

Analemmatic Sundial

Latitude: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 793.4 mm
 Sunrise/Sunset Markers: X = ± 325.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	793.4	793.4	0.0						
11:55	12:05	21.8	793.2	793.5	21.8	8:25	3:35	806.4	469.1	933.0	869.2
11:50	12:10	43.6	792.6	793.8	43.6	8:20	3:40	819.2	455.0	937.1	886.3
11:45	12:15	65.4	791.7	794.4	65.4	8:15	3:45	831.5	440.8	941.1	903.1
11:40	12:20	87.2	790.3	795.1	87.2	8:10	3:50	843.4	426.3	945.0	919.8
11:35	12:25	108.9	788.6	796.1	109.0	8:05	3:55	854.9	411.6	948.8	936.3
11:30	12:30	130.5	786.6	797.3	130.7	8:00	4:00	866.0	396.7	952.6	952.6
11:25	12:35	152.1	784.1	798.7	152.4	7:55	4:05	876.7	381.6	956.2	968.6
11:20	12:40	173.6	781.3	800.4	174.1	7:50	4:10	887.0	366.3	959.7	984.4
11:15	12:45	195.1	778.1	802.2	195.7	7:45	4:15	896.9	350.9	963.1	1000.1
11:10	12:50	216.4	774.5	804.2	217.3	7:40	4:20	906.3	335.3	966.3	1015.5
11:05	12:55	237.7	770.6	806.4	238.8	7:35	4:25	915.3	319.5	969.5	1030.7
11:00	1:00	258.8	766.3	808.8	260.2	7:30	4:30	923.9	303.6	972.5	1045.7
10:55	1:05	279.8	761.7	811.4	281.6	7:25	4:35	932.0	287.5	975.4	1060.4
10:50	1:10	300.7	756.6	814.2	302.9	7:20	4:40	939.7	271.3	978.1	1074.9
10:45	1:15	321.4	751.3	817.1	324.2	7:15	4:45	946.9	255.0	980.7	1089.3
10:40	1:20	342.0	745.5	820.2	345.4	7:10	4:50	953.7	238.6	983.1	1103.3
10:35	1:25	362.4	739.4	823.5	366.4	7:05	4:55	960.0	222.0	985.4	1117.2
10:30	1:30	382.7	733.0	826.9	387.4	7:00	5:00	965.9	205.3	987.5	1130.8
10:25	1:35	402.7	726.2	830.4	408.3	6:55	5:05	971.3	188.6	989.5	1144.2
10:20	1:40	422.6	719.0	834.0	429.1	6:50	5:10	976.3	171.7	991.3	1157.4
10:15	1:45	442.3	711.5	837.8	449.8	6:45	5:15	980.8	154.8	992.9	1170.4
10:10	1:50	461.7	703.7	841.7	470.4	6:40	5:20	984.8	137.8	994.4	1183.1
10:05	1:55	481.0	695.6	845.7	490.8	6:35	5:25	988.4	120.7	995.7	1195.5
10:00	2:00	500.0	687.1	849.7	511.2	6:30	5:30	991.4	103.6	996.8	1207.8
9:55	2:05	518.8	678.2	853.9	531.4	6:25	5:35	994.1	86.4	997.8	1219.8
9:50	2:10	537.3	669.1	858.1	551.5	6:20	5:40	996.2	69.1	998.6	1231.6
9:45	2:15	555.6	659.6	862.4	571.4	6:15	5:45	997.9	51.9	999.2	1243.2
9:40	2:20	573.6	649.9	866.8	591.2	6:10	5:50	999.0	34.6	999.6	1254.5
9:35	2:25	591.3	639.8	871.2	610.9	6:05	5:55	999.8	17.3	999.9	1265.6
9:30	2:30	608.8	629.4	875.6	630.5	6:00	6:00	1000.0	0.0	1000.0	1276.5
9:25	2:35	625.9	618.7	880.1	649.8	5:55	6:05	999.8	-17.3	999.9	1287.1
9:20	2:40	642.8	607.7	884.6	669.0	5:50	6:10	999.0	-34.6	999.6	1297.5
9:15	2:45	659.3	596.5	889.1	688.1	5:45	6:15	997.9	-51.9	999.2	1307.7
9:10	2:50	675.6	584.9	893.6	707.0	5:40	6:20	996.2	-69.1	998.6	1317.7
9:05	2:55	691.5	573.1	898.1	725.7	5:35	6:25	994.1	-86.4	997.8	1327.4
9:00	3:00	707.1	561.0	902.6	744.3	5:30	6:30	991.4	-103.6	996.8	1336.9
8:55	3:05	722.4	548.6	907.1	762.7	5:25	6:35	988.4	-120.7	995.7	1346.2
8:50	3:10	737.3	536.0	911.5	780.9	5:20	6:40	984.8	-137.8	994.4	1355.3
8:45	3:15	751.8	523.1	915.9	798.9	5:15	6:45	980.8	-154.8	992.9	1364.1
8:40	3:20	766.0	510.0	920.3	816.8	5:10	6:50	976.3	-171.7	991.3	1372.8
8:35	3:25	779.9	496.6	924.6	834.4	5:05	6:55	971.3	-188.6	989.5	1381.2
8:30	3:30	793.4	483.0	928.8	851.9	5:00	7:00	965.9	-205.3	987.5	1389.4

