

Rocket Report: European rockets finally fly; Artemis II core stage issues

Enlarge / A Vega rocket rides a column of exhaust from its solid-fueled first stage, kicking off a mission to deliver 12 small satellites into orbit.

reader comments

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Welcome to Edition 6.15 of the Rocket Report! We're now more than three-quarters of the way through the year, and as of Thursday, there have been 156 orbital launches since January 1. Last year, which set a record for global launch activity, we didn't reach 156 orbital launches until mid-November. At the cadence set so far in 2023, we could end the year at roughly 200 orbital launches. We'll see if the world's launch providers, led by SpaceX and China, keep pace for the next couple of months. I'm betting they do.

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.

A Spanish rocket startup launched its first test flight. A

Spanish launch company, named PLD Space, claimed success on Saturday after its suborbital Miura 1 rocket lifted off and achieved an altitude of 46 kilometers (29 miles) before plummeting into the Atlantic Ocean, Ars reports. Saturday's launch from Southern Spain is exciting for several reasons, but most notably because PLD Space is the first of Europe's new space launch companies to have some credible success. To that end, Saturday's modest flight represented the dawn of the European commercial space age.

One small step ...Before the launch, PLD Space said its goals for the debut launch of Miura 1 were to achieve 12 minutes of flight and six minutes of microgravity for a scientific payload provided by a German research institute. The liquid-fueled rocket was to reach an altitude of 80 kilometers, and PLD Space intended to recover the rocket and payload from the sea. As it ended up, the Miura 1 flew a little more than half as high as its goal, and PLD Space said it could not recover the rocket. But this was a step in the right direction for PLD Space, which said the Miura 1 test flight was an important validation for the development of the larger Miura 5 rocket, which will be capable of reaching orbit. PLD Space Aims to launch the Miura 5 as early as 2025 from the European spaceport in French Guiana.

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A Vega rocket deployed 12 satellites into polar orbit. A European Vega rocket launched Sunday night from Kourou, French Guiana, with a dozen small satellites, Space News reports. This successful launch was the first time a light-class Vega rocket has flown since Europe's upgraded Vega variant, the Vega C, failed during a mission last December. Investigators determined the December launch failure was caused by a problem with the Vega C's second stage, which has a different design than the second-stage motor used on the base model of the Vega rocket. This meant Avio and Arianespace, the Vega rocket's prime contractor and launch operator, could press on with

launching the two Vega rockets still in their inventory. Production of the basic version of Vega is being discontinued in favor of the larger Vega C, which remains grounded until late 2024 to allow for a redesign of its second-stage nozzle.

An international mission ... During this week's mission, the Vega rocket placed 12 small satellites into orbit. The largest two payloads were Thailand's THEOS-2 Earth observation satellite, which carries a high-resolution optical camera to collect 50-centimeter resolution images for the Thai government, and a Taiwanese satellite named FORMOSAT-7R/TRITON to measure wind speeds across the world's oceans. The mission also launched 10 CubeSats from institutions and companies across Europe, although Arianespace was not immediately able to confirm the deployment of two of the CubeSats. The final flight of the Vega rocket is scheduled for the second quarter of 2024. (submitted by EllPeaTea and Ken the Bin)

Virgin Galactic maintains its monthly flight cadence. Richard Branson's Virgin Galactic sent six people, including three space tourists and three company employees, on a brief ride to the edge of space over New Mexico on October 6, CBS News reports. This was the company's fourth suborbital spaceflight with paying customers aboard, maintaining a monthly flight rate since Virgin Galactic's air-launched rocket plane started commercial service in late June. Virgin Galactic's recent success stands in contrast to its top competitor in the suborbital space tourism market. Blue Origin, Jeff Bezos's space company, has been grounded with its suborbital New Shepard rocket more than a year after an in-flight failure last September.

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Who flew? ... Joining two Virgin Galactic pilots and the company's chief astronaut trainer aboard the VSS *Unity* spaceplane were British advertising executive Trevor Beattie, American science popularizer Ron Rosano, and Namira Salim, the first Pakistani to fly in space. Virgin Galactic reported the

craft reached an apogee, or high point, of about 87 kilometers (54 miles) and a top speed just shy of three times the speed of sound. The VSS *Unity* rocket plane landed on the runway at Spaceport America in New Mexico for refurbishment ahead of Virgin Galactic's next commercial suborbital mission.

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Astrobotic breathes new life into Masten's rocket program. A small vertical-takeoff, vertical-landing rocket originally built by Masten Space Systems has resumed flights under the management of Astrobotic, which purchased the assets of bankrupt Masten last year, Space News reports. Astrobotic announced this week it has flown the Xodiac rocket four times in Mojave, California, hovering just off the ground to test plume-surface interactions ahead of future lunar landing missions, supporting research by the University of Central Florida.

High demand ... Astrobotic says there's strong interest in the Xodiac vehicle from various customers, including NASA, which will fly payloads on future Xodiac test flights to demonstrate hazard detection technology from an altitude of 250 meters. These sensors will support landings on the Moon in the dark. Other customers include Draper and Astrobotic itself, both of which are developing commercial lunar landers. An Astrobotic official said the company has about 20 flights of the Xodiac rocket scheduled for the rest of this year. Meanwhile, Astrobotic is working on a larger suborbital rocket, with the help of NASA funding, that could fly above the 100-kilometer Kármán line frequently used as the boundary of space. (submitted by Ken the Bin)

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