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KODAIKANAL OBSERVATORY

Bulletin No. CLXXIII

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KODAIKANAL OBSERVATORY

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PART I

Summary of Prominence and Calcium Flocculus Observations for the second half of 1963

The results of observations of prominences and calcium flocculi made at Kodikanal Observatory during second half of 1963, supplemented by data derived from photographs supplied by Meudon Observatory for those days on which Kodikanal had imperfect or no observations due to cloudy sky conditions are summarised in Part I of this bulletin. Our thanks are due to the Meudon observatory for the photographs supplied.

Calcium Prominences on the limb — During the half-year under review photographs of calcium prominences were secured at Kodikanal on 102 days. Spectroheliograms for 47 days were obtained from Meudon Observatory. In all observations were available on 116 effective days after giving due weightage to the quality of the photographs.

The mean daily area (in square minutes of arc) and mean daily number of prominences derived from all the above records are as follows —

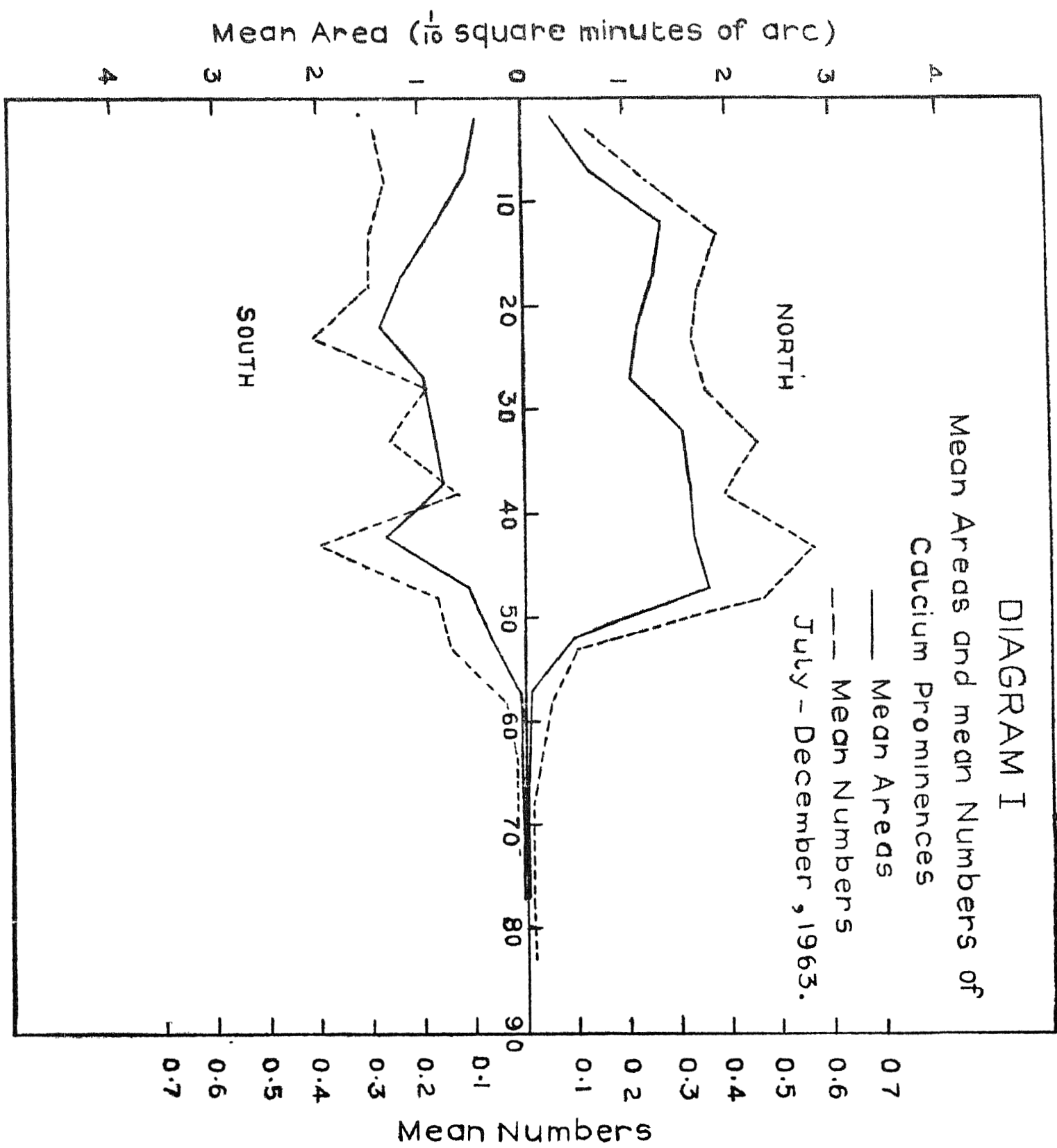
	Combined data	
	Mean daily area	Mean daily number
North	1.31	3.88
South	0.92	2.86
TOTAL	2.23	6.74

These figures, when compared with the previous half-year's values show a decrease of 11.2% in area whereas in the case of number there is an increase of 1.7%.

The distribution of areas and numbers in five degree ranges of latitude, as obtained from the combined data is presented in diagram I. The peak of activity of areas in the northern hemisphere is centred in the latitude belt 15°-50° whereas numbers show maximum activity in the belt 40°-45°. In the southern hemisphere there are two peaks of activity of both area and numbers in the latitude belts 20°-25° and 40°-45°.

The monthly, quarterly and half-yearly areas, numbers, heights and extents of prominences as derived from all the available records are tabulated below —

1963 Months	No. of effective days	Area (Sq minutes)	Numbers	Daily means		Mean height	Mean extent
				Area (Sq minutes)	Number		
July	23	37.05	121	1.61	5.26	34.96	2.79
August	21½	36.25	153	1.71	7.20	34.22	2.36
September	18½	48.50	145	2.62	7.84	39.86	2.63
October	20½	53.70	143	2.62	6.98	41.64	3.19
November	15	38.90	85	2.59	5.67	45.82	3.23
December	17½	44.25	135	2.49	6.43	39.85	2.75
Third Quarter	62½	121.80	419	1.94	6.68	36.38	2.58
Fourth Quarter	53½	136.85	363	2.57	6.81	41.96	3.03
Second half-year	116	258.65	782	2.23	6.74	38.97	2.79



The distribution of prominences about the sun's axis of rotation is given below —

1963 July—December			
	East	West	Percentage East
Total area (Square minutes)	116.65	142.00	45.1
Total numbers	339	443	43.3

Prominences Projected on disc as dark markings — During the half-year under review photographs of the sun's disc in H-alpha line were obtained at Kodaikanal on 57 days. Spectroheliograms for 69 days were obtained from Meudon Observatory. On the whole, records were available for 103 effective days.

The mean daily area in millionths of the sun's visible hemisphere (uncorrected for foreshortening) and the mean daily numbers of the H-alpha dark markings as derived from the combined photographs are given below —

	Combined data	
	Mean daily area (Millionths of the sun's visible hemisphere)	Mean daily number
North	1967	13.88
South	665	6.20
TOTAL	2632	20.08

On comparing with the previous half-year's values, these figures show an increase of activity, the increase being, 19.6% in areas and 15.7% in number.

The distribution of the areas of absorption markings in 5 degree ranges of latitude as obtained from the combined data is shown in diagram II.

There are two peaks of activity in the northern hemisphere in latitude belts 20°–25° and 45°–50°.

The distribution of total area and numbers of dark markings east and west of the sun's axis of rotation is given below —

	1963 July—December		
	East	West	Percentage East
Total area (Millionths of the sun's visible hemisphere)	1,320,31	1,390,63	48.7
Total numbers	984	1,085	47.6

Summary of calcium flocculus observations — During the half-year under review, calcium flocculi photographs were obtained at Kodaikanal on 123 days. Spectroheliograms for 41 days were obtained from Meudon Observatory. On the whole records were available for 128½ effective days.

The distribution of area of the calcium flocculi, east and west of the sun's axis of rotation is given below —

	1963 July—December		
	East	West	Percentage East
Total area (in millionths of the sun's visible hemisphere)	2,48,937	2,92,813	45.9

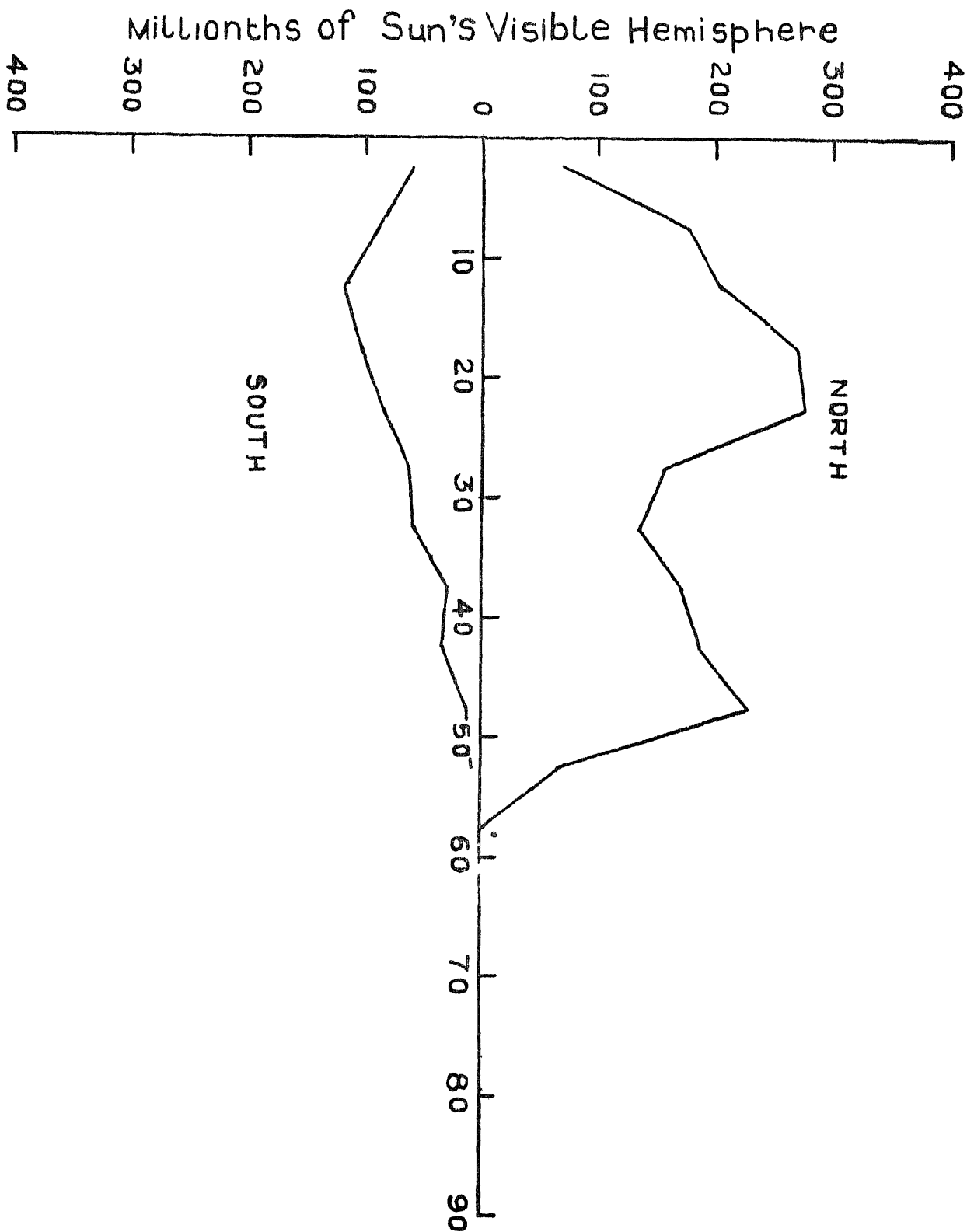


DIAGRAM II
Mean Area of H-alpha Absorption Markings
July - December, 1963.

The mean daily area in millionths of the sun's visible hemisphere (uncorrected for foreshortening) as derived from the combined photographs are given below —

	North	South	Total
Mean daily area (in millionths of the sun's visible hemisphere)	3171	1045	4216

Compared to the previous half year there is a slight increase in activity, of 1.7%

Particulars of sudden disappearances, surges and active prominences are given in Tables I and II

Solar flare Patrol

Observations with the Hale Spectroheliograph.—Details of Doppler displacements in the H-alpha line observed in Prominences and darkmarkings are given below —

	North	South	East	West	Displacements to red and violet
Displacements in Darkmarkings	18	1	11	8	19
Displacements in Prominences	17	6	8	15	23

Details of Solar flares are given in Table III

The times of patrol with the spectroheliograph and the Lyot monochromatic heliograph are shown in the accompanying diagrams

Solar Radio Emission. All the outstanding occurrences observed at Kodaikanal are given in table IV

PART II

Magnetic Observations for the Second Half of 1963

Brief descriptions of the absolute instruments, the variometers and the system of observations are available in Bulletins Nos. CXXXII and CXXXVI of this observatory. The data given in this bulletin are derived mainly from the records of La Cour Instruments but in the case of failure of La Cour magnetograph Watson magnetograms have been used.

The adopted values of the scale coefficients for the Declination, Horizontal Force and Vertical Force for the second half of 1963 were 14 γ /cm, 29 γ /cm and 120 γ /cm respectively

PART III

Ionospheric observations for the second half of 1963

A description of the system of ionospheric observations at Kodaikanal with a brief description of the Ionosphere Recorder has been given in the Bulletin No. 146 of this Observatory. The present Bulletin contains half-hourly values of eleven ionospheric parameters *viz.*, foF2, foF1, foE, foEs, fbEs, f-min, h'F2, h'F, h'Es, and (M3000) F2 with symbols and terminology as recommended by the Special Committee on World-wide Ionospheric Soundings to the URSI/AGU in its First Report (Brussels, September, 2, 1956)

KODAIKANAL OBSERVATORY, }
June, 1966.

M. K. VAINU BAPPU,
Director

TABLE I
Observations of Sudden Disappearances

Date	Phenomenon	Time when object last observed before activation U T		Time when disintegration observed U T		Time when object has disappeared U T		Position		Importance	Remarks
		Hrs	Mts	Hrs	Mts	Hrs	Mts	Lat	Mean Longitude		
1	2	3	4	5	6	7	8	9	10	11	12
11-11-1963	Darkmarking	11	03					11°S	32°W	1	Actual disintegration not observed. Darkmarking disappeared on 12th November 1963

TABLE II
Surges, active prominences etc,

Date 1963	Phenomenon	Importance	Time in U T		Position (Hellographic) Latitude	Long diff from C M	Shift λ			Remarks
			Beg	End			Red	Violet	Time	
1	2	3	4	5	6	7	8	9	10	11
31st July	DSD	1	0331	0445	08°N	67°E	1 88 2 08	1 48 1 20	0339 0352	B
12th Aug	APR	1	*0403	0425	10°N	90°W	1 20	0 60	0406	Disappeared completely by 0425
30th Aug	APR	2	*0315	0600	20°N	90°W	—	—	—	K
6th Sept	DSD	1	*0146	0215	02°N	29°W	0 92	1 08	0146	G
9th Sept	DSD	1	*0840	0855	17°N	68°W	0 00	1 20	0840	A
13th Sept	BSL	2	*0444	**1045	14°N	90°E	2 32	2 32	0451	G
14th Sept	BSL	1	0152	—	15°N	90°E	1 60	0 68	0152	G
14th Sept	BSL	1	0205	0235	14°N	90°E	2 00	1 80	0205	G
14th Sept	DSD	1	0502	0515	05°S	30°E	2 60	0 00	0505	G
15th Sept	BSL	1	*0215	0400	14°N	90°E	1 20	1 36	0352	G

TABLE II- *Contd*

1	2	3	4	5	6	7	8	9	10	11
16th Sept	DSD	1	*0430	**0450	09°N	57°E	0 00	0 80	0435	G
17th Sept	DSD	1	*0702	—	11°N	40°E	—	—	—	C
18th Sept	DSD	1	0355	0405	13°N	25°E	0 00	0 80	0356	C
21st Sept	DSD	1	0342	—	07°N	10°W	—	—	—	C
5th Oct	BSL	1	*0315	**0837	07°N	90°E	1 52	1 28	0338	—
7th Oct	DSD	1	0152	0230	04°N	72°E	0 00	0 80	0152	—
8th Oct	DSD	1	0359	—	35°N	49°E	0 72	1 40	0359	—
12th Oct	DSD	1	0310	—	15°N	73°E	1 60	0 00	0310	—
12th Oct	BSI	1	0640	—	22°N	90°W	—	—	—	—
19th Oct	BSL	1	*0145	0214	10°N	90°E	1 80	2 20	0155	—
19th Oct	BSL	1	*0413	**0432	11°N	90°E	0 92	1 60	0413	—
19th Oct	BSL	1	0153	0520	08°N	90°E	1 60	1 40	0507	—
19th Oct	DSD	1	*0350	—	13°N	75°E	—	—	—	—
19th Oct	APR	3	0214	0308	12°N	90°E	—	—	—	C, R
19th Oct	APR	3	0445	0520	12°N	90°E	—	—	—	C, R
23rd Oct	APR	1	0355	**0711	07°N	90°W	1 00	1 40	0357	—
23rd Oct	APR	1	1026	**1027	12°N	90°W	—	—	—	—
27th Oct	DSD	1	0302	0350	07°N	14°W	—	—	—	G
27th Oct	DSD	1	0458	0530	07°N	14°W	—	—	—	G
28th Oct	DSD	1	*0231	**0318	11°N	25°W	—	—	—	C
28th Oct	BSL	1	0445	**0740	12°S	90°W	1 00	1 00	0445	—
28th Oct	BSL	1	0732	**0745	12°S	90°W	1 68	1 76	0732	—
29th Oct	DSD	1	0330	**0427	13°S	63°W	—	—	—	—
31st Oct	BSL	1	0150	0209	10°S	90°W	1 60	1 60	0155	—
31st Oct	BSL	1	0220	0250	10°S	90°W	1 40	1 10	0230	—
31st Oct	BSL	1	0335	0358	10°S	90°W	1 16	1 16	0338	—
14th Nov	DSD	1	*0520	**0522	14°N	12°W	—	—	—	B
25th Nov	APR	2	0302	0400	14°N	32°W	1 68	1 12	0302	—
12th Dec	APR	2	0232	0241	24°N	90°W	—	—	—	K
15th Dec	DSD	1	0250	0435	30°N	08°E	1 60	0 80	0253	—
18th Dec	DSD	1	0210	0450	30°N	28°W	—	—	—	B
24th Dec	APR	2	*0730	0910	15°N	90°E	—	—	—	Q

* First observation of the Phenomenon and not the beginning of the Phenomenon

** Last observation of the Phenomenon and not the end of the Phenomenon

TABLE III
Solar Flares

Date 1963	Time in UT				Mean Latitude	Mean Longitude from Central Meridian	Importance	Maximum width of H-alpha line observed Å
	Beg	Maximum		End				
1	2	3	4	5	6	7	8	
	H M	H M	H M	°	°			
31st July	03 31	03 31	03 35	11°N	68°E	1 ⁻	1 40	
31st July	*07 56			15°N	38°W	1 ⁻		
18th August	*03 00		**03 01	11°S	03°E	1 ⁻⁻⁻		
13th Sept	10 07		10 12	08°S	42°E	1	1 40	
14th Sept	03 31	03 31	04 00	11°S	85°E	2	2 20	
14th Sept	04 46	05 20	**07 00	14°S	85°E	2	3 00	
14th Sept	05 10		05 27	10°S	32°E	1		
14th Sept	06 50	06 50		10°S	30°E	1 ⁻		
15th Sept	03 44	04 19	04 28	10°N	71°E	2	1 80	
15th Sept	05 02	05 08	05 30	13°N	67°E	3	1 40	
16th Sept	02 45	02 53	03 00	13°N	59°E	1	2 04	
16th Sept	03 25	04 22	04 32	10°N	56°E	3 or 2 [†]		
16th Sept	03 25	03 25		08°S	01°E	1		
16th Sept	07 40			13°N	54°E	2		
16th Sept	08 17		08 20	09°S	04°W	1 ⁻⁻⁻		
16th Sept	*10 33		**10 47	12°N	52°E	3 or 2 [†]	1 60	
17th Sept	*02 13		**02 16	13°N	43°E	1 ⁻		
17th Sept	*03 14	03 45	**04 15	13°N	42°E	1	2 20	
17th Sept	04 51	04 55	05 10	14°N	43°E	1		
17th Sept	06 46	07 03	07 30	13°N	41°E	2		
17th Sept	*08 35		**08 36	13°N	43°E	1 ⁻⁻⁻		
18th Sept	03 28	04 08	04 47	12°N	28°E	2	1 80	
19th Sept	04 39			13°N	18°E			
21st Sept	03 42	03 51	04 02	14°N	10°W	2	1 72	
21st Sept	04 37	04 50		18°N	00°E	1 ⁻⁻⁻		
21st Sept	05 41	06 23		14°N	13°W	1		
23rd Sept	03 47		04 22	13°N	30°W	1 ⁻⁻⁻		
24th Sept	02 48			15°N	43°W	1 ⁻⁻⁻		

TABLE III—Contd

1	2	3	4	5	6	7	8
24th Sept	03 51			10°N	54°W	1 ⁻	
25th Sept	03 50			15°N	62°W	1 ⁻	
26th Sept	*07 10		08 19	11°N	78°W	3 ⁺	3 80
8th Oct	03 30	03 30	03 35	35°N	51°E	1 ⁻	1 28
15th Oct	02 25		02 40	02°N	05°W	1 ⁻	1 40
19th Oct	02 14	02 19	03 08	10°N	90°E	Probably 2 ⁺	
19th Oct	03 42	03 42	**04 03	10°N	90°E	Probably 1	3 60
19th Oct	*04 39	04 47	05 20	10°N	90°E	Probably 2	5 75
23rd Oct	04 31	04 31	04 33	11°N	44°E	1 ⁻	1 20
26th Oct	10 54	11 04	11 28	12°N	03°W	2	
28th Oct	*02 30		**03 18	11°N	25°W	2	2 12
29th Oct	02 35	02 49	02 57	13°S	63°W	1 ⁻	1 60
14th Nov	*05 20		**05 22	13°N	10°W	1 ⁻	1 68
13th Dec	*03 21		**03 26	30°N	30°E	1 ⁻	
13th Dec	09 35	09 40	09 48	30°N	28°E	1 ⁻	1 56
18th Dec	02 10	02 14	02 17	30°N	28°W	1 ⁻	1 36

* First observation of the flare and not the beginning of flare

** Last observation of the flare and not the end of the flare

TABLE IV
SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
July—December, 1963

Frequency 100 Mc/Sec

Normal Observing } 0300 hrs to
Period } 1000 hrs U TStation Astrophysical Observatory, Kodaikanal
(Latitude 10 2° N Longitude 77 5° E)

Date	Starting time in U T	Duration in minutes	Type	Maximum flux density ($\times 10^{-22}$ w m ⁻² (G/S) ⁻¹)		Remarks
				Smooth		
1	2	3	4	5	6	7
	H M					
August 6	09 25	110	ECA	> 185		
August 6	08 59	13	ESD	> 187		
August 9	06 12	0 5	SD	14		
August 20	06 43	1 0	SD	> 6		
August 24	05 56	0 5	SD	> 106		

TABLE IV—Contd.

1	2	3	4	5	6	7
August 24	06 05	1 0	SD	27		
September 4	06 43	0 5	SD	> 4		
September 13	04 26	34	ECD	>170		Partial radio fade out
September 14	06 50	80	CA	> 86		Solar flare of imp 2
September 15	04 42	168	CA	> 7		Solar flare of imp. 3.
September 16	04 29	255	CA	> 14		Solar flare of imp 3 & 2
September 17	03 07	383	CA	> 46		Solar flare of imp, 1 & 2
September 18	02 30	480	CA	>417		Solar flare of imp 2
September 19	02 50	420D	CA	>458		
September 20	02 50	360D	CA	>573		
September 21	03 10	410D	CA	>250		Solar flare of imp 2 Partial radio fade out
September 22	03 10	470	CA	>344		
September 23	04 30	240	CA	> 26		
September 24	04 35	75D	CA	> 5		
September 26	05 10	2 0	SD	>135		
September 26	05 32	1 5	SD	> 40		
September 26	06 43	82	ECD	>483		Solar flare of imp 3 + Complete short wave radio fade out
October 19	05 05	1 0	SD	> 13		Solar limb flare of imp 2
October 19	05 13	2 0	SD	> 13		
October 22	04 28	3 0	SD	121		
October 23	04 41	1 0	SD	175		
October 24	03 41	1 5	SD	>115		
October 24	03 51	1 0	SD	> 35		
October 24	05 40	2 0	SD	>232		
October 24	05 43	1 0	SD	>232		
October 25	04 17	383	CA	> 88		
October 27	03 15	240	CA	> 196		
October 28	02 44E	193	CA	> 57		Solar flare of imp 2 and partial short wave radio fade out
December 6	04 20	180	CA	138		

PART II
MAGNETIC DATA

TABLE 5

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2° plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	38 3	37 2	36 6	36 9	38 6	39 6	40 3	40 6	40 3	40 7	39 0	38 9	38 6	39 2	39 2
†2	38 0	37 6	37 1	37 0	38 6	39 5	40 8	41 5	40 9	40 4	39 4	38 7	38 7	39 4	39 5
†3	38 6	37 4	37 3	38 0	39 4	40 5	40 7	40 7	40 7	40 2	39 7	39 1	39 4	39 3	39 4
4	38 7	38 6	38 0	38 4	38 7	39 3	40 5	41 6	41 6	40 9	40 2	39 3	39 1	39 4	40 0
5	37 7	37 4	36 0	37 7	38 8	40 6	40 8	40 9	39 6	39 6	39 5	39 5	39 6	40 2	40 2
6	38 1	38 0	37 8	38 1	39 5	39 5	40 9	40 8	40 2	39 6	39 5	39 4	39 5	39 4	39 9
7	38 1	38 0	37 8	38 1	38 8	40 6	41 9	42 2	42 2	41 0	40 5	39 5	39 2	39 4	39 1
8	38 8	38 0	37 5	38 2	38 8	40 2	40 9	41 0	41 0	40 6	39 6	39 5	38 8	39 2	39 6
9	38 9	38 6	37 6	38 2	38 2	38 8	39 6	40 4	40 9	40 6	39 7	39 2	39 0	38 9	39 6
10	38 9	38 2	38 1	38 2	39 0	39 7	40 9	41 0	40 6	40 7	40 3	39 5	39 6	39 5	39 3
11	38 6	37 6	37 5	38 0	38 8	39 9	41 2	41 3	41 0	40 5	40 2	39 1	38 9	38 8	38 9
12	38 4	38 1	38 0	38 7	39 4	40 8	41 6	42 2	42 4	41 6	40 8	39 6	39 5	39 4	39 2
13	38 7	38 2	38 1	38 1	38 9	40 6	41 0	41 6	41 5	41 0	40 6	39 5	39 2	39 4	39 4
†14	38 8	38 1	37 5	37 7	39 3	40 2	40 9	40 8	40 8	40 8	40 1	39 3	39 1	39 3	39 4
†15	38 1	38 0	38 0	38 4	39 3	40 1	41 4	40 9	40 5	40 2	40 1	39 3	38 8	39 1	39 3
16	38 0	37 9	37 6	38 0	38 7	40 0	41 4	41 4	40 7	40 1	39 4	38 9	39 0	38 7	39 3
17	38 0	37 3	37 3	37 5	38 5	39 3	39 2	38 7	38 5	38 7	37 9	37 8	37 5	37 6	37 9
18	37 2	36 6	37 0	37 5	38 7	39 3	40 0	39 6	39 4	39 6	38 3	37 8	37 9	38 6	38 7
19	37 6	37 1	36 8	37 5	38 9	40 0	40 6	40 5	39 3	38 6	39 2	38 5	37 9	38 5	37 8
20	37 7	37 2	37 2	37 7	38 9	40 0	40 5	40 3	39 9	38 6	37 8	37 7	38 1	38 5	39 2
††21	37 9	37 5	37 2	37 8	39 2	39 3	40 0	40 6	39 9	39 2	37 8	37 7	37 7	37 2	37 7
22	37 2	36 5	36 4	36 5	37 8	39 2	40 3	40 3	38 9	37 7	36 5	37 0	37 2	37 5	37 5
††23	37 5	37 1	36 4	37 1	37 7	39 0	39 1	39 2	39 8	39 9	39 2	38 8	37 7	37 6	37 7
††24	37 4	37 0	35 7	36 0	37 0	37 6	38 7	38 4	39 1	39 1	39 1	39 0	37 6	37 3	36 3
25	37 3	36 3	35 9	36 3	37 1	37 8	38 5	38 9	37 2	37 8	38 4	37 4	37 2	37 5	37 8
26	37 9	37 2	37 0	37 2	37 7	39 9	40 6	40 3	40 0	39 9	38 9	38 5	37 9	37 7	37 8
27	37 5	37 2	36 4	36 5	37 3	38 9	39 3	40 0	39 3	37 9	37 5	39 3	37 8	37 6	37 5
28	37 6	37 3	37 2	37 6	38 6	39 0	39 3	39 3	39 3	39 2	37 9	37 8	37 9	37 9	38 0
†29	37 9	37 3	36 6	37 2	38 0	39 4	40 8	41 5	41 6	40 9	40 1	39 4	39 0	37 3	39 3
††30	38 7	38 0	37 6	37 9	39 0	40 1	40 7	40 1	39 4	39 1	39 1	38 6	38 0	37 9	38 0
††31	37 4	36 6	36 5	36 6	37 9	39 7	39 4	39 1	39 3	39 4	38 1	38 7	39 0	38 1	38 8
Mean	38 0	37 5	37 2	37 6	38 6	39 6	40 4	40 5	40 2	39 8	39 1	38 7	38 5	38 6	38 8
Mean†	38 3	37 7	37 3	37 7	38 9	39 9	0 9	41 1	40 9	40 5	39 9	39 2	39 0	39 3	39 4
Mean††	37 8	37 2	36 7	37 1	38 2	39 1	39 6	39 5	39 5	39 3	38 7	38 6	38 0	37 6	37 7

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 5

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2° plus tabular quantities

Hours G M T										Mean	Maximum		Minimum		Range	Date				
15	16	17	18	19	20	21	22	23	Time		Mag	Time	Mag							
											H	M	'							
39 0	39 2	39 2	39 0	38 9	38 9	38 7	38 6	38 5	38 9	06	50	40	7	01	52	36	5	4	2	1
39 5	39 4	39 4	39 3	39 0	39 1	38 7	38 7	38 7	39 1	07	10	41	6	02	00	36	6	5	0	2†
39 4	39 4	39 3	39 4	39 3	39 1	38 8	38 7	38 7	39 3	07	40	40	8	02	05	37	2	3	6	3†
40 5	40 2	40 2	39 5	39 1	39 3	39 1	38 8	38 0	39 5	07	45	41	8	02	07	37	9	3	9	4
40 2	40 2	39 9	39 7	39 5	39 2	38 8	38 2	38 2	39 3	07	15	41	2	01	55	35	9	5	3	5
39 5	39 4	39 5	39 5	39 1	39 2	38 9	38 2	38 4	39 1	06	45	41	0	01	50	37	7	3	3	6
39 4	39 5	39 5	39 2	39 1	39 1	38 8	38 8	38 9	39 5	07	45	42	3	02	08	37	7	4	6	7
39 7	39 5	39 6	39 6	39 3	38 8	39 0	38 9	39 0	39 4	06	35	41	1	02	05	37	4	3	7	8
39 7	39 6	39 7	39 6	39 5	39 6	39 2	39 0	38 9	39 3	07	50	41	0	02	10	37	5	3	5	9
39 6	39 7	39 6	39 3	39 2	39 3	38 9	38 8	38 9	39 5	06	55	41	0	01	45	37	9	3	1	10
38 9	39 2	39 1	38 9	38 8	38 9	39 1	38 9	38 8	39 5	07	05	41	7	01	55	37	3	4	4	11
39 5	39 6	39 4	39 5	39 2	39 1	38 9	38 9	38 8	39 7	07	30	42	6	01	50	37	8	4	8	12
39 4	39 5	39 4	39 2	38 9	39 2	38 9	39 1	38 9	39 9	06	40	41	7	02	15	38	0	3	7	13
39 4	39 4	39 3	39 1	39 3	39 1	38 8	39 0	38 7	39 3	06	05	41	1	02	10	37	3	3	8	14†
39 4	39 3	39 1	39 1	38 8	39 0	38 8	38 8	38 8	39 3	06	15	41	5	01	40	37	7	3	8	15†
39 4	39 2	39 3	39 3	38 7	38 6	38 6	38 7	38 6	39 1	06	30	41	5	01	50	37	4	4	1	16
37 9	37 3	37 6	37 9	38 0	37 8	37 6	37 3	37 3	38 0	05	00	39	3	02	10	37	2	2	1	17
38 9	39 0	38 9	38 7	38 0	38 3	38 0	37 8	37 9	38 5	05	45	40	3	01	10	36	6	3	7	18
38 5	38 8	38 6	38 5	38 1	38 1	38 5	37 9	37 8	38 5	06	20	40	7	01	45	36	6	4	1	19
39 2	39 3	39 2	39 1	38 6	38 5	38 5	38 6	38 5	38 7	05	55	40	6	01	40	37	1	3	5	20
38 4	37 8	38 4	38 1	38 5	37 9	37 9	37 7	37 5	38 3	07	10	40	9	01	45	37	1	3	8	21††
37 8	37 5	37 7	38 4	37 8	37 8	37 8	37 9	37 8	37 8	06	30	40	5	01	55	36	3	4	2	22
37 8	38 4	38 0	37 8	37 7	37 7	37 6	37 1	37 3	38 1	08	45	40	1	01	50	36	3	3	8	23††
37 0	37 7	37 6	37 7	37 7	37 7	37 7	37 6	37 1	37 6	09	30	39	2	01	50	35	6	3	6	24††
38 4	37 8	37 9	37 8	37 9	38 2	37 9	38 5	37 9	37 7	06	50	39	1	02	05	35	7	3	4	25
37 9	38 2	38 5	38 4	38 2	37 9	37 7	37 8	37 4	38 4	05	45	40	7	02	10	36	8	3	9	26
37 6	38 2	37 9	38 3	38 5	37 9	37 9	37 8	37 9	37 9	06	45	40	1	02	15	36	3	3	8	27
38 5	38 6	38 6	38 2	38 6	38 0	37 9	38 3	37 9	38 3	07	30	39	4	01	30	37	1	2	3	28
39 4	39 1	38 8	39 0	38 8	38 6	38 7	38 7	38 7	39.1	08	35	41	8	02	30	36	6	5	2	29†
38 7	38 7	38 6	38 3	38 0	37 7	37 4	37 4	37 4	38 3	06	15	40	8	02	15	37	3	3	5	30††
38 7	38 7	38 8	38 0	38 0	38 0	37 7	37 9	37 6	38 3	05	15	39	8	02	05	36	3	3	5	31††
38 9	38 9	38 9	38 8	38 7	38 6	38 1	38 3	38 2	38 8										Mean	
39 4	39 3	39 2	39 2	39 0	39 0	38 8	38 8	38 7											Mean†	
38 1	38 3	38 3	38 0	38 0	37 8	37 7	37 5	37 4											Mean††	

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 6

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

2° plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	37 4	37 2	36 5	37 6	38 7	38 8	39 5	39 8	39 5	39 3	39 1	38 8	38 7	38 8	38 6
2	37 6	36 6	36 5	36 7	38 0	38 8	39 0	39 1	39 4	38 1	37 7	38 0	38 6	38 7	38 8
3	37 4	36 3	35 9	36 3	38 3	39 5	40 7	40 9	40 8	40 2	39 3	38 1	38 0	38 1	39 0
4	37 3	36 7	36 5	37 0	38 8	40 7	41 6	41 4	40 1	39 1	39 1	37 9	37 3	37 2	37 7
5	37 3	36 2	35 2	36 2	37 7	39 0	40 4	41 1	40 8	10 2	39 3	38 3	37 6	38 0	39 0
6	37 2	36 2	35 9	36 9	38 7	39 5	40 2	40 4	40 2	40 1	38 8	37 1	37 3	37 9	38 7
7	Δ	Δ	Δ	38 1	39 5	40 2	40 7	40 9	40 5	39 1	37 9	37 4	37 4	38 0	38 7
8	37 2	37 0	36 2	36 5	36 7	37 4	39 3	40 2	40 2	40 1	38 8	37 4	37 3	37 3	38 6
9	37 4	37 3	36 0	36 3	37 6	39 0	40 2	40 1	40 1	40 1	39 5	38 8	37 7	37 1	37 7
10	37 4	36 6	36 3	37 0	39 3	40 8	41 6	41 4	40 4	39 1	38 6	37 1	37 4	37 4	37 7
†11	37 4	37 3	36 6	37 2	37 9	39 3	40 8	41 8	41 8	41 2	10 2	38 8	37 7	38 0	37 9
†12	37 4	37 0	36 3	36 8	37 8	39 5	41 0	41 6	41 0	40 6	39 6	39 4	38 8	38 7	38 8
†13	38 0	37 5	36 8	37 1	37 7	38 9	40 1	40 3	40 3	39 6	39 1	38 2	38 1	38 2	38 1
†14	37 5	36 6	36 4	37 1	38 5	39 9	40 6	40 6	39 8	39 2	38 5	38 1	38 2	38 5	38 8
15	38 0	37 5	37 5	37 8	38 4	39 2	40 1	41 0	41 7	41 6	10 6	39 6	38 9	38 8	38 8
†16	37 7	36 8	36 6	37 2	38 1	39 5	40 7	40 4	39 5	39 2	38 3	37 8	37 9	38 2	38 5
17	37 6	36 9	37 2	38 2	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
††18	37 5	36 8	37 2	37 8	38 5	39 5	39 7	39 7	39 6	39 2	39 0	38 5	38 1	37 8	36 9
††19	37 6	36 9	36 7	37 5	38 3	39 5	40 6	40 9	40 3	39 0	38 1	38 1	38 2	38 3	38 8
††20	35 3	35 0	34 8	36 1	36 6	38 0	37 8	37 7	38 5	38 1	37 5	36 8	36 4	36 6	37 3
††21	37 3	36 1	36 0	36 7	37 8	39 2	40 2	40 2	39 2	38 2	37 7	37 5	37 3	36 8	37 4
22	36 8	36 1	36 1	36 8	37 7	39 1	40 2	39 8	39 2	38 4	37 8	37 5	37 4	37 5	37 7
23	36 7	36 1	36 3	36 7	37 4	38 4	39 6	40 3	40 9	40 5	39 1	37 8	36 1	36 0	36 4
24	37 4	36 4	36 1	36 4	37 1	38 7	39 5	40 8	40 6	39 9	38 9	37 8	37 5	37 7	37 5
25	37 5	36 6	36 3	35 9	36 5	37 3	38 1	39 3	40 1	39 7	39 5	39 3	38 8	38 3	38 6
26	37 4	37 3	36 2	36 0	36 7	38 1	39 4	40 7	41 3	40 9	40 4	39 0	37 7	37 6	37 7
27	37 4	36 6	36 5	37 0	38 4	39 5	40 2	40 9	40 7	39 7	38 7	38 1	37 6	37 4	37 9
††28	36 6	36 3	35 2	36 0	37 2	38 1	39 3	39 5	40 1	39 5	38 1	36 9	36 5	37 0	37 6
29	37 4	36 7	36 5	38 4	39 3	40 2	40 5	40 7	40 1	39 1	37 7	37 3	37 4	37 6	37 9
30	37 6	36 5	36 2	36 6	38 0	40 0	40 7	40 6	40 7	39 3	38 0	37 3	37 2	37 8	37 6
31	37 3	37 1	36 5	37 3	38 3	39 3	40 3	40 1	40 1	39 2	37 9	37 9	38 0	37 9	37 8
Mean	37 3	36 7	36 3	36 9	37 9	39 1	40 1	40 4	40 2	39 6	38 8	38 1	37 7	37 8	38 1
Mean†	37 6	37 0	36 5	37 1	38 0	39 4	40 6	40 9	40 5	40 0	39 1	38 5	38 1	38 3	38 5
Mean††	36 9	36 3	36 0	36 8	37 7	38 9	39 5	39 6	39 5	38 8	38 1	37 6	37 3	37 3	37 6

† Five international quiet days

†† Five international disturbed days

Δ Loss of record, day omitted for means

TABLE 6

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August										2° plus tabular quantities							
Hours G M T										Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
										H	M	H	M				
38 3	38 1	37 7	38 0	37 9	38 0	38 0	37 9	37 9	38 3	06 40	40 1	02 15	36 2	3 9	1		
38 7	38 6	38 7	38 7	38 1	37 9	37 7	37 6	37 4	38 1	07 00	39 3	01 15	36 3	3 0	2		
38 8	38 7	38 8	38 7	38 6	38 1	37 9	37 7	37 6	38 5	06 45	41 1	02 15	35 8	5 3	3		
37 9	38 0	38 1	38 6	38 4	38 0	37 9	37 9	37 7	38 4	06 05	41 8	01 55	36 2	5 6	4		
39 1	39 3	38 8	39 0	31 7	38 4	38 0	37 6	37 4	38 4	06 15	41 4	02 05	35 1	6 3	5		
Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	6		
38 7	38 6	38 7	38 6	38 1	37 9	37 9	37 6	37 4	Δ	Δ	Δ	Δ	Δ	Δ	7		
38 7	38 6	38 7	38 6	38 0	38 4	38 6	38 0	37 7	38 1	07 35	40 4	02 05	36 0	4 4	8		
38 0	38 1	38 4	38 1	38 0	37 7	37 6	37 7	37 6	38 1	05 09	40 2	02 15	35 9	4 3	9		
38 0	38 1	38 0	37 7	37 6	37 9	37 7	37 9	37 7	38 3	05 50	41 6	02 10	36 0	5 6	10		
38 1	37 9	38 0	37 9	38 0	37 9	37 9	38 0	37 9	38 6	07 05	41 9	02 20	36 5	5 4	11†		
38 7	38 8	38 4	38 5	38 2	38 0	38 1	38 0	37 7	38 7	07 00	41 6	02 05	36 2	5 4	12†		
38 4	38 1	38 1	38 0	38 0	38 1	38 0	38 0	37 5	38 3	07 15	40 5	02 10	36 7	3 8	13†		
38 7	38 8	38 7	38 4	38 1	38 0	38 1	38 0	38 1	38 5	06 30	40 8	01 55	36 3	4 5	14†		
38 9	38 8	38 7	38 8	38 5	38 2	38 1	37 8	37 7	39 0	09 00	41 7	01 40	37 4	4 3	15		
38 6	38 6	38 3	38 2	38 3	38 1	38 1	37 9	37 8	38 3	06 15	40 9	01 55	36 4	4 5	16†		
Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	17		
37 4	38 1	38 1	38 2	38 2	37 9	37 8	37 9	37 8	38 2	06 15	39 9	14 15	36 7	3 2	18††		
38 9	38 9	38 5	37 9	38 1	37 8	37 6	37 4	36 2	38 3	07 05	41 0	23 00	36 2	4 8	19††		
37 5	37 7	38 0	37 7	37 5	37 5	37 4	37 4	37 1	37 1	08 00	38 6	01 35	31 6	4 0	20††		
37 5	37 8	38 0	37 8	37 7	37 5	37 5	37 4	37 3	37 8	06 30	40 3	01 40	35 4	4 9	21††		
37 8	37 8	38 0	38 0	38 0	38 0	37 7	37 5	37 1	37 9	05 15	40 3	01 55	36 0	4 3	22		
37 1	37 5	37 8	38 0	38 1	37 5	37 5	37 7	37 5	37 8	07 50	41 0	13 15	35 9	5 1	23		
37 7	37 8	38 0	38 1	37 8	38 1	38 0	37 7	37 5	38 0	07 15	40 9	02 15	36 0	4 9	24		
38 7	38 6	38 1	38 1	38 0	37 9	37 9	37 7	37 9	38 1	07 50	40 4	02 10	35 9	4 5	25		
38 0	38 0	37 9	38 1	38 0	38 0	37 9	37 7	37 1	38 2	08 20	41 5	02 20	35 9	5 6	26		
38 0	38 0	37 9	37 9	37 7	37 6	37 9	37 4	37 1	38 2	07 25	41 1	02 00	36 5	4 6	27		
37 9	38 1	37 9	38 1	38 1	37 9	37 9	38 0	37 6	37 7	07 55	40 2	02 05	35 1	5 1	28††		
38 1	38 0	38 6	38 1	38 0	38 0	37 7	37 6	37 4	38 3	06 55	40 8	01 55	36 3	4 5	29		
37 5	37 8	37 9	38 0	37 9	37 9	38 0	37 8	37 6	38 1	06 10	40 8	02 15	36 0	4 8	30		
37 5	37 3	37 8	37 6	37 5	37 5	37 3	37 5	37 5	38 0	06 00	40 3	01 50	36 4	3 9	31		
38 2	38 2	38 2	38 2	38 0	37 9	37 9	37 7	37 6	38 2						Mean		
38 5	38 4	38 3	38 2	38 1	38 0	38 0	38 0	37 8							Mean†		
37 8	38 1	38 1	37 9	37 9	37 7	37 6	37 6	37 3							Mean††		

† Five International quiet days.
 †† Five International disturbed days
 Δ Loss of record, day omitted for means.

TABLE 7

Hourly values of Declination (Westerly), 1962

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2' plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	37 3	36 1	35 5	37 2	39 2	40 8	41 5	41 7	41 0	39 2	37 8	37 5	37 6	37 6	37 8
2†	37 5	36 6	36 5	37 5	38 0	39 2	40 0	40 6	40 4	40 4	37 7	37 6	37 9	37 8	37 6
3	37 3	36 4	36 1	37 1	38 3	39 9	40 7	41 4	41 4	40 6	39 3	37 6	37 3	37 6	37 9
4†	37 2	36 5	35 8	36 8	39 3	40 7	42 0	41 8	40 7	41 3	37 9	37 1	37 2	37 6	37 9
5	37 1	36 4	36 5	37 1	37 8	39 3	40 0	40 5	40 5	38 9	37 8	37 1	37 2	38 5	38 6
6†	37 2	37 0	36 4	37 4	38 9	40 2	40 6	41 3	40 5	39 1	37 8	36 8	37 0	37 5	37 8
7†	37 4	36 7	36 4	37 1	37 7	39 8	40 7	41 3	40 9	39 8	38 6	37 8	37 7	37 8	37 8
8	37 7	37 0	36 1	37 5	39 1	39 9	40 6	40 7	40 3	39 1	37 8	37 5	37 1	36 8	37 7
9	37 8	37 2	36 8	37 4	38 5	39 3	40 2	40 6	40 3	39 2	37 9	37 7	37 7	37 8	37 7
10	37 4	36 7	35 8	36 4	37 4	37 9	39 1	39 3	39 3	38 9	37 9	37 7	37 8	37 8	37 9
11	37 5	37 1	36 4	37 2	37 8	38 5	40 0	40 9	41 0	40 2	38 6	37 5	37 1	37 2	37 7
12	37 7	36 5	36 4	37 3	38 5	39 4	40 3	40 6	40 6	39 4	38 9	37 9	37 6	37 8	37 8
13†	37 8	36 8	36 6	37 9	38 9	40 3	41 1	41 3	40 8	39 4	38 7	37 8	37 6	37 6	37 9
14††	38 0	37 3	36 6	37 6	39 2	40 1	40 8	40 4	38 9	37 1	35 5	35 2	36 5	36 1	35 0
15	36 6	36 1	36 5	37 2	39 0	39 4	40 4	40 7	40 1	39 6	37 9	37 5	37 2	37 1	37 2
16	37 1	36 6	36 5	38 0	39 2	40 1	40 8	40 4	39 2	38 0	36 6	36 1	35 4	36 9	37 2
17	37 5	36 6	37 2	37 8	39 0	39 4	40 7	39 4	39 0	38 6	37 2	35 4	36 4	36 2	36 6
18	36 6	35 9	35 5	36 9	36 2	39 1	40 9	41 6	41 6	40 5	39 3	38 0	36 9	36 6	37 3
19	37 6	36 3	36 2	37 4	37 9	39 5	40 9	41 5	40 9	40 1	38 7	36 6	35 3	36 5	36 2
20	37 4	36 5	36 0	37 2	38 0	39 4	40 5	40 7	40 2	38 8	37 0	36 2	36 9	37 4	37 2
21	36 6	35 2	33 8	36 9	38 1	39 8	40 8	41 5	40 5	39 3	38 0	36 7	37 3	37 9	37 9
22††	37 6	37 0	36 0	36 3	37 2	36 6	38 0	37 0	35 9	36 3	37 2	37 4	37 4	36 6	36 7
23††	36 0	33 1	31 7	32 4	33 1	35 6	38 0	39 8	39 1	38 1	36 6	36 3	36 0	35 9	36 5
24	36 7	36 2	35 2	36 3	37 7	39 0	40 2	40 7	40 5	39 1	37 7	36 9	37 3	37 3	37 3
25††	36 0	35 5	33 1	33 9	34 6	36 7	38 0	38 7	38 4	37 4	36 5	35 9	36 5	36 7	37 0
26	36 6	36 3	36 2	36 5	37 5	38 7	39 3	40 1	39 7	39 2	37 6	36 5	36 4	36 5	37 1
27	36 6	36 3	36 2	37 1	38 6	39 3	40 1	40 4	39 4	38 2	37 6	36 9	36 6	36 6	37 1
28††	36 6	36 4	35 2	36 2	37 6	37 9	38 9	39 0	38 3	37 8	37 3	37 2	36 6	36 5	36 2
29	37 2	36 6	36 5	36 2	36 6	37 3	37 8	39 0	38 6	37 8	36 6	36 4	36 5	36 5	37 2
30	37 3	36 6	36 5	36 9	37 8	38 6	39 2	39 0	38 7	38 0	37 3	36 5	37 2	37 2	37 5
Mean	37 2	36 4	35 9	36 8	37 9	39 1	40 1	40 4	39 9	39 0	37 8	37 0	37 0	37 1	37 3
Mean†	37 4	36 7	36 3	37 3	38 6	40 0	40 9	41 3	40 7	40 0	38 5	37 6	37 5	37 7	37 8
Mean††	36.8	35 7	34 5	35 3	36 3	37 4	38 7	39 0	48 1	37 3	36 6	36 4	36 6	36 4	36 3

† Five International quiet days.

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 7

Hourly values of Declination (Westerly), 1962

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2°plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date						
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag								
										H	M	H	M								
38 0	38 2	37 9	37 8	37 9	37 6	37 3	37 5	37 8	38 2	06	55	41	8	02	00	35	5	6	3	1	
37 9	38 2	38 3	38 0	37 9	37 8	37 6	37 9	37 8	38 3	06	45	40	7	01	50	36	4	4	3	2†	
37 9	37 9	37 9	37 9	37 9	37 8	37 8	37 3	37 2	38 3	07	30	41	5	01	55	35	7	5	8	3	
37 9	38 2	38 0	37 9	37 5	37 3	37 6	37 5	37 3	38 3	06	40	42	1	02	00	36	1	6	0	4†	
38 5	38 5	38 5	38 4	37 9	37 8	37 7	37 8	37 7	38 2	07	05	40	6	01	50	36	1	4	2	5	
37 8	37 8	37 8	37 8	37 8	37 9	37 8	37 7	37 7	38 2	07	15	41	4	01	50	36	3	5	1	6†	
37 9	38 1	37 9	38 2	38 4	38 2	38 1	37 8	37 8	38 3	07	00	41	3	02	05	36	3	5	0	7†	
37 8	37 7	37 8	37 7	37 7	37 7	37 5	37 7	37 8	38 1	06	15	40	9	02	10	36	3	4	6	8	
37 7	37 8	37 8	37 7	37 8	37 7	37 5	37 5	37 7	38 1	07	05	40	6	01	55	36	7	3	9	9	
38 2	37 9	37 8	37 9	37 9	37 8	37 8	37 7	37 8	37 8	07	30	39	8	02	05	35	7	4	1	10	
37 5	37 8	37 4	37 7	37 8	37 7	37 8	37 7	37 8	38 1	07	15	41	2	02	00	36	4	4	8	11	
37 9	37 8	37 9	37 9	37 8	37 8	37 8	37 6	37 9	38 2	07	15	40	7	01	45	36	3	4	4	12	
38 0	38 2	38 3	38 2	38 0	37 9	38 0	37 8	38 0	38 5	05	45	41	4	01	40	36	5	4	9	13†	
35 8	36 1	37 2	36 5	36 4	36 8	37 1	36 5	36 6	37 2	06	00	40	8	14	00	33	6	7	2	14††	
37 3	37 5	37 3	37 2	37 3	37 2	36 8	37 3	37 2	37 8	06	55	40	8	01	00	35	9	4	9	15	
37 3	37 6	37 3	37 2	37 8	37 3	37 2	37 3	37 2	37 7	06	05	40	8	11	55	35	2	5	6	16	
37 3	37 2	37 1	37 2	37 5	37 2	37 3	37 1	36 9	37 6	06	00	40	7	11	30	35	0	5	7	17	
37 3	37 4	37 3	37 2	37 3	37 6	37 4	37 4	37 4	37 6	37 9	07	30	41	8	02	20	35	1	6	7	
36 3	36 6	36 7	37 3	37 6	37 4	37 6	37 4	37 6	37 8	06	50	41	6	11	55	35	2	6	4	18	
37 0	37 3	37 4	37 6	37 4	37 4	37 3	36 9	36 6	37 7	07	15	40	8	01	50	35	9	4	9	19	
37 6	38 0	36 6	37 6	37 7	37 9	37 4	37 4	37 4	37 8	06	35	41	6	02	05	33	7	7	9	20	
36 6	37 3	37 3	37 2	37 3	36 2	33 1	35 6	36 6	36 7	05	55	38	1	21	35	32	3	5	8	21††	
36 6	36 7	37 2	37 3	37 3	37 2	37 2	37 0	36 9	36 3	07	05	40	0	02	15	30	9	9	1	22††	
36 6	36 7	36 6	36 6	36 6	36 6	36 3	36 6	36 0	37 4	07	05	40	8	02	00	35	2	5	6	23††	
37 3	37 6	36 9	37 4	37 3	37 3	37 3	37 2	36 7	36 6	07	45	39	1	01	45	32	8	6	3	24	
37 3	37 3	37 6	37 8	37 3	37 2	37 3	36 9	36 6	37 5	07	40	41	0	01	45	36	0	5	0	25††	
37 2	37 3	37 5	37 3	37 2	37 3	37 3	36 2	36 5	37 6	06	50	40	6	01	40	35	9	4	7	26	
37 5	37 3	36 6	36 5	37 1	37 2	37 2	36 5	36 1	37 1	06	45	39	2	02	15	35	1	4	1	27	
37 3	37 2	37 3	37 5	37 3	37 2	36 5	36 6	37 2	37 2	07	25	39	2	11	00	36	4	2	8	28††	
37 3	37 5	37 5	37 3	37 5	37 3	37 2	37 3	37 5	37 5	06	00	39	2	01	45	36	4	2	8	29	
37 3	37 5	37 5	37 3	37 5	37 3	37 2	37 3	37 5	37 5	06	00	39	2	01	45	36	4	2	8	30	
37 4	37 6	37 5	37 5	37 5	37 4	37 3	37 2	37 3	37 7											5 3	Mean
37 9	38 1	38 1	38 0	37 9	37 8	37 8	37 7	37 7													Mean†
36 8	37 0	37 0	37 0	37 1	36 9	36 4	36 6	36 6													Mean††

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 8

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2° plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1†	36 4	36 1	37 2	37 6	38 9	39 4	39 3	39 3	39 3	38 3	37 5	37 3	37 5	37 6	37 6
2†	37 3	37 1	36 5	36 5	37 2	38 5	40 0	40 4	39 6	38 6	37 6	37 1	37 3	37 5	37 5
3†	38 0	37 5	36 6	36 9	37 8	38 9	39 7	40 0	38 9	37 9	37 3	37 3	37 9	37 8	37 8
4	37 9	37 9	37 5	37 8	38 0	38 9	39 3	39 4	38 6	37 2	36 8	36 9	37 5	37 9	37 9
5	37 5	37 5	37 2	37 3	37 9	38 7	39 8	40 2	39 4	38 0	36 9	36 7	37 3	37 7	37 9
6	37 6	37 4	36 6	37 3	38 1	39 4	39 0	38 7	38 1	37 3	36 6	36 3	37 0	37 6	37 6
7	37 7	37 6	37 4	37 6	38 1	39 4	40 1	40 7	40 1	39 1	37 9	37 3	37 4	37 6	37 9
8	37 7	37 6	37 4	37 2	37 9	38 4	39 5	39 7	39 3	38 7	37 9	37 3	37 3	37 3	37 3
9	37 4	37 3	37 0	37 0	37 4	38 1	38 7	38 8	38 4	37 7	37 2	36 9	37 3	37 6	37 6
10	37 1	37 3	37 3	37 3	37 6	39 4	40 8	41 1	40 0	38 4	37 4	37 3	37 3	37 4	37 4
11	37 4	37 2	36 5	36 3	36 6	37 9	39 3	39 0	37 7	37 3	36 6	36 2	35 9	36 3	36 9
12††	37 0	37 0	36 6	35 9	36 5	38 0	39 1	39 0	37 6	37 2	35 9	35 2	35 5	36 5	36 5
13	37 4	37 0	36 7	37 3	38 0	39 1	39 3	39 3	38 8	37 9	37 7	37 7	37 6	37 4	37 6
14††	37 6	37 3	36 5	36 7	37 9	39 0	39 4	39 0	37 6	37 0	35 9	36 3	36 2	36 2	36 6
15	37 6	36 6	36 7	37 4	37 7	39 3	40 1	40 0	39 3	38 6	37 7	37 0	36 7	37 2	37 3
16	37 4	37 6	37 4	37 3	37 9	39 3	40 1	39 5	38 6	37 3	36 6	36 3	36 6	36 5	36 9
17	37 7	36 7	36 6	37 4	37 7	38 0	39 3	39 0	38 0	37 6	37 3	36 6	37 0	37 4	37 6
18	37 6	37 6	37 1	37 2	37 6	40 1	40 4	39 8	38 4	37 0	36 3	36 3	36 7	37 4	37 3
19	37 4	37 0	37 3	37 6	38 6	39 3	40 1	39 3	38 6	37 6	36 9	36 6	37 2	37 4	37 6
20	37 7	37 4	37 3	37 6	38 4	39 1	40 8	40 1	38 7	38 0	37 4	37 3	37 6	37 4	37 3
21	37 9	38 0	38 0	38 0	37 9	39 3	40 1	39 6	39 2	38 0	37 8	37 3	37 9	37 8	37 9
22†	38 0	37 9	37 9	37 9	39 0	39 9	40 7	40 6	39 7	38 6	37 9	37 5	37 3	37 6	37 8
23	38 5	38 0	37 8	38 3	39 6	40 7	41 1	40 6	39 3	38 7	38 0	37 9	38 0	38 5	38 2
24††	37 1	35 9	36 2	36 1	34 7	36 8	37 8	37 1	35 5	34 7	33 3	33 7	35 7	36 4	36 1
25	36 8	36 5	37 5	37 6	37 9	38 2	38 6	38 2	37 5	37 3	36 9	36 5	36 6	37 3	37 3
26	37 3	37 2	36 9	36 9	37 3	37 9	38 7	38 6	38 3	37 8	37 5	37 2	37 3	37 5	37 3
27†	38 3	37 9	37 8	38 5	38 6	39 3	40 0	39 3	38 7	38 5	37 6	37 3	37 5	37 6	37 5
28	37 9	38 2	38 3	38 3	38 9	39 2	39 2	38 6	37 9	37 8	37 6	37 6	37 6	37 9	37 8
29††	37 9	37 8	37 9	38 2	38 5	39 2	39 2	38 3	37 3	36 5	36 6	36 8	37 1	37 2	37 1
30††	37 1	36 8	36 5	35 7	36 2	36 1	35 5	35 1	35 0	35 1	35 9	36 6	37 3	37 2	37 1
31	37 3	37 3	37 2	37 5	38 5	39 0	38 6	37 9	37 5	37 6	37 5	37 6	37 8	37 5	37 3
Mean	37 5	37 3	37 2	37 3	37 8	38 8	39 5	39 2	38 4	37 7	37 0	36 8	37 1	37 4	37 4
Mean†	37 6	37 3	37 2	37 5	38 3	39 2	39 9	39 9	39 2	38 4	37 6	37 3	37 5	37 6	37 6
Mean††	37 3	37 0	36 7	36 5	36 8	37 8	38 2	37 7	36 6	36 1	35 5	35 7	36 4	36 7	36 7

† Five international quiet days

†† Five international disturbed days

Δ Loss of record, day omitted for means

TABLE 8

Hourly values of Declination (Westerly), 1962

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2° plus tabular quantities

Hours G M T										Mean	Maximum		Minimum		Range	Date	
15	16	17	18	19	20	21	22	23			Time	Mag	Time	Mag			
											H	M	H	M			
37 3	37 5	37 5	37 5	37 5	37 5	37 5	37 6	37 6	37 8	05	15	39.6	01	10	35 9	3 7	1†
37 6	37 6	37 5	37 5	37 5	37 5	37 6	37 9	37 9	37 8	06	20	40 6	02	20	36 4	4 2	2†
37 5	37 6	37 9	37 6	37 8	37 6	37 9	37 8	37 8	37 9	06	30	40 3	02	05	36 5	3 8	3†
37 6	37 5	37 5	37 5	37 3	37 3	37 3	37 3	37 5	37 8	06	30	39 6	10	00	36 5	3 1	4
37 9	37 7	37 7	37 4	37 7	37 7	37 6	37 6	37 7	37 9	07	00	40 4	10	15	36 5	3 9	5
38 0	37 9	37 6	37 6	37 7	37 7	37 7	37 7	37 7	37 7	05	30	39 4	10	30	36 2	3 2	6
38 0	37 9	37 6	37 4	37 6	37 6	37 6	37 7	37 6	38 1	06	20	40 8	11	00	37 3	3 5	7
37 4	37 6	37 7	37 6	37 4	37 4	37 4	37 4	37 4	37 8	06	05	39 8	02	40	37 0	2 8	8
37 7	37 7	37 7	37 4	37 6	37 6	37 6	37 4	37 7	37 6	06	55	39 0	02	45	36 7	2 3	9
37 7	37 7	37 9	37 7	37 7	37 7	37 7	37 6	37 4	38 0	06	15	41 5	03	20	37 0	4 5	10
37 3	37 4	37 6	37 4	37 4	37 4	37 4	37 3	37 0	37 2	06	05	39 4	11	20	35 6	3 8	11
36 5	36 9	37 3	37 2	37 0	37 3	38 0	37 3	37 3	37 0	05	25	39 4	11	30	34 9	4 5	12††
37 4	37 4	37 3	37 4	37 7	37 6	37 1	37 6	37 6	37 8	06	30	39 4	01	50	36 6	2 8	13
37 3	36 6	36 6	37 2	37 3	37 6	37 4	37 6	37 4	37 3	05	15	39 5	09	20	35 8	3 7	14††
37 6	37 4	37 7	37 4	37 6	37 4	37 6	37 7	37 6	37 8	06	05	40 2	01	10	36 5	3 7	15
37 2	37 3	37 4	37 4	37 3	37 4	37 6	37 4	37 6	37 6	05	40	40 4	10	15	36 2	4 2	16
37 6	37 6	37 7	37 6	37 6	37 4	37 6	37 4	37 7	37 6	05	50	39 4	10	30	36 6	2 8	17
37 4	37 6	37 6	37 4	37 6	37 4	37 6	37 6	37 4	37 7	05	20	40 5	10	05	36 2	4 3	18
37 4	37 3	37 3	37 4	37 6	37 7	37 6	37 7	37 6	37 8	05	55	40 2	11	05	36 6	3 6	19
37 4	37 6	37 7	37 6	37 7	37 6	37 7	37 9	38 0	38 0	06	15	40 9	11	00	37 3	3 6	20
37 8	37 6	37 9	37 8	37 9	37 9	37 8	37 9	38 0	38 1	05	45	40 3	11	15	37 2	3 1	21
37 9	37 9	38 0	37 9	37 8	37 9	37 9	38 0	38 3	38 3	06	30	40 8	11	15	37 2	3 6	22†
38 0	38 2	38 0	37 8	37 6	37 5	37 3	37 5	37 5	38 4	05	50	41 3	20	50	37 2	4 1	23
36 2	36 5	36 9	36 5	36 2	36 1	35 9	36 5	36 6	36 0	06	00	37 8	10	35	32 7	5 1	24††
37 2	37 3	37 3	37 3	37 2	37 2	37 2	37 2	37 3	37 3	06	35	38 7	11	05	36 1	2 3	25
37 5	37 5	37 8	37 5	37 3	37 3	37 5	37 5	37 8	37 6	06	15	38 9	02	30	36 5	2 4	26
37 6	37 8	37 6	37 6	37 9	37 8	37 8	37 9	37 9	38 1	06	10	40 1	10	35	37 2	2 9	27†
37 9	37 8	37 8	37 6	37 9	37 6	37 6	37 8	37 6	38 0	05	25	39 3	11	20	37 5	1 8	28
37 2	37 1	37 2	37 5	36 6	36 8	37 6	37 1	36 8	37 5	05	20	39 3	09	00	36 5	2 8	29††
37 2	37 1	37 2	37 2	37 2	37 1	37 2	37 2	37 3	36 6	12	10	37 5	08	35	34 7	2 8	30††
37 5	37 3	37 2	37 2	37 1	37 2	37 3	37 5	37 6	37 6	05	15	39 2	19	05	37 1	2 1	31
37 5	37 5	37 5	37 5	37 5	37 4	37 5	37 5	37 6	37 7						3 4	Mean	
37 6	37 7	37 7	37 6	37 7	37 7	37 7	37 8	37 9								Mean†	
36 9	36 8	37 0	37 1	36 9	37 0	37 2	37 1	37 1								Mean††	

† Five international quiet days

†† Five international disturbed days

Δ Loss of record, day omitted for means.

TABLE 9

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2° plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	37 9	37 8	37 9	38 2	38 6	39 3	39 2	39 2	38 2	37 9	37 8	37 6	37 6	37 5	37 3
2	37 3	37 5	37 8	37 9	38 6	39 2	40 0	39 3	37 9	37 3	37 2	37 3	37 5	37 3	37 5
3	37 8	38 0	37 9	37 7	37 6	38 0	38 1	37 9	37 6	37 3	37 3	37 4	37 4	37 6	37 6
4	37 7	38 0	38 0	38 5	39 1	39 5	40 2	39 5	38 9	38 1	38 0	37 7	38 0	37 8	37 5
5†	38 0	38 1	38 1	38 4	38 9	39 5	40 3	40 2	39 2	38 1	37 8	37 7	37 8	37 7	37 7
6	38 1	38 7	39 1	39 7	40 6	41 1	40 9	40 2	38 8	37 8	37 2	36 8	37 4	37 5	37 2
7††	38 2	38 5	38 8	38 7	39 0	39 4	38 6	38 3	38 3	38 3	37 9	36 6	36 8	36 8	36 8
8††	38 3	38 4	38 2	38 4	38 3	39 0	38 6	38 3	37 9	38 3	38 6	38 0	37 6	36 8	37 6
9††	38 3	38 7	39 0	39 0	38 6	39 1	39 4	39 4	38 7	38 3	38 2	38 0	37 7	36 8	36 8
10††	38 3	39 0	38 9	39 0	39 2	39 4	39 7	39 4	38 8	38 3	37 0	37 1	37 7	37 7	37 7
11	38 8	39 2	39 5	39 9	40 1	39 8	39 8	39 7	39 2	38 4	38 1	37 0	37 6	37 7	38 0
12	38 4	38 5	39 1	39 0	39 4	39 0	38 4	38 1	37 8	37 4	36 9	37 0	37 6	38 1	38 3
13	38 4	38 7	39 4	39 4	39 5	39 2	38 7	38 4	38 1	37 8	37 6	37 1	37 7	37 8	37 8
14	38 4	39 2	39 7	39 8	39 4	39 2	39 1	38 4	38 1	38 0	37 8	37 8	38 0	38 1	38 0
15	38 4	39 1	39 2	39 1	39 6	39 9	39 5	38 4	37 4	37 1	37 2	37 4	37 9	38 1	38 2
16†	38 6	39 2	39 6	39 3	39 5	39 8	39 9	39 3	38 5	38 4	38 4	38 5	38 4	38 2	38 4
17	38 9	38 8	39 5	39 8	39 6	39 9	40 5	40 0	39 9	39 2	38 4	38 2	38 1	38 4	38 5
18†	38 2	38 1	38 5	38 9	39 1	39 6	39 8	39 6	38 5	38 2	38 4	38 2	38 4	38 2	38 1
19†	38 4	38 5	38 5	38 5	38 9	39 5	39 8	39 6	38 6	38 2	38 1	38 2	38 4	38 4	38 4
20	38 5	39 2	39 2	39 1	39 1	39 3	39 8	39 6	38 5	37 9	37 9	38 1	38 2	38 4	38 4
21†	38 6	38 9	39 2	39 6	39 9	40 1	40 3	39 9	39 0	38 5	37 9	37 8	37 9	38 0	38 0
22	38 6	38 9	39 3	39 6	39 9	40 0	39 9	39 3	39 2	38 9	38 5	37 9	37 9	38 5	38 5
23	38 7	39 3	39 2	38 6	38 6	39 0	39 6	39 3	38 0	37 2	36 9	37 2	37 9	38 0	38 2
24††	38 9	39 3	40 0	40 4	40 1	39 9	39 4	38 6	37 9	37 6	36 9	36 5	36 9	37 5	37 9
25	38 2	38 5	39 0	39 2	39 1	39 2	38 6	38 6	38 2	37 8	37 8	38 1	37 8	37 7	37 8
26	38 5	38 9	39 2	38 6	38 4	38 6	38 5	38 6	38 5	38 4	38 2	37 8	37 7	37 5	37 8
27	38 6	39 1	39 3	39 0	38 7	39 1	39 4	39 5	39 1	38 8	38 5	38 3	38 0	38 0	38 0
28	39 1	39 5	39 8	39 7	39 0	38 8	39 0	39 1	38 7	38 5	38 4	38 3	38 1	37 8	38 1
29	38 5	39 1	39 7	39 6	39 0	38 4	37 9	37 6	37 6	37 9	37 9	37 7	37 7	37 7	37 7
30	38 3	38 6	38 9	38 7	38 6	38 4	38 7	38 4	38 3	37 9	37 7	37 6	37 7	37 6	37 7
Mean	38 4	38 7	39 0	39 0	39 1	39 3	39 4	39 1	38 4	38 3	37 8	37 6	37 8	37 8	37 9
Mean†	38 4	38 6	38 8	38 9	39 3	39 7	40 0	39 7	38 8	38 3	38 1	38 1	38 2	38 1	38 1
Mean††	38 4	38 8	39 0	39 1	39 0	39 4	39 1	38 8	38 3	38 2	37 7	37 2	37 3	37 1	37 4

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means.

TABLE 9

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2° plus tabular quantities

Hours G M T										Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23	Time		Mag	Time	Mag			
'	'	'	'	'	'	'	'	'	'	'	H	M	'	'		
37 5	37 6	37 5	37 3	37 2	37 3	37 3	37 3	37 3	37 8	05	20	39 4	18 30	37 1	2 3	1
37 6	37 5	37 6	37 3	37 5	37 3	37 5	37 3	37 5	37 8	05	10	40 1	09 20	36 9	3 2	2
37 7	37 6	37 6	37 6	37 7	37 6	37 4	37 6	37 6	37 7	05	35	38 4	09 25	37 2	1 2	3
37 7	37 8	38 0	37 7	37 8	38 0	37 7	37 7	37 8	38 2	05	55	40 3	13 35	37 4	2 9	4
37 8	37 8	37 8	38 0	38 0	37 8	37 8	38 0	38 1	38 3	06	10	40 5	13 30	37 5	3 0	5†
37 4	37 2	37 5	37 6	38 1	37 9	37 9	38 2	38 2	38 4	05	15	41 3	10 40	36 7	4 6	6
37 2	37 0	36 9	36 6	38 0	37 9	38 2	38 0	38 3	37 9	04	25	39 7	11 20	36 3	3 4	7††
37 2	37 5	37 9	37 7	37 7	37 9	38 3	38 2	38 2	38 0	05	25	39 1	12 25	36 6	2 5	8††
37 0	37 6	37 6	37 7	37 9	37 9	37 7	37 9	38 2	38 1	06	30	39 7	13 25	36 5	3 2	9††
37 8	38 0	37 8	38 0	37 8	37 8	38 0	38 1	38 4	38 3	06	35	39 8	10 05	36 9	2 9	10††
37 8	38 0	38 1	38 0	38 0	38 1	38 1	38 1	38 3	38 6	04	05	40 1	10 50	37 0	3 1	11
38 0	37 8	37 7	37 8	37 8	38 0	38 0	38 1	38 3	38 1	03	30	39 5	10 05	36 7	2 8	12
38 1	38 3	38 1	38 1	38 0	38 1	38 1	38 3	38 4	38 3	03	25	39 8	10 40	37 0	2 8	13
37 8	38 1	38 3	38 1	38 3	38 1	38 0	38 1	38 3	38 4	02	40	39 9	11 25	37 6	2 3	14
38 4	38 4	38 4	38 4	38 2	38 4	38 4	38 2	38 4	38 4	05	05	40 0	09 05	37 0	3 0	15
38 4	38 5	38 5	38 4	38 5	38 4	38 5	38 5	38 5	38 8	05	35	40 0	12 50	38 1	1 9	16†
38 1	38 2	38 5	37 8	38 1	38 2	38 1	38 2	38 4	38 8	05	40	40 6	18 05	37 7	2 9	17
38 1	38 1	38 2	38 1	38 1	38 2	38 1	38 2	38 4	38 5	05	35	39 9	18 40	37 9	2 0	18†
38 2	38 4	38 2	38 2	38 2	38 4	38 2	38 4	38 5	38 5	05	50	39 9	10 05	38 1	1 8	19†
38 1	38 1	38 4	38 1	38 1	38 1	38 1	38 5	38 6	38 6	05	30	39 9	10 35	37 8	2 1	20
38 3	38 5	38 3	38 3	38 2	38 3	38 3	38 5	38 6	38 7	06	15	40 4	11 05	37 6	2 8	21†
38 6	38 6	38 5	38 5	38 0	38 2	38 3	38 6	38 6	38 8	04	15	40 0	11 25	37 8	2 2	22
38 3	38 2	38 2	38 3	38 3	38 5	38 5	38 5	38 6	38 4	06	10	39 9	10 15	36 8	3 1	23
37 5	37 5	37 2	37 3	37 2	37 6	38 0	38 0	38 2	38 2	03	30	40 7	11 25	36 4	4 3	24††
37 8	37 9	37 8	37 9	37 9	38 1	38 4	38 1	38 5	38 2	03	10	39 3	12 40	37 5	1 8	25
37 9	38 1	38 2	38 1	38 2	38 4	38 4	38 5	38 5	38 3	02	30	39 2	13 10	37 5	1 7	26
38 0	38 1	38 1	38 3	38 3	38 1	38 3	38 3	38 4	38 6	06	35	39 7	10 25	37 8	1 9	27
38 1	38 1	38 3	38 3	38 3	38 4	38 4	38 3	39 4	38 6	02	25	39 9	12 20	37 7	2 2	28
37 7	37 9	38 0	38 0	38 0	38 0	38 2	38 4	38 4	38 2	02	30	39 7	12 35	37 3	2 4	29
37 9	37 9	37 7	37 9	37 7	37 7	37 7	37 9	38 2	38 1	02	30	39 1	12 35	37 3	1 8	30
37 9	37 9	38 0	37 9	38 0	38 0	38 1	38 1	38 3	38 3						2 6	Mean
38 2	38 3	38 2	38 2	38 2	38 2	38 2	38 3	38 4								Mean†
37 3	37 5	37 5	37 5	37 7	37 8	38 0	38 0	38 3								Mean††

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 10

Hourly values of Declination (Westerly), 1963
 (Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December	Date	Hours G M T														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	1	38 4	39 1	39 7	39 6	38 4	38 0	37 6	37 3	37 2	36 6	37 2	37 6	37 6	37 6	37 7
	2	39 0	39 6	39 8	39 6	39 5	39 3	39 5	39 0	37 9	37 4	37 5	37 5	37 4	37 5	37 5
	3††	39 6	39 9	40 3	40 1	38 9	38 7	38 1	37 4	36 1	36 7	37 0	36 3	36 1	36 0	36 6
	4††	38 1	38 9	39 4	39 2	39 1	38 9	38 5	37 5	37 5	37 1	37 1	37 0	36 7	36 7	37 3
	5††	38 4	38 5	38 7	38 9	38 7	38 1	37 7	37 4	37 1	36 7	36 7	37 1	37 4	37 3	36 7
	6††	38 0	38 4	38 7	38 2	38 1	38 0	38 1	38 4	37 8	37 4	37 3	37 1	37 0	36 8	36 7
	7	38 0	38 7	39 1	39 1	38 7	38 3	37 4	37 0	36 3	36 5	36 6	36 7	36 6	36 6	36 9
	8	38 1	38 1	38 1	38 7	38 8	38 4	37 9	37 6	37 0	36 5	36 9	37 0	37 0	37 0	37 2
	9	38 1	38 3	38 7	38 3	38 0	38 2	38 6	38 6	38 2	37 6	37 1	36 8	37 1	36 9	36 8
	10†	38 5	38 5	38 3	37 9	37 8	38 0	38 0	37 6	37 2	37 1	37 2	37 6	37 9	37 9	37 8
	11†	38 5	38 6	38 7	38 6	38 5	39 2	39 6	39 6	38 6	37 8	37 6	37 3	37 3	37 6	37 5
	12	38 6	38 6	38 6	38 5	38 5	38 9	39 2	38 5	37 5	37 1	37 1	37 2	37 3	37 5	37 6
	13	39 2	39 2	39 6	39 3	39 1	38 5	38 5	38 9	39 2	38 6	38 1	37 5	37 5	37 4	37 4
	14	38 4	38 9	39 2	39 1	38 9	39 5	39 9	40 3	39 2	38 2	37 5	37 2	37 8	37 5	37 7
	15	38 6	38 9	39 5	39 5	39 2	39 3	39 3	39 2	38 6	37 8	37 4	37 2	37 2	37 5	37 7
	16	38 2	38 4	38 8	38 5	38 1	37 9	38 4	38 2	37 9	37 8	37 8	37 7	37 5	37 7	37 7
	17	38 1	38 2	38 5	38 3	38 1	38 1	39 0	39 4	38 7	38 3	37 7	37 4	37 4	37 7	37 7
	18†	38 3	38 3	38 4	38 1	37 6	38 1	39 1	39 1	38 4	38 5	38 1	37 7	37 7	37 8	37 8
	19	38 1	38 3	38 3	38 1	37 8	39 1	40 2	39 9	39 1	38 3	37 6	37 3	37 6	37 8	37 8
	20††	38 0	38 4	38 7	38 5	38 8	39 9	40 8	40 2	39 1	37 7	36 9	36 3	36 9	36 6	36 4
	21	38 1	38 1	38 3	38 5	38 9	39 2	39 5	39 5	38 4	38 1	37 8	37 2	37 2	37 4	37 1
	22	38 5	38 5	38 5	38 5	38 1	38 4	38 8	39 1	38 8	38 9	37 4	36 5	36 8	36 5	36 5
	23	38 4	38 1	37 8	37 7	37 8	37 9	38 4	39 3	38 8	37 7	37 7	37 2	37 1	37 5	37 7
	24	38 4	38 1	37 8	37 1	36 8	37 4	38 5	39 1	38 8	38 5	37 7	37 2	37 5	37 7	37 2
	25†	38 4	38 5	38 6	37 9	37 1	36 5	37 2	37 9	38 2	37 9	37 8	37 6	37 8	37 8	37 6
	26	38 5	38 7	38 9	38 7	38 3	38 2	39 0	39 7	39 2	38 5	38 3	37 9	37 6	37 5	37 5
	27	38 5	38 7	39 0	38 6	37 8	37 6	37 9	38 5	39 0	39 0	38 3	37 6	37 5	37 5	37 6
	28	38 7	39 0	39 4	39 3	39 0	38 9	38 3	38 3	38 7	39 0	38 9	37 9	37 9	37 9	37 9
	29	38 9	38 9	39 4	39 3	39 2	39 3	39 2	39 2	38 9	38 9	38 6	37 8	37 1	37 1	37 1
	30	37 8	38 4	38 9	38 9	38 6	38 4	38 5	38 2	38 4	38 5	37 9	37 7	37 8	37 7	37 7
	31†	37 9	38 6	39 1	38 8	38 4	38 4	38 6	38 6	38 2	38 5	38 1	37 8	37 8	37 7	37 7
	Mean	38 4	38 6	38 9	38 7	38 4	38 5	38 7	38 7	38 2	37 9	37 6	37 3	37 3	37 3	37 4
	Mean†	38 3	38 5	38 6	38 3	37 9	38 0	38 5	38 6	38 1	38 0	37 8	37 6	37 7	37 8	37 7
	Mean††	38 4	38 8	39 2	39 0	38 7	38 7	38 6	38 2	37 5	37 2	37 0	36 8	36 8	36 7	36 7

† Five International quiet days.

†† Five International disturbed days.

Δ Loss of record, day omitted for means

TABLE 10

Hourly values of Declination (Westerly), 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December										2° plus tabular quantities						Date	
Hours G M T										Mean	Maximum		Minimum		Range		
15	16	17	18	19	20	21	22	23	Time		Mag	Time	Mag				
										H	M	H	M				
37.7	37.9	38.0	37.9	38.0	38.0	37.9	38.2	38.1	37.9	02	00	39.7	09	00	36.6	3.1	1
37.6	37.5	37.6	37.5	37.4	37.6	37.9	38.2	39.0	38.3	02	00	40.0	19	00	37.1	2.9	2
37.3	37.1	37.5	37.8	37.5	37.8	38.0	38.0	38.0	37.8	01	50	10.6	13	00	36.0	4.6	3††
37.5	37.7	37.7	37.7	37.8	38.0	38.1	38.2	38.4	37.9	02	00	39.5	12	50	36.6	2.9	4††
36.7	37.3	37.4	37.7	37.8	38.1	38.1	38.0	38.0	37.7	03	00	39.2	14	00	36.4	2.8	5††
37.4	37.1	37.8	38.1	37.8	37.5	37.5	37.5	37.8	37.7	01	30	38.9	11	00	36.7	2.2	6††
36.9	36.9	37.1	37.7	37.7	37.9	37.9	38.0	38.0	37.5	03	00	39.3	07	10	36.3	3.0	7
37.3	37.7	37.4	37.7	37.9	38.0	38.0	38.0	38.0	37.7	03	00	39.0	08	50	36.3	2.7	8
37.2	37.3	37.5	37.6	37.8	37.9	37.9	38.0	38.2	37.8	06	10	38.7	10	30	36.5	2.2	9
37.6	37.8	37.8	37.8	37.9	37.9	37.9	38.0	38.3	37.8	01	30	38.6	08	30	36.9	1.7	10†
37.8	37.8	37.8	37.9	37.9	37.9	38.0	38.2	38.3	38.2	06	00	39.7	11	30	37.2	2.5	11†
37.8	37.8	37.8	37.8	37.9	38.0	38.2	38.5	38.9	38.1	06	00	39.2	09	30	36.9	2.3	12
37.7	37.7	37.8	37.8	37.8	37.8	37.8	37.9	38.1	38.1	02	30	39.6	14	00	37.4	2.2	13
37.2	37.0	37.1	37.2	37.1	37.0	37.1	37.7	38.2	38.1	07	00	40.5	19	50	36.7	3.8	14
37.8	37.7	37.7	37.7	37.8	37.8	37.8	37.8	38.1	38.2	02	10	39.8	11	30	37.1	2.7	15
37.8	37.9	37.9	37.8	37.8	37.8	37.8	37.8	37.9	38.0	01	30	38.9	12	00	37.4	1.5	16
37.7	37.7	37.8	37.7	37.7	37.8	37.8	38.0	38.1	38.0	06	10	39.7	11	30	37.4	2.3	17
37.8	37.8	38.0	37.8	37.8	37.8	37.7	37.7	38.0	38.1	06	10	39.1	01	00	37.6	1.8	18†
37.8	38.0	38.0	37.8	37.8	37.8	38.0	38.0	38.4	38.2	06	30	10.2	10	30	37.3	2.9	19
36.7	37.1	37.4	37.6	37.7	38.7	38.1	38.1	38.3	38.0	05	50	40.8	10	30	36.3	4.5	20††
37.5	37.5	37.5	37.8	37.9	37.9	38.1	38.5	38.8	38.1	06	00	39.5	13	40	37.0	2.5	21
37.1	37.2	37.2	37.5	37.8	38.1	38.1	38.4	38.6	37.9	07	30	39.1	13	50	36.0	3.1	22
37.5	37.5	37.2	37.5	37.8	37.9	37.9	38.1	38.2	37.9	07	20	39.5	11	40	37.0	2.5	23
37.4	37.5	37.7	37.8	37.8	37.9	38.1	38.4	38.4	37.9	07	30	39.1	01	30	36.7	2.4	24
37.5	37.5	37.6	37.9	37.9	37.9	38.0	38.2	38.2	37.8	01	50	38.9	05	00	36.5	2.4	25†
37.3	37.3	37.5	37.8	37.9	37.9	38.0	38.3	38.3	38.2	07	00	39.9	15	30	37.2	2.7	26
37.8	37.9	38.0	38.0	38.0	38.2	38.3	38.6	38.6	38.2	08	30	39.2	11	30	37.3	1.9	27
37.9	37.8	37.9	37.8	37.6	37.9	38.7	38.6	38.9	38.1	02	20	39.6	19	30	37.6	2.0	28
37.1	37.2	37.1	37.2	37.2	37.7	37.5	37.5	37.7	38.1	02	10	39.6	12	00	37.0	2.6	29
37.5	37.7	37.7	37.5	37.5	37.5	37.5	37.7	37.8	38.0	02	20	39.2	15	00	37.4	1.8	30
37.5	37.7	37.7	37.8	37.8	37.8	37.8	37.8	38.4	38.1	02	00	39.2	15	00	37.5	1.7	31†
37.5	37.5	37.6	37.7	37.7	37.9	37.9	38.1	38.3	38.0							2.6	Mean
37.6	37.7	37.8	37.8	37.9	37.8	37.9	38.0	38.3									Mean†
37.1	37.3	37.6	37.8	37.7	38.0	38.0	38.0	38.1									Mean††

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means.

TABLE II

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

39,000 γ plus tabular quantities

Date	Hours G M T															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	548	554	558	569	591	597	591	595	590	576	560	548	544	549	556	
2†	555	559	569	585	606	617	617	609	598	581	564	556	559	562	562	
3†	563	569	574	591	612	622	628	627	618	604	585	570	565	563	564	
4	571	576	587	601	619	629	633	624	601	575	566	567	566	559	559	
5	544	555	559	585	615	631	562	562	529	543	549	558	559	555	552	
6	549	563	570	588	610	587	592	589	580	545	540	540	538	539	537	
7	545	519	551	559	571	589	600	600	600	576	553	531	536	540	539	
8	554	557	561	571	589	592	602	600	595	580	572	557	549	556	556	
9	557	549	548	554	571	583	602	605	600	587	574	552	537	539	541	
10	547	553	563	574	576	579	564	565	563	570	571	563	556	552	548	
11	550	559	570	580	594	608	614	606	605	593	568	548	547	517	548	
12	553	554	553	552	573	591	603	602	601	595	586	573	562	557	557	
13	564	565	577	593	613	626	622	614	603	589	571	556	549	555	555	
14†	559	557	553	567	593	623	631	627	623	609	594	580	572	567	566	
15†	569	574	580	585	592	597	601	601	608	599	587	576	565	564	564	
16	584	583	587	606	613	621	636	625	617	596	583	576	572	569	565	
17	560	560	567	582	597	602	583	548	534	522	500	498	504	504	504	
18	543	545	551	567	579	596	605	603	583	558	533	523	532	541	543	
19	515	549	556	577	592	596	594	584	576	566	564	557	553	551	552	
20	561	568	579	598	611	617	608	594	585	570	559	559	572	577	580	
21††	576	583	568	615	629	635	635	634	627	612	578	538	500	499	517	
22	543	551	562	580	600	612	607	580	554	519	522	528	531	540	542	
23††	547	558	569	585	601	615	604	602	605	603	588	570	552	548	546	
24††	555	563	554	560	565	575	565	567	590	583	572	545	526	527	541	
25	549	555	558	562	575	579	580	572	566	573	570	556	542	548	547	
26	551	548	555	574	590	608	607	610	596	593	591	569	554	548	546	
27	557	551	553	574	581	575	584	593	587	582	572	551	544	542	535	
28	548	552	561	573	585	605	602	612	616	605	585	565	552	548	550	
29†	560	561	568	589	614	639	652	644	626	607	593	589	569	565	566	
30††	562	569	563	584	614	627	642	633	591	566	569	559	510	520	527	
31††	551	565	572	585	608	627	629	628	591	586	552	541	540	546	560	
Mean	555	560	565	580	596	607	606	602	592	579	567	555	548	548	549	
Mean †	561	564	569	584	604	620	626	622	615	600	585	574	566	564	564	
Mean ††	558	568	565	586	603	616	615	613	601	590	572	551	532	528	538	

† Five International quiet days

†† Five International disturbed days

△ Loss of record ; day omitted for means

TABLE 11

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

39,000 φ plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date
Mean										Time	Mag	Time	Mag	γ	
15	16	17	18	19	20	21	22	23	24						
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H M	γ	γ	
553	552	551	551	557	559	557	557	556	564	04 53	603	12 00	543	60	1
562	563	565	566	562	561	560	561	563	573	05 40	623	00 01	555	68	2†
562	562	563	565	567	567	569	569	569	581	06 25	629	16 00	562	67	3†
548	544	549	548	558	553	545	543	547	574	05 00	636	21 50	536	100	4
548	549	549	548	548	552	545	547	553	558	04 35	618	08 03	514	134	5
530	531	537	544	549	545	545	545	545	556	04 03	610	15 25	527	83	6
548	549	545	548	550	551	551	550	554	558	07 46	606	11 15	525	81	7
556	554	551	557	554	556	558	565	566	567	06 27	612	11 53	547	65	8
545	547	551	549	549	548	546	547	547	560	05 56	617	12 03	533	84	9†
547	556	556	556	556	559	556	559	553	560	04 33	588	15 21	544	44	10
550	553	554	553	553	556	556	555	553	568	06 14	620	11 15	544	76	11
558	561	562	560	561	562	563	566	565	570	06 07	609	02 36	548	61	12
556	556	557	559	561	563	563	561	560	574	04 41	628	11 55	548	80	13
561	562	567	569	571	573	573	572	569	581	05 26	633	02 01	550	83	14†
567	566	568	567	567	565	569	578	581	579	07 52	611	15 30	561	50	15†
565	570	569	570	569	569	565	562	562	585	05 52	640	23 45	559	81	16
494	487	501	520	528	532	537	535	540	535	04 50	609	15 40	480	129	17
532	529	535	540	546	546	546	543	552	573	06 28	611	11 05	521	90	18
553	556	556	555	559	562	559	559	560	564	04 52	602	00 01	544	58	19
582	586	581	585	585	571	571	572	571	581	04 37	628	10 20	555	73	20
524	511	526	521	527	540	539	540	541	563	06 10	667	12 13	476	191	21††
542	541	528	510	536	541	545	548	548	552	05 29	621	08 59	503	118	22
538	541	535	537	541	547	550	549	551	566	04 30	622	17 20	529	93	23††
540	534	536	533	537	540	543	549	549	552	08 24	603	12 25	517	86	24††
544	543	544	548	550	553	553	560	555	558	05 19	591	16 00	540	51	25
550	551	554	557	563	560	555	550	554	568	04 41	624	13 46	545	79	26
536	547	550	552	555	553	551	552	552	560	06 42	611	14 42	530	81	27
550	550	553	557	559	561	562	562	562	570	06 59	621	00 25	547	74	28
572	572	571	572	571	566	571	564	565	586	06 12	655	23 25	553	102	29†
545	551	547	548	551	568	563	552	550	568	06 14	656	12 52	514	142	30††
560	557	557	557	557	566	565	564	557	572	05 48	638	12 35	533	105	31†
549	549	551	553	556	556	556	556	556	566					87	Mean
565	565	567	568	568	566	568	569	569							Mean†
541	539	540	540	543	552	552	551	550							Mean††

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 12

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

39,000 γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	557	568	575	595	621	616	612	601	603	598	589	574	561	560	552
2	560	566	573	593	607	609	582	563	560	547	549	556	561	566	560
3	557	560	573	606	637	638	611	627	609	582	560	552	560	566	563
4	556	562	580	606	641	657	636	626	602	583	564	547	537	529	537
5	557	563	569	585	614	607	619	627	598	586	565	551	550	562	563
6	561	565	582	604	626	617	617	621	613	601	585	566	562	555	556
7	568	568	576	585	608	602	605	609	601	580	556	545	542	511	553
8	562	562	568	581	608	623	631	630	619	597	580	550	539	549	554
9	562	566	579	592	594	597	601	595	584	581	577	563	553	517	545
10	568	569	582	603	621	630	630	620	604	580	561	556	559	556	549
11†	559	559	565	584	600	607	616	625	628	628	618	597	577	568	561
12†	561	554	570	592	618	625	616	599	582	580	581	579	569	564	566
13†	562	563	570	584	601	616	621	620	607	597	588	575	564	563	561
14†	560	564	581	602	621	630	627	616	597	581	574	574	574	574	569
15	560	577	586	598	620	643	650	643	639	624	606	588	584	581	569
16†	563	560	559	573	587	607	604	572	565	553	550	550	562	566	562
17	556	563	587	608	642	648	642	619	587	586	572	561	567	564	564
18††	560	562	572	588	600	613	581	566	564	555	559	549	548	514	571
19††	544	552	554	566	580	590	590	580	567	560	545	572	566	558	554
20††	508	507	505	527	532	529	509	464	473	472	480	488	484	493	494
21††	518	527	532	559	580	603	606	589	556	529	513	513	519	516	511
22	526	529	546	573	596	616	614	602	579	575	570	555	541	534	531
23	534	534	532	548	566	599	605	610	608	577	541	499	476	478	492
24	534	530	536	535	555	580	602	612	606	580	563	550	541	533	523
25	550	554	557	576	602	613	620	616	603	591	575	565	560	562	557
26	546	554	557	582	616	629	625	614	591	576	559	547	547	549	548
27	555	559	570	587	621	643	648	619	632	610	588	564	553	549	542
28††	541	546	562	580	598	616	616	616	611	593	552	513	501	514	523
29	540	546	558	590	598	607	608	599	581	558	532	526	535	543	535
30	548	547	549	565	583	590	591	585	573	561	550	542	546	549	541
31	547	553	555	574	604	632	625	603	573	547	535	543	552	546	528
Mean	551	554	563	582	603	614	613	604	591	576	563	552	548	547	546
Mean†	561	560	569	587	605	617	617	606	596	588	582	575	569	567	564
Mean††	534	539	545	565	578	590	580	563	554	542	534	527	521	519	531

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means.

