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Terrestrial water storage variations in China from GRACE

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Abstract: The Gravity Recovery and Climate Experiment (GRACE) satellite mission, launched by NASA and the German Aerospace Centre (DLR) in 2002, has provided ten day to monthly measures of temporal gravity field with unprecedented accuracy, which can be used to estimate changes in terrestrial water storage. Using a hybrid filtering scheme with the combination of decorrelated filter P3M6 and 300km Fan filter, we estimated the recent nine years terrestrial water storage variations for entire continent in China from GRACE temporal gravity filed models. The results from GRACE were also compared to those from CPC (Climate Prediction Center) and GLDAS (Global Land Data Assimilation System) hydrological models. After removed the periodic signals from the GRACE results, the long-term trend was given in the study. Moreover, several regions with prominent anomalies are revealed and analyzed in detail, and some valuable conclusions were drawn from the study.

Key words: temporal gravity field, GRACE, hybrid filtering scheme, terrestrial water storage

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