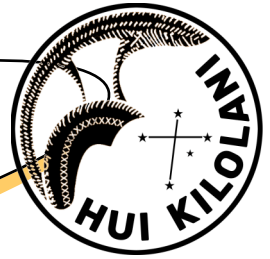


THE ASTRONEWS



Volume 74, Issue 4

April 2024

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapruch

Now that we are no longer in COVID pandemic, HAS is getting more requests for school & Bishop Museum events. As much as the Board of Directors would like to help with all events, it is just not possible. The events we are helping in April are "Star Party - University Lab" on Friday, April 5th, 2024, from 7:00 PM – 9:30 PM, "3rd Friday monthly evening Planetarium 2024" at Bishop Museum on April 19th, 2024, from 6:00 PM - 9:00 PM, and "Science Night - Kailua Intermediate School" on Monday, April 22nd, 2024, from 7:00 PM – 9:00 PM (Moon is bright). So, if you have a telescope and the event is in your area, please sign up and help.



The Club Star Party at Dillingham Airfield on Saturday, 3/2/2024, was not bad. Sue said "We had nice time until clouds crowded us out about 10:30 pm. I managed to capture the Orion nebula and the Rosette nebula..." The Public Party at Dillingham Airfield on Saturday, 3/9/2024 was bad. Per Andy, "Four club members, a sky clear of stars. Left at seven".

Having a dashcam has come in pretty handy. You could catch some night sky events with it. In my case, I caught a lightning video while driving home from the airport on H1W around Kunia exit on Wednesday, 3/6/2024, at around 8:40 PM.

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Upcoming Events:

- The next Board meeting is Sun., Mar. 31st 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Apr. 2nd at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- Bishop Museum's planetarium show "The Star Tonight" is every 3rd Friday, 4/19/2024, of the month at 6:30 PM

President's Message

April 2024

April 8th brings a total solar eclipse to North America. Those of us who have witnessed one understand better than those who have not what compels so many to travel long distances for the chance to see another. Good luck to those travelling to see this one.

Although there is a solar eclipse about every 18 months on average, any spot on Earth sees a total solar eclipse only once every 375 years or so. However, the occurrences are not equally spaced. It is not uncommon for total eclipse paths separated by a few years to cross, so some lucky areas are treated to both eclipses.

The residents of Carbondale, Illinois, are near the point where the 2017 and 2024 eclipse paths cross. The center of the cross is a few miles southwest of town, on the shore of Cedar Lake just west of the small town of Makanda, and the area inside both paths of totality extends through southern Illinois into neighboring sections of Missouri and Kentucky. The duration of totality at the crossing point of the path centers was over two minutes in 2017 (though clouds spoiled the show for many) and will be over four minutes this year.

These two paths happen to cross toward the middle part of each path. Totality lasts longest near the middle because that's where Earth's rotation is closest to parallel to the direction of the motion of the Moon's shadow. At the beginning and end of the eclipse, Earth's rotation is nearly perpendicular to the direction the shadow is moving, so it adds little to the duration there.

Here in Hawaii, we will see a small partial eclipse soon after sunrise. Six months later, on October 2nd, we get a somewhat bigger glimpse of partial eclipse of an annular eclipse, also near sunrise.

According to Will Kyselka, Hawaii had no total solar eclipses in the 18th century, one each in the 19th and 20th, and will have none this century. The next will be in 2106. Perhaps some of our youngest members will still be around for that one. For the rest of us, viewing totality will require travel. If you want to experience it on the mainland, and you're not going this year, the next long path will be in 2045, from California to Florida. Or you can try Alaska in 2033. Eclipse with a side of auro-
ra borealis, anyone?

