THE ASTRONEWS

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August 2022

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapruks

As Oahu COVID-19 case count daily average continues to stay high (388+), our HAS monthly meeting will continue to be an online meeting. Our public star party and school star party is also on hold. Let's hope that situation gets better by this summer so we can all go back to a similar life as 2019. At that time, we will announce it on our HAS website and in the AstroNews. Meanwhile, we will continue to have the club member only star party. We will be limiting the club party to the key master and 24 extra members. All attendees must be fully vaccinated. The monthly club meeting is now being done remotely via Zoom. Please check your email and website for an update.

The biggest news of the has to be the reveal of the images from James Webb Space Telescope (JWST) on Tuesday, July 12, 2022. The 1st image revealed by President Biden on Monday was SMACS 0723. I saw people compared this image from JWST versus the image from Hubble Space Telescope (HST). Big differences. Photos below captured from Twitter.

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Upcoming Events:

- The next Board meeting is Sun., July 31st 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., August 2nd ~~at the Bishop Museum~~ at 7:30 PM. —**Zoom Meeting**
- Bishop Museum's planetarium shows are every 1st Saturday of the month at 8:00 PM (**Online**) www.bishopmuseum.org/calendar

President's Message
August 2022

COVID infection rates are still fairly high in Hawaii, so we will continue to hold off for now on holding meetings in the planetarium or resuming public star parties.

The James Webb Space Telescope (JWST) has finally begun returning data. You have probably seen the images of the Deep Field, the Carina Nebula, Stephan's Quintet and others, as well as spectra. So far, everything is working as planned, and JWST should give us many years of productive work.

This spacecraft is a triumph of engineering skill. It had over two hundred single-point failure possibilities. If any one of them had failed to work properly, there was no backup, and the mission would not have succeeded, but everything performed as designed.

Those of you who, like me, are older than the space age well remember the large number of failures in our early attempts to venture beyond Earth's atmosphere. Rockets routinely blew up on the launch pad or shortly after liftoff. It took several attempts before we could even achieve an impact on the Moon (we missed!). Rocket science is still not easy. SpaceX's first four prototypes of its heavy lift Starship boosters exploded after launch, and another Super Heavy booster suffered minor damage from an explosion during a test in July.

JWST suffered minor damage from a micrometeoroid strike in May. One of the mirror segments was hit and needed a realignment by the actuators. This has not, however, significantly compromised the quality of the data returned.

In the future, we can look forward to very large telescopes on the Moon. There is very little seismic activity on the Moon, so it's a very stable platform. Its low gravity and slow rotation mean larger instruments could be built and guided to remain on a target for far longer than on Earth. With no atmosphere, targets could be followed almost from horizon to horizon with no loss of image quality. These telescopes will far outperform what we have put into space so far.

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Hawaiian Astronomical Society
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Observer's Notebook—August 2022 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

Aug 11, 21h, Moon 3.7° SE of Saturn; 174° and 177° from Sun in the midnight sky; magnitudes -12.7 and 0.3
Aug 14, 3h, Moon 2.77° SE of Neptune; 146° and 147° from Sun in morning sky; magnitudes -11.9 and 7.8
Aug 15, 2h, Moon 1.67° SE of Jupiter; 134° from Sun in morning sky; magnitudes -11.5 and -2.8
Aug 18, 5h, Moon 0.64° NNE of Uranus; 96° and 97° from Sun in morning sky; magnitudes -10.3 and 5.7; occultation
Aug 19, 1h, Moon 2.57° NNW of Mars; 87° from Sun in morning sky; magnitudes -9.9 and 0.0
Aug 25, 15h, Moon 4.1° NNE of Venus; 16° and 15° from Sun in morning sky; magnitudes -5.4 and -3.9
Aug 29, 8h, Moon 5.9° NNE of Mercury; 28° and 27° from Sun in evening sky; magnitudes -6.6 and 0.3

Other Events of Interest
Times are Hawaii Standard Time

Aug 1, 15h, Mars 1.31° SE of Uranus; 81° from Sun in morning sky; magnitudes 0.2 and 5.8
Aug 9, 15h, Moon at perigee; distance 56.42 Earth-radii
Aug 12, 15h, Perseid meteors; ZHR 100; 1 day after Full Moon
Aug 14, 7h, Saturn at opposition in longitude; magnitude 0.3; declination - 15.4°
Aug 17, 23h, Mars and Jupiter at heliocentric conjunction; longitude 12.8°
Aug 21, 21h, Asteroid 4 Vesta at opposition in longitude; magnitude 5.8

Planets in August

☿ Mercury

Eastern elongation on 27 August (27.3° from the Sun).