Analemmatic Sundial

Latitude: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 793.4 mm
 Sunrise/Sunset Markers: X = ± 325.2 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-222.0	985.4	1397.4
4:50	7:10	953.7	-238.6	983.1	1405.1
4:45	7:15	946.9	-255.0	980.7	1412.7
4:40	7:20	939.7	-271.3	978.1	1420.1
4:35	7:25	932.0	-287.5	975.4	1427.2
4:30	7:30	923.9	-303.6	972.5	1434.2
4:25	7:35	915.3	-319.5	969.5	1440.9
4:20	7:40	906.3	-335.3	966.3	1447.5
4:15	7:45	896.9	-350.9	963.1	1453.8
4:10	7:50	887.0	-366.3	959.7	1460.0
4:05	7:55	876.7	-381.6	956.2	1466.0
4:00	8:00	866.0	-396.7	952.6	1471.8
3:55	8:05	854.9	-411.6	948.8	1477.4
3:50	8:10	843.4	-426.3	945.0	1482.8
3:45	8:15	831.5	-440.8	941.1	1488.1
3:40	8:20	819.2	-455.0	937.1	1493.2
3:35	8:25	806.4	-469.1	933.0	1498.1
3:30	8:30	793.4	-483.0	928.8	1502.8

Analematic Sundial

Latitude: 52.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 793.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-258.3	-253.4	-251.9	-245.2	-243.2	-234.9	-232.6	-222.7	-220.0	-208.8	-205.8
February	-186.8	-173.2	-169.6	-155.2	-151.6	-136.4	-132.5	-116.9	-112.9	-96.9	-92.7
March	-80.5	-64.0	-59.8	-43.1	-38.9	-22.1	-18.0	-1.1	3.1	19.9	24.0
April	49.0	65.4	69.5	85.6	89.6	105.4	109.2	124.6	128.4	143.2	146.8
May	164.5	178.0	181.2	193.8	196.9	208.4	211.2	221.7	224.2	233.4	235.5
June	246.9	252.9	254.3	258.7	259.7	262.4	262.8	263.8	263.9	262.0	262.9
July	259.7	255.5	254.3	248.7	247.1	239.8	237.8	229.2	226.9	217.0	214.4
August	197.6	185.3	182.2	169.1	165.7	151.9	148.3	133.8	130.2	115.1	111.3
September	88.0	72.2	68.2	52.0	47.9	31.6	27.5	11.1	6.9	-9.7	-13.8
October	-34.5	-51.0	-55.1	-71.5	-75.5	-91.7	-95.8	-111.6	-115.6	-131.1	-134.8
November	-157.1	-171.3	-174.8	-188.2	-191.5	-203.9	-206.9	-218.2	-220.8	-230.9	-233.3
December	-243.7	-250.8	-252.3	-257.4	-258.5	-261.8	-262.4	-263.8	-263.9	-263.3	-262.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	258.3	253.4	251.9	245.2	243.2	234.9	232.6	222.7	220.0	208.8	205.8
February	186.8	173.2	169.6	155.2	151.6	136.4	132.5	116.9	112.9	96.9	92.7
March	80.5	64.0	59.8	43.1	38.9	22.1	18.0	1.1	-3.1	-19.9	-24.0
April	-49.0	-65.4	-69.5	-85.6	-89.6	-105.4	-109.2	-124.6	-128.4	-143.2	-146.8
May	-164.5	-178.0	-181.2	-193.8	-196.9	-208.4	-211.2	-221.7	-224.2	-233.4	-235.5
June	-246.9	-252.9	-254.3	-258.7	-259.7	-262.4	-262.8	-263.8	-263.9	-262.0	-262.9
July	-259.7	-255.5	-254.3	-248.7	-247.1	-239.8	-237.8	-229.2	-226.9	-217.0	-214.4
August	-197.6	-185.3	-182.2	-169.1	-165.7	-151.9	-148.3	-133.8	-130.2	-115.1	-111.3
September	-88.0	-72.2	-68.2	-52.0	-47.9	-31.6	-27.5	-11.1	-6.9	9.7	13.8
October	34.5	51.0	55.1	71.5	75.5	91.7	95.8	111.6	115.6	131.1	134.8
November	157.1	171.3	174.8	188.2	191.5	203.9	206.9	218.2	220.8	230.9	233.3
December	243.7	250.8	252.3	257.4	258.5	261.8	262.4	263.8	263.9	263.3	262.9

