

Ideas for measuring the riverbed of hydraulic models under water

Tobias Liepert and Mathias Schlagenhauser

Chair of Hydraulic Engineering and Water Resources Management, Technische Universität München, München, Germany

The aim of this research is to develop a method for getting high resolution (spatial and temporal) 3D digital elevation models of a riverbed in a hydraulic model. It is quite possible to measure the riverbed topography in dry conditions. However, performing riverbed measurements during operating a hydraulic model is challenging (refraction, waves). Within the study several 3D recording techniques were evaluated (e.g. Microsoft Kinect, terrestrial laser scanning, photogrammetry, structured light). Moreover, efficient and robust ways to collect, handle and process the data are in central focus. The study summarizes the applicability, under water suitability and accuracy of the measurement techniques as well as the effort it takes to process the data in order to get a digital elevation model.