Geophysical Research Abstracts, Vol. 7, 03077, 2005
SRef-ID: 1607-7962/gra/EGU05-A-03077

Exploratory analysis of GRACE gravity fields in the context of hydrological models of Bangladesh

S. Hasan (1), P.A. Troch (1), J.S. Famiglietti (2) and M. Rahman (3)

(1) Hydrology and Quantitative Water Management Group, Department of Environmental Sciences, Wageningen University, The Netherlands. (2) Department of Earth System Science, University of California, Irvine, California, USA. (3) Institute of Water Modelling, Dhaka, Bangladesh.

Gravity Recovery and Climate Experiment (GRACE) provides estimates of monthly changes in the geoid, which are closely related to changes in vertically integrated terrestrial water storage. Already finished and ongoing works in formulation of detecting continental scale water storage change from GRACE gravity fields are being applied to investigate the performance of GRACE satellites. While almost all reported studies involve global hydrological models to check the GRACE estimates, we start looking at national level operational models of Institute of Water Modelling in Bangladesh. The rivers and floodplains of Bangladesh are known for extreme variation in dry and wet seasons making periodic floods and droughts. Early results show that global hydrology models are in good agreement with GRACE inferred storage change in case of basins near the Bay of Bengal. In this study we present exploratory analysis of available data and models in Bangladesh and GRACE inferred storage changes. Through this study we structure the methodology for our research related to detection of river basin water storage change from GRACE gravity fields. An additional application of this study would be formulation of further improvement of existing models in Bangladesh for water resource planning and management.