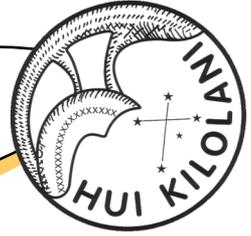


THE ASTRONEWS



Volume 73, Issue 2

February 2023

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapraks

As Oahu COVID-19 case count daily average went up some (70+), but stable, we have decided that we will go to hybrid meeting for February. Board of Director have tested hybrid meeting successfully. Our public star party and school star party is starting back up. We have an approval from Honolulu City & County for Geiger Community Park. Please check your email and website for an update.

There is no meteor shower in February and March. So there will be no Meteor Log the next 2 months. Tom Giguere will be back in April with his Meteor Log report. For this month, I will fill his spot with a new article from Bill Barr on Discord App for Hawaiian Astronomical Society (HAS) for internal communication with section for club meeting, star parties, telescope, astrophotography, etc.

Comet C/2022 E3 ZTF (magnitude 5.1 as of 1/29/2023) will approach perigee on Feb. 1. After that, it will move away from earth and get dimmer. It is available all night to observe if the weather is good. Steven Chun took a photo of a comet on the morning of



(Continued on page 10)

Inside this issue:

Club Information	2
President's Message	2
Observer's Notebook	3
Meeting Minutes	4
Event Calendar	5
NASA's Night Sky Notes	6
Discord	7
Treasurer's Report	8

Upcoming Events:

- The next Board meeting is Sun., Feb. 5th 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Feb. 7th 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, 2/4/2023, of the month at 7:00 PM

President's Message February 2023

Our February meeting will be our first hybrid one: in person and by Zoom. We will meet in the Bishop Museum planetarium as we did before the pandemic, but we will also be on Zoom for those who don't want (or are unable) to attend in person. You can still contribute via Zoom if you attend in person, just bring your own computer and share from your seat.

The Zoom screen will be projected onto the dome for those attending in person. The digital projections of the planetarium can be displayed via Zoom, but the analog projections can't, so we haven't figured out a way to show those yet. The digital view that would be projected on the dome appears as a circle on the Zoom screen. This is fine for the sky, but planetarium shows, such as those that include people, aren't as satisfying, so we'll try to show that kind of thing late in the program (if at all).

The first meeting, at least, will require some patience from everyone as we learn how to operate in this new way. We'll do our best to make it work, but don't be surprised if we run into a few snags as we adapt to this new way of doing things. We'll be open to feedback and make any necessary changes for future meetings.

We have resumed our public star parties, although the in-town ones for January at Kahala and, I assume, at Geiger were clouded and rained out. We will also be supporting an event at Bishop Museum on February 4th. Let's hope for better weather. It will be a full Moon night, but Jupiter should still be a good target, and we've got comet ZTF that has passed between the Big and Little Dippers. It's still circumpolar but rapidly moving to the south.

I also just received notice of the Ifa Open House in April. I will be asking for volunteers for that event. COVID won't be gone any time soon, but we are trying to resume more normal activities for those who wish to participate in them while maintaining a safe way to interact for those who don't. I look forward to seeing you either way.

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Observer's Notebook—February 2023 by Ort

Planets Close to the Moon

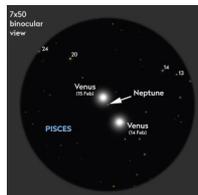
Times are Hawaii Standard Time

- Feb 18, 13h, Moon 3.5° SE of Mercury; 20° and 19° from Sun in morning sky; magnitudes -6.1 and -0.2
- Feb 19, 17h, Moon 3.4° SE of Saturn; 5° and 3° from Sun in morning sky; magnitudes -4.6 and 0.8
- Feb 21, 11h, Moon 2.21° SE of Neptune; 22° and 21° from Sun in evening sky; magnitudes -6.3 and 8.0
- Feb 22, 0h, Moon 1.85° SE of Venus; 29° from Sun in evening sky; magnitudes -6.9 and -4.0
- Feb 22, 14h, Moon 1.09° SE of Jupiter; 37° and 36° from Sun in evening sky; magnitudes -7.4 and -2.1; occultation
- Feb 25, 3h, Moon 1.19° NNW of Uranus; 69° from Sun in evening sky; magnitudes -9.2 and 5.8; occultation
- Feb 27, 19h, Moon 1.07° N of Mars; 100° and 99° from Sun in evening sky; magnitudes -10.4 and 0.4; occultation

