

Analemmatic Sundial

Latitude: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 874.6 mm
 Sunrise/Sunset Markers: X = ± 175.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	874.6	874.6	0.0						
11:55	12:05	21.8	874.4	874.7	21.8	8:25	3:35	806.4	517.2	958.0	882.1
11:50	12:10	43.6	873.8	874.9	43.6	8:20	3:40	819.2	501.7	960.6	900.1
11:45	12:15	65.4	872.7	875.2	65.4	8:15	3:45	831.5	485.9	963.0	917.8
11:40	12:20	87.2	871.3	875.6	87.2	8:10	3:50	843.4	469.9	965.5	935.5
11:35	12:25	108.9	869.4	876.2	109.0	8:05	3:55	854.9	453.7	967.9	952.9
11:30	12:30	130.5	867.1	876.9	130.7	8:00	4:00	866.0	437.3	970.2	970.2
11:25	12:35	152.1	864.4	877.7	152.5	7:55	4:05	876.7	420.7	972.4	987.3
11:20	12:40	173.6	861.3	878.7	174.2	7:50	4:10	887.0	403.9	974.6	1004.2
11:15	12:45	195.1	857.8	879.7	195.8	7:45	4:15	896.9	386.8	976.7	1020.9
11:10	12:50	216.4	853.9	880.9	217.4	7:40	4:20	906.3	369.6	978.8	1037.5
11:05	12:55	237.7	849.6	882.2	239.0	7:35	4:25	915.3	352.3	980.8	1053.9
11:00	1:00	258.8	844.8	883.6	260.5	7:30	4:30	923.9	334.7	982.6	1070.1
10:55	1:05	279.8	839.7	885.1	282.0	7:25	4:35	932.0	317.0	984.4	1086.1
10:50	1:10	300.7	834.1	886.7	303.4	7:20	4:40	939.7	299.1	986.2	1101.9
10:45	1:15	321.4	828.2	888.4	324.8	7:15	4:45	946.9	281.1	987.8	1117.5
10:40	1:20	342.0	821.9	890.2	346.1	7:10	4:50	953.7	263.0	989.3	1133.0
10:35	1:25	362.4	815.2	892.1	367.3	7:05	4:55	960.0	244.7	990.8	1148.2
10:30	1:30	382.7	808.0	894.1	388.4	7:00	5:00	965.9	226.4	992.1	1163.3
10:25	1:35	402.7	800.5	896.1	409.5	6:55	5:05	971.3	207.9	993.3	1178.2
10:20	1:40	422.6	792.7	898.3	430.5	6:50	5:10	976.3	189.3	994.5	1192.8
10:15	1:45	442.3	784.4	900.5	451.4	6:45	5:15	980.8	170.6	995.5	1207.3
10:10	1:50	461.7	775.8	902.8	472.2	6:40	5:20	984.8	151.9	996.5	1221.6
10:05	1:55	481.0	766.8	905.2	492.9	6:35	5:25	988.4	133.1	997.3	1235.6
10:00	2:00	500.0	757.4	907.6	513.5	6:30	5:30	991.4	114.2	998.0	1249.5
9:55	2:05	518.8	747.7	910.1	534.1	6:25	5:35	994.1	95.2	998.6	1263.2
9:50	2:10	537.3	737.6	912.6	554.5	6:20	5:40	996.2	76.2	999.1	1276.6
9:45	2:15	555.6	727.2	915.2	574.8	6:15	5:45	997.9	57.2	999.5	1289.9
9:40	2:20	573.6	716.4	917.8	595.0	6:10	5:50	999.0	38.2	999.8	1303.0
9:35	2:25	591.3	705.3	920.4	615.1	6:05	5:55	999.8	19.1	999.9	1315.9
9:30	2:30	608.8	693.9	923.1	635.0	6:00	6:00	1000.0	0.0	1000.0	1328.5
9:25	2:35	625.9	682.1	925.8	654.9	5:55	6:05	999.8	-19.1	999.9	1341.0
9:20	2:40	642.8	670.0	928.5	674.6	5:50	6:10	999.0	-38.2	999.8	1353.2
9:15	2:45	659.3	657.6	931.2	694.2	5:45	6:15	997.9	-57.2	999.5	1365.3
9:10	2:50	675.6	644.8	933.9	713.6	5:40	6:20	996.2	-76.2	999.1	1377.1
9:05	2:55	691.5	631.8	936.7	732.9	5:35	6:25	994.1	-95.2	998.6	1388.8
9:00	3:00	707.1	618.4	939.4	752.1	5:30	6:30	991.4	-114.2	998.0	1400.2
8:55	3:05	722.4	604.8	942.1	771.1	5:25	6:35	988.4	-133.1	997.3	1411.5
8:50	3:10	737.3	590.9	944.8	790.0	5:20	6:40	984.8	-151.9	996.5	1422.5
8:45	3:15	751.8	576.7	947.5	808.7	5:15	6:45	980.8	-170.6	995.5	1433.3
8:40	3:20	766.0	562.2	950.2	827.3	5:10	6:50	976.3	-189.3	994.5	1444.0
8:35	3:25	779.9	547.4	952.8	845.7	5:05	6:55	971.3	-207.9	993.3	1454.4
8:30	3:30	793.4	532.4	955.5	864.0	5:00	7:00	965.9	-226.4	992.1	1464.6

