

Analemmatic Sundial

Latitude: 34.5° N/S

Earliest Sunrise: 4:46 a.m. Latest Sunset: 7:14 p.m.  
 Semi-Major Axis (E-W): 1000 mm Semi-Minor Axis (N-S): 566.4 mm  
 Sunrise/Sunset Markers: X = ± 657.1 mm

| Local Time | X     | Y     | Z     | W     | Local Time | X    | Y    | Z      | W      |        |        |
|------------|-------|-------|-------|-------|------------|------|------|--------|--------|--------|--------|
| 12:00      | 0.0   | 566.4 | 566.4 | 0.0   |            |      |      |        |        |        |        |
| 11:55      | 12:05 | 21.8  | 566.3 | 566.7 | 21.8       | 8:10 | 3:50 | 843.4  | 304.3  | 896.6  | 883.2  |
| 11:50      | 12:10 | 43.6  | 565.9 | 567.5 | 43.6       | 8:05 | 3:55 | 854.9  | 293.8  | 904.0  | 897.3  |
| 11:45      | 12:15 | 65.4  | 565.2 | 569.0 | 65.4       | 8:00 | 4:00 | 866.0  | 283.2  | 911.2  | 911.2  |
| 11:40      | 12:20 | 87.2  | 564.3 | 570.9 | 87.2       | 7:55 | 4:05 | 876.7  | 272.4  | 918.1  | 924.7  |
| 11:35      | 12:25 | 108.9 | 563.0 | 573.5 | 108.9      | 7:50 | 4:10 | 887.0  | 261.5  | 924.8  | 937.9  |
| 11:30      | 12:30 | 130.5 | 561.6 | 576.5 | 130.6      | 7:45 | 4:15 | 896.9  | 250.5  | 931.2  | 950.9  |
| 11:25      | 12:35 | 152.1 | 559.8 | 580.1 | 152.3      | 7:40 | 4:20 | 906.3  | 239.4  | 937.4  | 963.5  |
| 11:20      | 12:40 | 173.6 | 557.8 | 584.2 | 173.9      | 7:35 | 4:25 | 915.3  | 228.1  | 943.3  | 975.8  |
| 11:15      | 12:45 | 195.1 | 555.5 | 588.8 | 195.4      | 7:30 | 4:30 | 923.9  | 216.8  | 949.0  | 987.8  |
| 11:10      | 12:50 | 216.4 | 553.0 | 593.8 | 216.9      | 7:25 | 4:35 | 932.0  | 205.3  | 954.3  | 999.5  |
| 11:05      | 12:55 | 237.7 | 550.2 | 599.3 | 238.2      | 7:20 | 4:40 | 939.7  | 193.7  | 959.5  | 1010.9 |
| 11:00      | 1:00  | 258.8 | 547.1 | 605.2 | 259.5      | 7:15 | 4:45 | 946.9  | 182.1  | 964.3  | 1022.0 |
| 10:55      | 1:05  | 279.8 | 543.8 | 611.6 | 280.7      | 7:10 | 4:50 | 953.7  | 170.3  | 968.8  | 1032.7 |
| 10:50      | 1:10  | 300.7 | 540.2 | 618.2 | 301.8      | 7:05 | 4:55 | 960.0  | 158.5  | 973.0  | 1043.1 |
| 10:45      | 1:15  | 321.4 | 536.3 | 625.3 | 322.8      | 7:00 | 5:00 | 965.9  | 146.6  | 977.0  | 1053.2 |
| 10:40      | 1:20  | 342.0 | 532.2 | 632.7 | 343.7      | 6:55 | 5:05 | 971.3  | 134.6  | 980.6  | 1063.0 |
| 10:35      | 1:25  | 362.4 | 527.9 | 640.3 | 364.5      | 6:50 | 5:10 | 976.3  | 122.6  | 984.0  | 1072.4 |
| 10:30      | 1:30  | 382.7 | 523.3 | 648.3 | 385.1      | 6:45 | 5:15 | 980.8  | 110.5  | 987.0  | 1081.6 |
| 10:25      | 1:35  | 402.7 | 518.4 | 656.5 | 405.6      | 6:40 | 5:20 | 984.8  | 98.4   | 989.7  | 1090.4 |
| 10:20      | 1:40  | 422.6 | 513.3 | 664.9 | 425.9      | 6:35 | 5:25 | 988.4  | 86.2   | 992.1  | 1098.9 |
| 10:15      | 1:45  | 442.3 | 508.0 | 673.6 | 446.1      | 6:30 | 5:30 | 991.4  | 73.9   | 994.2  | 1107.0 |
| 10:10      | 1:50  | 461.7 | 502.4 | 682.4 | 466.2      | 6:25 | 5:35 | 994.1  | 61.7   | 996.0  | 1114.9 |
| 10:05      | 1:55  | 481.0 | 496.6 | 691.3 | 486.0      | 6:20 | 5:40 | 996.2  | 49.4   | 997.4  | 1122.4 |
| 10:00      | 2:00  | 500.0 | 490.5 | 700.4 | 505.7      | 6:15 | 5:45 | 997.9  | 37.0   | 998.5  | 1129.6 |
| 9:55       | 2:05  | 518.8 | 484.2 | 709.6 | 525.2      | 6:10 | 5:50 | 999.0  | 24.7   | 999.4  | 1136.5 |
| 9:50       | 2:10  | 537.3 | 477.7 | 719.0 | 544.6      | 6:05 | 5:55 | 999.8  | 12.4   | 999.8  | 1143.0 |
| 9:45       | 2:15  | 555.6 | 470.9 | 728.3 | 563.7      | 6:00 | 6:00 | 1000.0 | 0.0    | 1000.0 | 1149.3 |
| 9:40       | 2:20  | 573.6 | 464.0 | 737.7 | 582.7      | 5:55 | 6:05 | 999.8  | -12.4  | 999.8  | 1155.2 |
| 9:35       | 2:25  | 591.3 | 456.8 | 747.2 | 601.4      | 5:50 | 6:10 | 999.0  | -24.7  | 999.4  | 1160.8 |
| 9:30       | 2:30  | 608.8 | 449.4 | 756.6 | 619.9      | 5:45 | 6:15 | 997.9  | -37.0  | 998.5  | 1166.1 |
| 9:25       | 2:35  | 625.9 | 441.7 | 766.1 | 638.2      | 5:40 | 6:20 | 996.2  | -49.4  | 997.4  | 1171.1 |
| 9:20       | 2:40  | 642.8 | 433.9 | 775.5 | 656.3      | 5:35 | 6:25 | 994.1  | -61.7  | 996.0  | 1175.8 |
| 9:15       | 2:45  | 659.3 | 425.8 | 784.9 | 674.2      | 5:30 | 6:30 | 991.4  | -73.9  | 994.2  | 1180.3 |
| 9:10       | 2:50  | 675.6 | 417.6 | 794.2 | 691.8      | 5:25 | 6:35 | 988.4  | -86.2  | 992.1  | 1184.4 |
| 9:05       | 2:55  | 691.5 | 409.2 | 803.5 | 709.2      | 5:20 | 6:40 | 984.8  | -98.4  | 989.7  | 1188.2 |
| 9:00       | 3:00  | 707.1 | 400.5 | 812.7 | 726.3      | 5:15 | 6:45 | 980.8  | -110.5 | 987.0  | 1191.7 |
| 8:55       | 3:05  | 722.4 | 391.7 | 821.7 | 743.2      | 5:10 | 6:50 | 976.3  | -122.6 | 984.0  | 1194.9 |
| 8:50       | 3:10  | 737.3 | 382.7 | 830.7 | 759.8      | 5:05 | 6:55 | 971.3  | -134.6 | 980.6  | 1197.9 |
| 8:45       | 3:15  | 751.8 | 373.5 | 839.5 | 776.2      | 5:00 | 7:00 | 965.9  | -146.6 | 977.0  | 1200.6 |
| 8:40       | 3:20  | 766.0 | 364.1 | 848.2 | 792.3      | 4:55 | 7:05 | 960.0  | -158.5 | 973.0  | 1203.0 |
| 8:35       | 3:25  | 779.9 | 354.5 | 856.7 | 808.2      | 4:50 | 7:10 | 953.7  | -170.3 | 968.8  | 1205.1 |
| 8:30       | 3:30  | 793.4 | 344.8 | 865.0 | 823.7      | 4:45 | 7:15 | 946.9  | -182.1 | 964.3  | 1207.0 |
| 8:25       | 3:35  | 806.4 | 334.9 | 873.2 | 839.0      |      |      |        |        |        |        |
| 8:20       | 3:40  | 819.2 | 324.9 | 881.2 | 854.0      |      |      |        |        |        |        |
| 8:15       | 3:45  | 831.5 | 314.7 | 889.0 | 868.7      |      |      |        |        |        |        |

