Chagrin Valley Astronomical Society

Sky Report December 2025 – by Laz Ilyes

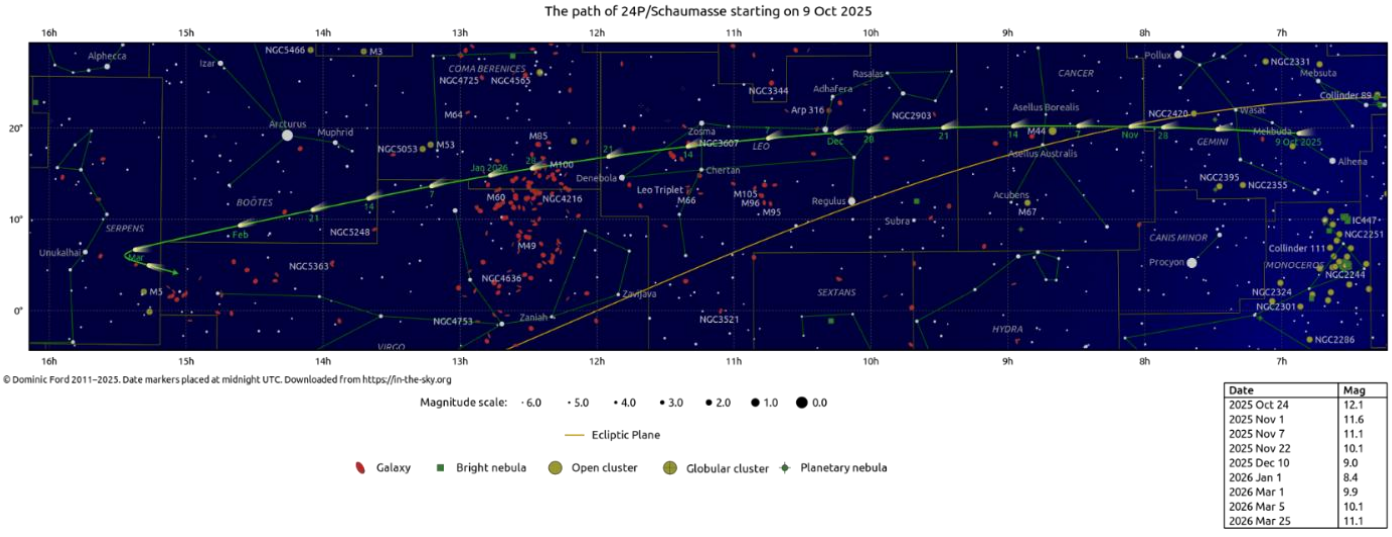
Note: In NE Ohio, we are currently on EST (UTC -5). (Daylight-Saving Time ended on Sunday, November 2, 2025 at 2 a.m).

Comets and Meteor Showers

Comet C/2025 R2 (SWAN) can no longer be easily observed in NE Ohio because it has already passed its best period of visibility. It was visible from mid-October to early November 2025, when it was in a good position for northern hemisphere observers to see with binoculars after sunset. The comet has since faded, and its visibility is now limited to southern hemisphere observers with an apparent magnitude dimmer than +11.0.

Comet C/2025 A6 (Lemmon) can no longer be easily observed in NE Ohio because it has already passed its best visibility period, which was in late October and early November. While it might still be a faint object in the sky, it has faded significantly and is sinking below the western horizon. The best time to see it was during the peak period of October 18–November 12, and it will not return for another 1,300 years.

Comet 24P/Schaumasse is a periodic comet discovered by Alexandre Schaumasse on December 1, 1911. Its period is approximately 8 years, coming to its next perihelion on **8 January 2026**. It is expected to be the brightest **comet** visible in the Northern Hemisphere in **December 2025**, though it will likely require binoculars or small telescope to see. The **comet** begins the month of December with an apparent magnitude **+12.3** and will increase in brightness through the very end of the year. As of **December 15, 2025**, **Comet 24P/Schaumasse** will be in the constellation **Leo**, at a distance of **0.62 AU** from **Earth** with approximately an **apparent magnitude of about +10.2**.

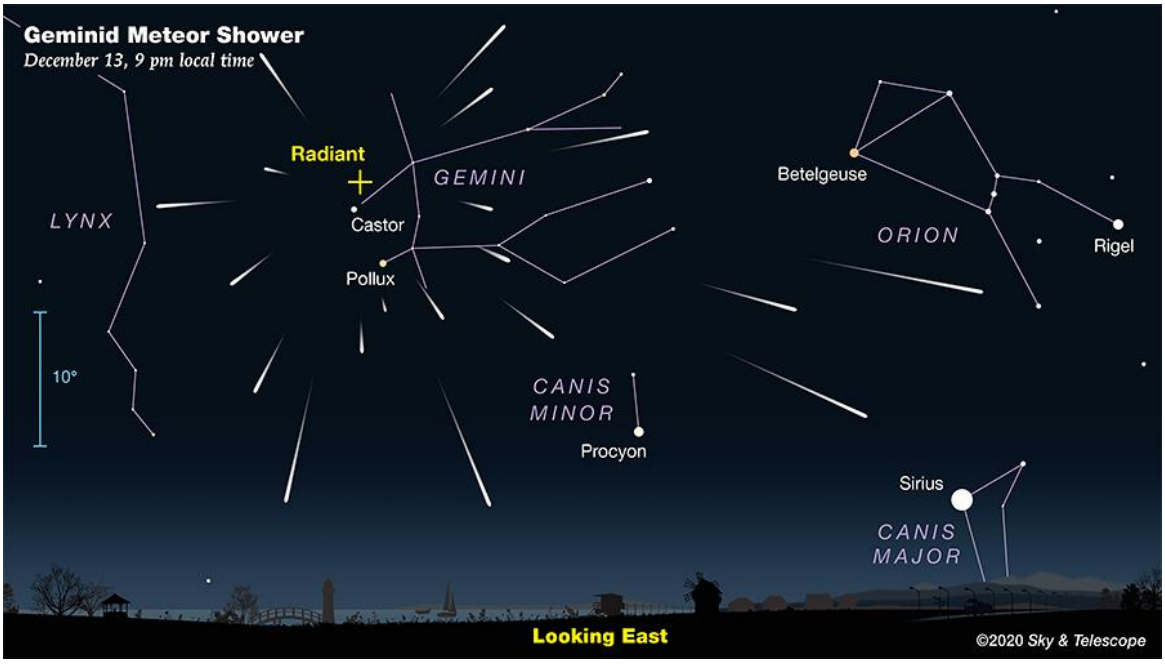


Date	Mag
2025 Oct 24	12.1
2025 Nov 1	11.6
2025 Nov 7	11.1
2025 Nov 22	10.1
2025 Dec 10	9.0
2026 Jan 1	8.4
2026 Mar 1	9.9
2026 Mar 5	10.1
2026 Mar 25	11.1

Comet 24P/Schaumasse's path is illustrated above. For an up-to-date ephemeris, please refer to the following link: https://www.cobs.si/comet/56/

Comet C/2025 N1 (also known as **3I/ATLAS**) is a rare interstellar visitor. Discovered on **July 1, 2025**, **C/2025 N1** is the third known object from outside our **solar system** to be discovered passing through our celestial neighborhood. Astronomers have categorized this object as interstellar because of the hyperbolic shape of its orbital path (it does not follow a closed orbital path about the **Sun**.)

