



# the Skyscraper

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January 2025

AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND \* 47 PEEPTOAD ROAD \* NORTH SCITUATE, RHODE ISLAND 02857 \* WWW.THESKYSCRAPERS.ORG

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**Seagrave Memorial  
Observatory  
Open Nights**  
January 11, 18 & 25  
@ 7pm

## January Meeting: Solar Observing and Imaging by Conrad Cardano

Saturday, January 4 @ 4:30pm EST at North Scituate Community House, 546 West Greenville Road, North Scituate, RI 02857

In-person and on Zoom (Contact Linda Bergemann ([lbergemann@aol.com](mailto:lbergemann@aol.com)) for the Zoom link.

Conrad has been an amateur astronomer for over 50 years. He has a B.S. with a major in Physics and taught physics in the Peace Corps for 5 years. He worked as a computer programmer for over 35 years with the State of RI.

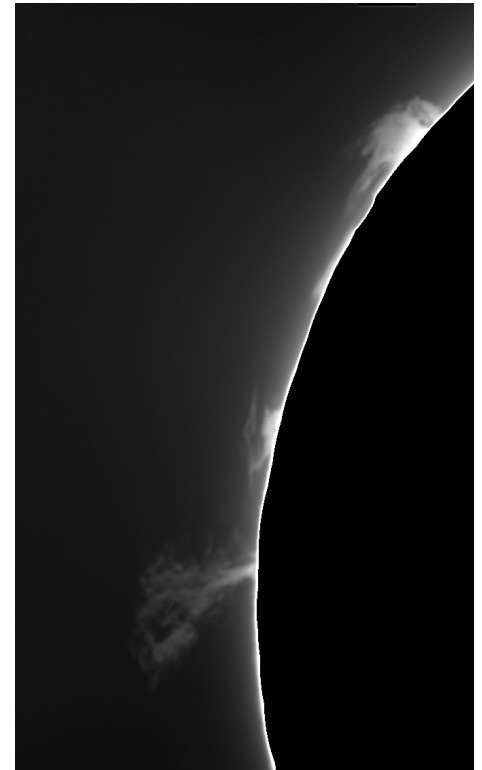
Conrad has been a member of Skyscrapers for over 35 years. He has held positions of Skyscraper President, Treasurer, Secretary, and Trustee. He has participated in many Saturday Public Nights, private observing sessions, and AstroAssemblies.

On a clear day, he spends his time gathering solar data and producing videos on solar prominences and flares.

### The presentation includes:

- Observing/imaging in white light
- Equipment needed for white light
- Observing/imaging in Hydrogen Alpha light
- Equipment needed for H $\alpha$
- Features you can now see
- Capture software, stacking, image enhancement
- Time-lapse imaging
- Producing videos
- The presentation will show over 25 solar images taken by Conrad.

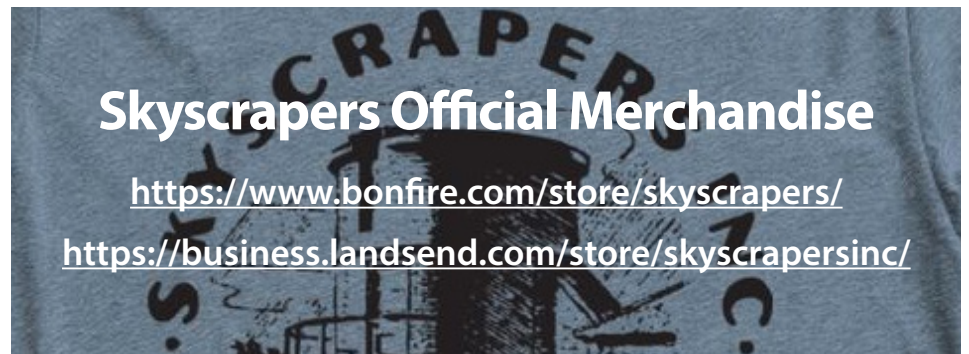
At night, he is either taking images with his Seestar or the spectra of B-class stars with emission lines.



## Skyscrapers Official Merchandise

<https://www.bonfire.com/store/skyscrapers/>

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# President's Message

by Linda Bergemann

It's the middle of Christmas week and I am trying to think of a topic to write about. Rattling around in my head are new members (three this month), cold and cloudy weather on Saturday nights, and messages that we get from people inquiring about celestial events. All relate to outreach to our members and the community.

Most are aware that we open Seagrave Memorial Observatory for observing on Saturday nights, weather permitting. Some are aware that we have individuals with telescopes who share the night sky with visitors at remote sites like parks, schools and libraries. We typically have more requests for off-site activities than we are able to satisfy. It saddens me when I have to tell someone that we can't meet their desire to learn more about astronomy.

This is where you come in. I know, you are thinking "I'm a beginner myself; I don't much". But, you know much more about astronomy than the Average Joe on the street! You know more than an elementary school student.

Right now, I have a request from Harmony Library in Glocester, RI for a short Moon program aimed at elementary age kids. We need someone able to answer their questions and provide some hands-on learning activities. And, maybe, give them a glimpse of a crescent moon through a small telescope. We must have an elementary school teacher in our midst who could do this! Skyscrapers can provide any materials needed. Please consider stepping forward so we can plan this event for an evening in February. I await your call/email.

Happy New Year,  
Linda  
401-322-9946  
lbergemann@aol.com

## New Members Welcome to Skyscrapers

Roger Hart of  
Woonsocket

Cheryl Cusson  
of Dayville, CT

Heidi Slater  
of Dayville, CT

## Observing Events

### Open Nights at Seagrave\*

Jan. 11, 7-9 PM

Jan. 18, 7-9 PM

Jan. 25, 7-9 PM

\* Members are encouraged to attend



## Skyscrapers Presentations on YouTube

Many of our recent monthly presentations on Zoom have been recorded and published, with permission, on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

<https://www.youtube.com/c/SeagraveObservatorySkyscrapersInc>



*The Skyscraper* is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Friday or Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

### Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

### Submissions

Submissions to *The Skyscraper* are always welcome. Please submit items for the newsletter no later than **January 15** to Jim Hendrickson at [hendrickson.jim@gmail.com](mailto:hendrickson.jim@gmail.com).

### E-mail subscriptions

To receive *The Skyscraper* by e-mail, send e-mail with your name and address to [hendrickson.jim@gmail.com](mailto:hendrickson.jim@gmail.com). Note that you will no longer receive the newsletter by postal mail.

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# Skylights: January 2025

by Jim Hendrickson

The latest sunrise of the year occurs at 7:13am on the 3rd.

Earth reaches its closest point in its orbit to the Sun, known as **perihelion**, on the 4th, when we'll be just 0.983327 au (147.1 million km; 91.41 million mi; 382 lunar distances) away, which is 0.03317 au (4.96 million km; 3.06 million mi; 16.55 light seconds; 12.91 lunar distances) closer than the aphelion distance in July, or about 3.37% closer.

The Sun crosses into Capricornus on the 19th, where it will spend the next 27.5 days.

The first day of the year with at least ten hours of daylight (the interval between sunrise and sunset) occurs on the 31st.

