

Analemmatic Sundial

Latitude: 29.5° N/S

Earliest Sunrise: 4:59 a.m. Latest Sunset: 7:01 p.m.  
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 492.4 mm  
 Sunrise/Sunset Markers: X = ± 740.9 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	492.4	492.4	0.0							
11:55	12:05	21.8	492.3	492.8	21.8	8:10	3:50	843.4	264.6	883.9	873.6
11:50	12:10	43.6	492.0	493.9	43.6	8:05	3:55	854.9	255.5	892.3	887.1
11:45	12:15	65.4	491.4	495.7	65.4	8:00	4:00	866.0	246.2	900.3	900.3
11:40	12:20	87.2	490.5	498.2	87.2	7:55	4:05	876.7	236.9	908.2	913.2
11:35	12:25	108.9	489.5	501.5	108.9	7:50	4:10	887.0	227.4	915.7	925.8
11:30	12:30	130.5	488.2	505.4	130.6	7:45	4:15	896.9	217.8	922.9	938.0
11:25	12:35	152.1	486.7	509.9	152.2	7:40	4:20	906.3	208.1	929.9	949.9
11:20	12:40	173.6	484.9	515.1	173.8	7:35	4:25	915.3	198.3	936.6	961.4
11:15	12:45	195.1	483.0	520.9	195.3	7:30	4:30	923.9	188.4	942.9	972.6
11:10	12:50	216.4	480.8	527.2	216.8	7:25	4:35	932.0	178.5	948.9	983.5
11:05	12:55	237.7	478.3	534.1	238.1	7:20	4:40	939.7	168.4	954.7	994.0
11:00	1:00	258.8	475.6	541.5	259.4	7:15	4:45	946.9	158.3	960.1	1004.2
10:55	1:05	279.8	472.8	549.4	280.5	7:10	4:50	953.7	148.1	965.1	1014.0
10:50	1:10	300.7	469.6	557.7	301.6	7:05	4:55	960.0	137.8	969.9	1023.5
10:45	1:15	321.4	466.3	566.3	322.5	7:00	5:00	965.9	127.4	974.3	1032.6
10:40	1:20	342.0	462.7	575.4	343.3	6:55	5:05	971.3	117.0	978.4	1041.4
10:35	1:25	362.4	458.9	584.8	364.0	6:50	5:10	976.3	106.6	982.1	1049.8
10:30	1:30	382.7	454.9	594.5	384.5	6:45	5:15	980.8	96.1	985.5	1057.8
10:25	1:35	402.7	450.7	604.4	404.9	6:40	5:20	984.8	85.5	988.5	1065.6
10:20	1:40	422.6	446.3	614.6	425.1	6:35	5:25	988.4	74.9	991.2	1072.9
10:15	1:45	442.3	441.6	625.0	445.2	6:30	5:30	991.4	64.3	993.5	1079.9
10:10	1:50	461.7	436.8	635.6	465.1	6:25	5:35	994.1	53.6	995.5	1086.6
10:05	1:55	481.0	431.7	646.3	484.8	6:20	5:40	996.2	42.9	997.1	1092.9
10:00	2:00	500.0	426.5	657.2	504.3	6:15	5:45	997.9	32.2	998.4	1098.9
9:55	2:05	518.8	421.0	668.1	523.7	6:10	5:50	999.0	21.5	999.3	1104.5
9:50	2:10	537.3	415.3	679.1	542.8	6:05	5:55	999.8	10.7	999.8	1109.7
9:45	2:15	555.6	409.4	690.1	561.7	6:00	6:00	1000.0	0.0	1000.0	1114.7
9:40	2:20	573.6	403.4	701.2	580.4	5:55	6:05	999.8	-10.7	999.8	1119.2
9:35	2:25	591.3	397.1	712.3	598.9	5:50	6:10	999.0	-21.5	999.3	1123.5
9:30	2:30	608.8	390.7	723.3	617.2	5:45	6:15	997.9	-32.2	998.4	1127.4
9:25	2:35	625.9	384.0	734.3	635.2	5:40	6:20	996.2	-42.9	997.1	1130.9
9:20	2:40	642.8	377.2	745.3	653.0	5:35	6:25	994.1	-53.6	995.5	1134.2
9:15	2:45	659.3	370.2	756.2	670.6	5:30	6:30	991.4	-64.3	993.5	1137.0
9:10	2:50	675.6	363.1	767.0	687.9	5:25	6:35	988.4	-74.9	991.2	1139.6
9:05	2:55	691.5	355.7	777.6	704.9	5:20	6:40	984.8	-85.5	988.5	1141.9
9:00	3:00	707.1	348.2	788.2	721.7	5:15	6:45	980.8	-96.1	985.5	1143.8
8:55	3:05	722.4	340.5	798.6	738.2	5:10	6:50	976.3	-106.6	982.1	1145.4
8:50	3:10	737.3	332.7	808.9	754.4	5:05	6:55	971.3	-117.0	978.4	1146.7
8:45	3:15	751.8	324.7	818.9	770.3	5:00	7:00	965.9	-127.4	974.3	1147.7
8:40	3:20	766.0	316.5	828.9	786.0	4:55	7:05	960.0	-137.8	969.9	1148.4
8:35	3:25	779.9	308.2	838.6	801.3	4:50	7:10	953.7	-148.1	965.1	1148.8
8:30	3:30	793.4	299.8	848.1	816.4	4:45	7:15	946.9	-158.3	960.1	1149.0
8:25	3:35	806.4	291.2	857.4	831.2						
8:20	3:40	819.2	282.4	866.5	845.6						
8:15	3:45	831.5	273.6	875.3	859.8						

