

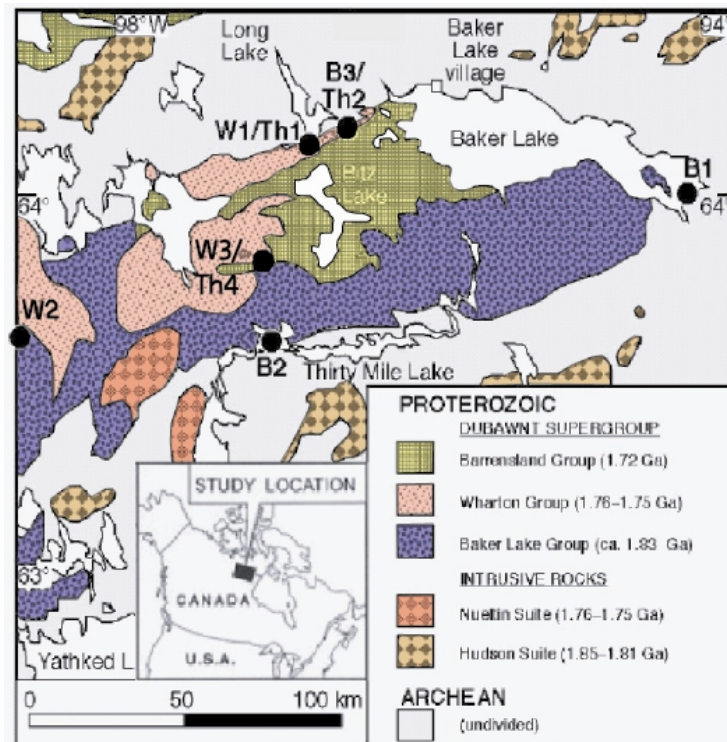
Reconstructing Nuna through in-depth study of the Dubawnt Supergroup, Baker Lake Basin, Nunavut, Canada

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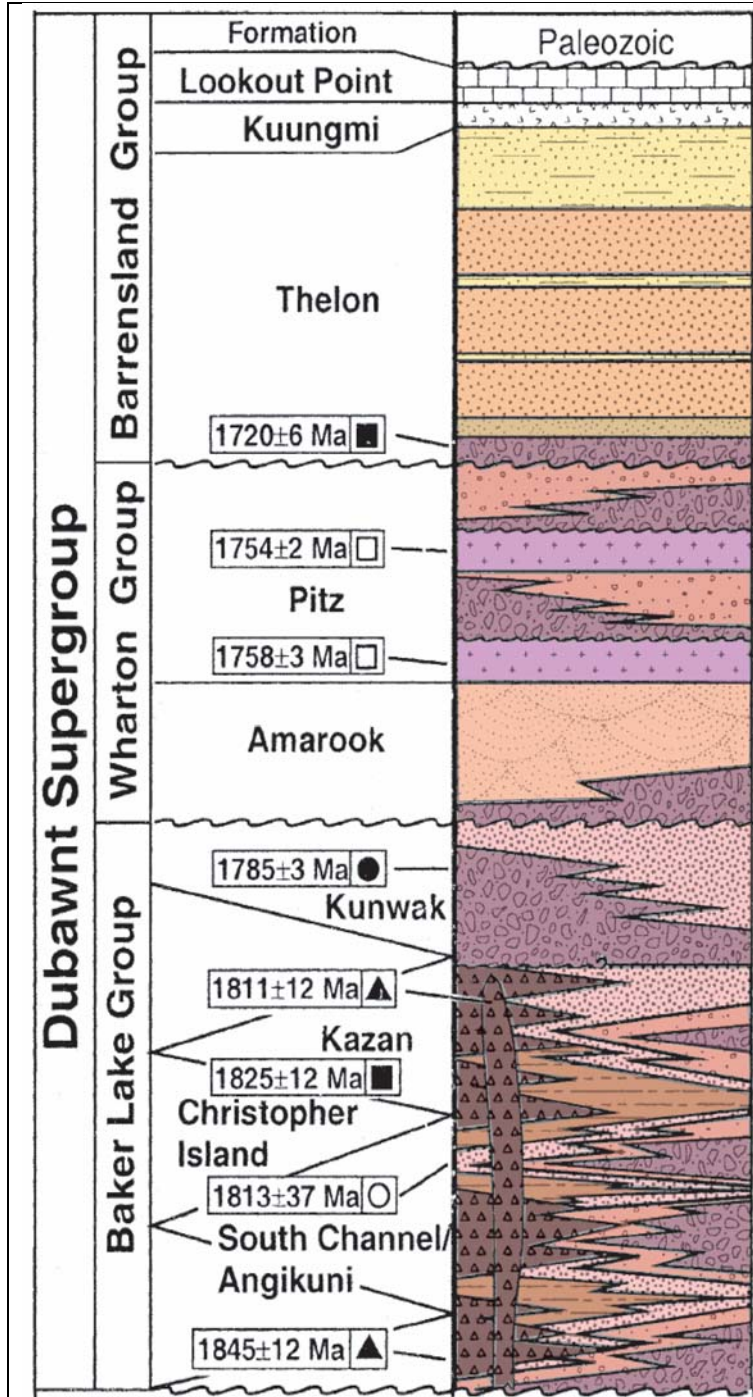
Creating paleogeographic reconstructions of Precambrian supercontinents using geologic piercing points alone provides non-unique solutions. Paleomagnetism is the only way to contribute quantitative data to Precambrian paleogeographic reconstructions with its true power coming not merely from single paleopole determinations, but from the creation of Apparent Polar Wander Paths using time-progressive sequences of paleopoles from individual continents.

