

## Analemmatic Sundial

Latitude: 44.0° N/S

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 694.7 mm  
 Sunrise/Sunset Markers: X = ± 483.7 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	694.7	694.7	0.0						
11:55	12:05	21.8	694.5	694.8	21.8	8:25	3:35	806.4	410.8	905.0	855.0
11:50	12:10	43.6	694.0	695.4	43.6	8:20	3:40	819.2	398.4	910.9	871.1
11:45	12:15	65.4	693.2	696.2	65.4	8:15	3:45	831.5	385.9	916.7	886.9
11:40	12:20	87.2	692.0	697.5	87.2	8:10	3:50	843.4	373.2	922.3	902.6
11:35	12:25	108.9	690.5	699.1	108.9	8:05	3:55	854.9	360.4	927.8	917.9
11:30	12:30	130.5	688.7	701.0	130.7	8:00	4:00	866.0	347.3	933.1	933.1
11:25	12:35	152.1	686.6	703.2	152.3	7:55	4:05	876.7	334.1	938.2	948.0
11:20	12:40	173.6	684.1	705.8	174.0	7:50	4:10	887.0	320.8	943.2	962.6
11:15	12:45	195.1	681.3	708.7	195.5	7:45	4:15	896.9	307.2	948.0	977.0
11:10	12:50	216.4	678.2	711.9	217.1	7:40	4:20	906.3	293.6	952.7	991.1
11:05	12:55	237.7	674.8	715.4	238.5	7:35	4:25	915.3	279.8	957.1	1005.0
11:00	1:00	258.8	671.0	719.2	259.9	7:30	4:30	923.9	265.8	961.4	1018.5
10:55	1:05	279.8	666.9	723.2	281.2	7:25	4:35	932.0	251.8	965.4	1031.9
10:50	1:10	300.7	662.5	727.6	302.4	7:20	4:40	939.7	237.6	969.3	1045.0
10:45	1:15	321.4	657.8	732.1	323.5	7:15	4:45	946.9	223.3	972.9	1057.8
10:40	1:20	342.0	652.8	736.9	344.6	7:10	4:50	953.7	208.9	976.3	1070.3
10:35	1:25	362.4	647.4	742.0	365.5	7:05	4:55	960.0	194.4	979.5	1082.6
10:30	1:30	382.7	641.8	747.2	386.3	7:00	5:00	965.9	179.8	982.5	1094.6
10:25	1:35	402.7	635.8	752.7	407.0	6:55	5:05	971.3	165.1	985.3	1106.3
10:20	1:40	422.6	629.6	758.3	427.6	6:50	5:10	976.3	150.4	987.8	1117.8
10:15	1:45	442.3	623.0	764.1	448.1	6:45	5:15	980.8	135.5	990.1	1129.0
10:10	1:50	461.7	616.2	770.0	468.4	6:40	5:20	984.8	120.6	992.2	1139.9
10:05	1:55	481.0	609.0	776.1	488.6	6:35	5:25	988.4	105.7	994.0	1150.5
10:00	2:00	500.0	601.6	782.2	508.6	6:30	5:30	991.4	90.7	995.6	1160.9
9:55	2:05	518.8	593.9	788.5	528.5	6:25	5:35	994.1	75.6	996.9	1171.0
9:50	2:10	537.3	585.9	794.9	548.2	6:20	5:40	996.2	60.5	998.0	1180.9
9:45	2:15	555.6	577.6	801.4	567.8	6:15	5:45	997.9	45.4	998.9	1190.5
9:40	2:20	573.6	569.0	808.0	587.2	6:10	5:50	999.0	30.3	999.5	1199.8
9:35	2:25	591.3	560.2	814.5	606.4	6:05	5:55	999.8	15.2	999.9	1208.8
9:30	2:30	608.8	551.1	821.2	625.5	6:00	6:00	1000.0	0.0	1000.0	1217.6
9:25	2:35	625.9	541.8	827.8	644.3	5:55	6:05	999.8	-15.2	999.9	1226.1
9:20	2:40	642.8	532.1	834.5	663.0	5:50	6:10	999.0	-30.3	999.5	1234.4
9:15	2:45	659.3	522.3	841.1	681.5	5:45	6:15	997.9	-45.4	998.9	1242.4
9:10	2:50	675.6	512.2	847.8	699.8	5:40	6:20	996.2	-60.5	998.0	1250.1
9:05	2:55	691.5	501.8	854.4	717.9	5:35	6:25	994.1	-75.6	996.9	1257.6
9:00	3:00	707.1	491.2	861.0	735.8	5:30	6:30	991.4	-90.7	995.6	1264.8
8:55	3:05	722.4	480.4	867.5	753.5	5:25	6:35	988.4	-105.7	994.0	1271.8
8:50	3:10	737.3	469.3	874.0	770.9	5:20	6:40	984.8	-120.6	992.2	1278.5
8:45	3:15	751.8	458.0	880.4	788.2	5:15	6:45	980.8	-135.5	990.1	1285.0
8:40	3:20	766.0	446.5	886.7	805.2	5:10	6:50	976.3	-150.4	987.8	1291.2
8:35	3:25	779.9	434.8	892.9	822.0	5:05	6:55	971.3	-165.1	985.3	1297.2
8:30	3:30	793.4	422.9	899.0	838.6	5:00	7:00	965.9	-179.8	982.5	1302.9

