



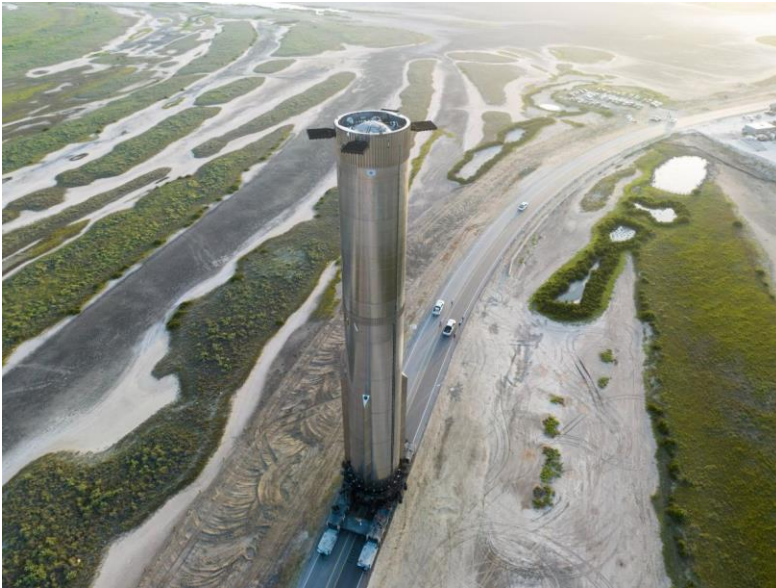
August 2023

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Super Heavy Roll Out



Credit: SpaceX

August 2023 OSA Meeting

Saturday, August 12, 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

I think, as space is changing so much, there are lots of ways to contribute and be a part of that. I think it's part of the reason I like to keep going back. Besides the addiction of this perspective, I really like being a part of something bigger than me. Space truly is that, and the objectives in space are that. So I'm very excited about continuing. – Peggy Whitson

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Oklahoma Space Alliance Update

August 12, 2023

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Things Are Tough All Over, Charlie



Credit: NASA/Bill Nelson

Not only will NASA not get the \$2B+ budget increase it asked for in FY '24, it will actually get slightly less than this year. Artemis gets its money, but planetary science takes a half billion dollar hit. Selection of the next New Horizons mission will be pushed back for up to two years. Congress is upset over projected cost increases for Mars Sample Return and gave NASA one-third of the money it was asking for that mission. Could it actually be on the chopping block?

Articles: <https://spacenews.com/house-and-senate-appropriators-cut-nasas-budget/>

<https://www.space.com/mars-sample-return-faces-senate-committee-cancellation>

<https://spacenews.com/next-nasa-new-frontiers-mission-could-face-extended-delay/>

