

Analemmatic Sundial

Latitude: 28.5° N/S

Earliest Sunrise: 5:01 a.m.    Latest Sunset: 6:59 p.m.  
 Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 477.2 mm  
 Sunrise/Sunset Markers: X = ± 756.8 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	477.2	477.2	0.0							
11:55	12:05	21.8	477.0	477.5	21.8	8:25	3:35	806.4	282.1	854.4	829.7
11:50	12:10	43.6	476.7	478.7	43.6	8:20	3:40	819.2	273.7	863.7	844.0
11:45	12:15	65.4	476.1	480.6	65.4	8:15	3:45	831.5	265.1	872.7	858.1
11:40	12:20	87.2	475.3	483.3	87.2	8:10	3:50	843.4	256.4	881.5	871.8
11:35	12:25	108.9	474.3	486.7	108.9	8:05	3:55	854.9	247.5	890.0	885.2
11:30	12:30	130.5	473.1	490.8	130.6	8:00	4:00	866.0	238.6	898.3	898.3
11:25	12:35	152.1	471.6	495.5	152.2	7:55	4:05	876.7	229.5	906.3	911.0
11:20	12:40	173.6	469.9	501.0	173.8	7:50	4:10	887.0	220.3	914.0	923.4
11:15	12:45	195.1	468.0	507.0	195.3	7:45	4:15	896.9	211.0	921.4	935.5
11:10	12:50	216.4	465.8	513.7	216.7	7:40	4:20	906.3	201.7	928.5	947.3
11:05	12:55	237.7	463.5	520.9	238.1	7:35	4:25	915.3	192.2	935.3	958.7
11:00	1:00	258.8	460.9	528.6	259.3	7:30	4:30	923.9	182.6	941.8	969.7
10:55	1:05	279.8	458.1	536.8	280.5	7:25	4:35	932.0	172.9	947.9	980.4
10:50	1:10	300.7	455.1	545.5	301.5	7:20	4:40	939.7	163.2	953.8	990.8
10:45	1:15	321.4	451.8	554.5	322.4	7:15	4:45	946.9	153.4	959.3	1000.8
10:40	1:20	342.0	448.4	563.9	343.2	7:10	4:50	953.7	143.5	964.4	1010.4
10:35	1:25	362.4	444.7	573.7	363.9	7:05	4:55	960.0	133.5	969.3	1019.7
10:30	1:30	382.7	440.8	583.8	384.4	7:00	5:00	965.9	123.5	973.8	1028.6
10:25	1:35	402.7	436.7	594.1	404.8	6:55	5:05	971.3	113.4	977.9	1037.2
10:20	1:40	422.6	432.5	604.7	425.0	6:50	5:10	976.3	103.3	981.7	1045.4
10:15	1:45	442.3	428.0	615.4	445.0	6:45	5:15	980.8	93.1	985.2	1053.3
10:10	1:50	461.7	423.2	626.4	464.9	6:40	5:20	984.8	82.9	988.3	1060.8
10:05	1:55	481.0	418.3	637.5	484.6	6:35	5:25	988.4	72.6	991.0	1068.0
10:00	2:00	500.0	413.2	648.7	504.1	6:30	5:30	991.4	62.3	993.4	1074.7
9:55	2:05	518.8	407.9	659.9	523.4	6:25	5:35	994.1	51.9	995.4	1081.2
9:50	2:10	537.3	402.4	671.3	542.5	6:20	5:40	996.2	41.6	997.1	1087.3
9:45	2:15	555.6	396.7	682.7	561.4	6:15	5:45	997.9	31.2	998.3	1093.0
9:40	2:20	573.6	390.9	694.1	580.0	6:10	5:50	999.0	20.8	999.3	1098.3
9:35	2:25	591.3	384.8	705.5	598.5	6:05	5:55	999.8	10.4	999.8	1103.3
9:30	2:30	608.8	378.6	716.9	616.7	6:00	6:00	1000.0	0.0	1000.0	1108.0
9:25	2:35	625.9	372.1	728.2	634.7	5:55	6:05	999.8	-10.4	999.8	1112.3
9:20	2:40	642.8	365.5	739.4	652.4	5:50	6:10	999.0	-20.8	999.3	1116.3
9:15	2:45	659.3	358.7	750.6	669.9	5:45	6:15	997.9	-31.2	998.3	1119.9
9:10	2:50	675.6	351.8	761.7	687.1	5:40	6:20	996.2	-41.6	997.1	1123.2
9:05	2:55	691.5	344.7	772.7	704.1	5:35	6:25	994.1	-51.9	995.4	1126.1
9:00	3:00	707.1	337.4	783.5	720.8	5:30	6:30	991.4	-62.3	993.4	1128.7
8:55	3:05	722.4	330.0	794.2	737.2	5:25	6:35	988.4	-72.6	991.0	1131.0
8:50	3:10	737.3	322.4	804.7	753.4	5:20	6:40	984.8	-82.9	988.3	1132.9
8:45	3:15	751.8	314.6	815.0	769.2	5:15	6:45	980.8	-93.1	985.2	1134.5
8:40	3:20	766.0	306.7	825.2	784.8	5:10	6:50	976.3	-103.3	981.7	1135.8
8:35	3:25	779.9	298.7	835.1	800.0	5:05	6:55	971.3	-113.4	977.9	1136.8
8:30	3:30	793.4	290.5	844.9	815.0	5:00	7:00	965.9	-123.5	973.8	1137.5

