



ASTROFILES

Auburn Astronomical Society Newsletter

July 2023

Newsletter Editor — John Wingard — jwin1048@gmail.com

Moon Phases

August 8 — Last Quarter

August 16 — New Moon

August 24 — First Quarter

August 30 — Full Moon

September 6 — Last Quarter

September 14 — New Moon

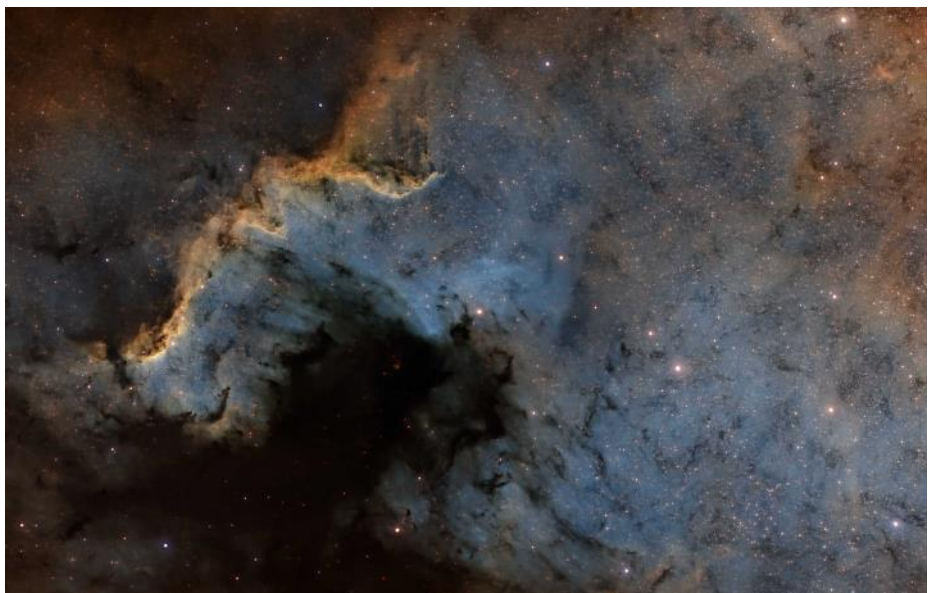
September 22 — First Quarter

September 29 — Full Moon

News and upcoming activities

We hope that everyone is having a good summer in spite of the higher than typical temperatures for this time of the year. Personally, I'm looking forward to the cooler weather later this Fall as well as the earlier hours of darkness. The Auburn Astronomical Society has been approached about providing a stargaze later this year on Saturday, October 21st in Prattville, AL. This will be in conjunction with a Cub Scout campout at Camp Tukabatchee in Prattville. About 500 scouts and their families will be there and were looking for an event to have on Saturday night. Here's hoping the weather will cooperate and more details will be provided as we get closer to that date.

Below is an image of the Cygnus Wall, a part of the North American nebula (NGC 7000) in the constellation of Cygnus. It was captured by AAS member Chris Young with post processing by AAS member Jay Hall. The nebula is approximately 1,500 light years distant and is an intense area of star formation.



Stay in touch with us



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

What's Up, Doc? †

August 2023 (Eastern Daylight Time)

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

This document presents those objects are visible this next month for many Astronomical League Observing Programs. If you are working on a more advanced program, I assume you are tracking where your objects are all the time. It concentrates on the common and starter level programs. This is based on 9 PM Eastern Daylight Time at about 39° North Latitude (Washington DC).

Naked-Eye Clubs

Meteors – any night, any time, anywhere, the darker the sky the better.

<u>Showers</u>	<u>Duration</u>	<u>Maximum</u>	<u>Type</u>
Southern Delta Aquarids	7/21 to 8/23	7/30 after midnight	MAJOR (ZHR: 16)
Perseids	7/13 to 8/26	8/13 @ midnight to 3 AM	MAJOR (ZHR: 100)
Orionids	8/25 to 11/19	10/22 after midnight	MAJOR (ZHR: 15)
Alpha Capricornids	7/8 to 8/10	8/1 & 8/2	Moderate (ZHR: 5)
Aurigids	8/29 to 9/4	9/1	Moderate (ZHR: 6)
Kappa Cygnids	8/6 to 8/31	8/17	minor (ZHR: 3)
July Pegasids	6/30 to 8/3	7/10	weak (ZHR: < 2)
Eta Eridanids	7/31 to 8/17	8/5	weak (ZHR: < 2)
Beta Perseids	7/24 to 8/20	8/7	weak (ZHR: < 2)
Northern Delta Aquarids	8/8 to 9/1	8/20	weak (ZHR: < 2)
August Gamma Cepheids	8/22 to 9/1	8/28	weak (ZHR: < 2)

