

Rocket Report: Complex Falcon Heavy flight, Mars 2033, not happening

Enlarge / The Electron launch vehicle is ready to soar.

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Welcome to Edition 1.46 of the Rocket Report! As always, we've got news from around the world of launch this week. Startups in Japan and China have made news this week, and Russia may soon decommission the most historical launchpad in the world. There's also plenty of news from the world of heavy lift.

As always, we welcome reader submissions, and if you don't want to miss an issue, please subscribe using the box below (the form will not appear on AMP-enabled versions of the site). Each report will include information on small-, medium-, and heavy-lift rockets as well as a quick look ahead at the next three launches on the calendar.

Interstellar Technologies to make third launch attempt. In an email, the Japanese new space company said it would attempt to launch the MOMO-3 rocket on April 30 from its launchpad in Taiki, Hokkaido. The launch is set for 2:15am UTC, and the company said a live stream would be available.

Problem solved? ... This is the company's third attempt to launch the MOMO sounding rocket, which weighs 1.15 tons and is 10 meters tall. Last June, the MOMO-2 rocket crashed to the ground a few seconds after it lost thrust. The cause of the failure was found to be a malfunction of the hot-gas thruster for roll control. Since then, the company said it has fixed the structure and conducted multiple captive firing tests.

Chinese smallsat launcher raises \$15 million. Andrew Jones reports that a Chinese company founded in 2018, Galactic Energy, has raised substantial funding. This series A+ financing will be used to complete production of the company's Ceres-1 rocket, which is powered by solid rockets for the first stage and a liquid-fueled upper stage.

One of many ... The Ceres-1 rocket will be capable of lifting 350kg to low Earth orbit, according to the company, and is scheduled to launch for the first time about one year from now. As with the dozen or so other smallsat launch efforts in China underway at this time, it is hard to know which companies have real hardware and which don't. Eventually, we'll just have to see who reaches space.

Relativity secures another launch contract. The Los Angeles-based rocket company announced Tuesday that it has secured a contract to launch a satellite into low Earth orbit on behalf of Thai startup mu Space, SpaceNews reports. Mu Space did not disclose details about the satellite, including its mass and capabilities. The launch is slated to occur in 2022.

A busy time ... The latest contract comes a little more than a week after Relativity announced its first launch contract, with Telesat. It's an important period for Relativity, which is growing rapidly, looking for a second launch site for polar orbits, and doing all of the technical work needed to get a 3D-printed rocket ready for launch by the end of 2020. (submitted by Ken the Bin)

Virgin outfitting VSS Unity for customer flights. Virgin Galactic's chief pilot, Dave Mackay, told SpaceNews that he believes the company will be able to go through the remainder of its SpaceShipTwo test program fairly quickly once test flights of the suborbital spaceplane resume. "The next time it flies, we expect to have the full commercial cabin installed," he said. A few other modifications to the vehicle are also in progress, such as changes to cockpit displays.

Delighted by the flight ... Without being specific, Mackay said the downtime may be "fairly long," although the company has previously said it anticipates beginning commercial operations at some point in 2019. The good news, evidently, is that technically the vehicle has performed well in its two flights above 80km. "The way it flew on that flight was as good as I could ever have hoped for," Mackay told the publication. "I was delighted with the way the vehicle flew." (submitted by Ken the Bin)

Momentum seeks to raise \$25 million. The start-up company, which provides in-space propulsion solutions, also announced its first two customers, Exolaunch and Deimos Space, TechCrunch reports. "It's the first low-cost transportation way to deliver a small payload from low Earth orbit to geostationary orbit and to the Moon," Momentum CEO Mikhail Kokorich said of the company's technology.

H2O the way to go ... The company wants to take payloads dropped off in low Earth orbit and propel them deeper into space and other more desirable orbits. This is one solution to the conundrum of rideshare missions, in which a batch of satellites gets dropped off in sub-optimal orbits, from which operators might want some means to reach their desired orbit for a reasonable cost. The technology uses water as a propellant.

Gagarin's launchpad to be decommissioned. Sputnik, Gagarin, and Tereshkova all launched from Site 1 at Baikonur Cosmodrome in Kazakhstan. But as crew launches transition from the Soyuz FG to the Soyuz 2 rocket, the old launchpad will be decommissioned because there are no funds to upgrade it for launches of the Soyuz 2 rocket, Ars reports.

