Prescott Astronomy Club

EPHEMERIS

The official newsletter of the Prescott Astronomy Club (PAC)
e-phem-er-is: a time-based listing of future positions of solar system objects

September 2022

UPCOMING EVENTS

Tuesday, September 6 - Regular PAC meeting @ 6:00 PM at Prescott Public Library Founder's Suite hosted by Art Arnold-Roksandich. This will be a hybrid meeting with both in-person and Zoom. Registration is not necessary. The URL link for Zoom is on the new website and included in the email reminder sent to the membership.

NOTE: THIS MONTH"S MEETING IS ON TUESDAY, SEPT. 6, not the usual first Wednesday of the month.

Nick Moskovitz, PhD, astronomer at Lowell Observatory in Flagstaff, Arizona, will present '*Earth Strikes Back: NASA's First Planetary Defense Experiment*'. Later this year NASA's DART spacecraft will deliberately crash into an asteroid at a speed of more than 13,000 mph. Given this dramatic end, ground based telescopes, including several at Lowell Observatory, will be tasked with witnessing the aftermath. Nick will discuss background to the DART mission, what is expected to happen, and why smashing into things in outer space can be fun.

Saturday, September 24 - Starry Nights public star party @ 7:30 PM at Pronghorn Park, Prescott Valley.

EDITOR FOR PAC NEWSLETTER (EPHEMERIS) NEEDED

David Viscio, Editor

After almost 13 years as the newsletter editor, I have decided it is time to pass this responsibility on to someone else. I encourage a newer, younger member to take on this task as a means to contribute to the club. Preparing the newsletter takes only a few hours at the end of each month in the comfort of your own home. I will gladly sit with the new editor and show them all my information sources and 'tricks' for preparing the newsletter. PLEASE NOTE: The December 2022 edition of the newsletter will definitely be the last one I will prepare. If you are interested

in volunteering, contact the president, Art Arnold-Roksandich (p@prescottastronomyclub.org) and me (pkmist@gmail.com).

