

The Newsletter for Keene Amateur Astronomers

Vol. 2024 No. 1

January 2025

James Webb Space Telescope, NGC 346



This is a James Webb Space Telescope image of NGC 346, a massive star cluster in the Small Magellanic Cloud, a dwarf galaxy that is one of the Milky Way's nearest neighbors. Credits: NASA, ESA, CSA, STScI, Olivia C. Jones (UK ATC), Guido De Marchi (ESTEC), Margaret Meixner (USRA)

Contents

Editor's Message

Monthly Business Meeting & Upcoming KAA events

Astronomy Resources

Night Sky Network Webinar - Euclid

NASA Night Sky Notes - January's Night Sky Notes: The Red Planet

Observing in January

- What's Up Video
 - Navigating the Night Sky, courtesy of the Astronomical League
 - Astronomical League Observing
-

Editor's Message

It is the start of a new year and many of us set goals for the coming year. January is a great time to consider the coming year and what we hope to accomplish. To that end, I have compiled a list of resources for you to browse during these cold winter months that are often cloudy and not conducive to night time observing. In the list you will find a variety of offerings, from weekly podcasts to flying over distant worlds in our solar system (on your computer).

Mars continues to feature prominently in observing this month with an occultation event by our Moon on the 13th. Our featured Night Sky Network article focuses on the red planet where you will find many active hyperlinks to learn more about the upcoming occultation event, the current active Mars missions, and a return soil sample campaign and more.

If you are setting astronomy related goals for yourself this year, you might want to browse the Astronomical League's observing programs. You can find out more about their [observing programs here](#) as well as [observing manuals](#). Certificates are available to club members who complete an observing program. If you plan to participate in one of these programs, I highly recommend sharing your plans at one of our meetings and discussing this with other members of the club.

I hope the new year has started off well. Here is to another year of being curious and enjoying the wonders of the universe.

- Susan Rolke

Monthly Business Meeting

Our next meeting will take place in March.

Astronomical Resources

By Susan Rolke

This month I thought I would do something a little different. Instead of focusing on a topic, I thought it would be nice to curate a list of resources that you could explore on your own. Instead of one article to read, you can instead enjoy weekly podcasts, interactives, blogs, and other resources throughout the month as well as future months.

Podcasts



[Houston We Have A Podcast](#)

This is the official podcast of the Johnson Space Center in Houston, Texas. If you are interested in human spaceflight, be sure to tune in weekly to listen to in-depth conversations with astronauts and scientists



[NASA's Curious Universe](#)

Curious Universe is an official NASA podcast which focuses on the amazing universe we live in. This is a great podcast for those who are curious to learn about our cosmos from astronauts, scientists, engineers, and other top NASA experts. The most recent podcasts focused on Using AI to advance hurricane research, and the mind bending math inside black holes.



[Small Steps, Giant Leaps](#)

Listen to this NASA podcast to learn about the technology that makes space exploration possible. The most recent podcast dives into the technology being developed to mine the Moon's regolith to extract oxygen for fuel. Learn more about how this went from an idea, to a technology that is being developed for a future mission.

Blogs

NASA provides a number of blogs to keep you informed of their latest missions and programs. You can check out all of their blogs here. [NASA Blogs](#)

E-Books

If you are interested in doing a little reading during these cold days and long nights, I recommend you take a look at the various e-books available to download. Topics range from the historical to the scientific. If your interests are in aeronautical research, science missions, the ISS and the history of NASA, you will find something to sate your curiosity. [NASA e-Books](#)

Watch NASA +

Did you know NASA had a streaming service? While this only runs intermittently, you are able to tune in and watch live and original programming on NASA's channel. A list of upcoming live streams is updated regularly. This channel is known to many of us because it provides live coverage of launches but don't stop there.

I highly recommend clicking on this link to explore. New recorded episodes are available to watch such as a documentary on the X-59, the latest Space Out episode, or the NASA Rocket Engine Fireplace as a humorous take on the cozy fireplace video that many play on their tv this time of year. [NASA +](#)

Newsletters

Interested in reading about the latest top stories? Did you know you can have these delivered directly to your inbox by signing up to receive one or more of their weekly newsletters. Each newsletter has a different focus so be sure to explore the list to find one(s) that interest you. [NASA Newsletters](#)

NASA Treks

This is an exciting website to explore with more and more opportunities added to observe distant worlds in our solar system. Per the website, "The Solar System Treks are online, browser-based portals that allow you to visualize, explore, and analyze the surfaces of other worlds using real data returned from a growing fleet of spacecraft. You can view the worlds through the eyes of many different instruments, pilot real-time 3D flyovers above mountains and into craters, and conduct measurements of surface features." [NASA Treks](#)

Night Sky Network Online Webinar

Join the [Night Sky Network](#) and Dr. Michael Seiffert on January 28 at 9:00 PM Eastern to learn about Euclid, a new space telescope searching for signs of dark matter and dark energy. The webinar will discuss its mission, its goals and its contributions to astronomy to date.

