Astronomy Club of Asheville

March 2026 Highlight

An Early Morning Total Lunar Eclipse

From the Asheville region in the early morning hours of **March 3rd**, the Full Moon will pass through the Earth's shadow, creating a total lunar eclipse visible in the west in the zodiacal constellation Leo, the Lion. Totality will last 59 minutes, although our region will only see about 56 minutes of that totality.

Here in the Asheville area, the partial portion of the eclipse begins around 4:50 a.m. local time when the Moon is only 25^{0} above the western horizon. Totality begins around 6:04 a.m. local time when the Moon is a low 10^{0} above the western horizon. The Moon will set in the west around 7:00 a.m. local time – some 3 minutes before totality ends.

So, find a location with an unobstructed view low to the western horizon to observe this celestial wonder.

The following two pages discuss much more about this eclipse, and it is presented courtesy of the folks at **SKY & TELESCOPE**.

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SKY & TELESCOPE

This sequence samples different phases of the total lunar eclipse on March 14, 2025, starting with the uneclipsed Moon (top right) and ending with the partial phases after totality. During the event, the Moon passed north of the umbra's center. On March 3rd, its path carries it south of the shadow's center, resulting in a bright southern limb during totality.

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For most readers, this is the last time the Moon is completely immersed in Earth's dark umbral shadow until 2029.

On March 3rd, observers in the Americas, the Pacific, and East Asia can watch the full Worm Moon crawl into Earth's shadow and undergo a total eclipse. Here in the Western Hemisphere, the event occurs during the morning hours, while across Asia it happens during the evening. In the U.S. and Canada, those on the West Coast are in the best position to take in the entire show.

The Moon first touches Earth's outer penumbral shadow at 0:43 a.m. PST (3:43 a.m. EST; 8:43 UT). Greatest eclipse, when the Moon is deepest within the southern portion of Earth's umbral shadow, occurs at 3:34 a.m. PST. Totality lasts for 59 minutes, from 3:04 a.m. to 4:03 a.m. Finally, our peekaboo satellite leaves the penumbral shadow and sails into the clear at 6:25 a.m. For viewers in the Americas, a long hiatus will follow its exit, with the next total lunar eclipse occurring on June 26, 2029.

To avoid missing this one, it pays to watch the weather carefully. During the March 2025 total lunar eclipse, the sky was mostly cloudy at my home. I checked satellite photos and forecasts for nearby cities, looking for clearings. Fortunately, fair skies ruled just 130 kilometers (80 miles) to the south. I packed my scope, binoculars, and a camera into my car and hit the highway. The move paid off. For more than three hours I enjoyed a spectacular eclipse on a dirt road surrounded by farm fields. While there are many useful resources for monitoring cloud cover, one of my favorites is **windy.com**, which is also available as an app for your smart device.

It was on that occasion I first noticed a lunar eclipse's effect on wildlife. Every spring, at dusk, dawn, and during a bright Moon, the American woodcock (also known as the timberdoodle and by several other fanciful names), performs its mating ritual. From the ground it produces a loud, buzzy "peent!" call followed by an aerial acrobatic performance. As the Moon slipped deeper into the umbra, a nearby woodcock went silent. Then, during the Moon's egress from the umbral shadow, it resumed its activities. I was delighted to witness its response to this bit of cosmic geometry. I encourage readers to keep an eye (and ear) out for changes in the natural world during this eclipse. You never know what you may have missed before.

By chance, each phase of this month's eclipse divides neatly among the four contiguous time zones. East Coast observers see the Moon set in the western sky while fully engulfed in the

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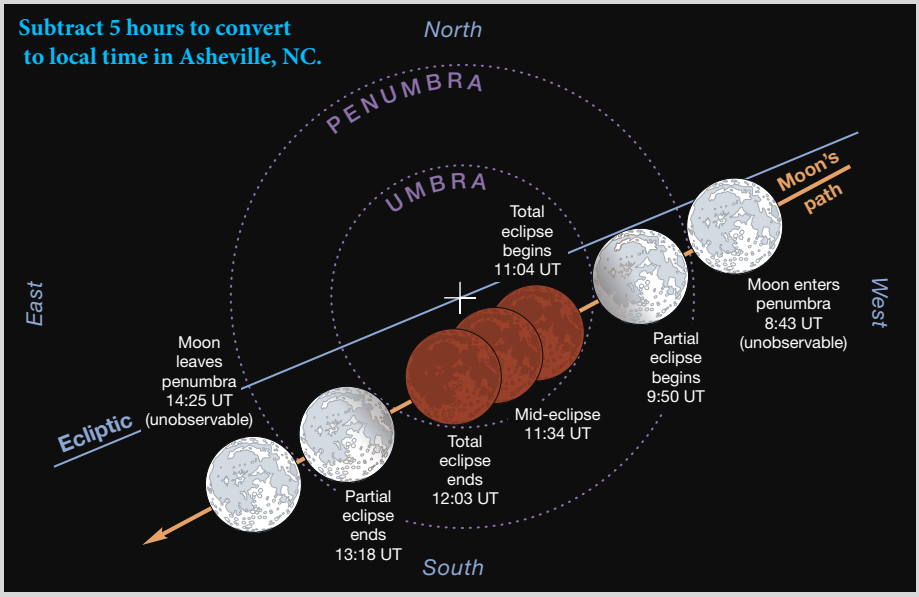
umbral shadow. In the Midwest, the Moon sets after totality while still in partial eclipse; in the mountain states the lunar disk exits the umbra shortly before moonset. Only skywatchers on the West Coast see the entire eclipse from start to finish.

