

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 798.6 mm
 Sunrise/Sunset Markers: X = ± 316.1 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	798.6	798.6	0.0						
11:55	12:05	21.8	798.4	798.7	21.8	8:25	3:35	806.4	472.2	934.5	870.0
11:50	12:10	43.6	797.9	799.1	43.6	8:20	3:40	819.2	458.1	938.5	887.1
11:45	12:15	65.4	796.9	799.6	65.4	8:15	3:45	831.5	443.7	942.4	904.1
11:40	12:20	87.2	795.6	800.4	87.2	8:10	3:50	843.4	429.1	946.3	920.8
11:35	12:25	108.9	793.9	801.3	109.0	8:05	3:55	854.9	414.3	950.0	937.3
11:30	12:30	130.5	791.8	802.5	130.7	8:00	4:00	866.0	399.3	953.7	953.7
11:25	12:35	152.1	789.3	803.9	152.4	7:55	4:05	876.7	384.1	957.2	969.8
11:20	12:40	173.6	786.5	805.4	174.1	7:50	4:10	887.0	368.8	960.6	985.7
11:15	12:45	195.1	783.3	807.2	195.7	7:45	4:15	896.9	353.2	963.9	1001.4
11:10	12:50	216.4	779.7	809.2	217.3	7:40	4:20	906.3	337.5	967.1	1016.9
11:05	12:55	237.7	775.7	811.3	238.8	7:35	4:25	915.3	321.6	970.2	1032.1
11:00	1:00	258.8	771.4	813.7	260.2	7:30	4:30	923.9	305.6	973.1	1047.2
10:55	1:05	279.8	766.7	816.2	281.6	7:25	4:35	932.0	289.5	975.9	1062.0
10:50	1:10	300.7	761.7	818.9	303.0	7:20	4:40	939.7	273.1	978.6	1076.6
10:45	1:15	321.4	756.3	821.7	324.2	7:15	4:45	946.9	256.7	981.1	1091.0
10:40	1:20	342.0	750.5	824.7	345.4	7:10	4:50	953.7	240.2	983.5	1105.2
10:35	1:25	362.4	744.3	827.9	366.5	7:05	4:55	960.0	223.5	985.7	1119.2
10:30	1:30	382.7	737.8	831.2	387.5	7:00	5:00	965.9	206.7	987.8	1132.9
10:25	1:35	402.7	731.0	834.6	408.4	6:55	5:05	971.3	189.8	989.7	1146.4
10:20	1:40	422.6	723.8	838.2	429.2	6:50	5:10	976.3	172.9	991.5	1159.6
10:15	1:45	442.3	716.3	841.8	449.9	6:45	5:15	980.8	155.8	993.1	1172.7
10:10	1:50	461.7	708.4	845.6	470.5	6:40	5:20	984.8	138.7	994.5	1185.5
10:05	1:55	481.0	700.2	849.5	491.0	6:35	5:25	988.4	121.5	995.8	1198.1
10:00	2:00	500.0	691.6	853.4	511.3	6:30	5:30	991.4	104.2	996.9	1210.4
9:55	2:05	518.8	682.8	857.5	531.6	6:25	5:35	994.1	86.9	997.9	1222.6
9:50	2:10	537.3	673.6	861.6	551.7	6:20	5:40	996.2	69.6	998.6	1234.5
9:45	2:15	555.6	664.0	865.8	571.6	6:15	5:45	997.9	52.2	999.2	1246.1
9:40	2:20	573.6	654.2	870.0	591.5	6:10	5:50	999.0	34.8	999.7	1257.6
9:35	2:25	591.3	644.1	874.3	611.2	6:05	5:55	999.8	17.4	999.9	1268.8
9:30	2:30	608.8	633.6	878.7	630.7	6:00	6:00	1000.0	0.0	1000.0	1279.8
9:25	2:35	625.9	622.8	883.0	650.1	5:55	6:05	999.8	-17.4	999.9	1290.5
9:20	2:40	642.8	611.8	887.4	669.4	5:50	6:10	999.0	-34.8	999.7	1301.1
9:15	2:45	659.3	600.4	891.8	688.5	5:45	6:15	997.9	-52.2	999.2	1311.4
9:10	2:50	675.6	588.8	896.2	707.4	5:40	6:20	996.2	-69.6	998.6	1321.5
9:05	2:55	691.5	576.9	900.6	726.2	5:35	6:25	994.1	-86.9	997.9	1331.3
9:00	3:00	707.1	564.7	904.9	744.8	5:30	6:30	991.4	-104.2	996.9	1341.0
8:55	3:05	722.4	552.3	909.3	763.2	5:25	6:35	988.4	-121.5	995.8	1350.4
8:50	3:10	737.3	539.6	913.6	781.5	5:20	6:40	984.8	-138.7	994.5	1359.6
8:45	3:15	751.8	526.6	917.9	799.5	5:15	6:45	980.8	-155.8	993.1	1368.5
8:40	3:20	766.0	513.4	922.1	817.4	5:10	6:50	976.3	-172.9	991.5	1377.3
8:35	3:25	779.9	499.9	926.3	835.1	5:05	6:55	971.3	-189.8	989.7	1385.8
8:30	3:30	793.4	486.2	930.5	852.7	5:00	7:00	965.9	-206.7	987.8	1394.2

