THE ASTRONEWS

HUI KILOLANI

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August 2023

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A word from your editor by Sapavith 'Ort' Vanapruks

Since January, Hawaiian Astronomical Society has reopened public star parties for both in-town (Geiger Community Park & Kahala Community Park) and dark site (Dillingham Airfield). HAS Julystar parties at Dillingham Airfield had been very pretty decent with weather. Our public star party on Sat, July 9, 2023, was not a bad night. We had 5 members and 8 visitors this evening. Everybody left at 10:30 PM. Our club star party on Sat, July 16, 2023, was not as good. It clouded up by 9:00 PM. We left at 10:15 PM. Steven had some detail of his setup for that evening.

Imaging rig setups:
On the Left
Mount: ZWO AM5 on TC-40 tripod
Main Scope: Borg 71FL (F/L 267mm) w/ APEX EX-S reducer, ASI2600MC Pro and ZWO EAF
Guide Scope: Borg 50 (F/L 250mm) w/ ASI290mm
Computer: ASIAir Plus
On the Right
Mount: Vixen Sphinx SXW (with NexSXW upgrade) on ASG-CB90 tripod
Main Scope: Borg 107FL (F/L 600mm) w/ CDS-600 Pro and ZWO EAF
Guide Scope: Borg 50 (F/L 250mm) w/ ASI462mc
Computer: ASIAir Pro

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Inside this issue:

Upcoming Events:

- The next Board meeting is Sun., Jul. 30th 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., Aug 1st at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- ~~Bishop Museum's planetarium show "The Star Tonight" is every 1st Saturday, 8/5/2023, of the month at 7:00 PM~~

President's Message
August 2023

We are in transition from an observing season of the terrestrial planets to one of the biggest outer ones. Mercury, Venus, and Mars have been on display recently in the early evening sky. While none of them shows any surface features, the growing angular size yet diminishing phase of Venus are interesting to watch, especially since the change is rapid as it sinks lower in the west every evening after sunset. It has been nice to be able to give star party visitors the chance to see all three of these planets in rapid succession.

Saturn will join the evening sky soon, coming to opposition in late August. Jupiter follows about ten weeks later. These will be fine sights to share with school children as we resume school star parties that have mostly been on hold since COVID shut us down. A waning crescent Moon in mid-August should allow good views of the Perseid meteor shower as well.

One thing we won't be seeing is something that the Webb space telescope has recently spotted. Some of what were first thought to be unexpectedly bright galaxies in the early universe are now thought by some researchers to be possible examples of "dark stars", that is stars composed of dark matter. Such stars could be extremely massive and bright, emitting enough light to be mistaken for galaxies.

Dark matter and dark energy are thought to make up most of the universe, yet we know little about either. It is too early to know whether these newly found objects really are dark stars, but if they are we might learn a lot about the nature of dark matter by studying them.

New data often brings new insight. We can devise simple explanations for phenomena that we know few details about, but more data usually require more nuanced analysis. If we only have two points on a graph, we can draw a straight line through them. Add a third point and we usually need a simple curve. With a lot more points, it can be difficult to find a curve that fits. Nature is usually more complicated than we imagine, so our understanding of it is always changing as we acquire more data. The Webb telescope will continue to transform our understanding with new data for years to come.

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THE ASTRONEWS is the monthly newsletter of the Hawaiian Astronomical Society. 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—August 2023 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

Aug 3, 3h, Moon 2.27° SE of Saturn; 155° from Sun in morning sky; magnitudes -12.2 and 0.6
Aug 4, 14h, Moon 1.32° SE of Neptune; 135° from Sun in morning sky; magnitudes -11.6 and 7.8
Aug 7, 23h, Moon 2.69° NNW of Jupiter; 91° from Sun in morning sky; magnitudes -10.1 and -2.4
Aug 8, 14h, Moon 2.46° NNW of Uranus; 83° from Sun in morning sky; magnitudes -9.8 and 5.8
Aug 18, 9h, Moon 6.2° NNE of Mercury; 26° and 25° from Sun in evening sky; magnitudes -6.3 and 0.8
Aug 18, 16h, Moon 1.95° NE of Mars; 29° from Sun in evening sky; magnitudes -6.6 and 1.8
Aug 30, 11h, Moon 2.32° SE of Saturn; 175° and 176° from Sun in evening midnight sky; magnitudes -12.7 and 0.4

