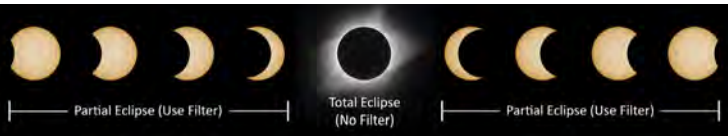
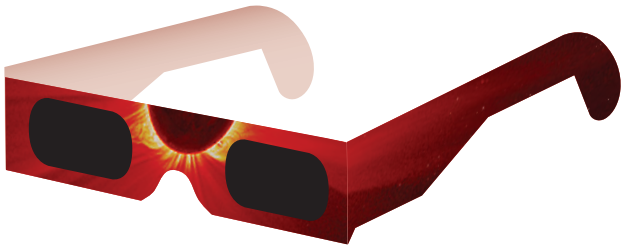
How to Safely View the April 8, 2024, **TOTAL SOLAR ECLIPSE**

A solar eclipse occurs when the Moon blocks any part of the Sun. On Monday, April 8, 2024, a solar eclipse will be visible in North and Central America, as well as parts of Europe and South America. All 50 U.S. states (excluding most of Alaska) will have a chance to see at least a partial solar eclipse. In a narrow track across Mexico, the U.S. from Texas to Maine, and Canada from Ontario to Newfoundland, the Moon will completely cover the Sun's bright face, producing a spectacular total solar eclipse.



A total solar eclipse is about as bright as a full Moon — and just as safe to look at. But the Sun at any other time is dangerously bright. View it only through special-purpose solar filters that comply with the transmittance requirements of the ISO 12312-2 international standard for filters for direct solar viewing.

Protect Your Eyes



- Looking directly at the Sun without proper eye protection is unsafe EXCEPT during the brief total eclipse phase ("totality"). This happens ONLY within the narrow path of totality. At all other times, it is safe to look directly at the Sun ONLY through special-purpose solar filters, such as "eclipse glasses," that comply with the transmittance requirements of the ISO 12312-2 international standard. Ordinary sunglasses, even very dark ones, are not safe for looking at the Sun.
- If you are inside the path of totality on April 8, 2024, remove your solar filter ONLY when the Moon completely covers the Sun's bright face. As soon as the Sun begins to reappear, replace your solar filter to look at the remaining partial phases.
- Outside the path of totality, there is NO TIME when it is safe to look directly at the Sun without using a solar filter that complies with the transmittance requirements of the ISO 12312-2 international standard.

Instructions for the Safe Use of Solar Filters and Viewers

- Always inspect your solar filter before use; if scratched, punctured, torn, or otherwise damaged, discard it. Read and follow any instructions printed on or packaged with the filter.
- Always supervise children using solar filters.
- If you normally wear eyeglasses, keep them on. Put your eclipse glasses on over them or hold your handheld viewer in front of them.
- Stand still and cover your eyes with your eclipse glasses or solar viewer before looking at the bright Sun. After looking at the Sun, turn away and remove your filter – do not remove it while looking at the Sun.

- Do not look at the uneclipsed or partially eclipsed Sun through an unfiltered camera, telescope, binoculars, or other optical device. Do not do so even while wearing eclipse glasses or using a handheld solar viewer in front of your eyes – the concentrated solar rays could damage the filter and enter your eyes, causing serious injury.
- Solar filters must be securely attached to the front of any telescope, binoculars, or camera lens. Seek expert advice from an astronomer before using a solar filter with a camera, telescope, binoculars, or any other optical device.

What If You Don't Have a Safe Solar Filter or Viewer?

Another method for safe viewing of the partially eclipsed Sun is indirectly via pinhole projection. For example, with your back to the Sun, cross the outstretched, slightly open fingers of one hand over the outstretched, slightly open fingers of the other, creating a waffle pattern. In your hands' shadow on the ground, the spaces between your fingers will show the Sun as crescents.

A solar eclipse is one of nature's grandest spectacles. By following these simple rules, you can safely enjoy the view and be rewarded with memories to last a lifetime. For more information about eye safety and the eclipse, visit https://eclipse.aas.org/eye-safety.

This safety information has been endorsed by the American Astronomical Society, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the U.S. National Science Foundation, the American Academy of Ophthalmology, the American Academy of Optometry, and the American Medical Association.

