

Analemmatic Sundial

Latitude: 42.5° N/S

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 675.6 mm
 Sunrise/Sunset Markers: X = ± 511.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	675.6	675.6	0.0						
11:55	12:05	21.8	675.4	675.8	21.8	8:25	3:35	806.4	399.5	900.0	852.4
11:50	12:10	43.6	674.9	676.4	43.6	8:20	3:40	819.2	387.5	906.2	868.3
11:45	12:15	65.4	674.1	677.3	65.4	8:15	3:45	831.5	375.3	912.3	884.0
11:40	12:20	87.2	673.0	678.6	87.2	8:10	3:50	843.4	363.0	918.2	899.5
11:35	12:25	108.9	671.6	680.3	108.9	8:05	3:55	854.9	350.5	924.0	914.6
11:30	12:30	130.5	669.8	682.4	130.7	8:00	4:00	866.0	337.8	929.6	929.6
11:25	12:35	152.1	667.7	684.8	152.3	7:55	4:05	876.7	325.0	935.0	944.2
11:20	12:40	173.6	665.3	687.6	174.0	7:50	4:10	887.0	312.0	940.3	958.7
11:15	12:45	195.1	662.6	690.7	195.5	7:45	4:15	896.9	298.8	945.3	972.8
11:10	12:50	216.4	659.6	694.2	217.0	7:40	4:20	906.3	285.5	950.2	986.7
11:05	12:55	237.7	656.2	697.9	238.5	7:35	4:25	915.3	272.1	954.9	1000.3
11:00	1:00	258.8	652.6	702.0	259.8	7:30	4:30	923.9	258.5	959.4	1013.7
10:55	1:05	279.8	648.6	706.4	281.1	7:25	4:35	932.0	244.9	963.6	1026.7
10:50	1:10	300.7	644.3	711.0	302.3	7:20	4:40	939.7	231.1	967.7	1039.5
10:45	1:15	321.4	639.7	716.0	323.4	7:15	4:45	946.9	217.2	971.5	1052.1
10:40	1:20	342.0	634.8	721.1	344.4	7:10	4:50	953.7	203.2	975.1	1064.3
10:35	1:25	362.4	629.7	726.5	365.3	7:05	4:55	960.0	189.0	978.5	1076.3
10:30	1:30	382.7	624.2	732.1	386.1	7:00	5:00	965.9	174.9	981.6	1088.0
10:25	1:35	402.7	618.4	738.0	406.8	6:55	5:05	971.3	160.6	984.5	1099.4
10:20	1:40	422.6	612.3	744.0	427.3	6:50	5:10	976.3	146.2	987.2	1110.6
10:15	1:45	442.3	605.9	750.2	447.7	6:45	5:15	980.8	131.8	989.6	1121.4
10:10	1:50	461.7	599.3	756.5	468.0	6:40	5:20	984.8	117.3	991.8	1132.0
10:05	1:55	481.0	592.3	763.0	488.1	6:35	5:25	988.4	102.8	993.7	1142.4
10:00	2:00	500.0	585.1	769.6	508.1	6:30	5:30	991.4	88.2	995.4	1152.4
9:55	2:05	518.8	577.6	776.3	528.0	6:25	5:35	994.1	73.5	996.8	1162.2
9:50	2:10	537.3	569.8	783.2	547.6	6:20	5:40	996.2	58.9	997.9	1171.6
9:45	2:15	555.6	561.7	790.1	567.1	6:15	5:45	997.9	44.2	998.8	1180.8
9:40	2:20	573.6	553.4	797.0	586.4	6:10	5:50	999.0	29.5	999.5	1189.8
9:35	2:25	591.3	544.8	804.0	605.6	6:05	5:55	999.8	14.7	999.9	1198.4
9:30	2:30	608.8	536.0	811.1	624.6	6:00	6:00	1000.0	0.0	1000.0	1206.8
9:25	2:35	625.9	526.9	818.2	643.3	5:55	6:05	999.8	-14.7	999.9	1214.9
9:20	2:40	642.8	517.5	825.2	661.9	5:50	6:10	999.0	-29.5	999.5	1222.8
9:15	2:45	659.3	507.9	832.3	680.3	5:45	6:15	997.9	-44.2	998.8	1230.4
9:10	2:50	675.6	498.1	839.4	698.5	5:40	6:20	996.2	-58.9	997.9	1237.7
9:05	2:55	691.5	488.0	846.4	716.5	5:35	6:25	994.1	-73.5	996.8	1244.7
9:00	3:00	707.1	477.7	853.4	734.3	5:30	6:30	991.4	-88.2	995.4	1251.5
8:55	3:05	722.4	467.2	860.3	751.8	5:25	6:35	988.4	-102.8	993.7	1258.1
8:50	3:10	737.3	456.4	867.1	769.2	5:20	6:40	984.8	-117.3	991.8	1264.3
8:45	3:15	751.8	445.4	873.9	786.3	5:15	6:45	980.8	-131.8	989.6	1270.4
8:40	3:20	766.0	434.3	880.6	803.2	5:10	6:50	976.3	-146.2	987.2	1276.1
8:35	3:25	779.9	422.9	887.2	819.8	5:05	6:55	971.3	-160.6	984.5	1281.7
8:30	3:30	793.4	411.3	893.6	836.2	5:00	7:00	965.9	-174.9	981.6	1287.0

