



August 2024

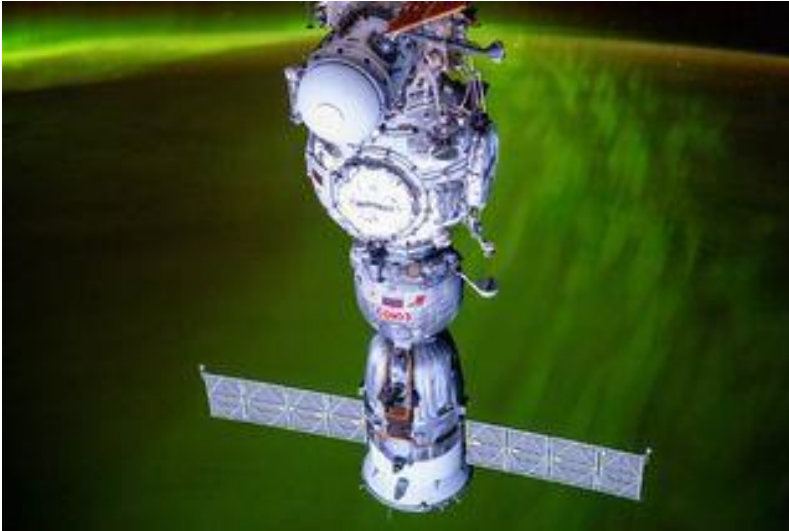
Update

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Aurora from ISS



Credit: Matthew Dominick/NASA/X

August 2024 OSA Meeting

Saturday, August 10, 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

Man must at all costs overcome the Earth's gravity and have, in reserve, the space at least of the Solar System. – Konstantin Tsiolkovsky

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Oklahoma Space Alliance Update

August 10, 2024

Editor Cliff McMurray

Asst Editor Claire McMurray

cliffmcmurray@hotmail.com

405-863-6173 (C)

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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

ahemphil@gmail.com

405-863-6173 (C)

Vice President David Sheely

david.sheely51@gmail.com

405-8321-9077 (C)

Secretary & Syd Henderson

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

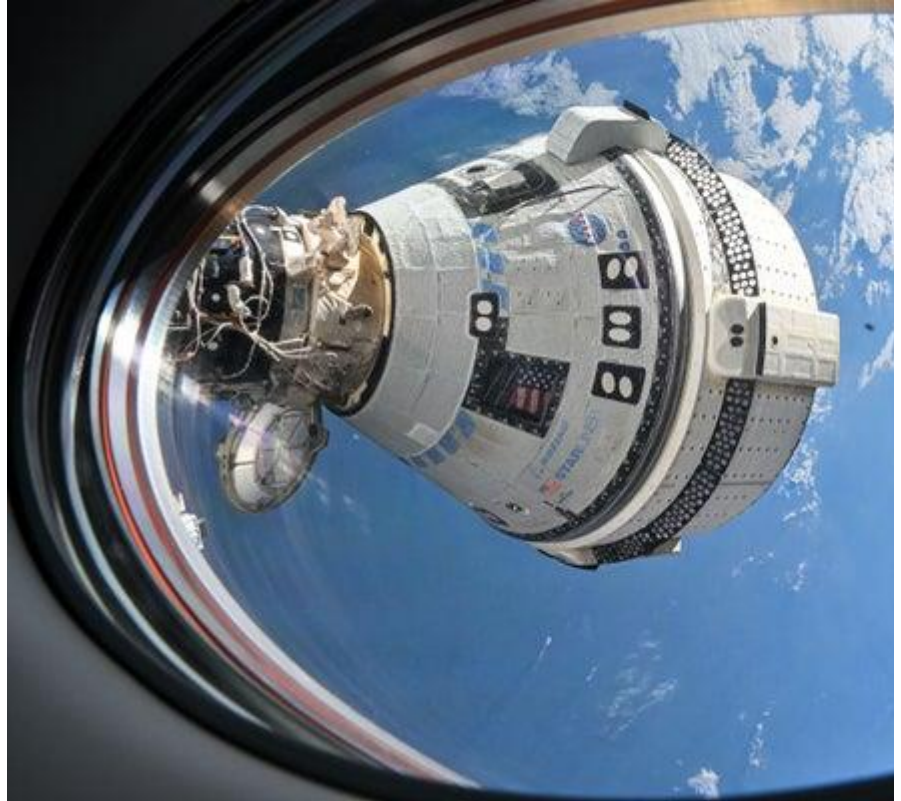
1155 15th Street NW, Suite 500 Washington DC 20005