## Analematic Sundial

Latitude: 34.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1000 mm    Semi-Minor Axis (N-S): 566.4 mm

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | -349.7 | -343.1 | -341.0 | -332.0 | -329.3 | -318.0 | -314.9 | -301.4 | -297.8 | -282.6 | -278.6 |
| February  | -252.9 | -234.4 | -229.6 | -210.1 | -205.2 | -184.7 | -179.4 | -158.3 | -152.9 | -131.1 | -125.5 |
| March     | -108.9 | -86.6  | -81.0  | -58.4  | -52.7  | -29.9  | -24.3  | -1.4   | 4.2    | 26.9   | 32.5   |
| April     | 66.3   | 88.5   | 94.0   | 115.8  | 121.3  | 142.6  | 147.8  | 168.7  | 173.8  | 193.9  | 198.8  |
| May       | 222.7  | 241.0  | 245.4  | 262.4  | 266.5  | 282.2  | 285.9  | 300.1  | 303.5  | 316.0  | 318.8  |
| June      | 334.3  | 342.4  | 344.2  | 350.2  | 351.5  | 355.3  | 355.8  | 357.1  | 357.3  | 354.8  | 355.9  |
| July      | 351.5  | 345.9  | 344.2  | 336.7  | 334.5  | 324.6  | 322.0  | 310.3  | 307.1  | 293.8  | 290.2  |
| August    | 267.5  | 250.9  | 246.6  | 228.9  | 224.4  | 205.6  | 200.7  | 181.2  | 176.2  | 155.9  | 150.7  |
| September | 119.2  | 97.7   | 92.3   | 70.4   | 64.9   | 42.8   | 37.3   | 15.0   | 9.3    | -13.1  | -18.7  |
| October   | -46.7  | -69.1  | -74.6  | -96.8  | -102.2 | -124.2 | -129.6 | -151.1 | -156.5 | -177.4 | -182.6 |
| November  | -212.7 | -232.0 | -236.6 | -254.8 | -259.2 | -276.1 | -280.1 | -295.4 | -299.0 | -312.6 | -315.9 |
| December  | -330.0 | -339.5 | -341.5 | -348.5 | -350.0 | -354.4 | -355.3 | -357.1 | -357.3 | -356.5 | -355.9 |

Northern Hemisphere

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | 349.7  | 343.1  | 341.0  | 332.0  | 329.3  | 318.0  | 314.9  | 301.4  | 297.8  | 282.6  | 278.6  |
| February  | 252.9  | 234.4  | 229.6  | 210.1  | 205.2  | 184.7  | 179.4  | 158.3  | 152.9  | 131.1  | 125.5  |
| March     | 108.9  | 86.6   | 81.0   | 58.4   | 52.7   | 29.9   | 24.3   | 1.4    | -4.2   | -26.9  | -32.5  |
| April     | -66.3  | -88.5  | -94.0  | -115.8 | -121.3 | -142.6 | -147.8 | -168.7 | -173.8 | -193.9 | -198.8 |
| May       | -222.7 | -241.0 | -245.4 | -262.4 | -266.5 | -282.2 | -285.9 | -300.1 | -303.5 | -316.0 | -318.8 |
| June      | -334.3 | -342.4 | -344.2 | -350.2 | -351.5 | -355.3 | -355.8 | -357.1 | -357.3 | -354.8 | -355.9 |
| July      | -351.5 | -345.9 | -344.2 | -336.7 | -334.5 | -324.6 | -322.0 | -310.3 | -307.1 | -293.8 | -290.2 |
| August    | -267.5 | -250.9 | -246.6 | -228.9 | -224.4 | -205.6 | -200.7 | -181.2 | -176.2 | -155.9 | -150.7 |
| September | -119.2 | -97.7  | -92.3  | -70.4  | -64.9  | -42.8  | -37.3  | -15.0  | -9.3   | 13.1   | 18.7   |
| October   | 46.7   | 69.1   | 74.6   | 96.8   | 102.2  | 124.2  | 129.6  | 151.1  | 156.5  | 177.4  | 182.6  |
| November  | 212.7  | 232.0  | 236.6  | 254.8  | 259.2  | 276.1  | 280.1  | 295.4  | 299.0  | 312.6  | 315.9  |
| December  | 330.0  | 339.5  | 341.5  | 348.5  | 350.0  | 354.4  | 355.3  | 357.1  | 357.3  | 356.5  | 355.9  |