Analemmatic Sundial

Latitude: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 874.6 mm
 Sunrise/Sunset Markers: X = ± 175.8 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
4:55	7:05	960.0	-244.7	990.8	1474.7	2:55	9:05	691.5	-631.8	936.7	1657.5
4:50	7:10	953.7	-263.0	989.3	1484.5	2:50	9:10	675.6	-644.8	933.9	1662.9
4:45	7:15	946.9	-281.1	987.8	1494.1	2:45	9:15	659.3	-657.6	931.2	1668.0
4:40	7:20	939.7	-299.1	986.2	1503.6	2:40	9:20	642.8	-670.0	928.5	1673.0
4:35	7:25	932.0	-317.0	984.4	1512.8	2:35	9:25	625.9	-682.1	925.8	1677.8
4:30	7:30	923.9	-334.7	982.6	1521.8	2:30	9:30	608.8	-693.9	923.1	1682.5
4:25	7:35	915.3	-352.3	980.8	1530.7	2:25	9:35	591.3	-705.3	920.4	1687.0
4:20	7:40	906.3	-369.6	978.8	1539.3	2:20	9:40	573.6	-716.4	917.8	1691.3
4:15	7:45	896.9	-386.8	976.7	1547.8	2:15	9:45	555.6	-727.2	915.2	1695.4
4:10	7:50	887.0	-403.9	974.6	1556.0						
4:05	7:55	876.7	-420.7	972.4	1564.1						
4:00	8:00	866.0	-437.3	970.2	1572.0						
3:55	8:05	854.9	-453.7	967.9	1579.7						
3:50	8:10	843.4	-469.9	965.5	1587.2						
3:45	8:15	831.5	-485.9	963.0	1594.5						
3:40	8:20	819.2	-501.7	960.6	1601.6						
3:35	8:25	806.4	-517.2	958.0	1608.6						
3:30	8:30	793.4	-532.4	955.5	1615.3						
3:25	8:35	779.9	-547.4	952.8	1621.9						
3:20	8:40	766.0	-562.2	950.2	1628.3						
3:15	8:45	751.8	-576.7	947.5	1634.5						
3:10	8:50	737.3	-590.9	944.8	1640.5						
3:05	8:55	722.4	-604.8	942.1	1646.4						
3:00	9:00	707.1	-618.4	939.4	1652.0						

Analematic Sundial

Latitude: 61.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 874.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-205.7	-201.8	-200.6	-195.3	-193.7	-187.1	-185.2	-177.3	-175.2	-166.3	-163.9
February	-148.8	-137.9	-135.1	-123.6	-120.7	-108.6	-105.5	-93.1	-89.9	-77.1	-73.8
March	-64.1	-51.0	-47.6	-34.3	-31.0	-17.6	-14.3	-0.8	2.5	15.8	19.1
April	39.0	52.1	55.3	68.1	71.3	83.9	87.0	99.3	102.3	114.1	116.9
May	131.0	141.8	144.3	154.3	156.8	166.0	168.2	176.6	178.6	185.9	187.6
June	196.7	201.4	202.5	206.0	206.8	209.0	209.3	210.1	210.2	208.7	209.4
July	206.8	203.5	202.5	198.0	196.8	191.0	189.4	182.5	180.7	172.8	170.7
August	157.3	147.6	145.1	134.6	132.0	121.0	118.1	106.6	103.7	91.7	88.6
September	70.1	57.5	54.3	41.4	38.2	25.2	21.9	8.8	5.5	-7.7	-11.0
October	-27.4	-40.6	-43.9	-57.0	-60.1	-73.1	-76.3	-88.9	-92.0	-104.4	-107.4
November	-125.1	-136.5	-139.2	-149.9	-152.5	-162.4	-164.8	-173.8	-175.9	-183.9	-185.8
December	-194.1	-199.7	-200.9	-205.0	-205.9	-208.5	-209.0	-210.1	-210.2	-209.7	-209.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	205.7	201.8	200.6	195.3	193.7	187.1	185.2	177.3	175.2	166.3	163.9
February	148.8	137.9	135.1	123.6	120.7	108.6	105.5	93.1	89.9	77.1	73.8
March	64.1	51.0	47.6	34.3	31.0	17.6	14.3	0.8	-2.5	-15.8	-19.1
April	-39.0	-52.1	-55.3	-68.1	-71.3	-83.9	-87.0	-99.3	-102.3	-114.1	-116.9
May	-131.0	-141.8	-144.3	-154.3	-156.8	-166.0	-168.2	-176.6	-178.6	-185.9	-187.6
June	-196.7	-201.4	-202.5	-206.0	-206.8	-209.0	-209.3	-210.1	-210.2	-208.7	-209.4
July	-206.8	-203.5	-202.5	-198.0	-196.8	-191.0	-189.4	-182.5	-180.7	-172.8	-170.7
August	-157.3	-147.6	-145.1	-134.6	-132.0	-121.0	-118.1	-106.6	-103.7	-91.7	-88.6
September	-70.1	-57.5	-54.3	-41.4	-38.2	-25.2	-21.9	-8.8	-5.5	7.7	11.0
October	27.4	40.6	43.9	57.0	60.1	73.1	76.3	88.9	92.0	104.4	107.4
November	125.1	136.5	139.2	149.9	152.5	162.4	164.8	173.8	175.9	183.9	185.8
December	194.1	199.7	200.9	205.0	205.9	208.5	209.0	210.1	210.2	209.7	209.4

