



SOCIETY NEWS AND EVENTS

NEXT MEETING

MARCH 22, 2024

7:00 p.m. **Board Meeting**
8:00 p.m. **Members Meeting & Program**

LOCATION AMERICAN RED CROSS
610 S. Collett St.
Lima, OH 45805

Program

Astrology and Mythology

Presented by Mindy Kimmet.

February Meeting Re-cap

This meeting heavily focused on event planning around the April 8 total solar eclipse, upcoming programming in the area, and fundraising. Information on eclipse activities can be found in the next column.

We had quite the group for this meeting - that's to everyone who attended! With the upcoming eclipse, the program focused on alternative ways to safely observe the eclipse. There are quite a few DIY solutions out there, and David Humphreys showcased a few of them!

Schoonover Observatory will be closed for public observing and meetings until renovations are complete.



UNDER THE DOME

APRIL 8, 2024 TOTAL SOLAR ECLIPSE

We hope everyone is getting excited for the eclipse next month! Cross your fingers and toes for clear skies!

Areas under the path of totality will likely see a large increase in population, which will strain local infrastructures and staffing for all organizations. Parking will be extremely limited. Plan accordingly, and prepare for delays and extended travel times.

Schoonover Observatory is slated to be open on April 8. While work will not be complete by then, it will be safe for visitors, and work is scheduled to resume after the eclipse. Stop by before the eclipse to catch scenes from previous solar eclipses, learn about what makes eclipses possible, and how to safely observe them. If the weather is cloudy, the eclipse will *still* be streamed via the Internet. There will not be another total solar eclipse visible in Ohio for another 75 years!

Glasses are available now at locations listed on page 6. Supplies are running low, but more are on the way! It's not too late to get yours!

Wherever you will be observing the eclipse, be safe, and clear skies!

