THE ASTRONEWS

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May 2025

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapruks

I was so excited when I heard that a newly discovered comet (C/2025 F2(SWAN)) was available in the morning sky. I set up plan to go out and try to shoot it. Mother nature interfered. For 2 mornings early April, the area below Pegasus always has cloud cover. Since then, the weather has not been cooperating. By April 18, 2025, the comet was falling apart. Time to wait for the next one.

Another photography event was on Friday, 4/25/2025. It was the conjunction of the Moon, Saturn, & Venus that made a smiley face. The weather was also bad that morning. VOG was heavy. I could not see Saturn at all. Fortunately, the previous morning, I was able to catch the sad face conjunction of the Moon, Saturn, & Venus.

As we move closer to the summer, the request for a school star party will surely slow down until next fall. That does not mean we will not have a request. There will be other organizations like Boy Scouts or

(Continued on page 11)

Inside this issue:

Upcoming Events:

- The next Board meeting is Sun., May 4th 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., May 6th at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- Bishop Museum's planetarium show "Star Tonight" is every 3rd Friday, 5/16/2025, of the month at 7:00 PM

President's Message
May 2025

When we consider the vast size and age of the universe, it is easy to feel extremely small and short-lived. At the scale of a human, even the Earth seems very big, and only a handful of stars are close enough that the light we see from them started its journey during our lifetimes. If we think a little more deeply, though, we can see that we are much more connected to the rest of the universe than it might initially appear.

First, consider the material that composes our bodies. Except for hydrogen (many atoms but a small fraction of the mass), almost every atom was produced inside a star that exploded and spread them to the pre-solar nebula before our Sun was born over 4 billion years ago. The hydrogen is nearly as old as the universe itself.

Our biology ties us to the past as well. One of my favorite pieces of jargon is "ontogeny recapitulates phylogeny". It means that our development from conception to birth reflects the evolutionary changes our ancestors went through. Although we don't remember it, we all went through that change from single cell to human baby. For a while, we had gill slits because our ancient ancestors were fish. Until much later in our development we had a tail because our primate (and earlier) ancestors did. In almost every cell in our body we carry a genetic blueprint for how to build our bodies that has been built up by gradual changes over more than 3 billion years. We carry within us much of the history of life.

As individuals, we are born, live a relatively short time, and die. However, just as our cells have shorter lifetimes, die and are replaced while "we" continue our single life, our individual lives are part of the ongoing life of planet Earth. In a sense, we are all as old as all life on Earth since life has been passed on through living tissue since life first arose. All life on Earth is related and shares a common ancestor.

So next time you are looking at distant, ancient objects in space, remember your connection. Your body is made of components billions of years old, assembled after long journeys, and you carry billions of years of life history in your cells. You are the living embodiment of the universe and (some of) its life.

Hawaiian Astronomical Society
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Observer's Notebook—May 2025 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

May 3, 15h, Moon 1.99° NNE of Mars; 84° and 83° from Sun in evening sky; magnitudes -9.8 and 1.0
May 22, 7h, Moon 2.52° NNW of Saturn; 62° from Sun in morning sky; magnitudes -8.9 and 1.1
May 22, 10h, Moon 1.89° NNW of Neptune; 60° from Sun in morning sky; magnitudes -8.9 and 7.9
May 23, 11h, Moon 3.5° NNW of Venus; 46° from Sun in morning sky; magnitudes -8.0 and -4.4
May 26, 4h, Moon 4.7° NNW of Uranus; 9° and 8° from Sun in morning sky; magnitudes -5.0 and 5.8
May 26, 11h, Moon 4.7° N of Mercury; 6° and 4° from Sun in morning sky; magnitudes -4.7 and -1.9
May 28, 4h, Moon 5.2° N of Jupiter; 21° and 20° from Sun in evening sky; magnitudes -6.1 and -1.9

Other Events of Interest
Times are Hawaii Standard Time

May 1, 2h, Asteroid 4 Vesta at opposition in longitude; magnitude 5.6
May 3, 5h, Venus 2.03° N of Neptune; 42° from Sun in morning sky; magnitudes -4.5 and 7.9
May 3, 15h, Moon, Mars, and Beehive within circle of diameter 2.58°; about 84° from the Sun in the evening sky; magnitudes -10, 1, 4
May 5, 14h, Eta Aquarid meteors; ZHR 50; 1 day after First Quarter Moon
May 22, 7h, Moon, Saturn, and Neptune within circle of diameter 2.68°; about 61° from the Sun in the morning sky; magnitudes -9, 1, 8
May 24, 14h, Mercury 0.14° SE of Uranus; 6° from Sun in morning sky; magnitudes -1.6 and 5.8; quasi-conjunction
May 26, 6h, Moon, Mercury, and Uranus within circle of diameter 5.37°; about 7° from the Sun in the morning sky; magnitudes -5, -2, 6

Planets in May

☿ Mercury
will soon pass behind the Sun. From Honolulu, it is not observable – it will reach its highest point in the sky during daytime and is no higher than 6° above the horizon at dawn.

