THE ASTRONEWS

Volume 73, Issue 9

September 2023

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapruks

First of all, I would like to send my deepest condolences to ohana in Lahaina. That wildfire has impacted me a lot. Over 19 years that I worked for Waikiki Trader Corp.; I must have traveled to Lahaina & Kaanapali at least 3 – 4 times a year for work. Many times, I flown in to Kapalua airport to go to work at either Wheler Village or 709 Front Street. Now, all that is left of 709 Front Street is ashes (Photo below of the white unit circle in red). I am begging all HAS members to help Maui. It does not have to be a lot at one time. Little by little, those funds can be built up for Maui. Donate when you

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Inside this issue:

Upcoming Events:

- The next Board meeting is Sun., Sep. 3rd 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., Sep 5th 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, 9/2/2023, of the month at 7:00 PM~~

President's Message
September 2023

The terrestrial planets have left the evening sky, but Saturn is at its best, just past opposition, and Jupiter is not far behind. Even modest sized telescopes show these planets well. The Moon, of course, is the easiest nighttime target to find and show. Although we don't usually observe it telescopically when it's full, the recent full Moon probably got a little more attention than usual. It was both a Super Moon (full near perigee, so bigger and brighter in the sky) and a Blue Moon (by one definition). The modern definition of a Blue Moon is the second full Moon in a calendar month. An older definition was the third of four full Moons in a calendar quarter.

The Moon was in the news for other reasons in August as well. It kept out of the way for the Perseid meteor shower. I hope to hear some reports on observations at the September meeting. I personally went outside for a couple of minutes, saw one good Perseid, decided I couldn't hope for a better return on investment of observing time, and went back inside.

The international interest in the Moon continues with several missions. India joined the lunar landing club with its Chandrayaan 3 craft which landed near Manzinus U Crater at about 69° S. latitude. This landing is the closest yet to the south polar region that may hold usable deposits of water ice in permanently shadowed craters.

Russia's Luna 25 mission failed. The Soviet Union landed several successful missions on the Moon. Luna 24 landed in 1976 and returned samples to Earth, but the planned landing site for Luna 25, also near 69° S., is a more challenging location. Japan is also sending a mission, Smart Lander for Investigating Moon (SLIM), though it will aim for a landing much nearer the equator.

The U.S. is planning to return astronauts to lunar orbit late next year and to the surface the following year. China also has ambitions to land people on the Moon.

The Artemis Accords is a voluntary framework on acceptable activities for those using the Moon. It has been signed by nearly 30

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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—September 2023 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

Sep 4, 8h, Moon 3.1° NNW of Jupiter; 116° from Sun in morning sky; magnitudes -11.0 and -2.6
Sep 4, 22h, Moon 2.69° NNW of Uranus; 109° from Sun in morning sky; magnitudes -10.8 and 5.7
Sep 13, 14h, Moon 5.4° NNE of Mercury; 12° and 13° from Sun in morning sky; magnitudes -5.1 and 1.9
Sep 16, 11h, Moon 0.62° NE of Mars; 20° and 19° from Sun in evening sky; magnitudes -5.8 and 1.7; occultation
Sep 26, 18h, Moon 2.42° SE of Saturn; 148° from Sun in evening sky; magnitudes -12.0 and 0.6
Sep 28, 9h, Moon 1.29° SE of Neptune; 171° from Sun in evening midnight sky; magnitudes -12.6 and 7.8; occultation

Other Events of Interest
Times are Hawaii Standard Time

Sep 4, 4h, Jupiter stationary in longitude; starts retrograde motion
Sep 4, 10h, Jupiter stationary in right ascension; starts retrograde motion
Sep 6, 1h, Mercury at inferior conjunction with the Sun; 0.635 AU from Earth; latitude -6.35°
Sep 12, 6h, Moon at apogee; distance 63.70 Earth-radii
Sep 18, 21h, Venus shows greatest illuminated extent, 313 square seconds
Sep 22, 14h, September (northern autumn) equinox
Sep 27, 14h, Moon at perigee; distance 56.43 Earth-radii

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4 September: Moon near Jupiter
11 September: Morning crescent Moon near Beehive Cluster, M44
14 September: Good opportunity to spot the thin crescent Moon
20 September: Neptune at opposition
29 September: Harvest full Moon

Planets in September

☿ Mercury

Greatest western elongation on 22 September with the bright planet rising 100 minutes before sunrise.

