



April 2023

Update

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Crew-5 Bound for ISS



Credit: NASA

April 2023 OSA Meeting

Saturday, April 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

"I have a hunch the most important reason we're going to space is not known now." – Burt Rutan

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Oklahoma Space Alliance Update

April 8, 2023

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 2023

President &
Update Editor **Cliff McMurray**

cliffmcmurray@hotmail.com

405-863-6173 (C)

Vice President **David Sheely**

david.sheely51@gmail.com

405-8321-9077 (C)

Secretary &
Outreach Editor **Syd Henderson**

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

Now They Have Faces



Credit: NASA/Robert Markowitz

The Artemis 2 crew was named at a NASA press conference on April 3, and its composition is exactly as expected. A black American, a woman, a Canadian...and a white male to command the crew. Whatever will the identity politicians say about that?

Articles: <https://www.space.com/nasa-names-artemis-2-moon-crew>

<https://www.space.com/artemis-2-moon-mission-canadian-astronaut-jeremy-hansen>

<https://spacenews.com/nasa-announces-crew-for-artemis-2-mission/>

Going, Going...?



Credit: Virgin Orbit/Greg Robinson

Virgin Orbit furloughed most of its 750 employees on March 15, in what it called an “operational pause.” Following news that the company is close to raising \$200 million from Matthew Brown, a Texas-based venture capital investor, VO brought a small team back on March 23 to continue preparations for its next launch. VO said it would extend the unpaid furlough for most of Virgin Orbit's employees through at least March 27. Then, in a Securities and Exchange Commission filing on March 30, VO announced it was laying off approximately 675 employees (85% of its workforce) “to reduce expenses in light of the Company’s inability to secure meaningful funding.”

Articles: <https://www.space.com/virgin-orbit-pauses-operations-seeks-funding>

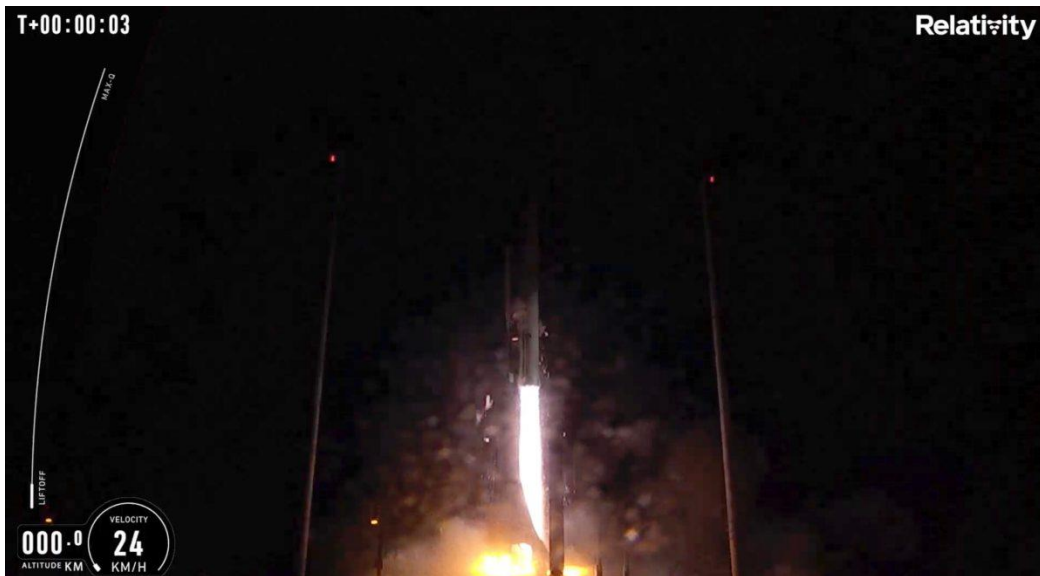
<https://spacenews.com/virgin-orbit-pauses-operations/>

<https://www.space.com/virgin-orbit-resumes-operations-small-team-finance-deal>

<https://spacenews.com/virgin-orbit-begins-incremental-return-to-work-as-it-seeks-new-funding/>

<https://spacenews.com/virgin-orbit-lays-off-most-employees/>

Those First Flight Blues



Credit: Relativity Space

Relativity Space's Terran 1 is fueled by liquid methane and liquid oxygen, and it hopes to become the first "methalox" rocket to reach orbit (in addition to the first 3D-printed vehicle to do so). But the rocket didn't make it on the first attempt. The launch on March 22 of "Good Luck, Have Fun" (GLHF) looked good, but the rocket failed about three minutes later. It did make it through Max Q safely, which is a big milestone.

