

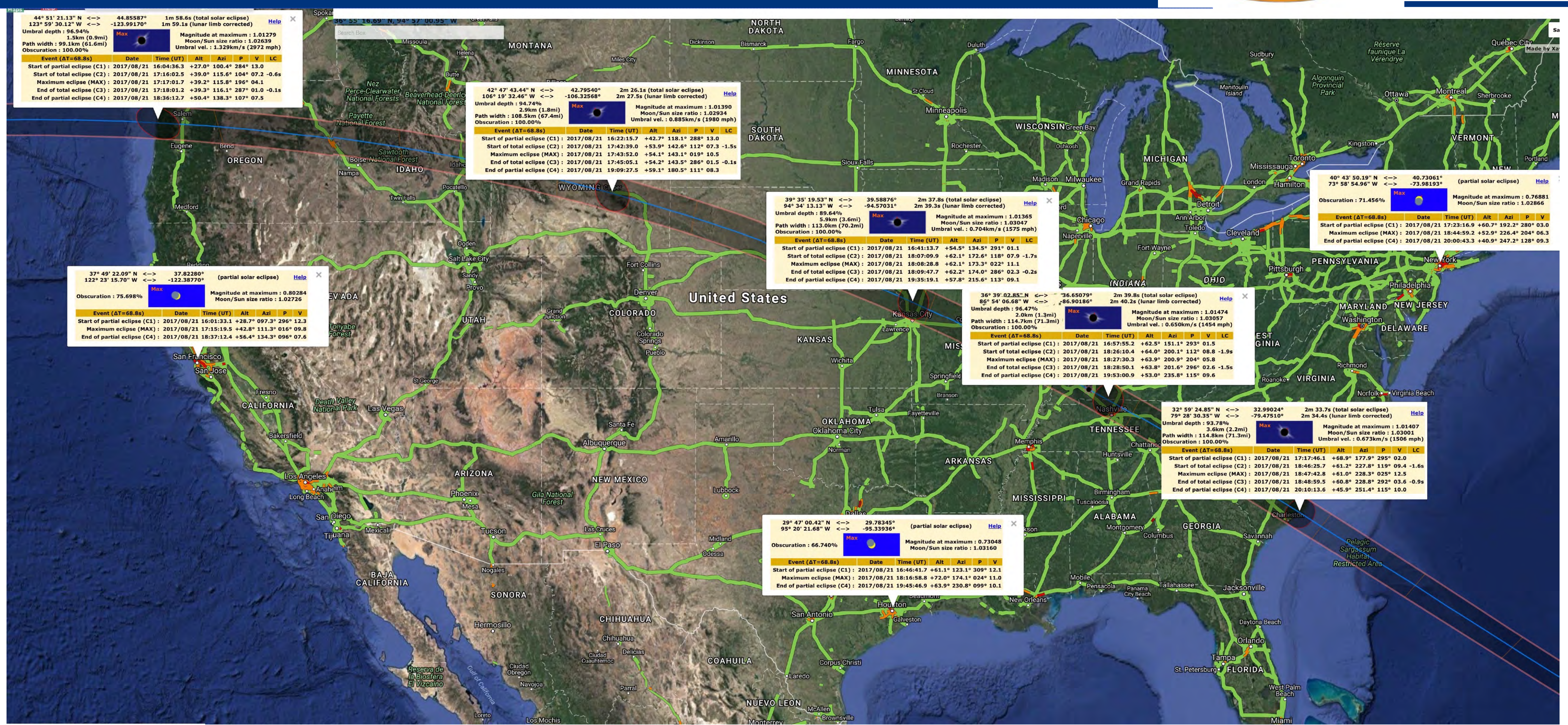