Constellation Hunter, Northern Skies (and some Southern Skies) – any night, any time, anywhere, the darker the sky the better.

Last Chance this cycle: Ursa Major, Leo Minor, Coma Berenices, Virgo.

Transit: Ursa Minor, Draco, Hercules, Corona Borealis, Serpens, Ophiuchus, Scorpion.

New arrivals: Lacerta, Cygnus, Pegasus, Capricornus, Sagittarius.

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, 39, 52, 55, 92, 103.

Medium – 14, 19, 28, 40, 49, 53, 62, 63, 64, 80, 81, 82, 83, 94.

Hard – 9, 26, 51, 54, 56, 71, 75, 97, 101, 104, 106.

Big Binoculars – 58, 59, 60, 61, 69, 70, 72, 84, 85, 86, 87, 88, 89, 90, 99, 100, 102, 107, 108, 109.

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

1, 3, 4, 5, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

The Astronomical League now offers a total of 9 Binocular Certifications. They include the Solar System and Lunar.

Other Clubs

Messier

In addition to those listed under Binocular Messier, check out: 21, 57, 73, 91, 98.

Caldwell

1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 26, 27, 29, 30, 32, 33, 34, 35, 36, 37, 38, 42, 45, 47, 52, 55, 57, 66, 68, 69, 75, 76, 78, 81, 82.

Double Star (by Astronomical League numbers):

1, 4, 7, 9, 10, 12, 13, 14, 15, 17, 18, 22, 26, 29, 31, 35, 36, 37, 38, 39, 41, 43, 44, 45, 46, 47, 48, 50, 51, 52, 54, 56, 57, 58, 60, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 74, 84, 86, 87, 88, 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 is 2003 mid-month.

Venus, Jupiter, and Uranus are too close to the Sun or are morning objects.

Moon:

The Maria requirement can be done any time the moon is visible. Look before 8/8, and after 8/22 for the fullest views.

The Highlands requirement can be done at the same time.

The Crater Ages requirement is best done on 8/21 or 8/22.

The Scarps requirement is best done on 8/23.

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

Mercury is in Leo and sets at 2123 at mid-month.

Mars is in Leo and sets at 2240 at mid-month.

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

Ceres is in Virgo and is up all evening mid-month.

Saturn is in Aquarius and rises at 2255 at mid-month. All requirements can be done when Saturn is visible: markings, moons, etc.

Neptune is in Pisces and rises at 2334 mid-month.

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

Lunar

Key timings are indicated below:

New, 8/15 4 days, 8/19 7 days, 8/22 10 days, 8/25 14 days, 8/29

Old moon in new moons arms – before 0038 on 8/19, ~10 % illuminated. (72 hr > New)

New moon in old moons arms – after 0038 on 8/13, ~10 % illuminated. (72 hr < New)

Waxing Crescent – before 0038 on 8/18, ~4 % illuminated. (48 hr > New)

Waning Crescent – after 0038 on 8/14, ~4 % illuminated. (48 hr < New)

Astronomical Events this Month:

- 8/2 – Lunar Perigee
- 8/6 – Jupiter at Western Quadrature
- 8/8 – Eta Eridanids Meteor Shower
- 8/9 – Mercury at Greatest Eastern Elongation
- 8/9 – Mercury at Dichotomy
- 8/13 – Perseid Meteor Shower
- 8/13 – Venus at Inferior Conjunction
- 8/15 – Uranus at Western Quadrature
- 8/16 – Lunar Apogee
- 8/17 – Kappa Cygnids Meteor Shower
- 8/22 – Mercury is Stationary
- 8/27 – Saturn at Opposition
- 8/28 – Uranus is Stationary
- 8/30 – Lunar Perigee

* - 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. It is also available on the club website.

