

Analemmatic Sundial

Latitude: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 788.0 mm
 Sunrise/Sunset Markers: X = ± 334.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	788.0	788.0	0.0						
11:55	12:05	21.8	787.8	788.1	21.8	8:25	3:35	806.4	466.0	931.4	868.4
11:50	12:10	43.6	787.3	788.5	43.6	8:20	3:40	819.2	452.0	935.6	885.4
11:45	12:15	65.4	786.3	789.0	65.4	8:15	3:45	831.5	437.8	939.7	902.2
11:40	12:20	87.2	785.0	789.8	87.2	8:10	3:50	843.4	423.4	943.7	918.8
11:35	12:25	108.9	783.3	790.9	109.0	8:05	3:55	854.9	408.8	947.6	935.2
11:30	12:30	130.5	781.3	792.1	130.7	8:00	4:00	866.0	394.0	951.4	951.4
11:25	12:35	152.1	778.8	793.6	152.4	7:55	4:05	876.7	379.0	955.1	967.4
11:20	12:40	173.6	776.0	795.2	174.1	7:50	4:10	887.0	363.9	958.7	983.2
11:15	12:45	195.1	772.9	797.1	195.7	7:45	4:15	896.9	348.5	962.2	998.8
11:10	12:50	216.4	769.3	799.2	217.2	7:40	4:20	906.3	333.0	965.6	1014.1
11:05	12:55	237.7	765.4	801.5	238.8	7:35	4:25	915.3	317.4	968.8	1029.2
11:00	1:00	258.8	761.2	804.0	260.2	7:30	4:30	923.9	301.6	971.8	1044.1
10:55	1:05	279.8	756.5	806.6	281.6	7:25	4:35	932.0	285.6	974.8	1058.8
10:50	1:10	300.7	751.5	809.5	302.9	7:20	4:40	939.7	269.5	977.6	1073.2
10:45	1:15	321.4	746.2	812.5	324.1	7:15	4:45	946.9	253.3	980.2	1087.5
10:40	1:20	342.0	740.5	815.7	345.3	7:10	4:50	953.7	237.0	982.7	1101.5
10:35	1:25	362.4	734.4	819.0	366.4	7:05	4:55	960.0	220.5	985.0	1115.2
10:30	1:30	382.7	728.0	822.5	387.4	7:00	5:00	965.9	204.0	987.2	1128.8
10:25	1:35	402.7	721.3	826.1	408.2	6:55	5:05	971.3	187.3	989.2	1142.1
10:20	1:40	422.6	714.2	829.9	429.0	6:50	5:10	976.3	170.6	991.1	1155.2
10:15	1:45	442.3	706.7	833.7	449.7	6:45	5:15	980.8	153.7	992.8	1168.0
10:10	1:50	461.7	699.0	837.7	470.3	6:40	5:20	984.8	136.8	994.3	1180.6
10:05	1:55	481.0	690.9	841.8	490.7	6:35	5:25	988.4	119.9	995.6	1193.0
10:00	2:00	500.0	682.4	846.0	511.0	6:30	5:30	991.4	102.9	996.8	1205.2
9:55	2:05	518.8	673.7	850.3	531.2	6:25	5:35	994.1	85.8	997.8	1217.1
9:50	2:10	537.3	664.6	854.6	551.3	6:20	5:40	996.2	68.7	998.6	1228.8
9:45	2:15	555.6	655.2	859.0	571.2	6:15	5:45	997.9	51.5	999.2	1240.2
9:40	2:20	573.6	645.5	863.5	591.0	6:10	5:50	999.0	34.4	999.6	1251.4
9:35	2:25	591.3	635.5	868.0	610.7	6:05	5:55	999.8	17.2	999.9	1262.4
9:30	2:30	608.8	625.2	872.6	630.2	6:00	6:00	1000.0	0.0	1000.0	1273.2
9:25	2:35	625.9	614.6	877.2	649.5	5:55	6:05	999.8	-17.2	999.9	1283.7
9:20	2:40	642.8	603.7	881.8	668.7	5:50	6:10	999.0	-34.4	999.6	1294.0
9:15	2:45	659.3	592.5	886.4	687.7	5:45	6:15	997.9	-51.5	999.2	1304.1
9:10	2:50	675.6	581.0	891.0	706.6	5:40	6:20	996.2	-68.7	998.6	1313.9
9:05	2:55	691.5	569.2	895.7	725.3	5:35	6:25	994.1	-85.8	997.8	1323.5
9:00	3:00	707.1	557.2	900.3	743.8	5:30	6:30	991.4	-102.9	996.8	1332.9
8:55	3:05	722.4	544.9	904.8	762.2	5:25	6:35	988.4	-119.9	995.6	1342.1
8:50	3:10	737.3	532.4	909.4	780.3	5:20	6:40	984.8	-136.8	994.3	1351.0
8:45	3:15	751.8	519.6	913.9	798.3	5:15	6:45	980.8	-153.7	992.8	1359.7
8:40	3:20	766.0	506.5	918.4	816.1	5:10	6:50	976.3	-170.6	991.1	1368.2
8:35	3:25	779.9	493.2	922.8	833.7	5:05	6:55	971.3	-187.3	989.2	1376.5
8:30	3:30	793.4	479.7	927.1	851.2	5:00	7:00	965.9	-204.0	987.2	1384.6