Final flights this year ... Presently, the Soyuz 2 rocket launches from another location at the Baikonur Cosmodrome, Site 31, as well as two other launch facilities in Russia and Europe's Guiana Space Center in French Guiana. Future crew launches of the Soyuz rocket and spacecraft will take place from Site 31 in Baikonur. Therefore, the crewed launches of the Soyuz MS-13 and Soyuz MS-15 spacecraft, in July and September, will likely be the final flights of the Soyuz FG vehicle.

Crew Dragon launch delayed by abort test accident. During a series of engine tests of SpaceX's Dragon spacecraft this past Saturday, the vehicle experienced what the company characterized as an "anomaly." Based upon an unauthorized leaked video of the accident, the company was counting down toward a firing of the Dragon's SuperDraco thrusters when the vehicle exploded.

We don't know much, yet ... The Crew Dragon capsule in question is the same one that successfully flew a demonstration mission to the International Space Station in March. The spacecraft was being prepared for a launch abort test this summer. Now, at a minimum, the California company will have to find a replacement for the test. And that assumes it can find and fix whatever problem led to Saturday's problem. A crewed flight had been possible as early as October, but now that appears unlikely before 2020.

Fun with Facebook auto-captions. An Antares rocket built by Northrop Grumman launched flawlessly last week, boosting a Cygnus spacecraft with 3.4 tons of cargo toward the International Space Station. However, when NASA's International Space Station program posted the launch video to its Facebook page on Thursday, there was a problem. Apparently, the agency's caption service hadn't gotten to this video clip yet, so viewers with captions enabled were treated not just to the glory of a rocket launch, but the glory of Facebook's automatically generated crazywords.

A rockin' launch ... As Ars reports, some of the captions were just hilariously bad. For example, when the announcer triumphantly declared, "And we have liftoff of the Antares NG-11 mission to the ISS," the automatically generated caption service helpfully said, "And we have liftoff of the guitarist G 11 mission to the ice sets."

Why NASA went back to SLS for EM-1. A lengthy new report at NASASpaceFlight.com looks inside a two-week study the space agency conducted earlier this year, in which engineers looked at alternative launch vehicles for NASA's Exploration Mission-1, to fly an uncrewed Orion spacecraft around the Moon. In the end, the agency decided to stick with its original plan to fly the mission on the Space Launch System rocket.

Orion just too heavy ... "The thing that kept me up at night just gagging was the prospect of needing to shift 25 metric tons three kilometers per second out of low Earth orbit into trans-lunar injection," an agency official said. At the outset, one of the things the study group looked at was how to reduce Orion's mass, and for a time the researchers considered moving the heavy launch abort system on top of the vehicle.

SpaceX offers greater detail about next Falcon Heavy mission. SpaceX has created a separate webpage to highlight the third launch of its Falcon Heavy rocket, a mission for the Air Force that has 23 manifested spacecraft. Known as the US Air Force's Space Test Program 2 mission, this flight is important as SpaceX attempts to showcase the large rocket for the Air Force, Teslarati reports.

According to the company ... "The STP-2 mission will be among the most challenging launches in SpaceX history, with four separate upper-stage engine burns, three separate deployment orbits, a final propulsive passivation maneuver, and a total mission duration of over six hours. [It] will demonstrate the capabilities of the Falcon Heavy launch vehicle and provide critical data supporting certification for future National Security Space Launch missions." The flight is presently scheduled for no earlier than June 22. (submitted by Ken the Bin)

Reaching Mars by 2033 is not feasible. An independent report by the Science and Technology Policy Institute found that NASA has no chance of sending humans to Mars by 2033, with the earliest such a mission could be flown being the late 2030s. Congress had directed NASA to perform the assessment in the 2017 NASA authorization act, SpaceNews reports.

NASA hasn't prioritized Mars technologies ... This should come as no surprise to anyone. NASA has spent the lion's share of its exploration funding for the last decade on the Orion spacecraft (which is not going to Mars) and the SLS rocket, which may eventually be part of a Mars program. The agency has spent almost nothing on developing the critical and cutting-edge technologies needed for long-duration, deep-space flight to Mars, as well as landing large payloads there, surface habitats, power, and more. (submitted by Unrulycow and Ken the Bin)

Next three launches

April 30: MOMO-3 | Sounding rocket test launch | Taiki launch site, Japan | 02:15 UTC

April 30: Falcon 9 | Dragon CRS-17 ISS supply mission | Cape Canaveral, Fla. | 08:22 UTC

May 4: Electron | STP-27RD mission | Mahia Peninsula, New Zealand | TBD

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