M111

December 2025

The newsletter of the Richland Astronomical Society and Warren Rupp Observatory

Elected Officers for 2026

The election for the club's officers and board members took place at the December meeting at the Gorman Nature Center. Those elected are:

President: Justin Hewlett

Vice President: Mitch Luman

Treasurer: No one yet

Secretary: Rich Krahling

Board (2026-2028): Rich Krahling

Board (2026-2028): Terry McQuistion

Board (2026-2028): Ron Balliett

Board (2025-2027): Alex McCarthy

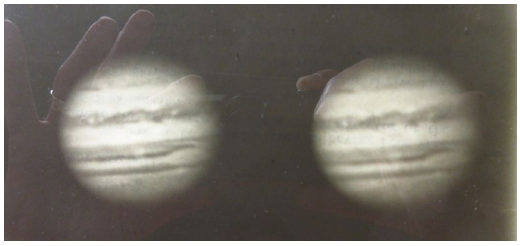
Dues for 2026

As a reminder, all memberships expire at the end of the year and renewals must be made by January 31st. Treasurer Pat Everly will be able to take payment at the November and December meetings. Individual $50, Family $70, and $25 for students. Please let the secretary know if you have family members that need badges/membership cards. Dues payments can also be sent to the RAS post office box: Richland Astronomical Society, PO Box 700, Bellville, OH 44813.

Old Photographic Plate is Prized Possession - By: Mitch Luman

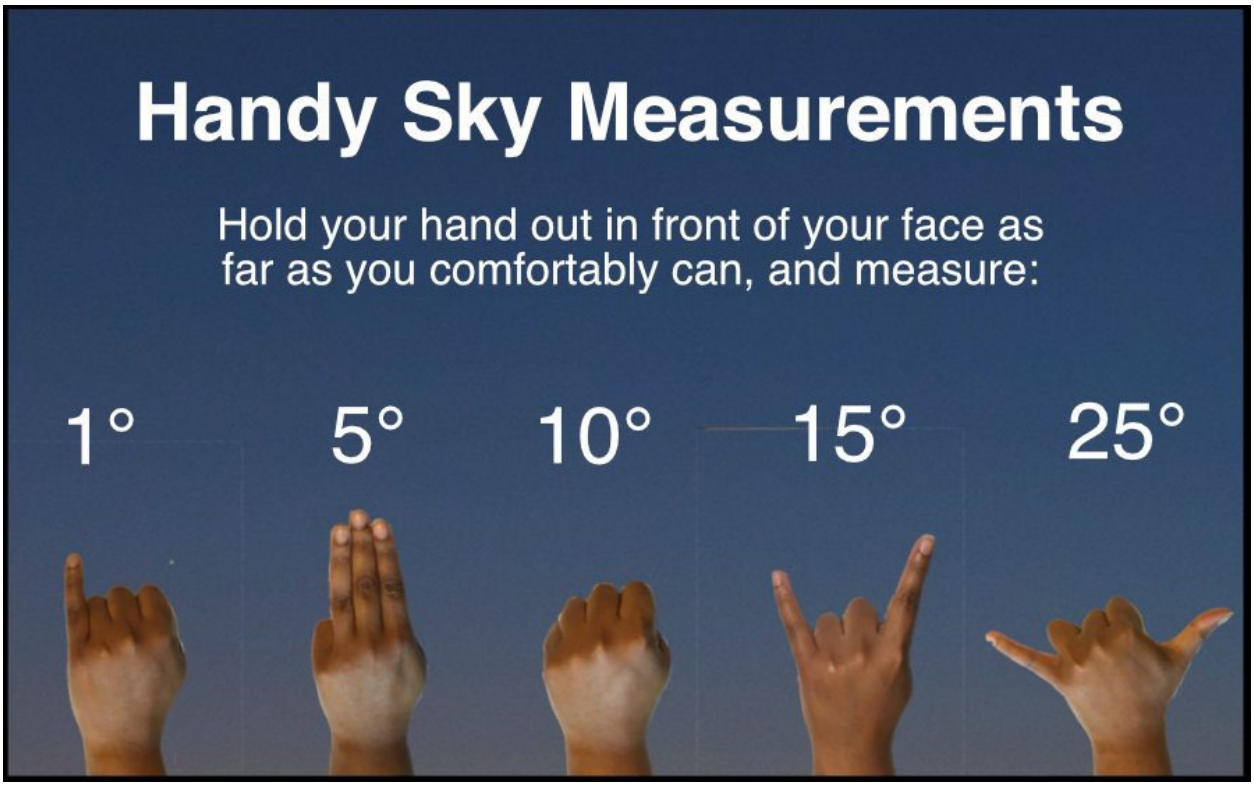
Lowell Observatory Archives.
Used by permission.

