ASTROFILES

Auburn Astronomical Society Newsletter

March 2021 *Newsletter Editor — John Wingard — jwin1048@gmail.com*

Moon Phases

March 21 — First Quarter

March 26 — Full Moon

April 4 — Last Quarter

April 11 — New Moon

April 20 — First Quarter

April 26 — Full Moon

May 3 — Last Quarter

May 11 — New Moon

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News and events

We hope that everyone is doing well as we move into spring and also hope that as more and more people get vaccinated we can began to resume some of our normal daily activities. Springtime also brings with it warmer weather, sometimes unstable and dangerous weather patterns, and of course the infamous pollen. In my location it is literally everywhere right now. A few rain showers may actually be welcome if it will help clear the air and wash the pollen away! As the spring evenings become more conducive to getting out and doing some astronomical observing, I am listing a few examples of objects than are available for viewing this time of the year. Most are galaxies or nebula, with a star cluster included as well. I've listed their popular names and the constellations they are in, but you will need to refer to either star charts or astronomy software to pinpoint their locations. If you have a computerized goto-type scope, it will be even easier to locate them. Have fun and enjoy!

Whirlpool Galaxy (M51) - located in constellation of Canes Venatici

Leo Triplet Galaxies (M65, M66, NGC 3628) in constellation of Leo

Pinwheel Galaxy (M101) in constellation of Ursa Major

Bode's and Cigar Galaxies (M81, M82) in constellation of Ursa Major

Owl Nebula (M97) in constellation of Ursa Major

Sombrero Galaxy (M104) at border of Virgo & Corvus constellations

Needle Galaxy (NGC 4565) in constellation of Coma Berenices

M106 Galaxy in the constellation of Canes Venatici

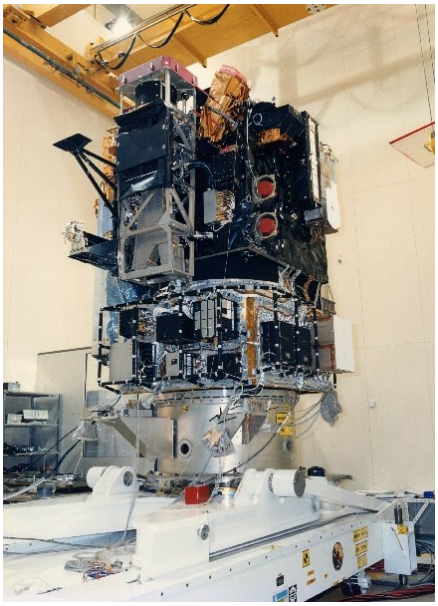
Markarian's Chain of galaxies (including M84, M86) in constellation of Virgo

Great Hercules Globular Cluster (M13) in constellation of Hercules

Ring Nebula (M57) in constellation of Lyra

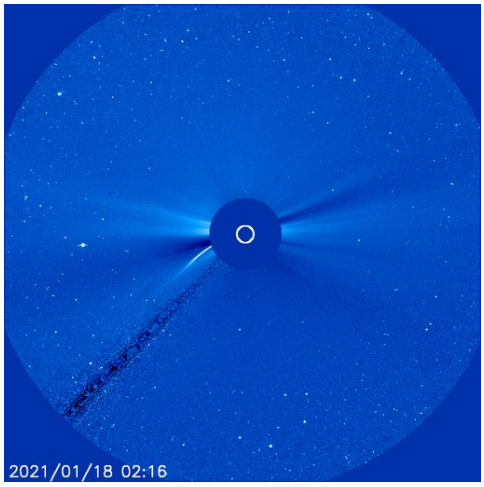
Dumbbell Nebula (M27) in constellation of Vulpecula