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: 34.5° N/S

Earliest Sunrise: 4:46 a.m.    Latest Sunset: 7:14 p.m.  
 Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 849.6 mm  
 Sunrise/Sunset Markers: X = ± 985.7 mm

| Local Time | X     | Y      | Z     | W      | Local Time | X    | Y    | Z      | W      |        |        |
|------------|-------|--------|-------|--------|------------|------|------|--------|--------|--------|--------|
| 12:00      | 0.0   | 849.6  | 849.6 | 0.0    |            |      |      |        |        |        |        |
| 11:55      | 12:05 | 32.7   | 849.4 | 850.0  | 32.7       | 8:10 | 3:50 | 1265.1 | 456.5  | 1344.9 | 1324.8 |
| 11:50      | 12:10 | 65.4   | 848.8 | 851.3  | 65.4       | 8:05 | 3:55 | 1282.4 | 440.8  | 1356.0 | 1346.0 |
| 11:45      | 12:15 | 98.1   | 847.8 | 853.4  | 98.1       | 8:00 | 4:00 | 1299.0 | 424.8  | 1366.7 | 1366.7 |
| 11:40      | 12:20 | 130.7  | 846.4 | 856.4  | 130.8      | 7:55 | 4:05 | 1315.1 | 408.7  | 1377.1 | 1387.0 |
| 11:35      | 12:25 | 163.3  | 844.6 | 860.2  | 163.4      | 7:50 | 4:10 | 1330.5 | 392.3  | 1387.1 | 1406.9 |
| 11:30      | 12:30 | 195.8  | 842.3 | 864.8  | 195.9      | 7:45 | 4:15 | 1345.3 | 375.8  | 1396.8 | 1426.3 |
| 11:25      | 12:35 | 228.2  | 839.7 | 870.2  | 228.4      | 7:40 | 4:20 | 1359.5 | 359.1  | 1406.1 | 1445.3 |
| 11:20      | 12:40 | 260.5  | 836.7 | 876.3  | 260.8      | 7:35 | 4:25 | 1373.0 | 342.2  | 1415.0 | 1463.7 |
| 11:15      | 12:45 | 292.6  | 833.3 | 883.2  | 293.1      | 7:30 | 4:30 | 1385.8 | 325.1  | 1423.4 | 1481.7 |
| 11:10      | 12:50 | 324.7  | 829.5 | 890.7  | 325.3      | 7:25 | 4:35 | 1398.0 | 307.9  | 1431.5 | 1499.3 |
| 11:05      | 12:55 | 356.5  | 825.3 | 899.0  | 357.4      | 7:20 | 4:40 | 1409.5 | 290.6  | 1439.2 | 1516.3 |
| 11:00      | 1:00  | 388.2  | 820.7 | 907.9  | 389.3      | 7:15 | 4:45 | 1420.4 | 273.1  | 1446.4 | 1532.9 |
| 10:55      | 1:05  | 419.7  | 815.7 | 917.3  | 421.1      | 7:10 | 4:50 | 1430.6 | 255.5  | 1453.2 | 1549.0 |
| 10:50      | 1:10  | 451.1  | 810.3 | 927.4  | 452.8      | 7:05 | 4:55 | 1440.1 | 237.7  | 1459.6 | 1564.7 |
| 10:45      | 1:15  | 482.2  | 804.5 | 937.9  | 484.3      | 7:00 | 5:00 | 1448.9 | 219.9  | 1465.5 | 1579.8 |
| 10:40      | 1:20  | 513.0  | 798.4 | 949.0  | 515.6      | 6:55 | 5:05 | 1457.0 | 201.9  | 1470.9 | 1594.5 |
| 10:35      | 1:25  | 543.7  | 791.8 | 960.5  | 546.7      | 6:50 | 5:10 | 1464.4 | 183.9  | 1475.9 | 1608.7 |
| 10:30      | 1:30  | 574.0  | 784.9 | 972.4  | 577.7      | 6:45 | 5:15 | 1471.2 | 165.8  | 1480.5 | 1622.4 |
| 10:25      | 1:35  | 604.1  | 777.7 | 984.7  | 608.4      | 6:40 | 5:20 | 1477.2 | 147.5  | 1484.6 | 1635.6 |
| 10:20      | 1:40  | 633.9  | 770.0 | 997.4  | 638.9      | 6:35 | 5:25 | 1482.5 | 129.2  | 1488.2 | 1648.3 |
| 10:15      | 1:45  | 663.4  | 762.0 | 1010.3 | 669.2      | 6:30 | 5:30 | 1487.2 | 110.9  | 1491.3 | 1660.5 |
| 10:10      | 1:50  | 692.6  | 753.6 | 1023.6 | 699.2      | 6:25 | 5:35 | 1491.1 | 92.5   | 1494.0 | 1672.3 |
| 10:05      | 1:55  | 721.5  | 744.9 | 1037.0 | 729.0      | 6:20 | 5:40 | 1494.3 | 74.0   | 1496.1 | 1683.6 |
| 10:00      | 2:00  | 750.0  | 735.8 | 1050.7 | 758.6      | 6:15 | 5:45 | 1496.8 | 55.6   | 1497.8 | 1694.4 |
| 9:55       | 2:05  | 778.2  | 726.3 | 1064.5 | 787.9      | 6:10 | 5:50 | 1498.6 | 37.1   | 1499.0 | 1704.7 |
| 9:50       | 2:10  | 805.9  | 716.6 | 1078.4 | 816.9      | 6:05 | 5:55 | 1499.6 | 18.5   | 1499.8 | 1714.5 |
| 9:45       | 2:15  | 833.4  | 706.4 | 1092.5 | 845.6      | 6:00 | 6:00 | 1500.0 | 0.0    | 1500.0 | 1723.9 |
| 9:40       | 2:20  | 860.4  | 696.0 | 1106.6 | 874.0      | 5:55 | 6:05 | 1499.6 | -18.5  | 1499.8 | 1732.8 |
| 9:35       | 2:25  | 887.0  | 685.2 | 1120.8 | 902.1      | 5:50 | 6:10 | 1498.6 | -37.1  | 1499.0 | 1741.2 |
| 9:30       | 2:30  | 913.1  | 674.0 | 1135.0 | 929.9      | 5:45 | 6:15 | 1496.8 | -55.6  | 1497.8 | 1749.2 |
| 9:25       | 2:35  | 938.9  | 662.6 | 1149.1 | 957.3      | 5:40 | 6:20 | 1494.3 | -74.0  | 1496.1 | 1756.7 |
| 9:20       | 2:40  | 964.2  | 650.8 | 1163.3 | 984.5      | 5:35 | 6:25 | 1491.1 | -92.5  | 1494.0 | 1763.8 |
| 9:15       | 2:45  | 989.0  | 638.8 | 1177.4 | 1011.2     | 5:30 | 6:30 | 1487.2 | -110.9 | 1491.3 | 1770.4 |
| 9:10       | 2:50  | 1013.4 | 626.4 | 1191.4 | 1037.7     | 5:25 | 6:35 | 1482.5 | -129.2 | 1488.2 | 1776.5 |
| 9:05       | 2:55  | 1037.3 | 613.7 | 1205.2 | 1063.8     | 5:20 | 6:40 | 1477.2 | -147.5 | 1484.6 | 1782.3 |
| 9:00       | 3:00  | 1060.7 | 600.8 | 1219.0 | 1089.5     | 5:15 | 6:45 | 1471.2 | -165.8 | 1480.5 | 1787.5 |
| 8:55       | 3:05  | 1083.5 | 587.5 | 1232.6 | 1114.8     | 5:10 | 6:50 | 1464.4 | -183.9 | 1475.9 | 1792.4 |
| 8:50       | 3:10  | 1105.9 | 574.0 | 1246.0 | 1139.7     | 5:05 | 6:55 | 1457.0 | -201.9 | 1470.9 | 1796.8 |
| 8:45       | 3:15  | 1127.8 | 560.2 | 1259.2 | 1164.3     | 5:00 | 7:00 | 1448.9 | -219.9 | 1465.5 | 1800.9 |
| 8:40       | 3:20  | 1149.1 | 546.1 | 1272.2 | 1188.5     | 4:55 | 7:05 | 1440.1 | -237.7 | 1459.6 | 1804.5 |
| 8:35       | 3:25  | 1169.8 | 531.8 | 1285.0 | 1212.2     | 4:50 | 7:10 | 1430.6 | -255.5 | 1453.2 | 1807.7 |
| 8:30       | 3:30  | 1190.0 | 517.2 | 1297.6 | 1235.6     | 4:45 | 7:15 | 1420.4 | -273.1 | 1446.4 | 1810.5 |
| 8:25       | 3:35  | 1209.7 | 502.4 | 1309.8 | 1258.5     |      |      |        |        |        |        |
| 8:20       | 3:40  | 1228.7 | 487.3 | 1321.8 | 1281.0     |      |      |        |        |        |        |
| 8:15       | 3:45  | 1247.2 | 472.0 | 1333.5 | 1303.1     |      |      |        |        |        |        |

