

Analemmatic Sundial

Latitude: 28.0° N/S

Earliest Sunrise: 5:03 a.m. Latest Sunset: 6:57 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 469.5 mm
 Sunrise/Sunset Markers: X = ± 764.5 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	469.5	469.5	0.0							
11:55	12:05	21.8	469.4	469.9	21.8	8:25	3:35	806.4	277.6	852.9	829.0
11:50	12:10	43.6	469.0	471.0	43.6	8:20	3:40	819.2	269.3	862.3	843.3
11:45	12:15	65.4	468.5	473.0	65.4	8:15	3:45	831.5	260.8	871.4	857.2
11:40	12:20	87.2	467.7	475.7	87.2	8:10	3:50	843.4	252.2	880.3	870.9
11:35	12:25	108.9	466.7	479.2	108.9	8:05	3:55	854.9	243.5	888.9	884.3
11:30	12:30	130.5	465.5	483.4	130.6	8:00	4:00	866.0	234.7	897.3	897.3
11:25	12:35	152.1	464.0	488.3	152.2	7:55	4:05	876.7	225.8	905.3	910.0
11:20	12:40	173.6	462.3	493.9	173.8	7:50	4:10	887.0	216.8	913.1	922.3
11:15	12:45	195.1	460.5	500.1	195.3	7:45	4:15	896.9	207.6	920.6	934.3
11:10	12:50	216.4	458.3	506.9	216.7	7:40	4:20	906.3	198.4	927.8	946.0
11:05	12:55	237.7	456.0	514.2	238.1	7:35	4:25	915.3	189.1	934.6	957.3
11:00	1:00	258.8	453.5	522.1	259.3	7:30	4:30	923.9	179.7	941.2	968.3
10:55	1:05	279.8	450.7	530.5	280.5	7:25	4:35	932.0	170.2	947.4	978.9
10:50	1:10	300.7	447.7	539.3	301.5	7:20	4:40	939.7	160.6	953.3	989.2
10:45	1:15	321.4	444.6	548.6	322.4	7:15	4:45	946.9	150.9	958.9	999.1
10:40	1:20	342.0	441.2	558.2	343.2	7:10	4:50	953.7	141.2	964.1	1008.6
10:35	1:25	362.4	437.6	568.2	363.8	7:05	4:55	960.0	131.4	969.0	1017.8
10:30	1:30	382.7	433.7	578.4	384.3	7:00	5:00	965.9	121.5	973.5	1026.7
10:25	1:35	402.7	429.7	588.9	404.7	6:55	5:05	971.3	111.6	977.7	1035.2
10:20	1:40	422.6	425.5	599.7	424.9	6:50	5:10	976.3	101.6	981.6	1043.3
10:15	1:45	442.3	421.1	610.7	444.9	6:45	5:15	980.8	91.6	985.1	1051.1
10:10	1:50	461.7	416.4	621.8	464.8	6:40	5:20	984.8	81.5	988.2	1058.5
10:05	1:55	481.0	411.6	633.1	484.5	6:35	5:25	988.4	71.4	990.9	1065.5
10:00	2:00	500.0	406.6	644.4	503.9	6:30	5:30	991.4	61.3	993.3	1072.2
9:55	2:05	518.8	401.4	655.9	523.2	6:25	5:35	994.1	51.1	995.4	1078.5
9:50	2:10	537.3	395.9	667.4	542.3	6:20	5:40	996.2	40.9	997.0	1084.5
9:45	2:15	555.6	390.4	679.0	561.2	6:15	5:45	997.9	30.7	998.3	1090.1
9:40	2:20	573.6	384.6	690.6	579.8	6:10	5:50	999.0	20.5	999.3	1095.3
9:35	2:25	591.3	378.6	702.1	598.3	6:05	5:55	999.8	10.2	999.8	1100.2
9:30	2:30	608.8	372.5	713.7	616.4	6:00	6:00	1000.0	0.0	1000.0	1104.7
9:25	2:35	625.9	366.1	725.1	634.4	5:55	6:05	999.8	-10.2	999.8	1108.9
9:20	2:40	642.8	359.6	736.6	652.1	5:50	6:10	999.0	-20.5	999.3	1112.7
9:15	2:45	659.3	353.0	747.9	669.6	5:45	6:15	997.9	-30.7	998.3	1116.2
9:10	2:50	675.6	346.1	759.1	686.8	5:40	6:20	996.2	-40.9	997.0	1119.3
9:05	2:55	691.5	339.1	770.2	703.7	5:35	6:25	994.1	-51.1	995.4	1122.1
9:00	3:00	707.1	332.0	781.2	720.4	5:30	6:30	991.4	-61.3	993.3	1124.6
8:55	3:05	722.4	324.6	792.0	736.7	5:25	6:35	988.4	-71.4	990.9	1126.7
8:50	3:10	737.3	317.2	802.6	752.8	5:20	6:40	984.8	-81.5	988.2	1128.5
8:45	3:15	751.8	309.5	813.1	768.7	5:15	6:45	980.8	-91.6	985.1	1129.9
8:40	3:20	766.0	301.8	823.3	784.2	5:10	6:50	976.3	-101.6	981.6	1131.1
8:35	3:25	779.9	293.9	833.4	799.4	5:05	6:55	971.3	-111.6	977.7	1131.9
8:30	3:30	793.4	285.8	843.3	814.3	5:00	7:00	965.9	-121.5	973.5	1132.4

