

Analemmatic Sundial

Latitude: 40.0° N/S

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 642.8 mm
 Sunrise/Sunset Markers: X = ± 558.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	642.8	642.8	0.0						
11:55	12:05	21.8	642.6	643.0	21.8	8:25	3:35	806.4	380.1	891.5	848.2
11:50	12:10	43.6	642.2	643.7	43.6	8:20	3:40	819.2	368.7	898.3	863.8
11:45	12:15	65.4	641.4	644.7	65.4	8:15	3:45	831.5	357.1	904.9	879.2
11:40	12:20	87.2	640.3	646.2	87.2	8:10	3:50	843.4	345.4	911.4	894.3
11:35	12:25	108.9	639.0	648.2	108.9	8:05	3:55	854.9	333.5	917.6	909.2
11:30	12:30	130.5	637.3	650.5	130.6	8:00	4:00	866.0	321.4	923.7	923.7
11:25	12:35	152.1	635.3	653.3	152.3	7:55	4:05	876.7	309.2	929.6	938.1
11:20	12:40	173.6	633.0	656.4	173.9	7:50	4:10	887.0	296.8	935.4	952.1
11:15	12:45	195.1	630.4	659.9	195.5	7:45	4:15	896.9	284.3	940.9	965.9
11:10	12:50	216.4	627.6	663.8	217.0	7:40	4:20	906.3	271.7	946.1	979.4
11:05	12:55	237.7	624.4	668.1	238.4	7:35	4:25	915.3	258.9	951.2	992.6
11:00	1:00	258.8	620.9	672.7	259.7	7:30	4:30	923.9	246.0	956.1	1005.5
10:55	1:05	279.8	617.1	677.6	281.0	7:25	4:35	932.0	233.0	960.7	1018.1
10:50	1:10	300.7	613.0	682.8	302.2	7:20	4:40	939.7	219.8	965.1	1030.5
10:45	1:15	321.4	608.7	688.3	323.2	7:15	4:45	946.9	206.6	969.2	1042.6
10:40	1:20	342.0	604.0	694.1	344.2	7:10	4:50	953.7	193.3	973.1	1054.3
10:35	1:25	362.4	599.1	700.2	365.1	7:05	4:55	960.0	179.9	976.8	1065.8
10:30	1:30	382.7	593.9	706.5	385.8	7:00	5:00	965.9	166.4	980.1	1077.0
10:25	1:35	402.7	588.4	713.0	406.4	6:55	5:05	971.3	152.8	983.3	1087.9
10:20	1:40	422.6	582.6	719.7	426.9	6:50	5:10	976.3	139.1	986.2	1098.6
10:15	1:45	442.3	576.5	726.6	447.2	6:45	5:15	980.8	125.4	988.8	1108.9
10:10	1:50	461.7	570.2	733.7	467.4	6:40	5:20	984.8	111.6	991.1	1118.9
10:05	1:55	481.0	563.5	740.9	487.5	6:35	5:25	988.4	97.8	993.2	1128.7
10:00	2:00	500.0	556.7	748.3	507.4	6:30	5:30	991.4	83.9	995.0	1138.1
9:55	2:05	518.8	549.5	755.7	527.1	6:25	5:35	994.1	70.0	996.5	1147.3
9:50	2:10	537.3	542.1	763.3	546.6	6:20	5:40	996.2	56.0	997.8	1156.2
9:45	2:15	555.6	534.5	770.9	566.0	6:15	5:45	997.9	42.0	998.7	1164.7
9:40	2:20	573.6	526.5	778.6	585.2	6:10	5:50	999.0	28.0	999.4	1173.0
9:35	2:25	591.3	518.4	786.4	604.3	6:05	5:55	999.8	14.0	999.9	1181.0
9:30	2:30	608.8	510.0	794.1	623.1	6:00	6:00	1000.0	0.0	1000.0	1188.8
9:25	2:35	625.9	501.3	801.9	641.7	5:55	6:05	999.8	-14.0	999.9	1196.2
9:20	2:40	642.8	492.4	809.7	660.1	5:50	6:10	999.0	-28.0	999.4	1203.4
9:15	2:45	659.3	483.3	817.5	678.4	5:45	6:15	997.9	-42.0	998.7	1210.3
9:10	2:50	675.6	473.9	825.2	696.4	5:40	6:20	996.2	-56.0	997.8	1216.9
9:05	2:55	691.5	464.3	832.9	714.2	5:35	6:25	994.1	-70.0	996.5	1223.2
9:00	3:00	707.1	454.5	840.6	731.7	5:30	6:30	991.4	-83.9	995.0	1229.2
8:55	3:05	722.4	444.5	848.2	749.1	5:25	6:35	988.4	-97.8	993.2	1235.0
8:50	3:10	737.3	434.3	855.7	766.2	5:20	6:40	984.8	-111.6	991.1	1240.6
8:45	3:15	751.8	423.8	863.1	783.1	5:15	6:45	980.8	-125.4	988.8	1245.8
8:40	3:20	766.0	413.2	870.4	799.7	5:10	6:50	976.3	-139.1	986.2	1250.8
8:35	3:25	779.9	402.3	877.5	816.1	5:05	6:55	971.3	-152.8	983.3	1255.6
8:30	3:30	793.4	391.3	884.6	832.3	5:00	7:00	965.9	-166.4	980.1	1260.1