## Analematic Sundial

Latitude: 34.5° N/S

## Date Scale

Semi-Major Axis (E-W): 1500 mm    Semi-Minor Axis (N-S): 849.6 mm

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | -524.5 | -514.6 | -511.5 | -497.9 | -493.9 | -477.0 | -472.3 | -452.1 | -446.8 | -424.0 | -417.9 |
| February  | -379.4 | -351.7 | -344.5 | -315.1 | -307.8 | -277.0 | -269.1 | -237.4 | -229.3 | -196.7 | -188.3 |
| March     | -163.4 | -129.9 | -121.4 | -87.5  | -79.1  | -44.9  | -36.5  | -2.2   | 6.3    | 40.4   | 48.8   |
| April     | 99.5   | 132.8  | 141.1  | 173.7  | 181.9  | 214.0  | 221.8  | 253.1  | 260.7  | 290.9  | 298.2  |
| May       | 334.0  | 361.5  | 368.1  | 393.6  | 399.8  | 423.2  | 428.8  | 450.2  | 455.3  | 474.0  | 478.2  |
| June      | 501.5  | 513.6  | 516.3  | 525.2  | 527.3  | 532.9  | 533.7  | 535.7  | 536.0  | 532.1  | 533.9  |
| July      | 527.3  | 518.9  | 516.3  | 505.0  | 501.7  | 486.9  | 483.0  | 465.4  | 460.7  | 440.7  | 435.3  |
| August    | 401.2  | 376.3  | 369.9  | 343.3  | 336.6  | 308.4  | 301.1  | 271.8  | 264.3  | 233.8  | 226.0  |
| September | 178.8  | 146.5  | 138.4  | 105.5  | 97.3   | 64.1   | 55.9   | 22.4   | 14.0   | -19.6  | -28.1  |
| October   | -70.0  | -103.6 | -111.8 | -145.2 | -153.3 | -186.3 | -194.5 | -226.7 | -234.7 | -266.1 | -273.8 |
| November  | -319.0 | -347.9 | -354.9 | -382.2 | -388.8 | -414.1 | -420.1 | -443.1 | -448.5 | -468.8 | -473.8 |
| December  | -494.9 | -509.3 | -512.3 | -522.7 | -525.0 | -531.6 | -532.9 | -535.7 | -536.0 | -534.7 | -533.9 |

Northern Hemisphere

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | 524.5  | 514.6  | 511.5  | 497.9  | 493.9  | 477.0  | 472.3  | 452.1  | 446.8  | 424.0  | 417.9  |
| February  | 379.4  | 351.7  | 344.5  | 315.1  | 307.8  | 277.0  | 269.1  | 237.4  | 229.3  | 196.7  | 188.3  |
| March     | 163.4  | 129.9  | 121.4  | 87.5   | 79.1   | 44.9   | 36.5   | 2.2    | -6.3   | -40.4  | -48.8  |
| April     | -99.5  | -132.8 | -141.1 | -173.7 | -181.9 | -214.0 | -221.8 | -253.1 | -260.7 | -290.9 | -298.2 |
| May       | -334.0 | -361.5 | -368.1 | -393.6 | -399.8 | -423.2 | -428.8 | -450.2 | -455.3 | -474.0 | -478.2 |
| June      | -501.5 | -513.6 | -516.3 | -525.2 | -527.3 | -532.9 | -533.7 | -535.7 | -536.0 | -532.1 | -533.9 |
| July      | -527.3 | -518.9 | -516.3 | -505.0 | -501.7 | -486.9 | -483.0 | -465.4 | -460.7 | -440.7 | -435.3 |
| August    | -401.2 | -376.3 | -369.9 | -343.3 | -336.6 | -308.4 | -301.1 | -271.8 | -264.3 | -233.8 | -226.0 |
| September | -178.8 | -146.5 | -138.4 | -105.5 | -97.3  | -64.1  | -55.9  | -22.4  | -14.0  | 19.6   | 28.1   |
| October   | 70.0   | 103.6  | 111.8  | 145.2  | 153.3  | 186.3  | 194.5  | 226.7  | 234.7  | 266.1  | 273.8  |
| November  | 319.0  | 347.9  | 354.9  | 382.2  | 388.8  | 414.1  | 420.1  | 443.1  | 448.5  | 468.8  | 473.8  |
| December  | 494.9  | 509.3  | 512.3  | 522.7  | 525.0  | 531.6  | 532.9  | 535.7  | 536.0  | 534.7  | 533.9  |