Other Events of Interest
Times are Hawaii Standard Time

Aug 1, 14h, Moon at perigee; distance 56.03 Earth-radii; only 11.4 hours after full Moon
Aug 7, 14h, Venus at aphelion; 0.7282 AU from the Sun
Aug 10, 8h, Mercury at aphelion; 0.4667 AU from the Sun
Aug 12, 14h, Perseid meteors; ZHR 100; 3 days before new Moon
Aug 13, 1h, Venus at inferior conjunction with the Sun; 0.289 AU from Earth; latitude -3.04°
Aug 16, 2h, Moon at apogee; distance 63.75 Earth-radii; farthest in year; only 2.1 hours after new Moon
Aug 22, 19h, Mercury stationary in right ascension; starts retrograde motion
Aug 28, 14h, Uranus stationary in longitude; starts retrograde motion

All month: Venus visible as a thin crescent
1 & 31 August: Two perigee full Moons this month, also known as 'supermoons'
9 August: Morning scene of Jupiter, Hyades, the Pleiades and crescent Moon
12/13 August: Perseid meteor shower peak (favourable)
27 August: Saturn at opposition

Planets in August

☿ Mercury

Poorly located evening planet. Mercury is best viewed on 1 August, but it will be very low in the west.

♀ Venus

This bright morning planet is best observed at the end of the month, where it will be low in the east before sun-rise.

♂ Mars

Poor evening planet, best at the start of August, but hardly visible.

♃ Jupiter

Brilliant morning planet reaching peak altitude under darker skies at the end of August.

♄ Saturn

Opposition on 27 August when the rings will brighten. The Moon is close on 2, 3 and 30 August.

♅ Uranus

Morning planet, 50o in altitude at the end of the month, near Jupiter.

♆ Neptune

Morning planet southeast of Circlet asterism in Pisces. Well placed at the end of the month.

♇ Pluto (Dwarf Planet)

is visible in the evening sky, becoming accessible around 19:56 (HST), 27° above your south-eastern horizon, as dusk fades to darkness.

⚳ 1—Ceres (Asteroid)

will become visible around 20:14 (HST), 47° above your western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 23:44.

Meeting Minutes

H.A.S. Secretary

July 11th, 2023 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)
Andy Stroble

Meeting called to order at 7:32pm by President Chris Peterson.

Minutes of the June meeting were adopted.

Attending for the first time were new member Shane Abraham, and guests of Glenn Martinez.

Vice President Bill Barr reported on the results of the survey of the membership, which will be published in next month's AstroNews.

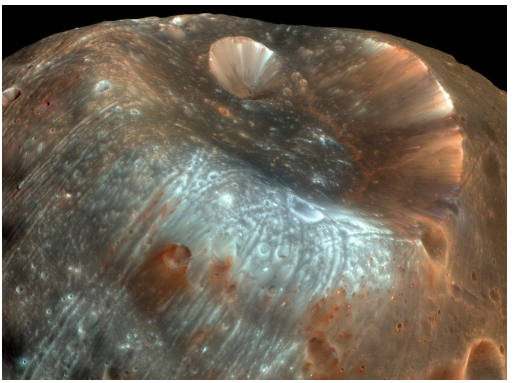
AstroNews editor Ort gave a report on the event at Consolidated Theatres on July 1st, coinciding with a screening of ET, and shared the new HAS PSA. Unfortunately, the skies did not offer an opportunity for solar viewing.