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 798.6 mm
 Sunrise/Sunset Markers: X = ± 316.1 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-223.5	985.7	1402.3
4:50	7:10	953.7	-240.2	983.5	1410.2
4:45	7:15	946.9	-256.7	981.1	1417.9
4:40	7:20	939.7	-273.1	978.6	1425.4
4:35	7:25	932.0	-289.5	975.9	1432.7
4:30	7:30	923.9	-305.6	973.1	1439.8
4:25	7:35	915.3	-321.6	970.2	1446.7
4:20	7:40	906.3	-337.5	967.1	1453.4
4:15	7:45	896.9	-353.2	963.9	1459.9
4:10	7:50	887.0	-368.8	960.6	1466.2
4:05	7:55	876.7	-384.1	957.2	1472.3
4:00	8:00	866.0	-399.3	953.7	1478.2
3:55	8:05	854.9	-414.3	950.0	1484.0
3:50	8:10	843.4	-429.1	946.3	1489.5
3:45	8:15	831.5	-443.7	942.4	1494.9
3:40	8:20	819.2	-458.1	938.5	1500.1
3:35	8:25	806.4	-472.2	934.5	1505.2
3:30	8:30	793.4	-486.2	930.5	1510.0

Analemmatic Sundial

Latitude: 53.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 798.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-255.3	-250.5	-249.0	-242.4	-240.5	-232.2	-229.9	-220.1	-217.5	-206.4	-203.5
February	-184.7	-171.2	-167.7	-153.4	-149.8	-134.9	-131.0	-115.6	-111.6	-95.7	-91.7
March	-79.6	-63.3	-59.1	-42.6	-38.5	-21.9	-17.8	-1.1	3.0	19.6	23.8
April	48.4	64.6	68.7	84.6	88.5	104.2	108.0	123.2	126.9	141.6	145.1
May	162.6	176.0	179.2	191.6	194.6	206.0	208.8	219.2	221.7	230.8	232.8
June	244.1	250.0	251.4	255.7	256.7	259.4	259.8	260.8	260.9	259.1	259.9
July	256.7	252.6	251.4	245.8	244.2	237.1	235.1	226.6	224.3	214.5	211.9
August	195.3	183.2	180.1	167.1	163.8	150.2	146.6	132.3	128.7	113.8	110.0
September	87.0	71.3	67.4	51.4	47.4	31.2	27.2	10.9	6.8	-9.6	-13.7
October	-34.1	-50.4	-54.5	-70.7	-74.6	-90.7	-94.7	-110.3	-114.3	-129.6	-133.3
November	-155.3	-169.4	-172.8	-186.1	-189.3	-201.6	-204.5	-215.7	-218.3	-228.2	-230.7
December	-241.0	-247.9	-249.4	-254.5	-255.6	-258.8	-259.4	-260.8	-260.9	-260.3	-259.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	255.3	250.5	249.0	242.4	240.5	232.2	229.9	220.1	217.5	206.4	203.5
February	184.7	171.2	167.7	153.4	149.8	134.9	131.0	115.6	111.6	95.7	91.7
March	79.6	63.3	59.1	42.6	38.5	21.9	17.8	1.1	-3.0	-19.6	-23.8
April	-48.4	-64.6	-68.7	-84.6	-88.5	-104.2	-108.0	-123.2	-126.9	-141.6	-145.1
May	-162.6	-176.0	-179.2	-191.6	-194.6	-206.0	-208.8	-219.2	-221.7	-230.8	-232.8
June	-244.1	-250.0	-251.4	-255.7	-256.7	-259.4	-259.8	-260.8	-260.9	-259.1	-259.9
July	-256.7	-252.6	-251.4	-245.8	-244.2	-237.1	-235.1	-226.6	-224.3	-214.5	-211.9
August	-195.3	-183.2	-180.1	-167.1	-163.8	-150.2	-146.6	-132.3	-128.7	-113.8	-110.0
September	-87.0	-71.3	-67.4	-51.4	-47.4	-31.2	-27.2	-10.9	-6.8	9.6	13.7
October	34.1	50.4	54.5	70.7	74.6	90.7	94.7	110.3	114.3	129.6	133.3
November	155.3	169.4	172.8	186.1	189.3	201.6	204.5	215.7	218.3	228.2	230.7
December	241.0	247.9	249.4	254.5	255.6	258.8	259.4	260.8	260.9	260.3	259.9

