

Analemmatic Sundial

Latitude: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 719.3 mm
 Sunrise/Sunset Markers: X = ± 446.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	719.3	719.3	0.0						
11:55	12:05	21.8	719.2	719.5	21.8	8:25	3:35	806.4	425.4	911.7	858.4
11:50	12:10	43.6	718.7	720.0	43.6	8:20	3:40	819.2	412.6	917.2	874.7
11:45	12:15	65.4	717.8	720.8	65.4	8:15	3:45	831.5	399.6	922.5	890.8
11:40	12:20	87.2	716.6	721.9	87.2	8:10	3:50	843.4	386.5	927.7	906.7
11:35	12:25	108.9	715.1	723.3	109.0	8:05	3:55	854.9	373.2	932.8	922.3
11:30	12:30	130.5	713.2	725.0	130.7	8:00	4:00	866.0	359.7	937.7	937.7
11:25	12:35	152.1	711.0	727.1	152.4	7:55	4:05	876.7	346.0	942.5	952.9
11:20	12:40	173.6	708.4	729.4	174.0	7:50	4:10	887.0	332.2	947.2	967.8
11:15	12:45	195.1	705.5	732.0	195.6	7:45	4:15	896.9	318.2	951.6	982.5
11:10	12:50	216.4	702.3	734.9	217.1	7:40	4:20	906.3	304.0	955.9	996.9
11:05	12:55	237.7	698.7	738.0	238.6	7:35	4:25	915.3	289.7	960.1	1011.1
11:00	1:00	258.8	694.8	741.5	260.0	7:30	4:30	923.9	275.3	964.0	1025.1
10:55	1:05	279.8	690.6	745.1	281.3	7:25	4:35	932.0	260.7	967.8	1038.7
10:50	1:10	300.7	686.0	749.1	302.5	7:20	4:40	939.7	246.0	971.4	1052.2
10:45	1:15	321.4	681.2	753.2	323.7	7:15	4:45	946.9	231.2	974.8	1065.3
10:40	1:20	342.0	676.0	757.6	344.8	7:10	4:50	953.7	216.3	977.9	1078.2
10:35	1:25	362.4	670.4	762.1	365.7	7:05	4:55	960.0	201.3	980.9	1090.9
10:30	1:30	382.7	664.6	766.9	386.6	7:00	5:00	965.9	186.2	983.7	1103.3
10:25	1:35	402.7	658.4	771.8	407.3	6:55	5:05	971.3	171.0	986.3	1115.4
10:20	1:40	422.6	651.9	776.9	428.0	6:50	5:10	976.3	155.7	988.6	1127.3
10:15	1:45	442.3	645.2	782.2	448.5	6:45	5:15	980.8	140.3	990.8	1138.9
10:10	1:50	461.7	638.1	787.6	468.8	6:40	5:20	984.8	124.9	992.7	1150.3
10:05	1:55	481.0	630.7	793.2	489.1	6:35	5:25	988.4	109.4	994.4	1161.4
10:00	2:00	500.0	623.0	798.8	509.2	6:30	5:30	991.4	93.9	995.9	1172.2
9:55	2:05	518.8	615.0	804.6	529.2	6:25	5:35	994.1	78.3	997.1	1182.8
9:50	2:10	537.3	606.7	810.4	549.0	6:20	5:40	996.2	62.7	998.2	1193.1
9:45	2:15	555.6	598.1	816.3	568.6	6:15	5:45	997.9	47.0	999.0	1203.2
9:40	2:20	573.6	589.2	822.3	588.1	6:10	5:50	999.0	31.4	999.5	1213.0
9:35	2:25	591.3	580.1	828.4	607.5	6:05	5:55	999.8	15.7	999.9	1222.6
9:30	2:30	608.8	570.7	834.4	626.6	6:00	6:00	1000.0	0.0	1000.0	1231.8
9:25	2:35	625.9	561.0	840.5	645.6	5:55	6:05	999.8	-15.7	999.9	1240.9
9:20	2:40	642.8	551.0	846.7	664.5	5:50	6:10	999.0	-31.4	999.5	1249.7
9:15	2:45	659.3	540.8	852.8	683.1	5:45	6:15	997.9	-47.0	999.0	1258.2
9:10	2:50	675.6	530.4	858.9	701.5	5:40	6:20	996.2	-62.7	998.2	1266.5
9:05	2:55	691.5	519.6	865.0	719.8	5:35	6:25	994.1	-78.3	997.1	1274.5
9:00	3:00	707.1	508.7	871.0	737.8	5:30	6:30	991.4	-93.9	995.9	1282.3
8:55	3:05	722.4	497.4	877.1	755.7	5:25	6:35	988.4	-109.4	994.4	1289.9
8:50	3:10	737.3	486.0	883.0	773.3	5:20	6:40	984.8	-124.9	992.7	1297.2
8:45	3:15	751.8	474.3	888.9	790.8	5:15	6:45	980.8	-140.3	990.8	1304.2
8:40	3:20	766.0	462.4	894.8	808.0	5:10	6:50	976.3	-155.7	988.6	1311.0
8:35	3:25	779.9	450.3	900.5	825.0	5:05	6:55	971.3	-171.0	986.3	1317.6
8:30	3:30	793.4	437.9	906.2	841.8	5:00	7:00	965.9	-186.2	983.7	1324.0

