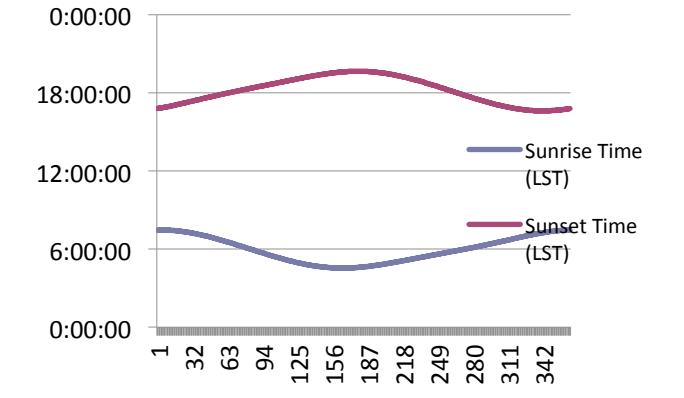
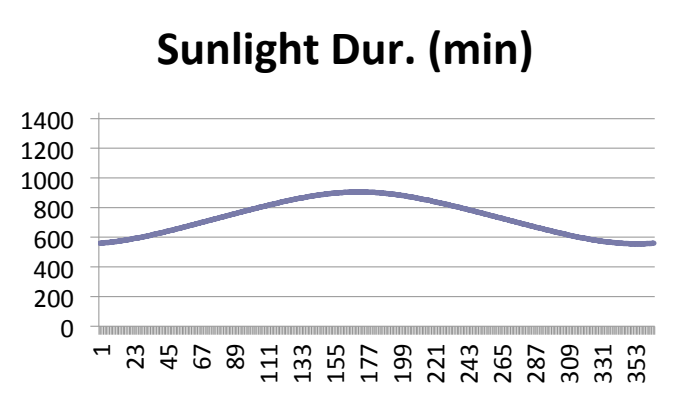
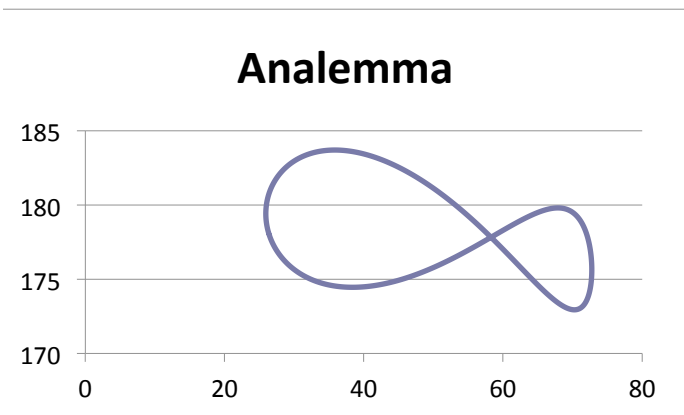


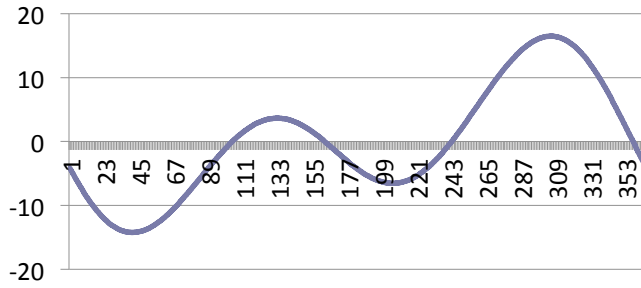
NOAA Solar Calculations - Change any of the highlighted cells to get solar position data for that location and time-of-day for a year.

Latitude (+ to N) 40.635
 Longitude (+ to E) -75.99
 Time Zone (+ to E) -5
 Local Time (hrs) 12:00:00
 Year 2018

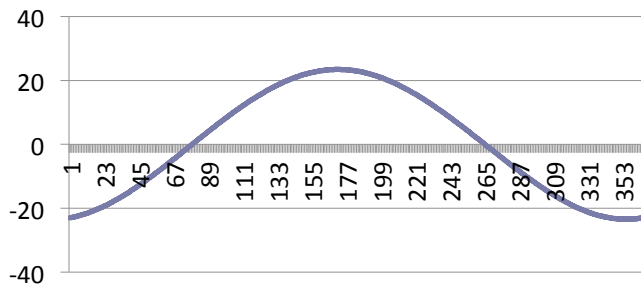
Date	Time (hrs past local midnight)	Julian Day
1/1/18	12:00:00	2458120.21
1/2/18	12:00:00	2458121.21
1/3/18	12:00:00	2458122.21
1/4/18	12:00:00	2458123.21
1/5/18	12:00:00	2458124.21
1/6/18	12:00:00	2458125.21
1/7/18	12:00:00	2458126.21
1/8/18	12:00:00	2458127.21
1/9/18	12:00:00	2458128.21
1/10/18	12:00:00	2458129.21
1/11/18	12:00:00	2458130.21
1/12/18	12:00:00	2458131.21
1/13/18	12:00:00	2458132.21
1/14/18	12:00:00	2458133.21
1/15/18	12:00:00	2458134.21
1/16/18	12:00:00	2458135.21
1/17/18	12:00:00	2458136.21
1/18/18	12:00:00	2458137.21
1/19/18	12:00:00	2458138.21
1/20/18	12:00:00	2458139.21
1/21/18	12:00:00	2458140.21
1/22/18	12:00:00	2458141.21
1/23/18	12:00:00	2458142.21
1/24/18	12:00:00	2458143.21
1/25/18	12:00:00	2458144.21
1/26/18	12:00:00	2458145.21
1/27/18	12:00:00	2458146.21
1/28/18	12:00:00	2458147.21
1/29/18	12:00:00	2458148.21
1/30/18	12:00:00	2458149.21
1/31/18	12:00:00	2458150.21
2/1/18	12:00:00	2458151.21
2/2/18	12:00:00	2458152.21
2/3/18	12:00:00	2458153.21
2/4/18	12:00:00	2458154.21
2/5/18	12:00:00	2458155.21
2/6/18	12:00:00	2458156.21
2/7/18	12:00:00	2458157.21
2/8/18	12:00:00	2458158.21
2/9/18	12:00:00	2458159.21
2/10/18	12:00:00	2458160.21



Eq of Time (minutes)



Sun Declin (deg)



2/11/18	12:00:00	2458161.21
2/12/18	12:00:00	2458162.21
2/13/18	12:00:00	2458163.21
2/14/18	12:00:00	2458164.21
2/15/18	12:00:00	2458165.21
2/16/18	12:00:00	2458166.21
2/17/18	12:00:00	2458167.21
2/18/18	12:00:00	2458168.21
2/19/18	12:00:00	2458169.21
2/20/18	12:00:00	2458170.21
2/21/18	12:00:00	2458171.21
2/22/18	12:00:00	2458172.21
2/23/18	12:00:00	2458173.21
2/24/18	12:00:00	2458174.21
2/25/18	12:00:00	2458175.21
2/26/18	12:00:00	2458176.21
2/27/18	12:00:00	2458177.21
2/28/18	12:00:00	2458178.21
3/1/18	12:00:00	2458179.21
3/2/18	12:00:00	2458180.21
3/3/18	12:00:00	2458181.21
3/4/18	12:00:00	2458182.21
3/5/18	12:00:00	2458183.21
3/6/18	12:00:00	2458184.21
3/7/18	12:00:00	2458185.21
3/8/18	12:00:00	2458186.21
3/9/18	12:00:00	2458187.21
3/10/18	12:00:00	2458188.21
3/11/18	12:00:00	2458189.21
3/12/18	12:00:00	2458190.21
3/13/18	12:00:00	2458191.21
3/14/18	12:00:00	2458192.21
3/15/18	12:00:00	2458193.21
3/16/18	12:00:00	2458194.21
3/17/18	12:00:00	2458195.21
3/18/18	12:00:00	2458196.21
3/19/18	12:00:00	2458197.21
3/20/18	12:00:00	2458198.21
3/21/18	12:00:00	2458199.21
3/22/18	12:00:00	2458200.21
3/23/18	12:00:00	2458201.21
3/24/18	12:00:00	2458202.21
3/25/18	12:00:00	2458203.21
3/26/18	12:00:00	2458204.21
3/27/18	12:00:00	2458205.21
3/28/18	12:00:00	2458206.21
3/29/18	12:00:00	2458207.21
3/30/18	12:00:00	2458208.21

3/31/18	12:00:00	2458209.21
4/1/18	12:00:00	2458210.21
4/2/18	12:00:00	2458211.21
4/3/18	12:00:00	2458212.21
4/4/18	12:00:00	2458213.21
4/5/18	12:00:00	2458214.21
4/6/18	12:00:00	2458215.21
4/7/18	12:00:00	2458216.21
4/8/18	12:00:00	2458217.21
4/9/18	12:00:00	2458218.21
4/10/18	12:00:00	2458219.21
4/11/18	12:00:00	2458220.21
4/12/18	12:00:00	2458221.21
4/13/18	12:00:00	2458222.21
4/14/18	12:00:00	2458223.21
4/15/18	12:00:00	2458224.21
4/16/18	12:00:00	2458225.21
4/17/18	12:00:00	2458226.21
4/18/18	12:00:00	2458227.21
4/19/18	12:00:00	2458228.21
4/20/18	12:00:00	2458229.21
4/21/18	12:00:00	2458230.21
4/22/18	12:00:00	2458231.21
4/23/18	12:00:00	2458232.21
4/24/18	12:00:00	2458233.21
4/25/18	12:00:00	2458234.21
4/26/18	12:00:00	2458235.21
4/27/18	12:00:00	2458236.21
4/28/18	12:00:00	2458237.21
4/29/18	12:00:00	2458238.21
4/30/18	12:00:00	2458239.21
5/1/18	12:00:00	2458240.21
5/2/18	12:00:00	2458241.21
5/3/18	12:00:00	2458242.21
5/4/18	12:00:00	2458243.21
5/5/18	12:00:00	2458244.21
5/6/18	12:00:00	2458245.21
5/7/18	12:00:00	2458246.21
5/8/18	12:00:00	2458247.21
5/9/18	12:00:00	2458248.21
5/10/18	12:00:00	2458249.21
5/11/18	12:00:00	2458250.21
5/12/18	12:00:00	2458251.21
5/13/18	12:00:00	2458252.21
5/14/18	12:00:00	2458253.21
5/15/18	12:00:00	2458254.21
5/16/18	12:00:00	2458255.21
5/17/18	12:00:00	2458256.21

5/18/18	12:00:00	2458257.21
5/19/18	12:00:00	2458258.21
5/20/18	12:00:00	2458259.21
5/21/18	12:00:00	2458260.21
5/22/18	12:00:00	2458261.21
5/23/18	12:00:00	2458262.21
5/24/18	12:00:00	2458263.21
5/25/18	12:00:00	2458264.21
5/26/18	12:00:00	2458265.21
5/27/18	12:00:00	2458266.21
5/28/18	12:00:00	2458267.21
5/29/18	12:00:00	2458268.21
5/30/18	12:00:00	2458269.21
5/31/18	12:00:00	2458270.21
6/1/18	12:00:00	2458271.21
6/2/18	12:00:00	2458272.21
6/3/18	12:00:00	2458273.21
6/4/18	12:00:00	2458274.21
6/5/18	12:00:00	2458275.21
6/6/18	12:00:00	2458276.21
6/7/18	12:00:00	2458277.21
6/8/18	12:00:00	2458278.21
6/9/18	12:00:00	2458279.21
6/10/18	12:00:00	2458280.21
6/11/18	12:00:00	2458281.21
6/12/18	12:00:00	2458282.21
6/13/18	12:00:00	2458283.21
6/14/18	12:00:00	2458284.21
6/15/18	12:00:00	2458285.21
6/16/18	12:00:00	2458286.21
6/17/18	12:00:00	2458287.21
6/18/18	12:00:00	2458288.21
6/19/18	12:00:00	2458289.21
6/20/18	12:00:00	2458290.21
6/21/18	12:00:00	2458291.21
6/22/18	12:00:00	2458292.21
6/23/18	12:00:00	2458293.21
6/24/18	12:00:00	2458294.21
6/25/18	12:00:00	2458295.21
6/26/18	12:00:00	2458296.21
6/27/18	12:00:00	2458297.21
6/28/18	12:00:00	2458298.21
6/29/18	12:00:00	2458299.21
6/30/18	12:00:00	2458300.21
7/1/18	12:00:00	2458301.21
7/2/18	12:00:00	2458302.21
7/3/18	12:00:00	2458303.21
7/4/18	12:00:00	2458304.21

7/5/18	12:00:00	2458305.21
7/6/18	12:00:00	2458306.21
7/7/18	12:00:00	2458307.21
7/8/18	12:00:00	2458308.21
7/9/18	12:00:00	2458309.21
7/10/18	12:00:00	2458310.21
7/11/18	12:00:00	2458311.21
7/12/18	12:00:00	2458312.21
7/13/18	12:00:00	2458313.21
7/14/18	12:00:00	2458314.21
7/15/18	12:00:00	2458315.21
7/16/18	12:00:00	2458316.21
7/17/18	12:00:00	2458317.21
7/18/18	12:00:00	2458318.21
7/19/18	12:00:00	2458319.21
7/20/18	12:00:00	2458320.21
7/21/18	12:00:00	2458321.21
7/22/18	12:00:00	2458322.21
7/23/18	12:00:00	2458323.21
7/24/18	12:00:00	2458324.21
7/25/18	12:00:00	2458325.21
7/26/18	12:00:00	2458326.21
7/27/18	12:00:00	2458327.21
7/28/18	12:00:00	2458328.21
7/29/18	12:00:00	2458329.21
7/30/18	12:00:00	2458330.21
7/31/18	12:00:00	2458331.21
8/1/18	12:00:00	2458332.21
8/2/18	12:00:00	2458333.21
8/3/18	12:00:00	2458334.21
8/4/18	12:00:00	2458335.21
8/5/18	12:00:00	2458336.21
8/6/18	12:00:00	2458337.21
8/7/18	12:00:00	2458338.21
8/8/18	12:00:00	2458339.21
8/9/18	12:00:00	2458340.21
8/10/18	12:00:00	2458341.21
8/11/18	12:00:00	2458342.21
8/12/18	12:00:00	2458343.21
8/13/18	12:00:00	2458344.21
8/14/18	12:00:00	2458345.21
8/15/18	12:00:00	2458346.21
8/16/18	12:00:00	2458347.21
8/17/18	12:00:00	2458348.21
8/18/18	12:00:00	2458349.21
8/19/18	12:00:00	2458350.21
8/20/18	12:00:00	2458351.21
8/21/18	12:00:00	2458352.21

8/22/18	12:00:00	2458353.21
8/23/18	12:00:00	2458354.21
8/24/18	12:00:00	2458355.21
8/25/18	12:00:00	2458356.21
8/26/18	12:00:00	2458357.21
8/27/18	12:00:00	2458358.21
8/28/18	12:00:00	2458359.21
8/29/18	12:00:00	2458360.21
8/30/18	12:00:00	2458361.21
8/31/18	12:00:00	2458362.21
9/1/18	12:00:00	2458363.21
9/2/18	12:00:00	2458364.21
9/3/18	12:00:00	2458365.21
9/4/18	12:00:00	2458366.21
9/5/18	12:00:00	2458367.21
9/6/18	12:00:00	2458368.21
9/7/18	12:00:00	2458369.21
9/8/18	12:00:00	2458370.21
9/9/18	12:00:00	2458371.21
9/10/18	12:00:00	2458372.21
9/11/18	12:00:00	2458373.21
9/12/18	12:00:00	2458374.21
9/13/18	12:00:00	2458375.21
9/14/18	12:00:00	2458376.21
9/15/18	12:00:00	2458377.21
9/16/18	12:00:00	2458378.21
9/17/18	12:00:00	2458379.21
9/18/18	12:00:00	2458380.21
9/19/18	12:00:00	2458381.21
9/20/18	12:00:00	2458382.21
9/21/18	12:00:00	2458383.21
9/22/18	12:00:00	2458384.21
9/23/18	12:00:00	2458385.21
9/24/18	12:00:00	2458386.21
9/25/18	12:00:00	2458387.21
9/26/18	12:00:00	2458388.21
9/27/18	12:00:00	2458389.21
9/28/18	12:00:00	2458390.21
9/29/18	12:00:00	2458391.21
9/30/18	12:00:00	2458392.21
10/1/18	12:00:00	2458393.21
10/2/18	12:00:00	2458394.21
10/3/18	12:00:00	2458395.21
10/4/18	12:00:00	2458396.21
10/5/18	12:00:00	2458397.21
10/6/18	12:00:00	2458398.21
10/7/18	12:00:00	2458399.21
10/8/18	12:00:00	2458400.21