The waxing crescent **Moon** is 2.7° east of Venus on the 3rd, 2.2° east-northeast of Saturn on the 4th, and 4.2° northeast of Neptune on the 5th. The Moon is first quarter, in Pisces, at 6:56pm on the 6th.

On the 9th, beginning at 7:10pm, the 82.5% waxing gibbous Moon begins to **occult the Pleiades**. Occultations of the bright members of the cluster end at 10:30pm.

The Moon joints Jupiter, 4.8° to its south, on the following evening, the 10th. On the 11th, the 95.4% illuminated gibbous Moon is 4.2° east of Elnath (beta Tauri).

The full Wolf Moon occurs at 5:27pm on the 13th, in Gemini. It rises at 4:12pm, and appears 2.7° south-southeast of Pollux two hours later. At 9:24pm, it **occults Mars**, which reappears at 10:40pm. The Moon sets at 8:02am. Later on the 14th, it is just 2.1° northeast of M44, the Beehive cluster in Cancer, and on the 16th, it is 3.7° east of Regulus, in Leo. The waning gibbous Moon is 0.9° southeast of Spica, in Virgo, at midnight on the 21st. Last quarter Moon occurs at 3:31pm on the 21st.

On the 24th, the waning crescent Moon occults pi Scorpii, with ingress at 4:35am, and egress from the dark limb of the Moon at 5:12am. The 17.7% illuminated crescent Moon is 5.6° east-southeast of Antares on the 25th. The Moon is new on the 29th, marking the beginning of Lunation 1262.

On the 31st, the waxing crescent Moon is 3.5° west of Saturn.

At the beginning of January, **Mercury** moves through Ophiuchus in the morning sky, and rises about 90 minutes before sunrise. Rising later each morning, Mercury becomes difficult to observe by the third week of the month.

**Venus** is visible in the southwestern

sky for nearly four hours after sunset. The 17.9% illuminated crescent Moon appears 2.7° to its east on the 3rd.

Venus reaches its greatest elongation on the 9th, extending to a maximum of 47.1° east of the Sun. The planet's disk is 50% illuminated on the 11th, appearing like a quarter Moon, and will become an increasingly narrow crescent phase from now until inferior conjunction on March 22.

Also watch Venus as it continues to close its apparent distance from Saturn each evening until the 18th, when the brilliant Evening Star is just 2.2° north-northwest of the ringed planet.

Use Venus to locate Neptune on the 31st, when the distant planet will be 3.2° to the south-southeast of the brilliant planet. Neptune is 58 times more distant than Venus, and shines 1/100,000th as bright.

**Mars** is at its best in January 2025. The Red Planet is closest to Earth, at 0.642 au, at 9:00am on the 11th, when its fully-illuminated disk is 14.6 arcseconds across, and shines at magnitude -1.46, rivaling the brightest star in the night sky, Sirius. The ruddy hue of Mars is now quite apparent.

Mars is occulted by the Full Moon on the 13th, beginning at 9:24pm and ending at 10:40pm.

Mars reaches opposition four days later, on the 16th. On that evening, it appears as a "third twin," as it is in alignment with the twin stars Castor and Pollux, in Gemini.

As it continues moving westward, Mars crosses the line connecting Pollux and Procyon on the 21st, placing it back within the Winter Hexagon asterism. It remains within the hexagon until April 2.

**Jupiter** is located a few degrees northeast of Aldebaran in Taurus, and is well-placed for observing in the evening throughout the month.

On the 2nd, Europa and Callisto are visible to the east of the planet, while Ganymede is occulted, and Io is in transit. Ganymede begins to emerge at 6:51pm, while Io begins to emerge from Jupiter's limb at 7:11pm. Ganymede then begins to go into Jupiter's shadow at 7:15pm, taking 13 minutes to become fully eclipsed. It then begins to emerge at 9:42pm. An unusual grouping of the four Galilean satellites occurs just after twilight on the 5th, when the four moons form an uneven quadrilateral with the clockwise arrangement of Io, Callisto, Ganymede and

## Events in January

3	06:00	4 Juno 0.4° SSE of Zubeneschamali
3	07:13	Latest sunrise
3	12:45	Quadrantid Meteor Shower
3	17:00	Moon 2.7° E of Venus
4	08:00	Earth Perihelion (0.983327 au)
4	17:00	Moon 2.2° ENE of Saturn
5	18:00	Moon 4.3° NE of Neptune
6	18:56	<b>First Quarter Moon</b>
9	00:00	Venus Greatest Elongation (47.1° E)
9	19:10	Moon occults M45 (in: 19:10; out: 22:30)
10	18:00	Moon 4.8° N of Jupiter
11	05:00	Moon 4.2° E of Elnath
11	21:00	Venus 50% Illuminated
12	09:00	Mars closest to Earth (0.642 au)
13	17:27	<b>Full Wolf Moon</b>
13	18:00	Moon 2.7° SSE of Pollux
13	21:24	Moon occults Mars (in: 21:24; out: 22:40)
14	18:00	Moon 2.1° NE of M44
16	06:00	Moon 3.7° E of Regulus
16	21:39	Mars Opposition
18	18:00	Venus 2.2° NNW of Saturn
19	15:00	Sun in Capricornus (27.5d)
21	00:00	Moon 0.9° SE of Spica
21	08:00	Pluto Conjunction
21	15:31	<b>Last Quarter Moon</b>
22	18:00	Mars 2.4° SSW of Pollux
24	04:00	Moon 2.9° S of Dschubba
25	05:00	Moon 5.6° ESE of Antares
29	07:36	<b>New Moon</b> (Lunation 1262, Lunar New Year - Year of the Snake)
30	14:04	Uranus Stationary
31	03:00	Jupiter 5.1° N of Aldebaran
31	06:58	First day with 10 hours of daylight (10:01:21)
31	19:00	Venus 3.2° NNW of Neptune

Ephemeris times are in EST (UTC-5) for Seagrave Observatory (41.845N, 71.590W)

Europa. Early in the morning of the 8th, the Galilean satellites appear in order of their orbital distance from Jupiter. Another simultaneous transit of Io and occultation of Ganymede occurs on the 9th and 10th, with Io going into transit at 6:45pm, followed by Ganymede going into occultation at 8:12pm. Io reemerges at 8:57pm. Ganymede reemerges at 10:17pm, then goes into eclipse at 11:37pm. It remains eclipsed until 1:37am. On the 12th, Jupiter lies on a line connecting Capella and Aldebaran. A tight formation of Jupiter's moons occurs on the 13th, with Europa to the east, and (from north to south) Callisto, Io, and Ganymede to the west of the planet. The three moons form a perfect line at 9:02pm. Europa then transits the planet, and joins Callisto and Io, forming a perfect line at 2:45am on the 14th. Io and Ganymede appear close to Jupiter's eastern limb at 11:00pm on the 16th. On the evening of the 19th, the four Galilean moons appear

in order of orbital distance from Jupiter. At 11:58pm on the 22nd, Europa emerges from eclipse on the eastern side of Jupiter, joining Io and Callisto on the opposite side of Jupiter in a tight formation. Ganymede remains extended farther to the west.

Jupiter makes its closest pass to Aldebaran at the end of the month, coming to within 5.1° of the brightest star in Taurus. It will then depart our sky by 3:00am, setting in the west-northwest.

