



# ASTROFILES

## Auburn Astronomical Society Newsletter

**August 2023**

*Newsletter Editor — John Wingard — [jwin1048@gmail.com](mailto:jwin1048@gmail.com)*

### Moon Phases

September 6 — Last Quarter  
September 14 — New Moon  
September 22 — First Quarter  
September 29 — Full Moon  
October 6 — Last Quarter  
October 14 — New Moon  
October 21 — First Quarter  
October 28 — Full Moon

### News and upcoming activities

We continue to slog through the unusually hot and humid month of August with the frequently unpredictable thunderstorms and cloudy skies. But cooler days and longer nights are not too far away. Also, keep in mind the scheduled stargaze coming up on Saturday, October 21st in Prattville, AL. More details to come. Don't forget that Saturn is at opposition now and is up all night. It is now the biggest and brightest that it will be this year. It rises in the east as the Sun sets in the west.

Jessica Thomason from the University of Montevallo just posted their fall calendar of observing nights at the James Wylie Shepherd Observatory. The follow dates are free and open to the public, weather permitting.

September 6, 20 - 7 PM to 9 PM

October 18 - 7 PM to 9 PM

November 1, 15, 29 - 7PM to 9 PM

### Stay in touch with us



<http://www.auburnastro.org>



<https://www.facebook.com/groups/79864233515/>



A one in a million capture! AAS member Chris Young was recently imaging the Helix nebula (NGC 7293) when an incoming Perseid meteor appeared to almost pass through the center of the nebula. Such an occurrence would typically be aggravating but I think that in this case it created a memorable image to keep.

## For Sale

I have the telescope pictured below for sale. It is a Sky-Watcher 10-inch collapsible Dobsonian in like new condition. I purchased it in 2014 but it has only been taken outside a few times since then. It is somewhat heavy and with my bad back I just cannot handle it anymore. Also, the light pollution at my current location is much worse than it was when I first purchased it. It really needs to go to someone that has access to a dark sky site. There it would be a great performer for deep-sky objects as well as the Moon and planets. It comes with two Plossl eyepieces (10mm and 25mm) and has a removeable finder scope. The original manual is also included. As per the description, it can be collapsed for a more compact size when stored. Fully extended it is 53-inches high and collapses down to 40 1/2" high. The optical tube assembly can be separated from the base for easier transport. Asking price is \$500.00 firm. A similar scope today is at least \$800.00 or more. Due to the size and weight I will not ship it. It can be picked up at my location in Columbus, GA or I might be able to meet someone within reasonable driving distance. If interested, please send me an email at [jwin1048@gmail.com](mailto:jwin1048@gmail.com). Thanks! John Wingard



# What's Up, Doc? †

## September 2023

Dr. Aaron B. Clevenson, Observatory Director, Insuperity Observatory

This document tells you what objects are visible this next month for many of the Astronomical League Clubs. If you are working on one of the more advanced club, then I assume that you are tracking where your objects are all the time. I have concentrated on the common and starter level clubs. This information is based on 9 PM. All times are US **Eastern** Time in Washington DC.

### Naked-Eye Clubs

#### Meteors

<u>Showers</u>	<u>Duration</u>	<u>Maximum</u>	<u>Type</u>
Gamma Aquarids	9/1 to 9/14	9/7 & 9/8	Minor
Alpha Triangulids	9/5 to 9/15	9/11 & 9/12	Minor
Alpha Aurigids	8/25 to 9/6	9/1 & 9/2	Minor
Eta Draconids	8/28 to 9/23	9/12 & 9/13	Minor
Gamma Piscids	8/26 to 10/22	9/23 & 9/24	Minor
Southern Piscids	8/12 to 10/7	9/11 to 9/20	Minor

**Constellations, Northern Skies** – any night, any time, anywhere, the darker the sky the better.

Last Chance this cycle: Draco, Canes Venatici, Bootes, Serpens, Libra, Scorpius, Telescopium.

Transit: Cygnus, Lyra, Sagitta, Vulpecula, Delphinus, Aquila, Scutum, Sagittarius.