Analemmatic Sundial

Latitude: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 788.0 mm
 Sunrise/Sunset Markers: $X = \pm 334.4$ mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-220.5	985.0	1392.4
4:50	7:10	953.7	-237.0	982.7	1400.0
4:45	7:15	946.9	-253.3	980.2	1407.5
4:40	7:20	939.7	-269.5	977.6	1414.7
4:35	7:25	932.0	-285.6	974.8	1421.7
4:30	7:30	923.9	-301.6	971.8	1428.5
4:25	7:35	915.3	-317.4	968.8	1435.2
4:20	7:40	906.3	-333.0	965.6	1441.6
4:15	7:45	896.9	-348.5	962.2	1447.8
4:10	7:50	887.0	-363.9	958.7	1453.8
4:05	7:55	876.7	-379.0	955.1	1459.7
4:00	8:00	866.0	-394.0	951.4	1465.3
3:55	8:05	854.9	-408.8	947.6	1470.8
3:50	8:10	843.4	-423.4	943.7	1476.1
3:45	8:15	831.5	-437.8	939.7	1481.2
3:40	8:20	819.2	-452.0	935.6	1486.1
3:35	8:25	806.4	-466.0	931.4	1490.9
3:30	8:30	793.4	-479.7	927.1	1495.5

Analematic Sundial

Latitude: 52.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 778.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-261.2	-256.3	-254.8	-248.0	-246.0	-237.6	-235.2	-225.2	-222.5	-211.1	-208.2
February	-188.9	-175.1	-171.5	-156.9	-153.3	-138.0	-134.0	-118.2	-114.2	-98.0	-93.8
March	-81.4	-64.7	-60.5	-43.6	-39.4	-22.4	-18.2	-1.1	3.1	20.1	24.3
April	49.5	66.1	70.3	86.5	90.6	106.6	110.4	126.0	129.9	144.9	148.5
May	166.3	180.0	183.3	196.0	199.1	210.8	213.6	224.2	226.8	236.1	238.2
June	249.7	255.8	257.2	261.6	262.6	265.4	265.8	266.8	266.9	265.0	265.9
July	262.6	258.4	257.2	251.5	249.9	242.5	240.5	231.8	229.5	219.5	216.8
August	199.8	187.4	184.2	171.0	167.6	153.6	150.0	135.4	131.6	116.4	112.6
September	89.0	73.0	68.9	52.6	48.5	31.9	27.8	11.2	7.0	-9.8	-14.0
October	-34.9	-51.6	-55.7	-72.3	-76.4	-92.8	-96.9	-112.9	-116.9	-132.5	-136.4
November	-158.9	-173.3	-176.8	-190.3	-193.6	-206.2	-209.2	-220.7	-223.4	-233.5	-236.0
December	-246.5	-253.6	-255.1	-260.3	-261.5	-264.8	-265.4	-266.8	-266.9	-266.3	-265.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	261.2	256.3	254.8	248.0	246.0	237.6	235.2	225.2	222.5	211.1	208.2
February	188.9	175.1	171.5	156.9	153.3	138.0	134.0	118.2	114.2	98.0	93.8
March	81.4	64.7	60.5	43.6	39.4	22.4	18.2	1.1	-3.1	-20.1	-24.3
April	-49.5	-66.1	-70.3	-86.5	-90.6	-106.6	-110.4	-126.0	-129.9	-144.9	-148.5
May	-166.3	-180.0	-183.3	-196.0	-199.1	-210.8	-213.6	-224.2	-226.8	-236.1	-238.2
June	-249.7	-255.8	-257.2	-261.6	-262.6	-265.4	-265.8	-266.8	-266.9	-265.0	-265.9
July	-262.6	-258.4	-257.2	-251.5	-249.9	-242.5	-240.5	-231.8	-229.5	-219.5	-216.8
August	-199.8	-187.4	-184.2	-171.0	-167.6	-153.6	-150.0	-135.4	-131.6	-116.4	-112.6
September	-89.0	-73.0	-68.9	-52.6	-48.5	-31.9	-27.8	-11.2	-7.0	9.8	14.0
October	34.9	51.6	55.7	72.3	76.4	92.8	96.9	112.9	116.9	132.5	136.4
November	158.9	173.3	176.8	190.3	193.6	206.2	209.2	220.7	223.4	233.5	236.0
December	246.5	253.6	255.1	260.3	261.5	264.8	265.4	266.8	266.9	266.3	265.9

