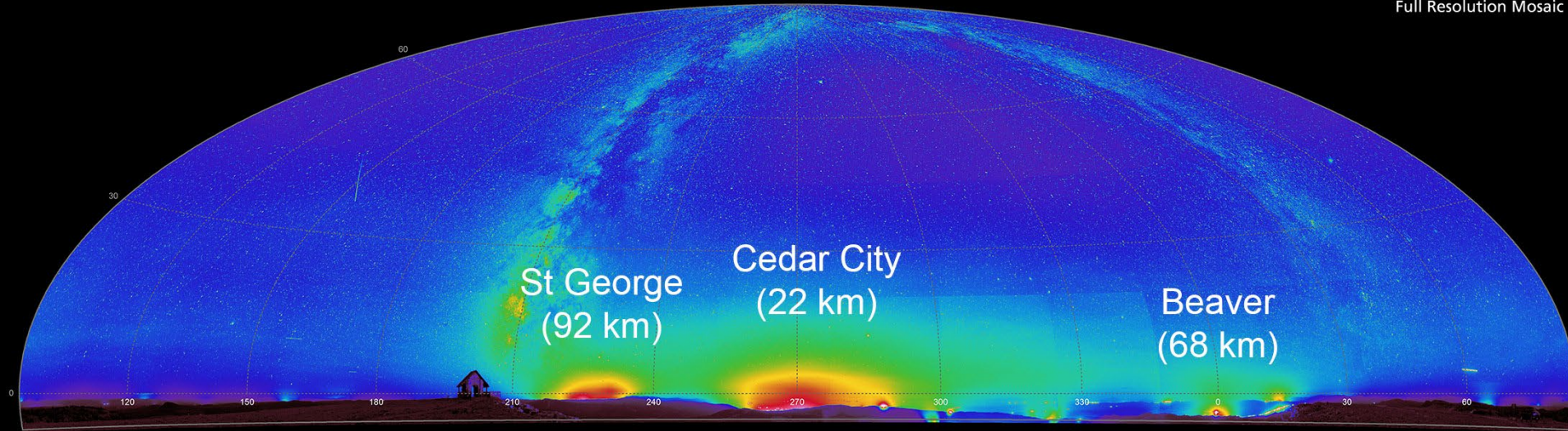




Cedar Breaks N M Brian Head Peak August 17, 2006 22.5 hours LMT

Visual Magnitudes per square arc-second

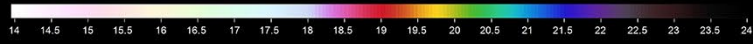
Full Resolution Mosaic



U.S. National Park Service
Night Skies Program

Data collected by: Chad Moore, Kate Magargal
Data processed by: B Meadows

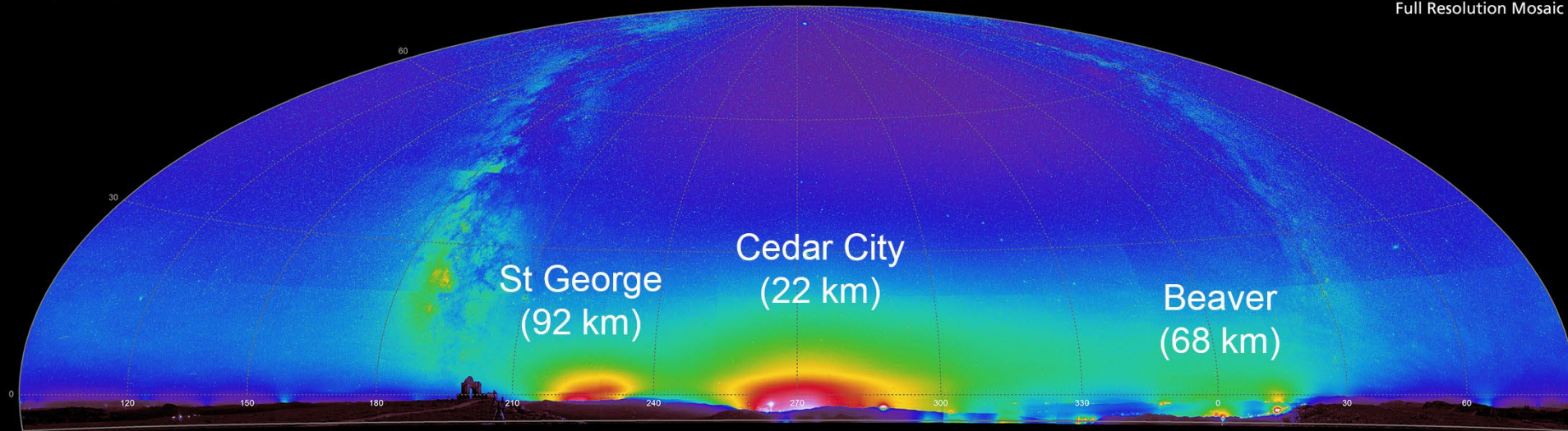
Hammer-Aitoff Equal Area Projection



Cedar Breaks NM Brian Head Peak July 14, 2023 23.1 hours LMT

Visual Magnitudes per square arc-second

Full Resolution Mosaic

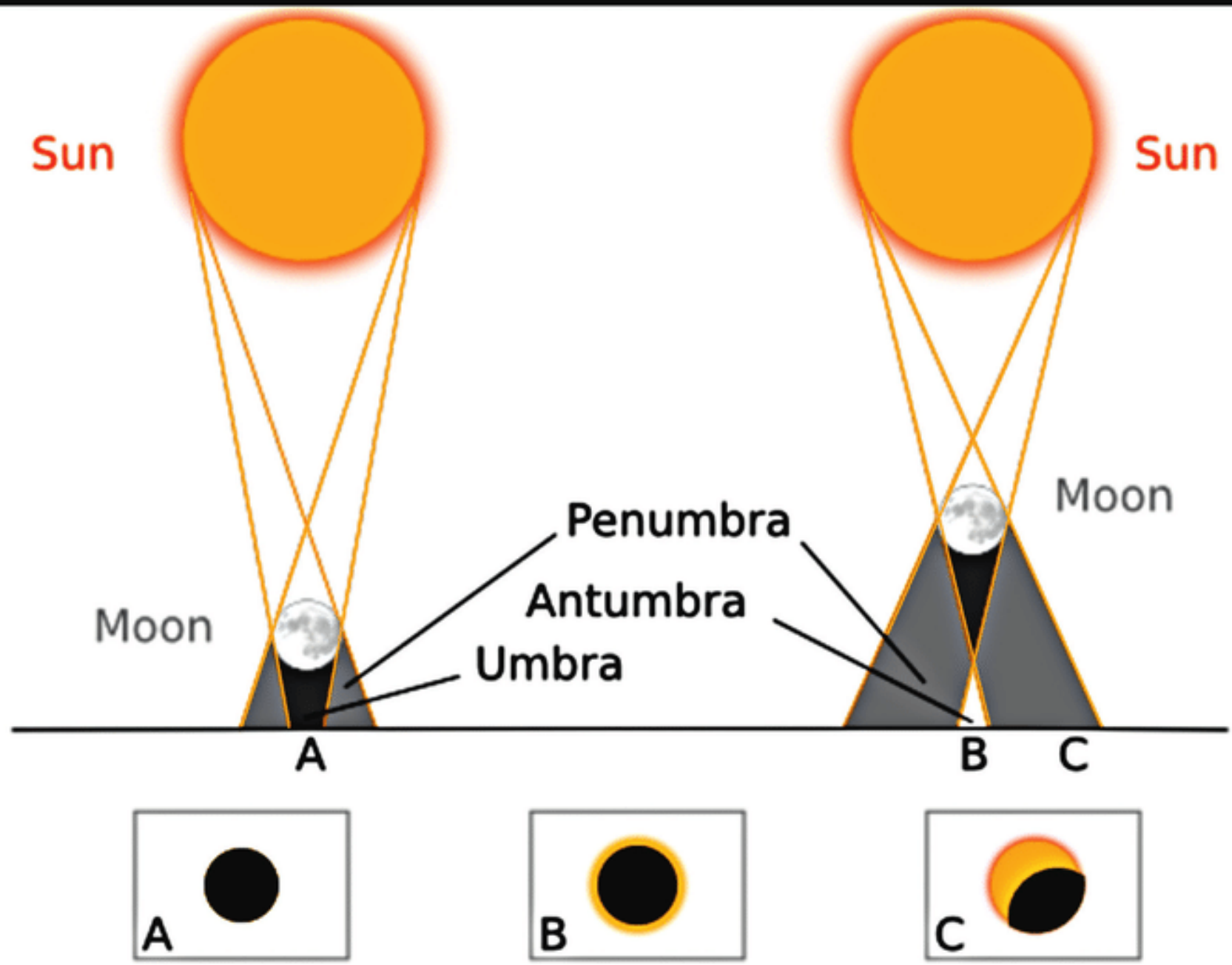


U.S. National Park Service
Night Skies Program

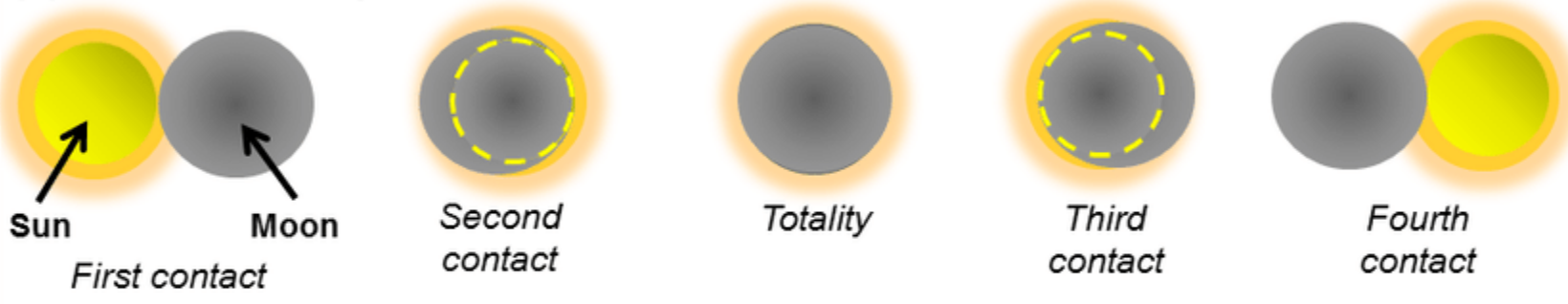
