



August 2019

Update

**Oklahoma Space
Alliance**

A Chapter of The
National Space Society

A free email newsletter of the Oklahoma Space Alliance

Seven Years on Mars



August 2019 OSA Meeting

Saturday, August 10, 2019

2:00 PM

**Cliff & Claire McMurray's
House**

2715 Aspen Circle, Norman, OK 73072

405-863-6173

Program— Space News and
Events

Website: <http://osa.nss.org>



Quote of the Month

A flying machine which will really fly might be evolved by the combined and continuous efforts of mathematicians and mechanics in from one million to 10 million years.

— *New York Times Editorial, October 9, 1903*

We started assembly today.

— *Orville Wright's Diary, October 9, 1903*

Table of Contents

Seven Years on Mars.....	1
August 2019 OSA Meeting	1
Quote of the Month.....	1
Table of Contents.....	2
France Is First Nation to (Openly) Weaponize Satellites.....	Error! Bookmark not defined.
Orbit Beyond Won't Make First CLPS Payload Delivery After All.....	4
NASA Pushing Ahead with Lunar Gateway and Lander Development.....	5
...If It Can Get the Money from Congress.....	6
India Successfully Launches 2nd Moon Mission	7
Cause of Crew Dragon Explosion Has Been Determined	8
SpaceX Launches Used Dragon Capsule on Historic 3rd Flight to ISS.....	9
SpaceX Starhopper Takes First Free-Flying Test Hop.....	10
Rocket Lab Plans to Move to Reusable First Stage	11
iSpace Success Puts China in Private Sector Launch Club	12
LightSail 2 Successfully Deploys Solar Sail	13
DARPA Tries Again for Remote Satellite Servicing Demonstration Mission	14
Apollo 50th Anniversary Celebration at the Washington Monument	15
Neil Armstrong's Death May Have Been Due to Medical Malpractice	16
This Week At NASA	17
Feature-length video: Jeffrey Manber Speech at ISDC 2019	18
That's All Folks	19

Oklahoma Space Alliance

Update

July 13, 2019

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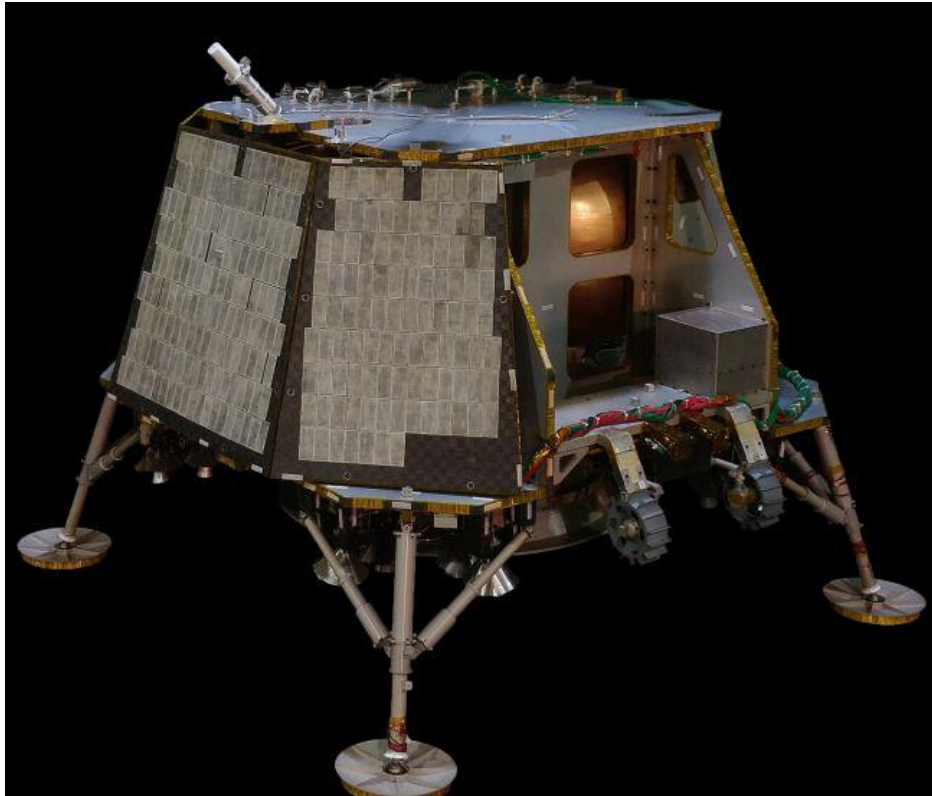
France Is First Nation to (Openly) Weaponize Satellites



