



July 2023

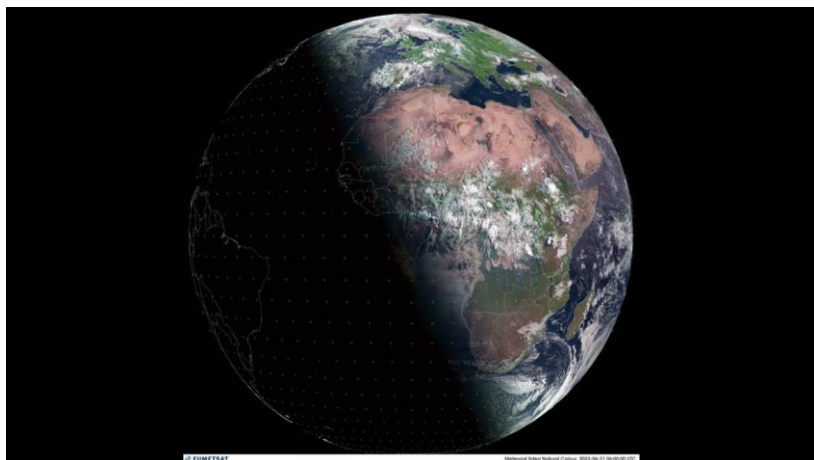
Update

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Summer Solstice



Credit: SpaceX

July 2023 OSA Meeting

Saturday, July 8, 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

We want to work towards a Jetsons-like world. – Jared Isaacman

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Oklahoma Space Alliance Update

July 8, 2023

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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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But Where Are the Tourists?



Credit: Virgin Galactic

Virgin Galactic's SpaceShipTwo flew to suborbital space for the first time in nearly two years May 25, on a final test flight before commencing commercial operations. The company aced its first-ever commercial mission on June 29, carrying three paying passengers. But they weren't the tourists VG has been selling tickets to for more than a decade. The first paying passengers were scientific researchers from the Italian Air Force and Italy's National Research Council. Galactic 01, as this flight was dubbed, was only the sixth time Spaceship Two left the atmosphere. But the second commercial flight, Galactic 02, is slated for early August, and VG plans to fly this craft monthly from then on, until more become available and allow an even faster cadence.

Articles: <https://spacenews.com/virgin-galactic-makes-first-suborbital-spaceflight-in-nearly-two-years/>

<https://spacenews.com/spaceshiptwo-to-demonstrate-research-capabilities-on-first-commercial-flight/>

<https://spacenews.com/virgin-galactic-sets-date-and-announces-crew-for-first-commercial-spaceshiptwo-flight/>

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

<https://www.space.com/virgin-galactic-first-commercial-mission-success>

<https://spacenews.com/virgin-galactic-looks-ahead-to-future-spaceplanes-as-it-gears-up-for-return-to-space/>

Partners for Us, Partners for Them



Credit: NASA/Keegan Barber

In the past few weeks, Ecuador and India became, respectively, the 26th and 27th countries to sign the Artemis Accords. China says several countries have committed to join its International Lunar Research Station, although it has few written agreements to show as of yet. India is moving closer to the U.S. in terms of space cooperation. NASA and the Indian space agency ISRO have announced development “a strategic framework for human spaceflight cooperation” by the end of this year; NASA had agreed early this year to provide “advanced training” for an Indian astronaut at JSC. An Indian astronaut to visit ISS next year? Indications point to it.

Articles: <https://spacenews.com/ecuador-signs-artemis-accords/>

<https://www.space.com/artemis-accords-india-ecuador-peaceful-moon-exploration>

<https://spacenews.com/u-s-and-india-to-expand-spaceflight-cooperation/>

<https://spacenews.com/china-attracts-moon-base-partners-outlines-project-timelines/>

Closer Every Time



Credit: ESA

ESA's BepiColombo made its third close flyby of Mercury on June 19, sailing by just 150 miles above the surface. Spectacular closeup images were taken beginning at a distance of 2,170 mi. (3,500 km) about 20 minutes after the closest approach, which occurred on the night side of the planet. Three more flybys to go before it can slow down enough to enter orbit around Mercury in December 2025.

