

Analemmatic Sundial

Latitude: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 754.7 mm
 Sunrise/Sunset Markers: X = ± 390.0 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	754.7	754.7	0.0						
11:55	12:05	21.8	754.5	754.8	21.8	8:25	3:35	806.4	446.3	921.7	863.4
11:50	12:10	43.6	754.0	755.3	43.6	8:20	3:40	819.2	432.9	926.5	880.1
11:45	12:15	65.4	753.1	755.9	65.4	8:15	3:45	831.5	419.3	931.2	896.6
11:40	12:20	87.2	751.8	756.9	87.2	8:10	3:50	843.4	405.5	935.8	912.8
11:35	12:25	108.9	750.2	758.1	109.0	8:05	3:55	854.9	391.5	940.3	928.9
11:30	12:30	130.5	748.3	759.6	130.7	8:00	4:00	866.0	377.4	944.7	944.7
11:25	12:35	152.1	745.9	761.3	152.4	7:55	4:05	876.7	363.0	948.9	960.3
11:20	12:40	173.6	743.2	763.3	174.0	7:50	4:10	887.0	348.5	953.0	975.6
11:15	12:45	195.1	740.2	765.5	195.6	7:45	4:15	896.9	333.8	957.0	990.7
11:10	12:50	216.4	736.8	768.0	217.2	7:40	4:20	906.3	319.0	960.8	1005.6
11:05	12:55	237.7	733.1	770.7	238.7	7:35	4:25	915.3	304.0	964.5	1020.3
11:00	1:00	258.8	729.0	773.6	260.1	7:30	4:30	923.9	288.8	968.0	1034.7
10:55	1:05	279.8	724.6	776.7	281.4	7:25	4:35	932.0	273.5	971.3	1048.9
10:50	1:10	300.7	719.8	780.1	302.7	7:20	4:40	939.7	258.1	974.5	1062.8
10:45	1:15	321.4	714.7	783.6	323.9	7:15	4:45	946.9	242.6	977.5	1076.5
10:40	1:20	342.0	709.2	787.4	345.0	7:10	4:50	953.7	226.9	980.3	1090.0
10:35	1:25	362.4	703.4	791.3	366.1	7:05	4:55	960.0	211.2	983.0	1103.2
10:30	1:30	382.7	697.3	795.4	387.0	7:00	5:00	965.9	195.3	985.5	1116.2
10:25	1:35	402.7	690.8	799.6	407.8	6:55	5:05	971.3	179.4	987.8	1128.9
10:20	1:40	422.6	684.0	804.0	428.5	6:50	5:10	976.3	163.3	989.9	1141.4
10:15	1:45	442.3	676.9	808.6	449.1	6:45	5:15	980.8	147.2	991.8	1153.7
10:10	1:50	461.7	669.4	813.2	469.6	6:40	5:20	984.8	131.1	993.5	1165.7
10:05	1:55	481.0	661.7	818.0	489.9	6:35	5:25	988.4	114.8	995.0	1177.4
10:00	2:00	500.0	653.6	822.9	510.1	6:30	5:30	991.4	98.5	996.3	1188.9
9:55	2:05	518.8	645.2	827.9	530.2	6:25	5:35	994.1	82.2	997.4	1200.2
9:50	2:10	537.3	636.5	833.0	550.1	6:20	5:40	996.2	65.8	998.4	1211.2
9:45	2:15	555.6	627.5	838.1	569.9	6:15	5:45	997.9	49.4	999.1	1222.0
9:40	2:20	573.6	618.2	843.3	589.6	6:10	5:50	999.0	32.9	999.6	1232.5
9:35	2:25	591.3	608.6	848.6	609.1	6:05	5:55	999.8	16.5	999.9	1242.8
9:30	2:30	608.8	598.8	853.9	628.4	6:00	6:00	1000.0	0.0	1000.0	1252.8
9:25	2:35	625.9	588.6	859.2	647.6	5:55	6:05	999.8	-16.5	999.9	1262.6
9:20	2:40	642.8	578.1	864.5	666.6	5:50	6:10	999.0	-32.9	999.6	1272.2
9:15	2:45	659.3	567.4	869.9	685.4	5:45	6:15	997.9	-49.4	999.1	1281.5
9:10	2:50	675.6	556.4	875.2	704.1	5:40	6:20	996.2	-65.8	998.4	1290.6
9:05	2:55	691.5	545.2	880.6	722.6	5:35	6:25	994.1	-82.2	997.4	1299.4
9:00	3:00	707.1	533.7	885.9	740.9	5:30	6:30	991.4	-98.5	996.3	1308.0
8:55	3:05	722.4	521.9	891.2	759.0	5:25	6:35	988.4	-114.8	995.0	1316.4
8:50	3:10	737.3	509.9	896.4	776.9	5:20	6:40	984.8	-131.1	993.5	1324.5
8:45	3:15	751.8	497.6	901.6	794.6	5:15	6:45	980.8	-147.2	991.8	1332.5
8:40	3:20	766.0	485.1	906.7	812.1	5:10	6:50	976.3	-163.3	989.9	1340.1
8:35	3:25	779.9	472.4	911.8	829.4	5:05	6:55	971.3	-179.4	987.8	1347.6
8:30	3:30	793.4	459.4	916.8	846.5	5:00	7:00	965.9	-195.3	985.5	1354.8