Fun with SOHO

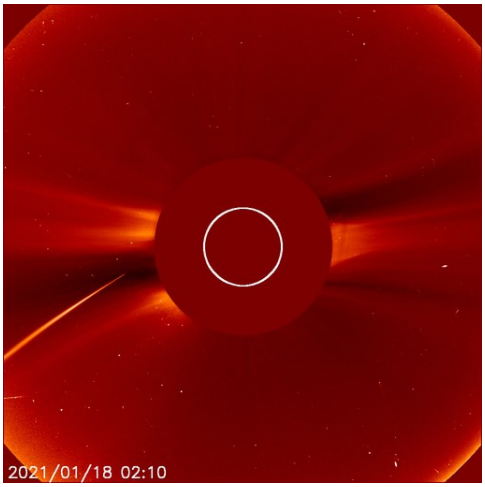


The SOHO spacecraft

Perhaps you have heard of SOHO before, but in case you have not, it is short for Solar & Heliospheric Observatory, a rather large satellite that was launched in 1995 and provides constant data on the Sun and it's immediate environment in a number of wavelengths. Instead of orbiting around the Earth, or even orbiting around the Sun, SOHO resides at what is known as L1, the First Lagrangian Point, a spot in space between the Earth and Sun where the combined gravity of each body keeps the satellite more or less stationary approximately 1.5 million kilometers from the Earth. It moves with the Earth in its orbit and it permits an unobstructed view of the Sun's surface at all times. Much of the data that is captured by SOHO is made available to the public so that citizen scientists can study the sun just like professional astronomers do. Recently AAS President Allen Screws was viewing some SOHO images and thought that he may have "discovered" a comet in the vicinity of the Sun. As it turned out, a new comet was confirmed the next day. Many of these comets are small and are often destroyed by the Sun as they come in close and there have been thousands of these comets recorded by SOHO over the years. Below are the images that Allen used to identify the comet.



First image on 1/18/21 with suspected comet



Narrow-angle view showing suspected comet

Conformation image from the following day confirming the sungrazing comet and also another very tiny second comet.

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 nightsky.jpl.nasa.gov to find local clubs, events, and more!

Watch the Lion: Celestial Wonders in Leo

David Prosper

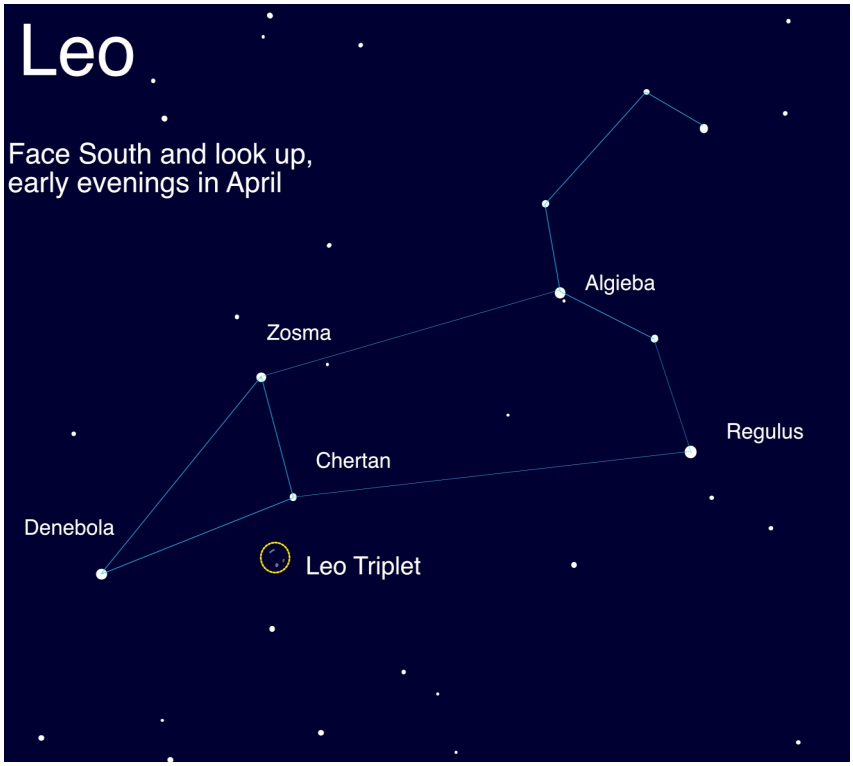
Leo is a prominent sight for stargazers in April. Its famous sickle, punctuated by the bright star Regulus, draws many a beginning stargazer's eyes, inviting deeper looks into some of Leo's celestial delights, including a great double star and a famous galactic trio.

Leo's distinctive forward sickle, or "reverse question mark," is easy to spot as it climbs the skies in the southeast after sunset. If you are having a difficult time spotting the sickle, look for bright Sirius and Procyon - featured in last month's article – and complete a triangle by drawing two lines to the east, joining at the bright star Regulus, the "period" in the reverse question mark. Trailing them is a trio of bright stars forming an isosceles triangle, the brightest star in that formation named Denebola. Connecting these two patterns together forms the constellation of Leo the Lion, with the forward-facing sickle being the lion's head and mane, and the rear triangle its hindquarters. Can you see this mighty feline? It might help to imagine Leo proudly sitting up and staring straight ahead, like a celestial Sphinx.