Data collected by: J White, B Banet
Data processed by: J White

<https://www.nps.gov/subjects/nightskies/index.htm>

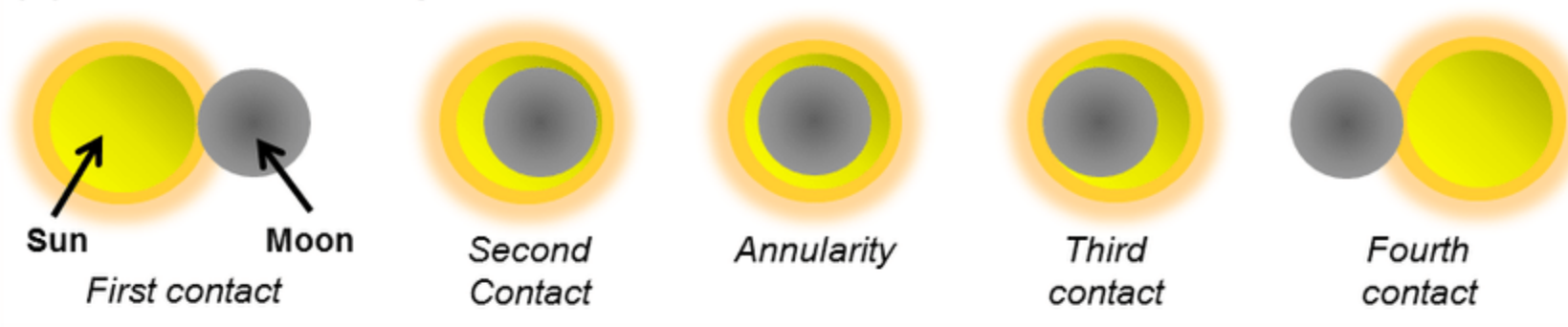
Hammer-Aitoff Equal Area Projection



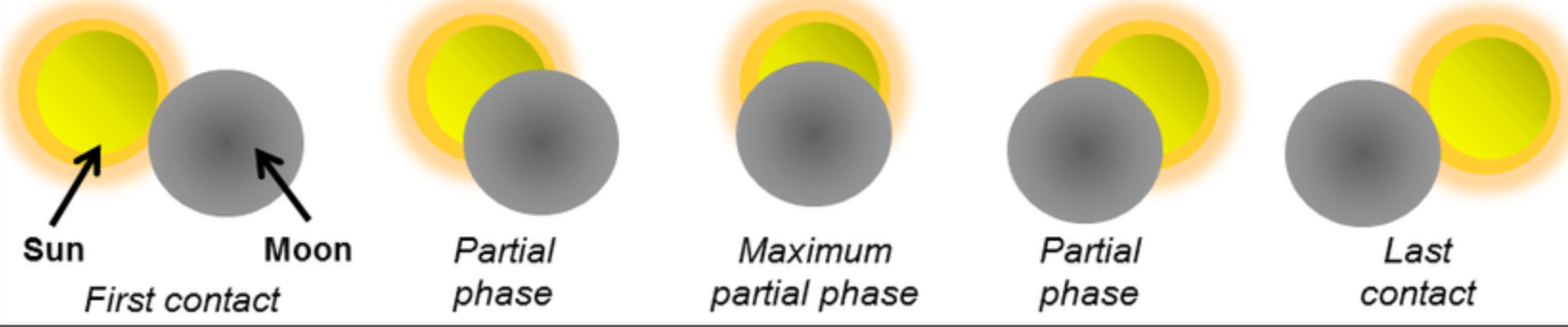
(a) Total solar eclipse



(b) Annular solar eclipse



(c) Partial solar eclipse



A dramatic landscape photograph of a sunset or sunrise over the ocean. The sky is filled with dark, heavy clouds, with a bright light source breaking through a gap in the center, creating a crescent moon and rays of light. The sun's reflection is visible on the water's surface. The text "OMAN 2019" is centered in the lower half of the image.

