

## Analemmatic Sundial

Latitude: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 829.0 mm  
 Sunrise/Sunset Markers: X = ± 262.1 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	829.0	829.0	0.0						
11:55	12:05	21.8	828.8	829.1	21.8	8:25	3:35	806.4	490.2	943.8	874.7
11:50	12:10	43.6	828.2	829.4	43.6	8:20	3:40	819.2	475.5	947.2	892.2
11:45	12:15	65.4	827.3	829.8	65.4	8:15	3:45	831.5	460.6	950.5	909.4
11:40	12:20	87.2	825.9	830.5	87.2	8:10	3:50	843.4	445.4	953.8	926.5
11:35	12:25	108.9	824.1	831.3	109.0	8:05	3:55	854.9	430.1	957.0	943.4
11:30	12:30	130.5	821.9	832.2	130.7	8:00	4:00	866.0	414.5	960.1	960.1
11:25	12:35	152.1	819.4	833.4	152.4	7:55	4:05	876.7	398.8	963.1	976.6
11:20	12:40	173.6	816.4	834.7	174.1	7:50	4:10	887.0	382.8	966.1	992.9
11:15	12:45	195.1	813.1	836.2	195.7	7:45	4:15	896.9	366.7	968.9	1009.0
11:10	12:50	216.4	809.4	837.8	217.3	7:40	4:20	906.3	350.4	971.7	1024.9
11:05	12:55	237.7	805.3	839.6	238.9	7:35	4:25	915.3	333.9	974.3	1040.7
11:00	1:00	258.8	800.8	841.6	260.4	7:30	4:30	923.9	317.3	976.8	1056.2
10:55	1:05	279.8	795.9	843.7	281.8	7:25	4:35	932.0	300.5	979.2	1071.5
10:50	1:10	300.7	790.7	845.9	303.1	7:20	4:40	939.7	283.5	981.5	1086.5
10:45	1:15	321.4	785.0	848.3	324.4	7:15	4:45	946.9	266.5	983.7	1101.4
10:40	1:20	342.0	779.0	850.8	345.7	7:10	4:50	953.7	249.3	985.8	1116.1
10:35	1:25	362.4	772.7	853.5	366.8	7:05	4:55	960.0	232.0	987.7	1130.6
10:30	1:30	382.7	765.9	856.2	387.9	7:00	5:00	965.9	214.6	989.5	1144.8
10:25	1:35	402.7	758.8	859.1	408.8	6:55	5:05	971.3	197.1	991.1	1158.8
10:20	1:40	422.6	751.4	862.1	429.7	6:50	5:10	976.3	179.4	992.6	1172.7
10:15	1:45	442.3	743.5	865.1	450.5	6:45	5:15	980.8	161.7	994.0	1186.3
10:10	1:50	461.7	735.4	868.3	471.2	6:40	5:20	984.8	144.0	995.3	1199.7
10:05	1:55	481.0	726.8	871.6	491.7	6:35	5:25	988.4	126.1	996.4	1212.8
10:00	2:00	500.0	718.0	874.9	512.2	6:30	5:30	991.4	108.2	997.3	1225.8
9:55	2:05	518.8	708.8	878.3	532.5	6:25	5:35	994.1	90.3	998.1	1238.5
9:50	2:10	537.3	699.2	881.8	552.8	6:20	5:40	996.2	72.3	998.8	1251.0
9:45	2:15	555.6	689.3	885.3	572.9	6:15	5:45	997.9	54.2	999.3	1263.4
9:40	2:20	573.6	679.1	888.9	592.8	6:10	5:50	999.0	36.2	999.7	1275.4
9:35	2:25	591.3	668.6	892.5	612.7	6:05	5:55	999.8	18.1	999.9	1287.3
9:30	2:30	608.8	657.7	896.2	632.4	6:00	6:00	1000.0	0.0	1000.0	1299.0
9:25	2:35	625.9	646.6	899.9	652.0	5:55	6:05	999.8	-18.1	999.9	1310.4
9:20	2:40	642.8	635.1	903.6	671.4	5:50	6:10	999.0	-36.2	999.7	1321.6
9:15	2:45	659.3	623.3	907.3	690.7	5:45	6:15	997.9	-54.2	999.3	1332.6
9:10	2:50	675.6	611.2	911.1	709.8	5:40	6:20	996.2	-72.3	998.8	1343.4
9:05	2:55	691.5	598.9	914.8	728.8	5:35	6:25	994.1	-90.3	998.1	1354.0
9:00	3:00	707.1	586.2	918.5	747.6	5:30	6:30	991.4	-108.2	997.3	1364.3
8:55	3:05	722.4	573.3	922.2	766.3	5:25	6:35	988.4	-126.1	996.4	1374.5
8:50	3:10	737.3	560.1	925.9	784.8	5:20	6:40	984.8	-144.0	995.3	1384.4
8:45	3:15	751.8	546.6	929.5	803.1	5:15	6:45	980.8	-161.7	994.0	1394.1
8:40	3:20	766.0	532.9	933.2	821.3	5:10	6:50	976.3	-179.4	992.6	1403.6
8:35	3:25	779.9	518.9	936.7	839.3	5:05	6:55	971.3	-197.1	991.1	1412.9
8:30	3:30	793.4	504.7	940.3	857.1	5:00	7:00	965.9	-214.6	989.5	1422.0

