

Analemmatic Sundial

Latitude: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 743.1 mm
 Sunrise/Sunset Markers: X = ± 408.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	743.1	743.1	0.0						
11:55	12:05	21.8	743.0	743.3	21.8	8:25	3:35	806.4	439.4	918.4	861.7
11:50	12:10	43.6	742.4	743.7	43.6	8:20	3:40	819.2	426.3	923.4	878.3
11:45	12:15	65.4	741.6	744.4	65.4	8:15	3:45	831.5	412.9	928.3	894.7
11:40	12:20	87.2	740.3	745.4	87.2	8:10	3:50	843.4	399.3	933.1	910.8
11:35	12:25	108.9	738.7	746.7	109.0	8:05	3:55	854.9	385.5	937.8	926.7
11:30	12:30	130.5	736.8	748.3	130.7	8:00	4:00	866.0	371.6	942.4	942.4
11:25	12:35	152.1	734.5	750.1	152.4	7:55	4:05	876.7	357.4	946.8	957.8
11:20	12:40	173.6	731.9	752.2	174.0	7:50	4:10	887.0	343.1	951.1	973.0
11:15	12:45	195.1	728.9	754.5	195.6	7:45	4:15	896.9	328.7	955.2	988.0
11:10	12:50	216.4	725.5	757.1	217.2	7:40	4:20	906.3	314.1	959.2	1002.7
11:05	12:55	237.7	721.8	760.0	238.6	7:35	4:25	915.3	299.3	963.0	1017.2
11:00	1:00	258.8	717.8	763.1	260.1	7:30	4:30	923.9	284.4	966.7	1031.5
10:55	1:05	279.8	713.5	766.4	281.4	7:25	4:35	932.0	269.3	970.1	1045.5
10:50	1:10	300.7	708.7	769.9	302.7	7:20	4:40	939.7	254.2	973.5	1059.3
10:45	1:15	321.4	703.7	773.6	323.8	7:15	4:45	946.9	238.9	976.6	1072.8
10:40	1:20	342.0	698.3	777.6	344.9	7:10	4:50	953.7	223.5	979.5	1086.1
10:35	1:25	362.4	692.6	781.7	365.9	7:05	4:55	960.0	208.0	982.3	1099.1
10:30	1:30	382.7	686.6	786.0	386.8	7:00	5:00	965.9	192.3	984.9	1111.9
10:25	1:35	402.7	680.2	790.5	407.6	6:55	5:05	971.3	176.6	987.3	1124.5
10:20	1:40	422.6	673.5	795.1	428.3	6:50	5:10	976.3	160.8	989.5	1136.8
10:15	1:45	442.3	666.5	799.9	448.9	6:45	5:15	980.8	145.0	991.4	1148.8
10:10	1:50	461.7	659.2	804.8	469.3	6:40	5:20	984.8	129.0	993.2	1160.6
10:05	1:55	481.0	651.5	809.8	489.6	6:35	5:25	988.4	113.0	994.8	1172.1
10:00	2:00	500.0	643.6	815.0	509.8	6:30	5:30	991.4	97.0	996.2	1183.4
9:55	2:05	518.8	635.3	820.2	529.9	6:25	5:35	994.1	80.9	997.3	1194.5
9:50	2:10	537.3	626.8	825.5	549.8	6:20	5:40	996.2	64.8	998.3	1205.2
9:45	2:15	555.6	617.9	830.9	569.5	6:15	5:45	997.9	48.6	999.0	1215.8
9:40	2:20	573.6	608.7	836.4	589.1	6:10	5:50	999.0	32.4	999.6	1226.1
9:35	2:25	591.3	599.3	841.9	608.6	6:05	5:55	999.8	16.2	999.9	1236.1
9:30	2:30	608.8	589.6	847.5	627.8	6:00	6:00	1000.0	0.0	1000.0	1245.9
9:25	2:35	625.9	579.6	853.0	646.9	5:55	6:05	999.8	-16.2	999.9	1255.4
9:20	2:40	642.8	569.3	858.6	665.9	5:50	6:10	999.0	-32.4	999.6	1264.7
9:15	2:45	659.3	558.7	864.2	684.7	5:45	6:15	997.9	-48.6	999.0	1273.8
9:10	2:50	675.6	547.9	869.8	703.2	5:40	6:20	996.2	-64.8	998.3	1282.6
9:05	2:55	691.5	536.8	875.4	721.6	5:35	6:25	994.1	-80.9	997.3	1291.2
9:00	3:00	707.1	525.5	881.0	739.8	5:30	6:30	991.4	-97.0	996.2	1299.5
8:55	3:05	722.4	513.9	886.5	757.9	5:25	6:35	988.4	-113.0	994.8	1307.6
8:50	3:10	737.3	502.1	892.0	775.7	5:20	6:40	984.8	-129.0	993.2	1315.5
8:45	3:15	751.8	490.0	897.4	793.3	5:15	6:45	980.8	-145.0	991.4	1323.1
8:40	3:20	766.0	477.7	902.8	810.7	5:10	6:50	976.3	-160.8	989.5	1330.5
8:35	3:25	779.9	465.2	908.1	827.9	5:05	6:55	971.3	-176.6	987.3	1337.7
8:30	3:30	793.4	452.4	913.3	845.0	5:00	7:00	965.9	-192.3	984.9	1344.7