Analemmatic Sundial**Latitude: 40.0° N/S**

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 642.8 mm
 Sunrise/Sunset Markers: X = ± 558.2 mm

Local Time		X	Y	Z	W
4:55	7:05	960.0	-179.9	976.8	1264.3
4:50	7:10	953.7	-193.3	973.1	1268.3
4:45	7:15	946.9	-206.6	969.2	1272.1
4:40	7:20	939.7	-219.8	965.1	1275.6
4:35	7:25	932.0	-233.0	960.7	1278.9
4:30	7:30	923.9	-246.0	956.1	1282.0
4:25	7:35	915.3	-258.9	951.2	1284.8
4:20	7:40	906.3	-271.7	946.1	1287.5
4:15	7:45	896.9	-284.3	940.9	1289.9

Analematic Sundial

Latitude: 40.0° N/S

Date Scale

Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 642.8 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-325.0	-318.9	-317.0	-308.6	-306.1	-295.6	-292.7	-280.2	-276.9	-262.7	-259.0
February	-235.1	-217.9	-213.5	-195.3	-190.7	-171.7	-166.7	-147.1	-142.1	-121.9	-116.7
March	-101.3	-80.5	-75.2	-54.2	-49.0	-27.8	-22.6	-1.3	3.9	25.0	30.2
April	61.6	82.3	87.4	107.7	112.7	132.6	137.4	156.8	161.6	180.2	184.8
May	207.0	224.0	228.1	243.9	247.7	262.3	265.7	279.0	282.2	293.8	296.4
June	310.7	318.2	320.0	325.5	326.7	330.2	330.7	332.0	332.1	329.8	330.9
July	326.7	321.5	320.0	312.9	310.9	301.8	299.3	288.4	285.5	273.1	269.8
August	248.6	233.2	229.2	212.7	208.6	191.1	186.6	168.4	163.8	144.9	140.0
September	110.8	90.8	85.8	65.4	60.3	39.7	34.7	13.9	8.7	-12.2	-17.4
October	-43.4	-64.2	-69.3	-90.0	-95.0	-115.4	-120.5	-140.5	-145.4	-164.9	-169.7
November	-197.7	-215.6	-219.9	-236.8	-240.9	-256.6	-260.3	-274.6	-277.9	-290.5	-293.6
December	-306.7	-315.6	-317.5	-323.9	-325.3	-329.4	-330.2	-332.0	-332.1	-331.3	-330.9

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	325.0	318.9	317.0	308.6	306.1	295.6	292.7	280.2	276.9	262.7	259.0
February	235.1	217.9	213.5	195.3	190.7	171.7	166.7	147.1	142.1	121.9	116.7
March	101.3	80.5	75.2	54.2	49.0	27.8	22.6	1.3	-3.9	-25.0	-30.2
April	-61.6	-82.3	-87.4	-107.7	-112.7	-132.6	-137.4	-156.8	-161.6	-180.2	-184.8
May	-207.0	-224.0	-228.1	-243.9	-247.7	-262.3	-265.7	-279.0	-282.2	-293.8	-296.4
June	-310.7	-318.2	-320.0	-325.5	-326.7	-330.2	-330.7	-332.0	-332.1	-329.8	-330.9
July	-326.7	-321.5	-320.0	-312.9	-310.9	-301.8	-299.3	-288.4	-285.5	-273.1	-269.8
August	-248.6	-233.2	-229.2	-212.7	-208.6	-191.1	-186.6	-168.4	-163.8	-144.9	-140.0
September	-110.8	-90.8	-85.8	-65.4	-60.3	-39.7	-34.7	-13.9	-8.7	12.2	17.4
October	43.4	64.2	69.3	90.0	95.0	115.4	120.5	140.5	145.4	164.9	169.7
November	197.7	215.6	219.9	236.8	240.9	256.6	260.3	274.6	277.9	290.5	293.6
December	306.7	315.6	317.5	323.9	325.3	329.4	330.2	332.0	332.1	331.3	330.9