Articles: <https://www.space.com/mercury-flyby-bepicolombo-spacecraft-june-2023>

<https://www.space.com/bepicolombo-mercury-flyby-photos-june-2023>

Learning to Play Well With Others



Credit: FAA

The Federal Aviation Administration has decided it doesn't need to close as much airspace for launches from Cape Canaveral as it has in the past. As part of efforts to limit the impact of growing launch activity on commercial aviation, the FAA recently introduced a revised, reduced zone of restricted airspace around and extending offshore from Cape Canaveral Space Force Station and the KSC during launches. The new zone keeps open a key arrival route for commercial flights from northeastern U.S. to airports in central Florida, which required up to three dozen flights to be rerouted for a typical launch.

Article: <https://spacenews.com/faa-reduces-airspace-restrictions-for-cape-canaveral-launches/>

Just a Few Little Tweaks...



Credit: SpaceX

...more than 1,000 of them since Starship's first launch, the most significant of which is "hot staging", meaning Starship's engines will light off before stage separation. Changes to the launch pad as well: SpaceX is pouring about 35,300 cubic feet (1,000 cubic meters) of "reinforced high-strength concrete" at the base, and installing a water-spouting steel plate there as well, which Musk describes as "basically like a gigantic upside-down shower head." He added, "I think the probability this next flight working, getting to orbit, is much higher than the last one. Maybe it's like 60%."

Article: <https://www.space.com/spacex-starship-design-changes-second-test-flight>

<https://spacenews.com/spacex-changing-starship-stage-separation-ahead-of-next-launch/>

Space Was Safer



Credit: OceanGate

At least, it was for Hamish Harding, who flew to suborbital space last year on Blue Origin’s fifth crewed New Shepard mission, and was one of the five people killed when the submersible Titan imploded on June 18. Harding and his companions were on a tourist dive to the wreck of RMS Titanic, with tickets costing \$250K. There are many similarities to space tourism and deep sea tourism, including a lack of regulations governing construction of the respective craft and the “informed consent” of passengers paying for a high-risk adventure. The moratorium on regulations for commercial spaceships issued by the U.S. Congress in 2004 and extended several times prevents the FAA from intervening into issues related to the safety of participants on space tourism flights is set to expire in October this year, and the Titan disaster will doubtless be on the minds of legislators as they consider ending the current regime.

Articles: <https://www.space.com/space-explorers-mourn-deaths-titan-submersible-crew>

<https://spacenews.com/what-the-wreck-of-the-titan-portends-for-commercial-spaceflight/>

<https://www.space.com/titan-submersible-tragedy-lessons-space-tourism>

<https://spacenews.com/regulatory-uncertainty-as-commercial-human-spaceflight-takes-off/>

Commercial Cargo for Tiangong



Credit: CMSA/CCTV/Chinese Academy of Sciences

COTS, Chinese style. The China Manned Space Engineering Office (CMSEO) announced May 16 that it is exploring the development of commercial space models to reduce the cost and enhance the flexibility of sending supplies to Tiangong. The call for proposals, open to firms established for at least three years, closes July 15.

Articles: <https://spacenews.com/china-calls-for-space-station-commercial-cargo-proposals/>

