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IN-ORBIT DATA OF THE ACCELEROMETERS OF THE ESA GOCE MISSION

**Abstract**

The ESA GOCE mission aims to map Earth gravity field in unprecedented detail. The Gradiometer is the instrument which makes possible the high resolution restitution of the gravity field to the scientific communities to advance our understanding of global ocean circulation patterns and climate change. The tri-axes Gradiometer of the GOCE Mission is conceived around six electrostatic accelerometers developed by ONERA. The contribution of the accelerometers to the mission is double by providing the Satellite with the combination of linear accelerations as input to the continuous drag compensation and attitude control system and with the scientific data measurements to be on-ground processed for the Earth gravity gradients restitution.

The satellite was launched on March 17th, 2009 and the gradiometer was switched on in Science mode on April 7th. Since, the accelerometers are continuously feeding the science channel with data, first during the commissioning and calibration phases, then during the first measurement phase started in September 2009.

The presentation will illustrate the in-flight behaviour of the six accelerometers during one year of measurement in orbit as deduced from the analysis of their output signals. Comparison with on ground test data or prediction results will be presented.

From these results, the perspective towards future applications, in particular next gravity missions, will be underlined.

The accelerometers of the GOCE mission have been developed by ONERA under contract with Thales Alenia Space France as Prime Contractor of the Gradiometer.