THE SUMMER TRIANGLE'S HIDDEN TREASURES

David Prosper

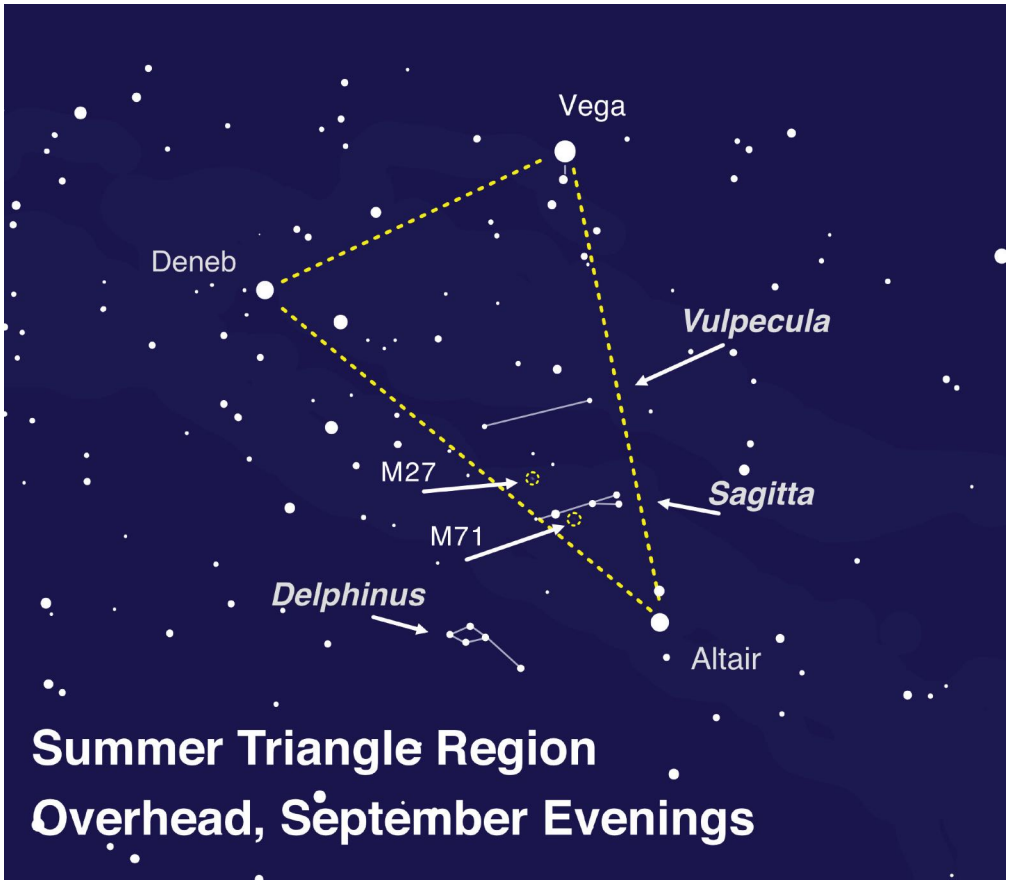
September skies bring the lovely Summer Triangle asterism into prime position after nightfall for observers in the Northern Hemisphere. Its position high in the sky may make it difficult for some to observe its member stars comfortably, since looking straight up while standing can be hard on one's neck! While that isn't much of a problem for those that just want to quickly spot its brightest stars and member constellations, this difficulty can prevent folks from seeing some of the lesser known and dimmer star patterns scattered around its informal borders. The solution? Lie down on the ground with a comfortable blanket or mat, or grab a lawn or gravity chair and sit luxuriously while facing up. You'll quickly spot the major constellations about the Summer Triangle's three corner stars: Lyra with bright star Vega, Cygnus with brilliant star Deneb, and Aquila with its blazing star, Altair. As you get comfortable and your eyes adjust, you'll soon find yourself able to spot a few constellations hidden in plain sight in the region around the Summer Triangle: Vulpecula the Fox, Sagitta the Arrow, and Delphinus the Dolphin! You could call these the Summer Triangle's "hidden treasures" – and they are hidden in plain sight for those that know where to look!

Vulpecula the Fox is located near the middle of the Summer Triangle, and is relatively small, like its namesake. Despite its size, it features the largest planetary nebula in our skies: M27, aka the Dumbbell Nebula! It's visible in binoculars as a fuzzy "star" and when seen through telescopes, its distinctive shape can be observed more readily - especially with larger telescopes. Planetary nebulae, named such because their round fuzzy appearances were initially thought to resemble the disc of a planet by early telescopic observers, form when stars similar to our Sun begin to die. The star will expand into a massive red giant, and its gasses drift off into space, forming a nebula. Eventually the star collapses into a white dwarf – as seen with M27 - and eventually the colorful shell of gasses will dissipate throughout the galaxy, leaving behind a solitary, tiny, dense, white dwarf star. You are getting a peek into our Sun's far-distant future when you observe this object!

