April 2024

Update

A free email newsletter of the Oklahoma Space Alliance

Oklahoma Space Alliance

A Chapter of The
National Space Society

Old Reliable

Credit: NASA/Bill Ingalls

April 2024 OSA Meeting

Saturday, April 13, 2024

1:00 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

There's a silly notion that failure's not an option at NASA. Failure is an option here. If things are not failing, you are not innovating enough.– Elon Musk

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Update

April 13, 2024

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Multiple Chinese Spacecraft Moonbound

Credit: Ourspace

A Long March 2C rocket launched from Xichang Satellite Launch Center on March 13 carrying a pair of Chinese spacecraft DRO-A and B. No announcement as to their purpose, but they were apparently intended for a distant retrograde lunar orbit, but the upper stage malfunctioned, and China has apparently been trying to get the payload to the moon by alternate route since then. On March 19 China launched its Queqiao-2 communications relay satellite to support upcoming lunar far side and south polar missions. Chang'e-6, which China intends to launch in May to collect the first samples from the moon's far side, will need that relay.

Articles https://spacenews.com/surprise-chinese-lunar-mission-hit-by-launch-anomaly/

https://spacenews.com/china-appears-to-be-trying-to-save-stricken-spacecraft-from-lunar-limbo/

https://spacenews.com/china-rolls-out-rocket-for-queqiao-2-lunar-satellite-launch/

https://spacenews.com/china-launches-queqiao-2-relay-satellite-to-support-moon-missions/

https://spacenews.com/chinas-queqiao-2-relay-satellite-enters-lunar-orbit/

https://spacenews.com/chinas-queqiao-2-relay-satellite-ready-to-support-lunar-far-side-sample-mission/

One Yet Lives

Credit: AXA/Takara Tomy/Sony Group Corporation/Doshisha University

The Japanese SLIM lander survived its second lunar night. Meanwhile, on March 23, Intuitive Machines declared its Odie lander doesn't have enough power to call home again. Another Japanese company, ispace, is having no difficulty raising more money for future lunar endeavors, despite the crash of its HAKUTO-R lander last year.

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

https://spacenews.com/intuitive-machines-on-firmer-footing-after-lunar-landing/

https://www.space.com/intuitive-machines-im-1-moon-mission-ends

https://spacenews.com/japanese-lunar-lander-company-ispace-raises-53-5-million-in-stock-sale/

The Boys (and Girls) Need Wheels

Credit: Lunar Outpost

Whoever wins the contract won't see its hot rod kicking up lunar dust until at least 2030 on the Artemis 5 mission, but for now NASA has selected three private teams led by Intuitive Machines, Lunar Outpost and Venturi Astrolab to compete with their versions of a two-person Lunar Terrain Vehicle (LTV), the rover that Artemis astronauts will drive on the moon. The total potential value of the LTV services contract is $4.6B, including delivery of the vehicle to the lunar surface.

Articles: https://www.space.com/nasa-lunar-terrain-vehicle-artemis-moon-rover-contracts

https://spacenews.com/nasa-selects-three-companies-to-advance-artemis-lunar-rover-designs/

Going in Style

Credit: NASA/Bill Ingalls

In return for providing a pressurized moon rover for use in later Artemis missions, Japan will become the first nation after the United States to land an astronaut on the moon. And not just one. NASA's agreement provides two seats on future Artemis lunar landing missions to astronauts from the Japanese space agency. JAXA thus becomes the first agency other than NASA to secure spots on Artemis landing missions. NASA will deliver the rover, named Lunar Cruiser to the moon ahead of the Artemis 7 mission, currently scheduled for no earlier than 2031. Lunar Cruiser can house two astronauts for up to 30 days, with an overall lifetime of 10 years.

Articles: https://www.space.com/japan-astronauts-moon-rover-artemis-agreement

https://spacenews.com/japanese-astronauts-to-land-on-moon-as-part-of-new-nasa-partnership/

Closer Every Time

Credit: SpaceX webcast

From two minutes, to four minutes, to 50 minutes – each Starship test flight gets longer and closer to achieving complete success. The third flight, on March 14, saw successful "hot staging" and insertion of Starship into an orbital trajectory, as well as an in-space propellant transfer demonstration. But both Super Heavy and Starship failed their "soft splashdown" attempts; Super Heavy broke apart 462 meters above the ocean, and Starship probably broke up during reentry at 65 km (that's when SpaceX ground control lost contact with the vehicle). The time between launches decreased from seven months to four months, and the pace will continue to increase. At the time of the launch, SpaceX already had four more Starship/Super Heavys completed and ready to take their turns in the test program. Nine test flights this year?