Secretary Andy attempted to share a slideshow of a trip to the mainland in search of dark skies, but lost connection after two slides. Maybe later.

Newly minted Doctor Tom Giguere presented a part of his dissertation, *Understanding lunar volcanic processes and mare surface age-dating via remote sensing: Volcanic processes in the Gassendi region.* Much was learned about remote sensing and the dating of layers of the lunar surface, crypto-mare, and lava-lake scarfs on both the moon and the Big Island. Much of it was over our heads, as the moon often is!

Meeting adjourned at 9:03.
There were about 12 persons in person, and 11 participants on Zoom. (There was some mix-up on the Zoom settings, asking for a passcode when there should have been none. Fixed at the last minute.)

Faithfully submitted,
James Andy Stroble, Secretary.



Stickney Crater

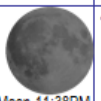
Stickney Crater, the largest crater on the Martian moon Phobos, is named for Chloe Angeline Stickney Hall, mathematician and wife of astronomer Asaph Hall. Asaph Hall discovered both the Red Planet's moons in 1877. Over 9 kilometers across, Stickney is nearly half the diameter of Phobos itself, so large that the impact that blasted out the crater likely came close to shattering the tiny moon.

Image Credit: HiRISE, MRO, LPL (U. Arizona), NASA

◄ Jul

August 2023

Sep ►

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 BoD Meeting 3:30 PM Zoom	31	1  Super Full Moon 8:31AM Club Meeting 7:30 PM Hybrid	2	3	4	5 Public Party 7:00P Dillingham Airfield
6	7	8  3rd Qtr 12:28AM	9	10	11	12 Club Party 7:00P Dillingham Airfield
13	14	15  Micro New Moon 11:38PM	16	17	18	19 Public Party Geiger / Kahala Sunset 7:15 PM
20	21	22	23  1st Qtr 11:57PM	24	25	26
27	28	29	30  Super Full Moon 3:35PM Blue Moon	31	Notes:	

<<Upcoming Star Parties>>

Public Party-Dillingham August 5 —7:00 PM
Club Party Dillingham August 12 —7:00 PM
Public Party Geiger/Kahala August 19 — 7:15 PM

Upcoming School Star Parties

NASA's Night Sky Notes

Super Blue Sturgeon Moon

Vivian White

On August 1st, catch a full Moon rising in the east just 30 minutes after sunset. We are seeing the entire sunlit side of the Moon as it is nearly (but not quite) in line with the Sun and Earth. The Farmers' Almanac calls this month's Moon the "Sturgeon Moon", for the time of year when this giant fish was once abundant in the Great Lakes. Cultures around the world give full Moons special names, often related to growing seasons or celebrations.

As the Moon rises later and later each night, the bright sunlit part appears to get smaller or "wane" - we call this a waning gibbous Moon. About a week later, on August 8th, we see only one half of the Moon alight. At this phase, the Moon rises around midnight and sets around noon. Have you ever seen the Moon in the daytime? You may notice this phase towards the southwest in the morning sky. Hold up a ball or egg beside it and see how the Sun lights up the same part.

By August 16th, the Moon has gone through its crescent phase and is now only showing its dark side towards the Earth. Did you know the dark side and the far side of the Moon are different? The Moon always shows the same face towards Earth due to the gravitational pull of Earth, so the far side of the Moon was only viewed by humans for the first time in 1968 with the Apollo 8 mission. However, the dark side is pointed at us almost all the time. As the Moon orbits the Earth, the sunlit side changes slowly until the full dark side is facing us during a new Moon. When the Moon is just a small crescent, you can sometimes even see the light of an Earthshine reflecting off Earth and lighting up the dark side of the Moon faintly.

Then as the Moon reappears, making a waxing (or growing) crescent Moon, best seen in the afternoons. By the time it reaches the first quarter on August 24th, we see the other half of the Moon lit up. At this point, the Moon passes through Earth's orbit and marks the spot where the Earth was just 3 hours prior. It takes the Earth about 3 hours to move the distance between the Moon and Earth.

