



October 2023

Update

**Oklahoma Space  
Alliance**

A Chapter of The  
National Space Society

A free email newsletter of the Oklahoma Space Alliance

## That's Why We Have Lightning Rods



Credit: SpaceX

**October 2023 OSA Meeting**

**Saturday, October 14, 2023**

**2:00 PM**

**Norman Computers**

916 W Main St, Norman, OK 73069

405-863-6173

Program— Space News and  
Events

Website: <http://osa.nss.org>



## Quote of the Month

*You know, tears were streaming down my eyes. I was like, okay, that's the only thing I needed to hear. From this point on, we know what to do. We're safe. We're home. We did it. – Dante Laurretta, OSIRIS-REx Principal Investigator*

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# Oklahoma Space Alliance Update

October 14, 2023

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# Coming in Hot



Credit: NASA/Keegan Barber

Humans can't tolerate 36 Gs deceleration, but rocks and electronics can. Two years after collecting an estimated 250 grams of the asteroid Bennu and seven years after launch from earth, OSIRIS-REx released a return capsule as it swung by Earth, now on its way to rendezvous with Apophis. The return capsule hit the atmosphere at 44,500 kph, and after a brutal deceleration landed softly under its parachute in the Utah Test and Training Range at 10:52 a.m. EDT on September 24.

Articles: <https://spacenews.com/nasa-ready-for-osiris-rex-sample-return/>

<https://www.space.com/nasa-osiris-rex-success-recovery-asteroid-sample>

<https://spacenews.com/osiris-rex-sample-capsule-lands-in-utah/>

<https://www.space.com/nasa-osiris-rex-dante-lauretta-parachute-emotions>

<https://www.space.com/osiris-rex-asteroid-sample-caniser-lid-lifted-photos>

## The New Champion



Credit: NASA

A couple of others have come close, but Frank Rubio is the first American to spend a full year in space on a single flight. He and his two Russian crewmates Sergey Prokopyev and Dmitri Petelin spent 371 days in space, the longest ISS crew rotation and the third longest spaceflight, behind two Russians aboard Mir. Rubio and his crewmates returned to earth aboard Soyuz MS-23 on September 27.

Articles: <https://arstechnica.com/space/2023/09/a-nasa-astronaut-will-finally-spend-a-full-year-in-space/>

<https://www.space.com/nasa-astronaut-frank-rubio-longest-us-spaceflight-record>

<https://www.space.com/nasa-astronaut-lands-after-record-year-in-space-soyuz-m23-landing-success>

<https://spacenews.com/soyuz-returns-iss-crew-after-record-setting-stay/>

## Maybe the False Starts are Behind Them



Credit: Virgin Galactic

Virgin Galactic has cleared its backlog of six more paying customers. Spaceship Two flew two flights within the last several weeks, one on September 8 and one on October 6. So far, they're keeping with their announced operational cadence of one flight per calendar month.

Articles: <https://www.space.com/virgin-galactic-04-launch-what-time-is-it>

<https://www.space.com/virgin-galactic-third-commercial-spaceflight-success>

<https://spacenews.com/virgin-galactic-completes-third-commercial-spaceshiptwo-flight/>

<https://www.space.com/virgin-galactic-human-fossils-in-space>

<https://arstechnica.com/space/2023/08/virgin-galactics-president-explains-how-vss-unity-is-now-flying-frequently/>

<https://www.space.com/virgin-galactic-first-pakistani-space-galactic04>

<https://spacenews.com/virgin-galactic-performs-fourth-commercial-suborbital-flight/>



## Please Respond



Credit: Firefly Aerospace

TacRL-3 (Tactically Responsive Launch-3), aka Victus Nox, lifted out of Vandenberg SFB on September 14, in the latest “tactically responsive launch” demonstration. The Firefly launch Vehicle and its Millenium satellite met the goal of being "launch ready" within 24 hours, and the total time from receipt of the go command to liftoff was 27 hours, far exceeding the previous record of 21 days set by the first tactically responsive launch two years ago.