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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—April 2024 by Ort

Planets Close to the Moon

Times are Hawaii Standard Time










- Apr 5, 20h, Moon 1.80° SE of Mars; 35° and 36° from Sun in morning sky; magnitudes -7.4 and 1.2
- Apr 5, 23h, Moon, Mars, and Saturn within circle of diameter 3.04°; about 34° from the Sun in the morning sky; magnitudes -7, 1, 1
- Apr 6, 1h, Moon 1.16° SE of Saturn; 33° from Sun in morning sky; magnitudes -7.1 and 1.2; occultation
- Apr 6, 23h, Moon, Venus, and Neptune within circle of diameter 4.58°; about 18° from the Sun in the morning sky; magnitudes -6, -4, 8
- Apr 6, 23h, Moon 0.47° ESE of Neptune; 20° from Sun in morning sky; magnitudes -6.1 and 8.0; occultation
- Apr 7, 7h, Moon 0.51° NNE of Venus; 15° from Sun in morning sky; magnitudes -5.6 and -3.9; occultation
- Apr 8, 18h, Moon 1.97° SE of Mercury; 5° and 6° from Sun in evening sky; magnitudes -4.6 and 4.5
- Apr 10, 10h, Moon 3.8° NNW of Jupiter; 28° from Sun in evening sky; magnitudes -6.8 and -2.0
- Apr 10, 10h, Moon, Jupiter, and Uranus within circle of diameter 3.84°; about 29° from the Sun in the evening sky; magnitudes -7, -2, 6
- Apr 10, 13h, Moon 3.4° NNW of Uranus; 30° from Sun in evening sky; magnitudes -6.9 and 5.8

Other Events of Interest

Times are Hawaii Standard Time

- Apr 3, 4h, Venus 0.26° SE of Neptune; 16° from Sun in morning sky; magnitudes -3.9 and 8.0
- Apr 7, 15h, New Moon; beginning of lunation 1253; total eclipse of the Sun
- Apr 10, 11h, Mars 0.44° NNW of Saturn; 37° from Sun in morning sky; magnitudes 1.2 and 1.2
- Apr 16, 8h, Moon 3.6° NNE of Beehive Cluster; 101° and 100° from Sun in evening sky; magnitudes -10.4 and 3.7
- Apr 19, 3h, Mercury 1.66° NNW of Venus; 12° from Sun in morning sky; magnitudes 3.1 and -3.9
- Apr 21, 14h, Lyrid meteors; ZHR 18; 2 days before Full Moon
- Apr 26, 12h, Moon 0.49° ENE of Antares; 146° and 147° from Sun in morning sky; magnitudes -11.8 and 1.0; occultation

Planets in April

 <h3>Mercury</h3> <p>Inferior conjunction on 11 April, best seen in the evening sky at the start of the month.</p>	 <h3>Venus</h3> <p>This planet is unlikely to be seen this month as it is too close to the Sun.</p>	 <h3>Mars</h3> <p>Poorly placed morning planet, which is best seen at the end of the month.</p>
 <h3>Jupiter</h3> <p>This planet is unlikely to be seen this month as it becomes lost in the evening twilight</p>	 <h3>Saturn</h3> <p>Morning planet but poor.</p>	 <h3>Uranus</h3> <p>Lost to the evening glare. In conjunction with Jupiter on 20 April.</p>
 <h3>Neptune</h3> <p>Not visible this month.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>is visible in the dawn sky, rising at 01:48 (HST) and reaching an altitude of 37° above the south-eastern horizon before fading from view as dawn breaks at around 05:15.</p>	 <h3>4—Vesta (Asteroid)</h3> <p>will become visible at around 19:44 (HST), 54° above your western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 23:55.</p>

Meeting Minutes

H.A.S. Secretary

March 5th, 2024 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)

Andy Stroble

Meeting called to order at 7:30pm by President Chris Peterson.
Minutes of previous meeting adopted.

Upcoming events: Iolani School tomorrow, Diamond Head crater test 3/14, Bishop Museum 3/15, Boy Scouts Onizuka Day at UHWO 4/6. Mark reported we also may have a star party at the UH Lab School 4/15, and possibly some in Kailua in April and May.