TABLE 12
Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

39 000 γ plus tabular quantities

Hours G M T										Maximum		Minimum		Range		Date	
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M		H M		γ	γ		
546	539	544	553	551	557	560	557	560	573	03	58	634	16	34	536	98	1
557	563	566	566	569	572	570	563	558	568	04	13	628	09	05	540	88	2
560	563	566	563	566	569	566	563	560	579	05	18	651	11	00	550	101	3
534	534	542	550	553	561	563	558	558	572	05	56	662	13	12	522	140	4
562	562	559	560	559	562	568	565	562	574	06	47	635	11	35	513	92	5
553	558	566	569	565	568	571	575	571	580	04	12	630	15	30	552	78	6
553	553	554	557	559	560	560	576	560	570	06	15	620	11	52	539	81	7
544	552	552	554	556	561	563	566	565	573	06	00	638	11	57	539	99	8
545	548	552	552	554	556	561	565	568	568	05	46	606	14	07	534	72	9
547	542	548	550	553	557	559	560	560	574	06	02	636	15	52	539	97	10
555	551	547	547	549	552	555	561	561	578	08	30	629	17	10	544	85	11†
567	563	563	564	562	561	565	564	563	576	04	20	629	20	00	559	70	12†
563	564	564	564	566	567	563	560	560	578	06	20	625	22	42	559	66	13†
568	569	569	568	571	573	574	576	576	583	05	30	632	00	01	560	72	14†
569	567	561	560	560	554	543	563	562	583	05	00	653	20	57	542	111	15
561	560	556	556	560	559	559	558	556	565	05	04	616	10	45	548	68	16†
567	565	562	569	570	561	561	561	561	581	04	52	652	00	16	552	100	17
500	516	526	530	530	532	534	547	546	553	04	42	632	13	56	567	65	18††
549	548	539	531	534	533	539	531	514	555	05	50	599	23	15	511	88	19††
499	505	518	511	511	517	521	528	523	504	05	23	556	06	43	443	113	20††
518	525	525	525	525	526	529	531	528	538	06	07	615	10	40	508	107	21††
530	529	534	542	541	542	537	527	532	554	05	18	631	16	04	528	103	22
507	513	515	518	518	519	521	528	533	536	07	09	621	11	55	473	148	23
524	528	533	536	536	540	545	547	550	551	07	00	625	14	16	519	106	24
555	554	553	553	553	556	553	556	556	570	05	41	622	23	52	546	76	25
540	543	546	548	554	550	549	547	549	565	06	09	641	15	03	539	102	26
540	547	549	538	525	538	546	539	540	572	06	48	655	19	14	520	135	27
533	533	538	550	563	540	543	545	538	557	05	45	626	11	53	495	131	28††
534	510	543	545	541	549	547	548	546	556	05	28	613	10	32	518	95	29
539	537	549	547	552	556	551	549	549	556	05	15	604	15	58	533	71	30
515	544	549	539	542	515	544	541	540	557	05	20	642	15	25	511	131	31
543	546	548	549	550	551	553	553	551	565							96	Mean
563	561	560	560	562	562	563	564	563									Mean†
520	525	529	529	533	530	534	536	530									Mean††

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 13

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

39,000γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	544	546	561	586	624	648	651	631	597	550	516	524	537	540	550
2†	540	545	558	576	600	621	627	621	608	590	569	554	552	554	552
3	559	553	567	588	609	629	626	619	612	597	574	557	553	549	546
4†	548	550	560	591	629	638	632	625	604	583	557	543	547	557	557
5	548	550	566	588	618	631	626	623	614	593	567	557	565	571	572
6†	555	564	570	599	626	644	647	635	609	573	548	530	538	551	553
7†	563	563	568	590	612	632	632	624	612	595	580	566	563	566	566
8	564	558	564	605	638	654	639	618	605	598	589	560	522	511	531
9	554	557	566	581	603	601	610	606	597	579	576	565	555	546	536
10	551	552	560	575	605	633	647	637	619	596	579	562	556	557	560
11	553	562	553	562	583	606	628	628	617	570	544	532	538	543	547
12	548	547	559	583	618	627	622	622	597	575	558	546	548	551	549
13†	546	543	546	568	596	632	634	619	607	593	581	571	568	564	563
14††	559	555	549	576	623	640	681	639	558	491	424	418	406	378	362
15	504	520	541	561	582	584	567	516	531	520	509	505	514	500	493
16	517	520	535	562	572	594	596	573	537	518	502	491	485	501	505
17	525	519	525	563	592	596	607	562	531	492	439	434	474	481	484
18	510	507	513	540	570	594	606	604	589	554	536	523	509	505	511
19	516	512	519	553	575	606	641	634	601	562	513	492	499	502	484
20	519	522	536	563	593	622	636	630	609	569	534	518	526	531	519
21	522	515	530	582	633	651	646	620	589	553	535	530	530	535	541
22††	536	544	552	565	567	510	423	408	384	433	483	488	489	466	458
23††	427	352	308	347	374	457	472	496	500	478	446	435	433	453	460
24	475	467	474	403	545	591	600	588	577	537	510	499	497	499	496
25††	507	482	471	479	509	565	569	567	528	487	453	456	467	482	485
26	499	505	520	557	586	588	587	599	603	544	525	512	503	502	504
27	513	511	530	562	597	619	620	598	569	546	536	530	528	523	523
28††	534	519	519	537	578	575	556	530	509	494	500	503	504	497	492
29	520	515	518	529	552	569	583	577	555	546	528	517	517	515	511
30	529	521	526	552	580	596	591	566	559	549	535	532	535	538	532
Mean	530	526	532	554	586	605	607	595	574	549	528	518	519	519	518
Mean†	550	553	560	585	613	633	634	625	608	587	567	553	554	558	558
Mean††	513	490	480	501	530	549	540	528	496	477	461	460	460	455	451

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 13

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

39,000 γ plus tabular quantities

Hours G M T										Maximum		Minimum		Range		Date	
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
										H	M	γ	H	M	γ		
548	541	535	539	539	538	510	541	540	561	05	40	658	10	17	507	151	1
552	552	553	553	552	557	560	567	563	570	05	37	633	00	01	540	93	2†
552	547	544	543	541	544	551	542	541	569	05	29	641	19	10	539	102	3
555	556	555	554	557	560	558	551	550	572	04	56	642	11	07	542	100	4†
556	562	557	556	555	552	551	556	557	575	05	03	633	00	30	546	87	5
550	548	551	554	556	557	558	562	561	573	05	36	657	11	12	528	129	6†
563	563	563	566	568	566	569	569	568	580	05	29	639	00	16	561	78	7†
538	539	537	537	539	540	511	546	550	568	05	20	653	12	50	507	151	8
539	547	550	551	551	551	555	555	552	566	04	30	623	14	10	531	92	9
562	558	556	559	562	562	560	556	559	576	06	00	654	00	01	551	103	10
546	540	535	546	539	551	543	544	545	561	06	22	641	11	25	527	111	11
543	544	549	555	550	547	549	551	547	566	05	02	634	15	15	543	91	12
564	564	566	569	570	569	571	562	554	576	05	26	639	01	10	540	99	13†
396	398	442	439	475	476	486	493	500	497	06	25	694	13	34	355	339	14††
497	511	505	510	522	520	513	514	517	524	04	05	595	13	23	483	112	15
520	520	514	516	542	532	522	528	530	530	05	30	615	11	40	480	135	16
494	500	496	517	528	511	513	513	514	517	05	34	625	11	04	425	200	17
503	510	515	501	507	513	517	517	517	532	06	19	609	13	25	498	111	18
176	479	493	520	508	522	526	520	519	532	05	50	659	14	41	473	186	19
508	499	500	512	521	522	522	523	523	544	07	20	643	16	20	496	147	20
532	498	489	485	506	502	521	514	535	546	04	30	653	17	38	449	204	21
466	486	488	503	528	520	498	480	456	489	04	17	617	06	15	553	64	22††
462	469	483	486	493	493	488	481	477	449	07	46	515	02	13	273	242	23††
496	494	492	490	492	496	489	503	503	509	06	07	609	01	30	464	145	24
487	473	491	508	505	513	511	506	502	500	06	23	584	09	54	444	140	25††
510	509	516	528	516	515	515	513	517	533	07	26	659	12	25	496	163	26
522	523	527	531	525	547	545	516	536	545	05	36	626	22	12	506	120	27
502	519	502	512	527	520	524	519	514	520	04	33	601	12	45	482	119	28††
514	524	516	521	531	523	523	525	531	532	05	45	591	14	27	506	85	29
529	531	532	533	533	532	531	531	532	543	05	22	607	01	07	517	90	30
520	520	523	527	531	532	532	530	531	542							133	Mean
557	557	558	559	561	562	563	562	560							Mean†		
463	469	481	490	506	501	501	496	490							Mean††		

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 14

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October 39,000 γ plus tabular quantities

Date	Hours G M I														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1†	535	530	536	558	590	615	619	606	580	557	518	511	543	540	535
2†	529	527	534	563	602	637	633	610	577	555	546	550	553	552	547
3†	549	546	555	587	622	647	648	625	582	548	533	537	544	546	543
4	550	547	570	591	625	646	651	629	588	551	537	537	543	551	542
5	540	538	548	583	628	660	671	653	620	583	550	543	552	554	550
6	550	552	564	598	624	639	634	617	593	577	567	562	558	558	556
7	550	546	552	576	600	632	651	644	621	599	579	571	568	564	559
8	559	553	556	570	582	623	622	603	583	561	548	544	534	525	527
9	545	541	544	568	601	626	631	615	591	587	564	557	559	556	554
10	548	543	550	573	612	656	676	650	610	556	556	557	559	550	544
11	543	545	559	588	620	642	642	623	588	562*	542	513	480	486	512
12††	536	534	533	546	571	610	617	610	598	576	551	521	515	523	498
13	536	536	554	572	583	586	570	565	549	531	533	517	514	544	540
14††	536	528	530	558	602	616	612	583	549	511	510	517	515	504	517
15	531	528	535	560	593	614	609	597	572	561	553	536	536	536	531
16	541	534	551	576	618	653	654	614	567	527	504	514	522	519	502
17	533	533	545	573	698	609	602	568	542	531	531	542	543	542	541
18	533	531	541	573	617	644	637	601	568	541	535	539	539	542	541
19	537	535	542	562	594	609	600	579	556	511	539	540	541	539	533
20	547	545	554	575	606	624	621	602	572	556	556	551	548	541	528
21	561	558	567	589	587	608	605	593	565	552	546	555	562	558	555
22†	560	561	573	601	635	657	662	645	620	595	583	578	577	576	574
23	576	572	578	601	634	658	672	656	633	607	592	586	583	579	574
24††	542	532	553	585	516	554	562	543	498	439	373	364	441	455	436
25	504	494	511	528	545	543	549	538	532	538	544	540	532	523	520
26	535	534	538	563	584	599	595	580	571	567	562	550	539	537	537
27†	553	549	549	562	579	553	602	602	593	585	580	572	563	558	552
28	549	550	554	579	587	596	594	585	577	572	570	561	561	558	555
29††	538	541	549	560	571	580	578	563	554	548	545	539	536	532	527
30††	432	439	432	443	479	475	459	434	445	454	470	497	512	518	510
31	513	519	533	556	579	590	593	585	568	553	549	542	540	535	529
Mean	538	536	545	568	593	614	615	597	573	553	542	539	540	539	534
Mean †	545	543	549	571	606	630	634	618	590	568	558	556	556	554	550
Mean ††	517	515	519	539	548	567	566	547	529	506	490	488	506	506	498

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means.

TABLE 14

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October										39,000 γ plus tabular quantities								
Hours GMT										Maximum		Minimum		Range	Date			
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag			γ	γ	
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	H	M	γ	γ			
533	534	532	530	530	529	531	531	531	551	05	52	623	19	17	529	94	1†	
546	545	546	545	545	547	549	547	550	560	05	14	643	01	09	527	116	2†	
538	539	543	543	543	545	550	549	549	563	05	30	656	09	55	531	125	3†	
528	523	529	536	537	540	539	541	512	562	05	34	656	15	58	521	135	4	
548	547	541	539	552	556	553	553	552	571	06	00	681	10	30	533	148	5	
553	549	541	542	548	550	551	551	551	570	04	51	643	17	20	538	105	6	
554	517	533	541	546	550	546	555	560	573	05	44	654	16	52	532	122	7	
530	542	553	541	539	543	541	545	544	557	06	06	638	13	10	521	117	8	
553	553	549	545	552	544	545	543	548	565	06	05	634	01	17	539	95	9	
547	550	543	547	551	543	550	550	516	570	05	30	683	20	20	538	145	10	
527	533	539	530	530	530	534	533	536	552	05	05	618	12	25	474	174	11	
493	501	523	516	509	524	552	528	529	542	05	50	633	15	42	485	148	12††	
541	534	536	541	550	553	548	558	557	551	05	07	607	09	25	531	76	13	
524	507	511	518	521	532	533	531	531	537	05	18	637	13	00	499	138	14††	
539	542	539	539	545	548	545	547	546	553	05	05	620	13	50	524	96	15	
509	516	532	537	530	531	535	534	534	548	05	07	667	10	00	496	171	16	
539	539	539	539	537	537	538	538	537	549	05	12	615	09	21	527	38	17	
538	534	536	535	533	531	534	537	539	554	05	14	653	19	35	527	126	18	
528	530	538	541	542	543	546	547	545	550	04	48	612	15	25	526	86	19	
534	544	550	551	542	536	539	546	538	559	05	35	630	14	27	521	109	20	
552	518	519	551	552	556	557	561	563	565	06	50	613	03	57	532	81	21	
576	576	575	576	577	577	578	579	578	592	05	14	665	00	01	558	107	22†	
571	569	570	569	569	567	561	561	556	592	06	10	674	23	10	546	128	23	
433	443	476	480	480	477	491	503	506	487	03	28	601	10	36	314	287	24††	
523	523	523	524	527	531	538	539	535	529	06	15	557	00	57	487	70	25	
537	534	539	541	537	538	541	543	551	552	04	51	601	14	14	531	70	26	
550	548	547	546	549	558	554	551	550	564	06	35	611	18	25	544	67	27†	
553	552	546	536	557	538	542	540	539	561	05	10	599	18	19	529	70	28	
525	520	535	491	466	466	452	442	441	525	05	15	583	23	59	425	158	29††	
509	511	509	510	512	510	515	516	515	481	12	00	527	00	01	424	103	30††	
527	524	520	521	524	525	527	529	530	542	05	32	596	00	10	511	85	31	
534	531	537	536	536	537	539	540	540	553						117	Mean		
519	518	519	518	519	551	552	551	552								Mean†		
497	496	511	504	498	502	509	501	504								Mean††		

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 15
Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November	Date	Hours G M T														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
		U	Y	I	I	I	I	I	I	I	I	I	I	I	I	Y
	1	529	529	537	552	578	599	593	580	562	549	543	542	538	542	528
	2	532	529	535	551	575	591	596	588	570	549	547	552	552	542	537
	3	530	538	553	580	592	592	592	582	555	511	538	538	540	534	538
	4	546	546	558	577	594	602	598	590	576	556	553	554	550	542	543
	5†	540	552	568	577	598	612	612	597	579	564	553	547	548	547	545
	6	555	557	571	596	624	645	656	638	602	582	561	555	550	545	532
	7††	548	547	550	563	595	592	566	558	564	568	548	509	491	486	493
	8††	517	524	529	541	547	570	550	540	545	531	510	526	507	517	510
	9††	534	534	538	556	566	580	581	576	567	558	563	546	532	524	510
	10††	525	530	530	543	560	573	587	587	581	563	552	539	527	528	529
	11	540	543	546	554	563	564	562	571	571	556	550	554	542	539	540
	12	545	544	548	563	579	583	587	589	577	564	548	537	539	539	541
	13	539	545	553	565	575	584	581	576	569	561	555	548	545	537	532
	14	547	553	569	591	607	613	608	599	589	580	572	565	558	553	550
	15	544	544	552	575	604	626	627	615	592	575	566	560	552	549	548
	16†	550	555	565	577	592	604	610	607	598	586	575	566	559	555	554
	17	559	560	563	573	584	597	597	604	604	610	620	605	580	574	552
	18†	542	541	551	568	573	580	579	574	566	561	557	553	550	548	545
	19†	549	552	562	580	601	621	621	601	580	570	564	562	558	555	553
	20	553	561	575	591	604	618	618	606	598	591	580	567	562	559	554
	21†	558	558	568	583	603	619	630	626	616	601	586	577	568	559	552
	22	550	550	554	568	585	597	604	602	599	596	587	571	568	573	576
	23	550	555	567	573	589	607	620	620	605	580	568	561	556	550	549
	24††	554	556	562	572	596	611	615	616	617	606	584	554	525	507	499
	25	526	522	524	531	534	550	524	523	530	531	531	533	529	522	524
	26	545	552	565	579	602	611	612	614	603	583	572	557	546	539	537
	27	551	556	567	573	581	590	595	597	592	576	562	555	551	554	553
	28	559	568	584	592	596	604	604	600	597	593	581	572	562	559	557
	29	559	563	577	585	589	601	600	600	597	593	589	574	561	557	553
	30	548	557	566	579	582	581	589	588	598	598	587	559	522	523	541
	Mean	544	547	556	570	586	597	597	592	583	572	564	555	546	542	539
	Mean†	548	552	563	577	593	607	610	601	586	576	567	561	557	553	550
	Mean††	536	538	542	555	573	585	580	575	575	566	557	535	516	512	508

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 15

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

39,000 γ plus tabular quantities

Hours G M T									Mean	Maximum		Minimum		Range	Date			
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag					
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ		
517	521	532	521	521	523	526	534	534	543	05	15	611	15	10	515	96	1	
529	526	540	512	521	534	539	534	530	546	05	10	601	17	53	508	93	2	
538	537	537	537	537	538	535	546	546	550	05	05	600	00	01	529	71	3	
545	545	542	544	549	550	548	542	540	558	04	59	605	22	44	539	66	4	
545	546	546	546	548	549	550	551	552	561	05	15	616	01	00	538	78	5†	
523	525	535	540	548	546	540	550	550	568	05	45	660	15	15	519	141	6	
518	510	486	475	524	528	537	520	524	533	04	07	606	17	41	465	141	7††	
506	505	538	525	524	535	550	541	535	532	05	12	584	11	50	495	89	8††	
507	543	518	530	530	543	539	532	530	543	05	05	589	15	16	499	90	9††	
538	545	531	540	533	532	537	539	538	545	06	30	592	02	13	520	72	10††	
536	539	541	535	542	549	544	542	544	549	06	32	579	18	32	528	51	11	
535	533	514	522	533	532	534	537	537	548	05	42	597	17	05	510	87	12	
541	536	533	534	537	541	541	543	546	551	05	10	587	13	45	529	58	13	
546	544	545	547	547	549	549	549	547	566	05	05	615	16	17	544	71	14	
544	540	540	543	547	547	549	549	550	564	05	20	630	16	18	539	91	15	
555	554	552	551	551	551	551	550	556	568	05	55	612	22	15	549	63	16†	
502	476	506	514	527	537	539	537	541	561	09	10	632	15	48	465	167	17	
545	543	544	543	543	546	548	548	549	554	05	25	584	18	47	540	44	18†	
552	552	552	551	551	553	555	555	555	567	05	45	628	00	15	548	80	19†	
555	556	556	558	557	557	558	558	559	573	05	29	622	00	05	553	69	20	
551	548	547	546	547	550	551	552	552	573	06	15	633	17	56	545	88	21†	
576	568	556	552	537	541	540	545	549	568	06	22	608	19	11	531	77	22	
548	545	546	549	549	551	554	553	555	567	06	13	623	16	45	545	78	23	
489	485	504	495	494	507	525	536	535	548	05	23	620	15	25	482	138	24††	
526	527	525	533	540	540	542	543	543	531	04	45	556	12	45	518	38	25	
541	543	543	545	547	548	549	550	551	564	06	58	617	13	55	536	81	26	
550	552	556	555	556	558	552	556	558	565	06	47	600	14	56	549	51	27	
554	552	554	554	556	556	556	556	555	557	05	24	617	15	35	552	65	28	
542	545	554	562	562	559	556	567	565	571	06	09	605	15	20	535	~	29	
542	538	541	540	544	542	551	545	548	559	08	33	606	12	27	513	93	30	
537	536	537	537	540	543	545	545	546	557							83	Mean	
550	549	548	547	548	550	551	551	553										Mean†
512	518	515	513	521	529	538	534	532										Mean††

† Five International quiet days

†† Five International disturbed days.

Δ Loss of record, day omitted for means

TABLE 16
 Hourly values of Horizontal Force, 1963
 (Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December 39,000 f plus tabular quantities

Date	Hours G M T													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	548	559	578	589	600	599	598	593	589	582	578	571	561	55
2	567	574	588	594	602	611	620	599	602	591	577	567	560	55
3††	574	575	572	588	585	601	606	599	558	558	555	552	529	50
4††	543	549	562	566	577	588	593	580	577	573	565	561	543	53
5††	546	548	555	565	582	590	566	568	559	548	547	547	551	53
6††	539	543	550	549	555	581	573	588	558	579	566	557	541	55
7	548	552	558	568	583	594	589	592	576	565	556	550	540	54
8	543	542	537	545	552	556	549	547	543	545	556	551	542	54
9	554	554	557	561	577	591	591	585	564	552	553	548	544	53
10†	557	559	559	566	577	583	586	584	581	585	589	579	567	56
11†	560	562	568	586	608	618	610	590	574	571	575	571	570	56
12	562	568	581	599	616	632	633	620	599	579	569	568	568	56
13	574	571	571	578	588	593	600	609	603	589	581	578	570	56
14	567	573	584	596	619	631	625	611	576	556	557	567	569	55
15	554	555	560	583	605	595	603	612	592	573	560	553	547	55
16	557	555	570	589	577	625	637	631	600	597	583	572	563	55
17	561	559	564	576	599	625	645	638	618	610	579	571	569	56
18†	570	568	562	567	594	639	651	647	617	590	571	564	570	57
19	567	566	569	586	720	661	680	663	628	601	580	573	575	57
20††	564	567	571	595	641	679	678	650	606	571	553	540	542	53
21	551	547	547	560	587	611	597	634	621	597	583	568	567	55
22	559	556	559	581	605	623	600	620	604	586	565	552	546	53
23	551	547	545	555	580	606	622	621	610	579	568	559	558	55
24	555	558	558	573	593	615	622	610	597	587	575	567	569	55
25†	561	564	575	582	601	602	628	624	614	596	576	563	557	55
26	560	563	567	581	596	613	626	630	619	598	578	564	557	55
27	560	561	570	580	593	614	629	631	613	595	582	570	565	56
28	569	573	579	591	615	631	637	626	629	611	602	589	579	57
29	571	569	579	597	618	628	627	614	598	586	579	558	514	49
30	548	554	565	575	589	598	599	591	589	579	562	550	546	54
31†	553	558	567	577	589	600	604	600	597	588	577	566	559	57
Mean	558	560	565	577	594	611	614	611	594	581	571	563	556	55
Mean†	560	562	566	576	594	608	616	609	597	586	578	569	565	56
Mean ††	553	556	562	573	588	608	607	597	572	566	557	551	541	53

† Five International quiet days.

†† Five International disturbed days.

Δ Loss of record day omitted for means

TABLE 16

Hourly values of Horizontal Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

39,000γ plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ	
547	551	549	553	556	556	555	555	564	568	04	00	601	14	50	543	58	1
543	533	531	525	527	539	549	554	564	567	05	40	636	18	20	519	117	2
526	520	530	511	522	529	545	544	541	553	05	46	634	13	36	497	137	3††
546	555	513	537	541	553	556	555	549	558	05	20	602	13	17	527	75	4††
527	520	527	539	543	554	545	541	537	550	04	56	597	16	45	514	83	5††
549	540	553	558	549	541	542	545	547	554	07	00	596	14	30	522	74	6††
529	524	529	537	544	543	547	546	544	554	05	20	605	15	45	521	84	7
541	550	537	543	545	544	546	551	552	546	09	55	560	15	10	532	28	8
546	546	547	550	554	553	556	557	557	557	04	56	595	14	20	529	66	9
558	557	555	555	556	557	559	559	560	567	09	36	591	17	05	555	36	10†
562	562	562	562	564	562	565	565	564	573	05	10	622	00	01	560	62	11†
559	558	554	554	556	563	568	570	567	578	05	41	635	17	52	553	82	12
555	556	560	560	558	563	563	564	564	573	04	44	615	15	11	554	61	13
517	506	529	539	541	536	544	545	552	564	05	05	632	15	45	497	135	14
548	543	547	554	555	555	555	556	558	565	04	56	630	15	48	541	89	15
555	564	559	554	560	557	558	561	559	575	06	03	639	17	44	551	88	16
566	566	563	558	559	560	562	566	569	580	05	42	649	18	10	557	92	17
572	570	567	566	566	566	566	569	569	582	06	00	652	20	25	565	87	18†
575	572	566	567	567	573	576	569	573	590	05	46	683	23	32	569	120	19
520	534	538	536	537	569	560	554	555	572	05	23	697	14	55	519	178	20††
552	537	548	550	547	552	553	556	565	568	07	10	637	16	30	533	104	21
534	534	537	537	549	556	550	550	555	563	06	21	634	13	28	525	109	22
557	547	543	535	548	552	551	553	555	565	05	55	625	17	33	532	93	23
549	549	552	558	549	552	563	562	560	570	05	30	625	14	08	544	81	24
554	554	555	555	557	557	557	559	559	573	06	15	632	15	15	552	80	25†
548	542	545	551	554	555	557	560	560	572	07	00	632	16	15	540	92	26
563	565	565	559	561	563	565	568	569	578	06	42	634	00	30	559	75	27
561	557	554	551	550	559	573	566	569	584	08	03	642	19	50	547	95	28
500	516	521	516	534	539	536	539	546	557	05	00	632	13	44	489	143	29
543	548	545	545	545	544	544	544	552	560	05	36	604	14	50	538	66	30
555	556	554	554	554	553	553	555	560	569	05	25	605	00	01	553	52	31†
547	546	547	548	550	553	555	556	558	567							88	Mean
560	560	559	558	559	559	560	561	562									Mean†
534	534	538	542	538	549	550	548	546									Mean††

† Five International quiet days.
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 17
 Hourly values of Vertical Force, 1963
 (Averages for sixty minutes centred at the full hours of Greenwich Mean Time)
 July 2,000 γ plus tabular quantities

Date	Hours G M T															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	183	183	183	172	164	171	172	174	178	173	174	173	174	178	178	
2†	183	184	183	178	172	167	172	167	161	167	173	179	174	175	178	
3†	179	184	184	179	169	170	169	168	173	174	176	185	181	178	176	
4	181	181	182	187	188	188	179	176	177	187	188	193	187	187	177	
5	181	188	188	189	188	176	170	176	186	192	188	188	178	177	176	
6	177	188	188	199	185	173	184	178	176	178	177	178	177	178	179	
7	179	184	188	189	183	177	178	177	169	165	173	179	189	184	177	
8	188	187	184	184	183	177	179	183	183	188	185	184	185	183	178	
9	182	183	191	190	183	168	178	169	177	179	180	179	180	185	181	
10	181	184	180	179	168	175	184	193	191	195	190	181	184	183	183	
11	184	184	183	184	179	178	170	157	157	168	173	180	182	182	180	
12	181	184	182	180	175	170	168	163	167	173	174	174	178	181	181	
13	182	182	180	181	180	182	192	190	182	180	178	181	182	180	180	
14†	181	185	187	188	182	181	180	174	169	170	172	178	179	180	179	
15†	181	182	182	181	181	185	193	197	193	185	186	181	175	181	182	
16	187	187	186	189	187	189	186	182	181	181	182	181	182	181	181	
17	186	187	186	181	169	162	170	181	192	181	175	181	174	181	181	
18	191	188	185	179	169	168	180	179	189	184	181	185	181	180	180	
19	187	186	181	175	169	169	169	170	181	184	182	180	181	181	182	
20	185	192	185	185	181	178	180	183	191	192	191	191	184	179	179	
21††	181	180	180	177	169	167	167	155	156	157	159	147	148	161	178	
22	190	192	185	180	178	172	170	168	176	182	192	190	179	172	168	
23††	178	182	179	178	176	166	155	159	165	172	167	177	178	180	179	
24††	190	186	172	161	153	153	155	164	166	157	169	178	179	177	179	
25	183	189	182	178	176	166	164	176	177	182	181	188	188	183	177	
26	182	183	184	183	178	177	179	179	177	184	183	173	177	181	176	
27	183	183	183	179	175	178	189	177	178	179	178	177	177	178	179	
28	179	178	176	169	165	166	167	166	160	159	165	175	176	177	178	
29†	181	189	188	182	187	178	177	176	178	189	188	184	188	185	183	
30††	189	188	189	182	171	165	159	154	153	164	163	171	169	165	169	
31††	178	190	179	164	153	165	146	154	164	166	178	178	179	176	179	
Mean	183	185	183	181	175	173	174	173	175	177	178	180	179	179	178	
Mean†	181	185	185	182	178	176	178	176	173	176	177	181	181	180	179	
Mean††	183	185	180	172	164	163	156	157	161	163	168	170	171	172	177	

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 17
 Hourly values of Vertical Force, 1963
 (Averages for sixty minutes centred at the full hours of Greenwich Mean Time)
 July
 2,000 Υ plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	H	M	H	M	Υ	Υ		
177	178	178	178	178	177	178	177	178	176	00	35	185	04	00	162	23	1
177	175	178	178	179	177	175	178	179	175	01	05	186	07	45	160	26	2†
175	178	179	181	185	181	181	180	180	178	01	10	186	04	30	167	19	3†
176	177	186	181	180	182	187	181	180	183	10	30	200	06	30	175	25	4
177	182	178	187	187	188	178	187	186	183	09	15	193	05	45	164	29	5
177	179	177	184	188	181	187	181	183	182	02	15	201	01	45	166	35	6
179	178	179	183	182	183	183	179	183	180	02	10	190	09	15	164	26	7
179	183	179	183	182	183	181	184	189	183	00	05	190	05	00	177	13	8
180	181	185	183	181	180	179	180	180	181	02	15	193	01	55	167	26	9
183	189	183	181	183	185	183	185	183	181	09	05	196	04	00	168	28	10
180	180	181	181	182	181	181	183	182	178	00	10	187	07	15	156	31	11
180	185	181	181	181	180	182	181	181	178	16	00	185	07	10	158	27	12
182	181	181	181	185	181	181	181	181	182	06	00	192	10	10	178	14	13
180	179	181	181	182	184	180	181	182	180	03	00	188	08	10	169	19	14†
185	183	182	183	181	182	181	185	187	184	06	45	205	11	45	173	32	15†
181	182	185	183	182	185	183	185	187	184	02	55	192	13	30	179	13	16
181	180	185	193	193	191	192	191	192	183	18	15	191	04	45	158	36	17
180	180	182	185	191	188	190	190	192	183	22	55	193	05	45	168	25	18
181	182	181	181	182	188	181	182	182	180	20	00	188	03	45	168	20	19
181	180	181	181	180	179	179	179	179	183	09	15	193	05	00	178	15	20
179	161	181	181	183	191	190	189	190	172	19	55	192	12	20	114	48	21††
177	171	177	182	179	182	179	180	177	179	09	45	195	06	35	166	29	22
180	182	179	183	181	188	190	189	181	177	21	00	190	06	20	154	36	23††
178	178	178	177	179	182	183	182	183	173	00	05	190	05	10	150	40	24†††
176	177	178	182	183	181	183	183	179	180	01	00	189	05	55	161	28	25
176	179	179	179	178	179	181	179	179	179	09	35	189	11	00	173	16	26
181	183	181	177	178	178	178	178	181	179	06	00	189	03	30	171	18	27
177	178	179	179	178	179	178	178	179	173	16	30	181	08	45	158	23	28
188	178	178	183	181	179	182	188	188	183	08	10	190	07	00	176	11	29†
188	188	181	181	179	185	178	177	176	175	20	25	197	08	45	142	55	30††
178	176	179	181	178	179	178	179	177	173	01	05	190	06	15	142	48	31††
180	179	181	182	182	183	182	183	183	179							2 7	Mean
180	178	179	181	182	182	180	182	183									Mean†
181	177	180	181	181	185	184	183	182									Mean††

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 18

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

2,000 Υ plus tabular quantities

Date	Hours G M T															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	
	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	
1	179	182	179	166	157	145	141	143	153	155	161	166	166	167	169	
2	177	179	171	166	158	158	143	154	173	176	178	176	172	176	177	
3	178	183	181	164	152	143	153	152	158	164	166	177	182	178	177	
4	178	183	177	164	148	142	143	142	153	157	161	164	169	172	173	
5	176	183	176	163	154	146	153	158	155	154	158	166	176	176	176	
6	179	182	175	165	153	140	141	142	152	154	165	169	175	181	183	
7	Δ	Δ	Δ	171	176	185	193	189	179	182	181	179	177	177	176	
8	179	181	182	184	193	189	183	178	178	182	183	189	194	191	184	
9	194	195	181	176	166	167	179	181	190	194	191	194	193	189	190	
10	195	197	194	182	183	179	182	181	190	196	202	200	195	194	188	
11†	194	200	193	190	190	188	190	195	190	191	183	182	183	184	183	
12†	194	195	189	182	177	171	166	176	189	195	199	195	189	188	189	
13†	191	194	191	182	176	170	162	159	165	168	177	181	182	188	188	
14†	189	194	190	181	175	170	166	165	168	180	182	188	187	182	182	
15	188	189	187	187	187	177	175	169	168	169	176	185	188	186	186	
16†	191	195	193	191	185	176	182	186	197	199	204	200	194	189	188	
17	192	191	192	185	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
18††	185	186	182	178	174	173	174	180	191	200	198	186	185	173	162	
19††	191	192	185	177	173	173	172	174	184	187	186	177	173	175	180	
20††	186	190	173	173	177	172	156	177	186	190	191	190	193	187	186	
21††	189	191	184	171	160	148	144	150	149	153	166	178	182	179	178	
22	185	188	185	173	170	159	154	150	149	161	167	164	172	174	173	
23	185	188	185	173	172	164	165	166	161	160	161	170	174	179	184	
24	189	190	189	182	173	160	157	155	153	153	160	173	177	176	175	
25	187	188	185	172	161	160	160	159	158	159	160	170	173	179	177	
26	183	189	184	182	174	157	147	157	162	172	175	183	184	183	182	
27	186	182	178	174	162	160	158	160	168	171	171	174	175	176	174	
28††	183	186	188	170	157	151	147	147	152	158	157	158	162	175	181	
29	183	183	176	163	159	165	169	169	173	171	170	177	181	182	175	
30	181	185	186	181	180	180	181	180	180	185	193	187	182	173	171	
31	183	18	171	161	157	150	144	118	160	172	185	182	179	169	168	
Mean	186	188	183	175	170	164	162	165	170	174	177	180	180	180	179	
Mean†	192	196	191	185	181	175	173	176	182	187	189	189	187	186	186	
Mean††	187	189	182	174	168	163	159	166	172	178	180	178	179	178	177	

† Five International quiet days

†† Five International disturbed days

 Δ Loss of record, day omitted for means

TABLE 18

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

2,000 γ plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ	
175	176	178	182	179	181	178	177	176	168	17	40	188	06	05	141	47	1
176	177	178	182	179	177	182	178	178	173	21	35	183	06	15	142	41	2
176	177	177	178	177	178	177	178	177	171	01	00	183	04	45	141	42	3
171	172	177	177	177	178	178	176	175	167	01	00	183	05	15	141	42	4
175	177	176	178	177	177	179	178	178	169	01	05	184	04	45	143	41	5
Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	6
177	178	178	177	179	178	178	178	178	Δ	05	50	194		Δ	Δ	Δ	7
190	189	191	193	193	193	193	190	191	187	11	50	195	07	30	177	18	8
191	190	193	191	193	191	194	194	194	188	01	05	195	04	10	166	29	9
185	190	191	190	189	194	191	190	191	190	09	45	203	05	05	179	24	10
183	189	190	191	194	193	191	191	193	190	01	00	200	10	50	182	18	11†
190	189	189	190	190	189	190	191	190	188	09	50	201	05	35	165	36	12†
187	188	190	192	192	189	192	190	188	183	01	00	194	06	55	158	36	13†
180	177	182	187	188	188	188	189	188	182	01	00	194	05	50	164	30	14†
189	187	187	191	188	187	186	193	191	184	22	00	193	08	05	168	25	15
187	188	186	188	189	188	188	188	187	190	10	05	205	05	10	175	30	16†
Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	17
186	191	192	191	190	191	190	197	192	185	09	15	202	13	55	161	41	18††
179	184	183	180	185	184	187	186	184	181	01	00	192	05	50	171	21	19††
187	189	192	186	187	191	190	191	187	184	10	45	198	06	05	154	41	20††
183	185	186	186	185	185	189	188	185	175	00	55	191	05	30	143	47	21††
176	179	183	186	184	184	184	183	184	174	01	10	188	08	15	148	40	22
189	186	185	188	185	184	186	185	186	175	15	10	190	08	45	159	31	23
179	183	185	184	185	187	185	189	185	176	21	30	191	08	30	152	39	24
179	183	182	183	183	182	181	185	184	175	01	10	189	08	00	158	31	25
178	176	181	182	176	175	174	182	183	176	01	10	189	08	00	157	32	26
177	181	183	180	175	183	186	183	182	175	00	05	186	06	05	158	28	27
182	182	183	184	190	186	183	182	176	172	18	45	194	16	15	146	48	28††
176	181	182	181	177	182	183	182	179	174	19	45	185	04	00	159	26	29
171	175	183	181	181	182	181	181	182	181	10	20	194	13	30	170	24	30
168	186	180	178	180	181	180	178	180	172	16	30	192	06	05	144	48	31
181	183	184	185	184	185	185	186	184	179								Mean
185	186	187	190	191	189	190	190	189									Mean†
183	186	187	185	187	187	188	189	185									Mean††

† Five International quiet days
 †† Five International disturbed days.
 Δ Loss of record, day omitted for means

TABLE 19

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	184	185	173	161	157	148	141	148	153	156	170	184	180	172	180
2†	179	181	168	159	150	143	137	136	142	151	161	171	172	171	171
3	178	179	165	147	143	132	130	142	148	155	156	166	172	171	169
4†	180	183	175	155	142	131	134	142	144	159	170	179	177	167	168
5	180	179	171	160	149	148	154	155	156	156	164	172	178	173	170
6†	178	181	166	152	145	140	134	140	141	153	164	167	167	166	169
7†	177	178	166	165	164	158	149	152	154	163	166	165	166	167	169
8	171	177	176	165	154	139	129	142	157	165	168	164	153	152	170
9	176	177	165	153	151	149	155	165	163	161	162	165	167	162	161
10	174	175	173	162	161	150	139	138	140	151	162	162	162	163	166
11	173	169	168	161	161	161	160	155	149	160	153	167	173	174	165
12	172	173	165	155	149	148	137	148	147	161	167	171	166	162	164
13†	170	172	166	151	147	142	135	136	146	148	158	155	160	161	163
14††	164	171	160	143	135	121	135	113	103	121	135	147	148	117	139
15	164	163	148	115	142	134	124	136	153	164	170	160	159	154	159
16	166	170	155	143	137	145	116	139	143	157	160	158	158	165	170
17	165	171	158	141	135	135	134	122	138	134	131	146	170	164	166
18	170	171	164	151	142	129	124	129	134	140	118	157	159	163	170
19	171	170	152	134	120	101	114	115	123	136	138	148	157	159	157
20	169	171	164	151	146	141	133	128	134	156	150	159	162	159	158
21	169	171	164	152	140	136	139	145	157	160	158	160	162	163	164
22††	175	177	160	150	138	101	196	143	131	174	169	171	168	169	163
23††	142	158	145	171	168	158	159	152	162	158	160	172	171	171	170
24	164	168	164	145	129	125	122	123	138	116	156	161	161	159	158
25††	173	162	153	149	138	133	115	122	120	131	139	158	161	163	163
26	163	169	161	151	140	120	121	123	108	132	143	149	157	158	161
27	163	161	158	155	145	140	133	133	141	143	145	156	157	156	158
28††	163	156	146	142	136	122	135	110	151	165	174	162	159	162	158
29	163	164	169	166	162	157	146	145	141	148	152	158	157	154	159
30	164	160	159	159	157	148	152	116	148	152	157	159	160	160	153
Mean	170	172	163	153	146	138	136	139	143	152	157	162	164	163	164
Mean †	177	179	168	156	150	143	138	141	145	155	164	167	168	166	168
Mean ††	163	165	153	151	143	128	128	135	134	150	155	162	161	161	159

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 19

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000γ plus tabular quantities

Hours G M T									Mean	Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ	
179	174	172	178	179	179	179	180	179	171	10	45	186	06	15	143	43	1
174	173	178	178	179	179	174	175	177	166	01	45	184	07	05	135	49	2†
178	177	178	178	177	179	183	177	178	165	20	55	184	05	55	129	55	3
170	172	173	176	178	178	179	178	179	166	01	00	183	05	15	130	53	4†
171	170	171	172	177	176	177	178	179	168	00	20	180	05	00	148	32	5
167	169	175	176	176	176	177	177	176	164	00	45	183	06	15	133	50	6†
169	170	171	176	177	176	177	176	171	168	01	00	178	06	25	148	30	7†
172	174	171	170	175	175	175	171	175	161	01	15	177	05	45	128	49	8
167	169	175	173	175	174	175	171	174	166	00	50	177	04	55	147	30	9
168	167	166	173	174	173	173	172	174	163	01	10	176	07	00	138	38	10
163	165	165	172	161	172	165	165	167	164	00	15	174	08	00	149	25	11
161	164	165	171	167	168	171	171	168	162	00	45	174	06	15	135	39	12
165	163	165	165	165	167	167	165	165	158	21	20	172	06	00	135	37	13†
175	171	185	175	189	176	171	165	165	152	16	30	195	07	45	101	94	14††
163	161	170	173	175	172	165	169	166	158	17	40	183	05	55	123	60	15
172	166	167	171	182	169	164	170	171	160	19	15	184	04	05	136	48	16
170	171	165	170	178	165	170	169	165	156	18	30	181	07	05	121	63	17
165	166	171	164	163	169	170	166	170	156	16	45	174	06	15	123	51	18
159	160	169	174	163	171	169	169	168	150	19	10	175	05	05	103	72	19
157	158	159	168	172	171	166	170	169	157	01	00	174	06	45	127	47	20
164	151	162	151	174	171	181	170	166	160	14	30	183	04	45	135	48	21
168	170	174	171	181	182	181	151	150	159	21	15	196	06	15	188	108	22††
169	169	171	170	171	169	169	161	164	164	00	25	190	05	55	146	44	23††
162	161	161	169	163	170	162	173	170	154	22	00	173	06	05	122	51	24
167	173	170	171	170	171	169	168	163	154	15	45	175	06	05	115	60	25††
168	165	175	168	161	161	163	164	165	152	17	15	180	07	45	102	78	26
158	161	163	168	163	187	168	167	161	156	20	30	193	06	30	131	62	27
169	171	159	162	171	161	168	164	160	157	18	45	177	05	05	121	56	28††
162	165	162	163	171	162	162	161	166	159	18	45	175	07	45	142	33	29
162	160	163	164	169	164	168	168	164	159	19	15	170	07	00	146	24	30
167	167	169	170	173	172	171	170	169	160							5 1	Mean
169	169	172	174	175	175	175	174	174									Mean †
170	171	172	170	176	172	172	162	160									Mean ††

† Five International quiet days
 †† Five International disturbed days.
 Δ Loss of record, day omitted for means.

TABLE 20

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October 2,000 γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
†1	164	162	160	159	149	146	145	146	148	153	159	160	159	160	160
†2	169	171	170	162	158	142	130	132	143	158	162	167	161	161	161
†3	170	171	160	152	143	137	136	135	137	138	148	159	159	161	162
4	167	168	166	166	162	160	147	131	141	150	161	161	161	163	162
5	169	167	172	175	174	161	150	144	145	146	146	162	163	163	162
6	167	174	169	165	164	156	151	151	162	168	163	163	162	161	164
7	169	170	180	172	168	165	155	153	153	164	165	166	164	165	164
8	170	168	163	157	154	147	141	142	151	156	160	163	163	160	164
9	166	164	165	165	152	146	142	153	157	165	167	164	165	165	166
10	178	172	170	177	172	170	143	149	154	158	167	171	170	166	165
11	184	178	177	172	157	144	143	147	150	153	161	156	148	160	173
††12	180	178	174	179	166	151	150	151	169	170	169	164	167	168	161
13	180	180	174	158	147	146	150	157	162	169	177	180	175	176	175
††14	173	171	163	153	150	140	130	146	159	162	171	171	170	169	174
15	181	180	172	163	152	147	154	160	169	172	171	178	177	173	177
16	177	178	177	164	154	143	130	130	141	152	154	162	168	164	166
17	172	172	164	166	169	161	154	166	183	185	184	184	181	180	179
18	185	189	186	182	166	156	158	163	168	169	167	168	169	168	166
19	168	175	176	181	155	150	140	151	161	162	163	159	158	161	159
20	165	164	163	162	158	146	147	151	155	159	164	162	152	156	152
21	163	164	159	158	146	140	146	154	156	154	157	164	164	159	162
†22	165	165	163	159	157	145	142	147	145	153	154	155	157	161	164
23	164	165	159	154	158	154	148	148	154	155	161	166	166	166	167
††24	166	167	182	164	154	155	154	155	143	141	129	131	178	179	166
25	177	168	173	180	183	180	189	190	186	185	183	175	179	178	174
26	179	180	175	173	168	168	168	178	193	192	180	173	172	169	173
†27	179	177	178	177	173	171	167	171	168	168	169	171	172	173	175
28	177	178	181	198	190	186	184	181	180	174	172	172	172	173	179
††29	178	170	168	168	169	168	170	179	168	162	167	168	169	167	168
††30	160	167	170	181	184	174	179	186	193	192	188	182	184	179	176
31	168	169	168	167	163	167	164	162	159	164	165	167	169	171	173
Mean	172	172	170	168	162	156	152	155	160	163	165	166	167	167	167
Mean †	169	169	166	162	156	148	144	146	148	154	158	162	162	163	164
Mean ††	171	171	171	169	165	158	157	163	166	165	165	163	174	172	169

† Five International quiet days

†† Five International disturbed days.

△ Loss of record, day omitted for means

TABLE 20

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October
2,000Y plus tabular quantities

Hours G M T										Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23	Mean	Time	Mag	Time	Mag		
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H. M	Y	H. M	Y	Y	Y
163	164	164	163	161	163	163	165	167	158	23 10	167 05 45	143	24	1†	
164	166	164	164	164	165	166	161	164	160	01 40	172 06 25	129	43	2†	
161	164	165	165	166	167	168	166	165	156	00 55	172 06 30	134	38	3†	
161	162	165	163	173	172	168	173	172	162	22 15	173 06 35	127	46	4	
163	164	166	166	169	173	172	168	166	163	03 05	178 07 15	143	35	5	
165	167	164	165	163	170	168	173	169	161	01 05	174 06 25	150	24	6	
165	168	163	168	171	175	175	177	176	167	02 15	181 06 20	151	30	7	
166	169	176	168	169	169	170	170	169	162	16 40	178 06 15	140	38	8	
169	170	171	172	170	171	172	177	179	165	23 15	181 05 45	141	40	9	
168	171	172	172	172	176	177	179	182	169	23 45	183 06 15	142	41	10	
179	179	179	175	179	173	178	174	179	166	00 10	184 05 45	142	42	11	
157	164	176	180	179	181	186	174	178	170	20 25	198 06 10	149	49	12††	
181	175	180	181	181	177	174	180	181	172	14 45	182 04 15	146	36	13	
182	171	170	181	182	182	178	176	176	167	19 30	183 05 35	127	56	14††	
177	181	177	182	181	181	177	182	178	173	18 10	185 05 20	146	39	15	
166	167	170	189	172	173	173	171	166	162	17 30	184 06 30	129	55	16	
180	179	180	181	180	179	180	179	180	176	08 45	185 05 25	153	32	17	
168	167	168	168	169	168	169	170	168	170	00 15	190 04 55	156	34	18	
158	162	165	167	167	164	165	164	163	162	01 35	176 05 35	139	37	19	
158	164	167	165	163	162	164	163	174	160	22 15	175 06 15	145	30	20	
160	163	165	164	165	168	166	165	166	160	19 35	169 04 55	139	30	21	
161	164	164	164	166	164	165	165	165	159	00 30	166 05 30	141	25	22†	
168	167	170	179	171	171	170	168	168	163	18 00	172 06 15	147	25	23	
166	174	189	180	179	174	178	179	178	165	17 45	192 10 15	118	74	24††	
179	179	179	180	179	180	180	181	179	180	07 05	191 00 45	167	24	25	
172	173	177	174	178	177	178	178	179	176	07 30	195 01 30	167	28	26	
173	174	179	179	180	180	179	174	178	174	20 30	183 06 10	167	16	27†	
180	180	179	172	186	170	178	176	179	179	02 35	198 16 25	168	30	28	
167	169	169	175	179	150	156	166	164	166	16 45	181 17 30	142	39	29††	
172	173	172	172	173	170	171	173	172	177	08 25	196 00 10	160	36	30††	
171	171	175	175	180	175	177	177	176	170	19 30	181 03 05	157	24	31	
168	170	171	179	179	179	172	172	173	167				36	Mean	
164	166	167	167	167	168	168	167	168						Mean †	
169	170	175	174	172	171	174	174	174						Mean ††	

† Five International quiet days
 †† Five International disturbed days
 Δ Loss of record, day omitted for means

TABLE 21

Hourly values Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2,000γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	175	173	170	170	170	159	151	157	158	159	160	162	167	169	169
2	174	169	169	172	175	171	169	170	170	169	170	172	170	171	170
3	175	174	174	176	164	153	156	156	158	158	160	164	170	170	171
4	174	170	171	176	171	164	160	161	165	166	166	167	170	170	171
5†	172	175	172	171	166	161	159	160	163	161	163	161	165	169	171
6	173	177	177	177	173	167	162	161	162	165	166	164	166	167	166
7††	172	173	167	167	165	156	158	170	172	172	160	154	160	164	170
8††	173	176	172	171	172	166	156	160	171	172	171	166	165	172	172
9††	172	170	170	173	169	166	165	162	162	162	162	166	167	169	168
10††	169	168	168	174	173	169	173	166	165	162	160	161	172	173	173
11	177	169	160	165	165	166	162	166	162	163	167	173	174	174	174
12	175	174	173	175	172	162	154	160	162	154	156	166	174	175	175
13	175	179	174	174	170	174	175	174	168	168	174	174	174	173	174
14	175	172	168	178	175	167	166	174	167	186	169	170	169	173	173
15	176	175	175	180	179	175	174	174	173	174	174	174	170	173	174
16†	176	174	168	175	185	176	175	176	174	168	168	170	173	176	175
17	179	177	177	180	185	183	177	176	175	181	182	175	165	167	168
18†	180	175	169	168	163	163	165	171	175	171	173	175	176	177	176
19†	179	176	174	176	175	174	175	174	167	167	168	168	173	175	175
20	177	175	169	172	176	175	180	181	182	177	175	171	170	171	172
21†	177	176	176	177	177	176	174	170	166	168	174	171	175	171	170
22	178	176	176	176	178	181	184	188	180	177	169	168	172	176	177
23	176	175	171	175	176	176	169	165	164	164	166	168	168	169	172
24††	176	175	171	176	182	181	186	183	174	168	163	157	157	161	163
25	171	169	168	173	171	175	179	186	181	169	167	169	175	174	175
26	171	170	173	180	177	180	187	183	186	169	168	167	173	171	173
27	176	175	174	175	175	175	170	164	157	151	161	164	169	175	175
28	173	169	170	169	169	171	172	174	173	163	162	163	166	164	166
29	174	169	166	172	174	185	184	174	162	162	162	163	164	167	170
30	168	168	163	167	168	173	184	182	175	163	162	162	154	162	174
Mean	174	173	171	174	173	171	170	171	169	167	167	167	169	171	172
Mean †	177	175	172	173	173	170	170	170	169	167	169	169	172	174	173
Mean ††	172	172	170	172	172	168	168	168	169	167	163	161	164	168	169

† Five International quiet days

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 21

Hourly values of vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2,000γ plus tabular quantities

Hours G M T										Mean	Maximum		Minimum		Range	Date	
15	16	17	18	19	20	21	22	23	Time		Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ	
170	171	180	177	173	175	173	179	177	169	16	50	181	05	55	150	31	1
171	171	181	169	171	178	178	176	176	172	17	05	186	05	40	166	20	2
172	174	171	175	176	174	171	176	175	168	21	30	177	04	55	152	25	3
176	175	172	173	177	176	175	172	171	170	18	50	181	06	05	159	22	4
171	171	173	172	173	172	173	173	172	168	01	00	175	05	50	158	17	5†
167	171	173	176	176	174	171	173	174	170	19	25	178	07	30	160	18	6
174	172	166	164	186	185	180	172	173	169	21	05	196	05	30	152	44	7††
172	171	182	173	172	176	183	173	172	171	17	10	186	06	05	148	38	8††
168	180	173	177	175	179	177	173	173	170	15	55	186	07	30	161	25	9††
175	178	172	175	173	174	174	174	175	171	17	55	183	09	40	159	24	10††
175	174	175	174	179	179	177	173	175	171	19	15	185	02	10	157	28	11
174	174	167	176	180	178	176	179	178	170	18	30	180	06	05	152	28	12
176	175	174	175	176	176	176	175	176	174	01	05	180	08	30	166	14	13
174	174	175	176	176	175	176	179	175	173	02	45	184	08	30	164	20	14
174	174	175	178	179	179	176	178	176	175	02	50	785	11	30	168	17	15
176	177	176	179	179	177	177	179	180	175	03	10	186	08	30	167	19	16†
157	157	175	177	183	186	183	180	181	176	09	35	191	16	10	150	41	17
177	176	177	180	180	181	179	177	176	174	19	30	182	04	35	159	23	18†
176	175	176	177	176	177	177	179	179	174	23	10	180	08	30	165	15	19†
175	177	176	177	177	176	177	178	181	176	08	05	183	02	30	167	16	20
174	176	176	176	177	178	178	177	177	174	23	35	180	07	35	165	15	21†
176	174	171	174	171	174	175	176	176	176	06	30	189	10	30	166	23	22
175	174	176	176	175	177	176	176	176	172	20	20	180	08	40	163	17	23
164	168	179	175	170	176	183	185	180	173	05	35	187	11	30	156	31	24††
175	174	175	177	180	176	176	177	175	174	06	50	187	09	25	164	23	25
175	175	175	176	176	177	176	175	175	175	06	30	188	10	25	164	24	26
175	175	175	175	175	175	171	174	175	171	00	05	176	08	30	150	26	27
173	174	174	173	174	173	174	174	174	170	07	40	176	09	45	162	14	28
166	172	174	175	174	174	172	173	172	171	05	30	186	09	15	161	25	29
175	174	175	174	175	174	175	174	175	170	06	35	187	12	05	152	35	30
173	173	175	175	176	177	176	176	176	172						24	Mean	
175	175	176	177	177	177	177	177	177								Mean †	
171	174	174	173	175	178	179	175	175								Mean ††	

† Five International quiet days.

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 22

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

2,000γ plus tabular quantities

Date	Hours G M T														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	168	168	166	163	174	170	172	164	164	167	163	166	168	168	169
2	174	170	168	170	172	173	172	164	162	162	152	158	161	163	166
3††	174	172	166	172	176	187	184	167	113	156	157	161	162	159	162
4††	168	163	162	166	168	169	168	170	174	172	168	167	162	164	162
5††	168	166	156	160	162	164	164	166	168	166	163	162	161	163	162
6††	168	169	172	174	178	175	176	167	160	158	158	161	158	167	163
7	168	166	163	167	167	162	154	154	155	155	156	162	664	163	167
8	169	173	176	180	180	181	181	179	178	172	166	167	166	168	168
9	168	169	170	180	175	175	173	174	168	167	168	168	166	167	167
10†	167	166	166	167	161	162	162	161	168	167	162	161	162	161	168
11†	167	166	168	166	167	164	163	168	174	176	173	168	163	166	167
12	166	167	168	169	164	162	162	161	156	160	166	161	161	163	164
13	169	168	169	174	175	167	164	616	150	158	167	171	163	168	162
14	163	162	163	166	162	158	160	162	160	166	167	161	162	158	160
15	164	162	164	173	216	162	641	162	151	115	160	160	160	152	163
16	162	161	160	164	163	172	163	152	160	151	150	155	160	158	161
17	167	163	162	166	166	156	144	138	143	116	154	155	156	152	165
18†	166	166	168	174	174	162	150	119	150	156	161	165	167	161	162
19	163	162	162	162	154	138	122	128	137	117	150	158	156	154	161
20††	162	161	153	155	150	149	128	138	138	119	160	161	154	152	155
21	162	163	162	163	162	160	189	114	112	112	150	556	160	158	157
22	163	161	161	162	154	137	132	131	133	113	150	155	155	152	164
23	163	164	164	166	162	148	137	130	387	137	141	158	162	161	162
24	162	162	163	163	156	143	132	133	138	139	151	152	154	154	155
25†	162	161	160	163	162	161	150	139	138	139	142	148	151	152	160
26	163	161	157	163	161	155	148	142	119	139	115	152	158	160	161
27	162	157	155	162	163	158	143	131	131	138	116	156	160	158	161
28	162	161	162	164	163	161	160	150	112	146	150	156	158	158	156
29	163	155	154	158	152	145	144	140	113	150	151	116	136	142	150
30	162	160	158	161	158	151	119	142	142	110	118	152	160	161	160
31†	162	161	157	158	158	160	155	156	154	143	142	150	151	160	161
Mean	165	164	163	166	165	161	156	152	152	153	156	159	159	160	161
Mean †	165	164	164	166	165	162	156	155	157	156	156	158	158	161	163
Mean ††	168	166	162	165	167	169	164	160	157	160	161	162	160	161	161

† Five International quiet days

†† Five International disturbed days.

Δ Loss of record, day omitted for means

TABLE 22

Hourly values of Vertical Force, 1963

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

2,000 + plus tabular quantities

Hours G M T									Mean	Maximum		Minimum		Range	Date			
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag					
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H	M	Y	H	M	Y	Y		
168	169	169	170	174	174	174	174	173	169	19	25	176	07	15	161	15	1	
166	163	166	167	168	174	175	173	174	167	21	35	173	09	50	151	27	2	
172	168	170	173	166	168	174	173	174	168	05	05	190	07	55	140	50	3††	
172	173	164	163	168	173	172	170	169	168	15	15	175	02	00	162	13	4††	
163	163	168	174	172	174	167	166	167	165	19	10	186	02	05	155	31	5††	
173	170	173	172	163	163	169	168	168	163	14	55	178	03	15	156	22	6††	
166	161	169	173	174	170	173	172	169	165	19	00	171	05	10	152	22	7	
169	172	166	168	168	168	168	168	168	168	172	02	50	186	09	35	164	22	8
169	168	168	169	168	168	168	167	167	169	02	15	182	11	10	164	18	9	
167	167	166	167	167	167	168	167	168	165	08	05	169	11	10	161	03	10†	
167	168	167	168	167	168	167	166	166	168	08	10	176	05	35	162	14	11†	
164	163	164	165	166	167	166	166	167	161	02	30	170	08	05	155	15	12	
162	163	164	163	163	163	163	164	164	161	02	50	176	07	35	149	27	13	
150	156	168	168	167	164	166	161	166	163	09	10	170	15	25	119	21	14	
162	162	163	168	167	166	163	163	164	163	02	35	171	08	10	152	22	15	
162	164	166	166	164	163	166	167	166	162	05	20	174	09	40	149	25	16	
163	162	163	163	164	163	163	164	166	159	00	05	168	07	10	138	30	17	
162	162	163	163	164	164	163	164	163	162	03	15	178	06	35	144	34	18†	
160	161	161	162	162	163	163	162	163	155	03	10	166	06	15	120	46	19	
154	162	162	162	162	172	166	163	162	155	20	10	175	06	20	126	49	20††	
158	151	161	162	160	162	162	163	167	157	23	05	169	08	00	140	29	21	
156	158	162	160	162	164	162	162	164	151	19	30	166	05	35	128	38	22	
161	158	160	157	163	162	162	163	163	156	19	05	168	06	15	127	41	23	
160	161	161	162	161	161	163	162	161	155	20	50	166	06	35	131	35	24	
161	162	161	162	162	162	162	162	163	156	23	40	166	08	00	138	28	25†	
160	157	160	162	162	162	162	162	162	156	03	10	166	08	10	138	28	26	
162	162	161	162	162	162	162	162	163	156	23	45	164	07	35	127	37	27	
160	160	161	162	162	166	166	162	163	159	20	45	170	07	40	138	32	28	
155	166	167	163	172	168	162	161	164	155	19	25	175	12	20	131	44	29	
162	162	162	162	162	162	161	162	163	157	22	50	164	08	50	139	25	30	
161	162	161	162	162	161	162	161	162	158	23	10	163	09	35	139	24	31†	
163	163	164	165	165	166	166	165	166	162							28	Mean	
164	164	164	164	164	164	164	164	164										Mean†
167	167	167	169	166	170	170	168	168										Mean††

† Five International quiet days.

†† Five International disturbed days

Δ Loss of record, day omitted for means

TABLE 23
 PRINCIPAL MAGNETIC STORMS
 July—December, 1963.

Observatory	Greenwich Date	Storm time			Sudden Commencements			G-figure degree of activity (iv)	Max activity Greenwich Day	Range				
		GMT of beginning	GMT of ending (i)	Type (ii)	Amplitude (iii)					D	H	Z		
1	2	3	4	5	6	7	8	9	10	11	12	13		
		hr	mt	d	hr	'	γ	γ		'	γ	γ		
Astrophysical Observatory, Kodaikanal-3	July 21	05	10	22	18	—	—	—	m	21	4	192	48	
	July 23	04	14	25	09	—	—	—	m	24	5	104	30	
	July 30	04	40	31	13	—	—	—	m	30	4	144	54	
	August 18	08	14	21	16	—	—	—	m	20	5	170	55	
	August 27	12	32	28	21	—	—	—	m	28	4	134	48	
	September 13	21	20	14	20	—	—	—	ms	14	6	327	66	
	September 16	02	35	17	20	—	—	—	m	17	6	200	56	
	September 19	05	44	19	21	S C	<1	33	12	m	19	6	185	65
	September 21	14	12	24	21	S C	1	39	23	ms	22	9	332	102
	September 27	19	40	29	19	S C	1	35	22	m	28	3	119	72
	October 11	09	30	14	20	—	—	—	m	12	4	159	60	
	October 23	23	31	25	09	—	—	—	ms	24	6	280	72	
	October 29	14	01	30	13	S C	<1	15	10	m	29	3	136	48
	November 7	03	35	11	21	—	—	—	m	8	4	143	56	
	November 17	09	02	18	10	S C	1	34	18	m	17	3	164	48
December 2	21	13	4	20	S C	<1	12	7	m	3		133	54	

The following symbols and conventions have been used according to recognised practice

(i) Approximate time of ending of storm construed as the time of cessation of reasonably marked disturbance movements in the traces

(ii) S C = Sudden Commencement, () = Gradual Commencement

(iii) Signs of Amplitudes of 'D' and 'Z' taken algebraically (D=reckoned negative being westerly)

(Z=reckoned positive being vertically downwards)

(iv) Storms described by three degrees of activity (m)=for moderate (when range is less than 250γ),

(ms)=for moderately severe (when range is between 251γ and 400γ)

(s)=for severe (when range is above 400γ)

PART III
IONOSPHERIC DATA

Characteristic foF₂
Unit Mc
Month July, 1963

TABLE 24
Ionospheric Data
75°E Mean Time

Latitude 10 2° N.
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	F	S	S	E	E	E	4.4	7.2	7.4	6.9	6.6	C
2	G	G	C	G	C	C	G	C	C	C	C	C
3	F	F	F	A	S	E	4.5	6.8	7.5	6.7	6.5	6.7
4	F	S	S	C	C	C	C	C	C	6.8	6.3	6.0
5	A	G	A	S	S	1.6	4.8	7.0	7.6	7.8	7.6	7.4H
6	F	F	F	S	S	F	4.4	7.0	8.2	7.5	7.4H	7.2
7	2.6	F	F	F	A	S	4.6	6.5	7.6	7.8	8.2	7.8
8	E	E	E	E	E	E	5.1 _J	6.9	7.1	7.7	7.8	7.7
9	2.1UF	F	F	A	S	1.8UR	4.4	6.2	6.6	7.1	7.9	7.0
10	1.7	A	S	S	E	E	4.6	6.8	7.4	7.0	7.0	6.8
11	S	A	A	A	A	E	4.6	6.4	6.4	6.5	7.0	6.4
12	A	A	A	S	R	E	4.6	6.6	7.0	7.2	7.7	7.1
13	F	F	E	E	E	E	4.4	6.4	7.4	8.0	6.4H	6.2H
14	S	S	E	E	E	E	4.7	5.9	7.2	7.1	7.6	7.1H
15	A	A	A	A	E	E	4.3	6.3	7.5	7.6	7.0	7.1
16	F	F	F	F	E	E	4.5	6.4	7.0	6.8	6.9	6.5
17	F	F	F	F	F	E	4.6	6.8	7.6	7.1H	6.4H	6.6
18	A	F	F	E	E	E	4.4	6.6	7.4	6.8	6.4	6.9
19	2.0	R	1.9	F	F	E	4.5	6.8	7.4	6.8	6.4	6.3
20	1.4	E	E	E	E	E	4.2	6.3	6.4	6.4	6.3	6.6
21	A	S	S	A	E	E	4.4	5.3	5.8	5.9	5.8	6.0
22	2.8	2.5	2.0R	A	A	E	4.1	5.7	6.6	6.7	6.3	6.5
23	F	E	E	A	A	E	4.3	6.1	6.8	6.8	6.8	6.4
24	F	1.9R	E	E	E	E	4.3	6.4	6.4	6.5	6.4	6.9
25	A	E	A	A	C	E	4.3	6.4	7.0	7.2	7.2	7.0
26	A	A	E	A	E	E	4.9	6.7	6.8	7.5	6.8	6.9
27	2.3F	A	J	A	A	A	4.5	6.5	6.6	7.0H	6.6	7.0
28	F	A	A	A	E	E	4.2	5.9	7.2	6.4	6.0	6.3
29	F	F	F	F	F	E	5.1	6.0	7.0	7.0	6.2H	6.0
30	3.2UF	2.7	2.3R	F	E	E	5.2	5.9	6.4	7.0	6.8H	6.9
31	2.4	F	F	F	F	E	4.4	7.0	8.6	7.9	6.9	6.6
Count	10	7	10	7	14	26	29	29	29	30	30	29
Median	2.2	E	E	E	E	E	4.5	6.4	7.1	7.1	6.8	6.8
Mean	2.3	—	—	—	—	—	4.5	6.4	7.1	7.1	6.8	6.8

Sweep 1 Mc to 25 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month July, 1963

TABLE 24
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E.

12	13	14	15	16	17	18	19	20	21	22	23	Date
7 0	6 8	7 2	7 5	A	7 8	8 6	C	C	C	C	C	1
C	6 2	6 9	7 0	7 8	8 0	8 0	9 6	6 4	S	3 7	F	2
6 7	6 9	6 7	7 4	7 4	7 4	8 2	7 8	6 5	5 4	4 0	3 0	3
6 0	6 1	6 9	7 4	C	C	C	C	C	C	C	2 5 ^{uc}	4
8 0	8 4	8 6	8 6	8 6	8 6	8 4	8 6	8 2	5 9	4 2	3 9	5
8 2	7 6	7 2	7 8	8 6	9 0	8 8	8 7	8 6	5 5 ^F	2 5 ^F	2 5	6
7 2	7 1	7 1	6 7	7 2	9 0	9 2	7 1	6 1	4 1	A	A	7
7 8	7 0	7 0	7 0	7 9	8 0	7 1	7 3	7 8	6 7	4 2	3 3 ^{UF}	8
6 7	6 6	6 8	6 9	6 6	7 1	9 1	7 8	5 7	4 1	3 4	2 7	9
7 5	7 7	7 7	7 9	7 4	8 0	8 8	8 3	5 6	4 5	3 3	C	10
6 4	6 6	C	6 8	7 1	7 8	8 0	8 5	5 9	2 7	1 8	A	11
6 4	6 4	6 8	7 1	7 2	A	8 1	7 0	5 7	5 0	4 7	3 9	12
6 4	6 2	6 3	7 0	7 7	8 0	8 6	5 6	4 0	3 0	F	A	13
6 5	6 3	6 6	6 6	6 7	7 1	8 7	7 0	3 8	2 3 ^{UR}	A	A	14
7 4	7 1	6 6	7 0	7 2	7 8	8 6	8 4	6 6	F	3 6	2 3	15
6 4	6 1	6 5	6 6	7 2	8 0	9 0	7 6	5 9	5 0	3 4	A	16
7 4	7 9	8 4	8 6	8 8	8 7	10 6	8 8	6 4	5 1 ^J	3 9	A	17
6 9	7 3	7 8	8 6	8 2	10 4	9 0	6 4	4 6	4 1	3 6	2 9	18
6 8	7 6	7 7	8 4	9 3	C	8 2	8 3	6 0	4 4	3 1	2 3 ^R	19
7 8	8 0	7 9	7 8	7 8	9 1	10 6	7 4	4 8	3 0	2 2 ^{UR}	1 9 ^R	20
5 9	5 9	6 0	6 6	7 0	8 2	8 0	7 3	7 1	5 8	4 1	3 4	21
6 9	7 2	7 8	9 1	8 9	8 7	8 3	7 8	7 2	4 4	F	F	22
6 5	6 3	6 8	7 3	7 6	7 6	7 4	8 5	6 0	4 6	C	3 4	23
7 5	7 6	6 9	7 4	7 6	8 7	9 6	8 0	5 9	3 9	2 8	C	24
7 0	6 6	A	7 2	A	9 0	9 7	7 7	5 8	4 2	2 6	A	25
7 4	7 3	8 0	7 9	8 4	8 4	9 4	9 0	7 5	4 9 ^{US}	3 8	2 8 ^R	26
7 0	7 3	7 4	8 1	8 0	7 8	8 8	9 2	8 0	6 1 ^J	4 2	F	27
6 2	6 2	6 6	6 8	6 6	7 5	8 4	6 6	5 3 ^J	4 6	4 3 ^{UF}	F	28
6 1	6 1	6 0	6 7	7 6	8 0	8 2	7 0	6 4	5 2 ^J	F	F	29
7 0	7 9	7 2	7 8	8 4	8 0	8 4	8 8	9 0	5 3	2 9	2 7 ^{UF}	30
6 8	7 4	8 0	8 6	9 2	10 0	9 4	8 0	6 8	6 2 ^{US}	5 2 ^{UF}	5 1 ^F	31
30	31	29	31	28	28	30	29	29	27	23	16	Count
6 9	6 9	7 0	7 4	7 6	8 0	8 6	7 8	6 1	4 6	3 6	2 8	Median
6 9	6 9	7 2	7 5	7 8	8 3	8 7	7 9	6 3	4 7	3 5	3 0	Mean

Sweep 1 Mc to 25 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month July, 1963

TABLE 24—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	S	A	E	E	E	3 0	5 7	7 6	7 1	6 5	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	F	F	F	F	E	3 1	5 8	7 4	7 2	6 1	6 8	
4	S	S	A	C	C	C	C	6 8	C	6 1	6 1 _H	5 9
5	C	A	S	S	E	3 3	6 0	7 0	7 5	8 0	7 7	7 3
6	F	F	F	S	F	3 0	5 8	8 1	7 8	7 6 _{II}	7 5 _{II}	7 9
7	2 4	F	F	A	F	3 1 _r	5 6	7 1	7 8	8 0	8 0	7 6
8	E	E	L	L	E	0	6 0	7 0	7 3	7 7	7 9	7 3
9	F	F	S	S	F	3 1	5 4	6 6	6 6	7 5	7 7	6 9
10	A	A	A	A	E	2 9	5 7	6 9	7 2	7 0	7 0	7 0
11	S	A	A	S	A	3 0	6 0	6 5	6 6	6 9	6 1 _{II}	6 2
12	A	S	S	A	A	3 0	5 8	6 4	7 3	7 7	7 6	6 9
13	F	F	E	E	E	2 8	5 3	6 9	8 0	7 9 _{II}	5 9 _{II}	6 4 _H
14	S	S	E	L	L	2 9	5 5	7 0	7 4	7 6	7 3 _{II}	6 9
15	A	A	A	E	E	2 6	5 3	7 4	7 8	7 2	6 8	7 2
16	F	F	F	E	E	2 9	C	6 9	6 7	7 0	6 9	6 5
17	F	F	F	F	F	2 9	5 8	7 5	7 5	6 7 _{II}	6 7	6 9
18	F	A	F	E	L	2 7	5 6	7 0	7 2	6 6	6 8	6 9
19	2 0	F	F	2 0 _F	R	2 8	5 8	7 2	6 9	6 1	6 4	6 6
20	E	E	E	E	L	2 6	5 6	6 8	6 3	6 4	6 3	7 2
21	S	A	S	A	E	2 6 _I	5 1	5 6	6 0	5 8	5 9	6 0
22	2 6	2 1 _R	1 9 _R	A	L	2 6	5 2	6 7	6 9	6 7	6 6	6 6
23	E	E	E	A	E	2 7 _F	5 5	6 6	7 0	6 9	6 7	6 3
24	F	F	E	E	L	2 8	5 6	6 4	6 5	6 5	6 7	7 0
25	E	A	A	A	E	2 5 _I	5 6 _{US}	7 0	7 0	7 2	7 0	7 0
26	A	E	E	A	E	2 9	5 8	6 8	7 0	7 2 _{II}	6 9	7 0
27	F	A	F	A	A	2 6	5 8	6 5	7 2	7 2 _{II}	6 7	7 0
28	F	A	A	E	E	2 4	5 4	6 6	6 8	6 0	6 3	6 3
29	F	F	F	F	E	F	6 0	6 6	7 2	6 8	6 4 _{II}	6 0
30	3 1 _{UF}	2 4	F	F	E	F	6 0	5 7	7 0	7 2 _{II}	6 6 _{II}	7 0
31	A	F	F	F	E	2 1 _I	6 0	7 4	8 4	7 0	6 6	6 5
Count	8	6	9	11	21	27	28	30	29	30	29	29
Median	2 0	E	E	E	E	2 9	5 7	6 9	7 2	7 0	6 7	6 9
Mean						2 8	5 7	6 9	7 1	7 0	6 9	6 8

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month July, 1963

TABLE 24—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
7 0	7 1	7 9	A	8 2	8 2	9 8	C	C	C	C	C	1
6 0	6 8	6 9	7 1	8 4	8 1	9 2	7 9	5 8	4 4	3 5	3 2 _{UI}	2
6 8	6 9	7 2	7 3	7 7	7 5	8 1	6 9	5 8	4 7	3 5	F	3
6 0	6 3	7 0	7 9	C	C	C	C	C	C	C	2 2	4
8 2	8 4	8 4	8 7	8 8	8 6	8 6	8 8	7 3	5 4	4 1	F	5
8.1	7 2	7 4	8 4	8 7	9 0	8 9	9 2	6 3 _{US}	3 7 _I	2 4	2 5	6
7 0	7 4	6 9	6 6	7 6	9 0	9 0	6 7	5 1 _{JS}	A	C	E	7
7 5	7 0	7 2	7 5	8 2	8 5	7 3	7 0	8 0	F	3 4 _I	2 9 _I	8
6 6	6 7	7 1	6 6	A	8 0	8 5	7 5	5 1	3 4	3 0	C	9
7 4	7 4	8 1	7 5	7 4	8 4	9 1	6 8	5 1 _{JS}	3 9	2 7	S	10
6 4	C	6 9	6 7	7 1	8 1	8 3	7 9	3 8	2 1 _{UR}	A	A	11
6 3 _{II}	6 6	7 2	7 2	7 1	7 4	7 5	6 4	5 4	4 8	4 3	3 3	12
5 9	6 4	6 6 _{II}	7 5	7 6	8 8	7 0	4 6	3 3	2 6	2 0	S	13
6 4	6 5	6 6	6 8	6 8	7 6	9 4 _I	5 3 _{US}	2 8	2 0 _{JR}	A	A	14
7 4	6 8	6 8	7 2	7 4	7 6	8 8	7 2	1	F	2 9	F	15
6 5	6 5	6 8	6 9	8 0	8 6	9 0	6 6	5 6	4 3	2 9	A	16
8 0	8 0	8 6	9 9	8 6	9 4 _s	10 0	7 6	5 6	1	A	A	17
7 1	7 5	8 5	7 6	9 0	9 8 _s	7 6	5 3 _{US}	4 4	3 7	3 2	2 5 _r	18
7 2	7 6	7 9	8 7	9 4	C	8 6	7 2 _{JS}	5 3	3 4	2 9	C	19
7 9	7 6	7 8	7 8	8 4	10 2	8 5	5 5	3 6	2 6 _R	1 9	S	20
5 8	6 0	6 5	6 6	7 7	8 1	7 7	7 2	6 8	5 0	3 6	3 1 _I	21
7 0	A	8 2	9 2	8 5	8 0	8 5	7 4	5 7	4 3	3 8 _I	F	22
6 4	6 6	7 0	7 3	7 4	7 6	7 7	7 5	4 9	C	3 6	3 3	23
7 4	7 1 _R	7 1 _{II}	7 2	8 0	9 4	9 6	7 1	5 0 _{JS}	3 3	A	C	24
6 8	6 7	7 4	A	8 6	9 1	9 0	6 6	5 1 _{VS}	3 3	2 5	A	25
7 5	7 6	8 0	8 1	A	9 0	9 3	7 5	7 0 _{US}	4 7	3 1	2 7	26
7 0	7 8	7 6	8 0	7 8	8 0	8 8	8 6	7 4	5 1 _{JS}	3 6	F	27
6 0 _{II}	6 4	6 5	6 8	6 9	8 4	8 2	5 8	4 8	4 4	F	F	28
6 0	6 0	6 2	7 5	7 8	8 2	7 3	6 6	5 9	4 6 _{JS}	F	3 3 _{US}	29
6 9	7 1	7 6	8 3	8 0	8 0	8 4	9 0	6 2 _{JS}	3 4	2 8 _{UR}	2 6 _{UI}	30
7 2	7 6	8 6	8 8	9 7	10 1	8 2	7 1	7 0	6 0	5 3 _{UI}	4 3 _{UR}	31
31	29	31	29	28	29	30	29	28	24	22	13	Count
7 0	7 0	7 2	7 5	8 0	8 4	8 6	7 1	5 4	4 1	3 2	2 9	Median
6 9	7 0	7 4	7 6	8 0	8 5	8 5	7 1	5 5	4 0	3 2	3 0	Mean

Sweep 10 Mc to 25 0 Mc in 27 seconds

Characteristic foF₁
Unit: Mc
Month July, 1963.

TABLE 25
Ionospheric Data
75° E Mean Time

Latitude 10 2° N.
Longitude 77 5° E.

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	4 3	4 4	C
2							C	C	C	C	C	C
3							L	L	1 3	4 4	4 4	4 5
4							C	C	C	4 4	4 4	4 4
5								L	1 2	1 4	4 4	4 4
6								L	L	4 4	4 4	4 6
7								L	4 2	4 5	4 4	4 5
8								L	L	4 4	4 4	4 5
9								I	L	4 3	4 4	4 4
10							L	L	4 2	L	4 4	4 4
11							L	L	L	1 3	4 3	4 4
12								L	4 1	1 2	A	4 4
13								4 0	4 2	4 2	4 4	4 4
14							L	L	4 1	4 4	4 4	4 4
15								I	4 1	1 2	4 3	4 4
16								L	4 3	4 4	4 4	4 5
17							L	L	1 0	4 3	4 4	4 4
18								L	L	L	4 6	4 4
19								L	1 2	1 5	4 4	4 5
20								L	L	4 3	4 3	4 4
21									L	1 2	4 4	4 4
22								L	1 2	1 3	4 4	4 5
23								L	L	4 3	L	4 5
24							L	L	L	4 3	4 4	4 5
25							L	A	4 3	4 4	4 4	4 6
26									L	LH	1 5	4 4
27								L	LH	1	1 5	4 5
28								L	4 3	L	4 4	4 4
29								I	L	4 4	4 4	4 4
30								L	4 4	4 4	4 5	4 5
31								L	4 1	4 4	4 6	4 6
Count							--	1	16	25	28	29
Median								.	4 2	4 4	4 4	4 4
Mean									4.2	4 3	4 4	4 5

Sweep 1 0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic f_oF_2
Unit Mc
Month: July, 1963.

TABLE 25
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

	12	13	14	15	16	17	18	19	20	21	22	23	Date
4.4	1.5	1.1	\	\	A	A							
C	1.5	4.3	1.3	1.0	L	L							1
4.5	1.6	1.5	1.2	A	L	L							2
4.5	1.4	4.3	1.3	G	G	G							3
4.5	1.5	1.5	1.5	L	L	L							4
													5
4.4	4.7	L	1.1	L	L	L							6
4.4	4.1	1.4	4.3	1.2	L	L							7
4.4	1.7	1.1	4.3	1.1	L	L							8
1.4	1.1	1.7	1.3	A	A	A							9
A	1.1	A	1.2	A	A	A							10
4.3	1.1	G	1.2	L	L	L							11
4.5	1.4	1.2	1.1	L	A	A							12
4.3	1.1	1.2	1.1	L	L	L							13
4.4	1.1	1.3	1.3	L	L	L							14
4.4	1.1	1.1	\	\	L	L							15
A	1.1	1.2	1.3	A	L	L							16
4.5	1.4	1.4	1.2	L	L	L							17
4.4	1.1	1.3	1.2	A	L	L							18
4.4	1.5	1.3	4.2	L	G	G							19
4.4	1.1	1.7	L	L	L	L							20
1.7	1.4	4.1	1.2	A	A	A							21
4.4	A	1.2	A	L	L	L							22
4.4	1.5	1.3	4.2	L	A	A							23
1.7	\	LH	A	\	L	L							24
1.7	1.7	\	\	A	L	L							25
4.5	1.3	1.1	1.3	A	A	A							26
4.5	1.4	1.4	4.3	A	L	L							27
4.4	4.4	1.3	4.2	L	L	L							28
4.5	4.4	1.4	4.1	A	L	L							29
4.5	1.5	1.5	1.3	L	A	A							30
4.6	L	L	A	L	L	L							31
28	28	25	24	9	.	.							Count
4.4	4.4	4.4	4.3	.	.	.							Median
4.4	4.4	4.4	4.3										Mean

Sweep 10 Mc. to 250 Mc. in 27 seconds.

Characteristic foF₁
Unit Mc
Month July, 1963

TABLE 25—*Conid*
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	L	4 4	4 4	C	C
2							G	G	C	C	C	C
3							L	4 2	I	4 6	4 5	4 5
4								L	C	4 1	4 4	4 5
5							L	L	L	4 4	4 5	4 6
6							L	L	L	4 6	4 4	4 5
7							L	I	L	4 4	4 4	4 5
8							L	L	4 4	4 4	4 4	4 4
9							L	L	4 4	4 3	4 4	4 4
10							L	I	4 2	4 4	4 4	A
11							J	4 2	4 4	4 4	4 3	4 4
12							L	L	A	4 4	4 4	4 6
13							I	4 1	4 2	4 3	4 4	4 3
14							I	L	4 3	4 4	4 4	4 4
15							L	4 1	4 2	4 4	4 4	4 4
16							G	L	4 4	4 3	4 4	4 5
17							L	3 9	4 4	4 8	4 3	4 5
18							L	L	I	4 2	4 5	4 4
19							L	L	4 4	4 4	4 5	4 4
20							L	I	4 3	4 4	4 1	4 4
21								4 3	4 2	4 4	4 1	4 5
22							L	I	4 2	4 4	4 5	4 5
23							L	L	4 2	4 3	4 1	4 5
24							L	L	4 5	A	4 4	4 5
25							L	A	A	L	4 4	4 5
26								LH	LH	4 4	4 4	4 5
27							L	L	4 2	4 4	4 5	4 5
28							I	4 1	4 3	4 4	4 4	4 5
29								L	4 4	4 4	4 4	4 6
30								L	4 4	4 4	4 5	4 5
31							I	I	4 III	4 4	L	4 5
Count								7	21	28	27	28
Median								4 1	4 4	4 4	4 1	4 5
Mean								4 1	4 3	4 4	4 4	4 5

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₁
Unit Mc
Month July, 1963

TABLE 25—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
4 4	1 5	Λ	Λ	Λ	Λ							1
4 6	4 1	1 1	1 3	L	L							2
4 4	4 5	1 5	I	A	L							3
4 4	1 1	1 3	4 2	C	C							4
4 6	4 5	L	4 5	I	L							5
4 4	L	I	L	I	I							6
4 4	4 5	4 1	L	L	I							7
1 1	1 6	1 3	1 3	4 0	L							8
4 4	4 5	1 1	L	Λ	A							9
A	4 1	Λ	L	Λ	A							10
4 1	G	I	I	I	L							11
4 5	4 3	1 2	4 1	L	A							12
1 3	4 1	1 2	1 0	I	I							13
4 1	1 4	1 2	1 3	L	L							14
A	1 1	Λ	Λ	L	L							15
4 1	1 1	1 1	Λ	Λ	L							16
4 4	1 5	1 4	I	L	A							17
4 4	1 1	1 2	Λ	Λ	A							18
4 4	1 1	1 1	1 3	Λ	C							19
4 1	1 5	1 1	L	I								20
4 1	1 1	1 3	1 1	A								21
4 4	Λ	1 2	L	L	L							22
4 4	4 4	1 3	L	L								23
A	LH	1 4H	Λ	Λ								24
4 4	Λ	A	A	A								25
4 4	1 1	Λ	Λ	Λ								26
4 5	4 4	1 4	1 2	L								27
4 6	4 4	4 4	4 4	L								28
4 5	4 4	4 3	Λ	A								29
4 5	4 5	1 4	1 4	A	L							30
4 5	4 5	Λ	Λ	L								31
28	27	22	12	1	.							Count
4 1	4 4	1 4	4 3									Median
4 4	4 4	1 3	4 2									Mean

Sweep 10 Mc. to 25.0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month July, 1963

TABLE 26
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1							F	A	A	A	A	C
2							C	C	C	C	C	C
3								2 3	A	A	A	A
4									C	A	A	A
5							R	2 5 _{II}	2 6	A	A	A
6							1 8	A	A	A	A	A
7							1 6 _H	2 4	2 9	A	A	A
8							1 6 _{UR}	A	A	A	A	A
9							1 6 _{UR}	2 3	2 7	A	A	A
10							1 6	A	A	A	A	A
11							1 9	A	A	A	A	A
12							A	A	A	A	A	A
13								A	A	A	A	A
14							1 5	2 4	2 9	A	A	A
15								2 5	A	3 3	A	3 4
16							R	2 4	2 8	A	A	A
17							1 8	A	A	A	A	A
18							1 5	A	A	A	A	A
19							R	A	A	A	A	A
20							R	A	A	A	A	A
21								A	A	A	A	A
22							R	A	A	A	A	A
23							R	A	A	A	A	A
24							1 8	A	A	A	A	A
25							R	A	A	A	A	A
26								2 3	A	A	A	A
27								2 5 _{UR}	A	A	A	A
28								2 6	A	A	A	A
29								2 6 _{II}	A	A	A	A
30							1 7 _{UR}	2 6 _{II}	3 0	A	A	A
31							1 6	2 3	A	A	A	A
Count							12	13	6	1		1
Median							1 6	2 4	2 8			
Mean							1 7	2 4	2 8			..

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month July, 1963

TABLE 26
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E.

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A	A							1
C	A	A	3 2	2 7								2
A	A	A	A	A	A							3
A	3 6	3 6	3 2	C	C							4
A	A	B	3 1	A	A							5
A	A	3 2	3 0	2 8	2 4							6
A	A	A	A	2 8	2 4							7
A	A	A	A	2 7	2 3							8
A	A	A	A	A	A	A						9
A	A	A	A	2 6	A	A						10
A	A	C	A	A	2 2							11
A	A	A	A	A	A							12
A	A	A	3 2	2 9	2 1							13
A	A	A	2 8	R								14
A	A	A	3 1	2 8	A							15
A	A	A	3 1	A	A							16
3 6	3 5	3 4	3 1	2 7								17
A	A	A	3 2	A	A							18
A	A	A	A	A	C							19
3 6	3 5	B	A	B	2 3							20
A	A	A	A	A	A							21
A	A	A	A	A	B	2 5						22
A	A	A	A	A	A							23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	A	A	A	A						26
A	A	A	A	2 9	2 4	A						27
A	A	A	A	A	2 3							28
A	A	A	A	A	A	A						29
A	A	A	A	A	A							30
A	A	A	A	A	A							31
2	3	3	10	9	9							Count
			3 1	2 8	2 4							Median
			3 1	2 8	2 4							Mean

Sweep 10 Mc. to 25 0 Mc' in 27 seconds

Characteristic foE
Unit: Mc
Month July, 1963

TABLE 26—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							A	A	A	A	C	C
2							C	C	C	C	C	C
3							2.4	A	A	A	A	A
4							C	A	C	A	A	A
5							2.1	2.7	A	A	A	A
6							2.1	2.6	3.0	A	A	A
7							2.0	2.6	3.0	A	A	A
8							2.1	A	A	A	3.4	A
9						1.4UR	2.2	2.5	A	A	A	A
10							A	A	A	A	A	A
11							A	A	A	A	A	A
12							2.1	A	A	A	A	A
13							2.2	A	A	A	A	A
14							2.3IT _u	2.6	3.0	A	A	A
15							2.3	A	3.3	A	3.5	A
16							C	A	A	3.3	A	3.6
17							A	A	A	A	A	3.8
18							A	A	A	A	A	A
19							2.2	A	A	A	A	A
20							A	A	A	A	A	A
21							A	A	A	A	A	A
22							A	A	A	A	A	A
23							A	A	A	A	A	A
24							A	A	A	A	A	A
25							A	A	A	A	A	A
26								A	A	A	A	A
27							R	2.8	A	A	A	A
28							2.2	2.7	A	A	A	A
29							2.3IT _u	2.7	A	A	A	A
30							2.0	2.7IT _u	A	A	A	A
31							2.1IT _u	A	A	A	A	A
Count							15	9	4	1	2	2
Median							2.2	2.7				
Mean						1	2.2	2.7				

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month July, 1963

TABLE 26—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A	A							1
A	A	A	2.9	R								2
A	A	A	A	A								3
A	3.6	A	B	C	C							4
A	B	3.3	A	A								5
A	3.5	3.2	R	2.7								6
A	A	A	A	2.6	2.2							7
A	A	A	3.2	2.1	2.0							8
A	A	A	A	A	A							9
A	A	A	3.0	A	A							10
A	C	A	A	2.7	1.9							11
A	A	A	A	A								12
A	A	3.0	2.6	A								13
A	A	A	2.9	R								14
A	3.3	2.9	A	A								15
A	A	A	A	2.5	A							16
3.5	A	3.2	3.0	R								17
A	A	A	A	A								18
A	A	A	A	A								19
3.6	3.6	3.2	3.0	2.7	2.0							20
A	A	A	A	A								21
A	A	A	A	B	R							22
A	A	A	A	A	A							23
A	A	A	A	A								24
A	A	A	A	A								25
A	A	A	A	A	A							26
A	A	A	3.2	2.7	A							27
A	A	A	A	2.6								28
A	A	A	A	A								29
A	A	A	A	A	A							30
A	A	A	A	A	A							31
2	4	6	8	8	4							Count
		3.2	3.0	2.6								Median
		3.1	3.0	2.6								Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foEs
Unit Mc
Month July, 1963

TABLE 27
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	3 0						G	9 6	8 2	7 8	9 2	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3			2 4	6 7			G	3 2	7 4	9 0	9 4	9 8
4		2 3	C						C	9 6	10 2	10 8
5	5 8	3 8	6 4				G	G	6 0	8 6	9 0	8 0
6							G	3 4	6 6	10 0	9 0	10 0
7		1 3		2 4	5 6		G	G	3 4	8 2	9 4	9 4
8							G	5 7	8 4	8 8	8 0	8 2
9	3 1	4 4	2 4	2 0			G	G	G	10 4	9 6	10 4
10	3 8	6 4					G	6 8	8 2	8 6	8 6	8 9
11	3 6	3 0	6 3	5 7	7 2		G	7 0	8 4	9 4	9 4	9 6
12	6 6	6 3	3 6					5 7	6 2	12 0	11 3	10 0
13	3 0	2 0						6 6	8 4	8 8	9 6	9 8
14							G	G	G	8 8	10 2	11 4
15	6 2	S	6 6 _{us}	6 2 _{us}				6 0	6 8	8 4	6 5	7 6
16							G	6 4	7 4	8 0	8 0	9 6
17	6 2	4 4 _s	3 0 _s	7 2 _s	2 8		G	8 5	9 6	10 6	11 0	11 0
18	6 0	6 0					G	6 6	7 0	8 4	8 6	8 7
19							G	4 6	8 7	9 6	11 0	9 8
20							G	7 0	9 0	9 4	10 0	11 0
21	4 4			2 0			S	6 8	8 8	8 7	10 2	10 6
22		S	3 2	2 4	3 1		G	S	8 6	8 8	10 0	10 6
23				3 2 _{us}	2 9		2 8	7 0 _s	9 0	9 8	10 8	11 6
24							G	6 8	9 0	15 0	10 0	24 0
25	3 0		S	S	C		G	10 0	9 0	9 0	20 0	17 0
26	2 1	3 2		3 0				G	9 6	9 8	9 6	12 0
27	4 0 _s	3 6	2 4	1 8	5 2 _{us}	S		G	7 0	9 0	8 2	8 2
28	4 0 _{us}	4 4	8 4	8 6				5 6	8 7	8 8	9 4	9 6
29								G	8 5	9 2	9 2	10 0
30							G	G	5 5	9 7	10 0	10 8
31			S	2 1			G	4 1	8 0	9 2	10 8	10 0
Count	15	13	10	13	6		21	28	29	30	30	29
Median	4 0	3 8	3 4	3 0	4 2		G	5 7	8 2	9 0	9 6	10 0
Mean	4 3	3 9	4 5	4 1	4 5			6 4	7 8	9 4	10 0	10 6

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foEs
Unit Mc
Month July, 1963

TABLE 27
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
9.2	11.8	9.2	21.5	20.5	14.4	4.0	C	C	C	C	C	1
C	10.8	9.2	G	G								2
9.7	9.2	9.2	4.0	1.8	4.4				2.6		1.8	3
11.6	9.2	G	G	C	C	C	C	C			5.8	4
9.8	10.0	G	G	6.4	3.4							5
10.6	9.4	G	4.2	3.6	4.0	2.9						6
9.8	10.4	9.8	8.6	G	G					4.6	2.4	7
9.4	10.8	8.4	8.4	G	G							8
10.6	10.8	9.2	10.0	11.6	19.0	5.6				2.1	2.3	9
12.8	10.7	12.6	9.6	6.0	6.7	10.1	6.0	3.0	2.4	2.3	1.7	10
9.8	9.9	C	7.4	9.2	G						8.6	11
12.4	10.2	12.2	9.0	7.0	17.0s	8.4						12
8.8	9.8	9.6	8.4	G	G						2.0	13
9.8	11.0	10.4	9.2	G	G					4.2	6.4	14
8.0	9.0	8.4	5.2	6.6	8.8	4.2	6.8					15
9.4	10.2	8.4	5.5	8.8	6.4	8.2	3.2			4.0	8.2	16
G	G	G	G	G	2.8	6.0	6.8	9.0		1.8	6.2	17
9.0	8.2	9.0	8.4	8.1	6.0			2.3	5.8		2.6	18
9.4	8.0	8.0	9.2	8.8	6.1	5.8	2.4				2.5	19
9.0	8.4	G	3.8	G	G						2.8	20
11.0	10.6	16.1	16.6	11.3	8.8	8.6		4.0	2.5			21
9.7	11.0	8.8	8.8	G	G		5.8					22
12.0	11.4	11.6	10.1	7.7	12.1							23
25.0	20.0	11.0	12.0	22.0	6.0		3.8	3.4		4.4		24
17.0	16.6	21.0	18.0	18.0	6.6	2.4					2.1	25
11.0	14.6	18.0	16.0	11.8	13.4	7.8	S		2.8			26
9.6	9.8	9.8	9.0	5.1	4.0	8.4	8.6		7.0	7.2		27
10.0	10.5	10.4	9.4	6.6	G	5.6	5.8		2.6			28
10.8	10.0	9.4	9.8	11.0	8.0	6.4	5.6	2.6	2.2			29
10.0	11.0	9.2	9.0	6.2	8.6	7.6	2.7					30
11.0	12.0	17.4	21.0	9.0	5.8	2.8	2.7					31
30	31	30	31	30	29	17	12	6	8	8	14	Count
9.6	10.4	9.2	9.0	6.6	6.0	6.0	5.7	3.2	2.6	4.1	2.6	Median
10.9	10.8	11.0	10.1	9.6	8.2	6.2	5.0	4.0	3.5	3.8	4.0	Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic foEs
Unit Mc
Month July, 1963

TABLE 27—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1		4 0					7 2	7 0	8 4	8 5	C	C
2	C	C		C	C		C	C	C	C	C	C
3		2 0	3 0	4 6			G	5 4	8 8	9 3	9 8	9 8
4			3 8					C	C	10 6	10 0	10 8
5	C	5 0 _{us}					G	5 6	9 0	9 4	9 2	9 2
6							G	G	3 7	10 8	10 4	10 2
7		2 5		4 4			2 8	3 2	3 8	8 6	10 0	9 2
8							G	7 0	8 2	8 6	8 2	9 0
9	4 5	3 6 _{us}				G	G	G	9 0	9 8	9 8	10 2
10	4 0	4 8 _{us}	2 8	5 0			6 0	6 8	8 2	8 6	8 6	11 4
11		3 4	5 6	3 0	4 0		6 2	7 8	9 0	9 8	10 2	9 6
12	7 4			2 2	2 6		5 4	9 3	12 0	18 0	13 6	14 4
13		4 4					G	8 3	10 4	9 4	9 8	9 4
14							G	5 8	G	9 8	10 6	11 2
15	8 0	7 4	6 4 _{us}	6 2 _{us}			G	6 5	8 2	7 3	6 8	6 4
16							C	7 0	8 6	8 2	9 2	9 2
17	2 8 _S	3 0 _s	3 2 _s	4 4 _s			4 4	7 6	10 2	10 2	9 6	8 2
18	6 6	6 0					5 0	6 8	8 3	8 6	8 8	9 2
19							5 0	8 2	9 6	9 5	10 8	9 6
20							5 0	8 6	9 0	10 "	10 0	9 6
21		4 8		3 2			5 6	7 0	8 8	10 6	10 0	10 2
22	2 9			3 8			S	6 8	9 4	9 2	10 9	9 6
23				2 7			S	8 0	8 7	10 7	10 8	10 8
24							S	8 4	9 4	18 0	21 0	20 0
25		3 2	4 2 _{us}	S			7 0 _s	10 0	13 0	9 8	19 0	17 0
26	3 2			3 2 _s		1 6		8 4	9 6	9 1	11 0	19 0
27	3 8		9 7	2 3	3 0		G	S	10 0	9 8	8 0	10 5
28		6 8 _{us}	8 4				5 8	6 2	8 8	9 0	9 4	9 8
29							G	6 6	9 0	9 8	10 0	10 8
30							2 6	G	9 0	9 8	10 8	9 6
31		4 8	3 6				4 5	7 2	9 0	9 8	10 4	10 2
Count	9	15	10	12	3	2	24	28	29	30	29	29
Median	4 0	4 4	4 0	3 5			3 6	7 0	9 0	9 8	10 0	10 2
Mean	4 8	4 4	5 1	3 8			5 2	7 2	8 9	10 0	10 6	10 8

Sweep 10 Mc to 25.0 Mc in 27 seconds

Characteristic foEs
Unit Mc
Month July, 1963

TABLE 27—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
9.6	10.6	9.4	22.0	19.0	8.8	2.8	C	C	C	C	C	1
10.4	10.0	8.1	G	G					2.8			2
9.6	9.6	8.2	5.0	6.0	2.6			3.0		1.8		3
9.6	G	7.8	G	C	C	C	C	C	C	C	4.0	4
10.6	6.0	G	7.8	3.0	2.8					2.6		5
9.8	8.2	G	4.2	G	3.3							6
9.8	10.6	9.4	5.8	G	G				1.8	C		7
10.0	11.0	9.4	6.6	G	G							8
9.6	9.2	10.4	9.0	22.0	11.4	1.4						9
12.7	10.0	16.6	6.0	7.1	12.0	9.0	2.9	6.6	2.1	1.7		10
9.4	C	9.6	8.4	G	G					4.5	8.2 _{us}	11
10.9	10.9	11.8	8.1	12.1	10.2	3.2			3.2		2.5	12
8.2	9.4	9.0	G	5.0	2.1							13
10.0	9.4	10.0	7.2	G					3.2	6.0	10.8	14
8.6	8.8	7.1	7.2	1.2	6.0 _s	3.8						15
10.8	10.0	8.1	5.8	11.1	9.6	7.8		1.7		4.8	6.8	16
G	7.8	G	G	G	6.0	7.8	9.0	5.8 _{us}		3.0	5.8	17
9.0	6.4	9.0	11.6	6.1					2.2		2.0	18
9.4	8.0	7.6	9.2	9.2		3.0						19
7.4	7.6	G	G	G	G	6.0						20
10.6	10.6	16.2	9.0	12.1	12.0							21
10.0	21.0	10.0	6.0	G	G							22
11.6	11.0	11.2	8.4	8.0	6.0							23
21.0	12.0	22.0	20.0	5.6	S		4.0 _s	2.9	1.5	4.0		24
16.0	14.8	15.0	21.0	16.0	S	2.8					1.9	25
9.6	11.0	19.0	12.0	11.8	13.0	7.6	3.6					26
10.2	10.0	9.2	4.1	3.1	9.1	8.1			7.1	6.0		27
9.8	9.6	9.6	8.0	G		5.8	2.4	2.6	2.5	7.0		28
9.8	9.8	10.0	11.0	11.2	8.0	5.6	3.4					29
10.4	9.6	8.8	8.0	9.6	8.1	5.8						30
7.2	15.5	18.1	11.1	6.8	3.8	2.6						31
31	30	31	31	30	23	16	6	6	9	10	8	Count
9.8	9.9	9.1	7.8	5.8	6.0	5.7	3.5	3.0	3.2	4.2	4.9	Median
10.4	10.3	11.2	9.3	9.5	7.5	5.1	1.2	3.8	3.6	4.1	5.2	Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds.