French President Emmanuel Macron announced last month that the nation's air force will establish a space command for the purpose of national defense, particularly to protect French satellites. Last week, French Minister of Defense Florence Parly detailed the nation's plan for its new space force. Some French satellites will now sport machine guns and lasers!

Article: <https://www.space.com/france-military-space-force.html>

Orbit Beyond Won't Make First CLPS Payload Delivery After All

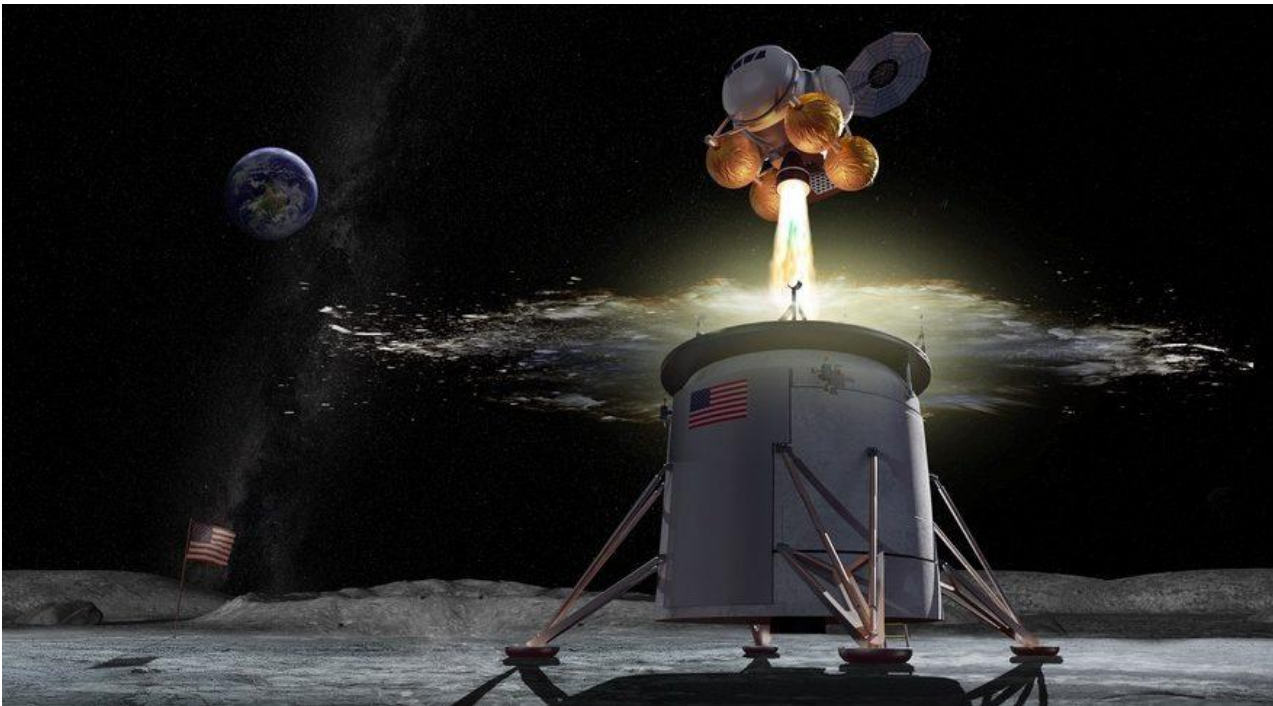


Orbit Beyond was scheduled to be the first commercial partner to land NASA payloads on the moon next year, but it's backed out of its \$97 million contract for reasons unknown. Astrobotic and Intuitive Machines are still on track to deliver payloads under the CLPS (Commercial Lunar Payload Services) program in 2021.