Earl Charles Slipher (1883–1964), commonly known as E. C. Slipher, was one of the most important planetary photographers of the early 20th century. E. C. spent decades at Lowell Observatory in Flagstaff, Arizona producing some of the finest and most detailed visual and photographic records of the outer planets ever made with pre-spacecraft telescopes.



Slipher took thousands of glass-plate exposures, primarily with the with the historic 24-inch Alvin Clark refractor. His plates are renowned for their sharpness and resolution, and many serve as reference material due to the fine details that were difficult to record until the1960-1970s when larger telescopes and spacecraft became available.

Through a fortunate connection—a college friend who briefly worked at the observatory in the 1980s—I was gifted an original glass photographic plate attributed to Slipher. The plate contains four images of Jupiter taken on the night of October 19, 1915. These images depict the giant planet in surprising detail considering the techniques available at that time. The plate was presumably taken with Lowell's historic 24-inch Alvin Clark refractor, the same instrument used decades earlier by Percival Lowell. Holding this century-old piece of astronomical history in my hands never gets old—it remains one of my most valuable astronomical possessions.



Measure the Night Sky

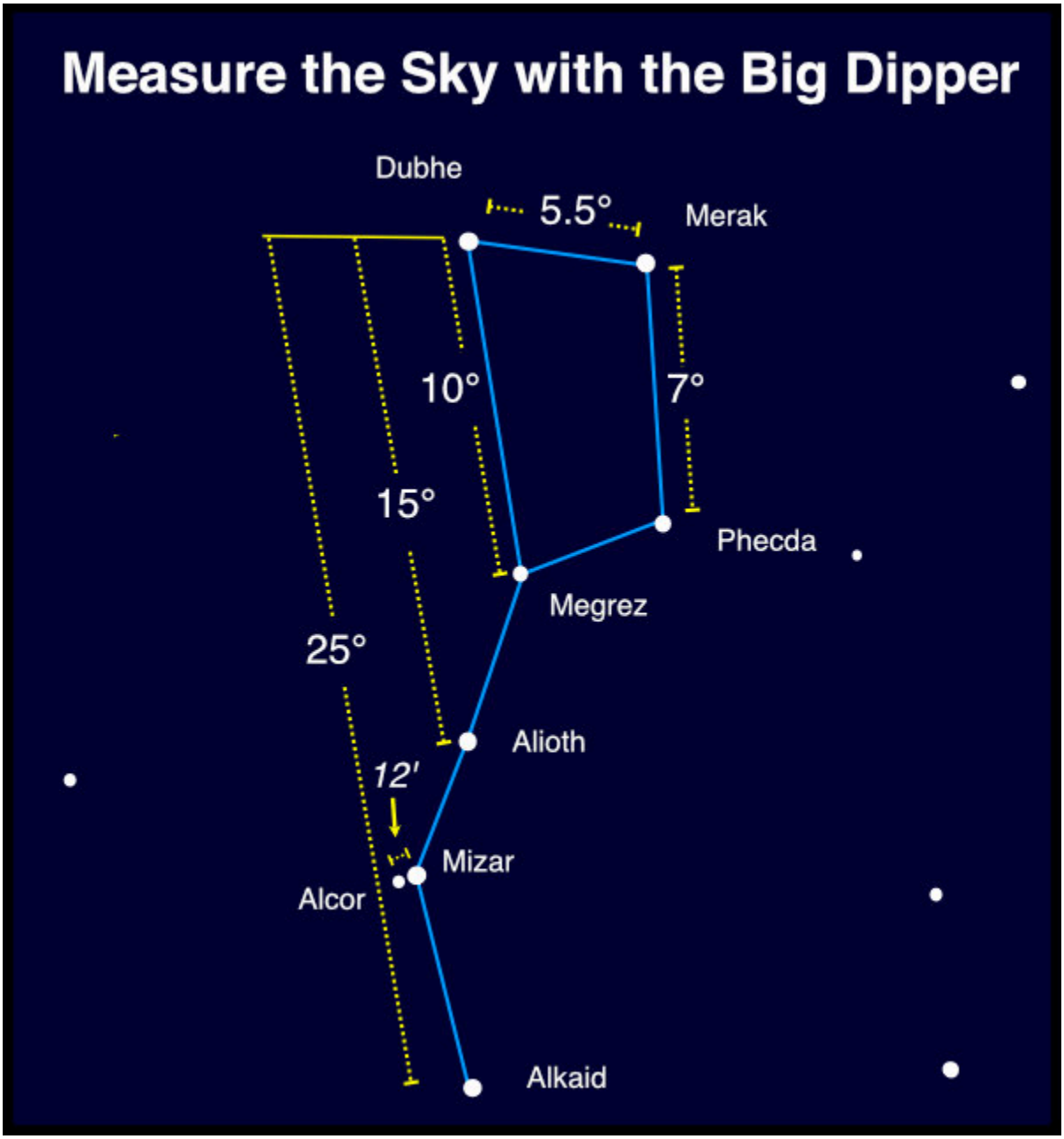
- 12/01/2025

*You can measure angular distance with your hands! These measurements are all approximate, and some may find the gestures difficult to perform. For exacting accuracy, a tool called a **sextant** can be used to measure the sky.*

Fall and winter months bring longer nights, and with these earlier evenings, even the youngest astronomers can get stargazing. One of the handiest things you can teach a new astronomer is how to measure the sky – and if you haven't yet learned yourself, it's easier than you think!

Astronomers measure the sky using **degrees**, **minutes**, and **seconds** as units. These may sound more like terms for measuring time - and that's a good catch! – but today we are focused on measuring **angular distance**. **Degrees** are the largest, and are each made up of 60 **minutes**, and each minute is made up of 60 **seconds**. To start, go outside and imagine yourself in the center of a massive sphere, with yourself at the center, extending out to the stars: appropriately enough, this is called the **celestial sphere**. A circle contains 360 degrees, so if you have a good view of the horizon all around you, you can slowly spin around exactly once to see what 360 degrees looks like, since you are in effect drawing a circle from the inside out, with yourself at the center! Now break up that circle

