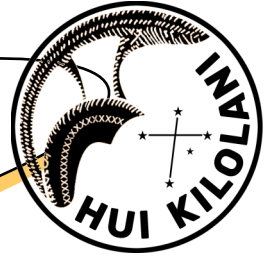


# THE ASTRONEWS



Volume 74, Issue 10

October 2024

[www.hawastsoc.org](http://www.hawastsoc.org)

## A word from your editor by Sapavith 'Ort' Vanapruch

HAS is getting more requests for school & Bishop Museum events. As much as the Board of Directors would like to help with all events, it is just not possible. Fall semester has begun. Requests from school and other organizations such as Boy Scouts & Girl Scouts will surely be coming in. We have a school party at Halemano Elementary School on Wednesday, 10/3/2024 at 6:30 PM. The "3rd Friday monthly evening Planetarium 2024" at Bishop Museum on October 16th, 2024, from 6:00 PM - 9:00 PM is still going on (Sunset 6:05 PM, Saturn rises 4:01 PM, Moon rises at 5:45 PM - Waxing gibbous 99.4%). So, if you have a telescope and the event is in your area, please sign up and help.



The in-town star party at Kalaha Community Park and Geiger Community Park on September 7th, 2024, were great. Sue said "We had 5 scopes and about 12-14 visitors. Got to see Saturn, Moon, and other objects as the sky partially cleared about 8pm". At Geiger, we had 5 telescopes setup (Ort, Peter, Reid, Steven, & Tom). Many people saw the banner I hung up at the corner of the park. We had between 30-40 visitors. We saw Venus at the beginning,

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## Upcoming Events:

- The next Board meeting is Sun., Sep 29<sup>th</sup> 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Oct 1<sup>st</sup> at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- Bishop Museum's planetarium show "Planetarium at night" is every 3rd Friday, 10/16/2024, of the month at 7:00 PM

# President's Message

## October 2024

The public star party at Dillingham (Kawaihapai) on September 21st had fairly good conditions. Only about 20 people showed up, but the partly cloudy sky provided steady views of Saturn with good seeing, and the Milky Way stretched overhead from horizon to horizon. Scorpius, however, stayed hidden behind clouds the whole time. I experienced the appearance of four or five meteors only by hearing the reactions of others, but those reactions alerted me in time to see one spectacular fireball.

I think I caught the very end of its progression across the sky. It had a long bright train that visibly persisted for about 10 seconds, and the leading end seemed very big, at least a quarter degree across. This makes me wonder if it was a piece of space junk re-entering from orbit.

Meteoroids can enter Earth's atmosphere at speeds ranging from about 11 to 71 km/s with an average of about 20. Something entering from low Earth orbit can be moving as slow as 6.6 km/s. This one seemed to be traveling at a rather leisurely pace, although someone who saw the whole event could correct me if I'm wrong. The large angular size also might support the idea that it was a larger object than the usual sand-grain to pebble size of a bright meteor.

This was never a consideration, of course, until the space age began in 1957. Now, however, there is a considerable amount of space junk in orbit, everything from defunct satellites to equipment released by accident by space-walking astronauts to paint chips. Anything below a few hundred miles is still flying through enough tenuous air that it will eventually re-enter and burn up in the atmosphere. The International Space Station, with an orbit of about 230-290 miles above Earth, loses altitude at about 2 km/month and must be periodically boosted to maintain a stable orbit. It also slightly changes its orbital height deliberately about once a year to avoid a potential collision with tracked space debris.

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# Observer's Notebook—October 2024 by Ort

## Planets Close to the Moon Times are Hawaii Standard Time

- Oct 2, 13h, Moon 1.59° SSW of Mercury; 2° from Sun in evening sky; magnitudes -3.9 and -1.4
- Oct 5, 9h, Moon 2.81° SSW of Venus; 33° and 32° from Sun in evening sky; magnitudes -6.9 and -4.0
- Oct 14, 9h, Moon 0.24° NE of Saturn; 142° from Sun in evening sky; magnitudes -11.9 and 0.8; occultation
- Oct 15, 8h, Moon 0.57° N of Neptune; 155° from Sun in evening sky; magnitudes -12.2 and 7.8; occultation
- Oct 19, 5h, Moon 4.3° N of Uranus; 150° from Sun in morning sky; magnitudes -12.1 and 5.6
- Oct 20, 22h, Moon 5.8° N of Jupiter; 127° from Sun in morning sky; magnitudes -11.4 and -2.6
- Oct 23, 12h, Moon 3.8° NNE of Mars; 95° from Sun in morning sky; magnitudes -10.3 and 0.2










