

# The Astronomical Event of the Decade

## Library Opportunities with the Coming Total Eclipse of the Sun

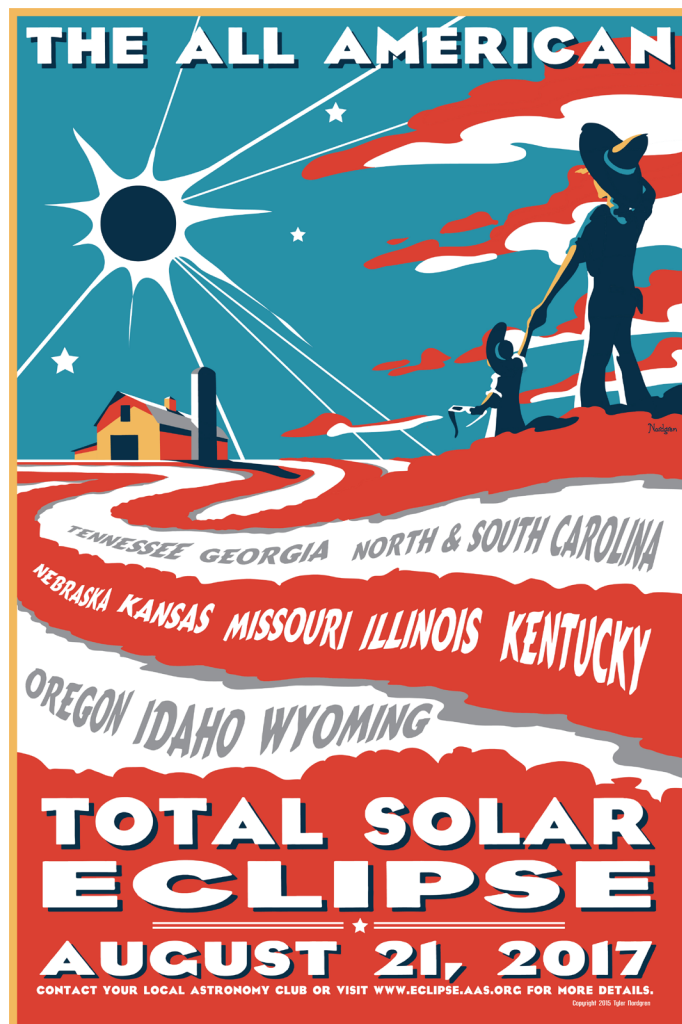
ANDREW FRAKNOI AND DENNIS SCHATZ

On August 21, 2017, we will be treated to the first total eclipse of the sun visible in the continental United States in almost forty years. Because the total eclipse can only be seen in the United States, it is being called the “All American Total Solar Eclipse.” In this kind of eclipse, the Moon gets in front of the sun in the sky and blocks its light.

The spectacular *total* eclipse, with the sun fully covered, will only be visible in a narrow band about sixty to seventy miles across, stretching diagonally across the country from a beach in Oregon to a beach in South Carolina. The last time an eclipse path crossed the continental United States was in 1918, truly remote for the children who come to the library these days.

Observers must be in that narrow path of dark shadow to see the glory of a total eclipse—the sky going dark in the middle of the day, stars coming out, and the faint atmosphere of the sun revealed as a flickering glow.

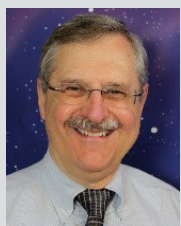
However, everyone in North America will see a *partial* solar eclipse, where a big “bite” will be taken out of the sun. Because part of the sun continues to shine brightly into our eyes during a partial eclipse, observers must protect their eyes with the



Poster design by Tyler Nordgren (University of the Redlands).

right kind of filters or look at a projected image that is too dim to hurt. Inexpensive, but certified, paper-framed eclipse glasses are available.