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: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1190.0 mm
 Sunrise/Sunset Markers: X = ± 487.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1190.0	1190.0	0.0						
11:55	12:05	32.7	1189.7	1190.2	32.7	8:25	3:35	1209.7	703.7	1399.4	1303.8
11:50	12:10	65.4	1188.9	1190.7	65.4	8:20	3:40	1228.7	682.6	1405.6	1329.4
11:45	12:15	98.1	1187.5	1191.5	98.1	8:15	3:45	1247.2	661.1	1411.6	1354.7
11:40	12:20	130.7	1185.5	1192.7	130.8	8:10	3:50	1265.1	639.4	1417.5	1379.7
11:35	12:25	163.3	1183.0	1194.2	163.5	8:05	3:55	1282.4	617.4	1423.2	1404.4
11:30	12:30	195.8	1179.8	1196.0	196.1	8:00	4:00	1299.0	595.0	1428.8	1428.8
11:25	12:35	228.2	1176.2	1198.1	228.6	7:55	4:05	1315.1	572.4	1434.3	1452.9
11:20	12:40	260.5	1172.0	1200.5	261.1	7:50	4:10	1330.5	549.5	1439.5	1476.7
11:15	12:45	292.6	1167.2	1203.3	293.5	7:45	4:15	1345.3	526.3	1444.6	1500.1
11:10	12:50	324.7	1161.8	1206.3	325.9	7:40	4:20	1359.5	502.9	1449.5	1523.2
11:05	12:55	356.5	1155.9	1209.7	358.2	7:35	4:25	1373.0	479.3	1454.2	1546.0
11:00	1:00	388.2	1149.5	1213.3	390.3	7:30	4:30	1385.8	455.4	1458.7	1568.5
10:55	1:05	419.7	1142.5	1217.2	422.4	7:25	4:35	1398.0	431.3	1463.0	1590.6
10:50	1:10	451.1	1135.0	1221.3	454.4	7:20	4:40	1409.5	407.0	1467.1	1612.4
10:45	1:15	482.2	1126.9	1225.7	486.3	7:15	4:45	1420.4	382.5	1471.0	1633.9
10:40	1:20	513.0	1118.3	1230.3	518.0	7:10	4:50	1430.6	357.8	1474.7	1655.0
10:35	1:25	543.7	1109.1	1235.2	549.6	7:05	4:55	1440.1	333.0	1478.1	1675.8
10:30	1:30	574.0	1099.4	1240.3	581.1	7:00	5:00	1448.9	308.0	1481.3	1696.2
10:25	1:35	604.1	1089.2	1245.6	612.5	6:55	5:05	1457.0	282.9	1484.2	1716.3
10:20	1:40	633.9	1078.5	1251.0	643.7	6:50	5:10	1464.4	257.6	1486.9	1736.1
10:15	1:45	663.4	1067.3	1256.7	674.7	6:45	5:15	1471.2	232.2	1489.4	1755.5
10:10	1:50	692.6	1055.6	1262.5	705.6	6:40	5:20	1477.2	206.6	1491.6	1774.6
10:05	1:55	721.5	1043.3	1268.5	736.2	6:35	5:25	1482.5	181.0	1493.6	1793.3
10:00	2:00	750.0	1030.6	1274.6	766.8	6:30	5:30	1487.2	155.3	1495.3	1811.7
9:55	2:05	778.2	1017.4	1280.8	797.1	6:25	5:35	1491.1	129.6	1496.7	1829.7
9:50	2:10	805.9	1003.7	1287.2	827.2	6:20	5:40	1494.3	103.7	1497.9	1847.4
9:45	2:15	833.4	989.5	1293.7	857.1	6:15	5:45	1496.8	77.8	1498.8	1864.8
9:40	2:20	860.4	974.8	1300.2	886.9	6:10	5:50	1498.6	51.9	1499.5	1881.8
9:35	2:25	887.0	959.7	1306.8	916.4	6:05	5:55	1499.6	26.0	1499.9	1898.4
9:30	2:30	913.1	944.1	1313.5	945.7	6:00	6:00	1500.0	0.0	1500.0	1914.7
9:25	2:35	938.9	928.1	1320.2	974.7	5:55	6:05	1499.6	-26.0	1499.9	1930.7
9:20	2:40	964.2	911.6	1326.9	1003.6	5:50	6:10	1498.6	-51.9	1499.5	1946.3
9:15	2:45	989.0	894.7	1333.7	1032.2	5:45	6:15	1496.8	-77.8	1498.8	1961.6
9:10	2:50	1013.4	877.4	1340.4	1060.5	5:40	6:20	1494.3	-103.7	1497.9	1976.5
9:05	2:55	1037.3	859.6	1347.2	1088.6	5:35	6:25	1491.1	-129.6	1496.7	1991.1
9:00	3:00	1060.7	841.5	1353.9	1116.5	5:30	6:30	1487.2	-155.3	1495.3	2005.4
8:55	3:05	1083.5	822.9	1360.6	1144.0	5:25	6:35	1482.5	-181.0	1493.6	2019.3
8:50	3:10	1105.9	804.0	1367.3	1171.4	5:20	6:40	1477.2	-206.6	1491.6	2032.9
8:45	3:15	1127.8	784.6	1373.9	1198.4	5:15	6:45	1471.2	-232.2	1489.4	2046.2
8:40	3:20	1149.1	764.9	1380.4	1225.2	5:10	6:50	1464.4	-257.6	1486.9	2059.2
8:35	3:25	1169.8	744.9	1386.8	1251.7	5:05	6:55	1457.0	-282.9	1484.2	2071.8
8:30	3:30	1190.0	724.4	1393.2	1277.9	5:00	7:00	1448.9	-308.0	1481.3	2084.1