Analemmatic Sundial**Latitude: 42.5° N/S**

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 675.6 mm
 Sunrise/Sunset Markers: X = ± 511.8 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-189.0	978.5	1292.0
4:50	7:10	953.7	-203.2	975.1	1296.8
4:45	7:15	946.9	-217.2	971.5	1301.4
4:40	7:20	939.7	-231.1	967.7	1305.8
4:35	7:25	932.0	-244.9	963.6	1309.9
4:30	7:30	923.9	-258.5	959.4	1313.8
4:25	7:35	915.3	-272.1	954.9	1317.5
4:20	7:40	906.3	-285.5	950.2	1321.0
4:15	7:45	896.9	-298.8	945.3	1324.3

Analemmatic Sundial

Latitude: 42.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 675.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-312.8	-306.9	-305.1	-297.0	-294.6	-284.5	-281.7	-269.7	-266.5	-252.9	-249.3
February	-226.3	-209.7	-205.4	-187.9	-183.6	-165.2	-160.5	-141.6	-136.8	-117.3	-112.3
March	-97.5	-77.5	-72.4	-52.2	-47.2	-26.8	-21.8	-1.3	3.7	24.1	29.1
April	59.3	79.2	84.1	103.6	108.5	127.6	132.3	150.9	155.5	173.5	177.8
May	199.2	215.6	219.5	234.7	238.4	252.4	255.7	268.5	271.6	282.7	285.2
June	299.1	306.3	308.0	313.3	314.5	317.8	318.3	319.5	319.7	317.4	318.4
July	314.5	309.5	308.0	301.2	299.2	290.4	288.0	277.6	274.8	262.8	259.6
August	239.3	224.4	220.6	204.7	200.7	184.0	179.6	162.1	157.7	139.4	134.8
September	106.6	87.4	82.6	62.9	58.0	38.3	33.4	13.4	8.4	-11.7	-16.7
October	-41.7	-61.8	-66.7	-86.6	-91.4	-111.1	-116.0	-135.2	-140.0	-158.7	-163.3
November	-190.3	-207.5	-211.7	-227.9	-231.9	-247.0	-250.6	-264.3	-267.5	-279.6	-282.6
December	-295.2	-303.7	-305.5	-311.7	-313.1	-317.1	-317.8	-319.5	-319.7	-318.9	-318.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	312.8	306.9	305.1	297.0	294.6	284.5	281.7	269.7	266.5	252.9	249.3
February	226.3	209.7	205.4	187.9	183.6	165.2	160.5	141.6	136.8	117.3	112.3
March	97.5	77.5	72.4	52.2	47.2	26.8	21.8	1.3	-3.7	-24.1	-29.1
April	-59.3	-79.2	-84.1	-103.6	-108.5	-127.6	-132.3	-150.9	-155.5	-173.5	-177.8
May	-199.2	-215.6	-219.5	-234.7	-238.4	-252.4	-255.7	-268.5	-271.6	-282.7	-285.2
June	-299.1	-306.3	-308.0	-313.3	-314.5	-317.8	-318.3	-319.5	-319.7	-317.4	-318.4
July	-314.5	-309.5	-308.0	-301.2	-299.2	-290.4	-288.0	-277.6	-274.8	-262.8	-259.6
August	-239.3	-224.4	-220.6	-204.7	-200.7	-184.0	-179.6	-162.1	-157.7	-139.4	-134.8
September	-106.6	-87.4	-82.6	-62.9	-58.0	-38.3	-33.4	-13.4	-8.4	11.7	16.7
October	41.7	61.8	66.7	86.6	91.4	111.1	116.0	135.2	140.0	158.7	163.3
November	190.3	207.5	211.7	227.9	231.9	247.0	250.6	264.3	267.5	279.6	282.6
December	295.2	303.7	305.5	311.7	313.1	317.1	317.8	319.5	319.7	318.9	318.4

