



Development and analysis of the swath solutions from GRACE

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Over the past decade and a half, the GRACE mission has provided an invaluable and the only data set of its kind that measures the total water column in the Earth System. The project has provided monthly gravity field solutions derived from the GRACE satellites observations. In addition, different research groups have developed multiple short time-scale solutions over the years including sliding window solutions, Kalman filter time-series etc. All of these GRACE solutions require special handling for data assimilation.

The Center for Space Research at the University of Texas at Austin (CSR) has developed a “swath” solution time-series from GRACE in an effort to achieve a true daily GRACE solution. We compute a daily “swath” total water storage (TWS) estimate from GRACE using the Tikhonov regularization and high resolution monthly mascon estimation implemented at CSR. This study performs detailed analysis of the signals from these new solutions in the temporal and spatial domains. Emphasis is given to the validation of the high frequency signals from these solutions using other available models and in-situ data sets. This presentation will discuss the development of the swath solutions and present the analysis results.