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Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1190.0 mm
 Sunrise/Sunset Markers: X = ± 487.8 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-333.0	1478.1	2096.1
4:50	7:10	1430.6	-357.8	1474.7	2107.7
4:45	7:15	1420.4	-382.5	1471.0	2119.1
4:40	7:20	1409.5	-407.0	1467.1	2130.1
4:35	7:25	1398.0	-431.3	1463.0	2140.8
4:30	7:30	1385.8	-455.4	1458.7	2151.3
4:25	7:35	1373.0	-479.3	1454.2	2161.4
4:20	7:40	1359.5	-502.9	1449.5	2171.2
4:15	7:45	1345.3	-526.3	1444.6	2180.8
4:10	7:50	1330.5	-549.5	1439.5	2190.0
4:05	7:55	1315.1	-572.4	1434.3	2199.0
4:00	8:00	1299.0	-595.0	1428.8	2207.7
3:55	8:05	1282.4	-617.4	1423.2	2216.1
3:50	8:10	1265.1	-639.4	1417.5	2224.2
3:45	8:15	1247.2	-661.1	1411.6	2232.1
3:40	8:20	1228.7	-682.6	1405.6	2239.7
3:35	8:25	1209.7	-703.7	1399.4	2247.1
3:30	8:30	1190.0	-724.4	1393.2	2254.2

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1190.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-387.4	-380.1	-377.9	-367.8	-364.9	-352.4	-348.9	-334.0	-330.0	-313.2	-308.7
February	-280.2	-259.8	-254.4	-232.8	-227.3	-204.6	-198.8	-175.3	-169.4	-145.3	-139.1
March	-120.7	-96.0	-89.7	-64.7	-58.4	-33.2	-26.9	-1.6	4.6	29.8	36.0
April	73.5	98.1	104.2	128.3	134.4	158.1	163.8	186.9	192.6	214.8	220.2
May	246.7	267.0	271.9	290.7	295.3	312.6	316.7	332.5	336.3	350.2	353.3
June	370.4	379.4	381.4	388.0	389.5	393.6	394.2	395.7	395.9	393.1	394.4
July	389.5	383.3	381.4	373.0	370.6	359.7	356.8	343.8	340.3	325.5	321.6
August	296.3	278.0	273.3	253.6	248.6	227.8	222.4	200.8	195.3	172.7	166.9
September	132.1	108.2	102.3	78.0	71.9	47.4	41.3	16.6	10.4	-14.5	-20.7
October	-51.7	-76.5	-82.6	-107.3	-113.3	-137.6	-143.6	-167.4	-173.4	-196.6	-202.3
November	-235.6	-257.0	-262.2	-282.3	-287.2	-305.9	-310.3	-327.3	-331.3	-346.3	-350.0
December	-365.6	-376.2	-378.4	-386.1	-387.8	-392.7	-393.6	-395.7	-395.9	-395.0	-394.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	387.4	380.1	377.9	367.8	364.9	352.4	348.9	334.0	330.0	313.2	308.7
February	280.2	259.8	254.4	232.8	227.3	204.6	198.8	175.3	169.4	145.3	139.1
March	120.7	96.0	89.7	64.7	58.4	33.2	26.9	1.6	-4.6	-29.8	-36.0
April	-73.5	-98.1	-104.2	-128.3	-134.4	-158.1	-163.8	-186.9	-192.6	-214.8	-220.2
May	-246.7	-267.0	-271.9	-290.7	-295.3	-312.6	-316.7	-332.5	-336.3	-350.2	-353.3
June	-370.4	-379.4	-381.4	-388.0	-389.5	-393.6	-394.2	-395.7	-395.9	-393.1	-394.4
July	-389.5	-383.3	-381.4	-373.0	-370.6	-359.7	-356.8	-343.8	-340.3	-325.5	-321.6
August	-296.3	-278.0	-273.3	-253.6	-248.6	-227.8	-222.4	-200.8	-195.3	-172.7	-166.9
September	-132.1	-108.2	-102.3	-78.0	-71.9	-47.4	-41.3	-16.6	-10.4	14.5	20.7
October	51.7	76.5	82.6	107.3	113.3	137.6	143.6	167.4	173.4	196.6	202.3
November	235.6	257.0	262.2	282.3	287.2	305.9	310.3	327.3	331.3	346.3	350.0
December	365.6	376.2	378.4	386.1	387.8	392.7	393.6	395.7	395.9	395.0	394.4

