

The Neoproterozoic Skjoldungen orogeny - a continent-continent collision orogeny?

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The Skjoldungen region in South-East Greenland is dominated by granites and granitic gneisses with abundant inclusions of mafic and ultramafic composition. Isolated narrow 'supracrustal belts' of mafic to ultramafic composition and rare paragneisses are considered relicts of an older basement (Kolb et al. 2013). The Skjoldungen Alkaline Province (SAP) constitutes a number of post- to syn-tectonic mafic, ultramafic to more differentiated alkaline intrusions aligned in a WNW-ESE oriented belt (Blichert-Toft et al. 1995).

We present combined U/Pb, Hf and O isotope data together with a larger regional chronological and geochemical dataset. The geochronological data indicates that large parts of the basement formed in a period between 2700 and 2750 Ma. This period includes the intrusion of the granite and gneiss protoliths of the agmatitic basement, and alkaline intrusions of the SAP. Some of the reworked basement granites, often leuco-granites with positive Eu anomalies, have elevated $\delta^{18}\text{O}$ values suggesting sedimentary input. Zircon inheritance suggest a division of the region into a southern Eo- to Mesoarchaeoan and a northern mainly Mesoarchaeoan terrane. The boundary between the postulated terranes seems delineated by the belt of SAP intrusions, which might reflect subduction related mantle derived melts. Overall the geological setting resembles a continent-continent orogeny.

[1] Blichert-Toft *et al* (1995). *J.Pet.* **36**, 515–561. [2] Kolb *et al* (2013). *Gondwana Res.* **23**, 471–492.