Dr. Michael Seiffert has worked as a research scientist at the Jet Propulsion Laboratory for the last 25 years and currently serves as the project scientist for the NASA contribution to Euclid. His research interests include developing new astronomical instruments and using them to learn about our universe.

If you want a reminder of when this will be live, you can visit the website and set up a notification alert.

NASA Night Sky Notes, January 2025



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!

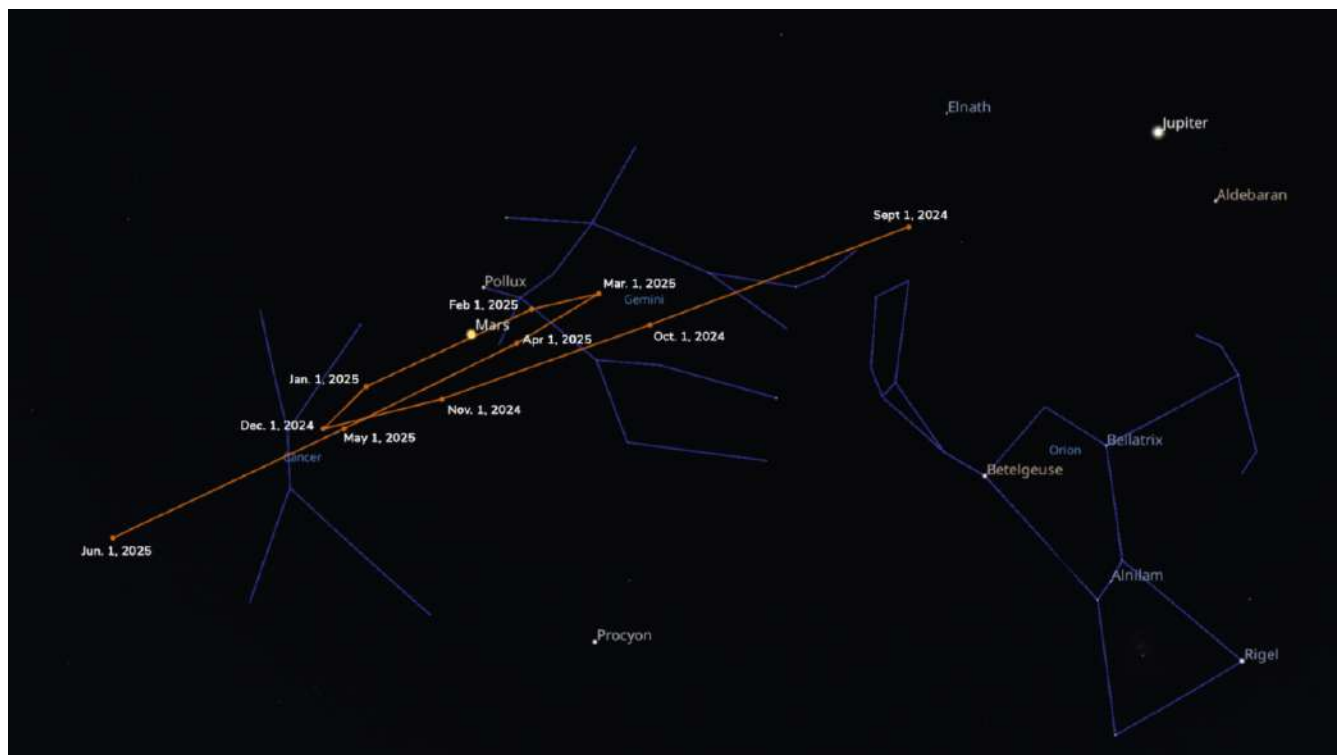
January's Night Sky Notes: The Red Planet

By Kat Troche

Have you looked up at the night sky this season and noticed a bright object sporting a reddish hue to the left of Orion? This is none other than the planet Mars! January will be an excellent opportunity to spot this planet and some of its details with a medium-sized telescope. Be sure to catch these three events this month.