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: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1586.7 mm
 Sunrise/Sunset Markers: X = ± 650.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1586.7	1586.7	0.0						
11:55	12:05	43.6	1586.3	1586.9	43.6	8:25	3:35	1612.9	938.2	1865.9	1738.4
11:50	12:10	87.2	1585.2	1587.6	87.3	8:20	3:40	1638.3	910.1	1874.1	1772.5
11:45	12:15	130.8	1583.3	1588.7	130.9	8:15	3:45	1662.9	881.5	1882.1	1806.3
11:40	12:20	174.3	1580.7	1590.3	174.4	8:10	3:50	1686.8	852.5	1890.0	1839.6
11:35	12:25	217.7	1577.3	1592.2	217.9	8:05	3:55	1709.8	823.1	1897.6	1872.6
11:30	12:30	261.1	1573.1	1594.6	261.4	8:00	4:00	1732.1	793.4	1905.1	1905.1
11:25	12:35	304.2	1568.2	1597.5	304.8	7:55	4:05	1753.5	763.2	1912.3	1937.2
11:20	12:40	347.3	1562.6	1600.7	348.1	7:50	4:10	1774.0	732.7	1919.4	1968.9
11:15	12:45	390.2	1556.2	1604.4	391.4	7:45	4:15	1793.7	701.8	1926.1	2000.2
11:10	12:50	432.9	1549.1	1608.4	434.5	7:40	4:20	1812.6	670.6	1932.7	2031.0
11:05	12:55	475.4	1541.2	1612.9	477.5	7:35	4:25	1830.6	639.0	1939.0	2061.4
11:00	1:00	517.6	1532.6	1617.7	520.5	7:30	4:30	1847.8	607.2	1945.0	2091.3
10:55	1:05	559.7	1523.3	1622.9	563.2	7:25	4:35	1864.0	575.1	1950.7	2120.8
10:50	1:10	601.4	1513.3	1628.4	605.9	7:20	4:40	1879.4	542.7	1956.2	2149.9
10:45	1:15	642.9	1502.5	1634.3	648.4	7:15	4:45	1893.9	510.0	1961.3	2178.5
10:40	1:20	684.0	1491.0	1640.4	690.7	7:10	4:50	1907.4	477.1	1966.2	2206.7
10:35	1:25	724.9	1478.8	1646.9	732.9	7:05	4:55	1920.1	444.0	1970.8	2234.4
10:30	1:30	765.4	1465.9	1653.7	774.8	7:00	5:00	1931.9	410.7	1975.0	2261.7
10:25	1:35	805.5	1452.3	1660.7	816.6	6:55	5:05	1942.7	377.1	1979.0	2288.5
10:20	1:40	845.2	1438.0	1668.1	858.2	6:50	5:10	1952.6	343.4	1982.6	2314.8
10:15	1:45	884.6	1423.1	1675.6	899.6	6:45	5:15	1961.6	309.6	1985.8	2340.7
10:10	1:50	923.5	1407.4	1683.4	940.7	6:40	5:20	1969.6	275.5	1988.8	2366.1
10:05	1:55	962.0	1391.1	1691.3	981.7	6:35	5:25	1976.7	241.4	1991.4	2391.1
10:00	2:00	1000.0	1374.1	1699.5	1022.3	6:30	5:30	1982.9	207.1	1993.7	2415.6
9:55	2:05	1037.5	1356.5	1707.8	1062.8	6:25	5:35	1988.1	172.7	1995.6	2439.7
9:50	2:10	1074.6	1338.2	1716.3	1103.0	6:20	5:40	1992.4	138.3	1997.2	2463.2
9:45	2:15	1111.1	1319.3	1724.9	1142.9	6:15	5:45	1995.7	103.8	1998.4	2486.4
9:40	2:20	1147.2	1299.8	1733.6	1182.5	6:10	5:50	1998.1	69.2	1999.3	2509.0
9:35	2:25	1182.6	1279.6	1742.4	1221.8	6:05	5:55	1999.5	34.6	1999.8	2531.2
9:30	2:30	1217.5	1258.8	1751.3	1260.9	6:00	6:00	2000.0	0.0	2000.0	2553.0
9:25	2:35	1251.8	1237.4	1760.2	1299.7	5:55	6:05	1999.5	-34.6	1999.8	2574.3
9:20	2:40	1285.6	1215.5	1769.2	1338.1	5:50	6:10	1998.1	-69.2	1999.3	2595.1
9:15	2:45	1318.7	1192.9	1778.2	1376.2	5:45	6:15	1995.7	-103.8	1998.4	2615.5
9:10	2:50	1351.2	1169.8	1787.2	1414.0	5:40	6:20	1992.4	-138.3	1997.2	2635.4
9:05	2:55	1383.0	1146.2	1796.2	1451.5	5:35	6:25	1988.1	-172.7	1995.6	2654.9
9:00	3:00	1414.2	1122.0	1805.2	1488.6	5:30	6:30	1982.9	-207.1	1993.7	2673.9
8:55	3:05	1444.7	1097.2	1814.2	1525.4	5:25	6:35	1976.7	-241.4	1991.4	2692.5
8:50	3:10	1474.6	1072.0	1823.0	1561.8	5:20	6:40	1969.6	-275.5	1988.8	2710.6
8:45	3:15	1503.7	1046.2	1831.8	1597.9	5:15	6:45	1961.6	-309.6	1985.8	2728.3
8:40	3:20	1532.1	1019.9	1840.5	1633.6	5:10	6:50	1952.6	-343.4	1982.6	2745.5
8:35	3:25	1559.8	993.2	1849.1	1668.9	5:05	6:55	1942.7	-377.1	1979.0	2762.4
8:30	3:30	1586.7	965.9	1857.6	1703.8	5:00	7:00	1931.9	-410.7	1975.0	2778.8

