Rocket Report: SLS slip likely, Pegasus problems, and EELV has expired

Enlarge / The mighty Delta IV Heavy rocket takes to the skies.

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Welcome to Edition 1.39 of the Rocket Report! What an exciting week in launch, with SpaceX's first launch of a capsule capable of carrying humans into orbit. The rocket performed well during that mission, but that was far from the only activity. We also have news about a suborbital launch in New Mexico and several delays in other launch programs.

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.

What to call suborbital fliers? In a feature, Ars explored the question of what to call the new class of people who will buy tickets on Virgin Galactic and Blue Origin vehicles when they return from their flights. Both companies intend to call their

customers “astronauts,” which is likely part of the cachet in buying such a ticket in the first place.

Astronauts, probably … Beyond just the debate about where space begins, there is the question of whether someone who is a passenger on a suborbital ride deserves the “astronaut” designation. Most of the people in the article said these fliers did. “I think it’s simple: if they get to ‘space,’ they’re an astronaut,” former NASA astronaut Nicole Stott said. “We’re at a time where the opportunity for traveling to space is opening up to more people. Whether you are traveling to space as a professional who lives and works there or as someone just visiting, it seems the simplest approach is the best.” For the time being, “astronauts” will be Ars’ editorial style.

Controlling space debris in an era of prolific launch. With more launch providers than ever coming into the market from around the world, more satellites than ever will be going into space. More birds flying around in different orbits will only amp up the problem of space debris, the Aerospace Corporation’s Jamie Morin writes in *Nature*. In his article, Morin outlines the four main elements of a global management system for space traffic as well as the steps needed to make it happen.

The four elements are … Improved tracking, prediction and identification, standards and norms, and efforts to reduce space debris. The United States is beginning to take the first steps, Morin writes, with plans to move space-tracking data from the military to a civil agency. This could increase international public trust and willingness to share data, and it could also improve space safety. (submitted by Rochefort)

Rocket Lab targets second half of March. Rocket Lab’s first launch of 2019, originally scheduled for late February, will now occur no earlier than the second half of March because of the delayed arrival of its payload, *SpaceNews* reports. DARPA

said this week that its Radiofrequency Risk Reduction Deployment Demonstration (or R3D2) satellite arrived in New Zealand on March 4 for final launch preparation.

Still aiming for a dozen flights … Rocket Lab later confirmed that the launch would take place between March 16 and 30 (US time), with four-hour windows each day from 6:30 to 10:30pm ET. The 150-kilogram satellite will be the only payload on the launch. We've previously said that Rocket Lab's goal of 12 missions in 2019 is highly ambitious, and with a maximum of one launch during the first quarter of this year, that remains an accurate statement. (submitted by Unrulycow)

More delays for Pegasus. Originally scheduled for 2017, a Pegasus rocket that will launch NASA's Ionospheric Connection Explorer will now launch no earlier than the second quarter of 2019, *SpaceNews* reports. Northrop Grumman, which manufactures the air-launched small-satellite booster, hasn't elaborated on the specific issue with the rocket or what it is doing to resolve it.

Not good for business … The nearly two-year delay comes at a terrible time if you're trying to sell the Pegasus against a raft of competitors, including Virgin Orbit, which is preparing to fly its own considerably less expensive air-launched rocket in the coming months. This may well be the last Pegasus rocket that flies (which shows how much faith we have in Stratolaunch's deal to launch Pegasus rockets). (Submitted by Ken the Bin)

Ukraine mulls domestic launch site. A Ukrainian rocket developer has published plans for a spaceport on the country's Black Sea coast, which could give the former Soviet republic fully independent access to space for the first time, Russian Space Web reports. The KB Yuzhnoye Design Office, based in Dnipro, has plans for a site to launch its proposed two-stage rocket name Tsyklon-1M.

A first for Ukraine … If built, the site and rocket could compete in the emerging market of smallest commercial satellite launches. The plans come after KB Yuzhnoye has had difficulty finding a launch site for its larger and more powerful Tsyklon-4M; the rocket maker had been negotiating with Brazil and Canada. A site in Ukraine, on the northern coast of the Black Sea for a smaller booster, would bypass those political problems. It is not clear what funding exists for development of the rocket and launch site.

Suborbital tourism company to use ethanol fuel. A Russian company that wants to offer suborbital space trips for tourists, CosmoCourse, says that it will use ethyl alcohol as a fuel, TASS reports. The company says it plans to begin space tourism flights in 2025 and is now designing its own launch complex in Russia's Nizhny Novgorod region, some 400km east of Moscow.

Perhaps, perhaps not … We first heard of CosmoCourse back in 2016, when the company announced a plan that looked a lot like Blue Origin's New Shepard vehicle and said it would be flying by 2020 from another location. So while we're always intrigued by new space tourism entrants, we don't have much faith in a company that has already moved its launch target by five years.

