

Analemmatic Sundial

Latitude: 29.0° N/S

Earliest Sunrise: 5:00 a.m. Latest Sunset: 7:00 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 484.8 mm
 Sunrise/Sunset Markers: X = ± 748.9 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	484.8	484.8	0.0							
11:55	12:05	21.8	484.7	485.2	21.8	8:25	3:35	806.4	286.7	855.9	830.4
11:50	12:10	43.6	484.3	486.3	43.6	8:20	3:40	819.2	278.1	865.1	844.8
11:45	12:15	65.4	483.8	488.2	65.4	8:15	3:45	831.5	269.3	874.0	858.9
11:40	12:20	87.2	483.0	490.8	87.2	8:10	3:50	843.4	260.5	882.7	872.7
11:35	12:25	108.9	481.9	494.1	108.9	8:05	3:55	854.9	251.5	891.1	886.2
11:30	12:30	130.5	480.7	498.1	130.6	8:00	4:00	866.0	242.4	899.3	899.3
11:25	12:35	152.1	479.2	502.7	152.2	7:55	4:05	876.7	233.2	907.2	912.1
11:20	12:40	173.6	477.4	508.0	173.8	7:50	4:10	887.0	223.9	914.8	924.6
11:15	12:45	195.1	475.5	514.0	195.3	7:45	4:15	896.9	214.4	922.1	936.7
11:10	12:50	216.4	473.3	520.5	216.7	7:40	4:20	906.3	204.9	929.2	948.6
11:05	12:55	237.7	470.9	527.5	238.1	7:35	4:25	915.3	195.3	935.9	960.0
11:00	1:00	258.8	468.3	535.1	259.3	7:30	4:30	923.9	185.5	942.3	971.1
10:55	1:05	279.8	465.4	543.1	280.5	7:25	4:35	932.0	175.7	948.4	981.9
10:50	1:10	300.7	462.4	551.6	301.5	7:20	4:40	939.7	165.8	954.2	992.4
10:45	1:15	321.4	459.1	560.4	322.5	7:15	4:45	946.9	155.8	959.7	1002.4
10:40	1:20	342.0	455.6	569.7	343.3	7:10	4:50	953.7	145.8	964.8	1012.2
10:35	1:25	362.4	451.8	579.2	363.9	7:05	4:55	960.0	135.7	969.6	1021.6
10:30	1:30	382.7	447.9	589.1	384.5	7:00	5:00	965.9	125.5	974.0	1030.6
10:25	1:35	402.7	443.8	599.3	404.8	6:55	5:05	971.3	115.2	978.2	1039.3
10:20	1:40	422.6	439.4	609.6	425.1	6:50	5:10	976.3	104.9	981.9	1047.6
10:15	1:45	442.3	434.8	620.2	445.1	6:45	5:15	980.8	94.6	985.3	1055.6
10:10	1:50	461.7	430.0	631.0	465.0	6:40	5:20	984.8	84.2	988.4	1063.2
10:05	1:55	481.0	425.0	641.9	484.7	6:35	5:25	988.4	73.8	991.1	1070.4
10:00	2:00	500.0	419.9	652.9	504.2	6:30	5:30	991.4	63.3	993.5	1077.3
9:55	2:05	518.8	414.5	664.0	523.5	6:25	5:35	994.1	52.8	995.5	1083.9
9:50	2:10	537.3	408.9	675.2	542.6	6:20	5:40	996.2	42.3	997.1	1090.1
9:45	2:15	555.6	403.1	686.4	561.5	6:15	5:45	997.9	31.7	998.4	1095.9
9:40	2:20	573.6	397.1	697.6	580.2	6:10	5:50	999.0	21.1	999.3	1101.4
9:35	2:25	591.3	391.0	708.9	598.7	6:05	5:55	999.8	10.6	999.8	1106.5
9:30	2:30	608.8	384.6	720.1	617.0	6:00	6:00	1000.0	0.0	1000.0	1111.3
9:25	2:35	625.9	378.1	731.3	635.0	5:55	6:05	999.8	-10.6	999.8	1115.8
9:20	2:40	642.8	371.4	742.4	652.7	5:50	6:10	999.0	-21.1	999.3	1119.9
9:15	2:45	659.3	364.5	753.4	670.2	5:45	6:15	997.9	-31.7	998.4	1123.6
9:10	2:50	675.6	357.4	764.3	687.5	5:40	6:20	996.2	-42.3	997.1	1127.0
9:05	2:55	691.5	350.2	775.1	704.5	5:35	6:25	994.1	-52.8	995.5	1130.1
9:00	3:00	707.1	342.8	785.8	721.2	5:30	6:30	991.4	-63.3	993.5	1132.9
8:55	3:05	722.4	335.3	796.4	737.7	5:25	6:35	988.4	-73.8	991.1	1135.3
8:50	3:10	737.3	327.5	806.8	753.9	5:20	6:40	984.8	-84.2	988.4	1137.4
8:45	3:15	751.8	319.7	817.0	769.8	5:15	6:45	980.8	-94.6	985.3	1139.1
8:40	3:20	766.0	311.6	827.0	785.4	5:10	6:50	976.3	-104.9	981.9	1140.6
8:35	3:25	779.9	303.5	836.8	800.7	5:05	6:55	971.3	-115.2	978.2	1141.7
8:30	3:30	793.4	295.1	846.5	815.7	5:00	7:00	965.9	-125.5	974.0	1142.6