Analemmatic Sundial

Latitude: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1586.7 mm
 Sunrise/Sunset Markers: X = ± 650.4 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-444.0	1970.8	2794.7
4:50	7:10	1907.4	-477.1	1966.2	2810.3
4:45	7:15	1893.9	-510.0	1961.3	2825.4
4:40	7:20	1879.4	-542.7	1956.2	2840.1
4:35	7:25	1864.0	-575.1	1950.7	2854.5
4:30	7:30	1847.8	-607.2	1945.0	2868.4
4:25	7:35	1830.6	-639.0	1939.0	2881.9
4:20	7:40	1812.6	-670.6	1932.7	2895.0
4:15	7:45	1793.7	-701.8	1926.1	2907.7
4:10	7:50	1774.0	-732.7	1919.4	2920.0
4:05	7:55	1753.5	-763.2	1912.3	2932.0
4:00	8:00	1732.1	-793.4	1905.1	2943.6
3:55	8:05	1709.8	-823.1	1897.6	2954.8
3:50	8:10	1686.8	-852.5	1890.0	2965.7
3:45	8:15	1662.9	-881.5	1882.1	2976.2
3:40	8:20	1638.3	-910.1	1874.1	2986.3
3:35	8:25	1612.9	-938.2	1865.9	2996.1
3:30	8:30	1586.7	-965.9	1857.6	3005.6

Analematic Sundial

Latitude: 52.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1586.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-516.6	-506.8	-503.8	-490.4	-486.5	-469.8	-465.2	-445.3	-440.0	-417.6	-411.6
February	-373.6	-346.4	-339.3	-310.3	-303.1	-272.8	-265.0	-233.8	-225.9	-193.7	-185.4
March	-160.9	-128.0	-119.6	-86.2	-77.9	-44.2	-35.9	-2.1	6.2	39.8	48.0
April	98.0	130.8	138.9	171.1	179.1	210.7	218.4	249.3	256.8	286.5	293.7
May	329.0	356.0	362.5	387.6	393.7	416.9	422.3	443.4	448.4	466.9	471.0
June	493.9	505.8	508.6	517.3	519.3	524.9	525.6	527.6	527.9	524.1	525.9
July	519.3	511.0	508.6	497.4	494.1	479.6	475.7	458.4	453.8	434.0	428.8
August	395.1	370.6	364.3	338.1	331.5	303.8	296.6	267.7	260.3	230.3	222.6
September	176.1	144.3	136.4	104.0	95.8	63.2	55.1	22.1	13.8	-19.3	-27.6
October	-68.9	-102.0	-110.2	-143.0	-151.0	-183.5	-191.5	-223.2	-231.2	-262.1	-269.7
November	-314.2	-342.7	-349.6	-376.4	-382.9	-407.9	-413.8	-436.4	-441.7	-461.8	-466.6
December	-487.5	-501.6	-504.6	-514.8	-517.1	-523.6	-524.9	-527.6	-527.9	-526.6	-525.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	516.6	506.8	503.8	490.4	486.5	469.8	465.2	445.3	440.0	417.6	411.6
February	373.6	346.4	339.3	310.3	303.1	272.8	265.0	233.8	225.9	193.7	185.4
March	160.9	128.0	119.6	86.2	77.9	44.2	35.9	2.1	-6.2	-39.8	-48.0
April	-98.0	-130.8	-138.9	-171.1	-179.1	-210.7	-218.4	-249.3	-256.8	-286.5	-293.7
May	-329.0	-356.0	-362.5	-387.6	-393.7	-416.9	-422.3	-443.4	-448.4	-466.9	-471.0
June	-493.9	-505.8	-508.6	-517.3	-519.3	-524.9	-525.6	-527.6	-527.9	-524.1	-525.9
July	-519.3	-511.0	-508.6	-497.4	-494.1	-479.6	-475.7	-458.4	-453.8	-434.0	-428.8
August	-395.1	-370.6	-364.3	-338.1	-331.5	-303.8	-296.6	-267.7	-260.3	-230.3	-222.6
September	-176.1	-144.3	-136.4	-104.0	-95.8	-63.2	-55.1	-22.1	-13.8	19.3	27.6
October	68.9	102.0	110.2	143.0	151.0	183.5	191.5	223.2	231.2	262.1	269.7
November	314.2	342.7	349.6	376.4	382.9	407.9	413.8	436.4	441.7	461.8	466.6
December	487.5	501.6	504.6	514.8	517.1	523.6	524.9	527.6	527.9	526.6	525.9

