



ASTROFILES

Auburn Astronomical Society Newsletter

July 2020

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Moon Phases

July 27 — First Quarter

August 3 — Full Moon

August 11 — Last Quarter

August 18 — New Moon

August 25 — First Quarter

September 2 — Full Moon

September 10 — Last Quarter

September 17 — New Moon

Latest News and Events

We hope that everyone continues to stay well as the COVID-19 pandemic continues. A few short weeks ago it appeared that the worst had passed, but now it seems to have increased once again. Just about everything in our lives is still in limbo as we wait and see what the future holds. On the astronomy front, one bright spot has been the visit to our solar system of Comet Neowise (more on that on the next page). Currently it is still visible but fading rapidly as it leaves us, not to return for another 6,800 years or so. Its appearance has generated a lot of interest from people that normally would not take the time to go out and look at the stars, so perhaps we may get some future astronomy enthusiasts as a result of it. Another item of current interest is the opposition of Jupiter and Saturn this month. This will be a good time to get out and observe two of the most interesting planets in our solar system. The only downside is that neither of them is very high in the sky. Just look towards the southeast after dark and you cannot miss them. The chart below, courtesy of Sky & Telescope, shows them just to the East of Sagittarius.

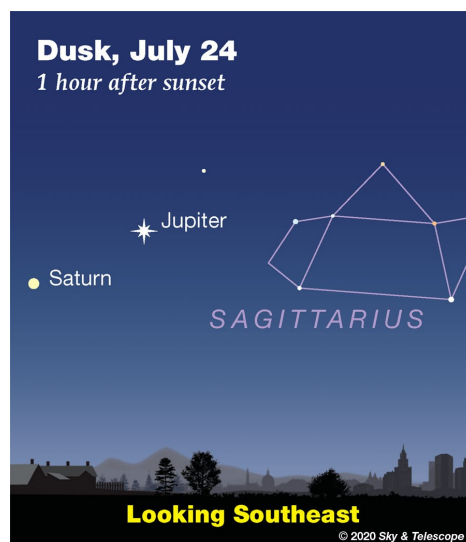
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Comet Neowise

As Comet Neowise recently made its closest approach to the Sun and began the long journey back outward, a couple of AAS members were able to capture some nice shots of the comet.



