THE ASTRONEWS

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January 2024

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A word from your editor by Sapavith 'Ort' Vanapruks

Now that we are no longer in COVID pandemic, HAS is getting more requests for school events. As much as I would like to help with all events, it is not possible. So if you have a telescope and the event is in your area, please sign-up and help.

The events in January are "Museum After Hours" at Bishop Museum on January 12, 2024 from 5:00 PM - 9:00 PM; "3rd Friday monthly evening Planetarium 2024" at Bishop Museum on January 19, 2024 from 6:00 PM - 9:00 PM; and "Waolani Judd Nazarene School STEAM Night" at Waolani Judd Nazarene School on January 26, 2024 from 5:30 PM - 8:00 PM.

Our star parties (Public (12/2) & Club (12/9)) were pretty good out at Dillingham Airfield. On 12/2/2023, we had about 10 visitors at the party per Bill. According to Sue, she said "The sky was clear, but there was a lot of moisture up there. Got dewed out". The club party on 12/9/2023 had over 20 members according to Bill. 14 of them stayed until almost midnight.

After the two Dillir.gham Airfield star parties, the weather took a bad turn. The planned Geminids meteor shower watch inside Diamond Head crater with Bill and the one at Mokule'ia Army Beach with Tom and I were cancelled. We had a gale force wind on Wednesday, 12/13/2023, in the evening. Any camera set up in the open would result in a very shaky photo. Please check Meteor

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Inside this issue:

Upcoming Events:

- The next Board meeting is Sun., Dec. 31st 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., Jan. 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, 1/19/2024, of the month at 7:00 PM

President's Message January 2024

I often marvel at the transparency of the universe. It is amazing that light can travel billions of years to reach us. How much less would we know if our vision were more restricted?

If Earth were a bit more like Venus and had permanent global cloud cover (yet somehow life still existed), we might have no knowledge of anything beyond our own planet. We might perceive changes in light from the Sun and Moon, but we wouldn't associate that with specific objects in the sky.

Or suppose the Sun were deep inside a dark nebula. We might see our own solar system clearly, but perhaps only a few nearby stars would shine brightly. Would anyone be able to deduce the real situation? Even if they did, how could they imagine the vastness of space beyond the nebula?

Even a relatively small amount of particulate matter could scatter light and turn space into a gigantic daytime-like sky above us, a perpetual blue glow that obscured all but the brightest objects. Many people appreciate the enormous spatial and time scales of the universe, but fewer understand how empty space is. It is difficult to physically represent both the true relative sizes and distances of our own solar system objects at the same time, and that's in our comparatively densely packed little corner of space. Most stars (or multiple star systems) are so far from the next that even when galaxies collide, very few stars come close enough to another to exchange material. It is this great emptiness that provides the pathways for light to travel so far to reach us.

Within a few decades, we will probably have kilometer-scale telescopes on the Moon. They should allow us to gather light at the edge of our possible grasp. Light from objects farther away wouldn't have had time, in the age of the universe, to traverse the distance between us.

It is hard to imagine how we could learn about anything beyond that. However, others wiser than us, or we ourselves in the future, may look back in amusement at what we now think are our limitations. For the present, next time you are out observing, consider and appreciate the clear skies!

Hawaiian Astronomical Society
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Observer's Notebook—January 2024 by Ort

Planets Close to the Moon
Times are Hawaii Standard Time

Jan 8, 9h, Moon 5.6° S of Venus; 36° from Sun in morning sky; magnitudes -7.3 and -4.0
Jan 9, 9h, Moon 6.6° S of Mercury; 24° and 23° from Sun in morning sky; magnitudes -6.4 and -0.2
Jan 9, 23h, Moon 4.2° S of Mars; 16° and 15° from Sun in morning sky; magnitudes -5.7 and 1.4
Jan 14, 2h, Moon 1.96° SE of Saturn; 41° from Sun in evening sky; magnitudes -7.8 and 1.0
Jan 15, 12h, Moon 0.86° SE of Neptune; 60° from Sun in evening sky; magnitudes -8.9 and 7.9; occultation
Jan 18, 9h, Moon 2.53° NNW of Jupiter; 98° from Sun in evening sky; magnitudes -10.5 and -2.5
Jan 19, 9h, Moon 2.80° NNW of Uranus; 110° from Sun in evening sky; magnitudes -10.9 and 5.7

