



M111

October 2026

The newsletter of the Richland Astronomical Society and Warren Rupp Observatory

Our Program for October

Ever wonder the correct procedure for opening the Observatory? Who owns our grounds? Who would you ask if you had a question about your membership, borrowing equipment, or reporting your volunteer hours?

During the October meeting, your officers will provide a run-down of how to get the most out of your RAS membership. Justin, Mitch, Rich & Angela will explain their take on how to become a legendary RAS member. Topics include: understanding our Code of Regulations, opening and closing procedures, the use of club equipment, the Night Sky Network, our Bulletin Board, the M111 newsletter, our website, and more. Whether you're a new, or a legacy member don't miss this opportunity to brush up on everything RAS.



You're Invited to a Chili Cook Off!

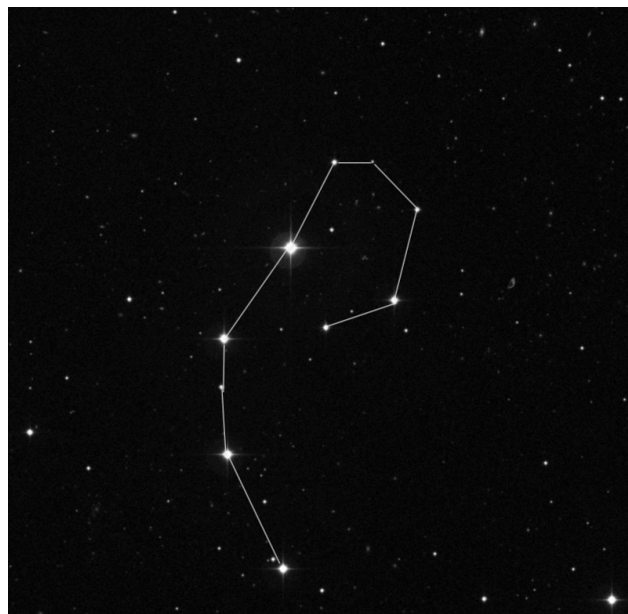


Spice up your weekend and bring your best pot of chili to the General Meeting on Saturday. Join us for a friendly Chili Cook Off.

When: Saturday, October 3 before, or after the meeting before the night's program.

Where: Plotner Education Center, WRO Hosted by: Angel Beck

Bring a crockpot or pot of your signature chili to share. We'll provide bowls, spoons. You provide the appetite. Vote for your favorite. Come hungry, leave happy. See you there!



*20 x 20 minutes.
North is up.
Credit: See Below*

Loop Asterism Near Beta Ursae Majoris By: Mitch Luman

Back in 2000, while searching for a galaxy in Ursa Major I came across an asterism that I had never seen before. This interesting object did not appear in *Star Clusters* by RAS member Brent A. Archinal and his collaborator Steven W. Hynes published by Willmann-Bell. So I did some research.

The asterism is a 15 arc minute loop of 14 stars 1-1/2 degrees west of the star Merak and just south of β Ursa Majoris. The majority of its members are 10th magnitude with the brightest member topping out at magnitude 7.5. The asterism forms a very distinct loop which courses roughly north to south with the midpoint centered at **10h 52m and +56° 06m** (2025 epoch). Viewing the asterism is overkill using my 20-inch Obsession, so smaller apertures and low power are recommended. The asterism is plainly visible on page 577 of the *Millennium Star Atlas* and visible to a lesser degree using *Sky Safari*. To really appreciate this loop of stars allow your brain to go into pattern recognition mode with a telescope or binoculars.

And although no one recognizes me as the discoverer, my observing partners back in southern Indiana always referred to it as “Luman’s Loop”. Happy observing!

The image used was modified from the "Palomar Observatory - Space Telescope Science Institute Digital Sky Survey" of the northern sky, based on scans of the Second Palomar Sky Survey are copyright 1993-1995 by the California Institute of Technology and are distributed herein by agreement originate from compressed files of the "Palomar Observatory - Space Telescope Science Institute Digital Sky Survey" of the northern sky, based on scans of the Second Palomar Sky Survey are copyright 1993-1995 by the California Institute of Technology and are distributed herein by agreement.

