

# ANNULAR SOLAR ECLIPSE OF 2010 JANUARY 15

## TABLE 2.C – MAPPING COORDINATES FOR THE ZONES OF GRAZING ECLIPSE

$\Delta T = 66.0 \text{ s}$									
Longitude	North Graze Zone		Northern	South Graze Zone		Southern	Path Azm °	Elev Fact	Scale Fact km/''
	Latitudes		Limit	Latitudes		Limit			
	Northern Limit	Southern Limit	Universal Time h m s	Northern Limit	Southern Limit	Universal Time h m s			
017°00.0'E	08°17.93'N	08°12.19'N	05:18:28	04°40.26'N	04°40.26'N	05:16:52	111.2	-0.16	1.99
018°00.0'E	07°54.44'N	07°48.62'N	05:18:33	04°17.56'N	04°17.56'N	05:16:58	111.2	-0.15	1.99
019°00.0'E	07°31.06'N	07°25.26'N	05:18:40	03°55.03'N	03°55.03'N	05:17:08	111.0	-0.19	2.00
020°00.0'E	07°07.85'N	07°02.07'N	05:18:50	03°32.68'N	03°32.68'N	05:17:20	110.8	-0.21	2.01
021°00.0'E	06°44.83'N	06°39.08'N	05:19:03	03°10.54'N	03°10.54'N	05:17:35	110.6	-0.22	2.01
022°00.0'E	06°22.02'N	06°16.31'N	05:19:20	02°49.41'N	02°44.57'N	05:17:53	110.4	-0.22	2.01
023°00.0'E	05°59.49'N	05°53.76'N	05:19:39	02°27.74'N	02°22.65'N	05:18:14	110.2	-0.23	2.02
024°00.0'E	05°37.21'N	05°31.47'N	05:20:02	02°06.32'N	02°01.16'N	05:18:39	110.0	-0.23	2.02
025°00.0'E	05°15.20'N	05°09.44'N	05:20:28	01°45.17'N	01°40.09'N	05:19:07	109.7	-0.24	2.02
026°00.0'E	04°53.48'N	04°47.71'N	05:20:58	01°24.32'N	01°19.25'N	05:19:38	109.5	-0.24	2.02
027°00.0'E	04°32.07'N	04°26.29'N	05:21:32	01°03.80'N	00°58.73'N	05:20:13	109.2	-0.25	2.02
028°00.0'E	04°11.00'N	04°05.21'N	05:22:09	00°43.61'N	00°38.61'N	05:20:52	108.9	-0.25	2.03
029°00.0'E	03°50.29'N	03°44.50'N	05:22:51	00°23.77'N	00°18.84'N	05:21:34	108.6	-0.26	2.03
030°00.0'E	03°29.96'N	03°24.18'N	05:23:36	00°04.31'N	00°00.54'S	05:22:20	108.2	-0.26	2.03
031°00.0'E	03°10.04'N	03°04.28'N	05:24:26	00°14.76'S	00°19.51'S	05:23:11	107.9	-0.27	2.03
032°00.0'E	02°50.57'N	02°44.83'N	05:25:19	00°33.40'S	00°38.04'S	05:24:05	107.5	-0.27	2.04
033°00.0'E	02°31.59'N	02°25.87'N	05:26:18	00°51.60'S	00°56.10'S	05:25:03	107.0	-0.28	2.04
034°00.0'E	02°12.73'N	02°07.29'N	05:27:20	01°09.32'S	01°13.67'S	05:26:06	106.6	-0.28	2.04
035°00.0'E	01°54.53'N	01°49.16'N	05:28:28	01°26.54'S	01°30.72'S	05:27:13	106.1	-0.29	2.05
036°00.0'E	01°37.10'N	01°31.60'N	05:29:40	01°43.22'S	01°47.30'S	05:28:25	105.6	-0.30	2.05
037°00.0'E	01°20.30'N	01°14.67'N	05:30:57	01°59.23'S	02°03.35'S	05:29:41	105.1	-0.30	2.05
038°00.0'E	01°04.25'N	00°58.39'N	05:32:19	02°14.60'S	02°18.64'S	05:31:02	104.5	-0.31	2.06
039°00.0'E	00°48.80'N	00°42.82'N	05:33:46	02°29.34'S	02°33.70'S	05:32:28	103.9	-0.32	2.06
040°00.0'E	00°33.76'N	00°28.01'N	05:35:19	02°43.41'S	02°47.68'S	05:33:58	103.2	-0.32	2.07
041°00.0'E	00°19.46'N	00°14.00'N	05:36:57	02°56.77'S	03°00.80'S	05:35:34	102.5	-0.33	2.07
042°00.0'E	00°05.97'N	00°00.84'N	05:38:41	03°09.41'S	03°13.19'S	05:37:15	101.8	-0.34	2.08
043°00.0'E	00°06.67'S	00°11.39'S	05:40:31	03°21.27'S	03°24.75'S	05:39:02	101.0	-0.35	2.08
044°00.0'E	00°18.40'S	00°22.67'S	05:42:27	03°32.14'S	03°35.29'S	05:40:53	100.1	-0.36	2.09
045°00.0'E	00°29.17'S	00°33.46'S	05:44:29	03°42.12'S	03°45.13'S	05:42:51	99.2	-0.37	2.09
046°00.0'E	00°38.92'S	00°43.20'S	05:46:37	03°50.98'S	03°54.26'S	05:44:54	98.3	-0.37	2.10
047°00.0'E	00°47.58'S	00°52.03'S	05:48:52	03°58.68'S	04°02.20'S	05:47:03	97.3	-0.38	2.10
048°00.0'E	00°55.10'S	00°59.65'S	05:51:13	04°05.37'S	04°09.24'S	05:49:18	96.2	-0.39	2.11
049°00.0'E	01°01.41'S	01°05.97'S	05:53:42	04°10.99'S	04°14.76'S	05:51:40	95.0	-0.40	2.12
050°00.0'E	01°06.42'S	01°10.91'S	05:56:17	04°15.39'S	04°19.06'S	05:54:07	93.8	-0.41	2.12
051°00.0'E	01°09.98'S	01°14.33'S	05:58:59	04°18.60'S	04°22.14'S	05:56:41	92.5	-0.42	2.13
052°00.0'E	01°11.75'S	01°16.22'S	06:01:49	04°20.38'S	04°23.93'S	05:59:21	91.2	-0.43	2.14
053°00.0'E	01°12.02'S	01°16.44'S	06:04:46	04°20.86'S	04°24.42'S	06:02:08	89.7	-0.44	2.14
054°00.0'E	01°10.93'S	01°14.87'S	06:07:50	04°19.98'S	04°23.37'S	06:05:02	88.2	-0.45	2.15
055°00.0'E	01°07.84'S	01°11.42'S	06:11:03	04°17.51'S	04°20.89'S	06:08:02	86.7	-0.45	2.16
056°00.0'E	01°02.94'S	01°06.98'S	06:14:23	04°13.16'S	04°17.08'S	06:11:10	85.0	-0.46	2.16
057°00.0'E	00°56.55'S	01°01.16'S	06:17:50	04°06.93'S	04°11.96'S	06:14:24	83.3	-0.47	2.17
058°00.0'E	00°47.91'S	00°53.18'S	06:21:26	03°59.11'S	04°04.65'S	06:17:46	81.5	-0.47	2.17
059°00.0'E	00°38.47'S	00°43.18'S	06:25:09	03°49.63'S	03°55.03'S	06:21:14	79.6	-0.48	2.18
060°00.0'E	00°25.54'S	00°30.83'S	06:29:00	03°38.42'S	03°43.88'S	06:24:50	77.7	-0.48	2.18
061°00.0'E	00°10.36'S	00°16.14'S	06:32:58	03°24.90'S	03°30.80'S	06:28:33	75.8	-0.48	2.18
062°00.0'E	00°06.77'N	00°00.98'N	06:37:04	03°08.79'S	03°14.76'S	06:32:22	73.8	-0.48	2.18
063°00.0'E	00°26.60'N	00°20.78'N	06:41:16	02°50.76'S	02°56.58'S	06:36:19	71.7	-0.48	2.18
064°00.0'E	00°48.92'N	00°42.70'N	06:45:36	02°30.74'S	02°36.10'S	06:40:22	69.7	-0.47	2.17
065°00.0'E	01°13.77'N	01°06.29'N	06:50:01	02°08.37'S	02°13.57'S	06:44:31	67.7	-0.47	2.17