## Analemmatic Sundial

Latitude: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 829.0 mm  
 Sunrise/Sunset Markers: X = ± 262.1 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-232.0	987.7	1430.9
4:50	7:10	953.7	-249.3	985.8	1439.6
4:45	7:15	946.9	-266.5	983.7	1448.0
4:40	7:20	939.7	-283.5	981.5	1456.3
4:35	7:25	932.0	-300.5	979.2	1464.4
4:30	7:30	923.9	-317.3	976.8	1472.3
4:25	7:35	915.3	-333.9	974.3	1479.9
4:20	7:40	906.3	-350.4	971.7	1487.4
4:15	7:45	896.9	-366.7	968.9	1494.7
4:10	7:50	887.0	-382.8	966.1	1501.8
4:05	7:55	876.7	-398.8	963.1	1508.7
4:00	8:00	866.0	-414.5	960.1	1515.4
3:55	8:05	854.9	-430.1	957.0	1521.9
3:50	8:10	843.4	-445.4	953.8	1528.3
3:45	8:15	831.5	-460.6	950.5	1534.4
3:40	8:20	819.2	-475.5	947.2	1540.4
3:35	8:25	806.4	-490.2	943.8	1546.2
3:30	8:30	793.4	-504.7	940.3	1551.8
3:25	8:35	779.9	-518.9	936.7	1557.3
3:20	8:40	766.0	-532.9	933.2	1562.6
3:15	8:45	751.8	-546.6	929.5	1567.7
3:10	8:50	737.3	-560.1	925.9	1572.7
3:05	8:55	722.4	-573.3	922.2	1577.4
3:00	9:00	707.1	-586.2	918.5	1582.1

## Analematic Sundial

Latitude: 56.0° N/S

## Date Scale

Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 829.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-237.2	-232.8	-231.4	-225.2	-223.4	-215.8	-213.6	-204.5	-202.1	-191.8	-189.1
February	-171.6	-159.1	-155.8	-142.5	-139.2	-125.3	-121.7	-107.4	-103.7	-89.0	-85.2
March	-73.9	-58.8	-54.9	-39.6	-35.8	-20.3	-16.5	-1.0	2.8	18.3	22.1
April	45.0	60.1	63.8	78.6	82.3	96.8	100.3	114.5	117.9	131.6	134.9
May	151.1	163.5	166.5	178.0	180.8	191.5	194.0	203.6	206.0	214.4	216.3
June	226.8	232.3	233.6	237.6	238.5	241.1	241.4	242.3	242.4	240.7	241.5
July	238.5	234.7	233.6	228.4	227.0	220.3	218.5	210.5	208.4	199.3	196.9
August	181.5	170.2	167.3	155.3	152.2	139.5	136.2	122.9	119.6	105.8	102.2
September	80.9	66.3	62.6	47.7	44.0	29.0	25.3	10.2	6.3	-8.9	-12.7
October	-31.7	-46.9	-50.6	-65.7	-69.4	-84.3	-88.0	-102.5	-106.2	-120.4	-123.9
November	-144.3	-157.4	-160.6	-172.9	-175.9	-187.3	-190.0	-200.4	-202.9	-212.1	-214.3
December	-223.9	-230.4	-231.7	-236.4	-237.5	-240.5	-241.1	-242.3	-242.4	-241.9	-241.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	237.2	232.8	231.4	225.2	223.4	215.8	213.6	204.5	202.1	191.8	189.1
February	171.6	159.1	155.8	142.5	139.2	125.3	121.7	107.4	103.7	89.0	85.2
March	73.9	58.8	54.9	39.6	35.8	20.3	16.5	1.0	-2.8	-18.3	-22.1
April	-45.0	-60.1	-63.8	-78.6	-82.3	-96.8	-100.3	-114.5	-117.9	-131.6	-134.9
May	-151.1	-163.5	-166.5	-178.0	-180.8	-191.5	-194.0	-203.6	-206.0	-214.4	-216.3
June	-226.8	-232.3	-233.6	-237.6	-238.5	-241.1	-241.4	-242.3	-242.4	-240.7	-241.5
July	-238.5	-234.7	-233.6	-228.4	-227.0	-220.3	-218.5	-210.5	-208.4	-199.3	-196.9
August	-181.5	-170.2	-167.3	-155.3	-152.2	-139.5	-136.2	-122.9	-119.6	-105.8	-102.2
September	-80.9	-66.3	-62.6	-47.7	-44.0	-29.0	-25.3	-10.2	-6.3	8.9	12.7
October	31.7	46.9	50.6	65.7	69.4	84.3	88.0	102.5	106.2	120.4	123.9
November	144.3	157.4	160.6	172.9	175.9	187.3	190.0	200.4	202.9	212.1	214.3
December	223.9	230.4	231.7	236.4	237.5	240.5	241.1	242.3	242.4	241.9	241.5