Articles: <https://www.space.com/nasa-drops-orbit-beyond-moon-landing-contract.html>

<https://spacenews.com/commercial-lunar-lander-company-terminates-nasa-contract/>

NASA Pushing Ahead with Lunar Gateway and Lander Development...



NASA has given Northrop Grumman a sole source contract to build a “minimal” habitation module, based on NG’s Cygnus cargo ship, for its lunar Gateway after concluding it was the only company that could meet NASA’s schedule. Meanwhile, NASA has a solicitation out for crew landers. The first phase will support development of an initial, basic lander design for a “demonstration mission” in 2024, carrying two astronauts to the lunar south polar region, staying there for six and a half days before returning to the lunar Gateway.

Articles: <https://spacenews.com/nasa-to-sole-source-gateway-habitation-module-to-northrop-grumman/>
<https://spacenews.com/nasa-outlines-plans-for-lunar-lander-development-through-commercial-partnerships/>
<https://spacenews.com/blue-origin-and-spacex-among-winners-of-nasa-technology-agreements-for-lunar-landers-and-launch-vehicles/>

...If It Can Get the Money from Congress

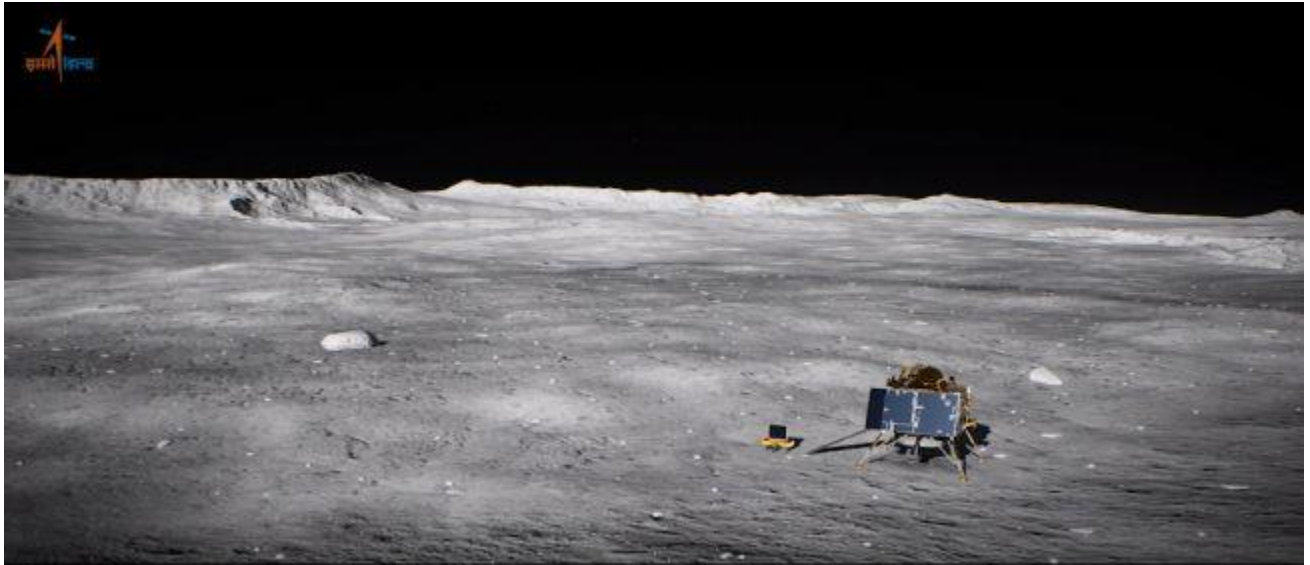


The chairman of the House appropriations subcommittee that funds NASA (Rep. José Serrano, D-N.Y.) said July 24 he's not yet convinced of the need to spend an additional \$20 billion to accelerate a human return to the moon. He's not the only one concerned about NASA's ability to stay within its projected budgets. Sen. Mike Enzi (R-Wyo.), chairman of the Senate Budget Committee, sent [a two-page letter to NASA Administrator Jim Bridenstine July 30](#) expressing his concern about cost and schedule performance on a number of major programs. "I am concerned that the persistent cost growth and schedule delays identified by GAO put at risk vital NASA missions and taxpayer dollars," he wrote, adding he was "troubled by continued reports" of cost and schedule issues with agency programs.

Articles: <https://spacenews.com/key-house-appropriator-still-skeptical-of-nasas-lunar-plans/>

<https://spacenews.com/senator-criticizes-cost-and-schedule-issues-with-nasa-programs/>

India Successfully Launches 2nd Moon Mission



The Indian Space Research Organization (ISRO) launched its Chandrayaan-2 lunar mission on July 22 from Satish Dhawan Space Centre, on a Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III). The mission consists of an orbiter, a lander called Vikram and a rover known as Pragyan. If all goes according to plan, touchdown will occur on a high plain between two craters, Manzinus C and Simpelius N, about 70 degrees south of the equator. The spacecraft is on a slow trajectory that won't put the lander on the surface until the first week in September.