## Analemmatic Sundial

Latitude: 28.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 477.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-372.9	-365.8	-363.7	-354.0	-351.1	-339.1	-335.8	-321.4	-317.6	-301.4	-297.1
February	-269.7	-250.0	-244.9	-224.0	-218.8	-196.9	-191.3	-168.8	-163.0	-139.8	-133.9
March	-116.2	-92.4	-86.3	-62.2	-56.2	-31.9	-25.9	-1.5	4.4	28.7	34.7
April	70.7	94.4	100.3	123.5	129.3	152.1	157.6	179.9	185.4	206.8	212.0
May	237.5	257.0	261.7	279.8	284.2	300.9	304.8	320.0	323.7	337.0	340.0
June	356.5	365.1	367.1	373.4	374.8	378.8	379.4	380.8	381.0	378.3	379.6
July	374.8	368.9	367.1	359.0	356.7	346.2	343.3	330.9	327.5	313.3	309.5
August	285.2	267.5	263.0	244.0	239.3	219.3	214.1	193.2	187.9	166.2	160.7
September	127.1	104.2	98.4	75.0	69.2	45.6	39.8	16.0	10.0	-14.0	-19.9
October	-49.7	-73.6	-79.5	-103.2	-109.0	-132.4	-138.2	-161.1	-166.8	-189.2	-194.7
November	-226.8	-247.4	-252.3	-271.7	-276.4	-294.4	-298.7	-315.0	-318.8	-333.3	-336.8
December	-351.9	-362.0	-364.2	-371.6	-373.2	-377.9	-378.8	-380.8	-381.0	-380.1	-379.6

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	372.9	365.8	363.7	354.0	351.1	339.1	335.8	321.4	317.6	301.4	297.1
February	269.7	250.0	244.9	224.0	218.8	196.9	191.3	168.8	163.0	139.8	133.9
March	116.2	92.4	86.3	62.2	56.2	31.9	25.9	1.5	-4.4	-28.7	-34.7
April	-70.7	-94.4	-100.3	-123.5	-129.3	-152.1	-157.6	-179.9	-185.4	-206.8	-212.0
May	-237.5	-257.0	-261.7	-279.8	-284.2	-300.9	-304.8	-320.0	-323.7	-337.0	-340.0
June	-356.5	-365.1	-367.1	-373.4	-374.8	-378.8	-379.4	-380.8	-381.0	-378.3	-379.6
July	-374.8	-368.9	-367.1	-359.0	-356.7	-346.2	-343.3	-330.9	-327.5	-313.3	-309.5
August	-285.2	-267.5	-263.0	-244.0	-239.3	-219.3	-214.1	-193.2	-187.9	-166.2	-160.7
September	-127.1	-104.2	-98.4	-75.0	-69.2	-45.6	-39.8	-16.0	-10.0	14.0	19.9
October	49.7	73.6	79.5	103.2	109.0	132.4	138.2	161.1	166.8	189.2	194.7
November	226.8	247.4	252.3	271.7	276.4	294.4	298.7	315.0	318.8	333.3	336.8
December	351.9	362.0	364.2	371.6	373.2	377.9	378.8	380.8	381.0	380.1	379.6

Southern Hemisphere

The shaded "Date" boxes identify the two extremes of the "Date Scale" that occur on the Summer and Winter Solstices.

