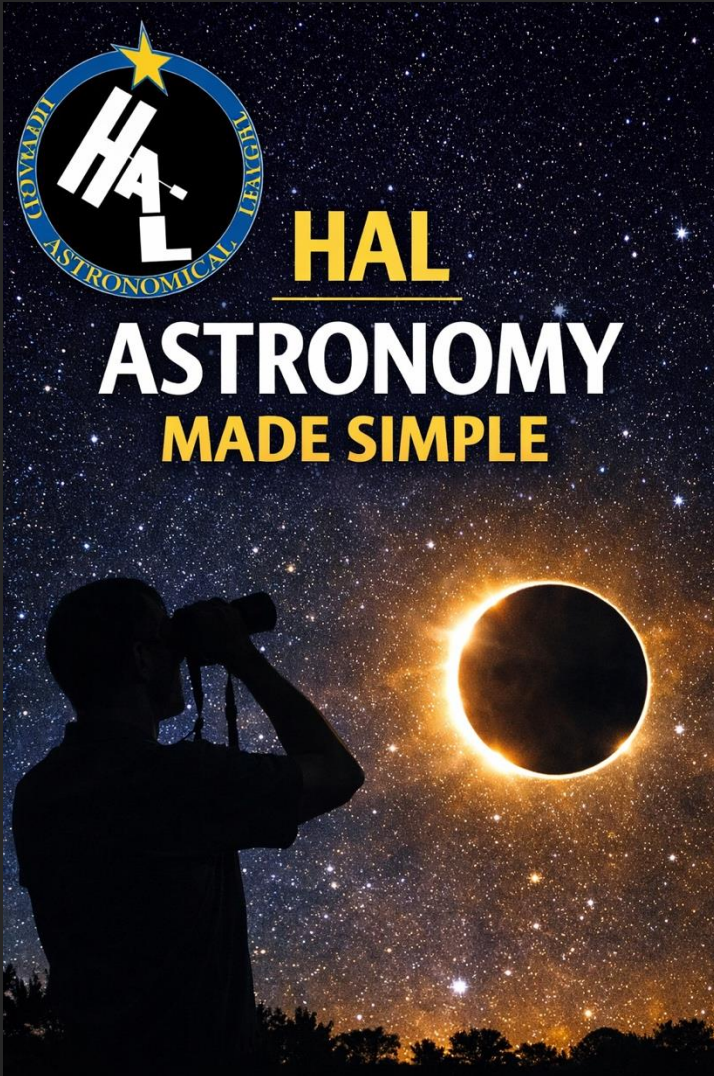


Howard Astronomical League

Member Meeting – July 9, 2026



Agenda

- Welcome & Introductions
- Book of the Month
- Events & Outreach Notes
- Presentation:

Astronomy Made Simple

A Low-tech Ways to Enjoy Our Hobby

Dave Ludwikoski, Jim Tomney, Cheryl Kerr

- Seestar Transfer
- Shallow Skies
- What's Up in Space
- Member Astrophotos

Welcome!



Book of the Month

Title:

- Why the North Star Stands Still and Other Indian Legends

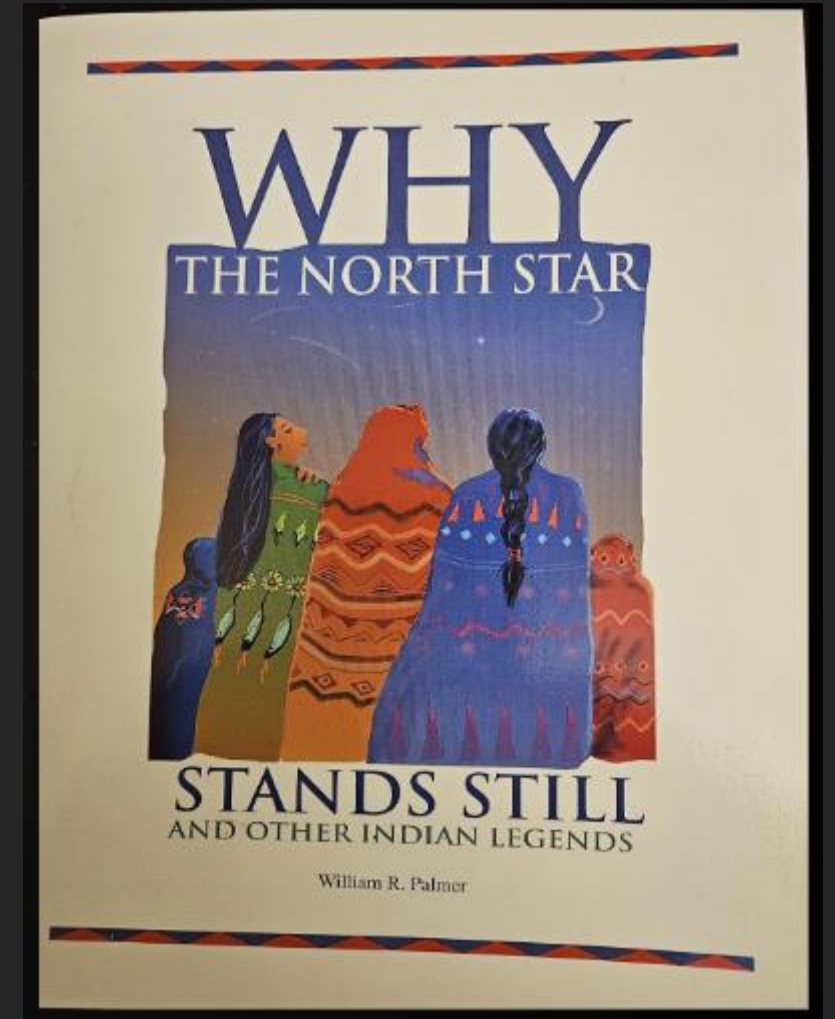
Author:

- William R. Palmer (1978, 2011)

Length: 118 pages

Audience Level:

- Beginner Friendly
- Intermediate
- Experienced



July 2026

HAL Impromptu Star Parties — Highlights

June 15th (Wayne), 24th, 29th (Ernie); July 2nd (Jose)

- **Very Nice (and Odd!) Conditions**

June 15 delivered “*a nearly-perfect night of observing... the sky remained clear all night*” with SQM **19.93**. June 24 and 29 also enjoyed clear skies, but the 29th experienced about 30 minutes of ash falling from the sky

- **New Member Engagement & First-Time Visitors**

Multiple newcomers attended: Jacquie & Brian on June 15, Forrest & Liam on June 24, plus several curious non-members who stopped by to learn about HAL.

- **Hands-On Assistance & Outreach**

Members helped newcomers with refractors, alignment, and basic observing.

- **Active Visual Observing Across All Three Nights**

Double stars, open clusters, Venus, M5, the Double Cluster, Bode’s Galaxy, and the Ring Nebula were observed with a variety of instruments from 80mm refractors to 10" Dobsonians



Up Next

- Member Star Party: Jul 11th
- Public Star Party: Jul 25th
- TBD: Mentoring Star Party!



- **Dates & Host:** August 12–15, 2026 • Cincinnati Astronomical Society & Astronomical League
- **Program Highlights:** National convention with lectures, workshops, observing sessions, and vendor exhibits
- **Special Events:** Tours of local astronomy facilities • Saturday night awards banquet • Networking with League members nationwide
- **Audience:** Amateur astronomers, educators, vendors, and outreach leaders from across the U.S.



ALPO CONFERENCE

JULY 10 & 11

From Stargazing to Science



FRIDAY, JULY 10

UT	ET	PT	SPEAKER	TOPIC
17:00	1:00	10:00	Tim Robertson	Welcome Day 1
17:15	1:15	10:15	Greg Shanos	Titan Shadow Transits
17:45	1:45	10:45	Frank Melillo	What's up with Mercury 2026
18:15	2:15	11:15	Jim Tomney	What Happens to My Observation
18:45	2:45	11:45	☕ BREAK	
19:15	3:15	12:15	David Teske	X Marks the Spot
19:45	3:45	12:45	Alberto Anunziato	Visual Observation of Lunar Buried Craters
20:15	4:15	1:15	Richard Schmude	A V-filter photometric model of Uranus
20:45	4:45	1:45	Jim Brunkella	2025 Western Elongation of Venus
23:00	7:00	4:00	ALPO Board	2026 ALPO Board Meeting (Invite ONLY)



Join observers from around the world for two days of presentations, discussions, awards and inspiration!

SATURDAY, JULY 11

UT	ET	PT	SPEAKER	TOPIC
17:00	1:00	10:00	Tim Robertson	Welcome Day 2
17:15	1:15	10:15	Frank Melillo	Daytime Astronomy
17:45	1:45	10:45	Jim Tomney	SPLICE Training
18:15	2:15	11:15	Richard Meyers	From Memeograph to Megapixels
18:45	2:45	11:45	☕ BREAK	
19:15	3:15	12:15	John Rogers	Jupiter's Southern Belts
19:45	3:45	12:45	Richard Schmude	Jupiters Great Red Spot since 1960
20:15	4:15	1:15	Arianna Japalucci	The ALPO Youth Program Overview
20:45	4:45	1:45	OPEN	OPEN DISCUSSION
★ 23:00	7:00	4:00	Tim Robertson	Walter Haas, Peggy Haas, Mike Reynolds Awards 2026 🏆
★ 23:30	7:30	4:30	David Kring	KEYNOTE: Exploring the Moon in the Age of Artemis 🎤



All times shown in UT (Universal Time), ET (Eastern Time), and PT (Pacific Time)

- **Dates:** July 10 & 11 from 1– 4 p.m. ET
- **Program Highlights:** National online convention with talks focused on Solar, Lunar, and planetary astronomy
- **Keynote Speaker:** Dr. David A. Kring, a planetary scientist renowned for his research on impact cratering and lunar geology will present “*Exploring the Moon in the Age of Artemis*,” highlighting the latest developments in lunar exploration and Artemis-era missions.
- **Audience:** Amateur astronomers who enjoy observing and learning about the Solar System
- Registration: <https://alpo-astronomy.org>

<https://www.youtube.com/@associationoflunarandplanetary>

KEEPING IT SIMPLE: LOW BUDGET PHOTOGRAPHY OF A TOTAL SOLAR ECLIPSE

ANDERSON, SC AUGUST 21, 2017

David J. Ludwikoski, MS

Professor of Science and Director, Benjamin Banneker Planetarium

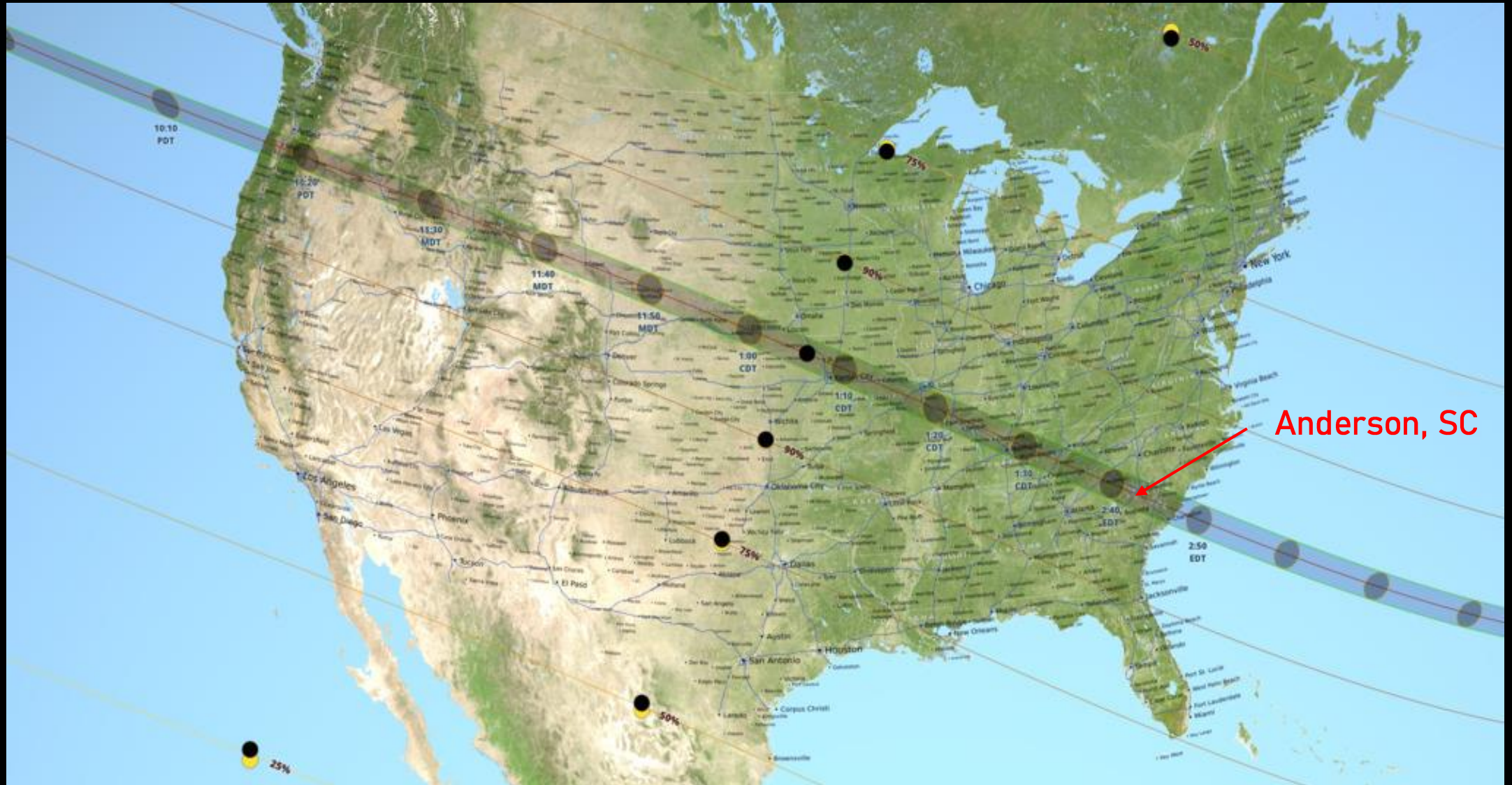
The Community College of Baltimore County

