

Analemmatic Sundial

Latitude: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 737.3 mm
 Sunrise/Sunset Markers: X = ± 418.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	737.3	737.3	0.0						
11:55	12:05	21.8	737.1	737.4	21.8	8:25	3:35	806.4	436.0	916.7	860.9
11:50	12:10	43.6	736.6	737.9	43.6	8:20	3:40	819.2	422.9	921.9	877.4
11:45	12:15	65.4	735.7	738.6	65.4	8:15	3:45	831.5	409.6	926.9	893.7
11:40	12:20	87.2	734.5	739.6	87.2	8:10	3:50	843.4	396.1	931.8	909.8
11:35	12:25	108.9	732.9	740.9	109.0	8:05	3:55	854.9	382.5	936.6	925.6
11:30	12:30	130.5	731.0	742.5	130.7	8:00	4:00	866.0	368.6	941.2	941.2
11:25	12:35	152.1	728.7	744.4	152.4	7:55	4:05	876.7	354.6	945.7	956.6
11:20	12:40	173.6	726.1	746.6	174.0	7:50	4:10	887.0	340.4	950.1	971.7
11:15	12:45	195.1	723.1	749.0	195.6	7:45	4:15	896.9	326.1	954.3	986.6
11:10	12:50	216.4	719.8	751.6	217.1	7:40	4:20	906.3	311.6	958.4	1001.3
11:05	12:55	237.7	716.1	754.6	238.6	7:35	4:25	915.3	296.9	962.3	1015.7
11:00	1:00	258.8	712.2	757.7	260.0	7:30	4:30	923.9	282.1	966.0	1029.9
10:55	1:05	279.8	707.8	761.1	281.4	7:25	4:35	932.0	267.2	969.6	1043.8
10:50	1:10	300.7	703.2	764.8	302.6	7:20	4:40	939.7	252.2	972.9	1057.5
10:45	1:15	321.4	698.2	768.6	323.8	7:15	4:45	946.9	237.0	976.1	1071.0
10:40	1:20	342.0	692.8	772.6	344.9	7:10	4:50	953.7	221.7	979.1	1084.2
10:35	1:25	362.4	687.1	776.9	365.9	7:05	4:55	960.0	206.3	982.0	1097.1
10:30	1:30	382.7	681.2	781.3	386.8	7:00	5:00	965.9	190.8	984.6	1109.8
10:25	1:35	402.7	674.8	785.9	407.6	6:55	5:05	971.3	175.2	987.0	1122.2
10:20	1:40	422.6	668.2	790.6	428.2	6:50	5:10	976.3	159.6	989.3	1134.4
10:15	1:45	442.3	661.2	795.5	448.8	6:45	5:15	980.8	143.8	991.3	1146.3
10:10	1:50	461.7	654.0	800.6	469.2	6:40	5:20	984.8	128.0	993.1	1158.0
10:05	1:55	481.0	646.4	805.7	489.5	6:35	5:25	988.4	112.2	994.7	1169.5
10:00	2:00	500.0	638.5	811.0	509.7	6:30	5:30	991.4	96.2	996.1	1180.6
9:55	2:05	518.8	630.3	816.3	529.7	6:25	5:35	994.1	80.3	997.3	1191.6
9:50	2:10	537.3	621.8	821.8	549.6	6:20	5:40	996.2	64.3	998.3	1202.2
9:45	2:15	555.6	613.0	827.3	569.3	6:15	5:45	997.9	48.2	999.0	1212.7
9:40	2:20	573.6	603.9	832.9	588.9	6:10	5:50	999.0	32.2	999.6	1222.8
9:35	2:25	591.3	594.6	838.5	608.3	6:05	5:55	999.8	16.1	999.9	1232.7
9:30	2:30	608.8	584.9	844.2	627.5	6:00	6:00	1000.0	0.0	1000.0	1242.4
9:25	2:35	625.9	575.0	849.9	646.6	5:55	6:05	999.8	-16.1	999.9	1251.8
9:20	2:40	642.8	564.8	855.7	665.5	5:50	6:10	999.0	-32.2	999.6	1261.0
9:15	2:45	659.3	554.3	861.4	684.3	5:45	6:15	997.9	-48.2	999.0	1269.9
9:10	2:50	675.6	543.6	867.1	702.8	5:40	6:20	996.2	-64.3	998.3	1278.6
9:05	2:55	691.5	532.6	872.8	721.2	5:35	6:25	994.1	-80.3	997.3	1287.1
9:00	3:00	707.1	521.3	878.5	739.3	5:30	6:30	991.4	-96.2	996.1	1295.3
8:55	3:05	722.4	509.8	884.2	757.3	5:25	6:35	988.4	-112.2	994.7	1303.2
8:50	3:10	737.3	498.1	889.8	775.1	5:20	6:40	984.8	-128.0	993.1	1311.0
8:45	3:15	751.8	486.1	895.3	792.7	5:15	6:45	980.8	-143.8	991.3	1318.4
8:40	3:20	766.0	473.9	900.8	810.1	5:10	6:50	976.3	-159.6	989.3	1325.7
8:35	3:25	779.9	461.5	906.2	827.2	5:05	6:55	971.3	-175.2	987.0	1332.7
8:30	3:30	793.4	448.8	911.5	844.2	5:00	7:00	965.9	-190.8	984.6	1339.5