Analemmatic Sundial

Latitude: 28.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 469.5 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-374.6	-367.5	-365.4	-355.7	-352.8	-340.7	-337.3	-322.9	-319.1	-302.8	-298.5
February	-271.0	-251.2	-246.0	-225.1	-219.8	-197.8	-192.2	-169.5	-163.8	-140.5	-134.5
March	-116.7	-92.8	-86.7	-62.5	-56.5	-32.1	-26.1	-1.5	4.5	28.8	34.8
April	71.0	94.8	100.8	124.1	129.9	152.8	158.4	180.8	186.2	207.7	213.0
May	238.6	258.2	262.9	281.1	285.5	302.3	306.3	321.5	325.2	338.6	341.6
June	358.2	366.8	368.8	375.2	376.6	380.6	381.2	382.6	382.8	380.1	381.4
July	376.6	370.6	368.8	360.7	358.3	347.8	345.0	332.4	329.1	314.8	310.9
August	286.5	268.8	264.2	245.2	240.4	220.3	215.1	194.1	188.8	167.0	161.4
September	127.7	104.7	98.9	75.4	69.5	45.8	39.9	16.0	10.0	-14.0	-20.0
October	-50.0	-74.0	-79.9	-103.7	-109.5	-133.1	-138.9	-161.9	-167.6	-190.1	-195.6
November	-227.9	-248.5	-253.5	-273.0	-277.7	-295.8	-300.1	-316.5	-320.3	-334.9	-338.4
December	-353.5	-363.7	-365.9	-373.3	-375.0	-379.7	-380.6	-382.6	-382.8	-381.9	-381.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	374.6	367.5	365.4	355.7	352.8	340.7	337.3	322.9	319.1	302.8	298.5
February	271.0	251.2	246.0	225.1	219.8	197.8	192.2	169.5	163.8	140.5	134.5
March	116.7	92.8	86.7	62.5	56.5	32.1	26.1	1.5	-4.5	-28.8	-34.8
April	-71.0	-94.8	-100.8	-124.1	-129.9	-152.8	-158.4	-180.8	-186.2	-207.7	-213.0
May	-238.6	-258.2	-262.9	-281.1	-285.5	-302.3	-306.3	-321.5	-325.2	-338.6	-341.6
June	-358.2	-366.8	-368.8	-375.2	-376.6	-380.6	-381.2	-382.6	-382.8	-380.1	-381.4
July	-376.6	-370.6	-368.8	-360.7	-358.3	-347.8	-345.0	-332.4	-329.1	-314.8	-310.9
August	-286.5	-268.8	-264.2	-245.2	-240.4	-220.3	-215.1	-194.1	-188.8	-167.0	-161.4
September	-127.7	-104.7	-98.9	-75.4	-69.5	-45.8	-39.9	-16.0	-10.0	14.0	20.0
October	50.0	74.0	79.9	103.7	109.5	133.1	138.9	161.9	167.6	190.1	195.6
November	227.9	248.5	253.5	273.0	277.7	295.8	300.1	316.5	320.3	334.9	338.4
December	353.5	363.7	365.9	373.3	375.0	379.7	380.6	382.6	382.8	381.9	381.4