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: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1311.9 mm
 Sunrise/Sunset Markers: X = ± 263.7 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1311.9	1311.9	0.0						
11:55	12:05	32.7	1311.6	1312.0	32.7	8:25	3:35	1209.7	775.8	1437.0	1323.2
11:50	12:10	65.4	1310.7	1312.3	65.4	8:20	3:40	1228.7	752.5	1440.8	1350.1
11:45	12:15	98.1	1309.1	1312.8	98.1	8:15	3:45	1247.2	728.9	1444.6	1376.8
11:40	12:20	130.7	1306.9	1313.5	130.8	8:10	3:50	1265.1	704.9	1448.2	1403.2
11:35	12:25	163.3	1304.1	1314.3	163.5	8:05	3:55	1282.4	680.6	1451.8	1429.4
11:30	12:30	195.8	1300.7	1315.4	196.1	8:00	4:00	1299.0	656.0	1455.3	1455.3
11:25	12:35	228.2	1296.7	1316.6	228.7	7:55	4:05	1315.1	631.0	1458.6	1480.9
11:20	12:40	260.5	1292.0	1318.0	261.2	7:50	4:10	1330.5	605.8	1461.9	1506.3
11:15	12:45	292.6	1286.7	1319.6	293.7	7:45	4:15	1345.3	580.3	1465.1	1531.4
11:10	12:50	324.7	1280.8	1321.3	326.1	7:40	4:20	1359.5	554.4	1468.2	1556.3
11:05	12:55	356.5	1274.3	1323.3	358.5	7:35	4:25	1373.0	528.4	1471.1	1580.8
11:00	1:00	388.2	1267.2	1325.4	390.8	7:30	4:30	1385.8	502.1	1474.0	1605.1
10:55	1:05	419.7	1259.5	1327.6	423.0	7:25	4:35	1398.0	475.5	1476.7	1629.1
10:50	1:10	451.1	1251.2	1330.0	455.1	7:20	4:40	1409.5	448.7	1479.2	1652.9
10:45	1:15	482.2	1242.3	1332.6	487.2	7:15	4:45	1420.4	421.7	1481.7	1676.3
10:40	1:20	513.0	1232.8	1335.3	519.1	7:10	4:50	1430.6	394.5	1484.0	1699.5
10:35	1:25	543.7	1222.7	1338.1	550.9	7:05	4:55	1440.1	367.1	1486.1	1722.3
10:30	1:30	574.0	1212.1	1341.1	582.6	7:00	5:00	1448.9	339.6	1488.1	1744.9
10:25	1:35	604.1	1200.8	1344.2	614.3	6:55	5:05	1457.0	311.8	1490.0	1767.2
10:20	1:40	633.9	1189.0	1347.4	645.7	6:50	5:10	1464.4	284.0	1491.7	1789.2
10:15	1:45	663.4	1176.6	1350.8	677.1	6:45	5:15	1471.2	255.9	1493.3	1810.9
10:10	1:50	692.6	1163.7	1354.2	708.3	6:40	5:20	1477.2	227.8	1494.7	1832.3
10:05	1:55	721.5	1150.2	1357.8	739.4	6:35	5:25	1482.5	199.6	1495.9	1853.4
10:00	2:00	750.0	1136.2	1361.4	770.3	6:30	5:30	1487.2	171.2	1497.0	1874.3
9:55	2:05	778.2	1121.6	1365.1	801.1	6:25	5:35	1491.1	142.8	1497.9	1894.8
9:50	2:10	805.9	1106.5	1368.9	831.7	6:20	5:40	1494.3	114.3	1498.7	1915.0
9:45	2:15	833.4	1090.8	1372.7	862.2	6:15	5:45	1496.8	85.8	1499.2	1934.9
9:40	2:20	860.4	1074.7	1376.6	892.5	6:10	5:50	1498.6	57.2	1499.7	1954.5
9:35	2:25	887.0	1058.0	1380.6	922.6	6:05	5:55	1499.6	28.6	1499.9	1973.8
9:30	2:30	913.1	1040.8	1384.6	952.5	6:00	6:00	1500.0	0.0	1500.0	1992.8
9:25	2:35	938.9	1023.2	1388.6	982.3	5:55	6:05	1499.6	-28.6	1499.9	2011.5
9:20	2:40	964.2	1005.0	1392.7	1011.9	5:50	6:10	1498.6	-57.2	1499.7	2029.9
9:15	2:45	989.0	986.4	1396.8	1041.2	5:45	6:15	1496.8	-85.8	1499.2	2047.9
9:10	2:50	1013.4	967.3	1400.9	1070.4	5:40	6:20	1494.3	-114.3	1498.7	2065.7
9:05	2:55	1037.3	947.7	1405.0	1099.4	5:35	6:25	1491.1	-142.8	1497.9	2083.2
9:00	3:00	1060.7	927.7	1409.1	1128.1	5:30	6:30	1487.2	-171.2	1497.0	2100.3
8:55	3:05	1083.5	907.2	1413.2	1156.7	5:25	6:35	1482.5	-199.6	1495.9	2117.2
8:50	3:10	1105.9	886.3	1417.3	1185.0	5:20	6:40	1477.2	-227.8	1494.7	2133.8
8:45	3:15	1127.8	865.0	1421.3	1213.1	5:15	6:45	1471.2	-255.9	1493.3	2150.0
8:40	3:20	1149.1	843.3	1425.3	1241.0	5:10	6:50	1464.4	-284.0	1491.7	2166.0
8:35	3:25	1169.8	821.2	1429.3	1268.6	5:05	6:55	1457.0	-311.8	1490.0	2181.6
8:30	3:30	1190.0	798.7	1433.2	1296.0	5:00	7:00	1448.9	-339.6	1488.1	2197.0