Southern Hemisphere

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

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

a) 1

c) 1,10,20

e) 1,5,10,15,20,25

b) 1,15

d) 1,11,21

f) 1,6,11,16,21,26

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1198.0 mm
 Sunrise/Sunset Markers: X = ± 474.1 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1198.0	1198.0	0.0						
11:55	12:05	32.7	1197.7	1198.1	32.7	8:25	3:35	1209.7	708.4	1401.8	1305.0
11:50	12:10	65.4	1196.8	1198.6	65.4	8:20	3:40	1228.7	687.1	1407.8	1330.7
11:45	12:15	98.1	1195.4	1199.4	98.1	8:15	3:45	1247.2	665.5	1413.7	1356.1
11:40	12:20	130.7	1193.4	1200.5	130.8	8:10	3:50	1265.1	643.7	1419.4	1381.2
11:35	12:25	163.3	1190.8	1202.0	163.5	8:05	3:55	1282.4	621.5	1425.0	1406.0
11:30	12:30	195.8	1187.7	1203.7	196.1	8:00	4:00	1299.0	599.0	1430.5	1430.5
11:25	12:35	228.2	1184.0	1205.8	228.6	7:55	4:05	1315.1	576.2	1435.8	1454.7
11:20	12:40	260.5	1179.8	1208.2	261.1	7:50	4:10	1330.5	553.2	1440.9	1478.5
11:15	12:45	292.6	1174.9	1210.8	293.5	7:45	4:15	1345.3	529.8	1445.9	1502.1
11:10	12:50	324.7	1169.6	1213.8	325.9	7:40	4:20	1359.5	506.3	1450.7	1525.3
11:05	12:55	356.5	1163.6	1217.0	358.2	7:35	4:25	1373.0	482.5	1455.3	1548.2
11:00	1:00	388.2	1157.1	1220.5	390.4	7:30	4:30	1385.8	458.4	1459.7	1570.8
10:55	1:05	419.7	1150.1	1224.3	422.5	7:25	4:35	1398.0	434.2	1463.9	1593.0
10:50	1:10	451.1	1142.5	1228.3	454.5	7:20	4:40	1409.5	409.7	1467.9	1615.0
10:45	1:15	482.2	1134.4	1232.6	486.3	7:15	4:45	1420.4	385.1	1471.7	1636.6
10:40	1:20	513.0	1125.7	1237.1	518.1	7:10	4:50	1430.6	360.2	1475.2	1657.8
10:35	1:25	543.7	1116.5	1241.8	549.7	7:05	4:55	1440.1	335.2	1478.6	1678.7
10:30	1:30	574.0	1106.8	1246.8	581.2	7:00	5:00	1448.9	310.1	1481.7	1699.3
10:25	1:35	604.1	1096.5	1251.9	612.6	6:55	5:05	1457.0	284.7	1484.6	1719.5
10:20	1:40	633.9	1085.7	1257.2	643.8	6:50	5:10	1464.4	259.3	1487.2	1739.5
10:15	1:45	663.4	1074.4	1262.7	674.8	6:45	5:15	1471.2	233.7	1489.6	1759.0
10:10	1:50	692.6	1062.6	1268.4	705.7	6:40	5:20	1477.2	208.0	1491.8	1778.2
10:05	1:55	721.5	1050.3	1274.2	736.4	6:35	5:25	1482.5	182.2	1493.7	1797.1
10:00	2:00	750.0	1037.5	1280.2	767.0	6:30	5:30	1487.2	156.4	1495.4	1815.6
9:55	2:05	778.2	1024.1	1286.2	797.3	6:25	5:35	1491.1	130.4	1496.8	1833.8
9:50	2:10	805.9	1010.3	1292.4	827.5	6:20	5:40	1494.3	104.4	1497.9	1851.7
9:45	2:15	833.4	996.1	1298.7	857.5	6:15	5:45	1496.8	78.3	1498.8	1869.2
9:40	2:20	860.4	981.3	1305.1	887.2	6:10	5:50	1498.6	52.3	1499.5	1886.4
9:35	2:25	887.0	966.1	1311.5	916.8	6:05	5:55	1499.6	26.1	1499.9	1903.2
9:30	2:30	913.1	950.4	1318.0	946.1	6:00	6:00	1500.0	0.0	1500.0	1919.7
9:25	2:35	938.9	934.3	1324.5	975.2	5:55	6:05	1499.6	-26.1	1499.9	1935.8
9:20	2:40	964.2	917.7	1331.1	1004.1	5:50	6:10	1498.6	-52.3	1499.5	1951.6
9:15	2:45	989.0	900.7	1337.7	1032.7	5:45	6:15	1496.8	-78.3	1498.8	1967.1
9:10	2:50	1013.4	883.2	1344.3	1061.1	5:40	6:20	1494.3	-104.4	1497.9	1982.2
9:05	2:55	1037.3	865.4	1350.8	1089.3	5:35	6:25	1491.1	-130.4	1496.8	1997.0
9:00	3:00	1060.7	847.1	1357.4	1117.2	5:30	6:30	1487.2	-156.4	1495.4	2011.4
8:55	3:05	1083.5	828.4	1363.9	1144.8	5:25	6:35	1482.5	-182.2	1493.7	2025.6
8:50	3:10	1105.9	809.3	1370.4	1172.2	5:20	6:40	1477.2	-208.0	1491.8	2039.3
8:45	3:15	1127.8	789.9	1376.9	1199.3	5:15	6:45	1471.2	-233.7	1489.6	2052.8
8:40	3:20	1149.1	770.0	1383.2	1226.2	5:10	6:50	1464.4	-259.3	1487.2	2065.9
8:35	3:25	1169.8	749.8	1389.5	1252.7	5:05	6:55	1457.0	-284.7	1484.6	2078.8
8:30	3:30	1190.0	729.3	1395.7	1279.0	5:00	7:00	1448.9	-310.1	1481.7	2091.3

