

Analemmatic Sundial

Latitude: 38.0° N/S

Earliest Sunrise: 4:35 a.m. Latest Sunset: 7:25 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 615.7 mm
 Sunrise/Sunset Markers: X = ± 594.8 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	615.7	615.7	0.0							
11:55	12:05	21.8	615.5	615.9	21.8	8:10	3:50	843.4	330.8	905.9	890.2
11:50	12:10	43.6	615.1	616.6	43.6	8:05	3:55	854.9	319.4	912.6	904.8
11:45	12:15	65.4	614.3	617.8	65.4	8:00	4:00	866.0	307.8	919.1	919.1
11:40	12:20	87.2	613.3	619.5	87.2	7:55	4:05	876.7	296.1	925.4	933.1
11:35	12:25	108.9	612.0	621.6	108.9	7:50	4:10	887.0	284.3	931.5	946.9
11:30	12:30	130.5	610.4	624.2	130.6	7:45	4:15	896.9	272.3	937.3	960.4
11:25	12:35	152.1	608.5	627.2	152.3	7:40	4:20	906.3	260.2	942.9	973.5
11:20	12:40	173.6	606.3	630.7	173.9	7:35	4:25	915.3	248.0	948.3	986.4
11:15	12:45	195.1	603.8	634.6	195.4	7:30	4:30	923.9	235.6	953.4	999.0
11:10	12:50	216.4	601.1	638.8	216.9	7:25	4:35	932.0	223.1	958.3	1011.3
11:05	12:55	237.7	598.0	643.5	238.3	7:20	4:40	939.7	210.6	963.0	1023.3
11:00	1:00	258.8	594.7	648.6	259.7	7:15	4:45	946.9	197.9	967.4	1035.0
10:55	1:05	279.8	591.1	654.0	280.9	7:10	4:50	953.7	185.1	971.5	1046.4
10:50	1:10	300.7	587.2	659.7	302.1	7:05	4:55	960.0	172.3	975.4	1057.5
10:45	1:15	321.4	583.0	665.7	323.1	7:00	5:00	965.9	159.3	979.0	1068.3
10:40	1:20	342.0	578.5	672.1	344.0	6:55	5:05	971.3	146.3	982.3	1078.8
10:35	1:25	362.4	573.8	678.7	364.8	6:50	5:10	976.3	133.3	985.3	1089.0
10:30	1:30	382.7	568.8	685.5	385.5	6:45	5:15	980.8	120.1	988.1	1098.9
10:25	1:35	402.7	563.5	692.6	406.1	6:40	5:20	984.8	106.9	990.6	1108.5
10:20	1:40	422.6	558.0	700.0	426.5	6:35	5:25	988.4	93.7	992.8	1117.7
10:15	1:45	442.3	552.2	707.5	446.8	6:30	5:30	991.4	80.4	994.7	1126.7
10:10	1:50	461.7	546.1	715.1	467.0	6:25	5:35	994.1	67.0	996.3	1135.4
10:05	1:55	481.0	539.8	723.0	486.9	6:20	5:40	996.2	53.7	997.6	1143.8
10:00	2:00	500.0	533.2	730.9	506.8	6:15	5:45	997.9	40.3	998.7	1151.9
9:55	2:05	518.8	526.3	739.0	526.4	6:10	5:50	999.0	26.9	999.4	1159.7
9:50	2:10	537.3	519.2	747.2	545.9	6:05	5:55	999.8	13.4	999.9	1167.1
9:45	2:15	555.6	511.9	755.4	565.2	6:00	6:00	1000.0	0.0	1000.0	1174.3
9:40	2:20	573.6	504.3	763.8	584.3	5:55	6:05	999.8	-13.4	999.9	1181.2
9:35	2:25	591.3	496.5	772.1	603.2	5:50	6:10	999.0	-26.9	999.4	1187.8
9:30	2:30	608.8	488.4	780.5	621.9	5:45	6:15	997.9	-40.3	998.7	1194.1
9:25	2:35	625.9	480.1	788.9	640.4	5:40	6:20	996.2	-53.7	997.6	1200.2
9:20	2:40	642.8	471.6	797.2	658.7	5:35	6:25	994.1	-67.0	996.3	1205.9
9:15	2:45	659.3	462.9	805.6	676.8	5:30	6:30	991.4	-80.4	994.7	1211.4
9:10	2:50	675.6	453.9	813.9	694.7	5:25	6:35	988.4	-93.7	992.8	1216.5
9:05	2:55	691.5	444.7	822.2	712.3	5:20	6:40	984.8	-106.9	990.6	1221.5
9:00	3:00	707.1	435.3	830.4	729.7	5:15	6:45	980.8	-120.1	988.1	1226.1
8:55	3:05	722.4	425.7	838.5	746.9	5:10	6:50	976.3	-133.3	985.3	1230.5
8:50	3:10	737.3	415.9	846.5	763.9	5:05	6:55	971.3	-146.3	982.3	1234.6
8:45	3:15	751.8	405.9	854.4	780.5	5:00	7:00	965.9	-159.3	979.0	1238.4
8:40	3:20	766.0	395.7	862.2	797.0	4:55	7:05	960.0	-172.3	975.4	1242.0
8:35	3:25	779.9	385.4	869.9	813.2	4:50	7:10	953.7	-185.1	971.5	1245.3
8:30	3:30	793.4	374.8	877.4	829.1	4:45	7:15	946.9	-197.9	967.4	1248.4
8:25	3:35	806.4	364.0	884.8	844.8	4:40	7:20	939.7	-210.6	963.0	1251.3
8:20	3:40	819.2	353.1	892.0	860.2	4:35	7:25	932.0	-223.1	958.3	1253.9
8:15	3:45	831.5	342.0	899.1	875.3	4:30	7:30	923.9	-235.6	953.4	1256.3