Articles: <https://spacenews.com/relativity-launches-first-terran-1/>

<https://www.space.com/relativity-space-terran-1-test-launch-failure>

No Good Performance Goes Unpunished



Credit: NASA/JPL-Caltech

NASA has decided to pull almost all funding for the modest VERITAS mission to Venus, which was both on track and on budget, to pay for cost overruns in other planetary missions, chiefly Mars Sample Return and the Psyche asteroid mission. The 2024 NASA proposed budget provides only a \$1.5M shoestring budget to VERITAS — a severe drop from its previous projected budget for this year of \$56.7M. Estimates for future years hold funding at \$1.5M until 2028, reflecting NASA's decision to indefinitely postpone the mission's launch. This pittance keeps VERITAS's science team intact but disbands its entire engineering wing.

Articles: <https://spacenews.com/mars-sample-return-cost-growth-threatens-other-science-missions/>
<https://www.space.com/nasa-veritas-venus-mission-budget-pressure>
<https://spacenews.com/nasa-weighing-continuing-veritas-versus-future-discovery-mission/>

The Leaky Ship Comes Home



Credit: NASA

Soyuz MS-22, the ship with the coolant leak, landed on the steppes of Kazakhstan on March 28, less than two hours after casting off from ISS. This is about three times faster than would normally be the case if a crew had been aboard; clearly they wanted to get it down quickly before it could overheat too much.

Article: <https://www.space.com/leaky-soyuz-spaceraft-departs-space-station-return-to-earth>