Analemmatic Sundial

Latitude: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 719.3 mm
 Sunrise/Sunset Markers: $X = \pm 446.2$ mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-201.3	980.9	1330.1
4:50	7:10	953.7	-216.3	977.9	1336.0
4:45	7:15	946.9	-231.2	974.8	1341.7
4:40	7:20	939.7	-246.0	971.4	1347.2
4:35	7:25	932.0	-260.7	967.8	1352.5
4:30	7:30	923.9	-275.3	964.0	1357.5
4:25	7:35	915.3	-289.7	960.1	1362.3
4:20	7:40	906.3	-304.0	955.9	1367.0
4:15	7:45	896.9	-318.2	951.6	1371.4
4:10	7:50	887.0	-332.2	947.2	1375.7
4:05	7:55	876.7	-346.0	942.5	1379.7
4:00	8:00	866.0	-359.7	937.7	1383.6

Analemmatic Sundial

Latitude: 46.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 719.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-294.7	-289.2	-287.5	-279.8	-277.6	-268.0	-265.4	-254.1	-251.1	-238.2	-234.9
February	-213.2	-197.6	-193.6	-177.1	-172.9	-155.7	-151.2	-133.4	-128.9	-110.5	-105.8
March	-91.8	-73.0	-68.2	-49.2	-44.4	-25.2	-20.5	-1.2	3.5	22.7	27.4
April	55.9	74.6	79.3	97.6	102.2	120.2	124.6	142.2	146.5	163.4	167.5
May	187.7	203.1	206.8	221.2	224.6	237.8	241.0	253.0	255.9	266.4	268.7
June	281.8	288.6	290.2	295.2	296.3	299.5	299.9	301.0	301.2	299.0	300.0
July	296.3	291.6	290.2	283.8	281.9	273.6	271.4	261.5	258.9	247.6	244.6
August	225.4	211.5	207.9	192.9	189.1	173.3	169.2	152.7	148.5	131.4	127.0
September	100.5	82.3	77.8	59.3	54.7	36.0	31.4	12.6	7.9	-11.0	-15.8
October	-39.3	-58.2	-62.9	-81.6	-86.2	-104.7	-109.3	-127.4	-131.9	-149.6	-153.9
November	-179.3	-195.5	-199.5	-214.8	-218.5	-232.7	-236.1	-249.0	-252.0	-263.5	-266.2
December	-278.1	-286.2	-287.9	-293.7	-295.0	-298.7	-299.5	-301.0	-301.2	-300.5	-300.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	294.7	289.2	287.5	279.8	277.6	268.0	265.4	254.1	251.1	238.2	234.9
February	213.2	197.6	193.6	177.1	172.9	155.7	151.2	133.4	128.9	110.5	105.8
March	91.8	73.0	68.2	49.2	44.4	25.2	20.5	1.2	-3.5	-22.7	-27.4
April	-55.9	-74.6	-79.3	-97.6	-102.2	-120.2	-124.6	-142.2	-146.5	-163.4	-167.5
May	-187.7	-203.1	-206.8	-221.2	-224.6	-237.8	-241.0	-253.0	-255.9	-266.4	-268.7
June	-281.8	-288.6	-290.2	-295.2	-296.3	-299.5	-299.9	-301.0	-301.2	-299.0	-300.0
July	-296.3	-291.6	-290.2	-283.8	-281.9	-273.6	-271.4	-261.5	-258.9	-247.6	-244.6
August	-225.4	-211.5	-207.9	-192.9	-189.1	-173.3	-169.2	-152.7	-148.5	-131.4	-127.0
September	-100.5	-82.3	-77.8	-59.3	-54.7	-36.0	-31.4	-12.6	-7.9	11.0	15.8
October	39.3	58.2	62.9	81.6	86.2	104.7	109.3	127.4	131.9	149.6	153.9
November	179.3	195.5	199.5	214.8	218.5	232.7	236.1	249.0	252.0	263.5	266.2
December	278.1	286.2	287.9	293.7	295.0	298.7	299.5	301.0	301.2	300.5	300.0