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 Sunrise/Sunset Markers: X = ± 263.7 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
4:55	7:05	1440.1	-367.1	1486.1	2212.0	2:55	9:05	1037.3	-947.7	1405.0	2486.3
4:50	7:10	1430.6	-394.5	1484.0	2226.8	2:50	9:10	1013.4	-967.3	1400.9	2494.3
4:45	7:15	1420.4	-421.7	1481.7	2241.2	2:45	9:15	989.0	-986.4	1396.8	2502.1
4:40	7:20	1409.5	-448.7	1479.2	2255.4	2:40	9:20	964.2	-1005.0	1392.7	2509.5
4:35	7:25	1398.0	-475.5	1476.7	2269.2	2:35	9:25	938.9	-1023.2	1388.6	2516.8
4:30	7:30	1385.8	-502.1	1474.0	2282.8	2:30	9:30	913.1	-1040.8	1384.6	2523.7
4:25	7:35	1373.0	-528.4	1471.1	2296.0	2:25	9:35	887.0	-1058.0	1380.6	2530.5
4:20	7:40	1359.5	-554.4	1468.2	2309.0	2:20	9:40	860.4	-1074.7	1376.6	2536.9
4:15	7:45	1345.3	-580.3	1465.1	2321.7	2:15	9:45	833.4	-1090.8	1372.7	2543.2
4:10	7:50	1330.5	-605.8	1461.9	2334.1						
4:05	7:55	1315.1	-631.0	1458.6	2346.2						
4:00	8:00	1299.0	-656.0	1455.3	2358.0						
3:55	8:05	1282.4	-680.6	1451.8	2369.5						
3:50	8:10	1265.1	-704.9	1448.2	2380.8						
3:45	8:15	1247.2	-728.9	1444.6	2391.7						
3:40	8:20	1228.7	-752.5	1440.8	2402.4						
3:35	8:25	1209.7	-775.8	1437.0	2412.8						
3:30	8:30	1190.0	-798.7	1433.2	2423.0						
3:25	8:35	1169.8	-821.2	1429.3	2432.8						
3:20	8:40	1149.1	-843.3	1425.3	2442.4						
3:15	8:45	1127.8	-865.0	1421.3	2451.7						
3:10	8:50	1105.9	-886.3	1417.3	2460.8						
3:05	8:55	1083.5	-907.2	1413.2	2469.6						
3:00	9:00	1060.7	-927.7	1409.1	2478.1						

Analemmatic Sundial

Latitude: 61.0° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1311.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-308.5	-302.7	-300.9	-292.9	-290.6	-280.6	-277.8	-266.0	-262.8	-249.4	-245.9
February	-223.2	-206.9	-202.6	-185.4	-181.0	-163.0	-158.3	-139.6	-134.9	-115.7	-110.8
March	-96.1	-76.4	-71.4	-51.5	-46.5	-26.4	-21.5	-1.3	3.7	23.7	28.7
April	58.5	78.1	83.0	102.2	107.0	125.9	130.5	148.9	153.4	171.1	175.4
May	196.5	212.7	216.5	231.5	235.2	249.0	252.2	264.8	267.9	278.9	281.3
June	295.0	302.1	303.8	309.0	310.2	313.5	313.9	315.1	315.3	313.0	314.1
July	310.2	305.2	303.8	297.1	295.1	286.5	284.1	273.8	271.0	259.2	256.1
August	236.0	221.4	217.6	201.9	198.0	181.4	177.1	159.9	155.5	137.5	132.9
September	105.2	86.2	81.4	62.1	57.2	37.7	32.9	13.2	8.3	-11.6	-16.5
October	-41.2	-60.9	-65.8	-85.4	-90.2	-109.6	-114.4	-133.3	-138.1	-156.6	-161.1
November	-187.7	-204.7	-208.8	-224.8	-228.7	-243.6	-247.1	-260.7	-263.8	-275.8	-278.7
December	-291.2	-299.6	-301.4	-307.5	-308.8	-312.7	-313.5	-315.1	-315.3	-314.5	-314.1

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	308.5	302.7	300.9	292.9	290.6	280.6	277.8	266.0	262.8	249.4	245.9
February	223.2	206.9	202.6	185.4	181.0	163.0	158.3	139.6	134.9	115.7	110.8
March	96.1	76.4	71.4	51.5	46.5	26.4	21.5	1.3	-3.7	-23.7	-28.7
April	-58.5	-78.1	-83.0	-102.2	-107.0	-125.9	-130.5	-148.9	-153.4	-171.1	-175.4
May	-196.5	-212.7	-216.5	-231.5	-235.2	-249.0	-252.2	-264.8	-267.9	-278.9	-281.3
June	-295.0	-302.1	-303.8	-309.0	-310.2	-313.5	-313.9	-315.1	-315.3	-313.0	-314.1
July	-310.2	-305.2	-303.8	-297.1	-295.1	-286.5	-284.1	-273.8	-271.0	-259.2	-256.1
August	-236.0	-221.4	-217.6	-201.9	-198.0	-181.4	-177.1	-159.9	-155.5	-137.5	-132.9
September	-105.2	-86.2	-81.4	-62.1	-57.2	-37.7	-32.9	-13.2	-8.3	11.6	16.5
October	41.2	60.9	65.8	85.4	90.2	109.6	114.4	133.3	138.1	156.6	161.1
November	187.7	204.7	208.8	224.8	228.7	243.6	247.1	260.7	263.8	275.8	278.7
December	291.2	299.6	301.4	307.5	308.8	312.7	313.5	315.1	315.3	314.5	314.1

