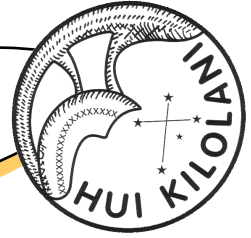


THE ASTRONEWS



Volume 73, Issue 11

November 2023

www.hawastsoc.org

A word from your editor by
Sapavith 'Ort' Vanapruch

Inside this issue:

Our VP, Bill Bar, has a guest speaker lined up for our November meeting. His name is Tom Field, a Contributing Editor at Sky & Telescope Magazine. Full Bio is on page 10.



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.

HAS had several events in October. We helped Bishop Museum with member preview of "Playing with Light" on Friday, 10/6/2023. Chris, Mark, Peter, Steven, Sue, & Tom were on the great lawn to show members night sky objects. I was at the tent showing LRO 3D Moon surfaces and gave out HAS information.



On Wednesday, 10/18/2023, a few members helped with Punahou School events. Friday, 10/20/2023, 8 members helped with

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Upcoming Events:

- The next Board meeting is Sun., Nov. 5th 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Nov. 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, 11/4/2023, of the month at 7:00 PM

President's Message November 2023

At our October meeting, we had a talk about Edwin Hubble and his use of Cepheid variables to calculate the distance to the Andromeda galaxy 100 years ago. He was able to do this calculation because of the work of Henrietta Swan Leavitt. Leavitt's law relates the period and luminosity of Cepheid variable stars. If one measures the period of variability, Leavitt's law provides the absolute luminosity. Comparing that to the apparent luminosity yields the distance to the star.

I asked the speaker how the distances to the Cepheid variables used to calculate Leavitt's law were obtained. He didn't know the answer, so I looked it up. It turns out that Leavitt used 25 Cepheid variables in the Small Magellanic Cloud. She made the assumption that all the stars she studied were at roughly the same distance from Earth. At first, that only allowed the relative distances of Cepheid variables in other places to be calculated.

She reported her findings in 1912, but the distance to the SMC was unknown at that time. The following year, Ejnar Hertzsprung determined the distance to several Cepheid variables in the Milky Way by parallax. That, combined with Leavitt's findings, allowed the absolute luminosities of Cepheid variables and, thus, the distances to other Cepheid variables, including those in the SMC, to be determined. Leavitt's law now could yield absolute numbers. Hubble was therefore able to use the Cepheid variable he discovered in the Andromeda galaxy in 1923 to calculate its absolute distance.

HAS has elections coming up in December. The President, Vice President, Secretary, Treasurer, Astronews editor, and two members-at-large will be elected. The club only keeps running because of the efforts of its directors and other volunteers who provide telescopes for star parties. If you are interested in helping the club continue doing what it does, please consider running for one of the offices. Nominations (including for yourself) are accepted until the election at December's meeting.

At our November meeting (in the air-conditioned Bishop Museum planetarium) we will have a talk on spectroscopy. Come join us or attend by Zoom.

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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 last Wednesday of each month. We are not responsible for unsolicited artwork.

Observer's Notebook—November 2023 by Ort

Planets Close to the Moon Times are Hawaii Standard Time

- Nov 9, 1h, Moon 0.90° NE of Venus; 45° and 46° from Sun in morning sky; magnitudes -7.8 and -4.3; occultation
- Nov 13, 3h, Moon 2.36° SSW of Mars; 3° and 1° from Sun in evening sky; magnitudes -4.2 and 1.5
- Nov 14, 5h, Moon 1.65° S of Mercury; 15° from Sun in evening sky; magnitudes -5.5 and -0.4
- Nov 14, 11h, Moon, Mercury, and Antares within circle of diameter 4.17°; about 17° from the Sun in the evening sky; magnitudes -6, 0, 1
- Nov 20, 7h, Moon 2.51° SE of Saturn; 93° from Sun in evening sky; magnitudes -10.3 and 0.9
- Nov 22, 0h, Moon 1.34° SE of Neptune; 116° and 115° from Sun in evening sky; magnitudes -11.1 and 7.9
- Nov 25, 0h, Moon 2.56° NNW of Jupiter; 155° from Sun in evening sky; magnitudes -12.2 and -2.8
- Nov 25, 22h, Moon 2.59° NNW of Uranus; 167° from Sun in evening sky; magnitudes -12.4 and 5.6