Comet Neowise—Captured by AAS member Chris Young on 7-19-20

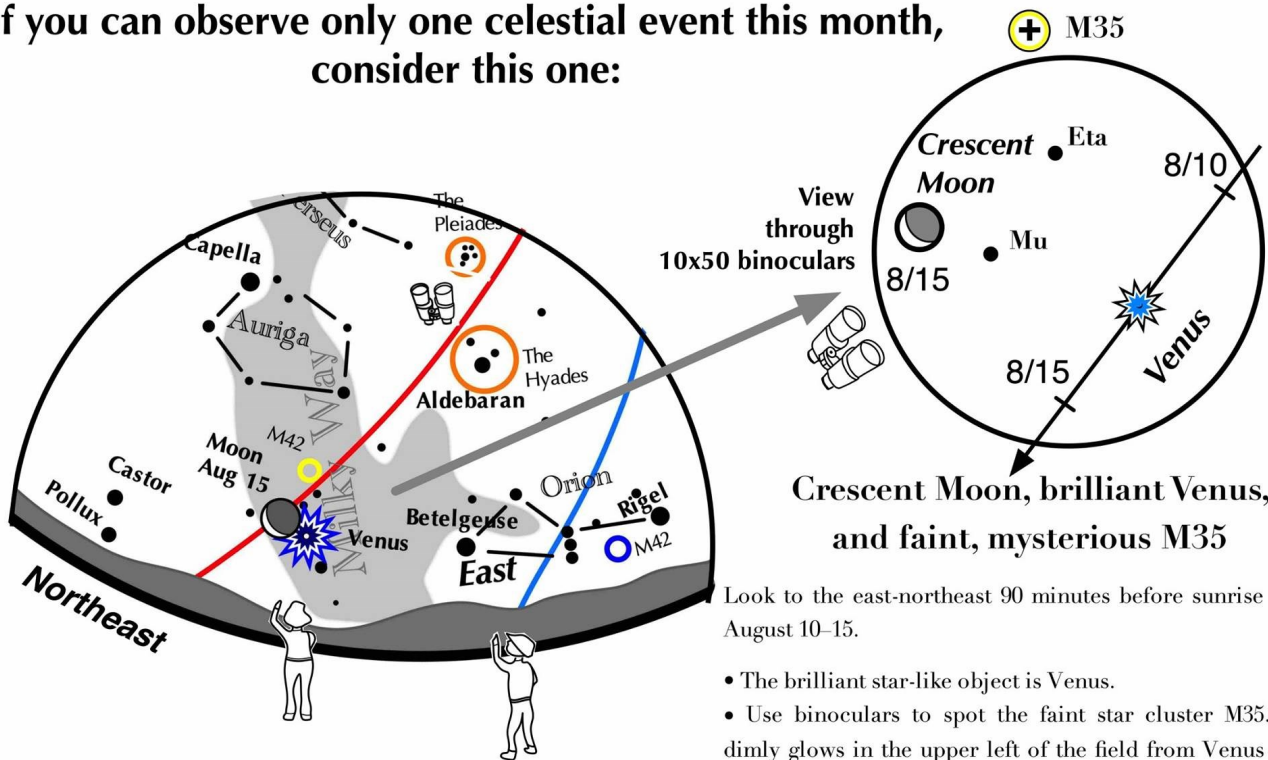


Comet Neowise—Captured by AAS member Mike Lewis on 7-16-20



Comet Neowise—Captured by AAS member Mike Lewis on 7-19-20

If you can observe only one celestial event this month, consider this one:



Crescent Moon, brilliant Venus, and faint, mysterious M35

Look to the east-northeast 90 minutes before sunrise on August 10–15.

- The brilliant star-like object is Venus.
- Use binoculars to spot the faint star cluster M35. It dimly glows in the upper left of the field from Venus on Aug. 10.
- On Aug. 15, the crescent Moon, seemingly full of Earthshine, hangs low above the e-ne horizon.
- Use binoculars to better spot M35 lying to the upper right of the Moon on August 15.
- For a better view, aim binoculars at each member of the celestial at the trio.

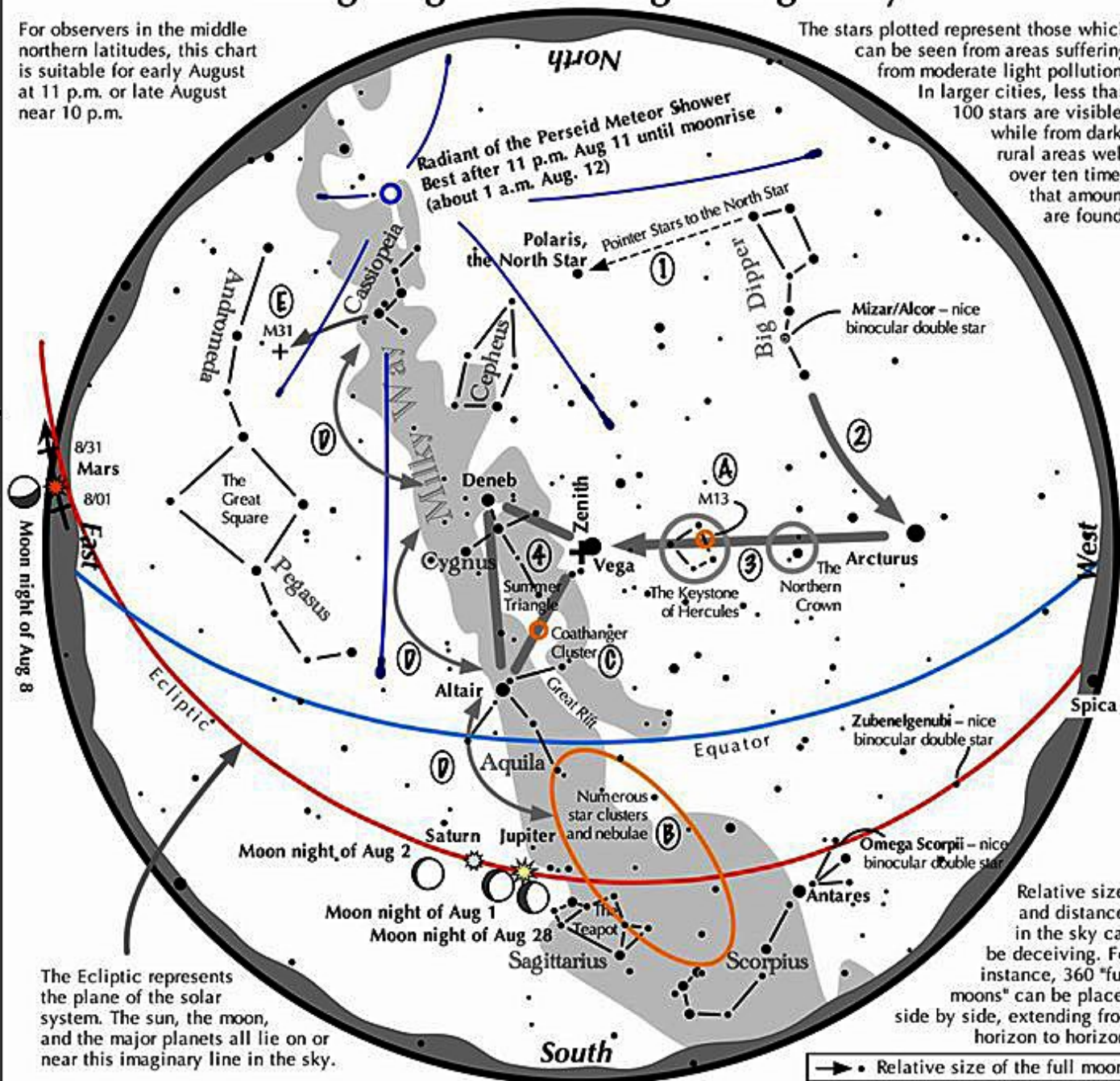
**East-northeast
90 minutes
before sunrise
August 15**



