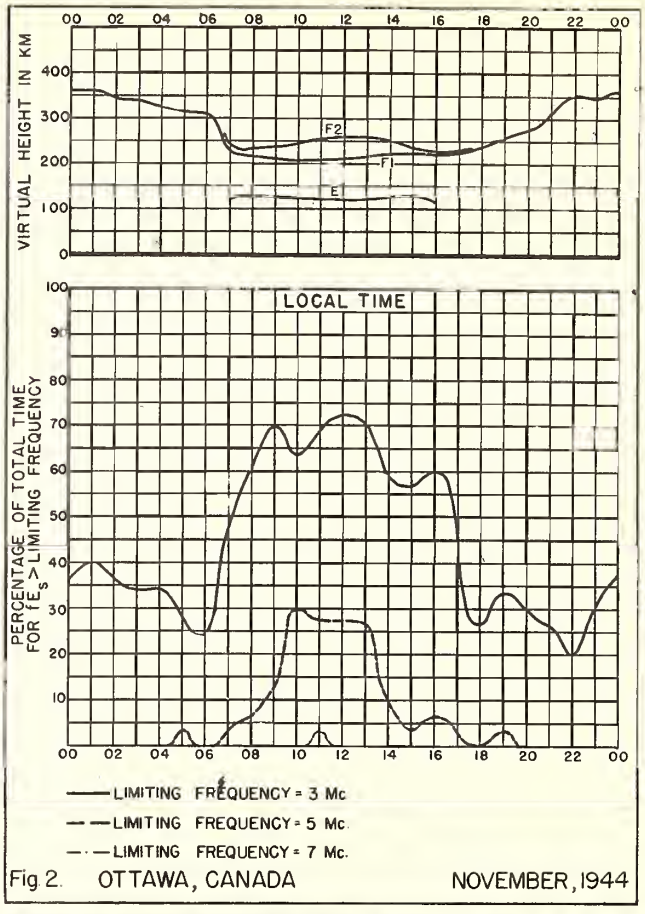

Fig. 2. OTTAWA, CANADA NOVEMBER, 1944

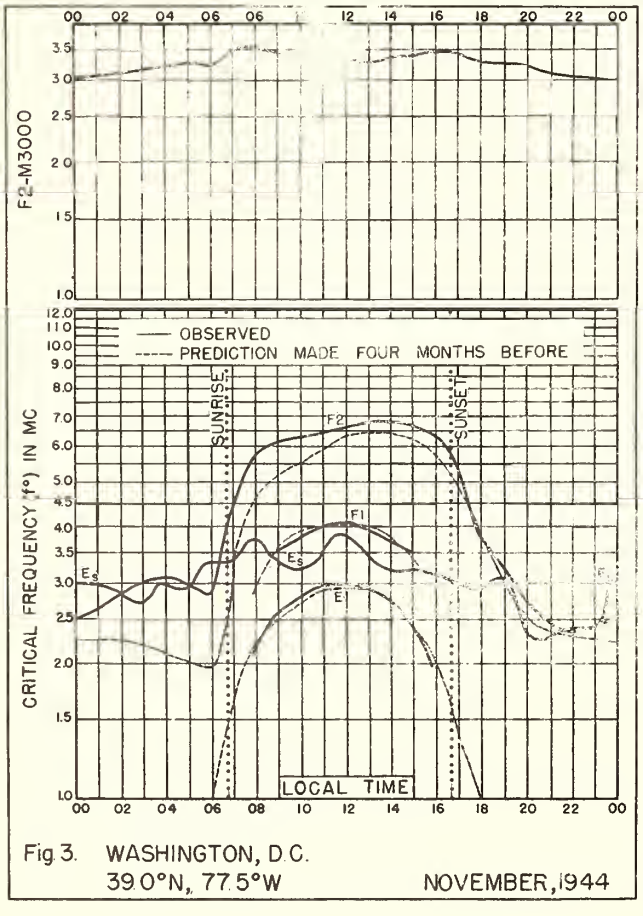

Fig. 3. WASHINGTON, D.C.
39.0°N, 77.5°W NOVEMBER, 1944

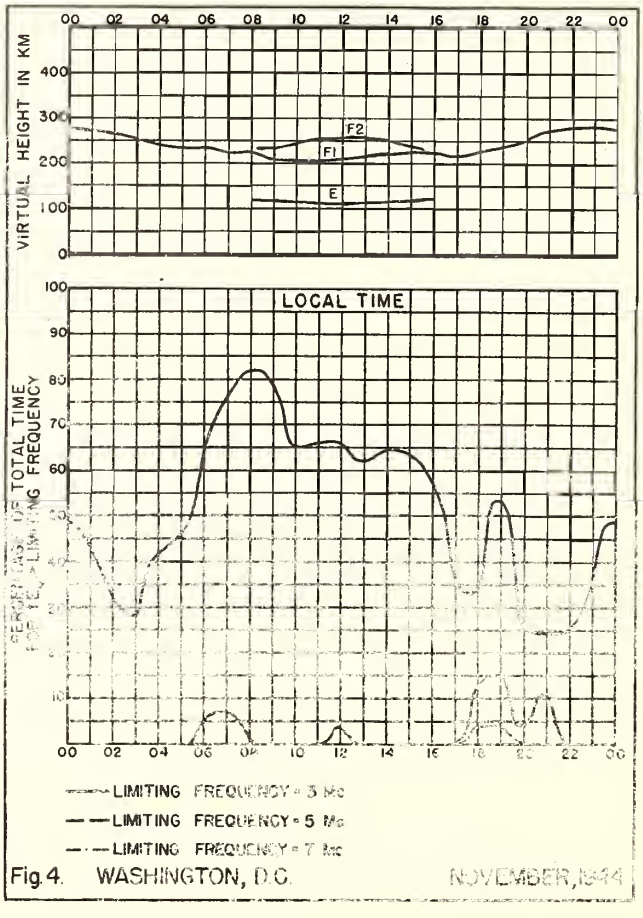

Fig. 4. WASHINGTON, D.C. NOVEMBER, 1944

