

Analemmatic Sundial

Latitude: 46.5° N/S

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 725.4 mm
 Sunrise/Sunset Markers: X = ± 436.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	725.4	725.4	0.0						
11:55	12:05	21.8	725.2	725.5	21.8	8:25	3:35	806.4	428.9	913.4	859.2
11:50	12:10	43.6	724.7	726.0	43.6	8:20	3:40	819.2	416.1	918.8	875.6
11:45	12:15	65.4	723.8	726.8	65.4	8:15	3:45	831.5	403.0	924.0	891.8
11:40	12:20	87.2	722.6	727.9	87.2	8:10	3:50	843.4	389.7	929.1	907.7
11:35	12:25	108.9	721.1	729.2	109.0	8:05	3:55	854.9	376.3	934.1	923.4
11:30	12:30	130.5	719.2	730.9	130.7	8:00	4:00	866.0	362.7	938.9	938.9
11:25	12:35	152.1	716.9	732.9	152.4	7:55	4:05	876.7	348.9	943.6	954.1
11:20	12:40	173.6	714.4	735.2	174.0	7:50	4:10	887.0	334.9	948.1	969.1
11:15	12:45	195.1	711.4	737.7	195.6	7:45	4:15	896.9	320.8	952.5	983.9
11:10	12:50	216.4	708.2	740.5	217.1	7:40	4:20	906.3	306.6	956.8	998.4
11:05	12:55	237.7	704.6	743.6	238.6	7:35	4:25	915.3	292.1	960.8	1012.7
11:00	1:00	258.8	700.7	746.9	260.0	7:30	4:30	923.9	277.6	964.7	1026.7
10:55	1:05	279.8	696.4	750.5	281.3	7:25	4:35	932.0	262.9	968.4	1040.4
10:50	1:10	300.7	691.8	754.3	302.6	7:20	4:40	939.7	248.1	971.9	1054.0
10:45	1:15	321.4	686.9	758.4	323.7	7:15	4:45	946.9	233.2	975.2	1067.2
10:40	1:20	342.0	681.6	762.6	344.8	7:10	4:50	953.7	218.1	978.3	1080.2
10:35	1:25	362.4	676.1	767.1	365.8	7:05	4:55	960.0	203.0	981.3	1093.0
10:30	1:30	382.7	670.2	771.7	386.6	7:00	5:00	965.9	187.7	984.0	1105.5
10:25	1:35	402.7	663.9	776.5	407.4	6:55	5:05	971.3	172.4	986.5	1117.7
10:20	1:40	422.6	657.4	781.5	428.0	6:50	5:10	976.3	157.0	988.8	1129.7
10:15	1:45	442.3	650.6	786.7	448.6	6:45	5:15	980.8	141.5	990.9	1141.4
10:10	1:50	461.7	643.4	792.0	469.0	6:40	5:20	984.8	126.0	992.8	1152.9
10:05	1:55	481.0	636.0	797.4	489.2	6:35	5:25	988.4	110.3	994.5	1164.1
10:00	2:00	500.0	628.2	802.9	509.4	6:30	5:30	991.4	94.7	996.0	1175.0
9:55	2:05	518.8	620.1	808.5	529.3	6:25	5:35	994.1	79.0	997.2	1185.7
9:50	2:10	537.3	611.8	814.2	549.2	6:20	5:40	996.2	63.2	998.2	1196.2
9:45	2:15	555.6	603.1	820.0	568.9	6:15	5:45	997.9	47.4	999.0	1206.4
9:40	2:20	573.6	594.2	825.9	588.4	6:10	5:50	999.0	31.6	999.5	1216.3
9:35	2:25	591.3	585.0	831.8	607.7	6:05	5:55	999.8	15.8	999.9	1226.0
9:30	2:30	608.8	575.5	837.7	626.9	6:00	6:00	1000.0	0.0	1000.0	1235.4
9:25	2:35	625.9	565.7	843.7	646.0	5:55	6:05	999.8	-15.8	999.9	1244.5
9:20	2:40	642.8	555.7	849.7	664.8	5:50	6:10	999.0	-31.6	999.5	1253.5
9:15	2:45	659.3	545.4	855.7	683.5	5:45	6:15	997.9	-47.4	999.0	1262.1
9:10	2:50	675.6	534.8	861.6	702.0	5:40	6:20	996.2	-63.2	998.2	1270.5
9:05	2:55	691.5	524.0	867.6	720.2	5:35	6:25	994.1	-79.0	997.2	1278.7
9:00	3:00	707.1	512.9	873.5	738.3	5:30	6:30	991.4	-94.7	996.0	1286.6
8:55	3:05	722.4	501.6	879.4	756.2	5:25	6:35	988.4	-110.3	994.5	1294.3
8:50	3:10	737.3	490.1	885.3	773.9	5:20	6:40	984.8	-126.0	992.8	1301.8
8:45	3:15	751.8	478.3	891.1	791.4	5:15	6:45	980.8	-141.5	990.9	1309.0
8:40	3:20	766.0	466.3	896.8	808.7	5:10	6:50	976.3	-157.0	988.8	1316.0
8:35	3:25	779.9	454.0	902.4	825.7	5:05	6:55	971.3	-172.4	986.5	1322.7
8:30	3:30	793.4	441.6	908.0	842.6	5:00	7:00	965.9	-187.7	984.0	1329.2

