

Analemmatic Sundial

Latitude: 44.5° N/S

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 700.9 mm
 Sunrise/Sunset Markers: X = ± 474.3 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	700.9	700.9	0.0						
11:55	12:05	21.8	700.7	701.1	21.8	8:25	3:35	806.4	414.5	906.7	855.8
11:50	12:10	43.6	700.2	701.6	43.6	8:20	3:40	819.2	402.0	912.5	872.0
11:45	12:15	65.4	699.4	702.5	65.4	8:15	3:45	831.5	389.4	918.1	887.9
11:40	12:20	87.2	698.2	703.7	87.2	8:10	3:50	843.4	376.6	923.7	903.6
11:35	12:25	108.9	696.7	705.2	108.9	8:05	3:55	854.9	363.6	929.0	919.0
11:30	12:30	130.5	694.9	707.1	130.7	8:00	4:00	866.0	350.5	934.2	934.2
11:25	12:35	152.1	692.8	709.3	152.3	7:55	4:05	876.7	337.1	939.3	949.2
11:20	12:40	173.6	690.3	711.8	174.0	7:50	4:10	887.0	323.6	944.2	963.9
11:15	12:45	195.1	687.4	714.6	195.6	7:45	4:15	896.9	310.0	948.9	978.4
11:10	12:50	216.4	684.3	717.7	217.1	7:40	4:20	906.3	296.2	953.5	992.6
11:05	12:55	237.7	680.8	721.1	238.5	7:35	4:25	915.3	282.3	957.9	1006.5
11:00	1:00	258.8	677.0	724.8	259.9	7:30	4:30	923.9	268.2	962.0	1020.2
10:55	1:05	279.8	672.9	728.8	281.2	7:25	4:35	932.0	254.0	966.0	1033.6
10:50	1:10	300.7	668.5	733.0	302.5	7:20	4:40	939.7	239.7	969.8	1046.8
10:45	1:15	321.4	663.7	737.5	323.6	7:15	4:45	946.9	225.3	973.4	1059.7
10:40	1:20	342.0	658.6	742.1	344.6	7:10	4:50	953.7	210.8	976.7	1072.3
10:35	1:25	362.4	653.3	747.1	365.6	7:05	4:55	960.0	196.1	979.9	1084.7
10:30	1:30	382.7	647.6	752.2	386.4	7:00	5:00	965.9	181.4	982.8	1096.8
10:25	1:35	402.7	641.6	757.5	407.1	6:55	5:05	971.3	166.6	985.5	1108.6
10:20	1:40	422.6	635.2	763.0	427.7	6:50	5:10	976.3	151.7	988.0	1120.2
10:15	1:45	442.3	628.6	768.6	448.2	6:45	5:15	980.8	136.7	990.3	1131.5
10:10	1:50	461.7	621.7	774.4	468.5	6:40	5:20	984.8	121.7	992.3	1142.5
10:05	1:55	481.0	614.5	780.4	488.7	6:35	5:25	988.4	106.6	994.1	1153.3
10:00	2:00	500.0	607.0	786.4	508.7	6:30	5:30	991.4	91.5	995.7	1163.8
9:55	2:05	518.8	599.2	792.6	528.6	6:25	5:35	994.1	76.3	997.0	1174.0
9:50	2:10	537.3	591.1	798.8	548.4	6:20	5:40	996.2	61.1	998.1	1184.0
9:45	2:15	555.6	582.8	805.2	568.0	6:15	5:45	997.9	45.8	998.9	1193.7
9:40	2:20	573.6	574.2	811.6	587.4	6:10	5:50	999.0	30.6	999.5	1203.1
9:35	2:25	591.3	565.2	818.0	606.7	6:05	5:55	999.8	15.3	999.9	1212.3
9:30	2:30	608.8	556.1	824.5	625.8	6:00	6:00	1000.0	0.0	1000.0	1221.2
9:25	2:35	625.9	546.6	831.0	644.7	5:55	6:05	999.8	-15.3	999.9	1229.8
9:20	2:40	642.8	536.9	837.5	663.4	5:50	6:10	999.0	-30.6	999.5	1238.2
9:15	2:45	659.3	527.0	844.1	681.9	5:45	6:15	997.9	-45.8	998.9	1246.3
9:10	2:50	675.6	516.8	850.6	700.2	5:40	6:20	996.2	-61.1	998.1	1254.2
9:05	2:55	691.5	506.3	857.1	718.4	5:35	6:25	994.1	-76.3	997.0	1261.8
9:00	3:00	707.1	495.6	863.5	736.3	5:30	6:30	991.4	-91.5	995.7	1269.2
8:55	3:05	722.4	484.7	869.9	754.0	5:25	6:35	988.4	-106.6	994.1	1276.3
8:50	3:10	737.3	473.5	876.2	771.5	5:20	6:40	984.8	-121.7	992.3	1283.2
8:45	3:15	751.8	462.1	882.5	788.8	5:15	6:45	980.8	-136.7	990.3	1289.8
8:40	3:20	766.0	450.5	888.7	805.9	5:10	6:50	976.3	-151.7	988.0	1296.2
8:35	3:25	779.9	438.7	894.8	822.8	5:05	6:55	971.3	-166.6	985.5	1302.3
8:30	3:30	793.4	426.7	900.8	839.4	5:00	7:00	965.9	-181.4	982.8	1308.2