Analemmatic Sundial

Latitude: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 754.7 mm
 Sunrise/Sunset Markers: X = ± 390.0 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-211.2	983.0	1361.9
4:50	7:10	953.7	-226.9	980.3	1368.7
4:45	7:15	946.9	-242.6	977.5	1375.2
4:40	7:20	939.7	-258.1	974.5	1381.6
4:35	7:25	932.0	-273.5	971.3	1387.8
4:30	7:30	923.9	-288.8	968.0	1393.7
4:25	7:35	915.3	-304.0	964.5	1399.5
4:20	7:40	906.3	-319.0	960.8	1405.0
4:15	7:45	896.9	-333.8	957.0	1410.4
4:10	7:50	887.0	-348.5	953.0	1415.6
4:05	7:55	876.7	-363.0	948.9	1420.5
4:00	8:00	866.0	-377.4	944.7	1425.3
3:55	8:05	854.9	-391.5	940.3	1429.9
3:50	8:10	843.4	-405.5	935.8	1434.4
3:45	8:15	831.5	-419.3	931.2	1438.6

Analemmatic Sundial

Latitude: 49.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 754.7 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-278.3	-273.1	-271.5	-264.3	-262.1	-253.2	-250.7	-240.0	-237.1	-225.0	-221.8
February	-201.3	-186.6	-182.8	-167.2	-163.3	-147.0	-142.8	-126.0	-121.7	-104.4	-99.9
March	-86.7	-69.0	-64.4	-46.5	-42.0	-23.8	-19.4	-1.1	3.3	21.4	25.9
April	52.8	70.5	74.9	92.2	96.5	113.6	117.7	134.3	138.4	154.4	158.2
May	177.3	191.8	195.3	208.9	212.2	224.6	227.6	238.9	241.6	251.6	253.8
June	266.1	272.6	274.0	278.8	279.8	282.8	283.2	284.3	284.4	282.4	283.4
July	279.8	275.4	274.0	268.0	266.3	258.4	256.3	247.0	244.5	233.9	231.0
August	212.9	199.7	196.3	182.2	178.6	163.7	159.8	144.2	140.3	124.1	119.9
September	94.9	77.8	73.5	56.0	51.6	34.0	29.7	11.9	7.4	-10.4	-14.9
October	-37.1	-55.0	-59.4	-77.1	-81.4	-98.9	-103.2	-120.3	-124.6	-141.2	-145.3
November	-169.3	-184.7	-188.4	-202.8	-206.4	-219.8	-223.0	-235.2	-238.0	-248.8	-251.4
December	-262.7	-270.3	-271.9	-277.4	-278.6	-282.1	-282.8	-284.3	-284.4	-283.8	-283.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	278.3	273.1	271.5	264.3	262.1	253.2	250.7	240.0	237.1	225.0	221.8
February	201.3	186.6	182.8	167.2	163.3	147.0	142.8	126.0	121.7	104.4	99.9
March	86.7	69.0	64.4	46.5	42.0	23.8	19.4	1.1	-3.3	-21.4	-25.9
April	-52.8	-70.5	-74.9	-92.2	-96.5	-113.6	-117.7	-134.3	-138.4	-154.4	-158.2
May	-177.3	-191.8	-195.3	-208.9	-212.2	-224.6	-227.6	-238.9	-241.6	-251.6	-253.8
June	-266.1	-272.6	-274.0	-278.8	-279.8	-282.8	-283.2	-284.3	-284.4	-282.4	-283.4
July	-279.8	-275.4	-274.0	-268.0	-266.3	-258.4	-256.3	-247.0	-244.5	-233.9	-231.0
August	-212.9	-199.7	-196.3	-182.2	-178.6	-163.7	-159.8	-144.2	-140.3	-124.1	-119.9
September	-94.9	-77.8	-73.5	-56.0	-51.6	-34.0	-29.7	-11.9	-7.4	10.4	14.9
October	37.1	55.0	59.4	77.1	81.4	98.9	103.2	120.3	124.6	141.2	145.3
November	169.3	184.7	188.4	202.8	206.4	219.8	223.0	235.2	238.0	248.8	251.4
December	262.7	270.3	271.9	277.4	278.6	282.1	282.8	284.3	284.4	283.8	283.4