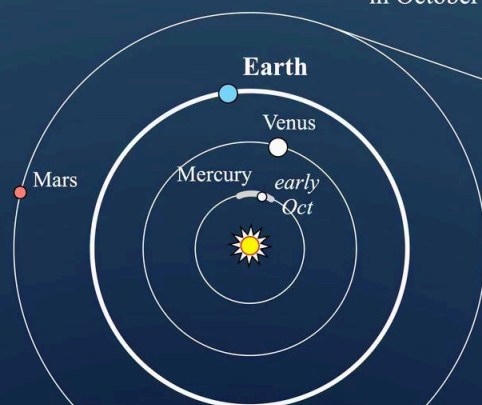


Relative planet positions this October

2026

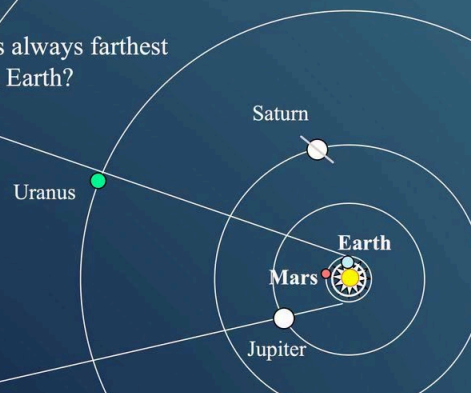
The planets are in constant motion ...

What planet is closest to Earth
in October?

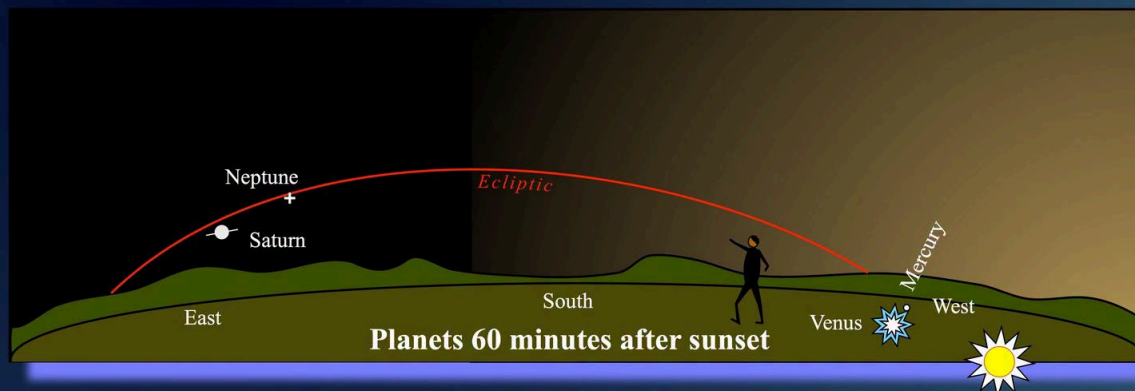
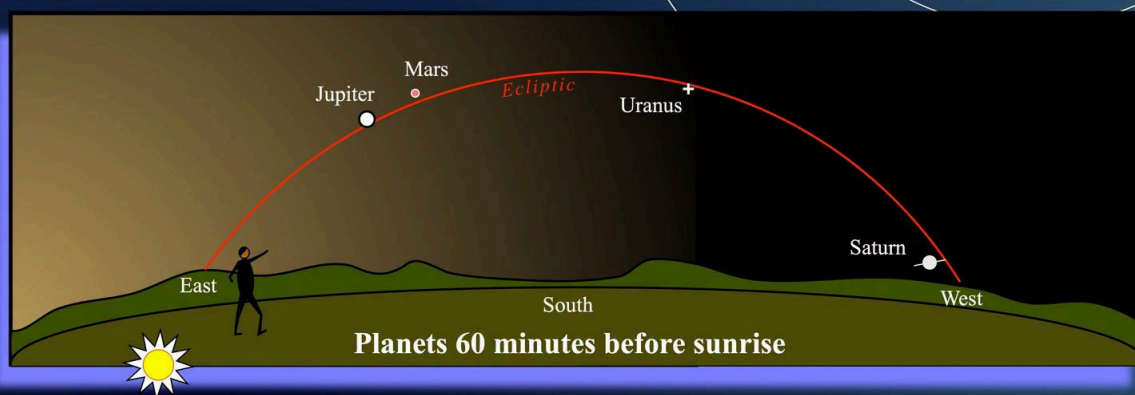


**Planets in the
Inner Solar System**

What planet is always farthest
from Earth?



**Planets in the
Outer Solar System**





Daytime observations only, no telescope needed!

