



ASTROFILES

Auburn Astronomical Society Newsletter

February 2024

Newsletter Editor — John Wingard — jwin1048@gmail.com

Moon Phases

March 3 — Last Quarter

March 10 — New Moon

March 17 — First Quarter

March 25 — Full Moon

April 1 — Last Quarter

April 8 — New Moon

April 15 — First Quarter

April 23 — Full Moon

News and upcoming activities

Well, since February is a short month we now find ourselves into March and the signs of spring are already apparent. Don't forget that we also switch back to Daylight Savings Time on Sunday, March 10, 2024, thus creating additional light in the early evenings. Personally, as an amateur astronomer I would prefer to remain on Standard Time since it gets dark earlier but that's just my opinion. Also, keep in mind that the total solar eclipse of 2024 is rapidly approaching on April 8th. It won't be total in this part of the country, but if you are planning to travel to be in the path of totality you need to make plans now. Actually, it's likely too late to find any lodging accommodations now that are anywhere close to the path. If you chose to remain in the state of Alabama, please refer to the map later in this newsletter for times in various parts of the state. Still, the coverage percentages will be anywhere from around 80-90% depending on what part of the state you're in.

The AAS has several outreach opportunities coming up in the next few months. In many cases, these events may provide the spark for a desire to learn more about the night sky, and science in general, especially among young people. Our club members have a variety of skills, knowledge and experience that we can share with the public at these events. All AAS members are encouraged to attend and support any or all of these events whenever possible. If you think that you can help, please respond to my direct email at the top of this page or to the club address which is auburnastro@gmail.com. We will also send out email reminders prior to each event to all members. Below are the events that we have scheduled

- **Tuesday, March 12, 2024**

Stargaze at Alabama Nature Center in Millbrook, AL - Observing time is scheduled for 6:30 - 8:00 PM.

- **Saturday, April 27, 2024**

Daytime observing session during Auburn CityFest 2024 at Kiesel Park in Auburn, AL. Solar viewing only. The event runs from 9:00 AM - 4:00 PM.

- **Saturday, May 18, 2024**

Stargaze at Alabama Nature Center in Millbrook, AL - No specific time but obviously after dark.

- **Saturday, May 18, 2024**

National Astronomy Day. Possible program with Gayle Planetarium in Montgomery (TBD)

Stay in touch with us



<http://www.auburnastro.org>



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

What's Up, Doc? †

March 2024

Dr. Aaron B. Clevenson, Director, Insperity Observatory

This document tells you what objects are visible this next month for many of the Astronomical League Programs. If you are working on one of the more advanced programs, then I assume that you are also probably tracking where your objects are all the time. I have concentrated on the more common and starter-level programs. This information is for the Central Time Zone, Houston, TX.

Naked-Eye Programs

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

<u>Shower</u>	<u>Duration</u>	<u>Maximum</u>	<u>Type</u>
Eta Draconids	3/22-4/8	3/29-3/31	Minor
Beta Leonids	2/14-4/25	3/19-3/21	Minor
Rho Leonids	2/13-3/13	3/1-3/4	Minor
Leonids-Ursids	3/18-4/7	3/10 & 3/11	Minor
Delta Mensids	3/14-3/21	3/18 & 3/19	Minor
Gamma Normids	3/11-3/21	3/16 & 3/17	Minor
Eta Virginids	2/24-3/27	3/18 & 3/19	Minor
Pi Virginids	2/13-4/8	3/3-3/9	Minor
Theta Virginids	3/10-4/21	3/20 & 3/21	Minor
March Aquarids	2/1-4/30	3/15-3/18	Daytime Shower

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

Last Chance this cycle: Cassiopeia, Andromeda, Triangulum, Aries, Caelum.

Transit Camelopardis, Lynx, Gemini, Canis Minor, Monoceros, Canis Major, Puppis.

New arrivals: Canes Venatici, Coma Berenecis, Crater, Corvus, Antlia, Pyxis.