New arrivals: Andromeda, Pisces, Pegasus, Aquarius, Microscopium, Piscis Austrinus.

### Binocular Clubs

**Binocular Messier** – Monthly highlights include:

Easy – 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18, 22, 23, 24, 25, 27, 29, 31, 39, 52, 55, 92, 103.

Medium – 14, 19, 28, 30, 33, 40, 62, 63, 80, 81, 82, 94.

Hard – 9, 26, 32, 51, 54, 56, 71, 75, 101, 106.

Big Binoculars – 69, 70, 72, 102, 107, 109, 110.

**Deep Sky Binocular** – Monthly highlights include (by Astronomical League numbers):

1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

### Other Clubs

#### Messier

In addition to those listed under Binocular Messier, check out: 21, 57, 73, 76, 108.

#### Caldwell

1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 33, 34, 37, 42, 43, 44, 47, 55, 57, 63, 68, 69, 76, 78.

**Double Star** (by Astronomical League numbers):

1, 4, 7, 9, 10, 12, 13, 14, 15, 18, 21, 22, 26, 29, 31, 35, 36, 37, 38, 39, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 56, 57, 58, 60, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 84, 86, 87, 88, 89, 90, 91, 93, 94, 96, 97.

## Other Clubs (of the Solar System)

**Solar System** – These are the tasks that can be done this month:

Sun – Any clear day is a good time to get those sunspots.

Sunset mid-month is at 1917.

Moon:

The Maria requirement can be done any time the moon is visible. Look before 9/6 and after 9/20 for the fullest views.

The Highlands requirement can be done at the same time.

The Crater Ages requirement is best done on 9/19 and 9/20.

The Scarps requirement is best done on 9/21.

Occultations occur all the time, the bright ones can be found on the internet. Objects disappear on the East side of the moon.

Asteroids – Course Plotting and Measuring Movement requirements can be done at any time on any asteroid.

Venus is not visible in the evening sky this month.

Mercury is in Leo and sets at 2012 mid-month.

Mars is in Virgo and sets at 2052 mid-month.

Ceres is in Virgo and sets at 2209 mid-month.

Jupiter is in Aries and rises at 2253 mid-month.

Saturn is in Aquarius and is up all evening at mid-month.

Uranus is in Aries and rises at 2312 mid-month.

Neptune is in Pisces and rises at 2050 mid-month.

Pluto is in Sagittarius and is up all evening at mid-month.

## Lunar (times are shown for Eastern US Time)

Key timings are indicated below:

New, 9/13      4 days, 9/17      7 days, 9/20      10 days, 9/23      14 days, 9/27

Old moon in new moons arms – before 2140 on 9/16, ~10 % illuminated. (72 hr > New)

New moon in old moons arms – after 2140 on 9/10, ~10 % illuminated. (72 hr < New)

Waxing Crescent – before 2140 on 9/15, ~4 % illuminated. (40 hr > New)

Waning Crescent – after 2140 on 9/11, ~4 % illuminated. (48 hr < New)

## Major Astronomical Events:

- 9/1 – Aurigids Meteors
- 9/2 – Venus is Stationary
- 9/4 – Jupiter is Stationary
- 9/6 – Mercury at Inferior Conjunction
- 9/9 – Sept. Epsilon Perseid Meteors
- 9/12 – Lunar Apogee
- 9/14 – Mercury is Stationary
- 9/16 – Moon and Mars Conjunction
- 9/19 – Neptune at Opposition
- 9/22 – Mercury at Greatest Western Elongation
- 9/22 – Mercury at Dichotomy
- 9/23 – September Equinox
- 9/27 – Daytime Sextanids Meteors

\* - Although these clubs are not detailed in this “What’s Up Doc?” handout, you can get information on many of their objects by using the “What’s Up Tonight, Doc?” spreadsheet (version 4.1). To get your copy, talk to the Doc, Aaron Clevenson, by sending an email to [aaron@clevenson.org](mailto:aaron@clevenson.org). It is also available on the club website.

† - “What’s Up Doc?” is used with permission from Warner Bros. Entertainment Inc.

