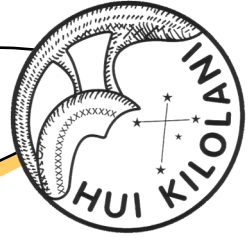


THE ASTRONEWS



Volume 72, Issue 12

December 2022

www.hawastsoc.org

A word from your editor by
Sapavith 'Ort' Vanaprucks

Covid-19 Notice

As Oahu COVID-19 case count daily average continues to stay high (105+), 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.

In our November club meeting, Bill Barr mentioned that he contacted someone at the Honolulu City & County to help dim the LED light near his place. Here is the information.

I recently contacted the city about shielding a couple of street lights to resolve light trespass into my backyard. I was told by Allyn Lee, PE of the Department of Design & Construction that they do not do shielding. However I did receive this response:

"...the City replaced its street lights in 2019 we also installed a wireless network control system."

(Continued on page 10)

Inside this issue:

Club Information	2
President's Message	2
Observer's Notebook	3
Meeting Minutes	4
Event Calendar	5
NASA's Night Sky Notes	6
Meteor Log	7
Treasurer's Report	8

Upcoming Events:

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

The first Artemis mission has successfully launched, traveled to the Moon, and entered orbit. It will return to Earth in December. This uncrewed mission is a test of all the major equipment that will enable astronauts to return to the Moon this decade.

In Greek mythology, Artemis was the twin sister of Apollo, so it is a fitting name for this program that will almost certainly land the first woman on the Moon. The first planned missions will be similar to those of the Apollo program, with an orbital mission followed by lunar landing missions lasting a few days each. Eventually, though, a longer-term presence is being anticipated.

As many of you know, I am trained as a planetary (primarily lunar) geologist. I sometimes wonder if I spend too much time talking to you about planetary science. Is it really astronomy?

But then I realize that astronomers are really space explorers as well. We just usually let the photons come to us, but we now live in an era when some of us can go to the Moon, the first celestial target of most amateur astronomers and the only one that shows so much detail even with the least expensive equipment. There are many reasons to observe objects in the night sky, but for most of us, curiosity about the nature of what we are observing is one of the lures.

For thousands of years, our ancestors observed the Moon without equipment. Stories were made up about beings who could travel there, and people speculated about what it was like there. Astronomy, aided by telescopes for the last 400 years, revealed the distance to the Moon. Actually going there was an impossible dream. Only in my lifetime have people been able to leave Earth and travel there.

A few of the first men to walk on the Moon are still alive and will likely still be around to congratulate the next humans to do so. A new generation will experience the thrill of watching people explore the Moon. In a sense, they will all be astronomers.

Don't forget to attend our December meeting to vote for our officers (if you are a member). It could be our last Zoom-only meeting.

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THE ASTRONEWS is the monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via e-mail. The deadline is the last Wednesday of each month. We are not responsible for unsolicited artwork.

Observer's Notebook—December 2022 by Ort

Planets Close to the Moon Times are Hawaii Standard Time

- Dec 1, 7h, Moon 2.86° SE of Neptune; 104° and 103° from Sun in evening sky; magnitudes -10.7 and 7.9
- Dec 1, 18h, Moon 2.25° SE of Jupiter; 109° from Sun in evening sky; magnitudes -10.8 and -2.6
- Dec 5, 8h, Moon 0.65° N of Uranus; 152° from Sun in evening sky; magnitudes -12.0 and 5.7; occultation
- Dec 7, 19h, Moon 0.66° NNE of Mars; 177° and 178° from Sun in the midnight sky; magnitudes -12.6 and -1.9; occultation
- Dec 24, 3h, Moon 3.5° S of Venus; 16° and 15° from Sun in evening sky; magnitudes -5.8 and -3.9
- Dec 24, 10h, Moon 3.8° SE of Mercury; 20° from Sun in evening sky; magnitudes -6.2 and -0.3
- Dec 26, 9h, Moon 3.8° SE of Saturn; 48° and 47° from Sun in evening sky; magnitudes -8.2 and 0.9
- Dec 28, 13h, Moon 2.69° SE of Neptune; 76° from Sun in evening sky; magnitudes -9.7 and 7.9
- Dec 29, 3h, Moon 2.07° SE of Jupiter; 84° and 83° from Sun in evening sky; magnitudes -9.9 and -2.4

