

THE ASTRONOMERS



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July 2026

A word from your editor by
Sapavith 'Ort' Vanaprucks

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We have now reached the end of the 2025-2026 school year. The request for a school star party will start again in late August. There will be other organizations like Boy Scouts or Girl Scouts requests that would come in. Your involvement will help with bringing in more club memberships and promoting the club.

We helped Bishop Museum's Star Tonight on Friday, 6/19/2026. There were 2 groups attending The Stars Tonight (Trivia Night). 6 HAS members (Andy, Chris, Hiroko, Ort, Peter, & Sue) were there to help. We are able to look at a near 1st quarter Moon (31.6%), Jupiter, & Venus in a partly cloudy sky.

Two of the three star parties happened in June. The public star party at Dillingham Airfield on 6/6/2026 was canceled due to bad weather. The Dillingham Airfield Club Star Party on 6/13/2026 was on. We had quite a few members attending. We closed the shop around 11:30 PM. Many members had photos from this evening.. (Photo from Hiroko)



Upcoming Events:

- The next Board meeting is Sun., Jul. 5th 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Jul. 7th at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- Bishop Museum's planetarium show "Star Tonight" is every 3rd Friday, 7/17/2026, of the month at 7:00 PM.

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President's Message July 2026

Although the Moon is more easily reachable and arguably the best next place to establish a permanent human presence, Mars has always held a special allure for those imagining the spread of humans through the solar system. Its environmental conditions are more like those on Earth than those on any other solar system body, and we now know that this was even more true in the distant past. Water once flowed over the surface, and even oceans may have once existed there.

To investigate why conditions changed, NASA launched the MAVEN (Mars Atmosphere and Volatile EvolutionN) mission in 2013. The spacecraft's nominal one-year mission was extended several times, but after a decade of service contact was lost. After months of trying to reconnect, NASA recently gave up and declared the mission over, so now is an appropriate time to review its findings.

MAVEN was the first mission to study Mars's atmosphere. In particular, MAVEN examined the composition and structure of the upper atmosphere and ionosphere and measured the rate at which gases were being lost to space. Researchers have used the findings to reconstruct the history of Mars's atmosphere.

It is believed that Mars has lost perhaps 99% of its atmosphere. Originally it was thick enough to allow liquid water to exist at the surface. Ancient channels appear to have been cut by flowing water, and some features have been interpreted to be the shores of an ancient ocean.

Young Mars had a liquid metal core that generated a magnetic field. Just as still occurs on Earth, the magnetic field deflected charged particles in the solar wind. Mars is only half the diameter of Earth, and smaller objects cool more quickly than do larger ones, so between 4.2 and 3.7 billion years ago the core solidified and the magnetic field was lost. This allowed charged solar wind particles to gradually strip away Mars's atmosphere. The current atmospheric pressure on Mars is only about 0.5% of that on Earth, and liquid water can't persist there. It would quickly evaporate or freeze and then sublime (turn from a solid directly into a gas).

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Observer's Notebook—July 2026 by Ort

Planets Close to the Moon Times are Hawaii Standard Time

Jul 6, 13h, Moon 4.2° NNW of Neptune; 101° and 100° from Sun in morning sky; magnitudes -10.5 and 7.9

Jul 7, 7h, Moon 6.0° NNW of Saturn; 91° from Sun in morning sky; magnitudes -10.2 and 0.8

Jul 10, 20h, Moon 5.3° N of Uranus; 45° from Sun in morning sky; magnitudes -8.0 and 5.8

Jul 11, 4h, Moon 5.3° N of Mars; 40° from Sun in morning sky; magnitudes -7.7 and 1.3

Jul 14, 19h, Moon 1.91° NNE of Jupiter; 11° from Sun in evening sky; magnitudes -5.2 and -1.8

Jul 17, 6h, Moon 1.83° SSW of Venus; 44° from Sun in evening sky; magnitudes -7.8 and -4.1

Other Events of Interest Times are Hawaii Standard Time

Jul 3, 21h, Mars 0.11° SE of Uranus; 38° from Sun in morning sky; magnitudes 1.3 and 5.8

Jul 10, 14h, Moon 1.18° N of Pleiades; 48° and 49° from Sun in morning sky

Jul 15, 1h, Moon, Jupiter, and Beehive within circle of diameter 4.47°; about 13° from the Sun in the evening sky; magnitudes -6, -2, 4

Jul 24, 12h, Moon 0.59° SE of Antares; 128° from Sun in evening sky; magnitudes -11.2 and 1.0

