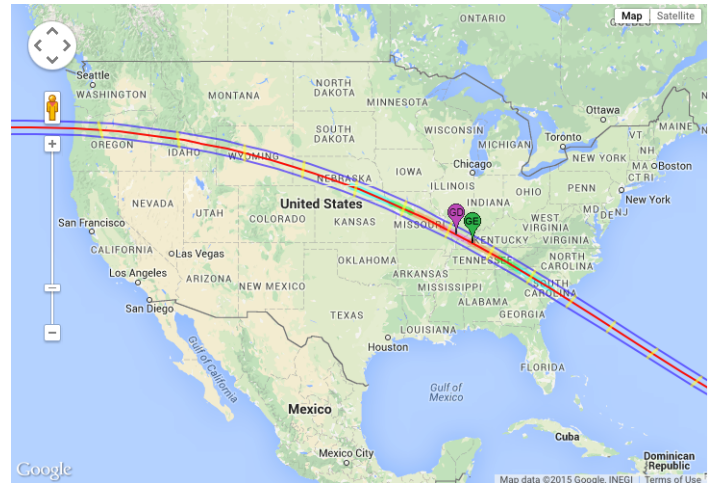


## The View of a Lifetime

What's on your bucket or life list? Check off anything recently? One of life's most phenomenal and awe-inspiring experiences is on the horizon. A total eclipse of the Sun will take place in the United States on August 21, 2017. Totality will occur midday, making it a conveniently timed, yet rare celestial event to share with your visitors and an ideal check mark on that list.

Total solar eclipses generally take place somewhere in the world approximately every eighteen months. However, the last North American eclipse occurred in February 1979 in the Pacific Northwest, then tracked up through central Canada, Hudson Bay, and drew to a close in Greenland.

The centerline for the upcoming August 2017 eclipse will begin in the Pacific Ocean and then reach land in northern Oregon at 10:15 a.m. PDT. The eclipse path will continue east through central Idaho, Wyoming, Nebraska, the northeastern tip of Kansas, Missouri, the southern tip of Illinois, western Kentucky, central Tennessee, the western tip of North Carolina, northeastern Georgia, and will then pass through South Carolina before heading out to the Atlantic at 2:47 p.m. EDT. The location of greatest duration (longest period of totality) will take place in Giant City State Park, located close to Makanda, Illinois where the Sun will be completely obscured by the Moon for 2 minutes and 40 seconds at approximately 1:20 p.m. CDT.



As the path of the eclipse crosses the country it will intersect many national forests, wildlife refuges, wilderness areas, conservation areas, and parks. Nestucca Bay National Wildlife Refuge and Siuslaw National Forest will be the first on the continent to experience the eclipse. Craters of the Moon National Monument and Preserve as well as Boise, Salmon-Challis, Sawtooth, and Targhee National Forests in Idaho will be within the path of totality. The eclipse narrowly misses Yellowstone National Park, but Grand Teton National Park will enjoy a spectacular view. The eclipse will then cross through Nebraska National Forest and Crescent Lake National Wildlife Refuge. In Missouri, Illinois, and Kentucky along the Missouri and Mississippi rivers, countless wildlife refuges and conservation areas will have excellent vantage points for the event. Great Smoky Mountains National Park will enjoy a terrific show as the Moon's shadows races over the hills into Chattahoochee National Forest in Georgia. Finally, Francis Marion National Forest in South Carolina will be the last protected area to view the eclipse.

At first contact, the Moon will begin to move in front of the disk of the Sun. The changes won't be perceptible yet, but as totality takes hold and the entire disk of the Moon completely obscures our star, it will introduce dramatic changes to the landscape. Witnessing a total solar eclipse is a very moving experience for most people as one's senses are heightened when day suddenly turns into night. From a scientific and intellectual perspective, it's a fascinating conjunction of solar system bodies which humankind has only recently come to understand. Many eclipse viewers become hooked on the experience and become eclipse chasers, traveling the globe in search of their next opportunity to experience the thrill of totality.

Leading up to the event, you may want to encourage visitors to share their thoughts as to how totality will look and feel as the day turns to night and back again. Ask them if the temperature will rise or fall. Do they think the stars and planets will appear and then disappear? How will the horizon look within the middle of the Moon's shadow? Do they know how birds and animals may react during the eclipse? Are they aware of how ancient civilizations interpreted eclipses?

Since total solar eclipses occur only during a new Moon, it's also the perfect occasion to plan nighttime astronomy activities. Warm summer temperatures paired with a moonless night will make for ideal observing conditions for faint celestial objects and a great opportunity to share even more astronomical wonders with visitors.

Although total solar eclipses are rarely taken for granted, earthlings millions of years from now will not experience the same exhilaration that we do today. Currently, the Sun and Moon share roughly the same angular size upon our sky despite the huge disparity in their diameters, 865,000 miles and 2,159 miles, respectively. The Sun is 93 million miles away from Earth and the Moon's average distance is 240,000 miles, making the disks of the Moon and Sun appear to be the same size from our vantage point on Earth. As the Moon continues to drift farther away from us due to Earth's tidal bulge pushing the Moon into an ever-larger orbit (3-4 cm/year), the disk of the Moon will grow smaller and won't be large enough to cover the disk of the Sun. Ultimately, only annular or partial eclipses will be possible.

To experience the total eclipse in 2017 one must be within the path of totality notated on the map. Even so, everyone in the continental U.S. will be able to observe a partial eclipse of the Sun during the same time. ***As a reminder, it is never safe to look directly at the Sun without proper equipment specially designed for and strictly dedicated to viewing the Sun.*** Pinhole cameras and solar eclipse glasses can provide safe viewing methods at a low cost. For those in the path of totality, it's only safe to view the eclipse without equipment during full totality when the Moon completely covers the entire disk of the Sun. Contact your local astronomy club, museum, or planetarium to solicit help from skilled volunteers who are properly trained and have telescopes dedicated to solar observing.

Following the 2017 eclipse, the next total solar eclipse in North America will take place in 2024 and will reach landfall in Mexico, track through Texas, the Mid-west, continue north through New York, New England, Maine, and leave the U.S. for Canada into New Brunswick, Newfoundland, and Labrador. Another eclipse will occur in 2044 starting in northern Canada in Nunavut and the Northwest Territories, move down through British Columbia, Alberta, Saskatchewan, and finish in Montana and North Dakota. Another eclipse predicted for August 2045, will take a similar path to the 2017 eclipse, but will track further south, beginning in Northern California and then head eastward to Florida.

Less than two years away, the upcoming total solar eclipse is a monumental experience to add to your life viewing or bucket list, and an exceptional opportunity to witness our solar system perform a rare dance in perfect synchronization.

Clear Skies ~ Carla Johns

Acknowledgement: Eclipse map/figure/table/predictions courtesy of Fred Espenak, NASA/Goddard Space Flight Center. For more information on solar and lunar eclipses, see Fred Espenak's Eclipse Web Site: [sunearth.gsfc.nasa.gov/eclipse/eclipse.html](http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html).

Link for map:

<http://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001/SE2017Aug21Tgoogle.html>