Other Events of Interest

Times are Hawaii Standard Time

- Feb 3, 23h, Moon at apogee; distance 63.73 Earth-radii
- Feb 15, 10h, Mercury at aphelion; 0.4667 AU from the Sun
- Feb 16, 7h, Saturn at conjunction with the Sun; 10.812 AU from Earth; latitude -1.39°
- Feb 18, 14h, Moon at perigee; distance 56.17 Earth-radii; only 22.2 hours before new Moon
- All month: Comet C/2022 E3 ZTF favorable
- 13-17 February: Lunar libration favors Mare Orientale
- 15 February: Close encounter of Venus and Neptune
- 27 February: Venus approaches Jupiter
- 28 February: Morning Moon near Mars



Planets in February

<p>♿ Mercury</p> <p>Poor morning positioning and brightness make Mercury hard to see this month.</p>	<p>♀ Venus</p> <p>Bright evening planet. Near Neptune on 14/15 February, closing on Jupiter at the end of February.</p>	<p>♂ Mars</p> <p>Well-placed and good altitude when due south. Shrinks from 10 to 8 arcseconds throughout February.</p>
<p>♃ Jupiter</p> <p>Bright evening planet, loses altitude throughout the month. Near Venus on 28 February.</p>	<p>♄ Saturn</p> <p>In conjunction with the Sun on 16 February and not visible this month.</p>	<p>♅ Uranus</p> <p>Evening planet. Uranus reaches 50° altitude in darkness at the start of the month, but drops rapidly thereafter.</p>
<p>♆ Neptune</p> <p>Poorly located in the evening sky. Close encounter with Venus on 14/15 February, just 20 arcminutes apart.</p>	<p>♇ Pluto (Dwarf Planet)</p> <p>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.</p>	<p>♁ 2—Pella (Asteroid)</p> <p>is visible in the evening sky, becoming accessible around 19:21 (HST), 38° above your south-eastern horizon, as dusk fades to darkness.</p>

Meeting Minutes

H.A.S. Secretary

January 3rd, 2022 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:30 pm by President Chris Peterson. Nineteen participants were present.

Minutes of the December meeting were unavailable, to be approved at next meeting.

President Chris announced the resumption of public star parties, at Dillingham and in town, in January. There are still some planets!

Romee Gaoiran, the new Planetarium Director at Bishop Museum, attended and introduced herself. We will be having our monthly meeting in the Planetarium in February, and virtually via Zoom, a “hybrid” meeting. Chris will be meeting with Joanne to do a dry-run of this.

The Insight lander on Mars has ceased to function, but before it did, it recorded the seismic effect of an impact on the Martian surface, which was later located, and showed indications of water ice in the ejecta.

VP Bill Barr introduced a plan to use a Discord server for club communications

Lithia inquired whether anyone would be bringing any Electronically Assisted Astronomy scopes to the Kahala public star party, and Paul said he would bring his.

Ort shared shots of the green flash of a New Year, and fireworks.

Andera shared photos of Mauna Loa erupting on December 2nd, taken with a phone through a telescope

OTom regaled us with tales from an estate auction, where many nautically-themed telescopes were purchased for peanuts.

Steve Chun exhibited an astrophoto of the area of Sadr, stacked of 101 5-minute exposures.

Treasurer Peter updated us on developments on exoplanets thanks to the Webb Space Telescope, and the earliest record of a sighting of the Aurora Borealis in Chinese records.

Meeting was adjourned at 9:01 pm. There were 23 participants, at maximum.



Hubble Gazes at Colorful Cluster of Scattered Stars
Stars fill the view. A dense, spherical collection of blue and yellow-white stars toward the center. The image's edges hold redder foreground stars, and many small background stars.

