



March 2024

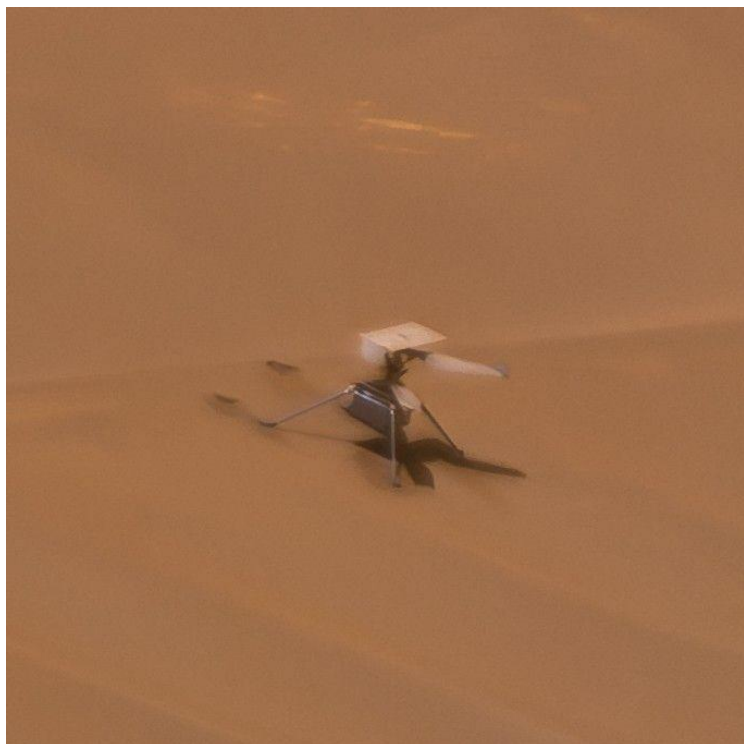
Update

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Broken Wing



Credit: NASA

March 2024 OSA Meeting

Saturday, March 9, 2024

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

We are keenly aware of the immense challenges that lie ahead. However, it is precisely in facing these challenges head-on that we recognize the magnitude of the opportunity before us: to softly return the United States to the surface of the moon for the first time in 52 years.
– Intuitive Machines CEO Steve Altemus

Table of Contents

Io Up Close.....	1
March 2024 OSA Meeting.....	1
Quote of the Month.....	1
Table of Contents.....	2
Any Landing You Can Walk Away From.....	3
Meanwhile, Farther North	4
China’s Plan.....	5
India’s First Team.....	6
Cost Overruns Kill Another NASA Mission.....	7
Looking to Extend the Warranty.....	8
Japan Has a New Workhorse.....	9
Pratique.....	10
The Leak That Grew.....	11
Vast Ambitions.....	12
DART Packed a Real Punch.....	13
Kick the Can.. ..	14
Look But Don’t Touch – This Time.....	15
Coming Up On the Outside Track?	16
Near Death Experience	17
Don’t Panic	18
This Week At NASA	19
That’s All Folks	20

Oklahoma Space Alliance Update

March 9, 2024

Editor Cliff McMurray

Asst Editor Claire McMurray

cliffmcmurray@hotmail.com

405-863-6173 (C)

The *Oklahoma Space Alliance Update* is a bi-monthly newsletter of the Oklahoma Space Alliance a chapter of the National Space Society, a non-profit organization headquartered in Washington, D.C. The address of OSA is **102 W. Linn, #1, Norman, OK 73071.**

Unless otherwise noted, all contents of articles herein do not necessarily reflect the opinion of anyone but the writer. Reprint rights are granted to recognized chapters of NSS, provided credit is given.

Articles may be submitted by U.S. mail or electronically. Articles may be sent to the Editor at 121 South Creekdale Drive, Norman, OK 73072 or to david.sheely51@gmail.com. Each submission should include the author's name and either e-mail address or phone number (for verification only). A text or Microsoft Word file is preferred. Please contact the Editor by phone, e-mail or texting before mailing your information.

OSA Officers for 2024

President & Adam Hemphill

Vice President & Update Editor Cliff McMurray

cliffmcmurray@hotmail.com

405-863-6173 (C) Secretary & Henderson Syd

Outreach Editor

sydh@ou.edu

405-321-4027(H)

405-365-8983(C)

Treasurer Tim Scott

ctsscott@mac.com

405-740-7549(H)

NSS Headquarters

1155 15th Street NW, Suite 500 Washington DC 20005

Exec Director Kirby Ikin

nsshq@nss.org

202-429-1600

Any Landing You Can Walk Away From...