Other Events of Interest
Times are Hawaii Standard Time

Jan 1, 5h, Moon at apogee; distance 63.48 Earth-radii
Jan 3, 14h, Quadrantic meteors; ZHR 80; near Last Quarter Moon
Jan 12, 14h, Moon at perigee; distance 56.80 Earth-radii
Jan 19, 20h, Pluto at conjunction with the Sun; 35.919 AU from Earth; latitude -2.87°
Jan 20, 5h, Moon 0.78° SE of Pleiades; 120° from Sun in evening sky
Jan 27, 7h, Mercury 0.24° N of Mars; 20° from Sun in morning sky; magnitudes -0.2 and 1.3
Jan 27, 7h, Mercury 0.24° N of Mars; 20° from Sun in morning sky; magnitudes -0.2 and 1.3
Jan 28, 22h, Moon at apogee; distance 63.62 Earth-radii

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1 January: Comet 144P/Kushida lies 2° south of Uranus
4 January: Quadrantid meteor shower peak (am)
7 January: Double shadow transit of Jupiter, from 02:09 UT until setting
18 January: Jupiter lies 2° south of first quarter Moon (pm)
22 January: Jewelled Handle clair-obscur visible on the Moon (am)

Planets in January

☿ Mercury

Morning planet, best early January. Close encounter with Mars on 27 January.

♀ Venus

Morning planet, slips closer to the Sun this month.

♂ Mars

Morning planet, hard to see well. Near Mercury on 27 January.

♃ Jupiter

Evening planet edging into twilight by the end of January.

♄ Saturn

The Ringed Planet loses ground to the evening twilight during January.

♅ Uranus

This ice giant planet is currently well placed in the evening sky, making it one of the best planets to spot tonight.

♆ Neptune

The position of this planet deteriorates in the evening sky over the month.

♇ Pluto (Dwarf Planet)

is not readily observable since it is very close to the Sun, at a separation of only 6° from it.

4—Vesta (Asteroid)

is visible in the evening sky, becoming accessible around 19:05 (HST), 44° above your eastern horizon, as dusk fades to darkness.

Meeting Minutes

H.A.S. Secretary

December 5th, 2023 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.

Election of Officers (Board Members); No new nominations being received from the floor, a vote was called, and the current members are re-elected by acclamation.

Dillingham (Kawaihapai) star parties in November canceled due military exercises. Public star party on Dec. 2nd went well, with a small crowd.

Alternate Dark Sites: Discussion of the possibilities, leases or even purchase of real estate.

VP Bill reports on the proposed viewing of the Geminid meteor shower in Diamond Head Crater, by invitation only.

School Star Parties: Coordinator Mark reports enough volunteers for the Haleiwa Beach Park home-schooler's star party. Waiahole Elementary has canceled. Next school star parties will be in January.

T-shirts! Discussion of whether our previous vendor was still in business, and whether they would have designs still on file. Several attending expressed interest in a shirt.

Tom reported on the Friday Dec 1st meeting of Engineers and architects of Hawaii on the TMT, where Dr Liu and Dr. Kakazu talked about the latest development plans for the Thirty Meter Telescope on Mauna Kea.

Geminid Meteor shower, a group will be informally viewing from Mokuleia Beach.

President Chris noted we got some press coverage of the Playing with Light event at Bishop Museum.

Ort shared photos of recent public events, the comet 12P/Pons-Brooke, and Jupiter and Saturn.

Joanne once again enthralled us with a bit of Planetarium magic, about the rings and moons of Saturn.

There were approximately eight persons in person, and fourteen on Zoom. Meeting adjourned at 9:00pm.

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

Hubble Captures a Cluster in the Cloud

A dense cluster of stars. It is brightest and most crowded in the center, where the stars are mostly a cool white color. Moving out towards the edges the stars become more spread out and reddish until a noticeable 'edge' to the cluster is reached. Beyond that edge there are still many stars, more disorganized and seen on a black background. Some stars appear to be in front of the cluster.

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

◄ Dec **January 2024** Feb ►

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31 BoD Meeting 3:30 PM Zoom	1 New Year's Day	2 General Meeting 7:30 PM Hybrid Bishop Museum	3  3rd Qtr 5:30PM	4	5	6 Club Party Dillingham Airfield Sunset 6:04 PM
7	8	9	10	11  New 1:57AM	12	13 Public Party Dillingham Airfield Sunset 6:08 PM
14	15 Martin Luther King Jr.	16	17  1st Qtr 5:52PM	18	19	20 Public Party Kahala/Geiger 6:00 PM
21	22	23	24	25  Full 7:54AM	26 Waolani Judd Nazarene School STEAM Night 5:30 PM - 8:00 PM	27
28	29	30	31	Notes:		

