ICAM8 Abstracts

Arctic foreland fold & thrust belts & foreland basins

The Caledonian Deformation Front beneath the Barents-Kara Shelf

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The Caledonides in Scandinavia (58-71 N) provide unambiguous evidence of vast distances of nappe displacement from WNW to ESE onto the Baltoscandian platform of continent Baltica. The thrust sheets are very thin (up to a few km). Geophysical data, particularly magnetic anomalies, along the entire Caledonian front in Scandinavia, characterize the Precambrian crystalline basement; they can be followed from beneath the thrust front of the orogen at least 100 (in places 200) km into the hinterland, their signatures being little disturbed by the Caledonian nappes.

The Caledonian thrust front strikes NE-wards, out into the Barents shelf, overriding the NW-SE-trending Trollfjorden-Komagelva fault zone -- the deformation front of the late Neoproterozoic Timanide Orogen. The Caledonian thrust sheets, perhaps including deformed Devonian foreland basin molasse, are covered by thick latest Palaeozoic and younger formations. Farther west, a Caledonian suture(s) separates the characteristic Laurentian margin lithologies on Svalbard and Bear Island from the Timanian lithologies and structure of northwesternmost Russia. Thus, the character of the magnetic (and perhaps other) anomalies of the Barents shelf may well be truncated by Caledonian sutures, but are unlikely to be influenced by the thin Caledonian allochthons. Interpretations of where the Caledonian deformation front is located beneath the Barents-Kara shelf, reaching from northern Norway to Severnaya Zemlya, should be based on the exposed geology and drillhole data, e.g. on Franz Josef Land (Knudsen et al, this meeting).