Analemmatic Sundial

Latitude: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 743.1 mm
 Sunrise/Sunset Markers: X = ± 408.6 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-208.0	982.3	1351.4
4:50	7:10	953.7	-223.5	979.5	1357.9
4:45	7:15	946.9	-238.9	976.6	1364.2
4:40	7:20	939.7	-254.2	973.5	1370.3
4:35	7:25	932.0	-269.3	970.1	1376.1
4:30	7:30	923.9	-284.4	966.7	1381.8
4:25	7:35	915.3	-299.3	963.0	1387.3
4:20	7:40	906.3	-314.1	959.2	1392.5
4:15	7:45	896.9	-328.7	955.2	1397.6
4:10	7:50	887.0	-343.1	951.1	1402.4
4:05	7:55	876.7	-357.4	946.8	1407.1
4:00	8:00	866.0	-371.6	942.4	1411.6
3:55	8:05	854.9	-385.5	937.8	1415.9
3:50	8:10	843.4	-399.3	933.1	1420.0
3:45	8:15	831.5	-412.9	928.3	1424.0

Analemmatic Sundial

Latitude: 48.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 743.1 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-283.9	-278.5	-276.9	-269.5	-267.4	-258.2	-255.6	-244.7	-241.8	-229.5	-226.2
February	-205.3	-190.4	-186.4	-170.6	-166.6	-149.9	-145.6	-128.5	-124.1	-106.5	-101.9
March	-88.4	-70.3	-65.7	-47.4	-42.8	-24.3	-19.7	-1.2	3.4	21.8	26.4
April	53.8	71.9	76.4	94.0	98.5	115.8	120.0	137.0	141.1	157.4	161.4
May	180.8	195.7	199.2	213.0	216.4	229.1	232.1	243.7	246.5	256.6	258.9
June	271.4	278.0	279.5	284.3	285.4	288.5	288.9	290.0	290.1	288.0	289.0
July	285.4	280.9	279.5	273.3	271.6	263.6	261.4	251.9	249.4	238.5	235.6
August	217.2	203.7	200.2	185.8	182.2	167.0	163.0	147.1	143.1	126.6	122.3
September	96.8	79.3	74.9	57.1	52.7	34.7	30.3	12.1	7.6	-10.6	-15.2
October	-37.9	-56.1	-60.5	-78.6	-83.0	-100.8	-105.3	-122.7	-127.0	-144.1	-148.2
November	-172.7	-188.3	-192.1	-206.9	-210.5	-224.1	-227.4	-239.8	-242.8	-253.8	-256.5
December	-267.9	-275.7	-277.3	-282.9	-284.2	-287.8	-288.5	-290.0	-290.1	-289.4	-289.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	283.9	278.5	276.9	269.5	267.4	258.2	255.6	244.7	241.8	229.5	226.2
February	205.3	190.4	186.4	170.6	166.6	149.9	145.6	128.5	124.1	106.5	101.9
March	88.4	70.3	65.7	47.4	42.8	24.3	19.7	1.2	-3.4	-21.8	-26.4
April	-53.8	-71.9	-76.4	-94.0	-98.5	-115.8	-120.0	-137.0	-141.1	-157.4	-161.4
May	-180.8	-195.7	-199.2	-213.0	-216.4	-229.1	-232.1	-243.7	-246.5	-256.6	-258.9
June	-271.4	-278.0	-279.5	-284.3	-285.4	-288.5	-288.9	-290.0	-290.1	-288.0	-289.0
July	-285.4	-280.9	-279.5	-273.3	-271.6	-263.6	-261.4	-251.9	-249.4	-238.5	-235.6
August	-217.2	-203.7	-200.2	-185.8	-182.2	-167.0	-163.0	-147.1	-143.1	-126.6	-122.3
September	-96.8	-79.3	-74.9	-57.1	-52.7	-34.7	-30.3	-12.1	-7.6	10.6	15.2
October	37.9	56.1	60.5	78.6	83.0	100.8	105.3	122.7	127.0	144.1	148.2
November	172.7	188.3	192.1	206.9	210.5	224.1	227.4	239.8	242.8	253.8	256.5
December	267.9	275.7	277.3	282.9	284.2	287.8	288.5	290.0	290.1	289.4	289.0

