

Project title	The Effects of Geological Uncertainty on Groundwater Model Predictions
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Employment	Department of Geography and Geology, University of Copenhagen
Enrollment	PhD school of Science, University of Copenhagen
<p>Project description</p> <p>The objective of the project is to develop an improved methodology for assessing the effects of geological uncertainty on hydrological model predictions.</p> <p>It is generally recognised that the uncertainty on our conceptual geological understanding in many cases is the dominant source of uncertainty for groundwater model predictions. While handling of uncertainty on hydraulic model parameters has been common practise for many years, inclusion of geological uncertainty has until recently been neglected in uncertainty analyses related to groundwater modelling. The project will aim at developing improved methodologies for characterising the uncertainty in geological interpretations and for propagating this uncertainty through groundwater models to arrive at improved assessments of predictive uncertainties.</p> <p>Emphasis in the project will be put on exploring geological uncertainty by considering multiple geological models, both in terms of different geological interpretations and stochastic geological realisations using TPROGS or similar tools. For each of the geological models the uncertainty related to model parameters and local geological heterogeneity will be assessed. The uncertainty due to multiple geological models will be analysed, e.g. by use of Bayesian model averaging techniques.</p> <p>The PhD study will be part of the HYACINTS project (Hydrological modelling for assessing climate change impacts at different scales). Further information can be found at http://www.hyacints.dk/. In this respect the PhD student will cooperate with other HYACINTS PhD students who focus on assessing climate change impacts on hydrology and the uncertainties related to climate modelling. The PhD study is hence expected through cooperation to be able to assess the relative importance of geological uncertainty and uncertainty on climate change predictions for groundwater resources.</p>	