Binocular Programs

Binocular Messier – Monthly highlights include:

Easy – 31, 34, 35, 36, 37, 38, 41, 42, 44, 45, 46, 47, 48, 50, 52, 67, 93, 103.

Medium – 33, 40, 49, 63, 64, 78, 79, 81, 82, 94.

Hard – 1, 32, 51, 65, 66, 97, 101, 106.

Big Binoculars – 58, 59, 60, 61, 77, 84, 85, 86, 87, 88, 89, 90, 95, 96, 99, 100, 102, 105, 108, 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, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 60.

Other Programs

Messier: Messier Marathon (seeing all 110 in one night) is ideal on 3/14/2015 and 3/21/2015!

In addition to those listed under Binocular Messier, check out: 43, 74, 76, 91, 98.

Caldwell

1, 2, 3, 5, 7, 8, 9, 10, 11, 13, 14, 17, 18, 21, 23, 24, 25, 26, 28, 29, 31, 32, 35, 36, 38, 39, 40, 41, 46, 48, 49, 50, 53, 54, 58, 59, 64, 71, 73.

Double Star (by Astronomical League numbers):

2, 3, 5, 8, 11, 16, 17, 19, 20, 23, 24, 25, 27, 28, 32, 33, 34, 40, 42, 45, 49, 51, 52, 53, 55, 57, 59, 60, 61, 63, 65, 66, 67, 68, 69, 70, 71, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 85, 95, 98, 99.

Other Programs (of the Solar System)

Planetary – These are the tasks that can be done this month:

Venus, Mars, Ceres, Saturn, Neptune, and Pluto will not be visible during the evening hours. They are morning stars or too close to the sun.

Sun – Any clear day is a good time to get those sunspots. Sunset is at 1930 mid-month.

Moon:

The Maria requirement can be done any time the moon is visible. Look before 3/3 and after 3/17 for the fullest views.

The Highlands requirement can be done at the same time.

The Crater Ages requirement is best done on 3/16 or 3/17.

The Scarps requirement is best done on 3/18.

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 Pisces and sets at 2034 mid-month.

Jupiter is in Aries and sets at 2306 mid-month.

Uranus is in Aries and sets at 2335 mid-month.

Asteroids – Course Plotting and Measuring Movement requirements can be done at any time on any asteroid. See above to identify the bright ones this month.

Lunar

Key timings are indicated below:

New, 3/10 4 days, 3/14 7 days, 3/17 10 days, 3/20 14 days, 3/24

Old moon in new moon's arms – before 0400 on 3/13, ~10 % illuminated. (72 hr > New)

New moon in old moon's arms – after 0300 on 3/7, ~10 % illuminated. (72 hr < New)

Waxing Crescent – before 0400 on 3/12, ~4 % illuminated. (48 hr > New)

Waning Crescent – after 0300 on 3/8, ~4 % illuminated. (48 hr < New)

Major Events in March:

- 3/5 – Eta Aquarids Meteor Shower
- 3/10 – Start of Daylight-Saving Time
- 3/10 – Moon at Perigee
- 3/11 Moon at Ascending Node
- 3/17 – Neptune and Sun Conjunction
- 3/19 – March Equinox
- 3/21 – Venus and Saturn Conjunction (0.3')
- 3/23 – Moon at Apogee
- 3/25 – Penumbral Lunar Eclipse

* - Although these programs 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. To get your copy, talk to the Doc, Aaron Clevenson, by sending an email to aaron@clevenson.org. It is also available on the Astronomical League website.

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

© 2024 Aaron B. Clevenson. All international rights reserved. This work may be copied and distributed as is, without modification, free of charge for educational purposes only.

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



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!