Jul 26, 2h, Asteroid 3 Juno at opposition in longitude; magnitude 9.2

Jul 30, 18h, Southern Delta Aquarid meteors; ZHR 25; 2 days after Full Moon

Planets in July

 Mercury recently passed in front of the Sun at inferior solar conjunction. From Honolulu, it is not readily observable since it is very close to the Sun, at a separation of only 6° from it.	 Venus is emerging into the evening sky as it approaches greatest elongation east. From Honolulu, it will become visible at around 19:31 (HST), 30° above your western horizon, as dusk fades to darkness.	 Mars is currently emerging from behind the Sun. From Honolulu, it is visible in the dawn sky, rising at 02:56 (HST) – 2 hours and 59 minutes before the Sun.
 Jupiter recently passed behind the Sun at solar conjunction. From Honolulu, it is not observable – it will reach its highest point in the sky during daytime and is no higher than 3° above the horizon at dusk.	 Saturn is currently emerging from behind the Sun. From Honolulu, it is visible in the dawn sky, rising at 23:45 (HST) and reaching an altitude of 70° above the southern horizon before fading from view as dawn breaks.	 Uranus recently passed behind the Sun at solar conjunction. From Honolulu, however, it is visible in the dawn sky, rising at 02:28 (HST) – 3 hours and 27 minutes before the Sun.
 Neptune is currently emerging from behind the Sun. From Honolulu, it is visible in the dawn sky, rising at 23:11 (HST) and reaching an altitude of 68° above the southern horizon before fading from view as dawn breaks.	 Pluto (Dwarf Planet) is visible in the morning sky, becoming accessible around 21:57, when it reaches an altitude of 21° above your south-eastern horizon.	 4 Vesta (Asteroid) is visible in the dawn sky, rising at 00:24 (HST) and reaching an altitude of 59° above the south-eastern horizon before fading from view as dawn breaks.

Meeting Minutes

H.A.S. Secretary

June 2nd 2026 7:30 PM (Bishop Museum Planetarium and Zoom Meeting)

Andy Stroble

General Membership Meeting, Bishop Museum Planetarium and via Zoom June 2nd, 2026, 7:30pm HST

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

We are between Lahaina noons right now, just past a bluemoon. School Star Party Coordinator Leilani was not present, so no report, but reminder that Bishop Museum Stars Tonite is on the 19th. T-shirts have arrived, and are available in the lobby!

Minutes of the previous meeting was approved by acclamaion, with the correction of the spelling of Mare Orientale.

Our speaker for the evening was Jodie Kiyokawa, a PhD student at the University of Wisconsin-Madison, where she studies supermassive black holes at the centers of galaxies. Originally from Hawai'i, Jodie informed us on the latest thinking about supermassive blackholes, at the center of active galaxies such as M87 and SagA, CentA and HercA. Her research involves reverberation mapping of gravity waves from event horizons [so far as I was able to understand it, Andy]. Many interesting questions were asked about Quasars, Hawking radiation, and the End of the Universe.

Victor and Nora, new members from Mexico shared photos, via zoom, from their visit here last month, with pictures of the milky way and the Kilauea eruption, some in time-lapse.

Joanne reported on her trip to London and the British Museum for the "bold new exhibition at the British Museum shines light on the compelling history of Hawai'i and its long-standing ties with the United Kingdom, Hawai'i: a kingdom crossing oceans" and to Gdansk, Poland, and her visit to Copernicus' house!

Treasurer Peter shared Smart Telescope images of some interesting galaxies.

We adjourned at 9:00. There were some dozen present in person, and about the same that on zoom. Approximately.

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

(Continued from page 2) President's Message

Water ice is still a great resource, and Mars probably contains many other useful resources. It remains an attractive long-term destination for the expansion of human presence beyond Earth.

(Continued from page 1) A word from your editor

In-town Star Parties on 6/20/2026 were on. At Kahala, Sue reported there were 15-20 visitors. Sue said seeing was not too good. At Geiger, we had 6 members & at least 30 visitors. We showed many object in the night sky (Mercury, Jupiter, Venus, Moon, and many other objects). We were so busy talking with visitors that 10 PM arrived. We left the park at 10:30 PM.

Many members now use Electronically Assisted Astronomy (EAA) devices. 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 with some detail. I will post it. I will be needing more of your photos & articles than ever to fill up the August AstroNews.