Other Events of Interest

Times are Hawaii Standard Time

- Nov 2, 19h, Jupiter at opposition in longitude; magnitude -2.9; declination 13.6°
- Nov 3, 20h, Saturn stationary in longitude; resumes direct motion
- Nov 17, 14h, Leonid meteors; ZHR 10; 2 days before first quarter Moon
- Nov 23, 5h, Moon shows minimum libration for the year, 2.77°

-
- 3 November: Jupiter reaches opposition
- 9 November: Daylight lunar occultation of Venus
- 10 November: Excellent transit of Ganymede and its shadow from 17:15 UT
- 13 November: Uranus reaches opposition
- 17/18 November: Leonid meteor shower peak (favorable)

Planets in November

 <h3>Mercury</h3> <p>Evening planet, not really visible this month due to low altitude after sunset.</p>	 <h3>Venus</h3> <p>Bright morning planet, visible against dark skies all month.</p>	 <h3>Mars</h3> <p>Solar conjunction on 17 November. Too close to the Sun to be seen this month.</p>
 <h3>Jupiter</h3> <p>Superbly placed, reaching opposition on 3 November. Attains 50° altitude when due south.</p>	 <h3>Saturn</h3> <p>Well-placed evening planet. Moon close on 20 November.</p>	 <h3>Uranus</h3> <p>The planet is at opposition on 13 November. It sits 2.2° south of Botein (Delta (δ) Arietis).</p>
 <h3>Neptune</h3> <p>Well-placed evening planet. All month Neptune reaches its highest position in darkness. Binoculars will be needed in order to see the planet this month.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>will become visible at around 18:44 (HST), 38° above your south-western horizon, as dusk fades to darkness.</p>	 <h3>4—Vesta (Asteroid)</h3> <p>is visible in the morning sky, becoming accessible around 22:29, when it reaches an altitude of 21° above your eastern horizon.</p>

October 3rd, 2023 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)

Andy Stroble

Meeting called to order at 7:30pm by President Chris Peterson.

Romee of Bishop Museum informed us about the event on Oct. 6th, from 5:30pm until 8:00pm, where they expect around 800 folks. HAS is to set up on the Center Lawn.

Ort reported we will be attending Lacy Veach Day at Kamehameha Schools on Sat. Oct. 21, beginning at 8:30am. Volunteers who can do solar are needed.

Star party reports: Kahala had good attendance. Geiger only 2 guests.

School star parties: Coordinator Mark Watanabe reported on scheduled school star parties, Punahou on the 18th, HBA on the 20th, and Pearl City Highlands Elementary on the 26th. Iolani scheduled for November 8th.

President Chris moved that Minutes of the September meeting be adopted, with correction of egregious comma abuse. Unanimous approval.

Vice-president Bill Barr handed out several phone-to-dovetail mounts, for use in polar aligning with an iPhone app called PS Align Pro. Mark pointed out an interesting technique of using a planetarium app on your phone, placing the phone on the objective end of the OTA, and aligning with the South polar axis.

Our speaker for the evening was Larry McHenry, of the Kiski Astronomers, from Pittsburgh (via Zoom), who greatly informed us about Edwin Hubble and his discovery of a Cepheid variable star in Andromeda one hundred years ago on October 5th. His talk is entitled "Edwin Hubble: The Surveyor of the Universe". His website is <http://www.stellar-journeys.org/>

Some discussion of eclipse chasing for the annular visible on Oct. 14 on the U.S. mainland took place.

Adjourned at 8:55pm HST.

There were persons 10 physically present, and 5 on Zoom (with some redundancy), to begin with.

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



Hubble Views a Vibrant Virgo Cluster Galaxy

A bright spiral galaxy fills the frame from the lower-right to the upper-left. The galaxy is tilted toward us and holds bright blue-white stars and reddish-brown dust lanes that showcase its spiral nature.