President Chris updated us on Lunar missions, JAXA's SLIM, NASA's Peregrine and Odysseus.

Astronews Editor Ort shared photos from his mother's funeral in Thailand.

Tom Giguere and other members planning to travel to experience the April 8th total solar eclipse shared plans and advice.

Treasurer Peter shared photos of the Aurora Borealis from Don Andrea.

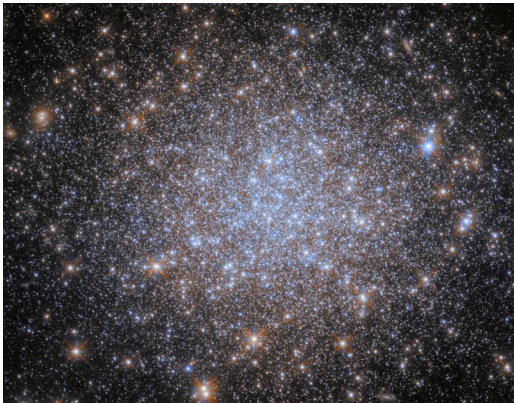
Michael Kinzer reported on viewing from the parking lot of the trail head off of Kuaokala Road, accessed through the Kaena Point Satellite Tracking Station, basically the other side of the mountains from Dillingham Airfield, on the same night as the Dillingham star party.

VP Bill and Ort suggested sites to view the 4/8 solar eclipse locally.

Joanne once again treated all to a Planetarium voyage south to Tahiti, and some tips on how to find the Southern Pole. And, we previewed the solar eclipse!

Meeting adjourned at 9:06 pm.
There were 10 persons in person, and 10 unique zoom logins.

Faithfully submitted,
James Andy Stroble, Secretary.
March 27, 2024
Honolulu, Hawaii







Hubble Uncovers a Celestial Fossil

A cluster of stars. Most of the stars are very small and uniform in size, and they are notably bluish and cluster more densely together toward the center of the image. Some appear larger in the foreground. The stars give away to a dark background at the corners of the image.

Image Credit: ESA/Hubble & NASA, A. Sarajedini

Hawaiian Astronomical Society

April 2024						
◀ Mar						May ▶
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31 BoD Meeting 3:30 PM Zoom	1  3rd Qtr 5:14 PM	2 General Meeting 7:30 PM Hybrid Bishop Museum	3	4	5 University Lab School Star Party 7:00 P - 9:30 P	6 Club Party Dillingham Airfield Sunset 6:48 PM
7	8  New 8:20 AM	9	10	11	12	13 Public Party Dillingham Airfield Sunset 6:50 PM
14	15  1st Qtr 9:13 AM	16	17	18	19	20 Public Party Geiger/Kahala Sunset 6:52 PM
21	22 Earth Day Kailua Int. School Science Night 7:00 PM - 9:00 PM	23  Full 1:48 PM	24 Administrative Professionals	25	26 Arbor Day	27
28	29	30	Notes:			

<<Upcoming Star Parties>>

- Public Party-Dillingham April 13 — 7:00 PM**
- Club Party Dillingham April 6 —7:00 PM**
- Public Party Geiger/Kahala April 20 — 7:00 PM**

Upcoming School Star Parties

Date	Time	Location
Apr 5	7:00 P - 9:30 P	Star Party - University Lab
Apr 22	7:00 P - 9:00 P	Science Night - Kailua Intermediate School

NASA's Night Sky Notes

Participate in Eclipse Science

By Kat Troche



April is NASA's Citizen Science Month, and there is no shortage of projects available. Here are some [citizen science projects](#) that you can participate in on April 8th, on and off the path of totality right from your smartphone!



