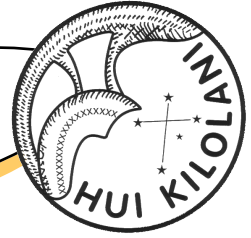


THE ASTRONEWS



Volume 72, Issue 3

March 2022

www.hawastsoc.org

A word from your editor by Sapavith 'Ort' Vanapraks

HAS have decided to cancel public HAS events for the time being for both public star party at Dillingham and in town star parties at Kahala and Geiger. These cancellations will continue until Honolulu C&C and State of Hawaii lift restriction on Oahu. At that time, we will announce it on our HAS website and in the AstroNews. Meanwhile, we will continue to have the club member only star party. We will be limiting the club party to the key master and 24 extra members. All attendees must be fully vaccinated. The monthly club meeting is now being done remotely via Zoom. Please check your email and website for an update.

Since January, my Vixen SX mount decl. axis has not been working. So, I hardly go out and do any nighttime Astrophotography. I went out to take photos of couple of ISS transits (Solar and Lunar) but failed both times. The first one was a Solar ISS Transit on Saturday, 2/5/2022, at around 10 AM near Kaena Point. I went out, set up my 5" MAK telescope with solar filter. I was able to take a Sun photo with sunspots. However, 10:03 AM arrived with clouds blocking the Sun. I guess I would have to wait for the next ISS Solar Transit.



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Upcoming Events:

- The next Board meeting is Sun., February 27th 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., March 1st at the Bishop Museum at 7:30 PM. —**Zoom Meeting**
- Bishop Museum's planetarium shows are every 1st Saturday of the month at 8:00 PM (**Online**) www.bishopmuseum.org/calendar

President's Message

March 2022

The number infections from the Omicron variant of COVID has dramatically declined, but not to the level we want to see before we resume meeting in person, so we will meet by Zoom again in March. Restrictions are being lifted, so it probably won't be long before we resume meeting in person. I suspect we will hold our first hybrid (Zoom and in-person) meeting in April.

The James Webb Space Telescope continues working towards usability. It has taken its first images of its initial target. These will be used in the process of aligning all 18 mirror segments to bring them to focus together. So far, so good.

Looking a little farther into the future, the International Academy of Astronautics has established a Moon Farside Protection Permanent Committee to consider how to best protect that area from radio-frequency interference. The farside of Earth's Moon is the only place in our solar system that is always shielded from radio interference from Earth. Much of the radio spectrum is overwhelmed on Earth by human-produced emissions or blocked by the ionosphere. As more spacecraft are deployed to the Moon, radio interference could become a real problem for radio astronomy in this currently pristine environment.

The chair of the committee has proposed the designation of a Protected Antipode Circle over 1,000 miles in diameter. It is out of view from the Earth-Moon L4 and L5 Lagrange points. Near the center of that circle is the crater Daedalus. If international agreements succeed in limiting the amount of radio noise reaching the protected circle, Daedalus would be one of the best locations for a radio telescope.

There is already a proposal to study the so-called "dark ages" of the universe, before the first galaxies formed, from the Moon in radio frequencies. However, there are sure to be unexpected discoveries as well. Whenever a new portion of the electromagnetic spectrum (or any new type of data) becomes available, we discover things we weren't anticipating. Let's hope we succeed in keeping this possibility open.

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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 15th of each month. We are not responsible for unsolicited artwork.