Credit: NASA TV

The first commercial spacecraft to successfully land on the moon promptly tipped over on its side, but its payloads continue to function. Intuitive Machines' robotic Odysseus moon lander was launched moonward on February 15, entered lunar orbit a week later, and touched down on February 22, near the rim of the crater Malapert A, about 190 miles (300 km) from the lunar south pole.

Articles: <https://www.space.com/spacex-launch-im-1-private-moon-landing-mission>

<https://www.space.com/intuitive-machines-odysseus-lander-on-way-to-moon>

<https://spacenews.com/falcon-9-launches-first-intuitive-machines-lunar-lander/>

<https://www.space.com/intuitive-machines-odysseus-moon-lander-lunar-orbit>

<https://www.space.com/intuitive-machines-odysseus-private-moon-landing-success>

<https://spacenews.com/intuitive-machines-lands-on-the-moon/>

<https://spacenews.com/im-1-lunar-lander-tipped-over-on-its-side/>

<https://spacenews.com/intuitive-machines-expects-early-end-to-im-1-lunar-lander-mission/>

<https://spacenews.com/intuitive-machines-and-nasa-call-im-1-lunar-lander-a-success-as-mission-winds-down/>

Meanwhile, Farther North...



Credit: AXA/Takara Tomy/Sony Group Corporation/Doshisha University

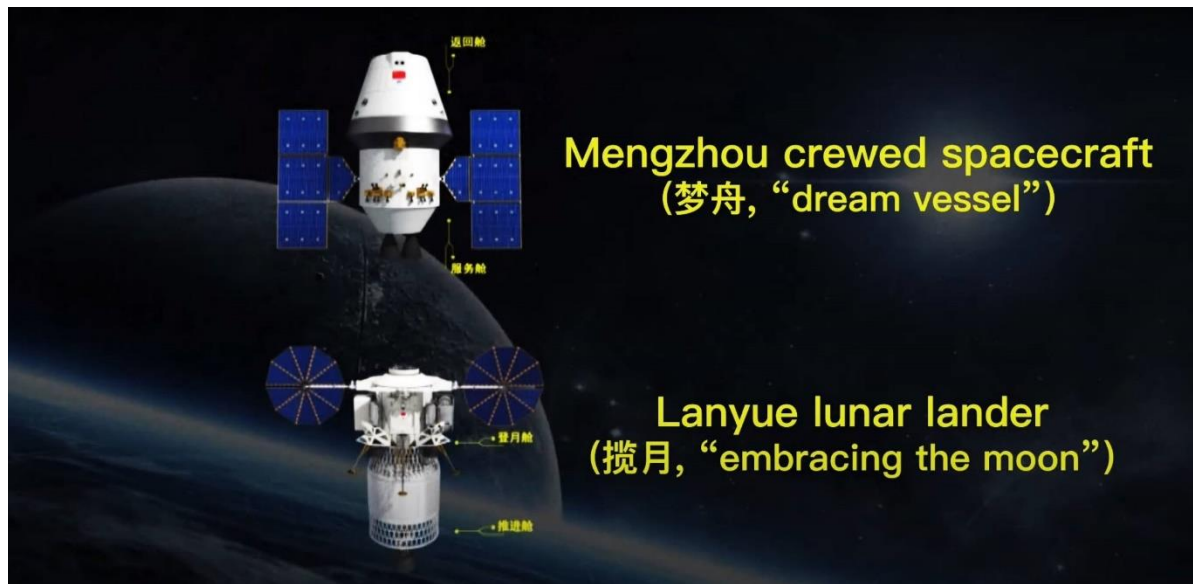
The Japanese SLIM lander was not designed to survive the deep cold of lunar night, but it did. Since its pinpoint landing on the rim of Shioli crater on January 19, the probe has been silent for nearly a month. But JAXA reestablished contact on February 25, and has gotten some additional science return from the tipped-over spacecraft in the few days before night fell again on February 29.

