THE ASTRONEWS

HUI KILOLANI

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April 2023

www.hawastsoc.org

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). Dark site public star party on March 11 had decent weather. Sue reported on Discord that "It was clear out at Dillingham but transparency was not good. Lots of folks including a bunch of Boy Scouts. Got pretty cold toward 9:30pm and dew started to form. First group left at 9pm and the rest of us at 10:15pm because Dillingham security had some sort of conference they needed to attend. All in all, not too bad…"

Dark site club star party on March 18 was not as lucky on weather. We had 7 members out there looking at objects through sucker holes. We were there until 8:45 PM. I was able to try out a new toy, Dwarf II camera/telescope by Dwarflab. The final image of M42 turned out not too shabby. I will get into more detail on the camera later on. (Photo below, left stacked by Dwarf II app: right process using Siril)

The in-town public star parties on Saturday, March 25 went well at both locations. From Kahala, Sue reported that "They had a nice sky and about 8-10 visitors at Kahala.

(Continued on page 10)

Inside this issue:

Upcoming Events:

- The next Board meeting is Sun., Apr. 2nd 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., Apr. 4th 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, 4/1/2023, of the month at 7:00 PM

President's Message
April 2023

The club has a couple of events coming up in April that we are supporting. First up is the Hawaii State Science and Engineering Fair. It will be held April 5th and 6th at the Blaisdell Exhibition Hall this year. We had some volunteers at the last meeting, but you can add your name to the list at our membership meeting if you wish to judge exhibits for the club. I'll have more details then.

The University of Hawaii's Institute for Astronomy will hold its annual Open House on Sunday, April 23rd this year. It runs from 11 a.m. to 5 p.m. We need volunteers at a table to promote the club's activities. You don't have to stay the whole time, just sign up for a shift. They'll provide pizza and a drink to those there at lunch time. If we have enough volunteers, others can take some time to look around at the other exhibits. There's always a lot to see there, so consider checking it out even if you don't volunteer.

The March Kahala star party was the best so far since we resumed holding them. The conditions didn't look very promising at first with lots of dark clouds in the sky, but we had no rain and it got progressively clearer as the night went on. We had about a dozen visitors in total. It cleared off enough to reveal the whole hexagon of bright stars around Orion, my favorite tool for helping novices learn the night sky. The two consecutive zodiac constellations allow you to easily identify the ecliptic, and the hexagon covers a lot of celestial real estate.

The Moon, Venus, and Mars well illustrated the position of the ecliptic. I was asked a question about a multi-planet alignment, but I hadn't heard about one. Since then I have heard it touted by the media. It seems a bit of a stretch because they include Jupiter and Mercury, which were both above the horizon but barely and behind clouds, and Uranus. We tried to find the seventh planet and may have succeeded, but the nearby Moon made it difficult to be certain. It's a slow news day when all of that ends up as a hyped 5-planet alignment, but it's still nice to have astronomy make the news.

Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, Hawaii 96817

President
Chris Peterson
(808) 732-7046
chrisp@higp.hawaii.edu

Vice President
Bill Barr
dustythepath@gmail.com

Secretary
Andy Stroble
jstroble@hawaii.rr.com

Treasurer
Peter Besenbruch
peter@besenbruch.info

Board Members-at-Large
Steven Chun
sctchun@usa.net

Astronews Editor
Sapavith 'ORT' Vanapruks
astronews@hawastsoc.org

HAS Webmasters
Peter Besenbruch
peter@besenbruch.info

School Star Party Coordinators
Mark Watanabe
mswatanabe@sbcglobal.net

Charles Rykken
cjrykken@gmail.com

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 2023 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

Apr 15, 21h, Moon 3.2° SE of Saturn; 52° from Sun in morning sky; magnitudes -8.4 and 1.1
Apr 17, 10h, Moon 2.05° SE of Neptune; 31° from Sun in morning sky; magnitudes -7.0 and 7.9
Apr 19, 8h, Moon 0.33° NE of Jupiter; 6° from Sun in morning sky; magnitudes -4.5 and -2.0
Apr 20, 23h, Moon 1.78° SE of Mercury; 15° from Sun in evening sky; magnitudes -5.5 and 2.1
Apr 21, 3h, Moon 1.61° N of Uranus; 17° from Sun in evening sky; magnitudes -5.7 and 5.8
Apr 21, 3h, Moon, Mercury, and Uranus within circle of diameter 3.86°; about 16° from the Sun in the evening sky; magnitudes -6, 2, 6
Apr 21, 21h, Mercury 3.8° NW of Uranus; 14° and 16° from Sun in evening sky; magnitudes 2.4 and 5.8; quasi-conjunction
Apr 23, 3h, Moon 1.31° N of Venus; 41° from Sun in evening sky; magnitudes -7.6 and -4.1
Apr 25, 18h, Moon 3.2° N of Mars; 71° from Sun in evening sky; magnitudes -9.2 and 1.3