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: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1114.7 mm
 Sunrise/Sunset Markers: X = ± 613.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1114.7	1114.7	0.0						
11:55	12:05	32.7	1114.5	1114.9	32.7	8:25	3:35	1209.7	659.1	1377.6	1292.6
11:50	12:10	65.4	1113.7	1115.6	65.4	8:20	3:40	1228.7	639.4	1385.1	1317.5
11:45	12:15	98.1	1112.3	1116.6	98.1	8:15	3:45	1247.2	619.3	1392.5	1342.0
11:40	12:20	130.7	1110.5	1118.1	130.8	8:10	3:50	1265.1	598.9	1399.7	1366.2
11:35	12:25	163.3	1108.1	1120.1	163.4	8:05	3:55	1282.4	578.3	1406.7	1390.0
11:30	12:30	195.8	1105.2	1122.4	196.0	8:00	4:00	1299.0	557.4	1413.6	1413.6
11:25	12:35	228.2	1101.7	1125.1	228.6	7:55	4:05	1315.1	536.2	1420.2	1436.7
11:20	12:40	260.5	1097.8	1128.3	261.0	7:50	4:10	1330.5	514.7	1426.6	1459.5
11:15	12:45	292.6	1093.3	1131.8	293.4	7:45	4:15	1345.3	493.0	1432.8	1482.0
11:10	12:50	324.7	1088.3	1135.7	325.7	7:40	4:20	1359.5	471.1	1438.8	1504.1
11:05	12:55	356.5	1082.8	1140.0	358.0	7:35	4:25	1373.0	448.9	1444.5	1525.9
11:00	1:00	388.2	1076.7	1144.6	390.1	7:30	4:30	1385.8	426.6	1450.0	1547.3
10:55	1:05	419.7	1070.2	1149.6	422.1	7:25	4:35	1398.0	404.0	1455.2	1568.3
10:50	1:10	451.1	1063.1	1154.9	454.0	7:20	4:40	1409.5	381.3	1460.2	1589.0
10:45	1:15	482.2	1055.6	1160.5	485.8	7:15	4:45	1420.4	358.3	1464.9	1609.2
10:40	1:20	513.0	1047.5	1166.4	517.4	7:10	4:50	1430.6	335.2	1469.3	1629.2
10:35	1:25	543.7	1038.9	1172.6	548.9	7:05	4:55	1440.1	311.9	1473.5	1648.7
10:30	1:30	574.0	1029.9	1179.0	580.3	7:00	5:00	1448.9	288.5	1477.3	1667.9
10:25	1:35	604.1	1020.3	1185.7	611.5	6:55	5:05	1457.0	265.0	1480.9	1686.7
10:20	1:40	633.9	1010.3	1192.7	642.5	6:50	5:10	1464.4	241.3	1484.2	1705.1
10:15	1:45	663.4	999.8	1199.9	673.3	6:45	5:15	1471.2	217.5	1487.2	1723.2
10:10	1:50	692.6	988.8	1207.2	704.0	6:40	5:20	1477.2	193.6	1489.8	1740.9
10:05	1:55	721.5	977.3	1214.8	734.5	6:35	5:25	1482.5	169.6	1492.2	1758.2
10:00	2:00	750.0	965.4	1222.5	764.7	6:30	5:30	1487.2	145.5	1494.3	1775.1
9:55	2:05	778.2	953.0	1230.3	794.8	6:25	5:35	1491.1	121.4	1496.0	1791.7
9:50	2:10	805.9	940.1	1238.3	824.6	6:20	5:40	1494.3	97.2	1497.4	1807.9
9:45	2:15	833.4	926.9	1246.4	854.3	6:15	5:45	1496.8	72.9	1498.6	1823.7
9:40	2:20	860.4	913.1	1254.6	883.7	6:10	5:50	1498.6	48.6	1499.4	1839.1
9:35	2:25	887.0	899.0	1262.9	912.8	6:05	5:55	1499.6	24.3	1499.8	1854.2
9:30	2:30	913.1	884.4	1271.2	941.7	6:00	6:00	1500.0	0.0	1500.0	1868.8
9:25	2:35	938.9	869.4	1279.6	970.4	5:55	6:05	1499.6	-24.3	1499.8	1883.2
9:20	2:40	964.2	853.9	1288.0	998.8	5:50	6:10	1498.6	-48.6	1499.4	1897.1
9:15	2:45	989.0	838.1	1296.4	1027.0	5:45	6:15	1496.8	-72.9	1498.6	1910.7
9:10	2:50	1013.4	821.9	1304.8	1054.9	5:40	6:20	1494.3	-97.2	1497.4	1923.9
9:05	2:55	1037.3	805.2	1313.1	1082.5	5:35	6:25	1491.1	-121.4	1496.0	1936.8
9:00	3:00	1060.7	788.2	1321.5	1109.8	5:30	6:30	1487.2	-145.5	1494.3	1949.3
8:55	3:05	1083.5	770.8	1329.8	1136.8	5:25	6:35	1482.5	-169.6	1492.2	1961.5
8:50	3:10	1105.9	753.1	1338.0	1163.5	5:20	6:40	1477.2	-193.6	1489.8	1973.3
8:45	3:15	1127.8	735.0	1346.1	1190.0	5:15	6:45	1471.2	-217.5	1487.2	1984.7
8:40	3:20	1149.1	716.5	1354.2	1216.1	5:10	6:50	1464.4	-241.3	1484.2	1995.8
8:35	3:25	1169.8	697.7	1362.1	1241.9	5:05	6:55	1457.0	-265.0	1480.9	2006.6
8:30	3:30	1190.0	678.6	1369.9	1267.4	5:00	7:00	1448.9	-288.5	1477.3	2017.0