Analemmatic Sundial**Latitude: 46.5° N/S**

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 725.4 mm
 Sunrise/Sunset Markers: $X = \pm 436.8$ mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-203.0	981.3	1335.5
4:50	7:10	953.7	-218.1	978.3	1341.6
4:45	7:15	946.9	-233.2	975.2	1347.4
4:40	7:20	939.7	-248.1	971.9	1353.0
4:35	7:25	932.0	-262.9	968.4	1358.4
4:30	7:30	923.9	-277.6	964.7	1363.6
4:25	7:35	915.3	-292.1	960.8	1368.6
4:20	7:40	906.3	-306.6	956.8	1373.4
4:15	7:45	896.9	-320.8	952.5	1378.0
4:10	7:50	887.0	-334.9	948.1	1382.4
4:05	7:55	876.7	-348.9	943.6	1386.6
4:00	8:00	866.0	-362.7	938.9	1390.6

Analematic Sundial

Latitude: 46.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 725.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-292.0	-286.5	-284.8	-277.3	-275.0	-265.6	-263.0	-251.8	-248.8	-236.1	-232.7
February	-211.2	-195.8	-191.8	-175.5	-171.4	-154.2	-149.8	-132.2	-127.7	-109.5	-104.8
March	-91.0	-72.3	-67.6	-48.7	-44.0	-25.0	-20.3	-1.2	3.5	22.5	27.2
April	55.4	73.9	78.5	96.7	101.3	119.1	123.5	140.9	145.2	162.0	166.0
May	186.0	201.3	204.9	219.2	222.6	235.7	238.8	250.7	253.5	264.0	266.3
June	279.2	286.0	287.5	292.5	293.6	296.7	297.2	298.3	298.4	296.3	297.3
July	293.6	288.9	287.5	281.2	279.4	271.2	268.9	259.1	256.5	245.4	242.4
August	223.4	209.5	206.0	191.2	187.4	171.8	167.7	151.3	147.2	130.2	125.8
September	99.6	81.6	77.1	58.8	54.2	35.7	31.1	12.5	7.8	-10.9	-15.6
October	-39.0	-57.7	-62.3	-80.9	-85.4	-103.7	-108.3	-126.2	-130.7	-148.2	-152.5
November	-177.6	-193.7	-197.6	-212.8	-216.5	-230.6	-233.9	-246.7	-249.7	-261.1	-263.8
December	-275.6	-283.6	-285.3	-291.1	-292.3	-296.0	-296.7	-298.3	-298.4	-297.7	-297.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	292.0	286.5	284.8	277.3	275.0	265.6	263.0	251.8	248.8	236.1	232.7
February	211.2	195.8	191.8	175.5	171.4	154.2	149.8	132.2	127.7	109.5	104.8
March	91.0	72.3	67.6	48.7	44.0	25.0	20.3	1.2	-3.5	-22.5	-27.2
April	-55.4	-73.9	-78.5	-96.7	-101.3	-119.1	-123.5	-140.9	-145.2	-162.0	-166.0
May	-186.0	-201.3	-204.9	-219.2	-222.6	-235.7	-238.8	-250.7	-253.5	-264.0	-266.3
June	-279.2	-286.0	-287.5	-292.5	-293.6	-296.7	-297.2	-298.3	-298.4	-296.3	-297.3
July	-293.6	-288.9	-287.5	-281.2	-279.4	-271.2	-268.9	-259.1	-256.5	-245.4	-242.4
August	-223.4	-209.5	-206.0	-191.2	-187.4	-171.8	-167.7	-151.3	-147.2	-130.2	-125.8
September	-99.6	-81.6	-77.1	-58.8	-54.2	-35.7	-31.1	-12.5	-7.8	10.9	15.6
October	39.0	57.7	62.3	80.9	85.4	103.7	108.3	126.2	130.7	148.2	152.5
November	177.6	193.7	197.6	212.8	216.5	230.6	233.9	246.7	249.7	261.1	263.8
December	275.6	283.6	285.3	291.1	292.3	296.0	296.7	298.3	298.4	297.7	297.3