Other Events of Interest

Times are Hawaii Standard Time

- Dec 6, 14h, Puppis-Velid meteors; ZHR 10; 1 day before Full Moon
- Dec 7, 15h, Earliest sunset, at latitude 40° north
- Dec 11, 15h, Moon at apogee; distance 63.64 Earth-radii
- Dec 20, 15h, December (northern winter) solstice
- Dec 22, 12h, Ursid meteors; ZHR 10; 1 day before New Moon
- Dec 26, 0h, Spring equinox for Mars north hemisphere



Liftoff! Successful Launch for JPSS-2, LOFTII
Image Credit: United Launch Alliance

Planets in December

<p>♃ Mercury</p> <p>Poor positioning at start of December, improving through the month, jostling with Venus in the evening twilight.</p>	<p>♀ Venus</p> <p>Evening planet. Near Mercury in the latter half of December, when it sets 70 minutes after sunset.</p>	<p>♂ Mars</p> <p>Bright planet reaching opposition 8 December. Occulted by the full Moon on the morning of 8 December.</p>
<p>♃ Jupiter</p> <p>Bright evening planet. Waxing Moon nearby on the evenings of 1 and 29 December.</p>	<p>♄ Saturn</p> <p>Evening planet but past its best. 15%-lit waxing crescent Moon nearby on the evening of 26 December.</p>	<p>♅ Uranus</p> <p>Well placed evening planet. Occulted by the almost full Moon on the afternoon of 5 December.</p>
<p>♆ Neptune</p> <p>Best at the start of December. Jupiter lies 8° east at the end of December.</p>	<p>♇ Pluto (Dwarf Planet)</p> <p>is not observable – it will reach its highest point in the sky during daytime and is no higher than 17° above the horizon at dusk.</p>	<p>♁ 2—Pella (Asteroid)</p> <p>is visible between 23:04 and 05:01. It will become accessible around 23:04, when it rises to an altitude of 21° above your south-eastern horizon.</p>

Meeting Minutes

H.A.S. Secretary

November 1st, 2022 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:31 pm. By President Chris Peterson. 13 participants were present.

Minutes of the October meeting were adopted, with correction.

HAS will hold elections during the December General Membership meeting. Some discussion of nominations took place.

President Chris shared astronomical news, on NASA's Psyche mission, and a recent impact on Mars that seems to reveal water ice in the ejecta.

Ort reminded all of the Total Lunar eclipse next Monday. Lithia shared an illustration of the progression of such an eclipse, using Oreo cookies.

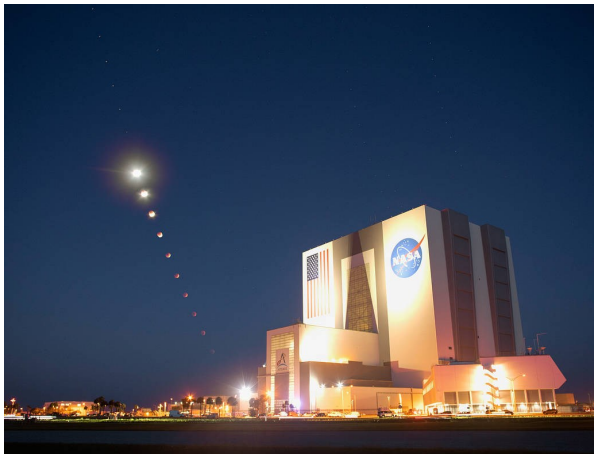
Shemaur shared a slideshow of his recent photography, and Steve Chun shared a color-balanced Jupiter, Saturn with Cassini division, and a wide angle shot of the Veil Nebula.

