

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 803.9 mm
 Sunrise/Sunset Markers: X = ± 307.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	803.9	803.9	0.0						
11:55	12:05	21.8	803.7	804.0	21.8	8:25	3:35	806.4	475.3	936.1	870.8
11:50	12:10	43.6	803.1	804.3	43.6	8:20	3:40	819.2	461.1	940.0	888.0
11:45	12:15	65.4	802.1	804.8	65.4	8:15	3:45	831.5	446.6	943.8	905.0
11:40	12:20	87.2	800.8	805.5	87.2	8:10	3:50	843.4	431.9	947.6	921.8
11:35	12:25	108.9	799.1	806.5	109.0	8:05	3:55	854.9	417.0	951.2	938.4
11:30	12:30	130.5	797.0	807.6	130.7	8:00	4:00	866.0	401.9	954.7	954.7
11:25	12:35	152.1	794.5	808.9	152.4	7:55	4:05	876.7	386.6	958.2	970.9
11:20	12:40	173.6	791.6	810.5	174.1	7:50	4:10	887.0	371.2	961.5	986.9
11:15	12:45	195.1	788.4	812.2	195.7	7:45	4:15	896.9	355.5	964.8	1002.7
11:10	12:50	216.4	784.8	814.1	217.3	7:40	4:20	906.3	339.7	967.9	1018.2
11:05	12:55	237.7	780.8	816.2	238.8	7:35	4:25	915.3	323.8	970.9	1033.6
11:00	1:00	258.8	776.5	818.5	260.3	7:30	4:30	923.9	307.6	973.7	1048.7
10:55	1:05	279.8	771.7	820.9	281.7	7:25	4:35	932.0	291.3	976.5	1063.6
10:50	1:10	300.7	766.7	823.5	303.0	7:20	4:40	939.7	274.9	979.1	1078.3
10:45	1:15	321.4	761.2	826.3	324.3	7:15	4:45	946.9	258.4	981.6	1092.8
10:40	1:20	342.0	755.4	829.2	345.4	7:10	4:50	953.7	241.7	983.9	1107.1
10:35	1:25	362.4	749.2	832.3	366.5	7:05	4:55	960.0	224.9	986.1	1121.1
10:30	1:30	382.7	742.7	835.5	387.5	7:00	5:00	965.9	208.1	988.1	1134.9
10:25	1:35	402.7	735.8	838.8	408.5	6:55	5:05	971.3	191.1	990.0	1148.5
10:20	1:40	422.6	728.5	842.2	429.3	6:50	5:10	976.3	174.0	991.7	1161.8
10:15	1:45	442.3	721.0	845.8	450.0	6:45	5:15	980.8	156.8	993.2	1175.0
10:10	1:50	461.7	713.0	849.5	470.6	6:40	5:20	984.8	139.6	994.7	1187.9
10:05	1:55	481.0	704.8	853.3	491.1	6:35	5:25	988.4	122.3	995.9	1200.6
10:00	2:00	500.0	696.2	857.1	511.5	6:30	5:30	991.4	104.9	997.0	1213.0
9:55	2:05	518.8	687.2	861.0	531.7	6:25	5:35	994.1	87.5	997.9	1225.3
9:50	2:10	537.3	678.0	865.1	551.9	6:20	5:40	996.2	70.1	998.7	1237.3
9:45	2:15	555.6	668.4	869.1	571.8	6:15	5:45	997.9	52.6	999.2	1249.1
9:40	2:20	573.6	658.5	873.3	591.7	6:10	5:50	999.0	35.1	999.7	1260.6
9:35	2:25	591.3	648.3	877.4	611.4	6:05	5:55	999.8	17.5	999.9	1271.9
9:30	2:30	608.8	637.7	881.6	631.0	6:00	6:00	1000.0	0.0	1000.0	1283.0
9:25	2:35	625.9	626.9	885.9	650.5	5:55	6:05	999.8	-17.5	999.9	1293.9
9:20	2:40	642.8	615.8	890.2	669.7	5:50	6:10	999.0	-35.1	999.7	1304.6
9:15	2:45	659.3	604.4	894.4	688.9	5:45	6:15	997.9	-52.6	999.2	1315.0
9:10	2:50	675.6	592.7	898.7	707.8	5:40	6:20	996.2	-70.1	998.7	1325.2
9:05	2:55	691.5	580.7	903.0	726.6	5:35	6:25	994.1	-87.5	997.9	1335.2
9:00	3:00	707.1	568.4	907.2	745.3	5:30	6:30	991.4	-104.9	997.0	1344.9
8:55	3:05	722.4	555.9	911.5	763.7	5:25	6:35	988.4	-122.3	995.9	1354.5
8:50	3:10	737.3	543.1	915.7	782.0	5:20	6:40	984.8	-139.6	994.7	1363.8
8:45	3:15	751.8	530.0	919.9	800.2	5:15	6:45	980.8	-156.8	993.2	1372.9
8:40	3:20	766.0	516.7	924.0	818.1	5:10	6:50	976.3	-174.0	991.7	1381.8
8:35	3:25	779.9	503.2	928.1	835.8	5:05	6:55	971.3	-191.1	990.0	1390.5
8:30	3:30	793.4	489.4	932.1	853.4	5:00	7:00	965.9	-208.1	988.1	1398.9