Articles: <https://spacenews.com/crunchtime-ahead-for-victus-nox/>

<https://spacenews.com/firefly-ready-for-call-up-to-launch-military-responsive-space-mission/>

<https://spacenews.com/firefly-launches-space-force-victus-nox-mission/>

<https://arstechnica.com/space/2023/09/firefly-and-space-force-demonstrate-ability-to>

<https://spacenews.com/space-force-keeping-the-responsive-launch-dream-alive/>

## Now Do It Again



Credit: ABL Space Systems

Next up, Victus Haze.

Articles: <https://spacenews.com/defense-innovation-unit-to-sponsor-a-rapid-response-space-mission/>  
<https://spacenews.com/after-setting-new-record-for-responsive-launch-space-force-eyes-next-challenge/>  
<https://defensescoop.com/2023/08/25/diu-teaming-with-space-force-on-victus-haze-project/>  
<https://spacenews.com/abl-gets-contract-for-u-s-space-force-responsive-launch-mission/>

## They Just Don't Make 'em Like They Used To



Credit: NASA

For the third time in less than a year, a Russian vehicle attached to ISS has suffered a coolant leak. This time it's the backup radiator on the Nauka module. That module is only two years old, but the backup radiator has been on-orbit since 2010; it was transferred to Nauka via a spacewalk in April 2023. The leak appears to have stopped, but a spacewalk planned for October 10 was cancelled and all shutters on the U.S. segment of ISS were closed to allow the ammonia flakes to dissipate.

Article: <https://spacenews.com/russian-iss-module-experiences-coolant-leak/>

<https://www.space.com/international-space-station-astronauts-nauka-ammonia-leak-no-danger>

<https://www.space.com/international-space-station-us-spacewalk-delayed-nauka-leak>



# A Ticket for Littering



Credit: SpaceX

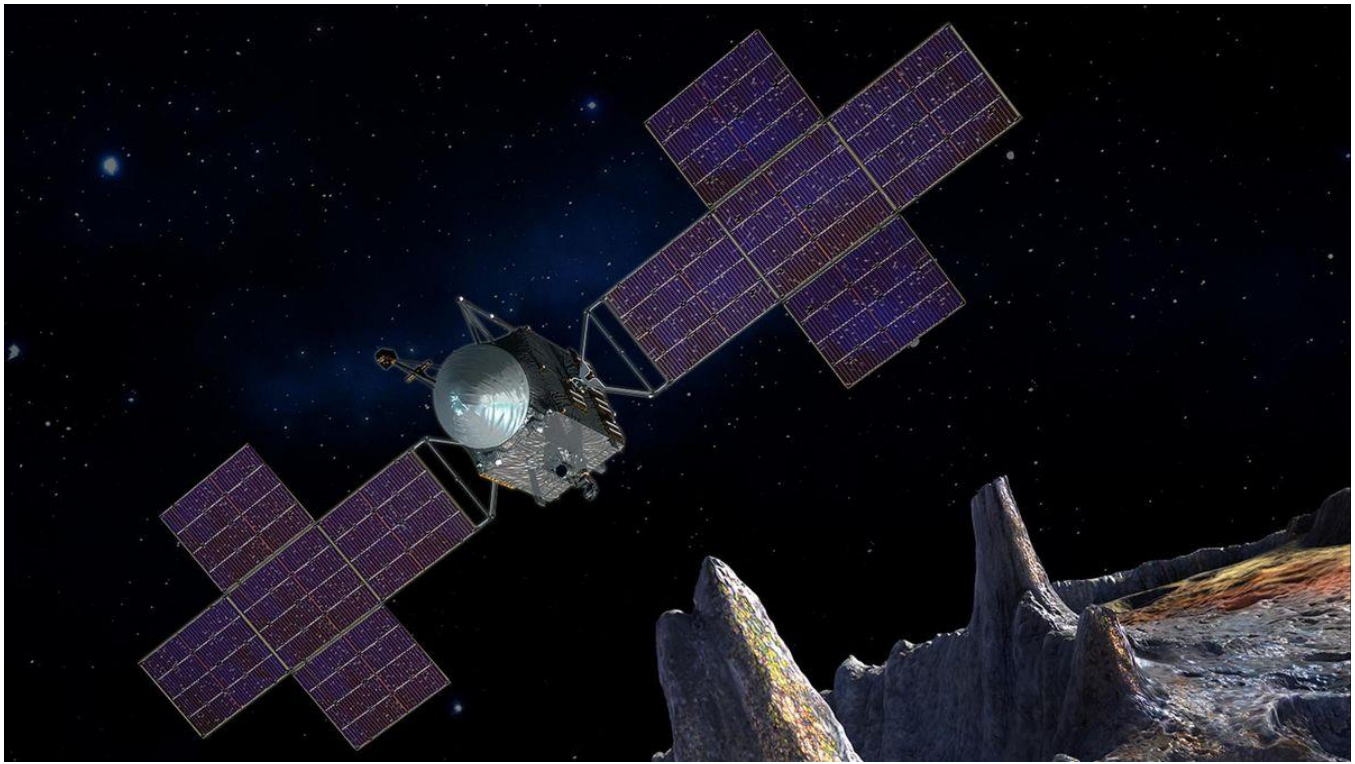
Regulators are beginning to get serious about orbital debris mitigation. On October 2, the Federal Communications Commission issued its first-ever space debris fine (\$150K) on Monday against the satellite TV company Dish Network over the failed decommissioning of its EchoStar-7 satellite. Per the press release, Dish "retired the satellite at a disposal orbit approximately 122 km above the geostationary arc, well short of the disposal orbit of 300 km specified in its orbital debris mitigation plan." Also on the space debris regulation front, the FAA issued a report that says if SpaceX deploys its full Starlink constellation, 28,000 hazardous fragments from de-orbiting satellites and the rockets that launch them could be surviving reentry each year by 2035, resulting in injury or death on the ground about every two years. SpaceX calls the report's analysis "deeply flawed" because its satellites are designed to burn up completely on reentry. The FAA released a draft rule on September 20 that would require commercial launchers to dispose of the upper stages from their launch vehicles.