January is the final month to get a good view of **Saturn** until it sets too deep into evening twilight, before returning to the morning sky later in spring.

The 27.3% waxing crescent Moon is 2.2° east-northeast of Saturn on the 4th.

Saturn is visible in the early evening sky, now notably west of the meridian after sunset. Watch as Venus appears to approach the ringed planet from the west each night. Venus overtakes Saturn in January, with the two planets appearing level with the horizon on the 17th, and closest, at just 2.2°, on the 18th. Saturn departs the evening sky by

8:00pm at the end of the month.

**Uranus** is high in the southeast after twilight, making it well-placed for evening viewing throughout the month.

Find Uranus by locating Botein (delta Arietis), a magnitude 4.4 star located 9° southwest of the Pleiades. Uranus is located 3.2° east-southeast of Botein.

The seventh planet reaches its stationary point on the 30th, then resumes its prograde (eastward) motion.

As with Saturn, the most opportune time to observe **Neptune** draws to a close in January, as the most distant planet moves lower in the southwestern sky each evening. The magnitude 7.8 planet can be found 4.6° southeast of lambda Piscium, and 1.0° northwest of 24 Piscium.

Brilliant Venus joins Neptune on the 31st, when the pair is separated by 3.2°. Neptune then departs the evening sky before 9:00pm.

**Ceres**, in Capricornus, is too deep in twilight to observe.

Pluto, which reaches conjunction later

in the month, is also not observable.

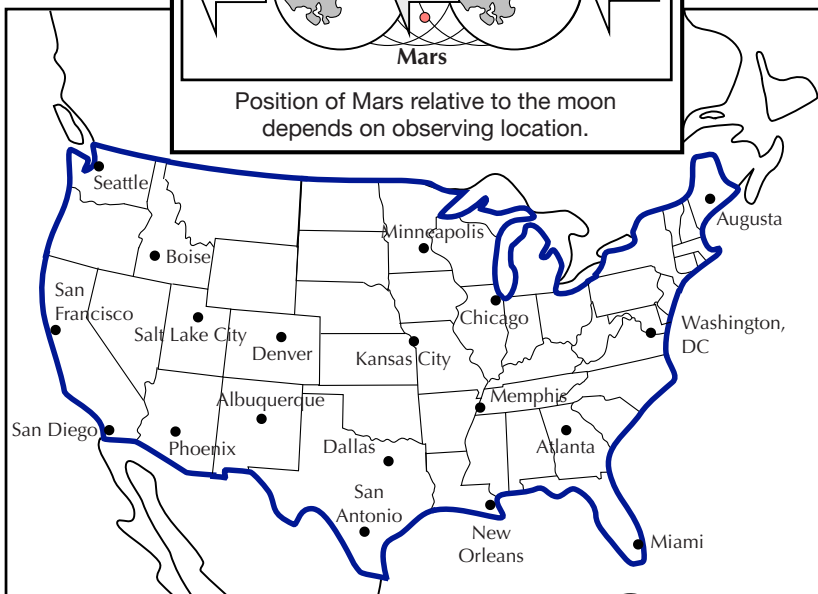
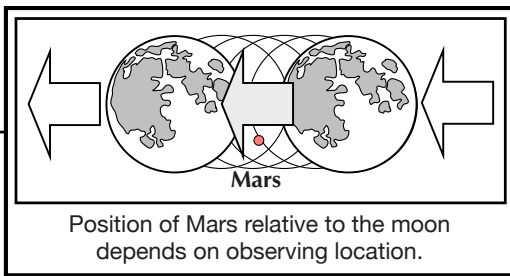
Asteroid **4 Vesta** is moving eastward through Virgo. It is about 10° northeast of Spica in early January. It shines at magnitude 7.7.

Asteroid 3 Juno, at magnitude 11.3, is just 0.4° southwest of magnitude 0.0 Zubeneshamali (beta Librae) on the 4th.

The **Quadrantid meteor shower** is active from late December through mid-January, but its brief peak occurs during daylight hours of the 3rd. The meteors appear to radiate from a point in northern Bootes, which is circumpolar, so the best opportunity to observe them is during the early morning hours of the 3rd.

Perhaps the most anticipated celestial event of 2024, the once-per-80-year outburst of recurrent nova **T Coronae Borealis**, is yet to occur as 2025 dawns. Its resident constellation, which marks the northern crown, is best seen in the pre-dawn sky during January, when it will be midway up in the east, below and to the left of Arcturus.

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



**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.

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



Be sure to use binoculars!

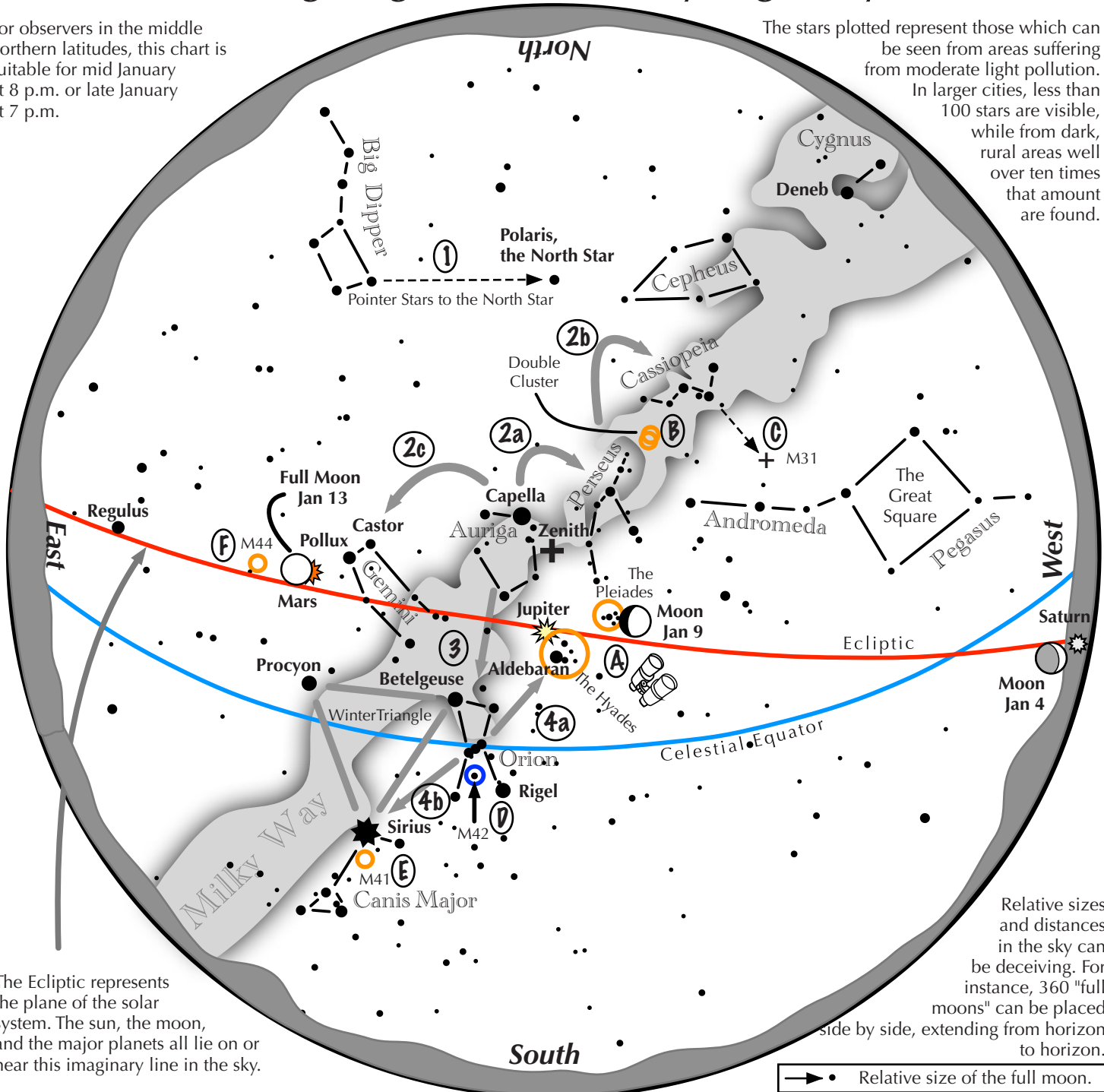
Occultations demonstrate the moon's eastward orbital motion as Earth's rotation causes it to move in a westward arc across the night sky.