♀ Venus

Impressively bright morning planet, visible against dark skies at the end of the month, rising four hours before sunrise.

♂ Mars

Not visible this month.

♃ Jupiter

Bright morning planet reaching its highest position under darkness from mid-month. The Moon is close on 4/5 September.

♄ Saturn

Evening planet, currently well presented. Reaches 24º altitude under dark sky conditions.

♅ Uranus

Morning planet near Jupiter. Peak altitude, due south, in a dark sky mid-month onwards.

♆ Neptune

Binocular planet, reaching opposition on 20 September.

♇ Pluto (Dwarf Planet)

is visible in the evening sky, becoming accessible around 19:26 (HST), 40° above your south-eastern horizon, as dusk fades to darkness.

⚷ 8—Flora (Asteroid)

visible between 19:27 and 02:49. It will become accessible at around 19:27, when it rises to an altitude of 21° above your south-eastern horizon.

Meeting Minutes

H.A.S. Secretary

August 1st, 2023 7:30 PM (Bishop Museum Paki 2 and Zoom Meeting)
Andy Stroble

Meeting called to order at 7:30pm by President Chris Peterson.

President Chris moved that Minutes of the July meeting be adopted, with a minor correction. Hiroko seconded. Unanimous approval.

Attending for the first time was Julie.

Star Party reports:
Public at Dillingham: a Starlink train was observed.
Kahala Community park: Only Chris in attendence, and about 8 guests.
Geiger: 3 members, and 2 visitors. Weather was not cooperative.

School star parties, Mark reported that we have potential school star parties at Waihiwa, Helemanu Elementary School on Sept 14th and Hawaii Baptist Academy on Oct. 20. Details to follow.

President Chris has heard from the librarian at Hickam Airforce Base about a presentation or talk. Lacy Veach Day has been taken over by Kamehameha Schools. We will be looking to participate.

President Chris shared some time-lapsed images of various deep space objects. Some things in the heavens are not eternal.

Ort reported on the participation of HAS at the Kapolei Theaters, and the coverage in MidWeek. Ort also shared his photos of an ISS transit of the sun. He recommends transit-finder.com.

Secretary Andy finally actually shared the slide show of his summer (or, May-ish) vacation, searching for Dark Skies in New Mexico and Arizona. There were bunnies, and a dancing M13.

Treasurer Peter gave a presentation on the use of the HAS Deep Sky Atlas, a resource of great facility! Interactive maps are a useful feature. And, the entire thing can be downloaded for use in the field where we do not have internet connectivity.

Discussion of observation of the Persied Meteor shower, which should peak during the August 12th Club StarParty at Dillingham Airfield, was held.

Meeting adjourned at 20:51, or 8:51pm HST.
We had approximately 10 persons in the flesh, and 11 on Zoom.

Thanks again to Romee and Bishop Museum for supporting amateur astronomy in Hawaii Nei.

Faithfully submitted,
James Andy Stroble, Secretary.
Honolulu, Hawaii

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countries so far (though not yet China or Russia). Will we learn to live and work together in more harmony on the increasingly crowded Moon than we do on Earth? Time will tell.