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: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1749.2 mm
 Sunrise/Sunset Markers: X = ± 351.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1749.2	1749.2	0.0						
11:55	12:05	43.6	1748.8	1749.4	43.6	8:25	3:35	1612.9	1034.3	1916.1	1764.2
11:50	12:10	87.2	1747.6	1749.8	87.3	8:20	3:40	1638.3	1003.3	1921.1	1800.1
11:45	12:15	130.8	1745.5	1750.4	130.9	8:15	3:45	1662.9	971.8	1926.1	1835.7
11:40	12:20	174.3	1742.6	1751.3	174.4	8:10	3:50	1686.8	939.9	1931.0	1870.9
11:35	12:25	217.7	1738.8	1752.4	218.0	8:05	3:55	1709.8	907.5	1935.7	1905.8
11:30	12:30	261.1	1734.3	1753.8	261.5	8:00	4:00	1732.1	874.6	1940.4	1940.4
11:25	12:35	304.2	1728.9	1755.4	304.9	7:55	4:05	1753.5	841.4	1944.9	1974.5
11:20	12:40	347.3	1722.7	1757.3	348.3	7:50	4:10	1774.0	807.7	1949.2	2008.4
11:15	12:45	390.2	1715.6	1759.4	391.6	7:45	4:15	1793.7	773.7	1953.5	2041.9
11:10	12:50	432.9	1707.8	1761.8	434.9	7:40	4:20	1812.6	739.3	1957.6	2075.0
11:05	12:55	475.4	1699.1	1764.4	478.0	7:35	4:25	1830.6	704.5	1961.5	2107.8
11:00	1:00	517.6	1689.6	1767.1	521.1	7:30	4:30	1847.8	669.4	1965.3	2140.2
10:55	1:05	559.7	1679.4	1770.2	564.0	7:25	4:35	1864.0	634.0	1968.9	2172.2
10:50	1:10	601.4	1668.3	1773.4	606.8	7:20	4:40	1879.4	598.3	1972.3	2203.8
10:45	1:15	642.9	1656.4	1776.8	649.5	7:15	4:45	1893.9	562.3	1975.6	2235.1
10:40	1:20	684.0	1643.7	1780.4	692.1	7:10	4:50	1907.4	526.0	1978.6	2266.0
10:35	1:25	724.9	1630.3	1784.2	734.6	7:05	4:55	1920.1	489.5	1981.5	2296.5
10:30	1:30	765.4	1616.1	1788.2	776.9	7:00	5:00	1931.9	452.7	1984.2	2326.6
10:25	1:35	805.5	1601.1	1792.3	819.0	6:55	5:05	1942.7	415.8	1986.7	2356.3
10:20	1:40	845.2	1585.3	1796.6	861.0	6:50	5:10	1952.6	378.6	1989.0	2385.6
10:15	1:45	884.6	1568.8	1801.0	902.8	6:45	5:15	1961.6	341.3	1991.0	2414.6
10:10	1:50	923.5	1551.6	1805.6	944.4	6:40	5:20	1969.6	303.8	1992.9	2443.1
10:05	1:55	962.0	1533.6	1810.3	985.8	6:35	5:25	1976.7	266.1	1994.6	2471.3
10:00	2:00	1000.0	1514.9	1815.2	1027.1	6:30	5:30	1982.9	228.3	1996.0	2499.0
9:55	2:05	1037.5	1495.4	1820.1	1068.1	6:25	5:35	1988.1	190.4	1997.2	2526.4
9:50	2:10	1074.6	1475.3	1825.2	1109.0	6:20	5:40	1992.4	152.5	1998.2	2553.3
9:45	2:15	1111.1	1454.4	1830.3	1149.6	6:15	5:45	1995.7	114.4	1999.0	2579.8
9:40	2:20	1147.2	1432.9	1835.5	1190.0	6:10	5:50	1998.1	76.3	1999.6	2606.0
9:35	2:25	1182.6	1410.7	1840.8	1230.1	6:05	5:55	1999.5	38.2	1999.9	2631.7
9:30	2:30	1217.5	1387.8	1846.1	1270.0	6:00	6:00	2000.0	0.0	2000.0	2657.0
9:25	2:35	1251.8	1364.2	1851.5	1309.7	5:55	6:05	1999.5	-38.2	1999.9	2682.0
9:20	2:40	1285.6	1340.0	1857.0	1349.1	5:50	6:10	1998.1	-76.3	1999.6	2706.5
9:15	2:45	1318.7	1315.1	1862.4	1388.3	5:45	6:15	1995.7	-114.4	1999.0	2730.6
9:10	2:50	1351.2	1289.7	1867.9	1427.2	5:40	6:20	1992.4	-152.5	1998.2	2754.3
9:05	2:55	1383.0	1263.6	1873.3	1465.8	5:35	6:25	1988.1	-190.4	1997.2	2777.6
9:00	3:00	1414.2	1236.9	1878.8	1504.2	5:30	6:30	1982.9	-228.3	1996.0	2800.5
8:55	3:05	1444.7	1209.6	1884.3	1542.2	5:25	6:35	1976.7	-266.1	1994.6	2822.9
8:50	3:10	1474.6	1181.8	1889.7	1580.0	5:20	6:40	1969.6	-303.8	1992.9	2845.0
8:45	3:15	1503.7	1153.4	1895.1	1617.4	5:15	6:45	1961.6	-341.3	1991.0	2866.7
8:40	3:20	1532.1	1124.4	1900.4	1654.6	5:10	6:50	1952.6	-378.6	1989.0	2888.0
8:35	3:25	1559.8	1094.9	1905.7	1691.5	5:05	6:55	1942.7	-415.8	1986.7	2908.8
8:30	3:30	1586.7	1064.9	1910.9	1728.0	5:00	7:00	1931.9	-452.7	1984.2	2929.3