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

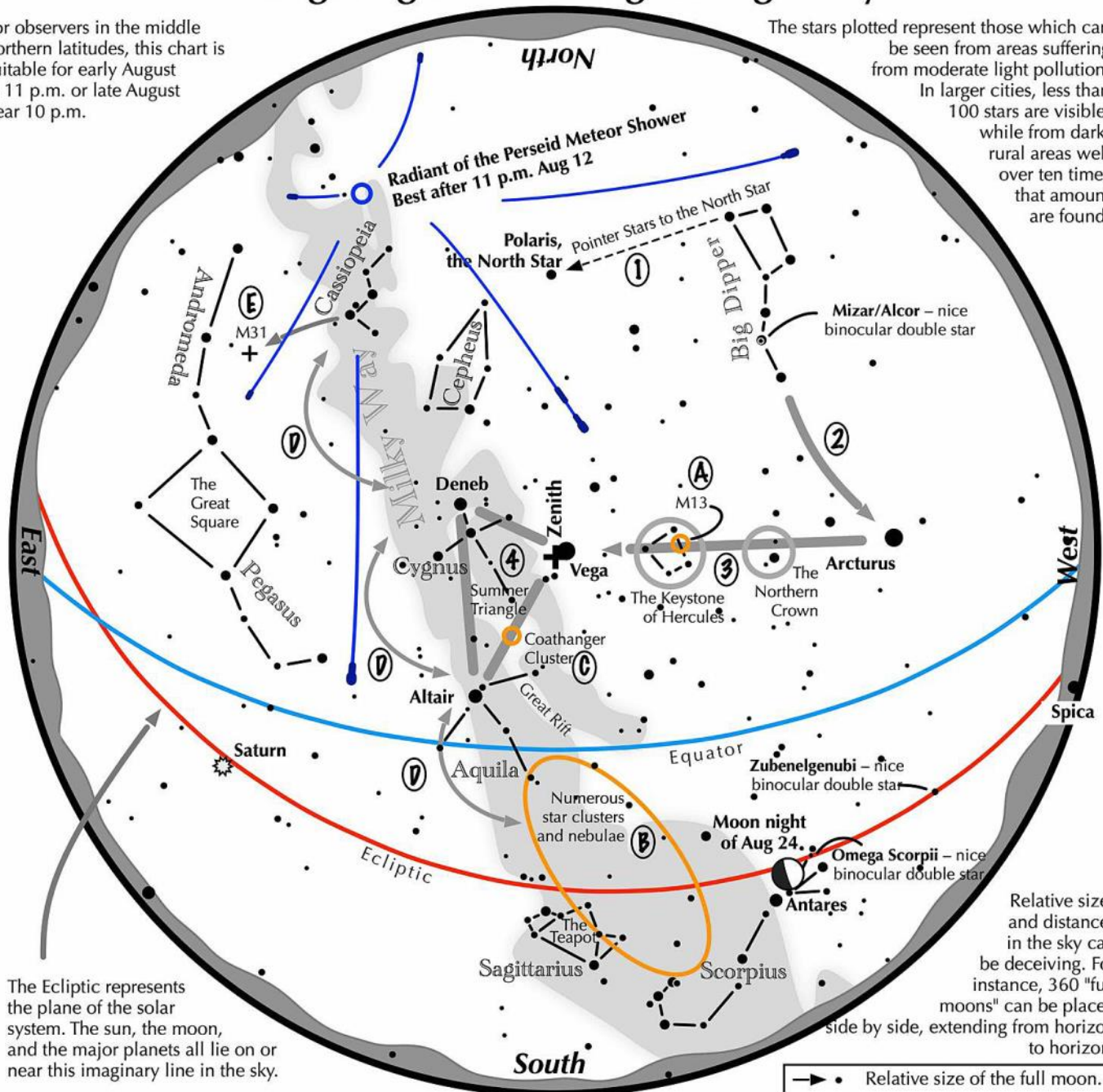
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Insperty Observatory, 2505 S. Houston Avenue, Humble, TX: www.humbleisd.net/observatory

Navigating the mid August Night Sky

For observers in the middle northern latitudes, this chart is suitable for early August at 11 p.m. or late August near 10 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 August 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 June evening sky.
- 3 To the northeast of Arcturus shines another star of the same brightness, 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 High in the East lies the summer triangle stars of Vega, Altair, and Deneb.

