

metasedimentary rocks. This age data will provide the first direct evidence of the older Hottah terrane components, and may clarify its relationship with the Archean Slave craton. Moreover, the dating may help determine if Archean components exist within the Hottah terrane, an invaluable piece of knowledge for further exploration of diamondiferous kimberlites found in the Paleozoic cover sequence to the west. Core-rim relationships, if present within the detrital zircons, will indicate the timing of metamorphism of the psammite, which will significantly further the understanding of the Hottah terrane and its tectonic evolution within the Wopmay orogen. Detailed petrology on metamorphic assemblages and their relation to deformational fabrics will also be a major component of this study from Leith Ridge and selected drill core samples.

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**Petrology and SHRIMP U-Pb geochronology of detrital zircons from the Holly Lake Metamorphic Complex, Leith Ridge, Northwest Territories**

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The Paleoproterozoic (>1900 Ma) Hottah terrane is the oldest component of the Wopmay orogen and remains poorly understood. Largely overlain by Paleozoic cover and poorly exposed, the Hottah terrane outcrops on the western side of the orogen and is thought to extend as basement underneath much of the Great Bear magmatic zone. The oldest units within the Hottah terrane are metasedimentary and metavolcanic rocks of the Holly Lake metamorphic complex (HLMC), a scantily preserved supracrustal sequence. The HLMC has been intruded by numerous, 1940–1930 Ma plutons of the Hottah continental arc. Fieldwork within the HLMC was completed in August of 2010 along Leith Ridge, south of Great Bear Lake and northwest of Hottah Lake, where three outcrops of partially migmatized, interbedded psammitic and pelitic rocks were mapped and sampled. These rocks are characterized by biotite-sillimanite-melt pockets (pods) and have a well-developed foliation, striking along 315 degrees and dipping 45 degrees to the northeast. Numerous porphyritic tourmaline-bearing granitic rocks and 0.5–1 m-wide granodiorite dykes intrude the metapelite outcrops.

Detrital zircons from a psammitic rock will be dated using the U-Pb isotope systematic by ion microprobe technique (SHRIMP II) to clarify the provenance of the Hottah terrane