A number of "Date Scale" configurations are available including the following "Date Line" combinations:

- |         |            |                    |
|---------|------------|--------------------|
| a) 1    | c) 1,10,20 | e) 1,5,10,15,20,25 |
| b) 1,15 | d) 1,11,21 | f) 1,6,11,16,21,26 |

Analemmatic Sundial

Latitude: 28.5° N/S

Earliest Sunrise: 5:01 a.m.    Latest Sunset: 6:59 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 715.7 mm  
 Sunrise/Sunset Markers: X = ± 1135.1 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	715.7	715.7	0.0							
11:55	12:05	32.7	715.6	716.3	32.7	8:25	3:35	1209.7	423.2	1281.6	1244.5
11:50	12:10	65.4	715.1	718.0	65.4	8:20	3:40	1228.7	410.5	1295.5	1266.1
11:45	12:15	98.1	714.2	720.9	98.1	8:15	3:45	1247.2	397.6	1309.1	1287.1
11:40	12:20	130.7	713.0	724.9	130.8	8:10	3:50	1265.1	384.6	1322.2	1307.7
11:35	12:25	163.3	711.5	730.0	163.4	8:05	3:55	1282.4	371.3	1335.0	1327.8
11:30	12:30	195.8	709.6	736.1	195.9	8:00	4:00	1299.0	357.9	1347.4	1347.4
11:25	12:35	228.2	707.4	743.3	228.3	7:55	4:05	1315.1	344.3	1359.4	1366.5
11:20	12:40	260.5	704.9	751.5	260.7	7:50	4:10	1330.5	330.5	1370.9	1385.2
11:15	12:45	292.6	702.0	760.5	293.0	7:45	4:15	1345.3	316.6	1382.1	1403.3
11:10	12:50	324.7	698.8	770.5	325.1	7:40	4:20	1359.5	302.5	1392.7	1420.9
11:05	12:55	356.5	695.2	781.3	357.1	7:35	4:25	1373.0	288.3	1402.9	1438.0
11:00	1:00	388.2	691.3	792.9	389.0	7:30	4:30	1385.8	273.9	1412.6	1454.5
10:55	1:05	419.7	687.1	805.2	420.7	7:25	4:35	1398.0	259.4	1421.9	1470.6
10:50	1:10	451.1	682.6	818.2	452.3	7:20	4:40	1409.5	244.8	1430.6	1486.1
10:45	1:15	482.2	677.8	831.8	483.7	7:15	4:45	1420.4	230.1	1438.9	1501.1
10:40	1:20	513.0	672.6	845.9	514.8	7:10	4:50	1430.6	215.2	1446.7	1515.6
10:35	1:25	543.7	667.1	860.6	545.8	7:05	4:55	1440.1	200.3	1453.9	1529.5
10:30	1:30	574.0	661.3	875.7	576.6	7:00	5:00	1448.9	185.2	1460.7	1543.0
10:25	1:35	604.1	655.1	891.1	607.2	6:55	5:05	1457.0	170.1	1466.9	1555.8
10:20	1:40	633.9	648.7	907.0	637.5	6:50	5:10	1464.4	154.9	1472.6	1568.2
10:15	1:45	663.4	641.9	923.2	667.5	6:45	5:15	1471.2	139.6	1477.8	1580.0
10:10	1:50	692.6	634.9	939.6	697.3	6:40	5:20	1477.2	124.3	1482.4	1591.2
10:05	1:55	721.5	627.5	956.2	726.9	6:35	5:25	1482.5	108.9	1486.5	1601.9
10:00	2:00	750.0	619.8	973.0	756.1	6:30	5:30	1487.2	93.4	1490.1	1612.1
9:55	2:05	778.2	611.9	989.9	785.1	6:25	5:35	1491.1	77.9	1493.1	1621.8
9:50	2:10	805.9	603.6	1006.9	813.7	6:20	5:40	1494.3	62.4	1495.6	1630.9
9:45	2:15	833.4	595.1	1024.0	842.0	6:15	5:45	1496.8	46.8	1497.5	1639.5
9:40	2:20	860.4	586.3	1041.1	870.0	6:10	5:50	1498.6	31.2	1498.9	1647.5
9:35	2:25	887.0	577.2	1058.2	897.7	6:05	5:55	1499.6	15.6	1499.7	1655.0
9:30	2:30	913.1	567.8	1075.3	925.0	6:00	6:00	1500.0	0.0	1500.0	1662.0
9:25	2:35	938.9	558.2	1092.3	952.0	5:55	6:05	1499.6	-15.6	1499.7	1668.5
9:20	2:40	964.2	548.3	1109.2	978.6	5:50	6:10	1498.6	-31.2	1498.9	1674.4
9:15	2:45	989.0	538.1	1125.9	1004.8	5:45	6:15	1496.8	-46.8	1497.5	1679.8
9:10	2:50	1013.4	527.7	1142.5	1030.7	5:40	6:20	1494.3	-62.4	1495.6	1684.7
9:05	2:55	1037.3	517.0	1159.0	1056.1	5:35	6:25	1491.1	-77.9	1493.1	1689.1
9:00	3:00	1060.7	506.1	1175.2	1081.2	5:30	6:30	1487.2	-93.4	1490.1	1693.0
8:55	3:05	1083.5	494.9	1191.2	1105.8	5:25	6:35	1482.5	-108.9	1486.5	1696.4
8:50	3:10	1105.9	483.5	1207.0	1130.0	5:20	6:40	1477.2	-124.3	1482.4	1699.4
8:45	3:15	1127.8	471.9	1222.5	1153.8	5:15	6:45	1471.2	-139.6	1477.8	1701.8
8:40	3:20	1149.1	460.1	1237.7	1177.2	5:10	6:50	1464.4	-154.9	1472.6	1703.7
8:35	3:25	1169.8	448.0	1252.7	1200.1	5:05	6:55	1457.0	-170.1	1466.9	1705.2
8:30	3:30	1190.0	435.7	1267.3	1222.5	5:00	7:00	1448.9	-185.2	1460.7	1706.2

