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Ph.D Candidate

Formation and evolution of an oceanic lithosphere: a look back at the Watts and Spartan Groups
Cape Smith Belt, Nunavik, Canada

Description

The Paleoproterozoic Era marks a period of profound changes in the mode of convection of the Earth and in the tectonic processes that shapes its surface. Archives of this crucial period of our planet's evolution are particularly well exposed and preserved in the Nunavik, Canada, as part of the Ungava Orogeny.

This Ph.D. project focuses on the nature and evolution of exotic terranes at the heart of the Ungava Orogeny, the Watts and Spartan Groups. The Watts Group is composed of cumulative mafic to ultramafic plutonic suites metamorphosed to greenschist and amphibolite facies and imbricated as out-of-sequence thrusts sheets during the Ungava Orogeny. This Group, also known as the « Purtunig Ophiolite », is considered to be the oldest remnant of obducted oceanic lithosphere on Earth. On its southern boundary is the Spartan Group, a clastic metasedimentary rock sequence that is interpreted as a forearc prism. This project applies an integrated analytical approach, including regional mapping, whole-rock geochemistry, plutonic and detritic geochronology, metamorphic petrography and petrochronology as well as phase equilibria modelling.