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: 40.0° N/S

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 964.2 mm
 Sunrise/Sunset Markers: X = ± 837.2 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	964.2	964.2	0.0						
11:55	12:05	32.7	964.0	964.5	32.7	8:25	3:35	1209.7	570.1	1337.3	1272.2
11:50	12:10	65.4	963.3	965.5	65.4	8:20	3:40	1228.7	553.0	1347.4	1295.7
11:45	12:15	98.1	962.1	967.1	98.1	8:15	3:45	1247.2	535.7	1357.4	1318.8
11:40	12:20	130.7	960.5	969.4	130.8	8:10	3:50	1265.1	518.1	1367.1	1341.4
11:35	12:25	163.3	958.5	972.3	163.4	8:05	3:55	1282.4	500.2	1376.5	1363.7
11:30	12:30	195.8	955.9	975.8	196.0	8:00	4:00	1299.0	482.1	1385.6	1385.6
11:25	12:35	228.2	953.0	979.9	228.5	7:55	4:05	1315.1	463.8	1394.5	1407.1
11:20	12:40	260.5	949.5	984.6	260.9	7:50	4:10	1330.5	445.2	1403.0	1428.1
11:15	12:45	292.6	945.7	989.9	293.2	7:45	4:15	1345.3	426.4	1411.3	1448.8
11:10	12:50	324.7	941.3	995.7	325.5	7:40	4:20	1359.5	407.5	1419.2	1469.0
11:05	12:55	356.5	936.5	1002.1	357.6	7:35	4:25	1373.0	388.3	1426.8	1488.8
11:00	1:00	388.2	931.3	1009.0	389.6	7:30	4:30	1385.8	369.0	1434.1	1508.2
10:55	1:05	419.7	925.7	1016.4	421.5	7:25	4:35	1398.0	349.5	1441.0	1527.2
10:50	1:10	451.1	919.6	1024.2	453.3	7:20	4:40	1409.5	329.8	1447.6	1545.7
10:45	1:15	482.2	913.0	1032.5	484.9	7:15	4:45	1420.4	309.9	1453.8	1563.8
10:40	1:20	513.0	906.0	1041.2	516.3	7:10	4:50	1430.6	289.9	1459.7	1581.5
10:35	1:25	543.7	898.6	1050.3	547.6	7:05	4:55	1440.1	269.8	1465.1	1598.7
10:30	1:30	574.0	890.8	1059.7	578.7	7:00	5:00	1448.9	249.5	1470.2	1615.5
10:25	1:35	604.1	882.5	1069.5	609.6	6:55	5:05	1457.0	229.2	1474.9	1631.9
10:20	1:40	633.9	873.8	1079.6	640.3	6:50	5:10	1464.4	208.7	1479.2	1647.8
10:15	1:45	663.4	864.7	1089.9	670.8	6:45	5:15	1471.2	188.1	1483.2	1663.3
10:10	1:50	692.6	855.2	1100.5	701.1	6:40	5:20	1477.2	167.4	1486.7	1678.4
10:05	1:55	721.5	845.3	1111.4	731.2	6:35	5:25	1482.5	146.7	1489.8	1693.0
10:00	2:00	750.0	835.0	1122.4	761.0	6:30	5:30	1487.2	125.9	1492.5	1707.2
9:55	2:05	778.2	824.3	1133.6	790.6	6:25	5:35	1491.1	105.0	1494.8	1720.9
9:50	2:10	805.9	813.2	1144.9	820.0	6:20	5:40	1494.3	84.0	1496.7	1734.2
9:45	2:15	833.4	801.7	1156.4	849.0	6:15	5:45	1496.8	63.1	1498.1	1747.1
9:40	2:20	860.4	789.8	1167.9	877.9	6:10	5:50	1498.6	42.1	1499.2	1759.6
9:35	2:25	887.0	777.6	1179.5	906.4	6:05	5:55	1499.6	21.0	1499.8	1771.6
9:30	2:30	913.1	764.9	1191.2	934.6	6:00	6:00	1500.0	0.0	1500.0	1783.2
9:25	2:35	938.9	752.0	1202.9	962.6	5:55	6:05	1499.6	-21.0	1499.8	1794.3
9:20	2:40	964.2	738.6	1214.6	990.2	5:50	6:10	1498.6	-42.1	1499.2	1805.1
9:15	2:45	989.0	724.9	1226.2	1017.6	5:45	6:15	1496.8	-63.1	1498.1	1815.4
9:10	2:50	1013.4	710.9	1237.9	1044.6	5:40	6:20	1494.3	-84.0	1496.7	1825.3
9:05	2:55	1037.3	696.5	1249.4	1071.3	5:35	6:25	1491.1	-105.0	1494.8	1834.8
9:00	3:00	1060.7	681.8	1260.9	1097.6	5:30	6:30	1487.2	-125.9	1492.5	1843.9
8:55	3:05	1083.5	666.7	1272.2	1123.6	5:25	6:35	1482.5	-146.7	1489.8	1852.5
8:50	3:10	1105.9	651.4	1283.5	1149.3	5:20	6:40	1477.2	-167.4	1486.7	1860.8
8:45	3:15	1127.8	635.7	1294.6	1174.6	5:15	6:45	1471.2	-188.1	1483.2	1868.7
8:40	3:20	1149.1	619.8	1305.6	1199.6	5:10	6:50	1464.4	-208.7	1479.2	1876.2
8:35	3:25	1169.8	603.5	1316.3	1224.2	5:05	6:55	1457.0	-229.2	1474.9	1883.3
8:30	3:30	1190.0	587.0	1326.9	1248.4	5:00	7:00	1448.9	-249.5	1470.2	1890.1