Howard Astronomical League Librarian

July 11, 2026



The Place

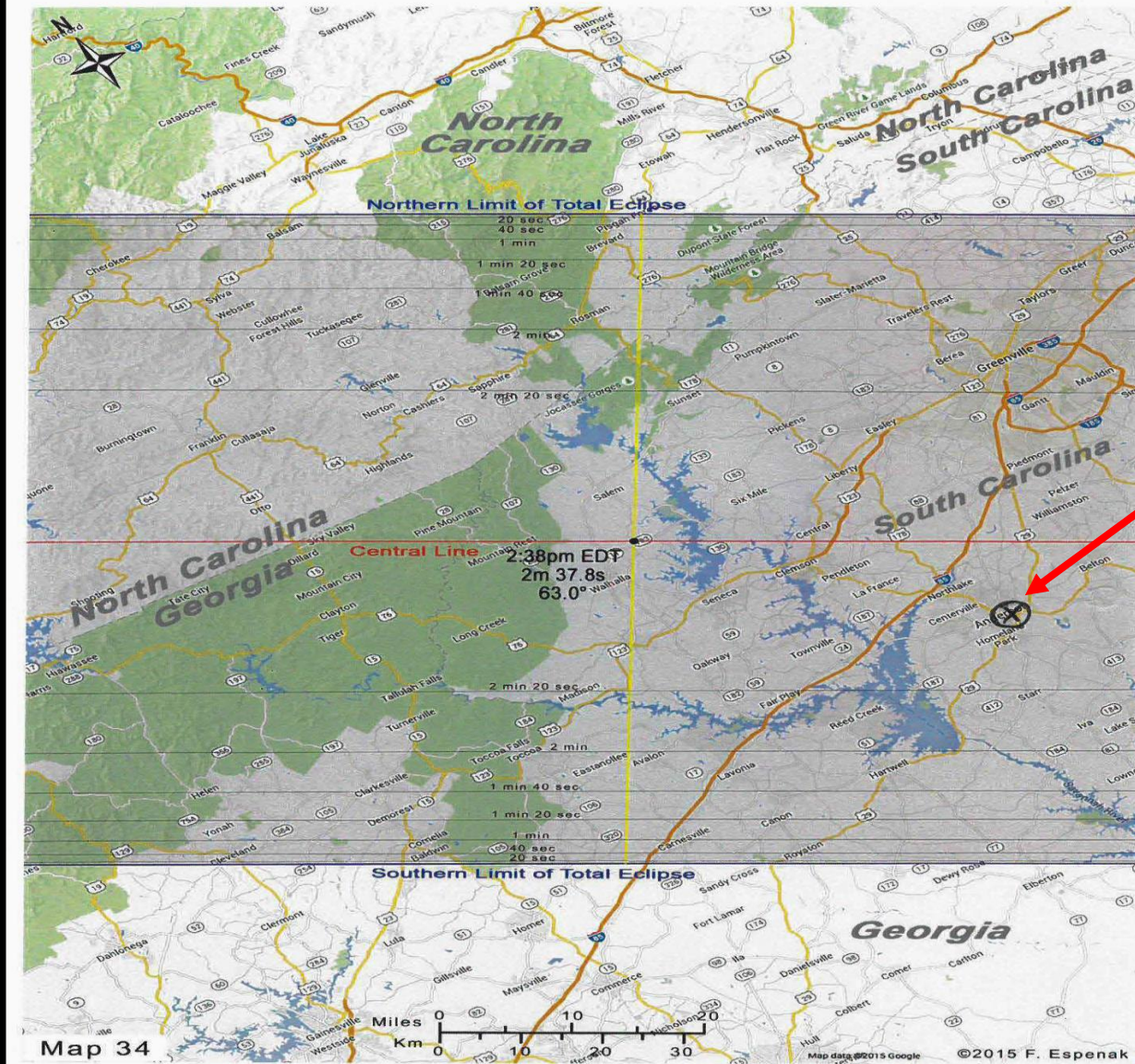


Credit: Ernie Wright, NASA's Scientific Visualization Studio, 12/13/2016

<https://nso.edu/for-public/eclipse-map-2017/>



ROAD ATLAS FOR THE 2017 TOTAL SOLAR ECLIPSE



Anderson, SC

Credit: Fred Espenak, 2015





Primary Tool

6" Dobsonian w/ Solar Filters
c/o Orion Telescopes

(Fits Nicely in the Back
of a Honda Civic!)





The Camera Used

































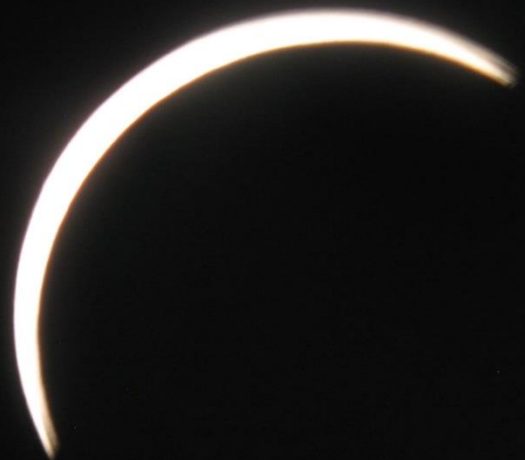






Credit: Tim Kerr @ Clemson

























ON TO THE NEXT ONE!





Simple Night Sky Pleasures

Binoculars aren't just for the birds!

by Jim Tomney

Howard Astronomical League Members Meeting - July 9, 2026





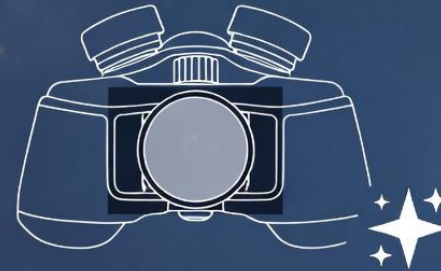
A Quick Primer on Binoculars

- Magnification & Aperture
 - ↑ Magnification = larger object
 - ↑ Aperture = brighter objects
 - BUT they can also mean more weight and shaky views
 - Larger binoculars are often mounted on a tripod
- Prism Type
 - BK-7 vs. BaK-4

What Do “7×50” & “15×70” Mean?

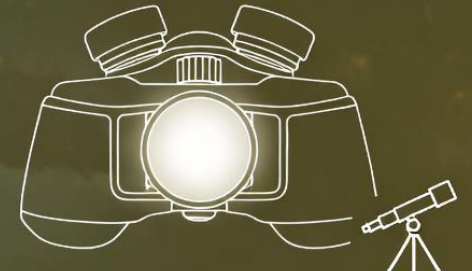
BaK-4 vs BK-7 Prisms for Night Sky Observing

BK-7 Prism



- Lower Refractive Index
- Light Transmission ~83%
- Image Quality: Dimmer Edges
- Cost-Effective

BaK-4 Prism



- Higher Refractive Index
- Light Transmission ~99%
- Image Quality: Brighter, Sharper Edges
- Preferred for Astronomy



The Case for Binoculars: Affordable

- 7x50 Celestron “Cometron” under \$50
 - Less expensive BK-7 prism, fine for casual use
 - Images a little less sharp
- Celestron SkyMaster Pro ED 7x50 Binoculars are for more serious observers and cost ~ \$225
 - BaK-4 prism
 - ED glass (less “fringing” on bright objects)
 - Tripod ready



Celestron 15x70 Binoculars Comparison

SkyMaster 15x70



\$129.95

- BaK-4 Prisms, Multi-Coated Optics
- Water-Resistant
- Field of View: 4.4°
- Weight: 48 oz (1.36 kg)
- Integrated Tripod Adapter
- **Best For:** Entry-Level Stargazing

SkyMaster Pro 15x70 Waterproof



\$279.95

- BaK-4 Prisms, Fully Multi-Coated XLT Optics
- Waterproof & Fogproof
- Field of View: 4.4°
- Weight: 52 oz (1.47 kg)
- Built-In Tripod Adapter
- **Best For:** Serious Astronomy, Outdoor Use

SkyMaster Pro ED 15x70



\$349.95

- BaK-4 Prisms, ED (Extra-Low Dispersion) Glass
- Waterproof & Weather-Sealed
- Field of View: 4.4°
- Weight: 52 oz (1.47 kg)
- 1.25" Filter-Compatible Eyepieces
- **Best For:** Advanced Astronomy, High-Contrast Views



The Case for Binoculars

- Instantaneous
 - No alignment, no cooldown, no setup. Just step outside and look up.
- Natural learning curve
 - They match how we use our eyes: both eyes open, intuitive scanning
- Wide-field Views
 - Easier to match what your eye sees and a smaller section of the sky
- Portability
 - Easy to pack when you're heading out to that cabin
- Multi-use
 - Birds, sporting events, etc.
- Learning the sky means you're ready to go later!





A Summer Night Exploration

- Summer is a great time to get started exploring the night sky, and armed with a pair of binoculars you can enjoy double stars, clusters, asterisms, and even nebulae.
- My session was a late June evening (which would be ~10 p.m. July)
- My Bortle 8 back yard, using trees to block some of neighbor's lights
- Limiting naked eye magnitude: ~4.25





Sky Orientation

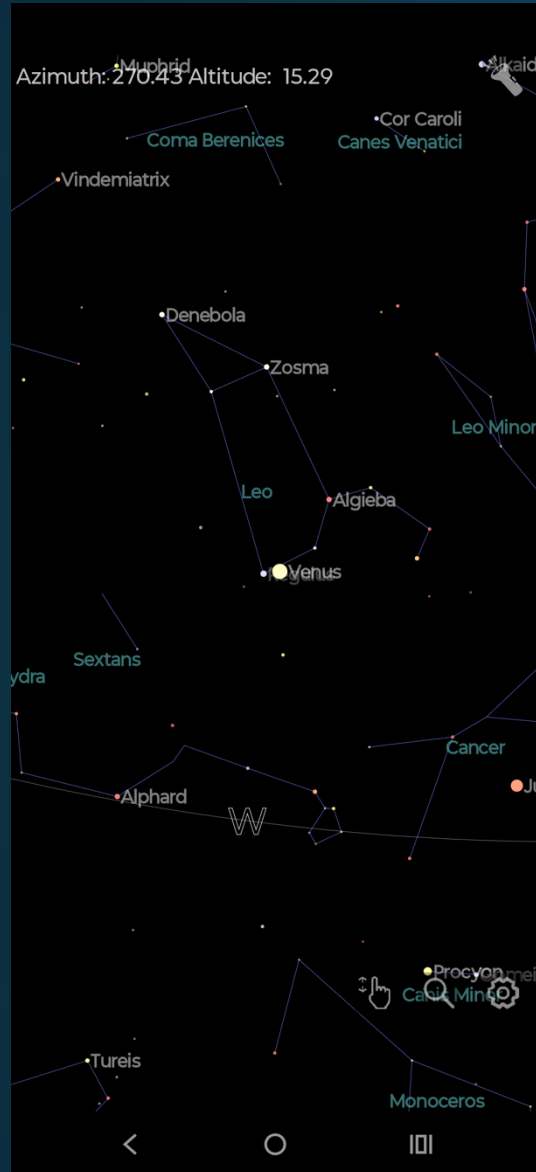


NE

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Sky Orientation



Constellation Map



Stellarium

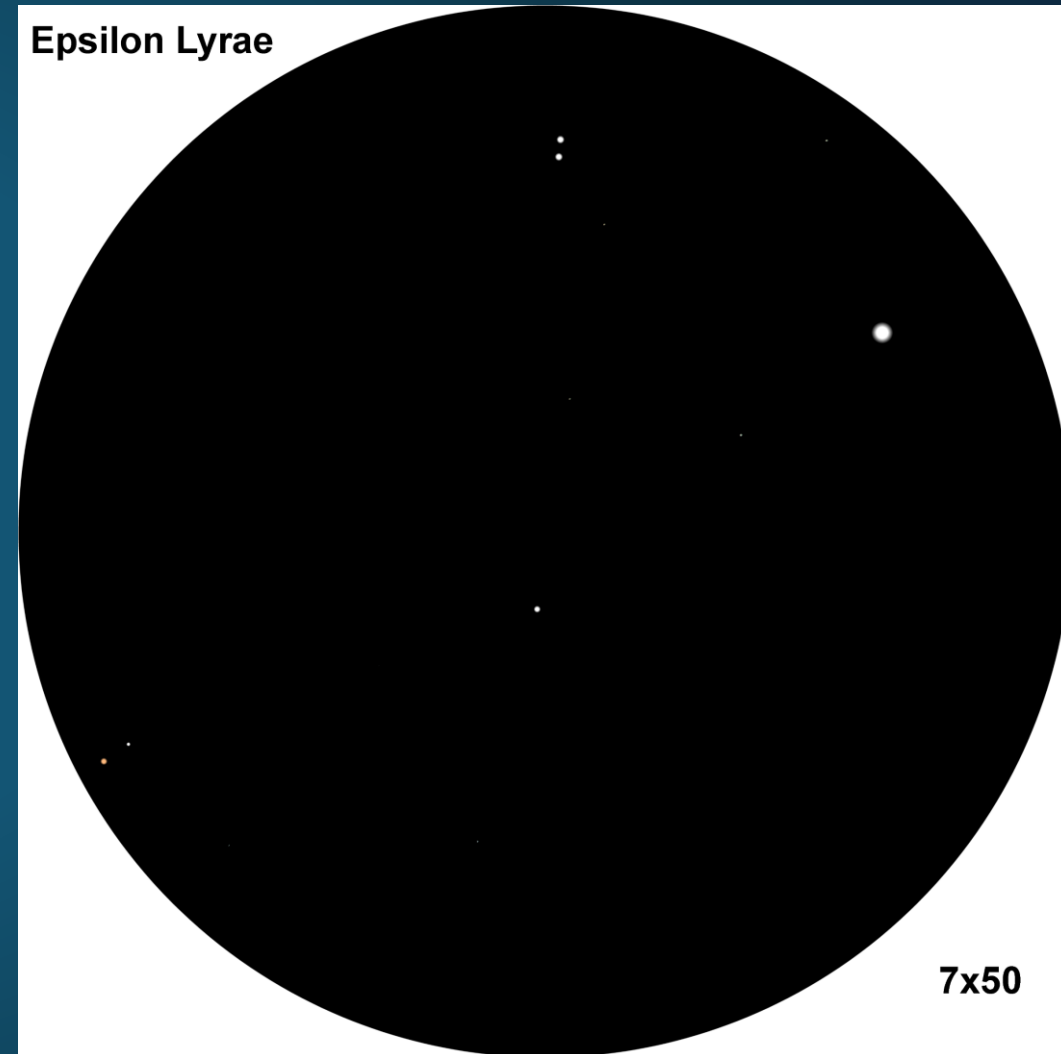


Star Walk



Epsilon Lyrae: “The Double-Double”