Analemmatic Sundial

Latitude: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1749.2 mm
 Sunrise/Sunset Markers: X = ± 351.6 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
4:55	7:05	1920.1	-489.5	1981.5	2949.4	2:55	9:05	1383.0	-1263.6	1873.3	3315.1
4:50	7:10	1907.4	-526.0	1978.6	2969.0	2:50	9:10	1351.2	-1289.7	1867.9	3325.8
4:45	7:15	1893.9	-562.3	1975.6	2988.3	2:45	9:15	1318.7	-1315.1	1862.4	3336.1
4:40	7:20	1879.4	-598.3	1972.3	3007.1	2:40	9:20	1285.6	-1340.0	1857.0	3346.1
4:35	7:25	1864.0	-634.0	1968.9	3025.6	2:35	9:25	1251.8	-1364.2	1851.5	3355.7
4:30	7:30	1847.8	-669.4	1965.3	3043.7	2:30	9:30	1217.5	-1387.8	1846.1	3365.0
4:25	7:35	1830.6	-704.5	1961.5	3061.4	2:25	9:35	1182.6	-1410.7	1840.8	3374.0
4:20	7:40	1812.6	-739.3	1957.6	3078.7	2:20	9:40	1147.2	-1432.9	1835.5	3382.6
4:15	7:45	1793.7	-773.7	1953.5	3095.6	2:15	9:45	1111.1	-1454.4	1830.3	3390.9
4:10	7:50	1774.0	-807.7	1949.2	3112.1						
4:05	7:55	1753.5	-841.4	1944.9	3128.2						
4:00	8:00	1732.1	-874.6	1940.4	3144.0						
3:55	8:05	1709.8	-907.5	1935.7	3159.4						
3:50	8:10	1686.8	-939.9	1931.0	3174.4						
3:45	8:15	1662.9	-971.8	1926.1	3189.0						
3:40	8:20	1638.3	-1003.3	1921.1	3203.2						
3:35	8:25	1612.9	-1034.3	1916.1	3217.1						
3:30	8:30	1586.7	-1064.9	1910.9	3230.6						
3:25	8:35	1559.8	-1094.9	1905.7	3243.8						
3:20	8:40	1532.1	-1124.4	1900.4	3256.5						
3:15	8:45	1503.7	-1153.4	1895.1	3269.0						
3:10	8:50	1474.6	-1181.8	1889.7	3281.0						
3:05	8:55	1444.7	-1209.6	1884.3	3292.7						
3:00	9:00	1414.2	-1236.9	1878.8	3304.1						

Analematic Sundial

Latitude: 61.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1749.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-411.4	-403.6	-401.2	-390.6	-387.4	-374.1	-370.5	-354.6	-350.4	-332.5	-327.8
February	-297.6	-275.8	-270.2	-247.2	-241.4	-217.3	-211.1	-186.2	-179.9	-154.3	-147.7
March	-128.2	-101.9	-95.2	-68.7	-62.0	-35.2	-28.6	-1.7	4.9	31.7	38.3
April	78.0	104.1	110.6	136.3	142.7	167.8	173.9	198.5	204.5	228.1	233.9
May	262.0	283.5	288.7	308.7	313.6	332.0	336.3	353.1	357.1	371.8	375.1
June	393.3	402.8	405.0	412.0	413.6	418.0	418.6	420.2	420.4	417.4	418.8
July	413.6	407.0	405.0	396.1	393.5	381.9	378.8	365.0	361.4	345.6	341.5
August	314.7	295.1	290.2	269.3	264.0	241.9	236.2	213.2	207.3	183.4	177.3
September	140.2	114.9	108.6	82.8	76.3	50.3	43.9	17.6	11.0	-15.4	-22.0
October	-54.9	-81.3	-87.7	-113.9	-120.3	-146.1	-152.5	-177.8	-184.1	-208.8	-214.8
November	-250.2	-272.9	-278.4	-299.8	-305.0	-324.8	-329.5	-347.6	-351.8	-367.7	-371.6
December	-388.2	-399.5	-401.8	-410.0	-411.8	-417.0	-418.0	-420.2	-420.4	-419.4	-418.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	411.4	403.6	401.2	390.6	387.4	374.1	370.5	354.6	350.4	332.5	327.8
February	297.6	275.8	270.2	247.2	241.4	217.3	211.1	186.2	179.9	154.3	147.7
March	128.2	101.9	95.2	68.7	62.0	35.2	28.6	1.7	-4.9	-31.7	-38.3
April	-78.0	-104.1	-110.6	-136.3	-142.7	-167.8	-173.9	-198.5	-204.5	-228.1	-233.9
May	-262.0	-283.5	-288.7	-308.7	-313.6	-332.0	-336.3	-353.1	-357.1	-371.8	-375.1
June	-393.3	-402.8	-405.0	-412.0	-413.6	-418.0	-418.6	-420.2	-420.4	-417.4	-418.8
July	-413.6	-407.0	-405.0	-396.1	-393.5	-381.9	-378.8	-365.0	-361.4	-345.6	-341.5
August	-314.7	-295.1	-290.2	-269.3	-264.0	-241.9	-236.2	-213.2	-207.3	-183.4	-177.3
September	-140.2	-114.9	-108.6	-82.8	-76.3	-50.3	-43.9	-17.6	-11.0	15.4	22.0
October	54.9	81.3	87.7	113.9	120.3	146.1	152.5	177.8	184.1	208.8	214.8
November	250.2	272.9	278.4	299.8	305.0	324.8	329.5	347.6	351.8	367.7	371.6
December	388.2	399.5	401.8	410.0	411.8	417.0	418.0	420.2	420.4	419.4	418.8

