



## **Mascons, GRACE, and time-variable gravity**

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The GRACE mission has been in orbit now for three years and now regularly produces snapshots of the Earth's gravity field on a monthly basis. The convenient standard approach has been to perform global solutions in spherical harmonics. Alternative local representations of mass variations using mascons show great promise and offer advantages in terms of computational efficiency, minimization of problems due to aliasing, and increased temporal resolution. In this paper, we discuss the results of processing the GRACE KBRR data from March 2003 through August 2005 to produce solutions for GRACE mass variations over mid-latitude and equatorial regions, such as South America, India and the United States, and over the polar regions (Antarctica and Greenland), with a focus on the methodology. We describe in particular mascon solutions developed on regular 4 degree x 4 degree grids, and those tailored specifically to drainage basins over these regions.