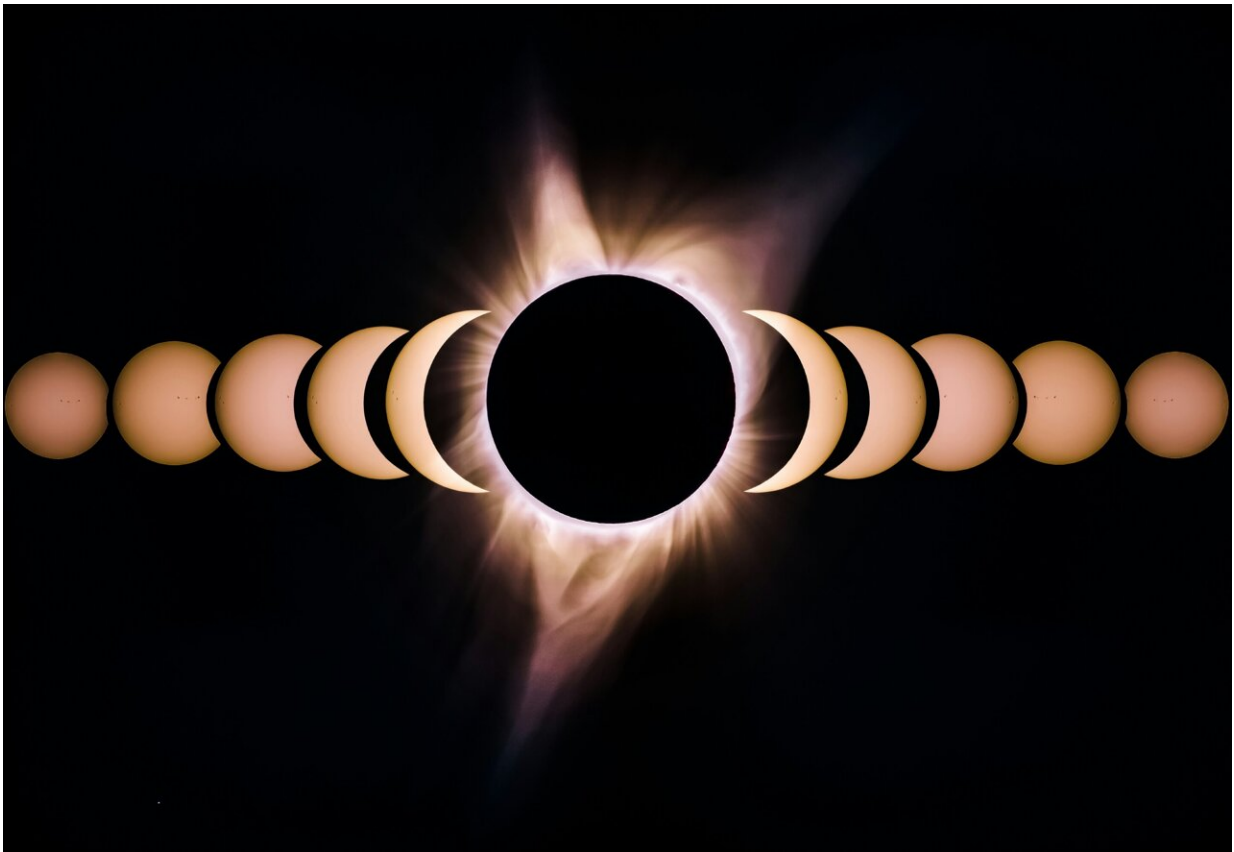


# What you need to know about next week's total solar eclipse

April 5 2024, by Adriana Pérez, Chicago Tribune

---



Credit: Unsplash/CC0 Public Domain

On April 8, daytime skies across North America will dim as the moon obscures sunlight. It will be the last total solar eclipse seen from the contiguous United States for the next two decades.

What makes this event so historic and rare? And how should Illinoisans prepare? Find answers to all your questions here.

## **What kinds of solar eclipses are there?**

A solar eclipse occurs when the moon passes between the sun and the Earth, casting its shadow on the planet. On average, two occur every year, though sometimes there can be as many as five. But they can only be seen from a small portion of the world. There are four types of solar eclipses.

When the moon passes between the Earth and the sun and completely blocks the sun, it creates a [total solar eclipse](#), which is what will occur Monday in southern Illinois and other parts of the United States.

Partial eclipses occur when these [celestial bodies](#) don't perfectly line up but the sun is still partially covered by the moon, thus adopting a crescent shape. Chicago will see a partial eclipse Monday.

In October 2023, Chicago skies darkened as the area experienced an [annular solar eclipse](#). This happens when the moon passes across the sun while roughly at its farthest point from the Earth in the lunar orbit. Because the moon appears smaller than the sun and doesn't cover it completely, sun rays simulate a "ring of fire" around the moon.

Occasionally, an eclipse can shift between annular and total as the moon's shadow moves across Earth's curved surface, causing a hybrid solar eclipse.

## **How unusual is a total solar eclipse?**

The moon's path during an eclipse often covers less than 1% of the

Earth's surface, making it a rare sight for humans to experience. Furthermore, a total solar eclipse can only be seen, on average, every 375 years from any given location on the planet.

It's even rarer for two of these phenomena to occur within a decade of each other in the same place, yet parts of Kentucky, Missouri and Illinois saw a total eclipse in 2017 and will see another one this year.