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: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1132.1 mm
 Sunrise/Sunset Markers: X = ± 584.9 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1132.1	1132.1	0.0						
11:55	12:05	32.7	1131.8	1132.3	32.7	8:25	3:35	1209.7	669.4	1382.5	1295.1
11:50	12:10	65.4	1131.0	1132.9	65.4	8:20	3:40	1228.7	649.3	1389.7	1320.2
11:45	12:15	98.1	1129.6	1133.9	98.1	8:15	3:45	1247.2	628.9	1396.8	1344.9
11:40	12:20	130.7	1127.8	1135.3	130.8	8:10	3:50	1265.1	608.3	1403.7	1369.2
11:35	12:25	163.3	1125.3	1137.1	163.4	8:05	3:55	1282.4	587.3	1410.5	1393.3
11:30	12:30	195.8	1122.4	1139.3	196.0	8:00	4:00	1299.0	566.0	1417.0	1417.0
11:25	12:35	228.2	1118.9	1141.9	228.6	7:55	4:05	1315.1	544.5	1423.4	1440.4
11:20	12:40	260.5	1114.9	1144.9	261.0	7:50	4:10	1330.5	522.7	1429.5	1463.4
11:15	12:45	292.6	1110.3	1148.2	293.4	7:45	4:15	1345.3	500.7	1435.5	1486.1
11:10	12:50	324.7	1105.2	1151.9	325.8	7:40	4:20	1359.5	478.4	1441.2	1508.4
11:05	12:55	356.5	1099.6	1156.0	358.0	7:35	4:25	1373.0	455.9	1446.7	1530.4
11:00	1:00	388.2	1093.5	1160.4	390.1	7:30	4:30	1385.8	433.2	1452.0	1552.1
10:55	1:05	419.7	1086.8	1165.1	422.2	7:25	4:35	1398.0	410.3	1457.0	1573.3
10:50	1:10	451.1	1079.7	1170.1	454.1	7:20	4:40	1409.5	387.2	1461.8	1594.3
10:45	1:15	482.2	1072.0	1175.4	485.9	7:15	4:45	1420.4	363.9	1466.3	1614.8
10:40	1:20	513.0	1063.8	1181.0	517.6	7:10	4:50	1430.6	340.4	1470.5	1635.0
10:35	1:25	543.7	1055.1	1186.9	549.1	7:05	4:55	1440.1	316.8	1474.5	1654.8
10:30	1:30	574.0	1045.9	1193.1	580.5	7:00	5:00	1448.9	293.0	1478.2	1674.3
10:25	1:35	604.1	1036.2	1199.4	611.7	6:55	5:05	1457.0	269.1	1481.7	1693.4
10:20	1:40	633.9	1026.0	1206.0	642.7	6:50	5:10	1464.4	245.0	1484.8	1712.1
10:15	1:45	663.4	1015.3	1212.9	673.6	6:45	5:15	1471.2	220.9	1487.7	1730.5
10:10	1:50	692.6	1004.2	1219.9	704.3	6:40	5:20	1477.2	196.6	1490.2	1748.5
10:05	1:55	721.5	992.5	1227.0	734.9	6:35	5:25	1482.5	172.2	1492.5	1766.1
10:00	2:00	750.0	980.4	1234.4	765.2	6:30	5:30	1487.2	147.8	1494.5	1783.4
9:55	2:05	778.2	967.8	1241.9	795.3	6:25	5:35	1491.1	123.2	1496.2	1800.3
9:50	2:10	805.9	954.8	1249.5	825.2	6:20	5:40	1494.3	98.7	1497.5	1816.8
9:45	2:15	833.4	941.3	1257.2	854.9	6:15	5:45	1496.8	74.0	1498.6	1833.0
9:40	2:20	860.4	927.3	1265.0	884.4	6:10	5:50	1498.6	49.4	1499.4	1848.8
9:35	2:25	887.0	912.9	1272.9	913.6	6:05	5:55	1499.6	24.7	1499.8	1864.2
9:30	2:30	913.1	898.1	1280.8	942.6	6:00	6:00	1500.0	0.0	1500.0	1879.2
9:25	2:35	938.9	882.9	1288.8	971.4	5:55	6:05	1499.6	-24.7	1499.8	1893.9
9:20	2:40	964.2	867.2	1296.8	999.9	5:50	6:10	1498.6	-49.4	1499.4	1908.3
9:15	2:45	989.0	851.1	1304.8	1028.1	5:45	6:15	1496.8	-74.0	1498.6	1922.3
9:10	2:50	1013.4	834.6	1312.9	1056.1	5:40	6:20	1494.3	-98.7	1497.5	1935.9
9:05	2:55	1037.3	817.8	1320.9	1083.8	5:35	6:25	1491.1	-123.2	1496.2	1949.1
9:00	3:00	1060.7	800.5	1328.8	1111.3	5:30	6:30	1487.2	-147.8	1494.5	1962.0
8:55	3:05	1083.5	782.8	1336.8	1138.4	5:25	6:35	1482.5	-172.2	1492.5	1974.6
8:50	3:10	1105.9	764.8	1344.6	1165.3	5:20	6:40	1477.2	-196.6	1490.2	1986.8
8:45	3:15	1127.8	746.4	1352.4	1191.9	5:15	6:45	1471.2	-220.9	1487.7	1998.7
8:40	3:20	1149.1	727.7	1360.1	1218.1	5:10	6:50	1464.4	-245.0	1484.8	2010.2
8:35	3:25	1169.8	708.6	1367.7	1244.1	5:05	6:55	1457.0	-269.1	1481.7	2021.4
8:30	3:30	1190.0	689.2	1375.2	1269.8	5:00	7:00	1448.9	-293.0	1478.2	2032.3