OMAN 2019

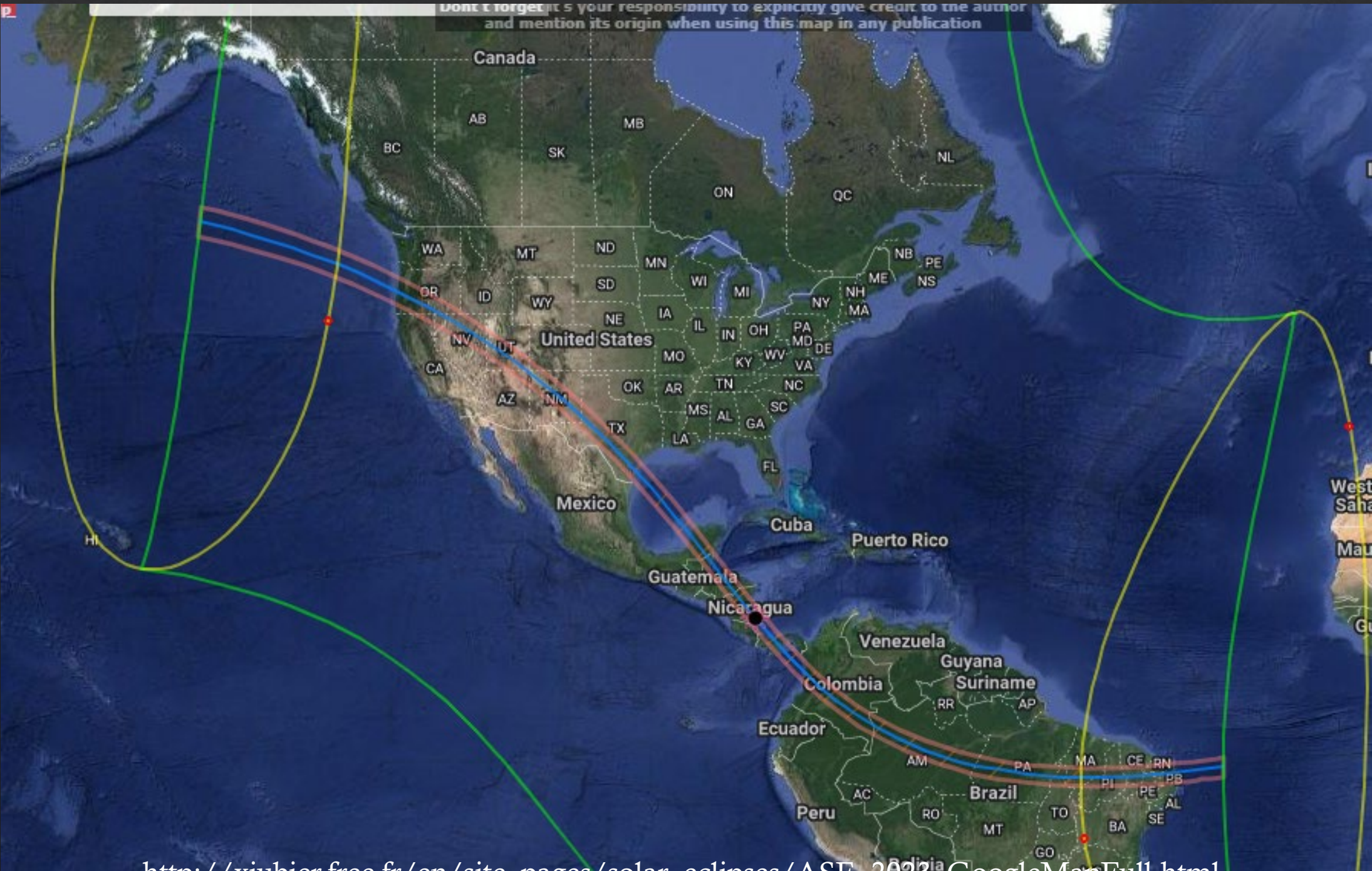




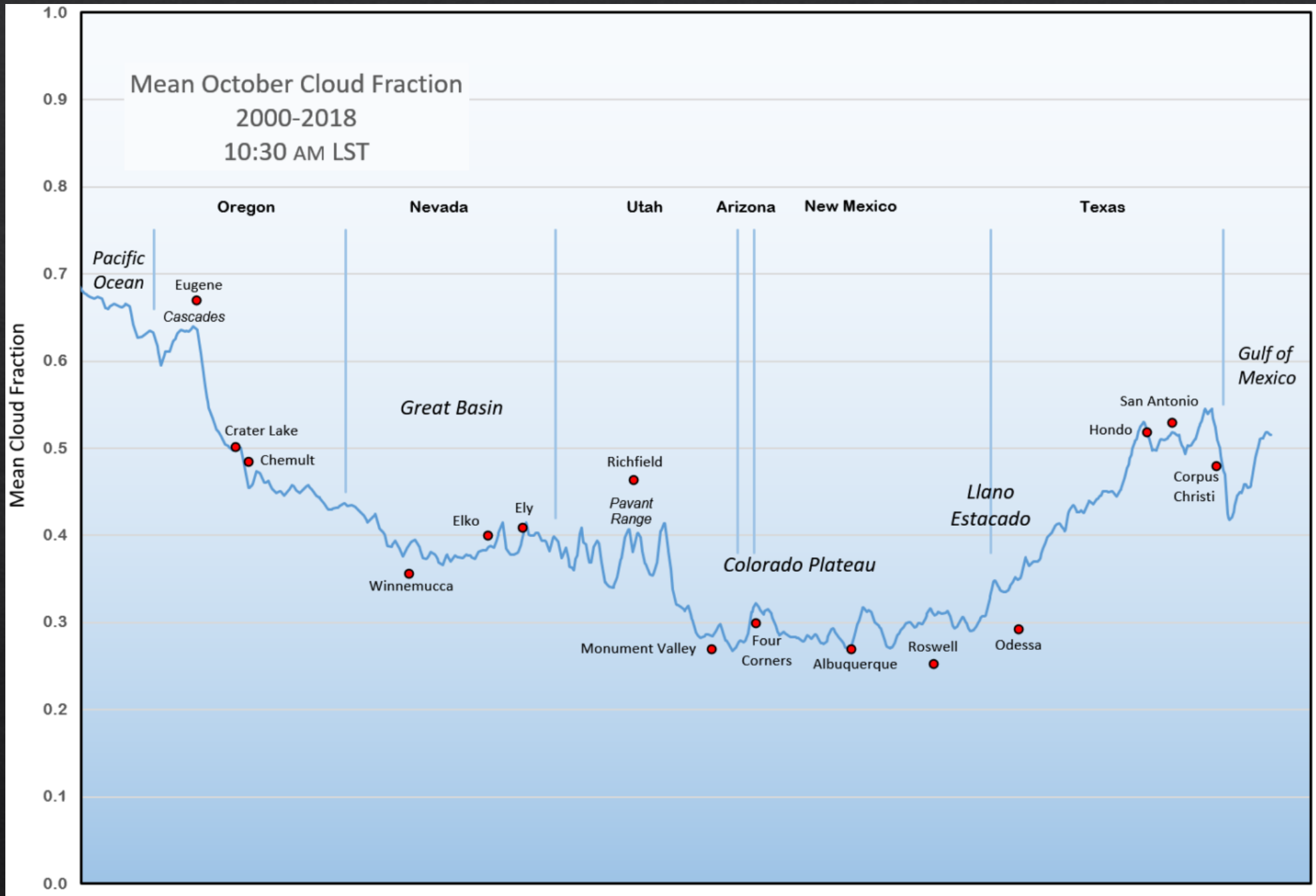


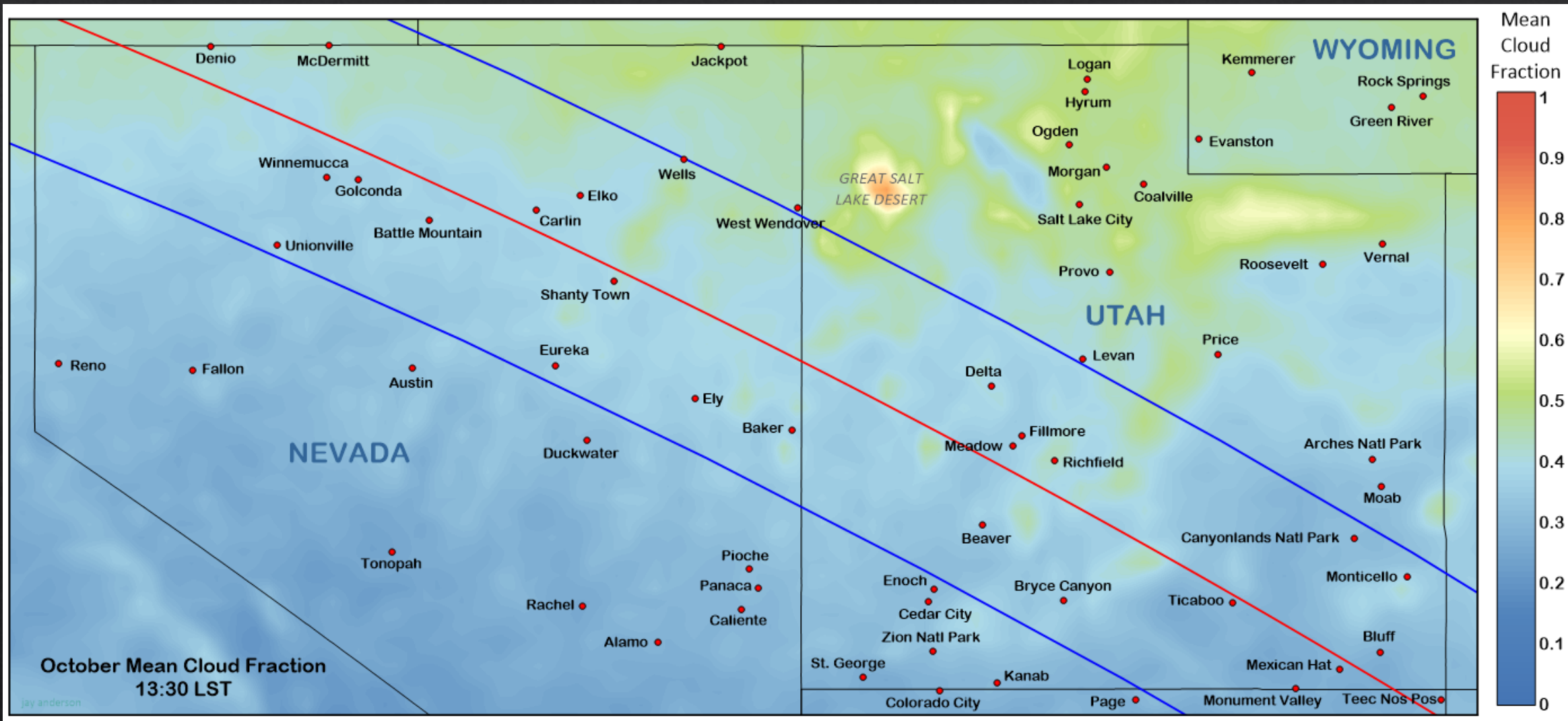
Annular Eclipse

- ◇ Out of 20 October 14 mornings (2000 to 2020), 16 had clear skies.
- ◇ Need solar filter or eclipse glasses
- ◇ Tripod
- ◇ Test your equipment and setup
- ◇ How to photograph the annular eclipse: <https://www.photopills.com/articles/annular-solar-eclipse-photography-guide>
- ◇ Mr. Eclipse: <https://www.mreclipse.com/SEphoto/SEphotoA.html>
- ◇ The eclipse will be on the morning of October 14, so plan ahead getting there.

