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The Status of GRACE After the First Decade

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The twin satellites of the Gravity Recovery and Climate Experiment (GRACE) were launched on March 17, 2002 and have operated continuously for just over 10 years. The mission objectives are to sense the spatial and temporal variations of the Earth's mass distribution through its effects on the gravity field at the GRACE satellite altitude. The primary mission objectives of GRACE are to measure: 1) the Earth's time-averaged gravity field over the mission life and 2) the monthly variations in the gravity field at wave lengths between 300 and 4000 km. The major cause of the time varying mass is water motion and the GRACE mission has provided a continuous decade long measurement sequences which characterizes the seasonal cycle of mass transport between the oceans, land, cryosphere and atmosphere; its inter-annual variability; and the secular, or long period, mass transport. Measurements of continental aquifer mass change, polar ice mass change and ocean bottom currents are examples of paradigm shifting remote sensing observations enabled by the GRACE satellite measurements. This presentation will review some of the science accomplishments from the past decade, the current mission status, describe the improvement expected with the planned RL05 data release and discuss the impact of these results on contemporary earth system studies. Finally, the plans for mission continuation will be discussed.