CONSTANT COMPANIONS: CIRCUMPOLAR CONSTELLATIONS, PART II

KAT TROCHE - NIGHT SKY NETWORK

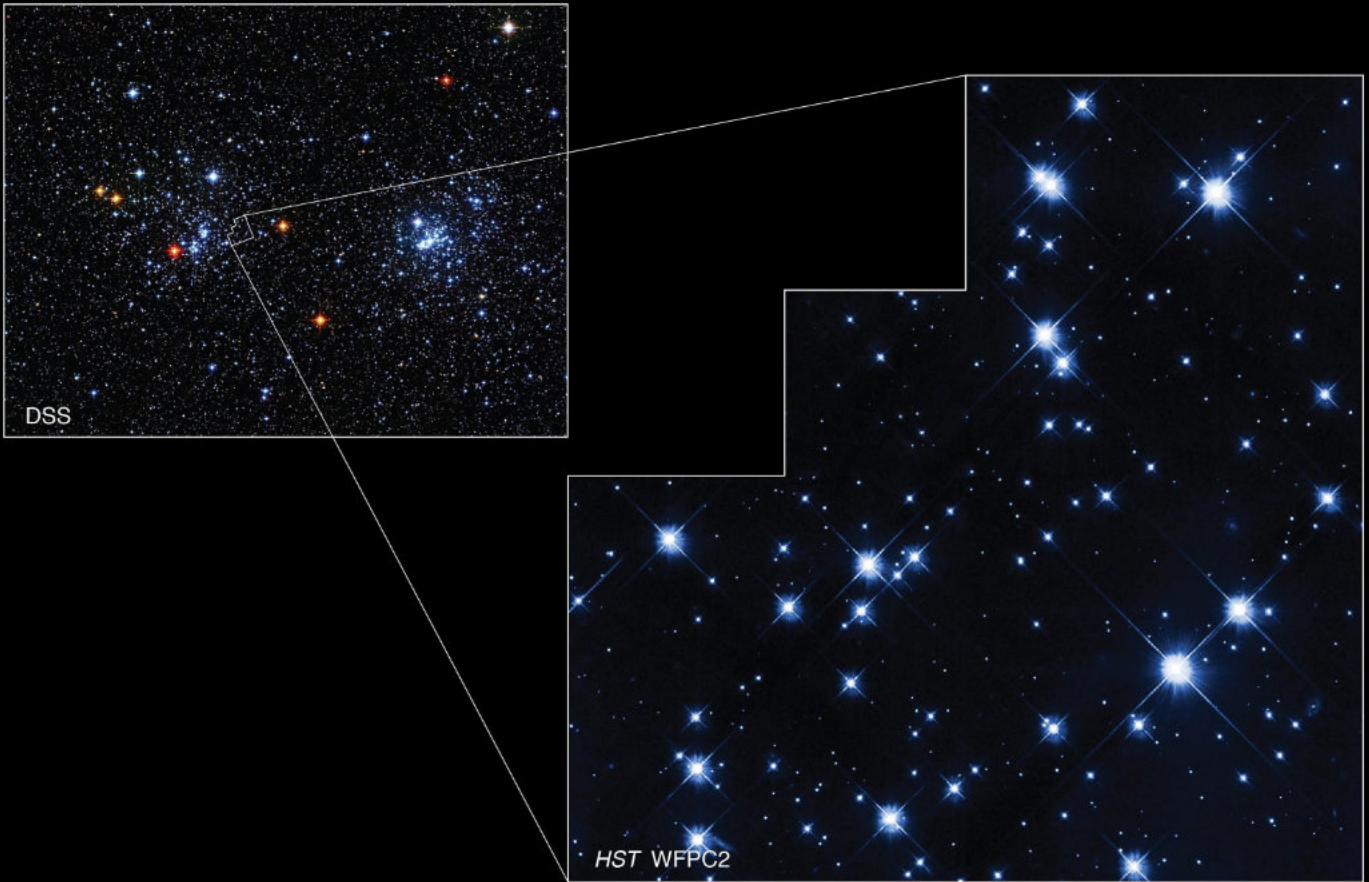
As the seasons shift from Winter to Spring, heralding in the promise of warmer weather here in the northern hemisphere, our circumpolar constellations remain the same. Depending on your latitude, you will be able to see up to nine circumpolar constellations. This month, we'll focus on: Lynx, Camelopardalis, 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.

- **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.