They Won't Be Naked



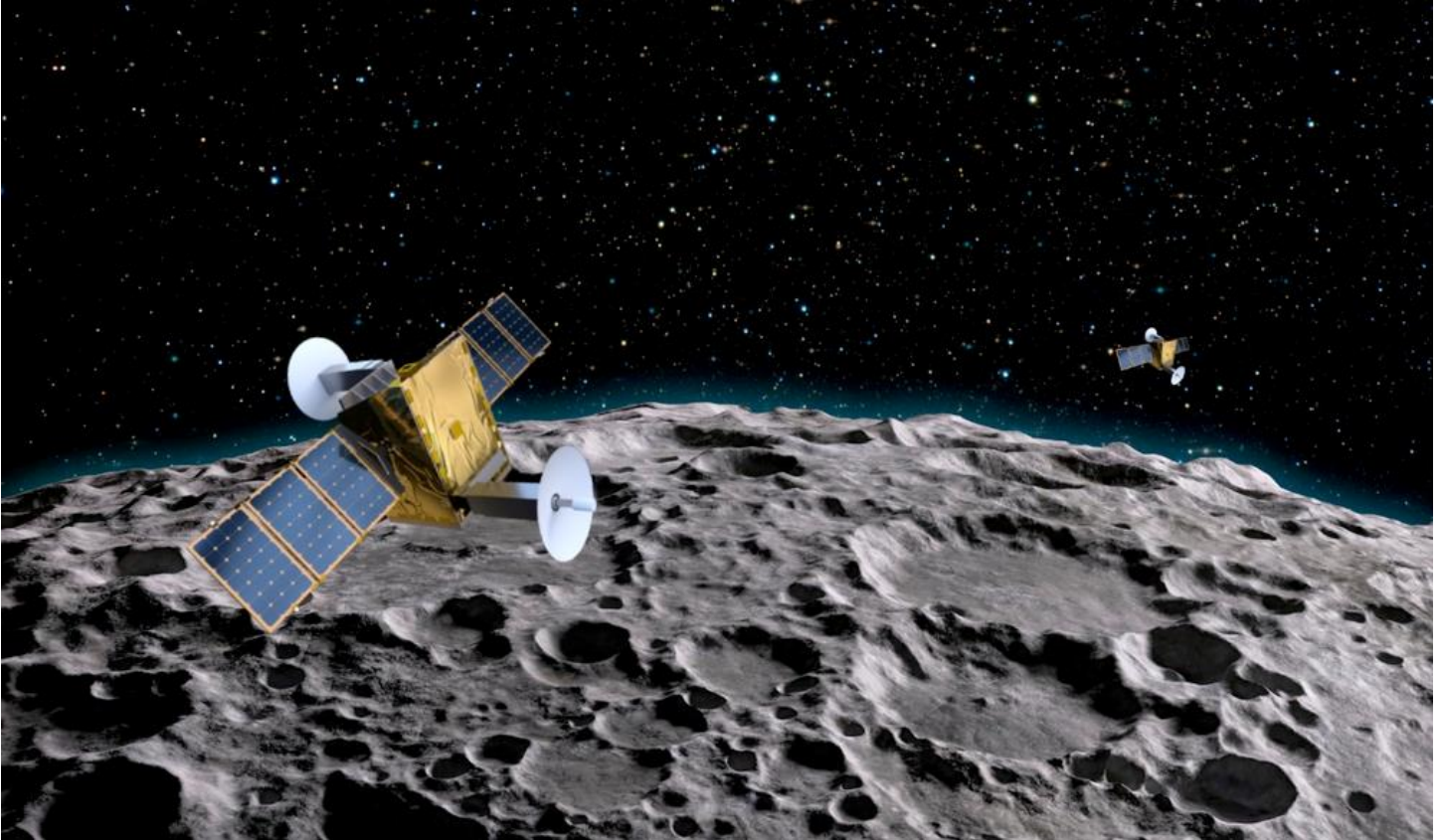
Credit: Axiom Space

Here's what \$228.5M buys, if you're NASA. At an event in Houston March 15, Axiom revealed the design of the suit to be worn by astronauts during their excursions on the lunar surface, starting with Artemis 3 mission. It's called the Axiom Extravehicular Mobility Unit (AxEMU). Axiom's contract (and a parallel contract with Collins Aerospace) is a service agreement, like those NASA uses for space station crew and cargo missions, meaning that Axiom retains ownership of the suits as well as the ability to offer them to other customers.

Articles: <https://www.space.com/axiom-space-artemis-moon-spacesuits-revealed>

<https://spacenews.com/axiom-space-reveals-design-of-artemis-spacesuit/>

Can We Interest You in a New Phone?



Credit: Lockheed Martin

On March 28, LockMart announced the creation of a subsidiary called Crescent Space Services LLC. This company will offer a service called Parsec, a network of satellites in lunar orbit to provide navigation and communication services to other spacecraft in the vicinity of the moon. The satellites, the first of which are projected to launch in 2025, will be designed and built by Lockheed Martin, using a bus called Curio it developed for NASA's Janus and Lunar Trailblazer smallsat missions.

Article: <https://spacenews.com/lockheed-martin-subsiary-to-offer-commercial-lunar-communications-and-navigation-services/>

As If It Weren't Crowded Already



Credit: CCTV

Sometime soon China will begin deployment of a 13,000-satellite LEO broadband megaconstellation, sometimes referred to as “Guowang,” or national network, to rival Starlink and other Western ventures. The Innovation Academy for Microsatellites (IAMCAS) will deliver its first 30 satellites for the megaconstellation by the end of this year. The China Academy of Space Technology (CAST) is apparently also under contract for satellite manufacture, and other companies may get contracts as well.

Articles: <https://spacenews.com/the-coming-chinese-megaconstellation-revolution/>
<https://spacenews.com/china-to-begin-constructing-its-own-megaconstellation-later-this-year/>

Draw Your Own Conclusions



Credit: China News Service

Tianwen-1, China's first interplanetary mission, marked its second anniversary in orbit around Mars on February 10, but there has been no update on the status of Zhurong, the mission's rover, for months. Zhurong entered hibernation in May 2022 and was expected to wake up in December, around the time of the spring equinox in Mars' northern hemisphere. But Chinese officials have remained silent as to its status, and images from NASA's Mars Reconnaissance Orbiter show it hasn't moved in months.