## Analematic Sundial

Latitude: 29.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 492.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-369.3	-362.3	-360.2	-350.6	-347.8	-335.8	-332.5	-318.3	-314.5	-298.5	-294.3
February	-267.1	-247.6	-242.5	-221.9	-216.7	-195.0	-189.5	-167.1	-161.5	-138.5	-132.6
March	-115.0	-91.5	-85.5	-61.6	-55.7	-31.6	-25.7	-1.5	4.4	28.4	34.3
April	70.0	93.5	99.3	122.3	128.1	150.6	156.1	178.2	183.6	204.8	209.9
May	235.2	254.5	259.1	277.1	281.5	298.0	301.9	317.0	320.6	333.7	336.7
June	353.1	361.6	363.5	369.8	371.2	375.2	375.7	377.2	377.4	374.7	375.9
July	371.2	365.3	363.5	355.5	353.2	342.8	340.0	327.7	324.4	310.3	306.5
August	282.5	264.9	260.5	241.7	237.0	217.2	212.0	191.4	186.1	164.6	159.1
September	125.9	103.2	97.5	74.3	68.5	45.2	39.4	15.8	9.9	-13.8	-19.8
October	-49.3	-72.9	-78.7	-102.2	-107.9	-131.2	-136.9	-159.6	-165.2	-187.4	-192.8
November	-224.6	-245.0	-249.9	-269.1	-273.8	-291.6	-295.8	-312.0	-315.8	-330.1	-333.6
December	-348.5	-358.6	-360.7	-368.0	-369.6	-374.3	-375.2	-377.2	-377.4	-376.5	-375.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	369.3	362.3	360.2	350.6	347.8	335.8	332.5	318.3	314.5	298.5	294.3
February	267.1	247.6	242.5	221.9	216.7	195.0	189.5	167.1	161.5	138.5	132.6
March	115.0	91.5	85.5	61.6	55.7	31.6	25.7	1.5	-4.4	-28.4	-34.3
April	-70.0	-93.5	-99.3	-122.3	-128.1	-150.6	-156.1	-178.2	-183.6	-204.8	-209.9
May	-235.2	-254.5	-259.1	-277.1	-281.5	-298.0	-301.9	-317.0	-320.6	-333.7	-336.7
June	-353.1	-361.6	-363.5	-369.8	-371.2	-375.2	-375.7	-377.2	-377.4	-374.7	-375.9
July	-371.2	-365.3	-363.5	-355.5	-353.2	-342.8	-340.0	-327.7	-324.4	-310.3	-306.5
August	-282.5	-264.9	-260.5	-241.7	-237.0	-217.2	-212.0	-191.4	-186.1	-164.6	-159.1
September	-125.9	-103.2	-97.5	-74.3	-68.5	-45.2	-39.4	-15.8	-9.9	13.8	19.8
October	49.3	72.9	78.7	102.2	107.9	131.2	136.9	159.6	165.2	187.4	192.8
November	224.6	245.0	249.9	269.1	273.8	291.6	295.8	312.0	315.8	330.1	333.6
December	348.5	358.6	360.7	368.0	369.6	374.3	375.2	377.2	377.4	376.5	375.9

