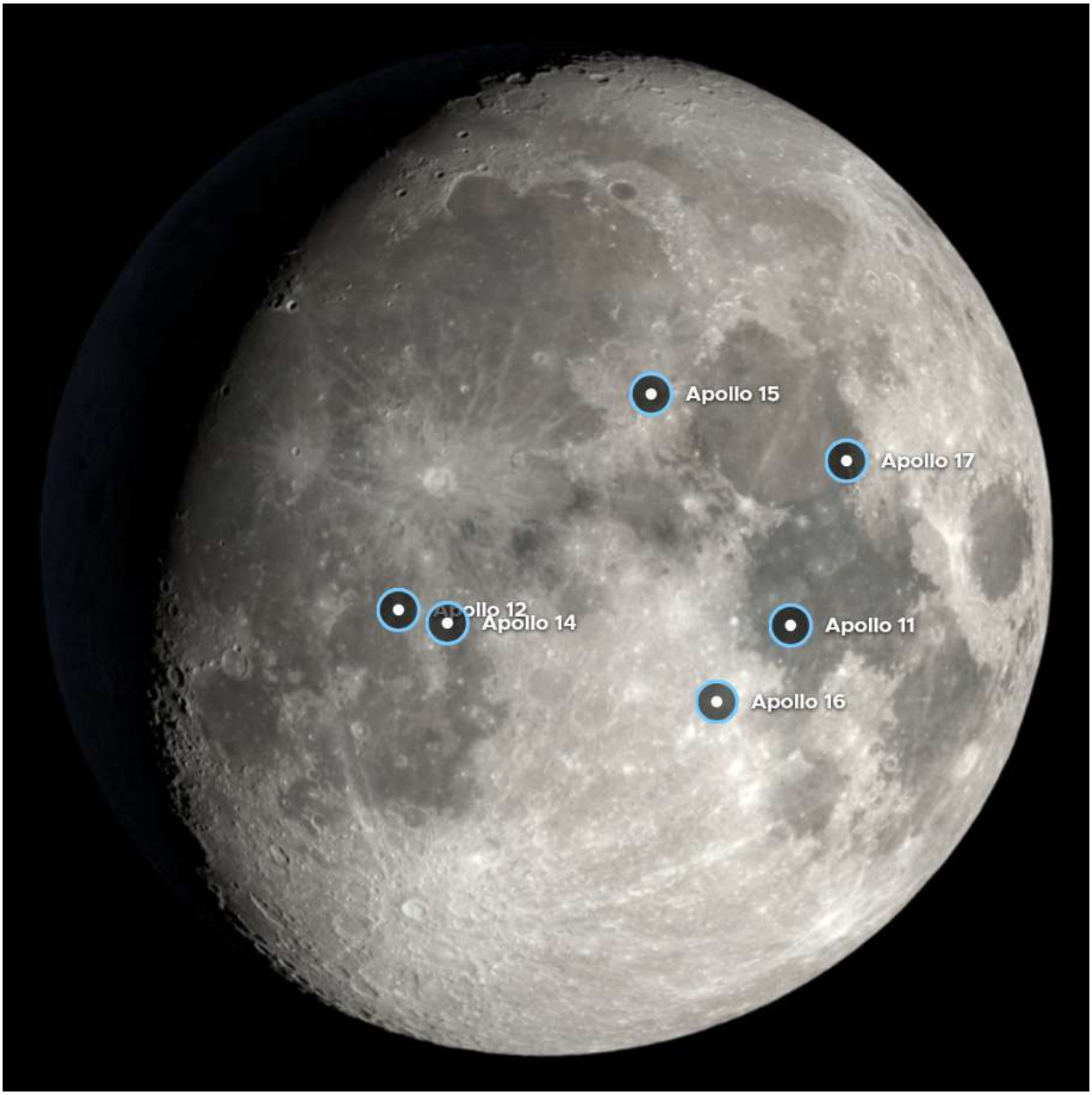
Keene Amateur Astronomers

The Newsletter for Keene Amateur Astronomers

Vol. 2024 No. 5 September 2024

The Moon



This official Moon map for September 14th, the International Observe the Moon Night, shows the locations of the six Apollo missions. Image courtesy of NASA https://moon.nasa.gov/observe-the-moon-night/resources/moon-map/

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Editor's Message

The weather is rapidly changing with cooler days. The Sun is setting earlier than a month ago and hopefully provides everyone with more opportunities to get out and enjoy the night sky.

