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Discipline: Hydraulic Engineering

Title: Dealing with input, parameter and conceptual uncertainty in groundwater modelling for sustainable groundwater management.

Abstract: With the increasing demand and pressure on the groundwater resources, accurate predictions of groundwater systems, as well as sustainable water management practices, are essential for policy making. Transient numerical groundwater flow models are used to understand and forecast groundwater flow systems under anthropogenic and climatic influences to provide information for decision-making and risk analysis. However, the reliability of groundwater model predictions is strongly influenced by uncertainties resulting from (1) the model parameters, (2) input data such as the recharge rate, abstraction and the boundary and initial conditions, and (3) the conceptual model structure. In our research group, we aim to develop, test and apply different methods for uncertainty assessment of groundwater models. We apply these methods on case studies all over the world in order to better understand the impact of the different sources of uncertainty and build more reliable groundwater models for sustainable groundwater management.

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