



# The Great American Eclipse of 2017

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On August 21, 2017, a total eclipse of the Sun will be visible in the continental U.S. for the first time in almost 40 years. Remarkably, the *total* eclipse will ONLY be visible in the U.S. and no other country.

## What exactly is a total eclipse of the Sun?

It's when the Moon gets between the Sun and the Earth and covers up the Sun. It just so happens that the *Moon and the Sun*, as seen from Earth, are the same size in the sky. So if the two are exactly lined up, the Moon can hide the entire Sun from our sight. When this happens, the sky goes dark and the faint outer layers of the Sun become visible – making a beautiful ring of light around the edge of the dark Moon.

## Where will the eclipse of 2017 be visible?

To see the *total* eclipse, you must be standing right in the dark shadow of the Moon. The path of the shadow will only be about 60 - 70 miles wide, so you have to be in just the right place. The shadow spot begins its passage across the U.S. in northern Oregon, and then crosses parts of Idaho, Wyoming, Nebraska, Kansas, Missouri, Illinois, Kentucky, Tennessee, Georgia, and South Carolina. A less spectacular *partial* eclipse, where the Moon “takes a bite out of the Sun,” will be visible throughout the U.S., much of Canada, Mexico, plus Central and upper South America. The further away you are from the path of total eclipse, the smaller the part of the Sun the Moon covers.



## How long with the total eclipse last?

The exact cosmic line-up that forms the total phase this time will last a maximum of 2 minutes 40 seconds (exact time depends on your location.) Also, remember that for you to see the eclipse, the sky must be clear. If clouds hide the Sun, you'll miss all the fun. So selecting the spot for viewing also means paying attention to the history of August weather in each location.

## Are eclipses of the Sun dangerous to watch?

The Sun's visible (and invisible) rays can cause serious damage to the sensitive tissues of the eye, often without our being immediately aware of it! Normally, our common sense protects us from looking directly at the Sun for more than a second. But during an eclipse, astronomical enthusiasm can overwhelm common sense, and people can wind up staring at the Sun for too long. The few minutes of total eclipse ARE safe, but anytime a piece of the bright Sun shows, your eyes are in danger. Astronomers will be working with many organizations and companies to help everyone observe the eclipse safely. Paper glasses with viewers made of protective material will be sold in lots of places.

## If I miss this eclipse, when is the next US one?

The next eclipse to go through the continental US will be in 2024. It will go through a different set of states than the one in 2017.

## Where can I learn more about this eclipse?

Go to [www.nsta.org/solarscience](http://www.nsta.org/solarscience) and click on the link for a free 8-page intro to the eclipse.

Also see: NASA's General 2017 Eclipse Page: <http://eclipse2017.nasa.gov> and <http://www.greatamericaneclipse.com/> <http://www.eclipse2017.org/>  
For a Google map with the eclipse path and info: <http://www.eclipsewise.com/solar/SEgmap/2001-2100/SE2017Aug21Tgmap.html>

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