Analemma Observing Program

An educational, hands on program

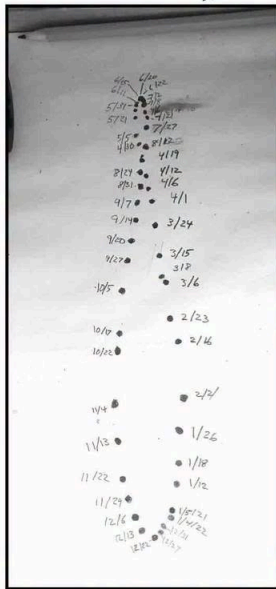
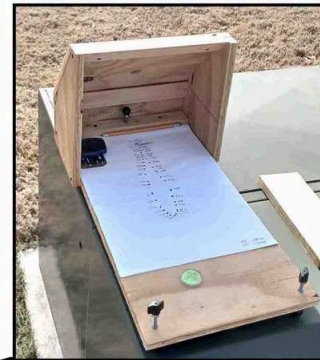


Just about everyone knows that the sun's altitude at culmination, the highest point above the observer's horizon, varies throughout the year – higher in early summer, and lower in early winter. However, outside of navigators, cartographers, and astronomers, it is not commonly realized that the sun's apparent angular velocity also varies – sometimes "fast" (west of the meridian at local noon), and sometimes "slow" (east of the meridian at local noon).

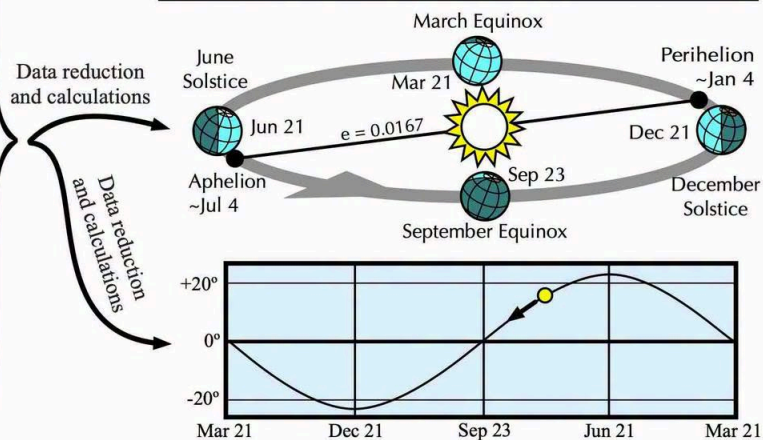
Participants in the Analemma Observing Program will monitor the sun's motion throughout the year, and note its changes in position, both in altitude and azimuth. With reference only to their analemma and observing apparatus, they will then:

- Calculate their observing latitude and the tilt of Earth's axis,
- Sketch or plot the path of the sun on the celestial sphere,
- Calculate the Equation of Time,
- Calculate the eccentricity of Earth's orbit.

DO NOT ATTEMPT DIRECT OBSERVATIONS OF THE SUN! Due to hazards associated with direct observation of the Sun, only indirect observations will be accepted. Looking at the sun can cause permanent eye damage! **The safe way – build an observation box.** (Construction details are on the website.)



Specify your observing apparatus: If using a transmitted light ray or shadow for your observations, a box containing a sheet of paper can be constructed. The points of the analemma are to be marked during the year, with the points of Solstices, Equinoxes, and aphelion and perihelion identified on the analemma.



For complete details, <https://www.astroleague.org/analemma-observing-program/>

images courtesy of Robert Togni

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Taurus has well over one hundred stars with Flamsteed numbered designations. Where is 34 Tauri?



34 Tauri returns!

Look carefully at the constellation Taurus on a star chart showing stars as faint as 6th magnitude. As Right Ascension moves from west to east, star designations listed by their Flamsteed numbers increase. Check off one by one: 1 Tauri (Omicron) and 2 Tauri (Xi), both in the southwestern corner of Taurus, ... , 32 Tauri, 33 Tauri, 35 Tauri (Lambda), 36 Tauri, 37 Tauri, then continue eastward all the way to 139 Tauri in far eastern Taurus near the Gemini border.

Wait! What happened to 34 Tauri?