NASA, ESA, Space Telescope Science Institute/J. Lee;
Processing: NASA/Catholic University of America/Gladys Kober

Hawaiian Astronomical Society Event Calendar

November 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4  3rd Qtr 10:36 PM Dillingham Public Canceled
5 Daylight Saving Time Ends BoD Meeting 3:30 PM Zoom	6	7 Election Day Club Meeting 7:30 PM Hybrid Bishop Museum	8 Iolani School Astronomy 6:30 PM	9	10	11 Veterans Day Club Party Dillingham Airfield Sunset 5:50 PM
12  New 11:27 PM	13	14	15	16	17	18 Public Party Kahala/Geiger Sunset 5:48 PM
19	20  3rd Qtr 12:49 am	21	22	23 Thanksgiving Day	24	25
26  Full 11:16 PM	27	28	29	30	Notes:	

<<Upcoming Star Parties>>

Public Party-Dillingham November 4 — ~~CANCELLED~~
Club Party Dillingham November 11 — 7:00 PM
Public Party Geiger/Kahala November 18 — 5:48 PM

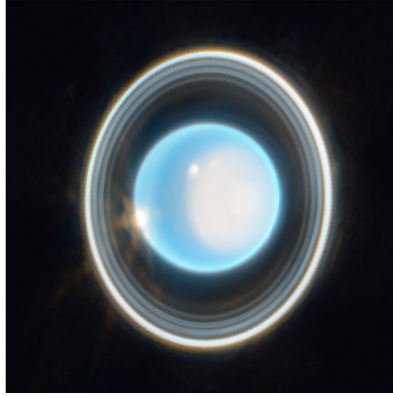
Upcoming School Star Parties

Date	Time	Location
Nov 8	6:30 PM	Iolani School

NASA's Night Sky Notes

Spy the Seventh Planet, Uranus

By Liz Kruesi



You might be familiar with Saturn as the solar system's ringed planet, with its enormous amount of dust and ice bits circling the giant planet. But Uranus, the next planet out from the Sun, hosts an impressive ring system as well. The seventh planet was the first discovered telescopically instead of with unaided eyes, and it was astronomer extraordinaire William Herschel who discovered Uranus March 13, 1781. Nearly two centuries passed before an infrared telescope aboard a military cargo aircraft revealed the planet had rings in 1977.

Since that discovery, multiple observatories have revealed more details of Uranus and its ring system. Most recently, the NASA-led JWST space observatory captured the planet and its rings in detail. This recent image combines just 12 minutes of exposure in two filters to reveal 11 of the planet's 13 rings. Even some of the planet's atmospheric features are visible in this image. Even with advanced imaging like that from JWST, much of Uranus remains a mystery, including why it orbits the Sun on its side. This is because only one spacecraft has ever visited this planet: NASA's Voyager 2, which flew by the distant planet in the mid-1980s.

Planetary scientists are hoping to change that soon, though. Scientists recommended in a report released last year from the National Academies of Sciences, Engineering, and Medicine that Uranus be the focus on the next big planetary science spacecraft mission. Such a large-scale mission would gain insight into this icy giant planet and the similar solar system planet, Neptune.

(Continued on page 9)

The second Hawaii Rock and Mineral Show in 2023 was held at the Hyatt Regency in Wai-kiki this past weekend (Oct 28-29). The show, sponsored by Hui Pohaku O Hawaii - Hawaii Rock and Mineral Society features all sorts of samples from personal collections to be viewed and enjoyed, as well as items for sale. Ort Vanaprucks and I found one member of the club who deals in meteorites. His collection was impressive and included chondritic and iron meteorites, lunar meteorites, and one meteorite from Mars. One particularly large meteorite was cut into a thin section so that light could be seen through the embedded olivine

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Pallasite meteorite at the Hawaii Rock and Mineral Show

Phases of the Moon (courtesy timeanddate.com)

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

Shower	Activity	Maximum		Radiant		V _∞ km/s	r	ZHR
		Date	λ _☉	α	δ			
Southern Tau- rids (002 STA)	Sep 10 - Nov 20	Nov 5	223°	52°	+15°	27	2.3	7
Northern Tau- rids (017 NTA)	Oct 20 - Dec 10	Nov 12	230°	58°	+22°	29	2.3	5
Leonids (013 LEO)	Nov 06 - Nov 30	Nov 18	235.27°	152°	+22°	71	2.5	10
α-Monocerotids (246 AMO)	Nov 15 - Nov 25	Nov 22	239.32°	117°	+01°	65	2.4	Var
Nov. Orionids (250 NOO)	Nov 13 - Dec 06	Nov 28	246°	91°	+16°	44	3.0	3