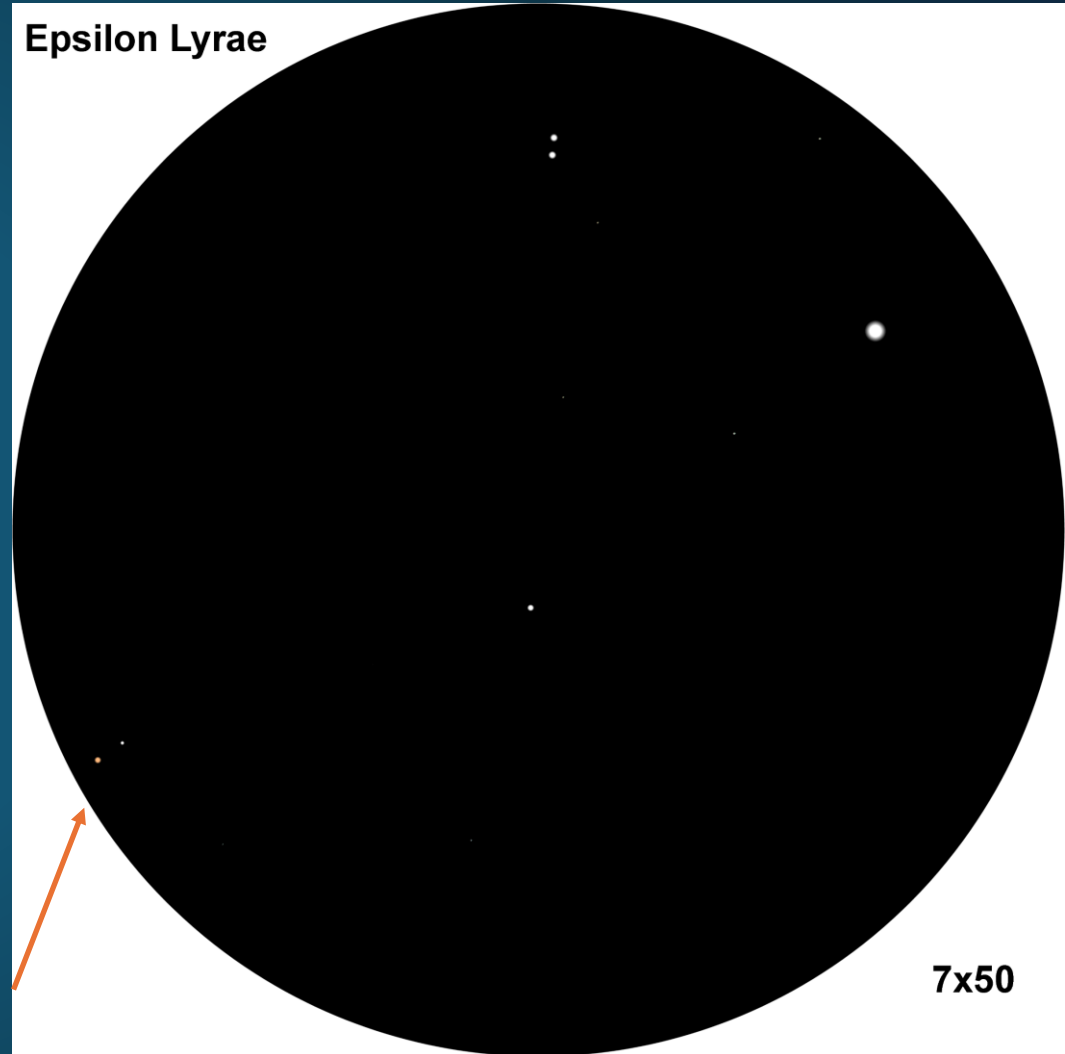
- Sweep the area to the NE of Vega (to the left as Vega is rising in the East)
- The three stars that make up the triangular head of the Harp – but one of them is a “pair of headlights”
 - Equal brightness, white in color
 - Absolute “twins”
 - 160 ly from Earth
 - 10x brighter than our Sun
 - 3.5 arc-minutes (Moon is ~ 1,800 arc-minutes)
 - In a good telescope, each of those stars is itself a tight binary – hence “double-double”
 - A true pair (not happenstance)
 - Lie about 0.2 ly from each other
 - ½ million years to orbit each other





Bonus: Delta Lyrae

- On the SE border of your 7x50 field you can see another, wider double:
Delta Lyrae
 - The separation here is about 10 arc-minutes
 - They lie about a thousand light years away
 - One is a K sequence star, so it is orange like Arcturus. The other is B sequence and has subtle blue color. Can you detect that?
 - Unlike Epsilon, this is a “optical double” – they are not bound to each other, just a line-of-sight happenstance.
 - They are separated by about 200 ly





Sky Orientation

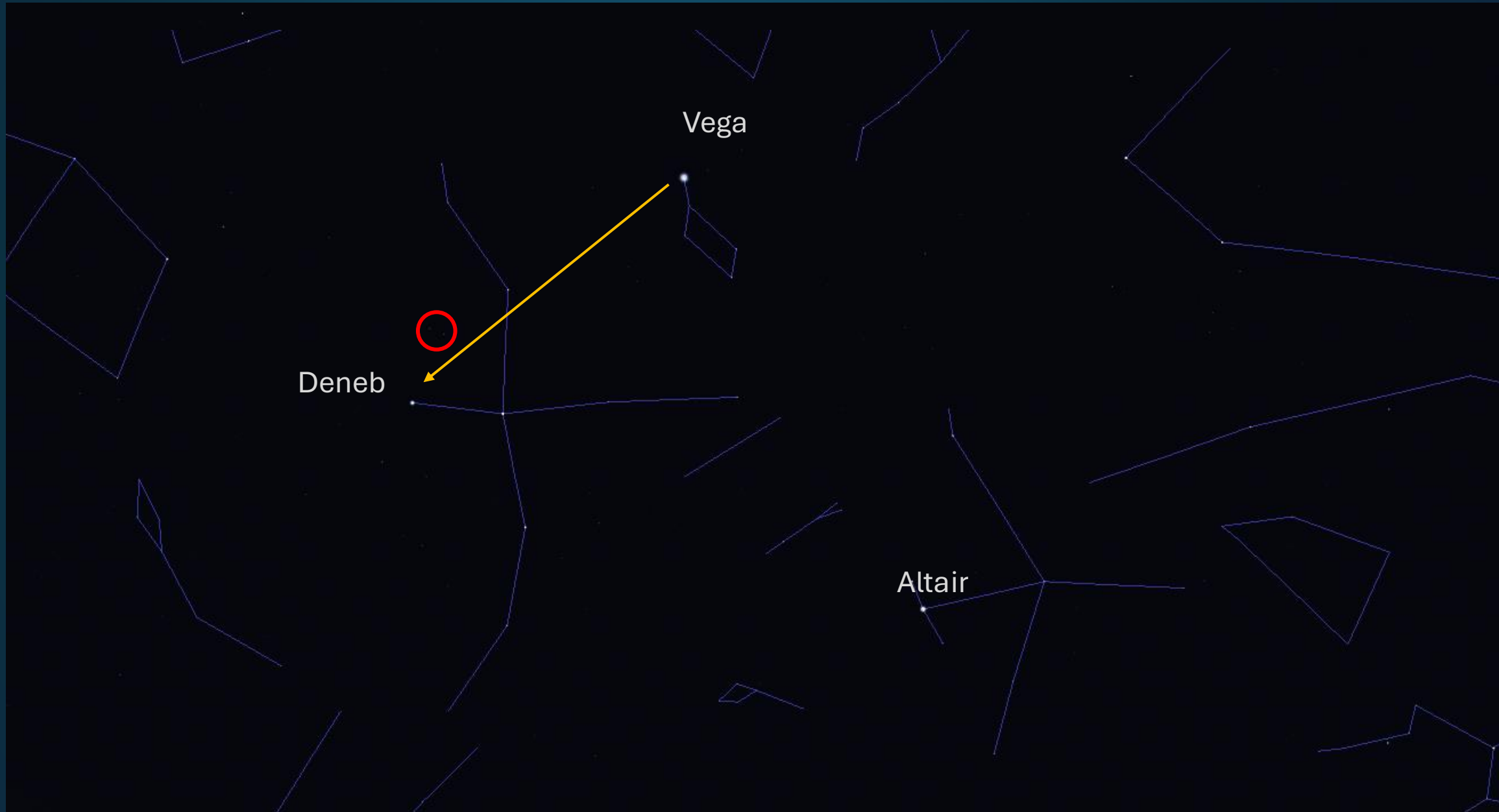


NE

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Sky Hop to the Cygnus 30-31

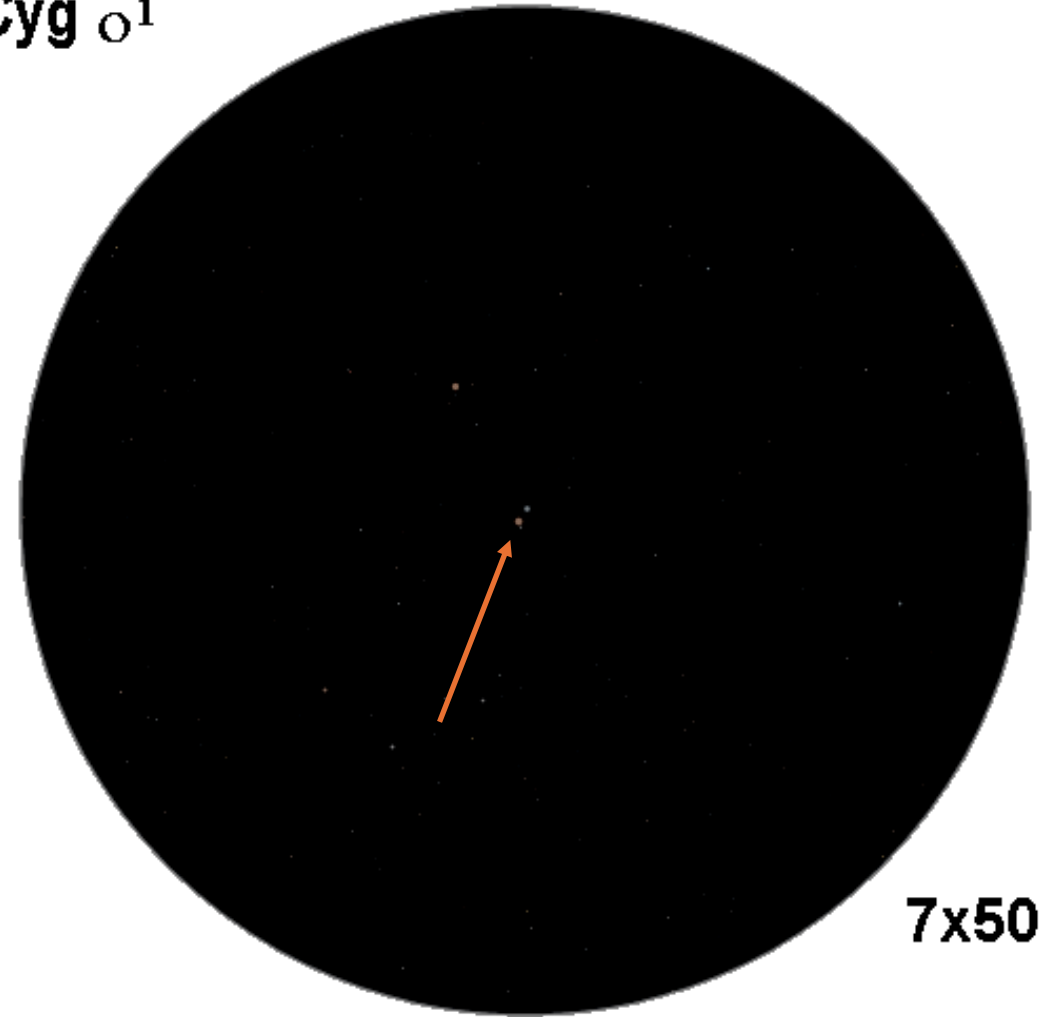




The 30-31 Cyg System

- Located north of the swan's western wing
 - The separation here is about 20 arc-minutes ($\frac{2}{3}$ width of full moon)
 - Another optical double
 - The brighter (primary) one (31 Cyg) is an orange supergiant at 1,400 ly.
 - 200x larger than our Sun (out to Mars' orbit)
 - The dimmer (secondary) is 30 Cyg with a white-blue giant star, making a nice contrast
 - 370 ly distant and 5x larger than our Sun
- Really becomes a gem amid darker skies

