



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

JUNE 2021

UPCOMING EVENTS



Wednesday, June 2 - Regular PAC meeting @ 6:30 PM. The meeting will be conducted virtually on Zoom hosted by Jeff Stillman. Invitations will be sent to all members. Guests can register on our webpage. To participate in the meeting, one must register by e-mail.

James D. Windsor, graduate research assistant, Department of Astronomy and Planetary Science, Northern Arizona University, will present "*Clouds on Earth, Our Solar System, and Beyond*". Microphysical and dynamic processes occurring within clouds significantly influence numerous large-scale dynamic, energetic, and chemical processes occurring within the atmospheres of nearly all Solar System planets. It is expected that these same atmospheric processes heavily influence the radiative energy balance of exoplanets. He will start with a review of what we know about clouds on our own planet, then expand to what we know about clouds in our solar system and beyond. Ultimately the talk will converge to the cutting edge of exoplanet atmospheres and the unique problems that clouds in their atmospheres introduce.

Wednesday, June 9 - METASIG @ 5:00 PM at local restaurant. At this time, no Zoom events will be conducted for METASIG. Anyone wishing to organize a meeting should coordinate with Russell Chappell.

Wednesday, June 9 - Arizona Astrophotography Association @ 7:00 PM. The meeting will be conducted virtually on Zoom hosted by John Carter.

ANNUAL PAC PICNIC

by Jeff Stillman

PAC is considering hosting the annual picnic this year at the Watson Lake ramada on August 28th, 12p to 4pm. The expenditure for the picnic was not included in the annual budget due to the state of the COVID pandemic when the budget was approved, therefore the expense needs approval from the membership. At the next general meeting, on June 2nd, we will be bringing up

the proposal to host the annual picnic and voting on the expenditure. The PAC board needs your response as to whether you would attend this picnic. Please plan on attending the June general meeting to provide your response. If you can't attend the meeting but plan on attending the picnic, please respond via email to p@prescottastronomyclub.org.

ASTROPHOTOGRAPHY WITH YOUR SMARTPHONE

David Prosper

Have you ever wanted to take night time photos like you've seen online, with the Milky Way stretched across the sky, a blood-red Moon during a total eclipse, or a colorful nebula? Many astrophotos take hours of time, expensive equipment, and travel, which can intimidate beginners to astrophotography. However, anyone with a camera can take astrophotos; even if you have a just smartphone, you can do astrophotography. Seriously!

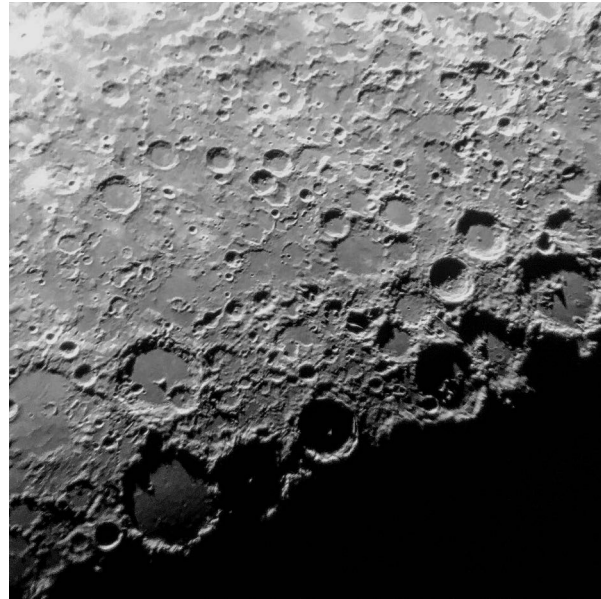


Don't expect Hubble-level images starting out! However, you can take surprisingly impressive shots by practicing several basic techniques: steadiness, locked focus, long exposure, and processing. First, steady your smartphone to keep your subjects sharp. This is especially important in low light conditions. A small tripod is ideal, but an improvised stand, like a rock or block of wood, works in a pinch. Most camera apps offer timer options to delay taking a photo by a few seconds, which reduces the vibration of your fingers when taking a shot. Next, lock your focus. Smartphones use autofocus, which is not ideal for low-light photos, especially if the camera readjusts focus mid-session. Tap the phone's screen to focus on a distant bright star or streetlight, then check for options to fine-tune and lock it. Adjusting your camera's exposure time is also essential. The longer your camera is open, the more light it gathers - essential for low-light astrophotography. Start by setting your exposure time to a few seconds. With those options set, take a test photo of your target! If your phone's camera app doesn't offer these options, you can download apps that do. While some phones offer an "astrophotography" setting, this is still rare as of 2021. Finally, process your photos using an app on your phone or computer to bring out additional detail! Post-processing is the secret of all astrophotography.