Analemmatic Sundial**Latitude: 44.5° N/S**

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 700.9 mm
 Sunrise/Sunset Markers: $X = \pm 474.3$ mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-196.1	979.9	1313.9
4:50	7:10	953.7	-210.8	976.7	1319.4
4:45	7:15	946.9	-225.3	973.4	1324.6
4:40	7:20	939.7	-239.7	969.8	1329.6
4:35	7:25	932.0	-254.0	966.0	1334.4
4:30	7:30	923.9	-268.2	962.0	1338.9
4:25	7:35	915.3	-282.3	957.9	1343.3
4:20	7:40	906.3	-296.2	953.5	1347.5
4:15	7:45	896.9	-310.0	948.9	1351.4
4:10	7:50	887.0	-323.6	944.2	1355.2
4:05	7:55	876.7	-337.1	939.3	1358.7
4:00	8:00	866.0	-350.5	934.2	1362.1

Analemmatic Sundial

Latitude: 44.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 700.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-302.6	-296.9	-295.1	-287.3	-285.0	-275.2	-272.5	-260.9	-257.8	-244.6	-241.1
February	-218.9	-202.9	-198.7	-181.8	-177.6	-159.8	-155.3	-137.0	-132.3	-113.5	-108.6
March	-94.3	-75.0	-70.1	-50.5	-45.6	-25.9	-21.0	-1.2	3.6	23.3	28.1
April	57.4	76.6	81.4	100.2	104.9	123.5	127.9	146.0	150.4	167.8	172.0
May	192.7	208.6	212.4	227.1	230.6	244.2	247.4	259.7	262.7	273.5	275.9
June	289.3	296.3	297.9	303.1	304.2	307.5	307.9	309.1	309.2	307.0	308.1
July	304.2	299.4	297.9	291.4	289.5	281.0	278.7	268.5	265.8	254.3	251.2
August	231.5	217.1	213.4	198.1	194.2	178.0	173.7	156.8	152.5	134.9	130.4
September	103.2	84.5	79.9	60.9	56.1	37.0	32.3	12.9	8.1	-11.3	-16.2
October	-40.4	-59.8	-64.5	-83.8	-88.5	-107.5	-112.2	-130.8	-135.4	-153.6	-158.0
November	-184.1	-200.8	-204.8	-220.5	-224.3	-238.9	-242.4	-255.7	-258.8	-270.5	-273.4
December	-285.6	-293.8	-295.6	-301.6	-302.9	-306.7	-307.5	-309.1	-309.2	-308.5	-308.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	302.6	296.9	295.1	287.3	285.0	275.2	272.5	260.9	257.8	244.6	241.1
February	218.9	202.9	198.7	181.8	177.6	159.8	155.3	137.0	132.3	113.5	108.6
March	94.3	75.0	70.1	50.5	45.6	25.9	21.0	1.2	-3.6	-23.3	-28.1
April	-57.4	-76.6	-81.4	-100.2	-104.9	-123.5	-127.9	-146.0	-150.4	-167.8	-172.0
May	-192.7	-208.6	-212.4	-227.1	-230.6	-244.2	-247.4	-259.7	-262.7	-273.5	-275.9
June	-289.3	-296.3	-297.9	-303.1	-304.2	-307.5	-307.9	-309.1	-309.2	-307.0	-308.1
July	-304.2	-299.4	-297.9	-291.4	-289.5	-281.0	-278.7	-268.5	-265.8	-254.3	-251.2
August	-231.5	-217.1	-213.4	-198.1	-194.2	-178.0	-173.7	-156.8	-152.5	-134.9	-130.4
September	-103.2	-84.5	-79.9	-60.9	-56.1	-37.0	-32.3	-12.9	-8.1	11.3	16.2
October	40.4	59.8	64.5	83.8	88.5	107.5	112.2	130.8	135.4	153.6	158.0
November	184.1	200.8	204.8	220.5	224.3	238.9	242.4	255.7	258.8	270.5	273.4
December	285.6	293.8	295.6	301.6	302.9	306.7	307.5	309.1	309.2	308.5	308.1