Analemmatic Sundial

Latitude: 29.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 484.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-371.1	-364.1	-361.9	-352.3	-349.5	-337.5	-334.2	-319.9	-316.1	-300.0	-295.7
February	-268.4	-248.8	-243.7	-222.9	-217.7	-196.0	-190.4	-168.0	-162.3	-139.2	-133.2
March	-115.6	-91.9	-85.9	-61.9	-55.9	-31.8	-25.8	-1.5	4.4	28.6	34.5
April	70.4	93.9	99.8	122.9	128.7	151.4	156.9	179.1	184.5	205.8	210.9
May	236.3	255.8	260.4	278.5	282.8	299.4	303.4	318.5	322.1	335.4	338.4
June	354.8	363.4	365.3	371.6	373.1	377.0	377.6	379.0	379.2	376.5	377.8
July	373.1	367.1	365.3	357.3	355.0	344.5	341.7	329.3	326.0	311.8	308.0
August	283.8	266.2	261.7	242.9	238.1	218.2	213.0	192.3	187.0	165.4	159.9
September	126.5	103.7	97.9	74.7	68.8	45.4	39.6	15.9	9.9	-13.9	-19.8
October	-49.5	-73.3	-79.1	-102.7	-108.5	-131.8	-137.6	-160.4	-166.1	-188.3	-193.7
November	-225.7	-246.2	-251.1	-270.4	-275.1	-293.0	-297.2	-313.5	-317.3	-331.7	-335.2
December	-350.2	-360.3	-362.5	-369.8	-371.4	-376.1	-377.0	-379.0	-379.2	-378.3	-377.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	371.1	364.1	361.9	352.3	349.5	337.5	334.2	319.9	316.1	300.0	295.7
February	268.4	248.8	243.7	222.9	217.7	196.0	190.4	168.0	162.3	139.2	133.2
March	115.6	91.9	85.9	61.9	55.9	31.8	25.8	1.5	-4.4	-28.6	-34.5
April	-70.4	-93.9	-99.8	-122.9	-128.7	-151.4	-156.9	-179.1	-184.5	-205.8	-210.9
May	-236.3	-255.8	-260.4	-278.5	-282.8	-299.4	-303.4	-318.5	-322.1	-335.4	-338.4
June	-354.8	-363.4	-365.3	-371.6	-373.1	-377.0	-377.6	-379.0	-379.2	-376.5	-377.8
July	-373.1	-367.1	-365.3	-357.3	-355.0	-344.5	-341.7	-329.3	-326.0	-311.8	-308.0
August	-283.8	-266.2	-261.7	-242.9	-238.1	-218.2	-213.0	-192.3	-187.0	-165.4	-159.9
September	-126.5	-103.7	-97.9	-74.7	-68.8	-45.4	-39.6	-15.9	-9.9	13.9	19.8
October	49.5	73.3	79.1	102.7	108.5	131.8	137.6	160.4	166.1	188.3	193.7
November	225.7	246.2	251.1	270.4	275.1	293.0	297.2	313.5	317.3	331.7	335.2
December	350.2	360.3	362.5	369.8	371.4	376.1	377.0	379.0	379.2	378.3	377.8

