



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

August 2022

UPCOMING EVENTS



Wednesday, August 3 - Regular PAC meeting @ 6:30 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.

This meeting is our Members' Night. Members are invited to give a short presentation (5 to 10 minutes) about an astronomy-related topic of particular interest to them. Have some new equipment, a recent astrophoto to show off or visited an observing site you'd like to tell us about? Eager to share some recent astronomical news? This is your chance! Please reply to Brian Blau, our vice-president, at vp@prescottastromonyclub.org and let him know what you'd like to present.

We will also be holding a swap meet during this meeting. Have some equipment you'd like to re-home? Bring it to this meeting. We'll have tables set up for club members to display their gear. The club will also be offering a large number of items we've had in storage. Some will even be free!

Thursday, August 18 - Third Thursday Presentation @ 5:30 PM in the Founder's Suite, Prescott Public Library. CANCELLED.

Saturday, August 27 - Annual PAC Picnic @ 12:00 noon at Watson Lake Pavilion.

ANNUAL PAC PINIC

Susanne Vaughan, PAC Treasurer, Roland Albers, PAC Secretary

Our annual Prescott Astronomy Club picnic is coming up on Saturday, August 27th at the Watson Lake Pavilion (tentatively from 12:00 to 3:00 PM). Please help us plan for it by replying to the address below and telling us if you will be attending (and if a spouse or significant other is

coming with you). Also, tell us if you prefer a hamburger or brats, and if you will require a parking pass. Everyone will bring their own drinks and a side dish or dessert. It is such a fun social event!! RSVP by August 1st to: susanne.vaughan@gmail.com

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).

AREMIS 1: AT TRIP AROUND THE MOON - AND BACK

David Prosper

We are returning to the Moon - and beyond! Later this summer, NASA’s Artemis 1 mission will launch the first uncrewed flight test of both the Space Launch System (SLS) and Orion spacecraft on a multi-week mission. Orion will journey thousands of miles beyond the Moon, briefly entering a retrograde lunar orbit before heading back to a splashdown on Earth.



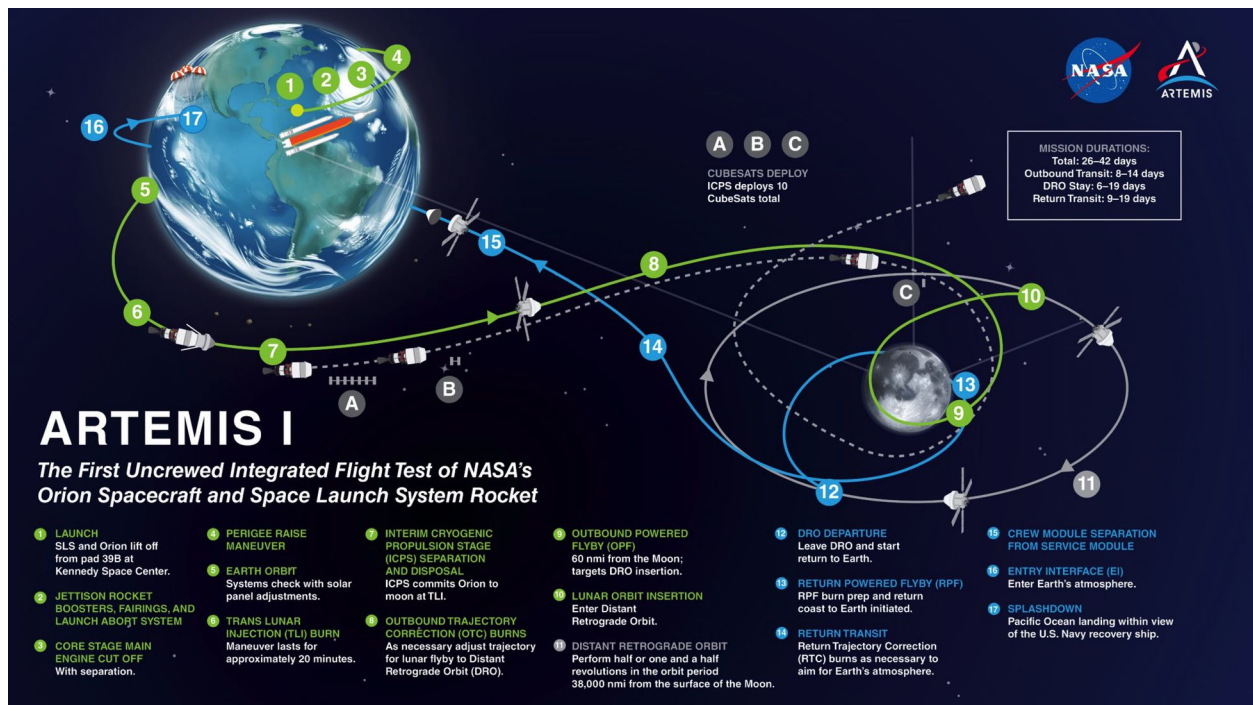
The massive rocket will launch from Launch Complex 39B at the Kennedy Space Center in Florida. The location’s technical capabilities, along with its storied history, mark it as a perfect spot to launch our return to the Moon. The complex’s first mission was Apollo 10 in 1968, which appropriately also served as a test for a heavy-lift launch vehicle (the Saturn V rocket) and lunar spacecraft: the Apollo Command and Service Modules joined with the Lunar Module. The Apollo 10 mission profile included testing the Lunar Module while in orbit around the Moon before returning to the Earth. In its “Block-1” configuration, Artemis 1’s SLS rocket will take off with 8.8 million pounds of maximum thrust, even greater than the 7.6 millions pounds of thrust generated by the legendary Saturn V, making it the most powerful rocket in the world!