Hawaiian Astronomical Society
Event Calendar

July 2026						
◀ Jun						Aug ▶
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4 Indep. Day Public Party Dillingham Airfield Gate Closes 7P
5 BoD Meeting Zoom 3:30P	6	7  3rd Qtr 9:29A General Meeting Hybrid 7:30P	8	9	10	11 Club Party Dillingham Airfield Gate Closes 7P
12	13  New Moon 11:43P	14	15	16	17 The Stars Tonight Show starts 7P	18 Public Party Geiger / Kahala Sunset 7:15P
19	20	21  1st Qtr 1:05A	22	23	24	25
26	27	28	29  Full Moon 4:35A	30	31	Notes:

<<Upcoming Star Parties>>

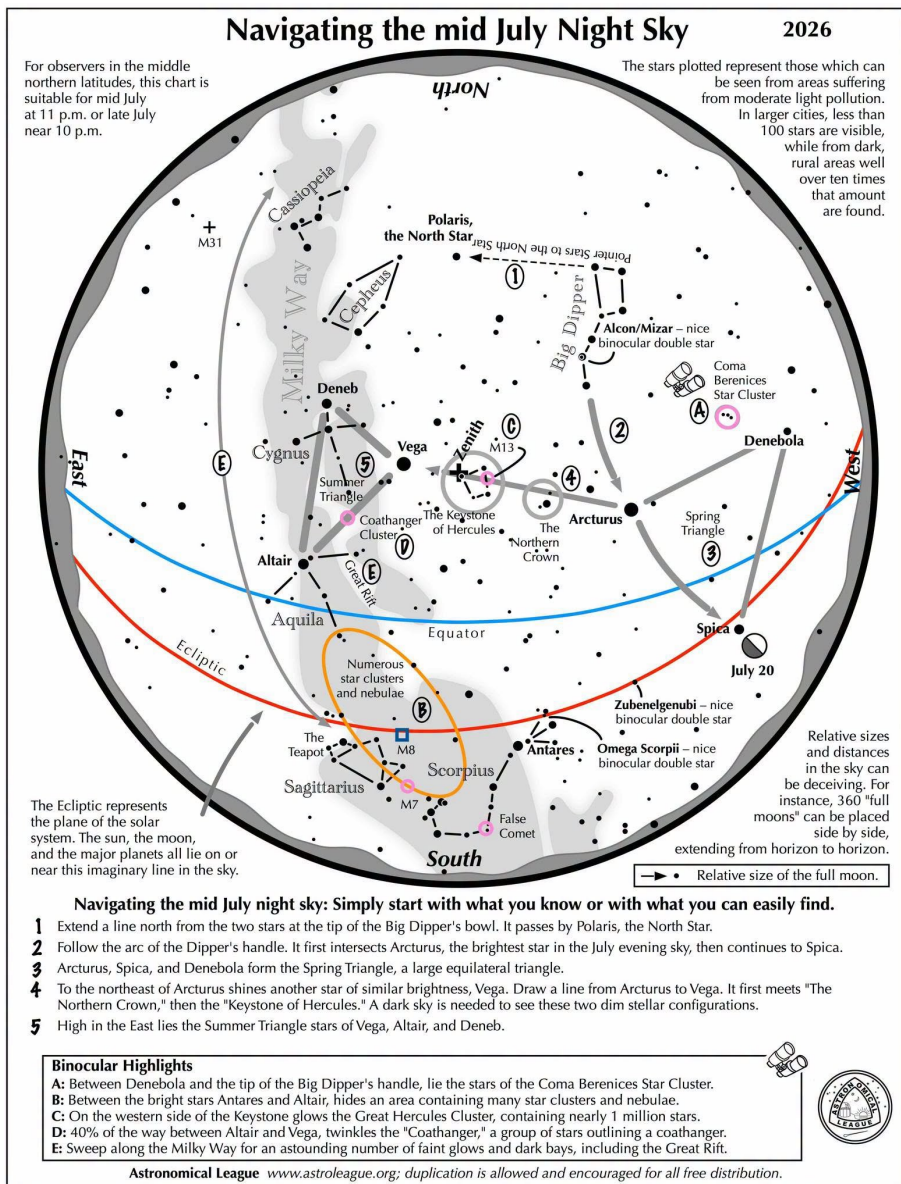
Public Party-Dillingham July 4 — Gate closes 7 PM
Club Party Dillingham July 11 — Gate closes 7 PM
Public Party Geiger/Kahala July 18 — Sunset 7:15 PM

