# Continental fragments between cratons during supercontinent assembly; new views on the interactions of the Core Zone with the Saglek and Hopedale blocks during the Trans-Hudson orogeny, Quebec, Canada

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The southeastern Churchill Province of the Canadian Shield preserves interactions between the Archean Superior craton, the North Atlantic craton (containing the Archean Saglek and Hopedale blocks), and a composite continental fragment known as the Core Zone. The Torngat Orogen formed primarily between ca. 1.87–1.86 Ga as a result of orthogonal collision between the Core Zone and the North Atlantic Craton and contains granulite facies rocks representing an accretionary prism (Tasiuyak gneiss) and a crustal root of an arc terrane (Lac Lomier Complex). Subsequently, between ca. 1.83 and 1.79 Ga, the Core Zone/ North Atlantic Craton collage collided with the Superior Craton and its marginal supracrustal sequences (Labrador Trough) in an early westward thrusting event followed by dextral transpression, forming the New Quebec Orogen. The boundary between the Core Zone and the North Atlantic craton are in part obscured by the Mesoproterozoic Nain Plutonic Suite, but new work suggests that the large-scale Abloviak shear zone between them also represents the original suture during the Paleoproterozoic. New work will focus on documenting the extent of the Trans-Hudson thermal and deformational overprint in the North Atlantic craton to better constrain the kinematics of their original juxtaposition. The Core Zone has only recently been recognized as a composite terrane, containing Archean to earliest Paleoproterozoic crustal fragments that are distinctly different from one another. These fragments are now juxtaposed along broadly NNW-SSE trending anastomosing shear zones. The inter-shear crustal lenses, up to 100 km wide and hundreds of km long, show progressively less exhumation towards the south. The northern area adjacent to Ungava Bay contains granulite facies assemblages, whereas the central Core Zone contains lower-amphibolite facies assemblages, to greenschist facies in the far south. The ages of metamorphism also change systematically; the high-grade northern domains have a consistent 1.8 Ga Trans-Hudson-age metamorphic overprint, while the low-grade southern domains preserve metamorphism of 2.3 Ga. Here we present a model based on targeted field observations, large geophysical and structural datasets, together with the metamorphic analysis above, that suggests that oblique convergence between the NAC and Superior cratons resulted in the southerly (present-day coordinates) extrusion of the Core Zone through a network of anastomosing crustal-scale ductile shear zones that may also represent original sutures. Furthermore, the southerly-decreasing P-T conditions recorded in the inter-shear crustal blocks suggest a bulk component of top-down extensional shear to the south in a tectonic setting where the southern margin was open.

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