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## TABLE 2.C – MAPPING COORDINATES FOR THE ZONES OF GRAZING ECLIPSE

$\Delta T = 66.0 \text{ s}$									
Longitude	North Graze Zone		Northern	South Graze Zone		Southern	Path Azm °	Elev Fact	Scale Fact km/''
	Latitudes		Limit	Latitudes		Limit			
	Northern Limit	Southern Limit	Universal Time h m s	Northern Limit	Southern Limit	Universal Time h m s			
066°00.0'E	01°41.19'N	01°32.72'N	06:54:32	01°43.21'S	01°48.78'S	06:48:46	65.7	-0.46	2.16
067°00.0'E	02°09.51'N	02°01.98'N	06:59:07	01°15.89'S	01°21.74'S	06:53:07	63.8	-0.45	2.15
068°00.0'E	02°41.99'N	02°33.69'N	07:03:46	00°46.40'S	00°51.81'S	06:57:32	61.9	-0.44	2.15
069°00.0'E	03°16.25'N	03°07.97'N	07:08:28	00°14.74'S	00°19.95'S	07:02:02	60.1	-0.43	2.14
070°00.0'E	03°53.67'N	03°44.94'N	07:13:12	00°19.69'N	00°14.09'N	07:06:35	58.5	-0.41	2.12
071°00.0'E	04°33.37'N	04°24.44'N	07:17:57	00°56.32'N	00°50.49'N	07:11:11	56.9	-0.40	2.11
072°00.0'E	05°15.28'N	05°06.31'N	07:22:41	01°35.39'N	01°29.33'N	07:15:48	55.4	-0.38	2.10
073°00.0'E	05°59.24'N	05°50.35'N	07:27:23	02°16.44'N	02°10.65'N	07:20:26	54.1	-0.36	2.09
074°00.0'E	06°45.06'N	06°36.00'N	07:32:02	02°59.40'N	02°53.86'N	07:25:03	52.9	-0.35	2.08
075°00.0'E	07°32.55'N	07°23.00'N	07:36:37	03°44.24'N	03°38.84'N	07:29:39	51.9	-0.33	2.07
076°00.0'E	08°21.16'N	08°11.37'N	07:41:07	04°30.77'N	04°25.36'N	07:34:11	51.0	-0.31	2.06
077°00.0'E	09°10.20'N	09°01.03'N	07:45:29	05°18.67'N	05°13.41'N	07:38:39	50.3	-0.30	2.05
078°00.0'E	10°00.64'N	09°51.74'N	07:49:45	06°07.73'N	06°02.64'N	07:43:02	49.6	-0.28	2.04
079°00.0'E	10°52.29'N	10°43.23'N	07:53:52	06°57.77'N	06°52.65'N	07:47:19	49.2	-0.27	2.03
080°00.0'E	11°44.49'N	11°35.26'N	07:57:50	07°48.56'N	07°43.75'N	07:51:29	48.8	-0.25	2.03
081°00.0'E	12°36.92'N	12°27.63'N	08:01:38	08°39.91'N	08°35.17'N	07:55:31	48.5	-0.24	2.02
082°00.0'E	13°29.42'N	13°20.11'N	08:05:17	09°31.68'N	09°26.82'N	07:59:24	48.4	-0.23	2.02
083°00.0'E	14°21.81'N	14°12.54'N	08:08:46	10°23.54'N	10°18.68'N	08:03:08	48.3	-0.22	2.01
084°00.0'E	15°13.94'N	15°04.74'N	08:12:05	11°15.38'N	11°10.52'N	08:06:43	48.4	-0.21	2.01
085°00.0'E	16°05.68'N	15°56.58'N	08:15:13	12°07.04'N	12°02.18'N	08:10:09	48.5	-0.20	2.00
086°00.0'E	16°56.98'N	16°47.94'N	08:18:12	12°58.37'N	12°53.51'N	08:13:24	48.6	-0.19	2.00
087°00.0'E	17°48.29'N	17°38.72'N	08:21:00	13°49.24'N	13°44.35'N	08:16:31	48.8	-0.18	2.00
088°00.0'E	18°38.65'N	18°28.85'N	08:23:39	14°39.53'N	14°34.58'N	08:19:27	49.1	-0.18	2.00