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 803.9 mm
 Sunrise/Sunset Markers: X = ± 307.0 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-224.9	986.1	1407.2
4:50	7:10	953.7	-241.7	983.9	1415.2
4:45	7:15	946.9	-258.4	981.6	1423.0
4:40	7:20	939.7	-274.9	979.1	1430.7
4:35	7:25	932.0	-291.3	976.5	1438.1
4:30	7:30	923.9	-307.6	973.7	1445.3
4:25	7:35	915.3	-323.8	970.9	1452.3
4:20	7:40	906.3	-339.7	967.9	1459.2
4:15	7:45	896.9	-355.5	964.8	1465.8
4:10	7:50	887.0	-371.2	961.5	1472.2
4:05	7:55	876.7	-386.6	958.2	1478.5
4:00	8:00	866.0	-401.9	954.7	1484.6
3:55	8:05	854.9	-417.0	951.2	1490.4
3:50	8:10	843.4	-431.9	947.6	1496.1
3:45	8:15	831.5	-446.6	943.8	1501.7
3:40	8:20	819.2	-461.1	940.0	1507.0
3:35	8:25	806.4	-475.3	936.1	1512.2
3:30	8:30	793.4	-489.4	932.1	1517.2
3:25	8:35	779.9	-503.2	928.1	1522.0
3:20	8:40	766.0	-516.7	924.0	1526.7
3:15	8:45	751.8	-530.0	919.9	1531.2

Analematic Sundial

Latitude: 53.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 803.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-252.4	-247.6	-246.1	-239.6	-237.7	-229.5	-227.3	-217.6	-215.0	-204.0	-201.1
February	-182.5	-169.2	-165.7	-151.6	-148.1	-133.3	-129.5	-114.2	-110.4	-94.6	-90.6
March	-78.6	-62.5	-58.4	-42.1	-38.0	-21.6	-17.6	-1.0	3.0	19.4	23.5
April	47.9	63.9	67.9	83.6	87.5	103.0	106.7	121.8	125.5	140.0	143.5
May	160.7	173.9	177.1	189.4	192.4	203.7	206.3	216.6	219.1	228.1	230.1
June	241.3	247.1	248.5	252.7	253.7	256.4	256.8	257.8	257.9	256.0	256.9
July	253.7	249.7	248.5	243.0	241.4	234.3	232.4	223.9	221.7	212.0	209.5
August	193.0	181.1	178.0	165.2	161.9	148.4	144.9	130.8	127.2	112.5	108.7
September	86.0	70.5	66.6	50.8	46.8	30.9	26.9	10.8	6.7	-9.4	-13.5
October	-33.7	-49.8	-53.8	-69.9	-73.8	-89.6	-93.6	-109.1	-112.9	-128.1	-131.8
November	-153.5	-167.4	-170.8	-183.9	-187.1	-199.3	-202.1	-213.2	-215.8	-225.6	-228.0
December	-238.2	-245.0	-246.5	-251.5	-252.6	-255.8	-256.4	-257.8	-257.9	-257.3	-256.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	252.4	247.6	246.1	239.6	237.7	229.5	227.3	217.6	215.0	204.0	201.1
February	182.5	169.2	165.7	151.6	148.1	133.3	129.5	114.2	110.4	94.6	90.6
March	78.6	62.5	58.4	42.1	38.0	21.6	17.6	1.0	-3.0	-19.4	-23.5
April	-47.9	-63.9	-67.9	-83.6	-87.5	-103.0	-106.7	-121.8	-125.5	-140.0	-143.5
May	-160.7	-173.9	-177.1	-189.4	-192.4	-203.7	-206.3	-216.6	-219.1	-228.1	-230.1
June	-241.3	-247.1	-248.5	-252.7	-253.7	-256.4	-256.8	-257.8	-257.9	-256.0	-256.9
July	-253.7	-249.7	-248.5	-243.0	-241.4	-234.3	-232.4	-223.9	-221.7	-212.0	-209.5
August	-193.0	-181.1	-178.0	-165.2	-161.9	-148.4	-144.9	-130.8	-127.2	-112.5	-108.7
September	-86.0	-70.5	-66.6	-50.8	-46.8	-30.9	-26.9	-10.8	-6.7	9.4	13.5
October	33.7	49.8	53.8	69.9	73.8	89.6	93.6	109.1	112.9	128.1	131.8
November	153.5	167.4	170.8	183.9	187.1	199.3	202.1	213.2	215.8	225.6	228.0
December	238.2	245.0	246.5	251.5	252.6	255.8	256.4	257.8	257.9	257.3	256.9