Finally

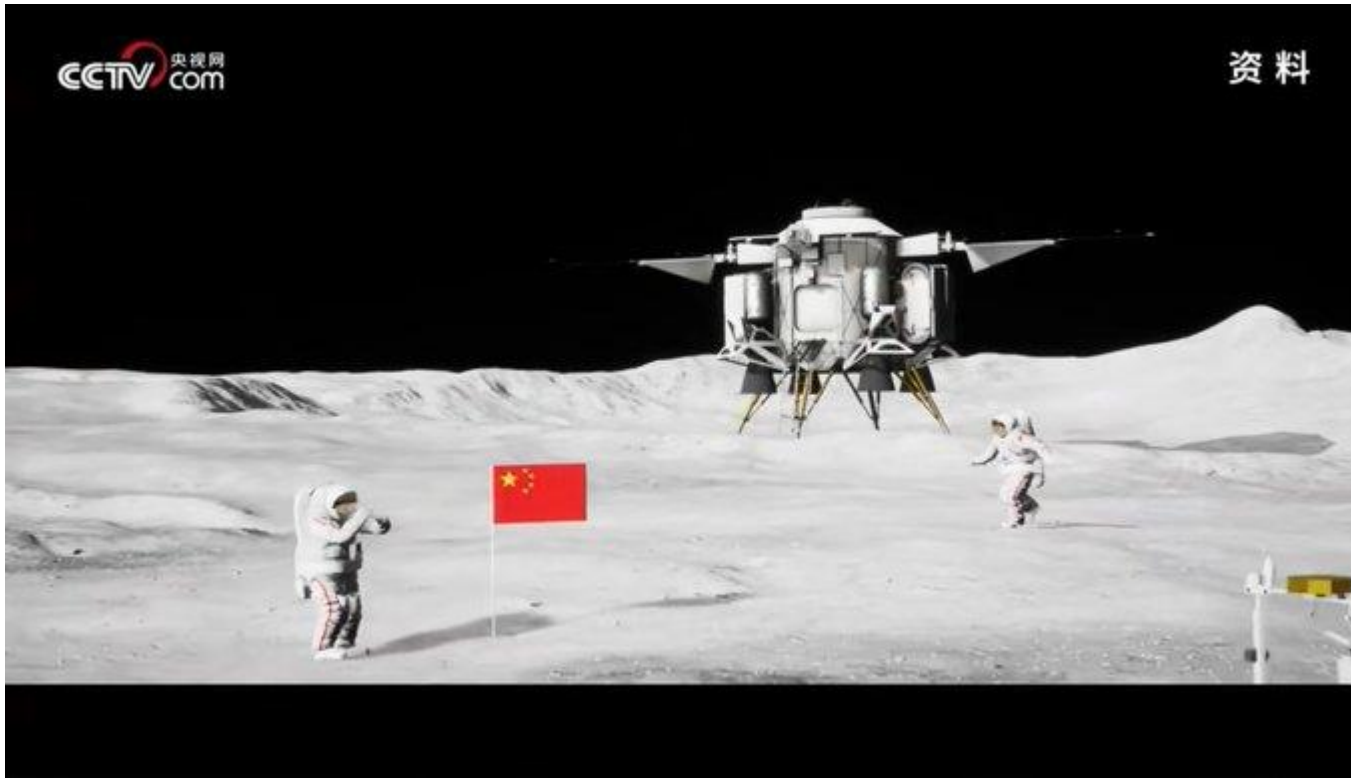


Credit: Virgin Galactic

Virgin Galactic flew its first three tourists to space on August 10, 19 years after the company was formed. The passengers were the first mother-daughter duo (one of whom was the youngest-ever spacefarer) and the first Olympian to space. Because of the 800 pre-operational ticket sales, three-fourths of which cost only about half as much as the current ticket price of \$450K, VG cautions that it will be a while before the flights bring in much new revenue.

Articles: <https://www.space.com/virgin-galactic-meet-the-crew-galactic02-mission>
<https://www.space.com/virgin-galactic-galactic02-launch-success>
<https://spacenews.com/virgin-galactic-conducts-first-space-tourist-suborbital-flight/>
<https://spacenews.com/virgin-galactic-forecasts-limited-revenues-from-initial-commercial-flights/>

Before This Decade is Out



Credit: CCTV

China's plans to land a pair of astronauts on the surface of the moon before the end of this decade are firming up. The mission will see an Apollo-style crew vehicle and a lunar lander launching separately on the under-development Long March 10, and rendezvousing in lunar orbit before a pair of taikonauts descend to the surface; they'll have a lunar rover to get around with. Venezuela has become the first country to formally sign on to the Chinese International Lunar Research Station (ILRS).

Articles: <https://spacenews.com/china-sets-out-preliminary-crewed-lunar-landing-plan/>
<https://spacenews.com/venezuela-signs-up-to-chinas-moon-base-initiative/>

China Beats Elon (and Everybody Else)



Credit: Ourspace

Starship, Vulcan, New Glenn, Neutron and Terran R all lost the race. On July 11, the Chinese private rocket firm LandSpace achieved a global first, with the first methane-fueled rocket to reach orbit. The second Zhuque-2 rocket (the first one failed in December 2022) carried no payload, but it made it into a 431x461-km Sun-synchronous orbit.

Articles: <https://spacenews.com/chinas-landspace-set-for-second-methalox-rocket-launch/>

<https://www.space.com/china-first-methane-powered-rocket-reach-orbit>

<https://spacenews.com/chinas-landspace-reaches-orbit-with-methane-powered-zhuque-2-rocket/>

Chandrayaan-3 is Moonbound



Credit: ISRO/YouTube

The Chandrayaan-3 lunar lander is on its way to the moon. It lifted off on an LVM-3 HLV from Satish Dhawan Space Centre on July 14. It took a slow, low-energy path to the moon, arriving in lunar orbit August 5. Lunar landing is projected for August 23 or August 24. If successful, Chandrayaan-3 will make India the fourth nation to make a controlled landing on the moon.