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 to find local clubs, events, and more!

Super Blue Sturgeon Moon

Vivian White

On August 1st, catch a **full Moon** rising in the east just 30 minutes after sunset. We are seeing the entire sunlit side of the Moon as it is nearly (but not quite) in line with the Sun and Earth. The *Farmers' Almanac* calls this month's Moon the "Sturgeon Moon", for the time of year when this giant fish was once abundant in the Great Lakes. Cultures around the world give full Moons special names, often related to growing seasons or celebrations.

As the Moon rises later and later each night, the bright sunlit part appears to get smaller or "wane" - we call this a waning **gibbous Moon**. About a week later, on August 8th, we see only one half of the Moon alight. At this phase, the Moon rises around midnight and sets around noon. Have you ever seen the Moon in the daytime? You may notice this phase towards the southwest in the morning sky. Hold up a ball or egg beside it and see how the Sun lights up the same part.

By August 16th, the Moon has gone through its crescent phase and is now only showing its dark side towards the Earth. Did you know the **dark side** and the **far side** of the Moon are different? The Moon always shows the same face towards Earth due to the gravitational pull of Earth, so the far side of the Moon was only viewed by humans for the first time in 1968 with the Apollo 8 mission. However, the dark side is pointed at us almost all the time. As the Moon orbits the Earth, the sunlit side changes slowly until the full dark side is facing us during a **new Moon**. When the Moon is just a small crescent, you can sometimes even see the light of an **Earthshine** reflecting off Earth and lighting up the dark side of the Moon faintly.

Then as the Moon reappears, making a waxing (or growing) **crescent Moon**, best seen in the afternoons. By the time it reaches the first quarter on August 24th, we see the other half of the Moon lit up. At this point, the Moon passes through Earth's orbit and marks the spot where the Earth was just 3 hours prior. It takes the Earth about 3 hours to move the distance between the Moon and Earth.

The Moon on August 30th is referred to as a blue moon. **Blue moons** are not actually blue in color of course; it refers to the second full Moon in any month. Since it takes 29.5 days to complete the cycle from full to new and back to full, most months will see only one. But occasionally, you'll fit two into one month, hence the phrase "once in a blue moon." We see a blue moon about once every 3 years on average - next in May 2026. In addition, this full Moon appears larger in the sky than any other full Moon this year - an unofficial **super-moon**. A supermoon appears larger than average because it is closer in its slightly elliptical orbit. The difference in apparent size between the smallest and largest full Moon is about the size difference between a quar-

ter and a nickel. Even at its largest, you can always cover the whole Moon with your pinky extended at arm's length.