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 |

## Analemmatic Sundial

Latitude: 29.5° N/S

Earliest Sunrise: 4:59 a.m.    Latest Sunset: 7:01 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 738.6 mm  
 Sunrise/Sunset Markers: X = ± 1111.4 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	738.6	738.6	0.0							
11:55	12:05	32.7	738.5	739.2	32.7	8:10	3:50	1265.1	396.9	1325.9	1310.4
11:50	12:10	65.4	737.9	740.8	65.4	8:05	3:55	1282.4	383.2	1338.4	1330.7
11:45	12:15	98.1	737.1	743.6	98.1	8:00	4:00	1299.0	369.3	1350.5	1350.5
11:40	12:20	130.7	735.8	747.3	130.8	7:55	4:05	1315.1	355.3	1362.2	1369.8
11:35	12:25	163.3	734.2	752.2	163.4	7:50	4:10	1330.5	341.1	1373.5	1388.6
11:30	12:30	195.8	732.3	758.0	195.9	7:45	4:15	1345.3	326.7	1384.4	1407.0
11:25	12:35	228.2	730.0	764.9	228.3	7:40	4:20	1359.5	312.2	1394.8	1424.8
11:20	12:40	260.5	727.4	772.6	260.7	7:35	4:25	1373.0	297.5	1404.8	1442.1
11:15	12:45	292.6	724.4	781.3	293.0	7:30	4:30	1385.8	282.7	1414.4	1458.9
11:10	12:50	324.7	721.1	790.8	325.1	7:25	4:35	1398.0	267.7	1423.4	1475.2
11:05	12:55	356.5	717.5	801.2	357.2	7:20	4:40	1409.5	252.6	1432.0	1491.0
11:00	1:00	388.2	713.5	812.3	389.0	7:15	4:45	1420.4	237.4	1440.1	1506.2
10:55	1:05	419.7	709.1	824.0	420.8	7:10	4:50	1430.6	222.1	1447.7	1521.0
10:50	1:10	451.1	704.4	836.5	452.4	7:05	4:55	1440.1	206.7	1454.8	1535.2
10:45	1:15	482.2	699.4	849.5	483.8	7:00	5:00	1448.9	191.2	1461.4	1548.9
10:40	1:20	513.0	694.1	863.1	515.0	6:55	5:05	1457.0	175.6	1467.6	1562.0
10:35	1:25	543.7	688.4	877.2	546.0	6:50	5:10	1464.4	159.9	1473.1	1574.7
10:30	1:30	574.0	682.4	891.7	576.8	6:45	5:15	1471.2	144.1	1478.2	1586.8
10:25	1:35	604.1	676.1	906.7	607.3	6:40	5:20	1477.2	128.3	1482.8	1598.3
10:20	1:40	633.9	669.4	922.0	637.7	6:35	5:25	1482.5	112.4	1486.8	1609.4
10:15	1:45	663.4	662.5	937.5	667.8	6:30	5:30	1487.2	96.4	1490.3	1619.9
10:10	1:50	692.6	655.2	953.4	697.6	6:25	5:35	1491.1	80.4	1493.3	1629.9
10:05	1:55	721.5	647.6	969.5	727.2	6:20	5:40	1494.3	64.4	1495.7	1639.4
10:00	2:00	750.0	639.7	985.7	756.5	6:15	5:45	1496.8	48.3	1497.6	1648.3
9:55	2:05	778.2	631.5	1002.1	785.5	6:10	5:50	1498.6	32.2	1498.9	1656.7
9:50	2:10	805.9	623.0	1018.6	814.2	6:05	5:55	1499.6	16.1	1499.7	1664.6
9:45	2:15	833.4	614.2	1035.2	842.6	6:00	6:00	1500.0	0.0	1500.0	1672.0
9:40	2:20	860.4	605.1	1051.8	870.7	5:55	6:05	1499.6	-16.1	1499.7	1678.9
9:35	2:25	887.0	595.7	1068.4	898.4	5:50	6:10	1498.6	-32.2	1498.9	1685.2
9:30	2:30	913.1	586.0	1085.0	925.8	5:45	6:15	1496.8	-48.3	1497.6	1691.1
9:25	2:35	938.9	576.1	1101.5	952.9	5:40	6:20	1494.3	-64.4	1495.7	1696.4
9:20	2:40	964.2	565.8	1117.9	979.5	5:35	6:25	1491.1	-80.4	1493.3	1701.2
9:15	2:45	989.0	555.3	1134.3	1005.9	5:30	6:30	1487.2	-96.4	1490.3	1705.6
9:10	2:50	1013.4	544.6	1150.4	1031.8	5:25	6:35	1482.5	-112.4	1486.8	1709.4
9:05	2:55	1037.3	533.6	1166.5	1057.3	5:20	6:40	1477.2	-128.3	1482.8	1712.8
9:00	3:00	1060.7	522.3	1182.3	1082.5	5:15	6:45	1471.2	-144.1	1478.2	1715.7
8:55	3:05	1083.5	510.8	1197.9	1107.2	5:10	6:50	1464.4	-159.9	1473.1	1718.1
8:50	3:10	1105.9	499.0	1213.3	1131.6	5:05	6:55	1457.0	-175.6	1467.6	1720.1
8:45	3:15	1127.8	487.0	1228.4	1155.5	5:00	7:00	1448.9	-191.2	1461.4	1721.6
8:40	3:20	1149.1	474.8	1243.3	1179.0	4:55	7:05	1440.1	-206.7	1454.8	1722.6
8:35	3:25	1169.8	462.3	1257.9	1202.0	4:50	7:10	1430.6	-222.1	1447.7	1723.2
8:30	3:30	1190.0	449.7	1272.1	1224.6	4:45	7:15	1420.4	-237.4	1440.1	1723.4
8:25	3:35	1209.7	436.8	1286.1	1246.8						
8:20	3:40	1228.7	423.7	1299.7	1268.5						
8:15	3:45	1247.2	410.4	1313.0	1289.7						