Analemmatic Sundial

Latitude: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 737.3 mm
 Sunrise/Sunset Markers: X = ± 418.0 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-206.3	982.0	1346.1
4:50	7:10	953.7	-221.7	979.1	1352.5
4:45	7:15	946.9	-237.0	976.1	1358.6
4:40	7:20	939.7	-252.2	972.9	1364.6
4:35	7:25	932.0	-267.2	969.6	1370.3
4:30	7:30	923.9	-282.1	966.0	1375.8
4:25	7:35	915.3	-296.9	962.3	1381.1
4:20	7:40	906.3	-311.6	958.4	1386.2
4:15	7:45	896.9	-326.1	954.3	1391.1
4:10	7:50	887.0	-340.4	950.1	1395.8
4:05	7:55	876.7	-354.6	945.7	1400.3
4:00	8:00	866.0	-368.6	941.2	1404.7

Analemmatic Sundial

Latitude: 47.5° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 737.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-286.6	-281.2	-279.6	-272.1	-269.9	-260.7	-258.1	-247.1	-244.2	-231.7	-228.4
February	-207.3	-192.2	-188.2	-172.2	-168.2	-151.4	-147.1	-129.7	-125.3	-107.5	-102.9
March	-89.3	-71.0	-66.4	-47.8	-43.2	-24.5	-19.9	-1.2	3.4	22.1	26.7
April	54.4	72.6	77.1	94.9	99.4	116.9	121.2	138.3	142.5	159.0	162.9
May	182.5	197.6	201.1	215.1	218.5	231.3	234.3	246.0	248.8	259.1	261.4
June	274.1	280.7	282.2	287.0	288.2	291.2	291.7	292.8	292.9	290.8	291.8
July	288.2	283.6	282.2	276.0	274.2	266.1	263.9	254.3	251.8	240.8	237.9
August	219.3	205.6	202.2	187.6	183.9	168.6	164.6	148.5	144.5	127.8	123.5
September	97.7	80.1	75.7	57.7	53.2	35.1	30.6	12.3	7.7	-10.7	-15.3
October	-38.2	-56.6	-61.1	-79.4	-83.8	-101.8	-106.3	-123.9	-128.3	-145.5	-149.7
November	-174.3	-190.2	-194.0	-208.9	-212.5	-226.3	-229.6	-242.2	-245.1	-256.2	-258.9
December	-270.5	-278.3	-280.0	-285.7	-286.9	-290.5	-291.2	-292.8	-292.9	-292.2	-291.8

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	286.6	281.2	279.6	272.1	269.9	260.7	258.1	247.1	244.2	231.7	228.4
February	207.3	192.2	188.2	172.2	168.2	151.4	147.1	129.7	125.3	107.5	102.9
March	89.3	71.0	66.4	47.8	43.2	24.5	19.9	1.2	-3.4	-22.1	-26.7
April	-54.4	-72.6	-77.1	-94.9	-99.4	-116.9	-121.2	-138.3	-142.5	-159.0	-162.9
May	-182.5	-197.6	-201.1	-215.1	-218.5	-231.3	-234.3	-246.0	-248.8	-259.1	-261.4
June	-274.1	-280.7	-282.2	-287.0	-288.2	-291.2	-291.7	-292.8	-292.9	-290.8	-291.8
July	-288.2	-283.6	-282.2	-276.0	-274.2	-266.1	-263.9	-254.3	-251.8	-240.8	-237.9
August	-219.3	-205.6	-202.2	-187.6	-183.9	-168.6	-164.6	-148.5	-144.5	-127.8	-123.5
September	-97.7	-80.1	-75.7	-57.7	-53.2	-35.1	-30.6	-12.3	-7.7	10.7	15.3
October	38.2	56.6	61.1	79.4	83.8	101.8	106.3	123.9	128.3	145.5	149.7
November	174.3	190.2	194.0	208.9	212.5	226.3	229.6	242.2	245.1	256.2	258.9
December	270.5	278.3	280.0	285.7	286.9	290.5	291.2	292.8	292.9	292.2	291.8