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: 46.5° N/S

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1088.1 mm
 Sunrise/Sunset Markers: X = ± 655.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1088.1	1088.1	0.0						
11:55	12:05	32.7	1087.8	1088.3	32.7	8:25	3:35	1209.7	643.4	1370.1	1288.8
11:50	12:10	65.4	1087.0	1089.0	65.4	8:20	3:40	1228.7	624.1	1378.1	1313.4
11:45	12:15	98.1	1085.7	1090.2	98.1	8:15	3:45	1247.2	604.5	1386.0	1337.7
11:40	12:20	130.7	1083.9	1091.8	130.8	8:10	3:50	1265.1	584.6	1393.6	1361.6
11:35	12:25	163.3	1081.6	1093.9	163.4	8:05	3:55	1282.4	564.5	1401.1	1385.1
11:30	12:30	195.8	1078.8	1096.4	196.0	8:00	4:00	1299.0	544.0	1408.4	1408.4
11:25	12:35	228.2	1075.4	1099.3	228.5	7:55	4:05	1315.1	523.3	1415.4	1431.2
11:20	12:40	260.5	1071.5	1102.7	261.0	7:50	4:10	1330.5	502.4	1422.2	1453.7
11:15	12:45	292.6	1067.2	1106.6	293.4	7:45	4:15	1345.3	481.2	1428.8	1475.8
11:10	12:50	324.7	1062.3	1110.8	325.7	7:40	4:20	1359.5	459.8	1435.1	1497.6
11:05	12:55	356.5	1056.9	1115.4	357.9	7:35	4:25	1373.0	438.2	1441.2	1519.0
11:00	1:00	388.2	1051.0	1120.4	390.0	7:30	4:30	1385.8	416.4	1447.0	1540.0
10:55	1:05	419.7	1044.6	1125.8	422.0	7:25	4:35	1398.0	394.4	1452.6	1560.7
10:50	1:10	451.1	1037.7	1131.5	453.9	7:20	4:40	1409.5	372.1	1457.8	1580.9
10:45	1:15	482.2	1030.3	1137.6	485.6	7:15	4:45	1420.4	349.7	1462.8	1600.8
10:40	1:20	513.0	1022.4	1143.9	517.2	7:10	4:50	1430.6	327.2	1467.5	1620.3
10:35	1:25	543.7	1014.1	1150.6	548.7	7:05	4:55	1440.1	304.5	1471.9	1639.5
10:30	1:30	574.0	1005.2	1157.6	580.0	7:00	5:00	1448.9	281.6	1476.0	1658.2
10:25	1:35	604.1	995.9	1164.8	611.1	6:55	5:05	1457.0	258.6	1479.8	1676.6
10:20	1:40	633.9	986.1	1172.3	642.1	6:50	5:10	1464.4	235.5	1483.3	1694.5
10:15	1:45	663.4	975.9	1180.0	672.9	6:45	5:15	1471.2	212.3	1486.4	1712.1
10:10	1:50	692.6	965.1	1187.9	703.4	6:40	5:20	1477.2	188.9	1489.2	1729.3
10:05	1:55	721.5	953.9	1196.0	733.8	6:35	5:25	1482.5	165.5	1491.8	1746.1
10:00	2:00	750.0	942.3	1204.3	764.0	6:30	5:30	1487.2	142.0	1493.9	1762.6
9:55	2:05	778.2	930.2	1212.8	794.0	6:25	5:35	1491.1	118.5	1495.8	1778.6
9:50	2:10	805.9	917.7	1221.3	823.8	6:20	5:40	1494.3	94.8	1497.3	1794.3
9:45	2:15	833.4	904.7	1230.0	853.3	6:15	5:45	1496.8	71.2	1498.5	1809.5
9:40	2:20	860.4	891.3	1238.8	882.6	6:10	5:50	1498.6	47.5	1499.3	1824.4
9:35	2:25	887.0	877.5	1247.7	911.6	6:05	5:55	1499.6	23.7	1499.8	1838.9
9:30	2:30	913.1	863.2	1256.6	940.4	6:00	6:00	1500.0	0.0	1500.0	1853.1
9:25	2:35	938.9	848.6	1265.5	969.0	5:55	6:05	1499.6	-23.7	1499.8	1866.8
9:20	2:40	964.2	833.5	1274.5	997.2	5:50	6:10	1498.6	-47.5	1499.3	1880.2
9:15	2:45	989.0	818.0	1283.5	1025.2	5:45	6:15	1496.8	-71.2	1498.5	1893.2
9:10	2:50	1013.4	802.2	1292.5	1052.9	5:40	6:20	1494.3	-94.8	1497.3	1905.8
9:05	2:55	1037.3	786.0	1301.4	1080.4	5:35	6:25	1491.1	-118.5	1495.8	1918.1
9:00	3:00	1060.7	769.4	1310.3	1107.5	5:30	6:30	1487.2	-142.0	1493.9	1930.0
8:55	3:05	1083.5	752.4	1319.2	1134.3	5:25	6:35	1482.5	-165.5	1491.8	1941.5
8:50	3:10	1105.9	735.1	1327.9	1160.9	5:20	6:40	1477.2	-188.9	1489.2	1952.7
8:45	3:15	1127.8	717.4	1336.6	1187.1	5:15	6:45	1471.2	-212.3	1486.4	1963.5
8:40	3:20	1149.1	699.4	1345.2	1213.0	5:10	6:50	1464.4	-235.5	1483.3	1973.9
8:35	3:25	1169.8	681.0	1353.6	1238.6	5:05	6:55	1457.0	-258.6	1479.8	1984.0
8:30	3:30	1190.0	662.4	1361.9	1263.9	5:00	7:00	1448.9	-281.6	1476.0	1993.8