Articles: https://spacenews.com/spacex-adds-tests-to-next-starship-flight/

https://www.space.com/spacex-starship-third-test-flight-launch

https://spacenews.com/starship-lifts-off-on-third-test-flight/

https://www.space.com/spacex-starship-launch-plans-2024

https://www.teslarati.com/spacex-starship-plan-nine-launches-2024/

https://spacenews.com/musk-outlines-plans-to-increase-starship-launch-rate-and-performance/

A New Record – Almost

Credit: Future

SpaceX tried to launch three Falcon 9s in a single day on March 30, and missed only because of weather at the Vandenberg launch site. The other two got off on schedule. The first flight, from KSC, lofted a Eutelsat 36D telecommunications satellite into GTO (12th flight for the first stage). The second flight, less than four hours later carried 23 Starlink sats aloft from Cape Canaveral Space Force Station, right next door to KSC. SpaceX will need to launch about once every two and a half days if it wants to meet its target of 144 flights for this year.

Articles: https://www.space.com/spacex-launch-tripleheader-march-2024

We've All Gotta Go Sometime

Credit: ULA webcast

The 16th and last Delta 4 Heavy lofted a National Reconnaissance Office satellite from Cape Canaveral Space Force Station on April 9. Since its debut in 1960, variants of the Delta rocket have flown 389 times, but no more. From here on out, it's Vulcan all the way for ULA.

Articles: https://www.space.com/final-delta-4-heavy-rocket-launch-nrol-70

https://spacenews.com/end-of-an-era-delta-4-heavy-soars-one-last-time/

India Wants a Spaceplane

Credit: ISRO

The Indian Space Research Organisation (ISRO) successfully carried out the second free glide test of its prototype space plane, known as Pushpak, on March 22. Development of the vehicle began in 2019; the ISRO plans to scale it up to become part of a reusable two-stage orbital launch system by the end of this decade.

Article: https://www.space.com/india-second-landing-test-space-planet-video-march-2024