**Analemmatic Sundial****Latitude: 44.0° N/S**

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 694.7 mm  
 Sunrise/Sunset Markers: X = ± 483.7 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-194.4	979.5	1308.5
4:50	7:10	953.7	-208.9	976.3	1313.8
4:45	7:15	946.9	-223.3	972.9	1318.8
4:40	7:20	939.7	-237.6	969.3	1323.7
4:35	7:25	932.0	-251.8	965.4	1328.3
4:30	7:30	923.9	-265.8	961.4	1332.7
4:25	7:35	915.3	-279.8	957.1	1336.9
4:20	7:40	906.3	-293.6	952.7	1340.9
4:15	7:45	896.9	-307.2	948.0	1344.7

## Analemmatic Sundial

Latitude: 44.0° N/S

## Date Scale

Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 694.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-305.2	-299.4	-297.7	-289.8	-287.4	-277.6	-274.8	-263.1	-260.0	-246.7	-243.2
February	-220.7	-204.6	-200.4	-183.4	-179.1	-161.2	-156.6	-138.1	-133.5	-114.4	-109.6
March	-95.1	-75.6	-70.7	-50.9	-46.0	-26.1	-21.2	-1.3	3.6	23.5	28.4
April	57.9	77.3	82.1	101.1	105.8	124.5	129.0	147.3	151.7	169.2	173.5
May	194.4	210.3	214.2	229.0	232.6	246.3	249.5	262.0	265.0	275.8	278.3
June	291.8	298.8	300.5	305.6	306.8	310.1	310.5	311.7	311.9	309.6	310.7
July	306.8	301.9	300.5	293.9	291.9	283.4	281.0	270.8	268.1	256.4	253.3
August	233.5	219.0	215.3	199.8	195.8	179.5	175.2	158.2	153.8	136.1	131.5
September	104.0	85.3	80.6	61.4	56.6	37.3	32.5	13.1	8.2	-11.4	-16.3
October	-40.7	-60.3	-65.1	-84.5	-89.2	-108.4	-113.2	-131.9	-136.6	-154.9	-159.3
November	-185.6	-202.5	-206.5	-222.4	-226.3	-241.0	-244.5	-257.8	-261.0	-272.8	-275.7
December	-288.0	-296.3	-298.1	-304.2	-305.5	-309.4	-310.1	-311.7	-311.9	-311.1	-310.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	305.2	299.4	297.7	289.8	287.4	277.6	274.8	263.1	260.0	246.7	243.2
February	220.7	204.6	200.4	183.4	179.1	161.2	156.6	138.1	133.5	114.4	109.6
March	95.1	75.6	70.7	50.9	46.0	26.1	21.2	1.3	-3.6	-23.5	-28.4
April	-57.9	-77.3	-82.1	-101.1	-105.8	-124.5	-129.0	-147.3	-151.7	-169.2	-173.5
May	-194.4	-210.3	-214.2	-229.0	-232.6	-246.3	-249.5	-262.0	-265.0	-275.8	-278.3
June	-291.8	-298.8	-300.5	-305.6	-306.8	-310.1	-310.5	-311.7	-311.9	-309.6	-310.7
July	-306.8	-301.9	-300.5	-293.9	-291.9	-283.4	-281.0	-270.8	-268.1	-256.4	-253.3
August	-233.5	-219.0	-215.3	-199.8	-195.8	-179.5	-175.2	-158.2	-153.8	-136.1	-131.5
September	-104.0	-85.3	-80.6	-61.4	-56.6	-37.3	-32.5	-13.1	-8.2	11.4	16.3
October	40.7	60.3	65.1	84.5	89.2	108.4	113.2	131.9	136.6	154.9	159.3
November	185.6	202.5	206.5	222.4	226.3	241.0	244.5	257.8	261.0	272.8	275.7
December	288.0	296.3	298.1	304.2	305.5	309.4	310.1	311.7	311.9	311.1	310.7