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1198.0 mm
 Sunrise/Sunset Markers: X = ± 474.1 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-335.2	1478.6	2103.4
4:50	7:10	1430.6	-360.2	1475.2	2115.3
4:45	7:15	1420.4	-385.1	1471.7	2126.8
4:40	7:20	1409.5	-409.7	1467.9	2138.1
4:35	7:25	1398.0	-434.2	1463.9	2149.0
4:30	7:30	1385.8	-458.4	1459.7	2159.7
4:25	7:35	1373.0	-482.5	1455.3	2170.0
4:20	7:40	1359.5	-506.3	1450.7	2180.0
4:15	7:45	1345.3	-529.8	1445.9	2189.8
4:10	7:50	1330.5	-553.2	1440.9	2199.2
4:05	7:55	1315.1	-576.2	1435.8	2208.4
4:00	8:00	1299.0	-599.0	1430.5	2217.3
3:55	8:05	1282.4	-621.5	1425.0	2225.9
3:50	8:10	1265.1	-643.7	1419.4	2234.3
3:45	8:15	1247.2	-665.5	1413.7	2242.4
3:40	8:20	1228.7	-687.1	1407.8	2250.2
3:35	8:25	1209.7	-708.4	1401.8	2257.7
3:30	8:30	1190.0	-729.3	1395.7	2265.0

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1198.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-383.0	-375.8	-373.6	-363.6	-360.7	-348.3	-344.9	-330.2	-326.2	-309.6	-305.2
February	-277.0	-256.8	-251.5	-230.1	-224.7	-202.3	-196.5	-173.3	-167.5	-143.6	-137.5
March	-119.3	-94.9	-88.7	-63.9	-57.7	-32.8	-26.6	-1.6	4.6	29.5	35.6
April	72.6	97.0	103.0	126.9	132.8	156.3	161.9	184.8	190.4	212.4	217.7
May	243.9	264.0	268.8	287.4	291.9	309.1	313.1	328.7	332.5	346.2	349.2
June	366.2	375.0	377.1	383.6	385.0	389.1	389.7	391.2	391.4	388.6	389.9
July	385.0	378.9	377.1	368.8	366.4	355.6	352.7	339.9	336.4	321.8	317.9
August	293.0	274.8	270.1	250.7	245.8	225.2	219.9	198.5	193.0	170.7	165.0
September	130.6	107.0	101.1	77.1	71.0	46.8	40.8	16.4	10.2	-14.3	-20.5
October	-51.1	-75.6	-81.7	-106.0	-112.0	-136.0	-142.0	-165.5	-171.4	-194.4	-200.0
November	-233.0	-254.1	-259.2	-279.1	-283.9	-302.4	-306.8	-323.6	-327.5	-342.4	-346.0
December	-361.4	-371.9	-374.1	-381.7	-383.4	-388.2	-389.1	-391.2	-391.4	-390.5	-389.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	383.0	375.8	373.6	363.6	360.7	348.3	344.9	330.2	326.2	309.6	305.2
February	277.0	256.8	251.5	230.1	224.7	202.3	196.5	173.3	167.5	143.6	137.5
March	119.3	94.9	88.7	63.9	57.7	32.8	26.6	1.6	-4.6	-29.5	-35.6
April	-72.6	-97.0	-103.0	-126.9	-132.8	-156.3	-161.9	-184.8	-190.4	-212.4	-217.7
May	-243.9	-264.0	-268.8	-287.4	-291.9	-309.1	-313.1	-328.7	-332.5	-346.2	-349.2
June	-366.2	-375.0	-377.1	-383.6	-385.0	-389.1	-389.7	-391.2	-391.4	-388.6	-389.9
July	-385.0	-378.9	-377.1	-368.8	-366.4	-355.6	-352.7	-339.9	-336.4	-321.8	-317.9
August	-293.0	-274.8	-270.1	-250.7	-245.8	-225.2	-219.9	-198.5	-193.0	-170.7	-165.0
September	-130.6	-107.0	-101.1	-77.1	-71.0	-46.8	-40.8	-16.4	-10.2	14.3	20.5
October	51.1	75.6	81.7	106.0	112.0	136.0	142.0	165.5	171.4	194.4	200.0
November	233.0	254.1	259.2	279.1	283.9	302.4	306.8	323.6	327.5	342.4	346.0
December	361.4	371.9	374.1	381.7	383.4	388.2	389.1	391.2	391.4	390.5	389.9

