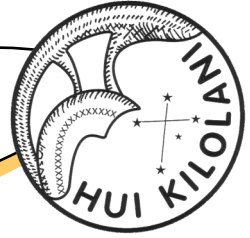


THE ASTRONEWS



Volume 72, Issue 9

September 2022

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapraks

As Oahu COVID-19 case count daily average continues to stay high (317+), 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.

I did not do any Astrophotography in August. I spent more time on preparing to take photos of Kaneohe Bay Airshow 2022. Traffic on Saturday, 8/13/2022, to go to K-Bay was very heavy. It took me over 2.5 hours to get there from Kapolei. It also took me that long to be able to get off base. Was 5 hours waiting in or by the car worth it? My answer is YES. Some of the photos came out great.



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Upcoming Events:

- The next Board meeting is Sun., Sept. 4th 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Sept. 6th 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 September 2022

Saturn reached opposition in mid-August. That heralds a new season of early evening bright planets in our sky! For the rest of the year, we will have at least one bright planet available for viewing in the sky at convenient times just after dark.

Of course, at opposition, planets don't reach their highest points in the sky until midnight, so the best telescopic views still require late-night observations. It is one of the small ironies of our hobby that by the time many non-astronomers notice (and begin asking us about) bright planets in the early evening sky, they are well past opposition and their best appearance in our telescopes.

For distant outer planets like Jupiter and Saturn, that doesn't matter much, because the increase in their distance from us from opposition until they are high at sunset a few months later is a relatively small part of their total distance from us. Neither looks noticeably bigger in our eyepieces over that range of time.

Mars is another story. At only about half an AU further from the Sun than Earth, Mars varies in distance from us by about a factor of five from closest to most distant (half an AU at opposition versus $2\frac{1}{2}$ AU at superior conjunction) with a corresponding range in apparent size. We only get a few weeks every two years or so to grab the best views of Mars, and the very best require viewing near midnight to catch it high in the sky at its closest approach.

With Saturn and Jupiter leading the way this year, it is a good opportunity to let people know about the coming opposition of Mars ahead of time. By the time Mars reaches its closest approach to Earth on December 1st and opposition on December 8th, I hope that we will have resumed our public star parties.

While this opposition is more distant than any of the last three in 2016, 2018, and 2020, it is still closer than any until 2033 (although just marginally better than 2031). Good views of Mars are rare indeed, so it's not too early to start planning for this year's opportunity.

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Observer's Notebook—September 2022 by Ort

Planets Close to the Moon

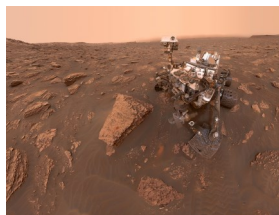
Times are Hawaii Standard Time

- Sep 8, 3h, Moon 3.7° SE of Saturn; 154° from Sun in evening sky; magnitudes -12.1 and 0.4
- Sep 10, 12h, Moon 2.71° SE of Neptune; 173° and 174° from Sun in the midnight sky; magnitudes -12.6 and 7.8
- Sep 11, 7h, Moon 1.62° SE of Jupiter; 163° from Sun in morning sky; magnitudes -12.3 and -2.9
- Sep 14, 13h, Moon 0.79° N of Uranus; 123° from Sun in morning sky; magnitudes -11.1 and 5.7; occultation
- Sep 16, 15h, Moon 3.6° N of Mars; 100° from Sun in morning sky; magnitudes -10.4 and -0.4
- Sep 24, 23h, Moon 2.47° NE of Venus; 8° and 7° from Sun in morning sky; magnitudes -4.7 and -3.9
- Sep 25, 4h, Moon 5.9° NNE of Mercury; 5° from Sun in morning sky; magnitudes -4.4 and 4.2