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 CLUSTER IN PERSEUS



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

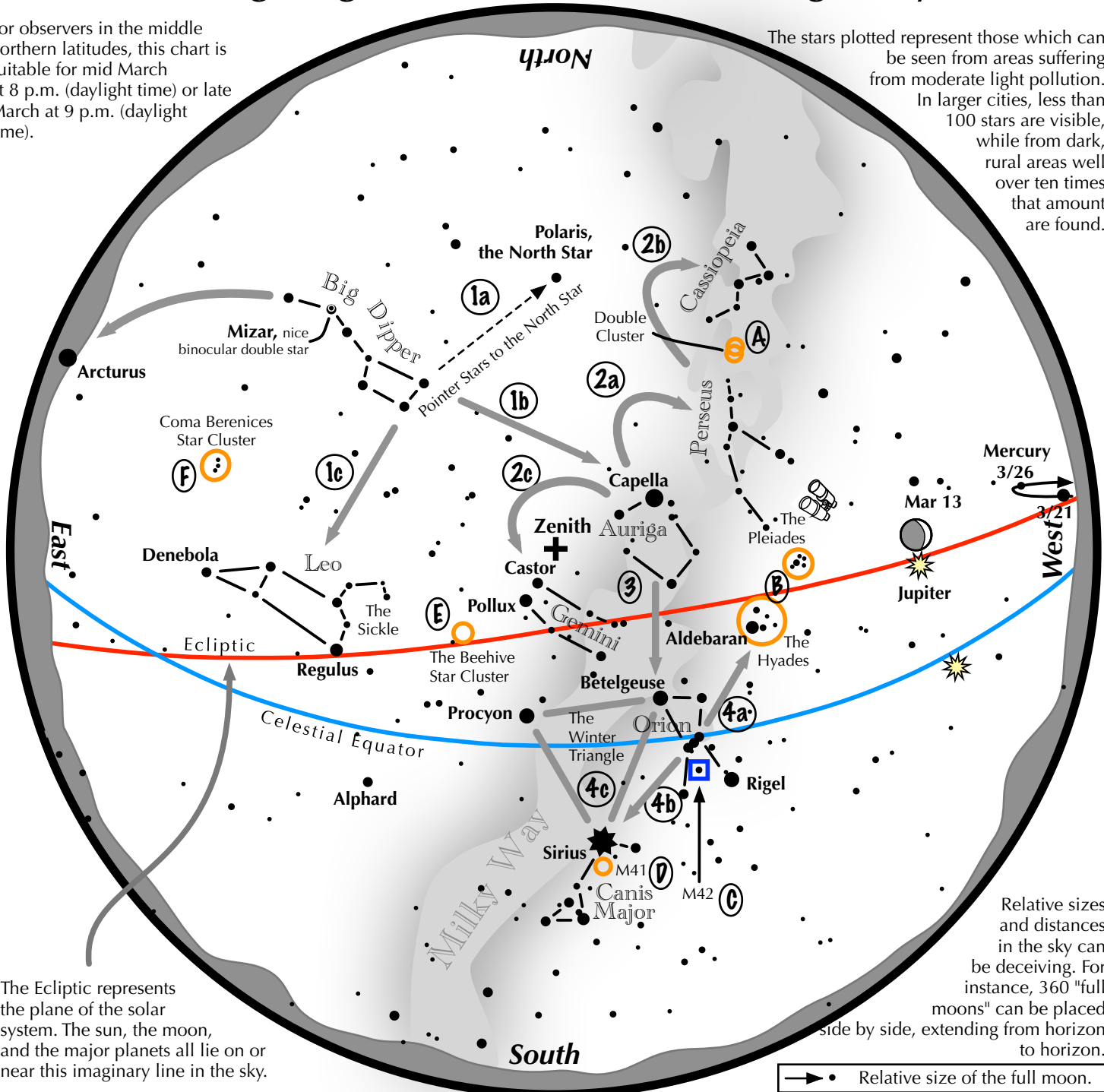
Algol, the Demon Star. Algol is a triple-star system that contains an eclipsing binary, meaning two of its three stars constantly orbit each other. Because of this orbit, you can watch the brightness dim every two days, 20 hours, 49 minutes – for 10-hour periods at a time. For a visual representation of this, revisit [NASA's What's Up: November 2019](#).

From constellations you can see all year to a once in a lifetime event! Up next, find out how you can partner with NASA volunteers for the April 8, 2024, total solar eclipse with our upcoming mid-month article on the [Night Sky Network](#) page through NASA's website!

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.





Said to be one of the eeriest sights encountered in galaxy observing.



NGC 4435 & 4438

"The Eyes"—Two Spiral Lenticular Galaxies

Navigate to NGC 4435 & 4438

1. Find Beta Leonis (Denebola) and Epsilon Virginis (Vindemiatrix).
2. Draw a line from Beta to Epsilon.
3. M84 and M86 lie at the mid point of that line.
4. NGC 4435 & 4438 glow about 40 minutes east of M86.
5. In a 40 minute field, they appear as two eyes staring back in the blackness of space.

Bonus Galaxies:

The region abounds in galaxies: M84, M86, M87, and many fainter ones.

Recommended Aperture:

Not less than 10 inches. The larger, the better.