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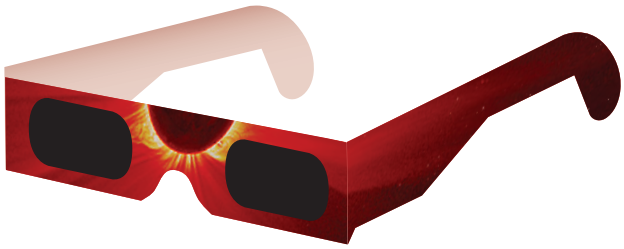
如何安全观看 2024 年 4 月 8 日的日全食

日全食

当月球遮挡住太阳的任何部分时，就会发生日食。2024 年 4 月 8 日（星期一），北美洲、中美洲以及欧洲和南美洲部分地区将出现日食。美国所有 50 个州（不包括阿拉斯加州大部分地区）都将有机会看到至少一次日偏食。在一条横跨墨西哥、美国德克萨斯州至缅因州以及加拿大安大略省至纽芬兰省的狭窄路径上，月球将完全遮住太阳的明亮面，产生壮观的日全食。

日全食和满月一样明亮，一样可以安全地观看。但太阳在其他任何时候都散发着危险的亮光。只能通过符合 *ISO 12312-2* 国际标准透射率要求的专用太阳滤光片来观看太阳，这些滤光片可用于直视太阳。

保护您的眼睛



- 除非是在短暂的日全食阶段（“全食”），不然，在没有适当护眼措施的情况下直视太阳是不安全的。日全食只发生在全食带这条狭窄路径之内。在其他任何时候，只有佩戴符合 ISO 12312-2 国际标准透射率要求的专用太阳滤光片（如“日食眼镜”），才能安全地直视太阳。用普通太阳镜（即使是颜色很深的太阳镜）直接观察太阳也不安全。
- 如果您在 2024 年 4 月 8 日身处全食路径内，只有当月球完全遮住太阳的光亮面时，才能取下太阳滤光片。一旦太阳开始重新出现，请您立即换上太阳滤光片，观看剩余的偏食阶段。
- 在全食带之外，如果不使用符合 ISO 12312-2 国际标准透射率要求的太阳滤光片，在任何时候直视太阳都是不安全的。

太阳滤光片和太阳观测镜的安全使用说明

- 使用前一定要检查太阳滤光片；如果有划痕、刺破、撕裂或其他损坏，请予以丢弃。阅读并遵守滤光片或包装上印有的任何说明。
- 儿童须在成人的监督下使用太阳滤光片。
- 如果您平时戴眼镜，可以继续戴着眼镜。把日食眼镜佩戴在您原本的眼镜之上，或者将手持型观测镜放在眼镜前面。
- 请先站定并用日食眼镜或太阳观测镜遮住眼睛，然后再去观察明亮的太阳观察。看完太阳后，转身并取下滤光片——请勿在观察太阳期间取下滤光片。
- 不要用没有太阳滤光片的相机、望远镜、双筒望远镜或其他光学设备观察还未发生日食或日偏食的太阳。即便您佩戴了日食眼镜或在眼前使用手持型太阳观测镜，也不要这样做，因为集中的强太阳光线可能会损坏滤光片并进入眼睛，造成严重灼伤。

- 太阳滤光片必须牢牢固定在任何望远镜、双筒望远镜或相机镜头的前端。在相机、望远镜、双筒望远镜或任何其他光学设备上使用太阳滤光片之前，请向天文学家咨询专业意见。

如果您没有安全的太阳滤光片或观测镜，该怎么办？

另一种安全观看日偏食的方法是通过针孔投影间接观看。例如，背对太阳，伸出一只手，微微张开手指，将手指与另一只手伸出且微微张开的手指交叉，形成一个华夫饼的图案。您的双手在地面形成阴影，指间的缝隙会呈现出新月形状的太阳。

日食是自然界最壮观的景象之一。只要遵循这些简单的规则，您就可以安全地欣赏日食，并收获终生难忘的回忆。欲了解与用眼安全和日食相关的更多信息，请访问 https://eclipse.aas.org/eye-safety。

本安全信息已得到美国天文学会、美国国家航空航天局、美国国家海洋和大气管理局、美国国家科学基金会、美国眼科学会、美国验光协会和美国医学会的认可。

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