Analemmatic Sundial**Latitude: 48.0° N/S**

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1114.7 mm
 Sunrise/Sunset Markers: X = ± 613.0 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-311.9	1473.5	2027.1
4:50	7:10	1430.6	-335.2	1469.3	2036.9
4:45	7:15	1420.4	-358.3	1464.9	2046.3
4:40	7:20	1409.5	-381.3	1460.2	2055.4
4:35	7:25	1398.0	-404.0	1455.2	2064.2
4:30	7:30	1385.8	-426.6	1450.0	2072.7
4:25	7:35	1373.0	-448.9	1444.5	2080.9
4:20	7:40	1359.5	-471.1	1438.8	2088.8
4:15	7:45	1345.3	-493.0	1432.8	2096.4
4:10	7:50	1330.5	-514.7	1426.6	2103.6
4:05	7:55	1315.1	-536.2	1420.2	2110.7
4:00	8:00	1299.0	-557.4	1413.6	2117.4
3:55	8:05	1282.4	-578.3	1406.7	2123.8
3:50	8:10	1265.1	-598.9	1399.7	2130.0
3:45	8:15	1247.2	-619.3	1392.5	2136.0

Analemmatic Sundial

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1114.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-425.8	-417.8	-415.3	-404.3	-401.0	-387.3	-383.5	-367.1	-362.7	-344.2	-339.3
February	-308.0	-285.5	-279.7	-255.8	-249.9	-224.9	-218.5	-192.7	-186.2	-159.7	-152.9
March	-132.7	-105.5	-98.6	-71.1	-64.2	-36.5	-29.6	-1.8	5.1	32.8	39.6
April	80.8	107.8	114.5	141.1	147.7	173.7	180.1	205.5	211.7	236.2	242.1
May	271.2	293.5	298.8	319.5	324.6	343.6	348.1	365.5	369.7	384.9	388.3
June	407.2	417.0	419.2	426.5	428.1	432.7	433.3	435.0	435.2	432.1	433.5
July	428.1	421.3	419.2	410.0	407.4	395.4	392.1	377.9	374.1	357.8	353.5
August	325.7	305.5	300.4	278.7	273.3	250.4	244.5	220.7	214.6	189.8	183.5
September	145.2	119.0	112.4	85.7	79.0	52.1	45.4	18.2	11.4	-15.9	-22.8
October	-56.8	-84.1	-90.8	-117.9	-124.5	-151.3	-157.9	-184.0	-190.6	-216.1	-222.3
November	-259.0	-282.5	-288.2	-310.3	-315.7	-336.2	-341.1	-359.8	-364.1	-380.7	-384.7
December	-401.9	-413.5	-415.9	-424.4	-426.3	-431.6	-432.7	-435.0	-435.2	-434.1	-433.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	425.8	417.8	415.3	404.3	401.0	387.3	383.5	367.1	362.7	344.2	339.3
February	308.0	285.5	279.7	255.8	249.9	224.9	218.5	192.7	186.2	159.7	152.9
March	132.7	105.5	98.6	71.1	64.2	36.5	29.6	1.8	-5.1	-32.8	-39.6
April	-80.8	-107.8	-114.5	-141.1	-147.7	-173.7	-180.1	-205.5	-211.7	-236.2	-242.1
May	-271.2	-293.5	-298.8	-319.5	-324.6	-343.6	-348.1	-365.5	-369.7	-384.9	-388.3
June	-407.2	-417.0	-419.2	-426.5	-428.1	-432.7	-433.3	-435.0	-435.2	-432.1	-433.5
July	-428.1	-421.3	-419.2	-410.0	-407.4	-395.4	-392.1	-377.9	-374.1	-357.8	-353.5
August	-325.7	-305.5	-300.4	-278.7	-273.3	-250.4	-244.5	-220.7	-214.6	-189.8	-183.5
September	-145.2	-119.0	-112.4	-85.7	-79.0	-52.1	-45.4	-18.2	-11.4	15.9	22.8
October	56.8	84.1	90.8	117.9	124.5	151.3	157.9	184.0	190.6	216.1	222.3
November	259.0	282.5	288.2	310.3	315.7	336.2	341.1	359.8	364.1	380.7	384.7
December	401.9	413.5	415.9	424.4	426.3	431.6	432.7	435.0	435.2	434.1	433.5