# Navigating the mid January Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

## Navigating the winter night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
- 4 Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

### Binocular Highlights

**A:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.



# January 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.

## 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.

Depending on where you are within the



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

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

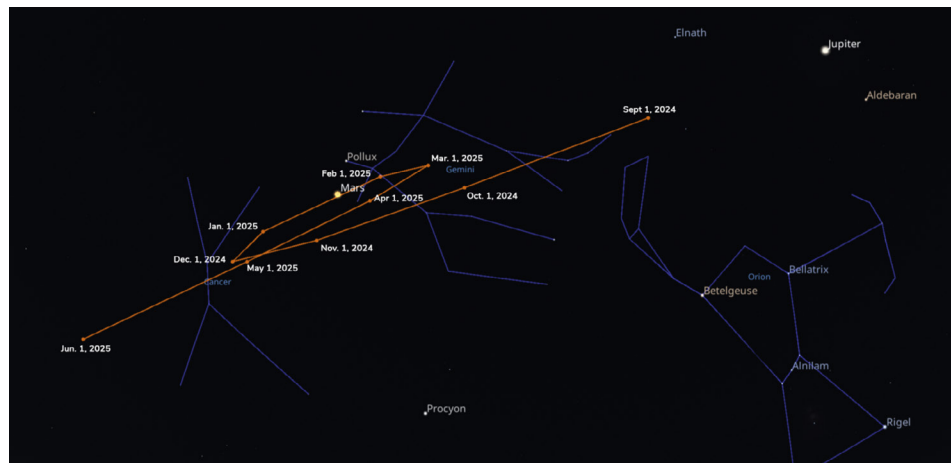
As you observe Mars this month to track its retrograde movement, you will notice that it will increase in brightness. This is because Mars will reach opposition by the evening of January 18th. Opposition happens when a planet is directly opposite the Sun, as seen from Earth. You don't need to be in any 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, Saturn, Mars, or other outer worlds? Follow the instructions on our [Toolkit Hack: Illustrating Opposition with Exploring the Solar System](#)

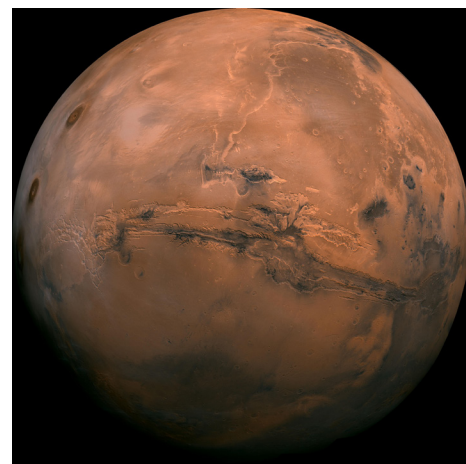
page using our [Exploring Our Solar System](#) activity!

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.

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](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!



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



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

# Skyscrapers in Paradise- Part II

by Gregory T. Shanos

Greg Shanos became a member of Skyscrapers back in 1985 when he read Dave Huestis's article in the Providence Journal entitled: Comet Halley Coming at You. Then in 1990 Greg married and relocated to Sarasota, Florida. During the great COVID-19 shutdown in the spring of 2020, Greg renewed his membership and rejoined Skyscrapers virtually via Zoom. Greg rarely misses a Skyscrapers meeting and also attends Astro assembly on a virtual basis.

In 2023 Greg met the current Vice President Michael Corvese on January 20, 2023 at a restaurant in nearby Punta Gorda, Florida. See The Skyscraper newsletter vol. 50 no. 2 February 2023 issue page 11. Mike vacations in Florida and stays with fellow Skyscraper member Anthony Costanzo who has a condominium in Port Charlotte. Mike informed me that Tony has a weekly zoom meeting on Wednesday afternoons at 1:00pm where various astronomical topics are discussed. Everyone is invited to attend at <https://us02web.zoom.us/j/8842920087#success>

I attended one of Tony's zoom get to-

gether and since then I rarely miss a meeting. Tony Costanzo is proprietor of the Astronomy-Shoppe (<https://astronomy-shoppe-com>) where he repairs all makes of telescopes. Tony frequently discusses his telescope repairs during the weekly meetings. Since Meade is out of business I now know someone who could repair my telescope if needed in the future. Through Tony's zoom meetings I was introduced to some very influential amateur astronomers throughout the country. One of the regular attendees Daniel Dannenhauer asked if I would speak at this local astronomy club- the Southwest Florida Astronomical Society in Ft Myers. I was delighted and honored to speak at his club. Dan scheduled a time and date for me to speak on December 5, 2024 at 7pm at the Calusa Planetarium and Nature Center (<https://www.calusanature.org>). Ft Myers is approximately 90 miles from Sarasota and a two hour drive one way with traffic. I met Dan and Tony for the first time in person at a Buffalo Wings restaurant in Ft Myers which is only a five minute drive to the Planetarium.

We had a wonderful time conversing and getting to know each other. Dan was kind enough to pay our meal (my wife was also in attendance). Thank you very much Dan.

When I arrived at the planetarium I was really impressed with their telescopes, displays and meteorite collection. The centerpiece was a 126 pound Campo del Cielo iron meteorite. Tony and I had a photo taken with this meteorite.

My presentation was entitled: The Smart Scope Revolution: Introducing the Seestar S50. Unfortunately there were technical difficulties and the presentation was not live-streamed or recorded. Therefore only 21 individuals who were present in the planetarium heard the presentation. Despite these difficulties the evening was an overall success.

I encourage any Skyscraper member that is on the Western Gulf Coast of Florida to contact me if they are planning a trip in the area. My email is [gshanos@aol.com](mailto:gshanos@aol.com) Hope to see you soon.



