

# **Validation of GOCE Satellite Gravity Gradient Observations by Orbital Analysis**

**P. Visser**

Faculty of Aerospace Engineering, Delft University of Technology, Kluyverweg 1, 2629 HS, Delft, The Netherlands (Email:P.N.A.M.Visser@tudelft.nl)

The upcoming European Space Agency (ESA) Gravity Field and Steady-State Ocean Circular Explorer (GOCE) mission, foreseen to be launched in 2007, will carry a highly sensitive gradiometer consisting of 3 orthogonal pairs of ultra-sensitive accelerometers. A challenging calibration procedure has been developed to calibrate the gradiometer not only before launch by a series of on-ground tests, but also after launch by making use of on-board cold-gas thrusters to provoke a long series of gradiometer shaking events which will provide observations for its calibration. This calibration can be checked by a combined analysis of GPS Satellite-to-Satellite Tracking (SST) and Satellite Gravity Gradient (SGG) observations. An assessment has been made of how well SGG calibration parameters can be estimated in a combined orbit and gravity field estimation from these observations.