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: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1205.8 mm
 Sunrise/Sunset Markers: X = ± 460.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1205.8	1205.8	0.0						
11:55	12:05	32.7	1205.5	1205.9	32.7	8:25	3:35	1209.7	713.0	1404.2	1306.2
11:50	12:10	65.4	1204.6	1206.4	65.4	8:20	3:40	1228.7	691.6	1410.0	1332.0
11:45	12:15	98.1	1203.2	1207.2	98.1	8:15	3:45	1247.2	669.9	1415.7	1357.5
11:40	12:20	130.7	1201.2	1208.3	130.8	8:10	3:50	1265.1	647.9	1421.3	1382.6
11:35	12:25	163.3	1198.6	1209.7	163.5	8:05	3:55	1282.4	625.5	1426.8	1407.5
11:30	12:30	195.8	1195.5	1211.4	196.1	8:00	4:00	1299.0	602.9	1432.1	1432.1
11:25	12:35	228.2	1191.8	1213.4	228.6	7:55	4:05	1315.1	580.0	1437.3	1456.4
11:20	12:40	260.5	1187.5	1215.7	261.1	7:50	4:10	1330.5	556.8	1442.3	1480.4
11:15	12:45	292.6	1182.6	1218.3	293.6	7:45	4:15	1345.3	533.3	1447.2	1504.0
11:10	12:50	324.7	1177.2	1221.2	325.9	7:40	4:20	1359.5	509.6	1451.8	1527.4
11:05	12:55	356.5	1171.2	1224.3	358.2	7:35	4:25	1373.0	485.6	1456.3	1550.4
11:00	1:00	388.2	1164.7	1227.7	390.4	7:30	4:30	1385.8	461.4	1460.6	1573.1
10:55	1:05	419.7	1157.6	1231.4	422.5	7:25	4:35	1398.0	437.0	1464.7	1595.4
10:50	1:10	451.1	1150.0	1235.3	454.5	7:20	4:40	1409.5	412.4	1468.6	1617.5
10:45	1:15	482.2	1141.8	1239.4	486.4	7:15	4:45	1420.4	387.6	1472.3	1639.2
10:40	1:20	513.0	1133.1	1243.8	518.2	7:10	4:50	1430.6	362.6	1475.8	1660.6
10:35	1:25	543.7	1123.8	1248.4	549.8	7:05	4:55	1440.1	337.4	1479.1	1681.6
10:30	1:30	574.0	1114.0	1253.2	581.3	7:00	5:00	1448.9	312.1	1482.1	1702.3
10:25	1:35	604.1	1103.7	1258.2	612.7	6:55	5:05	1457.0	286.6	1484.9	1722.7
10:20	1:40	633.9	1092.8	1263.4	643.9	6:50	5:10	1464.4	261.0	1487.5	1742.8
10:15	1:45	663.4	1081.4	1268.7	675.0	6:45	5:15	1471.2	235.2	1489.9	1762.5
10:10	1:50	692.6	1069.5	1274.2	705.9	6:40	5:20	1477.2	209.4	1492.0	1781.8
10:05	1:55	721.5	1057.1	1279.9	736.6	6:35	5:25	1482.5	183.4	1493.8	1800.9
10:00	2:00	750.0	1044.2	1285.7	767.2	6:30	5:30	1487.2	157.4	1495.5	1819.6
9:55	2:05	778.2	1030.8	1291.6	797.6	6:25	5:35	1491.1	131.3	1496.9	1837.9
9:50	2:10	805.9	1016.9	1297.6	827.8	6:20	5:40	1494.3	105.1	1498.0	1855.9
9:45	2:15	833.4	1002.6	1303.7	857.8	6:15	5:45	1496.8	78.9	1498.9	1873.6
9:40	2:20	860.4	987.7	1309.9	887.6	6:10	5:50	1498.6	52.6	1499.5	1890.9
9:35	2:25	887.0	972.4	1316.2	917.2	6:05	5:55	1499.6	26.3	1499.9	1907.9
9:30	2:30	913.1	956.6	1322.5	946.5	6:00	6:00	1500.0	0.0	1500.0	1924.6
9:25	2:35	938.9	940.4	1328.8	975.7	5:55	6:05	1499.6	-26.3	1499.9	1940.9
9:20	2:40	964.2	923.7	1335.2	1004.6	5:50	6:10	1498.6	-52.6	1499.5	1956.8
9:15	2:45	989.0	906.6	1341.6	1033.3	5:45	6:15	1496.8	-78.9	1498.9	1972.5
9:10	2:50	1013.4	889.0	1348.1	1061.7	5:40	6:20	1494.3	-105.1	1498.0	1987.8
9:05	2:55	1037.3	871.0	1354.5	1090.0	5:35	6:25	1491.1	-131.3	1496.9	2002.8
9:00	3:00	1060.7	852.6	1360.9	1117.9	5:30	6:30	1487.2	-157.4	1495.5	2017.4
8:55	3:05	1083.5	833.8	1367.2	1145.6	5:25	6:35	1482.5	-183.4	1493.8	2031.7
8:50	3:10	1105.9	814.6	1373.6	1173.1	5:20	6:40	1477.2	-209.4	1492.0	2045.7
8:45	3:15	1127.8	795.0	1379.8	1200.2	5:15	6:45	1471.2	-235.2	1489.9	2059.3
8:40	3:20	1149.1	775.1	1386.0	1227.1	5:10	6:50	1464.4	-261.0	1487.5	2072.7
8:35	3:25	1169.8	754.7	1392.2	1253.8	5:05	6:55	1457.0	-286.6	1484.9	2085.7
8:30	3:30	1190.0	734.0	1398.2	1280.1	5:00	7:00	1448.9	-312.1	1482.1	2098.4