Articles: <https://www.npr.org/2024/01/22/1226036239/japan-slim-moon-lander-battery-power>

<https://www.space.com/japan-slim-moon-lander-wakeup-lunar-night>

<https://spacenews.com/japans-slim-moon-lander-stages-unexpected-revival-after-lunar-night/>

China's Plan



Credit: CNSA/CCTV/SciNews.ro/Inside Outer Space screengrab

China has officially named and provided illustrations of the vehicles that will support its human exploration of the Moon: the three-seater Apollo-CSM-equivalent is called “Mengzhou” (Dream Vessel) and the LM-equivalent is named “Lanyue” (Embracing the Moon). They will launch separately on Long March 10s (also in development) and rendezvous in lunar orbit, where the crew will transfer to the lander for descent to the surface; from that point forward the mission profile follows the Apollo model.

Article: https://www.leonarddavid.com/china-details-human-lunar-landing-plans-dream-vessel-and-embracing-the-moon/?fbclid=IwAR2Pcn-3nI8uCb_sPgWb1JXsOMkNCciZJN7uNttjkHQRlu5oP4H9pghHh3Q

India's First Team



Credit: NASA

The first three Indian astronauts to fly on India's Gaganyaan spacecraft will be three of these four Indian Air Force pilots: Group Captain Prasanth Balakrishnan Nair, Group Captain Ajit Krishnan, Group Captain Angad Pratap and Wing Commander Shubhanshu Shukla. That mission is expected to last for three days, and is targeted for launch next year. India projects launch of its first of three uncrewed Gaganyaan test flights in July of this year, and another one before year's end.

Articles: <https://www.space.com/india-reveals-astronauts-first-human-spaceflight-gaganyaan>

<https://spacenews.com/india-targets-uncrewed-gaganyaan-orbital-test-mission-in-july-crewed-flight-in-2025/>

Cost Overruns Kill Another NASA Mission



Credit: NASA

On March 1, NASA announced it was ending the OSAM-1 (On-Orbit Servicing, Assembly and Manufacturing) mission “due to continued technical, cost, and schedule challenges, and a broader community evolution away from refueling unprepared spacecraft, which has led to a lack of a committed partner.” The projected cost of \$626M- \$753M had risen to over \$2B, according to a report by NASA’s Office of Inspector General issued in October 2023.

Articles: <https://spacenews.com/nasa-cancels-osam-1-satellite-servicing-technology-mission/>
<https://www.space.com/nasa-cancels-osam-1-satellite-servicing-mission>

Looking to Extend the Warranty



Credit: NASA TV

There are currently four Crew Dragon spacecraft in service; each one was originally certified for five flights. One of the Crew Dragons, Endeavour, is currently making its fifth flight, carrying the Crew-8 astronauts to ISS on March 3. But NASA now says Crew Dragon might be able to fly up to 15 times, depending on the results of a requalification campaign NASA and SpaceX will undertake this year and next.

Article: <https://www.space.com/spacex-nasa-crew-dragon-spacecraft-15-flights>

Japan Has a New Workhorse



Credit: JAXA

Japan's H3 launcher made it to orbit on its second try, lifting off from the Tanegashima Space Center on February 17. The success comes 11 months after the first H3 went into the ocean when its second stage engine failed to ignite. The main payload this time around was a 5,900 lb. (2,600 kg) mass simulator called Vehicle Evaluation Payload-4, which stood in for a big-ticket spacecraft; two small Earth observation satellites were also sent into orbit.

Articles: <https://spacenews.com/h3-reaches-orbit-on-second-launch/>
<https://www.space.com/japan-h3-rocket-reaches-orbit-first-time>

Pratique



Credit: Varda Space/John Kraus

When Varda Space Industries launched its W-Series 1 mission capsule for a space manufacturing demo in June 2023, it didn't anticipate any difficulty in getting permission to land the capsule. They planned to return the capsule as soon as mid-July 2023, but had extended difficulties securing a commercial reentry license from the FAA and approvals from the U.S. Air Force, which operates the Utah Test and Training Range (UTTR). VSI finally received an FAA reentry license on February 14, and the 90 kg. factory-in-a-box landed at the UTTR, west of Salt Lake City, on February 21.

Articles: <https://spacenews.com/var-da-gets-reentry-license-for-space-manufacturing-capsule/>
<https://www.space.com/var-da-first-in-space-manufacturing-capsule-landing-preview>
<https://spacenews.com/var-da-capsule-lands-in-utah/>
<https://www.space.com/var-da-in-space-manufacturing-capsule-landing-success>
<https://www.space.com/var-da-in-space-manufacturing-capsule-reentry-photos>

The Leak That Grew



Credit: NASA

NASA recently announced that a long-running leak in the Zvezda service module on ISS, first detected in 2019, has increased to a rate of more than 0.9 kg/day, double the previous rate detected in that part of Zvezda. Officials insist that the leak poses no danger to ISS or its occupants.