Analemmatic Sundial**Latitude: 46.5° N/S**

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1088.1 mm
 Sunrise/Sunset Markers: $X = \pm 655.2$ mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-304.5	1471.9	2003.2
4:50	7:10	1430.6	-327.2	1467.5	2012.3
4:45	7:15	1420.4	-349.7	1462.8	2021.1
4:40	7:20	1409.5	-372.1	1457.8	2029.5
4:35	7:25	1398.0	-394.4	1452.6	2037.6
4:30	7:30	1385.8	-416.4	1447.0	2045.4
4:25	7:35	1373.0	-438.2	1441.2	2052.9
4:20	7:40	1359.5	-459.8	1435.1	2060.1
4:15	7:45	1345.3	-481.2	1428.8	2067.0
4:10	7:50	1330.5	-502.4	1422.2	2073.6
4:05	7:55	1315.1	-523.3	1415.4	2079.9
4:00	8:00	1299.0	-544.0	1408.4	2086.0

Analemmatic Sundial

Latitude: 46.5° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1088.1 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-438.1	-429.8	-427.3	-415.9	-412.6	-398.4	-394.5	-377.6	-373.2	-354.1	-349.1
February	-316.9	-293.7	-287.7	-263.2	-257.1	-231.4	-224.8	-198.3	-191.6	-164.3	-157.3
March	-136.5	-108.5	-101.4	-73.1	-66.0	-37.5	-30.5	-1.8	5.2	33.7	40.7
April	83.1	110.9	117.8	145.1	151.9	178.7	185.2	211.4	217.8	242.9	249.0
May	279.0	301.9	307.4	328.7	333.9	353.5	358.2	376.0	380.3	395.9	399.5
June	418.8	429.0	431.3	438.7	440.4	445.1	445.7	447.5	447.7	444.5	446.0
July	440.4	433.4	431.3	421.8	419.1	406.7	403.4	388.7	384.8	368.1	363.6
August	335.1	314.3	309.0	286.7	281.1	257.6	251.5	227.0	220.8	195.3	188.8
September	149.3	122.4	115.6	88.2	81.3	53.6	46.7	18.7	11.7	-16.4	-23.4
October	-58.5	-86.5	-93.4	-121.3	-128.1	-155.6	-162.4	-189.3	-196.0	-222.3	-228.7
November	-266.5	-290.6	-296.5	-319.2	-324.8	-345.9	-350.9	-370.1	-374.6	-391.6	-395.7
December	-413.4	-425.4	-427.9	-436.6	-438.5	-444.0	-445.1	-447.5	-447.7	-446.6	-446.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	438.1	429.8	427.3	415.9	412.6	398.4	394.5	377.6	373.2	354.1	349.1
February	316.9	293.7	287.7	263.2	257.1	231.4	224.8	198.3	191.6	164.3	157.3
March	136.5	108.5	101.4	73.1	66.0	37.5	30.5	1.8	-5.2	-33.7	-40.7
April	-83.1	-110.9	-117.8	-145.1	-151.9	-178.7	-185.2	-211.4	-217.8	-242.9	-249.0
May	-279.0	-301.9	-307.4	-328.7	-333.9	-353.5	-358.2	-376.0	-380.3	-395.9	-399.5
June	-418.8	-429.0	-431.3	-438.7	-440.4	-445.1	-445.7	-447.5	-447.7	-444.5	-446.0
July	-440.4	-433.4	-431.3	-421.8	-419.1	-406.7	-403.4	-388.7	-384.8	-368.1	-363.6
August	-335.1	-314.3	-309.0	-286.7	-281.1	-257.6	-251.5	-227.0	-220.8	-195.3	-188.8
September	-149.3	-122.4	-115.6	-88.2	-81.3	-53.6	-46.7	-18.7	-11.7	16.4	23.4
October	58.5	86.5	93.4	121.3	128.1	155.6	162.4	189.3	196.0	222.3	228.7
November	266.5	290.6	296.5	319.2	324.8	345.9	350.9	370.1	374.6	391.6	395.7
December	413.4	425.4	427.9	436.6	438.5	444.0	445.1	447.5	447.7	446.6	446.0