Articles: <https://www.space.com/india-ready-launch-chandrayaan-3-moon-mission>

<https://www.space.com/india-launches-chandrayaan-3-moon-landing-mission>

<https://spacenews.com/india-launches-chandrayaan-3-lunar-landing-mission/>

<https://www.space.com/chandrayaan-3-moon-rover-orbit-raising-maneuvers>

<https://spacenews.com/indias-chandrayaan-3-lander-arrives-in-lunar-orbit/>

It's Been a While

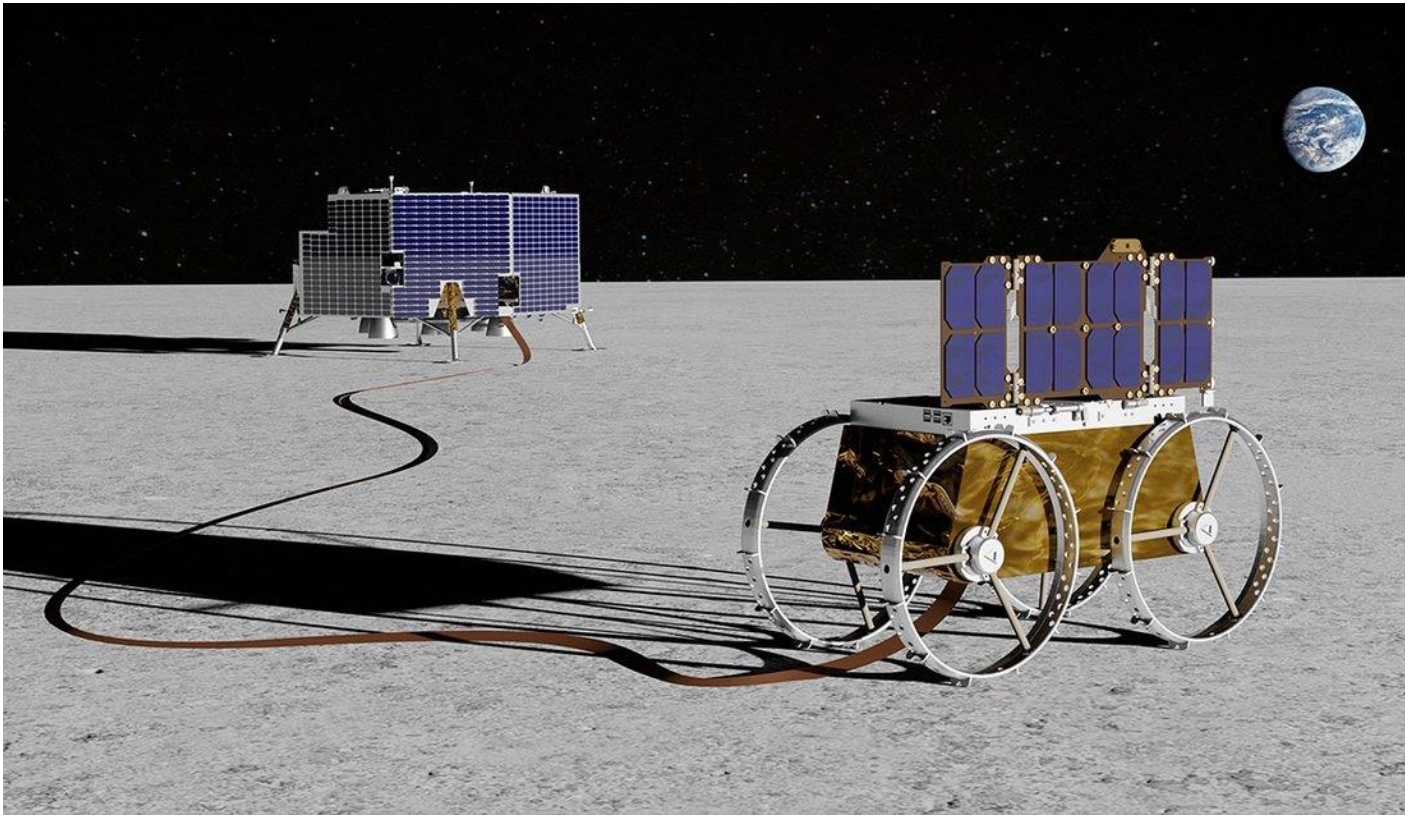


Credit: Roscosmos

Russia launched its first moon probe in nearly half a century (47 years, to be exact) on August 10. A Soyuz rocket hurled Luna 25, the first domestically-produced moon probe since the dissolution of the Soviet Union, moonward from the Vostochny Cosmodrome in Russia's far eastern Amur Region. Unlike Chandrayaan-3, Luna 25 is taking a relatively fast five-day trajectory to the moon; it will spend 5-7 days in lunar orbit before attempting a touchdown near Boguslawsky Crater in the south polar region. That landing will occur at around the same time, and in the same general area, as Chandrayaan-3. Russia hopes it will operate on the lunar surface for a full earth year.

Articles: <https://www.space.com/russia-luna-25-moon-lander-launch-webcast>
<https://www.space.com/russia-luna-25-moon-mission-launch-success>

More Power!