The Moon on August 30th is referred to as a blue moon. Blue moons are not actually blue in color of course; it refers to the second full Moon in any month. Since it takes 29.5 days to complete the cycle from full to new and back to full, most months will see only one. But occasionally, you'll fit two into one month, hence the phrase "once in a blue moon." We see a blue moon about once every 3 years on average - next in May 2026. In addition, this full Moon appears larger in the sky than any other full Moon this year - an unofficial supermoon. A supermoon appears larger than average because it is closer in its slightly elliptical orbit. The difference in apparent size between the smallest and largest full Moon is about the size difference between a quarter and a nickel. Even at its largest, you can always cover the whole Moon with your pinky extended at arm's length.

Follow the Moon with us this month and keep a Moon journal if you like - you may be surprised what you discover! moon.nasa.gov/moon-observation

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Meteor Log—August 2023

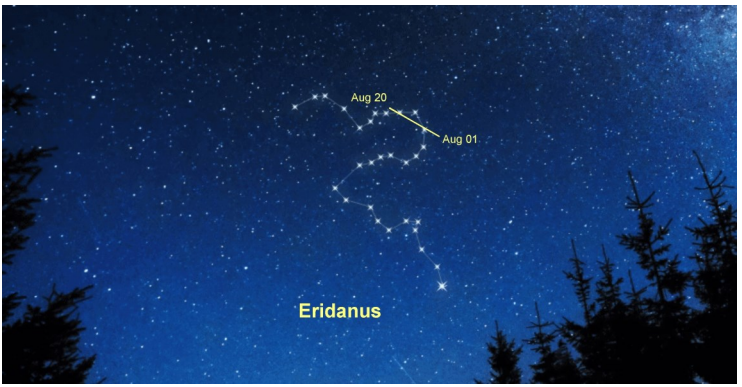
by Tom Giguere

The η-Eridanids (191 ERI) meteors may be associated with comet C/1852 K1 (Chacornac) and shower activity is related to dust trails. The activity period has been adapted from Koseki (2021; pp. 140–141); it continues long after its maximum and the characteristics of this shower would benefit from observational data. The radiant of these fast meteors in the northwestern part of Eridanus is best observed after midnight from a southerly location such as Hawaii.

The Perseids are gearing up for a nice show in August. The Moon's light will not be an issue since it will be 3 days from new Moon. The Perseids peak on August 12/13 and may be seen, in smaller numbers, between July 17th and August 24th. The peak of the shower falls on the HAS club star party weekend.

Perseid meteors emanate from comet Swift-Tuttle. The orbital period of 109P/Swift-Tuttle is about 130 years. The Perseids produced strong activity from a primary maximum throughout the 1990s. Enhanced activity was last observed in 2016 due to the passage of Earth through separated dust trails. A filament crossing occurred on 2018 August 12 around 20h UT (λ ≈

(Continued on page 10)



The Eridanids meteor shower radiant between Aug 01 and 20th. Credit: https://nineplanets.org/.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
August 23	August 1/30	August 08	August 15

Shower	Activity	Maximum		Radiant		V_∞	*r*	ZHR
		Date	λ	α	δ	km/s		
η-Eridanids (191 ERI)	Jul 31-Aug 19	Aug 08	135°	41°	-11°	64	3.0	3
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 Moon out of the way of the Perseids this year, we may have a nice show! 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 - 6/12/2023 to 7/11/2023

Beginning Balance	$5,328.96
Money into selected accounts comes from	
Membership - Electronic	$20.00
Total Money In	$20.00

Money out of selected accounts goes to	
Snack Subscription - Astronomy	$30.14 $34.00
Total Money Out	$64.14