Observer's Notebook—March 2022 by Ort

Planets Close to the Moon

Times are Hawaii Standard Time










- Mar 2, 6h, Mercury 0.67° SE of Saturn; 23° from the Sun in the morning sky; magnitudes -0.1 and 0.8
- Mar 2, 12h, Moon 3.8° SE of Jupiter; 5° and 2° from the Sun in the evening sky; magnitudes -4.5 and -2.0
- Mar 3, 3h, Moon 3.4° SE of Neptune; 11° and 10° from the Sun in the evening sky; magnitudes -5.1 and 8.0
- Mar 6, 22h, Moon 0.85° SE of Uranus; 56° and 55° from the Sun in the evening sky; magnitudes -8.5 and 5.8; occultation
- Mar 27, 20h, Moon 3.9° SE of Mars; 51° from the Sun in the morning sky; magnitudes -8.3 and 1.1
- Mar 28, 5h, Moon 4.2° SE of Saturn; 46° from the Sun in the morning sky; magnitudes -8.0 and 0.9
- Mar 30, 8h, Moon 3.5° SE of Jupiter; 19° from the Sun in the morning sky; magnitudes -5.9 and -2.0
- Mar 30, 13h, Moon 3.3° SE of Neptune; 17° from the Sun in the morning sky; magnitudes -5.7 and 8.0

Other Events of Interest

Times are Hawaii Standard Time

- Mar 5, 4h, Jupiter at conjunction with the Sun; 5.972 AU from Earth; latitude -1.17°
- Mar 16, 14h, Day and night equal, at latitude 40° north
- Mar 19, 23h, Venus at westernmost elongation; 46.6° from Sun in morning sky; magnitude -4.4
- Mar 20, 20h, Venus dichotomy (D-shape)
- Mar 23, 4h, Mercury, Jupiter, and Neptune within circle of diameter 3.95°; about 11° from the Sun in the morning sky; magnitudes -1, -2, 8
- Mar 30, 10h, Moon, Jupiter, and Neptune within circle of diameter 3.91°; about 18° from the Sun in the morning sky; magnitudes -6, -2, 8

Planets in March

 <h3>Mercury</h3> <p>Morning planet, poorly placed throughout the month.</p>	 <h3>Venus</h3> <p>Bright morning planet, 50% phase around 20 March. Near Mars and Saturn at end of March.</p>	 <h3>Mars</h3> <p>Morning object, slowly brightening. Sits close to Saturn and Venus at end of month.</p>
 <h3>Jupiter</h3> <p>Solar conjunction on 5 March; thereafter Jupiter not visible for the rest of the month.</p>	 <h3>Saturn</h3> <p>Poorly positioned morning planet. Near Venus and Mars at end of March. Crescent Moon nearby on 28 March</p>	 <h3>Uranus</h3> <p>Best at the start of March. Currently in southern Arries, lost by end of the month.</p>
 <h3>Neptune</h3> <p>Neptune in conjunction with the Sun on 13 March and not visible this month.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>– is visible in the dawn sky, rising at 03:34 (HST) – 3 hours and 3 minutes before the Sun.</p>	 <h3>1—Ceres (Asteroid)</h3> <p>will become visible around 19:33 (HST), 59° above your western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 00:00.</p>

Meeting Minutes

H.A.S. Secretary

February 1st, 2022 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:34pm by President Chris Peterson with participants.

Minutes from the prior meetings were not adopted.

Hybrid in-person/zoom meeting did not happen, due to the omicron strain of Covid-19. Possibly in March?

Happy Lunar New Year. This is what astronomy was made for: calendars!

Other News: James Webb Space Telescope has reached its assigned LaGrange point, and has selected a target star for colimation.

Ort shared some lunar photos, including one that captured the Mare Orientalis, one of the best preserved impact craters on the moon, that is difficult to see because most of it is on the lunar farside, though libration sometimes allows it to be seen. Lying just south of Grimbaldi Crater, we might get a view of it this month from the 14th through the 18th, or again in December.

Steven Chun showed a stacked video picture of flares and sun spots taken with his now three-scope solar rig. Seems we are in the beginning of a solar cycle, which should have activity on the sun peak in a year or so.

Paul Montanero announced his acquisition of a 20" Dobsonian Reflector, f. 3.3, anticipating great views.