Characteristic fbEs
Unit Mc
Month July, 1963

TABLE 28
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1			C [*]	C	C	C	G	2.8	3.0	3.2	3.4	C
2	G	C		A			C	C	C	C	C	C
3			1.4	C			G	3.0	3.2	3.3	3.6	3.7
4			C	C	C	C	C	C	C	3.3	3.6	3.8
5	A		A				G	G	3.2	3.2	3.6	3.6
6							G	2.6	3.0	3.5	3.6	3.6
7		1.3			A		G	G	3.3	3.6	3.6	3.6
8							G	2.6	3.0	3.2	3.6	3.6
9	1.5	1.6	S	A			G	G	3.3	3.3	3.4	3.6
10		A					G	2.6	2.9	3.2	3.4	3.7
11		A	A	A	A		G	2.5	2.9	3.2	3.4	3.6
12	A	A	A					2.6	2.9	3.6	5.0	3.4
13	1.7	1.4						2.6	3.0	3.2	3.5	3.4
14							G	G	3.3	3.3	3.6	3.6
15	A	A	A	A				2.7	3.0	3.2	3.6	3.6
16							G	2.8	3.6	3.6	3.5	3.8
17	1.9	1.6	1.4	1.4			G	3.1	3.0	3.4	3.5	3.6
18	A	2.1					G	2.4	2.8	3.2	3.4	3.5
19							G	2.5	3.0	3.3	3.4	3.6
20							G	2.6	3.0	3.2	3.5	3.6
21	A			A			1.9	2.4	2.9	3.4	3.5	3.6
22				A	A		G	2.4	2.8	3.2	3.4	3.6
23				A	A		1.8	2.5	3.0	3.2	3.5	3.6
24							G	2.4	2.9	3.2	3.7	3.8
25	A		A	A	C		G	3.8	3.1	3.2	3.5	3.8
26	A	A		A				G	2.9	3.2	3.5	3.6
27	1.6			A	A	A		G	2.9	3.3	3.5	3.7
28	2.4	A	A	A				2.6	3.0	3.3	3.4	3.6
29								G	3.0	3.4	3.5	3.7
30							G	G	3.0	3.4	3.6	3.7
31			1.7	1.6			G	2.8	3.0	3.2	3.5	3.6
Count	12	11	9	13	5	1	22	29	29	30	30	29
Median	A	A	A	A	A		G	2.5	3.0	3.2	3.5	3.6
Mean	1.8	1.6						2.7	3.0	3.3	3.6	3.6

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic f_oF₂
Unit Mc
Month July, 1963.

TABLE 28
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
3.7	3.9	3.8	6.5	A	7.0	2.5	C	C	C	C	C	1
C	3.6	3.7	C	C	2.6							2
3.7	3.8	3.6	3.8	1.6	3.5							3
3.6	3.8	C	C	C	C	C	C	C	C	C	1.9	4
3.9	3.9	C	C	3.2	2.5							5
3.8	3.8	C	1.9	3.0	2.5	2.3						6
3.8	3.6	3.1	3.6	C	C					A	A	7
3.6	3.6	3.7	3.3	C	C							8
3.6	3.7	3.7	3.5	6.0	5.0	2.6				1.8	1.9	9
5.2	1.0	1.1	3.1	1.2	5.0	3.2	2.7	2.9				10
3.4	3.7	C	3.7	3.1	C							11
3.9	3.6	3.8	3.3	3.1	A	1.0					A	12
3.5	3.4	3.1	3.4	C	C							13
3.6	3.5	3.1	3.2	C	C					A	A	14
3.8	3.8	3.8	1.1	1.8	3.8		2.2					15
1.5	1.1	3.6	1.3	1.6	2.8	1.5	2.9			2.1	A	16
C	C	C	C	C	2.8	5.0	3.0	3.6			A	17
3.6	3.7	3.8	3.2	1.2	2.9			1.6	2.7		1.9	18
3.6	3.6	3.1	3.6	3.6	C	2.5	1.9				1.8	19
3.7	3.6	C	3.7	C	C		2.1					20
3.6	3.6	3.7	3.1	3.9	3.8	3.1		2.2	1.5			21
3.6	1.1	3.1	1.3	C	C		2.8					22
3.7	3.6	3.4	3.2	3.0	6.0							23
4.0	4.5	3.5	5.0	4.4	2.9		2.2	2.6		2.5		24
3.9	1.0	A	5.6	A	2.8	2.2					A	25
3.6	3.5	3.9	3.7	3.0	5.0	2.5	3.4		2.3			26
3.6	3.6	3.6	3.8	1.1	3.4	2.1	2.8		3.0	2.4		27
3.6	3.7	3.5	3.2	2.9	C	2.7	2.8					28
3.6	3.7	3.6	3.8	1.1	3.6	3.0	2.6	2.6	2.1			29
3.7	3.7	3.6	3.5	3.8	3.0	3.4	2.2					30
4.1	1.8	3.9	7.6	9.0	5.8	2.8	2.7					31
3.0	3.1	3.0	3.1	3.0	2.9	1.6	1.4	6	6	6	1.1	Count
3.6	3.7	3.5	3.5	3.7	2.9	2.8	2.7	2.6	2.4	2.4	A	Median
3.8	3.8	3.6	4.0	4.9	3.9	3.0	2.6	2.6	2.4			Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic fbEs
Unit Mc
Month July, 1963

TABLE 28—Cont'd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							2.4	2.8	3.0	3.4	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3			1.7	1.6			G	2.9	3.2	3.4	3.6	3.7
4		1.1	S					2.8 _{UC}	C	3.3	3.6	3.8
5		A					G	3.0	3.4	3.3	3.6	3.9
6							G	G	3.1	3.1	3.5	3.6
7		1.3		A			2.5	3.0	3.6	3.7	3.5	3.8
8							G	2.8	3.2	3.6	3.6	3.7
9	1.5	S				G	G	G	3.1	3.3	3.6	3.6
10	A	A	A	A			2.2	2.8	3.0	3.2	3.5	5.2
11		A	A		A		2.2	2.7	3.2	3.2	3.6	3.6
12	A			A	A			2.6	4.8	1.0	1.2	3.6
13		1.4					G	2.8	3.2	3.3	3.6	3.6
14							G	—	G	3.4	3.6	3.5
15	A	A	A				G	2.8	3.1	3.6	3.6	3.7
16							C	3.4	3.6	3.6	3.5	3.8
17	1.6	1.3	1.4	1.1			2.3	3.1	3.3	3.5	3.6	3.6
18	1.7	A					2.1	2.7	3.1	3.3	3.3	3.5
19							2.1	2.8	3.2	3.3	3.6	3.6
20							2.3	2.9	3.2	3.4	3.6	3.6
21		A		A			2.2	2.7	3.1	3.4	3.5	3.7
22	1.8			A			2.1	2.7	3.0	3.4	3.5	3.6
23				A			2.1	2.7	3.1	3.4	3.8	3.7
24							2.0	2.7	3.0	4.4	1.0	4.0
25		A	A	A			2.1	3.8	4.7	3.5	3.5	4.0
26	A			A				2.7	3.2	3.4	3.5	3.6
27	1.8		A	A	A		G	2.8	3.2	3.4	3.6	3.9
28		A	A				2.2	2.8	3.2	3.4	3.6	3.5
29							G	2.8	3.2	3.4	3.5	3.7
30							2.3	G	3.2	3.5	3.6	3.7
31	A	2.0	1.6					3.0	3.2	3.4	3.6	3.6
Count	10	13	9	11	3	1	25	29	29	30	29	29
Median	1.8	A	A	A	—	—	2.1	2.8	3.2	3.4	3.6	3.7
Mean	1.7	1.4	—	—	—	—	2.2	2.9	3.3	3.5	3.6	3.7

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fbEs
Unit Mc
Month July, 1963

TABLE 28—Contd
Ionospheric Data
75°E Mean Time

Latitude 77 5° E
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3 8	3 8	4 4	A	7 6	4 0	2 4	G	G	G	G	G	1
3 7	3 6	3 3	G	G								2
3 6	3 7	3 6	3 4	4 0	2 4							3
3 7	G	3 5	G	C	G	G	G	G	G	G	1 9	4
4 0	—	G	3 2	2 7	2 2							5
3 6	3 4	G	3 7	G	2 4					A	C	6
3 6	3 5	3 3	3 0	G	G							7
3 6	3 6	3 1	3 2	G	G							8
3 6	3 5	3 4	4 1	A	3 4	2 4						9
5 0	3 6	6 4	3 2	3 9	4 4	3 5	2 7	3 4	1 9			10
3 5	G	3 2	1 0	G	G					A	A	11
3 6	3 8	3 4	3 2	2 8	3 8	2 0					1 8	12
3 6	3 6	3 4	G	3 0	2 2							13
3 6	3 6	3 4	3 2	G						A	A	14
5 0	3 7	4 6	5 0	3 2	2 4	2 1						15
4 5	4 1	3 4	4 6	4 2	4 7	3 4					A	16
G	3 6	G	G	G	4 6	3 8	3 7			A	A	17
3 6	3 7	3 4	5 4	3 6							1 6	18
3 6	3 4	3 4	3 3	4 4	C	2 4						19
3 6	3 5	G	G	G	G	2 5						20
3 6	3 5	3 3	3 2	5 0	6 8							21
3 8	A	3 5	3 3	G	G							22
3 7	3 6	3 3	3 1	3 0	2 3							23
5 0	3 9	3 6	6 3	3 3	2 8	2 9	2 6			2 0	A	24
3 7	4 6	6 0	A	3 5	2 6	2 1					A	25
3 5	3 7	4 2	4 2	A	3 7	2 4	2 5					26
3 6	3 6	3 8	3 8	3 4	3 6	2 9						27
3 7	3 5	3 4	3 0	G		3 0	2 1	2 6		2 9		28
3 6	3 6	3 8	4 6	4 4	3 0	3 1	2 6					29
3 7	3 6	3 6	3 4	4 2	3 8	3 0						30
4 1	4 5	6 4	5 0	3 1	2 0	2 2						31
3 1	2 9	3 1	3 1	3 0	2 5	1 1	6	2	4	4	8	Count
3 6	3 6	3 4	3 4	3 2	2 6	2 5	2 6	—	—	—	A	Median
3 8	3 7	3 9	3 8	3 8	3 4	2 7	2 7	—	—	—	—	Mean

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds.

Characteristic fmin
Unit Mc
Month July, 1963

TABLE 29
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	S	S	S	E	E	E	1.4	1.8	2.2	2.5	2.6	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	1.8	1.6	E	E	E	E	1.8	1.6	1.7	2.3	2.5	2.5
4	1.3	S	C	C	C	C	C	C	C	2.2	2.4	2.5
5	1.4	C	S	S	S	E	1.3	1.6	1.8	2.2	2.4	2.7
6	2.0	1.0	S	S	1.1	E	1.0	1.7	1.9	2.2	2.4	2.7
7	1.1	1.0	1.1	1.2	E	E	1.2	1.3	1.8	2.0	2.6	2.6
8	E	E	E	E	E	E	1.4	1.3	1.8	2.0	2.5	2.4
9	1.3	1.0	1.0	E	S	1.3	1.2	1.4	1.9	1.9	2.5	2.5
10	S	1.5	S	S	E	E	1.2	1.3	1.8	2.2	2.6	2.6
11	E	S	1.1	1.1	1.5	E	1.4	1.5	1.7	2.1	2.2	2.6
12	1.7	1.6	1.3	S	E	E	1.8	1.4	1.9	2.2	2.4	2.5
13	1.7	E	E	E	E	E	2.0	1.7	2.0	2.3	2.6	2.8
14	S	S	E	E	E	E	1.3	1.5	2.2	2.1	2.6	2.6
15	1.9	1.7 _{us}	E	E	E	E	1.9	1.6	1.8	2.2	2.6	2.8
16	S	S	1.1	1.1	E	E	1.5	1.5	1.8	2.2	2.3	2.2
17	1.7	1.2	E	1.7	1.9	E	1.2	1.5	1.8	2.2	2.6	2.7
18	1.6	1.6	2.0	E	E	E	1.3	1.4	1.8	2.2	2.3	2.7
19	S	S	S	1.1	1.1	E	1.2	1.3	1.8	2.2	2.5	2.5
20	1.0	E	E	E	E	E	1.4	1.6	2.0	2.3	2.4	2.7
21	1.1	S	S	S	E	E	1.5	1.5	1.8	2.3	2.3	2.5
22	1.3	1.4	1.3	1.4	1.9	E	1.4	1.4	1.8	2.1	2.5	2.7
23	S	E	E	E	1.8	E	1.2	1.4	1.9	2.3	2.4	2.8
24	1.9	1.3	E	E	E	E	1.2	1.5	1.8	2.1	2.4	2.5
25	1.6	E	E	E	C	E	1.2	1.6	1.9	2.0	2.3	2.5
26	1.2	1.1	E	1.2	E	E	1.9	1.8	2.0	2.1	2.3	2.5
27	1.4	1.2	E	E	E	1.1	1.7	1.9	1.9	2.4	2.6	3.0
28	2.2	2.0	1.7	E	E	E	1.9	1.8	1.8	2.3	2.7	2.7
29	2.0	2.0	1.2	S	S	E	1.9	1.9	1.9	2.3	2.7	2.7
30	1.7	1.5	1.9	1.2	E	E	1.5	1.8	2.0	2.4	2.6	2.9
31	1.6	1.7	1.1	1.1	S	E	1.3	1.4	1.9	2.3	2.6	2.7
Count	24	22	23	23	24	29	29	29	29	30	30	29
Median	1.6	1.2	E	E	E	E	1.4	1.5	1.8	2.2	2.5	2.6
Mean	1.6	1.4	1.3	1.2	1.6	—	1.5	1.6	1.9	2.2	2.5	2.6

-Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic fmin
Unit Mc
Month July, 1963

TABLE 29
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 8	2 6	2 3	2 2	1 9	1 5	1 4	1 6	C	C	C	C	1
G	2 5	2 3	2 7	2 3	1 5	2 5	1 8	1 9	2 2	2 1	2 0	2
2 6	2 7	2 5	2 5	2 0	1 6	2 2	1 9	1 9	1 6	1 9	1 7	3
2 6	3 1	2 7	2 4	G	G	G	C	G	C	C	1 3	4
2 6	2 5	3 5	2 8	2 1	1 8	1 8	1 6	1 2	1 2	1 4	1 3	5
2 6	2 4	2 4	2 3	2 4	1 8	1 7	1 4	1 3	1 5	1 1	1 4	6
2 7	2 8	2 4	2 2	1 9	1 9	2 0	1 7	1 8	1 6	1 9	1 4	7
2 7	2 6	2 4	2 1	2 0	1 8	1 9	1 6	1 1	1 4	1 5	1 7	8
2 8	2 6	2 4	2 4	2 1	2 0	2 0	1 8	1 8	1 6	1 1	1 2	9
2 5	2 6	2 4	2 1	1 9	2 0	1 7	2 0	1 7	2 2	1 0	E	10
2 7	2 7	G	2 2	2 1	1 9	2 0	1 8	1 6	1 5	1 5 ^{us}	1 3	11
2 5	2 6	2 5	2 2	2 2	1 5	2 1	1 7	1 7	2 1	1 8	2 0	12
2 6	2 8	2 6	2 5	2 6	2 2	2 4	2 2	1 7	1 4	S	S	13
2 6	2 7	2 4	2 4	2 3	2 4	2 1	2 2	1 7	1 5	1 3	S	14
2 8	2 8	2 6	2 6	2 4	2 1	2 0	2 3	2 2	2 4	2 3	2 0	15
2 8	2 8	2 7	2 0	2 8	2 2	2 2	2 0	2 6	2 0	1 8	1 9	16
2 7	2 9	2 7	2 5	2 3	2 2	1 4	2 0	1 1	2 6	E	1 9	17
G	2 5	2 4	2 7	1 9	1 3	2 3	1 9	1 6	1 6	2 6	1 2	18
2 6	2 5	2 3	2 2	2 2	C	1 3	1 9	1 7	2 0	2 0	1 1	19
2 8	2 8	3 4	2 1	3 3	1 8	1 8	2 0	1 6	1 8	1 6	1 1	20
2 5	2 6	2 4	2 2	2 2	1 8	1 8	1 6	1 4	1 4	1 6	1 5	21
2 8	2 8	2 4	2 5	3 0	2 2	2 1	1 3	1 7	1 8	1 6	1 9	22
2 6	2 8	2 5	2 3	2 2	2 2	2 3	2 1	1 9	1 7	C	2 0	23
2 5	2 6	2 4	2 3	2 0	1 4	2 5	2 0	2 0	2 0	1 8	C	24
2 6	2 5	2 6	2 2	1 9	2 0	1 8	1 7	1 5	1 5	1 7	1 1	25
2 5	2 6	2 3	2 5	2 1	1 8	2 1	2 0	2 2	1 5	2 1	2 0	26
2 9	2 6	2 6	2 4	2 4	2 0	1 8	1 6	1 8	1 7	2 2	2 4	27
2 7	2 6	2 6	2 4	2 3	1 9	1 8	2 0	2 2	1 7	1 6	1 9	28
2 7	2 6	2 5	2 5	2 0	1 9	1 9	1 9	1 5	1 4	2 1	2 1	29
2 8	2 9	2 5	2 5	2 7	2 0	1 6	1 3	2 0	2 4	2 3	1 8	30
2 6	2 8	2 6	2 0	2 0	1 9	1 8	1 8	1 8	1 8	2 0	2 1	31
29	31	30	31	30	29	30	30	29	29	27	27	Count
2 6	2 6	2 5	2 4	2 2	1 9	2 0	1 8	1 7	1 7	1 8	1 7	Median
2 7	2 7	2 5	2 4	2 2	1 9	2 0	1 8	1 7	1 8	1 8	1 7	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic fmin
Unit Mc
Month July, 1963

TABLE 29—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	S	S	E	E	E	1.3	1.6	2.0	2.2	2.5	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	1.6	1.1	E	E	E	1.8	1.6	1.6	2.0	2.4	2.6	2.9
4	S	S	E	C	C	C	C	2.1 ^{uc}	C	2.4	2.4	2.5
5	C	1.6	S	S	E	1.3	1.7	1.8	1.9	2.3	2.4	2.6
6	2.0	1.0	E	1.1	1.1	1.2	1.2	1.8	2.1	2.4	2.5	2.6
7	1.2	1.0	1.0	E	1.1	1.2	1.3	1.6	1.9	2.2	2.6	2.7
8	E	E	E	E	E	1.3	1.7	1.7	2.0	2.3	2.6	2.9
9	E	1.0	S	S	E	1.1	1.4	1.8	1.9	2.3	2.3	2.8
10	1.7	1.4	1.2	1.3	E	1.2	1.1	1.4	1.9	2.5	2.4	2.9
11	E	1.1	1.2	1.9	1.2	1.3	1.5	1.6	1.8	2.3	2.3	2.7
12	1.4	S	S	E	1.4	1.4	1.5	1.8	2.2	2.2	2.6	2.6
13	1.4	E	E	E	E	1.5	1.7	1.8	2.2	2.2	2.6	2.8
14	S	S	E	E	E	1.3	1.3	2.0	2.2	2.4	2.6	2.8
15	1.8	E	1.1	E	E	1.8	1.6	1.8	1.8	2.6	2.6	2.8
16	S	1.2	E	E	E	1.5	C	1.9	1.9	2.1	2.4	2.8
17	E	1.1	1.1	1.3	1.3	1.3	1.3	1.4	2.0	2.2	2.6	2.6
18	1.7	1.5	1.8	E	E	1.4	1.3	1.7	1.9	2.4	2.4	2.5
19	S	S	S	1.3	1.1	1.2	1.3	1.5	2.2	2.3	2.3	2.5
20	E	E	E	E	E	1.3	1.4	1.8	2.1	2.6	2.5	2.8
21	S	E	S	E	E	1.8	1.6	1.9	2.1	2.2	2.5	2.6
22	1.4	1.4	R	1.7	E	1.4	1.3	1.7	2.2	2.3	2.6	3.0
23	E	E	E	E	E	1.2	1.3	1.7	2.0	2.3	2.4	2.9
24	S	E	E	E	E	1.4	1.2	1.8	2.2	2.3	2.3	2.6
25	E	1.3	1.3	1.1	E	1.4	1.3	1.8	1.9	2.2	2.4	2.5
26	E	E	E	1.4	E	1.4	2.2	1.9	2.0	2.3	2.3	2.6
27	1.5	S	1.2	1.3	1.2	1.7	1.5	1.8	2.1	2.4	2.9	3.0
28	S	1.8	1.3	E	E	1.6	1.8	1.9	2.0	2.5	2.7	2.7
29	1.6	1.6	S	S	E	1.3	1.8	1.8	2.0	2.5	2.4	2.6
30	1.1	1.8	S	S	E	1.3	1.6	1.9	2.3	2.3	2.7	2.7
31	1.5	1.1	1.2	S	E	1.1	1.3	1.8	2.0	2.6	2.7	2.8
Count	21	24	22	24	29	29	28	30	29	30	29	29
Median	1.7	1.6	E	E	E	1.3	1.4	1.8	2.0	2.3	2.5	2.7
Mean	1.5	1.3	1.2	1.4	1.2	1.4	1.5	1.8	2.0	2.4	2.5	2.7

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

TABLE 29—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Characteristic Unit Mc Month July, 1963	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2 7	2 6	2 3	2 3	2 1	1 9	1 6	C	C	C	C	C	C	1
2 7	2 5	2 3	2 6	2 3	2 3	1 7	1 6	1 7	2 0	2 0	1 7	1 7	2
2 6	2 3	2 1	2 3	2 0	2 2	2 4	1 5	1 8	2 2	1 1	1 9	1 9	3
2 6	2 9	3 5	2 3	C	C	C	C	C	C	C	C	1 6	4
3 0	3 6	2 5	3 1	2 1	1 3	2 0	1 6	1 7	1 8	1 5	1 7	1 7	5
2 4	2 1	2 1	2 1	2 2	1 1	1 4	1 3	1 5	1 5	1 1	1 0	1 0	6
2 6	2 6	2 1	2 1	1 9	1 8	1 7	1 8	1 6	1 9	C	E	E	7
2 6	2 5	2 1	2 1	2 0	1 6	1 6	1 1	1 4	1 8	1 7	1 8	1 8	8
2 8	2 1	2 3	2 3	2 5	1 6	1 3	1 6	1 9	1 8	1 6	C	C	9
2 5	2 6	2 3	2 3	2 5	1 7	2 0	1 1	1 4	1 4	1 0	E	E	10
2 9	C	2 1	2 5	2 3	1 5	2 2	1 9	1 6	S	2 2	1 6	1 6	11
2 6	2 1	2 1	2 3	1 9	1 7	2 2	1 6	1 9	1 3	2 0	1 5	1 5	12
2 6	2 6	2 1	2 1	1 9	1 6	2 3	1 9	1 7	1 6	1 3	S	S	13
2 8	2 6	2 6	2 1	2 3	2 2	2 0	1 8	1 4	1 7	1 7	2 1	2 1	14
2 8	2 6	2 1	2 6	2 2	1 8	2 1	2 2	2 4	2 2	S	S	S	15
2 7	2 6	2 6	3 0	2 2	1 7	1 9	2 5	1 3	2 0	2 2	1 8	1 8	16
2 7	2 0	2 5	2 6	2 2	1 8	1 4	2 1	2 8	S	1 3	1 1	1 1	17
2 8	2 1	2 5	1 9	1 1	2 7	2 1	2 0	1 8	1 1	2 3	E	E	18
2 6	2 5	2 4	2 1	2 0	C	1 4	1 6	1 6	2 1	2 2	C	C	19
2 8	2 6	2 7	2 7	2 2	1 7	1 8	1 9	1 9	1 8	1 2	S	S	20
2 6	2 5	2 3	2 3	2 0	1 7	1 7	1 3	1 4	1 4	1 9	1 5	1 5	21
2 7	2 6	2 4	2 1	2 7	1 9	1 7	1 9	1 8	1 7	1 6	1 6	1 6	22
2 6	2 6	2 4	2 2	2 2	2 3	2 2	2 1	2 3	C	2 1	1 6	1 6	23
2 6	2 5	2 1	2 1	1 9	1 1	2 1	1 9	1 8	1 8	2 0	C	C	24
2 4	2 5	2 3	2 1	1 9	1 8	1 5	1 6	1 6	1 5	1 8	E	E	25
2 5	2 1	2 3	2 3	1 9	1 6	2 2	1 8	1 7	2 1	2 1	1 9	1 9	26
2 6	2 6	2 5	2 1	2 4	2 2	1 7	1 8	1 7	2 0	2 4	2 8	2 8	27
2 7	2 6	2 4	2 3	2 0	2 2	1 1	1 6	1 6	1 4	1 6	1 9	1 9	28
2 6	2 1	2 3	2 2	2 0	1 9	2 0	1 4	1 6	2 2	1 9	1 7	1 7	29
2 8	2 6	2 6	2 6	2 3	2 6	1 6	1 9	1 9	2 0	1 8	1 6	1 6	30
2 6	2 1	2 3	2 7	2 2	1 2	1 6	2 2	1 6	1 8	1 9	2 2	2 2	31
31	30	31	31	30	29	30	29	29	26	27	24	24	Count
2 6	2 6	2 1	2 1	2 2	1 7	1 8	1 8	1 7	1 8	1 8	1 6	1 6	Median
2 7	2 6	2 4	2 4	2 1	1 8	1 8	1 8	1 7	1 8	1 8	1 7	1 7	Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'F2
Unit Km
Month July, 1963

TABLE 30
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E,

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	320	380	C
2								C	C	C	C	C
3							L	280	310	360	360	360
4								C	C	350	400	460
5								255	300	350	340	320
6								L	290	335	370	380
7								L	300	330	345	380
8								265	L	330	360	355
9								270	290	335	340	370
10							L	280	305	L	350	365
11							L	L	L	350	345	445
12								270	300	320	360	360
13								290	310	320	400	445
14								265	270	320	385	390
15								L	305	315	345	365
16								L	325	355	370	385
17							L	L	300	325 _{II}	400	340
18								L	L	340	380	370
19								L	320	380	370	400
20								L	320	380	380	370
21									L	340	440	400
22								L	330	350	L	400
23								L	L	325	L	390
24							L	L	L	370	385	390
25							L	A	325	360	365	410
26								280	L	340	395 _{II}	370
27								265	340	355 _{II}	365	380
28								L	320	L	400	375
29								L	315	360	400	420
30								240	310	380	380	385
31								260	310	340	380	440
Count								12	21	28	28	29
Median								270	310	340	375	380
Mean								270	310	345	375	385

Sweep 10 Mc to 25 0 Mc in 27 seconds

Characteristic h'F2
Unit Km
Month July, 1963

TABLE 30
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
350	390	370	A	A	A							1
C	415	360	350	325	L							2
400	365	400	330	325	300							3
410	410	370	335	C	C							4
350	330	350	375	L	L							5
360	370	380	345	330	290							6
380	400	345	330	330II	300							7
370	370	375	355	310	L							8
380	390	400	340	A	A							9
360	365	370	320	A	330							10
425	390	C	340	I	300							11
400	405	400	325	L	A							12
420	420	100	350	305	280							13
400	160	380	370	355	I							14
365	385	410	370	A	300							15
440	420	375	355	355	265							16
370	340	350	320	300	L							17
390	355	325	290	300	260							18
400	360	315	330	315	C							19
325	330	345	335	330	285							20
	140	440	390	L	280							21
415	365	340	310	290	280							22
390	390	385	380	320	A							23
420	390	L	A	A	280							24
400	385	A	A	A	280							25
370												26
	315	360	360	A	A							26
390	375	340II	325II	300	290							27
400	125	370	375	L	L							28
400	380	110	375	310	290							29
425	100	375	330	310	300							30
405												31
390	380	370	A	300	270							31
30	31	28	27	18	18							Count
395	385	370	310	310	290							Median
390	385	375	345	315	290							Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic h'F2
Unit Km
Month July, 1963

TABLE 30—Contd
Ionospheric Data
75° E Mean Time

Latitude 10 2' N
Longitude 77 5' E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	I	320	360	385	C
2							C	C	C	C	C	C
3							L	290	I	410	370	410
4							C	300 _{vg}	C	370	435	400
5							L	290	310	310	405	345
6							L	280	300	400	360	350
7							L	280	310	350	350	380
8								270	325	340	340	380
9							L	270	325	365	340	360
10							L	I	300	365	350	370
11							L	300	370	370	360	415
12							L	280	320	350	360	420
13							L	290	330	350	405	400
14							L	260	290	350	400	380
15							L	290	320	350	380	350
16							C	300	325	345	380	420
17							L	285	310	430	375	370
18								290	I	I	380	375
19							L	I	360	360	380	400
20							L	295	355	380	400	360
21								310	380	410	400	425
22							L	315	350	340	405	395
23							L	I	320	335	L	385 _H
24							L	I	360	A	370	380
25							L	L	A	I	370	370
26								I	I	360	380	360
27							260	295	345	370	370	390
28							L	300	335	390	415	415
29								L	350	360 _{rr}	440	450 _{rr}
30								280	340	385	375	400
31							L	305	320	355	L	400
Count							1	22	25	27	28	29
Median								290	325	360	380	385
Mean								290	330	365	380	390

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F2
Unit Km
Month July, 1963

TABLE 30—Contd
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
380	400	A	A	A	A							1
420	390	360	310	295	I							2
370	375	420	325	290	I							3
430	400	310	310	C	C							4
370	340	335	335	305	I							5
370	365	I	325	310	L							6
385	395	340	330 _{II}	305	240							7
380	420	360	370	290	255							8
390	410	I	L	A	270							9
360	370	A	I	A	280							10
385	C	I	L	L	L							11
440	400	370	350	305	A							12
390	405	370	325	290	215							13
420	425	380	315	325								14
370	380	410	A	L	I							15
410	415	400	360	310								16
350	350	345	330	L	A							17
395	350	305	315	290								18
370	355	355	330	295	C							19
330	355	340	325	295	255							20
455	460	395	360	A								21
370	A	320	295	295	280							22
405	400	380	360	L								23
380	L	400	A	L								24
380	A	A	A	305								25
380	390	330	A	A	370 _{IIA}							26
400	350	355 _{II}	320	L								27
465	390	380	375	L	250							28
400	390	400	340	300								29
385	400	340	340	295	280							30
380	350	A	320	285								31
31	27	24	23	18	10							Count
385	390	370	330	295	260							Median
390	385	365	335	300	270							Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F
Unit Km
Month July, 1963

TABLE 31
Ionospheric Data
75°E Merid Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	F	S	S	E	E	E	220	215	180	170	165 _{IT}	G
2	C	C	C	C	C	C	C	C	C	C	C	C
3	280	210	F	A	E	L	230	220	200	180 _{IT}	200	190
4	270	S	C	C	C	C	C	C	C	180 _{IT}	180	185
5	A	C	A	S	S	335	230	215	200	175 _{IT}	200	190
6	380 _F	405 _F	S	S	335	220	240	220	200 _{IT}	190	195	160 _{IT}
7	260	310 _r	320	290	A	E	230	215	210	200	185 _{IT}	180 _{IT}
8	E	E	E	E	E	E	230	215	190 _{IT}	170 _{IT}	180 _{IT}	180
9	380	460 _{UF}	F	A	S	205	220	210	180 _{IT}	200	185	180
10	S	A	S	S	E	E	235	215	200	180 _{IT}	175	200
11	E	A	A	A	A	E	230	200	190	180 _{IT}	195	180
12	A	A	A	S	280	E	235	215	200	210	A	180
13	280	310	E	E	E	E	235	200 _{IT}	185	175 _{IT}	170	180
14	S	S	E	E	E	E	230	205	200	180	180	170 _{IT}
15	A	A	A	A	E	E	235	220	180	170 _{IT}	190	180
16	F	310	300 _{UF}	235	E	F	230	210	220	200	160 _{IT}	170 _{IT}
17	320	400 _{UF}	F	S	F	L	235	225	200	185	180	180
18	A	F	280 _{IT}	E	E	E	240	200	180 _{IT}	180	180	170 _{IT}
19	S	S	S	225	230	E	235	200	200	195 _{IT}	180	190
20	305	E	E	E	E	E	235	215	185	185	180	180
21	A	S	S	A	L	E	235	190 _{IT}	180 _{IT}	200	185	195
22	250	265	290	A	A	E	250	200	190	190	180 _{IT}	175 _{IT}
23	F	L	E	A	A	E	240	210	200	200	195	190
24	320	350	E	E	E	E	240	210	190	200	200	200
25	A	E	A	A	C	L	245	A	210	200	190	200
26	A	A	L	A	E	E	240	215	195	190 _{IT}	190	180
27	320 _r	A	F	A	A	A	240	215	195 _{IT}	180	200	195
28	250	A	A	A	E	E	235	220	200	200 _{IT}	185	180
29	265 _{UF}	F	260 _{UF}	F	F	E	225	200	200	195	180	180
30	280	260	270	260	E	F	220	215	200	200	180 _{IT}	180
31	240	F	280 _r	220	F	E	210	215	180	180	180	175 _{IT}
Count	17	14	14	12	18	28	29	28	29	30	29	29
Median	280	345	320 _{DF}	E	L	L	235	215	200	190	180	180
Mean	295	325	285	245	—	—	235	210	195	190	185	185

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic h'F
Unit Km
Month July, 1963

TABLE 31
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
195	195	210	A	A	A	215	C	C	C	C	C	1
C	190	180	185	185 _{II}	215	240	220	220	260	310	F	2
180	180	180	210	A	A	210	225	220	245	260	285	3
180 _{II}	180	180	190	C	C	C	C	C	C	C	300	4
200	200	190	200	220	220	210	230	215	210	240	290	5
180	200	195	A	210	220	240	235	210	210	230	270	6
200	190	180	205	210	200 _{II}	230	210	225	230	A	A	7
180	180 _{II}	180	200	200	210 _{II}	230	235	220	220	220	280	8
180	170 _{II}	165 _{II}	215	A	A	235	215	220	230	260	280	9
A	200	A	190	A	A	250	220	240	250	260	C	10
180	180	C	205	220	215	230	200	200	220	300	A	11
200	195	200	190	200	200	A	230	220	245	240	260	12
165 _{II}	160 _{II}	190	185	200 _I	220	220	200	220	230	240	A	13
185	170 _{II}	180	190	180 _{II}	215	225	200	230	260	A	A	14
190	190	205	A	A	A	215	225	250 _{III}	280	330	S	15
A	A	190	A	A	205	265	230	230	245	280	A	16
180	195	200	200	205	225	A	260	270	270	300	A	17
170	180	200	180	A	220	240	230	240	275	295	320	18
180	180	175 _{II}	200	A	C	250	220	230	250	310	355	19
180 _{II}	170 _{II}	170 _{II}	200	200	200	225	200	200	230	255	260	20
185	180	195	200	A	A	260 _{IIA}	245	250	220	250	250	21
200	A	200	A	200	220	250	270	230	220	270	300	22
195	190	190	200	200	A	240	225	200	230	C	280	23
200	A	190 _{II}	A	A	240	215	235	240	245	A	E	24
200	210	A	A	A	220	240	225	240	235	260	A	25
185	190 _{II}	A	210	A	A	235	235	230	230	245	300	26
175 _{II}	180	185	230	A	260	215	235	230	255	260	310	27
180 _{II}	200	185	180	190	215	235	210	255	300	320	315 _{III}	28
175 _{II}	185	190	220	A	A	245	210	240	235	250	260	29
175	185	180	200	A	A	255	210	200	220	300 _{LS}	300	30
215	A	200 _{IIA}	A	A	225	240	250	240	235	260	235	31
28	29	27	23	14	19	28	29	29	29	25	20	Count
180	185	190	200	200	220	240	230	230	235	260	290	Median
185	185	190	200	200	220	240	230	230	240	270	285	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F
Unit Km
Month July, 1963

TABLE 31—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	S	A	E	E	E	235	210	190	180	170 _{ir}	175 _{ir}	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	250	220 _{ur}	275 _{ur}	295 _r	E	250	220	200	180	180 _{ir}	195	180
4	S	S	S	C	C	C	C	200 _{vc}	C	170 _{ir}	175	185
5	C	A	S	S	E	260	225	210	205	170 _{ir}	175 _{ir}	200
6	400	420	460	420	260	210	225	215	200	170 _{ir}	180	160 _{ir}
7	300	310	320	A	315	250	230	215	215	200	170 _{ir}	200
8	E	E	E	E	L	240	220	200	180 _{ir}	195	180	170 _{ir}
9	400 _r	F	S	S	240	230	220	180 _{ir}	210 _{ir}	190	190	180
10	A	A	A	A	A	250	220	205	180	180	175 _{ir}	A
11	E	A	A	S	A	250	210	200	180 _{ir}	180 _{ir}	190	180 _{ir}
12	A	S	S	A	A	245	205	180 _{ir}	A	215 _{urA}	A	175 _{ir}
13	320	335	E	E	E	250	215	190	180	170 _{ir}	165 _{ir}	170 _{ir}
14	S	S	E	E	E	240	220	210	180 _{ir}	175	170	170 _{ir}
15	A	A	A	L	E	250	225	200	175 _{ir}	190	180	195
16	340	315	270	E	E	240	C	215	205	170 _{ir}	160 _{ir}	195
17	310 _r	270	S	F	260	260	220	215	200	180	180	180
18	320 _{ur}	A	F	E	E	265	220	205	200	180	180	165 _{ir}
19	S	S	S	250	240	250	200 _{ir}	200	200	180	195	185
20	E	E	E	E	E	255	260	200	195	180	180	190
21	S	A	S	A	E	270	220 _{ir}	180 _{ir}	180	190	180	185
22	260	280	300	A	E	270	210	190	190	180	180	200
23	E	E	E	A	E	260	230	200	200	200	190	180
24	F	E	E	E	E	260	200	195	195	A	A	200
25	E	A	A	A	E	275	240	A	A	200	190	200
26	A	E	E	A	A	260	225	190 _{ir}	190 _{ir}	185 _{ir}	180	190
27	F	F	A	A	A	270	220	200	190	180 _{ir}	200	200
28	F	A	A	E	E	260	230	210	200	190	185	175
29	250 _r	F	270 _{ur}	260 _{ur}	E	245	220	200	180	180	180	180
30	260	275	F	F	E	240	220	200	200	180	180	180
31	A	F	280F	F	E	275	215 _{ir}	200	180 _{ir}	175 _{ir}	180	175
Count	16	13	15	14	20	29	28	29	27	29	28	28
Median	330	335	E	E	L	250	220	200	190	180	180	180
Mean	310	305	310	—	265	255	220	200	190	185	180	185

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F
Unit Km.
Month July, 1963

TABLE 31—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
195	210	A	A	A	A	225	C	C	C	C	C	1
190	175 _{tr}	185	185	210	220	235	210	230	280	342	315	2
180	180	190	185	A	230	235	225	230	260	270	F	3
180 _{tr}	195	180	210	C	C	C	C	C	C	C	A	4
200	190	205	215	215	230	240	225	215	235	270	370F	5
180 _{tr}	170 _{tr}	175 _{tr}	A	210	230	210	230	205	220	245	265	6
180	180	170	180 _{tr}	210	220	210	230	225	A	C	E	7
180	180	200	200	210	220	210	225	220	200	250	305	8
180	160 _{tr}	170 _{tr}	A	A	A	220	210	230	250	260	C	9
A	185	A	185	A	A	240	225	255	240	300 _{EB}	E	10
185	C	175 _{tr}	A	200	225	220	200	210	S	A	A	11
170 _{tr}	200	195	200	180	A	225	225	240	240	250	280	12
170 _{tr}	200	180	195	220	220	210	220	220	240	270	S	13
170	165 _{tr}	180 _{tr}	170	200 _{tr}	225	205	210	230 _{US}	300	A	A	14
A	200	A	A	220	225	230	250	F	310 _{UF}	S	F	15
A	200	180	A	A	260	240	220	240	260	315	A	16
180 _{tr}	200	200	200	215	A	250 _{UA}	270	260	S	A	A	17
180	205	170 _{tr}	A	A	240	230	235	250	270	315	320	18
190	180 _{tr}	180	200	A	C	230	220	235	290	C	C	19
180	170 _{tr}	180	205	200	220	220	200	220	250	250	S	20
175	190	190	200	A		230	250	235	250	270	260	21
200	A	200	200	215	230	250	260	220	260	270	F	22
200	190	190	200	215	225	235	210	235	C	260	280	23
A	200 _{tr}	A	A	A	240	235	240	240	270	A	C	24
200	A	A	A	A	235	220	230	230	230	290	A	25
185	200	A	A	A	A	230	230	220	240	280	300	26
180	180	230	225	235	A	235	240	235	260	275	290	27
200	185	190	180	190 _{tr}	220	230	255	275	305	320	280F	28
175 _{tr}	180	210	A	A	215	250	250	230	245	255	270	29
180	170	220	215	A	A	250	215	205	240	300	260	30
220	A	A	A	190	250	240	240	235	245	245	220	31
27	27	21	19	17	20	30	29	28	25	22	16	Count
180	185	190	200	210	230	230	225	230	250	270	285	Median
185	185	190	195	210	230	230	230	230	255	280	285	Mean

Sweep 10 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'E
Unit Km
Month July, 1963

TABLE 32
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E.

Date	00	01	02	03	04	05	06	07	08	09	10	11
1							100	A	A	A	A	C
2							C	C	C	C	C	C
3								110	A	A	A	A
4									C	A	A	A
5							120	100	100	A	A	A
6							110	A	A	A	A	A
7							110	100	100	A	A	A
8							115	A	A	A	A	A
9							105	100	105	A	A	A
10							110	A	A	A	A	A
11							120	A	A	A	A	A
12								100	A	A	A	A
13								110	A	A	A	A
14							120	100	105	A	A	A
15								105	A	100	A	110
16							140	100	115	A	A	A
17							120	A	A	A	A	A
18							110	A	A	A	A	A
19							120	A	A	A	A	A
20							125	A	A	A	A	A
21								A	A	A	A	A
22							120	A	A	A	A	A
23							120	A	A	A	A	A
24							115	A	A	A	A	A
25							115	A	A	A	A	A
26								110	A	A	A	A
27								115	A	A	A	A
28								110	A	A	A	A
29								110	A	A	A	A
30							120	110	105	A	A	A
31							120	105	A	A	A	A
Count							20	15	6	1		1
Median							120	105	105			
Mean							115	105	105			

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E
Unit Km
Month July, 1963

TABLE 32
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A	A	A						1
G	A	A	110	110								2
A	A	A	A	A	A							3
A	110	110	110	C	C	C						4
A	A	B	120	A	A							5
A	A	105	105	120	115							6
A	A	A	A	100	115							7
A	A	A	A	105	110							8
A	A	A	A	A	A	A						9
A	A	A	A	105	A	A						10
A	A	C	A	A	110							11
A	A	A	A	A	A	A						12
A	A	A	110	120	115							13
A	A	A	A	110	110							14
110	A	A	105	110	A							15
A	A	A	100	A	A							16
110	110	110	110	110	A							17
A	A	A	115	A	A							18
A	A	A	A	A	C							19
115	115	B	A	B	115							20
A	A	A	A	A	A							21
A	A	A	A	B	120							22
A	A	A	A	A	A							23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	A	A	A	A						26
A	A	A	A	110	120	A						27
A	A	A	A	110	110							28
A	A	A	A	A	A	A						29
A	A	A	A	A	A							30
A	A	A	A	A	A							31
3	3	3	9	11	10	..						Count
			110	110	115							Median
			110	110	115							Mean

Sweep 1 0 Mc, to 25 0 Mc, in 27 seconds

Characteristic h'E
Unit Km
Month July, 1963

TABLE 32—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77.5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							A	A	A	A	C	C
2							C	C	C	C	C	C
3							110	A	A	A	A	A
4							C	A	C	A	A	A
5							115	100	A	A	A	A
6							100	105	100	A	A	A
7							105	100	100	A	A	A
8							110	A	A	A	110	A
9						105	105	100	A	A	A	A
10							A	A	A	A	A	A
11							105	A	A	A	A	A
12							105	A	A	A	A	A
13							110	A	A	A	A	A
14							100	105	105	A	A	A
15							105	A	A	A	A	105
16							C	A	A	110	A	110
17							A	A	A	A	A	110
18							A	A	A	A	A	A
19							100	A	A	A	A	A
20							110	A	A	A	A	A
21							A	A	A	A	A	A
22							A	A	A	A	A	A
23							A	A	A	A	A	A
24							A	A	A	A	A	A
25							A	A	A	A	A	A
26								A	A	A	A	A
27							115	110	A	A	A	A
28							150	105	A	A	A	A
29							115	100	A	A	A	A
30							120	105	A	A	A	A
31							110	A	A	A	A	A
Count						1	18	9	3	1	1	3
Median							110	105				
Mean							110	105				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E
Unit Km
Month July, 1963

TABLE 32--Contd
Ionospheric Data
75°E Merid Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A	A							1
A	A	110	115	100								2
A	A	\	\	A								3
A	110	A	B	C	G							4
A	B	110	A	A								5
A	100	105	115	120								6
A	A	A	A	110	115							7
A	A	A	110	110	120							8
A	A	\	\	A	A							9
A	A	A	105	A	A							10
A	C	\	A	110	110							11
A	A	A	A	\	A							12
A	A	\	110	105	A							13
A	\	\	110	110	\							14
A	\	105	110	\	A							15
A	A	\	\	110	A							16
105	A	110	110	110								17
A	A	A	A	A								18
A	A	A	A	A	A							19
110	110	115	120	115	120							20
A	A	A	A	A								21
A	A	A	A	A	B	120						22
A	A	A	A	A	A							23
A	A	A	\	A								24
A	A	A	A	A	A							25
A	A	A	A	A	A							26
A	A	A	115	120	A							27
A	A	A	\	110								28
A	A	A	A	A	A							29
A	A	A	A	A	A							30
A	A	A	A	A	A							31
2	3	6	10	12	5							Count
		110	110	110	120							Median
		110	110	110	115							Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'Es
Unit Km
Month July, 1963

TABLE 33
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	110						G	100	100	100	100	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3			105	105				130	100	100	100	100
4		130	C	C	C	C	C	C	C	100	100	100
5	120	135	100				G	G	100	100	100	100
6							G	100	100	100	100	100
7		115		140	100		G	G	150	100	100	100
8							G	100	100	100	100	100
9	105	110	120	110			G	G	G	100	100	100
10	115	110					100	100	100	100	100	100
11	120	115	110	100	100		G	100	100	100	100	100
12	100	105	115					100	100	100	100	100
13	120	120						100	100	100	100	100
14							G	G	C	100	100	100
15	110	110	120	100				100	100	100	100	100
16							G	100	100	100	100	100
17	120	120	110	115	100		C	100	100	100	100	100
18	105	105					G	100	100	100	100	100
19							G	100	100	100	100	100
20							G	100	100	100	100	100
21	105			105			100	100	100	100	100	100
22		115	115	100	100		G	100	100	100	100	100
23				100	100		100	100	100	100	100	100
24							G	100	100	100	100	100
25	125		100	100	C		G	100	100	100	100	100
26	95	100		100				G	100	100	100	100
27	100	100	100	115	100	100		G	100	100	100	100
28	105	110	100	100				100	100	100	100	100
29								G	100	100	100	100
30							G	G	100	100	100	100
31			105	105			G	130	100	100	100	100
Count	15	15	12	14	6	1	3	21	27	30	30	29
Median	110	110	110	100	100			100	100	100	100	100
Mean	110	115	110	105	100			100	100	100	100	100

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'Es
Unit Km
Month July, 1963

TABLE 33
Ionospheric Data
75°E Mean Time

Latitude 10°2' N
Longitude 77°5' E

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	100	100	100						1
G	100	100	G	G	95							2
100	100	100	140	100	100							3
100	100	G	G	G	G	G	G	G	G	G	105	4
100	100	G	G	100	100							5
100	100	G	135	135	110	115						6
100	100	100	100	G	G				100		100	7
100	100	100	100	G	G							8
100	100	100	100	100	100	100				95	90	9
100	100	100	100	120	110	100	100	90	90	90	90	10
100	100	G	100	100	G						100	11
100	100	100	100	100	100	100						12
100	100	100	100	G	G						100	13
100	100	100	100	G	G					110	145	14
100	100	100	120	115	100	120	120					15
100	100	100	120	110	115	100	100			120	115	16
G	G	G	G	G	115	110	110	105		90	110	17
100	100	100	110	100	100			95	100		95	18
100	100	100	100	100	G	100	95				90	19
100	100	G	100	G	G		100					20
100	100	100	100	100	100	100		120	120			21
100	100	100	100	G	G		100					22
100	100	100	100	100	100							23
100	100	100	100	100	100		100	100		125		24
100	100	100	100	100	100	100					100	25
100	100	100	100	100	100	100	100		100			26
100	100	100	100	125	115	100	100		105	115		27
100	100	100	100	100	G	95	100		95			28
100	100	100	100	100	100	100	100	95	95			29
100	100	100	100	100	100	100	95					30
100	100	100	100	100	100	95	100					31
29	30	26	27	22	21	17	11	6	8	7	12	Count
100	100	100	100	100	100	100	100	100	100	110	100	Median
100	100	100	100	105	105	100	100	100	100	105	105	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'Es
Unit Km
Month July, 1963

TABLE 33—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E,

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1		135					100	100	100	100	100	C
2		C	C	C	C	C	C	C	C	C	C	C
3		110	110	100			G	100	100	100	100	100
4			110	C	C	C	C	100 _{uc}	C	100	100	100
5	C	125					G	100	100	100	100	100
6							G	G	140	100	100	100
7		110		100			140	110	140	100	100	100
8							G	100	100	100	100	100
9	105	120				G	G	G	100	100	100	100
10	110	100	100	115			100	100	100	100	100	100
11		115	110	115	100		100	100	100	100	100	100
12	100			110	115		100	100	100	100	100	100
13		120					G	100	100	100	100	100
14							G	130	G	100	100	100
15	100	110	140				G	100	100	100	100	100
16							C	100	100	100	100	100
17	120	120	105	110			100	100	100	100	100	100
18	110	100					100	100	100	100	100	100
19							100	100	100	100	100	100
20							100	100	100	100	100	100
21		110		100			100	100	100	100	100	100
22	100			100			100	100	100	100	100	100
23				100			100	100	100	100	100	100
24							100	100	100	100	100	100
25		110	115	100			100	100	100	100	100	100
26	100			105		95		100	100	100	100	100
27	100		100	115	100		G	100	100	100	100	100
28		100	100				100	100	100	100	100	100
29							G	100	100	100	100	100
30							120	G	100	100	100	100
31	100	105	120				110	100	100	100	100	100
Count	10	15	10	12	3	1	17	27	28	30	30	29
Median	100	110	110	100			100	100	100	100	100	100
Mean	105	115	110	105			100	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es
Unit Km
Month July, 1963.

TABLE 33—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
100	100	100	100	100	100	100						1
100	100	100	G	G								2
100	100	100	120	100					110			3
100	G	100	G	C	C	C	C	C	C	C	110	4
100	100	G	100	100	100							5
100	100	G	125	G	100							6
100	100	100	100	G	G				100	C		7
100	100	100	100	G	G							8
100	100	100	100	A	100	90						9
100	100	100	100	115	110	100	90	90	90	90		10
100	C	100	100	G	G					110	100	11
100	100	100	100	100	100	100			120		100	12
100	100	100	G	110	95							13
100	100	100	100	G					110	100	100	14
100	100	100	115	100	100	100						15
100	100	100	110	105	100	100		90		125	110	16
G	100	G	G	G	110	105	100	115		90	115	17
100	100	100	100	100	100				90		95	18
100	100	100	100	100	C	100						19
100	100	G	G	G	G	100						20
100	100	100	100	100	100							21
100	100	100	100	G	G							22
100	100	100	100	100	115							23
100	100	100	100	100	100		100	100	100	130		24
100	100	100	100	100	100	100					100	25
100	100	100	100	100	100	100						26
100	100	100	135	120	110	100			105	130		27
100	100	100	100	G		95	90	95	95	130		28
100	100	100	100	100	100	100	100	95				29
100	100	100	100	100	100	100	100					30
100	100	100	100	100	100	95						31
30	29	27	26	19	19	16	6	5	9	8	8	Count
100	100	100	100	100	100	100	100	95	100	120	100	Median
100	100	100	105	105	100	100	95	100	100	115	105	Mean

Sweep 1 0 Mc to 25 0 Mc, in 27 seconds.

Characteristic (M3000) F_2
Unit
Month July, 1963

TABLE 34
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	F	S	S	E	E	E	3 40	3 25	2 85	2 50	2 60	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	F	F	F	A	S	E	3 35	3 20	2 90	2 40	2 50	2 65
4	F	S	S	C	C	C	C	C	C	2 55	2 50	2 40
5	A	C	A	S	S	2 70	3 30	3 40	3 10	2 75	2 40	2 40 _H
6	F	F	F	S	S	F	3 15	3 30	3 10	2 80	2 35 _H	2 55
7	3 10	F	F	F	A	S	3 40	3 30	3 20	3 00	2 75	2 40
8	E	E	E	E	E	E	3 45 _{JS}	3 40	3 15	2 90	2 60	2 65
9	2 75 _{UF}	F	F	A	S	3 60 _{UR}	3 65	3 45	3 30	3 00	2 55	2 65
10	2 70	A	S	S	S	E	3 30	3 15	2 90	2 50	2 60	2 70
11	S	A	A	A	A	E	3 20	3 10	2 70	2 50	2 70	2 45
12	A	A	A	S	R	E	3 50	3 50	3 30	3 00	2 65	2 60
13	F	F	E	E	E	E	3 50	3 30	3 10	2 60	2 60 _H	2 25 _H
14	S	S	E	E	E	E	3 60	3 50	3 50	3 20	2 80	2 20 _H
15	A	A	A	A	E	E	3 50	3 20	3 05	2 70	2 65	2 70
16	F	F	F	F	E	E	3 30	3 15	2 90	2 60	2 60	2 50
17	F	F	F	F	F	E	3 20	3 15	3 00	2 40 _H	2 50 _H	2 75
18	A	F	F	E	E	E	3 30	3 05	2 65	2 60	2 70	2 70
19	2 90	R	2 60 _F	F	F	E	3 25	3 10	2 80	2 40	2 60	2 65
20	3 25	E	E	E	E	E	3 30	3 10	2 75	2 50	2 45	2 70
21	A	S	S	A	E	E	3 40	2 95	2 75	2 65	2 60	2 75
22	3 35	3 30	3 15	A	A	E	3 15	3 05	2 75	2 75	2 60	2 45
23	F	E	E	A	A	E	3 15	3 05	2 75	2 70	2 60	2 60
24	F	3 00 _R	E	E	E	E	3 15	3 00	2 75	2 55	2 60	2 60
25	A	E	A	A	C	E	3 15	3 00	2 95	2 70	2 55	2 40
26	A	A	E	A	E	E	3 45	3 35	3 00	2 60	2 50	2 70
27	3 05 _F	A	F	A	A	A	3 40	3 40	3 05	2 55 _{II}	2 65	2 70
28	F	A	A	A	E	E	3 25	3 15	2 90	2 45	2 60	2 65
29	F	F	F	F	F	E	3 45	3 50	3 30	2 50	2 50	2 40 _H
30	3 15 _{UF}	3 20	3 45	F	E	E	3 55 _S	3 50	3 25	2 75	2 40 _H	2 55
31	3 30	F	F	F	F	E	3 30	3 30	2 90	2 45 _H	2 50	2 45
Count	9	3	3			2	29	29	29	30	30	29
Median	3 10						3 30	3 20	2 95	2 60	2 60	2 60
Mean	3 05						3 35	3 25	3 00	2 65	2 55	2 55

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000) F₂
Unit
Month July, 1963

TABLE 34
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 75	2 60	2 60	2 70	A	2 90	3 20	C	C	C	C	C	1
C	2 55	2 65	2 75	2 90	3 05	3 10	3 45	3 30	S	3 05	F	2
2 55	2 65	2 50	2 60	2 85	3 00	3 20	3 35	3 35	3 25	3 30	3 10	3
2 60	2 70	2 65	2 85	C	C	C	C	C	C	C	3 20 _{UC}	4
2 65	2 80	2 75	2 70	2 70	2 75	2 85	3 00	3 30	3 40	3 25	2 90	5
2 60	2 30	2 60	2 70	2 75	3 00	3 05	3 05	3 50	3 50 _F	3 15 _F	3 20	6
2 40	2 45	2 60	2 70	2 70	3 00	3 20	3 35	3 40	3 40	A	A	7
2 50	2 40	2 40	2 55	2 80	2 95	3 30	3 15	3 30	3 60	3 45	3 10 _{UF}	8
2 60	2 50	2 40	2 50	2 40	2 75	3 30	3 30	3 40	3 40	3 20	3 15	9
2 80	2 75	2 55	2 65	2 65	2 80	3 10	3 40	3 40	3 45	3 45	C	10
2 50	2 60	C	2 55	2 50	2 75	3 15	3 50	3 60	3 50	3 30	A	11
2 35	2 45	2 40	2 60	2 60	A	3 05	3 20	3 30	3 40	3 35	3 15	12
2 45	2 50	2 50	2 70	3 00	3 15	3 60	3 55	3 50	3 50	F	A	13
2 55	2 40	2 55	2 60	2 75	2 85	3 10	3 40	3 40	3 30 _{UR}	A	A	14
2 75	2 60	2 50	2 60	2 60	2 90	3 10	3 20	3 30	F	2 90	2 75	15
2 30	2 45	2 60	2 55	2 80	3 05	3 20	3 20	3 35	3 30	3 10	A	16
2 60	2 75	2 80	2 80	2 90	2 95	3 05	3 20	3 15	3 00 _{JS}	3 05	A	17
2 45	2 65	2 80	3 15	3 15	3 50	3 40	3 40	3 25	3 20	3 25	3 00	18
2 55	2 70	2 75	2 80	2 90	C	3 10	3 35	3 30	3 20	2 85	2 85 _R	19
2 85	2 90	2 90	2 95	3 00	3 25	3 50	3 60	3 55	3 55	3 40 _{UR}	3 30 _R	20
2 55	2 55	2 55	2 55	2 50	2 90	3 00	3 10	3 15	3 35	3 15	3 20	21
2 60	2 60	2 80	3 00	3 20	3 25	3 20	3 20	3 40	3 40	F	F	22
2 50	2 45	2 50	2 60	2 70	2 80	3 00	3 30	3 15	3 25	C	3 20	23
2 45	2 65	2 40	2 50	2 75	3 10	3 25	3 25	3 30	3 30	3 00	C	24
2 50	2 60	A	2 70	A	3 10	3 40	3 30	3 25	3 30	3 30	A	25
2 65	2 55	2 65	2 65	2 60	2 75	3 05	3 25	3 30	3 35 _{US}	3 30	3 00 _R	26
2 55	2 50	2 65	2 70	2 70	2 90	3 10	3 20	3 25	3 35 _{JS}	3 30	F	27
2 60 _{JS}	2 50 _{JS}	2 60	2 45	2 50	2 85	3 30	3 30	3 25 _S	3 00	F	F	28
2 50	2 70	2 60	2 60	2 75	2 95	3 10	3 20	3 25	3 35	F	F	29
2 45	2 50	2 60	2 75	2 80	2 80	3 00	3 10	3 50	3 50 _{JS}	3 25	3 10 _{UF}	30
2 55	2 65	2 70	2 80	2 95	3 15	3 30	3 20	3 30	3 20 _S	3 35 _{UF}	3 40 _F	31
30	31	29	31	28	28	30	29	29	27	22	16	Count
2 55	2 60	2 60	2 70	2 75	2 95	3 10	3 25	3 30	3 35	3 25	3 10	Median
2 55	2 60	2 60	2 70	2 75	2 95	3 15	3 30	3 35	3 35	3 20	3 10	Mean

Sweep 10 Mc to 250 Mc in 27 seconds

Characteristic (M3000) F_2
Unit
Month July, 1963

TABLE 34—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	S	A	E	E	E	3 40	3 25	3 10	2 65	2 65	2 55	C
2	C	C	C	C	C	C	C	C	C	C	C	C
3	F	F	F	F	E	3 40	3 25	3 10	2 60	2 45	2 65	2 50
4	S	S	A	C	C	C	C	3 00	C	2 50	2 40 _{II}	2 65
5	C	A	S	S	E	3 20	3 35	3 25	2 90	2 55	2 35	2 60
6	F	F	F	S	F	3 00	3 30	3 25	3 00	2 60 _H	2 05 _{II}	2 70
7	3 15	F	F	A	F	3 15 _F	3 40	3 30	3 10	2 90	2 55	2 40
8	E	E	E	E	E	3 45	3 40	3 30	3 10	2 70	2 70	2 60
9	F	F	S	S	F	3 50	3 45	3 35	3 10	2 80	2 50	2 40
10	A	A	A	A	E	3 25	3 25	2 90	2 65	2 50	2 70	2 70
11	S	A	A	S	A	3 30	3 20	2 85	2 60	2 65	2 45 _{II}	2 45
12	A	S	S	A	A	3 45	3 45	3 35	3 15	2 85	2 50	2 50
13	F	F	E	E	E	3 40	3 40	3 20	3 00	2 35 _{II}	2 50 _{II}	2 60 _H
14	S	S	E	E	E	3 40	3 50	3 60	3 20	3 10	2 50 _H	2 60
15	A	A	A	E	E	3 50	3 40	3 10	2 85	2 60	2 55	2 70
16	F	F	F	E	E	3 20	C	3 05	2 75	2 65	2 60	2 40
17	F	F	F	F	F	3 30	3 25	3 15	2 70	2 20 _{II}	2 60	2 65
18	F	A	F	E	E	3 05	3 20	2 90	2 50	2 65	2 65	2 60
19	2 60	F	F	3 20 _{UF}	R	3 25	3 25	3 00	2 45	2 70	2 65	2 45
20	E	E	E	E	E	3 35	3 20	2 95	2 60	2 60	2 60	2 75
21	S	A	S	A	E	3 25 _F	3 20	2 80	2 65	2 70	2 65	2 65
22	3 40	3 25	2 90 _{UR}	A	E	3 15	3 20	2 85	2 75	2 70	2 55	2 45
23	E	E	E	A	E	3 20 _F	3 10	2 95	2 75	2 70	2 50	2 55
24	F	F	E	E	E	3 10	3 10	2 90	2 75	2 70	2 55	2 55
25	E	A	A	A	E	3 15 _F	3 05 _{US}	3 00	2 75	2 65	2 55	2 50
26	A	E	E	A	E	3 20	3 35	3 15	2 75	2 55 _{II}	2 50	2 70
27	F	F	A	A	A	3 30	3 40	3 30	2 85	2 50 _{II}	2 65	2 60
28	F	A	A	E	E	3 30	3 20	3 05	2 65	2 55	2 50	2 55
29	F	F	F	F	E	F	3 50	3 25	2 85	2 50	2 40 _{II}	2 35
30	3 30 _{UF}	3 10	F	F	E	F	3 50	3 40	3 00	2 30 _{II}	2 75	2 50
31	A	F	F	F	E	3 20 _F	3 25	3 15 _{JS}	2 65	2 45	2 50	2 50
Count	4	2	1	1	—	27	28	30	29	30	30	29
Median	—	—	—	—	—	3 25	3 30	3 10	2 75	2 60	2 55	2 55
Mean	—	—	—	—	—	3 25	3 30	3 10	2 80	2 60	2 55	2 55

Sweep 10 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000)F₂
Unit
Month July, 1963

TABLE 34—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2 60	2 60	2 65	A	2 90	3 00	3 40	C	C	C	C	C	1
2 65	2 55	2 70	2 80	3 05	3 15	3 20	3 40	3 30	3 15	2 85	3 10 _{UF}	2
2 65	2 70	2 50	2 85	3 00	3 10	3 25	3 30	3 40	3 30	3 20	F	3
2 60	2 55	2 70	3 00	C	C	C	C	C	C	C	3 00	4
2 60	2 80	2 70	2 70	2 70	2 80	3 00	3 10	3 45	3 30	3 15	F	5
2 50	2 50	2 50	2 70	2 85	3 10	3 10	3 25	3 40 _{US}	3 15 _F	3 25	3 10	6
2 40	2 50	2 65	2 60	2 75	3 00	3 45	3 30	3 35 _{JS}	A	C	E	7
2 50	2 35	2 55	2 60	2 90	3 25	3 10	3 25	3 50	F	3 20 _F	2 75 _F	8
2 40	2 45	2 50	2 45	A	2 90	3 40	3 50	3 40	3 20	3 20	C	9
2 75	2 60	2 60	2 70	2 60	2 90	3 30	3 40	3 30 _{JS}	3 50	3 20	S	10
2 65	C	2 50	2 55	2 65	2 95	3 35	3 60	3 60	3 45 _{UR}	A	A	11
2 45 _H	2 50	2 60	2 65	2 70	2 80	3 20	3 25	3 30	3 35	3 25	2 80	12
2 70	2 60	2 60	2 90	3 10	3 40	3 45	3 50	3 60	3 55	3 10	S	13
2 55	2 40	2 60	2 65	2 80	2 95	3 45 _F	3 60 _{US}	3 40 _{UR}	3 30 _{JR}	A	A	14
2 70	2 60	2 55	2 70	2 70	2 90	3 30	3 20	F	F	2 80	F	15
2 45	2 45	2 60	2 65	2 95	3 05	3 35	3 35	3 30	3 10	3 15	A	16
2 70	2 75	2 80	2 90	2 90	2 90	3 10	3 20	3 10	F	A	A	17
2 55	2 75	3 00	2 10	3 20	3 50	3 40	3 30	3 20	3 20	3 10	2 90	18
2 65	2 75	2 75	2 80	2 95	C	3 25	3 40	3 30	3 05	R	C	19
2 85	2 90	2 95	3 00	3 10	3 35	3 50	3 55	3 50	3 30 _R	3 20	S	20
2 50	2 45	2 65	2 50	2 65	2 90	3 05	3 15	3 30	3 25	3 15	3 25	21
2 60	A	2 95	3 10	3 15	3 15	3 20	3 25	3 40	3 20	3 10 _{UF}	F	22
2 50	2 60	2 50	2 55	2 65	2 95	3 10	3 40	3 15	C	3 15	3 10	23
2 60	2 60	2 45	2 60	2 90	3 10	3 30	3 35	3 05 _{JS}	3 25	A	C	24
2 55	2 45	2 60	A	2 90	3 15	3 30	3 25	3 35	3 45	3 10	A	25
2 60	2 50	2 70	2 65	A	2 90	3 15	3 25	3 40 _{US}	3 35	3 20	2 90	26
2 50	2 60	2 60	2 70	2 75	3 00	3 15	3 25	3 25	3 40 _{JS}	3 35	F	27
2 45 _{it}	2 50	2 50	2 15	2 70	3 05	3 30	3 25	3 15	2 95	F	F	28
2 65	2 65	2 65	2 70	2 80	3 00	3 10	3 20	3 35	F	F	3 30 _{UF}	29
2 45	2 45	2 70	2 80	2 80	2 90	3 00	3 30	3 50 _{JS}	3 40	3 15 _{UF}	3 30 _{UF}	30
2 60	2 70	2 70	2 85	3 10	3 35	3 20	3 20	3 20	3 15	3 30 _{UF}	3 40	31
31	29	31	29	28	29	30	29	28	23	21	12	Count
2 60	2 60	2 60	2 70	2 90	3 00	3 25	3 30	3 35	3 30	3 15	3 10	Median
2 60	2 60	2 65	2 75	2 85	3 05	3 25	3 30	3 35	3 25	3 15	3 05	Mean

Sweep 1.0 Mc. to 25.0 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month August, 1963

TABLE 35
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	4 0 ^{UF}	3 2	A	A	A	A	C	C	6 9	6 6	6 4	6 6
2	5 3 ^{US}	4 1	3 9	3 2 ^{US}	2 4	2 2	4 6	6 5	7 3	7 0	7 1	7 3
3	4 4	3 7 ^{US}	F	F	R	E	4 8	6 6	7 1	6 0	5 7	6 1
4	R	S	A	A	A	E	4 2	C	C	C	C	C
5	S	2 3	1 9	S	1 5 ^{US}	1 4 ^{UR}	4 6	6 5	7 2	7 3	7 2	7 2
6	3 3	2 6	2 2 ^F	S	S	1 5	4 4	6 0	6 1	6 0	6 0	6 3
7	2 1	1 8	S	S	S	E	4 5	6 9	8 1	7 2	6 1	7 0
8	A	A	A	A	A	E	4 2	6 8	7 9	7 8	6 6	6 9
9	A	E	A	E	E	E	4 2	6 6	7 2	7 0	6 5	7 0
10	2 6	2 0	F	S	E	E	4 5	6 5	7 3	7 4	6 5	7 0
11	S	A	S	A	A	E	4 6	6 7	7 0	C	C	C
12	F	S	C	S	S	E	4 2	6 1	7 1	7 0	6 7	7 1
13	A	2 6	A	A	A	E	4 3 ^s	6 5	6 8	6 0 ^s	6 0	5 9
14	1 7 ^F	F	A	A	E	E	4 1	6 0	6 2 ^{xt}	6 2 ^{js}	6 0	6 3
15	F	FS	2 5 ^F	A	S	E	4 5	6 3	7 4	7 3	6 6	6 2
16	F	F	F	F	F	E	4 6	6 1 ^s	6 8	7 8	7 9 ^H	C
17	F	F	S	S	E	E	4 2	6 2	6 9	6 8	6 4	6 6
18	3 8 ^R	2 6 ^r	2 2	2 2 ^R	F	E	4 2	6 0	6 4	6 9	6 9	7 1
19	4 4 ^s	3 8 ^{US}	3 2 ^{US}	2 6 ^{FS}	2 4	2 8	4 2	6 0	7 4	7 5	7 4	7 5
20	F	F	2 5 ^F	S	E	E	4 7	6 8	8 0	9 5	8 9	9 6 ^H
21	F	F	3 4	2 6	E	A	4 6	6 6	7 8	7 0	7 1	6 9
22	4 4	3 4	2 8	1 7	E	E	4 6	6 9	7 6	7 0	6 8	7 0
23	5 0	3 9	3 0	2 5 ^F	E	E	4 5	6 5	7 5 ^s	8 2 ^H	7 2	6 9
24	S	3 4	2 3	1 9 ^s	S	E	4 5	7 0	8 0	8 7	8 8	7 8
25	5 2	4 3	3 4	3 0	2 4	E	4 9	7 0	7 8	7 8	7 0	7 0
26	4 5	3 7	2 7	2 3	1 8 ^R	E	4 8	C	7 2 ^s	7 1	6 4	6 6
27	2 5	F	C	2 3	A	E	4 8	6 5	7 4	6 7	6 4	6 4
28	3 6	2 7	2 4	2 1	1 9	R	4 5	6 4	7 3	6 9	6 7	C
29	4 4	3 8 ^s	2 8	2 9	2 5	1 6	4 4	6 2	6 0	C	6 9	7 2
30	3 2	3 4	2 7	2 1	E	E	4 7	6 7	7 7	8 5	8 6	8 5
31	F	F	F	F	F	S	4 6	7 3	8 3	7 7 ^H	6 7	6 7
Count	17	19	16	14	16	27	30	28	30	28	29	27
Median	4 0	3 4	2 7	2 4	E	E	4 5	6 5	7 3	7 0	6 7	7 0
Mean	3 8	3 2	2 7	2 4	2 1	1 9	4 5	6 5	7 3	7 2	6 9	7 0

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₂
Unit: Mc
Month August, 1963

TABLE 35
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
6 9	7 2	7 6	7 7	8 0	8 0	8 8	8 6	8 6	7 6	7 6	6 5	1
7 4	7 7	8 4	9 0	9 2	9 1	9 2	9 0	8 8	7 9	6 2	5 4	2
6 7	6 6	7 0	7 8	8 5	9 4	9 8	6 4	4 6	3 2	2 4	A	3
C	C	7 0	7 6	8 4	8 1	8 3	7 8	7 6	6 6	4 9 _{US}	4 0	4
7 7	7 4	7 5	7 5	8 3	9 0	9 8	9 0	8 2	6 2	4 6	4 1	5
6 6	6 1	6 5	6 8	7 4	7 8	8 6	8 4	8 1	6 5	4 3	2 7	6
7 3	7 7	8 0	8 4	9 4	10 0	11 6	8 3	5 8	4 3	3 1	R	7
7 0	7 1	7 4	7 6	7 9	8 6	9 2	9 4	4 9 _{US}	3 2	2 7	2 2	8
7 4	6 9	7 8	8 0	7 7	8 4	9 1	9 0	8 1	6 1	4 2	3 0 _R	9
6 8	7 6	8 4	8 2	8 2	8 5	9 0	9 0	4 9	3 9	3 0	A	10
C	C	C	6 2 _H	6 4	6 7	7 6	7 4	5 7	4 6	3 8 _F	F	11
7 2	7 6	7 6	7 6	7 5 _H	7 8	8 8	8 4	5 6	4 3	3 1	C	12
6 2 _{JS}	6 0	5 9	6 4	7 0	7 8	9 0	7 2 _{US}	4 7	3 7	2 7 _{UR}	1 9	13
6 3	6 4	6 9 _{UC}	A	8 3	8 5	8 8	8 4	6 5	5 8	4 6	F	14
6 0	5 9 _H	5 8 _H	6 5	7 4	8 2	8 6	8 7	5 8	4 6	3 6	3 2	15
7 2	8 0	8 5	8 0	8 4	9 4	9 4	8 0	6 5	5 5	F	F	16
6 3	7 0	7 6	7 8	8 0	9 3	9 7 _{US}	8 5	6 9 _{US}	5 4 _F	4 9 _{US}	A	17
7 5	A	9 5	9 4	8 5	9 1	9 6 _{US}	9 7 _{US}	8 5	8 2	7 6 _{US}	5 3 _{US}	18
7 8	8 0	8 7	9 4	9 2	8 8	8 6	7 6	7 5	7 2	F	F	19
9 6 _H	10 0	11 2	11 4	11 0	11 3	11 3	11 0	8 8	7 0	5 7	4 6	20
7 2	7 6	8 0	8 4	9 2	9 2	9 0	9 0	7 7	8 8	6 9	6 1 _{JS}	21
7 3	7 0	7 4	7 9	8 3	8 6	8 7	7 8	7 7	7 4	7 0	6 2 _{JS}	22
7 3	7 2	7 4	7 8	8 0	9 0	8 7	8 6	7 7	6 6	4 6	3 7 _{US}	23
7 0	6 8	7 2	7 8	8 0	8 0	8 0	8 4	8 4	8 0	7 7	6 1 _{US}	24
6 8 _H	6 6	7 1	8 0	8 6	8 9	8 7	8 4	10 0	8 6	6 0	5 0	25
6 8	7 3	7 8	8 6	9 6	9 1	8 6	9 0	9 1	6 6	5 6	4 2	26
6 6	6 8	7 2	7 6	8 4	8 5	8 5	7 9	8 0	7 2	6 1	5 3	27
7 3	7 6	7 1	7 3	7 6	C	8 7	9 5	7 7	5 8	5 4	4 8	28
7 6	7 9	8 4	C	8 7	9 7	10 1	9 3	7 3	6 1 _S	4 8	4 0	29
8 4	8 6	9 0	9 8	10 3	10 1	10 9	7 5	6 7	6 2 _S	5 4 _{UF}	F	30
7 0	7 2	7 8	8 5	10 0	11 0	9 5	8 4	7 7	7 1	8 0	6 4	31
29	28	30	29	31	30	31	31	31	31	29	21	Count
7 2	7 2	7 6	7 8	8 3	8 8	9 0	8 4	7 7	6 2	4 9	4 6	Median
7 1	7 3	7 7	8 0	8 4	8 9	9 2	8 5	7 2	6 1	5 1	4 5	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month August, 1963

TABLE 35—Contd
Ionospheric Data
75°E Mean Time

Latitude 10·2° N.
Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	F	2 6 _{UR}	A	A	A	C	C	6 9	6 6 _H	6 4	6 6	6 8
2	4 8	4 0	3 9	2 7	2 6	3 3	5 8	7 1	7 2	7 0	7 0	7 2
3	4 2	F	3 1 _{UF}	F	1 7 _{US}	2 9	6 0	7 2	6 7	5 6	6 2	6 5
4	1 9	S	A	A	A	2 7 _F	5 4	C	C	C	C	C
5	3 2	2 0	1 8	S	E	2 8	5 8	6 9	7 5	7 0	7 2	7 3
6	A	2 4 _F	1 8 _{US}	S	1 6	2 8	5 2	6 1	6 0	5 8	6 0	6 3
7	1 9	F	F	C	E	2 6	5 9	8 0	7 7	6 7 _H	6 8	7 2
8	A	A	A	S	S	2 4	5 8	7 7	7 9	7 2	6 5	7 0
9	E	A	A	E	E	2 4	5 5	7 2	7 0	6 3	6 6	7 0
10	2 1	F	F	S	R	2 6	5 8	7 2	7 4	7 0	6 4	7 0
11	A	A	S	A	A	2 7	6 2	6 8	7 2	C	C	C
12	F	S	S	A	E	2 6	5 0 _{JS}	6 7	7 4	6 7	6 9	7 5
13	2 7 _{US}	2 5	A	A	1 6 _{UF}	2 5	5 6	6 7	6 2 _{JS}	5 9	5 8	6 0
14	1 7 _F	F	A	A	E	2 4	5 4	6 0	6 2 _{JS}	5 8	6 1	6 4
15	F	F	F	S	E	2 5	5 6	6 7	7 6	7 2	6 4	6 1
16	F	2 4 _{US}	F	F	F	2 7 _F	5 8	6 5	7 3	8 0	7 5 _H	C
17	F	S	S	S	E	2 5	5 6	6 7	6 7	6 6	6 3	6 3
18	2 9	2 4 _F	2 2 _{JR}	2 3	E	2 6	5 4	6 4	6 7	6 6 _H	7 0	7 4
19	4 0	3 6 _{US}	2 6 _{US}	F	2 6	3 1	5 3 _s	7 0	7 6	7 6	7 5	7 6
20	F	3 0 _F	F	S	E	2 8	6 1	7 2	9 3	9 0	9 5	9 5 _H
21	4 0 _{US}	E	A	A	E	2 6	5 6	7 3	7 8	7 0	7 2	6 9
22	3 9	3 1	2 4	E	E	2 6	6 2	7 5	7 0	6 9	6 9	7 1
23	4 4	3 7 _{US}	2 8 _F	E	E	2 6	6 0	7 0	8 0 _H	7 6	6 9	7 0
24	3 5	2 9	1 9	S	E	2 7	5 9	7 8	8 6	8 8	8 4	7 6
25	4 6	3 7	3 2	2 8	2 0	2 7	6 0	7 4	8 0	7 2	7 3	7 0
26	4 1	3 2	2 4	2 0	1 5 _R	2 6	C	6 7	7 5	6 5	6 6	6 9
27	F	C	F	R	E	2 8	6 0 _s	7 2	7 4	6 6	6 1	6 5
28	2 9	2 5 _F	2 2	2 0	2 0	2 5	5 6	7 0	7 1	6 6	C	7 4
29	4 1	3 2	2 9	2 8	1 8	2 5	5 7	6 4	6 3	6 5	7 1	7 3
30	3 4	3 0	2 3	1 7 _{UR}	E	3 1	5 8	7 4	8 1	8 4	8 7	8 4
31	2 5 _{UF}	F	F	F	F	2 8	6 0	7 9	8 4	7 0	6 5	6 9
Count	21	17	14	10	24	30	29	30	30	29	28	28
Median	3 4	3 0	2 4	2 0	E	2 6	5 8	7 0	7 4	6 9	6 8	7 0
Mean	3 3	3 0	2 5	2 3	1 9	2 7	5 7	7 0	7 3	6 9	6 9	7 1

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month August, 1963

TABLE 35—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5°E.

Time	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
7 2	7 4	7 5	7 9	8 0	8 4	8 6	8 5	8 2	7 6	7 7	5 9	1
7 4	8 1	8 8	9 0	9 0	9 4	9 1	9 0	8 8	6 6	5 7	4 7	2
6 8	6 7	7 4	8 2	8 9	9 7	8 3	5 6	3 8	2 5	? 3UR	2 3UR	3
C	6 6	7 1	8 0	8 2	8 6	7 8	7 8	6 8	5 9	4 4	4 0	4
7	7 6	7 5	7 8	8 6	9 7	9 7	8 4	7 2US	5 3	4 4	3 7	5
6 1	6 4	6 6	7 0	7 8	8 2	8 8	8 1	7 4	5 4	3 6	2 3	6
7 6	7 6	7 9	8 9	9 8	10 4	10 7	6 8	5 1US	3 6	2 4	A	7
7 0	7 2	7 4	7 9	8 0	8 6	9 2	6 6	3 8	2 9	2 5	S	8
7 2	7 2	8 2	7 9	8 0	8 6	8 9	8 6	7 5	5 3	3 5	2 8	9
7 3	7 8	8 6	8 2	7 9	8 7	9 8	6 6	4 4	3 4	2 5	A	10
C	C	C	6 7	6 5	6 9	8 4	6 6	5 1	4 4F	F	F	11
7 5	8 0	7 6	7 5H	7 6	8 3	9 4	6 3	4 9	3 8	2 5JR	2 6	12
6 2JS	6 0	6 2H	6 6	7 3	8 2	8 6	5 8	4 4	3 2	2 2UR	1 8R	13
6 4	6 5	A	7 5	8 6	8 4	8 8	7 6	6 4	5 2	F	F	14
6 2	5 8H	6 0	7 0	7 6	8 4	9 0	6 5	5 6	4 0	R	F	15
7 6	8 3	8 0	8 2	9 0	9 2	9 0	7 2	6 0	F	F	F	16
6 7	7 6	7 8	8 0	8 5	9 5	9 2	7 8	5 8F	5 3US	4 5US	3 8R	17
7 8	8 9	9 7	8 6	8 8	9 4	9 5s	8 8	8 2	7 7	6 8s	4 6s	18
8 0	8 2	9 0	9 3	9 0	8 8	8 2H	7 7	7 4	F	F	F	19
9 8	10 6	11 5	11 2	10 7	11 3	11 3	10 4	8 0	6 0s	5 2	4 2	20
7 5	7 8	8 2	9 0	9 1	9 0	9 6	8 0	8 4	8 4	6 4	5 6US	21
7 0	7 1	7 8	8 0	8 4	8 6	8 4	7 6	7 7	7 2	6 7	5 8	22
7 3	7 2	7 7	8 0	8 6	9 2	8 8	8 0	7 2	6 0	3 7	3 7	23
6 9	7 2	7 4	8 0	8 2	7 8	8 2	8 6	8 1	8 1	7 0	5 8	24
6 5H	6 8	7 6	8 3	8 8	9 1	8 1	9 4	10 1	7 0	5 3US	4 9	25
6 7	7 6	8 1	9 1	9 2	9 0	8 7	9 4	7 4	6 1	4 7	F	26
6 7	7 0	7 2	7 9	8 4	8 4	8 4	7 8	7 7	6 8	5 8	4 5	27
7 6	7 6	7 2	7 4	C	8 3	9 3	9 2	6 5	5 4	4 8	4 6	28
7 8	8 3	C	8 7	9 2	9 6	9 6	8 3	6 8	5 3s	4 3s	3 4UF	29
8 4	9 1	9 2	C	9 9	10 9	9 1	6 9	6 4US	F	4 5US	3 1US	30
7 0	7 5	8 2	9 5	10 3	10 0	9 0	8 3	7 1	7 8	7 1US	5 6US	31
29	30	28	30	30	31	31	31	31	28	26	22	Count
7 2	7 6	7 8	8 0	8 6	8 8	9 0	7 8	7 0	5 4	4 5	4 1	Median
7 2	7 5	7 9	8 2	8 6	9 0	9 0	7 8	6 7	5 6	4 6	4 1	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF1
Unit Mc
Month August, 1963

TABLE 36
Ionospheric Data
75°E Mean Time

Latitude 10 2° N.
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1									L	4 6	4 6	4 5
2									L	4 4	4 6	4 5
3								L	L	4 4	4 6	4 6
4								C	C	C	C	C
5								L	L	L	4 5	4 6
6								L	L	4 4	4 5	4 5
7								L	L	L	4 6	4 5
8								L	L	L	L	4 4
9									L	L	4 4	4 4
10								L	L	4 4	4 4	4 4
11								L	L	C	C	C
12								L	4 2	4 2	4 4	4 4
13								L	L	4 3	4 3	4 4
14								L	L	L	4 2	4 2
15								L	4 1	4 3	4 4	4 4
16									4 4	4 3	4 4	C
17									L	4 2	4 5	4 5
18								L	4 2	4 4	4 6	4 5
19							L	L	4 2	4 4	4 6	4 6
20							L	L	4 4	4 4	L	L
21							L	L	4 2	4 4	4 4	4 5
22							L	L	4 3	4 2	4 5	4 5
23							L	L	4 4	4 4	4 4	4 6
24							L	L	4 3	4 5	4 4	4 5
25							L	L	4 4	4 5	4 5	4 5
26							L	C	L	4 5	4 5	4 6
27							L	L	4 2	L	4 5	4 7
28							L	L	L	L	4 5	C
29							L	L	L	C	4 5	4 6
30							L	L	L	L	4 6	4 6
31								L	L	L	4 5	4 6
Count									12	19	27	26
Median									4 2	4 4	4 5	4 5
Mean									4 3	4 4	4 5	4 5

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF1

TABLE 36

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
4 5	4 5	4 6	L	L								1
4 7	A	A	A	A	A							2
4 6	4 5	4 6	4 4	A	L							3
C	C	4 4	4 5	L	A							4
4 6	4 6	4 4	L	A	L							5
4 5	4 4	4 6	4 4	L	L							6
4 6	4 5	4 4	4 4	L	L							7
4 5	A	4 3	A	A	L							8
4 4	4 5	A	L	A	A							9
4 4	A	4 3	L	4 0	L							10
C	C	C	4 2	I	L							11
4 4	A	L	4 2	L								12
4 4	4 4	4 3	4 3	I								13
4 2	A	A	A	4 0	L							14
4 4	4 7	4 3	4 2	A	A							15
4 4	A	4 4	4 3	4 2	3 6							16
4 5	4 5	4 5r	LR									17
4 6	A	4 4	4 3	4 3								18
4 6	4 6	A	A	L	L							19
4 7	L	4 5	L	L	L							20
L	4 5	4 4	L	A	L	L						21
4 5	L	L	L	L	L	L						22
4 6	4 5	L	4 3	A	L	L						23
4 6	4 5	4 5	4 5	L	L	L						24
4 5	4 4	4 4	L	L	L	L						25
4 6	4 6	4 4	4 4	L	L							26
4 6	4 6	4 5	L	L	L							27
4 6	L	L	L	L	L	C						28
4 5	L	L	C	L	A							29
4 6	4 5	L	L	L								30
4 5	4 7H	A	L	L	L							31
28	18	19	13	5	1							Count
4 5	4 5	4 4	4 3	4 1	.							Median
4 5	4 5	4 4	4 3	4 2								Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF1

TABLE 36—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1								L	L	4 6	4 5	4 5
2								L	4 6	4 6	4 6	4 6
3								L	I	L	4 6	4 6
4								C	C	C	C	C
5							L	L	4 4	4 6	4 5	4 6
6							L	L	L	4 4	4 5	4 5
7							L	4 0	4 4	4 5	4 5	4 6
8							L	3 8	4 3	4 4	4 5	4 5
9								L	4 2	4 5	4 4	4 4
10								L	4 4	4 4	4 5	4 4
11							L	L	L	C	C	C
12								L	L	4 4	4 5	4 4
13								L	L	4 3	4 4	4 4
14								4 2	4 2	4 5	4 2	4 2
15								4 2	4 2	4 4	4 4	4 4
16								4 2	4 3	4 4	4 4	C
17								3 6 ^{us}	L	4 4	4 5	4 5
18							L	4 2	4 4	4 4	4 6	4 6
19							L	L	4 4	4 5	4 5	4 6
20							L	L	4 3	4 4	L	4 6
21							L	4 4	4 3	4 4	4 5	4 4
22							L	L	L	4 4	4 5	4 6
23							L	L	4 4	4 4	4 5	4 6
24							L	L	4 4	4 5	4 5	4 6
25							L	L	4 4	4 4	4 5	4 4
26							C	L	L	4 5	4 5	4 5
27							L	L	L	L	4 6	4 6
28							L	L	L	4 5	C	4 5
29							L	L	4 4	4 5	4 5	4 5
30							L	L	L	L	4 6	4 6
31							L	L	L	4 5	4 6	4 5
Count								8	17	26	27	28
Median							.	4 2	4 4	4 4	4 5	4 5
Mean								4 1	4 4	4 5	4 5	4 5

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF1

TABLE 36—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E.