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: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1105.9 mm
 Sunrise/Sunset Markers: X = ± 627.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1105.9	1105.9	0.0						
11:55	12:05	32.7	1105.7	1106.1	32.7	8:25	3:35	1209.7	653.9	1375.1	1291.3
11:50	12:10	65.4	1104.9	1106.8	65.4	8:20	3:40	1228.7	634.3	1382.8	1316.1
11:45	12:15	98.1	1103.5	1107.9	98.1	8:15	3:45	1247.2	614.4	1390.3	1340.6
11:40	12:20	130.7	1101.7	1109.4	130.8	8:10	3:50	1265.1	594.2	1397.7	1364.7
11:35	12:25	163.3	1099.3	1111.4	163.4	8:05	3:55	1282.4	573.7	1404.9	1388.4
11:30	12:30	195.8	1096.5	1113.8	196.0	8:00	4:00	1299.0	553.0	1411.8	1411.8
11:25	12:35	228.2	1093.0	1116.6	228.5	7:55	4:05	1315.1	531.9	1418.6	1434.9
11:20	12:40	260.5	1089.1	1119.8	261.0	7:50	4:10	1330.5	510.7	1425.1	1457.6
11:15	12:45	292.6	1084.7	1123.4	293.4	7:45	4:15	1345.3	489.1	1431.5	1480.0
11:10	12:50	324.7	1079.7	1127.5	325.7	7:40	4:20	1359.5	467.4	1437.6	1502.0
11:05	12:55	356.5	1074.2	1131.8	357.9	7:35	4:25	1373.0	445.4	1443.4	1523.6
11:00	1:00	388.2	1068.2	1136.6	390.1	7:30	4:30	1385.8	423.2	1449.0	1544.9
10:55	1:05	419.7	1061.7	1141.7	422.1	7:25	4:35	1398.0	400.8	1454.3	1565.8
10:50	1:10	451.1	1054.7	1147.1	454.0	7:20	4:40	1409.5	378.2	1459.4	1586.3
10:45	1:15	482.2	1047.2	1152.9	485.7	7:15	4:45	1420.4	355.5	1464.2	1606.4
10:40	1:20	513.0	1039.2	1159.0	517.3	7:10	4:50	1430.6	332.6	1468.7	1626.2
10:35	1:25	543.7	1030.7	1165.3	548.8	7:05	4:55	1440.1	309.5	1473.0	1645.6
10:30	1:30	574.0	1021.7	1171.9	580.2	7:00	5:00	1448.9	286.2	1476.9	1664.7
10:25	1:35	604.1	1012.3	1178.8	611.3	6:55	5:05	1457.0	262.9	1480.5	1683.3
10:20	1:40	633.9	1002.3	1185.9	642.3	6:50	5:10	1464.4	239.4	1483.9	1701.6
10:15	1:45	663.4	991.9	1193.3	673.2	6:45	5:15	1471.2	215.8	1486.9	1719.5
10:10	1:50	692.6	981.0	1200.8	703.8	6:40	5:20	1477.2	192.0	1489.6	1737.0
10:05	1:55	721.5	969.6	1208.6	734.3	6:35	5:25	1482.5	168.2	1492.1	1754.2
10:00	2:00	750.0	957.8	1216.5	764.5	6:30	5:30	1487.2	144.4	1494.2	1771.0
9:55	2:05	778.2	945.5	1224.5	794.5	6:25	5:35	1491.1	120.4	1495.9	1787.3
9:50	2:10	805.9	932.7	1232.7	824.3	6:20	5:40	1494.3	96.4	1497.4	1803.3
9:45	2:15	833.4	919.5	1241.0	853.9	6:15	5:45	1496.8	72.3	1498.5	1819.0
9:40	2:20	860.4	905.9	1249.4	883.3	6:10	5:50	1498.6	48.2	1499.3	1834.2
9:35	2:25	887.0	891.9	1257.8	912.4	6:05	5:55	1499.6	24.1	1499.8	1849.1
9:30	2:30	913.1	877.4	1266.3	941.3	6:00	6:00	1500.0	0.0	1500.0	1863.6
9:25	2:35	938.9	862.5	1274.9	969.9	5:55	6:05	1499.6	-24.1	1499.8	1877.7
9:20	2:40	964.2	847.2	1283.5	998.3	5:50	6:10	1498.6	-48.2	1499.3	1891.5
9:15	2:45	989.0	831.5	1292.1	1026.4	5:45	6:15	1496.8	-72.3	1498.5	1904.9
9:10	2:50	1013.4	815.4	1300.7	1054.2	5:40	6:20	1494.3	-96.4	1497.4	1917.9
9:05	2:55	1037.3	798.9	1309.2	1081.8	5:35	6:25	1491.1	-120.4	1495.9	1930.6
9:00	3:00	1060.7	782.0	1317.8	1109.0	5:30	6:30	1487.2	-144.4	1494.2	1942.9
8:55	3:05	1083.5	764.8	1326.2	1136.0	5:25	6:35	1482.5	-168.2	1492.1	1954.8
8:50	3:10	1105.9	747.1	1334.6	1162.7	5:20	6:40	1477.2	-192.0	1489.6	1966.4
8:45	3:15	1127.8	729.2	1343.0	1189.0	5:15	6:45	1471.2	-215.8	1486.9	1977.7
8:40	3:20	1149.1	710.9	1351.2	1215.1	5:10	6:50	1464.4	-239.4	1483.9	1988.6
8:35	3:25	1169.8	692.2	1359.3	1240.8	5:05	6:55	1457.0	-262.9	1480.5	1999.1
8:30	3:30	1190.0	673.2	1367.3	1266.2	5:00	7:00	1448.9	-286.2	1476.9	2009.3

