

5.0.P13**Al rich high grade orthopyroxene**M.D. LUND AND T. BALIC-ZUNIC

University of Copenhagen, Denmark
(lm020278@geo.geol.ku.dk)

Ultra high grade metamorphic granulite facies rocks often contain the characteristic aluminous orthopyroxene. Compared to existing structural analyses of aluminous orthopyroxenes ultra high grade granulite orthopyroxenes evidence exceptionally high Al content, why a full structural analysis of high Al-orthopyroxene would be very interesting.

Two orthopyroxene minerals from felsic granulites from Tonagh Island, Napier Complex, East Antarctica, were analysed by single crystal X-ray diffraction to investigate the role of Al in the orthopyroxene structure and the results were compared with earlier studies of orthopyroxene with lower Al-content.

The analyses were performed by structure refinement, bond valence considerations and chemical analyses. High Al-orthopyroxene (Al = 9wt%) evidences similar distribution character as former low Al orthopyroxene in which octahedral Al concentrated in M1 site and tetrahedral Al concentrated in TB site. The structure data shows that simple assumption of half of the Al atoms distributed in octahedral sites in accordance with ideal Tschermak substitution model can sometimes be erroneous due to unequal distribution of Al over the tetrahedral and octahedral sites (e.g. in presence of other trivalent cations).

5.0.P14**Sm-Nd and Lu-Hf dating peak metamorphic assemblages in the Sveconorwegian orogeny**E. AUSTIN HEGARDT¹ AND R. ANCKIEWICZ²

¹Earth Sciences Centre, Göteborg University, Box 460, SE-405 30 Göteborg, Sweden (eric@gvc.gu.se)

²Dept. of Geology, RHUL, Egham, Surrey TW200EX, UK

Lu-Hf and Sm-Nd dating of garnet and hornblende was done on three garnetiferous amphibolite samples from the Eastern and Western Segments in the Swedish part of the Sveconorwegian Province. The Eastern and Western Segments are divided by the Mylonite Zone, a major shear zone separating greenschist to amphibolite facies rocks in the west from high-pressure granulite- and relict eclogite rocks in the west. This work aimed to establish whether the two segments experienced metamorphism at the same time. Garnets from samples DC0201 and EAH0103 were leached in HF and leachate, residue and an unleached fraction were analysed. Garnets from sample EAH0306 were divided into two fractions, both leached in sulphuric acid. Sm-Nd results from the Eastern Segment sample DC0201 gave an isochron of 962.7 ± 8.3 Ma using hornblende and the three garnet fractions. Western Segment sample EAH0103 gave a Sm-Nd isochron age of 1029.3 ± 5.9 Ma using only the three garnet fractions. Western Segment sample EAH0306 gave a Lu-Hf age of 1033 ± 10 Ma, isochron based on hornblende and the most radiogenic garnet fraction. These new results confirm previous U-Pb zircon work in the area and establish a clear >60 Ma difference in metamorphic age between the Eastern and Western Segments.