

Postdoctoral Associate(s) in Basalt Carbonation

Duration: 1 year with the possibility of extension, depending on progress and funding

Start date: Fall/Winter 2022-2023 (negotiable)

Salary: \$50,000/year plus benefits

Application Deadline: Applications will be evaluated on a rolling basis, with a projected closing date of November 25, 2022



**UNIVERSITY OF
CALGARY**

Applications are invited for Postdoctoral Associate(s) to work on basalt carbonation as a scalable climate change solution under the supervision of Dr. Benjamin Tutolo at the University of Calgary. The project is aimed at understanding the processes governing CO₂ mineralization in basalts and could involve up to two postdoctoral researchers working in tandem. The successful candidate(s) will: (a) perform elevated temperature-pressure laboratory experiments to examine the rates of cation release from basalts subjected to a range of initial pretreatment strategies and parameterize the rates of basalt carbonation under these conditions; and (b) utilize reaction path and fully-coupled reactive transport models to optimize injection strategies to maximize carbonation rates while navigating other factors such as cost. Successful candidate(s) will have routine access to the University of Calgary's Advanced Research Computing cluster and hydrogeologic, geochemical, and reactive transport modeling software as well as an extensive suite of experimental and analytical tools for performing and characterizing water-rock-CO₂ interaction experiments. More information about ongoing work in the Tutolo Reactive Transport Group at the University of Calgary www.geoscience.ucalgary.ca/reactive-transport/ .

The successful candidate(s) will have a PhD in the geosciences or related field, including but not limited to geology, geochemistry, hydrogeology, or engineering. Experience **either** performing water-rock interaction experiments, ideally at elevated temperatures and pressures **OR** using hydrogeological and/or reactive transport models is imperative; **experience with both will be viewed advantageously but is not required**. The position requires excellent communication and interpersonal skills, intellectual independence, and a willingness to explore unfamiliar aspects of the geosciences.

Major Duties/Responsibilities:

- Experimentally or numerically simulate basalt reservoir pre-treatment for enhanced carbonate mineralization
- Experimentally or numerically simulate the fate of injected CO₂ following basalt reservoir pre-treatment
- Interact with collaborators to optimize pretreatment and injection strategies
- Present and report research results in peer-reviewed journals in a timely manner
- Maintain a safe, collegial, interactive, and welcoming research environment

Application details:

A single PDF file that includes: 1) a 2-page cover letter expressing interest in this position and summarizing previous research experience, 2) a CV with a list of all publications; and 3) the names and contact information of at least two referees with knowledge of your research and academic experience should be emailed to Dr. Benjamin Tutolo (benjamin.tutolo@ucalgary.ca). Please also direct any inquiries about the position to Dr. Tutolo.

Members of underrepresented groups, particularly women and people of color, are specifically encouraged to apply.

About the University of Calgary

The University of Calgary is Canada's leading next-generation university – a living, growing and youthful institution that embraces change and opportunity with a can-do attitude. Located in the nation's most enterprising city, the university is making tremendous progress on its Eyes High journey to be recognized as one of Canada's top five research universities, grounded in innovative learning and teaching and fully integrated with the community it both serves and leads. The University of Calgary inspires and supports discovery, creativity, and innovation across all disciplines. For more information, visit ucalgary.ca.

Additional information

The terms and conditions of employment are covered under the UCalgary and PDAC Collective Agreement. To find out more about postdoctoral scholar program at the University of Calgary visit our [Postdocs](#) website.

About Calgary, Alberta

Calgary is one of the world's cleanest cities and has been named one of the world's most livable cities for years. Calgary is a city of leaders – in business, community, philanthropy and volunteerism. Calgarians benefit from the strongest economy in the nation and enjoy more days of sunshine per year than any other major Canadian city. Calgary is less than an hour's drive from the Rocky Mountains and boasts the most extensive urban pathway and bikeway network in North America.

The University of Calgary and our research team recognize that a diverse staff/faculty benefits and enriches the work, learning and research experiences of the entire campus and greater community. We are committed to removing barriers that have been historically encountered by some people in our society. We strive to recruit individuals who will further enhance our diversity and will support their professional success while they are here. We encourage all qualified applicants to apply, however preference may be given to Canadian citizens and permanent residents of Canada.