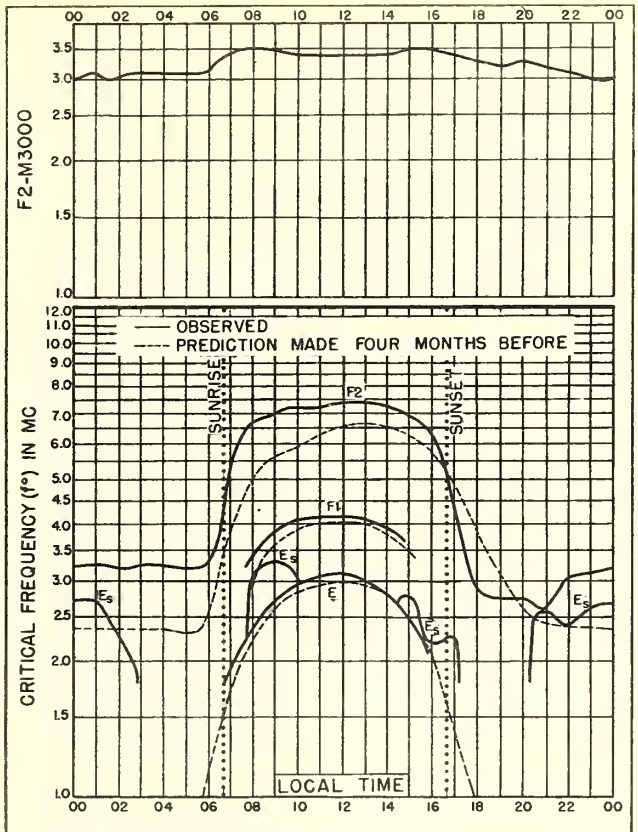

Fig.5. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W NOVEMBER, 1944

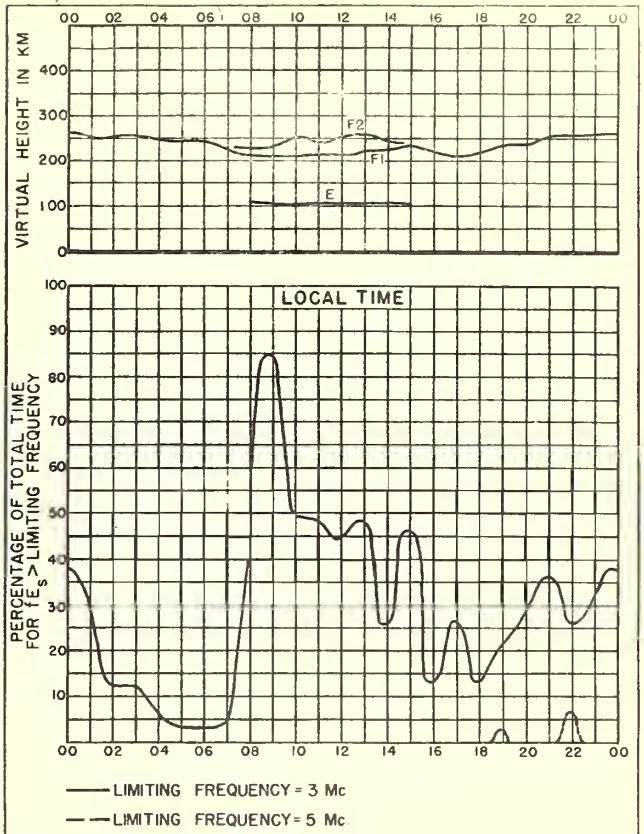

Fig.6. SAN FRANCISCO, CALIFORNIA NOVEMBER, 1944

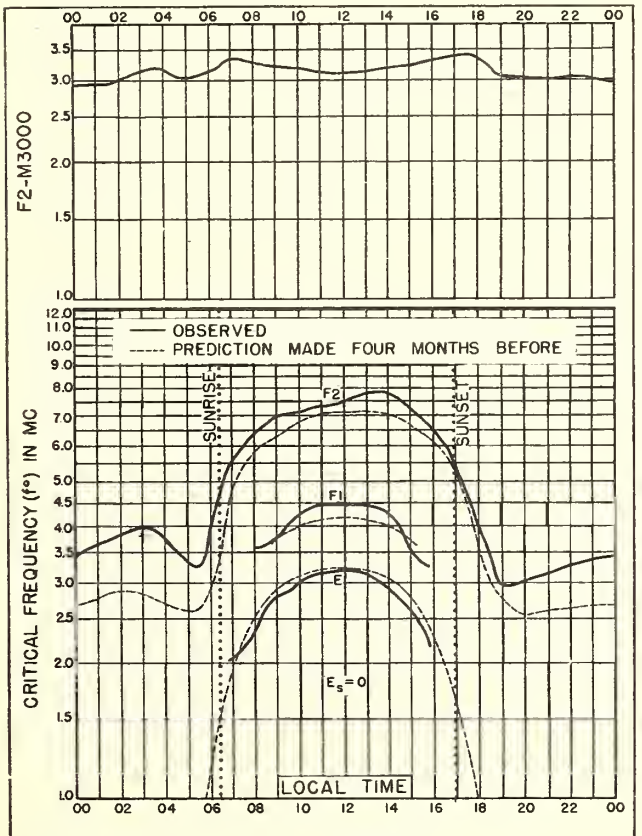

