

Europe's Ariane 6 rocket successfully launches for first time

July 9 2024, by Mathieu Rabechault with Daniel Lawler in Paris



Europe's new big Ariane 6 rocket launches into clear skies in Kourou, French Guiana.

Europe's new Ariane 6 rocket successfully blasted off for the first time on Tuesday, releasing satellites into orbit and restoring the continent's

independent access to space.

European space efforts have suffered a series of blows, including four years of delays to Ariane 6, that have robbed the continent of its own way to launch missions into space for the past year.

But with the successful inaugural flight of Europe's most powerful rocket yet, European space chiefs were keen to move on from recent setbacks.

"It's a historic day for Europe," European Space Agency head Josef Aschbacher said.

"Europe is back," announced Philippe Baptiste, head of France's CNES space agency.

Surrounded by jungle on the South American coast, the rocket launched from Europe's spaceport in Kourou, French Guiana at 4 pm local time (1900 GMT).

Initially delayed for an hour by a small problem that was noticed in the morning, the rocket lifted off into clear skies.

The mission faced a slight setback as the rocket deviated from its trajectory towards the end of the flight, failing to carry out its planned re-entry into the earth's atmosphere and landing in the Pacific.

But that did not dampen the spirits of European space chiefs, whose objective was to put satellites into orbit.

"It's a great success despite the slight disappointment" at the end, said Walther Pelzer, head of Germany's DLR space agency.



Europe's Ariane 6 rocket ahead of blastoff in French Guiana.

'Not yet complete'

The crew in the Jupiter control room, located 17 kilometers (10 miles) from the launch site, portrayed calm at first.

Then head of operations Raymond Boyce announced "propulsion nominal", meaning that the launch was going as planned.

Applause rang out in the room.

Even louder applause came a little over an hour later when the rocket successfully delivered microsattellites into orbit.

NASA chief Bill Nelson on X welcomed the "giant leap forward" for the ESA.

But Martin Sion, the CEO of the rocket's manufacturer ArianeGroup, emphasized that "the mission is not yet complete".

It will only be fully completed when the reusable Vinci engine in the rocket's upper stage has fallen back into Earth's atmosphere.

That was expected around three hours after liftoff.

'Magical'

When it launched, Ariane 6 carried with it the hopes of European sovereignty in space.



Ariane 6's first launch, originally planned for 2020, is hoped to bring an end to a difficult time for European space efforts.

Since the last flight of its workhorse predecessor, Ariane 5, a year ago, Europe has had to rely on rivals such as Elon Musk's US firm SpaceX.

Selected by the ESA back in 2014, Ariane 6 will be able to place satellites in geostationary orbit 36,000 kilometers above Earth, as well as satellite constellations a few hundreds of kilometers up.

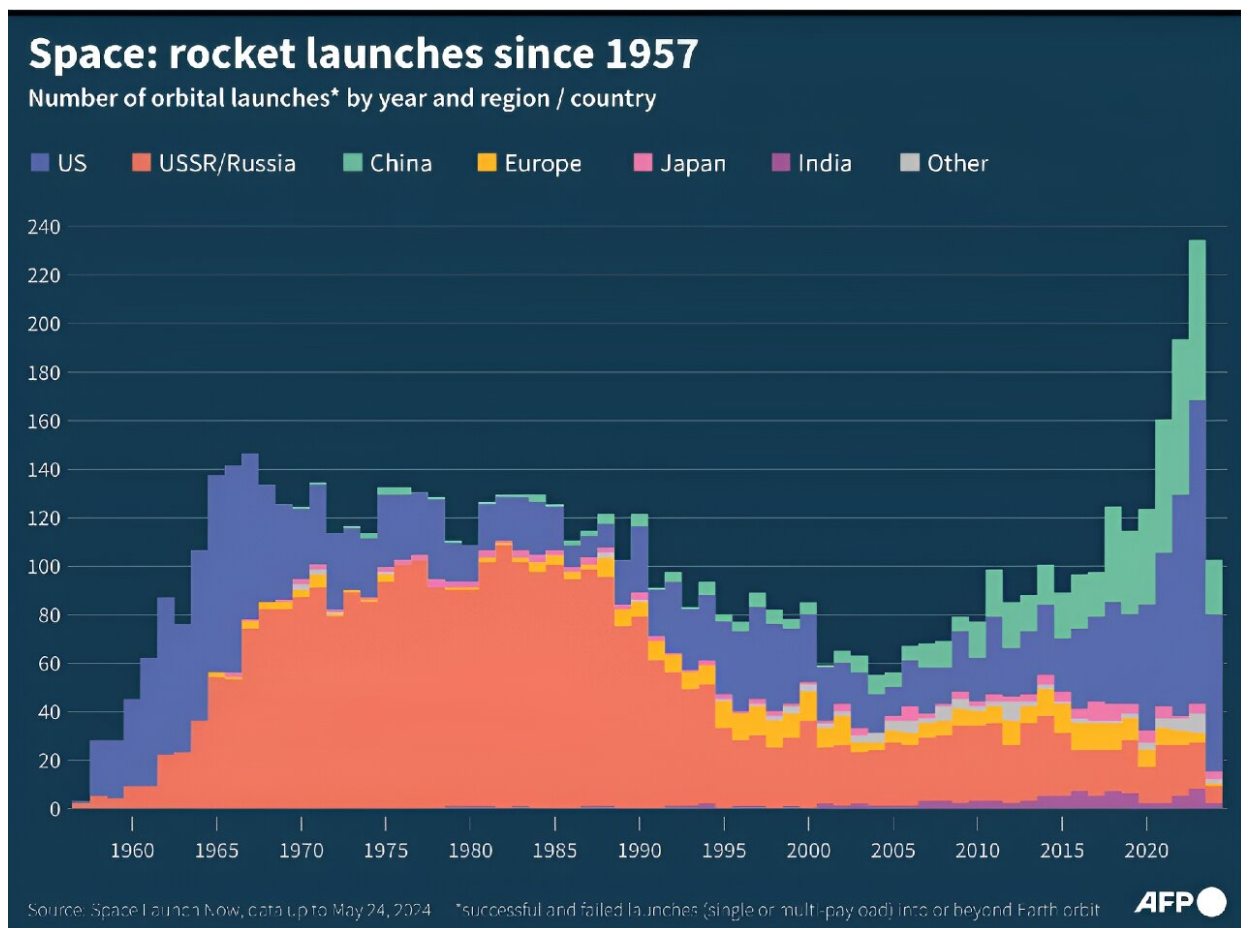
The first flight was carrying a payload of university microsattellites, various experiments and two atmospheric re-entry capsules that will be jettisoned near the end of the mission.

