



## **Paleomagnetic studies on the Mesoproterozoic dykes in Central Sweden: preliminary results**

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A paleomagnetic and anisotropy of magnetic susceptibility (AMS) study has been performed on dolerite dykes and sills of Dalarna in the Fennoscandian Shield. About 100 oriented samples were collected in 7 localities. Three dykes were sampled in northern Dalarna at Gallsjon (3 localities), Bunkris and Glysjon. These dykes have yielded identical U-Pb baddeleyite ages in the range 1461-1462 Ma (Soderlund et al., 2005). In southern Dalarna, dykes of the Tuna dolerites and the associated Gustafs porphyries were sampled (2 localities). One dyke of the Gustafs porphyrites has been dated at 1475 $\pm$ 4 Ma (U-Pb zircon, Lundstrom et al., 2002). About 10 to 20 oriented samples were collected from each dyke and about 5-10 samples from the host granites at each locality.

Remanence measurements were performed using a 2G cryogenic magnetometer (Paleomagnetic Laboratory of Lund University). Both alternating field and thermal demagnetizations were conducted. All samples carry three remanence components. The low 'L' coercivity component destroyed at 250-300C and <20 mT, the intermediate 'I' coercivity component has Tub up to 380-440C and coercivities 20-40mT and the high 'H' coercivity component has Tub up to 590C and coercivity >>90mT. The 'L' component is of single polarity and is directed to the northeast with shallow positive (downwards) inclination. A similar remanence component pointing northeast and slightly downwards was identified also in the granites, taken from baked contact zones to the dykes. Based on this negative baked contact test we argue in favour of a secondary origin for the 'L' component. Mean direction of this component correspond to the Early Mesozoic part of APWP of Baltica (Smethurst et al., 1998). The 'I' component is of dual polarity and is directed to the northwest with negative (upwards)

inclination. Mean direction of this component is close to the Sveconorwegian direction of EEC (Buchan et al., 2000). The 'H' component is directed to the northeast with negative (upwards) inclination. It is demagnetized between 380C (40mT) and 590C (120mT). Granite samples in the contact zone have a similar remanence direction as the dykes, but samples ca. 2-5 meters from the contact demonstrate a northwest-directed upward direction. We argue that the 'H' component in the dykes is primary, based on the positive contact test.

The new paleomagnetic poles, recalculated for 7 sites (Lat=11.2 Long=183.1  $dp=3.4$   $dm=6.3$ ) plot in a tight cluster and well correlate with the Mesoproterozoic pole for the Lake Ladoga region and previous paleomagnetic data for this generation of dykes (Bylund et al., 1992).

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