Other Events of Interest
Times are Hawaii Standard Time

Apr 11, 4h, Venus 2.52° SE of Pleiades; 39° from Sun in evening sky
Apr 11, 12h, Jupiter at conjunction with the Sun; 5.955 AU from Earth; latitude -1.28°
Apr 15, 14h, Moon at perigee; distance 57.69 Earth-radii
Apr 19, 14h, New Moon; beginning of lunation 1241; annular-total eclipse of the Sun
Apr 22, 14h, Lyrid meteors; ZHR 18; 3 days after new Moon
Apr 24, 5h, Middle of eclipse season: Sun is at same longitude as Moon's ascending node, 34.2°

9 & 10 April: Venus near the Pleiades
11 April: Favorable evening elongation of planet Mercury
21 April: Lunar libration favors eastern limb
23 April: Lyrid meteor shower peak (favorable)
25 April: Waxing crescent Moon near Mars

Planets in April

Mercury

Evening planet, best at the start and middle of April. Sets two hours after sunset on 11 April.

Venus

Brilliant evening object, setting four hours after sunset at month end. Near the Pleaides on 10 April.

Mars

Fading evening planet, 9 arcminutes from Mebsuta (Epsilon (ε) Geminorum) on 14 April. Small when seen with a telescope.

Jupiter

Jupiter is in conjunction with the Sun on 11 April and not visible this month.

Saturn

Saturn is a morning object, but it is not well-placed and is unlikely to be seen, so not worth trying to view.

Uranus

Poorly located evening planet. 4º from Mercury on 19 April but tricky to see.

Neptune

Neptune is a morning object but lost in the dawn twilight, so not worth trying to view.

Pluto (Dwarf Planet)

is visible in the dawn sky, rising at 01:43 (HST) and reaching an altitude of 38° above the south-eastern horizon before fading from view as dawn breaks around 05:16.

1—Ceres (Asteroid)

is visible in the evening sky, becoming accessible around 19:44 (HST), 42° above your eastern horizon, as dusk fades to darkness.

Meeting Minutes

H.A.S. Secretary

March 7th, 2023 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)

Andy Stroble

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

Minutes of the February meeting were approved, motion by the president, second by Mark Watanabe, vote was unanimous.

IfA open house to take place April 23rd , HAS will have a table with 2 chairs. Call for volunteers at next meeting.
Hawaii State Science fair is coming up, we need judges for our awards. Chris, Marufa, and Paul volunteered.

Attending for the first time were Nitesh Turaga. David Burkheimer, Carin Tomayo, and Kent Andrea.
There were about fifteen people in the Planetarium, and another fourteen attending on Zoom.

Romee from Bishop Museum introduced herself, and shared the Planetarium email address.

Part of a video on the future of space travel was played.

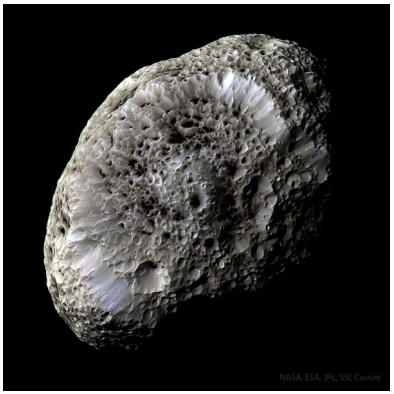
Members shared recent astro-photography, with a lot of pictures of the recent comet (C2023 E3 ZTF), and the Jupiter/Venus conjunction. Sabina showed what is possible with a Pixel phone, with sky animations.

Joanne treated everyone to the Stars Tonight, and told the story of Nainoa Thompson's dream of the Southern Cross.

Sue gave away a 10mm Plössl eyepiece.

Meeting adjourned at 9:04, and snacks were enjoyed!

Faithfully submitted,
James Andy Stroble, Secretary.



Saturn's Hyperion: A Moon with Odd Craters

Cassini spacecraft that once orbited Saturn swooped past the sponge-textured moon and took images of unprecedented detail. A six-image mosaic from the 2005 pass, featured here in scientifically assigned colors, shows a remarkable world strewn with strange craters and an odd, sponge-like surface. At the bottom of most craters lies some type of unknown dark reddish material. This material appears similar to that covering part of another of Saturn's moons, Iapetus, and might sink into the ice moon as it better absorbs warming sunlight.

