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Igneous protoliths of the Uivak gneiss, Saglek block, northern Labrador

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The Saglek block of the Nain Complex in northern Labrador comprises Archean medium to high-grade gneisses that include early Archean (>3.6 Ga) metamorphosed sediments and volcanics (the Nulliak supracrustals) and meta-granitoids (Uivak, Lister and Nanok Gneisses) [1]. The Uivak gneisses are widely

distributed throughout the Saglek-Hebron area (Fig. 1), and are distinguished from younger metagranitoids through being intruded by metabasalt Saglek dykes. The Uivak gneisses include older Uivak I (ca. 3.7Ga) and younger Uivak II (ca. 3.6Ga) suites. Some studies, on the basis of sub-grain zircon dating, have suggested the presence of even older components as enclaves or tectonic intercalations in the Uivak I gneiss, such as a monzonitic ca. 3.95 Ga Nanok gneiss [2] or a tonalitic >3.95Ga Iqaluk gneiss [3].

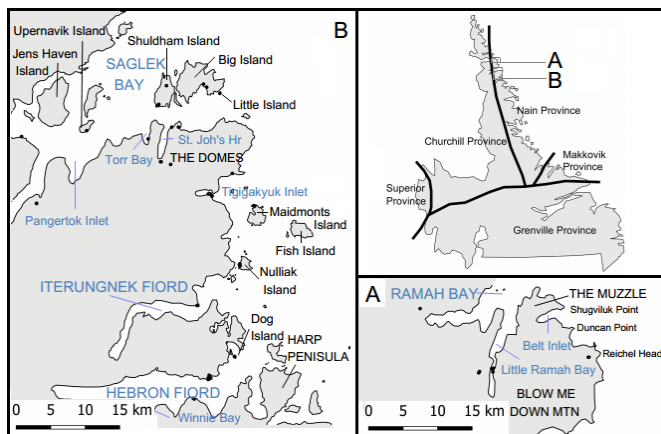
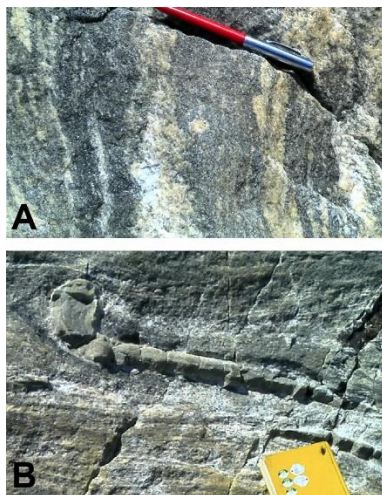


Figure 1: Map of sample localities



Samples of Uivak gneiss were collected and examined from various localities around the Saglek block (Fig. 1). Igneous relationships were observable in the Uivak gneiss in low-medium strain domains in the field, including at Tigiakuyuk Inlet, where the Nanok gneiss was 'identified'. Areas mapped as Uivak I are commonly composite, containing a mixture of mafic, granodioritic and granitic phases, some porphyritic (Fig 2a), some as fine-grained granitic enclaves (Fig 2b). Based on micropetrography, Uivak I granitoids include monzogranite, granodiorite and tonalite, with some preservation of magmatic features through metamorphism. Geochemical classification agrees with petrographic classification, with volcanic arc, calc-alkaline affinities typical of Archean TTG, and consistent with Bridgwater and Collerson [4], and similar to the Amîtsoq gneisses of Greenland. Preliminary ion microprobe dating results provide ca. 3.7Ga ages for porphyritic granodiorite and tonalite phases of the Uivak I gneiss, consistent with the interpretation of Schiøtte et al. [1]. Older phases were not identified.

Figure 2: Composite nature of Uivak I gneiss

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References:

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