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: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1182.0 mm
 Sunrise/Sunset Markers: X = ± 501.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1182.0	1182.0	0.0						
11:55	12:05	32.7	1181.7	1182.2	32.7	8:25	3:35	1209.7	698.9	1397.1	1302.6
11:50	12:10	65.4	1180.9	1182.7	65.4	8:20	3:40	1228.7	678.0	1403.4	1328.1
11:45	12:15	98.1	1179.5	1183.6	98.1	8:15	3:45	1247.2	656.7	1409.5	1353.3
11:40	12:20	130.7	1177.5	1184.8	130.8	8:10	3:50	1265.1	635.1	1415.6	1378.2
11:35	12:25	163.3	1175.0	1186.3	163.5	8:05	3:55	1282.4	613.2	1421.4	1402.9
11:30	12:30	195.8	1171.9	1188.1	196.1	8:00	4:00	1299.0	591.0	1427.2	1427.2
11:25	12:35	228.2	1168.3	1190.3	228.6	7:55	4:05	1315.1	568.5	1432.7	1451.1
11:20	12:40	260.5	1164.1	1192.8	261.1	7:50	4:10	1330.5	545.8	1438.1	1474.8
11:15	12:45	292.6	1159.3	1195.7	293.5	7:45	4:15	1345.3	522.8	1443.3	1498.1
11:10	12:50	324.7	1154.0	1198.8	325.9	7:40	4:20	1359.5	499.5	1448.3	1521.2
11:05	12:55	356.5	1148.1	1202.2	358.1	7:35	4:25	1373.0	476.1	1453.2	1543.8
11:00	1:00	388.2	1141.7	1205.9	390.3	7:30	4:30	1385.8	452.3	1457.8	1566.2
10:55	1:05	419.7	1134.8	1209.9	422.4	7:25	4:35	1398.0	428.4	1462.2	1588.2
10:50	1:10	451.1	1127.3	1214.2	454.4	7:20	4:40	1409.5	404.3	1466.4	1609.9
10:45	1:15	482.2	1119.3	1218.7	486.2	7:15	4:45	1420.4	379.9	1470.3	1631.2
10:40	1:20	513.0	1110.7	1223.5	518.0	7:10	4:50	1430.6	355.4	1474.1	1652.2
10:35	1:25	543.7	1101.6	1228.5	549.6	7:05	4:55	1440.1	330.8	1477.6	1672.9
10:30	1:30	574.0	1092.0	1233.7	581.0	7:00	5:00	1448.9	305.9	1480.8	1693.2
10:25	1:35	604.1	1081.9	1239.2	612.4	6:55	5:05	1457.0	280.9	1483.9	1713.1
10:20	1:40	633.9	1071.3	1244.8	643.5	6:50	5:10	1464.4	255.8	1486.6	1732.7
10:15	1:45	663.4	1060.1	1250.6	674.5	6:45	5:15	1471.2	230.6	1489.1	1752.0
10:10	1:50	692.6	1048.5	1256.6	705.4	6:40	5:20	1477.2	205.3	1491.4	1770.9
10:05	1:55	721.5	1036.3	1262.7	736.1	6:35	5:25	1482.5	179.8	1493.4	1789.5
10:00	2:00	750.0	1023.7	1269.0	766.5	6:30	5:30	1487.2	154.3	1495.1	1807.7
9:55	2:05	778.2	1010.5	1275.4	796.8	6:25	5:35	1491.1	128.7	1496.6	1825.6
9:50	2:10	805.9	996.9	1281.9	826.9	6:20	5:40	1494.3	103.0	1497.8	1843.1
9:45	2:15	833.4	982.8	1288.6	856.8	6:15	5:45	1496.8	77.3	1498.8	1860.3
9:40	2:20	860.4	968.3	1295.3	886.5	6:10	5:50	1498.6	51.6	1499.5	1877.1
9:35	2:25	887.0	953.2	1302.1	916.0	6:05	5:55	1499.6	25.8	1499.9	1893.6
9:30	2:30	913.1	937.8	1308.9	945.2	6:00	6:00	1500.0	0.0	1500.0	1909.8
9:25	2:35	938.9	921.8	1315.8	974.3	5:55	6:05	1499.6	-25.8	1499.9	1925.5
9:20	2:40	964.2	905.5	1322.7	1003.1	5:50	6:10	1498.6	-51.6	1499.5	1941.0
9:15	2:45	989.0	888.7	1329.6	1031.6	5:45	6:15	1496.8	-77.3	1498.8	1956.1
9:10	2:50	1013.4	871.5	1336.6	1059.9	5:40	6:20	1494.3	-103.0	1497.8	1970.8
9:05	2:55	1037.3	853.8	1343.5	1087.9	5:35	6:25	1491.1	-128.7	1496.6	1985.3
9:00	3:00	1060.7	835.8	1350.4	1115.7	5:30	6:30	1487.2	-154.3	1495.1	1999.3
8:55	3:05	1083.5	817.4	1357.3	1143.3	5:25	6:35	1482.5	-179.8	1493.4	2013.1
8:50	3:10	1105.9	798.6	1364.1	1170.5	5:20	6:40	1477.2	-205.3	1491.4	2026.5
8:45	3:15	1127.8	779.4	1370.9	1197.5	5:15	6:45	1471.2	-230.6	1489.1	2039.6
8:40	3:20	1149.1	759.8	1377.5	1224.2	5:10	6:50	1464.4	-255.8	1486.6	2052.3
8:35	3:25	1169.8	739.9	1384.2	1250.6	5:05	6:55	1457.0	-280.9	1483.9	2064.7
8:30	3:30	1190.0	719.6	1390.7	1276.7	5:00	7:00	1448.9	-305.9	1480.8	2076.8