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: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1079.0 mm
 Sunrise/Sunset Markers: X = ± 669.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1079.0	1079.0	0.0						
11:55	12:05	32.7	1078.8	1079.2	32.7	8:25	3:35	1209.7	638.0	1367.6	1287.5
11:50	12:10	65.4	1078.0	1080.0	65.4	8:20	3:40	1228.7	618.9	1375.8	1312.1
11:45	12:15	98.1	1076.7	1081.2	98.1	8:15	3:45	1247.2	599.5	1383.8	1336.2
11:40	12:20	130.7	1074.9	1082.8	130.8	8:10	3:50	1265.1	579.8	1391.6	1360.0
11:35	12:25	163.3	1072.6	1085.0	163.4	8:05	3:55	1282.4	559.8	1399.2	1383.5
11:30	12:30	195.8	1069.8	1087.5	196.0	8:00	4:00	1299.0	539.5	1406.6	1406.6
11:25	12:35	228.2	1066.5	1090.6	228.5	7:55	4:05	1315.1	519.0	1413.8	1429.4
11:20	12:40	260.5	1062.6	1094.1	261.0	7:50	4:10	1330.5	498.2	1420.7	1451.7
11:15	12:45	292.6	1058.3	1098.0	293.4	7:45	4:15	1345.3	477.2	1427.4	1473.8
11:10	12:50	324.7	1053.4	1102.3	325.7	7:40	4:20	1359.5	456.0	1433.9	1495.4
11:05	12:55	356.5	1048.1	1107.1	357.9	7:35	4:25	1373.0	434.6	1440.1	1516.7
11:00	1:00	388.2	1042.2	1112.2	390.0	7:30	4:30	1385.8	412.9	1446.0	1537.6
10:55	1:05	419.7	1035.9	1117.7	422.0	7:25	4:35	1398.0	391.1	1451.7	1558.1
10:50	1:10	451.1	1029.1	1123.6	453.8	7:20	4:40	1409.5	369.0	1457.0	1578.2
10:45	1:15	482.2	1021.7	1129.8	485.5	7:15	4:45	1420.4	346.8	1462.1	1598.0
10:40	1:20	513.0	1013.9	1136.3	517.1	7:10	4:50	1430.6	324.5	1466.9	1617.4
10:35	1:25	543.7	1005.6	1143.2	548.6	7:05	4:55	1440.1	301.9	1471.4	1636.4
10:30	1:30	574.0	996.9	1150.3	579.9	7:00	5:00	1448.9	279.3	1475.6	1655.0
10:25	1:35	604.1	987.6	1157.7	611.0	6:55	5:05	1457.0	256.5	1479.4	1673.2
10:20	1:40	633.9	977.9	1165.4	641.9	6:50	5:10	1464.4	233.5	1482.9	1691.0
10:15	1:45	663.4	967.7	1173.3	672.7	6:45	5:15	1471.2	210.5	1486.2	1708.4
10:10	1:50	692.6	957.1	1181.4	703.3	6:40	5:20	1477.2	187.4	1489.0	1725.5
10:05	1:55	721.5	946.0	1189.7	733.6	6:35	5:25	1482.5	164.1	1491.6	1742.1
10:00	2:00	750.0	934.4	1198.2	763.8	6:30	5:30	1487.2	140.8	1493.8	1758.4
9:55	2:05	778.2	922.5	1206.8	793.8	6:25	5:35	1491.1	117.5	1495.7	1774.2
9:50	2:10	805.9	910.0	1215.6	823.5	6:20	5:40	1494.3	94.0	1497.2	1789.7
9:45	2:15	833.4	897.2	1224.5	853.0	6:15	5:45	1496.8	70.6	1498.5	1804.8
9:40	2:20	860.4	883.9	1233.5	882.2	6:10	5:50	1498.6	47.1	1499.3	1819.5
9:35	2:25	887.0	870.2	1242.5	911.2	6:05	5:55	1499.6	23.5	1499.8	1833.8
9:30	2:30	913.1	856.0	1251.6	940.0	6:00	6:00	1500.0	0.0	1500.0	1847.8
9:25	2:35	938.9	841.5	1260.8	968.5	5:55	6:05	1499.6	-23.5	1499.8	1861.3
9:20	2:40	964.2	826.6	1270.0	996.7	5:50	6:10	1498.6	-47.1	1499.3	1874.5
9:15	2:45	989.0	811.2	1279.2	1024.6	5:45	6:15	1496.8	-70.6	1498.5	1887.3
9:10	2:50	1013.4	795.5	1288.3	1052.3	5:40	6:20	1494.3	-94.0	1497.2	1899.7
9:05	2:55	1037.3	779.4	1297.5	1079.7	5:35	6:25	1491.1	-117.5	1495.7	1911.8
9:00	3:00	1060.7	763.0	1306.6	1106.7	5:30	6:30	1487.2	-140.8	1493.8	1923.5
8:55	3:05	1083.5	746.1	1315.6	1133.5	5:25	6:35	1482.5	-164.1	1491.6	1934.8
8:50	3:10	1105.9	729.0	1324.6	1160.0	5:20	6:40	1477.2	-187.4	1489.0	1945.7
8:45	3:15	1127.8	711.4	1333.4	1186.1	5:15	6:45	1471.2	-210.5	1486.2	1956.3
8:40	3:20	1149.1	693.6	1342.2	1212.0	5:10	6:50	1464.4	-233.5	1482.9	1966.6
8:35	3:25	1169.8	675.4	1350.8	1237.5	5:05	6:55	1457.0	-256.5	1479.4	1976.5
8:30	3:30	1190.0	656.9	1359.3	1262.7	5:00	7:00	1448.9	-279.3	1475.6	1986.0