Paul Lawler gave an introduction to a new telescope, one without eyepieces: The eVscope eQuinox from Unistellar. A built in sensor transmits an image to a cell-phone via wifi, and the scope can automatically stack images for better viewing. And the wifi access point can be shared by up to 10 devices. Plate-solving alignment, citizen science enabled, and only that many dollars! Paul shared several photos taken with his scope, including Messier 1 and Thor's Helmet.

We viewed a fly-through video of the Orion Nebula, by National Geographic, from 8/20/2020.

Adjourned at 8:57pm. At the peak, there were 21 participants.

Faithfully submitted,
James Andy Stroble, Secretary.



Hawaiian Astronomical Society Event Calendar

March 2022						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27 BoD Meeting 3:30 PM Zoom	28	1 Club Meeting 7:30 PM Zoom	2 Ash Wednesday  New Moon 7:34 AM	3	4	5 Club Party Dillingham Airfield Sunset 6:37 PM
6	7	8 Intl. Women's Day	9	10  1st Qtr. 12:45 AM	11	12
13 Daylight Saving Begins	14	15	16	17 Saint Patrick's Day  Full Moon 9:17 PM	18	19
20 Start of Spring (Spring Equinox)	21	22	23	24  3rd Qtr 7:37 PM	25	26 Earth Hour Club Party Dillingham Airfield Sunset 6:44 PM
27	28	29	30	31	Notes:	

<<Upcoming Star Parties>>

Club Party-Dillingham March 5 —6:31 PM

Club Party Dillingham March 26 —6:34 PM

Public Party Geiger/Kahala March 12 — **CANCELLED**

Upcoming School Star Parties

NASA's Night Sky Notes

Embracing the Equinox

By David Prosper



Depending on your locale, equinoxes can be seen as harbingers of longer nights and gloomy weather, or promising beacons of nicer temperatures and more sunlight. Observing and predicting equinoxes is one of the earliest skills in humanity's astronomical toolkit. Many ancient observatories around the world observed equinoxes along with the more pronounced solstices. These days, you don't need your own observatory to know when an equinox occurs, since you'll see it marked on your calendar twice a year! The word "equinox" originates from Latin, and translates to **equal** (equi-) **night** (-nox). But what exactly is an equinox?

An **equinox** occurs twice every year, in March and September. In 2022, the equinox will occur on March 20, at exactly 15:33 UTC (or 11:33 am EDT), and again on September 23, at 01:04 UTC (or September 22 at 9:04 pm EDT). The equinox marks the exact moment when the center of the Sun crosses the plane of our planet's equator. The day of an equinox, observers at the equator will see the Sun directly overhead at noon. After the March equinox, observers anywhere on Earth will see the Sun's path in the sky continue its movement further north every day until the June solstice, after which it begins traveling south. The Sun crosses the equatorial plane again during the September equinox, and continues traveling south until the December solstice, when it heads back north once again. This movement is why some refer to the March equinox as the **northward equinox**, and the September equinox as the **southward equinox**.

Our Sun shines equally on both the Northern and Southern Hemispheres during equinoxes, which is why they are the only times of the year when the Earth's North and South Poles are simultaneously lit by sunlight. Notably, the length of day and night on the equinox aren't precisely equal; the date for that split depends on your latitude, and may occur a few days earlier or later than the equinox itself. The complicating factors? Our Sun and atmosphere! The Sun itself is a sphere and not a point light source, so its edge is refracted by our atmosphere as it rises and sets, which adds several minutes of light to every day. The Sun doesn't neatly wink on and off at sunrise and sunset like a light bulb, and so there isn't a perfect split of day and night on the equinox - but it's very close.