## Analemmatic Sundial

Latitude: 29.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 738.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-553.9	-543.4	-540.2	-525.9	-521.6	-503.8	-498.8	-477.5	-471.8	-447.7	-441.4
February	-400.6	-371.4	-363.8	-332.8	-325.0	-292.5	-284.2	-250.7	-242.2	-207.7	-198.8
March	-172.6	-137.2	-128.2	-92.4	-83.5	-47.4	-38.5	-2.3	6.6	42.6	51.5
April	105.0	140.2	149.0	183.5	192.1	226.0	234.2	267.3	275.4	307.2	314.9
May	352.7	381.8	388.7	415.6	422.2	447.0	452.8	475.4	480.9	500.6	505.1
June	529.6	542.4	545.3	554.7	556.9	562.8	563.6	565.8	566.0	562.0	563.9
July	556.9	548.0	545.3	533.3	529.9	514.3	510.1	491.5	486.6	465.4	459.8
August	423.7	397.4	390.7	362.5	355.4	325.7	318.0	287.0	279.2	246.9	238.7
September	188.8	154.8	146.2	111.5	102.7	67.7	59.1	23.7	14.8	-20.7	-29.6
October	-73.9	-109.4	-118.1	-153.4	-161.9	-196.7	-205.4	-239.4	-247.9	-281.1	-289.2
November	-336.9	-367.5	-374.8	-403.6	-410.6	-437.3	-443.7	-468.0	-473.6	-495.1	-500.4
December	-522.7	-537.8	-541.0	-552.0	-554.4	-561.4	-562.8	-565.8	-566.0	-564.7	-563.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	553.9	543.4	540.2	525.9	521.6	503.8	498.8	477.5	471.8	447.7	441.4
February	400.6	371.4	363.8	332.8	325.0	292.5	284.2	250.7	242.2	207.7	198.8
March	172.6	137.2	128.2	92.4	83.5	47.4	38.5	2.3	-6.6	-42.6	-51.5
April	-105.0	-140.2	-149.0	-183.5	-192.1	-226.0	-234.2	-267.3	-275.4	-307.2	-314.9
May	-352.7	-381.8	-388.7	-415.6	-422.2	-447.0	-452.8	-475.4	-480.9	-500.6	-505.1
June	-529.6	-542.4	-545.3	-554.7	-556.9	-562.8	-563.6	-565.8	-566.0	-562.0	-563.9
July	-556.9	-548.0	-545.3	-533.3	-529.9	-514.3	-510.1	-491.5	-486.6	-465.4	-459.8
August	-423.7	-397.4	-390.7	-362.5	-355.4	-325.7	-318.0	-287.0	-279.2	-246.9	-238.7
September	-188.8	-154.8	-146.2	-111.5	-102.7	-67.7	-59.1	-23.7	-14.8	20.7	29.6
October	73.9	109.4	118.1	153.4	161.9	196.7	205.4	239.4	247.9	281.1	289.2
November	336.9	367.5	374.8	403.6	410.6	437.3	443.7	468.0	473.6	495.1	500.4
December	522.7	537.8	541.0	552.0	554.4	561.4	562.8	565.8	566.0	564.7	563.9