## Analematic Sundial

Latitude: 28.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 715.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-559.3	-548.7	-545.5	-531.0	-526.7	-508.7	-503.6	-482.1	-476.4	-452.1	-445.7
February	-404.5	-375.0	-367.3	-336.0	-328.2	-295.4	-286.9	-253.1	-244.6	-209.7	-200.8
March	-174.2	-138.6	-129.5	-93.3	-84.3	-47.9	-38.9	-2.3	6.7	43.0	52.0
April	106.1	141.6	150.4	185.3	194.0	228.2	236.5	269.9	278.0	310.2	317.9
May	356.2	385.5	392.5	419.7	426.3	451.3	457.2	480.1	485.5	505.5	510.0
June	534.7	547.6	550.6	560.1	562.3	568.3	569.1	571.3	571.5	567.4	569.4
July	562.3	553.3	550.6	538.5	535.0	519.3	515.0	496.3	491.3	469.9	464.2
August	427.8	401.3	394.5	366.1	358.9	328.9	321.1	289.8	281.9	249.3	241.0
September	190.7	156.3	147.6	112.5	103.7	68.4	59.6	23.9	15.0	-20.9	-29.9
October	-74.6	-110.5	-119.3	-154.9	-163.5	-198.7	-207.4	-241.7	-250.3	-283.8	-292.0
November	-340.2	-371.0	-378.5	-407.6	-414.6	-441.6	-448.0	-472.5	-478.2	-500.0	-505.2
December	-527.8	-543.1	-546.3	-557.4	-559.8	-566.9	-568.3	-571.3	-571.5	-570.2	-569.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	559.3	548.7	545.5	531.0	526.7	508.7	503.6	482.1	476.4	452.1	445.7
February	404.5	375.0	367.3	336.0	328.2	295.4	286.9	253.1	244.6	209.7	200.8
March	174.2	138.6	129.5	93.3	84.3	47.9	38.9	2.3	-6.7	-43.0	-52.0
April	-106.1	-141.6	-150.4	-185.3	-194.0	-228.2	-236.5	-269.9	-278.0	-310.2	-317.9
May	-356.2	-385.5	-392.5	-419.7	-426.3	-451.3	-457.2	-480.1	-485.5	-505.5	-510.0
June	-534.7	-547.6	-550.6	-560.1	-562.3	-568.3	-569.1	-571.3	-571.5	-567.4	-569.4
July	-562.3	-553.3	-550.6	-538.5	-535.0	-519.3	-515.0	-496.3	-491.3	-469.9	-464.2
August	-427.8	-401.3	-394.5	-366.1	-358.9	-328.9	-321.1	-289.8	-281.9	-249.3	-241.0
September	-190.7	-156.3	-147.6	-112.5	-103.7	-68.4	-59.6	-23.9	-15.0	20.9	29.9
October	74.6	110.5	119.3	154.9	163.5	198.7	207.4	241.7	250.3	283.8	292.0
November	340.2	371.0	378.5	407.6	414.6	441.6	448.0	472.5	478.2	500.0	505.2
December	527.8	543.1	546.3	557.4	559.8	566.9	568.3	571.3	571.5	570.2	569.4

Southern Hemisphere

The shaded "Date" boxes identify the two extremes of the "Date Scale" that occur on the Summer and Winter Solstices.

