New European rocket lifts off on maiden flight

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Europe on Monday successfully launched a new lightweight rocket carrying a test payload, culminating a more than 12-year quest to master the entire range of space launchers.

Cheers, tears of relief and even a soccer-style chant greeted the maiden flight of Vega, a billion-dollar bid for a stake in the market to launch small satellites.

The 81-minute mission was a "qualification" flight carrying nine scientific satellites, aimed at proving a rocket incorporating several major innovations, engineers at the Kourou base in French Guiana said.

Thirty metres (100 feet) long, Vega is designed to hoist multiple payloads, ranging from 300 kilos (660 pounds) to 2.5 tonnes, into orbits from 300 to 1,500 kilometres (190-940 miles) depending on mass.

The pencil-slim launcher complements the heavyweight Ariane 5, capable in its beefed-up version of lifting more than 20 tonnes, and the mid-range Soyuz, the Russian-Soviet veteran deployed to Kourou last year under a deal between Russia and the European Space Agency (ESA).

"We have Ariane, Soyuz and Vega, a very fine family," said ESA's director general, Jean-Jacques Dordain.

He paid tribute to Italy, which conceived and designed the project in the face of much doubt and shouldered the lion's share of the cost.

"Fatto!" declared Dordain in Italian, meaning, "it's done!"

Jean-Yves Le Gall, head of Arianespace, which commercialises ESA's launchers, said the outlook for Vega was good.

Its main competitors are Russian ballistic missiles, transformed to carry satellites in a swords-to-ploughshares scheme, and all of these Cold War launchers will be used up in the coming years, he said in a webcast.

The Vega rocket is seen in its launch pad on April 8 at the Kourou Space Centre, French Guiana. The new lightweight rocket lifted off from Europe's space base carrying nine satellites on its inaugural flight, mission control said.

"Vega is going to be extremely important for Arianespace because in just a few years it's going to be the only launcher of its capability on the market," Le Gall said.

Vega, named after the second-brightest star in the northern hemisphere, cost 776 million euros, of which Italy has contributed nearly 60 percent.

"You've all placed your money on Vega and you've won the bet," Le Gall said.

Although satellites are tending to get bigger, Arianespace argues there is a market for small and even tiny satellites, especially from scientific institutes, by using a flexible, low-cost launcher.

Young Italian engineers, watching the launch from a nearby building, leapt with joy.

Some sang the Italian national anthem, and others pounded out a football-style chant, "ohe, ohe, ohe, ohe, Vega, Vegaaaaaaaa."

Vega uses four stages to hike a small payload into low orbit, a design unusual in a lightweight rocket. Its stages are made of wrapped bandages of carbon fibre to reduce weight.

Three of these stages use solid fuel, while the fourth and final stage, called AVUM, uses liquid fuel in a series of "burns" to slot the payloads into their various orbits.

The main payload on Monday was a tungsten sphere called Lares, which is designed to study the so-called Lense-Thirring effect.

This is a component of Einstein's theory of general relativity which says that as a large mass such as the Earth rotates, it drags space and time around with it.

The other principal satellite, AlmaSat-1, will test new civilian technologies in Earth observation.

The rest of the payload is taken up by seven so-called picosatellites, essentially cubes each weighing less than a kilo (2.2 pounds), in which European universities have each packed a separate experiment.

Headquartered in Paris, ESA groups 19 member states in the world's biggest multinational collaboration in space.

It has an avowedly geopolitical purpose, to promote access to space for Europe, but for purely scientific and civilian purposes. Its first launcher,

Ariane 1, made its inaugural flight in 1979.

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