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: 44.0° N/S

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1042.0 mm  
 Sunrise/Sunset Markers: X = ± 725.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1042.0	1042.0	0.0						
11:55	12:05	32.7	1041.7	1042.3	32.7	8:25	3:35	1209.7	616.1	1357.5	1282.4
11:50	12:10	65.4	1041.0	1043.0	65.4	8:20	3:40	1228.7	597.7	1366.4	1306.6
11:45	12:15	98.1	1039.8	1044.4	98.1	8:15	3:45	1247.2	578.9	1375.0	1330.4
11:40	12:20	130.7	1038.0	1046.2	130.8	8:10	3:50	1265.1	559.9	1383.4	1353.8
11:35	12:25	163.3	1035.8	1048.6	163.4	8:05	3:55	1282.4	540.6	1391.6	1376.9
11:30	12:30	195.8	1033.1	1051.5	196.0	8:00	4:00	1299.0	521.0	1399.6	1399.6
11:25	12:35	228.2	1029.9	1054.8	228.5	7:55	4:05	1315.1	501.2	1407.4	1421.9
11:20	12:40	260.5	1026.2	1058.7	261.0	7:50	4:10	1330.5	481.1	1414.8	1443.9
11:15	12:45	292.6	1022.0	1063.0	293.3	7:45	4:15	1345.3	460.9	1422.1	1465.5
11:10	12:50	324.7	1017.3	1067.8	325.6	7:40	4:20	1359.5	440.4	1429.0	1486.6
11:05	12:55	356.5	1012.1	1073.1	357.8	7:35	4:25	1373.0	419.7	1435.7	1507.4
11:00	1:00	388.2	1006.5	1078.8	389.8	7:30	4:30	1385.8	398.8	1442.0	1527.8
10:55	1:05	419.7	1000.4	1084.9	421.8	7:25	4:35	1398.0	377.7	1448.1	1547.8
10:50	1:10	451.1	993.8	1091.3	453.6	7:20	4:40	1409.5	356.4	1453.9	1567.4
10:45	1:15	482.2	986.7	1098.2	485.3	7:15	4:45	1420.4	334.9	1459.4	1586.6
10:40	1:20	513.0	979.1	1105.4	516.9	7:10	4:50	1430.6	313.3	1464.5	1605.5
10:35	1:25	543.7	971.1	1113.0	548.3	7:05	4:55	1440.1	291.6	1469.3	1623.9
10:30	1:30	574.0	962.7	1120.8	579.5	7:00	5:00	1448.9	269.7	1473.8	1641.9
10:25	1:35	604.1	953.7	1129.0	610.5	6:55	5:05	1457.0	247.7	1477.9	1659.5
10:20	1:40	633.9	944.4	1137.4	641.4	6:50	5:10	1464.4	225.5	1481.7	1676.7
10:15	1:45	663.4	934.5	1146.1	672.1	6:45	5:15	1471.2	203.3	1485.2	1693.5
10:10	1:50	692.6	924.3	1155.0	702.6	6:40	5:20	1477.2	180.9	1488.3	1709.8
10:05	1:55	721.5	913.5	1164.1	732.8	6:35	5:25	1482.5	158.5	1491.0	1725.8
10:00	2:00	750.0	902.4	1173.4	762.9	6:30	5:30	1487.2	136.0	1493.4	1741.4
9:55	2:05	778.2	890.8	1182.8	792.7	6:25	5:35	1491.1	113.4	1495.4	1756.6
9:50	2:10	805.9	878.8	1192.4	822.3	6:20	5:40	1494.3	90.8	1497.0	1771.3
9:45	2:15	833.4	866.4	1202.1	851.7	6:15	5:45	1496.8	68.1	1498.3	1785.7
9:40	2:20	860.4	853.5	1211.9	880.8	6:10	5:50	1498.6	45.5	1499.3	1799.7
9:35	2:25	887.0	840.3	1221.8	909.6	6:05	5:55	1499.6	22.7	1499.8	1813.2
9:30	2:30	913.1	826.7	1231.7	938.2	6:00	6:00	1500.0	0.0	1500.0	1826.4
9:25	2:35	938.9	812.6	1241.7	966.5	5:55	6:05	1499.6	-22.7	1499.8	1839.2
9:20	2:40	964.2	798.2	1251.7	994.5	5:50	6:10	1498.6	-45.5	1499.3	1851.6
9:15	2:45	989.0	783.4	1261.7	1022.3	5:45	6:15	1496.8	-68.1	1498.3	1863.5
9:10	2:50	1013.4	768.2	1271.7	1049.7	5:40	6:20	1494.3	-90.8	1497.0	1875.1
9:05	2:55	1037.3	752.7	1281.6	1076.9	5:35	6:25	1491.1	-113.4	1495.4	1886.4
9:00	3:00	1060.7	736.8	1291.5	1103.7	5:30	6:30	1487.2	-136.0	1493.4	1897.2
8:55	3:05	1083.5	720.5	1301.3	1130.2	5:25	6:35	1482.5	-158.5	1491.0	1907.6
8:50	3:10	1105.9	704.0	1311.0	1156.4	5:20	6:40	1477.2	-180.9	1488.3	1917.7
8:45	3:15	1127.8	687.0	1320.6	1182.3	5:15	6:45	1471.2	-203.3	1485.2	1927.4
8:40	3:20	1149.1	669.8	1330.0	1207.8	5:10	6:50	1464.4	-225.5	1481.7	1936.8
8:35	3:25	1169.8	652.2	1339.4	1233.1	5:05	6:55	1457.0	-247.7	1477.9	1945.8
8:30	3:30	1190.0	634.3	1348.5	1257.9	5:00	7:00	1448.9	-269.7	1473.8	1954.4