A number of "Date Scale" configurations are available including the following "Date Line" combinations:

- |         |            |                    |
|---------|------------|--------------------|
| a) 1    | c) 1,10,20 | e) 1,5,10,15,20,25 |
| b) 1,15 | d) 1,11,21 | f) 1,6,11,16,21,26 |

Analemmatic Sundial

Latitude: 28.5° N/S

Earliest Sunrise: 5:01 a.m.    Latest Sunset: 6:59 p.m.  
 Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 954.3 mm  
 Sunrise/Sunset Markers: X = ± 1513.5 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	954.3	954.3	0.0							
11:55	12:05	43.6	954.1	955.1	43.6	8:25	3:35	1612.9	564.3	1708.8	1659.4
11:50	12:10	87.2	953.4	957.4	87.2	8:20	3:40	1638.3	547.4	1727.3	1688.1
11:45	12:15	130.8	952.3	961.2	130.8	8:15	3:45	1662.9	530.2	1745.4	1716.2
11:40	12:20	174.3	950.7	966.5	174.3	8:10	3:50	1686.8	512.8	1763.0	1743.6
11:35	12:25	217.7	948.6	973.3	217.8	8:05	3:55	1709.8	495.1	1780.1	1770.4
11:30	12:30	261.1	946.2	981.5	261.2	8:00	4:00	1732.1	477.2	1796.6	1796.6
11:25	12:35	304.2	943.2	991.1	304.4	7:55	4:05	1753.5	459.0	1812.5	1822.1
11:20	12:40	347.3	939.8	1001.9	347.6	7:50	4:10	1774.0	440.7	1827.9	1846.9
11:15	12:45	390.2	936.0	1014.1	390.6	7:45	4:15	1793.7	422.1	1842.7	1871.0
11:10	12:50	432.9	931.7	1027.3	433.5	7:40	4:20	1812.6	403.3	1856.9	1894.5
11:05	12:55	475.4	927.0	1041.8	476.2	7:35	4:25	1830.6	384.3	1870.5	1917.3
11:00	1:00	517.6	921.8	1057.2	518.7	7:30	4:30	1847.8	365.2	1883.5	1939.4
10:55	1:05	559.7	916.2	1073.6	561.0	7:25	4:35	1864.0	345.9	1895.8	1960.8
10:50	1:10	601.4	910.1	1090.9	603.0	7:20	4:40	1879.4	326.4	1907.5	1981.5
10:45	1:15	642.9	903.7	1109.0	644.9	7:15	4:45	1893.9	306.8	1918.5	2001.5
10:40	1:20	684.0	896.8	1127.9	686.5	7:10	4:50	1907.4	287.0	1928.9	2020.8
10:35	1:25	724.9	889.4	1147.4	727.8	7:05	4:55	1920.1	267.0	1938.6	2039.4
10:30	1:30	765.4	881.7	1167.5	768.8	7:00	5:00	1931.9	247.0	1947.6	2057.3
10:25	1:35	805.5	873.5	1188.2	809.5	6:55	5:05	1942.7	226.8	1955.9	2074.4
10:20	1:40	845.2	864.9	1209.3	850.0	6:50	5:10	1952.6	206.6	1963.5	2090.9
10:15	1:45	884.6	855.9	1230.9	890.0	6:45	5:15	1961.6	186.2	1970.4	2106.6
10:10	1:50	923.5	846.5	1252.8	929.8	6:40	5:20	1969.6	165.7	1976.6	2121.6
10:05	1:55	962.0	836.7	1274.9	969.1	6:35	5:25	1976.7	145.2	1982.0	2135.9
10:00	2:00	1000.0	826.5	1297.3	1008.1	6:30	5:30	1982.9	124.6	1986.8	2149.5
9:55	2:05	1037.5	815.9	1319.9	1046.7	6:25	5:35	1988.1	103.9	1990.8	2162.4
9:50	2:10	1074.6	804.9	1342.6	1084.9	6:20	5:40	1992.4	83.2	1994.1	2174.5
9:45	2:15	1111.1	793.5	1365.4	1122.7	6:15	5:45	1995.7	62.4	1996.7	2186.0
9:40	2:20	1147.2	781.7	1388.2	1160.1	6:10	5:50	1998.1	41.6	1998.5	2196.7
9:35	2:25	1182.6	769.6	1411.0	1197.0	6:05	5:55	1999.5	20.8	1999.6	2206.7
9:30	2:30	1217.5	757.1	1433.7	1233.4	6:00	6:00	2000.0	0.0	2000.0	2216.0
9:25	2:35	1251.8	744.3	1456.4	1269.3	5:55	6:05	1999.5	-20.8	1999.6	2224.6
9:20	2:40	1285.6	731.0	1478.9	1304.8	5:50	6:10	1998.1	-41.6	1998.5	2232.6
9:15	2:45	1318.7	717.5	1501.2	1339.8	5:45	6:15	1995.7	-62.4	1996.7	2239.8
9:10	2:50	1351.2	703.6	1523.4	1374.2	5:40	6:20	1992.4	-83.2	1994.1	2246.3
9:05	2:55	1383.0	689.4	1545.3	1408.2	5:35	6:25	1988.1	-103.9	1990.8	2252.2
9:00	3:00	1414.2	674.8	1567.0	1441.6	5:30	6:30	1982.9	-124.6	1986.8	2257.4
8:55	3:05	1444.7	659.9	1588.3	1474.4	5:25	6:35	1976.7	-145.2	1982.0	2261.9
8:50	3:10	1474.6	644.7	1609.3	1506.7	5:20	6:40	1969.6	-165.7	1976.6	2265.8
8:45	3:15	1503.7	629.2	1630.0	1538.4	5:15	6:45	1961.6	-186.2	1970.4	2269.0
8:40	3:20	1532.1	613.4	1650.3	1569.6	5:10	6:50	1952.6	-206.6	1963.5	2271.6
8:35	3:25	1559.8	597.3	1670.2	1600.1	5:05	6:55	1942.7	-226.8	1955.9	2273.6
8:30	3:30	1586.7	581.0	1689.7	1630.0	5:00	7:00	1931.9	-247.0	1947.6	2274.9