Articles: [https://www.theblaze.com/news/fcc-issues-first-ever-space-debris-fine-dish-network-to-pay-150000-for-failed-deorbit?utm\\_source=theblaze-7DayTrendingTest&utm\\_medium=email&utm\\_campaign=Afternoon%20Auto%20Trending%207%20Day%20Engaged%202023-10-04&utm\\_term=ACTIVE%20LIST%20-%207%20Day%20Engagement](https://www.theblaze.com/news/fcc-issues-first-ever-space-debris-fine-dish-network-to-pay-150000-for-failed-deorbit?utm_source=theblaze-7DayTrendingTest&utm_medium=email&utm_campaign=Afternoon%20Auto%20Trending%207%20Day%20Engaged%202023-10-04&utm_term=ACTIVE%20LIST%20-%207%20Day%20Engagement)

<https://spacenews.com/spacex-slams-faa-report-on-falling-space-debris-danger/>

<https://spacenews.com/faa-proposes-rule-to-limit-lifetime-of-upper-stages-in-orbit/>

# High Value Target



Credit: NASA

The estimated value of the metals in 16 Psyche is \$100,000 quadrillion. That's more than the value of the entire world economy. On October 13 NASA launched its Psyche probe to this relatively rare M-type (metallic) asteroid in the main belt. The probe launched on a Falcon Heavy, marking the first time NASA has used that launch vehicle (the first six operational launches, after Elon's Tesla, carried commercial and military payloads). The Psyche probe will arrive at 16 Psyche in August 2029 and spend 2+ years surveying that big hunk of Nickel-Iron (current best guess of its composition).