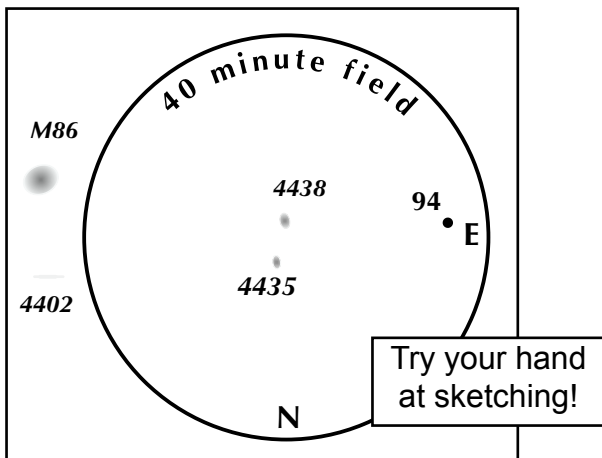
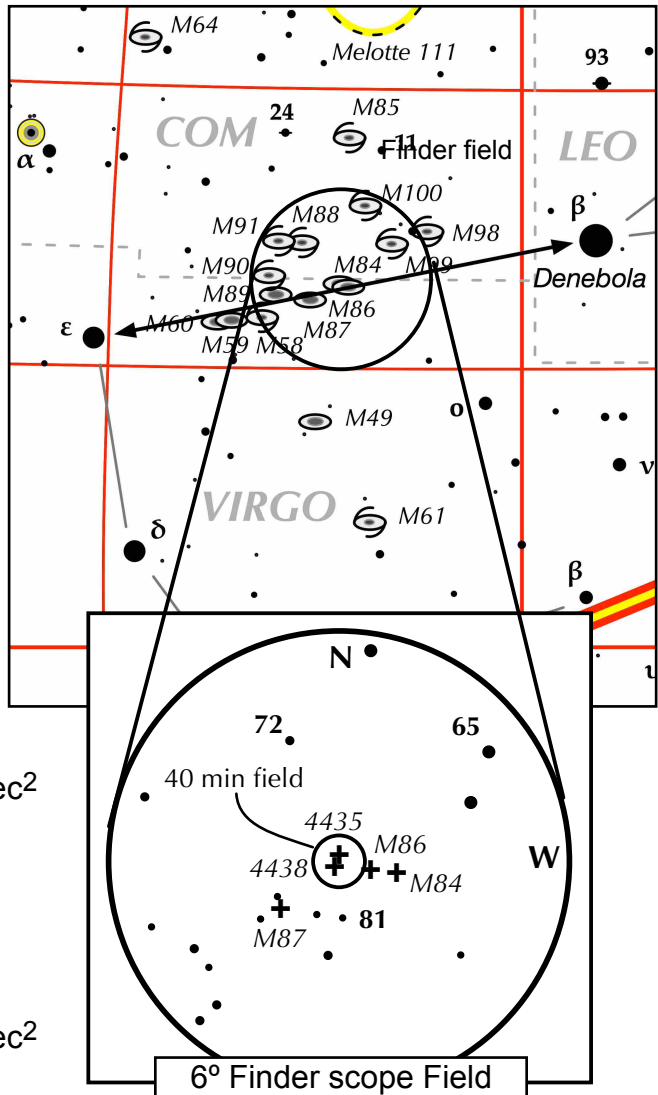
Yes, they do resemble two eyes staring at you from the blackness of space!

Published Characteristics for NGC 4435

Integrated magnitude: 11.7
 Size: 2.8 min x 2.0 min
 Surface brightness: 13.7 mag./min², 22.6 mag./sec²
 Position Angle: 10°
 Distance: 52 million light-years