Image credit: ESA/Hubble & NASA, E. Noyola, R. Cohen

**Hawaiian Astronomical Society
Event Calendar**

February 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Groundhog Day	3	4
5  Full 8:25 AM BoD Meeting 3:30 PM Zoom	6	7 Club Meeting 7:30 PM Hybrid	8	9	10	11 Public Party Dillingham Airfield Sunset 6:27 PM
12	13  3rd Qtr 6:00 AM	14 Valentine's Day	15	16	17	18 Club Party Dillingham Airfield Sunset 6:30 PM
19  New 9:05 PM	20 Presidents Day	21	22 Ash Wednesday	23	24	25 Public Party Geiger/Kahala Sunset 6:35 PM
26  3rd Qtr 10:05 PM	27	28	Notes:			

<<Upcoming Star Parties>>

Public Party-Dillingham February 11 —7:00 PM
Club Party Dillingham February 18 —7:00 PM
Public Party Geiger/Kahala February 25 — 7:00 PM

Upcoming School Star Parties

NASA's Night Sky Notes

Spot the King of Planets: Observe Jupiter

By David Prosper



Jupiter is our solar system's undisputed king of the planets! Jupiter is bright and easy to spot from our vantage point on Earth, helped by its massive size and banded, reflective cloud tops. Jupiter even possesses moons the size of planets: Ganymede, its largest, is bigger than the planet Mercury. What's more, you can easily observe Jupiter and its moons with a modest instrument, just like Galileo did over 400 years ago.

Jupiter's position as our solar system's largest planet is truly earned; you could fit 11 Earths along Jupiter's diameter, and in case you were looking to fill up Jupiter with some Earth-size marbles, you would need over 1300 Earths to fill it up – and that would still not be quite enough! However, despite its awesome size, Jupiter's true rule over the outer solar system comes from its enormous mass. If you took all of the planets in our solar system and put them together they would still only be half as massive as Jupiter all by itself. Jupiter's mighty mass has shaped the orbits of countless comets and asteroids. Its gravity can fling these tiny objects towards our inner solar system and also draw them into itself, as famously observed in 1994 when Comet Shoemaker-Levy 9, drawn towards Jupiter in previous orbits, smashed into the gas giant's atmosphere. Its multiple fragments slammed into Jupiter's cloud tops with such violence that the fireballs and dark impact spots were not only seen by NASA's orbiting Galileo probe, but also observers back on Earth!

Jupiter is easy to observe at night with our unaided eyes, as well-documented by the ancient astronomers who carefully recorded its slow movements from night to night. It can be one of the brightest objects in our nighttime skies, bested only by the Moon, Venus, and occasionally Mars, when the red planet is at opposition. That's impressive for a planet that, at its closest to Earth, is still over 365 million miles (587 million km) away. It's even more impressive that the giant world remains very bright to Earthbound observers at its furthest distance: 600 million miles (968 million km)! While the King of Planets has a coterie of around 75 known moons, only the four large moons that Galileo originally observed in 1610 – Io, Europa, Ganymede, and Callisto – can be easily observed by Earth-based observers with very modest equipment. These are called, appropriately enough, the Galilean moons. Most telescopes will show the moons as faint star-like objects neatly lined up close to bright Jupiter. Most binoculars will show at least one or two moons orbiting the planet. Small telescopes will show all four of the Galilean moons if they are all visible, but sometimes they can pass behind or in front of Jupiter, or even each other. Telescopes will also show details like Jupiter's cloud bands and, if powerful enough, large storms like its famous Great Red Spot, and the shadows of the Galilean moons passing between the Sun and Jupiter. Sketching the positions of Jupiter's moons during the course of an evening - and night to night – can be a rewarding project! You can download an activity guide from the Astronomical Society of the Pacific at bit.ly/drawjupitermoons

NASA's Juno mission currently orbits Jupiter, one of just nine spacecraft to have visited this awesome world. Juno entered Jupiter's orbit in 2016 to begin its initial mission to study this giant world's mysterious interior. The years have proven Juno's mission a success, with data from the probe revolutionizing our understanding of this gassy world's guts. Juno's mission has since been extended to include the study of its large moons, and since 2021 the plucky probe, increasingly battered by Jupiter's powerful radiation belts, has made close flybys of the icy moons Ganymede and Europa, along with volcanic Io. In 2024 NASA will launch the Europa Clipper mission to

(Continued on page 9)



A Better Way To Communicate

With Covid routines finally going away, we are resuming in person meetings, with the added benefit of Zoom, for those whom can not make it to Bishop Museum. This is a great addition to the meetings as speakers and members can join the discussion from anywhere in the world.