Articles: <https://www.space.com/nasa-psyche-spacex-falcon-heavy-launch-success>

<https://spacenews.com/nasa-launches-psyche-mission-to-metal-world/>

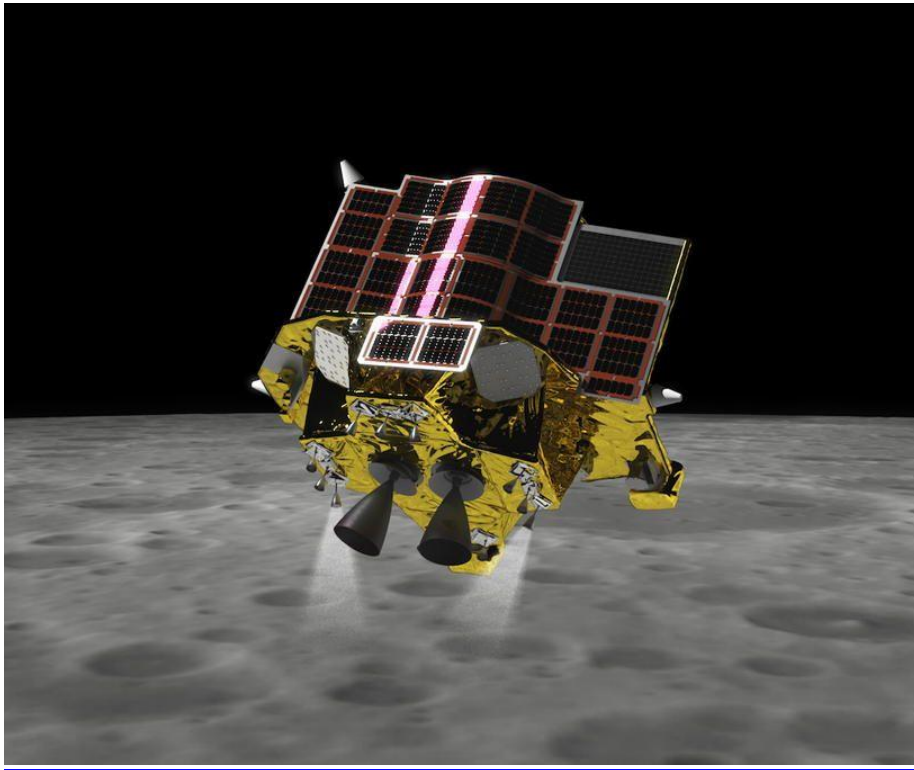
<https://spacenews.com/psyche-marks-start-of-nasa-use-of-falcon-heavy/>

<https://www.space.com/nasa-psyche-metal-asteroid-mission-launches-this-week>

<https://www.space.com/psyche-science-objectives-could-change-astronomy>

<https://www.space.com/psyche-metal-asteroid-composition>

## Japan Heads for the Moon (Among Other Places)



Credit: JAXA

On September 6, a Mitsubishi Heavy Industries H-2A rocket lifted out of Japan's Tanegashima Space Center, carrying JAXA's Smart Lander for Investigating Moon (SLIM) and XRISM, a joint JAXA/NASA X-ray observatory with participation from ESA. XRISM got no farther than its planned 550x500 km orbit in LEO, while SLIM headed out on a four-month trajectory to lunar orbit. After a month in lunar orbit, with any luck, it will make Japan the fifth nation to execute a soft landing on the moon.

Articles: <https://www.space.com/japan-slim-moon-lander-mission-launch-preview>

<https://www.space.com/japan-launches-slim-moon-lander-xrism-space-telescope>

<https://spacenews.com/japan-launches-moon-lander-and-x-ray-observatory/>

<https://spacenews.com/japans-slim-moon-lander-makes-lunar-flyby/>

# Consolidation



Credit: Northrop Grumman

On October 3, Northrop Grumman and Voyager Space made a joint announcement that NG will drop its plans for a commercial space station to partner on Voyager Space's Starlab station.

Articles: <https://arstechnica.com/space/2023/10/northrop-grumman-likely-to-end-its-bid-for-a-commercial-space-station/>

<https://spacenews.com/northrop-and-voyager-emphasize-benefits-of-commercial-space-station-partnership/>



