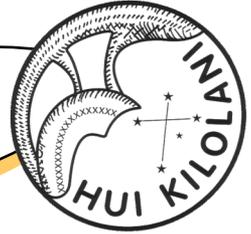


# THE ASTRONEWS



Volume 72, Issue 2

February 2022

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

The sky has been a lot clearer in January 2022. However, that comet C/2021 A1 (Leonard) stayed elusive for me to get it on camera. In early January, Leonard was just too close to the horizon and stayed hidden in the thin cloud layer. I will have to wait for the next bright comet.

We had full moon around mid-January. On Monday, 1/17/2022, the full moon is called wolf moon. The sky on Oahu was clear as crystal. I could see the ridge of Koolau Mountain Range very nicely. I got a nice shot of wolf moon rising over Koolau.



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## Upcoming Events:

- The next Board meeting is Sun., January 2<sup>nd</sup> 3:30 PM. (**Zoom Meeting**)
- The next meeting is on Tue., January 4<sup>th</sup> 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](http://www.bishopmuseum.org/calendar)

# President's Message

## February 2022

We held our January meeting via Zoom and will do the same in February. If the decline in COVID cases continues, we may consider a hybrid meeting in March, but it is too early to know if that will happen. Whenever we do make that change, we will still be using Zoom at the meeting, so if meeting in person worries you, please continue to join us via Zoom.

The long evening planet-fest we have enjoyed is just about over. Venus has joined Mars in the morning sky, and Jupiter and Saturn are sinking lower each day at sunset. If you are a pre-dawn planetary observer, your prospects are improving.

The James Webb Space Telescope (JWST) seems to be in good shape. The nail-biting period of deploying the mirror and sunshield has passed, and the spacecraft has reached its location at the Lagrange point beyond the Moon. Now comes a lengthy period of fine tuning the adjustments needed before it can begin its science mission. The 18 segments of the primary mirror must repeatedly be tweaked to produce the best figure possible, the primary and secondary mirrors must be precisely aligned, and only then can the calibration of the scientific instruments begin. This is all expected to take about five more months.

In the meantime, the spacecraft is still cooling down. The sunshield is doing its job of blocking the Sun's radiation, and much cooling has occurred, but it will take some more time for the spacecraft and all its instruments to reach their final temperature. Some previous spacecraft have used active cooling, but that limits their useful life since the refrigerant eventually runs out. JWST's passive cooling method can work indefinitely.

Observing mostly in the infrared, JWST will be able to image distant galaxies from early in the history of the universe. It will also be able to see through layers of dust that obscure views in visible light. Colder objects emit most of their light in the infrared, so much non-stellar material will also be observed. We just have to wait a few more months for the first images.

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# Observer's Notebook—February 2022 by Ort

## Planets Close to the Moon

### Times are Hawaii Standard Time

- Feb 1, 2h, Moon 4.1° SE of Saturn; 6° and 3° from the Sun in the evening sky; magnitudes -4.7 and 0.7
- Feb 2, 15h, Moon 4.0° SE of Jupiter; 24° from the Sun in the evening sky; magnitudes -6.4 and -2.0
- Feb 3, 15h, Moon 3.5° SE of Neptune; 37° and 36° from the Sun in the evening sky; magnitudes -7.4 and 7.9
- Feb 7, 11h, Moon 1.10° SE of Uranus; 82° from the Sun in the evening sky; magnitudes -9.8 and 5.8; occultation
- Feb 28, 13h, Moon 3.6° SE of Mercury; 24° from the Sun in the morning sky; magnitudes -6.4 and -0.1

## Other Events of Interest

### Times are Hawaii Standard Time

- Feb 4, 9h, Saturn at conjunction with the Sun; 10.898 AU from Earth; latitude -0.94°
- Feb 12, 12h, Venus shows greatest illuminated extent, 337 square seconds
- Feb 16, 11h, Mercury at westernmost elongation; 26.3° from Sun in morning sky; magnitude 0.0
- Feb 24, 4h, Autumn equinox for Mars north hemisphere
- Feb 28, 13h, Mercury at aphelion, 0.4667 AU from the Sun