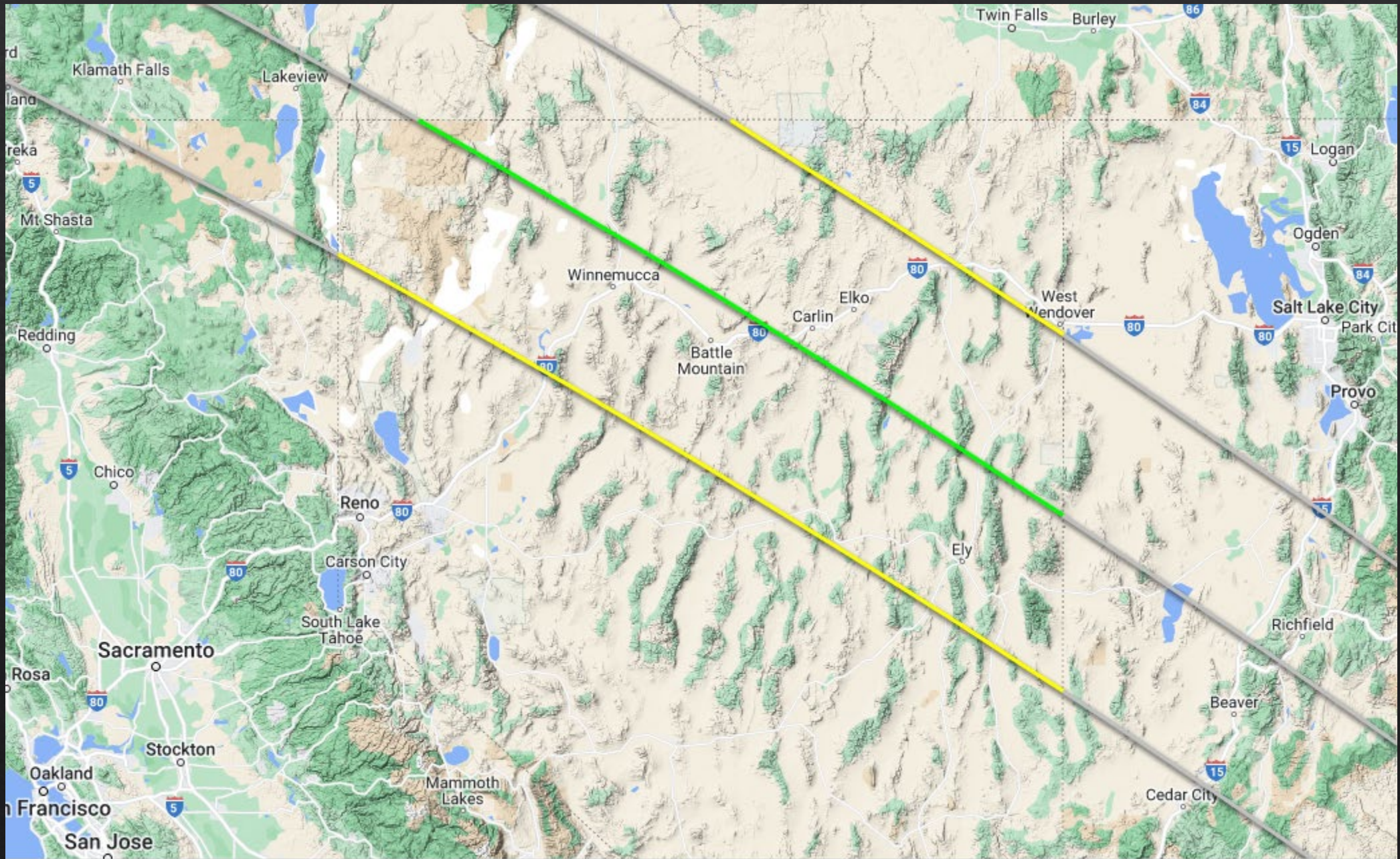


Don't forget it's your responsibility to explicitly give credit to the author and mention its origin when using this map in any publication