You can still observe **Comet 3I/ATLAS** in the Northern Hemisphere in the pre-dawn sky using a very good telescope. The comet has reappeared after passing behind the Sun and is currently visible in the eastern pre-dawn sky in the constellation **Leo** but has faded to **magnitude +11**. It is expected to be observable through early December 2025. For up-to-date ephemeris and light-curve, please refer to the following link: https://www.cobs.si/comet/2643/



The **Geminids meteor shower** will be peaking around **December 13–14, 2025**. The **Geminids** are considered one of the best showers of the year, with **potentially 75 to 120 meteors per hour at their peak under ideal dark-sky conditions**. The waning crescent **Moon** will interfere slightly with this year's display but not until later at night after it rises in the east. The radiant for the **Geminid** shower is illustrated above.

The **Ursids** are peaking around **December 21–22**. The **Ursids** are a smaller shower than the **Geminids** but may offer a beautiful display in the dark night sky just before Christmas, particularly since the **Moon** will be only a thin crescent, setting shortly after sunset.

Moon

December 2025

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Waxing gibbous 84.8% 11 days	2 Waxing gibbous 92.4% 12 days	3 Waxing gibbous 97.6% 13 days	4 Full Moon 6:15 P.M. 14 days	5 Waning gibbous 99.2% 15 days	6 Waning gibbous 95.5% 16 days
7 Waning gibbous 89.4% 17 days	8 Waning gibbous 81.3% 18 days	9 Waning gibbous 72.0% 19 days	10 Waning gibbous 62.0% 20 days	11 Last Quarter 3:52 P.M. 21 days	12 Waning crescent 41.9% 22 days	13 Waning crescent 32.5% 23 days
14 Waning crescent 23.9% 24 days	15 Waning crescent 16.3% 25 days	16 Waning crescent 9.9% 26 days	17 Waning crescent 5.0% 27 days	18 Waning crescent 1.7% 28 days	19 New Moon 8:44 P.M. 0 days	20 Waxing crescent 0.4% 1 day
21 Waxing crescent 2.5% 2 days	22 Waxing crescent 6.4% 3 days	23 Waxing crescent 12.2% 4 days	24 Waxing crescent 19.6% 5 days	25 Waxing crescent 28.4% 6 days	26 Waxing crescent 38.4% 7 days	27 First Quarter 2:10 P.M. 8 days
28 Waxing gibbous 60.3% 9 days	29 Waxing gibbous 71.1% 10 days	30 Waxing gibbous 81.1% 11 days	31 Waxing gibbous 89.5% 12 days			

Moon Visualization:

Almanac.com/Astronomy

Educator Guide: Moon Phases | NASA/JPL Edu,

Daily Moon Guide | Observe – Moon: NASA Science

There will be no major lunar occultations this month of any planets or bright stars.

The **Moon** and **M45** (the **Pleiades Star Cluster**) will make two **close approaches** this month, passing less than 1° of each other. On **Wed, December 3, 2025 at 22:19 EST** when the **Moon** is 13 days old, it will pass **48.4 arcminutes** of **M45**. In **NE Ohio**, the pair will be visible in the evening sky, becoming accessible around **17:42 (EST), 19° above your eastern horizon**, as dusk fades to darkness. They will then reach their **highest point in the sky at 23:21, 72° above your southern horizon**. They will continue to be observable until around dawn. The **Moon** will be at mag -12.8; and **M45** will be at mag +1.3. Both objects will lie in the constellation **Taurus**.

And on **Wed, December 31, 2025 at 08:45 EST**, the **Moon** will again pass **M45,** this time, within **55 arcminutes** of each other. They will reach their highest point in the sky on **December 30, 2025 at 21:31**, **72° above your southern horizon** and will continue to be observable until around 4**am**, when they sink below 12° above our western horizon.

On the evening of **Sun, December 7, 2025** the **Moon** and **Jupiter** will make a **close approach**, passing within **3°36'** of each other. Both objects will lie in the constellation **Gemini** and the **Moon** will be 17 days old. They will then reach their **highest point in the sky at about 3am (EST)**, **70° above your southern horizon**. They will be lost to dawn twilight around **07:18 am**, **33° above your western horizon**.

In the very early morning hours of **Wed, December 10, 2025 shortly after midnight**, there will be **a close conjunction between the Moon and Regulus (Alpha Leonis)**. A lunar occultation will be visible from countries and territories including Canada, Greenland, Svalbard and Iceland amongst others but unfortunately, not here in **NE Ohio**.

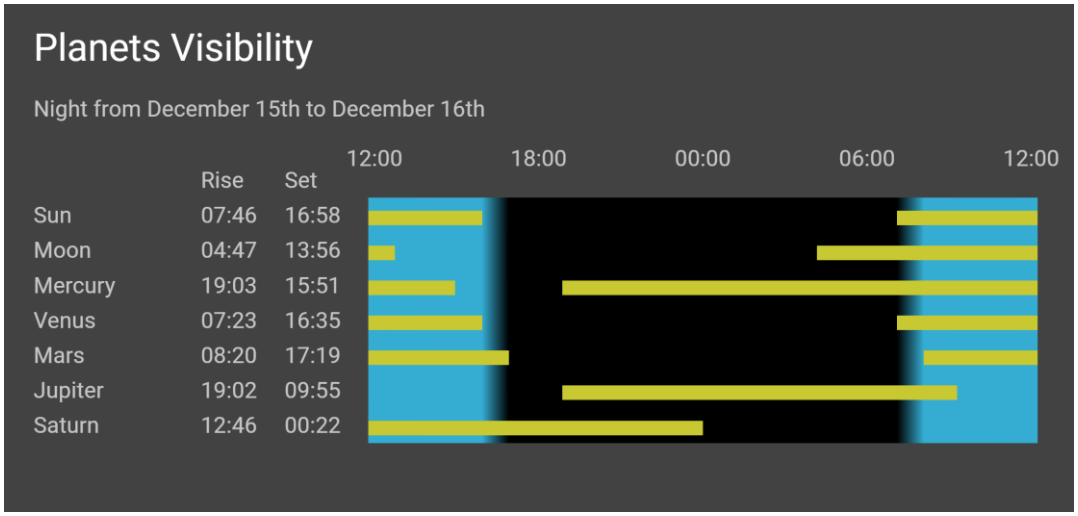
The **Moon** and **Mercury** will pass close to each other in the predawn sky around **December 17-18, 2025**, with the closest approach occurring on the morning of **December 18**. This thin crescent **Moon** will be visible near **Mercury** about **40 minutes before sunrise**. The two objects will be visible to the naked eye or through binoculars, though their separation will likely be too wide to fit in a telescope's field of view. **Mercury** will be very low in the southeastern sky at that time.