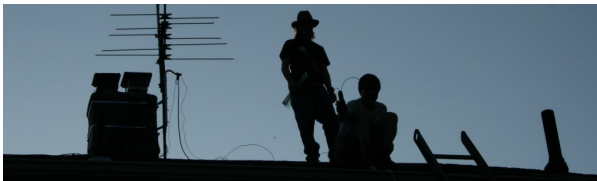
Eclipse Soundscapes, ARISA Lab / NASA

Eclipse Soundscapes

Eclipse Soundscapes will compare data from a 1932 study on how eclipses affect wildlife – in this case, crickets. There are a number of ways you can participate, both on and off the path. NOTE: you must be 13 and older to submit data. Participants 18+ can apply to receive the free Data Collector kit. Learn more at: eclipsesoundscapes.org/

GLOBE Eclipse

Folks that participated in the **GLOBE Eclipse 2017** will be glad to see that their eclipse data portal is now open! With the GLOBE Observer smartphone app, you can measure air temperature and clouds during the eclipse, contributing data to the GLOBE program from anywhere you are. Learn more at: observer.globe.gov/



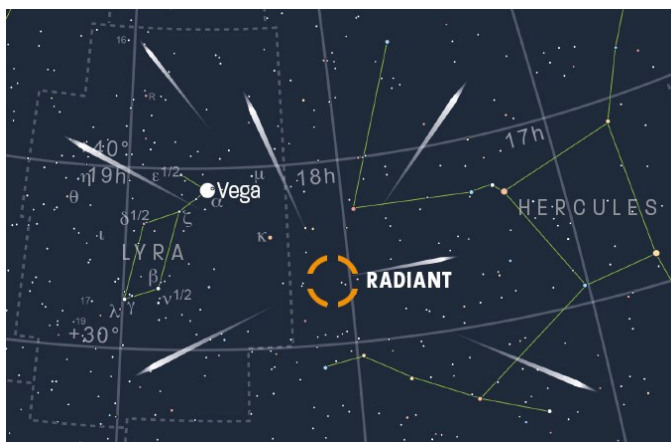
HamSCI, The University of Scranton / NASA

HamSCI

HamSCI stands for **Ham Radio Science Citizen Investigation**. HamSCI has been actively engaged in scientific data collection for both the October 14, 2023, annular solar eclipse and the upcoming April 8, 2024, total eclipse. Two major activities that HamSCI will be involved in around the solar events will be the **Solar Eclipse QSO Party (SEQP)** and the **Gladstone**

(Continued on page 9)

This year the Lyrids (006 Lyr) are severely impacted by Moonlight, which will be close to full Moon (96% illuminated). The Lyrids are a medium strength shower that usually produces good rates for three nights centered on the maximum. These meteors also usually lack persistent trains but can produce fireballs. These meteors are best seen from the northern hemisphere where the radiant is high in the sky at dawn. Activity from this shower can be seen from the southern hemisphere, but at a lower rate.



In terms of direction on the sky, the pointed answer is the constellation of Small Harp (Lyra). That is why the famous meteor shower that peaks every April is known as the Lyrids -- the meteors all appear to come from a radiant toward Lyra. In terms of parent body, though, the sand-sized debris that makes up the Lyrid meteors come from Comet Thatcher. The comet follows a well-defined orbit around our Sun, and the part of the orbit that approaches Earth is superposed in front of Lyra. Therefore, when Earth crosses this orbit, the radiant point of falling debris appears in Lyra.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
April 15	April 23	April 1	April 8

Shower	Activity	Maximum		Radiant		V_{∞} km/s	r	ZHR
		Date	λ_{\odot}	α	δ			
Lyrids (006 Lyr)	Apr 14– Apr 30	Apr 23	32.32°	271°	+34°	49	2.1	18
π -Puppids (137 PPU)	Apr 15– Apr 28	Apr 23	33.5°	110°	-45°	18	2.0	Var

This year will be especially challenging for the Lyrids! Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

Cash Flow - 2/12/2024 to 3/11/2024

Beginning Balance	\$6,322.82
Money into selected accounts comes from	
Total Money In	\$0.00

Money out of selected accounts goes to	
Snacks	\$74.09
Total Money Out	\$74.09

Difference	-\$74.09
Ending Balance	\$6,248.73

Here are the financials up through March 11.