Hawaiian Astronomical Society
Event Calendar

◄ Aug			September 2023			Oct ►
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
					1	2
3 BoD Meeting Zoom 3:30PM	4 Labor Day	5 Club Meeting Bishop Museum Hybrid 7:30PM	6  3rd Qtr 12:21PM	7	8	9 Club Party Dillingham Airfield Sunset 6:40PM
10	11 Patriot Day	12	13	14  New Moon 3:39PM Helemano ES 7:30PM - 8:30PM	15	16 Public Party Dillingham Airfield Sunset 6:33PM
17	18	19	20	21	22  1st Qtr 9:31AM	23 Start of Fall (Autumnal Equinox) Public Party Geiger/Kahala Sunset 6:23PM
24	25	26	27	28  Full Moon 11:57PM	29	30

<<Upcoming Star Parties>>

Public Party-Dillingham September 16 —7:00 PM
Club Party Dillingham September 9 —7:00 PM
Public Party Geiger/Kahala September 23 — 6:23 PM

Upcoming School Star Parties

Date	Time	Location
9/14/2023	7:30P-8:30P	Halemano Elementary School

NASA's Night Sky Notes

Looking Beyond the Stars

Brian Kruse

Looking up in awe at the night sky, the stars and planets pop out as bright points against a dark background. All of the stars that we see are nearby, within our own Milky Way Galaxy. And while the amount of stars visible from a dark sky location seems immense, the actual number is measurable only in the thousands. But what lies between the stars and why can't we see it? Both the Hubble telescope and the James Webb Space Telescope (Webb) have revealed that what appears as a dark background, even in our backyard telescopes, is populated with as many galaxies as there are stars in the Milky Way.

So, why is the night sky dark and not blazing with the light of all those distant galaxies? Much like looking into a dense forest where every line of sight has a tree, every direction we look in the sky has billions of stars with no vacant spots. Many philosophers and astronomers have considered this paradox. However, it has taken the name of Heinrich Wilhelm Olbers, an early 19th century German astronomer. Basically, Olbers Paradox asks why the night sky is dark if the Universe is infinitely old and static – there should be stars everywhere. The observable phenomenon of a dark sky leads us directly into the debate about the very nature of the Universe – is it eternal and static, or is it dynamic and evolving?

It was not until the 1960s with the discovery of the Cosmic Microwave Background that the debate was finally settled, though various lines of evidence for an evolving universe had built up over the previous half century. The equations of Einstein's General Theory of Relativity suggested a dynamic universe, not eternal and unchanging as previously thought. Edwin Hubble used the cosmic distance ladder discovered by Henrietta Swan Leavitt to show that distant galaxies are moving away from us – and the greater the distance, the faster they're moving away. Along with other evidence, this lead to the recognition of an evolving Universe.

The paradox has since been resolved, now that we understand that the Universe has a finite age and size, with the speed of light having a definite value. Here's what's happening – due to the expansion of the Universe, the light from the oldest, most distant galaxies is shifted towards the longer wavelengths of the electromagnetic spectrum. So the farther an object is from us, the redder it appears. The Webb telescope is designed to detect light from distant objects in infrared light, beyond the visible spectrum. Other telescopes detect light at still longer wavelengths, where it is stretched into the radio and microwave portions of the spectrum. The farther back we look, the more things are shifted out of the visible, past the infrared,

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Meteor Log—September 2023

by Tom Giguere

The Perseids put on a small show last month around August 12/13. We have reports from three observers.

1. I was on a trip to Arizona to attend the the Planetary Cratering Consortium (PCC) in Flagstaff. At an elevation of 7,000 ft, Buffalo Park seemed like the perfect observing location. My only option was to observe the day before the peak on the morning of Aug 12th. I began observing at 3am under cloudy skies. Unfortunately, Arizona is entering Monsoon season, which results in a lot of cloud cover and thunderstorms. It was 99% cloudy where I was in Buffalo Park. I didn't see a single meteor.
2. Ort & Micheal had better luck at Mokuleia Army Beach on Oahu's north shore on the night/morning of Aug 12/13th. Weather was good with mostly clear skies. There was quite a few people at the beach with cameras, but they were shooting other nighttime subjects besides the Perseids. He saw 74 Perseids and 30 sporadic meteors from 9:30 pm - 4:30 am. He imaged a number of meteors, see pictures.