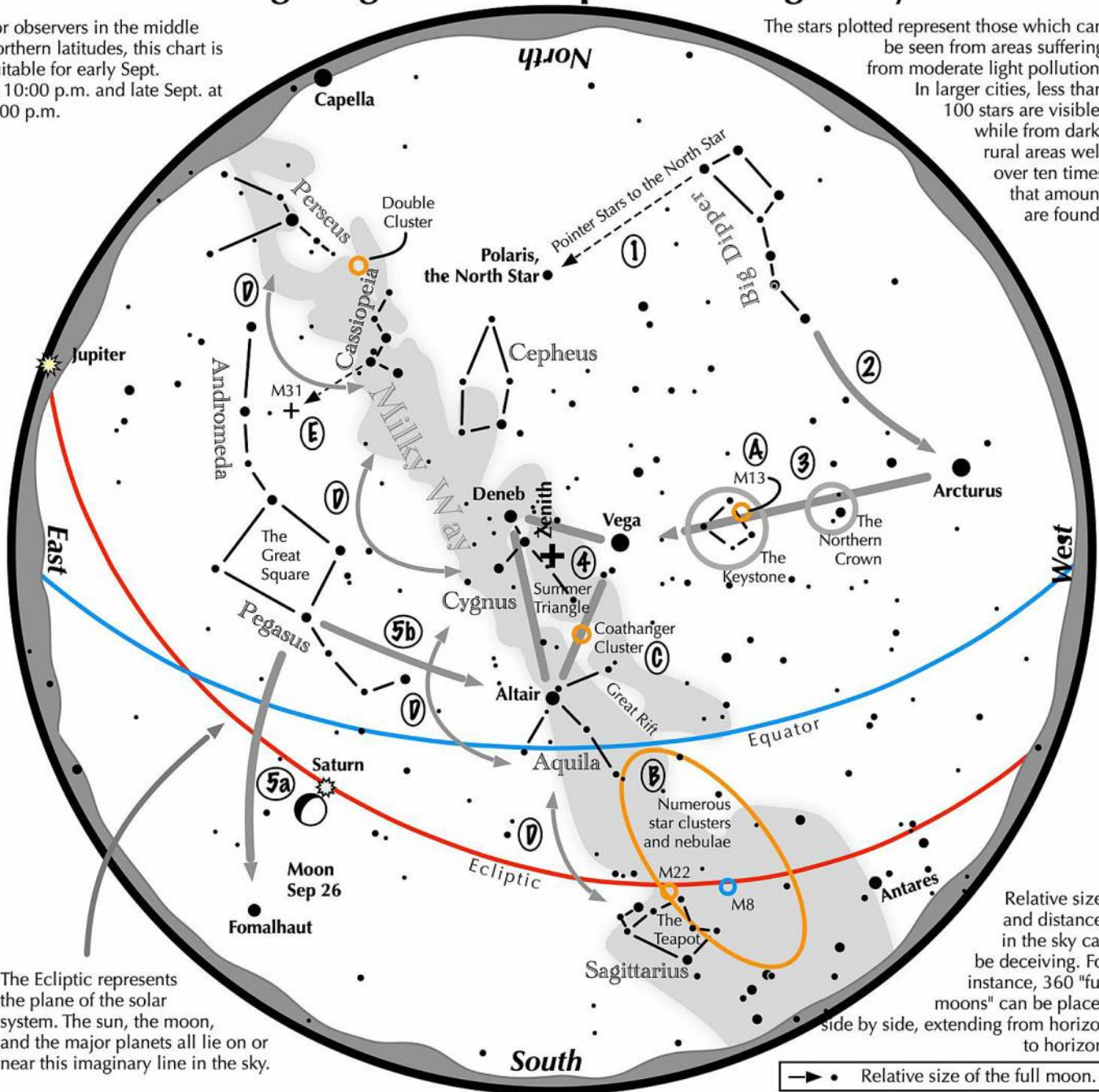
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Insperty Observatory, 2505 S. Houston Avenue, Humble, TX: [www.humbleisd.net/observatory](http://www.humbleisd.net/observatory)

# Navigating the mid September Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Sept. at 10:00 p.m. and late Sept. at 9:00 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 mid September night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the September evening sky.
- 3 Nearly overhead shines a star of similar brightness as Arcturus, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.
- 5 The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.