One Way to Avoid Controversy

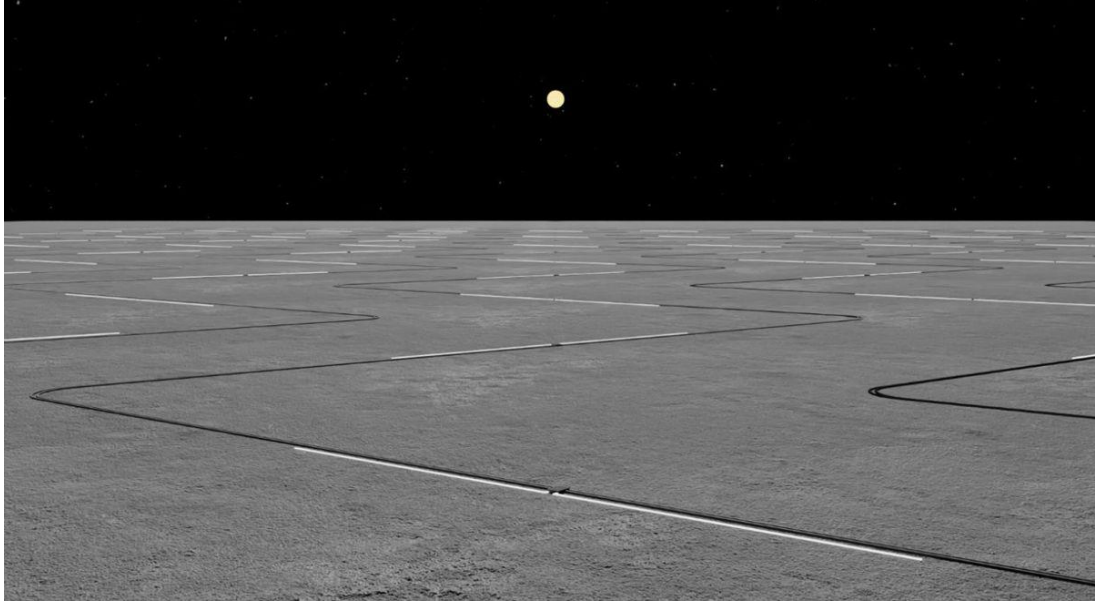


Credit: NASA

NASA got chafed so badly by woke criticisms of its name for the James Webb Space Telescope that its new guidelines discourage naming missions after individuals.

Article: <https://spacenews.com/nasa-policy-discourages-naming-missions-after-individuals/>