- October 2 – Annular Solar Eclipse
- October 11 – Peak of the  $\delta$ -Aurigid Meteor Shower
- October 17 – Asteroid 19 Fortuna at Opposition
- October 17 – Eris at Opposition
- October 20 – Peak of the Orionid Meteor Shower
- October 21 – Peak of the Leonis Minorid Meteor Shower

## Other Events of Interest Times are Hawaii Standard Time

- Oct 2, 8h, 49 New Moon; beginning of lunation 1259; annular eclipse of the Sun
- Oct 7, 14h, Draconid meteors; ZHR 5; 3 days before First Quarter Moon
- Oct 20, 14h, Orionid meteors; ZHR 20; 3 days before Last Quarter Moon
- Oct 22, 11h, Moon shows maximum libration for the year, 10.39°

- Close Approaches & Lunar Occultations in October
- October 5 – Close approach of the Moon and Venus, 2° 48' apart in Libra.
- October 14 – Close approach of the Moon and Saturn, 6.0 arcminutes apart in Aquarius.
- October 21 – Close approach of the Moon and Jupiter, 5°47' apart in Taurus.
- October 23 – Close approach of the Moon and Mars, 3° 49' apart in Gemini.

## Planets in October

 <h3>Mercury</h3> <p>recently passed behind the Sun at superior solar conjunction. From Honolulu, it is not observable – it will reach its highest point in the sky during daytime and is no higher than 1° above the horizon at dusk.</p>	 <h3>Venus</h3> <p>recently passed behind the Sun at superior solar conjunction. From Honolulu, however, it will become visible at around 18:19 (HST), 19° above your southwestern horizon, as dusk fades to darkness.</p>	 <h3>Mars</h3> <p>is currently visible as a morning object. From Honolulu, it is visible in the dawn sky, rising at 23:46 (HST) and reaching an altitude of 83° above the eastern horizon before fading from view as dawn breaks at around 05:59.</p>
 <h3>Jupiter</h3> <p>is currently visible as a morning object. From Honolulu, it is visible in the morning sky, becoming accessible around 22:13, when it reaches an altitude of 7° above your eastern horizon.</p>	 <h3>Saturn</h3> <p>recently passed opposition. From Honolulu, it is visible in the evening sky, becoming accessible around 18:33 (HST), 32° above your south-eastern horizon, as dusk fades to darkness.</p>	 <h3>Uranus</h3> <p>is currently approaching opposition and is visible as a morning object. From Honolulu, it is visible in the morning sky, becoming accessible around 21:33, when it reaches an altitude of 21° above your eastern horizon.</p>
 <h3>Neptune</h3> <p>is currently approaching opposition. From Honolulu, it is visible between 20:25 and 05:09. It will become accessible at around 20:25, when it rises to an altitude of 21° above your eastern horizon.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>is currently approaching opposition. From Honolulu, it is visible between 20:25 and 05:09. It will become accessible at around 20:25, when it rises to an altitude of 21° above your eastern horizon.</p>	 <h3>1—Ceres (Asteroid)</h3> <p>will become visible at around 18:58 (HST), 36° above your southern horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 23:04.</p>

*September 3<sup>rd</sup> 2024 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)*

*Andy Stroble*

Meeting called to order at 7:32pm by President Chris Peterson.  
Minutes of previous meeting unanimously adopted, with typo correction.

Joanne announced that KHON will be filming in the Planetarium, and we should keep an eye out for the broadcast.

Star party reports: Kahala had good attendance this month, with lot of children. Geiger had three scopes deployed. Bishop Museum Third Friday had rain, viewed the Moon only. Last two Dillingham events were cancelled.

Venus is ascendant, and Saturn at opposition, but will be losing its ring.  
Annular Eclipse to take place October 2nd, and the partial will be visible from Hawaii.  
Potential naked-eye comet, C/2023 A3 (Tsuchinshan-ATLAS), will achieve perihelion on Sept. 27th, and may put on a show mid October.

Members who attended Mike Morrow's Memorial Service related their experience. Tom Giguere delivered an Eulogy.

Treasurer Peter continued a long tradition of the Treasurer reporting on things that go "Boom", A static test in the Shetlands did just that: test was being carried out by German company Rocket Factory Augsburg (RFA) who hope to eventually launch the UK's first vertical rocket into orbit.

