

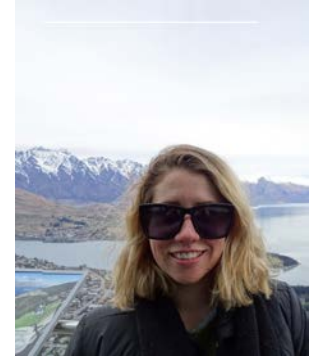


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Brief Summary

It is argued that long-term mantle circulation is the ultimate driver of supercontinent cycles, however, our understanding of mantle circulation in deep time is limited. Seismic tomography and geodynamic modelling have highlighted, however, that plate kinematic evolution and mantle circulation are fundamentally linked. Slab pull is a major driver of plate tectonics, therefore, identifying the location of magmatic arcs and their underlying subduction zones is essential for understanding plate kinematics. The purpose of my study is to identify the geodynamic drivers of the Rodinia to Gondwana supercontinent cycle by investigating isotopic trends of global Neoproterozoic-Cambrian orogens, with field studies conducted in Argentina and Brazil. Plate tectonic motion for the Neoproterozoic will be reconstructed using the location and longevity of magmatic arcs revealed by U-Pb-Hf systematics. This will allow detailed global plate reconstructions to be evaluated for the Neoproterozoic and, from this, an assessment can be made as to whether simple mantle circulation patterns drove the Neoproterozoic supercontinent cycle, as is proposed for the Phanerozoic

Education: B Science (Earth Science) Hons, University of Newcastle, Australia

Research interests: Isotope geochemistry, tectonics, paleogeography

Thesis title: Understanding Neoproterozoic Geodynamics through Hafnium isotope arrays

Supervisors: Prof. Bill Collins, Prof Zheng-Xiang Li, Prof. Alan Collins and Dr. Chris Spencer

Publications: Martin, E. L., Collins, W. J., and Kirkland, C. L., 2017, An Australian source for Pacific-Gondwanan zircons: Implications for the assembly of northeastern Gondwana: *Geology*, v. 45, no. 8, p. 699-702.

Conferences: 2017 Goldschmidt (Paris) -2016 Australian Earth Science Convention (Adelaide)

Links: https://www.researchgate.net/profile/Erin_Martin4