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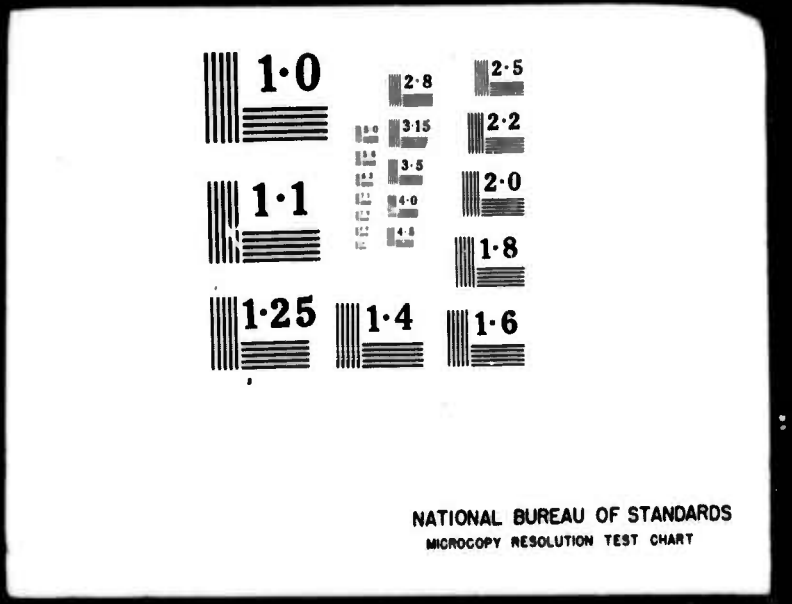
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MICROCOPY RESOLUTION TEST CHART

Geophysical Data Report

FARADAY ROTATION DATA: BANGKOK, THAILAND
Reporting period: July - December 1966

By: VICHAI T. NIMIT

Prepared for:

U.S. ARMY ELECTRONICS COMMAND
FORT MONMOUTH, NEW JERSEY

CONTRACT DA-36-039 AMC-00040(E)
ORDER NO. 5384-PM-63-91
ARPA ORDER NO. 371

SPONSORED BY THE ADVANCED RESEARCH PROJECTS AGENCY
THAI-U.S. MILITARY RESEARCH AND DEVELOPMENT CENTER
FOR THE
SUPREME COMMAND HEADQUARTERS
BANGKOK, THAILAND

STANFORD RESEARCH INSTITUTE

MENLO PARK, CALIFORNIA

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BANGKOK, THAILAND

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I INTRODUCTION

Faraday rotation observations are being carried out at the Electronics Laboratory of the Military Research and Development Center (MRDC) at Bangkok, Thailand, a joint Thailand-United States organization. The cooperation and participation of the staff members of the Thailand Ministry of Defense and the support of the United States Advanced Research Projects Agency and the United States Army Electronics Laboratories have made it possible for the data presented in this report to be accumulated.

The following information about the site is pertinent.

Table I

FARADAY ROTATION SITE AT BANGKOK, THAILAND

Geographic		Geomagnetic		Magnetic Dip
Latitude	Longitude	Latitude	Longitude	
13.73°N	100.57°E	2.5°N	169.83°E	10°N

II DISCUSSION

The data contained in this bulletin are experimental results obtained by analyzing Faraday rotation records obtained from the S-66 (Explorer 22) radio beacon satellite. Half-wave dipole antennas are used to receive 20-, 40-, and 41 MHz unmodulated signals.