Thanks to everyone who paid, renewed, and donated. The one bit of activity comes from another snack reimbursement.

Covid wastewater figures have begun trending up the last two weeks on Oahu. Stay safe, and enjoy the stars.



St. Patrick's Aurora Illuminates the Night Sky

The green lights of an aurora dramatically explode outward against the backdrop of the night sky peppered with fluffy white clouds and pinprick stars. A hint of red is also visible in the center of the light. Pine trees cast in shadow are seen below. This majestic image of the dazzling green lights of the aurora borealis was captured on March 17, 2015, around 5:30 a.m. EDT in Donnelly Creek, Alaska.

Image Credit: Sebastian Saarloos

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

Signal Spotting Challenge (GSSC) which are part of the HamSCI Festivals of Eclipse Ionospheric Science. Learn more about these experiments and others at: hamsci.org/eclipse



SunSketcher™

SunSketcher, Western Kentucky University / NASA

SunSketcher

If you're traveling to totality, help the **SunSketcher** team measure the oblateness, or shape, of the Sun during the eclipse by timing the flashes of Baily's Beads. You will need a smartphone with a working camera for this, along with something to hold the phone in place - don't forget a spare battery! NOTE: The app will need to run from five minutes before the eclipse starts until the end of the eclipse. Any additional phone use will result in Sun Sketcher data loss. Learn more at: sunsketcher.org/

Don't stop at the eclipse - NASA has citizen science projects you can do all year long – from [cloud spotting on Mars](#) to [hunting for distant planets](#)! By contributing to these research efforts, you can help NASA make new discoveries and scientific breakthroughs, resulting in a better understanding of the world around us, from the critters on the ground, to the stars in our sky.

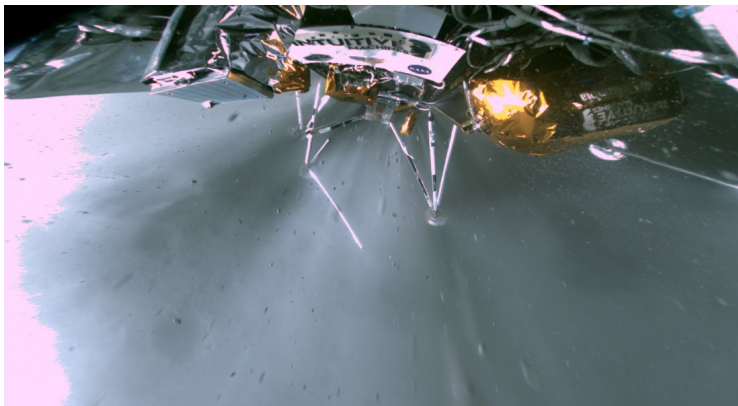
We'll be highlighting other citizen science projects with our mid-month article on the [Night Sky Network](#) page, but we want to wish all you eclipse chasers out there a very happy, and safe solar eclipse! For last minute activities, check out Night Sky Network's [Solar Eclipse Resources section](#)!



Moon and Sun Over Wyoming

In the darkness of the sky, the Sun appears as a thin crescent of orange gold. The Moon blocks most of it from view. The Moon passes in front of the Sun in this Aug. 21, 2017, image taken at the point of the maximum partial eclipse. This photo was taken near Banner, Wyoming, where a partial eclipse was visible.

