

Analemmatic Sundial

Latitude: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 760.4 mm
 Sunrise/Sunset Markers: X = ± 380.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	760.4	760.4	0.0						
11:55	12:05	21.8	760.2	760.5	21.8	8:25	3:35	806.4	449.6	923.3	864.3
11:50	12:10	43.6	759.7	760.9	43.6	8:20	3:40	819.2	436.2	928.0	881.0
11:45	12:15	65.4	758.8	761.6	65.4	8:15	3:45	831.5	422.5	932.6	897.5
11:40	12:20	87.2	757.5	762.5	87.2	8:10	3:50	843.4	408.6	937.1	913.8
11:35	12:25	108.9	755.9	763.7	109.0	8:05	3:55	854.9	394.5	941.5	929.9
11:30	12:30	130.5	753.9	765.1	130.7	8:00	4:00	866.0	380.2	945.8	945.8
11:25	12:35	152.1	751.6	766.8	152.4	7:55	4:05	876.7	365.7	950.0	961.5
11:20	12:40	173.6	748.9	768.7	174.0	7:50	4:10	887.0	351.1	954.0	976.9
11:15	12:45	195.1	745.8	770.9	195.6	7:45	4:15	896.9	336.3	957.9	992.1
11:10	12:50	216.4	742.4	773.3	217.2	7:40	4:20	906.3	321.4	961.6	1007.1
11:05	12:55	237.7	738.6	775.9	238.7	7:35	4:25	915.3	306.3	965.2	1021.8
11:00	1:00	258.8	734.5	778.8	260.1	7:30	4:30	923.9	291.0	968.6	1036.3
10:55	1:05	279.8	730.0	781.8	281.5	7:25	4:35	932.0	275.6	971.9	1050.6
10:50	1:10	300.7	725.2	785.1	302.8	7:20	4:40	939.7	260.1	975.0	1064.6
10:45	1:15	321.4	720.1	788.5	324.0	7:15	4:45	946.9	244.4	978.0	1078.4
10:40	1:20	342.0	714.5	792.2	345.1	7:10	4:50	953.7	228.7	980.7	1091.9
10:35	1:25	362.4	708.7	796.0	366.1	7:05	4:55	960.0	212.8	983.3	1105.3
10:30	1:30	382.7	702.5	800.0	387.0	7:00	5:00	965.9	196.8	985.8	1118.3
10:25	1:35	402.7	696.0	804.1	407.9	6:55	5:05	971.3	180.7	988.0	1131.2
10:20	1:40	422.6	689.2	808.4	428.6	6:50	5:10	976.3	164.6	990.1	1143.7
10:15	1:45	442.3	682.0	812.9	449.2	6:45	5:15	980.8	148.3	991.9	1156.1
10:10	1:50	461.7	674.5	817.4	469.7	6:40	5:20	984.8	132.0	993.6	1168.2
10:05	1:55	481.0	666.7	822.1	490.0	6:35	5:25	988.4	115.7	995.1	1180.1
10:00	2:00	500.0	658.5	826.8	510.3	6:30	5:30	991.4	99.3	996.4	1191.7
9:55	2:05	518.8	650.1	831.7	530.4	6:25	5:35	994.1	82.8	997.5	1203.0
9:50	2:10	537.3	641.3	836.6	550.3	6:20	5:40	996.2	66.3	998.4	1214.2
9:45	2:15	555.6	632.3	841.7	570.2	6:15	5:45	997.9	49.7	999.1	1225.1
9:40	2:20	573.6	622.9	846.7	589.8	6:10	5:50	999.0	33.2	999.6	1235.7
9:35	2:25	591.3	613.2	851.9	609.4	6:05	5:55	999.8	16.6	999.9	1246.1
9:30	2:30	608.8	603.3	857.0	628.7	6:00	6:00	1000.0	0.0	1000.0	1256.3
9:25	2:35	625.9	593.0	862.2	647.9	5:55	6:05	999.8	-16.6	999.9	1266.2
9:20	2:40	642.8	582.5	867.5	667.0	5:50	6:10	999.0	-33.2	999.6	1275.9
9:15	2:45	659.3	571.7	872.7	685.8	5:45	6:15	997.9	-49.7	999.1	1285.3
9:10	2:50	675.6	560.6	877.9	704.5	5:40	6:20	996.2	-66.3	998.4	1294.5
9:05	2:55	691.5	549.3	883.1	723.0	5:35	6:25	994.1	-82.8	997.5	1303.5
9:00	3:00	707.1	537.7	888.3	741.4	5:30	6:30	991.4	-99.3	996.4	1312.2
8:55	3:05	722.4	525.8	893.5	759.5	5:25	6:35	988.4	-115.7	995.1	1320.7
8:50	3:10	737.3	513.7	898.6	777.5	5:20	6:40	984.8	-132.0	993.6	1329.0
8:45	3:15	751.8	501.4	903.7	795.2	5:15	6:45	980.8	-148.3	991.9	1337.1
8:40	3:20	766.0	488.8	908.7	812.8	5:10	6:50	976.3	-164.6	990.1	1344.9
8:35	3:25	779.9	476.0	913.6	830.1	5:05	6:55	971.3	-180.7	988.0	1352.5
8:30	3:30	793.4	462.9	918.5	847.3	5:00	7:00	965.9	-196.8	985.8	1359.9