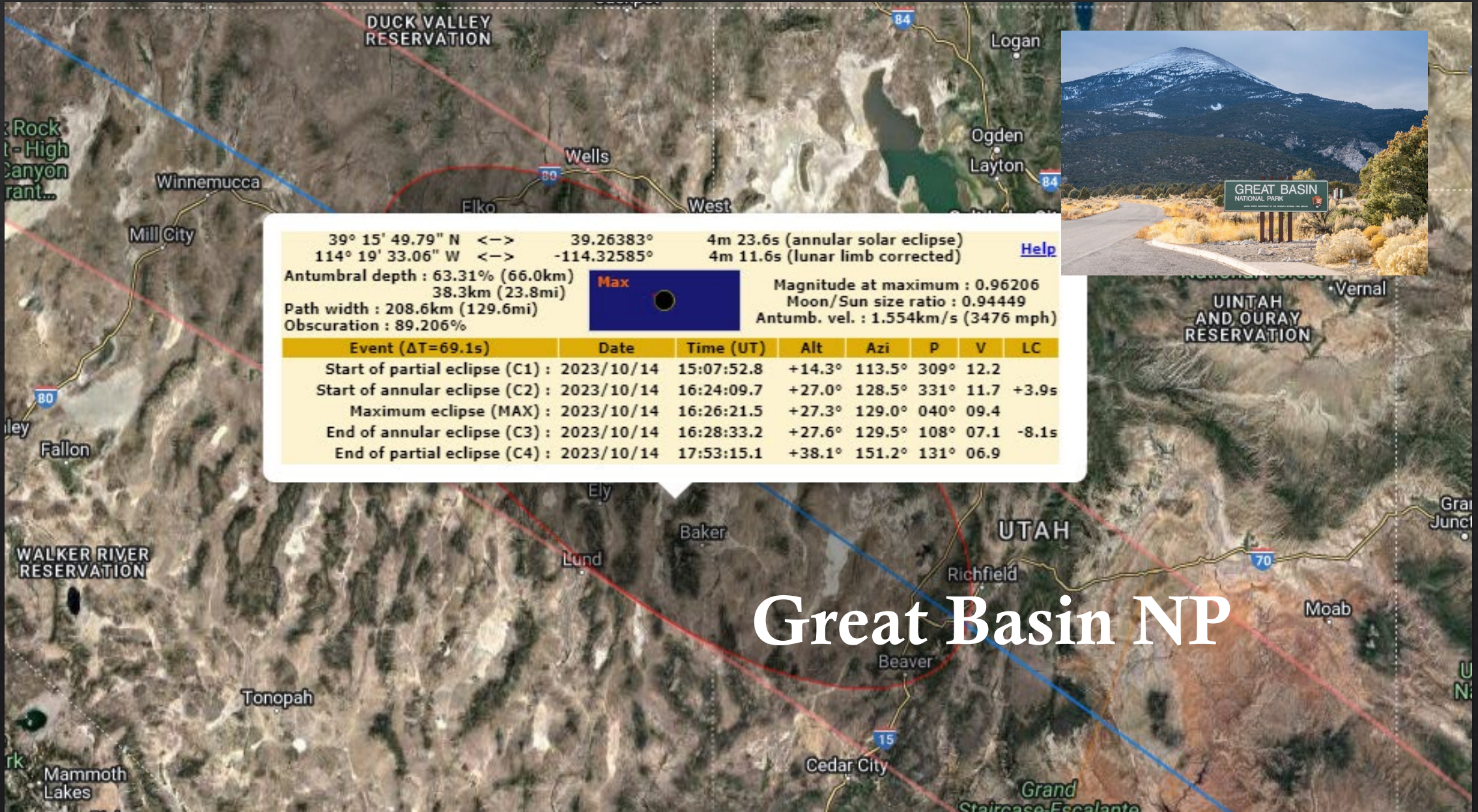






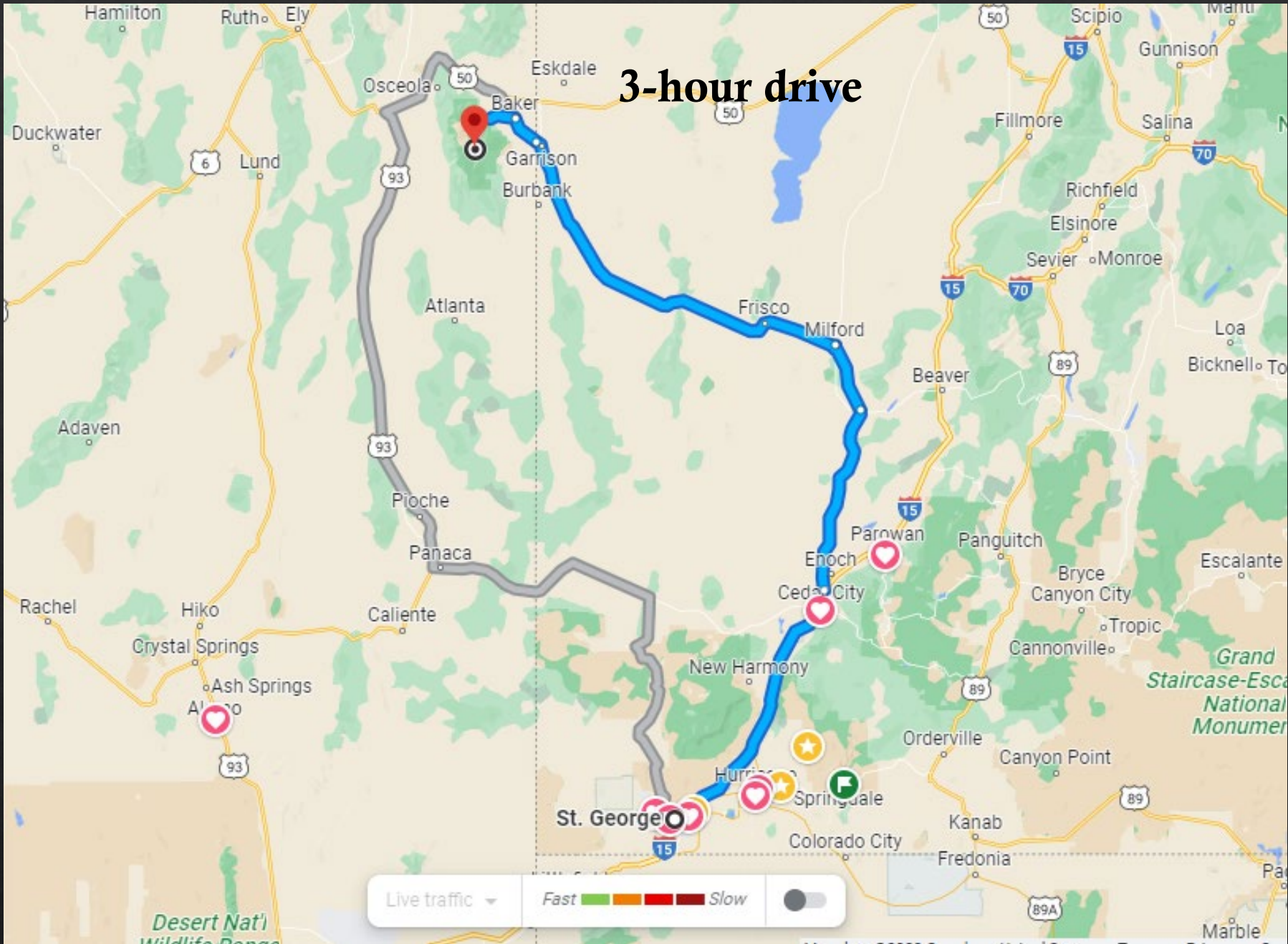
Map adapted by NationalEclipse.com from original at eclipse.gsfc.nasa.gov. Map copyright Google, INEGI. Eclipse predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center.