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 |

Analemmatic Sundial

Latitude: 29.5° N/S

Earliest Sunrise: 4:59 a.m.    Latest Sunset: 7:01 p.m.  
 Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 984.8 mm  
 Sunrise/Sunset Markers: X = ± 1481.9 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	984.8	984.8	0.0							
11:55	12:05	43.6	984.6	985.6	43.6	8:10	3:50	1686.8	529.2	1767.8	1747.3
11:50	12:10	87.2	983.9	987.8	87.2	8:05	3:55	1709.8	510.9	1784.5	1774.3
11:45	12:15	130.8	982.7	991.4	130.8	8:00	4:00	1732.1	492.4	1800.7	1800.7
11:40	12:20	174.3	981.1	996.5	174.4	7:55	4:05	1753.5	473.7	1816.3	1826.4
11:35	12:25	217.7	979.0	1002.9	217.8	7:50	4:10	1774.0	454.8	1831.4	1851.5
11:30	12:30	261.1	976.4	1010.7	261.2	7:45	4:15	1793.7	435.6	1845.9	1876.0
11:25	12:35	304.2	973.4	1019.8	304.5	7:40	4:20	1812.6	416.2	1859.8	1899.7
11:20	12:40	347.3	969.9	1030.2	347.6	7:35	4:25	1830.6	396.6	1873.1	1922.8
11:15	12:45	390.2	965.9	1041.8	390.6	7:30	4:30	1847.8	376.9	1885.8	1945.2
11:10	12:50	432.9	961.5	1054.5	433.5	7:25	4:35	1864.0	356.9	1897.9	1966.9
11:05	12:55	475.4	956.6	1068.2	476.2	7:20	4:40	1879.4	336.8	1909.3	1988.0
11:00	1:00	517.6	951.3	1083.0	518.7	7:15	4:45	1893.9	316.6	1920.1	2008.3
10:55	1:05	559.7	945.5	1098.7	561.0	7:10	4:50	1907.4	296.1	1930.3	2028.0
10:50	1:10	601.4	939.3	1115.3	603.1	7:05	4:55	1920.1	275.6	1939.8	2046.9
10:45	1:15	642.9	932.6	1132.7	645.0	7:00	5:00	1931.9	254.9	1948.6	2065.2
10:40	1:20	684.0	925.5	1150.8	686.6	6:55	5:05	1942.7	234.1	1956.7	2082.7
10:35	1:25	724.9	917.9	1169.6	728.0	6:50	5:10	1952.6	213.2	1964.2	2099.6
10:30	1:30	765.4	909.9	1189.0	769.0	6:45	5:15	1961.6	192.1	1971.0	2115.7
10:25	1:35	805.5	901.4	1208.9	809.8	6:40	5:20	1969.6	171.0	1977.0	2131.1
10:20	1:40	845.2	892.6	1229.3	850.3	6:35	5:25	1976.7	149.8	1982.4	2145.9
10:15	1:45	884.6	883.3	1250.1	890.4	6:30	5:30	1982.9	128.5	1987.1	2159.9
10:10	1:50	923.5	873.6	1271.2	930.2	6:25	5:35	1988.1	107.2	1991.0	2173.2
10:05	1:55	962.0	863.4	1292.6	969.6	6:20	5:40	1992.4	85.8	1994.2	2185.8
10:00	2:00	1000.0	852.9	1314.3	1008.7	6:15	5:45	1995.7	64.4	1996.8	2197.7
9:55	2:05	1037.5	842.0	1336.2	1047.3	6:10	5:50	1998.1	43.0	1998.6	2209.0
9:50	2:10	1074.6	830.6	1358.2	1085.6	6:05	5:55	1999.5	21.5	1999.6	2219.5
9:45	2:15	1111.1	818.9	1380.3	1123.5	6:00	6:00	2000.0	0.0	2000.0	2229.3
9:40	2:20	1147.2	806.7	1402.4	1160.9	5:55	6:05	1999.5	-21.5	1999.6	2238.5
9:35	2:25	1182.6	794.2	1424.6	1197.9	5:50	6:10	1998.1	-43.0	1998.6	2246.9
9:30	2:30	1217.5	781.3	1446.7	1234.4	5:45	6:15	1995.7	-64.4	1996.8	2254.7
9:25	2:35	1251.8	768.1	1468.7	1270.5	5:40	6:20	1992.4	-85.8	1994.2	2261.9
9:20	2:40	1285.6	754.4	1490.6	1306.1	5:35	6:25	1988.1	-107.2	1991.0	2268.3
9:15	2:45	1318.7	740.4	1512.4	1341.1	5:30	6:30	1982.9	-128.5	1987.1	2274.1
9:10	2:50	1351.2	726.1	1533.9	1375.7	5:25	6:35	1976.7	-149.8	1982.4	2279.2
9:05	2:55	1383.0	711.4	1555.3	1409.8	5:20	6:40	1969.6	-171.0	1977.0	2283.7
9:00	3:00	1414.2	696.4	1576.4	1443.3	5:15	6:45	1961.6	-192.1	1971.0	2287.6
8:55	3:05	1444.7	681.0	1597.2	1476.3	5:10	6:50	1952.6	-213.2	1964.2	2290.8
8:50	3:10	1474.6	665.4	1617.7	1508.8	5:05	6:55	1942.7	-234.1	1956.7	2293.4
8:45	3:15	1503.7	649.4	1637.9	1540.7	5:00	7:00	1931.9	-254.9	1948.6	2295.4
8:40	3:20	1532.1	633.0	1657.7	1572.0	4:55	7:05	1920.1	-275.6	1939.8	2296.8
8:35	3:25	1559.8	616.4	1677.2	1602.7	4:50	7:10	1907.4	-296.1	1930.3	2297.7
8:30	3:30	1586.7	599.5	1696.2	1632.8	4:45	7:15	1893.9	-316.6	1920.1	2297.9
8:25	3:35	1612.9	582.3	1714.8	1662.4						
8:20	3:40	1638.3	564.9	1733.0	1691.3						
8:15	3:45	1662.9	547.2	1750.6	1719.6						