Month August, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
4 5	L	4 5	L	L								1
4 5	A	A	A	A								2
4.6	4 5	4 4	A	L								3
C	4 6	4 4	L	L	L							4
4 5	4 6	4 4	A	L	L							5
4 4	4 5	4 5	4 3	L								6
4 5	4 4	L	A	L	L							7
4 5	4 4	A	A	L								8
4 4	4 4	A	A	L								9
4 4	A	4 3	4 4	L	L							10
C	C	C	4 2	L	L							11
A	4 4	4 4	4 0	L								12
4 4	4 4	4 3	4 2	L								13
4.2	A	A	L	L								14
4 4	4 6	4 2	A	A	L							15
4 5	A	4 4	4 2	3 8								16
4 5	L	4 4	4 2	4 0UR								17
A	A	4 3	4 2	L								18
4 6	4 5	A	L	L	L							19
L	L	L	L	L	L							20
4 6	4 5	L	L	A	L							21
4 5	4 5	4 4	L	L	L							22
4 6	4 6	L	L	A	L							23
4 5	4 5	4 4	L	L	L							24
4 4	4 4	4 3	L	L	L							25
L	4 6	4 4	L	L								26
4.5	4 5	L	L	L								27
4 5	L	B	L	C								28
4 5	4 5	C	L	A								29
4 5	4 6	L	C	L								30
4 5	A	L	L	L								31
25	20	16	8	2								Count
4.5	4 5	4 4	4 2									Median
4 5	4 5	4 4	4 2									Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month August, 1963

TABLE 37
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								C	A	A	A	A
2							1 6	A	A	A	A	A
3							1 5	A	A	A	A	A
4								C	C	C	C	C
5							1 6	A	A	A	A	A
6							F	A	A	A	A	A
7							R	2 4	A	A	A	A
8								A	A	A	A	A
9							1 5 _{UR}	A	A	A	A	A
10							1 7	2 6 _H	A	A	A	A
11							R	2 6	A	C	C	C
12								A	A	A	A	A
13							R	A	A	A	A	A
14							A	A	A	A	A	A
15								A	A	A	A	A
16								2 6 _H	2 9	A	A	C
17								2 7 _H	2 9 _{UR}	A	A	A
18							1 7 _H	A	A	A	A	A
19								A	A	A	A	A
20								A	A	A	A	A
21								A	A	A	A	A
22								A	A	A	A	A
23								2 2	A	A	A	A
24								2 6 _R	3 0 _R	A	A	A
25								R	A	A	A	A
26							R	C	A	A	A	A
27							R	A	A	A	A	A
28							R	A	A	A	A	C
29								A	A	C	A	A
30								2 4	A	A	A	A
31								A	A	A	A	A
Count							6	8	3			
Median							1 6	2 6				
Mean							1 6	2 5				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month August, 1963

TABLE 37
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
3 6	A	A	A	A	A							2
A	A	3 5	A	A	A							3
C	C	A	A	A	A							4
A	A	A	A	A	A							5
A	A	A	A	A	A							6
A	A	A	B	A	2 3							7
A	A	A	A	B								8
A	A	A	A	A	A							9
A	A	A	A	2 8								10
C	C	C	A	A	2 6							11
A	A	B	3 2	A	A							12
A	A	A	A	A								13
A	A	A	A	A	R							14
A	A	A	A	A	A							15
A	A	A	B	A								16
A	A	A	A	A	A							17
A	A	A	B	B	R							18
A	A	A	A	A	A							19
A	A	A	A	A	A	A						20
A	A	A	A	A	A	A						21
A	A	A	A	A	A	A						22
A	A	A	A	A	A	A						23
A	A	A	A	A	A	A						24
A	A	A	A	A	A	A						25
A	A	A	A	B								26
A	A	A	A	R								27
A	A	B	A	A								28
A	A	A	C	A								29
A	A	B	A	A								30
A	A	A	A	A								31
1		1	1	1								Count
.		.										Median
												Mean

Sweep 1 0 Mc to 25.0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month August, 1963

TABLE 37—Contd
Ionospheric Data
75°E Mean Time

Latitude 10°2' N.
Longitude 77°5' E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							C	A	A	A	A	A
2							1 8	A	A	A	A	A
3							2 0	A	A	A	A	A
4							A	C	C	C	G	C
5							2 0 _{II}	A	A	A	A	A
6							A	A	A	A	A	A
7							2 0	A	A	A	A	A
8							A	A	A	A	A	A
9							A	A	A	A	A	A
10							2 2	A	A	A	A	A
11							2 3 _{II}	A	A	C	C	C
12							2 3 _H	A	A	A	A	A
13							2 3	A	A	A	A	A
14							A	A	A	A	A	A
15							2 1	A	A	A	A	A
16							2 1 _R	2 6	3 1	A	A	C
17							2 3	3 0 _H	A	A	A	A
18							A	A	A	A	A	A
19							A	A	A	A	A	A
20							2 3 _{II}	A	A	A	A	A
21								A	A	A	A	A
22							A	A	A	A	A	A
23								A	A	A	A	A
24							R	2 9 _R	R	A	A	A
25							R	A	A	A	A	A
26							C	1 9 _H	A	A	A	A
27						A	A	A	A	A	A	A
28							A	A	A	A	C	A
29							R	A	A	A	A	A
30							2 1	2 8	A	A	A	A
31							A	A	A	A	A	A
Count							13	5	1			
Median							2 1	2 8				
Mean							2 1	2 6				

Sweep 10 Mc to 25 0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month August, 1963

TABLE 37—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N.
Longitude 77 5° E.

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A								1
A	A	A	A	A	A							2
A	A	A	A	A	A							3
C	A	A	A	A	A							4
A	A	A	A	B								5
A	A	A	3 0	A								6
A	A	3 4	A	2 6								7
A	A	A	A	B								8
A	A	A	A	A	A							9
A	A	A	3 0									10
C	C	C	A	A	3 2							11
A	A	A	B	A	A							12
A	A	A	R	A								13
A	A	A	A	A								14
A	A	A	A	A	A							15
A	A	A	A	A								16
A	A	A	A	A	A							17
A	A	A	B	B	R							18
A	A	A	A	A	A							19
A	A	A	A	A	A							20
A	A	A	A	A	A							21
A	A	A	A	A	A							22
A	A	A	A	A	A							23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	R	B								26
A	A	A	A	R								27
A	B	B	A	C								28
A	A	C	A	A								29
A	A	B	C	A								30
A	A	A	A	A								31
		1	2	1	1							Count
									Median
		..										Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foEs
Unit Mc
Month August, 1963

TABLE 38
Ionospheric Data
75°E Mean Time

Latitude 10 2' N
Longitude 77 5' E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1			7 4	10 6	7 0			C	8 7	9 4	10 2	10 8
2							1 8	7 0	9 2	9 6	9 8	9 6
3			3 8us	S			G	5 8	9 2	9 4	10 2	11 2
4			11 0	7 6	3 4		2 4	C	C	C	C	C
5		3 0					G	6 4	8 8	9 6	11 2	11 4
6	5 6	3 2	S	2 8			G	7 0	9 0	9 8	9 8	10 0
7							4 8	G	5 6	10 2	10 6	9 0
8	3 8	4 2	3 4	4 6	S		2 5	9 0	7 8	9 2	9 2	10 6
9	6 4		4 6				G	6 4	7 5	8 6	9 8	8 8
10			4 0	2 0	8 2		G	4 6	7 0	9 4	9 0	9 4
11		5 0us		4 4	8 7		G	G	8 6	C	C	C
12			C				4 2	7 8	9 8	9 8	9 2	10 0
13	4 6		6 8	S	S		G	6 0	8 6	9 4	9 6	9 6
14			3 0	4 4			4 4	8 6	9 4	9 2	10 0	9 2
15	2 2			6 8					7 6	8 2	9 6	9 4
16			6 3	S				G	G	8 0	9 3	C
17								6 6	9 6	10 2	12 0	10 8
18							G	6 6s	8 6	11 6	9 6	9 0
19					S			6 4	8 4	8 4	9 4	8 6
20	9 45s	S	S					6 0	6 4	9 0	16 4	7 4
21								8 0	9 8	9 6	10 8	12 2
22								6 6	8 6	9 1	8 8	8 3
23								G	8 6	9 2	9 1	9 8
24								G	G	8 6	9 3	9 6
25								G	8 9	9 6	9 8	10 8
26							G	C	9 6	10 8	10 7	10 8
27			C		S		G	9 0	9 0	10 0	10 0	10 0
28							G	6 6	9 0	8 9	9 2	C
29								6 8	S	C	10 0	10 0
30								G	6 4	8 6	9 0	8 5
31			2 8us					S	8 0	8 8	8 7	9 8
Count	6	4	10	8	4	—	17	26	29	28	29	27
Median	5 1	—	4 3	4 5	—	—	G	6 4	8 6	9 4	9 8	9 8
Mean	5 3	—	5 3	5 4	—	—	3 4	6 9	8 2	9 4	10 0	9 8

Sweep 10 Mc to 25 0 Mc in 27 seconds

Characteristic foEs
Unit Mc
Month August, 1963

TABLE 38
Ionospheric Data
75°E Mean Time

Latitude. 10 2° N.
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
9 8	9 4	9 2	8 1	7 8	4 6		3 6	3 4	3 4	3 4	6 0	1
6 8	12 0	13 5	12 8	12 8	12 4	7 8	3 2	5 6	2 2	5 6	1 6	2
10 8	10 8	8 0	8 0	9 8	6 2	4 7						3
C	C	10 6	8 5	8 4	10 0							4
11 0	10 0	9 6	9 6	9 5	3 9	2 6					3 0	5
10 0	9 6	10 0	8 0	8 0	11 6							6
8 8	9 0	8 2	G	5 4	G							7
9 4	8 8	8 6	7 8	8 2	2 1							8
8 8	8 4	10 0	7 4	8 7	5 0	3 6	2 9					9
8 2	10 8	12 2	5 7	G	2 7		5 6				7 0	10
G	C	C	12 0	8 4	G							11
12 2	13 4	B	7 0	9 6	9 0	7 6	8 0					12
8 8	8 0	8 4	6 4	7 0								13
9 6	12 4	21 0	17 4	6 6	G						1 9	14
9 4	9 0	9 2	8 0	9 8	12 0	8 6	6 8	2 3				15
11 0	13 8	9 6	B	5 8	2 7	4 6	2 9		2 0			16
10 8	9 4	9 0	9 2	8 0	8 0	9 2	2 5				6 2s	17
13 4	21 0	13 2	B	B	G							18
9 0	9 2	12 2	15 4	8 6	S						S	19
7 8	12 4	9 4	8 4	6 2	6 0						2 7s	20
9 8	10 6	9 4	8 2	9 2	6 2	8 1	8 6					21
9 3	10 1	9 4	9 8	7 6	8 4	7 4	4 2	4 6				22
8 8	9 6	9 4	8 2	12 2	5 3						S	23
10 8	9 8	9 8	8 2	8 0	3 0	6 6	6 9	6 3				24
11 1	11 0	9 8	9 4	7 0	8 4	4 5	3 0					25
11 2	10 3	10 4	9 6	G			3 2		2 5	S	S	26
11 0	11 0	9 8	9 8	G								27
11 0	10 5	9 0	8 6	6 0	C		4 8					28
10 6	9 4	8 2	C	9 1	8 0		3 2					29
8 3	7 0	B	6 1	4 4	4 0	4 2	3 8					30
9 4	8 3	10 2	8 2	6 0		2 6						31
29	29	28	28	30	25	14	16	5	4	2	7	Count
9 8	10 0	9 6	8 3	8 0	5 3	5 6	3 7	4 6	—	—	3 0	Median
9 9	10 5	10 3	9 1	8 1	6 6	5 9	4 6	4 4	—	—	4 1	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic foEs
Unit Mc
Month August, 1963

TABLE 38—*Contd*
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1		5 8	9 0	6 2	6 2		C	8 8	10 0	9 8	9 8	10 0
2	S						4 2	8 8	8 9	10 8	9 8	8 2
3		2 0 _{us}	2 9				4 6	8 4	9 6	9 8	10 6	11 2
4			9 0	S	S		6 0	C	C	C	C	C
5							G	6 6	9 2	10 8	10 4	10 6
6	S	6 0	3 0				4 8	8 4	9 0	9 8	10 6	10 6
7				C			G	4 0	9 0	10 8	9 8	9 4
8	3 8	4 2	3 8				5 0	6 6	9 8	9 7	9 6	9 6
9		2 6	4 4				4 8	7 8	8 6	8 4	9 4	8 4
10		2 5	2 0		8 2		G	5 8	9 2	9 3	8 6	8 8
11	S	3 0		6 8 _s	S		G	6 8	8 6	C	C	C
12				4 6			G	9 2	9 8	9 8	9 2	10 4
13	4 2	3 2	3 2	S			4 8 _s	7 2	9 4	9 2	9 2	9 2
14		1 9	4 2	3 8			8 0	8 2	9 0	9 8	10 0	9 4
15								6 4	8 0	9 0	9 6	9 2
16			S				G	G	6 0	9 3	8 2	C
17							G	8 6	9 8	11 0	11 0	10 8
18	4 2						S	8 0	10 4	9 2	12 4	16 0
19				S			S	8 2	9 0	9 6	9 2	8 6
20	10 0 _s	S	S				G	6 4	7 6	7 6	10 2	6 0
21								7 2	9 1	9 6	11 8	10 6
22							3 0	8 6	9 5	10 2	10 0	9 4
23								4 0	10 9	9 4	9 8	9 0
24							G	G	G	10 3	10 2	10 6
25							G	7 4	9 4	9 6	9 4	10 6
26							C	G	10 6	10 8	11 1	11 1
27		C		S		S	7 0 _{us}	8 0	10 0	11 0	11 0	11 0
28			S				6 0 _s	8 8	8 8	9 1	C	11 0
29							G	3 4	8 6	9 6	9 8	10 6
30							G	G	8 0	9 0	9 0	8 4
31		3 7 _{us}	3 0				S	6 0	8 6	8 0	9 2	9 4
Count	4	10	10	5	1		23	30	30	29	28	28
Median		3 1	3 5	6 2			G	7 2	9 0	9 6	9 8	9 8
Mean		3 5	4 4	5 9			5 3	7 2	9 1	9 7	10 0	9 9

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic foEs
Unit Mc.
Month August, 1963

TABLE 38—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
10 2	8 4	8 6	8 0	6 1	3 8		3 0	2 8		3 4		1
10 6	13 4	16 4	10 2	11 8	7 6	6 6	4 6	4 6	5 6	4 6		2
11 0	9 6	6 7	9 8	7 6	6 0	2 6						3
C	10 4	8 4	6 4	8 2	5 6							4
9 6	9 8	8 7	12 6	G	3 8						4 6	5
10 4	9 8	9 8	6 8	7 0	7 2							6
10 0	9 8	8 4	11 1	G							7 4us	7
9 8	9 0	9 0	8 4	G							6 8	8
7 8	8 4	9 4	7 6	6 2	5 7	3 4						9
8 0	17 4	5 6	G		2 9	5 8	4 6	6 4		9 2	4 6s	10
C	C	C	8 4	7 4	G					1 9	2 0	11
12 4	16 0	6 8	6 2	6 0	9 4	10 0						12
8 8	8 0	6 4	G	7 2								13
9 4	19 0	18 0	10 0	3 6						2 4		14
9 2	9 6	8 2	9 2	9 6	11 2	8 2	3 1					15
11 0	12 8	8 2	6 0	6 0	4 6s	4 6s	2-6	2 3				16
10 4	9 0	9 8	6 6	8 0	9 6	3 1				4 4		17
12 0	12 0	9 4	B	B	G							18
9 6	9 2	15 0	10 4	8 0	2 8					S	6 8s	19
10 0	10 4	8 2	6 0	6 0	2 6					2 9		20
9 8	9 8	9 2	7 6	7 8	8 2	8 5	8 4					21
9 8	9 8	9 0	8 1	8 0	6 2	6 3	9 4					22
9 8	9 8	9 2	8 3	10 8								23
10 4	11 2	9 0	8 1	5 4	3 8	6 0	8 0					24
11.9	9 8	10 4	7 3	6 0	6 9	3 8						25
10 6	10 8	9 6	C	G						3 1s	3 1	26
10 8	9 7	9 4	8 0	G								27
9 8	8 8	B	6 0	C		4 6				1 7		28
9 2	9 8	C	7 2	9 6	3 2	3 9						29
8 0	5 8	S	C	5 7		3 1				S		30
9 0	11 8	7 6	5 0									31
29	30	27	29	27	21	15	8	4	1	9	7	Count
9 8	9 8	9 0	7 6	6 4	5 6	4 6	4 6			3 1	4 6	Median
10 0	10 6	9 4	8 1	7 4	5 8	5 4	5 5			3 7	5 0	Mean

Sweep 1 0 Mc. to 25.0 Mc. in 27 seconds

Characteristic f_oF₂
Unit Mc.
Month . August, 1963

TABLE 39—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2°N
Longitude 77 5°E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1			A	A	A		G	2.8	3.2	3.6	3.8	3.8
2	1.7	—					2.3	2.8	3.2	3.4	3.6	3.8
3		S	1.2				—	2.8	3.2	3.4	3.6	3.7
4			A	A	A		2.2	C	C	C	C	C
5							G	2.8	3.2	3.8	3.8	3.8
6	A	1.6	1.5				2.2	2.8	3.2	3.5	3.6	3.8
7				C			G	2.6	3.0	3.4	3.6	3.6
8	A	A	A				2.3	2.7	3.2	3.4	3.6	3.8
9		A	A				2.2	2.9	3.1	3.4	3.6	3.8
10		S	S	—			G	2.9	3.3	3.3	3.6	3.9
11	—	—		—			G	2.7	3.2	C	C	C
12				—			G	3.4	3.2	3.3	3.6	3.8
13	2.2s	1.8	—	—			2.3	2.8	3.2	3.4	3.5	3.7
14		1.3	—	—			2.6	2.8	3.1	3.4	3.6	3.7
15							G	2.8	3.1	3.4	3.5	3.6
16			1.7				G	G	3.2	3.4	3.6	C
17							G	3.0	3.1	3.5	3.6	3.9
18	—						2.2	2.8	3.2	3.6	3.8	4.0
19				1.7			2.2	2.8	3.3	3.6	3.8	3.6
20	1.9	1.8	—				G	2.7	3.1	3.6	3.7	3.8
21								2.8	3.2	3.4	3.6	3.6
22							2.3	2.8	3.1	3.4	3.6	3.8
23								2.8	3.4	3.4	3.6	3.7
24							G	G	G	3.6	3.6	3.7
25							G	2.8	3.1	3.6	3.4	3.6
26							C	—	3.2	3.5	3.7	3.8
27		C	—				2.2	2.8	3.1	3.5	3.6	3.7
28							2.3	2.7	3.1	3.5	C	3.8
29							—	2.7	3.1	3.5	3.6	3.7
30								—	3.4	3.5	3.7	3.7
31		1.9	2.2				2.2	2.8	3.2	3.5	3.7	3.6
Count	5	7	8	3	2	—	24	28	30	29	28	28
Median	2.2	1.8	A	—	—	—	2.2	2.8	3.2	3.5	3.6	3.8
Mean	—	1.7	—	—	—	—	2.3	2.8	3.2	3.5	3.6	3.7

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fbEs
Unit Mc
Month August, 1963

TABLE 39—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2°N.
Longitude 77 5°E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3.9	3.7	3.4	3.3	2.9	2.8		2.6	2.0		1.4		1
4.1	5.0	5.2	5.2	5.6	3.8	3.3	2.8	2.5	2.3	2.4		2
3.8	3.6	3.6	4.8	3.2	2.6	2.3						3
C	3.6	3.4	3.3	3.6	2.6							4
3.8	3.6	3.4	6.8	G	—						1.4	5
3.7	3.6	3.6	3.2	2.8	3.8							6
3.6	3.7	3.4	5.6	G							A	7
3.6	3.4	4.4	4.2	G							S	8
3.8	3.8	4.2	4.6	3.7	3.1	3.2						9
3.8	5.6	3.5	G		2.2	2.6	3.0	2.6		2.1		10
C	C	C	3.2	2.9	G							11
4.8	4.0	3.4	3.4	2.9	4.2	4.0						12
3.6	3.4	3.2	G	3.2								13
3.8	4.9	—	4.8	2.8						1.9		14
3.6	3.6	3.5	5.0	4.2	5.4s	4.4	.					15
3.9	5.6	3.3	3.3	2.8	2.6	2.5	2.0	2.0				16
3.7	5.0	4.0	3.8	4.0	3.8	2.2						17
5.0	5.0	3.8	B	B	G							18
3.7	3.8	7.2	4.4	2.9	2.3					S	1.7	19
5.0	5.2	4.0	—	2.9	2.3					1.8		20
3.6	3.6	3.4	3.4	4.0	3.3	5.2	4.8					21
3.8	3.6	3.4	3.4	3.6	2.6	3.6	2.8					22
3.7	3.6	3.4	3.4	6.0								23
3.6	3.6	3.5	3.2	2.8		3.0	2.8					24
3.8	3.8	3.6	3.2	3.1	3.0	2.4						25
3.8	3.7	3.4	—	—						1.5	1.5	26
3.7	3.6	3.4	3.2	—								27
3.9	B	B	3.3	C		3.0				1.6		28
3.7	3.6	C	3.2	4.4	2.7	3.0						29
3.7	3.8	—	C	2.9		2.4				1.5		30
3.6	5.5	3.5	3.1	—								31
29	29	26	27	25	19	15	7	4	1	8	4	Count
3.8	3.7	3.5	3.4	2.9	3.0	3.0	2.8		—	1.7	—	Median
3.9	4.1	3.8	3.9	3.5	3.1	3.1	3.0		—	1.8	—	Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic f_{min}

TABLE 40

Latitude 10° 2' N

Unit : Mc

Ionospheric Data

Longitude 77° 5' E.

Month August, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	1.8	1.9	1.8	1.1	1.5	E	C	G	1.9	2.3	2.6	2.8
2	1.6	1.8	1.2	1.7	1.4	1.4	1.4	1.5	1.9	2.2	2.5	2.8
3	1.9	1.6	E	E	1.3	E	1.4	1.4	1.8	2.3	2.4	3.0
4	1.4	S	1.6	1.6	2.2	E	1.0	C	C	C	C	C
5	1.2	1.2	1.3	S	1.1	E	1.3	1.5	1.9	2.3	2.5	2.7
6	1.4	1.1	1.1	1.3	S	1.1	1.2	1.4	1.9	2.2	2.5	2.7
7	1.0	S	S	1.6	S	E	1.3	1.4	1.9	2.3	2.5	2.6
8	1.4	1.2	1.0	1.0	1.0	E	1.3	1.4	1.9	2.3	2.5	2.8
9	1.7	E	1.0	E	E	E	1.4	1.7	1.9	2.2	2.5	2.5
10	1.4	1.1	E	S	E	E	1.5	1.6	1.9	2.2	2.8	3.0
11	S	1.7	S	E	1.3	E	1.6	1.6	1.8	C	C	C
12	S	S	C	S	S	E	1.7	1.8	1.9	2.2	2.6	2.7
13	1.5	1.7	1.4	1.1	2.3	E	1.5	1.9	2.0	2.1	2.6	2.6
14	E	E	E	E	E	E	1.7	1.5	2.0	2.2	2.4	2.5
15	E	S	2.0	S	S	E	1.8	1.4	2.0	2.3	2.5	2.8
16	1.7	1.5	1.2	1.8	1.6	E	1.7	1.9	1.8	2.0	2.4	C
17	F	S	S	E	E	E	1.8	1.4	1.8	2.4	2.6	2.8
18	1.9	1.5 _{us}	1.5 _{us}	1.3 _s	1.1	E	1.3	1.4	2.0	2.2	2.4	2.6
19	E	1.5 _s	1.4 _s	1.6	1.4	1.1	1.8	1.7	2.2	2.6	2.6	3.0
20	1.4	1.0	E	E	E	E	1.9	1.7	2.0	2.3	2.4	2.8
21	1.3	1.8	1.7	R	E	A	2.0	2.0	2.0	2.2	2.6	3.0
22	1.7	1.6	1.4	1.4 _R	E	E	1.8	1.5	2.0	2.3	2.4	3.0
23	1.2	1.7	1.5	1.3	E	E	1.8	1.9	2.0	2.4	2.6	2.9
24	2.1	2.2	1.5	E	E	E	1.9	2.0	2.2	2.5	2.6	2.8
25	1.9	1.9	1.6	1.5	1.2	E	1.9	2.0	2.2	2.4	2.7	2.8
26	1.5	E	1.4	E	1.1	E	1.5	C	2.0	2.3	2.5	2.7
27	1.2	1.1	C	1.1	1.3	E	1.4	1.5	2.0	2.4	2.7	2.8
28	1.4	1.3	1.1	1.1	1.3	1.2	1.4	1.6	1.9	2.5	2.8	C
29	1.9	2.0	1.6	1.6	2.0	E	1.8	2.0	2.3	C	2.7	3.0
30	1.6	1.5	1.6	1.3	E	E	1.9	2.0	2.0	2.5	2.8	3.0
31	E	1.5	1.1	1.8	1.7	S	1.9	1.9	2.2	2.4	2.6	2.9
Count	28	26	26	26	27	29	30	28	30	28	27	27
Median	1.4	1.5	1.4	1.2	1.1	E	1.6	1.6	2.0	2.3	2.6	2.8
Mean	1.5	1.5	1.4	1.4	1.5		1.6	1.7	2.0	2.3	2.6	2.8

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic · fmin

TABLE 40

Latitude 10 2° N

Unit · Mc

Ionospheric Data

Longitude 77 5° E,

Month August, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 6	2 6	2 9	2 4	2 6	2 0	2 0	1 9	1 6	1 5	1 4	1 6	1
3 0	2 6	2 6	2 4	2 3	2 0	1 9	2 0	1 8	1 6	E	E	2
2 8	2 7	2 7	2 7	2 4	2 4	1 8	2 2	1 9	1 7	S	1 8	3
C	C	2 3	2 2	2 2	1 8	2 1	2 0	1 9	1 9	1 9	1 8	4
3 0	2 8	2 8	2 4	2 4	2 4	1 8	1 9	1 9	2 0	1 9	1 8	5
2 9	2 6	2 7	2 5	2 3	2 0	2 2	1 8	1 9	1 4	1 7	1 3	6
2 9	2 9	2 6	3 6	2 6	1 8	1 9	1 8	1 5	1 7	1 9	S	7
2 9	2 8	2 6	2 1	3 2	1 4	2 8	2 2	1 8	1 9	1 9	1 8	8
2 7	2 7	2 6	2 3	2 1	1 6	1 4	1 7	2 1	2 1	2 2	2 4	9
3 0	2 6	2 1	2 1	2 4	2 2	2 0	2 0	2 4	2 4	2 5	2 2	10
C	C	C	2 1	2 8	1 7	2 1	1 9	1 8	2 0	1 9	S	11
2 6	2 6	3 6	2 7	2 4	2 1	2 2	1 9	2 4	2 4	2 5	C	12
2 8	2 4	2 4	2 3	2 6	2 6	2 3	2 3	1 6	1 8	1 8	E	13
2 6	2 6	2 6	2 2	2 2	2 1	1 9	1 7	1 8	1 5 ^{us}	2 0	E	14
3 0	2 7	2 5	2 2	2 2	2 0	1 6	1 6	1 6	2 6	2 4	2 6	15
2 4	2 3	2 5	3 4	2 8	1 6	1 5	1 3	2 1	1 5	2 5	F	16
3 0	3 0	2 4	2 2	2 0	1 8	1 3 ^{us}	1 2 ^{us}	2 6	3 1	3 2	2 4	17
3 2	2 8	2 8	3 3	3 2	2 2	1 9	1 7	2 4	2 2	1 5	1 2	18
2 8	2 7	2 4	2 5	2 4	2 2	1 8	1 8	2 0	1 8	2 0	1 3	19
2 6	2 3	2 3	2 0	2 1	2 0	2 2	2 5	1 9	1 9	1 8	1 6 _s	20
3 0	2 8	2 6	2 6	2 2	2 1	2 2	2 0	2 4	2 0	2 1	1 6	21
3 0	2 8	2 6	2 4	2 2	2 4	2 4	2 0	1 6	2 0	2 0	1 8	22
2 7	2 8	2 6	2 4	2 1	1 7	2 0	2 0	2 3	2 3	2 0	2 2	23
2 8	2 6	2 6	2 6	2 2	2 0	2 1	2 4	2 2	2 4	2 6	1 8	24
2 9	3 2	2 6	2 4	2 2	2 4	2 0	2 0	2 2	2 1	1 8	1 6	25
2 9	2 9	2 8	2 6	3 0	2 6	1 9	1 9	1 7	1 6	1 6	1 5	26
2 8	2 8	2 7	2 5	2 3	2 4	1 7	1 5	1 6	1 8	1 6	1 2	27
3 0	3 0	3 7	3 0	2 5	C	2 2	1 8	2 0	2 0	2 2	1 7	28
3 0	2 6	2 7	C	2 2	2 0	2 6	1 9	2 4	2 3	2 1	1 9	29
3 0	2 9	3 8	3 0	2 8	2 4	2 3	1 8	2 1	1 8	2 0	1 4	30
3 1	2 6	2 2	2 6	2 6	2 4	1 8	1 8	1 7	2 0	1 8	1 3	31
29	29	30	30	31	30	31	31	31	31	30	27	Count
2 9	2 7	2 6	2 4	2 4	2 0	2 0	1 9	1 9	2 0	2 0	1 6	Median
2 9	2 7	2 7	2 5	2 4	2 1	2 0	1 9	2 0	2 0	2 0	1 7	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic fmin

TABLE 40—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	1 5	1 8	1 3	1 3	2 4	C	C	1 6	2 2	2 4	2 6	2 6
2	1 7	1 2	1 6	1 5	1 5	1 4	1 3	1 8	2 2	2 4	2 5	2 8
3	1 6	E	E	S	S	1 1	1 3	1 5	2 0	2 4	2 6	2 7
4	S	S	1 7	1 3	1 4	1 1	1 2	C	C	C	C	C
5	1 2	1 3	S	1 1	E	1 2	1 3	1 6	2 1	2 4	2 8	2 8
6	1 1	1 0	1 4	S	1 2	1 1	1 1	1 7	1 9	2 4	2 6	2 7
7	1 1	1 6	S	C	E	1 0	1 3	1 7	2 0	2 6	2 5	2 7
8	1 7	1 0	1 0	S	S	1 3	1 6	1 7	2 0	2 5	2 6	2 8
9	E	1 6	1 0	E	E	1 5	1 3	1 8	2 2	2 5	2 5	2 9
10	S	1 1	E	E	1 1	1 3	1 3	1 7	2 0	2 5	2 9	3 1
11	1 8	1 9	S	1 1	E	1 2	1 5	1 7	2 0	C	C	C
12	S	S	S	E	E	1 4	2 0	1 8	2 1	2 4	2 6	2 6
13	1 7	1 8	1 5	1 4	E	1 2	1 6	2 1	2 2	2 4	2 6	2 6
14	E	E	E	1 8	E	1 6	1 4	1 8	1 8	2 2	2 4	2 5
15	2 0	S	S	S	E	1 6	1 4	1 7	2 2	2 5	2 6	2 7
16	1 5s	1 5s	1 1	E	E	1 6	1 7	2 1	1 9	2 2	2 8	C
17	F	E	E	E	E	1 5	1 3	1 6	2 2	2 6	2 8	2 7
18	1 8	1 5us	1 5	1 1	E	1 2	1 2	1 5	2 2	2 2	2 5	2 8
19	1 5s	1 5s	1 3s	1 4	1 7	1 2	1 4	1 9	2 4	2 6	2 7	3 0
20	1 6	1 1	E	E	E	1 3	1 4	1 7	2 2	2 4	2 6	2 5
21	1 6	1 5	A	A	E	R	2 2	1 8	2 1	2 4	2 8	3 0
22	1 5	1 5	1 4	E	E	1 3	1 3	1 8	2 2	2 4	2 6	2 8
23	1 8	1 5	1 3	E	E	1 6	2 4	1 7	2 2	2 4	2 8	2 6
24	A	1 7	1 2	E	E	1 3	1 7	2 0	2 4	2 6	2 7	2 8
25	1 8	1 7	1 8	1 6	1 4	1 5	1 5	2 2	2 4	2 6	2 6	3 0
26	1 3	E	E	1 1	1 1	1 3	C	2 0	2 1	2 4	2 7	2 8
27	1 2	C	E	1 4	E	1 4	1 5	1 9	2 3	2 6	2 8	2 9
28	E	1 1	1 2	1 4	1 2	1 5	1 5	1 8	2 4	2 6	C	2 7
29	2 2	1 3	1 2	E	1 1	1 3	1 5	2 1	2 6	2 5	2 7	2 8
30	1 4	1 5	1 6	1 4	E	1 6	1 8	2 2	2 3	2 5	3 0	3 0
31	1 4	1 5	1 5	1 8	1 6	1 4	1 9	2 0	2 3	2 5	2 8	3 2
Count	26	27	25	25	29	29	29	30	30	29	28	28
Median	1 6	1 5	1 2	1 1	E	1 3	1 4	1 8	2 2	2 4	2 6	2 8
Mean	1 6	1 4	1 4	1 4	1 4	1 3	1 5	1 8	2 2	2 5	2 7	2 8

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic : fmin

TABLE 40 —Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2.6	2.6	2.5	2.6	2.6	2.5	1.9	1.6	1.6	1.6	1.4	1.7	1
2.8	2.6	2.4	2.3	2.2	1.9	1.8	2.0	1.3	1.2	1.8	2.0	2
2.8	2.7	2.6	2.6	2.4	1.9	1.4	2.2	1.8	S	S	2.0	3
C	2.4	2.3	2.2	1.8	1.3	1.9	2.0	2.0	2.0	2.1	1.6	4
2.8	2.7	2.6	2.6	2.9	2.4	1.8	1.4	1.5	2.1	1.8	1.4	5
2.7	2.5	2.7	2.5	2.2	1.9	2.0	1.9	1.6	1.8	1.6	E	6
2.9	2.9	2.5	2.8	2.3	2.0	1.8	1.4	1.6	1.8	2.1	1.8	7
2.8	2.7	2.2	2.1	3.2	2.5	2.6	2.2	1.7	1.9	1.8	2.6	8
2.7	2.7	2.4	2.2	1.8	1.6	1.7	2.6	2.1	2.0	2.3	1.5	9
2.6	2.6	2.4	2.8	2.5	1.3	1.8	2.8	2.3	2.3	2.0	2.0	10
C	C	C	2.2	2.2	1.7	1.8	1.7	1.8	2.0	E	L	11
2.6	2.6	2.4	3.3	2.3	1.9	2.5	2.6	2.5	2.5	E	2.0	12
2.5	2.6	2.2	2.8	2.1	2.2	2.0	2.0	1.4	1.7	1.7	1.1	13
2.7	2.6	2.4	2.4	2.5	1.8	1.7	1.7	1.6	1.8	1.4	2.1	14
2.6	2.6	2.4	2.2	1.9	1.6	1.6	1.3	2.7	2.2	2.2	1.8s	15
2.4	2.4	3.0	2.8	2.4	1.4	1.2	1.7	L	2.2F	F	F	16
3.0	2.4	2.2	2.5	1.7	1.8	1.7 ^{us}	2.4	2.8	3.0	3.2	2.1	17
2.6	2.6	2.9	3.2	2.9	1.9	1.5	2.2	2.0	2.0	1.5	E	18
2.8	2.6	2.6	2.4	2.3	2.1	1.8	1.9	1.9	1.9	1.8	1.6	19
2.4	2.2	2.2	2.4	1.6	1.4	2.5	2.5	1.5 ^{us}	1.8	1.7	1.2	20
2.7	2.6	2.4	2.4	2.2	2.1	2.2	1.8	1.6	1.9	2.0	1.7	21
2.8	2.8	2.6	2.6	2.1	2.2	2.0	1.6	2.2	2.0	2.2	1.5	22
2.8	2.6	2.4	2.9	2.2	2.2	1.8	2.0	2.2	2.0	2.2	2.2	23
2.6	2.5	2.6	2.4	2.2	2.2	2.4	2.5	2.2	2.2	2.4	1.5	24
3.2	3.0	2.7	2.4	2.4	1.8	1.5	2.1	2.4	2.2	1.8	1.6	25
3.0	2.8	2.5	2.7	2.8	2.0	1.7	1.7	1.6	1.6	1.2	1.1	26
3.0	2.7	2.6	2.5	2.0	2.1	1.7	1.5	1.8	1.9	1.4	1.3	27
2.9	3.8	4.0	2.6	C	2.0	1.6	2.1	1.5	2.2	1.2	1.8	28
3.0	2.5	C	2.4	2.2	2.1	1.3	2.7	2.2	2.4	2.0	1.5	29
3.0	2.9	3.5	C	2.8	2.4	1.9	2.0	1.9	1.9	1.4	1.3	30
3.0	2.2	1.9	2.4	2.6	2.1	2.1	1.6	1.7	1.9	1.7	1.5	31
29	30	29	30	30	31	31	31	31	30	29	30	Count
2.8	2.6	2.5	2.5	2.3	2.0	1.8	2.0	1.8	2.0	1.8	1.6	Median
2.8	2.6	2.6	2.5	2.3	1.9	1.8	2.0	1.9	2.0	1.8	1.7	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$
 Unit Km
 Month August, 1963

TABLE 41
 Ionospheric Data
 75°E Meridian Time

Latitude 10 2° N
 Longitude 77 5° E

Date	01	02	03	04	05	06	07	08	09	10	11
1							C	L	380	390	355
2							L	315	330	360	360
3							L	L	360	425	400
4							C	C	C	C	C
5							L	L	L	365	365
6							L	L	380	415	425
7							270	L	L	380	360
8							270	L	L	I	390
9							L	L	L	390	370
10							265	305	340	350	380
11							260	310	C	C	C
12							300	310	320	360	360
13							L	I	360	400	440
14							L	310	370	100	380
15							L	300	330	380	380
16								310	335	360	C
17								L	360	370	360
18							L	L	370	380	340rr
19						L	L	300	L	360	360
20						L	L	300	285	L	L
21						L	L	300	320	370	340
22						L	L	305	310	360	370
23						L	L	310	310	355	400
24						L	L	290	325	315	375
25						L	L	320	310	370	340
26						255	C	L	L	105	380
27						266	L	L	L	370	425
28						L	L	L	L	370	C
29						L	L	L	C	370	370
30						260	295	310	350	330	330
31							L	290	I	360	385
Count						2	6	16	19	27	26
Median							270	305	310	370	370
Mean							270	305	340	375	375

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic $h'F_2$

Unit Km.

Month August, 1963

TABLE 41
Ionospheric Data
75°E Mean Time

Latitude 10 2° N

Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
370	360	375	360	320								1
370	A	315	335	A	315							2
390	380	360	320	310	260							3
C	C	190	360	305	305							4
390	380	360	310	305	L							5
415	L	390	350	L	290							6
385	360	360	310	310	L							7
400	395	355	315	300	270							8
350	315	380	315	355	L							9
360	310	310	310	300	L							10
C	C	C	L	L	L							11
310	360	350	330	310								12
410	110	400	360	310								13
370	380	A	A	310	L							14
105	460	130	370	L	L							15
340	330	310	315	305	270							16
400	360	350	360	310								17
355	A	370	295	320								18
360	360	A	A	L	L							19
325	L	315	L	L	L							20
L	355	350	300	A	L	L						21
380	L	L	L	L	L	L						22
380	310	380	390	A	L	L						23
380	310	380	350	L	L	L						24
410	320	380	310	305	L	L						25
365	405	370	310	395	380							26
100	105	380	360	L	L							27
360	380	L	L	L	L							28
360	365	310	C	L	380							29
340	310	310	390	395	380							30
375	370	310	305	380	350							31
28	24	26	24	18	10							Count
370	380	360	310	310	280							Median
375	380	360	310	310	295							Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds

TABLE 41—*Cont'd*
 Ionospheric Data
 75°E Mean Time
 Latitude 10 2° N
 Longitude 77 5° E

Characteristic Unit Km	h'F ₂	Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1									C					
2									L	L	360	380	395	360
3									L	L	340	345	370	365
4									L	L	L	L	420	375
5									L	L	C	C	C	C
6									L	L	345	340	360	375
7									L	L	L	390	405	400
8									L	L	285	L	380	365
9									L	L	270	305	325 _H	400
10									L	L	L	420	400	380
11									L	L	270	350	385	365
12									L	L	L	340	C	C
13									L	L	300	350	360	360
14									L	L	L	400	415	410
15									L	L	300	380	400	380
16									L	L	310	360	400	360
17									L	L	280	320	370	C
18									L	L	240	365	400	430
19									L	L	300	340	360	360
20									L	L	300	335	360	360
21									L	L	300	345	360	355
22									L	L	L	300	350	375
23									L	L	L	320	365	375
24									L	L	L	340	365	385
25									L	L	L	345	340	385
26									L	L	325	370	360	380
27									C	L	L	400	380	360
28									L	L	L	L	390	380
29									L	L	300	L	C	350
30									L	L	L	360	360	350
31									260	280	300	320	320	320
Count									1	12	20	25	26	28
Median									—	290	320	350	375	370
Mean									—	285	325	355	375	370

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic $h'F_2$ TABLE 41—*Contd*

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
350	380	305	300	L								1
340	350	345	325	320								2
400	380	335	315	280								3
C	430	350	330	300	I							4
360	385	310	A	360	L							5
395	400	380	355	300								6
350	345	350	340	280	L							7
400	370	360	320	280								8
370	380	340	340	320								9
370	355	300	310	290	I							10
C	C	C	L	I	L							11
360	340	310	290	L								12
405	415	400	350	L								13
380	370	A	L	280								14
400	440	380	L	I	I							15
345	325	310	320	290								16
370	L	350	340	300								17
350	340	300	320	I								18
355	345	A	L	L	I							19
L	L	I	L	L	L							20
355	340	L	L	A	L							21
365	375	355	L	L	L							22
385	365	380	L	A	L							23
405	410	365	320	L	L							24
410	400	355	320	L	L							25
L	370	360	330	280								26
400	395	L	I	I								27
350	365	I	L	C								28
360	350	C	L	A								29
325	330	320	C	L								30
340	A	330	295	270								31
27	27	23	18	14	—							Count
365	370	350	320	290	--							Median
370	370	350	325	295	—							Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F

TABLE 42

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude . 77.5° E.

Month August, 1963

75°E Mean time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	230	230	A	A	A	E	C	C	200	190	200	200
2	230	245	240	230	260	230	235	220	180 _H	190	170 _H	175 _H
3	315	300	265 _{ur}	235	240	E	235	210	200	180	180	180
4	255 _s	S	A	A	A	L	210	C	C	C	C	C
5	220	250	255 _{us}	S	250	E	235	210	200	200	190	180
6	305	290	270	S	S	250	210	200	170 _H	180	180	180
7	320	S	S	300	S	E	230	200	180 _H	170 _H	165 _H	170 _H
8	A	A	A	A	A	E	230	215 _{UA}	195	170 _H	170 _H	180
9	A	E	A	E	E	E	230	200	190	180	180 _H	200
10	290	300	S	S	E	E	235	210	180 _H	180 _H	180	180
11	S	A	S	A	A	E	235	210	180	C	C	C
12	F	S	C	S	S	E	230	220	220	180	180	180
13	A	280	A	A	A	E	240	210	195	180	190	180
14	280	S	S	A	E	E	240	220	200	190	195	180
15	215	F	260	A	S	E	230	190	180	180	180	210
16	280	250	A	F	E	L	240	220	220	200	185	C
17	F	F	S	S	E	E	210	220	200	200	195	170
18	305	320	335	255	220	E	240	190 _H	200	175	180	200
19	265	225	220	245	250	240	215	220	205	200	205	195
20	305	320	A	E	E	E	235	205	190	200	A	205
21	300	300	265	300	E	A	240	195	210	185	170	190
22	250	260	245	235	E	E	245	220	200	195	185	180
23	265	265	230	225	E	E	225	220	210	205	190	180
24	A	240	210	240	E	E	240	225	205	200	200	180
25	260	275	265	260	220	E	210	200	195	185	175	170
26	280	280	285	260	230	E	230	C	200	200	190	190
27	F	F	C	250	A	E	240	215	200	190	185	190
28	320	360	340	270	270	210	240	210	195	195	180	C
29	275	300	300	275	225	240	240	200	190	C	200	190
30	300	245	235	230	E	E	230	210	200	190	190	180
31	320	F	F	F	F	S	225	195	190	180	180	185
Count	23	21	16	17	20	23	30	28	30	28	28	27
Median	280	280	260	255	E	E	240	210	200	190	180	180
Mean	280	275	265	255	240	235	235	210	195	190	185	185

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F
 Unit Km
 Month August, 1963

TABLE 42
 Ionospheric Data
 75°E Mean time

Latitude 10 2° N
 Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
200	155 _H	180	180	205	225	240	255	255	270	260	265	1
200	A	A	A	A	A	255	260	245	220	255	280	2
180	180	180	200	A	220	230	210	215	225	280 _{rs}	300	3
C	C	200	185 _H	A	A	235	250	220	220	220	235	4
190	180	190	185	A	220	245	235	220	220	240	260	5
190	180	195	200	205	A	240	235	230	215	240	320	6
160 _{tr}	200	180	200	205	215	240	220	220	220	235	S	7
175 _{tr}	180	170 _H	A	A	230	240	210	215	250	260	270	8
180	180	A	A	A	A	250	250	230	225	235	300	9
200	A	180	190	200	220	240	215	235	245	265	A	10
C	C	C	180	200	200	240	220	250	250	280	F	11
200	A	190	200	220	300	250	220	230	210	280	C	12
180	180	190	190	f ₁	220	230	200	210	230	240	240	13
180	A	A	A	200	210	240	210	220	235	260	F	14
200	185	190	190	A	A	260	220	230	210	270	300	15
180	A	200	195	200	210	240	235	240	260	F	F	16
200	200	R	R	A	A	240	220	225	255	265	A	17
220	A	200	190	200	225	240	260	280	260	250	250	18
200	200	A	A	220	220	210	250	250	250	260	F	19
220	A	220	A	230	235	240	240	220	230	280	330	20
180	200	200	185	A	260	260	A	270	230	220	225	21
180	180	180	195	220	240	240	280	290	250	255	270	22
180	190	185	185	A	230	240	225	225	220	220	A	23
180	185	180	190	200	230	265	280	240	225	225	240	24
200	200	185	190	200	260	260	270	240	220	220	255	25
185	195	185	190 _{tr}	210	225	250	250	220	230	260	300	26
180	185	190	200	200	210	240	260	245	245	255	280	27
180	180	B	195	190	C	240	220	220	235	250	250	28
190	190	185	C	A	A	210	210	210	250	265	300	29
180	190	190	200	200	220	235	245	270	265	F	F	30
260	200	A	200	200	215	245	240	240	245	240	270	31
29	22	23	23	19	23	31	30	31	31	29	21	Count
185	185	190	190	200	220	240	240	230	235	255	270	Median
190	190	190	190	205	230	245	240	235	240	250	275	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic $h'F$

TABLE 42—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	230	240	A	A	A	C	C	200	180 _{IT}	200	200	200
2	240	240	240	240	235	255	220	200	200	180	180	180
3	300	290 _{UR}	235	240 _{UR}	240	235	220	200	190	180	180	180
4	S	S	A	A	A	260	230	C	C	C	C	C
5	220	240	S	270	E	260	220	200	200	200	190	180
6	A	260	260	S	265	250	210	190	180	180 _{IT}	180 _{IT}	180 _{IT}
7	320	300	F	C	E	255	220	185 _{IT}	180	170	170	170 _{IT}
8	A	A	A	S	S	260	220	190	180	170	180	180
9	E	A	A	E	L	260	215	195	170 _{IT}	180	180 _{IT}	180
10	310 _{US}	S	S	E	260	250	215	210	200	175 _{IT}	190	200
11	S	A	S	A	A	235	220	185	175	C	C	C
12	F	S	S	A	E	250	220	210	190	170	180	170
13	300	410	A	A	250	210	220	200	200	180	180	180
14	F	S	A	A	L	260	220	200	185	180	185	180
15	220	S	S	S	E	260	220	190	180	170	170	190
16	260	260	F	E	E	215	230	220	210	185	180	C
17	F	E	S	E	S	255	220	210	200	180	185	170
18	320	320	300 _R	220	E	265	220	190	185	180	195	200
19	230	215	230	A	250	260	235	215	190	190	200	190
20	A	320	A	E	E	265	240	190	180	205	200	205
21	300	270	A	A	E	300	215	205	200	180	200	180
22	260	230	225	E	E	250	230	200	185	200	180	185
23	270	235	235	E	E	260	225	210	215	200	185	180
24	A	230	235	E	E	270	235	215	205	200	185	180
25	270	260	270	245	225	280	235	200	190	170	170	170
26	280	280	280	225	220	270	C	210	200	195	200	185
27	F	C	F	240	L	260	235	200	190	185	180	175
28	340	350	300	265	245	270	230	215	190	185	C	185
29	280	300	280	240	230	260	220	200	185	185	190	190
30	280	220	230	230	E	230	215	200	195	190	180	180
31	350 _R	F	A	F	F	240	215	195	195	185	180	185
Count	21	21	13	18	24	30	29	30	30	29	28	28
Median	280	260	240	270	E	260	220	200	190	180	180	180
Mean	280	275	255	240	240	255	225	200	190	185	185	185

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F

TABLE 42—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
200	190	195	205	215	235	235	255	265	255	250	240	1
200	A	A	A	A	280	260	260	235	230	275	300	2
190	180	200	A	220	235	215	215	225	S	300 ₁	300	3
C	180	195	200	A	245	240	235	220	220	235	240	4
185	180	185	A	215	225	235	235	215	230	255	270	5
180 _{IT}	180	200	200	210	260 _{UA}	235	240	220	220	270	325	6
180 _{IT}	190	180 _{IT}	A	210	220	215	210	220	225	280 _{FB}	A	7
170	175	A	A	215	240	225	200	230	255	255	S	8
180	180	A	A	A	255 _{UA}	255	210	220	220	260	280	9
195	A	185	200	205	220	235	220	245	245	F	A	10
C	C	C	180	200	230	230	230	260	240	F	F	11
A	210	180	200	200	280	240	230	230	260	S	300	12
180	180	170	180	220	220	210	215	230	230	280	260	13
175	A	A	340	210	220	230	205	225	240	F	215	14
200	190	180	A	A	280	240	230	235	250	280	280	15
180	A	180	200	210	240	230	230	240	F	F	F	16
180	R	240 _{UR}	A	A	260 _R	220	230	240	260	280	300	17
A	A	200 _R	195	200	230	240	280	270	260	250	270	18
200	200	A	A	215	235	255	250	240	260 _F	F	300	19
A	A	240 _A	260	225	240	240	230	220	260	300	320	20
185	195	190	200	A	265	A	A	240	220	235	240	21
180	185	185	200	260	240	275	285	260	260	265	265	22
200	190	190	190	A	240	235	220	220	220	245	280	23
180	180	180	195	195	245	270	260	235	230	230	260	24
195	190	190	185	225	250	260	255	225	220	235	270	25
185	190	190	205	220	240	250	225	225	250 _F	270	F	26
185	190	195	200	200	240	250	260	240	250	265	305	27
185	180	B	200	C	230	240	210	220	240	245	280	28
190	190	C	190	A	240	250	240	245	260	290	300	29
200	190	200	C	205	230	230	270	265	F	290	F	30
190	A	190	205	210	225	240	240	250	240	260	275	31
26	22	23	21	22	31	30	30	31	28	25	24	Count
185	190	190	200	210	240	240	230	230	240	265	280	Median
185	185	195	205	215	240	240	235	235	240	265	280	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E
Unit Km
Month August, 1963

TABLE 43
Ionospheric Data
75°E Mean time

Latitude, 10 2° N
Longitude 77 5° E.

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								C	A	A	A	A
2							120	A	A	A	A	A
3							120	A	A	A	A	A
4								C	C	C	C	C
5							120	A	A	A	A	A
6							115	A	A	A	A	A
7							120	100	A	A	A	A
8								A	A	A	A	A
9							120	A	A	A	A	A
10							140	100	A	A	A	A
11							135	100	A	C	C	C
12								A	A	A	A	A
13							135	A	A	A	A	A
14							A	A	A	A	A	A
15								110	A	A	A	A
16								120	120	A	A	C
17								110	120	A	A	A
18							120	A	A	A	A	A
19								A	A	A	A	A
20								A	A	A	A	A
21								A	A	A	A	A
22								A	A	A	A	A
23								110	A	A	A	A
24								120	110	A	A	A
25								R	A	A	A	A
26							130	C	A	A	A	A
27							125	A	A	A	A	A
28							125	A	A	A	A	C
29								A	A	C	A	A
30								105	A	A	A	A
31								A	A	A	A	A
Count							13	9	3			
Median							120	110				
Mean							125	110				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic . h'E
Unit Km
Month August, 1963

TABLE 43
Ionospheric Data
75°E Mean time

Latitude 10 2° N.
Longitude. 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
120	A	A	A	A	A							2
A	A	110	A	A	A							3
C	C	A	A	A	A							4
A	A	A	A	A								5
A	A	A	A	110	A							6
A	A	A	B	A	110							7
A	A	A	A	B								8
A	A	A	A	A	A							9
A	A	A	A	115								10
C	C	C	A	A	110							11
A	A	B	110	A	A							12
A	A	A	A	A								13
A	A	A	A	A	110							14
A	A	A	A	A	A							15
A	A	A	B	A								16
A	A	A	A	A	A							17
A	A	A	B	B	120							18
A	A	A	A	A	A							19
A	A	A	A	A	A							20
A	A	A	A	A	A	A						21
A	A	A	A	A	A	A						22
A	A	A	A	A	A							23
A	A	A	A	A	A	A						24
A	A	A	A	A	A	A						25
A	A	A	A	B								26
A	A	A	A	110								27
A	A	B	A	A								28
A	A	A	C	A								29
A	A	B	A	A	A							30
A	A	A	A	A								31
1		1	1	3	4							Count
												Median
												Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds

Characteristic h'E

TABLE 43—Contd

Latitude: 10 2° N

Unit Km

Ionospheric Data

Longitude: 77 5° E

Month August, 1963

75°E Mean time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							C	A	A	A	A	A
2							100	A	A	A	A	A
3							105	A	A	A	A	A
4							A	C	C	C	C	C
5							105	A	A	A	A	A
6							A	A	A	A	A	A
7							100	A	A	A	A	A
8							A	A	A	A	A	A
9							A	A	A	A	A	A
10							100	A	A	A	A	A
11							105	A	A	C	C	C
12							130	A	A	A	A	A
13							115	A	A	A	A	A
14							A	A	A	A	A	A
15							115	A	A	A	A	A
16							120	120	120	A	A	C
17							105	A	A	A	A	A
18							A	A	A	A	A	A
19							A	A	A	A	A	A
20							120	A	A	A	A	A
21								A	A	A	A	A
22							A	A	A	A	A	A
23								A	A	A	A	A
24							120	115	110	A	A	A
25							120	A	A	A	A	A
26							C	150	A	A	A	A
27						A	A	A	A	A	A	A
28							A	A	A	A	C	A
29							100	A	A	A	A	A
30							110	100	A	A	A	A
31							A	A	A	A	A	A
Count							16	4	2			
Median							110					
Mean							110					

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic: h'E

TABLE 43—Contd

Latitude 10 2° N

Unit Km.

Ionospheric Data

Longitude 77 5° E

Month August, 1963.

75°E Mean time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A								1
A	A	A	A	A	A							2
A	A	110	A	A	A							3
C	A	A	A	A	A							4
A	A	\	A	B								5
A	A	A	105	A								6
A	A	110	A	110								7
A	A	A	A	B								8
A	A	A	A	A	A							9
A	A	A	115									10
C	C	C	A	A	120							11
A	A	A	B	A	A							12
A	A	A	120	A								13
A	A	A	A	A	A							14
A	A	A	A	A	A							15
A	A	A	A	A								16
A	A	A	A	A	A							17
A	A	A	A	B	120							18
A	A	A	A	A	A							19
A	A	A	A	A	A							20
A	A	A	A	A	A							21
A	A	A	A	A	A							22
A	A	A	A	A	A							23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	115	B								26
A	A	A	A	110								27
A	B	B	A									28
A	A	C	A	A								29
A	A	B	C	A								30
A	A	A	A									31
		2	4	2	2							Count
												Median
												Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 44

Latitude 10°2' N.

Unit Km

Ionospheric Data

Longitude 77°5' E

Month August, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1			100	100	100			C	100	100	100	100
2							120	100	100	100	100	100
3			100	100			G	100	100	100	100	100
4			100	120	100		100	C	C	C	C	C
5		105					G	100	100	100	100	100
6	115	110	105	100			G	100	100	100	100	100
7							105	G	100	100	100	100
8	115	105	105	110	115		125	100	100	100	100	100
9	105		105				G	100	100	100	100	100
10			105	110			G	100	100	100	100	100
11		110		110	100		G	G	100	C	C	C
12			C				110	100	100	100	100	100
13	110		110	110	120		G	100	100	100	100	100
14			110	110			120	100	100	100	100	100
15				120					100	100	100	100
16			105	110				G	G	100	100	C
17								100	100	100	100	100
18							G	100	100	100	100	100
19					100			100	100	100	100	100
20	100	100	105				G	100	100	100	100	100
21								100	100	100	100	100
22								100	100	100	100	100
23								G	100	100	100	100
24								G	G	100	100	100
25								G	100	100	100	100
26							G	C	100	100	100	100
27					100		G	100	100	100	100	100
28							G	100	100	100	100	C
29								100	100	C	100	100
30								G	100	100	100	100
31			100					100	100	100	100	100
Count	5	5	12	11	7		6	20	28	28	29	27
Median	110	105	105	110	100		115	100	100	100	100	100
Mean	110	105	105	110	105	.	115	100	100	100	100	100

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds.

Characteristic h'Es

TABLE 44

Latitude 10°2' N

Unit Km

Ionospheric Data

Longitude 77°5' E

Month August 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	115	95		95	105	105	105	105	1
100	100	100	100	100	100	100	100	95	90	105	90	2
100	100	100	100	100	100	95						3
C	C	100	100	100	100							4
100	100	100	100	100	105	95					120	5
100	100	100	100	120	100							6
100	100	100	G	100	G							7
100	100	100	100	100	90							8
100	100	100	100	100	100	90	90					9
100	100	100	100	G	120		105				120	10
G	C	C	100	100	G							11
100	100	B	100	100	100	100	100					12
100	100	100	100	100								13
100	100	100	100	100	G						90	14
100	100	100	100	100	90	90	85	90				15
100	100	100	B	100	100	100	100		100			16
100	100	100	100	100	100	100	100				115	17
100	100	100	B	B	G							18
100	100	100	100	100	100						100	19
100	100	100	100	100	100						110	20
100	100	100	100	100	100	100	100					21
100	100	100	100	100	100	100	100	100				22
100	100	100	100	100	100						115	23
100	100	100	100	100	100	100	100	100				24
100	100	100	100	100	100	100	100					25
100	100	100	100	G			120		115	115	160	26
100	100	100	100	G								27
100	100	100	100	100			90					28
100	100	100	C	100	95		95					29
100	100	B	100	100	100	105	100					30
100	100	100	100	100		130						31
29	29	28	27	27	22	14	16	5	4	3	10	Count
100	100	100	100	100	100	100	100	100			110	Median
100	100	100	100	100	100	100	100	100			110	Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'Es

TABLE 44—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77·5° E

Month August, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1		115	100	100	115		G	100	100	100	100	100
2	115						100	100	100	100	100	100
3		105	100				115	100	100	100	100	100
4			105	100	105		100	G	G	G	G	G
5							G	100	100	100	100	100
6	110	105	100				100	100	100	100	100	100
7				G			G	100	100	100	100	100
8	115	105	105				100	100	100	100	100	100
9		120	105				100	100	100	100	100	100
10		110	105	145			G	100	100	100	100	100
11	110	115		100	100		G	100	100	G	G	G
12				100			G	100	100	100	100	100
13	110	115	110	100			100	100	100	100	100	100
14		115	110	115			110	100	100	100	100	100
15								100	100	100	100	100
16			110				G	G	100	100	100	G
17							G	100	100	100	100	100
18							100	100	100	100	100	100
19				100			100	100	100	100	100	100
20	100	100	100				G	100	100	100	100	100
21								100	100	100	100	100
22							100	100	100	100	100	100
23								100	100	100	100	100
24							G	G	G	100	100	100
25							G	100	100	100	100	100
26							G	G	100	100	100	100
27		C		100	100		100	100	100	100	100	100
28			100			100	100	100	100	100	G	100
29							G	100	100	100	100	100
30							G	G	100	100	100	100
31		100	100				100	100	100	100	100	100
Count	6	11	13	9	3	1	14	26	29	29	28	28
Median	110	110	105	100			100	100	100	100	100	100
Mean	110	110	105	105			100	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic h'Es

TABLE 44—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
100	100	100	100	100	100		95	110		115		1
100	100	100	100	100	100	100	100	95	105	110		2
100	100	125	100	100	100	95						3
C	100	100	100	100	100							4
100	100	100	100	G	120					105		5
100	100	100	100	100	100							6
100	100	100	100	G							115	7
100	100	100	100	G							135	8
100	100	100	100	100	100	90						9
100	100	100	G		95	105	100	100		100	115	10
C	C	C	100	100	G					95	90	11
100	100	100	120	100	100	100						12
100	100	100	G	100								13
100	100	100	100	100						95		14
100	100	100	100	95	90	90	95					15
100	100	100	100	100	100	100	100	100				16
100	100	100	100	100	100	100				120		17
100	100	100	B	B	G							18
100	100	100	100	100	100					120	100	19
100	100	100	100	100	100					105		20
100	100	100	100	100	100	100	100					21
100	100	100	100	100	100	100	100					22
100	100	100	100	100	100							23
100	100	100	100	100	100	100	100	100				24
100	100	100	100	100	100	100						25
100	100	100	G	G						120	160	26
100	100	100	100	G								27
100	100	B	100	C		95				85		28
100	100	C	100	100	95	90						29
100	100	100	C	100		100				100		30
100	100	100	100									31
29	30	28	26	21	19	15	8 ^m	4	1	11	7	Count
100	100	100	100	100	100	100	100			105	115	Median
100	100	100	100	100	100	95	100			105	115	Mean

Sweep 1.0 Mc. to 25.0 Mc in 27 seconds

Characteristic (M 3000)F₂

TABLE 45

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month August, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	3 20 _{UF}	3 50	A	A	A	A	C	C	2 90	2 55	2 60	2 60
2	3 45 _{US}	3 30	3 35	3 50 _{US}	3 35	3 40	3 25	3 10	2 65	2 80	2 55	2 55
3	2 90	3 10 _{US}	F	F	R	E	3 50	3 20	2 45	2 60	2 60	2 60
4	R	S	A	A	A	E	3 25	C	C	C	C	C
5	S	3 35	3 45	S	3 50 _{US}	3 50 _{UR}	3 25	3 20	2 80	2 45	2 60	2 65
6	2 85	3 05	3 40 _r	S	S	3 45	3 20	2 90	2 55	2 60	2 60	2 50
7	2 80	3 30	S	S	S	E	3 30	3 25	2 90	2 30	2 55	2 60
8	A	A	A	A	A	E	3 10	3 15	3 00	2 45	2 40	2 60
9	A	A	A	E	E	E	3 40	3 10	2 75	2 65	2 55	2 60
10	3 05	3 05	F	S	E	E	3 50	3 35	2 95	2 45	2 65	2 60
11	S	A	S	A	A	E	3 50	3 45	3 00	C	C	C
12	F	S	C	S	S	E	3 40	3 20	2 90	2 60	2 70	2 75
13	A	3 50	A	A	A	E	3 45	3 15	2 70	2 70 _s	2 55	2 55
14	3 15 _r	F	A	A	E	E	3 30	2 95	2 90 _{rr}	2 65 _{rs}	2 60	2 65
15	F	FS	3 40 _r	A	S	E	3 60	3 30	3 10	2 65	2 50	2 60
16	F	F	F	F	F	E	3 50	3 45 _s	3 30	3 00	2 55 _{rr}	C
17	I	F	S	S	E	E	3 45	3 35	2 70	2 60	2 70	2 70
18	2 60 _R	2 60 _I	2 85	3 45 _R	F	E	3 35	2 95	2 70	2 65	2 60	2 80
19	3 10	3 45 _{US}	S	3 10 _{IS}	3 40	3 40	3 20	3 20	2 90	2 45	2 65	2 70
20	F	F	2 90 _I	S	E	E	3 30	3 05	2 90	2 80	2 80	2 45 _{rr}
21	F	F	3 20	3 20	E	A	3 40	3 20	2 75	2 60	2 45	2 80
22	3 30	3 30	3 40	3 45	E	E	3 40	3 10	2 65	2 70	2 70	2 65
23	3 20	3 40	3 60	F	E	E	3 65	3 50	3 10	2 50 _{rr}	2 60	2 60
24	S	3 30	3 40	3 55 _s	S	E	3 30	3 30	3 20	2 90	2 50	2 45
25	3 20	3 10	3 10	3 30	3 60	E	3 40	3 30	2 95	2 50	2 70	2 60
26	3 05	3 25	3 10	3 25	3 45 _R	E	3 50	C	2 90	2 35	2 50	2 70
27	2 40	F	C	3 30	A	E	3 45	3 10	2 65	2 60	2 80	2 45
28	2 80	2 75	2 95	3 25	3 40	R	3 30	3 05	2 70	2 50	2 60	C
29	3 05	3 00	3 00	3 30	3 65	3 60	3 30	3 00	2 65	C	2 60	2 70
30	3 05	3 45	3 65	3 65	E	E	3 55	3 45	3 25	2 90	2 65	2 75
31	F	F	F	F	F	S	3 45	3 30	2 90	2 45 _{rr}	2 65	2 55
Count	17	18	15	12	17	5	30	28	30	28	29	17
Median	3 05	3 30	3 35	3 35	3 45	3 45	3 40	3 20	2 90	2 60	2 60	2 60
Mean	3 00	3 20	3 25	3 40	3 50	3 40	3 40	3 20	2 85	2 60	2 60	2 60

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic (M 3000)F₂

TABLE 45

Unit		Ionospheric Data										Latitude	10 2° N
Month August, 1963		75°E Mean Time										Longitude	77 5° E
12	13	14	15	16	17	18	19	20	21	22	23	Date	
2 60	2 25	2 60	2 50	2 75	2 70	2 90	3 00	3 10	3 05	3 10	3 20	1	
2 60	2 65	2 80	2 90	2 90	2 85	2 95	3 00	3 20	3 45	3 20	3 05	2	
2 60	2 50	2 65	2 85	3 00	3 10	3 50	3 40	3 50	3 50	3 30	A	3	
C	C	2 45	2 70	2 90	2 90	3 10	3 10	3 30	3 35	3 55 ^{US}	3 40	4	
2 55	2 40	2 55	2 70	2 80	2 90	3 10	3 25	3 40	3 45	3 30	3 10	5	
2 50	2 50	2 50	2 55	7 70	2 95	3 10	3 10	3 25	3 45	3 20	2 70	6	
2 60	2 60	2 60	2 70	2 90	3 10	3 10	3 35	3 40	3 50	3 45	R	7	
2 50	2 50	2 60	2 70	3 00	3 20	3 35	3 55	3 15 ^{US}	3 35	3 35	3 35	8	
2 70	2 60	2 65	2 60	2 60	2 80	2 95	3 05	3 35	3 45	3 40	3 20 ^R	9	
2 65	2 75	2 95	3 05	3 10	3 00	3 10	3 45	3 50	3 40	3 50	A	10	
C	C	C	2 50 ^{IR}	2 60	2 75	3 10	3 40	3 20	3 25	3 20 ^R	F	11	
2 65	2 75	2 80	2 70	2 60	2 75	3 10	3 45	3 50	3 40	3 35	G	12	
2 60 ^{JS}	2 60	2 60	2 70	2 75	3 05	3 40	3 50 ^{JS}	3 50	3 55	3 60 ^{UR}	3 35	13	
2 65	2 65	2 80 ^{UC}	A	2 80	3 00	3 00	3 20	3 40	3 40	3 30	F	14	
2 70	2 50 ^{IR}	2 55 ^{IR}	2 65	2 90	3 05	3 25	3 45	3 50	3 60	3 40	3 15	15	
2 80	3 00	3 10	3 15	3 25	3 25	3 30	3 50	3 40	3 30	F	F	16	
2 65	2 75	2 80	2 80	2 75	2 95	3 25 ^{US}	3 35	3 50 ^{US}	3 50 ^R	3 40 ^{US}	A	17	
2 70	A	2 90	3 00	3 05	3 00	2 95	2 95 ^{US}	2 95	3 15	3 25 ^{US}	3 10 ^{US}	18	
2 70	2 70	2 70	2 80	2 80	2 60	2 45	2 60	2 70	2 90	F	F	19	
2 50 ^{IR}	2 75 ^{IR}	2 65	2 95	3 00	3 00	3 00	3 20	3 50	3 35	3 10	2 80	20	
2 50	2 50	2 70	2 70	3 00	3 00	2 90	2 90	3 10	3 30	3 45	3 40 ^{JS}	21	
2 60	2 50	2 60	2 75	2 70	2 75	2 90	3 00	3 00	3 20	3 05	3 10 ^{JS}	22	
3 60	2 10	2 50	2 70	2 80	3 15	3 25	3 30	3 40	3 40	3 50	3 20 ^{US}	23	
2 50	2 45	2 60	2 60	2 75	2 85	2 80	2 90	3 20	3 30	3 40	3 25 ^{US}	24	
2 45 ^{IR}	2 50	2 50	2 80	2 95	3 05	3 00	2 95	3 25	3 50	3 40	3 10	25	
2 70	2 45	2 55	3 65	2 90	3 10	3 05	3 15	3 40	3 30	3 20	2 85	26	
2 60	2 55	2 60	2 55	2 70	2 90	3 00	3 00	3 05	3 20	3 15	3 00	27	
2 60	2 50	2 50	2 45	2 60	C	2 95	3 30	3 40	3 30	3 15	3 15	28	
2 60	2 55	2 70	C	2 70	3 00	3 10	3 20	3 35	3 20	3 20	2 90	29	
2 70	2 80	3 00	3 05	3 20	3 30	3 30	3 10	3 05	3 20 ^S	3 10 ^{UR}	F	30	
2 55	2 70	2 85	3 00	3 30	3 40	3 30	3 20	3 20	3 30	3 20	3 05	31	
29	28	30	29	31	30	31	31	31	31	29	21	Count	
2 60	2 55	2 60	2 70	2 80	3 00	3 10	3 20	3 35	3 35	3 30	3 10	Median	
2 60	2 60	2 70	2 75	2 85	2 85	3 10	3 20	3 30	3 35	3 30	3 10	Mean	

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M 3000)F₂

TABLE 45—Contd

Unit —

Ionospheric Data

Latitude 10 2° N

Month August, 1963

75°E Mean Time

Longitude 77 5° E

Date	0030	0130	0230	0330	0130	0530	0630	0730	0830	0930	1030	1130
1	F	3 65 _{UR}	A	A	A	C	C	2 75	2 60 _{IR}	2 55	2 65	2 50
2	3 40	3 30	3 45	3 50	3 55	3 15	3 30	2 90	2 50	2 60	2 50	2 60
3	3 05	I	3 45 _{UR}	I	3 60 _{US}	3 10	3 45	2 80	2 25	2 65	2 55	2 55
4	3 50	S	A	A	A	3 05 _r	3 15	C	C	C	C	C
5	3 50	3 40	3 35	S	E	3 00	3 40	3 05	2 55	2 60	2 55	2 60
6	A	3 20	3 60 _{US}	S	3 45	3 20	3 20	2 80	2 55	2 50	2 55	2 55
7	2 90	F	F	C	E	3 05	3 30	3 15	2 65	2 20 _{IR}	2 55	2 65
8	A	A	A	S	S	3 15	3 45	3 15	2 90	2 45	2 60	2 50
9	E	A	A	E	E	3 30	3 30	3 00	2 65	2 65	2 45	2 55
10	2 80	F	F	S	R	3 20	3 40	3 20	2 70	2 65	2 55	2 65
11	A	A	S	A	A	3 35	3 50	3 30	2 75	C	C	C
12	F	S	S	A	E	3 30	3 30 _{JS}	3 00	2 75	2 70	2 70	2 70
13	3 25 _{US}	2 65	A	A	3 60 _{UR}	3 30	3 30	2 85	2 70 _{JS}	2 60	2 60	2 60
14	3 20 _r	F	A	A	E	3 25	3 20	2 70	2 60 _{JS}	2 65	2 60	2 60
15	F	I	F	S	E	3 20	3 50	3 15	2 90	2 55	2 50	2 80
16	F	3 25 _{US}	F	F	F	3 25	3 50	3 40	3 20	2 80	2 40 _{IR}	C
17	I	S	S	S	S	3 30	3 40	2 95	2 55	2 60	2 65	2 50
18	3 00	2 90 _I	2 95 _{JR}	3 65	E	3 10	3 20	2 80	2 70	2 70 _{IR}	2 60	2 75
19	3 40 _{US}	3 50 _{US}	3 55 _{US}	F	3 40	3 20	3 25 _s	3 10	2 70	2 60	2 65	2 70
20	F	3 05 _I	F	S	E	3 15 _F	3 30	2 85	2 80	2 90	2 65	2 40 _{IR}
21	2 90 _{US}	I	A	A	E	3 10	3 30	3 10	2 50	2 50	2 70	2 55
22	3 20	3 40	3 60	E	E	3 20	3 30	2 80	2 70	2 70	2 65	2 65
23	3 30	3 50	3 50	E	E	3 25	3 65	3 30	2 80 _{IR}	2 60	2 55	2 60
24	3 40 _s	3 60	3 50	S	E	3 05	3 35	3 30	3 10	2 75	2 40	2 45
25	3 10	3 20	3 30	3 50	3 65	3 10	3 40	3 10	2 65	2 55	2 70	2 50
26	3 20	3 10	3 10	3 45	R	3 15	C	3 10	2 60	2 40	2 60	2 60
27	I	C	F	R	E	3 05	3 25	2 90	2 50	2 50	2 65	2 65
28	2 75	2 85 _I	3 10	3 40	3 55	3 05	3 20	2 80	2 50	2 60	C	2 60
29	3 10	3 00	3 10	3 45	3 65	3 25	3 20	2 70	2 65	2 70	2 60	2 65
30	3 20	3 55	3 65	R	E	3 25	3 55	3 40	3 10	2 70	2 70	2 75
31	275 _{UR}	F	F	F	F	3 20	3 35	3 10	2 65	2 60	2 45	2 55
Count	20	17	14	6	8	30	29	30	30	29	28	28
Median	3 20	3 25	3 45	3 45	3 55	3 20	3 30	3 00	2 65	2 60	2 60	2 60
Mean	3 15	3 25	3 35	3 50	3 55	3 20	3 55	3 00	2 70	2 60	2 60	2

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M 3000)F₂

TABLE 45—Contd.

Unit		Ionospheric Data										Latitude	10 2° N.
Month August, 1963		75°E Mean Time										Longitude	77 5° E
1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date	
2 65	2 40	2 50	2 55	2 70	2 85	2 95	3 05	3 05	3 05	3 10	3 25	1	
2 75	2 75	2 80	2 95	2 90	3 00	3 00	3 10	3 35	3 35	3 10	2 95	2	
2 50	2 60	2 80	2 95	3 10	3 35	3 45	3 50	3 50	3 40	3 30 _{UR}	3 40 _{UR}	3	
C	2 40	2 65	2 80	2 90	3 05	3 10	3 15	3 40	3 40	3 50	3 45	4	
2 50	2 50	2 60	2 75	2 90	3 10	3 25	3 30	3 50 _{US}	3 45	3 15	3 00	5	
2 65	2 55	2 50	2 55	2 80	2 95	3 10	3 15	3 35	3 40	2 85	2 75	6	
2 65	2 50	2 60	2 80	3 05	3 25	3 40	3 30	3 50 _{US}	3 50	3 50	A	7	
2 50	2 50	2 60	2 80	3 15	3 30	3 40	3 50	3 40	3 30	3 50	S	8	
2 65	2 65	2 65	2 65	2 70	2 90	3 00	3 15	3 45	3 50	3 30	3 10	9	
2 65	2 80	3 05	3 05	3 00	3 10	3 35	3 45	3 40	3 50	3 30	A	10	
C	C	C	2 60	2 75	2 90	3 30	3 30	3 20	3 30 _F	F	F	11	
2 70	2 85	2 80	2 65 _{II}	2 65	2 90	3 35	3 45	3 50	3 40	3 45 _{JR}	3 15	12	
2 60 _{JS}	2 60	2 60 _{II}	2 70	2 90	3 25	3 50	3 45	3 50	3 55	3 50 _{UR}	3 20 _R	13	
2 65	2 70	A	2 75	2 95	3 00	3 05	3 40	3 40	3 30	F	F	14	
2 65	2 50 _{II}	2 70	2 85	3 00	3 20	3 30	3 50	3 40	3 40	R	F	15	
2 90	3 05	3 20	3 15	3 25	3 30	3 40	3 50	3 40	F	F	F	16	
2 70	2 80	2 85	2 75	2 80	3 10	3 20	3 40	F	3 40 _{US}	3 25 _{US}	2 85 _R	17	
2 75	2 75	3 05	3 00	3 00	2 95	3 60	2 90	3 05	3 20	3 20 _S	3 10	18	
2 70	2 70	2 75	2 85	2 70	2 50	2 50 _{II}	2 80	2 90	F	F	F	19	
2 70	2 80	2 90	3 00	3 00	3 00	3 05	3 35	3 50	3 25	2 95	2 80 _S	20	
2 55	2 60	2 75	2 80	2 95	3 00	2 95	3 00	3 20	3 50	3 40	3 45 _{US}	21	
2 60	2 55	2 65	2 65	2 70	2 85	2 95	3 00	3 10	3 10	3 00	3 10	22	
2 50	2 40	2 60	2 80	3 00	3 25	3 20	3 30	3 50	3 55	3 30	3 20	23	
2 40	2 40	2 55	2 75	2 80	2 80	2 80	3 10	3 30	3 40	3 30	3 10	24	
2 40 _H	2 55	2 65	2 85	3 00	3 05	3 00	3 05	3 40	3 45	3 30 _{US}	3 05	25	
2 40	2 45	2 60	2 75	2 95	3 05	3 05	3 20	3 30	3 20	3 05	F	26	
2 55	2 50	2 50	2 65	2 80	3 00	3 00	3 00	3 20	3 20	3 05	2 80	27	
2 55	2 50	2 45	2 50	C	2 90	3 05	3 50	3 40	2 20	3 25	3 00	28	
2 60	2 60	C	2 70	2 90	3 15	3 25	3 30	3 20	3 20	3 00	3 10 _{CF}	29	
2 70	2 90	3 00	C	3 20	3 30	3 25	3 05	3 10 _{US}	F	3 10 _{US}	2 80 _{US}	30	
2 85	2 85	2 95	3 15	3 30	3 40	3 20	3 20	3 20	3 20	3 15 _{US}	2 90 _{US}	31	
29	30	28	30	30	31	31	31	30	28	26	22	Count	
2 65	2 60	2 65	2 80	2 90	3 05	3 10	3 25	3 35	3 40	3 25	3 10	Median	
2 60	2 60	2 70	2 80	2 90	3 05	3 15	3 25	3 30	3 35	3 20	3 05	Mean	

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds.

Characteristic foF₂

TABLE 46

Latitude 10 2° N.

Unit: Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	5 5s	5 3	4 3	2 5	E	E	4 7	6 9	7 5 _{II}	6 5	6 0	6 2
2	2 5	2 4 _F	2 5 _F	2 0	E	E	4 3	6 3	6 6	6 1	6 6	6 4
3	4 2	3 3 _I	3 1 _I	2 3 _R	E	E	4 4	6 6	7 0	6 6	6 3	6 0
4	3 6	3 4	2 4	E	E	E	4 4	6 3	7 2	6 5	6 3	6 4
5	3 2	2 3	E	E	E	E	4 6	6 6	6 8	6 0	6 1	6 5
6	4 6	4 1	2 5	E	E	E	4 6	6 5	7 9	C	6 5	6 6
7	2 1	E	E	E	E	E	4 5 _I	6 8	7 2 _s	7 0	6 9	C
8	6 1 _{US}	5 5	4 7	3 8	2 0	E	4 5	6 0	7 2	C	C	C
9	4 1	3 8	2 8	R	E	E	4 8	6 4	7 2	7 3	7 0	7 0
10	5 0	2 9	2 0	R	F	1 6	4 7	6 6	7 4	C	6 9	7 0
11	4 8	4 3	3 5	2 5	E	E	4 6	6 2	7 5	7 9	8 0	7 8
12	3 5	3 3	3 6 _{US}	F	F	F	F	7 3	7 2 _{US}	6 6	6 5	6 6
13	5 6	5 0 _{US}	4 1	2 2	E	E	4 9 _s	6 4	7 8	8 0 _{II}	7 5	7 3
14	7 2	6 2	4 1	2 0	E	E	4 8	7 0	7 8	7 6	6 3	6 6
15	3 5	2 3	2 1	1 7	R	E	4 8	6 9	C	8 0	8 0	8 0
16	5 4	FS	4 8	4 0 _{US}	3 5	2 3 _F	5 0 _s	7 4	7 6	7 6	7 8	8 0
17	6 6	5 8 _s	3 8	3 3	3 2 _{US}	1 5	5 2	8 0	8 7	8 6	8 1	8 9
18	2 7	2 2 _{US}	2 6 _R	2 0 _{UR}	E	E	5 1	7 9 _I	9 4	9 6 _{II}	8 8	8 4
19	6 0 _{US}	6 4	4 5	3 0	1 9	E	5 4	8 2	9 2	9 6 _{II}	7 9	7 4
20	5 2	4 6 _s	3 1	1 6 _R	E	E	5 2	7 6	8 3	7 6	7 6	7 4
21	5 9	5 5 _{US}	4 0	2 0 _R	E	E	5 5 _H	8 0	9 0	8 5 _{II}	7 7	8 3
22	F _I	FS	FS	FS	F	F	5 4 _{US}	7 8 _{US}	9 2	9 0	7 2	8 3
23	5 4 _F	FS	2 8 _R	E	E	E	4 8	8 3	9 7	8 0	8 8	11 8
24	FS _I	FS	FS	F	F	F	5 3	7 4	9 2	9 1 _{II}	7 3	6 9
25	4.1	3 8	3 2	1 8	E	E	5 0	7 1	7 9	8 8	10 0 _H	9 4 _H
26	4 4	F	F	F	F	2 8 _s	5 2 _s	7 5	8 7	8 5 _{II}	7 0	6 9
27	5 8	5 7	C	4 0	3 1	2 8	5 3	7 7	8 2	7 4	7 3	7 2
28	5 3 _s	3 6	R	E	E	1 3 _F	4 8	7 9	9 3	8 0 _H	7 7	8 3
29	6.1 _{JS}	5 1	3 7	3 0	2 7	1 8	5 1	7 6 _s	8 8	9 8	9 8 _H	8 4
30	4 2	2 5	A	E	R	1 5 _R	5 1 _{US}	8 1	8 6	8 8 _{II}	8 0	7 8
Count	28	25	24	24	23	27	29	30	29	27	29	28
Median	4 9	3 8	3 2	2 0	E	E	4 8	7 2	7 9	8 0	7 3	7 4
Mean	4 7	4.1	3 4	2 6	2 7	2 0	4 9	7 2	8 1	7 9	7 4	7 6

Sweep 1 0 Mc. to 25.0 Mc in 27 seconds

Characteristic, foF₂

TABLE 46

Latitude: 10 2° N.

Unit Mc

Ionospheric Data

Longitude: 77 5° E

Month September 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
6 6	7 0	7 8	9 0	9 7	9 2	8 7	7 2	6 0	3 7	2 7	2 6	1
6 3	6 8	6 9	7 3	8 6	9 2	9 4	8 3	7 1s	5 9s	4 9	4 9	2
6 6	6 5	6 8	7 5	8 3	8 6	8 0	7 1	7 4	6 8	5 5	4 3	3
6 8	7 0	7 6	8 5	9 1	9 0	8 6	8 1	6 8	6 1	4 1s	A	4
6 8	6 7	7 2	8 0	8 4	9 4	9 1	7 7	7 5	7 5	6 3	5 1	5
6 9	7 9	8 5	9 5	9 7	9 0	8 7	8 2	6 9	4 8	3 2	S	6
7 0	6 7	6 8	8 3	8 2	A	7 8	F	F	F	F	6 6	7
C	C	C	C	8 3	8 6	8 1	7 6	8 3	8 1	5 8	4 7	8
7 6	8 0	8 8	9 3	9 6	9 4	9 5	9 1	8 6	7 1Us	6 3Us	5 6s	9
6 8	6 9	7 6	8 0	8 9	9 2	9 2	8 7	8 4	7 8	6 2	5 4v	10
7 4	7 2	7 5	8 4	9 1	9 8	10 2	8 8	8 3	7 5	5 3	4 2s	11
7 0	6 9	7 4	7 8	8 4	9 0	9 0	8 2	8 1Us	8 0	8 0	6 8Us	12
7 6	7 3	7 6	8 3	9 0	8 9	8 3	7 7	7 1Us	7 3	8 0	7 9	13
6 5	6 6	7 4	8 7	10 1	10 6	8 7	8 5	9 3	7 3	6 1	4 8Us	14
8 2	9 3	9 9	10 8	10 8	11 0	10 4	10 0	11 0	8 6	6 3	5 5	15
8 0	8 2	9 2	10 0	10 4	10 0	10 2	9 8	8 8	8 2	7 1	6 5	16
8 8	8 8	9 6	10 4	11 0	11 2	10 9	10 8	9 0	6 5	4 1	2 9	17
8 4	8 6	8 6	9 1	9 2	9 3	9 3	8 8	10 0	8 8	7 4	6 8s	18
7 6	7 6	8 2	9 1	9 6	9 8	10 4	10 8	9 8	7 2s	5 4	5 0	19
7 4	8 0	8 6	9 2	9 6	10 2	9 8	9 6	9 7	9 8s	8 2	6 6Us	20
8.2	8 5	9 8	10 6	10 5	10 4	C	C	C	9 0Us	F	9 1	21
9 8	11 0	11 0	11 2	11 6	10 0	11 6rr	11 0	8 8	7 4	6 2	5 7	22
11 4	12 0	11 2H	11 6rr	11 0	12 2	12 4	11 4	9 8	7 8Us	7 0Us	6 1s	23
7 0	7 4	8 2	8 8	9 5	9 8	9 8	9 6	8 2	7 2	6 4	5 2	24
7 8	8 4	9 1	10 5	11 1	10 6	10 8	9 0	6 9	6 0Us	4 7Us	4 6s	25
7 7	8 3	9 3	9 9	9 4	8 6	9 0	9 3	9 5	9 4s	7 8s	6 5	26
7 9	8 3	9 0	10 1	10 6	10 2	10 1	9 4	8 6	8 8	7 8	6 6	27
9 7	10 1	10 8	11 0	11 3	10 8	10 3	10 6	10 4	9 6	8 0	6 5	28
8 2	7 9	8 4	9 0	9 9	9 7	9 9	9 3Us	9 4	9 1s	6 4s	5 3	29
8 2	8 9	9 4	10 0	10 7	10 7	11 0	9 6	8 6	8 1Us	6 8	6 5	30
29	29	29	29	30	29	29	28	28	29	28	28	Count
7 6	7 9	8 5	9 1	9 6	9 8	9 5	9 0	8 6	7 5	6 3	5 6	Median
7.7	8 0	8 6	9 3	9 7	9 8	9 6	9 1	8 5	7 6	6 1	5 6	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₂

TABLE 46—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	5.4	5.0	3.3	E	E	2.5	6.1	7.3	6.7	6.0	6.1	6.6
2	2.5F	2.5F	2.3F	1.8R	E	2.3	5.5	6.6	6.6	6.5	6.5	6.4
3	3.5	3.3	2.9	1.7UR	E	2.3	5.6	6.9	7.0	6.7	6.4	6.3
4	3.6	3.3	R	E	E	2.5	5.8	7.1	7.1	6.1	6.3	6.7
5	2.7	E	E	E	E	2.5	5.9	7.0	6.3	6.0	6.3	6.6
6	4.4	3.3	E	E	E	2.6	6.0	7.0	7.2H	6.5	6.5	6.8
7	E	E	E	E	E	2.5	5.6	7.1	7.2	7.0	C	7.2
8	5.8Us	4.9	4.5	2.6	R	2.7	5.7	6.8	6.8	C	C	C
9	4.0	3.5	2.4	R	E	2.6	6.1	6.7	7.5	6.9	7.0	7.4
10	4.2	2.2F	1.8	1.8UR	1.7	2.8	6.0s	7.1s	C	7.6	6.9	7.0
11	4.8	4.3	2.9	1.9	E	2.6	5.7	6.8	7.8	7.9	7.8	7.6
12	3.4s	F	F	F	F	F	6.5	7.5	7.0	6.5	6.7	6.8
13	5.4Us	4.7	3.0	1.9R	E	2.6	6.0	7.0	8.1	7.8	7.3	7.4
14	6.9	5.3	2.7	R	E	2.6	6.1s	7.3	8.0	6.6	6.5	6.6
15	2.8	2.1	2.0	R	E	2.3H	6.0	7.7	8.3	8.0	8.1	8.0
16	F	Fs	4.6Us	3.8	2.8	3.0	6.8	7.7	7.6	7.8	8.0	7.8
17	6.2Us	4.8	3.4Us	3.4	2.2R	3.0	7.0	8.5	8.8H	8.0	8.2	9.0
18	F	2.2Us	2.0R	A	E	2.8	7.0	8.6	9.8	9.6H	8.5	8.4
19	6.6s	5.5	3.6	2.2	1.7R	2.9	7.4	8.6	9.2H	8.4H	7.5	7.2
20	5.2Us	3.8	2.3	E	E	2.9	6.8	8.2	8.2	7.6	7.6	7.4
21	5.6	4.6	2.8	R	E	3.1	7.0	8.8	9.0	7.8	8.0	8.5
22	Fs	Fs	Fs	Fs	F	F	6.5	8.9	9.3	8.4H	7.6	9.3
23	5.3	4.9	E	E	E	2.6UR	6.7	9.0	8.2	8.8	11.7	11.8
24	Fs	Fs	Fs	3.0	F	3.0	6.7	8.4	9.3	8.6H	7.1	6.9
25	4.0	3.5	2.8	E	E	3.0	6.5	7.8	8.7	9.3	10.8H	8.2
26	4.1F	F	F	F	3.5	2.8	6.6	8.2	8.7	7.4	6.8	7.3
27	5.7	5.4	C	3.4	2.9	3.1s	6.6	8.0	7.8H	7.3	7.2	7.6
28	5.1s	2.7	E	A	E	2.7	6.5	9.0	8.6	7.5	8.0	8.9
29	5.9s	4.3	3.7	2.7	2.2	2.9	6.8	8.2	9.5	10.0H	8.7	8.1
30	3.2	S	E	E	1.5	2.6	7.0s	8.3	8.9	8.6H	7.8	7.8
Count	26	24	24	21	26	28	30	30	29	29	28	29
Median	4.6	3.6	2.6	1.8	E	2.6	6.5	7.7	8.1	7.6	7.4	7.4
Mean	4.6	3.9	2.9	2.5	2.3	2.7	6.4	7.7	8.0	7.6	7.6	7.6

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic foF₂

TABLE 46 --Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°L. Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
6.7	7.3	8.5	9.0	9.5	9.0	8.5	6.7	4.5R	2.9	2.6	2.5	1
6.4	7.1	7.2	7.8	9.1	9.6	9.0	7.6s	6.1	5.6	4.9s	4.5	2
6.6	6.6	7.2	8.0	8.7	8.6	7.7	7.4	6.8	6.4	4.7	3.8	3
6.8	7.0	8.5	8.4	8.8	8.5	8.5	7.5	7.0	4.8Us	3.4	3.4	4
6.9	6.8	7.8	8.2	8.8	9.5	8.2	7.4	7.5	6.9	5.6	4.7	5
7.3	8.0	9.0	9.7	9.4	8.8	8.3	8.0	5.1Us	4.1	2.4	E	6
6.9	6.7	7.6	8.3	8.7	8.0	F	F	F	F	7.3Us	6.1Us	7
C	C	C	C	8.3	8.5	8.0	7.8	8.1	7.0	5.2Us	4.6	8
7.8	8.5	9.1	9.4	9.5	9.3	9.3	9.2	7.8	6.9	5.6Us	5.4	9
6.8	7.2	7.7	8.5	9.0	9.1	9.0	8.6	8.0	7.0	5.2v	4.8	10
7.3	7.4	7.8	8.6	9.4	10.2	9.6	8.1	8.0	6.4	4.5	3.8	11
7.0	7.0	7.6	8.1	8.6	9.2	8.8	8.0	7.9	8.5	7.3Us	6.2Us	12
7.4	7.5	7.9	8.8	9.0	8.6	8.2	7.5	7.1	7.9s	8.1	7.7s	13
6.5	6.8	8.0	9.4	10.4	9.5	8.4	9.0	8.6	6.9	5.7	4.2	14
8.8	9.8	10.3	10.9	C	10.8	10.0	10.5	10.2	7.0s	5.8	5.6	15
7.9	8.6	9.6	10.4	10.4	10.1	10.4	9.4	8.3	7.6	7.1	6.8	16
8.8	9.0	10.2	11.0	11.4	11.0	10.8	10.0	8.0	4.9	3.5	2.8Us	17
8.6	8.5	8.9	9.2	9.4	9.6	9.1	9.4	9.6	8.1	7.0	6.0Us	18
7.5	7.8	8.6	9.4	9.6	10.2	10.8	11.0	8.2	6.4	5.0	5.0	19
7.6	8.4	8.8	9.6	10.0	10.2	9.9	9.8	9.8	8.9	7.1s	6.5s	20
8.4	9.0	10.1	10.5	10.6	10.3	C	C	9.3	F	8.8Us	F	21
10.3	11.3	10.7	11.7Us	C	10.2H	C	10.0	8.0	6.8	6.1Us	5.4	22
11.6	11.6H	11.2H	11.0H	11.6	11.8Us	11.8	10.7	8.6	7.1Us	6.6	Fs	23
7.2	7.8	8.5	9.2	9.6	10.0Us	9.6	9.2	7.6	7.0	5.7	4.5	24
8.0	8.6	10.0	10.8	10.9	10.5	10.1	8.0	6.0	5.3Us	4.4Us	4.6	25
B	9.0	9.8	9.7	8.8	8.6	9.0	9.4	9.3	8.8	7.2s	6.1s	26
8.0	8.6	9.4	10.5	10.5	10.3	9.6s	9.0	8.6	8.6	7.1Us	5.8	27
10.0	10.4	11.0	11.2	11.5	10.3	10.5	10.2s	10.1s	8.8	7.2Us	6.6	28
7.8	7.9	8.7	9.6	10.0	9.6	9.7Us	9.8	9.4s	7.6	5.7	4.7	29
8.4	9.3	9.6	10.4	10.5	11.2	10.7	9.0	8.8	7.3Us	6.7s	6.8s	30
28	29	29	29	28	30	27	28	29	28	30	29	Count
7.6	8.0	8.8	9.4	9.5	9.6	9.3	9.0	8.0	7.0	5.7	4.9	Median
7.8	8.2	8.9	9.6	9.7	9.7	9.4	8.9	8.0	6.8	5.8	5.1	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic foF₁

TABLE 47

Latitude, 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	4.5	4.4	4.5
2								L	L	4.4	4.5	4.5
3								L	L	4.4	4.5	4.5
4							L	L	L	4.3	4.4	4.5
5								L	L	4.3	4.5	L
6								L	L	C	4.4	4.5
7								L	L	L _{ir}	4.4	C
8								L	L	C	C	C
9								L	L	4.4	4.5 _H	4.5
10								L	L _{ir}	C	4.5	4.6
11								L	L	4.1	4.4	4.5
12								L	L	4.2	L	4.6
13								L	L	L	B	B
14								L	L	L	4.6	4.7
15								L	L	C	L	4.6
16							L	L	L	4.2	4.6	4.7
17							L	L	L	L	4.6	4.6
18							L	L	L	4.5	4.6	4.7
19							L	L	L	L	4.7	4.6
20							L	L	L	L	L	4.6
21								L	L	L	B	B
22								L	L	4.4	L	4.8
23								L	L	L	L	L
24								L	L	L	L	4.7
25								L	L	L	4.8	4.7
26							L	L	L	4.4	L	L
27							L	L _{ir}	L	L	L	L
28								L _{ir}	L	L	4.6	4.6
29							L	L	L	L _{ir}	4.4	4.6
30								L	L	L _{ir}	4.5	4.5
Count									2	12	19	22
Median										4.4	4.5	4.6
Mean										4.4	4.5	4.6

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic f_oF_1

TABLE 47

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
4.6	4.5	4.4	4.2	4.0	L							1
4.5	4.5	4.3	4.1	A	L							2
4.6	4.5	4.3	4.3	A	A							3
4.5	4.5	4.4	4.1	L	L							4
4.5	4.5	4.5	4.1	A	I							5
4.5	4.5	4.6	L	L	L							6
4.5	4.4	4.3	4.2	L	A							7
C	C	C	C	I	I							8
4.5	4.5	L	L	L	I							9
4.5	4.5	4.4	L	L	L							10
4.6	4.5	4.4	A	L	L							11
4.6	4.5	I	L	A	L							12
4.6	4.8	4.5	I	I	L							13
4.7	L	4.5	L	L	L							14
4.7	4.6	A	L	L	L							15
L	4.9	A	4.3	L	I							16
L	4.7	4.5	L	L	L							17
4.6	4.6	4.6	4.4	L	L	L						18
4.6	4.6	4.6	L	L	I							19
4.6	4.8	4.6	A	A	L	L						20
4.7	4.7	4.7	L	L								21
L	L	L	L	L	L							22
L	L	L	L	L	L							23
4.7	4.6	4.5	L	A	A							24
L	L	L	L	L	L							25
4.7	B	B	L	L								26
4.6	4.5	4.4	L	L								27
4.6	L	4.4	A	L								28
4.6	L	4.4	L	L								29
4.6	4.5	4.3	L	A	L							30
23	22	19	5	1								Count
4.6	4.5	4.5	4.3									Median
4.6	4.6	4.5	4.3									Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foF₁

TABLE 47—Contd

Latitude 10 2' N.