There will be a close approach of the **Moon** and **Saturn** on **Fri, December 26, 2025 at 19:08 EST.**
The pair will pass within **3°32'** of each other. The Moon will be 7 days old. From **NE Ohio**, the pair will be visible in the evening sky, becoming accessible around **17:44 (EST)**, **44° above your southern horizon**, as dusk fades to darkness and be very near their highest point around the same time. They will continue to be **observable until around 22:33 (EST)**, when they sink below 11° above your western horizon. The **Moon** will be at mag -11.8 in **Pisces**; and **Saturn** will be at mag 0.9 in **Aquarius**.

For further reference, consult the link: https://in-the-sky.org//newsindex.php?feed=appulses

Planets

Here is a chart summarizing the visible planets on **Dec 15, 2025 in NE Ohio**. https://stellarium-web.org/

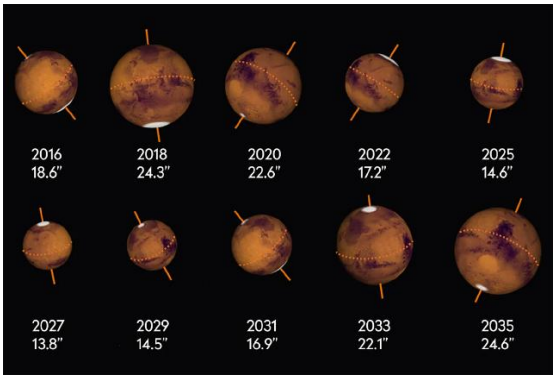


Mercury will be observed in the pre-dawn eastern sky, particularly around **December 7th** when it reaches its greatest elongation. You can look for it low on the horizon in the southeast during the morning twilight, becoming visible around **December 1st** and remaining visible until around **December 25th**. The **Moon** and **Mercury** will appear close together on **December 17th**.

Venus will be a morning planet, but it will be **very challenging to observe** as it moves closer to the sun and begins its approach to superior conjunction in January 2026. You can try to spot it low in the eastern-southeast sky just before sunrise.

Mars will be very difficult to observe this month because it will be too close to the **Sun**, (known as conjunction). You will need to wait until the **spring or summer of 2026** to see it again after it moves away from the **Sun**. But even then, observations of **Mars** will not be ideal.

The planet is currently in its **aphelic opposition phase**, meaning it is now moving further away from us, becoming fainter at successive oppositions. Not all **Mars** oppositions are the same. See the illustration on Mars oppositions below, showing the apparent size in arc-seconds. Best viewing will again be expected in 2035.



Jupiter can be observed in the evening sky in **December 2025**, as it will be high in the constellation **Gemini**. It is a bright target, especially for telescopes, where you can see its cloud bands and the four **Galilean moons**.

For details on the locations of all of the **Galilean moons**, refer to the online tool available at the "Sky and Telescope" website.

Saturn will be visible after sunset, but its rings will still appear as a thin line because they continue to be nearly edge-on from Earth. To observe **Saturn**, look for it in the evening sky above our southern horizon, and near the moon on **December 26-27**. A small telescope will be needed to see details, and you may be able to spot its principal moon **Titan**. **Saturn** will now be setting shortly after midnight.

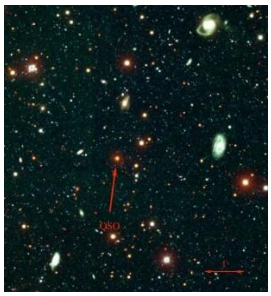
Uranus will be observable after sunset in the constellation **Taurus**, to the lower right-hand side of the **Pleiades star cluster**. Having recently reached opposition, it will be well positioned for observation. A keen observer with very dark skies may glimpse it with the naked eye, however, binoculars or a telescope will provide a clearer view of its tiny, greenish disk.

Neptune is best viewed a an hour or two after sunset, reaching its highest point in the sky around 7**PM EST**. It shines at a magnitude of about +7.9, and will appear near **Saturn**. You will need good binoculars or a small telescope to spot **Neptune** as a faint blue dot. For the clearest view, observe **Neptune** in dark skies away from city lights. **Neptune** is becoming more distant from us this month, as it reached **opposition** back in **September**.

For a detailed ephemeris for these planets (and other bodies in our solar system), consider using NASA Jet Propulsion Laboratory's "Horizons System" tool at https://ssd.jpl.nasa.gov/horizons/app.html#/

Fall Observing Challenge

Do you think you can photograph something that is **12.1 billion light-years away**? That's how far **Quasar** **APM 08279+5255** is from us. At that extreme distance, it represents an object that is a very early member in our Universe, which began expanding from the Big Bang a little over 14 billion years ago. The challenge is to see if you can locate and photograph this distant object during Fall – 2025. **Hint: this Quasar is at a high altitude this month and has approximate coordinates RA: 08^{h} 31^{m} 41.7^{s} and Dec: +52° 45' 16.8"**



