

## **GEM-2 Hudson-Ungava: modern constraints on historical correlations in the Kaniapiskau Supergroup, Labrador Trough, Canada**

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Integrated mapping of the southern New Québec Orogen - Core Zone, as part of the second phase of NRCan's Geomapping for Energy and Minerals (GEM-2) program, is providing insight into the collisional orogen between the Superior and North Atlantic cratons by investigating the composition, age and architecture of intervening crust at a scale that bridges the Quebec - Labrador border. Although there has been a long history of bedrock mapping, exploration activities and mining in this region, quantitative data on the age and provenance of many key map units is lacking. Targeted mapping and geochronology sampling was undertaken with the aim of strengthening the geological context under which mineral exploration can continue. This presentation provides new results from the Kaniapiskau Supergroup in the southern part of the New Québec Orogen and highlights activities to the north near Kuujuaq. Collectively, these are being integrated with new results from the Core Zone.

The Kaniapiskau Supergroup has long been recognized as recording cratonic rifting and incipient development of an ocean basin. Three samples from its southeastern margin were analysed for geochronology, in order to explore their provenance and provide quantitative pins on the stratigraphic correlations assigned to them. Pinkgrey weathering quartz arenite with well-developed cross stratification was investigated to test its long-held correlation with the lower Seward Group. Quartzite, exposed at Quartzite Lake, has variably been interpreted as part of the Seward Group (basal Cycle I), a basal transgressive sequence (Cycle 2, Wishart Formation) or a transgressive sequence at the top of Cycle 2 (Menihek Formation). An intermediate pyroclastic volcanic unit exposed at Galena Lake was analysed in order to directly date the Nimish Formation, whose inferred age of ca. 1878 Ma comes from a syenitic cobble in associated conglomerate.

Complementary detrital zircon studies to compare provenance profiles of samples from both the Kaniapiskau Supergroup and the Rachel-Laporte domain extend this tectonostratigraphic research to the north, near Kuujuaq. Also in the north, mafic and ultramafic sills historically assigned to the Montagnais suite despite textural and compositional differences, are the subject of high-precision geochronological investigations. This new information will aid comparisons between the magmatic history of the Labrador Trough and other Paleoproterozoic Ni-Cu-PGE districts, such as Cape Smith in Quebec and Thompson in Manitoba. Collectively, geochronological calibration of key plutonic and volcano-sedimentary rock packages will allow historical correlations to be assessed, strengthened and revised.