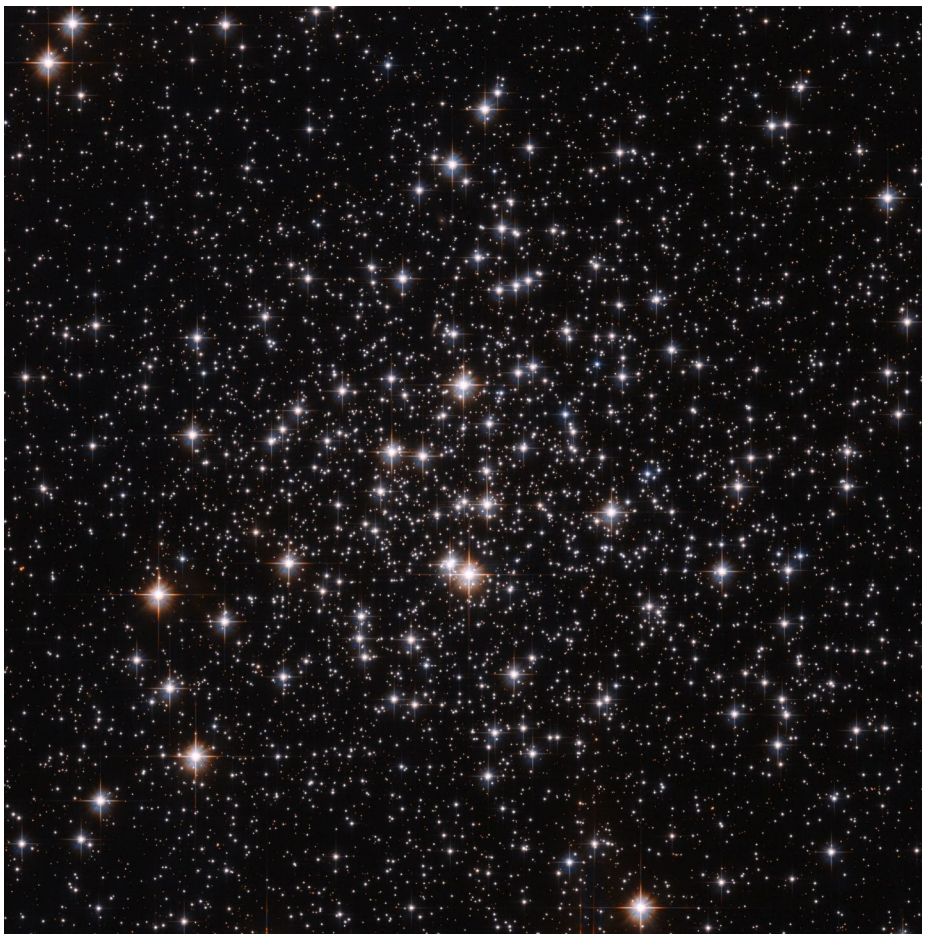
Sagitta the Arrow is even smaller than Vulpecula – it's the third smallest constellation in the sky! Located between the stars of Vulpecula and Aquila the Eagle, Sagitta's stars resemble its namesake arrow. It too contains an interesting deep-sky object: M71, an unusually small and young globular cluster whose lack of a strong central core has long confused and intrigued

astronomers. It's visible in binoculars, and a larger telescope will enable you to separate its stars a bit more easily than most globulars; you'll certainly see why it was thought to be an open cluster!

Delicate Delphinus the Dolphin appears to dive in and out of the Milky Way near Aquilla and Sagitta! Many stargazers identify Delphinus as a herald of the fainter water constellations, rising in the east after sunset as fall approaches. The starry dolphin appears to leap out of the great celestial ocean, announcing the arrival of more wonderful sights later in the evening.



Search around the Summer Triangle to spot some of its hidden treasures! To improve readability, the lines for the constellations of Aquilla, Lyra, and Cygnus have been removed, but you can find a map which includes them in our previous article, Spot the Stars of the Summer Triangle, *from August 2019. These aren't the only wonderful celestial sights found around its borders; since the Milky Way passes through this region, it's littered with many incredible deep-sky objects for those using binoculars or a telescope to scan the heavens. Image created with assistance from Stellarium: stellarium.org.*



M71 as seen by Hubble. Your own views very likely won't be as sharp or close as this. However, this photo does show the cluster's lack of a bright, concentrated core, which led astronomers until fairly recently to classify this unusual cluster as an "open cluster" rather than as a "globular cluster." Studies in the 1970s proved it to be a globular cluster after all – though an unusually young and small one! Credit ESA/Hubble and NASA. Source: https://www.nasa.gov/feature/goddard/2017/messier-71