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Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1182.0 mm
 Sunrise/Sunset Markers: X = ± 501.6 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-330.8	1477.6	2088.6
4:50	7:10	1430.6	-355.4	1474.1	2100.1
4:45	7:15	1420.4	-379.9	1470.3	2111.2
4:40	7:20	1409.5	-404.3	1466.4	2122.1
4:35	7:25	1398.0	-428.4	1462.2	2132.6
4:30	7:30	1385.8	-452.3	1457.8	2142.8
4:25	7:35	1373.0	-476.1	1453.2	2152.7
4:20	7:40	1359.5	-499.5	1448.3	2162.4
4:15	7:45	1345.3	-522.8	1443.3	2171.7
4:10	7:50	1330.5	-545.8	1438.1	2180.7
4:05	7:55	1315.1	-568.5	1432.7	2189.5
4:00	8:00	1299.0	-591.0	1427.2	2198.0
3:55	8:05	1282.4	-613.2	1421.4	2206.2
3:50	8:10	1265.1	-635.1	1415.6	2214.1
3:45	8:15	1247.2	-656.7	1409.5	2221.8
3:40	8:20	1228.7	-678.0	1403.4	2229.2
3:35	8:25	1209.7	-698.9	1397.1	2236.4
3:30	8:30	1190.0	-719.6	1390.7	2243.3

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1182.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-391.8	-384.4	-382.1	-372.0	-369.0	-356.3	-352.8	-337.8	-333.8	-316.7	-312.2
February	-283.4	-262.7	-257.3	-235.4	-229.9	-206.9	-201.0	-177.3	-171.3	-146.9	-140.7
March	-122.1	-97.1	-90.7	-65.4	-59.1	-33.5	-27.2	-1.6	4.7	30.2	36.4
April	74.3	99.2	105.4	129.8	135.9	159.8	165.7	189.1	194.8	217.3	222.7
May	249.5	270.0	275.0	294.0	298.6	316.2	320.3	336.3	340.1	354.1	357.3
June	374.6	383.7	385.7	392.4	393.9	398.1	398.7	400.2	400.4	397.5	398.9
July	393.9	387.6	385.7	377.2	374.8	363.8	360.8	347.7	344.2	329.2	325.2
August	299.7	281.1	276.4	256.5	251.4	230.4	225.0	203.0	197.5	174.7	168.8
September	133.6	109.5	103.4	78.8	72.7	47.9	41.8	16.8	10.5	-14.7	-21.0
October	-52.3	-77.4	-83.6	-108.5	-114.5	-139.2	-145.3	-169.3	-175.3	-198.8	-204.6
November	-238.3	-259.9	-265.2	-285.5	-290.5	-309.4	-313.8	-331.0	-335.0	-350.2	-353.9
December	-369.7	-380.4	-382.7	-390.5	-392.2	-397.1	-398.1	-400.2	-400.4	-399.4	-398.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	391.8	384.4	382.1	372.0	369.0	356.3	352.8	337.8	333.8	316.7	312.2
February	283.4	262.7	257.3	235.4	229.9	206.9	201.0	177.3	171.3	146.9	140.7
March	122.1	97.1	90.7	65.4	59.1	33.5	27.2	1.6	-4.7	-30.2	-36.4
April	-74.3	-99.2	-105.4	-129.8	-135.9	-159.8	-165.7	-189.1	-194.8	-217.3	-222.7
May	-249.5	-270.0	-275.0	-294.0	-298.6	-316.2	-320.3	-336.3	-340.1	-354.1	-357.3
June	-374.6	-383.7	-385.7	-392.4	-393.9	-398.1	-398.7	-400.2	-400.4	-397.5	-398.9
July	-393.9	-387.6	-385.7	-377.2	-374.8	-363.8	-360.8	-347.7	-344.2	-329.2	-325.2
August	-299.7	-281.1	-276.4	-256.5	-251.4	-230.4	-225.0	-203.0	-197.5	-174.7	-168.8
September	-133.6	-109.5	-103.4	-78.8	-72.7	-47.9	-41.8	-16.8	-10.5	14.7	21.0
October	52.3	77.4	83.6	108.5	114.5	139.2	145.3	169.3	175.3	198.8	204.6
November	238.3	259.9	265.2	285.5	290.5	309.4	313.8	331.0	335.0	350.2	353.9
December	369.7	380.4	382.7	390.5	392.2	397.1	398.1	400.2	400.4	399.4	398.9

