May 2024

Update

A free email newsletter of the Oklahoma Space Alliance

Oklahoma Space Alliance

A Chapter of The
National Space Society

Before Launch

Credit: NASA/Robert Markowitz

May 2024 OSA Meeting

Saturday, May 11, 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

Testing leads to failure, and failure leads to understanding.– Burt Rutan

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Update

May 11, 2024

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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**.

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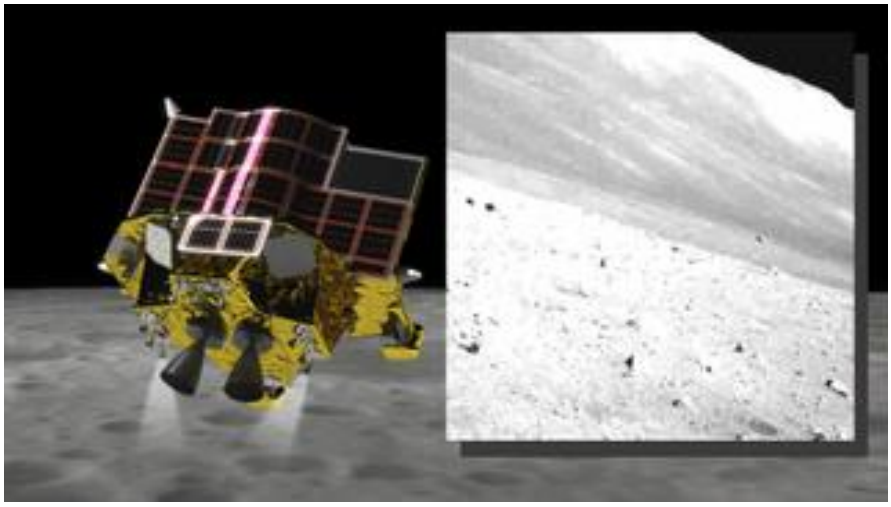
Takes a Licking and Keeps on Ticking



Credit: JAXA

Japan's SLIM lunar lander beat the odds yet again, waking up after a third lunar night.

Articles: https://www.space.com/japan-slim-moon-lander-survives-3rd-lunar-night

Headed for the Far Side

Credit: Framegrab/Youtube/CCTV+

On May 5, the 8,200 kg probe Chang'e-6 lifted off from China's Wenchang Satellite Launch Center on a Long March 5 booster for the moon; it entered lunar orbit on May 7. It's the first mission to attempt to retrieve samples from the Moon's far side. If all goes well, it will be back home in 53 days, bearing a cargo of up to 2 kg. of lunar regolith from Apollo crater, which lies within the South Pole-Aitken basin.

Articles: https://spacenews.com/china-launches-change-6-mission-to-collect-first-samples-from-the-moons-far-side/

https://spacenews.com/chinas-change-6-is-carrying-a-surprise-rover-to-the-moon/

https://spacenews.com/change-6-enters-lunar-orbit-ahead-of-far-side-landing-attempt/

Well, That's a Relief

Credit: SpaceX

Contrary to a report in the New York Times on April 4, the Biden administration has no plans to tax commercial space launches. Yet. But there have been "conversations" about it…

Articles: https://spacenews.com/faa-no-current-plans-to-tax-commercial-space-launches/