Published Characteristics for NGC 4438

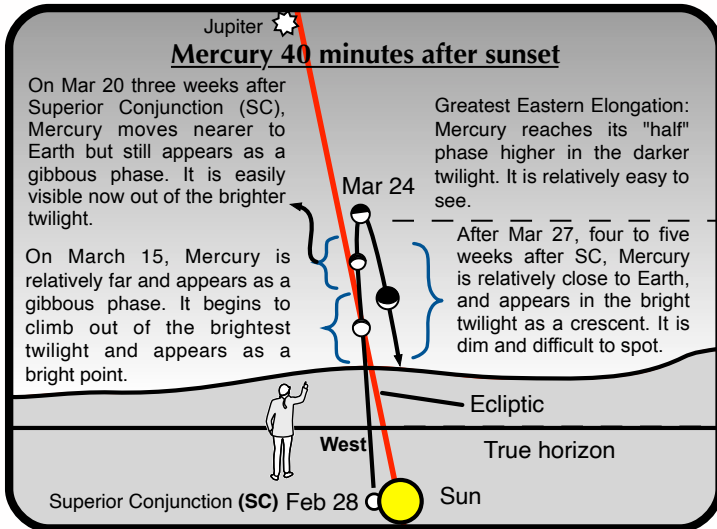
Integrated magnitude: 10.6
 Size: 8.6 min x 3.2 min (bright core, faint tails)
 Surface brightness: 15.0 mag./min², 24.0 mag./sec²
 Position Angle: 20°
 Distance: 52 million light-years



Eyepiece Impressions:

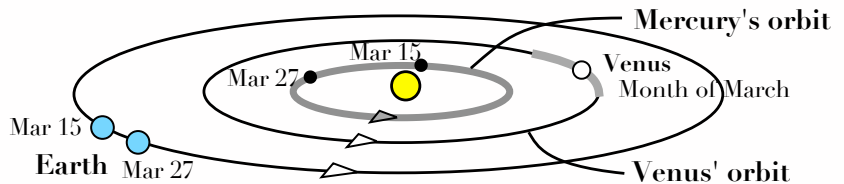
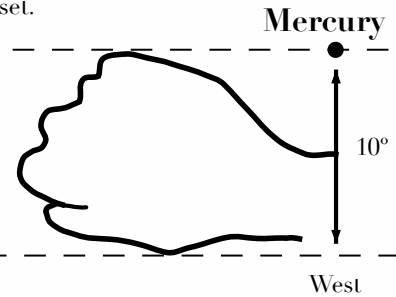
NGC 4435: Very small, elusive. Uniform brightness. Use averted vision. Near NGC 4438 and located 25' east of M86. (6-inch Cass.; ACAC)
 10 inch f/10 SCT, 125x: "NGC 4435 is slightly elongated with a bright center." JG

NGC 4438: Extremely elongated, uniform brightness, very large. Use averted vision. Located 4' south of NGC 4435. (6-inch Cass.; ACAC)
 10 inch f/10 SCT, 125x: "NGC 4438 is elongated with a bright center. Under careful observation, wispy outer regions are noticed." JG



Mercury in the Evening!

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



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.

Commemorative eclipse glasses are available **NOW!**



3 for \$10⁰⁰ or \$4⁰⁰ for singles

BULK DISCOUNTS are available

Email: info@limaastro.com

Our eclipse glasses are Made in the USA and ISO certified safe for solar observing.

Your donations help the club with outreach-associated expenses, guest speakers and programs, maintaining technology and equipment, administrative and operational fees, supporting membership benefits, and large initiatives like new club observing facilities.

**Lima Astro eclipse glasses are available at the following locations:
Lima Mall - Center Section - Saturday / Sunday through March.**

- The Meeting Place on Market, Lima
- Advantage Cleaners, Lima
- Independent Physical Medicine, Lima
- Outskirts Brewery, Lima
- Alter Ego Comics, Lima
- Pea of Sweetness, Lima
- Nana's Country Creations, Findlay
- Tabler's Carry Out, Columbus Grove

Available during business hours only. Locations may have limited supplies. Lima Mall availability subject to change with available volunteers. Tune into social media or email for updates..

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 Eastern Time Zone, Washington D.C.

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 1915 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 2032 mid-month.

Jupiter is in Aries and sets at 2327 mid-month.

Uranus is in Aries and is up all evening 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 0500 on 3/13, ~10 % illuminated. (72 hr > New)

New moon in old moon's arms – after 0400 on 3/7, ~10 % illuminated. (72 hr < New)

Waxing Crescent – before 0500 on 3/12, ~4 % illuminated. (48 hr > New)

Waning Crescent – after 0400 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.

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