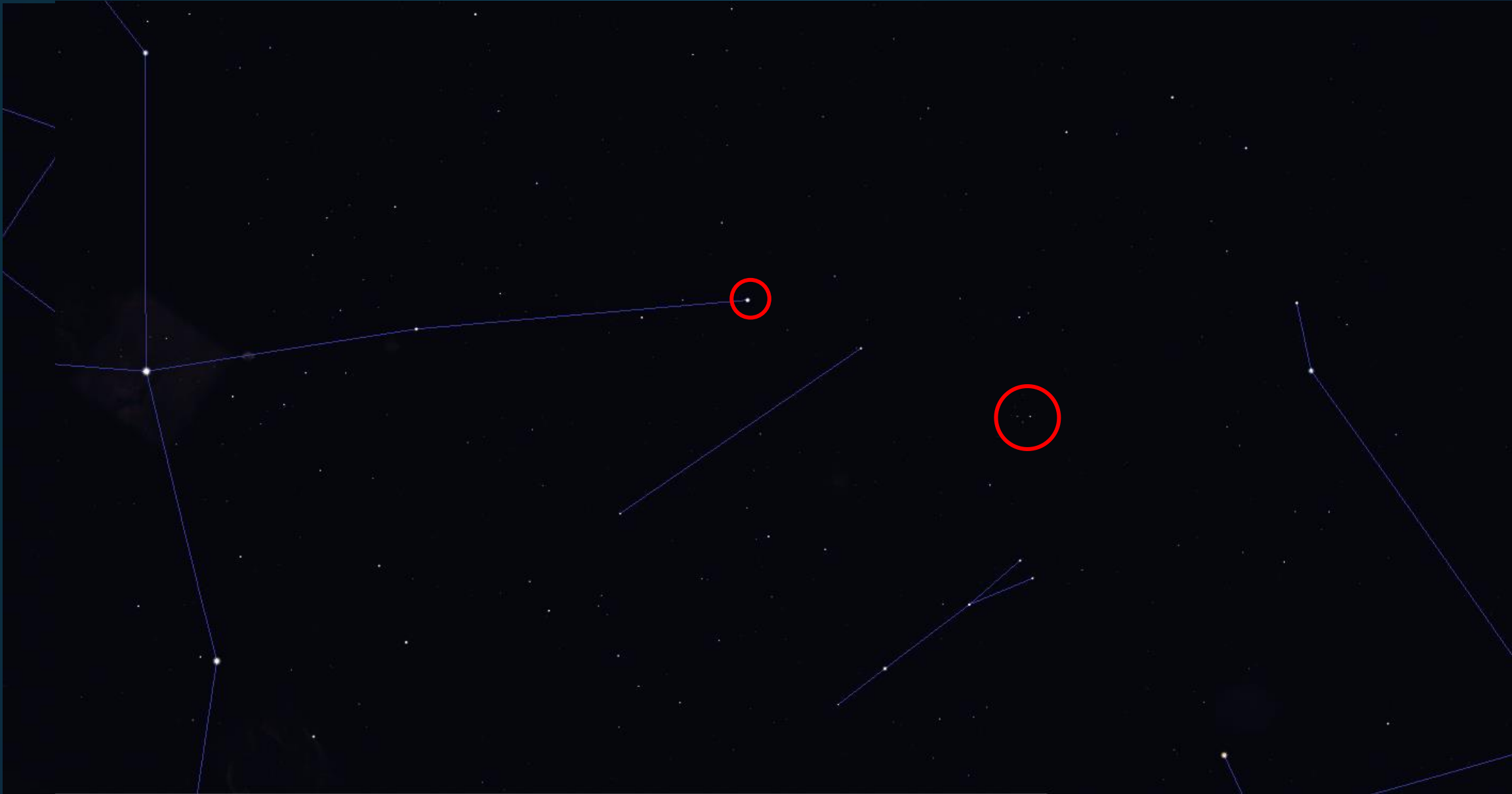
Cyg o¹



7x50



Sky Hop to the Coathanger

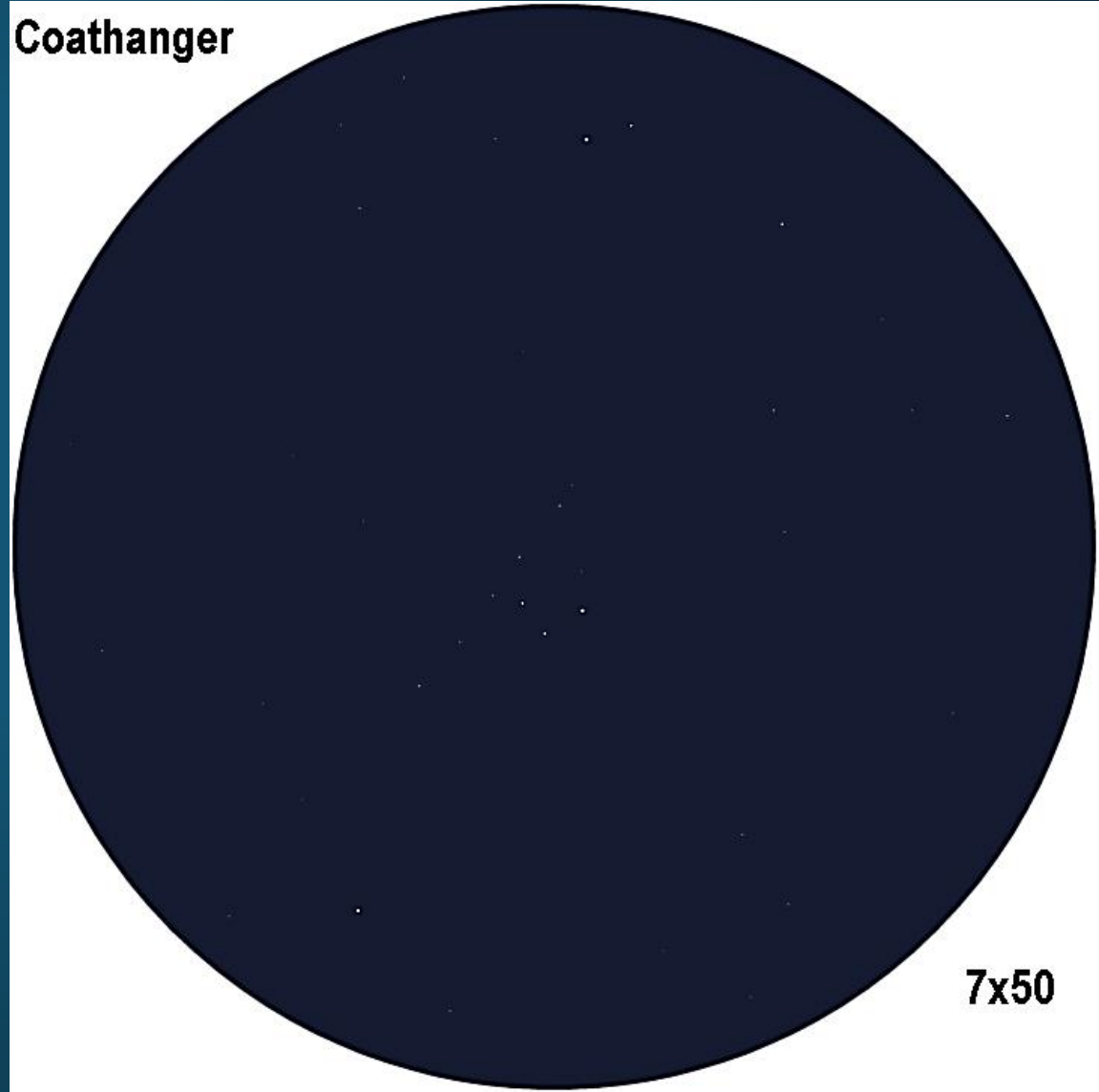




The Coathanger Asterism

- Star cluster also known as Collinder 399
 - About $1\frac{1}{2}^\circ$ wide (3x full moon) – making it ideal for binoculars
 - Really looks like a coathanger – a bar with a hook
 - Six stars form the straight bar
 - Four stars curve downward to make the hook
 - The stars are not truly a cluster, they lie at various distances from us (200 – 1,000 ly)
- An asterism is
 - A visual pattern formed by unrelated stars that often lie at very different distances
 - The pattern is created purely by line-of-sight coincidence
 - Asterisms can be part of a constellation, or span multiple constellations

Coathanger



7x50



Sky Hop to the M11

Altair

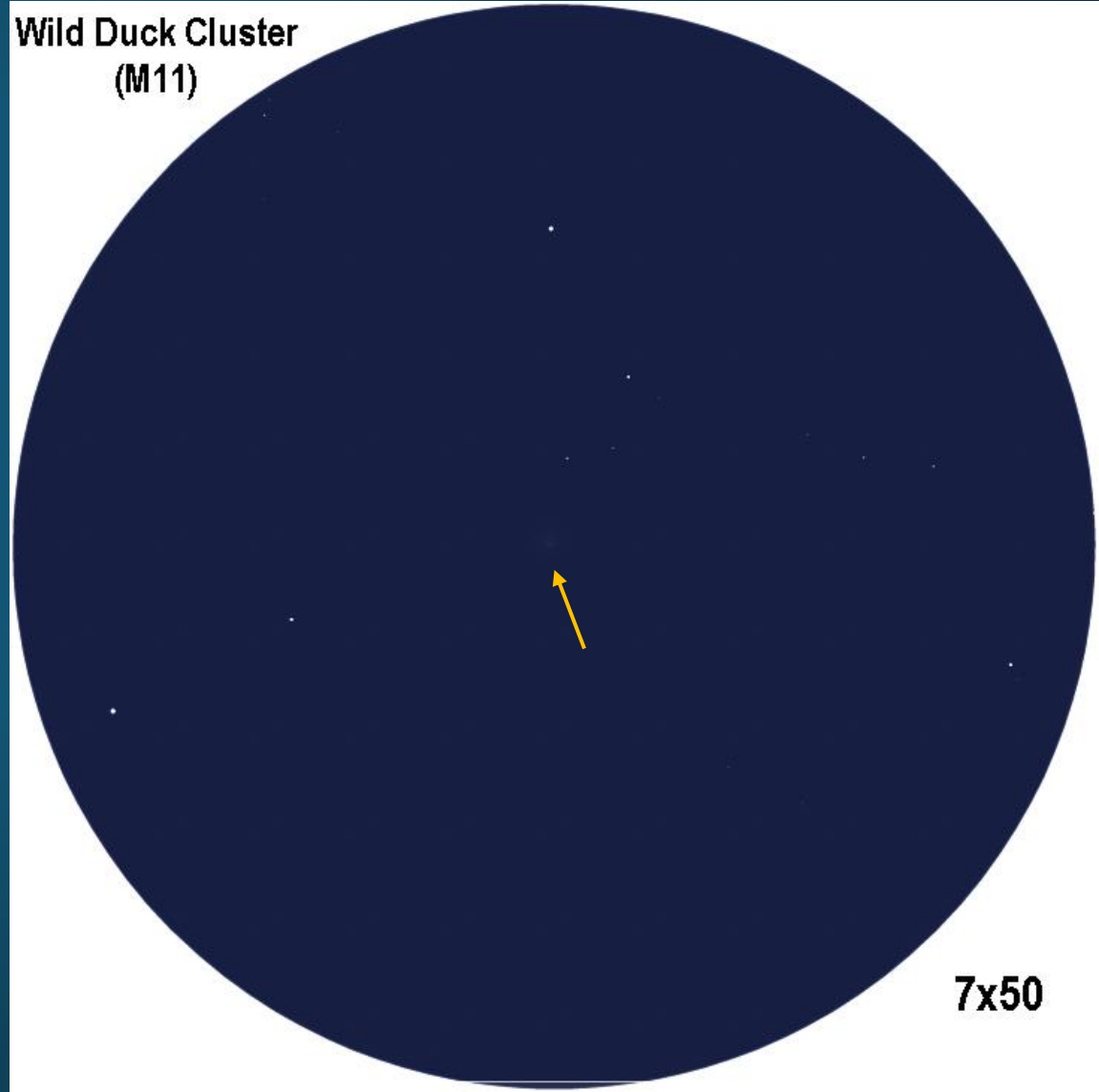




Wild Duck Cluster (M11)

- Open star cluster M11 – the “Wild Duck” cluster
 - A fuzzy little patch of light hanging off Aquila’s tail feathers
 - One of the richest and most compact open clusters in the entire sky
 - Contains ~2,900 stars
 - So dense that at first some thought it was a globular cluster
 - Core diameter: ~14 light-years
 - Age: ~250 million years
 - Distance: ~6,000 light-years

Wild Duck Cluster
(M11)



7x50



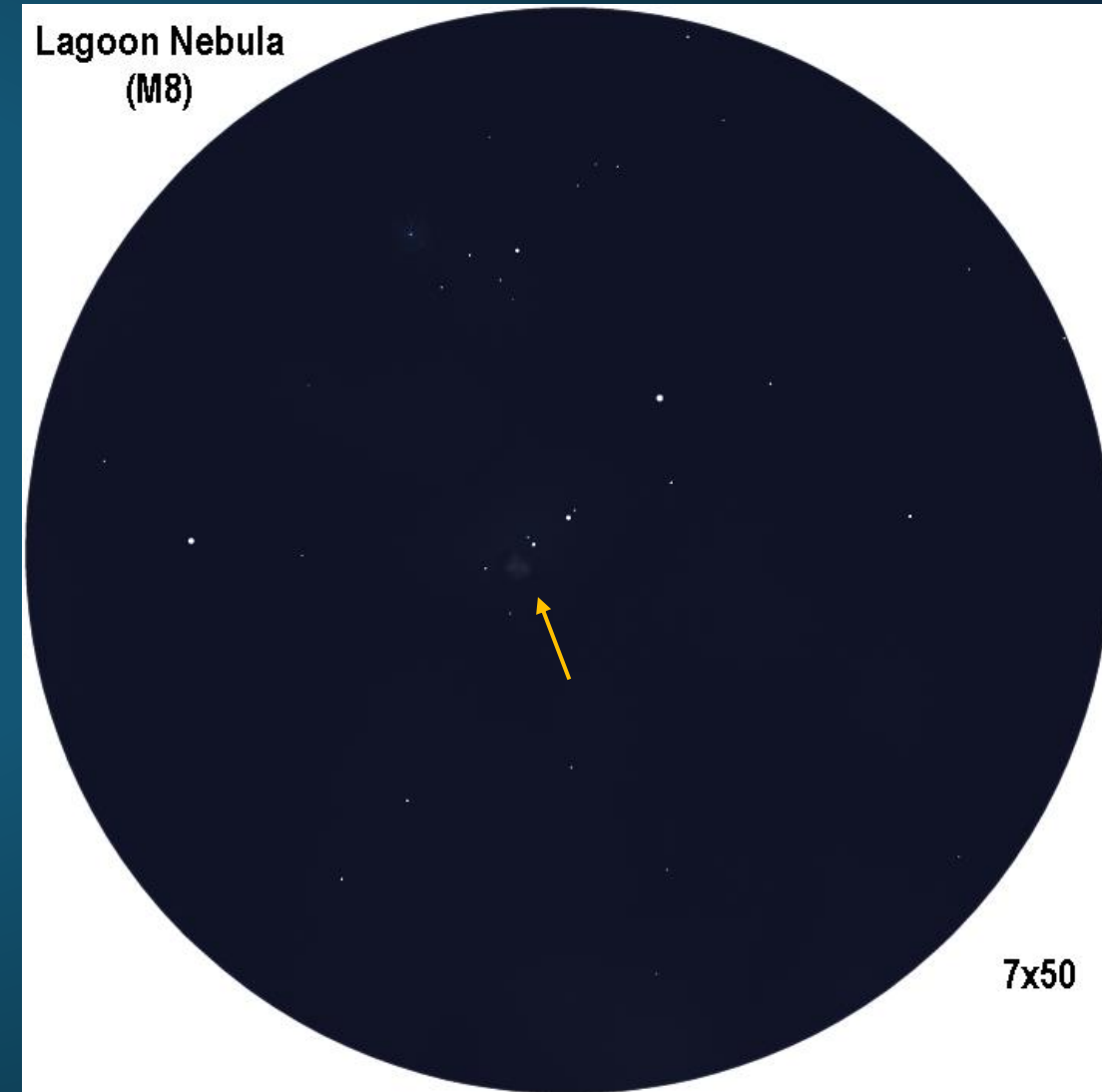
Sky Hop to the Lagoon Nebula (M8)





