

## **EVOLUTION OF THE MAKKOVIK PROVINCE, LABRADOR, CANADA: TECTONIC PROCESSES DURING 200 Ma AT A PALEOPROTEROZOIC ACTIVE MARGIN**

CULSHAW, N., Department of Earth Sciences, Dalhousie University, Halifax, NS, B3H 3J5, Canada, [culshaw@dal.ca](mailto:culshaw@dal.ca),

KETCHUM, J., GEMOC, Dept. of Earth and Planetary Sciences, Macquarie University, NSW, 2109, Australia, and BARR, S.M., Dept. of Geology, Acadia University, Wolfville, NS, B4P 2R6, Canada

In the Makkovik Province of Labrador, structures, magmatism and sedimentation in the reworked southern edge of the Archean Nain craton (parautochthon) and an adjacent juvenile domain contain a more than ca. 200 Ma long record of processes at an active margin. The entire record may be interpreted consistently in terms of plate tectonic processes but, during the latest stages, lower crustal flow was probably also an important process - as, arguably, in other Proterozoic and Archean orogens. D1 marked collision of an inferred terrane with the parautochthon before ca. 1896 Ma. Thick- and thin-skinned structures formed in, respectively, the Archean parautochthon and sedimentary and mafic volcanic rift and drift and foredeep assemblages (ca. 2178-2013 Ma Post Hill and Moran Lake groups). Following terrane collision, subduction stepped back and flipped cratonward. D2 transpressive structures affected the entire parautochthon, thermally softened by emplacement of arc plutons of the ca. 1895 - 1870 Ma calc-alkaline Island Harbour Bay Plutonic Suite. Between ca. 1860 and 1850 Ma, bimodal volcanic and clastic rocks of the Aillik Group were deposited in a back-arc setting oceanward of the Island Harbour Bay Plutonic Suite. D3 transpressive inversion of the Aillik Group basin occurred sometime between 1850 and 1802 Ma. This phase may have been driven by accretion of an arc, the Cape Harrison Metamorphic Suite and broadly overlapped with ca. 1815-1780 Ma granitoid plutonism that was mostly contained in the juvenile terranes. D4 strike-slip shearing formed structures at the oceanward margin of the parautochthon and were responses to events in the active arc that was now widely separated from the parautochthon by accreted terranes. The tectonic isolation of the parautochthon ended by the time of D5 (ca. 1740 - 1700 Ma) with the reappearance across the orogen of A-type granite and low-grade shear zones. Low-dipping seismic reflectors in the mid- and lower crust are attributed to lower crustal flow initiated at this stage. These structures are not exposed at surface in Makkovik but are postulated to be equivalent to flat-lying high grade structures exposed in the formerly contiguous Ketilidian Mobile Belt of southern Greenland.