Fig. 7. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W NOVEMBER, 1944

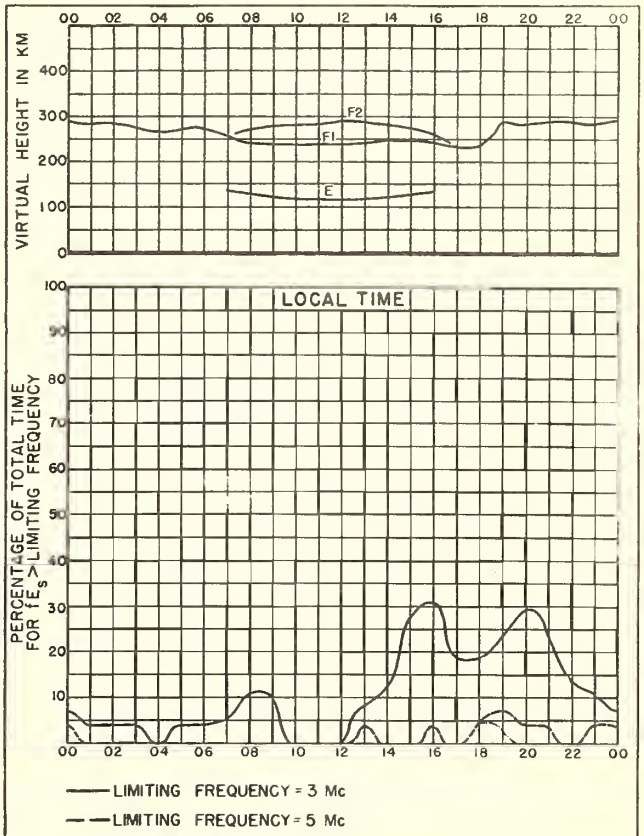

Fig.8. BATON ROUGE, LOUISIANA NOVEMBER, 1944

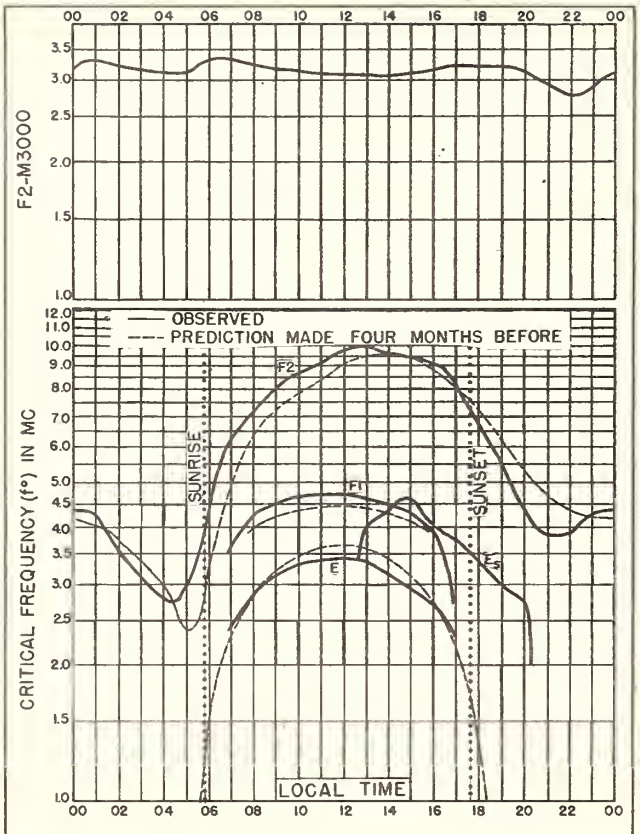

Fig. 9. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.3°W OCTOBER, 1944