September is a great time this year to be watching the sky. Many of us are still eagerly awaiting the recurring nova of the 'Blaze Star' in Coronae Borealis. It should go nova soon. Also later this month, Comet C/2023 A3 (Tsuchinshan-ATLAS) should reemerge from its trip around the Sun. The likelihood of it breaking up is decreasing and it is currently getting brighter. If we are lucky, it will grow a long tail and be very bright. How bright it will get no one knows for certain yet. Some individuals hope it will be a brilliant zero or first magnitude object making it very bright in the night sky. Other astronomers say we will be fortunate if it reaches third or fourth magnitude; still visible to the naked eye but more subtle. The main show of this comet won't begin until after October 11th or 12th but as the month goes by, I'm sure we will hear more refined predictions on what we should expect to see when it emerges from the other side of the Sun and speeds on its way to the outer reaches of our solar system.

- Susan Rolke

Monthly Business Meeting

Please see the Minutes for details regarding the August meeting.

The next meeting will be held on September 13th at Keene State College in the Student Young Building, 7 pm.

Upcoming KAA Events

International Observe the Moon is September 14th at 6:30 at the trailhead to the Ashuelot Park in downtown Keene. Keene Public Library is hosting this event. In the past club members have supported this program by bringing telescopes for members of the public to view the Moon. We encourage you to bring your telescope(s) if you have one. Everyone is welcome.

Astronomy Conventions, Retreats, and Talks

New England Fall Astronomy Festival, University of New Hampshire Observatory at UNH in Durham NH on October 4th and 5 is hosting an Astronomy Festival open to the public. Admission is free but donations are encouraged. Click the title of the event to learn more.

Lunar Resources & Readings

By Susan Rolke

International Observe the Moon is this month. It seemed appropriate to spotlight the Earth's constant companion this month. However, instead of writing an article I decided to use this month's newsletter to provide a series of resources for you to peruse based on your interests.

It has been 52 years since the last person walked on the Moon. To date, only twelve humans have stepped foot on the Moon, all of them U.S. astronauts. If you are interested in learning more about the history of the Apollo missions which includes audio and visual footage, and transcripts, I highly recommend the Apollo Flight Journal maintained by NASA. https://www.nasa.gov/history/afj/

NASA's Artemis mission will soon be taking us back to the Moon, possibly as soon as the Fall of 2026 as part of the Artemis III mission. The new SLS and Orion spacecraft tested in 2022 is scheduled to take 4 astronauts around the Moon in the near future as part of Artemis II. One unique difference between our current mission back to the Moon is that this will be a multinational endeavor with several countries participating in a variety of ways including potential astronauts and a Moon rover. Here is NASA's Artemis webpage to learn more about the mission. https://www.nasa.gov/specials/artemis/index.html

It might not be headlines in the news, but we are engaged in a race to the Moon. The South pole of the Moon offers prime real estate to set up a permanent base for a variety of reasons that range from resources to scientific discovery. Here are three articles that might be of interest.

- Space.com "Why Chandrayaan-3 landed near the moon's south pole — and why everyone else wants to get there too"
- Space.com "The new space race: International partnerships (op-ed)"
- Phys.org "Exploring the lunar south pole: Lessons from Chandrayaan-3"

There will be an annular eclipse visible from parts of Argentina and Chile on October 2nd. You can read more about it here in this Space.com article.

If you are interested in preparing for the upcoming NASA's International Observe the Moon Night (IOMN), here is a list of great resources including Moon Maps, live and recorded tours of the Moon, and more.

- Join McDonald Observatory on September 12th at 7:30 EST for a Live Moon Tour
- NASA's IOMN website with Moon maps, activities, flyovers of Apollo landing sites and more
- NASA's Moon Trek use your computer to browse an interactive lunar landscape created from past and current Moon missions https://trek.nasa.gov/moon/

Night Sky Network Online Webinar

The Night Sky Network hosts monthly webinars for members to learn more about space and current research. If you are looking to watch a presentation you missed, you can view a recording at Night Sky Network's youtube channel.