Our esteemed Treasurer then went on to demonstrate a new toy, the ZWO SeeStar smart telescope. He gave an exhaustive comparison of the SeeStar to Dwarf II and 3, and other more expensive versions, such as the Vespera and the new Celestron offering, with pixel resolutions and Dawes limits and so forth. Then he shared several photos taken with the telescope, including shots of Barnard 86 and NGC6520, and of M17, with post processing in GIMP. Some smart telescopes will do mosaic, but most are not good for planetary astrophotography.

AstroNews editor Ort shared information about the upcoming partial solar eclipse, with the maximum occurring at 6:48am. He also reported on the meteor shower viewing session at Army Beach, Mokuleia attended by 5 club members. 19 Perseids and 9 sporadics were sighted. Ort uses 4 cameras to try to collect falling stars. And on the side, he captured the Andromeda galaxy with his Dwarf II.

John Sandor captured the recent conjunction of Mars and Jupiter with an iPhone.

Steven Chun displayed some shots of planets, obtained using "lucky imaging" shooting video and then stacking frames. He shared images of Jupiter and Saturn taken with a C11 barlowed to a 3.8 meter focal length.

Joanne again treated us to the fall sky via the Planetarium, and previewed the disappearing rings of Saturn.

Meeting adjourned at 9:04pm.  
There were 14 persons in person, and 10 unique zoom logins.



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

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*(Continued from page 2) - President's Message*

There have been many suggestions for how to remove higher objects to avoid the kind of cascading collisions overdramatized in the movie Gravity. So far, though, there are no plans for a sustained effort to remove debris. Regardless of whether humans played a role in producing this fireball, I'm happy I got to see it and will long remember it.

**Hawaiian Astronomical Society**  
**Event Calendar**

October 2024						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29 BoD Meeting 3:30PM Zoom	30	1 General Meeting Planetarium 7:30 PM Hybrid	2  New Moon 8:49AM Halemano ES Star Gazing 6:30 AM	3	4	5 Public Party Dillingham Airfield Sunset 6:14 PM
6	7	8	9	10  1st Qr 8:55AM	11	12 Public Party Geiger & Kahala Sunset 6:08PM
13	14 <i>Columbus Day</i>	15	16	17  Full Moon 1:26AM	18 Planetarium Night Bishop Museum 6:30 PM	19
20	21	22	23  3rd Qr 10:03PM	24	25	26 Club Party Dillingham Airfield Sunset 5:58PM
27	28	29	30	31 Halloween	Notes:	

**<<Upcoming Star Parties>>**

- Public Party-Dillingham October 5 — 7:00 PM**
- Public Party Geiger/Kahala October 12 — 7:00 PM**
- Club Party Dillingham October 26 — 7:00 PM**

Upcoming School Star Parties

Date	Time	Location
10/3/2024	6:30PM	Halemano Elementary School

# NASA's Night Sky Notes

## October's Night Sky Notes: Catch Andromeda Rising!

By Dave Prosper, Updated by Kat Troche



If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.



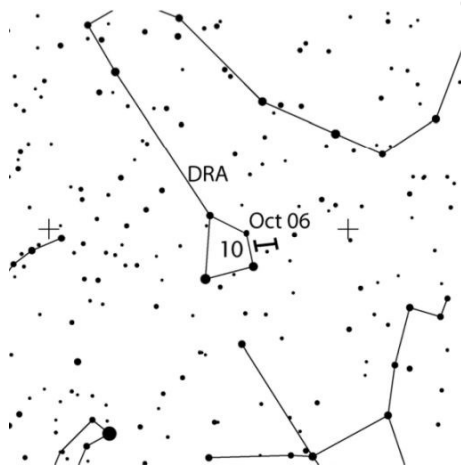
Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes when seen from dark sky sites. Hints of it can even be made out from light polluted areas. Use the Great Square of Pegasus or the Cassiopeia constellation as guides to find it. Credit: Stellarium Web

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire

*(Continued on page 9)*

Information on two October meteor showers comes to us from the International Meteor Organizations (IMO). The Draconids (009 DRA, also called October Draconids) are known as a periodic shower which produced spectacular meteor storms in 1933 and 1946, and lower rates in several other years (ZHRs  $\approx$  20500+). Recent outbursts happened in 2011 (ZHR  $\approx$  300; predicted) and in 2012 (unexpected). The 2018 return yielded a ZHR of about 150 lasting for about 4 hours, much higher than the predicted values. For the 2024 return there are two dust trails (ejected in 1852 and 1859, respectively) listed in Table 6d of Jenniskens (2006). The closest approaches occur on October 8 at 06h36m and 06h53m UT. The same trails are