Upcoming School Star Parties

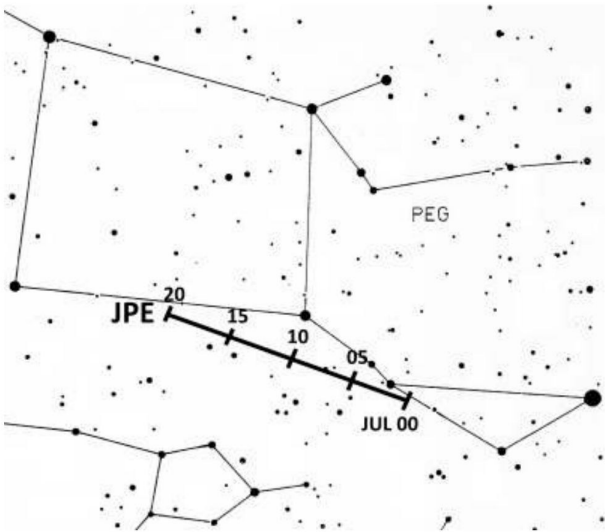
Date	Time	Location



Clear nights in July can border on being magical. The Venus-crescent moon meetings continue!



July Pegasids (175 JPE) - Meteors of this sparse and essentially northern shower have been observed repeatedly; the shower was described in the 1995 edition of the IMO's Meteor Observer Handbook. Recent video meteor data (VID as well as Koseki, 2021) suggest an activity period which may extend well over the end given here, perhaps to end July or into early August. The radiant is above the horizon all night for observers at mid-northern latitudes, with conditions best after local midnight. The Moon reaches its last quarter on July 7 so that most of the activity can be observed with no disturbances. Viewing Conditions: Because the members of this shower are dim and fast-moving, you will need a location free from city light pollution and a night with no bright moon.



Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
July 21	July 29	July 7	July 13

Shower	Activity	Maximum		Radiant		V _∞ km/s	r	ZHR
		Date	λ☉	α	δ			
July Pegasids (175 JPE)	Jul 01– Jul 20	Jul 10	108.0°	347°	+11°	63	3.0	3
Piscis Austrini (183 PAU)	Jul 15– Aug 10	Jul 28	125°	341°	-30°	35	3.2	5
July γ-Draconids (184 GDR)	Jul 25– July 31	Jul 28	125.13°	280°	+51°	27	3.0	5
South. δ-Aquariids (005 SDA)	Jul 12– Aug 23	Jul 31	128°	340°	-16°	41	2.5	25
α-Capricornids (001 CAP)	Jul 03– Aug 15	Jul 31	128°	307°	-10°	23	2.5	5

The new Moon favors the July Pegasids this year! Thanks to the IMO for our meteor shower information. For more info contact: Tom Giguere, 808-782-1408, Thomas.giguere1@gmail.com.

Cash Flow - 5/10/2026 to 6/9/2026

Beginning Balance	\$7,717.62
Money into selected accounts comes from	
Membership - Electronic	\$40.00
T-Shirt	\$199.00
Total Money In	\$239.00
Money out of selected accounts goes to	
Astronews	\$577.99
Snacks	\$39.12
Total Money Out	\$617.11
Difference	-\$378.11
Ending Balance	\$7,339.51

Here are the financials up through June 10. Thanks to everyone who renewed, and donated.

The T-shirts are in, thanks to Ort. At this point, it’s time to collect your shirts and pay for them. I will be at star parties and meetings for the next month or two. Bring cash or checks to the next HAS meeting or star parties. If you have any questions about your order, be sure to e-mail me.

Covid wastewater figures are a bit all over the map for Oahu, ranging from medium to very low. In general, this reflects an increase for our island. Nationally, there are Covid hotspots in Guam, California (central valley), Texas, southern Ohio, and central New York. Be careful and have fun.



Black Eye Galaxy

Hubble and Webb image of M64. A massive spiral galaxy glows with a yellow core, surrounded by arms full of orange-brown dust and pink and blue patches of star formation. Framed by a haze of dark dust, the galaxy shines against black space dotted with a few stars.

Image credit: NASA, CSA, ESA, F. Belfiore (European Southern Observatory – Germany), J. Lee (Space Telescope Science Institute), A. Leroy (The Ohio State University), and D. Thilker (The Johns Hopkins University); Processing: Gladys Kober (NASA/Catholic University of America)

Message From Your Vice President

July 2026

by Bill Barr

For this July meeting we have Craig Stocks who will present on PiMagicStudio, a software meant to enhance the PixInsight workflow. However, Craig will also speak on processing in general. Craig is also the owner of utahdesertremote.com so ask any questions you may have about remote astrophotography.