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: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1576.0 mm
 Sunrise/Sunset Markers: X = ± 668.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1576.0	1576.0	0.0						
11:55	12:05	43.6	1575.6	1576.3	43.6	8:25	3:35	1612.9	931.9	1862.8	1736.7
11:50	12:10	87.2	1574.5	1576.9	87.3	8:20	3:40	1638.3	904.0	1871.1	1770.8
11:45	12:15	130.8	1572.6	1578.1	130.8	8:15	3:45	1662.9	875.6	1879.4	1804.4
11:40	12:20	174.3	1570.0	1579.7	174.4	8:10	3:50	1686.8	846.8	1887.4	1837.7
11:35	12:25	217.7	1566.7	1581.7	217.9	8:05	3:55	1709.8	817.6	1895.2	1870.5
11:30	12:30	261.1	1562.5	1584.2	261.4	8:00	4:00	1732.1	788.0	1902.9	1902.9
11:25	12:35	304.2	1557.7	1587.1	304.8	7:55	4:05	1753.5	758.0	1910.3	1934.9
11:20	12:40	347.3	1552.1	1590.5	348.1	7:50	4:10	1774.0	727.7	1917.5	1966.4
11:15	12:45	390.2	1545.7	1594.2	391.4	7:45	4:15	1793.7	697.1	1924.4	1997.5
11:10	12:50	432.9	1538.7	1598.4	434.5	7:40	4:20	1812.6	666.1	1931.1	2028.2
11:05	12:55	475.4	1530.9	1603.0	477.5	7:35	4:25	1830.6	634.7	1937.5	2058.4
11:00	1:00	517.6	1522.3	1607.9	520.4	7:30	4:30	1847.8	603.1	1943.7	2088.2
10:55	1:05	559.7	1513.1	1613.2	563.2	7:25	4:35	1864.0	571.2	1949.6	2117.6
10:50	1:10	601.4	1503.1	1618.9	605.8	7:20	4:40	1879.4	539.0	1955.2	2146.5
10:45	1:15	642.9	1492.4	1625.0	648.3	7:15	4:45	1893.9	506.6	1960.4	2174.9
10:40	1:20	684.0	1481.0	1631.3	690.6	7:10	4:50	1907.4	473.9	1965.4	2202.9
10:35	1:25	724.9	1468.9	1638.0	732.8	7:05	4:55	1920.1	441.0	1970.1	2230.5
10:30	1:30	765.4	1456.1	1645.0	774.7	7:00	5:00	1931.9	407.9	1974.4	2257.6
10:25	1:35	805.5	1442.6	1652.2	816.5	6:55	5:05	1942.7	374.6	1978.5	2284.2
10:20	1:40	845.2	1428.4	1659.7	858.0	6:50	5:10	1952.6	341.1	1982.2	2310.3
10:15	1:45	884.6	1413.5	1667.5	899.4	6:45	5:15	1961.6	307.5	1985.5	2336.0
10:10	1:50	923.5	1397.9	1675.4	940.5	6:40	5:20	1969.6	273.7	1988.5	2361.2
10:05	1:55	962.0	1381.7	1683.6	981.4	6:35	5:25	1976.7	239.7	1991.2	2386.0
10:00	2:00	1000.0	1364.9	1692.0	1022.0	6:30	5:30	1982.9	205.7	1993.5	2410.3
9:55	2:05	1037.5	1347.4	1700.6	1062.4	6:25	5:35	1988.1	171.6	1995.5	2434.1
9:50	2:10	1074.6	1329.2	1709.3	1102.6	6:20	5:40	1992.4	137.4	1997.1	2457.5
9:45	2:15	1111.1	1310.4	1718.1	1142.4	6:15	5:45	1995.7	103.1	1998.4	2480.4
9:40	2:20	1147.2	1291.0	1727.0	1182.0	6:10	5:50	1998.1	68.7	1999.3	2502.9
9:35	2:25	1182.6	1271.0	1736.1	1221.3	6:05	5:55	1999.5	34.4	1999.8	2524.8
9:30	2:30	1217.5	1250.3	1745.2	1260.3	6:00	6:00	2000.0	0.0	2000.0	2546.3
9:25	2:35	1251.8	1229.1	1754.4	1299.0	5:55	6:05	1999.5	-34.4	1999.8	2567.4
9:20	2:40	1285.6	1207.3	1763.6	1337.4	5:50	6:10	1998.1	-68.7	1999.3	2588.0
9:15	2:45	1318.7	1184.9	1772.8	1375.5	5:45	6:15	1995.7	-103.1	1998.4	2608.1
9:10	2:50	1351.2	1162.0	1782.1	1413.2	5:40	6:20	1992.4	-137.4	1997.1	2627.8
9:05	2:55	1383.0	1138.5	1791.3	1450.6	5:35	6:25	1988.1	-171.6	1995.5	2647.0
9:00	3:00	1414.2	1114.4	1800.5	1487.6	5:30	6:30	1982.9	-205.7	1993.5	2665.8
8:55	3:05	1444.7	1089.8	1809.7	1524.3	5:25	6:35	1976.7	-239.7	1991.2	2684.1
8:50	3:10	1474.6	1064.7	1818.8	1560.7	5:20	6:40	1969.6	-273.7	1988.5	2702.0
8:45	3:15	1503.7	1039.1	1827.8	1596.6	5:15	6:45	1961.6	-307.5	1985.5	2719.4
8:40	3:20	1532.1	1013.0	1836.7	1632.2	5:10	6:50	1952.6	-341.1	1982.2	2736.4
8:35	3:25	1559.8	986.5	1845.5	1667.5	5:05	6:55	1942.7	-374.6	1978.5	2753.0
8:30	3:30	1586.7	959.4	1854.2	1702.3	5:00	7:00	1931.9	-407.9	1974.4	2769.1