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Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1079.0 mm
 Sunrise/Sunset Markers: X = ± 669.2 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-301.9	1471.4	1995.2
4:50	7:10	1430.6	-324.5	1466.9	2004.1
4:45	7:15	1420.4	-346.8	1462.1	2012.6
4:40	7:20	1409.5	-369.0	1457.0	2020.8
4:35	7:25	1398.0	-391.1	1451.7	2028.7
4:30	7:30	1385.8	-412.9	1446.0	2036.3
4:25	7:35	1373.0	-434.6	1440.1	2043.5
4:20	7:40	1359.5	-456.0	1433.9	2050.5
4:15	7:45	1345.3	-477.2	1427.4	2057.1
4:10	7:50	1330.5	-498.2	1420.7	2063.5
4:05	7:55	1315.1	-519.0	1413.8	2069.6
4:00	8:00	1299.0	-539.5	1406.6	2075.4

Analemmatic Sundial

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1079.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-442.1	-433.7	-431.2	-419.7	-416.3	-402.1	-398.1	-381.1	-376.6	-357.4	-352.3
February	-319.8	-296.4	-290.3	-265.6	-259.4	-233.5	-226.8	-200.1	-193.3	-165.8	-158.7
March	-137.7	-109.5	-102.4	-73.8	-66.7	-37.8	-30.7	-1.8	5.3	34.0	41.1
April	83.8	111.9	118.9	146.4	153.3	180.4	186.9	213.3	219.8	245.2	251.3
May	281.5	304.7	310.2	331.7	337.0	356.8	361.4	379.5	383.8	399.6	403.1
June	422.7	432.9	435.2	442.7	444.4	449.2	449.8	451.6	451.8	448.5	450.0
July	444.4	437.4	435.2	425.7	422.9	410.4	407.1	392.3	388.3	371.4	366.9
August	338.2	317.2	311.8	289.4	283.7	260.0	253.8	229.1	222.8	197.1	190.5
September	150.7	123.5	116.7	89.0	82.0	54.1	47.1	18.9	11.8	-16.6	-23.6
October	-59.0	-87.3	-94.3	-122.4	-129.2	-157.0	-163.9	-191.1	-197.8	-224.3	-230.8
November	-268.9	-293.3	-299.2	-322.2	-327.7	-349.0	-354.1	-373.5	-378.0	-395.2	-399.4
December	-417.2	-429.3	-431.8	-440.6	-442.5	-448.1	-449.2	-451.6	-451.8	-450.7	-450.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	442.1	433.7	431.2	419.7	416.3	402.1	398.1	381.1	376.6	357.4	352.3
February	319.8	296.4	290.3	265.6	259.4	233.5	226.8	200.1	193.3	165.8	158.7
March	137.7	109.5	102.4	73.8	66.7	37.8	30.7	1.8	-5.3	-34.0	-41.1
April	-83.8	-111.9	-118.9	-146.4	-153.3	-180.4	-186.9	-213.3	-219.8	-245.2	-251.3
May	-281.5	-304.7	-310.2	-331.7	-337.0	-356.8	-361.4	-379.5	-383.8	-399.6	-403.1
June	-422.7	-432.9	-435.2	-442.7	-444.4	-449.2	-449.8	-451.6	-451.8	-448.5	-450.0
July	-444.4	-437.4	-435.2	-425.7	-422.9	-410.4	-407.1	-392.3	-388.3	-371.4	-366.9
August	-338.2	-317.2	-311.8	-289.4	-283.7	-260.0	-253.8	-229.1	-222.8	-197.1	-190.5
September	-150.7	-123.5	-116.7	-89.0	-82.0	-54.1	-47.1	-18.9	-11.8	16.6	23.6
October	59.0	87.3	94.3	122.4	129.2	157.0	163.9	191.1	197.8	224.3	230.8
November	268.9	293.3	299.2	322.2	327.7	349.0	354.1	373.5	378.0	395.2	399.4
December	417.2	429.3	431.8	440.6	442.5	448.1	449.2	451.6	451.8	450.7	450.0