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: 28.0° N/S

Earliest Sunrise: 5:03 a.m. Latest Sunset: 6:57 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 704.2 mm
 Sunrise/Sunset Markers: X = ± 1146.8 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	704.2	704.2	0.0							
11:55	12:05	32.7	704.0	704.8	32.7	8:25	3:35	1209.7	416.4	1279.3	1243.4
11:50	12:10	65.4	703.5	706.6	65.4	8:20	3:40	1228.7	403.9	1293.4	1264.9
11:45	12:15	98.1	702.7	709.5	98.1	8:15	3:45	1247.2	391.2	1307.1	1285.9
11:40	12:20	130.7	701.5	713.6	130.8	8:10	3:50	1265.1	378.4	1320.5	1306.4
11:35	12:25	163.3	700.0	718.8	163.4	8:05	3:55	1282.4	365.3	1333.4	1326.4
11:30	12:30	195.8	698.2	725.1	195.9	8:00	4:00	1299.0	352.1	1345.9	1345.9
11:25	12:35	228.2	696.0	732.5	228.3	7:55	4:05	1315.1	338.7	1358.0	1364.9
11:20	12:40	260.5	693.5	740.8	260.7	7:50	4:10	1330.5	325.2	1369.7	1383.5
11:15	12:45	292.6	690.7	750.1	292.9	7:45	4:15	1345.3	311.5	1380.9	1401.5
11:10	12:50	324.7	687.5	760.3	325.1	7:40	4:20	1359.5	297.6	1391.7	1419.0
11:05	12:55	356.5	684.0	771.4	357.1	7:35	4:25	1373.0	283.6	1402.0	1435.9
11:00	1:00	388.2	680.2	783.2	389.0	7:30	4:30	1385.8	269.5	1411.8	1452.4
10:55	1:05	419.7	676.1	795.8	420.7	7:25	4:35	1398.0	255.2	1421.1	1468.3
10:50	1:10	451.1	671.6	809.0	452.2	7:20	4:40	1409.5	240.9	1430.0	1483.7
10:45	1:15	482.2	666.8	822.9	483.6	7:15	4:45	1420.4	226.4	1438.3	1498.6
10:40	1:20	513.0	661.7	837.3	514.8	7:10	4:50	1430.6	211.8	1446.2	1513.0
10:35	1:25	543.7	656.3	852.2	545.8	7:05	4:55	1440.1	197.1	1453.5	1526.8
10:30	1:30	574.0	650.6	867.6	576.5	7:00	5:00	1448.9	182.3	1460.3	1540.0
10:25	1:35	604.1	644.6	883.4	607.1	6:55	5:05	1457.0	167.4	1466.6	1552.8
10:20	1:40	633.9	638.2	899.6	637.4	6:50	5:10	1464.4	152.4	1472.4	1564.9
10:15	1:45	663.4	631.6	916.0	667.4	6:45	5:15	1471.2	137.4	1477.6	1576.6
10:10	1:50	692.6	624.6	932.7	697.2	6:40	5:20	1477.2	122.3	1482.3	1587.7
10:05	1:55	721.5	617.4	949.6	726.7	6:35	5:25	1482.5	107.1	1486.4	1598.3
10:00	2:00	750.0	609.9	966.7	755.9	6:30	5:30	1487.2	91.9	1490.0	1608.3
9:55	2:05	778.2	602.0	983.9	784.8	6:25	5:35	1491.1	76.7	1493.1	1617.8
9:50	2:10	805.9	593.9	1001.1	813.5	6:20	5:40	1494.3	61.4	1495.6	1626.7
9:45	2:15	833.4	585.5	1018.5	841.8	6:15	5:45	1496.8	46.1	1497.5	1635.1
9:40	2:20	860.4	576.9	1035.9	869.7	6:10	5:50	1498.6	30.7	1498.9	1643.0
9:35	2:25	887.0	567.9	1053.2	897.4	6:05	5:55	1499.6	15.4	1499.7	1650.3
9:30	2:30	913.1	558.7	1070.5	924.7	6:00	6:00	1500.0	0.0	1500.0	1657.1
9:25	2:35	938.9	549.2	1087.7	951.6	5:55	6:05	1499.6	-15.4	1499.7	1663.3
9:20	2:40	964.2	539.5	1104.8	978.2	5:50	6:10	1498.6	-30.7	1498.9	1669.1
9:15	2:45	989.0	529.5	1121.8	1004.3	5:45	6:15	1496.8	-46.1	1497.5	1674.3
9:10	2:50	1013.4	519.2	1138.6	1030.1	5:40	6:20	1494.3	-61.4	1495.6	1679.0
9:05	2:55	1037.3	508.7	1155.3	1055.5	5:35	6:25	1491.1	-76.7	1493.1	1683.2
9:00	3:00	1060.7	497.9	1171.7	1080.5	5:30	6:30	1487.2	-91.9	1490.0	1686.9
8:55	3:05	1083.5	487.0	1187.9	1105.1	5:25	6:35	1482.5	-107.1	1486.4	1690.0
8:50	3:10	1105.9	475.8	1203.9	1129.3	5:20	6:40	1477.2	-122.3	1482.3	1692.7
8:45	3:15	1127.8	464.3	1219.6	1153.0	5:15	6:45	1471.2	-137.4	1477.6	1694.9
8:40	3:20	1149.1	452.7	1235.0	1176.3	5:10	6:50	1464.4	-152.4	1472.4	1696.6
8:35	3:25	1169.8	440.8	1250.1	1199.1	5:05	6:55	1457.0	-167.4	1466.6	1697.8
8:30	3:30	1190.0	428.7	1264.9	1221.5	5:00	7:00	1448.9	-182.3	1460.3	1698.6