## Analematic Sundial

Latitude: 29.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 984.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-738.5	-724.6	-720.3	-701.2	-695.5	-671.7	-665.1	-636.7	-629.1	-597.0	-588.5
February	-534.2	-495.2	-485.0	-443.7	-433.4	-390.1	-378.9	-334.3	-322.9	-276.9	-265.1
March	-230.1	-183.0	-171.0	-123.2	-111.3	-63.2	-51.4	-3.0	8.8	56.8	68.7
April	140.1	187.0	198.6	244.6	256.1	301.3	312.3	356.4	367.1	409.6	419.8
May	470.3	509.0	518.3	554.2	562.9	596.0	603.8	633.9	641.1	667.5	673.4
June	706.1	723.2	727.1	739.6	742.5	750.4	751.5	754.4	754.7	749.3	751.8
July	742.5	730.7	727.1	711.1	706.5	685.7	680.1	655.3	648.7	620.5	613.0
August	564.9	529.9	520.9	483.4	473.9	434.3	424.0	382.7	372.2	329.2	318.2
September	251.8	206.3	194.9	148.6	137.0	90.3	78.7	31.6	19.7	-27.6	-39.5
October	-98.5	-145.9	-157.5	-204.5	-215.9	-262.3	-273.8	-319.2	-330.5	-374.8	-385.6
November	-449.2	-489.9	-499.8	-538.2	-547.5	-583.1	-591.6	-624.0	-631.5	-660.2	-667.2
December	-696.9	-717.1	-721.4	-736.0	-739.2	-748.6	-750.4	-754.4	-754.7	-752.9	-751.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	738.5	724.6	720.3	701.2	695.5	671.7	665.1	636.7	629.1	597.0	588.5
February	534.2	495.2	485.0	443.7	433.4	390.1	378.9	334.3	322.9	276.9	265.1
March	230.1	183.0	171.0	123.2	111.3	63.2	51.4	3.0	-8.8	-56.8	-68.7
April	-140.1	-187.0	-198.6	-244.6	-256.1	-301.3	-312.3	-356.4	-367.1	-409.6	-419.8
May	-470.3	-509.0	-518.3	-554.2	-562.9	-596.0	-603.8	-633.9	-641.1	-667.5	-673.4
June	-706.1	-723.2	-727.1	-739.6	-742.5	-750.4	-751.5	-754.4	-754.7	-749.3	-751.8
July	-742.5	-730.7	-727.1	-711.1	-706.5	-685.7	-680.1	-655.3	-648.7	-620.5	-613.0
August	-564.9	-529.9	-520.9	-483.4	-473.9	-434.3	-424.0	-382.7	-372.2	-329.2	-318.2
September	-251.8	-206.3	-194.9	-148.6	-137.0	-90.3	-78.7	-31.6	-19.7	27.6	39.5
October	98.5	145.9	157.5	204.5	215.9	262.3	273.8	319.2	330.5	374.8	385.6
November	449.2	489.9	499.8	538.2	547.5	583.1	591.6	624.0	631.5	660.2	667.2
December	696.9	717.1	721.4	736.0	739.2	748.6	750.4	754.4	754.7	752.9	751.8