Other Events of Interest

Times are Hawaii Standard Time

- Sep 4, 10h, Venus at perihelion, 0.7184 AU from Sun
- Sep 22, 14h, September (northern autumn) equinox
- Sep 25, 14h, Day and night equal, at latitude 40° north
- Sep 26, 9h, Jupiter at opposition in longitude; magnitude -2.9; declination -0.0°



Curiosity's Dusty Selfie
A self-portrait of NASA's Curiosity rover taken on Sol 2082 (June 15, 2018). Aug 5, 2022 marks 10 years since the Curiosity rover landed on Mars.
Image Credit: NASA/JPL-Caltech/MSSS

Planets in September

<p>♃ Mercury</p> <p>Poor at start of month but improves toward the end of September in the morning sky.</p>	<p>♀ Venus</p> <p>Morning planet. Ultra-thin waning crescent Moon close on 25 September.</p>	<p>♂ Mars</p> <p>Brightening planet in Taurus. Appears 11 arcseconds across at the end of September.</p>
<p>♃ Jupiter</p> <p>Opposition on 26 September. Attains a peak altitude of 37° from the center of the UK</p>	<p>♄ Saturn</p> <p>Well positioned planet. Bright waxing gibbous Moon nearby on evenings of 7 and 8 September.</p>	<p>♅ Uranus</p> <p>Lunar occultation on 14 September. Covered for 50 mins by 77%-lit waning gibbous Moon.</p>
<p>♆ Neptune</p> <p>Reaches opposition on 16 September, attaining highest altitude of 30° in true darkness.</p>	<p>♇ Pluto (Dwarf Planet)</p> <p>is visible in the evening sky, becoming accessible around 19:26 (HST), 41° above your south-eastern horizon, as dusk fades to darkness.</p>	<p>♁ 4—Vesta (Asteroid)</p> <p>is visible in the evening sky, becoming accessible around 19:26 (HST), 23° above your south-eastern horizon, as dusk fades to darkness.</p>

Meeting Minutes

H.A.S. Secretary

August 2nd, 2022 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:32 pm. By President Chris Peterson. 13 participants were present.

Minutes of the July meeting were adopted, with corrected typos.

Nick reported on the SALT event in Kaakaako, and announce that there will be another on Oct. 1st. We could have a booth, and several members agreed to participate.

We have a donation of a telescope, from Tom Mirano(?), new in box. Contact President for further information.

Steve Chun shared astrophotos of the M4 area, and of M16, with one hour of five minute exposures, showing the Pillars of Creation.

President Chris said we are waiting for Covid-19 numbers to go down, before we resume outreach or in-person meetings. He also shared a video of a quiescent black hole in the Carina Nebula.

Ort shared some photos of the Comet (C/2017 K2 Panstarrs) next to M10, a globular cluster. And some shots of sun spots.

Member Tom Guigere reported on recent research presented at recent conferences on Lunar swirls. One of the primary investigators is a UH graduate. Lunar swirls were first thought to be craters, but it was later realized that they threw no shadows. The Reiner Gamma formation is a suggested target for all HAS astro, or lunar, photographers.

Treasured Peter shared some photos from the James Webb Space telescope, illustrating the advantage of the infra-red spectrum.

Meeting was adjourned at 9:06 pm. There were 22 participants, at maximum. A good time was had by all.

Faithfully submitted, James Andy Stroble, Secretary



Wildflowers in Bloom at Kennedy Space Center

With wildflowers surrounding the view, NASA's Artemis I Moon rocket – carried atop the crawler-transporter 2 – arrives at Launch Pad 39B at the agency's Kennedy Space Center in Florida on June 6, 2022.

