

17th IAA SYMPOSIUM ON SPACE DEBRIS (A6)  
Mitigation - Tools, Techniques and Challenges (4)

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DEBRIS MITIGATION, HOW TO CHANGE AN “UGLY DUCKLING” SATELLITE IN A “SWAN”  
SATELLITE : THE EXAMPLE OF MICROSCOPE

**Abstract**

MICROSCOPE was a CNES-ESA-ONERA-CNRS-OCA scientific mission on fundamental physic dedicated to test the Equivalence Principle between gravitational mass and inertial mass with an relative accuracy of 10-15. The satellite has been launched the 25th April 2016 from GSC and decommissioned in October 2018, at the end of the scientific exploitation.

This paper begins with a short introduction of the scientific goals of the mission and the constraints induced by payload on satellite design, in particular the incompatibility between liquid propulsion system and instrument measurement.

Then it presents the French Space Operation Law (LOS), its consequences on spacecraft design (the mission was decided before the adaption of the law), and describe the activities done to demonstrate its compliancy in a best effort approach. A focus is done on the most innovative elements introduced or used to fulfil debris mitigation goals as Passive Deorbiting Subsystem (IDEAS) and Cold Gas Propulsion System (CGPS).

The paper will end with a presentation of the decommissioning operations and results.