Analematic Sundial

Latitude: 28.0° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 704.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-561.9	-551.3	-548.1	-533.5	-529.2	-511.1	-506.0	-484.4	-478.6	-454.2	-447.8
February	-406.4	-376.8	-369.0	-337.6	-329.7	-296.8	-288.3	-254.3	-245.7	-210.7	-201.7
March	-175.1	-139.2	-130.1	-93.8	-84.7	-48.1	-39.1	-2.3	6.7	43.2	52.3
April	106.6	142.2	151.1	186.1	194.9	229.2	237.6	271.1	279.3	311.6	319.4
May	357.9	387.3	394.3	421.7	428.3	453.5	459.4	482.3	487.8	507.9	512.4
June	537.3	550.2	553.2	562.7	564.9	570.9	571.8	574.0	574.2	570.1	572.0
July	564.9	555.9	553.2	541.0	537.5	521.7	517.4	498.6	493.6	472.1	466.4
August	429.8	403.1	396.3	367.8	360.6	330.5	322.6	291.2	283.2	250.5	242.1
September	191.6	157.0	148.3	113.1	104.2	68.7	59.9	24.0	15.0	-21.0	-30.1
October	-75.0	-111.0	-119.8	-155.6	-164.3	-199.6	-208.3	-242.8	-251.4	-285.1	-293.4
November	-341.8	-372.8	-380.3	-409.5	-416.6	-443.7	-450.1	-474.7	-480.5	-502.3	-507.6
December	-530.3	-545.6	-548.9	-560.0	-562.5	-569.6	-570.9	-574.0	-574.2	-572.9	-572.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	561.9	551.3	548.1	533.5	529.2	511.1	506.0	484.4	478.6	454.2	447.8
February	406.4	376.8	369.0	337.6	329.7	296.8	288.3	254.3	245.7	210.7	201.7
March	175.1	139.2	130.1	93.8	84.7	48.1	39.1	2.3	-6.7	-43.2	-52.3
April	-106.6	-142.2	-151.1	-186.1	-194.9	-229.2	-237.6	-271.1	-279.3	-311.6	-319.4
May	-357.9	-387.3	-394.3	-421.7	-428.3	-453.5	-459.4	-482.3	-487.8	-507.9	-512.4
June	-537.3	-550.2	-553.2	-562.7	-564.9	-570.9	-571.8	-574.0	-574.2	-570.1	-572.0
July	-564.9	-555.9	-553.2	-541.0	-537.5	-521.7	-517.4	-498.6	-493.6	-472.1	-466.4
August	-429.8	-403.1	-396.3	-367.8	-360.6	-330.5	-322.6	-291.2	-283.2	-250.5	-242.1
September	-191.6	-157.0	-148.3	-113.1	-104.2	-68.7	-59.9	-24.0	-15.0	21.0	30.1
October	75.0	111.0	119.8	155.6	164.3	199.6	208.3	242.8	251.4	285.1	293.4
November	341.8	372.8	380.3	409.5	416.6	443.7	450.1	474.7	480.5	502.3	507.6
December	530.3	545.6	548.9	560.0	562.5	569.6	570.9	574.0	574.2	572.9	572.0