♀ Venus
is emerging into the morning sky as it approaches greatest elongation west. From Honolulu, it is visible in the dawn sky, rising at 03:26 (HST) – 2 hours and 24 minutes before the Sun.

♂ Mars
is currently an early evening object, now receding into evening twilight. From Honolulu, it will become visible at around 19:36 (HST), 66° above your western horizon, as dusk fades to darkness.

♃ Jupiter
will soon pass behind the Sun at solar conjunction. From Honolulu, it will become visible at around 19:16 (HST), 23° above your western horizon, as dusk fades to darkness.

♄ Saturn
recently passed behind the Sun at solar conjunction. From Honolulu, however, it is visible in the dawn sky, rising at 02:56 (HST) – 2 hours and 54 minutes before the Sun.

♅ Uranus
will soon pass behind the Sun at solar conjunction. From Honolulu, it is not observable – it will reach its highest point in the sky during daytime and is 11° below the horizon at dusk.

♆ Neptune
recently passed behind the Sun at solar conjunction. From Honolulu, however, it is visible in the dawn sky, rising at 03:01 (HST) – 2 hours and 49 minutes before the Sun.

♇ Pluto (Dwarf Planet)
is visible in the dawn sky, rising at 23:58 (HST) and reaching an altitude of 45° above the southern horizon before fading from view as dawn breaks at around 04:53.

⚶ 4 Vesta (Asteroid)
is visible in the evening sky, becoming accessible around 19:59 (HST), 31° above your eastern horizon, as dusk fades to darkness.

Meeting Minutes

H.A.S. Secretary

April 1st 2025 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)
Andy Stroble

President Chris Peterson called the meeting to order at 7:30.

Last month's minutes approved with corrected typos.

Gate closing times at Dillingham/Kawaihapai Airfield will be at 7:00pm until October

Attending for the first time were Tom Torzak formerly a member of a New York Club, and Angie, a new club member! Welcome all!

Mars is going prograde now. Update your astrology forecasts. Watch it move around the Gemini twins.

68th State Science fair has concluded. Our Senior Award goes to Ky Greely, congratulations, Ky!

IfA open house is on 4/13. We need volunteers for our table, 11-4pm.

Heather, School Star Party Coordinator, reports no response from Aiea High , and that Onizuka day with the Boy Scouts will be Saturday at UHWO, Ort will set up at 6am, Steve from 8-12, Peter later.

Ort on T-shirts, orders still being accepted. See Google form in Meeting invite.

Our speaker for the evening, Tom Calderwood from the AAVSO (**The American Association of Variable Star Observers**), gave us a very informative introduction to the role of amateur astronomers in the collection of data on variable stars, the types of variable stars, and the methods of collecting such data, from the normal CCD/DSLR cameras to the earlier and more specific PEP (Photoelectric Photometry) instruments. Club members were invited to join the organization, and even receive mentoring.

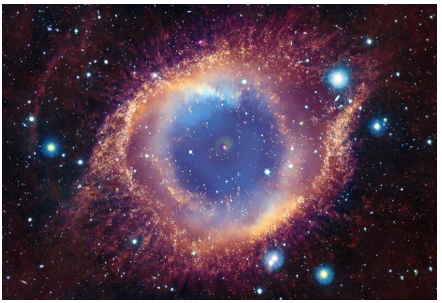
Members shared astrophotos, Ort shared photos of the lunar eclipse, and some clouds. Shane shots of M83, live stacked via Asiair. Peter reported on a Vespera fail, and shots of M81, M82, in mosaic mode, and several nebulae. Sabina shared expert phone camera eclipse shots,

And, display went down in the Bishop Museum Planetarium, for a bit.

VP Bill Barr announced we have a speaker for the May meeting.

Meeting adjourned at 9:04
There were some 14 persons in person, and at least 6 unique non-local logins on zoom.