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: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1243.6 mm  
 Sunrise/Sunset Markers: X = ± 393.1 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1243.6	1243.6	0.0						
11:55	12:05	32.7	1243.3	1243.7	32.7	8:25	3:35	1209.7	735.3	1415.6	1312.1
11:50	12:10	65.4	1242.4	1244.1	65.4	8:20	3:40	1228.7	713.3	1420.8	1338.3
11:45	12:15	98.1	1240.9	1244.8	98.1	8:15	3:45	1247.2	690.9	1425.8	1364.2
11:40	12:20	130.7	1238.8	1245.7	130.8	8:10	3:50	1265.1	668.2	1430.7	1389.8
11:35	12:25	163.3	1236.2	1246.9	163.5	8:05	3:55	1282.4	645.1	1435.5	1415.1
11:30	12:30	195.8	1232.9	1248.4	196.1	8:00	4:00	1299.0	621.8	1440.2	1440.2
11:25	12:35	228.2	1229.1	1250.1	228.6	7:55	4:05	1315.1	598.1	1444.7	1464.9
11:20	12:40	260.5	1224.7	1252.1	261.2	7:50	4:10	1330.5	574.2	1449.1	1489.4
11:15	12:45	292.6	1219.7	1254.3	293.6	7:45	4:15	1345.3	550.0	1453.4	1513.6
11:10	12:50	324.7	1214.1	1256.7	326.0	7:40	4:20	1359.5	525.5	1457.5	1537.4
11:05	12:55	356.5	1207.9	1259.4	358.3	7:35	4:25	1373.0	500.8	1461.5	1561.0
11:00	1:00	388.2	1201.2	1262.4	390.5	7:30	4:30	1385.8	475.9	1465.3	1584.2
10:55	1:05	419.7	1193.9	1265.5	422.7	7:25	4:35	1398.0	450.7	1468.9	1607.2
10:50	1:10	451.1	1186.0	1268.9	454.7	7:20	4:40	1409.5	425.3	1472.3	1629.8
10:45	1:15	482.2	1177.6	1272.4	486.7	7:15	4:45	1420.4	399.7	1475.6	1652.1
10:40	1:20	513.0	1168.6	1276.2	518.5	7:10	4:50	1430.6	373.9	1478.6	1674.1
10:35	1:25	543.7	1159.0	1280.2	550.2	7:05	4:55	1440.1	348.0	1481.5	1695.8
10:30	1:30	574.0	1148.9	1284.3	581.8	7:00	5:00	1448.9	321.9	1484.2	1717.2
10:25	1:35	604.1	1138.2	1288.6	613.2	6:55	5:05	1457.0	295.6	1486.7	1738.3
10:20	1:40	633.9	1127.0	1293.1	644.5	6:50	5:10	1464.4	269.2	1489.0	1759.0
10:15	1:45	663.4	1115.3	1297.7	675.7	6:45	5:15	1471.2	242.6	1491.0	1779.4
10:10	1:50	692.6	1103.0	1302.5	706.7	6:40	5:20	1477.2	215.9	1492.9	1799.5
10:05	1:55	721.5	1090.3	1307.4	737.6	6:35	5:25	1482.5	189.2	1494.6	1819.2
10:00	2:00	750.0	1077.0	1312.4	768.3	6:30	5:30	1487.2	162.3	1496.0	1838.7
9:55	2:05	778.2	1063.1	1317.5	798.8	6:25	5:35	1491.1	135.4	1497.2	1857.8
9:50	2:10	805.9	1048.8	1322.7	829.1	6:20	5:40	1494.3	108.4	1498.2	1876.6
9:45	2:15	833.4	1034.0	1328.0	859.3	6:15	5:45	1496.8	81.3	1499.0	1895.0
9:40	2:20	860.4	1018.7	1333.4	889.3	6:10	5:50	1498.6	54.2	1499.6	1913.2
9:35	2:25	887.0	1002.9	1338.8	919.0	6:05	5:55	1499.6	27.1	1499.9	1931.0
9:30	2:30	913.1	986.6	1344.3	948.6	6:00	6:00	1500.0	0.0	1500.0	1948.4
9:25	2:35	938.9	969.8	1349.8	978.0	5:55	6:05	1499.6	-27.1	1499.9	1965.6
9:20	2:40	964.2	952.6	1355.4	1007.1	5:50	6:10	1498.6	-54.2	1499.6	1982.4
9:15	2:45	989.0	935.0	1361.0	1036.0	5:45	6:15	1496.8	-81.3	1499.0	1998.9
9:10	2:50	1013.4	916.8	1366.6	1064.7	5:40	6:20	1494.3	-108.4	1498.2	2015.1
9:05	2:55	1037.3	898.3	1372.2	1093.2	5:35	6:25	1491.1	-135.4	1497.2	2031.0
9:00	3:00	1060.7	879.3	1377.8	1121.5	5:30	6:30	1487.2	-162.3	1496.0	2046.5
8:55	3:05	1083.5	859.9	1383.3	1149.5	5:25	6:35	1482.5	-189.2	1494.6	2061.7
8:50	3:10	1105.9	840.1	1388.8	1177.2	5:20	6:40	1477.2	-215.9	1492.9	2076.6
8:45	3:15	1127.8	819.9	1394.3	1204.7	5:15	6:45	1471.2	-242.6	1491.0	2091.2
8:40	3:20	1149.1	799.3	1399.8	1231.9	5:10	6:50	1464.4	-269.2	1489.0	2105.4
8:35	3:25	1169.8	778.4	1405.1	1258.9	5:05	6:55	1457.0	-295.6	1486.7	2119.4
8:30	3:30	1190.0	757.0	1410.4	1285.6	5:00	7:00	1448.9	-321.9	1484.2	2133.0

