



## **Accelerometers for the GOCE Mission: on-ground verification and in-orbit early results**

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The six accelerometers of the ESA GOCE mission have been developed by ONERA under contract with ThalesAleniaSpace France as Prime Contractor of the Gradiometer. These instruments are based on a principle similar to the ones flying from several years on board the CHAMP and the twin GRACE satellites but with some technological evolution to improve their resolution by 2 orders of magnitude in order to guarantee a level of noise acceleration lower than  $2E-12$  ms<sup>-2</sup> Hz<sup>-1/2</sup> as required by the GOCE mission scientific performance. Their contribution to the mission is double by providing the Satellite with the linear accelerations as input to the continuous drag compensation system and with the scientific data measurements to be on-ground processed.

The presentation will first shortly describe the accelerometer together with a summary of on-ground test plan philosophy and results, including free fall tests in the Bremen drop tower. Then, if available at that time, the first and preliminary results of the in orbit performance of the accelerometers will be presented and compared.

Such instrument can also contribute to improve the performance of some new geodetic mission by measuring more accurately the non gravitational forces acting on the satellites, as corner-stone instrument in some gradiometer arms or as sensor for drag compensation system of low orbit spacecrafts.