## Planets in February

 <h3>Mercury</h3> <p>Dim morning object, not well placed. Best seen just before mid-month.</p>	 <h3>Venus</h3> <p>Bright morning planet, rising over two hours before sunrise. Near Mars at end of February.</p>	 <h3>Mars</h3> <p>Brightening morning object, near Venus towards the end of February.</p>
 <h3>Jupiter</h3> <p>Bright evening planet, rapidly lost to the twilight during the month.</p>	 <h3>Saturn</h3> <p>Saturn lines up with the Sun in the sky on 4 Feb and is unlikely to be seen this month.</p>	 <h3>Uranus</h3> <p>Mag. +5.8 Uranus loses altitude during February but remains a viable target.</p>
 <h3>Neptune</h3> <p>The evening twilight catches up with Neptune this month, the planet is lost from view.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>Pluto is not observable – it will reach its highest point in the sky during daytime and is no higher than 7° above the horizon at dawn.</p>	 <h3>7—Iris (Asteroid)</h3> <p>is visible in the evening sky, becoming accessible around 19:22 (HST). It will continue to be observable until around 02:50, when it sinks below 21° above your western horizon.</p>

# Meeting Minutes

H.A.S. Secretary

January 4<sup>th</sup>, 2021 7:30 PM (Zoom Meeting)

Andy Stroble

Meeting called to order at 7:32 pm by President Chris Peterson with 15 participants.

Minutes from the prior meetings adopted by acclamation.

Permission to use Dillingham/Kawaihapai Airfield for the next year has been obtained.

Next club star party is on Jan. 29th.

AstroNews editor emeritus Carolyn Kaichi forwarded notice of a IAU Survey about Professional-Amateur Collaboration Interest,

Aloha,

The International Astronomical Union (IAU), as part of its strategic plan 2020-2030, is reaching out to engage with amateur astronomers around the world, and invites all amateur as well as professional astronomers to fill out this survey

<[https://www.surveymonkey.com/r/IAU\\_ProAm](https://www.surveymonkey.com/r/IAU_ProAm)> We would greatly appreciate it if you would share the survey link with your staff and astronomy enthusiasts.

Other News:

Bishop Museum Planetarium Anniversary went well.

Parker solar probe has flown through the Sun's corona. A video from NASA was shared.

Steve Chun continues to observe old Sol, and shared some solar photos, taken using Calcium-K and H-Alpha filters.

Ort shared photos of a few of the Geminids, observed 70 meteors in totals. He also showed a photo of comet Leonard (C/2021 A1).

Tom discussed the Quadrantid meteor shower, which has a very short peak, a matter of 2-4 hours.

President Chris shared a video of the deployment of the James Webb Space Telescope, and we viewed a video from ESA on the continuing importance of terrestrial telescopes, that was found by Peter Besenbruch.

Adjourned at 9:00pm. At the peak, there were 22 participants.

Faithfully submitted, James Andy Stroble, Secretary.

1/25/2022

**Hawaiian Astronomical Society  
Event Calendar**

February 2022						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	31  New Moon 7:46 PM	1 Club Meeting 7:30 PM Zoom	2 Groundhog Day	3	4	5
6	7	8  1st qtr 3:50 AM	9	10	11	12
13 Super Bowl	14 Valentine's Day	15	16  Full Moon 6:56 AM	17	18	19 Dillingham Airfield Club Party Sunset 6:31 PM
20	21 Presidents Day	22	23  3rd qtr 12:32 PM	24	25	26 Dillingham Airfield Club Party Sunset 6:34 PM
27	28	Notes:				

**<<Upcoming Star Parties>>**

- Club Party-Dillingham February 19 —6:31 PM**
- Club Party Dillingham February 26 —6:34 PM**
- Public Party Geiger/Kahala February 5 — CANCELLED**

Upcoming School Star Parties


# NASA's Night Sky Notes

## Hang Out with the Twins of Gemini

By David Prosper



The night skies of February are filled with beautiful star patterns, and so this month we take a closer look at another famous constellation, now rising high in the east after sunset: Gemini, the Twins!

If you're observing Orion, as discussed in last month's article, then Gemini is easy to find: just look above Orion's "head" to find Gemini's "feet." Or, make a line from brilliant blue-white Rigel in the foot of Orion, through its distinct "Belt," and then on through orange Betelgeuse. Keep going and you will end up in between the bright stars Castor and Pollux, the "heads" of the Gemini Twins. While not actually related – these stars aren't bound to each other, and are almost a magnitude apart in brightness – they do pair up nicely when compared to their surrounding stars. Take note: more than one stargazer has confused Gemini with its next-door neighbor constellation, Auriga. The stars of Auriga rise before Gemini's, and its brightest star, Capella, doesn't pair up as strikingly with its second most brilliant star as Castor and Pollux do. Star-hop to Gemini from Orion using the trick above if you aren't sure which constellation you're looking at.