Mark Watanabe reported that we have had several requests for school star parties. Volunteers requested.

Peter Besenbruch presented some recent developments on "falling out of the sky", with the uncontrolled re-entry of a Chinese rocket, and barely visible double landing of SpaceX boosters.

Meeting was adjourned at 9:05 pm. There were 18 participants, at maximum.

Faithfully submitted,
James Andy Stroble, Secretary.



Blood Moon Total Eclipse at NASA's Kennedy Space Center
This composite made from ten images shows the progression of the Moon during a total lunar eclipse above the Vehicle Assembly Building, Nov. 8, 2022, at NASA's Kennedy Space Center in Florida. Image Credit: NASA/Joel Kowsky

Hawaiian Astronomical Society
Event Calendar

December 2022						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4 BoD Meeting 3:30 PM Zoom	5	6 Club Meeting 7:30 PM Zoom	7  Full Moon 6:08 PM	8	9	10
11	12	13	14	15  3rd Qtr 10:56PM	16	17 Club Party Dillingham Airfield Sunset 5:52PM
18	19	20	21 Start of Winter (Winter Solstice)	22	23  New Moon 12:16AM	24
25 Christmas	26	27	28	29  1st Qtr 3:20PM	30	31

<<Upcoming Star Parties>>

Club Party-Dillingham December 17 —7:00 PM
Club Party Dillingham December 24 —None—Christmas
Public Party Geiger/Kahala November 5 — CANCELLED

Upcoming School Star Parties

NASA's Night Sky Notes

Binoculars: A Great First Telescope

By David Prosper



Do you want to peer deeper into the night sky? Are you feeling the urge to buy a telescope? There are so many options for budding astronomers that choosing one can be overwhelming. A first telescope should be easy to use and provide good quality views while being affordable. As it turns out, those requirements make the first telescope of choice for many stargazers something unexpected: a good pair of binoculars!

Binoculars are an excellent first instrument because they are generally easy to use and more versatile than most telescopes. Binoculars can be used for activities like stargazing and birdwatching, and work great in the field at a star party, along the hiking trail, and anywhere else where you can see the sky. Binoculars also travel well, since they easily fit into carry-on luggage – a difficult feat for most telescopes! A good pair of binoculars, ranging in specifications from 7x35 to 10x50, will give you great views of the Moon, large open star clusters like the Pleiades (M45), and, from dark skies, larger bright galaxies like the Andromeda Galaxy (M31) and large nebulae like the Orion Nebula (M42). While you likely won't be able to see Saturn's rings, as you practice your observing skills you may be able to spot Jupiter's moons, along with some globular clusters and fainter nebulae from dark sites, too.

What do the numbers on those binocular specs actually mean? The first number is the magnification, while the second number is the size in millimeters (mm) of the lenses. So, a 7x35 pair of binoculars means that they will magnify 7 times using lenses 35 mm in diameter. It can be tempting to get the biggest binoculars you can find, but try not to get anything much more powerful than a 10x50 pair at first. Larger binoculars with more power often have narrower fields of vision and are heavier; while technically more powerful, they are also more difficult to hold steadily in your hands and "jiggle" quite a bit unless you buy much more expensive binoculars with image stabilization, or mount them to a tripod.

Would it surprise you that amazing views of some astronomical objects can be found not just from giant telescopes, but also from seemingly humble binoculars? Binoculars are able to show a much larger field of view of the sky compared to most telescopes. For example, most telescopes are unable to keep the entirety of the Pleiades or Andromeda Galaxy entirely inside the view of most eyepieces. Binoculars are also a great investment for more advanced observing, as later on they are useful for hunting down objects to then observe in more detail with a telescope.