Articles: <https://www.space.com/india-chandrayaan-2-moon-mission-launch-success.html>

<https://www.space.com/india-moon-mission-chandrayaan-2-slow-trip.html>

Cause of Crew Dragon Explosion Has Been Determined



A slug of hypergolic fuel or oxidizer got past a leaky valve, and... Boom!

The first manned test flight of Crew Dragon is, as a result, liable to slip from this fall into early next year, and Boeing's CST-100 test flights are slipping a bit as well. This leads NASA to be concerned about "startup transients" in shifting from Soyuz to commercial crew for delivering astronauts to ISS.

Articles: <https://www.spaceflightinsider.com/organizations/space-exploration-technologies/spacex-reveals-cause-of-crew-dragon-explosion/>

<https://spacenews.com/nasa-warns-commercial-crew-delays-create-uncertainty-in-iss-operations/>

SpaceX Launches Used Dragon Capsule on Historic 3rd Flight to ISS



The CRS-18 flight, launched on July 25, was the 18th mission for SpaceX under its commercial cargo resupply services contract with NASA. Of the missions flown to date, this is the seventh overall to feature a preflown Dragon and marks the first time the same Dragon spacecraft has flown to the station three times. Each of the next two cargo resupply missions — CRS-19 and CRS-20 — will also be the third flight for their respective Dragon spacecraft. SpaceX has now pulled off more than 40 successful landings of its first stage, and the video of this landing, with the booster shown breaking the sound barrier twice, is particularly exciting.

Article: <https://www.space.com/spacex-crs-18-launch-third-dragon-flight.html>

Video: <https://www.space.com/spacex-falcon-9-rocket-breaks-sound-barrier-crs-18-video.html>

SpaceX Starhopper Takes First Free-Flying Test Hop



SpaceX's prototype rocket for a planned Starship vehicle called Starhopper, made its first free-flying test hop at SpaceX's Boca Chica proving ground in South Texas on July 25, one day after a glitch forced it to abort an earlier attempt. Starhopper ignited its single Raptor engine just before midnight, apparently firing long enough to meet the test's main objective, which SpaceX founder and CEO Elon Musk had said would be a straight hop 65 feet (20 meters) up and down.