Join the Night Sky Network as it hosts this month's program on Wednesday September 25th at 9:00 PM EST with Dr. Bonnie Buratti to learn about Jupiter's moon Europa and NASA's Europa Clipper mission.

The event will be live streamed at **https://www.youtube.com/watch?v=V-Y9cpKvWZ8**

The official homepage of NASA's Europa Clipper Mission can be found here **https://europa.nasa.gov/**

NASA Night Sky Notes, September 2024

This article is distributed by NASA's Night Sky Network (NSN).
The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

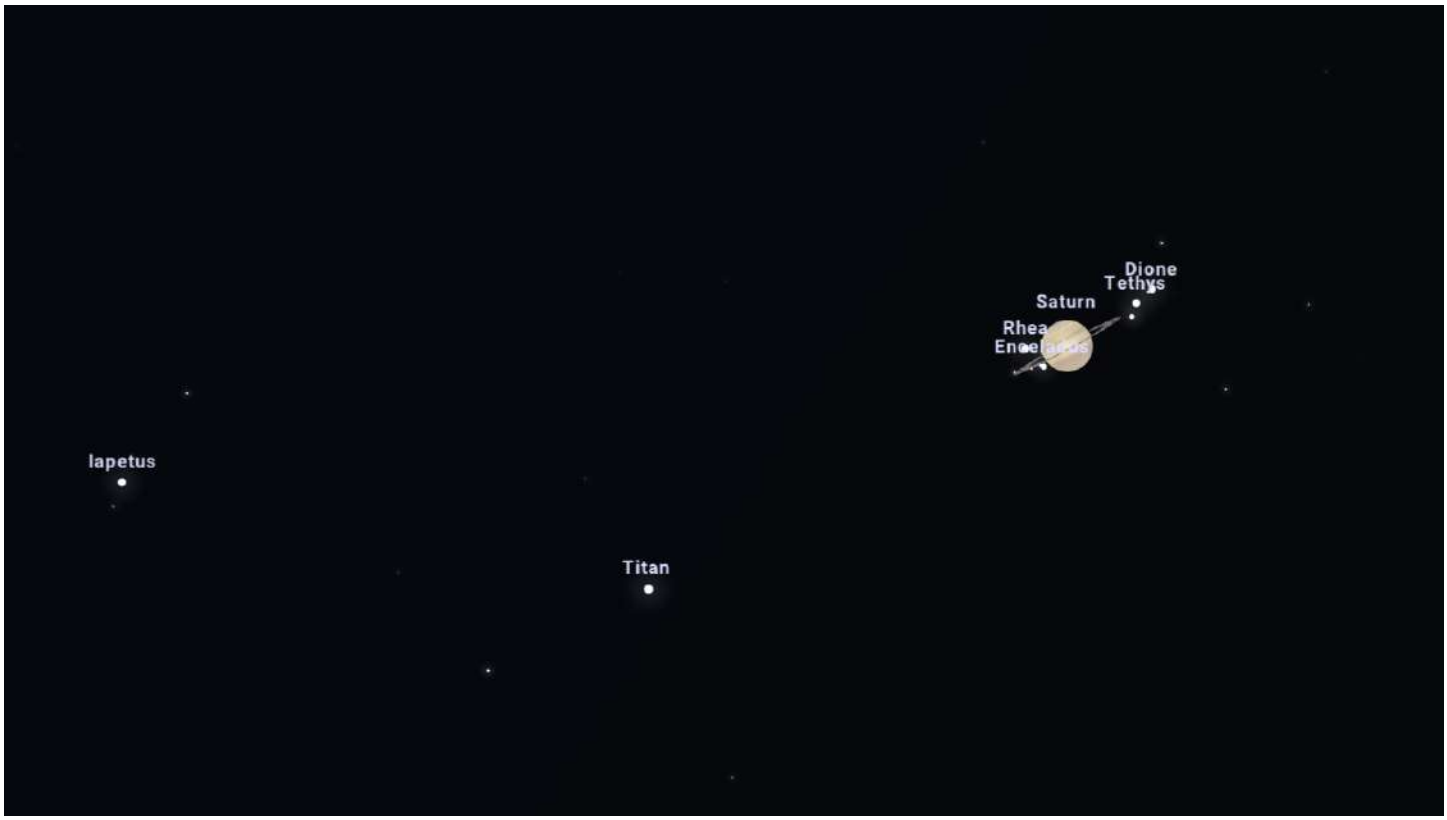
September Night Sky Notes: Marvelous Moons