Article: <https://spacenews.com/nasa-monitoring-increased-leak-in-russian-iss-module/>

Vast Ambitions

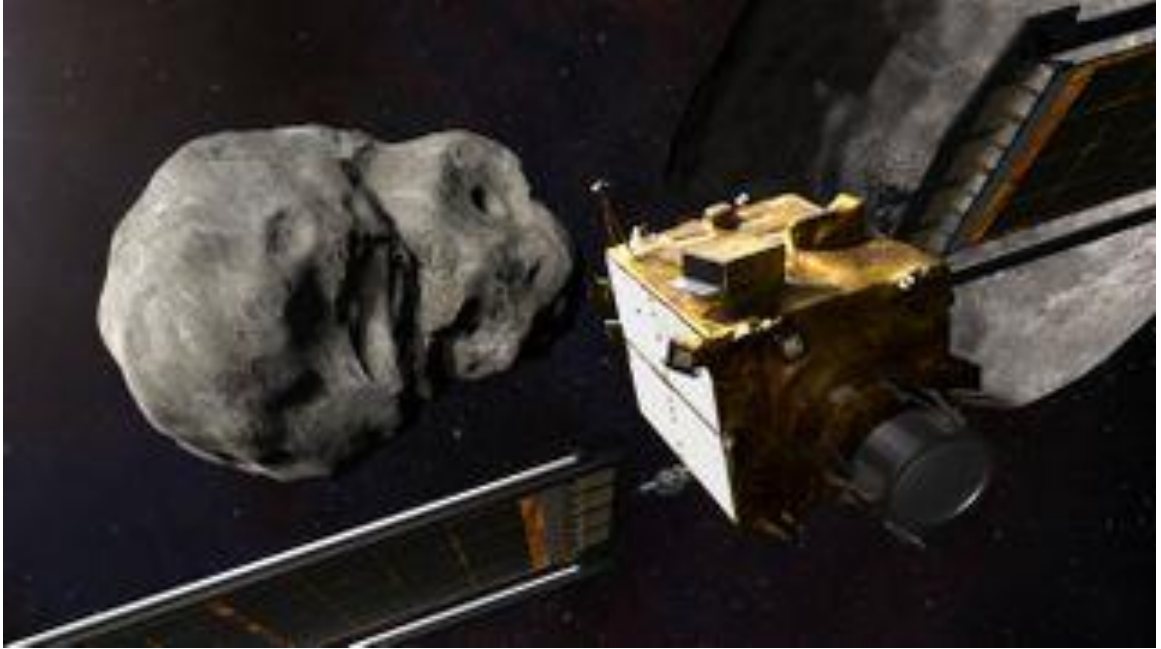


Credit: Vast Space

So far, Axiom has been the only company selected by NASA for private missions to ISS, with two such missions already flown and two more in the pipeline. But Axiom is about to have some competition for those mission slots. Vast Space has announced plans to bid on the fifth and sixth private astronaut missions to ISS. Both companies are developing commercial space stations, and with that goal in mind, both see these private astronaut missions as useful expansions of their knowledge/experience base.

Article: <https://spacenews.com/vast-seeks-to-bid-on-future-iss-private-astronaut-missions/>