# Rogue Planets!

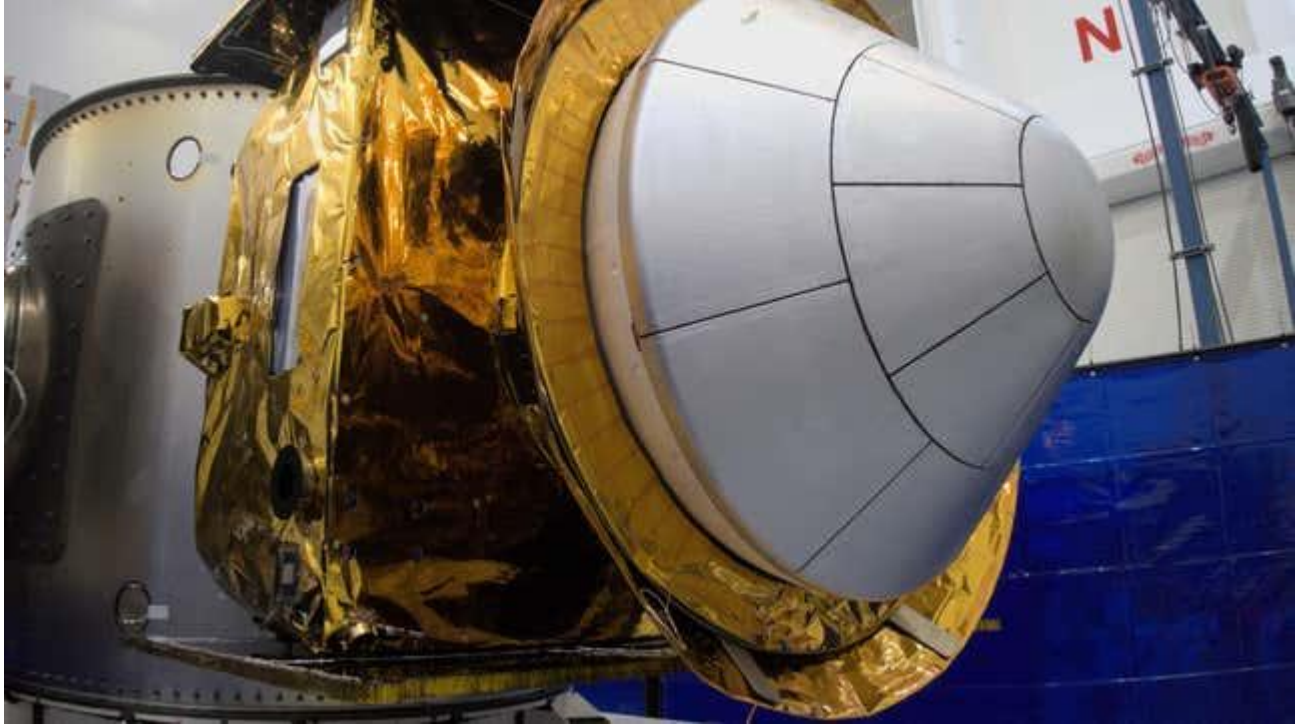


Credit: NASA, ESA, CSA / Science leads and image processing: M. McCaughrean, S. Pearson

The James Webb Space Telescope has detected about 540 rogue planets, including 42 gravitationally-bound pairs of free-floating gas-giant planets, or Jupiter Mass Binary Objects (JuMBOs) in the Trapezium Cluster of the Orion Nebula. They aren't the first planets unattached to any star that have been found. Another old speculation (see, for example, Poul Anderson's "Lodestar" and *Mirkheim* stories) has turned out to be correct.

Article: <https://www.space.com/james-webb-space-telescope-rogue-planets-stars-forming>  
<https://www.universetoday.com/163492/hundreds-of-free-floating-planets-found-in-the-orion-nebula/>

## Stuck in a Holding Pattern



Credit: Varda Space

“For the first time ever, orbital drug processing happened outside of a government-run space station,” Varda Space tweeted back in early July. “This is our first step in commercializing microgravity and building an industrial park in LEO (Low Earth Orbit).” All well and good – but now the FAA won’t give them a license to land.

Articles: <https://arstechnica.com/space/2023/07/in-space-manufacturing-startup-aces-pharma-experiment-in-orbit/>

[https://gizmodo.com/space-pharmaceuticals-var-da-regulations-faa-1850850528?fbclid=IwAR3nrH9sZunEtoInIW1PUReysryWM4s3UxDK887C53z6a-fj94g\\_BUQwsmk](https://gizmodo.com/space-pharmaceuticals-var-da-regulations-faa-1850850528?fbclid=IwAR3nrH9sZunEtoInIW1PUReysryWM4s3UxDK887C53z6a-fj94g_BUQwsmk)