By Kat Troche

September brings the gas giants Jupiter and Saturn back into view, along with their satellites. And while we organize celebrations to observe our own Moon this month, be sure to grab a telescope or binoculars to see other moons within our Solar System! We recommend observing these moons (and planets!) when they are at their highest in the night sky, to get the best possible unobstructed views.

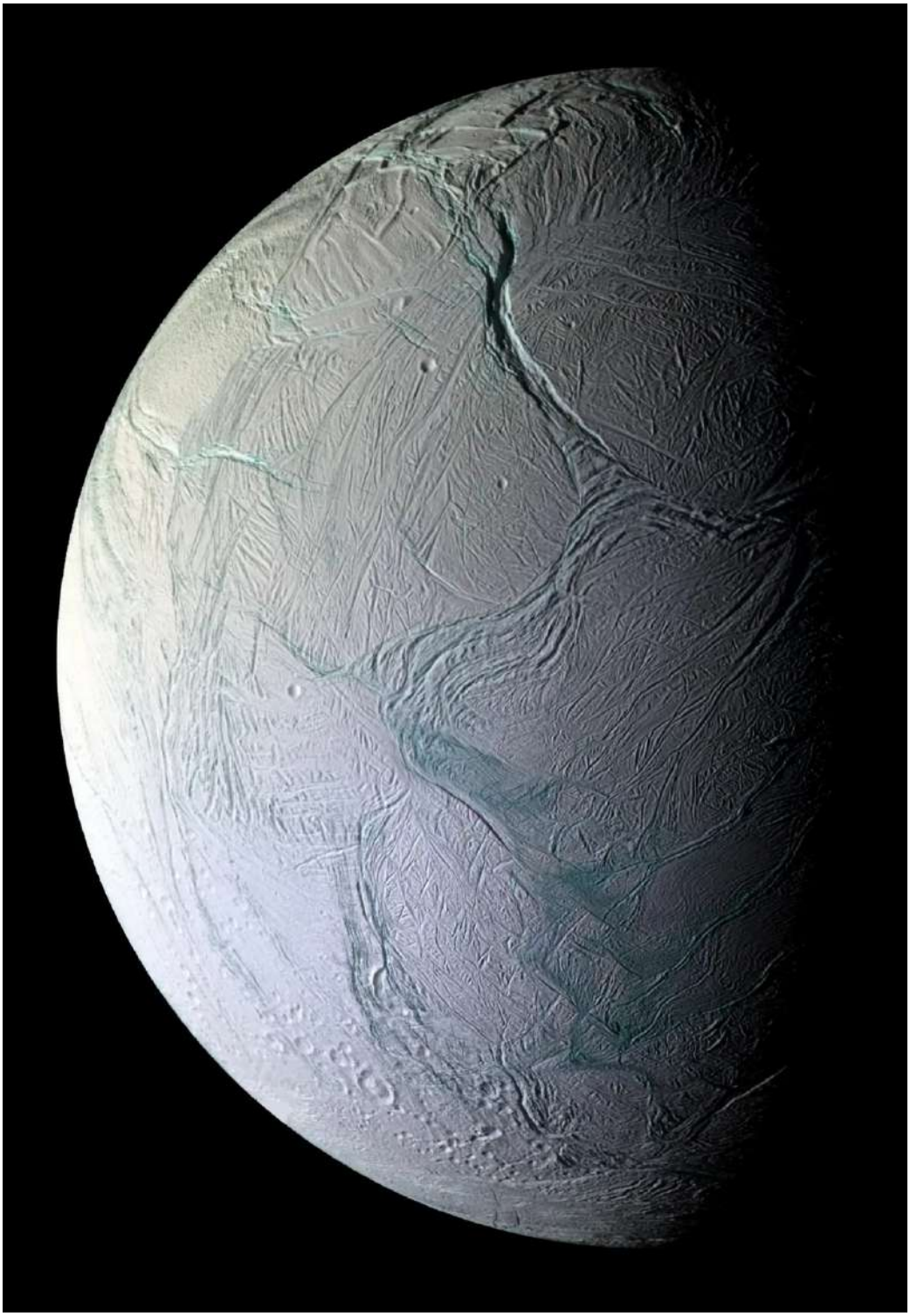
The More the Merrier

As of September 2024, the ringed planet Saturn has 146 identified moons in its orbit. These celestial bodies range in size; the smallest being a few hundred feet across, to Titan, the second largest moon in our solar system.



The Saturnian system along with various moons around the planet Saturn: Iapetus, Titan, Enceladus, Rhea, Tethys, and Dione. Credit: Stellarium Web

Even at nearly 900 million miles away, Titan can be easily spotted next to Saturn with a 4-inch telescope, under urban and suburban skies, due to its sheer size. With an atmosphere of mostly nitrogen with traces of hydrogen and methane, Titan was briefly explored in 2005 with the Huygens probe as part of the Cassini-Huygens mission, providing more information about the surface of Titan. NASA's mission Dragonfly is set to explore the surface of Titan in the 2030s.



This mosaic of Saturn's moon Enceladus was created with images captured by NASA's Cassini spacecraft on Oct. 9, 2008, after the spacecraft came within about 16 miles (25 kilometers) of the surface of Enceladus. Credit: NASA/JPL/Space Science Institute