## Analemmatic Sundial

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Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1243.6 mm  
 Sunrise/Sunset Markers: X = ± 393.1 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-348.0	1481.5	2146.3
4:50	7:10	1430.6	-373.9	1478.6	2159.4
4:45	7:15	1420.4	-399.7	1475.6	2172.1
4:40	7:20	1409.5	-425.3	1472.3	2184.5
4:35	7:25	1398.0	-450.7	1468.9	2196.6
4:30	7:30	1385.8	-475.9	1465.3	2208.4
4:25	7:35	1373.0	-500.8	1461.5	2219.9
4:20	7:40	1359.5	-525.5	1457.5	2231.1
4:15	7:45	1345.3	-550.0	1453.4	2242.0
4:10	7:50	1330.5	-574.2	1449.1	2252.7
4:05	7:55	1315.1	-598.1	1444.7	2263.0
4:00	8:00	1299.0	-621.8	1440.2	2273.1
3:55	8:05	1282.4	-645.1	1435.5	2282.9
3:50	8:10	1265.1	-668.2	1430.7	2292.4
3:45	8:15	1247.2	-690.9	1425.8	2301.6
3:40	8:20	1228.7	-713.3	1420.8	2310.6
3:35	8:25	1209.7	-735.3	1415.6	2319.3
3:30	8:30	1190.0	-757.0	1410.4	2327.8
3:25	8:35	1169.8	-778.4	1405.1	2336.0
3:20	8:40	1149.1	-799.3	1399.8	2343.9
3:15	8:45	1127.8	-819.9	1394.3	2351.6
3:10	8:50	1105.9	-840.1	1388.8	2359.0
3:05	8:55	1083.5	-859.9	1383.3	2366.2
3:00	9:00	1060.7	-879.3	1377.8	2373.1

## Analemmatic Sundial

Latitude: 56.0° N/S

## Date Scale

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 1243.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-355.9	-349.2	-347.1	-337.9	-335.2	-323.7	-320.5	-306.8	-303.1	-287.7	-283.6
February	-257.4	-238.6	-233.7	-213.8	-208.8	-188.0	-182.6	-161.1	-155.6	-133.5	-127.8
March	-110.9	-88.2	-82.4	-59.4	-53.7	-30.5	-24.7	-1.5	4.2	27.4	33.1
April	67.5	90.1	95.7	117.9	123.4	145.2	150.5	171.7	176.9	197.4	202.3
May	226.6	245.3	249.7	267.0	271.2	287.2	290.9	305.5	308.9	321.6	324.5
June	340.3	348.5	350.4	356.4	357.8	361.6	362.1	363.5	363.7	361.1	362.3
July	357.8	352.1	350.4	342.6	340.4	330.4	327.7	315.8	312.6	299.0	295.4
August	272.2	255.3	251.0	232.9	228.4	209.3	204.3	184.4	179.4	158.6	153.3
September	121.3	99.4	93.9	71.6	66.0	43.5	37.9	15.2	9.5	-13.3	-19.0
October	-47.5	-70.3	-75.9	-98.5	-104.0	-126.4	-132.0	-153.8	-159.2	-180.6	-185.8
November	-216.5	-236.1	-240.8	-259.3	-263.8	-281.0	-285.1	-300.7	-304.3	-318.1	-321.5
December	-335.8	-345.6	-347.6	-354.7	-356.2	-360.7	-361.6	-363.5	-363.7	-362.8	-362.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	355.9	349.2	347.1	337.9	335.2	323.7	320.5	306.8	303.1	287.7	283.6
February	257.4	238.6	233.7	213.8	208.8	188.0	182.6	161.1	155.6	133.5	127.8
March	110.9	88.2	82.4	59.4	53.7	30.5	24.7	1.5	-4.2	-27.4	-33.1
April	-67.5	-90.1	-95.7	-117.9	-123.4	-145.2	-150.5	-171.7	-176.9	-197.4	-202.3
May	-226.6	-245.3	-249.7	-267.0	-271.2	-287.2	-290.9	-305.5	-308.9	-321.6	-324.5
June	-340.3	-348.5	-350.4	-356.4	-357.8	-361.6	-362.1	-363.5	-363.7	-361.1	-362.3
July	-357.8	-352.1	-350.4	-342.6	-340.4	-330.4	-327.7	-315.8	-312.6	-299.0	-295.4
August	-272.2	-255.3	-251.0	-232.9	-228.4	-209.3	-204.3	-184.4	-179.4	-158.6	-153.3
September	-121.3	-99.4	-93.9	-71.6	-66.0	-43.5	-37.9	-15.2	-9.5	13.3	19.0
October	47.5	70.3	75.9	98.5	104.0	126.4	132.0	153.8	159.2	180.6	185.8
November	216.5	236.1	240.8	259.3	263.8	281.0	285.1	300.7	304.3	318.1	321.5
December	335.8	345.6	347.6	354.7	356.2	360.7	361.6	363.5	363.7	362.8	362.3

