
Retrieval of Thermosphere density and wind from space-borne accelerometry - activities at TU Delft

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Abstract

At TU Delft, a set of data processing algorithms and models has been developed to convert space-borne accelerometer observations from satellite missions as CHAMP, GRACE and GOCE into data sets of thermosphere density and wind speeds along the satellite track. The data processing is based on the analysis of the aerodynamic forces acting on the satellites, and makes use of the accelerometer observations, possibly combined with housekeeping data on thruster activation. Typically, GPS receivers are used to accurately determine biases and scale factors for the accelerometers, while GPS-derived precise orbits and star tracker data are used as input for the aerodynamic and radiation pressure acceleration models of the satellite.

An overview will be given of the associated activities together with their relevance for the Microscope mission.

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