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 |

Analemmatic Sundial

Latitude: 44.5° N/S

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1051.4 mm
 Sunrise/Sunset Markers: X = ± 711.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1051.4	1051.4	0.0						
11:55	12:05	32.7	1051.1	1051.6	32.7	8:25	3:35	1209.7	621.7	1360.1	1283.7
11:50	12:10	65.4	1050.4	1052.4	65.4	8:20	3:40	1228.7	603.0	1368.7	1308.0
11:45	12:15	98.1	1049.1	1053.7	98.1	8:15	3:45	1247.2	584.1	1377.2	1331.9
11:40	12:20	130.7	1047.4	1055.5	130.8	8:10	3:50	1265.1	564.9	1385.5	1355.4
11:35	12:25	163.3	1045.1	1057.8	163.4	8:05	3:55	1282.4	545.4	1393.5	1378.6
11:30	12:30	195.8	1042.4	1060.6	196.0	8:00	4:00	1299.0	525.7	1401.4	1401.4
11:25	12:35	228.2	1039.1	1063.9	228.5	7:55	4:05	1315.1	505.7	1409.0	1423.8
11:20	12:40	260.5	1035.4	1067.7	261.0	7:50	4:10	1330.5	485.5	1416.3	1445.9
11:15	12:45	292.6	1031.2	1071.9	293.3	7:45	4:15	1345.3	465.0	1423.4	1467.5
11:10	12:50	324.7	1026.4	1076.6	325.6	7:40	4:20	1359.5	444.3	1430.2	1488.8
11:05	12:55	356.5	1021.2	1081.7	357.8	7:35	4:25	1373.0	423.4	1436.8	1509.7
11:00	1:00	388.2	1015.5	1087.2	389.9	7:30	4:30	1385.8	402.3	1443.0	1530.3
10:55	1:05	419.7	1009.4	1093.2	421.8	7:25	4:35	1398.0	381.1	1449.0	1550.4
10:50	1:10	451.1	1002.7	1099.5	453.7	7:20	4:40	1409.5	359.6	1454.7	1570.1
10:45	1:15	482.2	995.6	1106.2	485.4	7:15	4:45	1420.4	337.9	1460.0	1589.5
10:40	1:20	513.0	988.0	1113.2	516.9	7:10	4:50	1430.6	316.2	1465.1	1608.4
10:35	1:25	543.7	979.9	1120.6	548.3	7:05	4:55	1440.1	294.2	1469.8	1627.0
10:30	1:30	574.0	971.3	1128.3	579.6	7:00	5:00	1448.9	272.1	1474.2	1645.1
10:25	1:35	604.1	962.3	1136.2	610.6	6:55	5:05	1457.0	249.9	1478.3	1662.9
10:20	1:40	633.9	952.9	1144.5	641.5	6:50	5:10	1464.4	227.6	1482.0	1680.3
10:15	1:45	663.4	942.9	1152.9	672.2	6:45	5:15	1471.2	205.1	1485.4	1697.2
10:10	1:50	692.6	932.6	1161.6	702.7	6:40	5:20	1477.2	182.6	1488.5	1713.8
10:05	1:55	721.5	921.8	1170.5	733.0	6:35	5:25	1482.5	159.9	1491.1	1729.9
10:00	2:00	750.0	910.5	1179.6	763.1	6:30	5:30	1487.2	137.2	1493.5	1745.7
9:55	2:05	778.2	898.8	1188.9	793.0	6:25	5:35	1491.1	114.5	1495.5	1761.0
9:50	2:10	805.9	886.7	1198.3	822.6	6:20	5:40	1494.3	91.6	1497.1	1775.9
9:45	2:15	833.4	874.2	1207.8	852.0	6:15	5:45	1496.8	68.8	1498.4	1790.5
9:40	2:20	860.4	861.2	1217.3	881.1	6:10	5:50	1498.6	45.9	1499.3	1804.6
9:35	2:25	887.0	847.9	1227.0	910.0	6:05	5:55	1499.6	22.9	1499.8	1818.4
9:30	2:30	913.1	834.1	1236.8	938.6	6:00	6:00	1500.0	0.0	1500.0	1831.8
9:25	2:35	938.9	819.9	1246.5	967.0	5:55	6:05	1499.6	-22.9	1499.8	1844.7
9:20	2:40	964.2	805.4	1256.3	995.1	5:50	6:10	1498.6	-45.9	1499.3	1857.3
9:15	2:45	989.0	790.5	1266.1	1022.9	5:45	6:15	1496.8	-68.8	1498.4	1869.5
9:10	2:50	1013.4	775.1	1275.9	1050.4	5:40	6:20	1494.3	-91.6	1497.1	1881.3
9:05	2:55	1037.3	759.5	1285.6	1077.6	5:35	6:25	1491.1	-114.5	1495.5	1892.7
9:00	3:00	1060.7	743.4	1295.3	1104.5	5:30	6:30	1487.2	-137.2	1493.5	1903.8
8:55	3:05	1083.5	727.0	1304.9	1131.0	5:25	6:35	1482.5	-159.9	1491.1	1914.5
8:50	3:10	1105.9	710.3	1314.4	1157.3	5:20	6:40	1477.2	-182.6	1488.5	1924.8
8:45	3:15	1127.8	693.2	1323.8	1183.3	5:15	6:45	1471.2	-205.1	1485.4	1934.7
8:40	3:20	1149.1	675.8	1333.1	1208.9	5:10	6:50	1464.4	-227.6	1482.0	1944.3
8:35	3:25	1169.8	658.1	1342.2	1234.2	5:05	6:55	1457.0	-249.9	1478.3	1953.5
8:30	3:30	1190.0	640.0	1351.2	1259.1	5:00	7:00	1448.9	-272.1	1474.2	1962.4