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: 34.5° N/S

Earliest Sunrise: 4:46 a.m. Latest Sunset: 7:14 p.m.  
 Semi-Major Axis (E-W): 2000 mm Semi-Minor Axis (N-S): 1132.8 mm  
 Sunrise/Sunset Markers: X = ± 1314.2 mm

| Local Time | X     | Y      | Z      | W      | Local Time | X    | Y    | Z      | W      |        |        |
|------------|-------|--------|--------|--------|------------|------|------|--------|--------|--------|--------|
| 12:00      | 0.0   | 1132.8 | 1132.8 | 0.0    |            |      |      |        |        |        |        |
| 11:55      | 12:05 | 43.6   | 1132.5 | 1133.4 | 43.6       | 8:10 | 3:50 | 1686.8 | 608.7  | 1793.2 | 1766.3 |
| 11:50      | 12:10 | 87.2   | 1131.7 | 1135.1 | 87.2       | 8:05 | 3:55 | 1709.8 | 587.7  | 1808.0 | 1794.6 |
| 11:45      | 12:15 | 130.8  | 1130.4 | 1137.9 | 130.8      | 8:00 | 4:00 | 1732.1 | 566.4  | 1822.3 | 1822.3 |
| 11:40      | 12:20 | 174.3  | 1128.5 | 1141.9 | 174.4      | 7:55 | 4:05 | 1753.5 | 544.9  | 1836.2 | 1849.4 |
| 11:35      | 12:25 | 217.7  | 1126.1 | 1146.9 | 217.8      | 7:50 | 4:10 | 1774.0 | 523.1  | 1849.5 | 1875.9 |
| 11:30      | 12:30 | 261.1  | 1123.1 | 1153.1 | 261.2      | 7:45 | 4:15 | 1793.7 | 501.0  | 1862.4 | 1901.8 |
| 11:25      | 12:35 | 304.2  | 1119.6 | 1160.2 | 304.5      | 7:40 | 4:20 | 1812.6 | 478.7  | 1874.8 | 1927.0 |
| 11:20      | 12:40 | 347.3  | 1115.6 | 1168.4 | 347.7      | 7:35 | 4:25 | 1830.6 | 456.2  | 1886.6 | 1951.6 |
| 11:15      | 12:45 | 390.2  | 1111.0 | 1177.6 | 390.8      | 7:30 | 4:30 | 1847.8 | 433.5  | 1897.9 | 1975.7 |
| 11:10      | 12:50 | 432.9  | 1106.0 | 1187.7 | 433.7      | 7:25 | 4:35 | 1864.0 | 410.6  | 1908.7 | 1999.0 |
| 11:05      | 12:55 | 475.4  | 1100.3 | 1198.6 | 476.5      | 7:20 | 4:40 | 1879.4 | 387.4  | 1918.9 | 2021.8 |
| 11:00      | 1:00  | 517.6  | 1094.2 | 1210.5 | 519.1      | 7:15 | 4:45 | 1893.9 | 364.1  | 1928.5 | 2043.9 |
| 10:55      | 1:05  | 559.7  | 1087.6 | 1223.1 | 561.5      | 7:10 | 4:50 | 1907.4 | 340.6  | 1937.6 | 2065.4 |
| 10:50      | 1:10  | 601.4  | 1080.4 | 1236.5 | 603.7      | 7:05 | 4:55 | 1920.1 | 317.0  | 1946.1 | 2086.2 |
| 10:45      | 1:15  | 642.9  | 1072.7 | 1250.6 | 645.7      | 7:00 | 5:00 | 1931.9 | 293.2  | 1954.0 | 2106.4 |
| 10:40      | 1:20  | 684.0  | 1064.5 | 1265.3 | 687.4      | 6:55 | 5:05 | 1942.7 | 269.3  | 1961.3 | 2126.0 |
| 10:35      | 1:25  | 724.9  | 1055.8 | 1280.7 | 729.0      | 6:50 | 5:10 | 1952.6 | 245.2  | 1967.9 | 2144.9 |
| 10:30      | 1:30  | 765.4  | 1046.6 | 1296.6 | 770.2      | 6:45 | 5:15 | 1961.6 | 221.0  | 1974.0 | 2163.1 |
| 10:25      | 1:35  | 805.5  | 1036.9 | 1313.0 | 811.2      | 6:40 | 5:20 | 1969.6 | 196.7  | 1979.4 | 2180.8 |
| 10:20      | 1:40  | 845.2  | 1026.7 | 1329.8 | 851.9      | 6:35 | 5:25 | 1976.7 | 172.3  | 1984.2 | 2197.7 |
| 10:15      | 1:45  | 884.6  | 1016.0 | 1347.1 | 892.3      | 6:30 | 5:30 | 1982.9 | 147.9  | 1988.4 | 2214.0 |
| 10:10      | 1:50  | 923.5  | 1004.8 | 1364.7 | 932.3      | 6:25 | 5:35 | 1988.1 | 123.3  | 1991.9 | 2229.7 |
| 10:05      | 1:55  | 962.0  | 993.2  | 1382.7 | 972.1      | 6:20 | 5:40 | 1992.4 | 98.7   | 1994.8 | 2244.8 |
| 10:00      | 2:00  | 1000.0 | 981.0  | 1400.9 | 1011.5     | 6:15 | 5:45 | 1995.7 | 74.1   | 1997.1 | 2259.2 |
| 9:55       | 2:05  | 1037.5 | 968.5  | 1419.3 | 1050.5     | 6:10 | 5:50 | 1998.1 | 49.4   | 1998.7 | 2272.9 |
| 9:50       | 2:10  | 1074.6 | 955.4  | 1437.9 | 1089.1     | 6:05 | 5:55 | 1999.5 | 24.7   | 1999.7 | 2286.0 |
| 9:45       | 2:15  | 1111.1 | 941.9  | 1456.6 | 1127.4     | 6:00 | 6:00 | 2000.0 | 0.0    | 2000.0 | 2298.5 |
| 9:40       | 2:20  | 1147.2 | 927.9  | 1475.5 | 1165.3     | 5:55 | 6:05 | 1999.5 | -24.7  | 1999.7 | 2310.4 |
| 9:35       | 2:25  | 1182.6 | 913.6  | 1494.4 | 1202.8     | 5:50 | 6:10 | 1998.1 | -49.4  | 1998.7 | 2321.6 |
| 9:30       | 2:30  | 1217.5 | 898.7  | 1513.3 | 1239.8     | 5:45 | 6:15 | 1995.7 | -74.1  | 1997.1 | 2332.3 |
| 9:25       | 2:35  | 1251.8 | 883.5  | 1532.2 | 1276.4     | 5:40 | 6:20 | 1992.4 | -98.7  | 1994.8 | 2342.3 |
| 9:20       | 2:40  | 1285.6 | 867.8  | 1551.0 | 1312.6     | 5:35 | 6:25 | 1988.1 | -123.3 | 1991.9 | 2351.7 |
| 9:15       | 2:45  | 1318.7 | 851.7  | 1569.8 | 1348.3     | 5:30 | 6:30 | 1982.9 | -147.9 | 1988.4 | 2360.5 |
| 9:10       | 2:50  | 1351.2 | 835.2  | 1588.5 | 1383.6     | 5:25 | 6:35 | 1976.7 | -172.3 | 1984.2 | 2368.7 |
| 9:05       | 2:55  | 1383.0 | 818.3  | 1607.0 | 1418.3     | 5:20 | 6:40 | 1969.6 | -196.7 | 1979.4 | 2376.3 |
| 9:00       | 3:00  | 1414.2 | 801.0  | 1625.3 | 1452.6     | 5:15 | 6:45 | 1961.6 | -221.0 | 1974.0 | 2383.4 |
| 8:55       | 3:05  | 1444.7 | 783.4  | 1643.4 | 1486.4     | 5:10 | 6:50 | 1952.6 | -245.2 | 1967.9 | 2389.9 |
| 8:50       | 3:10  | 1474.6 | 765.3  | 1661.3 | 1519.7     | 5:05 | 6:55 | 1942.7 | -269.3 | 1961.3 | 2395.8 |
| 8:45       | 3:15  | 1503.7 | 746.9  | 1679.0 | 1552.4     | 5:00 | 7:00 | 1931.9 | -293.2 | 1954.0 | 2401.2 |
| 8:40       | 3:20  | 1532.1 | 728.2  | 1696.3 | 1584.6     | 4:55 | 7:05 | 1920.1 | -317.0 | 1946.1 | 2406.0 |
| 8:35       | 3:25  | 1559.8 | 709.1  | 1713.4 | 1616.3     | 4:50 | 7:10 | 1907.4 | -340.6 | 1937.6 | 2410.3 |
| 8:30       | 3:30  | 1586.7 | 689.6  | 1730.1 | 1647.4     | 4:45 | 7:15 | 1893.9 | -364.1 | 1928.5 | 2414.0 |
| 8:25       | 3:35  | 1612.9 | 669.8  | 1746.5 | 1678.0     |      |      |        |        |        |        |
| 8:20       | 3:40  | 1638.3 | 649.8  | 1762.4 | 1708.0     |      |      |        |        |        |        |
| 8:15       | 3:45  | 1662.9 | 629.4  | 1778.0 | 1737.5     |      |      |        |        |        |        |