Equinoxes are associated with the changing seasons. In March, Northern Hemisphere observers welcome the longer, warmer days heralded by their **vernal**, or spring, equinox, but Southern Hemisphere observers note the shorter days - and longer, cooler nights - signaled by their **autumnal**, or fall, equinox. Come September, the reverse is true. Discover the reasons for the seasons, and much more, with NASA at [nasa.gov](https://www.nasa.gov)

(Continued on page 9)

The month of March is a quiet time for meteor observers. It might be a good time to catch up on sleep! The Gamma Normid (GNO) shower is the only option for observers and peaks on March 14th, which is just three days from the full Moon. Fortunately, the duration of the shower is long, approximately a month, so the shower could be observed earlier or later than the peak. The radiant is well into the southern sky, so Hawaii is the best location in the country for viewing. I have not observed a meteor from this shower, but look forward to seeing one.



Credit Rick Matthias_AMS_PossGem_14GEM2021.jpg

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
March 10	March 17	March 24	March 02,31

Shower	Activity	Maximum		Radiant		V_{∞} km/s	r	ZHR
		Date	λ_{\odot}	α	δ			
Gamma Normids (118 GNO)	Feb 25–Mar 28	Mar 14	354°	239°	-50°	56	2.4	6

If the Gamma Normids prove elusive, sporadic meteors are a good substitute! Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

Cash Flow - 1/10/2022 to 2/9/2022

Beginning Balance	\$3,803.99
Money into selected accounts comes from	
Donation	\$88.00
Membership - Electronic	\$180.00
Membership - Family	\$10.00
Membership - Paper	\$78.00
Total Money In	\$356.00

Money out of selected accounts goes to	
Total Money Out	

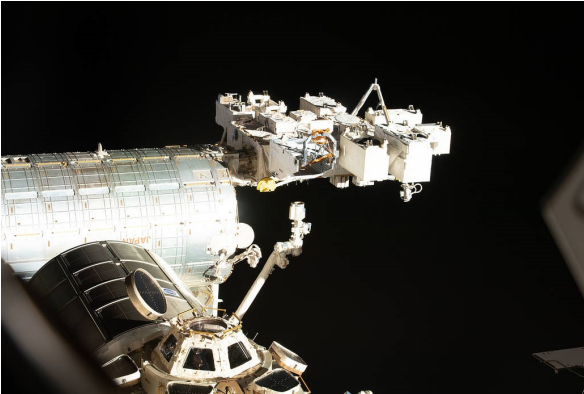
Difference	\$356.00
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Ending Balance	\$4,159.99
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Here are the financials up through February 9.

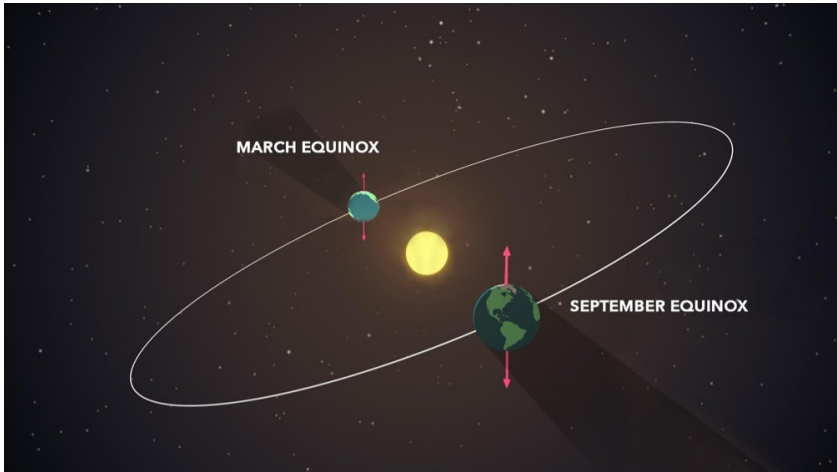
Thanks for the membership renewals (and donations) and a welcome to the new folks.

There are expenses in the offing, once people turn in their receipts (hint). Otherwise we are doing fine, financially.