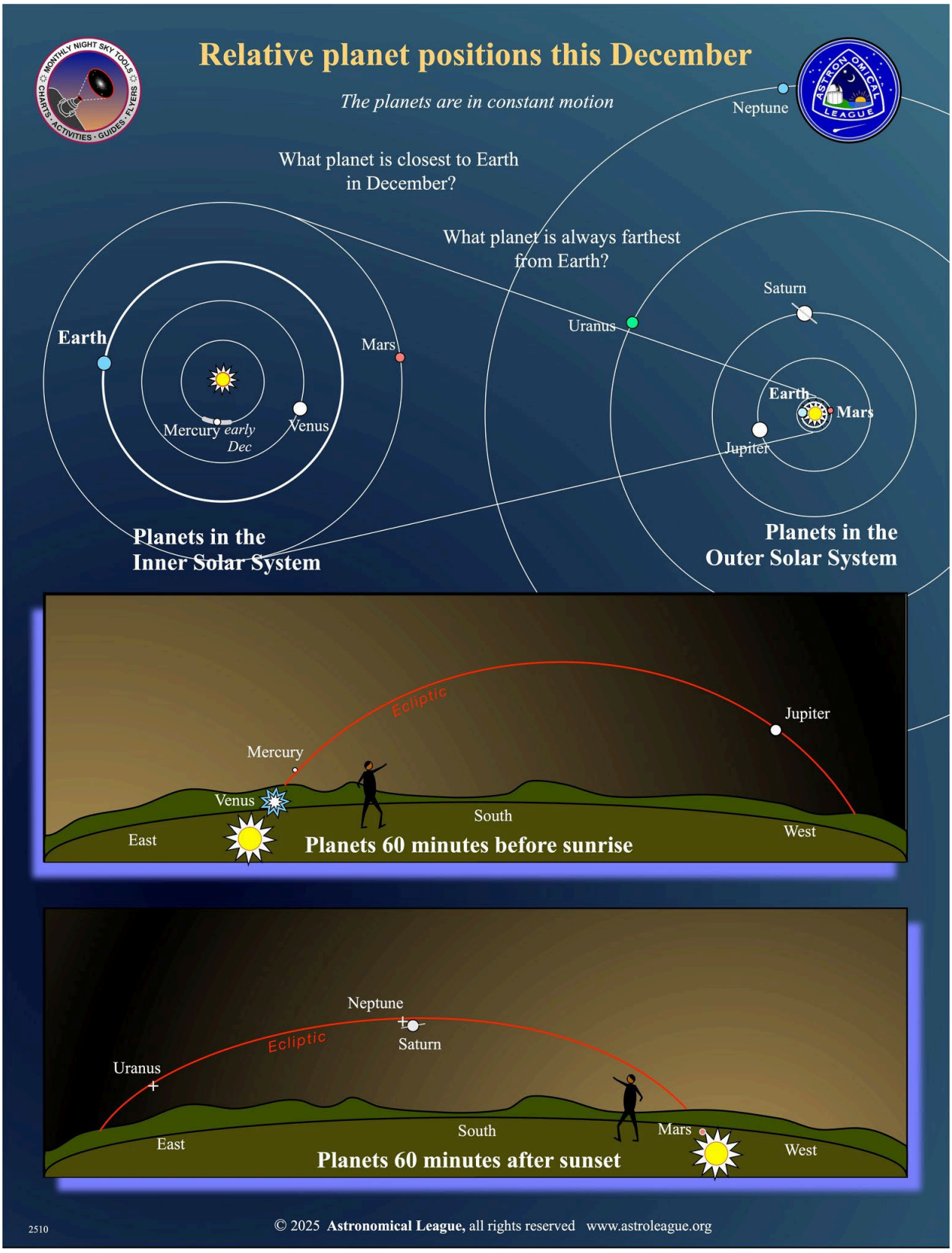
into quarters, starting from due North; each quarter measures 90 degrees, equal to the distance between each cardinal direction! It measures 90 degrees between due North and due East, and a full 180 degrees along the horizon between due North and due South. Now, switch from a horizontal circle to a vertical one, extending above and below your head. Look straight above your head: this point is called the zenith, the highest point in the sky. Now look down toward the horizon; it measures 90 degrees from the zenith to the horizon. You now have some basic measurements for your sky.



Use a combination of your fingers held at arm's length, along with notable objects in the night sky, to make smaller measurements. A full Moon measures about half a degree in width - or 1/2 of your

pinky finger, since each pinky measures 1 degree. The three stars of Orion's Belt create a line about 3 degrees long. The famed "Dig Dipper" asterism is a great reference for Northern Hemisphere observers, since it's circumpolar and visible all night for many. The Dipper's "Pointer Stars," Dubhe and Merak, have 5.5 degrees between them - roughly three middle fingers wide. The entire asterism stretches 25 degrees from Dubhe to Alkaid - roughly the space between your outstretched thumb and pinky. On the other end of the scale, can you split Mizar and Alcor? They are separated by 12 arc minutes - about 1/5 the width of your pinky.

Keep practicing to build advanced star-hopping skills. How far away is Polaris from the pointer stars of the Big Dipper? Between Spica and Arcturus? Missions like Gaia and Hipparcos measure tiny differences in the angular distance between stars at an extremely fine level. Precise measurement of the heavens is known as **astrometry**. Discover more about how we measure the universe, and the missions that do so, at nasa.gov.