Exec Director Kirby Ikin

nsshq@nss.org

202-429-1600

Still Stuck



Credit: NASA

What was supposed to be a two week visit to ISS for the CST-100 Starliner crew is heading into its third month, as an “honest disagreement” between engineers on the ground as to how safe the vehicle would be for a return flight. Sunita Williams and Barry “Butch” Wilmore may remain aboard ISS until February of next year – and they may be hitchhiking on a Crew Dragon when they do. In a filing with the SEC July 31, Boeing said it was taking an additional \$125M loss on Starliner, bringing its losses to about \$1.6B so far.

Articles: <https://spacenews.com/nasa-delays-crew-9-launch-as-it-grapples-with-starliner-problems/>

<https://spacenews.com/nasa-considering-returning-starliner-astronauts-on-crew-dragon/>

<https://www.scientificamerican.com/article/how-nasas-stranded-starliner-astronauts-could-fly-home-with-spacex/>

<https://spacenews.com/boeing-takes-additional-125-million-loss-on-starliner/>

Even the Queen



Credit: SpaceX

The July 11 SpaceX Falcon 9 launch, carrying 20 Starlink satellites, started out well, but the second stage engine suffered a LOX leak which prevented completion of its second, circularizing burn. SpaceX tried to raise the orbit of a handful of the Starlinks using their ion thrusters, but all satellites were lost. The first stage was recovered successfully. Falcon 9s have been launched 370 times, with 367 full mission successes, three failures, and one partial failure. The subsequent FAA investigation cleared Falcon 9 to return to flight just two weeks, and another one went up without mishap on July 25. The cargo: another batch of Starlinks.

Articles: <https://spacenews.com/falcon-9-suffers-upper-stage-engine-failure/>
<https://www.space.com/spacex-starlink-launch-anomaly-july-2024>
<https://www.space.com/faa-investigation-spacex-falcon-9-failure-starlink-launch>
<https://www.space.com/spacex-falcon-9-launch-failure-lessons>
<https://spacenews.com/falcon-9-cleared-to-resume-launches/>
<https://spacenews.com/falcon-9-returns-to-flight-with-starlink-launch/>
<https://www.space.com/spacex-return-to-flight-falcon-9-launch-starlink>

They Were Warned



Credit: Facebook

Don't make Elon angry. You won't like him when he's angry. Elon Musk told California governor Gavin Newsom that if he signed the bill prohibiting schools from informing parents if their child changes names or pronouns and requests privacy. He would move SpaceX and X out of the state. On July 16 Newsome signed the bill; Musk announced his companies' departure the same day. Musk becomes more anti-woke and politically active by the day, it seems. He has endorsed Donald Trump for President and formed a pro-Trump PAC (America PAC) to which he plans to donate about \$45M per month between now and election day.

Articles: <https://www.theguardian.com/technology/article/2024/jul/20/elon-musk-california-spacex-texas>

<https://www.space.com/spacex-elon-musk-california-texas-headquarters-lgbtq-legislation>

<https://spacenews.com/a-new-kind-of-space-politics/>

<https://www.reuters.com/world/us/musk-plans-commit-around-45-million-month-new-pro-trump-super-pac-wsj-reports-2024-07-16/>

SpaceX to Deorbit ISS



Credit: SpaceX

NASA announced on June 26 that it has awarded SpaceX a contract worth up to \$843M to build a vehicle to deorbit ISS at the end of the station's life. The United States Deorbit Vehicle (USDV) will be based on SpaceX's Dragon spacecraft, but with a redesigned, larger trunk section with more Draco thrusters.

Articles: <https://www.space.com/spacex-dragon-iss-deorbit-vehicle-design-revealed>

<https://spacenews.com/enhanced-dragon-spacecraft-to-deorbit-the-iss-at-the-end-of-its-life/>

China's Answer to Starlink



Credit: Space Development Agency

On August 6, a Long March 6A rocket launched from Taiyuan Satellite Launch Center in north China, carrying 18 Qianfan (“Thousand Sails”) satellites into polar orbit for Shanghai Spacecom Satellite Technology (SSST). They’re the first batch of a megaconstellation of 1,296 satellites, 648 to be launched by the end of 2025. And that’s just the initial constellation. The completed network will consist of more than 14,000 broadband multimedia satellites in LEO. Another, much smaller MEO broadband constellation saw its first launch of two Smart Skynet-1 satellites on May 8.