**Analemmatic Sundial****Latitude: 44.0° N/S**

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1042.0 mm

Sunrise/Sunset Markers:  $X = \pm 725.5$  mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-291.6	1469.3	1962.7
4:50	7:10	1430.6	-313.3	1464.5	1970.6
4:45	7:15	1420.4	-334.9	1459.4	1978.2
4:40	7:20	1409.5	-356.4	1453.9	1985.5
4:35	7:25	1398.0	-377.7	1448.1	1992.4
4:30	7:30	1385.8	-398.8	1442.0	1999.1
4:25	7:35	1373.0	-419.7	1435.7	2005.4
4:20	7:40	1359.5	-440.4	1429.0	2011.3
4:15	7:45	1345.3	-460.9	1422.1	2017.0

## Analematic Sundial

Latitude: 44.0° N/S

## Date Scale

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1042.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-457.8	-449.1	-446.5	-434.6	-431.1	-416.4	-412.2	-394.6	-390.0	-370.1	-364.8
February	-331.1	-307.0	-300.7	-275.0	-268.6	-241.8	-234.9	-207.2	-200.2	-171.7	-164.3
March	-142.6	-113.4	-106.0	-76.4	-69.0	-39.2	-31.8	-1.9	5.5	35.2	42.6
April	86.8	115.9	123.1	151.6	158.8	186.8	193.6	220.9	227.6	253.9	260.2
May	291.5	315.5	321.3	343.5	348.9	369.4	374.3	392.9	397.4	413.8	417.4
June	437.7	448.3	450.7	458.5	460.2	465.1	465.8	467.6	467.8	464.5	466.0
July	460.2	452.9	450.7	440.8	437.9	425.0	421.6	406.2	402.1	384.6	380.0
August	350.2	328.4	322.9	299.6	293.8	269.2	262.8	237.2	230.7	204.1	197.3
September	156.1	127.9	120.8	92.1	84.9	56.0	48.8	19.6	12.2	-17.1	-24.5
October	-61.1	-90.4	-97.6	-126.8	-133.8	-162.6	-169.7	-197.8	-204.9	-232.3	-239.0
November	-278.4	-303.7	-309.8	-333.6	-339.4	-361.5	-366.7	-386.8	-391.4	-409.2	-413.5
December	-432.0	-444.5	-447.2	-456.2	-458.2	-464.0	-465.1	-467.6	-467.8	-466.7	-466.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	457.8	449.1	446.5	434.6	431.1	416.4	412.2	394.6	390.0	370.1	364.8
February	331.1	307.0	300.7	275.0	268.6	241.8	234.9	207.2	200.2	171.7	164.3
March	142.6	113.4	106.0	76.4	69.0	39.2	31.8	1.9	-5.5	-35.2	-42.6
April	-86.8	-115.9	-123.1	-151.6	-158.8	-186.8	-193.6	-220.9	-227.6	-253.9	-260.2
May	-291.5	-315.5	-321.3	-343.5	-348.9	-369.4	-374.3	-392.9	-397.4	-413.8	-417.4
June	-437.7	-448.3	-450.7	-458.5	-460.2	-465.1	-465.8	-467.6	-467.8	-464.5	-466.0
July	-460.2	-452.9	-450.7	-440.8	-437.9	-425.0	-421.6	-406.2	-402.1	-384.6	-380.0
August	-350.2	-328.4	-322.9	-299.6	-293.8	-269.2	-262.8	-237.2	-230.7	-204.1	-197.3
September	-156.1	-127.9	-120.8	-92.1	-84.9	-56.0	-48.8	-19.6	-12.2	17.1	24.5
October	61.1	90.4	97.6	126.8	133.8	162.6	169.7	197.8	204.9	232.3	239.0
November	278.4	303.7	309.8	333.6	339.4	361.5	366.7	386.8	391.4	409.2	413.5
December	432.0	444.5	447.2	456.2	458.2	464.0	465.1	467.6	467.8	466.7	466.0