## Analematic Sundial

Latitude: 28.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 954.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-745.7	-731.6	-727.3	-708.0	-702.3	-678.2	-671.5	-642.9	-635.2	-602.8	-594.2
February	-539.4	-500.0	-489.7	-448.0	-437.6	-393.8	-382.6	-337.5	-326.1	-279.6	-267.7
March	-232.3	-184.7	-172.6	-124.4	-112.4	-63.8	-51.9	-3.1	8.9	57.4	69.4
April	141.4	188.8	200.6	247.0	258.6	304.2	315.3	359.8	370.7	413.5	423.9
May	474.9	514.0	523.3	559.6	568.4	601.8	609.7	640.1	647.4	674.0	680.0
June	713.0	730.2	734.2	746.8	749.7	757.7	758.8	761.7	762.1	756.6	759.1
July	749.7	737.8	734.2	718.0	713.3	692.4	686.7	661.7	655.1	626.6	619.0
August	570.4	535.0	526.0	488.1	478.5	438.6	428.1	386.4	375.8	332.4	321.3
September	254.2	208.3	196.8	150.1	138.3	91.2	79.5	31.9	19.9	-27.9	-39.9
October	-99.5	-147.3	-159.0	-206.5	-218.0	-264.9	-276.5	-322.3	-333.7	-378.4	-389.3
November	-453.6	-494.7	-504.7	-543.4	-552.8	-588.8	-597.3	-630.0	-637.6	-666.6	-673.6
December	-703.7	-724.1	-728.4	-743.2	-746.4	-755.9	-757.7	-761.7	-762.1	-760.2	-759.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	745.7	731.6	727.3	708.0	702.3	678.2	671.5	642.9	635.2	602.8	594.2
February	539.4	500.0	489.7	448.0	437.6	393.8	382.6	337.5	326.1	279.6	267.7
March	232.3	184.7	172.6	124.4	112.4	63.8	51.9	3.1	-8.9	-57.4	-69.4
April	-141.4	-188.8	-200.6	-247.0	-258.6	-304.2	-315.3	-359.8	-370.7	-413.5	-423.9
May	-474.9	-514.0	-523.3	-559.6	-568.4	-601.8	-609.7	-640.1	-647.4	-674.0	-680.0
June	-713.0	-730.2	-734.2	-746.8	-749.7	-757.7	-758.8	-761.7	-762.1	-756.6	-759.1
July	-749.7	-737.8	-734.2	-718.0	-713.3	-692.4	-686.7	-661.7	-655.1	-626.6	-619.0
August	-570.4	-535.0	-526.0	-488.1	-478.5	-438.6	-428.1	-386.4	-375.8	-332.4	-321.3
September	-254.2	-208.3	-196.8	-150.1	-138.3	-91.2	-79.5	-31.9	-19.9	27.9	39.9
October	99.5	147.3	159.0	206.5	218.0	264.9	276.5	322.3	333.7	378.4	389.3
November	453.6	494.7	504.7	543.4	552.8	588.8	597.3	630.0	637.6	666.6	673.6
December	703.7	724.1	728.4	743.2	746.4	755.9	757.7	761.7	762.1	760.2	759.1

Southern Hemisphere

The shaded "Date" boxes identify the two extremes of the "Date Scale" that occur on the Summer and Winter Solstices.