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: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1438.7 mm
 Sunrise/Sunset Markers: X = ± 892.3 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1438.7	1438.7	0.0						
11:55	12:05	43.6	1438.3	1439.0	43.6	8:25	3:35	1612.9	850.7	1823.5	1716.7
11:50	12:10	87.2	1437.3	1440.0	87.2	8:20	3:40	1638.3	825.2	1834.4	1749.4
11:45	12:15	130.8	1435.6	1441.5	130.8	8:15	3:45	1662.9	799.3	1845.1	1781.6
11:40	12:20	174.3	1433.2	1443.8	174.4	8:10	3:50	1686.8	773.0	1855.5	1813.4
11:35	12:25	217.7	1430.1	1446.6	217.9	8:05	3:55	1709.8	746.3	1865.6	1844.7
11:30	12:30	261.1	1426.4	1450.1	261.3	8:00	4:00	1732.1	719.3	1875.5	1875.5
11:25	12:35	304.2	1421.9	1454.1	304.7	7:55	4:05	1753.5	692.0	1885.1	1905.8
11:20	12:40	347.3	1416.8	1458.8	348.0	7:50	4:10	1774.0	664.3	1894.3	1935.7
11:15	12:45	390.2	1411.0	1464.0	391.2	7:45	4:15	1793.7	636.3	1903.3	1965.0
11:10	12:50	432.9	1404.6	1469.8	434.2	7:40	4:20	1812.6	608.0	1911.9	1993.9
11:05	12:55	475.4	1397.5	1476.1	477.2	7:35	4:25	1830.6	579.4	1920.1	2022.3
11:00	1:00	517.6	1389.7	1482.9	520.0	7:30	4:30	1847.8	550.6	1928.0	2050.1
10:55	1:05	559.7	1381.2	1490.3	562.6	7:25	4:35	1864.0	521.4	1935.6	2077.5
10:50	1:10	601.4	1372.1	1498.1	605.1	7:20	4:40	1879.4	492.1	1942.7	2104.3
10:45	1:15	642.9	1362.3	1506.4	647.4	7:15	4:45	1893.9	462.4	1949.5	2130.7
10:40	1:20	684.0	1351.9	1515.1	689.5	7:10	4:50	1907.4	432.6	1955.9	2156.5
10:35	1:25	724.9	1340.9	1524.3	731.4	7:05	4:55	1920.1	402.6	1961.9	2181.8
10:30	1:30	765.4	1329.2	1533.8	773.2	7:00	5:00	1931.9	372.4	1967.4	2206.6
10:25	1:35	805.5	1316.8	1543.7	814.7	6:55	5:05	1942.7	342.0	1972.6	2230.9
10:20	1:40	845.2	1303.9	1553.9	855.9	6:50	5:10	1952.6	311.4	1977.3	2254.6
10:15	1:45	884.6	1290.3	1564.4	896.9	6:45	5:15	1961.6	280.7	1981.5	2277.9
10:10	1:50	923.5	1276.1	1575.2	937.7	6:40	5:20	1969.6	249.8	1985.4	2300.6
10:05	1:55	962.0	1261.3	1586.3	978.2	6:35	5:25	1976.7	218.9	1988.8	2322.8
10:00	2:00	1000.0	1245.9	1597.6	1018.4	6:30	5:30	1982.9	187.8	1991.8	2344.5
9:55	2:05	1037.5	1229.9	1609.1	1058.3	6:25	5:35	1988.1	156.6	1994.3	2365.6
9:50	2:10	1074.6	1213.4	1620.8	1098.0	6:20	5:40	1992.4	125.4	1996.3	2386.3
9:45	2:15	1111.1	1196.2	1632.7	1137.3	6:15	5:45	1995.7	94.1	1997.9	2406.4
9:40	2:20	1147.2	1178.5	1644.6	1176.3	6:10	5:50	1998.1	62.8	1999.1	2426.0
9:35	2:25	1182.6	1160.2	1656.7	1215.0	6:05	5:55	1999.5	31.4	1999.8	2445.1
9:30	2:30	1217.5	1141.4	1668.9	1253.3	6:00	6:00	2000.0	0.0	2000.0	2463.7
9:25	2:35	1251.8	1122.0	1681.1	1291.3	5:55	6:05	1999.5	-31.4	1999.8	2481.8
9:20	2:40	1285.6	1102.1	1693.3	1328.9	5:50	6:10	1998.1	-62.8	1999.1	2499.3
9:15	2:45	1318.7	1081.7	1705.6	1366.2	5:45	6:15	1995.7	-94.1	1997.9	2516.4
9:10	2:50	1351.2	1060.7	1717.8	1403.1	5:40	6:20	1992.4	-125.4	1996.3	2533.0
9:05	2:55	1383.0	1039.3	1730.0	1439.6	5:35	6:25	1988.1	-156.6	1994.3	2549.0
9:00	3:00	1414.2	1017.3	1742.1	1475.7	5:30	6:30	1982.9	-187.8	1991.8	2564.6
8:55	3:05	1444.7	994.9	1754.1	1511.4	5:25	6:35	1976.7	-218.9	1988.8	2579.7
8:50	3:10	1474.6	972.0	1766.1	1546.7	5:20	6:40	1969.6	-249.8	1985.4	2594.3
8:45	3:15	1503.7	948.6	1777.9	1581.5	5:15	6:45	1961.6	-280.7	1981.5	2608.4
8:40	3:20	1532.1	924.8	1789.5	1616.0	5:10	6:50	1952.6	-311.4	1977.3	2622.1
8:35	3:25	1559.8	900.5	1801.1	1650.0	5:05	6:55	1942.7	-342.0	1972.6	2635.3
8:30	3:30	1586.7	875.8	1812.4	1683.6	5:00	7:00	1931.9	-372.4	1967.4	2648.0