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 Sunrise/Sunset Markers: X = ± 837.2 mm

Local Time		X	Y	Z	W
4:55	7:05	1440.1	-269.8	1465.1	1896.5
4:50	7:10	1430.6	-289.9	1459.7	1902.5
4:45	7:15	1420.4	-309.9	1453.8	1908.1
4:40	7:20	1409.5	-329.8	1447.6	1913.4
4:35	7:25	1398.0	-349.5	1441.0	1918.4
4:30	7:30	1385.8	-369.0	1434.1	1923.0
4:25	7:35	1373.0	-388.3	1426.8	1927.3
4:20	7:40	1359.5	-407.5	1419.2	1931.2
4:15	7:45	1345.3	-426.4	1411.3	1934.9

Analematic Sundial

Latitude: 40.0° N/S

Date Scale

Semi-Major Axis (E-W): 1500 mm Semi-Minor Axis (N-S): 964.2 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-487.5	-478.3	-475.5	-462.9	-459.1	-443.4	-439.0	-420.3	-415.3	-394.1	-388.5
February	-352.6	-326.9	-320.2	-292.9	-286.1	-257.5	-250.1	-220.7	-213.2	-182.8	-175.0
March	-151.9	-120.8	-112.9	-81.4	-73.5	-41.7	-33.9	-2.0	5.8	37.5	45.3
April	92.5	123.4	131.1	161.5	169.1	198.9	206.1	235.2	242.4	270.4	277.1
May	310.5	336.0	342.1	365.8	371.6	393.4	398.6	418.5	423.2	440.6	444.5
June	466.1	477.4	480.0	488.2	490.1	495.3	496.1	498.0	498.2	494.6	496.3
July	490.1	482.3	480.0	469.4	466.4	452.6	448.9	432.6	428.2	409.6	404.7
August	372.9	349.8	343.9	319.1	312.8	286.7	279.9	252.6	245.7	217.3	210.1
September	166.2	136.2	128.7	98.1	90.4	59.6	52.0	20.9	13.0	-18.3	-26.1
October	-65.0	-96.3	-104.0	-135.0	-142.5	-173.2	-180.8	-210.7	-218.2	-247.4	-254.5
November	-296.5	-323.4	-329.9	-355.3	-361.4	-384.9	-390.5	-411.9	-416.9	-435.8	-440.4
December	-460.1	-473.4	-476.2	-485.9	-488.0	-494.2	-495.3	-498.0	-498.2	-497.0	-496.3

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	487.5	478.3	475.5	462.9	459.1	443.4	439.0	420.3	415.3	394.1	388.5
February	352.6	326.9	320.2	292.9	286.1	257.5	250.1	220.7	213.2	182.8	175.0
March	151.9	120.8	112.9	81.4	73.5	41.7	33.9	2.0	-5.8	-37.5	-45.3
April	-92.5	-123.4	-131.1	-161.5	-169.1	-198.9	-206.1	-235.2	-242.4	-270.4	-277.1
May	-310.5	-336.0	-342.1	-365.8	-371.6	-393.4	-398.6	-418.5	-423.2	-440.6	-444.5
June	-466.1	-477.4	-480.0	-488.2	-490.1	-495.3	-496.1	-498.0	-498.2	-494.6	-496.3
July	-490.1	-482.3	-480.0	-469.4	-466.4	-452.6	-448.9	-432.6	-428.2	-409.6	-404.7
August	-372.9	-349.8	-343.9	-319.1	-312.8	-286.7	-279.9	-252.6	-245.7	-217.3	-210.1
September	-166.2	-136.2	-128.7	-98.1	-90.4	-59.6	-52.0	-20.9	-13.0	18.3	26.1
October	65.0	96.3	104.0	135.0	142.5	173.2	180.8	210.7	218.2	247.4	254.5
November	296.5	323.4	329.9	355.3	361.4	384.9	390.5	411.9	416.9	435.8	440.4
December	460.1	473.4	476.2	485.9	488.0	494.2	495.3	498.0	498.2	497.0	496.3

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: 40.0° N/S

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1285.6 mm
 Sunrise/Sunset Markers: X = ± 1116.3 mm