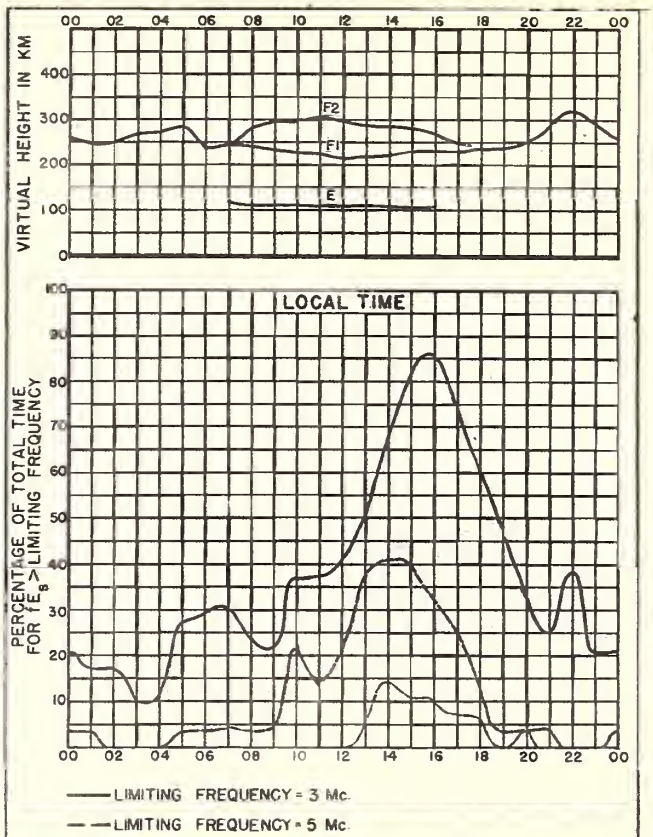

Fig. 10. TRINIDAD, BRIT. WEST INDIES OCTOBER, 1944

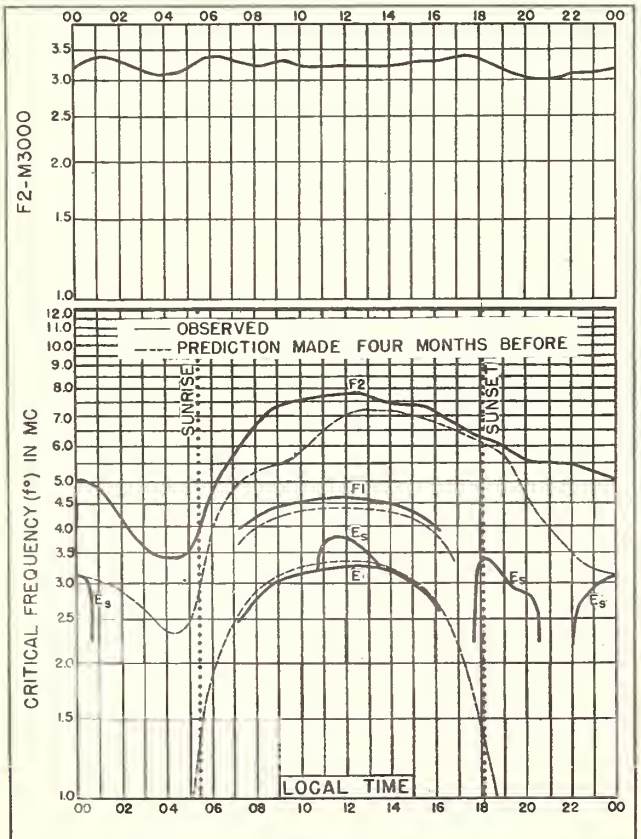

Fig. 11. BRISBANE, Q., AUSTRALIA
27.5°S, 153.0°E OCTOBER, 1944

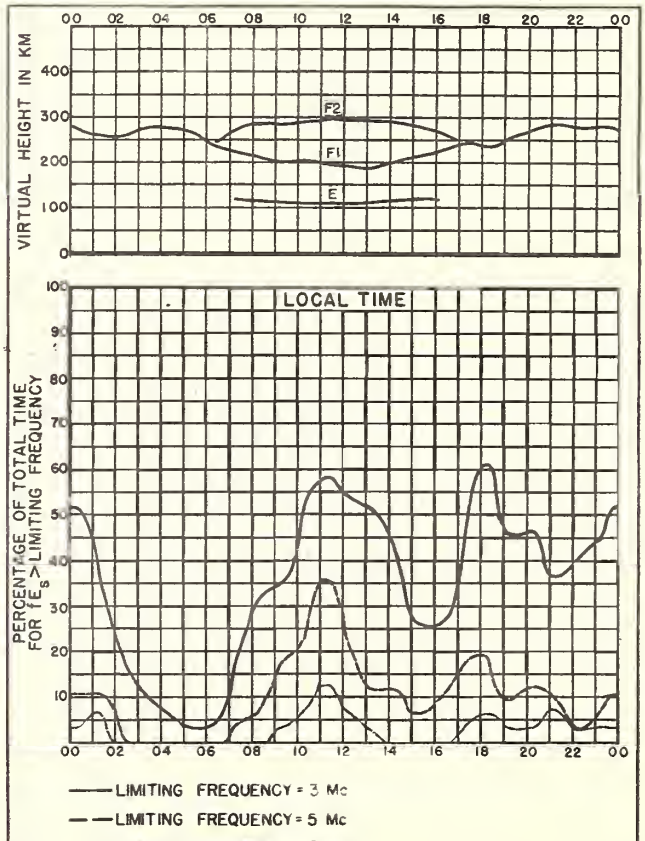

Fig. 12. BRISBANE, Q., AUSTRALIA OCTOBER, 1944