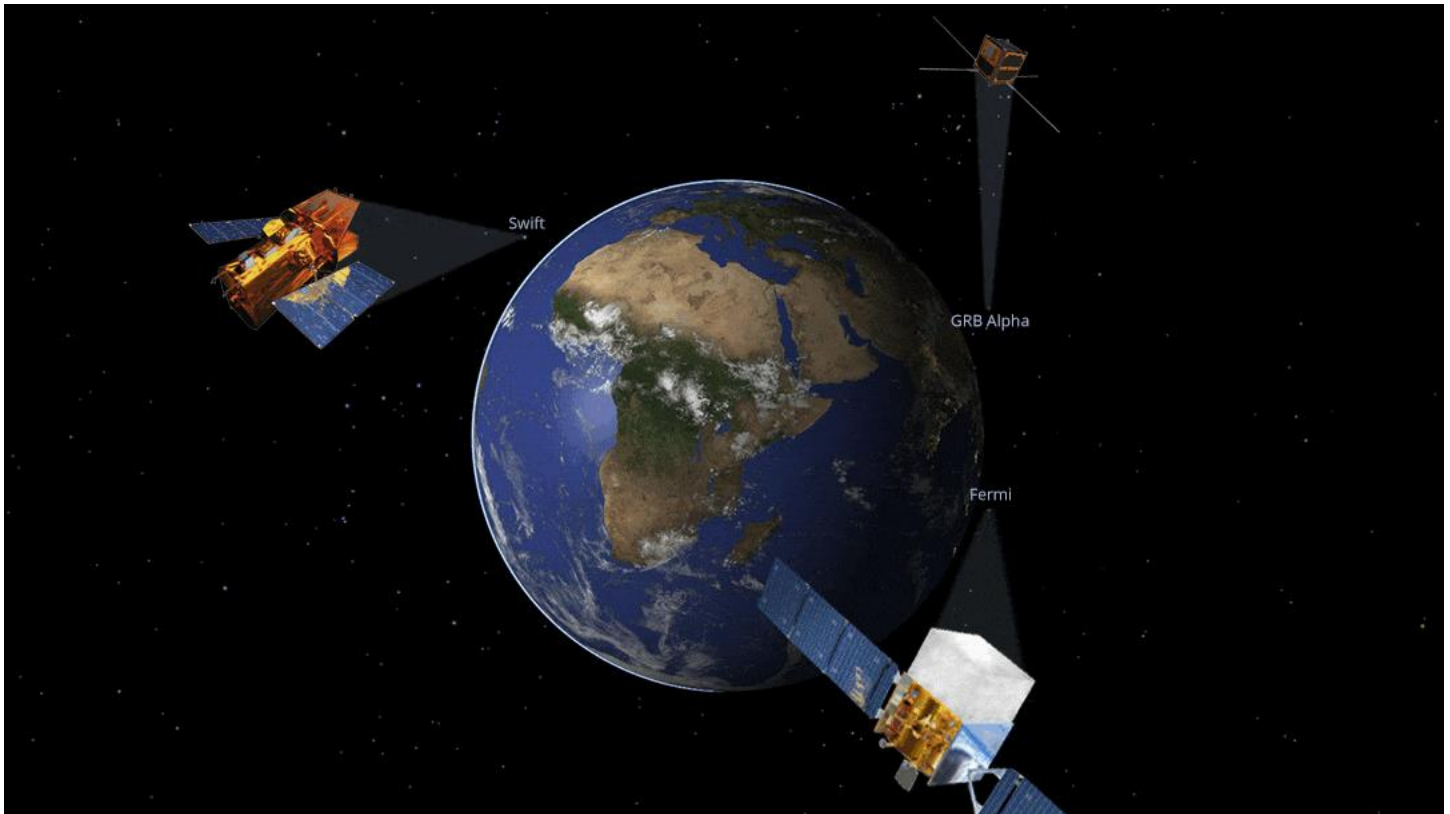
Articles: <https://www.space.com/china-silent-zhurong-mars-rover-tianwen-1>

<https://spacenews.com/chinas-tianwen-1-mars-orbiter-and-rover-appear-to-be-in-trouble/>

<https://spacenews.com/nasa-mars-orbiter-reveals-chinas-zhurong-rover-has-not-moved-for-months/>

<https://www.space.com/china-zhurong-rover-mars-subsurface-layers>

Cubesats Rule!...Sometimes



Credit: Francis Reddy/NASA Goddard, University of Maryland

What may have been the brightest gamma-ray burst in 10,000 years swept over Earth last year. It was so bright that it blinded the detectors on all of NASA's flagship gamma-ray missions. But GRB Alpha, an experimental cubesat built on a tiny budget by a team of Hungarian, Slovak and Czech astronomers and launched in March 2021, got the goods on the burst, which occurred on October 9, 2022. Nevertheless, the performance of many of the cubesats launched on lunar or interplanetary missions has been well below expectations.