Analemmatic Sundial

Latitude: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1576.0 mm
 Sunrise/Sunset Markers: X = ± 668.8 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-441.0	1970.1	2784.8
4:50	7:10	1907.4	-473.9	1965.4	2800.1
4:45	7:15	1893.9	-506.6	1960.4	2815.0
4:40	7:20	1879.4	-539.0	1955.2	2829.4
4:35	7:25	1864.0	-571.2	1949.6	2843.4
4:30	7:30	1847.8	-603.1	1943.7	2857.1
4:25	7:35	1830.6	-634.7	1937.5	2870.3
4:20	7:40	1812.6	-666.1	1931.1	2883.1
4:15	7:45	1793.7	-697.1	1924.4	2895.6
4:10	7:50	1774.0	-727.7	1917.5	2907.6
4:05	7:55	1753.5	-758.0	1910.3	2919.3
4:00	8:00	1732.1	-788.0	1902.9	2930.6
3:55	8:05	1709.8	-817.6	1895.2	2941.6
3:50	8:10	1686.8	-846.8	1887.4	2952.2
3:45	8:15	1662.9	-875.6	1879.4	2962.4
3:40	8:20	1638.3	-904.0	1871.1	2972.3
3:35	8:25	1612.9	-931.9	1862.8	2981.8
3:30	8:30	1586.7	-959.4	1854.2	2991.0

Analematic Sundial

Latitude: 52.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1576.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-522.4	-512.6	-509.5	-496.0	-492.0	-475.1	-470.4	-450.4	-445.0	-422.3	-416.3
February	-377.9	-350.3	-343.1	-313.9	-306.5	-275.9	-268.0	-236.4	-228.4	-195.9	-187.5
March	-162.8	-129.4	-120.9	-87.2	-78.8	-44.7	-36.3	-2.1	6.2	40.2	48.6
April	99.1	132.2	140.5	173.1	181.2	213.1	220.9	252.1	259.7	289.7	297.0
May	332.7	360.1	366.6	392.0	398.2	421.6	427.1	448.4	453.5	472.2	476.4
June	499.5	511.5	514.3	523.2	525.2	530.8	531.6	533.6	533.9	530.0	531.8
July	525.2	516.8	514.3	503.0	499.7	485.0	481.1	463.6	458.9	438.9	433.6
August	399.6	374.8	368.5	341.9	335.2	307.2	299.9	270.7	263.3	232.9	225.1
September	178.1	146.0	137.9	105.1	96.9	63.9	55.7	22.4	14.0	-19.6	-27.9
October	-69.7	-103.2	-111.4	-144.6	-152.7	-185.6	-193.7	-225.8	-233.8	-265.1	-272.8
November	-317.8	-346.6	-353.5	-380.7	-387.3	-412.5	-418.5	-441.4	-446.7	-467.0	-471.9
December	-493.0	-507.3	-510.3	-520.6	-522.9	-529.5	-530.8	-533.6	-533.9	-532.6	-531.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	522.4	512.6	509.5	496.0	492.0	475.1	470.4	450.4	445.0	422.3	416.3
February	377.9	350.3	343.1	313.9	306.5	275.9	268.0	236.4	228.4	195.9	187.5
March	162.8	129.4	120.9	87.2	78.8	44.7	36.3	2.1	-6.2	-40.2	-48.6
April	-99.1	-132.2	-140.5	-173.1	-181.2	-213.1	-220.9	-252.1	-259.7	-289.7	-297.0
May	-332.7	-360.1	-366.6	-392.0	-398.2	-421.6	-427.1	-448.4	-453.5	-472.2	-476.4
June	-499.5	-511.5	-514.3	-523.2	-525.2	-530.8	-531.6	-533.6	-533.9	-530.0	-531.8
July	-525.2	-516.8	-514.3	-503.0	-499.7	-485.0	-481.1	-463.6	-458.9	-438.9	-433.6
August	-399.6	-374.8	-368.5	-341.9	-335.2	-307.2	-299.9	-270.7	-263.3	-232.9	-225.1
September	-178.1	-146.0	-137.9	-105.1	-96.9	-63.9	-55.7	-22.4	-14.0	19.6	27.9
October	69.7	103.2	111.4	144.6	152.7	185.6	193.7	225.8	233.8	265.1	272.8
November	317.8	346.6	353.5	380.7	387.3	412.5	418.5	441.4	446.7	467.0	471.9
December	493.0	507.3	510.3	520.6	522.9	529.5	530.8	533.6	533.9	532.6	531.8