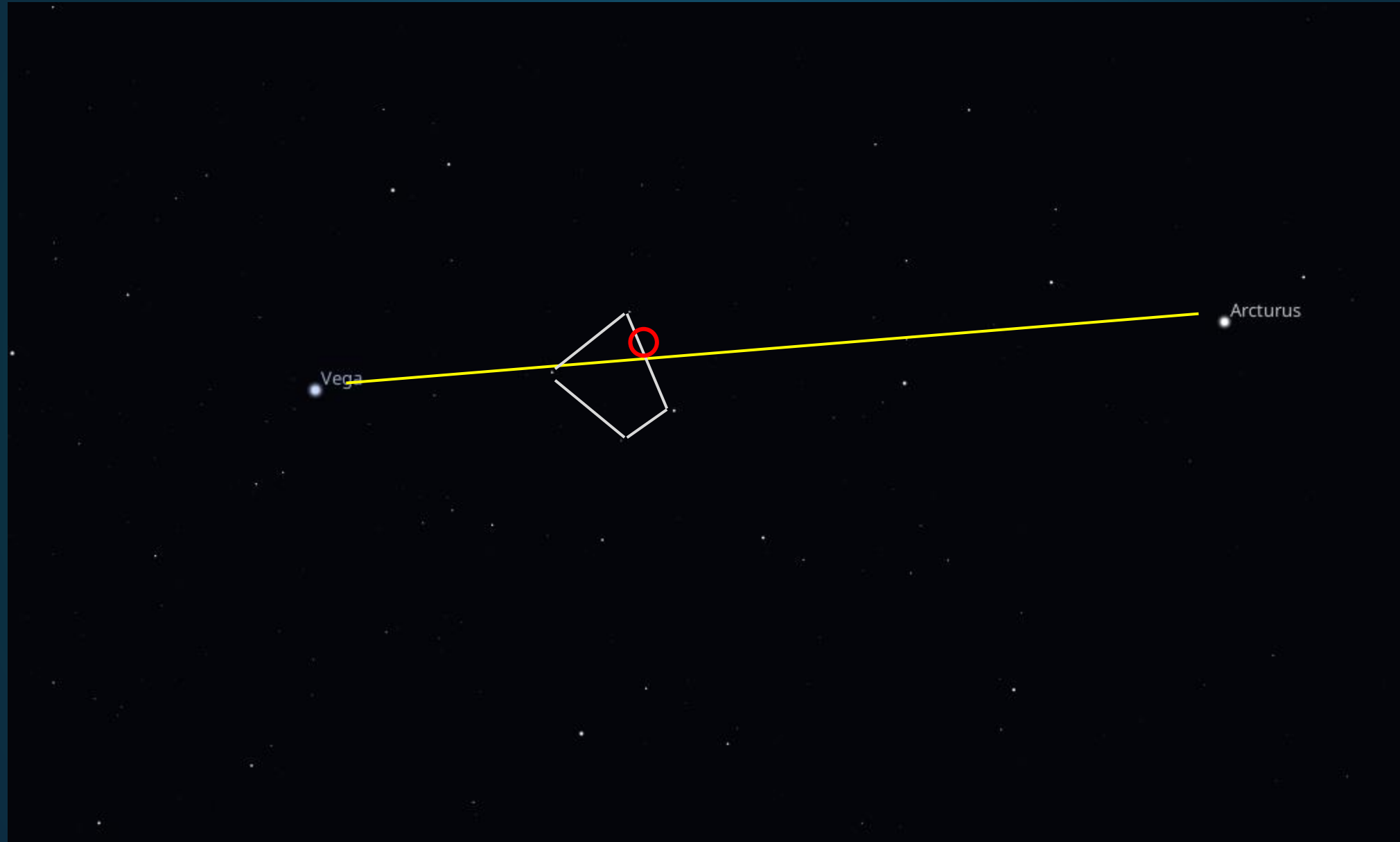
Lagoon Nebula (M8)

- Emission nebula M8 – the Lagoon Nebula
 - An oblong glow of light floating above the spout of the teapot.
 - 45 arc-minutes by 30 arc-minutes
 - A star-forming region at roughly 5,000 ly away ($\pm 1,000$). The intervening dust complicates photometric distance methods





Sky Hop to the Hercules Cluster (M13)

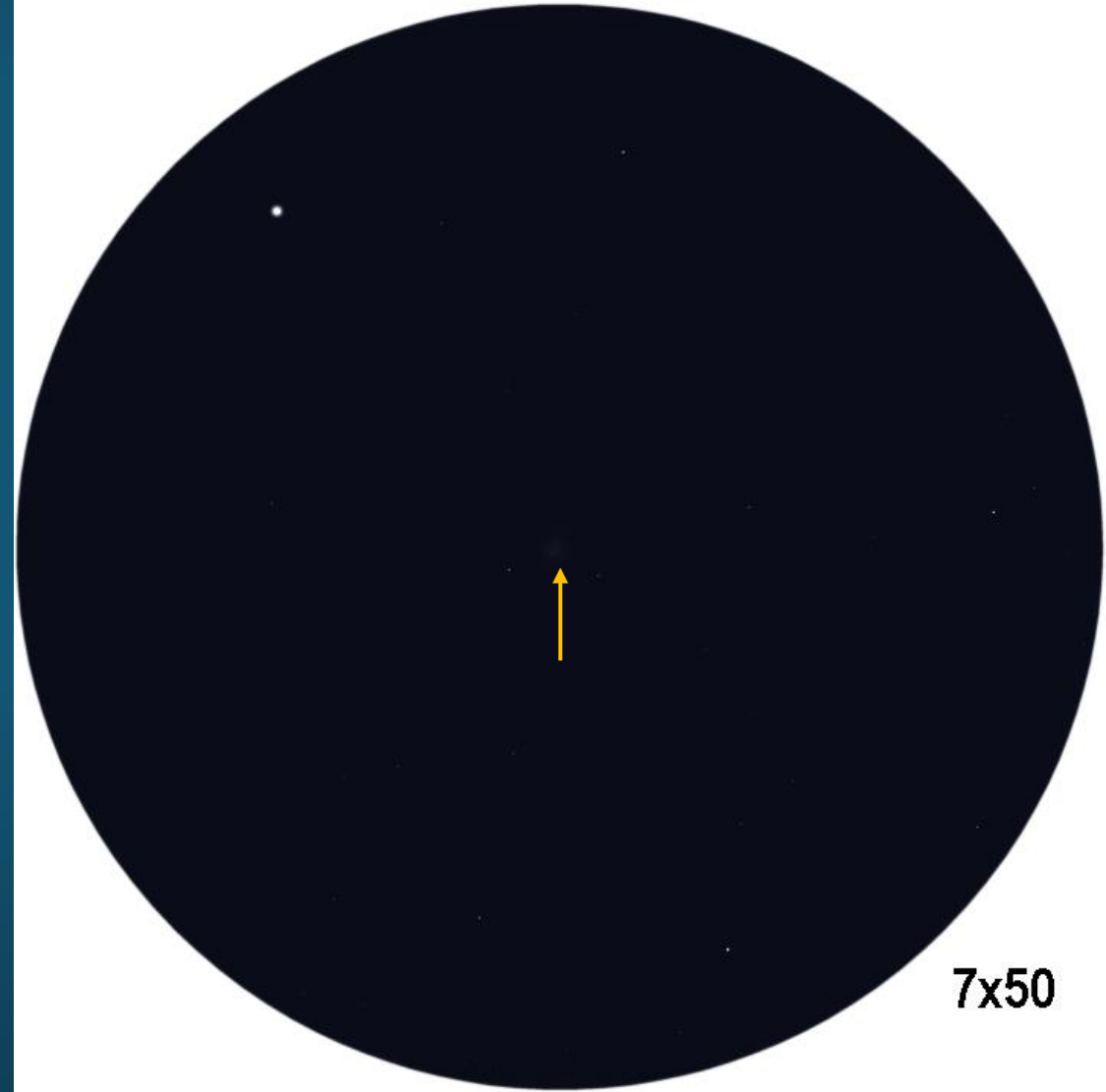




Hercules Globular Cluster (M13)

- M13 is one of the brightest, densest, and most scientifically important globular clusters in the northern sky
 - A round, hazy patch about $\frac{1}{4}^\circ$ in size forming a triangle with two nearby stars.
 - No individual stars resolved, but the cluster has a grainy texture that suggests its extreme richness.
 - Distance: ~22,000 light-years
 - Star count: ~300,000 stars
 - Age: ~11–12 billion years — nearly as old as the Milky Way itself
 - Diameter: ~145 light-years

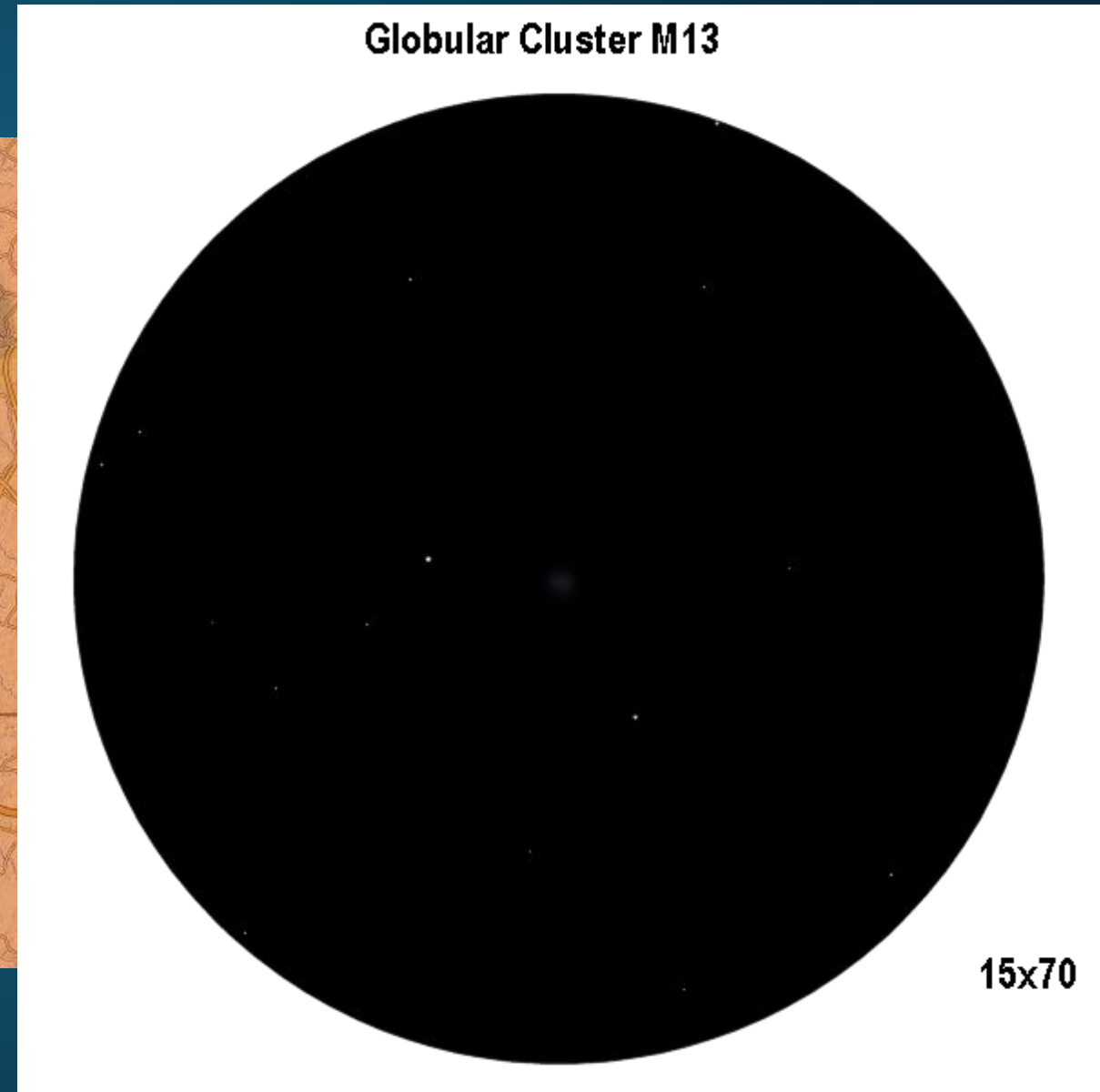
Globular Cluster M13





M13 from Alpha Ridge

- Darker sky is a huge help
 - Easier to see your target
 - More impressive
- Take your ultra-portable binoculars for a ride
 - Towson – Bortle 8
 - Alpha Ridge – Bortle 6
- M13 becomes significantly easier to pick up (even in smaller 7x50)





Thank You!