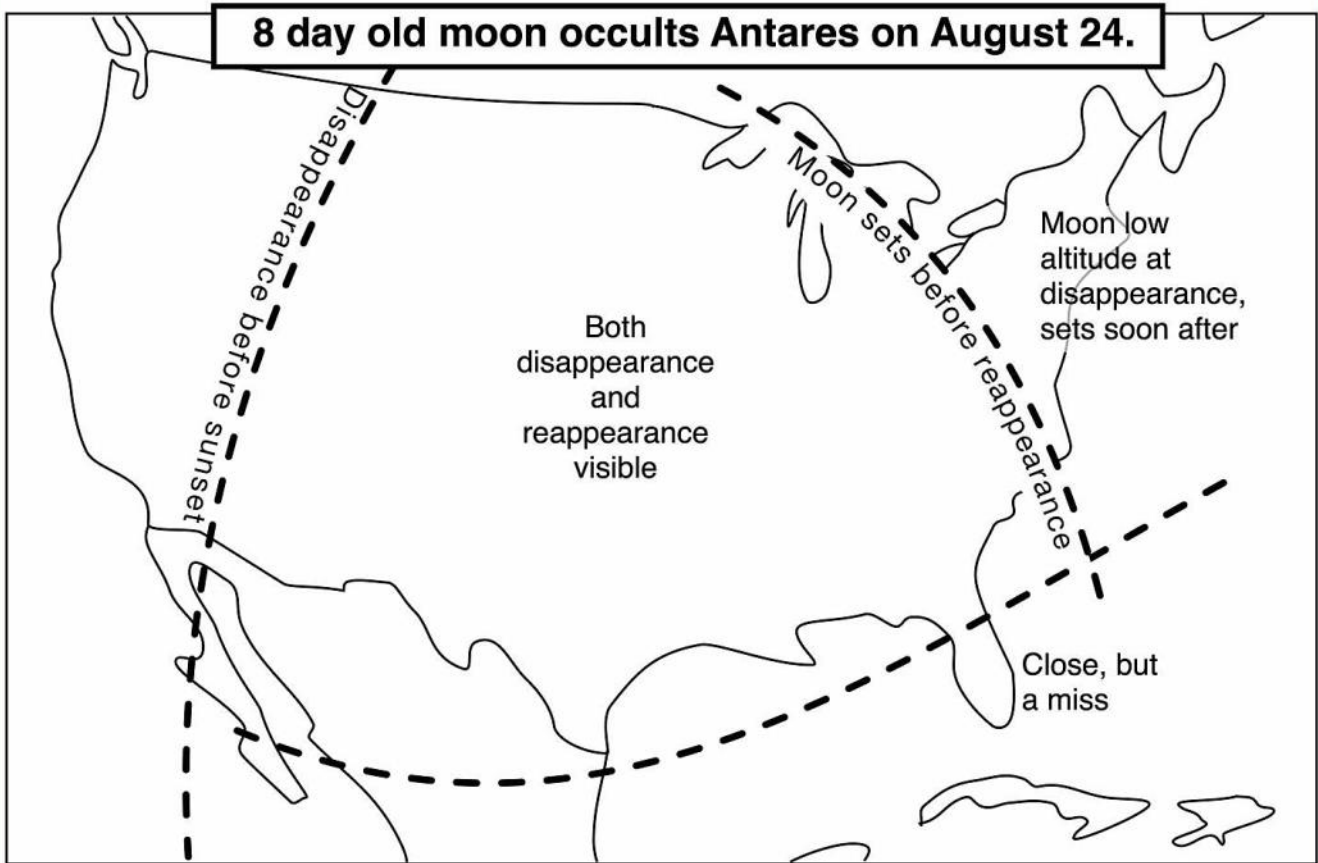
Follow the Moon with us this month and keep a Moon journal if you like - you may be surprised what you discover! moon.nasa.gov/moon-observation



Image of waning crescent Moon shown next to a ball on a stick that is lit by the Sun on the same side as the Moon, with trees and a blue sky in the background. Try this with an egg or any round object when you see the Moon during the day! Credit: Vivian White

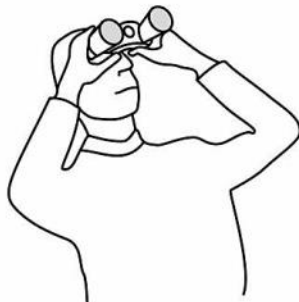


If you can see only one celestial event this August, see this one.

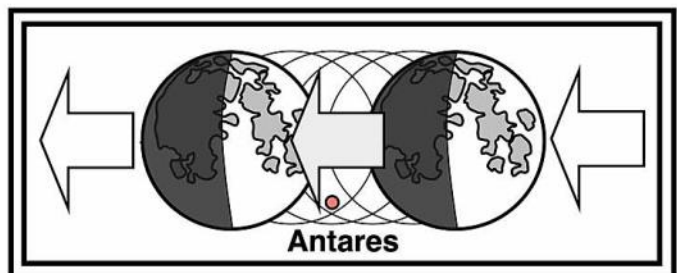


The full occultation event on Aug. 24 of Antares by the moon occurs for the central part of the US. Both coasts will not see the complete event. For disappearance and reappearance times in your area, visit the International Occultation Timing Association webpage:

<http://lunar-occultations.com/iota/bstar/0824zc2366.htm>



Start looking in the southwest shortly after sunset on August 24. Watch the moon slowly approach Antares, then suddenly block it. Binoculars will give better view.



Occultations demonstrate the moon's eastward orbital motion as Earth's rotation causes it to move in a westward arc across the night sky.



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 . You can also follow us on our Facebook page. Just search for "Auburn Astronomical Society."