If you peer deeper into Leo with a small telescope or binoculars, you'll find a notable double star! Look in the sickle of Leo for its second-brightest star, Algieba - also called Gamma Leonis. This star splits into two bright yellow stars with even a small magnification - you can make this "split" with binoculars, but it's more apparent with a telescope. Compare the color and intensity of these two stars - do you notice any differences? There are other multiple star systems in Leo – spend a few minutes scanning with your instrument of choice, and see what you discover.

One of the most famous sights in Leo is the "Leo Triplet": three galaxies that appear to be close together. They are indeed gravitationally bound to one another, around 30 million light years away! You'll need a telescope to spot them, and use an eyepiece with a wide field of view to see all three galaxies at once! Look below the star Chertan to find these galaxies. Compare and contrast the appearance of each galaxy – while they are all spiral galaxies, each one is tilted at different angles to our point of view! Do they all look like spiral galaxies to you?

April is Citizen Science Month, and there are some fun Leo-related activities you can participate in! If you enjoy comparing the Triplets, the "Galaxy Zoo" project (galaxyzoo.org) could use your eyes to help classify different galaxies from sky survey data! Looking at Leo itself can even help measure light pollution: the Globe at Night project (globeatnight.org) uses Leo as their target constellation for sky quality observations from the Northern Hemisphere for their April campaign, running from April 3-12. Find and participate in many more NASA community science programs at science.nasa.gov/citizenscience. Happy observing!



The stars of Leo: note that you may see more or less stars, depending on your sky quality. The brightness of the Leo Triplet has been exaggerated for the purposes of the illustration - you can't see them with your unaided eye.

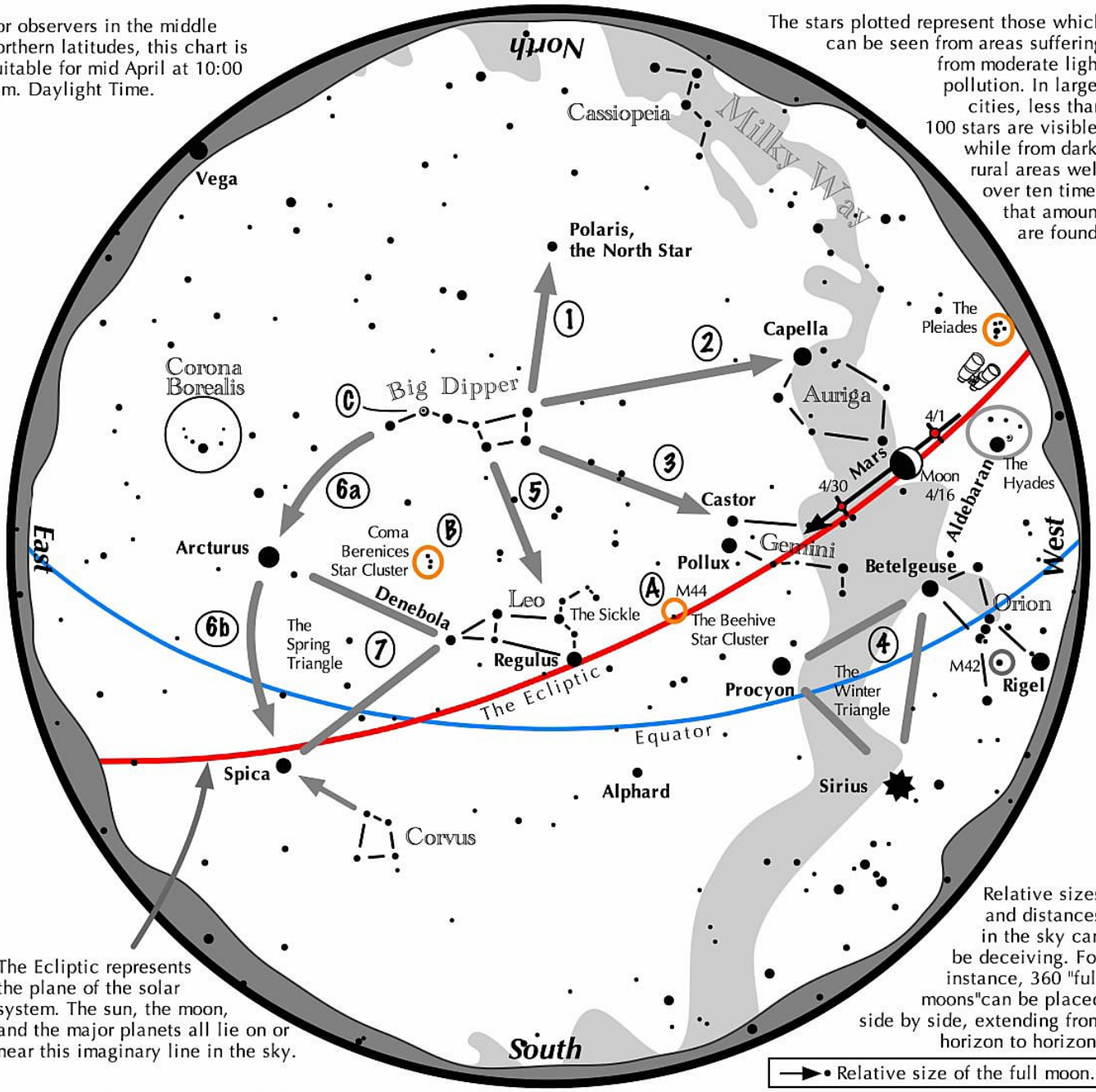
Your view of the three galaxies in the Leo Triplet won't look as amazing as this image taken by the VLT Survey Telescope, unless you have a telescope with a mirror 8 feet or more in diameter! Still, even a small telescope will help your eyes pick up these three galaxies as "faint fuzzies": objects that seem blurry against a background of pinpoint stars. Let your eyes relax and experiment with observing these galaxies by looking slightly away from them, instead of looking directly at them; this is called averted vision, a handy technique that can help you see details in fainter, more nebulous objects.