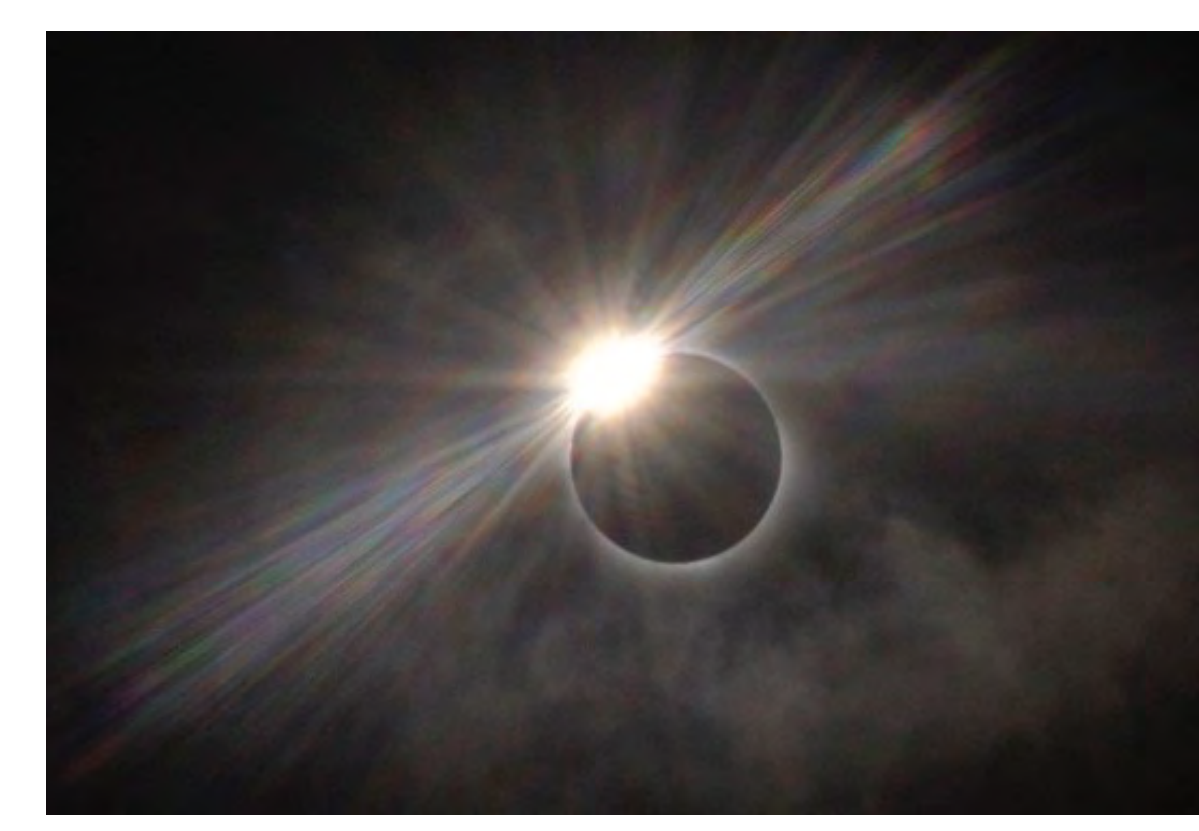
Abstract