## Analemmatic Sundial

Latitude: 34.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2000 mm    Semi-Minor Axis (N-S): 1132.8 mm

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | -699.3 | -686.1 | -682.1 | -663.9 | -658.6 | -636.0 | -629.7 | -602.8 | -595.7 | -565.3 | -557.3 |
| February  | -505.8 | -468.9 | -459.3 | -420.1 | -410.3 | -369.3 | -358.8 | -316.5 | -305.8 | -262.2 | -251.0 |
| March     | -217.9 | -173.2 | -161.9 | -116.7 | -105.4 | -59.9  | -48.6  | -2.9   | 8.3    | 53.8   | 65.0   |
| April     | 132.6  | 177.0  | 188.1  | 231.6  | 242.5  | 285.3  | 295.7  | 337.4  | 347.6  | 387.8  | 397.5  |
| May       | 445.3  | 482.0  | 490.7  | 524.8  | 533.0  | 564.3  | 571.7  | 600.2  | 607.1  | 632.0  | 637.7  |
| June      | 668.6  | 684.8  | 688.5  | 700.3  | 703.0  | 710.5  | 711.6  | 714.3  | 714.6  | 709.5  | 711.9  |
| July      | 703.0  | 691.8  | 688.5  | 673.3  | 669.0  | 649.3  | 644.0  | 620.5  | 614.3  | 587.6  | 580.4  |
| August    | 534.9  | 501.7  | 493.2  | 457.7  | 448.7  | 411.3  | 401.5  | 362.4  | 352.5  | 311.7  | 301.3  |
| September | 238.4  | 195.4  | 184.6  | 140.7  | 129.7  | 85.5   | 74.6   | 29.9   | 18.7   | -26.2  | -37.4  |
| October   | -93.3  | -138.1 | -149.1 | -193.6 | -204.4 | -248.4 | -259.3 | -302.2 | -312.9 | -354.9 | -365.1 |
| November  | -425.3 | -463.9 | -473.3 | -509.6 | -518.4 | -552.1 | -560.1 | -590.8 | -598.0 | -625.1 | -631.7 |
| December  | -659.9 | -679.0 | -683.1 | -696.9 | -700.0 | -708.8 | -710.5 | -714.3 | -714.6 | -712.9 | -711.9 |

Northern Hemisphere

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | 699.3  | 686.1  | 682.1  | 663.9  | 658.6  | 636.0  | 629.7  | 602.8  | 595.7  | 565.3  | 557.3  |
| February  | 505.8  | 468.9  | 459.3  | 420.1  | 410.3  | 369.3  | 358.8  | 316.5  | 305.8  | 262.2  | 251.0  |
| March     | 217.9  | 173.2  | 161.9  | 116.7  | 105.4  | 59.9   | 48.6   | 2.9    | -8.3   | -53.8  | -65.0  |
| April     | -132.6 | -177.0 | -188.1 | -231.6 | -242.5 | -285.3 | -295.7 | -337.4 | -347.6 | -387.8 | -397.5 |
| May       | -445.3 | -482.0 | -490.7 | -524.8 | -533.0 | -564.3 | -571.7 | -600.2 | -607.1 | -632.0 | -637.7 |
| June      | -668.6 | -684.8 | -688.5 | -700.3 | -703.0 | -710.5 | -711.6 | -714.3 | -714.6 | -709.5 | -711.9 |
| July      | -703.0 | -691.8 | -688.5 | -673.3 | -669.0 | -649.3 | -644.0 | -620.5 | -614.3 | -587.6 | -580.4 |
| August    | -534.9 | -501.7 | -493.2 | -457.7 | -448.7 | -411.3 | -401.5 | -362.4 | -352.5 | -311.7 | -301.3 |
| September | -238.4 | -195.4 | -184.6 | -140.7 | -129.7 | -85.5  | -74.6  | -29.9  | -18.7  | 26.2   | 37.4   |
| October   | 93.3   | 138.1  | 149.1  | 193.6  | 204.4  | 248.4  | 259.3  | 302.2  | 312.9  | 354.9  | 365.1  |
| November  | 425.3  | 463.9  | 473.3  | 509.6  | 518.4  | 552.1  | 560.1  | 590.8  | 598.0  | 625.1  | 631.7  |
| December  | 659.9  | 679.0  | 683.1  | 696.9  | 700.0  | 708.8  | 710.5  | 714.3  | 714.6  | 712.9  | 711.9  |