Analematic Sundial

Latitude: 38.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 615.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-334.3	-328.0	-326.1	-317.4	-314.9	-304.1	-301.1	-288.2	-284.8	-270.3	-266.4
February	-241.8	-224.2	-219.6	-200.9	-196.2	-176.6	-171.5	-151.3	-146.2	-125.4	-120.0
March	-104.2	-82.8	-77.4	-55.8	-50.4	-28.6	-23.2	-1.4	4.0	25.7	31.1
April	63.4	84.6	89.9	110.7	115.9	136.4	141.4	161.3	166.2	185.4	190.1
May	212.9	230.4	234.6	250.9	254.8	269.8	273.3	287.0	290.2	302.2	304.9
June	319.7	327.4	329.1	334.8	336.1	339.7	340.2	341.5	341.7	339.2	340.3
July	336.1	330.8	329.1	321.9	319.8	310.4	307.9	296.7	293.7	280.9	277.5
August	255.7	239.9	235.8	218.8	214.5	196.6	192.0	173.3	168.5	149.0	144.1
September	114.0	93.4	88.3	67.3	62.0	40.9	35.6	14.3	8.9	-12.5	-17.9
October	-44.6	-66.0	-71.3	-92.6	-97.7	-118.8	-124.0	-144.5	-149.6	-169.7	-174.6
November	-203.4	-221.8	-226.3	-243.6	-247.9	-264.0	-267.8	-282.5	-285.9	-298.9	-302.0
December	-315.5	-324.6	-326.6	-333.2	-334.7	-338.9	-339.7	-341.5	-341.7	-340.8	-340.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	334.3	328.0	326.1	317.4	314.9	304.1	301.1	288.2	284.8	270.3	266.4
February	241.8	224.2	219.6	200.9	196.2	176.6	171.5	151.3	146.2	125.4	120.0
March	104.2	82.8	77.4	55.8	50.4	28.6	23.2	1.4	-4.0	-25.7	-31.1
April	-63.4	-84.6	-89.9	-110.7	-115.9	-136.4	-141.4	-161.3	-166.2	-185.4	-190.1
May	-212.9	-230.4	-234.6	-250.9	-254.8	-269.8	-273.3	-287.0	-290.2	-302.2	-304.9
June	-319.7	-327.4	-329.1	-334.8	-336.1	-339.7	-340.2	-341.5	-341.7	-339.2	-340.3
July	-336.1	-330.8	-329.1	-321.9	-319.8	-310.4	-307.9	-296.7	-293.7	-280.9	-277.5
August	-255.7	-239.9	-235.8	-218.8	-214.5	-196.6	-192.0	-173.3	-168.5	-149.0	-144.1
September	-114.0	-93.4	-88.3	-67.3	-62.0	-40.9	-35.6	-14.3	-8.9	12.5	17.9
October	44.6	66.0	71.3	92.6	97.7	118.8	124.0	144.5	149.6	169.7	174.6
November	203.4	221.8	226.3	243.6	247.9	264.0	267.8	282.5	285.9	298.9	302.0
December	315.5	324.6	326.6	333.2	334.7	338.9	339.7	341.5	341.7	340.8	340.3