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 |

## Analemmatic Sundial

Latitude: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1658.1 mm  
 Sunrise/Sunset Markers: X = ± 524.2 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1658.1	1658.1	0.0							
11:55	12:05	43.6	1657.7	1658.3	43.6	8:25	3:35	1612.9	980.4	1887.5	1749.5
11:50	12:10	87.2	1656.5	1658.8	87.3	8:20	3:40	1638.3	951.0	1894.3	1784.4
11:45	12:15	130.8	1654.5	1659.7	130.9	8:15	3:45	1662.9	921.2	1901.0	1818.9
11:40	12:20	174.3	1651.8	1660.9	174.4	8:10	3:50	1686.8	890.9	1907.6	1853.1
11:35	12:25	217.7	1648.2	1662.5	218.0	8:05	3:55	1709.8	860.2	1914.0	1886.8
11:30	12:30	261.1	1643.9	1664.5	261.4	8:00	4:00	1732.1	829.0	1920.2	1920.2
11:25	12:35	304.2	1638.8	1666.8	304.9	7:55	4:05	1753.5	797.5	1926.3	1953.2
11:20	12:40	347.3	1632.9	1669.4	348.2	7:50	4:10	1774.0	765.6	1932.2	1985.9
11:15	12:45	390.2	1626.2	1672.4	391.5	7:45	4:15	1793.7	733.3	1937.9	2018.1
11:10	12:50	432.9	1618.8	1675.7	434.7	7:40	4:20	1812.6	700.7	1943.3	2049.9
11:05	12:55	475.4	1610.6	1679.2	477.7	7:35	4:25	1830.6	667.8	1948.6	2081.3
11:00	1:00	517.6	1601.6	1683.2	520.7	7:30	4:30	1847.8	634.5	1953.7	2112.3
10:55	1:05	559.7	1591.8	1687.4	563.6	7:25	4:35	1864.0	600.9	1958.5	2142.9
10:50	1:10	601.4	1581.3	1691.8	606.3	7:20	4:40	1879.4	567.1	1963.1	2173.1
10:45	1:15	642.9	1570.1	1696.6	648.9	7:15	4:45	1893.9	533.0	1967.4	2202.9
10:40	1:20	684.0	1558.1	1701.6	691.3	7:10	4:50	1907.4	498.6	1971.5	2232.2
10:35	1:25	724.9	1545.3	1706.9	733.6	7:05	4:55	1920.1	464.0	1975.4	2261.1
10:30	1:30	765.4	1531.9	1712.4	775.7	7:00	5:00	1931.9	429.1	1978.9	2289.6
10:25	1:35	805.5	1517.7	1718.2	817.6	6:55	5:05	1942.7	394.1	1982.3	2317.7
10:20	1:40	845.2	1502.7	1724.1	859.4	6:50	5:10	1952.6	358.9	1985.3	2345.3
10:15	1:45	884.6	1487.1	1730.3	901.0	6:45	5:15	1961.6	323.5	1988.1	2372.5
10:10	1:50	923.5	1470.7	1736.6	942.3	6:40	5:20	1969.6	287.9	1990.5	2399.3
10:05	1:55	962.0	1453.7	1743.2	983.5	6:35	5:25	1976.7	252.2	1992.8	2425.7
10:00	2:00	1000.0	1435.9	1749.8	1024.4	6:30	5:30	1982.9	216.4	1994.7	2451.6
9:55	2:05	1037.5	1417.5	1756.7	1065.1	6:25	5:35	1988.1	180.5	1996.3	2477.1
9:50	2:10	1074.6	1398.4	1763.6	1105.5	6:20	5:40	1992.4	144.5	1997.6	2502.1
9:45	2:15	1111.1	1378.6	1770.7	1145.7	6:15	5:45	1995.7	108.4	1998.7	2526.7
9:40	2:20	1147.2	1358.2	1777.8	1185.7	6:10	5:50	1998.1	72.3	1999.4	2550.9
9:35	2:25	1182.6	1337.1	1785.1	1225.4	6:05	5:55	1999.5	36.2	1999.9	2574.6
9:30	2:30	1217.5	1315.4	1792.4	1264.8	6:00	6:00	2000.0	0.0	2000.0	2597.9
9:25	2:35	1251.8	1293.1	1799.8	1304.0	5:55	6:05	1999.5	-36.2	1999.9	2620.8
9:20	2:40	1285.6	1270.2	1807.2	1342.8	5:50	6:10	1998.1	-72.3	1999.4	2643.2
9:15	2:45	1318.7	1246.6	1814.7	1381.4	5:45	6:15	1995.7	-108.4	1998.7	2665.2
9:10	2:50	1351.2	1222.5	1822.1	1419.7	5:40	6:20	1992.4	-144.5	1997.6	2686.8
9:05	2:55	1383.0	1197.7	1829.6	1457.6	5:35	6:25	1988.1	-180.5	1996.3	2707.9
9:00	3:00	1414.2	1172.4	1837.0	1495.3	5:30	6:30	1982.9	-216.4	1994.7	2728.7
8:55	3:05	1444.7	1146.6	1844.4	1532.6	5:25	6:35	1976.7	-252.2	1992.8	2748.9
8:50	3:10	1474.6	1120.2	1851.8	1569.6	5:20	6:40	1969.6	-287.9	1990.5	2768.8
8:45	3:15	1503.7	1093.2	1859.1	1606.3	5:15	6:45	1961.6	-323.5	1988.1	2788.2
8:40	3:20	1532.1	1065.8	1866.3	1642.6	5:10	6:50	1952.6	-358.9	1985.3	2807.3
8:35	3:25	1559.8	1037.8	1873.5	1678.6	5:05	6:55	1942.7	-394.1	1982.3	2825.9
8:30	3:30	1586.7	1009.4	1880.6	1714.2	5:00	7:00	1931.9	-429.1	1978.9	2844.0