Image credit: NASA/Ben Smegelsky

Hawaiian Astronomical Society Event Calendar

September 2022						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3  1st Qtr 8:07 AM
4 BoD Meeting 3:30 PM Zoom	5 Labor Day	6 Club Meeting 7:30 PM Zoom	7	8	9  Full 11:59 PM	10
11 Patriot Day	12	13	14	15	16	17  3rd Qtr 11:52 AM Club Star Party Dillingham 7:00 PM
18	19	20	21	22 Start of Fall (Autumnal Equinox)	23	24 Club Star Party Dillingham 7:00 PM
25  New 11:54 AM	26	27	28	29	30	Notes:

<<Upcoming Star Parties>>

Club Party-Dillingham September 17 —7:00 PM

Club Party Dillingham September 24 —7:00 PM

Public Party Geiger/Kahala September 3 — **CANCELLED**

Upcoming School Star Parties

NASA's Night Sky Notes

The Summer Triangle's Hidden Treasures

By 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 Aquila 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.

(Continued on page 9)

No meteor reports for the Moon-soaked Perseid meteor shower last month. Last year we had four independent observing groups! Next year will be a better year to observe the Perseids.

The α -Aurigids (206 AUR) is a northern-hemisphere shower that has produced short, unexpected, outbursts at times, with peak ZHRs of ≈ 30 – 50 recorded in 1935, 1986, 1994 and 2019. Other events may have been missed because the shower has not been monitored regularly. Only three observers covered the 1986 and 1994 outbursts, for instance. Observations of the first predicted outburst in 2007 confirmed the calculated values widely. This outburst was characterized by many bright meteors. The peak ZHR of ≈ 130 lasted only for about 20 minutes. The possible extra activity calculated for the 2021 return was still to come when this Calendar was prepared. Sato (2021) computed a one revolution dust trail and found that the minimum distance between Earth and the trail in 2022 is larger than in 2021. If the trail width is extended as indicated by previous observations, there may be weak activity on September 1 at 00h55m UT. The source of these meteors is comet Kiess (C/1911 N1). The Aurigid radiant reaches a useful elevation only after ≈ 01 h local time – this year with no moonlight interference.



Radiant for the α -Aurigids (206 AUR). Credit: StarWalk.Space.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
September 03	September 09	September 17	September 25

Shower	Activity	Maximum		Radiant		V_{∞} km/s	r	ZHR
		Date	λ_{\odot}	α	δ			
α -Aurigids (206 AUR)	Aug 28- Sep 05	Sep 01	158.6°	91°	$+39^{\circ}$	66	2.5	6
Sept. ϵ - Perseids (208 SPE)	Sep 05- Sep 21	Sep 09	166.7°	48°	$+40^{\circ}$	64	3.0	5
Dayt. Sex- tantids (221 DSX)	Sep 09- Oct 09	Sep 27	184.3°	152°	$+00^{\circ}$	32	2.5	5

Catch the α -Aurigids, but you have to be quick! For more info contact: Tom Giguere, 808-782-1408, Thom-as.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

Cash Flow - 7/11/02022 to 8/10/2022

Beginning Balance	\$4,493.69
Money into selected accounts comes from	
Donation	\$14.00
Membership - Electronic	\$140.00
Membership - Family	\$20.00
Membership - Paper	\$52.00
Total Money In	\$226.00
Money out of selected accounts goes to	
	\$0.00
Total Money Out	\$0.00
Difference	\$226.00
Ending Balance	\$4,719.69

Here are the financials up through August 10.

No expenditures this month, but our Astronews editor might want to submit a bill. If he won't, there is always our liability insurance, which will be reflected next month.