This will be the first US eclipse of the Internet age, and information is likely to be dispersed in a much wider range of ways. However they learn about the eclipse, most people will need clear reliable guidance for when and how to safely observe it. Libraries can play a key role in getting this information



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out to families and their communities. To get up to speed on the full eclipse story, download the free eight-page, nontechnical eclipse guide published by National Science Teachers Association (NSTA) at [www.nsta.org/solarscience](http://www.nsta.org/solarscience).

This will give you all the basic information—what causes eclipses, where and when you can see the 2017 eclipse, what time it will happen in each part of the country, and how to help your patrons observe it safely. And this booklet can be distributed or printed without any restrictions.

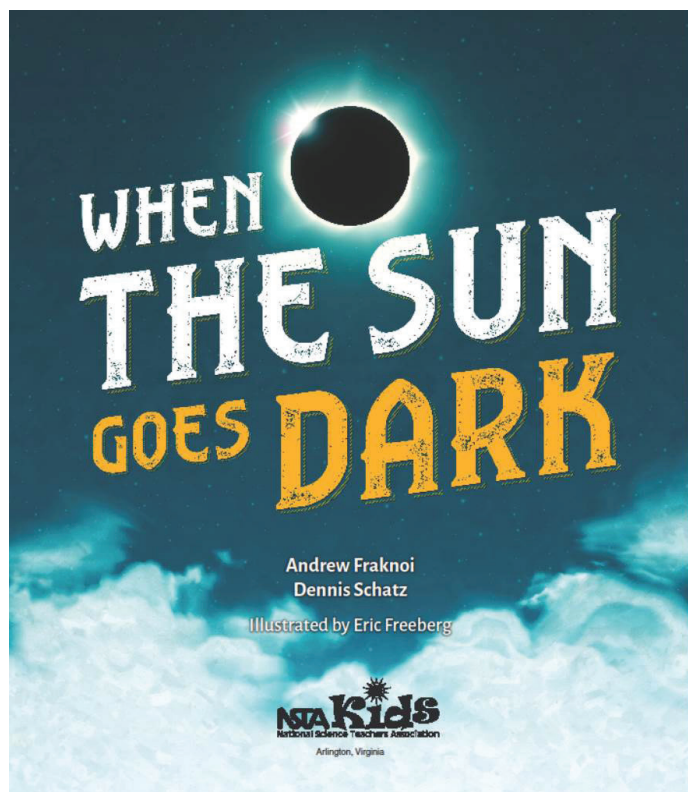
For explaining eclipses to children, you may want to consider ordering a copy of *When the Sun Goes Dark*, a children's book we wrote for the National Science Teachers Association Press.

A number of other books and websites are also available. For adults, you can find a guide to published and web-based eclipse resources at [www.astrosociety.org/eclipse](http://www.astrosociety.org/eclipse).

If you have not already done so, you and others in your library will want to determine how to incorporate the sun, moon, and eclipses into your 2017 program planning. Here are some suggestions for preparing for understanding and observing this remarkable celestial event:

1. Connect with your local college or university astronomy department, high school physics (or astronomy) teacher, or science museum to see what they are planning for the eclipse and whether someone might give a public talk or do a training session for the staff at your library. Training via video will also be available from several organizations as the eclipse grows closer.

2. Connect with your local amateur astronomy group to see if they will be doing outreach connected with the eclipse.



## Eclipse Education Resources

### Networks

STARNet (<http://www.starnetlibraries.org/>), a national network sponsored by NASA and the National Science Foundation, provides science-technology activities and resources for public libraries. They will be a central eclipse-information clearing-house for libraries in 2017; it is free to join the network.

### Written Material

Fraknoi, Andrew and Dennis Schatz. 2017. *When the Sun Goes Dark*. National Science Teachers Association. An illustrated book for ages 9–12, explaining eclipses and why people travel to see them. <http://www.nsta.org/publications/press/nstakids.aspx>.

———. "All-American Solar Eclipse: August 21, 2017." In *Solar Science: Exploring Sunspots, Seasons, Eclipses, and More*. <http://bit.ly/2bkGSvA>. Introduction to eclipses and the 2017 eclipse for families.