Analemmatic Sundial

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Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1132.1 mm
 Sunrise/Sunset Markers: X = ± 584.9 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-316.8	1474.5	2042.8
4:50	7:10	1430.6	-340.4	1470.5	2053.0
4:45	7:15	1420.4	-363.9	1466.3	2062.9
4:40	7:20	1409.5	-387.2	1461.8	2072.4
4:35	7:25	1398.0	-410.3	1457.0	2081.7
4:30	7:30	1385.8	-433.2	1452.0	2090.6
4:25	7:35	1373.0	-455.9	1446.7	2099.2
4:20	7:40	1359.5	-478.4	1441.2	2107.6
4:15	7:45	1345.3	-500.7	1435.5	2115.6
4:10	7:50	1330.5	-522.7	1429.5	2123.3
4:05	7:55	1315.1	-544.5	1423.4	2130.8
4:00	8:00	1299.0	-566.0	1417.0	2138.0
3:55	8:05	1282.4	-587.3	1410.5	2144.9
3:50	8:10	1265.1	-608.3	1403.7	2151.5
3:45	8:15	1247.2	-628.9	1396.8	2157.9

Analemmatic Sundial

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Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 1132.1 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-417.5	-409.6	-407.2	-396.4	-393.2	-379.7	-376.0	-359.9	-355.7	-337.5	-332.7
February	-302.0	-280.0	-274.2	-250.8	-245.0	-220.5	-214.2	-189.0	-182.6	-156.6	-149.9
March	-130.1	-103.4	-96.7	-69.7	-62.9	-35.7	-29.0	-1.7	5.0	32.1	38.8
April	79.2	105.7	112.3	138.3	144.8	170.3	176.5	201.5	207.6	231.5	237.3
May	265.9	287.8	293.0	313.3	318.2	336.9	341.3	358.4	362.5	377.4	380.7
June	399.2	408.8	411.0	418.1	419.7	424.2	424.8	426.5	426.7	423.6	425.0
July	419.7	413.1	411.0	402.0	399.4	387.6	384.5	370.5	366.8	350.8	346.6
August	319.4	299.6	294.5	273.3	267.9	245.5	239.7	216.4	210.4	186.1	179.9
September	142.3	116.6	110.2	84.0	77.4	51.1	44.5	17.9	11.2	-15.6	-22.3
October	-55.7	-82.5	-89.0	-115.6	-122.1	-148.3	-154.8	-180.4	-186.8	-211.9	-218.0
November	-254.0	-277.0	-282.6	-304.2	-309.5	-329.7	-334.4	-352.7	-357.0	-373.2	-377.2
December	-394.0	-405.4	-407.8	-416.1	-417.9	-423.2	-424.2	-426.5	-426.7	-425.6	-425.0

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	417.5	409.6	407.2	396.4	393.2	379.7	376.0	359.9	355.7	337.5	332.7
February	302.0	280.0	274.2	250.8	245.0	220.5	214.2	189.0	182.6	156.6	149.9
March	130.1	103.4	96.7	69.7	62.9	35.7	29.0	1.7	-5.0	-32.1	-38.8
April	-79.2	-105.7	-112.3	-138.3	-144.8	-170.3	-176.5	-201.5	-207.6	-231.5	-237.3
May	-265.9	-287.8	-293.0	-313.3	-318.2	-336.9	-341.3	-358.4	-362.5	-377.4	-380.7
June	-399.2	-408.8	-411.0	-418.1	-419.7	-424.2	-424.8	-426.5	-426.7	-423.6	-425.0
July	-419.7	-413.1	-411.0	-402.0	-399.4	-387.6	-384.5	-370.5	-366.8	-350.8	-346.6
August	-319.4	-299.6	-294.5	-273.3	-267.9	-245.5	-239.7	-216.4	-210.4	-186.1	-179.9
September	-142.3	-116.6	-110.2	-84.0	-77.4	-51.1	-44.5	-17.9	-11.2	15.6	22.3
October	55.7	82.5	89.0	115.6	122.1	148.3	154.8	180.4	186.8	211.9	218.0
November	254.0	277.0	282.6	304.2	309.5	329.7	334.4	352.7	357.0	373.2	377.2
December	394.0	405.4	407.8	416.1	417.9	423.2	424.2	426.5	426.7	425.6	425.0