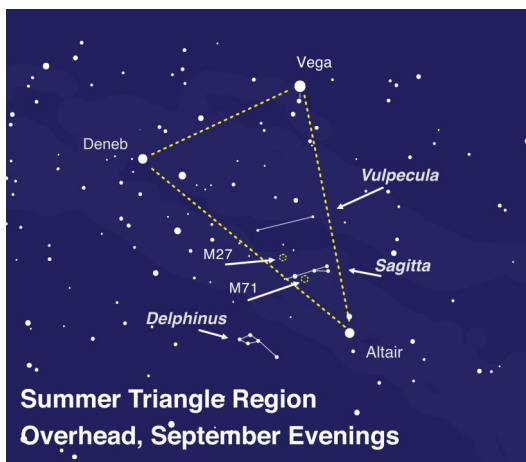
On the Covid front, the FDA has approved the use of new vaccines that in part target Omicron 4 and 5. Still no word on eligibility, though that may come before you read this. Numbers have dropped on Oahu. We are averaging 178 cases per day. The test positivity rate is 8.2%. Deaths per week have held on 12 per week. These are state numbers; numbers for Oahu are hard to find. Hospitalizations are also hard to find for Oahu. State hospitalizations are hovering at about 100. ICU numbers vary between 5 and 11. Tentatively, the news is good.



A Peek Into Jupiter's Inner Life
Webb NIRCcam composite image of Jupiter from three filters
Auroras and hazes glow in this composite image of Jupiter taken by the James Webb Space Telescope's Near-Infrared Camera (NIRCcam). NIRCcam has three specialized infrared filters that showcase details of the planet.
Image credit: NASA, ESA, CSA, Jupiter ERS Team; image processing by Judy Schmidt.

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

Want to hunt for more treasures? You'll need a treasure map, and the Night Sky Network's "Trip Around the Triangle" handout is the perfect guide for your quest! Download one before your observing session at bit.ly/TriangleTrip. And of course, while you wait for the Sun to set - or skies to clear - you can always find out more about the objects and science hidden inside these treasures by checking out NASA's latest at nasa.gov.



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>

(Continued from page 1) Editor Note

Weather prediction for Friday, 8/19/2022, evening at Makapu'u Beach Park was clear. So I drove there that evening after work. I took photos of Milky Way. My second chance to do it this season. It turned that out not too bad. However, I wished that I have my cameras with me at our club star party on Saturday, 8/20/2022. The sky was even clear than Friday night. I only could take photo with smartphone holding up in a cup.

The talk of August is NASA Artemis I (<https://www.nasa.gov/content/artemis-i-overview>). It is a mission to test every part of equipment for the future mission to send astronauts back to the Moon. The original launch scheduled was on Monday, 8/29/2022, at 8:34 AM EDT. However, the launch was scrubbed due to temperature issue with one of the engines. The launch is now rescheduled to Saturday, Sept. 3 at 2:17 p.m. EDT, the beginning of a two-hour window.

There was a discussion about the Moon in our last meeting. Tom talked about Reiner Gamma (RG), one of Lunar Swirls on the Moon. Lunar swirls are bright, often sinuous features with the appearance of abstract paintings (<https://moon.nasa.gov/resources/476/lunar-swirl-reiner-gamma/>). We asked members in the August meeting to try to look at Reiner Gamma. And if you happened to capture it in one of your images, send it to me. So far, only Tom took couple of images this month. I did mine in June when Tom, Chris, and I started to discuss about Reiner Gamma.

(Continued on page 11)