Analemmatic Sundial**Latitude: 44.5° N/S**

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1051.4 mm
 Sunrise/Sunset Markers: $X = \pm 711.5$ mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-294.2	1469.8	1970.9
4:50	7:10	1430.6	-316.2	1465.1	1979.1
4:45	7:15	1420.4	-337.9	1460.0	1986.9
4:40	7:20	1409.5	-359.6	1454.7	1994.4
4:35	7:25	1398.0	-381.1	1449.0	2001.6
4:30	7:30	1385.8	-402.3	1443.0	2008.4
4:25	7:35	1373.0	-423.4	1436.8	2015.0
4:20	7:40	1359.5	-444.3	1430.2	2021.2
4:15	7:45	1345.3	-465.0	1423.4	2027.1
4:10	7:50	1330.5	-485.5	1416.3	2032.8
4:05	7:55	1315.1	-505.7	1409.0	2038.1
4:00	8:00	1299.0	-525.7	1401.4	2043.2

Analematic Sundial

Latitude: 44.5° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1051.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-453.9	-445.3	-442.7	-431.0	-427.5	-412.8	-408.8	-391.3	-386.7	-366.9	-361.7
February	-328.3	-304.4	-298.1	-272.7	-266.4	-239.7	-232.9	-205.4	-198.5	-170.2	-162.9
March	-141.4	-112.4	-105.1	-75.8	-68.4	-38.9	-31.6	-1.9	5.4	34.9	42.2
April	86.1	114.9	122.1	150.4	157.4	185.2	191.9	219.0	225.7	251.7	258.0
May	289.1	312.9	318.5	340.6	346.0	366.3	371.1	389.6	394.1	410.3	413.9
June	434.0	444.5	446.9	454.6	456.3	461.2	461.9	463.6	463.9	460.5	462.1
July	456.3	449.1	446.9	437.0	434.2	421.4	418.0	402.8	398.7	381.4	376.8
August	347.2	325.7	320.2	297.1	291.3	266.9	260.6	235.2	228.8	202.3	195.6
September	154.7	126.8	119.8	91.3	84.2	55.5	48.4	19.4	12.1	-17.0	-24.3
October	-60.6	-89.7	-96.8	-125.7	-132.7	-161.2	-168.3	-196.2	-203.1	-230.3	-237.0
November	-276.1	-301.1	-307.2	-330.8	-336.5	-358.4	-363.6	-383.5	-388.1	-405.8	-410.0
December	-428.4	-440.8	-443.4	-452.4	-454.4	-460.1	-461.2	-463.6	-463.9	-462.8	-462.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	453.9	445.3	442.7	431.0	427.5	412.8	408.8	391.3	386.7	366.9	361.7
February	328.3	304.4	298.1	272.7	266.4	239.7	232.9	205.4	198.5	170.2	162.9
March	141.4	112.4	105.1	75.8	68.4	38.9	31.6	1.9	-5.4	-34.9	-42.2
April	-86.1	-114.9	-122.1	-150.4	-157.4	-185.2	-191.9	-219.0	-225.7	-251.7	-258.0
May	-289.1	-312.9	-318.5	-340.6	-346.0	-366.3	-371.1	-389.6	-394.1	-410.3	-413.9
June	-434.0	-444.5	-446.9	-454.6	-456.3	-461.2	-461.9	-463.6	-463.9	-460.5	-462.1
July	-456.3	-449.1	-446.9	-437.0	-434.2	-421.4	-418.0	-402.8	-398.7	-381.4	-376.8
August	-347.2	-325.7	-320.2	-297.1	-291.3	-266.9	-260.6	-235.2	-228.8	-202.3	-195.6
September	-154.7	-126.8	-119.8	-91.3	-84.2	-55.5	-48.4	-19.4	-12.1	17.0	24.3
October	60.6	89.7	96.8	125.7	132.7	161.2	168.3	196.2	203.1	230.3	237.0
November	276.1	301.1	307.2	330.8	336.5	358.4	363.6	383.5	388.1	405.8	410.0
December	428.4	440.8	443.4	452.4	454.4	460.1	461.2	463.6	463.9	462.8	462.1

