

1 MSc & 1 PhD position: Redox-sensitive element geochemistry of Paleoproterozoic red beds

Memorial University of Newfoundland (MUN), Supervised by: Dr. Michael Babechuk

The oxygenation of the atmosphere is one of the most important events in Earth's history, yet there remains conflicting lines of evidence from different geochemical paleo-redox proxies and between continental (*e.g.*, paleosols, siliciclastics) and marine (*e.g.*, iron formation, carbonate) reservoirs that cloud our complete understanding of the Great Oxidation Event (GOE) transition. To move forward our understanding of Earth's oxygenation requires further research with emphasis on continental environments where rocks were in the most direct contact with the ancient atmosphere. Red beds (Fe-oxide bearing siliciclastic rocks) first appeared after the GOE and are an important component of the Earth System contributing to our understanding of oxygenation in terrestrial environments, yet are understudied with modern geochemical paleo-redox tools.

Two graduate students, one each at the MSc and PhD level, are sought for projects investigating the mineralogy and geochemistry of Paleoproterozoic red beds. The projects will entail field mapping and logging and extensive use of different mineralogical and geochemical techniques with emphasis on reconstructing the behaviour of the extended suite of redox-sensitive elements during oxidative weathering and their fate during subsequent diagenesis. Many instruments for the projects are available at MUN (*e.g.*, *in situ* analysis using SEM, EPMA). High-precision trace element and stable metal isotope geochemical analyses, when applicable, will be undertaken abroad in Ireland, Germany, or both, until new facilities are developed at MUN.

Applicants should be: a) in excellent academic standing, eligible for MUN internal and external funding support; b) have strong interests in pursuing academic research in sedimentary/stratigraphy and/or trace element geochemistry, and; c) have existing experience with sedimentology, ICP-MS and clean lab chemistry, or a strong desire to develop such skills.

Applicants should email a statement of interest and CV to Dr. Michael Babechuk prior to official application to MUN. Screening of applicants will continue until suitable candidates are found, but it is anticipated that candidates will start in 2018. Official application to MUN requires original transcripts, 2 letters of recommendation, and proof of English proficiency (www.mun.ca/become/graduate/apply/). MUN currently pays MSc and PhD students a base salary of \$17,869 and \$19,369 per year, respectively (assuming an offer of MUN Graduate Studies support and a teaching assistance position, which are granted competitively on the basis of academic standing). The tuition fees at MUN remain highly competitive at a national and international level (www.mun.ca/become/graduate/fees_funding/).

MUN is located in the vibrant and culturally fascinating seaside city of St. John's, Newfoundland & Labrador (www.stjohns.ca) that offers ample access to hiking, whale/iceberg watching, and live music.