Analemmatic Sundial

Latitude: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1438.7 mm
 Sunrise/Sunset Markers: X = ± 892.3 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-402.6	1961.9	2660.3
4:50	7:10	1907.4	-432.6	1955.9	2672.1
4:45	7:15	1893.9	-462.4	1949.5	2683.5
4:40	7:20	1879.4	-492.1	1942.7	2694.4
4:35	7:25	1864.0	-521.4	1935.6	2704.9
4:30	7:30	1847.8	-550.6	1928.0	2715.0
4:25	7:35	1830.6	-579.4	1920.1	2724.7
4:20	7:40	1812.6	-608.0	1911.9	2734.0
4:15	7:45	1793.7	-636.3	1903.3	2742.8
4:10	7:50	1774.0	-664.3	1894.3	2751.3
4:05	7:55	1753.5	-692.0	1885.1	2759.4
4:00	8:00	1732.1	-719.3	1875.5	2767.1

Analematic Sundial

Latitude: 46.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1438.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-589.4	-578.3	-574.9	-559.6	-555.1	-536.1	-530.8	-508.1	-502.1	-476.5	-469.7
February	-426.3	-395.2	-387.1	-354.1	-345.9	-311.3	-302.4	-266.8	-257.7	-221.0	-211.6
March	-183.6	-146.0	-136.5	-98.4	-88.9	-50.5	-41.0	-2.4	7.0	45.4	54.8
April	111.8	149.2	158.5	195.3	204.4	240.5	249.2	284.4	293.0	326.9	335.1
May	375.4	406.3	413.6	442.3	449.3	475.7	481.9	505.9	511.7	532.8	537.5
June	563.6	577.2	580.3	590.3	592.6	598.9	599.8	602.1	602.4	598.0	600.1
July	592.6	583.2	580.3	567.5	563.9	547.3	542.8	523.0	517.8	495.3	489.3
August	450.9	422.9	415.8	385.8	378.3	346.7	338.4	305.5	297.1	262.8	254.0
September	200.9	164.7	155.6	118.6	109.3	72.1	62.8	25.2	15.8	-22.1	-31.5
October	-78.6	-116.4	-125.7	-163.2	-172.3	-209.4	-218.6	-254.7	-263.8	-299.1	-307.7
November	-358.5	-391.0	-398.9	-429.5	-437.0	-465.4	-472.2	-498.0	-504.0	-526.9	-532.5
December	-556.2	-572.4	-575.8	-587.4	-590.0	-597.5	-598.9	-602.1	-602.4	-600.9	-600.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	589.4	578.3	574.9	559.6	555.1	536.1	530.8	508.1	502.1	476.5	469.7
February	426.3	395.2	387.1	354.1	345.9	311.3	302.4	266.8	257.7	221.0	211.6
March	183.6	146.0	136.5	98.4	88.9	50.5	41.0	2.4	-7.0	-45.4	-54.8
April	-111.8	-149.2	-158.5	-195.3	-204.4	-240.5	-249.2	-284.4	-293.0	-326.9	-335.1
May	-375.4	-406.3	-413.6	-442.3	-449.3	-475.7	-481.9	-505.9	-511.7	-532.8	-537.5
June	-563.6	-577.2	-580.3	-590.3	-592.6	-598.9	-599.8	-602.1	-602.4	-598.0	-600.1
July	-592.6	-583.2	-580.3	-567.5	-563.9	-547.3	-542.8	-523.0	-517.8	-495.3	-489.3
August	-450.9	-422.9	-415.8	-385.8	-378.3	-346.7	-338.4	-305.5	-297.1	-262.8	-254.0
September	-200.9	-164.7	-155.6	-118.6	-109.3	-72.1	-62.8	-25.2	-15.8	22.1	31.5
October	78.6	116.4	125.7	163.2	172.3	209.4	218.6	254.7	263.8	299.1	307.7
November	358.5	391.0	398.9	429.5	437.0	465.4	472.2	498.0	504.0	526.9	532.5
December	556.2	572.4	575.8	587.4	590.0	597.5	598.9	602.1	602.4	600.9	600.1