A few days earlier, Musk had announced that the Starship's first stage, originally planned to have 31 Raptor engines, will now have 35.

Articles and video: <https://www.space.com/spacex-starhopper-first-untethered-hop-success.html>

<https://www.space.com/spacex-super-heavy-35-raptor-engines.html>

Rocket Lab Plans to Move to Reusable First Stage



Rocket Lab CEO Peter Beck announced on Aug. 6 that the company plans to start recovering and reflighting the first stage of its Electron launch vehicle in the near future.

Rocket Lab is taking a very different approach than the one employed by SpaceX and Blue Origin, whose returning first stages land vertically after slowing their descents propulsively. Instead, Electron first stages will use parafoils to slow down and an enhanced thermal-protection system to endure the heat of re-entry. And Electron boosters won't land, they'll be plucked out of the sky by a helicopter.

Article and video: <https://www.space.com/rocket-lab-reuse-electron-boosters-helicopter.html>

iSpace Success Puts China in Private Sector Launch Club



Beijing Interstellar Glory Space Technology Ltd., also known as iSpace, became the first Chinese private firm to achieve orbit with its successful launch from a national space center in the Gobi Desert. The Hyperbola-1 launch vehicle took off from Jiuquan Satellite Launch Center on July 25. The test flight carried CAS-7B, an amateur radio satellite, and a technology verification payload for China Central Television, into a 300-kilometer-altitude orbit, with three more small payloads attached to the upper stage. The success makes iSpace the first Chinese private rocket company to achieve orbit, following failures by Landspace in October and OneSpace in March 27, both of which used solid propellant rockets.

Article: <https://spacenews.com/chinese-ispac-achieves-orbit-with-historic-private-sector-launch/>

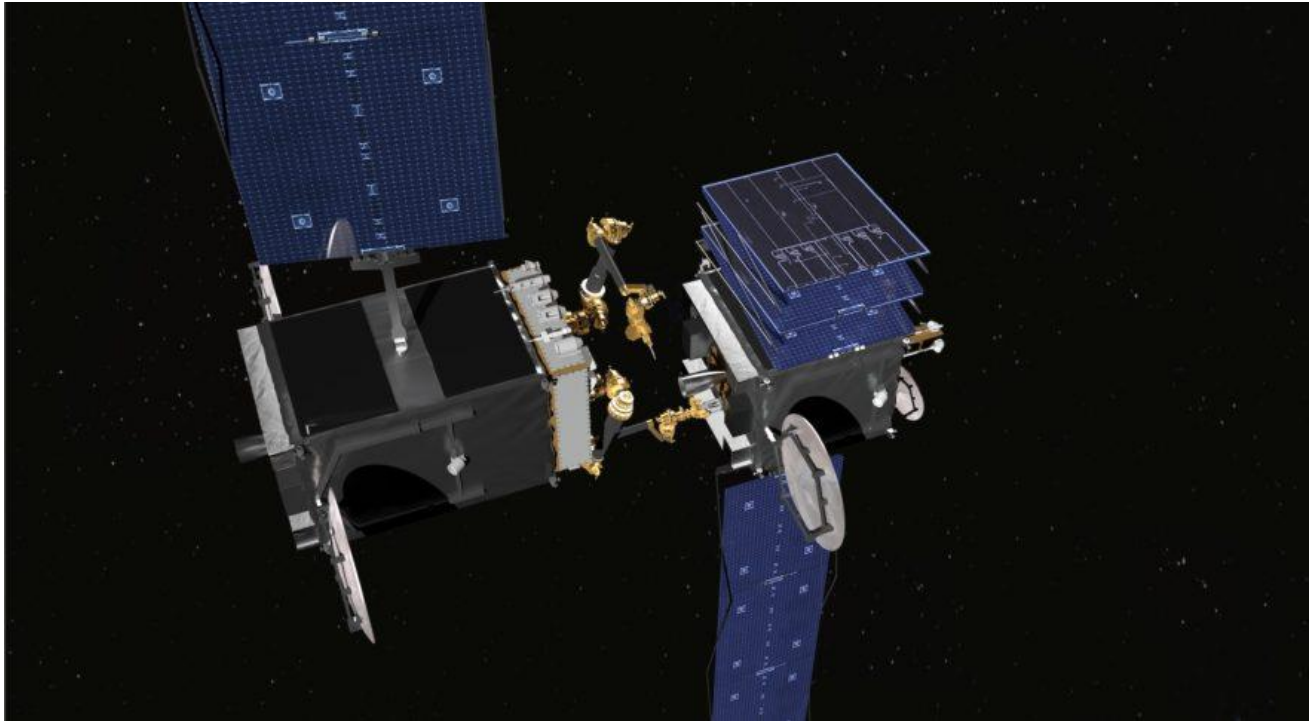
LightSail 2 Successfully Deploys Solar Sail