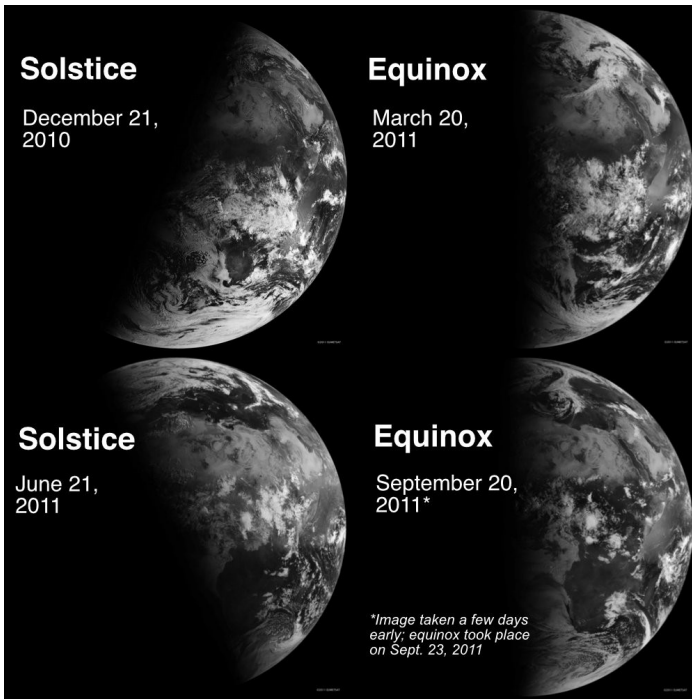


In this image from Jan. 9, 2022, NASA astronaut Kayla Barron peered out from a window inside the cupola, the International Space Station's "window to the world." Prominent station components in this photograph include the Kibo laboratory module and its external pallet, the Japanese robotic arm, and the Leonardo Permanent Multipurpose Module.

Image Credit: NASA



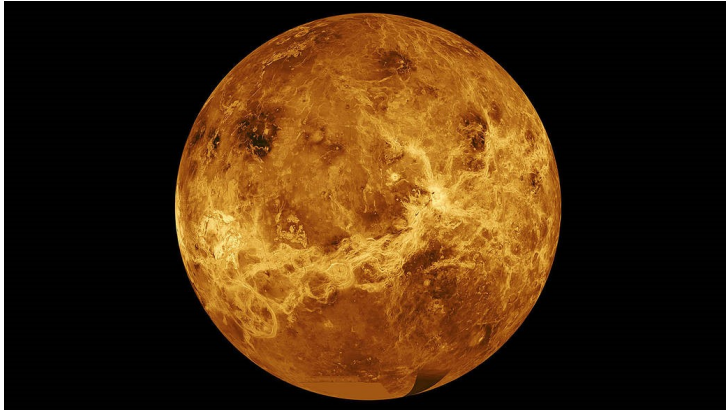
This (not to scale) image shows how our planet receives equal amounts of sunlight during equinoxes. Credit: NASA/GSFC/Genna Duberstein



Scenes of Earth from orbit from season to season, as viewed by EUMETSAT. Notice how the terminator - the line between day and night - touches both the North and South Poles in the equinox images. See how the shadow is lopsided for each solstice, too: sunlight pours over the Northern Hemisphere for the June solstice, while the sunlight dramatically favors the Southern Hemisphere for the December solstice. Source: bit.ly/earthequinox Images: NASA/Robert Simmon

