Geophysical Research Abstracts
Vol. 14, EGU2012-10473, 2012
EGU General Assembly 2012

Intercontinental interactions: Laurentian crustal pieces in the northern Scandinavian Celedonides

L. E. Augland (1), J.M. Prouty (2), F. Corfu (1), A. Andresen (1), N.Y. Agyei-Dwarko (1), and M.G. Steltenpohl (2)

(1) University of Oslo, Dept. of Geosciences, Oslo, Norway , (2) Department of Geology and Geograaphy, Auburn University, Auburn, USA

New field observations and geochronological data (ID-TIMS and SHRIMP) on different granitoid intrusives and their metasedimentary host rocks in the Bodø-Kjærringøy area, Northern Norway, show the presence of large Early Neoproterozoic plutons intruding just slightly older metasedimentary rocks. The Bratten-Landegode gneiss complex (B-LGC) and the Heggmo unit have traditionally been interpreted to represent two Baltican basement culminations ($\sim$ 1.8 Ga), but the new field observations and geochronological data show that they represent instead separate thrust sheets at the structurally highest tectonostratigraphic level (Uppermost Allochthon) in the Scandinavian Caledonides and that they are exotic elements. Neoproterozoic ages for magmatism in these two tectonic units range between $\sim$ 950 and 926 Ma. The metasedimentary host rocks in the Heggmo unit were deposited before $\sim$1050 Ma (youngest zircon) and prior to intrusion of the Tonian (950-920 Ma) granitoids, and we suggest a correlation between these metasedimentary rocks and similar rocks in the B-LGC. The B-LGC was migmatised in the Late Ordovician ($\sim$450 Ma) and later intruded by pegmatites and diorite sheets at $\sim$433 and 428 Ma, respectively. The Ordovician migmatisation event has not been observed in the Heggmo unit, where $\sim$430 Ma migmatisation is documented. However, in the Heggmo unit the 450 Ma event may be masked by the 430 Ma event. A two-mica leucogranite in this unit that is apparently associated with migmatisation is dated to $\sim$430 Ma.

The B-LGC and the Heggmo unit show one-to-one correlations in ages with Mesoproterozoic to Neoproterozoic rock complexes from the southern segment of the East Greenland Caledonides. The discovery of Laurentian pre-Caledonian continental crust in the Uppermost Allochthon of the Scandinavian Caledonides not only calls for a revision of the tectonostratigraphy of this part of the Caledonides, but gives important constraints on the sequence of events on the northeastern Laurentian continent prior to continent-continent collision between Baltica and Laurentia, as well as on interactions and displacements between the two continents during the Scandian phase of the Caledonian orogeny.