10/9/18	12:00:00	2458401.21
10/10/18	12:00:00	2458402.21
10/11/18	12:00:00	2458403.21
10/12/18	12:00:00	2458404.21
10/13/18	12:00:00	2458405.21
10/14/18	12:00:00	2458406.21
10/15/18	12:00:00	2458407.21
10/16/18	12:00:00	2458408.21
10/17/18	12:00:00	2458409.21
10/18/18	12:00:00	2458410.21
10/19/18	12:00:00	2458411.21
10/20/18	12:00:00	2458412.21
10/21/18	12:00:00	2458413.21
10/22/18	12:00:00	2458414.21
10/23/18	12:00:00	2458415.21
10/24/18	12:00:00	2458416.21
10/25/18	12:00:00	2458417.21
10/26/18	12:00:00	2458418.21
10/27/18	12:00:00	2458419.21
10/28/18	12:00:00	2458420.21
10/29/18	12:00:00	2458421.21
10/30/18	12:00:00	2458422.21
10/31/18	12:00:00	2458423.21
11/1/18	12:00:00	2458424.21
11/2/18	12:00:00	2458425.21
11/3/18	12:00:00	2458426.21
11/4/18	12:00:00	2458427.21
11/5/18	12:00:00	2458428.21
11/6/18	12:00:00	2458429.21
11/7/18	12:00:00	2458430.21
11/8/18	12:00:00	2458431.21
11/9/18	12:00:00	2458432.21
11/10/18	12:00:00	2458433.21
11/11/18	12:00:00	2458434.21
11/12/18	12:00:00	2458435.21
11/13/18	12:00:00	2458436.21
11/14/18	12:00:00	2458437.21
11/15/18	12:00:00	2458438.21
11/16/18	12:00:00	2458439.21
11/17/18	12:00:00	2458440.21
11/18/18	12:00:00	2458441.21
11/19/18	12:00:00	2458442.21
11/20/18	12:00:00	2458443.21
11/21/18	12:00:00	2458444.21
11/22/18	12:00:00	2458445.21
11/23/18	12:00:00	2458446.21
11/24/18	12:00:00	2458447.21
11/25/18	12:00:00	2458448.21

11/26/18	12:00:00	2458449.21
11/27/18	12:00:00	2458450.21
11/28/18	12:00:00	2458451.21
11/29/18	12:00:00	2458452.21
11/30/18	12:00:00	2458453.21
12/1/18	12:00:00	2458454.21
12/2/18	12:00:00	2458455.21
12/3/18	12:00:00	2458456.21
12/4/18	12:00:00	2458457.21
12/5/18	12:00:00	2458458.21
12/6/18	12:00:00	2458459.21
12/7/18	12:00:00	2458460.21
12/8/18	12:00:00	2458461.21
12/9/18	12:00:00	2458462.21
12/10/18	12:00:00	2458463.21
12/11/18	12:00:00	2458464.21
12/12/18	12:00:00	2458465.21
12/13/18	12:00:00	2458466.21
12/14/18	12:00:00	2458467.21
12/15/18	12:00:00	2458468.21
12/16/18	12:00:00	2458469.21
12/17/18	12:00:00	2458470.21
12/18/18	12:00:00	2458471.21
12/19/18	12:00:00	2458472.21
12/20/18	12:00:00	2458473.21
12/21/18	12:00:00	2458474.21
12/22/18	12:00:00	2458475.21
12/23/18	12:00:00	2458476.21
12/24/18	12:00:00	2458477.21
12/25/18	12:00:00	2458478.21
12/26/18	12:00:00	2458479.21
12/27/18	12:00:00	2458480.21
12/28/18	12:00:00	2458481.21
12/29/18	12:00:00	2458482.21
12/30/18	12:00:00	2458483.21
12/31/18	12:00:00	2458484.21
1/1/19	12:00:00	2458485.21

Julian Century	Geom				Sun True Long (deg)	Sun True Anom (deg)	Sun Rad Vector (AUs)
	Geom Mean	Mean	Eccent	Sun Eq of Ctr			
	Long Sun (deg)	Anom Sun (deg)					
0.18001939	281.303206	6838.0563	0.0167011	-0.066293	281.23691	6837.99	0.9833099
0.18004677	282.288853	6839.0419	0.0167011	-0.032683	282.25617	6839.0092	0.9833024
0.18007415	283.274501	6840.0275	0.0167011	0.0009378	283.27544	6840.0284	0.9832999
0.18010153	284.260148	6841.0131	0.0167011	0.034558	284.29471	6841.0476	0.9833026
0.18012891	285.245796	6841.9987	0.0167011	0.0681673	285.31396	6842.0669	0.9833105
0.18015629	286.231443	6842.9843	0.0167011	0.1017552	286.3332	6843.086	0.9833234
0.18018366	287.21709	6843.9699	0.0167011	0.1353109	287.3524	6844.1052	0.9833414
0.18021104	288.202738	6844.9555	0.0167011	0.1688241	288.37156	6845.1243	0.9833645
0.18023842	289.188385	6845.9411	0.0167011	0.202284	289.39067	6846.1434	0.9833927
0.18026580	290.174032	6846.9267	0.0167011	0.2356802	290.40971	6847.1624	0.983426
0.18029318	291.15968	6847.9123	0.0167011	0.2690022	291.42868	6848.1813	0.9834644
0.18032056	292.145327	6848.8979	0.016701	0.3022395	292.44757	6849.2001	0.9835078
0.18034794	293.130974	6849.8835	0.016701	0.3353816	293.46636	6850.2189	0.9835562
0.18037531	294.116622	6850.8691	0.016701	0.3684181	294.48504	6851.2375	0.9836097
0.18040269	295.102269	6851.8547	0.016701	0.4013387	295.50361	6852.256	0.9836682
0.18043007	296.087917	6852.8403	0.016701	0.434133	296.52205	6853.2744	0.9837317
0.18045745	297.073564	6853.8259	0.016701	0.4667907	297.54035	6854.2927	0.9838002
0.18048483	298.059211	6854.8115	0.016701	0.4993016	298.55851	6855.3108	0.9838736
0.18051221	299.044859	6855.7971	0.016701	0.5316556	299.57651	6856.3288	0.9839519
0.18053958	300.030506	6856.7827	0.016701	0.5638424	300.59435	6857.3465	0.9840351
0.18056696	301.016153	6857.7683	0.016701	0.595852	301.61201	6858.3641	0.9841232
0.18059434	302.001801	6858.7539	0.016701	0.6276745	302.62948	6859.3816	0.9842162
0.18062172	302.987448	6859.7395	0.016701	0.6592998	303.64675	6860.3988	0.9843139
0.18064910	303.973095	6860.7251	0.016701	0.6907182	304.66381	6861.4158	0.9844165
0.18067648	304.958743	6861.7107	0.016701	0.7219199	305.68066	6862.4326	0.9845238
0.18070386	305.94439	6862.6963	0.016701	0.7528952	306.69729	6863.4492	0.9846357
0.18073123	306.930038	6863.6819	0.016701	0.7836344	307.71367	6864.4655	0.9847524
0.18075861	307.915685	6864.6675	0.016701	0.814128	308.72981	6865.4816	0.9848737
0.18078599	308.901332	6865.6531	0.016701	0.8443666	309.7457	6866.4975	0.9849996
0.18081337	309.88698	6866.6387	0.016701	0.8743409	310.76132	6867.513	0.9851301
0.18084075	310.872627	6867.6243	0.016701	0.9040416	311.77667	6868.5283	0.9852651
0.18086813	311.858274	6868.6099	0.016701	0.9334595	312.79173	6869.5434	0.9854046
0.18089551	312.843922	6869.5955	0.016701	0.9625856	313.80651	6870.5581	0.9855484
0.18092288	313.829569	6870.5811	0.016701	0.9914109	314.82098	6871.5725	0.9856967
0.18095026	314.815216	6871.5667	0.016701	1.0199267	315.83514	6872.5866	0.9858493
0.18097764	315.800864	6872.5523	0.016701	1.0481242	316.84899	6873.6004	0.9860062
0.18100502	316.786511	6873.5379	0.016701	1.0759948	317.86251	6874.6139	0.9861673
0.18103240	317.772159	6874.5235	0.016701	1.1035299	318.87569	6875.627	0.9863326
0.18105978	318.757806	6875.5091	0.016701	1.1307214	319.88853	6876.6398	0.986502
0.18108715	319.743453	6876.4947	0.016701	1.1575608	320.90101	6877.6523	0.9866755
0.18111453	320.729101	6877.4803	0.016701	1.1840401	321.91314	6878.6643	0.9868531

0.18114191	321.714748	6878.4659	0.016701	1.2101512	322.9249	6879.6761	0.9870345
0.18116929	322.700395	6879.4515	0.016701	1.2358864	323.93628	6880.6874	0.9872199
0.18119667	323.686043	6880.4371	0.016701	1.2612379	324.94728	6881.6983	0.9874092
0.18122405	324.67169	6881.4227	0.016701	1.2861981	325.95789	6882.7089	0.9876022
0.18125143	325.657337	6882.4083	0.016701	1.3107596	326.9681	6883.7191	0.9877989
0.18127880	326.642985	6883.3939	0.016701	1.334915	327.9779	6884.7288	0.9879993
0.18130618	327.628632	6884.3795	0.016701	1.3586571	328.98729	6885.7382	0.9882033
0.18133356	328.61428	6885.3651	0.016701	1.381979	329.99626	6886.7471	0.9884109
0.18136094	329.599927	6886.3507	0.016701	1.4048738	331.0048	6887.7556	0.9886218
0.18138832	330.585574	6887.3363	0.016701	1.4273347	332.01291	6888.7636	0.9888362
0.18141570	331.571222	6888.3219	0.016701	1.4493552	333.02058	6889.7713	0.989054
0.18144308	332.556869	6889.3075	0.016701	1.4709288	334.0278	6890.7784	0.989275
0.18147045	333.542516	6890.2931	0.016701	1.4920492	335.03457	6891.7852	0.9894991
0.18149783	334.528164	6891.2787	0.016701	1.5127104	336.04087	6892.7914	0.9897264
0.18152521	335.513811	6892.2643	0.016701	1.5329064	337.04672	6893.7972	0.9899568
0.18155259	336.499458	6893.2499	0.016701	1.5526313	338.05209	6894.8025	0.9901901
0.18157997	337.485106	6894.2355	0.016701	1.5718796	339.05699	6895.8074	0.9904264
0.18160735	338.470753	6895.2211	0.016701	1.5906458	340.0614	6896.8118	0.9906654
0.18163473	339.456401	6896.2067	0.016701	1.6089244	341.06532	6897.8156	0.9909073
0.18166210	340.442048	6897.1923	0.016701	1.6267105	342.06876	6898.819	0.9911518
0.18168948	341.427695	6898.1779	0.016701	1.643999	343.07169	6899.8219	0.9913989
0.18171686	342.413343	6899.1635	0.016701	1.660785	344.07413	6900.8243	0.9916485
0.18174424	343.39899	6900.1491	0.016701	1.677064	345.07605	6901.8262	0.9919006
0.18177162	344.384637	6901.1347	0.016701	1.6928315	346.07747	6902.8275	0.9921551
0.18179900	345.370285	6902.1203	0.016701	1.7080831	347.07837	6903.8284	0.9924118
0.18182637	346.355932	6903.1059	0.016701	1.7228146	348.07875	6904.8287	0.9926708
0.18185375	347.341579	6904.0915	0.016701	1.7370222	349.0786	6905.8285	0.9929319
0.18188113	348.327227	6905.0771	0.016701	1.7507021	350.07793	6906.8278	0.993195
0.18190851	349.312874	6906.0627	0.016701	1.7638505	351.07672	6907.8266	0.9934602
0.18193589	350.298522	6907.0483	0.016701	1.776464	352.07499	6908.8248	0.9937272
0.18196327	351.284169	6908.0339	0.016701	1.7885394	353.07271	6909.8225	0.993996
0.18199065	352.269816	6909.0195	0.016701	1.8000736	354.06989	6910.8196	0.9942666
0.18201802	353.255464	6910.0051	0.016701	1.8110636	355.06653	6911.8162	0.9945387
0.18204540	354.241111	6910.9907	0.016701	1.8215066	356.06262	6912.8122	0.9948125
0.18207278	355.226758	6911.9763	0.016701	1.8314001	357.05816	6913.8077	0.9950877
0.18210016	356.212406	6912.9619	0.016701	1.8407416	358.05315	6914.8027	0.9953643
0.18212754	357.198053	6913.9475	0.016701	1.849529	359.04758	6915.797	0.9956422
0.18215492	358.1837	6914.9331	0.016701	1.8577601	360.04146	6916.7909	0.9959214
0.18218230	359.169348	6915.9187	0.016701	1.8654331	361.03478	6917.7841	0.9962017
0.18220967	0.15499516	6916.9043	0.016701	1.8725462	2.0275413	6918.7769	0.996483
0.18223705	1.14064252	6917.8899	0.016701	1.8790979	3.0197405	6919.769	0.9967653
0.18226443	2.12628989	6918.8755	0.016701	1.8850869	4.0113768	6920.7606	0.9970485
0.18229181	3.11193725	6919.8611	0.016701	1.890512	5.0024493	6921.7516	0.9973325
0.18231919	4.09758461	6920.8467	0.016701	1.8953721	5.9929567	6922.7421	0.9976172
0.18234657	5.08323198	6921.8323	0.016701	1.8996664	6.9828984	6923.732	0.9979025
0.18237394	6.06887934	6922.8179	0.016701	1.9033942	7.9722736	6924.7213	0.9981884
0.18240132	7.0545267	6923.8035	0.016701	1.9065551	8.9610818	6925.7101	0.9984747
0.18242870	8.04017407	6924.7891	0.016701	1.9091486	9.9493227	6926.6983	0.9987614

0.18245608	9.02582143	6925.7747	0.016701	1.9111747	10.936996	6927.6859	0.9990484
0.18248346	10.0114688	6926.7603	0.016701	1.9126333	11.924102	6928.6729	0.9993356
0.18251084	10.9971162	6927.7459	0.016701	1.9135246	12.910641	6929.6594	0.9996229
0.18253822	11.9827635	6928.7315	0.016701	1.9138491	13.896613	6930.6454	0.9999102
0.18256559	12.9684109	6929.7171	0.016701	1.9136071	14.882018	6931.6307	1.0001975
0.18259297	13.9540582	6930.7027	0.016701	1.9127993	15.866858	6932.6155	1.0004846
0.18262035	14.9397056	6931.6883	0.016701	1.9114267	16.851132	6933.5997	1.0007715
0.18264773	15.925353	6932.6739	0.016701	1.9094903	17.834843	6934.5834	1.0010581
0.18267511	16.9110003	6933.6595	0.016701	1.9069911	18.817991	6935.5665	1.0013443
0.18270249	17.8966477	6934.6451	0.0167009	1.9039306	19.800578	6936.549	1.00163
0.18272987	18.8822951	6935.6307	0.0167009	1.9003102	20.782605	6937.531	1.0019152
0.18275724	19.8679424	6936.6163	0.0167009	1.8961317	21.764074	6938.5125	1.0021997
0.18278462	20.8535898	6937.6019	0.0167009	1.8913968	22.744987	6939.4933	1.0024835
0.18281200	21.8392372	6938.5875	0.0167009	1.8861075	23.725345	6940.4736	1.0027664
0.18283938	22.8248845	6939.5731	0.0167009	1.8802659	24.70515	6941.4534	1.0030485
0.18286676	23.8105319	6940.5587	0.0167009	1.8738744	25.684406	6942.4326	1.0033296
0.18289414	24.7961792	6941.5443	0.0167009	1.8669354	26.663115	6943.4113	1.0036097
0.18292151	25.7818266	6942.5299	0.0167009	1.8594515	27.641278	6944.3894	1.0038886
0.18294889	26.767474	6943.5155	0.0167009	1.8514254	28.618899	6945.3669	1.0041663
0.18297627	27.7531213	6944.5011	0.0167009	1.8428601	29.595981	6946.344	1.0044427
0.18300365	28.7387687	6945.4867	0.0167009	1.8337586	30.572527	6947.3205	1.0047177
0.18303103	29.7244161	6946.4723	0.0167009	1.824124	31.54854	6948.2964	1.0049912
0.18305841	30.7100634	6947.4579	0.0167009	1.8139598	32.524023	6949.2719	1.0052633
0.18308579	31.6957108	6948.4435	0.0167009	1.8032694	33.49898	6950.2468	1.0055337
0.18311316	32.6813581	6949.4291	0.0167009	1.7920564	34.473415	6951.2212	1.0058024
0.18314054	33.6670055	6950.4147	0.0167009	1.7803247	35.44733	6952.195	1.0060693
0.18316792	34.6526529	6951.4003	0.0167009	1.768078	36.420731	6953.1684	1.0063344
0.18319530	35.6383002	6952.3859	0.0167009	1.7553206	37.393621	6954.1412	1.0065976
0.18322268	36.6239476	6953.3715	0.0167009	1.7420565	38.366004	6955.1136	1.0068588
0.18325006	37.609595	6954.3571	0.0167009	1.72829	39.337885	6956.0854	1.0071179
0.18327744	38.5952423	6955.3427	0.0167009	1.7140257	40.309268	6957.0567	1.0073749
0.18330481	39.5808897	6956.3283	0.0167009	1.6992681	41.280158	6958.0276	1.0076297
0.18333219	40.5665371	6957.3139	0.0167009	1.6840219	42.250559	6958.9979	1.0078822
0.18335957	41.5521844	6958.2995	0.0167009	1.668292	43.220476	6959.9678	1.0081323
0.18338695	42.5378318	6959.2851	0.0167009	1.6520832	44.189915	6960.9372	1.00838
0.18341433	43.5234791	6960.2707	0.0167009	1.6354008	45.15888	6961.9061	1.0086252
0.18344171	44.5091265	6961.2563	0.0167009	1.6182499	46.127376	6962.8746	1.0088678
0.18346909	45.4947739	6962.2419	0.0167009	1.6006358	47.09541	6963.8426	1.0091078
0.18349646	46.4804212	6963.2275	0.0167009	1.5825641	48.062985	6964.8101	1.009345
0.18352384	47.4660686	6964.2131	0.0167009	1.5640402	49.030109	6965.7772	1.0095796
0.18355122	48.451716	6965.1987	0.0167009	1.5450698	49.996786	6966.7438	1.0098112
0.18357860	49.4373633	6966.1843	0.0167009	1.5256588	50.963022	6967.71	1.01004
0.18360598	50.4230107	6967.1699	0.0167009	1.505813	51.928824	6968.6757	1.0102658
0.18363336	51.408658	6968.1555	0.0167009	1.4855384	52.894196	6969.6411	1.0104886
0.18366073	52.3943054	6969.1411	0.0167009	1.4648412	53.859147	6970.606	1.0107083
0.18368811	53.3799528	6970.1267	0.0167009	1.4437277	54.82368	6971.5705	1.0109249
0.18371549	54.3656001	6971.1123	0.0167009	1.422204	55.787804	6972.5345	1.0111382
0.18374287	55.3512475	6972.0979	0.0167009	1.4002768	56.751524	6973.4982	1.0113483