PDT is UTC-7 hours



Great Basin NP

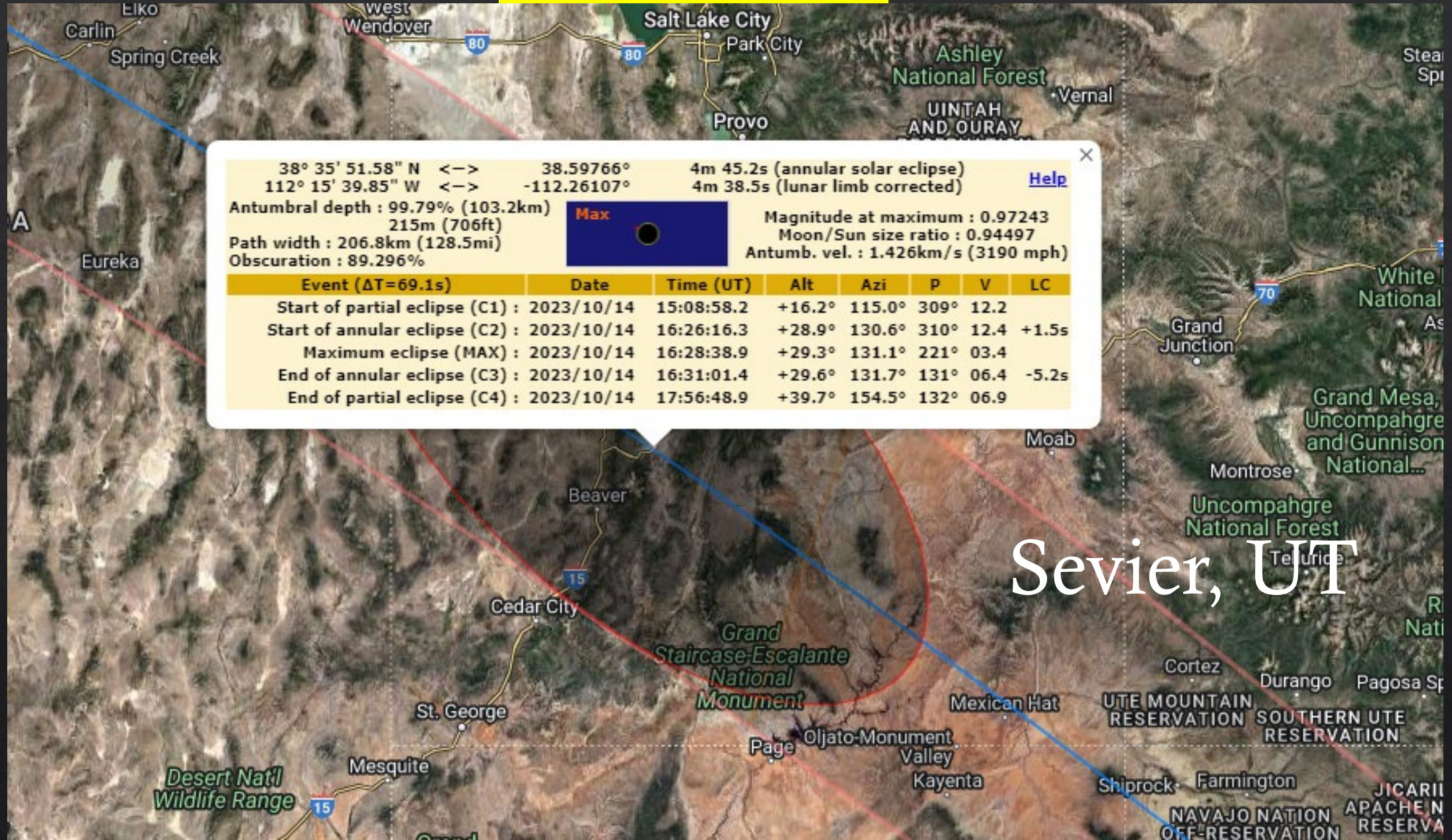
3-hour drive



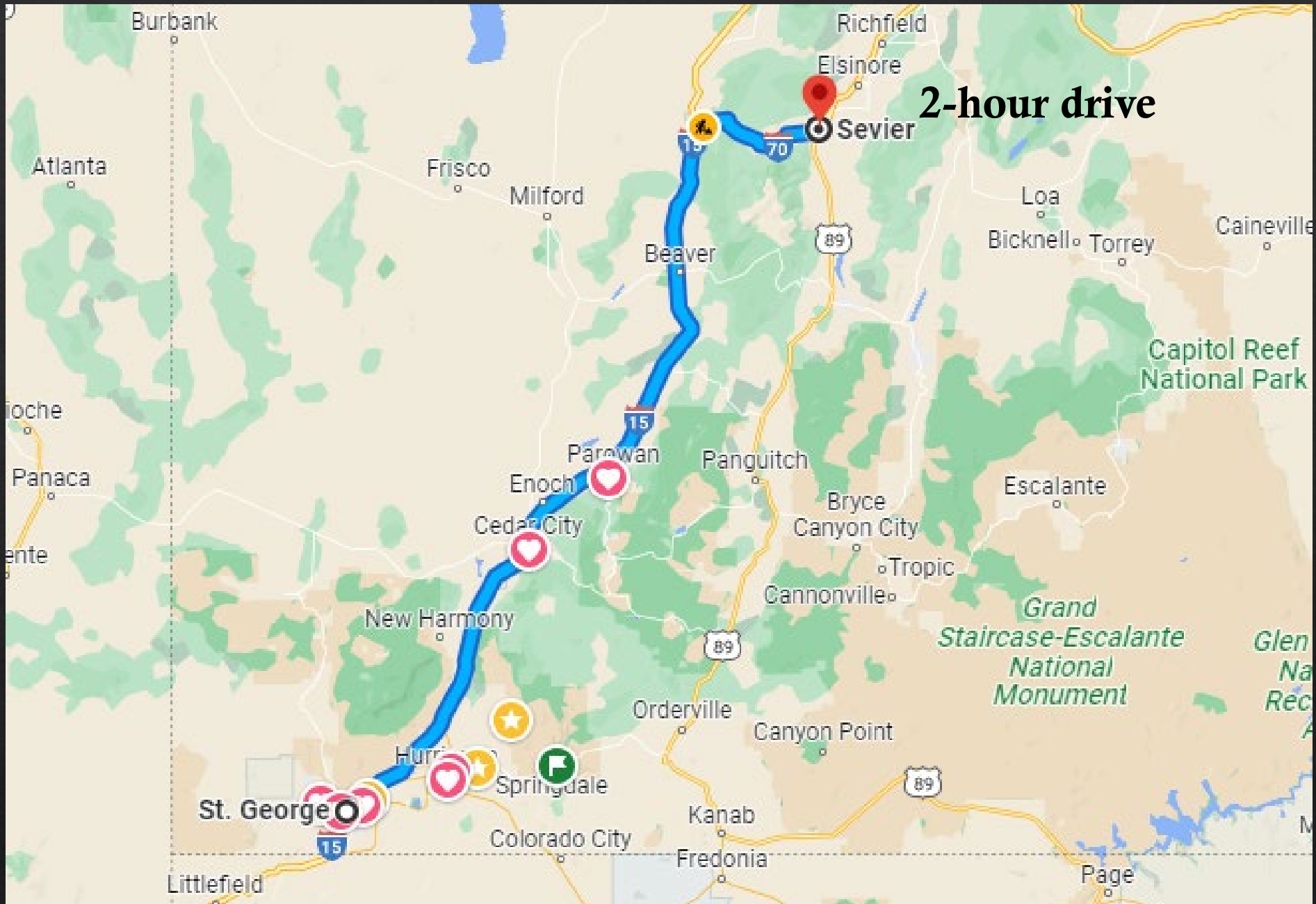


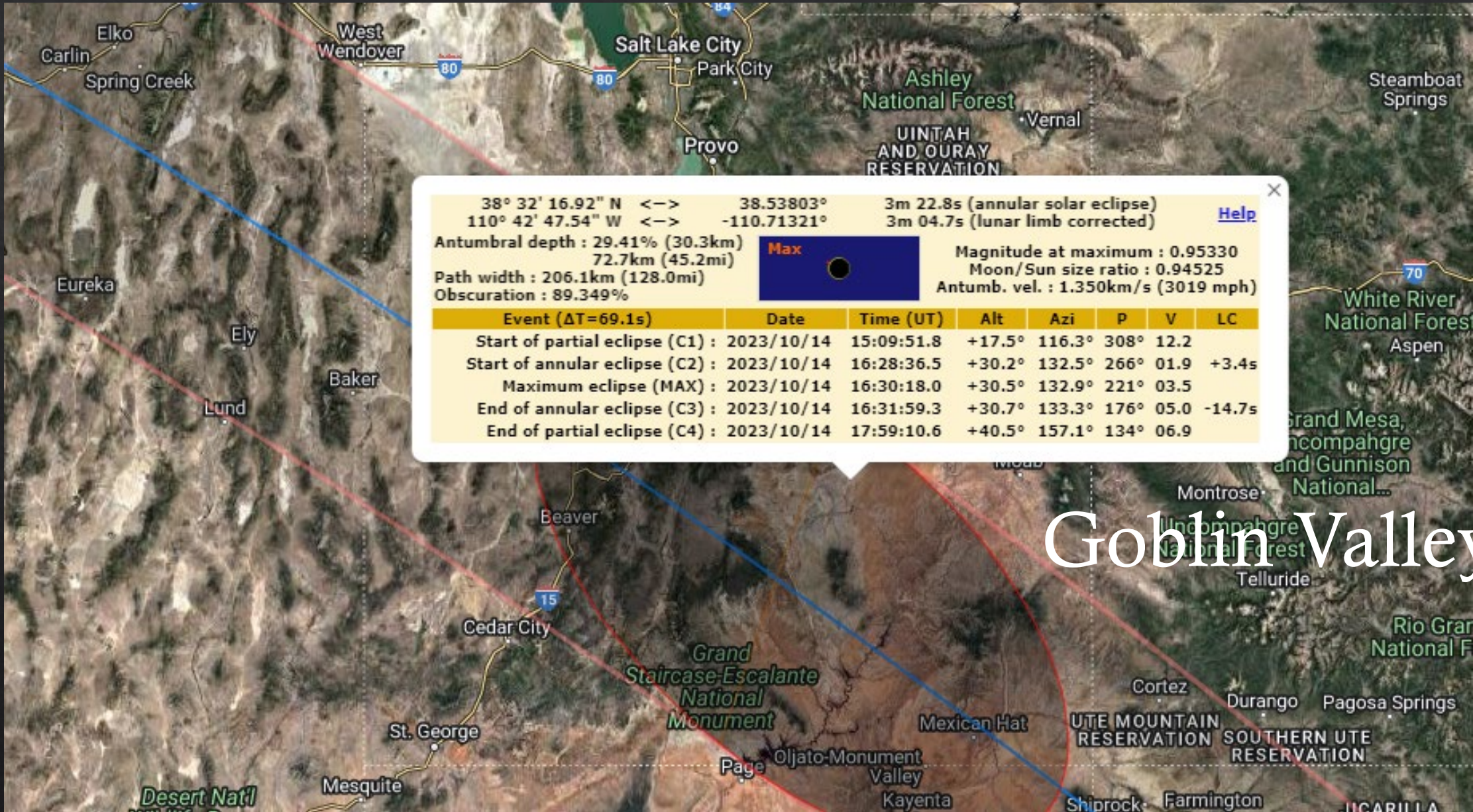
Map adapted by NationalEclipse.com from original at eclipse.gsfc.nasa.gov. Map copyright Google, INEGI. Eclipse predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center.