<<Upcoming Star Parties>>

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

Upcoming School Star Parties

Date	Time	Location
Jan 26	5:30 PM	Waolani Judd Nazarene School STEAM Night

NASA's Night Sky Notes

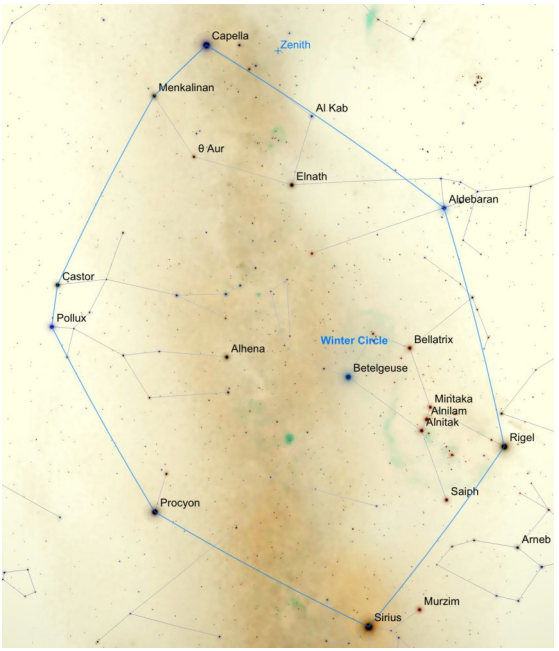
Connecting the 'Dots' with Asterisms

By Kat Troche

In our December Night Sky Notes, we mentioned that the Orion constellation has a distinct hourglass shape that makes it easy to spot in the night sky. But what if we told you that this is not the complete constellation, but rather, an asterism?

An asterism is a pattern of stars in the night sky, forming shapes that make picking out constellations easy. Cultures throughout history have created these patterns as part of storytelling, honoring ancestors, and timekeeping. Orion's hourglass is just one of many examples of this, but did you know Orion's brightest knee is part of another asterism that spans six constellations, weaving together the Winter night sky? Many asterisms feature bright stars that are easily visible to the naked eye. Identify these key stars, and then connect the dots to reveal the shape.

Asterisms Through the Seasons



Stars that make up the Winter Circle, as seen on January 1, 2024
Sky Safari

Try looking for these asterisms this season and beyond:

- Winter Circle – this asterism, also known as the Winter Hexagon, makes up a large portion of the Winter sky using stars Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius

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Meteor Log—January 2024 by Tom Giguere

Geminid Report - We had high expectations for the Geminid meteor shower last month (Dec 2023), the Moon was near new, December is usually crisp and clear… ideal weather for observing. As it turned out the night of December 13/14th was one of the worst weather nights of the fall and winter. Ort and I met up at Mokuleia Army Beach and mostly stared at clouds in the howling wind. It didn't take long for us to abandon the beach and head back to town. Meanwhile, our meteor observing friends from the Windward side, Rob & Tom Lancaster were not fairing any better. I checked in with Clare Mamura on the big island and even with that distance the weather was not any better. I understand the Diamond Head observing party was short on luck and was canceled.

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Lone Geminid, Dec 14, 2023@10:12pm from Makakilo, Oahu. Nikon D5100, 20mm f/2.8, 15 sec, ISO1600.

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
January 17	January 25	Jamuary 3	January 11

Shower	Activity	Maximum		Radiant		V_∞	*r*	ZHR
		Date	λ⊡	α	δ	km/s		
Quadrantids (010 QUA)	Dec 28 - Jan 12	Jan 04	283.15°	230°	+49°	41	2.1	80
γ-Ursae Minorids (404 GUM)	Jan 10 – Jan 22	Jan 19	298.0°	228°	+67°	31	3.0	3

Third quarter Moon for the Quadrantids – first shower of the year!; also try the γ-Ursae Minorids for 2024! 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 - 11/11/2023 to 12/10/2023

Beginning Balance	**$6,218.28**
Money into selected accounts comes from	
Donation Membership - Electronic Membership - Family	$5.00 $100.00 $14.00
Total Money In	**$119.00**
Money out of selected accounts goes to	
Total Money Out	**$0.00**
Difference	$119.00
Ending Balance	**$6,337.28**

Here are the financials up through December 10.

Thanks to everyone who paid, renewed, and donated.

I want to remind people of a benefit they have if they choose an electronic membership. If you add family members to your membership form, and pay the extra $2 per person, be sure to include the added people's e-mail addresses. They are entitled to their own copy of the Astronews.