A number of "Date Scale" configurations are available including the following "Date Line" combinations:

- |         |            |                    |
|---------|------------|--------------------|
| a) 1    | c) 1,10,20 | e) 1,5,10,15,20,25 |
| b) 1,15 | d) 1,11,21 | f) 1,6,11,16,21,26 |

## Analemmatic Sundial

Latitude: 28.5° N/S

Earliest Sunrise: 5:01 a.m.    Latest Sunset: 6:59 p.m.  
 Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1192.9 mm  
 Sunrise/Sunset Markers: X = ± 1891.9 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1192.9	1192.9	0.0							
11:55	12:05	54.5	1192.6	1193.9	54.5	8:25	3:35	2016.1	705.4	2135.9	2074.2
11:50	12:10	109.0	1191.8	1196.7	109.1	8:20	3:40	2047.9	684.2	2159.2	2110.1
11:45	12:15	163.5	1190.3	1201.5	163.5	8:15	3:45	2078.7	662.7	2181.8	2145.2
11:40	12:20	217.9	1188.4	1208.2	217.9	8:10	3:50	2108.5	640.9	2203.7	2179.5
11:35	12:25	272.2	1185.8	1216.6	272.3	8:05	3:55	2137.3	618.8	2225.1	2213.0
11:30	12:30	326.3	1182.7	1226.9	326.5	8:00	4:00	2165.1	596.4	2245.7	2245.7
11:25	12:35	380.3	1179.0	1238.8	380.6	7:55	4:05	2191.8	573.8	2265.7	2277.6
11:20	12:40	434.1	1174.8	1252.4	434.5	7:50	4:10	2217.5	550.8	2284.9	2308.6
11:15	12:45	487.7	1170.0	1267.6	488.3	7:45	4:15	2242.2	527.6	2303.4	2338.8
11:10	12:50	541.1	1164.6	1284.2	541.8	7:40	4:20	2265.8	504.1	2321.2	2368.1
11:05	12:55	594.2	1158.7	1302.2	595.2	7:35	4:25	2288.3	480.4	2338.2	2396.6
11:00	1:00	647.0	1152.2	1321.5	648.3	7:30	4:30	2309.7	456.5	2354.4	2424.2
10:55	1:05	699.6	1145.2	1342.0	701.2	7:25	4:35	2330.0	432.4	2369.8	2451.0
10:50	1:10	751.8	1137.7	1363.6	753.8	7:20	4:40	2349.2	408.0	2384.4	2476.9
10:45	1:15	803.6	1129.6	1386.3	806.1	7:15	4:45	2367.3	383.4	2398.2	2501.9
10:40	1:20	855.1	1121.0	1409.8	858.1	7:10	4:50	2384.3	358.7	2411.1	2526.0
10:35	1:25	906.1	1111.8	1434.3	909.7	7:05	4:55	2400.1	333.8	2423.2	2549.2
10:30	1:30	956.7	1102.1	1459.4	961.0	7:00	5:00	2414.8	308.7	2434.5	2571.6
10:25	1:35	1006.9	1091.9	1485.2	1011.9	6:55	5:05	2428.4	283.5	2444.9	2593.0
10:20	1:40	1056.5	1081.1	1511.7	1062.4	6:50	5:10	2440.7	258.2	2454.4	2613.6
10:15	1:45	1105.7	1069.9	1538.6	1112.5	6:45	5:15	2452.0	232.7	2463.0	2633.3
10:10	1:50	1154.4	1058.1	1565.9	1162.2	6:40	5:20	2462.0	207.1	2470.7	2652.0
10:05	1:55	1202.5	1045.8	1593.7	1211.4	6:35	5:25	2470.9	181.5	2477.6	2669.9
10:00	2:00	1250.0	1033.1	1621.7	1260.2	6:30	5:30	2478.6	155.7	2483.5	2686.9
9:55	2:05	1296.9	1019.8	1649.9	1308.4	6:25	5:35	2485.1	129.9	2488.5	2703.0
9:50	2:10	1343.2	1006.1	1678.2	1356.2	6:20	5:40	2490.5	104.0	2492.7	2718.1
9:45	2:15	1388.9	991.9	1706.7	1403.4	6:15	5:45	2494.6	78.0	2495.9	2732.4
9:40	2:20	1433.9	977.2	1735.2	1450.1	6:10	5:50	2497.6	52.0	2498.2	2745.8
9:35	2:25	1478.3	962.0	1763.7	1496.2	6:05	5:55	2499.4	26.0	2499.5	2758.4
9:30	2:30	1521.9	946.4	1792.2	1541.7	6:00	6:00	2500.0	0.0	2500.0	2770.0
9:25	2:35	1564.8	930.3	1820.5	1586.7	5:55	6:05	2499.4	-26.0	2499.5	2780.8
9:20	2:40	1607.0	913.8	1848.6	1631.0	5:50	6:10	2497.6	-52.0	2498.2	2790.7
9:15	2:45	1648.4	896.9	1876.6	1674.7	5:45	6:15	2494.6	-78.0	2495.9	2799.7
9:10	2:50	1689.0	879.5	1904.2	1717.8	5:40	6:20	2490.5	-104.0	2492.7	2807.9
9:05	2:55	1728.8	861.7	1931.6	1760.2	5:35	6:25	2485.1	-129.9	2488.5	2815.2
9:00	3:00	1767.8	843.5	1958.7	1802.0	5:30	6:30	2478.6	-155.7	2483.5	2821.7
8:55	3:05	1805.9	824.9	1985.4	1843.0	5:25	6:35	2470.9	-181.5	2477.6	2827.4
8:50	3:10	1843.2	805.9	2011.7	1883.4	5:20	6:40	2462.0	-207.1	2470.7	2832.3
8:45	3:15	1879.6	786.5	2037.5	1923.0	5:15	6:45	2452.0	-232.7	2463.0	2836.3
8:40	3:20	1915.1	766.8	2062.9	1961.9	5:10	6:50	2440.7	-258.2	2454.4	2839.5
8:35	3:25	1949.7	746.7	2087.8	2000.1	5:05	6:55	2428.4	-283.5	2444.9	2842.0
8:30	3:30	1983.4	726.2	2112.1	2037.6	5:00	7:00	2414.8	-308.7	2434.5	2843.6