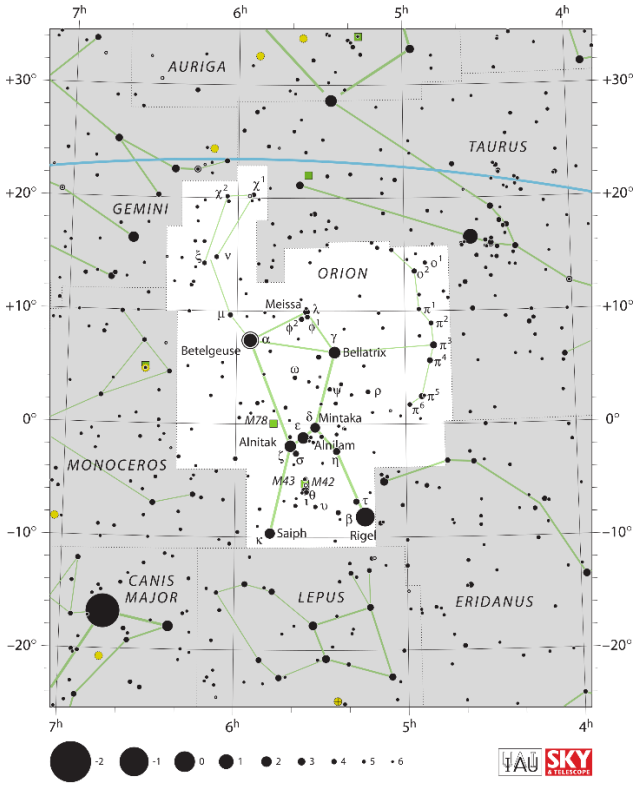
Quasars are powered by enormous black holes that steadily consume a surrounding disk of material, spewing out huge amounts of energy. **Quasar** APM 08279+5255 is thought to harbor a black hole 20 billion times more massive than the **Sun** and produces as much energy as a thousand trillion **Suns**!

APM 08279+5255 is magnified and split into multiple images by the gravitational lensing effect of a foreground galaxy through which its light passes. **Quasar APM 08279+5255** has an R-band apparent **magnitude of 15.2** and appears as a tiny red "star" which is truly remarkable for such an incredibly distant object. Here is a recent observation of this unique and distant giant:

Quasar 08279+5255 as observed in the **NE Ohio** Night Sky – by **Laz Ilyes** (Nov 24, 2025)

Constellations

Orion (Ori)



Orion is a prominent winter constellation named after a hunter in Greek mythology, easily identifiable by its "**belt**" asterism, a straight line of three bright stars: **Alnitak**, **Alnilam**, and **Mintaka**. Another easily recognized feature is **Orion Nebula** in its "**sword**". Key stars include the red supergiant **Betelgeuse** (**Alpha Orionis**) and the blue supergiant **Rigel** (**Beta Orionis**), both of which are slightly variable. Covering 594 square degrees, Orion ranks well among the larger constellations in size.

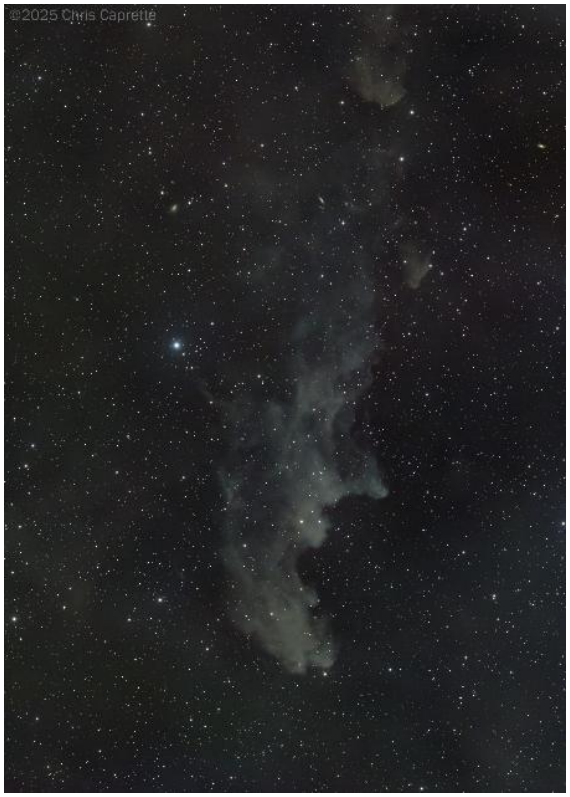
Orion has a rich collection of deep-sky objects (DSOs), most notably the **Orion Nebula** (**M42**), a star-forming region visible to the naked eye. Other prominent DSOs include the **Horsehead Nebula** (**B33**), the **Flame Nebula** (**NGC 2024**), **Barnard's Loop**, and **M78**, a reflection nebula. These objects are part of the **Orion molecular cloud complex** and are popular targets for both visual observation and astrophotography.

Other better known DSOs in **Orion** include **De Mairan's Nebula** (**M43** / NGC 1982), smaller HII region located just north of the **Great Orion Nebula**; the **Running Man Nebula** (**Sh 2-279 / NGC 1977**), a bright reflection nebula that lies just north of **M42** and gets its nickname from its shape, which resembles a running human figure; the **Witch Head Nebula** (**IC 2118**), which is a very faint reflection nebula near (and illuminated by) the bright supergiant star Rigel; **NGC 2174**, often referred to as the **Monkey Head Nebula**; **NGC 1662**, an open star cluster visible with small binoculars, located near the celestial equator; and **NGC 2169** (aka **"37" Cluster**), a small, relatively distant open cluster known for its distinctive appearance that resembles the number "37".

The **Running Man** (**NGC 1977**), **De Mairan's** (**M43**), and **Great Orion** (**M42**) Nebulae – **Ricardo Zárraga**

Messier 78 (M78) – by **Rob Beers** CVAS Facebook Group Page

The Horsehead and Flame Nebulae – by **Laz Ilyes**



Witch Head Nebula (**IC 2118**) – by **Chris Caprette** CVAS Facebook Group Page

Monkey Head Nebula (**NGC 2174**) – by **Jeff Ratino**

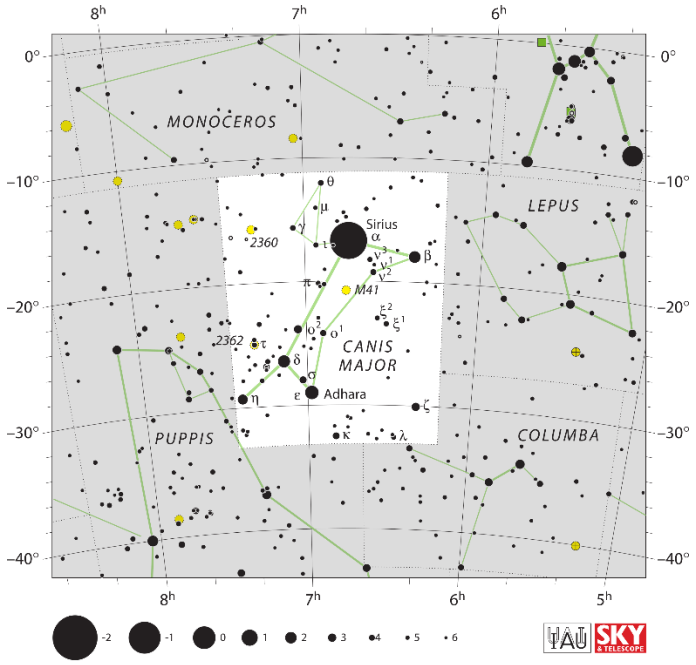
Open Star Cluster **NGC 1662** in **Orion** – by Yu-Hang Kuo by CC BY-SA 2.0