Saturn's moon Enceladus was also explored by the Cassini mission, revealing plumes of ice that erupt from below the surface, adding to the brilliance of Saturn's rings. Much like our own Moon, Enceladus remains tidally locked with Saturn, presenting the same side towards its host planet at all times.

The Galilean Gang

The King of the Planets might not have the most moons, but four of Jupiter's 95 moons are definitely the easiest to see with a small pair of binoculars or a small telescope because they form a clear line. The Galilean Moons – Ganymede, Callisto, Io, and Europa – were first discovered in 1610 and they continue to amaze stargazers across the globe.

The Jovian system: Europa, Io, Ganymede, and Callisto. Credit: Stellarium Web

Ganymede: largest moon in our solar system, and larger than the planet Mercury, Ganymede has its own magnetic field and a possible saltwater ocean beneath the surface.

Callisto: this heavily cratered moon is the third largest in our solar system. Although Callisto is the furthest away of the Galilean moons, it only takes 17 days to complete an orbit around Jupiter.

Io: the closest moon and third largest in this system, Io is an extremely active world, due to the push and pull of Jupiter's gravity. The volcanic activity of this rocky world is so intense that it can be seen from some of the largest telescopes here on Earth.

Europa: Jupiter's smallest moon also happens to be the strongest candidate for a liquid ocean beneath the surface. NASA's Europa Clipper is set to launch October 2024 and will determine if this moon has conditions