Analemmatic Sundial

Latitude: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 760.4 mm
 Sunrise/Sunset Markers: $X = \pm 380.6$ mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-212.8	983.3	1367.0
4:50	7:10	953.7	-228.7	980.7	1374.0
4:45	7:15	946.9	-244.4	978.0	1380.7
4:40	7:20	939.7	-260.1	975.0	1387.2
4:35	7:25	932.0	-275.6	971.9	1393.5
4:30	7:30	923.9	-291.0	968.6	1399.6
4:25	7:35	915.3	-306.3	965.2	1405.5
4:20	7:40	906.3	-321.4	961.6	1411.2
4:15	7:45	896.9	-336.3	957.9	1416.8
4:10	7:50	887.0	-351.1	954.0	1422.1
4:05	7:55	876.7	-365.7	950.0	1427.2
4:00	8:00	866.0	-380.2	945.8	1432.1
3:55	8:05	854.9	-394.5	941.5	1436.9
3:50	8:10	843.4	-408.6	937.1	1441.5
3:45	8:15	831.5	-422.5	932.6	1445.9

Analemmatic Sundial

Latitude: 49.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 760.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-275.5	-270.3	-268.7	-261.6	-259.5	-250.6	-248.1	-237.5	-234.7	-222.7	-219.6
February	-199.3	-184.8	-181.0	-165.5	-161.7	-145.5	-141.4	-124.7	-120.5	-103.3	-98.9
March	-85.8	-68.3	-63.8	-46.0	-41.5	-23.6	-19.2	-1.1	3.3	21.2	25.6
April	52.3	69.7	74.1	91.3	95.6	112.4	116.5	133.0	137.0	152.8	156.6
May	175.5	189.9	193.4	206.8	210.0	222.4	225.3	236.5	239.2	249.0	251.3
June	263.4	269.8	271.3	275.9	277.0	280.0	280.4	281.4	281.6	279.6	280.5
July	277.0	272.6	271.3	265.3	263.6	255.8	253.7	244.5	242.0	231.5	228.7
August	210.8	197.7	194.3	180.4	176.8	162.0	158.2	142.8	138.9	122.8	118.7
September	93.9	77.0	72.7	55.4	51.1	33.7	29.4	11.8	7.4	-10.3	-14.7
October	-36.8	-54.4	-58.8	-76.3	-80.5	-97.9	-102.2	-119.1	-123.3	-139.8	-143.9
November	-167.6	-182.8	-186.5	-200.8	-204.3	-217.6	-220.7	-232.8	-235.6	-246.3	-248.9
December	-260.0	-267.6	-269.1	-274.6	-275.8	-279.3	-280.0	-281.4	-281.6	-280.9	-280.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	275.5	270.3	268.7	261.6	259.5	250.6	248.1	237.5	234.7	222.7	219.6
February	199.3	184.8	181.0	165.5	161.7	145.5	141.4	124.7	120.5	103.3	98.9
March	85.8	68.3	63.8	46.0	41.5	23.6	19.2	1.1	-3.3	-21.2	-25.6
April	-52.3	-69.7	-74.1	-91.3	-95.6	-112.4	-116.5	-133.0	-137.0	-152.8	-156.6
May	-175.5	-189.9	-193.4	-206.8	-210.0	-222.4	-225.3	-236.5	-239.2	-249.0	-251.3
June	-263.4	-269.8	-271.3	-275.9	-277.0	-280.0	-280.4	-281.4	-281.6	-279.6	-280.5
July	-277.0	-272.6	-271.3	-265.3	-263.6	-255.8	-253.7	-244.5	-242.0	-231.5	-228.7
August	-210.8	-197.7	-194.3	-180.4	-176.8	-162.0	-158.2	-142.8	-138.9	-122.8	-118.7
September	-93.9	-77.0	-72.7	-55.4	-51.1	-33.7	-29.4	-11.8	-7.4	10.3	14.7
October	36.8	54.4	58.8	76.3	80.5	97.9	102.2	119.1	123.3	139.8	143.9
November	167.6	182.8	186.5	200.8	204.3	217.6	220.7	232.8	235.6	246.3	248.9
December	260.0	267.6	269.1	274.6	275.8	279.3	280.0	281.4	281.6	280.9	280.5