Image Credit: NASA/Joel Kowsky



Odysseus on the Moon

Explanation: Methalox rocket engine firing. Odysseus' landing legs absorb first contact with the lunar surface in this wide-angle snapshot from a camera on board the robotic Intuitive Machines Nova-C moon lander. Following the landing on February 22, broken landing legs, visible in the image, ultimately left the lander at rest but tilted. Odysseus' gentle lean into a sloping lunar surface preserved the phone booth-sized lander's ability to operate, collect solar power, and return images and data to Earth. Its exact landing site in the Moon's far south polar region was imaged by NASA's Lunar Reconnaissance Orbiter. Donated by NASA, the American flag seen on the lander's central panel is 1970 Apollo program flight hardware.

Image Credit: Intuitive Machines



NGC 7714: Starburst after Galaxy Collision

A blue spiral galaxy appears to be colliding -- and possibly moving through -- a dusty brown galaxy.

Explanation: Is this galaxy jumping through a giant ring of stars? Probably not. Although the precise dynamics behind the featured image is yet unclear, what is clear is that the pictured galaxy, NGC 7714, has been stretched and distorted by a recent collision with a neighboring galaxy. This smaller neighbor, NGC 7715, situated off to the left of the frame, is thought to have charged right through NGC 7714. Observations indicate that the golden ring pictured is composed of millions of older Sun-like stars that are likely co-moving with the interior bluer stars. In contrast, the bright center of NGC 7714 appears to be undergoing a burst of new star formation. The featured image was captured by the Hubble Space Telescope. NGC 7714 is located about 130 million light years away toward the constellation of the Two Fish (Pisces). The interactions between these galaxies likely started about 150 million years ago and should continue for several hundred million years more, after which a single central galaxy may result.

Image Credit: NASA, ESA, Hubble Legacy Archive;
Processing & Copyright: Rudy Pohl

(Continued from page 1) - word from your editor

The lightning image extracted from the video is cool. It is not something you get to see that often in Hawaii.



Bishop Museum “3rd Friday monthly evening Planetarium 2024” on Friday, 3/15/2024, was not bad. We have 3 telescopes setup (Bill, Ort, & Peter). We showed them the moon & Jupiter. My Dwarf II also captured the image of M42 which they get to see.

Steven ran a solar viewing at Bishop Museum on Saturday, 3/16/2024, in afternoon. It went well and had about 30-40 visitors. Looking into doing this monthly. He used Lunt 80THa DS scope on top of his AM5 with the Hinode Solar Guider and a white light Herschel Wedge telescope.

The Public Party in-town on Saturday, 3/16/2024, was alright. I have no report from Kahala. Geiger weather was decent with some clouds. We had 4 members with telescopes (Steven, Ort, Peter, & Tom) participated. We had a group of cub scouts (The 1st Grade (Tiger) Den from Cub Scout Pack 167 (Ewa/Kapolei)). We were able to see the Moon, Jupiter, Orion Nebula, and Comet 12P/Pons-Brooks (using Dwarf II).

With a clear sky on Sunday, 3/17/2024, I went to Kahe Point Beach Park to try to capture the “Devil Comet” comet 12P/Pons/Brooks. I used my Dwarf II to take the images and stack them. However, with gusty wind, stars came a little oblong. Only 8 images of 120 is any good to stack. Here is the result.



Hope those of you who are traveling for Total Solar Eclipse 2024 get a clear sky and have a safe travel. Do share the photos and story at next month meeting. Bill, Steven, I will do our best to capture that 17% partial solar eclipse in Hawaii.

So, if you are observing and able to capture any night sky object. You can share it in AstroNews by emailing it to me at astronews@hawastsoc.org with some detail. I will post it.



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Odysseus and The Dish

Explanation: Murrayang, the CSIRO's Parkes Radio Telescope, points toward a nearly Full Moon in this image from New South Wales, Australia, planet Earth. Bathed in moonlight, the 64 meter dish is receiving weak radio signals from Odysseus, following the robotic lander's February 22 touch down some 300 kilometers north of the Moon's south pole.

Image Credit & Copyright: John Sarkissian (ATNF Parkes Radio Observatory)