Martian Retrograde

Mars entered retrograde (or backward movement relative to its usual direction) on December 7, 2024, and will continue throughout January into February 23, 2025. You can track the planet's progress by sketching or photographing Mars' position relative to nearby stars. Be consistent with your observations, taking them every few nights or so as the weather permits. You can use free software like Stellarium or Stellarium Web (the browser version) to help you navigate the night as Mars treks around the sky. You can find Mars above the eastern horizon after 8:00 PM local time.



This mid-January chart shows the path of Mars from September 2024 to June 2025 as it enters and then exits in retrograde motion. Mars appears to change its direction of motion in the sky because Earth is passing the slower-moving Mars in its orbit. Credit: Stellarium

Hide and Seek

On the night of January 13th, you can watch Mars ‘disappear’ behind the Moon during an occultation. An occultation is when one celestial object passes directly in front of another, hiding the background object from view. This can happen with planets and stars in our night sky, depending on the orbit of an object and where you are on Earth, similar to eclipses.



A simulated view of the Moon as Mars begins its occultation on January 13, 2025. Credit: Stellarium

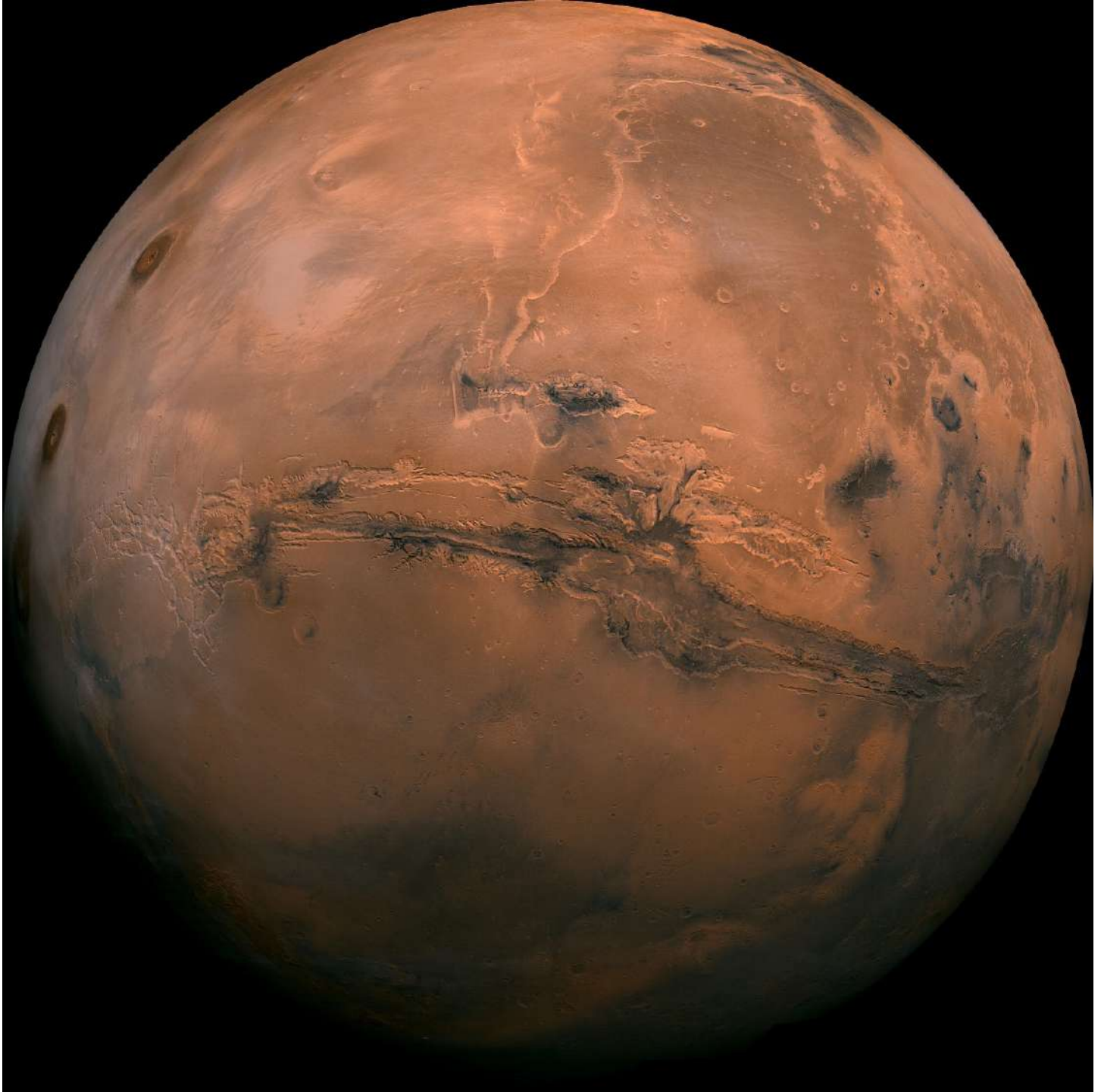
Depending on where you are within the contiguous United States, you can watch this event with the naked eye, binoculars, or a small telescope. The occultation will happen for over an hour in some parts of the US. You can use websites like [Stellarium Web](#) or the Astronomical League’s [‘Moon Occults Mars’ chart](#) to calculate the best time to see this event.