Pollux is the brighter of Gemini's two "head" stars - imagine it has the head of the "left twin" - and located about 34 light-years away from our Solar System. Pollux even possesses a planet, Pollux b, over twice the mass of Jupiter. Castor - the head of the "right twin" - by contrast, lies about 51 light-years distant and is slightly dimmer. While no planets have been detected, there is still plenty of company as Castor is actually a six-star system! There are several great deep-sky objects to observe as well. You may be able to spot one with your unaided eyes, if you have dark skies and sharp eyes: M35, a large open cluster near the "right foot" of Gemini, about 3,870 light-years away. It's almost the size of a full Moon in our skies! Optical aid like binoculars or a telescope reveals the cluster's brilliant member stars. Once you spot M35, look around to see if you can spot another open cluster, NGC 2158, much smaller and more distant than M35 at 9,000 light-years away. Another notable object is NGC 2392, a planetary nebula created from the remains of a dying star, located about 6,500 light-years distant. You'll want to use a telescope to find this intriguing faint fuzzy, located near the "left hip" star Wasat.

Gemini's stars are referenced quite often in cultures around the world, and even in the history of space exploration. NASA's famed Gemini program took its name from these stars, as do the appropriately named twin Gemini North and South Observatories in Hawaii and Chile. You can discover more about Gemini's namesakes along with the latest observations of its stars and related celestial objects at [nasa.gov](http://nasa.gov).

*(Continued on page 9)*

The Alpha-Centaurids are one of the main southern hemisphere’s summer high points. Past records indicate that the shower produces bright meteors including fireballs. The average peak ZHR between 1988-2007 was merely 6 though coverage has frequently been patchy. Bursts lasting a few hours' in duration were reported in 1974 and 1980 and apparently yielded ZHRs closer to 20-30. Significant activity was reported on 2015 February 14 (airborne observation, about 6 days after the mean peak position) although there was no confirmation of an outburst predicted for 2015 February 8 (regular maximum). Further data is needed to obtain information about the structure and extent of the stream. The shower's radiant is nearly circumpolar for much of the southern hemisphere, and is at a useful elevation from late evening onwards. This year the maximum period is close to the first quarter Moon, so the the best time to observe this year is after midnight.

*(Continued on page 10)*



*Geminids Meteor passing near Polaris from Mokuleia Army Beach by Ort*

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

<b>First Quarter</b>	<b>Full Moon</b>	<b>Last Quarter</b>	<b>New Moon</b>
February 08	February 16	February 23	March 02

Major Shower	Activity	Maximum		Radiant		$V_{\infty}$ km/s	$r$	ZHR
		Date	$\lambda_{\odot}$	$\alpha$	$\delta$			
$\alpha$ -Centaurids (102 ACE)	Jan 31 – Feb 20	Feb 8	319.2 °	210°	-59°	58	2.0	6

Two showers for your meteor observing pleasure! Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

# Cash Flow - 12/11/2021 to 01/10/2022

<b>Beginning Balance</b>	<b>\$3,871.99</b>
<b>Money into selected accounts comes from</b>	
Donation	\$28.00
Membership - Electronic	\$66.00
Membership - Family	\$2.00
Membership - Paper	\$26.00
Telescope Rental	\$20.00
<b>Total Money In</b>	<b>\$142.00</b>
<b>Money out of selected accounts goes to</b>	
Office-supplies	\$176.00
Subscription - Astronomy	\$34.00
<b>Total Money Out</b>	<b>\$210.00</b>
Difference	-\$68.00
<b>Ending Balance</b>	<b>\$3,803.99</b>