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: 38.0° N/S

Earliest Sunrise: 4:35 a.m. Latest Sunset: 7:25 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 923.5 mm
 Sunrise/Sunset Markers: X = ± 892.1 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	923.5	923.5	0.0							
11:55	12:05	32.7	923.3	923.9	32.7	8:10	3:50	1265.1	496.2	1358.9	1335.3
11:50	12:10	65.4	922.6	924.9	65.4	8:05	3:55	1282.4	479.1	1368.9	1357.2
11:45	12:15	98.1	921.5	926.7	98.1	8:00	4:00	1299.0	461.7	1378.7	1378.7
11:40	12:20	130.7	920.0	929.2	130.8	7:55	4:05	1315.1	444.2	1388.1	1399.7
11:35	12:25	163.3	918.0	932.4	163.4	7:50	4:10	1330.5	426.4	1397.2	1420.3
11:30	12:30	195.8	915.6	936.3	195.9	7:45	4:15	1345.3	408.5	1405.9	1440.5
11:25	12:35	228.2	912.7	940.8	228.4	7:40	4:20	1359.5	390.3	1414.4	1460.3
11:20	12:40	260.5	909.5	946.0	260.8	7:35	4:25	1373.0	371.9	1422.5	1479.6
11:15	12:45	292.6	905.7	951.8	293.2	7:30	4:30	1385.8	353.4	1430.2	1498.5
11:10	12:50	324.7	901.6	958.3	325.4	7:25	4:35	1398.0	334.7	1437.5	1516.9
11:05	12:55	356.5	897.0	965.3	357.5	7:20	4:40	1409.5	315.9	1444.5	1534.9
11:00	1:00	388.2	892.0	972.8	389.5	7:15	4:45	1420.4	296.8	1451.1	1552.5
10:55	1:05	419.7	886.6	980.9	421.4	7:10	4:50	1430.6	277.7	1457.3	1569.6
10:50	1:10	451.1	880.8	989.5	453.1	7:05	4:55	1440.1	258.4	1463.1	1586.2
10:45	1:15	482.2	874.5	998.6	484.6	7:00	5:00	1448.9	239.0	1468.5	1602.4
10:40	1:20	513.0	867.8	1008.1	516.0	6:55	5:05	1457.0	219.5	1473.5	1618.2
10:35	1:25	543.7	860.7	1018.0	547.3	6:50	5:10	1464.4	199.9	1478.0	1633.5
10:30	1:30	574.0	853.2	1028.3	578.3	6:45	5:15	1471.2	180.2	1482.2	1648.3
10:25	1:35	604.1	845.3	1039.0	609.2	6:40	5:20	1477.2	160.4	1485.9	1662.7
10:20	1:40	633.9	837.0	1049.9	639.8	6:35	5:25	1482.5	140.5	1489.2	1676.6
10:15	1:45	663.4	828.3	1061.2	670.2	6:30	5:30	1487.2	120.5	1492.0	1690.1
10:10	1:50	692.6	819.1	1072.7	700.4	6:25	5:35	1491.1	100.5	1494.5	1703.1
10:05	1:55	721.5	809.7	1084.5	730.4	6:20	5:40	1494.3	80.5	1496.5	1715.7
10:00	2:00	750.0	799.8	1096.4	760.1	6:15	5:45	1496.8	60.4	1498.0	1727.8
9:55	2:05	778.2	789.5	1108.5	789.6	6:10	5:50	1498.6	40.3	1499.1	1739.5
9:50	2:10	805.9	778.9	1120.8	818.8	6:05	5:55	1499.6	20.1	1499.8	1750.7
9:45	2:15	833.4	767.9	1133.2	847.8	6:00	6:00	1500.0	0.0	1500.0	1761.5
9:40	2:20	860.4	756.5	1145.6	876.4	5:55	6:05	1499.6	-20.1	1499.8	1771.8
9:35	2:25	887.0	744.7	1158.2	904.8	5:50	6:10	1498.6	-40.3	1499.1	1781.7
9:30	2:30	913.1	732.7	1170.7	932.9	5:45	6:15	1496.8	-60.4	1498.0	1791.2
9:25	2:35	938.9	720.2	1183.3	960.6	5:40	6:20	1494.3	-80.5	1496.5	1800.2
9:20	2:40	964.2	707.4	1195.9	988.1	5:35	6:25	1491.1	-100.5	1494.5	1808.9
9:15	2:45	989.0	694.3	1208.4	1015.2	5:30	6:30	1487.2	-120.5	1492.0	1817.0
9:10	2:50	1013.4	680.9	1220.9	1042.0	5:25	6:35	1482.5	-140.5	1489.2	1824.8
9:05	2:55	1037.3	667.1	1233.3	1068.5	5:20	6:40	1477.2	-160.4	1485.9	1832.2
9:00	3:00	1060.7	653.0	1245.6	1094.6	5:15	6:45	1471.2	-180.2	1482.2	1839.1
8:55	3:05	1083.5	638.6	1257.7	1120.4	5:10	6:50	1464.4	-199.9	1478.0	1845.7
8:50	3:10	1105.9	623.9	1269.8	1145.8	5:05	6:55	1457.0	-219.5	1473.5	1851.8
8:45	3:15	1127.8	608.9	1281.6	1170.8	5:00	7:00	1448.9	-239.0	1468.5	1857.6
8:40	3:20	1149.1	593.6	1293.3	1195.5	4:55	7:05	1440.1	-258.4	1463.1	1863.0
8:35	3:25	1169.8	578.0	1304.8	1219.8	4:50	7:10	1430.6	-277.7	1457.3	1868.0
8:30	3:30	1190.0	562.2	1316.1	1243.7	4:45	7:15	1420.4	-296.8	1451.1	1872.6
8:25	3:35	1209.7	546.1	1327.2	1267.2	4:40	7:20	1409.5	-315.9	1444.5	1876.9
8:20	3:40	1228.7	529.7	1338.0	1290.3	4:35	7:25	1398.0	-334.7	1437.5	1880.8
8:15	3:45	1247.2	513.1	1348.6	1313.0	4:30	7:30	1385.8	-353.4	1430.2	1884.4