Article: <https://www.space.com/cubesat-measures-brightest-ever-gamma-ray-burst>
<https://spacenews.com/deep-space-smallsats-face-big-challenges/>

Notice Anything?



Credit: U.S. Air Force photo by Darius Hutton

The Biden administration's proposed FY '24 budget for NASA is \$27.2 billion. For Space Force, it's \$30 billion...

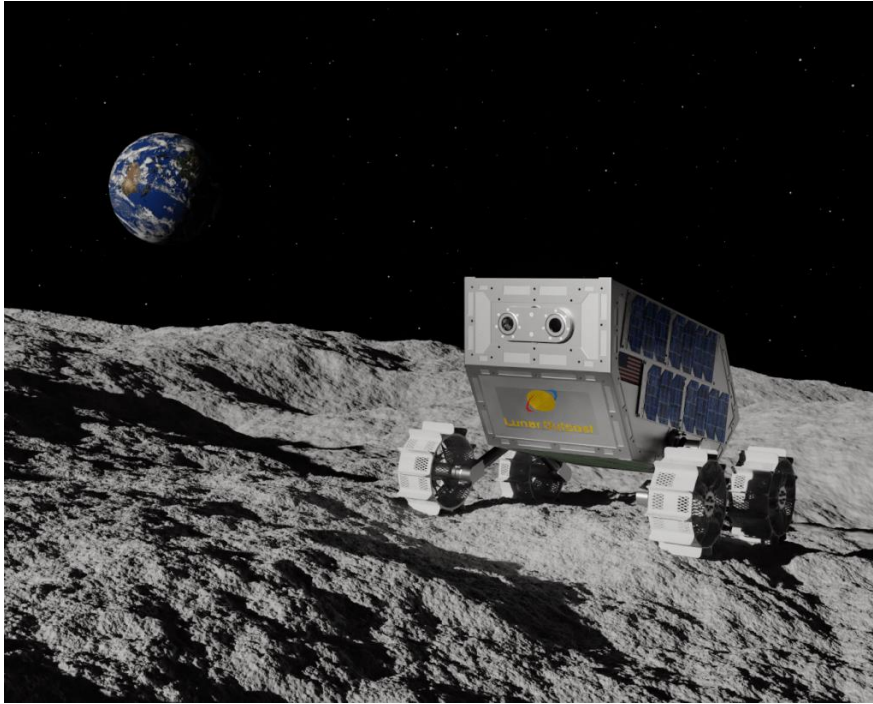
And that doesn't count the black budget.

Article: <https://spacenews.com/white-house-proposes-27-2-billion-for-nasa-in-2024/>

<https://spacenews.com/u-s-space-force-budget-hits-30-billion-in-2024-funding-proposal/>

<https://spacenews.com/nasa-warns-of-devastating-impacts-of-potential-budget-cuts/>

Bitcoin Goes to the Moon



Credit: Lunar Outpost

A treasure hunt on the moon! A Bitcoin treasure chest of 62 Bitcoins (current value: \$1.5M) is going to the moon on a Lunar Outpost MAPP rover, to be unlocked by the first space traveler to reach the moon and obtain the wallet's private key, etched onto the MAPP rover.