DART Packed a Real Punch

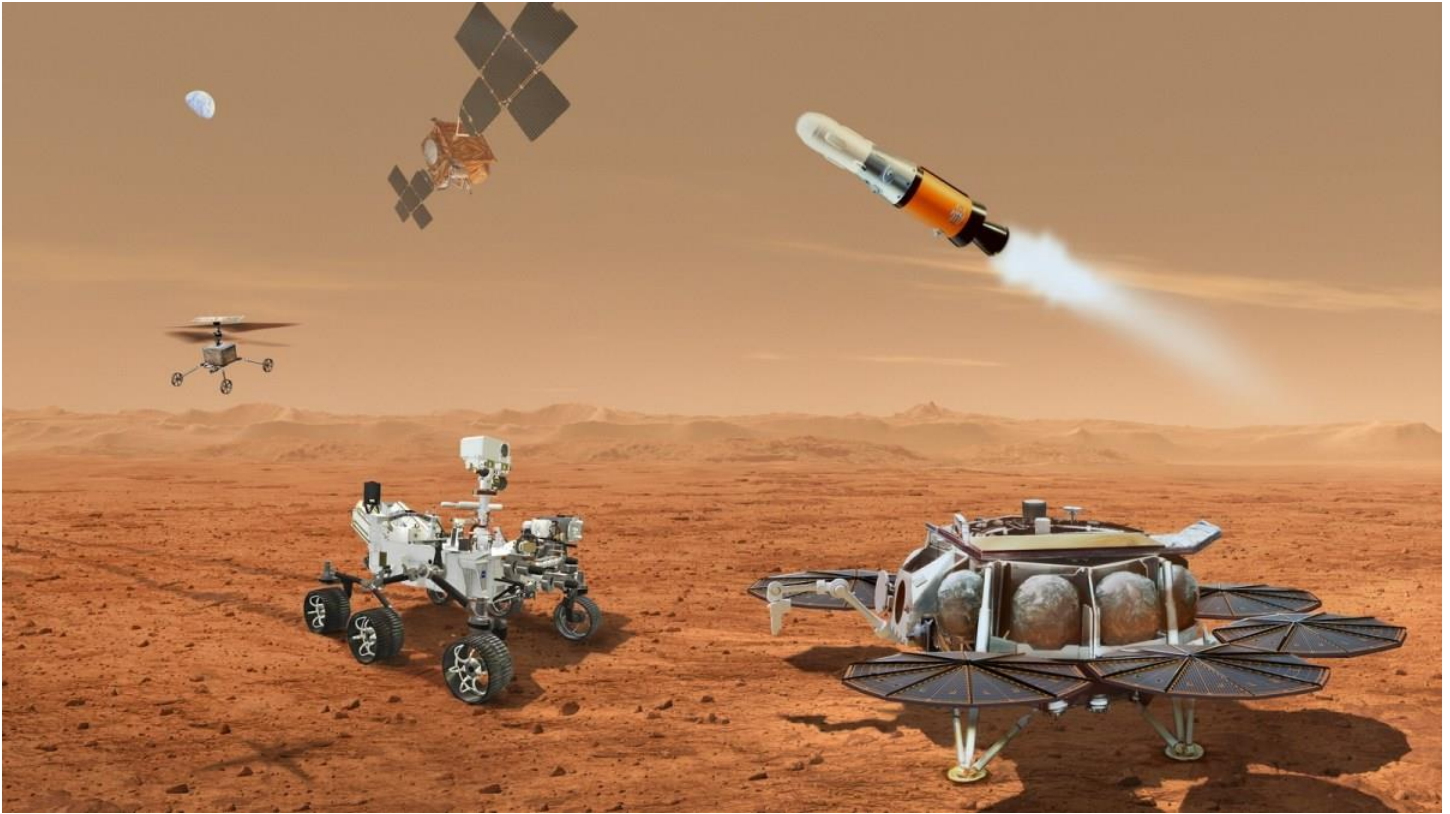


Credit: NASA/Johns Hopkins APL

It looks as though the Double Asteroid Redirection Test (DART) spacecraft may have had a huge effect on Dimorphos, which orbits the larger space rock Didymos, when it slammed into that moonlet last September. In addition to reducing its orbital period by 33 minutes, DART may have completely reshaped Dimorphos and resurfaced it with material from its interior.

Article: <https://www.space.com/nasa-dart-mission-dimorphos-didymos-asteroid-impact-reshaping>

Kick the Can



Credit: NASA/JPL-Caltech

The final version of the NASA FY 2024 budget released by House and Senate appropriators on March 3 fails to resolve the wide spread between House and Senate bills where Mars Sample Return is concerned. Instead, Congress directs NASA to spend no less than the \$300M the Senate wanted and no more than the \$949.3M in the House version of the bill. The joint version of the bill is expected to be voted on by both houses in the next few days. NASA's Office of Inspector General (OIG) published an audit of the MSR program on February 28, concluding that its spiraling cost estimates can be linked to a lack of a stable design for the key elements of the effort and "initial over-optimism" in its development (problems it says are common to NASA's flagship missions). Maybe they should go commercial. JPL has issued a request for proposals for "commercial service studies" for future robotic Mars mission concepts, although for smaller missions than MSR. Whatever the answer, there'll be pressure on the NASA planetary science budget for the foreseeable future. Representatives Judy Chu (D-Calif.) and Don Bacon (R-Neb.) announced on March 6 that they are restarting the previously slumbering Planetary Science Caucus within Congress to advocate for same.