Relative planet positions this December
The planets are in constant motion
What planet is closest to Earth in December?
What planet is always farthest from Earth?
Earth
Mars
Mercury early Dec
Venus
Planets in the Inner Solar System
Neptune
Uranus
Saturn
Earth
Mars
Jupiter
Planets in the Outer Solar System
Ecliptic
Jupiter
Mercury
Venus
East
South
West
Planets 60 minutes before sunrise
Neptune
Ecliptic
Saturn
Uranus
East
South
Mars
West
Planets 60 minutes after sunset
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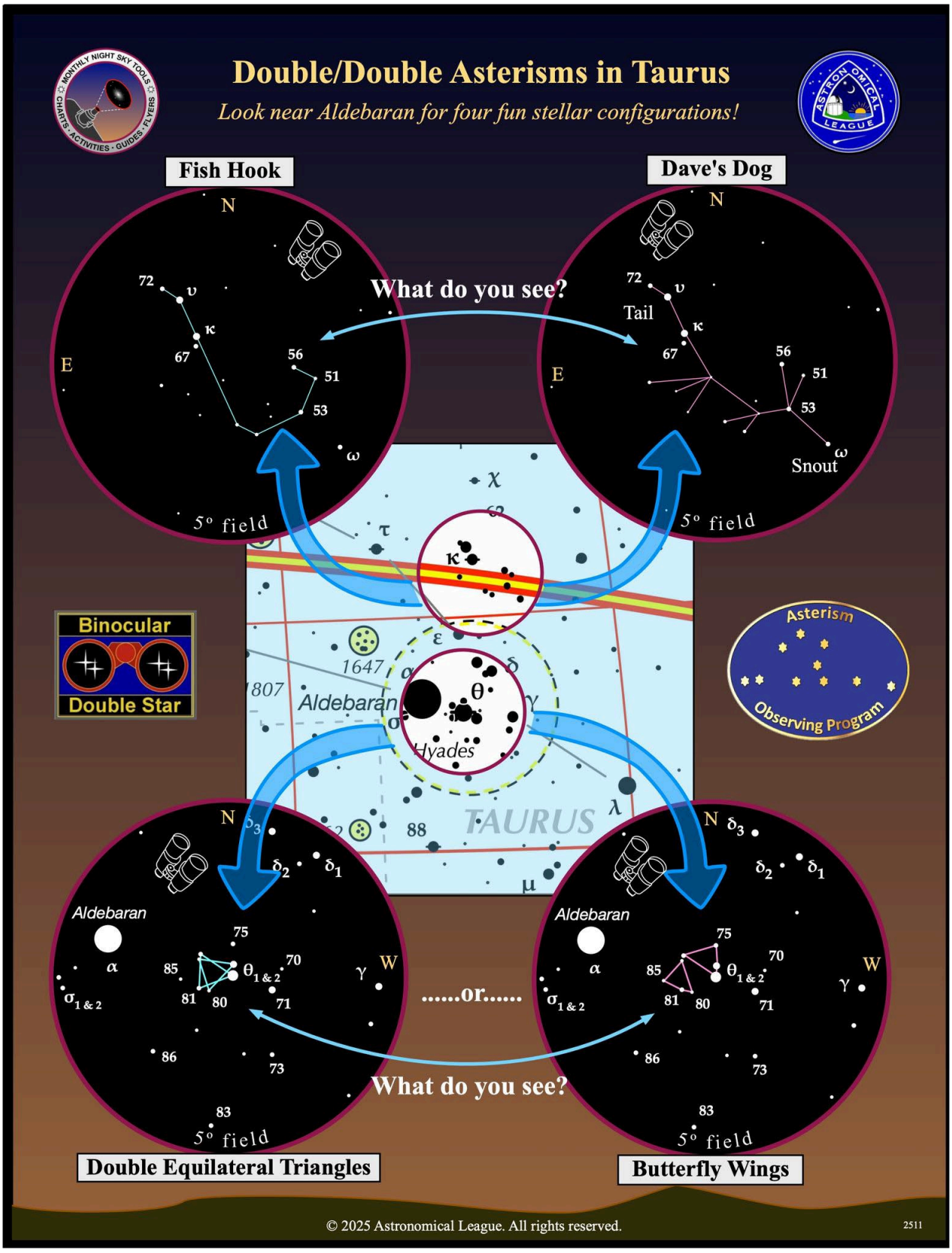
Double/Double Asterisms in Taurus
Look near Aldebaran for four fun stellar configurations!
Fish Hook
Dave's Dog
What do you see?
Tail
Snout
5° field
Binocular Double Star
Asterism Observing Program
Aldebaran
Hyades
TAURUS
.....or.....
What do you see?
Double Equilateral Triangles
Butterfly Wings
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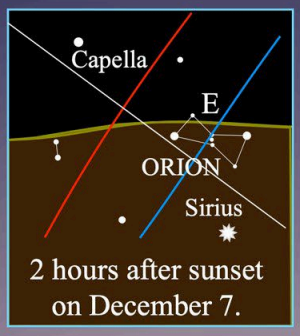
Autumn is ending.