Image Credit: NASA, ESA, JPL, SSI, Cassini Imaging Team

April 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2 BoD Meeting 3:30 PM Zoom	3	4 Club Meeting 7:30 PM Hybrid	5  Full Moon 6:34PM	6 Holy Thursday	7 Good Friday	8 Public Party Dillingham Airfield Sunset 6:48PM
9 Easter	10	11	12  3rd Qtr 11:11PM	13	14	15 Club Party Dillingham Airfield Sunset 6:50 PM
16	17 Tax Day	18	19  New Moon 6:12PM	20	21	22 Earth Day
23	24	25	26	27  1st Qtr 11:19AM	28 Arbor Day	29 Public Party Kahala/Geiger Sunset 6:55PM
30	Notes:					

<<Upcoming Star Parties>>

Public Party-Dillingham April 8 —7:00 PM
Club Party Dillingham April 15 —7:00 PM
Public Party Geiger/Kahala April 29 — 7:00 PM

Upcoming School Star Parties

NASA's Night Sky Notes

Solar Eclipses Are Coming!

By David Prosper

Have you ever witnessed a total solar eclipse? What about an annular solar eclipse? If not, then you are in luck if you live in North America: the next twelve months will see two solar eclipses darken the skies for observers in the continental United States, Mexico, and Canada!

Solar eclipse fans get a chance to witness an annular eclipse this fall. On Saturday, October 14, 2023, the Moon will move exactly in front of the Sun from the point of view of observers along a narrow strip of land stretching across the United States from Oregon to Texas and continuing on to Central and South America. Since the Moon will be at its furthest point in its orbit from Earth at that time (known as apogee), it won't completely block the Sun; instead, a dramatic "ring" effect will be seen as the bright edge of the Sun will be visible around the black silhouette of the Moon. The distinct appearance of this style of eclipse is why it's called an annular eclipse, as annular means ring-like. If you are standing under a tree or behind a screen you will see thousands of ring-like shadows projected everywhere during maximum eclipse, and the light may take on a wan note, but it won't actually get dark outside; it will be similar to the brightness of a cloudy day. This eclipse must only be observed with properly certified eclipse glasses, or other safe observation methods like pinhole projection or shielded solar telescopes. Even during the peak of the eclipse, the tiny bit of the Sun seen via the "ring" can damage your retinas and even blind you.

Just six months later, a dramatic total solar eclipse will darken the skies from Mexico to northeast Canada, casting its shadow across the USA in a strip approximately 124 miles (200 km) wide, on Monday, April 8, 2024. While protection must be worn to safely observe most of this eclipse, it's not needed to witness totality itself, the brief amount of time when the Moon blocks the entire surface of the Sun from view. And if you try to view totality through your eclipse viewer, you won't actually be able to see anything! The Moon's shadow will dramatically darken the skies into something resembling early evening, confusing animals and delighting human observers. You will even be able to see bright stars and planets - provided you are able to take your eyes off the majesty of the total eclipse! While the darkness and accompanying chilly breeze will be a thrill, the most spectacular observation of all will be the Sun's magnificent corona! Totality is the only time you can observe the corona, which is actually the beautiful outer fringes of the Sun's atmosphere. For observers in the middle of the path, they will get to experience the deepest portion of the eclipse, which will last over four minutes - twice as long as 2017's total solar eclipse over North America.

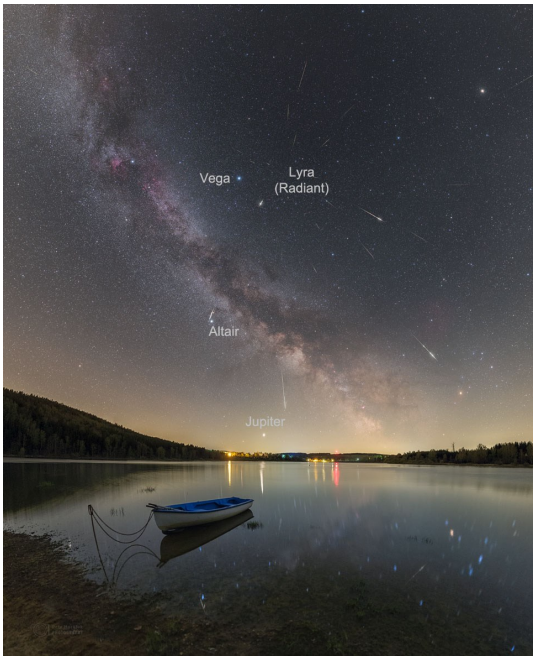
While some folks may be lucky enough to witness both eclipses in full – especially the residents of San Antonio, Texas, whose city lies at the crossroads of both paths – everyone off the paths of maximum eclipse can still catch sight of beautiful partial eclipses if the skies are clear. The Eclipse Ambassadors program is recruiting volunteers across the USA to prepare communities off the central paths in advance of this amazing cosmic ballet. Find more information and apply to share the excitement at eclipseambassadors.org. NASA has published a fantastic Solar Eclipse Safety Guide which can help you plan your viewing at bit.ly/nasaeclipsesafety. And you can find a large collection of solar eclipse resources, activities, visualizations, photos, and more from NASA at solarsystem.nasa.gov/eclipses