Articles: <https://spacenews.com/final-nasa-2024-spending-bill-defers-decision-on-msr-funding/>
<https://spacenews.com/msr-problems-illustrative-of-challenges-for-nasa-flagship-missions-audit-concludes/>
<https://spacenews.com/nasa-studies-to-examine-commercial-partnerships-for-mars-exploration/>
<https://spacenews.com/new-congressional-caucus-seeks-to-build-support-for-nasas-planetary-science-programs/>

Look But Don't Touch – This Time

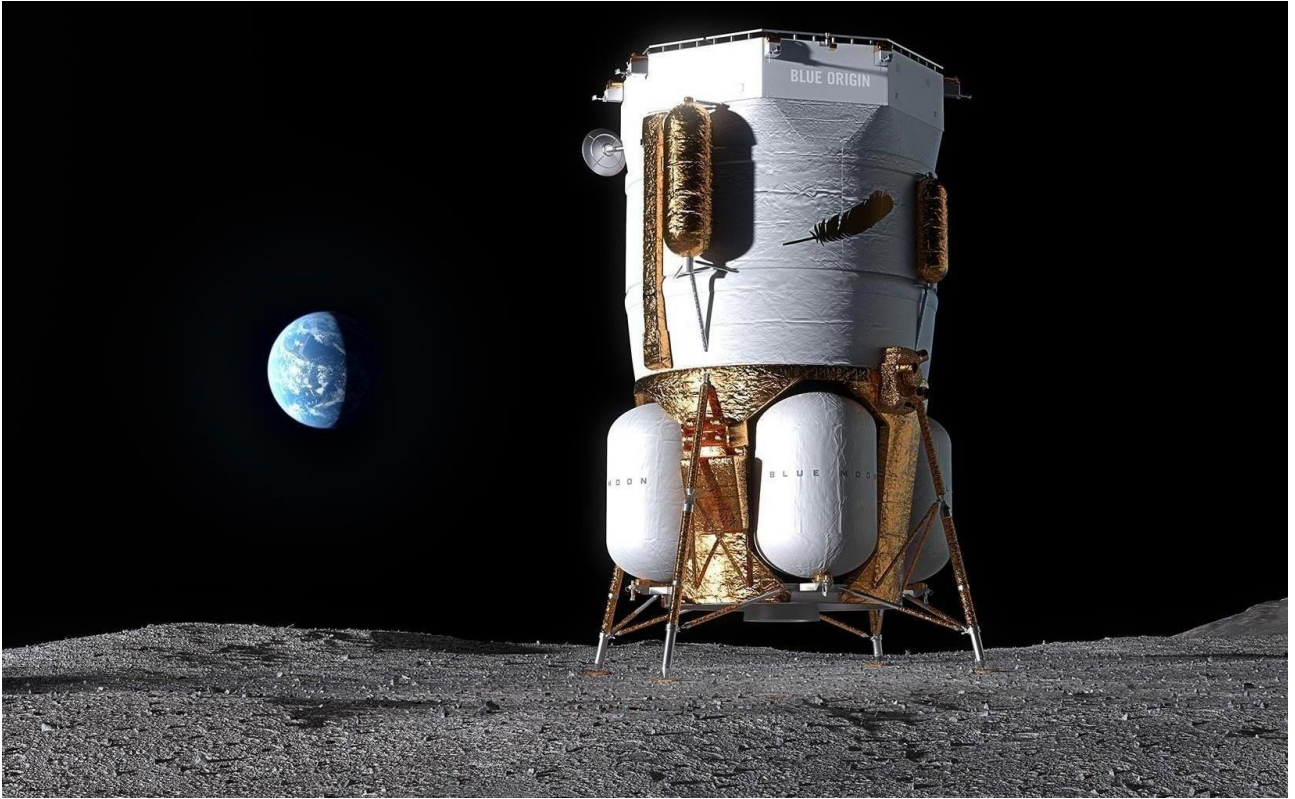


Credit: Astroscale

Astroscale's second orbital debris removal precursor mission got underway on February 18, with the launch of ADRAS-J (Active Debris Removal by Astroscale-Japan) on a Rocket Lab Electron booster. This flight is the first phase of JAXA's CRD2 (Commercial Removal of Debris Demonstration 2) program. Its goal is to approach and inspect an H-2A upper stage, 11 meters long and 4 meters in diameter, that's been in orbit since 2009. A future second phase of the CRD2 program will send a spacecraft to the upper stage to attempt to deorbit it.

