



Continental freshwater discharge from GRACE

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Freshwater discharge from the continents is a key water cycle component with important implications for Earth system interactions and global environmental change. However, no comprehensive global streamflow observing network for the world's major continental watersheds currently exists. Here we propose a method for estimating monthly discharge for the continents and their large drainage regions based on the use of GRACE estimates of terrestrial water storage changes in a coupled land-atmosphere water balance. The method has been previously tested on the Amazon and Mississippi river basins. Here we apply and test the approach at the continental scale. Results and comparisons to observations indicate that the method has important potential for global-scale discharge monitoring of combined surface water and submarine ground-water discharge.