Analemmatic Sundial**Latitude: 47.5° N/S**

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1105.9 mm
 Sunrise/Sunset Markers: $X = \pm 627.0$ mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-309.5	1473.0	2019.2
4:50	7:10	1430.6	-332.6	1468.7	2028.7
4:45	7:15	1420.4	-355.5	1464.2	2037.9
4:40	7:20	1409.5	-378.2	1459.4	2046.8
4:35	7:25	1398.0	-400.8	1454.3	2055.4
4:30	7:30	1385.8	-423.2	1449.0	2063.7
4:25	7:35	1373.0	-445.4	1443.4	2071.6
4:20	7:40	1359.5	-467.4	1437.6	2079.3
4:15	7:45	1345.3	-489.1	1431.5	2086.6
4:10	7:50	1330.5	-510.7	1425.1	2093.7
4:05	7:55	1315.1	-531.9	1418.6	2100.5
4:00	8:00	1299.0	-553.0	1411.8	2107.0

Analematic Sundial

Latitude: 47.5° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1105.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-429.9	-421.8	-419.3	-408.2	-404.9	-391.0	-387.2	-370.6	-366.2	-347.6	-342.6
February	-311.0	-288.3	-282.4	-258.3	-252.3	-227.1	-220.6	-194.6	-188.0	-161.2	-154.3
March	-134.0	-106.5	-99.5	-71.8	-64.8	-36.8	-29.9	-1.8	5.1	33.1	40.0
April	81.5	108.8	115.6	142.4	149.1	175.4	181.8	207.5	213.7	238.4	244.4
May	273.8	296.3	301.7	322.6	327.7	347.0	351.5	369.0	373.3	388.6	392.0
June	411.1	421.0	423.3	430.6	432.2	436.9	437.5	439.2	439.4	436.2	437.7
July	432.2	425.4	423.3	414.0	411.3	399.2	395.9	381.5	377.7	361.2	356.9
August	328.9	308.5	303.3	281.4	275.9	252.9	246.8	222.8	216.7	191.7	185.3
September	146.6	120.1	113.5	86.5	79.8	52.6	45.8	18.4	11.5	-16.1	-23.0
October	-57.4	-84.9	-91.7	-119.0	-125.7	-152.7	-159.4	-185.8	-192.4	-218.2	-224.5
November	-261.5	-285.2	-291.0	-313.3	-318.7	-339.5	-344.4	-363.2	-367.6	-384.3	-388.4
December	-405.7	-417.5	-420.0	-428.5	-430.4	-435.8	-436.9	-439.2	-439.4	-438.3	-437.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	429.9	421.8	419.3	408.2	404.9	391.0	387.2	370.6	366.2	347.6	342.6
February	311.0	288.3	282.4	258.3	252.3	227.1	220.6	194.6	188.0	161.2	154.3
March	134.0	106.5	99.5	71.8	64.8	36.8	29.9	1.8	-5.1	-33.1	-40.0
April	-81.5	-108.8	-115.6	-142.4	-149.1	-175.4	-181.8	-207.5	-213.7	-238.4	-244.4
May	-273.8	-296.3	-301.7	-322.6	-327.7	-347.0	-351.5	-369.0	-373.3	-388.6	-392.0
June	-411.1	-421.0	-423.3	-430.6	-432.2	-436.9	-437.5	-439.2	-439.4	-436.2	-437.7
July	-432.2	-425.4	-423.3	-414.0	-411.3	-399.2	-395.9	-381.5	-377.7	-361.2	-356.9
August	-328.9	-308.5	-303.3	-281.4	-275.9	-252.9	-246.8	-222.8	-216.7	-191.7	-185.3
September	-146.6	-120.1	-113.5	-86.5	-79.8	-52.6	-45.8	-18.4	-11.5	16.1	23.0
October	57.4	84.9	91.7	119.0	125.7	152.7	159.4	185.8	192.4	218.2	224.5
November	261.5	285.2	291.0	313.3	318.7	339.5	344.4	363.2	367.6	384.3	388.4
December	405.7	417.5	420.0	428.5	430.4	435.8	436.9	439.2	439.4	438.3	437.7