The last of three ignitions of the Vinci engine will be to shoot the Vinci engine back down into the Pacific Ocean, so it does not contribute to the space debris cluttering Earth's orbit.

Successful inaugural flights are by no means guaranteed.

Historically, nearly half of the first launches of new rockets have ended in failure. That includes Ariane 5, which exploded moments after liftoff in 1996.

But out of 117 launches over nearly 20 years, only one other Ariane 5 flight completely failed.



Rocket launches since 1957.

On the other side of the world, thousands of people in the French city of Toulouse watched the lift-off on a big screen while sitting on a lawn at the Cite de l'Espace museum.

Catherine Gerard, 56, said she was delighted to witness "something a bit magical".

Skyrocketing competition

Space has become big business and competition is soaring, particularly from SpaceX's fully re-usable Falcon 9 rockets, which now launch around twice a week.

Yet Europe has recently found itself without an independent way to give lucrative satellites a ride into space.

Russia pulled its Soyuz rockets, long used for European launches at Kourou, after Moscow invaded Ukraine in 2022.

Later that year, Europe's Vega-C light launcher was grounded after a launch failure. Ariane 6 delays compounded the crisis.

After months of analyzing the rocket's inaugural launch, a first commercial flight is expected before the end of the year.



The rocket's massive Vulcain engine, pictured in Kourou before the launch.

Europe's Ariane 6 rocket

The next-generation rocket will enable the continent to launch missions independently into space

Height: 56 - 62 m
(depending on size of payload fairing)

Diameter: 5.4 m

2 variants

	A62	A64
Fairing height	14 or 20 m	20 m
Payload*	10.3 t	21.6 t
Boosters	2	4

Components:

- Payload
- Dual launch structure
- Launch vehicle adapter (used in separation phase)
- Upper stage
- Vinci engine (18 tonnes of thrust)
- Lower stage (Powered by Vulcain 2.1 engine, 135 tonnes of thrust in vacuum)
- Booster P120C (400 tonnes of thrust on take-off)
- Payload fairing

Payload examples:

- Dual launch long fairing
- Single or multi-launch
- Large scientific payloads or big and heavy spacecraft

*Low Earth orbit

Sources: ESA, Ariane, CNES

AFP

Europe's Ariane 6 rocket.

The next challenge will be to "successfully ramp up" the number of flights, ESA space transportation director Toni Tolker-Nielsen said.

Six launches are scheduled for next year, and eight for 2026.

The rocket has an order book of 29 missions, many of which are to deploy some of Amazon's Kuiper constellation of internet satellites.

But just weeks before the launch, the program suffered a surprise setback. Europe's weather satellite operator EUMETSAT cancelled plans to use Ariane 6 in favor of SpaceX's Falcon 9, citing "exceptional circumstances".

ESA chief Josef Aschbacher said the European operator's decision to ditch the European rocket was "difficult to understand".

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