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: 46.5° N/S

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1450.7 mm
 Sunrise/Sunset Markers: X = ± 873.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1450.7	1450.7	0.0						
11:55	12:05	43.6	1450.4	1451.1	43.6	8:25	3:35	1612.9	857.8	1826.8	1718.4
11:50	12:10	87.2	1449.4	1452.0	87.2	8:20	3:40	1638.3	832.1	1837.5	1751.2
11:45	12:15	130.8	1447.6	1453.5	130.8	8:15	3:45	1662.9	806.0	1848.0	1783.6
11:40	12:20	174.3	1445.2	1455.7	174.4	8:10	3:50	1686.8	779.5	1858.2	1815.4
11:35	12:25	217.7	1442.1	1458.5	217.9	8:05	3:55	1709.8	752.6	1868.1	1846.9
11:30	12:30	261.1	1438.3	1461.8	261.3	8:00	4:00	1732.1	725.4	1877.8	1877.8
11:25	12:35	304.2	1433.9	1465.8	304.7	7:55	4:05	1753.5	697.8	1887.2	1908.3
11:20	12:40	347.3	1428.7	1470.3	348.0	7:50	4:10	1774.0	669.9	1896.3	1938.3
11:15	12:45	390.2	1422.9	1475.4	391.2	7:45	4:15	1793.7	641.6	1905.1	1967.8
11:10	12:50	432.9	1416.4	1481.0	434.2	7:40	4:20	1812.6	613.1	1913.5	1996.8
11:05	12:55	475.4	1409.2	1487.2	477.2	7:35	4:25	1830.6	584.3	1921.6	2025.3
11:00	1:00	517.6	1401.3	1493.9	520.0	7:30	4:30	1847.8	555.2	1929.4	2053.4
10:55	1:05	559.7	1392.8	1501.0	562.7	7:25	4:35	1864.0	525.8	1936.8	2080.9
10:50	1:10	601.4	1383.6	1508.7	605.1	7:20	4:40	1879.4	496.2	1943.8	2107.9
10:45	1:15	642.9	1373.8	1516.7	647.5	7:15	4:45	1893.9	466.3	1950.4	2134.4
10:40	1:20	684.0	1363.3	1525.2	689.6	7:10	4:50	1907.4	436.2	1956.7	2160.4
10:35	1:25	724.9	1352.1	1534.2	731.6	7:05	4:55	1920.1	406.0	1962.5	2185.9
10:30	1:30	765.4	1340.3	1543.4	773.3	7:00	5:00	1931.9	375.5	1968.0	2210.9
10:25	1:35	805.5	1327.9	1553.1	814.8	6:55	5:05	1942.7	344.8	1973.0	2235.4
10:20	1:40	845.2	1314.8	1563.1	856.1	6:50	5:10	1952.6	314.0	1977.7	2259.4
10:15	1:45	884.6	1301.1	1573.4	897.1	6:45	5:15	1961.6	283.0	1981.9	2282.8
10:10	1:50	923.5	1286.8	1583.9	937.9	6:40	5:20	1969.6	251.9	1985.7	2305.8
10:05	1:55	962.0	1271.9	1594.7	978.5	6:35	5:25	1976.7	220.7	1989.0	2328.2
10:00	2:00	1000.0	1256.4	1605.8	1018.7	6:30	5:30	1982.9	189.4	1991.9	2350.1
9:55	2:05	1037.5	1240.3	1617.0	1058.7	6:25	5:35	1988.1	157.9	1994.4	2371.5
9:50	2:10	1074.6	1223.5	1628.4	1098.4	6:20	5:40	1992.4	126.4	1996.4	2392.4
9:45	2:15	1111.1	1206.3	1640.0	1137.7	6:15	5:45	1995.7	94.9	1998.0	2412.7
9:40	2:20	1147.2	1188.4	1651.7	1176.8	6:10	5:50	1998.1	63.3	1999.1	2432.6
9:35	2:25	1182.6	1169.9	1663.5	1215.5	6:05	5:55	1999.5	31.6	1999.8	2451.9
9:30	2:30	1217.5	1151.0	1675.4	1253.9	6:00	6:00	2000.0	0.0	2000.0	2470.8
9:25	2:35	1251.8	1131.4	1687.4	1291.9	5:55	6:05	1999.5	-31.6	1999.8	2489.1
9:20	2:40	1285.6	1111.3	1699.3	1329.6	5:50	6:10	1998.1	-63.3	1999.1	2506.9
9:15	2:45	1318.7	1090.7	1711.3	1367.0	5:45	6:15	1995.7	-94.9	1998.0	2524.3
9:10	2:50	1351.2	1069.6	1723.3	1403.9	5:40	6:20	1992.4	-126.4	1996.4	2541.1
9:05	2:55	1383.0	1048.0	1735.2	1440.5	5:35	6:25	1988.1	-157.9	1994.4	2557.4
9:00	3:00	1414.2	1025.8	1747.1	1476.7	5:30	6:30	1982.9	-189.4	1991.9	2573.3
8:55	3:05	1444.7	1003.2	1758.9	1512.5	5:25	6:35	1976.7	-220.7	1989.0	2588.7
8:50	3:10	1474.6	980.1	1770.6	1547.8	5:20	6:40	1969.6	-251.9	1985.7	2603.5
8:45	3:15	1503.7	956.5	1782.1	1582.8	5:15	6:45	1961.6	-283.0	1981.9	2618.0
8:40	3:20	1532.1	932.5	1793.6	1617.4	5:10	6:50	1952.6	-314.0	1977.7	2631.9
8:35	3:25	1559.8	908.1	1804.8	1651.5	5:05	6:55	1942.7	-344.8	1973.0	2645.4
8:30	3:30	1586.7	883.2	1815.9	1685.2	5:00	7:00	1931.9	-375.5	1968.0	2658.4

