Geophysical Research Abstracts
Vol. 14, EGU2012-2036-1, 2012
EGU General Assembly 2012

Evidence for hyper - extension in the Pre-Caledonian continental margin of Baltica

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Solitary mantle peridotite, associated detrital serpentinites, minor metabasalts and gabbros as well as deep basin sediments are inter-layered and imbricated with allochthonous coarse-grained siliclastic metasediments and slivers of Proterozoic basement below the large Middle Allochthon crystalline nappes in the southwest Scandinavian Caledonides. The siliclastic sediments have provenance in Proterozoic rocks similar to those found in the large crystalline nappes and in the autochthonous basement of Baltica. We suggest that this mantle-peridotite bearing mélange unit, which has been mapped for more than 400 km in southern Norway, represents vestiges of deep basin(s) formed by hyper-extension of Baltica during the inception of the Caledonian Wilson cycle. Regional maps show that the mélange continues into the central Scandinavian Caledonides and that this basin assemblage therefore may have had a much large geographical distribution. We suggest that this unit represents an ancient Palaeozoic analogue similar to the hyper-extended Tethyan margin complexes recently described from the Alps, the Pyrenees and from several segments of the present-day passive ocean margins. The new model suggests that major re-interpretation of the Lower and Middle Allochthons of the tectono-stratigraphy in the Scandinavian Caledonides is required.