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: 46.0° N/S

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1798.3 mm
 Sunrise/Sunset Markers: X = ± 1115.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1798.3	1798.3	0.0						
11:55	12:05	54.5	1797.9	1798.7	54.5	8:25	3:35	2016.1	1063.4	2279.4	2145.9
11:50	12:10	109.0	1796.6	1799.9	109.1	8:20	3:40	2047.9	1031.5	2293.0	2186.8
11:45	12:15	163.5	1794.5	1801.9	163.6	8:15	3:45	2078.7	999.1	2306.3	2227.0
11:40	12:20	217.9	1791.5	1804.7	218.0	8:10	3:50	2108.5	966.3	2319.3	2266.7
11:35	12:25	272.2	1787.7	1808.3	272.4	8:05	3:55	2137.3	932.9	2332.0	2305.8
11:30	12:30	326.3	1783.0	1812.6	326.7	8:00	4:00	2165.1	899.2	2344.4	2344.4
11:25	12:35	380.3	1777.4	1817.7	380.9	7:55	4:05	2191.8	865.0	2356.3	2382.3
11:20	12:40	434.1	1771.0	1823.5	435.0	7:50	4:10	2217.5	830.4	2367.9	2419.6
11:15	12:45	487.7	1763.8	1830.0	488.9	7:45	4:15	2242.2	795.4	2379.1	2456.3
11:10	12:50	541.1	1755.7	1837.2	542.8	7:40	4:20	2265.8	760.0	2389.8	2492.4
11:05	12:55	594.2	1746.8	1845.1	596.4	7:35	4:25	2288.3	724.3	2400.2	2527.8
11:00	1:00	647.0	1737.1	1853.7	649.9	7:30	4:30	2309.7	688.2	2410.0	2562.6
10:55	1:05	699.6	1726.5	1862.9	703.3	7:25	4:35	2330.0	651.8	2419.5	2596.8
10:50	1:10	751.8	1715.1	1872.6	756.4	7:20	4:40	2349.2	615.1	2428.4	2630.4
10:45	1:15	803.6	1702.9	1883.0	809.2	7:15	4:45	2367.3	578.1	2436.9	2663.3
10:40	1:20	855.1	1689.9	1893.9	861.9	7:10	4:50	2384.3	540.8	2444.8	2695.6
10:35	1:25	906.1	1676.1	1905.3	914.3	7:05	4:55	2400.1	503.2	2452.3	2727.3
10:30	1:30	956.7	1661.5	1917.2	966.5	7:00	5:00	2414.8	465.4	2459.3	2758.3
10:25	1:35	1006.9	1646.0	1929.6	1018.3	6:55	5:05	2428.4	427.4	2465.7	2788.6
10:20	1:40	1056.5	1629.9	1942.4	1069.9	6:50	5:10	2440.7	389.2	2471.6	2818.3
10:15	1:45	1105.7	1612.9	1955.5	1121.2	6:45	5:15	2452.0	350.8	2476.9	2847.4
10:10	1:50	1154.4	1595.2	1969.0	1172.1	6:40	5:20	2462.0	312.3	2481.7	2875.8
10:05	1:55	1202.5	1576.7	1982.9	1222.7	6:35	5:25	2470.9	273.6	2486.0	2903.5
10:00	2:00	1250.0	1557.4	1997.0	1273.0	6:30	5:30	2478.6	234.7	2489.7	2930.6
9:55	2:05	1296.9	1537.4	2011.4	1322.9	6:25	5:35	2485.1	195.8	2492.8	2957.1
9:50	2:10	1343.2	1516.7	2026.0	1372.5	6:20	5:40	2490.5	156.7	2495.4	2982.9
9:45	2:15	1388.9	1495.3	2040.8	1421.6	6:15	5:45	2494.6	117.6	2497.4	3008.0
9:40	2:20	1433.9	1473.1	2055.8	1470.4	6:10	5:50	2497.6	78.4	2498.9	3032.5
9:35	2:25	1478.3	1450.3	2070.9	1518.7	6:05	5:55	2499.4	39.2	2499.7	3056.4
9:30	2:30	1521.9	1426.7	2086.1	1566.6	6:00	6:00	2500.0	0.0	2500.0	3079.6
9:25	2:35	1564.8	1402.5	2101.3	1614.1	5:55	6:05	2499.4	-39.2	2499.7	3102.2
9:20	2:40	1607.0	1377.6	2116.6	1661.1	5:50	6:10	2497.6	-78.4	2498.9	3124.2
9:15	2:45	1648.4	1352.1	2131.9	1707.7	5:45	6:15	2494.6	-117.6	2497.4	3145.5
9:10	2:50	1689.0	1325.9	2147.2	1753.8	5:40	6:20	2490.5	-156.7	2495.4	3166.2
9:05	2:55	1728.8	1299.1	2162.5	1799.4	5:35	6:25	2485.1	-195.8	2492.8	3186.3
9:00	3:00	1767.8	1271.6	2177.6	1844.6	5:30	6:30	2478.6	-234.7	2489.7	3205.8
8:55	3:05	1805.9	1243.6	2192.7	1889.2	5:25	6:35	2470.9	-273.6	2486.0	3224.6
8:50	3:10	1843.2	1214.9	2207.6	1933.3	5:20	6:40	2462.0	-312.3	2481.7	3242.9
8:45	3:15	1879.6	1185.7	2222.4	1976.9	5:15	6:45	2452.0	-350.8	2476.9	3260.5
8:40	3:20	1915.1	1156.0	2236.9	2020.0	5:10	6:50	2440.7	-389.2	2471.6	3277.6
8:35	3:25	1949.7	1125.6	2251.3	2062.5	5:05	6:55	2428.4	-427.4	2465.7	3294.1
8:30	3:30	1983.4	1094.8	2265.5	2104.5	5:00	7:00	2414.8	-465.4	2459.3	3310.0