NGC 2169 of the **"37" Cluster** – by Chuck Ayoub by CC0

Although glowing like an **emission nebula**, the origin of the bubble, known as **Barnard's Loop**, is currently unknown. Progenitor hypotheses include the winds from bright **Orion** stars and the supernovas of stars long gone. Barnard's Loop is too faint to be identified with the unaided eye. The nebula was discovered only in **1895 by E. E. Barnard** on long duration film exposures. **Orion's belt** is seen as the three bright stars across the center of the image, the upper two noticeably blue. Just to the right of the lowest star in **Orion's belt** is a slight indentation in an emission nebula that, when seen at higher magnification, resolves into the **Horsehead Nebula**. To the right of the belt stars is the bright, famous, and photogenic **Orion Nebula**.

Barnard's Loop – by Michele Guzzini from NASA APOD

Canis Major (CMa)



Canis Major is a constellation situated close to the celestial equator. As such, it is at least partly visible from both hemispheres in certain times of the year.

The constellation **Canis Major** has a long history, dating back to Babylonian times and formally included as one of **Ptolemy's** original 48 constellations. Its history is tied to mythology, most famously as one of **Orion's** hunting dogs, often representing the mythological dog **Laelaps**. Indeed, in English, the name of this constellation translates to "The Greater dog", a reference to Orion’s companion canine. The constellation also has deep roots in other cultures, such as its identification with the **goddess Isis** in ancient **Egypt** and the "**deer hunter**" in **ancient India**.

Sirius (or **α Canis Majoris**) is not only the brightest star of **Canis Major**, but of our entire night sky. Shining at **apparent magnitude -1.46**, it is a binary star system about **8.6 light-years away**, consisting of a bright, blue-white main-sequence star named **Sirius A** and a faint white dwarf companion called **Sirius B**. The ancient **Egyptians** used this star’s heliacal rising (appearing just before sunrise) as a signal for the annual flooding of the **Nile River**, which was essential to their successful agriculture.

Despite its relatively small size, the constellation **Canis Major** contains many interesting deep sky objects. Some of these can be easily observed without a telescope. **Messier 41** (**M41,** or sometimes called **'The Little Beehive'**), for example, is an open star cluster about 4 degrees south of **Sirius**, often visible with the naked eye under dark skies and with binoculars. Rather far from us, at a distance of **2,360 light-years**, the cluster shines at an **apparent magnitude of +4.5**, and has an apparent size of **38 arc-minutes**. Those familiar with **M44**, the **Beehive Cluster** in the constellation Cancer, can understand how its colorful arrangement of bright red and blue stars is aptly compared to this smaller DSO.

Image of **Messier 41** (The **Little Beehive**) – by Chuck Ayoub courtesy of CC0

Two other conspicuous DSOs in **Canis Major** are **NGC 2362** (aka **Caldwell 64**) and **NGC 2360** (aka "**Caroline's Cluster**" or **Caldwell 58**) which are both open clusters that are relatively easy to observe with binoculars or a small telescope.

NGC 2360 was discovered in **1783 by Caroline Herschel**, who described it as a "beautiful cluster of pretty compressed stars near ½ degree in diameter". **Dreyer** later listed this cluster as **NGC 2360** in his "**New General Catalogue**". The cluster has an **apparent magnitude of +7.2** and located is **3.5 degrees east of Gamma Canis Majoris**. It can be viewed in a dark sky with a pair of light binoculars.

Image of **NGC 2360** by the Sloan Digital Sky Survey (SDSS) – Courtesy of Creative Commons 4.0

Caldwell 64 (**NGC 2362**) is an open star cluster (also sometime referred to as the **Tau Canis Majoris Cluster**) located in the constellation **Canis Major.** It is a young, compact group of about 60 stars, with the

brightest member being the star **Tau Canis Majoris**, which can be seen with the naked eye. This star cluster is about **4,830 light-years away** from **Earth** and has an **apparent magnitude of +3.8**.

Image of **NGC 2362 –** by the Mt. Lemmon SkyCenter, U of A

Other less prominent DSOs in **Canis Major** include **NGC 2359** (commonly known as "**Thor's Helmet**") and the colliding galaxy pair **NGC 2207** and **IC 2163**. These are better suited for observation in large telescopes or through astrophotography.

The emission nebula **NGC 2359** is about **15,000 light-years distant**. Aptly named "**Thor's Helmet**," this DSO is a faint target that is impossible to spot with the naked eye or even binoculars. A telescope of at last 6" is required to spot its nebulosity from an good dark site, but do not expect to view something impressive. You'll need a camera for that. A large bright star classified as a **Wolf-Rayet** star, **HD 56925**, near the helmet's center has created this interstellar bubble by the force of its "stellar wind".

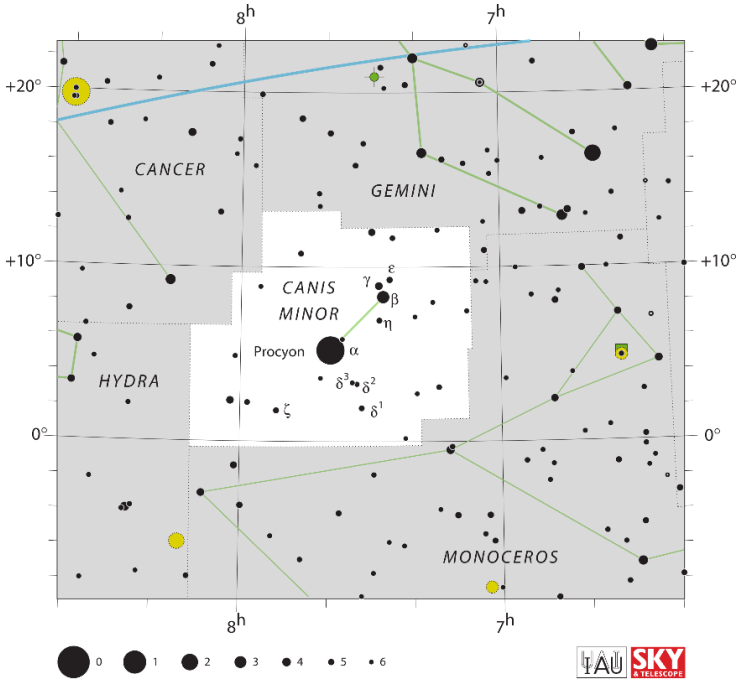
Image of **NGC 2359** ("**Thor's Helmet**") – by **Jeff Ratino** from our CVAS Facebook Group Page