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: 34.5° N/S

Earliest Sunrise: 4:46 a.m. Latest Sunset: 7:14 p.m.  
 Semi-Major Axis (E-W): 2500 mm Semi-Minor Axis (N-S): 1416.0 mm  
 Sunrise/Sunset Markers: X = ± 1642.8 mm

| Local Time | X     | Y      | Z      | W      | Local Time | X    | Y    | Z      | W      |        |        |
|------------|-------|--------|--------|--------|------------|------|------|--------|--------|--------|--------|
| 12:00      | 0.0   | 1416.0 | 1416.0 | 0.0    |            |      |      |        |        |        |        |
| 11:55      | 12:05 | 54.5   | 1415.7 | 1416.7 | 54.5       | 8:10 | 3:50 | 2108.5 | 760.8  | 2241.5 | 2207.9 |
| 11:50      | 12:10 | 109.0  | 1414.7 | 1418.9 | 109.1      | 8:05 | 3:55 | 2137.3 | 734.6  | 2260.0 | 2243.3 |
| 11:45      | 12:15 | 163.5  | 1413.0 | 1422.4 | 163.5      | 8:00 | 4:00 | 2165.1 | 708.0  | 2277.9 | 2277.9 |
| 11:40      | 12:20 | 217.9  | 1410.6 | 1427.4 | 218.0      | 7:55 | 4:05 | 2191.8 | 681.1  | 2295.2 | 2311.7 |
| 11:35      | 12:25 | 272.2  | 1407.6 | 1433.7 | 272.3      | 7:50 | 4:10 | 2217.5 | 653.8  | 2311.9 | 2344.9 |
| 11:30      | 12:30 | 326.3  | 1403.9 | 1441.3 | 326.5      | 7:45 | 4:15 | 2242.2 | 626.3  | 2328.0 | 2377.2 |
| 11:25      | 12:35 | 380.3  | 1399.5 | 1450.3 | 380.7      | 7:40 | 4:20 | 2265.8 | 598.4  | 2343.5 | 2408.8 |
| 11:20      | 12:40 | 434.1  | 1394.5 | 1460.5 | 434.7      | 7:35 | 4:25 | 2288.3 | 570.3  | 2358.3 | 2439.6 |
| 11:15      | 12:45 | 487.7  | 1388.8 | 1472.0 | 488.5      | 7:30 | 4:30 | 2309.7 | 541.9  | 2372.4 | 2469.6 |
| 11:10      | 12:50 | 541.1  | 1382.5 | 1484.6 | 542.1      | 7:25 | 4:35 | 2330.0 | 513.2  | 2385.9 | 2498.8 |
| 11:05      | 12:55 | 594.2  | 1375.4 | 1498.3 | 595.6      | 7:20 | 4:40 | 2349.2 | 484.3  | 2398.6 | 2527.2 |
| 11:00      | 1:00  | 647.0  | 1367.8 | 1513.1 | 648.8      | 7:15 | 4:45 | 2367.3 | 455.2  | 2410.7 | 2554.9 |
| 10:55      | 1:05  | 699.6  | 1359.4 | 1528.9 | 701.9      | 7:10 | 4:50 | 2384.3 | 425.8  | 2422.0 | 2581.7 |
| 10:50      | 1:10  | 751.8  | 1350.5 | 1545.6 | 754.6      | 7:05 | 4:55 | 2400.1 | 396.2  | 2432.6 | 2607.8 |
| 10:45      | 1:15  | 803.6  | 1340.9 | 1563.2 | 807.1      | 7:00 | 5:00 | 2414.8 | 366.5  | 2442.5 | 2633.0 |
| 10:40      | 1:20  | 855.1  | 1330.6 | 1581.7 | 859.3      | 6:55 | 5:05 | 2428.4 | 336.6  | 2451.6 | 2657.5 |
| 10:35      | 1:25  | 906.1  | 1319.7 | 1600.8 | 911.2      | 6:50 | 5:10 | 2440.7 | 306.5  | 2459.9 | 2681.1 |
| 10:30      | 1:30  | 956.7  | 1308.2 | 1620.7 | 962.8      | 6:45 | 5:15 | 2452.0 | 276.3  | 2467.5 | 2703.9 |
| 10:25      | 1:35  | 1006.9 | 1296.1 | 1641.2 | 1014.0     | 6:40 | 5:20 | 2462.0 | 245.9  | 2474.3 | 2725.9 |
| 10:20      | 1:40  | 1056.5 | 1283.3 | 1662.3 | 1064.8     | 6:35 | 5:25 | 2470.9 | 215.4  | 2480.3 | 2747.1 |
| 10:15      | 1:45  | 1105.7 | 1270.0 | 1683.9 | 1115.3     | 6:30 | 5:30 | 2478.6 | 184.8  | 2485.5 | 2767.6 |
| 10:10      | 1:50  | 1154.4 | 1256.0 | 1705.9 | 1165.4     | 6:25 | 5:35 | 2485.1 | 154.2  | 2489.9 | 2787.2 |
| 10:05      | 1:55  | 1202.5 | 1241.5 | 1728.3 | 1215.1     | 6:20 | 5:40 | 2490.5 | 123.4  | 2493.5 | 2805.9 |
| 10:00      | 2:00  | 1250.0 | 1226.3 | 1751.1 | 1264.3     | 6:15 | 5:45 | 2494.6 | 92.6   | 2496.4 | 2823.9 |
| 9:55       | 2:05  | 1296.9 | 1210.6 | 1774.1 | 1313.1     | 6:10 | 5:50 | 2497.6 | 61.8   | 2498.4 | 2841.1 |
| 9:50       | 2:10  | 1343.2 | 1194.3 | 1797.4 | 1361.4     | 6:05 | 5:55 | 2499.4 | 30.9   | 2499.6 | 2857.6 |
| 9:45       | 2:15  | 1388.9 | 1177.4 | 1820.8 | 1409.3     | 6:00 | 6:00 | 2500.0 | 0.0    | 2500.0 | 2873.2 |
| 9:40       | 2:20  | 1433.9 | 1159.9 | 1844.4 | 1456.6     | 5:55 | 6:05 | 2499.4 | -30.9  | 2499.6 | 2888.0 |
| 9:35       | 2:25  | 1478.3 | 1141.9 | 1868.0 | 1503.5     | 5:50 | 6:10 | 2497.6 | -61.8  | 2498.4 | 2902.1 |
| 9:30       | 2:30  | 1521.9 | 1123.4 | 1891.6 | 1549.8     | 5:45 | 6:15 | 2494.6 | -92.6  | 2496.4 | 2915.3 |
| 9:25       | 2:35  | 1564.8 | 1104.3 | 1915.2 | 1595.5     | 5:40 | 6:20 | 2490.5 | -123.4 | 2493.5 | 2927.9 |
| 9:20       | 2:40  | 1607.0 | 1084.7 | 1938.8 | 1640.8     | 5:35 | 6:25 | 2485.1 | -154.2 | 2489.9 | 2939.6 |
| 9:15       | 2:45  | 1648.4 | 1064.6 | 1962.3 | 1685.4     | 5:30 | 6:30 | 2478.6 | -184.8 | 2485.5 | 2950.6 |
| 9:10       | 2:50  | 1689.0 | 1044.0 | 1985.6 | 1729.5     | 5:25 | 6:35 | 2470.9 | -215.4 | 2480.3 | 2960.9 |
| 9:05       | 2:55  | 1728.8 | 1022.9 | 2008.7 | 1772.9     | 5:20 | 6:40 | 2462.0 | -245.9 | 2474.3 | 2970.4 |
| 9:00       | 3:00  | 1767.8 | 1001.3 | 2031.6 | 1815.8     | 5:15 | 6:45 | 2452.0 | -276.3 | 2467.5 | 2979.2 |
| 8:55       | 3:05  | 1805.9 | 979.2  | 2054.3 | 1858.0     | 5:10 | 6:50 | 2440.7 | -306.5 | 2459.9 | 2987.3 |
| 8:50       | 3:10  | 1843.2 | 956.6  | 2076.7 | 1899.6     | 5:05 | 6:55 | 2428.4 | -336.6 | 2451.6 | 2994.7 |
| 8:45       | 3:15  | 1879.6 | 933.6  | 2098.7 | 1940.5     | 5:00 | 7:00 | 2414.8 | -366.5 | 2442.5 | 3001.4 |
| 8:40       | 3:20  | 1915.1 | 910.2  | 2120.4 | 1980.8     | 4:55 | 7:05 | 2400.1 | -396.2 | 2432.6 | 3007.5 |
| 8:35       | 3:25  | 1949.7 | 886.3  | 2141.7 | 2020.4     | 4:50 | 7:10 | 2384.3 | -425.8 | 2422.0 | 3012.8 |
| 8:30       | 3:30  | 1983.4 | 862.0  | 2162.6 | 2059.3     | 4:45 | 7:15 | 2367.3 | -455.2 | 2410.7 | 3017.5 |
| 8:25       | 3:35  | 2016.1 | 837.3  | 2183.1 | 2097.5     |      |      |        |        |        |        |
| 8:20       | 3:40  | 2047.9 | 812.2  | 2203.1 | 2135.0     |      |      |        |        |        |        |
| 8:15       | 3:45  | 2078.7 | 786.7  | 2222.6 | 2171.8     |      |      |        |        |        |        |