Closing a Loophole, For Starters

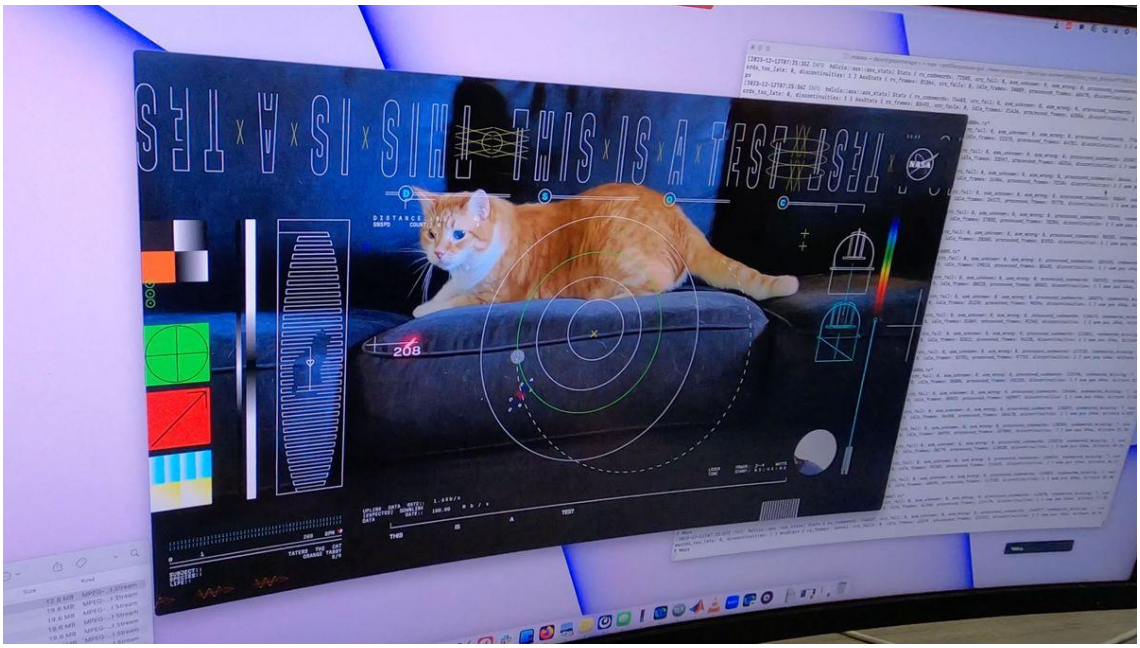
Credit: Varda Space Industries/John Kraus

The FAA's Office of Commercial Space Transportation has announced it will no longer issue a launch license for a spacecraft designed to reenter unless it already has a reentry license. This eliminates the possibility that any company may have its spacecraft stranded in orbit waiting for approval to come home, as was the case for Varda Space for several months. There may be even bigger changes in the works for the FAA. At its April 23 meeting, the FAA's Commercial Space Transportation Advisory Committee (COMSTAC) unanimously approved a recommendation that the FAA's Office of Commercial Space Transportation (AST) be moved out of the FAA and made a standalone organization directly under the Secretary of Transportation.

Articles: https://spacenews.com/faa-to-require-reentry-vehicles-licensed-before-launch/

https://spacenews.com/advisory-committee-recommends-moving-faa-commercial-space-office-out-of-the-agency/

Inevitably, It Was a Cat Video



Credit: NASA/JPL-Caltech

The Psyche asteroid probe is carrying an experimental payload to demonstrate laser communication over interplanetary distances, called Deep Space Optical Communications (DSOC). In December 2023, DSOC beamed test data (a cat video, because of course) back from 19 million miles (31 million km) at its maximum rate of 267 megabits per second (Mbps), equivalent to broadband internet download speeds. A more recent test transmission of actual spacecraft data on April 8 from a distance of 140 million km achieved a maximum rate of 25 Mbps. Laser communication promises data rates 10 to 100 times the rate of radio transmission.

Article: https://www.space.com/nasa-psyche-laser-communications-dsoc-april-8-data-return