Local Time	X	Y	Z	W	Local Time	X	Y	Z	W		
12:00	0.0	1285.6	1285.6	0.0							
11:55	12:05	43.6	1285.3	1286.0	43.6	8:25	3:35	1612.9	760.2	1783.1	1696.3
11:50	12:10	87.2	1284.4	1287.3	87.2	8:20	3:40	1638.3	737.4	1796.6	1727.6
11:45	12:15	130.8	1282.8	1289.5	130.8	8:15	3:45	1662.9	714.2	1809.8	1758.4
11:40	12:20	174.3	1280.7	1292.5	174.4	8:10	3:50	1686.8	690.7	1822.7	1788.6
11:35	12:25	217.7	1277.9	1296.4	217.9	8:05	3:55	1709.8	666.9	1835.3	1818.3
11:30	12:30	261.1	1274.6	1301.0	261.3	8:00	4:00	1732.1	642.8	1847.5	1847.5
11:25	12:35	304.2	1270.6	1306.5	304.6	7:55	4:05	1753.5	618.3	1859.3	1876.1
11:20	12:40	347.3	1266.0	1312.8	347.8	7:50	4:10	1774.0	593.6	1870.7	1904.2
11:15	12:45	390.2	1260.9	1319.9	391.0	7:45	4:15	1793.7	568.6	1881.7	1931.7
11:10	12:50	432.9	1255.1	1327.7	434.0	7:40	4:20	1812.6	543.3	1892.3	1958.7
11:05	12:55	475.4	1248.7	1336.2	476.8	7:35	4:25	1830.6	517.8	1902.4	1985.1
11:00	1:00	517.6	1241.8	1345.3	519.5	7:30	4:30	1847.8	492.0	1912.1	2011.0
10:55	1:05	559.7	1234.2	1355.2	562.0	7:25	4:35	1864.0	465.9	1921.4	2036.3
10:50	1:10	601.4	1226.1	1365.6	604.3	7:20	4:40	1879.4	439.7	1930.1	2061.0
10:45	1:15	642.9	1217.3	1376.7	646.5	7:15	4:45	1893.9	413.2	1938.4	2085.1
10:40	1:20	684.0	1208.0	1388.3	688.4	7:10	4:50	1907.4	386.6	1946.2	2108.7
10:35	1:25	724.9	1198.2	1400.4	730.1	7:05	4:55	1920.1	359.7	1953.5	2131.7
10:30	1:30	765.4	1187.7	1413.0	771.6	7:00	5:00	1931.9	332.7	1960.3	2154.1
10:25	1:35	805.5	1176.7	1426.0	812.8	6:55	5:05	1942.7	305.6	1966.6	2175.9
10:20	1:40	845.2	1165.1	1439.4	853.8	6:50	5:10	1952.6	278.2	1972.3	2197.1
10:15	1:45	884.6	1153.0	1453.2	894.5	6:45	5:15	1961.6	250.8	1977.5	2217.8
10:10	1:50	923.5	1140.3	1467.4	934.9	6:40	5:20	1969.6	223.2	1982.2	2237.8
10:05	1:55	962.0	1127.1	1481.8	974.9	6:35	5:25	1976.7	195.6	1986.4	2257.3
10:00	2:00	1000.0	1113.3	1496.5	1014.7	6:30	5:30	1982.9	167.8	1990.0	2276.2
9:55	2:05	1037.5	1099.1	1511.4	1054.2	6:25	5:35	1988.1	140.0	1993.0	2294.6
9:50	2:10	1074.6	1084.2	1526.5	1093.3	6:20	5:40	1992.4	112.0	1995.5	2312.3
9:45	2:15	1111.1	1068.9	1541.8	1132.1	6:15	5:45	1995.7	84.1	1997.5	2329.5
9:40	2:20	1147.2	1053.1	1557.2	1170.5	6:10	5:50	1998.1	56.1	1998.9	2346.1
9:35	2:25	1182.6	1036.7	1572.7	1208.5	6:05	5:55	1999.5	28.0	1999.7	2362.1
9:30	2:30	1217.5	1019.9	1588.3	1246.2	6:00	6:00	2000.0	0.0	2000.0	2377.5
9:25	2:35	1251.8	1002.6	1603.8	1283.4	5:55	6:05	1999.5	-28.0	1999.7	2392.4
9:20	2:40	1285.6	984.8	1619.4	1320.3	5:50	6:10	1998.1	-56.1	1998.9	2406.7
9:15	2:45	1318.7	966.5	1635.0	1356.7	5:45	6:15	1995.7	-84.1	1997.5	2420.5
9:10	2:50	1351.2	947.8	1650.5	1392.8	5:40	6:20	1992.4	-112.0	1995.5	2433.7
9:05	2:55	1383.0	928.7	1665.9	1428.3	5:35	6:25	1988.1	-140.0	1993.0	2446.4
9:00	3:00	1414.2	909.0	1681.2	1463.5	5:30	6:30	1982.9	-167.8	1990.0	2458.5
8:55	3:05	1444.7	889.0	1696.3	1498.2	5:25	6:35	1976.7	-195.6	1986.4	2470.1
8:50	3:10	1474.6	868.5	1711.3	1532.4	5:20	6:40	1969.6	-223.2	1982.2	2481.1
8:45	3:15	1503.7	847.6	1726.1	1566.2	5:15	6:45	1961.6	-250.8	1977.5	2491.6
8:40	3:20	1532.1	826.4	1740.7	1599.4	5:10	6:50	1952.6	-278.2	1972.3	2501.6
8:35	3:25	1559.8	804.7	1755.1	1632.2	5:05	6:55	1942.7	-305.6	1966.6	2511.1
8:30	3:30	1586.7	782.6	1769.2	1664.5	5:00	7:00	1931.9	-332.7	1960.3	2520.1