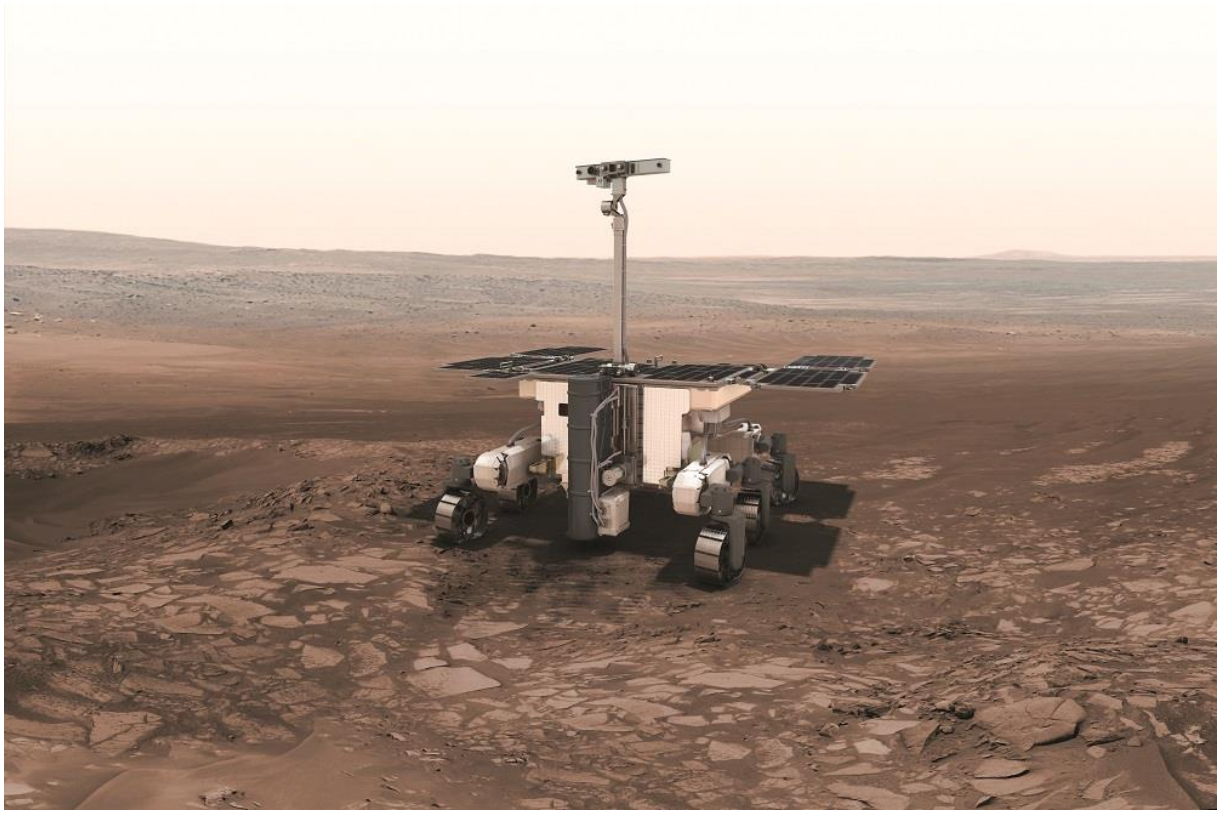
One by One, They Leave Us

Credit: NASA

USAF General Thomas Stafford, veteran of four pioneering spaceflights and commander of the dress rehearsal mission for Apollo 11, died after an extended illness on March 18, at the age of 93.

Articles: https://www.space.com/nasa-astronaut-thomas-stafford-obituary

Reboot



Credit: ESA

When Russia invaded Ukraine in 2022, there was a lot of collateral damage. They blew up practically all their collaborative space agreements, with the notable exception of ISS. Only a few months before launch, ESA told them to take a hike on their collaborative ExoMars mission. But that left Europe's Rosalind Franklin rover without a launcher or a landing platform. NASA has stepped in to provide a launcher for the mission, currently scheduled for Q4 of 2028. And as of April 9, ESA has a contract worth 522 million euros ($567M) with a team led by Thales Alenia Space to put the landing package together.

Article: https://spacenews.com/esa-awards-contract-to-thales-alenia-space-to-restart-exomars/

Say Again?

Credit: Caltech/NASA-JPL

About 15 billion miles (22.5 light-hours) from home, nearly half a century after launch in 1977, and 11 years after becoming the first human spacecraft to penetrate interstellar space, Voyager 1 is suffering from memory issues. Although the comm link with Earth hasn't broken, since November 2023 the venerable probe has been transmitting gibberish. The problem has been traced to the flight data subsystem (FDS). Voyager 1 operators sent the spacecraft a "poke" on March 3, 2024, to prompt FDS to send a full memory readout back to Earth. The readout confirmed that about 3% of the FDS memory had been corrupted. Now that the problem has been pinpointed, NASA says a solution could take weeks or even months, but if the hoped-for resolution can be achieved, Voyager 1 should be able to resume returning science data.

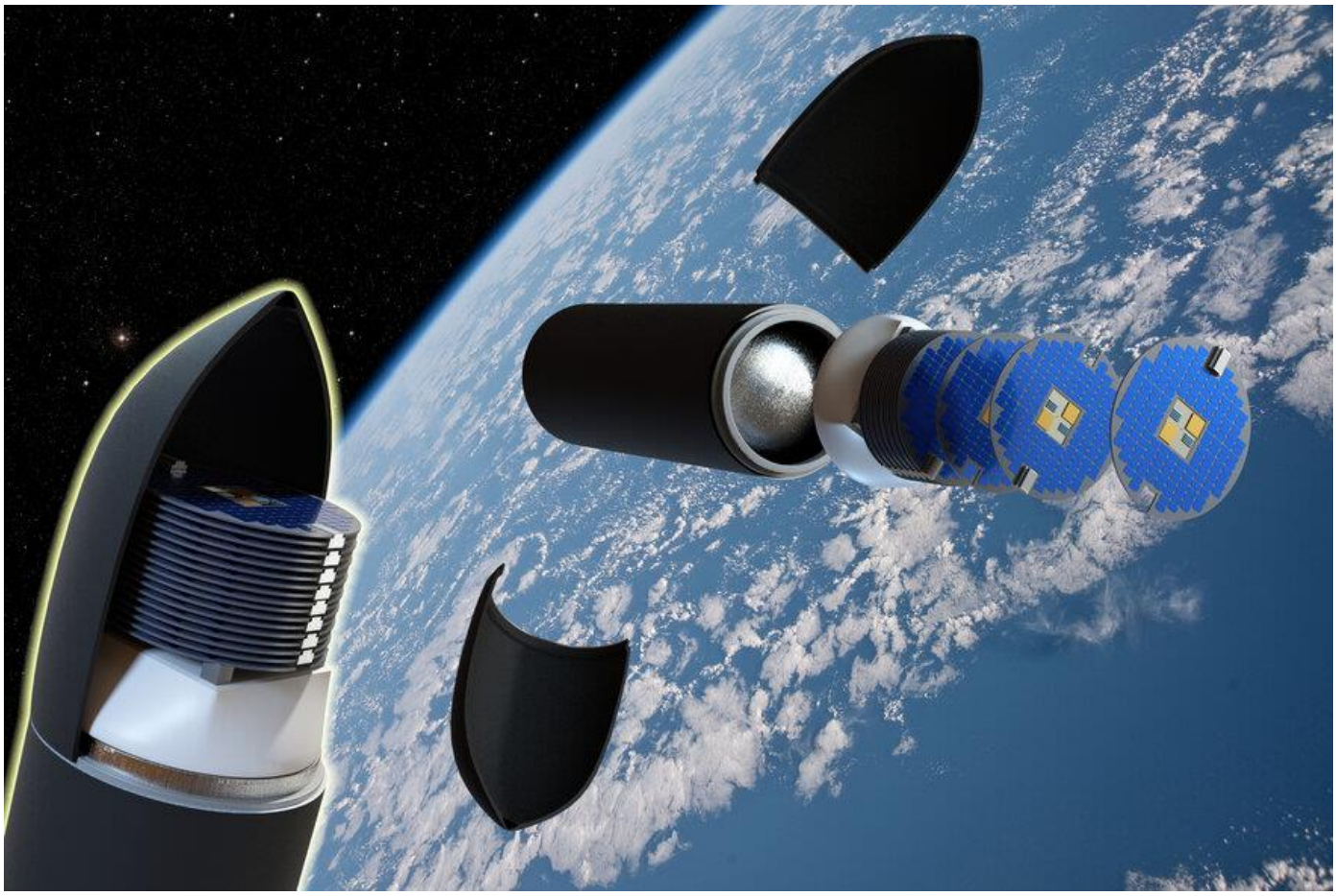
Articles: https://www.space.com/nasa-voyager1-spacecraft-interstellar-engineers-mission-glitch