Credit: Astrobotic

On July 25 NASA announced the selection of 11 awards, with a combined value of \$150M, through its Tipping Point program of space technology development, several of which went to companies working on nuclear and solar power systems for the moon. Among others, Astrobotic Technology got a \$34.6 million award to develop technologies for its LunaGrid project; this award covers part of the development cost of “LunaGrid Lite”, a demo mission in which one of the company’s CubeRovers (the size of a six-unit cubesat) that will travel one kilometer from a lander, unspooling a cable over which the lander’s solar arrays will then transmit one kilowatt of power to the rover. Blue Origin got \$34.7M to demonstrate the ability to produce solar cells using lunar materials. A team lead by Zeno Power (partnered with Blue Origin, Intuitive Machines, Sunpower Inc., the University of Dayton Research Institute and NASA’s Glenn Research Center and MSFC) won a \$15M award to develop a radioisotope Stirling generator for use on lunar missions, enabling such missions to continue operations through the two-week lunar night. Three of the other award winners have projects geared toward building habitats, roads or other infrastructure from lunar rock and regolith.

Articles: <https://www.space.com/nasa-funding-moon-power-exploration-tech-july-2023>
<https://spacenews.com/nasa-selects-companies-to-advance-lunar-power-and-other-technologies/>

Big Boy



Credit: SpaceX

On July 28 SpaceX launched EchoStar's 9+ metric ton Jupiter-3 comsat on a dedicated Falcon Heavy, successfully placing the world's heaviest commercial communications satellite in GTO. The side boosters, both on their third flight, landed successfully.

Articles: <https://spacenews.com/falcon-heavy-sends-jupiter-3-broadband-giant-toward-geostationary-orbit/>

<https://www.space.com/spacex-falcon-heavy-jupiter-3-satellite-launch>

No More of These



Credit: Northrop Grumman

An Antares rocket using Russian hardware lifted off on August 1, carrying a Cygnus supply capsule bound for ISS. This launch was the final flight of the current version of the Antares rocket, designated Antares 230+, which uses a first stage built by Ukraine's Yuzhnoye State Design Office and Yuzhmash Machine Building plant and RD-181 engines from Russian company NPO Energomash. Northrop Grumman announced last year that it plans to develop a new first stage called Antares 330 in partnership with Firefly Aerospace. The new vehicle should fly for the first time in mid-2025. Meantime, Northrop Grumman will have to fly its Cygnus missions on Falcon 9s. NG is upgrading Cygnus as well, stretching it and boosting its cargo capacity to ISS from 3,750 kg of pressurized cargo to 5,000 kg.

Article: <https://spacenews.com/northrop-grumman-prepares-for-final-flight-of-antares-with-russian-and-ukrainian-components/>

<https://spacenews.com/antares-launches-cygnus-to-iss/>

<https://www.space.com/international-space-station-resupply-ng-19-antares-launch>

<https://spacenews.com/northrop-grumman-planning-cygnus-upgrades/>

Back to the Drawing Board



Credit: Rocket Lab

Rocket Lab's latest launch on July 17 saw some changes to the booster to make it more watertight, as the company abandoned plans to snag the booster out of midair and went back to fishing it out of the ocean. No Electron booster has yet been reflown, but the company plans to reflly an engine before the end of this year.

Articles: <https://spacenews.com/rocket-lab-takes-another-step-towards-reusability-on-next-electron-launch/>

<https://spacenews.com/electron-launches-seven-smallsats-in-latest-step-towards-reusability/>