## Analemmatic Sundial

Latitude: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1658.1 mm  
 Sunrise/Sunset Markers: X = ± 524.2 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-464.0	1975.4	2861.8
4:50	7:10	1907.4	-498.6	1971.5	2879.2
4:45	7:15	1893.9	-533.0	1967.4	2896.1
4:40	7:20	1879.4	-567.1	1963.1	2912.6
4:35	7:25	1864.0	-600.9	1958.5	2928.8
4:30	7:30	1847.8	-634.5	1953.7	2944.5
4:25	7:35	1830.6	-667.8	1948.6	2959.9
4:20	7:40	1812.6	-700.7	1943.3	2974.8
4:15	7:45	1793.7	-733.3	1937.9	2989.4
4:10	7:50	1774.0	-765.6	1932.2	3003.6
4:05	7:55	1753.5	-797.5	1926.3	3017.4
4:00	8:00	1732.1	-829.0	1920.2	3030.8
3:55	8:05	1709.8	-860.2	1914.0	3043.9
3:50	8:10	1686.8	-890.9	1907.6	3056.5
3:45	8:15	1662.9	-921.2	1901.0	3068.9
3:40	8:20	1638.3	-951.0	1894.3	3080.8
3:35	8:25	1612.9	-980.4	1887.5	3092.4
3:30	8:30	1586.7	-1009.4	1880.6	3103.7
3:25	8:35	1559.8	-1037.8	1873.5	3114.6
3:20	8:40	1532.1	-1065.8	1866.3	3125.2
3:15	8:45	1503.7	-1093.2	1859.1	3135.4
3:10	8:50	1474.6	-1120.2	1851.8	3145.3
3:05	8:55	1444.7	-1146.6	1844.4	3154.9
3:00	9:00	1414.2	-1172.4	1837.0	3164.1

## Analemmatic Sundial

Latitude: 56.0° N/S

## Date Scale

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1658.1 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-474.5	-465.5	-462.8	-450.5	-446.9	-431.5	-427.3	-409.0	-404.2	-383.6	-378.1
February	-343.2	-318.2	-311.6	-285.1	-278.4	-250.6	-243.4	-214.8	-207.5	-177.9	-170.3
March	-147.8	-117.5	-109.9	-79.2	-71.5	-40.6	-33.0	-2.0	5.7	36.5	44.1
April	90.0	120.1	127.6	157.2	164.6	193.6	200.6	229.0	235.9	263.1	269.7
May	302.2	327.0	333.0	356.1	361.7	382.9	387.9	407.3	411.9	428.9	432.7
June	453.7	464.6	467.1	475.2	477.0	482.1	482.8	484.7	484.9	481.4	483.0
July	477.0	469.4	467.1	456.9	453.9	440.5	436.9	421.0	416.8	398.7	393.8
August	363.0	340.4	334.7	310.6	304.5	279.1	272.4	245.9	239.1	211.5	204.5
September	161.8	132.6	125.2	95.5	88.0	58.0	50.6	20.3	12.7	-17.8	-25.4
October	-63.3	-93.7	-101.2	-131.4	-138.7	-168.5	-175.9	-205.1	-212.3	-240.8	-247.7
November	-288.6	-314.8	-321.1	-345.8	-351.8	-374.6	-380.1	-400.9	-405.7	-424.2	-428.6
December	-447.8	-460.7	-463.5	-472.9	-475.0	-481.0	-482.1	-484.7	-484.9	-483.7	-483.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	474.5	465.5	462.8	450.5	446.9	431.5	427.3	409.0	404.2	383.6	378.1
February	343.2	318.2	311.6	285.1	278.4	250.6	243.4	214.8	207.5	177.9	170.3
March	147.8	117.5	109.9	79.2	71.5	40.6	33.0	2.0	-5.7	-36.5	-44.1
April	-90.0	-120.1	-127.6	-157.2	-164.6	-193.6	-200.6	-229.0	-235.9	-263.1	-269.7
May	-302.2	-327.0	-333.0	-356.1	-361.7	-382.9	-387.9	-407.3	-411.9	-428.9	-432.7
June	-453.7	-464.6	-467.1	-475.2	-477.0	-482.1	-482.8	-484.7	-484.9	-481.4	-483.0
July	-477.0	-469.4	-467.1	-456.9	-453.9	-440.5	-436.9	-421.0	-416.8	-398.7	-393.8
August	-363.0	-340.4	-334.7	-310.6	-304.5	-279.1	-272.4	-245.9	-239.1	-211.5	-204.5
September	-161.8	-132.6	-125.2	-95.5	-88.0	-58.0	-50.6	-20.3	-12.7	17.8	25.4
October	63.3	93.7	101.2	131.4	138.7	168.5	175.9	205.1	212.3	240.8	247.7
November	288.6	314.8	321.1	345.8	351.8	374.6	380.1	400.9	405.7	424.2	428.6
December	447.8	460.7	463.5	472.9	475.0	481.0	482.1	484.7	484.9	483.7	483.0

