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PII: S0301-9268(17)30111-0
DOI: https://doi.org/10.1016/j.precamres.2017.10.001
Reference: PRECAM 4899

To appear in: *Precambrian Research*

Received Date: 7 March 2017
Revised Date: 25 August 2017
Accepted Date: 3 October 2017

Please cite this article as: J. Verbaas, D.J. Thorkelson, J. Crowley, W.J. Davis, D.A. Foster, H.D. Gibson, D.D. Marshall, D. Milidragovic, A sedimentary overlap assemblage links Australia to northwestern Laurentia at 1.6 Ga, *Precambrian Research* (2017), doi: https://doi.org/10.1016/j.precamres.2017.10.001

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

J. Verbaas[a], D.J. Thorkelson[a], J. Crowley[b], W.J. Davis[c], D.A. Foster[d], H.D. Gibson[a], D.D. Marshall[a], D. Milidragovic[e]

[a]Simon Fraser University, Department of Earth Sciences, 8888 University Drive, Burnaby, BC, V5A 1S6 Canada

[b]Boise State University, Department of Geosciences, 1910 University Drive, Boise, ID 83725, USA

[c]Natural Resources Canada, Geological Survey Canada, 601 Booth Street, Ottawa, ON K1A 0E8, Canada

[d]University of Florida, Department of Geological Sciences, PO Box 2120, Gainvesville, FL 32611-2120

[e]British Columbia Geological Survey, 1810 Blanshard Street, Victoria, BC, V8T 4J1, Canada

Keywords: Columbia, Nuna, Proterozoic, paleogeography, Laurentia, Australia supercontinent, detrital zircon, Wernecke Breccia, Olympic Dam

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 ($-16.1 < \varepsilon Hf(t) < +1.4$). Sm-Nd isotope analysis on clasts yields εNd_i 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