Spiral Galaxies **NGC 2207** and **IC 2163** are in the process of merging. Strong tidal forces from the larger **NGC 2207** have distorted the shape of **IC 2163**, flinging out stars and gas into long streamers stretching out a hundred thousand light-years. Calculations indicate that **IC 2163** is swinging past **NGC 2207**, having made its **closest approach 40 million years ago**. Not having sufficient kinetic energy to escape the gravitational pull of **NGC 2207**, **IC 2163** is destined to be pulled back and swing past the larger galaxy again in the future. Trapped in their ever-shrinking mutual orbit, these two galaxies will continue to distort and disrupt each other, eventually merging into a single, more massive galaxy billions of years from now. It is believed that many present-day galaxies, including the **Milky Way**, were assembled by a similar process.

Colliding galaxies **NGC 2207** and **IC 2163** – by NASA and the Hubble Space Telescope Team

Located at a distance of approximately **81 million light-years** from us, the galaxies **NGC 2207** and **IC 2163** are observed with apparent magnitudes **+12.2** and **+11.6** respectively.

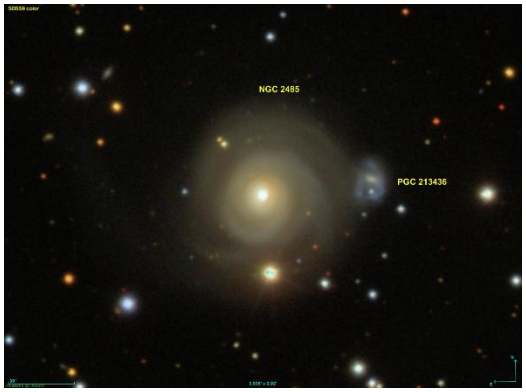
Canis Minor (CMi)



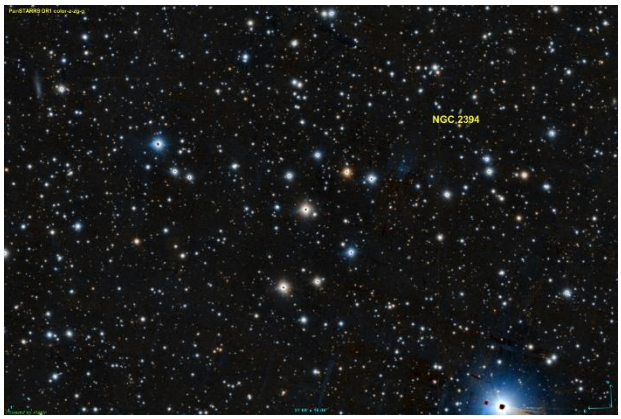
Canis Minor is a small, northern constellation meaning "**the Lesser Dog**" in Latin, and it is officially recognized as one of the **88 modern constellations** by the **IAU**. It is often depicted as one of **Orion** the hunter's two dogs, **Canis Major** and **Canis Minor**, following him across the sky. The constellation is easy to spot because of its brightest star, **Procyon** (**α Canis Minoris**), which is the eighth-brightest star in our night sky.

Procyon, a binary system, is located about **11.4 light-years** from **Earth**, making it one of the closest star systems to our solar system. The two stars are a bright yellow-white subgiant (**Procyon A**) and a fainter white dwarf companion (**Procyon B**). In ancient **Egyptian** mythology, **Procyon** was associated with the god **Anubis**, and it played a role in their agricultural calendar because it appeared before the flooding of the **Nile River**.

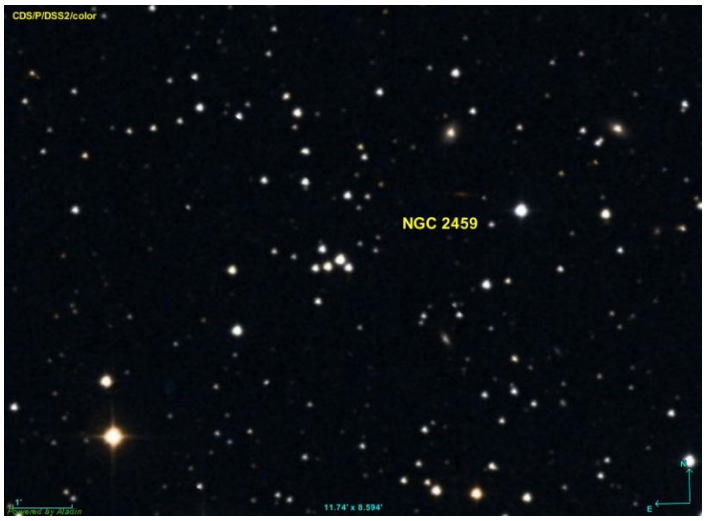
Canis Minor contains several deep-sky objects, including galaxy **NGC 2485**, and open star clusters such as **NGC 2394** and **NGC 2459**. While it lacks prominent objects like Messier objects, the various aforementioned galaxy and open clusters make interesting targets for astronomers with larger telescopes and astrophotography rigs.