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: 28.0° N/S

Earliest Sunrise: 5:03 a.m. Latest Sunset: 6:57 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 938.9 mm
 Sunrise/Sunset Markers: X = ± 1529.1 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	938.9	938.9	0.0							
11:55	12:05	43.6	938.7	939.7	43.6	8:25	3:35	1612.9	555.2	1705.8	1657.9
11:50	12:10	87.2	938.0	942.1	87.2	8:20	3:40	1638.3	538.6	1724.6	1686.5
11:45	12:15	130.8	936.9	946.0	130.8	8:15	3:45	1662.9	521.6	1742.8	1714.5
11:40	12:20	174.3	935.4	951.5	174.3	8:10	3:50	1686.8	504.5	1760.6	1741.8
11:35	12:25	217.7	933.4	958.4	217.8	8:05	3:55	1709.8	487.1	1777.9	1768.5
11:30	12:30	261.1	930.9	966.8	261.2	8:00	4:00	1732.1	469.5	1794.5	1794.5
11:25	12:35	304.2	928.0	976.6	304.4	7:55	4:05	1753.5	451.6	1810.7	1819.9
11:20	12:40	347.3	924.7	987.7	347.6	7:50	4:10	1774.0	433.6	1826.2	1844.6
11:15	12:45	390.2	920.9	1000.2	390.6	7:45	4:15	1793.7	415.3	1841.2	1868.6
11:10	12:50	432.9	916.7	1013.8	433.5	7:40	4:20	1812.6	396.8	1855.5	1892.0
11:05	12:55	475.4	912.0	1028.5	476.1	7:35	4:25	1830.6	378.2	1869.3	1914.6
11:00	1:00	517.6	906.9	1044.3	518.6	7:30	4:30	1847.8	359.3	1882.4	1936.5
10:55	1:05	559.7	901.4	1061.0	560.9	7:25	4:35	1864.0	340.3	1894.8	1957.8
10:50	1:10	601.4	895.5	1078.7	603.0	7:20	4:40	1879.4	321.1	1906.6	1978.3
10:45	1:15	642.9	889.1	1097.2	644.8	7:15	4:45	1893.9	301.8	1917.8	1998.2
10:40	1:20	684.0	882.3	1116.4	686.4	7:10	4:50	1907.4	282.3	1928.2	2017.3
10:35	1:25	724.9	875.1	1136.3	727.7	7:05	4:55	1920.1	262.7	1938.0	2035.7
10:30	1:30	765.4	867.5	1156.8	768.7	7:00	5:00	1931.9	243.0	1947.1	2053.4
10:25	1:35	805.5	859.4	1177.9	809.4	6:55	5:05	1942.7	223.2	1955.5	2070.3
10:20	1:40	845.2	851.0	1199.4	849.8	6:50	5:10	1952.6	203.2	1963.1	2086.6
10:15	1:45	884.6	842.1	1221.3	889.9	6:45	5:15	1961.6	183.2	1970.1	2102.1
10:10	1:50	923.5	832.9	1243.6	929.6	6:40	5:20	1969.6	163.0	1976.4	2116.9
10:05	1:55	962.0	823.2	1266.1	968.9	6:35	5:25	1976.7	142.8	1981.9	2131.0
10:00	2:00	1000.0	813.1	1288.9	1007.9	6:30	5:30	1982.9	122.6	1986.7	2144.4
9:55	2:05	1037.5	802.7	1311.8	1046.5	6:25	5:35	1988.1	102.2	1990.7	2157.0
9:50	2:10	1074.6	791.9	1334.9	1084.6	6:20	5:40	1992.4	81.8	1994.1	2168.9
9:45	2:15	1111.1	780.7	1358.0	1122.4	6:15	5:45	1995.7	61.4	1996.7	2180.1
9:40	2:20	1147.2	769.1	1381.1	1159.7	6:10	5:50	1998.1	41.0	1998.5	2190.6
9:35	2:25	1182.6	757.2	1404.3	1196.5	6:05	5:55	1999.5	20.5	1999.6	2200.4
9:30	2:30	1217.5	744.9	1427.3	1232.9	6:00	6:00	2000.0	0.0	2000.0	2209.4
9:25	2:35	1251.8	732.3	1450.3	1268.8	5:55	6:05	1999.5	-20.5	1999.6	2217.8
9:20	2:40	1285.6	719.3	1473.1	1304.2	5:50	6:10	1998.1	-41.0	1998.5	2225.4
9:15	2:45	1318.7	705.9	1495.8	1339.1	5:45	6:15	1995.7	-61.4	1996.7	2232.4
9:10	2:50	1351.2	692.3	1518.2	1373.5	5:40	6:20	1992.4	-81.8	1994.1	2238.7
9:05	2:55	1383.0	678.3	1540.4	1407.4	5:35	6:25	1988.1	-102.2	1990.7	2244.2
9:00	3:00	1414.2	663.9	1562.3	1440.7	5:30	6:30	1982.9	-122.6	1986.7	2249.1
8:55	3:05	1444.7	649.3	1583.9	1473.5	5:25	6:35	1976.7	-142.8	1981.9	2253.4
8:50	3:10	1474.6	634.3	1605.2	1505.7	5:20	6:40	1969.6	-163.0	1976.4	2256.9
8:45	3:15	1503.7	619.1	1626.1	1537.3	5:15	6:45	1961.6	-183.2	1970.1	2259.8
8:40	3:20	1532.1	603.5	1646.7	1568.4	5:10	6:50	1952.6	-203.2	1963.1	2262.1
8:35	3:25	1559.8	587.7	1666.8	1598.8	5:05	6:55	1942.7	-223.2	1955.5	2263.7
8:30	3:30	1586.7	571.6	1686.5	1628.7	5:00	7:00	1931.9	-243.0	1947.1	2264.7