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: 56.0° N/S

Earliest Sunrise: 3:12 a.m. Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 2072.6 mm  
 Sunrise/Sunset Markers: X = ± 655.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	2072.6	2072.6	0.0						
11:55	12:05	54.5	2072.1	2072.8	54.5	8:25	3:35	2016.1	1225.5	2359.4	2186.8
11:50	12:10	109.0	2070.6	2073.5	109.1	8:20	3:40	2047.9	1188.8	2367.9	2230.5
11:45	12:15	163.5	2068.2	2074.6	163.6	8:15	3:45	2078.7	1151.5	2376.3	2273.6
11:40	12:20	217.9	2064.7	2076.2	218.0	8:10	3:50	2108.5	1113.6	2384.5	2316.3
11:35	12:25	272.2	2060.3	2078.2	272.4	8:05	3:55	2137.3	1075.2	2392.5	2358.5
11:30	12:30	326.3	2054.9	2080.6	326.8	8:00	4:00	2165.1	1036.3	2400.3	2400.3
11:25	12:35	380.3	2048.5	2083.5	381.1	7:55	4:05	2191.8	996.9	2407.9	2441.6
11:20	12:40	434.1	2041.1	2086.8	435.3	7:50	4:10	2217.5	957.0	2415.2	2482.3
11:15	12:45	487.7	2032.8	2090.5	489.3	7:45	4:15	2242.2	916.7	2422.3	2522.6
11:10	12:50	541.1	2023.5	2094.6	543.3	7:40	4:20	2265.8	875.9	2429.2	2562.4
11:05	12:55	594.2	2013.2	2099.1	597.2	7:35	4:25	2288.3	834.7	2435.8	2601.6
11:00	1:00	647.0	2002.0	2103.9	650.9	7:30	4:30	2309.7	793.1	2442.1	2640.4
10:55	1:05	699.6	1989.8	2109.2	704.5	7:25	4:35	2330.0	751.2	2448.1	2678.6
10:50	1:10	751.8	1976.7	2114.8	757.9	7:20	4:40	2349.2	708.9	2453.9	2716.4
10:45	1:15	803.6	1962.6	2120.7	811.1	7:15	4:45	2367.3	666.2	2459.3	2753.6
10:40	1:20	855.1	1947.6	2127.0	864.1	7:10	4:50	2384.3	623.2	2464.4	2790.2
10:35	1:25	906.1	1931.7	2133.6	917.0	7:05	4:55	2400.1	580.0	2469.2	2826.4
10:30	1:30	956.7	1914.8	2140.5	969.6	7:00	5:00	2414.8	536.4	2473.7	2862.0
10:25	1:35	1006.9	1897.1	2147.7	1022.1	6:55	5:05	2428.4	492.6	2477.8	2897.1
10:20	1:40	1056.5	1878.4	2155.2	1074.2	6:50	5:10	2440.7	448.6	2481.6	2931.7
10:15	1:45	1105.7	1858.9	2162.9	1126.2	6:45	5:15	2452.0	404.3	2485.1	2965.7
10:10	1:50	1154.4	1838.4	2170.8	1177.9	6:40	5:20	2462.0	359.9	2488.2	2999.1
10:05	1:55	1202.5	1817.1	2178.9	1229.3	6:35	5:25	2470.9	315.3	2490.9	3032.1
10:00	2:00	1250.0	1794.9	2187.3	1280.5	6:30	5:30	2478.6	270.5	2493.3	3064.5
9:55	2:05	1296.9	1771.9	2195.8	1331.3	6:25	5:35	2485.1	225.6	2495.4	3096.3
9:50	2:10	1343.2	1748.0	2204.5	1381.9	6:20	5:40	2490.5	180.6	2497.0	3127.6
9:45	2:15	1388.9	1723.3	2213.3	1432.2	6:15	5:45	2494.6	135.6	2498.3	3158.4
9:40	2:20	1433.9	1697.8	2222.3	1482.1	6:10	5:50	2497.6	90.4	2499.3	3188.6
9:35	2:25	1478.3	1671.4	2231.4	1531.7	6:05	5:55	2499.4	45.2	2499.8	3218.3
9:30	2:30	1521.9	1644.3	2240.5	1581.0	6:00	6:00	2500.0	0.0	2500.0	3247.4
9:25	2:35	1564.8	1616.4	2249.7	1630.0	5:55	6:05	2499.4	-45.2	2499.8	3276.0
9:20	2:40	1607.0	1587.7	2259.0	1678.5	5:50	6:10	2497.6	-90.4	2499.3	3304.0
9:15	2:45	1648.4	1558.3	2268.3	1726.7	5:45	6:15	2494.6	-135.6	2498.3	3331.5
9:10	2:50	1689.0	1528.1	2277.6	1774.6	5:40	6:20	2490.5	-180.6	2497.0	3358.5
9:05	2:55	1728.8	1497.2	2287.0	1822.0	5:35	6:25	2485.1	-225.6	2495.4	3384.9
9:00	3:00	1767.8	1465.5	2296.3	1869.1	5:30	6:30	2478.6	-270.5	2493.3	3410.8
8:55	3:05	1805.9	1433.2	2305.5	1915.8	5:25	6:35	2470.9	-315.3	2490.9	3436.2
8:50	3:10	1843.2	1400.2	2314.7	1962.0	5:20	6:40	2462.0	-359.9	2488.2	3461.0
8:45	3:15	1879.6	1366.6	2323.9	2007.8	5:15	6:45	2452.0	-404.3	2485.1	3485.3
8:40	3:20	1915.1	1332.2	2332.9	2053.2	5:10	6:50	2440.7	-448.6	2481.6	3509.1
8:35	3:25	1949.7	1297.3	2341.9	2098.2	5:05	6:55	2428.4	-492.6	2477.8	3532.3
8:30	3:30	1983.4	1261.7	2350.7	2142.7	5:00	7:00	2414.8	-536.4	2473.7	3555.0