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: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1140.6 mm
 Sunrise/Sunset Markers: X = ± 571.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1140.6	1140.6	0.0						
11:55	12:05	32.7	1140.3	1140.8	32.7	8:25	3:35	1209.7	674.5	1385.0	1296.4
11:50	12:10	65.4	1139.5	1141.4	65.4	8:20	3:40	1228.7	654.2	1392.0	1321.5
11:45	12:15	98.1	1138.2	1142.4	98.1	8:15	3:45	1247.2	633.7	1399.0	1346.3
11:40	12:20	130.7	1136.3	1143.8	130.8	8:10	3:50	1265.1	612.8	1405.7	1370.8
11:35	12:25	163.3	1133.8	1145.5	163.4	8:05	3:55	1282.4	591.7	1412.3	1394.9
11:30	12:30	195.8	1130.9	1147.7	196.0	8:00	4:00	1299.0	570.3	1418.7	1418.7
11:25	12:35	228.2	1127.3	1150.2	228.6	7:55	4:05	1315.1	548.6	1424.9	1442.2
11:20	12:40	260.5	1123.3	1153.1	261.0	7:50	4:10	1330.5	526.7	1431.0	1465.3
11:15	12:45	292.6	1118.7	1156.3	293.5	7:45	4:15	1345.3	504.5	1436.8	1488.1
11:10	12:50	324.7	1113.6	1159.9	325.8	7:40	4:20	1359.5	482.0	1442.4	1510.6
11:05	12:55	356.5	1107.9	1163.9	358.0	7:35	4:25	1373.0	459.4	1447.8	1532.7
11:00	1:00	388.2	1101.7	1168.1	390.2	7:30	4:30	1385.8	436.5	1452.9	1554.4
10:55	1:05	419.7	1095.0	1172.7	422.2	7:25	4:35	1398.0	413.4	1457.9	1575.8
10:50	1:10	451.1	1087.8	1177.6	454.1	7:20	4:40	1409.5	390.1	1462.5	1596.9
10:45	1:15	482.2	1080.1	1182.8	485.9	7:15	4:45	1420.4	366.6	1467.0	1617.6
10:40	1:20	513.0	1071.8	1188.3	517.6	7:10	4:50	1430.6	343.0	1471.1	1637.9
10:35	1:25	543.7	1063.1	1194.0	549.2	7:05	4:55	1440.1	319.2	1475.0	1657.9
10:30	1:30	574.0	1053.8	1200.0	580.6	7:00	5:00	1448.9	295.2	1478.7	1677.5
10:25	1:35	604.1	1044.0	1206.2	611.8	6:55	5:05	1457.0	271.1	1482.0	1696.7
10:20	1:40	633.9	1033.7	1212.6	642.9	6:50	5:10	1464.4	246.9	1485.1	1715.6
10:15	1:45	663.4	1023.0	1219.3	673.8	6:45	5:15	1471.2	222.5	1487.9	1734.1
10:10	1:50	692.6	1011.7	1226.1	704.5	6:40	5:20	1477.2	198.1	1490.4	1752.3
10:05	1:55	721.5	1000.0	1233.1	735.1	6:35	5:25	1482.5	173.5	1492.7	1770.1
10:00	2:00	750.0	987.8	1240.3	765.4	6:30	5:30	1487.2	148.9	1494.6	1787.5
9:55	2:05	778.2	975.1	1247.6	795.6	6:25	5:35	1491.1	124.2	1496.2	1804.6
9:50	2:10	805.9	962.0	1255.0	825.5	6:20	5:40	1494.3	99.4	1497.6	1821.3
9:45	2:15	833.4	948.4	1262.5	855.2	6:15	5:45	1496.8	74.6	1498.6	1837.6
9:40	2:20	860.4	934.3	1270.1	884.7	6:10	5:50	1498.6	49.8	1499.4	1853.6
9:35	2:25	887.0	919.8	1277.8	914.0	6:05	5:55	1499.6	24.9	1499.8	1869.2
9:30	2:30	913.1	904.9	1285.6	943.1	6:00	6:00	1500.0	0.0	1500.0	1884.4
9:25	2:35	938.9	889.5	1293.4	971.9	5:55	6:05	1499.6	-24.9	1499.8	1899.3
9:20	2:40	964.2	873.8	1301.2	1000.4	5:50	6:10	1498.6	-49.8	1499.4	1913.8
9:15	2:45	989.0	857.6	1309.0	1028.7	5:45	6:15	1496.8	-74.6	1498.6	1928.0
9:10	2:50	1013.4	840.9	1316.9	1056.8	5:40	6:20	1494.3	-99.4	1497.6	1941.8
9:05	2:55	1037.3	823.9	1324.7	1084.5	5:35	6:25	1491.1	-124.2	1496.2	1955.3
9:00	3:00	1060.7	806.5	1332.5	1112.0	5:30	6:30	1487.2	-148.9	1494.6	1968.4
8:55	3:05	1083.5	788.7	1340.2	1139.2	5:25	6:35	1482.5	-173.5	1492.7	1981.1
8:50	3:10	1105.9	770.6	1347.9	1166.2	5:20	6:40	1477.2	-198.1	1490.4	1993.5
8:45	3:15	1127.8	752.1	1355.5	1192.8	5:15	6:45	1471.2	-222.5	1487.9	2005.6
8:40	3:20	1149.1	733.2	1363.0	1219.2	5:10	6:50	1464.4	-246.9	1485.1	2017.4
8:35	3:25	1169.8	713.9	1370.5	1245.2	5:05	6:55	1457.0	-271.1	1482.0	2028.8
8:30	3:30	1190.0	694.4	1377.8	1270.9	5:00	7:00	1448.9	-295.2	1478.7	2039.8