Analemmatic Sundial**Latitude: 40.0° N/S**

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1285.6 mm

Sunrise/Sunset Markers: $X = \pm 1116.3$ mm

Local Time		X	Y	Z	W
4:55	7:05	1920.1	-359.7	1953.5	2528.6
4:50	7:10	1907.4	-386.6	1946.2	2536.6
4:45	7:15	1893.9	-413.2	1938.4	2544.1
4:40	7:20	1879.4	-439.7	1930.1	2551.2
4:35	7:25	1864.0	-465.9	1921.4	2557.8
4:30	7:30	1847.8	-492.0	1912.1	2564.0
4:25	7:35	1830.6	-517.8	1902.4	2569.7
4:20	7:40	1812.6	-543.3	1892.3	2575.0
4:15	7:45	1793.7	-568.6	1881.7	2579.8

Analemmatic Sundial

Latitude: 40.0° N/S

Date Scale

Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1285.6 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-650.0	-637.7	-634.0	-617.1	-612.2	-591.2	-585.4	-560.4	-553.7	-525.4	-518.0
February	-470.2	-435.8	-426.9	-390.5	-381.4	-343.3	-333.5	-294.2	-284.2	-243.8	-233.3
March	-202.5	-161.0	-150.5	-108.5	-98.0	-55.6	-45.2	-2.7	7.8	50.0	60.5
April	123.3	164.5	174.8	215.3	225.4	265.2	274.8	313.7	323.1	360.5	369.5
May	414.0	448.0	456.2	487.8	495.4	524.6	531.4	557.9	564.3	587.5	592.7
June	621.5	636.5	639.9	651.0	653.5	660.5	661.4	663.9	664.3	659.5	661.7
July	653.5	643.1	639.9	625.9	621.8	603.5	598.6	576.8	571.0	546.2	539.5
August	497.2	466.4	458.5	425.5	417.1	382.3	373.2	336.9	327.6	289.8	280.1
September	221.6	181.6	171.6	130.8	120.6	79.5	69.3	27.8	17.4	-24.3	-34.8
October	-86.7	-128.4	-138.6	-180.0	-190.0	-230.9	-241.0	-280.9	-290.9	-329.9	-339.4
November	-395.4	-431.2	-439.9	-473.7	-481.9	-513.2	-520.7	-549.2	-555.8	-581.1	-587.2
December	-613.4	-631.2	-634.9	-647.8	-650.6	-658.9	-660.5	-663.9	-664.3	-662.7	-661.7

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	650.0	637.7	634.0	617.1	612.2	591.2	585.4	560.4	553.7	525.4	518.0
February	470.2	435.8	426.9	390.5	381.4	343.3	333.5	294.2	284.2	243.8	233.3
March	202.5	161.0	150.5	108.5	98.0	55.6	45.2	2.7	-7.8	-50.0	-60.5
April	-123.3	-164.5	-174.8	-215.3	-225.4	-265.2	-274.8	-313.7	-323.1	-360.5	-369.5
May	-414.0	-448.0	-456.2	-487.8	-495.4	-524.6	-531.4	-557.9	-564.3	-587.5	-592.7
June	-621.5	-636.5	-639.9	-651.0	-653.5	-660.5	-661.4	-663.9	-664.3	-659.5	-661.7
July	-653.5	-643.1	-639.9	-625.9	-621.8	-603.5	-598.6	-576.8	-571.0	-546.2	-539.5
August	-497.2	-466.4	-458.5	-425.5	-417.1	-382.3	-373.2	-336.9	-327.6	-289.8	-280.1
September	-221.6	-181.6	-171.6	-130.8	-120.6	-79.5	-69.3	-27.8	-17.4	24.3	34.8
October	86.7	128.4	138.6	180.0	190.0	230.9	241.0	280.9	290.9	329.9	339.4
November	395.4	431.2	439.9	473.7	481.9	513.2	520.7	549.2	555.8	581.1	587.2
December	613.4	631.2	634.9	647.8	650.6	658.9	660.5	663.9	664.3	662.7	661.7

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: 40.0° N/S

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1607.0 mm
 Sunrise/Sunset Markers: X = ± 1395.4 mm