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1205.8 mm
 Sunrise/Sunset Markers: X = ± 460.5 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-337.4	1479.1	2110.8
4:50	7:10	1430.6	-362.6	1475.8	2122.8
4:45	7:15	1420.4	-387.6	1472.3	2134.6
4:40	7:20	1409.5	-412.4	1468.6	2146.0
4:35	7:25	1398.0	-437.0	1464.7	2157.1
4:30	7:30	1385.8	-461.4	1460.6	2168.0
4:25	7:35	1373.0	-485.6	1456.3	2178.5
4:20	7:40	1359.5	-509.6	1451.8	2188.8
4:15	7:45	1345.3	-533.3	1447.2	2198.7
4:10	7:50	1330.5	-556.8	1442.3	2208.4
4:05	7:55	1315.1	-580.0	1437.3	2217.7
4:00	8:00	1299.0	-602.9	1432.1	2226.8
3:55	8:05	1282.4	-625.5	1426.8	2235.7
3:50	8:10	1265.1	-647.9	1421.3	2244.2
3:45	8:15	1247.2	-669.9	1415.7	2252.5
3:40	8:20	1228.7	-691.6	1410.0	2260.5
3:35	8:25	1209.7	-713.0	1404.2	2268.3
3:30	8:30	1190.0	-734.0	1398.2	2275.8
3:25	8:35	1169.8	-754.7	1392.2	2283.0
3:20	8:40	1149.1	-775.1	1386.0	2290.0
3:15	8:45	1127.8	-795.0	1379.8	2296.8

Analemmatic Sundial

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1205.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-378.5	-371.4	-369.2	-359.4	-356.5	-344.3	-340.9	-326.3	-322.5	-306.0	-301.7
February	-273.8	-253.8	-248.6	-227.4	-222.1	-199.9	-194.2	-171.3	-165.5	-142.0	-135.9
March	-117.9	-93.8	-87.6	-63.2	-57.1	-32.4	-26.3	-1.6	4.5	29.1	35.2
April	71.8	95.8	101.8	125.4	131.3	154.4	160.1	182.7	188.2	209.9	215.2
May	241.1	260.9	265.6	284.1	288.5	305.5	309.5	324.9	328.6	342.1	345.2
June	361.9	370.7	372.7	379.1	380.6	384.6	385.2	386.7	386.8	384.1	385.4
July	380.6	374.5	372.7	364.5	362.1	351.5	348.6	335.9	332.5	318.1	314.2
August	289.6	271.6	267.0	247.8	242.9	222.6	217.3	196.2	190.8	168.8	163.1
September	129.0	105.8	99.9	76.2	70.2	46.3	40.4	16.2	10.1	-14.2	-20.2
October	-50.5	-74.8	-80.7	-104.8	-110.7	-134.5	-140.4	-163.6	-169.4	-192.1	-197.6
November	-230.2	-251.1	-256.2	-275.9	-280.6	-298.9	-303.2	-319.8	-323.7	-338.4	-342.0
December	-357.2	-367.6	-369.8	-377.3	-378.9	-383.7	-384.6	-386.7	-386.8	-385.9	-385.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	378.5	371.4	369.2	359.4	356.5	344.3	340.9	326.3	322.5	306.0	301.7
February	273.8	253.8	248.6	227.4	222.1	199.9	194.2	171.3	165.5	142.0	135.9
March	117.9	93.8	87.6	63.2	57.1	32.4	26.3	1.6	-4.5	-29.1	-35.2
April	-71.8	-95.8	-101.8	-125.4	-131.3	-154.4	-160.1	-182.7	-188.2	-209.9	-215.2
May	-241.1	-260.9	-265.6	-284.1	-288.5	-305.5	-309.5	-324.9	-328.6	-342.1	-345.2
June	-361.9	-370.7	-372.7	-379.1	-380.6	-384.6	-385.2	-386.7	-386.8	-384.1	-385.4
July	-380.6	-374.5	-372.7	-364.5	-362.1	-351.5	-348.6	-335.9	-332.5	-318.1	-314.2
August	-289.6	-271.6	-267.0	-247.8	-242.9	-222.6	-217.3	-196.2	-190.8	-168.8	-163.1
September	-129.0	-105.8	-99.9	-76.2	-70.2	-46.3	-40.4	-16.2	-10.1	14.2	20.2
October	50.5	74.8	80.7	104.8	110.7	134.5	140.4	163.6	169.4	192.1	197.6
November	230.2	251.1	256.2	275.9	280.6	298.9	303.2	319.8	323.7	338.4	342.0
December	357.2	367.6	369.8	377.3	378.9	383.7	384.6	386.7	386.8	385.9	385.4