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.



Heads Up! It's a Meteor Shower

Smaller than grains of sand, meteors vaporize in a bright streak of light as they hit Earth's atmosphere. Meteor showers come from comets, but the sporadic meteors on other nights are mostly asteroid bits.

Observing a Meteor Shower

- ✓ You don't need a telescope, just your eyes.
- ✓ Find a dark spot away from streetlights
- ✓ Get warm — layers are good
- ✓ Lie down on a blanket or reclining chair
- ✓ Look up! Watch the whole sky.

Tips:

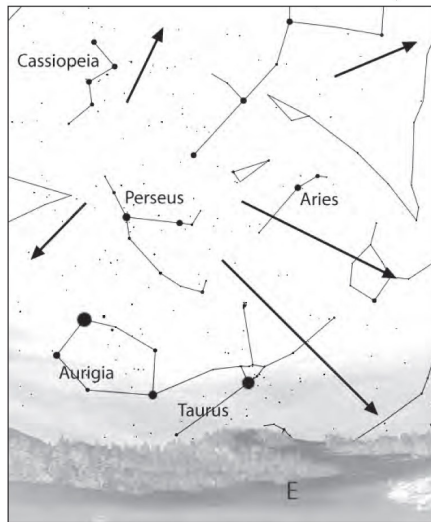
- ✓ A bright Moon can wash out meteors, making them hard to see.
- ✓ Give your eyes time to adjust to the dark and you will see more faint meteors.

Meteors can be seen all over the sky. If you trace them back, they appear to be radiating from one constellation. That's how they get their names!

If you get up early on August 12th and look to the east, you might see something like this ↓

What constellation can you trace the meteors to?

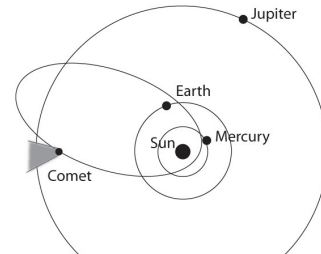
Check the calendar below to see which meteor shower happens in August.



The Perseids appear to radiate from the constellation Perseus



Meteor Showers Come From Comets

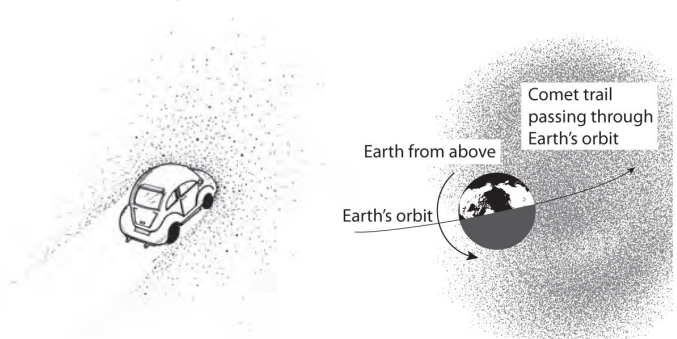


Comets come from the outer Solar System and leave behind a stream of dust as they are warmed by the Sun. Only a few comets pass through Earth's orbit.

The dust left behind by Halley's comet causes the Eta Aquarid and Orionid meteor showers (see calendar below).

Halley's comet passes Earth every 75 years. We will see it again in 2061.