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: 52.5° N/S

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1983.4 mm
 Sunrise/Sunset Markers: X = ± 813.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1983.4	1983.4	0.0						
11:55	12:05	54.5	1982.9	1983.7	54.5	8:25	3:35	2016.1	1172.8	2332.4	2173.0
11:50	12:10	109.0	1981.5	1984.5	109.1	8:20	3:40	2047.9	1137.6	2342.6	2215.7
11:45	12:15	163.5	1979.1	1985.9	163.6	8:15	3:45	2078.7	1101.9	2352.7	2257.8
11:40	12:20	217.9	1975.8	1987.8	218.0	8:10	3:50	2108.5	1065.7	2362.5	2299.5
11:35	12:25	272.2	1971.6	1990.3	272.4	8:05	3:55	2137.3	1028.9	2372.1	2340.7
11:30	12:30	326.3	1966.4	1993.3	326.8	8:00	4:00	2165.1	991.7	2381.4	2381.4
11:25	12:35	380.3	1960.3	1996.8	381.0	7:55	4:05	2191.8	954.0	2390.4	2421.5
11:20	12:40	434.1	1953.3	2000.9	435.2	7:50	4:10	2217.5	915.8	2399.2	2461.1
11:15	12:45	487.7	1945.3	2005.5	489.2	7:45	4:15	2242.2	877.2	2407.7	2500.2
11:10	12:50	541.1	1936.4	2010.6	543.1	7:40	4:20	2265.8	838.2	2415.8	2538.7
11:05	12:55	594.2	1926.5	2016.1	596.9	7:35	4:25	2288.3	798.8	2423.7	2576.7
11:00	1:00	647.0	1915.8	2022.1	650.6	7:30	4:30	2309.7	759.0	2431.2	2614.2
10:55	1:05	699.6	1904.1	2028.6	704.0	7:25	4:35	2330.0	718.9	2438.4	2651.0
10:50	1:10	751.8	1891.6	2035.5	757.3	7:20	4:40	2349.2	678.4	2445.2	2687.4
10:45	1:15	803.6	1878.1	2042.8	810.5	7:15	4:45	2367.3	637.5	2451.7	2723.1
10:40	1:20	855.1	1863.8	2050.5	863.4	7:10	4:50	2384.3	596.4	2457.8	2758.4
10:35	1:25	906.1	1848.5	2058.7	916.1	7:05	4:55	2400.1	555.0	2463.5	2793.0
10:30	1:30	956.7	1832.4	2067.1	968.5	7:00	5:00	2414.8	513.3	2468.8	2827.1
10:25	1:35	1006.9	1815.4	2075.9	1020.8	6:55	5:05	2428.4	471.4	2473.7	2860.6
10:20	1:40	1056.5	1797.6	2085.1	1072.8	6:50	5:10	2440.7	429.3	2478.2	2893.5
10:15	1:45	1105.7	1778.8	2094.5	1124.5	6:45	5:15	2452.0	386.9	2482.3	2925.9
10:10	1:50	1154.4	1759.3	2104.2	1175.9	6:40	5:20	2462.0	344.4	2486.0	2957.7
10:05	1:55	1202.5	1738.9	2114.2	1227.1	6:35	5:25	2470.9	301.7	2489.3	2988.9
10:00	2:00	1250.0	1717.7	2124.3	1277.9	6:30	5:30	2478.6	258.9	2492.1	3019.5
9:55	2:05	1296.9	1695.6	2134.7	1328.5	6:25	5:35	2485.1	215.9	2494.5	3049.6
9:50	2:10	1343.2	1672.8	2145.3	1378.7	6:20	5:40	2490.5	172.9	2496.5	3079.0
9:45	2:15	1388.9	1649.1	2156.1	1428.6	6:15	5:45	2494.6	129.7	2498.0	3107.9
9:40	2:20	1433.9	1624.7	2167.0	1478.1	6:10	5:50	2497.6	86.5	2499.1	3136.3
9:35	2:25	1478.3	1599.5	2178.0	1527.3	6:05	5:55	2499.4	43.3	2499.8	3164.0
9:30	2:30	1521.9	1573.5	2189.1	1576.1	6:00	6:00	2500.0	0.0	2500.0	3191.2
9:25	2:35	1564.8	1546.8	2200.3	1624.6	5:55	6:05	2499.4	-43.3	2499.8	3217.8
9:20	2:40	1607.0	1519.4	2211.5	1672.6	5:50	6:10	2497.6	-86.5	2499.1	3243.9
9:15	2:45	1648.4	1491.2	2222.8	1720.3	5:45	6:15	2494.6	-129.7	2498.0	3269.3
9:10	2:50	1689.0	1462.3	2234.0	1767.5	5:40	6:20	2490.5	-172.9	2496.5	3294.2
9:05	2:55	1728.8	1432.7	2245.3	1814.4	5:35	6:25	2485.1	-215.9	2494.5	3318.6
9:00	3:00	1767.8	1402.5	2256.5	1860.8	5:30	6:30	2478.6	-258.9	2492.1	3342.3
8:55	3:05	1805.9	1371.5	2267.7	1906.7	5:25	6:35	2470.9	-301.7	2489.3	3365.6
8:50	3:10	1843.2	1340.0	2278.8	1952.3	5:20	6:40	2462.0	-344.4	2486.0	3388.2
8:45	3:15	1879.6	1307.7	2289.8	1997.3	5:15	6:45	2452.0	-386.9	2482.3	3410.4
8:40	3:20	1915.1	1274.9	2300.7	2042.0	5:10	6:50	2440.7	-429.3	2478.2	3431.9
8:35	3:25	1949.7	1241.4	2311.4	2086.1	5:05	6:55	2428.4	-471.4	2473.7	3453.0
8:30	3:30	1983.4	1207.4	2322.0	2129.8	5:00	7:00	2414.8	-513.3	2468.8	3473.5