<https://spacenews.com/var-da-waiting-on-faa-license-to-return-space-manufacturing-capsule/>

<https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green->

[https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-](https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-light/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQA)

[light/?guccounter=1&guce\\_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce\\_referrer\\_sig=AQA](https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-light/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQA)  
[AAI0rYvKN6QmdgEPyJeTQtTf0mnCffYM-](https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-light/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQA)  
[hFaJWPOS6W\\_oNob3MtQWEVOZ805gnfFLWIkWQeRzpEepTGODJwuZ3\\_kcNNFs\\_sN3HEWBeTCfLyMT](https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-light/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQA)  
[AD6HsHakmMO0V55rEwNmPu6lxzkZQ7IFUaVi-bNahyAamJoP0kJ50wLtsEytWBmq](https://techcrunch.com/2023/09/15/var-da-space-puts-off-orbital-factory-reentry-pending-air-force-and-faa-green-light/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQA)

# They Said the Quiet Part Out Loud



Credit: NASA

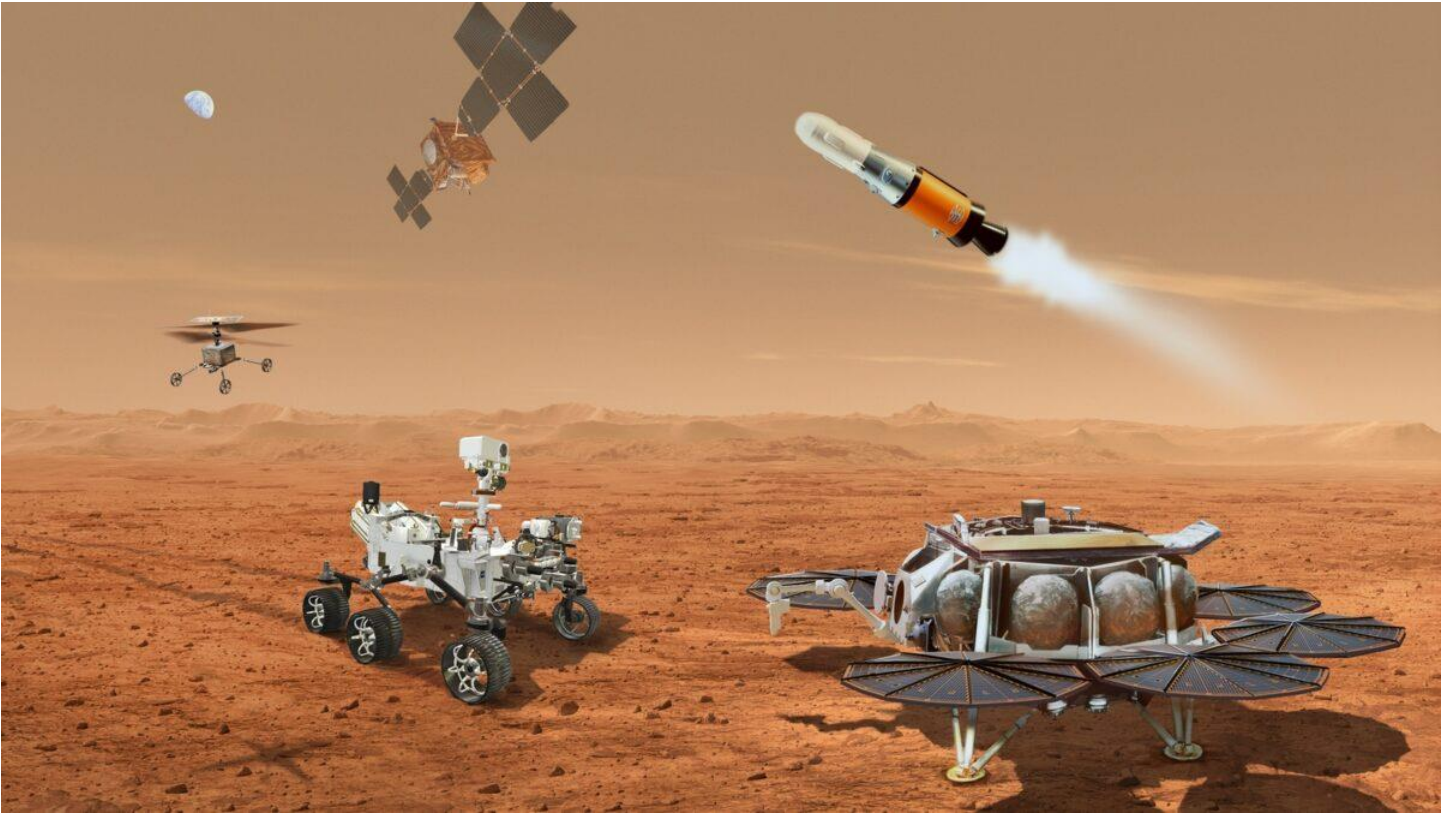
Per a new report from the Government Accountability Office, "Senior NASA officials told GAO that at current cost levels, the SLS program is unaffordable." NASA announced in July 2022 its intent to move to a service-based contract for SLS, beginning with Artemis 5, and projected a 50% reduction in SLS launch costs from doing that. But a report from NASA's Office of Inspector General (OIG) published October 12 concluded that's "highly unrealistic," and the vehicle's cost likely to remain above \$2B for the foreseeable future.