https://www.space.com/voyager-1-communications-update-fds-memory-issue

https://spacenews.com/nasa-optimistic-about-resolving-voyager-1-computer-problem/

https://www.space.com/nasa-voyager-1-communications-breakdown-solved

They Look Like LPs

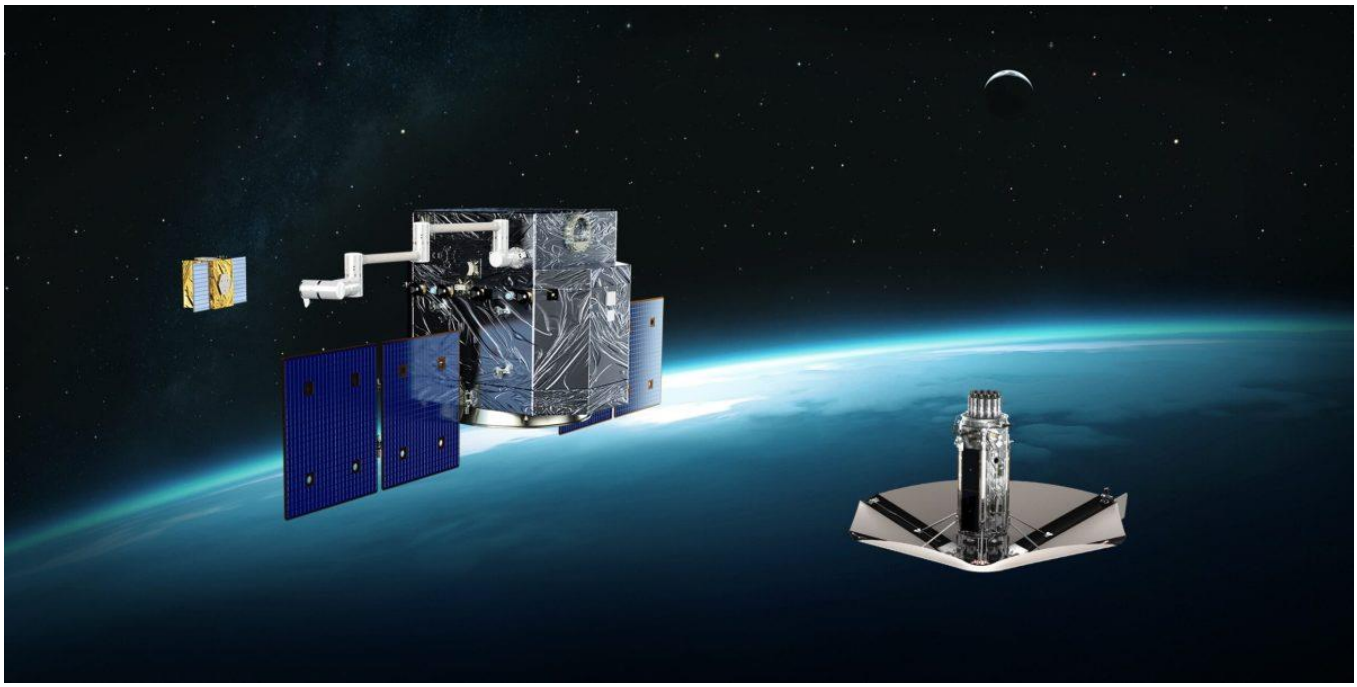


Credit: Aerospace Corp.