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: 52.0° N/S

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1970.0 mm
 Sunrise/Sunset Markers: X = ± 835.9 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1970.0	1970.0	0.0						
11:55	12:05	54.5	1969.6	1970.3	54.5	8:25	3:35	2016.1	1164.9	2328.5	2170.9
11:50	12:10	109.0	1968.2	1971.2	109.1	8:20	3:40	2047.9	1130.0	2338.9	2213.5
11:45	12:15	163.5	1965.8	1972.6	163.6	8:15	3:45	2078.7	1094.5	2349.2	2255.5
11:40	12:20	217.9	1962.5	1974.6	218.0	8:10	3:50	2108.5	1058.5	2359.3	2297.1
11:35	12:25	272.2	1958.3	1977.1	272.4	8:05	3:55	2137.3	1022.0	2369.1	2338.1
11:30	12:30	326.3	1953.2	1980.2	326.8	8:00	4:00	2165.1	985.0	2378.6	2378.6
11:25	12:35	380.3	1947.1	1983.9	381.0	7:55	4:05	2191.8	947.6	2387.9	2418.6
11:20	12:40	434.1	1940.1	1988.1	435.2	7:50	4:10	2217.5	909.7	2396.9	2458.0
11:15	12:45	487.7	1932.2	1992.8	489.2	7:45	4:15	2242.2	871.3	2405.5	2496.9
11:10	12:50	541.1	1923.3	1998.0	543.1	7:40	4:20	2265.8	832.6	2413.9	2535.3
11:05	12:55	594.2	1913.6	2003.7	596.9	7:35	4:25	2288.3	793.4	2421.9	2573.1
11:00	1:00	647.0	1902.9	2009.9	650.5	7:30	4:30	2309.7	753.9	2429.6	2610.3
10:55	1:05	699.6	1891.3	2016.6	704.0	7:25	4:35	2330.0	714.0	2437.0	2647.0
10:50	1:10	751.8	1878.8	2023.7	757.3	7:20	4:40	2349.2	673.8	2443.9	2683.1
10:45	1:15	803.6	1865.5	2031.2	810.4	7:15	4:45	2367.3	633.2	2450.6	2718.7
10:40	1:20	855.1	1851.2	2039.1	863.3	7:10	4:50	2384.3	592.4	2456.8	2753.7
10:35	1:25	906.1	1836.1	2047.5	915.9	7:05	4:55	2400.1	551.3	2462.6	2788.1
10:30	1:30	956.7	1820.1	2056.2	968.4	7:00	5:00	2414.8	509.9	2468.1	2821.9
10:25	1:35	1006.9	1803.2	2065.3	1020.6	6:55	5:05	2428.4	468.2	2473.1	2855.2
10:20	1:40	1056.5	1785.5	2074.6	1072.5	6:50	5:10	2440.7	426.4	2477.7	2887.9
10:15	1:45	1105.7	1766.9	2084.3	1124.2	6:45	5:15	2452.0	384.3	2481.9	2920.0
10:10	1:50	1154.4	1747.4	2094.3	1175.6	6:40	5:20	2462.0	342.1	2485.7	2951.6
10:05	1:55	1202.5	1727.2	2104.5	1226.8	6:35	5:25	2470.9	299.7	2489.0	2982.5
10:00	2:00	1250.0	1706.1	2115.0	1277.6	6:30	5:30	2478.6	257.1	2491.9	3012.9
9:55	2:05	1296.9	1684.2	2125.7	1328.1	6:25	5:35	2485.1	214.5	2494.4	3042.7
9:50	2:10	1343.2	1661.5	2136.6	1378.2	6:20	5:40	2490.5	171.7	2496.4	3071.9
9:45	2:15	1388.9	1638.0	2147.6	1428.1	6:15	5:45	2494.6	128.8	2498.0	3100.5
9:40	2:20	1433.9	1613.8	2158.8	1477.5	6:10	5:50	2497.6	85.9	2499.1	3128.6
9:35	2:25	1478.3	1588.7	2170.1	1526.7	6:05	5:55	2499.4	43.0	2499.8	3156.0
9:30	2:30	1521.9	1562.9	2181.5	1575.4	6:00	6:00	2500.0	0.0	2500.0	3182.9
9:25	2:35	1564.8	1536.4	2193.0	1623.8	5:55	6:05	2499.4	-43.0	2499.8	3209.2
9:20	2:40	1607.0	1509.1	2204.5	1671.8	5:50	6:10	2497.6	-85.9	2499.1	3235.0
9:15	2:45	1648.4	1481.1	2216.1	1719.3	5:45	6:15	2494.6	-128.8	2498.0	3260.1
9:10	2:50	1689.0	1452.5	2227.6	1766.5	5:40	6:20	2490.5	-171.7	2496.4	3284.7
9:05	2:55	1728.8	1423.1	2239.2	1813.2	5:35	6:25	2485.1	-214.5	2494.4	3308.8
9:00	3:00	1767.8	1393.0	2250.7	1859.6	5:30	6:30	2478.6	-257.1	2491.9	3332.2
8:55	3:05	1805.9	1362.3	2262.1	1905.4	5:25	6:35	2470.9	-299.7	2489.0	3355.1
8:50	3:10	1843.2	1330.9	2273.5	1950.8	5:20	6:40	2462.0	-342.1	2485.7	3377.5
8:45	3:15	1879.6	1298.9	2284.8	1995.8	5:15	6:45	2452.0	-384.3	2481.9	3399.3
8:40	3:20	1915.1	1266.3	2295.9	2040.3	5:10	6:50	2440.7	-426.4	2477.7	3420.5
8:35	3:25	1949.7	1233.1	2306.9	2084.3	5:05	6:55	2428.4	-468.2	2473.1	3441.2
8:30	3:30	1983.4	1199.3	2317.8	2127.9	5:00	7:00	2414.8	-509.9	2468.1	3461.4