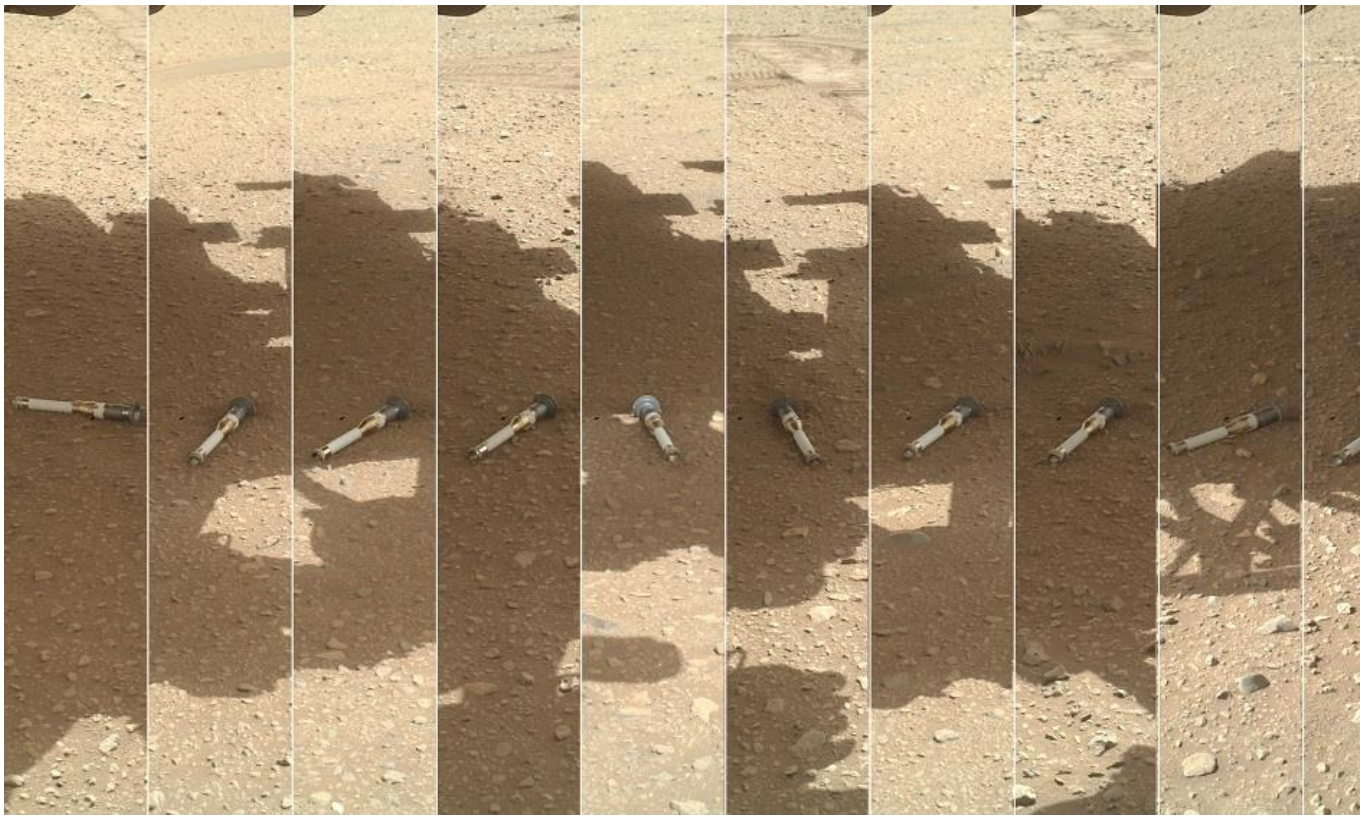
New Glenn Gets Its First Payload

Credit: Blue Origin

Blue Origin's New Glenn rocket is now scheduled to launch on September 29, boosting a pair of smallsats named Escape and Plasma Acceleration and Dynamics Explorers (ESCAPADE) toward Mars, where they will go into orbit around that planet to measure the interaction of the planet's magnetosphere with the solar wind. ESCAPADE was originally slated as a rideshare with the Psyche asteroid probe, but lost its ride when the Psyche mission trajectory was changed. The sats were put into cold storage with no concrete expectation that they could find a different ride.

Article: https://spacenews.com/nasa-planning-september-launch-of-mars-smallsat-mission-on-first-new-glenn/

Looking for a Way Out



Credit: NASA/JPL-CALTECH/MSSS

"The bottom line is that $11 billion is too expensive and not returning [Mars] samples until 2040 is unacceptably too long," NASA Administrator Bill Nelson said at a briefing on April 15, where he announced that NASA would issue a request for proposals the next day seeking ideas on alternative approaches for the overall MSR architecture or specific elements of it. Deadline for proposals is Ma the agency will issue contracts for 90-day studies shortly thereafter. NASA has indicated that it wou consider proposals to bring back as few as 10 of the sample tubes cached on the surface, as oppose the 30 samples they'd originally hoped to bring back. Louis Friedman of the Planetary Society (predictably) whines about NASA's bow to economic reality, while Robert Zubrin (also predictably) s forth a plan to get at least 5 kg. of samples back in a single, affordable direct return mission that use lander no bigger than the ones we've currently demonstrated.