ANY
QUESTIONS
?

www.rekrutIn.com

ReKruiTIn.com



Pocket Astrophotography

Using Your Cell Phone to Capture the Night

Why Your Cell Phone Is a Surprisingly Good Night-Sky Camera

- You already own it!
 - No new gear, most everyone in the room can start experimenting tonight
- You have it all the time, promoting spontaneity
- Computational photography
 - Modern phones can stack multiple frames, denoise, and boost faint detail automatically
- Built-in stabilization
 - Optical and electronic stabilization help reduce blur in handheld shots
- Instant feedback and iteration
 - You can shoot, adjust, reshoot, and improve within seconds

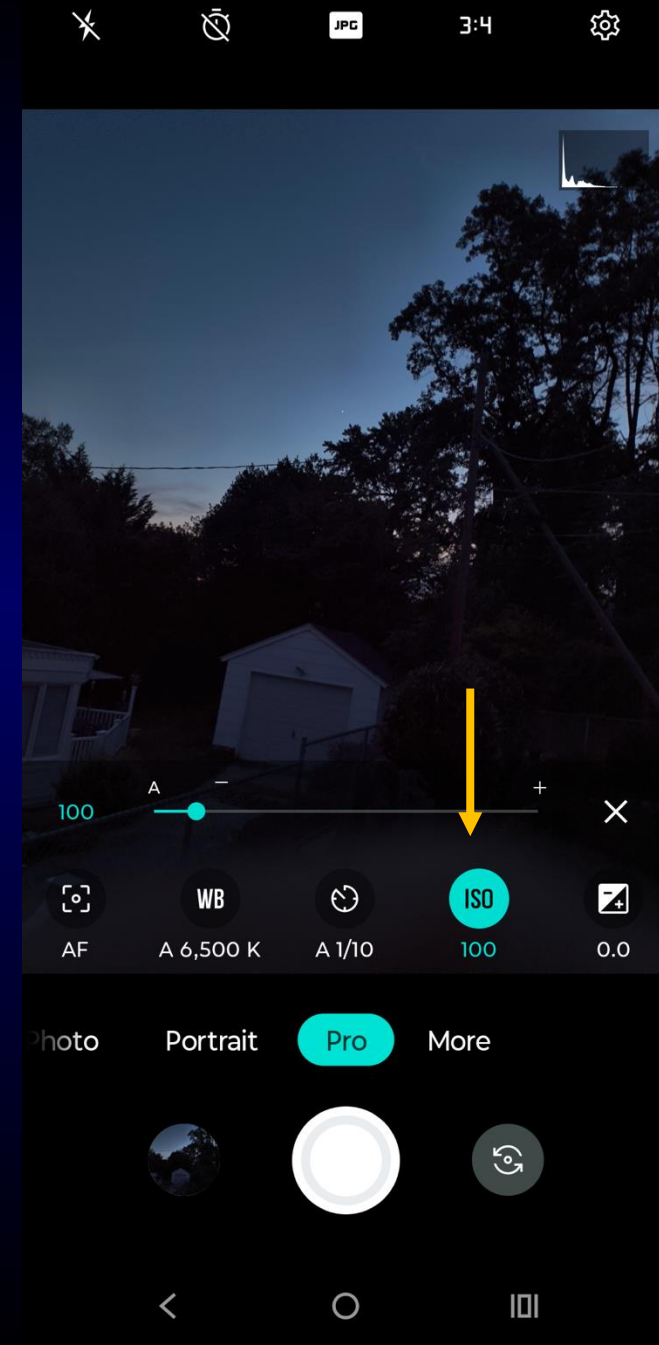
What Sort of Targets Are Suitable

- Moon
 - Eclipse coming late August...
- Conjunctions
- Constellations & Asterisms
- Milky Way (dark sky area)
- Aurora
- IIS passes



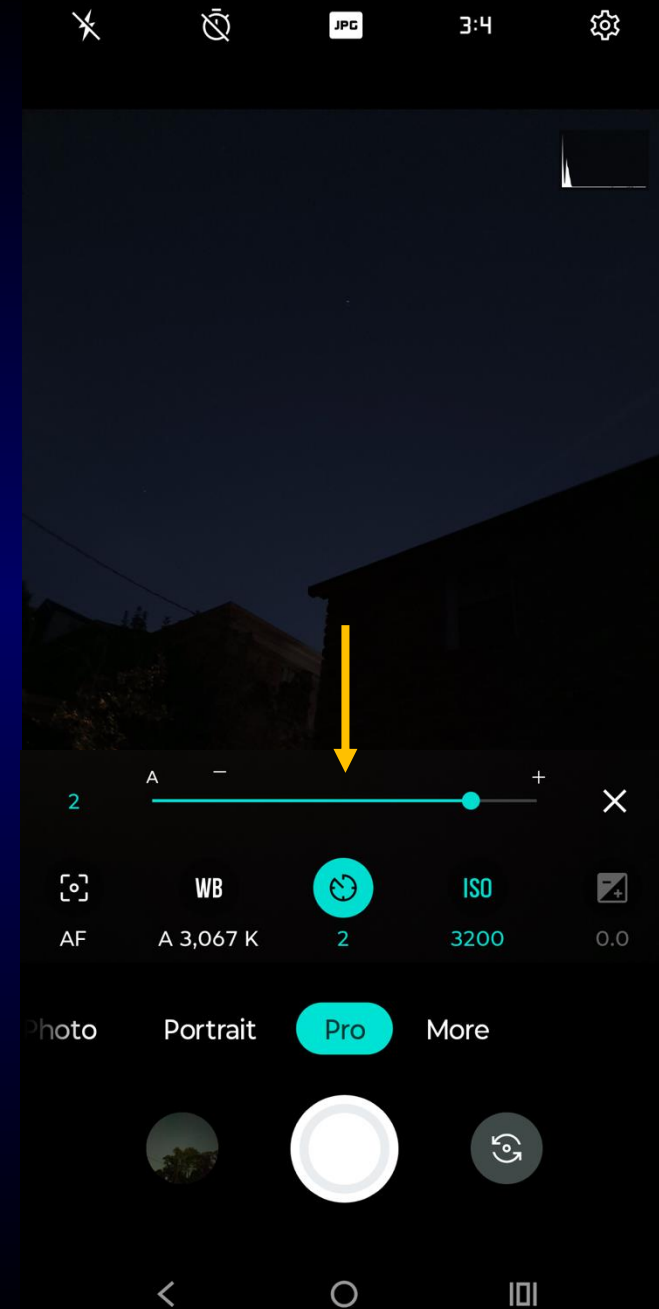
Going Pro

- Most modern cell phone cameras have a “Pro” mode that gives you control over the settings
 - ISO (Light Sensitivity)
 - Low ISO (100–400): cleaner images, less noise.
 - High ISO (1600–3200): brighter images in the dark, but grainier. Shorter exposure meaning less movement blurring the shot.
 - Slider allows you to adjust the ISO value and see the resulting effect



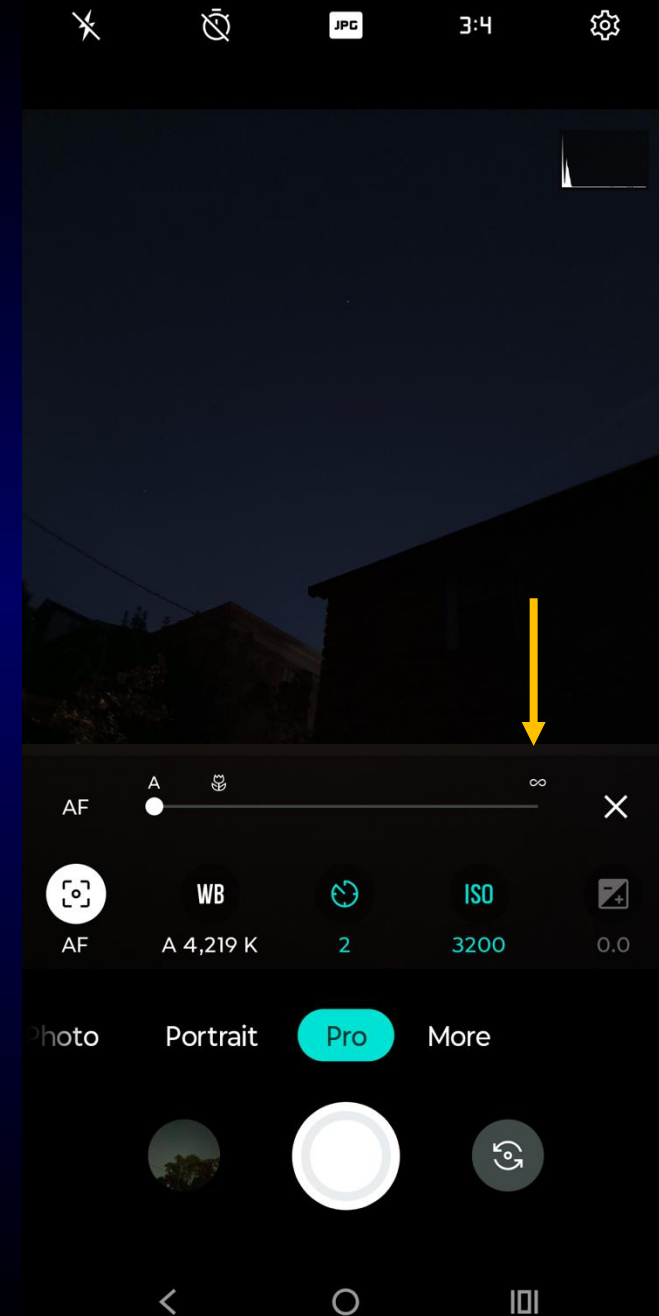
Going Pro

- Shutter Speed
 - **Slow (1/2–10 sec):** essential for stars, Moon, and night landscapes.
 - Longer exposure allows capture of fainter objects, but creates more of a need to stabilize the camera during the longer exposure
 - Brace against a railing, car, etc.
 - Use a tripod if you are being more planned than spontaneous



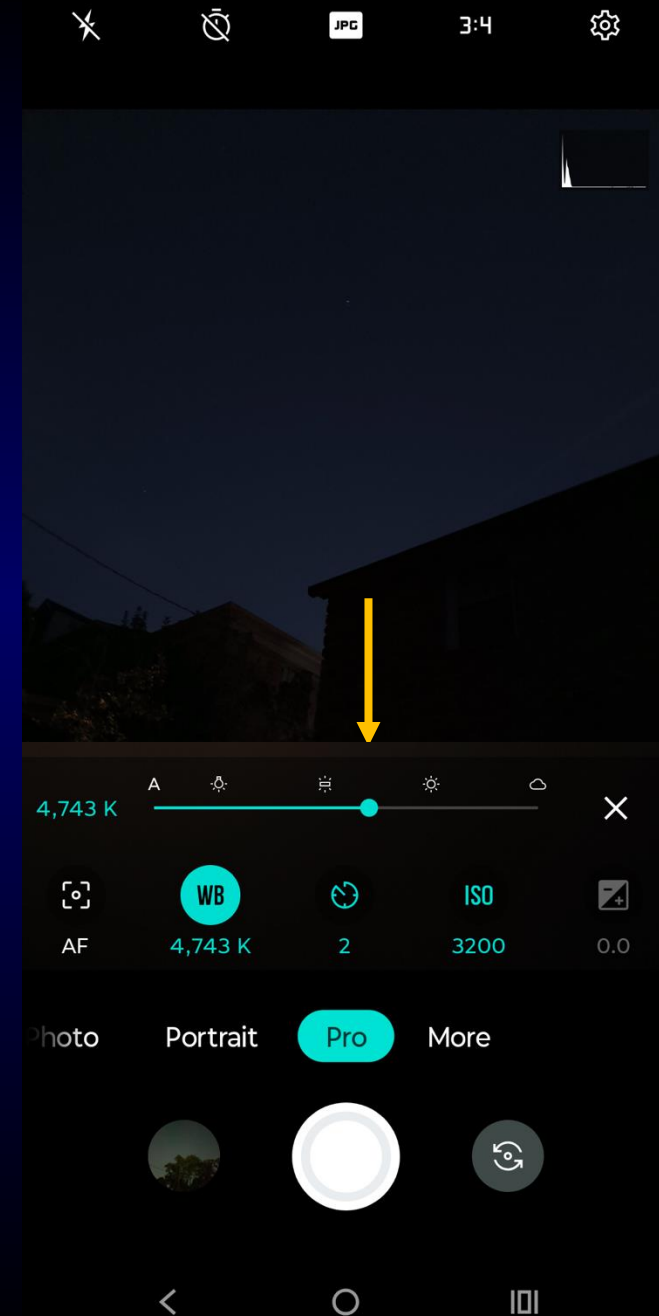
Going Pro

- Focus Mode
 - AF: good for Moon, planets, and bright objects.
 - Manual: best for stars – set to infinity.
 - **Night sky tip:** Switch to manual and slide to the infinity icon for crisp stars.
- Pull slider all the way to the left for automatic focus, all the way to the right for manual ∞



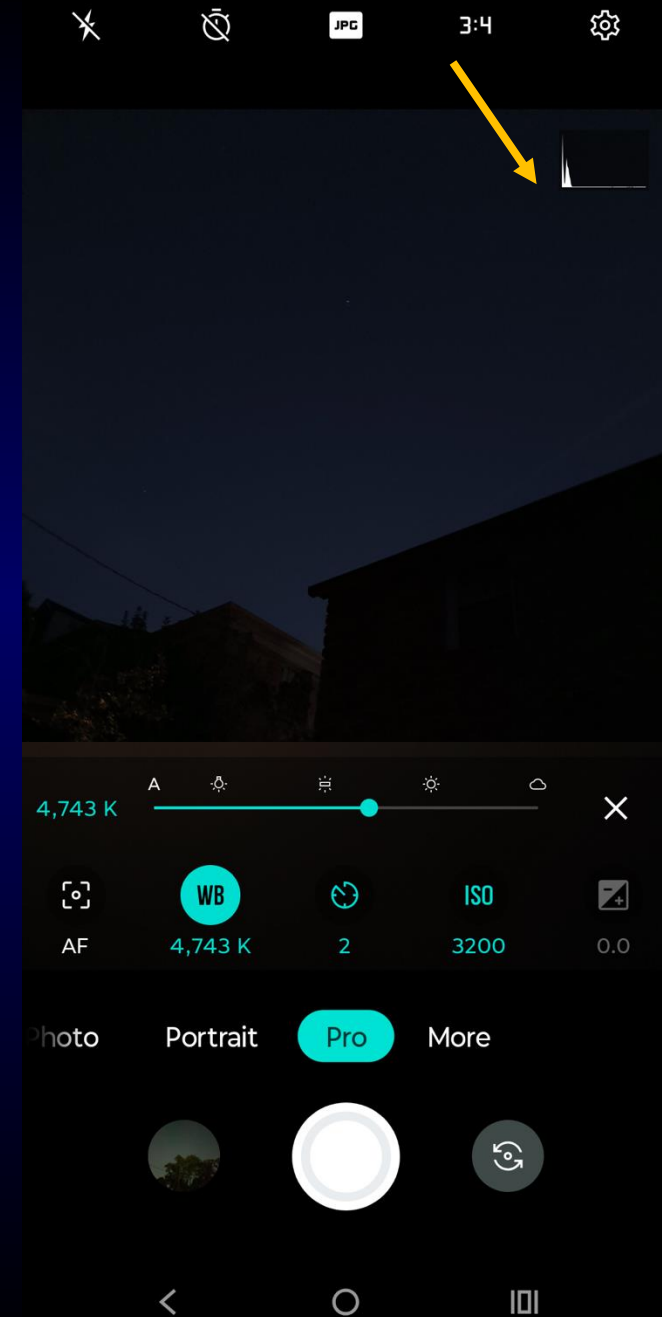
Going Pro

- White Balance (WB) – adjusts color temperature
 - Lower numbers (3000–4500K): cooler, bluish sky.
 - Higher numbers (5500–6500K): warmer, yellowish sky.
 - **Night sky tip:** Set WB manually around 4000–5000K for natural-looking stars.