Article: <https://www.space.com/bitcoin-treasure-hunt-moon-lunar-rover>

China's Commercial Sector Scores

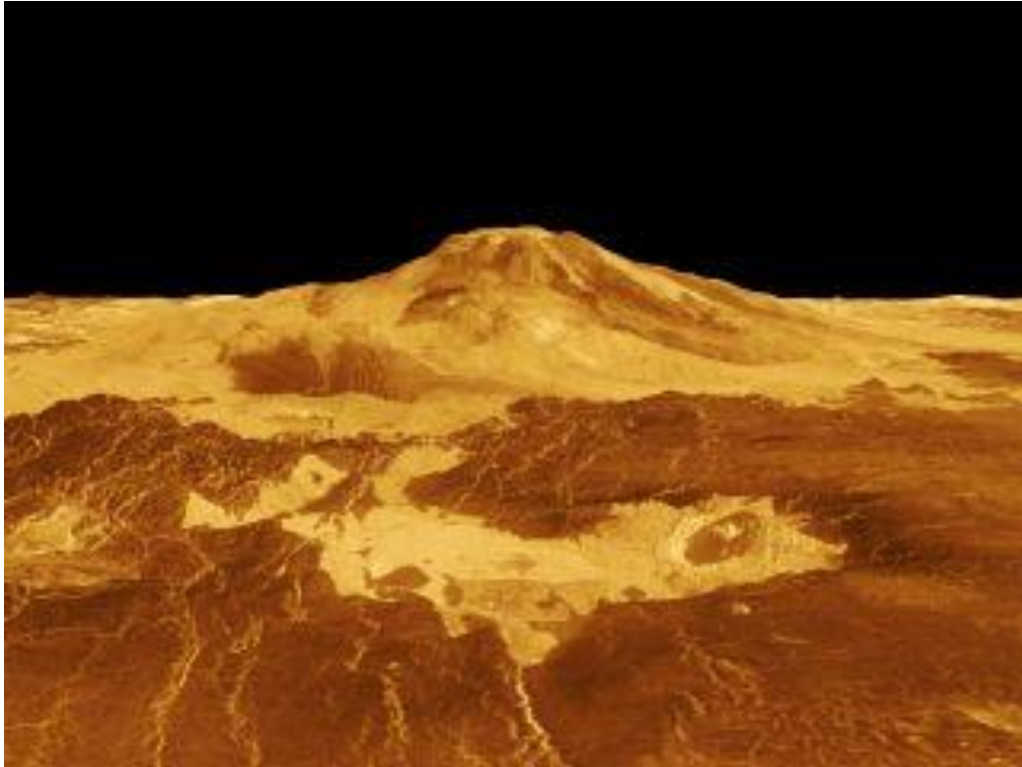


Credit: Space Pioneer

On April 2, with the launch of Tianlong-2 (“Sky Dragon-2”) from the Jiuquan Satellite Launch Center, Space Pioneer became the first Chinese “private” launch firm to reach orbit with a liquid propellant rocket. Tianlong-2 is a three-stage rocket capable of carrying 2,000 kg to LEO or 1,500 kg to a 500-km sun-synchronous orbit. This maiden flight put a small experimental remote sensing satellite named Ai Taikong Kexue (“love space science”) in a 478x496 km sun-synchronous orbit.

Articles: <https://spacenews.com/chinas-space-pioneer-reaches-orbit-with-liquid-propellant-rocket/>

Not Dead. Not Even Sleeping.

