

Geothermal reservoir characterization through hydraulic tomography approaches and heat tracer tests

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Tuesday, June 23, 2015

Employer

ETH

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Zurich

Job start

Thursday, October 1, 2015

Work load

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PhD Position

Geothermal reservoir characterization through hydraulic tomography approaches and heat tracer tests

The Chair of Engineering Geology at ETH Zurich invites applications for a PhD position in the area of flow and heat transport in fractured rock at the dekameter scale. The successful candidate must have an MSc in Earth Sciences or related field and be strongly interested in research. Knowledge and experience in hydrogeology, in-situ testing or groundwater flow modeling are of prime importance. Good technical and writing skills are desired.

This position is part of new large interdisciplinary projects dealing with deep geothermal energy in Switzerland and requiring a detailed investigation of fractures and their interaction with the surrounding rock matrix. This study will complement current research on high resolution hydraulic field testing, hydraulic and flow tomography and geothermal energy. The research work is based on field experiments carried out at the Grimsel Underground Research Laboratory.

The objective of this project is to improve our detailed understanding of fluid pressure propagation and heat transport in discrete fracture networks before and after high pressure stimulation. The primary focus of this thesis is on the development of new flow logging, hydraulic tomographic and heat tracer testing approaches adapted for the characterization of fractured media in low porosity rocks and determination of structures controlling fluid pressure diffusion and heat transport in crystalline rock geothermal reservoirs. During the project a series of field experiments including packer tests, flow logging and heat tracer tests will be conducted. Numerical and analytical models will be used for design and interpretation. The duration of the position is approximately 3 years and can be filled by the successful candidate in September 2015.

The Engineering Geology group consists of approximately 25 multidisciplinary scientists involved in a leading research and teaching program in quantitative engineering geology and hydrogeology. Detailed information about the Earth Science Department and the Chair of Engineering Geology is available on the web: www.engineering-geology.ethz.ch. For further information regarding the advertised position please contact Dr. Maria Klepikova, Engineering Geology, ETH Zurich (e-mail: maria.klepikova@erdw.ethz.ch).

Complete applications should be sent by regular mail or e-mail to Prof. Dr. Simon Löw, Engineering Geology, ETH Zürich, Sonneggstrasse 5, 8092 Zürich, Switzerland, and must include the following: 1) Cover letter; 2) Curriculum vitae which describes your complete personal details and career history; 3) Complete course grades and transcripts; 4) Digital copies of both BSc and MSc theses. Applications will be evaluated end of July 2015.