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: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1474.6 mm
 Sunrise/Sunset Markers: X = ± 836.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1474.6	1474.6	0.0						
11:55	12:05	43.6	1474.2	1474.8	43.6	8:25	3:35	1612.9	871.9	1833.5	1721.8
11:50	12:10	87.2	1473.2	1475.7	87.3	8:20	3:40	1638.3	845.8	1843.7	1754.8
11:45	12:15	130.8	1471.4	1477.2	130.8	8:15	3:45	1662.9	819.2	1853.8	1787.4
11:40	12:20	174.3	1468.9	1479.2	174.4	8:10	3:50	1686.8	792.3	1863.6	1819.5
11:35	12:25	217.7	1465.8	1481.9	217.9	8:05	3:55	1709.8	765.0	1873.1	1851.2
11:30	12:30	261.1	1461.9	1485.1	261.4	8:00	4:00	1732.1	737.3	1882.4	1882.4
11:25	12:35	304.2	1457.4	1488.8	304.7	7:55	4:05	1753.5	709.2	1891.5	1913.2
11:20	12:40	347.3	1452.2	1493.1	348.0	7:50	4:10	1774.0	680.9	1900.2	1943.5
11:15	12:45	390.2	1446.2	1497.9	391.2	7:45	4:15	1793.7	652.2	1908.6	1973.3
11:10	12:50	432.9	1439.6	1503.3	434.3	7:40	4:20	1812.6	623.2	1916.7	2002.6
11:05	12:55	475.4	1432.3	1509.1	477.2	7:35	4:25	1830.6	593.9	1924.5	2031.4
11:00	1:00	517.6	1424.3	1515.5	520.1	7:30	4:30	1847.8	564.3	1932.0	2059.8
10:55	1:05	559.7	1415.6	1522.3	562.7	7:25	4:35	1864.0	534.4	1939.1	2087.7
10:50	1:10	601.4	1406.3	1529.5	605.3	7:20	4:40	1879.4	504.3	1945.9	2115.0
10:45	1:15	642.9	1396.3	1537.2	647.6	7:15	4:45	1893.9	474.0	1952.3	2141.9
10:40	1:20	684.0	1385.6	1545.3	689.8	7:10	4:50	1907.4	443.4	1958.3	2168.3
10:35	1:25	724.9	1374.3	1553.7	731.8	7:05	4:55	1920.1	412.6	1963.9	2194.2
10:30	1:30	765.4	1362.3	1562.6	773.6	7:00	5:00	1931.9	381.6	1969.2	2219.6
10:25	1:35	805.5	1349.7	1571.8	815.1	6:55	5:05	1942.7	350.5	1974.0	2244.5
10:20	1:40	845.2	1336.4	1581.3	856.5	6:50	5:10	1952.6	319.2	1978.5	2268.8
10:15	1:45	884.6	1322.5	1591.1	897.6	6:45	5:15	1961.6	287.7	1982.6	2292.7
10:10	1:50	923.5	1307.9	1601.1	938.4	6:40	5:20	1969.6	256.1	1986.2	2316.1
10:05	1:55	962.0	1292.8	1611.4	979.0	6:35	5:25	1976.7	224.3	1989.4	2338.9
10:00	2:00	1000.0	1277.0	1622.0	1019.3	6:30	5:30	1982.9	192.5	1992.2	2361.3
9:55	2:05	1037.5	1260.6	1632.7	1059.4	6:25	5:35	1988.1	160.5	1994.6	2383.1
9:50	2:10	1074.6	1243.6	1643.6	1099.1	6:20	5:40	1992.4	128.5	1996.5	2404.5
9:45	2:15	1111.1	1226.0	1654.6	1138.6	6:15	5:45	1995.7	96.4	1998.0	2425.3
9:40	2:20	1147.2	1207.9	1665.8	1177.7	6:10	5:50	1998.1	64.3	1999.1	2445.6
9:35	2:25	1182.6	1189.1	1677.1	1216.6	6:05	5:55	1999.5	32.2	1999.8	2465.5
9:30	2:30	1217.5	1169.8	1688.5	1255.1	6:00	6:00	2000.0	0.0	2000.0	2484.8
9:25	2:35	1251.8	1150.0	1699.9	1293.2	5:55	6:05	1999.5	-32.2	1999.8	2503.7
9:20	2:40	1285.6	1129.6	1711.3	1331.1	5:50	6:10	1998.1	-64.3	1999.1	2522.0
9:15	2:45	1318.7	1108.6	1722.8	1368.5	5:45	6:15	1995.7	-96.4	1998.0	2539.9
9:10	2:50	1351.2	1087.2	1734.2	1405.6	5:40	6:20	1992.4	-128.5	1996.5	2557.2
9:05	2:55	1383.0	1065.2	1745.7	1442.3	5:35	6:25	1988.1	-160.5	1994.6	2574.1
9:00	3:00	1414.2	1042.7	1757.0	1478.7	5:30	6:30	1982.9	-192.5	1992.2	2590.5
8:55	3:05	1444.7	1019.7	1768.3	1514.6	5:25	6:35	1976.7	-224.3	1989.4	2606.5
8:50	3:10	1474.6	996.2	1779.5	1550.2	5:20	6:40	1969.6	-256.1	1986.2	2621.9
8:45	3:15	1503.7	972.2	1790.6	1585.4	5:15	6:45	1961.6	-287.7	1982.6	2636.9
8:40	3:20	1532.1	947.8	1801.6	1620.1	5:10	6:50	1952.6	-319.2	1978.5	2651.4
8:35	3:25	1559.8	923.0	1812.4	1654.4	5:05	6:55	1942.7	-350.5	1974.0	2665.5
8:30	3:30	1586.7	897.7	1823.0	1688.3	5:00	7:00	1931.9	-381.6	1969.2	2679.1