In the late 1680s, John Flamsteed, Britain's first Astronomer Royale, was finishing his catalog of stars visible to the unaided eye as seen from southern England. Many of the over 2500 stars were near the edge of visibility, and one in Taurus lying southeast of the Pleiades was just such a star. He first spied it on December 23, 1690. In 1783, Joseph Lalande remade Flamsteed's original number designations and assigned "34 Tauri" to this 5.6 magnitude luminary. What Flamsteed (and a number of subsequent observers) didn't realize was that this object wasn't a stationary star at all, but a moving planet.

A missed opportunity for first discovery? Indeed!

(Instead, it was William Herschel who discovered Uranus in March 1781.)

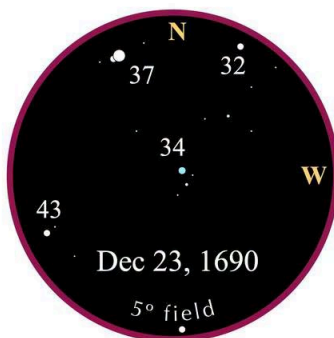
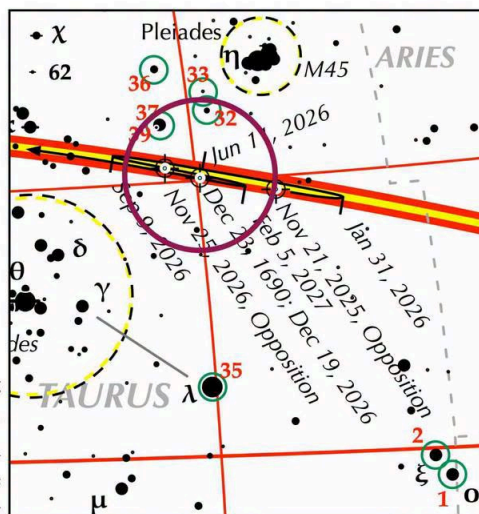
Uranus returns on Dec. 19, 2026 to the sky location where Flamsteed plotted it on Dec. 23, 1690.

Its Right Ascension in 1690 would have been 3 hr 43.3 m. Due to the effect of 336 years of precession, in 2026 it is some 20 minutes further east at just over 4 hrs RA.

Reference:

<https://adsabs.harvard.edu/full/1998Obs...118..219B>

<https://www.rmg.co.uk/stories/space-astronomy/planet-uranus>



34 Tauri Returns

While Uranus is closest to the location of Flamsteed's initial sighting on these dates, it lies in the general region for one month before and after.

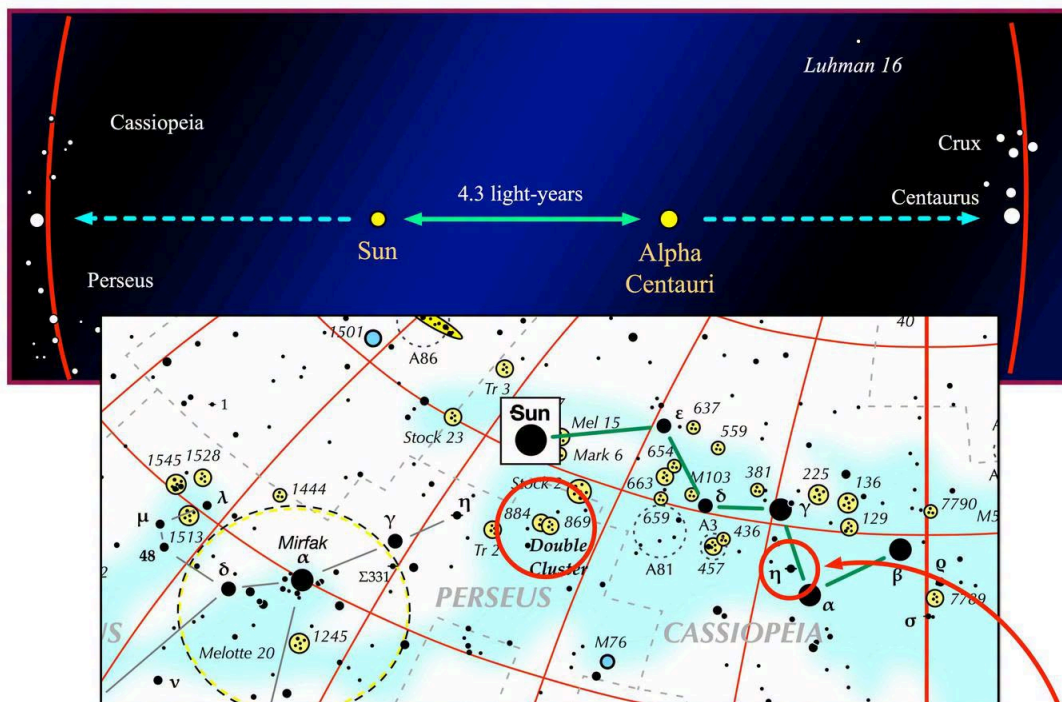
- Dec 23, 1690 (retrograde)
- Mar 16, 1691 (prograde)
- Jun 4, 1774 (prograde), near sun
- Dec 22, 1774 (retrograde)
- Mar 20, 1775 (prograde)
- Jun 8, 1858 (prograde), near sun
- Dec 19, 1858 (retrograde)
- Mar 25, 1859 (prograde)
- Jun 10, 1942 (prograde), near sun
- Dec 20, 1942 (retrograde)
- Mar 26, 1943 (prograde)
- Jun 11, 2026 (prograde), near sun
- Dec 19, 2026 (retrograde)**
- Mar 30, 2027 (prograde)
- Jun 14, 2110 (prograde), near sun
- Dec 21, 2110 (retrograde)
- Mar 31, 2111 (prograde)



