The Ursa Minor Report

Newsletter of the Kutztown University Planetarium & C. R. Chambliss Astronomical Observatory

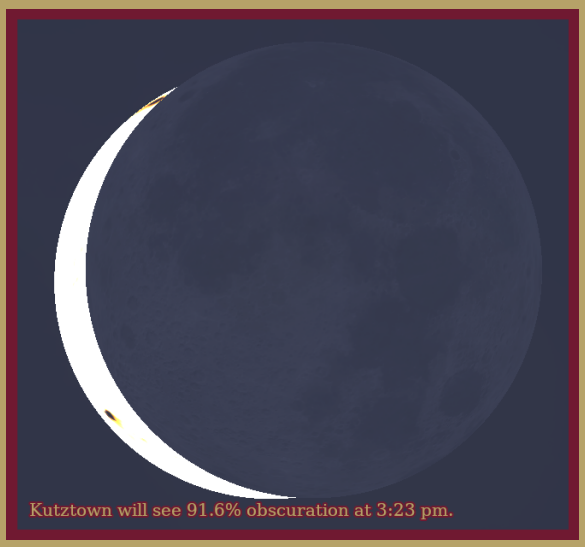
Volume 6, Issue 1 Spring 2024

Special Edition for the Solar Eclipse!

We have been urging everyone to travel to see the total **solar eclipse on April 8, 2024**. However, if you cannot get out of town, this *Solar Eclipse Edition* is your guide for observing the partial eclipse from Kutztown, PA.

Timing at KU

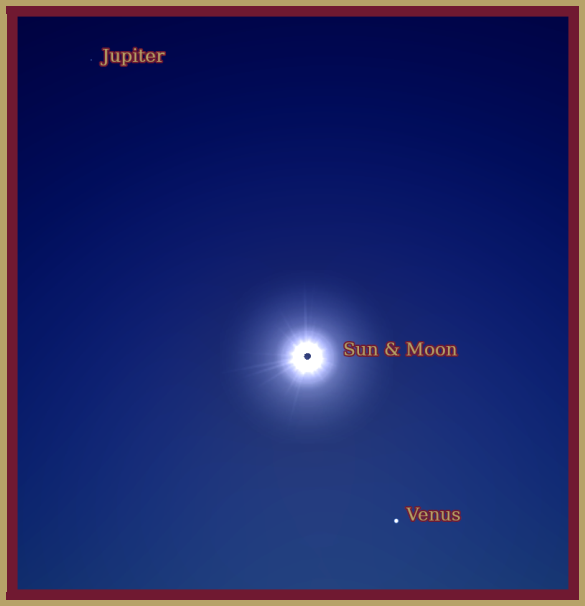
We've done the calculations! As viewed from Kutztown, the eclipse will start at 2:08 pm and it will end at 4:34 pm. **The maximum obscuration will occur at 3:23 pm when 91.61% of the Sun will be blocked by the Moon.** This is ***not*** a total eclipse in Kutztown, so it is important to remember that *it will not be safe to look directly at the Sun without proper eye protection during any stage of the eclipse*. The image below is a simulation of the KU eclipse at maximum (3:23 pm).



At the time of KU's maximum eclipse, the coordinates of the center of the Moon's shadow will be (43°38'41.0"N,76°44'45.0"W), which is just south of the Canadian border in the middle of Lake Ontario. Coincidentally, Syracuse, NY will experience their 84-second-long total eclipse at exactly the same time (3:23 pm).

Venus & Jupiter

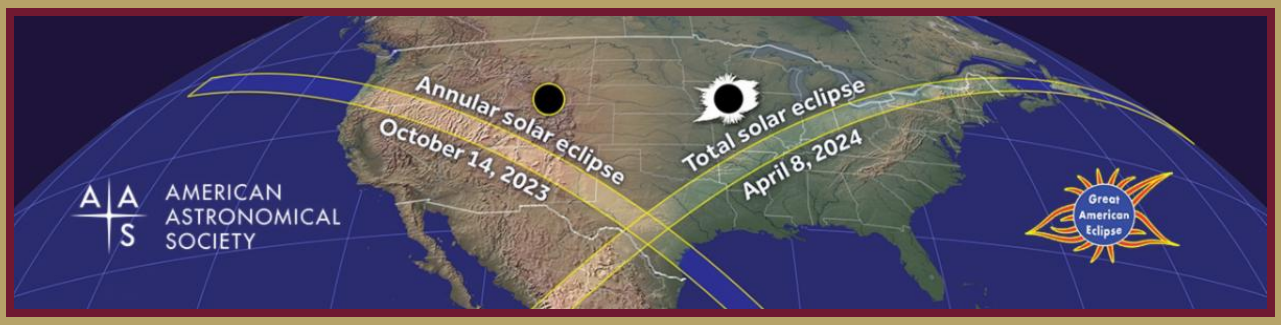
Check out the "morning star" in the afternoon! While a partial eclipse won't reveal many daytime stars, we think you'll easily be able to see the planet Venus. It'll be located 15° west of the Sun & Moon. Try to spot Jupiter, too, at $29\frac{1}{2}^\circ$ to the east.



Be Safe with Guidance from the AAS

Eclipse enthusiasts have been finding solar viewing glasses at venues ranging from planetariums & science centers to gas stations & restaurants. You should be aware that the marketplace is contaminated with fakes that are potentially dangerous. The *American Astronomical Society* (AAS) Solar Eclipse Task Force has provided some guidance on identifying the fakes. Check out their press release here:
`https://aas.org/press/american-astronomical-society-warns-counterfeit-fake-eclipse-glasses`

There are many other ways to safely experience a partial solar eclipse. You could make a *pinhole projector* out of almost anything, or turn a regular telescope or binoculars into an *optical projector*. Learn more about these and other techniques from the AAS's eye safety resources:
`https://eclipse.aas.org/eye-safety`



Look for Magnetic Activity on the Sun

The Sun's 11-year magnetic activity cycle is heating up, with the next maximum expected in June 2025. The most notorious symptom of magnetism on the Sun is sunspots - so try to find some during your (safe) direct viewing or on your projections of the Sun. The spots, which can grow to be several times the size of Earth, are a result of the conservation of total pressure (magnetic pressure + gas pressure) in regions on the Sun's surface that are penetrated by its twisted magnetic field. The Sun's surface temperature is about 10,000°F and the dark spots are cooler at about 6,500°F. According to recent images taken by the Solar Dynamics Observatory (SDO), there's at least one active spot region rotating into view for April 8. Here are a few recent images from SDO's Helioseismic and Magnetic Imager (HMI). The Sun's surface is rotating to the right over time: