



## **The Grace Mission: Status and Recent Results**

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The Gravity Recovery and Climate Experiment (GRACE) is a dedicated satellite mission whose objective is to map the global gravity field with unprecedented accuracy over a spatial scales approaching 200 km. The Grace measurements of mass flux are significant for climate related Earth System Studies and have been a major contributor to satellite determined earth gravity models. The GRACE mission operates as a complex "system of systems" comprised of: the GPS flight segment, a global network of GPS ground receivers, the twin GRACE satellites, a mission operations system and a distributed element Science Data System. The two identical GRACE satellites orbit one behind the other at an approximate distance of 200 km. The primary measurement is provided by the High Accuracy Inter-satellite Ranging System (HAIRS), which measures range change between the two satellites with a precision better than 10 microns. A highly accurate three-axis accelerometer, located at the satellite mass center, measures the non-gravitational accelerations. Satellite GPS receivers position the satellites over the earth with centimeter level accuracy. With this set of measurements, GRACE provides highly accurate measurements of the global gravity field once every thirty days. The two satellites were launched on March 17, 2002, and are designed to operate for a period of five years. This presentation will summarize the mission status, recent satellite and instrument performance, and will summarize recent advances in applying these measurements to contemporary earth system studies.