(Continued on page 9)

Meteor Log—April 2023

by Tom Giguere

The Lyrids (006 LYR) are well placed for observing this month with the Moon only 9% illuminated at the peak on April 23rd. Meteors from this shower are typically visible about five days before and after the peak. 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. C/1861 G1 (Thatcher) is the source of Lyrid meteors. Information credit: American Meteor Society.



Lyrid Meteors from the Constellation Lyra
Image Credit & Copyright: Petr Horálek
Explanation: Where are all of these meteors coming from? 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 came 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. Featured here, a composite image containing over 33 meteors (can you find them all?) from last month's Lyrid meteor shower shows several bright meteors that streaked over a shore of Seč Lake in the Czech Republic. Also visible are the bright stars Vega and Altair, the planet Jupiter, and the central band of our Milky Way Galaxy.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
April 27	April 05	April 12	April 19

Shower	Activity	Maximum		Radiant		V_∞	*r*	ZHR
		Date	$\lambda_\odot$	α	δ	km/s		
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 24	33.5°	110°	-45°	18	2.0	Var

Let us know on Discord if you spot any Lyrids! 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 - 2/10/2023 to 3/9/2023

Beginning Balance	$5,060.31
Money into selected accounts comes from	
Membership - Electronic Membership - Family Subscription - Astronomy	$160.00 $16.00 $34.00
Total Money In	$210.00

Money out of selected accounts goes to	
Total Money Out	$0.00
Difference	$210.00
Ending Balance	**$5,270.31**

Here are the financials up through March 9.

Thanks to everyone who paid, renewed, and donated.

Covid numbers for Oahu, or the United States haven't been valid for a while. That said, the numbers have nearly doubled over the last week to a daily average of 131 on Oahu. Hospitalizations are no longer broken down by island, but are averaging 10 per day. Covid data from the five sewage treatment facilities that monitor it show medium-high levels in for the North Shore, and medium everywhere else. The recent trend is up sharply. Be safe out there.

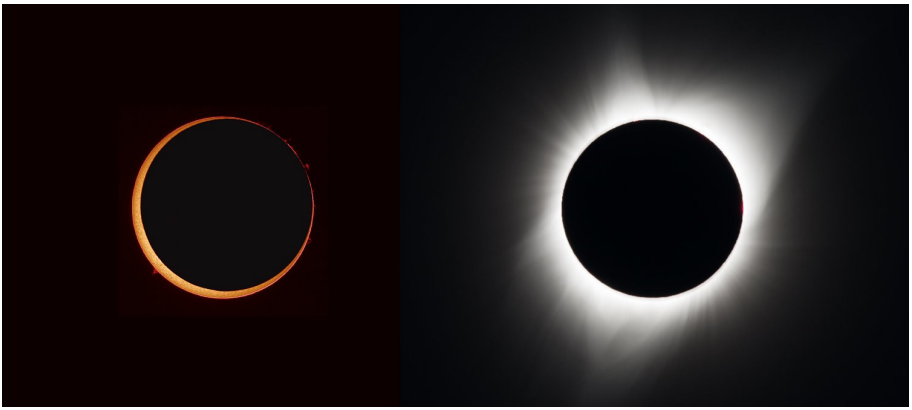
Jupiter and Venus over Italy

The two brightest planets in the night sky passed within a single degree of each other in what is termed a conjunction. Visible just after sunset in much of the world, the two bright spots were Jupiter (left) and Venus (right). The featured image was taken near closest approach from Cirica, Sicily, Italy.