Constant Companions: Circumpolar Constellations, Part II

By Kat Troche

As the seasons shift from Winter to Spring, heralding in the promise of warmer weather here in the northern hemisphere, our circumpolar constellations remain the same. Depending on your latitude, you will be able to see up to nine circumpolar constellations. This month, we'll focus on: **Lynx**, **Camelopardalis**, and **Perseus**. The objects within these constellations can all be spotted with a pair of binoculars or a small to medium-sized telescope, depending on your Bortle scale – the darkness of your night skies.



In the appearance of left to right: constellations Perseus, Camelopardalis, and Lynx in the night sky. Also featured: Cassiopeia as a guide constellation, and various guide stars.

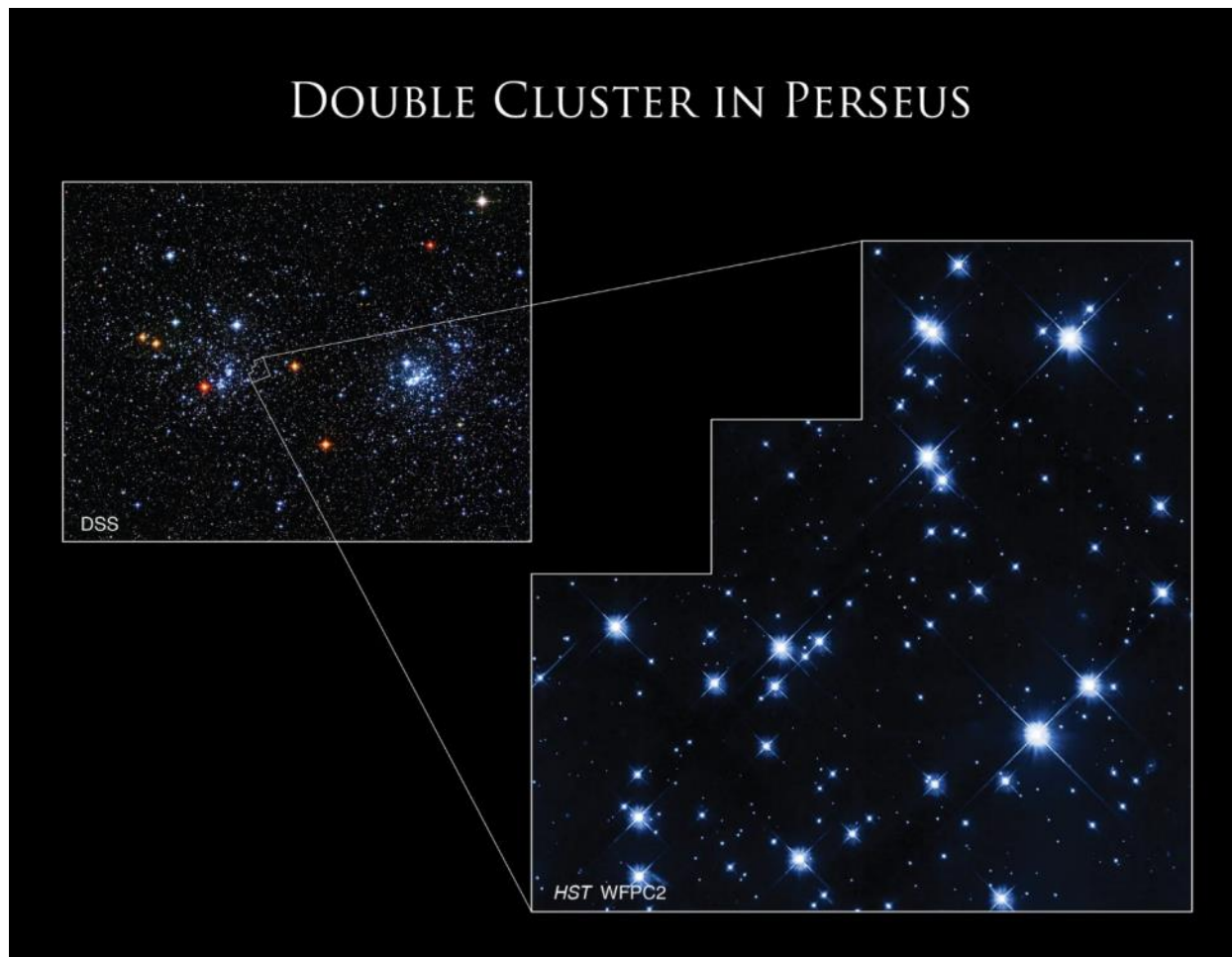
Credit: Stellarium Web

- **Double Stars:** The area that comprises the constellation Lynx is famous for its multiple star systems, all of which can be separated with a telescope under dark skies. Some of the notable stars in Lynx are the following:
 - **12 Lyncis** – a triple star that can be resolved with a medium-sized telescope.

- **10 Ursae Majoris** – a double star that was once a part of Ursa Major.

- **38 Lyncis** – a double star that is described as blue-white and lilac.

- **Kemble's Cascade:** This asterism located in Camelopardalis, has over 20 stars, ranging in visible magnitude (brightness) and temperature. The stars give the appearance of flowing in a straight line leading to the Jolly Roger Cluster (NGC 1502). On the opposite side of this constellation, you find the asterism **Kemble's Kite**. All three objects can be spotted with a pair of binoculars or a telescope and require moderate dark skies.



A ground-based image from the Digitized Sky Survey (DSS) in the upper left shows Caldwell 14, the Double Cluster in Perseus, with an outline of the region imaged by Hubble's Wide Field and Planetary Camera 2 (WFPC2).

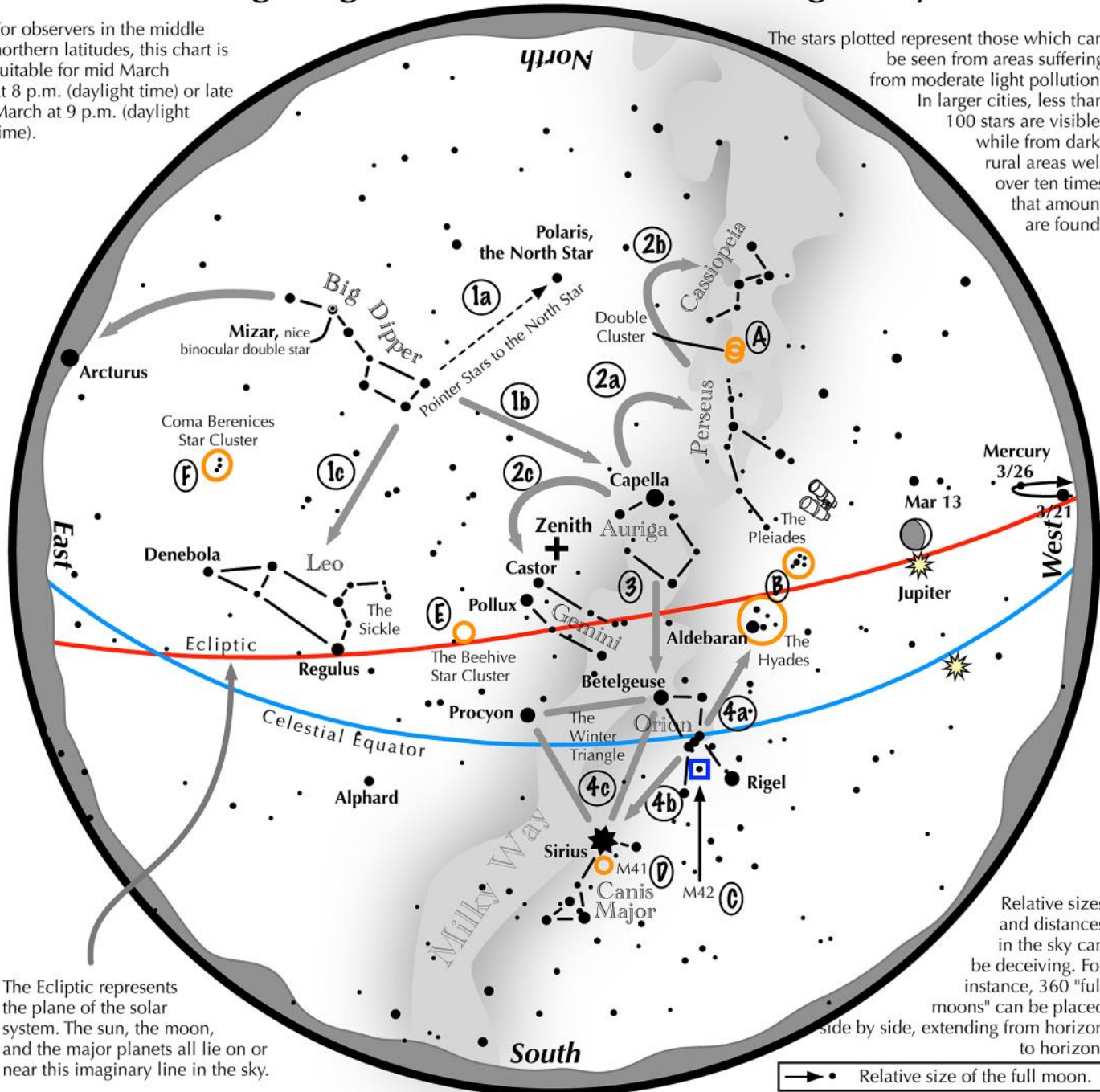
Ground-based image: Digitized Sky Survey (DSS); Hubble image: NASA, ESA, and S. Casertano (Space Telescope Science Institute); Processing: Gladys Kober (NASA/Catholic University of America)

