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LOW COST SUCCESSFUL SPACE OPERATIONS: THE AGILE MISSION

Abstract

AGILE (Astrorilevatore Gamma a Immagini LEggero) is an high-energy scientific space program funded by the Agenzia Spaziale Italiana (ASI – Italian Space Agency), built and operated in cooperation with INAF, INFN, CIFS, and with the participation of several Italian companies.

The satellite has been launched from India on April 23th 2007 in a LEO equatorial orbit. Scientific payloads are: one X-ray detector, one gamma-ray detector, a mini-calorimeter. At today, more than 40600 orbits have been successfully completed with the satellite in operations, while the nominal lifetime at launch was only two years.

This paper describes the operational activities performed at ground segment level (satellite control and user segment) to put in evidence the high reliability achieved during eight years of successful in flight operations, nevertheless with a small operations team, in the framework of a small mission, and through the implementation of an efficient automatic ground segment telemetry processing and a very

fast scientific alert system.

The service consists in the operational management of the satellite and the ground segment in the different phases of the mission both in nominal and contingency situations, carrying out the defined observations plan provided by ASI and the delivery of the Scientific data to the ASI Science Data Center (ASDC).

To achieve those objectives, respecting the Mission Safety requirements, specific Operational Procedures and Operational Strategies have been defined, together with development of Ground Segment automatism and exploiting different On Board Satellite capabilities.

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