



## **A comparison of different surveying methodologies from the viewpoint of 2D hydrodynamic modeling**

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2D hydrodynamic modeling has become an important tool in river management lately. The accuracy of modeling largely depends on the underlying surveying and measurement methodology. We have conducted an experimental project in order to determine how and how much surveying (bathymetry) methods can influence modeling results. On a suitable reach of the river Danube and one of its side branches in Hungary (rkm 1481) we surveyed the riverbed simultaneously with a one-beam ultrasonic depth meter connected to a real-time correction GPS receiver, and a multibeam sonar system. We also performed discharge measurement with ADCP and levelling of the free surface elevations at the same time in order to achieve a reliable calibration. We used both riverbed datasets to build a DTM of the riverbed and we used HEC-RAS 2D hydrodynamic modeling software on both models with a steady-flow setting. We compared calibration results in order to determine the differences in the two surveying methods. We also compared human resource and other efforts that are used to evaluate if the difference in accuracy of the riverbed model justifies the usage of the multibeam technology in the environment for which we were testing it for fluvial 2D models.