Geophysical Research Abstracts
Vol. 14, EGU2012-13733, 2012
EGU General Assembly 2012

The Beiarn Nappe (Uppermost Allochthon) revisited

R. Rutland (1)

(1) Australian National University, Research School of Earth Sciences, Canberra, Australia (roye.rutland@anu.edu.au), (2) Australian National University, Research School of Earth Sciences, Canberra, Australia (Ian .Williams@anu.edu.au, (3) Norwegian Geological Survey, Trondheim, Norway (Arne.Solli@NGU.No)

The Beiarn Nappe (Uppermost Allochthon) revisited

The processes by which the nappes of the Uppermost Allochthon were detached from their supposed Laurentian roots and translated to the margin of Baltica remain obscure. The present study is part of a project aimed at a fuller 'deconstruction' or 'retrodeformation' of the tectonic history back to the earliest events in Nordland, Norway.

The Beiarn Nappe was first recognised in the 1950's and has since been incorporated into various definitions of the Uppermost Allochthon. We now recognise three distinct first-order nappe units, each with its own distinctive areal distribution, detrital zircon pattern and igneous and metamorphic history.

In this contribution we report some hitherto unrecognised features of the highest complex, the Beiarn nappe itself, based on new field and and SIMS(SHRIMP) studies.

The base of the nappe is defined by a very strong deformation zone which cuts across structures in the underlying, lower grade, Nappe complex. The basal schists and gneisses in the west are older than magmatic components dated at 0.94Ga. A rare quartzite unit within the basal metasediments carries a distinctive detrital zircon signature with an absence of grains younger than 0.95 Ga. There is a preponderance of grains between 0.95 Ga and 1.55 Ga, with a main peak at 1.1 Ga and subsidiary peaks at 1.3 and 1.5 Ga.

The strongest phase of deformation post-dates granitoid gneiss layers in the lower part of the nappe complex in the east, dated at 494 +/-4 Ma (latest Cambrian). Younger granitoids dated at ca. 430 Ma are a major component of the upper part of the Beiarn nappe, dominated by marbles, and appear to post-date nappe emplacement.

These data are being incorporated into a re-evaluation of the Beiarn nappe, and underlying nappe units, in relation to the basal gneiss complexes in Nordland. Detrital zircon samples have been analysed to assess the variation both within and between nappes. This study will contribute to correlation with other elements of the Uppermost Allochthon to north and south. It will also complement a major detrital zircon study of the underlying nappe complexes in Sweden by other workers along the Silvervagen transect.