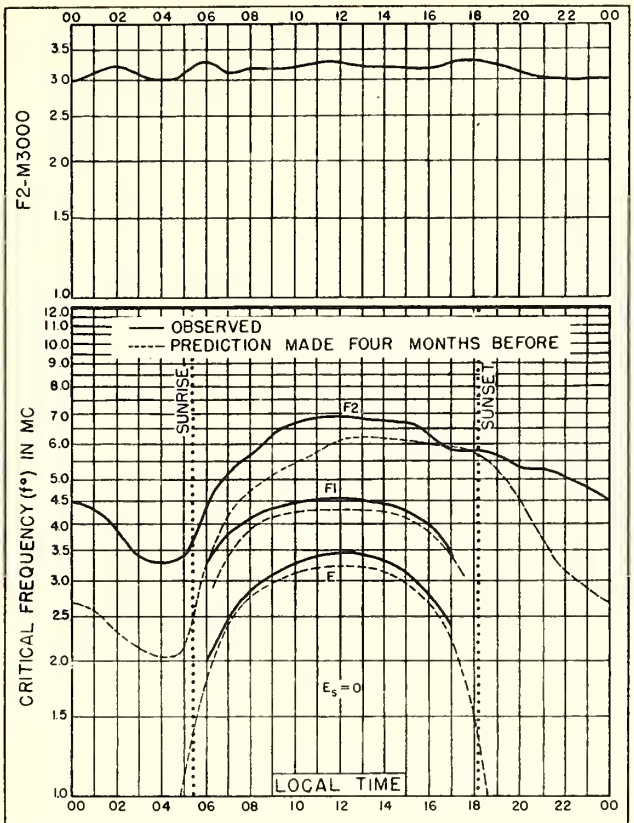

Fig.13 MT. STROMLO, N.S.W., AUSTRALIA
35.3°S, 149.0°E OCTOBER, 1944

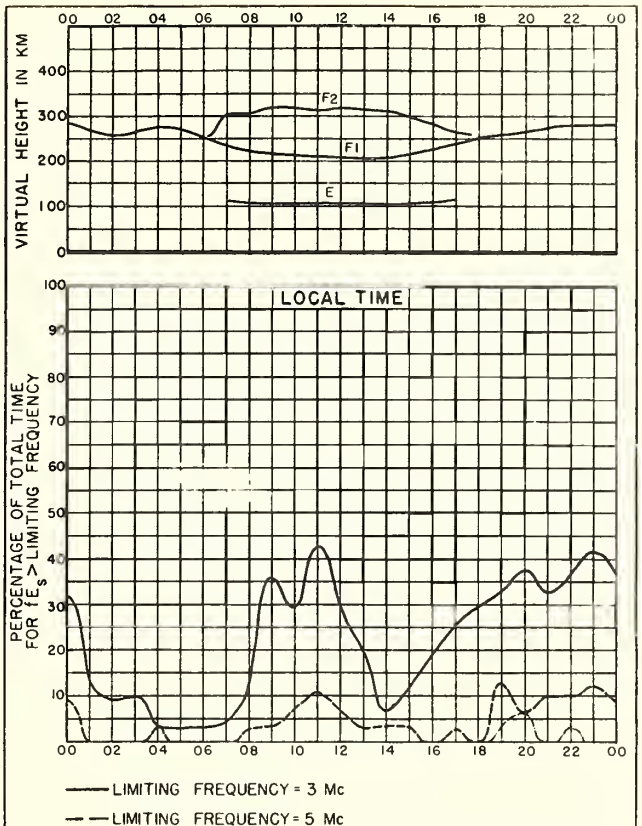

Fig 14 MT. STROMLO, N.S.W., AUSTRALIA OCTOBER, 1944

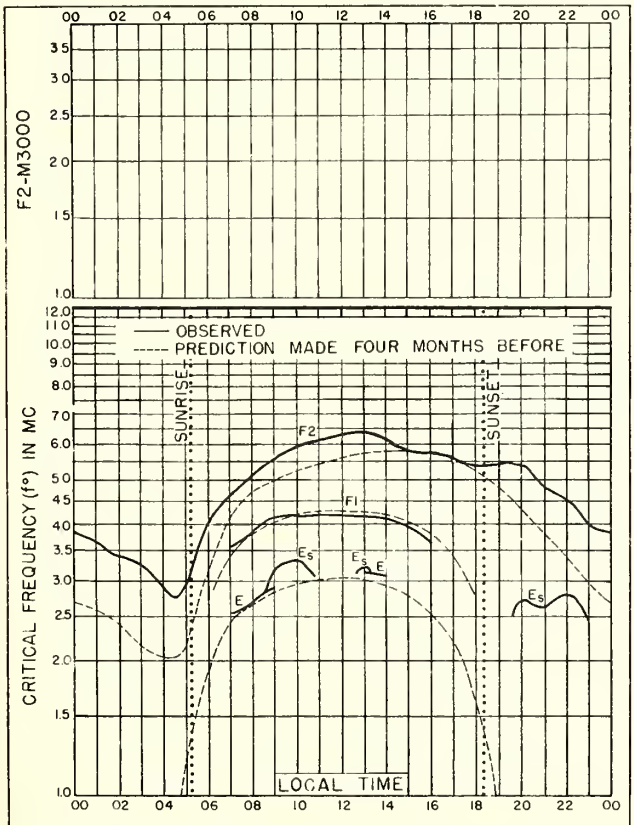

Fig.15 CHRISTCHURCH, NEW ZEALAND