Analematic Sundial

Latitude: 38.0° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 923.5 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-501.5	-492.0	-489.1	-476.1	-472.3	-456.1	-451.6	-432.3	-427.2	-405.4	-399.6
February	-362.7	-336.3	-329.4	-301.3	-294.3	-264.9	-257.3	-227.0	-219.3	-188.1	-180.0
March	-156.2	-124.2	-116.1	-83.7	-75.6	-42.9	-34.9	-2.1	6.0	38.6	46.6
April	95.1	126.9	134.9	166.1	173.9	204.6	212.0	242.0	249.3	278.1	285.1
May	319.4	345.6	351.9	376.3	382.2	404.7	410.0	430.5	435.4	453.3	457.3
June	479.5	491.1	493.7	502.2	504.2	509.5	510.3	512.2	512.5	508.8	510.5
July	504.2	496.1	493.7	482.9	479.7	465.6	461.8	445.0	440.5	421.4	416.3
August	383.6	359.8	353.7	328.2	321.8	294.9	287.9	259.9	252.8	223.6	216.1
September	171.0	140.1	132.4	100.9	93.0	61.3	53.5	21.5	13.4	-18.8	-26.8
October	-66.9	-99.0	-106.9	-138.9	-146.6	-178.1	-185.9	-216.7	-224.4	-254.5	-261.8
November	-305.0	-332.7	-339.4	-365.4	-371.8	-396.0	-401.7	-423.7	-428.8	-448.3	-453.0
December	-473.3	-487.0	-489.8	-499.8	-502.0	-508.3	-509.5	-512.2	-512.5	-511.3	-510.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	501.5	492.0	489.1	476.1	472.3	456.1	451.6	432.3	427.2	405.4	399.6
February	362.7	336.3	329.4	301.3	294.3	264.9	257.3	227.0	219.3	188.1	180.0
March	156.2	124.2	116.1	83.7	75.6	42.9	34.9	2.1	-6.0	-38.6	-46.6
April	-95.1	-126.9	-134.9	-166.1	-173.9	-204.6	-212.0	-242.0	-249.3	-278.1	-285.1
May	-319.4	-345.6	-351.9	-376.3	-382.2	-404.7	-410.0	-430.5	-435.4	-453.3	-457.3
June	-479.5	-491.1	-493.7	-502.2	-504.2	-509.5	-510.3	-512.2	-512.5	-508.8	-510.5
July	-504.2	-496.1	-493.7	-482.9	-479.7	-465.6	-461.8	-445.0	-440.5	-421.4	-416.3
August	-383.6	-359.8	-353.7	-328.2	-321.8	-294.9	-287.9	-259.9	-252.8	-223.6	-216.1
September	-171.0	-140.1	-132.4	-100.9	-93.0	-61.3	-53.5	-21.5	-13.4	18.8	26.8
October	66.9	99.0	106.9	138.9	146.6	178.1	185.9	216.7	224.4	254.5	261.8
November	305.0	332.7	339.4	365.4	371.8	396.0	401.7	423.7	428.8	448.3	453.0
December	473.3	487.0	489.8	499.8	502.0	508.3	509.5	512.2	512.5	511.3	510.5