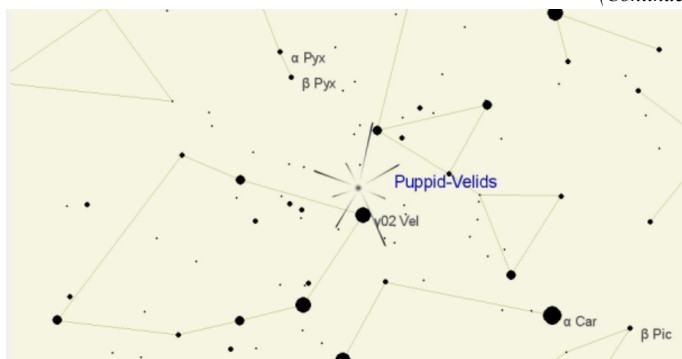
If you are able to do so, real-world advice and experience is still the best for something you will be spending a lot of time with! Going to an in-person star party hosted by a local club is a great way to get familiar with telescopes and binoculars of all kinds – just ask permission before taking a closer look! You can find clubs and star parties near you on the Night Sky Network's Clubs & Events page at bit.ly/nsnclubsandevents, and inspire your binocular stargazing sessions with NASA's latest discoveries at nasa.gov.

(Continued on page 9)

A story of three December showers:

Puppig-Velids (301 PUP) - This is a complex system of poorly-studied showers, visible chiefly from southerly locations and also Hawaii. Several sub-streams have been proposed with radiants so tightly clustered, visual observing cannot readily separate them. The activity is poorly-established, though the higher rates seem to occur in early to mid December. Full Moon on December 8 allows viewing of the early part of the complex activity. The radiant area is on-view all night from tropical and southern locations, highest towards dawn. Some

(Continued on page 11)



Radiant of the Puppig-Velids meteor shower. Credit: TheSkylive.com

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
December 29	December 07	December 15	December 23

Shower	Activity	Maximum		Radiant		V_{∞} km/s	r	ZHR
		Date	λ_{\odot}	α	δ			
Phoenicids (254 PHO)	Nov 22 - Dec 09	Dec 02	250°	18°	-53°	18	2.8	Var
Puppig/Velids (301 PUP)	Dec 01 - Dec 15	Dec 07	255°	123°	-45°	40	2.9	10
Monocerotids (019 MON)	Dec 05 - Dec 20	Dec 09	257°	100°	+08°	41	3.0	3
σ -Hydrids (016 HYD)	Dec 03 - Dec 20	Dec 09	257°	125°	+02°	58	3.0	7
Geminids (004 GEM)	Dec 04 - Dec 20	Dec 14	262.2°	112°	+33°	35	2.6	150
Comae Ber- enicids (020 COM)	Dec 12 - Dec 23	Dec 16	264°	175°	+18°	65	3.0	3
Dec. Leonis Minorids (032 DLM)	Dec 05 - Feb 04	Dec 20	268°	161°	+30°	64	3.0	5
Ursids (015 URS)	Dec 17 - Dec 26	Dec 22	270.7°	217°	+76°	33	3.0	10

Three showers to check out this month! For more info: Thomas Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737. Thanks to the IMO and the AMS for observing information.

Cash Flow - 10/10/2022 to 11/09/2022

Beginning Balance	\$4,580.69
Money into selected accounts comes from	
Donation	\$49.00
Membership - Electronic	\$100.00
Membership - Family	\$28.00
Membership - Paper	\$104.00
Total Money In	\$281.00
Money out of selected accounts goes to	
Astronews	\$291.38
Subscription - Astronomy	\$34.00
Total Money Out	\$323.00
Difference	\$325.38
Ending Balance	\$4,255.31

Here are the financials up through November 9.

The large expense was for printing and mailing expenses for the print version of the Astronews.

Thanks to everyone who paid, renewed, and donated.

Covid numbers average 105 per day. Hospitalizations average 10 per day. At this point there is no big Covid increase. Nation-wide, cases (42,000), hospitalizations (31,000) and deaths (285) are up, but again, no big wave. We are also blessed in this state, because we can open the windows during the holiday season. Take care and stay safe.



