Geophysical Research Abstracts
Vol. 14, EGU2012-7378, 2012
EGU General Assembly 2012

Microfabrics and textures of the Rechnitz window, Eastern Alps

S. Cao (1), F. Neubauer (1), J. Liu (2), and J. Genser (1)

(1) Dept. Geography and Geology, University of Salzburg, Hellbrunner Str. 34, A-5020 Salzburg (shuyun.cao@sbg.ac.at), (2) State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Xueyuan Rd. 29, Haidian, Beijing

The fabrics of metamorphic core complexes are characterized by the interplay between competing deformation and annealing by waning metamorphism on the one hand and by simple shear along upper margins vs. pure shear in the interior on the other hand. Here, we describe the microfabrics and textures of the Rechnitz window, which is actually a metamorphic core complex (MCC) located at the transition between Eastern Alps and the Pannonian basin. Particular features include the facts that (1) the Rechnitz MCC is nearly fully located within contemporaneous sediments of the Pannonian basin and (2) it never exceeded temperatures more than ca. 430°C. The latter feature allows full preservation of early-stage structures and textures in the interior of the MCC.
The internal structure of the Rechnitz window characterized by the following succession of structure-forming events: (1) blueschist relics formed due to subduction, (2) ductile nappe stacking of an ophiolite nappe over a distant passive margin succession (with dominant ca. E-W oriented stretching lineation), (3) greenschist facies metamorphic annealing dominant in the lower unit, and (4) ductile low-angle normal faulting (with mainly NE-SW oriented stretching lineation), which resulted in dominant pure shear fabrics in the interior and simple shear fabrics along margins.
We investigated microfabrics and textures from samples, which are mostly related to ductile nappe stacking respectively to ductile low-angle normal faulting. We performed texture analysis by EBSD (Electron backscatter diffraction). Textures of calcite show monoclinic symmetry in the marble consistent with the observed grain fabric symmetry and related to a simple shear strain path during the late stage low-angle normal faulting. Quartz-rich rocks still preserve in part fabrics related to ductile thrusting at the boundary of the lower to upper units.