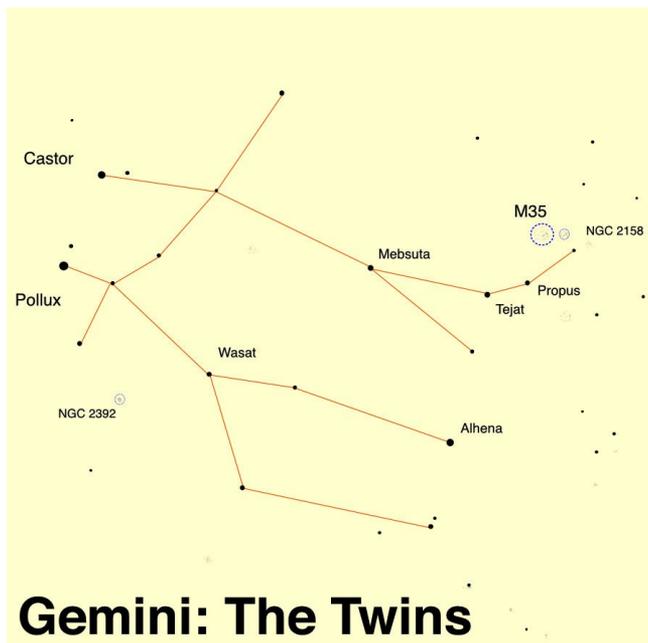
Here are the financials up through January 10.

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

The biggest expense is the \$176 check to the USPS for our HAS mail box.



The James Webb Telescope Lights Up the Sky During Launch



Castor and Pollux are Gemini's most prominent stars, and often referred to as the "heads" of the eponymous twins from Greek myth. In Chinese astronomy, these stars make up two separate patterns: the Vermillion Bird of the South and the White Tiger of the North. What do you see? The Night Sky Network's "Legends in the Sky" activity includes downloadable "Create Your Own Constellation" handouts so you can draw your own star stories: [bit.ly/legendsinthesky](http://bit.ly/legendsinthesky)  
Image created with assistance from Stellarium.



Montage of Gemini North, located on Mauna Kea in Hawaii, and Gemini South, located on Cerro Pachón in Chile. These "twin" telescopes work together as the Gemini Observatory to observe the entire sky.  
Image Credit: NOIRLab Source: <https://www.gemini.edu/gallery/media/gemini-northsouth-montage>

(Continued from page 7) Meteor Log

Alpha and Beta Centaurids, Part 2 (Part 1 ran in the Feb 2021 issue): This story reviews the history of the Alpha and Beta Centaurids, which were once thought to be one single shower...

Continuing - - - Although it is possible that C. Hoffmeister observed the Centaurid shower ( $\alpha=210^\circ$ ,  $\delta=-57^\circ$ ) on 1938 February 2, while in South Africa, the observational history of this stream essentially began in 1969, so that the characteristics of each shower are hard to determine. Nevertheless, some interesting details should be noted. First of all, the Alpha Centaurids are apparently a consistent shower, with Buhagiar assigning an hourly rate of 3, and WAMS observers detecting high rates of 2 (ZHR calculated as  $8.56\pm 4.94$ ) in 1979. The Beta Centaurids are apparently variable in activity, according to Buhagiar, with his 1969-1980 observations revealing high rates of 10 meteors per hour. WAMS observers obtained maximum rates of 11-14 per hour (ZHR calculated as  $28.48\pm 4.88$ ) during a one-hour interval on 1980 February 8/9.

Characteristics of the Centaurid meteors have also been gathered in recent years. During 1979, 20 Alpha Centaurids revealed an average magnitude of 2.45, while, during 1980, 169 Beta Centaurids revealed an average magnitude of 1.6 (the latter number is an approximation by the Author based on a table published in the October 1980 issue of Meteor News).

The Alpha Centaurids may have been detected by radar at Adelaide Observatory during 1969. G. Gartrell and W. G. Elford operated the radar system during February 10-17. Two meteors were noted from a radiant of  $\alpha=223^\circ$ ,  $\delta=-61^\circ$ , with the date of nodal passage being determined as February 15. Assuming these meteors are members of the Alpha Centaurids, then this stream orbit has an inclination near  $105^\circ$ , and a semimajor axis near 2.5 AU. This identification would also indicate that the radiant's daily motion is very close to  $+1^\circ$  in  $\alpha$ . The movement in  $\delta$  can not be determined from the available observations. Although it took many years, the data shows that Alpha and Beta Centaurids are indeed two distinct meteor showers. [Credit: Gary W. Kronk]

.....

