Geophysical Research Abstracts, Vol. 7, 06421, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06421

Geocenter motion and the inversion of global GPS timeseries and GRACE data

E. Schrama, J. Kusche
Delft University of Technology, DEOS

We investigate an optimized inversion technique that combines GPS data and monthly gravity field solutions of the Gravity Recovery and Climate Experiment (GRACE). In the joint GPS-GRACE concept, the higher degrees of the load distribution model are mainly but not exclusively estimated from GRACE. In our case GPS could contribute with up to 60% to degree 2 till 4 spherical harmonic coefficients, and up to 30% for some higher–degree coefficients. Load distribution spherical harmonic coeffcients of degree-2 and higher show clear seasonal signals, with comparable amplitudes and phases matching with SLR-derived annual estimates. The focus of this presentation will be on the the quality of the degree-1 solutions related to geo-center motion. Initial results show that our degree-1 coefficients fit earlier results by Blewitt et al. For more recent years, they indicate in particular a damping in the z-amplitude, from more than 1 cm in 2000 down to a few mm now. Yet it should also be mentioned that there are different versions of geophysical background corrections that affect the recovery of degree-1 terms.