



## **Determining Flood Discharges of past Flood Events using historical River Profiles**

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The reconstruction of historical flood events is an important subject for modern flood risk management. Determining discharges for historical extreme flood events can help to prolong existing discharge data series and to improve statistical calculations, e.g. the determination of return times. The identification and quantification of historical flood events will also provide answers to the question whether frequency and magnitude of floods have increased during the last centuries. This paper presents a case study for the Neckar River in Southwest-Germany. For the calculation of historical discharges, a total of 115 historical cross profiles was acquired and analysed. From these, only profiles were chosen which included water tables for the most extreme flood events in 1824 and 1882. Cross profiles at Bridges were preferably avoided. The discharge calculations were carried out with the 1-D model HEC-RAS. The roughness coefficient was estimated, using standard tables. In the river bed a value of 0,03 was used, for flooded areas outside the river bed we assumed a value of 0,035. These values correspond to the roughness coefficients which were found in historical hydraulic engineering documents. The discharges were calculated assuming subcritical flow conditions.