## Analemmatic Sundial

Latitude: 34.5° N/S

## Date Scale

Semi-Major Axis (E-W): 2500 mm    Semi-Minor Axis (N-S): 1416.0 mm

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | -874.1 | -857.6 | -852.6 | -829.9 | -823.2 | -795.0 | -787.2 | -753.6 | -744.6 | -706.6 | -696.6 |
| February  | -632.3 | -586.1 | -574.1 | -525.2 | -512.9 | -461.7 | -448.5 | -395.6 | -382.2 | -327.8 | -313.8 |
| March     | -272.3 | -216.5 | -202.4 | -145.9 | -131.8 | -74.8  | -60.8  | -3.6   | 10.4   | 67.3   | 81.3   |
| April     | 165.8  | 221.3  | 235.1  | 289.6  | 303.1  | 356.6  | 369.6  | 421.8  | 434.6  | 484.8  | 496.9  |
| May       | 556.7  | 602.5  | 613.4  | 655.9  | 666.3  | 705.4  | 714.7  | 750.3  | 758.9  | 790.1  | 797.1  |
| June      | 835.8  | 855.9  | 860.6  | 875.4  | 878.8  | 888.2  | 889.4  | 892.9  | 893.3  | 886.9  | 889.9  |
| July      | 878.8  | 864.8  | 860.6  | 841.6  | 836.2  | 811.6  | 804.9  | 775.7  | 767.9  | 734.5  | 725.6  |
| August    | 668.6  | 627.2  | 616.6  | 572.2  | 560.9  | 514.1  | 501.9  | 453.0  | 440.6  | 389.7  | 376.7  |
| September | 298.0  | 244.2  | 230.7  | 175.9  | 162.2  | 106.9  | 93.2   | 37.4   | 23.4   | -32.7  | -46.8  |
| October   | -116.6 | -172.6 | -186.4 | -242.0 | -255.5 | -310.5 | -324.1 | -377.8 | -391.2 | -443.6 | -456.4 |
| November  | -531.7 | -579.9 | -591.6 | -637.0 | -648.0 | -690.2 | -700.2 | -738.5 | -747.5 | -781.4 | -789.6 |
| December  | -824.9 | -848.8 | -853.8 | -871.2 | -875.0 | -886.0 | -888.2 | -892.9 | -893.3 | -891.2 | -889.9 |

Northern Hemisphere

| Month     | Date   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1      | 5      | 6      | 10     | 11     | 15     | 16     | 20     | 21     | 25     | 26     |
| January   | 874.1  | 857.6  | 852.6  | 829.9  | 823.2  | 795.0  | 787.2  | 753.6  | 744.6  | 706.6  | 696.6  |
| February  | 632.3  | 586.1  | 574.1  | 525.2  | 512.9  | 461.7  | 448.5  | 395.6  | 382.2  | 327.8  | 313.8  |
| March     | 272.3  | 216.5  | 202.4  | 145.9  | 131.8  | 74.8   | 60.8   | 3.6    | -10.4  | -67.3  | -81.3  |
| April     | -165.8 | -221.3 | -235.1 | -289.6 | -303.1 | -356.6 | -369.6 | -421.8 | -434.6 | -484.8 | -496.9 |
| May       | -556.7 | -602.5 | -613.4 | -655.9 | -666.3 | -705.4 | -714.7 | -750.3 | -758.9 | -790.1 | -797.1 |
| June      | -835.8 | -855.9 | -860.6 | -875.4 | -878.8 | -888.2 | -889.4 | -892.9 | -893.3 | -886.9 | -889.9 |
| July      | -878.8 | -864.8 | -860.6 | -841.6 | -836.2 | -811.6 | -804.9 | -775.7 | -767.9 | -734.5 | -725.6 |
| August    | -668.6 | -627.2 | -616.6 | -572.2 | -560.9 | -514.1 | -501.9 | -453.0 | -440.6 | -389.7 | -376.7 |
| September | -298.0 | -244.2 | -230.7 | -175.9 | -162.2 | -106.9 | -93.2  | -37.4  | -23.4  | 32.7   | 46.8   |
| October   | 116.6  | 172.6  | 186.4  | 242.0  | 255.5  | 310.5  | 324.1  | 377.8  | 391.2  | 443.6  | 456.4  |
| November  | 531.7  | 579.9  | 591.6  | 637.0  | 648.0  | 690.2  | 700.2  | 738.5  | 747.5  | 781.4  | 789.6  |
| December  | 824.9  | 848.8  | 853.8  | 871.2  | 875.0  | 886.0  | 888.2  | 892.9  | 893.3  | 891.2  | 889.9  |

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 |