Tony Costanzo (left) & Greg Shanos (center) with a 126 lb Camp del Cielo iron meteorite at the Calusa Planetarium and Nature Center



Greg Shanos lecturing on Smart Telescopes to the Southwest Florida Astronomical Society

# Celebrating 20 Years: Night Sky Network

by Vivian White and Kat Troche

NASA's Night Sky Network is one of the most successful and longstanding grassroots initiatives for public engagement in astronomy education. Started in 2004 with the PlanetQuest program out of the Jet Propulsion Laboratory and currently supported by NASA's Science Activation, the Night Sky Network (NSN) is critical in fostering science literacy through astronomy. By connecting NASA science and missions to support amateur astronomy clubs, NSN leverages the expertise and enthusiasm of club members, who bring this knowledge to schools, museums, observatories, and other organizations, bridging the gap between NASA science and the public. Now in its 20th year, NSN supports over 400 astronomy clubs dedicated to bringing the wonder of the night sky to their communities across the U.S. and connecting with 7.4 million people across the United States and its territories since its inception.



International Observe the Moon Night, September 2024. Credit: Oklahoma City Astronomy Club/Dave Huntz

## Humble Beginnings

It all started with an idea – astronomy clubs already do significant outreach, and club members know a lot about astronomy (shown definitively by founder Marni Berendsen's research), and they love to talk with the public. How could NASA support these



Raynham Public Observing Night, February 2004. Credit: Astronomical Society of Southern New England/Mark Gibson

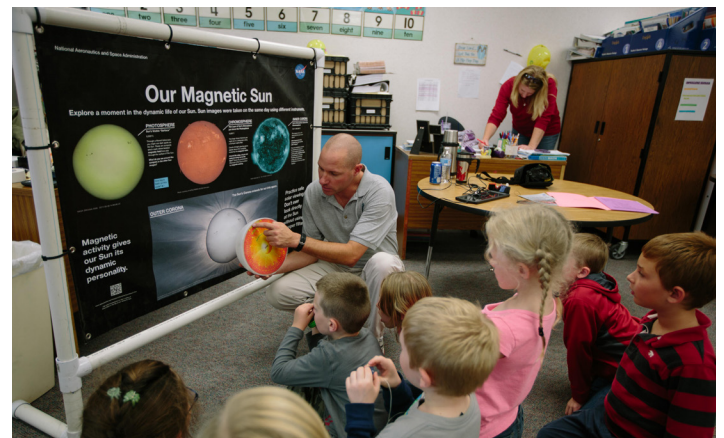
astronomy clubs in sharing current research and ideas through informal activities designed for use in the places where amateur astronomers conduct outreach? Thanks to funding through NASA JPL's PlanetQuest public engagement program, the Night Sky Network was born in 2004, with more than 100 clubs joining in the first year.

As quoted from the first NSN news article, "NASA is very excited to be working closely with the amateur astronomy community," said Michael Greene, current Director of Communications and Education and former head of public engagement for JPL's Navigator Program and PlanetQuest initiatives. "Amateurs want more people to look at the sky and understand astronomy, and so do we. Connecting what we do with our missions to the sense of wonder that comes when you look up at the stars and the planets is one of our long-term objectives. We have a strong commitment to inspiring the next generation of explorers. Lending support to the energy that the amateur astronomy community brings to students and the public will allow NASA to reach many more people."

Taking off like a rocket, Night Sky Network had over 100 clubs registered on their website within the first year.

## The Toolkits

Outreach Toolkits were developed to assist clubs with their endeavors. These kits include educational materials, hands-on activities, and guides for explaining topics in an accessible way. So far, 13 toolkits have been created on topics ranging from the scale of the universe to how telescopes work. To qualify for these free Toolkits, clubs must be active in their communities, hosting two outreach events every three months or five outreach events within a calendar year. Supplemental toolkits were also created based on special events like the solar eclipses and the 50th anniversary of Apollo's Moon landing. A new toolkit is being developed to teach audiences about solar science, and NSN is on track to support clubs well into the future.



Rye Science Day, October 2014. Credit: Southern Colorado Astronomical Society/Malissa Pacheco

NSN also hosts archived video trainings on these toolkits and other topics via its YouTube channel and a [monthly webinar series](#) with scientists from various institutions worldwide. Lastly, a monthly segment called [Night Sky Notes](#) is produced for clubs to share with their audiences via newsletters and mailing lists.



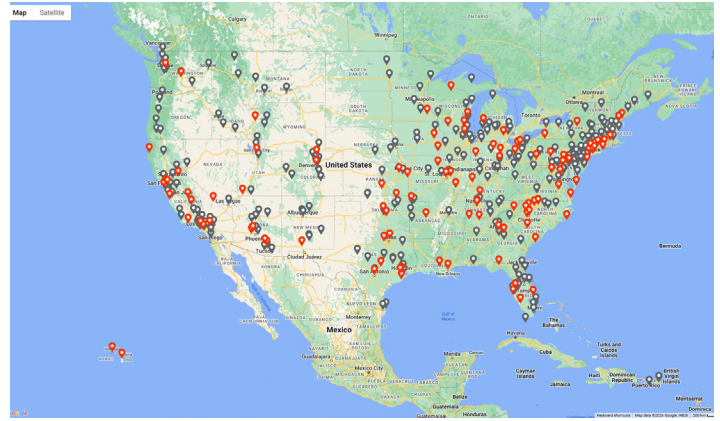
## Sharing the Universe

In 2007, a National Science Foundation grant funded further research into astronomy club needs. From that came three club resources: the Growing Your Astronomy Club and Getting Started with Outreach video series, an updated website with a national calendar, and club and event coordination. Now, you can find hundreds of monthly events nationwide, including virtual events you can join from anywhere.

## Night Sky Network: Current and Future

As of November 2024, NSN has over 400 clubs as far north as Washington State, west as Hawaii, and south as far as Puerto Rico. Astronomy clubs worldwide share the wonder of the day and night sky with their communities, and the Night Sky Network is happy to support US clubs with public engagement tools. Through their outreach efforts, member clubs have reached more than 7 million people to date, and the community is still going strong. Find an upcoming star party near you on our new public website.

This article is distributed by NASA's Night Sky Network (NSN).



Map of Night Sky Network clubs within the United States as of November 2024

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

# Astronomical Nuggets in Las Vegas

by Francine Jackson

It's said "What happens in Vegas, stays in Vegas." Not always. We were in Las Vegas specifically for two spheres: First, The Sphere, the giant ball in the middle of the Las Vegas strip. As there is an assemblage of planetarium materials within its structure, it was a must to see. The program was slated to start at 7:00 P.M., but that was actually the time the doors opened, and seating for the thousands of patrons began.

The program, "Postcard from Earth," was quite interesting, based on the history of our planet, and the consequences that are occurring as humans take too much advantage of its resources. The only problem happened during the program, when a very slight portion of the screen's pixels apparently burned out.

A trick if you'd like to visit the Sphere is to reserve a room at the Palazzo, and ask for a view facing it. The outside changes are every bit as fascinating as the indoor pro-

gram: geometric patterns, the Sun, a yellow emoji face drinking a cup of coffee, even the Moon, with all its phases. Also, as the Sphere is a part of the neighbor Venetian, and Palazzo is attached to that, it's an easy indoor walk.

Of course, the main reason to leave the Las Vegas strip is to travel just a few miles to Southern Nevada's only public planetarium, named after long-term director Dale Etheridge, one of the founders of the Pacific Planetarium Association. Lisa Goodman, the present coordinator, is thrilled to have astronomy lovers visit the 66-seat, Digistar facility.