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



X-ray Clues Reveal Destroyed Planet

This image of the Helix Nebula, released on March 4, 2025, shows a potentially destructive white dwarf at the nebula's center: this star may have destroyed a planet.

Image credit: X-ray: NASA/CXC/SAO/Univ Mexico/S. Estrada-Dorado et al.; Ultraviolet: NASA/JPL; Optical: NASA/ESA/STScI (M. Meixner)/NRAO (T.A. Rector); Infrared: ESO/VISTA/J. Emerson; Image Processing: NASA/CXC/SAO/K. Arcand

May 2025

◄ Apr | Jun ►

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 Public Party Geiger/Kahala Sunset 6:57PM
4  1st Qtr 3:51AM BoD Meeting 3:30PM Zoom	5 Cinco De Mayo	6 Eta Aquarids Meteor Shower General Meeting 7:30PM Hybrid Bishop Museum	7	8	9	10
11 Mother's Day	12  Full 6:55AM	13	14	15	16 Bishop Museum Star Tonight 7:00PM - 9:00PM	17 Armed Forces Day Public Party Dillingham Airfield Gate Closes 7P
18	19	20  3rd Qtr 1:58AM	21	22	23	24 Club Party Dillingham Airfield Gate Closes 7P
25	26 Memorial Day  New 5:02PM	27	28	29	30	31

<<Upcoming Star Parties>>

Public Party Geiger/Kahala May 3 — 6:57 PM
Public Party-Dillingham May 17 — 6:30 PM
Club Party Dillingham May 24 —6:30 PM

Upcoming School Star Parties

Date	Time	Location

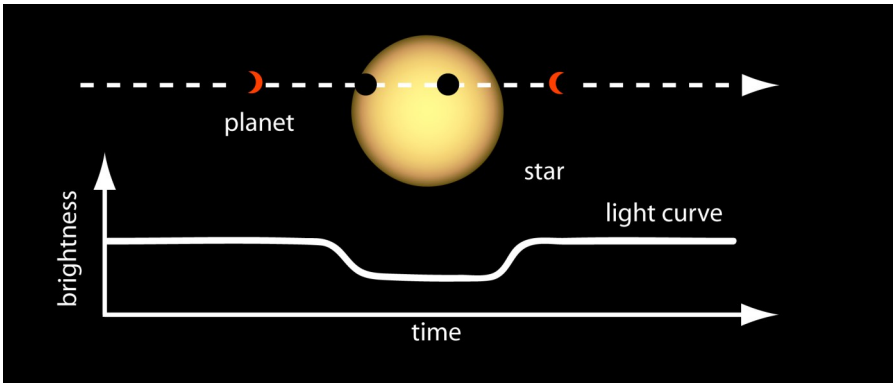
NASA's Night Sky Notes

May's Night Sky Notes: How Do We Find Exoplanets?

By: Dave Prosper

Updated by: Kat Troche

Astronomers have been trying to discover evidence that worlds exist around stars other than our Sun since the 19th century. By the mid-1990s, technology finally caught up with the desire for discovery and led to the first discovery of a planet orbiting another sun-like star, Pegasi 51b. Why did it take so long to discover these distant worlds, and what techniques do astronomers use to find them?



A planet passing in front of its parent star creates a drop in the star's apparent brightness, called a transit. Exoplanet Watch participants can look for transits in data from ground-based telescopes, helping scientists refine measurements of the length of a planet's orbit around its star. Credit: NASA's Ames Research Center

The Transit Method

One of the most famous exoplanet detection methods is the transit method, used by Kepler and other observatories. When a planet crosses in front of its host star, the light from the star dips slightly in brightness. Scientists can confirm a planet orbits its host star by repeatedly detecting these incredibly tiny dips in brightness using sensitive instruments. If you can imagine trying to detect the dip in light from a massive searchlight when an ant crosses in front of it, at a distance of tens of miles away, you can begin to see how difficult it can be to spot a planet from light-years away! Another drawback to the transit method is that the distant solar system must be at a favorable angle to our point of view here on Earth – if the distant system's angle is just slightly askew, there will be no transits. Even in our solar system, a transit is very rare. For example, there were two transits of Venus visible across our Sun from Earth in this century. But the next time Venus transits the Sun as seen from Earth will be in the year 2117 – more than a century from now, even though Venus will have completed nearly 150 orbits around the Sun by then!

(Continued on page 10)

Sculpted by Luminous Stars

This new image, released on April 4, 2025, showcases the dazzling young star cluster NGC 346.