Analemmatic Sundial**Latitude: 46.5° N/S**

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1450.7 mm
 Sunrise/Sunset Markers: X = ± 873.5 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-406.0	1962.5	2671.0
4:50	7:10	1907.4	-436.2	1956.7	2683.1
4:45	7:15	1893.9	-466.3	1950.4	2694.8
4:40	7:20	1879.4	-496.2	1943.8	2706.0
4:35	7:25	1864.0	-525.8	1936.8	2716.9
4:30	7:30	1847.8	-555.2	1929.4	2727.3
4:25	7:35	1830.6	-584.3	1921.6	2737.3
4:20	7:40	1812.6	-613.1	1913.5	2746.8
4:15	7:45	1793.7	-641.6	1905.1	2756.0
4:10	7:50	1774.0	-669.9	1896.3	2764.8
4:05	7:55	1753.5	-697.8	1887.2	2773.2
4:00	8:00	1732.1	-725.4	1877.8	2781.3

Analematic Sundial

Latitude: 46.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1450.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-584.1	-573.1	-569.7	-554.6	-550.1	-531.2	-526.0	-503.5	-497.5	-472.2	-465.5
February	-422.5	-391.6	-383.6	-350.9	-342.7	-308.5	-299.7	-264.4	-255.4	-219.0	-209.7
March	-182.0	-144.7	-135.2	-97.5	-88.1	-50.0	-40.6	-2.4	7.0	44.9	54.3
April	110.8	147.9	157.1	193.5	202.6	238.3	247.0	281.8	290.4	323.9	332.0
May	372.0	402.6	409.9	438.3	445.2	471.4	477.5	501.4	507.1	527.9	532.6
June	558.5	571.9	575.0	584.9	587.2	593.5	594.3	596.6	596.9	592.6	594.6
July	587.2	577.9	575.0	562.4	558.7	542.3	537.9	518.3	513.1	490.8	484.8
August	446.8	419.1	412.0	382.3	374.8	343.5	335.4	302.7	294.4	260.4	251.7
September	199.1	163.2	154.2	117.5	108.3	71.4	62.3	25.0	15.6	-21.9	-31.2
October	-77.9	-115.4	-124.6	-161.7	-170.7	-207.5	-216.6	-252.4	-261.4	-296.4	-305.0
November	-355.3	-387.5	-395.3	-425.6	-433.0	-461.2	-467.9	-493.5	-499.4	-522.1	-527.6
December	-551.2	-567.2	-570.5	-582.1	-584.7	-592.1	-593.5	-596.6	-596.9	-595.5	-594.6

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	584.1	573.1	569.7	554.6	550.1	531.2	526.0	503.5	497.5	472.2	465.5
February	422.5	391.6	383.6	350.9	342.7	308.5	299.7	264.4	255.4	219.0	209.7
March	182.0	144.7	135.2	97.5	88.1	50.0	40.6	2.4	-7.0	-44.9	-54.3
April	-110.8	-147.9	-157.1	-193.5	-202.6	-238.3	-247.0	-281.8	-290.4	-323.9	-332.0
May	-372.0	-402.6	-409.9	-438.3	-445.2	-471.4	-477.5	-501.4	-507.1	-527.9	-532.6
June	-558.5	-571.9	-575.0	-584.9	-587.2	-593.5	-594.3	-596.6	-596.9	-592.6	-594.6
July	-587.2	-577.9	-575.0	-562.4	-558.7	-542.3	-537.9	-518.3	-513.1	-490.8	-484.8
August	-446.8	-419.1	-412.0	-382.3	-374.8	-343.5	-335.4	-302.7	-294.4	-260.4	-251.7
September	-199.1	-163.2	-154.2	-117.5	-108.3	-71.4	-62.3	-25.0	-15.6	21.9	31.2
October	77.9	115.4	124.6	161.7	170.7	207.5	216.6	252.4	261.4	296.4	305.0
November	355.3	387.5	395.3	425.6	433.0	461.2	467.9	493.5	499.4	522.1	527.6
December	551.2	567.2	570.5	582.1	584.7	592.1	593.5	596.6	596.9	595.5	594.6