The "Great American Eclipse" is the only total solar eclipse in 50 years that crosses ONLY the USA and is at least partial EVERYWHERE in the continental US, with all of the continental US at least 50% obscured except northern Maine. Therefore it is important that communities prepare for safe solar observing techniques. Only in the relatively small **path of totality**, and only for the ~2 minute **period of totality**, is it safe to observe the eclipsed sun. The hour before and the hour after, the sun will be only partially eclipsed and thus dangerous to view by the unprotected eye, telescope, or binoculars. For the best information about the eclipse, visit the NASA Eclipse page

<http://eclipse2017.nasa.gov>

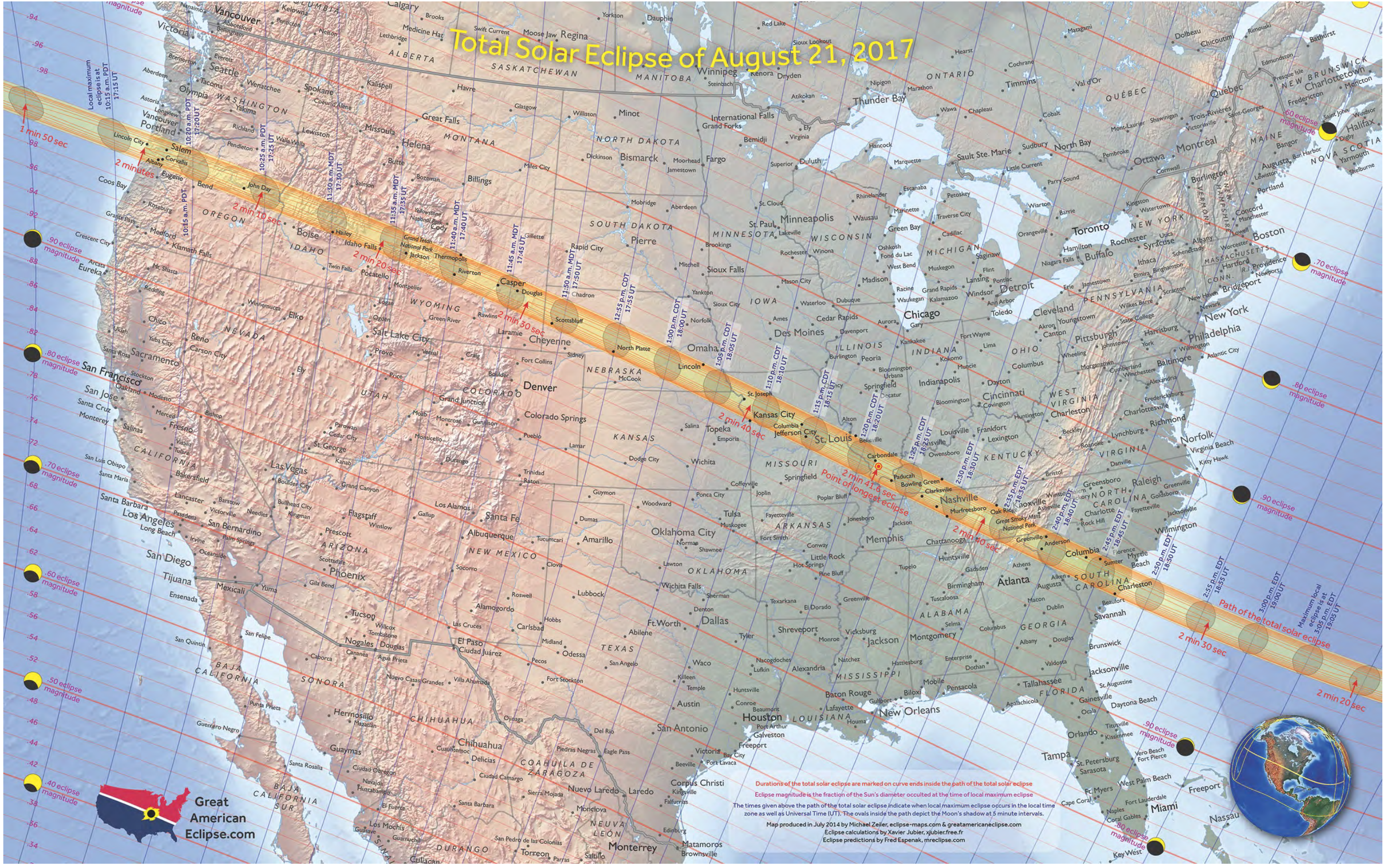
and/or my eclipse page
<http://space.rice.edu/eclipse/>

