



## **How can hydrological models be used to improve GRACE gravity field solutions?**

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Since more than 6 years the satellite mission GRACE measures the temporal variations of the gravity field. From these solutions the mass variations in water storage can be derived, in which way GRACE helps to improve hydrological models. In this presentation the interrelation between hydrological information and GRACE gravity field analysis shall be observed from the opposite point of view, by investigating how hydrological models can be used to improve GRACE solutions. In a simple case temporal high resolution hydrological data can be used as background model in the GRACE data analysis for the reduction of aliasing effects. A further approach consists in a regularization of the GRACE solution towards the hydrological model resulting in a data combination. This implies the drawback that the GRACE solution is not independent from the hydrological model any more, therefore an alternative idea is to use only stochastic characteristics from the hydrological model as prior information in the GRACE analysis process.

The different approaches will be discussed and first results will be presented.