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: 42.5° N/S

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1013.4 mm
 Sunrise/Sunset Markers: X = ± 767.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1013.4	1013.4	0.0						
11:55	12:05	32.7	1013.1	1013.7	32.7	8:25	3:35	1209.7	599.2	1349.9	1278.6
11:50	12:10	65.4	1012.4	1014.5	65.4	8:20	3:40	1228.7	581.3	1359.3	1302.5
11:45	12:15	98.1	1011.2	1016.0	98.1	8:15	3:45	1247.2	563.0	1368.4	1326.0
11:40	12:20	130.7	1009.5	1018.0	130.8	8:10	3:50	1265.1	544.5	1377.3	1349.2
11:35	12:25	163.3	1007.4	1020.5	163.4	8:05	3:55	1282.4	525.7	1385.9	1372.0
11:30	12:30	195.8	1004.7	1023.6	196.0	8:00	4:00	1299.0	506.7	1394.4	1394.4
11:25	12:35	228.2	1001.6	1027.3	228.5	7:55	4:05	1315.1	487.4	1402.5	1416.4
11:20	12:40	260.5	998.0	1031.4	260.9	7:50	4:10	1330.5	467.9	1410.4	1438.0
11:15	12:45	292.6	993.9	1036.1	293.3	7:45	4:15	1345.3	448.2	1418.0	1459.2
11:10	12:50	324.7	989.4	1041.3	325.5	7:40	4:20	1359.5	428.3	1425.3	1480.0
11:05	12:55	356.5	984.3	1046.9	357.7	7:35	4:25	1373.0	408.1	1432.3	1500.5
11:00	1:00	388.2	978.9	1053.0	389.8	7:30	4:30	1385.8	387.8	1439.1	1520.5
10:55	1:05	419.7	972.9	1059.6	421.7	7:25	4:35	1398.0	367.3	1445.5	1540.1
10:50	1:10	451.1	966.5	1066.6	453.5	7:20	4:40	1409.5	346.6	1451.5	1559.3
10:45	1:15	482.2	959.6	1073.9	485.1	7:15	4:45	1420.4	325.7	1457.3	1578.1
10:40	1:20	513.0	952.3	1081.7	516.7	7:10	4:50	1430.6	304.7	1462.7	1596.5
10:35	1:25	543.7	944.5	1089.8	548.0	7:05	4:55	1440.1	283.6	1467.7	1614.4
10:30	1:30	574.0	936.2	1098.2	579.2	7:00	5:00	1448.9	262.3	1472.4	1632.0
10:25	1:35	604.1	927.6	1106.9	610.2	6:55	5:05	1457.0	240.9	1476.8	1649.1
10:20	1:40	633.9	918.4	1116.0	641.0	6:50	5:10	1464.4	219.3	1480.8	1665.9
10:15	1:45	663.4	908.9	1125.3	671.6	6:45	5:15	1471.2	197.7	1484.4	1682.2
10:10	1:50	692.6	898.9	1134.8	702.0	6:40	5:20	1477.2	176.0	1487.7	1698.1
10:05	1:55	721.5	888.5	1144.5	732.2	6:35	5:25	1482.5	154.2	1490.5	1713.5
10:00	2:00	750.0	877.6	1154.4	762.2	6:30	5:30	1487.2	132.3	1493.0	1728.6
9:55	2:05	778.2	866.4	1164.5	791.9	6:25	5:35	1491.1	110.3	1495.2	1743.2
9:50	2:10	805.9	854.7	1174.7	821.4	6:20	5:40	1494.3	88.3	1496.9	1757.5
9:45	2:15	833.4	842.6	1185.1	850.7	6:15	5:45	1496.8	66.3	1498.3	1771.3
9:40	2:20	860.4	830.1	1195.5	879.7	6:10	5:50	1498.6	44.2	1499.2	1784.7
9:35	2:25	887.0	817.2	1206.1	908.4	6:05	5:55	1499.6	22.1	1499.8	1797.7
9:30	2:30	913.1	804.0	1216.6	936.8	6:00	6:00	1500.0	0.0	1500.0	1810.2
9:25	2:35	938.9	790.3	1227.2	965.0	5:55	6:05	1499.6	-22.1	1499.8	1822.4
9:20	2:40	964.2	776.3	1237.9	992.9	5:50	6:10	1498.6	-44.2	1499.2	1834.2
9:15	2:45	989.0	761.9	1248.5	1020.5	5:45	6:15	1496.8	-66.3	1498.3	1845.5
9:10	2:50	1013.4	747.1	1259.0	1047.8	5:40	6:20	1494.3	-88.3	1496.9	1856.5
9:05	2:55	1037.3	732.0	1269.6	1074.7	5:35	6:25	1491.1	-110.3	1495.2	1867.1
9:00	3:00	1060.7	716.6	1280.0	1101.4	5:30	6:30	1487.2	-132.3	1493.0	1877.3
8:55	3:05	1083.5	700.8	1290.4	1127.7	5:25	6:35	1482.5	-154.2	1490.5	1887.1
8:50	3:10	1105.9	684.6	1300.7	1153.7	5:20	6:40	1477.2	-176.0	1487.7	1896.5
8:45	3:15	1127.8	668.2	1310.8	1179.4	5:15	6:45	1471.2	-197.7	1484.4	1905.5
8:40	3:20	1149.1	651.4	1320.9	1204.7	5:10	6:50	1464.4	-219.3	1480.8	1914.2
8:35	3:25	1169.8	634.3	1330.7	1229.7	5:05	6:55	1457.0	-240.9	1476.8	1922.5
8:30	3:30	1190.0	616.9	1340.4	1254.3	5:00	7:00	1448.9	-262.3	1472.4	1930.4