## Analemmatic Sundial

Latitude: 28.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1192.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-932.1	-914.5	-909.1	-885.0	-877.9	-847.8	-839.4	-803.6	-794.0	-753.5	-742.8
February	-674.2	-625.0	-612.2	-560.0	-547.0	-492.3	-478.2	-421.9	-407.6	-349.5	-334.6
March	-290.4	-230.9	-215.8	-155.6	-140.5	-79.8	-64.8	-3.8	11.1	71.7	86.7
April	176.8	236.0	250.7	308.8	323.3	380.3	394.1	449.8	463.4	516.9	529.9
May	593.6	642.5	654.1	699.5	710.5	752.2	762.1	800.1	809.2	842.5	850.0
June	891.2	912.7	917.7	933.5	937.1	947.1	948.5	952.1	952.6	945.7	948.9
July	937.1	922.2	917.7	897.5	891.7	865.4	858.4	827.1	818.8	783.2	773.7
August	713.0	668.8	657.5	610.1	598.2	548.2	535.2	483.1	469.8	415.5	401.6
September	317.8	260.4	246.0	187.6	172.9	114.0	99.4	39.9	24.9	-34.9	-49.9
October	-124.4	-184.1	-198.8	-258.1	-272.5	-331.1	-345.6	-402.8	-417.1	-473.0	-486.7
November	-567.0	-618.4	-630.8	-679.3	-691.0	-736.0	-746.7	-787.5	-797.1	-833.3	-842.0
December	-879.6	-905.1	-910.5	-929.0	-933.0	-944.8	-947.1	-952.1	-952.6	-950.3	-948.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	932.1	914.5	909.1	885.0	877.9	847.8	839.4	803.6	794.0	753.5	742.8
February	674.2	625.0	612.2	560.0	547.0	492.3	478.2	421.9	407.6	349.5	334.6
March	290.4	230.9	215.8	155.6	140.5	79.8	64.8	3.8	-11.1	-71.7	-86.7
April	-176.8	-236.0	-250.7	-308.8	-323.3	-380.3	-394.1	-449.8	-463.4	-516.9	-529.9
May	-593.6	-642.5	-654.1	-699.5	-710.5	-752.2	-762.1	-800.1	-809.2	-842.5	-850.0
June	-891.2	-912.7	-917.7	-933.5	-937.1	-947.1	-948.5	-952.1	-952.6	-945.7	-948.9
July	-937.1	-922.2	-917.7	-897.5	-891.7	-865.4	-858.4	-827.1	-818.8	-783.2	-773.7
August	-713.0	-668.8	-657.5	-610.1	-598.2	-548.2	-535.2	-483.1	-469.8	-415.5	-401.6
September	-317.8	-260.4	-246.0	-187.6	-172.9	-114.0	-99.4	-39.9	-24.9	34.9	49.9
October	124.4	184.1	198.8	258.1	272.5	331.1	345.6	402.8	417.1	473.0	486.7
November	567.0	618.4	630.8	679.3	691.0	736.0	746.7	787.5	797.1	833.3	842.0
December	879.6	905.1	910.5	929.0	933.0	944.8	947.1	952.1	952.6	950.3	948.9

Southern Hemisphere

The shaded "Date" boxes identify the two extremes of the "Date Scale" that occur on the Summer and Winter Solstices.

A number of "Date Scale" configurations are available including the following "Date Line" combinations:

- |         |            |                    |
|---------|------------|--------------------|
| a) 1    | c) 1,10,20 | e) 1,5,10,15,20,25 |
| b) 1,15 | d) 1,11,21 | f) 1,6,11,16,21,26 |