0.18377025	56.3368949	6973.0835	0.0167009	1.3779524	57.714847	6974.4615	1.0115551
0.18379763	57.3225422	6974.0691	0.0167009	1.3552375	58.67778	6975.4244	1.0117584
0.18382501	58.3081896	6975.0547	0.0167009	1.3321389	59.640329	6976.3869	1.0119584
0.18385238	59.293837	6976.0403	0.0167009	1.3086634	60.6025	6977.349	1.0121548
0.18387976	60.2794843	6977.0259	0.0167009	1.2848178	61.564302	6978.3107	1.0123477
0.18390714	61.2651317	6978.0115	0.0167009	1.2606092	62.525741	6979.2721	1.012537
0.18393452	62.250779	6978.9971	0.0167009	1.2360447	63.486824	6980.2332	1.0127226
0.18396190	63.2364264	6979.9827	0.0167009	1.2111314	64.447558	6981.1939	1.0129046
0.18398928	64.2220738	6980.9683	0.0167009	1.1858766	65.40795	6982.1542	1.0130827
0.18401666	65.2077211	6981.9539	0.0167009	1.1602877	66.368009	6983.1142	1.0132571
0.18404403	66.1933685	6982.9395	0.0167009	1.134372	67.327741	6984.0739	1.0134276
0.18407141	67.1790159	6983.9251	0.0167009	1.1081371	68.287153	6985.0333	1.0135943
0.18409879	68.1646632	6984.9107	0.0167009	1.0815905	69.246254	6985.9923	1.013757
0.18412617	69.1503106	6985.8963	0.0167009	1.0547399	70.20505	6986.9511	1.0139157
0.18415355	70.1359579	6986.8819	0.0167009	1.027593	71.163551	6987.9095	1.0140703
0.18418093	71.1216053	6987.8675	0.0167009	1.0001576	72.121763	6988.8677	1.0142209
0.18420830	72.1072527	6988.8531	0.0167009	0.9724415	73.079694	6989.8256	1.0143674
0.18423568	73.0929	6989.8387	0.0167009	0.9444527	74.037353	6990.7832	1.0145098
0.18426306	74.0785474	6990.8243	0.0167009	0.9161992	74.994747	6991.7405	1.0146479
0.18429044	75.0641948	6991.8099	0.0167009	0.8876889	75.951884	6992.6976	1.0147818
0.18431782	76.0498421	6992.7955	0.0167009	0.8589301	76.908772	6993.6545	1.0149115
0.18434520	77.0354895	6993.7811	0.0167009	0.8299309	77.86542	6994.6111	1.0150369
0.18437258	78.0211369	6994.7667	0.0167009	0.8006995	78.821836	6995.5674	1.0151579
0.18439995	79.0067842	6995.7523	0.0167009	0.7712441	79.778028	6996.5236	1.0152745
0.18442733	79.9924316	6996.7379	0.0167009	0.7415732	80.734005	6997.4795	1.0153868
0.18445471	80.9780789	6997.7235	0.0167009	0.7116951	81.689774	6998.4352	1.0154946
0.18448209	81.9637263	6998.7091	0.0167009	0.6816182	82.645345	6999.3908	1.015598
0.18450947	82.9493737	6999.6947	0.0167009	0.651351	83.600725	7000.3461	1.0156969
0.18453685	83.935021	7000.6803	0.0167009	0.620902	84.555923	7001.3012	1.0157913
0.18456423	84.9206684	7001.6659	0.0167009	0.5902798	85.510948	7002.2562	1.0158811
0.18459160	85.9063158	7002.6515	0.0167009	0.559493	86.465809	7003.211	1.0159664
0.18461898	86.8919631	7003.6371	0.0167009	0.5285501	87.420513	7004.1657	1.0160471
0.18464636	87.8776105	7004.6227	0.0167009	0.49746	88.37507	7005.1202	1.0161232
0.18467374	88.8632578	7005.6083	0.0167009	0.4662312	89.329489	7006.0746	1.0161946
0.18470112	89.8489052	7006.5939	0.0167009	0.4348725	90.283778	7007.0288	1.0162615
0.18472850	90.8345526	7007.5795	0.0167009	0.4033927	91.237945	7007.9829	1.0163236
0.18475587	91.8201999	7008.5651	0.0167009	0.3718006	92.192001	7008.9369	1.0163811
0.18478325	92.8058473	7009.5507	0.0167009	0.3401049	93.145952	7009.8908	1.0164339
0.18481063	93.7914947	7010.5363	0.0167009	0.3083147	94.099809	7010.8447	1.016482
0.18483801	94.777142	7011.5219	0.0167009	0.2764386	95.053581	7011.7984	1.0165253
0.18486539	95.7627894	7012.5075	0.0167009	0.2444855	96.007275	7012.752	1.0165639
0.18489277	96.7484368	7013.4931	0.0167009	0.2124645	96.960901	7013.7056	1.0165978
0.18492015	97.7340841	7014.4787	0.0167009	0.1803844	97.914469	7014.6591	1.0166269
0.18494752	98.7197315	7015.4643	0.0167009	0.1482541	98.867986	7015.6126	1.0166513
0.18497490	99.7053788	7016.4499	0.0167009	0.1160826	99.821461	7016.566	1.0166709
0.18500228	100.691026	7017.4355	0.0167009	0.0838788	100.7749	7017.5194	1.0166857
0.18502966	101.676674	7018.4211	0.0167009	0.0516516	101.72833	7018.4728	1.0166958
0.18505704	102.662321	7019.4067	0.0167009	0.0194101	102.68173	7019.4262	1.016701

0.18508442	103.647968	7020.3923	0.0167008	-0.012837	103.63513	7020.3795	1.0167015
0.18511180	104.633616	7021.3779	0.0167008	-0.04508	104.58854	7021.3329	1.0166972
0.18513917	105.619263	7022.3635	0.0167008	-0.077311	105.54195	7022.2862	1.0166881
0.18516655	106.60491	7023.3491	0.0167008	-0.10952	106.49539	7023.2396	1.0166743
0.18519393	107.590558	7024.3347	0.0167008	-0.141699	107.44886	7024.193	1.0166557
0.18522131	108.576205	7025.3203	0.0167008	-0.173838	108.40237	7025.1465	1.0166323
0.18524869	109.561852	7026.3059	0.0167008	-0.205929	109.35592	7026.1	1.0166041
0.18527607	110.5475	7027.2915	0.0167008	-0.237963	110.30954	7027.0536	1.0165712
0.18530345	111.533147	7028.2771	0.0167008	-0.269931	111.26322	7028.0072	1.0165335
0.18533082	112.518795	7029.2627	0.0167008	-0.301823	112.21697	7028.9609	1.0164912
0.18535820	113.504442	7030.2483	0.0167008	-0.333631	113.17081	7029.9147	1.016444
0.18538558	114.490089	7031.2339	0.0167008	-0.365347	114.12474	7030.8686	1.0163922
0.18541296	115.475737	7032.2195	0.0167008	-0.396961	115.07878	7031.8226	1.0163357
0.18544034	116.461384	7033.2051	0.0167008	-0.428464	116.03292	7032.7767	1.0162745
0.18546772	117.447031	7034.1907	0.0167008	-0.459848	116.98718	7033.7309	1.0162086
0.18549509	118.432679	7035.1763	0.0167008	-0.491104	117.94157	7034.6852	1.0161381
0.18552247	119.418326	7036.1619	0.0167008	-0.522223	118.8961	7035.6397	1.0160629
0.18554985	120.403973	7037.1475	0.0167008	-0.553196	119.85078	7036.5944	1.0159832
0.18557723	121.389621	7038.1331	0.0167008	-0.584016	120.80561	7037.5491	1.0158988
0.18560461	122.375268	7039.1187	0.0167008	-0.614672	121.7606	7038.5041	1.0158099
0.18563199	123.360916	7040.1043	0.0167008	-0.645157	122.71576	7039.4592	1.0157164
0.18565937	124.346563	7041.0899	0.0167008	-0.675461	123.6711	7040.4145	1.0156185
0.18568674	125.33221	7042.0755	0.0167008	-0.705578	124.62663	7041.37	1.015516
0.18571412	126.317858	7043.0611	0.0167008	-0.735497	125.58236	7042.3257	1.0154091
0.18574150	127.303505	7044.0467	0.0167008	-0.76521	126.53829	7043.2815	1.0152977
0.18576888	128.289152	7045.0323	0.0167008	-0.79471	127.49444	7044.2376	1.015182
0.18579626	129.2748	7046.0179	0.0167008	-0.823988	128.45081	7045.194	1.0150618
0.18582364	130.260447	7047.0036	0.0167008	-0.853035	129.40741	7046.1505	1.0149373
0.18585102	131.246094	7047.9892	0.0167008	-0.881843	130.36425	7047.1073	1.0148086
0.18587839	132.231742	7048.9748	0.0167008	-0.910404	131.32134	7048.0643	1.0146755
0.18590577	133.217389	7049.9604	0.0167008	-0.938711	132.27868	7049.0216	1.0145382
0.18593315	134.203037	7050.946	0.0167008	-0.966754	133.23628	7049.9792	1.0143967
0.18596053	135.188684	7051.9316	0.0167008	-0.994526	134.19416	7050.937	1.0142511
0.18598791	136.174331	7052.9172	0.0167008	-1.022019	135.15231	7051.8951	1.0141013
0.18601529	137.159979	7053.9028	0.0167008	-1.049225	136.11075	7052.8535	1.0139475
0.18604266	138.145626	7054.8884	0.0167008	-1.076136	137.06949	7053.8122	1.0137896
0.18607004	139.131273	7055.874	0.0167008	-1.102745	138.02853	7054.7712	1.0136277
0.18609742	140.116921	7056.8596	0.0167008	-1.129044	138.98788	7055.7305	1.0134619
0.18612480	141.102568	7057.8452	0.0167008	-1.155025	139.94754	7056.6901	1.0132921
0.18615218	142.088215	7058.8308	0.0167008	-1.180681	140.90753	7057.6501	1.0131185
0.18617956	143.073863	7059.8164	0.0167008	-1.206004	141.86786	7058.6103	1.0129411
0.18620694	144.05951	7060.802	0.0167008	-1.230987	142.82852	7059.571	1.0127599
0.18623431	145.045158	7061.7876	0.0167008	-1.255623	143.78953	7060.5319	1.0125751
0.18626169	146.030805	7062.7732	0.0167008	-1.279905	144.7509	7061.4933	1.0123865
0.18628907	147.016452	7063.7588	0.0167008	-1.303824	145.71263	7062.4549	1.0121944
0.18631645	148.0021	7064.7444	0.0167008	-1.327376	146.67472	7063.417	1.0119986
0.18634383	148.987747	7065.73	0.0167008	-1.350551	147.6372	7064.3794	1.0117994
0.18637121	149.973394	7066.7156	0.0167008	-1.373345	148.60005	7065.3422	1.0115967

0.18639859	150.959042	7067.7012	0.0167008	-1.395749	149.56329	7066.3054	1.0113907
0.18642596	151.944689	7068.6868	0.0167008	-1.417757	150.52693	7067.269	1.0111813
0.18645334	152.930336	7069.6724	0.0167008	-1.439363	151.49097	7068.233	1.0109686
0.18648072	153.915984	7070.658	0.0167008	-1.460561	152.45542	7069.1974	1.0107527
0.18650810	154.901631	7071.6436	0.0167008	-1.481343	153.42029	7070.1622	1.0105336
0.18653548	155.887279	7072.6292	0.0167008	-1.501704	154.38557	7071.1275	1.0103114
0.18656286	156.872926	7073.6148	0.0167008	-1.521637	155.35129	7072.0931	1.0100862
0.18659023	157.858573	7074.6004	0.0167008	-1.541137	156.31744	7073.0592	1.009858
0.18661761	158.844221	7075.586	0.0167008	-1.560197	157.28402	7074.0258	1.0096269
0.18664499	159.829868	7076.5716	0.0167008	-1.578812	158.25106	7074.9927	1.009393
0.18667237	160.815515	7077.5572	0.0167008	-1.596976	159.21854	7075.9602	1.0091563
0.18669975	161.801163	7078.5428	0.0167008	-1.614684	160.18648	7076.9281	1.0089168
0.18672713	162.78681	7079.5284	0.0167008	-1.631929	161.15488	7077.8964	1.0086747
0.18675451	163.772457	7080.514	0.0167008	-1.648707	162.12375	7078.8653	1.0084301
0.18678188	164.758105	7081.4996	0.0167008	-1.665012	163.09309	7079.8345	1.0081829
0.18680926	165.743752	7082.4852	0.0167008	-1.68084	164.06291	7080.8043	1.0079333
0.18683664	166.7294	7083.4708	0.0167008	-1.696185	165.03321	7081.7746	1.0076813
0.18686402	167.715047	7084.4564	0.0167008	-1.711042	166.004	7082.7453	1.007427
0.18689140	168.700694	7085.442	0.0167008	-1.725407	166.97529	7083.7166	1.0071704
0.18691878	169.686342	7086.4276	0.0167008	-1.739275	167.94707	7084.6883	1.0069117
0.18694616	170.671989	7087.4132	0.0167008	-1.752641	168.91935	7085.6605	1.006651
0.18697353	171.657636	7088.3988	0.0167008	-1.765502	169.89213	7086.6333	1.0063882
0.18700091	172.643284	7089.3844	0.0167008	-1.777853	170.86543	7087.6065	1.0061235
0.18702829	173.628931	7090.37	0.0167008	-1.789689	171.83924	7088.5803	1.0058569
0.18705567	174.614578	7091.3556	0.0167008	-1.801008	172.81357	7089.5546	1.0055885
0.18708305	175.600226	7092.3412	0.0167008	-1.811805	173.78842	7090.5294	1.0053185
0.18711043	176.585873	7093.3268	0.0167008	-1.822076	174.7638	7091.5047	1.0050468
0.18713781	177.571521	7094.3124	0.0167008	-1.831819	175.7397	7092.4805	1.0047735
0.18716518	178.557168	7095.298	0.0167008	-1.841029	176.71614	7093.4569	1.0044988
0.18719256	179.542815	7096.2836	0.0167008	-1.849703	177.69311	7094.4339	1.0042227
0.18721994	180.528463	7097.2692	0.0167008	-1.857839	178.67062	7095.4113	1.0039453
0.18724732	181.51411	7098.2548	0.0167008	-1.865434	179.64868	7096.3893	1.0036666
0.18727470	182.499757	7099.2404	0.0167008	-1.872484	180.62727	7097.3679	1.0033868
0.18730208	183.485405	7100.226	0.0167008	-1.878987	181.60642	7098.347	1.0031059
0.18732945	184.471052	7101.2116	0.0167008	-1.88494	182.58611	7099.3266	1.002824
0.18735683	185.456699	7102.1972	0.0167008	-1.890342	183.56636	7100.3068	1.0025412
0.18738421	186.442347	7103.1828	0.0167008	-1.89519	184.54716	7101.2876	1.0022576
0.18741159	187.427994	7104.1684	0.0167008	-1.899481	185.52851	7102.2689	1.0019732
0.18743897	188.413642	7105.154	0.0167008	-1.903215	186.51043	7103.2508	1.0016882
0.18746635	189.399289	7106.1396	0.0167007	-1.90639	187.4929	7104.2332	1.0014026
0.18749373	190.384936	7107.1252	0.0167007	-1.909003	188.47593	7105.2162	1.0011164
0.18752110	191.370584	7108.1108	0.0167007	-1.911054	189.45953	7106.1997	1.0008299
0.18754848	192.356231	7109.0964	0.0167007	-1.912541	190.44369	7107.1838	1.0005431
0.18757586	193.341878	7110.082	0.0167007	-1.913464	191.42841	7108.1685	1.000256
0.18760324	194.327526	7111.0676	0.0167007	-1.913821	192.4137	7109.1537	0.9999688
0.18763062	195.313173	7112.0532	0.0167007	-1.913612	193.39956	7110.1396	0.9996814
0.18765800	196.29882	7113.0388	0.0167007	-1.912836	194.38598	7111.1259	0.9993941
0.18768538	197.284468	7114.0244	0.0167007	-1.911493	195.37297	7112.1129	0.9991069

