

# Galileo



Galileo is Europe's global navigation satellite system, or GNSS. Owned by the European Union, it is a joint initiative of the European Commission, the European Union Agency for the Space Programme (EUSPA) and the European Space Agency (ESA).

Established in the late 'nineties with the goal of setting up an independent, resilient European satellite navigation system, Galileo now provides a **dependable, precise global navigation, positioning and timing service** and will soon enter a new phase in its development, with a second generation of satellites.

Fully interoperable with other GNSS systems, Galileo is made up of three segments.



**SPACE SEGMENT:** formed of a constellation of at least **24 operative satellites** (and a variable number of orbiting satellites on standby) positioned on three different ME0 (Medium Earth Orbit) planes of orbit.

**GROUND SEGMENT:** a vast network of centres and infrastructures all over the world, including both the **Ground Control Segment (GCS)** and the **Ground Mission Segment (GMS)** as well as a series of supporting and service installations.

**USER SEGMENT:** Composed of various different users' GNSS receivers.





- > **Telespazio France** assists CNES with management of the Launch Centre in French Guyana, while Arianespace is concerned with launching Galileo satellites into orbit.
- > **Telespazio Iberica** supports Spaceopal supplying services to end users at GSC.
- > **Telespazio Belgium** acts as Spaceopal's logistics partner in management of the Galileo Integrated Logistic Support (ILS) Centre in Transinne, Belgium and plays an active role in the design of the current system and its future evolution, G2G.

## A SERVICE ON A GLOBAL SCALE

While awaiting completion of the entire system, since December 2016 Galileo has offered users a global service referred to as the "Initial Service". When the system is fully operative, Galileo will offer six high-performance services all over the world.

- > **OPEN SERVICE (OS)**
- > **PUBLIC REGULATED SERVICE (PRS)**
- > **SEARCH AND RESCUE SUPPORT SERVICE (SAR)**
- > **HIGH ACCURACY SERVICE (HAS) \***
- > **OPEN SERVICE NAVIGATION MESSAGE AUTHENTICATION (OSNMA) \***
- > **COMMERCIAL AUTHENTICATION SERVICE (CAS) \*\***

## GALILEO: INNOVATIVE APPLICATIONS

In addition to the various methods of service on offer, Galileo is a true **technological enabler that allows the development of innovative solutions for the benefit of institutions, companies and citizens.**

Telespazio is working on a wide range of Galileo-based applications for **civil** and governmental uses and supports national and European agencies in the definition of new services in several sectors.

Spaceopal also plays a leading role in the evolution and **study of innovative services to support the Galileo end-user**, such as the NAVCAST and IONOLAB prototype services designed and developed to increase the accuracy of the Galileo and GPS systems.

\* currently under deployment

\*\* in process of definition

## THE ROLE OF TELESPAZIO

Telespazio and its subsidiaries and joint ventures play a prominent role in both the ground segment and the user segment of Galileo.

- > Since 2010 **Telespazio** has set up and operated one of the two **Galileo Control Centres (GCC)** managing the system out of the Fucino Space Centre in Italy, and the company is responsible for mission control and the global network of communication among sites. Telespazio is currently involved in the studies being conducted for future development of the system, **Galileo Second Generation - G2G**, in the area of integrated logistics and operations.
- > **Spaceopal** (a joint venture owned equally by Telespazio and the German space agency DLR-GFR) has been **Galileo Service Operator (GSOp)** since 2016, entrusted with management of the entire system, from validation of the software used in control centres to the launching of satellites in orbit (LEOP), control of the constellation and of remote sites dotted all over the globe, and supply of navigation services up to the specified level of performance, as well as the customer interface through the European GNSS Service Centre (GSC) in Madrid, Spain.
- > **Telespazio Germany** is prime contractor of the constellation simulator for the **Ground Control Segment** of the Assembly, Integration and Validation platform for the Ground Mission Segment.