Analematic Sundial

Latitude: 28.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 938.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-749.2	-735.1	-730.7	-711.3	-705.6	-681.4	-674.7	-645.9	-638.2	-605.6	-597.0
February	-541.9	-502.4	-492.1	-450.1	-439.6	-395.7	-384.4	-339.1	-327.6	-281.0	-269.0
March	-233.4	-185.6	-173.5	-125.0	-113.0	-64.1	-52.1	-3.1	8.9	57.7	69.7
April	142.1	189.7	201.5	248.2	259.8	305.7	316.8	361.5	372.5	415.5	425.9
May	477.1	516.4	525.8	562.2	571.0	604.6	612.5	643.1	650.4	677.2	683.2
June	716.3	733.6	737.6	750.3	753.2	761.2	762.3	765.3	765.6	760.1	762.7
July	753.2	741.2	737.6	721.4	716.7	695.6	689.9	664.8	658.1	629.5	621.9
August	573.1	537.5	528.5	490.4	480.8	440.6	430.2	388.3	377.6	334.0	322.8
September	255.4	209.3	197.8	150.8	139.0	91.6	79.9	32.1	20.0	-28.0	-40.1
October	-100.0	-148.0	-159.8	-207.4	-219.0	-266.1	-277.8	-323.8	-335.3	-380.2	-391.2
November	-455.7	-497.0	-507.0	-546.0	-555.4	-591.5	-600.1	-633.0	-640.6	-669.7	-676.8
December	-707.0	-727.5	-731.8	-746.7	-749.9	-759.4	-761.2	-765.3	-765.6	-763.8	-762.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	749.2	735.1	730.7	711.3	705.6	681.4	674.7	645.9	638.2	605.6	597.0
February	541.9	502.4	492.1	450.1	439.6	395.7	384.4	339.1	327.6	281.0	269.0
March	233.4	185.6	173.5	125.0	113.0	64.1	52.1	3.1	-8.9	-57.7	-69.7
April	-142.1	-189.7	-201.5	-248.2	-259.8	-305.7	-316.8	-361.5	-372.5	-415.5	-425.9
May	-477.1	-516.4	-525.8	-562.2	-571.0	-604.6	-612.5	-643.1	-650.4	-677.2	-683.2
June	-716.3	-733.6	-737.6	-750.3	-753.2	-761.2	-762.3	-765.3	-765.6	-760.1	-762.7
July	-753.2	-741.2	-737.6	-721.4	-716.7	-695.6	-689.9	-664.8	-658.1	-629.5	-621.9
August	-573.1	-537.5	-528.5	-490.4	-480.8	-440.6	-430.2	-388.3	-377.6	-334.0	-322.8
September	-255.4	-209.3	-197.8	-150.8	-139.0	-91.6	-79.9	-32.1	-20.0	28.0	40.1
October	100.0	148.0	159.8	207.4	219.0	266.1	277.8	323.8	335.3	380.2	391.2
November	455.7	497.0	507.0	546.0	555.4	591.5	600.1	633.0	640.6	669.7	676.8
December	707.0	727.5	731.8	746.7	749.9	759.4	761.2	765.3	765.6	763.8	762.7