Analemmatic Sundial**Latitude: 42.5° N/S**

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1013.4 mm
 Sunrise/Sunset Markers: $X = \pm 767.6$ mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-283.6	1467.7	1938.0
4:50	7:10	1430.6	-304.7	1462.7	1945.2
4:45	7:15	1420.4	-325.7	1457.3	1952.1
4:40	7:20	1409.5	-346.6	1451.5	1958.7
4:35	7:25	1398.0	-367.3	1445.5	1964.9
4:30	7:30	1385.8	-387.8	1439.1	1970.7
4:25	7:35	1373.0	-408.1	1432.3	1976.3
4:20	7:40	1359.5	-428.3	1425.3	1981.5
4:15	7:45	1345.3	-448.2	1418.0	1986.5

Analemmatic Sundial

Latitude: 42.5° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1013.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-469.2	-460.3	-457.6	-445.5	-441.9	-426.7	-422.5	-404.5	-399.7	-379.3	-373.9
February	-339.4	-314.6	-308.2	-281.9	-275.3	-247.8	-240.7	-212.4	-205.2	-176.0	-168.4
March	-146.2	-116.2	-108.6	-78.3	-70.7	-40.2	-32.6	-1.9	5.6	36.1	43.6
April	89.0	118.8	126.2	155.4	162.7	191.4	198.4	226.4	233.3	260.2	266.7
May	298.8	323.4	329.3	352.1	357.6	378.6	383.6	402.7	407.3	424.1	427.8
June	448.6	459.4	461.9	469.9	471.7	476.7	477.4	479.3	479.5	476.1	477.7
July	471.7	464.2	461.9	451.8	448.8	435.6	432.1	416.3	412.2	394.2	389.5
August	358.9	336.6	330.9	307.1	301.1	275.9	269.4	243.2	236.5	209.2	202.2
September	160.0	131.1	123.9	94.4	87.0	57.4	50.0	20.1	12.5	-17.6	-25.1
October	-62.6	-92.7	-100.1	-129.9	-137.2	-166.7	-174.0	-202.8	-210.0	-238.1	-245.0
November	-285.4	-311.3	-317.5	-341.9	-347.8	-370.5	-375.8	-396.4	-401.2	-419.4	-423.9
December	-442.8	-455.6	-458.3	-467.6	-469.7	-475.6	-476.7	-479.3	-479.5	-478.3	-477.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	469.2	460.3	457.6	445.5	441.9	426.7	422.5	404.5	399.7	379.3	373.9
February	339.4	314.6	308.2	281.9	275.3	247.8	240.7	212.4	205.2	176.0	168.4
March	146.2	116.2	108.6	78.3	70.7	40.2	32.6	1.9	-5.6	-36.1	-43.6
April	-89.0	-118.8	-126.2	-155.4	-162.7	-191.4	-198.4	-226.4	-233.3	-260.2	-266.7
May	-298.8	-323.4	-329.3	-352.1	-357.6	-378.6	-383.6	-402.7	-407.3	-424.1	-427.8
June	-448.6	-459.4	-461.9	-469.9	-471.7	-476.7	-477.4	-479.3	-479.5	-476.1	-477.7
July	-471.7	-464.2	-461.9	-451.8	-448.8	-435.6	-432.1	-416.3	-412.2	-394.2	-389.5
August	-358.9	-336.6	-330.9	-307.1	-301.1	-275.9	-269.4	-243.2	-236.5	-209.2	-202.2
September	-160.0	-131.1	-123.9	-94.4	-87.0	-57.4	-50.0	-20.1	-12.5	17.6	25.1
October	62.6	92.7	100.1	129.9	137.2	166.7	174.0	202.8	210.0	238.1	245.0
November	285.4	311.3	317.5	341.9	347.8	370.5	375.8	396.4	401.2	419.4	423.9
December	442.8	455.6	458.3	467.6	469.7	475.6	476.7	479.3	479.5	478.3	477.7