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: 29.0° N/S

Earliest Sunrise: 5:00 a.m. Latest Sunset: 7:00 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 727.2 mm
 Sunrise/Sunset Markers: X = ± 1123.3 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	727.2	727.2	0.0							
11:55	12:05	32.7	727.0	727.8	32.7	8:25	3:35	1209.7	430.0	1283.8	1245.6
11:50	12:10	65.4	726.5	729.5	65.4	8:20	3:40	1228.7	417.1	1297.6	1267.3
11:45	12:15	98.1	725.7	732.3	98.1	8:15	3:45	1247.2	404.0	1311.0	1288.4
11:40	12:20	130.7	724.4	736.1	130.8	8:10	3:50	1265.1	390.7	1324.1	1309.1
11:35	12:25	163.3	722.9	741.1	163.4	8:05	3:55	1282.4	377.3	1336.7	1329.3
11:30	12:30	195.8	721.0	747.1	195.9	8:00	4:00	1299.0	363.6	1349.0	1349.0
11:25	12:35	228.2	718.8	754.1	228.3	7:55	4:05	1315.1	349.8	1360.8	1368.2
11:20	12:40	260.5	716.2	762.1	260.7	7:50	4:10	1330.5	335.8	1372.2	1386.9
11:15	12:45	292.6	713.2	770.9	293.0	7:45	4:15	1345.3	321.6	1383.2	1405.1
11:10	12:50	324.7	710.0	780.7	325.1	7:40	4:20	1359.5	307.3	1393.8	1422.8
11:05	12:55	356.5	706.4	791.3	357.1	7:35	4:25	1373.0	292.9	1403.9	1440.0
11:00	1:00	388.2	702.4	802.6	389.0	7:30	4:30	1385.8	278.3	1413.5	1456.7
10:55	1:05	419.7	698.2	814.6	420.7	7:25	4:35	1398.0	263.6	1422.6	1472.9
10:50	1:10	451.1	693.6	827.3	452.3	7:20	4:40	1409.5	248.7	1431.3	1488.5
10:45	1:15	482.2	688.6	840.6	483.7	7:15	4:45	1420.4	233.8	1439.5	1503.7
10:40	1:20	513.0	683.4	854.5	514.9	7:10	4:50	1430.6	218.7	1447.2	1518.3
10:35	1:25	543.7	677.8	868.9	545.9	7:05	4:55	1440.1	203.5	1454.4	1532.4
10:30	1:30	574.0	671.9	883.7	576.7	7:00	5:00	1448.9	188.2	1461.1	1545.9
10:25	1:35	604.1	665.6	898.9	607.3	6:55	5:05	1457.0	172.8	1467.2	1558.9
10:20	1:40	633.9	659.1	914.5	637.6	6:50	5:10	1464.4	157.4	1472.9	1571.4
10:15	1:45	663.4	652.2	930.3	667.7	6:45	5:15	1471.2	141.9	1478.0	1583.3
10:10	1:50	692.6	645.0	946.5	697.5	6:40	5:20	1477.2	126.3	1482.6	1594.8
10:05	1:55	721.5	637.6	962.8	727.0	6:35	5:25	1482.5	110.6	1486.7	1605.7
10:00	2:00	750.0	629.8	979.4	756.3	6:30	5:30	1487.2	94.9	1490.2	1616.0
9:55	2:05	778.2	621.7	996.0	785.3	6:25	5:35	1491.1	79.2	1493.2	1625.8
9:50	2:10	805.9	613.3	1012.8	814.0	6:20	5:40	1494.3	63.4	1495.6	1635.1
9:45	2:15	833.4	604.7	1029.6	842.3	6:15	5:45	1496.8	47.6	1497.5	1643.9
9:40	2:20	860.4	595.7	1046.5	870.4	6:10	5:50	1498.6	31.7	1498.9	1652.1
9:35	2:25	887.0	586.5	1063.3	898.1	6:05	5:55	1499.6	15.9	1499.7	1659.8
9:30	2:30	913.1	576.9	1080.1	925.4	6:00	6:00	1500.0	0.0	1500.0	1667.0
9:25	2:35	938.9	567.1	1096.9	952.4	5:55	6:05	1499.6	-15.9	1499.7	1673.6
9:20	2:40	964.2	557.1	1113.5	979.1	5:50	6:10	1498.6	-31.7	1498.9	1679.8
9:15	2:45	989.0	546.7	1130.1	1005.3	5:45	6:15	1496.8	-47.6	1497.5	1685.4
9:10	2:50	1013.4	536.2	1146.5	1031.2	5:40	6:20	1494.3	-63.4	1495.6	1690.5
9:05	2:55	1037.3	525.3	1162.7	1056.7	5:35	6:25	1491.1	-79.2	1493.2	1695.2
9:00	3:00	1060.7	514.2	1178.7	1081.8	5:30	6:30	1487.2	-94.9	1490.2	1699.3
8:55	3:05	1083.5	502.9	1194.6	1106.5	5:25	6:35	1482.5	-110.6	1486.7	1702.9
8:50	3:10	1105.9	491.3	1210.1	1130.8	5:20	6:40	1477.2	-126.3	1482.6	1706.0
8:45	3:15	1127.8	479.5	1225.5	1154.6	5:15	6:45	1471.2	-141.9	1478.0	1708.7
8:40	3:20	1149.1	467.4	1240.5	1178.1	5:10	6:50	1464.4	-157.4	1472.9	1710.9
8:35	3:25	1169.8	455.2	1255.3	1201.0	5:05	6:55	1457.0	-172.8	1467.2	1712.6
8:30	3:30	1190.0	442.7	1269.7	1223.6	5:00	7:00	1448.9	-188.2	1461.1	1713.9