- **Double Cluster:** The constellation Perseus contains the beautiful Double Cluster, two open star clusters (NGC 869 and 884) approximately 7,500 light-years from Earth. This object can be spotted with a small telescope or binoculars and is photographed by amateur and professional photographers alike. It can even be seen with the naked eye in very dark skies. Also in Perseus lies **Algol, the Demon Star**. Algol is a triple-star system that contains an eclipsing binary, meaning two of its three stars constantly orbit each other. Because of this orbit, you can watch the brightness dim every two days, 20 hours, 49 minutes – for 10-hour periods at a time. For a visual representation of this, revisit NASA's What's Up: November 2019.

Navigating the mid to late March Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

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.

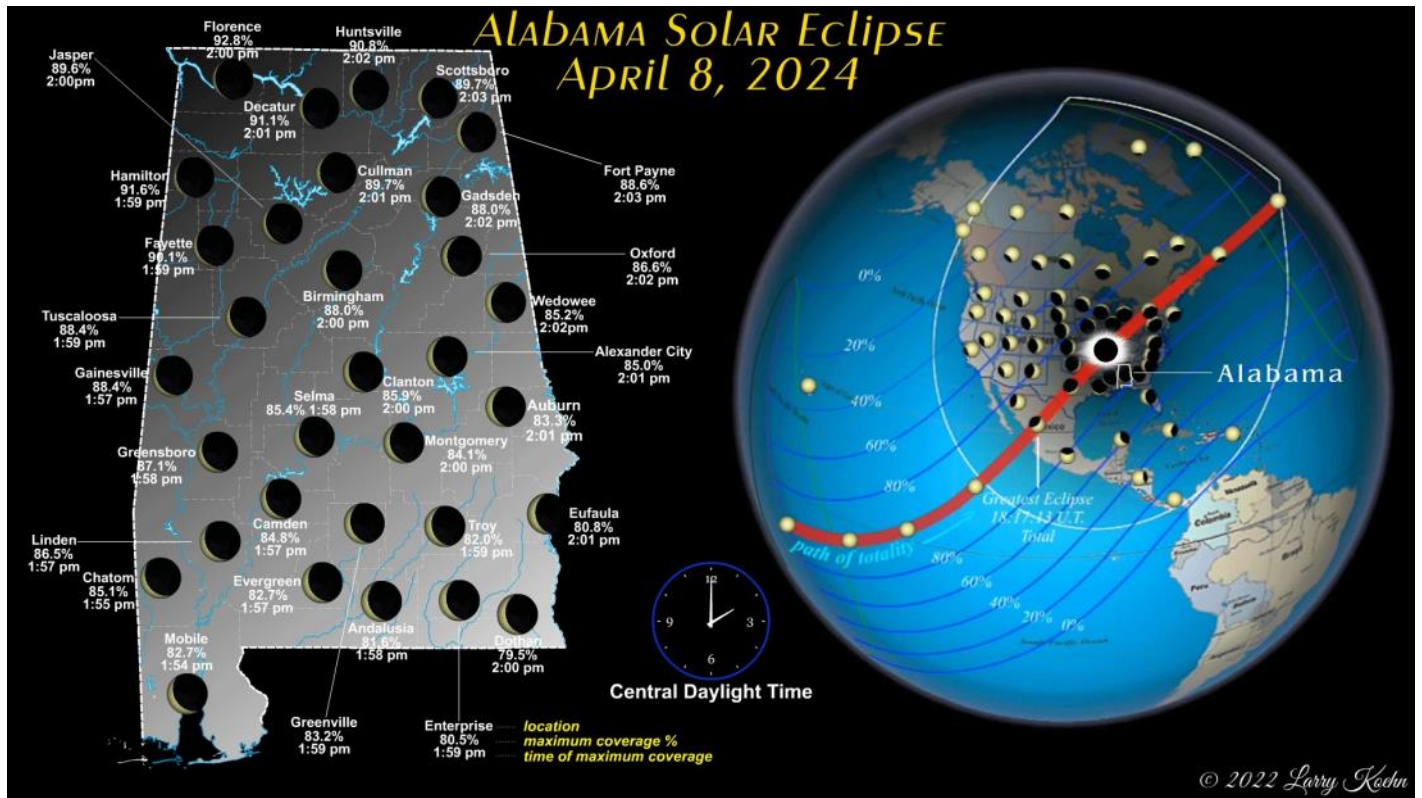
Navigating the March night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
- 2 From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.





Mercury in the Evening!

Mercury 40 minutes after sunset

On Mar 20 three weeks after Superior Conjunction (SC), Mercury moves nearer to Earth but still appears as a gibbous phase. It is easily visible now out of the brighter twilight.

On March 15, Mercury is relatively far and appears as a gibbous phase. It begins to climb out of the brightest twilight and appears as a bright point.

Greatest Eastern Elongation: Mercury reaches its "half" phase higher in the darker twilight. It is relatively easy to see.

After Mar 27, four to five weeks after SC, Mercury is relatively close to Earth, and appears in the bright twilight as a crescent. It is dim and difficult to spot.

Superior Conjunction (SC) Feb 28

Mercury appears about "1 fist width on a fully extended arm" above the true horizon forty minutes after sunset.

Mercury

10°

West

Mercury's orbit

Mar 15 Mar 20 Mar 24 Mar 27

Earth Venus

Venus' orbit

Month of March

Mercury's best evening apparition of 2024!

From 40 to 60 minutes after sunset after March 15th, look to the west for a point of light shining low above the horizon.

- Outstretch your arm and make a fist. Place one side at the true horizon. At its other side should be Mercury.
- Over the next week, the little planet rises slightly higher each evening into the darker twilight while brightening, making it easier to spot.
- On the 24th, Mercury appears as far from the set sun as it will be. This point in its orbit is called Greatest Eastern Elongation. Just three nights later as it descends in the twilight, it will become much more difficult to spot.



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."