Articles: <https://spacenews.com/electron-launches-astro-scale-inspection-satellite/>
<https://www.space.com/rocket-lab-launch-astro-scale-space-junk-inspection-mission>

Coming Up On the Outside Track?



Credit: Blue Origin

Blue Origin claims it will have a prototype of its Blue Moon lander on the lunar surface “between 12 and 16 months from today,” ahead of Starship. Blue Moon is the other vehicle selected by NASA for landing astronauts on the moon; its first manned use is currently set for Artemis 5. But Starship has yet to demonstrate the orbital refueling that will be required to get Starship to the moon for Artemis 3 (a test of that will be made aboard the next Starship to fly, probably mid-March, but that’s a far cry from the “tenish” rendezvous and refueling flights that will be needed for each Starship Artemis flight). NASA could move use of Blue Moon up to Artemis 3 if Starship hasn’t demonstrated that it’s ready. May the tortoise win the race after all?

Articles: <https://qz.com/blue-origin-spacex-moon-nasa-artemis-1851309279>

<https://spacenews.com/blue-origin-aims-to-launch-first-lunar-lander-in-2025/>

<https://spacenews.com/spacex-adds-tests-to-next-starship-flight/>

Near Death Experience



Credit: Astra

Astra Space has been struggling to stay afloat since a string of launch failures. They went public on the Nasdaq in June 2021. In November 2023, Astra founders Chris Kemp and Adam London (chief executive and chief technology officer, respectively) proposed a plan to privatize the company by acquiring all the outstanding stock at \$1.50/share. On March 7, the company announced that it has accepted the offer as its only alternative to Chapter 7 bankruptcy—but only after Kemp and London had reduced their offer to \$0.50/share. So, the company avoids death for the moment, but it's hard to see where good news is going to come from. As one financial commentator put it, "From \$5.4 billion to \$11 million in three years. To the moon, dude!"

Articles: <https://spacenews.com/astra-founders-reduce-offer-to-take-company-private/>

<https://spacenews.com/astra-warns-of-liquidation-if-proposal-to-go-private-falls-through/>

<https://spacenews.com/astra-agrees-to-go-private/>

<https://arstechnica.com/space/2024/03/after-astra-loses-99-percent-of-its-value-founders-take-rocket-firm-private/>

<https://wolfstreet.com/2024/03/07/more-spac-humor-astra-space-gets-bought-out-by-its-founders-executives-after-investors-got-almost-totally-wiped-out/>

Don't Panic!



Credit: Roscosmos

"I saw Chairman Turner's statement on the issue and I want to assure the American people there's no need for public alarm," said House Speaker Mike Johnson, responding to a public statement issued by House Intelligence Committee chairman Mike Turner (R-Ohio) on February 14, asking President Biden to "declassify all information relating to this threat." The threat in question is a purported new Russian ASAT capability that involves nukes, although it's unclear whether it takes out satellites with a nuclear blast (clear violation of the Outer Space Treaty of 1967, but does anyone think Russia cares?) or just an ASAT powered by an onboard nuclear reactor. Historical note: in a 1962 test called Starfish Prime, the U.S. detonated a 1.4MT nuke at 400 km. It charged up the Van Allen radiation belts and destroyed about one-third of the satellites in low Earth orbit, including the U.K.'s first satellite. China's recent military activity in space is less kinetic, but also worrisome to Space Force: Yaogan-41, an advanced (2.5 m resolution, i.e. six times better than prior ability from GEO) optical imaging satellite sitting in GEO since December. Paired with another GEOSAT, a synthetic aperture radar (SAR) imaging satellite named Ludi Tance-4 that can see through clouds and darkness, China now potentially has persistent visual and radar surveillance over strategically important areas like the Indo-Pacific.

Articles: <https://www.space.com/russia-space-nuclear-weapon-us-congress>

<https://spacenews.com/white-house-confirms-it-has-intelligence-on-russians-anti-satellite-weapon-but-says-no-immediate-threat/>

<https://spacenews.com/why-space-force-is-growing-more-alarmed-by-chinas-eyes-in-the-sky/>

This Week At NASA

Videos: <https://www.youtube.com/watch?v=WqPSN-P-y-o&list=PL1D946ACB21752C0E>

That's All Folks



Credit: NASA