### Binocular Highlights

- A: On the western side of the Keystone glows the Great Hercules Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
- E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.





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!

## Looking Beyond the Stars

Brian Kruse

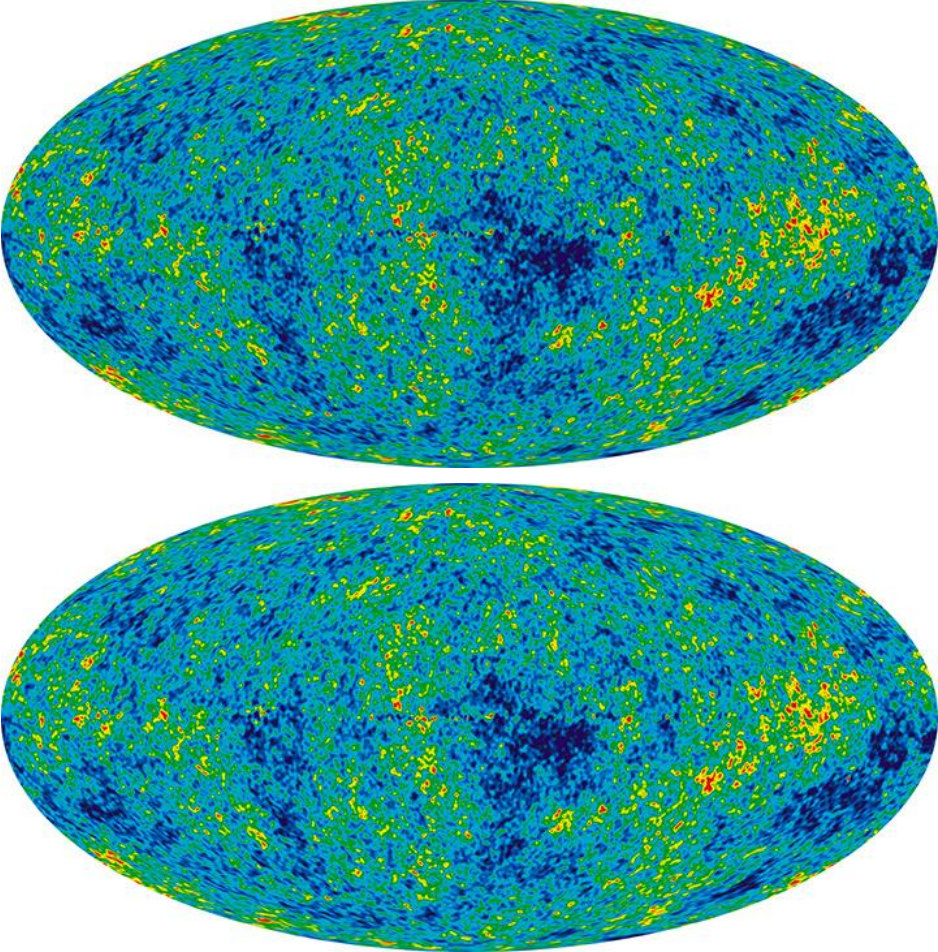
Looking up in awe at the night sky, the stars and planets pop out as bright points against a dark background. All of the stars that we see are nearby, within our own Milky Way Galaxy. And while the amount of stars visible from a dark sky location seems immense, the actual number is measurable only in the thousands. But what lies between the stars and why can't we see it? Both the Hubble telescope and the James Webb Space Telescope (Webb) have revealed that what appears as a dark background, even in our backyard telescopes, is populated with as many galaxies as there are stars in the Milky Way.