Analemmatic Sundial

Latitude: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1140.6 mm
 Sunrise/Sunset Markers: X = ± 571.0 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-319.2	1475.0	2050.6
4:50	7:10	1430.6	-343.0	1471.1	2061.0
4:45	7:15	1420.4	-366.6	1467.0	2071.1
4:40	7:20	1409.5	-390.1	1462.5	2080.8
4:35	7:25	1398.0	-413.4	1457.9	2090.3
4:30	7:30	1385.8	-436.5	1452.9	2099.5
4:25	7:35	1373.0	-459.4	1447.8	2108.3
4:20	7:40	1359.5	-482.0	1442.4	2116.9
4:15	7:45	1345.3	-504.5	1436.8	2125.1
4:10	7:50	1330.5	-526.7	1431.0	2133.1
4:05	7:55	1315.1	-548.6	1424.9	2140.8
4:00	8:00	1299.0	-570.3	1418.7	2148.2
3:55	8:05	1282.4	-591.7	1412.3	2155.3
3:50	8:10	1265.1	-612.8	1405.7	2162.2
3:45	8:15	1247.2	-633.7	1399.0	2168.8

Analematic Sundial

Latitude: 49.5° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1140.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-413.3	-405.5	-403.1	-392.4	-389.2	-375.9	-372.2	-356.3	-352.1	-334.1	-329.4
February	-299.0	-277.1	-271.4	-248.3	-242.5	-218.3	-212.0	-187.1	-180.7	-155.0	-148.4
March	-128.8	-102.4	-95.7	-69.0	-62.3	-35.4	-28.7	-1.7	4.9	31.8	38.4
April	78.4	104.6	111.2	136.9	143.3	168.6	174.8	199.4	205.5	229.2	235.0
May	263.2	284.9	290.0	310.1	315.0	333.5	337.9	354.8	358.8	373.6	376.9
June	395.2	404.7	406.9	413.9	415.5	419.9	420.6	422.2	422.4	419.3	420.8
July	415.5	408.9	406.9	397.9	395.4	383.7	380.6	366.7	363.1	347.3	343.1
August	316.2	296.5	291.5	270.5	265.2	243.1	237.3	214.2	208.3	184.2	178.1
September	140.9	115.5	109.1	83.2	76.7	50.5	44.1	17.7	11.1	-15.5	-22.1
October	-55.1	-81.6	-88.1	-114.4	-120.8	-146.8	-153.2	-178.6	-185.0	-209.7	-215.8
November	-251.4	-274.2	-279.7	-301.2	-306.4	-326.3	-331.1	-349.2	-353.4	-369.5	-373.4
December	-390.0	-401.3	-403.7	-411.9	-413.7	-418.9	-419.9	-422.2	-422.4	-421.4	-420.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	413.3	405.5	403.1	392.4	389.2	375.9	372.2	356.3	352.1	334.1	329.4
February	299.0	277.1	271.4	248.3	242.5	218.3	212.0	187.1	180.7	155.0	148.4
March	128.8	102.4	95.7	69.0	62.3	35.4	28.7	1.7	-4.9	-31.8	-38.4
April	-78.4	-104.6	-111.2	-136.9	-143.3	-168.6	-174.8	-199.4	-205.5	-229.2	-235.0
May	-263.2	-284.9	-290.0	-310.1	-315.0	-333.5	-337.9	-354.8	-358.8	-373.6	-376.9
June	-395.2	-404.7	-406.9	-413.9	-415.5	-419.9	-420.6	-422.2	-422.4	-419.3	-420.8
July	-415.5	-408.9	-406.9	-397.9	-395.4	-383.7	-380.6	-366.7	-363.1	-347.3	-343.1
August	-316.2	-296.5	-291.5	-270.5	-265.2	-243.1	-237.3	-214.2	-208.3	-184.2	-178.1
September	-140.9	-115.5	-109.1	-83.2	-76.7	-50.5	-44.1	-17.7	-11.1	15.5	22.1
October	55.1	81.6	88.1	114.4	120.8	146.8	153.2	178.6	185.0	209.7	215.8
November	251.4	274.2	279.7	301.2	306.4	326.3	331.1	349.2	353.4	369.5	373.4
December	390.0	401.3	403.7	411.9	413.7	418.9	419.9	422.2	422.4	421.4	420.8