Article: <https://spacenews.com/china-launches-first-satellites-for-thousand-sails-megaconstellation/>

<https://arstechnica.com/space/2024/08/china-deploys-first-satellites-for-a-broadband-network-to-rival-starlink/>

https://www.ynetnews.com/health_science/article/sj0aut119r

<https://spacenews.com/china-launches-its-first-medium-earth-orbit-broadband-satellites/>

Foo Fighters for Real

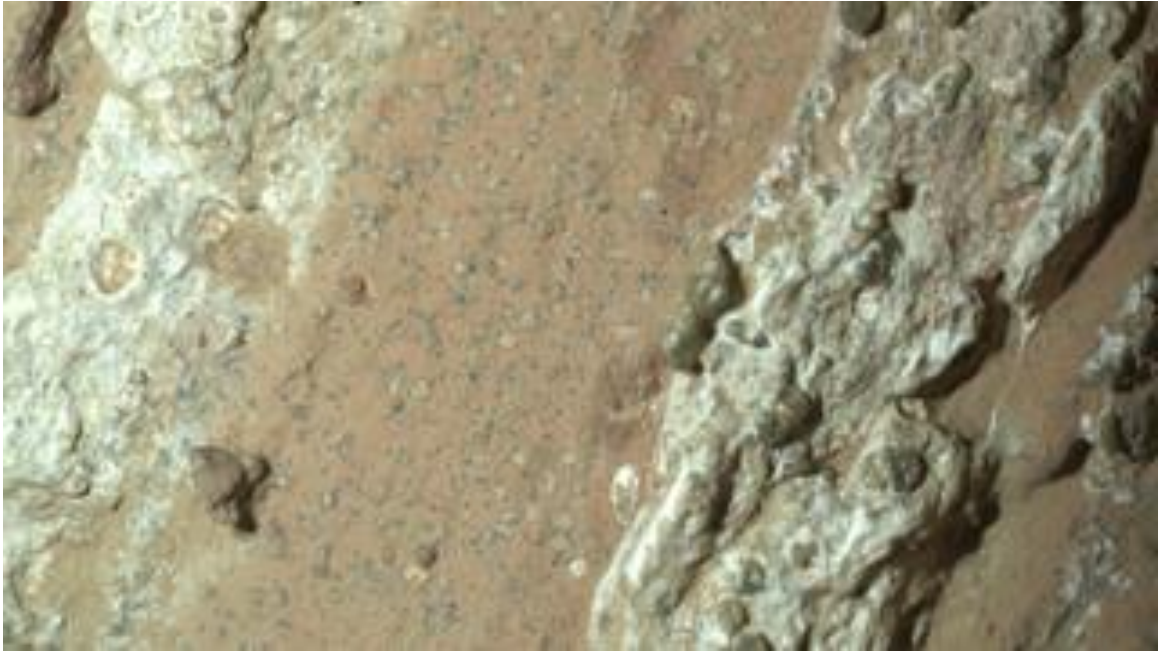


Credit: Space Development Agency

In WWII our aircrews referred to UFOs as “foo fighters.” Now that term has a new meaning. The Space Development Agency (SDA), an agency within the U.S. Space Force charged with developing new, disruptive space technologies, awarded \$414M to California-based Millennium Space Systems, Inc. to build eight satellites for its upcoming Fire-control On Orbit-support-to-the-war Fighter program, also known as F2 or FOO Fighter. The satellites will be tasked with detecting and tracking "advanced missile threats," which include hypersonic missiles. SDA hopes to deploy the satellites in Q1 of 2027.

Article: <https://www.space.com/space-force-foo-fighter-satellite-hypersonic-missile-tracking>

Life on Mars, Maybe (Again)