Southern Hemisphere

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

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

a) 1

c) 1,10,20

e) 1,5,10,15,20,25

b) 1,15

d) 1,11,21

f) 1,6,11,16,21,26

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1597.3 mm
 Sunrise/Sunset Markers: X = ± 632.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1597.3	1597.3	0.0						
11:55	12:05	43.6	1596.9	1597.5	43.6	8:25	3:35	1612.9	944.5	1869.1	1740.0
11:50	12:10	87.2	1595.8	1598.1	87.3	8:20	3:40	1638.3	916.2	1877.1	1774.2
11:45	12:15	130.8	1593.9	1599.2	130.9	8:15	3:45	1662.9	887.4	1884.9	1808.1
11:40	12:20	174.3	1591.2	1600.7	174.4	8:10	3:50	1686.8	858.2	1892.6	1841.6
11:35	12:25	217.7	1587.8	1602.6	217.9	8:05	3:55	1709.8	828.6	1900.0	1874.7
11:30	12:30	261.1	1583.6	1605.0	261.4	8:00	4:00	1732.1	798.6	1907.3	1907.3
11:25	12:35	304.2	1578.7	1607.7	304.8	7:55	4:05	1753.5	768.3	1914.4	1939.5
11:20	12:40	347.3	1573.0	1610.9	348.1	7:50	4:10	1774.0	737.5	1921.2	1971.4
11:15	12:45	390.2	1566.6	1614.4	391.4	7:45	4:15	1793.7	706.5	1927.8	2002.8
11:10	12:50	432.9	1559.4	1618.4	434.5	7:40	4:20	1812.6	675.0	1934.2	2033.7
11:05	12:55	475.4	1551.5	1622.7	477.6	7:35	4:25	1830.6	643.3	1940.4	2064.3
11:00	1:00	517.6	1542.8	1627.4	520.5	7:30	4:30	1847.8	611.2	1946.2	2094.4
10:55	1:05	559.7	1533.5	1632.4	563.3	7:25	4:35	1864.0	578.9	1951.8	2124.1
10:50	1:10	601.4	1523.3	1637.8	605.9	7:20	4:40	1879.4	546.3	1957.2	2153.3
10:45	1:15	642.9	1512.5	1643.5	648.4	7:15	4:45	1893.9	513.4	1962.2	2182.1
10:40	1:20	684.0	1500.9	1649.5	690.8	7:10	4:50	1907.4	480.3	1967.0	2210.4
10:35	1:25	724.9	1488.7	1655.8	733.0	7:05	4:55	1920.1	447.0	1971.4	2238.3
10:30	1:30	765.4	1475.7	1662.4	775.0	7:00	5:00	1931.9	413.4	1975.6	2265.7
10:25	1:35	805.5	1462.0	1669.2	816.8	6:55	5:05	1942.7	379.6	1979.4	2292.7
10:20	1:40	845.2	1447.6	1676.3	858.4	6:50	5:10	1952.6	345.7	1983.0	2319.3
10:15	1:45	884.6	1432.5	1683.6	899.8	6:45	5:15	1961.6	311.6	1986.2	2345.4
10:10	1:50	923.5	1416.8	1691.2	941.0	6:40	5:20	1969.6	277.4	1989.0	2371.0
10:05	1:55	962.0	1400.4	1699.0	981.9	6:35	5:25	1976.7	243.0	1991.6	2396.1
10:00	2:00	1000.0	1383.3	1706.9	1022.6	6:30	5:30	1982.9	208.5	1993.8	2420.9
9:55	2:05	1037.5	1365.5	1715.0	1063.1	6:25	5:35	1988.1	173.9	1995.7	2445.1
9:50	2:10	1074.6	1347.1	1723.2	1103.3	6:20	5:40	1992.4	139.2	1997.2	2468.9
9:45	2:15	1111.1	1328.1	1731.6	1143.3	6:15	5:45	1995.7	104.5	1998.5	2492.3
9:40	2:20	1147.2	1308.4	1740.1	1183.0	6:10	5:50	1998.1	69.7	1999.3	2515.1
9:35	2:25	1182.6	1288.1	1748.7	1222.4	6:05	5:55	1999.5	34.8	1999.8	2537.6
9:30	2:30	1217.5	1267.2	1757.3	1261.5	6:00	6:00	2000.0	0.0	2000.0	2559.5
9:25	2:35	1251.8	1245.7	1766.0	1300.3	5:55	6:05	1999.5	-34.8	1999.8	2581.1
9:20	2:40	1285.6	1223.6	1774.8	1338.8	5:50	6:10	1998.1	-69.7	1999.3	2602.1
9:15	2:45	1318.7	1200.9	1783.6	1377.0	5:45	6:15	1995.7	-104.5	1998.5	2622.7
9:10	2:50	1351.2	1177.6	1792.3	1414.8	5:40	6:20	1992.4	-139.2	1997.2	2642.9
9:05	2:55	1383.0	1153.8	1801.1	1452.4	5:35	6:25	1988.1	-173.9	1995.7	2662.6
9:00	3:00	1414.2	1129.4	1809.9	1489.6	5:30	6:30	1982.9	-208.5	1993.8	2681.9
8:55	3:05	1444.7	1104.5	1818.6	1526.4	5:25	6:35	1976.7	-243.0	1991.6	2700.7
8:50	3:10	1474.6	1079.1	1827.2	1562.9	5:20	6:40	1969.6	-277.4	1989.0	2719.1
8:45	3:15	1503.7	1053.2	1835.8	1599.1	5:15	6:45	1961.6	-311.6	1986.2	2737.1
8:40	3:20	1532.1	1026.7	1844.3	1634.9	5:10	6:50	1952.6	-345.7	1983.0	2754.6
8:35	3:25	1559.8	999.8	1852.7	1670.3	5:05	6:55	1942.7	-379.6	1979.4	2771.7
8:30	3:30	1586.7	972.4	1860.9	1705.3	5:00	7:00	1931.9	-413.4	1975.6	2788.3

