Experts probe launch failure for EU's satnav project

August 25 2014, by Laurent Banguet

A Russian-built Soyuz rocket takes off from Europe's Kourou space centre in French Guiana on August 22, 2014

Experts are racing to identify and fix a problem that saw two satellites from Europe's troubled Galileo satnav programme sent into the wrong orbit.

The pair were launched from Europe's space pad in Kourou, French

Guiana, last Friday and were intended to be the first two fully operational satellites in the new-generation navigation system.

Experts said it seemed unlikely the two misplaced satellites could be brought into the right orbit and used.

Investigators from the European Space Agency (ESA) and launch operator Arianespace will work with an "internal task force" set up by the European Commission to figure out what went wrong, the EU's executive said on Monday.

Initial results will be presented in the first week of September.

European Commissioner for Industry and Entrepreneurship Ferdinando Nelli Feroci said he stood by the project because of its "strategic importance," adding he was confident deployment of the satellite constellation "will continue as planned".

Two more satellites had been expected to be hoisted by the end of 2014, opening the way for a first phase of Galileo services in 2015, including applications for smartphones and in-car navigation and search-and-rescue location.

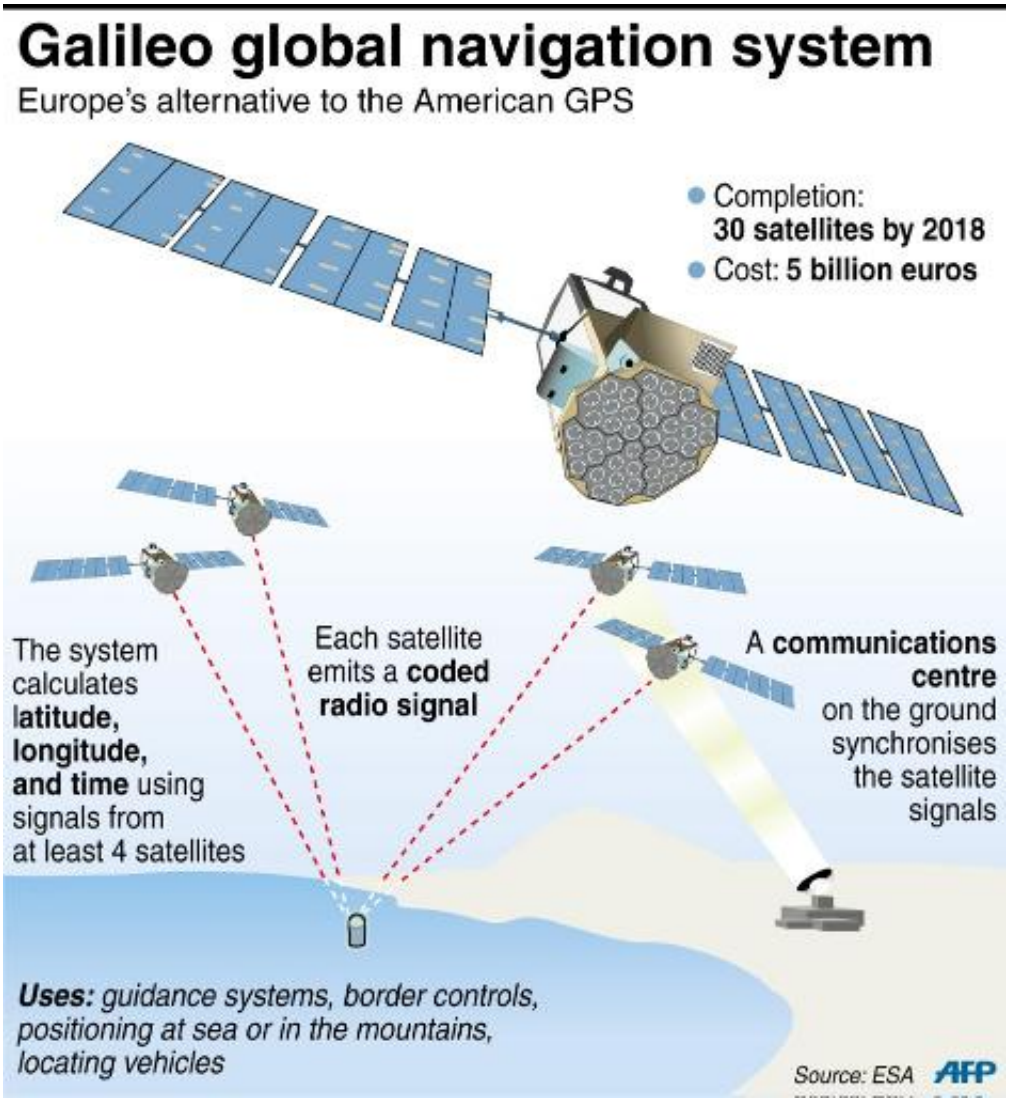
By 2017, according to the Galileo's schedule, all 24 operational satellites would be in place.

Six backups would join the fleet by 2020, at which point the system would be fully operational.

Satellites may be unusable

Launched by a Russian-made Soyuz rocket, the misplaced satellites should have been slotted into a circular orbit at an altitude of 23,500

kilometres (14,600 miles), inclined at 56 degrees to the equator.



Factfile on the European global navigation system Galileo

Instead—apparently as a result of a problem with the rocket's upper stage, known as the Fregat—they were placed in an elliptical orbit at a height of 17,000 kilometres (11,000 miles).

Unlike bigger satellites, which carry larger tanks of hydrazine propellant to adjust their position, the two Galileo satellites weigh only 700 kilos (1,500 pounds) and only have enough fuel for minor course adjustments.

"If it were just a small (orbital) correction, it would be possible, but this one really is major," said French astrophysicist Alain Dupas.

"The fuel reserves will definitely not be enough to get the satellites on the right track... also, if you start using up your fuel at this stage, you reduce the satellite's operational span."

Arianespace on Monday said an eight-person inquiry panel had been set up, chaired by former senior ESA official Peter Dubock. It will deliver its preliminary conclusions on September 8.

The satellite is in a stable orbit and under control, ESA and Arianespace say.

Galileo, according to the project's defenders, will be more accurate and have a stronger signal, particularly in built-up areas, than its competitors.

The failure adds to a catalogue of problems encountered by the 5.4-billion-euro ($7.2-billion) programme, designed to give the EU independence in satellite navigation from the United States' Global Positioning System (GPS).

The programme, financed entirely by the European Commission, has had to brave political objections, technical hitches and cost overruns.

On the plus side, it says it has used experience from building and using four test, or "validation," satellites to be able to launch four satellites in one go, rather than two, using ESA's Ariane 5 ES heavy launcher.

Each satellite costs around 40 million euros, to which launch costs (65-70 million euros for a double launch by a Soyuz) must be added, according to AFP estimates.

In 2013, the annual global market for satnav products and services was valued at 175 billion euros, and was expected to reach 237 billion by 2020, according to figures cited by the European Commission.