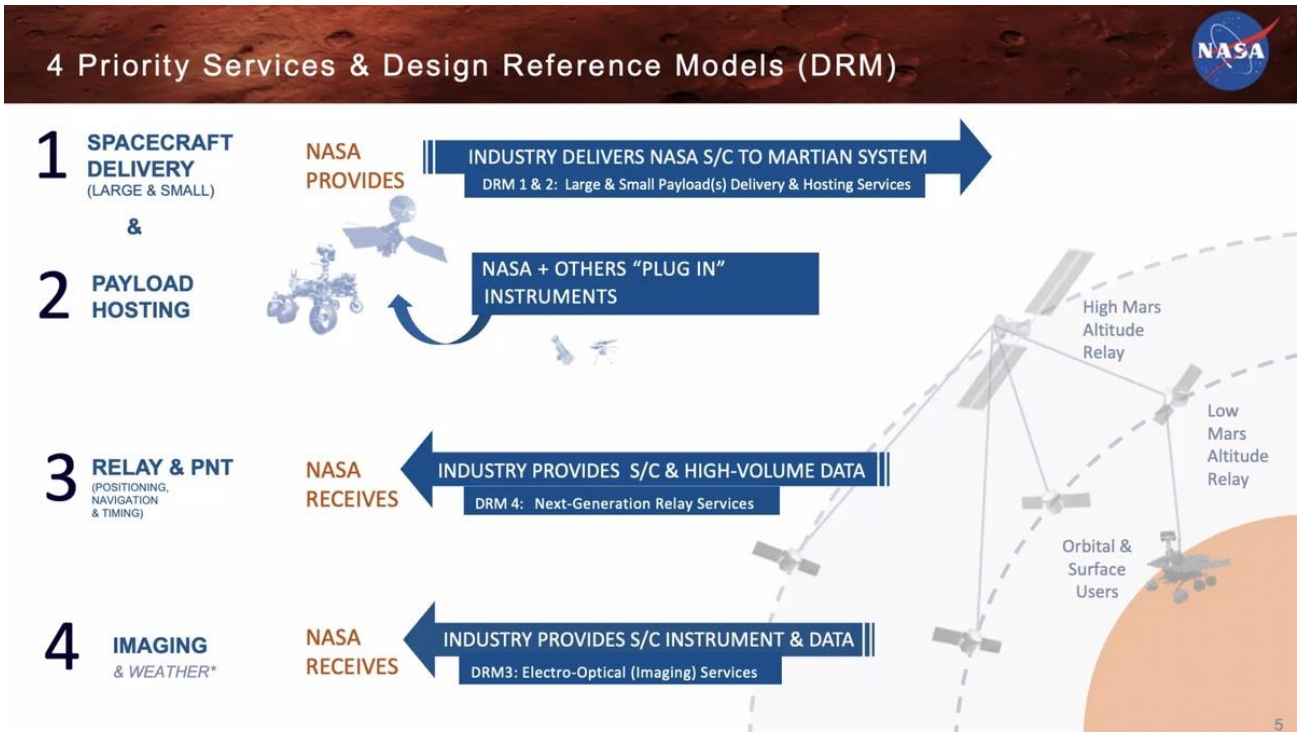
Article: https://spacenews.com/nasa-to-look-for-new-options-to-carry-out-mars-sample-return-program/

https://spacenews.com/nasa-open-to-significantly-reduced-return-of-mars-samples/

https://spacenews.com/nasas-no-to-mars/

https://spacenews.com/practical-approach-mars-sample-return-mission/

Can Mars Exploration be Commercialized?