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: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1520.8 mm
 Sunrise/Sunset Markers: X = ± 761.3 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1520.8	1520.8	0.0						
11:55	12:05	43.6	1520.5	1521.1	43.6	8:25	3:35	1612.9	899.3	1846.6	1728.5
11:50	12:10	87.2	1519.4	1521.9	87.3	8:20	3:40	1638.3	872.3	1856.1	1762.0
11:45	12:15	130.8	1517.6	1523.2	130.8	8:15	3:45	1662.9	844.9	1865.3	1795.0
11:40	12:20	174.3	1515.0	1525.0	174.4	8:10	3:50	1686.8	817.1	1874.3	1827.7
11:35	12:25	217.7	1511.8	1527.4	217.9	8:05	3:55	1709.8	789.0	1883.1	1859.9
11:30	12:30	261.1	1507.8	1530.2	261.4	8:00	4:00	1732.1	760.4	1891.6	1891.6
11:25	12:35	304.2	1503.1	1533.6	304.8	7:55	4:05	1753.5	731.5	1899.9	1922.9
11:20	12:40	347.3	1497.7	1537.4	348.1	7:50	4:10	1774.0	702.2	1908.0	1953.8
11:15	12:45	390.2	1491.6	1541.8	391.3	7:45	4:15	1793.7	672.6	1915.7	1984.2
11:10	12:50	432.9	1484.8	1546.6	434.4	7:40	4:20	1812.6	642.7	1923.2	2014.1
11:05	12:55	475.4	1477.2	1551.8	477.4	7:35	4:25	1830.6	612.5	1930.4	2043.6
11:00	1:00	517.6	1469.0	1557.5	520.2	7:30	4:30	1847.8	582.0	1937.2	2072.6
10:55	1:05	559.7	1460.1	1563.6	562.9	7:25	4:35	1864.0	551.2	1943.8	2101.1
10:50	1:10	601.4	1450.4	1570.2	605.5	7:20	4:40	1879.4	520.1	1950.0	2129.2
10:45	1:15	642.9	1440.1	1577.1	647.9	7:15	4:45	1893.9	488.8	1955.9	2156.8
10:40	1:20	684.0	1429.1	1584.4	690.2	7:10	4:50	1907.4	457.3	1961.5	2183.9
10:35	1:25	724.9	1417.4	1592.0	732.2	7:05	4:55	1920.1	425.6	1966.7	2210.5
10:30	1:30	765.4	1405.0	1600.0	774.1	7:00	5:00	1931.9	393.6	1971.5	2236.7
10:25	1:35	805.5	1392.0	1608.3	815.7	6:55	5:05	1942.7	361.5	1976.0	2262.3
10:20	1:40	845.2	1378.3	1616.8	857.2	6:50	5:10	1952.6	329.2	1980.1	2287.5
10:15	1:45	884.6	1364.0	1625.7	898.4	6:45	5:15	1961.6	296.7	1983.9	2312.2
10:10	1:50	923.5	1349.0	1634.8	939.3	6:40	5:20	1969.6	264.1	1987.2	2336.4
10:05	1:55	962.0	1333.3	1644.1	980.1	6:35	5:25	1976.7	231.4	1990.2	2360.1
10:00	2:00	1000.0	1317.1	1653.7	1020.5	6:30	5:30	1982.9	198.5	1992.8	2383.3
9:55	2:05	1037.5	1300.2	1663.4	1060.7	6:25	5:35	1988.1	165.6	1995.0	2406.1
9:50	2:10	1074.6	1282.6	1673.3	1100.7	6:20	5:40	1992.4	132.5	1996.8	2428.4
9:45	2:15	1111.1	1264.5	1683.3	1140.3	6:15	5:45	1995.7	99.5	1998.2	2450.1
9:40	2:20	1147.2	1245.8	1693.5	1179.7	6:10	5:50	1998.1	66.3	1999.2	2471.4
9:35	2:25	1182.6	1226.5	1703.8	1218.7	6:05	5:55	1999.5	33.2	1999.8	2492.2
9:30	2:30	1217.5	1206.5	1714.1	1257.4	6:00	6:00	2000.0	0.0	2000.0	2512.5
9:25	2:35	1251.8	1186.1	1724.5	1295.8	5:55	6:05	1999.5	-33.2	1999.8	2532.4
9:20	2:40	1285.6	1165.0	1734.9	1333.9	5:50	6:10	1998.1	-66.3	1999.2	2551.8
9:15	2:45	1318.7	1143.4	1745.4	1371.6	5:45	6:15	1995.7	-99.5	1998.2	2570.6
9:10	2:50	1351.2	1121.3	1755.8	1409.0	5:40	6:20	1992.4	-132.5	1996.8	2589.1
9:05	2:55	1383.0	1098.6	1766.2	1446.0	5:35	6:25	1988.1	-165.6	1995.0	2607.0
9:00	3:00	1414.2	1075.4	1776.6	1482.7	5:30	6:30	1982.9	-198.5	1992.8	2624.5
8:55	3:05	1444.7	1051.7	1787.0	1519.0	5:25	6:35	1976.7	-231.4	1990.2	2641.5
8:50	3:10	1474.6	1027.4	1797.2	1554.9	5:20	6:40	1969.6	-264.1	1987.2	2658.1
8:45	3:15	1503.7	1002.7	1807.4	1590.4	5:15	6:45	1961.6	-296.7	1983.9	2674.2
8:40	3:20	1532.1	977.6	1817.4	1625.6	5:10	6:50	1952.6	-329.2	1980.1	2689.8
8:35	3:25	1559.8	951.9	1827.3	1660.3	5:05	6:55	1942.7	-361.5	1976.0	2705.0
8:30	3:30	1586.7	925.8	1837.1	1694.6	5:00	7:00	1931.9	-393.6	1971.5	2719.8