Analemmatic Sundial**Latitude: 46.0° N/S**

Earliest Sunrise: 4:07 a.m. Latest Sunset: 7:53 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1798.3 mm
 Sunrise/Sunset Markers: $X = \pm 1115.4$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-503.2	2452.3	3325.3
4:50	7:10	2384.3	-540.8	2444.8	3340.1
4:45	7:15	2367.3	-578.1	2436.9	3354.3
4:40	7:20	2349.2	-615.1	2428.4	3368.0
4:35	7:25	2330.0	-651.8	2419.5	3381.2
4:30	7:30	2309.7	-688.2	2410.0	3393.8
4:25	7:35	2288.3	-724.3	2400.2	3405.9
4:20	7:40	2265.8	-760.0	2389.8	3417.4
4:15	7:45	2242.2	-795.4	2379.1	3428.5
4:10	7:50	2217.5	-830.4	2367.9	3439.1
4:05	7:55	2191.8	-865.0	2356.3	3449.3
4:00	8:00	2165.1	-899.2	2344.4	3458.9

Analematic Sundial

Latitude: 46.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1798.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-736.8	-722.9	-718.6	-699.5	-693.9	-670.1	-663.5	-635.2	-627.6	-595.6	-587.1
February	-532.9	-494.0	-483.9	-442.7	-432.4	-389.1	-378.0	-333.5	-322.2	-276.3	-264.5
March	-229.6	-182.5	-170.6	-123.0	-111.1	-63.1	-51.2	-3.0	8.8	56.7	68.5
April	139.7	186.5	198.2	244.1	255.5	300.6	311.5	355.5	366.3	408.6	418.9
May	469.2	507.8	517.1	552.9	561.6	594.6	602.4	632.4	639.6	665.9	671.9
June	704.5	721.5	725.4	737.9	740.7	748.6	749.7	752.6	753.0	747.6	750.1
July	740.7	728.9	725.4	709.4	704.8	684.1	678.5	653.8	647.2	619.1	611.6
August	563.6	528.6	519.7	482.3	472.8	433.3	423.0	381.8	371.4	328.5	317.5
September	251.2	205.9	194.5	148.3	136.7	90.1	78.6	31.5	19.7	-27.6	-39.4
October	-98.3	-145.5	-157.1	-204.0	-215.4	-261.7	-273.2	-318.4	-329.7	-373.9	-384.7
November	-448.2	-488.8	-498.6	-536.9	-546.2	-581.7	-590.2	-622.5	-630.0	-658.6	-665.6
December	-695.3	-715.4	-719.7	-734.3	-737.5	-746.8	-748.6	-752.6	-753.0	-751.2	-750.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	736.8	722.9	718.6	699.5	693.9	670.1	663.5	635.2	627.6	595.6	587.1
February	532.9	494.0	483.9	442.7	432.4	389.1	378.0	333.5	322.2	276.3	264.5
March	229.6	182.5	170.6	123.0	111.1	63.1	51.2	3.0	-8.8	-56.7	-68.5
April	-139.7	-186.5	-198.2	-244.1	-255.5	-300.6	-311.5	-355.5	-366.3	-408.6	-418.9
May	-469.2	-507.8	-517.1	-552.9	-561.6	-594.6	-602.4	-632.4	-639.6	-665.9	-671.9
June	-704.5	-721.5	-725.4	-737.9	-740.7	-748.6	-749.7	-752.6	-753.0	-747.6	-750.1
July	-740.7	-728.9	-725.4	-709.4	-704.8	-684.1	-678.5	-653.8	-647.2	-619.1	-611.6
August	-563.6	-528.6	-519.7	-482.3	-472.8	-433.3	-423.0	-381.8	-371.4	-328.5	-317.5
September	-251.2	-205.9	-194.5	-148.3	-136.7	-90.1	-78.6	-31.5	-19.7	27.6	39.4
October	98.3	145.5	157.1	204.0	215.4	261.7	273.2	318.4	329.7	373.9	384.7
November	448.2	488.8	498.6	536.9	546.2	581.7	590.2	622.5	630.0	658.6	665.6
December	695.3	715.4	719.7	734.3	737.5	746.8	748.6	752.6	753.0	751.2	750.1

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