The December Dillingham star parties were pretty good, and we have approval to use our observing place there through May, 2024. In case you missed it, the military and the state are arguing over a lease. If all goes well, it will be for the next 50 years.

Finally, Covid numbers remain moderate, and hospitalizations likewise. Stay safe, and enjoy the stars.

Ringing in the Holidays

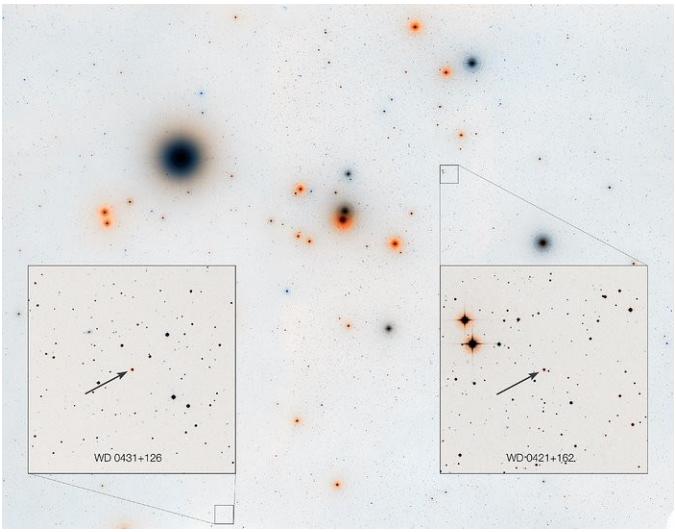
The ice giant Uranus and its rings steal the show in this Dec. 18, 2023, image from the James Webb Space Telescope. The telescope captured new images of Uranus, revealing detailed features of the planet's rings and seasonal north polar cap, as well as bright storms near and below the southern border of the cap.

Image Credit: NASA, ESA, CSA, STScI

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

as its points. Similarly, the Winter Triangle can be found using Procyon, Sirius, and Betelgeuse as points. Orion's Belt is also considered an asterism.

- Diamond of Virgo – this springtime asterism consists of the following stars: Arcturus, in the constellation Boötes; Cor Caroli, in Canes Venatici; Denebola in Leo, and Spica in Virgo. Sparkling at the center of this diamond is the bright cluster Coma Berenices, or Bernice's Hair – an ancient asterism turned constellation!
- Summer Triangle – as the nights warm up, the Summer Triangle dominates the heavens. Comprising the bright stars Vega in Lyra, Deneb in Cygnus, and Altair in Aquila, this prominent asterism is the inspiration behind the cultural festival Tanabata. Also found is Cygnus the Swan, which makes up the Northern Cross asterism.
- Great Square of Pegasus – by Autumn, the Great Square of Pegasus can be seen. This square-shaped asterism takes up a large portion of the sky, and consists of the stars: Scheat, Alpheratz, Markab and Algenib.



This image shows the region around the Hyades star cluster, the nearest open cluster to us. The Hyades cluster is very well-studied due to its location, but previous searches for planets have produced only one. A new study led by Jay Farihi of the University of Cambridge, UK, has now found the atmospheres of two burnt-out stars in this cluster — known as white dwarfs — to be "polluted" by rocky debris circling the star. Inset, the locations of these white dwarf stars are indicated — stars known as WD 0421+162, and WD 0431+126.
NASA, ESA, STScI, and Z. Levay (STScI)

Tracing these outlines can guide you to objects like galaxies and star clusters. The Hyades, for example, is an open star cluster in the Taurus constellation with evidence of rocky planetary debris. In 2013, Hubble Space Telescope's Cosmic Origins Spectrograph was responsible for breaking down light into individual components. This observation detected low levels of carbon and silicon – a major chemical for planetary bodies. The Hyades can be found just outside the Winter Circle and is a favorite of both amateur and professional astronomers alike.

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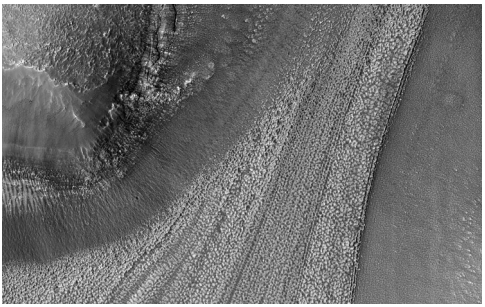
(Continued from page 9) NASA's Night Sky Notes

How to Spot Asterisms

- Use Star Maps and Star Apps – Using star maps or stargazing apps can help familiarize yourself with the constellations and asterisms of the night sky.
- Get Familiar with Constellations – Learning the major constellations and their broader shapes visible each season will make spotting asterisms easier.
- Use Celestial Landmarks – Orient yourself by using bright stars, or recognizable constellations. This will help you navigate the night sky and pinpoint specific asterisms. Vega in the Lyra constellation is a great example of this.