Analemmatic Sundial

Latitude: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1520.8 mm
 Sunrise/Sunset Markers: X = ± 761.3 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-425.6	1966.7	2734.1
4:50	7:10	1907.4	-457.3	1961.5	2748.0
4:45	7:15	1893.9	-488.8	1955.9	2761.4
4:40	7:20	1879.4	-520.1	1950.0	2774.5
4:35	7:25	1864.0	-551.2	1943.8	2787.1
4:30	7:30	1847.8	-582.0	1937.2	2799.3
4:25	7:35	1830.6	-612.5	1930.4	2811.1
4:20	7:40	1812.6	-642.7	1923.2	2822.5
4:15	7:45	1793.7	-672.6	1915.7	2833.5
4:10	7:50	1774.0	-702.2	1908.0	2844.1
4:05	7:55	1753.5	-731.5	1899.9	2854.4
4:00	8:00	1732.1	-760.4	1891.6	2864.3
3:55	8:05	1709.8	-789.0	1883.1	2873.8
3:50	8:10	1686.8	-817.1	1874.3	2882.9
3:45	8:15	1662.9	-844.9	1865.3	2891.7

Analematic Sundial

Latitude: 49.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1520.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-551.1	-540.7	-537.5	-523.2	-519.0	-501.2	-496.3	-475.1	-469.4	-445.5	-439.1
February	-398.6	-369.5	-361.9	-331.1	-323.4	-291.1	-282.7	-249.4	-241.0	-206.7	-197.8
March	-171.7	-136.5	-127.6	-92.0	-83.1	-47.2	-38.3	-2.3	6.6	42.4	51.3
April	104.5	139.5	148.2	182.5	191.1	224.8	233.0	265.9	274.0	305.6	313.3
May	351.0	379.8	386.7	413.5	420.0	444.7	450.5	473.0	478.4	498.1	502.5
June	526.9	539.6	542.5	551.9	554.0	559.9	560.7	562.9	563.2	559.1	561.0
July	554.0	545.2	542.5	530.6	527.2	511.6	507.5	489.0	484.1	463.0	457.4
August	421.5	395.4	388.7	360.7	353.6	324.1	316.4	285.6	277.7	245.7	237.5
September	187.9	154.0	145.5	110.9	102.2	67.4	58.8	23.6	14.7	-20.6	-29.5
October	-73.5	-108.8	-117.5	-152.6	-161.1	-195.7	-204.3	-238.2	-246.6	-279.6	-287.7
November	-335.2	-365.6	-372.9	-401.6	-408.5	-435.1	-441.4	-465.6	-471.2	-492.6	-497.8
December	-520.0	-535.1	-538.3	-549.2	-551.6	-558.6	-559.9	-562.9	-563.2	-561.8	-561.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	551.1	540.7	537.5	523.2	519.0	501.2	496.3	475.1	469.4	445.5	439.1
February	398.6	369.5	361.9	331.1	323.4	291.1	282.7	249.4	241.0	206.7	197.8
March	171.7	136.5	127.6	92.0	83.1	47.2	38.3	2.3	-6.6	-42.4	-51.3
April	-104.5	-139.5	-148.2	-182.5	-191.1	-224.8	-233.0	-265.9	-274.0	-305.6	-313.3
May	-351.0	-379.8	-386.7	-413.5	-420.0	-444.7	-450.5	-473.0	-478.4	-498.1	-502.5
June	-526.9	-539.6	-542.5	-551.9	-554.0	-559.9	-560.7	-562.9	-563.2	-559.1	-561.0
July	-554.0	-545.2	-542.5	-530.6	-527.2	-511.6	-507.5	-489.0	-484.1	-463.0	-457.4
August	-421.5	-395.4	-388.7	-360.7	-353.6	-324.1	-316.4	-285.6	-277.7	-245.7	-237.5
September	-187.9	-154.0	-145.5	-110.9	-102.2	-67.4	-58.8	-23.6	-14.7	20.6	29.5
October	73.5	108.8	117.5	152.6	161.1	195.7	204.3	238.2	246.6	279.6	287.7
November	335.2	365.6	372.9	401.6	408.5	435.1	441.4	465.6	471.2	492.6	497.8
December	520.0	535.1	538.3	549.2	551.6	558.6	559.9	562.9	563.2	561.8	561.0