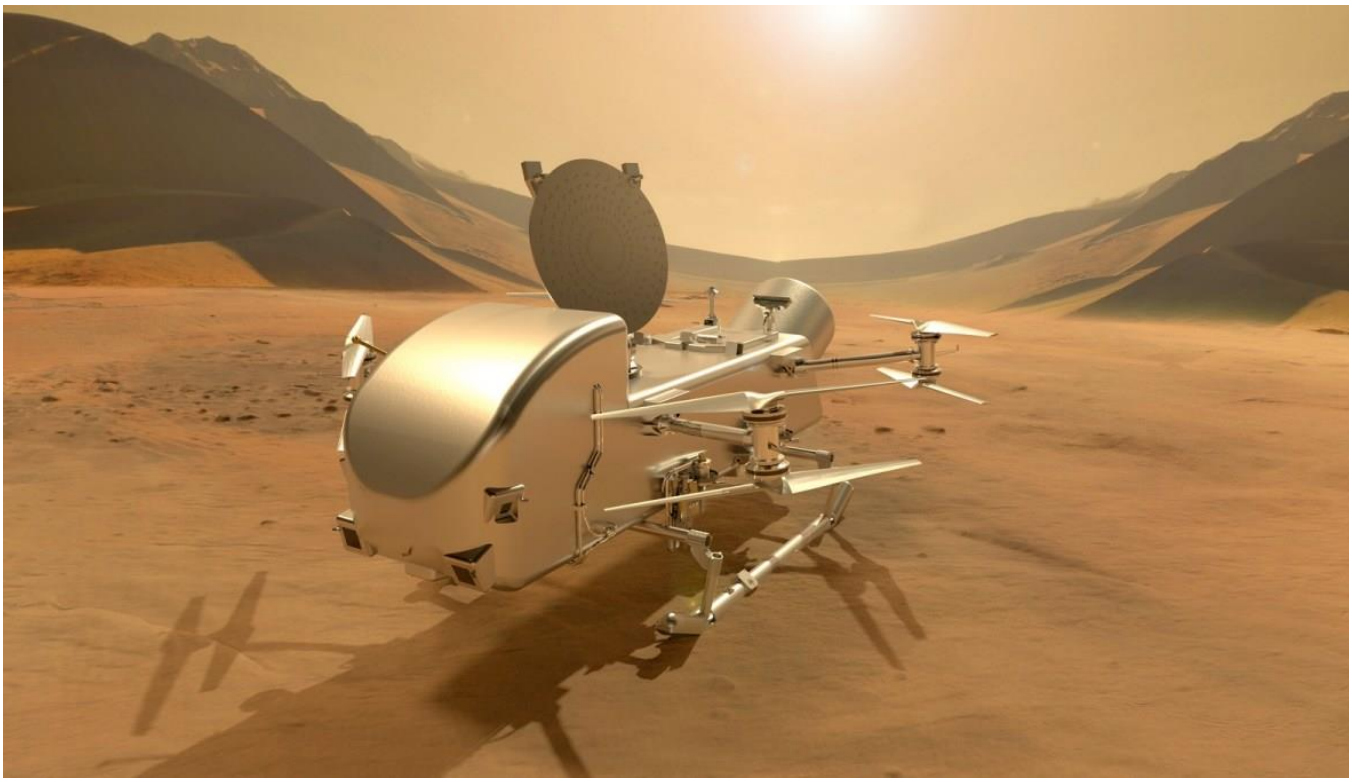


Credit: NASA

On May 1, NASA announced 12 $200K-$300K contract awards to nine companies to perform feasibility studies of commercial approaches to deliver spacecraft to Mars and provide services there. NASA will release a summary of the studies later this year and use them to support further development of its Mars exploration strategy.

Article: https://spacenews.com/nasa-awards-studies-for-commercial-mars-missions/

Cheop's Law



Credit: NASA/Johns Hopkins APL/Steve Gribben

On April 16, NASA announced that the Dragonfly nuclear-powered rotorcraft mission to Titan had passed its confirmation review, and has a green light to proceed; the launch has slipped one year, to July 2028, and the cost of the mission is now projected at $3.35B, more than double the projected cost at the time the mission was first approved in 2019. Cost caps imposed on the development of the mission in each of the years since 2019 due to budget constraints are responsible for about two-thirds of the cost increase. Just like a credit card; stretch the payments out and you pay less in a given year, but your total bill goes way up. There's a lot of pressure on the NASA science budget – just like every other part of the NASA budget. Lots of science missions are being squeezed. NASA's Science Mission Directorate sought an increase of nearly half a billion dollars in its FY 2024 budget proposal last year, but when Congress passed a final spending bill March 8, it got a cut of about half a billion instead. On May 1, 44 members of the House sent a letter to the chair and ranking member of the House Appropriations Committee's commerce, justice and science (CJS) subcommittee, asking appropriators to provide at least $9B for NASA's science programs in their FY 2025 spending bill; that's more than $1.4B above the Biden administration's request. Don't hold your breath.

