Structural investigations of the W termination of the 'Schneeberg Zug' — Austroalpine Unit, Southern Tyrol: Results from a crustal scale shear zone. *Poster*

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The Austroalpine microplate traces the Alpine collision event between the Africa-related southern Alpine realm and the European continent. The southern margin of this microplate, the basement to the north of Meran (including Texel unit and Schneeberg Zug) is characterized by regional eo-Alpine high-pressure metamorphism (Hoinkes & Thöni, 1987). PT conditions decrease from SE (Texel unit) to the pre-alpine basement in the NW.

The HP Rocks were exhumed within a ca. 15 km broad SW-NE-striking, NW-dipping high strain zone (Sölva et al. 2001). The high-pressure Texel crystalline is tectonically underlain by the Campo unit in the south and overlain by the Ötztal-Stubai Basement in the north(west). The Schneeberg Zug forms an up to 5 km thick shear zone at its base, representing the study area. It shows normal-sense kinematics and separates pre-Alpine basement rocks in the hanging wall from high-pressure rocks in the footwall, the Texel unit. These were emplaced on top of pre-Alpine basement rocks (Campo unit) by an eo-Alpine ductile thrust.

Lithologically the western termination of the Schneeberg Zug comprises characteristic garnet micaschists, marble layers, amphibolites, quartzites, hornblende-garben-schists and calc-schists. These lithologies are called *Bunte Serie* (Mauracher, 1981) and differ from the polyphase adjacent Texel unit and the polymetamorphic basement rocks in the hanging wall due to their lithological content and their monometamorphic evolution.

Petrological and geochronological investigations on the eastern continuation of these characteristic metapelitic rocks evidence the time of garnet growth during D_1 close to the Cretaceous pressure peak. Sm-Nd isochron data of these continuously zoned garnets yielded crystallization ages between 90 and 95 Ma.

Preliminary structural investigations yielded four major deformation events: D_1 produced a compositional layering and a mylonitic foliation; generally this ductile deformation in the northwestern portion of the Schneeberg Zug is characterized by contemporaneous shearing and folding forming isoclinal folds with axes oriented parallel to the NW–SE plunging stretching lineation. Deformation stage D_2 formed tight folds with steep NW to WSW plunging axes and NW to W dipping axial planes, which refold the D_1 related structures. Deformation stage D_3 is characterized by a crenulation with NW-plunging axes and NW-dipping axial planes. Lower greenschist-facies shear-zones dipping to the W and with shear sense top to W–WNW represent the last ductile event. They crosscut the older structural inventory. Brittle deformation evidences normal faulting reactivating the NW dipping main foliation as well as related dextral strike slip movement.

Geochronological data and structural investigations indicate a continuous eo-Alpine tectono-metamorphic evolution,

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which started at high grade conditions homogenously distributed over the whole shear zone. With decreasing temperature conditions the deformation progressively partitioned into distinct shear zones.

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