Our goal was to create high resolution Apparent Polar Wander paths for Paleoproterozoic Laurentia and Australia, and in turn to use those APWP's to constrain reconstructions of Proterozoic supercontinents. This study involved critical reviews of the existing Paleoproterozoic paleomagnetic data from both continents, and field work to obtain additional poles and better constraints to the weak points in the dataset.

Under grant #0310922 from the National Science Foundation, we collected more than 1000 samples from the Dubawnt Supergroup, Baker Lake Basin, Nunavut, Canada. The Baker Lake Basin is a syn- to post-Trans Hudson Orogen redbed-rhyolite basin straddling the Snowbird Tectonic Zone, separating Laurentia's Archean Rae and northern Hearne cratons. Our samples span more than 100 myr of stratigraphy and represent dated volcanic units (eg., Pitz rhyolites of the Wharton Group, and Christopher Island Formation minette flows of the Baker Lake Group), associated conglomerates, and an assortment of sedimentary facies including widespread, hematitic sandstones of the Thelon Formation.



Dubawnt Supergroup sampling sites in the Baker Lake Basin, Nunavut, Canada.
B=Baker Lake Group site, W=Wharton Group Site, Th=Thelon Formation site



Thelon Formation:

- 5 sites, 40 samples
- 1 fold test, 1 baked contact test

Wharton Group:

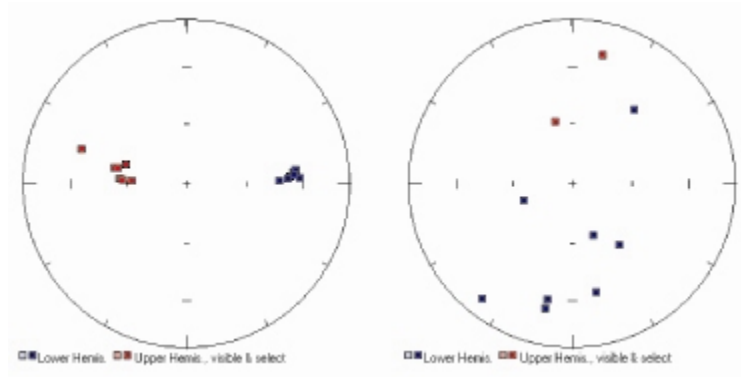
- 3 sections, 400 samples
- 4 conglomerate tests



Baker Lake Group:

- 8+ sections, 800 samples
- 2 conglomerate tests, 1 baked contact test
- Paleosol, conglomerate, and baked contact tests at basal unconformity of Dubawnt Supergroup

After Rainbird et al 2003



Opposite-polarity magnetizations from two Christopher Island Fm. minette flows.

Apparently scattered magnetizations from Christopher Island Fm. minette clasts.



Several two-polarity magnetizations of a variety of ages, supported by positive and negative conglomerate and baked contact tests, contribute to a prolonged history of Dubawnt magnetization. Our results will appear in a series of papers in late 2006 – early 2007.

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