Analemmatic Sundial**Latitude: 52.0° N/S**

Earliest Sunrise: 3:38 a.m. Latest Sunset: 8:22 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1970.0 mm
 Sunrise/Sunset Markers: $X = \pm 835.9$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-551.3	2462.6	3481.0
4:50	7:10	2384.3	-592.4	2456.8	3500.1
4:45	7:15	2367.3	-633.2	2450.6	3518.7
4:40	7:20	2349.2	-673.8	2443.9	3536.8
4:35	7:25	2330.0	-714.0	2437.0	3554.3
4:30	7:30	2309.7	-753.9	2429.6	3571.3
4:25	7:35	2288.3	-793.4	2421.9	3587.9
4:20	7:40	2265.8	-832.6	2413.9	3603.9
4:15	7:45	2242.2	-871.3	2405.5	3619.5
4:10	7:50	2217.5	-909.7	2396.9	3634.6
4:05	7:55	2191.8	-947.6	2387.9	3649.2
4:00	8:00	2165.1	-985.0	2378.6	3663.3
3:55	8:05	2137.3	-1022.0	2369.1	3677.0
3:50	8:10	2108.5	-1058.5	2359.3	3690.2
3:45	8:15	2078.7	-1094.5	2349.2	3703.0
3:40	8:20	2047.9	-1130.0	2338.9	3715.3
3:35	8:25	2016.1	-1164.9	2328.5	3727.3
3:30	8:30	1983.4	-1199.3	2317.8	3738.8

Analemmatic Sundial

Latitude: 52.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1970.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-653.0	-640.7	-636.9	-620.0	-615.0	-593.9	-588.1	-562.9	-556.3	-527.9	-520.4
February	-472.3	-437.9	-428.9	-392.3	-383.2	-344.9	-335.0	-295.6	-285.5	-244.9	-234.4
March	-203.5	-161.8	-151.2	-109.0	-98.5	-55.9	-45.4	-2.7	7.8	50.3	60.7
April	123.8	165.3	175.6	216.3	226.5	266.4	276.1	315.1	324.6	362.1	371.2
May	415.9	450.1	458.3	490.0	497.7	527.0	533.9	560.5	566.9	590.2	595.5
June	624.4	639.4	642.9	654.0	656.5	663.5	664.5	667.0	667.3	662.5	664.8
July	656.5	646.1	642.9	628.7	624.7	606.3	601.3	579.4	573.6	548.7	542.0
August	499.5	468.5	460.6	427.4	419.0	384.0	374.9	338.4	329.1	291.1	281.4
September	222.6	182.4	172.4	131.4	121.1	79.9	69.6	27.9	17.5	-24.4	-34.9
October	-87.1	-129.0	-139.3	-180.8	-190.9	-232.0	-242.1	-282.2	-292.2	-331.4	-340.9
November	-397.2	-433.2	-441.9	-475.9	-484.1	-515.6	-523.1	-551.7	-558.4	-583.7	-589.9
December	-616.2	-634.1	-637.9	-650.8	-653.6	-661.9	-663.5	-667.0	-667.3	-665.7	-664.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	653.0	640.7	636.9	620.0	615.0	593.9	588.1	562.9	556.3	527.9	520.4
February	472.3	437.9	428.9	392.3	383.2	344.9	335.0	295.6	285.5	244.9	234.4
March	203.5	161.8	151.2	109.0	98.5	55.9	45.4	2.7	-7.8	-50.3	-60.7
April	-123.8	-165.3	-175.6	-216.3	-226.5	-266.4	-276.1	-315.1	-324.6	-362.1	-371.2
May	-415.9	-450.1	-458.3	-490.0	-497.7	-527.0	-533.9	-560.5	-566.9	-590.2	-595.5
June	-624.4	-639.4	-642.9	-654.0	-656.5	-663.5	-664.5	-667.0	-667.3	-662.5	-664.8
July	-656.5	-646.1	-642.9	-628.7	-624.7	-606.3	-601.3	-579.4	-573.6	-548.7	-542.0
August	-499.5	-468.5	-460.6	-427.4	-419.0	-384.0	-374.9	-338.4	-329.1	-291.1	-281.4
September	-222.6	-182.4	-172.4	-131.4	-121.1	-79.9	-69.6	-27.9	-17.5	24.4	34.9
October	87.1	129.0	139.3	180.8	190.9	232.0	242.1	282.2	292.2	331.4	340.9
November	397.2	433.2	441.9	475.9	484.1	515.6	523.1	551.7	558.4	583.7	589.9
December	616.2	634.1	637.9	650.8	653.6	661.9	663.5	667.0	667.3	665.7	664.8

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 |