So, why is the night sky dark and not blazing with the light of all those distant galaxies? Much like looking into a dense forest where every line of sight has a tree, every direction we look in the sky has billions of stars with no vacant spots. Many philosophers and astronomers have considered this paradox. However, it has taken the name of Heinrich Wilhelm Olbers, an early 19th century German astronomer. Basically, Olbers Paradox asks why the night sky is dark if the Universe is infinitely old and static – there should be stars everywhere. The observable phenomenon of a dark sky leads us directly into the debate about the very nature of the Universe – is it eternal and static, or is it dynamic and evolving?

It was not until the 1960s with the discovery of the Cosmic Microwave Background that the debate was finally settled, though various lines of evidence for an evolving universe had built up over the previous half century. The equations of Einstein's General Theory of Relativity suggested a dynamic universe, not eternal and unchanging as previously thought. Edwin Hubble used the cosmic distance ladder discovered by Henrietta Swan Leavitt to show that distant galaxies are moving away from us – and the greater the distance, the faster they're moving away. Along with other evidence, this led to the recognition of an evolving Universe.

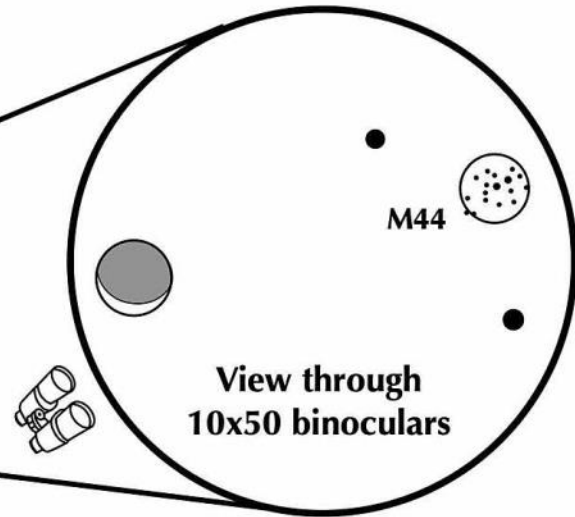
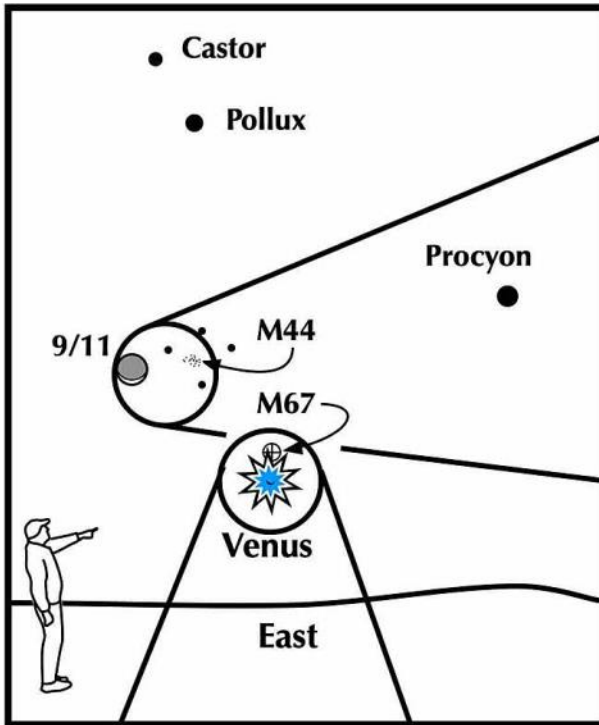
The paradox has since been resolved, now that we understand that the Universe has a finite age and size, with the speed of light having a definite value. Here's what's happening – due to the expansion of the Universe, the light from the oldest, most distant galaxies is shifted towards the longer wavelengths of the electromagnetic spectrum. So the farther an object is from us, the redder it appears. The Webb telescope is designed to detect light from distant objects in infrared light, beyond the visible spectrum. Other telescopes detect light at still longer wavelengths, where it is stretched into the radio and microwave portions of the spectrum. The farther back we look, the more things are shifted out of the visible, past the infrared, and all the way into the microwave wavelengths. If our eyes could see microwaves, we would behold a sky blazing with the light of the hot, young Universe – the Cosmic Microwave Background.