Credit: NASA/JPL-Caltech/MSSS

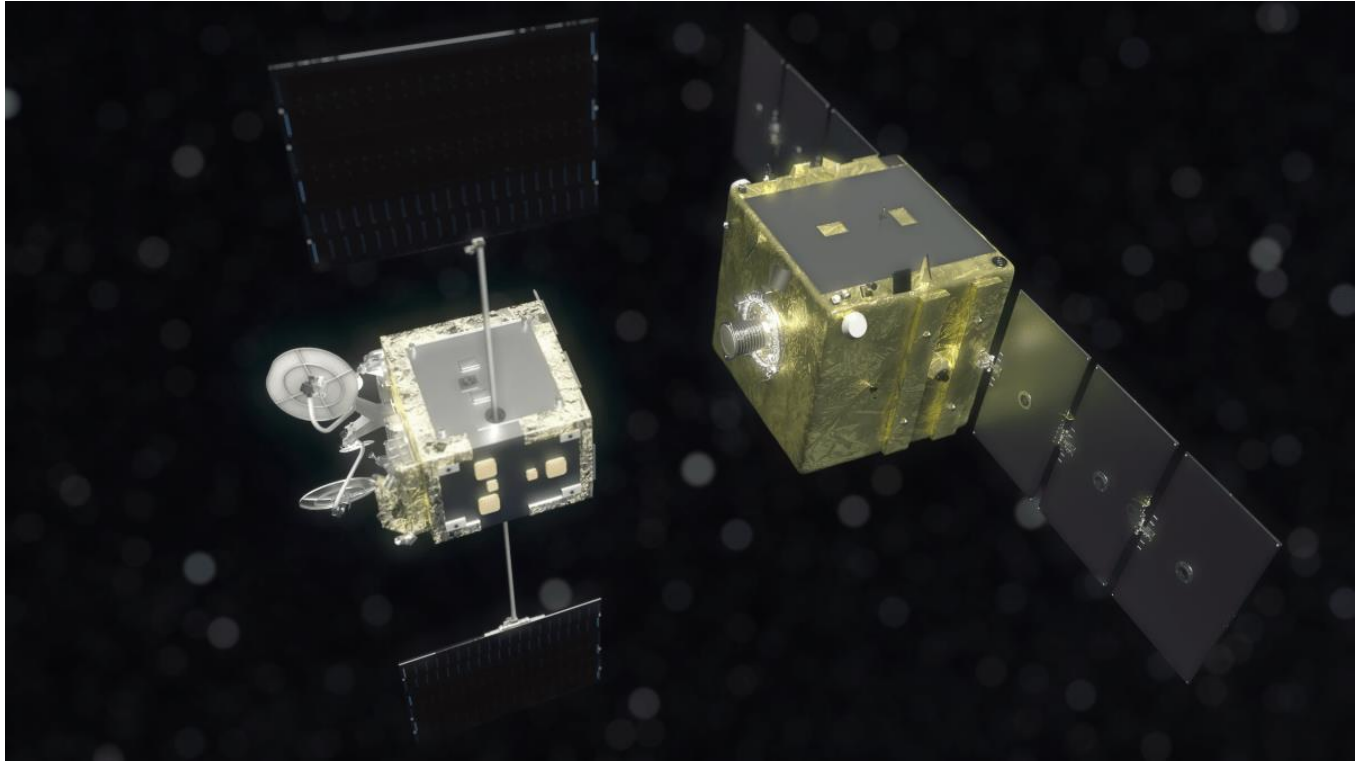
The latest hints of (ancient, maybe extinct) microbial life on Mars come from a rock sampled by NASA's Perseverance rover on July 21. The rock was found to contain organic molecules and veins of calcium sulfate (which suggest a fluid — very likely water — once flowed through the rock), and it's speckled with white spots with black rims, in which the rover's instruments detected iron phosphate molecules. On Earth, similar "leopard spots" are indicative of fossilized records of microbes. But all this might also just be chemical activity. The only way to tell for sure is to bring it back here.

Article: <https://www.space.com/nasa-perseverance-mars-rover-rock-ancient-life>

<https://www.space.com/mars-rover-perseverance-possible-biosignature-astrobiologist-interview>

<https://www.livescience.com/space/mars/nasa-mars-rover-finds-first-compelling-detection-of-potential-fossilized-life-on-the-red-planet>

The First Vacuum Cleaner



Credit: Astroscale

Astroscale's ADRAS-J continues its close inspection demonstration, delivering detailed close-ups of its target, an abandoned Japanese H-2A upper stage. ADRAS-J2, scheduled to launch in 2027, will be one of the first attempts to actually remove a large piece of debris from orbit. Astroscale's British subsidiary also secured around \$15M from ESA and the UK Space Agency to support the fourth and last phase of the End of Life Services by Astroscale-Multiple mission (ELSA-M), targeting a OneWeb satellite. The Japanese company's debut on the Tokyo Stock Exchange June 5 followed what seems to be a typical pattern for newspace companies: it leaped from 850 yen (\$5.46) to 1,375 yen on the first day of trading, then gradually declined to around 710 yen (\$4.52) currently.