Southern Hemisphere

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

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

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

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1607.7 mm
 Sunrise/Sunset Markers: X = ± 614.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1607.7	1607.7	0.0						
11:55	12:05	43.6	1607.3	1607.9	43.6	8:25	3:35	1612.9	950.7	1872.2	1741.6
11:50	12:10	87.2	1606.2	1608.6	87.3	8:20	3:40	1638.3	922.1	1880.0	1776.0
11:45	12:15	130.8	1604.3	1609.6	130.9	8:15	3:45	1662.9	893.2	1887.6	1809.9
11:40	12:20	174.3	1601.6	1611.1	174.4	8:10	3:50	1686.8	863.8	1895.1	1843.5
11:35	12:25	217.7	1598.2	1612.9	217.9	8:05	3:55	1709.8	834.0	1902.4	1876.7
11:30	12:30	261.1	1594.0	1615.2	261.4	8:00	4:00	1732.1	803.9	1909.5	1909.5
11:25	12:35	304.2	1589.0	1617.9	304.8	7:55	4:05	1753.5	773.3	1916.4	1941.9
11:20	12:40	347.3	1583.3	1620.9	348.2	7:50	4:10	1774.0	742.4	1923.1	1973.8
11:15	12:45	390.2	1576.8	1624.4	391.4	7:45	4:15	1793.7	711.1	1929.5	2005.4
11:10	12:50	432.9	1569.6	1628.2	434.6	7:40	4:20	1812.6	679.4	1935.8	2036.5
11:05	12:55	475.4	1561.6	1632.4	477.6	7:35	4:25	1830.6	647.5	1941.8	2067.2
11:00	1:00	517.6	1552.9	1636.9	520.5	7:30	4:30	1847.8	615.2	1947.5	2097.4
10:55	1:05	559.7	1543.5	1641.8	563.3	7:25	4:35	1864.0	582.7	1953.0	2127.3
10:50	1:10	601.4	1533.3	1647.0	606.0	7:20	4:40	1879.4	549.9	1958.2	2156.6
10:45	1:15	642.9	1522.4	1652.6	648.5	7:15	4:45	1893.9	516.8	1963.1	2185.6
10:40	1:20	684.0	1510.8	1658.4	690.9	7:10	4:50	1907.4	483.4	1967.7	2214.1
10:35	1:25	724.9	1498.4	1664.5	733.1	7:05	4:55	1920.1	449.9	1972.1	2242.2
10:30	1:30	765.4	1485.3	1670.9	775.1	7:00	5:00	1931.9	416.1	1976.2	2269.8
10:25	1:35	805.5	1471.6	1677.6	816.9	6:55	5:05	1942.7	382.1	1979.9	2297.0
10:20	1:40	845.2	1457.1	1684.5	858.6	6:50	5:10	1952.6	348.0	1983.4	2323.7
10:15	1:45	884.6	1441.9	1691.6	900.0	6:45	5:15	1961.6	313.6	1986.5	2350.0
10:10	1:50	923.5	1426.1	1699.0	941.2	6:40	5:20	1969.6	279.2	1989.3	2375.8
10:05	1:55	962.0	1409.5	1706.5	982.2	6:35	5:25	1976.7	244.6	1991.8	2401.2
10:00	2:00	1000.0	1392.3	1714.2	1022.9	6:30	5:30	1982.9	209.8	1994.0	2426.1
9:55	2:05	1037.5	1374.5	1722.1	1063.4	6:25	5:35	1988.1	175.0	1995.8	2450.5
9:50	2:10	1074.6	1355.9	1730.1	1103.7	6:20	5:40	1992.4	140.1	1997.3	2474.6
9:45	2:15	1111.1	1336.8	1738.3	1143.7	6:15	5:45	1995.7	105.1	1998.5	2498.1
9:40	2:20	1147.2	1317.0	1746.5	1183.4	6:10	5:50	1998.1	70.1	1999.3	2521.2
9:35	2:25	1182.6	1296.5	1754.9	1222.9	6:05	5:55	1999.5	35.1	1999.8	2543.9
9:30	2:30	1217.5	1275.5	1763.3	1262.0	6:00	6:00	2000.0	0.0	2000.0	2566.1
9:25	2:35	1251.8	1253.8	1771.8	1300.9	5:55	6:05	1999.5	-35.1	1999.8	2587.8
9:20	2:40	1285.6	1231.6	1780.3	1339.5	5:50	6:10	1998.1	-70.1	1999.3	2609.1
9:15	2:45	1318.7	1208.7	1788.9	1377.7	5:45	6:15	1995.7	-105.1	1998.5	2630.0
9:10	2:50	1351.2	1185.3	1797.4	1415.7	5:40	6:20	1992.4	-140.1	1997.3	2650.4
9:05	2:55	1383.0	1161.4	1806.0	1453.3	5:35	6:25	1988.1	-175.0	1995.8	2670.3
9:00	3:00	1414.2	1136.8	1814.5	1490.5	5:30	6:30	1982.9	-209.8	1994.0	2689.9
8:55	3:05	1444.7	1111.8	1823.0	1527.5	5:25	6:35	1976.7	-244.6	1991.8	2708.9
8:50	3:10	1474.6	1086.2	1831.4	1564.1	5:20	6:40	1969.6	-279.2	1989.3	2727.6
8:45	3:15	1503.7	1060.0	1839.8	1600.3	5:15	6:45	1961.6	-313.6	1986.5	2745.8
8:40	3:20	1532.1	1033.4	1848.0	1636.2	5:10	6:50	1952.6	-348.0	1983.4	2763.6
8:35	3:25	1559.8	1006.3	1856.2	1671.7	5:05	6:55	1942.7	-382.1	1979.9	2780.9
8:30	3:30	1586.7	978.7	1864.3	1706.8	5:00	7:00	1931.9	-416.1	1976.2	2797.8