NIAC 2023 Grants

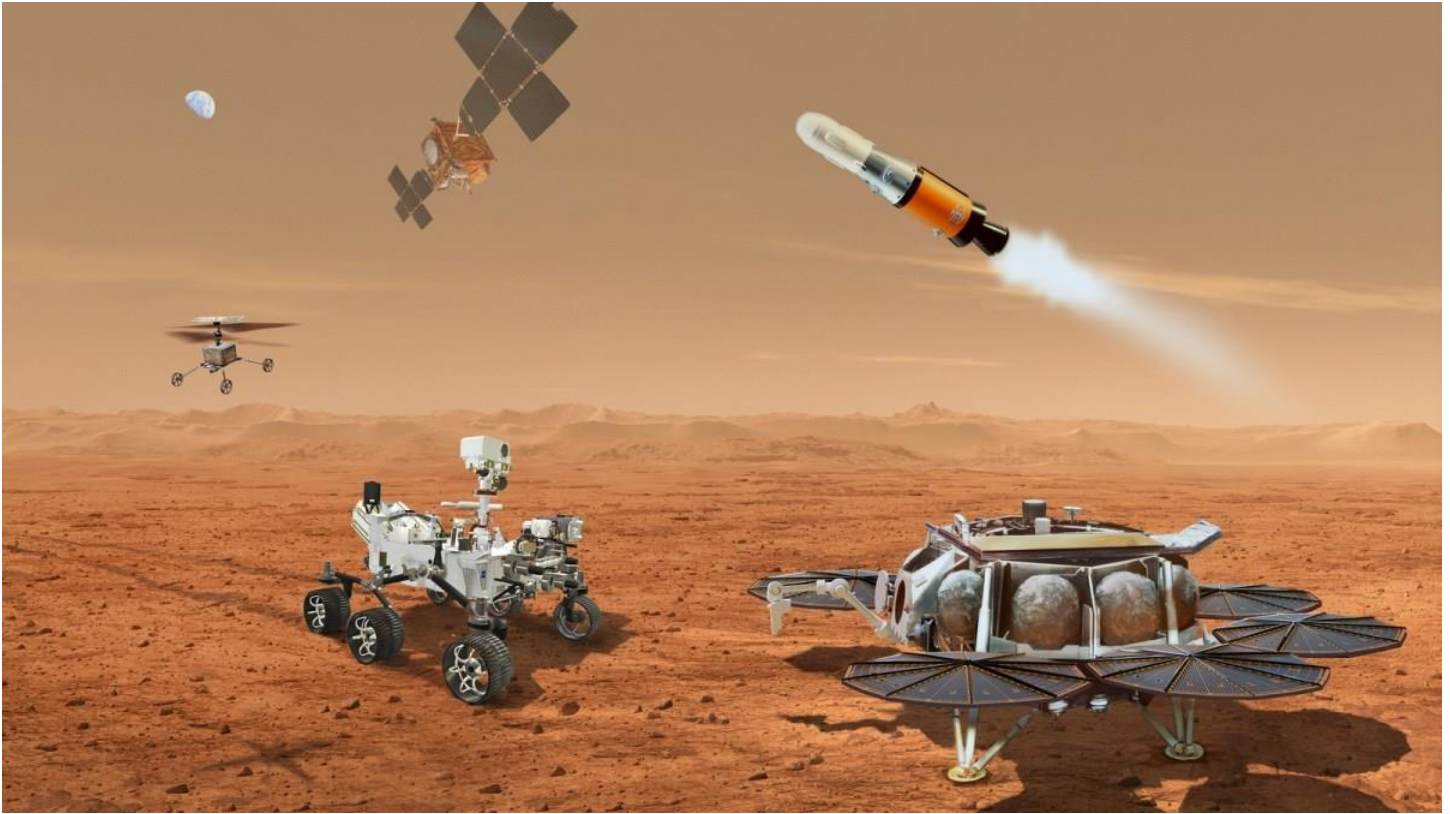


Credit: Ronald Polidan/NASA

Six early-stage space tech ideas have been awarded Phase 2 grants, each worth up to \$600K to fund two years' work, from the NASA Innovative Advanced Concepts (NIAC) program, which seeks to fund bleeding-edge ideas too far-out to get funded by other means. These winners have all won Phase 1 grants in prior years. Among the winners are a concept for a lunar farside observatory constructed from lunar regolith and a planetary defense mission to pulverize an asteroid into pieces small enough to burn up in the atmosphere.

Article: <https://www.space.com/pulverize-asteroids-moon-observatory-niac-2023-funding>

The Blob



Credit: NASA/JPL-Caltech

Is there any price NASA wouldn't be willing to pay? On June 26 NASA told SpaceNews that one "highly speculative" estimate for the full cost of MSR is in the range of \$8 billion to \$9 billion. Compare this to the \$3.8 billion to \$4.4 billion estimate given by an independent review in 2020, which was already a significant increase over earlier estimates.

Article: <https://spacenews.com/nasa-warns-of-near-term-cost-growth-on-mars-sample-return/>

<https://spacenews.com/nasa-identifies-potential-major-cost-growth-in-mars-sample-return/>

Better With Music

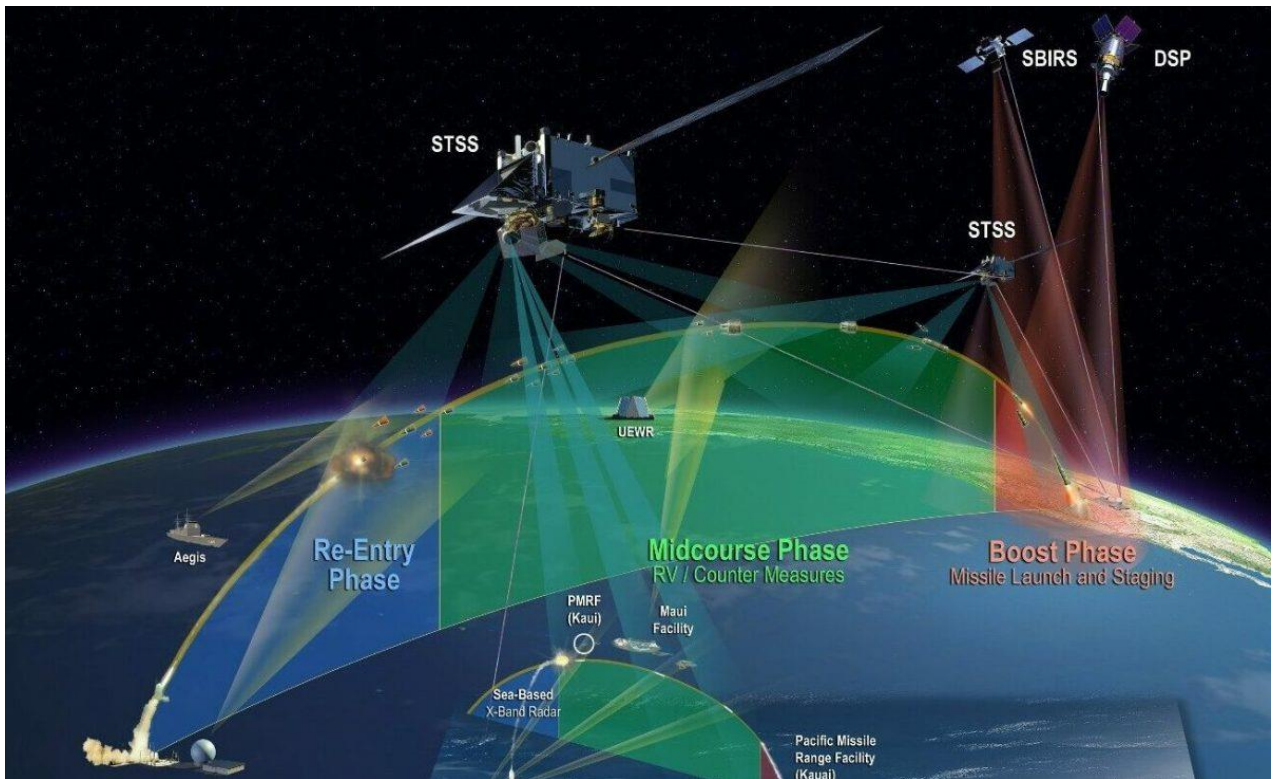


Credit: Zero-G

Zero-G, the zero gravity space tourism company that's been flying microgravity flights since 2004, announced that they will start offering private concerts aboard their specially outfitted aircraft. First performances will center on DJs, rap, and pop artists, but they plan to eventually support instrument groups.