(Continued from page 1) Word form your editor

Several days later, someone shared an article from "Sky & Telescope" regarding Mare Orientale (Moon's Bulleye) ([https://skyandtelescope.org/astronomy-news/set-your-sights-on-this-lunar-bulls-eye/?fbclid=IwAR162P2y2MdjtwayqTD7IRxLag3gDhv9Nw-2veEPkp\\_dNWjfqBYbc9xp1IQ](https://skyandtelescope.org/astronomy-news/set-your-sights-on-this-lunar-bulls-eye/?fbclid=IwAR162P2y2MdjtwayqTD7IRxLag3gDhv9Nw-2veEPkp_dNWjfqBYbc9xp1IQ)). The article stated that the Moon liberation will be good enough between January 19 – 23, 2022 to see the rim of Mare Orientale. So I went out the morning of Sat, 1/22/2022, while the waning gibbous moon was high in the south west sky. I captured the Mare Orientale. The article also said that Mare Orientale will also be available in February and December of this year.



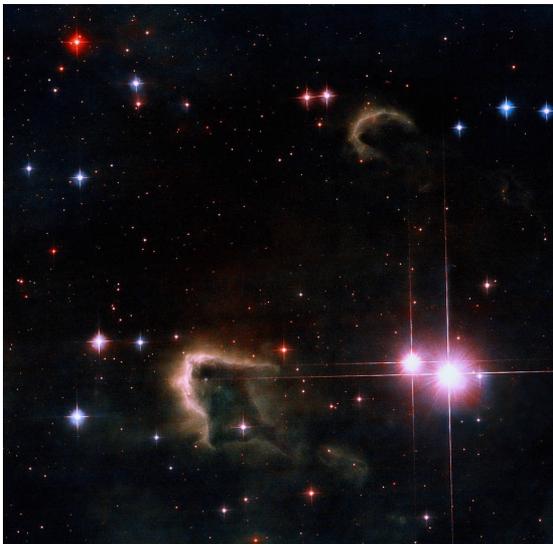


#### Drilling Holes on the Red Planet

This image shows the Highfield drill hole made by NASA's Curiosity rover as it was collecting a sample on Vera Rubin Ridge in Gale crater on Mars. Drill powder from this hole was enriched in carbon 12.

The image of this drill hole was taken by the Mars Hand Lens Imager of the Curiosity rover on the 2,247th Martian day, or sol, of the mission.

Image credits: NASA/Caltech-JPL/MSSS



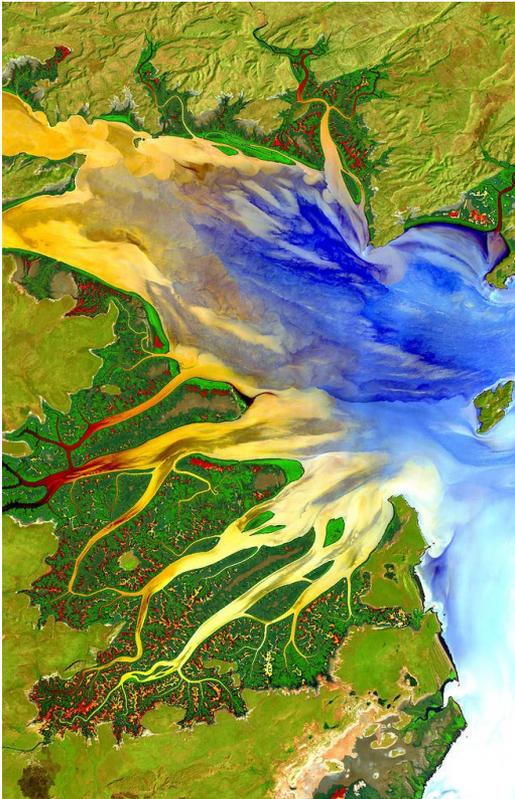
#### Hubble Spots Star-Hatching frEGGs!

This image shows knots of cold, dense interstellar gas where new stars are forming. These Free-floating Evaporating Gaseous Globules (frEGGs) are located in the Northern Coalsack Nebula in the direction of Cygnus, the Swan.

Image Credit: NASA, ESA, and R. Sahai (Jet Propulsion Laboratory); Processing: Gladys Kober (NASA/Catholic University of America)



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Color Explosion: Beautiful Earth

This image, captured by the Landsat 8 satellite, shows the view over Western Australia on May 12, 2013. The image shows rich sediment and nutrient patterns in a tropical estuary area and complex patterns and conditions in vegetated areas.

Image Credit: NASA/USGS Landsat; Geoscience Australia