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: 28.0° N/S

Earliest Sunrise: 5:03 a.m. Latest Sunset: 6:57 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1173.7 mm
 Sunrise/Sunset Markers: X = ± 1911.3 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1173.7	1173.7	0.0							
11:55	12:05	54.5	1173.4	1174.7	54.5	8:25	3:35	2016.1	694.0	2132.2	2072.4
11:50	12:10	109.0	1172.6	1177.6	109.1	8:20	3:40	2047.9	673.2	2155.7	2108.2
11:45	12:15	163.5	1171.2	1182.5	163.5	8:15	3:45	2078.7	652.1	2178.5	2143.1
11:40	12:20	217.9	1169.2	1189.3	217.9	8:10	3:50	2108.5	630.6	2200.8	2177.3
11:35	12:25	272.2	1166.7	1198.0	272.3	8:05	3:55	2137.3	608.9	2222.3	2210.6
11:30	12:30	326.3	1163.6	1208.5	326.5	8:00	4:00	2165.1	586.8	2243.2	2243.2
11:25	12:35	380.3	1160.0	1220.8	380.6	7:55	4:05	2191.8	564.5	2263.3	2274.9
11:20	12:40	434.1	1155.8	1234.7	434.5	7:50	4:10	2217.5	541.9	2282.8	2305.8
11:15	12:45	487.7	1151.1	1250.2	488.2	7:45	4:15	2242.2	519.1	2301.5	2335.8
11:10	12:50	541.1	1145.9	1267.2	541.8	7:40	4:20	2265.8	496.0	2319.4	2364.9
11:05	12:55	594.2	1140.0	1285.6	595.2	7:35	4:25	2288.3	472.7	2336.6	2393.2
11:00	1:00	647.0	1133.7	1305.3	648.3	7:30	4:30	2309.7	449.1	2353.0	2420.7
10:55	1:05	699.6	1126.8	1326.3	701.1	7:25	4:35	2330.0	425.4	2368.5	2447.2
10:50	1:10	751.8	1119.4	1348.4	753.7	7:20	4:40	2349.2	401.4	2383.3	2472.9
10:45	1:15	803.6	1111.4	1371.5	806.0	7:15	4:45	2367.3	377.3	2397.2	2497.7
10:40	1:20	855.1	1102.9	1395.5	858.0	7:10	4:50	2384.3	352.9	2410.3	2521.6
10:35	1:25	906.1	1093.9	1420.4	909.6	7:05	4:55	2400.1	328.4	2422.5	2544.6
10:30	1:30	956.7	1084.3	1446.1	960.9	7:00	5:00	2414.8	303.8	2433.8	2566.7
10:25	1:35	1006.9	1074.3	1472.4	1011.8	6:55	5:05	2428.4	279.0	2444.3	2587.9
10:20	1:40	1056.5	1063.7	1499.3	1062.3	6:50	5:10	2440.7	254.0	2453.9	2608.2
10:15	1:45	1105.7	1052.6	1526.7	1112.3	6:45	5:15	2452.0	229.0	2462.6	2627.7
10:10	1:50	1154.4	1041.1	1554.5	1162.0	6:40	5:20	2462.0	203.8	2470.4	2646.2
10:05	1:55	1202.5	1029.0	1582.6	1211.1	6:35	5:25	2470.9	178.5	2477.3	2663.8
10:00	2:00	1250.0	1016.4	1611.1	1259.9	6:30	5:30	2478.6	153.2	2483.3	2680.5
9:55	2:05	1296.9	1003.4	1639.8	1308.1	6:25	5:35	2485.1	127.8	2488.4	2696.3
9:50	2:10	1343.2	989.9	1668.6	1355.8	6:20	5:40	2490.5	102.3	2492.6	2711.2
9:45	2:15	1388.9	975.9	1697.5	1402.9	6:15	5:45	2494.6	76.8	2495.8	2725.2
9:40	2:20	1433.9	961.4	1726.4	1449.6	6:10	5:50	2497.6	51.2	2498.1	2738.3
9:35	2:25	1478.3	946.5	1755.3	1495.6	6:05	5:55	2499.4	25.6	2499.5	2750.5
9:30	2:30	1521.9	931.1	1784.2	1541.1	6:00	6:00	2500.0	0.0	2500.0	2761.8
9:25	2:35	1564.8	915.3	1812.9	1586.0	5:55	6:05	2499.4	-25.6	2499.5	2772.2
9:20	2:40	1607.0	899.1	1841.4	1630.3	5:50	6:10	2497.6	-51.2	2498.1	2781.8
9:15	2:45	1648.4	882.4	1869.7	1673.9	5:45	6:15	2494.6	-76.8	2495.8	2790.5
9:10	2:50	1689.0	865.3	1897.7	1716.9	5:40	6:20	2490.5	-102.3	2492.6	2798.3
9:05	2:55	1728.8	847.8	1925.5	1759.2	5:35	6:25	2485.1	-127.8	2488.4	2805.3
9:00	3:00	1767.8	829.9	1952.9	1800.9	5:30	6:30	2478.6	-153.2	2483.3	2811.4
8:55	3:05	1805.9	811.6	1979.9	1841.8	5:25	6:35	2470.9	-178.5	2477.3	2816.7
8:50	3:10	1843.2	792.9	2006.5	1882.1	5:20	6:40	2462.0	-203.8	2470.4	2821.2
8:45	3:15	1879.6	773.9	2032.7	1921.7	5:15	6:45	2452.0	-229.0	2462.6	2824.8
8:40	3:20	1915.1	754.4	2058.4	1960.5	5:10	6:50	2440.7	-254.0	2453.9	2827.6
8:35	3:25	1949.7	734.6	2083.5	1998.5	5:05	6:55	2428.4	-279.0	2444.3	2829.7
8:30	3:30	1983.4	714.5	2108.2	2035.8	5:00	7:00	2414.8	-303.8	2433.8	2830.9