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: 29.5° N/S

Earliest Sunrise: 4:59 a.m.    Latest Sunset: 7:01 p.m.  
 Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1231.1 mm  
 Sunrise/Sunset Markers: X = ± 1852.3 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1231.1	1231.1	0.0							
11:55	12:05	54.5	1230.8	1232.0	54.5	8:10	3:50	2108.5	661.4	2209.8	2184.1
11:50	12:10	109.0	1229.9	1234.7	109.1	8:05	3:55	2137.3	638.6	2230.7	2217.9
11:45	12:15	163.5	1228.4	1239.3	163.5	8:00	4:00	2165.1	615.5	2250.9	2250.9
11:40	12:20	217.9	1226.4	1245.6	217.9	7:55	4:05	2191.8	592.1	2270.4	2283.0
11:35	12:25	272.2	1223.7	1253.6	272.3	7:50	4:10	2217.5	568.4	2289.2	2314.4
11:30	12:30	326.3	1220.5	1263.4	326.5	7:45	4:15	2242.2	544.5	2307.3	2344.9
11:25	12:35	380.3	1216.7	1274.8	380.6	7:40	4:20	2265.8	520.3	2324.7	2374.6
11:20	12:40	434.1	1212.4	1287.7	434.5	7:35	4:25	2288.3	495.8	2341.4	2403.5
11:15	12:45	487.7	1207.4	1302.2	488.3	7:30	4:30	2309.7	471.1	2357.3	2431.5
11:10	12:50	541.1	1201.9	1318.1	541.9	7:25	4:35	2330.0	446.2	2372.4	2458.7
11:05	12:55	594.2	1195.8	1335.3	595.3	7:20	4:40	2349.2	421.0	2386.7	2485.0
11:00	1:00	647.0	1189.1	1353.8	648.4	7:15	4:45	2367.3	395.7	2400.2	2510.4
10:55	1:05	699.6	1181.9	1373.4	701.3	7:10	4:50	2384.3	370.2	2412.9	2534.9
10:50	1:10	751.8	1174.1	1394.1	753.9	7:05	4:55	2400.1	344.5	2424.7	2558.6
10:45	1:15	803.6	1165.7	1415.9	806.3	7:00	5:00	2414.8	318.6	2435.7	2581.4
10:40	1:20	855.1	1156.8	1438.5	858.3	6:55	5:05	2428.4	292.6	2445.9	2603.4
10:35	1:25	906.1	1147.4	1462.0	910.0	6:50	5:10	2440.7	266.4	2455.2	2624.4
10:30	1:30	956.7	1137.4	1486.2	961.3	6:45	5:15	2452.0	240.2	2463.7	2644.6
10:25	1:35	1006.9	1126.8	1511.1	1012.2	6:40	5:20	2462.0	213.8	2471.3	2663.9
10:20	1:40	1056.5	1115.7	1536.6	1062.8	6:35	5:25	2470.9	187.3	2478.0	2682.3
10:15	1:45	1105.7	1104.1	1562.6	1113.0	6:30	5:30	2478.6	160.7	2483.8	2699.9
10:10	1:50	1154.4	1092.0	1589.0	1162.7	6:25	5:35	2485.1	134.0	2488.8	2716.5
10:05	1:55	1202.5	1079.3	1615.8	1212.0	6:20	5:40	2490.5	107.3	2492.8	2732.3
10:00	2:00	1250.0	1066.1	1642.9	1260.8	6:15	5:45	2494.6	80.5	2495.9	2747.2
9:55	2:05	1296.9	1052.4	1670.2	1309.2	6:10	5:50	2497.6	53.7	2498.2	2761.2
9:50	2:10	1343.2	1038.3	1697.7	1357.0	6:05	5:55	2499.4	26.9	2499.5	2774.4
9:45	2:15	1388.9	1023.6	1725.4	1404.3	6:00	6:00	2500.0	0.0	2500.0	2786.7
9:40	2:20	1433.9	1008.4	1753.0	1451.1	5:55	6:05	2499.4	-26.9	2499.5	2798.1
9:35	2:25	1478.3	992.8	1780.7	1497.4	5:50	6:10	2497.6	-53.7	2498.2	2808.7
9:30	2:30	1521.9	976.7	1808.3	1543.0	5:45	6:15	2494.6	-80.5	2495.9	2818.4
9:25	2:35	1564.8	960.1	1835.9	1588.1	5:40	6:20	2490.5	-107.3	2492.8	2827.3
9:20	2:40	1607.0	943.0	1863.2	1632.6	5:35	6:25	2485.1	-134.0	2488.8	2835.4
9:15	2:45	1648.4	925.6	1890.4	1676.4	5:30	6:30	2478.6	-160.7	2483.8	2842.6
9:10	2:50	1689.0	907.6	1917.4	1719.7	5:25	6:35	2470.9	-187.3	2478.0	2849.0
9:05	2:55	1728.8	889.3	1944.1	1762.2	5:20	6:40	2462.0	-213.8	2471.3	2854.7
9:00	3:00	1767.8	870.5	1970.5	1804.2	5:15	6:45	2452.0	-240.2	2463.7	2859.5
8:55	3:05	1805.9	851.3	1996.5	1845.4	5:10	6:50	2440.7	-266.4	2455.2	2863.5
8:50	3:10	1843.2	831.7	2022.1	1886.0	5:05	6:55	2428.4	-292.6	2445.9	2866.8
8:45	3:15	1879.6	811.7	2047.4	1925.8	5:00	7:00	2414.8	-318.6	2435.7	2869.3
8:40	3:20	1915.1	791.3	2072.2	1965.0	4:55	7:05	2400.1	-344.5	2424.7	2871.1
8:35	3:25	1949.7	770.5	2096.5	2003.4	4:50	7:10	2384.3	-370.2	2412.9	2872.1
8:30	3:30	1983.4	749.4	2120.2	2041.0	4:45	7:15	2367.3	-395.7	2400.2	2872.4
8:25	3:35	2016.1	727.9	2143.5	2077.9						
8:20	3:40	2047.9	706.1	2166.2	2114.1						
8:15	3:45	2078.7	683.9	2188.3	2149.5						