Unit Mc

Ionospheric Data

Longitude 77 5' E

Month September, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	L	L	4.1	4.5	4.6
2							L	L	L	4.4	4.5	4.1
3							L	L	4.2	4.5	4.5	4.6
4							L	L _{IR}	L	4.1	4.5	4.5
5							L	L	L	4.5	4.5	4.6
6							I	L	L	4.5	4.6	4.5
7							I	L	4.5 _{IR}	4.5	C	4.5
8							L	L	L _{IR}	C	C	C
9							L	I _{IR}	4.4	L	4.6	4.5
10							L	L	C	4.4	4.5	4.5
11							L	L	4.2	4.4	4.4	4.5
12							L	L _{IR}	L	4.5	4.6	4.5
13							L	L	4.4	B	B	4.6
14							L	L	4.5	4.6	4.6	4.6
15								L	L	L	4.7	4.6
16						L	L	I	L	4.1	4.6	4.7
17						L	L	L	L	4.8	4.7	4.7
18						L	L	L	4.5	4.5	4.6	4.7
19							L	L	I	4.6	4.7	4.6
20						L	L	L	4.6	4.6	4.7	4.7
21							L	L	L	L	B	4.8
22							L	L	L	L	L	L
23							L	L	L	L	L	L
24							L	L	L	L	L	L
25								L	L	L	4.8	L
26							L	L	L	L	L _{IR}	4.7
27							L	L _{IR}	L	4.5	4.6	L
28							L _{IR}	L _{IR}	L	4.1	4.5	4.4
29							L	L	L	4.5	4.4	4.5
30							L	L	L _{IR}	4.5	L	L
Count									8	20	21	22
Median									4.4	4.5	4.6	4.6
Mean									4.4	4.5	4.6	4.6

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foF₁

TABLE 47—Contd

Latitude 10 2° N

Unit Mc.

Ionospheric Data

Longitude 77 5° E

Month: September, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
4.6	4.4	4.3	L	L								1
4.6	L	L	L	A								2
4.5	4.4	4.3	L	A	A							3
4.6	4.5	A	A	L								4
4.5	4.4	4.3	L	A								5
4.6	4.4	4.4	L	L								6
4.5	4.5	4.3	L	L								7
C	C	C	C	L								8
4.5	4.5	4.3	L	L								9
4.6	4.5	4.4	L	L								10
4.5 _{it}	4.4	A	A	L								11
4.5	4.4	L	A	A								12
4.5	4.6	4.4	L	L								13
4.6	4.5	L	L	L								14
L	A	L	L	C								15
4.7	4.6	4.6	B	L	L							16
L	4.7	L	A	L	L							17
4.8	4.7	L	L	L	L							18
4.6	L	4.4	A	L	L							19
B	4.6	L	A	A	L							20
4.8	L	L	L	L								21
L	L	L	L	C								22
L	L	L	L	L								23
4.7	4.7	4.4	L	A								24
L	L	L	L	L								25
B	B	B	L	L								26
4.6	4.5	L	L									27
4.5	L _{it}	A	L									28
4.5 _{it}	4.4	L _{it}	A	L								29
4.3	4.4	L	A	A								30
<hr/>												
22	20	11										Count
<hr/>												
4.6	4.5	4.4										Median
<hr/>												
4.6	4.5	4.4										Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic foE

TABLE 48

Latitude 10 2° N,

Unit Mc

Ionospheric Data

Longitude 77 5° E,

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								A	A	A	A	A
2								A	A	A	A	A
3								A	A	A	A	A
4							R	2.5 _H	A	A	A	A
5								A	A	A	A	A
6							R	A	A	C	A	A
7							1.7 _H	A	A	A	A	C
8							R	2.6 _H	A	C	C	C
9								A	A	A	A	A
10								R	A	C	A	A
11								2.6 _H	A	A	A	A
12								A	A	A	A	A
13								2.5	A	A	B	B
14								2.4 _{UR}	A	A	B	A
15								B	C	B	B	B
16							A	A	A	A	A	A
17								A	A	A	A	A
18								A	A	B	A	A
19							A	A	A	A	A	A
20								A	A	A	A	A
21								B	B	B	B	B
22								A	A	A	A	A
23								2.4	2.7	B	A	A
24								2.5	A	A	A	A
25								2.4	3.0	A	A	A
26								A	A	A	A	A
27							1.6 _{UR}	A	A	A	A	A
28								A	A	A	A	A
29							1.9 _H	2.7 _H	A	A	A	A
30								A	A	A	A	A
Count							3	9	2			
Median								2.5				
Mean								2.5				

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic. foE

TABLE 48

Latitude. 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	B	B	B								1
A	A	A	A	A	A							2
A	A	A	A	A	A							3
A	A	A	A	A	A							4
A	A	A	A	A	A							5
A	A	A	B	B								6
A	A	A	A	A	A							7
C	C	C	C	A	A							8
A	A	A	A	B	R							9
A	A	A	A	2 9R	A							10
A	A	A	A	A								11
A	A	A	R	A	A							12
B	B	A	B	A								13
A	A	A	A	R								14
B	B	B	3 2R	B	R							15
A	A	A	A	A	A							16
B	A	A	A	A	A							17
A	A	A	A	A	A							18
A	A	A	A	A	B							19
A	A	A	A	A	A							20
B	B	B	B	S								21
A	B	3 2	A	R								22
A	A	A	A	2 6								23
A	A	A	A	A	A							24
A	A	A	B	B								25
A	B	B	B	B	A							26
A	A	A	R	A	A							27
A	3 6UR	A	A	A	B							28
A	A	A	A	2 5	A							29
A	A	A	A	A	A							30
		1	1	1	3							Count
												Median
												Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foE

TABLE 48—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E.

Month September, 1963.

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							R	A	A	A	A	A
2							R	A	A	A	A	A
3							R	A	A	A	A	A
4							2 2 _H	A	A	A	A	A
5							R	A	A	A	A	A
6							R	A	A	A	A	A
7							2 3 _H	A	A	A	C	A
8							2 3 _H	A	A	C	C	C
9							R	A	A	A	A	A
10							2 3	A	C	A	A	A
11							2 3 _H	3 0 _H	A	A	A	A
12							A	A	A	A	A	A
13							2 1 _R	2 7 _{UR}	A	B	B	B
14							2 3 _H	A	A	A	A	A
15							A	B	B	A	B	B
16							A	A	A	A	A	A
17							A	A	A	A	A	A
18							R	A	A	A	A	A
19							A	A	A	A	A	A
20							2 3 _R	A	A	A	A	A
21							B	B	B	B	B	B
22							F	A	A	A	A	3 4
23							2 2	2 3	B	A	A	A
24							R	2 6	A	A	A	A
25								S	2 9	A	A	A
26							2 2 _H	A	A	A	A	A
27							2 3 _H	A	A	A	A	A
28							A	A	A	A	A	A
29							R	A	A	A	A	A
30							A	A	A	A	A	A
Count							11	4	1			1
Median							2 3					
Mean							2 2					

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds.

Characteristic foE

TABLE 48—Contd

Latitude 10 2° N

Unit Mc.

Ionospheric Data

Longitude 77 5° E.

Month September, 1963.

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	B	B									1
A	A	A	A	A								2
A	A	A	A	A								3
A	A	A	A	A								4
A	A	A	A	A								5
A	A	A	B	B								6
A	A	A	A	A								7
C	C	C	C									8
A	A	A	A	R								9
A	A	A	A	A								10
A	A	A	A	A								11
A	A	A	A	A								12
B	A	A	A	A								13
A	A	A	B									14
B	B	B	B	C								15
A	A	3-3	B	A								16
A	B	A	A	A	A							17
A	A	A	A	A		A						18
A	A	A	A	A								19
A	A	A	A	A	A							20
B	B	B	B	A								21
A	B	A	A	C								22
A	A	3-3	B									23
A	A	A	A	A								24
A	A	3-1	B									25
B	B	B	B	A								26
A	A	A	2.9UR	A								27
3.0R	A	A	B	A								28
A	A	A	A	B								29
A	A	A	A	A								30
1		3	1	..								Count
.												Median
.												Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds

Characteristic foEs

TABLE 49

Latitude 10° 2' N

Unit Mc

Ionospheric Data

Longitude 77° 5' E

Month September, 1963.

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								4.6	8.1	10.0	9.6	10.6
2			3.1s					3.6	8.4	9.6	10.0	10.0
3								6.4	8.2	8.8	10.4	10.0
4							G	G	8.1	9.0	8.8	9.2
5								S	9.0	10.6	10.8	11.2
6							G	5.0	9.2	C	10.4	11.0
7							G	6.0	8.0	9.4	11.3	C
8							G	G	9.8	C	C	C
9								7.0	9.0	10.1	11.8	11.6
10			2.0					G	9.0	C	11.7	10.6
11		2.6	2.8				2.5	G	8.6	9.7	10.6	11.0
12	S				3.1s			8.0	8.8	9.7	11.0	10.7
13	6.0: s							G	8.6	10.0	B	11.6
14								G	10.0	11.0	12.3	11.7
15								9.0	C	12.2	12.0	12.0
16	S	3.6					2.6	8.0	9.8	9.6	9.6	11.3
17								8.1	8.9	11.6	10.2	11.1
18								3.3	8.6	9.8	9.8	11.6
19							2.9	4.0	9.8	10.2	10.2	10.2
20								6.6	8.8	9.8	10.2	10.1
21								G	9.6	11.1	11.2	11.2
22			4.6	S				6.6	8.8	10.7	11.0	11.2
23	3.2	2.8						G	G	G	11.0	11.2
24				4.2				G	7.8	9.0	9.8	10.2
25		6.1						G	G	9.0	11.2	11.2
26								6.8Us	10.6	10.8	10.8	12.0
27							G	7.0	9.8	12.0	11.4	12.0
28								6.3	9.6	10.8	12.1	12.1
29							G	G	8.0Us	10.8	11.6	12.0
30	S	3.6	3.0					8.8	11.2	11.0	11.2	11.2
Count	2	5	5	1	1		9	29	29	27	28	28
Median		3.6	3.0				G	1.6	8.8	10.0	10.9	11.2
Mean		3.8	3.1					6.4	9.1	10.2	10.8	11.1

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic foEs

TABLE 49

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
11 0	9 8	6 0	6 0	G								1
9 6	9 6	8 8	8 1	11 0	6 6	3 2						2
10 5	10 8	11 0	8 8	11 0	10 0	8 0	3 7					3
9 0	8 7	8 6	12 7	10 0	9 8					S	7 0s	4
11 0	10 2	10 0	9 0	12 0	6 4	7 0						5
11 4	11 0	8 8	G	G								6
11 6	9 6	10 6	9 2	6 6	8 3	10 6		2 7	1 0	4 2	5 3	7
C	C	C	C	8 0	6 6	1 6			3 0			8
11 0	11 0	8 2	8 1	6 0	G		3 0					9
11 0	11 1	11 1	9 2	G	6 0	5 1		2 7	3 8	2 3	3 2	10
11 8	10 1	8 6	13 1	8 1			1 0			3 2		11
11 0	11 2	10 8	G	10 4	1 2							12
12 4	12 0	12 0	10 0	8 6								13
11 7	11 9	11 1	6 0	G								14
11 3	6 0	6 3	G	G	G							15
9 8	10 1	9 6	7 4	7 9	6 2	2 8						16
11 4	10 3	9 8	8 0	6 9	8 1							17
9 8	9 6	10 2	8 8	8 1								18
11 6	11 0	9 8	8 9	G								19
11 1	11 2	10 6	10 2	11 3	9 0	6 2						20
11 2	11 0	11 0	9 2	S		C	C	C				21
5 8	6 6	G	9 6	8 2	6 0						5 6	22
12 0	11 0	11 0	8 4	G								23
10 6	11 0	10 0	8 8	10 8	10 6	6 8		3 0				24
11 6	11 0	10 1	G	G		3 3				5 8	3 2us	25
12 0	B	11 0	10 8	8 8	6 6	2 8	5 2us					26
12 4	11 8	10 0	8 2	5 6	3 2							27
9 0	8 3	9 4us	9 4us	B							2 8	28
11 8	11 8	10 6us	8 5us	G	8 7us		2 9			S	5 8us	29
12 0	10 8	10 6s	9 6s	12 1us	S			3 7us			3 6us	30
29	28	29	29	28	18	11	5	3	4	1	8	Count
11 2	10 9	10 0	8 8	8 0	6 6	5 1	3 7				4 4	Median
10 9	10 3	9 8	9 1	9 0	7 3	5 5	3 8				4 6	Mean

Sweep 1 0 Mc, to 25 0 Mc in 27 seconds

Characteristic foEs
 Unit Mc
 Month September, 1963

TABLE 49—Contd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	8 6	9 6	10 1	11 0	10 0
2							G	6 6	8 6	9 8	9 7	10 0
3							G	7 6	9 2	9 0	10 4	10 4
4							G	8 0	8 6	9 6	10 0	10 0
5							G	7 6	9 4	10 8	10 8	11 0
6	2 5						G	8 2	9 6	11 0	11 0	11 2
7							C	7 2	9 0	10 7	C	11 9
8							G	7 0	10 0	C	C	C
9							G	8 0	11 0	10 6	11 2	12 0
10		S					G	8 0	C	11 0	11 6	11 0
11	3 2	4 3					G	G	8 6	10 8	9 6	12 0
12	3 1	2 8		1 9	2 4	2 7	6 0	8 4	9 6	10 0	11 0	11 2
13	3 1						G	S	9 2	B	11 6	12 0
14							G	9 0	11 0	12 0	12 0	12 0
15							S	9 2	12 0	12 1	11 7	12 1
16	3 4	3 2					6 4	8 9	9 1	10 8	11 6	11 2
17				2 2			3 4	8 2	8 8	10 2	11 2	11 2
18				6 4			G	4 0	9 8	9 7	11 4	11 8
19							3 6	8 6	9 9	11 3	10 8	11 2
20							G	8 1	9 8	11 1	11 4	11 2
21				6 8			C	9 0	11 0	10 2	11 1	11 2
22		3 0	S	S			6 2	8 4	9 2	9 6	10 7	G
23	2 6						G	G	G	10 0	G	11 6
24							G	G	8 4	10 0	9 6	10 0
25		S						C	G	10 0	10 8	11 6
26							G	10 0	10 2	11 8	11 8	12 0
27				G			G	8 8	11 0	11 4	11 8	12 2
28				6 4			3 0	7 0	10 2	11 2	12 0	11 4
29							G	S	10 2	11 4	12 0	12 0
30	3 5						S	10 0	11 6	12 1	11 4	10 6
Count	7	4		5	1	1	27	28	29	28	28	29
Median	3 1			6 4	.		G	8 0	9 6	10 8	11 2	11 2
Mean	3 0			4 7	.	..	4 8	8 1	9 8	10 6	11 1	11 3

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foEs

TABLE 49—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

1230	1330	1130	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
10 7	9 7	S	G									1
9 6	9 6	8 6	7 1	9 6								2
10 3	10 8	11 2	8 0	10 2	10 2	6 6	3 2					3
9 4	8 8	11 0	12 1	9 1s		3 0				4 6s		4
10 8	11 0	9 8	7 6	9 6	9 0							5
11 1	10 0	6 0	G	G						3 2		6
11 4	11 0	10 0	8 0	6 1	12 0			2 2	3 5	6 0	3 8us	7
C	G	C	C	F 0	6 2	2 7			2 9	1 2		8
11 0	11 0	8 2	7 6	G			3 0					9
11 0	11 0	10 7	8 0	9 0	1 0				3 9			10
11 8	11 0	11 0	10 1	8 2	2 8	3 7			S		2 7	11
11 4	10 9	8 4	9 0	9 0	3 0		3 0				3 1	12
12 2	12 0	12 0us	8 7	6 8								13
11 7	11 3	9 8	G									14
10 8	11 0	7 0	G	C								15
11 1	9 2	8 6	B	8 0		6 2					6 9	16
11 1	9 4	11 0	11 1	9 4	6 1						2 4	17
11 2	11 2	9 8	8 0	6 3								18
11 2	10 0	10 0	9 3							3 0		19
11 0	10 8	9 1	10 7	9 6	7 0us							20
11 3	9 8	9 2	8 0	1 0		C	C					21
11 1	7 0	9 1	8 6	C	3 0	C					3 2	22
11 2	11 2	9 6	G									23
10 8	10 2	9 0	9 6	10 1	8 1		3 0					24
11 8	10 1	8 0	G		5 6			S		3 8us	3 1	25
B	B	8 0	9 1	8 6	6 0	2 8						26
12 2	11 1	8 1	G	3 0				2 9	2 6			27
G	8 6	9 1	G	3 4					2 9us			28
11 6	11 9	9 8us	5 4	G		2 8				4 8s	9 0us	29
11 0	11 0	11 0s	12 0s	9 6us	5 6s		S			3 2s	S	30
28	28	28	28	23	14	7	2	3	4	10	8	Count
11 2	10.8	9 5	8 0	8 2	6 0	3 0	.	.	.	3 5	3 2	Median
11 1	10 4	9 5	8 9	7.7	6.4	4 0				3.8	4 3	Mean

Sweep 1.0 Mc to 25 0 Mc in 27 seconds.

Characteristic f_oE_s

TABLE 50

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								2.6	3.0	3.3	3.5	3.7
2			—					2.5	3.0	3.1	3.6	3.7
3								2.6	3.0	3.3	3.5	3.6
4							G	G	3.0	3.4	3.6	3.8
5								2.6	3.0	3.3	3.5	3.6
6							G	2.6	3.0	C	3.6	3.7
7							G	2.7	3.0	3.4	3.6	C
8							G	G	3.0	C	C	C
9								2.6	3.0	3.3	3.5	3.6
10			1.6					G	3.1	C	3.6	3.9
11							—	G	3.0	3.3	3.4	3.7
12	—	—	1.7		1.5			2.6	3.0	3.3	3.6	3.7
13	2.0							G	3.0	3.4	B	4.8
14								G	3.1	3.4	—	3.8
15								—	C	3.7	3.9	3.8
16	2.0	2.1					2.0	2.6	3.2	3.5	3.7	3.8
17								2.5	3.1	3.6	3.6	3.7
18								2.6	3.0	—	3.6	3.6
19							2.1	3.0	3.5	3.6	3.6	3.7
20								2.7	3.1	3.1	3.6	3.6
21								G	—	—	—	—
22			1.9	2.2				2.6	3.0	3.3	3.7	3.9
23	1.7	1.9						G	G	G	3.6	3.6
24				1.9				G	3.0	3.3	3.5	3.6
25		2.3						G	G	3.4	3.6	3.8
26								2.6	2.9	3.3	3.5	3.6
27							G	2.5	3.0	3.2	3.5	3.7
28								2.5	3.0	3.3	3.4	3.6
29							G	G	3.1	3.3	3.6	3.5
30	—	—	A					2.8	3.3	3.2	3.5	3.5
Count	3	3	4	2	1	—	8	29	28	25	26	27
Median	—	—	—	—	—	—	G	2.5	3.0	3.3	3.6	3.7
Mean	—	—	—	—	—	—	—	2.6	3.1	3.1	3.6	3.7

Sweep 1 @ Mc to 25.0 Mc in 27 seconds

Characteristic f_oF₂

TABLE 50

Unit Mc

Ionospheric Data

Latitude 10.2° N

Month September, 1963

75°E Mean Time

Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
3.6	3.6	--	--	G								1
3.7	3.6	3.4	3.2	5.0	2.8	2.4						2
3.7	3.7	3.5	3.3	5.0	1.4	3.6	2.9					3
3.8	3.7	5.4	6.7	3.2	3.5					1.9	2.2	4
3.8	3.8	3.1	3.2	5.2	2.4	2.1						5
3.7	3.8	3.6	G	G								6
3.7	3.8	3.6	3.2	3.1	Λ	1.9		1.9	2.1	2.3	--	7
G	G	G	G	2.9	2.7	2.9			--			8
3.6	3.7	3.5	3.3	--	G		2.0					9
3.7	3.6	3.6	3.3	G	3.0	2.4		2.0	2.2	--	--	10
3.7	3.5	3.3	5.8	3.6			2.1			2.0		11
3.7	3.6	3.1	G	5.1	3.0							12
3.9	3.7	3.4	--	3.0								13
3.8	3.8	3.6	3.2	G								14
3.9	3.9	4.5	G	G	G							15
3.8	3.8	1.8	3.4	3.2	2.6	1.9						16
--	3.7	3.7	1.0	3.5	2.6							17
3.8	3.8	3.6	3.2	3.0								18
3.8	3.6	3.6	5.6	G								19
3.6	3.8	3.6	4.1	1.4	3.8	3.0						20
--	--	3.8	--	S		G	G	G				21
3.7		G	3.4	3.0	--						2.8	22
3.8	3.6	3.4	3.2	G								23
3.6	3.6	3.6	3.5	5.0	4.4	4.2			1.9			24
3.8	3.6	3.6	G	G		2.4				1.9	1.5	25
3.8	B		3.8	3.3	3.2	2.2	2.1					26
3.7	3.5	3.4	3.1	2.9	2.5							27
3.6	--	3.6	4.2	--								28
3.7	3.5	3.4	3.2	G	3.2		2.0			2.4	1.9	29
3.6	3.6	3.1	3.1	5.0	2.5			2.1			2.0	30
27	25	27	26	27	18	11	5	3	3	5	5	Count
3.7	3.7	3.6	3.3	3.0	2.9	2.4	2.1	--	--	2.0	2.0	Median
3.7	3.7	3.6	3.7	3.9	3.1	2.6	2.3	--	--	2.1	2.1	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fbEs

TABLE 50—Contd

Unit Mc.

Ionospheric Data

Latitude 10 2° N

Month September 1963

75°E Mean Time

Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	2.8	3.3	3.4	3.6	3.7
2							G	2.8	3.2	3.5	3.7	3.8
3							G	2.9	3.2	3.4	3.6	3.7
4							G	2.8	3.2	3.6	3.6	3.7
5							G	2.8	3.1	3.5	3.6	3.7
6	1.4						G	2.8	3.2	3.5	3.7	3.8
7							G	2.9	3.2	3.1	C	3.7
8							G	2.9	3.3	C	C	C
9							G	2.8	3.2	3.4	3.6	3.6
10		2.0					G	2.8	C	3.4	3.6	3.7
11	1.9						G	G	3.0	3.3	3.7	3.7
12		1.7			1.5	1.7	2.3	2.8	3.1	3.5	3.7	3.8
13	1.9						G	2.8	3.2	B		4.2
14							G	2.9	3.3	3.6	3.7	3.8
15								2.8	3.4	3.7		3.9
16	2.0	2.3						2.3	2.9	3.3	3.6	3.7
17				1.4				2.2	3.1	3.3	3.6	3.8
18				A				G	3.0	3.3	3.7	3.8
19								2.6	3.2	3.1	3.6	3.8
20								G	3.0	3.3	3.5	3.6
21								G				
22			2.3					2.3	2.9	3.4	3.5	3.8
23	1.8							G	G	G	3.4	G
24								G	G	3.3	3.3	3.6
25		2.3							G	G	3.6	3.6
26								G	2.8	3.1	3.1	3.6
27								G	2.8	3.1	3.3	3.6
28								2.3	2.7	3.2	3.4	3.5
29								G	2.9	3.3	3.3	3.5
30								2.2	3.2	3.1	3.1	3.5
Count	5	4	1	3	1	1	29	28	28	27	25	28
Median	1.9		.				G	2.8	3.2	3.5	3.6	3.7
Mean	1.8						2.4	2.9	3.2	3.5	3.6	3.7

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic fbEs

TABLE 50—Contd

Unit Mc

Ionospheric Data

Latitude 10 2° N

Month September 1963

75°E Merid Time

Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3 7	3 5		G								1 8	1
3 7	3 4	3 4	3 2	4 6								2
3 7	3 7	3 5	3 3	4 5	4 8	3 1	2 5					3
3 7	3 6	4 4	5 0	3 0		2 7				1 7		4
3 6	3 6	3 3	3 4	4 0	2 8							5
3 8	3 5	3 4	G	G								6
3 8	3 6	3 4	3 3	2 7	5 0			1 9	2 1	1 8	2 3	7
C	C	C	C	2 6	2 8	2 0			2 2	2 4		8
3 8	3 7	3 5	3 2	G								9
3 6	3 6	3 4	3 2	2 9	2 5				2 4			10
3 7	3 5	4 2	4 0	3 5	2 3	2 8						11
3 7	3 6	3 4	4 4	4 6	2 6			2 4			2 0	12
3 8	3 7	3 4	3 3	2 7								13
3 8	3 6	3 6	G									14
3 9	4 6	3 7	G	C								15
	4 0	3 5		2 8		2 5					2 2	16
3 8	3 7	3 4	5 0	2 8							1 6	17
3 9	3 7	3 4	3 1	3 0								18
3 7	3 6	3 4	4 8							2 2		19
	3 6	3 6	4 6	4 6	3 0							20
	3 9			3 5	C	C	C					21
3 8		3 4	3 2	C	2 0	C					2 2	22
3 6	3 5	3 4	G									23
3 7	3 4	3 4	3 9	4 6	4 4			2 2				24
3 7	3 8	3 4	G	2 4					1 7	1 6	1 6	25
B	B		3 8	3 1	2 6	2 1						26
3 6	3 6	3 4	G	2 6					2 1	1 5		27
G	3 5	4 2		3 0						1 9		28
3 6	3 6	3 2	4 2	G		1 9				1 6	2 3	29
3 6	3 5	3 4	5 2	3 5	2 4			1 8		1 6	1 8	30
25	27	26	26	23	13	7	1	4	5	10	9	Count
3 7	3 6	3 4	3 3	3 0	2 6	2 5			2 1	1 8	2 0	Median
3 7	3 6	3 5	3 9	3 4	3 0	2 4	2 1	1 8	2 0	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fmm

TABLE 51

Unit Mc

Ionospheric Data

Latitude 10 2° N.

Month September 1963

75°E Mean Time

Longitude 77.5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	13	15	15	14	E	E	17	19	21	25	28	30
2	17	14	15	14	E	E	19	18	22	26	28	32
3	12	E	13	13	E	E	17	19	22	25	26	30
4	17	17	12	E	E	E	16	18	23	23	28	30
5	18	16	E	E	E	E	17	19	19	24	25	26
6	16	13	15	E	E	E	15	17	20	C	26	27
7	16	E	E	E	E	E	14	15	19	22	26	C
8	16	19	22	19	25	E	13	18	20	C	C	C
9	15	16	15	S	E	E	17	16	20	23	27	29
10	14	12	10	11	12	E	19	19	21	C	24	26
11	16	17	13	15	E	E	17	18	22	22	24	28
12	15	11	17	16	E	14	21	17	19	23	26	29
13	15	15	16	14	E	E	17	18	21	25	50	46
14	13	14	E	11	E	E	17	16	21	24	38	28
15	16	15	14	11	E	E	21	31	C	28	38	35
16	17	13	15	16	14	11	13	18	26	24	26	30
17	16	16	14	12	16	E	18	17	20	34	32	28
18	11	16	16	E	E	E	20	23	22	37	27	30
19	13	14	11	11	13	E	17	22	24	28	30	30
20	16	13	15	13	E	E	17	18	22	25	24	29
21	20	16	14	12	E	E	22	38	43	46	50	48
22	16	10	11	11	18	14	20	16	19	23	25	26
23	14	16	22	E	E	E	19	18	23	33	28	28
24	16	14	16	15	S	11	18	17	19	23	25	28
25	16	14	19	14	E	E	19	19	20	25	26	31
26	14	13	E	13	12	12	17	16	19	22	24	28
27	18	18	C	14	14	11	14	18	20	23	25	27
28	16	16	S	E	E	11	18	15	18	20	24	27
29	16	16	14	14	16s	E	14	16	19	20	23	26
30	18	16	18	E	E	11	19	17	19	20	24	25
Count	30	30	28	29	29	30	30	30	29	27	29	28
Median	16	15	14	12	E	E	17	18	20	24	26	28
Mean	16	15	15	13	16	12	17	19	21	26	29	30

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic fmin

TABLE 51

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mc in Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
3 0	2 8	3 5	3 2	3 0	2 6	2 6	2 3	1 9	2 3	1 9	1 7	1
3 0	2 9	2 7	2 8	2 8	2 3	1 7	2 1	1 9	1 9	1 9	1 7	2
3 0	2 8	2 5	2 5	2 1	1 9	1 7	2 1	2 2	2 0	2 2	1 9	3
3 0	3 0	2 8	2 6	2 4	2 8	2 6	2 2	2 2	1 9	S	1 6	4
2 9	2 8	2 6	2 1	2 2	2 4	2 1	1 9	1 8	1 9	1 4	1 4	5
3 0	3 0	2 7	3 7	3 0	2 7	2 0	1 6	1 9	1 9	1 5	E	6
2 8	2 7	2 5	2 4	2 3	2 1	1 7	1 8	1 2	1 8	1 7	1 8	7
C	C	C	C	2 2	1 9	1 8	2 2	1 7	1 9	1 6	1 4	8
2 8	2 8	2 6	2 7	3 0	2 2	1 9	1 9	1 9	1 8	1 6	1 6	9
2 6	2 5	2 5	2 2	2 4	2 0	2 2	1 9	1 9	1 8	1 6	1 6	10
2 7	2 6	2 5	2 1	2 2	2 4	2 2	2 0	1 7	2 0	1 6	1 6	11
2 8	2 8	2 8	2 7	2 4	2 1	2 5	2 5	1 9	2 2	1 9	1 4	12
3 7	3 0	2 8	3 4	2 4	2 3	1 7	1 5	1 5	1 5	1 2	E	13
2 7	2 7	2 5	2 5	2 8	2 4	1 8	2 1	2 0	1 7	1 7	1 6	14
3 2	3 2	3 4	2 6	3 0	1 9	1 7	1 9	1 8	2 0	2 0	1 8	15
2 9	3 0	2 9	3 0	2 2	1 8	1 5	1 8	2 3	1 7	1 7	1 6	16
4 7	3 1	2 8	3 0	3 2	2 4	2 2	1 8	2 2	2 2	1 4	1 5	17
3 0	3 0	2 8	2 4	2 3	2 4	2 0	1 7	1 6	1 7	1 5	1 4	18
3 0	2 6	2 6	2 6	3 0	2 4	2 0	2 6	2 1	2 1	1 9	1 6	19
3 0	3 0	3 2	2 6	3 0	1 4	2 6	2 2	2 2	1 6	1 5	1 7	20
4 2	3 9	3 8	3 4	S	3 0	C	C	C	1 8	1 6	S	21
2 8	3 8	2 8	2 8	2 5	2 5	2 2	2 2	2 1	1 9	2 3	1 9	22
2 8	2 8	2 9	2 7	2 4	2 8	2 2	1 9	2 0	1 6	1 5	1 4	23
3 0	2 8	2 7	2 4	3 0	2 6	3 0	2 2	1 9	1 9	1 6	1 5	24
2 8	2 8	2 8	3 3	2 9	2 4	2 0	1 9	1 7	1 6	1 6	1 4	25
2 9	6 5	4 8	3 7	2 9	2 2	1 8	1 9	2 0	1 9	2 1	1 7	26
2 8	2 7	2 5	2 2	2 3	2 4	2 5	2 0	2 0	1 5	1 5	1 5	27
2 9	2 8	2 9	1 9	3 0	2 2	1 9	1 5	1 6	1 4	1 6	1 5	28
2 9	2 6	2 4	2 0	2 2	2 0	1 8	1 4	1 5	1 5	1 5	1 5	29
2 4	2 4	2 3	1 9	2 1	1 8	1 8	1 8	1 6	1 4	1 1	1 6	30
29	29	29	29	29	30	29	29	29	30	29	29	Count
2 9	2 8	2 8	2 6	2 1	2 4	2 0	1 9	1 9	1 8	1 6	1 6	Median
3 0	3 0	2 8	2 6	2 6	2 3	2 1	2 0	1 9	1 8	1 7	1 6	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fmin
Unit Mc
Month September, 1963

TABLE 51—Contd
Ionospheric Data
75°E Merid Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	1.5	1.4	1.5	E	E	1.5	1.8	2.0	2.3	2.6	2.9	3.0
2	1.4	1.6	1.4	1.2	E	1.6	1.6	2.1	2.4	2.8	3.0	3.0
3	1.7	1.3	1.4	2.2	E	1.4	1.6	2.0	2.4	2.5	2.8	3.0
4	1.4	1.4	1.4	E	E	1.0	1.5	2.0	2.1	2.6	2.8	3.0
5	1.4	E	E	E	E	1.4	1.6	2.0	2.2	2.5	2.5	2.9
6	1.2	1.4	E	E	E	1.4	1.5	1.9	2.2	2.4	2.7	2.0
7	E	E	E	E	E	1.2	1.5	1.7	1.9	2.6	C	3.0
8	1.6	2.1	2.1	1.5	1.2	1.2	1.8	1.8	2.3	C	C	C
9	1.3	1.6	1.2	E	E	1.2	1.6	1.8	2.1	2.3	2.8	2.8
10	1.3	1.6	E	1.2	E	1.4	1.7	1.9	C	2.2	2.4	2.7
11	1.5	1.5	1.7	1.4	E	1.4	1.8	2.2	2.1	2.3	2.6	2.6
12	1.2	E	1.2	1.4	E	1.4	1.8	1.8	2.0	2.4	2.8	2.8
13	1.0	1.6	1.5	1.2	E	1.3	1.7	2.0	2.3	5.2	4.8	4.0
14	1.1	1.2	1.4	E	E	1.2	1.4	1.9	2.2	2.5	2.7	2.9
15	1.5	1.5	1.1	E	E	E	2.5	3.2	3.0	3.0	4.0	3.1
16	1.5	1.4	1.5	1.6	1.6	1.1	1.4	2.2	2.4	3.0	2.6	2.8
17	1.7	1.4	1.3	1.1	1.5	1.5	1.8	2.0	2.2	3.2	2.8	3.0
18	1.6	1.5	1.3	1.5	E	1.4	1.7	2.2	3.0	2.8	3.0	3.2
19	1.2	1.1	1.2	1.5	1.3	1.6	1.9	2.4	2.6	3.0	3.0	3.0
20	1.5	1.7	1.3	E	E	1.4	1.7	2.2	2.3	2.4	2.8	2.9
21	1.3	1.3	1.3	1.4	E	1.4	3.6	3.9	4.4	4.6	4.9	4.4
22	1.0	1.3	1.1	1.8	1.4	1.8	1.6	1.8	2.1	2.4	2.5	2.8
23	1.1	1.9	E	E	E	2.2	1.9	1.8	3.2	2.5	2.8	2.8
24	1.1	1.1	1.2	1.9	1.6	1.3	1.7	1.7	1.9	2.3	2.9	2.9
25	1.7	1.6	1.8	E	E	1.4	2.2	2.2	2.3	2.7	2.6	3.2
26	1.2	1.3	1.1	1.4	E	1.4	1.6	1.8	2.0	2.4	2.6	2.9
27	1.7	1.6	C	1.4	1.1	1.4	1.6	2.0	2.1	2.5	2.5	2.6
28	1.5	1.6	E	1.4	E	1.1	1.8	1.6	2.0	2.4	2.6	2.8
29	1.8	1.6	1.5	1.4	1.3	1.3	1.6	1.8	1.9	2.2	2.4	2.6
30	1.7	S	E	E	1.1	1.7	1.4	1.9	1.9	2.2	2.4	2.6
Count	30	29	29	30	30	30	30	30	29	29	28	29
Median	1.4	1.4	1.3	1.2	E	1.4	1.7	2.0	2.2	2.5	2.8	2.9
Mean	1.4	1.5	1.4	1.5	1.3	1.4	1.8	2.1	2.3	2.7	2.9	2.9

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fmin

TABLE 51—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month Sep'tember, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2.9	2.8	3.7	3.2	2.8	2.4	2.1	2.0	2.1	1.9	1.6	1.3	1
3.0	2.8	2.5	3.0	2.6	2.3	2.1	1.9	2.0	2.0	1.5	1.6	2
3.0	2.5	2.5	2.3	1.9	1.9	1.6	2.1	2.2	1.9	1.8	1.4	3
3.0	3.0	2.2	2.6	2.9	2.8	2.4	2.2	2.0	1.9	1.5	2.0	4
2.8	2.8	2.6	2.1	2.5	2.0	1.9	1.9	1.9	1.9	1.7	1.6	5
3.0	2.8	2.6	3.3	2.8	2.2	2.0	1.7	1.8	1.8	1.7	E	6
2.8	2.6	2.4	2.5	2.4	1.9	1.5	1.4	1.2	1.6	1.5	1.6	7
C	C	C	C	2.2	1.9	1.9	2.0	2.0	2.0	1.2	1.2	8
2.9	2.8	2.7	2.6	2.2	2.0	1.9	1.9	2.0	1.6	1.9	1.6	9
2.6	2.6	2.5	2.3	2.5	1.9	1.9	1.8	1.8	1.6	1.9	1.6	10
2.8	2.6	2.3	2.1	2.1	1.9	1.7	2.3	1.9	1.9	1.6	1.4	11
2.9	2.9	2.6	2.6	2.1	2.0	2.3	2.2	2.1	1.7	1.6	1.4	12
3.3	2.8	2.5	2.6	2.0	1.9	1.9	1.7	1.4	1.4	E	1.1	13
2.6	2.6	2.4	3.0	2.8	2.1	1.7	1.8	1.9	1.9	1.6	1.6	14
3.7	3.6	3.6	3.1	C	1.9	1.5	1.9	1.9	1.9	2.0	1.9	15
4.0	3.0	2.6	5.3	2.2	2.2	2.2	2.2	1.8	1.7	1.4	1.5	16
3.0	4.6	2.4	3.2	2.8	2.2	2.0	1.6	2.0	1.6	1.5	1.2	17
3.2	2.8	2.8	3.0	2.7	2.2	1.8	1.5	1.7	1.6	1.5	1.5	18
3.0	2.8	2.4	2.6	2.7	2.6	2.3	2.6	2.1	1.8	1.6	1.8	19
4.8	3.0	2.5	2.4	2.6	1.7	3.0	1.8	1.7	1.6	1.5	1.6	20
4.0	3.9	3.6	3.6	2.5	2.7	C	C	2.2	1.6	1.2	1.6	21
3.1	3.6	2.8	3.2	C	1.8	C	2.2	2.1	2.1	1.7	1.9	22
2.8	2.7	2.8	3.0	2.7	2.1	2.2	1.9	1.6	1.6	1.6	1.6	23
2.9	2.8	2.4	2.5	2.8	3.0	S	2.2	2.0	1.9	1.6	1.5	24
2.8	2.7	2.3	3.0	2.6	2.3	2.2	1.7	1.8	1.5	1.5	1.2	25
B	5.0	4.7	3.2	2.4	2.0	1.9	2.0	1.9	2.1	2.1	1.7	26
2.8	2.6	2.4	2.3	2.6	2.6	2.4	2.1	1.8	1.4	1.4	1.4	27
2.8	2.7	1.9	3.6	2.1	2.0	2.0	1.5	1.4	1.4	1.5	E	28
2.6	2.5	2.3	2.4	2.5	2.0	1.5	1.4	1.5	1.4	1.5	1.6	29
2.7	2.3	2.3	2.1	2.0	1.4	1.1	1.8	1.5 _{us}	1.5	1.3 _{us}	1.5	30
28	29	29	29	28	30	27	29	30	30	30	30	Count
2.9	2.8	2.5	2.6	2.5	2.0	1.9	1.9	1.9	1.7	1.6	1.6	Median
3.1	3.0	2.7	2.8	2.5	2.1	2.0	1.9	1.8	1.7	1.6	1.5	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 52

Latitude 10 2° N

Unit Km.

Ionospheric Data

Longitude 77 5° E.

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	370	390	380
2								L	L	365	380	380
3							L	L	L	340	380	380
4							L	270	L	380	365	380
5								L	L	350	390	390
6								300	L	C	390	380
7								290	I	I	340	C
8								290	L	C	C	C
9								280	L	360	380	385
10								280	305	C	370	380
11								280	300	310	360	350
12								L	290	L	380	390
13								270	300	310	B	390
14								260	310	L	380	405
15								L	C	L	360	350
16							L	I	L	340	325	355
17							L	L	L	L	L	340
18							L	I	I	300	325	350
19							L	L	L	L	350	365
20							L	L	I	325	L	345
21								L	L	L	370	340
22								L	295	290	310	360
23								L	250	290	300	300
24								240	270	L	L	360
25								245	280	305	305H	320
26							L	285	L	L	345	380
27							260	280	L	315	L	L
28								275	I	1H	320	315
29							265	260	280	305	305	330
30								270	305	320	310	330
Count							2	16	11	17	24	17
Median							—	280	295	325	360	360
Mean							—	275	290	330	350	360

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic $h'F_2$

TABLE 52

Latitude 10°2' N

Unit Km

Ionospheric Data

Longitude 77°5' E

Month September 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
360	365	340	295	270	250							1
380	360	345	320	A	270							2
400	390	380	340	A	A							3
380	380	360	A	280								4
405	405	380	325	A	280							5
380	360	315	305	285	270							6
390	410	405	325	315	A							7
C	C	C	C	310	L							8
380	380	315	320	305	280							9
380	105	360	L	300								10
380	370	360	A	300	270							11
410	385	360	320	320								12
380	370	365	335	300	L							13
420	405	350	310	285								14
340	320	315	300	300	290							15
385	380	A	305	L	L							16
L	340	330	L	L	L							17
345	345	340	310	L	L	L						18
360	L	350	L	L	L							19
360	370	325	A	A	L	L						20
335	325	335	300	290								21
310	L	320	L	L								22
L	310	L	L	L								23
380	340	330	L	A	A							24
L	310	L	290	260								25
360	B	320	315	L								26
340	310	335	300	285								27
310	305	295	290	275								28
320	L	305	310	280								29
330	325	310	300	A	265							30
26	25	26	20	17	8							Count
380	365	340	310	290	270							Median
365	360	340	310	290	270							Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds.

Characteristic $h'F_2$

TABLE 52—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1								L	L	380	405	400
2							L	L	325	380	390	380
3							L	L	330	350	400	400
4							250	285	L	370	365	365
5							265	L	L	380	380	400
6							260	L	315	395	400	380
7							L	L	340	360	C	400
8							260	310	L	C	C	C
9							260	L	340	L	380	390
10							260	290	C	360	390	365
11							260	300	310	360	350	360
12							280	L	L	L	380	390
13							L	280	320	B	B	390
14							260	320	345	380	405	430
15						320rr		L	350	360	370	340
16						L	L	L	L	330	345	L
17						L	L	L	L	345	345	345
18						L	L	L	315	330	325	360
19							L	L	L	340	360	365
20						L	L	L	315	340	360	360
21							L	L	L	L	360	345
22								L	295	L	L	300
23								L	L	300	290	290
24								260	L	L	370	L
25								250	290	L	330	L
26							L	L	L	L	360	360
27							265	L	L	330	340	L
28							245	285	L	325	320	300
29							265	290	300	315	320	330
30							260	265	L	330	L	L
Count						1	13	11	14	21	25	24
Median							260	285	320	350	360	365
Mean							260	285	320	350	360	365

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic $h'f_2$

TABLE 52—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E.

Month September 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
370	350	310	260	260								1
380	370	350	310	A								2
390	385	360	305	A								3
390	370	320	A	260								4
390	390	360	315	290								5
370	340	330	295	280								6
405	400	370	300	290								7
C	C	C	C	310								8
360	365	325	315	295								9
390	390	340	330	L								10
375	360	360	300	280								11
380	360	310	320	300								12
370	370	315	320	L								13
395	365	310	300	280								14
345	315	315	300	C								15
360	340	325	300	L	L							16
365	335	325	A	L	L							17
370	315	320	L	L	L							18
340	L	300	A	L	L							19
B	345	320	A	A	L							20
350	L	L	L	L								21
320	310	335	L	C								22
L	L	290	L	L								23
365	355	305	L	A								24
L	320	310	L	260								25
B	B	325	L	L								26
335	320	305	285									27
300	305	295	295									28
320	305	300	300	265								29
305	310	300	A	270								30
<hr/>												
25	25	28	17	13								Count
<hr/>												
370	350	320	300	280								Median
<hr/>												
360	350	325	305	280								Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic h'F

TABLE 53

Latitude 10 2° N

Unit km

Ionospheric Data

Longitude 77 5° E.

Month September 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	270	260	220	210	E	E	230	200	200	185	190	185
2	305	280	250	240	E	E	240	215	200	180	180	180
3	260	270	240	210	E	E	230	200	180	180	175	170
4	280	240	205	E	E	E	230	210	190	185	175	180
5	240	220	E	E	E	E	230	210	200	190	190	195
6	260	225	230	E	E	E	240	215	200	C	190	180
7	300	E	E	E	E	E	240	220	200	200 _{tr}	195	C
8	280	260	255	220	220	L	240	220	200	C	C	C
9	250	235	230	S	E	E	240	220	200	190	180 _{tr}	180 _{tr}
10	240	220	290	270	F	250	250	230	200 _{tr}	C	195	190
11	260	240	210	225	E	E	210	220	200	205	200	190
12	280	295	300	F	F	F	250	220	200	190	190	185
13	255	240	240	235	E	E	240	225	220	200	B	B
14	230	220	210	235	L	L	245	230	215	200	200	200
15	225	240	260	245	280	L	290	260	C	220	220	215
16	260	255	260	265	240	240	260	240	220	200	200	200
17	230	220	235	235	220	E	235	215	200	200	200	200
18	260	285	300	300	E	L	240	220	200	200	200	185
19	240	240	245	220	245	E	245	235	225	185	200	200
20	260	240	235	245	E	E	250	225	215	200	190	180
21	300	260	220	240	E	E	255	B	B	B	B	B
22	270	245	260	260	260	245	255	225	200	200	195	200
23	300	255	220	E	E	E	230	230	230	220	225	215
24	340 _{tr}	320	260	240	240 _{trF}	240	230	215	200	185	180	175 _{tr}
25	260	290	255	245	E	E	230	220	205	200	195	200
26	320	F	F	F	260	220	245	230	200	200	190	195
27	300	275	C	240	230	220	240	200 _{tr}	220	195	200	190
28	235	205	S	E	E	270	250	215 _{tr}	200	205	195	200
29	240	230	230	235	260	260	240	230	220	210 _{tr}	200	195
30	240	240	A	E	260	250	240	230	220	200 _{tr}	200	190
Count	30	29	26	27	29	29	30	29	28	26	27	26
Median	260	240	240	245	E	E	240	220	200	200	195	190
Mean	265	250	245	240	245	245	245	220	205	195	195	190

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F
 Unit Km
 Month September 1963

TABLE 53
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
175	180	180	200	200	220	220	210	210	220	260	290	1
180	180	180	175	A	230	240	220	220	215	240	245	2
170	190	190	190	A	A	240 ^{UA}	250	240	230	260	290	3
190	180	175	A	210	250	240	240	230	215	240	A	4
200	200	195	200	A	225	245	265	270	240	230	260	5
180	190	180	210	215	235	250	240	215	220	220	E	6
190	190	195	190	215	A	270	F	F	F	280	280	7
C	C	C	C	220	240	270	265	240	230	245	260	8
180	195	190	190	210	210	260	260	240	225	230	250	9
180	180	200	200	210	260	260	260	240	240	245	280	10
180	185	185 ^{IT}	A	A	240	240	250	215	230	245	265	11
190	185	200	210	A	260	260	280	260	250	245	245	12
200	200	200	200	215	230	255	265	260	245	240	235	13
200	200	200	215	225	250	290	340	280	240	235	230	14
200	210	A	215	220	240	260	300	230	220	245	260	15
195	220	A	215	235	245	260	220	240	240	255	255	16
B	200	215	A	240	255	260	230	210	220	235	260	17
200	205	200	200	230	240	260	245	215	220	235	210	18
195	195	200	240	220	245	255	235	210	215	240	280	19
200	200	200	A	A	265	275	280	260	250	245	300	20
210	205	215	205	235	260	C	C	C	F	240	265	21
185 ^H	235 ^{UB}	220	220	240	255	250	215	225	230	240	280	22
210	210	200	220	220	250	240	240	225	230	255	325 ^{UP}	23
180 ^{IT}	185 ^H	210	210	A	A	275	265	240	240	240	240	24
200	200	210	215	220	240	245	225	290	230	240	290	25
200	B	B	B	240	255	260	260	245	240	260	295	26
195	200	200 ^{IT}	215	220	240	260	265	270	240	225	240	27
195 ^{IT}	215	215	A	230	245	265	215	240	245	245	265	28
200	200	200	215	225	260 ^A	260	270	225	215	230	230	29
200	200	200	210	A	245	240	260	250	240	240	265	30
28	28	26	23	22	27	29	28	28	28	30	29	Count
195	200	200	210	220	245	260	255	240	230	240	265	Median
190	200	200	205	220	245	255	255	240	230	245	260	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F

TABLE 53—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E.

Month September 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	260	250	220	E	E	250	220	200	190	190	180	180
2	280	250	230	230	F	265	210	200	195	190	185	180
3	280	260	215	220	E	245	210	190	185	180	175 _{ir}	170
4	260	250	220	E	F	250	220	195 _{ir}	180	180	180	200
5	215	E	L	E	E	240	210	200	195	185	190	190
6	210	230	E	E	E	260	230	200	210	190	185	180
7	E	L	L	E	E	260	230	220	200 _{ir}	190	C	200
8	265	255	230	230	240	250	220	205	200 _{ir}	C	C	C
9	245	220	215	260	E	260	230	195 _{ir}	190	185	180 _{ir}	175
10	220	A	270	260	260	260	240	220	C	200	185 _{ir}	190
11	250	240	240	240	E	260	230	225	200	200	200	180
12	280	285	300	F	F	F	230	200 _{ir}	200	190	185	200
13	250	240	225	230	L	260	240	215	210	B	B	B
14	220	210	230	240	E	270	240	220	200	190	190	200
15	245	240	245	280	E	E	265	240	220	215	220	200
16	250	260	265	265	220	290	240	220	210	200	200	200
17	220	215	245	245	235	270	230	200	200	200	200	200
18	255	285	280	A	E	275	235	210	210	200	200	195
19	235	240	235	250	250	260	240	230	200	180	210	200
20	260	250	235	E	E	260	240	220	200	200	185	200
21	280	230	220	S	E	290	260 _{ub}	B	B	B	B	B
22	255	245	260	240	260	245	240	220	210	195	200	190
23	300	240	L	E	E	290	225	220 _{ir}	220	220	205	210
24	340	280	230	240	F	260	225	200	190	180	180 _{ir}	180
25	280	270	235	E	E	265	240	210	200	200 _{ir}	195	200
26	320	F	F	260	230	250	240	220	200	190	200 _{ir}	190
27	290	265	C	235	230	235	230	225 _{ir}	200	200	195	200
28	225	220	L	A	L	270	225 _{ir}	200 _{ir}	230	200	200	195
29	230	230	240	245	245	255	240	230	220	200	200	200
30	240	S	L	E	260	260	240	220 _{ua}	210 _{ir}	200	195	200
Count	30	27	28	26	28	28	30	29	28	27	26	27
Median	255	250	240	260	E	260	230	215	200	195	195	200
Mean	260	245	240	245	245	260	230	210	205	195	195	195

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F

TABLE 53—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
180	180	200	200	200	235	220	220	220	230	260	300	1
175	180	175	210	A	230	225	215	215	230	240	260	2
180	190	190	200	A	A	230	255	230	230	280	280	3
180	175	A	A	215	240	245	230	215	220	240	240	4
190	190	200	220	A	260	260	275	245	240	245	270	5
180	175	185	230	230	245	255	220	215	220	250	E	6
200	190	200	205	215	A	280	F	F	F	270	300	7
C	C	C	C	220	260	260	245	225	240	270 _F	245	8
200	190	200	210	220	245	260	240	225	230	255	260	9
180	190	195	200	225	250	265	250	230	245	270	270	10
190	185	A	A	A	250	260	260	230	235	245	280	11
195	200 _{tr}	200	A	A	260	275	265	260	250	245	260	12
220	200	200	200	220	240	260	270	250	250	240	230	13
195	200	215	220	230	260	320	305	240	250	230	225	14
220	A	210	220	C	260	280	260	220	230	260	260	15
210	210	210	300	240	255	260	230	245	240	245	270	16
205	B	215	A	235	255	255	220	220	230	240	280	17
210	200	200	215	240	255	270	220	205	220	240	240	18
200	195	190	A	235	260	245	220	220	220	275	270	19
B	200	200	A	A	265	300	270	265	240	280	300	20
210	205	200	235	S	260	C	C	260	265 _{ur}	245	280	21
220	220	220	230	C	260	C	220	235	230	235	290	22
210	210	210	220	240	240	240	230	225	240	300	340 _{ur}	23
180 _{tr}	180	210	A	A	280 _{urA}	280	245	235	240	240	260	24
200	220	200	215	225	250	235	220	235	230	260	300	25
B	B	B	265	240	275	250	250	240	235	280	300	26
200	205	220	220	230	260	265	270	260	240	225	235	27
210	200 _{tr}	A	B	240	260	260	245	240	240	270	255	28
200	200	190 _{tr}	A	225	260	275	225	225	215	225	240	29
200	200	215	A	A	250	245	260	240	230	245	250	30
27	26	25	19	19	28	28	28	29	29	30	30	Count
200	200	200	220	230	260	260	=245	230	235	245	270	Median
200	195	200	220	225	255	260	245	235	235	255	270	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E

TABLE 54

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								105	A	A	A	A
2								A	A	A	A	A
3								A	A	A	A	A
4							110	100	A	A	A	A
5								A	A	A	A	A
6							120	115	A	C	A	A
7							120	110	A	A	A	C
8							120	115	A	C	C	C
9								A	A	A	A	A
10								110	A	C	A	A
11								110	A	A	A	A
12								A	A	A	A	A
13								110	A	A	B	B
14								110	A	A	B	A
15								B	C	B	B	B
16							A	A	A	A	A	A
17								A	A	A	A	A
18								A	A	B	A	A
19							A	A	A	A	A	A
20								A	A	A	A	A
21								B	B	B	B	B
22								110	A	A	A	A
23								110	110	B	A	A
24								110	A	A	A	A
25								120	110	A	A	A
26								A	A	A	A	A
27							130	A	A	A	A	A
28								A	A	A	A	A
29							130	110	110	A	A	A
30								A	A	A	A	A
Count							6	14	3			
Median							120	110				
Mean							120	110				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 54

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	B	B	B								1
A	A	A	A	A	A							2
A	A	A	A	A	A							3
A	A	A	A	A	A							4
A	A	A	A	A	A							5
A	A	A	B	B								6
A	A	A	A	A	A							7
C	C	C	C	A	A							8
A	A	A	A	B	120							9
A	A	A	A	120	A							10
A	A	A	A	A	A							11
A	A	A	115	A	A							12
B	B	A	B	A								13
A	A	A	A	115								14
B	B	B	115	B	105							15
A	A	A	A	A	A							16
B	A	A	A	A	A							17
A	A	A	A	A	A							18
A	A	A	A	A	B							19
A	A	A	A	A	A							20
B	B	B	B	S								21
120	B	120	A	120								22
A	A	A	A	120								23
A	A	A	A	A	A							24
A	A	A	B	B								25
A	B	B	B	B	A							26
A	A	A	110	A	A							27
A	115	A	A	A	B							28
A	A	A	A	120	A							29
A	A	A	A	A	A							30
1	1	1	3	5	2							Count
				120								Median
				120								Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 54—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							125	A	A	A	A	A
2							105	A	A	A	A	A
3							105	A	A	A	A	A
4							100	A	A	A	A	A
5							100	A	A	A	A	A
6							115	A	A	A	A	A
7							110	A	A	A	C	A
8							130	A	A	C	C	C
9							115	A	A	A	A	A
10							115	A	C	A	A	A
11							120	115	A	A	A	A
12							A	A	A	A	A	A
13							115	110	A	B	B	B
14							115	A	A	A	A	A
15							A	B	B	A	B	B
16							A	A	A	A	A	A
17							A	A	A	A	A	A
18							120	A	A	A	A	A
19							A	A	A	A	A	A
20							115	A	A	A	A	A
21							B	B	B	B	B	B
22							120	A	A	A	A	120
23							120	105	B	A	A	A
24							120	105	A	A	A	A
25								S	110	A	A	A
26							115	A	A	A	A	A
27							125	A	A	A	A	A
28							A	A	A	A	A	A
29							115	110	A	A	A	A
30							A	A	A	A	A	A
Count							21	5	1			1
Median							115	110				
Mean							115	110				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 54—Cont'd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E.

Month September, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	B	B									1
A	A	A	A	A								2
A	A	A	A	A								3
A	A	A	A	A								4
A	A	A	A	A								5
A	A	A	A	B								6
A	A	A	A	A								7
C	C	C	C	A								8
A	A	A	A	120								9
A	A	A	A	A								10
A	A	A	A	A								11
A	A	A	A	A								12
B	A	A	A	A								13
A	A	A	B	B								14
B	B	B	B	C								15
A	A	115	B	A								16
A	B	A	A	A	A	A						17
A	A	A	A	115								18
A	A	A	A	A								19
B	A	A	A	A	A	A						20
B	B	B	B	A								21
A	B	A	A	C								22
A	A	120	B	A								23
A	A	A	A	A								24
A	A	110	B	A								25
B	B	B	B	A								26
A	A	A	110	A								27
115	115	A	B	115								28
A	A	A	A	B								29
A	A	A	A	A								30
1	1	3	1	3								Count
												Median
												Mean

Sweep 1.0 Mc. to 25.0 Mc in 27 seconds

Characteristic h'Es

TABLE 55

Latitude 10.2° N

Unit. Km

Ionospheric Data

Longitude 77 5° E

Month September 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								100	100	100	100	100
2			120					100	100	100	100	100
3								100	100	100	100	100
4							G	G	100	100	100	100
5								100	100	100	100	100
6							G	100	100	C	100	100
7							G	100	100	100	100	C
8							G	G	100	C	C	C
9								100	100	100	100	100
10			110					G	100	C	100	100
11		110	115				120	G	100	100	100	100
12	120				110			100	100	100	100	100
13	110							G	100	100	B	100
14								G	100	100	100	100
15								100	C	100	100	100
16	100	100					100	100	100	100	100	100
17								100	100	100	100	100
18								100	100	100	100	100
19							100	100	100	100	100	100
20								100	100	100	100	100
21								G	100	100	100	100
22			100	100				100	100	100	100	100
23	110	110						G	G	C	100	100
24				100				G	100	100	100	100
25			100					G	G	100	100	100
26								100	100	100	100	100
27							G	100	100	100	100	100
28								100	100	100	100	100
29							G	G	100	100	100	100
30	110	115	120					100	100	100	100	100
Count	5	4	6	2	1	—	3	19	27	26	28	28
Median	110	—	110	—	—	—	—	100	100	100	100	100
Mean	110	—	110	—	—	—	—	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 55

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	G								1
100	100	100	100	100	100	95						2
100	100	100	100	100	100	95	90					3
100	100	100	100	100	100	95				100	100	4
100	100	100	100	100	105	105						5
100	100	100	G	G								6
100	100	100	100	100	110	110		130	120	120	130	7
G	C	C	C	100	100	100			115			8
100	100	100	100	100	G		110					9
100	100	100	100	G	100	115		120	120	120	120	10
100	100	100	100	100			100			110		11
100	100	100	100	G	100							12
100	100	100	100	100								13
100	100	100	100	G								14
100	125	120	G	G	G							15
100	100	100	100	100	100	100						16
100	100	100	100	100	100							17
100	100	100	100	100								18
100	100	100	100	G								19
100	100	100	100	100	100	100						20
100	100	100	100	S		C	C	C				21
120	100	G	100	100	100						110	22
100	100	100	100	G								23
100	100	100	100	100	100	100			130			24
100	100	100	G	G		100				105	110	25
100	B	100	100	100	100	130	100					26
100	100	100	100	100	100							27
100	100	100	100	100	B						135	28
100	100	100	100	G	100		120			105	115	29
100	100	100	100	100	100			115			110	30
29	28	28	25	19	17	11	5	3	4	6	8	Count
100	100	100	100	100	100	100	100	—	—	110	110	Median
100	100	100	100	100	100	105	105	—	—	110	115	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 55—*Contd*

Latitude: 10 2° N

Unit Km

Ionospheric Data

Longitude: 77 5' E

Month September, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	100	100	100	100	100
2			100				G	100	100	100	100	100
3							G	100	100	100	100	100
4							G	100	100	100	100	100
5							G	100	100	100	100	100
6	105						G	100	100	100	100	100
7							G	100	100	100	C	100
8							G	100	100	C	C	C
9							G	100	100	100	100	100
10		100					G	100	C	100	100	100
11	120	130					G	G	100	100	100	100
12	120	120		115	110	100	100	100	100	100	100	100
13	110						G	100	100	B	100	100
14							G	100	100	100	100	100
15							100	100	100	100	100	100
16	100	100					100	100	100	100	100	100
17				100			100	100	100	100	100	100
18				100			G	100	100	100	100	100
19							100	100	100	100	100	100
20							G	100	100	100	100	100
21				110			G	100	100	100	100	100
22		110	100	100			100	100	100	100	100	G
23	110						G	G	G	100	C	100
24							G	G	100	100	100	100
25		100						G	G	100	100	100
26							G	100	100	100	100	100
27			C				G	100	100	100	100	100
28				105			115	100	100	100	100	100
29							G	100	100	100	100	100
30	110						100	100	100	100	100	100
Count	7	6	2	6	1	1	8	26	27	28	27	28
Median	110	105		100			100	100	100	100	100	100
Mean	110	110		105			100	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 55—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month September, 1963.

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
100	100	100	G									1
100	100	100	100	100								2
100	100	100	100	100	100	95	90					3
100	100	100	100	100	100	95				100		4
100	100	100	100	100	100							5
100	100	100	G	G						110		6
100	100	100	100	100	100			125	120	115	115	7
C	C	C	C	100	100	100			120	120		8
100	100	100	100	G			110					9
100	100	100	100	115	100				120			10
100	100	100	100	100	100	100			120		125	11
100	100	100	100	100	100			120			115	12
100	100	100	100	100	100							13
100	100	100	G									14
100	120	120	G	C								15
100	100	100	B	100		100					100	16
100	100	100	100	120	100						100	17
100	100	100	100	100								18
100	100	100	100	100						100		19
100	100	100	100	100	100							20
100	100	100	100	100		C	C					21
100	100	100	100	C	100						110	22
100	100	100	G									23
100	100	100	100	100	100			120				24
100	100	100	G	100	100				110	110	120	25
B	B	100	100	100	100	110						26
100	100	100	G	100					125	125		27
G	100	100	G	115						120		28
100	100	100	120	G		120				115	110	29
100	100	100	100	100	100			110		115	110	30
27	28	29	20	20	14	7	2	4	6	10	9	Count
100	100	100	100	100	100	100			120	115	110	Median
100	100	100	100	100	100	105		.	120	115	110	Mean

Sweep 1 0 Mc to 25.0 Mc in 27 seconds

Characteristic (M 3000) F₂
 Unit .
 Month September, 1963

TABLE 56
 Ionospheric Data
 75°E Mean Time

Latitude 10·2° N
 Longitude: 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	2 95 _s	3 10	3 35	3 55	E	E	3 35	3 25	2 55 _H	2 55	2 60	2 65
2	3 00	3 35 _F	3 40 _F	3 50	E	E	3 40	3 05	2 75	2 60	2 50	2 55
3	3 15	3 10	3 30	3 70	E	E	3 50	3 20	2 65	2 65	2 60	2 65
4	3 10	3 30	3 65	E	E	E	3 50	3 45	2 90	2 60	2 60	2 60
5	3 50	3 60	E	E	E	E	3 45	3 15	2 65	2 60	2 70	2 65
6	3 20	3 50	3 50	E	E	E	3 40	3 30	2 80	C	2 50	2 50
7	3 20	E	E	E	E	E	3 25	3 10	2 75	2 65	2 55	C
8	3 10 _{US}	3 25	3 30	3 65	3 50	E	3 40	3 40	3 00	C	C	C
9	3 45	3 50	3 55	R	E	E	3 30	3 30	2 70	2 70	2 55	2 60
10	3 55	3 55	3 35	R	F	3 60	3 50	3 45	3 10	C	2 55	2 65
11	3 25	3 35	3 40	3 50	E	E	3 45	3 35	3 15	2 75	2 55	2 70
12	3 15	3 10	3 30 _{US}	F	F	F	2 95	2 80	2 70	2 55	2 55	2 50
13	3 25	3 40 _{US}	3 55	3 50	E	E	3 50	3 40	3 15	2 60 _H	2 60	2 50
14	3 45	3 55	3 55	3 60	E	E	3 40	3 40	2 90	2 40	2 60	2 50
15	3 50	3 40	3 30	3 45	R	E	3 00	2 85	C	2 60	2 50	2 65
16	3 00	FS	3 10	3 05 _{US}	3 50	3 25 _F	3 20 _s	2 90	2 65	2 60	2 75	2 65
17	3 40	3 60	3 30	3 40	3 50 _{US}	3 50	3 50	3 25	2 85	2 45	2 45	2 50
18	3 20	3 05 _{US}	3 20 _R	3 20 _{UR}	E	E	3 30	3 35	3 10	2 60 _H	2 50	2 55
19	3 40 _{US}	3 40	3 40	3 40	3 40	E	3 50	3 35	2 85	2 40 _H	2 50	2 50
20	3 30	3 40 _s	3 50	3 40 _R	E	E	3 20	3 05	2 65	2 60	2 45	2 65
21	2 90	3 20	3 40	3 55 _R	E	E	3 10 _H	3 20	2 80	2 40 _H	2 50	2 65
22	F	FS	FS	FS	F	F	3 30	2 95	2 75	2 80	2 95	2 50
23	3 05 _F	FS	3 80 _R	E	E	E	3 50	3 20	3 30	3 30	2 85	2 65
24	FS	FS	FS	F	F	F	3 65	3 50	3 15	2 50 _H	2 55	2 65
25	3 30	3 25	3 40	3 65	E	E	3 70	3 55	3 35	3 20	2 70 _H	2 20 _H
26	2 95	F	F	F	F	3 60 _s	3 30	3 30	2 85	2 20 _H	2 55	2 60
27	3 10	3 10	C	3 40	3 50	3 55	3 50	3 25	2 60	2 60	2 60	2 65
28	3 45	3 50	R	E	E	3 40 _F	3 35	3 25	2 85	2 35 _H	2 60	2 85
29	3 30 _{JS}	3 40	3 50	3 40	3 35	3 40	3 35	3 45 _s	3 20	2 90	2 45 _H	2 60
30	3 40	3 50	A	E	R	3 55 _R	3 45 _{US}	3 40	3 15	2 55 _H	2 75	2 70
Count	28	24	22	17	6	8	29	30	29	27	29	28
Median	3 20	3 40	3 40	3 50	3 50	3 50	3 40	3 30	2 85	2 60	2 55	2 60
Mean	3 25	3 35	3 40	3 45	3 45	3 50	3 40	3 25	2 90	2 60	2 60	2 60

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M 3000)F₂

TABLE 56

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month September 1963

75° E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 70	2 60	2 70	2 95	3 25	3 50	3 40	3 45	3 50	3 45	3 50	3 15	1
2 55	2 65	2 65	2 70	2 90	3 20	3 20	3 30	3 45	3 45	3 50	3 30	2
2 55	2 55	2 60	2 65	2 80	3 05	3 05	3.10	3 20	3 25	3 20	3 00	3
2 60	2 50	2 70	2 95	3 20	3 45	3 40	3 35	3 50	3 60	3 50s	A	4
2 50	2 50	2 45	2 70	2 85	3 10	3 10	3 00	3 10	3 25	3 35	3 00	5
2 60	2 70	2 75	2 90	3 15	3 30	3 30	3 35	3 55	3 50	3 50	S	6
2 40	2 40	2 50	2 75	2 85	A	2 95	F	F	F	F	3 00	7
C	C	C	C	2 80	2 90	2 90	3 00	3 15	3 25	3 30	3 25	8
2 50	2 55	2 65	2 80	2 95	3 00	3 05	3 00	3 15	3 30 _{US}	3 30 _{US}	3 20s	9
2 50	2 45	2 60	2 70	2 70	2 90	3 00	3 00	3 20	3 30	3 25	3 00 _v	10
2 55	2 55	2 55	2 70	2 95	3 25	3 30	3 25	3 30	3 50	3 50	3 20s	11
2 50	2 45	2 60	2 65	2 85	3 00	2 95	2 95	3 10 _{US}	3 15	3 25	3 30 _{US}	12
2 60	2 65	2 60	2 65	2 70	2 70	2 75	2 85	2 90	3 00	3 20	3 30	13
2 40	2 50	2 70	2 85	3 05	3 15	2 90	2 60	2 85	3 20	3 25	3 50 _{US}	14
2 60	2 70	2 85	2 95	3 05	3 05	2 90	2 85	3 20	3 40	3 30	3 10	15
2 50	2 60	2 70	2 80	2 80	2 75	2 70	2 90	3 15	3 20	3 05	3 10	16
2 45	2 60	2 60	2 60	2 80	2 95	2 90	3 20	3 40	3 45	3 40	3 35	17
2 40	2 45	2 60	2 60	2 70	2 75	2 65	2 80	3 20	3 30	3 30	3 30s	18
2 60	2 55	2 65	2 70	2 80	2 90	2 90	3 20	3 45	3 40s	3 35	3 10	19
2 50	2 50	2 60	2 70	2 85	2 95	2 90	2.85	3 00	3 10s	3 00	2 70 _{US}	20
2 55	2 50	2 65	2 80	2 90	2 85	C	C	C	3 10 _{US}	F	3 05	21
2 95	2 85	2 90	2 80	2 70	2 55	2 45	3 05	3 20	3 40	3 25	3 10	22
2 60	2 50	2 30 _{IT}	2 50 _{IT}	2 75	3 05	3 10	3 25	3.40	3 30 _{US}	3 10 _{US}	2 75s	23
2 60	2 50	2 65	2 75	3 00	3 05	3 10	3 10	3 30	3 30	3 30	3 20	24
2 50	2 45	2 80	2 95	3 10	3 20	3 25	3 35	3 40	3 45 _{US}	3 40 _{US}	2 95s	25
2 60	2 70	2 65	2 55	2 50	2 65	2 75	2 85	3 15	3 25s	3.10s	3 00	26
2 60	2 60	2 65	2 75	2 85	2 85	2 80	2 95	2 90	3 05	3 05	3 20	27
2 80	2 85	2 90	3 10	3 20	3 20	3 00	3 10	3 15	3 25	3 25	3 10	28
2 60	2 70	2 70	2 80	2 95	3 05	2 95	3 15 _{US}	3 20	3 45s	3 50s	3 50	29
2 65	2 80	2 85	2 95	2 95	3 05	3 10	3 10	3.15	3 30 _{US}	3 30	3 20	30
29	29	29	29	30	29	29	28	28	29	28	28	Count
2 55	2 55	2 65	2 75	2 85	3 05	2 95	3 10	3 20	3 30	3 30	3 10	Median
2 55	2 60	2 65	2 75	2 90	3 00	3 00	3 05	3 20	3 30	3 30	3 15	Mean

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds

Characteristic (M 3000) F_2

TABLE 56—Contd

Latitude: 10° N.

Unit

Ionospheric Data

Longitude 77° E.

Month September, 1963

75° E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	3 10	3 30	3 55	E	E	3 20	3 40	2 95	2 50	2 55	2 60	2 60
2	3 20 _F	3 40 _F	3 40 _F	3 50 _R	E	3 25	3 30	2 90	2 70	2 50	2 55	2 50
3	3 15	3 15	3 60	3 70 _R	E	3 35	3 45	2 95	2 55	2 65	2 50	2 60
4	3 10	3 50	R	E	E	3 20	3 50	3 20	2 50	2 70	2 70	2 70
5	3 50	E	E	E	E	3 30	3 35	2 90	2 65	2 70	2 60	2 55
6	3 25	3 50	E	E	E	3 20	3 40	3 00	2 55 _{IT}	2 55	2 55	2 55
7	E	E	E	E	E	3 05	3 30	3 00	2 65	2 65	C	2 45
8	3 20 _{US}	3 25	3 50	3 50	R	3 15	3 45	3 25	2 55 _{IT}	C	C	C
9	3 45	3 55	3 70	R	E	3 20	3 40	3 00	2 55	2 60	2 65	2 50
10	3 65	3 45 _F	3 25	3 50 _{UR}	3 50	3 30	3 50	3 30 _S	C	2 50 _{IT}	2 60	2 60
11	3 25	3 40	3 45	3 55	E	3 25	3 40	3 25	3 00	2 60	2 60	2 60
12	3 20 _S	F	F	F	F	3 15	3 15	2 75	2 70	2 45	2 60	2 55
13	3 25 _{US}	3 45	3 55	3 50 _R	E	3 30	3 50	3 30	2 85	2 55	2 60	2 50
14	3 50	3 50	3 60	R	E	3 20	3 55	3 10	2 55	2 50	2 45	2 45
15	3 45	3 30	3 40	R	E	3 00 _{IT}	3 10	2 70	2 60	2 60	2 45	2 55
16	F	FS	2 90	3 20	3 70	3 00	3 20	2 80	2 50	2 75	2 65	2 55
17	3 60	3 35	3 40 _{US}	3 20	3 50 _R	3 05	3 50	3 10	2 55 _{IT}	2 50	2 65	2 40
18	F	3 20 _{US}	3 25 _R	A	E	3 05	3 40	3 25	2 80	2 40 _{IT}	2 45	2 55
19	3 30 _S	3 40	3 40	3 40	3 50 _R	3 10	3 45	3 10	2 55 _{IT}	2 55 _{IT}	2 55	2 60
20	3 45 _{US}	3 40	3 50	E	E	3 00	3 30	2 90	2 60	2 60	2 50	2 50
21	2 95	3 30	3 50	R	E	3 05	3 30	3 05	2 55	2 50	2 60	2 55
22	FS	FS	FS	FS	F	F	3 10	2 80	2 75	2 40 _{IT}	2 65	2 80
23	3 00	3 50	E	E	E	3 40 _{UR}	3 55	3 10	3 20	3 10	2 80	2 65
24	FS	FS	FS	3 50	F	3 15	3 65	3 40	2 80	2 20 _{IT}	2 65	2 55
25	3 20	3 35	3 70	E	E	3 10	3 65	3 50	3 35	3 00	2 40 _{IT}	2 50
26	3 05 _F	F	F	F	3 50	3 20	3 40	3 05	2 55	2 60	2 55	2 60
27	3 05	3 15	C	3 40	3 50	3 45	3 40	2 95	2 45 _{IT}	2 60	2 70	2 55
28	3 40 _S	3 55	E	A	E	3 10	3 40	3 15	2 60	2 60	2 75	2 80
29	3 35 _S	3 45	3 50	3 50	3 40	3 10	3 35	3 25	3 10	2 65 _{IT}	2 65	2 55
30	3 45	S	E	E	3 50	3 35	3 45 _S	3 30	2 85	2 60 _{IT}	2 70	2 65
Count	25	22	18	12	8	28	30	30	29	29	28	29
Median	3 25	3 40	3 50	3 50	3 50	3 20	3 40	3 10	2 60	2 60	2 60	2 55
Mean	3 30	3 40	3 45	3 45	3 50	3 20	3 40	3 10	2 70	2 60	2 60	2 55

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic (M 3000) F₂
Unit
Month September, 1963

TABLE 56—Contd
Ionospheric Data
75° L Meridiane

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2 65	2 65	2 80	3 15	3 30	3 40	3 40	3 45	3 55	3 60	3 40	3 20	1
2 60	2 60	2 70	2 80	3 05	3 15	3 25	3 40	3 55	3 45	3 45	3 30	2
2 55	2 60	2 60	2 75	2 95	3 05	3 15	3 10	3 25	3 25	3 05	3 05	3
2 45	2 60	2 75	3 00	3 30	3 45	3 40	3 40	3 45	3 60 _{us}	3 40 _s	3 45	4
2 45	2 45	2 55	2 75	2 95	3 10	3 05	3 10	3 20	3 35	3 20	3 15	5
2 65	2 70	2 80	3 05	3 20	3 25	3 30	3 45	3 50 _{us}	3 60	3 45	E	6
2 40	2 50	2 60	2 80	2 85	2 90	F	F	F	F	3 10 _{us}	3 10 _{us}	7
C	C	C	C	2 85	2 90	3 00	3 10	3 25	3 25	3 20 _{us}	3 30	8
2 50	2 55	2 75	2 85	2 95	3 05	2 95	3 00	3 30	3 35	3 30 _{us}	3 35	9
2 50	2 55	2 70	2 70	2 85	3 00	3 00	3 15	3 20	3 35	3 10 _v	3 20	10
2 55	2 55	2 60	2 80	3 10	3 30	3 35	3 25	3 35	3 40	3 40	3 20	11
2 50	2 55	2 60	2 80	2 85	3 00	2 90	3 00	3 10	3 25	3 25 _{us}	3 30 _{us}	12
2 55	2 60	2 60	2 70	2 70	2 75	2 80	2 90	2 95	3 00	3 30	3 40 _s	13
2 50	2 70	2 75	2 95	3 15	3 10	2 80	2 70	3 05	3 15	3 35	3 40	14
2 70	2 75	2 85	3 00	C	3 00	2 80	3 00	3 35	3 35	3 25	3 20	15
2 50	2 65	2 80	2 80	2 70	2 65	2 80	3 10	3 15	3 20	3 10	3 30	16
2 50	2 60	2 65	2 70	2 90	2 90	3 00	3 35	3 40	3 50	3 40	3 25 _{us}	17
2 45	2 50	2 70	2 70	2 70	2 70	2 65	3 00	3 25	3 30	3 30	3 30 _{us}	18
2 55	2 60	2 65	2 75	2 85	2 90	3 05	3 30	3 40	3 45	3 25	3 20	19
2 45	2 55	2 70	2 80	2 90	3 00	2 80	2 95	3 00	3 15	2 95	2 80	20
2 50	2 55	2 70	2 85	2 85	2 85	C	C	3 00	F	3 05 _{us}	F	21
2 90	2 90	2 90	2 80 _{us}	C	2 50 _{ir}	C	3 30	3 25	3 40	3 30 _{us}	3 15	22
2 50	2 40 _{ir}	2 20 _{ir}	2 70	3 00	3 15 _{us}	3 15	3 35	3 35	3 25 _{us}	2 80	KS	23
2 65	2 60	2 70	2 90	3 00	3 10 _{us}	3 05	3 25	3 30	3 25	3 30	3 30	24
2 50	2 70	2 90	3 00	3 10	3 10	3 30	3 40	3 45	3 45 _{us}	3 30 _{us}	2 90	25
B	2 65	2 65	2 60	2 55	2 65	2 80	3 00	3 15	3 15	3 00 _s	3 05	26
2 65	2 60	2 70	2 80	2 85	2 90	2 90	2 90	3 00	3 10	3 20 _{us}	3 30	27
2 75	2 90	3 05	3 15	3 25	3 15	3 05	3 15	3 20 _s	3 20	3 15 _{us}	3 20	28
2 60	2 75	2 75	2 90	3 00	3 10	3 00 _{us}	3 10	3 35 _s	3 50	3 50	3 55	29
2 70	2 80	2 90	2 90	3 00	3 05	3 10	3 10	3 20	3 30 _{us}	3 25 _s	3 25 _s	30
28	29	29	29	28	30	27	28	29	28	30	27	Count
2 50	2 60	2 70	2 80	2 95	3 00	3 00	3 10	3 25	3 30	3 25	3 25	Median
2 55	2 60	2 70	2 85	2 95	3 00	3 05	3 15	3 25	3 35	3 25	3 20	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds¹

Characteristic foF2

TABLE 57

Latitude 10° N

Unit Mc

Ionospheric Data

Longitude 77° E

Month October 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	6.9	5.5	4.1	3.3	2.3	F	4.8	7.2	8.1	8.2 ^H	6.8	6.7
2	F	F	6.5 ^{US}	F	F	L	4.8	6.8	7.6	7.5 ^H	6.6	6.6
3	C	C	C	C	C	C	C	C	C	6.1	6.3 ^H	6.3
4	6.1 ^S	4.8	3.0	1.8	1.5 ^{US}	E	4.5	6.7	7.1 ^S	6.2	6.2	6.2
5	4.5	4.5	3.2	S	L	L	4.7	6.6	7.6	7.6 ^H	6.8	6.6
6	5.4	4.7	3.6	2.3	1.8 ^{UR}	1.4 ^R	4.8	7.1 ^S	7.2 ^H	6.6	6.9	7.0
7	5.1	S	5.1	3.1	2.5	1.7	4.7	6.5	7.5	8.6	8.8	7.6
8	7.4	S	5.2	2.5	E	A	4.9 ^{US}	7.1	7.8	8.0	8.7	7.7
9	7.1 ^S	6.3 ^{US}	4.9 ^{US}	4.2	3.3	2.4	5.1	7.6	8.9	8.6 ^H	8.0	7.8
10	7.9	C	C	C	C	C	5.2 ^S	7.6	8.1	9.7	9.0 ^H	7.8
11	4.8	4.2	3.5	2.8	2.5	F	4.8	7.3	8.2	7.8	7.5	7.1
12	5.5	5.7	4.4	3.5	2.5	1.7 ^R	5.2 ^{US}	8.0	8.8	9.6	9.2 ^H	8.2
13	8.7	6.4	3.8	2.6	2.3	2.4	4.8 ^{US}	7.6	8.4	C	C	C
14	6.6	6.3	5.6	3.3	R	L	5.4	8.1	9.0	9.0 ^H	8.1	7.5
15	6.3 ^{US}	5.2	4.4	3.7	2.7	2.0	5.7	8.3	9.5	9.3	8.2	8.0
16	7.2	6.8 ^{US}	5.2	4.1	2.7	C	5.2	8.2	8.9	7.9	7.6	7.2
17	6.5	5.8	4.4	2.8	R	1.5 ^F	5.4	7.6	9.0	9.7 ^H	8.7	8.9
18	3.7	3.7 ^{US}	3.3	2.3 ^{UR}	1.6 ^{UR}	L	5.1	7.5	8.8	9.0 ^H	7.6	7.5
19	7.9	S	6.5	4.5	3.8	3.0	5.4	7.2 ^{US}	9.0	9.7	9.2	8.7
20	7.9	7.2	6.6	5.2	4.8	4.2	6.2 ^{US}	8.1	9.2	9.8	8.7	8.6
21	7.4	C	C	C ^P	C	C	C	C	C	C	C	C
22	8.6	8.0	7.4 ^{US}	6.5	4.6	2.1 ^{UR}	5.1	8.0	9.0	9.2	8.2	7.7
23	7.2	6.2	5.4	4.0	2.6	R	5.1	7.5	8.2	9.4	8.6 ^H	7.6
24	6.4	4.8	4.2	3.3	3.1 ^F	3.0	5.2	7.9	8.4	9.0 ^H	9.2	9.2
25	5.6	4.4	4.2	4.2	3.9 ^F	F	5.2	8.1	9.6	10.1	10.1	10.0
26	8.1	8.1	6.2	C	C	4.3	6.0	8.1	8.7	9.3	8.9	8.8
27	7.2	7.6	7.1 ^{US}	5.5	4.0	2.9	5.2	7.1	8.5	9.6	9.2	8.4
28	F	F	F	F	3.8	2.7 ^F	5.2	7.0	8.8	10.2	10.6	10.4
29	6.1 ^{JS}	6.4	6.1 ^{US}	5.2	1	3.7	5.6	7.8	8.7	9.0	8.8	8.9
30	8.3	6.2 ^{JS}	2.5	1.8	E	1.3 ^R	5.2	C	9.6	10.0	10.6	C
31	7.0	6.6	6.6	6.2	4.5	2.7 ^F	5.0	C	8.6	8.6	8.1	8.5
Count	28	23	27	24	23	22	29	27	29	29	29	28
Median	7.0	6.2	4.9	3.4	2.6	2.0	5.2	7.6	8.7	9.0	8.6	7.8
Mean	6.7	5.9	4.9	3.7	3.0	2.5	5.2	7.5	8.5	8.7	8.3	7.9

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic for
Unit Mc
Month October 1963

TABLE 57
Ionospheric Data
75° E Merid Line

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
7 1	7 5	8 1	9 1	10 1	9 6	9 1s	9 0s	8 1	8 0s	F	F	1
7 2	7 9	8 7	10 2	11 0	10 7	9 5s	9 6	8 9	8 2	7 5	5 fus	2
6 8	7 8	8 7	9 8	10 1	10 5	9 3	C	8 0	8 1	7 4us	6 6	3
6 1	7 3	8 4	9 1	9 7	10 0	9 7	8 9	7 7	6 8s	F	F	4
6 8	7 5	8 5	9 2	9 6	9 8	9 4	8 8	8 4	F	7 6us	5 6us	5
7 2s	7 8	8 7	9 2	9 3	9 0	8 6	7 9	7 4s	7 2s	7 1s	5 5	6
7 4	8 3	8 7	9 2	9 1	9 3	9 3	8 2	8 2	8 0us	7 2s	7 1us	7
7 8	8 4	9 1	9 7	9 8	9 3	10 6	11 1	9 6us	8 4s	7 6us	6 8us	8
7 9	8 5	9 3	10 0	10 1	10 2	9 5	8 6	8 3s	8 7	9 3	9 1us	9
8 0	8 7	9 3	10 3	10 6	11 0	10 1	9 6	9 4us	9 0	8 0	6 2	10
7 5	8 4	8 8	9 1	9 5	9 4	9 1	9 2	9 2	8 6	8 0	6 0us	11
8 0	8 4	8 8	9 0	9 0	9 8	9 6us	8 9	7 7	9 1	9 5	8 2	12
C	C	C	C	11 5	11 4	11 0	10 3	10 0	C	C	7 6	13
7 8	9 0	9 8	10 9	10 8	10 2	10 3	10 3	10 3us	C	8 3	6 5	14
8 3	8 9	9 5	10 3	10 3	9 9	9 7	9 5s	9 2us	9 2	8 0us	7 6	15
7 6	8 0	9 0	10 4	11 1	11 2	11 0	9 4	8 8	8 5	7 4us	7 0	16
9 5	10 8	11 9	11 6	11 4	10 8	10 4	10 1	9 7us	8 7	6 4	4 8	17
8 1	9 2	10 4	11 0	11 2	10 5	9 8us	8 6	9 0	9 0	8 6	8 4	18
9 4	10 0	11 0	11 2	11 6	11 4	10 1us	8 3	F	F	F	8 4us	19
8 8	9 4	10 2	11 0	11 6	11 6	10 4	8 7	8 2F	9 2us	8 9	8 0	20
C	C	C	11 5	11 6	11 2	10 4	10 1	9 7	10 3	10 0	9 1us	21
8 0	8 9	9 6	10 0	10 1	10 0	9 0	C	9 1	9 4	8 5	8 1	22
7 6	8 1	8 7	9 2	9 7	9 7	9 2	10 0	9 3	8 1	7 4s	6 8	23
9 2	9 8	9 9	10 2	10 0	10 6	10 2	10 2	9 6	7 8	7 1	6 6	24
10 0	10 6	10 8	10 6	10 0	9 0F	7 6	8 0	7 6	8 5	8 1	8 2	25
9 1	9 6	10 0	10 1	9 4	9 2	9 0	8 5	8 2	8 5	7 7	7 2F	26
8 4	8 4	8 7	8 7	8 7	8 8	8 0	6 7	F	F	F	F	27
9 8	10 0	10 4	10 4	9 8	9 1	8 4	6 6F	6 6F	F	8 0us	7 3us	28
9 4	10 0	10 1	10 0	9 6	9 0	8 0	6 6	F	F	F	7 8	29
11 3	11 8	10 9	10 6	10 4	10 4	S	9 1	9 0	8 6us	8 6	8 5	30
8 8	9 2	9 4	9 8	10 1	9 8	9 8	8 7	8 8	8 7	7 8	7 1	31
29	29	29	30	31	31	30	29	28	24	25	28	Count
8 0	8 7	9 4	10 0	10 1	10	9 6	8 9	8 8	8 6	8 0	7 2	Median
8 2	8 9	9 5	10 1	10 2	10 1	9 6	9 0	8 7	8 5	8 0	7 2	Mean

Sweep 1 0 Mc to 25*0 Mc in 27 seconds

Characteristic foF2

TABLE 57—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	6 3s	4 6	3 7	2 7	1 7	2 7	6 5	8 0	8 2	7 0	6 8	6 9
2	F	F	4 8 _{US}	F	F	2 7	6 1s	7 4s	7 8	6 9	6 4	6 8
3	C	C	C	C	C	C	C	C	C	C	6 1	6 3
4	5 8	3 9 _{US}	2 4	1 6 _R	R	2 6	5 9	7 0	6 5	6 2	6 3	6 4
5	4 7	4 1	1 9	E	E	2 6	5 8s	7 2 _{US}	7 9	7 1	6 5	6 5
6	5 2 _{US}	4 0 _{US}	2 8	2 0	1 6	2 6	6 0s	7 2s	7 2 _H	6 6	7 0	7 0
7	F	S	4 4	2 8	2 1	2 7	5 7	7 1	8 0	8 8	8 3 _H	7 4
8	7 4s	6 6	3 9	E	E	2 8	6 7	7 6	8 0 _{US}	8 4	8 0 _H	7 6
9	6 9	5 8	4 6	3 7	3 0	3 2	6 5	8 1	9 0	8 5 _H	7 8	7 7
10	S	C	C	C	C	3 0	6 6	7 8	9 0	9 5	8 0	7 8
11	4 5	4 0	3 1	2 7	2 4	2 7	6 4	8 0	8 2	7 8	7 3	7 4
12	5 4	5 2s	3 6	3 0	2 0 _R	3 1	6 8	8 3	9 6	9 6	8 3	8 0
13	8 1	4 9	3 0	2 3	2 4	3 2	6 8	8 2	8 6	C	C	C
14	6 3	6 2	4 7	2 3	L	3 0	7 3	8 4	9 0	8 3	7 9	7 6
15	5 6	5 0	4 0	3 2	2 3	3 2	7 1s	8 8	9 7	8 7	7 9	8 0
16	6 8	5 8	4 6	3 4	C	3 0	6 8	8 5	8 7	7 6	7 4	7 3
17	6 0s	5 3	3 6	2 1	1 5 _{UR}	3 1	6 8	8 2	9 7	9 0	8 7	9 1
18	3 7	3 5	2 8	2 0 _{UR}	R	3 0	6 4	8 1	9 1 _H	7 9	7 5	7 7
19	7 5	6 7	5 4	4 1	3 4	3 4	6 5	8 3	9 5	C	8 7	8 8
20	7 7 _{US}	7 0	5 9	4 8	1 5	4 4	7 2 _{US}	8 5	9 5	9 3	8 5	8 6
21	G	G	C	C	C	C	C	C	C	C	C	C
22	8 1	7 8	7 0	5 8	3 2	3 0	7 0	8 5	9 2	8 4	8 0	7 7
23	6 5	6 0	4 8	3 3	2 2	2 8	6 6	7 4	9 0	9 1 _H	7 8	7 6
24	5 4	4 6	3 7	3 2	3 3	3 2 _F	6 6	8 0	9 0	9 0 _H	9 2	9 2
25	5 0	4 2	4 1	4 1 _H	F	2 9	7 0	9 0	10 0	10 1	10 2	10 0
26	8 2	7 6	5 3	C	C	4 2	7 1	8 3	9 2	8 8	8 8	9 0
27	7 2 _{JS}	7 6	5 9	4 6	3 1	3 2	6 5	8 0	9 4	9 7	8 9	8 3
28	F	F	F	F	3 4 _F	3 1 _{UF}	6 3	8 0	9 6	10 7	10 6	10 1
29	6 4	6 4	5 7	4 8	3 9	4 0	6 9	8 4	8 6	9 0	8 8	9 3
30	7 8	4 0	R	L	1 3	3 0	7 2	9 5	9 6	10 1	10 6	11 3
31	6 5	6 4	6 6	5 4	3 7	3 2	6 8	8 4	8 6	8 4	8 3	8 6
Count	25	25	26	25	22	29	29	29	29	28	29	29
Median	6 4	5 3	4 2	3 0	2 4	3 0	6 6	8 2	9 0	8 6	8 0	7 7
Mean	6 4	5 5	4 3	3 4	2 7	3 1	6 6	8 1	8 8	8 5	8 1	8 1

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF2

TABLE 57 —Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
7 4	7 8	8 6	9 5	10 2	9 2	9 0	8 6	8 2	F	F	F	1
7 5	8 3	9 5	10 8	10 8	10 1	9 3	9 4s	8 7	7 9	6 5us	4 8	2
7 2	8 2	A	10 0	10 1	10 0	9 1	8 3	8 0	S	7 1s	6 4	3
7 0	7 8	8 8	9 5	9 9	9 6s	9 2	8 1	7 1	F	F	5 0us	4
7 1us	8 0	8 8	9 4	9 8	9 6s	9 2	8 5	8 6	8 4	6 6	5 2us	5
7 5	8 2	9 0	9 2	9 2	8 8	8 1	7 7	7 2s	7 3s	6 5s	5 2s	6
7 8	8 4	8 8	9 2	9 1	9 2	8 7	8 0	8 3	7 8	7 2us	7 2s	7
8 0	9 0	9 7	9 8	10 0	10 1	11 0	10 4s	9 0	8 1	7 0	7 0	8
8 1	9 0	9 6	10 2	10 1	9 8	8 9	8 3	8 2s	9 2s	9 3	8 7	9
8 4	9 1	10 6	10 8	10 8	10 5us	10 0	9 9	9 3	8 9	7 0	5 3	10
7 9	8 9	9 1s	9 5	9 4	9 2	9 3	9 0	9 1	8 1	7 2	5 5	11
8 0	8 6	8 9	9 0	9 0s	9 7us	9 3	8 3	8 3UF	9 6us	8 4	8 2	12
C	C	C	C	11 5	11 2	10 8	10 1	C	C	8 4	7 0us	13
8 5	9 3	10 6	10 9	10 6	10 1	10 4	F	C	8 3	7 1	6 3s	14
8 7	9 3	10 0	10 4	10 1	9 7s	9 6	9 3	9 1s	8 9	7 6s	7 8	15
7 7	8 5	9 7	10 8	11 3	11 0	10 4	8 8	8 7	8 0	7 0us	6 8	16
10 1	11 6	12 0	11 5	11 0	10 6	10 3	10 0	9 4	7 6	5 7	4 0	17
8 8	9 8	10 8	11 4	10 9	10 2	9 0	8 8	9 0	9 1	8 4	8 0	18
9 6	10 6	11 2	11 4	11 4us	11 0	9 4us	7 2us	F	F	F	8 4	19
9 1	9 8	10 7	11 3	12 0js	11 1	9 4	8 3F	8 6	F	C	7 8	20
C	C	C	11 6	C	11 1	10 2	10 0	10 2	10 2	9 7	9 1	21
8 4	9 4	9 8	10 3	10 1	9 5	9 0	9 0	9 3	9 4	8 1	7 7	22
7 8	8 4	9 0	9 4	9 7	9 6	9 5	9 6	8 9	7 8	7 0	6 6	23
9 4	10 0	10 0	10 0	10 6	10 4	10 2	10 2	8 8	7 6	7 0	6 2	24
10 4	10 8	10 9	10 2	9 5	8 0	8 0	7 6	8 3	8 4	8 1	8 2	25
9 3	9 8	10 3	9 8	9 4	9 2	8 6	8 3	8 4	8 1	7 2us	7 2us	26
8 4	8 6	8 8	8 7	8 8	8 5	7 0	6 1js	F	F	F	F	27
9 9	10 5	10 4	10 0	9 4	8 6	7 2js	6 2F	F	F	7 6UF	6 9	28
9 7	10 0	10 0	10 1	9 0	8 4	7 1	6 1jF	F	F	6 7F	8 6	29
11 8	11 4	10 6	10 4	10 6	10 4	9 4	9 0	F	8 4F	8 8	8 0	30
9 0	9 4	9 7	10 2	10 0	9 6	9 1	8 6	8 9	8 4	7 4	6 7	31
29	29	28	30	30	31	31	30	24	22	26	29	Count
8 4	9 1	9 8	10 2	10 1	9 7	9 3	8 6	8 7	8 4	7 2	7 0	Median
8 6	9 3	9 8	10 2	10 1	9 8	9 2	8 6	8 6	8 4	7 5	6 9	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₁

TABLE 58

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mc in Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	4 4	L	4 5
2								L	L	4 4	4 5	4 5
3								C	C	4 3	4 5	4 5
4							L	L	L	4 3	4 5	4 5
5							L	L	L	4 4	L	4 5
6								L	L	L	4 5	4 4
7							L	L	L	4 5	4 5	4 6
8							L	L	L	4 4	L	LH
9								L	L	4 5	L	LH
10								L	L	4 4	L	L
11								L	L	L	4 5	L
12							L	L	L	L	L	L
13								L	L	C	C	C
14								LH	L	L	L	L
15								LH	L	L	L	LH
16							1 9	L	L	L	L	L
17							L	L	L	4 6	4 8	L
18								L	L	L	L	L
19							L	L	L	L	L	L
20								L	L	L	L	4 8
21							C	C	C	C	C	C
22							L	L	L	L	L	5 1
23							L	L	4 2	4 3	4 5	4 7
24							L	L	L	L	4 6	L
25							L	L	L	4 8	4 6	4 6
26								L	L	L	L	L
27								L	L	L	L	4 7
28								L	L	L	L	4 7
29								L	L	4 6	L	L
30								L	L	L	L	C
31								C	L	L	L	4 7
Count							1		1	13	10	14
Median										4 4	4 5	4 6
Mean										4 4	4 6	4 6

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds

Characteristic foF₁

TABLE 58

Latitude 10·2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
4 6	4 4	LH	L	L								1
4 5	LH	L	L	L								2
4 5	4 6	A	L	L								3
4 6	4 5	L	L	L								4
4 5	4 4	4 3	LH	L								5
4 6	L	LH	L	L								6
4 5	4 5	L	L	A								7
4 7	L	LH	L	L								8
4 7	4 5	L	L	L	A							9
L	L	LH	A	L								10
L	L	L	L	L								11
L	4 6	L	L	L								12
G	C	C	C	L								13
L	L	L	L	L								14
L	L	L	L	L								15
L	L	L	L	L	L							16
5 0	4 7	4 7	L	L	L							17
L	4 8	L	A	L	L							18
4 8	4 8	L	L	L	L							19
4 9	5 0	L	L	L	L							20
C	C	C	L	L	L							21
4 8	4 6	4 4	L	L	L							22
4 6	4 4	4 4	L	L	L							23
4 8	4 6	4 4	L	L	L							24
4 7	4 6	4 4	L	L	L							25
L	L	L	L	L	L							26
4 8	4 6	4 4	L	L	L							27
4 7	4 7	A	L	L	L							28
4 7	L	L	L	L	L							29
L	L	L	L	L	L							30
L	L	L	L	L								31
19	7	7			..							Count
4 7	4 6	4 4		..	.							Median
4 7	4 6	4 4										Mean

Sweep 1 0 Mc. to 25·0 Mc in 27 seconds.