Image credit: ESA/Hubble and NASA, A. Nota, P. Massey, E. Sabbi, C. Murray, M. Zamani (ESA/Hubble)

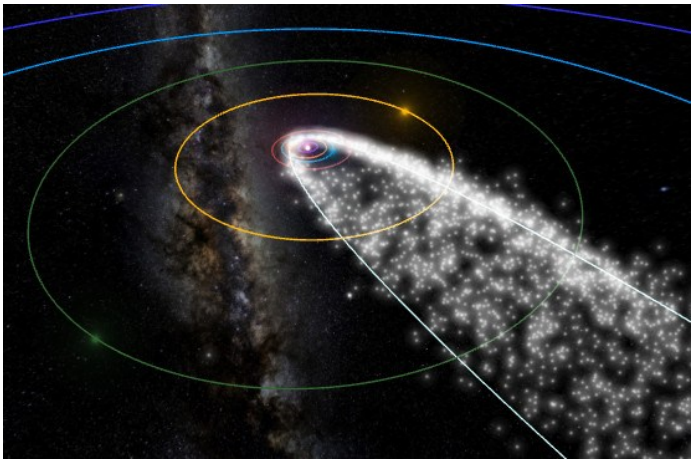
Meteor Log—May 2025

by Tom Giguere

Meteor report for the 21/22 April Lyrids: Our regular meteor observers were looking forward to this year's shower, which could be viewed in a relatively moonless sky (Last quarter on 4/20).

- Sapavith Vanapruks, Kapolei – Although the weather forecast was not promising (40% clouds), he planned to go sleep early and checked the sky around 1am. In the past, Apr 20–21 was cloudy 83% of the time (since 2000). No meteors were observed at the appointed time.
- Rob/Tom Lancaster, Kaneohe – Too many clouds, final count: 0.
- Tom Giguere, Makakilo - It started cloudy then cleared up in Makakilo...I didn't see any visually, but did shoot about 500 auto-pics between 10:30 and 2:30am with a narrow 50mm view. The field of view proved to be too narrow and failed to capture any meteors. At least I didn't waste any film; digital is cheap in comparison to this old medium.

The η-Aquariids (ETA) stream is associated with Comet 1P/Halley, like the Orionids of October. Shower meteors are best visible in the hours before dawn essentially from tropical and southern hemisphere sites. The shower is one of the best for southern observers. Useful results may be obtained from places up to about 40◦ N latitude. The radiant culminates near 8h local time. In most years, a substantial amount of optical ETA-data is collected worldwide. However, due to the relatively short observing window between radiant rise and morning twilight for each site, it remains difficult to obtain a continuous profile.



Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
May 4	May 12	May 20	May 26

Shower	Activity	Maximum		Radiant		V_∞	r	ZHR
		Date	$\lambda_\odot$	α	δ	km/s		
η-Aquariids (ETA), 031 ETA	Apr 19–May 28	May 06	45.5°	338°	-01°	66	2.4	50
η -Lyrids (ELY), 145 ELY	May 03–May 14	May 10	50.0°	291°	+43°	43	3.0	3

Early risers will catch the Eta Aquarids! Credit: IMO for meteor information. Tom Giguere, 808-782-1408, Thomas.giguere1@gmail.com.

Treasurer's Report

by Peter Besenbruch

Cash Flow - 3/10/2025 to 4/9/2025

Beginning Balance	**$9,519.20**
Money into selected accounts comes from	
Donation	$34.00
Membership - Electronic	$72.00
Membership - Family	$4.00
Membership - Paper	$78.00
Total Money In	**$188.00**
Money out of selected accounts goes to	
Snacks	$36.98
Total Money Out	**$36.98**
Difference	**$151.02**
Ending Balance	**$9,670.22**

Here are the financials up through April 9.

Thanks to everyone who donated, paid, or renewed.

The April Dillingham Public Star Party on Easter Eve was rather good by all accounts, though the forecast was bad. The April Club star party yielded about 45 minutes of sucker holes. Here's hoping May will be a good month.

Covid wastewater nation-wide figures remain low except the east coast, parts of the mid-west, and south. Oahu figures show increases overall since early to mid March. Dept. of Health figures have been showing 150-160 cases per week for Oahu. This is likely a severe under-count.

Fuzzy Rings of a Dying Star

In this photo released on April 14, 2025, NASA's James Webb Space Telescope revealed the gas and dust ejected by a dying star at the heart of NGC 1514.

