M.Sc. Topic
Hydrosystem models are powerful tools that aid in the management of precious water resources. Inherent assumptions and simplifications in hydrosystem models, the scarcity of calibration data and measurement errors result in model prediction uncertainty. Typically numeric hydrosystem models are used without rigorous quantification of model uncertainty.

The successful applicant will contribute to research seeking to assess, prioritize, and reduce hydrosystem model uncertainty. In order for hydrosystem models to be useful and preserve their credibility, it is important for them to have quantifiable measures of uncertainty that stakeholders can understand. This research will concentrate on concepts for modelling, quantifying and prioritize uncertainty, the work will be conducted on a relatively simple hydrological model. There is a good possibility of writing and publishing a paper if the useful conclusions can be is obtained. By participating in this program you will be strengthening the existing partnership between the University of Stuttgart and Waterloo. Following this thesis project is also the opportunity to continue with a PhD joint training program for interested candidates.

Prospective Tasks
- Literature review of model uncertainty quantification methods
- Compare aspects of uncertainty / sources of uncertainty that can be treated with error modelling
- Develop a model in Matlab for hypothesis testing
- Visualization of results and discussion

General Information
- Advisors: Reynold Chow (Tübingen), Prof. Wolfgang Nowak (Stuttgart)
- Theoretic study

Desireable Skills
- Matlab, MODFLOW, Fortran, computer programming
- Hydrogeology, Hydrology, Groundwater Modelling, Statistics

Apply now
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