Southern Hemisphere

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

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

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

Analemmatic Sundial

Latitude: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1509.4 mm
 Sunrise/Sunset Markers: X = ± 779.9 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1509.4	1509.4	0.0						
11:55	12:05	43.6	1509.1	1509.7	43.6	8:25	3:35	1612.9	892.5	1843.4	1726.8
11:50	12:10	87.2	1508.0	1510.5	87.3	8:20	3:40	1638.3	865.8	1853.0	1760.2
11:45	12:15	130.8	1506.2	1511.9	130.8	8:15	3:45	1662.9	838.6	1862.4	1793.1
11:40	12:20	174.3	1503.7	1513.7	174.4	8:10	3:50	1686.8	811.0	1871.6	1825.7
11:35	12:25	217.7	1500.4	1516.2	217.9	8:05	3:55	1709.8	783.0	1880.6	1857.7
11:30	12:30	261.1	1496.5	1519.1	261.4	8:00	4:00	1732.1	754.7	1889.3	1889.3
11:25	12:35	304.2	1491.9	1522.6	304.8	7:55	4:05	1753.5	726.0	1897.8	1920.5
11:20	12:40	347.3	1486.5	1526.5	348.1	7:50	4:10	1774.0	697.0	1906.0	1951.2
11:15	12:45	390.2	1480.4	1531.0	391.3	7:45	4:15	1793.7	667.6	1914.0	1981.5
11:10	12:50	432.9	1473.6	1535.9	434.4	7:40	4:20	1812.6	637.9	1921.6	2011.2
11:05	12:55	475.4	1466.2	1541.3	477.3	7:35	4:25	1830.6	607.9	1928.9	2040.6
11:00	1:00	517.6	1458.0	1547.2	520.2	7:30	4:30	1847.8	577.6	1935.9	2069.4
10:55	1:05	559.7	1449.1	1553.4	562.9	7:25	4:35	1864.0	547.1	1942.6	2097.8
10:50	1:10	601.4	1439.6	1560.1	605.5	7:20	4:40	1879.4	516.3	1949.0	2125.7
10:45	1:15	642.9	1429.3	1567.2	647.9	7:15	4:45	1893.9	485.2	1955.0	2153.1
10:40	1:20	684.0	1418.4	1574.7	690.1	7:10	4:50	1907.4	453.9	1960.7	2180.0
10:35	1:25	724.9	1406.8	1582.6	732.1	7:05	4:55	1920.1	422.4	1966.0	2206.5
10:30	1:30	765.4	1394.5	1590.7	773.9	7:00	5:00	1931.9	390.7	1971.0	2232.4
10:25	1:35	805.5	1381.6	1599.3	815.6	6:55	5:05	1942.7	358.8	1975.5	2257.9
10:20	1:40	845.2	1368.0	1608.1	857.0	6:50	5:10	1952.6	326.7	1979.7	2282.9
10:15	1:45	884.6	1353.8	1617.1	898.2	6:45	5:15	1961.6	294.5	1983.6	2307.3
10:10	1:50	923.5	1338.9	1626.5	939.1	6:40	5:20	1969.6	262.1	1987.0	2331.3
10:05	1:55	962.0	1323.3	1636.0	979.8	6:35	5:25	1976.7	229.6	1990.0	2354.9
10:00	2:00	1000.0	1307.2	1645.8	1020.2	6:30	5:30	1982.9	197.0	1992.7	2377.9
9:55	2:05	1037.5	1290.4	1655.8	1060.4	6:25	5:35	1988.1	164.3	1994.9	2400.4
9:50	2:10	1074.6	1273.0	1665.9	1100.3	6:20	5:40	1992.4	131.6	1996.7	2422.4
9:45	2:15	1111.1	1255.0	1676.2	1139.9	6:15	5:45	1995.7	98.7	1998.2	2444.0
9:40	2:20	1147.2	1236.4	1686.6	1179.2	6:10	5:50	1998.1	65.8	1999.2	2465.0
9:35	2:25	1182.6	1217.3	1697.1	1218.2	6:05	5:55	1999.5	32.9	1999.8	2485.6
9:30	2:30	1217.5	1197.5	1707.7	1256.8	6:00	6:00	2000.0	0.0	2000.0	2505.7
9:25	2:35	1251.8	1177.2	1718.4	1295.2	5:55	6:05	1999.5	-32.9	1999.8	2525.3
9:20	2:40	1285.6	1156.3	1729.1	1333.2	5:50	6:10	1998.1	-65.8	1999.2	2544.4
9:15	2:45	1318.7	1134.8	1739.8	1370.9	5:45	6:15	1995.7	-98.7	1998.2	2563.0
9:10	2:50	1351.2	1112.9	1750.5	1408.2	5:40	6:20	1992.4	-131.6	1996.7	2581.2
9:05	2:55	1383.0	1090.4	1761.1	1445.1	5:35	6:25	1988.1	-164.3	1994.9	2598.8
9:00	3:00	1414.2	1067.3	1771.8	1481.7	5:30	6:30	1982.9	-197.0	1992.7	2616.1
8:55	3:05	1444.7	1043.8	1782.3	1517.9	5:25	6:35	1976.7	-229.6	1990.0	2632.8
8:50	3:10	1474.6	1019.7	1792.8	1553.7	5:20	6:40	1969.6	-262.1	1987.0	2649.1
8:45	3:15	1503.7	995.2	1803.2	1589.2	5:15	6:45	1961.6	-294.5	1983.6	2664.9
8:40	3:20	1532.1	970.2	1813.5	1624.2	5:10	6:50	1952.6	-326.7	1979.7	2680.3
8:35	3:25	1559.8	944.8	1823.6	1658.8	5:05	6:55	1942.7	-358.8	1975.5	2695.2
8:30	3:30	1586.7	918.9	1833.6	1693.0	5:00	7:00	1931.9	-390.7	1971.0	2709.7