Italian company procures Firefly launches. This week, Firefly announced that it has reached an agreement with D-Orbit for up to 15 launches over five years. The agreement grants D-Orbit the status of a "preferred launch aggregation partner" for the European market, allowing D-Orbit to purchase, market, and resell launch vehicle capacity as well as provide logistics support and integration activities from Italy.

A vote of confidence … The company picked Firefly to get its free-flying CubeSat deployer into space. It's another nice recognition for Firefly that customers will want to buy the services it has to offer. Now the company just has to get its

Alpha rocket flying. That could still happen before the end of this year, Firefly officials said. (submitted by Ken the Bin).

Exos Aerospace reflies suborbital rocket. The Texas-based company flew its SARGE reusable sounding rocket for a second time Saturday, March 2, but winds kept the rocket from achieving its planned altitude, *SpaceNews* reports. The booster carried several small research payloads and aimed for a peak altitude of 80km. But it only reached a peak altitude of about 20km before landing about 1.2km from the launch pad.

Still successful? … According to the company, the vehicle is designed to shut down its engine during ascent if it runs the risk of impacting outside a "safety circle" 7km in radius around the launch site at Spaceport America. That's what happened Saturday. The company says the test was otherwise successful, and it will now proceed with commercial operations. (submitted by Ken the Bin)

SpaceX successfully launched its Demo-1 mission. SpaceX's Falcon 9 rocket blasted its brand-new Crew Dragon spacecraft into orbit for the first time early Saturday morning. The first stage later landed on a drone ship in the Atlantic Ocean. The mission demonstrated the rocket's new composite overwrap pressure vessels to NASA, as well as load-and-go fueling procedures that will be used with crew aboard the vehicle during future missions.

A confidence builder … In reality, however, the launch was probably the most straightforward part of the Demo-1 mission, with docking and atmospheric re-entry the bigger unknowns. "We've launched a lot of Falcon 9 rockets now. We're pretty good at throwing things into space," said Garrett Reisman, who left NASA in 2011 to play a senior role in the development of the Crew Dragon spacecraft at SpaceX until last year. Even so,

success builds confidence, and we were glad to see the mission get off to a *flying* start.

Air Force changes name of EELV program. For the last two decades, the Air Force's "evolved expendable launch vehicle" program, or EELV, has become synonymous for military launches. But that appellation makes less sense now, as the Air Force has begun to buy launches from SpaceX and indicated its willingness to consider sending its payloads into space on previously flown rockets. So the Air Force is changing the name to the National Security Space Launch (NSSL) program, Ars reports.

NSSL times two … The Air Force says that, while it honors this heritage, the military has recognized that the US commercial launch industry has "grown significantly during the past five to seven years." Nearly all of that US growth has come from SpaceX. Just one problem with the name: there is already a federal facility with the NSSL abbreviation, the National Severe Storms Laboratory in Oklahoma.

Pad modification begins for Falcon Heavy mission: After the launch of Demonstration Mission-1, SpaceX has already begun converting Launch Pad 39A at Kennedy Space Center to prepare it for Falcon Heavy flights, NASASpaceFlight.com reports. SpaceX needed to reconfigure the hold-down clamps from a Falcon 9 to the Falcon Heavy setup.

Not one, but two … SpaceX will launch not one, but two Falcon Heavy missions from this launchpad in the coming months. First up is the Arabsat-6A mission, possibly in April, although the website says there is a chance the payload will not be ready at that time. SpaceX will then re-use the side-mounted Falcon 9s for a second Heavy mission but with a new center core for the STP-2 mission. That launch date is obviously dependent

upon when the Arabsat-6A mission flies. (submitted by Unrulycow)

NASA reassessing SLS launch date. Of course. This newsletter first brought word of likely delays to Exploration Mission-1 in February, the first launch of the Space Launch System rocket, and now officials at the agency are starting to confirm this. “We are assessing that date,” said Jody Singer, the director of Marshall Space Flight Center, according to *SpaceNews*. “Our launch readiness date is still 2020, and we’re doing everything within our power to make sure that we support that.”

Launch dates are tricky things … On one hand, if you’re a company or an agency, you want to keep your work force on an urgent posture, working toward an aggressive date. At the same time, it can be demoralizing for employees to know that there’s no way the product they’re working on will be ready by publicly stated timelines. In this case, our sources continue to say there is almost no chance SLS launches in 2020. (submitted by Ken the Bin)

Next three launches

March 9: Long March 3B | Chinasat 6C | Xichang Satellite Launch Center, China | 16:30 UTC

March 13: Delta IV | Wideband Global SATCOM spacecraft | Cape Canaveral, Fla. | 23:40 UTC

March 14: Soyuz FG | MS-12 crew mission to ISS | Baikonur, Kazakhstan | 19:14 UTC

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