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 |

Analemmatic Sundial

Latitude: 44.5° N/S

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1401.8 mm
 Sunrise/Sunset Markers: X = ± 948.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1401.8	1401.8	0.0						
11:55	12:05	43.6	1401.5	1402.2	43.6	8:25	3:35	1612.9	828.9	1813.4	1711.6
11:50	12:10	87.2	1400.5	1403.2	87.2	8:20	3:40	1638.3	804.1	1825.0	1744.0
11:45	12:15	130.8	1398.8	1404.9	130.8	8:15	3:45	1662.9	778.8	1836.3	1775.8
11:40	12:20	174.3	1396.5	1407.3	174.4	8:10	3:50	1686.8	753.2	1847.3	1807.2
11:35	12:25	217.7	1393.5	1410.4	217.9	8:05	3:55	1709.8	727.2	1858.1	1838.1
11:30	12:30	261.1	1389.8	1414.1	261.3	8:00	4:00	1732.1	700.9	1868.5	1868.5
11:25	12:35	304.2	1385.5	1418.5	304.7	7:55	4:05	1753.5	674.3	1878.6	1898.4
11:20	12:40	347.3	1380.5	1423.5	347.9	7:50	4:10	1774.0	647.3	1888.4	1927.8
11:15	12:45	390.2	1374.9	1429.2	391.1	7:45	4:15	1793.7	620.0	1897.9	1956.7
11:10	12:50	432.9	1368.6	1435.4	434.2	7:40	4:20	1812.6	592.4	1907.0	1985.1
11:05	12:55	475.4	1361.6	1442.2	477.1	7:35	4:25	1830.6	564.6	1915.7	2013.0
11:00	1:00	517.6	1354.1	1449.6	519.8	7:30	4:30	1847.8	536.5	1924.1	2040.4
10:55	1:05	559.7	1345.8	1457.5	562.5	7:25	4:35	1864.0	508.1	1932.0	2067.2
10:50	1:10	601.4	1336.9	1466.0	604.9	7:20	4:40	1879.4	479.5	1939.6	2093.5
10:45	1:15	642.9	1327.4	1474.9	647.2	7:15	4:45	1893.9	450.6	1946.7	2119.3
10:40	1:20	684.0	1317.3	1484.3	689.2	7:10	4:50	1907.4	421.5	1953.5	2144.6
10:35	1:25	724.9	1306.5	1494.1	731.1	7:05	4:55	1920.1	392.3	1959.8	2169.3
10:30	1:30	765.4	1295.1	1504.4	772.8	7:00	5:00	1931.9	362.8	1965.6	2193.5
10:25	1:35	805.5	1283.1	1515.0	814.2	6:55	5:05	1942.7	333.2	1971.1	2217.2
10:20	1:40	845.2	1270.5	1526.0	855.4	6:50	5:10	1952.6	303.4	1976.0	2240.3
10:15	1:45	884.6	1257.3	1537.3	896.3	6:45	5:15	1961.6	273.5	1980.5	2262.9
10:10	1:50	923.5	1243.4	1548.9	937.0	6:40	5:20	1969.6	243.4	1984.6	2285.0
10:05	1:55	962.0	1229.0	1560.7	977.4	6:35	5:25	1976.7	213.2	1988.2	2306.5
10:00	2:00	1000.0	1214.0	1572.8	1017.5	6:30	5:30	1982.9	183.0	1991.3	2327.5
9:55	2:05	1037.5	1198.4	1585.2	1057.3	6:25	5:35	1988.1	152.6	1994.0	2348.0
9:50	2:10	1074.6	1182.3	1597.7	1096.8	6:20	5:40	1992.4	122.2	1996.1	2367.9
9:45	2:15	1111.1	1165.6	1610.3	1136.0	6:15	5:45	1995.7	91.7	1997.8	2387.3
9:40	2:20	1147.2	1148.3	1623.1	1174.8	6:10	5:50	1998.1	61.1	1999.0	2406.2
9:35	2:25	1182.6	1130.5	1636.0	1213.3	6:05	5:55	1999.5	30.6	1999.8	2424.5
9:30	2:30	1217.5	1112.1	1649.0	1251.5	6:00	6:00	2000.0	0.0	2000.0	2442.4
9:25	2:35	1251.8	1093.3	1662.0	1289.3	5:55	6:05	1999.5	-30.6	1999.8	2459.6
9:20	2:40	1285.6	1073.9	1675.1	1326.7	5:50	6:10	1998.1	-61.1	1999.0	2476.4
9:15	2:45	1318.7	1053.9	1688.1	1363.8	5:45	6:15	1995.7	-91.7	1997.8	2492.7
9:10	2:50	1351.2	1033.5	1701.1	1400.5	5:40	6:20	1992.4	-122.2	1996.1	2508.4
9:05	2:55	1383.0	1012.6	1714.1	1436.7	5:35	6:25	1988.1	-152.6	1994.0	2523.7
9:00	3:00	1414.2	991.2	1727.0	1472.6	5:30	6:30	1982.9	-183.0	1991.3	2538.4
8:55	3:05	1444.7	969.4	1739.8	1508.1	5:25	6:35	1976.7	-213.2	1988.2	2552.6
8:50	3:10	1474.6	947.1	1752.5	1543.1	5:20	6:40	1969.6	-243.4	1984.6	2566.4
8:45	3:15	1503.7	924.3	1765.0	1577.7	5:15	6:45	1961.6	-273.5	1980.5	2579.6
8:40	3:20	1532.1	901.1	1777.4	1611.8	5:10	6:50	1952.6	-303.4	1976.0	2592.4
8:35	3:25	1559.8	877.4	1789.6	1645.6	5:05	6:55	1942.7	-333.2	1971.1	2604.7
8:30	3:30	1586.7	853.4	1801.6	1678.8	5:00	7:00	1931.9	-362.8	1965.6	2616.5

