REGIONAL GRAVITY FIELD RECOVERY FROM GOCE GRADIOMETER MEASUREMENTS AND SST-HIGH-LOW OBSERVATIONS - A SIMULATION STUDY

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GOCE (Gravity Field and Steady-State Ocean Circulation Explorer) is a dedicated gravity field mission envisaged for the years 2006 to 2007 which has the potential of deriving the static part of the gravity field with unprecedented accuracy in the high resolution spectral part. In addition, the high-low links to the GPS satellites can be used to supply the long period spectral part of the gravity field. The technique presented uses the SST and SGG observations along short arcs of GOCE. While the gravity gradients are directly used for the analysis the high-low intersatellite links are transformed into the spectral domain representing a direct connection to the gravity field parameters. The technique can be used for global gravity field recovery in terms of spherical harmonics as well as for gravity field refinements in selected regions. In case of a regional application the residual gravity field is modeled by space localizing base functions of spline type. The procedure consists of a tailored regularizing downward continuation technique and a post-processing filtering step. Simulation results are presented for a combination of both observation types.