Image Credit: ESO, INAF-VST, OmegaCAM; Acknowledgement: OmegaCen, Astro-WISE, Kapteyn I.

Navigating the April Night Sky, Northern Hemisphere

For observers in the middle northern latitudes, this chart is suitable for mid April at 10:00 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.

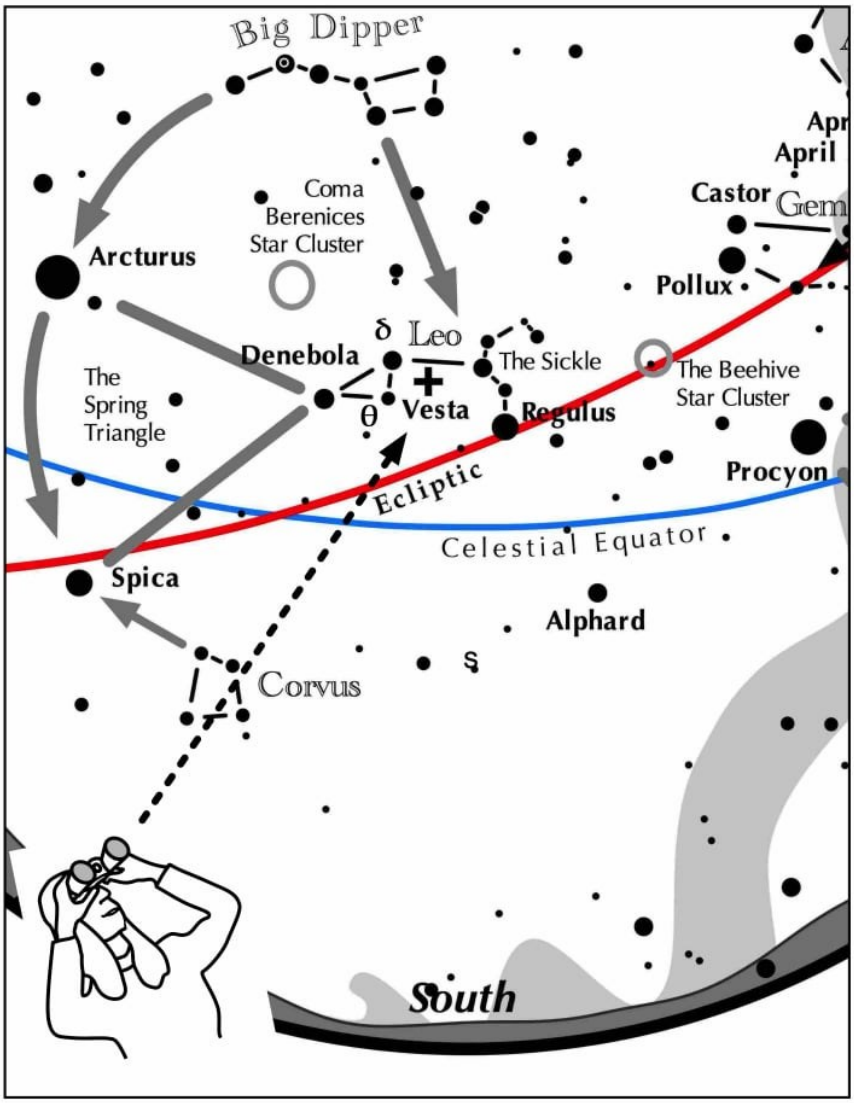
Navigating the April night sky: Simply start with what you know or with what you can easily find.