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1607.7 mm
 Sunrise/Sunset Markers: X = ± 614.0 mm

Local Time	X	Y	Z	W	
4:55	7:05	1920.1	-449.9	1972.1	2814.3
4:50	7:10	1907.4	-483.4	1967.7	2830.4
4:45	7:15	1893.9	-516.8	1963.1	2846.1
4:40	7:20	1879.4	-549.9	1958.2	2861.3
4:35	7:25	1864.0	-582.7	1953.0	2876.2
4:30	7:30	1847.8	-615.2	1947.5	2890.6
4:25	7:35	1830.6	-647.5	1941.8	2904.7
4:20	7:40	1812.6	-679.4	1935.8	2918.3
4:15	7:45	1793.7	-711.1	1929.5	2931.6
4:10	7:50	1774.0	-742.4	1923.1	2944.5
4:05	7:55	1753.5	-773.3	1916.4	2957.0
4:00	8:00	1732.1	-803.9	1909.5	2969.1
3:55	8:05	1709.8	-834.0	1902.4	2980.9
3:50	8:10	1686.8	-863.8	1895.1	2992.3
3:45	8:15	1662.9	-893.2	1887.6	3003.3
3:40	8:20	1638.3	-922.1	1880.0	3014.0
3:35	8:25	1612.9	-950.7	1872.2	3024.3
3:30	8:30	1586.7	-978.7	1864.3	3034.3
3:25	8:35	1559.8	-1006.3	1856.2	3044.0
3:20	8:40	1532.1	-1033.4	1848.0	3053.3
3:15	8:45	1503.7	-1060.0	1839.8	3062.3

Analemmatic Sundial

Latitude: 53.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1607.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-504.7	-495.2	-492.3	-479.2	-475.3	-459.0	-454.5	-435.1	-429.9	-408.0	-402.2
February	-365.1	-338.4	-331.5	-303.2	-296.2	-266.6	-258.9	-228.4	-220.7	-189.3	-181.2
March	-157.3	-125.0	-116.9	-84.2	-76.1	-43.2	-35.1	-2.1	6.0	38.8	46.9
April	95.7	127.8	135.8	167.2	175.0	205.9	213.4	243.6	250.9	279.9	286.9
May	321.4	347.9	354.2	378.7	384.7	407.3	412.6	433.2	438.2	456.2	460.2
June	482.6	494.2	496.9	505.5	507.4	512.8	513.6	515.5	515.8	512.1	513.8
July	507.4	499.3	496.9	486.0	482.8	468.6	464.8	447.9	443.4	424.1	418.9
August	386.1	362.1	356.0	330.4	323.9	296.8	289.8	261.6	254.4	225.0	217.5
September	172.1	141.0	133.2	101.6	93.6	61.7	53.8	21.6	13.5	-18.9	-27.0
October	-67.3	-99.7	-107.6	-139.8	-147.5	-179.3	-187.1	-218.1	-225.9	-256.1	-263.5
November	-307.0	-334.8	-341.6	-367.8	-374.2	-398.5	-404.3	-426.4	-431.6	-451.2	-455.9
December	-476.3	-490.1	-493.0	-503.0	-505.2	-511.6	-512.8	-515.5	-515.8	-514.6	-513.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	504.7	495.2	492.3	479.2	475.3	459.0	454.5	435.1	429.9	408.0	402.2
February	365.1	338.4	331.5	303.2	296.2	266.6	258.9	228.4	220.7	189.3	181.2
March	157.3	125.0	116.9	84.2	76.1	43.2	35.1	2.1	-6.0	-38.8	-46.9
April	-95.7	-127.8	-135.8	-167.2	-175.0	-205.9	-213.4	-243.6	-250.9	-279.9	-286.9
May	-321.4	-347.9	-354.2	-378.7	-384.7	-407.3	-412.6	-433.2	-438.2	-456.2	-460.2
June	-482.6	-494.2	-496.9	-505.5	-507.4	-512.8	-513.6	-515.5	-515.8	-512.1	-513.8
July	-507.4	-499.3	-496.9	-486.0	-482.8	-468.6	-464.8	-447.9	-443.4	-424.1	-418.9
August	-386.1	-362.1	-356.0	-330.4	-323.9	-296.8	-289.8	-261.6	-254.4	-225.0	-217.5
September	-172.1	-141.0	-133.2	-101.6	-93.6	-61.7	-53.8	-21.6	-13.5	18.9	27.0
October	67.3	99.7	107.6	139.8	147.5	179.3	187.1	218.1	225.9	256.1	263.5
November	307.0	334.8	341.6	367.8	374.2	398.5	404.3	426.4	431.6	451.2	455.9
December	476.3	490.1	493.0	503.0	505.2	511.6	512.8	515.5	515.8	514.6	513.8