The rotation rate technique[1]* is applied to calculate the equivalent vertical electron content from a portion of the record near the transverse position.[2,3] The electron content is calculated at the transverse position. This position corresponded to the subionospheric latitude of $14.3^{0}N \pm 0.1^{0}$ and a subionospheric longitude of $101^{0}E \pm 4.0^{0}$. The electron content is determined by using the following relation:

$$\int_{o}^{h_s} Ndh = \frac{\dot{R}}{\dot{G}} , \qquad (1)$$

where

$\int_{o}^{h_s} Ndh$ = the integrated electron contents from ground to the satellite in electrons/m^2

h_s = the satellite height in kilometers

$\dot{R}$ = the rotation rate in revolutions per minute calculated by using a 1-minute interval centered at transverse position

$\dot{G}$ = the geometrical coefficient, interpolated from values furnished by the Science Research Council, Radio and Space Research Station, Slough, England in rpm/electrons/m^2, assuming the height of the peak F layer density is 300 km.

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*References are given at the end of the report.

The equivalent slab thickness of the ionosphere is determined by:

$$\tau = \frac{\int_0^{h_s} N dh}{1.24 \times 10^{13} (f_o F2)^2} \qquad (2)$$

where

τ = the slab thickness in kilometers

$f_o F2$ = the critical frequency of the F layer in megahertz.

The electron content is calculated from Eq. (1), and the $f_o F2$ critical frequency of the ionosphere is obtained from scaled values from the ionosonde located at the Electronics Laboratory of the Military Research and Development Center at Bangkok.

The calculated values of electron content are plotted for ascending and descending passes, respectively. Because the satellite precessed westward, the time of the satellite passage over Bangkok became progressively earlier. The passage time moved through a 24-hour period in about five and a half months. Therefore, each calculated value of electron content is associated with a particular hour and day.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 July	8646A	1642:26			9.3	0.307	30.3	9.1	300
2 July	8653D	0539:33		1.0		0.322	3.2	4.0	160
2 July	8660A	1709:38			9.0	0.307	29.3	8.8	310
3 July	8674A	1736:56			8.2	0.306	26.8	8.7	290
4 July	8678A	1619:29			7.9	0.306	25.8	8.5	290
5 July	8701A	1646:48			10.5	0.306	34.4	9.4	300
7 July	8728A	1556:31		6.5		0.320	20.3	7.0	330
8 July	8742A	1623:53			8.1	0.303	26.7	8.8	280
9 July	8756A	1651:03		9.5		0.319	29.7	8.9	300
10 July	8769A	1533:41			8.4	0.306	27.5	8.1	340
11 July	8776D	0431:06		0.96		0.316	3.0	4.5	120
11 July	8783A	1600:59			9.2	0.300	30.5	9.5	270
12 July	8789D	0313:55		0.86		0.262	3.2	3.8	180
12 July	8797A	1628:16			9.5	0.299	31.8	8.4	360
13 July	8803D	0341:03		0.55		0.313	1.8	2.7	190
13 July	8810A	1510:47			7.0	0.298	23.5	6.7	420
15 July	8838D	1605:23			9.5	0.296	32.0	9.6	280

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
16 July	8851A	1447:46			7.9	0.298	26.6	6.0	600
18 July	8871D	0228:21		1.2		0.268	4.4	4.3	200
18 July	8879A	1542:17			9.1	0.300	30.4	8.3	360
20 July	8906A	1452:08			7.0	0.296	23.6	7.9	300
21 July	8920A	1519:37			7.8	0.295	26.4	8.2	320
22 July	8926D	0232:32			0.7	0.256	3.1	4.2	140
22 July	8933A	1402:07			7.2	0.293	24.6	7.4	360
23 July	8947A	1429:25			10.2	0.295	34.6	8.8	360
24 July	8953D	0142:22			2.0	0.257	7.7	4.8	270
24 July	8961A	1456:29			8.6	0.290	29.5	7.5	420
25 July	8967D	0209:42			1.1	0.259	4.2	4.8	150
25 July	8974A	1339:06			8.0	0.289	27.8	7.2	430
26 July	8980D	1051:53			3.3	0.264	12.5	7.0	210
27 July	8994D	0119:33			1.3	0.262	4.8	5.2	140
27 July	9002A	1433:45			7.9	0.286	27.7	7.7	380
28 July	9008D	0146:52			1.8	0.263	6.7	4.7	240
28 July	9015A	1316:12			6.7	0.284	30.6	7.1	490