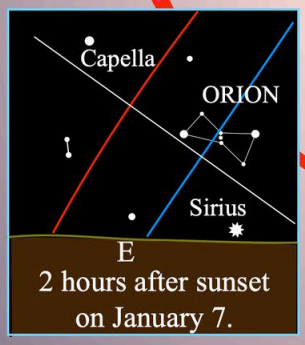
Where are the magnificent stars of Winter?

As seen from mid northern latitudes, they are located just above and just below the eastern horizon at 8 p.m. in early December. As Earth moves in its orbit, they will rise earlier each evening.

- Two hours after sunset on December 7, Orion is beginning to rise in the east.
- Sirius won't rise until nearly four hours after sunset.



By January 7, Earth has moved sufficiently along its orbital path so that it lies just past a direct line from the sun towards Orion. As a result, 2 hours after sunset, Orion has already climbed high above the horizon. Sirius and Procyon have just risen. **It's time to admire the magnificent stars of the winter sky!**



Observing Challenge
Comet 3I ATLAS (C/2025 N1)

At this time, astronomers have observed three inter-stellar interlopers traversing our solar system. The latest is 3I-ATLAS. This observing challenge is to celebrate the visitors from afar. 3I-ATLAS will makes its closest approach to Earth on December 19, 2025.

Requirements for this Challenge:

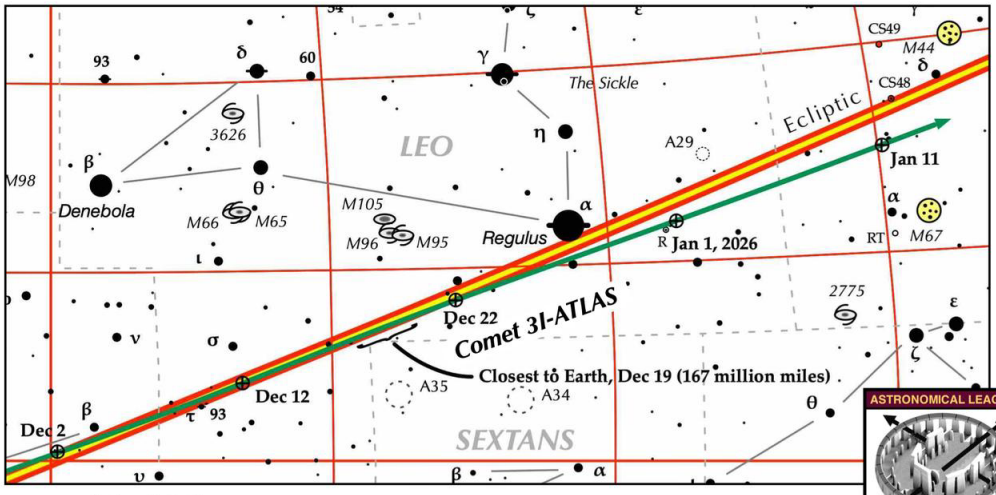
1 Do an Outreach Activity related to the Inter-stellar visitors.
2 Observe 3I-ATLAS using a telescope. Observations should be done closest to the date of closest approach to Earth.
3 Sketch or image the event.
4 Identify 3I-ATLAS in the sketch or image.
5 Include information on your telescope and camera (if used).
6 Forward the sketch or image, plus the information on the outreach activity to the AL Observing Challenge Coordinator.


Courtesy
Dan Crowson, Dec 1, 2025

Submission deadline is January 31, 2026.

Information Required:

- Your name, email address, USPS address, and phone number.
- Your Astronomy Club affiliation (or Member-at-Large) if you are a member of the Astronomical League.
- Equipment used (Telescope, Camera)
- Date and time of your observation.
- Latitudes and Longitudes of the Observation.
- Information about the Outreach Activity.



For complete details:
https://www.astroleague.org/al-observing-challenge-special-observing-award/