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: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2186.5 mm
 Sunrise/Sunset Markers: X = ± 439.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	2186.5	2186.5	0.0						
11:55	12:05	54.5	2186.0	2186.7	54.5	8:25	3:35	2016.1	1292.9	2395.1	2205.3
11:50	12:10	109.0	2184.5	2187.2	109.1	8:20	3:40	2047.9	1254.2	2401.4	2250.2
11:45	12:15	163.5	2181.9	2188.0	163.6	8:15	3:45	2078.7	1214.8	2407.6	2294.6
11:40	12:20	217.9	2178.2	2189.1	218.0	8:10	3:50	2108.5	1174.8	2413.7	2338.6
11:35	12:25	272.2	2173.6	2190.5	272.5	8:05	3:55	2137.3	1134.3	2419.6	2382.3
11:30	12:30	326.3	2167.8	2192.3	326.9	8:00	4:00	2165.1	1093.3	2425.4	2425.4
11:25	12:35	380.3	2161.1	2194.3	381.2	7:55	4:05	2191.8	1051.7	2431.1	2468.2
11:20	12:40	434.1	2153.3	2196.7	435.4	7:50	4:10	2217.5	1009.6	2436.6	2510.5
11:15	12:45	487.7	2144.5	2199.3	489.5	7:45	4:15	2242.2	967.1	2441.9	2552.3
11:10	12:50	541.1	2134.7	2202.2	543.6	7:40	4:20	2265.8	924.1	2447.0	2593.8
11:05	12:55	594.2	2123.9	2205.4	597.5	7:35	4:25	2288.3	880.6	2451.9	2634.7
11:00	1:00	647.0	2112.0	2208.9	651.3	7:30	4:30	2309.7	836.8	2456.6	2675.2
10:55	1:05	699.6	2099.2	2212.7	705.0	7:25	4:35	2330.0	792.5	2461.1	2715.2
10:50	1:10	751.8	2085.3	2216.7	758.5	7:20	4:40	2349.2	747.8	2465.4	2754.8
10:45	1:15	803.6	2070.5	2221.0	811.9	7:15	4:45	2367.3	702.8	2469.5	2793.9
10:40	1:20	855.1	2054.7	2225.5	865.2	7:10	4:50	2384.3	657.5	2473.3	2832.5
10:35	1:25	906.1	2037.9	2230.2	918.2	7:05	4:55	2400.1	611.9	2476.9	2870.6
10:30	1:30	956.7	2020.1	2235.2	971.1	7:00	5:00	2414.8	565.9	2480.2	2908.2
10:25	1:35	1006.9	2001.4	2240.4	1023.8	6:55	5:05	2428.4	519.7	2483.3	2945.4
10:20	1:40	1056.5	1981.7	2245.7	1076.2	6:50	5:10	2440.7	473.3	2486.2	2982.0
10:15	1:45	1105.7	1961.1	2251.3	1128.5	6:45	5:15	2452.0	426.6	2488.8	3018.2
10:10	1:50	1154.4	1939.5	2257.0	1180.5	6:40	5:20	2462.0	379.7	2491.1	3053.9
10:05	1:55	1202.5	1917.0	2262.9	1232.3	6:35	5:25	2470.9	332.6	2493.2	3089.1
10:00	2:00	1250.0	1893.6	2269.0	1283.9	6:30	5:30	2478.6	285.4	2495.0	3123.8
9:55	2:05	1296.9	1869.3	2275.2	1335.2	6:25	5:35	2485.1	238.0	2496.5	3157.9
9:50	2:10	1343.2	1844.1	2281.5	1386.2	6:20	5:40	2490.5	190.6	2497.8	3191.6
9:45	2:15	1388.9	1818.0	2287.9	1437.0	6:15	5:45	2494.6	143.0	2498.7	3224.8
9:40	2:20	1433.9	1791.1	2294.4	1487.5	6:10	5:50	2497.6	95.4	2499.4	3257.5
9:35	2:25	1478.3	1763.3	2301.0	1537.7	6:05	5:55	2499.4	47.7	2499.9	3289.6
9:30	2:30	1521.9	1734.7	2307.7	1587.6	6:00	6:00	2500.0	0.0	2500.0	3321.3
9:25	2:35	1564.8	1705.3	2314.4	1637.2	5:55	6:05	2499.4	-47.7	2499.9	3352.4
9:20	2:40	1607.0	1675.0	2321.2	1686.4	5:50	6:10	2497.6	-95.4	2499.4	3383.1
9:15	2:45	1648.4	1643.9	2328.0	1735.4	5:45	6:15	2494.6	-143.0	2498.7	3413.2
9:10	2:50	1689.0	1612.1	2334.8	1784.0	5:40	6:20	2490.5	-190.6	2497.8	3442.9
9:05	2:55	1728.8	1579.5	2341.7	1832.3	5:35	6:25	2485.1	-238.0	2496.5	3472.0
9:00	3:00	1767.8	1546.1	2348.5	1880.2	5:30	6:30	2478.6	-285.4	2495.0	3500.6
8:55	3:05	1805.9	1512.0	2355.3	1927.8	5:25	6:35	2470.9	-332.6	2493.2	3528.7
8:50	3:10	1843.2	1477.2	2362.1	1975.0	5:20	6:40	2462.0	-379.7	2491.1	3556.3
8:45	3:15	1879.6	1441.7	2368.8	2021.8	5:15	6:45	2452.0	-426.6	2488.8	3583.4
8:40	3:20	1915.1	1405.5	2375.5	2068.3	5:10	6:50	2440.7	-473.3	2486.2	3610.0
8:35	3:25	1949.7	1368.6	2382.1	2114.3	5:05	6:55	2428.4	-519.7	2483.3	3636.0
8:30	3:30	1983.4	1331.1	2388.6	2160.0	5:00	7:00	2414.8	-565.9	2480.2	3661.6