Analemmatic Sundial

Latitude: 28.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1173.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-936.5	-918.8	-913.4	-889.1	-882.0	-851.8	-843.4	-807.3	-797.7	-757.0	-746.3
February	-677.4	-628.0	-615.1	-562.7	-549.5	-494.6	-480.5	-423.9	-409.5	-351.2	-336.2
March	-291.8	-232.0	-216.8	-156.3	-141.2	-80.2	-65.1	-3.9	11.2	72.1	87.1
April	177.6	237.1	251.9	310.2	324.8	382.1	396.0	451.9	465.6	519.4	532.4
May	596.4	645.5	657.2	702.8	713.8	755.8	765.7	803.9	813.0	846.4	854.0
June	895.4	917.0	922.0	937.9	941.5	951.6	952.9	956.6	957.0	950.2	953.4
July	941.5	926.5	922.0	901.7	895.9	869.5	862.4	831.0	822.7	786.9	777.3
August	716.4	671.9	660.6	613.0	601.0	550.8	537.7	485.3	472.0	417.5	403.5
September	319.3	261.6	247.2	188.5	173.7	114.5	99.8	40.1	25.0	-35.1	-50.1
October	-125.0	-185.0	-199.7	-259.3	-273.8	-332.7	-347.2	-404.7	-419.1	-475.2	-489.0
November	-569.6	-621.3	-633.8	-682.5	-694.3	-739.4	-750.2	-791.2	-800.8	-837.2	-846.0
December	-883.8	-909.4	-914.8	-933.3	-937.4	-949.3	-951.6	-956.6	-957.0	-954.8	-953.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	936.5	918.8	913.4	889.1	882.0	851.8	843.4	807.3	797.7	757.0	746.3
February	677.4	628.0	615.1	562.7	549.5	494.6	480.5	423.9	409.5	351.2	336.2
March	291.8	232.0	216.8	156.3	141.2	80.2	65.1	3.9	-11.2	-72.1	-87.1
April	-177.6	-237.1	-251.9	-310.2	-324.8	-382.1	-396.0	-451.9	-465.6	-519.4	-532.4
May	-596.4	-645.5	-657.2	-702.8	-713.8	-755.8	-765.7	-803.9	-813.0	-846.4	-854.0
June	-895.4	-917.0	-922.0	-937.9	-941.5	-951.6	-952.9	-956.6	-957.0	-950.2	-953.4
July	-941.5	-926.5	-922.0	-901.7	-895.9	-869.5	-862.4	-831.0	-822.7	-786.9	-777.3
August	-716.4	-671.9	-660.6	-613.0	-601.0	-550.8	-537.7	-485.3	-472.0	-417.5	-403.5
September	-319.3	-261.6	-247.2	-188.5	-173.7	-114.5	-99.8	-40.1	-25.0	35.1	50.1
October	125.0	185.0	199.7	259.3	273.8	332.7	347.2	404.7	419.1	475.2	489.0
November	569.6	621.3	633.8	682.5	694.3	739.4	750.2	791.2	800.8	837.2	846.0
December	883.8	909.4	914.8	933.3	937.4	949.3	951.6	956.6	957.0	954.8	953.4

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 |