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1597.3 mm
 Sunrise/Sunset Markers: X = ± 632.2 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-447.0	1971.4	2804.6
4:50	7:10	1907.4	-480.3	1967.0	2820.4
4:45	7:15	1893.9	-513.4	1962.2	2835.8
4:40	7:20	1879.4	-546.3	1957.2	2850.8
4:35	7:25	1864.0	-578.9	1951.8	2865.4
4:30	7:30	1847.8	-611.2	1946.2	2879.5
4:25	7:35	1830.6	-643.3	1940.4	2893.3
4:20	7:40	1812.6	-675.0	1934.2	2906.7
4:15	7:45	1793.7	-706.5	1927.8	2919.7
4:10	7:50	1774.0	-737.5	1921.2	2932.3
4:05	7:55	1753.5	-768.3	1914.4	2944.6
4:00	8:00	1732.1	-798.6	1907.3	2956.4
3:55	8:05	1709.8	-828.6	1900.0	2967.9
3:50	8:10	1686.8	-858.2	1892.6	2979.0
3:45	8:15	1662.9	-887.4	1884.9	2989.8
3:40	8:20	1638.3	-916.2	1877.1	3000.2
3:35	8:25	1612.9	-944.5	1869.1	3010.3
3:30	8:30	1586.7	-972.4	1860.9	3020.0

Analematic Sundial

Latitude: 53.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1597.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-510.7	-501.0	-498.1	-484.8	-480.9	-464.4	-459.9	-440.2	-435.0	-412.8	-406.9
February	-369.4	-342.4	-335.4	-306.8	-299.7	-269.7	-262.0	-231.1	-223.3	-191.5	-183.3
March	-159.1	-126.5	-118.2	-85.2	-77.0	-43.7	-35.5	-2.1	6.1	39.3	47.5
April	96.8	129.3	137.3	169.2	177.1	208.3	215.9	246.4	253.9	283.2	290.3
May	325.2	352.0	358.4	383.2	389.2	412.1	417.5	438.3	443.3	461.5	465.6
June	488.3	500.0	502.7	511.4	513.4	518.9	519.6	521.6	521.9	518.1	519.9
July	513.4	505.2	502.7	491.7	488.5	474.1	470.2	453.1	448.6	429.1	423.9
August	390.6	366.4	360.2	334.2	327.7	300.3	293.2	264.6	257.4	227.6	220.0
September	174.1	142.7	134.8	102.8	94.7	62.4	54.4	21.8	13.7	-19.1	-27.3
October	-68.1	-100.9	-108.9	-141.4	-149.3	-181.4	-189.3	-220.7	-228.5	-259.1	-266.6
November	-310.6	-338.8	-345.6	-372.1	-378.6	-403.2	-409.0	-431.4	-436.7	-456.5	-461.3
December	-481.9	-495.9	-498.8	-508.9	-511.2	-517.6	-518.9	-521.6	-521.9	-520.6	-519.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	510.7	501.0	498.1	484.8	480.9	464.4	459.9	440.2	435.0	412.8	406.9
February	369.4	342.4	335.4	306.8	299.7	269.7	262.0	231.1	223.3	191.5	183.3
March	159.1	126.5	118.2	85.2	77.0	43.7	35.5	2.1	-6.1	-39.3	-47.5
April	-96.8	-129.3	-137.3	-169.2	-177.1	-208.3	-215.9	-246.4	-253.9	-283.2	-290.3
May	-325.2	-352.0	-358.4	-383.2	-389.2	-412.1	-417.5	-438.3	-443.3	-461.5	-465.6
June	-488.3	-500.0	-502.7	-511.4	-513.4	-518.9	-519.6	-521.6	-521.9	-518.1	-519.9
July	-513.4	-505.2	-502.7	-491.7	-488.5	-474.1	-470.2	-453.1	-448.6	-429.1	-423.9
August	-390.6	-366.4	-360.2	-334.2	-327.7	-300.3	-293.2	-264.6	-257.4	-227.6	-220.0
September	-174.1	-142.7	-134.8	-102.8	-94.7	-62.4	-54.4	-21.8	-13.7	19.1	27.3
October	68.1	100.9	108.9	141.4	149.3	181.4	189.3	220.7	228.5	259.1	266.6
November	310.6	338.8	345.6	372.1	378.6	403.2	409.0	431.4	436.7	456.5	461.3
December	481.9	495.9	498.8	508.9	511.2	517.6	518.9	521.6	521.9	520.6	519.9