Any eclipse that occurs with the Moon near the horizon unlocks wonderful photographic opportunities. It's only under such circumstances that you can capture the ruddy eclipsed Moon and the landscape together in a single frame with a telephoto lens. Although I've occasionally made composite photos of this kind of scene, I'm sure I'm not alone in preferring a straight shot that combines lunar detail and a distant horizon. Keeping things simple adds authenticity to a photograph.

If you plan to try some eclipse photography, I highly recommend the late Fred Espenak's "How to Photograph a Lunar Eclipse" at **https://is.gd/lunareclipsephotography**. Lighting conditions change quickly as night gives way to dawn and as the Moon enters and exits the umbra, so be sure to monitor your exposures to ensure they remain on target.

There's much to observe during lunar eclipses, whether you use binoculars, a telescope, or your eyes alone. And since these events typically last for several hours, there's time to try everything. From the first visible inkling of penumbral shading at the Moon's eastern limb (using sky directions), to the last traces of the shadow near the western edge, this eclipse offers around 4 hours of viewing possibilities, depending on how early and late you can see the last traces of the penumbral shadow. The earliest I've been able to detect the feature with the unaided eye is 30 minutes before the start of the partial phase. I bet you can do better.

Because the Moon passes well south of the umbra's center during this eclipse, its southern limb appears noticeably brighter during totality. This lighter zone slowly rotates from west to south as the Moon tracks through the umbra. It's difficult to predict how bright or dark the Moon will appear



▲ The March 3rd total lunar eclipse is visible from the Americas, the Pacific, and Asia. With the exception of the West Coast, viewers across the U.S. and Canada will see the Moon set in morning twilight while still immersed in Earth's shadow.

once it's fully immersed in the umbra — something that depends on several variables, including how cloudy Earth is at the time of eclipse and if any volcanic aerosols are present in the stratosphere. When there is more of either, the eclipsed Moon appears darker.

You can estimate the eclipsed Moon's brightness using the well-known Danjon scale. Email your estimate to eclipse enthusiast Helio Vital at **lunissolar@gmail.com**. Vital, who has coordinated the eclipse section of the Brazilian Observational Astronomy Network since 1990, compiles observations to make a darkness determination and tries to assess the cause. Vital expects the Moon to appear moderately bright this time "since no major stratospheric eruptions have occurred in the last couple of years."

I also encourage you to contribute crater-timing observations. Carefully note when craters enter and exit the umbral shadow to help astronomers determine the shape and size of Earth's umbra. *Sky & Telescope* Senior Contributing Editor Roger Sinnott provides instructions and a table of estimated times in his "Useful Projects for a Lunar Eclipse" article, found in the Observing section at **skyandtelescope.org**.

In a fun twist, the lunar disk straddles the Leo-Sextans border during the eclipse, so it's in both constellations simultaneously. No particularly bright stars or galaxies are occulted during totality, but the darkened Moon makes it easy to see even dim stars near its limb. The brightest to hide behind the eclipsed Moon is 6th-magnitude 56 Leonis, which is overtaken toward the end of totality.

When the Moon is in shadow, you can also watch for the impact flashes from meteoroids striking the lunar surface — even a small object can generate a brief flash. Video sequences work best for recording these impacts, though still photography also offers a good chance to catch one.

Besides the beautiful color of the eclipsed Moon, caused by sunlight refracted by the sliver of atmosphere above Earth's limb into the umbral shadow, my favorite aspect of these all-too-rare cosmic alignments is the transition from a bright, moonlit sky to the dark hush of night. I love watching the stars slowly return as the Moon slips ever deeper into Earth's shadow. Although the transition back to light as totality ends may feel anticlimactic at first, the symmetry and sense of closure it brings makes for a welcome ending to a silent, majestic procession.

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