WHAT'S HAPPENING IN SEPTEMBER 2022

This calendar from In-The-Sky.org shows the objects and events visible during September 2022.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Aurigid meteor shower 2022	2	3 Moon at First Quarter
4 Venus at perihelion	5	6	7 The Moon at perigee Asteroid 3 Juno at opposition	8 Conjunction of the Moon and Saturn Close approach of the Moon and Saturn The Moon at aphelion	9 September ε-Perseid meteor shower 2022	10 Full Moon
11 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter	12	13	14 Close approach of the Moon and Uranus Lunar occultation of Uranus	15	16 Neptune at opposition Close approach of the Moon and Mars Conjunction of the Moon and Mars	17 Moon at Last Quarter
18	19 The Moon at apogee	20	21	22 September equinox	23 Mercury at inferior solar conjunction	24
25 New Moon NGC 55 is well placed	26 Jupiter at opposition	27 Daytime Sextantid meteor shower 2022 47-Tuc is well placed	28 The Moon at perihelion	29	30	

For additional information and details, see: https://in-the-sky.org/newscal.php and www.telescopius.com . Observing lists of monthly 'Binocular' and 'Telescope' Showpieces can be found on the club website.

CALL FOR ASTRO-IMAGES

David Viscio, editor

I request all astrophotographer members of the club submit examples of their astro-images to share with club members by inclusion in the Ephemeris. Images can be sent to me at pkmist@gmail.com. Please include description of equipment, cameras, image capture parameters and processing.

NEED TO KNOW - ASK A MEMBER

A 15-minute segment is being added to the regular general meetings where members can have their 'burning' questions answered by other knowledgeable members. If you have an astronomy related question you would like explained, submit the question to Art Arnold-Roksandich p@prescottastronomyclub.org. You can also bring up the question at the meeting.

FOR SALE

As a member of PAC, you may use the groups.io/g/pacinfo message board to post notices of items for sale. It is easy to signup. Go to groups.io/g/pacinfo. Click on "Apply for Membership to This Group". Fill in your email address and click on "Confirm Email Address". You should get a return email by the next day. You can update your profile for a daily digest or no email notices at all. You can go anytime to groups.io/g/pacinfo to check out what other people are doing.

New items are added now and then, so don't miss out on something that you would like to get for yourself...or a friend.

PAC MENTORS

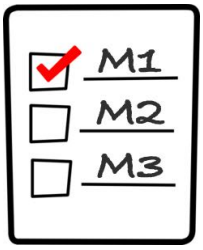
If you need advice on the purchase of astronomy equipment, setting up equipment, astrophotography, etc., contact a PAC mentor.

Open - Astrophotography

David Viscio - General & Astrophotography - (928) 775-2918

Greg Lutes - Visual Observing - (928) 445-4430

OBSERVING LISTS



Observing lists are available in PDF format on the PAC website to provide guidance and goals for visual and astrophotography programs.

Astroleague Lunar 100	Binocular Showpieces
Bright Nebulae	Caldwell
Dunlop 100	Face-On Spiral Galaxies
Globular Clusters	Herschel 400
Herschel II	Hidden Treasures
Messier	Open Clusters
Planet Maps	Planetary Nebulae
Royal Astronomical Society of Canada Finest NGC	
Saguaro Astronomy Club Best NGC	S&T Lunar 100
Telescope Showpieces	The Secret Deep

PAC WEBSITE

Website**:** http://www.prescottastronomyclub.org

E-mail: pacinfo@prescottastronomyclub.org

BOARD OF DIRECTORS

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Starry Nights Coordinator: David Viscio
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Webmaster: EJ Van Horne

APOD AUGUST 16, 2022: A METOER WIND OVER TUNISIA

Image Credit & Copyright: Makrem Larnaout

Does the Earth ever pass through a wind of meteors? Yes, and they are frequently visible as meteor showers. Almost all meteors are sand-sized debris that escaped from a Sun-orbiting comet or asteroid, debris that continues in an elongated orbit around the Sun. Circling the same Sun, our Earth can move through an orbiting debris stream, where it can appear, over time, as a meteor wind. The meteors that light up in Earth's atmosphere, however, are usually destroyed. Their streaks, though, can all be traced back to a single point on the sky called the radiant. The featured image composite was taken over two days in late July near the ancient Berber village Zriba El Alia in Tunisia, during the peak of the Southern Delta Aquariids meteor shower. The radiant is to the right of the image. A few days ago our Earth experienced the peak of a more famous meteor wind -- the Perseids.