Galaxy **NGC 2485** – by Donald Pelletier for the Public SDSS per CC BY-SA 4.0

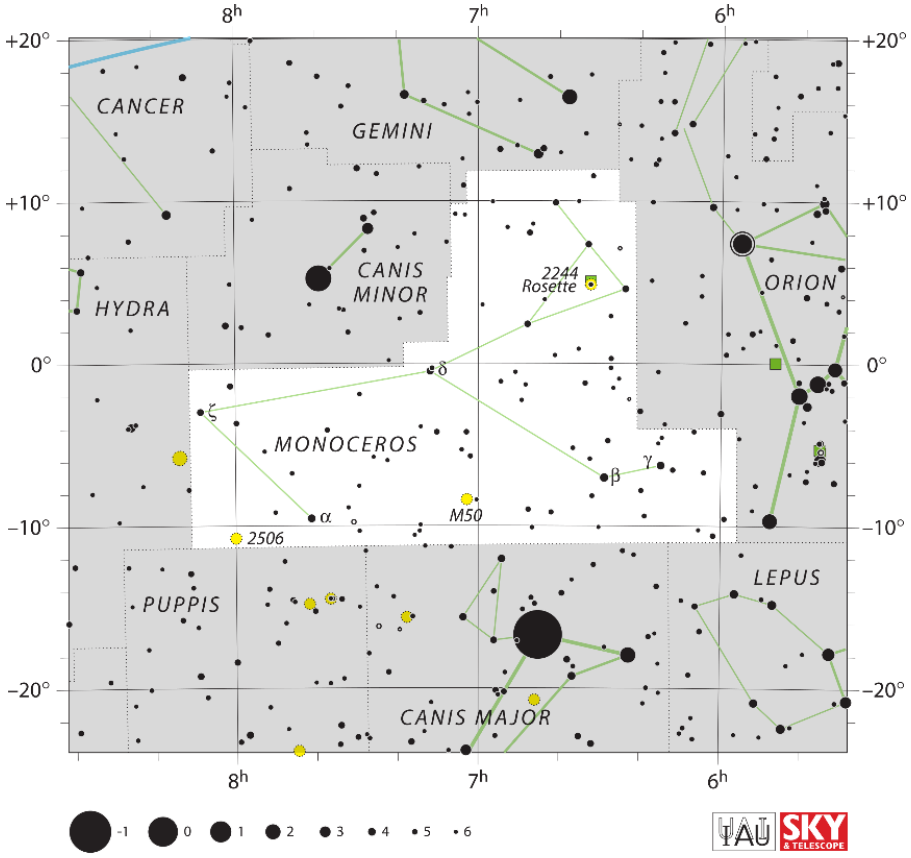


Open star cluster **NGC 2394** – by Donald Pelletier for Public PANSTARRS Catalog per CC BY-SA 4.0



Open star cluster **NGC 2459** – by Donald Pelletier for Public Aladin Sky Atlas per CC BY-SA 4.0

Monoceros (Mon)



Monoceros, the unicorn, is a constellation visible in North America during December. It is a faint, equatorial constellation located between **Orion** and **Canis Minor**, making it best to find by first locating these brighter, more familiar constellations. **Monoceros** contains only a few fourth magnitude stars, making it difficult to see with the naked eye. **Alpha Monocerotis** has an apparent magnitude of **+3.93**,

while for **Gamma Monocerotis** it is **3.98**. **Beta Monocerotis** is a triple star system; the three stars form a fixed triangle. The visual magnitudes of the stars are **+4.7**, **+5.2**, and **+6.1**. **William Herschel** discovered it in **1781** and called it "one of the most beautiful sights in the heavens."

Though it lacks bright stars, **Monoceros** is rich in deep-sky objects like **Rosette Nebula** (**NGC 2237-2246**) which is a large emission nebula with a central star cluster (**NGC 2244**), the **Seagull Nebula** (**IC 2177**), a large emission and reflection nebula, **Hubble's Variable Nebula** (**NGC 2261**), a unique reflection nebula that changes in brightness and appearance over time, the **Christmas Tree Cluster** (**NGC 2264**), which is an open cluster of young stars with a nebula resembling a Christmas tree, the **Cone Nebula**, part of the **NGC 2264 complex**, **Dreyer's Nebula**, a reflection nebula associated with open star cluster **IC 2169**, and **Messier 50**, a bright open cluster known for its heart-like shape when viewed through a telescope.

The **Rosette Nebula** is approximately **5,200 light-years away** in the **Perseus Arm** of the **Milky Way**. It surrounds a bright open cluster of hot, young, O-type stars called **NGC 2244**, which provides the energy causing this bright emission nebula to glow. The **Rosette Nebula** has a diameter of about **130 light-years**

The light and stellar winds from the central cluster have carved a central "hole" in the nebula, giving it its distinctive rosette shape. The nebula is classified as an emission nebula, but observers may also see dark nebulae superimposed on the bright background. The entire **Rosette complex** is designated by multiple NGC numbers, including **NGC 2237**, **NGC 2238**, and **NGC 2246**, while the central star cluster is **NGC 2244**.

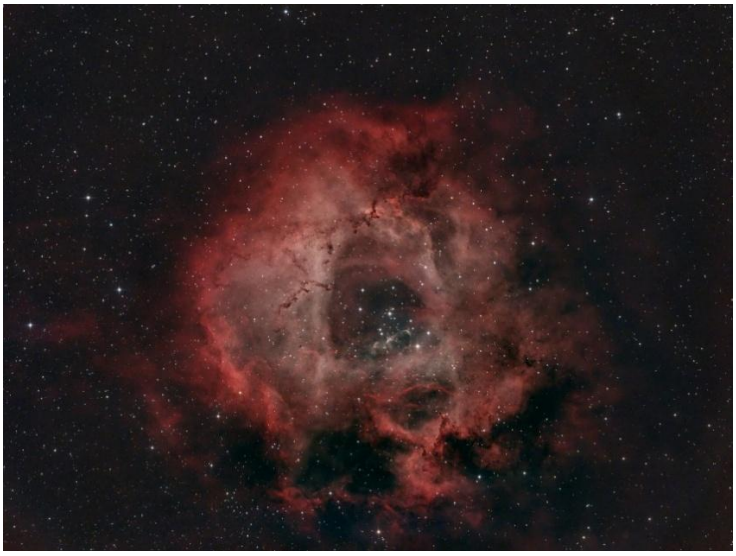


Image of the **Rosette Nebula** (**NGC 2237-2246**) in "True Color" – by Laz Ilyes

The **Seagull Nebula**, also known as **IC 2177**, is a star-forming region of gas and dust located about **3,800 light-years** away. It is named for the shape of a bird that appears when its complex of clouds is viewed, with a "head" and "wings". The nebula is illuminated by the ultraviolet radiation from hot, young stars within it, causing the hydrogen gas to glow a reddish color. This rather large nebula spans over 200 light-years across, containing open star clusters, including **NGC 2335** and **NGC 2343**.

Image of the **Seagull Nebula** (**IC 2177**) – by **Laz Ilyes**

NGC 2261 is **Hubble's Variable Nebula**, a fan-shaped reflection nebula located in the constellation **Monoceros**. It is illuminated by the young, massive star **R Monocerotis** at its base, making it a popular object for amateur astronomers. The nebula appears to change in appearance, hence its name, and is visible with small telescopes and binoculars. The nebula is approximately **2,500 light-years** away from us and is about **2.5 arcminutes** in **apparent vertical height**.