Characteristic foF₁

TABLE 58—Contd

Latitude 10 2° N

Unit, Mc.

Ionospheric Data

Longitude 77 5° E.

Month October 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	I	L	I	4.4	4.4
2							L	I	4.3	4.4	4.4	L
3							C	C	4.4	4.4	L	4.6
4							L	L	4.2	4.5	4.5 _H	4.6
5							L	L	4.5	4.4	4.5	4.5
6							L	L	L	4.5	4.4	4.5
7							L	L	L	L	4.6	L
8							L	L	L	4.5	4.5	4.5
9							L	L	L	I	I _H	I _H
10							L	L	I _H	L	L	L
11							L	L	4.6	L	L	4.6
12							L	L	L	L	I	L
13							L	L	L	C	C	C
14							L	L _H	L	L	L	L _H
15							L	L	L	4.6	L	L _H
16							L	I	L	L	I	L
17							L	L	4.6	4.8	L	5.0
18							L	L	L	L	L	L
19							L	L	L	C	L	4.9
20							L	L	L	4.6	L	4.9
21							C	C	C	C	C	C
22							L	I	L	L	4.9	5.0
23							L	L	4.5	4.4	4.5	4.6
24							L	L	L	4.7	4.6	L
25							L	L	I	4.6	4.5	4.7
26							L	L	L	L	L	L
27							I	L	L	L	L	L
28							L	L	L	L	L	4.7
29							L	L	L	4.5	L	4.7
30							L	L	L	L	L	A
31							L	L	L	L	4.7	L
Count									6	13	12	15
Median									4.5	4.5	4.5	4.6
Mean									4.4	4.5	4.5	4.7

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fo F₁

TABLE 58—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
4 5	L	4 3	L	I								1
4 4	L	L	I									2
4 5	L	A	L	L								3
4 5	4 4	4 2	L	L								4
4 4	4 1	L	L	L								5
4 5	L	4 3	L	L								6
4 5	L	L	L	A								7
L	L	L	L									8
L	4 6	I	L	A								9
L	L	111	L	L								10
L	4 6	L	L									11
4 7	L	L	L	I								12
C	C	C	C									13
L	L	L	L	L								14
L	L	L	L	L								15
L	L	L	L	L	L							16
4 8	4 8	I	I	I								17
4 8	4 7	L	L	L	L							18
4 8	4 7	L	L	L								19
L	L	L	L	L	L							20
C	C	C	L	C								21
4 7	4 5	L	L	L	L							22
4 6	4 4	4 2	L	L	L							23
4 6	4 4	L	L	L	L							24
4 6	L	4 4	L	L								25
4 7	L	L	L	L								26
4 6	4 6	L	L	L								27
4 7	A	L	L	L								28
L	L	L	L	L								29
L	L	L	L	L								30
4 7	4 6	I	L									31
19	12	5										Count
4 6	4 6	4 3										Median
4 6	4 6	4 3										Mean

Sweep 1°0 Mc to 25°0 Mc in 27 seconds

Characteristic foE

TABLE 59

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75° E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								2 5 _{II}	Λ	A	A	A
2								2 5	A	A	A	A
3								C	C	A	A	A
4							R	A	A	A	A	A
5								2 5 _{II}	A	A	A	A
6							R	A	A	A	A	A
7							R	2 4 _R	A	A	A	A
8							R	A	A	A	A	A
9							R	2 5 _{II}	Λ	A	A	A
10							R	2 8 _{II}	A	A	A	A
11							1 8 _{II}	2 6 _{II}	A	A	A	A
12								2 5 _{II}	3 0 _{II}	A	A	A
13							A	A	A	C	C	C
14								2 6	A	A	A	A
15								A	A	A	A	A
16							R	A	A	A	A	A
17							A	A	A	A	A	A
18								R	A	A	A	A
19								2 6	A	Λ	A	A
20								R	A	A	A	A
21							C	C	C	C	C	C
22								2 7	A	A	A	A
23								2 1	A	A	A	A
24								2 2	A	A	B	A
25								2 0	A	A	A	A
26								2 4	A	A	A	A
27							1 7	2 5	2 9	A	A	A
28							1 8	B	B	3 3	A	A
29								A	A	A	A	A
30							1 6	A	2 7	Λ	3 4	C
31								C	A	A	A	A
Count							4	16	3	1	1	
Median								2 5				
Mean								2 5				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE

TABLE 59

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5°E

Month October, 1963

75° E Meridian Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	2 5 _{UA}	A							1
A	A	A	A	B	A							2
A	A	A	A	R								3
A	A	A	A	B								4
A	A	A	A	2 7 _{II}								5
A	A	A	A	A	A							6
A	A	A	A	A	A							7
A	A	A	A	A	A							8
A	A	A	A	A	A							9
A	A	A	A	A	A							10
A	A	A	A	A								11
A	A	A	A	A	A							12
C	C	C	C	B								13
A	A	A	3 2 _{II}	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
A	R	R	R	R	A							17
A	A	A	A	A								18
A	A	B	2 0	B								19
A	A	A	A	A	A							20
C	C	C	A	C								21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A	A				A			24
A	A	A	A	A	A				A			25
A	A	A	A	A	A							26
A	A	A	A	A	A							27
3 6	3 5	A	A	A	A							28
A	A	A	A	A	A							29
A	3 2	3 0	2 9	A	A							30
A	A	3 1	2 9	2 5								31
1	2	2	4	3								Count
												Median
												Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic foE

TABLE 59—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75° E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							R	A	A	A	A	A
2							2 2	2 8H	A	A	A	A
3							C	C	C	A	A	A
4							2 2H	A	A	A	A	A
5							2 2H	2 8H	A	A	A	A
6							2 2H	A	A	A	A	A
7							2 2H	R	A	A	A	A
8							A	A	A	A	A	A
9							2 3H	A	A	A	A	A
10							2 3H	2 9H	A	A	A	A
11							2 3H	A	A	A	A	A
12							2 3H	2 9H	A	A	A	B
13							A	A	A	C	C	C
14							R	A	A	A	A	A
15							2 2H	A	A	A	A	A
16							A	A	A	A	A	A
17							A	A	A	A	A	A
18							2 2R	A	A	A	A	A
19							2 6	R	A	C	A	A
20							2 4	R	A	A	A	A
21							C	C	C	C	C	C
22							2 4	A	A	A	A	A
23							2 0	A	A	A	A	A
24							1 9	2 7	A	A	A	A
25							2 0R	2 3R	A	A	A	A
26							2 1	A	A	A	A	A
27							2 1	2 7	A	A	A	A
28							2 1	B	B	A	A	3 6
29							2 3	A	A	A	A	A
30							A	A	A	A	3 4	A
31							2 2	A	A	A	A	A
Count							22	7			1	1
Median							2 2	2 8				
Mean							2 2	2 7				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month October, 1963

TABLE 59—Contd
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	R								1
A	A	A	R	B								2
A	A	A	2 8 _{UR}	R								3
A	A	A	A	B								4
A	A	A	R	2 4								5
A	A	A	A	A								6
A	A	A	A	A								7
A	A	A	A	A								8
A	A	A	A	A								9
A	A	A	A	A								10
A	A	A	A	A								11
A	A	A	A	A								12
C	C	C	C	A								13
A	A	A	R	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
R	R	R	R	R								17
A	A	A	A	A								18
A	A	3 1	R	A								19
A	A	A	A	A	A							20
C	C	C	C	C								21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A	A							24
A	A	A	A	A								25
A	A	A	B	A	A							26
A	A	A	A	A	A							27
3 5	A	3 1	A	A	A	A						28
A	A	A	A	A	A							29
A	3 1	3 0	A	A	A							30
A	A	3 0	C									31
1	1	4	1	1								Count
												Median
												Mean

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic foEs
 Unit Mc
 Month October 1963

TABLE 60
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N.
 Longitude 77 5° E.

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	S							G	10 0s	12 0	11 8	11 6
2								S	8 8	11 1	11 1	12 0
3							C	C	C	10 8	11 0	11 7
4							G	6 6us	9 6	11 1	12 0	12 0
5								G	9 0s	11 0	11 6	12 0
6							G	S	10 0us	11 3	12 0us	12 1
7							G	G	7 0us	11 0	12 0	12 0
8						1 9	G	S	10 0	11 0	12 0	12 4
9			2 6				G	G	11 0s	11 0	11 4	11 4
10							G	G	9 0s	11 6	12 0	12 0
11							G	7 0s	10 0	12 0	12 0	12 0
12								G	G	10 3	12 0	12 0
13							S	3 8	9 8	C	C	C
14								G	10 3	12 1	12 0	12 4
15	3 5							7 0us	10 0s	12 0	12 2	12 4
16	2 6						G	7 4s	9 1	10 2	11 0	11 0
17							4 4s	S	8 8	9 8	11 8	11 6
18								5 0s	9 4	10 1us	11 0	11 0
19								G	8 1	10 8	11 6	11 4
20								S	8 8	10 2	11 6	11 8
21							C	C	C	C	C	C
22								G	9 2	10 6	11 6	12 4
23								G	9 3	11 1	9 8	11 6
24								G	9 0	6 2	10 8	12 6
25						1 9		G	6 2	12 1	8 8	10 9
26			2 2	C	C			7 0	9 0	11 2	11 0	10 8
27							G	G	7 2	10 6	11 6	11 3
28							G	G	G	8 6	11 6	11 0
29	S	S				2 0	S	6 8	9 4	10 8	11 3	11 0
30							G	7 0	G	9 0	6 2	C
31								C	9 2	10 0	12 4	11 0
Count	2		2		1	2	12	23	29	29	29	28
Median							G	G	9 2	11 0	11 6	11 8
Mean								7 0	9 1	10 7	11 3	11 7

Sweep 1 0 Mc to 25 0 Mc, in 27 seconds

Characteristic foEs

TABLE 60

Latitude 10.2° N

Unit Mc

Ionospheric Data

Longitude 77.5° E

Month October 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
11 6	11 6	10 8	9 8	10 4	5 8				S			1
11 6	11 2	6 0	7 0	G	6 4s					2 4s		2
11 8	11 0	9 6	11 8	G					3 1	2 6us		3
12 0	11 6	8 6	6 0	—		4 0us				2 6		4
12 0	12 0	10 6	8 9	G								5
11 8	12 0	10 6	8 2	7 0	S					3 1	3 1	6
11 2	12 0	11 2	9 0s	11 0	S			2 5	3 6s	3 9	3 6s	7
11 8	12 2	12 0	8 5	8 6	1 6		4 2					8
12 0	12 2	10 0	10 0s	8 2	S			2 2	3 2s	3 2	4 5us	9
12 4	12 0	8 5	11 2	6 0	7 0us			2 6	3 1			10
12 4	12 0	11 1	8 2	6 0								11
12 2	12 0	12 0	10 7	8 0	S			2 9				12
C	C	C	C	7 6								13
12 4	12 0	8 0	G	5 0							3 6us	14
12 4	12 1	10 6	11 0	8 2						3 4		15
11 2	11 0	8 2	6 2	6 2s	4 0							16
9 4	G	G	7 4s	G	S							17
11 4	10 0	7 0us	9 6	1 8				2 5		6 4		18
10 4	8 2	G	G	G							6 0us	19
11 4	9 6	8 0	9 2	9 2	10 0				6 2s	4 6	3 8	20
C	C	C	C	6 1	5 6us							21
11 4	11 0	8 8	6 4	8 0					3 0			22
11 2	11 6	9 9	7 6	6 2					3 4			23
11 4	11 4	9 4	9 0	6 2	6 0us	4 0				4 2		24
8 4	8 1	8 1	9 2	S	S		4 1	4 8				25
9 6	9 6	8 6	9 0	8 0	7 0					4 8		26
11 4	11 0	11 4	9 4	7 0						2 0		27
9 4	8 0	9 2	7 4	7 0	3 8					5 2	7 6	28
9 0	9 4	9 2	8 2	7 0								29
6 2	7 4	G	G	6 7	6 0						6 0	30
11 2	10 6	9 8	7 8	3 4						4 7		31
29	29	29	29	29	11	2	2	6	7	14	8	Count
11 4	11 2	9 2	8 5	6 7	6 0			2 6	3 2	3 6	4 2	Median
11 0	10 8	9 5	8 7	7 2	6 0			2 9	3 6	3 8	4 8	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic foEs
 Unit Mc
 Month October 1963

TABLE 60—Contd
 Ionospheric Data
 75°E Mc in Time

Latitude 10 2° N
 Longitude 77.5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	7 2S	11 3	12 0	11 8	12 0
2							G	6 0	9 8	10 6	11 6	11 8
3							G	C	C	11 0	11 5	12 0
4							G	9 0	10 4	11 2	11 6	12 0
5							G	G	10 0 _{us}	10 8	12 0	12 0
6												
7						3 0	G	8 7	10 8	11 8	12 0	12 2
8							G	G	8 6	11 0	11 8	12 0
9	4 25						S	10.0	12 0	12 0	12 0	12 0
10							G	8 4	10 2	12 0	12 2	12 0
11							G	G	10 0	11 0	12 2	12 0
12							S	8 6	10 6	11 3	12 1	12 6
13							G	G	9 0	12 0	12 0	12 0
14							8 0 _S	10 2	10 0	C	C	C
15							G	10 2	11 0	12 3	12 0	12 0
16	3 2						G	8 2 _{us}	11 2S	11 6	12 3	12 2
17					C		3 2	8 8	9 4	10 0	11 0	11 0
18							3 2	7 0S	9 2	10 4	11 0	11 0
19							G	6 0	9 2	11 2	11 0	11 6
20							G	6 2	10 8	C	11 2	11 2
21							G	7 6S	9 6	11 0	12 4	11 8
22							C	C	C	C	C	C
23							G	8 8	10 0	11 3	12 1	11 8
24							G	8 6	10 0	9 8	11 8	10 8
25							G	G	9 1	9 6	11 6	11 4
26							G	G	8 8	8 4	9 6	12 3
27							G	6 8	9 6	11 2	10 8	11 2
28							G	G	9 0	10 6	11 4	11 0
29	6 6				2 0		G	G	6 0	9 5	11 6	9 8
30							4 8	8 4	9 6	10 0	11 4	10 2
31							S	7 0	8 8	9 0	6 8	12 0
31							5 6	8 8	10 2	10 6	11 3	11 6
Count	3				1	1	26	29	29	28	29	29
Median							G	7 2	10 0	11 0	11 6	12 0
Mean							5 0	8 1	9 8	10 8	11 4	11 6

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic foEs

TABLE 60—Contd

Latitude 10 2° N

Unit, Mc.

Ionospheric Data

Longitude 77 5° E.

Month October 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
12 0	11 6	9 7	7 2	G				2 2	2 6			1
11 2	8 4	8 0	G	5 8								2
11 8	10 0	20 0	G	G					3 0			3
12 0	11 2	6 4	S	S					2 8	3 0 _{us}	2 7	4
12 0	11 8	10 2 _{us}	G	G	4 8S					3 0		5
11 6	10 8	8 9S	6 0	6 6S					2 6	2 8		6
12 0	12 1	11 4	9 0	10 0			2 4	3 0	4 0	3 8S	3 1	7
12 0	11 6S	10 0	7 6	S	3 4	6 0S						8
12 0	9 7	11 0	8 0	8 4S				2 8S	3 1	3 2	3 2	9
11 6	9 4	8 0	8 0	8 0	S					3 2		10
12 0	11 8	9 6	8 0	6 0								11
12.2	11 4S	11 8S	8 6	7 0	8 4S			2 7				12
G	C	C	C	8 7	G	C	C	C	C			13
12.0	9 6	8 0	G	S						2 9	3 6	14
12 3	11 6	10 6	8 6	S						S		15
11 0	9 6	5 8	6 0	S	S							16
G	G	G	6 0	7 0 _{us}								17
10 8	6 2	11 4	3 4	6 2						6 4		18
9 8	9 0	G	G							S		19
11 0	8 0	8 2	11 0	8 0	7 0 _{us}				S			20
C	C	C	C	C					4 3			21
11.4	11 1	6 3	6 1	8 8								22
11 4	12 3	8 8	6 8	6 2								23
8 1	10 8	9 4	8 1	5 6	5 0 _{us}							24
8 3	9 8	8 8	8 8	8 2			3 8	3.0				25
7 7	7 9	8 8	8 4	7 5	6 0					4 2		26
11 0	9 8	10 2	8 2	6 0					1 7			27
7 8	9 2	9 0	7 0	6 6					2 4	7 8		28
9 4	9 6	9 2	7 8	7 0								29
6 0	4 6	G	10 4	6 6							3 2	30
11 2	9 4	8 6	6 0							2 8		31
29	29	29	28	23	6	1	2	5	9	11	5	Count
11 4	9.8	8 9	7 4	6 6	5 5			2 8	2 8	3 2	3 2	Median
10 8	9 9	9 5	7.6	7 2	5 8			2.7	2 9	3 9	3 2	Mean

Sweep 1 0 Mc. to 25.0 Mc in 27 seconds

Characteristic fbEs

TABLE 61

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963.

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11	
1	1 8							G	2 9	3 3	3.5	3 5	
2									2 9	3 2	3 4	3 6	
3								C	3 3	3 3	3.5	3 6	
4							G	2 5	2 9	3 2	3 5	3 6	
5								G	3 0	3 3	3 6	3 6	
6							G	2 5	3 0	3 3	3 5	3 5	
7							G	G	3 0	3 2	3 4	3 5	
8						A	G	2 6	3 0	3 3	3 5	3 6	
9			1 5				G	G	3 0	3 1	3 5	3 6	
10						G	C	G	3 0	3 3	3 6	3 7	
11							G	2 7	3 0	3 3	3 6	3.3	
12								G	G	3 3	3.6	3 7	
13							1 9	2 5	3 0	C	C	C	
14								G	3 0	3 4	3 8	3.7	
15	1 9							2 5	3 0	3 3	3 6	3.6	
16	1 8					C	G	2 6	3 1	3 4	3 6	3 8	
17							1 8	2.6	3 0	3 4	3 6	3 7	
18								2 6	3 0	3 3	3 6	3.6	
19								G	3 0	3 4	3.6	3 8	
20								2 6	3 0	3 4	3 6	3 7	
21						G	C	C	C	C	C	C	
22								G	3 0	3 4	3 6	3.6	
23								G	3 0	3 3	3 4	3 6	
24								G	3 0	3 2	3 8	3 6	
25						1 2		G	3 0	3 2	3 4	3 6	
26			1 8	C	C				3 0	3 2	3 5	3 5	
27							G	G	3 0	3 4	3.7	3 7	
28							G	G	G	3 6	3 8	3 8	
29	2 1	1 5			1 8			2 5	2 9	3 3	3 5	3 6	
30							G	2 8	G	3 2	3 6	C	
31									C	2 9	3 2	3 5	3 6
Count	4	1	2		1	2	13	26	29	29	29	28	
Median							G	G	3 0	3 3	3.6	3.6	
Mean								2 6	3.0	3 3	3 6	3 6	

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fbEs

TABLE 61

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E.

Month October 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
3 7	3 4	3 3	3 3	3 2	2 2				S			1
3 7	3 7	3 7	3 2	G	2 4					S		2
3 6	4 4	4 2	4 0	G					1 6	1 7		3
3 6	3 5	3 3	3 3			2 5				1 8		4
3 6	3 7	3 2	3 0	G								5
3 6	3 5	3 3	3 1	3 3	2 4						1 6	6
3 6	3 6	3 5	3 1	4 4	2 2			1 7	1 6	2 1	2 1	7
3 5	3 5	3 4	3 2	2 9	2 7		2 2					8
3 5	3 5	3 4	3 5	3 1	2 9				1 9	1 8	2 5	9
3 6	3 6	3 3	6 0	3 0	3 0							10
3 7	3 6	3 4	3 2	2 7								11
3 6	3 5	3 4	3 0	2 8	2 5			2 1				12
C	C	C	G									13
3 7	3 6	3 6	G	2 8							2 2	14
3 8	3 6	3 4	3 2	2 8						2 0		15
3 8	3 7	3 5	3 4	3 0	2 3							16
3 8	G	G	3 3	G	S							17
3 7	3 6	3 4	4 1	2 9				1 9		2 6		18
3 7	3 8	G	G	G							2 1	19
4 0	3 8	3 8	5 0	3 5	3 6				2 8	1 9		20
C	C	C	C									21
3 6	3 6	3 4	3 0	2 7					2 0			22
3 6	3 5	3 4	3 2	2 8					1 8			23
3 5	3 6	3 2	3 0	2 8	2 4	2 2				2 4		24
3 6	3 8	3 4	3 1	2 6	2 0		1 9	2 0				25
3 7	3 7	3 4	3 0	3 0	2 0					1 8		26
3 7	3 6	3 3	3 0	2 7						1 7		27
3 7	4 2	4 4	3 3	2 7	2 0				2 5	2 5		28
3 6	3 6	3 2	3 0	2 6								29
3 6	3 6	G	G	3 4	2 3						2.6	30
3 6	3 4	3 3	3 3	3.3						2 1		31
29	29	29	29	28	15	2	2	4	7	12	6	Count
3 6	3 6	3 4	3 2	2 8	2 4				1 9	2 0	22	Median
3 6	3 6	3 5	3 4	3 0	2 5				2 0	2 0	22	Mean

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds.

Characteristic fbEs

TABLE 61—Contd

Latitude, 10 2° N.

Unit Mc

Ionospheric Data

Longitude, 77 5° E.

Month October 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	2.7	3.1	3.3	3.5	3.6
2							G	2.8	3.1	3.5	3.6	3.6
3							G	C	C	3.4	3.5	3.5
4							G	2.8	3.0	3.4	3.5	3.6
5							G	G	3.1	3.5	3.6	3.7
6							G	2.8	3.2	3.5	3.5	3.6
7							G	G	3.1	3.2	3.5	3.6
8							2.4	2.9	3.2	3.5	3.7	3.7
9	1.6						G	2.8	3.1	3.1	3.6	3.6
10							G	G	3.1	3.4	3.6	3.6
11								2.8	3.2	3.5	3.7	3.7
12							G	G	3.1	3.5	3.6	3.8
13							2.2	2.8	3.1	C	C	C
14							G	2.7	3.2	3.1	3.8	3.8
15							G	2.8	3.2	3.1	3.6	3.7
16	1.6s						2.3	2.8	3.3	3.6	3.8	3.8
17							2.4	2.9	3.2	3.6	3.7	3.9
18							G	2.8	3.2	3.4	3.6	3.7
19							G	3.0	3.3	C	3.8	3.8
20							G	3.1	3.2	3.6	3.7	3.8
21							C	C	C	C	C	C
22							G	3.0	3.2	3.6	3.6	3.6
23							G	2.8	3.1	3.1	3.5	3.5
24							G	G	3.0	3.4	3.5	3.6
25							G	G	3.2	3.3	3.5	3.6
26							G	3.8	3.1	3.4	3.4	3.7
27							G	G	3.1	3.5	3.6	3.7
28							G	G	.	3.6	3.8	3.8
29	2.8				1.4		2.7	3.1	3.4	3.7	3.6	3.6
30							2.2	3.0	3.1	3.3	3.6	4.6
31							2.2	2.7	3.1	3.4	3.5	3.6
Count	3				1		27	29	28	28	29	29
Median							G	2.8	3.1	3.4	3.6	3.7
Mean							2.3	2.9	3.1	3.4	3.6	3.7

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic f_oF₂
 Unit Mc.
 Month October 1963.

TABLE 61—Contd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2' N
 Longitude 77 5' E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3.5	3.1	3.2	3.1	G				1.6	1.6			1
3.6	3.8	3.7	G									2
3.6	4.0	Λ	G	G								3
3.5	3.1	3.2	3.1						1.7	1.7	1.5	4
3.6	3.1	3.2	G	G	1.1							5
3.6	3.2	3.2	3.2	3.1					1.5			6
3.8	3.5	3.3	3.1	3.8			1.9			2.1	1.7	7
3.6	3.1	3.1	3.1	3.5	2.9							8
3.7	3.2	3.2	3.1	3.8				1.6	1.8	1.9	2.0	9
3.6	3.6	3.1	3.5	3.1	2.1					1.9		10
3.7	3.2	3.2	3.1	3.5								11
3.6	3.1	3.1	3.0	2.2	1.9			1.9				12
G	G	G	G	2.7	G	G	G	G	G			13
3.6	3.2	3.1	G	3.2						1.9	1.9	14
3.6	3.2	3.7	3.0	3.1						2.0		15
3.9	3.5	3.1	3.0	2.3	2.1							16
G	G	G	3.2	2.8								17
3.7	3.7	1.6	3.3	2.2						2.4		18
3.7	3.6	G	G							2.2		19
3.8	3.6	3.6	1.2	5.0	2.8				2.0			20
G	G	G	G	G					2.2			21
3.6	3.1	3.2	3.0	2.2								22
3.6	3.1	3.1	3.0	2.4								23
3.1	3.4	3.2	2.9	2.5	2.1							24
3.6	3.6	3.2	3.0	3.1								25
3.6	3.5	3.1	3.0	3.6	2.2					2.4		26
3.7	3.1	3.2	2.9	3.1				1.7				27
3.6	1.8	3.2	2.8	2.1						2.4		28
3.5	3.2	3.1	2.9	2.1								29
3.8	3.6	G	2.8	3.8							1.7	30
3.6	3.4	3.6	.	3.3								31
29	29	29	28	27	8		1	3	7	10	5	Count
3.6	3.5	3.3	3.0	2.5	2.2				1.7	2.0	1.7	Median
3.6	3.6	3.4	3.1	2.8	2.3				1.8	2.1	1.8	Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic fmin
 Unit Mc
 Month October 1963

TABLE 62
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	1.5	1.5	1.4	1.4	1.3	1.2	1.7	1.7	1.7	2.1	2.2	2.4
2	E	E	1.5	1.3	1.1	E	1.9	1.9	1.9	2.0	2.4	2.4
3	G	C	C	C	C	C	C	C	C	2.3	2.5	2.6
4	1.1	1.4	1.3	1.3	E	E	1.4	1.6	1.8	2.1	2.3	2.6
5	1.5	1.3	1.1	1.2	E	E	1.8	1.8	1.9	2.1	2.3	2.5
6	1.4	1.1	1.4	1.3	1.3	E	1.4	1.6	1.8	2.2	2.4	2.5
7	1.2	1.1	1.2	1.4	C	1.2	1.4	1.6	2.0	2.0	2.3	2.5
8	1.4	1.5	1.5	1.4	E	E	1.4	1.6	1.9	2.3	2.5	2.5
9	1.6	1.5	1.1	1.5	1.5	1.1	1.4	1.6	1.7	2.2	2.3	2.2
10	1.9	C	C	C	C	C	1.4	1.9	2.0	2.3	2.5	2.6
11	1.9	1.7	1.4	1.4	1.1	1.0	1.4	1.5	1.9	2.2	2.4	2.6
12	1.9	1.9	1.4	1.4	E	1.2	1.8	1.6	2.1	2.2	2.5	2.6
13	1.6	1.4	1.3	1.2	E	1.1	1.4	1.4	1.8	C	C	C
14	1.6	1.6	1.9	1.7	1.2	E	1.8	1.8	1.8	2.0	2.3	2.6
15	1.4	1.7	1.4	1.2	E	1.1	1.7	1.6	1.8	2.1	2.3	2.5
16	1.8	1.5	1.4	1.5	1.3	C	1.5	1.9	1.8	2.0	2.4	2.6
17	1.7	1.2	1.4	1.4	E	1.1	1.8	1.5	1.6	2.1	2.3	2.6
18	1.3	1.8	1.4	1.7	1.3	E	1.8	1.8	1.7	2.0	2.4	2.6
19	1.2	1.5	1.1	1.8	1.4	1.3	1.9	1.7	1.8	2.2	2.6	2.8
20	1.7	2.0	1.5	1.6	1.3	1.3	1.8	1.9	1.9	2.3	2.6	2.7
21	1.5	C	C	C	C	C	C	C	C	C	C	C
22	1.5	1.1	1.2	1.3	1.5	1.4	1.8	2.4	1.8	2.2	2.4	2.4
23	1.2	1.4	1.1	1.2	1.1	E	1.8	1.5	1.8	2.1	2.4	2.5
24	1.7	1.1	1.4	1.6	1.5	1.8	2.0	1.7	1.8	2.4	3.2	2.4
25	1.6	1.5	1.2	1.3	1.2	1.1	1.7	1.7	1.8	2.2	2.4	2.4
26	1.6	1.6	1.4	C	C	1.1	1.7	1.5	1.6	2.0	2.2	2.3
27	1.6	1.1	1.4	1.3	1.4	1.1	1.3	1.5	2.4	2.3	2.7	2.6
28	1.5	1.3	1.2	1.2	1.2	1.0	1.5	3.2	3.8	2.8	2.9	3.0
29	1.8	1.4	1.1	1.2	E	1.4	1.8	1.6	1.9	2.3	2.4	2.6
30	1.9	1.6	1.4	S	E	E	1.1	1.7	2.0	2.2	2.4	C
31	1.5	1.7	1.7	1.7	1.7	1.2	1.7	C	1.8	1.9	2.3	2.4
Count	30	28	28	26	26	27	29	28	29	29	29	28
Median	1.6	1.5	1.4	1.4	1.2	1.1	1.7	1.6	1.8	2.2	2.4	2.6
Mean	1.6	1.5	1.4	1.4	1.3	1.2	1.6	1.7	1.9	2.2	2.4	2.5

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic f_{min}

TABLE 62

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2.5	2.5	2.4	2.0	2.2	1.9	1.8	1.8	1.4	1.2	1.5	1.2	1
2.6	2.5	2.7	2.0	2.9	2.1	2.0	1.8	1.9	1.3	1.5	1.4	2
2.5	2.5	2.4	3.2	2.3	2.3	1.6	C	1.4	1.4	1.5	1.4	3
2.6	2.4	2.4	2.3	3.0	2.1	1.9	1.7	1.5	1.6	1.1	1.4	4
2.7	2.5	2.4	2.1	2.1	2.1	2.0	1.8	1.6	1.5	1.5	1.2	5
2.5	2.5	2.5	2.2	2.3	1.9	1.8	1.6	1.5	1.5	1.5	1.2	6
2.6	2.7	2.5	2.3	2.2	1.7	1.9	1.8	1.5	1.4	1.5	1.6	7
2.5	2.5	2.3	2.4	2.1	1.9	1.6	1.9	1.9	1.6	1.6	1.5	8
2.4	2.5	2.0	2.0	2.0	1.9	1.7	1.9	1.5	1.5	1.4	1.6	9
2.6	2.6	2.6	2.1	2.6	2.0	2.2	1.9	1.9	1.9	1.8	1.8	10
2.7	2.5	2.4	2.4	2.1	2.1	1.5	1.5	2.0	2.1	2.5	2.3	11
2.6	2.4	2.4	1.8	1.9	1.4	1.9	1.8	1.6	2.0	1.9	1.7	12
C	C	C	C	3.0	2.5	2.0	1.8	1.8	C	C	1.8	13
2.6	2.5	2.1	2.7	2.2	2.3	1.6	1.8	1.4	C	1.3	1.4	14
2.6	2.6	2.3	2.3	2.3	2.0	1.6	1.3	1.8	1.5	1.5	1.8	15
2.6	2.6	2.4	2.6	3.0	2.2	1.6	1.8	1.6 ^{us}	1.6	1.6	1.3	16
2.6	3.0	3.0	3.0	2.6	2.2	1.8	1.6 ^{us}	1.6 ^{us}	1.6	1.6	1.3	17
2.8	2.6	2.2	2.2	1.9	2.6	1.6	1.4	1.1	2.0	1.6	1.9	18
3.0	3.2	3.6	2.8	3.0	2.2	1.8	1.8	S	1.6	1.6	1.9	19
3.0	3.4	2.7	1.8	2.0	1.6	2.0	2.0	2.0	1.6	1.4	1.5	20
C	C	C	3.0	2.8	2.5	2.0	1.8	1.6	1.8	2.0	1.5	21
2.4	2.6	2.6	2.6	2.6	2.0	1.5	C	1.6	1.6	1.6	1.3	22
2.4	2.4	2.4	2.4	2.3	2.1	1.5	1.3	1.8	1.6	1.7	1.8	23
2.5	2.4	2.4	2.2	2.5	2.4	1.8	1.8	1.8	2.0	1.8	1.6	24
2.6	2.6	2.5	2.4	2.4	1.8	1.5	1.3	1.5	1.6	1.7	1.6	25
2.6	2.3	2.2	1.9	2.2	1.9	2.1	1.8	1.7	1.5	1.6	1.5	26
2.7	2.5	2.4	2.2	2.2	2.1	2.3	1.8	1.6	1.6	1.3	1.4	27
2.9	2.9	2.5	3.0	2.6	1.4	1.4	1.5	1.5	1.6	1.3	1.5	28
2.6	2.6	2.4	2.2	2.2	2.0	1.7	1.6	1.7	1.9	1.6	2.2	29
2.5	2.8	2.6	2.6	2.2	2.3	1.8	1.7	1.9	1.7	1.4	1.5	30
2.6	2.5	2.4	2.4	2.3	2.2	1.8	1.7	1.7	1.9	1.6	1.7	31
29	29	29	30	31	31	31	29	30	29	30	31	Count
2.6	2.5	2.4	2.3	2.3	2.1	1.8	1.8	1.6	1.6	1.6	1.5	Median
2.6	2.6	2.5	2.4	2.4	2.0	1.8	1.7	1.6	1.6	1.6	1.6	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic fmin
 Unit Mc
 Month October, 1963

TABLE 62—Contd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	1 6	1 5	1 4	1 3	1 2	1 2	1 5	1 6	1 9	2 1	2 4	2 5
2	E	1 3	1 4	1 2	E	1 5	1 6	1 9	1 9	2 3	2 4	2 5
3	C	C	C	C	C	C	C	C	C	2 2	2 5	2 6
4	1 5	1 4	1 3	E	E	1 3	1 6	1 6	1 9	2 1	2 3	2 6
5	1 6	1 1	1 3	E	E	1 3	1 9	2 1	2 0	2 2	2 4	2 5
6	1 4	1 4	1 2	1 3	E	1 3	1 4	1 7	2 0	2 3	2 4	2 6
7	E	1 5	1 1	1 1	E	1 1	1 6	1 9	1 9	2 2	2 5	2 5
8	1 6	1 5	1 3	E	E	1 1	1 4	1 6	2 0	2 3	2 6	2 5
9	1 4	1 1	1 2	1 2	1 1	1 1	1 5	1 7	1 9	2 2	2 2	2 4
10	1 7	C	C	C	C	1 4	1 6	2 0	2 0	2 5	2 4	2 6
11	1 8	1 5	1 4	1 2	E	1 3	1 5	1 6	2 1	2 3	2 5	2 7
12	2 0	1 9	1 2	E	1 1	1 3	1 5	2 1	2 0	2 4	2 5	3 0
13	1 6	1 5	1 3	1 5	E	1 1	1 3	1 6	2 0	C	C	C
14	1 7	1 5	1 4	1 6	E	1 2	1 7	1 8	1 9	2 2	2 3	2 5
15	2 1	1 5	1 2	1 3	E	1 4	1 7	1 9	1 9	2 2	2 4	2 5
16	1 6 ^{us}	1 6	1 4	1 6	C	1 3	1 6	2 0	2 0	2 2	2 4	2 6
17	1 4	1 7	1 5	1 3	1 1 ^{us}	1 3	1 4	1 5	1 9	2 2	2 4	2 6
18	1 2	1 3	1 7	1 3	E	1 6	1 9	1 9	1 9	2 4	2 6	2 7
19	1 4	1 6	1 1	1 1	E	1 4	1 7	1 9	2 2	C	2 8	2 8
20	1 7	1 9	1 6	1 3 ^{us}	1 2	1 3	1 9	2 4	2 0	2 5	2 6	2 8
21	C	C	C	C	C	C	C	C	C	C	C	C
22	1 3	1 2	1 2	1 2	1 2	1 5	1 6	2 2	1 9	2 3	2 6	2 6
23	1 6	1 3	1 1	1 2	1 2	1 1	1 5	1 8	1 9	2 2	2 4	2 6
24	1 4	1 4	1 5	1 5	1 4	2 0	1 6	1 7	1 7	2 2	2 6	2 4
25	1 9	1 2	1 6	1 2	1 1	1 4	1 6	1 8	1 9	2 4	2 6	2 8
26	1 7	1 4	1 7	C	C	1 1	1 7	1 6	1 9	2 2	2 3	2 5
27	1 7	1 1	1 2	1 5	1 2	1 3	1 4	2 0	2 4	2 6	2 8	2 8
28	1 3	1 5	1 4	1 2	1 0	1 3	1 5	3 7	3 6	2 9	3 0	3 0
29	1 8	1 1	1 0	1 5	1 4	1 6	1 6	2 0	2 0	2 4	2 5	2 5
30	2 0	1 6	S	E	E	1 1	1 4	1 8	2 2	2 4	2 8	2 2
31	1 7	1 8	1 5	1 7	1 2	1 2	1 4	1 5	1 8	2 3	2 3	2 4
Count	29	28	27	27	26	29	29	29	29	28	29	29
Median	1 6	1 5	1 3	1 2	1 0	1 3	1 6	1 8	1 9	2 3	2 5	2 6
Mean	1 6	1 4	1 3	1 3	1 2	1 3	1 6	1 9	2 0	2 3	2 5	2 6

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fmin
Unit Mc
Month October, 1963

TABLE 62--Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2.5	2.5	2.3	2.3	1.8	1.9	1.9	2.1	1.2	1.2	1.2	E		1
2.6	2.6	2.3	2.6	2.7	1.9	1.9	1.9	1.5	1.4	1.5	1.5		2
2.4	2.5	2.2	2.5	2.1	1.9	1.5	1.5	1.4	1.7	1.3	1.2		3
2.5	2.6	2.4	2.4	2.8	2.2	2.0	1.6	1.4	1.2	E	E		4
2.6	2.5	2.3	2.2	2.0	1.9	2.0	1.8	1.5	1.5	1.4	1.1		5
2.5	2.5	2.4	2.4	2.0	1.9	1.5	1.6	1.5	1.4	1.4	1.1		6
2.8	2.1	2.3	2.2	2.0	2.1	1.5	1.6	1.5	1.5	1.6	1.6		7
2.6	2.4	2.3	2.1	1.9	1.6	2.0	1.9	1.6	1.5	1.5	C		8
2.4	2.3	2.0	2.0	2.0	1.9	1.8	1.9	S	1.4	1.2	1.8		9
2.5	2.6	2.3	2.2	2.0	2.0	2.0	1.6	2.0	1.9	1.8	2.0		10
2.7	2.5	2.3	2.5	2.1	1.6	1.3	2.0	2.2	2.0	2.5	2.1		11
2.4	2.4	2.2	1.9	1.8	1.3	1.9	1.6	1.4	1.9	1.6	1.4		12
C	C	C	C	2.6	2.1	1.9	1.9	C	C	1.9	1.9		13
1.6	2.3	1.9	2.5	1.9	1.8	1.9	1.8	C	1.5	1.4	1.4		14
2.5	2.4	2.4	2.2	2.0	1.6	1.5	1.4	1.5	1.4	1.6	1.6		15
2.8	2.5	1.6	1.0	2.3	1.5	1.6	1.6	1.6 ^{US}	1.7	1.6	1.6		16
2.8	2.6	2.8	3.0	2.4	1.7	1.7	1.5	1.7 ^{US}	1.7	1.3	1.7 ^R		17
2.6	2.7	2.3	2.2	2.3	2.2	1.6	1.6 ^{US}	1.6	1.6	1.7	1.7		18
3.0	2.6	2.7	2.9	2.7	1.7	1.4 ^{US}	1.7	S	1.6	2.2	1.9		19
2.6	2.6	2.0	2.0	1.9	1.6	1.9	1.8	2.0	1.6	C	1.4		20
C	C	C	1.0	C	2.1	2.0	1.9	1.7	2.0	1.8	1.4		21
2.6	2.6	2.6	2.5	2.2	1.7	1.6	1.5	1.6	1.8	1.4	1.4		22
2.4	2.5	2.4	2.4	2.0	1.7	1.5	1.5	1.7	1.7	1.8	1.7		23
2.4	2.1	2.0	1.4	2.6	1.8	2.2	1.8	1.9	1.8	1.8	1.7		24
2.6	2.4	2.4	2.2	2.0	1.6	1.5	1.2	1.5	1.7	1.7	1.4		25
2.3	2.6	2.2	2.6	2.2	1.7	1.8	1.7	2.0	1.6	1.6	1.6		26
2.7	2.5	1.5	2.3	2.2	1.7	1.9	1.9	1.6	1.5	1.0	1.4		27
2.0	2.8	2.5	2.8	2.1	1.4	1.6	1.7	1.8	1.7	1.4	1.6		28
2.6	2.5	2.2	2.4	1.8	1.6	1.6	1.7	1.8	1.7	1.6	2.2		29
2.9	2.6	2.8	2.4	2.2	1.9	1.7	1.9	1.7	1.8	1.6	1.4		30
2.5	2.6	2.3	2.7	2.4	2.0	1.9	1.6	1.6	1.7	1.7	1.8		31
													Count
2.9	2.9	2.9	3.0	3.0	3.1	3.1	3.1	2.7	3.0	3.0	3.0		Median
2.6	2.5	2.3	2.4	2.1	1.8	1.8	1.7	1.6	1.6	1.6	1.6		Mean
2.6	2.5	2.2	2.4	2.2	1.8	1.7	1.7	1.6	1.6	1.6	1.6		Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 63

Latitude 10° 2' N

Unit Km

Ionospheric Data

Longitude 77° 5' E

Month October, 1963

75°E Mc in Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								260	295	320	315	360
2								260	310	340	360	360
3								C	C	340	I	365
4							L	300	L	320	365	380
5							260	260	300	320	I	390
6								L	L	L	360	310
7							L	260	280	320	310	360
8							265	280	L	320	L	340
9								280	290	305	320	330
10								260	285	305	315	I
11								L	310	310	305	L
12							260	270	305	300	L	L
13								L	300	C	C	C
14								260	L	325	L	L
15								280	300	L	I	I
16								L	I	L	L	L
17								L	L	L	320	L
18								L	L	L	L	L
19								L	L	I	L	L
20								I	L	I	L	335
21									C	C	C	C
22								L	I	L	I	360
23								I	L	300	310	370
24								I	L	L	L	L
25								L	I	L	310	310
26									L	I	300	325
27									L	L	300	320
28									I	280	300	320
29									L	L	300	320
30									I	260	L	C
31									C	L	295	310
Count							3	11	11	20	18	18
Median								260	300	310	310	340
Mean								270	295	315	320	345

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 63

Latitude 10° 2' N

Unit Km

Ionospheric Data

Longitude 77° 5' E

Month October, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
340	330	I	300	L								1
346	320	305	295	280								2
350	330	310	300	270								3
390	310	315	295	280								4
370	340	320	295	280								5
350	340	320	305	300								6
360	340	320	300	A								7
350	330	310	300	I								8
340	325	I	I	I	275							9
360	330	320	A	280								10
360	350	305	I	280								11
335	325	L	I	L								12
C	C	C	C	285								13
L	310	315	300	280								14
L	320	I	I	L								15
I	I	I	I	I	I							16
330	300	295	L	I	I							17
I	320	I	285	L	L							18
335	315	I	I	I								19
335	340	I	I	I	L							20
C	C	C	320	L	L							21
350	325	305	L	L	I							22
360	330	305	I	L	L							23
350	300	300	I	I	I							24
315	300	300	I	I	L							25
325	320	305	I	I	I							26
345	330	310	L	L								27
325	320	300	L	I	L							28
310	310	I	L	I								29
280	280	280	275	I	L							30
320	I	L	L	L								31
25	27	19	12	9	1							Count
345	325	305	300	280								Median
340	325	305	300	280								Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic $h'F_2$

TABLE 63—Contd

Latitude 10 2° N

Unit Km.

Ionospheric Data

Longitude 77 5° E.

Month October, 1963

75°E Mc in Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							255	275	L	L	340	345
2							255	280	320	310	360	350
3							C	C	C	345	I	370
4							270	305	325	360	375	385
5							250	280	325	310	365	360
6							265	L	I	360	360	350
7							250	250	295	320	350	360
8							260	L	340	320	320	320
9							260	300	I	330	I	340
10							250	280	300	310	I	350
11							265	285	320	340	L	340
12							260	300	285	I	L	L
13							265	L	L	C	C	C
14							260	280	320	L	I	L
15							260	I	305	305	L	L
16							L	L	I	I	L	L
17							L	L	305	310	L	340
18							I	I	L	I	L	L
19							L	I	I	C	I	340
20							L	L	L	300	L	340
21							C	C	C	C	C	C
22							L	L	L	310	345	L
23							L	I	305	325	340	370
24							L	I	L	310	315	L
25							L	L	305	300	310	320
26							L	L	I	300	L	320
27							L	265	300	310	320	L
28								280	I	300	L	325
29							L	L	L	290	310	320
30							L	255	L	L	290	285
31							L	L	I	300	310	315
Count							14	13	14	22	15	21
Median							260	280	305	310	340	340
Mean							260	280	310	320	335	310

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 63—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
330	335	305	295	270								1
320	320	305	280	265								2
350	320	A	280	280								3
360	330	300	285	270								4
350	330	305	300	265								5
345	330	310	I.	I.								6
350	325	305	I	I.								7
330	320	300	300									8
I	320	305	300	280								9
340	315	300	280	280								10
340	320	I	300	I.								11
340	320	300	I.	I.								12
C	C	C	C	C								13
340	315	305	285	I.								14
I	305	300	I.	270								15
L	L	I	I	I.	L							16
310	300	I.	I.	I.								17
330	300	300	I.	I.	L							18
320	310	I.	I.	I.								19
L	L	I.	I.	I.	L							20
C	C	C	L	C								21
335	315	I	I.	I.	L							22
345	320	300	I	I.	I.							23
300	315	I	I	I.	I.							24
320	I.	320	I	I.								25
315	310	290	I	I.								26
335	315	300	I.	I.								27
320	320	I.	I.	I.								28
305	L	I.	L	L								29
290	280	280	I.	I.								30
305	300	I	I.	I.								31
25	25	18	10	8								Count
330	320	300	290	270								Median
330	315	300	290	270								Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F

TABLE 64

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	245	225	230	230	235	245	245	220	210	200	190	195
2	240	235	230	210	225	L	230	220	200	200	200	190
3	C	C	C	C	C	C	C	C	C	200	185	190
4	230	225	205	230	220	E	240	220	205	200	190	190
5	270	240	200	240	E	E	240	220	215	200 _{tr}	195	190
6	240	230	225	240	245	220	240	220	200	190	185	190
7	305	260	230	230	230	240	230	220	215	200	200	190
8	240	230	220	215	E	A	240	230	220	200	190	185 _H
9	260	245	245	240	240	240	240	225	200	200	195	185 _{tr}
10	225	C	C	C	C	C	240	230	200 _{tr}	200	195	190
11	250	240	235	245	290	360	240	230	200	200	190	190
12	245	245	235	245	240	240	250	230	220	205	200	200
13	230	220	235	250	265	300	260	230	215	C	C	C
14	275	240	230	220	230	L	245	220 _{tr}	215	200	200	195
15	265	250	225	240	235	240	250	220 _{tr}	210	200	190	195 _{tr}
16	240	225	220	225	240	C	260	235	215	200	195	190
17	235	225	220	220	E	S	240	230	200	200	200	185
18	235	240	235	240	260	E	240	225	200	200	190	185
19	250	230	220	235	235	225	235	240	215	200	200	200
20	250	240	235	240	245	245	255	220	200	200	190	180
21	240	C	C	C	C	C	C	C	C	C	C	C
22	280	275	250	230	220	225	255	220	210	200	180	180
23	230	215	215	230	220	L	240	220	210	190	180	200
24	230	225	240	280	300	240	240	235	200	200	230	200
25	240	280	300	305	320	340	250	235	225	200	210	210
26	240	220	225	C	C	230	245	200 _{tr}	200 _{tr}	195	185	180 _{tr}
27	230	240	240	240	230	225	245	230	210	200	210	200
28	230	225	230	235	235	225	240	245	240 _{tr}	220	200	205
29	230	245	240	275	255	235	240	215 _{tr}	200	200	200	195 _{tr}
30	220	220	220	S	E	460	270	240	230	220	220	C
31	240	240	240	235	230	225	245	C	200 _{tr}	200	200	185
Count	30	28	28	26	27	25	29	28	29	29	29	28
Median	240	240	230	240	240	240	240	225	210	200	195	190
Mean	245	235	230	240	245	260	245	225	210	200	195	190

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic h'F

Unit Km

Month October, 1963.

TABLE 64
Ionospheric Data
75°E Mean Time

Latitude 10 2° N

Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
195	195	200 _{UF}	A	240 _{UA}	240	260	260	250	245	F	F	1
180	200 _{UF}	210	205	220	240	260	260	230	230	225	245	2
195	A	A	A	220	240	260	C	260	240	230	225	3
190	200	200	205	220	240	260	250	245	260 _F	F	270	4
190	200	200	19 _{UF}	215	240	260	F	260 _{UF}	240	220	240	5
190 _{UF}	195	190 _{UF}	200	A	250	260	270	270	265	250	295	6
185	195	200	205	A	250	260	300	270	240	240	250	7
190	190	195 _{UF}	200	215	255	250	235	230	230	250	275	8
180 _{UF}	200	200	215	220	A	270	300	300	270	230	240	9
190	200	190 _{UF}	A	220	260	260	265	240	240	230	240	10
220	200	210	200	220	260	270	260	235	240	230	240	11
200	210	210	215	220	260	280	315	300	245	240	245	12
C	C	C	C	220	250	265	260	260	C	C	265	13
200	200	210	215	220	255	285	290 _F	240	C	250	260	14
200	205	215	220	225	250	280	280	260	235	245	260	15
190	210	205	220	240	250	270	265	255	240	240	240	16
215	210	210	210	230	250	270	250	245	225	220	230	17
185	200	210	A	235	260	280	290	280	260	275	250	18
200	215	200	215	240	255	290	360	350	300	240	245	19
220	220	220	A	250	260	280	F	320 _F	295	260	260	20
C	C	C	205	220	260	270	285	260	240	240	260	21
180	205	200	200	230	250	280	C	240	230	230	240	22
200	200	205	200	220	245	265	240	240	220	240	240	23
200	200	220	205	240	260	290	210	220	220	240	240	24
200	220	220	210	240	255	260	250	260	240	255	255	25
210	210	210	210	240	255	265	270	260	240	240	240	26
200	200	185	205	220	245	280	355 _F	325 _{UF}	270 _{UF}	265	240	27
205	A	A	210	220	250	275	280 _{UF}	F	260	245	230	28
210	200	205	210	225	250	275	340	F	F	245	225	29
220	210	220	220	260	260	280	290 _{UF}	300	270	260	255	30
200	200	205	220	240	240	260	275	270	250	240	230	31
29	27	27	25	29	30	31	27	29	28	28	30	Count
200	200	205	210	225	250	270	270	260	240	240	240	Median
200	205	205	210	230	250	270	280	265	250	240	250	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F

TABLE 64—*Contd*

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	235	225	240	230	240	255	230	215	205	200	190	200
2	245 _r	235 _r	205	220	E	260	230	210	200	200	195	190
3	C	C	C	C	C	C	C	C	C	200	185 _{rr}	180
4	225	215	215	220	230	255	230	220	200	190	185 _{rr}	180
5	260	220	220	E	E	215	230	215	205	200	190	190
6	240	230	225	245	240	25	230	215	200	190	180	185
7	280	240	230	230	230	245	230	215	200	195	190	190
8	240	230	215	E	E	260	240	225	205	200	185 _{rr}	200
9	260	240	245	235	230	245	230	215	200	200	185 _{rr}	180 _{rr}
10	230	C	C	C	C	260	235	220	200 _{rr}	200	195	185
11	215	210	230	260	320	280	240	220	200	195	190	185
12	250	240	230	230	260	265	210	220	215	200	195	200
13	225	230	240	280	300	295	245	220	200	C	C	C
14	260	230	220	240	E	265	210	215 _{rr}	200	200	200	190 _{rr}
15	260	240	240	230	235	260	240	220	200	200	190	200 _{rr}
16	235	235	225	220	C	270	210	210	205	200	190	185
17	230	220	220	240	S	260	235	220	210	195	190	200
18	230	235	230	240	E	270	235	200	205	195	180	185
19	235	230	225	235	220	230	240	230	200	C	200	200
20	250	240	235	245	250	250	240	240	200	200	195	195
21	C	C	C	C	C	C	C	C	C	C	C	C
22	280	260	240	225	220	255	240	235	200	200	190	185
23	220	215	220	220	240	260	240	200	200	200	200	200
24	240	240	245	295	255	240	240	220	200	200	200	180
25	260	315	300	305	320	300	240	235	220	200	205	200
26	230	220	225	C	C	235	230	210	200	185	180	210
27	235	235	240	210	230	245	235	220	205	200	210	200
28	230	220	230	235	225	240	230	240 _{ur}	230	210	205	210
29	245	245	255	280	265	210	235	210 _H	200 _H	190	200	210
30	220	220	S	E	380	310	255	240	225	220	220	A
31	240	240	240	230	225	255	235	205 _H	200	190	195	200
Count	29	28	27	27	25	29	29	29	29	28	29	28
Median	240	235	230	240	250	255	235	220	200	200	190	190
Mean	240	235	235	245	255	255	235	220	205	200	195	195

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F

TABLE 64—Cont'd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
190	195	200	220	225	260	270	260	255	F	F	240 _F	1
185 _H	210	A	220	230	250	265	F	230	230	230	240	2
195	A	A	220	230	240	270	270	260 _F	220	220	230	3
190	190	200	215	230	240	260	250	245	F	I	280	4
200	190	200	200	230	240	280	F	250	220 _{UI}	230	240	5
190	200	200	205	A	260	270	260	265	270 _F	270 _I	300	6
200	200	205	220	A	260	280	290 _I	240 _F	225	210	260	7
200	200	205	215	210	260	250	225	230	210	260	270	8
205	205	200	220	A	260	290	300	280	230	210	230	9
190	200	200 _H	\	240	260	260	250	210	240	230	245	10
210	210	200	210	220	265	270	240	230	240	210	240	11
215	200	210	210	240	260	300	325	265	240	245	230	12
C	C	C	C	230	260	270	260	C	C	260	275	13
195	200	220	220	240	265	300	F	C	255	250	260	14
210	205	A	215	210	260	295	270	245	225	260	250	15
215	210	200	220	240	260	270	260	240	235	240	235	16
205	210	205	220	240	260	260	245	230	220	225	240	17
185	220	A	230	240	265	285	280	270	260	260	260	18
205	215	210	220	245	270	340	355	330	275	250	255	19
200	220	220	A	A	260	F	F	300 _F	260	C	245	20
C	C	C	210	C	265	280	280	255	240	215	280	21
210	205	205	220	210	260	290	270	225	220	240	240	22
195	200	200	215	240	260	260	240	220	235	240	235	23
200	200	220	230	260	280	260	220	220	220	240	240	24
205	215	220	225	245	260	260	250	245	240	260	240	25
210	210	210	210	250	255	275	260	255	240	255	240	26
210	200	200	205	240	255	320	F	300 _{UI}	250 _I	220	220	27
215	A	220	200	210	255	300	F	F	240	240	240	28
210	200 _H	200 _H	220	240	250	315	360	F	300	220	220	29
225	220	220	220	255	265	310	F	280	265	250	240	30
200	200	220	230	235	250	275	270	260	240	235	225	31
29	27	25	28	26	31	30	24	27	28	28	31	Count
200	200	205	220	240	260	275	260	250	240	240	210	Median
200	205	210	215	240	260	280	270	255	240	245	245	Mean

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 65

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								110	A	A	A	A
2								115	A	A	A	A
3								C	C	A	A	A
4							130	115	A	A	A	A
5								110	A	A	A	A
6							115	A	A	A	A	A
7							120	110	110	A	A	A
8							115	A	A	A	A	A
9							120	110	A	A	A	A
10							120	115	A	A	A	A
11							130	105	A	A	A	A
12								105	110	A	A	A
13							A	A	A	C	C	C
14								110	A	A	A	A
15								115	A	A	A	A
16							130	A	A	A	A	A
17							A	A	A	A	A	A
18								120	A	A	A	A
19								120	A	A	A	A
20								120	A	A	A	A
21							C	C	C	C	C	C
22							120	A	A	A	A	A
23								120	A	A	A	A
24								120	A	A	B	A
25								115	A	A	A	A
26								110	A	A	A	A
27							125	115	115	A	A	A
28							145	B	B	120	A	A
29								120	A	A	A	A
30							120	115	110	A	115	C
31								C	A	A	A	A
Count							12	21	4	1	1	
Median							120	115				
Mean							125	115				

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'E
Unit Km
Month October 1963

TABLE 65
Ionospheric Data
75°E Merid Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	115	A							1
A	A	110	A	B	A							2
A	A	A	A	115								3
A	A	A	A	B								4
A	A	A	105	110								5
A	A	A	A	110	A							6
A	A	A	A	A	A							7
A	A	A	A	A	A							8
A	A	A	A	A	A							9
A	A	A	A	A	A							10
A	A	A	A	A								11
A	A	A	A	A	A							12
C	C	C	C	B								13
A	A	A	115	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
A	115	120	135	120	A							17
A	A	A	A	A								18
A	A	B	120	B								19
A	A	A	A	A	A							20
C	C	C	A	C								21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A	A		A					24
A	A	A	A	A	A							25
A	A	A	A	120	A							26
A	A	110	110	120								27
120	120	A	A	A	A							28
A	A	A	A	A								29
110	120	115	120	110	A							30
A	A	110	115	130								31
2	3	5	7	9								Count
		110	115	115	.							Median
		115	115	115	.							Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic h'E

TABLE 65—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							115	A	A	A	A	A
2							115	110	A	A	A	A
3							C	C	C	A	A	A
4							115	A	A	A	A	A
5							125	110	A	A	A	A
6							115	A	A	A	A	A
7							115	110	110	A	A	A
8							A	A	A	A	A	A
9							110	A	A	A	A	A
10							115	115	A	A	A	A
11							110	A	A	A	A	A
12							120	115	A	A	A	A
13							A	A	A	C	C	C
14							115	A	A	A	A	A
15							115	A	A	A	A	A
16							A	A	A	A	A	A
17							A	A	A	A	A	A
18							135	A	A	A	A	A
19							120	120	A	C	A	A
20							140	125	A	A	A	A
21							C	C	C	C	C	C
22							120	A	A	A	A	A
23							120	A	A	A	A	A
24							120	120	A	A	A	A
25							120	115	A	A	A	A
26							120	A	A	A	A	110
27							115	115	A	A	A	A
28							120 _{tr}	B	B	A	A	115
29							120	A	A	A	A	A
30							120	110	A	110	120	A
31							120	A	A	A	A	A
Count							25	11	1	1	1	2
Median							120	115				.
Mean							120	115				

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E

TABLE 65—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	115								1
A	A	A	110	B								2
A	A	A	115	115								3
A	A	\	\	B								4
A	A	\	115	115								5
A	\	A	A	A								6
A	A	A	A	A								7
\	\	\	A	A								8
A	A	A	\	\								9
A	\	A	\	\								10
\	A	\	\	A								11
A	A	A	\	\								12
G	C	C	C	A								13
A	A	A	115	A								14
\	A	A	\	\								15
A	A	120	A	\								16
115	110	120	120	120								17
A	120	A	\	A								18
A	A	115	110									19
A	A	\	A	A								20
G	C	\	C	C								21
A	A	A	A	A								22
A	\	\	A	A								23
A	A	\	A	A	A							24
A	\	\	A	A								25
A	A	A	B	120	A							26
A	A	110	115	120								27
115	A	115	A	A								28
A	A	A	A	120								29
A	110	120	110	110								30
\	A	110	C									31
2	3	7	8	8								Count
		115	115	120								Median
		115	115	120								Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 66

Latitude 10.2° N

Unit Km

Ionospheric Data

Longitude 77.5° E

Month October, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	110							G	100	100	100	100
2								100	100	100	100	100
3								G	C	100	100	100
4							G	100	100	100	100	100
5								G	100	100	100	100
6							G	100	100	100	100	100
7							G	G	100	100	100	100
8						120	G	100	100	100	100	100
9			100				G	G	100	100	100	100
10							G	G	100	100	100	100
11							G	100	100	100	100	100
12								G	G	100	100	100
13							100	100	100	C	C	C
14								G	100	100	100	100
15	110							100	100	100	100	100
16	120						G	100	100	100	100	100
17						C	100	110	100	100	100	100
18								100	100	100	100	100
19								G	100	100	100	100
20								100	100	100	100	100
21							G	C	C	C	C	C
22								G	100	100	100	100
23								G	100	100	100	100
24								G	100	100	100	100
25						100		G	100	100	100	100
26			100	G	G			120	100	100	100	100
27							G	G	100	100	100	100
28							G	G	G	100	100	100
29	115	115			110		120	100	100	100	100	100
30							G	100	G	100	100	C
31								C	100	100	100	100
Count	4	1	2		1	2	3	14	26	29	29	28
Median								100	100	100	100	100
Mean								100	100	100	100	100

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'Es

TABLE 66

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	115	100				130			1
100	100	120	100	G	110					130		2
100	100	100	100	G					115	125		3
100	100	100	100			100				120		4
100	100	100	100	G								5
100	100	100	100	100	100					120	120	6
100	100	100	100	100	100			130	130	130	120	7
100	100	100	100	100	100		120					8
100	100	100	100	100	100			135	125	120	110	9
100	100	100	100	100	100			120	130			10
100	100	100	100	100								11
100	100	100	100	100	100			125				12
C	C	C	C	100								13
100	100	100	G	100							110	14
100	100	100	100	100						125		15
100	100	100	100	100	100							16
100	G	G	100	G	100							17
100	100	100	100	100				110		110		18
100	100	G	G	G							120	19
100	100	100	100	100	100				110	120	155	20
C	C	C	C	100	100							21
100	100	100	100	100					110			22
100	100	100	100	100					130			23
100	100	100	100	100	100	100				110		24
100	100	100	100	100	100		100	120				25
100	100	100	100	100	135					110		26
100	100	100	100	100						125		27
100	100	100	100	105	120					110	105	28
100	100	100	100	105								29
120	100	G	G	115	120						110	30
100	100	100	100	125						110		31
29	28	26	26	25	17	2	2	6	8	14	8	Count
100	100	100	100	100	100			120	130	120	115	Median
100	100	100	100	105	105			125	120	120	120	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic h'Es

TABLE 66—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	100	100	100	100	100
2							G	100	100	100	100	100
3							C	C	C	100	100	100
4							G	100	100	100	100	100
5							G	G	100	100	100	100
6							G	100	100	100	100	100
7							G	G	100	100	100	100
8						105	100	100	100	100	100	100
9	115						G	100	100	100	100	100
10							G	G	100	100	100	100
11							100	100	100	100	100	100
12							G	G	100	100	100	100
13							100	100	100	C	C	C
14							G	100	100	100	100	100
15							G	100	100	100	100	100
16	170					G	120	100	100	100	100	100
17							120	100	100	100	100	100
18							G	100	100	100	100	100
19							G	100	100	C	100	100
20							G	100	100	100	100	100
21							C	C	C	C	C	C
22							G	100	100	100	100	100
23							G	100	100	100	100	100
24							G	G	100	100	100	100
25							G	G	100	100	100	100
26						G	G	100	100	100	100	100
27						G	G	100	100	100	100	100
28							G	G	115	100	100	100
29	105					100	100	100	100	100	100	100
30						100	100	100	100	100	120	100
31							105	100	100	100	100	100
Count	3					1	1	8	21	29	28	29
Median								100	100	100	100	100
Mean								105	100	100	100	100

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'Es
Unit Km
Month October, 1963

TABLE 66—Contd
Ionospheric Data
75°E Mean Time

Latitude, 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date	
100	100	100	100	G				130	130			1	
100	100	100	G	130								2	
100	100	100	G	G					130			3	
100	100	100	100	100					120	120	120	4	
100	100	100	G	G	130					130		5	
100	100	100	100	100					130	120		6	
100	100	110	100	100			140	135	130	120	120	7	
100	100	100	100	100	120	115						8	
100	100	130	100	100				135	125	120	115	9	
100	100	100	100	100	120					115		10	
100	100	100	100	100								11	
100	100	100	100	100	100			120				12	
C	C	C	C	100	C	C	C	C	C			13	
100	100	100	G	160						130	110	14	
100	100	100	100	100						130		15	
100	100	100	100	100	100							16	
G	G	G	100	100								17	
100	100	100	100	100						110		18	
100	120	G	G							110		19	
100	100	100	100	100	100				120			20	
C	C	C	100	C					100			21	
100	100	100	100	100								22	
100	100	100	100	100								23	
100	100	100	100	100	100							24	
100	100	100	100	100			120	100				25	
100	100	100	100	110	120					110		26	
100	100	100	105	105					135			27	
100	100	100	100	120					110	110		28	
100	100	100	100	105								29	
100	120	G	110	110							115	30	
100	100	100	100	125						120		31	
28	28	26	25	26	8	1	2	5	10	13	5	Count	
100	100	100	100	100	110				130	130	120	115	Median
100	100	100	100	105	110				125	125	120	115	Mean

Sweep 1 0 Mc to 25.0 Mc in 27 seconds

Characteristic (M3000)F₂

TABLE 67

Latitude 10° 2' N

Unit

Ionospheric Data

Longitude, 77° 5' E

Month October, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	3 30	3 45	3 45	3 50	3 50	F	3 40	3 40	3 10	2 35 _H	2 60	2 60
2	F	F	3 50 _{US}	F	F	E	3 60	3 50	3 05	2 25 _H	2 60	2 70
3	C	C	C	C	C	C	C	C	C	2 65	2 60 _H	2 70
4	3 40 _S	3 55	3 60	3 55	3 60 _{US}	L	3 10	3 25	2 50 _S	2 70	2 65	2 70
5	3 05	3 25	3 70	S	E	E	3 50	3 50	3 05	2 30 _H	2 55	2 60
6	3 40	3 45	3 50	3 50	3 50 _{UR}	3 50 _R	3 50	3 30 _S	2 60 _{IR}	2 60	2 60	2 75
7	2 90	S	3 35	3 50	3 50	3 65	3 50	3 55	3 30	3 00	2 50	2 50
8	3 35	S	3 55	3 60	E	A	3 35 _{US}	3 35	2 85	2 65	2 60	2 80
9	3 25 _S	3 30 _{US}	3 40 _{US}	3 50	3 10	3 15	3 15	3 30	3 00	2 45 _{IR}	2 55	2 65
10	3 45	C	C	C	C	C	3 15	3 50	3 35	2 95	2 45 _H	2 65
11	3 45	3 50	3 50	3 10	3 15	F	3 35	3 20	2 65	2 55	2 55	2 55
12	3 35	3 30	3 30	3 35	3 35	3 60 _R	3 30 _{US}	3 35	3 10	2 85	2 30 _{IR}	2 50
13	3 25	3 35	3 40	3 30	3 10	3 00	3 25 _{US}	3 30	2 70	C	C	C
14	3 10	3 25	3 15	3 65	R	E	3 25	3 30	2 90	2 20 _{IR}	2 65	2 50
15	3 20 _{US}	3 30	3 40	3 40	3 45	3 50	3 25	3 20	2 85	2 60	2 60	2 60
16	3 35	3 40 _{US}	3 60	3 60	3 50	C	3 35	3 15	2 70	2 50	2 65	2 60
17	3 40	3 50	3 60	3 60	R	3 10 _I	3 15	3 35	3 00	2 40	2 70	2 60
18	3 55	3 50 _{US}	3 60	3 65 _{UR}	3 70 _{UR}	E	3 55	3 10	3 00	2 20 _{IR}	2 65	2 60
19	3 30	S	3 50	3 50	3 45	3 50	3 55	3 15 _{US}	3 20	2 75	2 55	2 60
20	3 25	3 40	3 40	3 40	3 35	3 35	3 45 _{US}	3 30	3 00	2 55	2 60	2 50
21	3 40	C	C	C	C	C	C	C	C	C	C	C
22	2 95	3 00	3 20 _{US}	3 40	3 60	3 70 _{UR}	3 35	3 20	2 85	2 15	2 55	2 60
23	3 50	3 50	3 50	3 50	3 50	R	3 60	3 45	3 10	2 70	2 15 _{IR}	2 50
24	3 40	3 10	3 40	3 20	3 00 _R	3 50	3 40	3 45	3 15	2 10 _{IR}	2 85	2 55
25	3 20	3 00	2 80	2 85	2 90 _I	F	3 30	3 20	3 10	2 70	2 70	2 80
26	3 35	3 45	3 50	C	C	3 50	3 35	3 30	2 80	2 50	2 70	2 60
27	3 30	3 40	3 40 _{US}	3 10	3 50	3 50	3 50	3 35	3 15	2 95	2 65	2 60
28	F	F	F	F	3 55	3 45 _R	3 45	3 35	3 20	3 10	2 90	2 60
29	3 15 _{JS}	3 30	3 45 _{US}	3 20	F	3 50	3 30	3 10	2 85	2 60	2 70	2 70
30	3 40	3 50 _{JS}	3 60	3 35	E	2 50 _R	3 00	C	2 90	2 85	2 75	C
31	3 40	3 30	3 40	3 50	3 50	3 55 _I	3 30	C	2 70	2 60	2 70	2 70
Count	28	23	27	21	20	17	29	27	29	29	29	28
Median	3 35	3 40	3 45	3 50	3 50	3 50	3 40	3 35	3 00	2 60	2 60	2 60
Mean	3 30	3 35	3 45	3 45	3 40	3 40	3 40	3 30	2 95	2 60	2 60	2 60

Sweep 1.0 Mc to 25.0 Mc, in 27 seconds

Characteristic (M3000) F₂

TABLE 67

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°L Meridian Time

12	13	14	15	16	17	18	19	20	21	22	23	Date	
2 70	2 70	2 70	2 80	2 85	2 90	2 80	2 85	3 00	3 05	F	F	1	
2 75	2 75	2 85	3 05	3 20	3 20	3 00	3 05	3 30	3 30	3 30	3 25us	2	
2 65	2 80	2 85	3 00	3 15	3 20	3 05	C	3 00	3 25	3 30us	3 30	3	
2 55	2 70	2 75	2 85	3 15	3 20	3 15	3 10	3 15	3 20	F	F	4	
2 60	2 70	2 85	2 85	3 00	3 20	3 15	3 05	3 05	F	3 35us	3 40us	5	
2 60s	2 70	2 75	2 75	2 70	2 75	2 75	2 75	2 90s	2 95s	3 05s	2 90	6	
2 55	2 65	2 65	2 75	2 80	2 80	2 85	2 75	2 80	2 95us	3 20s	3 30us	7	
2 60	2 65	2 75	2 75	2 80	2 80	2 80	3 15	3 40us	3 35s	3 15us	3 15us	8	
2 60	2 65	2 65	2 70	2 75	2 80	2 80	2 80	2 65	2 70	2 85	3 15	3 10us	9
2 60	2 65	2 75	2 85	3 00	3 05	3 00	3 05	3 15us	3 30	3 35	3 30	10	
2 65	2 55	2 60	2 70	2 80	2 80	2 65	2 80	3 00	3 15	3 30	3 45us	11	
2 50	2 55	2 60	2 55	2 65	2 70	2 80us	2 70	2 65	2 85	3 20	3 20	12	
C	C	C	C	2 85	2 90	2 80	2 80	3 00	C	C	3 10	13	
2 55	2 60	2 70	2 90	2 85	2 85	2 65	2 70	2 85us	C	3 05	3 20	14	
2 55	2 60	2 65	2 70	2 75	2 65	2 65	2 65	2 85	3 00	3 15	3 20	15	
2 60	2 70	2 80	2 90	3 10	3 05	2 95	2 90	3 00	3 20	3 25us	3 25	16	
2 75	2 95	3 10	3 15	3 10	3 00	2 85	3 00	3 20	3 10	3 15	3 10	17	
2 70	2 75	2 90	3 00	3 00	2 80	2 70us	2 65	2 80	2 95	3 05	3 20	18	
2 70	2 75	2 85	2 90	2 95	2 80	2 65us	2 40	F	F	F	3 20us	19	
2 65	2 65	2 80	2 90	3 00	3 00	2 80	2 55	2 55	2 90us	3 25	3 30	20	
C	C	C	3 30	2 95	2 95	2 80	2 75	2 90	3 10	3 20	3 15us	21	
2 60	2 70	2 70	2 80	2 80	2 75	2 60	C	2 90	3 10	3 30	3 35	22	
2 65	2 70	2 70	2 80	2 80	2 95	2 85	2 95	3 10	3 35	3 25J	3 40	23	
2 35	2 60	2 60	2 45	2 55	2 70	2 65	3 00	3 30	3 25	3 30	3 30	24	
2 80	2 75	2 75	2 60	2 50	2 40it	2 70	2 80	2 80	2 80	3 10	3 25	25	
2 65	2 70	2 65	2 65	2 55	2 55	2 65	2 65	2 80	3 05	3 15	3 30i	26	
2 60	2 60	2 60	2 60	2 65	2 65	2 60	2 35	F	F	F	F	27	
2 60	2 70	2 65	2 70	2 70	2 55	2 35	2 60r	2 50i	F	3 20us	3 40us	28	
2 65	2 75	2 65	2 60	2 60	2 70	2 65	2 45	F	F	F	3 30	29	
2 90	3 10	3 20	3 15	3 15	3 10	S	2 80	2 80	2 95us	3 10	3 30	30	
2 65	2 70	2 70	2 75	2 80	2 90	2 85	2 80	2 90	3 05	3 30	3 45	31	
29	29	29	30	31	31	30	29	28	21	25	28	Count	
2 60	2 70	2 70	2 80	2 80	2 80	2 80	2 80	2 90	3 10	3 20	3 30	Median	
2 65	2 70	2 75	2 80	2 85	2 85	2 80	2 80	2 95	3 10	3 20	3 30	Mean	

Sweep 1 0 Mc to 25.0 Mc in 27 seconds

Characteristic (M3000)F2

TABLE 67—Contd

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month October, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	3 50s	3 50	3 50	3 50	3 30	3 35	3 45	3 30	2 80	2 60	2 65	2 65
2	F	F	3 45 _{US}	F	E	3 35	3 60	3 35	2 70	2 55	2 70	2 65
3	C	C	C	C	C	C	C	C	C	2 70	2 60	2 65
4	3 50	3 60 _{US}	3 65	3 55 _R	R	3 15	3 40	2 95	2 60	2 65	2 60	2 60
5	3 20	3 50	3 75	E	E	3 30	3 55 _s	3 35 _{US}	2 75	2 50	2 60	2 55
6	3 35 _{US}	3 50 _{US}	3 55	3 40	3 50	3 30	3 40 _s	3 00 _s	2 35 _H	2 60	2 70	2 60
7	F	S	3 40	3 50	3 55	3 30	3 55	3 45	3 10	2 80	2 15 _H	2 50
8	3 35 _s	3 40	3 60	E	E	3 20	3 45	3 15	2 50 _{UH}	2 80	2 55 _H	2 65
9	3 30	3 35	3 40	3 35	3 45	3 30	3 40	3 20	2 75	2 50 _H	2 60	2 60
10	S	C	C	C	C	3 20	3 45	3 40	3 20	2 65	2 60	2 60
11	3 50	3 50	3 45	3 25	3 00	3 05	3 25	2 95	2 50	2 60	2 55	2 65
12	3 35	3 35 _s	3 30	3 35	3 40 _R	3 20	3 30	3 20	3 05	2 55	2 45	2 50
13	3 35	3 40	3 40	3 25	3 05	3 10	3 10	2 80	2 65	C	C	C
14	3 15	3 35	3 60	3 55	E	3 10	3 40	3 15	2 60	2 45	2 50	2 55
15	3 20	3 35	3 40	3 40	3 40	3 15	3 25 _s	3 00	2 65	2 55	2 55	2 60
16	3 45	3 50	3 55	3 60	C	3 00	3 35	2 90	2 45	2 70	2 60	2 55
17	3 40	3 55	3 55	3 60	3 50 _{UR}	3 20	3 45	3 15	2 70	2 60	2 70	2 65
18	3 50	3 60	3 70	3 55 _{UR}	R	3 10	3 50	3 20	2 70 _H	2 65	2 70	2 70
19	3 40	3 50	3 55	3 50 _{US}	3 50	3 30	3 55	3 35	2 95	C	2 70	2 65
20	3 30 _{US}	3 30	3 40	3 30	3 35	3 35	3 50 _{US}	3 15	2 80	2 55	2 60	2 65
21	C	C	C	C	C	C	C	C	C	C	C	C
22	2 90	3 10	3 30	3 50	3 60	3 10	3 40	3 10	2 65	2 55	2 55	2 55
23	3 50	3 45	3 45	3 50	3 50	3 10	3 50	3 20	2 90	2 50 _H	2 45	2 45
24	3 45	3 40	3 35	3 10	3 20	3 40	3 60	3 40	3 20	2 20 _H	2 70	2 40
25	3 15	2 80	2 80	2 80 _r	F	2 95	3 40	3 20	2 95	2 65	2 75	2 80
26	3 40	3 50	3 50	C	C	3 45	3 35	3 05	2 55	2 70	2 60	2 60
27	3 35 _{JS}	3 40	3 40	3 45	3 55	3 30	3 40	3 30	3 10	2 80	2 55	2 55
28	F	F	F	F	3 50 _F	3 20 _{UR}	3 45	3 20	3 15	3 00	2 75	2 55
29	3 40	3 40	3 35	3 05	3 20	3 40	3 20	3 00	2 70	2 65	2 60	2 60
30	3 45	3 50	R	E	2 80	2 60	3 10	2 85	2 90	2 75	2 75	2 85
31	3 40	3 40	3 40	3 50	3 60	3 10	3 30	2 85	2 60	2 70	2 70	2 65
Count	25	25	26	22	19	29	29	29	29	28	29	29
Median	3 40	3 40	3 45	3 50	3 50	3 20	3 40	3 15	2 70	2 60	2 60	2 60
Mean	3 35	3 40	3 45	3 40	3 40	3 20	3 40	3 15	2 80	2 60	2 60	2 60

Sweep 1 0 Mc, to 25 0 Mc, in 27 seconds

Characteristic (M3000)1,
Unit. ...
Month (October, 1963)

TABLE 67—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2' N
Longitude 77 5' E

1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date	
2 65	2 70	2 75	2 80	2 85	2 85	2 80	2 90	3 05	F	F	F	1
2 80	2 80	2 90	3 10	3 30	3 10	3 05	3 10	3 25	3 30	3 25	3 25	2
2 70	2 80	2 90	3 05	3 15	2 15	2 95	2 95	3 10	S	3 40s	3 35	3
2 60	2 75	2 80	3 00	3 20	3 20	3 15	3 15	3 15	F	F	3 00us	4
2 70	2 80	2 85	2 90	3 05	3 15s	3 05	3 00	3 15	3 30	3 30	3 35us	5
2 70	2 75	2 80	2 85	2 70	2 75	2 75	2 80	2 95s	3 05s	2 90s	2 80s	6
2 65	2 65	2 65	2 80	2 80	2 80	2 80	2 75	2 90	3 05	3 25us	3 30s	7
2 65	2 70	2 75	2 80	2 80	2 80	2 90	3 20s	3 35	3 15	3 10	3 15	8
2 60	2 60	2 70	2 75	2 80	2 80	2 70	2 70	2 75	3 00	3 35	3 40	9
2 60	2 70	2 85	2 95	2 95	3 00us	3 00	3 10	3 30	3 30	3 35	3 40	10
2 60	2 65	2 60	2 80	2 80	2 70	2 70	2 90	3 10	3 25	3 40	3 45	11
2 75	2 60	2 60	2 60	2 65s	2 80us	2 70	2 60	2 75ur	3 10ur	3 20	3 25	12
C	C	C	C	2 85	2 85	2 80	2 90	C	C	3 05	3 10us	13
2 55	2 65	2 80	2 90	2 85	2 75	2 70	F	C	3 05	3 15	3 35s	14
2 50	2 65	2 70	2 70	2 65	2 70	2 60	2 70	2 90	3 10	3 15	3 30	15
2 65	2 75	2 85	3 00	3 10	3 05	2 95	2 95	3 15	3 25	3 30us	3 40	16
2 85	3 00	3 15	3 20	3 10	2 90	2 90	3 10	3 35	3 40	3 40	3 50	17
2 70	2 80	2 95	3 00	2 95	2 80	2 70	2 70	2 90	3 05	3 20	3 25	18
2 70	2 80	2 90	2 90	2 90	2 70	2 90	2 55us	2 45us	F	F	3 30	19
2 65	2 70	2 80	2 95	3 10	2 90	2 60	2 55	2 80	F	C	3 30	20
C	C	C	2 80	C	2 85	2 75	2 80	3 00	3 15	3 15	3 05	21
2 60	2 70	2 80	2 70	2 80	2 70	2 55	2 75	3 05	3 20	3 30	3 40	22
2 70	2 70	2 70	2 80	2 80	3 00	2 90	3 00	3 25	3 30	3 30	3 40	23
2 60	2 60	2 70	2 80	2 60	2 70	2 85	3 15	3 25	3 30	3 30	3 30	24
2 80	2 80	2 70	2 60	2 40	2 50	2 70	2 85	2 70	2 90	3 15	3 30	25
2 75	2 70	2 70	2 60	2 45	2 65	2 65	2 70	2 95	3 10	3 20us	3 30us	26
2 60	2 60	2 60	2 65	2 65	2 60	2 50	2 30js	F	F	F	F	27
2 65	2 70	2 65	2 65	2 65	2 45	2 50js	2 70r	F	F	3 40ur	3 40	28
2 65	2 70	2 60	2 60	2 65	2 70	2 55	2 45rl	F	F	3 20r	3 40	29
3 10	3 15	3 15	3 15	3 10	3 00	2 85	2 80	F	3 05r	3 20	3 35	30
2 70	2 70	2 70	2 80	2 85	2 85	2 85	2 85	3 00	3 20	3 40	3 50	31
29	29	28	30	30	31	31	30	24	22	26	29	Count
2 65	2 70	2 75	2 80	2 80	2 80	2 75	2 80	3 05	3 15	3 25	3 30	Median
2 65	2 75	2 75	2 80	2 85	2 85	2 75	2 85	3 05	3 15	3 25	3 30	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic foF₂
 Unit Mc
 Month November, 1963

TABLE 68
 Ionospheric Data
 75°E Mean Time

Latitude 10.2° N.
 Longitude 77.5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	6.4	5.0	3.5	2.8	2.3	1.8	4.7	7.4 _s	8.2	8.5	C	7.6
2	5.8	5.1	3.2 _{US}	2.3	2.0	E	5.0 _s	7.3 _s	8.8	9.5	9.8	9.4
3	7.2 _{US}	7.7	5.8	3.8	2.6	R	4.7	7.5	8.7	8.5 _{II}	7.9	8.1
4	4.0	3.5	2.5 _{UR}	2.1	R	R	4.9 _s	7.8	9.0	8.9 _{II}	7.8	8.0
5	F	F	F	F	3.8	2.5 _R	4.7	7.3	8.5	8.6 _{II}	7.9	8.0
6	3.9	3.8 _s	3.9	2.4	R	E	4.6	6.9	8.3	9.1	8.2	7.8
7	5.8 _s	5.6 _s	F	3.0	2.7	2.4	5.0	7.0	8.2	9.5	10.0 _{II}	9.4 _{II}
8	3.9	3.9	2.7	2.0 _{UR}	R	1.8	4.6	7.3	9.3	10.0	10.2	9.4
9	6.8	7.0	5.6	3.9	2.8	2.3	4.7	7.2	8.7	9.6	9.1	9.0
10	7.6	6.1 _{US}	4.8	4.3	4	3.0	4.8	7.7	8.9	9.3	9.6	9.1
11	8.6	8.5	5.8	4.4	R	1.6 _R	4.1	7.2	8.2	8.8	9.2	9.4
12	7.0	6.1	4.7	4.4	3.2	2.1	4.7	7.5	9.1	9.0	7.8	8.1
13	6.4	5.1	3.6	2.5	R	E	4.6	7.4	8.8	9.0	8.8	8.8
14	3.2	2.8	2.5	1.9 _R	E	C	4.3	6.8	7.6	7.4	7.2	7.6
15	4.2	3.8	2.9	2.3	1.8	E	4.9	7.5	8.8	9.0	7.6	7.4
16	6.8	5.8	4.4	2.5	R	R	4.3	7.0	8.5	9.0	8.6	8.5
17	6.3	5.6	4.2	2.9	2.0	E	4.8	7.0	8.4	9.2	9.6	9.5
18	F _s	F	F	C	C	C	C	7.1	8.2	8.2	8.6	8.9
19	2.8	2.4	2.3	2.1	1.9 _R	R	4.5	7.0	8.0	7.8	7.2	7.6
20	6.4 _{is}	6.4	6.0 _{US}	4.4	2.8 _V	R	4.1	6.9	8.0	8.0	8.0	8.4
21	6.1	4.8	3.9	3.0	2.3 _s	1.5	4.7	7.0 _s	8.3	8.7	8.0	7.6
22	5.7 _{UF}	5.0	4.3	3.4	2.8	2.1	4.5 _s	6.8	7.6	8.9	9.3	8.6
23	F	5.8 _{US}	5.7	4.7	3.5	3.5	4.8	6.7	7.8 _s	8.5	8.1	7.8
24	5.0 _s	4.6	4.1	3.2 _R	2.8	2.2	4.5	7.0	8.7	9.0	8.6	8.4
25	F	4.0 _F	3.5	F	2.6	1.9	4.8 _s	7.6	C	C	C	C
26	2.6	2.0 _R	1.9	R	R	R	3.5 _{US}	5.6	6.4	6.4	6.6	6.7
27	5.6	4.6	3.8	3.1	2.0	1.7 _R	3.9	6.3	7.0	7.6	7.4	7.4
28	F	4.8	4.5	2.6	2.1	2.3	3.5	5.6	6.6	6.8	7.1 _s	7.9
29	F	F	F	4.4	2.9	2.5	3.3	5.9	7.1	7.1	7.6	7.8
30	4.9	4.2	3.7	2.9	2.3 _{UR}	2.3	3.8	6.4	7.1	7.8	8.2	9.0
Count	24	27	26	26	22	22	29	30	29	29	28	29
Median	5.8	5.0	3.9	3.0	2.6	2.0	4.6	7.0	8.3	8.8	8.2	8.1
Mean	5.5	5.0	4.0	3.1	2.6	2.2	4.5	7.0	8.2	8.5	8.4	8.3

Sweep 1.0 Mc to 25.0 Mc in 27 seconds.