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
29 July	9021D	0029:22		3.1		0.279	11.1	5.7	280
29 July	9029A	1343:28			9.3	0.283	32.9	7.2	510
30 July	9035D	0056:47		2.3		0.279	8.2	5.5	200
30 July	9042A	1226:12			7.2	0.284	25.3	6.9	430
31 July	9049D	0124:02		1.9		0.279	6.6	5.1	210
31 July	9056A	1253:16			8.8	0.281	31.3	7.0	520

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 August	9070A	1320:35			9.5	0.282	33.8	8.7	360
2 August	9076D	0033:37		3.4		0.282	11.9	5.5	320
2 August	9084A	1347:54			9.1	0.282	32.2	8.9	330
3 August	9087A	1230:25			7.2	0.280	25.5	8.0	320
4 August	9111A	1257:43			9.1	0.281	32.5	8.5	360
5 August	9117D	0010:44		4.1		0.287	14.3	5.5	380
5 August	9125A	1325:01			8.4	0.276	30.4	8.7	320
6 August	9131D	0038:03		0.85		0.288	3.0	5.5	80
7 August	9152A	1234:53			8.0	0.274	29.2	8.1	360
9 August	9182A	1144:41			8.2	0.272	30.2	7.5	430
9 August	9185D	2257:29			2.5	0.285	8.7	8.0	110
10 August	9199D	2324:59			2.9	0.284	10.2	7.1	160
11 August	9207A	1239:13			6.0	0.269	23.3	7.6	310
12 August	9220A	1121:49			7.5	0.269	27.8	7.5	400
12 August	9226D	2234:36			3.1	0.293	10.7	9.5	100
13 August	9234A	1149:10			7.3	0.269	27.1	8.2	320
14 August	9254D	2329:25			1.9	0.262	7.1	5.7	180

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated
from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
15 August	9261A	1056:58			6.5	0.265	24.6	7.1	400
16 August	9281D	2239:13			1.8	0.290	6.2	5.2	190
17 August	9295D	2306:31			1.3	0.290	4.5	4.3	200
18 August	9302A	1036:09			6.2	0.260	23.9	6.2	500
19 August	9308D	2149:01			2.3	0.295	7.8	6.5	150
19 August	9316A	1103:28			6.7	0.261	25.7	7.0	420
19 August	9322D	2216:19			2.3	0.295	7.9	6.2	160
20 August	9329A	0946:09			7.8	0.261	29.8	7.4	440
20 August	9336D	2243:25			1.3	0.297	4.5	6.1	100
21 August	9343A	1013:16			7.1	0.259	27.4	7.1	440
22 August	9357A	1040:33			7.4	0.260	28.4	7.3	430
22 August	9363D	2153:26			4.5	0.295	15.3	5.7	380
23 August	9370A	0923:04			5.9	0.260	22.5	8.7	240
24 August	9384A	0950:25			7.4	0.260	28.4	8.5	320
25 August	9398A	1017:42			7.7	0.257	29.9	7.5	430
26 August	9411A	0900:18			6.2	0.263	23.5	8.9	240
26 August	9418D	2157:35			4.5	0.308	14.6	8.0	180

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated
from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
27 August	9425A	0927:35			8.4	0.257	32.7	8.7	350
27 August	9431D	2039:58			7.9	0.312	25.3	8.7	270
28 August	9439A	0954:52			7.9	0.255	30.8	7.7	420
28 August	9445D	2107:17		6.8		0.313	21.8	9.1	210
29 August	9452A	0837:24			7.2	0.255	28.2	8.1	350
30 August	9466A	0904:43			6.4	0.257	24.8	8.9	250
30 August	9472D	2017:01			5.9	0.315	18.7	8.9	190
31 August	9480A	0932:01			8.6	0.252	34.1	7.0	560