Article: https://spacenews.com/nasa-confirms-dragonfly-mission-despite-doubled-costs/

https://spacenews.com/a-slow-bleed-of-funding-threatens-nasas-science-flagships/

https://spacenews.com/congressional-letter-seeks-big-increase-in-nasa-science-budget/

Apparently It Worked

Credit: SpaceX

Per NASA, the internal propellant transfer demonstration scheduled for Starship's third test flight in March was a success, and SpaceX is on track to demonstrate fuel transfer from one Starship to another in orbit next year.

Article: https://spacenews.com/spacex-making-progress-on-starship-in-space-refueling-technologies/

That’s Ominous

Credit: UN Photo/Rick Bajornas

Russia cast the only no vote on the U.N. Security Council motion calling on nations to uphold Article 4 of the Outer Space Treaty. That’s the article prohibiting deployment of nuclear weapons, or other WMD, in space…

Article: https://spacenews.com/russia-vetoes-u-n-resolution-on-nuclear-weapons-in-space/

https://www.space.com/russia-nuclear-weapons-space-veto-un-resolution

Gardyloo!

Credit: NASA

In March 2021, ISS astronauts jettisoned a cargo pallet packed with 5,800 lb. (2,630 kg) of aging batteries jettisoned from the space station. On March 8 the pallet made an uncontrolled reentry, and a piece of it (a stanchion from the NASA flight support equipment used to mount the batteries on the cargo pallet, weighing in at 1.6 lb.) crashed through the roof of a house in Naples, Florida. Oops.

Article: https://www.space.com/object-crash-florida-home-iss-space-junk-nasa-confirms

Closer, Ever Closer

Credit: Johns Hopkins APL/Steve Gribben

On February 28, the dead Russian spy satellite Cosmos 2221 and NASA's TIMED craft missed each other by LESS THAN 10 METERS (33 ft.)! The Chinese space station Tiangong did take a hit from something recently; the core module Tianhe suffered a partial loss of power due to the impact of debris on a solar panel's power cables. Two spacewalks evidently restored power. In further response, the China Manned Space Agency (CMSA) announced the current Shenzhou 18 crew "will be tasked with installing space debris protection reinforcements for extravehicular piping, cables and critical equipment during their extravehicular activities." A new report from Slingshot Aerospace is shouting a loud warning about the rapidly increasing congestion in Earth's orbit. A record 2,877 satellites were launched in 2023, increasing the total number of satellites in orbit by 12.4% in a single year. Kessler Effect, here we come.

Articles: https://www.space.com/nasa-timed-satellite-russian-space-junk-near-miss-february-2024

https://www.space.com/china-tiangong-space-station-space-debris-measures

https://spacenews.com/orbital-congestion-reaching-critical-levels-warns-new-report/

Astroscale Scales Up

Credit: Astroscale

Astroscale's ADRAS-J (short for "Active Debris Removal by Astroscale-Japan") debris removal precursor mission, launched back in February, has closed to within a few hundred meters of its target, the upper stage of the Japanese H-2A rocket launched in 2009. Proximity operations and study of the drifting target will pave the way for an actual debris removal mission; JAXA has selected Astroscale for the second phase of its Commercial Removal of Debris Demonstration (CRD2) program targeting the same upper stage. In a private-public partnership with Space Force, the company is also developing an in-space refueling vehicle APS-R (Astroscale Prototype Servicer for Refueling) to transport fuel from an Orbit Fab fuel depot to other satellites, including its own LEXI (Life Extension In-Orbit) vehicle – and, presumably, to Space Force birds. Astroscale will go public on the Tokyo Stock Exchange on June 5.

Articles: https://www.space.com/astroscale-adras-j-space-junk-rendezvous-mission-photo

https://spacenews.com/astroscale-to-go-public-on-tokyo-exchange/

https://spacenews.com/astroscale-reveals-concept-of-operations-for-its-in-orbit-refueling-vehicle/

One Million Megatons

Credit: NASA/Goddard/Arizona State University

If the asteroid that hit the moon sometime in the last 10 million years had hit the Earth, the explosion would have clocked in at around one million megatons. As it happened, it gouged out the 13.7-mile wide (22 km) crater Giordano Bruno and spawned a quasi-moon of Earth named Kamo'oalewa, a NEO 131-328 feet (40- 100 m) wide. So concludes a recently released study by a team from Centre National de la Recherche Scientifique (CNRS), France's state research agency. The potential impact on Earth falls between the estimated 50 megatons of the Tunguska event and the estimated 72 teratonnes of the Chicxulub dinosaur-killer.

