Geophysical Research Abstracts
Vol. 12, EGU2010-8442-1, 2010
EGU General Assembly 2010

Assessment of gravity recovery simulations of future satellite missions by EOF analysis

Siavash Iran Pour, Tilo Reubelt, and Nico Sneeuw
University of Stuttgart, Institute of Geodesy, Stuttgart, Germany (siavash@gis.uni-stuttgart.de)

One of the most fundamental challenges in spaceborne gravimetry is the separation of the time-variable gravitational signal into its individual geophysical sources. The problem for GRACE gravity solutions is known, but the challenges will be even more demanding for future mission concepts with more sensitive instruments. Empirical Orthogonal Function (EOF) analysis has been shown to be a valuable tool in support of solving this problem. EOF-based techniques have also been used for purposes of filtering and signal identification.
In this contribution we assess future gravity satellite mission scenarios by EOF analysis of simulated recovered gravity field solutions. These scenarios were developed by the ESA study "Monitoring and Modelling Individual Sources of Mass Distribution and Transport in the Earth System by Means of Satellites". The results from EOF analysis of the different scenarios are compared with each other. Moreover, we compare the recovery results from the mission scenarios with the results of the EOF analysis of the geophysical models.