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Galileo Programme Status and ongoing GIOVE Experimentation.

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A brief description of the Galileo System and the current Program development status will be presented. Additionally, a description of the GIOVE Experimentation environment together with, latest experimentation results from GIOVE Mission will be introduced.

Galileo will be Europe's own global navigation satellite system, providing a highly accurate, guaranteed global positioning service under civilian control. By offering dual frequencies as standard, however, Galileo will deliver real-time positioning accuracy down to the metre range, which is unprecedented for a publicly available system. It will guarantee availability of the service under all but the most extreme circumstances and will inform users within seconds of a failure of any satellite. This will make it suitable for applications where safety is crucial, such as running trains, guiding cars and landing aircraft. In addition to these users, Galileo, backed by scientific resources and geodetic quality receivers, will contribute as well to the scientific community, for example improving the realization, maintenance, and dissemination of ITRF and time scales (time comparison and TAI/UTC broadcasting). Altimetry, gravimetric, and atmospheric satellites will also benefit from Galileo contribution through the use of combined GPS/Galileo on board receivers. Furthermore, other scientific applications will surely profit from Galileo.

Intended to mitigate the Galileo Program risks, the European Space Agency launched a first experimental satellite, GIOVE-A, in 2005. The objectives of this satellite are to file for Galileo frequencies at the ITU; characterize the critical technologies, which are already under development under ESA contracts; and characterise the MEO radiation environment.

The GIOVE Mission Experimentation is currently assessing technical aspects like

early demonstration and performance assessment of the navigation service (including navigation message generation, uplink and broadcast), validation of critical in-orbit technology (clocks), end-to-end analysis of the Galileo Signal-In-Space, assessment of Galileo Test Receiver performance, validation of existing ground algorithm prototypes and testing of new ones (e.g. ionosphere and Broadcast Group Delay), and overall testing of timeliness and operational aspects.