Quartäre Kiese waren in den bearbeiteten Gebieten nur lokal und untergeordnet vorhanden, stellenweise zeigten sie Kryoturbationen. Häufig waren quartär aufgearbeitete neogene Sedimente zu beobachten, welche z. T. als Rinnen in neogenen Untergrund sedimentiert wurden.
Aus dem Neogen sind Sedimente des Sarmat und des Pannon aufgeschlossen. Dabei handelt es sich um Tone, Mergel, Schluffe-Sande, sowie Kies, teilweise sind diese Sedimente stark fossilführend und somit stratigraphisch gut einzustufen.
Im Tunnel Tradenberg der S1 wird ein Hügelrücken durchörtert, der aus Rhenodanubischem Flysch besteht. Sowohl an den Tunnelportalen, als auch in den Vortrieben kann man eine Wechselfolge aus Tonen, Mergel und Kalksandsteinen beobachten. Da nur zeitweise größere Sandsteinrippen auftreten, werden beide Tunnelröhren fast ausschließlich mit dem Bagger vorgetrieben. Untersuchungen des kalkigen Nannoplankton an Proben aus den Tunnelvortrieben ergaben ein paleozänes Alter: Danian-Nannoplanktonzonen NP 2/3.
W des Tunnels Tradenberg durchquert die S1 das Korneuburger Becken. Im E können zunächst Mergel-Sand-Abfolgen mit Flyschgeröllen beobachtet werden, wobei es sich möglicherweise um Ablagerungen des Eggenburg - Ottnang handelt. Gegen W zu sind Wechselfolgen von Ton, Mergel und Sand aufgeschlossen, sowie eine geringmächtige Kieslage mit großen Bruchstücken von Ostrea. Diese Sedimente sind dem Karpat zuzuordnen. N Korneuburg verläuft die Trasse der S1 in mehreren Metern mächtigen quartären Donaukiesen.
Entlang von Baustellenböschungen wird immer wieder das Problem der Standfestigkeit der neogenen und quartären Lockergesteine deutlich, kleine, aber eindrucksvolle Rutschungen treten auf. Auch Zeugen von junger Tektonik sieht man an Aufschlüssen mit Verstellungen der jungen Sedimente.

Thermal evolution of hanging wall units above decompressed metamorphic rocks of the Eastern Alps

Rantitsch, G.[1] & Judik, K.[2]

Department of Applied Geosciences and Geophysics, University of Leoben, Austria; Laboratory for Geochemical Re-search. Hungarian Academy of Science, Budapest; gerd.rantitsch@unileoben.ac.at, judik@geochem.hu

The orogenic evolution of the Eastern Alps was driven by two collisional events that occurred during Cretaceous and Paleogene times. Both events were followed by orogen-parallel extension which resulted in the exhumation of deeper crustal rocks to higher crustal levels. In this contribution, the thermal evolution of hanging wall units above decompressed metamorphic rocks is examined by organic metamorphic data and thermal modelling in the Greywacke Zone and the Graz Paleozoic Nappe Complex, demonstrating the impor-tance of advective heat transfer and convective fluid circulation during both extensional events (Rantitsch et al. 2004, 2005).
The low-grade metamorphic rocks of the western Greywacke Zone are separated from for-merly deeply buried rocks of the low- to high grade metamorphic Penninic Tauern Window by the sinistral transpressional Salzachtal-Ennstal Fault Zone. In a N-S section, $^{40}Ar/^{39}Ar$ age data from fine fractions decrease from 113-120 Ma (Frank & Schlager 2005) in the Mesozoic cover of the Greywacke Zone (Northern Calcareous Alps) to 90-115 Ma in the Greywacke Zone (Urbanek et al. 2002, Schmidlechner et al. 2006) and 28-35 Ma at the northern margin of the Tauern Window (Urbanek et al. 2002, Ratschbacher et al. 2004). This indicates a dominant Cretaceous tectono-metamorphic overprint of the Greywacke Zone (Frank & Schlager 2005, Schmidlechner et al. 2006) which was succeeded by a local latest Eocene/Oligocene heating of the contact between the Greywacke Zone and the Tauern Window.
In the western Greywacke Zone, Kübler-Index data demonstrates that the zone of influence of the Paleogene event cannot be mapped by conventional metamorphic studies. However, the application of the „Raman spectroscopy of carbonaceous material thermometer“ identifies a narrow zone along the Salzachtal-Ennstal Fault Zone as a thermal aureole with peak metamorphic temperatures close to 400°C, resembling the metamorphic temperatures at the northern margin of the Tauern Window (Frank et al. 1987). This pattern is explained by an Oligocene to Miocene thermal pulse, related to the isothermal exhumation of formerly deeply buried rocks of the Penninic Unit. During this event, advective heat transport and circulating fluids overprinted the Cretaceous higher anchi- to lower epizonal metamorphic pattern of the Greywacke Zone.

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Quantitative analysis of deformation bands in porous sediments in the Eisenstadt Basin, Austria

Rath, A.[1], Laner, R.[1], Exner, U.[1], Grasemann, B.[1], Philippovich, N.[2] & Kerschner, F.[2]

[1]Department of Geodynamics and Sedimentology, University of Vienna; [2]OMV, LEP-FC, Gerasdorferstrasse 151, 1210 Vienna, Austria; alex.rath@blackbox.net, richi.laner@gmail.com, ulrike.exner@univie.ac.at, bernhard.grasemann@univie.ac.at, nikolaus.philippovich@omv.com, frederik.kerschner@omv.com

In contrast to frictional faults and cataclasites in solid rocks, sediments with little or no diagenetic consolidation and high porosity develop deformation band type faults. Generally, deformation bands often form in well sorted fine to medium-grained sands before major porosity loss during diagenesis.
These deformation structures were studied in two different quarries in the Eisenstadt Basin, Burgenland, Austria. The first one is located at the eastern rim of the Eisenstadt Basin, where deformation bands were found in Neogene (Badenian) calcarenites of the Leithakalk formation in the quarry Hummel near St. Margarethen. The second quarry is located at the northern margin of the Eisenstadt Basin, in a gravel pit near St. Georgen, where deformation bands crosscut terrigeneous sands and gravels (Badenian, Burgstall Schotter). Due to the properties of the two rock types in these outcrops, the deformation bands show remarkably different characteristics.
In the first locality near St. Margarethen, the Badenian Leithakalk mainly comprises bioclasts dominated by corallinacea debris and foraminifera, and is characterized by a high primary porosity, rather poor sorting and generally a medium grade of cementation. Within the deformation bands, the primary porosity of around 25% is reduced to ca. 1%, without any observable cataclastic grain size reduction. Measurements of the permeability within and outside the deformation bands revealed a complete reduction of the permeability (~0-10 mDarcy) in the deformation bands,