For the past couple years, the planetarium has been showing, among many other programs, the Pink Floyd Dark Side of the Moon 50th anniversary show. As someone who worked the original Pink Floyd laser show in the 1980s, I was anxious to see the latest, and grandest "Dark Side of the

Moon" presentation, especially as it was leaving planetariums everywhere the end of the year. Lisa was anxious to ask our opinion of the show, and the consensus was the program was so incredible that the 45 minutes virtually disappeared.

In addition to the terrific programming in the planetarium, there is also an amazing amount of NASA memorabilia, including a touchable STS tire. What we thought would be a one-hour timeframe lasted almost four hours, and we could have been there longer.

Although most people travel to Las Vegas in attempts to go home millionaires, there is much to see besides the thousands of machines, and, to us, the Sphere and the Dale Etheridge Planetarium made a much nicer, and more interesting, trip.



The exterior of The Sphere displays a Moon globe (left) and the Sun in the early morning hours.



Francine Jackson and Lisa Goodman

## Observer's Challenge:

# NGC 891: Spiral Galaxy in Andromeda

by Glenn Chaple

(Magnitude 9.9, Size 12' X 2')

If you're a fan of TV sci-fi shows and are old enough, the accompanying image of the edge-on spiral galaxy NGC 891 taken by astronomer Mario Motta should look oddly familiar. It appeared, along with images of other galaxies, during the closing credits of the mid-1960s sci-fi anthology "Outer Limits."

Typical of edge-on spirals, NGC 891 displays a luminous spindle shape bisected by a dark lane. This lane, created by dust clouds that inhabit the spiral arms, obscures the galaxy's bright nucleus. As a result, NGC 891 is much darker than its listed magnitude of 9.9 might indicate. Although glimpsed with difficulty with apertures as small as 4 inches, this low surface brightness galaxy more realistically requires an aperture of 8 to 10 inches under a dark sky environment.

To find NGC 891, owners of GoTo telescopes need only enter its 2000.0 coordinates RA 2h22m33s and DEC +42o20'53" and press the button on the control paddle. I recommend, however, that you eschew the electronics and "go to" NGC 891 via the star-hop method. The reason? Your starting point is gamma ( $\gamma$ ) Andromedae (Almach), 3 1/2 degrees due west. Mirach is one of the finest double stars in the night sky, a dazzling amber and blue pair whose magnitude 2.3 and 5.0 components are 9.5 arc-seconds apart. What a great way to begin your journey to NGC 891!

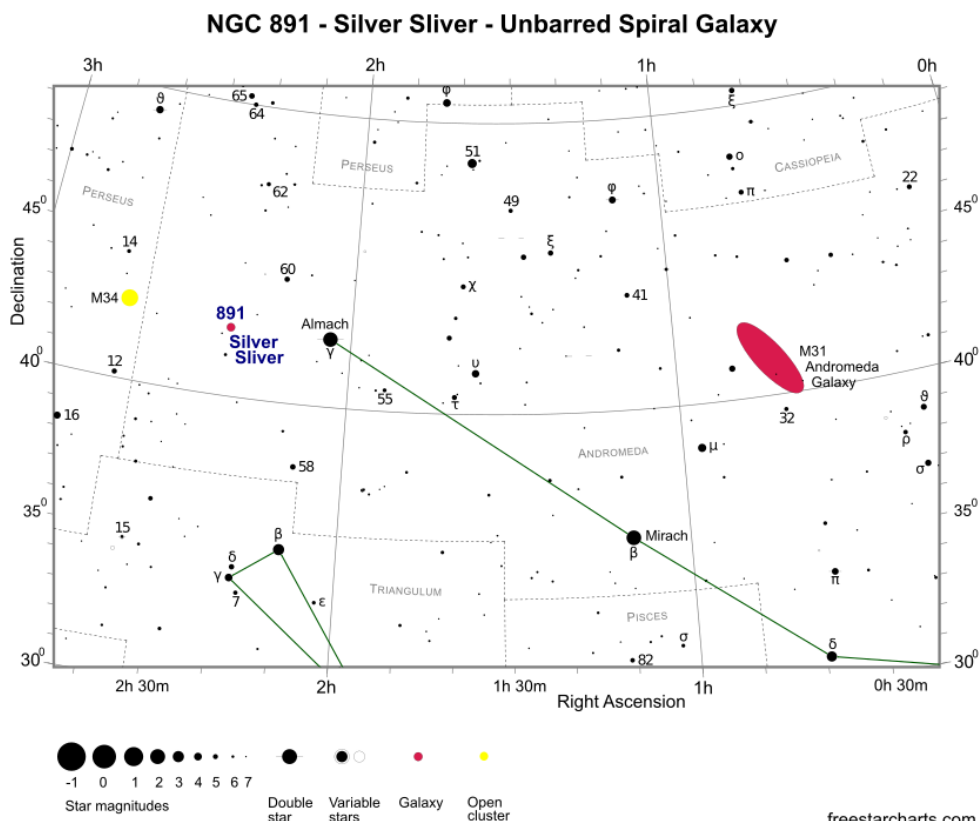
NGC 891 was discovered by (who else?) William Herschel on 6 October 1784 with an 18.7 inch reflecting telescope. He described it as "Considerably bright, much extended above 15' 3" broad, a black division 3 or 4' long in the middle."

Most references assign a distance to NGC 891 of 30 million light years. Its apparent 12 arc-minute breadth translates to an actual size of 100,000 to 120,000 light years.

Here are your NGC 891 challenges: 1. Can you behold the beauty of the topaz and sapphire gem set Almach without being moved to tears? (OK, maybe hyperbole on my part, but this colorful pair is a stunning can't miss sight.) 2. Can you glimpse NGC 891 with a telescope aperture less than 8 inches? 3. What is the smallest aperture that will capture the galaxy's dust lane?



4 hours imaging with RGB and Lum filters, on my 32 inch scope and zwo 6200 camera. Mario Motta



# The Sun, Moon & Planets in January

This table contains the ephemeris of the objects in the Solar System for each Saturday night in January 2025. Ephemeris times in Eastern Standard Time (UTC-5) for Seagrave Observatory (41.845N, 71.590W).

