



## **New data of the Permian HT/LP metamorphic event in the Eastern Alps: An application of garnet isopleth geothermobarometry**

**F. Gaidies** (1), R. Abart (2), C. de Capitani (1), J. A. D. Connolly (3) and R. Schuster (4)

(1) Institute of Mineralogy and Petrography, University of Basel, Switzerland, (2) Institute of Geological Sciences, Free University of Berlin, Germany, (3) Earth Sciences Department, Swiss Federal Institute of Technology, Zurich, Switzerland, (4) Geological Survey of Austria, Vienna, Austria

(Fred.Gaidies@unibas.ch)

The Rappold Unit and the Wölz Unit belong to the Austroalpine Basement and are located in the Wölz Tauern, east of the Tauern Window. Both units mainly consist of amphibolites, marbles, and micaschists. The latter frequently contain garnets with two distinct growth zones represented by garnet cores and rims. Garnet cores and rims differ in terms of chemical composition, mineral inclusions and the inclusion fabric. Age and P-T determinations for the garnet cores are rare. They indicate high temperature - low pressure conditions during a Permian event for the Wölz and Barrow-type conditions during a Carboniferous (Variscan) event for the Rappold Unit.

We use garnet isopleth geothermobarometry to estimate the P-T conditions for the initial stages of garnet growth. This could help to overcome the lack of geochronological data by using an indirect approach, which discriminates between Permian and Variscan events based on differences in the geothermal history.

Preliminary results yield about  $540^{\circ}\text{C} \pm 15 \text{ K}$  and  $4 \pm 0.5 \text{ kbar}$  for the garnet cores of the Wölz Unit and thus confirm the assumed HT/LP conditions of the Permian metamorphic event. Temperatures and pressures of about  $525^{\circ}\text{C} \pm 10 \text{ K}$  and  $5.25 \pm 0.25 \text{ kbar}$  for selected garnets of the Rappold Unit were modelled. This fits well with the Barrowian type P-T path of the Variscan orogeny.