

TABLE 2.4

PHYSICAL EPHEMERIS OF THE ANTUMBRAL SHADOW  
ANNULAR SOLAR ECLIPSE OF 2010 JANUARY 15

$\Delta T = 66.0 \text{ s}$

Universal Time	Central Line		Diameter Ratio	Eclipse Obscur.	Sun Alt °	Sun Azm °	Path Width km	Major Axis km	Minor Axis km	Umbra Veloc. km/s	Central Durat.
	Latitude	Longitude									
05:17.6	06°58.7'N	015°38.6'E	0.9061	0.8210	0.0	111.3	370.7	-	361.0	-	07m09.4s
05:20	03°16.3'N	025°32.1'E	0.9088	0.8260	11.1	112.3	360.4	1817.1	349.5	3.820	07m41.3s
05:25	00°58.9'N	032°22.3'E	0.9108	0.8296	19.4	112.9	354.2	1025.7	341.1	2.017	08m09.8s
05:30	00°18.8'S	036°48.0'E	0.9121	0.8320	25.2	113.3	350.8	789.6	335.6	1.476	08m31.7s
05:35	01°11.1'S	040°15.3'E	0.9132	0.8339	29.8	113.8	348.8	666.5	331.3	1.193	08m50.8s
05:40	01°48.0'S	043°08.9'E	0.9140	0.8354	33.8	114.4	347.4	588.6	327.8	1.013	09m08.1s
05:45	02°14.0'S	045°39.9'E	0.9147	0.8367	37.4	115.1	346.6	534.2	324.8	0.888	09m24.0s
05:50	02°31.6'S	047°54.5'E	0.9154	0.8379	40.7	116.0	346.1	493.9	322.2	0.794	09m38.7s
05:55	02°42.5'S	049°56.6'E	0.9159	0.8389	43.7	117.0	345.8	462.7	319.9	0.723	09m52.3s
06:00	02°47.8'S	051°48.6'E	0.9164	0.8398	46.5	118.2	345.7	438.0	317.8	0.666	10m04.9s
06:05	02°48.2'S	053°32.5'E	0.9168	0.8406	49.1	119.7	345.6	417.9	316.1	0.620	10m16.4s
06:10	02°44.2'S	055°09.7'E	0.9172	0.8413	51.6	121.4	345.5	401.4	314.5	0.583	10m26.9s
06:15	02°36.4'S	056°41.2'E	0.9176	0.8419	53.9	123.3	345.2	387.8	313.1	0.553	10m36.3s
06:20	02°25.1'S	058°07.9'E	0.9178	0.8424	56.0	125.6	344.8	376.4	311.9	0.528	10m44.5s
06:25	02°10.5'S	059°30.4'E	0.9181	0.8429	57.9	128.2	344.3	366.8	310.8	0.508	10m51.7s
06:30	01°52.8'S	060°49.3'E	0.9183	0.8433	59.7	131.2	343.6	358.9	309.9	0.492	10m57.7s
06:35	01°32.3'S	062°05.2'E	0.9185	0.8437	61.3	134.6	342.6	352.4	309.1	0.480	11m02.5s
06:40	01°09.0'S	063°18.4'E	0.9187	0.8440	62.7	138.4	341.5	347.0	308.4	0.470	11m06.2s
06:45	00°43.1'S	064°29.4'E	0.9188	0.8442	63.9	142.7	340.2	342.7	307.9	0.464	11m08.8s
06:50	00°14.6'S	065°38.4'E	0.9189	0.8444	64.9	147.3	338.7	339.5	307.5	0.460	11m10.3s
06:55	00°16.4'N	066°45.9'E	0.9190	0.8445	65.7	152.4	337.1	337.1	307.2	0.458	11m10.8s
07:00	00°49.9'N	067°52.1'E	0.9190	0.8446	66.2	157.7	335.4	335.6	307.0	0.458	11m10.1s
07:05	01°25.8'N	068°57.3'E	0.9190	0.8446	66.4	163.2	333.7	335.0	307.0	0.461	11m08.5s
07:10	02°04.1'N	070°01.9'E	0.9190	0.8446	66.3	168.8	332.0	335.2	307.0	0.466	11m06.0s
07:15	02°44.9'N	071°06.0'E	0.9190	0.8445	66.0	174.3	330.3	336.2	307.2	0.472	11m02.5s
07:20	03°28.1'N	072°10.0'E	0.9189	0.8444	65.4	179.6	328.7	338.1	307.5	0.480	10m58.2s
07:25	04°13.8'N	073°14.2'E	0.9188	0.8442	64.6	184.7	327.3	340.9	307.9	0.491	10m53.2s
07:30	05°02.1'N	074°18.9'E	0.9187	0.8440	63.5	189.4	326.0	344.6	308.4	0.504	10m47.4s
07:35	05°53.1'N	075°24.5'E	0.9185	0.8437	62.2	193.7	324.9	349.4	309.1	0.519	10m40.9s
07:40	06°46.9'N	076°31.4'E	0.9183	0.8433	60.7	197.7	324.1	355.3	309.9	0.536	10m33.8s
07:45	07°43.5'N	077°40.0'E	0.9181	0.8429	59.0	201.3	323.4	362.4	310.8	0.556	10m26.1s
07:50	08°43.3'N	078°50.7'E	0.9179	0.8425	57.1	204.6	323.1	371.1	311.8	0.580	10m17.8s
07:55	09°46.4'N	080°04.3'E	0.9176	0.8419	55.1	207.6	323.0	381.4	313.0	0.607	10m09.1s
08:00	10°53.2'N	081°21.3'E	0.9172	0.8413	52.9	210.3	323.2	393.7	314.4	0.639	09m59.9s
08:05	12°03.9'N	082°42.6'E	0.9169	0.8406	50.6	212.8	323.7	408.6	315.9	0.676	09m50.2s
08:10	13°19.1'N	084°09.3'E	0.9164	0.8399	48.1	215.1	324.5	426.5	317.7	0.720	09m40.1s
08:15	14°39.3'N	085°42.6'E	0.9160	0.8390	45.4	217.3	325.7	448.4	319.6	0.773	09m29.5s
08:20	16°05.3'N	087°24.3'E	0.9155	0.8380	42.5	219.4	327.3	475.6	321.8	0.838	09m18.4s
08:25	17°38.3'N	089°16.9'E	0.9149	0.8370	39.4	221.4	329.3	510.2	324.3	0.919	09m06.7s
08:30	19°19.7'N	091°23.7'E	0.9142	0.8357	36.0	223.4	331.8	555.6	327.1	1.025	08m54.5s
08:35	21°12.1'N	093°50.2'E	0.9134	0.8343	32.2	225.4	334.9	618.1	330.4	1.170	08m41.4s
08:40	23°19.4'N	096°45.2'E	0.9125	0.8326	28.0	227.7	338.8	710.6	334.3	1.382	08m27.3s
08:45	25°49.1'N	100°26.1'E	0.9113	0.8305	23.0	230.2	343.8	866.2	339.0	1.738	08m11.5s
08:50	29°00.1'N	105°36.9'E	0.9098	0.8277	16.5	233.6	351.0	1209.8	345.4	2.519	07m52.7s
08:55	34°49.6'N	116°59.7'E	0.9068	0.8223	4.4	240.5	366.6	4618.8	358.0	10.219	07m21.4s
08:55.4	36°49.6'N	121°40.9'E	0.9058	0.8204	0.0	243.2	372.7	-	362.6	-	07m11.5s