Analemmatic Sundial

Latitude: 44.5° N/S

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1401.8 mm
 Sunrise/Sunset Markers: X = ± 948.6 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-392.3	1959.8	2627.8
4:50	7:10	1907.4	-421.5	1953.5	2638.7
4:45	7:15	1893.9	-450.6	1946.7	2649.2
4:40	7:20	1879.4	-479.5	1939.6	2659.2
4:35	7:25	1864.0	-508.1	1932.0	2668.8
4:30	7:30	1847.8	-536.5	1924.1	2677.9
4:25	7:35	1830.6	-564.6	1915.7	2686.6
4:20	7:40	1812.6	-592.4	1907.0	2694.9
4:15	7:45	1793.7	-620.0	1897.9	2702.8
4:10	7:50	1774.0	-647.3	1888.4	2710.3
4:05	7:55	1753.5	-674.3	1878.6	2717.5
4:00	8:00	1732.1	-700.9	1868.5	2724.2

Analematic Sundial

Latitude: 44.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1401.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-605.2	-593.8	-590.3	-574.6	-570.0	-550.4	-545.0	-521.7	-515.5	-489.2	-482.3
February	-437.8	-405.8	-397.5	-363.6	-355.1	-319.6	-310.5	-273.9	-264.6	-227.0	-217.3
March	-188.6	-149.9	-140.1	-101.0	-91.2	-51.8	-42.1	-2.5	7.2	46.6	56.3
April	114.8	153.2	162.8	200.5	209.9	246.9	255.9	292.0	300.9	335.6	344.1
May	385.4	417.1	424.7	454.2	461.3	488.4	494.8	519.5	525.4	547.0	551.9
June	578.7	592.6	595.8	606.1	608.5	614.9	615.8	618.2	618.5	614.1	616.1
July	608.5	598.8	595.8	582.7	579.0	561.9	557.3	537.0	531.6	508.5	502.4
August	462.9	434.2	426.9	396.1	388.4	355.9	347.5	313.6	305.0	269.8	260.8
September	206.3	169.1	159.8	121.8	112.3	74.0	64.5	25.9	16.2	-22.7	-32.4
October	-80.8	-119.5	-129.1	-167.6	-176.9	-215.0	-224.4	-261.6	-270.8	-307.1	-316.0
November	-368.1	-401.5	-409.6	-441.0	-448.7	-477.9	-484.8	-511.3	-517.5	-541.0	-546.7
December	-571.1	-587.7	-591.2	-603.2	-605.8	-613.5	-614.9	-618.2	-618.5	-617.0	-616.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	605.2	593.8	590.3	574.6	570.0	550.4	545.0	521.7	515.5	489.2	482.3
February	437.8	405.8	397.5	363.6	355.1	319.6	310.5	273.9	264.6	227.0	217.3
March	188.6	149.9	140.1	101.0	91.2	51.8	42.1	2.5	-7.2	-46.6	-56.3
April	-114.8	-153.2	-162.8	-200.5	-209.9	-246.9	-255.9	-292.0	-300.9	-335.6	-344.1
May	-385.4	-417.1	-424.7	-454.2	-461.3	-488.4	-494.8	-519.5	-525.4	-547.0	-551.9
June	-578.7	-592.6	-595.8	-606.1	-608.5	-614.9	-615.8	-618.2	-618.5	-614.1	-616.1
July	-608.5	-598.8	-595.8	-582.7	-579.0	-561.9	-557.3	-537.0	-531.6	-508.5	-502.4
August	-462.9	-434.2	-426.9	-396.1	-388.4	-355.9	-347.5	-313.6	-305.0	-269.8	-260.8
September	-206.3	-169.1	-159.8	-121.8	-112.3	-74.0	-64.5	-25.9	-16.2	22.7	32.4
October	80.8	119.5	129.1	167.6	176.9	215.0	224.4	261.6	270.8	307.1	316.0
November	368.1	401.5	409.6	441.0	448.7	477.9	484.8	511.3	517.5	541.0	546.7
December	571.1	587.7	591.2	603.2	605.8	613.5	614.9	618.2	618.5	617.0	616.1

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
- 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