Analemmatic Sundial

Latitude: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1509.4 mm
 Sunrise/Sunset Markers: X = ± 779.9 mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-422.4	1966.0	2723.7
4:50	7:10	1907.4	-453.9	1960.7	2737.3
4:45	7:15	1893.9	-485.2	1955.0	2750.5
4:40	7:20	1879.4	-516.3	1949.0	2763.2
4:35	7:25	1864.0	-547.1	1942.6	2775.6
4:30	7:30	1847.8	-577.6	1935.9	2787.5
4:25	7:35	1830.6	-607.9	1928.9	2799.0
4:20	7:40	1812.6	-637.9	1921.6	2810.1
4:15	7:45	1793.7	-667.6	1914.0	2820.8
4:10	7:50	1774.0	-697.0	1906.0	2831.1
4:05	7:55	1753.5	-726.0	1897.8	2841.1
4:00	8:00	1732.1	-754.7	1889.3	2850.7
3:55	8:05	1709.8	-783.0	1880.6	2859.9
3:50	8:10	1686.8	-811.0	1871.6	2868.7
3:45	8:15	1662.9	-838.6	1862.4	2877.2

Analematic Sundial

Latitude: 49.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1509.4 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-556.7	-546.2	-543.0	-528.5	-524.3	-506.3	-501.3	-479.9	-474.2	-450.0	-443.6
February	-402.7	-373.3	-365.6	-334.5	-326.7	-294.0	-285.6	-252.0	-243.4	-208.8	-199.8
March	-173.4	-137.9	-128.9	-92.9	-83.9	-47.7	-38.7	-2.3	6.6	42.8	51.8
April	105.6	140.9	149.7	184.4	193.1	227.1	235.4	268.6	276.7	308.7	316.5
May	354.5	383.7	390.7	417.7	424.3	449.2	455.1	477.8	483.3	503.1	507.6
June	532.3	545.1	548.1	557.5	559.7	565.6	566.4	568.6	568.9	564.8	566.7
July	559.7	550.8	548.1	536.0	532.5	516.9	512.6	494.0	489.0	467.7	462.1
August	425.8	399.4	392.7	364.4	357.2	327.4	319.6	288.5	280.6	248.2	239.9
September	189.8	155.5	146.9	112.0	103.3	68.1	59.4	23.8	14.9	-20.8	-29.8
October	-74.3	-110.0	-118.7	-154.1	-162.7	-197.7	-206.4	-240.6	-249.1	-282.5	-290.6
November	-338.6	-369.3	-376.7	-405.7	-412.7	-439.5	-445.9	-470.3	-476.0	-497.6	-502.9
December	-525.3	-540.5	-543.8	-554.8	-557.2	-564.3	-565.6	-568.6	-568.9	-567.5	-566.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	556.7	546.2	543.0	528.5	524.3	506.3	501.3	479.9	474.2	450.0	443.6
February	402.7	373.3	365.6	334.5	326.7	294.0	285.6	252.0	243.4	208.8	199.8
March	173.4	137.9	128.9	92.9	83.9	47.7	38.7	2.3	-6.6	-42.8	-51.8
April	-105.6	-140.9	-149.7	-184.4	-193.1	-227.1	-235.4	-268.6	-276.7	-308.7	-316.5
May	-354.5	-383.7	-390.7	-417.7	-424.3	-449.2	-455.1	-477.8	-483.3	-503.1	-507.6
June	-532.3	-545.1	-548.1	-557.5	-559.7	-565.6	-566.4	-568.6	-568.9	-564.8	-566.7
July	-559.7	-550.8	-548.1	-536.0	-532.5	-516.9	-512.6	-494.0	-489.0	-467.7	-462.1
August	-425.8	-399.4	-392.7	-364.4	-357.2	-327.4	-319.6	-288.5	-280.6	-248.2	-239.9
September	-189.8	-155.5	-146.9	-112.0	-103.3	-68.1	-59.4	-23.8	-14.9	20.8	29.8
October	74.3	110.0	118.7	154.1	162.7	197.7	206.4	240.6	249.1	282.5	290.6
November	338.6	369.3	376.7	405.7	412.7	439.5	445.9	470.3	476.0	497.6	502.9
December	525.3	540.5	543.8	554.8	557.2	564.3	565.6	568.6	568.9	567.5	566.7

