

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

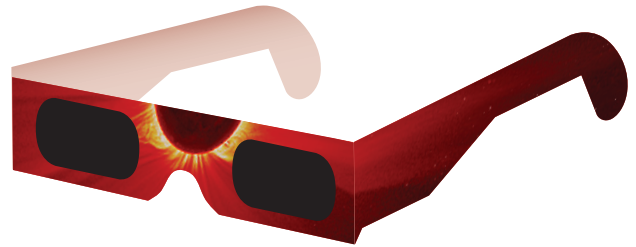
A solar eclipse occurs when the Moon blocks any part of the Sun. On Monday, April 8, 2024, a solar eclipse will be visible in North and Central America, as well as parts of Europe and South America. All 50 U.S. states (excluding most of Alaska) will have a chance to see at least a partial solar eclipse. 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.



如何安全地觀看2024年4月8日的日全食

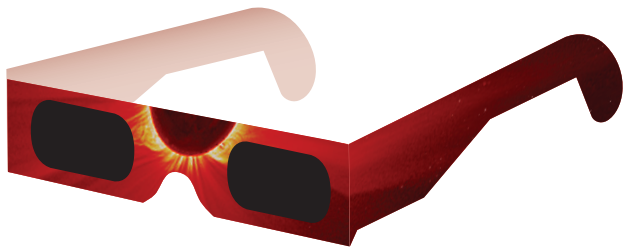
當月球擋住太陽的任何部分時，就會發生日食。2024年4月8日（星期一），北美和中美洲以及歐洲和南美洲的部分地區都可以看到日食。美國所有50個州（不包括阿拉斯加大部分地區）都將有機會看到至少一次日偏食。在一條橫跨墨西哥、美國德克薩斯州到緬因州以及加拿大安大略省到紐芬蘭省的狹長路徑上，月球將完全遮住太陽的亮面，產生壯觀的日全食。



日全食和滿月一樣明亮，觀看時也一樣安全。但是，太陽光在其他任何時候都是非常危險的。此時，只能佩戴符合ISO 12312-2國際標準透射率要求的專用太陽濾鏡觀看太陽。

保護好您的眼睛

- 除短暫的日全食階段（「全食」）外，不採取適當的護眼措施就直視太陽，是很不安全的做法。日全食只發生在一條非常狹窄的全食路徑之內。在所有其他時間，只有佩戴符合ISO 12312-2國際標準透射率要求的特殊用途太陽濾鏡（如「日全食眼鏡」）直視太陽才是安全的。普通太陽鏡即使顏色很深，在看太陽時也不安全。
- 如果您在2024年4月8日處於全食路徑上，只有當月球完全遮住太陽的亮面時，才能摘掉太陽濾鏡。一旦太陽開始重新出現，請立即換上太陽濾鏡來觀察剩餘的偏食階段。
- 在全食路徑之外，如果不使用符合ISO 12312-2國際標準透射率要求的太陽濾鏡，任何時候直視太陽都是不安全的。



太陽濾鏡和觀察濾片的安全使用說明

- 使用前，請務必檢查您的太陽濾鏡；如果有劃痕、刺破、撕裂或其他損壞，請將其丟棄。閱讀並遵守濾鏡上或包裝上的任何說明。
- 兒童要始終在成人監督下使用太陽濾鏡。
- 如果您平時戴眼鏡，請繼續佩戴。將日食眼鏡戴在眼鏡前面或將手持型觀察濾片放在眼鏡前面。
- 請先站著不動並用日食鏡或太陽觀察濾片遮住眼睛，然後再去觀看明亮的太陽。看完太陽後，轉過身去摘下太陽濾鏡——不要在�看太陽的時候摘下。
- 不要用沒有太陽濾鏡的相機、望遠鏡、雙筒望遠鏡或其他光學裝置觀看發生日食或日偏食的太陽。即使戴著日食眼鏡或在眼睛前使用手持型太陽觀察濾片，也不要這樣做，因為太陽光集中在一起時，可能會損壞濾鏡並射入眼睛，造成嚴重傷害。
- 太陽濾鏡必須牢固地安裝在任何望遠鏡、雙筒望遠鏡或照相機鏡頭的前端。在相機、望遠鏡、雙筒望遠鏡或任何其他光學裝置上使用太陽濾鏡之前，請徵求天文學家的專業意見。



如果沒有安全的太陽濾鏡和觀察濾片怎麼辦？

另一種安全觀看日偏食的方法是通過針孔投影間接觀看。例如，背對太陽時，伸出兩手，將一隻手微微張開的手指交叉放在另一隻手微微張開的手指上，形成一個華夫圖案。在雙手投在地面上的影子中，手指間的空隙會顯示月牙形的太陽。

日食是大自然最壯觀的景象之一。只要遵循了這些簡單的規則，就可以安全地欣賞美景，留下終生難忘的回憶。如需瞭解用眼安全和日食的更多資訊，請瀏覽 <https://eclipse.aas.org/eye-safety>。

本安全資訊已獲美國天文學會、美國國家航空航天局、美國國家海洋和大氣管理局、美國國家科學基金會、美國眼科學會、美國驗光學會和美國醫學協會認可。