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Perseid captured on Ort's time exposure.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
September 22	September 28	September 6	September 14

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

The α-Aurigids are a challenge to observe! 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 - 7/11/2023 to 8/9/2023

Beginning Balance	$5,284.82
Money into selected accounts comes from	
Donation Membership - Electronic Membership - Family	$10.00 $80.00 $12.00
Total Money In	$102.00

Money out of selected accounts goes to	
Astronews	$211.61
Total Money Out	$211.61

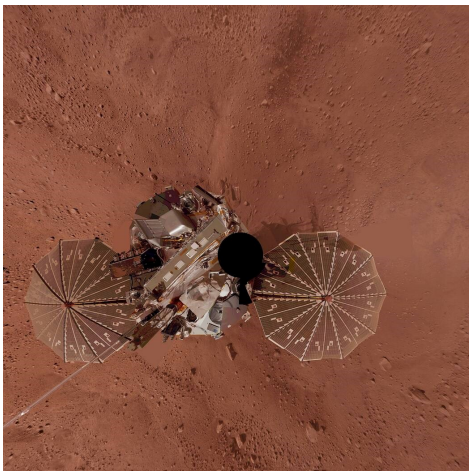
Difference	-$109.61

Ending Balance	$5,175.21

Here are the financials up through August 9. The biggest expense involves postage and printing for the Astronews.

Thanks to everyone who paid, renewed, and donated.

Last month I mentioned that Covid data was trending up. Now hospitalizations are at their highest for 2023. Covid wastewater detection has continued to climb, and are also at a high point. If you haven't resumed the use of N95 masks, now is the time to start. Be safe.



Phoenix's Red Planet Selfie

NASA's Mars Phoenix Lander gathered images of itself for this selfie from June 5 through July 12, 2008, with its Surface Stereo Imager (SSI). This mosaic is made up of more than 100 different SSI pointings, with images taken through three different filters at each pointing. 15 years ago in August 2008, Phoenix completed its three-month mission studying Martian ice, soil, and atmosphere.

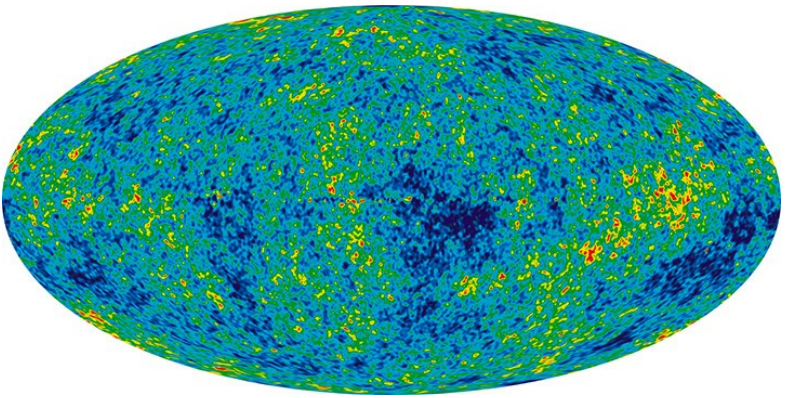
Image Credit: NASA/JPL-Caltech/University of Arizona/Texas A&M University

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

and all the way into the microwave wavelengths. If our eyes could see microwaves, we would behold a sky blazing with the light of the hot, young Universe – the Cosmic Microwave Background.

The next time you look up at the stars at night, turn your attention to the darkness between the stars, and ponder how you are seeing the result of a dynamic, evolving Universe.

NASA's James Webb Space Telescope has produced the deepest and sharpest infrared image of the distant universe to date. Known as Webb's First Deep Field, this image of galaxy cluster SMACS 0723 is overflowing with detail. This slice of the vast universe is approximately the size of a grain of sand held at arm's length by someone on the ground. (Image Credit: NASA, ESA, CSA, STScI) https://bit.ly/webbdeep



The oldest light in the universe, called the cosmic microwave background, as observed by the Planck space telescope is shown in the oval sky map. An artist's concept of Planck is next to the map. The cosmic microwave background was imprinted on the sky when the universe was just 380,000 years old. It shows tiny temperature fluctuations that correspond to regions of slightly different densities, representing the seeds of all future structure: the stars and galaxies of today. (Image credit: ESA and the Planck Collaboration - D. Ducros) https://go.nasa.gov/3qC4G5q