Characteristic foF₂

TABLE 68

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
8 2	8 8	9 5	9 3	9 6	9 6	9 1	8 5	8 7	8 0	6 8 _s	6 6	1
9 7	9 7	10 1	10 1	10 5	10 0	9 2	8 3	8 0	8 5	7 6	7 1	2
8 4	9 1	9 2	9 7 _{US}	9 5 _s	9 6 _{US}	9 6	9 1	8 0	8 0	6 8	5 1	3
8 3	8 8	9 7	9 6	9 6	9 0	8 5	7 3 _F	7 5 _F	F	F	F	4
8 0	8 6	8 9	9 6	10 0	10 1	9 6	8 9	8 0	7 6	5 8	4 0	5
7 6	7 7	7 9	8 4	9 1	9 1	8 3	F	F	F	F	F	6
9 3	9 9	10 2	10 4	10 0	9 0 _H	8 1	8 5	8 8	7 5	5 6	4 4	7
8 8	9 2	9 9	10 1	10 1	S	9 3	8 6	8 6	8 4	7 7 _{US}	7 1	8
9 0	9 3	9 3	9 5	9 1	C	8 6	F	F	F	F	7 7	9
8 6	8 8	8 7	8 9	9 0	9 0	9 2	9 1	8 4	8 1	7 3	7 6	10
9 3	9 6	8 7	8 9	9 3	9 0	9 1	8 3	8 0	8 1	7 2 _{US}	7 2 _{US}	11
7 8	8 0	8 0	8 0	8 4	8 7	8 6	8 0	7 8	7 7	6 5	6 1 _{US}	12
9 0	9 4	9 4	9 8	9 6	9 4 _{US}	9 4	C	7 6	6 9	5 7	4 3	13
7 8	8 4	8 8	8 8	9 0	8 6	8 3	7 4	C	6 9	6 4	4 3	14
8 0	8 4	8 8	9 3	9 4	9 0 _{US}	8 1	7 6	7 2 _{US}	F _s	F _s	6 9	15
8 4	8 4	8 6	8 3	8 2	8 1	7 4	6 4	6 6	F _s	6 8	6 2 _{US}	16
9 8	10 1	10 1	9 8 _{US}	9 4	8 6	8 3	7 0	6 0 _F	F	F	F _s	17
9 0	9 2	9 2	9 6	10 0	9 6	9 0	8 8	8 9	7 6	5 7	3 8	18
8 0	8 3	8 4	9 1	9 5	8 9	7 3	5 7	F	F	F	F	19
9 0	9 2	9 3	9 3	9 0	8 6	8 0	7 3 _{US}	7 7 _F	8 6	7 3	6 6	20
7 8	7 8	7 7	7 9	7 7	7 8	7 1	F	F	F	F	F	21
8 4	8 5	8 6	8 5	8 1	8 3	7 7	6 4 _{US}	F	F	F	F _s	22
7 9	7 9	8 0	8 9	8 7	8 5	7 9 _s	7 0 _s	7 2	7 3 _s	7 0	5 7	23
8 4	7 8	7 6	7 1 _s	6 9	7 0	7 1	F	F	F	F	F	24
C	C	C	C	C	C	6 3	5 7	5 3	5 5	C	3 7	25
6 8	7 1	6 8	6 8	6 9	6 8	6 5	5 6	F _s	F	F	6 5	26
7 1 _s	7 4	7 7	7 8	7 9	8 0	7 9	7 2	7 3	7 0	6 1 _s	5 7 _{US}	27
8 2	8 5	8 3	8 1	7 6	7 2 _s	7 1	6 0 _s	F	F	F	F	28
7 9	7 8	7 8	7 5	7 4	7 5	7 3 _s	7 1	7 0	6 7	5 7	5 1 _{US}	29
8 7 _{IT}	9 4	8 9	8 1 _s	7 8	8 0	8 3	7 7	7 8	7 0 _s	5 5	4 7	30
29	29	29	29	29	27	30	25	21	18	18	22	Count
8 4	8 6	8 8	8 9	9 1	8 7	8 3	7 4	7 8	7 6	6 6	5 9	Median
8 4	8 6	8 8	8 8	8 8	8 6	8 2	7 5	7 7	7 5	6 5	5 7	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic foF₂

TABLE 68—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	5 6	4 4	2 9	2 5	2 0	2 9	6 3	8 0	8 3	C	C	7 9
2	5 6	4 5	2 7	2 2	1 9	2 8	6 3	7 8	9 3	9 7	9 4	9 4
3	8 3	7 0	5 1	3 0	2 0	2 6	6 4	8 0	8 7	8 1	8 0	8 3
4	3 8	2 8	2 3	K	E	2 8	6 5	8 2	9 1	8 3	7 8	8 1
5	F	F	F	F	3 2	3 0	6 3	8 1	8 7	8 0II	7 9	7 9
6	4 2	3 9	3 4	1 9R	E	2 3	5 9	7 3s	8 8	8 6	7 9	7 5
7	6 0s	4 7	3 1F	2 9	2 8	2 9	6 1s	7 6	8 8	9 8II	9 5II	9 0
8	4 0	3 5	2 3	1 8UR	1 9R	2 6	6 3	8 3	9 6	9 8	9 8	9 0
9	6 6	6 8	4 8	3 1	2 5V	3 2	6 1s	8 3	9 1	9 4	9 0	9 0
10	6 7	5 4US	4 5	3 6	3 2	3 2	6 3	8 5	C	9 5	9 5	8 9
11	8 6	7 4US	5 0	3 3	1 9	2 6	6 0	7 7	8 6	9 0	9 4	9 1
12	7 0	5 0	4 8	3 8	2 5	2 7	6 2	8 2	9 4	8 6	7 9	8 0
13	6 1	4 4	3 1	2 2R	R	2 6	6 3	8 2	8 9	8 8	8 8	8 8
14	2 8	2 7	2 2	E	L	2 6	5 8	7 4	7 6	7 3	7 3	7 6
15	4 0	3 5	2 8	2 0	E	2 7	6 5	8 2	9 4	8 4	7 6	7 6
16	6 4	5 6	3 4	2 0R	1 5	2 6	5 9	7 8	8 7	9 0	8 3	8 4
17	5 8	5 0	3 6	2 3	R	2 6	6 2US	8 0	9 0	9 4	9 7	9 7
18	S	Fs	C	C	C	C	C	7 9	8 3	8 4	8 8	9 1
19	2 5	2 4	2 3	2 0	1 8	2 4	6 2	7 5	8 2	7 7	7 3	7 6
20	6 4s	6 4s	5 0s	3 7V	1 9R	2 3	6 4	7 6	8 4	8 2	8 4	8 6
21	5 4US	4 3	3 6	2 7s	2 2js	2 4	5 8	7 7	8 6	8 5	7 8	7 7
22	5 6	4 7	3 8	3 0	2 4	2 5	6 0s	7 2	8 4	9 3	8 9	8 6
23	F	5 9s	5 0	4 2	3 5	3 6	5 8s	7 2	8 0	8 4	7 9	7 8
24	5 0s	4 4	3 7	2 9	2 6	2 5	6 0	7 8	9 0	8 7	8 6	8 5
25	4 1i	3 8F	F	F	2 2s	2 7s	6 8	8 1	C	C	C	C
26	2 2	2 1	1 8R	E	R	2 1	4 8	6 0	6 4	6 6	6 7	6 6
27	5 3	4 1	3 5	2 4	1 9R	2 3	5 3	6 6	7 7	7 6	7 4	7 2
28	5 1	5 0	3 5	2 4	2 1	2 6	4 8	6 0	6 9	6 8	7 6	7 8
29	F	F	4 9	3 7	2 6F	2 7	4 8	6 4	7 4	7 5	7 8	7 8
30	4 4	3 9	3 4	2 6	2 4	2 8	5 3	6 6	7 8	7 9	8 4	8 9
Count	26	27	27	26	26	29	29	30	28	28	28	29
Median	5 5	4 4	3 5	2 6	2 0	2 6	6 1	7 8	8 6	8 4	8 2	8 3
Mean	5 3	4 6	3 6	2 8	2 3	2 7	6 0	7 6	8 5	8 5	8 3	8 3

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF2

TABLE 68—Contd

Latitude 10° 2' N

Unit Mc

Ionospheric Data

Longitude 77° 5' E

Month November, 1963

75°L Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
8.5	9.0	9.3	9.1	9.5	9.1	8.7	8.5	8.5	7.5 _s	6.9	6.4	1
9.4	10.0	C	10.2	10.5	9.6 _s	8.5	7.9	8.3	8.1 _{US}	7.4	7.5 _{US}	2
8.6	9.1	9.1	9.5	9.1	9.5	9.2	8.6	8.2	7.5	5.8	4.2	3
8.5	9.2	9.9	9.8	9.2	8.8	8.0	7.3 _{US}	F	F	6.2 _{US}	F	4
8.3	8.9	9.3	9.8	10.5	10.5	9.1	8.6	7.7	7.3	4.8	4.1	5
7.6	7.8	8.1	8.6	9.2	8.9	7.3 _s	F	F	F	F	F	6
9.5	10.1	10.1	10.4	9.6	8.4	8.1	8.8	8.7	6.5	5.0 _{US}	4.2	7
9.1	9.1	10.2	10.2	10.0	9.3	8.6	8.8	8.5	8.3	7.3 _{US}	6.9	8
9.1	9.3	9.3	9.4	9.0	9.0	F	F	F	8.2 _{US}	7.7 _{UI}	8.1 _{US}	9
8.7	8.9	8.7	9.0	9.1 _s	9.1 _s	9.2	8.9	8.4	7.5 _s	7.3 _s	8.2	10
9.6	9.1	8.8	9.2	9.2	9.2	8.8	8.3	8.0	7.9	7.1 _s	6.8	11
8.2	8.0	7.8	7.9	8.1	8.8	8.0	7.8	7.8	7.0	6.4	6.0	12
9.2	9.1	9.6	9.9	9.6	9.5	8.9	7.8	7.4	6.4	5.0	3.6	13
8.0	8.6	8.8	9.0	8.8	8.4	7.6	7.1	C	6.6	5.4	4.4	14
8.3	8.4	9.0	9.7	9.1	9.2	7.8	7.2	F _s	F _s	6.8	6.8	15
8.4	8.5	8.1	8.4	8.0	7.9	6.8	6.4	7.3 _{US}	7.2 _{US}	6.4	6.3	16
10.1	10.0	10.3	9.5 _{UII}	8.9	8.1	8.0	6.8	F	F	F _s	F _s	17
9.0	9.0	9.1	9.8	9.8 _{US}	9.2	8.6	8.8	8.3	7.0 _{US}	4.7	3.4	18
8.2	8.2	8.9	9.6	9.3	8.3	6.4	5.6 _F	F	F	F	F	19
9.2	9.2	9.1	9.2	8.7	8.5	7.2	7.3 _{US}	8.2	8.0	7.0 _s	6.6	20
7.8	7.7	7.8	C	7.7	8.0	6.3 _{US}	F	F	F	F	F	21
8.1	8.5	8.6	8.3	8.0	7.9	7.1 _s	F	F	F	F	F	22
8.0	8.1	8.1	8.7	8.6	8.1	7.5 _s	7.0	7.0	7.5	6.3 _s	5.5	23
8.3	7.7	7.3 _{US}	7.1	6.9	7.2 _s	6.5	F	F	F	F	F	24
C	C	C	C	C	C	5.9	5.6	5.6	5.4	4.2	3.2	25
7.0	7.1	6.6	6.8	7.0	6.8	6.0	5.6	F _s	F	F	5.9	26
7.1	7.1	8.0	7.8	8.1	8.0	7.4 _s	7.3	7.4	6.7	6.0	F	27
8.4	8.3	8.2	7.9	7.5	7.2	6.6	5.9	F	F	F	F	28
7.9	7.9	7.5	7.3	7.5	7.6	7.0 _s	7.1	6.9	6.1 _{US}	5.4	5.0	29
9.4	9.3	8.5	8.0	7.8	8.3	8.4	7.9	7.9	6.3 _s	5.2 _s	4.3	30
29	29	28	28	29	29	29	25	18	20	22	21	Count
8.4	8.9	8.8	9.2	9.0	8.5	7.8	7.3	8.0	7.2	6.2	5.9	Median
8.5	8.7	8.8	8.9	8.8	8.6	7.7	7.5	7.8	7.2	6.1	5.6	Mean

Sweep 1.0 Mc to 25.0 Mc, in 27 seconds

Characteristic foF1

TABLE 69

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	L	C	L
2								L	L	LH	4 5	LH
3							L	L	L	L	L	L
4							L	L	L	L	L	L
5							LH	LH	L	L	L	L
6								L	L	4 4	L	L
7								LH	LH	4 4	L	LH
8							L	L	LH	L	LH	LH
9							L	LH	LH	LH	LH	LH
10							L	L	L	L	L	L
11							L	L	L	4 5	4 4	4 5
12							L	L	4 3	4 3	4 5	4 5
13							L	L	4 2	4 1	4 6	4 6
14							L	L	4 4	4 4	4 7	4 5
15							L	L	4 5	4 6	4 7	4 7
16								L	L	4 6	4 6	L
17								L	L	4 8	4 6	4 8
18								L	L	L	4 7	L
19								L	L	4 5	L	4 8
20								L	L	4 6	L	4 8
21								L	L	L	L	4 6
22							L	L	L	L	4 4	4 5
23							L	L	LH	L	L	4 6
24							L	L	L	L	L	4 6
25							L	L	C	C	C	C
26								L	L	LH	LH	L
27								L	L	L	4 5	4 5
28								L	L	L	L	L
29								L	L	L	L	L
30								L	L	L	L	4 5
Count									4	11	11	14
Median										4 5	4 6	4 6
Mean										4 5	4 6	4 6

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF1

TABLE 69

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75 E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
L	L	L	L	L								1
LH	L	LH	L	L								2
L	4 6	L	A	A	A							3
L	L	L	L	L	L							4
L	LH	4 4	L	L	L							5
4 6	4 4	L	L	L								6
4 6	L	L	I	L	L							7
4 5	L	L	L	L	L							8
L	L	L	L	L	C							9
L	L	L	L	L								10
4 3	L	4 4	4 3	L	L	L						11
L	4 6	I	L	I	L							12
4 6	4 4	L	L	L	L							13
4 6	4 5	L	L	L	L							14
4 6	4 5	4 7	4 6	L	L							15
L	L	L	L	L	L							16
4 8	4 6	L	L	L	L							17
4 6	4 4	L	L	L	L							18
4 8	L	L	L	L	L							19
4 8	4 8	4 6	L	L	L							20
4 5	L	L	I	L	L							21
IH	4 5	4 5	L	L	L							22
4 6	LH	L	L	L	L							23
4 6	L	I	L	L	L							24
C	C	C	C	C	C							25
4 5	4 4	L	L	L	L							26
4 5	4 5	I II	IH	L	L							27
LH	LH	L	L	L	L							28
L	LH	L	L	L	L							29
4 5	4 3	L	L	L	L							30
<hr/>												
17	13	5	2									Count
<hr/>												
4.6	4.5	4.5		--								Median
<hr/>												
4.6	4.5	4.5										Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foF₁

TABLE 69—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							I	L	I	C	L	L
2							L	LH	IH	IH	4 5	L
3							L	L	L	4 1	L	LH
4							L	L	L	I	L	L
5							I	L	L	LH	LH	LH
6							L	L	L	4 5	L	4 6
7							I	L	L	L	L	4 6
8							I	LH	IH	LH	LH	L
9							L	L	I	I	L	L
10							L	L	C	L	L	L
11							L	L	4 4	4 4	4 7	4 4
12							L	L	4 4	4 4	4 6	4 5
13							L	L	4 3	4 6	4 7	4 7
14							L	L	4 3	4 6	4 6	4 6
15							L	4 3	4 1	4 6	4 6	4 6
16							L	L	L	4 5	L	4 6
17							L	I	4 5	4 7	4 6	4 8
18							L	L	L	I	4 6	L
19							L	L	4 6	I	4 8	4 7
20								I	4 6	I	4 6	4 8
21								L	L	4 6	4 8	L
22							L	L	L	4 4	LH	L
23							I	L	L	L	L	L
24							L	L	L	I	4 5	4 7
25							L	L	C	C	C	C
26							L	I	L	4 4	4 4	4 7
27							L	L	L	L	LH	4 6
28							I	L	L	4 4	4 6	L
29							L	L	I	4 5	L	4 5
30							L	L	L	L	L	LH
Count							1	8	14	14	15	
Median								4 4	4 5	4 6	4 6	
Mean								4 4	4 5	4 6	4 6	

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fo F₁

TABLE 69—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
L	4 5	L	L	L								1
LH	L	C	L	L								2
4 6	L	A	A	A								3
L	L	L	L	L								4
L	LH	L	L	L								5
L	LH	LH	L	L								6
4 5	L	L	L	L								7
L	L	L	L	L								8
L	L	L	L	L								9
L	L	L	L	L								10
L	4 5	I	L	L	L							11
4 7	4 4	L	L	L	L							12
4 5	4 4	4 4	L	L	L							13
4 5	4 6	L	L	L	L							14
4 6	4 6	L	L	L	L							15
L	L	L	L	L								16
4 6	L	4 4	L	L								17
5 0	LH	LH	L	L								18
L	L	4 6	L	L								19
L	L	L	L	L								20
4 5	L	4 4	C	L								21
L	4 4	4 3	L	L								22
4 6	L	LH	A	A								23
L	L	L	L	L								24
G	C	C	C	C								25
4 4	4 4	L	L	L								26
4 6	4 4	LH	LH	L								27
LH	L	I	L	L								28
4 5	LH	LH	L	L								29
4 5	4 3	LH	LH	L								30
14	10	5	.									Count
4 6	4 4	4 4										Median
4 6	4 4	4 4										Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE
 Unit Mc.
 Month November, 1963.

TABLE 70
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								A	A	A	C	A
2								R	2 9 ^H	A	A	A
3							1 9 ^H	A	A	A	A	A
4								A	A	A	A	A
5								A	A	A	A	A
6								R	A	A	A	A
7							1 9	2 5	A	A	A	A
8								2 4 ^H	A	R	A	A
9								2 5 ^H	A	A	A	A
10							1 7	A	A	A	A	A
11							R	A	A	A	A	A
12								2 0	A	A	A	A
13								A	A	A	A	A
14							A	A	A	A	A	A
15								A	A	A	A	A
16							A	A	A	A	A	A
17							A	2 6	A	A	A	A
18								A	A	A	A	A
19							A	A	A	A	A	A
20								A	A	A	A	A
21								A	A	A	A	A
22							1 7	2 5 ^H	A	A	A	A
23								A	A	A	A	A
24								A	A	A	A	A
25								2 3 ^{UR}	C	C	C	C
26								A	A	A	A	A
27								A	A	A	A	A
28								A	A	A	A	A
29							R	A	A	A	A	A
30								A	A	A	A	A
Count							4	7	1			
Median								2 5				
Mean								2 4				

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foE
 Unit Mc
 Month November, 1963

TABLE 70
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
A	A	A	A	A	A							2
A	A	A 3 ^H	A 2 ^{9H}	A	A							3
A	A	A	A 3 ⁰	A	A							4
A	A	A	A	A	A							5
A	A	A	A	^								6
A	A	A	A	A	A							7
A	A	A	A	R								8
A	A	A	A	A								9
A	A	A	A	A	A							10
A	A	A	A	A								11
A	A	A	A	A	A							12
A	A	A	A	R								13
A	A	A	A	A								14
A	A	A	A	A								15
^	A	A	A	A	A							16
^	A	A	A	A	A							17
A	A	A	A	^	A							18
A	A	A	A	A	A							19
A	A	A	A	A	A							20
A	A	A	A	A	R							21
A	A	A	A	A	A							22
A	A	A	A	A	A							23
A	A	A	A	A	A							24
C	C	C	C	C	C							25
A	A	A	A	A								26
A	A	A	A	A	1 9							27
A	A	A	A	A								28
A	A	A	A	A								29
A	A	A	A	A								30
		1	2		1							Count
												Median
												Mean

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds

Characteristic foE

TABLE 70—Contd

Latitude 10 2° N.

Unit Mc.

Ionospheric Data

Longitude 77 5° E.

Month November, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							2 2 _H	A	A	C	C	A
2							2 3 _H	A	A	A	A	A
3							A	A	A	A	A	A
4							2 3 _H	A	A	A	A	A
5							2 3 _H	A	A	A	A	A
6							2 3 _H	A	A	A	A	A
7							2 3 _H	2 8 _H	A	A	A	A
8							2 1 _H	2 7 _H	A	A	A	A
9							R	A	A	A	A	A
10							R	A	C	A	A	A
11							A	A	A	A	A	A
12							1 9	A	A	A	A	A
13							A	A	A	A	A	A
14							A	A	A	A	A	A
15							1 8	A	A	A	A	A
16							A	A	A	A	A	A
17							A	2 8	A	A	A	A
18							A	A	A	A	A	A
19							A	A	A	A	A	A
20							A	A	A	A	A	A
21							2 2	A	A	A	A	A
22							2 2 _H	2 8 _H	A	A	A	A
23							A	A	A	A	A	A
24							R	A	A	A	A	A
25							R	2 6	C	C	C	C
26							A	A	A	A	A	A
27							A	A	A	A	A	A
28							A	A	A	A	A	A
29							A	A	A	A	A	A
30							A	A	A	A	A	A
Count							11	5				
Median							2 2	2 8				
Mean							2 2	2 7				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic foE
Unit Mc
Month November, 1963

TABLE 70—Contd
Ionospheric Data
75°E Mean Time

Latitude, 10 2° N.
Longitude 77 5° E.

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A								1
A	A	C	R	A								2
A	A	A	A	A								3
A	A	A	2 9	A								4
A	A	A	A	A								5
A	A	A	A	A								6
A	A	A	A	A								7
R	A	A	A	A								8
A	A	A	A	A								9
A	A	A	A	A								10
A	A	A	A	A								11
A	A	A	A	A	A							12
A	A	A	A	A		A						13
A	A	A	A	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
A	A	A	A	A								17
A	A	A	A	A								18
A	A	A	A	A								19
A	A	A	A	A								20
A	A	A	C	A								21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A								24
C	C	C	C	C								25
A	A	A	A	A								26
A	A	A	A	A	2 3							27
A	A	A	A	A								28
A	A	A	A	A								29
A	A	A	A	A								30
												Count
												Median
												Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foEs

TABLE 71

Latitude 1 2° N

Unit Mc.

Ionospheric Data

Longitude 77 5° E

Month November 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								8 7	10 6	11 0	C	12 2
2								G	8 8	12 4	11 8	12 0
3							G	S	11 0	12 0	12 1	12 2
4								S	11 2s	12 0	12 0	12 5
5	3 25	2 7	3 6					7 0s	12 2	9 8	11 1	11 6
6								G	S	10 0s	10 6	12 2
7							G	G	9 8	12 1	12 6	12 2
8								G	9 0s	G	12 3	12 6
9								S	10 0	10 6	12 1	12 4
10							G	8 0	8 0	10 0	10 6	12 0
11							G	4 8	9 8	9 2	9 4	9 8
12								G	8 8	12 3	9 6	11 2
13	3 3							S	8 9	9 0	9 6	9 8
14							2 4	S	9 6	9 5	9 9	10 8
15								3 0	9 1	9 8	11 3	11 5
16							2 6	10 2s	10 2s	11 2	11 4	10 2
17							2 6	G	3 4	6 0	7 8	8 6
18								7 0s	9 6	9 8	10 8	9 8
19							2 4	5 6s	S	9 2	9 6	10 8
20								S	9 6	10 0	9 8	11 2
21								6 4	8 6	10 2	10 6	11 0
22				2 4			G	G	8 0	11 3	11 2	11 6
23				3 2us		2 8		S	9 0	10 8s	12 0	12 0
24								7 0	9 0	11 2	12 1	12 2
25								G	C	C	C	C
26								4 8	10 8	11 0	12 2	11 8
27								8 6us	10 0	11 0	12 0	12 0
28								8 6	11 0	10 8	11 4	11 2
29							G	S	9 0	11 0	11 0	12 0
30								S	9 0	10 8	10 8	10 5
Count	2	1	3		1		10	21	27	29	28	29
Median							G	4 8	9 6	10 8	11 2	11 6
Mean								6 9	9 4	10 5	11 0	11 4

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fob's

Unit. Mc.

Month November, 1963

TABLE 71
Ionospheric Data
75°E Mean Time

Latitude 10 2° N

Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
12 0	11 8	11 0	8 1	S								1
12 0	11 6	6 6	6 0	6 0	6 0	2 8	S			3 8		2
12 3	11 8s	10 6	6 6	15 0	12 4			2 9				3
12 0	11 8s	11 8	7 0	S	5 6us			2 8	6 0	S	2 8	4
10 2	11 0	9 6	5 7	6 6	S							5
12 0	12 0	12 3	S	S	2 7							6
8 7	10 6	9 6	10 4s	8 0	S							7
12 1	8 0	9 4	6 6	8 0			3 0			4 2s	S	8
12 1	12 0	11 7	12 0	8 0								9
12 0	12 0	12 0	11 0	8 6	S							10
11 1	10 8	9 8	8 1	7 8								11
11 2	9 8	9 0	10 0s	8 2s	S						4 8	12
9 1	9 6	9 7	7 0	G								13
11 8	9 6	10 4	8 9									14
12 4	11 2	8 8	8 6	3 0				9 3	10 8			15
9 8	9 8	9 7	9 4	8 8	7 0s					3 0		16
9 2	9 8	8 8	8 6	S	3 0s	8 0						17
11 2	9 6	8 8	7 0	5 6us								18
10 6	9 6	8 0	7 6s	6 0	4 6s			2 6				19
11 0	9 6	9 4	6 6	3 4	9 2	5 8	3 0				3 2s	20
11 4	11 0	10 0	9 4	7 4	G				3 2			21
10 0	9 6	9 8	8 6	S							2 6	22
12 0	12 0	10 6	10 0	7 0				2 6	2 8			23
11 9	12 2	11 8	11 0	8 2								24
G	G	G	G	G	G							25
12 0	12 0	10 8s	9 8	8 0	2 0						3 2	26
12 0	12 0	11 0	10 0	6 0	G		2 6	S				27
11 0	12 0	12 0	S	7 0								28
12 2	11 6	11 0	10 0s	8 0		2 8				2 6		29
9 4	10 4	10 0	10 0	8 0us			6 4			4 8		30
29	29	29	27	23	11	4	4	3	4	7	5	Count
11 8	11 0	10 0	8 6	7 8	4 6					3 8	3 2	Median
11 2	10 8	10 1	8 6	7 4	5 8					4 6	3 3	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fbEs

TABLE 72

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								2 5	2 9	3 2	C	3 6
2								G	3 3	3 2	3 5	3 5
3							G	2.5	2 9	3 3	3 5	3 5
4								2 6	2 9	3 3	3 4	3 6
5	2 0	1 9	2 0					2 5	2 9	3 4	3 6	3 6
6								G	3 1	3 3	3 5	3 6
7							G	G	3 0	3 3	3 5	3 5
8								G	2 9	G	3 4	3 5
9								2 6	2 9	3 1	3 4	3 5
10							G	2 5	3 0	3 1	3 5	3 5
11							G	2 4	2 9	3 2	3 3	3 5
12								G	3 0	3 2	3 4	3 5
13	2 2							2 5	2 8	3 3	3 5	3 5
14							1 6	2 4	2 9	3 3	3 5	3 6
15								2 5	2 9	3 2	3 5	3 6
16							1 7	2 5	3 1	3 2	3 4	3 6
17							1 7	G	3 0	3 3	3 5	3 7
18								2 5	3 0	3 2	3 4	3 5
19							1 8	2 5	3 0	3 2	3 4	3 6
20								2 6	2 9	3 2	3 4	3 5
21								2 5	2 8	3 2	3 4	3 4
22							G	G	2 8	3 2	3 2	3 5
23			2 0		2 0			2 4	2 8	3 1	3 4	3 7
24								2 3	2 8	3 1	3 3	3 3
25								G	G	C	C	C
26								2 4	2 7	3 1	3 3	3 4
27								2 4	2 8	3 1	3 3	3 4
28								2 4	2 9	3 2	3 3	3 5
29								2 4	2 8	3 1	3 3	3 4
30								2 3	2 8	3 2	3 4	3 4
Count	2	1	2		1		9	30	29	29	28	29
Median							G	2 4	2 9	3 2	3 4	3 5
Mean								2 5	2 9	3 2	3 4	3 5

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic 1bEs

TABLE 72

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
3 5	3 5	3 3	3 0	2 7								1
3 6	3 5	3 3		2 7	2 2		1 7			2 0		2
3 6	3 4	3 3	4 4	7 0	5 8			1 9				3
3 6	3 4	3 2	3 1	2 6	2 0			1 9	2 3	2 0	1 9	4
3 7	3 5	3 4	3 2	3 0	2 5							5
3 5	3 4	3 3	3 0	2 7	5 1							6
3 5	3 4	3 3	3 0	2 6	1 9							7
3 6	3 7	3 3	3 2				2 0			1 9	1 9	8
3 5	3 4	3 3	3 4	2 7								9
3 5	3 4	3 3	3 0	2 6	2 0							10
3 5	3 4	3 3	3 0	2 6								11
3 6	3 4	3 2	3 0	2 8							2 2	12
3 6	3 5	3 4	3 0	G								13
3 6	3 5	3 4	3 0									14
3 6	3 4	3 2	3 0	2 7					2 8	2 6		15
3 6	3 6	3 4	3 1	2 7	2 7					1 8		16
3 8	3 5	3 5	3 0	2 6	2 0	3 0s						17
3 6	3 4	3 3	3 2	2 6								18
3 6	3 4	3 6R	3 0	2 6	2 0			1 5				19
4 0	3 6	3 5	3 0	2 7	2 7	3 4	1 7				1 5	20
3 5	3 4	3 4	3 0	2 6	G				1 7			21
3 4	3 4	3 2	3 0	2 6								22
3 4	3 4	3 3	2 9	2 7								23
3 4	3 4	3 2	2 9	2 7								24
C	C	C	C	C	C							25
3 4	3 4	3 2	3 0	2 6	1 9						1 9	26
3 4	3 4	3 2	3 0	2 7				1 9				27
3 5	3 3	3 2	3 0	2 6								28
3 4	3 3	3 3	3 0	2 7		1 9				1 9		29
3 6	3 6	3 2	3 0	2 6			2 0			2 0		30
29	29	29	28	27	13	3	4	4	3	7	5	Count
3 6	3 4	3 3	3 0	2 7	2 0					2 0	1 9	Median
3 6	3 4	3 3	3 1	2 8	2 7					2 0	1 9	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic fbEs

TABLE 72—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E.

Month November, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	2 7	3 1	C	C	3 4
2							2 4	2 7	3 2	3 3	3 4	3 6
3							2 2	2 7	3 1	3 3	3 0	3 6
4							G	2 8	3 1	3 5	3 7	3 6
5	1 9	2 2					G	2 7	3 1	3 5	3 6	3 6
6							G	2 9	3 1	3 5	3 6	3 6
7							G	G	3 1	3 4	3 4	3 5
8							G	G	3 0	3 5	3 5	3 6
9							G	2 8	3 0	3 3	3 4	3 4
10							G	2 7	C	3 2	3 5	3 5
11							2 0	2 7	3 1	3 3	3 4	3 4
12							G	2 6	3 1	3 4	3 5	3 5
13							2 0	2 6	3 1	3 4	3 5	3 5
14							2 2	2 7	3 1	3 4	3 5	3 5
15							G	2 7	3 1	3 4	3 4	3 6
16							2 2	2 8	3 1	3 4	3 5	3 6
17							2 2	G	3 2	3 4	3 6	3 7
18								2 7	3 1	3 4	3 5	3 7
19							2 2	2 8	3 1	3 4	3 5	3 6
20							2 2	2 8	3 1	3 4	3 6	4 0
21							G	2 6	3 1	3 2	3 5	3 6
22							G	G	3 1	3 3	3 3	3 5
23				1 6	1 8		2 0	2 7	3 0	3 2	3 4	3 5
24							G	2 7	3 0	3 3	3 4	3 5
25							G	G	C	C	C	C
26							2 0	2 5	3 0	3 2	3 4	3 5
27							2 0	2 6	3 0	3 3	3 4	3 4
28							2 1	2 7	3 0	3 4	3 5	3 7
29							2 0	2 6	3 0	3 2	3 4	3 5
30							2 0	2 6	3 0	3 2	3 5	3 5
Count	1	1		1	1	1	29	30	28	28	28	29
Median							2 0	2 7	3 1	3 4	3 5	3 5
Mean							2 1	2 7	3 1	3 3	3 5	3 6

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic F₂Ls
 Unit Mc
 Month, November 1963

TABLE 72—Contd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3.6	3.1	3.1	2.9	2.4								1
3.5	3.0	C	C	2.6	2.3		1.9		1.8			2
3.6	3.3	3.0	3.0	6.2	2.5							3
3.6	3.4	3.3		2.5	1.8			8.0	3.1	8.0	2.0	4
3.7	3.4	3.3	2.9	2.8	2.4							5
3.4	3.4	3.1	2.9	2.5								6
3.4	3.2	3.1	2.8	2.4								7
3.7	3.6	3.2	2.9	2.3						2.6		8
3.5	3.3	3.1	3.0	2.3								9
3.5	3.1	3.0	2.8	2.3	1.9							10
3.6	3.6	3.1	2.9	2.4								11
3.5	3.1	3.1	2.9	2.5	2.3		1.8			1.7	1.7	12
3.5	3.1	3.1	3.0					2.2				13
3.6	3.1	3.2	2.8									14
3.5	3.3	3.1	2.8	3.1					2.3			15
3.6	3.1	3.1	3.0	2.5	1.8							16
3.5	3.1	3.1	3.1	2.4		1.6						17
3.6	3.1	3.1	2.8	2.3								18
3.6	3.4	3.1	2.9	2.4				1.7				19
4.0	3.8	3.1	2.9	3.6	1.8	2.4				1.8		20
3.5	3.4	3.3	C	2.3					1.7			21
3.1	3.3	3.1	2.9	2.4								22
3.1	3.3	3.0	3.0	2.4								23
3.1	3.3	3.0	2.8	2.3								24
C	C	C	C	C								25
3.5	3.3	3.1	3.0	2.3						1.9		26
3.3	3.2	3.0	2.8									27
3.7	3.6	3.1	2.8	2.3								28
3.4	3.2	3.1	2.8	2.4		2.5						29
3.7	3.4	3.1	2.8	2.3		2.3			2.0			30
2.9	2.8	2.8	2.7	2.6	8	4	3	2	5	5	2	Count
3.5	3.4	3.1	2.9	2.4	2.1	.			2.0	1.9		Median
3.5	3.4	3.2	3.0	2.6	2.1				2.2	3.2		Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic f_{min}

TABLE 73

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	1.5	1.4	1.2	1.1	1.1	1.2	1.7	1.5	1.9	2.0	C	2.2
2	1.3	1.4	1.7	1.3	1.4	E	1.9	1.7	2.0	2.1	2.4	2.5
3	1.4	1.5	1.6	1.4	1.4	1.2	1.4	1.5	1.9	2.2	2.5	2.5
4	1.4	1.2	1.2	1.3	1.2	R	1.7	1.6	1.9	2.1	2.4	2.5
5	1.6	1.5	1.5	2.0	1.9	1.5	1.8	1.6	1.9	2.8	2.9	2.5
6	1.9	1.6	1.7	1.8	R	E	1.7	1.9	2.4	2.8	3.0	2.9
7	1.5	1.2	1.3	1.5	E	1.2	1.4	1.6	1.9	2.1	2.5	2.5
8	1.3	E	1.2	1.1	1.2	1.3	1.7	1.4	1.7	2.0	2.2	2.3
9	1.6	1.2	1.9	1.4	1.4	E	1.6	1.7	1.9	2.1	2.4	2.3
10	1.3	1.4	1.3	1.4	1.2	1.2	1.3	1.6	1.7	1.7	2.3	2.2
11	1.4	1.4	1.3	1.4	1.4	1.3	1.2	1.4	1.6	2.0	2.4	2.4
12	1.3	1.1	E	1.2	1.3	1.1	1.7	2.0	1.8	2.1	2.3	2.2
13	1.6	1.8	1.2	1.6	E	E	1.6	1.7	1.8	2.4	2.5	2.6
14	1.3	1.7	1.5	1.1	E	C	1.3	1.3	1.5	1.9	2.4	2.4
15	1.3	1.4	1.5	1.7	1.5	E	1.7	1.7	1.9	2.4	2.4	2.5
16	1.7	1.4	1.2	1.3	R	R	1.3	1.5	2.0	2.2	2.3	2.3
17	1.7	1.6	1.4	1.5	1.5	E	1.4	1.6	2.2	2.0	2.2	2.8
18	1.6	1.6	1.4	C	C	C	C	1.5	1.9	1.9	2.4	2.4
19	1.4	1.3	1.4	1.2	1.2 ^{us}	1.1	1.5	1.4	1.7	1.9	2.4	2.4
20	1.9	1.8	1.6	1.6	1.7	R	1.8	1.5	1.7	2.0	2.3	2.4
21	1.7	1.7	1.3	1.3	1.3	S	1.6	1.5	1.6	2.0	2.0	2.3
22	1.9	1.8	1.4	1.2	1.2	E	1.3	1.6	1.7	2.1	2.3	2.3
23	1.2	1.5	1.4	1.7	1.2	1.7	1.6	1.5	1.6	1.9	2.1	2.7
24	1.4	1.3	1.6	1.2	1.1	1.2	1.5	1.4	1.6	2.0	2.0	2.3
25	1.3	1.5	1.6	1.6	1.3	E	1.5	1.4	C	C	C	C
26	1.2	1.5	1.4	R	R	R	1.5	1.4	1.5	1.9	2.0	2.2
27	1.4	1.4	1.7	1.6	1.3	1.1	1.5	1.3	1.6	2.0	2.1	2.3
28	1.4	1.2	1.4	1.1	1.2	E	1.5	1.6	2.0	2.0	2.2	2.4
29	1.4	1.5	1.6	1.3	1.3	E	1.1	1.3	1.7	1.9	2.0	2.2
30	1.6	1.6	1.5	1.3	E	E	1.5	1.5	1.7	2.0	2.2	2.5
Count	30	30	30	28	26	23	29	30	29	29	28	29
Median	1.4	1.4	1.4	1.4	1.2	1.1	1.5	1.5	1.8	2.0	2.3	2.4
Mean	1.5	1.5	1.4	1.4	1.3	1.2	1.5	1.5	1.8	2.1	2.3	2.4

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fmin

TABLE 73

Latitude 10 2°N

Unit Mc.

Ionospheric Data

Longitude 77 5° E

Month November, 1963.

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 4	2 4	2 4	2 0	2 2	2 0	1 4	1 3	1 2	1 6	1 4	1 4	1
2 5	2 5	2 4	2 2	2 2	1 8	1 5	1 5	1 8	1 8	1 9	1 8	2
2 5	2 6	2 3	2 0	2 2	1 8	1 8	1 4	1 6	1 9	1 6	1 7	3
2 5	2 4	2 5	2 1	2 1	1 8	1 3	1 2	1 5	1 5	1 5	1 8	4
2 6	2 5	2 5	2 3	2 0	1 9	2 1	2 0	1 9	1 9	1 4	1 4	5
2 3	2 3	2 1	1 9	1 9	2 0	1 6	1 6	1 4	1 3	1 5	1 5	6
2 4	2 3	2 3	2 0	2 0	1 7	1 4	1 4	2 0	2 0	1 6	1 6	7
2 4	2 2	2 0	2 4	2 2	2 0	1 6	1 5	1 9	1 6	1 4	1 5	8
2 4	2 2	2 3	2 2	2 0	1 9	1 5	1 4	1 6	1 4	1 3	1 2	9
2 3	2 4	2 4	2 1	1 9	1 9	1 9	2 0	1 7	2 0	1 8	1 5	10
2 5	2 4	2 3	2 3	2 2	2 0	1 6	1 6	1 6	1 8	2 3	1 8	11
2 4	2 2	2 1	1 9	2 4	2 2	2 1	1 7	1 5	1 8	1 8	1 6	12
2 6	2 6	2 5	2 7	1 6	2 0	1 8	C	1 5	1 9	1 7	1 7	13
2 4	2 4	2 4	2 2	2 6	2 2	1 6	1 6	C	1 6	1 8	1 4	14
2 5	2 4	2 4	2 0	1 8	2 0	1 6	1 5	2 0	2 0	1 8	1 6	15
2 4	2 3	3 0	2 2	1 9	1 6	1 3	1 9	1 6	1 7	1 8	1 6	16
2 6	2 4	2 4	1 9	1 8	1 4	1 3	1 6	1 9	1 6	1 6	1 9	17
2 5	2 3	2 2	2 0	1 7	2 0	1 6	1 8	2 1	1 6	1 6	1 5	18
2 5	2 4	2 2	1 9	2 0	1 7	1 7	2 0	1 5	1 6	1 8	1 7	19
2 3	2 4	2 0	2 0	1 7	1 7	1 3	1 7	1 9	1 5	1 7	1 5	20
2 3	2 2	2 2	1 9	1 8	1 4	1 3	1 4	1 6	1 2	1 6	1 8	21
2 3	2 2	2 2	2 3	2 1	2 0	1 4	1 3	1 2	1 3	1 6	1 4	22
2 4	2 3	2 3	2 0	1 8	1 9	1 6	1 7	1 6	1 5	1 6	1 6	23
2 3	2 4	2 2	1 9	2 0	1 9	2 0	1 7	1 6	1 4	1 7	1 3	24
C	C	C	C	C	C	1 5	1 4	1 6	1 6	C	1 4	25
2 3	2 3	2 2	2 3	1 9	1 6	1 6	1 5	1 2	1 7	F	1 6	26
2 3	2 2	2 0	1 9	1 9	1 4	1 4	1 5	1 7	1 6	1 6	1 5	27
3 3	2 4	2 3	1 9	2 0	1 9	1 5	1 6	1 5	1 6	1 7	1 6	28
2 2	2 2	2 0	1 9	1 9	1 9	1 5	2 0	1 6	1 8	1 9	1 9	29
2 5	2 2	2 1	2 0	2 0	2 0	1 9	1 9	1 9	1 8	1 5	2 0	30
29	29	29	29	29	29	30	29	29	30	28	30	Count
2 4	2 4	2 3	2 0	2 0	1 9	1 6	1 6	1 6	1 6	1 6	1 6	Median
2 4	2 3	2 3	2 1	2 0	1 8	1 6	1 6	1 6	1 6	1 7	1 6	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fmin

TABLE 73—Contd

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	1 5	1 4	1 1	1 2	1 2	1 3	1 5	1 9	1 9	C	C	2 5
2	1 4	1 7	1 3	1 3	1 4	1 5	1 7	1 9	2 1	2 4	2 4	2 4
3	1 3	1 8	1 3	1 5	1 4	1 2	1 5	1 9	2 1	2 3	2 4	2 5
4	1 3	1 4	1 5	1 2	E	1 4	1 6	1 6	2 2	2 3	2 4	2 6
5	1 6	1 8	1 9	2 0	1 6	1 2	1 8	1 8	2 4	2 9	2 4	2 6
6	1 6	1 9	2 0	1 6	E	1 4	1 6	2 0	2 1	3 0	3 0	2 3
7	1 4	1 2	1 2	1 3	1 2	1 2	1 5	1 9	2 0	2 3	2 6	2 5
8	1 2	1 2	E	1 1	1 1	1 2	1 3	1 6	1 9	2 2	2 3	2 3
9	1 5	1 4	1 2	1 5	1 5	1 1	1 5	1 9	2 0	2 3	2 5	2 4
10	1 2	1 1	1 2	1 2	1 1	1 4	1 8	1 5	C	2 0	2 4	2 3
11	1 5	1 5	1 4	1 4	1 1	1 1	1 3	1 4	1 8	2 1	2 2	2 6
12	1 4	1 1	E	1 2	1 1	1 1	1 6	1 8	2 0	2 2	2 5	2 2
13	2 0	1 2	E	1 3	E	1 1	1 4	1 6	2 3	2 6	2 4	2 6
14	1 4	1 3	1 5	E	E	1 2	1 3	1 5	1 8	2 3	2 5	2 4
15	1 3	1 4	1 6	1 3	E	1 7	1 6	1 8	2 2	2 4	2 4	2 4
16	1 7	1 5	1 2	1 2	1 1	1 1	1 6	1 7	2 0	2 4	2 6	2 6
17	1 8	1 4	1 9	1 3	R	1 1	1 5	1 8	2 2	2 0	2 2	2 4
18	1 7	1 6	C	C	C	C	C	1 7	2 0	2 3	2 4	3 0
19	1 4	1 3	1 2	1 1	1 3	1 1	1 4	1 8	1 9	2 1	2 4	2 5
20	1 7	1 7	1 3	1 5	1 4	1 2	1 3	1 7	1 9	2 2	2 4	2 6
21	1 8	1 0	1 1	1 0	1 1	1 2	1 4	1 6	1 8	2 0	2 3	2 4
22	1 8	1 4	1 3	1 1	1 1	1 1	1 5	1 7	1 9	2 2	2 3	2 3
23	1 2	1 5	1 9	E	1 2	1 6	1 4	1 5	1 8	2 0	2 4	2 4
24	1 4	1 4	E	E	1 3	1 1	1 5	1 6	1 9	2 1	2 4	2 3
25	1 3	1 3	1 6	1 5	1 2	E	1 4	1 8	C	C	C	C
26	1 4	1 3	1 3	E	R	1 3	1 3	1 6	1 7	2 0	2 2	2 4
27	1 5	1 5	1 5	1 4	1 3	1 1	1 3	1 4	1 8	2 0	2 3	2 4
28	1 2	1 4	1 3	1 1	E	E	1 5	1 7	2 0	2 0	2 3	2 3
29	1 5	1 4	1 4	1 3	1 2	1 1	1 1	1 4	1 9	1 9	3 2	2 2
30	1 5	1 5	1 3	1 2	E	1 3	1 5	1 7	2 0	2 1	2 4	2 4
Count	30	30	29	29	27	29	29	30	28	28	28	29
Median	1 4	1 4	1 3	1 2	1 1	1 2	1 5	1 7	2 0	2 2	2 4	2 4
Mean	1 5	1 4	1 4	1 3	1 2	1 2	1 5	1 7	2 0	2 2	2 4	2 4

Sweep 1 0 Mc to 25 0 Mc. in 27 seconds

Characteristic fmin

TABLE 73—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month November, 1963.

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2 3	2 4	2 3	2 2	2 0	1 7	1 6	1 3	1 2	1 5	1 6	1 4	1
2 5	2 4	C	2 2	1 9	1 4	1 8	1 6	1 4	1 6	1 9	1 6	2
2 5	2 4	2 2	2 0	1 9	1 8	1 6	1 9	1 5	1 8	1 6	1 6	3
2 5	2 4	2 2	2 2	1 9	1 4	1 8	1 2	1 5	1 5	1 7	1 5	4
3 0	2 5	2 2	2 0	2 1	1 8	1 5	1 9	1 7	1 6	1 5	1 5	5
2 5	2 3	2 1	2 0	1 9	1 6	1 4	1 2	1 5	1 2	1 4	1 4	6
2 4	2 2	2 1	2 2	1 9	1 5	1 4	1 8	2 0	2 0	1 6	1 5	7
2 4	2 0	2 0	2 6	2 0	1 8	1 5	2 0	1 5	1 2	1 6	1 4	8
2 5	2 3	2 2	2 1	1 8	1 6	1 7	1 5	1 3	1 5	1 4	1 2	9
2 4	2 3	2 3	2 0	2 0	1 7	2 4	1 9	1 8	1 9	1 6	1 5	10
2 4	2 4	2 2	2 1	1 9	1 6	1 7	1 5	1 5	2 1	2 2	1 2	11
2 4	2 4	2 0	2 2	2 2	1 8	2 0	1 6	2 0	1 8	1 6	1 4	12
2 5	2 6	2 4	2 2	2 4	1 7	1 7	1 7	2 0	1 6	1 5	1 3	13
2 5	2 4	2 2	C	2 4	1 7	1 7	1 8	C	1 6	1 6	1 4	14
2 4	2 4	2 2	2 0	1 9	1 6	1 5	1 6	2 0	2 0	2 0	1 7	15
2 3	2 2	2 2	2 2	1 9	1 4	1 9	2 0	1 7	1 7	1 9	1 8	16
2 4	2 3	2 1	1 9	1 8	1 8	1 4	1 3	1 6	1 7	1 8	1 6	17
2 3	2 2	1 9	1 8	1 9	1 8	1 8	1 9	1 8	2 0	1 4	1 3 _R	18
2 4	2 4	2 2	2 2	1 8	1 7	1 7	1 7	1 8	1 7	1 8	1 6	19
2 4	2 2	2 0	2 2	1 9	1 8	1 8	1 9	1 6	1 7	1 5	1 4	20
2 3	2 2	2 0	C	1 4	1 5	1 6	1 8	1 7	1 2	1 6	1 9	21
2 3	2 3	2 2	2 2	1 9	1 6	1 4	1 1	1 3	1 4	1 3	1 4	22
2 5	2 3	2 1	2 0	1 9	1 5	1 9	1 6	1 8	1 7	1 6	1 4	23
2 3	2 2	2 0	2 2	1 6	1 6	1 8	1 6	1 7	1 8	1 5	1 5	24
C	C	C	C	C	C	1 5	1 5	1 5	1 6	1 7	1 4	25
2 5	2 5	2 2	2 0	1 7	1 6	1 6	1 4	1 2	F	1 3	1 6	26
2 3	2 2	2 0	1 9	1 7	1 5	1 5	1 5	1 9	1 6	1 5	1 6	27
2 6	2 4	2 2	2 2	1 9	1 7	1 7	1 4	1 5	2 0	1 6	1 5	28
2 4	2 2	2 0	2 2	1 9	1 8	1 8	1 9	1 7	2 0	1 7	1 6	29
2 2	2 1	2 2	2 1	1 9	1 9	1 7	2 0	1 9	2 0	1 8	1 9	30
29	29	28	27	29	29	30	30	29	29	30	30	Count
2 4	2 3	2 2	2 2	1 9	1 7	1 7	1 6	1 7	1 7	1 6	1 5	Median
2 4	2 3	2 1	2 1	1 9	1 6	1 7	1 6	1 6	1 7	1 6	1 5	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 74

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								280	300	320	C	330
2								L	295	295	305	310
3							L	280	L	L	L	325
4								270	L	300	L	320
5								L	L	320	330	340
6								270	305	320	L	L
7								280	290	325	330 _{ir}	L
8							280	270	300	L	320	340
9								275	305	00	300	L
10								L	280	L	320	320
11							L	L	310	300	300	320
12							L	L	290	300	320	L
13							L	L	315	300	315	320
14							L	L	320	305	310	L
15							L	L	300	300	310	350
16								L	L	320	330	L
17								L	L	310	315	310
18								L	L	L	330	L
19								L	L	320	L	370
20								L	L	310	L	345
21								260	300	L	L	350
22							L	280	305	305	330	350
23								L	300	320	L	340
24								265	290	L	L	350
25								280	C	C	C	C
26								L	L	L	390	L
27								L	L	315	340	360
28								L	L	L	L	345
29								L	300	L	315	350
30								L	L	325	330	345 _H
Count								11	17	20	19	21
Median								275	300	310	330	340
Mean								275	300	310	330	340

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 74

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
330	L	310	290	L								1
325	320	305	L	L								2
L	315	L	300	A	A							3
325	330	L	L	L	L							4
335	340	300	L	L	L							5
350	320	305	L	L								6
330	330	320	L	L	L							7
320	310	310	310	L								8
340	330	L	L	L								9
L	L	315	L	L								10
310	L	325	310	L	L	L						11
L	335	L	L	L	L							12
315	315	L	L	L	L							13
320	320	L	L	L	L							14
340	320	320	300	L	L							15
L	L	L	L	L	L							16
340	335	L	L	L	L							17
340	300	L	L	L	L							18
355	L	L	L	L	L							19
340	345	345	L	L	L							20
345	L	L	L	L	L							21
355	350	345	L	L								22
360	L	340	320	L								23
360	I	360	L	L								24
C	C	C	C	C	C							25
425	380	L	L	L								26
380	370	L	340	L	280							27
365	335	L	L	L								28
365	350	L	L	L								29
320	325	330	L	L								30
25	21	14	7									Count
340	330	320	310									Median
345	330	325	310		1							Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic $h'F_2$

TABLE 74—Contd.

Latitude 10° N

Unit Km

Ionospheric Data

Longitude 77° 5' E

Month November, 1963.

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	L	L	G	C	335
2							260	285	285	295	305	315
3							260	L	L	305	L	325
4							265	L	295	L	L	320
5							260	L	320	L	330	325
6							260	300	300	320	L	360
7							260	280	305	305 _{II}	L	340
8							270	295	305	300	L	325 _{II}
9							270	290	300	305	L	335
10							L	280	C	305	L	320
11							L	L	300	305	340	320
12							L	L	305	300	320	320
13							L	L	295	310	320	320
14							L	L	300	315	350	340
15							L	280	290	L	320	345
16							L	L	L	320	L	340
17							L	L	295	310	320	340
18								L	L	L	330	L
19							L	L	320	L	345	360
20								L	320	L	340	325
21								280	L	325	360	L
22							270	300	315	320	325	345
23							L	L	300	L	340	360
24							265	295	300	315	350	370
25							270	280	C	C	C	C
26							L	L	L	350	365	430
27							L	L	330	L	360	380
28							L	L	325	320	360	360
29							L	L	300	340	340	360
30							L	L	300	335	340	340
Count							11	11	22	20	20	27
Median							265	285	300	310	340	340
Mean							265	290	305	315	340	345

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic $h'F_2$

TABLE 74—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E.

Month November, 1963.

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
330	320	295	L	L								1
315	320	C	L	265								2
330	L	A	300	A								3
L	320	300	L	L								4
335	320	315	L	L								5
340	300	L	L	L								6
320	330	L	L	L								7
320	300	310	310	L								8
320	305	L	L	L								9
L	310	L	L	280								10
L	320	L	L	L	L							11
355	320	L	L	L	L							12
320	310	315	L	L	L							13
340	320	L	L	L	L							14
320	320	300	L	L	L							15
L	L	L	L	L								16
330	L	315	L	L								17
350	LH	LH	L	L								18
L	L	335	L	L								19
L	L	L	L	L								20
325	L	340	C	L								21
360	355	320	L	L								22
360	355	L	L	280								23
360	L	L	L	L								24
C	C	C	C	C	C							25
415	385	L	L	L								26
400	360	360	L	280								27
350	340	L	L	L								28
365	L	L	L	L								29
360	315	L	LH	L								30
23	20	11	2	4								Count
340	320	315										Median
345	325	320										Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F
Unit Km
Month November, 1963

TABLE 75
Ionospheric Data
75° Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	225	225	225	225	235	245	245	230	220	200	C	200
2	220	220	225	230	265	E	240	225	230	195H	190H	195H
3	245	230	240	220	230	240	260	230	205	200	200	200
4	240	230	240	240	240	R	240	230	210	215	200	195
5	270r	260r	F	F	270r	230	245	200H	200H	195	190	185
6	235	235	230	240	R	E	245	230	210	200	200	190
7	240	225	215	240	240	240	250	230H	215H	205	190	195H
8	240	235	230	290	300	270	260	230	200H	215	195H	200H
9	240	245	260	230	255	250	260	240	220H	205H	195H	200H
10	220	225	225	230	240	240	260	230	230	200	215	215
11	220	215	220	220	225	260	255	230	220	215	210	200
12	220	220	220	220	215	240	255	230	200	205	200	200
13	235	215	225	245	E	E	250	220	200	200	200	200
14	230	240	220	235	E	C	255	220	205	200	200	200
15	220	220	220	240	260	E	240	235	215	200	190	200
16	230	230	210	215	R	R	250	220	220	220	210	200
17	220	215	200	220	240	E	240	235	220	210	210	205
18	235	240	230	C	C	C	C	240	205	210	200	200
19	225	240	240	250	250	260	255	230	220	205	195	200
20	235	230	220	220	220	R	260	230	200	200	195	185
21	220	220	220	240	245	S	240	230	190H	200H	195H	195
22	230	225	225	230	230	235	245	230	220	205	195	190
23	235	230	240	270	290	250	260	235	200H	200	200	200
24	225	220	235	240	240	245	260	230	215	200	190	190
25	240r	245	245	F	260	260	265	240	C	C	C	C
26	240	270	280	R	R	280	265	230	210	195H	190H	200
27	230	230	240	225	255	280	260	240	215	210	200	190
28	230	230	210	240	255	290	265	200	205	200	200	195
29	250	250	F	215	220	245	260	230	215	200	200	200
30	230	225	220	230	245	260	260	220	210	200	200	200
Count	30	30	28	26	26	24	29	30	29	29	28	29
Median	230	230	225	230	245	260	255	230	210	200	200	200
Mean	230	230	230	235	245	255	255	230	210	205	200	195

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F
 Unit Km
 Month November, 1963.

TABLE 75
 Ionospheric Data
 75° Mean Time

Latitude 10 2° N
 Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
200	200	215	205	210	240	260	285	260	255	245	230	1
190 _H	205	200 _H	215	230	260	270	295	280	240	260	255	2
200	200	200	A	A	A	280	270	260	230	220	230	3
185	200	215	215	200	250	270	320	300 _F	F	F	280	4
200	190 _H	210	215	240	240	260	290	280	260	230	235	5
190	185 _H	190	215	220	250	290	390	F	F	280 _F	240 _r	6
190 _H	200	220	220	230	260	260	270	240	220	240	240	7
215	215	220	220	225	260	280	265	245	230	245	255	8
210	215	205	220	225	260	280	F	I	F	260	235	9
200	200	200	200	220	250	260	265	260	260	275	265	10
200	180	200	220	215	245	255	245	240	230	240	220	11
200	200	200	200	240	240	260	280	260	240	240	240	12
200	205	190	200	220	250	260	C	240	225	225	225	13
200	200	200	200	215	260	260	265	C	240	220	220	14
200	190	205	200	220	245	260	280	300	260	240	240	15
190	200	200	210	235	260	280	300	280	230	230	225	16
200	200	205	200	220	245	280	300	310	300	240	260	17
210	200	195	200	210	250	260	260	235	220	220	220	18
200	200	210	200	200	260	300	340	320	280	245	240	19
220	200	210	200	225	260	285	300	260 _F	240	230	230	20
195	190	180	200	200	240	280	380	360 _F	305 _r	240	240	21
185 _H	200	215	205	200	250	285	350	340	285	250	240	22
195	200 _H	200	205	220	260	280	300 _{UR}	270 _F	240	230	230	23
190	195	185	200	220	260	290	F	F	F	F	F	24
C	C	C	C	C	C	300	300	280	250	C	230	25
195 _H	200	200	200	230	250	300	330	320	F	F	240	26
195	195	200 _H	190 _H	230	240	260	280	280	265	250	240	27
180 _H	200 _H	200	205	230	245	270	320	315	280 _F	270 _F	260	28
200	200 _H	200	200	230	250	260	240	250	235	240	245	29
210	205	200	200	210	245	265	240	230	230	240	240	30
29	2	29	28	28	28	30	27	26	25	26	29	Count
200	200	200	200	220	250	270	290	275	240	240	240	Median
200	200	200	205	220	250	275	295	280	250	240	240	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic: h'F

TABLE 75—Cont'd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month November, 1963.

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	230	220	220	230	240	260	240	220	200	C	C	200
2	220	220	220	240	250	260	240	210 _H	200 _H	190 _{II}	190 _H	195
3	225	230	230	225	240	270	240	225	200	195	200	200 _{II}
4	235	230	240	230	E	265	230	220	210	200	195	195
5	270	F	F	F	240	240	240	220	200	190 _{II}	190 _{II}	180 _H
6	235	230	240	240	E	260	230	220	200	200	200	190
7	225	215	230	230	240	250	240	215	200 _{II}	200	200	190
8	230	235	260	295	290	280	240	200 _H	195 _{II}	205 _{II}	185 _{II}	220
9	240	240	235	240	255	280	240	225	215	200	200	195
10	220	220	225	240	240	250	240	230	C	210	200	215
11	220	210	225	215	245	280	240	210	220	210	205	200
12	220	210	220	225	220	260	240	200	215	200	200	195
13	220	220	240	240	E	280	240	200	205	200	205	200
14	235	225	240	E	E	280	240	210	205	205	200	190
15	220	220	235	240	E	280	240	220	205	200	C	200
16	225	220	210	240	255	270	240	200	210	200	205	195
17	220	210	225	230	R	260	235	220	220	215	215	200
18	240	230	C	C	C	C	C	225	220	200	200	205
19	245	230	235	240	260	270	240	230	210	200	200	200
20	230	225	220	220	230	270	240	220	210	200	180	210
21	225	215	225	225	240	275	235	210 _{II}	200 _{II}	195	190	200
22	230	230	220	230	230	260	240	220	220	200	185 _H	195
23	230	230	260	280	265	250	240	210	215	200	195	190
24	225	230	230	240	250	250	240	220	205	195	195	195
25	240	240	F	F	260	275	250	230	C	C	C	C
26	250	270	275	E	R	300	245	220	200	200	190	190
27	240	235	220	240	280	280	240	220	210	200	200 _H	190
28	230	225	220	240	280	300	245	215	200	200	200	195
29	240 _F	240	220	215	245	260	240	220	210	200	200	200
30	225	230	220	240	240	265	235	210	200	200	200	195 _{II}
Count	30	29	27	27	27	29	29	30	28	28	27	29
Median	230	230	225	240	250	270	240	220	205	200	200	195
Mean	230	225	230	235	250	270	240	215	205	200	195	195

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic: h'f
Unit Km.
Month: November, 1963

TABLE 75—Contd
Ionospheric Data
75°E Mean Time

Latitude 10.2° N.
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
200	200	210	210	230	230	265	280	260	245	240	220	1
195 _{ut}	200	C	220	A	260	280	295	260	250	260	260	2
195	200	A	A	A	260	280	280	245	220	225	235	3
195	200	20 _s	220	240	260	305	300 _F	F	F	280	280	4
200	190 _{ut}	200	21 _s	240	260	280	280	275	235	230	230	5
190	190 _{ut}	200 _{ut}	210	240	260	340	F	F	F	270 _F	245	6
200	220	21 _s	22 _s	240	260	270	255	225	240	230	240	7
220	220	220	22 _s	240	270	280	245	230	240	260	240	8
215	210	20 _s	220	245	265	300 _t	F	F	265	255	220	9
200	200	200	21 _s	240	255	270	260	260	265	280	240	10
180	180	20 _s	220	240	250	260	240	240	235	225	220	11
200	200	20 _s	22 _s	245	255	275	275	260	235	240	225	12
200	200	200	210	240	260	260	260	240	220	220	220	13
205	200	20 _s	210	245	255	280	270	C	225	220	220	14
200	200	200	210	255	255	280	280	270	240	240	235	15
200	200	200	22 _s	240	260	300	300	265	230	230	225	16
200	A	200	200	230	250	270	320	320	285	240	245	17
200	200	190	210	240	260	270	240	225	220	220	220	18
200	200	210	210	240	270	320	330	300	260	240	240	19
220	200	21 _s	200	270	260	280	290	260	235	240	220	20
190	180	200	C	22 _s	260	340	380 _F	330 _{UF}	270	240	240	21
190	19 _s	20 _s	200	215	265	320	360	320	270	240	240	22
195	200	195 _{ut}	200	240	260	300	290	270 _{UF}	240	235	220	23
200	190	200	200	230	270	F	F	F	F	F	240 _F	24
C	C	C	C	C	C	305	300	260	240	240	240	25
210	200	200	20 _s	240	270	320	330	320 _F	F	240 _F	230	26
200	195	190 _{ut}	200 _{ut}	240	260	270	280	270	250	240	235	27
215 _{ut}	200	200	220	240	250	300	320	320 _F	F	F	260	28
195	180 _{ut}	195 _{ut}	215	240	250	260	245	245	230	240	240	29
215	200	200 _{ut}	200 _{ut}	220	260	260	225	230	240	230	245	30
29	28	27	27	27	29	29	27	25	25	28	30	Count
200	200	200	210	240	260	280	280	260	240	240	240	Median
200	200	200	210	240	260	290	285	270	245	240	235	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E
Unit Km
Month November, 1963

TABLE 76
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								A	A	A	C	A
2								120	115	A	A	A
3							125	A	A	A	A	A
4								A	A	A	A	A
5								A	A	A	A	A
6								110	A	A	A	A
7							125	120	A	A	A	A
8								115	A	110 _{EX}	A	A
9								115	A	A	A	A
10							120	A	A	A	A	A
11							120	A	A	A	A	A
12								120	A	A	A	A
13								A	A	A	A	A
14							A	A	A	A	A	A
15								A	A	A	A	A
16								A	A	A	A	A
17							A	120	A	A	A	A
18								A	A	A	A	A
19							A	A	A	A	A	A
20								A	A	A	A	A
21								115	110	A	A	110
22							140	120	A	A	A	A
23								A	A	A	A	A
24								115	A	A	A	A
25								115	C	C	C	C
26								A	A	A	A	A
27								A	A	A	A	A
28								A	A	A	A	A
29							120	A	A	A	A	A
30								A	A	A	A	A
Count							6	11	2	1		1
Median							120	115				
Mean							125	115		...		

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 76
Ionospheric Data

Latitude 10 2° N

Unit Km.

Longitude 77 5° E

Month November, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
A	A	105	110	A	A							2
A	A	A	A	A	A							3
A	A	A	105	A								4
A	A	A	A	A	A							5
A	A	A	A	A								6
A	A	A	A	A	A							7
A	A	A	A	110								8
A	A	A	A	A								9
A	A	A	A	A	A							10
A	A	A	A	A								11
A	A	A	A	A	A							12
A	A	A	A	140								13
A	A	A	A	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
A	A	A	A	A	A							17
A	A	A	A	A								18
A	A	A	A	A	A							19
A	A	A	A	A	A							20
A	A	A	A	120	120							21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A								24
C	C	C	C	C	C							25
A	A	A	A	A								26
A	A	A	A	A	120							27
A	A	A	A	A								28
A	A	A	A	A								29
A	A	A	A	A								30
		1	2	3	2							Count
												Median
												Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E
Unit Km
Month November, 1963

TABLE 76--Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N.
Longitude 77 5° E.

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							115	A	A	C	C	A
2							120	A	A	A	A	A
3							A	A	A	A	A	A
4							120	A	A	A	A	A
5							120	A	A	A	A	A
6							115	A	A	A	A	A
7							120	115	A	A	A	A
8							115	115	A	A	A	A
9							120	A	A	A	A	A
10							120	A	C	A	A	A
11							A	A	A	A	A	A
12							120	A	A	A	A	A
13							A	A	A	A	A	A
14							A	A	A	A	A	A
15							120	A	A	A	A	A
16							A	A	A	A	A	A
17							A	120	A	A	A	A
18							A	A	A	A	A	A
19							A	A	A	A	A	A
20							A	A	A	A	A	A
21							120	115	110	A	A	A
22							120	120	A	A	A	A
23							A	A	A	A	A	A
24							115	A	A	A	A	A
25							115	115	C	C	C	C
26							A	A	A	A	A	A
27							A	A	A	A	A	A
28							A	A	A	A	A	A
29							A	A	A	A	A	A
30							A	A	A	A	A	A
Count							15	6	1			
Median							120	115				
Mean							120	115				

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 76—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data¹

Longitude 77 5° E.

Month November, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A								1
A	A	C	110	A								2
A	A	A	A	A								3
A	A	105	105	A								4
A	A	A	A	A								5
A	A	A	A	A								6
A	A	A	A	A								7
115	A	A	A	A								8
A	A	A	A	A								9
A	A	A	A	A								10
A	A	A	A	A								11
A	A	A	A	A	A							12
A	A	A	A	A								13
A	A	A	A	A								14
A	A	A	A	A								15
A	A	A	A	A	A							16
A	A	A	A	A								17
A	A	A	A	A								18
A	A	A	A	A								19
A	A	A	A	A								20
A	A	A	C	120								21
A	A	A	A	A								22
A	A	A	A	A								23
A	A	A	A	A								24
C	C	C	C	C								25
A	A	A	A	A								26
A	A	A	A	120								27
A	A	A	A	A								28
A	A	A	A	A								29
A	A	A	A	A								30
1		1	2	2								Count
												Median
												Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic h'Es

TABLE 77

Latitude 10.2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month November, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								100	100	100	G	100
2								G	100	100	100	100
3							G	100	100	100	100	100
4								100	100	100	100	100
5	110	110	110					100	100	100	100	100
6								G	100	100	100	100
7							G	G	100	100	100	100
8								G	100	G	100	100
9								115	100	100	100	100
10							G	100	100	100	100	100
11							G	100	100	100	100	100
12								G	100	100	100	100
13	100							100	100	100	100	100
14								100	100	100	100	100
15								110	100	100	100	100
16								100	100	100	100	100
17								100	R	100	100	100
18									100	100	100	100
19								100	100	100	100	100
20									120	100	100	100
21									105	100	100	100
22								G	G	100	100	100
23			120						100	100	100	100
24			120		115				100	100	100	100
25									G	C	C	C
26									100	100	100	100
27									100	100	100	100
28									100	100	100	100
29							G		100	100	100	100
30									100	100	100	100
Count	2	1	3		1		4	22	29	28	28	29
Median								100	100	100	100	100
Mean								100	100	100	100	100

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds.

Characteristic h'Es
Unit: Km
Month, November, 1963

TABLE 77
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	100								1
100	100	100	100	100	100	120	120			120		2
100	100	100	100	120	115			120				3
100	100	100	100	100	115			140	125	130	115	4
100	100	100	100	100	100							5
100	100	100	100	110	115							6
100	100	100	100	100	100							7
100	100	100	100	100			110			105	105	8
100	100	100	100	100	100							9
100	100	100	100	100	100							10
100	100	100	100	100								11
100	100	100	100	100	100						110	12
100	100	100	100	G								13
100	100	100	100	100								14
100	100	100	100	100					110	110		15
100	100	100	100	120	100					115		16
100	100	100	100	100	100	120						17
100	100	100	110	100								18
100	100	100	100	100	120			120				19
100	100	100	100	120	120	120	125				120	20
100	100	100	100	110	G				120			21
100	100	100	100	100							120	22
100	100	100	100	100					115	120		23
100	100	100	100	100								24
G	G	G	G	G	G							25
100	100	100	100	100	160						120	26
100	100	100	100	100	G		110	105				27
100	100	100	100	100								28
100	100	100	100	100		100				115		29
100	100	100	100	100			110			115		30
29	29	29	29	27	13	4	5	4	4	8	6	Count
100	100	100	100	100	100		110			115	120	Median
100	100	100	100	100	110		115			115	115	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'Es

TABLE 77—Contd

Latitude 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E.

Month November, 1963.

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							G	100	100	C	C	100
2							100	100	100	100	100	100
3							100	100	100	100	100	100
4							G	100	100	100	100	100
5	110	110					G	100	100	100	100	100
6							G	100	100	100	100	
7							G	G	100	100	100	100
8							G	G	100	100	100	100
9							G	100	100	100	100	100
10							G	100	C	100	100	100
11							100	100	100	100	100	100
12							G	100	100	100	100	100
13							100	100	100	100	100	100
14							100	100	100	100	100	100
15							G	100	100	100	100	100
16							100	100	100	100	100	100
17							100	100	100	100	100	100
18								100	100	100	100	100
19							100	100	100	100	100	100
20							120	100	100	100	100	100
21							G	105	100	100	100	100
22							G	G	100	100	100	100
23		115		115	105		100	100	100	100	100	100
24							G	100	100	100	100	100
25							G	G	C	C	C	C
26							100	100	100	100	100	100
27							100	100	100	100	100	100
28							100	100	100	100	100	100
29						120	G	100	100	100	100	100
30							100	100	100	100	100	100
Count	1	2		1	1	1	14	26	28	28	28	29
Median							100	100	100	100	100	100
Mean							100	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristics of h'Es
 Unit Km.
 Month - November, 1966.

TABLE 77—Cont'd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
100	100	100	100	100								1
100	100	100	100	100	120	120	120		130			2
100	100	100	100	120	110							3
100	100	100	100	100	115			125	130	115	115	4
100	100	100	100	100	100							5
100	100	100	100	100								6
100	100	100	100	100								7
100	100	100	100	100			110			105		8
100	100	100	100	100								9
100	100	100	100	100	100							10
100	100	100	100	100								11
100	100	100	100	100	100						100	12
100	100	100	100	100				100				13
100	100	100	100	100								14
100	100	100	100	130					110			15
100	100	100	100	100	100							16
100	100	100	100	100		130						17
100	100	100	100	100								18
100	100	100	100	110			120					19
100	100	100	100	120	125	130				120		20
100	100	100	100	105					120			21
100	100	100	100	100								22
100	100	100	100	100								23
100	100	100	100	100								24
C	C	C	C	C	C							25
100	100	100	100	100						120		26
100	100	100	100	C								27
100	100	100	100	100								28
100	100	100	100	100		100						29
100	100	100	100	100		115			115			30
29	29	29	29	26	8	5	3	2	5	4	2	Count
100	100	100	100	100	105	120	.		120			Median
100	100	100	100	105	110	120			120			Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic (M 3000) F2

TABLE 78

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month November, 1963.

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	3 40	3 50	3 55	3 50	3 40	3 40	3 25	3 15s	2 95	2 60	C	2 60
2	3 40	3 50	3 45 _{US}	3 50	3 35	E	3 40s	3 40s	3 15	3 00	2 65	2 60
3	3 30 _{US}	3 30	3 35	3 45	3 40	R	3 35	3 15	2 75	2 50 _{II}	2 70	2 75
4	3 35	3 50	3 40 _{UR}	3 50	R	R	3 30s	3 30	2 90	2 60 _{II}	2 70	2 75
5	F	F	F	F	3 00	3 60 _R	3 35	3 30	2 85	2 55 _{II}	2 70	2 70
6	3 45	3 50	3 40	3 50	R	E	3 50	3 35	3 10	2 60	2 55	2 40
7	3 40s	3 45s	F	3 45	3 35	3 30	3 30	3 30	3 20	3 05	2 70 _{II}	2 10 _{II}
8	3 35	3 40	3 40	3 20 _{UR}	R	3 20	3 20	3 20	3 05	2 90	2 85	2 50
9	3 20	3 30	3 15	3 25	3 40	3 30	3 00	3 15	3 00	2 75	2 60	2 55
10	3 25	3 30 _{US}	3 35	3 30	3 35	3 40	3 05	3 00	2 90	2 80	2 65	2 60
11	3 30	3 40	3 40	3 50	R	3 45 _R	3 10	3 10	2 70	2 70	2 80	2 60
12	3 40	3 50	3 30	3 50	3 50	3 40	3 30	3 30	3 00	2 50	2 70	2 65
13	3 40	3 50	3 55	3 45	R	E	3 30	3 30	3 00	2 70	2 70	2 75
14	3 50	3 50	3 55	3 45 _R	E	C	3 15	3 00	2 80	2 80	2 70	2 65
15	3 40	3 50	3 50	3 65	3 55	E	3 45	3 10	3 00	2 45	2 50	2 70
16	3 40	3 50	3 60	3 60	R	R	3 25	3 20	3 00	2 65	2 65	2 65
17	3 50	3 55	3 65	3 70	3 70	E	3 50	3 50	3 35	3 15	2 90	2 80
18	F _s	F	F	C	C	C	C	3 10	2 85	2 65	2 70	2 70
19	3 55	3 40	3 50	3 35	3 50 _R	R	3 30	3 20	2 75	2 70	2 60	2 65
20	3 35 _{FS}	3 35	3 60 _{US}	3 60	3 70 _V	R	3 30	3 10	2 70	2 80	2 65	2 70
21	3 35	3 40	3 50	3 30	3 20 _s	3 50	3 20	3 30 _s	3 00	2 65	2 55	2 55
22	3 35 _{UR}	3 40	3 45	3 35	3 30	3 50	3 35 _s	3 35	3 20	3 00	2 70	2 70
23	F	3 20 _{US}	3 35	3 25	3 20	3 40	3 15	2 90	2 85 _s	2 80	2 60	2 60
24	3 30 _s	3 40	3 40	3 40 _R	3 30	3 45	3 35	3 30	3 05	2 85	2 60	2 65
25	F	3 30 _F	3 25	F	3 40	3 35	3 30	3 25	C	C	C	C
26	3 30	3 30 _R	3 25	R	R	R	3 00 _{US}	2 90	2 70	2 55	2 60	2 55
27	3 40	3 40	3 40	3 50	3 35	3 35 _R	3 25	3 00	2 80	2 80	2 70	2 60
28	F	3 40	3 45	3 45	3 35	3 15	3 10	2 95	2 75	2 70	2 75 _s	2 75
29	F	F	F	3 40	3 50	3 40	3 25	3 05	3 05	2 90	2 65	2 70
30	3 30	3 40	3 45	3 50	3 55 _{UR}	3 15	3 20	3 10	2 80	2 85	2 85	2 85
Count	24	27	26	26	21	17	29	30	29	29	28	29
Median	3 40	3 40	3 40	3 45	3 40	3 40	3 30	3 20	2 95	2 70	2 70	2 65
Mean	3 35	3 40	3 45	3 45	3 40	3 35	3 25	3 20	2 95	2 75	2 70	2 65

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000)F2
Unit
Month November, 1963

TABLE 78
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 75	2 65	2 70	2 65	2 75	2 85	2 80	2 75	2 75	3 00	3 10s	3 45	1
2 65	2 65	2 65	2 70	2 75	2 85	2 75	2 65	2 70	3 05	3 10	3 25	2
2 60	2 65	2 60	2 70	2 70	2 90 ^{us}	2 80	2 80	2 90	3 30	3 35	3 35	3
2 75	2 65	2 75	2 70	2 75	2 70	2 65	2 55 ^r	2 75 ^r	F	F	F	4
2 70	2 70	2 70	2 80	2 85	3 05	3 05	2 95	2 95	3 05	3 30	3 50	5
2 55	2 65	2 65	2 65	2 70	2 75	2 60	F	F	F	F	F	6
2 70	2 75	2 75	2 65	2 60	2 35 st	2 55	2 60	2 90	3 20	3 35	3 40	7
2 50	2 75	2 80	2 85	2 80	S	2 55	2 50	2 65	2 85	3 00 ^{us}	3 15	8
2 65	2 60	2 70	2 60	2 60	C	2 55	F	F	F	F	3 20	9
2 50	2 45	2 50	2 55	2 60	2 80	2 90	2 90	2 90	3 00	3 00	3 10	10
2 70	2 50	2 45	2 60	2 80	2 80	2 90	2 95	3 10	3 20	3 30 ^{us}	3 45 ^{us}	11
2 60	2 65	2 60	2 55	2 70	2 95	2 90	2 80	2 90	3 10	3 30	3 45 ^{us}	12
2 70	2 70	2 70	2 70	2 75	2 85 ^{us}	2 80	2 80	3 00	3 25	3 45	3 60	13
2 70	2 60	2 60	2 60	2 60	2 70	2 70	2 70	C	3 10	3 40	3 50	14
2 60	2 70	2 70	2 75	2 80	2 80 ^{us}	2 80	2 70	2 80 ^{ur}	F _s	F _s	3 35	15
2 60	2 60	2 65	2 65	2 70	2 70	2 80	2 70	2 90	F _s	3 40	3 10 ^{us}	16
2 70	2 70	2 60	2 55 ^{us}	2 70	2 75	2 80	2 75	2 70 ^r	F	F	F _s	17
2 60	2 60	2 70	2 70	2 70	2 80	2 70	2 80	3 15 _i	3 40	3 50	3 55	18
2 70	2 70	2 70	2 75	2 75	2 70	2 60	2 50	F	F	F	F	19
2 70	2 75	2 60	2 50	2 60	2 85	2 85	2 80 ^{us}	2 90 ^r	3 20	3 40	3 35	20
2 55	2 60	2 55	2 60	2 70	2 65	2 70	F	F	F	F	F	21
2 60	2 65	2 60	2 55	2 60	2 70	2 65	2 60 ^{us}	F	F	F	F _s	22
2 60	2 55	2 55	2 60	2 75	2 75	2 65 ^s	2 70 ^s	2 80	3 00 ^s	3 30	3 40	23
2 50	2 50	2 40	2 50	2 55	2 75	2 75	F	F	F	F	F	24
C	C	C	C	C	C	2 65	2 55	2 65	2 90	C	3 50	25
2 40	2 45	2 50	2 50	2 55	2 70	2 65	2 60	F _s	F	F	3 40	26
2 50 ^{js}	2 55	2 50	2 65	2 75	2 80	2 70	2 85	2 95	3 05	3 15 _s	3 20 ^{us}	27
2 60	2 60	2 60	2 45	2 50	2 85 _s	2 85	2 80 _s	F	F	F	F	28
2 65	2 50	2 50	2 55	2 70	2 85	2 90 _s	2 90	2 90	3 05	3 20	3 25 ^{us}	29
2 70	2 65	2 60	2 45	2 60	2 90	2 85	3 00	3 15	3 20 _s	3 20	3 40	30
29	29	29	29	29	27	30	26	21	18	18	22	Count
2 60	2 65	2 60	2 60	2 70	2 80	2 75	2 75	2 90	3 10	3 30	3 40	Median
2 60	2 60	2 60	2 60	2 70	2 80	2 75	2 75	2 90	3 10	3 25	3 35	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic (M3000)F2

TABLE 78—Contd

Latitude 10.2° N

Unit

Ionospheric Data

Longitude 77.5° E

Month November, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	3 45	3 50	3 50	3 50	3 45	3 15	3 25	3 05	2 75	C	C	2 65
2	3 50	3 50	3 35	3 45	3 40	3 10	3 40	3 35	3 15	2 80	2 65	2 65
3	3 35	3 30	3 40	3 40	3 50	3 15	3 25	3 00	2 55	2 60	2 70	2 60
4	3 40	3 35	3 50	R	E	3 10	3 35	3 15	2 70	2 65	2 75	2 70
5	F	F	F	F	3 35	3 15	3 35	3 15	2 60	2 60H	2 70	2 65
6	3 40	3 50	3 40	3 50R	E	3 45	3 40	3 20	2 85	2 55	2 50	2 50
7	3 40s	3 50	3 50F	3 40	3 35	3 10	2 35s	3 30	3 20	2 85H	2 40H	2 60
8	3 35	3 45	3 25	3 30UR	3 15R	3 05	3 20	3 15	3 00	2 85	2 65	2 50
9	3 20	3 15	3 25	3 40	3 40V	3 05	3 15s	3 15	2 90	2 60	2 50	2 60
10	3 20	3 35US	3 30	3 35	3 30	3 00	3 10	2 90	C	2 75	2 50	2 55
11	3 40	3 50	3 40	3 50	3 45	2 85	3 30	2 95	2 85	2 75	2 70	2 70
12	3 40	3 40	3 45	3 50	3 50	3 20	3 40	3 10	2 80	2 50	2 65	2 70
13	3 30	3 50	3 60	3 50R	R	2 90	3 20	3 10	2 80	2 70	2 75	2 80
14	3 40	3 60	3 50	E	E	2 85	3 20	2 90	2 75	2 70	2 70	2 70
15	3 45	3 40	3 60	3 60	E	3 00	3 50	3 20	2 80	2 40	2 60	2 60
16	3 40	3 60	3 65	3 60R	3 50	3 00	3 30	3 10	2 80	2 60	2 60	2 75
17	3 55	3 65	3 65	3 65	R	3 10	3 50US	3 45	3 30	3 05	2 75	2 75
18	S	FS	C	C	C	C	C	2 95	2 80	2 65	2 65	2 60
19	3 35	3 60	3 45	3 45	3 50	3 15	3 30	3 00	2 65	2 60	2 60	2 65
20	3 40s	3 40s	3 55s	3 50V	3 70R	3 00	3 30	2 85	2 80	2 70	2 70	2 70
21	3 40US	3 50	3 35	3 40s	3 25J	3 05	3 30	3 15	2 80	2 65	2 55	2 50
22	3 30	3 45	3 40	3 35	3 30	3 10	3 35s	3 30	3 10	2 85	2 65	2 55
23	F	3 30s	3 30	3 15	3 25	3 15	3 15s	2 80	2 80	2 65	2 60	2 55
24	3 35s	3 35	3 30	3 50	3 35	3 10	3 35	3 10	2 95	2 65	2 60	2 55
25	3 20UF	3 25F	F	F	3 35s	3 15	3 25	3 20	C	C	C	C
26	3 30	3 35	3 30R	E	R	2 95	2 95	2 80	2 65	2 60	2 65	2 50
27	3 35	3 35	3 40	3 35	3 45R	3 20	3 10	2 85	2 85	2 65	2 60	2 50
28	3 30	3 40	3 50	3 40	3 30	3 15	3 00	2 95	2 70	2 75	2 70	2 65
29	F	F	3 40	3 50	3 50F	3 40	3 20	3 05	2 95	2 80	2 65	2 70
30	3 35	3 40	3 50	3 50	3 40	3 15	3 20	2 90	2 85	2 80	2 80	2 75
Count	26	27	27	24	22	29	29	30	28	28	28	29
Median	3 40	3 40	3 40	3 50	3 40	3 10	3 30	3 10	2 80	2 65	2 65	2 65
Mean	3 35	3 45	3 45	3 45	3 40	3 10	3 25	3 05	2 85	2 70	2 65	2 65

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000)F2

Unit

Month November, 1963

TABLE 78—Contd

Ionospheric Data

75°E Mean Time

Latitude 10° 2' N

Longitude 77° 5' E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2.65	2.70	2.70	2.65	2.80	2.80	2.75	2.75	2.85	3.05s	3.10	3.35	1
2.65	2.60	2.60	2.60	2.75	2.75s	2.65	2.65	2.80	3.00us	3.10	3.15us	2
2.75	2.65	2.60	2.70	2.75	2.85	2.85	2.85	3.05	3.25	3.35	3.40	3
2.70	2.70	2.70	2.75	2.75	2.70	2.60	2.70us	F	F	2.90us	F	4
2.65	2.75	2.70	2.80	2.90	3.00	3.00	2.95	3.00	3.25	3.35	3.45	5
2.55	2.65	2.70	2.70	2.70	2.70	2.60s	F	F	F	F	F	6
2.70	2.75	2.70	2.65	2.50	2.45	2.50	2.80	3.10	3.25	3.45us	3.30	7
2.60	2.80	2.80	2.85	2.80	2.70	2.55	2.60	2.75	3.00	3.10us	3.20	8
2.55	2.60	2.65	2.60	2.60	2.60	F	F	F	2.95us	2.95us	3.15us	9
2.50	2.50	2.55	2.60	2.75	2.80	2.90	2.85	2.95	3.00	3.05	3.15	10
2.60	2.50	2.55	2.70	2.80	2.80	2.90	3.00	3.20	3.25	3.40s	3.40	11
2.55	2.55	2.55	2.65	2.80	2.90	2.90	2.90	2.95	3.20	3.30	3.50	12
2.70	2.70	2.70	2.70	2.75	2.80	2.75	2.90	3.20	3.40	3.50	3.50	13
2.60	2.65	2.60	2.60	2.65	2.70	2.70	2.75	C	3.30	3.50	3.45	14
2.70	2.70	2.70	2.75	2.80	2.75	2.75	2.70	FS	FS	3.30	3.45	15
2.65	2.60	2.65	2.65	2.70	2.80	2.75	2.80	3.10us	3.25us	3.40	3.35	16
2.80	2.65	2.65	2.60us	2.70	2.80	2.75	2.70	F	F	FS	FS	17
2.70	2.70	2.70	2.70	2.75us	2.70	2.70	2.90	3.30	3.40us	3.50	3.50	18
2.70	2.60	2.70	2.70	2.80	2.65	2.50	2.50r	F	F	F	F	19
2.75	2.70	2.60	3.00	2.90	2.95	2.80	2.90us	3.00	3.35	3.40	3.30	20
2.55	2.55	2.65	C	2.70	2.75	2.70us	F	F	F	F	F	21
2.60	2.65	2.55	2.55	2.60	2.65	2.55s	F	F	F	F	F	22
2.55	2.55	2.60	2.70	2.75	2.70	2.65s	2.75	2.90	3.10	3.20s	3.25	23
2.55	2.55	2.55	2.55	2.60	2.75s	2.55	F	F	F	F	F	24
C	C	C	C	C	C	2.55	2.55	2.75	3.00	3.30	3.35	25
2.40	2.45	2.50	2.50	2.60	2.70	2.60	2.60	FS	F	F	3.40	26
2.55	2.50	2.60	2.70	2.70	2.80	2.85s	2.90	3.00	3.05	3.20	F	27
2.60	2.65	2.50	2.40	2.75	2.85	2.75	2.70	F	F	F	F	28
2.60	2.50	2.50	2.60	2.75	2.85	2.85s	2.90	2.95	3.10us	3.25	3.30	29
2.60	2.65	2.50	2.45	2.65	2.90	2.90	3.00	3.20	3.25s	3.25s	3.35	30
29	29	28	28	29	29	29	25	18	20	22	21	Count
2.60	2.65	2.60	2.70	2.75	2.75	2.75	2.80	3.00	3.20	3.30	3.35	Median
2.60	2.60	2.60	2.65	2.70	2.75	2.70	2.80	3.00	3.15	3.25	3.35	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foF2
Unit Mc
Month December, 1963.

TABLE 79
Ionospheric Data
75° E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	4 0	4 9	4 7	3 7	2 5	R	3 3 ^{US}	5 7	6 6	7 1	7 5	8 1
2	5 1	4 6	4 6	3 0	2 5	1 7 ^R	3 7	6 0	6 9 ^{US}	7 6	7 6	7 4
3	5 6	5 3	S	4 6	3 4	2 4	3 9	6 6	8 0	8 0	7 9	7 8
4	6 0	5 9	5 9	5 3	F	F	F	5 7 ^s	6 8	7 6	7 7	8 1
5	6 1	5 1	4 2	2 3	E	R	3 8	6 1	7 0	6 8	6 8	7 3
6	5 6	C	C	C	C	C	C	C	C	C	C	8 8
7	C	4 2	3 7	2 9	2 4	F	3 8	5 2 ^{US}	7 8	8 0	7 4	7 3 ^{UC}
8	4 5	4 3	3 7	2 7	2 1	2 1 ^{UC}	S	6 0	7 2	7 7	8 5	8 8 ^{UC}
9	C	C	C	F	F	2 6 ^{US}	4 1 ^{US}	6 4	7 9	8 6	8 0	7 6
10	5 1	1 1	4 0	3 3	2 3	A	3 9	6 5	7 8	8 0	7 7	7 7
11	4 4	3 3	3 2	3 2	2 7	2 2 ^{US}	3 8	6 2 ^{JS}	7 2	7 6	7 2	7 2
12	F	4 1 ^r	4 0 ^{UF}	3 2	2 5	1 7 ^R	3 5	6 3	7 0	6 8	6 6	6 8
13	5 1	4 2	3 8 ^{US}	3 9	3 4	2 6	3 8	5 9 ^{US}	8 1	7 9	8 1	7 6 ^M
14	4 7	3 9	3 6	2 9	2 5	2 0 ^{UR}	3 3	6 0	7 3 ^{US}	7 3 ^{JS}	7 0	7 0
15	3 4	2 7	2 7	2 5	2 9	2 4	4 0 ^{US}	6 6	8 2	8 1	7 0	7 0
16	3 9	4 0	2 9	2 2 ^R	E	E	3 3 ^s	C	7 4	C	C	C
17	4 4	4 2	3 2	2 5	2 1 ^R	E	3 6	6 1	8 0	7 7	7 0	6 4
18	4 5	3 5	2 5	R	R	1 7	3 6	6 0	7 2 ^{US}	8 2	8 0 ^{II}	6 4
19	4 1	2 9	2 8	2 7	2 4	E	3 2	6 1 ^{US}	7 6	7 2 ^{II}	5 9	5 5
20	S	2 8	2 2	2 2	R	E	3 3	6 2	7 4	6 6 ^{UII}	6 0	5 5
21	3 8	3 4	3 0	2 7	2 7	2 1	3 3	6 2	7 2	8 6	8 4 ^{II}	7 4
22	2 8	2 6	E	1 9 ^R	E	E	3 1	C	C	C	C	6 3
23	R	E	E	E	E	E	3 0	5 8	7 0	7 4	7 0 ^{II}	6 5
24	S	S	3 3 ^s	3 0 ^{UR}	E	F	3 0 ^F	6 2	6 7	6 6	6 0	6 0
25	3 4	3 6	3 6 ^R	3 2 ^{US}	2 9 ^{US}	F	2 6	4 8	5 8	6 2 ^{US}	6 0 ^s	6 0
26	2 9	2 8	2 5	E	E	E	2 7	5 6	7 1	6 4	6 0	6 0
27	R	2 1	F	S	S	E	2 8	5 4	6 6	6 6	6 1	6 0
28	4 8	4 2	3 4	2 8	R	E	2 8	5 3	6 8	6 5	5 7	5 7
29	F	4 0	3 4	2 4	R	2 0 ^R	3 0	5 0 ^s	6 4	6 3	6 3	5 9
30	F	6 4	4 4	3 2	R	1 8	2 7	5 2 ^s	6 0 ^{US}	6 1	6 7	6 7
31	3 7	F	F	F	2 4	R	2 5	4 9	6 3	6 8	6 6 ^{II}	C
Count	22	27	26	26	22	22	28	28	29	28	28	27
Median	4 4	4 0	3 4	2 8	2 4	1 7	3 3	6 0	7 2	7 4	7 0	7 0
Mean	4 4	4 0	3 6	3 0	2 6	2 1	3 3	5 9	7 1	7 3	7 0	6 9

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF2

TABLE 79

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75° E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
8.3	8.2	8.0	7.5	7.4	7.0 _{US}	6.8	6.5	6.7	7.6	6.0 _{US}	5.1	1
7.7	7.6	8.1	8.4	8.0	8.4	8.4	7.9	7.7	7.6	6.7	6.4	2
8.1	7.8 _{HI}	7.6	7.8	8.5	7.6	7.8	7.3 _{US}	6.8	7.8 _S	7.5 _{US}	6.6	3
8.3	8.4	8.5	8.6	8.4	8.4	8.1	6.8	6.7	7.1 _S	6.7	6.1	4
7.5	7.9	8.8	8.9	9.3	9.6	9.0	C	6.1	C	6.0 _{US}	6.6 _F	5
8.6	8.6	8.3	8.4	9.1	9.3	8.9	8.0	7.3 _{US}	S	S	4.0	6
7.2	7.6	7.8	7.3	7.0	7.7 _{UC}	7.3 _S	6.7	6.2	6.4 _{US}	5.8 _S	5.3 _{UC}	7
8.7	9.1	9.9	9.5	9.0	8.4 _{UC}	6.8	S	6.2 _S	6.2	4.7	C	8
7.9	8.2	8.8	9.0	8.8	8.0	7.6	6.9 _S	7.1 _{US}	6.5	S	5.3 _{JP}	9
7.8	8.0	8.3	8.4	7.0	6.8	7.1 _{US}	6.5	6.2	6.1 _{US}	5.9	4.8	10
7.6	8.4	8.4	8.8	9.0	8.6	8.2	7.2 _{JS}	6.8	6.6	6.1	FS	11
7.0	7.0	7.4	8.0	8.4	8.5	8.2	7.3 _{JS}	7.1	6.4	5.3	5.2	12
7.7	7.8	8.2	8.2	9.0	9.1	8.2	7.6	7.0	7.0	6.5	5.2	13
7.8	8.1	8.7	8.9	8.8	8.5	8.3	8.8	8.1	8.0	5.8	4.5	14
7.6	7.8	7.8	8.2	8.0	8.2	7.4	6.6	7.4 _{JS}	6.3	4.0	3.8	15
C	C	C	C	C	7.2	6.6	6.1	5.6	F	5.0 _S	4.6	16
6.7	6.7	7.2	7.7	7.2	7.2 _{US}	7.1	5.7	5.6	6.0 _S	5.4	4.6	17
6.8	7.0	7.2 _S	8.0	8.0	8.4	7.6	7.2	7.3 _{US}	6.4 _{US}	6.0 _{US}	4.8	18
5.6	6.0	6.8	7.2	7.5	7.8	7.3	6.4	6.4	S	4.1	4.1	19
5.8	6.2	7.3	8.4	8.6	8.4	8.3	7.0	FS	F	F	4.1	20
6.9	7.2	6.2	7.6	7.6	7.3	6.8	6.4	6.3	5.7	4.8	3.6	21
6.2	6.9	6.0	7.8	7.8	8.0	7.4	6.7	6.4 _{US}	6.2	3.7	2.9	22
6.7	6.7	6.0	7.2	7.8	8.0	7.2	5.9	5.8	5.8	4.8	S	23
6.5	6.8	7.0	7.4	7.8	7.5 _{JS}	6.6	5.4	4.8	5.2	4.4	3.7	24
6.2	6.0	6.3	6.4	6.7	6.9	6.8	5.8	5.6	5.3 _{US}	4.5 _S	3.9	25
6.3	6.0	7.3	C	6.5	7.0	7.0	5.9	7.4	6.8	4.7	R	26
6.1	6.1	8.6	6.4	7.4	7.5	7.4	6.9	3.7	6.7	5.1	4.6 _F	27
6.1	6.6	7.6	6.8	7.0	7.1	7.0	6.3	1.5	F	F	F	28
6.4	6.8	7.3	8.0	8.4	8.1	7.5	7.0	6.5	F	F	F	29
6.8	7.0	6.8	7.0	7.7	8.4	7.6	7.0	6.9	7.0	6.2	5.8 _{US}	30
6.9	7.2	6.9	7.0	7.1	C	6.0	5.4	4.7	F	F	3.2 _F	31
30	30	30	29	30	30	31	29	29	23	25	25	Count
7.0	7.2	7.4	8.0	7.9	8.0	7.4	6.7	6.7	6.4	5.4	4.8	Median
7.1	7.3	7.6	7.9	8.0	8.0	7.5	6.7	6.6	6.6	5.4	4.8	Mean

Sweep 1.0 Mc to 25.0 Mc. in 27 seconds

Characteristic foF2

TABLE 79—Contd

Latitude 10.2° N

Unit Mc

Ionospheric Data

Longitude 77° 5' E

Month December, 1963

75° E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	4.3	4.8	4.1	2.8	2.0 _{UR}	1.9	4.8	6.4	7.0	7.5	7.6	8.3
2	5.1	4.6	3.6	2.5	2.2	2.1	5.6	6.7	7.2	7.3	7.6	7.7
3	5.2	5.5	5.1	4.1	2.9	2.3 _H	5.6	7.1	8.1	7.8	7.5	8.0
4	5.9	6.2	5.7	F	F	F	4.9	6.5	7.1	7.4	7.8	8.1
5	5.3	5.0	3.1	E	E	2.0 _H	5.2 _{US}	6.6	7.0	6.8	7.2	7.0
6	5.2	C	C	C	C	C	C	C	C	C	C	8.8
7	C	4.3 _s	3.6 _s	2.7	2.2 _H	F	4.6 _{US}	6.1	8.0 _s	7.7	7.6	7.1 _s
8	4.3	4.3	3.1	2.4	1.8	S	5.2	6.6	7.2	8.4	8.8	8.9
9	C	C	C	F	F	2.5	5.4 _s	7.1 _{US}	8.4	8.4	7.7	7.5
10	4.6 _s	4.1	3.5	2.5	A	A	5.4	7.2 _{JS}	8.3	7.8	7.6	7.7
11	3.7	3.2	3.5	3.0	2.5	2.0	5.4	6.9	7.9	7.3	7.3	7.2
12	3.9 _r	4.1 _r	3.7 _r	2.8	2.0 _{UR}	1.7	5.1 _{JS}	6.8	6.8	6.6	6.6	7.1
13	4.7	3.8	3.8	3.9	3.1	2.1 _{JR}	5.3	7.0	8.0	7.8	8.0	7.5
14	4.4	3.5	3.0	2.7	2.4	1.9	4.9	6.8	7.9	6.7	7.0	7.4
15	3.2	2.8	2.5	2.3	2.5	2.5	5.5	7.3	8.4	7.0	6.8	7.1
16	4.2	3.5	2.5	R	E	E	C	7.1	C	C	C	C
17	4.6	4.1	2.8	2.3	E	E	5.1	7.6	8.4	7.2 _s	6.7	6.6
18	4.0	3.0	2.1 _R	R	R	1.8	5.2 _{US}	6.6	7.7	8.3	6.8	6.8
19	3.6	2.8	2.8	2.6	R	E	4.8	7.1	7.6	6.8 _H	5.8	5.6
20	3.4	2.5	2.3	R	A	E	S	7.3	7.3 _{UH}	5.9	5.8	5.6
21	3.6	3.2	2.8	2.9 _R	2.5	R	4.8	7.0	8.2	8.8	8.0 _H	7.0
22	2.7	2.5	R	E	E	E	C	C	C	C	6.2	6.4
23	2.4 _R	E	E	E	E	E	4.8	6.5	7.6	7.6 _H	6.6 _H	6.6
24	S	3.4 _s	3.1 _s	2.6 _{UR}	E	F	4.9	6.8	6.6	6.3	6.0	6.1
25	3.3	3.6	3.5	3.0	F	F _s	4.1	5.6	5.9 _{UB}	6.0 _{US}	6.0	6.2
26	2.8	2.8	2.3 _{JR}	E	E	E	4.4	6.4	7.1	6.0	6.0	6.2
27	2.3	2.2	S	S	S	E	4.3	6.1	6.6	6.5	6.0	5.9
28	4.5	3.4	3.3	2.7	R	E	4.3	6.1	6.8	5.9	5.9	6.0
29	4.2 _r	3.8	3.0	2.1	2.0	1.9 _R	4.2	5.8	6.5	5.8 _{US}	6.0	6.0
30	6.4 _{UR}	5.7	3.4	2.3 _R	2.0	R	4.0	5.7 _{US}	6.1	6.4	6.6	6.9
31	3.5 _{UR}	F	F	2.6	2.0	R	4.1	5.9	6.7	6.7	6.6	6.9
Count	28	23	26	24	21	21	27	29	28	28	29	30
Median	4.2	3.7	3.1	2.6	2.0	1.8	4.9	6.7	7.2	7.1	6.8	7.0
Mean	4.1	3.3	3.3	2.8	2.3	2.0	4.9	6.6	7.4	7.1	6.9	7.0

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Climate and ...
 Unit: M...
 Month: December 1950

TABLE 79—Contd.
 Ionospheric Data
 75° E Meridiane

Latitude 10 2° N
 Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
8.7	6.8	7.1	7.1	6.8	6.8	6.9	6.4	7.1	7.1	5.5	5.0	1
7.4	6.8	7.1	7.1	7.0	8.5	8.4	8.0	7.8	7.7	6.7	5.8	2
8.0	6.8	7.1	7.1	7.0	7.6	7.7	7.0	7.6 _{us}	7.9 _{us}	6.9	6.1	3
8.2	6.8	7.1	7.1	7.0	8.3	7.5	6.7	7.0	6.9 _{us}	6.4	6.0	4
7.8	6.8	7.1	7.1	7.0	9.1	8.6	C	C	5.9	6.2 _{us}	5.9	5
8.7	6.8	7.1	7.1	7.0	9.1	8.6	7.1 _s	7.2 _s	S	S	C	6
7.1	6.8	7.1	7.1	7.0	7.7	6.8	6.4	6.3	6.4	5.5	4.9	7
8.9	6.8	7.1	7.1	7.0	7.7 _{it}	6.9 _{js}	S	6.3	5.7	C	C	8
8.1	6.8	7.1	7.1	7.0	7.8 _{it}	7.1 _s	S	7.0	5.7	5.6	5.3	9
8.0	6.8	7.1	7.1	7.0	6.9	6.5	6.1 _{us}	6.3	6.3	5.1 _{us}	4.7	10
8.4	6.8	7.1	7.1	7.0	8.6	7.7	7.3 _{js}	6.9	6.3 _{us}	5.2 _{us}	F	11
6.9	6.8	7.1	7.1	7.0	8.6	7.7	7.0	6.9	5.7	5.3 _{js}	5.1 _{us}	12
7.7	6.8	7.1	7.1	7.0	8.9	7.8	7.1	7.0	7.0	6.1	5.1	13
8.5	6.8	7.1	7.1	7.0	8.6	8.6	8.4	8.0	S	5.2 _{js}	3.8	14
7.7	6.8	7.1	7.1	7.0	7.9	7.0	6.8	6.9	4.6	3.8	3.0	15
6.7	6.8	7.1	7.1	7.0	7.0 _s	6.6	5.6	FS	5.3 _r	4.5	4.2	16
6.7	6.8	7.1	7.1	7.0	7.1 _s	6.0	5.7	6.1 _s	5.2 _r	5.1	4.7	17
6.8	6.8	7.1	7.1	7.0	7.8	7.2	6.6	S	5.8 _{us}	5.4	4.3	18
5.7	6.8	7.1	7.1	7.0	7.1	7.2 _{us}	6.4	6.0	4.6	4.1	3.8	19
6.0	6.8	7.1	7.1	7.0	8.1	7.8	5.8	F	5.5 _{ur}	4.4	4.0	20
6.9	6.8	7.1	7.1	7.0	7.0	6.4	6.4	6.2 _{us}	5.8	4.1	3.2	21
6.4	6.8	7.1	7.1	7.0	7.2 _{us}	7.8	6.5	6.2	4.6	3.4	2.9 _R	22
6.8	6.8	7.1	7.1	7.0	8.0	6.1	5.8	F	5.2 _{us}	4.4	S	23
6.6	6.8	7.1	7.1	7.0	6.6	6.2	5.0 _s	4.9	4.8	4.2	3.5	24
6.0 _s	6.8	7.1	7.1	7.0	7.0	6.0	5.7	5.4	5.1 _{us}	4.0	3.3	25
6.2	6.8	7.1	7.1	7.0	7.0	6.5	6.5	7.4 _{ur}	5.4	4.0	2.5	26
6.0	6.8	7.1	7.1	7.0	7.8	6.9	7.1	7.7	5.8	4.8	4.9	27
6.4	6.8	7.1	7.1	7.0	7.0	6.8	5.6	F	F	F	F	28
6.8	6.8	7.1	7.1	7.0	7.8	7.2	6.7	6.2 _{us}	F	F	F	29
7.1	6.8	7.1	7.1	7.0	8.0	7.0	6.9	7.1	6.6	5.8	4.8	30
7.0	6.8	7.1	7.1	7.0	6.4	5.6	4.8	F	F	3.5	F	31
30	30	30	30	31	31	31	28	24	26	27	24	Count
7.0	7.0	7.0	7.0	7.0	7.8	7.0	6.5	6.9	5.8	5.1	4.7	Median
7.2	7.4	7.4	7.4	7.4	7.7	7.1	6.5	6.7	5.9	5.0	4.5	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic foF1

TABLE 80

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75° E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	LH	LH	4 6
2								L	LH	L	4 6	4 5
3								L	L	L	L	L
4								L	LH	L	IH	LH
5								L	L	L	L	4 5
6								C	C	C	C	L
7								L	L	L	L	4 4
8								L	I	L	L	L
9								L	L	L	4 5	4 5
10								L	L	L	IH	4 5
11								L	I	4 4	4 6	4 6
12								L	L	L	4 5	4 6
13								L	L	L	4 5	4 5
14								L	L	I	L	4 5
15								L	L	L	L	4 5
16								C	L	C	C	C
17								L	L	L	4 4	L
18								L	4 2	4 2	4 4	L
19									L	L	4 3	4 5
20								L	L	4 6	4 4	4 4
21							L	L	4 2	4 2	4 3	4 4
22							C	C	C	C	C	4 4
23							L	L	4 1	L	4 2	4 4
24							L	4 1	4 2	4 2	4 2	4 4
25							L	L	L	L	4 1	4 2
26								L	4 0	4 2	4 2	4 4
27									L	L	4 4	4 4
28									L	4 2	4 3	4 3
29								L	L	4 2	4 3	4 4
30								L	L	4 4	4 3	4 4
31								L	L	4 2	4 2	C
Count								1	5	10	19	23
Median									4 2	4 2	4 3	4 4
Mean									4 1	4 3	4 4	4 4

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic foF1
 Unit Mc
 Month December, 1963

TABLE 80
 Ionospheric Data
 75° E Mean Time

Latitude 10 2°N
 Longitude 77 5°E

12	13	14	15	16	17	18	19	20	21	22	23	Date
4.5	4.6	4.4	I	L								1
4.5	4.4	L	L	L	L							2
4.4	L	LH	L	L								3
LH	LH	LH	L	L								4
LH	LH	L	L	L								5
L	LH	L	L	L								6
L	4.6	L	I	L								7
L	L	L	L	L	L							8
4.5	LH	L	L	L								9
4.5	LH	LH	L	L								10
4.5	4.4	L	L	L								11
4.5	4.5	L	L	L								12
4.5	L	L	L	L	L							13
4.6	L	L	L	L								14
L	4.4	L	L	L								15
C	C	C	C	C	L							16
L	L	4.6	L	L								17
4.4	L	L	4.4	L								18
4.4	4.5	4.4	L	L	L							19
4.5	4.4	4.5	L	L	L							20
4.4	4.4	4.2	L	L	L							21
4.3	4.4	4.3	L	L	L							22
4.3	4.2	4.4	L	L	L							23
4.4	4.3	4.2	L	L	L							24
4.2	4.3	L	L	L	L							25
4.3	4.5	4.4	C	L								26
4.3	4.3	L	L	L								27
4.3	4.3	L	4.4	L								28
4.4	4.4	4.2	L	L								29
4.4	4.4	L	L	LH								30
1.3	4.3	L	4.1	L								31
28	19	10	3									Count
4.4	4.4	4.4	.									Median
4.4	4.4	4.4										Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic foF1

TABLE 80—Contd.