Local Time		X	Y	Z	W	Local Time		X	Y	Z	W
12:00		0.0	1607.0	1607.0	0.0						
11:55	12:05	54.5	1606.6	1607.5	54.5	8:25	3:35	2016.1	950.2	2228.8	2120.4
11:50	12:10	109.0	1605.4	1609.1	109.1	8:20	3:40	2047.9	921.7	2245.7	2159.5
11:45	12:15	163.5	1603.5	1611.8	163.5	8:15	3:45	2078.7	892.8	2262.3	2197.9
11:40	12:20	217.9	1600.9	1615.6	218.0	8:10	3:50	2108.5	863.4	2278.4	2235.7
11:35	12:25	272.2	1597.4	1620.4	272.3	8:05	3:55	2137.3	833.7	2294.1	2272.9
11:30	12:30	326.3	1593.2	1626.3	326.6	8:00	4:00	2165.1	803.5	2309.3	2309.3
11:25	12:35	380.3	1588.3	1633.2	380.8	7:55	4:05	2191.8	772.9	2324.1	2345.1
11:20	12:40	434.1	1582.6	1641.0	434.8	7:50	4:10	2217.5	742.0	2338.4	2380.2
11:15	12:45	487.7	1576.1	1649.8	488.7	7:45	4:15	2242.2	710.7	2352.1	2414.7
11:10	12:50	541.1	1568.9	1659.6	542.4	7:40	4:20	2265.8	679.1	2365.4	2448.4
11:05	12:55	594.2	1560.9	1670.2	596.0	7:35	4:25	2288.3	647.2	2378.0	2481.4
11:00	1:00	647.0	1552.2	1681.7	649.4	7:30	4:30	2309.7	615.0	2390.2	2513.7
10:55	1:05	699.6	1542.8	1694.0	702.5	7:25	4:35	2330.0	582.4	2401.7	2545.3
10:50	1:10	751.8	1532.6	1707.0	755.4	7:20	4:40	2349.2	549.6	2412.7	2576.2
10:45	1:15	803.6	1521.7	1720.8	808.1	7:15	4:45	2367.3	516.5	2423.0	2606.4
10:40	1:20	855.1	1510.1	1735.3	860.5	7:10	4:50	2384.3	483.2	2432.8	2635.8
10:35	1:25	906.1	1497.7	1750.5	912.7	7:05	4:55	2400.1	449.7	2441.9	2664.6
10:30	1:30	956.7	1484.6	1766.2	964.5	7:00	5:00	2414.8	415.9	2450.4	2692.6
10:25	1:35	1006.9	1470.9	1782.5	1016.0	6:55	5:05	2428.4	382.0	2458.2	2719.8
10:20	1:40	1056.5	1456.4	1799.3	1067.2	6:50	5:10	2440.7	347.8	2465.4	2746.4
10:15	1:45	1105.7	1441.2	1816.5	1118.1	6:45	5:15	2452.0	313.5	2471.9	2772.2
10:10	1:50	1154.4	1425.4	1834.2	1168.6	6:40	5:20	2462.0	279.0	2477.8	2797.3
10:05	1:55	1202.5	1408.9	1852.3	1218.7	6:35	5:25	2470.9	244.5	2483.0	2821.7
10:00	2:00	1250.0	1391.7	1870.6	1268.4	6:30	5:30	2478.6	209.8	2487.5	2845.3
9:55	2:05	1296.9	1373.8	1889.3	1317.7	6:25	5:35	2485.1	174.9	2491.3	2868.2
9:50	2:10	1343.2	1355.3	1908.2	1366.6	6:20	5:40	2490.5	140.1	2494.4	2890.4
9:45	2:15	1388.9	1336.1	1927.3	1415.1	6:15	5:45	2494.6	105.1	2496.9	2911.9
9:40	2:20	1433.9	1316.4	1946.5	1463.1	6:10	5:50	2497.6	70.1	2498.6	2932.6
9:35	2:25	1478.3	1295.9	1965.9	1510.6	6:05	5:55	2499.4	35.1	2499.7	2952.6
9:30	2:30	1521.9	1274.9	1985.3	1557.7	6:00	6:00	2500.0	0.0	2500.0	2971.9
9:25	2:35	1564.8	1253.3	2004.8	1604.3	5:55	6:05	2499.4	-35.1	2499.7	2990.5
9:20	2:40	1607.0	1231.0	2024.3	1650.4	5:50	6:10	2497.6	-70.1	2498.6	3008.4
9:15	2:45	1648.4	1208.2	2043.7	1695.9	5:45	6:15	2494.6	-105.1	2496.9	3025.6
9:10	2:50	1689.0	1184.8	2063.1	1740.9	5:40	6:20	2490.5	-140.1	2494.4	3042.1
9:05	2:55	1728.8	1160.8	2082.4	1785.4	5:35	6:25	2485.1	-174.9	2491.3	3058.0
9:00	3:00	1767.8	1136.3	2101.5	1829.4	5:30	6:30	2478.6	-209.8	2487.5	3073.1
8:55	3:05	1805.9	1111.2	2120.4	1872.7	5:25	6:35	2470.9	-244.5	2483.0	3087.6
8:50	3:10	1843.2	1085.7	2139.2	1915.5	5:20	6:40	2462.0	-279.0	2477.8	3101.4
8:45	3:15	1879.6	1059.5	2157.7	1957.7	5:15	6:45	2452.0	-313.5	2471.9	3114.5
8:40	3:20	1915.1	1032.9	2175.9	1999.3	5:10	6:50	2440.7	-347.8	2465.4	3127.0
8:35	3:25	1949.7	1005.8	2193.9	2040.3	5:05	6:55	2428.4	-382.0	2458.2	3138.9
8:30	3:30	1983.4	978.3	2211.5	2080.6	5:00	7:00	2414.8	-415.9	2450.4	3150.1