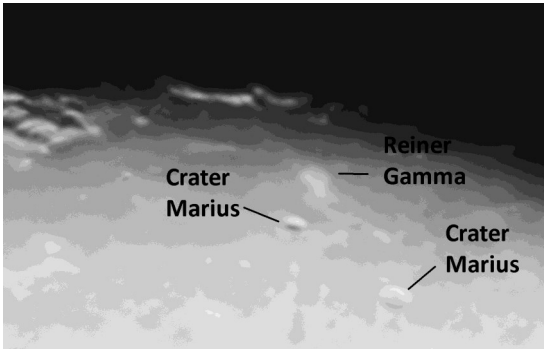
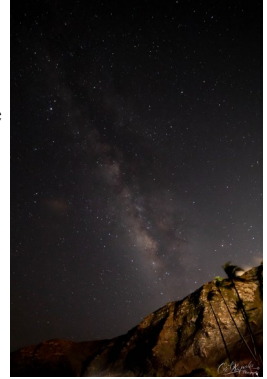
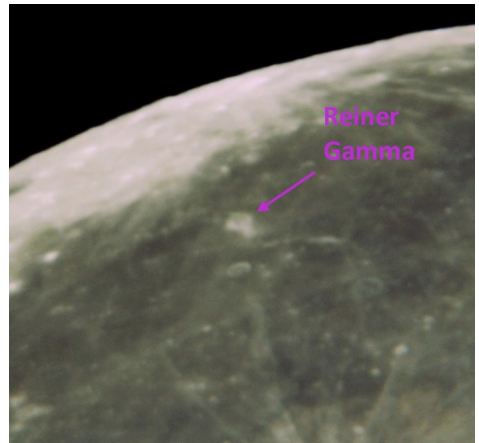
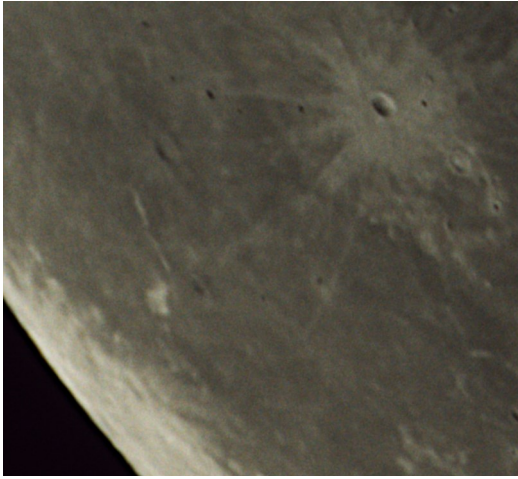


Image 3134, 8:06pm, Aug 9, 2022, ISO100, 1/15 sec, ~100 power, Moon 94.8% illuminated
Telescope: 8" f/5 dobsonian, no clock drive
Tom Giguere—Makakilo

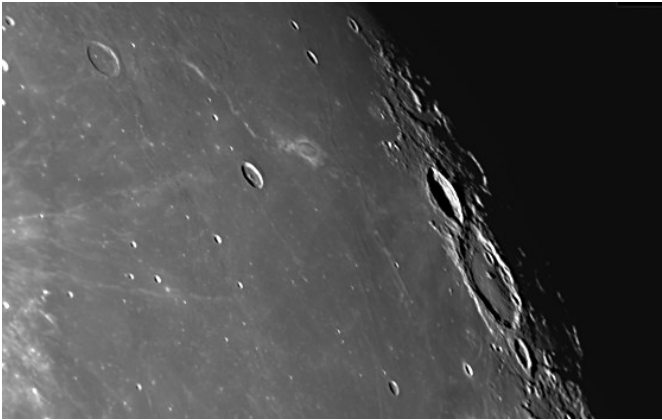
Image 3142, 11:36pm, Aug 12, 2022, ISO100, 1/60 sec, ~100 power, Moon 99.6% illuminated
Telescope: 8" f/5 dobsonian, no clock drive
Tom Giguere—Makakilo



(Continued from page 10) Editor Notes



4:47am, June 22, 2022, ISO800, 1/320 sec, Moon Waning Crescent 34.7%
Camera: Canon 90 D
Telescope: 5" f/12.1 MAK, no clock drive, Alt-Az Mount
Ort Vanaprüks—Kapolei



I imaged Reiner Gamma, probably the most prominent lunar swirl, last week using my Skywatcher 180mm Mak at prime focus with a ZWO monochrome camera. The lunar feature is little-understood by lunar scientists.

I shot it in SharpCap and processed using Autostakkert and Registax.

April 2019
Loc: Hemet, California
Steve Thornton



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NASA T-38s Soar Over Artemis I

NASA T-38s fly in formation above the Space Launch System rocket on Launch Pad 39B.

Image credit: NASA/Josh Valcarcel