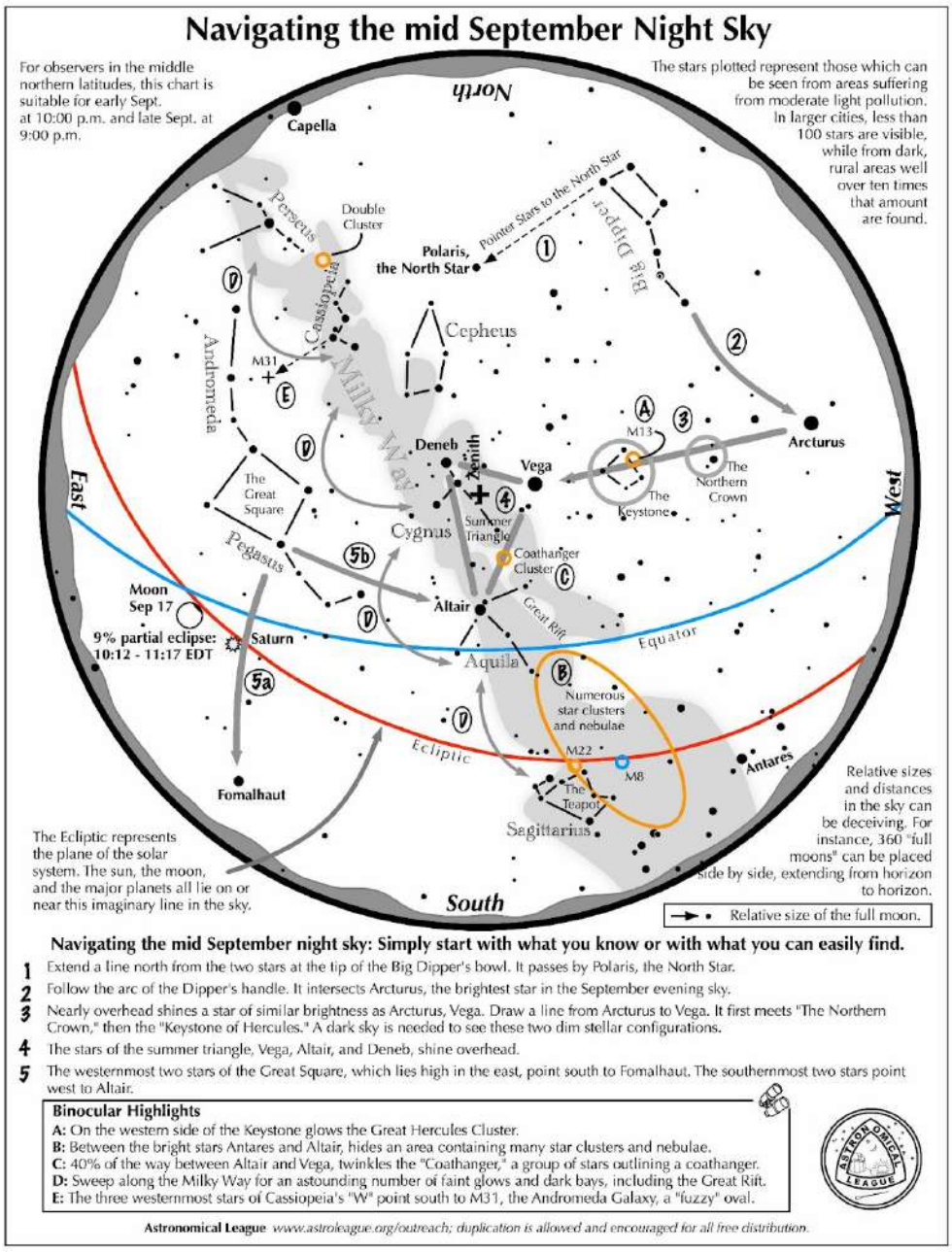
suitable to support life. Want to learn more? Rewatch the July 2023 Night Sky Network webinar about Europa Clipper here.

Be sure to celebrate International Observe the Moon Night here on Earth September 14, 2024, leading up to the super full moon on September 17th!

Observing

To find out skywatching tips for June, click on the following links (in blue and underlined) to learn more.

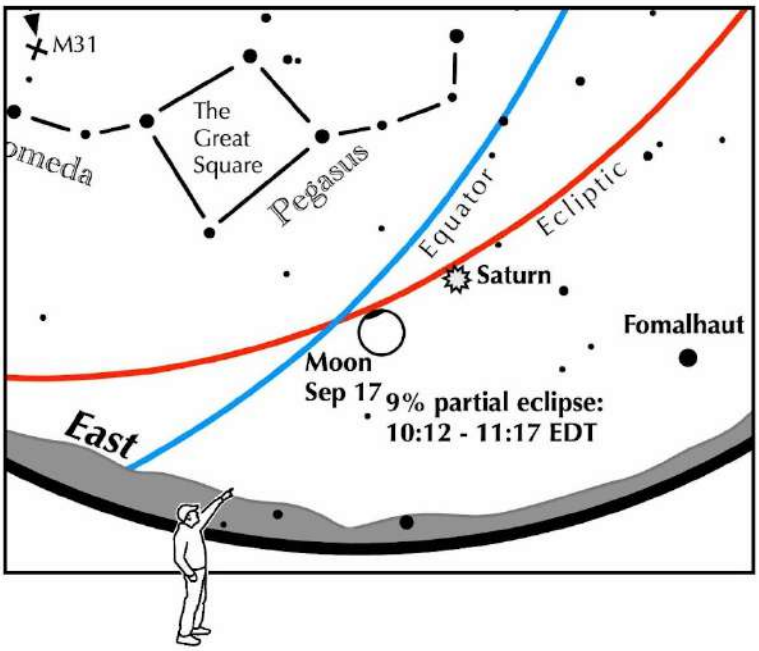
- Video: What's Up September 2024 Skywatching Tips from NASA