089°00.0'E	19°28.21'N	19°18.26'N	08:26:09	15°29.22'N	15°23.94'N	08:22:14	49.4	-0.17	1.99
090°00.0'E	20°16.58'N	20°06.89'N	08:28:30	16°18.12'N	16°12.70'N	08:24:52	49.7	-0.17	1.99
091°00.0'E	21°04.51'N	20°54.71'N	08:30:42	17°06.23'N	17°00.66'N	08:27:20	50.1	-0.17	1.99
092°00.0'E	21°51.16'N	21°41.69'N	08:32:46	17°53.48'N	17°47.79'N	08:29:41	50.5	-0.16	1.99
093°00.0'E	22°36.92'N	22°27.81'N	08:34:41	18°39.86'N	18°34.04'N	08:31:52	50.9	-0.16	1.99
094°00.0'E	23°21.79'N	23°12.77'N	08:36:30	19°25.33'N	19°19.41'N	08:33:56	51.3	-0.16	1.99
095°00.0'E	24°05.75'N	23°56.67'N	08:38:11	20°09.87'N	20°03.87'N	08:35:52	51.7	-0.16	1.99
096°00.0'E	24°48.81'N	24°39.69'N	08:39:45	20°53.49'N	20°47.49'N	08:37:40	52.2	-0.16	1.99
097°00.0'E	25°30.98'N	25°21.84'N	08:41:12	21°36.16'N	21°30.13'N	08:39:22	52.6	-0.16	1.99
098°00.0'E	26°12.25'N	26°03.12'N	08:42:34	22°18.05'N	22°11.90'N	08:40:57	53.0	-0.16	1.99
099°00.0'E	26°52.62'N	26°43.54'N	08:43:49	22°59.00'N	22°52.87'N	08:42:25	53.5	-0.16	1.99
100°00.0'E	27°32.14'N	27°23.11'N	08:44:59	23°39.18'N	23°32.63'N	08:43:47	53.9	-0.16	1.99
101°00.0'E	28°10.81'N	28°01.84'N	08:46:04	24°18.44'N	24°11.68'N	08:45:04	54.4	-0.16	1.99
102°00.0'E	28°48.64'N	28°39.76'N	08:47:03	24°56.79'N	24°49.88'N	08:46:15	54.8	-0.16	1.99
103°00.0'E	29°25.65'N	29°16.86'N	08:47:58	25°34.27'N	25°28.05'N	08:47:21	55.3	-0.16	1.99
104°00.0'E	30°01.84'N	29°53.18'N	08:48:48	26°10.88'N	26°04.65'N	08:48:21	55.7	-0.17	1.99
105°00.0'E	30°37.25'N	30°28.72'N	08:49:34	26°46.65'N	26°40.58'N	08:49:17	56.2	-0.17	1.99
106°00.0'E	31°12.22'N	31°03.49'N	08:50:16	27°21.59'N	27°15.71'N	08:50:09	56.6	-0.17	1.99
107°00.0'E	31°46.30'N	31°37.52'N	08:50:53	27°55.72'N	27°50.01'N	08:50:56	57.1	-0.17	2.00
108°00.0'E	32°19.40'N	32°10.82'N	08:51:28	28°29.05'N	28°23.39'N	08:51:39	57.5	-0.18	2.00
109°00.0'E	32°51.79'N	32°43.41'N	08:51:58	29°01.72'N	28°56.37'N	08:52:18	57.9	-0.18	2.00
110°00.0'E	33°23.46'N	33°15.29'N	08:52:26	29°33.84'N	29°28.41'N	08:52:54	58.4	-0.18	2.00
111°00.0'E	33°54.45'N	33°46.45'N	08:52:50	30°05.23'N	29°59.75'N	08:53:26	58.8	-0.18	2.00
112°00.0'E	34°24.77'N	34°16.87'N	08:53:11	30°35.89'N	30°30.29'N	08:53:55	59.2	-0.19	2.00
113°00.0'E	34°54.43'N	34°46.64'N	08:53:29	31°05.83'N	31°00.03'N	08:54:20	59.7	-0.19	2.00
114°00.0'E	35°23.74'N	35°15.76'N	08:53:45	31°35.08'N	31°29.10'N	08:54:43	60.1	-0.19	2.00
115°00.0'E	35°52.81'N	35°44.25'N	08:53:58	32°03.64'N	31°57.48'N	08:55:02	60.5	-0.19	2.00