Analemmatic Sundial**Latitude: 40.0° N/S**

Earliest Sunrise: 4:29 a.m. Latest Sunset: 7:31 p.m.
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1607.0 mm
 Sunrise/Sunset Markers: $X = \pm 1395.4$ mm

Local Time		X	Y	Z	W
4:55	7:05	2400.1	-449.7	2441.9	3160.8
4:50	7:10	2384.3	-483.2	2432.8	3170.8
4:45	7:15	2367.3	-516.5	2423.0	3180.2
4:40	7:20	2349.2	-549.6	2412.7	3189.0
4:35	7:25	2330.0	-582.4	2401.7	3197.3
4:30	7:30	2309.7	-615.0	2390.2	3204.9
4:25	7:35	2288.3	-647.2	2378.0	3212.1
4:20	7:40	2265.8	-679.1	2365.4	3218.7
4:15	7:45	2242.2	-710.7	2352.1	3224.8

Analemmatic Sundial

Latitude: 40.0° N/S

Date Scale

Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1607.0 mm

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	-812.5	-797.2	-792.5	-771.4	-765.2	-739.0	-731.7	-700.5	-692.1	-656.8	-647.5
February	-587.7	-544.8	-533.6	-488.2	-476.8	-429.1	-416.9	-367.8	-355.3	-304.7	-291.7
March	-253.1	-201.3	-188.1	-135.6	-122.5	-69.6	-56.5	-3.3	9.7	62.5	75.6
April	154.1	205.7	218.5	269.2	281.8	331.5	343.5	392.1	403.9	450.6	461.9
May	517.5	560.0	570.2	609.7	619.3	655.7	664.3	697.4	705.4	734.4	740.9
June	776.9	795.6	799.9	813.7	816.9	825.6	826.8	829.9	830.3	824.4	827.2
July	816.9	803.9	799.9	782.3	777.3	754.4	748.2	721.0	713.7	682.7	674.4
August	621.5	583.0	573.1	531.8	521.4	477.8	466.5	421.1	409.5	362.2	350.1
September	277.0	227.0	214.5	163.5	150.7	99.4	86.6	34.8	21.7	-30.4	-43.5
October	-108.4	-160.5	-173.3	-225.0	-237.5	-288.6	-301.3	-351.1	-363.6	-412.3	-424.2
November	-494.2	-539.0	-549.9	-592.1	-602.4	-641.5	-650.8	-686.5	-694.8	-726.3	-734.0
December	-766.8	-789.0	-793.7	-809.8	-813.3	-823.6	-825.6	-829.9	-830.3	-828.3	-827.2

Northern Hemisphere

Month	Date										
	1	5	6	10	11	15	16	20	21	25	26
January	812.5	797.2	792.5	771.4	765.2	739.0	731.7	700.5	692.1	656.8	647.5
February	587.7	544.8	533.6	488.2	476.8	429.1	416.9	367.8	355.3	304.7	291.7
March	253.1	201.3	188.1	135.6	122.5	69.6	56.5	3.3	-9.7	-62.5	-75.6
April	-154.1	-205.7	-218.5	-269.2	-281.8	-331.5	-343.5	-392.1	-403.9	-450.6	-461.9
May	-517.5	-560.0	-570.2	-609.7	-619.3	-655.7	-664.3	-697.4	-705.4	-734.4	-740.9
June	-776.9	-795.6	-799.9	-813.7	-816.9	-825.6	-826.8	-829.9	-830.3	-824.4	-827.2
July	-816.9	-803.9	-799.9	-782.3	-777.3	-754.4	-748.2	-721.0	-713.7	-682.7	-674.4
August	-621.5	-583.0	-573.1	-531.8	-521.4	-477.8	-466.5	-421.1	-409.5	-362.2	-350.1
September	-277.0	-227.0	-214.5	-163.5	-150.7	-99.4	-86.6	-34.8	-21.7	30.4	43.5
October	108.4	160.5	173.3	225.0	237.5	288.6	301.3	351.1	363.6	412.3	424.2
November	494.2	539.0	549.9	592.1	602.4	641.5	650.8	686.5	694.8	726.3	734.0
December	766.8	789.0	793.7	809.8	813.3	823.6	825.6	829.9	830.3	828.3	827.2

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 |