Closer and Closer

As you observe Mars this month to track its retrograde movement, you will notice that it will increase in brightness. This is because Mars will reach **opposition** by the evening of January 18th. Opposition happens when a planet is directly opposite the Sun, as seen from Earth. You don’t need to be in any specific city to observe this event; you only need clear skies to observe that it gets brighter. It’s also when Mars is closest to Earth, so you’ll see more details in a telescope.

Want a quick and easy way to illustrate what opposition is for Jupiter,

Want a quick and easy way to illustrate what opposition is for Jupiter, Saturn, Mars, or other outer worlds? Follow the instructions on our [Toolkit Hack: Illustrating Opposition with Exploring the Solar System](#) page using our [Exploring Our Solar System](#) activity!



A mosaic of the Valles Marineris hemisphere of Mars projected into point perspective, a view similar to that which one would see from a spacecraft. The mosaic is composed of 102 Viking Orbiter images of Mars. Credit: NASA/JPL-Caltech

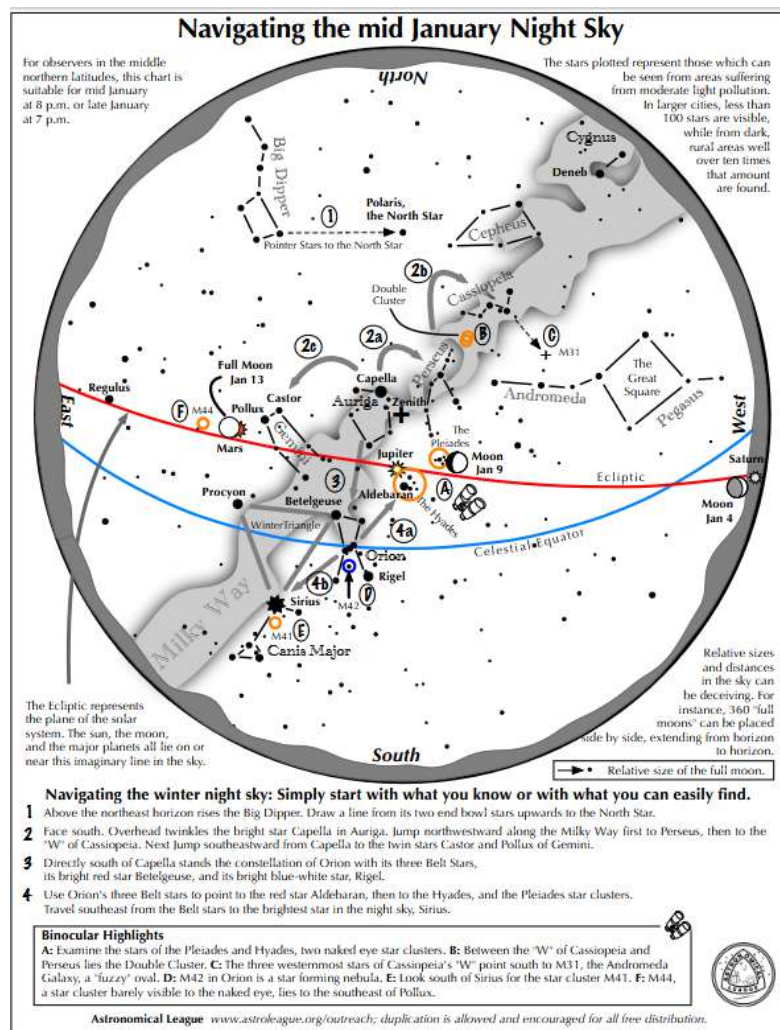
Mars has fascinated humanity for centuries, with its earliest recorded observations dating back to the Bronze Age. By the 17th century, astronomers were able to identify features of the Martian surface, such as its [ice caps and darker regions](#). Since the 1960s, exploration of the Red Planet has intensified with robotic missions from various space organizations. Currently, NASA has [five active missions](#), including rovers and orbiters, with the future focused on human exploration and habitation. Mars will always fill us with a sense of wonder and adventure as we reach for its soil through initiatives such as the [Moon to Mars Architecture](#) and the [Mars Sample Return](#) campaign.