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: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1886.8 mm
 Sunrise/Sunset Markers: X = ± 974.9 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1886.8	1886.8	0.0						
11:55	12:05	54.5	1886.3	1887.1	54.5	8:25	3:35	2016.1	1115.7	2304.2	2158.5
11:50	12:10	109.0	1885.0	1888.1	109.1	8:20	3:40	2047.9	1082.2	2316.2	2200.3
11:45	12:15	163.5	1882.7	1889.8	163.6	8:15	3:45	2078.7	1048.2	2328.0	2241.4
11:40	12:20	217.9	1879.6	1892.2	218.0	8:10	3:50	2108.5	1013.8	2339.5	2282.1
11:35	12:25	272.2	1875.6	1895.2	272.4	8:05	3:55	2137.3	978.8	2350.8	2322.1
11:30	12:30	326.3	1870.6	1898.9	326.7	8:00	4:00	2165.1	943.4	2361.7	2361.7
11:25	12:35	380.3	1864.8	1903.2	380.9	7:55	4:05	2191.8	907.5	2372.3	2400.6
11:20	12:40	434.1	1858.1	1908.1	435.1	7:50	4:10	2217.5	871.2	2382.5	2439.0
11:15	12:45	487.7	1850.5	1913.7	489.1	7:45	4:15	2242.2	834.5	2392.4	2476.8
11:10	12:50	541.1	1842.0	1919.9	542.9	7:40	4:20	2265.8	797.4	2402.0	2514.1
11:05	12:55	594.2	1832.7	1926.6	596.7	7:35	4:25	2288.3	759.9	2411.2	2550.7
11:00	1:00	647.0	1822.5	1933.9	650.2	7:30	4:30	2309.7	722.0	2419.9	2586.8
10:55	1:05	699.6	1811.4	1941.8	703.6	7:25	4:35	2330.0	683.8	2428.3	2622.2
10:50	1:10	751.8	1799.4	1950.2	756.8	7:20	4:40	2349.2	645.3	2436.3	2657.1
10:45	1:15	803.6	1786.6	1959.0	809.8	7:15	4:45	2367.3	606.5	2443.8	2691.4
10:40	1:20	855.1	1773.0	1968.4	862.6	7:10	4:50	2384.3	567.4	2450.9	2725.0
10:35	1:25	906.1	1758.5	1978.2	915.1	7:05	4:55	2400.1	528.0	2457.5	2758.1
10:30	1:30	956.7	1743.2	1988.4	967.4	7:00	5:00	2414.8	488.3	2463.7	2790.5
10:25	1:35	1006.9	1727.0	1999.1	1019.5	6:55	5:05	2428.4	448.5	2469.4	2822.3
10:20	1:40	1056.5	1710.0	2010.1	1071.2	6:50	5:10	2440.7	408.4	2474.7	2853.6
10:15	1:45	1105.7	1692.2	2021.4	1122.7	6:45	5:15	2452.0	368.1	2479.4	2884.2
10:10	1:50	1154.4	1673.6	2033.1	1173.9	6:40	5:20	2462.0	327.6	2483.7	2914.2
10:05	1:55	1202.5	1654.2	2045.1	1224.8	6:35	5:25	2470.9	287.0	2487.5	2943.6
10:00	2:00	1250.0	1634.0	2057.3	1275.3	6:30	5:30	2478.6	246.3	2490.8	2972.3
9:55	2:05	1296.9	1613.0	2069.8	1325.5	6:25	5:35	2485.1	205.4	2493.6	3000.5
9:50	2:10	1343.2	1591.3	2082.4	1375.4	6:20	5:40	2490.5	164.4	2495.9	3028.0
9:45	2:15	1388.9	1568.8	2095.3	1424.9	6:15	5:45	2494.6	123.4	2497.7	3055.0
9:40	2:20	1433.9	1545.6	2108.3	1474.0	6:10	5:50	2497.6	82.3	2499.0	3081.3
9:35	2:25	1478.3	1521.6	2121.4	1522.7	6:05	5:55	2499.4	41.2	2499.7	3107.0
9:30	2:30	1521.9	1496.9	2134.7	1571.1	6:00	6:00	2500.0	0.0	2500.0	3132.1
9:25	2:35	1564.8	1471.5	2148.0	1619.0	5:55	6:05	2499.4	-41.2	2499.7	3156.6
9:20	2:40	1607.0	1445.4	2161.3	1666.5	5:50	6:10	2497.6	-82.3	2499.0	3180.5
9:15	2:45	1648.4	1418.6	2174.7	1713.6	5:45	6:15	2494.6	-123.4	2497.7	3203.8
9:10	2:50	1689.0	1391.1	2188.1	1760.2	5:40	6:20	2490.5	-164.4	2495.9	3226.5
9:05	2:55	1728.8	1362.9	2201.4	1806.4	5:35	6:25	2485.1	-205.4	2493.6	3248.6
9:00	3:00	1767.8	1334.2	2214.7	1852.1	5:30	6:30	2478.6	-246.3	2490.8	3270.1
8:55	3:05	1805.9	1304.7	2227.9	1897.4	5:25	6:35	2470.9	-287.0	2487.5	3291.0
8:50	3:10	1843.2	1274.7	2241.0	1942.2	5:20	6:40	2462.0	-327.6	2483.7	3311.4
8:45	3:15	1879.6	1244.0	2254.0	1986.5	5:15	6:45	2452.0	-368.1	2479.4	3331.1
8:40	3:20	1915.1	1212.8	2266.8	2030.2	5:10	6:50	2440.7	-408.4	2474.7	3350.4
8:35	3:25	1949.7	1181.0	2279.5	2073.5	5:05	6:55	2428.4	-448.5	2469.4	3369.0
8:30	3:30	1983.4	1148.6	2292.0	2116.3	5:00	7:00	2414.8	-488.3	2463.7	3387.1

