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A sedimentary overlap assemblage links Australia to northwestern Laurentia at 1.6 Ga

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1.1. Abstract

The Columbia (Nuna) supercontinent existed from approximately 1.9 Ga to 1.3 Ga. Laurentia was part of Columbia, and the western edge of Laurentia (current coordinates) was likely proximal to a large landmass during parts of this interval. Here, we present detrital zircon ages of a Paleoproterozoic sedimentary succession in northern Yukon, Canada, that bear on the evolution of Columbia. The sedimentary succession is preserved as clasts within 1.60 Ga hydrothermal megabreccias. Analyses of detrital zircon reveal abundant 1.78 – 1.68 Ga zircon with evolved Hf isotope values ($-16.1 < \epsilon_{\text{Hf}}(t) < +1.4$). Sm-Nd isotope analysis on clasts yields $\epsilon_{\text{Nd}}(t)$ from -5.3 to -5.5 and model ages from 2.4 to 2.2 Ga. The detrital zircon age distribution is strikingly similar to those from sedimentary megaclasts in the ca. 1.59 Ga Olympic Dam Breccia Complex

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