



Insights into large scale hydrodynamic and sediment transport modelling

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Due to an increase of the computational power of today's computer hardware and the availability of improved software solvers, spatial and temporal extents for which hydrodynamic and morphodynamic models can be employed, are increasing as well. Recent case studies from the Danube River east of Vienna are presented and compared with each other, focusing on these spatial and temporal aspects. Besides assessing the computational time a particular focus is laid on the constantly growing results database, which is continuously fed by accompanying monitoring programmes. A 3D hydrodynamic model (RSim-3D) coupled with a sediment transport model (iSed) was applied for this study. The investigation of different spatial scales (ca. 1.3 to 24 km²), including overlapping regions, allowed to derive a sufficient accordance with respect to the varying boundaries and also the accompanying measurements. Finer temporal scales, applied at smaller spatial scales, improved the agreement with measurements (bathymetry, sediment transport).