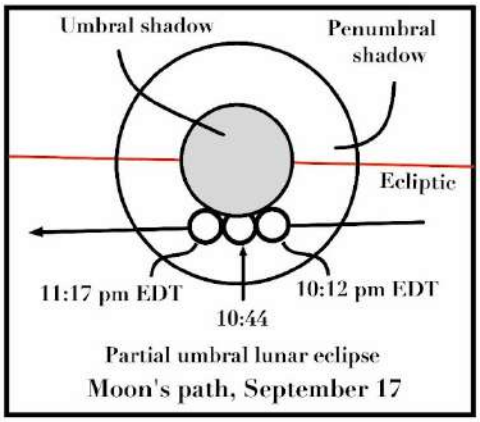


Click here for a larger image
September 2024

Partial Eclipse September 17th

A partial lunar eclipse that is a nibble, not a bite!





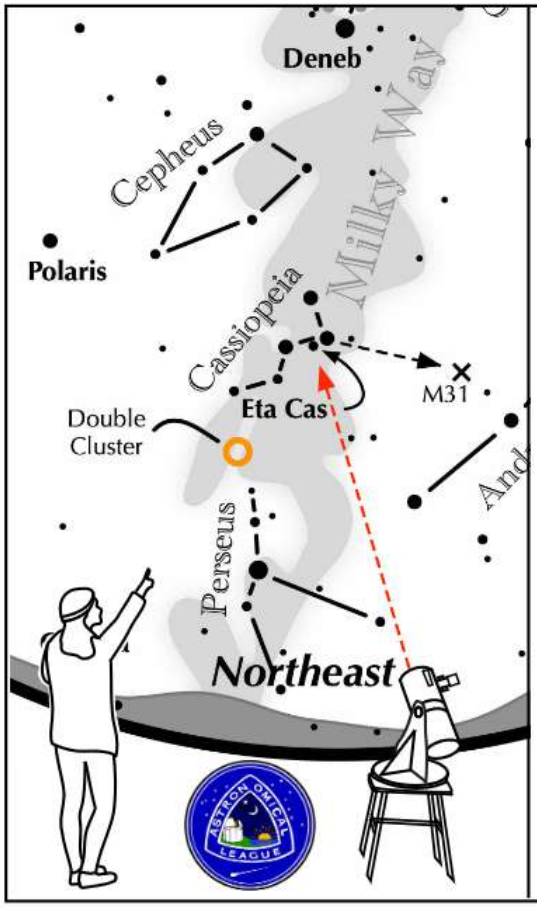
View to the southeast on September 17 from 10:12 through 11:17 pm EDT. Mid eclipse lands at 10:44 pm

The Moon slides through a partial umbral eclipse

A very partial umbral lunar eclipse occurs on the night of September 17. Bring out the binoculars for a better look at Earth's shadow taking a nibble out of the moon. Only about 9% of the surface will be in umbral shadow. The event will be slight enough that the casual observer might not notice it.

Mid eclipse and the best view occurs at 10:44 pm EDT. West Coast observers will find it low above the southeastern horizon.

Astronomical League Double Star Activity **Eta Cassiopeia**



Other Suns: Eta Cassiopeiae

How to find Eta Cassiopeiae on a September evening

High in the northeast are the five moderately bright stars forming the "W" of Cassiopeia. The second star moving east along the W is Alpha Cassiopeiae. Eta is the dimmer star immediately to Alpha's northeast.

Suggested magnification: >30x
Suggested aperture: >2 inches

Beta Cassiopeiae
A-B separation: 13 sec
A magnitude: 3.5
B magnitude: 7.4
Position Angle: 319°
A & B colors:
yellow, purple?