Analematic Sundial

Latitude: 29.0° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 727.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-556.6	-546.1	-542.9	-528.5	-524.2	-506.2	-501.2	-479.8	-474.1	-449.9	-443.6
February	-402.6	-373.2	-365.6	-334.4	-326.6	-294.0	-285.6	-251.9	-243.4	-208.7	-199.8
March	-173.4	-137.9	-128.9	-92.9	-83.9	-47.6	-38.7	-2.3	6.6	42.8	51.8
April	105.6	140.9	149.7	184.4	193.0	227.1	235.3	268.6	276.7	308.7	316.4
May	354.5	383.6	390.6	417.7	424.2	449.2	455.1	477.8	483.2	503.1	507.5
June	532.2	545.0	548.0	557.4	559.6	565.5	566.4	568.5	568.8	564.7	566.6
July	559.6	550.7	548.0	535.9	532.5	516.8	512.6	493.9	488.9	467.7	462.0
August	425.8	399.3	392.6	364.3	357.2	327.3	319.6	288.4	280.5	248.1	239.8
September	189.8	155.5	146.9	112.0	103.3	68.1	59.3	23.8	14.9	-20.8	-29.8
October	-74.3	-109.9	-118.7	-154.1	-162.7	-197.7	-206.4	-240.5	-249.1	-282.5	-290.6
November	-338.6	-369.3	-376.7	-405.6	-412.6	-439.5	-445.9	-470.3	-475.9	-497.6	-502.8
December	-525.3	-540.5	-543.7	-554.7	-557.2	-564.2	-565.5	-568.5	-568.8	-567.5	-566.6

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	556.6	546.1	542.9	528.5	524.2	506.2	501.2	479.8	474.1	449.9	443.6
February	402.6	373.2	365.6	334.4	326.6	294.0	285.6	251.9	243.4	208.7	199.8
March	173.4	137.9	128.9	92.9	83.9	47.6	38.7	2.3	-6.6	-42.8	-51.8
April	-105.6	-140.9	-149.7	-184.4	-193.0	-227.1	-235.3	-268.6	-276.7	-308.7	-316.4
May	-354.5	-383.6	-390.6	-417.7	-424.2	-449.2	-455.1	-477.8	-483.2	-503.1	-507.5
June	-532.2	-545.0	-548.0	-557.4	-559.6	-565.5	-566.4	-568.5	-568.8	-564.7	-566.6
July	-559.6	-550.7	-548.0	-535.9	-532.5	-516.8	-512.6	-493.9	-488.9	-467.7	-462.0
August	-425.8	-399.3	-392.6	-364.3	-357.2	-327.3	-319.6	-288.4	-280.5	-248.1	-239.8
September	-189.8	-155.5	-146.9	-112.0	-103.3	-68.1	-59.3	-23.8	-14.9	20.8	29.8
October	74.3	109.9	118.7	154.1	162.7	197.7	206.4	240.5	249.1	282.5	290.6
November	338.6	369.3	376.7	405.6	412.6	439.5	445.9	470.3	475.9	497.6	502.8
December	525.3	540.5	543.7	554.7	557.2	564.2	565.5	568.5	568.8	567.5	566.6