## Analemmatic Sundial

Latitude: 56.0° N/S

Earliest Sunrise: 3:12 a.m.    Latest Sunset: 8:48 p.m.  
 Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 2072.6 mm  
 Sunrise/Sunset Markers: X = ± 655.2 mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-580.0	2469.2	3577.2
4:50	7:10	2384.3	-623.2	2464.4	3598.9
4:45	7:15	2367.3	-666.2	2459.3	3620.1
4:40	7:20	2349.2	-708.9	2453.9	3640.8
4:35	7:25	2330.0	-751.2	2448.1	3661.0
4:30	7:30	2309.7	-793.1	2442.1	3680.6
4:25	7:35	2288.3	-834.7	2435.8	3699.8
4:20	7:40	2265.8	-875.9	2429.2	3718.5
4:15	7:45	2242.2	-916.7	2422.3	3736.7
4:10	7:50	2217.5	-957.0	2415.2	3754.5
4:05	7:55	2191.8	-996.9	2407.9	3771.7
4:00	8:00	2165.1	-1036.3	2400.3	3788.5
3:55	8:05	2137.3	-1075.2	2392.5	3804.8
3:50	8:10	2108.5	-1113.6	2384.5	3820.7
3:45	8:15	2078.7	-1151.5	2376.3	3836.1
3:40	8:20	2047.9	-1188.8	2367.9	3851.0
3:35	8:25	2016.1	-1225.5	2359.4	3865.5
3:30	8:30	1983.4	-1261.7	2350.7	3879.6
3:25	8:35	1949.7	-1297.3	2341.9	3893.3
3:20	8:40	1915.1	-1332.2	2332.9	3906.5
3:15	8:45	1879.6	-1366.6	2323.9	3919.3
3:10	8:50	1843.2	-1400.2	2314.7	3931.6
3:05	8:55	1805.9	-1433.2	2305.5	3943.6
3:00	9:00	1767.8	-1465.5	2296.3	3955.2

**Analematic Sundial**

Latitude: 56.0° N/S

**Date Scale**

Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 2072.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-593.1	-581.9	-578.5	-563.1	-558.6	-539.4	-534.1	-511.3	-505.2	-479.5	-472.6
February	-429.0	-397.7	-389.5	-356.3	-348.0	-313.3	-304.3	-268.4	-259.4	-222.4	-212.9
March	-184.8	-146.9	-137.3	-99.0	-89.4	-50.8	-41.2	-2.4	7.1	45.6	55.2
April	112.5	150.1	159.5	196.5	205.7	242.0	250.8	286.2	294.9	328.9	337.2
May	377.7	408.8	416.2	445.1	452.1	478.6	484.9	509.1	514.9	536.1	540.8
June	567.1	580.8	583.9	594.0	596.3	602.6	603.5	605.8	606.1	601.8	603.8
July	596.3	586.8	583.9	571.1	567.4	550.7	546.2	526.3	521.0	498.3	492.3
August	453.7	425.5	418.4	388.2	380.6	348.8	340.5	307.4	298.9	264.4	255.6
September	202.2	165.7	156.6	119.4	110.0	72.5	63.2	25.4	15.9	-22.2	-31.7
October	-79.1	-117.1	-126.5	-164.2	-173.4	-210.7	-219.9	-256.3	-265.4	-301.0	-309.7
November	-360.8	-393.5	-401.4	-432.2	-439.7	-468.3	-475.1	-501.1	-507.2	-530.2	-535.8
December	-559.7	-575.9	-579.3	-591.1	-593.7	-601.2	-602.6	-605.8	-606.1	-604.7	-603.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	593.1	581.9	578.5	563.1	558.6	539.4	534.1	511.3	505.2	479.5	472.6
February	429.0	397.7	389.5	356.3	348.0	313.3	304.3	268.4	259.4	222.4	212.9
March	184.8	146.9	137.3	99.0	89.4	50.8	41.2	2.4	-7.1	-45.6	-55.2
April	-112.5	-150.1	-159.5	-196.5	-205.7	-242.0	-250.8	-286.2	-294.9	-328.9	-337.2
May	-377.7	-408.8	-416.2	-445.1	-452.1	-478.6	-484.9	-509.1	-514.9	-536.1	-540.8
June	-567.1	-580.8	-583.9	-594.0	-596.3	-602.6	-603.5	-605.8	-606.1	-601.8	-603.8
July	-596.3	-586.8	-583.9	-571.1	-567.4	-550.7	-546.2	-526.3	-521.0	-498.3	-492.3
August	-453.7	-425.5	-418.4	-388.2	-380.6	-348.8	-340.5	-307.4	-298.9	-264.4	-255.6
September	-202.2	-165.7	-156.6	-119.4	-110.0	-72.5	-63.2	-25.4	-15.9	22.2	31.7
October	79.1	117.1	126.5	164.2	173.4	210.7	219.9	256.3	265.4	301.0	309.7
November	360.8	393.5	401.4	432.2	439.7	468.3	475.1	501.1	507.2	530.2	535.8
December	559.7	575.9	579.3	591.1	593.7	601.2	602.6	605.8	606.1	604.7	603.8

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
- 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