



PhD Student Opportunity

We are seeking a candidate for a PhD position at Memorial University, Newfoundland to investigate the structural and tectonic controls on lithium mineralization in southern Newfoundland Appalachians. The PhD student research is part of a Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance Missions research program focused on the processes that concentrate critical minerals.

Overview

The program objective is to better understand the geological controls on formation of lithium-rich rocks to better inform exploration practices. The PhD student will have the opportunity to collaborate with researchers at St. Francis Xavier University, Memorial University of Newfoundland, the Government of Newfoundland and Labrador, and industry partners invested in lithium exploration. It is expected that the PhD student will begin in January 2025.

Project description

The PhD research will take place in southern Newfoundland, Canada and investigate the structural controls on the emplacement of lithium pegmatites associated with the Bay d'Est shear zone and associated structures in the Hermitage Flexure. The PhD student will characterize the kinematics, age and deformation history of regional fault zones, and regional metamorphism located near the Killick lithium pegmatites through detailed field traverses and regional observations. Field work will include foot-traverses in rugged terrane and helicopter supported work in remote regions. Analytical techniques will include, but is not limited to, petrography, SEM imaging, electron backscatter diffraction CPO analysis, EPMA, and geochronology (laser-ablation Rb-Sr on mica, U-Pb zircon, monazite, apatite...). By determining the deformation and metamorphic history of the Bay d'Est shear zone, the PhD student will be able to assess the local and regional structural controls on lithium mineralization as well as make regional tectonic links to the evolution of the Hermitage flexure and its relationship to the Appalachian orogenic system.

Qualifications

- Completion of a MSc degree in Geology, Earth Sciences, or a related field.
- The ability to conduct remote, helicopter-assisted field work in rugged terrain is required.
- Experience in one or more of the following is considered an asset: structural geology, tectonics, and/or micro-analytical mineral analysis.

Application instructions

Applications will be considered starting at 9:00 am (AT) on April 30, 2024, and will continue until the position is filled. To apply please submit in a single document 1) a letter of application, 2) unofficial transcript, 3) CV, and 4) the names and contact information of two referees to Dr. Eric Thiessen (ethiessen@mun.ca) or Dr. Donnelly Archibald (darchiba@stfx.ca). The cover letter should demonstrate how the candidate meets the above listed criteria. Only those selected for an interview will be contacted. Canadians and permanent residents will be given priority.



About Memorial University Newfoundland

Memorial University of Newfoundland has one of the largest and most diverse Earth Science departments in Canada. With 23 faculty members and leading-edge teaching and research facilities, the department is able to offer high quality graduate degree programs. Graduates of Memorial's Department of Earth Sciences commonly go on to careers in academia, government, and the private sector.

The Province of Newfoundland and Labrador is an excellent natural laboratory in which to study Earth Sciences and many of our courses have field-based components. The cross-section of geology that can be studied in Newfoundland and Labrador is unparalleled and spans a large part of Earth's history. Our department's long-standing, excellent reputation is, in part, due to its close proximity to this world-class geology.

In addition to our faculty expertise and field-access, our department is particularly well equipped with modern analytical equipment. Students have access to the [CREAIT network of laboratories](#) with a variety of instrumentations including ICP-MS, XRF, XRD, LA-ICPMS, EBSD, SEM, Microprobe, Radiogenic Isotope, and Stable Isotope Mass Spectrometers.