…but they're not made of vinyl. STP-S30 is a Space Test Program experiment for a new smallsat design, called DiskSat — a plate-shaped satellite, about 40 inches in diameter and one-inch thick. Rocket Lab has just won a contract from Space Force to launch a prototype DiskSat to VLEO in 2026. Potential advantages of the new design: more power and surface area for instruments than, for instance, a cube shape.

Article: https://spacenews.com/rocket-lab-wins-14-4-million-contract-to-launch-space-test-program-experiment/

Customers for All Occasions



Credit: Sierra Space

It's always good to diversify your customer base. Sierra Space isn't just building Dreamchaser and working on a commercial space station; it's pursuing military contracts. It has a $1.3B backlog of defense orders that includes a $740M deal announced this January to produce 18 missile-tracking satellites for the USSF's next-generation missile-tracking satellite network. And now it's developing a couple of automated spacecraft that could serve both the military and commercial customers: an in-orbit servicing vehicle named Spectre, and a return capsule named Ghost.

Article: https://spacenews.com/sierra-space-developing-dual-use-spacecraft-with-military-potential/

https://www.space.com/sierra-space-ghost-cargo-from-orbit-90-minutes

Japan Wants More Commercial Space

Credit: Interstellar Technologies

Last November, Japan's cabinet approved a bill to establish a $6.7B (1 trillion yen), 10-year fund for JAXA. Aiming to support development, technology demonstration, and commercialization of advanced technologies in the space arena. The 10-year plan aims to provide long-term yet flexible and strategic support for private companies and universities to engage in advanced technology development and commercialization efforts in the space sector. In furtherance of the goal of fostering commercial space, JAXA has announced agreements with four small companies (Interstellar Technologies, Space One, Space BD and Mitsui Bussan Aerospace) that give them priority for future contracts.

Articles: https://spacenews.com/japan-creates-multibillion-dollar-space-strategic-fund-to-boost-space-industry/

https://spacenews.com/jaxa-selects-interstellar-technologies-as-priority-launch-provider/

Time is Relative

Credit: NASA

Who knew? Relativistic effects mean a second on the moon is not the same length as one on Earth. To an observer on the Moon, an Earth-based clock will appear to lose on average 58.7 microseconds per Earth-day, with additional periodic variations. So on April 2, the White House's Office of Science and Technology Policy released a document titled The Policy on Celestial Time Standardization in Support of the National Cislunar Science and Technology Strategy, which directs NASA to develop a strategy by the end of 2026 to create a new time standard called Coordinated Lunar Time (LTC), to be based on Coordinated Universal Time (UTC) on Earth but adapted to operations on the moon.

Article: https://spacenews.com/white-house-directs-nasa-to-develop-lunar-time-standard/

https://www.space.com/white-house-nasa-time-zone-moon

Smoke and Mirrors and DNA

Credit: Astra

If all goes as planned, Firefly Aerospace's Blue Ghost 1 lunar lander will touch down in the northern lunar hemisphere's Mare Crisium later this year. It will carry a capsule from the startup Lifeship, with human DNA and a seed bank. Another startup, also housed in the Lifeship capsule will be a cache of "digital assets" sold by Copernic Space, including music, code, fine art collections, company registrations and videos.

Article: https://spacenews.com/copernic-space-sells-digital-assets-for-2024-lunar-flight/

They Got the Goods

Credit: Varda Space/John Kraus

According to Varda Space cofounder Delian Asparouhov, "[t]hem space drugs cooked real good." The metastable Form III of the antiviral drug ritonavir which was incubated in microgravity aboard VS's proof-of-concept W-1 mission has been analyzed and found good. The drug is used in AIDS treatment. Now, on to commercial production flights…

Article: https://www.space.com/varda-space-microgravity-pharmaceutical-production-success

https://spacenews.com/varda-space-industries-raises-90-million/

This Week At NASA

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

That’s All Folks

Credit: Pascal Fouquet, United States, Winner, National Awards, Sony World Photography Awards 2024