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: 29.0° N/S

Earliest Sunrise: 5:00 a.m. Latest Sunset: 7:00 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 969.6 mm
 Sunrise/Sunset Markers: X = ± 1497.8 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	969.6	969.6	0.0							
11:55	12:05	43.6	969.4	970.4	43.6	8:25	3:35	1612.9	573.3	1711.8	1660.9
11:50	12:10	87.2	968.7	972.6	87.2	8:20	3:40	1638.3	556.2	1730.1	1689.7
11:45	12:15	130.8	967.5	976.3	130.8	8:15	3:45	1662.9	538.7	1748.0	1717.9
11:40	12:20	174.3	965.9	981.5	174.4	8:10	3:50	1686.8	521.0	1765.4	1745.4
11:35	12:25	217.7	963.9	988.1	217.8	8:05	3:55	1709.8	503.0	1782.3	1772.3
11:30	12:30	261.1	961.3	996.1	261.2	8:00	4:00	1732.1	484.8	1798.6	1798.6
11:25	12:35	304.2	958.3	1005.5	304.5	7:55	4:05	1753.5	466.4	1814.4	1824.2
11:20	12:40	347.3	954.9	1016.1	347.6	7:50	4:10	1774.0	447.7	1829.6	1849.2
11:15	12:45	390.2	951.0	1027.9	390.6	7:45	4:15	1793.7	428.9	1844.3	1873.5
11:10	12:50	432.9	946.6	1040.9	433.5	7:40	4:20	1812.6	409.8	1858.4	1897.1
11:05	12:55	475.4	941.8	1055.0	476.2	7:35	4:25	1830.6	390.5	1871.8	1920.0
11:00	1:00	517.6	936.6	1070.1	518.7	7:30	4:30	1847.8	371.1	1884.6	1942.3
10:55	1:05	559.7	930.9	1086.2	561.0	7:25	4:35	1864.0	351.4	1896.9	1963.9
10:50	1:10	601.4	924.7	1103.1	603.1	7:20	4:40	1879.4	331.6	1908.4	1984.7
10:45	1:15	642.9	918.2	1120.9	644.9	7:15	4:45	1893.9	311.7	1919.3	2004.9
10:40	1:20	684.0	911.1	1139.3	686.5	7:10	4:50	1907.4	291.6	1929.6	2024.4
10:35	1:25	724.9	903.7	1158.5	727.9	7:05	4:55	1920.1	271.3	1939.2	2043.1
10:30	1:30	765.4	895.8	1178.2	768.9	7:00	5:00	1931.9	251.0	1948.1	2061.2
10:25	1:35	805.5	887.5	1198.5	809.7	6:55	5:05	1942.7	230.5	1956.3	2078.6
10:20	1:40	845.2	878.8	1219.3	850.1	6:50	5:10	1952.6	209.9	1963.8	2095.2
10:15	1:45	884.6	869.6	1240.5	890.2	6:45	5:15	1961.6	189.2	1970.7	2111.1
10:10	1:50	923.5	860.1	1262.0	930.0	6:40	5:20	1969.6	168.4	1976.8	2126.4
10:05	1:55	962.0	850.1	1283.8	969.4	6:35	5:25	1976.7	147.5	1982.2	2140.9
10:00	2:00	1000.0	839.7	1305.8	1008.4	6:30	5:30	1982.9	126.6	1986.9	2154.7
9:55	2:05	1037.5	828.9	1328.0	1047.0	6:25	5:35	1988.1	105.6	1990.9	2167.8
9:50	2:10	1074.6	817.8	1350.4	1085.3	6:20	5:40	1992.4	84.5	1994.2	2180.1
9:45	2:15	1111.1	806.2	1372.8	1123.1	6:15	5:45	1995.7	63.4	1996.7	2191.8
9:40	2:20	1147.2	794.3	1395.3	1160.5	6:10	5:50	1998.1	42.3	1998.5	2202.8
9:35	2:25	1182.6	781.9	1417.8	1197.4	6:05	5:55	1999.5	21.2	1999.6	2213.1
9:30	2:30	1217.5	769.3	1440.2	1233.9	6:00	6:00	2000.0	0.0	2000.0	2222.6
9:25	2:35	1251.8	756.2	1462.5	1269.9	5:55	6:05	1999.5	-21.2	1999.6	2231.5
9:20	2:40	1285.6	742.8	1484.7	1305.4	5:50	6:10	1998.1	-42.3	1998.5	2239.7
9:15	2:45	1318.7	729.0	1506.8	1340.5	5:45	6:15	1995.7	-63.4	1996.7	2247.2
9:10	2:50	1351.2	714.9	1528.6	1375.0	5:40	6:20	1992.4	-84.5	1994.2	2254.1
9:05	2:55	1383.0	700.4	1550.3	1409.0	5:35	6:25	1988.1	-105.6	1990.9	2260.2
9:00	3:00	1414.2	685.6	1571.6	1442.4	5:30	6:30	1982.9	-126.6	1986.9	2265.7
8:55	3:05	1444.7	670.5	1592.7	1475.4	5:25	6:35	1976.7	-147.5	1982.2	2270.5
8:50	3:10	1474.6	655.1	1613.5	1507.7	5:20	6:40	1969.6	-168.4	1976.8	2274.7
8:45	3:15	1503.7	639.3	1633.9	1539.5	5:15	6:45	1961.6	-189.2	1970.7	2278.3
8:40	3:20	1532.1	623.3	1654.0	1570.8	5:10	6:50	1952.6	-209.9	1963.8	2281.2
8:35	3:25	1559.8	606.9	1673.7	1601.4	5:05	6:55	1942.7	-230.5	1956.3	2283.5
8:30	3:30	1586.7	590.3	1692.9	1631.4	5:00	7:00	1931.9	-251.0	1948.1	2285.1