0.18771275	198.270115	7115.01	0.0167007	-1.909582	196.36053	7113.1004	0.9988199
0.18774013	199.255763	7115.9956	0.0167007	-1.907104	197.34866	7114.0885	0.9985331
0.18776751	200.24141	7116.9812	0.0167007	-1.904059	198.33735	7115.0771	0.9982467
0.18779489	201.227057	7117.9668	0.0167007	-1.900446	199.32661	7116.0663	0.9979608
0.18782227	202.212705	7118.9524	0.0167007	-1.896267	200.31644	7117.0561	0.9976753
0.18784965	203.198352	7119.938	0.0167007	-1.891522	201.30683	7118.0464	0.9973905
0.18787702	204.183999	7120.9236	0.0167007	-1.886212	202.29779	7119.0374	0.9971064
0.18790440	205.169647	7121.9092	0.0167007	-1.880338	203.28931	7120.0288	0.996823
0.18793178	206.155294	7122.8948	0.0167007	-1.8739	204.28139	7121.0209	0.9965405
0.18795916	207.140941	7123.8804	0.0167007	-1.866901	205.27404	7122.0135	0.996259
0.18798654	208.126589	7124.866	0.0167007	-1.859342	206.26725	7123.0066	0.9959785
0.18801392	209.112236	7125.8516	0.0167007	-1.851224	207.26101	7124.0003	0.9956991
0.18804130	210.097884	7126.8372	0.0167007	-1.84255	208.25533	7124.9946	0.9954209
0.18806867	211.083531	7127.8228	0.0167007	-1.833321	209.25021	7125.9895	0.9951441
0.18809605	212.069178	7128.8084	0.0167007	-1.82354	210.24564	7126.9848	0.9948685
0.18812343	213.054826	7129.794	0.0167007	-1.813209	211.24162	7127.9808	0.9945945
0.18815081	214.040473	7130.7796	0.0167007	-1.80233	212.23814	7128.9772	0.994322
0.18817819	215.02612	7131.7652	0.0167007	-1.790906	213.23521	7129.9743	0.9940511
0.18820557	216.011768	7132.7508	0.0167007	-1.778941	214.23283	7130.9718	0.9937819
0.18823295	216.997415	7133.7364	0.0167007	-1.766437	215.23098	7131.9699	0.9935146
0.18826032	217.983062	7134.722	0.0167007	-1.753397	216.22967	7132.9686	0.993249
0.18828770	218.96871	7135.7076	0.0167007	-1.739825	217.22888	7133.9677	0.9929855
0.18831508	219.954357	7136.6932	0.0167007	-1.725725	218.22863	7134.9675	0.992724
0.18834246	220.940005	7137.6788	0.0167007	-1.7111	219.2289	7135.9677	0.9924646
0.18836984	221.925652	7138.6644	0.0167007	-1.695954	220.2297	7136.9684	0.9922074
0.18839722	222.911299	7139.65	0.0167007	-1.680291	221.23101	7137.9697	0.9919524
0.18842460	223.896947	7140.6356	0.0167007	-1.664116	222.23283	7138.9715	0.9916999
0.18845197	224.882594	7141.6212	0.0167007	-1.647433	223.23516	7139.9737	0.9914497
0.18847935	225.868241	7142.6068	0.0167007	-1.630247	224.23799	7140.9765	0.9912021
0.18850673	226.853889	7143.5924	0.0167007	-1.612562	225.24133	7141.9798	0.9909571
0.18853411	227.839536	7144.578	0.0167007	-1.594383	226.24515	7142.9836	0.9907147
0.18856149	228.825183	7145.5636	0.0167007	-1.575716	227.24947	7143.9879	0.990475
0.18858887	229.810831	7146.5492	0.0167007	-1.556566	228.25426	7144.9926	0.9902382
0.18861624	230.796478	7147.5348	0.0167007	-1.536938	229.25954	7145.9978	0.9900043
0.18864362	231.782126	7148.5204	0.0167007	-1.516838	230.26529	7147.0035	0.9897733
0.18867100	232.767773	7149.506	0.0167007	-1.496271	231.2715	7148.0097	0.9895454
0.18869838	233.75342	7150.4916	0.0167007	-1.475244	232.27818	7149.0163	0.9893206
0.18872576	234.739068	7151.4772	0.0167007	-1.453762	233.28531	7150.0234	0.989099
0.18875314	235.724715	7152.4628	0.0167007	-1.431833	234.29288	7151.0309	0.9888806
0.18878052	236.710362	7153.4484	0.0167007	-1.409461	235.3009	7152.0389	0.9886655
0.18880789	237.69601	7154.434	0.0167007	-1.386655	236.30936	7153.0473	0.9884538
0.18883527	238.681657	7155.4196	0.0167007	-1.363419	237.31824	7154.0562	0.9882456
0.18886265	239.667304	7156.4052	0.0167007	-1.339763	238.32754	7155.0654	0.9880408
0.18889003	240.652952	7157.3908	0.0167007	-1.315691	239.33726	7156.0751	0.9878397
0.18891741	241.638599	7158.3764	0.0167007	-1.291212	240.34739	7157.0852	0.9876422
0.18894479	242.624247	7159.362	0.0167007	-1.266333	241.35791	7158.0956	0.9874484
0.18897217	243.609894	7160.3476	0.0167007	-1.241061	242.36883	7159.1065	0.9872584
0.18899954	244.595541	7161.3332	0.0167007	-1.215404	243.38014	7160.1178	0.9870723

0.18902692	245.581189	7162.3188	0.0167007	-1.189369	244.39182	7161.1294	0.98689
0.18905430	246.566836	7163.3044	0.0167007	-1.162964	245.40387	7162.1414	0.9867117
0.18908168	247.552483	7164.29	0.0167007	-1.136198	246.41629	7163.1538	0.9865373
0.18910906	248.538131	7165.2756	0.0167007	-1.109078	247.42905	7164.1665	0.9863671
0.18913644	249.523778	7166.2612	0.0167007	-1.081613	248.44217	7165.1796	0.9862009
0.18916381	250.509425	7167.2468	0.0167007	-1.05381	249.45562	7166.193	0.986039
0.18919119	251.495073	7168.2324	0.0167007	-1.025679	250.46939	7167.2067	0.9858812
0.18921857	252.48072	7169.218	0.0167007	-0.997228	251.48349	7168.2208	0.9857278
0.18924595	253.466368	7170.2036	0.0167007	-0.968466	252.4979	7169.2351	0.9855786
0.18927333	254.452015	7171.1892	0.0167007	-0.939401	253.51261	7170.2498	0.9854338
0.18930071	255.437662	7172.1748	0.0167007	-0.910042	254.52762	7171.2647	0.9852935
0.18932809	256.42331	7173.1604	0.0167007	-0.880399	255.54291	7172.28	0.9851576
0.18935546	257.408957	7174.146	0.0167007	-0.85048	256.55848	7173.2955	0.9850262
0.18938284	258.394604	7175.1316	0.0167007	-0.820295	257.57431	7174.3113	0.9848994
0.18941022	259.380252	7176.1172	0.0167007	-0.789853	258.5904	7175.3273	0.9847771
0.18943760	260.365899	7177.1028	0.0167007	-0.759164	259.60674	7176.3436	0.9846595
0.18946498	261.351546	7178.0884	0.0167007	-0.728237	260.62331	7177.3602	0.9845465
0.18949236	262.337194	7179.074	0.0167007	-0.697081	261.64011	7178.3769	0.9844383
0.18951974	263.322841	7180.0596	0.0167007	-0.665706	262.65713	7179.3939	0.9843348
0.18954711	264.308489	7181.0452	0.0167007	-0.634123	263.67437	7180.4111	0.9842361
0.18957449	265.294136	7182.0308	0.0167007	-0.602341	264.6918	7181.4284	0.9841422
0.18960187	266.279783	7183.0164	0.0167007	-0.570369	265.70941	7182.446	0.9840531
0.18962925	267.265431	7184.002	0.0167007	-0.538218	266.72721	7183.4638	0.9839688
0.18965663	268.251078	7184.9876	0.0167007	-0.505898	267.74518	7184.4817	0.9838895
0.18968401	269.236725	7185.9732	0.0167007	-0.473419	268.76331	7185.4998	0.9838151
0.18971138	270.222373	7186.9588	0.0167007	-0.440791	269.78158	7186.518	0.9837456
0.18973876	271.20802	7187.9444	0.0167007	-0.408025	270.8	7187.5364	0.9836811
0.18976614	272.193667	7188.93	0.0167007	-0.37513	271.81854	7188.5549	0.9836216
0.18979352	273.179315	7189.9156	0.0167007	-0.342117	272.8372	7189.5735	0.9835671
0.18982090	274.164962	7190.9012	0.0167006	-0.308996	273.85597	7190.5922	0.9835176
0.18984828	275.15061	7191.8868	0.0167006	-0.275778	274.87483	7191.611	0.9834732
0.18987566	276.136257	7192.8724	0.0167006	-0.242473	275.89378	7192.6299	0.9834338
0.18990303	277.121904	7193.858	0.0167006	-0.209092	276.91281	7193.6489	0.9833995
0.18993041	278.107552	7194.8436	0.0167006	-0.175645	277.93191	7194.6679	0.9833703
0.18995779	279.093199	7195.8292	0.0167006	-0.142143	278.95106	7195.687	0.9833461
0.18998517	280.078846	7196.8148	0.0167006	-0.108596	279.97025	7196.7062	0.983327
0.19001255	281.064494	7197.8004	0.0167006	-0.075014	280.98948	7197.7254	0.9833131

Sun App	Mean Obliq Ecliptic (deg)	Obliq Corr (deg)	Sun Rt Ascen (deg)	Sun Declin (deg)	var y	Eq of Time (minutes)	HA Sunrise (deg)	Solar Noon (LST)
281.22795	23.43695	23.435082	-77.79168	-22.96058	0.0430186	-3.654663	69.9544863	12:07:37
282.24721	23.43695	23.435083	-76.68937	-22.87105	0.0430186	-4.1204153	70.0500183	12:08:05
283.26647	23.436949	23.435085	-75.58855	-22.77394	0.0430186	-4.5802864	70.1534401	12:08:32
284.28574	23.436949	23.435086	-74.48937	-22.66929	0.0430187	-5.03378909	70.2646533	12:09:00
285.30499	23.436949	23.435087	-73.39193	-22.55715	0.0430187	-5.48044716	70.3835533	12:09:26
286.32422	23.436948	23.435089	-72.29636	-22.43759	0.0430187	-5.91979615	70.510029	12:09:53
287.34342	23.436948	23.43509	-71.20276	-22.31065	0.0430187	-6.35138403	70.6439638	12:10:19
288.36258	23.436948	23.435091	-70.11126	-22.17639	0.0430187	-6.77477188	70.7852356	12:10:44
289.38168	23.436947	23.435092	-69.02195	-22.0349	0.0430187	-7.1895345	70.9337173	12:11:09
290.40073	23.436947	23.435094	-67.93494	-21.88622	0.0430187	-7.59526105	71.0892774	12:11:33
291.41969	23.436947	23.435095	-66.85033	-21.73044	0.0430187	-7.99155559	71.25178	12:11:57
292.43857	23.436946	23.435096	-65.7682	-21.56762	0.0430187	-8.37803762	71.4210853	12:12:20
293.45736	23.436946	23.435097	-64.68866	-21.39785	0.0430187	-8.75434256	71.5970505	12:12:43
294.47604	23.436945	23.435099	-63.61178	-21.22121	0.0430187	-9.12012224	71.7795293	12:13:05
295.4946	23.436945	23.4351	-62.53765	-21.03777	0.0430187	-9.47504525	71.968373	12:13:26
296.51304	23.436945	23.435101	-61.46635	-20.84763	0.0430187	-9.8187974	72.1634309	12:13:47
297.53134	23.436944	23.435103	-60.39794	-20.65087	0.0430187	-10.151082	72.3645501	12:14:07
298.5495	23.436944	23.435104	-59.33249	-20.44759	0.0430187	-10.4716201	72.5715763	12:14:26
299.5675	23.436944	23.435105	-58.27006	-20.23786	0.0430187	-10.780151	72.7843543	12:14:44
300.58533	23.436943	23.435106	-57.21071	-20.0218	0.0430187	-11.076432	73.002728	12:15:02
301.60298	23.436943	23.435108	-56.1545	-19.79949	0.0430187	-11.3602391	73.2265407	12:15:19
302.62045	23.436943	23.435109	-55.10147	-19.57104	0.0430187	-11.6313668	73.455636	12:15:35
303.63772	23.436942	23.43511	-54.05166	-19.33655	0.0430187	-11.8896283	73.6898572	12:15:51
304.65478	23.436942	23.435112	-53.00511	-19.09611	0.0430187	-12.1348554	73.9290486	12:16:06
305.67163	23.436942	23.435113	-51.96186	-18.84983	0.0430188	-12.3668989	74.173055	12:16:20
306.68825	23.436941	23.435114	-50.92193	-18.59781	0.0430188	-12.5856281	74.4217222	12:16:33
307.70463	23.436941	23.435116	-49.88536	-18.34017	0.0430188	-12.7909311	74.6748975	12:16:45
308.72077	23.43694	23.435117	-48.85215	-18.07701	0.0430188	-12.9827146	74.9324294	12:16:57
309.73665	23.43694	23.435118	-47.82232	-17.80844	0.0430188	-13.1609036	75.1941686	12:17:07
310.75227	23.43694	23.435119	-46.79589	-17.53457	0.0430188	-13.3254417	75.4599671	12:17:17
311.76761	23.436939	23.435121	-45.77286	-17.2555	0.0430188	-13.4762901	75.7296796	12:17:26
312.78268	23.436939	23.435122	-44.75323	-16.97136	0.0430188	-13.6134284	76.0031626	12:17:34
313.79745	23.436939	23.435123	-43.737	-16.68225	0.0430188	-13.7368534	76.2802753	12:17:42
314.81192	23.436938	23.435125	-42.72416	-16.38829	0.0430188	-13.8465793	76.5608792	12:17:48
315.82608	23.436938	23.435126	-41.71472	-16.08959	0.0430188	-13.9426375	76.8448387	12:17:54
316.83992	23.436938	23.435127	-40.70864	-15.78626	0.0430188	-14.0250758	77.1320207	12:17:59
317.85343	23.436937	23.435129	-39.70591	-15.47842	0.0430188	-14.0939585	77.422295	12:18:03
318.86661	23.436937	23.43513	-38.70652	-15.16619	0.0430188	-14.1493656	77.7155345	12:18:07
319.87945	23.436937	23.435131	-37.71043	-14.84967	0.0430188	-14.1913929	78.0116147	12:18:09
320.89193	23.436936	23.435133	-36.71762	-14.52899	0.0430188	-14.220151	78.3104144	12:18:11
321.90406	23.436936	23.435134	-35.72805	-14.20426	0.0430188	-14.2357652	78.6118154	12:18:12