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: 46.5° N/S

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1813.4 mm
 Sunrise/Sunset Markers: X = ± 1091.9 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1813.4	1813.4	0.0						
11:55	12:05	54.5	1813.0	1813.8	54.5	8:25	3:35	2016.1	1072.3	2283.5	2148.0
11:50	12:10	109.0	1811.7	1815.0	109.1	8:20	3:40	2047.9	1040.1	2296.9	2189.0
11:45	12:15	163.5	1809.6	1816.9	163.6	8:15	3:45	2078.7	1007.5	2310.0	2229.4
11:40	12:20	217.9	1806.5	1819.6	218.0	8:10	3:50	2108.5	974.4	2322.7	2269.3
11:35	12:25	272.2	1802.7	1823.1	272.4	8:05	3:55	2137.3	940.8	2335.2	2308.6
11:30	12:30	326.3	1797.9	1827.3	326.7	8:00	4:00	2165.1	906.7	2347.3	2347.3
11:25	12:35	380.3	1792.3	1832.2	380.9	7:55	4:05	2191.8	872.2	2359.0	2385.4
11:20	12:40	434.1	1785.9	1837.9	435.0	7:50	4:10	2217.5	837.4	2370.4	2422.8
11:15	12:45	487.7	1778.6	1844.3	489.0	7:45	4:15	2242.2	802.1	2381.3	2459.7
11:10	12:50	541.1	1770.5	1851.3	542.8	7:40	4:20	2265.8	766.4	2391.9	2496.0
11:05	12:55	594.2	1761.5	1859.0	596.5	7:35	4:25	2288.3	730.4	2402.0	2531.7
11:00	1:00	647.0	1751.6	1867.3	650.0	7:30	4:30	2309.7	694.0	2411.7	2566.7
10:55	1:05	699.6	1741.0	1876.3	703.3	7:25	4:35	2330.0	657.3	2420.9	2601.1
10:50	1:10	751.8	1729.5	1885.8	756.4	7:20	4:40	2349.2	620.2	2429.7	2634.9
10:45	1:15	803.6	1717.2	1895.9	809.3	7:15	4:45	2367.3	582.9	2438.0	2668.0
10:40	1:20	855.1	1704.1	1906.6	862.0	7:10	4:50	2384.3	545.3	2445.9	2700.6
10:35	1:25	906.1	1690.1	1917.7	914.4	7:05	4:55	2400.1	507.5	2453.2	2732.4
10:30	1:30	956.7	1675.4	1929.3	966.6	7:00	5:00	2414.8	469.4	2460.0	2763.7
10:25	1:35	1006.9	1659.9	1941.4	1018.5	6:55	5:05	2428.4	431.0	2466.3	2794.3
10:20	1:40	1056.5	1643.5	1953.8	1070.1	6:50	5:10	2440.7	392.5	2472.1	2824.2
10:15	1:45	1105.7	1626.4	1966.7	1121.4	6:45	5:15	2452.0	353.8	2477.4	2853.5
10:10	1:50	1154.4	1608.5	1979.9	1172.4	6:40	5:20	2462.0	314.9	2482.1	2882.2
10:05	1:55	1202.5	1589.9	1993.4	1223.1	6:35	5:25	2470.9	275.9	2486.3	2910.2
10:00	2:00	1250.0	1570.5	2007.2	1273.4	6:30	5:30	2478.6	236.7	2489.9	2937.6
9:55	2:05	1296.9	1550.3	2021.3	1323.4	6:25	5:35	2485.1	197.4	2493.0	2964.4
9:50	2:10	1343.2	1529.4	2035.6	1372.9	6:20	5:40	2490.5	158.1	2495.5	2990.5
9:45	2:15	1388.9	1507.8	2050.0	1422.2	6:15	5:45	2494.6	118.6	2497.5	3015.9
9:40	2:20	1433.9	1485.5	2064.7	1471.0	6:10	5:50	2497.6	79.1	2498.9	3040.7
9:35	2:25	1478.3	1462.4	2079.4	1519.4	6:05	5:55	2499.4	39.6	2499.7	3064.9
9:30	2:30	1521.9	1438.7	2094.3	1567.4	6:00	6:00	2500.0	0.0	2500.0	3088.5
9:25	2:35	1564.8	1414.3	2109.2	1614.9	5:55	6:05	2499.4	-39.6	2499.7	3111.4
9:20	2:40	1607.0	1389.2	2124.2	1662.0	5:50	6:10	2497.6	-79.1	2498.9	3133.7
9:15	2:45	1648.4	1363.4	2139.2	1708.7	5:45	6:15	2494.6	-118.6	2497.5	3155.3
9:10	2:50	1689.0	1337.0	2154.1	1754.9	5:40	6:20	2490.5	-158.1	2495.5	3176.4
9:05	2:55	1728.8	1310.0	2169.0	1800.6	5:35	6:25	2485.1	-197.4	2493.0	3196.8
9:00	3:00	1767.8	1282.3	2183.9	1845.8	5:30	6:30	2478.6	-236.7	2489.9	3216.6
8:55	3:05	1805.9	1254.0	2198.6	1890.6	5:25	6:35	2470.9	-275.9	2486.3	3235.8
8:50	3:10	1843.2	1225.1	2213.2	1934.8	5:20	6:40	2462.0	-314.9	2482.1	3254.4
8:45	3:15	1879.6	1195.7	2227.7	1978.5	5:15	6:45	2452.0	-353.8	2477.4	3272.5
8:40	3:20	1915.1	1165.7	2242.0	2021.7	5:10	6:50	2440.7	-392.5	2472.1	3289.9
8:35	3:25	1949.7	1135.1	2256.1	2064.4	5:05	6:55	2428.4	-431.0	2466.3	3306.7
8:30	3:30	1983.4	1103.9	2269.9	2106.5	5:00	7:00	2414.8	-469.4	2460.0	3323.0