Analematic Sundial

Latitude: 29.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 969.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-742.1	-728.1	-723.8	-704.6	-698.9	-675.0	-668.3	-639.8	-632.2	-599.9	-591.4
February	-536.8	-497.6	-487.4	-445.9	-435.5	-392.0	-380.8	-335.9	-324.5	-278.3	-266.4
March	-231.2	-183.9	-171.8	-123.9	-111.9	-63.5	-51.6	-3.1	8.9	57.1	69.0
April	140.7	187.9	199.6	245.8	257.4	302.8	313.8	358.1	368.9	411.6	421.9
May	472.6	511.5	520.8	556.9	565.7	598.9	606.8	637.0	644.3	670.8	676.7
June	709.6	726.7	730.6	743.2	746.1	754.1	755.2	758.1	758.4	753.0	755.5
July	746.1	734.2	730.6	714.6	709.9	689.0	683.4	658.5	651.9	623.6	616.0
August	567.7	532.5	523.5	485.8	476.2	436.5	426.1	384.6	374.0	330.8	319.8
September	253.0	207.3	195.9	149.3	137.7	90.8	79.1	31.8	19.8	-27.8	-39.7
October	-99.0	-146.6	-158.3	-205.5	-216.9	-263.6	-275.2	-320.7	-332.1	-376.6	-387.5
November	-451.4	-492.3	-502.2	-540.8	-550.2	-586.0	-594.5	-627.0	-634.6	-663.4	-670.4
December	-700.4	-720.6	-724.9	-739.6	-742.9	-752.3	-754.1	-758.1	-758.4	-756.6	-755.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	742.1	728.1	723.8	704.6	698.9	675.0	668.3	639.8	632.2	599.9	591.4
February	536.8	497.6	487.4	445.9	435.5	392.0	380.8	335.9	324.5	278.3	266.4
March	231.2	183.9	171.8	123.9	111.9	63.5	51.6	3.1	-8.9	-57.1	-69.0
April	-140.7	-187.9	-199.6	-245.8	-257.4	-302.8	-313.8	-358.1	-368.9	-411.6	-421.9
May	-472.6	-511.5	-520.8	-556.9	-565.7	-598.9	-606.8	-637.0	-644.3	-670.8	-676.7
June	-709.6	-726.7	-730.6	-743.2	-746.1	-754.1	-755.2	-758.1	-758.4	-753.0	-755.5
July	-746.1	-734.2	-730.6	-714.6	-709.9	-689.0	-683.4	-658.5	-651.9	-623.6	-616.0
August	-567.7	-532.5	-523.5	-485.8	-476.2	-436.5	-426.1	-384.6	-374.0	-330.8	-319.8
September	-253.0	-207.3	-195.9	-149.3	-137.7	-90.8	-79.1	-31.8	-19.8	27.8	39.7
October	99.0	146.6	158.3	205.5	216.9	263.6	275.2	320.7	332.1	376.6	387.5
November	451.4	492.3	502.2	540.8	550.2	586.0	594.5	627.0	634.6	663.4	670.4
December	700.4	720.6	724.9	739.6	742.9	752.3	754.1	758.1	758.4	756.6	755.5

