

THE CLEVELAND MUSEUM OF NATURAL HISTORY PRESENTS THE STARGAZER

December 2024

THE OBSERVATORY

This month we are celebrating the anniversary of the famous “Blue Marble” image of Earth, which transformed the way we view our planet. On December 7, 1971, Apollo 17 was on its way to the Moon. About 18,000 miles from Earth, the astronauts looked back and took this iconic photo on a 70-millimeter Hasselblad camera with an 80-millimeter Zeiss lens. Until then, no human had captured a single photo of our fully illuminated planet from top to bottom. The original photo had to be inverted because astronauts in space lack a perception of “up” and “down.” Once Apollo 17 returned to Earth, the photo was released, showing our fragile Earth floating in the black void of space. It inspired in many viewers the urge to protect our planet, helping to galvanize the environmental movement. To this day, “Blue Marble” remains the most reproduced image of Earth.

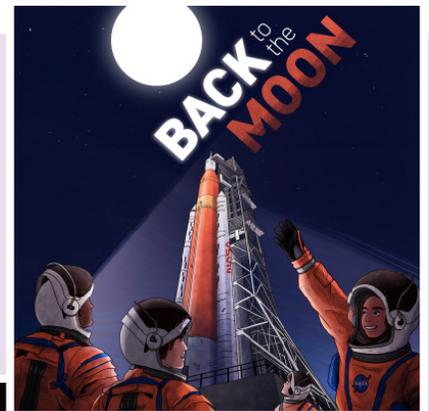
View of Earth from Apollo 17; captured on December 7, 1971, by astronauts traveling toward the Moon



SHAFRAN PLANETARIUM NEWS

We're returning to the Moon! This year, four astronauts are preparing to venture around the Moon on Artemis II, the first human-crewed mission on NASA's path to establishing a long-term lunar presence. The Artemis program will allow NASA to take its next steps toward deep-space travel, with the goal of technological advancement and scientific discovery. NASA will follow its exploration of the Moon with plans to venture to the Red Planet—Mars. Beginning December 17, join us in the

Nathan and Fannye Shafran Planetarium to learn more about this exciting journey. We are debuting two new shows in conjunction with the Museum's Grand Opening: *Return to the Lunar Surface* and the kid-friendly *Back to the Moon*.



PERIOD **PANORAMA**

In the month of December, the night sky has much to offer:

December 1: **New Moon.**

December 4: On this night, **Venus will appear close to the waxing crescent Moon** in the constellation Sagittarius the Archer. Best viewing time: 5:30–7:30pm.

December 7: **Jupiter at opposition.** On this night you'll see Jupiter, the largest planet in the Solar System, shining bright all night long as it reaches opposition of the Sun. (That means it will be opposite the Sun as viewed from Earth.) When this event occurs, Jupiter will rise around the time of sunset and set around sunrise, reaching its highest point in the sky around midnight. Best viewing time: 10pm–3am.

December 8: **First quarter Moon.** Best viewing time: 5:30–10:30pm.

December 14: **Geminid meteor shower.** This annual meteor shower, produced by asteroid 3200 Phaethon, will bring bright white shooting stars to our skies from November 19 to December 24. The shower will peak on December 14. You may spot up to 50 meteors per hour, with the chance of spotting 120 meteors per hour under a dark sky. The radiant point of this shower (where the meteors appear to originate) will be near the star Castor, inside the constellation Gemini the Twins. Best viewing time: 2–6:30am.



Geminid seen from Deep River, Ontario, Canada; captured by David Cox on December 13, 2023

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December 15: **Full cold Moon.** On this night you will see the “full cold Moon,” also called the “full long nights Moon.” This nickname refers to the long, cold nights we experience in the Northern Hemisphere as a result of Earth’s tilt as fall turns to winter. Opposite the Sun in the sky, the Moon will shine all night long.

December 18: **Moon & Mars conjunction.** The Moon and Mars will appear close together on this night, rising in the east to create a colorful sight in the sky.

December 21: **Winter solstice.** In Cleveland, winter will officially begin on this day. Resulting from Earth’s tilt, the winter solstice marks the shortest day in the Northern Hemisphere and the longest day in the Southern Hemisphere. After this day, the days will grow longer and the nights will grow shorter.

December 22: **Last quarter Moon.** Best viewing time: 2–7am.

December 22: **Ursids meteor shower.** This shower falls annually around the winter solstice, from December 13 through 24. This year, you may see five to 10 meteors per hour coming from the shower’s parent body, comet 8p/Tuttle. To locate the radiant point of the shower (where the meteors appear to originate), find the Big and Little Dippers, also known as the constellations Ursa Major and Ursa Minor. Best viewing time: Midnight–7am.

December 30: **New Moon.** This night will mark the second new Moon in a month—a rare calendar occurrence.

LOOK **AHEAD**

BepiColombo is set to revolutionize our understanding of Mercury, the enigmatic, Sun-scorched world that remains the least explored planet in the inner Solar System. This international mission—one of the most complex ever undertaken—features two spacecraft working together to unlock Mercury’s mysteries by orbiting and observing from unique perspectives. In January 2025, BepiColombo will make a close flyby of this elusive planet. Join us as we follow this exciting milestone in planetary science, which will reveal new insights into the history and evolution of our Solar System.



Rendition of the spacecraft used for the BepiColombo international mission