Object	Date	RA	Dec	Const	Mag	Size	Elong	Phase(%)	Dist(S)	Dist(E)	Rise	Transit	Set
<b>Sun</b>	4	19 00.3	-22 43.0	Sgr	-26.8	1951.8	-	-	-	0.983	07:13	11:51	16:29
	11	19 30.8	-21 47.9	Sgr	-26.8	1951.6	-	-	-	0.983	07:12	11:54	16:36
	18	20 00.9	-20 32.1	Sgr	-26.8	1950.8	-	-	-	0.984	07:09	11:56	16:44
	25	20 30.4	-18 57.3	Cap	-26.8	1949.4	-	-	-	0.985	07:04	11:58	16:53
<b>Moon</b>	4	22 28.1	-12 25.4	Aqr	-10.9	1929.5	51° E	19	-	-	10:19	16:02	21:56
	11	4 47.3	26 54.1	Tau	-12.6	1954.3	142° E	90	-	-	14:00	22:15	06:31
	18	11 13.1	5 53.3	Leo	-12.4	1793.5	132° W	84	-	-	20:47	03:20	09:41
	25	16 29.6	-26 58.6	Sco	-10.9	1788.2	55° W	22	-	-	04:09	08:27	12:42
<b>Mercury</b>	4	17 33.3	-22 36.1	Oph	-0.2	5.6	20° W	81	0.434	1.197	05:49	10:25	15:01
	11	18 16.1	-23 36.7	Sgr	-0.2	5.2	17° W	88	0.456	1.289	06:09	10:41	15:12
	18	19 01.7	-23 41.8	Sgr	-0.3	5.0	14° W	93	0.466	1.355	06:27	10:59	15:31
	25	19 49.0	-22 43.3	Sgr	-0.5	4.8	10° W	96	0.463	1.396	06:42	11:19	15:55
<b>Venus</b>	4	22 13.5	-12 15.7	Aqr	-4.2	23.2	47° E	54	0.722	0.729	09:45	15:04	20:24
	11	22 40.2	-9 03.4	Aqr	-4.3	25.0	47° E	51	0.721	0.677	09:32	15:03	20:35
	18	23 04.8	-5 45.7	Aqr	-4.3	27.1	47° E	47	0.720	0.625	09:16	15:00	20:44
	25	23 27.4	-2 27.6	Psc	-4.4	29.5	46° E	43	0.720	0.573	08:59	14:54	20:50
<b>Mars</b>	4	8 16.3	23 52.4	Cnc	-1.2	14.4	163° W	99	1.615	0.650-	17:24	01:00	08:36
	11	8 05.1	24 37.5	Cnc	-1.2	14.6	172° W	100	1.622	0.643	16:42	00:21	08:01
	18	7 53.2	25 16.6	Gem	-1.2	14.5	175° E	100	1.628	0.646	15:59	23:42	07:24
	25	7 41.6	25 46.4	Gem	-1.2	14.2	167° E	100	1.633	0.659	15:18	23:03	06:48
<b>1 Ceres</b>	4	20 58.3	-24 27.5	Cap	9.2	0.3	27° E	99	2.970	3.812	09:20	13:47	18:14
	11	21 09.5	-23 42.7	Cap	9.2	0.3	23° E	100	2.971	3.853	09:00	13:31	18:01
	18	21 20.7	-22 55.9	Cap	9.2	0.3	19° E	100	2.972	3.888	08:40	13:14	17:49
	25	21 31.9	-22 07.0	Cap	9.1	0.3	15° E	100	2.973	3.915	08:20	12:58	17:36
<b>Jupiter</b>	4	4 46.2	21 45.5	Tau	-2.6	46.7	149° E	100	5.084	4.215	14:06	21:32	04:58
	11	4 43.5	21 42.1	Tau	-2.5	46.0	141° E	100	5.086	4.281	13:36	21:02	04:27
	18	4 41.4	21 39.8	Tau	-2.5	45.1	134° E	100	5.088	4.359	13:07	20:32	03:58
	25	4 40.0	21 38.6	Tau	-2.4	44.2	126° E	99	5.091	4.447	12:38	20:03	03:29
<b>Saturn</b>	4	23 06.9	-7 49.2	Aqr	1.1	16.4	61° E	100	9.630	10.069	10:20	15:54	21:28
	11	23 09.1	-7 34.8	Aqr	1.1	16.3	54° E	100	9.627	10.167	09:54	15:29	21:04
	18	23 11.5	-7 19.1	Aqr	1.1	16.1	48° E	100	9.625	10.257	09:28	15:04	20:40
	25	23 14.0	-7 02.3	Aqr	1.1	16.0	41° E	100	9.623	10.339	09:02	14:39	20:16
<b>Uranus</b>	4	3 25.0	18 25.2	Ari	5.7	3.7	130° E	100	19.553	18.910	13:00	20:11	03:23
	11	3 24.4	18 23.3	Ari	5.7	3.7	122° E	100	19.552	19.007	12:32	19:43	02:55
	18	3 24.0	18 22.0	Ari	5.7	3.7	115° E	100	19.550	19.111	12:04	19:15	02:27
	25	3 23.8	18 21.3	Ari	5.7	3.7	108° E	100	19.549	19.222	11:36	18:48	01:59
<b>Neptune</b>	4	23 52.3	-2 14.1	Psc	7.9	2.3	73° E	100	29.894	30.159	10:45	16:39	22:33
	11	23 52.7	-2 11.0	Psc	7.9	2.3	66° E	100	29.894	30.273	10:18	16:12	22:06
	18	23 53.3	-2 07.3	Psc	7.9	2.2	59° E	100	29.894	30.381	09:51	15:45	21:40
	25	23 53.9	-2 03.1	Psc	7.9	2.2	53° E	100	29.894	30.482	09:24	15:18	21:13
<b>Pluto</b>	4	20 16.6	-23 05.8	Cap	14.5	0.2	18° E	100	35.174	36.110	08:31	13:04	17:37
	11	20 17.6	-23 03.2	Cap	14.5	0.2	11° E	100	35.179	36.144	08:04	12:38	17:11
	18	20 18.5	-23 00.6	Cap	14.5	0.2	5° E	100	35.183	36.164	07:38	12:11	16:44
	25	20 19.5	-22 58.1	Cap	14.5	0.2	5° W	100	35.188	36.169	07:11	11:44	16:18

## Messier 1 by Steve Hubbard

Taken December 25 with my 14" Meade SCT w focal reducer and ZWO 294MC camera. Various programs like SIRIL and Graxpert used for processing.

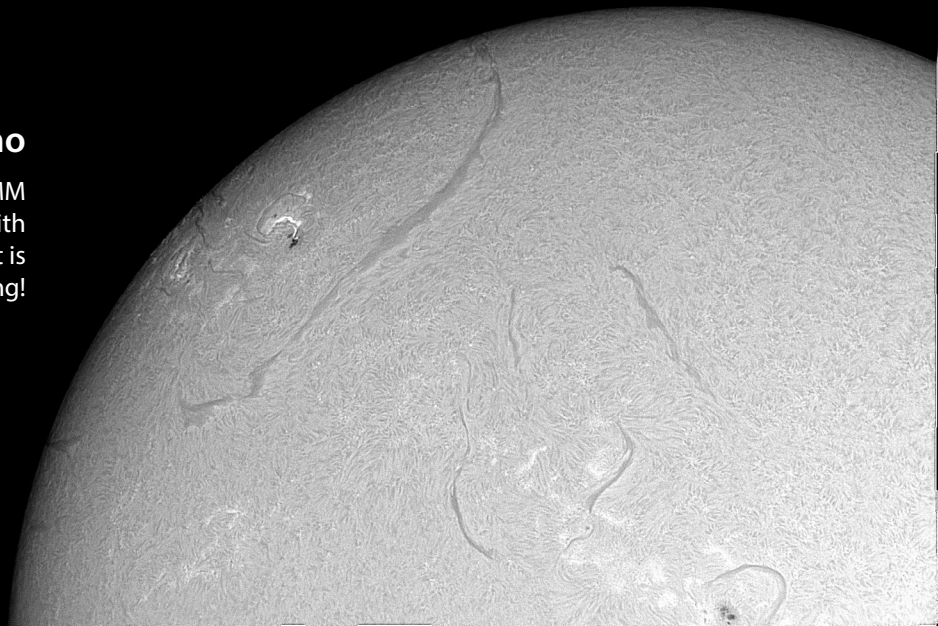


## Messier 1 by Conrad Cardano

December 22; 30 minutes on the Seestar; Processed with Graxpert and Siril.