Join our Eclipse 2017 email list:
<http://eepurl.com/csTPH5>

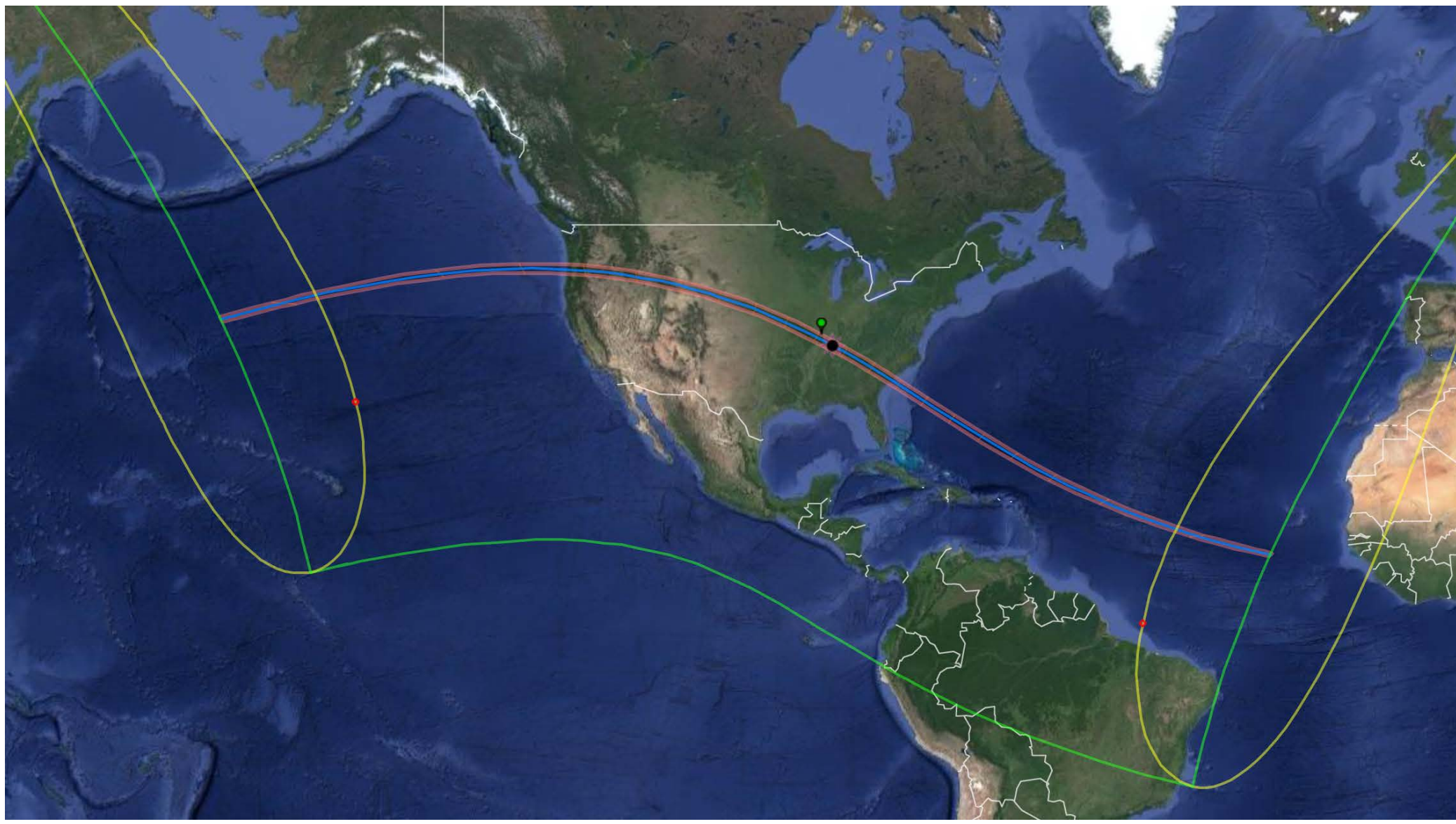


The Path of Totality

The entire continental United States will observe at least a partial eclipse during the daylight hours of August 21, 2017. The path of totality will sweep from Oregon in the Northwest to South Carolina in the Southeast. ONLY if you are in the yellow band below will you be able to see the corona in all its glory, and only for a short time - no more than two minutes, 41.6 seconds at its maximum near Carbondale. For the rest of the country (and for the rest of the time) you must use safe eye protection.



(This map courtesy <https://www.greatamericaneclipse.com/>)



The partial eclipse will be visible in other countries, however. The moon's shadow will travel from Siberia at dawn, to Canada and the Americas during the day, to parts of western Europe and Africa near sunset. This map courtesy Xavier Jubier <http://xjubier.free.fr/>

What Times Will it be at My Location?

There are several apps that can give you the circumstances of the eclipse at your location. My favorite is the Xavier Jubier's interactive map app (above), where you can click your location for the times at your site. It is accessible from

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_GoogleMapFull.html

It can also be reached via: <http://www.eclipse2017.org/>

Note that the times are in UNIVERSAL TIME. You must change to get your time zone! For Pacific Daylight Time, subtract 7 hours; for Central Daylight, subtract 5 hours, etc.

- Each location shows C1: FIRST CONTACT (beginning of partial phase)
- MAX: Time of Max eclipse (if not in the path of totality, fraction is shown)
- C4: FOURTH CONTACT (end of partial phase)
- For those regions IN THE PATH OF TOTALITY, it also shows:
 - C2: SECOND CONTACT (beginning of totality) and
 - C3: THIRD CONTACT (end of totality).
- Diamond ring: just before C2 and just after C3.

NOTE: only between C2 and C3 is it safe to observe the eclipse with unprotected eyes. Only then can you take off the filters from your telescopes, binoculars, etc.

ONLY IN THE PATH WILL YOU SEE THE AMAZING CORONA: DON'T MISS IT - next one 2024!!!



Dueling images courtesy Ken Offit

Safe Observing Techniques

ECLIPSE GLASSES: cheap, safe but no magnification



SOLAR FILTERS: always use on the SUN end of the binoculars, camera or telescope, NOT on the eyepiece end. Inexpensive versions from <http://www.rainbowsymphony.com>.

(Also shown: H-alpha telescope for observing prominences, granulation, filaments)



PROJECTION: Set up a binoculars on a tripod. (Must: buy a right-angle bracket). Adjust till the shadow is smallest, then focus using the binocular focus. Try to put the image into a shadow area.

PINHOLES (for partials): Punch pinholes into a piece of cardboard, or use a straw hat. Each hole will cast an image of the eclipsed sun.

CLOUDY? Measure the temperature changes through the event. Watch nesting behaviors of animals and birds. See what size eye chart you can see as the light changes. See hints at my eclipse site <http://space.rice.edu/eclipse>