## **Where and when will the eclipse be visible?**

Only those in the 115-mile-wide lunar shadow—known as the path of totality—will see the moon cover the sun completely. This includes areas in 15 states: Texas, Oklahoma, Arkansas, Missouri, Tennessee, Illinois, Kentucky, Indiana, Ohio, Michigan, Pennsylvania, New York, Vermont, New Hampshire and Maine.

But 99% of U.S. residents will experience at least a partial solar eclipse in every contiguous state and some parts of Alaska and Hawaii.

While Chicago will not be in the path of totality, locals will still experience a partial eclipse between 12:51 and 3:22 p.m. on Monday. At precisely 2:07 p.m., the moon will cover up to 94% of the sun seen from the area.

In Carbondale, Illinois, which is in the path of totality, the moon will make first contact with the sun at approximately 12:43 p.m. The total eclipse will begin at 1:59 p.m. and last 4 minutes and 9 seconds. The last contact between the moon and the sun will occur at 3:18 p.m.

NASA's Eclipse Explorer at [eclipse-explorer.smce.nasa.gov](http://eclipse-explorer.smce.nasa.gov) allows viewers to input a ZIP code or city to see how much of the sun they will see covered at the height of the eclipse and what time that will happen.

## **When will another total eclipse be visible from the United States?**

The contiguous United States won't see another total solar eclipse until 2044, according to NASA. That one will only brush Montana and North Dakota. In 2033, a total solar eclipse will be visible from northern and western Alaska.

The last time a total solar eclipse occurred over the Chicago area was 1806, more than three decades before the city of Chicago was founded. The next total eclipse visible from the city will be on Sept. 14, 2099.

## **What will the weather be like?**

In 2017, thick clouds rolled into Carbondale and other parts of Illinois to obscure the eclipse's totality for disappointed viewers. Taking stock of the weather, especially cloud forecasts, is key to ensuring the best eclipse experience.

By 1 p.m. Central every day leading up to the eclipse, the National Oceanic and Atmospheric Administration will be sharing updates on cloud cover on [social media platforms](#) for the Weather Prediction Center and the National Weather Service, as well as on the center's website homepage at [wpc.ncep.noaa.gov](http://wpc.ncep.noaa.gov).

According to Joe Lundberg, senior long-range meteorologist at AccuWeather, early predictions for the least amount of [cloud cover](#) could make southern Illinois one of the best observing places.

## **What kind of traffic can be expected?**

AccuWeather, in a news release, urged travelers to stay alert as a storm

might move from the southern Rockies to the central Plains and Midwest the weekend before the eclipse.

"The storms will impact travel, as well as those camping outdoors in the days leading up to the eclipse," said Paul Pastelok, lead long-range forecaster. "Strong storms are possible from the central Plains to north Texas. Torrential downpours and even tornadoes are a threat."

Authorities are also urging the public, especially those traveling by car to experience the eclipse in the path of totality, to build in extra time when returning home or to consider staying in the area for another day or two to ease traffic congestion.

After the 2017 eclipse, traffic tripled the travel time of what would typically have been a five-hour trip between southern Illinois and Chicago. Vehicles slowed to a crawl on backroads and highways.

The Illinois Department of Transportation is urging drivers to ensure they have a charged cellphone, a full tank of gas, and plenty of food and bottled water. Transportation officials estimate crowds between 100,000 and 200,000 visitors will flock to southern Illinois.

I-57 will offer direct access to the path of totality, U.S. 45 will run through the middle of the path, and Illinois Route 1, I-64 and I-70 will also provide access to the area. Lane closures on state projects will be lifted throughout the weekend before and until the day after the eclipse.

IDOT officials recommend using the [gettingaroundillinois.com](http://gettingaroundillinois.com) website for travel conditions and alerts.

## **Where to watch online**

From 12 p.m. to 3 p.m. Central on Monday, NASA will livestream

telescope views of the eclipse from several sites along the moon's path. The broadcast will be available on the agency's YouTube channel and at [science.nasa.gov](https://science.nasa.gov).

Southern Illinois University at Carbondale will also offer a livestream from 11 a.m. to 3:30 p.m. that will be anchored in southern Illinois with feeds from other sites, beginning at Mazatlán in Mexico and ending at Newfoundland in Canada. It can be accessed at [youtube.com/@NASASolarSTEAM](https://youtube.com/@NASASolarSTEAM) on YouTube.

## **How to enhance the viewing experience**

Looking directly at the sun can result in serious injury and permanent blindness, so experts recommend purchasing safe and accredited solar viewing glasses. The American Astronomical Society website at [eclipse.aas.org/eye-safety/viewers-filters](https://eclipse.aas.org/eye-safety/viewers-filters) has a list of vendors and manufacturers that sell safe solar glasses or handheld viewers.

Eye experts also recommend wearing red or green or choosing a lush field on the big day; a visual effect that occurs when the eyes adapt to the unique lighting of a total eclipse can make these colors contrast in interesting ways.

Witnessing a total [solar eclipse](#) is so rare that many who have done it before suggest being mindful of also taking in how the celestial phenomenon affects life and conditions on Earth and basking in the different sensory experiences.

For instance, citizens and researchers in Carbondale will listen closely and record sounds to learn more about animal behavior across the path of totality for a nationwide ecology project.

2024 Chicago Tribune. Distributed by Tribune Content Agency, LLC.

Citation: What you need to know about next week's total solar eclipse (2024, April 5) retrieved 21 May 2024 from <https://phys.org/news/2024-04-week-total-solar-eclipse.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.