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: 44.0° N/S

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1389.3 mm  
 Sunrise/Sunset Markers: X = ± 967.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1389.3	1389.3	0.0						
11:55	12:05	43.6	1389.0	1389.7	43.6	8:25	3:35	1612.9	821.5	1810.1	1709.9
11:50	12:10	87.2	1388.0	1390.7	87.2	8:20	3:40	1638.3	796.9	1821.8	1742.1
11:45	12:15	130.8	1386.3	1392.5	130.8	8:15	3:45	1662.9	771.9	1833.3	1773.9
11:40	12:20	174.3	1384.0	1395.0	174.4	8:10	3:50	1686.8	746.5	1844.6	1805.1
11:35	12:25	217.7	1381.1	1398.1	217.9	8:05	3:55	1709.8	720.7	1855.5	1835.9
11:30	12:30	261.1	1377.4	1402.0	261.3	8:00	4:00	1732.1	694.7	1866.2	1866.2
11:25	12:35	304.2	1373.1	1406.4	304.7	7:55	4:05	1753.5	668.2	1876.5	1895.9
11:20	12:40	347.3	1368.2	1411.6	347.9	7:50	4:10	1774.0	641.5	1886.5	1925.2
11:15	12:45	390.2	1362.6	1417.4	391.1	7:45	4:15	1793.7	614.5	1896.1	1953.9
11:10	12:50	432.9	1356.4	1423.8	434.1	7:40	4:20	1812.6	587.2	1905.3	1982.2
11:05	12:55	475.4	1349.5	1430.8	477.0	7:35	4:25	1830.6	559.5	1914.2	2009.9
11:00	1:00	517.6	1342.0	1438.4	519.8	7:30	4:30	1847.8	531.7	1922.7	2037.1
10:55	1:05	559.7	1333.8	1446.5	562.4	7:25	4:35	1864.0	503.5	1930.8	2063.8
10:50	1:10	601.4	1325.0	1455.1	604.8	7:20	4:40	1879.4	475.2	1938.5	2089.9
10:45	1:15	642.9	1315.6	1464.3	647.1	7:15	4:45	1893.9	446.6	1945.8	2115.5
10:40	1:20	684.0	1305.5	1473.9	689.2	7:10	4:50	1907.4	417.8	1952.6	2140.6
10:35	1:25	724.9	1294.9	1483.9	731.0	7:05	4:55	1920.1	388.8	1959.1	2165.1
10:30	1:30	765.4	1283.6	1494.4	772.6	7:00	5:00	1931.9	359.6	1965.0	2189.2
10:25	1:35	805.5	1271.7	1505.3	814.0	6:55	5:05	1942.7	330.2	1970.6	2212.6
10:20	1:40	845.2	1259.1	1516.5	855.2	6:50	5:10	1952.6	300.7	1975.6	2235.6
10:15	1:45	884.6	1246.0	1528.1	896.1	6:45	5:15	1961.6	271.0	1980.2	2257.9
10:10	1:50	923.5	1232.3	1540.0	936.7	6:40	5:20	1969.6	241.3	1984.3	2279.8
10:05	1:55	962.0	1218.1	1552.1	977.1	6:35	5:25	1976.7	211.3	1988.0	2301.1
10:00	2:00	1000.0	1203.2	1564.5	1017.2	6:30	5:30	1982.9	181.3	1991.2	2321.9
9:55	2:05	1037.5	1187.7	1577.1	1056.9	6:25	5:35	1988.1	151.3	1993.9	2342.1
9:50	2:10	1074.6	1171.7	1589.9	1096.4	6:20	5:40	1992.4	121.1	1996.1	2361.8
9:45	2:15	1111.1	1155.2	1602.8	1135.5	6:15	5:45	1995.7	90.9	1997.8	2380.9
9:40	2:20	1147.2	1138.1	1615.9	1174.3	6:10	5:50	1998.1	60.6	1999.0	2399.6
9:35	2:25	1182.6	1120.4	1629.1	1212.8	6:05	5:55	1999.5	30.3	1999.8	2417.6
9:30	2:30	1217.5	1102.2	1642.3	1250.9	6:00	6:00	2000.0	0.0	2000.0	2435.2
9:25	2:35	1251.8	1083.5	1655.6	1288.7	5:55	6:05	1999.5	-30.3	1999.8	2452.2
9:20	2:40	1285.6	1064.3	1668.9	1326.0	5:50	6:10	1998.1	-60.6	1999.0	2468.7
9:15	2:45	1318.7	1044.5	1682.3	1363.0	5:45	6:15	1995.7	-90.9	1997.8	2484.7
9:10	2:50	1351.2	1024.3	1695.6	1399.6	5:40	6:20	1992.4	-121.1	1996.1	2500.2
9:05	2:55	1383.0	1003.6	1708.8	1435.8	5:35	6:25	1988.1	-151.3	1993.9	2515.1
9:00	3:00	1414.2	982.4	1721.9	1471.6	5:30	6:30	1982.9	-181.3	1991.2	2529.6
8:55	3:05	1444.7	960.7	1735.0	1507.0	5:25	6:35	1976.7	-211.3	1988.0	2543.5
8:50	3:10	1474.6	938.6	1747.9	1541.9	5:20	6:40	1969.6	-241.3	1984.3	2557.0
8:45	3:15	1503.7	916.0	1760.7	1576.4	5:15	6:45	1961.6	-271.0	1980.2	2569.9
8:40	3:20	1532.1	893.0	1773.4	1610.5	5:10	6:50	1952.6	-300.7	1975.6	2582.4
8:35	3:25	1559.8	869.6	1785.8	1644.1	5:05	6:55	1942.7	-330.2	1970.6	2594.4
8:30	3:30	1586.7	845.8	1798.0	1677.2	5:00	7:00	1931.9	-359.6	1965.0	2605.9