For those of you using Siril there is news! RC Astro products are now sold as stand alone products without the need for PixInsight or Photoshop. Check out Cuiv, The Lazy Geek on YouTube.com about using these tools in Siril.

****Here is an AI curated list of 32+ OSC-friendly astrophotography targets****

visible from Honolulu ($\approx 21.3^\circ$ N) during July–August 2026 that reach **** $\geq 30^\circ$ altitude while the sky is dark**** (sun well below the horizon). All are suitable for focal lengths ****under 1000 mm**** (most ideal in the 200–800 mm range for framing on typical APS-C/full-frame sensors or small-to-medium refractors/newts).

These targets emphasize extended emission/reflection nebulae, large star clusters/globulars, and photogenic regions that work well in ****Bortle 4 skies**** with good seeing. Brighter, higher-surface-brightness objects (Lagoon, Omega, Dumbbell, M13, Crescent, etc.) are the most forgiving in suburban/rural transition skies. Fainter extended ones (Veil, North America/Pelican outer areas, Rho Ophiuchi reflections, Pipe) reward darker pockets, longer integration, or light-pollution filters/processing.

Sagittarius Milky Way Core Region (Prime window roughly 10 pm–3 am HST; many at 40–45°+ altitude)

This is the star of Hawaiian summer nights — the galactic center region rides high.

- ****M8 Lagoon Nebula**** (emission + embedded cluster) — Large ($\sim 90' \times 40'$). FL 250–700 mm. Bright pink glow, very OSC-friendly even in Bortle 4.

- ****M20 Trifid Nebula**** (emission + reflection + dark lanes) — $\sim 28'$. FL 400–900 mm. Colorful classic; frequently framed with M8.

- ****M17 Omega/Swan Nebula**** (bright emission) — $\sim 45' \times 35'$. FL 300–800 mm. Strong signal and nice shape.

- ****M16 Eagle Nebula**** (emission + cluster, Pillars area) — $\sim 35'$ region. FL 400–1000 mm (wider for context with M17).

- ****M22 Globular Cluster**** — Large & bright ($\sim 32'$ diameter). FL 400–900 mm. Resolves beautifully in good seeing.

- ****M28 Globular Cluster**** — Compact bright ($\sim 15'$). FL 500–1000 mm.

- ****M54, M69, M70 Globulars**** — Southern globulars. FL 600–1000 mm. Good from low latitude.

- ****M55 Globular Cluster**** — Larger ($\sim 19'$). FL 500–1000 mm.

- ****Open clusters M21, M23, M25, M18, M26**** — Rich star fields. FL 400–1000 mm. Excellent alongside the nebulae or as standalone targets.

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(Continued from page 9) Message From Your Vice President

Scorpius / Ophiuchus / Antares Border (Transit ~midnight–2 am HST; max alt ~34–38°; good 11 pm–3 am window)

Southern objects have shorter but usable high-altitude windows near transit.

- ****Rho Ophiuchi / Antares / Sh2-27 Region**** (reflection + emission + dark lanes complex) — Large ~4–5° region (includes blue reflection nebulae near bright Antares + M4). FL 135–450 mm (tracker/wide-field ideal). One of the most colorful and photogenic summer wide-field targets for OSC.

- ****M4 Globular Cluster**** (near Antares) — Bright ~35'. FL 500–1000 mm. Pairs perfectly with wide Rho Oph shots.

- ****M6 Butterfly Cluster & M7 Ptolemy Cluster**** (open clusters) — Rich, colorful. M6 ~25–30', M7 larger. FL 300–700 mm. Good seeing helps resolve member stars.

- ****NGC 6334 Cat's Paw Nebula**** (emission complex) — ~45'. FL 400–900 mm. Nice red/pink tones in OSC.

- ****NGC 6357 Lobster Claw / War and Peace Nebula**** (emission) — ~50' region. Similar FL range. Dramatic shapes.

- ****Pipe Nebula**** (Barnard 59/65/66/67 dark complex) — Large dark silhouette on bright Milky Way background (~several degrees). FL 200–500 mm. High-contrast target; Bortle 4 is marginal but workable on the best nights with careful processing.

Cygnus Northern Milky Way (Long windows; many objects at 60°+ altitude much of the night)

Up from early evening through pre-dawn; very convenient.

- ****NGC 7000 North America + IC 5070 Pelican Nebulae**** (large emission region) — ~3° span. FL 200–500 mm (or mosaic). Iconic shape; core is strong in Bortle 4.