322.91581	23.436936	23.435135	-34.7417	-13.8756	0.0430188	-14.2383752	78.9157023	12:18:12
323.92719	23.436935	23.435137	-33.75852	-13.54312	0.0430188	-14.228134	79.2219631	12:18:11
324.93819	23.436935	23.435138	-32.77847	-13.20694	0.0430188	-14.2052083	79.5304887	12:18:10
325.94879	23.436934	23.435139	-31.80151	-12.86717	0.0430189	-14.1697772	79.8411731	12:18:08
326.959	23.436934	23.435141	-30.82759	-12.52393	0.0430189	-14.1220321	80.1539133	12:18:05
327.9688	23.436934	23.435142	-29.85666	-12.17734	0.0430189	-14.0621763	80.4686093	12:18:01
328.97818	23.436933	23.435143	-28.88867	-11.82751	0.0430189	-13.9904241	80.7851642	12:17:57
329.98715	23.436933	23.435145	-27.92357	-11.47455	0.0430189	-13.9070006	81.1034839	12:17:52
330.99569	23.436933	23.435146	-26.9613	-11.11858	0.0430189	-13.8121411	81.4234774	12:17:46
332.00379	23.436932	23.435147	-26.00179	-10.75972	0.0430189	-13.7060907	81.7450563	12:17:40
333.01146	23.436932	23.435149	-25.04499	-10.39807	0.0430189	-13.5891033	82.0681351	12:17:33
334.01868	23.436932	23.43515	-24.09084	-10.03376	0.0430189	-13.4614419	82.3926309	12:17:25
335.02544	23.436931	23.435151	-23.13927	-9.666895	0.0430189	-13.3233773	82.7184638	12:17:17
336.03175	23.436931	23.435153	-22.19021	-9.297587	0.0430189	-13.1751882	83.045556	12:17:08
337.03759	23.436931	23.435154	-21.2436	-8.925951	0.0430189	-13.0171602	83.3738325	12:16:59
338.04296	23.43693	23.435155	-20.29936	-8.552098	0.0430189	-12.8495857	83.7032207	12:16:49
339.04785	23.43693	23.435157	-19.35742	-8.17614	0.0430189	-12.6727634	84.0336502	12:16:38
340.05226	23.436929	23.435158	-18.41772	-7.798188	0.0430189	-12.4869976	84.3650531	12:16:27
341.05618	23.436929	23.435159	-17.48017	-7.418353	0.0430189	-12.2925978	84.6973633	12:16:15
342.05961	23.436929	23.435161	-16.5447	-7.036745	0.0430189	-12.0898785	85.030517	12:16:03
343.06254	23.436928	23.435162	-15.61123	-6.653474	0.0430189	-11.8791584	85.3644526	12:15:50
344.06497	23.436928	23.435163	-14.67969	-6.268649	0.0430189	-11.6607604	85.6991098	12:15:37
345.0669	23.436928	23.435165	-13.75	-5.882378	0.0430189	-11.4350108	86.0344308	12:15:24
346.06831	23.436927	23.435166	-12.82207	-5.494769	0.043019	-11.202239	86.3703589	12:15:10
347.06921	23.436927	23.435168	-11.89583	-5.105931	0.043019	-10.9627775	86.7068394	12:14:55
348.06958	23.436927	23.435169	-10.9712	-4.71597	0.043019	-10.7169611	87.0438188	12:14:41
349.06943	23.436926	23.43517	-10.04808	-4.324993	0.043019	-10.4651265	87.3812454	12:14:26
350.06876	23.436926	23.435172	-9.126409	-3.933106	0.043019	-10.2076124	87.7190685	12:14:10
351.06755	23.436926	23.435173	-8.206093	-3.540415	0.043019	-9.9447588	88.0572387	12:13:54
352.06581	23.436925	23.435174	-7.287051	-3.147024	0.043019	-9.67690691	88.3957078	12:13:38
353.06353	23.436925	23.435176	-6.369197	-2.753038	0.043019	-9.40439873	88.7344284	12:13:22
354.06071	23.436924	23.435177	-5.452449	-2.358562	0.043019	-9.12757681	89.0733544	12:13:05
355.05734	23.436924	23.435178	-4.53672	-1.963699	0.043019	-8.84678401	89.4124402	12:12:48
356.05343	23.436924	23.43518	-3.621927	-1.568551	0.043019	-8.5623632	89.7516411	12:12:31
357.04897	23.436923	23.435181	-2.707983	-1.173223	0.043019	-8.27465706	90.0909129	12:12:14
358.04395	23.436923	23.435183	-1.794805	-0.777815	0.043019	-7.98400784	90.430212	12:11:57
359.03838	23.436923	23.435184	-0.882306	-0.382431	0.043019	-7.6907571	90.7694954	12:11:39
360.03226	23.436922	23.435185	0.0295981	0.0128298	0.043019	-7.39524557	91.1087201	12:11:21
361.02558	23.436922	23.435187	0.9409932	0.4078652	0.043019	-7.09781288	91.4478437	12:11:03
2.018334	23.436922	23.435188	1.8519639	0.8025748	0.043019	-6.79879742	91.7868238	12:10:46
3.0105302	23.436921	23.435189	2.7625951	1.1968586	0.043019	-6.49853611	92.125618	12:10:28
4.0021635	23.436921	23.435191	3.6729713	1.5906167	0.043019	-6.19736426	92.464184	12:10:09
4.993233	23.436921	23.435192	4.5831768	1.9837498	0.0430191	-5.89561539	92.8024793	12:09:51
5.9837375	23.43692	23.435194	5.4932955	2.3761589	0.0430191	-5.59362102	93.1404611	12:09:33
6.9736762	23.43692	23.435195	6.4034109	2.7677451	0.0430191	-5.29171058	93.4780864	12:09:15
7.9630484	23.436919	23.435196	7.313606	3.1584103	0.0430191	-4.99021117	93.8153119	12:08:57
8.9518536	23.436919	23.435198	8.2239633	3.5480562	0.0430191	-4.68944745	94.1520935	12:08:39
9.9400915	23.436919	23.435199	9.1345648	3.9365853	0.0430191	-4.38974148	94.4883869	12:08:21

10.927762	23.436918	23.435201	10.045492	4.3239001	0.0430191	-4.09141253	94.8241467	12:08:03
11.914865	23.436918	23.435202	10.956825	4.7099035	0.0430191	-3.79477696	95.1593272	12:07:45
12.901401	23.436918	23.435203	11.868644	5.0944987	0.0430191	-3.50014802	95.4938815	12:07:28
13.88737	23.436917	23.435205	12.781028	5.477589	0.0430191	-3.20783574	95.8277619	12:07:10
14.872772	23.436917	23.435206	13.694056	5.8590783	0.0430191	-2.91814668	96.1609197	12:06:53
15.857609	23.436917	23.435208	14.607804	6.2388704	0.0430191	-2.63138387	96.493305	12:06:35
16.84188	23.436916	23.435209	15.52235	6.6168695	0.0430191	-2.34784652	96.824867	12:06:18
17.825588	23.436916	23.43521	16.437768	6.9929802	0.0430191	-2.06782995	97.1555532	12:06:02
18.808734	23.436916	23.435212	17.354133	7.3671072	0.0430191	-1.79162531	97.4853102	12:05:45
19.791318	23.436915	23.435213	18.271519	7.7391553	0.0430191	-1.51951946	97.8140828	12:05:29
20.773342	23.436915	23.435215	19.189996	8.1090297	0.0430191	-1.25179471	98.1418146	12:05:13
21.754808	23.436915	23.435216	20.109636	8.4766359	0.0430191	-0.98872869	98.4684474	12:04:57
22.735717	23.436914	23.435218	21.030509	8.8418795	0.0430191	-0.73059405	98.7939215	12:04:41
23.716072	23.436914	23.435219	21.952682	9.2046663	0.0430192	-0.47765833	99.1181754	12:04:26
24.695875	23.436913	23.43522	22.876222	9.5649023	0.0430192	-0.23018365	99.4411459	12:04:11
25.675128	23.436913	23.435222	23.801195	9.922494	0.0430192	0.01157346	99.7627678	12:03:57
26.653834	23.436913	23.435223	24.727663	10.277348	0.0430192	0.24736235	100.082974	12:03:43
27.631994	23.436912	23.435225	25.655689	10.629371	0.0430192	0.47693845	100.401696	12:03:29
28.609612	23.436912	23.435226	26.585333	10.978469	0.0430192	0.70006358	100.718863	12:03:16
29.586692	23.436912	23.435227	27.516653	11.324551	0.0430192	0.91650618	101.0344	12:03:03
30.563234	23.436911	23.435229	28.449707	11.667524	0.0430192	1.12604158	101.348234	12:02:50
31.539244	23.436911	23.43523	29.384549	12.007295	0.0430192	1.32845229	101.660287	12:02:38
32.514725	23.436911	23.435232	30.321232	12.343774	0.0430192	1.52352829	101.970479	12:02:26
33.489679	23.43691	23.435233	31.259807	12.676867	0.0430192	1.71106727	102.278728	12:02:15
34.46411	23.43691	23.435235	32.200323	13.006484	0.0430192	1.890875	102.584951	12:02:04
35.438023	23.43691	23.435236	33.142825	13.332534	0.0430192	2.06276553	102.88906	12:01:54
36.411421	23.436909	23.435237	34.08736	13.654926	0.0430192	2.22656157	103.190967	12:01:44
37.384308	23.436909	23.435239	35.033967	13.97357	0.0430192	2.38209474	103.490581	12:01:35
38.356688	23.436908	23.43524	35.982689	14.288376	0.0430192	2.52920587	103.787808	12:01:26
39.328566	23.436908	23.435242	36.933561	14.599256	0.0430192	2.66774534	104.082553	12:01:18
40.299946	23.436908	23.435243	37.886618	14.906119	0.0430192	2.79757333	104.374716	12:01:10
41.270833	23.436907	23.435245	38.841893	15.208877	0.0430192	2.91856013	104.664199	12:01:02
42.241232	23.436907	23.435246	39.799415	15.507443	0.0430193	3.03058646	104.950898	12:00:56
43.211146	23.436907	23.435248	40.759212	15.801728	0.0430193	3.1335437	105.234707	12:00:50
44.180582	23.436906	23.435249	41.721307	16.091647	0.0430193	3.22733424	105.51552	12:00:44
45.149544	23.436906	23.43525	42.685721	16.377112	0.0430193	3.3118717	105.793226	12:00:39
46.118038	23.436906	23.435252	43.652473	16.658039	0.0430193	3.38708121	106.067715	12:00:34
47.086068	23.436905	23.435253	44.621579	16.934341	0.0430193	3.45289967	106.338873	12:00:30
48.053641	23.436905	23.435255	45.593052	17.205936	0.0430193	3.50927599	106.606583	12:00:27
49.020761	23.436905	23.435256	46.566899	17.472739	0.0430193	3.55617134	106.870727	12:00:24
49.987436	23.436904	23.435258	47.543129	17.734668	0.0430193	3.59355933	107.131188	12:00:22
50.953669	23.436904	23.435259	48.521744	17.991641	0.0430193	3.62142626	107.387842	12:00:20
51.919468	23.436903	23.435261	49.502743	18.243577	0.0430193	3.63977125	107.640568	12:00:19
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57.705474	23.436901	23.435269	55.438424	19.645022	0.0430193	3.55149045	109.067382	12:00:25
58.668404	23.436901	23.435271	56.435846	19.859524	0.0430193	3.50426805	109.289066	12:00:27
59.63095	23.436901	23.435272	57.435535	20.068381	0.0430194	3.44799568	109.505799	12:00:31
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157.27438	23.436864	23.435429	158.97901	8.8382088	0.0430199	-0.58693628	98.7906457	12:04:33
158.24141	23.436864	23.435431	159.88684	8.4781242	0.04302	-0.27671563	98.4697717	12:04:14
159.20889	23.436864	23.435432	160.7934	8.1157765	0.04302	0.03860718	98.1478011	12:03:55
160.17682	23.436863	23.435434	161.69874	7.7512554	0.04302	0.35875598	97.8247902	12:03:36
161.14522	23.436863	23.435436	162.60294	7.3846505	0.04302	0.68345037	97.5007936	12:03:17
162.11409	23.436863	23.435437	163.50608	7.0160514	0.04302	1.01240581	97.1758643	12:02:57
163.08343	23.436862	23.435439	164.40822	6.6455481	0.04302	1.34533387	96.850054	12:02:37
164.05325	23.436862	23.43544	165.30945	6.2732307	0.04302	1.68194236	96.5234129	12:02:17
165.02355	23.436861	23.435442	166.20983	5.8991893	0.04302	2.02193549	96.1959898	12:01:56
165.99433	23.436861	23.435444	167.10945	5.5235143	0.04302	2.36501405	95.8678324	12:01:36
166.96561	23.436861	23.435445	168.00838	5.1462961	0.04302	2.71087554	95.5389872	12:01:15
167.93739	23.43686	23.435447	168.90671	4.7676255	0.04302	3.05921426	95.2094997	12:00:54
168.90967	23.43686	23.435449	169.8045	4.3875932	0.04302	3.40972153	94.8794142	12:00:33
169.88245	23.43686	23.43545	170.70185	4.0062904	0.04302	3.76208574	94.5487742	12:00:12
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172.80388	23.436859	23.435455	173.39202	2.8556726	0.04302	4.8271629	93.5539503	11:59:08
173.77873	23.436858	23.435457	174.28839	2.4702027	0.04302	5.18378487	93.2215119	11:58:47
174.7541	23.436858	23.435458	175.18472	2.0839211	0.0430201	5.54066628	92.8887256	11:58:25
175.73001	23.436858	23.43546	176.0811	1.6969202	0.0430201	5.89748053	92.5556312	11:58:04
176.70644	23.436857	23.435462	176.97761	1.3092929	0.0430201	6.25389891	92.222268	11:57:42
177.68341	23.436857	23.435463	177.87433	0.9211323	0.0430201	6.60959069	91.8886753	11:57:21
178.66092	23.436856	23.435465	178.77135	0.532532	0.0430201	6.96422329	91.5548919	11:57:00
179.63897	23.436856	23.435466	179.66875	0.1435858	0.0430201	7.31746236	91.220957	11:56:39
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187.48318	23.436853	23.435479	-173.128	-2.969054	0.0430201	10.0526138	88.548743	11:53:54
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189.4498	23.436853	23.435483	-171.3173	-3.743987	0.0430201	10.6986737	87.8819711	11:53:16
190.43396	23.436852	23.435484	-170.4101	-4.130433	0.0430202	11.0141578	87.5490105	11:52:57
191.41868	23.436852	23.435486	-169.5014	-4.516067	0.0430202	11.3241539	87.2163935	11:52:38
192.40397	23.436851	23.435488	-168.5913	-4.900789	0.0430202	11.6283197	86.8841665	11:52:20
193.38982	23.436851	23.435489	-167.6796	-5.284499	0.0430202	11.9263138	86.552377	11:52:02
194.37624	23.436851	23.435491	-166.7662	-5.667096	0.0430202	12.2177963	86.2210739	11:51:45
195.36323	23.43685	23.435493	-165.8511	-6.04848	0.0430202	12.5024284	85.8903076	11:51:27