Analemmatic Sundial

Latitude: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1474.6 mm
 Sunrise/Sunset Markers: X = ± 836.0 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-412.6	1963.9	2692.3
4:50	7:10	1907.4	-443.4	1958.3	2705.0
4:45	7:15	1893.9	-474.0	1952.3	2717.3
4:40	7:20	1879.4	-504.3	1945.9	2729.1
4:35	7:25	1864.0	-534.4	1939.1	2740.5
4:30	7:30	1847.8	-564.3	1932.0	2751.6
4:25	7:35	1830.6	-593.9	1924.5	2762.2
4:20	7:40	1812.6	-623.2	1916.7	2772.4
4:15	7:45	1793.7	-652.2	1908.6	2782.2
4:10	7:50	1774.0	-680.9	1900.2	2791.6
4:05	7:55	1753.5	-709.2	1891.5	2800.6
4:00	8:00	1732.1	-737.3	1882.4	2809.3

Analemmatic Sundial

Latitude: 47.5° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1474.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-573.3	-562.4	-559.1	-544.3	-539.9	-521.4	-516.2	-494.2	-488.3	-463.4	-456.8
February	-414.6	-384.4	-376.5	-344.4	-336.4	-302.8	-294.1	-259.5	-250.7	-215.0	-205.8
March	-178.6	-142.0	-132.7	-95.7	-86.4	-49.1	-39.9	-2.4	6.8	44.1	53.3
April	108.7	145.1	154.2	189.9	198.8	233.9	242.4	276.6	285.0	317.9	325.9
May	365.1	395.1	402.3	430.2	436.9	462.6	468.7	492.1	497.7	518.1	522.7
June	548.1	561.3	564.4	574.1	576.3	582.5	583.3	585.5	585.8	581.6	583.6
July	576.3	567.2	564.4	552.0	548.4	532.2	527.9	508.7	503.6	481.7	475.8
August	438.5	411.3	404.3	375.2	367.9	337.1	329.1	297.1	288.9	255.6	247.0
September	195.4	160.2	151.3	115.4	106.3	70.1	61.1	24.5	15.3	-21.5	-30.7
October	-76.5	-113.2	-122.3	-158.7	-167.6	-203.6	-212.6	-247.7	-256.5	-290.9	-299.3
November	-348.7	-380.3	-388.0	-417.7	-425.0	-452.6	-459.2	-484.3	-490.2	-512.5	-517.9
December	-541.0	-556.6	-560.0	-571.3	-573.8	-581.1	-582.5	-585.5	-585.8	-584.4	-583.6

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	573.3	562.4	559.1	544.3	539.9	521.4	516.2	494.2	488.3	463.4	456.8
February	414.6	384.4	376.5	344.4	336.4	302.8	294.1	259.5	250.7	215.0	205.8
March	178.6	142.0	132.7	95.7	86.4	49.1	39.9	2.4	-6.8	-44.1	-53.3
April	-108.7	-145.1	-154.2	-189.9	-198.8	-233.9	-242.4	-276.6	-285.0	-317.9	-325.9
May	-365.1	-395.1	-402.3	-430.2	-436.9	-462.6	-468.7	-492.1	-497.7	-518.1	-522.7
June	-548.1	-561.3	-564.4	-574.1	-576.3	-582.5	-583.3	-585.5	-585.8	-581.6	-583.6
July	-576.3	-567.2	-564.4	-552.0	-548.4	-532.2	-527.9	-508.7	-503.6	-481.7	-475.8
August	-438.5	-411.3	-404.3	-375.2	-367.9	-337.1	-329.1	-297.1	-288.9	-255.6	-247.0
September	-195.4	-160.2	-151.3	-115.4	-106.3	-70.1	-61.1	-24.5	-15.3	21.5	30.7
October	76.5	113.2	122.3	158.7	167.6	203.6	212.6	247.7	256.5	290.9	299.3
November	348.7	380.3	388.0	417.7	425.0	452.6	459.2	484.3	490.2	512.5	517.9
December	541.0	556.6	560.0	571.3	573.8	581.1	582.5	585.5	585.8	584.4	583.6