You now have your own first astrophotos! Wondering what you can do next? Practice: take lots of photos using different settings, especially before deciding on any equipment upgrades. Luckily, there are many amazing resources for budding astrophotographers. NASA has a free eBook with extensive tips for smartphone astrophotography at bit.ly/smartastrophoto, and you can also join the Smartphone Astrophotography project at bit.ly/smartphoneastroproject. Members of astronomy clubs often offer tips or even lessons on astrophotography; you can find a club near you by searching the "Clubs and Events" map on the Night Sky Network's website at nightsky.jpl.nasa.gov. May you have clear skies!



A small tripod for a smartphone. They are relatively inexpensive – the author found this at a local dollar store!



The Moon is large and bright, making it a great target for beginners. The author took both of these photos using an iPhone 6s. The crescent moon at sunset (left) was taken with a phone propped on the roof rack of a car; the closeup shot of lunar craters (right) was taken through the eyepiece of a friend's Celestron C8 telescope.

WHAT'S HAPPENING IN JUNE 2021

This calendar from In-The-Sky.org shows the objects and events visible during June 2021.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter	2 Moon at Last Quarter M13 is well placed	3 M12 is well placed	4 Asteroid 63 Ausonia at opposition Conjunction of Uranus and Ceres	5 M10 is well placed
6 M62 is well placed	7 The Moon at apogee	8 The Moon at perihelion	9 Mercury at aphelion	10 Annular solar eclipse New Moon Daytime Arietid meteor shower 2021 Mercury at inferior solar conjunction	11 M92 is well placed	12 Conjunction of the Moon and Venus Venus at perihelion
13 Conjunction of the Moon and Mars Close approach of the Moon and Mars	14	15 NGC 6388 is well placed	16 M6 is well placed	17 NGC 6397 is well placed Moon at First Quarter	18 15P/Finlay at perigee IC4665 is well placed	19
20 Jupiter enters retrograde motion M7 is well placed June solstice	21	22	23 The Moon at perigee Close approach of Mars and M44 NGC 6530 is well placed NGC 6541 is well placed	24 Full Moon The Moon at aphelion	25 Neptune enters retrograde motion	26
27 Conjunction of the Moon and Saturn June Bootid meteor shower 2021 Close approach of the Moon and Saturn	28 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter NGC 6633 is well placed	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.

NEED TO KNOW - ASK A MEMBER

A new 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 John Carter (jrcpvaz@icloud.com). You can also bring up the question at the meeting.

FOR SALE

Please visit the Classified Ads section of the club website to view the items posted there for sale:

<http://prescottastronomyclub.org/classified-ads/>

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.

Jeff Stillman - Astrophotography - (928) 379-7088

David Viscio - General - (928) 775-2918

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

Joel Cohen - Beginner’s Astronomy: Selecting & Using a Telescope - (856) 889-6496

John Carter - Video Observing - (928) 458-0570



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 & YAHOO GROUPS

Website: <http://www.prescottastronomyclub.org>

E-mail: pacinfo@prescottastronomyclub.org

Arizona Astrophotography Association:

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



BOARD OF DIRECTORS

President: Jeff Stillman

Vice President: Open

Secretary: Open

Treasurer: Art Arnold-Roksandich

At Large: Jason Hoover

At Large: Dave Covey

At Large: Doug Tilley

At Large: Pat Bledsoe



PAC COORDINATORS

Astronomical League Coordinator: John Carter

Facebook: Adam England

Highland Center Coordinator: David Viscio

Membership: Art Arnold-Roksandich

METASIG: Russell Chappell

Newsletter: David Viscio

Night Sky Network: John Carter

PAC Affiliate Partner w/ NAU Space Grant Program – Cory Shaw

PAC Store Sales - John Verderame

Property Records: Open

Public Relations: Adam England

Refreshments: Open

Schools & Camps Outreach: Don Beaman & Joel Cohen

Starry Nights Coordinator: Don Beaman & Joel Cohen

Third Thursday Coordinator: Dave Covey, Marilyn Unruh

Webmaster: Russell Chappell



MAY 7, 2021: MESSIER 101

Image Credit: David B. Viscio



*Stellarvue SV80 f/6 triplet apochromatic refractor, Canon EOS 60Da dslr, ISO3200
1-minute exposures, Deep Sky Stacker, 44 lights, 20 darks, 20 flats
optimized in Adobe Photoshop CS6*