MDT is UTC-6 hours

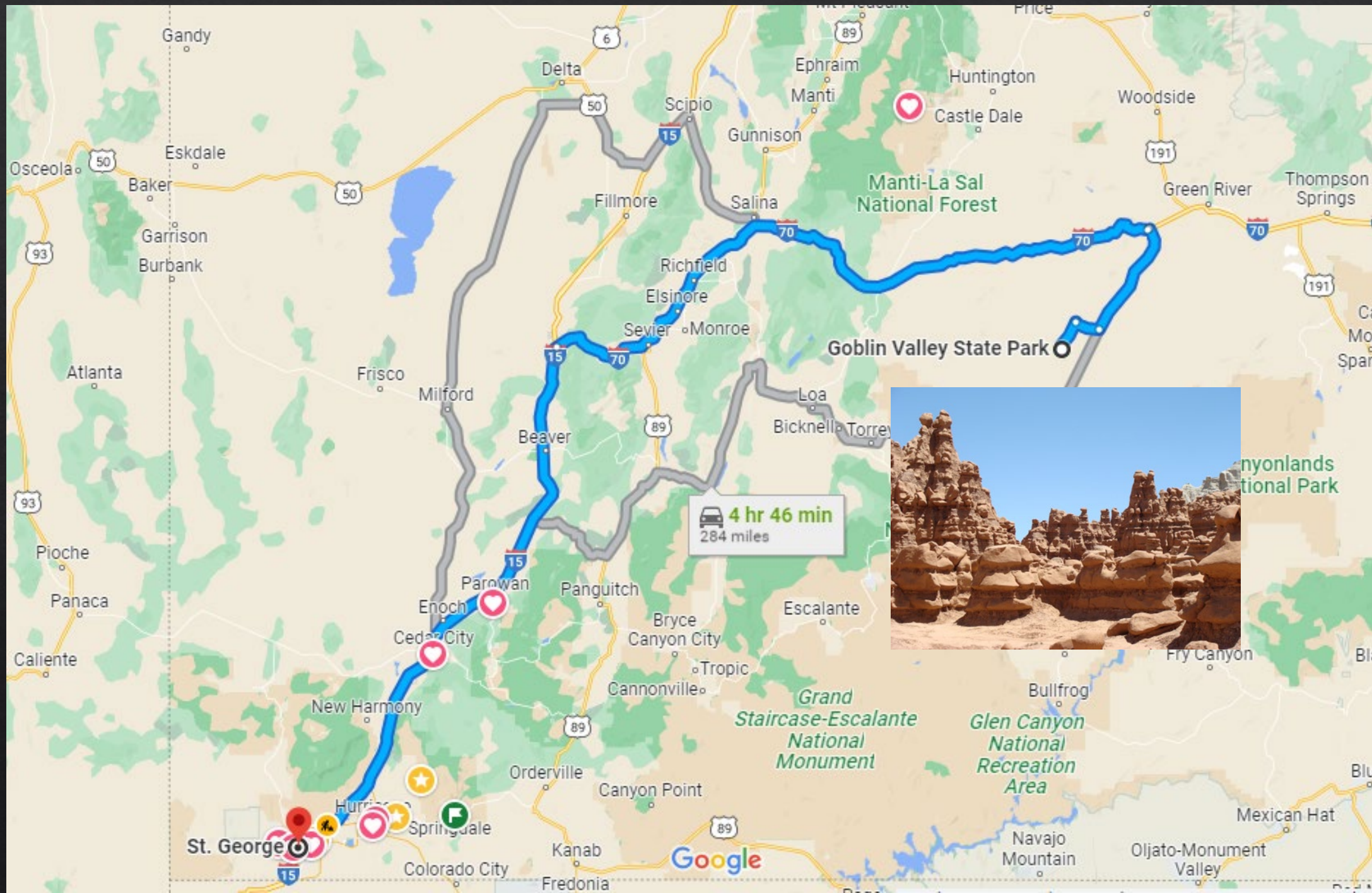


Sevier, UT





Goblin Valley



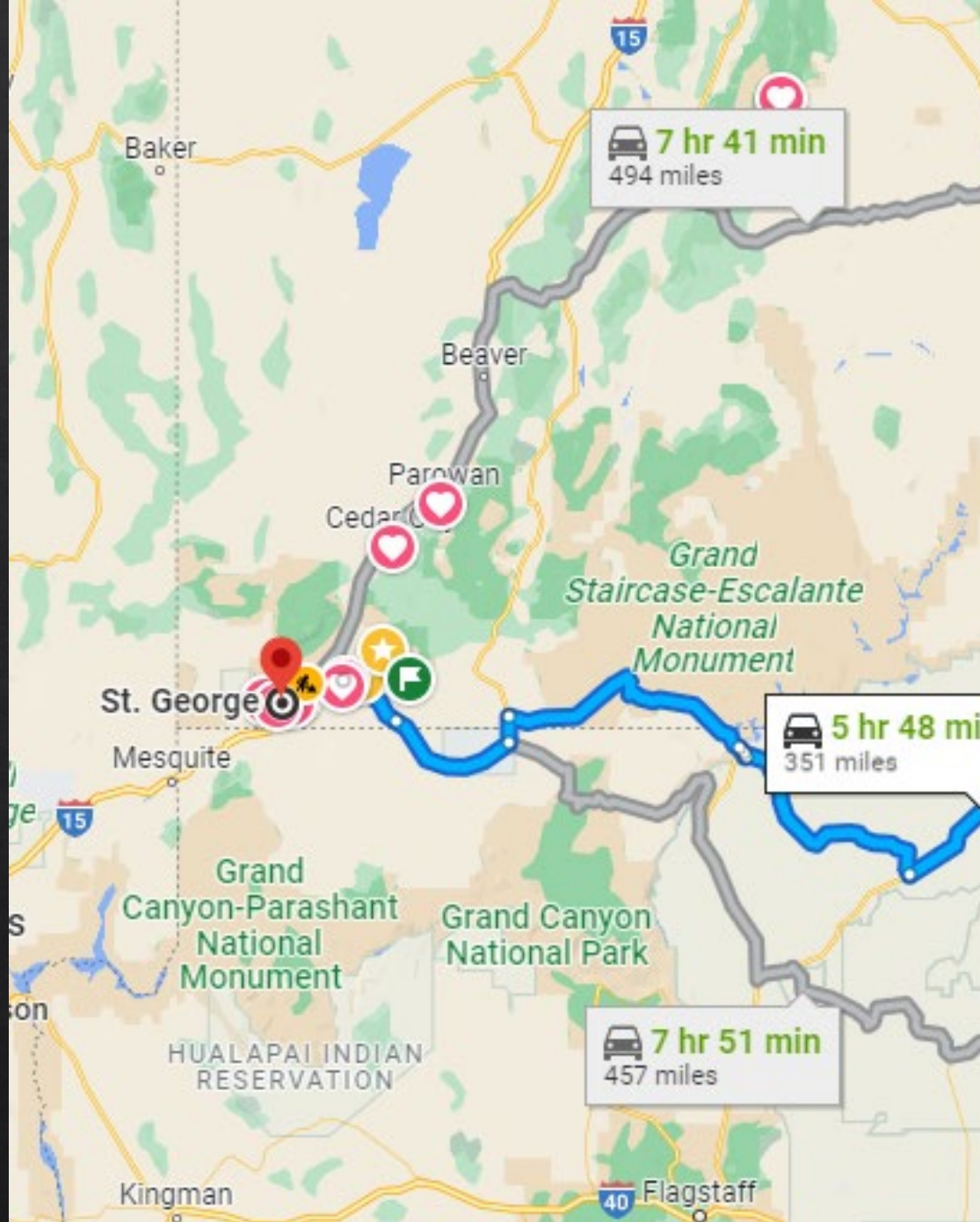
Arizonalands National Park

37° 00' 33.34" N <-> 37.00926° 4m 40.0s (annular solar eclipse) [Help](#)
 109° 01' 58.44" W <-> -109.03290° 4m 29.3s (lunar limb corrected)

Antumbral depth : 76.07% (77.3km)
 24.3km (15.1mi) **Max** Magnitude at maximum : 0.96641
 Path width : 203.3km (126.3mi) Moon/Sun size ratio : 0.94579
 Obscuration : 89.453% Antumb. vel. : 1.250km/s (2796 mph)

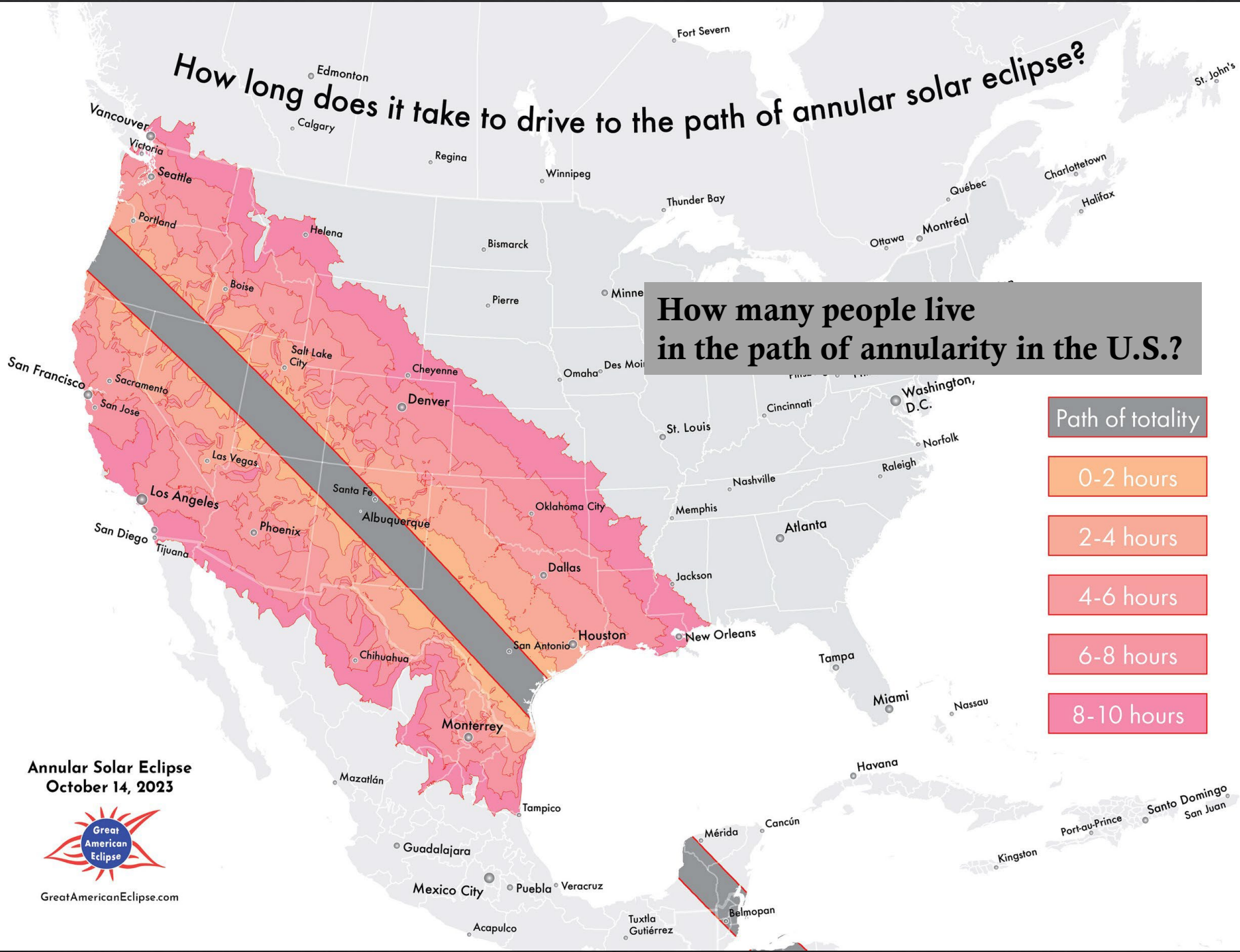
Event ($\Delta T=69.1s$)	Date	Time (UT)	Alt	Azi	P	V	LC
Start of partial eclipse (C1)	2023/10/14	15:11:06.4	+19.6°	117.3°	309°	12.2	
Start of annular eclipse (C2)	2023/10/14	16:30:34.2	+32.5°	133.9°	298°	12.9	+1.5s
Maximum eclipse (MAX)	2023/10/14	16:32:54.2	+32.9°	134.4°	222°	03.4	
End of annular eclipse (C3)	2023/10/14	16:35:14.2	+33.2°	135.0°	146°	06.0	-9.2s
End of partial eclipse (C4)	2023/10/14	18:03:19.6	+42.7°	160.0°	134°	07.0	