Difference	-$44.14

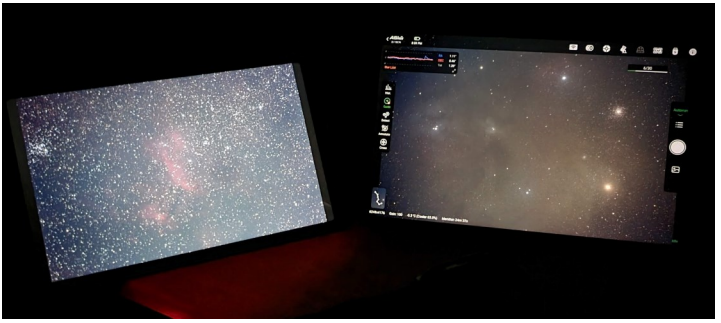
Ending Balance	$5,284.82

Here are the financials up through July 11.

Thanks to everyone who paid, renewed, and donated.

July was fairly quiet. Also, a reminder that the Covid data from the sewage treatment facilities on Oahu are trending up.

(Continued from page 1)- word from your editor



On the Left (from Vixen Setup)
Prawn Nebula (IC 4628) – 5 minute exposure @ ISO 800, -5C
On the Right (from AM5 setup)
Widefield shot that includes Antares, M4 and Rho Ophiuchi Cloud Complex – 5 minute exposure @ gain 100, -5C

(Continued on page 10)

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

Image of waning crescent Moon shown next to a ball on a stick that is lit by the Sun on the same side as the Moon, with trees and a blue sky in the background. Try this with an egg or any round object when you see the Moon during the day! Credit: Vivian White

Earthshine as seen from the International Space Station with the sun just set - Astronaut Photograph ISS028-E-20073 was taken on July 31, 2011, and is provided by the ISS Crew Earth Observations Facility and the Earth Science and Remote Sensing Unit, Johnson Space Center

(Continued from page 7) - Meteor Log
139.◦79) at the predicted position. (A filament is thought to be an accumulation of meteoroids in a mean-motion resonance.) High activity well after the main peak has been reported during the recent returns. On 2021 August 14, shortly after 08hUT ($\lambda \approx$ 141.◦48), a sharp increase of the ZHR – more than 100 above the basic level – was observed by different techniques. This was about 1.5 days after the nodal maximum and about 0.7 days after the lesser maxima in 2018 and 2020.

Two Perseid meteors. Credit: https://goo.gl/OyoHZc

(Continued from page 8) - word from your editor

Our in-town public star party on July 22 was not too bad. Geiger was clear until around 9:15 PM. We have 3 members with telescopes and 2 visitors. Crescent Venus was available early in the evening. Crescent Moon was also available. Steven was able to show Omega Centauri Globular Star Cluster, Albireo Double Stars, and M6 (Butterfly Cluster).

Bill Barr has a report on the member survey. The details follow below this.

Results Of the HAS Member Survey

The results are encouraging, as almost every topic brought up had a greater than 50% positive response. It seems our members are interested in both scientific and hands-on learning to explore the heavens. The only topic with low interest is the home-grown building of a telescope, however there is still interest in that too.

There are other topics the survey didn't cover, such as EAA, as in electronic viewing of targets vs photographing them. With the new all-in-one telescopes now available, there are a few people in the club doing this.

Conversation panels of 3 or 4 people presenting on a topic were generally approved of. This is indicative to me that more conversations should happen regardless of the format. The first "test" of a panel, in my mind, did not go well. Although the participants were helpful, the format really needs more prep from the main presenter (which was me). I felt the panel idea fell flat at the May meeting. I think the panel idea is sound, but more prep is needed to guide the conversations.

Moving forward with the survey results, I would ask that if you have some experience in any topic of interest (literally everything astronomy), please think about presenting it to the club. I am thinking of presenting on Stellarium or Kstars/Ekos myself.

