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GOCE: mission accomplished but exploitation continues

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Launched in March 2009 into an extremely low Earth orbit on an originally 20-months mission to map the quasi-static gravity field, the GOCE satellite more than tripled its expected measurement return.
Being the lowest orbiting research satellite since the beginning, GOCE underwent a series of orbit lowerings towards the end of its lifetime in order to further maximise the signal content (both in amplitude and scale) of the gravity gradient and hi-lo satellite-to-satellite observations. Gravity field mapping in drag-compensation mode at 224 km altitude was completed on 21 October 2013, after which the satellite rapidly decayed deeper into the upper layers of the atmosphere. During this phase all instruments and avionics equipment were acquiring data. Finally, the satellite re-entered over the South Atlantic ocean in the very early hours of 11 November 2013 (UTC).

This contribution describes the science return of GOCE in its final phase, including the de-orbiting and re-entry phase. It provides an overview of the impact of GOCE in the earth sciences, incl. geodesy, oceanography, solid earth and aeronomy. Plans for continued exploitation of GOCE data - within and outside the context of the European Space Agency programmes - will be also presented.