**Analemmatic Sundial****Latitude: 44.0° N/S**

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1389.3 mm

Sunrise/Sunset Markers: X = ± 967.4 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-388.8	1959.1	2616.9
4:50	7:10	1907.4	-417.8	1952.6	2627.5
4:45	7:15	1893.9	-446.6	1945.8	2637.7
4:40	7:20	1879.4	-475.2	1938.5	2647.3
4:35	7:25	1864.0	-503.5	1930.8	2656.6
4:30	7:30	1847.8	-531.7	1922.7	2665.4
4:25	7:35	1830.6	-559.5	1914.2	2673.8
4:20	7:40	1812.6	-587.2	1905.3	2681.8
4:15	7:45	1793.7	-614.5	1896.1	2689.4

## Analematic Sundial

Latitude: 44.0° N/S

## Date Scale

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1389.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-610.4	-598.9	-595.3	-579.5	-574.8	-555.1	-549.7	-526.2	-519.9	-493.4	-486.4
February	-441.5	-409.3	-400.9	-366.7	-358.2	-322.4	-313.2	-276.3	-266.9	-228.9	-219.1
March	-190.2	-151.2	-141.3	-101.9	-92.0	-52.3	-42.4	-2.5	7.3	47.0	56.8
April	115.8	154.5	164.2	202.2	211.7	249.0	258.1	294.5	303.4	338.5	347.0
May	388.7	420.7	428.3	458.0	465.2	492.6	499.0	523.9	529.9	551.7	556.6
June	583.6	597.7	600.9	611.3	613.6	620.2	621.1	623.5	623.8	619.3	621.4
July	613.6	603.9	600.9	587.7	583.9	566.7	562.1	541.6	536.2	512.9	506.6
August	466.9	437.9	430.5	399.5	391.7	359.0	350.4	316.3	307.6	272.1	263.0
September	208.1	170.5	161.1	122.8	113.2	74.6	65.1	26.1	16.3	-22.9	-32.6
October	-81.4	-120.6	-130.2	-169.0	-178.4	-216.8	-226.3	-263.8	-273.1	-309.7	-318.7
November	-371.3	-404.9	-413.1	-444.8	-452.5	-481.9	-488.9	-515.7	-521.9	-545.6	-551.4
December	-576.0	-592.7	-596.2	-608.3	-611.0	-618.7	-620.2	-623.5	-623.8	-622.3	-621.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	610.4	598.9	595.3	579.5	574.8	555.1	549.7	526.2	519.9	493.4	486.4
February	441.5	409.3	400.9	366.7	358.2	322.4	313.2	276.3	266.9	228.9	219.1
March	190.2	151.2	141.3	101.9	92.0	52.3	42.4	2.5	-7.3	-47.0	-56.8
April	-115.8	-154.5	-164.2	-202.2	-211.7	-249.0	-258.1	-294.5	-303.4	-338.5	-347.0
May	-388.7	-420.7	-428.3	-458.0	-465.2	-492.6	-499.0	-523.9	-529.9	-551.7	-556.6
June	-583.6	-597.7	-600.9	-611.3	-613.6	-620.2	-621.1	-623.5	-623.8	-619.3	-621.4
July	-613.6	-603.9	-600.9	-587.7	-583.9	-566.7	-562.1	-541.6	-536.2	-512.9	-506.6
August	-466.9	-437.9	-430.5	-399.5	-391.7	-359.0	-350.4	-316.3	-307.6	-272.1	-263.0
September	-208.1	-170.5	-161.1	-122.8	-113.2	-74.6	-65.1	-26.1	-16.3	22.9	32.6
October	81.4	120.6	130.2	169.0	178.4	216.8	226.3	263.8	273.1	309.7	318.7
November	371.3	404.9	413.1	444.8	452.5	481.9	488.9	515.7	521.9	545.6	551.4
December	576.0	592.7	596.2	608.3	611.0	618.7	620.2	623.5	623.8	622.3	621.4