Southern Hemisphere

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

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

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

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1996.6 mm
 Sunrise/Sunset Markers: X = ± 790.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1996.6	1996.6	0.0						
11:55	12:05	54.5	1996.1	1996.9	54.5	8:25	3:35	2016.1	1180.6	2336.3	2175.0
11:50	12:10	109.0	1994.7	1997.7	109.1	8:20	3:40	2047.9	1145.2	2346.3	2217.8
11:45	12:15	163.5	1992.3	1999.0	163.6	8:15	3:45	2078.7	1109.2	2356.1	2260.1
11:40	12:20	217.9	1989.0	2000.9	218.0	8:10	3:50	2108.5	1072.8	2365.7	2302.0
11:35	12:25	272.2	1984.7	2003.3	272.4	8:05	3:55	2137.3	1035.8	2375.0	2343.3
11:30	12:30	326.3	1979.5	2006.2	326.8	8:00	4:00	2165.1	998.3	2384.1	2384.1
11:25	12:35	380.3	1973.4	2009.7	381.0	7:55	4:05	2191.8	960.3	2393.0	2424.4
11:20	12:40	434.1	1966.3	2013.6	435.2	7:50	4:10	2217.5	921.9	2401.5	2464.2
11:15	12:45	487.7	1958.2	2018.0	489.2	7:45	4:15	2242.2	883.1	2409.8	2503.5
11:10	12:50	541.1	1949.3	2023.0	543.2	7:40	4:20	2265.8	843.8	2417.8	2542.2
11:05	12:55	594.2	1939.4	2028.4	597.0	7:35	4:25	2288.3	804.1	2425.5	2580.3
11:00	1:00	647.0	1928.6	2034.2	650.6	7:30	4:30	2309.7	764.1	2432.8	2618.0
10:55	1:05	699.6	1916.8	2040.5	704.1	7:25	4:35	2330.0	723.6	2439.8	2655.1
10:50	1:10	751.8	1904.2	2047.2	757.4	7:20	4:40	2349.2	682.9	2446.5	2691.6
10:45	1:15	803.6	1890.6	2054.3	810.6	7:15	4:45	2367.3	641.8	2452.8	2727.6
10:40	1:20	855.1	1876.2	2061.8	863.5	7:10	4:50	2384.3	600.4	2458.7	2763.0
10:35	1:25	906.1	1860.8	2069.7	916.2	7:05	4:55	2400.1	558.7	2464.3	2797.9
10:30	1:30	956.7	1844.6	2077.9	968.7	7:00	5:00	2414.8	516.8	2469.5	2832.2
10:25	1:35	1006.9	1827.5	2086.5	1021.0	6:55	5:05	2428.4	474.6	2474.3	2865.9
10:20	1:40	1056.5	1809.5	2095.4	1073.0	6:50	5:10	2440.7	432.1	2478.7	2899.1
10:15	1:45	1105.7	1790.7	2104.6	1124.7	6:45	5:15	2452.0	389.5	2482.7	2931.7
10:10	1:50	1154.4	1771.0	2114.0	1176.2	6:40	5:20	2462.0	346.7	2486.3	2963.7
10:05	1:55	1202.5	1750.5	2123.7	1227.4	6:35	5:25	2470.9	303.7	2489.5	2995.2
10:00	2:00	1250.0	1729.1	2133.6	1278.3	6:30	5:30	2478.6	260.6	2492.3	3026.1
9:55	2:05	1296.9	1706.9	2143.7	1328.9	6:25	5:35	2485.1	217.4	2494.6	3056.4
9:50	2:10	1343.2	1683.9	2154.0	1379.2	6:20	5:40	2490.5	174.0	2496.6	3086.1
9:45	2:15	1388.9	1660.1	2164.5	1429.1	6:15	5:45	2494.6	130.6	2498.1	3115.3
9:40	2:20	1433.9	1635.5	2175.1	1478.7	6:10	5:50	2497.6	87.1	2499.1	3143.9
9:35	2:25	1478.3	1610.1	2185.8	1528.0	6:05	5:55	2499.4	43.6	2499.8	3172.0
9:30	2:30	1521.9	1584.0	2196.6	1576.8	6:00	6:00	2500.0	0.0	2500.0	3199.4
9:25	2:35	1564.8	1557.1	2207.5	1625.4	5:55	6:05	2499.4	-43.6	2499.8	3226.3
9:20	2:40	1607.0	1529.5	2218.5	1673.5	5:50	6:10	2497.6	-87.1	2499.1	3252.7
9:15	2:45	1648.4	1501.1	2229.5	1721.2	5:45	6:15	2494.6	-130.6	2498.1	3278.4
9:10	2:50	1689.0	1472.0	2240.4	1768.6	5:40	6:20	2490.5	-174.0	2496.6	3303.6
9:05	2:55	1728.8	1442.3	2251.4	1815.5	5:35	6:25	2485.1	-217.4	2494.6	3328.3
9:00	3:00	1767.8	1411.8	2262.3	1862.0	5:30	6:30	2478.6	-260.6	2492.3	3352.4
8:55	3:05	1805.9	1380.7	2273.2	1908.1	5:25	6:35	2470.9	-303.7	2489.5	3375.9
8:50	3:10	1843.2	1348.9	2284.0	1953.7	5:20	6:40	2462.0	-346.7	2486.3	3398.9
8:45	3:15	1879.6	1316.4	2294.8	1998.9	5:15	6:45	2452.0	-389.5	2482.7	3421.3
8:40	3:20	1915.1	1283.4	2305.4	2043.6	5:10	6:50	2440.7	-432.1	2478.7	3443.2
8:35	3:25	1949.7	1249.7	2315.8	2087.9	5:05	6:55	2428.4	-474.6	2474.3	3464.6
8:30	3:30	1983.4	1215.4	2326.2	2131.7	5:00	7:00	2414.8	-516.8	2469.5	3485.4