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: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1486.3 mm
 Sunrise/Sunset Markers: X = ± 817.3 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1486.3	1486.3	0.0						
11:55	12:05	43.6	1485.9	1486.6	43.6	8:25	3:35	1612.9	878.9	1836.8	1723.5
11:50	12:10	87.2	1484.9	1487.4	87.3	8:20	3:40	1638.3	852.5	1846.8	1756.6
11:45	12:15	130.8	1483.1	1488.9	130.8	8:15	3:45	1662.9	825.7	1856.7	1789.3
11:40	12:20	174.3	1480.6	1490.9	174.4	8:10	3:50	1686.8	798.6	1866.3	1821.6
11:35	12:25	217.7	1477.5	1493.4	217.9	8:05	3:55	1709.8	771.0	1875.6	1853.4
11:30	12:30	261.1	1473.6	1496.5	261.4	8:00	4:00	1732.1	743.1	1884.7	1884.7
11:25	12:35	304.2	1469.0	1500.2	304.7	7:55	4:05	1753.5	714.9	1893.6	1915.6
11:20	12:40	347.3	1463.7	1504.3	348.0	7:50	4:10	1774.0	686.3	1902.1	1946.1
11:15	12:45	390.2	1457.7	1509.0	391.2	7:45	4:15	1793.7	657.4	1910.4	1976.0
11:10	12:50	432.9	1451.1	1514.3	434.3	7:40	4:20	1812.6	628.1	1918.4	2005.5
11:05	12:55	475.4	1443.7	1519.9	477.3	7:35	4:25	1830.6	598.6	1926.0	2034.5
11:00	1:00	517.6	1435.6	1526.1	520.1	7:30	4:30	1847.8	568.8	1933.3	2063.0
10:55	1:05	559.7	1426.9	1532.7	562.8	7:25	4:35	1864.0	538.7	1940.3	2091.1
10:50	1:10	601.4	1417.5	1539.8	605.3	7:20	4:40	1879.4	508.3	1946.9	2118.6
10:45	1:15	642.9	1407.4	1547.3	647.7	7:15	4:45	1893.9	477.8	1953.2	2145.7
10:40	1:20	684.0	1396.7	1555.2	689.9	7:10	4:50	1907.4	446.9	1959.1	2172.2
10:35	1:25	724.9	1385.2	1563.4	731.9	7:05	4:55	1920.1	415.9	1964.6	2198.3
10:30	1:30	765.4	1373.2	1572.0	773.7	7:00	5:00	1931.9	384.7	1969.8	2223.9
10:25	1:35	805.5	1360.4	1581.0	815.3	6:55	5:05	1942.7	353.3	1974.5	2248.9
10:20	1:40	845.2	1347.0	1590.3	856.6	6:50	5:10	1952.6	321.7	1978.9	2273.5
10:15	1:45	884.6	1333.0	1599.8	897.8	6:45	5:15	1961.6	290.0	1982.9	2297.6
10:10	1:50	923.5	1318.4	1609.6	938.6	6:40	5:20	1969.6	258.1	1986.5	2321.2
10:05	1:55	962.0	1303.1	1619.7	979.3	6:35	5:25	1976.7	226.1	1989.6	2344.3
10:00	2:00	1000.0	1287.2	1630.0	1019.6	6:30	5:30	1982.9	194.0	1992.4	2366.8
9:55	2:05	1037.5	1270.6	1640.4	1059.7	6:25	5:35	1988.1	161.8	1994.7	2388.9
9:50	2:10	1074.6	1253.5	1651.1	1099.5	6:20	5:40	1992.4	129.5	1996.6	2410.5
9:45	2:15	1111.1	1235.8	1661.9	1139.0	6:15	5:45	1995.7	97.2	1998.1	2431.6
9:40	2:20	1147.2	1217.5	1672.8	1178.2	6:10	5:50	1998.1	64.8	1999.1	2452.1
9:35	2:25	1182.6	1198.6	1683.8	1217.1	6:05	5:55	1999.5	32.4	1999.8	2472.2
9:30	2:30	1217.5	1179.2	1694.9	1255.7	6:00	6:00	2000.0	0.0	2000.0	2491.8
9:25	2:35	1251.8	1159.1	1706.1	1293.9	5:55	6:05	1999.5	-32.4	1999.8	2510.9
9:20	2:40	1285.6	1138.6	1717.3	1331.8	5:50	6:10	1998.1	-64.8	1999.1	2529.5
9:15	2:45	1318.7	1117.5	1728.5	1369.3	5:45	6:15	1995.7	-97.2	1998.1	2547.6
9:10	2:50	1351.2	1095.8	1739.7	1406.5	5:40	6:20	1992.4	-129.5	1996.6	2565.3
9:05	2:55	1383.0	1073.6	1750.8	1443.3	5:35	6:25	1988.1	-161.8	1994.7	2582.4
9:00	3:00	1414.2	1051.0	1762.0	1479.7	5:30	6:30	1982.9	-194.0	1992.4	2599.1
8:55	3:05	1444.7	1027.8	1773.0	1515.7	5:25	6:35	1976.7	-226.1	1989.6	2615.3
8:50	3:10	1474.6	1004.1	1784.0	1551.4	5:20	6:40	1969.6	-258.1	1986.5	2631.0
8:45	3:15	1503.7	980.0	1794.8	1586.6	5:15	6:45	1961.6	-290.0	1982.9	2646.3
8:40	3:20	1532.1	955.4	1805.6	1621.5	5:10	6:50	1952.6	-321.7	1978.9	2661.1
8:35	3:25	1559.8	930.3	1816.1	1655.9	5:05	6:55	1942.7	-353.3	1974.5	2675.4
8:30	3:30	1586.7	904.8	1826.6	1689.9	5:00	7:00	1931.9	-384.7	1969.8	2689.3