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197.33891	23.43685	23.435496	-164.0153	-6.807198	0.0430202	13.0497976	85.2305941	11:50:55
198.3276	23.436849	23.435498	-163.0945	-7.184327	0.0430202	13.3118684	84.9017553	11:50:39
199.31686	23.436849	23.435499	-162.1717	-7.559832	0.0430202	13.5657571	84.5736705	11:50:24
200.30668	23.436849	23.435501	-161.2467	-7.933608	0.0430202	13.8111383	84.2463984	11:50:09
201.29707	23.436848	23.435503	-160.3195	-8.305552	0.0430202	14.0476903	83.9199996	11:49:55
202.28803	23.436848	23.435504	-159.39	-8.675557	0.0430202	14.2750956	83.5945369	11:49:41
203.27955	23.436848	23.435506	-158.4582	-9.043517	0.0430202	14.4930412	83.2700752	11:49:28
204.27163	23.436847	23.435508	-157.5239	-9.409328	0.0430202	14.7012194	82.9466816	11:49:16
205.26427	23.436847	23.435509	-156.5872	-9.772882	0.0430202	14.899328	82.6244255	11:49:04
206.25748	23.436847	23.435511	-155.6478	-10.13407	0.0430203	15.0870708	82.3033787	11:48:52
207.25124	23.436846	23.435513	-154.7058	-10.49279	0.0430203	15.264158	81.9836156	11:48:42
208.24556	23.436846	23.435514	-153.7612	-10.84892	0.0430203	15.430307	81.6652128	11:48:32
209.24043	23.436845	23.435516	-152.8137	-11.20237	0.0430203	15.5852428	81.3482499	11:48:22
210.23586	23.436845	23.435518	-151.8634	-11.55301	0.0430203	15.7286982	81.032809	11:48:14
211.23184	23.436845	23.435519	-150.9102	-11.90075	0.0430203	15.8604146	80.718975	11:48:06
212.22836	23.436844	23.435521	-149.954	-12.24547	0.0430203	15.9801428	80.4068355	11:47:59
213.22543	23.436844	23.435523	-148.9949	-12.58706	0.0430203	16.0876429	80.0964811	11:47:52
214.22304	23.436844	23.435524	-148.0326	-12.9254	0.0430203	16.1826853	79.7880053	11:47:47
215.22119	23.436843	23.435526	-147.0673	-13.2604	0.0430203	16.265051	79.4815047	11:47:42
216.21987	23.436843	23.435528	-146.0988	-13.59193	0.0430203	16.3345324	79.1770785	11:47:38
217.21909	23.436843	23.435529	-145.127	-13.91988	0.0430203	16.3909334	78.8748294	11:47:34
218.21884	23.436842	23.435531	-144.152	-14.24414	0.0430203	16.4340703	78.5748629	11:47:32
219.21911	23.436842	23.435533	-143.1737	-14.56461	0.0430203	16.4637724	78.2772877	11:47:30
220.2199	23.436842	23.435534	-142.1921	-14.88116	0.0430203	16.4798819	77.9822155	11:47:29
221.22121	23.436841	23.435536	-141.2071	-15.19368	0.0430203	16.482255	77.689761	11:47:29
222.22303	23.436841	23.435538	-140.2186	-15.50207	0.0430204	16.4707623	77.4000422	11:47:29
223.22535	23.43684	23.435539	-139.2268	-15.8062	0.0430204	16.445289	77.1131799	11:47:31
224.22819	23.43684	23.435541	-138.2314	-16.10597	0.0430204	16.4057354	76.8292982	11:47:33
225.23152	23.43684	23.435543	-137.2326	-16.40126	0.0430204	16.3520178	76.5485239	11:47:36
226.23534	23.436839	23.435544	-136.2303	-16.69196	0.0430204	16.2840681	76.2709868	11:47:41
227.23965	23.436839	23.435546	-135.2245	-16.97797	0.0430204	16.2018351	75.9968196	11:47:45
228.24445	23.436839	23.435548	-134.2151	-17.25916	0.0430204	16.1052841	75.7261576	11:47:51
229.24972	23.436838	23.435549	-133.2022	-17.53542	0.0430204	15.9943978	75.4591389	11:47:58
230.25547	23.436838	23.435551	-132.1858	-17.80666	0.0430204	15.8691763	75.195904	11:48:05
231.26168	23.436838	23.435553	-131.1658	-18.07275	0.0430204	15.7296375	74.9365959	11:48:14
232.26835	23.436837	23.435554	-130.1423	-18.33358	0.0430204	15.5758174	74.6813599	11:48:23
233.27548	23.436837	23.435556	-129.1152	-18.58906	0.0430204	15.4077702	74.4303432	11:48:33
234.28305	23.436837	23.435558	-128.0847	-18.83907	0.0430204	15.2255686	74.1836952	11:48:44
235.29107	23.436836	23.435556	-127.0506	-19.0835	0.0430204	15.0293042	73.9415666	11:48:56
236.29952	23.436836	23.435561	-126.0131	-19.32225	0.0430204	14.819087	73.7041102	11:49:08
237.3084	23.436835	23.435563	-124.9722	-19.55521	0.0430205	14.5950461	73.4714795	11:49:22
238.3177	23.436835	23.435565	-123.9278	-19.78229	0.0430205	14.3573295	73.2438294	11:49:36
239.32742	23.436835	23.435566	-122.8801	-20.00337	0.0430205	14.1061041	73.0213155	11:49:51
240.33754	23.436834	23.435568	-121.829	-20.21837	0.0430205	13.8415559	72.8040938	11:50:07
241.34807	23.436834	23.43557	-120.7746	-20.42717	0.0430205	13.5638896	72.5923207	11:50:24
242.35898	23.436834	23.435571	-119.7171	-20.6297	0.0430205	13.2733286	72.3861522	11:50:41
243.37029	23.436833	23.435573	-118.6563	-20.82584	0.0430205	12.9701151	72.1857441	11:50:59

244.38197	23.436833	23.435575	-117.5924	-21.01551	0.0430205	12.6545096	71.9912515	11:51:18
245.39402	23.436833	23.435577	-116.5255	-21.19861	0.0430205	12.326791	71.8028282	11:51:38
246.40643	23.436832	23.435578	-115.4556	-21.37506	0.0430205	11.987256	71.6206266	11:51:58
247.41919	23.436832	23.43558	-114.3827	-21.54478	0.0430205	11.6362189	71.4447973	11:52:19
248.4323	23.436832	23.435582	-113.3071	-21.70767	0.0430205	11.2740114	71.2754885	11:52:41
249.44575	23.436831	23.435583	-112.2287	-21.86365	0.0430205	10.9009822	71.1128462	11:53:04
250.45953	23.436831	23.435585	-111.1476	-22.01266	0.0430205	10.5174963	70.9570128	11:53:27
251.47362	23.43683	23.435587	-110.064	-22.1546	0.0430205	10.1239347	70.8081279	11:53:50
252.48803	23.43683	23.435589	-108.978	-22.28942	0.0430205	9.72069409	70.6663268	11:54:14
253.50274	23.43683	23.43559	-107.8895	-22.41703	0.0430206	9.308186	70.531741	11:54:39
254.51775	23.436829	23.435592	-106.7988	-22.53737	0.0430206	8.88683639	70.4044972	11:55:04
255.53303	23.436829	23.435594	-105.7059	-22.65039	0.0430206	8.45708496	70.284717	11:55:30
256.5486	23.436829	23.435595	-104.6111	-22.756	0.0430206	8.01938457	70.1725169	11:55:56
257.56443	23.436828	23.435597	-103.5142	-22.85417	0.0430206	7.57420049	70.0680074	11:56:23
258.58052	23.436828	23.435599	-102.4156	-22.94484	0.0430206	7.12200977	69.9712932	11:56:50
259.59685	23.436828	23.435601	-101.3153	-23.02795	0.0430206	6.6633004	69.8824721	11:57:18
260.61342	23.436827	23.435602	-100.2135	-23.10347	0.0430206	6.19857063	69.8016355	11:57:46
261.63022	23.436827	23.435604	-99.11018	-23.17134	0.0430206	5.72832811	69.7288675	11:58:14
262.64724	23.436827	23.435606	-98.00561	-23.23153	0.0430206	5.25308913	69.6642447	11:58:42
263.66447	23.436826	23.435607	-96.89988	-23.28401	0.0430206	4.77337774	69.6078362	11:59:11
264.6819	23.436826	23.435609	-95.79313	-23.32874	0.0430206	4.28972489	69.5597032	11:59:40
265.69952	23.436825	23.435611	-94.68549	-23.3657	0.0430206	3.80266757	69.5198984	12:00:09
266.71731	23.436825	23.435613	-93.5771	-23.39487	0.0430206	3.31274793	69.4884666	12:00:39
267.73528	23.436825	23.435614	-92.4681	-23.41622	0.0430206	2.82051233	69.4654437	12:01:08
268.7534	23.436824	23.435616	-91.35864	-23.42974	0.0430207	2.32651047	69.4508571	12:01:38
269.77168	23.436824	23.435618	-90.24885	-23.43542	0.0430207	1.83129445	69.4447256	12:02:08
270.79009	23.436824	23.43562	-89.13889	-23.43326	0.0430207	1.33541782	69.4470588	12:02:37
271.80863	23.436823	23.435621	-88.02888	-23.42325	0.0430207	0.8394347	69.4578579	12:03:07
272.82729	23.436823	23.435623	-86.91898	-23.40539	0.0430207	0.34389877	69.4771148	12:03:37
273.84605	23.436823	23.435625	-85.80933	-23.3797	0.0430207	-0.15063759	69.5048128	12:04:07
274.86491	23.436822	23.435626	-84.70007	-23.34618	0.0430207	-0.64362426	69.5409264	12:04:36
275.88387	23.436822	23.435628	-83.59134	-23.30485	0.0430207	-1.13451433	69.5854214	12:05:06
276.90289	23.436822	23.43563	-82.48328	-23.25572	0.0430207	-1.62276497	69.638255	12:05:35
277.92198	23.436821	23.435632	-81.37603	-23.19882	0.0430207	-2.10783832	69.699376	12:06:04
278.94113	23.436821	23.435633	-80.26973	-23.13418	0.0430207	-2.58920246	69.768725	12:06:33
279.96032	23.436821	23.435635	-79.1645	-23.06182	0.0430207	-3.06633219	69.8462346	12:07:02
280.97955	23.43682	23.435637	-78.0605	-22.98179	0.0430207	-3.53870996	69.9318298	12:07:30

Sunrise Time (LST)	Sunset Time (LST)	Sunlight Duration (minutes)	True Solar Time (min)	Hour Angle (deg)	Solar Zenith Angle (deg)	Solar Elevation Angle (deg)	Approx Atmospher ic Refraction (deg)
7:27:48	16:47:26	559.63589	712.38534	-1.903666	63.620246	26.379754	0.0323819
7:27:53	16:48:17	560.400146	711.91958	-2.020104	63.533867	26.466133	0.0322608
7:27:56	16:49:09	561.22752	711.45971	-2.135072	63.440059	26.559941	0.0321301
7:27:56	16:50:03	562.117227	711.00621	-2.248447	63.338859	26.661141	0.03199
7:27:54	16:50:58	563.068426	710.55955	-2.360112	63.23031	26.76969	0.0318409
7:27:50	16:51:55	564.080232	710.1202	-2.469949	63.114456	26.885544	0.0316829
7:27:44	16:52:53	565.15171	709.68862	-2.577846	62.991345	27.008655	0.0315164
7:27:36	16:53:53	566.281885	709.26523	-2.683693	62.861028	27.138972	0.0313416
7:27:25	16:54:53	567.469739	708.85047	-2.787384	62.723559	27.276441	0.0311589
7:27:12	16:55:55	568.714219	708.44474	-2.888815	62.578996	27.421004	0.0309686
7:26:57	16:56:58	570.01424	708.04844	-2.987889	62.427397	27.572603	0.0307709
7:26:39	16:58:01	571.368683	707.66196	-3.084509	62.268825	27.731175	0.0305662
7:26:20	16:59:06	572.776404	707.28566	-3.178586	62.103346	27.896654	0.0303549
7:25:58	17:00:12	574.236234	706.91988	-3.270031	61.931026	28.068974	0.0301372
7:25:34	17:01:19	575.746984	706.56495	-3.358761	61.751937	28.248063	0.0299135
7:25:08	17:02:26	577.307447	706.2212	-3.444699	61.566151	28.433849	0.0296842
7:24:39	17:03:34	578.916401	705.88892	-3.52777	61.373743	28.626257	0.0294495
7:24:09	17:04:43	580.572611	705.56838	-3.607905	61.174792	28.825208	0.0292098
7:23:36	17:05:53	582.274835	705.25985	-3.685038	60.969377	29.030623	0.0289654
7:23:02	17:07:03	584.021824	704.96357	-3.759108	60.757581	29.242419	0.0287166
7:22:25	17:08:14	585.812326	704.67976	-3.83006	60.539487	29.460513	0.0284638
7:21:46	17:09:25	587.645088	704.40863	-3.897842	60.315183	29.684817	0.0282073
7:21:05	17:10:37	589.518858	704.15037	-3.962407	60.084757	29.915243	0.0279474
7:20:23	17:11:49	591.432389	703.90514	-4.023714	59.8483	30.1517	0.0276844
7:19:38	17:13:01	593.38444	703.6731	-4.081725	59.605903	30.394097	0.0274186
7:18:52	17:14:14	595.373778	703.45437	-4.136407	59.357662	30.642338	0.0271502
7:18:03	17:15:27	597.39918	703.24907	-4.187733	59.103672	30.896328	0.0268796
7:17:13	17:16:40	599.459436	703.05729	-4.235679	58.844031	31.155969	0.0266071
7:16:21	17:17:54	601.553349	702.8791	-4.280226	58.578838	31.421162	0.0263328
7:15:27	17:19:08	603.679737	702.71456	-4.32136	58.308194	31.691806	0.0260571
7:14:31	17:20:21	605.837437	702.56371	-4.359073	58.032201	31.967799	0.0257802
7:13:34	17:21:35	608.025301	702.42657	-4.393357	57.750963	32.249037	0.0255024
7:12:35	17:22:49	610.242202	702.30315	-4.424213	57.464585	32.535415	0.0252238
7:11:34	17:24:03	612.487034	702.19342	-4.451645	57.173173	32.826827	0.0249447
7:10:31	17:25:17	614.75871	702.09736	-4.475659	56.876836	33.123164	0.0246653
7:09:27	17:26:31	617.056165	702.01492	-4.496269	56.57568	33.42432	0.0243859
7:08:22	17:27:45	619.37836	701.94604	-4.51349	56.269817	33.730183	0.0241065
7:07:15	17:28:58	621.724276	701.89063	-4.527341	55.959357	34.040643	0.0238274
7:06:06	17:30:12	624.092918	701.84861	-4.537848	55.644411	34.355589	0.0235488
7:04:56	17:31:25	626.483315	701.81985	-4.545038	55.325093	34.674907	0.0232708
7:03:45	17:32:39	628.894523	701.80423	-4.548941	55.001514	34.998486	0.0229935