Going Pro

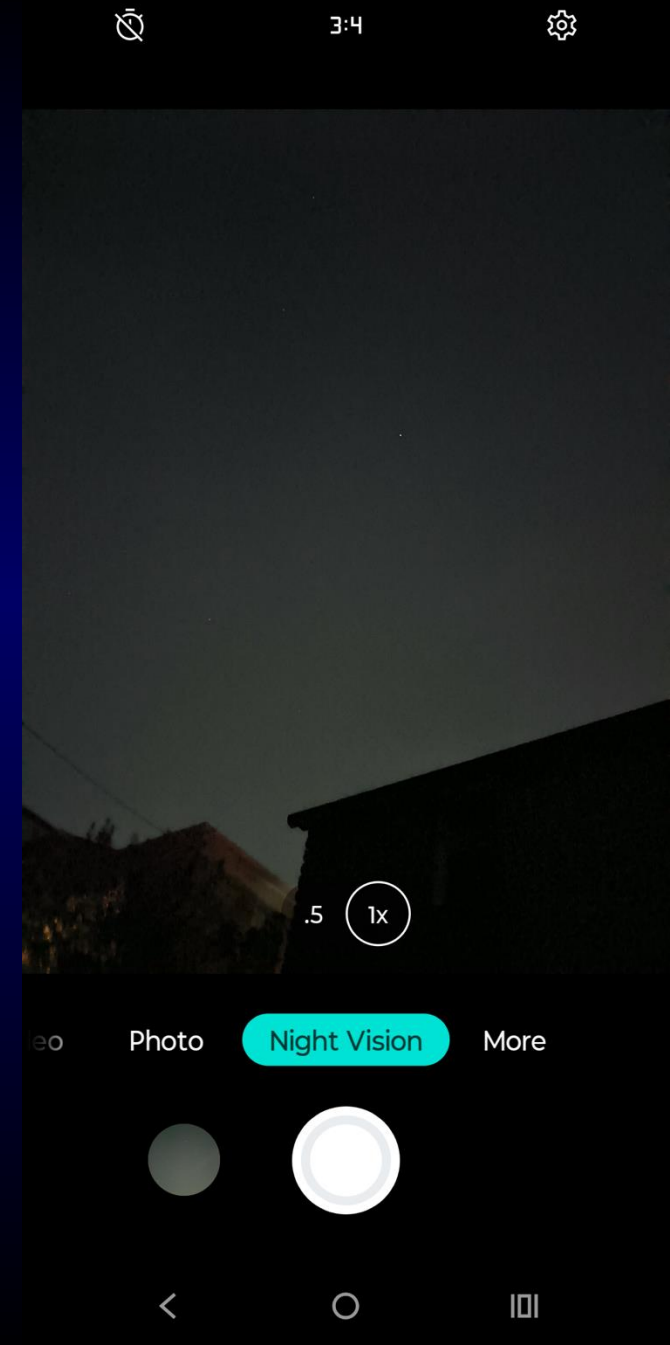
- Histogram – graph showing the brightness distribution
- Keep the peak toward the left (dark sky) but not crushed against the edge.



Night Mode (Night Vision)

A powerful tool — with important limitations

- What it does well
 - Boosts faint detail automatically
 - Computational stacking brightens stars, rooftops, and foregrounds without needing manual settings
 - Reduces noise
 - Multiple frames are combined to smooth grain — great for wide-field sky shots
 - Handles color intelligently
 - Night Mode often produces more natural sky color than auto mode
 - ★ Improves handheld shots
 - You can capture stars without a tripod thanks to stabilization and frame averaging
 - Great for landscapes + sky together
 - Houses, trees, and horizon glow come out nicely, making it ideal for “nightscape” outreach photos.



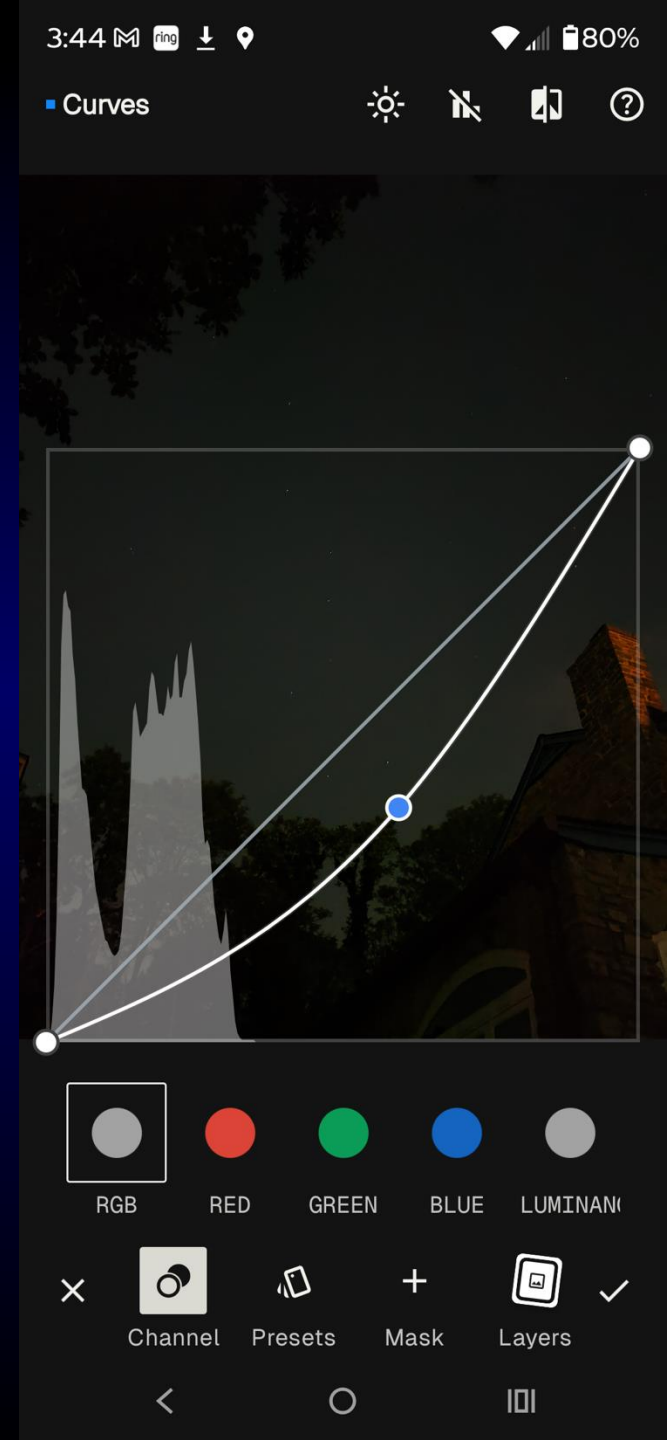
A Simple Workflow

- Stabilize the Phone
 - Stability is the #1 factor in getting sharp night-sky images
- Set Your Base Settings
 - ISO: 100–400; Shutter: 1–2 seconds; WB: 4000–5000K; Focus: Manual → Infinity
- Frame Your Target
 - If including the Moon, lower exposure or ISO until surface detail appears
- Check the Histogram
 - Sky should be dark but not jet black
- Take Several Shots – play around with exposure, ISO
- Optional: Use Night Mode
 - Great for landscapes and Milky Way, but tends to over-brighten the Moon

Post-Processing

Tweaking your shot to get the most out of it

- Snapseed – a free Android/iOS app that allows you to
 - Crop
 - Dehaze (denoise)
 - Tune your image
 - Brightness
 - Contrast
 - Highlights
 - Curves



Before & After



In Closing...

You don't need special gear — just a little technique and a few smart tweaks

- You can take advantage of having a phone (camera) on you when nature offers up a beautiful scene
- Compose for Success
 - Include a foreground element for interest, avoid bright streetlights
- Capture Clean Data
 - Hold steady, take multiple shots
- Keep Expectations Realistic
 - Phones can capture stars, constellations, and even the Milky Way - but keep it real.
- Have fun and enjoy the simplicity!



Seestar S50 Program

<https://howardastro.org/seestar-loaner-program/>

Aileen Judd => Sundar Raghavachari

Can I take another turn?

Yes, you can add your name back onto the wait list

BUT

We prioritize members who have not had a chance to use it yet



Seestar S50

Kody / 76° W, 39° N / 2026.07.01 02:41

NGC 7635

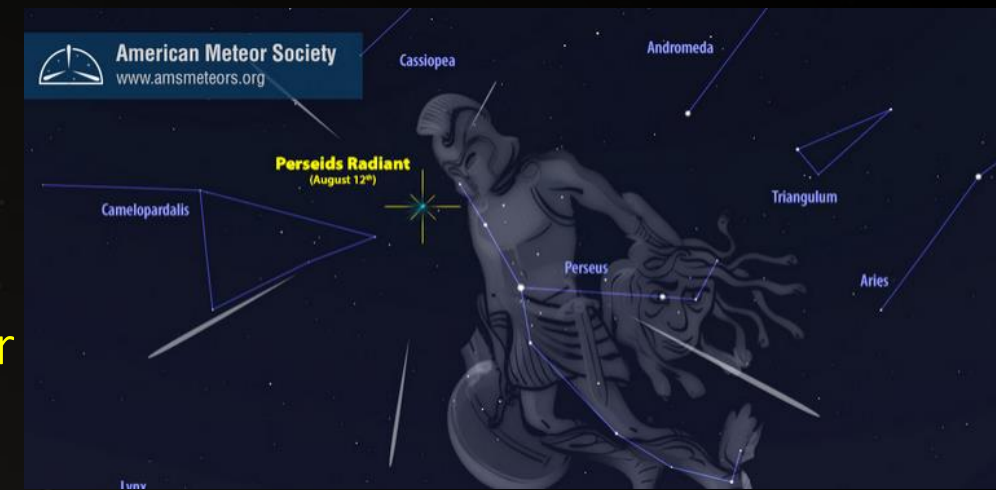
122min

Shallow Sky Highlights for July-August 2024

- *Mercury is well positioned in the pre-dawn sky, reaching greatest elongation (distance) from the Sun on August 2nd*
- *Venus is a beacon in the west after sunset, reaching dichotomy (half phase) on August 12th*
- *Saturn is in the morning sky and is just past Western quadrature, heading for an early October opposition*

It's Perseids Time Again

- One of the most reliable meteor showers – 60/hr
- Peak is Tuesday August 13th at 10 a.m. so observe either pre-dawn of the 12th or especially the 13th
- Moon is near new – so no interference this year
- The days on either side of the peak can also see up to 20-30 meteors an hour. In 2021, there was an outburst the day after the peak that exceeded the peak.
- Get to a dark sky location if at all possible
 - Alpha Ridge Impromptu??? **Members Only**
- Be comfortable – lounge chair works great. Don't forget a pillow and – depending on the temps – a light blanket. Insect repellent may be advisable as well.
- Binoculars are not needed but can allow you to inspect the “smoke train” that some of the brighter ones will leave.

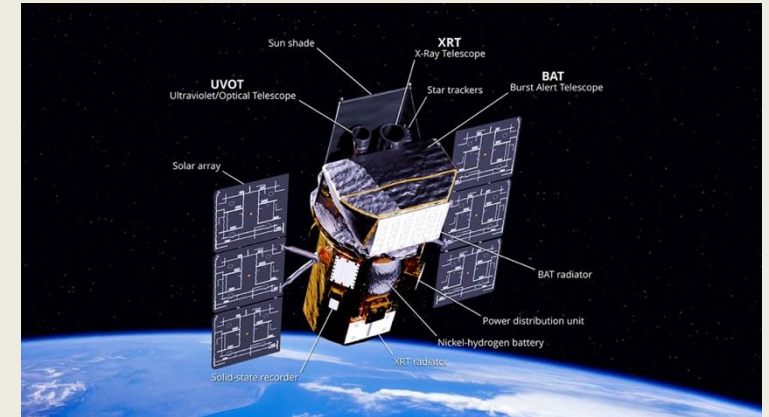


What's Up in Space Headlines

July 9, 2026

SWIFT Rescue Mission

- The Neil Gehrels SWIFT observatory was launched in 2004 to monitor the most energetic events in the universe, Gamma Ray Bursts (GRBs)
 - By swiftly pointing its detectors when a GRB signal is detected, it can notify astronomers where to look for closer examination
- Solar activity has increased atmospheric drag and it will reenter sometime this fall
- Katalyst Space Technologies launched a mission to reboost SWIFT on July 3
 - LINK satellite on Northrop Grumman Pegasus rocket from L-1011 aircraft
 - Spend a few weeks checking out satellite, then determine how best to grapple SWIFT
 - Once captured, ion engines will boost the orbit over a period of several months



NASA's Goddard Space Flight Center Conceptual Image Lab

More Info at <https://www.nasa.gov/news-release/nasa-awards-company-to-attempt-swift-spacecraft-orbit-boost/>
<https://www.cnn.com/2026/07/03/science/nasa-swift-boost-rescue-mission>

What's Up in Space Headlines

July 9, 2026

JWST Observes M82

- Observed with NIRcam for 65 hours
 - Imaged approximately 16 million stars in the disk, a small fraction of the stars present as most are too faint to be seen directly
 - Also imaged fine structure in the extended dust and gas out the minor axis of the galaxy
 - Infrared imaging allowed much of the central dust to be penetrated to reveal the structures behind the dust veil
- Both ionized gas and dust grains are seen in the image
 - The yellowish strands seen near the center are gas ionized by the intense light from the central starburst regions
 - The orange material farther out is grains of polycyclic aromatic hydrocarbons making up the dust
- The imaging data should provide important information regarding the formation history of the galaxy

More Info at <https://science.nasa.gov/missions/webb/nasas-webb-pinpoints-millions-of-stars-within-cigar-galaxy/>