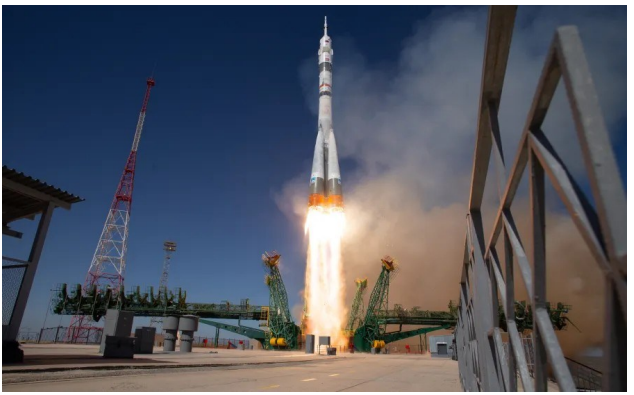
Image credit: NASA, ESA, CSA, STScI, Michael Ressler (NASA-JPL), Dave Jones (IAC)

Message From Your Vice President
May 2025

by Bill Barr

Be sure to attend are May 6 meeting. We are going to have a special guest that will be live streaming from the Keck observatory.

Sales of used equipment are suspended until mid-summer. If there's something you're interested in, be sure to email and it will be held for you.



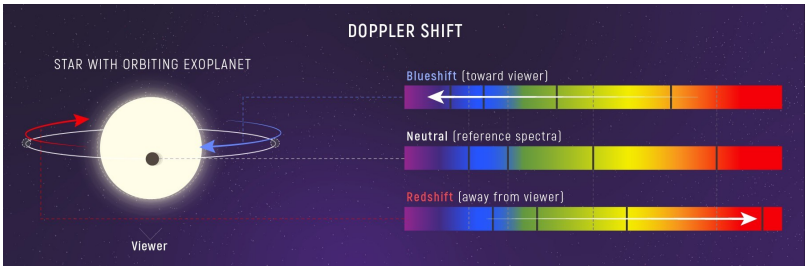
Expedition 73 Crew Launches to International Space Station
A Soyuz rocket launches to the International Space Station with Expedition 73 crew members including NASA astronaut Jonny Kim on Tuesday, April 8, 2025, at the Baikonur Cosmodrome in Kazakhstan.
Image credit: NASA/Joel Kowsky

Apollo 13 Launch: 55 Years Ago

Apollo 13 launches upward, leaving a column of flames and light brown vapor behind it. Trees and vegetation frame the water at the bottom of the photo.

Image credit: NASA

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



As a planet orbits a star, the star wobbles. This causes a change in the appearance of the star's spectrum called Doppler shift. Because the change in wavelength is directly related to relative speed, astronomers can use Doppler shift to calculate exactly how fast an object is moving toward or away from us. Astronomers can also track the Doppler shift of a star over time to estimate the mass of the planet orbiting it. Credit: NASA, ESA, CSA, Leah Hustak (STScI)

The Wobble Method

Spotting the Doppler shift of a star's spectra was used to find Pegasi 51b, the first planet detected around a Sun-like star. This technique is called the **radial velocity or "wobble" method**. Astronomers split up the visible light emitted by a star into a rainbow. These spectra, and gaps between the normally smooth bands of light, help determine the elements that make up the star. However, if there is a planet orbiting the star, it causes the star to wobble ever so slightly back and forth. This will, in turn, cause the lines within the spectra to shift ever so slightly towards the blue and red ends of the spectrum as the star wobbles slightly away and towards us. This is caused by the blue and red shifts of the planet's light. By carefully measuring the amount of shift in the star's spectra, astronomers can determine the size of the object pulling on the host star and if the companion is indeed a planet. By tracking the variation in this periodic shift of the spectra, they can also determine the time it takes the planet to orbit its parent star.

Direct Imaging

Finally, exoplanets can be revealed by **directly imaging** them, such as this image of four planets found orbiting the star HR 8799! Space telescopes use instruments called coronagraphs to block the bright light from the host star and capture the dim light from planets. The Hubble Space Telescope has captured images of giant planets orbiting a few nearby systems, and the James Webb Space Telescope has only improved on these