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: 47.5° N/S

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1843.2 mm
 Sunrise/Sunset Markers: X = ± 1045.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1843.2	1843.2	0.0						
11:55	12:05	54.5	1842.8	1843.6	54.5	8:25	3:35	2016.1	1089.9	2291.9	2152.2
11:50	12:10	109.0	1841.4	1844.7	109.1	8:20	3:40	2047.9	1057.2	2304.7	2193.5
11:45	12:15	163.5	1839.2	1846.5	163.6	8:15	3:45	2078.7	1024.0	2317.2	2234.3
11:40	12:20	217.9	1836.2	1849.1	218.0	8:10	3:50	2108.5	990.3	2329.5	2274.4
11:35	12:25	272.2	1832.2	1852.3	272.4	8:05	3:55	2137.3	956.2	2341.4	2314.0
11:30	12:30	326.3	1827.4	1856.3	326.7	8:00	4:00	2165.1	921.6	2353.0	2353.0
11:25	12:35	380.3	1821.7	1861.0	380.9	7:55	4:05	2191.8	886.6	2364.3	2391.5
11:20	12:40	434.1	1815.2	1866.4	435.0	7:50	4:10	2217.5	851.1	2375.2	2429.3
11:15	12:45	487.7	1807.8	1872.4	489.0	7:45	4:15	2242.2	815.2	2385.8	2466.6
11:10	12:50	541.1	1799.5	1879.1	542.9	7:40	4:20	2265.8	779.0	2395.9	2503.3
11:05	12:55	594.2	1790.4	1886.4	596.6	7:35	4:25	2288.3	742.3	2405.7	2539.3
11:00	1:00	647.0	1780.4	1894.3	650.1	7:30	4:30	2309.7	705.4	2415.0	2574.8
10:55	1:05	699.6	1769.6	1902.8	703.4	7:25	4:35	2330.0	668.0	2423.9	2609.6
10:50	1:10	751.8	1757.9	1911.9	756.6	7:20	4:40	2349.2	630.4	2432.3	2643.8
10:45	1:15	803.6	1745.4	1921.5	809.5	7:15	4:45	2367.3	592.5	2440.3	2677.4
10:40	1:20	855.1	1732.0	1931.6	862.2	7:10	4:50	2384.3	554.3	2447.9	2710.4
10:35	1:25	906.1	1717.9	1942.2	914.7	7:05	4:55	2400.1	515.8	2454.9	2742.7
10:30	1:30	956.7	1702.9	1953.2	966.9	7:00	5:00	2414.8	477.1	2461.5	2774.5
10:25	1:35	1006.9	1687.1	1964.7	1018.9	6:55	5:05	2428.4	438.1	2467.6	2805.6
10:20	1:40	1056.5	1670.5	1976.6	1070.6	6:50	5:10	2440.7	398.9	2473.1	2836.0
10:15	1:45	1105.7	1653.1	1988.8	1121.9	6:45	5:15	2452.0	359.6	2478.2	2865.9
10:10	1:50	1154.4	1634.9	2001.4	1173.0	6:40	5:20	2462.0	320.1	2482.7	2895.1
10:05	1:55	1202.5	1616.0	2014.3	1223.8	6:35	5:25	2470.9	280.4	2486.8	2923.6
10:00	2:00	1250.0	1596.3	2027.4	1274.2	6:30	5:30	2478.6	240.6	2490.3	2951.6
9:55	2:05	1296.9	1575.8	2040.9	1324.2	6:25	5:35	2485.1	200.7	2493.2	2978.9
9:50	2:10	1343.2	1554.5	2054.5	1373.9	6:20	5:40	2490.5	160.6	2495.7	3005.6
9:45	2:15	1388.9	1532.6	2068.3	1423.2	6:15	5:45	2494.6	120.6	2497.6	3031.6
9:40	2:20	1433.9	1509.9	2082.3	1472.2	6:10	5:50	2497.6	80.4	2498.9	3057.0
9:35	2:25	1478.3	1486.4	2096.4	1520.7	6:05	5:55	2499.4	40.2	2499.7	3081.8
9:30	2:30	1521.9	1462.3	2110.6	1568.8	6:00	6:00	2500.0	0.0	2500.0	3106.0
9:25	2:35	1564.8	1437.5	2124.8	1616.5	5:55	6:05	2499.4	-40.2	2499.7	3129.6
9:20	2:40	1607.0	1412.0	2139.2	1663.8	5:50	6:10	2497.6	-80.4	2498.9	3152.5
9:15	2:45	1648.4	1385.8	2153.5	1710.7	5:45	6:15	2494.6	-120.6	2497.6	3174.8
9:10	2:50	1689.0	1358.9	2167.8	1757.0	5:40	6:20	2490.5	-160.6	2495.7	3196.5
9:05	2:55	1728.8	1331.5	2182.1	1802.9	5:35	6:25	2485.1	-200.7	2493.2	3217.7
9:00	3:00	1767.8	1303.3	2196.3	1848.4	5:30	6:30	2478.6	-240.6	2490.3	3238.2
8:55	3:05	1805.9	1274.6	2210.4	1893.3	5:25	6:35	2470.9	-280.4	2486.8	3258.1
8:50	3:10	1843.2	1245.2	2224.4	1937.8	5:20	6:40	2462.0	-320.1	2482.7	3277.4
8:45	3:15	1879.6	1215.3	2238.3	1981.7	5:15	6:45	2452.0	-359.6	2478.2	3296.1
8:40	3:20	1915.1	1184.8	2252.0	2025.1	5:10	6:50	2440.7	-398.9	2473.1	3314.3
8:35	3:25	1949.7	1153.7	2265.5	2068.0	5:05	6:55	2428.4	-438.1	2467.6	3331.8
8:30	3:30	1983.4	1122.1	2278.8	2110.4	5:00	7:00	2414.8	-477.1	2461.5	3348.9