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75° E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	L	L	I _H	L	4 5
2							I	I	I	I	4 1	4 5
3							L	L	L _H	4 4	L	4 6
4							L	L	I _H	L	L _H	L _H
5							L	L	L _H	I	L	I _H
6							C	C	C	C	C	I
7							I	L	I	L	4 5	L
8							L	I	I	L	I	L
9							L	L	L	L	4 5	L _H
10							L	L	L	L _H	4 4	I
11								L	4 3	L	1 5	4 5
12								L	L	4 5	L	4 5
13								I	L	1 6	4 5	4 5
14								L	L	4 6	I	4 5
15								I	4 2	4 6	I	4 5
16							C	L	C	C	C	C
17							L	L	L	4 5	4 1	4 5
18								1 2	4 4	4 4	4 5	4 5
19								L	4 5	4 3	4 4	4 4
20								L	L	4 4	4 3	4 4
21							L	L	4 2	1 3	1 4	1 4
22							C	C	C	C	4 6	4 4
23							L	L	4 2	1 4	4 3	1 5
24							L	4 2	L	4 2	4 3	4 4
25							L	L	4 1	4 1	4 1	4 3
26							L	L	4 1	4 4	4 1	4 4
27								I	I	L	4 4	4 3
28								L	4 1	4 4	4 3	4 4
29								L	L	L	4 5	4 4
30								L	4 2	4 3	4 3	4 5
31								L	4 2	4 1	4 5	4 4
Count								2	11	17	21	23
Median									1 2	4 4	1 4	4 5
Mean									1 2	4 4	4 4	4 4

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic F₂ foF₂

Unit MHz

Month December, 1963.

TABLE 80—Contd.

Ionospheric Data

75°E Mean Time

Latitude 10 2° N

Longitude 77 5° E

	1730	1830	1930	2030	2130	2230	2330	Date
1.0	1.1	1.1	1.1	1.1				1
1.1	1.1	1.1	1.1	1.1				2
1.4	1.1	1.1	1.1	1.1				3
1.1	1.1	1.1	1.1	1.1				4
								5
1.1	1.1	1.1	1.1	1.1				6
1.1	1.1	1.1	1.1	1.1				7
1.1	1.1	1.1	1.1	1.1				8
1.1	1.1	1.1	1.1	1.1				9
								10
1.1	1.1	1.1	1.1	1.1				11
1.1	1.1	1.1	1.1	1.1				12
1.1	1.1	1.1	1.1	1.1				13
1.1	1.1	1.1	1.1	1.1				14
1.1	1.1	1.1	1.1	1.1				15
1.1	1.1	1.1	1.1	1.1	L			16
1.1	1.1	1.1	1.1	1.1				17
1.1	1.1	1.1	1.1	1.1				18
1.1	1.1	1.1	1.1	1.1				19
1.1	1.1	1.1	1.1	1.1				20
1.1	1.1	1.1	1.1	1.1	L			21
1.1	1.1	1.1	1.1	1.1	L			22
1.1	1.1	1.1	1.1	1.1	L			23
1.1	1.1	1.1	1.1	1.1	L			24
1.1	1.1	1.1	1.1	1.1	L			25
1.1	1.1	1.1	1.1	1.1				26
1.1	1.1	1.1	1.1	1.1				27
1.1	1.1	1.1	1.1	1.1				28
1.1	1.1	1.1	1.1	1.1				29
1.1	1.1	1.1	1.1	1.1				30
1.1	1.1	1.1	1.1	1.1				31
1.1	1.1	1.1	1.1	1.1				Count
1.1	1.1	1.1	1.1	1.1				Median
1.1	1.1	1.1	1.1	1.1				Mean

Sweep 10 Mc to 25.0 Mc in 27 seconds

Characteristic foE

TABLE 81

Latitude 10 2° N.

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								A	A	A	A	A
2								A	A	A	A	A
3								A	A	A	A	A
4								A	A	A	A	A
5								A	A	A	A	A
6								C	C	C	C	A
7								A	A	A	A	A
8								R	2 8H	3 1H	3 4R	A
9							R	2 4H	2 8H	A	A	A
10								2 4H	A	A	A	A
11								2 4H	A	A	A	A
12								A	A	A	A	A
13								2 4	2 7	3 1	A	A
14								A	A	A	A	A
15								2 2H	A	A	A	A
16								C	A	C	C	C
17								A	A	A	A	A
18								R	A	A	A	A
19								A	A	A	A	A
20								A	A	A	A	A
21								2 0	2 6	A	A	A
22							G	C	C	C	C	A
23								2 0	2 6	A	A	A
24								A	A	A	A	A
25								A	A	A	A	A
26								2 1	A	A	A	A
27								A	A	A	A	A
28								A	A	A	A	A
29								A	A	A	A	A
30								A	A	A	A	A
31								A	A	A	A	C
Count								8	5	2	1	
Median								2 3	2 7			
Mean								2 2	2 7			

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE

TABLE 81

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
A	A	A	A	A	R							2
A	A	A	A	A	R							3
A	A	A	A	A	A							4
A	A	R	A	A	A							5
A	A	A	A	A								6
A	A	A	A	A	A							7
3 5H	A	A	A	A	A							8
A	A	R	A	A	A							9
A	A	A	A	A	R							10
A	A	3 2	2 8	2 7r								11
A	A	A	3 0UR	A	F							12
A	A	A	2 7	A	R							13
A	3 3	3 2	R	2 5	A							14
A	A	A	A	2 6								15
C	C	C	C	C	A							16
A	A	A	A	A	A							17
A	A	A	A	R	R							18
A	A	A	R	R	A							19
A	A	A	R	R	R							20
A	A	A	A	A	A							21
A	A	A	A	A	R							22
A	A	A	A	A								23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	C	A								26
A	A	A	A	A								27
A	A	A	A	2 5								28
A	A	3 1H	A	R								29
A	A	A	A	A	A							30
A	A	A	A	A	C							31
1	1	3	3	4	.							Count
												Median
												Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foE TABLE 81—Contd Latitude 10 2° N
 Unit Mc Ionospheric Data Longitude 77 5° E
 Month December, 1963 75° E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							A	A	A	A	A	A
2							A	A	A	A	A	A
3							2 0	A	A	A	A	A
4							A	A	A	A	A	A
5							A	A	A	A	A	A
6							C	C	C	C	C	A
7							R	A	A	A	A	A
8							R	2 6	3 0	3 0 _R	A	A
9							R	2 7 _H	A	A	A	A
10							A	A	A	A	A	A
11							1 9	2 6	A	A	A	A
12							A	A	A	A	A	A
13							R	2 5	2 8	A	A	A
14							A	A	A	A	A	A
15							R	R	A	A	A	A
16							C	S	C	C	C	C
17								A	A	A	A	A
18								R	A	A	A	A
19								A	A	A	A	A
20							1 9	A	A	A	A	A
21								2 4	A	A	A	A
22							C	C	C	C	A	A
23								2 4	A	A	A	A
24							A	A	A	A	A	A
25								A	A	A	A	A
26							1 7 _{UR}	A	A	A	A	A
27								A	A	A	A	A
28								A	A	A	A	A
29								A	A	A	A	A
30								A	A	A	A	A
31								A	A	A	A	A
Count							4	6	2	1		
Median								2 6				
Mean								2 5				

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic foE
Unit Mc
Month December, 1963

TABLE 81—Contd.
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A	A							1
A	A	A	A	A	R							2
A	A	A	A	A	A							3
A	A	A	A	A	A							4
A	R	R	A	A								5
A	A	A	A	A	A							6
A	A	A	A	A	A							7
A	R	A	A	A	A							8
A	3 5 _{II}	A	A	A	A							9
A	A	A	A	A	A							10
G	3 3	B	R	A								11
A	A	3 0	2 3	2 3								12
A	A	A	2 6	A								13
A	3 3	R	2 8	A								14
A	A	3 0	2 7	2 3 _{UR}								15
G	C	C	C	A	A							16
A	A	A	A	A	A							17
A	A	R	R	R								18
A	A	A	2 9 _R	A	A							19
A	A	A	R	R								20
A	A	A	A	A								21
A	A	A	A	A	2 2							22
A	A	A	A	A								23
A	A	A	A	A								24
A	A	A	A	A								25
A	A	C	C	R								26
A	A	A	A	2 2								27
A	A	A	R									28
A	A	A	A	A								29
A	A	A	A	A								30
A	A	A	A	A								31
	3	2	5	4								Count
			2 7									Median
			2 7									Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foEs

TABLE 82

Latitude 10 2° N

Unit Mc.

Ionospheric Data

Longitude 77 5° E

Month December, 1963.

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								S	10 0	11 0 ^{us}	12 0 ^s	12 0
2								8 0 ^s	10 6	10 6	12 0	10 6
3								S	8 0	10 0	10 8	9 8
4		2 0	2 9					S	11 0	11 0	11 2	12 0
5								S	11 0	12 0	12 0	12 0
6								C	C	C	C	9 8
7	2 0							S	9 0	10 0	11 4	11 8
8								G	G	G	G	10 0
9							G	G	G	9 0	11 6	11 0
10					8 0	4 0		S	S	10 6	11 6	10 6
11								G	6 6	9 0	9 4	8 8
12							2 8	S	9 0	10 6	10 2	11 2
13								G	G	G	G	9 6
14								5 6	8 4	9 4	10 6	10 6
15								G	7 0	9 0	9 4	10 4
16								C	6 8 ^s	C	C	C
17								2 7	S	9 6 ^s	9 8	9 4
18								G	3 1	8 4	9 6	9 8
19					3 4			2 8	9 0 ^s	9 4	9 2	9 0
20								3 6	8 4	10 2	9 2	9 8
21								G	G	9 0	12 3	9 6
22							C	C	C	C	C	9 8
23								G	G	8 9	9 8	8 6
24								2 7	8 2	8 9	9 6	9 8
25								8 2	12 6	8 8	9 8	9 8
26								G	7 0	8 7	9 0	9 0
27								3 6	7 0	9 0	9 0	9 2
28								2 8	6 6	7 2	9 0	8 4
29								S	7 0	8 8	9 0	9 6
30								S	8 6	10 0	9 6	9 8
31								S	8 8	10 0	10 6	C
Count	1	1	1		2	1	2	18	26	28	28	29
Median								2 7E _G	7 5	9 2	9 8	9 8
Mean								4 4	8 3	9 6	10 2	10 1

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic foF₂

Unit: Mc

Month: December, 1963

TABLE 82
Ionospheric Data
75°E Mean Time

Latitude 10 2° N

Longitude 77°5' E

12	11	10	9	16	17	18	19	20	21	22	23	Date
11.0	11.6	11.0	S	8.4								1
12.0	11.6	11.0	12.0	6.6	G	2.8				2.8		2
11.1	11.6	9.6us	8.0	8.0	G					2.7		3
12.0	11.6	11.0	11.7	S			3.1					4
S	4.2	G	7.0	3.3	2.8		S			3.0	2.9	5
12.0	12.0	11.6	8.6	7.0			3.0	3.0				6
12.0	11.7	11.0	S	S	2.8							7
G	1.1	6.0	10.0us	S	S							8
12.0	11.0	G	9.0	7.0s	S							9
9.8	11.7	9.0us	10.0us	7.6us	G				3.0	4.0us	4.6us	10
6.2	5.0	6.0	G	G	3.3		2.5	7.0				11
11.4	9.8	7.8	G	6.8	G	5.6						12
10.6	9.0	9.4	6.4	6.4	G		3.4	3.8				13
10.4	G	G	G	5.8	4.0		4.0		4.6			14
10.6	9.0	8.0	6.0	5.8								15
G	G	G	G	G	S							16
9.6	10.0	10.0	8.4	6.4	4.6							17
9.4	9.6	7.8	G	G					S	S		18
10.8	10.0	9.4	G	G	S							19
9.4	9.8	10.0	G	G	G							20
11.1	10.9	9.8	8.8	8.3	7.9							21
9.7	9.4	9.1	8.4		G							22
9.8	9.6	9.6	8.7									23
9.3	9.9	8.7	8.6	8.2	2.7							24
9.7	9.1	8.6	8.3	4.5	2.6							25
8.6	9.0	8.6	G	5.8			2.9					26
9.0	9.0	9.0	8.0	8.8								27
9.0	9.0	8.6	8.0	5.8								28
9.2	9.7	6.0	7.0	5.8						2.6		29
10.0	10.8	11.0	8.4	6.0	S			3.2				30
10.6	9.6	10.8	10.0	G								31
29	30	30	27	25	15	2	5	4	3	4	3	Count
10.0	9.6	9.4	8.2	6.4	2.6		3.0					Median
10.3	9.1	9.7	8.5	6.7	3.8		3.2					Mean

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds

Characteristic foEs
Unit Mc
Month December, 1963

TABLE 82—Contd
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							S	8 8	11 0	11 8	11 2	12 6
2							S	S	10 6	11 0	12 0	11 6
3	2 8	3 2					G	S	8 8 _{US}	11 8	9 8	9 8
4	2 6	2 5			3 0		S	8 6	10 0	12 0	11 0	12 0
5							S	8 6	11 0	12 0	12 0 _s	10 6
6							C	C	C	C	C	11 0
7							G	S	10 0	11 6	12 0 _s	12 0
8							G	G	G	G	8 0	6 6
9				2 2			G	G	S	10 0	12 0	11 3
10					7 4	6 2 _s	S	S	10 6	11 0	11 0	10 4
11							G	5 8	8 6	9 7	9 0	8 5
12			3 2				3 0	6 8	9 6	9 8	14 0	11 4
13							G	G	G	8 6	8 6	9 8
14							3 2 _{US}	6 6	7 0 _{US}	8 8	10 0	9 8
15							3 6	S	8 6	9 0	10 0	9 8
16							C	S	C	C	C	C
17							2 6	6 0 _s	10 0 _s	10 6	9 0	9 8
18							2 7	G	3 4	8 6	9 6	9 6
19				2 5				S	8 6	9 8	10 6	10 0
20					S		G	S	9 2	9 0	9 6	9 6
21								G	8 8	12 4	9 3	10 2
22							C	C	C	C	10 2	9 9
23								G	8 7	9 6	9 7	8 3
24							2 2	8 1	8 8	8 7	9 4	9 6
25								8 7	8 5	9 0	10 2	9 0
26							G	6 0	7 0	9 0	8 8	9 2
27								7 0	8 6	9 0	9 6	9 0
28								5 2	8 6	8 4	8 8	9 3
29							2 8	6 6	8 2	9 2	9 6	9 4
30								7 0 _s	10 0	10 0	10 6	9 6
31								8 0	10 0	9 6	9 6	9 6
Count	2	2	1	2	2	1	15	21	27	28	29	30
Median	—	—	—	—	—	—	G	6 6	8 8	9 8	9 8	9 8
Mean	—	—	—	—	—	—	2 9	7 2	9 0	10 0	10 2	10 0

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic foF₂
Unit Mc
Month December, 1963

TABLE 82—Contd.
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
12 0	11 6	10 0	9 0	8 0	2 2					3 1		1
11 6	10 6	10 6	8 0	G								2
12 0	12 0	9 8	S	S				2 8				3
12 0	11 0	10 6s	8 0	S								4
S	G	G	4 4	3 5			2 2		5 8		2 8	5
11 8	11 8	S	8 6	4 0			5 0					6
11 8	10 0	10 0	S	S								7
6 0	G	10 0	S	S				3 2				8
12 0	G	8 6	S	S								9
8 6	7 7	10 6s	8 2	6 1s					5 6US	8 6	4 2	10
C	7 0	G	G	1 4				3 4	2 8			11
11 0	10 6	G	3 0	G		4 0	3 0					12
10 0	9 0	8 2	4 7	6 0		2 8						13
9 6	G	G	G	5 8		3 2	3 0	3 2				14
9 6	8 8	6 1	G	G								15
C	C	C	C	S	4 4	S			3 0			16
10 4	10 4	8 6	6 2	S	7 8							17
9 4	8 6	G	G	G					9 0	3 8		18
10 6	9 8	6 8	G	S	8							19
9 8	9 6	7 2s	G	G								20
10 5	9 6	9 1	8 2	8 8								21
10 2	9 8	8 1	6 1		9 6							22
9 9	8 6	8 4	6 1									23
9 6	9 1	8 5	6 2	3 2					4 9			24
8 9	9 8	8 5	6 2	3 1								25
10 8	8 4	C	C	G		3 0						26
8 6	9 4	8 6	6 6	4 4								27
8 8	8 2	8 6	5 8						2 8			28
9 6	8 0	C	6 5	S								29
9 8	11 6	9 4	S	5 0US								30
9 6	10 0	10 0	9 0	S								31
28	30	27	24	18	4	4	4	4	7	3	2	Count
10 0	9 5	8 6	6 2	3 8	—	—	—	—	1 9	—	—	Median
10 2	9 6	8 9	6 7	5 2	—	—	—	—	4 8	—	—	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic fbEs
Unit Mc
Month December, 1963

TABLE 83
Ionospheric Data
75°E Mean Time

Latitude 10°2' N
Longitude 77°5' E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								2.4	2.8	3.2	3.3	3.4
2								2.4	2.9	3.1	3.2	3.4
3								2.1	2.8	3.1	3.2	3.4
4			1.8	1.5				2.3	2.8	3.1	3.2	3.4
5								2.3	2.8	3.0	3.2	3.4
6	1.5							C	C	C	C	3.4
7								1.9	2.7	3.0	3.3	3.4
8								G	G	G	G	3.5
9							G	G	G	3.2	3.4	3.5
10					1.8			2.4	2.8	3.1	3.3	3.4
11								G	2.8	3.1	3.3	3.4
12								1.4	2.3	2.8	3.2	3.5
13								G	G	G	3.1	3.4
14								2.3	2.8	3.1	3.3	3.5
15								G	2.8	3.0	3.3	3.4
16								C	2.8	C	C	C
17								2.2	2.8	3.1	3.3	3.4
18								G	2.9	3.2	3.4	3.6
19								2.3	2.7	3.0	3.3	3.5
20					2.0			2.3	2.8	3.1	3.1	3.5
21								G	G	3.0	3.3	3.4
22								C	C	C	C	3.5
23								G	G	3.0	3.3	3.4
24								2.2	2.7	3.1	3.3	3.4
25								2.1	2.7	3.1	3.2	3.4
26								G	2.7	3.0	3.4	3.5
27								2.2	2.8	3.1	3.3	3.4
28								2.3	2.6	3.0	3.2	3.3
29								2.2	2.8	3.0	3.2	3.5
30								2.1	2.7	3.1	3.3	3.4
31								2.2	2.7	3.0	3.3	C
Count	1	1	1			2		2	28	29	28	29
Median									2.2	2.8	3.1	3.3
Mean									2.2	2.8	3.1	3.3

Sweep 1.0 Mc. to 25.0 Mc. in 27 seconds.

Characteristic f_oF₂

TABLE 83

Latitude 10 2' N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963.

75°E Mean Time

12	13	11	15	16	17	18	19	20	21	22	23	Date
3 5	3 4	3 1	3 0	2 7								1
3 5	3 3	3 1	2 9	2 6	G					1 9		2
3 5	3 5	3 2	3 0	2 6	G			2 4				3
3 4	3 3	3 2	3 0	2 6								4
3 4	3 2	G	3 0	2 6	1 9		1 8			2 2	2 0	5
							2 0					6
3 5	3 4	3 2	3 0	2 8								7
3 5	3 5	3 1	2 8	2 5	1 9							8
G	3 5	3 5	3 2	2 7	2 2							9
3 6	3 3	G	3 0	2 7	2 0							10
3 5	3 4	3 3	3 0	2 6	G					2 2	2 2	11
								1 9				12
3 4	3 6	3 4	G	G	2 2							13
3 5	3 4	3 2	G	2 8	G	2 0						14
3 4	3 3	3 3	3 0	2 7	G		1 6					15
3 6	G	G	G	2 2	2 0		1 9		2 0			16
3 4	3 4	3 2	3 0	2 6								17
C	C	C	C	C	2 0							18
3 6	3 5	3 2	3 2	2 8	3 0							19
3 6	3 5	3 4	G	G				2 4	2 2			20
3 5	3 4	3 2	G	G	4 6							21
3 4	3 4	3 2	G	G	G							22
3 4	3 3	3 2	3 0	2 7	2 2							23
3 5	3 4	3 3	2 9		G							24
3 4	3 4	3 3	3 2									25
3 4	3 4	3 2	3 0	2 7	2 0							26
3 4	3 3	3 2	3 0	2 6	2 1							27
								2 2				28
3 4	3 4	3 3	C	2 6								29
3 4	3 4	3 2	3 0	3 8								30
3 3	3 2	3 1	3 0									31
3 4	3 2	3 2	3 0	2 7						2 2		
3 3	3 3	3 2	3 0	G	2 9				2 2			
3 4	3 3	3 2	3 0	2 8								
30	30	30	29	27	20	1	5	2	3	4	3	Count
3 4	3 4	3 2	3 0	2 6	2 0		1 9					Median
3 4	3 4	3 2	3 0	2 7	2 4		1 9	.				Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fbEs

TABLE 83—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963.

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							1 9	2 6	3 0	3 3	3 5	3 5
2							1 9	2 7	3 0	3 2	3 4	3 6
3	1 8	1 5					G	2 6	3 0	3 2	3 4	3 5
4	1 8	1 5					2 0	2 6	3 0	3 2	3 4	3 4
5					2 0		1 9	2 6	2 9	3 2	3 2	3 4
6	C	C	C	C	C	C	C	C	C	C	C	3 5
7							G	2 2	2 9	3 2	3 4	3 5
8							G	G	G	G	3 2	3 5
9				1 5			G	G	3 0	3 3	3 4	3 5
10					—	—	2 0	2 6	2 9	3 2	3 4	3 5
11							G	2 6	3 0	3 3	3 4	3 6
12							1 9	2 6	3 0	3 3	3 5	3 6
13							G	G	G	3 2	3 4	3 4
14							1 9	2 6	3 0	3 3	3 5	3 6
15							2 2	—	3 0	3 2	3 5	3 4
16							G	2 6	C	C	C	C
17							1 7	2 6	3 0	3 2	3 5	3 5
18							2 0	G	3 0	3 2	3 4	3 4
19				2 0				2 6	2 9	3 2	3 4	3 4
20					—		G	2 5	3 0	3 2	3 4	3 5
21								G	2 8	3 2	3 4	3 4
22							C	C	C	C	3 4	3 4
23								G	2 8	3 2	3 4	3 4
24							1 7	2 4	2 9	3 2	3 4	3 5
25								2 4	2 8	3 2	3 3	3 4
26							G	2 5	2 9	3 2	3 4	3 6
27								2 5	2 9	3 3	3 4	3 4
28								2 5	2 9	3 2	3 3	3 4
29							1 8	2 4	3 0	3 3	3 2	3 4
30								2 6	2 9	3 2	3 3	3 4
31								2 5	2 9	3 1	3 4	3 3
Count	2	2	—	2	1	—	20	28	28	28	29	30
Median	—	—	—	—	—	—	1 8	2 5	2 9	3 2	3 4	3 4
Mean	—	—	—	—	—	—	1 9	2 5	2 9	3 2	3 4	3 5

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic f_oE_s

TABLE 83—Contd

Latitude 10° 2' N

Unit Mc

Ionospheric Data

Longitude 77° 5' E

Month December, 1963.

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
3 5	3 3	3 1	2 9	2 3	1 9					1 8		1
3 4	3 3	3 1	2 8	G			1 8					2
3 4	3 3	3 2	2 8	2 3								3
3 4	3 2	3 1	2 8	2 3								4
3 2	G	G	3 0	2 4			1 6		1 8		1 5	5
3 4	3 3	3 0	3 0	2 5			2 1					6
3 5	3 3	3 0	2 7	2 4								7
3 4	G	3 5	2 9	2 5				1 9				8
3 4	G	3 3	2 9	2 4								9
3 4	3 4	3 2	2 8	2 4					1 9	1 9		10
C	3 4	G	G	2 5				2 2	—			11
3 5	3 4	G	3 0	G		1 8	1 8					12
3 4	3 3	3 2	—	2 4								13
3 5	G	G	G	2 6		2 4	1 7	—				14
3 4	3 3	3 0	G	G								15
C	C	C	C	2 5	3 0	1 8			1 6			16
3 5	3 3	3 2	3 2	2 4	2 8							17
3 6	3 4	G	G	G					2 8	1 8		18
3 5	3 3	3 2	G	2 6	2 3							19
3 5	3 3	3 0	G	G								20
3 4	3 3	3 1	2 8	2 5								21
3 4	3 2	3 1	2 8	—	2 8							22
3 4	3 3	3 2	3 0									23
3 4	3 4	3 1	3 0	2 4					2 2			24
3 4	3 4	3 1	2 9	2 5								25
3 5	3 4	G	G	G								26
3 4	3 4	3 1	3 0	2 4								27
3 3	3 2	3 1	3 0									28
3 4	3 2	3 1	2 9	2 5					2 2			29
3 4	3 3	3 1	2 8	2 6								30
3 4	3 3	3 2	2 8	2 5								31
29	30	29	28	28	5	3	4	3	6	3	1	Count
3 4	3 3	3 1	2 8	2 4	2 8	—	—	—	2 0	—	—	Median
3 4	3 3	3 1	2 9	2 4	2 6	—	—	—	2 1	—	—	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic fmin
 Unit Mc
 Month December, 1963

TABLE 84
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	1 1	E	1 1	1 1	1 3	R	1 4	1 3	1 5	1 9	2 0	2 2
2	1 3	1 1	1 1	1 4	1 2	1 1	1 5	1 3	1 5	1 9	2 2	2 2
3	1 4	1 9	1 4	1 4	1 6	1 2	1 6	1 5	1 5	1 9	1 9	2 1
4	1 1	1 5	2 0	1 6	1 6	1 9	1 4	1 4	1 6	1 9	2 2	2 4
5	1 5	1 2	1 3	1 4	E	R	1 5	1 5	1 5	1 9	2 0	2 2
6	1 4	C	C	C	C	C	C	C	C	C	C	2 4
7	1 4	1 1	1 2	1 2	1 2	1 2	1 5	1 4	1 5	1 9	2 3	2 3
8	1 6	1 4	1 6	1 5	1 4	1 2	1 6	1 4	1 8	2 2	2 0	2 2
9	C	C	C	1 3	1 4	E	1 4	1 3	1 9	2 0	2 1	2 4
10	1 1	E	1 1	1 5	1 5	1 2	1 6	1 5	1 7	1 9	2 1	2 2
11	1 4	1 7	E	1 0	1 4	1 0	1 7	1 4	1 6	1 9	2 3	2 3
12	1 2	1 4	1 3	1 4	1 4	1 0	1 4	1 4	1 5	1 7	2 2	2 4
13	1 6	1 8	1 3	1 4	1 5	1 6	1 6	1 1	1 9	2 3	2 3	2 4
14	1 3	1 1	1 3	1 2	1 4	1 4	1 1	1 3	1 5	1 8	2 2	2 3
15	1 7	1 6	1 6	1 2	1 6	1 4	1 6	1 1	1 7	1 8	1 9	2 1
16	2 0	1 5	1 7	1 7	E	E	1 6	C	1 7	C	C	C
17	1 4	1 9	1 6	1 5	1 8	E	1 6	1 6	2 0	2 0	2 2	2 4
18	1 9	1 7	1 7	R	1 5	1 4	1 5	1 9	1 8	1 8	2 2	2 3
19	2 3	2 0	2 0	1 8	1 8	E	1 7	1 7	1 6	1 8	2 1	2 3
20	1 5	1 5	1 5	1 4	R	E	1 5	1 6	1 6	1 9	2 3	2 2
21	1 7	1 5	1 5	1 9	1 5	1 4	1 4	1 7	1 8	1 8	2 2	2 2
22	1 6	1 3	E	1 5	E	E	1 5	C	C	C	C	2 4
23	R	E	E	E	E	E	1 7	1 8	1 9	1 8	2 0	2 2
24	1 8	2 2	2 1	2 2	E	F	1 6	1 5	1 5	2 2	2 3	2 4
25	1 8	2 0	2 0	1 8	2 2	F	1 1	1 4	1 8	2 0	2 2	2 4
26	2 0	1 9	2 1	E	E		1 6	1 6	1 8	1 9	2 2	2 4
27	2 3	1 6	1 6	S	S	E	1 4	1 5	1 8	2 0	2 0	2 5
28	1 9	2 0	1 8	1 9	1 8	E	1 4	1 4	1 6	1 8	2 1	2 2
29	2 0	1 9	1 6	1 7	S	1 3	1 4	1 6	1 6	1 8	2 1	2 3
30	2 2	1 9	1 6	1 9	1 5	1 2	1 2	1 4	1 5	2 0	2 3	2 4
31	2 1	1 7	1 5	1 5	1 4	R	1 1	1 6	1 5	2 0	2 2	C
Count	29	29	29	28	27	25	30	28	29	28	28	29
Median	1 6	1 6	1 5	1 4	1 4	1 1	1 5	1 5	1 6	1 9	2 2	2 3
Mean	1 7	1 6	1 6	1 5	1 5	1 3	1 5	1 5	1 7	1 9	2 1	2 3

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic fmin

TABLE 84

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.8	1.6	1.6	1.5	1.4	1
2.3	2.2	2.2	2.2	1.9	1.5	1.5	1.1	1.1	1.4	1.5	1.6	2
2.3	2.2	2.0	2.0	1.9	1.6	1.5	1.8	1.4	1.9	1.7	1.2	3
2.2	2.5	2.5	2.3	1.9	1.8	1.5	1.5	1.6	1.4	1.8	E	4
2.0	2.4	2.4	2.1	1.9	1.6	1.6	1.6	1.5	C	1.6	1.6	5
2.4	2.3	2.2	2.3	2.2	2.1	2.0	1.7	1.5	1.4	1.2	1.2	6
2.3	2.3	2.0	1.9	1.6	1.6	1.3	1.5	1.4	1.6	1.5	1.5	7
2.6	2.3	2.2	2.2	1.8	1.5	1.5	1.4	1.5	1.9	1.7	C	8
2.4	2.3	2.2	2.1	2.0	1.5	1.4	1.7	1.4	1.4	1.7	1.6	9
2.2	2.3	2.2	2.0	1.9	1.5	1.9	1.8	1.4	1.9	1.7	1.5	1
2.3	2.7	2.3	2.1	1.9	1.7	1.9	1.5	1.5	1.5	1.5	1.4	11
2.4	2.2	2.3	2.0	2.0	1.6	1.3	1.7	1.6	1.6	1.5	1.8	12
2.4	2.4	2.3	1.9	1.9	1.6	1.6	1.4	1.6	1.6	1.7	1.9	13
2.4	2.5	2.5	2.6	2.2	1.6	1.7	1.6	1.8	1.7	1.8	1.7	14
2.3	2.2	2.0	1.9	1.9	2.0	1.6	2.2	1.8	1.8	1.8	1.4	15
C	C	C	C	C	1.7	1.6	1.6	1.7	1.6	1.6	1.8	16
2.4	2.5	2.2	1.9	1.9	1.7	1.6	1.6	2.0	2.0	1.7	1.8	17
2.3	2.4	2.4	2.7	2.3	2.2	1.7	2.0	1.9	2.0	1.8	2.2	18
2.2	2.2	2.2	1.8	2.2	1.8	1.8	2.0	2.0	1.8	2.1	1.7	19
2.3	2.3	2.2	1.9	2.3	1.8	1.4	2.0	1.6	2.2	2.3	1.9	20
2.2	2.2	2.3	2.1	2.0	1.6	1.5	1.6	1.7	1.6	1.7	1.9	21
2.4	2.6	2.4	2.2	2.6	1.9	2.3	2.2	2.4	2.8	2.6	2.0	22
2.3	2.2	2.3	2.2	2.6	2.4	2.4	2.2	2.4	2.6	2.3	2.3	23
2.6	2.6	2.2	2.2	2.0	1.7	1.7	2.2	2.2	1.8	2.4	2.2	24
2.4	2.2	2.2	1.8	2.0	1.8	2.5	2.0	2.0	2.0	1.8	2.0	25
2.4	2.5	2.4	C	1.8	2.0	2.0	1.9	2.4	1.7	2.0	1.8	26
2.4	2.5	2.3	2.1	1.8	2.1	1.9	2.1	2.2	2.8	2.4	1.9	27
2.5	2.3	2.2	1.9	2.0	2.2	1.9	2.2	2.0	2.0	2.4	2.0	28
2.4	2.5	2.5	2.2	2.2	2.2	1.8	2.0	1.9	2.1	2.0	1.9	29
2.5	2.1	2.3	2.0	2.2	2.0	2.0	2.0	1.7	2.1	1.6	2.0	30
2.3	2.3	2.0	2.0	1.9	C	1.8	2.1	2.1	1.9	2.0	1.9	31
30	30	30	29	30	30	31	31	31	30	31	30	Count
2.4	2.3	2.2	2.1	2.0	1.8	1.7	1.8	1.7	1.8	1.7	1.8	Median
2.4	2.3	2.2	2.1	2.0	1.8	1.7	1.8	1.8	1.8	1.8	1.8	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fmin

TABLE 84—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75° F Mc in Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	1.2	E	1.4	1.1	1.2	1.1	1.4	1.5	1.8	2.0	2.1	2.2
2	1.2	1.2	E	1.2	1.1	E	1.3	1.3	1.7	2.0	2.1	2.2
3	1.4	1.2	1.3	1.3	1.2	1.2	1.4	1.4	1.7	1.9	2.2	2.2
4	1.4	1.2	1.3	1.7	1.3	1.4	1.2	1.5	1.9	2.0	2.2	2.5
5	1.2	1.2	1.3	1.4	E	1.1	1.4	1.5	1.9	1.9	2.0	2.3
6	1.4	C	C	C	C	C	C	C	C	C	C	2.5
7	1.2	1.2	1.2	1.2	1.2	L	1.3	1.5	1.8	2.2	2.2	2.2
8	1.6	1.5	1.4	1.2	1.2	1.4	1.2	1.8	1.9	2.0	2.2	2.2
9	C	C	C	1.2	1.2	1.3	1.7	1.8	1.9	2.1	2.4	2.4
10	1.2	1.1	1.2	1.5	1.4	1.2	1.4	1.5	1.8	1.9	2.1	2.2
11	1.4	1.7	E	1.3	1.2	E	1.6	1.5	1.7	2.1	2.3	2.3
12	1.2	1.3	1.5	1.4	1.3	1.2	1.4	1.4	1.7	1.9	2.2	2.4
13	1.4	1.4	1.4	1.4	1.7	1.5	1.5	1.7	1.9	2.3	2.3	2.5
14	1.3	1.3	1.3	1.4	1.2	1.2	1.3	1.4	1.6	1.9	2.1	2.5
15	1.9	1.5	1.4	1.1	1.3	1.1	1.5	1.6	1.5	1.9	2.0	2.1
16	2.3	1.7	1.6	1.5	E	E	C	1.7	C	C	C	C
17	1.5	1.5	1.8	1.8	E	E	1.7	1.9	1.9	2.2	2.3	2.2
18	1.8	1.6	1.5	1.5	R	1.2	1.7	2.0	1.9	2.4	2.2	2.2
19	1.8	1.8	1.5	1.2	R	E	2.0	1.6	1.7	1.9	2.3	2.4
20	1.9	1.1	1.6	1.4	2.2	E	1.6	1.6	1.7	2.1	2.2	2.4
21	1.4	1.4	1.6	1.7	1.3	R	1.7	1.5	1.9	2.2	2.2	2.3
22	1.3	1.6	1.1	E	E	E	C	C	C	C	2.2	2.4
23	2.0	E	E	E	E	E	1.9	1.7	1.7	1.9	2.2	2.4
24	1.9	2.3	2.2	2.2	E	F	1.3	1.6	1.8	2.2	2.2	2.5
25	2.0	1.7	1.9	1.8	F	F	1.8	1.8	1.8	2.0	2.2	2.3
26	1.8	1.8	1.4	E	E	E	1.6	1.9	1.8	2.0	2.4	2.4
27	1.7	1.9	S	S	S	E	1.8	1.7	1.9	2.1	2.4	2.4
28	1.9	2.0	2.0	2.0	1.9	E	1.8	1.8	1.6	1.9	2.3	2.4
29	1.9	1.8	1.9	1.8	1.5	1.1	1.3	1.7	1.9	2.0	2.3	2.2
30	2.2	1.8	1.7	1.4	1.2	1.2	1.7	1.5	1.8	2.0	2.3	2.4
31	1.9	1.8	1.5	1.4	1.5	R	1.6	1.5	1.7	2.0	2.3	2.3
Count	30	29	28	29	26	26	28	29	28	28	29	30
Median	1.6	1.5	1.4	1.4	1.2	1.1	1.6	1.6	1.8	2.0	2.2	2.4
Mean	1.6	1.5	1.5	1.5	1.4	1.2	1.5	1.6	1.8	2.0	2.2	2.3

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic fmin

TABLE 84—Contd

Latitude 10 2° N

Unit Mc

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Meridian Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2.3	2.2	2.0	1.9	1.7	1.4	2.0	1.6	1.6	1.7	E	1.2	1
2.4	2.3	2.2	2.2	1.9	1.6	1.6	1.5	1.7	1.1	1.7	1.5	2
2.2	2.1	2.0	2.0	1.6	1.6	1.4	1.7	1.4	1.9	1.3	1.4	3
2.4	2.4	2.3	2.2	1.7	1.6	1.5	2.0	1.7	1.5	1.3	1.1	4
2.2	2.5	2.3	2.0	1.8	1.5	1.6	1.4	1.5	1.5	1.2	1.2	5
2.5	2.2	2.2	2.2	2.0	2.0	1.9	1.5	1.4	1.2	1.1	1.1	6
2.2	2.2	1.9	1.7	1.9	1.5	1.2	1.5	1.5	1.4	1.4	1.4	7
2.5	2.3	2.3	1.9	1.9	1.5	1.5	1.6	1.2	2.0	C	C	8
2.3	2.1	2.2	2.1	1.8	1.7	1.4	1.7	1.2	1.5	1.6	1.5	9
2.3	2.4	2.2	2.0	1.7	1.6	1.9	1.6	1.4	1.5	1.9	1.6	10
C	2.6	3.3	2.1	2.0	1.7	1.5	2.0	2.0	1.7	1.7	1.5	11
2.4	2.3	2.0	2.1	1.8	1.6	1.4	1.8	1.6	1.5	1.7	1.7	12
2.4	2.4	2.2	2.2	1.9	1.7	1.6	1.8	1.6	1.6	2.0	1.6	13
2.4	2.4	2.2	2.3	1.9	1.8	2.0	1.7	1.7	1.8	1.8	1.6	14
2.3	2.2	2.0	2.0	1.7	1.7	1.8	2.3	1.8	1.7	1.1	1.9	15
C	C	C	C	1.7	1.6	1.8	2.2	1.7	1.6	1.4	1.9	16
2.4	2.3	2.1	2.0	1.8	1.6	1.6	1.6	1.8	1.6	2.0	1.7	17
2.4	2.4	2.4	2.4	2.0	1.9	2.0	2.0	2.4	2.0	1.8	1.5	18
2.2	2.1	2.2	2.2	2.2	2.1	2.3	1.8	2.0	2.0	1.7	1.7	19
2.4	2.3	2.0	3.0	1.9	1.7	1.6	2.0	2.0	2.2	2.0	1.6	20
2.2	2.2	2.2	2.2	1.8	1.8	1.6	1.9	1.5	1.5	1.8	1.5	21
2.6	2.4	2.2	2.2	2.6	2.6	2.2	2.2	2.6	2.6	2.4	2.2	22
2.2	2.4	2.2	2.4	2.5	2.0	2.3	2.0	2.4	1.7	2.2	1.8	23
2.4	2.4	2.2	2.0	1.8	1.6	1.5	2.0	2.0	1.6	2.2	1.8	24
2.2	2.2	2.0	2.2	2.0	1.9	2.6	2.0	2.2	1.9	1.8	1.9	25
2.6	2.6	C	C	1.7	1.7	1.6	2.0	1.9	2.1	1.5	2.1	26
2.4	2.4	2.3	1.9	1.7	1.7	1.8	1.8	1.9	2.0	1.9	2.2	27
2.3	2.2	2.2	2.4	2.4	1.9	2.0	2.0	2.0	1.4	2.2	1.9	28
2.6	2.3	2.1	2.5	2.2	2.6	1.6	2.0	2.0	2.0	2.0	2.2	29
2.3	2.2	2.2	1.9	2.0	2.6	2.0	1.9	2.2	2.1	1.7	1.7	30
2.4	2.3	2.0	1.7	2.0	1.8	1.8	2.0	2.0	2.0	2.0	2.1	31
29	30	29	29	31	31	31	31	31	31	30	30	Count
2.4	2.3	2.2	2.1	1.9	1.7	1.6	1.9	1.8	1.7	1.8	1.6	Median
2.4	2.3	2.2	2.1	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F2

TABLE 85

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								L	L	320	315	350
2								L	320	320	330	355
3								L	315	315	I	365
4								L	L	320	350	360
5								L	310	L	310	350
6								C	C	C	C	330
7								L	300	L	330	320
8								I	260	300	320	320
9								270	280	305	320	360
10								270	300	320	330	340
11								L	L	305	325	325
12								L	L	L	360	360
13								L	260	300	330	325
14								L	290	275	L	330
15								L	L	L	L	345
16								C	L	C	C	C
17								L	L	L	360	L
18								L	280	320	345	L
19									L	L	390	465
20								L	L	L	440	440
21								L	L	300	300	L
22								C	C	C	C	380
23								L	L	305	L	380
24								L	300	300	340	420
25								L	L	L	L	420
26								L	305	330	360	400
27									L	340	370	420
28									L	340	370	380
29								L	L	330 ^{UL}	400	360
30								I	L	400	370	370
31								L	L	325	320	C
Count								3	14	19	24	26
Median									300	320	310	360
Mean									295	320	350	370

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F2

TABLE 85

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
350	315	330	L	L								1
350	340	320	I	L	L							2
345	340	L	315	L								3
360	340	L	L	L								4
360	330	L	315	L								5
L	325	L	315	265								6
360	350	I	L	L								7
315	345	315	L	L	L							8
350	325	320	310	L								9
330	320	320	L	L								10
320	315	325	L	L								11
350	360	315	L	L								12
340	L	335	L	L	L							13
325	L	310	285	L								14
L	310	L	L	L								15
C	C	C	C	C	L							16
L	L	350	L	L								17
380	L	L	320	L								18
440	420	380	L	L	L							19
450	365	345	L	L	L							20
L	390	335	L	L	L							21
385	360	335	L	L	L							22
L	L	380	L	L	L							23
380	365	L	L	L	L							24
380	400	L	L	L	L							25
380	390	380	C	L								26
375	385	L	350	320								27
385	375	360	370	L								28
370	365	310	325	L								29
360	360	L	L	300								30
350	340	L	340	L								31
25	25	18	10	3								Count
360	350	335	320									Median
365	355	340	325									Mean

Sweep 1 0 Mc. to 25 0 Mc in 27 seconds

Characteristic h'F2

TABLE 85—Contd

Latitude 10 2' N

Unit Km

Ionospheric Data

Longitude 77 5' E

Month December, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							L	L	305	330	310	310
2							290	I	320	I	350	350
3							270	L	300	320	325	340
4							275	L	330	L	360	350
5							270	I	L	L	L	330
6							C	C	C	C	C	350
7							265	L	L	L	310	L
8							L	250	280	L	315	315
9							260	285	300	315	330	350
10							260	300	290	320	315	340
11								270	300	320	310	350
12								L	I	355	L	360
13								260	270	335	330	330
14								L	300	380	L	325
15								L	300	360	365	325
16							C	L	C	C	C	C
17								L	L	380	370	375
18								290	300	340	360	420
19								L	360	390	330	460r
20								L	L	405	460	415
21							L	I	300	325	355	I
22							C	-C	C	C	420	400
23							L	L	310	355	320	380
24							L	300	L	355	400	385
25							L	L	I	395	L	420
26							L	L	305	360	385	410
27								L	L	365	415	400
28								L	320	350	360	380
29								L	L	I	400	360
30								L	335	360	365	360
31								L	320	310	380	350
Count							7	7	19	22	25	28
Median							270	285	300	350	360	375
Mean							270	280	310	350	365	370

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'F2

TABLE 85—Contd.

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963.

75°L Mean Time

1230	1330	1130	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
360	335	L	L									1
340	340	320	L	L								2
L	L	L	L	L								3
345	330	L	L	L								4
L	L	L	L	L								5
345	L	300	300	265								6
L	L	L	L									7
320	320	320	L	L								8
335	330	300	300	L								9
315	340	340	L	L								10
C	310	310	L	L								11
360	340	305	L	L								12
330	L	325	L	L								13
315	310	300	285	L								14
L	L	320	L	L								15
C	C	C	C	L	L							16
360	370	360	L	L								17
360	360	335	L	L								18
450r	405	L	L	L								19
410	390	330	L	L								20
L	360	L	L	L	L							21
L	L	L	310	L	L							22
390	L	L	320	L	L							23
360	L	L	L	L								24
L	L	L	L	L	L							25
380	400	C	C	L								26
390	385	L	L	L								27
370	370	340	L	L								28
365	340	325	L	L								29
360	320	L	315	280								30
370	350	L	L									31
22	20	15	6	2	.							Count
360	340	320	305									Median
360	350	320	305									Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic h'F

TABLE 86

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	260	230	220	235	240	R	260	230	205	200 _H	190 _H	190
2	240	225	215	225	230	240	245	230	220 _H	200	190	195
3	260	260	255	240	240	240	260	230	200	200	200	195
4	260	280	300	280	285	265	260	230	200 _H	200	190 _H	185 _H
5	250	250	230	230	E	R	260	230	215	200	200	200
6	260	C	C	C	C	C	C	C	C	C	C	200
7	240	230	230	230	240	F	250	240	215	200	200	200
8	230	230	230	240	240	240	240	240	220	220	200	200
9	C	C	C	280	F	240	245	240	220	215	200	200
10	235	250	235	235	A	A	250	230	220	205	190 _H	190 _H
11	220	225	220	220	220	225	245	220	205	195	185	180
12	230	230	220	230	240	240	255	220	205	200	190	195
13	220	220	220	230	220	230	215	230	210	200	200	200
14	210	220	220	235	245	270	260	225	210	180 _H	190	200
15	235	240	250	250	250	265	260	230	215	200	195	200
16	240	225	240	250	E	E	260	C	205	C	C	C
17	225	230	235	245	260	E	260	230	220	210	200	195
18	230	230	260	R	R	R	250	220	220	210	200	190
19	245	255	265	260	R	E	260	235	220	200	200	180
20	230	230	R	250	R	E	240	235	220	205	200	190
21	240	240	245	300	275	260	260	220	220	190	200	200
22	260	280	E	270	E	E	260	C	C	C	C	185
23	R	E	E	E	E	E	260	220	220	205	200	195
24	240	280	310	300	E	F	260	225	220	200	200	200
25	240	260	240	260	300	F	265	200	200	200	185	200
26	255	255	255	E	E	E	270	230	215	190	200	200
27	S	270	290	S	S	E	260	220	220	200	205	195
28	230	230	260	260	265	E	260	230	215	195	190	180
29	260	230	230	250	S	270	265	235	210	200	190	200
30	F	230	220	240	260	260	270	240	220	230	215	210
31	225	240 _F	230	245	240	R	270	235	220	215	200	C
Count	27	29	28	28	23	22	30	28	29	28	28	29
Median	240	230	240	250	260	270	260	230	215	200	200	195
Mean	240	240	245	250	250	250	255	230	215	200	195	195

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F

TABLE 86

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
195	205	210	200	220	245	260	265	240	255	240	230	1
195	200	200	200	200	250	235	240	240	220	220	230	2
200	200	195 _H	210	215	250	265	295	260	225	210	250	3
190 _H	190 _H	190 _H	210	220	260	260	260	250	240	240	260	4
190 _H	190 _H	215	210	220	245	240	270	280	C	265	250	5
200	200 _H	200	200	220	240	260	280	280	240	235	225	6
200	200	200	220	200	250	260	260	235	230	220	225	7
200	200	200	200	240	240	260	255	250	230	225	C	8
200	200 _H	205	215	215	250	270	280	240	230	240	210	9
190	180 _H	190 _H	205	220	240	260	260	245	240	225	210	10
180 _H	195	200	200	210	240	260	260	250	250	235	230	11
190	180	180	200 _H	230	250	245	240	240	225	230	230	12
190	180	190 _H	220	220	235	260	255	210	230	220	220	13
200	195	200	210	240 _{UA}	240	255	240	255	260	210	220	14
190	195	180 _H	205	225	240	240	240	220	210	235	220	15
C	C	C	C	C	250	265	270	295	260	225	230	16
190	180	200	210	225	260	245	250	260	250	220	220	17
180	180	205	220	225	250	230	240	240	245	225	230	18
180	180	185	210	220	245	250	240	230	220	235	225	19
180	180	185	200	220	260	265	300	310	250	245	245	20
200	180	200	200	220	255	260	245	235	220	220	240	21
180	180	190	200	220	260	260	275	265	240	245	270	22
185	185	185	220	230	240	260	280	265	225	220	240	23
185	180	180	200	230	230	260	300	300	230	240	260	24
185	180	190	200	200	245	240	260	300	245	220	225	25
180	180 _H	190	C	215	240	260	290	260 _{UF}	220	225	220	26
190	185	190	200	A	235	250	260	250	260	280	250	27
180	180	180	185	220	240	255	300	330 _F	310 _F	300 _F	240 _F	28
190	180 _H	195	200	220	240	260	295	320	325	340 _F	F	29
190	195 _H	195	200	235 _H	260	245	260	240	230	220	220	30
200	200	195	200	220	C	260	295	300	280	240	260	31
30	30	30	29	29	30	31	31	31	30	31	29	Count
190	185	195	200	220	245	260	260	250	240	235	230	Median
190	190	195	205	220	250	255	265	260	245	240	235	Mean

Sweep 1 0 Mc to 25.0 Mc, in 27 seconds.

Characteristic h'F

TABLE 86—Contd.

Latitude . 10 2° N.

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	245	220	230	245	235	270	245	200	200	190 _{tr}	190	220
2	230	220	210	230	235	265	240	230	200	190	200	195
3	250	260	240	230	235	260	240	220	205 _{tr}	205	195	205
4	270	290	280	295	F	250	240	220	200 _{tr}	190	185 _{tr}	195 _{tr}
5	245	240	220	E	E	290	260	240	215 _{tr}	200	200	185 _{tr}
6	280	C	C	C	C	C	C	C	C	C	C	200
7	230	230	230	240	260	F	240	220	215	200	200	200
8	230	230	240	240	250	225	240	230	220	200	200	200
9	C	C	C	F	245	250	240	230	220	200	200	195 _{tr}
10	230	240	225	245	A	A	240	230	220	195 _{tr}	195	195
11	225	225	215	220	230	240	230	205	200	200	180	195
12	230	225	225	235	250	255	240	205	200	185	195	190
13	210	220	220	220	235	240	240	220	200	200	200	190
14	205	220	230	240	240	260	240	215	200	200 _{tr}	190	190
15	230	250	240	240	270	250	240	220	210	200	200	190
16	230	235	255	255	E	E	C	215	C	C	C	C
17	225	220	240	260	E	E	235	225	220	210	200	200
18	230	240	280	R	R	265	240	220	220	200	190	190
19	240	260	260	270	R	E	240	210	205	200	190	180
20	240	230	260	260	A	E	240	225	210	205	195	185
21	240	245	260	290	260	R	180	200	200	200	200	200
22	280	280	275	E	E	E	C	C	C	C	195	180
23	200	E	E	E	E	E	240	220	220	205	200	190
24	240	305	300	340	E	F	240	220	200	200	195	195
25	260	260	250	265	F	F _s	250	220	200	200	200	185
26	245	255	240	E	E	E	235	195 _{tr}	200	190	195	180
27	260	335 _{tr}	S	S	S	E	240	210 _{tr}	200 _{tr}	205	200	180
28	235	260	260	260	C	E	240	200 _{tr}	200	195	190	180
29	230	235	240	295	280	260	245	225	200	200	190	190
30	240	225	240	240	240	250	250	240	230	220	210	200
31	240	230	250	235	260	R	250	220	220	205	200	200
Count	30	29	28	27	22	24	28	29	28	28	29	30
Median	240	240	240	255	260	265	240	220	200	200	195	190
Mean	240	245	245	255	250	255	240	220	210	200	195	195

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'F

TABLE 86—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
210	200	205	200 _{II}	225	260	265	250	210	235	210	240	1
200	200	200	205	240	240	210	235	240	220	230	240	2
200	200 _{II}	195 _{II}	200	240	260	270	300	230	230	240	260	3
190 _{II}	190 _{II}	220	220	240	260	260	270	240	230	250	260	4
215	215	210	225	240	250	260	290	280	260	240	260	5
200	205	205	230	230	250	285	280	260	230	230	230	6
200	190 _{II}	200	200	240	260	260	245	225	230	220	230	7
200	210	215	220	240	250	260	260	240	220	C	C	8
185 _{II}	195 _{II}	220	215	210	260	280	1	240	230	240	240	9
190 _{II}	205	200	200	280	260	260	260	235	225	240	225	10
C	200	200	205	235	250	260	255	255	240	240	230	11
180	180	210	210	230	255	240	245	235	230	230	220	12
180	180 _{II}	200 _{II}	215	230	250	260	240	240	225	220	215	13
195	190	200 _{II}	210	235	255	260	240	265	220	210	225	14
185	180	200	210	235	240	245	230	210	220	225	230	15
C	C	C	C	240	280	265	300	280	230	220	230	16
180	180	200	220	225	260	250	210	250	225	220	225	17
180	200	200	200	210	240	240	215	225	210	220	230	18
180	180	190	210	210	250	250	240	220	230	225	230	19
180	180	200	220	210	260	290	325	285	240	250	240	20
185	190	195	200	240	260	260	210	220	210	230	240	21
180	185	200	220	235	260	260	280	260	240	250	200	22
180	180	200	225	220	250	275	280	240	220	240	235	23
195	200	180	200	220	250	260	300	265	235	240	210	24
180	190	200	220	210	240	260	300	280	225	220	240	25
180	180	C	C	230	245	270	275	240	230	220	260	26
180 _{II}	180	180	230	230	245	260	245	240	270	270	245	27
180	180 _{II}	200	220	230	250	275	320	320 _F	300 _F	265 _{UI}	260	28
185	180 _{II}	200	205	240	255	280	300	315	330 _F	320	F	29
195	195	200 _{II}	200	210	260	250	260	240	220	215	215	30
200	200	200	215	230	260	270	300	295	260	240	F	31
29	30	29	29	31	31	31	30	31	31	30	28	Count
185	190	200	210	235	255	260	260	240	230	235	230	Median
190	190	200	210	235	255	260	270	250	235	235	235	Mean

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E

TABLE 87

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								A	A	A	A	A
2								A	A	A	A	A
3								A	A	A	A	A
4								A	A	A	A	A
5								A	A	A	A	A
6								C	C	C	C	A
7								A	A	A	A	A
8								120 _H	110	105	105	A
9							105	115	105	A	A	A
10								110	A	A	A	A
11								110	A	A	A	A
12								110	A	A	A	A
13								120	110	110	110	A
14								110	A	A	A	A
15								115	A	A	A	A
16								C	A	C	C	C
17								A	A	A	A	A
18								120	A	A	A	A
19								A	A	A	A	A
20								A	A	A	A	A
21								120	115	A	A	A
22							C	C	C	C	C	A
23								120	120	A	A	A
24								A	A	A	A	A
25								A	A	A	A	A
26								120	110	A	A	A
27								120	110	A	A	A
28									110	A	A	A
29								120	110	A	A	A
30								A	A	A	A	A
31								A	A	A	A	C
Count							1	14	9	2	2	
Median								120	110			
Mean								115	110			

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'E

TABLE 87

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
A	A	A	A	A								1
A	A	A	A	A	120							2
A	A	A	A	A	120							3
A	A	A	A	A	A							4
A	A	110	A	A	A							5
A	A	A	A	A								6
A	A	A	A	A	A							7
105	A	A	A	A	A							8
A	A	105	A	A	A							9
A	A	A	A	A	120							10
A	115	110	120	115								11
A	A	110	105	120	120							12
A	A	A	110	120	120							13
110	115	120	120	120	A							14
A	A	A	110	120								15
C	C	C	C	C	A							16
A	A	A	A	A	A							17
A	A	A	130	130								18
A	A	A	110	130	A							19
A	A	A	120	125	140							20
A	A	A	A	A	A							21
A	A	A	A	A	120							22
A	A	A	A	A								23
A	A	A	A	A	A							24
A	A	A	A	A	A							25
A	A	A	C	115								26
A	A	A	A	110								27
A	A	A	A	120								28
A	A	115	A	A								29
A	A	A	A	120	A							30
A	A	A	A	A								31
2	2	6	8	12	7							Count
		110	115	120	120							Median
		110	115	120	125							Mean

Sweep 1.0 Mc, to 25.0 Mc in 27 seconds.

Characteristic h'E

TABLE 87—Contd

Latitude 10 2°N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							A	A	A	A	A	A
2							A	A	A	A	A	A
3							120	A	A	A	A	A
4							A	A	A	A	A	A
5							A	A	A	A	A	A
6							C	C	C	C	C	A
7							115	A	A	A	A	A
8							120	110	105	105	A	A
9							115	115	A	A	A	A
10							A	A	A	A	A	A
11							135	110	A	A	A	A
12								105	A	A	A	A
13							140	115	110	110	A	A
14							120	110	A	A	A	110
15							140	140	A	A	A	A
16							C	A	C	C	C	C
17								A	A	A	A	A
18								120	A	A	A	A
19								A	A	A	A	A
20							135	A	A	A	A	A
21								115	A	A	A	A
22							C	C	C	A	A	A
23								120	A	A	A	A
24							A	A	A	A	A	A
25								A	A	A	A	A
26							130	120	A	A	A	A
27								110	110	A	A	A
28								110	A	A	A	A
29								115	A	A	A	A
30								A	A	A	A	A
31								A	A	A	A	A
Count							10	14	3	2		1
Median							125	110				
Mean							125	115				

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic h'E

TABLE 87—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
A	A	A	A	A								1
A	A	A	A	120								2
A	A	A	A	A								3
A	A	A	A	A								4
A	110	110	A	A								5
A	A	A	A	A								6
A	A	A	A	A								7
A	105	A	A	A								8
A	110	A	A	A								9
A	A	A	A	A								10
C	120	B	115	A								11
A	110	110	115	120								12
A	110	A	120	120								13
110	115	115	120	A								14
A	A	110	115	120								15
C	C	C	C	A	A							16
A	A	A	A	A	A							17
A	A	120	125	130								18
A	A	A	120	A	A							19
A	A	A	120	125								20
A	A	A	A	A								21
A	A	A	A	120								22
A	A	A	A	A								23
A	A	A	A	A								24
A	A	A	A	A								25
A	A	C	C	120								26
A	A	A	110	120								27
A	A	A	120									28
A	110	A	A	A								29
A	A	A	A	A								30
A	A	A	A	A								31
1	8	5	10	9								Count
	110	110	120	120								Median
	110	115	120	120								Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds.

Characteristic h'Es
Unit Km
Month December, 1963

TABLE 88
Ionospheric Data
75°E Mean Time

Latitude: 10 2° N
Longitude: 77 5° E.

Date	00	01	02	03	04	05	06	07	08	09	10	11
1								100	100	100	100	100
2								100	100	100	100	100
3			115					100	100	100	100	100
4		110						100	100	100	100	100
5								100	100	100	100	100
6	110							C	C	C	C	100
7								100	100	100	100	100
8								G	G	G	G	100
9							G	G	G	100	100	100
10					105	100		100	100	100	100	100
11								G	100	100	100	100
12							100	105	100	100	100	100
13								G	G	G	100	100
14								105	100	100	100	100
15								G	100	100	100	100
16								C	100	C	C	C
17								120	100	100	100	100
18								G	110	100	100	100
19					100			100	100	100	100	100
20								100	100	100	100	100
21								G	G	100	100	100
22							C	C	C	C	C	100
23								G	G	100	100	100
24								100	100	100	100	100
25								100	100	100	100	100
26								G	100	100	100	100
27								110	100	100	100	100
28								120	105	100	100	100
29								100	100	100	100	100
30								100	100	100	100	100
31								100	100	100	100	C
Count	1	1	1		2	1	1	19	24	26	27	29
Median								100	100	100	100	100
Mean								105	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 88

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
100	100	100	100	100		100				115		1
100	100	100	100	100	G					120		2
100	100	100	100	100	G			115				3
100	100	100	100	100								4
100	100	G	100	100	100		125			115	110	5
100	100	100	100	100			115	120				6
100	100	100	100	100	100							7
G	100	100	100	100	110	100						8
100	100	G	100	100	100							9
100	100	100	100	100	G				130	110	110	10
115	110	100	G	G	130		120	115				11
100	100	100	G	110	G	115						12
100	100	100	100	115	G		125	125				13
100	G	G	G	120	120		115		115			14
100	100	100	100	100								15
C	C	C	C	C	100							16
100	100	100	100	100	120							17
100	100	100	G	G					100	120		18
100	100	100	G	G	100							19
100	100	100	G	G	G							20
100	100	100	100	100	100							21
100	100	100	100	100	G							22
100	100	100	100	100								23
100	100	100	100	100	120							24
100	100	100	100	100	100							25
100	100	100	C	100			140					26
100	100	100	100	110								27
100	100	100	100	105								28
100	100	100	100	100							115	29
100	100	100	100	G	100				115			30
100	100	100	100	100								31
29	29	27	23	23	13	2	6	4	4	5	3	Count
100	100	100	100	100	100		120			115		Median
100	100	100	100	100	105		125			115		Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 88—Contd

Latitude 10 2° N

Unit Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1							100	100	100	100	100	100
2							100	100	100	100	100	100
3	115	115					G	100	100	100	100	100
4	115	115			110		100	100	100	100	100	100
5							100	100	100	100	100	100
6							C	C	C	C	C	100
7							G	100	100	100	100	100
8							G	G	G	G	100	100
9							G	G	100	100	100	100
10					100	100	100	100	100	100	100	100
11							G	100	100	100	100	100
12			110				105	100	100	100	100	100
13							G	G	G	100	100	100
14							110	100	100	100	100	100
15							100	100	100	100	100	100
16							C	100	C	C	C	C
17							140	100	100	100	100	100
18							140	G	110	100	100	100
19				100			G	100	100	100	100	100
20					100		R	100	100	100	100	100
21								G	100	100	100	100
22							C	C	C	C	100	100
23								G	100	100	100	100
24							100	100	100	100	100	100
25								100	100	100	100	100
26							G	100	100	100	100	100
27								100	100	100	100	100
28								105	100	100	100	100
29							120	105	100	100	100	100
30								100	100	100	100	100
31								100	100	100	100	100
Count	2	2	1	1	3	1	12	23	26	27	29	30
Median	—	—	—	—	—	—	100	100	100	100	100	100
Mean	—	—	—	—	—	—	110	100	100	100	100	100

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic h'Es

TABLE 88—Contd.

Latitude 10 2° N

Unit: Km

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
100	100	100	100	100	100					105		1
100	100	100	100	G								2
100	100	100	100	100				115				3
100	100	100	100	100								4
100	G	G	100	100			115		115		110	5
100	100	100	100	100			115					6
100	100	100	100	100								7
100	G	100	110	100				115				8
100	G	100	100	100								9
100	100	100	100	100					105	110	115	10
C	100	G	G	135				120	120			11
100	100	G	120	G		115	110					12
100	100	100	130	110		135						13
100	G	G	G	120		115	120	125				14
100	100	100	G	G								15
C	C	C	C	100	120	140			120			16
100	100	100	100	100	120							17
100	100	G	G	G					110	120		18
100	100	100	G	100	100							19
100	100	100	G	G								20
100	100	100	100	100								21
100	100	100	100	—	100							22
100	100	100	100									23
100	100	100	100	120					120			24
100	100	100	100	100	100							25
100	100	C	C	G		120						26
100	100	100	100	120								27
100	100	100	100						120			28
100	100	100	100	100								29
100	100	100	100	100								30
100	100	100	100	100								31
29	26	24	23	22	6	5	4	4	7	3	2	Count
100	100	100	100	100	100	120	—	—	120	—	—	Median
100	100	100	100	105	105	125	—	—	115	—	—	Mean

Sweep 1 0 Mc. to 25 0 Mc. in 27 seconds

Characteristic (M3000)F2
Unit
Month December, 1963.

TABLE 89
Ionospheric Data
75°E Mean Time

Latitude 10 2° N
Longitude 77.5° E

Date	00	01	02	03	04	05	06	07	08	09	10	11
1	3 40	3 35	3 40	3 40	3 40	R	3 60 _{us}	2 90	2 75	2 70	2 70	2 75
2	3 35	3 40	3 50	3 40	3 45	3 50 _R	3 10	3 10	2 90 _{us}	2 80	2 70	2 60
3	3 20	3 25	3 15	3 30	3 20	3 45	3 20	3 10	2 85	2 70	2 70	2 65
4	3 15	3 05	3 10	3 10	F	F	F	3 10 _s	2 80	2 75	2 75	2 65
5	3 30	3 30	3 40	3 50	E	R	3 05	3 10	2 80	2 65	2 65	2 75
6	3 15	C	C	C	C	C	C	C	C	C	C	2 80
7	C	3 30	3 25	3 50	3 40	F	3 20	3 10 _{us}	2 85	2 65	2 65	2 80 _{us}
8	3 35	3 40	3 40	3 45	3 40	3 55 _{us}	S	3 35	3 30	3 10	3 00	2 95 _{us}
9	C	C	C	F	F	3 20 _{us}	3 20 _{us}	3 30	3 25	3 05	2 80	2 70
10	3 35	3 30	3 35	3 40	3 45	A	3 30	3 20	3 10	2 80	2 65	2 90
11	3 50	3 55	3 55	3 50	3 55	3 55 _{us}	3 45	3 40 _{js}	3 05	2 65	2 75	2 90
12	F	3 45 _F	3 60 _{UF}	3 50	3 60	3 45 _R	3 20	3 05	2 70	2 50	2 75	2 50
13	3 55	3 60	3 45 _s	3 30	3 45	3 55	3 50	3 45 _{us}	3 10	3 10	2 85	2 70 _{it}
14	3 60	3 55	3 40	3 35	3 50	3 30 _{UR}	3 10	3 00	2 90 _{us}	2 80 _{js}	2 65	2 85
15	3 50	3 35	3 30	3 25	3 25	3 20	3 30 _{us}	3 20	3 05	2 50	2 50	2 70
16	3 45	3 50	3 50	3 60 _R	E	E	3 40 _s	C	2 80	C	C	C
17	3 50	3 50	3 55	3 55	3 60 _R	E	3 50	3 30	3 15	2 60	2 60	2 60
18	3 50	3 50	3 45	R	R	3 15	3 35	3 50	3 15 _{us}	3 20	2 40 _{it}	2 60
19	3 50	3 50	3 45	3 50	3 50	E	3 40	3 45 _{us}	3 20	2 50 _{it}	2 50	2 55
20	S	3 60	3 30	3 55	R	E	3 50	3 35	3 00	2 65 _{UH}	2 50	2 60
21	3 35	3 35	3 40	3 20	3 10	3 40	3 30	3 60	3 30	3 00	2 40 _{it}	2 40
22	3 30	3 20	E	3 40 _R	E	E	3 30	C	C	C	C	2 50
23	R	E	E	E	E	E	3 40	3 50	3 30	3 35	2 60 _{it}	2 65
24	S	S	3 00 _s	3 20 _{UR}	E	F	3 20 _r	3 10	2 65	2 70	2 50	2 60
25	3 35	3 20	3 50 _R	3 40 _{us}	3 20 _{us}	F	3 15	3 10	2 75	2 65 _{us}	2 70 _s	2 60
26	3 50	3 50	3 60	L	E	E	3 25	3 25	3 05	2 85	2 70	2 60
27	R	3 45	F	S	S	E	3 05	3 20	2 85	2 80	2 75	2 50
28	3 50	3 40	3 30	3 50	R	E	3 25	3 20	2 90	2 70	2 90	2 70
29	F	3 40	3 50	3 50	R	3 35 _R	3 20	3 25 _s	2 80	2 65	2 70	2 90
30	F	3 35	3 60	3 60	R	3 45	3 05	3 05 _s	3 00 _{us}	2 70	2 60	2 60
31	3 60	F	F	F	3 55	R	3 15	3 25	2 95	2 85	2 70	C
Count	22	26	25	24	16	13	28	28	29	28	28	29
Median	3 40	3 40	3 40	3 10	3 45	3 45	3 20	3 20	2 95	2 70	2 70	2 65
Mean	3 40	3 40	3 40	3 40	3 40	3 40	3 25	3 25	3 00	2 80	2 65	2 70

Sweep 1.0 Mc to 25.0 Mc in 27 seconds

Characteristic (M3000)F2

TABLE 89

Latitude 10 2° N

Unit

Ionospheric Data

Longitude 77 5° E

Month December, 1963

75°E Mean Time

12	13	14	15	16	17	18	19	20	21	22	23	Date
2 70	2 55	2 45	2 50	2 60	2 70 _{us}	2 85	2 85	2 95	3 15	3 25 _{us}	3 40	1
2 65	2 65	2 60	2 60	2 75	2 85	3 00	3 10	3 15	3 20	3 30	3 40	2
2 70	2 45 _H	2 55	2 65	2 60	2 75	2 70	2 70 _{us}	2 90	3 00 _s	3 20 _{us}	3 20	3
2 55	2 70	2 65	2 65	2 50	2 50	2 70	2 85	2 90	3 05	3 25	3 30	4
2 60	2 80	2 85	2 85	2 95	2 90	2 90	C	2 80	C	3 00 _{us}	3 30 _F	5
2 60	2 55	2 55	2 65	2 80	3 00	3 00	2 95	3 00 _{us}	S	S	3 50	6
2 60	2 60	2 55	2 50	2 60	2 70 _{uc}	2 75 _s	2 85	3 05	3 20 _{us}	3 25 _s	3 55 _{uc}	7
2 90	2 90	2 90	2 85	2 65	2 40 _{uc}	2 80	S	3 00 _s	3 20	3 40	C	8
2 65	2 75	2 80	2 85	2 75	2 70	2 60	2 75 _s	2 95 _{us}	3 15	S	3 40 _{JF}	9
2 75	2 70	2 75	2 60	2 55	2 85	2 85	2 90	3 05	3 10	3 30	3 50	10
2 90	2 95	3 00	3 00	2 80	2 80	2 70	2 80 _{js}	3 05	3 20	3 20	FS	11
2 70	2 65	2 65	2 90	3 00	2 95	2 90	3 05 _{js}	3 25	3 30	3 40	3 50	12
2 70	2 70	2 70	2 75	2 90	2 90	2 70	2 95	3 15	3 25	3 45	3 55	13
2 70	2 80	3 05	3 20	3 20	3 05	3 00	3 25	3 20	3 20	3 55	3 55	14
2 60	2 55	2 65	2 75	2 75	2 85	2 90	3 15	3 30 _{js}	3 50	3 50	3 45	15
C	C	C	C	C	2 85	2 90	2 90	2 80	F	3 45 _s	3 45	16
2 50	2 50	2 70	2 75	2 75	2 85 _{us}	3 05	3 10	3 10	3 25 _s	3 50	3 50	17
2 65	2 65	2 80	2 90	3 05	3 20	3 20	3 20	3 35 _{us}	3 45 _{us}	3 50 _{us}	3 50	18
2 65	2 60	2 70	2 90	3 05	3 20	3 25	3 25	3 40	S	3 50	3 50	19
2 60	2 75	2 80	2 85	3 00	3 05	3 05	2 80	FS	F	F	3 35	20
2 50	2 45	2 60	2 70	2 70	2 80	2 80	2 90	3 10	3 40	3 50	3 50	21
2 55	2 70	2 65	2 65	2 90	3 10	3 00	2 90	2 95	3 35	3 40	3 35	22
2 60	2 55	2 65	2 70	2 85	3 10	3 00	2 90	3 10	3 40	3 60	S	23
2 60	2 60	2 65	2 70	2 80	3 00 _{js}	2 90	2 85	2 75	3 20	3 30	3 35	24
2 60	2 60	2 50	2 65	2 70	2 90	3 10	2 80	2 85	3 05 _{us}	3 40 _s	3 55	25
2 70	2 60	2 60	C	2 80	3 00	3 10	3 00	3 05	3 45	3 50	R	26
2 75	2 70	2 70	2 70	2 80	2 85	3 10	3 10	3 25	3 20	3 20	3 35 _F	27
2 70	2 65	2 65	2 70	3 80	2 95	3 00	2 80	FS	F	F	F	28
2 75	2 75	2 90	2 90	2 85	2 75	2 95	2 85	2 65	F	F	F	29
2 75	2 80	2 70	2 75	2 90	3 20	3 20	3 20	3 30	3 45	3 60	3 55 _{us}	30
2 75	2 65	2 60	2 70	2 75	C	3 05	2 90	2 95	F	F	3 35 _F	31
30	30	30	29	30	30	31	29	29	23	25	25	Count
2 65	2 65	2 65	2 70	2 80	2 90	2 95	2 90	3 05	3 20	3 40	3 45	Median
2 65	2 65	2 70	2 75	2 80	2 90	2 95	2 95	3 05	3 25	3 40	3 45	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000)F2
Unit
Month December, 1963

TABLE 89—Contd.
Ionospheric Data
75°E Mean Time

Latitude 10 2° N.
Longitude 77 5° E

Date	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130
1	3 35	3 35	3 40	3 35	3 50UR	3 10	3 05	2 80	2 75	2 70	2 75	2 70
2	3 40	3 40	3 45	3 45	3 50	2 85	3 10	2 95	2 90	2 65	2 65	2 50
3	3 25	3 15	3 30	3 40	3 35	3 10H	3 25	3 00	2 75	2 85	2 65	2 75
4	3 10	3 05	3 10	F	F	F	3 25	2 90	2 80	2 65	2 70	2 50
5	3 30	3 30	3 50	E	E	2 90H	3 20US	2 95	2 75	2 70	2 60	2 65
6	3 20	C	C	C	C	C	C	C	C	C	C	2 65
7	C	3 30s	3 40s	3 40	3 50H	F	3 25US	2 95	2 75s	2 60	2 60	2 65s
8	3 40	3 40	3 35	3 45	3 30	S	3 50	3 40	3 25	3 10	2 90	2 90
9	C	C	C	F	F	3 30	3 20US	3 30US	3 20	2 90	2 60	2 60
10	3 35s	3 30	3 35	3 40	A	A	3 30	3 20js	2 90	2 70	2 65	2 75
11	3 60	3 55	3 55	3 50	3 60	3 40	3 50	3 30	2 85	2 70	2 80	2 80
12	3 50F	3 60R	3 55F	3 55	3 65UR	3 50	3 30js	2 85	2 65	2 50	2 60	2 55
13	3 55	3 55	3 40	3 45	3 45	3 60JR	3 60	3 50	3 30	3 00	2 60	2 65
14	3 30	3 50	3 45	3 40	3 50	3 40	3 30	2 95	2 95	2 60	2 75	2 60
15	3 55	3 30	3 35	3 25	3 25	3 30	3 40	3 25	2 80	2 70	2 55	2 80
16	3 50	3 50	3 40	R	E	E	C	3 00	C	C	C	C
17	3 50	3 55	3 55	3 55	E	E	3 45	3 30	2 90	2 55	2 65	2 60
18	3 60	3 50	3 35R	R	R	3 10	3 50US	3 50	3 40	2 90	2 65	2 45
19	3 50	3 40	3 45	3 50	R	E	3 50	3 40	2 90	2 05H	2 60	2 60
20	3 50	3 50	3 50	R	A	E	S	3 25	2 55UR	2 70	2 50	2 65
21	3 30	3 30	3 30	3 20R	3 20	R	3 50	3 40	3 20	2 85	2 05H	2 50
22	3 20	3 30	R	E	E	E	C	C	C	C	2 50	2 50
23	3 10R	E	E	E	E	E	3 60	3 40	3 25	2 50H	2 40H	2 60
24	S	3 10s	3 20s	3 10UR	E	F	3 35	2 90	2 70	2 70	2 50	2 55
25	3 20	3 40	3 40	3 20	F	Fs	3 20	2 90	2 75US	2 70US	2 60	2 50
26	3 55	3 50	3 35JR	E	F	E	3 35	3 10	2 80	2 75	2 70	2 60
27	3 50	3 20	S	S	S	E	3 30	3 15	2 90	2 75	2 60	2 55
28	3 45	3 25	3 35	3 50	R	E	3 35	3 05	2 80	2 80	2 85	2 75
29	3 35F	3 40	3 50	3 40	3 35	3 35R	3 30	2 90	2 60	2 70UR	2 60	2 95
30	3 30UF	3 60	3 50	3 65R	3 50	R	3 10	3 00US	2 90	2 70	2 70	2 75
31	3 60UF	F	F	3 50	3 50	R	3 30	3 05	2 90	2 75	2 75	2 60
Count	28	27	25	20	14	12	27	29	28	28	29	30
Median	3 40	3 40	3 40	3 40	3 50	3 30	3 30	3 05	2 90	2 70	2 60	2 60
Mean	3 40	3 40	3 40	3 40	3 45	3 25	3 35	3 10	2 90	2 70	2 60	2 65

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

Characteristic (M3000)F2
 Unit
 Month December, 1963

TABLE 89—Contd
 Ionospheric Data
 75°E Mean Time

Latitude 10 2° N
 Longitude 77 5° E

1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	Date
2 65	2 50	2 45	2 55	2 65	2 90	2 80	2 90	3 00	3 20	3 30	3 35	1
2 60	2 60	2 60	2 65	2 75	2 95	3 15	3 10	3 05	3 25	3 25	3 25	2
2 60	2 45	2 60	2 55	2 60	2 65	2 70	2 80	2 95 ^{us}	3 15 ^{us}	3 15	3 15	3
2 65	2 75	2 60	2 60	2 55	3 60	2 80	2 90	3 00	3 15	3 20	3 25	4
2 70	2 80	2 80	2 90	2 90	2 95	2 90	C	C	3 05	3 05 ^{us}	3 15	5
2 65	2 50	2 55	2 70	2 90	3 00	3 00 ^s	3 00 ^s	3 05 ^s	S	S	C	6
2 60	2 55	2 55	2 60	2 60	2 70	2 80	2 95	3 10	3 20	3 30	3 40	7
2 90	2 95	2 85	2 75 ^{us}	2 55	2 75 ^H	2 90 ^{js}	S	3 05	3 40	C	C	8
2 70	2 80	2 85	2 85	2 70	2 55 ^r	2 65 ^s	S	3 05	3 30	3 30	3 30	9
2 80	2 75	2 70	2 50	2 55	2 85	2 85	2 95	3 10	3 15	3 30 ^{us}	3 55	10
3 00	3 00	3 00	2 90	2 80	2 70	2 80	2 95 ^{js}	3 10	3 25 ^{us}	3 30 ^{us}	F	11
2 65	2 65	2 85	3 00	3 00	2 90	3 00	3 15	3 25	3 40	3 40 ^{js}	3 45 ^{us}	12
2 70	2 70	2 70	2 85	2 95 ^{us}	2 75	2 80	3 10	3 15	3 40	3 50	3 55	13
2 75	2 90	3 10	3 20	3 10	3 00	3 10	3 30	3 15	S	3 50 ^{js}	3 55	14
2 60	2 55	2 70	2 70	2 70	2 90	3 10	3 10	3 30	3 50	3 45	3 45	15
C	C	C	C	2 80	3 00 ^s	2 80	2 70	FS	3 30 ^F	3 35	3 50	16
2 70	2 60	2 75	2 75	2 80 ^s	2 90 ^s	3 10	3 15	3 15 ^s	3 45 ^F	3 45	3 50	17
2 70	2 75	2 85	3 00	3 10	3 20	3 10	3 20	S	3 55 ^{us}	3 60	3 50	18
2 60	2 70	2 70	3 00	3 15	3 20	3 20 ^{us}	3 30	3 45	3 45	3 55	3 50	19
2 65	2 70	2 85	3 00	3 00	3 10	2 90	2 80	F	3 45 ^{ur}	3 40	3 30	20
2 35	2 50	2 70	2 80	2 80	2 80	2 85	3 05	3 40 ^{us}	3 55	3 40	3 30	21
2 60	2 60	2 60	2 80	3 00	3 05 ^{us}	3 00	2 80	3 10	3 45	3 40	3 10 ^R	22
2 60	2 50	2 70	2 80	3 00	3 10	2 90	3 00	F	3 55 ^{us}	3 50	S	23
2 65	2 60	2 70	2 70	2 80	3 00	3 00	2 90 ^s	3 00	3 40	3 40	3 30	24
2 55 ^s	2 50	2 60	2 60	2 80	3 10	3 15	2 80	2 95	3 20 ^{us}	3 40	3 50	25
2 70	2 60	C	C	2 80	3 00	3 05	3 10	3 15 ^{ur}	3 50	3 60	3 55	26
2 65	2 70	2 70	2 70	3 00	3 05	3 00	3 10	3 15	3 20	3 25	3 50	27
2 70	2 60	2 75	2 70	2 80	3 00	2 95	2 70	F	F	F	F	28
2 80	2 85	C	2 90	2 80	2 80	2 90	2 70	2 90 ^{us}	F	F	F	29
2 70	2 70	2 70	2 85	3 05	3 20	3 25 ^{us}	3 20	3 35	3 55	3 55	3 60	30
2 80	2 70	2 60	2 70	2 80	2 95	3 00	2 90	F	F	3 40	F	31
30	40	28	28	31	31	31	28	24	26	27	24	Count
2 65	2 70	2 70	2 75	2 80	2 95	2 95	3 00	3 10	3 40	3 40	3 45	Median
2 70	2 65	2 70	2 80	2 85	2 90	2 95	3 00	3 10	3 35	3 40	3 40	Mean

Sweep 1 0 Mc to 25 0 Mc in 27 seconds

ERRATA FOR KODAIKANAL OBSERVATORY BULLETIN NO. CLXXIII

Part I

Solar Data

Page No.	Heading	Text	Read as
1	First line under Summary of Prominences and Calcium flocculus observations for the second half of 1963	Kodikanal	KodaiKANal
3	4th Para, 2nd line	areas	area
9	16th September, Col. 9	0.80	1.80
9	23th October (21st line)	**0740	**0440
10	14th September (8th line) Column 3	0650	-
10	14th September (8th line) Column 4	-	0650

Part II

Magnetic Data

Page No.	Table No.	Date/Line.	Hour/Column.	Read	for
14	5	27	11	37.3	39.3
16	6	2	14	38.8	33.8
16	6	10	14	37.9	37.7
16	6	11	14	38.1	37.9
13	7	33	03	38.1	43.1
13	7	Head line	-	1963	1962
19	7	Head line	-	1963	1962
21	8	1	-	1963	1962
21	8	10	20	37.6	37.4
26	11	15	04	594	-
27	11	9	31	9	9+
27	11	31	31	31++	31+
33	14	19	18	531	533
35	16	19	04	620	720
40	18	31	01	183	18
42	19	22	06	96	196
43	19	22	28	88	188
47	21	15	26	185	785

Contd 2

Page No.	Table No.	Date/Line.	Hour/Column.	Read	for
48	22	07	12	164	664
48	22	07	13	168	163
48	22	07	10	163	168
48	22	13	07	156	616
48	22	15	04	155	216
48	22	15	06	151	641
48	22	15	09	155	115
48	22	15	13	162	152
48	22	16	07	158	152
48	22	16	13	156	158
48	22	17	13	162	152
48	22	17	14	162	165
48	22	18	11	162	165
48	22	19	13	161	154
48	22	20	07	130	138
48	22	21	06	149	189
48	22	21	08	142	112
48	22	21	11	156	556
48	22	23	08	137	387
48	22	26	08	139	119
50	23	December 2	11	4	-

Part III
Ionospheric Data

Page No.	Table No.	Line/Date.	Column/Hour.	Read	for
52	24	Median	09	7.0	7.1
52	24	27	10	5.6H	6.6
53	24	30	13	6.9	7.9
54	24 (Contd)	3	1130	6.8	.8
55	"	17	1930	7.6	7.0
70	28 (Contd)	3	0130	1.1	-
70	"	4	0130	Delete	1.1
75	29 (Contd)	4	1430	2.5	3.5
75	"	4	1530	3.5	2.5
75	"	5	1531	2.1	3.1
75	"	30	1730	1.6	2.6
76	30	08	08	300	310
79	30 (Contd)	4	1430	360	310
79	"	5	1430	L	335
79	"	8	1430	370	360
79	"	9	1430	385	L
82	31 (Contd)	20	0530	220	260
88	33	6	07	110	100
95	34 (Contd)	18	1530	3.10	2.10

Contd..... 3

Page No.	Table No.	Line/Date.	Column/ Hour	Read	for
98	35 (Contd)	21	0130	E	E
101	35	17	16	4.2U	-
116	40	Count	10	29	27
125	42	1	13	185H	115H
130	45	Count	11	27	17
153	43 (Contd)	Mean	0630	3.35	3.55
133		Mean	1130	2.60	2.
181	56	Count	15	29	-
185	57	Median	17	10.0	10.
189	58	Count	13	17	7
201	61	Median	23	2.2	22
201	"	Mean	23	2.2	22
207	62 (Contd)	Mean	1430	2.3	2.
240	71	5	00	3.2S	3.25
245	72	22	23	-	Nil
245	72	23	21 & 22	,	Nil, Nil
252	74	9	9	300	00
252	74	Count	6	1	-
253	74	Count	17	1	-
253	74	Mean	17	-	1
257	75	Count	13	29	2
272	70	Count	11	29	27
284	82	6	00	2.0	-
285	82	31	14	2.6	10.0
291	83 (Contd)	28	2130	2.2	Nil