However, we should also be able to communicate during non-meeting times as a group. The experienced can help the newbies, members can be made aware of celestial events, space news, impromptu star parties and their locations, and discussions of equipment and issues using it.

By the time you are reading this, all members should received an email asking if you would like to opt-in and join our Discord Server. If you agreed to join then you have or will be sent an email with an invite link to do so.

Discord Server? What is that?

It is a service that provides public or private communication channels over the internet. For Hawaiian Astronomical Society members this means a “space” for HAS club members only. While Discord does have video chat, voice chat and text chat channels, HAS will use only text channels for now.

Another way to put this is that our Discord Server will be a “Cloudy Nights” for HAS members only. We will have announcement, equipment, visual star gazing channels and more. This is new and as such your input to shape it will be very valuable.

I hope also we can eventually use this for star party management. In short, announcements of, status of, on the day of, etc. This would require any member who attends star parties to have the app so as to be informed of cloudy nights.

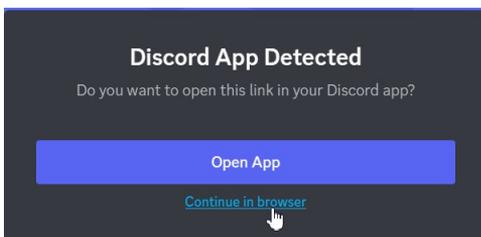
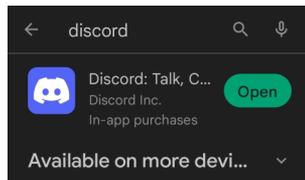
Discord is available for IOS, Android, Mac and Windows and also, can be run in a browser if you are against installing the app. Either, or any way you choose, you will have to set up an account. Doing so will be part of following the invite link I will send you.

Finally, if you need help please ask me via reply email or attend the meeting!

Mahalo Nui,

William Barr

HAS VP



Cash Flow - 12/12/2022 to 1/9/2023

Beginning Balance	\$4,415.31
Money into selected accounts comes from	
Donation	\$150.00
Membership – Electronic	\$80.00
Membership - Paper	\$26.00
Total Money In	\$256.00

Money out of selected accounts goes to	
Total Money Out	\$0.00
Difference	\$256.00
Ending Balance	\$4,671.31

Here are the financials up through January 9.

Thanks to everyone who paid, renewed, and donated. One expense is coming, a reimbursement for the HAS post office box.

Covid numbers for Oahu as of this writing dipped to about 76 per day. New hospitalizations average 12 per day, which is holding steady. Covid data from wastewater treatment facilities increased sharply, and then declined last month. Nation-wide, daily cases (45,236), and total hospitalizations (32,000) are down a bit after rising over the holiday period. Daily deaths (488) remain up.

What this all means is that we had a holiday spike, but it was relatively modest. Waste water measurements serve as a red flag of future infection, meaning we should not expect anything major in the next few weeks.



Webb Unveils Dark Side

A black background filled with galaxies in shades of a red, orange and blue. In the foreground are blue smokey wisps. On the left top, the wisps are orange and white. Four bright points of light, three orange and one a white-orange mix at the bottom left.

Image credit: NASA, ESA, CSA, and M. Zamani (ESA)

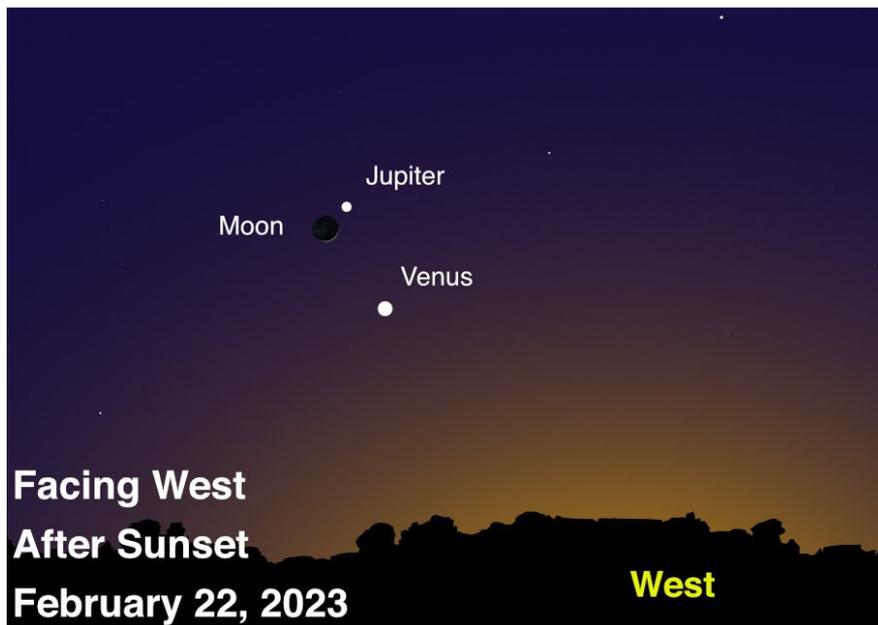
(Continued from page 6) NASA's Night Sky Notes