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: 42.5° N/S

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1351.2 mm
 Sunrise/Sunset Markers: X = ± 1023.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1351.2	1351.2	0.0						
11:55	12:05	43.6	1350.9	1351.6	43.6	8:25	3:35	1612.9	799.0	1799.9	1704.8
11:50	12:10	87.2	1349.9	1352.7	87.2	8:20	3:40	1638.3	775.0	1812.4	1736.7
11:45	12:15	130.8	1348.3	1354.6	130.8	8:15	3:45	1662.9	750.7	1824.5	1768.0
11:40	12:20	174.3	1346.0	1357.3	174.4	8:10	3:50	1686.8	726.0	1836.4	1798.9
11:35	12:25	217.7	1343.1	1360.7	217.9	8:05	3:55	1709.8	701.0	1847.9	1829.3
11:30	12:30	261.1	1339.6	1364.8	261.3	8:00	4:00	1732.1	675.6	1859.1	1859.1
11:25	12:35	304.2	1335.5	1369.7	304.7	7:55	4:05	1753.5	649.9	1870.0	1888.5
11:20	12:40	347.3	1330.7	1375.2	347.9	7:50	4:10	1774.0	623.9	1880.5	1917.3
11:15	12:45	390.2	1325.2	1381.5	391.0	7:45	4:15	1793.7	597.6	1890.7	1945.6
11:10	12:50	432.9	1319.2	1388.4	434.1	7:40	4:20	1812.6	571.0	1900.4	1973.4
11:05	12:55	475.4	1312.5	1395.9	476.9	7:35	4:25	1830.6	544.2	1909.8	2000.6
11:00	1:00	517.6	1305.1	1404.0	519.7	7:30	4:30	1847.8	517.1	1918.7	2027.3
10:55	1:05	559.7	1297.2	1412.8	562.3	7:25	4:35	1864.0	489.7	1927.3	2053.5
10:50	1:10	601.4	1288.6	1422.1	604.7	7:20	4:40	1879.4	462.1	1935.4	2079.1
10:45	1:15	642.9	1279.5	1431.9	646.9	7:15	4:45	1893.9	434.3	1943.0	2104.1
10:40	1:20	684.0	1269.7	1442.2	688.9	7:10	4:50	1907.4	406.3	1950.2	2128.6
10:35	1:25	724.9	1259.3	1453.0	730.7	7:05	4:55	1920.1	378.1	1957.0	2152.6
10:30	1:30	765.4	1248.3	1464.3	772.2	7:00	5:00	1931.9	349.7	1963.2	2176.0
10:25	1:35	805.5	1236.8	1475.9	813.6	6:55	5:05	1942.7	321.2	1969.1	2198.9
10:20	1:40	845.2	1224.6	1488.0	854.7	6:50	5:10	1952.6	292.4	1974.4	2221.2
10:15	1:45	884.6	1211.8	1500.3	895.5	6:45	5:15	1961.6	263.6	1979.2	2242.9
10:10	1:50	923.5	1198.5	1513.0	936.0	6:40	5:20	1969.6	234.6	1983.5	2264.1
10:05	1:55	962.0	1184.6	1526.0	976.3	6:35	5:25	1976.7	205.5	1987.4	2284.7
10:00	2:00	1000.0	1170.2	1539.2	1016.3	6:30	5:30	1982.9	176.4	1990.7	2304.8
9:55	2:05	1037.5	1155.1	1552.7	1055.9	6:25	5:35	1988.1	147.1	1993.5	2324.3
9:50	2:10	1074.6	1139.6	1566.3	1095.2	6:20	5:40	1992.4	117.8	1995.9	2343.3
9:45	2:15	1111.1	1123.5	1580.1	1134.2	6:15	5:45	1995.7	88.4	1997.7	2361.7
9:40	2:20	1147.2	1106.8	1594.1	1172.9	6:10	5:50	1998.1	58.9	1999.0	2379.6
9:35	2:25	1182.6	1089.7	1608.1	1211.2	6:05	5:55	1999.5	29.5	1999.7	2396.9
9:30	2:30	1217.5	1072.0	1622.2	1249.1	6:00	6:00	2000.0	0.0	2000.0	2413.6
9:25	2:35	1251.8	1053.8	1636.3	1286.7	5:55	6:05	1999.5	-29.5	1999.7	2429.9
9:20	2:40	1285.6	1035.1	1650.5	1323.9	5:50	6:10	1998.1	-58.9	1999.0	2445.6
9:15	2:45	1318.7	1015.9	1664.6	1360.7	5:45	6:15	1995.7	-88.4	1997.7	2460.7
9:10	2:50	1351.2	996.2	1678.7	1397.0	5:40	6:20	1992.4	-117.8	1995.9	2475.4
9:05	2:55	1383.0	976.0	1692.8	1433.0	5:35	6:25	1988.1	-147.1	1993.5	2489.5
9:00	3:00	1414.2	955.4	1706.7	1468.5	5:30	6:30	1982.9	-176.4	1990.7	2503.0
8:55	3:05	1444.7	934.4	1720.5	1503.7	5:25	6:35	1976.7	-205.5	1987.4	2516.1
8:50	3:10	1474.6	912.8	1734.2	1538.3	5:20	6:40	1969.6	-234.6	1983.5	2528.7
8:45	3:15	1503.7	890.9	1747.8	1572.6	5:15	6:45	1961.6	-263.6	1979.2	2540.7
8:40	3:20	1532.1	868.5	1761.1	1606.3	5:10	6:50	1952.6	-292.4	1974.4	2552.3
8:35	3:25	1559.8	845.7	1774.3	1639.6	5:05	6:55	1942.7	-321.2	1969.1	2563.3
8:30	3:30	1586.7	822.5	1787.2	1672.5	5:00	7:00	1931.9	-349.7	1963.2	2573.9