We see Alpha Centauri in the sky near the Southern Cross.



Where is the Sun as seen from Alpha Centauri?



- As viewed from the Alpha Centauri system, our sun is projected against the star fields of the Milky Way. It forms another "leg" in the zig-zag ("W") of Cassiopeiae, and shines as a +0.5 magnitude star – a similar brightness as Procyon in our sky.
- Eta Cassiopeiae, being 19.3 light-years from Earth, appears 0.5 magnitude dimmer because it lies 4.2 light-years farther from Alpha Centauri. It is at mag. 3.9 in the Alpha Centauran sky.
- Because the other stars in the Cassiopeia/Perseus region lie so far, they don't shift appreciably or have a noticeable change in magnitude.
- Our sun is about 5° from the Double Cluster.

The Alpha Centauri system – third brightest in our sky – consists of three stars, two closely separated luminaries similar to the sun, and a third component about 0.2 light-years from the other two. It is a faint red dwarf and merits the name *Proxima* as it is the closest star to our sun. Proxima, shines in the Alpha Centauran sky at magnitude 4.4, being a moderately dim star.

Interestingly, the sun is not the closest star to the Alpha Centauri system. That honor falls upon Luhman 16, a pair of brown dwarfs, some 3 light-years toward the constellation Vela. (At 6.5 light-years distant, Luhman 16 ranks third in the nearest stars to the sun.)

**As you gaze towards the Double Cluster,
imagine what the view looks like in the Alpha Centauran sky!**

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NASA's Night Sky Network (NSN) distributes this article.

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!