Analemmatic Sundial

Latitude: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1486.3 mm
 Sunrise/Sunset Markers: X = ± 817.3 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-415.9	1964.6	2702.8
4:50	7:10	1907.4	-446.9	1959.1	2715.8
4:45	7:15	1893.9	-477.8	1953.2	2728.4
4:40	7:20	1879.4	-508.3	1946.9	2740.6
4:35	7:25	1864.0	-538.7	1940.3	2752.3
4:30	7:30	1847.8	-568.8	1933.3	2763.6
4:25	7:35	1830.6	-598.6	1926.0	2774.5
4:20	7:40	1812.6	-628.1	1918.4	2785.0
4:15	7:45	1793.7	-657.4	1910.4	2795.1
4:10	7:50	1774.0	-686.3	1902.1	2804.9
4:05	7:55	1753.5	-714.9	1893.6	2814.2
4:00	8:00	1732.1	-743.1	1884.7	2823.2
3:55	8:05	1709.8	-771.0	1875.6	2831.8
3:50	8:10	1686.8	-798.6	1866.3	2840.0
3:45	8:15	1662.9	-825.7	1856.7	2848.0

Analematic Sundial

Latitude: 48.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1486.3 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-567.8	-557.1	-553.8	-539.1	-534.7	-516.4	-511.3	-489.5	-483.7	-459.0	-452.5
February	-410.7	-380.7	-372.9	-341.1	-333.2	-299.9	-291.3	-257.0	-248.3	-212.9	-203.8
March	-176.9	-140.7	-131.5	-94.8	-85.6	-48.6	-39.5	-2.3	6.8	43.7	52.8
April	107.7	143.7	152.7	188.1	196.9	231.6	240.1	274.0	282.3	314.9	322.8
May	361.6	391.3	398.4	426.1	432.8	458.2	464.2	487.4	492.9	513.2	517.7
June	542.9	556.0	559.0	568.6	570.8	576.9	577.7	579.9	580.2	576.1	578.0
July	570.8	561.7	559.0	546.7	543.1	527.2	522.8	503.8	498.8	477.1	471.3
August	434.3	407.4	400.5	371.6	364.4	333.9	326.0	294.2	286.2	253.1	244.7
September	193.6	158.6	149.9	114.3	105.3	69.4	60.5	24.3	15.2	-21.3	-30.4
October	-75.8	-112.1	-121.1	-157.2	-166.0	-201.7	-210.5	-245.4	-254.1	-288.1	-296.4
November	-345.4	-376.7	-384.2	-413.7	-420.9	-448.3	-454.8	-479.7	-485.5	-507.6	-512.9
December	-535.8	-551.3	-554.6	-565.9	-568.3	-575.5	-576.9	-579.9	-580.2	-578.8	-578.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	567.8	557.1	553.8	539.1	534.7	516.4	511.3	489.5	483.7	459.0	452.5
February	410.7	380.7	372.9	341.1	333.2	299.9	291.3	257.0	248.3	212.9	203.8
March	176.9	140.7	131.5	94.8	85.6	48.6	39.5	2.3	-6.8	-43.7	-52.8
April	-107.7	-143.7	-152.7	-188.1	-196.9	-231.6	-240.1	-274.0	-282.3	-314.9	-322.8
May	-361.6	-391.3	-398.4	-426.1	-432.8	-458.2	-464.2	-487.4	-492.9	-513.2	-517.7
June	-542.9	-556.0	-559.0	-568.6	-570.8	-576.9	-577.7	-579.9	-580.2	-576.1	-578.0
July	-570.8	-561.7	-559.0	-546.7	-543.1	-527.2	-522.8	-503.8	-498.8	-477.1	-471.3
August	-434.3	-407.4	-400.5	-371.6	-364.4	-333.9	-326.0	-294.2	-286.2	-253.1	-244.7
September	-193.6	-158.6	-149.9	-114.3	-105.3	-69.4	-60.5	-24.3	-15.2	21.3	30.4
October	75.8	112.1	121.1	157.2	166.0	201.7	210.5	245.4	254.1	288.1	296.4
November	345.4	376.7	384.2	413.7	420.9	448.3	454.8	479.7	485.5	507.6	512.9
December	535.8	551.3	554.6	565.9	568.3	575.5	576.9	579.9	580.2	578.8	578.0