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: 38.0° N/S

Earliest Sunrise: 4:35 a.m. Latest Sunset: 7:25 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1231.3 mm
 Sunrise/Sunset Markers: X = ± 1189.5 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1231.3	1231.3	0.0							
11:55	12:05	43.6	1231.0	1231.8	43.6	8:10	3:50	1686.8	661.6	1811.9	1780.4
11:50	12:10	87.2	1230.2	1233.2	87.2	8:05	3:55	1709.8	638.8	1825.2	1809.6
11:45	12:15	130.8	1228.7	1235.6	130.8	8:00	4:00	1732.1	615.7	1838.2	1838.2
11:40	12:20	174.3	1226.6	1239.0	174.4	7:55	4:05	1753.5	592.3	1850.8	1866.3
11:35	12:25	217.7	1224.0	1243.2	217.9	7:50	4:10	1774.0	568.6	1862.9	1893.8
11:30	12:30	261.1	1220.8	1248.4	261.3	7:45	4:15	1793.7	544.6	1874.6	1920.7
11:25	12:35	304.2	1217.0	1254.4	304.6	7:40	4:20	1812.6	520.4	1885.8	1947.1
11:20	12:40	347.3	1212.6	1261.4	347.8	7:35	4:25	1830.6	495.9	1896.6	1972.8
11:15	12:45	390.2	1207.7	1269.1	390.9	7:30	4:30	1847.8	471.2	1906.9	1998.0
11:10	12:50	432.9	1202.1	1277.7	433.9	7:25	4:35	1864.0	446.3	1916.7	2022.6
11:05	12:55	475.4	1196.0	1287.0	476.7	7:20	4:40	1879.4	421.1	1926.0	2046.6
11:00	1:00	517.6	1189.4	1297.1	519.3	7:15	4:45	1893.9	395.8	1934.8	2070.0
10:55	1:05	559.7	1182.1	1307.9	561.8	7:10	4:50	1907.4	370.3	1943.0	2092.8
10:50	1:10	601.4	1174.3	1319.4	604.1	7:05	4:55	1920.1	344.6	1950.8	2115.0
10:45	1:15	642.9	1166.0	1331.5	646.2	7:00	5:00	1931.9	318.7	1958.0	2136.6
10:40	1:20	684.0	1157.1	1344.1	688.1	6:55	5:05	1942.7	292.7	1964.6	2157.6
10:35	1:25	724.9	1147.6	1357.4	729.7	6:50	5:10	1952.6	266.5	1970.7	2178.0
10:30	1:30	765.4	1137.6	1371.1	771.1	6:45	5:15	1961.6	240.2	1976.2	2197.7
10:25	1:35	805.5	1127.0	1385.3	812.2	6:40	5:20	1969.6	213.8	1981.2	2216.9
10:20	1:40	845.2	1116.0	1399.9	853.1	6:35	5:25	1976.7	187.3	1985.6	2235.5
10:15	1:45	884.6	1104.3	1414.9	893.6	6:30	5:30	1982.9	160.7	1989.4	2253.5
10:10	1:50	923.5	1092.2	1430.3	933.9	6:25	5:35	1988.1	134.1	1992.6	2270.8
10:05	1:55	962.0	1079.5	1446.0	973.9	6:20	5:40	1992.4	107.3	1995.3	2287.6
10:00	2:00	1000.0	1066.4	1461.9	1013.5	6:15	5:45	1995.7	80.5	1997.3	2303.7
9:55	2:05	1037.5	1052.7	1478.0	1052.8	6:10	5:50	1998.1	53.7	1998.8	2319.3
9:50	2:10	1074.6	1038.5	1494.4	1091.8	6:05	5:55	1999.5	26.9	1999.7	2334.3
9:45	2:15	1111.1	1023.8	1510.9	1130.4	6:00	6:00	2000.0	0.0	2000.0	2348.6
9:40	2:20	1147.2	1008.6	1527.5	1168.6	5:55	6:05	1999.5	-26.9	1999.7	2362.4
9:35	2:25	1182.6	993.0	1544.2	1206.4	5:50	6:10	1998.1	-53.7	1998.8	2375.6
9:30	2:30	1217.5	976.9	1561.0	1243.8	5:45	6:15	1995.7	-80.5	1997.3	2388.3
9:25	2:35	1251.8	960.3	1577.7	1280.9	5:40	6:20	1992.4	-107.3	1995.3	2400.3
9:20	2:40	1285.6	943.2	1594.5	1317.5	5:35	6:25	1988.1	-134.1	1992.6	2411.8
9:15	2:45	1318.7	925.8	1611.2	1353.6	5:30	6:30	1982.9	-160.7	1989.4	2422.7
9:10	2:50	1351.2	907.8	1627.8	1389.4	5:25	6:35	1976.7	-187.3	1985.6	2433.1
9:05	2:55	1383.0	889.5	1644.4	1424.7	5:20	6:40	1969.6	-213.8	1981.2	2442.9
9:00	3:00	1414.2	870.7	1660.7	1459.5	5:15	6:45	1961.6	-240.2	1976.2	2452.2
8:55	3:05	1444.7	851.5	1677.0	1493.8	5:10	6:50	1952.6	-266.5	1970.7	2460.9
8:50	3:10	1474.6	831.9	1693.0	1527.7	5:05	6:55	1942.7	-292.7	1964.6	2469.1
8:45	3:15	1503.7	811.9	1708.9	1561.1	5:00	7:00	1931.9	-318.7	1958.0	2476.8
8:40	3:20	1532.1	791.5	1724.5	1594.0	4:55	7:05	1920.1	-344.6	1950.8	2484.0
8:35	3:25	1559.8	770.7	1739.8	1626.4	4:50	7:10	1907.4	-370.3	1943.0	2490.7
8:30	3:30	1586.7	749.6	1754.9	1658.2	4:45	7:15	1893.9	-395.8	1934.8	2496.8
8:25	3:35	1612.9	728.1	1769.6	1689.6	4:40	7:20	1879.4	-421.1	1926.0	2502.5
8:20	3:40	1638.3	706.3	1784.1	1720.4	4:35	7:25	1864.0	-446.3	1916.7	2507.8
8:15	3:45	1662.9	684.1	1798.1	1750.7	4:30	7:30	1847.8	-471.2	1906.9	2512.5