Observing

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

Video: [What's Up January 2025 Sky Watching Tips from NASA](#)

Click here for a larger image [January 2025](#)



You may find past issues of the Astronomical League charts [here](#).

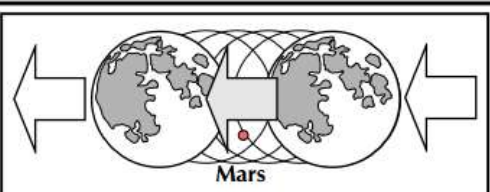
Astronomical League Observing this Month

This is a slight change from prior newsletter's due to the inability to locate this information on the NSN website this month. Instead, I urge you to go to the Astronomical League's website and view their monthly resources.

This month the [Full Moon will occult Mars](#).

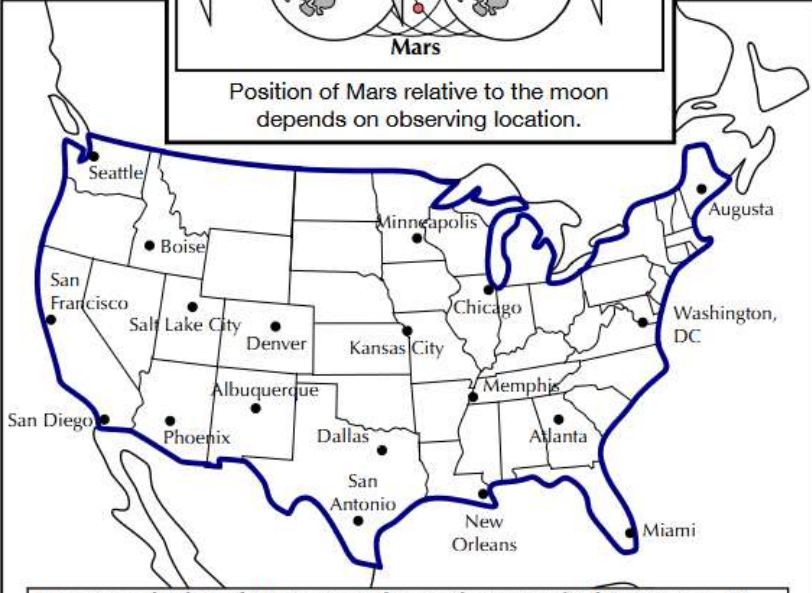


If you can see only one celestial event this January, see this one.



Mars

Position of Mars relative to the moon depends on observing location.



Full Moon occults Bright Mars

In the evening hours of **January 13**, the brilliant full moon passes in front of bright Mars, which is near opposition. It may not be easy to spot because of the moon's bright glare!, but give it a try!

Approximate local times of disappearance and reappearance.

Begin viewing ten minutes before your estimated time. Mars' time and position of reappearance is difficult to judge since the planet lies concealed behind the moon beforehand.

City	Disappearance	Reappearance
Albuquerque	6:51 pm	7:52
Augusta	9:29	10:44
Atlanta	9:06	10:13
Boise	7:06	7:49
Boston	9:26	10:42
Chicago	8:08	9:16
Dallas	7:54	8:57
Denver	6:57	7:57
Kansas City	8:00	9:06
Memphis	8:00	9:07
Minneapolis	8:08	9:10
Los Angeles	5:51	6:45
Miami	9:30	9:53
New Orleans	8:00	8:59
New York	9:21	10:37
Phoenix	6:49	7:48
Salt Lake City	6:59	7:52
San Antonio	7:52	8:50
San Diego	5:49	6:45
San Francisco	5:58	6:45
Seattle	6:23	6:39
Washington DC	9:16	10:31

Lunar occultation of Mars across the contiguous United States: Jan. 13.

Extreme southern US sees Mars move behind the southern portion of the moon, and the northern US sees the planet move behind the northern portion of the moon.





Be sure to use binoculars!

Occultations demonstrate the moon's eastward orbital motion as Earth's rotation causes it to move in a westward arc across the night sky.