Vita

Candidate's name: Christopher Brian Zelt

Universities Attended:

University of Ottawa (2018)
Bachelors of Science
Honours, Geology

University of New Brunswick (2024)
Masters of Science
Earth Science

Publications/Conference Presentations:

Nadeau, O., Zelt, C., Leybourne, M. I., & Voinot, A. (2021). Evolution of Archean Sanukitoids from the Otto Stock by Magma Mixing and Na–K Metasomatism: Evidence from Petrological Observations and Lithium Isotope Geochemistry. *Journal of Petrology*, *62*(12), egab047.

Zelt, C. B., van Rooyen, D., McFarlane, C.R.M., and Corrigan, D. 2020. Metamorphism and tectonics of the Hunt River Greenstone Belt in Labrador, Canada. Atlantic Geoscience Society Colloquium, February 7-8, Truro Nova Scotia. Oral presentation program with abstracts.

Metamorphism and Tectonics of the Archean Hunt River Greenstone Belt, Labrador, Canada

UNIVERSITY OF NEW BRUNSWICK

THESIS DEFENCE AND EXAMINATION

in Partial Fulfillment

of the Requirement for the Degree of
Master of Science

by

Christopher B. Zelt

in the Department of Earth Science

U.N.B., Fredericton, N.B.

Thursday, May 9th, 2024
2:30 p.m.

Forestry/Geology Building, Room 23

Examining Committee

Dr. Chris McFarlane	Co-Supervisor
Dr. Deanne van Rooyen	Co-Supervisor
Dr. David Lentz	Internal Examiner
Dr. Barry Blight	External Examiner
Dr. Karl Butler	Chair of Oral Examination

Abstract

The Hunt River Belt (HRB) is an Archean greenstone belt within the Hopedale Block of the North Atlantic Craton in Labrador, Canada. A new model for the formation and tectonic evolution of the HRB based on geochronological, geochemical, and structural data is presented. Primarily mafic volcanism between 3105 and 2870 Ma, followed by deposition of psammitic sediments after ca. 2790 Ma is interpreted to occur in an extensional basin within a convergent margin setting. Two deformation episodes were identified, D1 and D2, which are interpreted to be associated with the overturning of HRB stratigraphy as well as the two-stage collision of the Saglek Block and the Hopedale Block. Two episodes of upper amphibolite facies metamorphism were identified, M1 and M2, which are correlated with D1 and D2. U-Pb geochronology of metamorphic titanite reveals multiple periods of titanite growth at 2850-2830 Ma, and approximately at 2700 and 2500 Ma, which are interpreted to relate to the timing of local Fiordian metamorphism, and the metamorphic episodes M1 and M2 respectively.

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