Analemmatic Sundial**Latitude: 46.5° N/S**

Earliest Sunrise: 4:05 a.m. Latest Sunset: 7:55 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1813.4 mm
 Sunrise/Sunset Markers: $X = \pm 1091.9$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-507.5	2453.2	3338.7
4:50	7:10	2384.3	-545.3	2445.9	3353.9
4:45	7:15	2367.3	-582.9	2438.0	3368.5
4:40	7:20	2349.2	-620.2	2429.7	3382.5
4:35	7:25	2330.0	-657.3	2420.9	3396.1
4:30	7:30	2309.7	-694.0	2411.7	3409.1
4:25	7:35	2288.3	-730.4	2402.0	3421.6
4:20	7:40	2265.8	-766.4	2391.9	3433.5
4:15	7:45	2242.2	-802.1	2381.3	3445.0
4:10	7:50	2217.5	-837.4	2370.4	3456.0
4:05	7:55	2191.8	-872.2	2359.0	3466.5
4:00	8:00	2165.1	-906.7	2347.3	3476.6

Analematic Sundial

Latitude: 46.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1813.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-730.1	-716.3	-712.1	-693.2	-687.6	-664.0	-657.5	-629.4	-621.9	-590.2	-581.8
February	-528.1	-489.6	-479.5	-438.6	-428.4	-385.6	-374.6	-330.5	-319.3	-273.8	-262.1
March	-227.5	-180.9	-169.0	-121.8	-110.1	-62.5	-50.8	-3.0	8.7	56.2	67.9
April	138.5	184.8	196.4	241.9	253.2	297.9	308.7	352.3	363.0	404.9	415.1
May	465.0	503.2	512.4	547.9	556.5	589.2	596.9	626.7	633.8	659.9	665.8
June	698.1	714.9	718.8	731.2	734.0	741.8	742.9	745.8	746.1	740.8	743.3
July	734.0	722.3	718.8	703.0	698.4	677.9	672.3	647.9	641.4	613.5	606.0
August	558.5	523.8	515.0	477.9	468.5	429.4	419.2	378.4	368.0	325.5	314.6
September	248.9	204.0	192.7	146.9	135.4	89.3	77.8	31.2	19.5	-27.3	-39.1
October	-97.4	-144.2	-155.7	-202.2	-213.4	-259.3	-270.7	-315.5	-326.7	-370.5	-381.2
November	-444.1	-484.4	-494.1	-532.0	-541.3	-576.5	-584.8	-616.8	-624.3	-652.7	-659.6
December	-689.0	-708.9	-713.2	-727.6	-730.8	-740.1	-741.8	-745.8	-746.1	-744.3	-743.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	730.1	716.3	712.1	693.2	687.6	664.0	657.5	629.4	621.9	590.2	581.8
February	528.1	489.6	479.5	438.6	428.4	385.6	374.6	330.5	319.3	273.8	262.1
March	227.5	180.9	169.0	121.8	110.1	62.5	50.8	3.0	-8.7	-56.2	-67.9
April	-138.5	-184.8	-196.4	-241.9	-253.2	-297.9	-308.7	-352.3	-363.0	-404.9	-415.1
May	-465.0	-503.2	-512.4	-547.9	-556.5	-589.2	-596.9	-626.7	-633.8	-659.9	-665.8
June	-698.1	-714.9	-718.8	-731.2	-734.0	-741.8	-742.9	-745.8	-746.1	-740.8	-743.3
July	-734.0	-722.3	-718.8	-703.0	-698.4	-677.9	-672.3	-647.9	-641.4	-613.5	-606.0
August	-558.5	-523.8	-515.0	-477.9	-468.5	-429.4	-419.2	-378.4	-368.0	-325.5	-314.6
September	-248.9	-204.0	-192.7	-146.9	-135.4	-89.3	-77.8	-31.2	-19.5	27.3	39.1
October	97.4	144.2	155.7	202.2	213.4	259.3	270.7	315.5	326.7	370.5	381.2
November	444.1	484.4	494.1	532.0	541.3	576.5	584.8	616.8	624.3	652.7	659.6
December	689.0	708.9	713.2	727.6	730.8	740.1	741.8	745.8	746.1	744.3	743.3

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