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 September	9493A	0814:35			7.5	0.257	29.1	8.9	300
2 September	9507A	0841:53			7.9	0.256	30.9	8.7	330
2 September	9513D	1954:06			8.4	0.316	26.6	9.2	250
3 September	9521A	0909:09			7.8	0.254	30.7	8.4	350
3 September	9527D	2021:23			7.5	0.316	23.7	9.1	230
4 September	9534A	0751:38			5.8	0.254	22.8	8.4	260
4 September	9541D	2048:43			8.4	0.317	26.5	9.0	260
5 September	9548A	0819:02			6.3	0.253	24.9	9.0	250
5 September	9554D	1931:07			7.5	0.315	23.7	8.3	280
6 September	9562A	0846:17			6.6	0.255	26.0	9.0	260
7 September	9575A	0728:48			5.0	0.252	19.8	8.0	250
7 September	9582D	2025:45			7.8	0.317	24.6	8.9	250
8 September	9589A	0756:31			4.5	0.254	17.8	8.5	200
9 September	9603A	0823:25			5.7	0.255	22.3	8.7	240
9 September	9609D	1935:31			9.1	0.315	28.9	7.9	370
10 September	9616A	0705:53			4.0	0.251	15.7	7.2	240
10 September	9623D	2002:49			8.5	0.318	26.8	9.3	250

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
11 September	9630A	0733:18			4.2	0.254	16.3	8.4	190
12 September	9644A	0800:33			5.2	0.255	20.4	8.5	230
13 September	9664D	1940:22			7.1	0.316	22.5	9.3	210
14 September	9671A	0710:53			2.9	0.251	11.5	6.7	210
14 September	9677D	1822:16			10.0	0.320	31.2	10.5	230
15 September	9685A	0737:40			4.4	0.254	17.3	7.8	230
15 September	9691D	0849:35			8.7	0.320	27.2	10.7	190
16 September	9698A	0620:43		1.5		0.261	5.8	4.4	240
16 September	9705D	1916:52			7.5	0.315	23.7	9.0	240
17 September	9712A	0648:03			2.4	0.252	9.5	6.3	190
17 September	9718D	1759:54			10.6	0.308	34.5	7.0	570
18 September	9726A	0714:47			3.0	0.255	11.6	7.4	170
18 September	9732D	1826:31			10.5	0.312	33.7	9.0	340
19 September	9745D	1709:06			10.7	0.316	33.9	10.7	240
20 September	9759D	1736:19			13.1	0.311	42.1	9.0	420
21 September	9767A	0652:33			3.3	0.257	12.9	7.5	180
21 September	9773D	1803:34			12.5	0.311	40.2	9.0	400

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
22 September	9780A	0535:03			0.73	0.250	2.9	4.0	150
22 September	9786D	1646:04			11.3	0.313	36.1	10.4	270
23 September	9794A	0602:23			0.8	0.253	3.2	3.6	200
23 September	9800D	1714:03			13.2	0.312	42.3	10.8	290
24 September	9814D	1740:35			11.8	0.302	39.2	7.3	590
25 September	9827D	1623:50			13.1	0.307	44.0	9.6	380
26 September	9835A	0539:32			0.45	0.255	1.8	3.2	140
26 September	9841D	1650:21			13.8	0.306	45.1	10.0	360
27 September	9855D	1717:38			12.3	0.308	39.9	11.4	250
29 September	9882D	1627:21			10.4	0.296	35.1	8.7	370
30 September	9896D	1654:43			12.9	0.301	42.9	10.5	310