Analemmatic Sundial

Latitude: 53.0° N/S

Earliest Sunrise: 3:32 a.m. Latest Sunset: 8:28 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1996.6 mm
 Sunrise/Sunset Markers: $X = \pm 790.2$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-558.7	2464.3	3505.7
4:50	7:10	2384.3	-600.4	2458.7	3525.5
4:45	7:15	2367.3	-641.8	2452.8	3544.7
4:40	7:20	2349.2	-682.9	2446.5	3563.5
4:35	7:25	2330.0	-723.6	2439.8	3581.7
4:30	7:30	2309.7	-764.1	2432.8	3599.4
4:25	7:35	2288.3	-804.1	2425.5	3616.7
4:20	7:40	2265.8	-843.8	2417.8	3633.4
4:15	7:45	2242.2	-883.1	2409.8	3649.6
4:10	7:50	2217.5	-921.9	2401.5	3665.4
4:05	7:55	2191.8	-960.3	2393.0	3680.7
4:00	8:00	2165.1	-998.3	2384.1	3695.5
3:55	8:05	2137.3	-1035.8	2375.0	3709.9
3:50	8:10	2108.5	-1072.8	2365.7	3723.8
3:45	8:15	2078.7	-1109.2	2356.1	3737.3
3:40	8:20	2047.9	-1145.2	2346.3	3750.3
3:35	8:25	2016.1	-1180.6	2336.3	3762.9
3:30	8:30	1983.4	-1215.4	2326.2	3775.0

Analemmatic Sundial

Latitude: 53.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1996.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-638.3	-626.3	-622.6	-606.0	-601.2	-580.6	-574.8	-550.3	-543.7	-516.0	-508.7
February	-461.7	-428.0	-419.2	-383.5	-374.6	-337.1	-327.5	-288.9	-279.1	-239.4	-229.2
March	-198.9	-158.1	-147.8	-106.5	-96.2	-54.6	-44.4	-2.6	7.6	49.1	59.4
April	121.1	161.6	171.7	211.4	221.4	260.4	269.9	308.0	317.3	354.0	362.9
May	406.5	440.0	448.0	479.0	486.5	515.1	521.9	547.9	554.2	576.9	582.1
June	610.3	625.0	628.4	639.3	641.7	648.6	649.5	652.0	652.3	647.6	649.8
July	641.7	631.5	628.4	614.6	610.6	592.7	587.8	566.4	560.7	536.3	529.8
August	488.3	458.0	450.2	417.8	409.6	375.4	366.5	330.8	321.7	284.6	275.0
September	217.6	178.3	168.5	128.5	118.4	78.1	68.1	27.3	17.1	-23.9	-34.1
October	-85.2	-126.1	-136.1	-176.7	-186.6	-226.7	-236.7	-275.9	-285.6	-323.9	-333.3
November	-388.3	-423.5	-432.0	-465.2	-473.2	-504.0	-511.3	-539.3	-545.8	-570.6	-576.6
December	-602.4	-619.8	-623.5	-636.2	-638.9	-647.0	-648.6	-652.0	-652.3	-650.8	-649.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	638.3	626.3	622.6	606.0	601.2	580.6	574.8	550.3	543.7	516.0	508.7
February	461.7	428.0	419.2	383.5	374.6	337.1	327.5	288.9	279.1	239.4	229.2
March	198.9	158.1	147.8	106.5	96.2	54.6	44.4	2.6	-7.6	-49.1	-59.4
April	-121.1	-161.6	-171.7	-211.4	-221.4	-260.4	-269.9	-308.0	-317.3	-354.0	-362.9
May	-406.5	-440.0	-448.0	-479.0	-486.5	-515.1	-521.9	-547.9	-554.2	-576.9	-582.1
June	-610.3	-625.0	-628.4	-639.3	-641.7	-648.6	-649.5	-652.0	-652.3	-647.6	-649.8
July	-641.7	-631.5	-628.4	-614.6	-610.6	-592.7	-587.8	-566.4	-560.7	-536.3	-529.8
August	-488.3	-458.0	-450.2	-417.8	-409.6	-375.4	-366.5	-330.8	-321.7	-284.6	-275.0
September	-217.6	-178.3	-168.5	-128.5	-118.4	-78.1	-68.1	-27.3	-17.1	23.9	34.1
October	85.2	126.1	136.1	176.7	186.6	226.7	236.7	275.9	285.6	323.9	333.3
November	388.3	423.5	432.0	465.2	473.2	504.0	511.3	539.3	545.8	570.6	576.6
December	602.4	619.8	623.5	636.2	638.9	647.0	648.6	652.0	652.3	650.8	649.8

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 |