Image of **Hubble's Variable Nebula** (**NGC 2261**) – by NASA HST Team

NGC 2264 is an astronomical object that includes both the **Christmas Tree Cluster** and the **Cone Nebula**. The bright, open star cluster is nicknamed the "**Christmas Tree**" for its shape, while the dark, triangular nebula above it is called the "**Cone Nebula**". Together, they form a region of active star formation, with young, hot stars illuminating the surrounding gas and dust clouds.

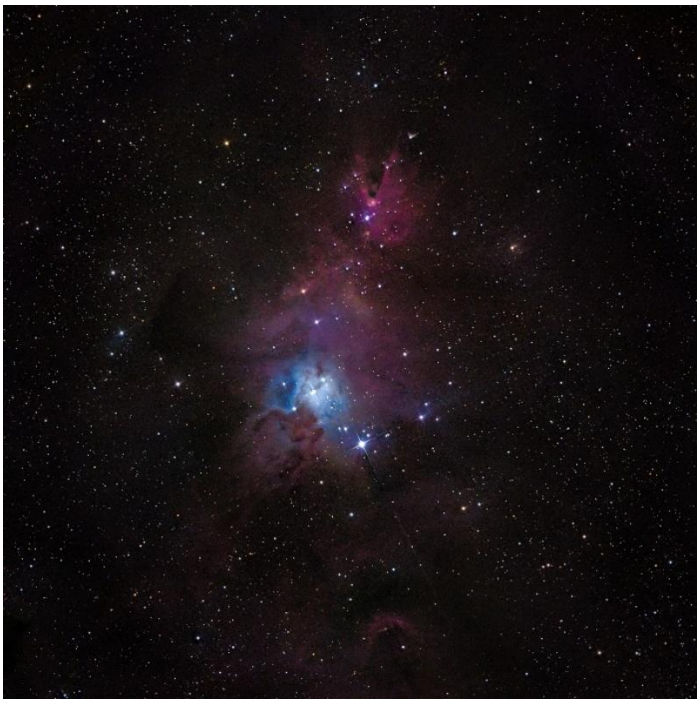


Image of **NGC 2264** (**Christmas Tree Cluster** and **Cone Nebula**) – by **Ricardo Zárraga**

Dreyer's Nebula and **Barnard 37** are related objects. **Dreyer's Nebula** is a nickname for the reflection nebula **IC 447**, which was discovered by **Edward Barnard** but named after **John Louis Emil Dreyer** because Barnard reported his discovery to him for inclusion in the NGC and IC catalogs. **Barnard 37** (**B 37**) is a large, dark nebula that is the prominent feature surrounded by several reflection nebulae, including **IC 447**, which comprise a star-forming region called the **Monoceros R1 Complex**.

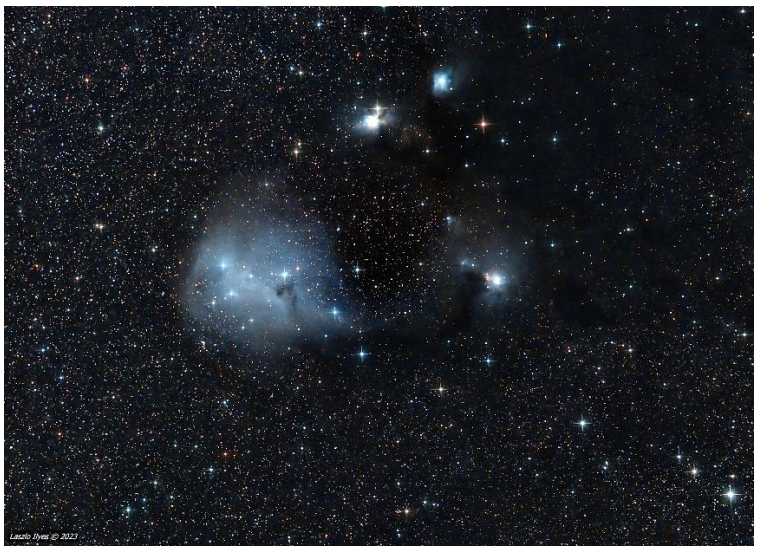


Image of **Dreyer's Nebula** (left) and **Barnard 37** (right)– by **Laz Ilyes**

Messier 50 (**M50**) is an open star cluster in the constellation **Monoceros**, also known as the "**Heart-Shaped Cluster**". Located about **3,000 light-years from Earth**, it was discovered independently by **Giovanni Cassini in 1711** and later by **Charles Messier in 1772**, who added it to his catalog. **M50** is composed of over **500 stars**, estimated to be about **140 million years old**, and has a visual **magnitude** of **+5.9**, making it visible to the naked eye under excellent dark skies and is easy to view with binoculars or a small telescope.

Image of **Messier 50** – by Wikisky

Epilogue

Interested in Making More Observations?

Consider the opportunities offered by the Astronomical League. Perhaps you'd like to go on a "safari" to hunt down galaxies. Maybe star clusters are your main interest. There are always bright nebulae out there to find. Did you ever try to find carbon stars? And there are still two more opportunities to get a silver certificate by participating in the Hubble Night Sky Challenge (see below). Take a look at the list of programs and awards that are available through your membership in the league! Here is a link to an alphabetical list of available programs. Talk to other members about your interests. It's always fun to observe together! Ask an officer in our club if you need help getting started.

T CrB

At the time of writing this, **T CrB** has still not gone nova. Continue watching for news of the event if it should occur. We will try to notify you by email should there be any updates.

Hubble's Night Sky Challenge

As mentioned in previous sky reports, you can be recognized for observing in 2025. This will be your last opportunity to earn a Silver Certificate for this particular challenge, as it wraps up in 2025. Here are links:

https://science.nasa.gov/mission/hubble/science/explore-the-night-sky/hubbles-night-sky-challenge/

https://www.astroleague.org/nasa-observing-challenges-special-awards/

https://www.astroleague.org/wp-content/uploads/2024/12/Hubble-35-v2.pdf

If you completed the requirements for the **November challenge,** the deadline for submitting is **December 31, 2025**. For a list of NASA's **December** targets please refer to the latest updates. You will have until **January 31, 2026** to submit your **December** observation(s).

I would like to acknowledge the many fine images made available by our membership. This month's Sky Report is enriched with many beautiful compositions either sent to me or shared on our CVAS group page on Facebook. This month's publication is graced with fine imagery from **Ricardo Zárraga**, **Jeff Ratino**, **Chris Caprette**, and **Rob Beers**.

Special thanks to **Russ Swaney** for suggesting the **Fall Challenge** proposed in this month's sky report. And big thanks to **Conny Meier** and **Russ Swaney** for getting the report to all of you.

Clear Skies and Excellent Observing!

Laz Ilyes