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: 48.0° N/S

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1857.9 mm
 Sunrise/Sunset Markers: X = ± 1021.6 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1857.9	1857.9	0.0						
11:55	12:05	54.5	1857.4	1858.2	54.5	8:25	3:35	2016.1	1098.6	2296.0	2154.4
11:50	12:10	109.0	1856.1	1859.3	109.1	8:20	3:40	2047.9	1065.6	2308.5	2195.8
11:45	12:15	163.5	1853.9	1861.1	163.6	8:15	3:45	2078.7	1032.2	2320.8	2236.7
11:40	12:20	217.9	1850.8	1863.6	218.0	8:10	3:50	2108.5	998.2	2332.8	2277.0
11:35	12:25	272.2	1846.8	1866.8	272.4	8:05	3:55	2137.3	963.8	2344.5	2316.7
11:30	12:30	326.3	1842.0	1870.6	326.7	8:00	4:00	2165.1	928.9	2355.9	2355.9
11:25	12:35	380.3	1836.2	1875.2	380.9	7:55	4:05	2191.8	893.6	2367.0	2394.5
11:20	12:40	434.1	1829.6	1880.4	435.0	7:50	4:10	2217.5	857.9	2377.7	2432.6
11:15	12:45	487.7	1822.2	1886.3	489.0	7:45	4:15	2242.2	821.7	2388.0	2470.0
11:10	12:50	541.1	1813.8	1892.8	542.9	7:40	4:20	2265.8	785.2	2398.0	2506.9
11:05	12:55	594.2	1804.6	1899.9	596.6	7:35	4:25	2288.3	748.2	2407.5	2543.1
11:00	1:00	647.0	1794.6	1907.6	650.1	7:30	4:30	2309.7	711.0	2416.6	2578.8
10:55	1:05	699.6	1783.6	1915.9	703.5	7:25	4:35	2330.0	673.4	2425.4	2613.8
10:50	1:10	751.8	1771.9	1924.8	756.7	7:20	4:40	2349.2	635.4	2433.7	2648.3
10:45	1:15	803.6	1759.3	1934.1	809.6	7:15	4:45	2367.3	597.2	2441.5	2682.1
10:40	1:20	855.1	1745.8	1944.0	862.4	7:10	4:50	2384.3	558.7	2448.9	2715.3
10:35	1:25	906.1	1731.5	1954.3	914.9	7:05	4:55	2400.1	519.9	2455.8	2747.9
10:30	1:30	956.7	1716.4	1965.1	967.1	7:00	5:00	2414.8	480.9	2462.2	2779.8
10:25	1:35	1006.9	1700.5	1976.2	1019.1	6:55	5:05	2428.4	441.6	2468.2	2811.2
10:20	1:40	1056.5	1683.8	1987.8	1070.8	6:50	5:10	2440.7	402.1	2473.6	2841.9
10:15	1:45	1105.7	1666.3	1999.8	1122.2	6:45	5:15	2452.0	362.5	2478.6	2872.0
10:10	1:50	1154.4	1647.9	2012.0	1173.3	6:40	5:20	2462.0	322.6	2483.1	2901.5
10:05	1:55	1202.5	1628.8	2024.6	1224.1	6:35	5:25	2470.9	282.6	2487.0	2930.3
10:00	2:00	1250.0	1609.0	2037.5	1274.5	6:30	5:30	2478.6	242.5	2490.4	2958.5
9:55	2:05	1296.9	1588.3	2050.6	1324.6	6:25	5:35	2485.1	202.3	2493.4	2986.1
9:50	2:10	1343.2	1566.9	2063.9	1374.4	6:20	5:40	2490.5	161.9	2495.7	3013.1
9:45	2:15	1388.9	1544.8	2077.4	1423.8	6:15	5:45	2494.6	121.5	2497.6	3039.4
9:40	2:20	1433.9	1521.9	2091.0	1472.8	6:10	5:50	2497.6	81.0	2498.9	3065.2
9:35	2:25	1478.3	1498.3	2104.8	1521.4	6:05	5:55	2499.4	40.5	2499.7	3090.3
9:30	2:30	1521.9	1473.9	2118.7	1569.6	6:00	6:00	2500.0	0.0	2500.0	3114.7
9:25	2:35	1564.8	1448.9	2132.6	1617.4	5:55	6:05	2499.4	-40.5	2499.7	3138.6
9:20	2:40	1607.0	1423.2	2146.6	1664.7	5:50	6:10	2497.6	-81.0	2498.9	3161.9
9:15	2:45	1648.4	1396.8	2160.6	1711.6	5:45	6:15	2494.6	-121.5	2497.6	3184.5
9:10	2:50	1689.0	1369.8	2174.6	1758.1	5:40	6:20	2490.5	-161.9	2495.7	3206.6
9:05	2:55	1728.8	1342.1	2188.6	1804.1	5:35	6:25	2485.1	-202.3	2493.4	3228.0
9:00	3:00	1767.8	1313.7	2202.5	1849.6	5:30	6:30	2478.6	-242.5	2490.4	3248.9
8:55	3:05	1805.9	1284.7	2216.3	1894.7	5:25	6:35	2470.9	-282.6	2487.0	3269.1
8:50	3:10	1843.2	1255.2	2230.0	1939.2	5:20	6:40	2462.0	-322.6	2483.1	3288.8
8:45	3:15	1879.6	1225.0	2243.5	1983.3	5:15	6:45	2452.0	-362.5	2478.6	3307.9
8:40	3:20	1915.1	1194.2	2256.9	2026.8	5:10	6:50	2440.7	-402.1	2473.6	3326.4
8:35	3:25	1949.7	1162.9	2270.2	2069.9	5:05	6:55	2428.4	-441.6	2468.2	3344.3
8:30	3:30	1983.4	1131.0	2283.2	2112.4	5:00	7:00	2414.8	-480.9	2462.2	3361.7