*(Continued on page 11)*



**Phases of the Moon** (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
October 10	October 17	October 23	October 2

Shower	Activity	Maximum		Radiant		V <sub>∞</sub> km/s	r	ZHR
		Date	λ	α	δ			
Oct. Camelopard. (281 OCT)	Oct 05 - Oct 6	Oct 05	192.58°	164°	+79°	47	2.5	5
Draconids (009 DRA)	Oct 06 - Oct 10	Oct 08	195.4°	262°	+54°	20	2.6	5
δ-Aurigids (224 DAU)	Oct 10 - Oct 18	Oct 11	198°	84°	+44°	64	3.0	2
ε-Geminids (023 EGE)	Oct 14 - Oct 27	Oct 18	205°	102°	+27°	70	3.0	3
<a href="#">Orionids (008 ORI)</a>	Oct 02 - Nov 07	Oct 21	208°	95°	+16°	66	2.5	20
Leo Minorids (022 LMI)	Oct 19 - Oct 27	Oct 24	211°	162°	+37°	62	3.0	2

The Orionids (008 ORI) will be affected by the last quarter Moon, a few meteors may yet be visible. For more info contact: Tom Giguere, 808-782-1408, [Thomas.giguere@yahoo.com](mailto:Thomas.giguere@yahoo.com).

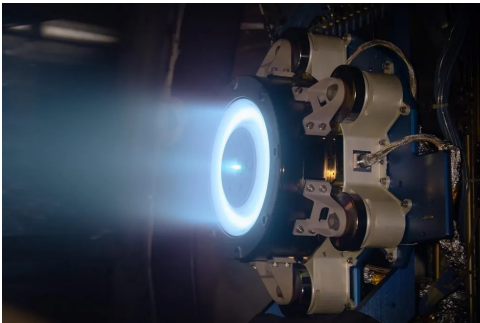
# Cash Flow - 8/11/2024 to 9/09/2024

<b>Beginning Balance</b>	<b>\$6,475.51</b>
<b>Money into selected accounts comes from</b>	
Donation	\$73.00
Membership - Electronic	\$40.00
Membership - Family	\$26.00
Membership - Paper	\$52.00
Subscription - Astronomy	\$34.00
<b>Total Money In</b>	<b>\$225.00</b>
<b>Money out of selected accounts goes to</b>	
Snacks	\$0.00
<b>Total Money Out</b>	<b>\$0.00</b>
Difference	\$225.00
<b>Ending Balance</b>	<b>\$6,700.51</b>

Here are the financials up through September 9.

Thanks to everyone who paid, or renewed. Our liability insurance provider decided to drop coverage, but Astronomical League provided a link to a different insurer, so there will be no interruption in coverage.

Covid wastewater figures range from moderate to moderately low. Remember to mask indoors, or in a crowd. The latest measurements are from September 16. Meanwhile, enjoy the sky.



### Gateway's Propulsion System Testing Throttles Up

In this image from April, PPE engineers successfully tested the integration of Aerojet Rocketdyne's thruster with Maxar's power procession unit and Xenon Flow Controller.

The powerhouse of Gateway, NASA's orbiting outpost around the Moon and a critical piece of infrastructure for Artemis, is in the midst of several electric propulsion system tests.

