



Combined InSAR and GRACE estimate of West Antarctic mass changes

I. Sasgen (1), Z. Martinec (1), J. Bamber (2) and K. Fleming (1)

(1) GeoForschungsZentrum Potsdam, Section 1.5 Earth System Modelling, (2) University of Bristol, Bristol Glaciology Centre; (sasgen@gfz-potsdam.de).

We provide mass balance estimates for seven West Antarctic drainage basins using InSAR and GRACE Level 2 data. We combine both data sets in a constrained gravity-field inversion, which involves forward modelling of geoid changes based on mass balance estimates and their uncertainties from InSAR. We determine the spatial resolution of GRACE over Antarctica and use it to calculate unconstrained (GRACE only) mass balance estimates for a reduced number of drainage basins. We compare InSAR, constrained and unconstrained mass change rates, estimate their uncertainties and discuss the influence of glacial-isostatic adjustment and inter-annual mass variations on our results