Minor showers this month. Good time to count sporadic meteors! For more info: Thomas Giguere, 808-782-1408, Thom-as.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

Cash Flow - 9/10/2023 to 10/10/2023

Beginning Balance	\$5,589.51
Money into selected accounts comes from	
Membership – Electronic	\$40.00
Membership - Electronic – Student	\$12.00
Membership – Paper	\$26.00
Total Money In	\$78.00
Money out of selected accounts goes to	
Snacks	\$31.23
Total Money Out	\$31.23
Difference	\$46.77
Ending Balance	\$5,636.28

Here are the financials up through October 10.

Thanks to everyone who paid, renewed, and donated.

Covid official new cases average 52 per day, a decrease of 12. Wastewater levels (a better indicator remain moderate to moderately high. Ewa and the North Shore have declined; while downtown, Waianae, and central Oahu have increased. In other news, a study seems to indicate that Paxlovid, while very good at reducing disease severity, does little to blunt long Covid. Vaccines do better at the latter, while also reducing severity and infection rates. The new Covid vaccines, whether the traditional Novavax, or the newer mRNA types, are not boosters. They target only the newer variants. There's a computer security phrase, "defense in depth." Use multiple defenses to prevent bad stuff from happening. With Covid, the same applies: Masking (N95s), vaccination, with a follow-up of Paxlovid when needed are the best we have.

See you under the stars.

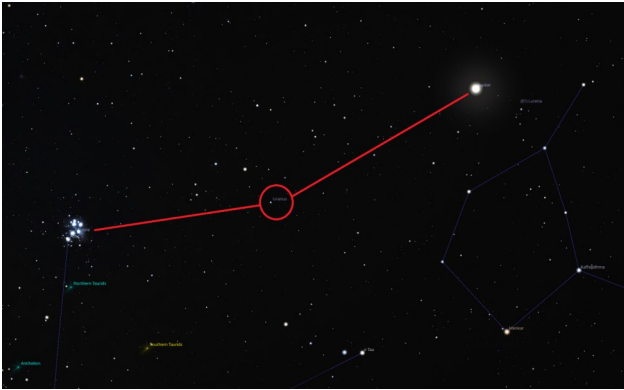


The Moon Casts a Shadow

A full disc image of Earth in which North and South America are visible. The Moon casts a dark brown shadow in the top left quadrant.

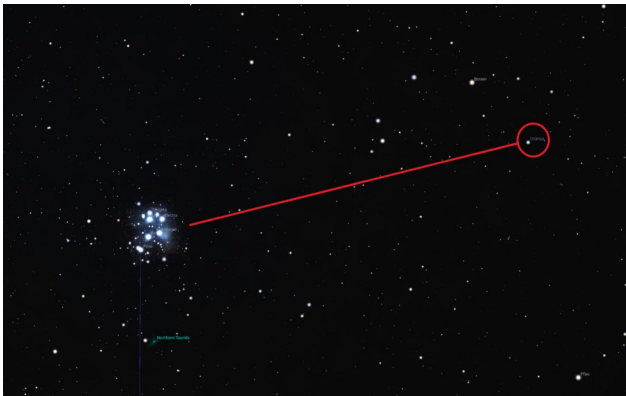
On October 14, 2023, the Moon aligned with the Sun and Earth to produce an annular solar eclipse. The spectacle bathed millions of Americans in a lunar shadow as the Moon blocked the Sun's rays. The above image was acquired during the eclipse by NASA's Earth Polychromatic Imaging Camera imager aboard the Deep Space Climate Observatory, a joint NASA, NOAA, and U.S. Air Force satellite.

Image Credit: NASA



Sky map picturing M45, Uranus and Jupiter, Stellarium

If you want to catch a view of Uranus with your own eyes, now is prime time to view it. This ice giant planet lies perfectly positioned in mid-November, at so-called “opposition,” when its position in its orbit places it on the other side of the Sun from Earth. That location means our star’s light reflects off Uranus’ icy atmosphere, and the planet appears as its brightest.