Article: <https://arstechnica.com/space/2023/09/nasa-finally-admits-what-everyone-already-knows-sls-is-unaffordable/>

<https://spacenews.com/new-contract-unlikely-to-significantly-reduce-sls-costs/>



## While We're Being Honest...



Credit: NASA/JPL-Caltech

\$4.4B isn't gonna get it. The Mars Sample Return Independent Review Board published its findings in mid-September. "MSR is a deep-space exploration priority for NASA. However, MSR was established with unrealistic budget and schedule expectations from the beginning. MSR was also organized under an unwieldy structure. As a result, there is currently no credible, congruent technical, nor properly margined schedule, cost, and technical baseline that can be accomplished with the likely available funding."

Articles: <https://spacenews.com/nasa-mars-sample-return-budget-and-schedule-unrealistic-independent-review-concludes/>  
<https://arstechnica.com/space/2023/09/independent-review-finds-mars-sample-return-mission-important-but-broken/>



## Playing With Matches



Credit: CCTV

Clearly there are different safety protocols on Tiangong than on ISS. Maybe they might want to rethink that before adding all the additional modules they say they're going to add?

Articles: <https://www.space.com/china-tiangong-space-station-light-match-fire-microgravity>  
<https://spacenews.com/china-to-send-new-modules-and-co-orbiting-spacecraft-to-tiangong-space-station/>

## It Should Have Been a No-Brainer



Credit: Johns Hopkins Applied Physics Laboratory

Such a hard fight for such a picayune sum of money. NASA announced on September 29 that it will extend New Horizons, currently approved for operations through the end of FY 2024, until the spacecraft exits the Kuiper Belt sometime around the end of the decade. The cost to operate the probe is a little more than \$9M per year; NASA had considered transferring the mission from the planetary science division to make it a heliophysics-only mission to save a few million bucks, but backed off in the face of an uproar from the science community and a campaign by many space organizations, including NSS.

Article: <https://spacenews.com/nasa-to-extend-new-horizons-mission-through-late-2020s/>  
<https://www.space.com/nasa-extends-new-horizons-mission-late-2020s>  
<https://gizmodo.com/nasa-new-horizons-extended-mission-kuiper-belt-1850892636>

# Fly, Little Bird, Fly!



Credit: ESA

ANSER (Advanced Nanosatellite Systems for Earth-observation Research), is a trio of shoebox-sized cubesats that will monitor Iberian waters as if they were a single, standard-sized satellite. Instead of an onboard propulsion system, the satellites will use wing-like flaps, which extend their wingspan by about six times, to maintain their relative positions by pushing against the tenuous airflow at the fringe of Earth's atmosphere in their 500 km altitude orbits.

Article: <https://www.space.com/spain-cubesat-fly-in-formation-like-geese>

## This Week At NASA

Videos: [https://www.nasa.gov/multimedia/podcasting/twan\\_index.html](https://www.nasa.gov/multimedia/podcasting/twan_index.html)



# That's All Folks



Credit: SpaceX

