TUM

Modeling column experiments results to study arsenic immobilization in groundwater from Yinchuan Basin, China

Motivation:
Groundwater arsenic of natural origin is a global issue affecting the health of an estimated 100-200 million people in >70 countries. A series of column experiments have been performed at SUSTech, China, to understand arsenic transport and fate in sedimentary aquifers and predict contamination potential to groundwater resources. The experiments aimed to study *in-situ* remediation approaches by iron mineral (trans)formation. This master thesis aims to describe the column experiments in a numerical model to quantify the processes governing arsenic immobilization and iron mineral (trans)formation in anoxic groundwater systems. Model results will help develop effective *in situ* mitigation technology for arsenic contaminated groundwater.

Description:
- Development of geochemical model in PHREEQC to describe measurements of column experiments

Requirements:
- Interest in the use of modelling software such as PHREEQC with MATLAB or Python
- Motivation to work in close collaboration with researchers at SUSTech in China including a funded visit (travel and accommodation cost) of several weeks (duration upon students' interest) at SUSTech. Potential extension of the project in a joint PhD.

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