Article: https://www.space.com/quasi-moon-kamooalewa-giant-lunar-impact

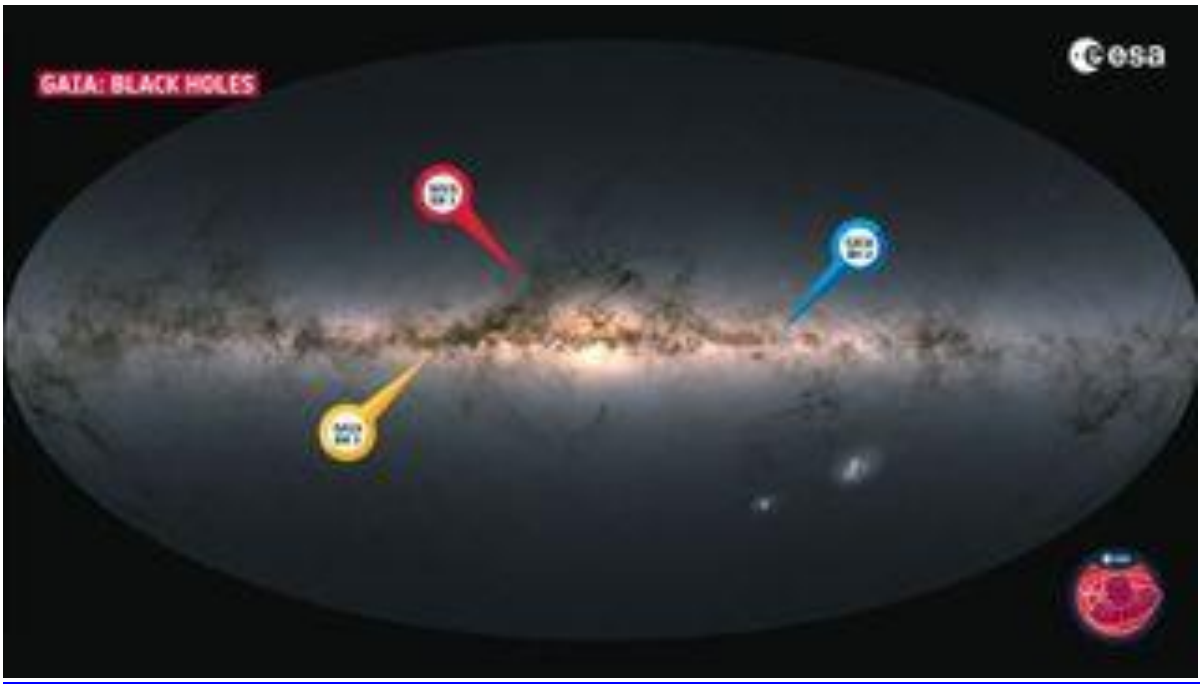
Smartphones to the Moon

Credit: Nokia/Intuitive Machines

In 2020, NASA awarded contracts to 14 companies to develop "tipping point" technologies to support the Artemis program. Nokia was one of those companies; it received $14.1 million to build the first cellular network on the moon. The first piece of this LTE/4G network will launch late this year as part of Intuitive Machine's IM-2 mission; a "network in a box" will connect Intuitive Machines' Nova-C lunar lander with Lunar Outpost's MAPP rover and Intuitive Machines' Micro-Nova hopper. Nokia's network promises provide more bandwidth than the traditional ultra-high frequency (UHF) systems used for space communication.

Article: https://www.space.com/nokia-4g-cell-network-on-the-moon

The Black Hole Next Door



Credit: ESA/Gaia Collaboration

A stellar-mass black hole 33 times more massive than Sol, designated Gaia-BH3, is only 2,000 light-years away, in the constellation Aquila. It's the biggest stellar-mass-sized black hole yet discovered; most black holes in this class weigh in at about 10 Sol masses. This is the third black hole discovered by the European space telescope Gaia, launched in 2013 on an astrometry mission with the with the goal of constructing by far the largest and most precise 3D space catalog ever made, totaling approximately 1 billion astronomical objects.

Article: https://www.space.com/milky-way-biggest-stellar-mass-black-hole-gaia

This Week At NASA

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

That’s All Folks

Credit: NASA