Analematic Sundial

Latitude: 38.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1231.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-668.7	-656.0	-652.2	-634.8	-629.7	-608.1	-602.1	-576.4	-569.6	-540.5	-532.8
February	-483.6	-448.3	-439.1	-401.7	-392.4	-353.1	-343.1	-302.6	-292.4	-250.7	-240.0
March	-208.3	-165.6	-154.8	-111.6	-100.8	-57.2	-46.5	-2.8	8.0	51.5	62.2
April	126.8	169.3	179.8	221.5	231.9	272.8	282.7	322.7	332.4	370.8	380.1
May	425.8	460.9	469.2	501.8	509.6	539.6	546.7	573.9	580.5	604.3	609.7
June	639.3	654.7	658.3	669.6	672.2	679.4	680.4	683.0	683.3	678.4	680.7
July	672.2	661.5	658.3	643.8	639.6	620.8	615.7	593.3	587.4	561.8	555.0
August	511.5	479.7	471.6	437.7	429.1	393.2	383.9	346.5	337.0	298.1	288.1
September	228.0	186.8	176.5	134.6	124.0	81.8	71.3	28.6	17.9	-25.0	-35.8
October	-89.2	-132.1	-142.6	-185.1	-195.5	-237.5	-247.9	-289.0	-299.2	-339.3	-349.1
November	-406.7	-443.6	-452.5	-487.3	-495.7	-527.9	-535.6	-564.9	-571.8	-597.7	-604.0
December	-631.0	-649.3	-653.1	-666.4	-669.3	-677.8	-679.4	-683.0	-683.3	-681.7	-680.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	668.7	656.0	652.2	634.8	629.7	608.1	602.1	576.4	569.6	540.5	532.8
February	483.6	448.3	439.1	401.7	392.4	353.1	343.1	302.6	292.4	250.7	240.0
March	208.3	165.6	154.8	111.6	100.8	57.2	46.5	2.8	-8.0	-51.5	-62.2
April	-126.8	-169.3	-179.8	-221.5	-231.9	-272.8	-282.7	-322.7	-332.4	-370.8	-380.1
May	-425.8	-460.9	-469.2	-501.8	-509.6	-539.6	-546.7	-573.9	-580.5	-604.3	-609.7
June	-639.3	-654.7	-658.3	-669.6	-672.2	-679.4	-680.4	-683.0	-683.3	-678.4	-680.7
July	-672.2	-661.5	-658.3	-643.8	-639.6	-620.8	-615.7	-593.3	-587.4	-561.8	-555.0
August	-511.5	-479.7	-471.6	-437.7	-429.1	-393.2	-383.9	-346.5	-337.0	-298.1	-288.1
September	-228.0	-186.8	-176.5	-134.6	-124.0	-81.8	-71.3	-28.6	-17.9	25.0	35.8
October	89.2	132.1	142.6	185.1	195.5	237.5	247.9	289.0	299.2	339.3	349.1
November	406.7	443.6	452.5	487.3	495.7	527.9	535.6	564.9	571.8	597.7	604.0
December	631.0	649.3	653.1	666.4	669.3	677.8	679.4	683.0	683.3	681.7	680.7