Article: <https://www.space.com/zero-g-concerts-private-weightless-flights>

Spread Out!



Credit: Northrop Grumman

Space Force’s proposed \$30.3 billion budget for FY 2024 is its largest ever, and nearly doubles its first budget request four years ago. There are some large satellite procurement packages in that budget, which signals a change from a relatively few platforms in high orbits to more sats in lower orbits. They need to be more easily maneuverable, too.

Article: <https://spacenews.com/space-force-missile-warning-satellites-drawing-congressional-attention/>

<https://spacenews.com/space-force-tries-to-turn-over-a-new-leaf-in-satellite-procurement/>

<https://spacenews.com/op-ed-remarkable-pivot-happening-in-the-national-security-space-business/>

<https://spacenews.com/space-command-argues-for-shift-from-static-to-dynamic-satellite-operations/>

Turn Out the Lights



Credit: Virgin Orbit

The Ariane 5 lifted off from the European spaceport at Kourou, French Guiana, at 6 p.m. EDT. The payload was two communications satellites bound for GTO. Ariane 5 flew a total of 117 times over a span of 27 years, beginning in 1996. The first flight of its successor, Ariane 6, should take place next year.

Articles: <https://spacenews.com/ariane-5-launches-for-the-final-time/>

China Beyond the Moon



Credit: ESA

China has a couple of ambitious unmanned missions on the drawing boards, to launch in the next few years. In 2025, an asteroid deflection test will launch on a Long March 3B rocket, targeting Aten-class near-Earth asteroid 2019 VL5. A prototype telescope array using interferometry to directly image and characterize potentially habitable exoplanets orbiting stars up to 65 light-years away will be launched to L2 (where JWST resides) around 2027, to be followed by a more capable five-spacecraft system at L2 in 2030.

Articles: <https://spacenews.com/china-to-target-asteroid-2019-vl5-for-2025-planetary-defense-test/>

<https://spacenews.com/china-to-hunt-for-earth-like-planets-with-formation-flying-telescopes/>

Copycats!



Credit: Jiuzhou Yunjian

A couple of Chinese “commercial” launch companies are attempting to mimic elements of SpaceX’s reusable rockets. Beijing-based Space Epoch has plans to develop a 64-meter-tall stainless steel launcher able to be reused up to 20 times, with a payload of 6.5 tons to a 1,100 km sun-synchronous orbit. The launcher will be able to be reused up to 20 times. They conducted hot fire tests of their methalox engine in January. Space Pioneer, whose Tianlong-2 rocket made it the first Chinese commercial outfit to reach orbit with a liquid propellant launcher in April of this year, has secured C-round funding for its Tianlong-3 medium-lift RLV, roughly comparable to Falcon 9 and slated for first launch next May.

Articles: <https://spacenews.com/chinese-startups-conduct-hot-fire-tests-for-mini-version-of-spacexs-starship/>

<https://spacenews.com/chinese-launch-firm-secures-fresh-funding-for-reusable-rocket/>

<https://spacenews.com/launches-of-chinese-commercial-rockets-could-double-in-2023/>

Who's Afraid?



Credit: ESA/ID&Sense/ONiRiXEL, CC BY-SA 3.0 IGO

Since the launch of the first Starlink spacecraft in 2019, the SpaceX satellites have been forced to move over 50,000 times to prevent collisions. Half of those maneuvers were in the six months between between Dec. 1, 2022, and May 31, 2023, and that six months was double the rate of the prior six months. Does anyone see a problem?

Articles: <https://www.space.com/starlink-satellite-conjunction-increase-threatens-space-sustainability>

<https://spacenews.com/updated-space-safety-document-outlines-rules-of-the-road-for-avoiding-collisions/>

<https://spacenews.com/nasa-study-assess-costs-and-benefits-of-orbital-debris-removal/>

<https://spacenews.com/space-industry-undeterred-by-congestion-and-debris/>

Credit: ESA/Mars Express team

This Week At NASA

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

That's All Folks



Credit: ESA