Analemmatic Sundial**Latitude: 42.5° N/S**

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1351.2 mm
 Sunrise/Sunset Markers: $X = \pm 1023.5$ mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-378.1	1957.0	2584.0
4:50	7:10	1907.4	-406.3	1950.2	2593.7
4:45	7:15	1893.9	-434.3	1943.0	2602.8
4:40	7:20	1879.4	-462.1	1935.4	2611.5
4:35	7:25	1864.0	-489.7	1927.3	2619.8
4:30	7:30	1847.8	-517.1	1918.7	2627.7
4:25	7:35	1830.6	-544.2	1909.8	2635.1
4:20	7:40	1812.6	-571.0	1900.4	2642.1
4:15	7:45	1793.7	-597.6	1890.7	2648.6

Analematic Sundial

Latitude: 42.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1351.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-625.6	-613.8	-610.2	-594.0	-589.2	-569.0	-563.4	-539.3	-532.9	-505.7	-498.5
February	-452.5	-419.5	-410.9	-375.9	-367.1	-330.4	-321.0	-283.2	-273.6	-234.6	-224.6
March	-194.9	-155.0	-144.8	-104.4	-94.3	-53.6	-43.5	-2.6	7.5	48.1	58.2
April	118.6	158.4	168.3	207.2	217.0	255.2	264.5	301.9	311.0	346.9	355.6
May	398.4	431.2	439.0	469.5	476.8	504.9	511.5	537.0	543.1	565.4	570.5
June	598.2	612.6	615.9	626.5	629.0	635.7	636.6	639.0	639.3	634.7	636.9
July	629.0	618.9	615.9	602.4	598.5	580.8	576.1	555.1	549.6	525.6	519.3
August	478.5	448.8	441.3	409.5	401.5	367.9	359.2	324.2	315.3	278.9	269.6
September	213.3	174.8	165.1	125.9	116.0	76.5	66.7	26.8	16.7	-23.4	-33.5
October	-83.5	-123.6	-133.4	-173.2	-182.9	-222.2	-232.0	-270.4	-280.0	-317.5	-326.6
November	-380.5	-415.0	-423.4	-455.9	-463.8	-494.0	-501.1	-528.5	-534.9	-559.2	-565.1
December	-590.4	-607.5	-611.1	-623.5	-626.2	-634.1	-635.7	-639.0	-639.3	-637.8	-636.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	625.6	613.8	610.2	594.0	589.2	569.0	563.4	539.3	532.9	505.7	498.5
February	452.5	419.5	410.9	375.9	367.1	330.4	321.0	283.2	273.6	234.6	224.6
March	194.9	155.0	144.8	104.4	94.3	53.6	43.5	2.6	-7.5	-48.1	-58.2
April	-118.6	-158.4	-168.3	-207.2	-217.0	-255.2	-264.5	-301.9	-311.0	-346.9	-355.6
May	-398.4	-431.2	-439.0	-469.5	-476.8	-504.9	-511.5	-537.0	-543.1	-565.4	-570.5
June	-598.2	-612.6	-615.9	-626.5	-629.0	-635.7	-636.6	-639.0	-639.3	-634.7	-636.9
July	-629.0	-618.9	-615.9	-602.4	-598.5	-580.8	-576.1	-555.1	-549.6	-525.6	-519.3
August	-478.5	-448.8	-441.3	-409.5	-401.5	-367.9	-359.2	-324.2	-315.3	-278.9	-269.6
September	-213.3	-174.8	-165.1	-125.9	-116.0	-76.5	-66.7	-26.8	-16.7	23.4	33.5
October	83.5	123.6	133.4	173.2	182.9	222.2	232.0	270.4	280.0	317.5	326.6
November	380.5	415.0	423.4	455.9	463.8	494.0	501.1	528.5	534.9	559.2	565.1
December	590.4	607.5	611.1	623.5	626.2	634.1	635.7	639.0	639.3	637.8	636.9