43.5°S, 172.6°E OCTOBER, 1944

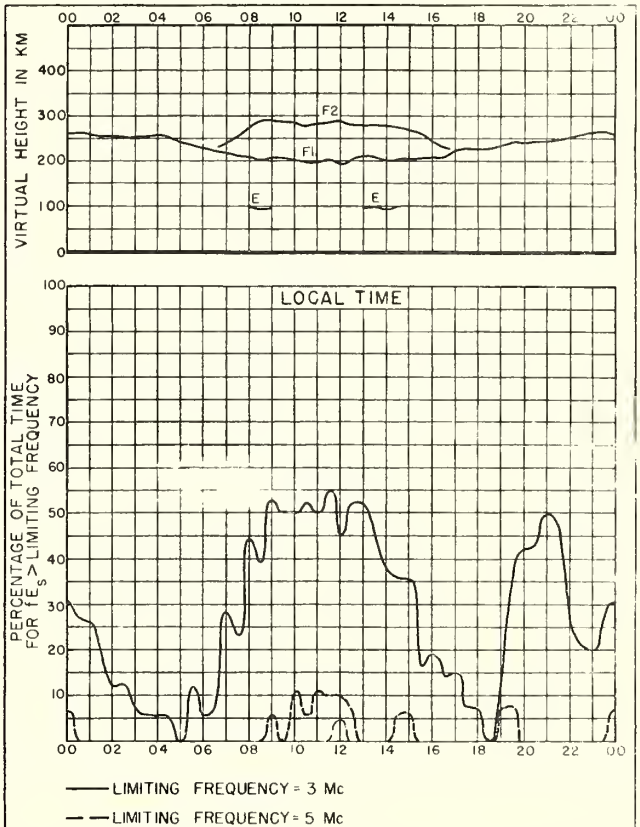

Fig 16. CHRISTCHURCH, NEW ZEALAND OCTOBER, 1944

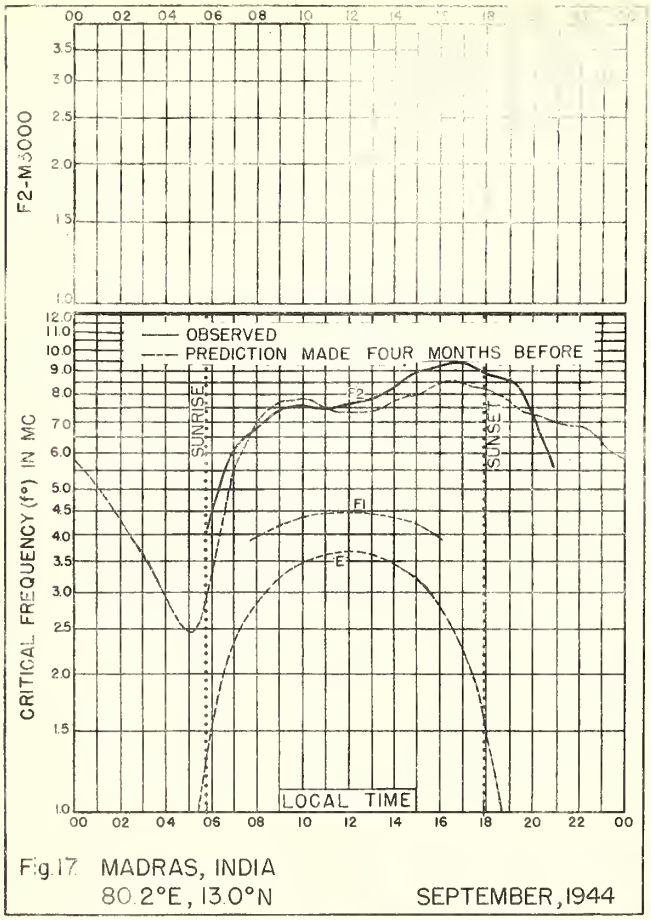

Fig.17 MADRAS, INDIA
80.2°E, 13.0°N
SEPTEMBER, 1944

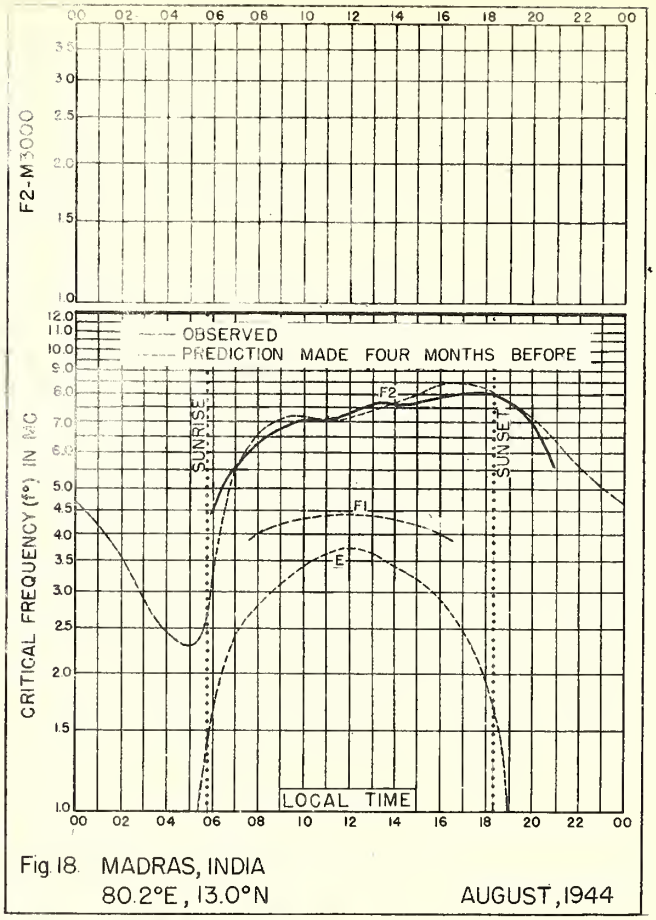