<https://www.space.com/rocket-lab-electron-launch-recovery-july-2023>

All Dressed Up and No Place to Go

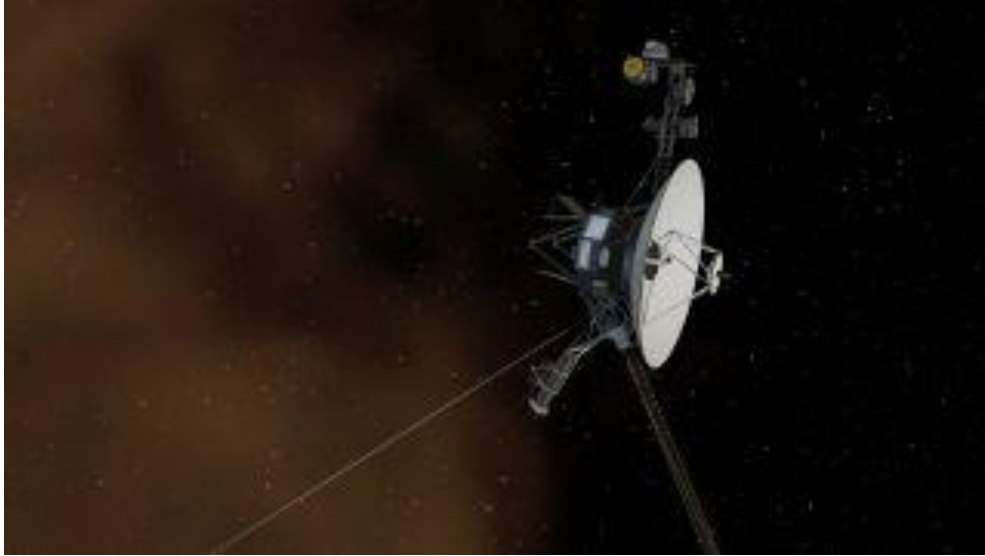


Credit: Lockheed Martin

After spending the money to build them, NASA is putting a couple of deep space probes in mothballs. The Janus mission, selected as part of the agency's Small, Innovative Missions for Planetary Exploration (SIMPLEx) program, was supposed to send two identical smallsats to fly by different pairs of binary asteroids. But they were supposed to piggyback on the launch of the Psyche asteroid mission, and when that mission was delayed the smaller probes lost the trajectory they needed to reach their target. After studying other options, including sending them to Apophis, NASA concluded it didn't have the funds in the planetary program to fly them. Wonder why?

Article: <https://spacenews.com/nasa-cancels-janus-asteroid-smallsat-mission/>

Check Your Code Before You Hit Send



Credit: NASA/JPL-Caltech

In July communications with Voyager 2, currently around 12.4B miles (19.9B km) from Earth, were severed as a result of planned commands which inadvertently rotated the spacecraft's antenna two degrees away from Earth. That was enough to cut its links to the ground antennas of NASA's Deep Space Network (DSN), according to a statement from JPL. JPL thought they might have to wait until October for Voyager's software to automatically reset it back to proper facing for communication, but they were able to get back in touch sooner with the highest power shout the Deep Space Network could make.

Articles: <https://www.space.com/voyager-2-interstellar-probe-communication-breakdown>

<https://www.bbc.com/news/science-environment-66408851>

Starlab Goes International



Credit: Nanoracks

On August 2, Voyager Space and Airbus announced the creation of a joint venture for the development of VS's Starlab commercial space station. They announced the joint venture will be U.S.-led, meaning that at least 51% of the company will be owned by U.S. entities like Voyager Space. Prior to that announcement, on July 10 VS unveiled a Memorandum of Understanding with India to explore using India's Gaganyaan crew capsule for transport to Starlab, one among many potential collaborations to deepen ties with India's space industry. The MoU with India is Voyager's first with a crewed spacecraft provider outside the US. Starlab's current projected operational date (in a single launch) is 2028.

Articles: <https://spacenews.com/voyager-space-and-airbus-create-commercial-space-station-joint-venture/>

<https://spacenews.com/voyager-space-deepens-india-ties-for-commercial-space-station-plans/>

Commercial Space Reserve



Credit: Scout Space

Space Force is moving forward with plans to establish a commercial space reserve to ensure the U.S. military has access to commercial satellite services during conflicts. The program would be based on the USAF Civil Reserve Air Fleet model, where the government calls upon commercial airlines for additional capacity during times of crisis.

Articles: <https://spacenews.com/dod-weighing-options-to-create-commercial-space-reserve/>
<https://spacenews.com/space-force-to-further-define-details-of-a-commercial-space-reserve/>

Cross Dressing for Space



Credit: Axiom

NASA previously picked Axiom Aerospace to build a moon spacesuit for Artemis astronauts and Collins Aerospace to manufacture a new suit for spacewalking astronauts on ISS. On July 10 NASA issued contracts worth &10M (\$5M to each company) to Axiom and Collins to make alternate versions of their suits capable of fulfilling both roles.

Articles: <https://www.space.com/nasa-orders-more-spacesuits-for-moon-space-station>
<https://spacenews.com/nasa-awards-crossover-spacesuit-task-orders-to-axiom-and-collins/>

Another Path to Hibernation



Credit: AJ Pics/Alamy Stock Photo

Ultrasound waves targeted at the hypothalamus preoptic area have been shown to lower the body temperature of mice by several degrees Celsius and induce a state of torpor. Might work on humans, but experiments are a ways away yet.

Article: <https://www.space.com/mars-astronauts-suspended-animation-sound-waves>

This Week At NASA

Videos: https://www.nasa.gov/multimedia/podcasting/twan_index.html

That's All Folks



Credit: SpaceX