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date	Revolution Number*	Transverse Position, τ_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 October	9903D	1537:10			10.3	0.296	34.8	9.4	320
2 October	9923D	1604:23			12.2	0.299	40.8	11.5	250
3 October	9937D	1631:42			10.8	0.295	36.6	10.0	300
4 October	9944A	0A02:58			0.35	0.263	1.3	2.1	240
4 October	9950D	1514:13			10.8	0.295	36.6	11.2	240
5 October	9964D	1541:28			13.4	0.293	45.7	11.2	300
6 October	9978D	1608:46			13.7	0.292	47.0	10.9	320
7 October	9985A	0340:05			10.0	0.268	3.9	5.0	130
7 October	9991D	1451:14			10.5	0.284	36.9	9.0	370
8 October	9999A	0A07:23			2.2	0.270	8.0	5.3	230
8 October	10005D	1518:28			11.6	0.280	41.2	8.4	470
9 October	10019D	1545:50			15.7	0.281	55.9	8.5	620
10 October	10026A	0317:10			2.1	0.272	7.5	4.5	300
10 October	10032D	1428:20			11.5	0.280	41.2	8.8	430
11 October	10040A	0344:28			0.94	0.274	3.4	4.8	120
11 October	10046D	1455:33			14.0	0.284	49.3	10.9	330
12 October	10060D	1522:56			14.1	0.288	49.0	12.6	250

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated
from Faraday Fading Rate

Date	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
13 October	10067A	0254:15			2.3	0.279	8.1	7.1	130
13 October	10073D	1405:19		13.7		0.297	46.2	10.9	310
15 October	10101D	1459:55			12.3	0.280	45.6	11.4	290
16 October	10114D	1342:23			12.7	0.276	46.1	9.6	400
18 October	10142D	1436:59		12.0		0.290	41.4	10.3	310
19 October	10149A	0208:10			8.3	0.288	28.9	7.7	390
19 October	10155D	1319:26			12.3	0.274	46.4	9.5	410
20 October	10163A	0235:23			3.3	0.288	11.3	7.1	180
20 October	10169D	1346:42			11.0	0.270	40.7	9.0	410
21 October	10176A	0117:52			6.5	0.291	22.4	7.9	290
21 October	10183D	1414:15			11.8	0.272	43.3	10.1	340
22 October	10196D	1256:50			12.3	0.272	45.3	9.9	370
23 October	10210D	1323:47			12.7	0.271	47.0	10.2	360
24 October	10217A	0054:51			4.3	0.295	14.5	8.0	180
24 October	10224D	1351:09			11.1	0.267	41.6	9.1	410
25 October	10231A	0122:31			4.1	0.295	13.9	7.2	220
25 October	10237D	1234:04			12.1	0.267	45.2	9.1	440

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
26 October	10245A	0149:25			2.6	0.295	8.8	7.6	120
26 October	10251D	1300:48			11.2	0.266	42.1	9.3	110
27 October	10258A	0031:53			7.2	0.301	23.7	9.1	230
27 October	10265D	1328:14			12.4	0.306	40.5	10.5	300
28 October	10272A	0059:39			5.5	0.302	18.0	8.7	190
29 October	10292D	1237:56			11.6	0.263	43.9	9.2	420
30 October	10306D	1305:20			10.3	0.269	38.3	10.2	300
31 October	10313A	0036:14			5.3	0.303	17.6	8.0	220
31 October	10319D	1148:13			10.9	0.262	41.5	9.1	400

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated
from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 November	10327A	0103:08			5.1	0.303	16.7	6.9	280
1 November	10333D	1215:02			13.0	0.263	49.2	10.1	390
2 November	10340A	2346:21			6.1	0.306	21.2	8.2	250
3 November	10354A	0013:14			4.7	0.306	15.4	8.0	190
3 November	10360D	1124:48			11.4	0.259	44.1	9.3	410
4 November	10368A	0040:26			5.6	0.310	17.9	9.0	180
4 November	10374D	1152:09			10.6	0.259	40.9	9.2	390
6 November	10395A	2350:13			5.7	0.306	18.6	9.0	180
6 November	10401D	1102:41			11.5	0.271	42.4	12.8	210
7 November	10409A	0017:26			6.2	0.313	19.9	9.0	200
7 November	10415D	1125:14			11.1	0.258	43.0	9.5	380
8 November	10428A	1011:51			9.4	0.270	34.8	12.8	170
9 November	10442D	1039:02			10.3	0.266	38.7	12.2	210
9 November	10450A	2354:26			6.0	0.311	19.4	7.3	290
10 November	10462A	2236:56			7.3	0.314	23.4	8.9	240
11 November	10470D	1133:43			9.7	0.256	37.9	9.1	370
11 November	10477A	2304:38			4.7	0.311	15.0	7.4	220