(Continued on page 11)

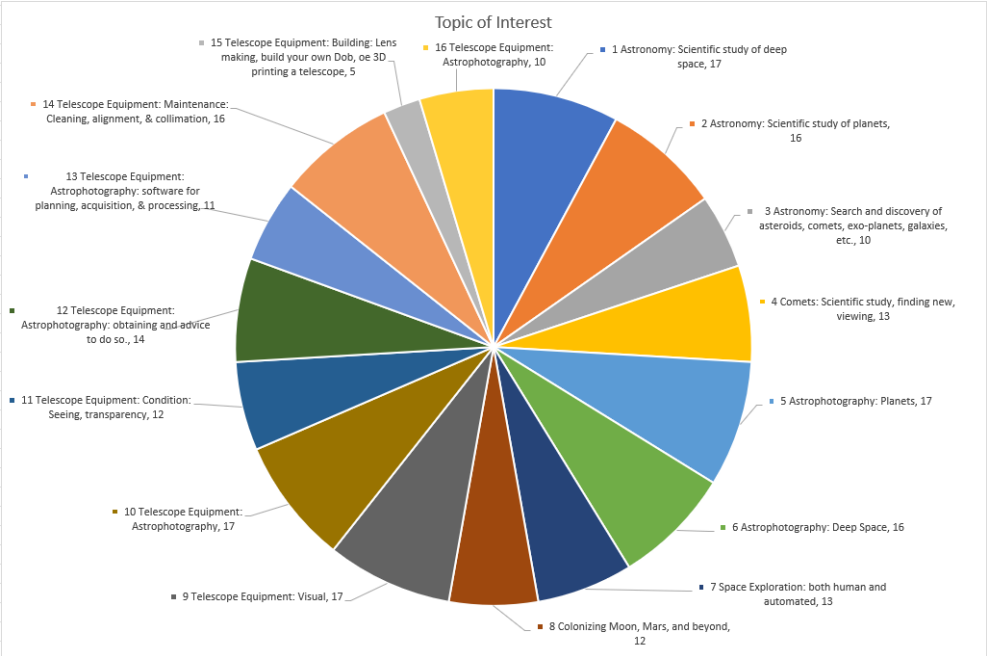
(Continued from page 10) - word from your editor

Finally, I have another idea to propose to forward our conversations about various topics: I propose the practice of coming up with questions to be discussed by all in the meeting at the following meeting. So in each meeting we would discuss a topic and come up with the next meeting topic.

So if you have a few questions, be ready to bring them up!

Bill Barr
HAS Vice President

No.	Topic of Interest	Votes	26
1	Astronomy: Scientific study of deep space	17	65.4%
2	Astronomy: Scientific study of planets	16	61.5%
3	Astronomy: Search and discovery of asteroids, comets, exo-planets, galaxies, etc.	10	38.5%
4	Comets: Scientific study, finding new, viewing	13	50.0%
5	Astrophotography: Planets	17	65.4%
6	Astrophotography: Deep Space	16	61.5%
7	Space Exploration: both human and automated	13	50.0%
8	Colonizing Moon, Mars, and beyond	12	46.2%
9	Telescope Equipment: Visual	17	65.4%
10	Telescope Equipment: Astrophotography	17	65.4%
11	Telescope Equipment: Condition: Seeing, transparency	12	46.2%
12	Telescope Equipment: Astrophotography: obtaining and advice to do so.	14	53.8%
13	Telescope Equipment: Astrophotography: software for planning, acquisition, & processing	11	42.3%
14	Telescope Equipment: Maintenance: Cleaning, alignment, & collimation	16	61.5%
15	Telescope Equipment: Building: Lens making, build your own Dob, oe 3D printing a telescope	5	19.2%
16	Telescope Equipment: Astrophotography	10	38.5%



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Three Cheers for NASA Orion Crew Modules for Future Artemis Missions

The Orion spacecraft for NASA's crewed Artemis II (right), Artemis III (left) and Artemis IV (center) missions are stationed next to each other inside the high bay of the Neil Armstrong Operations and Checkout Building at NASA's Kennedy Space Center in Florida on June 22, 2023.

Image credit: NASA/Marie Reed