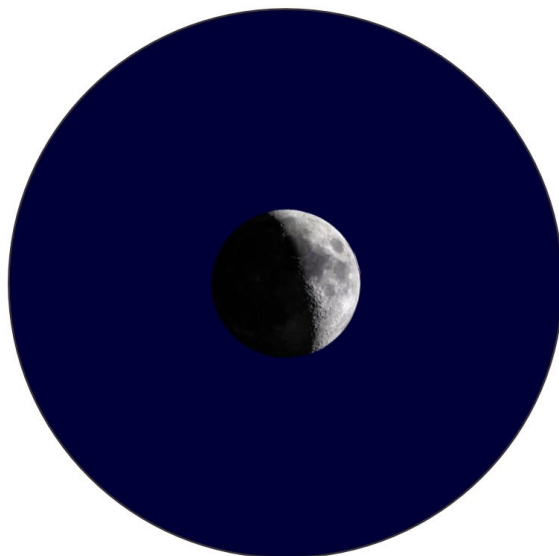
Moonlit Launch Preparations at NASA's Kennedy Space Center

The Moon is seen rising above NASA's Space Launch System (SLS) rocket with the Orion spacecraft aboard at Launch Pad 39B as preparations for launch continue, Monday, Nov. 14, 2022, at NASA's Kennedy Space Center in Florida.

Image Credit: NASA/Bill Ingalls



The two most popular types of binocular designs are shown here: roof-prism binoculars (left) and porro-prism binoculars (right). Roof prisms tend to be more compact, lighter, and a bit more portable, while porro-prisms tend to be heavier but often offer wider views and greater magnification. What should you choose? Many birders and frequent fliers often choose roof-prism models for their portability. Many observers who prefer to observe fainter deep-sky objects or who use a tripod with their observing choose larger porro-prism designs. There is no right answer, so if you can, try out both designs and see which works better for you.



A pair of good binoculars can show craters on the Moon around 6 miles (10 km) across and larger. How large is that? It would take you about two hours to hike across a similar-sized crater on Earth. The “Can You See the Flag On the Moon?” handout showcases the levels of detail that different instruments can typically observe on the Moon, available at bit.ly/flagmoon. Moon image courtesy Jay Tanner

(Continued from page 1) - word from your editor

He was able to dim the two street lights for me. I took a simple screen shot from my phone map app, and edited it to show the location of the street lights I was concerned about.

Mr Lee then, from his desk, turned those lights to 65% of their rated output.

Here is his contact info for anyone experiencing this issue:

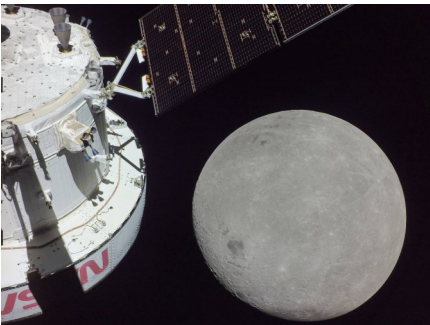
Allyn Lee, P.E.
Mechanical & Electrical Division
Department of Design & Construction
City & County of Honolulu
alee2@honolulu.gov

Tom and I went out to observe the Total Lunar Eclipse (TLE) of 2022 at Pu'uloa Beach Park. We stayed there from 11 PM (Partial Eclipse began) until 3 AM (Partial Eclipse ended). Sky was pretty clear out that night. I took photos of many phases of TLE. The composite photos turned out not too bad. We also saw several bright and fast Taurids Meteors. The next TLE will be on Thursday, March 13, 2025.



Total Lunar Eclipse composite by Ort from Pu'uloa Beach Park

Artemis I was finally launched on Monday, November 15th, 2022, at 8:47 PM HST. Orion capsule was detached successfully a couple of hours later. Orion is now orbit around the Moon and will make the 2nd close approach around Monday, 12/5/2022. Orion should splash down back to earth on Sunday, 12/11/2022.