Analemmatic Sundial

Latitude: 44.5° N/S

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1752.3 mm
 Sunrise/Sunset Markers: X = ± 1185.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1752.3	1752.3	0.0						
11:55	12:05	54.5	1751.9	1752.7	54.5	8:25	3:35	2016.1	1036.1	2266.8	2139.5
11:50	12:10	109.0	1750.6	1754.0	109.1	8:20	3:40	2047.9	1005.1	2281.2	2179.9
11:45	12:15	163.5	1748.5	1756.1	163.6	8:15	3:45	2078.7	973.5	2295.3	2219.8
11:40	12:20	217.9	1745.6	1759.2	218.0	8:10	3:50	2108.5	941.5	2309.1	2259.0
11:35	12:25	272.2	1741.9	1763.0	272.4	8:05	3:55	2137.3	909.0	2322.6	2297.6
11:30	12:30	326.3	1737.3	1767.7	326.7	8:00	4:00	2165.1	876.1	2335.6	2335.6
11:25	12:35	380.3	1731.9	1773.1	380.9	7:55	4:05	2191.8	842.8	2348.3	2373.0
11:20	12:40	434.1	1725.7	1779.4	434.9	7:50	4:10	2217.5	809.1	2360.5	2409.8
11:15	12:45	487.7	1718.6	1786.5	488.9	7:45	4:15	2242.2	775.0	2372.3	2445.9
11:10	12:50	541.1	1710.7	1794.3	542.7	7:40	4:20	2265.8	740.5	2383.7	2481.4
11:05	12:55	594.2	1702.1	1802.8	596.3	7:35	4:25	2288.3	705.7	2394.6	2516.2
11:00	1:00	647.0	1692.6	1812.0	649.8	7:30	4:30	2309.7	670.6	2405.1	2550.5
10:55	1:05	699.6	1682.3	1821.9	703.1	7:25	4:35	2330.0	635.1	2415.0	2584.0
10:50	1:10	751.8	1671.2	1832.5	756.1	7:20	4:40	2349.2	599.3	2424.5	2616.9
10:45	1:15	803.6	1659.3	1843.6	809.0	7:15	4:45	2367.3	563.2	2433.4	2649.2
10:40	1:20	855.1	1646.6	1855.4	861.6	7:10	4:50	2384.3	526.9	2441.8	2680.7
10:35	1:25	906.1	1633.1	1867.7	913.9	7:05	4:55	2400.1	490.3	2449.7	2711.7
10:30	1:30	956.7	1618.9	1880.5	966.0	7:00	5:00	2414.8	453.5	2457.0	2741.9
10:25	1:35	1006.9	1603.9	1893.7	1017.7	6:55	5:05	2428.4	416.5	2463.8	2771.5
10:20	1:40	1056.5	1588.1	1907.4	1069.2	6:50	5:10	2440.7	379.3	2470.0	2800.4
10:15	1:45	1105.7	1571.6	1921.6	1120.4	6:45	5:15	2452.0	341.9	2475.7	2828.7
10:10	1:50	1154.4	1554.3	1936.1	1171.2	6:40	5:20	2462.0	304.3	2480.8	2856.3
10:05	1:55	1202.5	1536.3	1950.9	1221.7	6:35	5:25	2470.9	266.6	2485.2	2883.2
10:00	2:00	1250.0	1517.5	1966.0	1271.9	6:30	5:30	2478.6	228.7	2489.1	2909.4
9:55	2:05	1296.9	1498.0	1981.5	1321.6	6:25	5:35	2485.1	190.8	2492.5	2935.0
9:50	2:10	1343.2	1477.9	1997.1	1371.0	6:20	5:40	2490.5	152.7	2495.2	2959.9
9:45	2:15	1388.9	1457.0	2012.9	1420.0	6:15	5:45	2494.6	114.6	2497.3	2984.2
9:40	2:20	1433.9	1435.4	2028.9	1468.5	6:10	5:50	2497.6	76.4	2498.8	3007.7
9:35	2:25	1478.3	1413.1	2045.0	1516.7	6:05	5:55	2499.4	38.2	2499.7	3030.7
9:30	2:30	1521.9	1390.2	2061.3	1564.4	6:00	6:00	2500.0	0.0	2500.0	3052.9
9:25	2:35	1564.8	1366.6	2077.5	1611.6	5:55	6:05	2499.4	-38.2	2499.7	3074.6
9:20	2:40	1607.0	1342.3	2093.8	1658.4	5:50	6:10	2497.6	-76.4	2498.8	3095.5
9:15	2:45	1648.4	1317.4	2110.1	1704.8	5:45	6:15	2494.6	-114.6	2497.3	3115.8
9:10	2:50	1689.0	1291.9	2126.4	1750.6	5:40	6:20	2490.5	-152.7	2495.2	3135.5
9:05	2:55	1728.8	1265.8	2142.6	1795.9	5:35	6:25	2485.1	-190.8	2492.5	3154.6
9:00	3:00	1767.8	1239.0	2158.8	1840.8	5:30	6:30	2478.6	-228.7	2489.1	3173.0
8:55	3:05	1805.9	1211.7	2174.8	1885.1	5:25	6:35	2470.9	-266.6	2485.2	3190.8
8:50	3:10	1843.2	1183.8	2190.6	1928.9	5:20	6:40	2462.0	-304.3	2480.8	3208.0
8:45	3:15	1879.6	1155.4	2206.3	1972.1	5:15	6:45	2452.0	-341.9	2475.7	3224.5
8:40	3:20	1915.1	1126.3	2221.8	2014.8	5:10	6:50	2440.7	-379.3	2470.0	3240.5
8:35	3:25	1949.7	1096.8	2237.0	2056.9	5:05	6:55	2428.4	-416.5	2463.8	3255.8
8:30	3:30	1983.4	1066.7	2252.0	2098.5	5:00	7:00	2414.8	-453.5	2457.0	3270.6