Sky map picturing M45 and Uranus, Stellarium

To find it, look overhead just after midnight on November 13. Uranus will lie about halfway between the brilliant planet Jupiter and the diffuse glow of the Pleiades star cluster (M45). While Uranus may look like a bright blinking star in the night sky, its blue-green hue gives away its identity. Binoculars or a telescope will improve the view.

For more about this oddball planet, visit NASA’s Uranus page.

(Continued from page 7) - Meteor Log

crystals. This specimen, called a “Pallasite”, is a class of stony–iron meteorite. Relatively rare, the olivine crystal inclusions lie in a ferro-nickel matrix. These crystals represent mantle and core material from differentiated planetesimals, which were destroyed by violent collisions during the early formation of the Solar System.

The Southern Taurids is a long duration shower that features several peaks during its activity period. The shower is active for 2+ months and has a low hourly rate, even at the peak. The Taurids (both Southern and northern showers) are rich in fireballs and lead to increased number of fireball reports from September through November. The parent object is comet 2P/Encke.

The Northern Taurids shower is much like the Southern Taurids, just active later in November. When the two showers are active in late October and early November, there can be a notable increase in the fireball activity. There seems to be a seven year periodicity with these fireballs. 2008 and 2015 both produced remarkable fireball activity. The parent object is comet 2P/Encke. The Moon will be 2% illuminated on the night of the shower peak.

Guest Speaker

Science with a Star’s Spectrum



All of us enjoy the beauty of the night sky.

For many years, I wanted to see beyond that beauty. I wanted to understand more about the science of the stars. I wanted to learn more about the great discoveries in the field. I wanted to understand more about the life cycle of stars and the science behind that.

But, to be honest, it was a struggle. I needed to find a way to go beyond simple imaging.

When I captured my first star spectra, I discovered that my understanding of the stars started to grow in leaps and bounds.

To capture the spectra, there is no steep learning curve. There’s no complicated software processing. There’s no need for a lot of math or to have a Ph.D. in astrophysics. And there’s no need for expensive equipment or dark skies.

All it takes is an inexpensive 1.25" grating, and a small telescope (or DSLR). With a few clicks, you get exciting scientific results. And from those results, you can gain a rich understanding of the life cycle of stars.

Join me and the thousands of our peers who are now happily capturing spectra!

In this presentation, I’ll show you how easy and exciting it is to do hands-on astronomical science!

Speaker Bio: Tom Field was a Contributing Editor at Sky & Telescope Magazine for ten years. He’s the founder of Field Tested Systems and the author of the RSpec software (www.rspec-astro.com) which received the S&T “Hot Product” award. A pioneer in amateur astronomical spectroscopy, Tom promises to demystify the field and open the door for you to do easy hands-on science.

(Continued from page 1) - word from your editor

Hawaii Baptist Academy High School events in the evening. On Saturday, 10/21/2023, 4 members set up solar telescopes for Lacy Veach Day 2023. In the evening, we had International Observe the Moon night at our in-town public star party. It did not last long due to the weather. On Thursday, 10/26/2023, 6 members helped Pearl City Highland Elementary School with a star party event.

Throughout these events, sometimes you may have a chance to do an eyepiece projection for the object in your telescope to your smartphone. I was able to take a photo of the sun with prominence at Lacy Veach. I also got photos of Saturn and Jupiter from Pearl Highlands.



On Saturday, 10/14/2023, there was an Annular Solar Eclipse in mainland. Hawaii had only a Partial Solar Eclipse at Sunrise (6:26 AM – 6:38 AM). I went to Waimanalo Beach Park to observe this event. The Sun only cooperated for 6 minutes (6:26 AM – 6:32 AM). The photo from that was worth the time spent driving from Kapolei.





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A Bear on Mars?

The Mars Reconnaissance Orbiter (MRO) captured this bit of ursine pareidolia on Dec. 12, 2022. While it resembles a bear we might see on Earth, this is actually a hill on Mars with a peculiar shape.

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