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## TABLE 2.C – MAPPING COORDINATES FOR THE ZONES OF GRAZING ECLIPSE

Longitude	North Graze Zone		Northern	South Graze Zone		Southern	$\Delta T = 66.0 \text{ s}$		
	Latitudes		Limit	Latitudes		Limit	Path Azm °	Elev Fact	Scale Fact km/''
	Northern Limit	Southern Limit	Universal Time h m s	Northern Limit	Southern Limit	Universal Time h m s			
116°00.0'E	36°20.77'N	36°12.13'N	08:54:09	32°31.47'N	32°25.18'N	08:55:19	60.9	-0.20	2.00
117°00.0'E	36°48.44'N	36°39.39'N	08:54:17	32°57.63'N	32°57.63'N	08:55:34	61.3	-0.20	2.01
118°00.0'E	37°15.05'N	37°06.07'N	08:54:23	33°24.34'N	33°24.34'N	08:55:45	61.8	-0.23	2.02
119°00.0'E	37°41.05'N	37°32.15'N	08:54:27	33°50.45'N	33°50.45'N	08:55:55	62.3	-0.28	2.04
120°00.0'E	38°05.62'N	37°58.31'N	08:54:47	34°15.98'N	34°15.98'N	08:56:02	62.5	-0.13	1.98