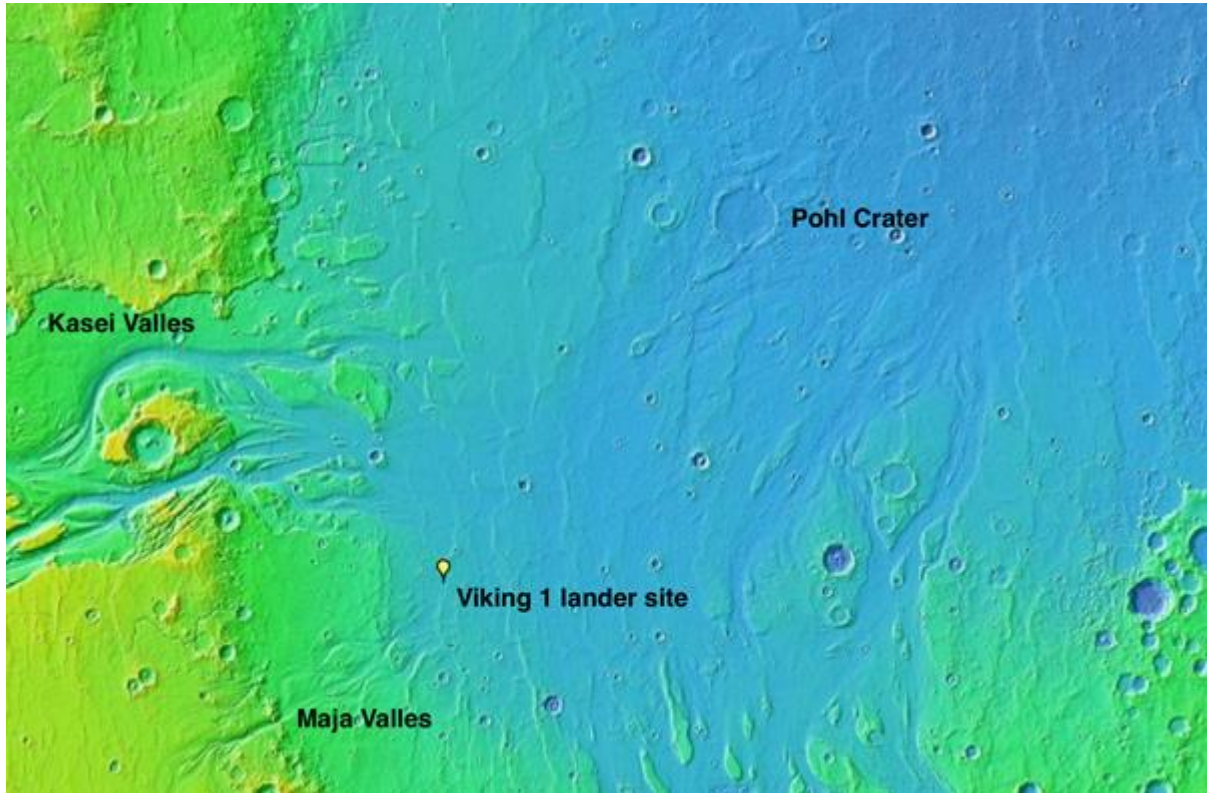


Credit: NASA/JPL-Caltech

More than 30 years after the data was collected by Magellan, analysis shows Venus has an active volcano. Comparison of two Magellan images taken eight months apart in 1991 shows that a volcanic vent near one of the planet's largest volcanoes, Maat Mons, measuring 0.7 square miles (2 square km) grew "considerably larger," to about 1.5 square miles (4 square km). Venus has around 1,600 major volcanoes and close to a million smaller ones, but whether any of them are still active has until now been hotly contested.

Articles: <https://www.space.com/venus-active-volcano-nasa-magellan-mission>

Mars' Chicxulub



Credit: NASA/JPL/GSFC/Arizona State University/Google Mars

Mars' surface shows evidence of at least two megatsunamis in its ocean-bearing past of the scale of the one that wiped out the dinosaurs on earth. Viking 1, it turns out, is sitting on the flood plain of one of them, which radiated out from the 68-mile-wide (110 km) Pohl Crater that was its Ground Zero, about 3.4 billion years ago. The impact sent a wave of water up to 800 ft. (250 m) high racing outward for hundreds of miles, and leaving behind a layer of debris hundreds of feet thick.

Articles: <https://astronomy.com/news/2022/12/megatsunami-swept-over-mars-after-devastating-asteroid-strike>

<https://www.space.com/mars-megatsunami-massive-asteroid-impact-crater>

SubC Gets a Makeover



Credit: Blue Origin

In March 2020, when then-NASA Administrator Jim Bridenstine announced a new effort, later called Suborbital Crew or SubC, its stated purpose was to allow NASA astronauts to fly on commercial suborbital vehicles for training research. Now NASA has decided suborbital vehicles aren't good training platforms for astronauts, but they're still fine for NASA-sponsored research by other civil servants. Still no word on how soon anyone might actually fly in this program, though.

Article: <https://spacenews.com/nasa-shifts-focus-of-suborbital-crew-program/>

Canadian Lunar Power Stations, Eh?



Credit: STELLS

Astrobotic's Lunagrid now has competition. Toronto-based startup STELLS has announced plans to develop its Mobile Power Rover (MPR), a rover that will generate power from its solar arrays and make that power available to other vehicles on the lunar surface through wireless charging. Its MPR-1 rover is slated to launch by 2025 as a payload on an Intuitive Machines lander headed to the south polar regions of the moon.

Article: <https://spacenews.com/canadian-startup-developing-lunar-rover-to-deliver-power/>

This Week At NASA

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

That's All Folks



Credit: ESA/Hubble & NASA, A. Barth, R. Mushotzky

Credit: NASA