♀ Venus

Bright morning planet. Waning crescent Moon nearby on 25 and 26 August.

♂ Mars

Bright morning planet. Near Uranus at the start of August and the Pleiades on 18 August.

♃ Jupiter

Bright morning planet, reaching 40° altitude in dark skies from mid-month. Waning gibbous Moon near on 15 August.

♄ Saturn

Opposition on 14 August. Saturn; magnitude 0.3; declination - 15.4°

♅ Uranus

Morning planet, becoming well placed towards the end of August. Mars nearby at the start of the month.

♆ Neptune

Morning planet reaching an altitude of over 30° in true darkness from mid-August.

♇ Pluto (Dwarf Planet)

is visible in the evening sky, becoming accessible around 19:56 (HST), 28° above your south-eastern horizon, as dusk fades to darkness.

4—Vesta (Asteroid)

is visible between 21:38 and 05:05. It will become accessible around 21:38, when it rises to an altitude of 21° above your south-eastern horizon.

Meeting Minutes

H.A.S. Secretary

July 5th, 2022 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:33 pm. By President Chris Peterson. 13 participants were present.

Minutes of the June meeting were adopted.

New members, Ted, who found us on Google, and Mike Kinzer, who owns a Celestron. [apologies for partial or incorret names. Andy]

President Chris relayed news about the NASA mission to the asteroid Psyche, which has been delayed, and maps of the same from ALMA in Chile. He also shared a 3-D model of Orion, including Barnard's Loop.

Member contributions included Steve Chun's photo of Omega Centauri, and A Centauri, stacked from 14 2-minute exposures. Ort shared a shot of the "parade of planets" and a report of his attendance at the Girl Scouts camp. (Possible Dark Site?)

Dee requested advice for a friend who has come into a Meade 200LX, and needs a way to roll it out for observing. Several options where suggested.

Sabina shared experience with the Pixel 6 smartphone, which has a night photography setting, with 4 minute time-lapse exposures.

Paul Lawler exhibited more photos from his Unistellar eye-piece free scope, and explained the scope's ability to share images with multiple smartphones.

Someone mentioned "Twilight" for android phones, to make your screen night-vision friendly.

Peter Besenbruch reminded all of the HAS Deep Sky Atlas, which can be downloaded onto a device for use in the field.

President Chris thanked all for participating, meeting adjourned at 9:08 pm. There were 21 participants, at maximum.

Faithfully submitted, James Andy Stroble, Secretary.

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In the meantime, JWST has barely begun returning its potential flood of new data. New data always brings new knowledge and generates new questions. The golden age of astronomy continues.

Hawaiian Astronomical Society
Event Calendar

◄ Jul	August 2022					Sep ►
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
31 BoD Meeting 3:30 PM Zoom	1	2 Club Meeting 7:30 PM Zoom	3	4	5  1st Qtr 1:06 am	6
7	8	9	10	11  Full Moon 3:35 pm	12	13
14	15	16	17	18  3rd Qtr 6:36 pm	19	20 Club Party 7:00 PM Dillingham Airfield
21	22	23	24	25	26  New Moon 10:17 pm	27 Club Party 7:30 PM Dillingham Airfield
28	29	30	31	Notes:		

<<Upcoming Star Parties>>

Club Party-Dillingham August 20 —7:00 PM
Club Party Dillingham August 27 —7:00 PM
Public Party Geiger/Kahala August 6 — CANCELLED

Upcoming School Star Parties

NASA's Night Sky Notes

Artemis 1: A Trip Around the Moon – and Back!

By 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:

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Meteor Log—August 2022

by Tom Giguere

Full Moon on August 12 will badly affect optical observations of the Perseid (007 PER) activity around their maximum. The moon in Aquarius may allow us to observe the northern sky, but with severe light pollution. Jenniskens (2006, Table 5d) lists a filament encounter at (λ = 139.◦85 ± 0.◦2, i.e. August 12 near 22h UT) with a possible ZHR of 24. This is about 1/10 of the activity calculated and observed in the 2017 filament.

Enhanced κ-Cygnid activity was observed in 2007 and 2014. Apart from these events, a recent analysis indicates a general ZHR level increase in the recent years after an apparent dip in the period 1990–2005. However, the currently available data do not confirm a periodic activity variation in the visual activity range, and for 2022 there are no available predictions suggesting further peculiarities may occur. The shower is best-observed from northern hemisphere sites, from where the radiant is easily available all night; in 2022 best before midnight because of the waning Moon.