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
12 November	10483D	1016:08			9.2	0.262	35.2	11.3	230
12 November	10491A	2331:26			4.8	0.313	15.5	7.6	220
13 November	10497D	1043:26			9.9	0.256	38.7	9.2	370
13 November	10504A	2213:57			5.7	0.315	18.1	8.5	200
14 November	10511D	1110:47			8.2	0.253	32.4	8.3	380
15 November	10532A	2308:25			7.5	0.316	23.6	8.9	240
16 November	10538D	1020:33			9.9	0.258	37.6	10.4	280
16 November	10545A	2150:53			7.2	0.316	22.8	9.0	230
17 November	10552D	1047:54			9.4	0.257	36.5	9.8	310
17 November	10559A	2218:12			6.6	0.315	20.9	8.8	220
18 November	10565D	0930:21			8.8	0.261	33.8	11.0	220
18 November	10573A	2245:25			8.1	0.316	25.6	8.9	260
19 November	10579D	0957:38			9.0	0.256	35.0	9.2	330
19 November	10586A	2127:56			6.6	0.316	20.8	9.0	210
20 November	10593D	1025:02		9.2		0.271	34.1	9.9	280
20 November	10600A	2155:13			7.4	0.316	23.4	9.0	230
21 November	10606D	0907:04			9.0	0.255	35.3	9.0	350

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
21 November	10614A	2223:01			5.6	0.315	18.9	8.8	200
22 November	10620D	0934:46			8.1	0.256	31.6	9.3	290
22 November	10627A	2104:56			8.4	0.315	26.7	9.0	270
23 November	10634D	1002:09			7.6	0.255	29.6	9.0	290
23 November	10641A	2132:12			5.8	0.313	18.4	8.3	220
24 November	10647D	0844:34			6.7	0.257	26.1	10.1	210
24 November	10655A	2159:24			5.9	0.309	19.1	6.7	240
25 November	10661D	0911:49			8.0	0.259	30.9	10.5	230
25 November	10668A	2041:17			6.0	0.311	19.1	8.8	200
26 November	10674D	0753:39			5.7	0.252	22.6	7.8	300
26 November	10682A	2108:13			7.1	0.310	22.7	9.0	230
27 November	10688D	0821:39			6.2	0.254	24.4	8.7	260
27 November	10696A	2137:07			7.5	0.308	24.4	8.1	300
28 November	10702D	0849:46			7.6	0.256	29.6	9.1	290
28 November	10709A	2018:56			5.8	0.311	18.6	9.7	160
29 November	10715D	0731:28			4.9	0.253	19.2	8.0	240
30 November	10729D	0758:43			5.1	0.257	19.8	9.2	200

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	$f_o F2$ (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
30 November	10737A	2113:08			6.3	0.306	20.5	9.0	200