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 |

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2009.6 mm
 Sunrise/Sunset Markers: X = ± 767.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	2009.6	2009.6	0.0						
11:55	12:05	54.5	2009.2	2009.9	54.5	8:25	3:35	2016.1	1188.3	2340.3	2177.0
11:50	12:10	109.0	2007.7	2010.7	109.1	8:20	3:40	2047.9	1152.7	2350.0	2220.0
11:45	12:15	163.5	2005.3	2012.0	163.6	8:15	3:45	2078.7	1116.5	2359.5	2262.4
11:40	12:20	217.9	2002.0	2013.8	218.0	8:10	3:50	2108.5	1079.8	2368.9	2304.4
11:35	12:25	272.2	1997.7	2016.2	272.4	8:05	3:55	2137.3	1042.5	2378.0	2345.9
11:30	12:30	326.3	1992.4	2019.0	326.8	8:00	4:00	2165.1	1004.8	2386.9	2386.9
11:25	12:35	380.3	1986.3	2022.3	381.0	7:55	4:05	2191.8	966.6	2395.5	2427.3
11:20	12:40	434.1	1979.1	2026.2	435.2	7:50	4:10	2217.5	927.9	2403.9	2467.3
11:15	12:45	487.7	1971.0	2030.5	489.3	7:45	4:15	2242.2	888.8	2411.9	2506.7
11:10	12:50	541.1	1962.0	2035.3	543.2	7:40	4:20	2265.8	849.3	2419.7	2545.6
11:05	12:55	594.2	1952.0	2040.5	597.0	7:35	4:25	2288.3	809.4	2427.2	2584.0
11:00	1:00	647.0	1941.2	2046.2	650.7	7:30	4:30	2309.7	769.1	2434.4	2621.8
10:55	1:05	699.6	1929.4	2052.3	704.2	7:25	4:35	2330.0	728.4	2441.2	2659.1
10:50	1:10	751.8	1916.6	2058.8	757.5	7:20	4:40	2349.2	687.3	2447.7	2695.8
10:45	1:15	803.6	1903.0	2065.7	810.6	7:15	4:45	2367.3	646.0	2453.9	2732.0
10:40	1:20	855.1	1888.4	2073.0	863.6	7:10	4:50	2384.3	604.3	2459.7	2767.6
10:35	1:25	906.1	1873.0	2080.7	916.3	7:05	4:55	2400.1	562.4	2465.1	2802.7
10:30	1:30	956.7	1856.7	2088.7	968.9	7:00	5:00	2414.8	520.1	2470.2	2837.2
10:25	1:35	1006.9	1839.4	2097.0	1021.1	6:55	5:05	2428.4	477.7	2474.9	2871.2
10:20	1:40	1056.5	1821.4	2105.6	1073.2	6:50	5:10	2440.7	435.0	2479.2	2904.6
10:15	1:45	1105.7	1802.4	2114.5	1125.0	6:45	5:15	2452.0	392.1	2483.1	2937.5
10:10	1:50	1154.4	1782.6	2123.7	1176.5	6:40	5:20	2462.0	349.0	2486.6	2969.7
10:05	1:55	1202.5	1761.9	2133.1	1227.7	6:35	5:25	2470.9	305.7	2489.7	3001.5
10:00	2:00	1250.0	1740.4	2142.8	1278.7	6:30	5:30	2478.6	262.3	2492.5	3032.6
9:55	2:05	1296.9	1718.1	2152.6	1329.3	6:25	5:35	2485.1	218.8	2494.8	3063.2
9:50	2:10	1343.2	1694.9	2162.6	1379.6	6:20	5:40	2490.5	175.2	2496.6	3093.2
9:45	2:15	1388.9	1671.0	2172.8	1429.6	6:15	5:45	2494.6	131.4	2498.1	3122.6
9:40	2:20	1433.9	1646.2	2183.2	1479.3	6:10	5:50	2497.6	87.7	2499.2	3151.5
9:35	2:25	1478.3	1620.7	2193.6	1528.6	6:05	5:55	2499.4	43.8	2499.8	3179.8
9:30	2:30	1521.9	1594.4	2204.1	1577.5	6:00	6:00	2500.0	0.0	2500.0	3207.6
9:25	2:35	1564.8	1567.3	2214.7	1626.1	5:55	6:05	2499.4	-43.8	2499.8	3234.8
9:20	2:40	1607.0	1539.5	2225.4	1674.3	5:50	6:10	2497.6	-87.7	2499.2	3261.4
9:15	2:45	1648.4	1510.9	2236.1	1722.2	5:45	6:15	2494.6	-131.4	2498.1	3287.5
9:10	2:50	1689.0	1481.7	2246.8	1769.6	5:40	6:20	2490.5	-175.2	2496.6	3313.0
9:05	2:55	1728.8	1451.7	2257.5	1816.6	5:35	6:25	2485.1	-218.8	2494.8	3337.9
9:00	3:00	1767.8	1421.0	2268.1	1863.2	5:30	6:30	2478.6	-262.3	2492.5	3362.3
8:55	3:05	1805.9	1389.7	2278.7	1909.4	5:25	6:35	2470.9	-305.7	2489.7	3386.2
8:50	3:10	1843.2	1357.7	2289.3	1955.1	5:20	6:40	2462.0	-349.0	2486.6	3409.5
8:45	3:15	1879.6	1325.0	2299.7	2000.4	5:15	6:45	2452.0	-392.1	2483.1	3432.2
8:40	3:20	1915.1	1291.8	2310.0	2045.2	5:10	6:50	2440.7	-435.0	2479.2	3454.5
8:35	3:25	1949.7	1257.9	2320.3	2089.6	5:05	6:55	2428.4	-477.7	2474.9	3476.1
8:30	3:30	1983.4	1223.4	2330.3	2133.5	5:00	7:00	2414.8	-520.1	2470.2	3497.3