Shiprock



How long does it take to drive to the path of annularity?

How many people live in the path of annularity in the U.S.?



Path of totality

0-2 hours

2-4 hours

4-6 hours

6-8 hours

8-10 hours

Annular Solar Eclipse
October 14, 2023

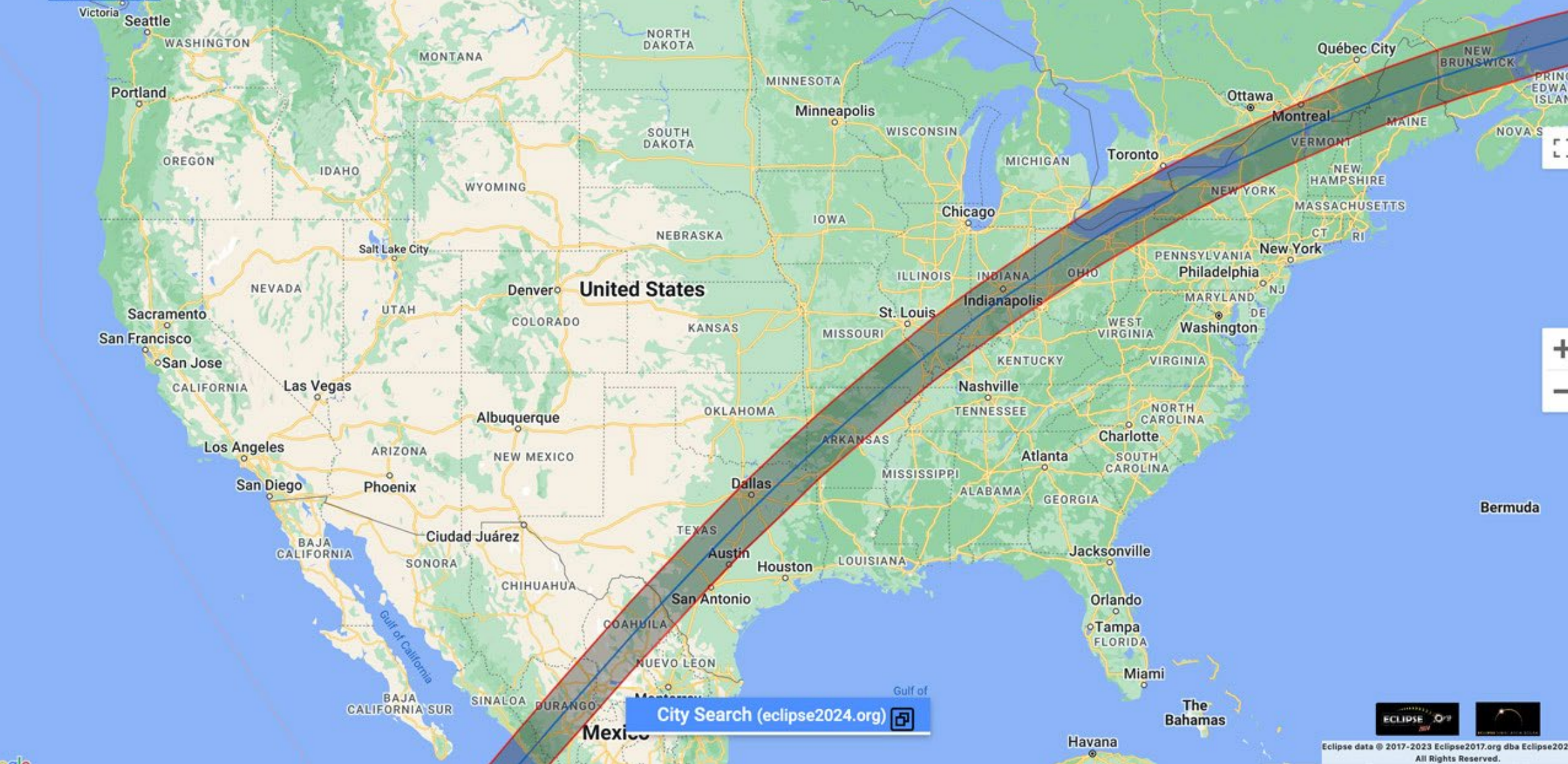


GreatAmericanEclipse.com

Top 10 Solar Eclipses by Population, 2023–2040

Rank	Date	Eclipse Type	Population Seeing Totality or Annularity
1.	March 20, 2034	Total	102,000,000
2.	August 2, 2027	Total	85,800,000
3.	June 1, 2030	Annular	74,500,000
4.	September 2, 2035	Total	71,800,000
5.	May 21, 2031	Annular	70,000,000
6.	February 6, 2027	Annular	60,800,000
7.	April 8, 2024	Total	42,600,000
8.	January 5, 2038	Annular	41,900,000
9.	January 26, 2028	Annular	38,800,000
10.	October 14, 2023	Annular	31,500,000

Sources: timeanddate.com, CIESIN (GPWv4 Revision 11)



<https://solarsystem.nasa.gov/resources/2867/interactive-map-2024-solar-eclipse-across-the-us/>

Year	Date	Type of solar eclipse	Visible locations
2023	April 20	Hybrid	SE Asia, E. Indies, Australia, Philippines. New Zealand. Hybrid: Indonesia, Australia, Papua New Guinea
2023	Oct. 14	Annular	N America, C. America, S. America
2024	April 8	Total	N. America and C. America
2024	Oct. 02	Annular	Pacific, S. America
2025	Mar. 29	Partial	NW Africa, Europe, N Russia
2025	Sept. 21	Partial	S. Pacific, New Zealand, Antarctica
2026	Feb. 17	Annular	S. Argentina, Chile, S. Africa, Antarctica
2026	Aug. 12	Total	N. America, W. Africa, Europe

Links

- ◆ National Parks: <https://www.nps.gov/brca/planyourvisit/2023-annular-eclipse.htm#:~:text=It%20will%20begin%20on%20Saturday,being%20at%2010%3A28%20a.m.>
- ◆ Jubier Map: http://xjubier.free.fr/en/site_pages/solar_eclipses/ASE_2023_GoogleMapFull.html?Lat=38.57370&Lng=-110.70711&Elv=-1.0&Zoom=8&LC=1
- ◆ Weather forecast: <https://eclipsophile.com/ase2023/>
- ◆ Visit Utah: <https://www.visitutah.com/things-to-do/2023-Annular-Solar-Eclipse>
- ◆ Observing the ASE: <https://skyandtelescope.org/astronomy-news/observing-octobers-annular-eclipse/>
- ◆ Eclipse population: <https://www.timeanddate.com/news/astronomy/eclipse-population-2023#:~:text=31.5%20and%2042.6%20million%20people,solar%20eclipses%20across%20the%20Americas.>
- ◆ Eclipse feature terms: <https://eclipse.gsfc.nasa.gov/SEcat5/SEmapkey.html>
- ◆ History of eclipses: <https://www.britannica.com/science/eclipse/Medieval-European>
- ◆ Utah Eclipse: <https://www.greatamericaneclipse.com/utah-2023-eclipse>
- ◆ Solar Filters: <https://thousandoaksoptical.com/products/solar-filters/>