October's Night Sky Notes: Spooky Stargazing

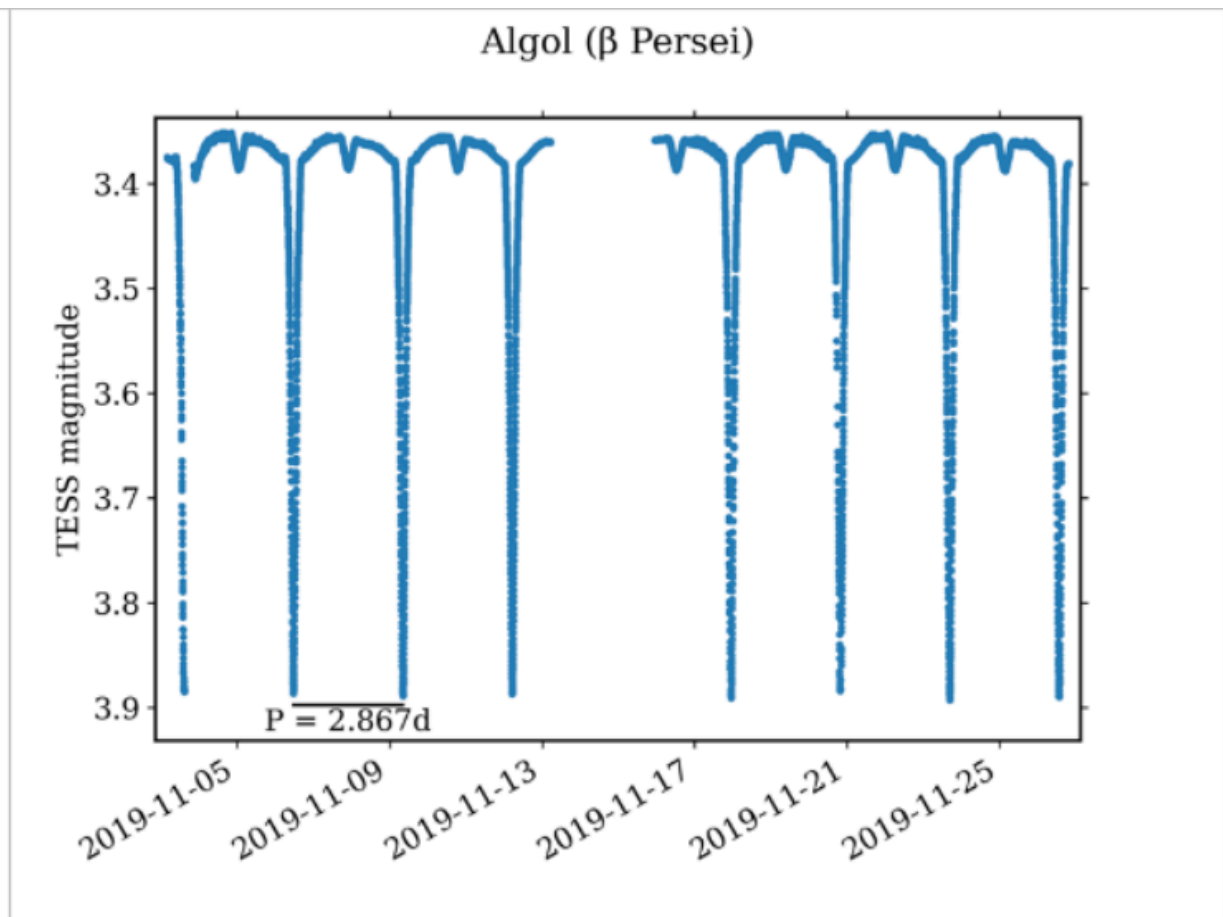
By Kat Troche



Perseus holding the head of Medusa. Credit: Stellarium

The Ghoul

Located within the constellation Perseus lies a star called Algol, also known as 'Demon Star' or 'The Ghoul'. You can spot this star during the autumn months, along with Cassiopeia and Andromeda in the northeastern sky, beginning after 9 PM. In Greek mythology, this star represents the 'blinking eye' of the gorgon Medusa. But how can a star blink?



Light curve of the eclipsing binary star Algol recorded by NASA's Transiting Exoplanet Survey Satellite (TESS), stored on NASA's [Mikulski Archive for Space Telescopes](#) (MAST). Credit: NASA/Wikipedia Commons

Algol is a triple-star system, with two of the three stars orbiting one another. This [eclipsing binary](#) causes the system to go from a bright +2.1 magnitude to a slightly dimmer +3.4 magnitude about every three days. Using data from NASA's [Transiting Exoplanet Survey Satellite](#) (TESS) mission, this light curve shows the regular dimming, or Medusa's 'blinking eye'!