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
1 December	10744D	0826:04			6.7	0.257	26.2	9.4	240
1 December	10751A	1955:58			7.7	0.305	25.2	9.1	250
2 December	10765A	2023:13			7.2	0.304	23.7	9.3	220
3 December	10771D	0735:48			3.7	0.254	14.4	7.8	190
3 December	10779A	2050:26			5.4	0.297	18.2	7.2	280
4 December	10785D	0803:10			4.3	0.257	16.7	8.8	170
4 December	10792A	1932:58			6.5	0.299	21.7	8.6	240
5 December	10798D	0645:36			3.0	0.251	11.8	5.8	280
5 December	10806A	2000:26			6.2	0.295	20.9	8.5	230
6 December	10812D	0713:16			3.4	0.253	13.4	6.7	240
6 December	10820A	2027:26			6.9	0.295	23.5	8.9	240
7 December	10826D	0740:15			4.0	0.254	15.7	6.8	270
7 December	10833A	1910:00			8.7	0.295	29.4	9.5	260
8 December	10839D	0623:03			1.4	0.250	5.5	4.1	260
8 December	10847A	1937:15			7.5	0.298	25.2	10.5	180
9 December	10853D	0649:59			2.3	0.256	8.8	5.7	220
9 December	10861A	2004:44			8.4	0.291	28.9	8.2	350

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
10 December	10867D	0717:41			2.8	0.260	10.6	7.3	160
11 December	10880D	0600:11			0.82	0.256	3.2	2.8	330
13 December	10908D	0654:47			1.6	0.260	6.2	5.2	180
13 December	10915A	1824:04			9.6	0.291	33.0	9.7	280
14 December	10929A	1851:18			9.7	0.294	33.0	11.5	200
15 December	10942A	1733:50			10.0	0.290	34.5	10.5	250
16 December	10949D	0631:52			1.0	0.263	3.8	4.5	150
16 December	10956A	1801:07			10.1	0.286	35.3	9.5	320
17 December	10970A	1828:22			9.3	0.287	32.4	10.2	250
18 December	10983A	1710:49			8.9	0.285	31.2	9.8	260
19 December	10990D	0608:59			1.1	0.268	4.1	4.4	170
19 December	10997A	1738:10			10.7	0.286	37.3	10.5	270
20 December	11003D	0451:24			0.80	0.270	3.0	3.3	220
20 December	11011A	1805:24			10.0	0.286	35.0	10.8	240
21 December	11024A	1647:52			10.3	0.287	35.9	11.6	220
22 December	11038A	1715:10			9.8	0.279	35.1	8.8	370
23 December	11052A	1742:17			10.7	0.282	37.9	10.5	280

* The letters A and D indicate ascending and descending satellite passes, respectively.

Electron Content and Equivalent Slab Thickness Evaluated from Faraday Fading Rate

Date (1966)	Revolution Number*	Transverse Position, T_o (GMT)	$\dot{R}$ (rpm)			$\dot{G}$ ($\times 10^{-16}$)	Electron Content ($\times 10^{16}$ elec/m^2)	f_oF2 (MHz)	Slab Thickness, τ (km)
			20 MHz	40 MHz	41 MHz				
24 December	11065A	1624:55			10.01	0.280	35.8	10.4	270
25 December	11079A	1653:06			10.5	0.277	37.9	9.5	340
26 December	11085D	0405:32			1.6	0.279	5.7	4.5	230
26 December	11093A	1719:52			11.1	0.276	40.2	9.7	340
27 December	11099D	0432:49			1.3	0.279	4.6	4.1	220
27 December	11106A	1601:57			10.6	0.277	38.3	10.5	280
28 December	11120A	1629:16			11.6	0.278	41.7	11.0	280
29 December	11126D	0349:36			1.1	0.283	3.7	4.4	150
29 December	11134A	1656:33			10.2	0.275	37.2	10.0	300
30 December	11140D	0409:53			1.0	0.284	3.5	3.8	190
30 December	11147A	1539:08			9.8	0.272	36.0	9.8	300
31 December	11160A	1606:21			10.5	0.273	38.4	10.2	300

* The letters A and D indicate ascending and descending satellite passes, respectively.