Article: <https://www.space.com/astroscale-debris-removal-adras-j-video>

<https://spacenews.com/astroscale-unlocks-remaining-space-agency-funds-to-de-orbit-oneweb-satellite/>

<https://spacenews.com/astroscale-shares-soar-in-tokyo-stock-market-debut/>

South Korea Gets a Space Agency



Credit: SpaceNews/Jeff Foust

The brand-new Korea Aerospace Administration (KASA) started operations on May 27. Per Youngbin Yoon, administrator of KASA, the agency's long-term goals include sending a robotic lander to the moon in 2032 and another to Mars in 2045. South Korea's investment in space is currently about one trillion won (\$720M) but is projected to increase 50% by 2027.

Article: <https://spacenews.com/south-koreas-new-space-agency-outlines-plans/>

A Gem of a Planet



Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington

Data from NASA's MESSENGER spacecraft suggests that a 10-mile-thick diamond mantle may lie beneath the crust of Mercury.

Articles: <https://www.space.com/mercury-diamond-layer-10-miles-thick-nasa-messenger>

<https://www.livescience.com/space/mercury/9-miles-of-solid-diamonds-may-lurk-beneath-mercurys-surface-new-study-finds>

<https://www.cnn.com/2024/07/31/science/mercury-diamond-underground-layer/index.html>

