Europe's Galileo satellites hit by anomalies

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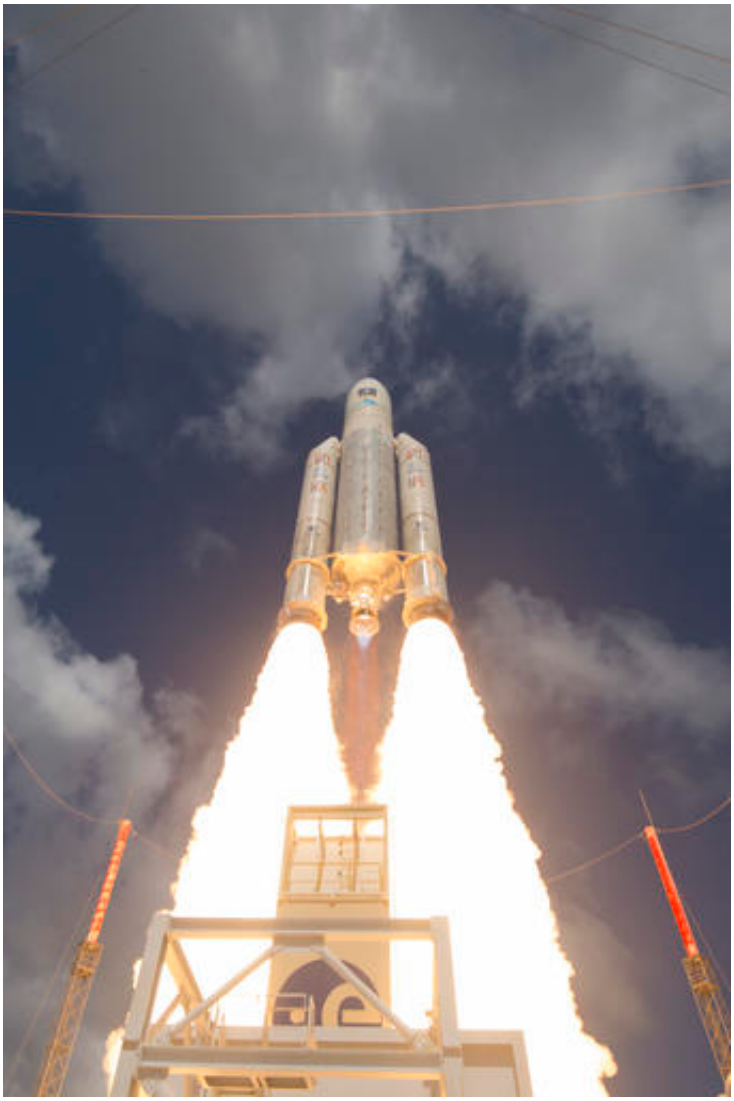

This Nov. 17, 2016 photo shows the liftoff of Ariane flight VA233, carrying four Galileo satellites, from Europe's Spaceport in Kourou, French Guiana. The European Space Agency, ESA, opened an investigation on Thursday, Jan. 19, 2017, into anomalies that have affected five of the first 18 Galileo satellites in orbit. The agency, which launched the navigation system last December, said

however that the failures are not affecting the satellites' proper functioning. (Stephane Corvaja/ESA via AP)

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The Galileo system, named after the Italian engineer and astronomer, is designed to provide commercial and government customers with more precise location data than GPS.

The European agency said in a statement that a total of nine onboard atomic clocks have failed, but insisted it "is confident that the clock issues will be resolved."

Each Galileo carries four atomic clocks. The nonfunctioning ones are three rubidium devices and six passive hydrogen maser clocks, the agency said.

"No individual Galileo satellite has experienced more than two clock failures, so the robust quadruple redundancy designed into the system means all 18 members of the constellation remain operational," the ESA said.

The launch of the first satellites was hit by delays and several failures, with two satellites ending up in the wrong orbit.

But the ESA managed to launch four satellites on a single rocket last November and expects to have a full complement of 24 satellites, plus spares, in orbit within four years.

The ESA said it is confident "that the clock issues will be resolved and remains committed to launch the next four Galileo ... satellites before the end of this year."

Galileo originally was meant to begin service in 2008 at a cost of 3 billion euros ($3.1 billion), but the development and operation is now expected to cost 13 billion euros by 2020, German news agency dpa reported.

Galileo's free consumer signal will provide location data offering precision within about one meter (3 feet, 3 inches), compared with 5 meters (16 feet) or more for GPS. A premium service eventually will offer even greater precision to paying customers and police, fire departments and government agencies.

Galileo is owned by the European Commission, the executive arm of the European Union, based in Brussels.

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