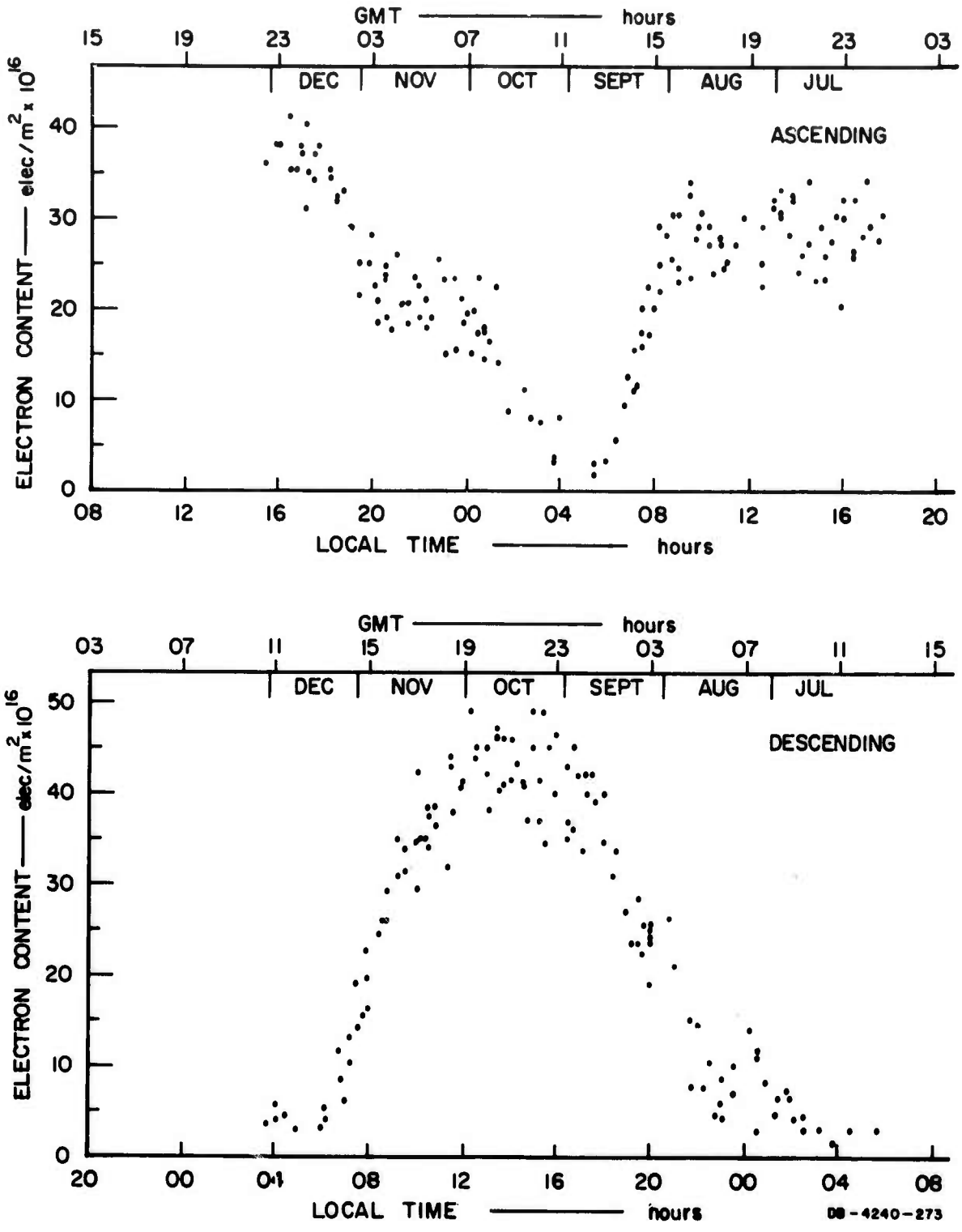

FIG. I DIURNAL VARIATION OF ELECTRON CONTENT

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14. KEY WORDS	LINK A		LINK B		LINK C	
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Total electron content						
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Southeast Asia						
Transverse position (of satellite)						
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