Fig.18 MADRAS, INDIA
80.2°E, 13.0°N
AUGUST, 1944

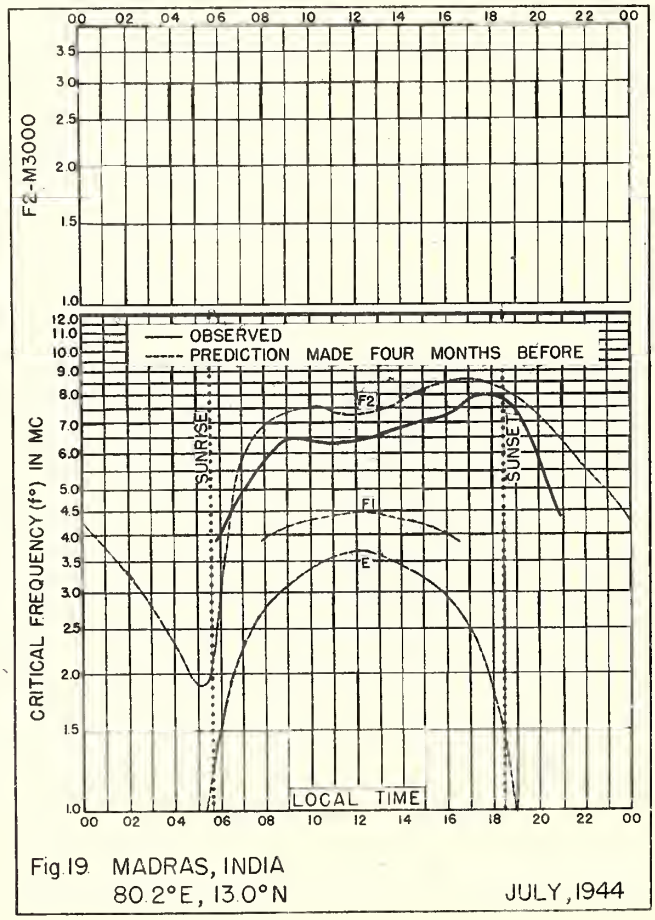

Fig.19 MADRAS, INDIA
80.2°E, 13.0°N
JULY, 1944

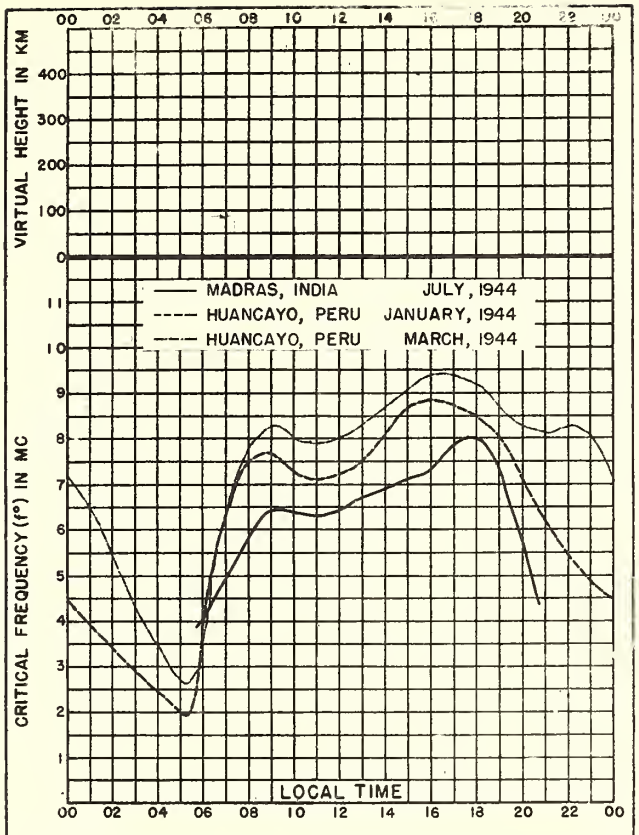

Fig. 20. COMPARISON OF f°F2 AT MADRAS, INDIA (13.0°N, 80.2°E) AND HUANCAYO, PERU (12.0°S, 75.3°W)