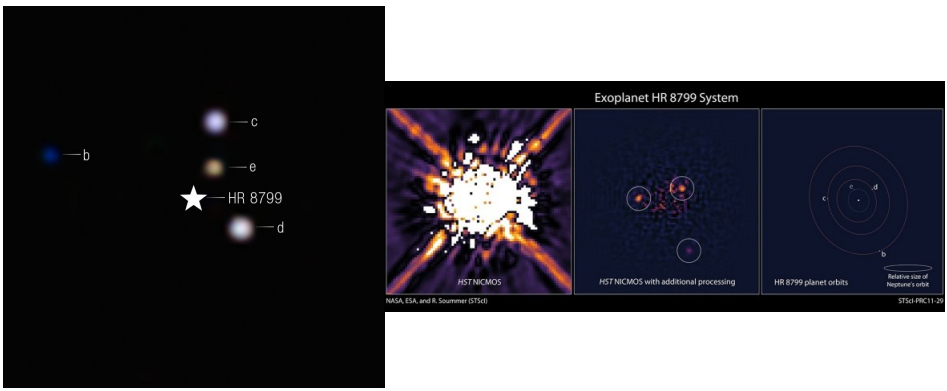


Image taken by the James Webb Space Telescope of four exoplanets orbiting HR 8799. Credit: NASA, ESA, CSA, STScI, Laurent Pueyo (STScI), William Balmer (JHU), Marshall Perrin (STScI)

(Continued on page 11)

(Continued from page 10) NASA's Night Sky Notes
observations by uncovering more details, such as the colors and spectra of exoplanet atmospheres, temperatures, detecting potential exomoons, and even scanning atmospheres for potential biosignatures!

You can find more information and activities on NASA's Exoplanets page, such as the Eyes on Exoplanets browser-based program, The Exoplaneteers, and some of the latest exoplanet news. Lastly, you can find more resources in our News & Resources section, including a clever demo on how astronomers use the wobble method to detect planets!

(Continued from page 1) Editor Notes
Girl Scouts requests that will be coming in. Your involvement will help with bringing in club membership and promoting the club.

At the time of this editor note, there is possible one school event in May. It will be at St. Joseph in Waipahu for 26 6th graders. It is a daytime event from 1:00PM to 3:00 PM. Potential topics:

- Galaxies & Light Years
  - ◊ Describe the different types of galaxies.
  - ◊ Model and describe how light years are used to measure distances and sizes in the universe
- Lunar Cycle
  - ◊ Demonstrate and predict the sequence of events in the lunar cycle.
- Planets
  - ◊ Describe the physical properties of planets and their locations.
  - ◊ Describe the movements of the Sun, the planets, and the Galilean moons.

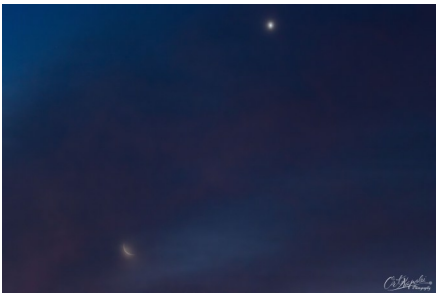
On Friday, 5/16/2025, Bishop Museum will have a monthly "Star Tonight" at 7:00 PM. Attendees will be out around 8:00 PM to view night sky objects with HAS telescopes. Next day, Saturday, 5/17/2025, we will have a public star party at Dillingham Airfield. Gate will now close at 7:00 PM. Let's hope for clear nights.

Onizuka Day of Exploration at UH West Oahu on 4/5/2025 was good. We have 3 members helping with this event. We could use a couple more people to talk to visitors. The weather in the day was good. The Sun looked great in our telescopes.

The public star party that evening was not good. Both Geiger and Kahala got rain. Kalaha group stayed until 9PM. They were able to see the Moon. Geiger has no visitor. They packed up at 8PM.

The public star party at Dillingham Airfield on 4/19/2025 turned out not too shabby. The weather hold up pretty good. We had 10 members with scopes and 11 visitors. Many objects were available like Jupiter, Mars, and M42. They left at 9P. 6 members hung around to do some astrophotography. We left at 11PM when clouds started to roll in.

Many members now use Electronically Assisted Astronomy (EAA) devices. So, if you are observing and able to capture any night sky object even with a camera or a smartphone. You can share it in AstroNews by emailing it to me at astronews@hawastsoc.org with some de-



One Eye Smiley

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NASA's Lucy Spacecraft Images Asteroid Donaldjohanson

The asteroid Donaldjohanson as seen by the Lucy Long-Range Reconnaissance Imager (L'LORRI). This is one of the most detailed images returned by NASA's Lucy spacecraft during its flyby.

Image credit: NASA/Goddard/SwRI/Johns Hopkins APL/NOIRLab