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Continental hydrology from GRACE and AMSR-E

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GRACE observations of water mass changes on land are providing important new insights into terrestrial hydrology from the large basin to the continental scale. In this presentation we discuss our recent assessment of terrestrial hydroclimatology from GRACE. In particular, we use the NASA GLDAS model to understand the seasonal patterns of water storage changes that we infer from GRACE. We discuss geographical variations in storage change partitioning (e.g. into groundwater, soil moisture or snow water storage) as well as the associated variations in the water balance fluxes. Implications for how GRACE water storage changes respond to and record variations in hydroclimate are discussed. We also compare AMSR-E derived surface soil moisture to GRACE-derived water storage changes for selected regions, and characterize the timescales of how each responds to variations in atmospheric forcing.