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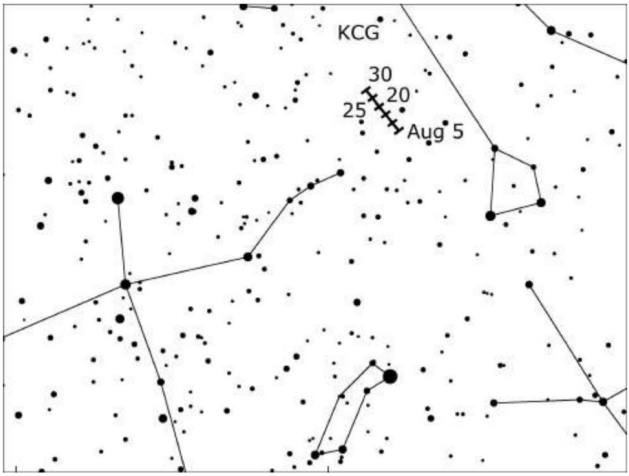


Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
August 05	August 11	August 18	August 26

Shower	Activity	Maximum		Radiant		V_∞	*r*	ZHR
		Date	$\lambda\odot$	α	δ	km/s		
Perseids (007 PER)	Jul 17-Aug 24	Aug 13	140°	48°	+58°	59	2.2	110
κ-Cygnids (012 KCG)	Aug 03–Aug 25	Aug 18	145°	286°	+59°	25	3.0	3

With the full Moon washing out the Perseids this year, it might be a good month to try the sparse Kappa Cygnids! For more info contact: Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737

Treasurer's Report

by Peter Besenbruch

Cash Flow - 6/11/02022 to 7/10/2022

Beginning Balance	$4,848.69
Money into selected accounts comes from	
Total Money In	$0.00

Money out of selected accounts goes to	
Astronomical League	$355.00
Total Money Out	$355.00

Difference	$-355.00
Ending Balance	**$4,493.69**

Here are the financials up through July 10.

Our one item is the payment to the Astronomical League for membership.

On the Covid front, the official case count has dropped to 410 per day for Oahu, though that hasn't been reliable for several months. Hospitalizations and ICU occupancy are mixed (112 and 13). There was talk of allowing the under 50 crowd to get a second booster in August, but that appears delayed until September at the earliest, when revisions of the vaccines come out.

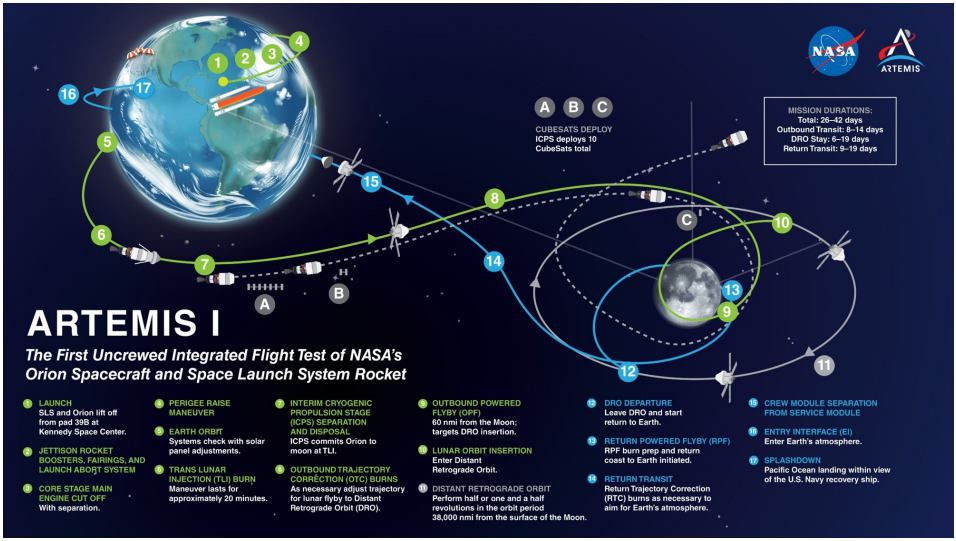
Behold: The Carina Nebula's 'Mystic Mountain'

Within the tempestuous Carina Nebula lies "Mystic Mountain." This three-light-year-tall cosmic pinnacle, imaged by the Hubble Space Telescope's Wide Field Camera 3 in 2010, is made up primarily of dust and gas, and exhibits signs of intense star-forming activity.

Image Credit: NASA, ESA, M. Livio and the Hubble 20th Anniversary Team (STScI)

(Continued from page 6) NASA's Night Sky Notes

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-1 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/

(Continued from page 1) Editor Note

Weather is July have not been that favorable for me. However, there were several days that I have a few break in the sky so I was able to capture some photos. I took Bucks Super-moon on July 13, 2022. I was able to take a photo of comet C/2017 K2 (Panstarrs) with Messier 10 on July 15, 2022. Tom Giguere also took photos of this comet from July 22, 2022 – July 24, 2022.