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: 44.0° N/S

Earliest Sunrise: 4:15 a.m. Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1736.6 mm  
 Sunrise/Sunset Markers: X = ± 1209.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1736.6	1736.6	0.0						
11:55	12:05	54.5	1736.2	1737.1	54.5	8:25	3:35	2016.1	1026.9	2262.6	2137.4
11:50	12:10	109.0	1735.0	1738.4	109.1	8:20	3:40	2047.9	996.1	2277.3	2177.7
11:45	12:15	163.5	1732.9	1740.6	163.6	8:15	3:45	2078.7	964.8	2291.7	2217.3
11:40	12:20	217.9	1730.0	1743.7	218.0	8:10	3:50	2108.5	933.1	2305.7	2256.4
11:35	12:25	272.2	1726.3	1747.6	272.4	8:05	3:55	2137.3	900.9	2319.4	2294.9
11:30	12:30	326.3	1721.8	1752.4	326.7	8:00	4:00	2165.1	868.3	2332.7	2332.7
11:25	12:35	380.3	1716.4	1758.1	380.8	7:55	4:05	2191.8	835.3	2345.6	2369.9
11:20	12:40	434.1	1710.3	1764.5	434.9	7:50	4:10	2217.5	801.9	2358.1	2406.5
11:15	12:45	487.7	1703.3	1771.7	488.9	7:45	4:15	2242.2	768.1	2370.1	2442.4
11:10	12:50	541.1	1695.5	1779.7	542.7	7:40	4:20	2265.8	733.9	2381.7	2477.7
11:05	12:55	594.2	1686.9	1788.5	596.3	7:35	4:25	2288.3	699.4	2392.8	2512.4
11:00	1:00	647.0	1677.5	1797.9	649.7	7:30	4:30	2309.7	664.6	2403.4	2546.4
10:55	1:05	699.6	1667.3	1808.1	703.0	7:25	4:35	2330.0	629.4	2413.5	2579.7
10:50	1:10	751.8	1656.3	1818.9	756.0	7:20	4:40	2349.2	594.0	2423.2	2612.4
10:45	1:15	803.6	1644.5	1830.3	808.9	7:15	4:45	2367.3	558.2	2432.3	2644.4
10:40	1:20	855.1	1631.9	1842.3	861.4	7:10	4:50	2384.3	522.2	2440.8	2675.8
10:35	1:25	906.1	1618.6	1854.9	913.8	7:05	4:55	2400.1	486.0	2448.8	2706.4
10:30	1:30	956.7	1604.5	1868.0	965.8	7:00	5:00	2414.8	449.5	2456.3	2736.4
10:25	1:35	1006.9	1589.6	1881.6	1017.6	6:55	5:05	2428.4	412.8	2463.2	2765.8
10:20	1:40	1056.5	1573.9	1895.7	1069.0	6:50	5:10	2440.7	375.9	2469.5	2794.4
10:15	1:45	1105.7	1557.6	1910.1	1120.1	6:45	5:15	2452.0	338.8	2475.3	2822.4
10:10	1:50	1154.4	1540.4	1925.0	1170.9	6:40	5:20	2462.0	301.6	2480.4	2849.7
10:05	1:55	1202.5	1522.6	1940.1	1221.4	6:35	5:25	2470.9	264.2	2485.0	2876.4
10:00	2:00	1250.0	1504.0	1955.6	1271.5	6:30	5:30	2478.6	226.7	2489.0	2902.3
9:55	2:05	1296.9	1484.7	1971.4	1321.2	6:25	5:35	2485.1	189.1	2492.3	2927.6
9:50	2:10	1343.2	1464.7	1987.4	1370.5	6:20	5:40	2490.5	151.4	2495.1	2952.2
9:45	2:15	1388.9	1444.0	2003.5	1419.4	6:15	5:45	2494.6	113.6	2497.2	2976.2
9:40	2:20	1433.9	1422.6	2019.9	1467.9	6:10	5:50	2497.6	75.8	2498.8	2999.4
9:35	2:25	1478.3	1400.5	2036.3	1516.0	6:05	5:55	2499.4	37.9	2499.7	3022.1
9:30	2:30	1521.9	1377.8	2052.9	1563.6	6:00	6:00	2500.0	0.0	2500.0	3044.0
9:25	2:35	1564.8	1354.4	2069.5	1610.8	5:55	6:05	2499.4	-37.9	2499.7	3065.3
9:20	2:40	1607.0	1330.3	2086.2	1657.5	5:50	6:10	2497.6	-75.8	2498.8	3085.9
9:15	2:45	1648.4	1305.7	2102.8	1703.8	5:45	6:15	2494.6	-113.6	2497.2	3105.9
9:10	2:50	1689.0	1280.4	2119.4	1749.5	5:40	6:20	2490.5	-151.4	2495.1	3125.2
9:05	2:55	1728.8	1254.5	2136.0	1794.8	5:35	6:25	2485.1	-189.1	2492.3	3143.9
9:00	3:00	1767.8	1228.0	2152.4	1839.5	5:30	6:30	2478.6	-226.7	2489.0	3162.0
8:55	3:05	1805.9	1200.9	2168.8	1883.7	5:25	6:35	2470.9	-264.2	2485.0	3179.4
8:50	3:10	1843.2	1173.3	2184.9	1927.4	5:20	6:40	2462.0	-301.6	2480.4	3196.2
8:45	3:15	1879.6	1145.1	2200.9	1970.5	5:15	6:45	2452.0	-338.8	2475.3	3212.4
8:40	3:20	1915.1	1116.3	2216.7	2013.1	5:10	6:50	2440.7	-375.9	2469.5	3228.0
8:35	3:25	1949.7	1087.0	2232.3	2055.1	5:05	6:55	2428.4	-412.8	2463.2	3243.0
8:30	3:30	1983.4	1057.2	2247.6	2096.5	5:00	7:00	2414.8	-449.5	2456.3	3257.4

