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## The impact of modelling decisions in hydrological modelling

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Scientific hydrological modellers make multiple decisions during the modelling process, e.g. related to the calibration period and performance metrics. These decisions affect the model results differently. Modelling decisions can refer to several steps in the modelling process. In this project, modelling decisions refer to the decisions made during the whole modelling process, not just the definition of the model structure. Each model output is a hypothesis of the reality; it is an interpretation of the real system underpinned by scientific reasoning and/or expert knowledge. Currently, there is a lack of knowledge and understanding about which modelling decisions are taken and why they are taken. Consequently, the influence of modelling decisions is unknown. Quantifying this influence, which is done in this study, can raise awareness among scientists. This study is based on analysis of interviews with scientific hydrological modellers, thus taking actual practices into account. Different modelling decisions were identified from the interviews, which are subsequently implemented and evaluated in a controlled modelling environment, in our case the modular modelling framework Raven. The variation in the results is analysed to determine which decisions affect the results and how they affect the results. This study pinpoints what aspects are important to consider in studying modelling decisions, and can be an incentive to clarify and improve modelling procedures.