## Analemmatic Sundial

Latitude: 29.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1231.1 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-923.2	-905.7	-900.4	-876.5	-869.4	-839.6	-831.3	-795.8	-786.4	-746.2	-735.7
February	-667.7	-619.0	-606.3	-554.6	-541.7	-487.6	-473.6	-417.8	-403.7	-346.2	-331.4
March	-287.6	-228.7	-213.7	-154.1	-139.2	-79.0	-64.2	-3.8	11.0	71.0	85.9
April	175.1	233.7	248.3	305.8	320.1	376.6	390.3	445.5	458.9	512.0	524.8
May	587.9	636.3	647.8	692.7	703.6	745.0	754.7	792.4	801.4	834.4	841.8
June	882.7	904.0	908.9	924.5	928.1	938.0	939.3	942.9	943.4	936.6	939.8
July	928.1	913.3	908.9	888.9	883.1	857.1	850.1	819.2	810.9	775.7	766.3
August	706.1	662.3	651.1	604.2	592.4	542.9	530.0	478.4	465.3	411.5	397.8
September	314.7	257.9	243.7	185.8	171.2	112.9	98.4	39.5	24.7	-34.6	-49.4
October	-123.2	-182.3	-196.9	-255.6	-269.9	-327.9	-342.3	-399.0	-413.1	-468.5	-482.0
November	-561.5	-612.4	-624.7	-672.7	-684.4	-728.9	-739.5	-779.9	-789.4	-825.2	-833.9
December	-871.2	-896.4	-901.7	-920.0	-924.1	-935.7	-938.0	-942.9	-943.4	-941.1	-939.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	923.2	905.7	900.4	876.5	869.4	839.6	831.3	795.8	786.4	746.2	735.7
February	667.7	619.0	606.3	554.6	541.7	487.6	473.6	417.8	403.7	346.2	331.4
March	287.6	228.7	213.7	154.1	139.2	79.0	64.2	3.8	-11.0	-71.0	-85.9
April	-175.1	-233.7	-248.3	-305.8	-320.1	-376.6	-390.3	-445.5	-458.9	-512.0	-524.8
May	-587.9	-636.3	-647.8	-692.7	-703.6	-745.0	-754.7	-792.4	-801.4	-834.4	-841.8
June	-882.7	-904.0	-908.9	-924.5	-928.1	-938.0	-939.3	-942.9	-943.4	-936.6	-939.8
July	-928.1	-913.3	-908.9	-888.9	-883.1	-857.1	-850.1	-819.2	-810.9	-775.7	-766.3
August	-706.1	-662.3	-651.1	-604.2	-592.4	-542.9	-530.0	-478.4	-465.3	-411.5	-397.8
September	-314.7	-257.9	-243.7	-185.8	-171.2	-112.9	-98.4	-39.5	-24.7	34.6	49.4
October	123.2	182.3	196.9	255.6	269.9	327.9	342.3	399.0	413.1	468.5	482.0
November	561.5	612.4	624.7	672.7	684.4	728.9	739.5	779.9	789.4	825.2	833.9
December	871.2	896.4	901.7	920.0	924.1	935.7	938.0	942.9	943.4	941.1	939.8

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 |