Artemis 1 will serve not only as a test of the SLS and the Orion hardware, but also as a test of the integration of ground systems and support personnel that will ensure the success of this and future Artemis missions. While uncrewed, Artemis-1 will still have passengers of a sort: two

human torso models designed to test radiation levels during the mission, and “Commander Moonikin Campos,” a mannequin named by the public. The specialized mannequin will also monitor radiation levels, along with vibration and acceleration data from inside its mission uniform: the Orion Crew Survival Suit, the spacesuit that future Artemis astronauts will wear. The “Moonikin” is named after Arturo Campos, a NASA electrical engineer who played an essential role in bringing Apollo 13’s crew back to Earth after a near-fatal disaster in space.

The mission also contains other valuable cargo for its journey around the Moon and back, including CubeSats, several space science badges from the Girl Scouts, and microchips etched with 30,000 names of workers who made the Artemis-1 mission possible. A total of 10 CubeSats will be deployed from the Orion Stage Adapter, the ring that connects the Orion spacecraft to the SLS, at several segments along the mission’s path to the Moon. The power of SLS allows engineers to attach many secondary “ride-along” mission hardware like these CubeSats, whose various missions will study plasma propulsion, radiation effects on microorganisms, solar sails, Earth’s radiation environment, space weather, and of course, missions to study the Moon and even the Orion spacecraft and its Interim Cryogenic Propulsion Stage (ICPS)!

If you want to explore more of the science and stories behind both our Moon and our history of lunar exploration, the Night Sky Network’s Apollo 11 at 50 Toolkit covers a ton of regolith: bit.ly/nsnmoon! NASA also works with people and organizations around the world coordinating International Observe the Moon Night, with 2022’s edition scheduled for Saturday, October 1: moon.nasa.gov/observe. Of course, you can follow the latest news and updates on Artemis 1 and our return to the Moon at nasa.gov/artemis-1



Follow along as Artemis 1 journeys to the Moon and back! A larger version of this infographic is available from NASA at: nasa.gov/image-feature/artemis-i-map



Full Moon over Artemis-I on July 14, 2022, as the integrated Space Launch System and Orion spacecraft await testing. Photo credit: NASA/Cory Huston Source: <https://www.nasa.gov/image-feature/a-full-moon-over-artemis/>

WHAT'S HAPPENING IN AUGUST 2022

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Conjunction of Mars and Uranus	2	3	4 C/2017 K2 (PANSTARRS) reaches its brightest	5 Moon at First Quarter	6
7	8	9	10 The Moon at perigee The Moon at aphelion	11 Full Moon Conjunction of the Moon and Saturn Close approach of the Moon and Saturn	12	13 Perseid meteor shower 2022
14 Saturn at opposition M15 is well placed	15 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter M2 is well placed	16	17 Mercury at highest altitude in evening sky	18 κ-Cygnid meteor shower 2022 Close approach of the Moon and Uranus Lunar occultation of Uranus Moon at Last Quarter	19 Close approach of the Moon and Mars Conjunction of the Moon and Mars	20
21	22 Asteroid 4 Vesta at opposition The Moon at apogee	23 Mercury at aphelion	24 Uranus enters retrograde motion Conjunction of Venus and Ceres	25 73P/Schwassman-Wachmann at perihelion Conjunction of the Moon and Venus	26	27 New Moon Mercury at greatest elongation east
28	29 The Moon at perihelion Conjunction of the Moon and Mercury Mercury at dichotomy	30	31			

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

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

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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PAC COORDINATORS

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METASIG: John Dwan
Newsletter: David Viscio
Night Sky Network: Open
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Third Thursday Coordinator: Dave Covey
Webmaster: EJ Van Horne



FIRST JAMES WEBB SPACE TELESCOPE DEEP FIELD IMAGE

Image Credit: NASA, ESA, CSA, STScI



The first deep field image of the JWST is spectacular. It spans an angular dimension equivalent to a grain of sand held at arms length. There are about 30 stars in the image (exhibiting a 6-diffraction spike pattern). 99+% of the objects are galaxies. Note the galaxy cluster at the image center (4.6 billion light years away and dominated by a huge elliptical galaxy) that is gravitationally lensing numerous galaxies behind it, forming numerous galaxy arcs. The Hubble Space Telescope was capable of seeing back to about 500 million years after the Big Bang. It is hoped the JWST will see back to 200 million years.