## Solar Filament by Conrad Cardano

3" f/6 apo; Daystar Quark Chromosphere; ASI 174MM camera. 400 frames taken every 4 minutes. Stacked with Autostakkert; Processed with Astro Art. This filament is 300,000 miles long!





### Messier 74 by Conrad Cardano

Here is 70 minutes of exposure time with See-Star S50. Processed with Graxpert and Siril.



### Messier 74 by Steve Hubbard

Dec 26; 14" F8 SCT with FR and ZWO 294MC.; 1.5 hours, processed with SIRIL, Graxpert and Astra Image.

### Andromeda Galaxy in B&W by Jeff Padell

Here is the Andromeda Galaxy a 100 minute exposure with my Seestar S30 telescope



# STARRY SCOOP

Editor: Kaitlynn Goulette



## WHAT'S UP

In the hours after the sun sinks below the horizon, we are treated to a medley of planets. Venus, nicknamed the Evening Star, is visible low in the southwest. It follows the sun in its descent past the tree line early in the evening, with Saturn setting shortly after. The well-known ring system that Saturn carries is currently positioned edge-on to viewers on Earth and appears as a needle across the yellow surface of Saturn as March approaches. Higher in the sky, Jupiter shines brightly in the constellation Taurus the Bull. It reached opposition last month and is an excellent telescopic target. Reaching opposition on the 16th this month is Mars. On that day, it reaches its closest approach to Earth and rises exactly at sunset.

The seasonal winter stars are bold and bright, many forming some of the most recognizable constellations of the night sky. Orion the hunter contains the red supergiant star Betelgeuse, which has captured the attention of astronomers for hundreds of years. In Hebrew, its name means "armpit of the Giant" and, at over 650 times the diameter of the sun, Betelgeuse is one of the largest stars ever discovered. Orion's Belt, a well-known asterism, can be used as a directional tool for finding other targets in the sky. Following the belt towards the southeast leads to the brightest star of the night sky, Sirius. The other direction points to the V-shaped head of Taurus the bull, with the famous Pleiades star cluster on its back.

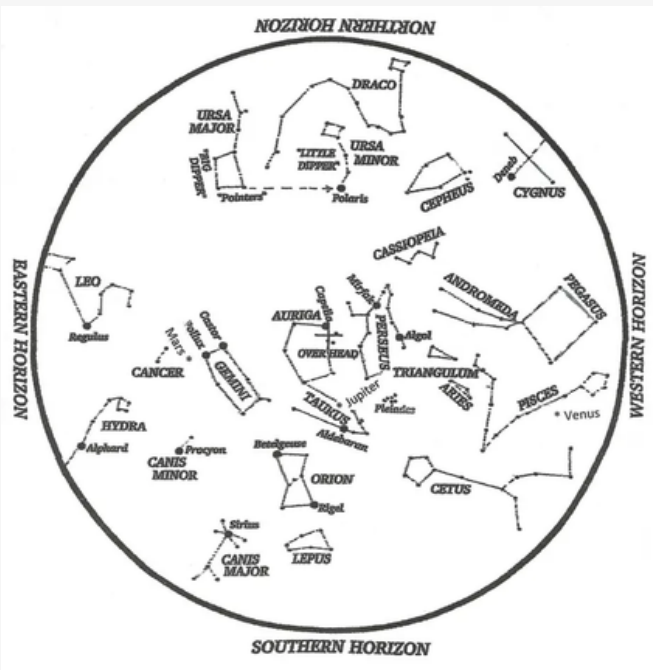
Peaking on the evening of the third into the following morning, the Quadrantid meteor shower offers a display of roughly 40 meteors an hour. It runs from January first to the fifth and is produced by Earth traveling through debris left behind by an extinct comet, 2003 EH1. The crescent moon sets in the early evening hours

and allows for excellent viewing of the display. For best seeing conditions, find yourself in a dark location after midnight.

Twenty years ago on January 14th, the first spacecraft successfully landed on an alien moon. The mission consisted of both the Cassini space probe and the Huygens lander, a project completed by NASA and the ESA. Huygens landed on Titan, the largest moon of Saturn's collection, and sent back valuable data both during its descent to the surface and time spent on the moon. Cassini orbited Saturn for 13 years, collecting information and spectacular images of the planet and its rings.

## JANUARY'S SKY

- 3-4: Quadrantid Meteor Shower Peak**
- 10: Venus at Greatest Eastern Elongation**
- 13: Full Moon**
- 16: Mars at Opposition**
- 29: New Moon**



Credit: Roger B. Culver  
Hold star map above your head and align with compass points.

# OBSERVATIONS

Richard Sanderson, President of the Springfield STARS Club and long-time astronomer, has been taking advantage of every clear night that presents itself.

He often targets the moon, aiming to observe it at its best seeing conditions. When it's positioned high in the sky, light has to pass through less atmosphere and the turbulence is at a minimum. This limit regularly pushes him to stargaze during the late evening hours or rise before the birds on some occasions. His objects of interest typically lie along the terminator, or day-night line on the moon. The angle of the sun accentuates valleys and mountains, which have proved to be great targets for astrophotography.

Over the years, Richard has honed his skills at capturing the breathtaking views through the eyepiece with his iPhone camera. The simplicity of using just his telescope and iPhone allows for much flexibility, as he often takes pictures between innings of Red Sox games and in other short windows of free time. The difference between digital iPhone images and film photography of the past is astounding. Richard commonly takes dozens of photos within a short period of time and processes them the same night.

Along with the moon, Jupiter and Saturn have both captured Richard's attention within the past few weeks. Jupiter, observed through his 6-inch f/12 refractor, reveals five to six cloud bands on pristine nights, with the Galilean moons and Great Red Spot also being breathtaking targets.



The purpose of the Starry Scoop is to communicate current astronomy and space events. If you want to share your observations or get digital copies of the Starry Scoop, contact [starryscoop@gmail.com](mailto:starryscoop@gmail.com). The Starry Scoop is now on Facebook and Instagram. Clear skies!

# OBJECT OF THE MONTH

The featured object for the month of January is the California Nebula, a large emission nebula in Perseus. Designated NGC 1499, it lies 1,000 light-years away and relies on a nearby massive star to become ionized and emit light. It spans 2.5 degrees in the sky, which is equivalent to five widths of the full moon.

Although it is a challenging visual observation as its surface brightness is low, the California Nebula is a popular target among astrophotographers. Narrowband filters, including H-Beta filters, allow for its details to be resolved. Find this object in the foot of Perseus the hero. Good luck!



California Nebula

Photo Credit: John Corban & the ESA/ESO/NASA  
Photoshop FITS Liberator



Apennine Mountain Range

Photo by Richard Sanderson  
Taken with iPhone 12 Camera

# Directions to Seagrave Memorial Observatory

## From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

## From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

## From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

## From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

## From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

## From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road  
North Scituate, Rhode Island 02857