Espenak, Patricia. 2015. *Total Eclipse or Bust: A Family Road Trip*. Astropixels. A family goes on a trip for the 2017 eclipse. <http://astropixels.com/pubs>.

Branley, Franklin. 1988. *Eclipse*. HarperCollins. An illustrated book for younger children.

Mass, Wendy. 2008. *Every Soul a Star*. Little, Brown. A young adult novel (middle school level) about three kids who meet at an eclipse gathering; has a lot of good astronomy.

Pasachoff, J. and N., eds. January 2017. Special eclipse issue of *Dig into History*. For kids ages 9–14.

### Online

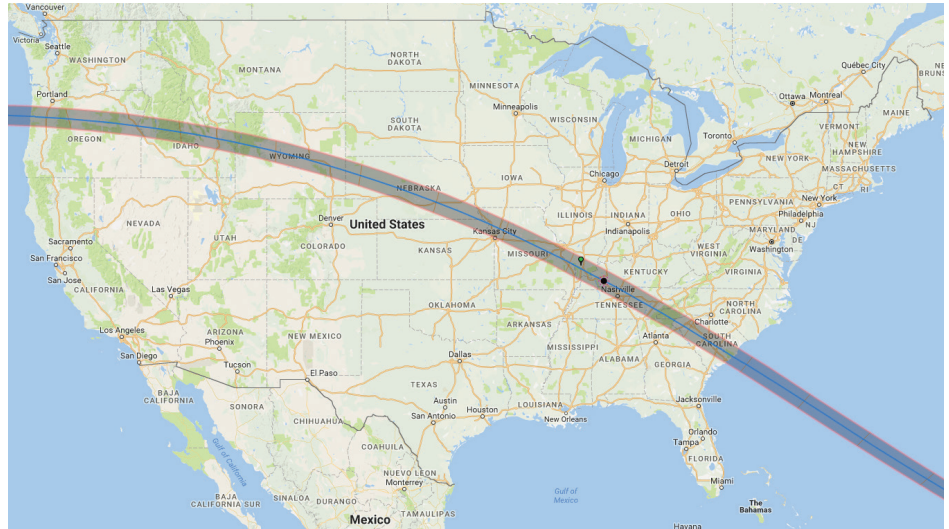
"What is an Eclipse?" NASA. <http://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-an-eclipse-58>. For students in grades 5–8.

"Solar Eclipses for Beginners." Mr. Eclipse. <http://www.mreclipse.com/Special/SEprimer.html>. By NASA's Dr. Fred Espenak.

"NASA EDGE: Solar Eclipse 2017 Preview Show." YouTube video. <http://www.youtube.com/watch?v=6DDICymjhg0>.

Check out the Night Sky Network (<http://nightsky.jpl.nasa.gov/clubs-and-events.cfm>) to locate any amateur astronomy groups near you that like to connect with the public. Their members are likely to have eclipse observing experience they can share.

- Put together a collection of eclipse materials for display and make information available on how to find copies.
- During the months and weeks leading up to the eclipse, host public programs where you share ways to safely observe the eclipse or have patrons build pinhole sun projectors. Follow the instructions in the NSTA Observing Guide to have binocular stations to project images of the sun and/or to sell eclipse viewing glasses.
- A grant from the Moore Foundation will help libraries obtain a package of free eclipse glasses and information. Register for the program through the STARNet website; see the sidebar, "Eclipse Education Resources."



The best viewing arc for the eclipse. Source: [http://xjubier.free.fr/en/site\\_pages/solar\\_eclipses/TSE\\_2017\\_.GoogleMapFull.html](http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_.GoogleMapFull.html).

- On the day of the event, host an eclipse observing party at your library that includes information, demonstrations, and safe observing strategies.

No matter what you decide to do, we wish you a cloudless, safe eclipse in August 2017, and much success helping your community enjoy it safely. ☺

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