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: 29.0° N/S

Earliest Sunrise: 5:00 a.m. Latest Sunset: 7:00 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1212.0 mm
 Sunrise/Sunset Markers: X = ± 1872.2 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1212.0	1212.0	0.0							
11:55	12:05	54.5	1211.7	1213.0	54.5	8:25	3:35	2016.1	716.7	2139.7	2076.1
11:50	12:10	109.0	1210.9	1215.8	109.1	8:20	3:40	2047.9	695.2	2162.7	2112.1
11:45	12:15	163.5	1209.4	1220.4	163.5	8:15	3:45	2078.7	673.4	2185.0	2147.3
11:40	12:20	217.9	1207.4	1226.9	217.9	8:10	3:50	2108.5	651.2	2206.8	2181.8
11:35	12:25	272.2	1204.8	1235.2	272.3	8:05	3:55	2137.3	628.8	2227.8	2215.4
11:30	12:30	326.3	1201.7	1245.2	326.5	8:00	4:00	2165.1	606.0	2248.3	2248.3
11:25	12:35	380.3	1197.9	1256.8	380.6	7:55	4:05	2191.8	583.0	2268.0	2280.3
11:20	12:40	434.1	1193.6	1270.1	434.5	7:50	4:10	2217.5	559.7	2287.1	2311.5
11:15	12:45	487.7	1188.7	1284.9	488.3	7:45	4:15	2242.2	536.1	2305.4	2341.9
11:10	12:50	541.1	1183.3	1301.1	541.9	7:40	4:20	2265.8	512.2	2322.9	2371.4
11:05	12:55	594.2	1177.3	1318.8	595.2	7:35	4:25	2288.3	488.1	2339.8	2400.0
11:00	1:00	647.0	1170.7	1337.6	648.4	7:30	4:30	2309.7	463.8	2355.8	2427.9
10:55	1:05	699.6	1163.6	1357.7	701.2	7:25	4:35	2330.0	439.3	2371.1	2454.8
10:50	1:10	751.8	1155.9	1378.9	753.9	7:20	4:40	2349.2	414.5	2385.5	2480.9
10:45	1:15	803.6	1147.7	1401.1	806.2	7:15	4:45	2367.3	389.6	2399.2	2506.1
10:40	1:20	855.1	1138.9	1424.2	858.2	7:10	4:50	2384.3	364.5	2412.0	2530.5
10:35	1:25	906.1	1129.6	1448.1	909.8	7:05	4:55	2400.1	339.2	2424.0	2553.9
10:30	1:30	956.7	1119.8	1472.8	961.1	7:00	5:00	2414.8	313.7	2435.1	2576.5
10:25	1:35	1006.9	1109.4	1498.2	1012.1	6:55	5:05	2428.4	288.1	2445.4	2598.2
10:20	1:40	1056.5	1098.5	1524.1	1062.6	6:50	5:10	2440.7	262.3	2454.8	2619.0
10:15	1:45	1105.7	1087.0	1550.6	1112.8	6:45	5:15	2452.0	236.5	2463.3	2638.9
10:10	1:50	1154.4	1075.1	1577.5	1162.5	6:40	5:20	2462.0	210.5	2471.0	2657.9
10:05	1:55	1202.5	1062.6	1604.7	1211.7	6:35	5:25	2470.9	184.4	2477.8	2676.1
10:00	2:00	1250.0	1049.6	1632.3	1260.5	6:30	5:30	2478.6	158.2	2483.7	2693.3
9:55	2:05	1296.9	1036.2	1660.0	1308.8	6:25	5:35	2485.1	131.9	2488.6	2709.7
9:50	2:10	1343.2	1022.2	1688.0	1356.6	6:20	5:40	2490.5	105.6	2492.7	2725.2
9:45	2:15	1388.9	1007.8	1716.0	1403.9	6:15	5:45	2494.6	79.3	2495.9	2739.8
9:40	2:20	1433.9	992.8	1744.1	1450.6	6:10	5:50	2497.6	52.9	2498.2	2753.5
9:35	2:25	1478.3	977.4	1772.2	1496.8	6:05	5:55	2499.4	26.4	2499.5	2766.3
9:30	2:30	1521.9	961.6	1800.2	1542.4	6:00	6:00	2500.0	0.0	2500.0	2778.3
9:25	2:35	1564.8	945.2	1828.1	1587.4	5:55	6:05	2499.4	-26.4	2499.5	2789.4
9:20	2:40	1607.0	928.5	1855.9	1631.8	5:50	6:10	2497.6	-52.9	2498.2	2799.7
9:15	2:45	1648.4	911.2	1883.5	1675.6	5:45	6:15	2494.6	-79.3	2495.9	2809.0
9:10	2:50	1689.0	893.6	1910.8	1718.7	5:40	6:20	2490.5	-105.6	2492.7	2817.6
9:05	2:55	1728.8	875.5	1937.8	1761.2	5:35	6:25	2485.1	-131.9	2488.6	2825.3
9:00	3:00	1767.8	857.0	1964.6	1803.1	5:30	6:30	2478.6	-158.2	2483.7	2832.1
8:55	3:05	1805.9	838.1	1990.9	1844.2	5:25	6:35	2470.9	-184.4	2477.8	2838.2
8:50	3:10	1843.2	818.8	2016.9	1884.7	5:20	6:40	2462.0	-210.5	2471.0	2843.4
8:45	3:15	1879.6	799.1	2042.4	1924.4	5:15	6:45	2452.0	-236.5	2463.3	2847.8
8:40	3:20	1915.1	779.1	2067.5	1963.4	5:10	6:50	2440.7	-262.3	2454.8	2851.5
8:35	3:25	1949.7	758.6	2092.1	2001.7	5:05	6:55	2428.4	-288.1	2445.4	2854.3
8:30	3:30	1983.4	737.8	2116.2	2039.3	5:00	7:00	2414.8	-313.7	2435.1	2856.4