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: 42.5° N/S

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1689.0 mm
 Sunrise/Sunset Markers: X = ± 1279.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1689.0	1689.0	0.0						
11:55	12:05	54.5	1688.6	1689.5	54.5	8:25	3:35	2016.1	998.7	2249.9	2131.0
11:50	12:10	109.0	1687.4	1690.9	109.1	8:20	3:40	2047.9	968.8	2265.5	2170.8
11:45	12:15	163.5	1685.4	1693.3	163.5	8:15	3:45	2078.7	938.3	2280.7	2210.1
11:40	12:20	217.9	1682.5	1696.6	218.0	8:10	3:50	2108.5	907.5	2295.5	2248.6
11:35	12:25	272.2	1678.9	1700.9	272.4	8:05	3:55	2137.3	876.2	2309.9	2286.6
11:30	12:30	326.3	1674.5	1706.0	326.6	8:00	4:00	2165.1	844.5	2323.9	2323.9
11:25	12:35	380.3	1669.3	1712.1	380.8	7:55	4:05	2191.8	812.4	2337.5	2360.6
11:20	12:40	434.1	1663.3	1719.0	434.9	7:50	4:10	2217.5	779.9	2350.7	2396.6
11:15	12:45	487.7	1656.5	1726.8	488.8	7:45	4:15	2242.2	747.0	2363.3	2432.0
11:10	12:50	541.1	1648.9	1735.5	542.6	7:40	4:20	2265.8	713.8	2375.5	2466.7
11:05	12:55	594.2	1640.6	1744.9	596.2	7:35	4:25	2288.3	680.2	2387.2	2500.8
11:00	1:00	647.0	1631.4	1755.1	649.6	7:30	4:30	2309.7	646.3	2398.4	2534.1
10:55	1:05	699.6	1621.5	1766.0	702.8	7:25	4:35	2330.0	612.1	2409.1	2566.8
10:50	1:10	751.8	1610.8	1777.6	755.8	7:20	4:40	2349.2	577.7	2419.2	2598.8
10:45	1:15	803.6	1599.3	1789.9	808.6	7:15	4:45	2367.3	542.9	2428.8	2630.2
10:40	1:20	855.1	1587.1	1802.8	861.1	7:10	4:50	2384.3	507.9	2437.8	2660.8
10:35	1:25	906.1	1574.1	1816.3	913.3	7:05	4:55	2400.1	472.6	2446.2	2690.7
10:30	1:30	956.7	1560.4	1830.3	965.3	7:00	5:00	2414.8	437.1	2454.1	2720.0
10:25	1:35	1006.9	1545.9	1844.9	1017.0	6:55	5:05	2428.4	401.4	2461.3	2748.6
10:20	1:40	1056.5	1530.7	1860.0	1068.3	6:50	5:10	2440.7	365.6	2468.0	2776.4
10:15	1:45	1105.7	1514.8	1875.4	1119.4	6:45	5:15	2452.0	329.5	2474.0	2803.6
10:10	1:50	1154.4	1498.1	1891.3	1170.0	6:40	5:20	2462.0	293.3	2479.4	2830.1
10:05	1:55	1202.5	1480.8	1907.5	1220.4	6:35	5:25	2470.9	256.9	2484.2	2855.9
10:00	2:00	1250.0	1462.7	1924.1	1270.3	6:30	5:30	2478.6	220.5	2488.4	2881.0
9:55	2:05	1296.9	1443.9	1940.9	1319.9	6:25	5:35	2485.1	183.9	2491.9	2905.4
9:50	2:10	1343.2	1424.5	1957.9	1369.0	6:20	5:40	2490.5	147.2	2494.8	2929.1
9:45	2:15	1388.9	1404.3	1975.2	1417.8	6:15	5:45	2494.6	110.5	2497.1	2952.1
9:40	2:20	1433.9	1383.5	1992.6	1466.1	6:10	5:50	2497.6	73.7	2498.7	2974.4
9:35	2:25	1478.3	1362.1	2010.1	1514.0	6:05	5:55	2499.4	36.8	2499.7	2996.1
9:30	2:30	1521.9	1340.0	2027.7	1561.4	6:00	6:00	2500.0	0.0	2500.0	3017.1
9:25	2:35	1564.8	1317.2	2045.4	1608.4	5:55	6:05	2499.4	-36.8	2499.7	3037.3
9:20	2:40	1607.0	1293.8	2063.1	1654.8	5:50	6:10	2497.6	-73.7	2498.7	3057.0
9:15	2:45	1648.4	1269.8	2080.8	1700.8	5:45	6:15	2494.6	-110.5	2497.1	3075.9
9:10	2:50	1689.0	1245.2	2098.4	1746.3	5:40	6:20	2490.5	-147.2	2494.8	3094.2
9:05	2:55	1728.8	1220.1	2115.9	1791.2	5:35	6:25	2485.1	-183.9	2491.9	3111.8
9:00	3:00	1767.8	1194.3	2133.4	1835.7	5:30	6:30	2478.6	-220.5	2488.4	3128.8
8:55	3:05	1805.9	1167.9	2150.7	1879.6	5:25	6:35	2470.9	-256.9	2484.2	3145.1
8:50	3:10	1843.2	1141.1	2167.8	1922.9	5:20	6:40	2462.0	-293.3	2479.4	3160.8
8:45	3:15	1879.6	1113.6	2184.7	1965.7	5:15	6:45	2452.0	-329.5	2474.0	3175.9
8:40	3:20	1915.1	1085.7	2201.4	2007.9	5:10	6:50	2440.7	-365.6	2468.0	3190.3
8:35	3:25	1949.7	1057.2	2217.9	2049.5	5:05	6:55	2428.4	-401.4	2461.3	3204.2
8:30	3:30	1983.4	1028.2	2234.0	2090.6	5:00	7:00	2414.8	-437.1	2454.1	3217.4