Southern Hemisphere

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

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

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

Analemmatic Sundial

Latitude: 49.5° N/S

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1901.0 mm
 Sunrise/Sunset Markers: X = ± 951.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1901.0	1901.0	0.0						
11:55	12:05	54.5	1900.6	1901.3	54.5	8:25	3:35	2016.1	1124.1	2308.3	2160.6
11:50	12:10	109.0	1899.2	1902.3	109.1	8:20	3:40	2047.9	1090.4	2320.1	2202.5
11:45	12:15	163.5	1896.9	1904.0	163.6	8:15	3:45	2078.7	1056.1	2331.6	2243.8
11:40	12:20	217.9	1893.8	1906.3	218.0	8:10	3:50	2108.5	1021.4	2342.9	2284.6
11:35	12:25	272.2	1889.7	1909.2	272.4	8:05	3:55	2137.3	986.2	2353.8	2324.8
11:30	12:30	326.3	1884.8	1912.8	326.7	8:00	4:00	2165.1	950.5	2364.5	2364.5
11:25	12:35	380.3	1878.9	1917.0	381.0	7:55	4:05	2191.8	914.4	2374.9	2403.7
11:20	12:40	434.1	1872.1	1921.8	435.1	7:50	4:10	2217.5	877.8	2384.9	2442.2
11:15	12:45	487.7	1864.5	1927.2	489.1	7:45	4:15	2242.2	840.8	2394.6	2480.2
11:10	12:50	541.1	1856.0	1933.2	543.0	7:40	4:20	2265.8	803.4	2404.0	2517.6
11:05	12:55	594.2	1846.5	1939.8	596.7	7:35	4:25	2288.3	765.6	2413.0	2554.5
11:00	1:00	647.0	1836.2	1946.9	650.3	7:30	4:30	2309.7	727.5	2421.6	2590.7
10:55	1:05	699.6	1825.1	1954.6	703.7	7:25	4:35	2330.0	689.0	2429.8	2626.4
10:50	1:10	751.8	1813.0	1962.7	756.9	7:20	4:40	2349.2	650.2	2437.5	2661.5
10:45	1:15	803.6	1800.1	1971.4	809.9	7:15	4:45	2367.3	611.1	2444.9	2696.0
10:40	1:20	855.1	1786.4	1980.5	862.7	7:10	4:50	2384.3	571.6	2451.9	2729.8
10:35	1:25	906.1	1771.8	1990.0	915.3	7:05	4:55	2400.1	532.0	2458.4	2763.1
10:30	1:30	956.7	1756.3	2000.0	967.6	7:00	5:00	2414.8	492.0	2464.4	2795.8
10:25	1:35	1006.9	1740.0	2010.3	1019.7	6:55	5:05	2428.4	451.8	2470.0	2827.9
10:20	1:40	1056.5	1722.9	2021.1	1071.5	6:50	5:10	2440.7	411.5	2475.2	2859.4
10:15	1:45	1105.7	1705.0	2032.1	1123.0	6:45	5:15	2452.0	370.9	2479.9	2890.2
10:10	1:50	1154.4	1686.2	2043.5	1174.2	6:40	5:20	2462.0	330.1	2484.1	2920.5
10:05	1:55	1202.5	1666.7	2055.2	1225.1	6:35	5:25	2470.9	289.2	2487.8	2950.1
10:00	2:00	1250.0	1646.3	2067.1	1275.7	6:30	5:30	2478.6	248.1	2491.0	2979.2
9:55	2:05	1296.9	1625.2	2079.3	1325.9	6:25	5:35	2485.1	207.0	2493.7	3007.6
9:50	2:10	1343.2	1603.3	2091.6	1375.8	6:20	5:40	2490.5	165.7	2496.0	3035.4
9:45	2:15	1388.9	1580.6	2104.2	1425.4	6:15	5:45	2494.6	124.3	2497.7	3062.7
9:40	2:20	1433.9	1557.2	2116.9	1474.6	6:10	5:50	2497.6	82.9	2499.0	3089.3
9:35	2:25	1478.3	1533.1	2129.7	1523.4	6:05	5:55	2499.4	41.5	2499.7	3115.3
9:30	2:30	1521.9	1508.2	2142.6	1571.8	6:00	6:00	2500.0	0.0	2500.0	3140.7
9:25	2:35	1564.8	1482.6	2155.6	1619.8	5:55	6:05	2499.4	-41.5	2499.7	3165.5
9:20	2:40	1607.0	1456.3	2168.7	1667.4	5:50	6:10	2497.6	-82.9	2499.0	3189.7
9:15	2:45	1648.4	1429.3	2181.7	1714.5	5:45	6:15	2494.6	-124.3	2497.7	3213.3
9:10	2:50	1689.0	1401.6	2194.8	1761.3	5:40	6:20	2490.5	-165.7	2496.0	3236.3
9:05	2:55	1728.8	1373.2	2207.8	1807.6	5:35	6:25	2485.1	-207.0	2493.7	3258.8
9:00	3:00	1767.8	1344.2	2220.8	1853.4	5:30	6:30	2478.6	-248.1	2491.0	3280.6
8:55	3:05	1805.9	1314.6	2233.7	1898.7	5:25	6:35	2470.9	-289.2	2487.8	3301.9
8:50	3:10	1843.2	1284.3	2246.5	1943.6	5:20	6:40	2462.0	-330.1	2484.1	3322.6
8:45	3:15	1879.6	1253.4	2259.2	1988.0	5:15	6:45	2452.0	-370.9	2479.9	3342.7
8:40	3:20	1915.1	1221.9	2271.7	2031.9	5:10	6:50	2440.7	-411.5	2475.2	3362.3
8:35	3:25	1949.7	1189.9	2284.1	2075.3	5:05	6:55	2428.4	-451.8	2470.0	3381.3
8:30	3:30	1983.4	1157.3	2296.3	2118.2	5:00	7:00	2414.8	-492.0	2464.4	3399.7