1. Extend an imaginary line north from the two stars at the tip of the Big Dipper's bowl. It passes Polaris, the North Star.
2. Draw another imaginary line west across the top two stars of the Dipper's bowl. It strikes Capella low in the northwest.
3. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
4. Look in the west-southwest for the bright Winter Triangle stars of Sirius, Procyon, and Betelgeuse.
5. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
6. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
7. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.

Binocular Highlights

A: M44, a star cluster barely visible to the naked eye, lies to the southeast of.Pollux.
B: Look nearly overhead for the loose star cluster of Coma Berenices.
C: In the Big Dipper's handle shines Mizar next to a dimmer star, Alcor.

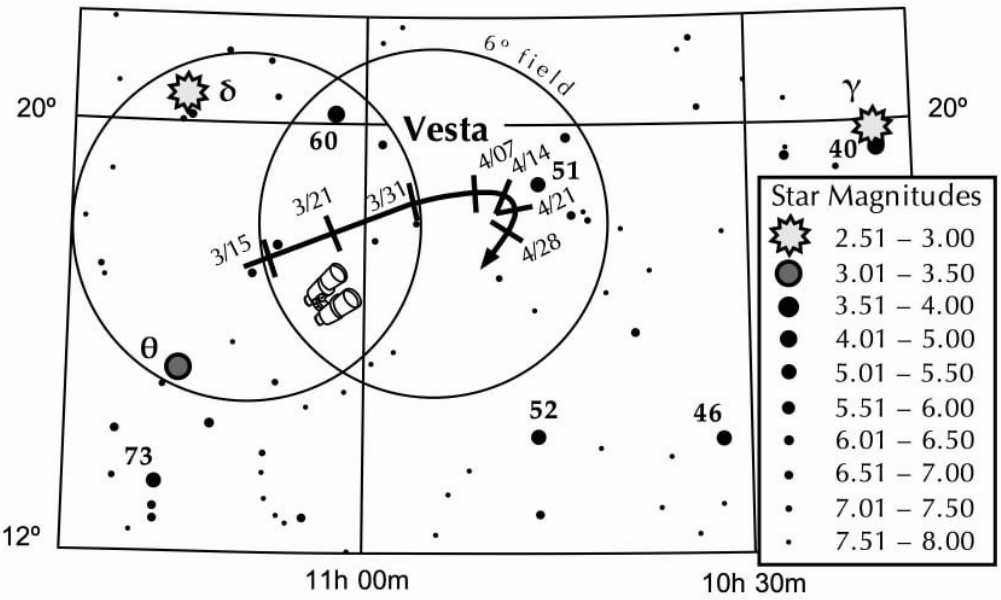
Astronomical League
www.astroleague.org/outreach



Vesta Map A

How to locate Vesta

1. Look for the bright stars Arcturus and Spica in the eastern half of the sky. They belong the "Spring Triangle" with the third member, Denebola, lying to their west.
2. Denebola is the easternmost star of Leo, Just to its west are two moderately bright stars, Delta (δ) and Theta (θ) Leonis.
3. Vesta lies to their west about 1 binocular field.
4. Triangulate among 60 Leonis, 51 Leonis and Vesta, all easily seen in binoculars.
5. Vesta will be slightly dimmer than 51 Leonis.
6. It will be closest to 51 Leonis on April 17.