**Analemmatic Sundial****Latitude: 44.0° N/S**

Earliest Sunrise: 4:15 a.m.    Latest Sunset: 7:45 p.m.  
 Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1736.6 mm  
 Sunrise/Sunset Markers:  $X = \pm 1209.2$  mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-486.0	2448.8	3271.2
4:50	7:10	2384.3	-522.2	2440.8	3284.4
4:45	7:15	2367.3	-558.2	2432.3	3297.1
4:40	7:20	2349.2	-594.0	2423.2	3309.2
4:35	7:25	2330.0	-629.4	2413.5	3320.7
4:30	7:30	2309.7	-664.6	2403.4	3331.8
4:25	7:35	2288.3	-699.4	2392.8	3342.3
4:20	7:40	2265.8	-733.9	2381.7	3352.2
4:15	7:45	2242.2	-768.1	2370.1	3361.7

**Analematic Sundial**

Latitude: 44.0° N/S

**Date Scale**

Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1736.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-763.0	-748.6	-744.2	-724.4	-718.6	-693.9	-687.1	-657.7	-649.9	-616.8	-608.0
February	-551.9	-511.6	-501.1	-458.4	-447.7	-403.0	-391.4	-345.3	-333.6	-286.1	-273.9
March	-237.7	-189.0	-176.6	-127.3	-115.0	-65.3	-53.1	-3.1	9.1	58.7	71.0
April	144.7	193.1	205.2	252.7	264.6	311.3	322.6	368.2	379.3	423.1	433.7
May	485.9	525.9	535.4	572.5	581.5	615.7	623.8	654.9	662.4	689.6	695.7
June	729.5	747.1	751.2	764.1	767.1	775.2	776.4	779.3	779.7	774.1	776.7
July	767.1	754.8	751.2	734.6	729.9	708.4	702.6	677.0	670.2	641.1	633.3
August	583.6	547.4	538.2	499.4	489.6	448.7	438.1	395.4	384.5	340.1	328.8
September	260.1	213.2	201.4	153.5	141.5	93.3	81.3	32.6	20.4	-28.6	-40.8
October	-101.8	-150.7	-162.7	-211.3	-223.0	-271.0	-282.9	-329.7	-341.4	-387.2	-398.4
November	-464.1	-506.2	-516.3	-556.0	-565.6	-602.4	-611.2	-644.6	-652.4	-682.1	-689.2
December	-720.0	-740.9	-745.3	-760.4	-763.7	-773.4	-775.2	-779.3	-779.7	-777.8	-776.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	763.0	748.6	744.2	724.4	718.6	693.9	687.1	657.7	649.9	616.8	608.0
February	551.9	511.6	501.1	458.4	447.7	403.0	391.4	345.3	333.6	286.1	273.9
March	237.7	189.0	176.6	127.3	115.0	65.3	53.1	3.1	-9.1	-58.7	-71.0
April	-144.7	-193.1	-205.2	-252.7	-264.6	-311.3	-322.6	-368.2	-379.3	-423.1	-433.7
May	-485.9	-525.9	-535.4	-572.5	-581.5	-615.7	-623.8	-654.9	-662.4	-689.6	-695.7
June	-729.5	-747.1	-751.2	-764.1	-767.1	-775.2	-776.4	-779.3	-779.7	-774.1	-776.7
July	-767.1	-754.8	-751.2	-734.6	-729.9	-708.4	-702.6	-677.0	-670.2	-641.1	-633.3
August	-583.6	-547.4	-538.2	-499.4	-489.6	-448.7	-438.1	-395.4	-384.5	-340.1	-328.8
September	-260.1	-213.2	-201.4	-153.5	-141.5	-93.3	-81.3	-32.6	-20.4	28.6	40.8
October	101.8	150.7	162.7	211.3	223.0	271.0	282.9	329.7	341.4	387.2	398.4
November	464.1	506.2	516.3	556.0	565.6	602.4	611.2	644.6	652.4	682.1	689.2
December	720.0	740.9	745.3	760.4	763.7	773.4	775.2	779.3	779.7	777.8	776.7

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