Analemmatic Sundial**Latitude: 48.0° N/S**

Earliest Sunrise: 3:58 a.m. Latest Sunset: 8:02 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1857.9 mm
 Sunrise/Sunset Markers: $X = \pm 1021.6$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-519.9	2455.8	3378.5
4:50	7:10	2384.3	-558.7	2448.9	3394.8
4:45	7:15	2367.3	-597.2	2441.5	3410.5
4:40	7:20	2349.2	-635.4	2433.7	3425.7
4:35	7:25	2330.0	-673.4	2425.4	3440.4
4:30	7:30	2309.7	-711.0	2416.6	3454.5
4:25	7:35	2288.3	-748.2	2407.5	3468.1
4:20	7:40	2265.8	-785.2	2398.0	3481.3
4:15	7:45	2242.2	-821.7	2388.0	3493.9
4:10	7:50	2217.5	-857.9	2377.7	3506.1
4:05	7:55	2191.8	-893.6	2367.0	3517.8
4:00	8:00	2165.1	-928.9	2355.9	3529.0
3:55	8:05	2137.3	-963.8	2344.5	3539.7
3:50	8:10	2108.5	-998.2	2332.8	3550.1
3:45	8:15	2078.7	-1032.2	2320.8	3559.9

Analemmatic Sundial

Latitude: 48.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1857.9 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-709.7	-696.3	-692.2	-673.8	-668.4	-645.5	-639.1	-611.8	-604.6	-573.7	-565.6
February	-513.4	-475.9	-466.1	-426.4	-416.5	-374.8	-364.1	-321.2	-310.3	-266.1	-254.8
March	-221.1	-175.8	-164.3	-118.4	-107.0	-60.8	-49.4	-2.9	8.5	54.6	66.0
April	134.6	179.7	190.9	235.1	246.1	289.5	300.1	342.5	352.8	393.6	403.5
May	452.0	489.2	498.1	532.6	541.0	572.7	580.2	609.2	616.1	641.5	647.2
June	678.6	695.0	698.7	710.8	713.5	721.1	722.2	724.9	725.3	720.1	722.5
July	713.5	702.2	698.7	683.3	678.9	658.9	653.6	629.8	623.4	596.3	589.1
August	542.9	509.2	500.6	464.5	455.4	417.4	407.5	367.8	357.7	316.4	305.8
September	242.0	198.3	187.3	142.8	131.7	86.8	75.7	30.4	19.0	-26.6	-38.0
October	-94.7	-140.2	-151.4	-196.5	-207.5	-252.1	-263.2	-306.7	-317.6	-360.2	-370.6
November	-431.7	-470.8	-480.3	-517.2	-526.2	-560.4	-568.5	-599.6	-606.9	-634.4	-641.1
December	-669.8	-689.1	-693.2	-707.3	-710.4	-719.4	-721.1	-724.9	-725.3	-723.6	-722.5

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	709.7	696.3	692.2	673.8	668.4	645.5	639.1	611.8	604.6	573.7	565.6
February	513.4	475.9	466.1	426.4	416.5	374.8	364.1	321.2	310.3	266.1	254.8
March	221.1	175.8	164.3	118.4	107.0	60.8	49.4	2.9	-8.5	-54.6	-66.0
April	-134.6	-179.7	-190.9	-235.1	-246.1	-289.5	-300.1	-342.5	-352.8	-393.6	-403.5
May	-452.0	-489.2	-498.1	-532.6	-541.0	-572.7	-580.2	-609.2	-616.1	-641.5	-647.2
June	-678.6	-695.0	-698.7	-710.8	-713.5	-721.1	-722.2	-724.9	-725.3	-720.1	-722.5
July	-713.5	-702.2	-698.7	-683.3	-678.9	-658.9	-653.6	-629.8	-623.4	-596.3	-589.1
August	-542.9	-509.2	-500.6	-464.5	-455.4	-417.4	-407.5	-367.8	-357.7	-316.4	-305.8
September	-242.0	-198.3	-187.3	-142.8	-131.7	-86.8	-75.7	-30.4	-19.0	26.6	38.0
October	94.7	140.2	151.4	196.5	207.5	252.1	263.2	306.7	317.6	360.2	370.6
November	431.7	470.8	480.3	517.2	526.2	560.4	568.5	599.6	606.9	634.4	641.1
December	669.8	689.1	693.2	707.3	710.4	719.4	721.1	724.9	725.3	723.6	722.5

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 |