7:02:32	17:33:52	631.325618	701.80162	-4.549594	54.67379	35.32621	0.0227172
7:01:18	17:35:05	633.775705	701.81187	-4.547034	54.342036	35.657964	0.0224419
7:00:03	17:36:17	636.24391	701.83479	-4.541302	54.006366	35.993634	0.0221678
6:58:46	17:37:30	638.729385	701.87022	-4.532444	53.666897	36.333103	0.0218951
6:57:28	17:38:42	641.231306	701.91797	-4.520508	53.323745	36.676255	0.0216237
6:56:09	17:39:54	643.748874	701.97782	-4.505544	52.977027	37.022973	0.0213539
6:54:49	17:41:05	646.281313	702.04958	-4.487606	52.62686	37.37314	0.0210858
6:53:27	17:42:17	648.827872	702.133	-4.46675	52.273363	37.726637	0.0208193
6:52:05	17:43:28	651.387819	702.22786	-4.443035	51.916652	38.083348	0.0205547
6:50:41	17:44:39	653.96045	702.33391	-4.416523	51.556847	38.443153	0.0202919
6:49:17	17:45:49	656.54508	702.4509	-4.387276	51.194065	38.805935	0.0200312
6:47:51	17:47:00	659.141047	702.57856	-4.35536	50.828426	39.171574	0.0197724
6:46:25	17:48:09	661.74771	702.71662	-4.320844	50.460047	39.539953	0.0195157
6:44:57	17:49:19	664.364448	702.86481	-4.283797	50.089048	39.910952	0.0192612
6:43:29	17:50:28	666.99066	703.02284	-4.24429	49.715547	40.284453	0.0190089
6:42:00	17:51:37	669.625766	703.19041	-4.202396	49.339662	40.660338	0.0187588
6:40:30	17:52:46	672.269202	703.36724	-4.158191	48.961512	41.038488	0.0185111
6:38:59	17:53:54	674.920424	703.553	-4.111749	48.581216	41.418784	0.0182656
6:37:28	17:55:03	677.578906	703.7474	-4.063149	48.198892	41.801108	0.0180225
6:35:56	17:56:10	680.244136	703.95012	-4.01247	47.814656	42.185344	0.0177818
6:34:23	17:57:18	682.91562	704.16084	-3.95979	47.428629	42.571371	0.0175435
6:32:49	17:58:25	685.592879	704.37924	-3.90519	47.040925	42.959075	0.0173076
6:31:15	17:59:32	688.275446	704.60499	-3.848753	46.651664	43.348336	0.0170742
6:29:41	18:00:39	690.962871	704.83776	-3.79056	46.260961	43.739039	0.0168432
6:28:06	18:01:45	693.654715	705.07722	-3.730694	45.868932	44.131068	0.0166147
6:26:30	18:02:51	696.350551	705.32304	-3.66924	45.475695	44.524305	0.0163887
6:24:54	18:03:57	699.049963	705.57487	-3.606282	45.081363	44.918637	0.0161652
6:23:17	18:05:03	701.752548	705.83239	-3.541903	44.686053	45.313947	0.0159442
6:21:41	18:06:08	704.45791	706.09524	-3.47619	44.289879	45.710121	0.0157257
6:20:03	18:07:13	707.165662	706.36309	-3.409227	43.892955	46.107045	0.0155097
6:18:26	18:08:18	709.875428	706.6356	-3.3411	43.495394	46.504606	0.0152962
6:16:48	18:09:23	712.586835	706.91242	-3.271894	43.097309	46.902691	0.0150852
6:15:09	18:10:27	715.299522	707.19322	-3.201696	42.698813	47.301187	0.0148767
6:13:31	18:11:32	718.013129	707.47764	-3.130591	42.300018	47.699982	0.0146706
6:11:52	18:12:36	720.727303	707.76534	-3.058664	41.901034	48.098966	0.0144671
6:10:13	18:13:40	723.441696	708.05599	-2.986002	41.501973	48.498027	0.014266
6:08:34	18:14:44	726.155963	708.34924	-2.912689	41.102944	48.897056	0.0140674
6:06:55	18:15:47	728.869761	708.64475	-2.838811	40.704057	49.295943	0.0138713
6:05:16	18:16:51	731.58275	708.94219	-2.764453	40.30542	49.69458	0.0136775
6:03:37	18:17:54	734.294591	709.2412	-2.689699	39.907141	50.092859	0.0134863
6:01:57	18:18:58	737.004944	709.54146	-2.614634	39.509328	50.490672	0.0132974
6:00:18	18:20:01	739.713472	709.84264	-2.539341	39.112088	50.887912	0.0131109
5:58:39	18:21:04	742.419834	710.14438	-2.463904	38.715526	51.284474	0.0129269
5:57:00	18:22:07	745.123689	710.44638	-2.388405	38.319747	51.680253	0.0127452
5:55:20	18:23:10	747.824691	710.74829	-2.312928	37.924858	52.075142	0.0125658
5:53:41	18:24:13	750.522495	711.04979	-2.237553	37.53096	52.46904	0.0123889
5:52:02	18:25:15	753.216748	711.35055	-2.162362	37.138159	52.861841	0.0122142
5:50:24	18:26:18	755.907095	711.65026	-2.087435	36.746555	53.253445	0.0120419

5:48:45	18:27:21	758.593174	711.94859	-2.012853	36.356252	53.643748	0.0118719
5:47:07	18:28:24	761.274617	712.24522	-1.938694	35.96735	54.03265	0.0117041
5:45:29	18:29:26	763.951052	712.53985	-1.865037	35.579951	54.420049	0.0115387
5:43:51	18:30:29	766.622095	712.83216	-1.791959	35.194153	54.805847	0.0113755
5:42:14	18:31:31	769.287357	713.12185	-1.719537	34.810056	55.189944	0.0112145
5:40:37	18:32:34	771.94644	713.40862	-1.647846	34.427759	55.572241	0.0110558
5:39:01	18:33:36	774.598936	713.69215	-1.576962	34.047359	55.952641	0.0108992
5:37:24	18:34:39	777.244426	713.97217	-1.506957	33.668953	56.331047	0.0107449
5:35:49	18:35:42	779.882482	714.24837	-1.437906	33.292638	56.707362	0.0105928
5:34:13	18:36:44	782.512663	714.52048	-1.36988	32.91851	57.08149	0.0104428
5:32:39	18:37:47	785.134517	714.78821	-1.302949	32.546664	57.453336	0.010295
5:31:04	18:38:49	787.747579	715.05127	-1.237182	32.177194	57.822806	0.0101494
5:29:31	18:39:52	790.351372	715.30941	-1.172649	31.810195	58.189805	0.0100059
5:27:58	18:40:55	792.945403	715.56234	-1.109415	31.445759	58.554241	0.0098645
5:26:26	18:41:57	795.529167	715.80982	-1.047546	31.08398	58.91602	0.0097252
5:24:54	18:43:00	798.102143	716.05157	-0.987107	30.724949	59.275051	0.009588
5:23:23	18:44:03	800.663794	716.28736	-0.928159	30.368757	59.631243	0.0094529
5:21:53	18:45:05	803.21357	716.51694	-0.870765	30.015496	59.984504	0.0093199
5:20:23	18:46:08	805.750901	716.74006	-0.814984	29.665256	60.334744	0.0091889
5:18:54	18:47:11	808.275204	716.95651	-0.760873	29.318127	60.681873	0.00906
5:17:26	18:48:14	810.785876	717.16604	-0.70849	28.974197	61.025803	0.0089331
5:15:59	18:49:16	813.282298	717.36845	-0.657887	28.633556	61.366444	0.0088083
5:14:33	18:50:19	815.763833	717.56353	-0.609118	28.29629	61.70371	0.0086855
5:13:08	18:51:22	818.229828	717.75107	-0.562233	27.962489	62.037511	0.0085647
5:11:44	18:52:25	820.679607	717.93087	-0.517281	27.632239	62.367761	0.008446
5:10:20	18:53:27	823.11248	718.10277	-0.474309	27.305627	62.694373	0.0083292
5:08:58	18:54:30	825.527736	718.26656	-0.43336	26.982738	63.017262	0.0082145
5:07:37	18:55:32	827.924647	718.42209	-0.394476	26.663659	63.336341	0.0081017
5:06:17	18:56:35	830.302464	718.56921	-0.357699	26.348474	63.651526	0.007991
5:04:58	18:57:37	832.660421	718.70775	-0.323064	26.037268	63.962732	0.0078822
5:03:40	18:58:40	834.997732	718.83757	-0.290607	25.730126	64.269874	0.0077754
5:02:23	18:59:42	837.313593	718.95856	-0.26036	25.427132	64.572868	0.0076706
5:01:08	19:00:44	839.607181	719.07059	-0.232353	25.128369	64.871631	0.0075677
4:59:53	19:01:46	841.877656	719.17354	-0.206614	24.833919	65.166081	0.0074669
4:58:40	19:02:48	844.124158	719.26733	-0.183166	24.543867	65.456133	0.007368
4:57:29	19:03:49	846.345812	719.35187	-0.162032	24.258294	65.741706	0.0072711
4:56:18	19:04:51	848.541723	719.42708	-0.14323	23.977282	66.022718	0.0071761
4:55:09	19:05:52	850.710981	719.4929	-0.126775	23.700912	66.299088	0.0070831
4:54:01	19:06:53	852.85266	719.54928	-0.112681	23.429266	66.570734	0.0069921
4:52:55	19:07:53	854.965819	719.59617	-0.100957	23.162425	66.837575	0.0069031
4:51:51	19:08:53	857.049502	719.63356	-0.09161	22.900468	67.099532	0.006816
4:50:47	19:09:53	859.102738	719.66143	-0.084643	22.643476	67.356524	0.0067309
4:49:45	19:10:53	861.124546	719.67977	-0.080057	22.391528	67.608472	0.0066478
4:48:45	19:11:52	863.113931	719.68861	-0.077848	22.144704	67.855296	0.0065667
4:47:47	19:12:51	865.069888	719.68796	-0.078011	21.903081	68.096919	0.0064875
4:46:50	19:13:49	866.991405	719.67786	-0.080534	21.666738	68.333262	0.0064104
4:45:54	19:14:47	868.877458	719.65837	-0.085407	21.435753	68.564247	0.0063352
4:45:00	19:15:44	870.727018	719.62956	-0.092611	21.210201	68.789799	0.006262

4:44:08	19:16:41	872.539054	719.59149	-0.102127	20.99016	69.00984	0.0061909
4:43:18	19:17:37	874.312526	719.54427	-0.113933	20.775704	69.224296	0.0061217
4:42:29	19:18:32	876.046395	719.488	-0.128001	20.566909	69.433091	0.0060545
4:41:42	19:19:27	877.739623	719.42279	-0.144302	20.363849	69.636151	0.0059894
4:40:57	19:20:21	879.391172	719.34879	-0.162801	20.166596	69.833404	0.0059263
4:40:14	19:21:14	881.000006	719.26615	-0.183463	19.975223	70.024777	0.0058652
4:39:33	19:22:06	882.565099	719.17501	-0.206248	19.789799	70.210201	0.0058062
4:38:53	19:22:58	884.085427	719.07556	-0.231111	19.610396	70.389604	0.0057492
4:38:15	19:23:49	885.559981	718.96798	-0.258006	19.437082	70.562918	0.0056943
4:37:39	19:24:38	886.987761	718.85247	-0.286883	19.269923	70.730077	0.0056414
4:37:05	19:25:27	888.367781	718.72925	-0.317688	19.108984	70.891016	0.0055906
4:36:33	19:26:15	889.699071	718.59853	-0.350366	18.954331	71.045669	0.0055419
4:36:03	19:27:02	890.980681	718.46057	-0.384858	18.806024	71.193976	0.0054953
4:35:35	19:27:47	892.211681	718.3156	-0.421099	18.664125	71.335875	0.0054507
4:35:08	19:28:32	893.391163	718.1639	-0.459026	18.52869	71.47131	0.0054083
4:34:44	19:29:15	894.518247	718.00572	-0.49857	18.399776	71.600224	0.0053679
4:34:22	19:29:57	895.592078	717.84136	-0.53966	18.277437	71.722563	0.0053297
4:34:01	19:30:38	896.611833	717.67111	-0.582222	18.161724	71.838276	0.0052936
4:33:43	19:31:18	897.57672	717.49528	-0.62618	18.052684	71.947316	0.0052596
4:33:27	19:31:56	898.48598	717.31418	-0.671456	17.950364	72.049636	0.0052277
4:33:12	19:32:32	899.338895	717.12812	-0.717969	17.854807	72.145193	0.005198
4:33:00	19:33:08	900.13478	716.93746	-0.765635	17.766052	72.233948	0.0051704
4:32:49	19:33:42	900.872995	716.74252	-0.81437	17.684135	72.315865	0.005145
4:32:41	19:34:14	901.55294	716.54366	-0.864086	17.609091	72.390909	0.0051218
4:32:34	19:34:45	902.174059	716.34122	-0.914694	17.540948	72.459052	0.0051006
4:32:30	19:35:14	902.735845	716.13558	-0.966104	17.479734	72.520266	0.0050817
4:32:27	19:35:42	903.237835	715.9271	-1.018224	17.42547	72.57453	0.0050649
4:32:27	19:36:07	903.679617	715.71616	-1.07096	17.378177	72.621823	0.0050503
4:32:28	19:36:32	904.060828	715.50313	-1.124218	17.337868	72.662132	0.0050378
4:32:31	19:36:54	904.381157	715.28839	-1.177902	17.304556	72.695444	0.0050275
4:32:36	19:37:15	904.640346	715.07234	-1.231916	17.278248	72.721752	0.0050194
4:32:44	19:37:34	904.83819	714.85535	-1.286162	17.258947	72.741053	0.0050134
4:32:52	19:37:51	904.974536	714.63783	-1.340544	17.246654	72.753346	0.0050096
4:33:03	19:38:06	905.049288	714.42016	-1.394961	17.241365	72.758635	0.005008
4:33:16	19:38:20	905.062402	714.20273	-1.449317	17.243071	72.756929	0.0050085
4:33:30	19:38:31	905.013893	713.98595	-1.503513	17.251761	72.748239	0.0050112
4:33:47	19:38:41	904.903825	713.7702	-1.557451	17.267418	72.732582	0.0050161
4:34:05	19:38:49	904.732322	713.55587	-1.611032	17.290025	72.709975	0.005023
4:34:24	19:38:54	904.499558	713.34336	-1.66416	17.319558	72.680442	0.0050322
4:34:46	19:38:58	904.205763	713.13305	-1.716738	17.35599	72.64401	0.0050434
4:35:09	19:39:00	903.851219	712.92532	-1.768669	17.399292	72.600708	0.0050568
4:35:34	19:39:00	903.43626	712.72057	-1.819859	17.449431	72.550569	0.0050723
4:36:00	19:38:58	902.961271	712.51915	-1.870213	17.506371	72.493629	0.0050899
4:36:28	19:38:54	902.426686	712.32144	-1.91964	17.570073	72.429927	0.0051097
4:36:57	19:38:47	901.832989	712.12781	-1.968047	17.640493	72.359507	0.0051315
4:37:28	19:38:39	901.180708	711.93862	-2.015346	17.717589	72.282411	0.0051554
4:38:01	19:38:29	900.470417	711.75421	-2.061449	17.801313	72.198687	0.0051814
4:38:34	19:38:17	899.702737	711.57493	-2.106269	17.891614	72.108386	0.0052095

4:39:10	19:38:02	898.878324	711.40111	-2.149723	17.988442	72.011558	0.0052396
4:39:46	19:37:46	897.99788	711.23309	-2.191728	18.091742	71.908258	0.0052717
4:40:24	19:37:28	897.06214	711.07117	-2.232207	18.201459	71.798541	0.005306
4:41:03	19:37:07	896.071876	710.91568	-2.271081	18.317536	71.682464	0.0053422
4:41:43	19:36:45	895.027894	710.7669	-2.308275	18.439912	71.560088	0.0053805
4:42:25	19:36:20	893.931032	710.62512	-2.343719	18.568528	71.431472	0.0054207
4:43:07	19:35:54	892.782153	710.49063	-2.377343	18.703322	71.296678	0.005463
4:43:51	19:35:26	891.58215	710.36368	-2.40908	18.844231	71.155769	0.0055073
4:44:35	19:34:55	890.331939	710.24453	-2.438867	18.991191	71.008809	0.0055535
4:45:21	19:34:23	889.032458	710.13343	-2.466643	19.144138	70.855862	0.0056017
4:46:08	19:33:49	887.684665	710.03059	-2.492352	19.303006	70.696994	0.0056519
4:46:55	19:33:13	886.289536	709.93625	-2.515938	19.467727	70.532273	0.005704
4:47:44	19:32:34	884.848061	709.85059	-2.537352	19.638237	70.361763	0.0057581
4:48:33	19:31:54	883.361243	709.77382	-2.556545	19.814467	70.185533	0.0058141
4:49:23	19:31:13	881.830096	709.70611	-2.573472	19.996349	70.003651	0.005872
4:50:13	19:30:29	880.255643	709.64763	-2.588094	20.183815	69.816185	0.0059318
4:51:05	19:29:43	878.638915	709.59852	-2.600371	20.376798	69.623202	0.0059936
4:51:57	19:28:56	876.980943	709.55892	-2.610269	20.575227	69.424773	0.0060572
4:52:50	19:28:07	875.282766	709.52897	-2.617759	20.779035	69.220965	0.0061228
4:53:43	19:27:16	873.545421	709.50876	-2.622811	20.988153	69.011847	0.0061902
4:54:37	19:26:23	871.769944	709.49839	-2.625402	21.20251	68.79749	0.0062595
4:55:31	19:25:29	869.957369	709.49795	-2.625512	21.422038	68.577962	0.0063307
4:56:26	19:24:33	868.108724	709.50751	-2.623123	21.646667	68.353333	0.0064038
4:57:22	19:23:35	866.225035	709.52711	-2.618221	21.876329	68.123671	0.0064788
4:58:17	19:22:36	864.307316	709.55681	-2.610797	22.110952	67.889048	0.0065556
4:59:14	19:21:35	862.356576	709.59663	-2.600842	22.350469	67.649531	0.0066343
5:00:10	19:20:32	860.373812	709.64659	-2.588353	22.594808	67.405192	0.0067149
5:01:07	19:19:28	858.360011	709.70668	-2.57333	22.843901	67.156099	0.0067973
5:02:04	19:18:23	856.316146	709.7769	-2.555775	23.097677	66.902323	0.0068815
5:03:01	19:17:16	854.243179	709.85722	-2.535694	23.356066	66.643934	0.0069677
5:03:59	19:16:07	852.142058	709.94761	-2.513097	23.618998	66.381002	0.0070557
5:04:57	19:14:58	850.013714	710.04802	-2.487994	23.886402	66.113598	0.0071455
5:05:55	19:13:46	847.859063	710.15839	-2.460403	24.158209	65.841791	0.0072372
5:06:53	19:12:34	845.679005	710.27864	-2.43034	24.434347	65.565653	0.0073308
5:07:51	19:11:20	843.474424	710.40869	-2.397827	24.714745	65.285255	0.0074262
5:08:50	19:10:04	841.246186	710.54845	-2.362888	24.999332	65.000668	0.0075235
5:09:48	19:08:48	838.995138	710.69781	-2.325548	25.288036	64.711964	0.0076226
5:10:47	19:07:30	836.72211	710.85665	-2.285838	25.580786	64.419214	0.0077237
5:11:46	19:06:11	834.427912	711.02484	-2.24379	25.877508	64.122492	0.0078266
5:12:44	19:04:51	832.113339	711.20226	-2.199436	26.178132	63.821868	0.0079314
5:13:43	19:03:30	829.779163	711.38874	-2.152815	26.482583	63.517417	0.008038
5:14:42	19:02:08	827.426139	711.58414	-2.103965	26.790788	63.209212	0.0081466
5:15:41	19:00:44	825.055002	711.78829	-2.052929	27.102674	62.897326	0.008257
5:16:40	18:59:20	822.66647	712.00101	-1.999748	27.418165	62.581835	0.0083694
5:17:39	18:57:55	820.261241	712.22212	-1.94447	27.737187	62.262813	0.0084836
5:18:38	18:56:28	817.839992	712.45143	-1.887142	28.059665	61.940335	0.0085998
5:19:37	18:55:01	815.403386	712.68874	-1.827814	28.385523	61.614477	0.0087179
5:20:35	18:53:33	812.952064	712.93385	-1.766538	28.714683	61.285317	0.008838

