



PhD Program between the Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

Open PhD position at FUB for CSC scholarship candidates 2017

Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.

<u>Department/Institute:</u>	Institute of Geological Sciences, Geophysics Section
<u>Subject area:</u>	Interdisciplinary: Geophysics, Geochemistry, Numerics
<u>Name of Supervisor:</u>	Prof. Dr. Georg KAUFMANN (Mr.)
<u>Number of open PhD positions:</u>	1
<u>Type of the PhD Study:</u>	Full-time
<u>Project title:</u>	Modelling karst aquifer evolution under man-made and natural conditions

PhD Project description:

A substantial part of the world's water resources is located in soluble rock aquifers, such as limestone or anhydrite/gypsum rocks. Water flowing through the fractures, bedding partings and pore spaces of these soluble rocks can dissolve minerals and enlarge the void spaces from the sub-millimeter scale to the meter scale. Flow through these enlarged void space is fast and high heterogeneous, posing the risk of contamination and flooding.

While under natural conditions the evolution of void spaces occurs on time scales of thousands of years, man-made structures such as water reservoirs and dam sites can alter boundary conditions and the void evolution accelerates dramatically, sometimes to a decade or even less. Here, a detailed knowledge about the evolution of key parameters in the soluble rock aquifer is crucial for a safe and clean maintenance of the water reservoir.

In this project, we will study the evolution of aquifer properties in soluble rock by numerical means. We employ the numerical model to study evolution of flow, transport and other properties, and will extend the model to include heat and mechanical properties. We combine the numerical results with geophysical field work aimed to identify karst features in soluble rock. We therefore aim to predict both the present state and the future evolution of aquifers in soluble rock, and possible remedies concerning their vulnerability.

Language requirements:

English: IELTS 6.5 or TOEFL 95 ibt., German: Test DaF 16 or DSH 2

Academic requirements:

M.Sc. degree in physics, geophysics or related natural science or engineering. Very good background in numerical modelling (preferably Fortran)

Information of the professor or research group leader:

Group home page: <http://userpage.fu-berlin.de/~geodyn>

Please note:

In a first step the complete application should be submitted to the Beijing Office for evaluation by January 4th, 2017. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.