Analemmatic Sundial**Latitude: 52.5° N/S**

Earliest Sunrise: 3:35 a.m. Latest Sunset: 8:25 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1983.4 mm
 Sunrise/Sunset Markers: $X = \pm 813.0$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-555.0	2463.5	3493.4
4:50	7:10	2384.3	-596.4	2457.8	3512.9
4:45	7:15	2367.3	-637.5	2451.7	3531.8
4:40	7:20	2349.2	-678.4	2445.2	3550.2
4:35	7:25	2330.0	-718.9	2438.4	3568.1
4:30	7:30	2309.7	-759.0	2431.2	3585.4
4:25	7:35	2288.3	-798.8	2423.7	3602.3
4:20	7:40	2265.8	-838.2	2415.8	3618.7
4:15	7:45	2242.2	-877.2	2407.7	3634.6
4:10	7:50	2217.5	-915.8	2399.2	3650.0
4:05	7:55	2191.8	-954.0	2390.4	3665.0
4:00	8:00	2165.1	-991.7	2381.4	3679.5
3:55	8:05	2137.3	-1028.9	2372.1	3693.5
3:50	8:10	2108.5	-1065.7	2362.5	3707.1
3:45	8:15	2078.7	-1101.9	2352.7	3720.2
3:40	8:20	2047.9	-1137.6	2342.6	3732.9
3:35	8:25	2016.1	-1172.8	2332.4	3745.2
3:30	8:30	1983.4	-1207.4	2322.0	3757.0

Analemmatic Sundial

Latitude: 52.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1983.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-645.7	-633.5	-629.8	-613.0	-608.1	-587.3	-581.5	-556.6	-550.0	-522.0	-514.5
February	-467.0	-433.0	-424.1	-387.9	-378.9	-341.0	-331.3	-292.2	-282.3	-242.1	-231.8
March	-201.2	-160.0	-149.5	-107.8	-97.4	-55.3	-44.9	-2.7	7.7	49.7	60.1
April	122.4	163.5	173.7	213.9	223.9	263.4	273.0	311.6	321.0	358.1	367.1
May	411.2	445.0	453.1	484.5	492.1	521.1	527.9	554.2	560.6	583.6	588.8
June	617.4	632.3	635.7	646.6	649.1	656.1	657.0	659.5	659.8	655.1	657.3
July	649.1	638.8	635.7	621.7	617.7	599.5	594.6	573.0	567.2	542.5	535.9
August	493.9	463.3	455.4	422.6	414.3	379.7	370.7	334.6	325.4	287.8	278.2
September	220.1	180.4	170.4	129.9	119.8	79.0	68.8	27.6	17.3	-24.2	-34.5
October	-86.2	-127.5	-137.7	-178.8	-188.8	-229.4	-239.4	-279.0	-288.9	-327.7	-337.1
November	-392.7	-428.4	-437.0	-470.5	-478.7	-509.8	-517.2	-545.5	-552.1	-577.2	-583.3
December	-609.3	-627.0	-630.7	-643.5	-646.3	-654.5	-656.1	-659.5	-659.8	-658.3	-657.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	645.7	633.5	629.8	613.0	608.1	587.3	581.5	556.6	550.0	522.0	514.5
February	467.0	433.0	424.1	387.9	378.9	341.0	331.3	292.2	282.3	242.1	231.8
March	201.2	160.0	149.5	107.8	97.4	55.3	44.9	2.7	-7.7	-49.7	-60.1
April	-122.4	-163.5	-173.7	-213.9	-223.9	-263.4	-273.0	-311.6	-321.0	-358.1	-367.1
May	-411.2	-445.0	-453.1	-484.5	-492.1	-521.1	-527.9	-554.2	-560.6	-583.6	-588.8
June	-617.4	-632.3	-635.7	-646.6	-649.1	-656.1	-657.0	-659.5	-659.8	-655.1	-657.3
July	-649.1	-638.8	-635.7	-621.7	-617.7	-599.5	-594.6	-573.0	-567.2	-542.5	-535.9
August	-493.9	-463.3	-455.4	-422.6	-414.3	-379.7	-370.7	-334.6	-325.4	-287.8	-278.2
September	-220.1	-180.4	-170.4	-129.9	-119.8	-79.0	-68.8	-27.6	-17.3	24.2	34.5
October	86.2	127.5	137.7	178.8	188.8	229.4	239.4	279.0	288.9	327.7	337.1
November	392.7	428.4	437.0	470.5	478.7	509.8	517.2	545.5	552.1	577.2	583.3
December	609.3	627.0	630.7	643.5	646.3	654.5	656.1	659.5	659.8	658.3	657.3

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 |