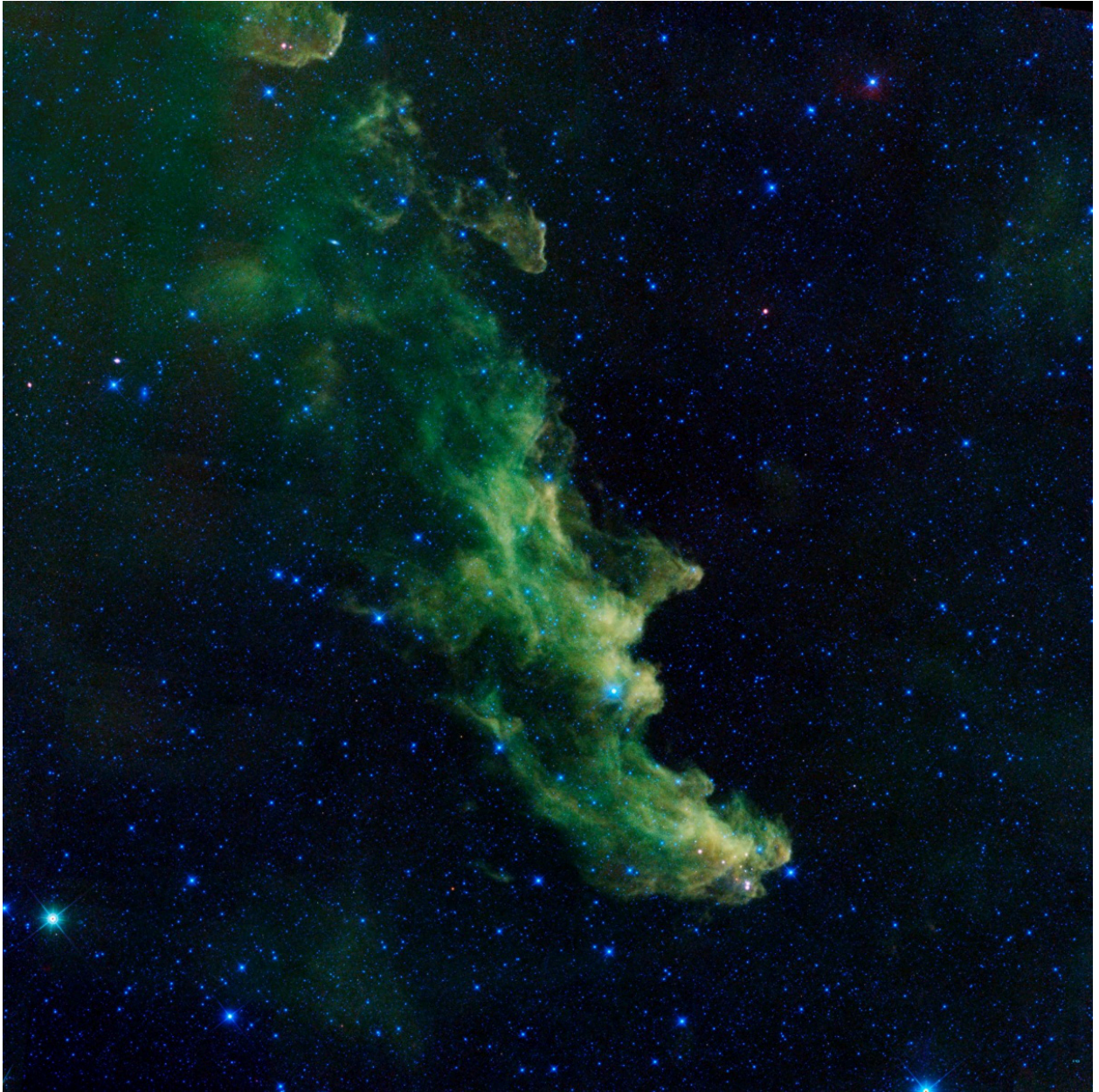


Using the constellations Cassiopeia and Andromeda, locate Perseus. You can find Algol by using the star Almach as a guide.
Credit: Stellarium

There is no shortage of resources on how to calculate the dimming – or minima – of Algol, from interactive charts to data plots. Find the one that works best for you. Because it has a similar magnitude of brightness, you can compare Algol’s brightness to the nearby star Almach (Gamma Andromedae) in Andromeda using a small telescope or binoculars.

Witch Head Nebula

Between the Eridanus and Orion constellations lies a spooky silhouette, illuminated by the star Rigel. IC 2118, or the [Witch Head Nebula](#), is a reflection nebula about 900 light-years away from Earth. Because reflection nebulae rely on nearby starlight to appear visible, they can be difficult to see with the naked eye, especially if they are as far away as this one. While the Witch Head Nebula can’t be seen with the naked eye, telescopes with very large apertures and low magnification make it easier to catch under dark skies. Astrophotographers, with or without smart telescopes, can image this haunting outline within a few hours, depending on equipment and sky quality. And what is a witch without [their broom](#)! You can find the Witch's Broom in the Western Veil Nebula, located in the constellation Cygnus.



An infrared portrait of the Witch Head nebula from NASA's Wide-field Infrared Survey Explorer, or WISE, shows billowy clouds where new stars are brewing. Credit: NASA/JPL-Caltech

Want more tips for getting into the season? Read our article on how you can make some spooky sidewalk astronomy fun for your community with [Trick or Treat: Sidewalk Astronomy!](#)