Analemmatic Sundial

Latitude: 53.5° N/S

Earliest Sunrise: 3:29 a.m. Latest Sunset: 8:31 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2009.6 mm
 Sunrise/Sunset Markers: $X = \pm 767.4$ mm

Local Time	X	Y	Z	W	
4:55	7:05	2400.1	-562.4	2465.1	3517.9
4:50	7:10	2384.3	-604.3	2459.7	3538.0
4:45	7:15	2367.3	-646.0	2453.9	3557.6
4:40	7:20	2349.2	-687.3	2447.7	3576.7
4:35	7:25	2330.0	-728.4	2441.2	3595.2
4:30	7:30	2309.7	-769.1	2434.4	3613.3
4:25	7:35	2288.3	-809.4	2427.2	3630.9
4:20	7:40	2265.8	-849.3	2419.7	3647.9
4:15	7:45	2242.2	-888.8	2411.9	3664.5
4:10	7:50	2217.5	-927.9	2403.9	3680.6
4:05	7:55	2191.8	-966.6	2395.5	3696.2
4:00	8:00	2165.1	-1004.8	2386.9	3711.4
3:55	8:05	2137.3	-1042.5	2378.0	3726.1
3:50	8:10	2108.5	-1079.8	2368.9	3740.3
3:45	8:15	2078.7	-1116.5	2359.5	3754.1
3:40	8:20	2047.9	-1152.7	2350.0	3767.5
3:35	8:25	2016.1	-1188.3	2340.3	3780.4
3:30	8:30	1983.4	-1223.4	2330.3	3792.9
3:25	8:35	1949.7	-1257.9	2320.3	3805.0
3:20	8:40	1915.1	-1291.8	2310.0	3816.7
3:15	8:45	1879.6	-1325.0	2299.7	3827.9

Analematic Sundial

Latitude: 53.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2009.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-630.9	-619.0	-615.4	-599.0	-594.2	-573.8	-568.1	-543.9	-537.4	-510.0	-502.8
February	-456.3	-423.0	-414.4	-379.0	-370.2	-333.2	-323.7	-285.6	-275.9	-236.6	-226.5
March	-196.6	-156.3	-146.1	-105.3	-95.1	-54.0	-43.9	-2.6	7.5	48.6	58.7
April	119.6	159.7	169.7	209.0	218.8	257.4	266.8	304.4	313.6	349.9	358.7
May	401.8	434.8	442.7	473.4	480.9	509.1	515.8	541.5	547.7	570.2	575.3
June	603.2	617.8	621.1	631.8	634.3	641.0	642.0	644.4	644.7	640.1	642.3
July	634.3	624.2	621.1	607.5	603.5	585.8	581.0	559.8	554.2	530.1	523.7
August	482.6	452.7	445.0	413.0	404.9	371.0	362.2	327.0	318.0	281.3	271.9
September	215.1	176.3	166.5	127.0	117.0	77.2	67.3	27.0	16.9	-23.6	-33.7
October	-84.2	-124.6	-134.5	-174.7	-184.4	-224.1	-233.9	-272.7	-282.3	-320.2	-329.4
November	-383.7	-418.6	-427.0	-459.8	-467.7	-498.1	-505.4	-533.0	-539.5	-564.0	-569.9
December	-595.4	-612.6	-616.3	-628.8	-631.5	-639.5	-641.0	-644.4	-644.7	-643.2	-642.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	630.9	619.0	615.4	599.0	594.2	573.8	568.1	543.9	537.4	510.0	502.8
February	456.3	423.0	414.4	379.0	370.2	333.2	323.7	285.6	275.9	236.6	226.5
March	196.6	156.3	146.1	105.3	95.1	54.0	43.9	2.6	-7.5	-48.6	-58.7
April	-119.6	-159.7	-169.7	-209.0	-218.8	-257.4	-266.8	-304.4	-313.6	-349.9	-358.7
May	-401.8	-434.8	-442.7	-473.4	-480.9	-509.1	-515.8	-541.5	-547.7	-570.2	-575.3
June	-603.2	-617.8	-621.1	-631.8	-634.3	-641.0	-642.0	-644.4	-644.7	-640.1	-642.3
July	-634.3	-624.2	-621.1	-607.5	-603.5	-585.8	-581.0	-559.8	-554.2	-530.1	-523.7
August	-482.6	-452.7	-445.0	-413.0	-404.9	-371.0	-362.2	-327.0	-318.0	-281.3	-271.9
September	-215.1	-176.3	-166.5	-127.0	-117.0	-77.2	-67.3	-27.0	-16.9	23.6	33.7
October	84.2	124.6	134.5	174.7	184.4	224.1	233.9	272.7	282.3	320.2	329.4
November	383.7	418.6	427.0	459.8	467.7	498.1	505.4	533.0	539.5	564.0	569.9
December	595.4	612.6	616.3	628.8	631.5	639.5	641.0	644.4	644.7	643.2	642.3

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