Image Credit: NASA



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

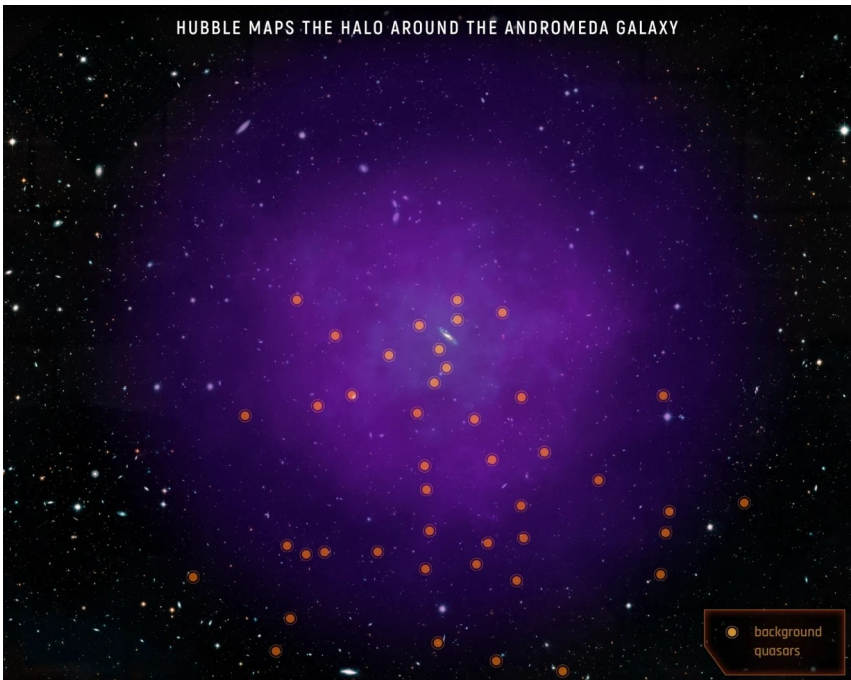
galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any “faint fuzzy.” Surprisingly, persistent stargazers can still spot M31’s core from areas of moderate light pollution as long as skies are otherwise clear.



Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110. Credit: Stellarium Web

Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the “Andromeda Nebula.” Increasingly detailed observations of M31 caused astronomers to question its place in our universe— was M31 its own “island universe,” and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the “Great Debate” of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the “nebula” was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt’s work on Cepheid variable stars as a “standard candle” for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31’s distance as far outside our galaxy’s boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

*(Continued on page 10)*



While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI)

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA's latest discoveries about the Andromeda Galaxy, on their Messier 31 page.

Originally posted by Dave Prosper: September 2021  
Last Updated by Kat Troche: September 2024



(Continued from page 1) Editor Notes

then the Moon, and Saturn. I took a photo of the Milky Way using my Samsung S24 Plus Raw Expert Mode.



Public star party at Dillingham Airfield on 9/21/2024 was not bad. Seeing was pretty good. Steven had his 6" refractor up and pushed it up to 200x (400x toward the end of the night). The party was called at 9:15 PM since the Moon was coming up.

On the morning of Tuesday, 9/17/2024, we had an occultation of Saturn by the Moon at 12:12 AM that was observable in Hawaii. The sky was hazy (thin high clouds with low clouds passing). I was able to get photos of the event.

September "3rd Friday monthly evening Planetarium" on Friday, 9/20/2024, turned out pretty good. We were able to show Venus for the earlier group then Saturn for the latter group. Moon rose late (8:36 PM). So, no Moon viewing.

Many members now use Electronically Assisted Astronomy (EAA) devices. Many use Dwarf II devices (Dwarf 3 has just came out). Some dip into ZWO Seestar S50. There are several others EAA devices that members has. Share those photos.

So, if you are observing and able to capture any night sky object. You can share it in AstroNews by emailing it to me at [astronews@hawastsoc.org](mailto:astronews@hawastsoc.org) with some detail. I will post it. Clear Night everyone.



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(Continued from page 7) - Meteor Log

also found by Vaubaillon to come close to the Earth. The calculated timing differs only very little (06h23m and 06h31m UT, respectively). Since the trails are quite old, no values for any possible activity is given. The parent comet 21P/Giacobini-Zinner will reach its next perihelion on 2025 March 25. The waxing moon illuminates the hours before local midnight when the radiant is high in the sky. The radiant is north-circumpolar for latitudes north of about 45°N. Draconid meteors are exceptionally slow-moving.

The Leo Minorids (022 LMI) were first found in photographic orbital data and comet C/1739 K1 (Zanotti) is suggested as parent object. The activity was established from video data and over the past years, and a reasonable sample of visual data has been collected as well. Visual data from 2017–2021 yield a maximum ZHR of the order of 5 around October 24 or perhaps slightly earlier. The radiant area can be seen solely from the northern hemisphere, where it rises around midnight. The given maximum date is close to the last quarter Moon so that the later part of the activity can be monitored better.



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A Starry View

A nebula made up of cloudy gas and dust in the form of soft and wispy clouds and, in the center, thin and highly detailed layers pressed close together. Large, bright stars surrounded by six long points of light are dotted over the image, as well as some small, point-like stars embedded in the clouds. The clouds are lit up in blue close to the stars, orange colors show clouds that glow in infrared light.

Image credit: ESA/Weeb, NASA & CSA, A. Scholz, K. Muzic, A. Langeveld, R. Jayawardhana