(Continued from page 1) Word form your editor

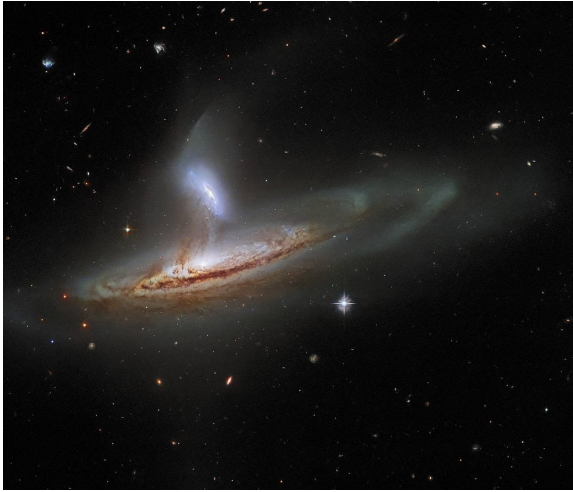
The next failed attempt of ISS Transit happened the very next Saturday, 2/12/2022, at 3:54 PM. Two issues happened here. One issue was that ISS was illuminated in front of the Moon, so ISS blended into daytime Moon. Another issue was a timing. I did not video the Moon long enough. I may have missed ISS if it transited was late. Another person at Kualoa Regional Park at that same time had ISS in his photo after it left the Moon. The daytime Moon shot was not bad. Lesson learned.



Studying the 'Lost Habitable' World of Venus

This image of Venus is a composite of data from NASA's Magellan spacecraft and Pioneer Venus Orbiter. Venus hides a wealth of information that could help us better understand Earth and exoplanets, or those planets outside our solar system. NASA's Jet Propulsion Laboratory is designing mission concepts to survive the planet's extreme temperatures and atmospheric pressure. This image is a composite of data from NASA's Magellan spacecraft and Pioneer Venus Orbiter.

Image Credit: NASA/JPL-Caltech



Hubble Views a Cosmic Interaction

Galaxy pair interacting. A nearly edge-on spiral galaxy from left-center to right side of the image. Another galaxy perpendicular and above it. Dust and gas stream between them.

Text credit: European Space Agency (ESA)

Image credit: ESA/Hubble & NASA, J. Dalcanton, Dark Energy Survey, Department of Energy (DOE), Cerro Tololo Inter-American Observatory/NoirLab/National Science Foundation/Association of Universities for Research in Astronomy (AURA), Sloan Digital Sky Survey (SDSS); Acknowledgment: J. Schmidt

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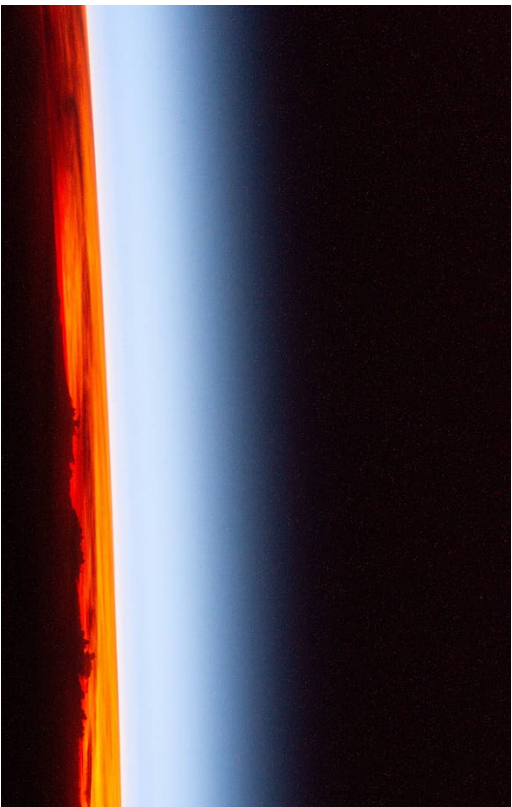
Taking a Selfie on the Red Planet

NASA's Perseverance Mars rover took this selfie over a rock nicknamed "Rochette," on September 10, 2021, the 198th Martian day, or sol of the mission.

Image Credit: NASA/JPL-Caltech/MSSS



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The first rays of an orbital sunrise

This image from January 2022 shows the first rays of an orbital sunrise as seen from the International Space Station as it orbited 257 miles above the coast of Venezuela. As the station orbits the Earth, completing one trip around the globe every 92 minutes, the astronauts experience 15 or 16 sunrises and sunsets every day.

Image Credit: NASA