Analemmatic Sundial

Latitude: 49.0° N/S

Earliest Sunrise: 3:54 a.m. Latest Sunset: 8:06 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1886.8 mm
 Sunrise/Sunset Markers: X = ± 974.9 mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-528.0	2457.5	3404.6
4:50	7:10	2384.3	-567.4	2450.9	3421.6
4:45	7:15	2367.3	-606.5	2443.8	3438.1
4:40	7:20	2349.2	-645.3	2436.3	3454.0
4:35	7:25	2330.0	-683.8	2428.3	3469.4
4:30	7:30	2309.7	-722.0	2419.9	3484.3
4:25	7:35	2288.3	-759.9	2411.2	3498.7
4:20	7:40	2265.8	-797.4	2402.0	3512.6
4:15	7:45	2242.2	-834.5	2392.4	3526.0
4:10	7:50	2217.5	-871.2	2382.5	3538.9
4:05	7:55	2191.8	-907.5	2372.3	3551.4
4:00	8:00	2165.1	-943.4	2361.7	3563.3
3:55	8:05	2137.3	-978.8	2350.8	3574.8
3:50	8:10	2108.5	-1013.8	2339.5	3585.9
3:45	8:15	2078.7	-1048.2	2328.0	3596.5

Analematic Sundial

Latitude: 49.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1886.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-695.9	-682.7	-678.7	-660.7	-655.3	-632.9	-626.6	-599.9	-592.8	-562.5	-554.5
February	-503.3	-466.6	-457.0	-418.1	-408.3	-367.5	-357.0	-315.0	-304.3	-260.9	-249.8
March	-216.8	-172.4	-161.1	-116.1	-104.9	-59.6	-48.4	-2.9	8.3	53.5	64.7
April	132.0	176.1	187.2	230.5	241.3	283.9	294.2	335.8	345.9	385.9	395.6
May	443.2	479.6	488.3	522.2	530.4	561.5	568.9	597.3	604.1	628.9	634.5
June	665.3	681.4	685.1	696.9	699.6	707.0	708.1	710.8	711.1	706.0	708.4
July	699.6	688.4	685.1	670.0	665.7	646.1	640.8	617.5	611.3	584.7	577.6
August	532.3	499.3	490.8	455.5	446.5	409.2	399.5	360.6	350.7	310.2	299.8
September	237.2	194.4	183.7	140.0	129.1	85.1	74.2	29.8	18.6	-26.1	-37.2
October	-92.8	-137.4	-148.4	-192.7	-203.4	-247.2	-258.0	-300.7	-311.4	-353.1	-363.3
November	-423.3	-461.6	-470.9	-507.1	-515.9	-549.4	-557.4	-587.9	-595.0	-622.1	-628.6
December	-656.7	-675.7	-679.7	-693.5	-696.5	-705.3	-707.0	-710.8	-711.1	-709.4	-708.4

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	695.9	682.7	678.7	660.7	655.3	632.9	626.6	599.9	592.8	562.5	554.5
February	503.3	466.6	457.0	418.1	408.3	367.5	357.0	315.0	304.3	260.9	249.8
March	216.8	172.4	161.1	116.1	104.9	59.6	48.4	2.9	-8.3	-53.5	-64.7
April	-132.0	-176.1	-187.2	-230.5	-241.3	-283.9	-294.2	-335.8	-345.9	-385.9	-395.6
May	-443.2	-479.6	-488.3	-522.2	-530.4	-561.5	-568.9	-597.3	-604.1	-628.9	-634.5
June	-665.3	-681.4	-685.1	-696.9	-699.6	-707.0	-708.1	-710.8	-711.1	-706.0	-708.4
July	-699.6	-688.4	-685.1	-670.0	-665.7	-646.1	-640.8	-617.5	-611.3	-584.7	-577.6
August	-532.3	-499.3	-490.8	-455.5	-446.5	-409.2	-399.5	-360.6	-350.7	-310.2	-299.8
September	-237.2	-194.4	-183.7	-140.0	-129.1	-85.1	-74.2	-29.8	-18.6	26.1	37.2
October	92.8	137.4	148.4	192.7	203.4	247.2	258.0	300.7	311.4	353.1	363.3
November	423.3	461.6	470.9	507.1	515.9	549.4	557.4	587.9	595.0	622.1	628.6
December	656.7	675.7	679.7	693.5	696.5	705.3	707.0	710.8	711.1	709.4	708.4

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
- 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