The next time you look up at the stars at night, turn your attention to the darkness between the stars, and ponder how you are seeing the result of a dynamic, evolving Universe.

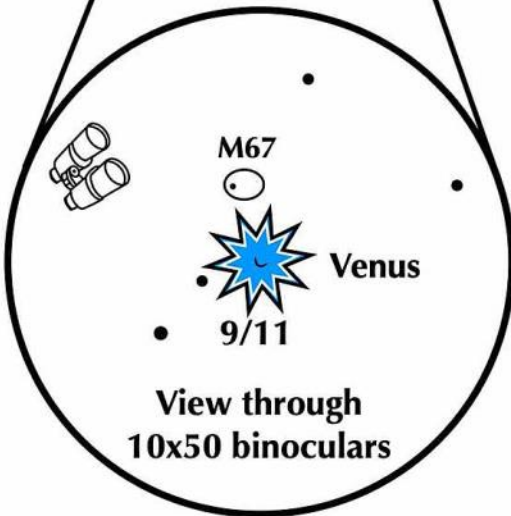


NASA's James Webb Space Telescope has produced the deepest and sharpest infrared image of the distant universe to date. Known as Webb's First Deep Field, this image of galaxy cluster SMACS 0723 is overflowing with detail. This slice of the vast universe is approximately the size of a grain of sand held at arm's length by someone on the ground. (Image Credit: NASA, ESA, CSA, STScI) <https://bit.ly/webbdeep>

**If you can see only one celestial event  
in the morning this September, see this one.**



**Moon visits M44,  
Venus visits M67**

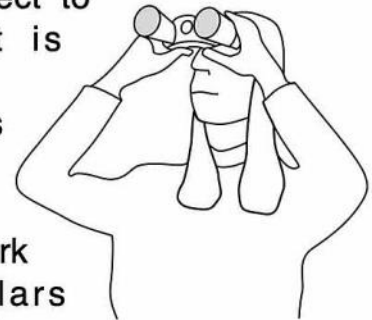


On the morning of Sep 11, look to the east 90 minutes before sunrise.

- The crescent moon, full with earthshine, glows left of M44, the Beehive cluster.
- M44 can easily be seen in binoculars.
- The dazzling object to their lower right is Venus.

• Just above Venus lies another star cluster, M67. If viewed from a dark location, binoculars should reveal its fuzzy presence.

• If the binoculars are securely mounted, the tiny crescent of Venus should be barely discerned amid the planet's glare.







# Auburn Astronomical Society

## Application for Membership

To insure that our records are accurate, please print information clearly

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Phone: \_\_\_\_\_ Date of Application: \_\_\_\_/\_\_\_\_/\_\_\_\_

E-Mail: \_\_\_\_\_

Telescopes owned (if any): \_\_\_\_\_

Area(s) of special interest: \_\_\_\_\_

Enclose \$20.00 for regular annual membership, payable in January. *Full-time* student membership is \$10.00.

For **NEW** members joining after January, refer to the prorated dues table below for the month you are joining:

Jan \$20.00	Feb \$18.33	Mar \$16.66	Apr \$14.99	May \$13.33	Jun \$11.66
Jul \$10.00	Aug \$8.33	Sep \$6.66	Oct \$4.99	Nov \$2.33	Dec \$1.66

New—Just Joining

Renewal

Please make checks payable to: Auburn Astronomical Society and return this application with your payment to:

Auburn Astronomical Society  
c/o John Wingard, Sec/Treasurer  
5 Wexton Ct.  
Columbus, GA 31907

*Note: At this time we do not have an option for online payment of dues.*

The Auburn Astronomical Society is a member of the Astronomical League, the national organization representing astronomy clubs throughout the United States. As a club benefit, paid members of the Auburn Astronomical Society are eligible to received quarterly issues of *The Reflector*, the official publication of the Astronomical League. It will be mailed to the address that you provided above but could be delayed somewhat until their mailing lists are updated.

For additional information about our club, please go to our website [www.auburnastro.org](http://www.auburnastro.org) . You can also follow us on our Facebook page. Just search for "Auburn Astronomical Society."