The Planetary Society's LightSail 2 spacecraft successfully deployed its solar sail on July 23 and became the first craft ever propelled by sunlight alone. The bread loaf-sized spacecraft, which was built with the support of crowdfunding efforts, was launched aboard SpaceX's Falcon Heavy rocket on June 25. Flight controllers at Cal Poly San Luis Obispo in California began deploying the craft's solar sail at 2:47 p.m. EDT (1847 GMT), and the sail was fully deployed within three minutes

Articles: <https://www.space.com/lightsail-2-solar-sail-deployment-success.html>
<https://www.space.com/lightsail-2-solar-sail-deployment-photos.html>

DARPA Tries Again for Remote Satellite Servicing Demonstration Mission



The Defense Advanced Research Projects Agency is considering proposals from potential new partners for its program to send a robot to space to repair satellites. DARPA suffered a major setback in January when Maxar withdrew from the project known as Robotic Servicing of Geosynchronous Satellites, or RSGS. Now the agency wants to give it one more try. DARPA invited interested contractors to a briefing in May and solicited new proposals, which were due July 23. The agency might select a new partner by the end of the year – or not, if no suitable partner is found.

Article: <https://spacenews.com/darpas-satellite-servicing-robot-to-get-another-shot/>

Apollo 50th Anniversary Celebration at the Washington Monument



Over 500,000 people viewed the Smithsonian Air and Space Museum's special Apollo 11 events and exhibits on the National Mall this July. This video shows the "Apollo 50: Go For the Moon" projection show on the Washington Monument.

Article: <https://www.youtube.com/watch?v=R7ayx7CuKFs&feature=youtu.be>

Neil Armstrong's Death May Have Been Due to Medical Malpractice



Mercy Health — Fairfield Hospital in Cincinnati paid Neil Armstrong's family \$6 million in a wrongful-death settlement after he died due to complications following a cardiovascular procedure in 2012, according to a new report from The New York Times.

The article also has another imbedded music video tribute to Neil.

Article and music video: <https://www.space.com/neil-armstrong-wrongful-death-settlement.html>

This Week At NASA

Videos:

<https://www.youtube.com/watch?v=1S5jaApOYl0&list=PL1D946ACB21752C0E&index=4>

<https://www.youtube.com/watch?v=Mo7aAHW5TKw&list=PL1D946ACB21752C0E&index=3>

<https://www.youtube.com/watch?v=rWFSj2d3vI0&list=PL1D946ACB21752C0E&index=2>

<https://www.youtube.com/watch?v=D5J-xTFyido&list=PL1D946ACB21752C0E>

Feature-length video: Jeffrey Manber Speech at ISDC 2019



Jeffrey Manber, founder and CEO of Nanoracks, received NSS' Space Pioneer Award for Entrepreneurship at the National Space Society's 2019 International Space Development Conference. This is a video of his acceptance speech at the conference.

That's All Folks