Learn more about how to stay warm while observing this Winter with our upcoming mid-month article on the Night Sky Network page through NASA's website!



Ice Flows on Mars

On Aug. 18, 2023, the Mars Reconnaissance Orbiter (MRO) captured ridged lines carved onto Mars' landscape by the gradual movement of ice. While surface ice deposits are mostly limited to Mars' polar caps, these patterns appear in many non-polar Martian regions.

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

(Continued from page 7) - Meteor Log

We saw zero Geminids from our four vantage points. Amazingly enough, when Ort and I returned to Kapolei, the sky was partly clear. Ort observed from his location for a few minutes, and saw one Geminid. I hide myself from the street light in the back of the house and saw two. A grand total of 3 meteors! Since our count was so low this year, I decided to put the camera out and see if I could capture the rest of the shower digitally. I put the camera out for the next three late evenings on automatic, taking an exposure four times a minute, 15 seconds each. From this cache of 1324 pictures, I captured one definite Geminid (see picture), and one likely Geminid. Not a great tally, but there's always next year!

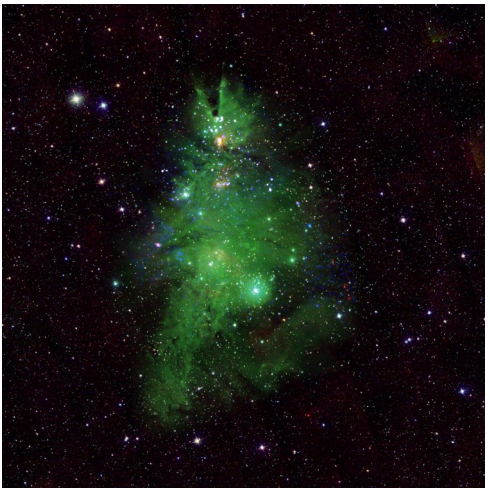
Quadrantids (010 QUA) - The Quadrantids can be a nice shower to observe, especially in Hawaii where we don't have the snow problem that can dampen spirits on the mainland. In 2022 and 2023, the highest visual QUA rates were in the lower range of the values given in the table below. I noticed that the hourly rate was listed at 110/hour last year and have dropped to 80/hour this year. Still, an observer would be fortunate to see half as many. The Quadrantids have been found to originate from asteroid 2003 EH1, which takes 5.52 years to orbit the sun. Activity extends until about January12 and even a few days after the actual peak, bright fireballs have been observed.

(Continued from page 1) - word from your editor
Log report on page 7 for more details on the Geminid Meteor shower.

In town party at Geiger and Kahala were slightly better. It was cloudy with some rain early in the evening, but it cleared up enough to see the Moon, Saturn, & Jupiter. At 6:55 PM, there was a lunar occultation of a star HD 205637 (Epsilon Capricorni). I was able to capture a photo of it just before the cloud rolled in by using eyepiece projection.

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

Have a wonderful and prosperous new year 2024 everyone.



Sprightly Stars Illuminate 'Christmas Tree Cluster'

This composite image shows the Christmas Tree Cluster. The blue and white lights (which blink in the animated version of this image) are young stars that give off X-rays detected by NASA's Chandra X-ray Observatory. Optical data from the National Science Foundation's WIYN 0.9-meter telescope on Kitt Peak shows gas in the nebula in green, corresponding to the "pine needles" of the tree, and infrared data from the Two Micron All Sky Survey shows foreground and background stars in white. This image has been rotated clockwise by about 160 degrees from the astronomer's standard of North pointing upward, so that it appears like the top of the tree is toward the top of the image.

X-ray: NASA/CXC/SAO; Optical: T.A. Rector (NRAO/AUI/NSF and NOIRLab/NSF/AURA) and B.A. Wolpa (NOIRLab/NSF/AURA); Infrared: NASA/NSF/IPAC/CalTech/Univ. of Massachusetts; Image Processing: NASA/CXC/SAO/L. Frattare & J.Major

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25 Years Ago: The First Pieces of the International Space Station

The first pieces of the International Space Station, the mated Russian-built Zarya (left) and U.S.-built Unity modules, are backdropped against the blackness of space and Earth's horizon. Zarya is cylinder-shaped and has solar panels that stick out from the body of the module.

Image Credit: NASA