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: 38.0° N/S

Earliest Sunrise: 4:35 a.m. Latest Sunset: 7:25 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1539.2 mm
 Sunrise/Sunset Markers: X = ± 1486.9 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1539.2	1539.2	0.0							
11:55	12:05	54.5	1538.8	1539.8	54.5	8:10	3:50	2108.5	827.0	2264.9	2225.5
11:50	12:10	109.0	1537.7	1541.6	109.1	8:05	3:55	2137.3	798.5	2281.6	2262.0
11:45	12:15	163.5	1535.9	1544.5	163.5	8:00	4:00	2165.1	769.6	2297.8	2297.8
11:40	12:20	217.9	1533.3	1548.7	218.0	7:55	4:05	2191.8	740.3	2313.5	2332.9
11:35	12:25	272.2	1530.0	1554.0	272.3	7:50	4:10	2217.5	710.7	2328.6	2367.2
11:30	12:30	326.3	1526.0	1560.5	326.6	7:45	4:15	2242.2	680.8	2343.2	2400.9
11:25	12:35	380.3	1521.2	1568.1	380.7	7:40	4:20	2265.8	650.5	2357.3	2433.8
11:20	12:40	434.1	1515.8	1576.7	434.7	7:35	4:25	2288.3	619.9	2370.8	2466.0
11:15	12:45	487.7	1509.6	1586.4	488.6	7:30	4:30	2309.7	589.0	2383.6	2497.5
11:10	12:50	541.1	1502.7	1597.1	542.3	7:25	4:35	2330.0	557.8	2395.9	2528.2
11:05	12:55	594.2	1495.0	1608.8	595.8	7:20	4:40	2349.2	526.4	2407.5	2558.2
11:00	1:00	647.0	1486.7	1621.4	649.2	7:15	4:45	2367.3	494.7	2418.5	2587.5
10:55	1:05	699.6	1477.7	1634.9	702.3	7:10	4:50	2384.3	462.8	2428.8	2616.0
10:50	1:10	751.8	1467.9	1649.2	755.1	7:05	4:55	2400.1	430.7	2438.5	2643.7
10:45	1:15	803.6	1457.5	1664.3	807.7	7:00	5:00	2414.8	398.4	2447.5	2670.7
10:40	1:20	855.1	1446.3	1680.2	860.1	6:55	5:05	2428.4	365.8	2455.8	2697.0
10:35	1:25	906.1	1434.5	1696.7	912.1	6:50	5:10	2440.7	333.1	2463.4	2722.4
10:30	1:30	956.7	1422.0	1713.9	963.9	6:45	5:15	2452.0	300.3	2470.3	2747.2
10:25	1:35	1006.9	1408.8	1731.6	1015.3	6:40	5:20	2462.0	267.3	2476.5	2771.1
10:20	1:40	1056.5	1394.9	1749.9	1066.3	6:35	5:25	2470.9	234.1	2482.0	2794.4
10:15	1:45	1105.7	1380.4	1768.7	1117.1	6:30	5:30	2478.6	200.9	2486.7	2816.8
10:10	1:50	1154.4	1365.2	1787.9	1167.4	6:25	5:35	2485.1	167.6	2490.8	2838.5
10:05	1:55	1202.5	1349.4	1807.4	1217.3	6:20	5:40	2490.5	134.1	2494.1	2859.5
10:00	2:00	1250.0	1332.9	1827.4	1266.9	6:15	5:45	2494.6	100.7	2496.7	2879.7
9:55	2:05	1296.9	1315.8	1847.6	1316.0	6:10	5:50	2497.6	67.1	2498.5	2899.1
9:50	2:10	1343.2	1298.1	1868.0	1364.7	6:05	5:55	2499.4	33.6	2499.6	2917.8
9:45	2:15	1388.9	1279.8	1888.6	1412.9	6:00	6:00	2500.0	0.0	2500.0	2935.8
9:40	2:20	1433.9	1260.8	1909.4	1460.7	5:55	6:05	2499.4	-33.6	2499.6	2953.1
9:35	2:25	1478.3	1241.2	1930.3	1508.0	5:50	6:10	2497.6	-67.1	2498.5	2969.6
9:30	2:30	1521.9	1221.1	1951.2	1554.8	5:45	6:15	2494.6	-100.7	2496.7	2985.3
9:25	2:35	1564.8	1200.4	1972.2	1601.1	5:40	6:20	2490.5	-134.1	2494.1	3000.4
9:20	2:40	1607.0	1179.1	1993.1	1646.8	5:35	6:25	2485.1	-167.6	2490.8	3014.8
9:15	2:45	1648.4	1157.2	2014.0	1692.0	5:30	6:30	2478.6	-200.9	2486.7	3028.4
9:10	2:50	1689.0	1134.8	2034.8	1736.7	5:25	6:35	2470.9	-234.1	2482.0	3041.4
9:05	2:55	1728.8	1111.8	2055.4	1780.8	5:20	6:40	2462.0	-267.3	2476.5	3053.6
9:00	3:00	1767.8	1088.3	2075.9	1824.3	5:15	6:45	2452.0	-300.3	2470.3	3065.2
8:55	3:05	1805.9	1064.3	2096.2	1867.3	5:10	6:50	2440.7	-333.1	2463.4	3076.1
8:50	3:10	1843.2	1039.8	2116.3	1909.6	5:05	6:55	2428.4	-365.8	2455.8	3086.4
8:45	3:15	1879.6	1014.8	2136.1	1951.4	5:00	7:00	2414.8	-398.4	2447.5	3096.0
8:40	3:20	1915.1	989.3	2155.6	1992.5	4:55	7:05	2400.1	-430.7	2438.5	3105.0
8:35	3:25	1949.7	963.4	2174.7	2032.9	4:50	7:10	2384.3	-462.8	2428.8	3113.3
8:30	3:30	1983.4	937.0	2193.6	2072.8	4:45	7:15	2367.3	-494.7	2418.5	3121.1
8:25	3:35	2016.1	910.1	2212.0	2112.0	4:40	7:20	2349.2	-526.4	2407.5	3128.2
8:20	3:40	2047.9	882.8	2230.1	2150.5	4:35	7:25	2330.0	-557.8	2395.9	3134.7
8:15	3:45	2078.7	855.1	2247.7	2188.3	4:30	7:30	2309.7	-589.0	2383.6	3140.7

