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**Variations in zircon Hf isotopes support earliest Proterozoic Wilson cycle tectonics
on the Canadian Shield**

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ABSTRACT

Sedimentary basins provide an archive of magmatic and tectonic events in their detrital zircon record, which can be dated and coupled with Hf isotopic data to reveal secular changes in the production of juvenile and evolved magmatism and track the history of orogenic events. The Rae craton, which forms a substantial portion of the northern Canadian Shield, experienced successive orogenic events along its margins during most of the Paleoproterozoic Era. Yet, some of these orogenic events are poorly defined and their details remain controversial. We present coupled detrital zircon U-Pb age and ϵHf data from Paleoproterozoic metasedimentary successions of the eastern Rae craton. The zircon preserve an archive of ~600 million years of magmatic and tectonic history on the Rae craton and its periphery. The U-Pb and Hf isotopic data indicate that zircon provenance was dominantly from the northern and western Rae craton, where magmatic and tectonic activity was focused during the ~2.5 to 2.3 Ga Arrowsmith orogeny and the

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