study this world and its potential to host life inside its deep subsurface oceans in much more detail. Find the latest discoveries from Juno and NASA's missions at nasa.gov.



This stunning image of Jupiter's cloud tops was taken by NASA's Juno mission and processed by Kevin M. Gill. You too can create amazing images like this, all with publicly available data from Juno. Go to missionjuno.swri.edu/junocam to begin your image procession journey – and get creative!

Full Image Credit: NASA/JPL-Caltech/SwRI/MSSS; Processing: Kevin M. Gill, license: CC BY 2.0) <https://creativecommons.org/licenses/by/2.0/> Source: <https://apod.nasa.gov/apod/ap201123.html>



Facing West

After Sunset

February 22, 2023

West

Look for Jupiter as it forms one of the points of a celestial triangle, along with Venus and a very thin crescent Moon, the evening of February 22, 2023. This trio consists of the brightest objects in the sky – until the Sun rises! Binoculars may help you spot Jupiter's moons as small bright star-like objects on either side of the planet. A small telescope will show them easily, along with Jupiter's famed cloud bands. How many can you count? Keep watching Jupiter and Venus as the two planets will continue to get closer together each night until they form a close conjunction the night of March 1. Image created with assistance from Stellarium.

(Continued from page 1) - word from your editor

Friday, 1/27/2023, from Waipahu. You also can see it in Discord “of-interest-this-month”.

I was fortunate to get a clear horizon for New Year Eve Sunset and New Year Day Sunrise at Barber’s Point Beach Park. On both occasions, I saw green flashes and captured them on camera.



Another sun photography opportunity arrived on Saturday, 1/27/2023. At 3:54 PM, ISS transited in front of the Sun at Kapolei Regional Park. It was a little cloudy, but sun did shine through every now and then. I went to the park. I had hard time focusing because cloud was blocking the Sun. I started my video recording at 3:53 PM and ended at 3:55 PM. My camera screen look dark at transit time. I thought that I missed it again. However, when I review the video, I was able to see the Sun and I saw ISS zip through in the video. Here is the photo.



The rest on January, I tried to see if I can find Comet C/2022 E3 (ZTF) and capture it on camera. I did it 3 times (1/7/2023 (50 mm), 1/17/2023 (300 mm), & 1/27/2023 (200mm)) from Kapolei. The last one is the best of all. Let’s hope the sky clear up be 2/10/2023 when the comet will be close to Mars in the evening sky.





HIRISE Spots Martian Crater Deposits

This image of the northern plains of Arabia Terra shows craters that contain curious deposits with mysterious shapes and distribution.

Image Credit: NASA/JPL-Caltech/University of Arizona



Bird, Rocket Prepare for Flight at Kennedy Space Center

An osprey is seen in front of NASA's Space Launch System (SLS) rocket with the Orion spacecraft aboard is seen atop a mobile launcher at Launch Pad 39B as preparations for launch continue, Friday, Sept. 2, 2022, at NASA's Kennedy Space Center in Florida.

Image Credit: NASA/Keegan Barber



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Space Station Peck

NASA astronaut and Expedition 68 Flight Engineer Nicole Mann peers through one of the seven windows in the cupola, the International Space Station's "window to the world." Mann displays the U.S. flag inside the cupola in the window next to her.

Image Credit: NASA