Analematic Sundial

Latitude: 38.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1539.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-835.8	-820.0	-815.2	-793.5	-787.2	-760.2	-752.7	-720.5	-712.0	-675.6	-666.1
February	-604.6	-560.4	-548.9	-502.2	-490.5	-441.4	-428.8	-378.3	-365.5	-313.4	-300.0
March	-260.4	-207.1	-193.5	-139.5	-126.0	-71.5	-58.1	-3.4	10.0	64.3	77.7
April	158.5	211.6	224.8	276.9	289.9	341.0	353.4	403.3	415.5	463.5	475.1
May	532.3	576.1	586.5	627.2	637.1	674.5	683.3	717.4	725.6	755.4	762.1
June	799.1	818.4	822.9	837.0	840.3	849.2	850.5	853.7	854.1	848.0	850.9
July	840.3	826.9	822.9	804.8	799.5	776.0	769.7	741.7	734.2	702.3	693.8
August	639.3	599.7	589.5	547.1	536.4	491.5	479.9	433.1	421.3	372.6	360.1
September	284.9	233.5	220.6	168.2	155.0	102.2	89.1	35.8	22.4	-31.3	-44.7
October	-111.5	-165.1	-178.2	-231.4	-244.3	-296.9	-309.9	-361.2	-374.0	-424.1	-436.4
November	-508.4	-554.5	-565.6	-609.1	-619.6	-659.9	-669.5	-706.1	-714.7	-747.2	-755.0
December	-788.8	-811.6	-816.4	-833.0	-836.6	-847.2	-849.2	-853.7	-854.1	-852.1	-850.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	835.8	820.0	815.2	793.5	787.2	760.2	752.7	720.5	712.0	675.6	666.1
February	604.6	560.4	548.9	502.2	490.5	441.4	428.8	378.3	365.5	313.4	300.0
March	260.4	207.1	193.5	139.5	126.0	71.5	58.1	3.4	-10.0	-64.3	-77.7
April	-158.5	-211.6	-224.8	-276.9	-289.9	-341.0	-353.4	-403.3	-415.5	-463.5	-475.1
May	-532.3	-576.1	-586.5	-627.2	-637.1	-674.5	-683.3	-717.4	-725.6	-755.4	-762.1
June	-799.1	-818.4	-822.9	-837.0	-840.3	-849.2	-850.5	-853.7	-854.1	-848.0	-850.9
July	-840.3	-826.9	-822.9	-804.8	-799.5	-776.0	-769.7	-741.7	-734.2	-702.3	-693.8
August	-639.3	-599.7	-589.5	-547.1	-536.4	-491.5	-479.9	-433.1	-421.3	-372.6	-360.1
September	-284.9	-233.5	-220.6	-168.2	-155.0	-102.2	-89.1	-35.8	-22.4	31.3	44.7
October	111.5	165.1	178.2	231.4	244.3	296.9	309.9	361.2	374.0	424.1	436.4
November	508.4	554.5	565.6	609.1	619.6	659.9	669.5	706.1	714.7	747.2	755.0
December	788.8	811.6	816.4	833.0	836.6	847.2	849.2	853.7	854.1	852.1	850.9

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 |