

## POLYPHASE DEFORMATION IN THE EASTERN GREYWACKE ZONE

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The Eastern Greywacke Zone (GWZ) between Bruck / Mur and Gloggnitz is an imbricate structure of four major tectonic units resting on the Troiseck-Floning complex. From tectonic footwall to hangingwall these tectonic units are the Veitsch Nappe, Silbersberg Nappe, Kaintaleck Nappe and Noric nappe. All of them contain late Paleozoic to Permo-Mesozoic sediments. The southern boundary of the GWZ is a steep belt where individual nappes have thicknesses of few meters to some hundred meters. By contrast the thick hangingwall Noric Tirolic nappe is an imbricated thrust and fold belt with three major thrusts mapped in the study area (Hinterhofgraben, Rotsohlgraben). These thrusts are the Scheickl Thrust, the Rotsohl Thrust and a frontal imbricate zone at Aschbach. Early formed higher temperature structures appear dominantly in the south of the profile and include subgrain rotation and grain boundary migration deformation mechanism. Shear sense derived from microstructures and quartz C-axes pattern which display combination of basal C <a> and prism <a> glide show top to the SW sense of shear with a local component of strike slip. In general, coaxiality of flow increases northwards. This higher temperature fabric is overprinted and incorporated into a brittle fold-and-thrust belt. This deformation might have re-oriented earlier formed fabrics. Brittle thrust fabrics show general northward displacement whereas individual thrusts propagated to high crustal levels. Localized W-E and N-S strike slip zone overprinted the thrust related fabrics. Considering that available geochronological data that show general cooling of the upper Austroalpine nappes was in the range between ca. 130-100 Ma we speculate that the early formed higher temperature fabric evolved during nappe stacking prior to the well-known eo-Alpine event. Brittle thrusting includes in-sequence and out-of-sequence thrusts and likely occurred prior to deposition of Gosau sediments that are incorporated into W-E strike slip zones nearby the study area. Profile restoration on over-regional scale is constrained by zircon age data from Permo-Mesozoic sedimentary units. This allows palinspastic restoration of tectonic units previous to Alpine nappe stacking.