A portion of the far side of the Moon looms large just beyond the Orion spacecraft in this image taken Monday, Nov. 21, the sixth day of the Artemis I mission, by a camera on the tip of one of Orion's solar arrays. The darkest spot visible near the middle of the image is Mare Orientale.

Image Credit: NASA

(Continued on page 11)

(Continued from page 7) - Meteor Log

PUP activity may be visible prior and after the given period. Occasional bright fireballs, notably around the suggested maximum, have been reported.

Geminids (004 GEM) - The best and most reliable of the major annual showers presently observable reaches its broad maximum on December 14 centred at 13h UT. In 2022, this is only six days after full Moon. Hence the conditions are rather poor for visual observations as the waning gibbous Moon is in Leo during the maximum period. Despite the bright Moon, the high rate and number of bright Geminid meteors may be attractive for observers.

Ursids (015 URS) - In 2022, there are two periods which are of special interest. The first is a filament encounter on December 22, 10h21m UT ($\lambda = 270.^{\circ}22$) listed by Jenniskens (2006), noted with a ZHR of 28; this is about 1/3 of the value given for filaments in the years 2016/2017/2018. Sato (2021) calculated an encounter with a dust trail ejected in 843 for December 22 at 14h22m UT ($\lambda = 270.^{\circ}391$).

(Continued from page 10) - word from your editor

Mare Orientale (Moon's Bulleye) (https://skyandtelescope.org/astronomy-news/set-your-sights-on-this-lunar-bulls-eye/?fbclid=IwAR162P2y2MdtwayqTD7IRxLag3gDhv9Nw-2veEPkp_dNWjfqBYbC9xp11Q). The article stated that the Moon librations will again be good enough between December 14-18, 2022. If you go out early those morning and take the picture of Mare Orientale, email it with camera setting information to astronewseditor@gmail.com, I will put in the next issue of AstroNews.

We will HAS election this month. Here are the list of positions and contestants.

Position	Incumbent	Contestants
President	Chris Peterson	
VP	Polly (Stepping down)	Marufa Bhuiyan, William Barr
Secretary	Andy Stroble	
Treasurer	Peter Besenbruch	
AstroNews Editor	Sapavith Vanapruks (Charles will not run, but will help with Observer Note part of AstroNews)	
Members-at-large	Marufa Bhuiyan	Steven Chun (May be)
Members-at-large	Mark Watanabe	



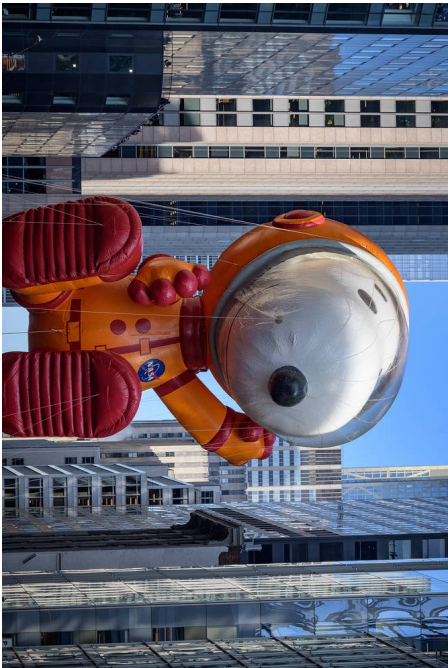
We Are Going: Artemis I Launches

NASA's Space Launch System rocket carrying the Orion spacecraft launches on the Artemis I flight test, Wednesday, Nov. 16, 2022, from Launch Complex 39B at NASA's Kennedy Space Center in Florida.

Image Credit: NASA/Bill Ingalls



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Astronaut Snoopy 'Lands' in New York

The Astronaut Snoopy balloon is seen floating along in the Macy's Thanksgiving Day Parade on, Thursday, Nov. 24, 2022, in New York City.

Credit: NASA/Bill Ingalls