What's Up in Space Headlines

July 9, 2026

JWST Observes M82

Proposal 5145, Adam
Smercina

Color Assignments:

1.15 μ m (blue)
2.0 μ m (cyan)
3.35 μ m (orange)
4.44 μ m (red)
All wide-band



Note:

Bright starbursts in
the inner region

Disk has at least
two components

Disk is slightly
warped

Inner disk appears
asymmetric right to
left

Massive outflows of
dust from central
starburst region

NASA, ESA, CSA, Adam Smercina (STScI, Tufts), Thomas Williams (University of Manchester); Image Processing: Alyssa Pagan (STScI)

What's Up in Space Headlines

July 9, 2026

JWST Observes M82 – Central Region



Note:
Bright
starbursts in
the inner region

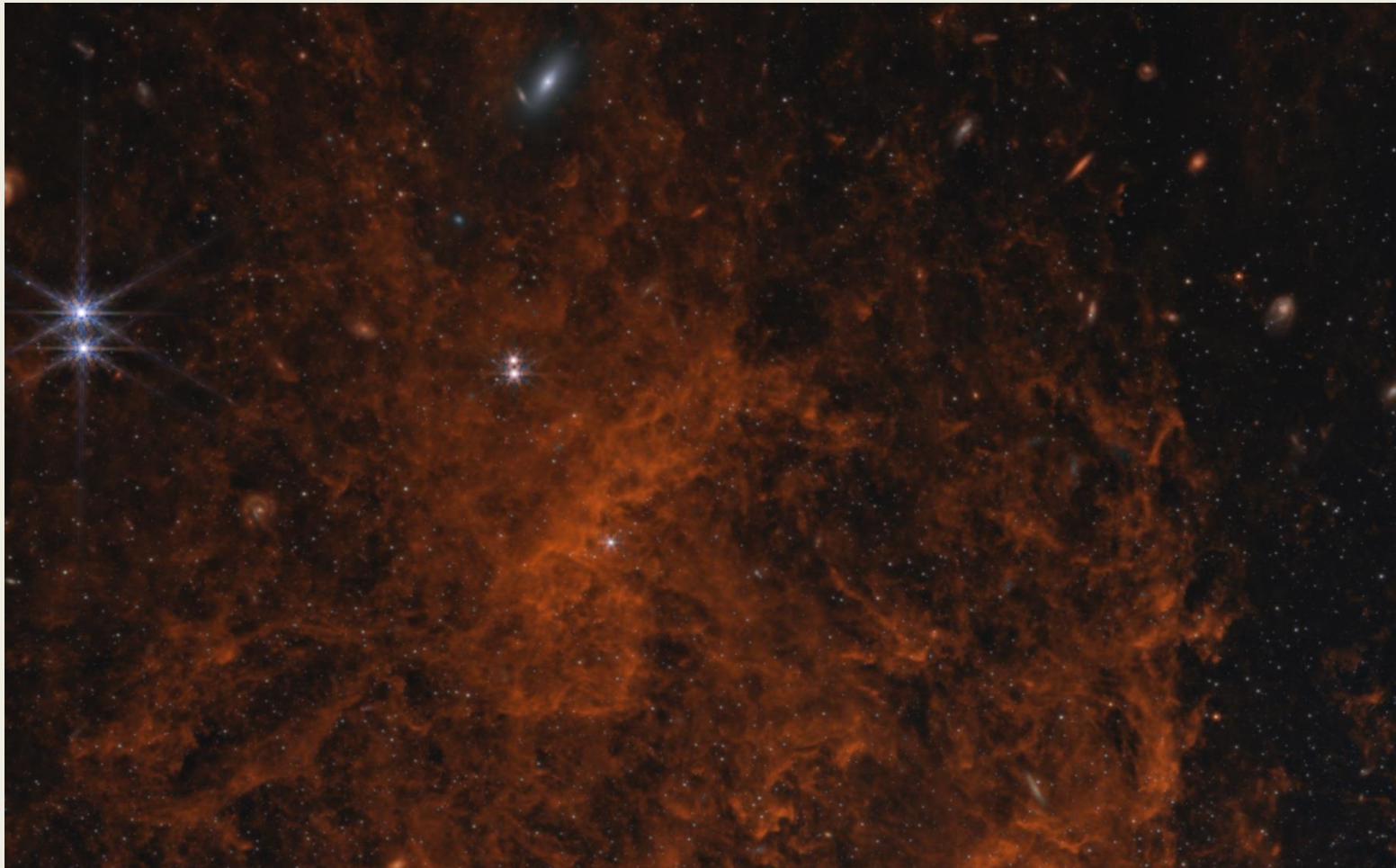
Massive
outflows of gas
and dust from
central
starburst region

NASA, ESA, CSA, Adam Smercina (STScI, Tufts), Thomas Williams (University of Manchester); Image Processing: Alyssa Pagan (STScI)

What's Up in Space Headlines

July 9, 2026

JWST Observes M82 – Dust Detail



Note:

Fine detail in the
dust structure

Highly-reddened
distant galaxies

NASA, ESA, CSA, Adam Smercina (STScI, Tufts), Thomas Williams (University of Manchester); Image Processing: Alyssa Pagan (STScI)

What's Up in Space Headlines

July 9, 2026

JWST Observes M82 – Distant Galaxy Cluster



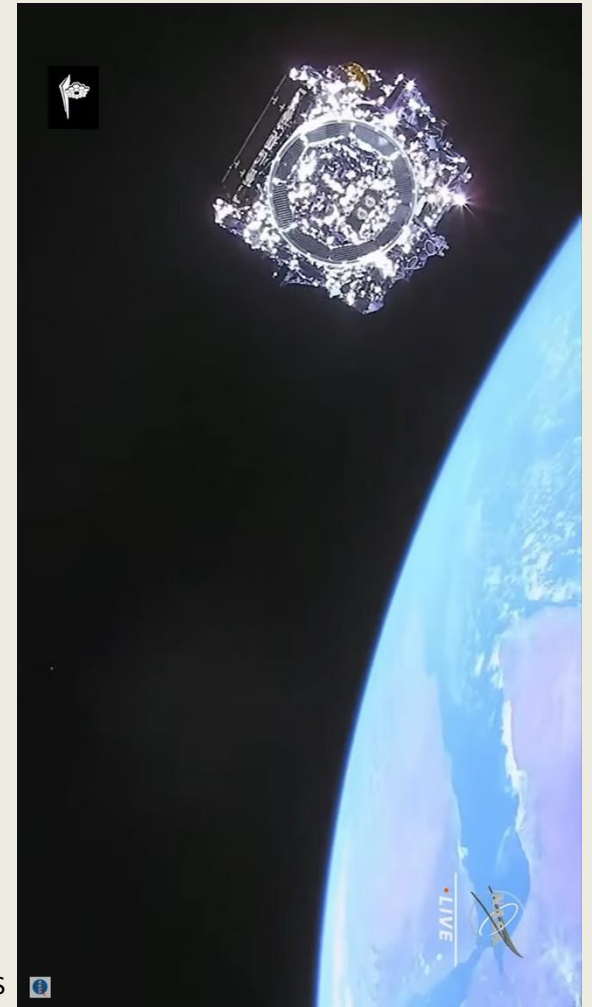
NASA, ESA, CSA, Adam Smercina (STScI, Tufts), Thomas Williams (University of Manchester); Image Processing: Alyssa Pagan (STScI)

What's Up in Space Headlines

July 9, 2026

JWST Begins Fifth Year of Operations

- Launched on Christmas Day 2020, started science observations in July 2021
 - The fifth year of science operations is starting now
- JWST mission has a 5-year requirement with a 10-year goal
 - Launch performance left it with fuel for approximately 20 years
- Cycle 5 observing proposal selection is complete
 - 2,930 proposals were received – a record response for any major observatory
 - 99,782 hours of time were requested (only 8,760 hours in a year!)
 - 254 proposals were accepted, totaling 8,009 hours
 - NIRSpec is the most used instrument, with about half of the total time
 - Covers all areas of astronomical research



Arianespace, ESA, NASA, CSA, CNES

Member Astrophotos, Sketches, & Artwork

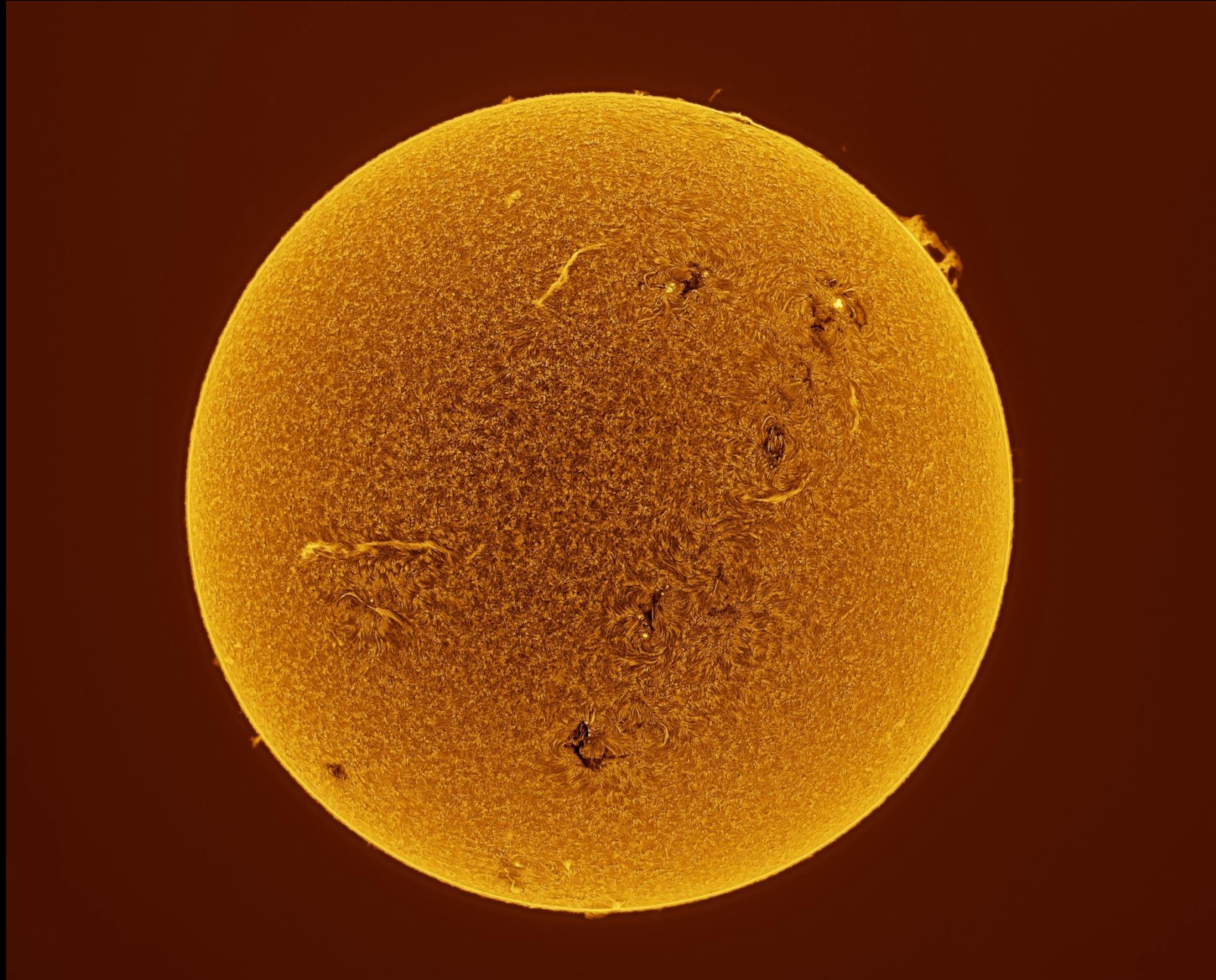


Object of the Month: M101



Jose Urias

Sun in H-Alpha



M51



Jose Urias



Abell 2151 Hercules Cluster

Abell 2151 (Hercules)
15 June 2026
Alpha Ridge Park

8-inch F/8 RC
LRGB (60,28,20,20)x (2,3,3,3)min
4h54m Total Exposure Time

ASI294MM-P, 2x2
Gain 120 (1.0e/ADU)
Wayne Baggett

Wayne
Baggett

Leo Triplet

Celestron Origin

- 2½ hours of 10 sec exposures.
- No filter, light post-processing in Photoshop.



Gary
Richardson

M16: Eagle Nebula

Celestron Origin

- 2½ hours of 15 sec exposures.
- Narrow band filter
- Light post-processing in Photoshop.



Gary
Richardson

Saturn 2026-07-02 08:24.7 UT
CMI=332° CMII=65° CMIII=205°
Seeing: 9/10 Trans:5/10



Rhea

25cm Newtonian f16,
2.5x TV Barlow
W/L w/ L
QHY5III462 at 75fps
Derotation 20min

*Jim Tomney
Towson, MD US*

M16 & M17

STATS

Scope: S30 Pro
F/L: 160-mm
Camera: IMX585
Filter: Light Pollution
Subs: 1179x20s
D/B/F: N/N/N
Capture: SeeStar App
Processing: PixInsight

Wes
Ferwerda

M31

Wes
Ferwerda

M31 - Andromeda
Scope: S30 Pro
F/L: 160 mm
Camera: 1MX585
Filter: UV/IR Cut
Subs: 332x20s
D/B/F: N/N/N
Capture: SeeStar App
Processing: PixInsight

M101

Wes
Ferwerda



STATS

Scope: SV503 80ED
F/L: 560 mm
Camera: 585MC Pro
Filter: L-Quad
Subs: 560x60s
D/B/F: N/Y/Y
Capture: N.I.N.A
Processing: PixInsight

Eastern Veil Nebula

NGC 6992

Scope: Apertura 90 APO, 0.8x
F/L: 432 mm
Camera: 585MC.Pro
Filter: L-Quad Enhance
Subs: 466x60"
Location: Thurmont, MD
Sky Rating: Bortle 4.5
Date: 7/1-3/2026
Darks/Bias/Flats: N/Y/Y
Capture: N.I.N.A
Processing: PixInsight

Wes
Ferwerda

Thanks for Joining Us!



Be safe heading home – see you next month



HAL Planning Meeting: Aug 3, 2026

HAL Members Meeting: Aug 13, 2026