Analemmatic Sundial**Latitude: 49.5° N/S**

Earliest Sunrise: 3:52 a.m. Latest Sunset: 8:08 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1901.0 mm
 Sunrise/Sunset Markers: $X = \pm 951.6$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-532.0	2458.4	3417.6
4:50	7:10	2384.3	-571.6	2451.9	3435.0
4:45	7:15	2367.3	-611.1	2444.9	3451.8
4:40	7:20	2349.2	-650.2	2437.5	3468.1
4:35	7:25	2330.0	-689.0	2429.8	3483.8
4:30	7:30	2309.7	-727.5	2421.6	3499.1
4:25	7:35	2288.3	-765.6	2413.0	3513.9
4:20	7:40	2265.8	-803.4	2404.0	3528.1
4:15	7:45	2242.2	-840.8	2394.6	3541.9
4:10	7:50	2217.5	-877.8	2384.9	3555.2
4:05	7:55	2191.8	-914.4	2374.9	3568.0
4:00	8:00	2165.1	-950.5	2364.5	3580.3
3:55	8:05	2137.3	-986.2	2353.8	3592.2
3:50	8:10	2108.5	-1021.4	2342.9	3603.6
3:45	8:15	2078.7	-1056.1	2331.6	3614.6

Analematic Sundial

Latitude: 49.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1901.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-688.9	-675.8	-671.9	-654.0	-648.7	-626.5	-620.3	-593.8	-586.8	-556.8	-548.9
February	-498.3	-461.9	-452.4	-413.9	-404.2	-363.8	-353.4	-311.8	-301.2	-258.3	-247.3
March	-214.6	-170.6	-159.5	-115.0	-103.9	-59.0	-47.9	-2.8	8.2	53.0	64.1
April	130.6	174.4	185.3	228.2	238.9	281.0	291.3	332.4	342.4	382.0	391.6
May	438.7	474.8	483.4	516.9	525.0	555.9	563.2	591.3	598.0	622.6	628.1
June	658.6	674.5	678.2	689.9	692.5	699.9	700.9	703.6	703.9	698.9	701.3
July	692.5	681.5	678.2	663.2	659.0	639.6	634.3	611.2	605.1	578.8	571.8
August	526.9	494.2	485.9	450.9	442.0	405.1	395.5	357.0	347.2	307.1	296.8
September	234.8	192.5	181.8	138.6	127.8	84.2	73.4	29.5	18.4	-25.8	-36.8
October	-91.9	-136.1	-146.9	-190.7	-201.4	-244.7	-255.4	-297.7	-308.3	-349.6	-359.7
November	-419.0	-457.0	-466.2	-502.0	-510.7	-543.9	-551.8	-582.0	-589.0	-615.8	-622.3
December	-650.1	-668.9	-672.9	-686.5	-689.5	-698.2	-699.9	-703.6	-703.9	-702.3	-701.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	688.9	675.8	671.9	654.0	648.7	626.5	620.3	593.8	586.8	556.8	548.9
February	498.3	461.9	452.4	413.9	404.2	363.8	353.4	311.8	301.2	258.3	247.3
March	214.6	170.6	159.5	115.0	103.9	59.0	47.9	2.8	-8.2	-53.0	-64.1
April	-130.6	-174.4	-185.3	-228.2	-238.9	-281.0	-291.3	-332.4	-342.4	-382.0	-391.6
May	-438.7	-474.8	-483.4	-516.9	-525.0	-555.9	-563.2	-591.3	-598.0	-622.6	-628.1
June	-658.6	-674.5	-678.2	-689.9	-692.5	-699.9	-700.9	-703.6	-703.9	-698.9	-701.3
July	-692.5	-681.5	-678.2	-663.2	-659.0	-639.6	-634.3	-611.2	-605.1	-578.8	-571.8
August	-526.9	-494.2	-485.9	-450.9	-442.0	-405.1	-395.5	-357.0	-347.2	-307.1	-296.8
September	-234.8	-192.5	-181.8	-138.6	-127.8	-84.2	-73.4	-29.5	-18.4	25.8	36.8
October	91.9	136.1	146.9	190.7	201.4	244.7	255.4	297.7	308.3	349.6	359.7
November	419.0	457.0	466.2	502.0	510.7	543.9	551.8	582.0	589.0	615.8	622.3
December	650.1	668.9	672.9	686.5	689.5	698.2	699.9	703.6	703.9	702.3	701.3

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