5:21:34	18:52:03	810.48665	713.18654	-1.703366	29.04707	60.95293	0.0089599
5:22:33	18:50:33	808.00775	713.44658	-1.638355	29.382604	60.617396	0.0090839
5:23:32	18:49:03	805.515952	713.71376	-1.57156	29.721209	60.278791	0.0092098
5:24:30	18:47:31	803.011829	713.98783	-1.503042	30.062805	59.937195	0.0093376
5:25:29	18:45:59	800.495934	714.26856	-1.432859	30.407312	59.592688	0.0094675
5:26:28	18:44:26	797.968806	714.55571	-1.361073	30.754649	59.245351	0.0095993
5:27:26	18:42:52	795.430966	714.84901	-1.287747	31.104737	58.895263	0.0097332
5:28:25	18:41:18	792.882922	715.14822	-1.212946	31.457493	58.542507	0.009869
5:29:23	18:39:43	790.325166	715.45306	-1.136734	31.812835	58.187165	0.0100069
5:30:21	18:38:07	787.758173	715.76328	-1.059179	32.170679	57.829321	0.0101468
5:31:20	18:36:31	785.182409	716.07861	-0.980348	32.530942	57.469058	0.0102888
5:32:18	18:34:54	782.598322	716.39876	-0.900311	32.893539	57.106461	0.0104329
5:33:16	18:33:17	780.006349	716.72345	-0.819137	33.258386	56.741614	0.010579
5:34:15	18:31:39	777.406915	717.05241	-0.736899	33.625394	56.374606	0.0107272
5:35:13	18:30:01	774.800432	717.38533	-0.653667	33.994479	56.005521	0.0108776
5:36:11	18:28:22	772.187303	717.72194	-0.569514	34.365552	55.634448	0.0110301
5:37:09	18:26:43	769.567918	718.06194	-0.484516	34.738525	55.261475	0.0111847
5:38:07	18:25:04	766.942659	718.40501	-0.398746	35.113308	54.886692	0.0113414
5:39:06	18:23:24	764.311898	718.75088	-0.312281	35.489812	54.510188	0.0115004
5:40:04	18:21:44	761.675997	719.09921	-0.225196	35.867946	54.132054	0.0116615
5:41:02	18:20:04	759.035313	719.44972	-0.13757	36.247618	53.752382	0.0118248
5:42:00	18:18:24	756.390193	719.80209	-0.049479	36.628737	53.371263	0.0119904
5:42:58	18:16:43	753.740979	720.15599	0.0389981	37.011208	52.988792	0.0121582
5:43:57	18:15:02	751.088005	720.51112	0.1277812	37.394939	52.605061	0.0123282
5:44:55	18:13:21	748.431602	720.86716	0.2167907	37.779835	52.220165	0.0125005
5:45:53	18:11:40	745.772095	721.22378	0.3059462	38.165799	51.834201	0.012675
5:46:52	18:09:58	743.109805	721.58067	0.3951666	38.552737	51.447263	0.0128519
5:47:50	18:08:17	740.445049	721.93748	0.4843701	38.940551	51.059449	0.0130311
5:48:49	18:06:36	737.778144	722.2939	0.5734747	39.329143	50.670857	0.0132126
5:49:48	18:04:54	735.109402	722.64959	0.6623977	39.718414	50.281586	0.0133964
5:50:47	18:03:13	732.439136	723.00422	0.7510558	40.108267	49.891733	0.0135826
5:51:46	18:01:32	729.767656	723.35746	0.8393656	40.498599	49.501401	0.0137711
5:52:45	17:59:50	727.095276	723.70897	0.927243	40.889311	49.110689	0.0139621
5:53:44	17:58:09	724.422307	724.05841	1.0146036	41.280301	48.719699	0.0141554
5:54:43	17:56:28	721.749064	724.40545	1.1013628	41.671466	48.328534	0.0143511
5:55:43	17:54:47	719.075863	724.74974	1.1874355	42.062704	47.937296	0.0145493
5:56:42	17:53:07	716.403025	725.09095	1.2727365	42.453911	47.546089	0.0147498
5:57:42	17:51:26	713.730873	725.42872	1.3571803	42.844982	47.155018	0.0149528
5:58:42	17:49:46	711.059735	725.76272	1.4406812	43.235813	46.764187	0.0151583
5:59:43	17:48:06	708.389944	726.09261	1.5231535	43.626296	46.373704	0.0153662
6:00:43	17:46:27	705.72184	726.41804	1.6045111	44.016325	45.983675	0.0155765
6:01:44	17:44:47	703.055769	726.73867	1.6846684	44.405794	45.594206	0.0157893
6:02:45	17:43:09	700.392084	727.05416	1.7635394	44.794594	45.205406	0.0160046
6:03:46	17:41:30	697.731148	727.36415	1.8410385	45.182617	44.817383	0.0162223
6:04:48	17:39:52	695.073332	727.66832	1.9170799	45.569754	44.430246	0.0164425
6:05:49	17:38:15	692.419016	727.96631	1.9915785	45.955894	44.044106	0.0166651
6:06:51	17:36:38	689.768592	728.2578	2.0644491	46.340927	43.659073	0.0168902
6:07:54	17:35:01	687.122461	728.54243	2.1356071	46.724743	43.275257	0.0171177

6:08:56	17:33:25	684.481039	728.81987	2.2049684	47.10723	42.89277	0.0173477
6:09:59	17:31:50	681.844753	729.0898	2.2724494	47.488275	42.511725	0.0175801
6:11:02	17:30:15	679.214043	729.35187	2.3379671	47.867768	42.132232	0.0178148
6:12:06	17:28:41	676.589364	729.60576	2.4014393	48.245594	41.754406	0.018052
6:13:10	17:27:08	673.971187	729.85114	2.4627846	48.62164	41.37836	0.0182915
6:14:14	17:25:36	671.359997	730.08769	2.5219226	48.995792	41.004208	0.0185334
6:15:18	17:24:04	668.756295	730.3151	2.5787739	49.367938	40.632062	0.0187775
6:16:23	17:22:33	666.160601	730.53304	2.6332603	49.737961	40.262039	0.019024
6:17:28	17:21:03	663.573453	730.74122	2.6853049	50.105748	39.894252	0.0192726
6:18:34	17:19:34	660.995404	730.93933	2.734832	50.471184	39.528816	0.0195234
6:19:40	17:18:05	658.42703	731.12707	2.7817677	50.834153	39.165847	0.0197764
6:20:46	17:16:38	655.868925	731.30416	2.8260395	51.19454	38.80546	0.0200315
6:21:52	17:15:11	653.321703	731.47031	2.8675768	51.55223	38.44777	0.0202886
6:22:59	17:13:46	650.785999	731.62524	2.9063107	51.907108	38.092892	0.0205477
6:24:06	17:12:22	648.262472	731.7687	2.9421745	52.259057	37.740943	0.0208086
6:25:13	17:10:59	645.7518	731.90041	2.9751037	52.607963	37.392037	0.0210714
6:26:21	17:09:36	643.254684	732.02014	3.0050357	52.953709	37.046291	0.021336
6:27:29	17:08:15	640.771849	732.12764	3.0319107	53.296182	36.703818	0.0216021
6:28:38	17:06:56	638.304043	732.22269	3.0556713	53.635265	36.364735	0.0218699
6:29:46	17:05:37	635.852037	732.30505	3.0762628	53.970843	36.029157	0.0221391
6:30:55	17:04:20	633.416628	732.37453	3.0936331	54.302803	35.697197	0.0224097
6:32:04	17:03:04	630.998635	732.43093	3.1077333	54.631029	35.368971	0.0226815
6:33:14	17:01:50	628.598904	732.47407	3.1185176	54.955408	35.044592	0.0229544
6:34:23	17:00:36	626.218302	732.50377	3.1259431	55.275827	34.724173	0.0232283
6:35:33	16:59:25	623.857724	732.51988	3.1299705	55.592172	34.407828	0.023503
6:36:43	16:58:14	621.518088	732.52226	3.1305638	55.904331	34.095669	0.0237784
6:37:53	16:57:05	619.200337	732.51076	3.1276906	56.212193	33.787807	0.0240544
6:39:04	16:55:58	616.905439	732.48529	3.1213222	56.515646	33.484354	0.0243307
6:40:14	16:54:52	614.634386	732.44574	3.1114339	56.814579	33.185421	0.0246072
6:41:25	16:53:48	612.388191	732.39202	3.0980044	57.108884	32.891116	0.0248837
6:42:36	16:52:46	610.167894	732.32407	3.081017	57.398452	32.601548	0.0251601
6:43:46	16:51:45	607.974557	732.24184	3.0604588	57.683175	32.316825	0.025436
6:44:57	16:50:46	605.809261	732.14528	3.036321	57.962945	32.037055	0.0257114
6:46:08	16:49:48	603.673111	732.0344	3.0085995	58.237659	31.762341	0.0259859
6:47:18	16:48:52	601.567232	731.90918	2.9772941	58.507211	31.492789	0.0262594
6:48:29	16:47:59	599.492767	731.76964	2.9424094	58.771497	31.228503	0.0265316
6:49:40	16:47:07	597.450879	731.61582	2.9039543	59.030416	30.969584	0.0268023
6:50:50	16:46:16	595.442746	731.44777	2.8619425	59.283867	30.716133	0.0270712
6:52:00	16:45:28	593.469561	731.26557	2.8163922	59.531751	30.468249	0.027338
6:53:10	16:44:42	591.532533	731.0693	2.767326	59.77397	30.22603	0.0276025
6:54:19	16:43:57	589.632881	730.85909	2.7147717	60.010427	29.989573	0.0278643
6:55:29	16:43:15	587.771836	730.63505	2.6587615	60.241029	29.758971	0.0281233
6:56:38	16:42:35	585.950636	730.39733	2.5993324	60.465681	29.534319	0.0283791
6:57:46	16:41:56	584.170524	730.1461	2.536526	60.684293	29.315707	0.0286313
6:58:54	16:41:20	582.432751	729.88156	2.470389	60.896775	29.103225	0.0288797
7:00:02	16:40:46	580.738565	729.60389	2.4009724	61.10304	28.89696	0.029124
7:01:09	16:40:14	579.089217	729.31333	2.3283321	61.303002	28.696998	0.0293639
7:02:15	16:39:44	577.485953	729.01012	2.2525288	61.496577	28.503423	0.029599

7:03:20	16:39:16	575.930012	728.69451	2.1736274	61.683685	28.316315	0.029829
7:04:25	16:38:51	574.422626	728.36679	2.0916977	61.864246	28.135754	0.0300535
7:05:29	16:38:27	572.965013	728.02726	2.006814	62.038183	27.961817	0.0302723
7:06:33	16:38:06	571.558378	727.67622	1.9190547	62.205422	27.794578	0.030485
7:07:35	16:37:47	570.203908	727.31401	1.8285029	62.365889	27.634111	0.0306912
7:08:36	16:37:31	568.902769	726.94098	1.7352455	62.519515	27.480485	0.0308908
7:09:37	16:37:16	567.656103	726.5575	1.6393741	62.666234	27.333766	0.0310832
7:10:36	16:37:04	566.465023	726.16393	1.5409837	62.805979	27.194021	0.0312683
7:11:34	16:36:54	565.330615	725.76069	1.4401735	62.93869	27.06131	0.0314456
7:12:31	16:36:47	564.253928	725.34819	1.3370465	63.064307	26.935693	0.0316149
7:13:27	16:36:41	563.235977	724.92684	1.2317091	63.182772	26.817228	0.0317759
7:14:22	16:36:39	562.277736	724.49708	1.1242712	63.294033	26.705967	0.0319283
7:15:15	16:36:38	561.380135	724.05938	1.0148461	63.398039	26.601961	0.0320718
7:16:07	16:36:39	560.54406	723.6142	0.9035501	63.494741	26.505259	0.0322062
7:16:57	16:36:43	559.770345	723.16201	0.7905024	63.584096	26.415904	0.0323311
7:17:46	16:36:50	559.059777	722.7033	0.6758251	63.66606	26.33394	0.0324464
7:18:33	16:36:58	558.413084	722.23857	0.5596427	63.740596	26.259404	0.0325518
7:19:19	16:37:09	557.83094	721.76833	0.442082	63.807667	26.192333	0.0326471
7:20:03	16:37:22	557.313958	721.29309	0.3232723	63.867242	26.132758	0.0327321
7:20:45	16:37:37	556.86269	720.81338	0.2033444	63.919291	26.080709	0.0328067
7:21:26	16:37:55	556.477625	720.32972	0.0824312	63.963789	26.036211	0.0328707
7:22:05	16:38:14	556.159187	719.84267	-0.039333	64.000713	25.999287	0.0329239
7:22:42	16:38:36	555.907733	719.35275	-0.161813	64.030043	25.969957	0.0329663
7:23:17	16:39:00	555.723549	718.86051	-0.284872	64.051765	25.948235	0.0329978
7:23:50	16:39:26	555.606857	718.36651	-0.408372	64.065865	25.934135	0.0330182
7:24:21	16:39:54	555.557804	717.87129	-0.532176	64.072334	25.927666	0.0330276
7:24:50	16:40:25	555.576471	717.37542	-0.656146	64.071167	25.928833	0.0330259
7:25:17	16:40:57	555.662863	716.87943	-0.780141	64.062361	25.937639	0.0330131
7:25:42	16:41:31	555.816918	716.3839	-0.904025	64.045919	25.954081	0.0329893
7:26:05	16:42:08	556.038503	715.88936	-1.027659	64.021843	25.978157	0.0329545
7:26:26	16:42:46	556.327412	715.39638	-1.150906	63.990143	26.009857	0.0329087
7:26:45	16:43:26	556.683371	714.90549	-1.273629	63.950829	26.049171	0.032852
7:27:02	16:44:08	557.10604	714.41724	-1.395691	63.903917	26.096083	0.0327847
7:27:16	16:44:52	557.595008	713.93216	-1.51696	63.849425	26.150575	0.0327067
7:27:28	16:45:37	558.1498	713.4508	-1.637301	63.787374	26.212626	0.0326182
7:27:38	16:46:25	558.769877	712.97367	-1.756583	63.71779	26.28221	0.0325195
7:27:46	16:47:14	559.454638	712.50129	-1.874677	63.640699	26.359301	0.0324106

Solar
Elevation
corrected for Solar
atm Azimuth
refraction Angle (deg
(deg) cw from N)

26.4121363	178.04339
26.4983934	177.92078
26.592071	177.79908
26.6931308	177.67838
26.8015311	177.55876
26.9172274	177.44031
27.0401718	177.32313
27.1703138	177.20728
27.3075996	177.09287
27.4519728	176.97998
27.603374	176.86868
27.7617411	176.75906
27.9270094	176.65119
28.0991113	176.54517
28.2779768	176.44105
28.4635335	176.33893
28.6557062	176.23887
28.8544177	176.14094
29.0595883	176.04522
29.2711359	175.95178
29.4889766	175.86067
29.7130241	175.77197
29.9431902	175.68575
30.1793846	175.60205
30.4215152	175.52094
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31.1825763	175.29371
31.4474951	175.2235
31.7178635	175.15614
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32.2745394	175.03015
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