

Influence of pioneer vegetation on the morphodynamic evolution of a river bed

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In a natural river the morphology and the evolution of the river bed is highly influenced by the vegetation in and along this river bed. To estimate these effects and influences, a pre-study was conducted in a lab-flume in the outside area of the Oskar-von-Miller-Institute of the TUM. In this flume an alternating flow regime with a change between floods and standard discharge was mimicking a natural flow regime. The experiment was started with an uniform and plane sand area were the flow regime should built a nature-like morphology. During the experiment, seeds of Alfalfa were added and the sprouting plants could influence the formation of the riverbed. The changes in the morphology were measured using photogrammetry and also a standard Kinect system. The results of the measurements shall be used as basis for a 3D numerical simulation. In addition we analyzed different plants and their sprouting behavior under different growing conditions to ensure the use of the most appropriate ones for this set-up. The experimental performance was based on the experiments of Tal and Paola 2010.

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