PhD student in Hydrology within Flow and transport in fractured rocks

Uppsala University, Faculty of Earth Sciences, Department of Earth Sciences

Uppsala University is a comprehensive research-intensive university with a strong international standing. Our ultimate goal is to conduct education and research of the highest quality and relevance to make a long-term difference in society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has over 54,000 students, more than 7,500 employees and a turnover of around SEK 8 billion.

The Department of Earth Sciences at Uppsala University is Sweden´s largest and most versatile department of its kind with approximately 280 employees. Our activities are interdisciplinary and combine natural science and technology with social science. We have research programs in air, water and landscape science; geophysics; natural resources and sustainable development; petrology, mineralogy and tectonics; paleobiology, and wind energy. By investigating the history of Earth, we understand how our planet has developed over time and how sustainable development benefits from this knowledge. Read more here: www.geo.uu.se

The successful candidate will join the research program Air, Water and Landscape Sciences (LUVAL) and the research group in Geohydrology (https://www.geo.uu.se/research/luval/disciplines/Hydrology/ongoing-research/geohydrology/).

Read more about our benefits and what it is like to work at Uppsala University

Duties

This PhD project will have a focus on developing numerical models for predicting the geometrical and hydrological (e.g., flow and transport) properties of fracture networks as well as coupled hydro-mechanical effects, based on field experimental data. The research aims to provide implications for the long-term safety assessment of deep geologic repositories, including related risks and uncertainties.

The research will be done in the context of the international DECOVALEX project (https://decovalex.org/), a large international research collaboration with the objective to advance the understanding and modeling of coupled thermo-hydro-mechanical-chemical (THMC) processes in geological systems. Prediction of these coupled effects is an essential part of the performance and safety assessment of geologic disposal systems for radioactive waste and spent nuclear fuel, and also for a range of other sub-surface engineering activities. This large international research collaboration has partners from France, Germany, USA, Canada, Japan, Korea, China, Netherlands, Switzerland, Spain, Taiwan, Czech Republic and Sweden.

Requirements

To meet the entry requirements for doctoral studies, you must

- hold a Master's (second-cycle) degree in hydrogeology / rock mechanics / hydrology / geophysics or a comparable degree in earth sciences / geotechnical engineering / water engineering
- have completed at least 240 credits in higher education, with at least 60 credits at Master's level including an independent project worth at least 15 credits, or
- have acquired substantially equivalent knowledge in some other way.

Additional qualifications

It is an advantage to have a solid base in mathematics, mechanics and physics as well as knowledge of computer simulations and scientific programming. Previous experience in numerical / mathematical modelling is a merit.

Rules governing PhD students are set out in the Higher Education Ordinance chapter 5, §§ 1-7 and in Uppsala University's rules and guidelines.

The application should include a cover letter of max 2 pages, shortly describing your personal motivation for applying for this PhD position and how you see your role in contributing to the project, as well as your relevant skills, qualifications and research interests. The application should also include a CV, copies of relevant exams, degrees and grades, MSc thesis and other relevant documents, including contact details of two referees.

About the employment

The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. Starting date 01-11-2023 or as agreed. Placement: Uppsala

For further information about the position, please contact: Qinghua Lei, email: qinghua.lei@geo.uu.se

Please submit your application by 1 September 2023, UFV-PA 2023/2571.

Are you considering moving to Sweden to work at Uppsala University? Find out more about what it´s like to work and live in Sweden.

Please do not send offers of recruitment or advertising services.

Submit your application through Uppsala University's recruitment system.

Type of employment	Temporary position
Contract type	Full time
First day of employment	2023-11-01 eller enligt överenskommelse
Salary	Fixed salary
Number of positions	1
Full-time equivalent	100 %
City	Uppsala
County	Uppsala län
Country	Sweden
Reference number	UFV-PA 2023/2571
Union representative	ST/TCO tco@fackorg.uu.se Seko Universitetsklubben seko@uadm.uu.se Saco-rådet saco@uadm.uu.se
Published	2023-06-19
Last application date	2023-09-01
Link to ad	http://uu.varbi.com/what:job/jobID:639803/