Analemmatic Sundial**Latitude: 42.5° N/S**

Earliest Sunrise: 4:20 a.m. Latest Sunset: 7:40 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1689.0 mm
 Sunrise/Sunset Markers: $X = \pm 1279.4$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-472.6	2446.2	3230.0
4:50	7:10	2384.3	-507.9	2437.8	3242.1
4:45	7:15	2367.3	-542.9	2428.8	3253.5
4:40	7:20	2349.2	-577.7	2419.2	3264.4
4:35	7:25	2330.0	-612.1	2409.1	3274.8
4:30	7:30	2309.7	-646.3	2398.4	3284.6
4:25	7:35	2288.3	-680.2	2387.2	3293.8
4:20	7:40	2265.8	-713.8	2375.5	3302.6
4:15	7:45	2242.2	-747.0	2363.3	3310.8

Analemmatic Sundial

Latitude: 42.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1689.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-782.0	-767.2	-762.7	-742.5	-736.5	-711.2	-704.2	-674.1	-666.1	-632.1	-623.2
February	-565.6	-524.4	-513.6	-469.8	-458.9	-413.0	-401.2	-353.9	-341.9	-293.3	-280.7
March	-243.6	-193.7	-181.1	-130.5	-117.9	-66.9	-54.4	-3.2	9.3	60.2	72.7
April	148.3	198.0	210.3	259.0	271.2	319.0	330.6	377.3	388.8	433.7	444.6
May	498.0	539.0	548.8	586.8	596.0	631.1	639.3	671.2	678.9	706.8	713.1
June	747.7	765.7	769.9	783.1	786.2	794.6	795.7	798.8	799.1	793.4	796.1
July	786.2	773.7	769.9	752.9	748.1	726.1	720.1	693.9	686.9	657.1	649.1
August	598.2	561.1	551.6	511.9	501.8	459.9	449.0	405.3	394.1	348.6	337.0
September	266.6	218.5	206.4	157.4	145.1	95.6	83.4	33.5	20.9	-29.3	-41.8
October	-104.3	-154.5	-166.8	-216.5	-228.6	-277.8	-290.0	-338.0	-349.9	-396.8	-408.3
November	-475.7	-518.8	-529.2	-569.9	-579.7	-617.4	-626.4	-660.7	-668.7	-699.1	-706.4
December	-738.0	-759.3	-763.9	-779.4	-782.8	-792.7	-794.6	-798.8	-799.1	-797.2	-796.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	782.0	767.2	762.7	742.5	736.5	711.2	704.2	674.1	666.1	632.1	623.2
February	565.6	524.4	513.6	469.8	458.9	413.0	401.2	353.9	341.9	293.3	280.7
March	243.6	193.7	181.1	130.5	117.9	66.9	54.4	3.2	-9.3	-60.2	-72.7
April	-148.3	-198.0	-210.3	-259.0	-271.2	-319.0	-330.6	-377.3	-388.8	-433.7	-444.6
May	-498.0	-539.0	-548.8	-586.8	-596.0	-631.1	-639.3	-671.2	-678.9	-706.8	-713.1
June	-747.7	-765.7	-769.9	-783.1	-786.2	-794.6	-795.7	-798.8	-799.1	-793.4	-796.1
July	-786.2	-773.7	-769.9	-752.9	-748.1	-726.1	-720.1	-693.9	-686.9	-657.1	-649.1
August	-598.2	-561.1	-551.6	-511.9	-501.8	-459.9	-449.0	-405.3	-394.1	-348.6	-337.0
September	-266.6	-218.5	-206.4	-157.4	-145.1	-95.6	-83.4	-33.5	-20.9	29.3	41.8
October	104.3	154.5	166.8	216.5	228.6	277.8	290.0	338.0	349.9	396.8	408.3
November	475.7	518.8	529.2	569.9	579.7	617.4	626.4	660.7	668.7	699.1	706.4
December	738.0	759.3	763.9	779.4	782.8	792.7	794.6	798.8	799.1	797.2	796.1

Southern Hemisphere

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

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

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