- ****Veil Nebula Complex**** (NGC 6960/6992/ etc. supernova remnant) — Filaments span ~3°. FL 300–700 mm per section (or wide overview). Intricate detail rewards good seeing and OSC color or filters.

- ****NGC 6888 Crescent Nebula**** (emission) — ~18' × 12' arc. FL 500–1000 mm. Bright and popular; often shot with surrounding nebulosity.

- ****IC 1318 / Sadr / Butterfly Region**** (large emission complex) — ~2°+. FL 300–600 mm. Colorful around bright Sadr.

- ****IC 5146 Cocoon Nebula**** (emission/reflection in dark cloud) — ~10–12' core. FL 600–1000 mm. Nice compact target with dark background.

Additional Strong Targets (various convenient windows, all reach ≥30° while dark)

- ****M13 Great Hercules Globular Cluster**** — Iconic dense core (~20'). FL 500–1000 mm. Spectacular resolution and star colors in good seeing; high in the sky mid-evening to midnight.

- ****M92 Globular Cluster**** — Smaller bright companion to M13 (~14'). Similar FL.

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(Continued from page 10) Message From Your Vice President

- ****M27 Dumbbell Planetary Nebula**** — Large (~8' × 6'), colorful lobes. FL 400–900 mm. One of the best planetary nebulae for OSC cameras; nearly overhead at times.

- ****M11 Wild Duck Cluster**** (Scutum) — Rich compact open cluster (~14'). FL 500–1000 mm. Beautiful “flying ducks” shape in good seeing.

- ****NGC 6946 Fireworks Galaxy**** (face-on spiral) — ~11'. FL 600–1000 mm. Active star-forming regions; fainter target that benefits from Bortle 4's darker pockets + long integration.

****Notes for planning & imaging in Honolulu (Bortle 4, good seeing):****

- ****Dark time**** roughly starts 8:30–9:30 pm HST and ends ~4:30–5 am in July (slightly later in August). Use Stellarium/SkySafari with Honolulu coordinates and 2026 dates to fine-tune exact rise/set/altitude curves and moon phase.

- ****Prioritize by sky quality****: Start with M8, M17, M27, M13, M22, M11, NGC 6888, M16 (bright/high surface brightness). Tackle Veil, full NA/Pelican, Rho Ophiuchi, and Pipe on the clearest, darkest nights or with LP filters/gradient tools in PixInsight.

- ****Good seeing**** particularly benefits globular clusters (star resolution) and fine detail in M16 (Pillars), Crescent, and Veil filaments.

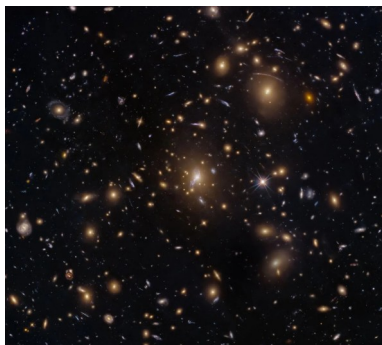
- ****Framing tip****: Many Sag objects (M8/M20, M16/M17 areas) and the Rho Ophiuchi complex work beautifully wide-field. Use 135–400 mm for big regions; 500–900 mm for detail on individual nebulae or clusters while staying under 1000 mm.

- ****OSC considerations****: These targets deliver good color (Ha-rich emission appears pink/red; reflection nebulae blue). Bortle 4 is very workable for the brighter ones; fainter extended structure improves dramatically with integration time and post-processing.

This gives you far more than 30 solid options across the summer Milky Way. The Sag core + Cygnus objects will dominate most clear nights, with the southern Sco/Oph targets providing excellent late-night/early-morning targets when they culminate.

Clear skies!

William Barr
HAS VP



Hubble Sees Swarm of Galaxies

Numerous galaxies dot the scene and appear to cluster around the image center. The view includes large elliptical galaxies along with spiral and lenticular galaxies. Faint arcs of distant galaxies gravitationally lensed by the cluster appear in the upper-right quadrant of the image. A couple of foreground stars are also visible and easily distinguished by their diffraction spikes.

Image credit: NASA, ESA, M. Postman (STScI); Image Processing: G. Kober (NASA/Catholic University of America)

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Soccer Meets Space Science

A soccer ball floats in microgravity in this March 2, 2026, picture from the International Space Station. The space station crew tested soccer balls to study how internal mass affects motion and stability in microgravity. The findings have improved understanding of how embedded technologies, including match-ball sensors, can influence performance during play.

Image credit: NASA