Analemmatic Sundial**Latitude: 47.5° N/S**

Earliest Sunrise: 4:01 a.m. Latest Sunset: 7:59 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1843.2 mm
 Sunrise/Sunset Markers: $X = \pm 1045.0$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-515.8	2454.9	3365.3
4:50	7:10	2384.3	-554.3	2447.9	3381.2
4:45	7:15	2367.3	-592.5	2440.3	3396.6
4:40	7:20	2349.2	-630.4	2432.3	3411.4
4:35	7:25	2330.0	-668.0	2423.9	3425.7
4:30	7:30	2309.7	-705.4	2415.0	3439.5
4:25	7:35	2288.3	-742.3	2405.7	3452.7
4:20	7:40	2265.8	-779.0	2395.9	3465.5
4:15	7:45	2242.2	-815.2	2385.8	3477.7
4:10	7:50	2217.5	-851.1	2375.2	3489.5
4:05	7:55	2191.8	-886.6	2364.3	3500.8
4:00	8:00	2165.1	-921.6	2353.0	3511.6

Analematic Sundial

Latitude: 47.5° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1843.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-716.6	-703.1	-698.9	-680.3	-674.9	-651.7	-645.3	-617.7	-610.4	-579.3	-571.0
February	-518.3	-480.5	-470.6	-430.5	-420.5	-378.5	-367.6	-324.3	-313.3	-268.7	-257.2
March	-223.3	-177.5	-165.9	-119.6	-108.0	-61.3	-49.8	-2.9	8.5	55.1	66.7
April	135.9	181.4	192.7	237.4	248.5	292.3	303.0	345.8	356.2	397.4	407.4
May	456.4	493.9	502.9	537.7	546.2	578.3	585.9	615.1	622.1	647.7	653.4
June	685.1	701.7	705.5	717.6	720.4	728.1	729.1	731.9	732.3	727.0	729.5
July	720.4	708.9	705.5	689.9	685.5	665.3	659.9	635.9	629.5	602.1	594.8
August	548.1	514.1	505.4	469.0	459.8	421.4	411.4	371.3	361.2	319.4	308.8
September	244.3	200.2	189.2	144.2	132.9	87.6	76.4	30.7	19.2	-26.8	-38.3
October	-95.6	-141.5	-152.8	-198.4	-209.5	-254.5	-265.7	-309.7	-320.7	-363.6	-374.1
November	-435.9	-475.4	-484.9	-522.2	-531.2	-565.8	-574.0	-605.4	-612.7	-640.6	-647.3
December	-676.2	-695.8	-699.9	-714.1	-717.3	-726.3	-728.1	-731.9	-732.3	-730.5	-729.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	716.6	703.1	698.9	680.3	674.9	651.7	645.3	617.7	610.4	579.3	571.0
February	518.3	480.5	470.6	430.5	420.5	378.5	367.6	324.3	313.3	268.7	257.2
March	223.3	177.5	165.9	119.6	108.0	61.3	49.8	2.9	-8.5	-55.1	-66.7
April	-135.9	-181.4	-192.7	-237.4	-248.5	-292.3	-303.0	-345.8	-356.2	-397.4	-407.4
May	-456.4	-493.9	-502.9	-537.7	-546.2	-578.3	-585.9	-615.1	-622.1	-647.7	-653.4
June	-685.1	-701.7	-705.5	-717.6	-720.4	-728.1	-729.1	-731.9	-732.3	-727.0	-729.5
July	-720.4	-708.9	-705.5	-689.9	-685.5	-665.3	-659.9	-635.9	-629.5	-602.1	-594.8
August	-548.1	-514.1	-505.4	-469.0	-459.8	-421.4	-411.4	-371.3	-361.2	-319.4	-308.8
September	-244.3	-200.2	-189.2	-144.2	-132.9	-87.6	-76.4	-30.7	-19.2	26.8	38.3
October	95.6	141.5	152.8	198.4	209.5	254.5	265.7	309.7	320.7	363.6	374.1
November	435.9	475.4	484.9	522.2	531.2	565.8	574.0	605.4	612.7	640.6	647.3
December	676.2	695.8	699.9	714.1	717.3	726.3	728.1	731.9	732.3	730.5	729.5

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 |