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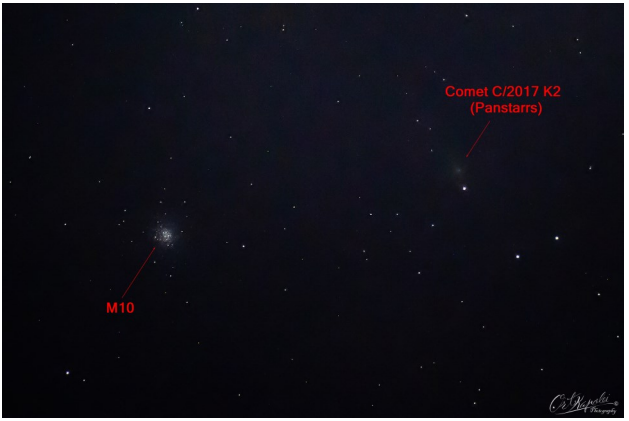
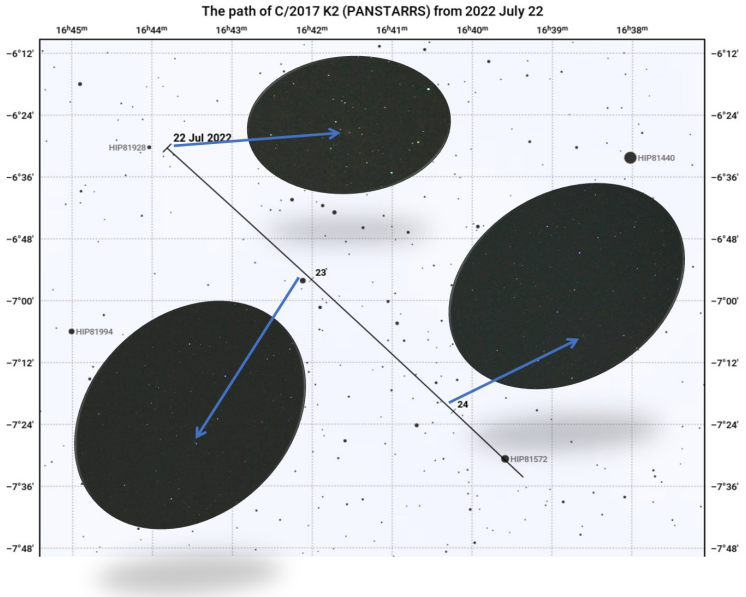




Three nights of comet C/2017 K2 captured at ~ 9:30pm on July 22, 23, and 24th, 2022. The slight wisp of a tail extends to the northwest and the comet color is slightly greenish. Two second exposure to avoid trailing with a 180mm F/2.8 Nikon lens. Each image shows the three day path and background star field, north is up, and the image scale varies slightly. The finder chart was generated with in-the-sky.org on-line software.
- Thomas Giguere

(Continued from page 7) Meteor Logs

Looking for a way to cool down while watching the Perseids on a hot summer night? Try meteor shower beer! I ran across this interesting flavor option on a trip to New York City in July. I'm not sure if you'll see more meteors but I would thnk the overall experience would be more enjoyable!

Meteor Shower

Blonde Ale 4.5% ABV

18 IBU

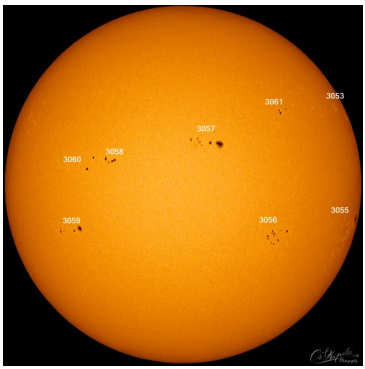
12 oz: $8.00

An approachable, malt-oriented American beer that is well-balanced and great for easy-drinking.

(Continued from page 10 - Editor Notes

On Sunday, July 17, 2022, I decided to take photos of busy Sunspots (8) on the Sun. On Saturday, 7/23/2022, I decided to drive out to Makapuu Beach Park to try to shoot my first Milky Way of the year. There was too much low cloud to get a good photo. Let's hope that there are a better chance before the Milky Way season is over.

Clear Nights!!!



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Become a Jovian Vortex Hunter!

A new NASA citizen science project, Jovian Vortex Hunter, seeks your help spotting vortices – spiral wind patterns – and other phenomena in photos of the planet Jupiter.

In this image from 2019, citizen scientist Kevin M. Gill created this image using data from the space-craft's JunoCam imager.

Image Credit: NASA/JPL-Caltech/SwRI/MSSS/Kevin M. Gill