Analemmatic Sundial

Latitude: 61.0° N/S

Earliest Sunrise: 2:21 a.m. Latest Sunset: 9:39 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2186.5 mm
 Sunrise/Sunset Markers: X = ± 439.5 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
4:55	7:05	2400.1	-611.9	2476.9	3686.7	2:55	9:05	1728.8	-1579.5	2341.7	4143.9
4:50	7:10	2384.3	-657.5	2473.3	3711.3	2:50	9:10	1689.0	-1612.1	2334.8	4157.2
4:45	7:15	2367.3	-702.8	2469.5	3735.3	2:45	9:15	1648.4	-1643.9	2328.0	4170.1
4:40	7:20	2349.2	-747.8	2465.4	3758.9	2:40	9:20	1607.0	-1675.0	2321.2	4182.6
4:35	7:25	2330.0	-792.5	2461.1	3782.0	2:35	9:25	1564.8	-1705.3	2314.4	4194.6
4:30	7:30	2309.7	-836.8	2456.6	3804.6	2:30	9:30	1521.9	-1734.7	2307.7	4206.2
4:25	7:35	2288.3	-880.6	2451.9	3826.7	2:25	9:35	1478.3	-1763.3	2301.0	4217.4
4:20	7:40	2265.8	-924.1	2447.0	3848.3	2:20	9:40	1433.9	-1791.1	2294.4	4228.2
4:15	7:45	2242.2	-967.1	2441.9	3869.5	2:15	9:45	1388.9	-1818.0	2287.9	4238.6
4:10	7:50	2217.5	-1009.6	2436.6	3890.1						
4:05	7:55	2191.8	-1051.7	2431.1	3910.3						
4:00	8:00	2165.1	-1093.3	2425.4	3930.0						
3:55	8:05	2137.3	-1134.3	2419.6	3949.2						
3:50	8:10	2108.5	-1174.8	2413.7	3967.9						
3:45	8:15	2078.7	-1214.8	2407.6	3986.2						
3:40	8:20	2047.9	-1254.2	2401.4	4004.0						
3:35	8:25	2016.1	-1292.9	2395.1	4021.4						
3:30	8:30	1983.4	-1331.1	2388.6	4038.3						
3:25	8:35	1949.7	-1368.6	2382.1	4054.7						
3:20	8:40	1915.1	-1405.5	2375.5	4070.7						
3:15	8:45	1879.6	-1441.7	2368.8	4086.2						
3:10	8:50	1843.2	-1477.2	2362.1	4101.3						
3:05	8:55	1805.9	-1512.0	2355.3	4115.9						
3:00	9:00	1767.8	-1546.1	2348.5	4130.1						

Analematic Sundial

Latitude: 61.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2186.5 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-514.2	-504.5	-501.5	-488.2	-484.3	-467.7	-463.1	-443.3	-438.0	-415.7	-409.8
February	-371.9	-344.8	-337.7	-308.9	-301.7	-271.6	-263.8	-232.7	-224.9	-192.8	-184.6
March	-160.2	-127.4	-119.1	-85.8	-77.5	-44.0	-35.8	-2.1	6.1	39.6	47.8
April	97.5	130.2	138.3	170.3	178.3	209.8	217.4	248.1	255.6	285.2	292.3
May	327.5	354.4	360.9	385.9	391.9	415.0	420.4	441.4	446.4	464.8	468.9
June	491.7	503.5	506.3	515.0	517.0	522.5	523.2	525.2	525.5	521.7	523.5
July	517.0	508.7	506.3	495.1	491.9	477.4	473.5	456.3	451.7	432.1	426.8
August	393.3	368.9	362.7	336.6	330.0	302.4	295.2	266.5	259.2	229.2	221.6
September	175.3	143.7	135.7	103.5	95.4	62.9	54.8	22.0	13.8	-19.3	-27.5
October	-68.6	-101.6	-109.7	-142.4	-150.3	-182.7	-190.7	-222.2	-230.1	-260.9	-268.5
November	-312.8	-341.1	-348.0	-374.7	-381.2	-406.0	-411.9	-434.4	-439.7	-459.7	-464.5
December	-485.3	-499.3	-502.3	-512.5	-514.7	-521.2	-522.5	-525.2	-525.5	-524.2	-523.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	514.2	504.5	501.5	488.2	484.3	467.7	463.1	443.3	438.0	415.7	409.8
February	371.9	344.8	337.7	308.9	301.7	271.6	263.8	232.7	224.9	192.8	184.6
March	160.2	127.4	119.1	85.8	77.5	44.0	35.8	2.1	-6.1	-39.6	-47.8
April	-97.5	-130.2	-138.3	-170.3	-178.3	-209.8	-217.4	-248.1	-255.6	-285.2	-292.3
May	-327.5	-354.4	-360.9	-385.9	-391.9	-415.0	-420.4	-441.4	-446.4	-464.8	-468.9
June	-491.7	-503.5	-506.3	-515.0	-517.0	-522.5	-523.2	-525.2	-525.5	-521.7	-523.5
July	-517.0	-508.7	-506.3	-495.1	-491.9	-477.4	-473.5	-456.3	-451.7	-432.1	-426.8
August	-393.3	-368.9	-362.7	-336.6	-330.0	-302.4	-295.2	-266.5	-259.2	-229.2	-221.6
September	-175.3	-143.7	-135.7	-103.5	-95.4	-62.9	-54.8	-22.0	-13.8	19.3	27.5
October	68.6	101.6	109.7	142.4	150.3	182.7	190.7	222.2	230.1	260.9	268.5
November	312.8	341.1	348.0	374.7	381.2	406.0	411.9	434.4	439.7	459.7	464.5
December	485.3	499.3	502.3	512.5	514.7	521.2	522.5	525.2	525.5	524.2	523.5

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 |