Analemmatic Sundial**Latitude: 44.5° N/S**

Earliest Sunrise: 4:13 a.m. Latest Sunset: 7:47 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1752.3 mm
 Sunrise/Sunset Markers: $X = \pm 1185.8$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-490.3	2449.7	3284.8
4:50	7:10	2384.3	-526.9	2441.8	3298.4
4:45	7:15	2367.3	-563.2	2433.4	3311.5
4:40	7:20	2349.2	-599.3	2424.5	3324.0
4:35	7:25	2330.0	-635.1	2415.0	3335.9
4:30	7:30	2309.7	-670.6	2405.1	3347.4
4:25	7:35	2288.3	-705.7	2394.6	3358.3
4:20	7:40	2265.8	-740.5	2383.7	3368.7
4:15	7:45	2242.2	-775.0	2372.3	3378.5
4:10	7:50	2217.5	-809.1	2360.5	3387.9
4:05	7:55	2191.8	-842.8	2348.3	3396.8
4:00	8:00	2165.1	-876.1	2335.6	3405.3

Analematic Sundial

Latitude: 44.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1752.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-756.5	-742.2	-737.9	-718.3	-712.5	-688.1	-681.3	-652.2	-644.4	-611.5	-602.9
February	-547.2	-507.3	-496.9	-454.5	-443.9	-399.6	-388.1	-342.4	-330.8	-283.7	-271.6
March	-235.7	-187.4	-175.2	-126.3	-114.1	-64.8	-52.6	-3.1	9.0	58.2	70.4
April	143.5	191.5	203.5	250.6	262.4	308.6	319.9	365.1	376.1	419.5	430.1
May	481.8	521.4	530.9	567.7	576.6	610.5	618.5	649.4	656.8	683.8	689.8
June	723.3	740.8	744.8	757.6	760.6	768.7	769.8	772.7	773.1	767.6	770.2
July	760.6	748.5	744.8	728.4	723.7	702.4	696.6	671.3	664.6	635.6	627.9
August	578.7	542.8	533.6	495.2	485.5	444.9	434.3	392.0	381.3	337.2	326.0
September	257.9	211.4	199.7	152.2	140.3	92.5	80.7	32.4	20.2	-28.3	-40.5
October	-100.9	-149.4	-161.3	-209.5	-221.2	-268.7	-280.5	-326.9	-338.5	-383.9	-395.0
November	-460.2	-501.9	-512.0	-551.3	-560.8	-597.3	-606.0	-639.2	-646.9	-676.3	-683.4
December	-713.9	-734.6	-739.0	-754.0	-757.3	-766.8	-768.7	-772.7	-773.1	-771.3	-770.2

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	756.5	742.2	737.9	718.3	712.5	688.1	681.3	652.2	644.4	611.5	602.9
February	547.2	507.3	496.9	454.5	443.9	399.6	388.1	342.4	330.8	283.7	271.6
March	235.7	187.4	175.2	126.3	114.1	64.8	52.6	3.1	-9.0	-58.2	-70.4
April	-143.5	-191.5	-203.5	-250.6	-262.4	-308.6	-319.9	-365.1	-376.1	-419.5	-430.1
May	-481.8	-521.4	-530.9	-567.7	-576.6	-610.5	-618.5	-649.4	-656.8	-683.8	-689.8
June	-723.3	-740.8	-744.8	-757.6	-760.6	-768.7	-769.8	-772.7	-773.1	-767.6	-770.2
July	-760.6	-748.5	-744.8	-728.4	-723.7	-702.4	-696.6	-671.3	-664.6	-635.6	-627.9
August	-578.7	-542.8	-533.6	-495.2	-485.5	-444.9	-434.3	-392.0	-381.3	-337.2	-326.0
September	-257.9	-211.4	-199.7	-152.2	-140.3	-92.5	-80.7	-32.4	-20.2	28.3	40.5
October	100.9	149.4	161.3	209.5	221.2	268.7	280.5	326.9	338.5	383.9	395.0
November	460.2	501.9	512.0	551.3	560.8	597.3	606.0	639.2	646.9	676.3	683.4
December	713.9	734.6	739.0	754.0	757.3	766.8	768.7	772.7	773.1	771.3	770.2

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