Olympic Games, ISS Style



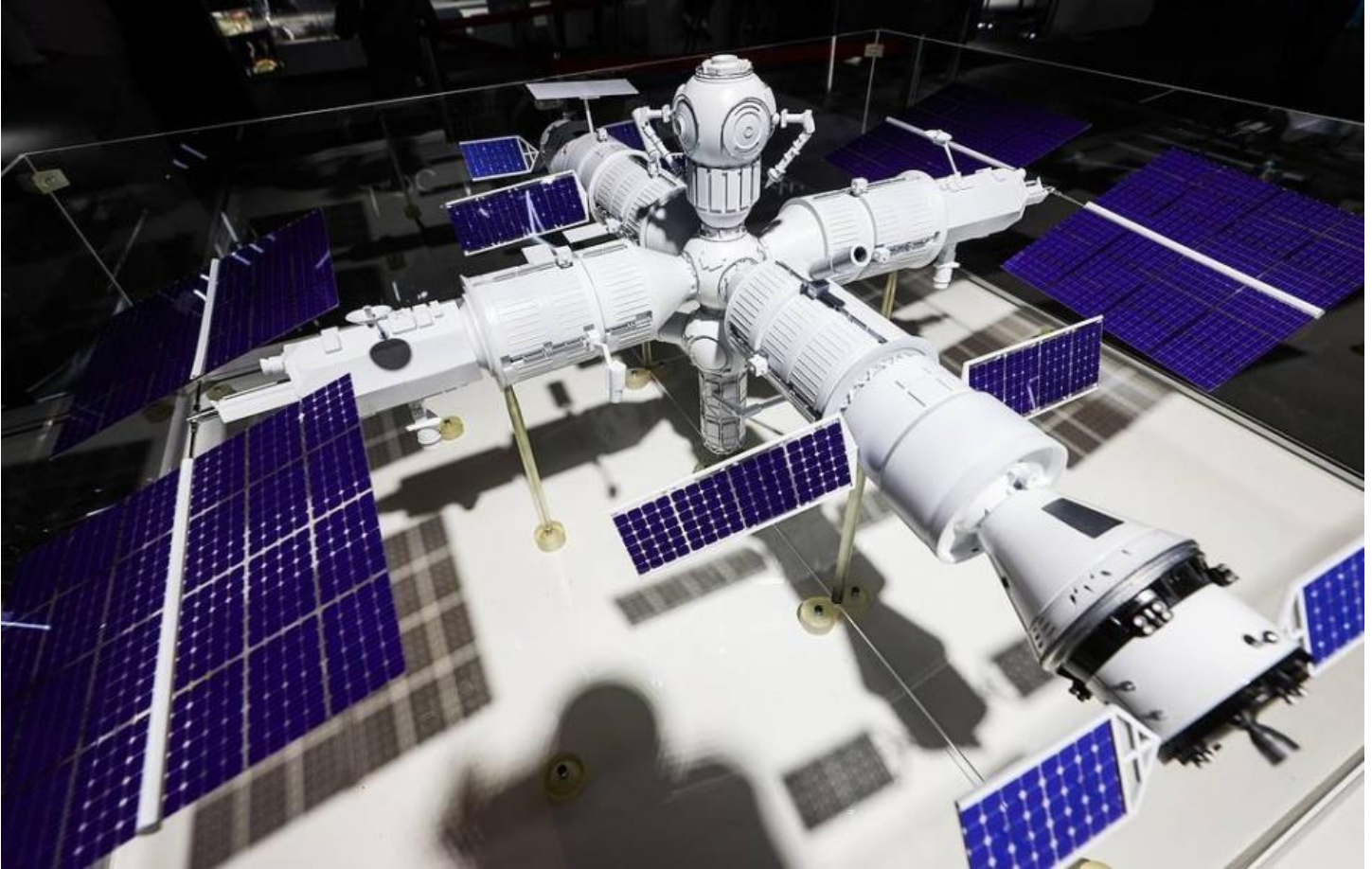
Credit: NASA

The ISS crew staged its own Olympic games in orbit, complete with the passing of a (fake) Olympic torch.

Video: <https://www.youtube.com/watch?v=xdU5kv2ytdc>

Article: <https://www.space.com/nasa-astronauts-summer-olympics-2024-iss-video>

We'll See



Credit: Sergei Bobylev/TASS

Russia talks a good game when it comes to putting up its own replacement space station: first node launch in 2027, first crew in 2028, all four principal modules attached by 2030. But do they have what it takes to actually do it? Time will tell. Unlike all previous space stations, the Russian Orbital Service Station (ROSS) is slated for a polar, sun-synchronous orbit.

Article: <https://www.space.com/russia-space-station-timeline-2027>

China's DART



Credit: NASA/Robert Lea

China plans to launch an asteroid deflection demonstration mission, similar to NASA's DART mission, in 2027. The target is the near-Earth object 2015 XF261, a tiny asteroid just 100 ft. in diameter. Like DART, the demonstration consists of a pair of spacecraft, an impactor and another spacecraft to observe the collision. The billiard shot is set to hit the rock in April 2029.

Articles: <https://www.space.com/china-planning-planetary-defense-asteroid-mission>
<https://spacenews.com/china-reschedules-planetary-defense-mission-for-2027-launch/>

The Party Line



Credit: RNC YouTube livestream

The Republican party platform approved in July includes a succinct (just 50 words) paragraph on space that mentions both human space exploration and space commercialization: “Under Republican Leadership, the United States will create a robust Manufacturing Industry in Near Earth Orbit, send American Astronauts back to the Moon, and onward to Mars, and enhance partnerships with the rapidly expanding Commercial Space sector to revolutionize our ability to access, live in, and develop assets in Space.” If Democrats keep the White House, analysts aren’t sure what changes (if any) a Harris administration will make in current space policy.

Articles: <https://spacenews.com/gop-platform-lays-out-aggressive-space-agenda-to-counter-china/>

<https://spacenews.com/space-industry-considers-implications-of-harris-as-presidential-candidate/>

Even in Lunar Orbit



Credit: Korea Aerospace Research Institute

Lunar orbit isn't even very crowded yet, but Soyoung Chung, senior researcher at the Korea Aerospace Research Institute's strategy and planning directorate, said her agency had received 40 "red alarms" of potential collisions among spacecraft orbiting the moon in the last 18 months. Imagine what it'll be like in 20 years...

Article: <https://spacenews.com/lunar-spacecraft-receive-dozens-of-collision-warnings/>

Unsustainable



Credit: ESA

ESA's 2024 Space Environment Report concludes that Earth orbit is becoming "an unsustainable environment in the long-term". As if to underscore the point, the very first launch of China's megaconstellation created "at least 700 debris fragments and potentially more than 900" in LEO (in polar orbit, no less), not counting the satellites themselves, when the upper stage of the Long March 6A that carried them broke up.

Articles: <https://www.space.com/european-space-agency-space-environment-report>

<https://spacenews.com/chinese-rocket-stage-breaks-up-into-cloud-of-more-than-700-pieces-of-space-debris/>

You Gotta Start Somewhere



Credit: Star Catcher Industries

Space-based solar power may be closer than anyone thinks, but it won't be transmitting power down to Earth. Rather, it will provide power to other satellites in space. A Jacksonville, Florida-based startup named Star Catcher Industries just bagged \$12.25M in seed funding to develop its planned constellation of power-beaming satellites in LEO; the first of them could take flight as early as next year.

Article: <https://www.space.com/star-catcher-industries-space-based-power-grid>

This Week At NASA

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

That's All Folks



Credit: SpaceX