How old will you be the next time it comes around?



Here's how: As Earth runs into these particles, it's like bugs hitting Earth's windshield (or atmosphere). But the comet bits hit Earth's atmosphere so fast, the pieces vaporize in bright streaks — making a meteor shower! We see meteor showers better after midnight because that's when we are facing the direction of Earth's orbit.

Calendar of Major Meteor Showers

Meteor showers are best viewed **after midnight** around the dates listed below.

January 2nd–3rd	Quadrantids	October 21–22nd	Orionids
April 22nd–23rd	Lyrids	November 4–5th	Taurids
May 5th–6th	Eta Aquarids	November 16–17th	Leonids*
July 29th–30th	Delta Aquarids	December 12–13th	Geminids*
August 11–12th	Perseids*	December 22–23rd	Ursids

*** Don't miss these!**

Check stardate.org/nightsky/meteors for this year's viewing suggestions, including Moon phases
Find the most exciting astronomy clubs and events: NightSkyNetwork.org





This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit night-sky.jpl.nasa.gov to find local clubs, events, and more!

Summer Triangle Corner: Deneb

David Prosper

The Summer Triangle is high in the sky after sunset this month for observers in the Northern Hemisphere, its component stars seemingly brighter than before, as they have risen out of the thick, murky air low on the horizon and into the crisper skies overhead. Deneb, while still bright when lower in the sky, now positively sparkles overhead as night begins. What makes Deneb special, in addition to being one of the three points of the Summer Triangle? Its brilliance has stirred the imaginations of people for thousands of years!

Deneb is the brightest star in Cygnus the Swan and is positioned next to a striking region of the Milky Way, almost as a guidepost. The ancient Chinese tale of the Cowherd (Niulang) and the Weaver Girl (Zhinü) - represented by the stars Altair and Vega - also features Deneb. In this tale the two lovers are cast apart to either side of the Milky Way, but once a year a magical bridge made of helpful magpies – marked by Deneb – allows the lovers to meet. Deneb has inspired many tales since and is a staple setting of many science fiction stories, including several notable episodes of *Star Trek*.

Astronomers have learned quite a bit about this star in recent years, though much is still not fully understood – in part because of its intense brightness. The distance to Deneb from our Sun was measured by the ESA's Hipparcos mission and estimated to be about 2,600 light years. Later analysis of the same data suggested Deneb may be much closer: about 1,500 light years away. However, the follow-up mission to Hipparcos, Gaia, is unable to make distance measurements to this star! Deneb, along with a handful of other especially brilliant stars, is too bright to be accurately measured by the satellite's ultra-sensitive instruments.

Deneb is unusually vivid, especially given its distance. Generally, most of the brightest stars seen from Earth are within a few dozen to a few hundred light years away, but Deneb stands out by being thousands of light years distant! In fact, Deneb ranks among the top twenty brightest night time stars (at #19) and is easily the most distant star in that list. Its luminosity is fantastic but uncertain, since its exact distance is also unclear. What is known about Deneb is that it's a blue-white supergiant star that is furiously fusing its massive stocks of thermonuclear fuel and producing enough energy to make this star somewhere between 50,000 and 190,000 times brighter than our Sun if they were viewed at the same distance! The party won't last much longer; in a few million years, Deneb will exhaust its fuel and end its stellar life in a massive supernova, but the exact details of how this will occur, as with other vital details about this star, remain unclear.

Discover more about brilliant stars and their mysteries at nasa.gov.



Long exposure shot of Deneb (brightest star, near center) in its richly populated Milky Way neighborhood. Photo credit: Flickr user jpstanley. Source: <https://www.flickr.com/photos/jpstanley/1562619922> License: <https://creativecommons.org/licenses/by-nc-sa/2.0/>



Spot Vega and the other stars of the Summer Triangle by looking straight up after sunset in August!



Auburn Astronomical Society Membership Application Form

Name:

Address:

City: _____ State: _____ Zip: _____

Phone: _____ Date of Application* ____/____/____

E-mail:

Telescope(s):

Area(s) of special interest:

Enclose: \$20.00 for regular membership, payable in January. *Full-Time* student membership is half the Regular rate.

If you are a NEW member joining after the first of the year, refer to the prorated table below

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

Make checks payable to: Auburn Astronomical Society and return this application to:

Auburn Astronomical Society
c/o John Wingard, Secretary/Treasurer
#5 Wexton Court
Columbus, GA 31907

For questions about your dues or membership status, contact: jwin1048@gmail.com

Thank you for supporting the Auburn Astronomical Society!