Analematic Sundial

Latitude: 29.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1212.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-927.7	-910.2	-904.8	-880.8	-873.7	-843.7	-835.4	-799.7	-790.2	-749.9	-739.3
February	-671.0	-622.0	-609.3	-557.3	-544.4	-490.0	-475.9	-419.9	-405.6	-347.9	-333.0
March	-289.0	-229.8	-214.8	-154.8	-139.9	-79.4	-64.5	-3.8	11.1	71.4	86.3
April	175.9	234.8	249.5	307.3	321.7	378.5	392.2	447.6	461.2	514.5	527.4
May	590.8	639.4	651.0	696.1	707.1	748.6	758.4	796.3	805.4	838.5	845.9
June	887.0	908.4	913.3	929.0	932.6	942.6	943.9	947.6	948.0	941.2	944.4
July	932.6	917.8	913.3	893.2	887.4	861.3	854.3	823.2	814.9	779.5	770.0
August	709.6	665.6	654.3	607.2	595.3	545.6	532.6	480.7	467.6	413.5	399.7
September	316.3	259.2	244.9	186.7	172.1	113.4	98.9	39.7	24.8	-34.7	-49.6
October	-123.8	-183.2	-197.8	-256.9	-271.2	-329.5	-344.0	-400.9	-415.1	-470.8	-484.3
November	-564.3	-615.4	-627.8	-676.0	-687.7	-732.5	-743.1	-783.8	-793.2	-829.3	-838.0
December	-875.4	-900.8	-906.1	-924.5	-928.6	-940.3	-942.6	-947.6	-948.0	-945.8	-944.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	927.7	910.2	904.8	880.8	873.7	843.7	835.4	799.7	790.2	749.9	739.3
February	671.0	622.0	609.3	557.3	544.4	490.0	475.9	419.9	405.6	347.9	333.0
March	289.0	229.8	214.8	154.8	139.9	79.4	64.5	3.8	-11.1	-71.4	-86.3
April	-175.9	-234.8	-249.5	-307.3	-321.7	-378.5	-392.2	-447.6	-461.2	-514.5	-527.4
May	-590.8	-639.4	-651.0	-696.1	-707.1	-748.6	-758.4	-796.3	-805.4	-838.5	-845.9
June	-887.0	-908.4	-913.3	-929.0	-932.6	-942.6	-943.9	-947.6	-948.0	-941.2	-944.4
July	-932.6	-917.8	-913.3	-893.2	-887.4	-861.3	-854.3	-823.2	-814.9	-779.5	-770.0
August	-709.6	-665.6	-654.3	-607.2	-595.3	-545.6	-532.6	-480.7	-467.6	-413.5	-399.7
September	-316.3	-259.2	-244.9	-186.7	-172.1	-113.4	-98.9	-39.7	-24.8	34.7	49.6
October	123.8	183.2	197.8	256.9	271.2	329.5	344.0	400.9	415.1	470.8	484.3
November	564.3	615.4	627.8	676.0	687.7	732.5	743.1	783.8	793.2	829.3	838.0
December	875.4	900.8	906.1	924.5	928.6	940.3	942.6	947.6	948.0	945.8	944.4

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 |