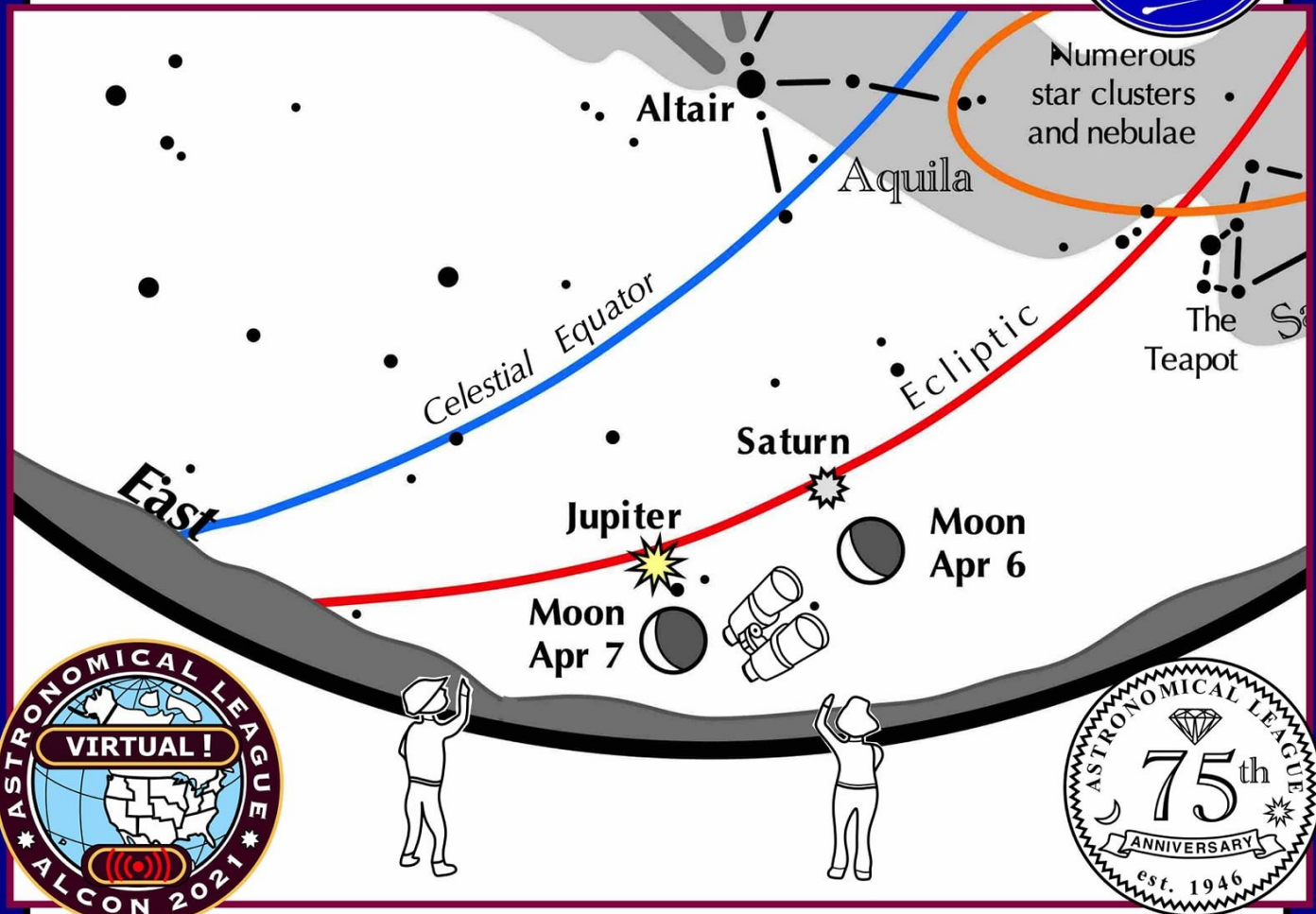
Path of Mag. 5.9-6.0 Vesta in March & April 2021

Vesta:
Diameter - 326 miles (528 km)

Distance from Earth:
Mar 17 - 127 million miles (206 million km)
Apr 1 - 133 million miles (215 million km)
Apr 30 - 154 million miles (250 million km)

Vesta detail Map B

If you can catch only one celestial event in the morning this April, see this one.



Crescent Moon sliding below Saturn and Jupiter on April 6 & 7, respectively.

Look to the southeast 60 minutes before sunrise.

- Look in the southeast 60 minutes before sunrise on April 6 & 7.
- Saturn shines above the Moon on April 6.
- Bright Jupiter brightly shines above the Moon on April 7.
- Use binoculars to marvel at the muted Earthshine lighting the Moon's night region.
- Through binoculars, can you spot Jupiter's four Galilean moons?

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!