Image Credit & Copyright: Giovanni Tumino

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

This detailed solar eclipse map shows the paths of where and when the Moon's shadow will cross the USA for the upcoming 2023 annular solar eclipse and 2024 total solar eclipse, made using data compiled from multiple NASA missions. Where will you be? This map is very detailed, so if you would like to download a larger copy of the image, you can do so and find out more about its features at: https://svs.gsfc.nasa.gov/5073 Credits: NASA/Scientific Visualization Studio/Michala Garrison; eclipse calculations by Ernie Wright, NASA Goddard Space Flight Center.



Photos of an annular total solar eclipse (left) and a total solar eclipse (right). Note that the annular eclipse is shown with a dark background, as it is only safe to view with protection – you can see how a small portion of the Sun is still visible as the ring around the Moon. On the right, you can see the Sun's wispy corona, visible only during totality itself, when the Moon completely – or totally - hides the Sun from view. A total solar eclipse is only safe to view without protection during totality itself; it is absolutely necessary to protect your eyes throughout the rest of the eclipse! Credits: Left, Annular Eclipse: Stefan Seip (Oct 3, 2005). Right, Total Eclipse, NASA/ Aubrey Gemignani (August 21, 2017)

(Continued from page 1) - word from your editor
There were Chris, Andy and Hiroko, and me.." At Geiger; Peter, Steven, & Tom were there to help out with Girl Scouts Troop 329 from Ewa Beach. According to Tom, girl scouts asked a lot of questions.

The 5 planets alignment at the end of March is no go on Oahu. The weather has been mostly cloudy. Hopefully, we have a better in April. If you have any photo, share it with us in Discord and our meeting.

Come out and join us at the April Star parties.

Clear Night everyone.

(Continued on page 11)

Word from VP Bill Barr

Hawaiian Astronomical Society

A Questionnaire Of Member Interests

By the time you read this is in the AsroNews you should have received an email with a link to a questionnaire. You should be able to respond online whether you have a gmail.com account or not. Hopefully we can discuss this at the next meeting.

OVERVIEW & PURPOSE

This questionnaire is to query HAS membership on interest in various topics of discussion, possible speakers to search out, and "panel" discussions where we could engage in various viewpoints or interests.

OBJECTIVES

1. To increase membership involvement.
2. Increase sharing of knowledge and interests.
3. Help for those that are new to astronomy or any aspect thereof.

YOUR PERSPECTIVE

Please voice your interests in detail by reply with this survey, a separate email or in person at the meetings when the survey is discussed.

*(Continued from page 10)**- word from your editor*

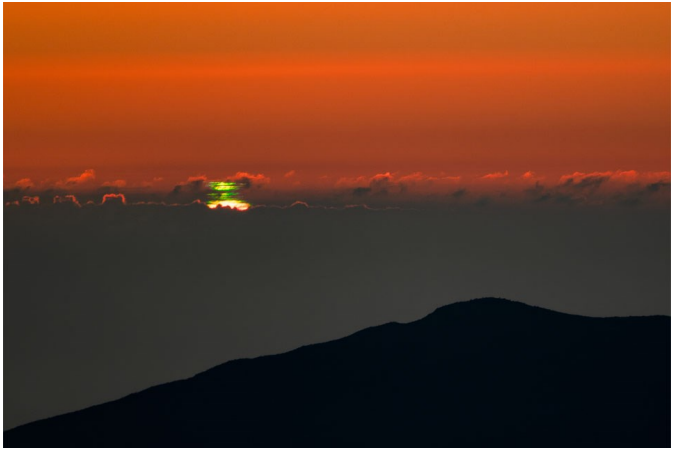
Photo above is of Dwarf II camera from Dwarflab (https://dwarflab.com) that I purchased from Indiegogo as a backer. I became a backer April 2022. I received my new toy February of this year (2/9/2023). As with all new Astronomy devices you purchased, you have cloudy night. I first used it on 2/10/2023. I used it 2nd time at club party on club party night on 3/18/2023. As you have seen photo on page 1, it is not too bad. As time & weather allowed, I will let you know how Dwarf II workout.

Wolf-Rayet 124

Driven by powerful stellar winds, expanding shrouds of gas and dust frame hot, luminous star Wolf-Rayet 124 in this sharp infrared view. The eye-catching 6-spike star pattern is characteristic of stellar images made with the 18 hexagonal mirrors of the James Webb Space Telescope.

Image Credit: NASA, ESA, CSA, STScI, Webb ERO Production Team

H.A.S.
P.O. Box 17671
Honolulu, HI 96817



A Multiple Green Flash Sunset

From the high-altitude Cerro Tololo Inter-American Observatory in Chile one day last April, the Sun was captured setting beyond an atmosphere with multiple distinct thermal layers, creating several mock images of the Sun. This time and from this location, many of those layers produced a green flash simultaneously.