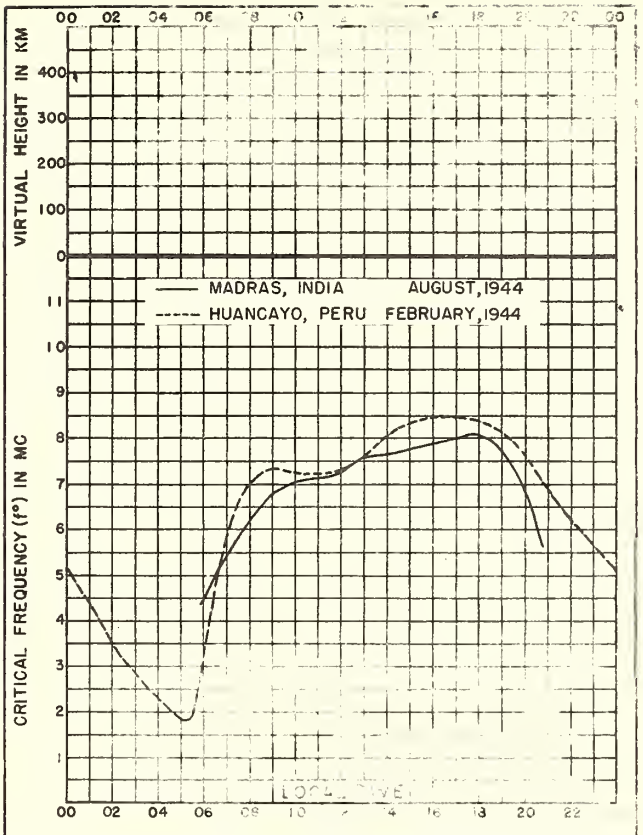

Fig 21. COMPARISON OF f°F2 AT MADRAS, INDIA (13.0°N, 80.2°E) AND HUANCAYO, PERU (12.0°S, 75.3°W)

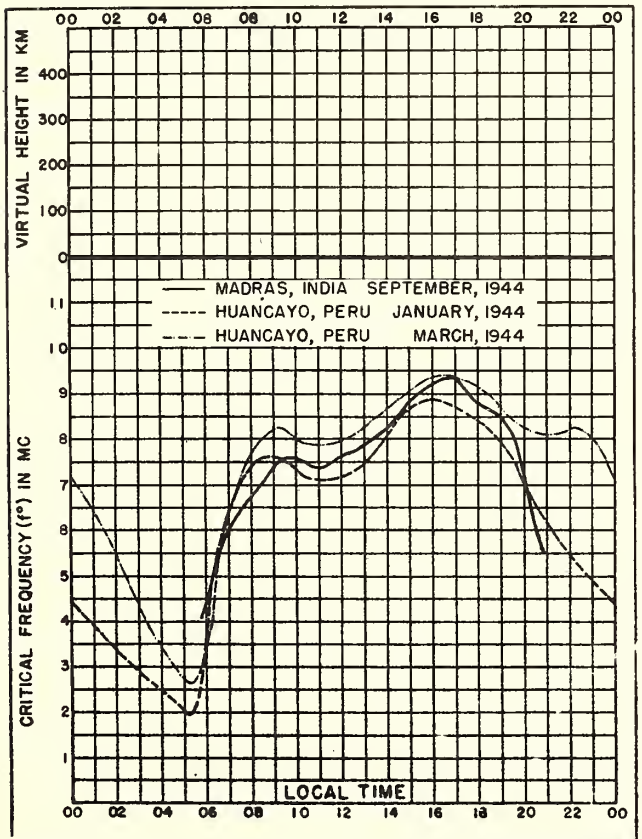

Fig 22. COMPARISON OF f°F2 AT MADRAS, INDIA (13.0°N, 80.2°E) AND HUANCAYO, PERU (12.0°S, 75.3°W)

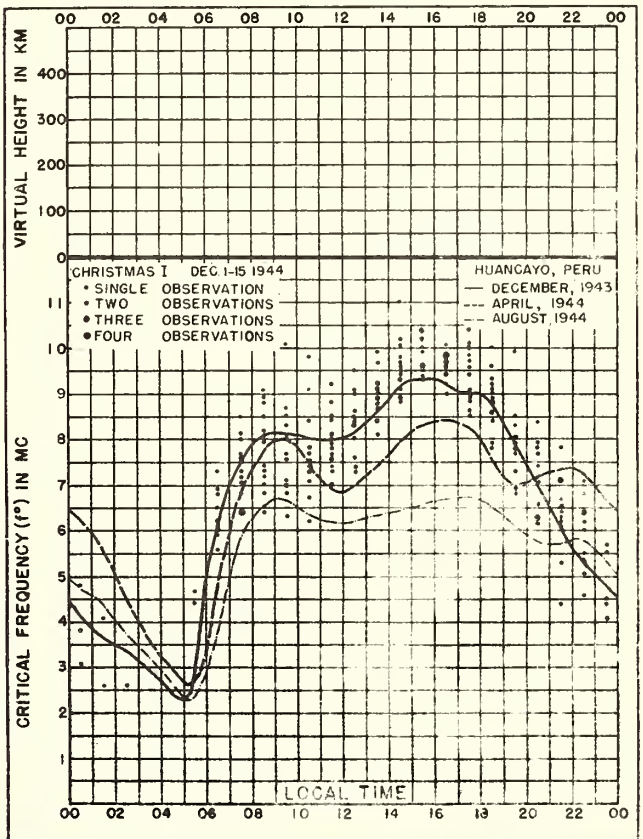

Fig 23. COMPARISON OF f°F2 AT CHRISTMAS I (2.0°N, 157.4°W) AND HUANCAYO, PERU (12.0°S, 75.3°W)

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