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3. Rob and Tom from Kaneohe, long-time Geminid fanatics, observed the Perseids from Chris-O field in Wahiawa. The field is outside of Waiawa, just past the Coffie Farm triangle on route 99. The picture is an old Google photo and the pin marks the field. The meteor group has never observed from this location. I was interested to learn if this sight could work for us in the future. The guys reported that the site has a bit too much light and they will probably observe from their old cane field spot for the Geminids. Nonetheless, they reported 47 meteors with 9 sporadics from 10:20pm to 3:00am. The weather was textbook perfect, most of the time. Chilly with dew.

Perseid viewing location for Tom and Rob.

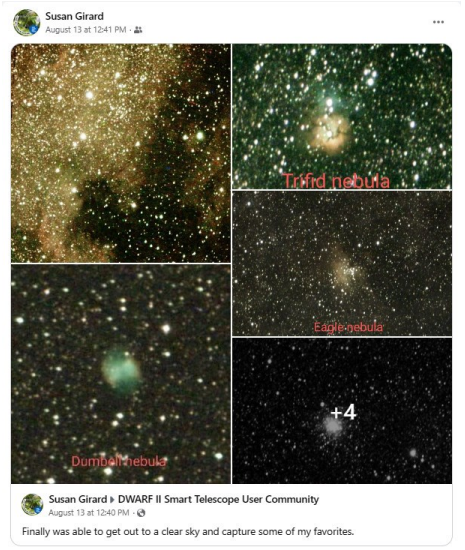
September meteors - This α-Aurigids (206 AUR) shower produced high rates on 2008 September 9 and another bright-meteor event with a very sharp peak in 2013 but no later unambiguous increase subsequently.

The Sombrero Galaxy in Infrared
Explanation: This floating ring is the size of a galaxy. In fact, it is a galaxy -- or at least part of one: the photogenic Sombrero Galaxy, one of the largest galaxies in the nearby Virgo Cluster of Galaxies. The dark band of dust that obscures the mid-section of the Sombrero Galaxy in optical light actually glows brightly in infrared light. The featured image, digitally sharpened, shows the infrared glow, recently recorded by the orbiting Spitzer Space Telescope, superposed in false-color on an existing image taken by NASA's Hubble Space Telescope in visible light.
Credit: R. Kennicutt (Steward Obs.) et al., SSC, JPL, Caltech, NASA

(Continued from page 1) - word from your editor
can.

All those times that I was at star parties, and wished for clear weather so I could use my gear. I won't be doing that anymore. Hawaii needs rain to help with drought. Since the beginning of this year, we had many cloudy nights that we could not observe, but there was hardly any rain. RAIN!!!

Our star parties started to get more attendees. Our members were able to show visitors quite a few objects in the night sky. Some of our members also have a chance to set up their equipment to do astrophotography. Sue is now enjoying her Dwarf II camera/telescope. She was able to took a few Deep Sky Objects (DSO) like Trifid Nebula, Dumbell Nebula, Lagoon Nebula, &



Swan Nebula.

The Perseids meteor shower on Saturday, 8/12/2023 was great. The sky was clear for most of the time. Micheal & I were out at Mokuleia Army Beach early in the evening. We skipped the member only star party that night. Michael left at 1:30 AM. I stayed until 4:30 AM. Tom Giguere has a Meteor Log

Composite photo of Perseid Meteor shower & Sporadic meteors from Mokuleia Army Beach on August 12/13 2023

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Student Experiments Take Flight on Sounding Rocket from NASA Wallops

A Terrier-Improved Orion sounding rocket carrying students experiments for the RockOn! mission successfully launched from NASA's Wallops Flight Facility Aug. 17 at 6 a.m. EDT. The launch carried experiments for Cubes in Space, RockOn!, and RockSat-C student programs.

Photo Credit: NASA/Danielle Johnson