along the Pustertal-Gailtal fault as part of Miocene lateral extrusion. The last stage of significant brittle deformation is characterized by a sinistral reactivation of the Iseltal fault due to E-W compression, which can be correlated with the Late Miocene stress inversion in the Alpine-Carpathian region (Peresson & Decker 1997).
The described structural features characterize the deformational evolution from Oligocene sinistral kinematics of the DAV fault to Miocene dextral kinematics along the Pustertal-Gailtal fault, and may help to understand the processes related with the switch from Oligocene to Miocene kinematics in the Eastern Alps.

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Structural correlation between the Northern Calcareous Alps (Austria) and the Transdanubian Central Range (Hungary) and its hydrocarbon potential.

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In the East Alpine-Pannonian transitional area significant amount of syn-rift extension occurred during the Middle Miocene. In the Rába River extensional corridor a metamorphic core complex-style extensional period was shortly followed by and partly overlapped with a wide rift-style one. Based on the correlation of Eoalpine (Cretaceous) structural markers, about 80 km of ENE-WSW-directed extension can be documented for metamorphic core complex-style extension. The magnitude of later wide-rift-style extension in a NW-SE direction is less constrained, but it is on the order of tens of kilometers (>40 km) based on cross-sectional balancing efforts. These findings have an important corollary for the relative, pre-extensional position of the Northern Calcareous Alps (NCA) and the Transdanubian Central Range (TCR). Taking also into account the displacement on Miocene strike-slip faults in the NCA, e.g. the Salzach-Ennstal-Mariazell-Puchberg fault with a sinistral displacement of about 60 km, the restoration of Neoalpine deformation brings the NCA and the TCR unexpectedly close. In fact, some WNW-trending right-lateral strike-slip faults in the TCR are interpreted to be analogous to those described from the NCA. These Cretaceous tear faults were reactivated during the Late Miocene as it can be documented by reflection seismic data in the subsurface of the Danube Basin. The structural correlation between the NCA and TCR based on the characteristic fault pattern provides evidence for contiguous Triassic to Cretaeous carbonate platform which is in its recent separated position hydrocarbon productive in its eastern part, that is covered by Neogene sediments (Vienna basin, Pannonian Basin). The western NCA mountain chain remains a frontier area for hydrocarbon exploration.

Hydrogeology of the Hartkirchen protection area in the southern Eferding Basin (Upper Austria)

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The southern Eferding Basin comprises two major rivers, the River Danube, and the River Aschach, which joins the River Danube from the west. The hydrogeologic diploma thesis (Loidl 2007) resulted from a project of the State Government of Upper Austria, which was conducted at the Technical Bureau Moser & Jaritz in Gmunden 2004-2007. The project aimed at compiling the geology and hydrogeology, and in particular investigating the geohydrologic and geohydraulic situation south of the village Aschach. The purpose of the project was to assess conflicts between the further extension of gravel mining by wet excavation and the yield of bank filtration for drinking water west of River Danube. The Eferding Basin belongs to the Molasse Zone and consists of Miocene deposits, the so-called Schlier. Pleistocene fluvial deposits of the Paleo-Danube filled an erosional relief in the Schlier basement up to 5-15 metres. Borehole drilling and multigeoelectric resistivity profiles revealed the sediment distribution and geometry of this porous aquifer along the Danube River. Precipitation is about 800 mm/year, in total about 300-400 l/s of groundwater discharge the southern Eferding Basin and a consensus for the use of about 140 litres/s has been committed. Groundwater isolines were interpolated from 51 wells for high and low groundwater situations and the groundwater balance was calculated. Pumping tests were performed in two testing wells yielding k_f values of about 5.10^{-3} m/s and a medium transmissivity of 0.08 m^2/s. From a monitoring program of in total 30 wells hydrochemistry from 19 wells was compared to River Danube and River Aschach. In addition ^{18}O content of 21 samples from wells in the vicinity of the Danube River was interpreted. The study of the southern Eferding Basin revealed two hydrogeologic provinces, namely the groundwater body of the River Aschach and the groundwater body of the River Danube. South of the village Aschach a long retaining wall paralleling the Danube isolated the groundwater body from the River Danube itself. The groundwater system of the western part of the Danube floodplain receives influx from the western and northern slopes of the basin as well as local bank filtration water of the River Aschach. The groundwater of the eastern part of the Danube floodplain, north of and close to the retaining wall, is a mixture of bank filtration water of the River Danube, local groundwater and groundwater of the western Danube floodplain. Because the monitoring program for the differentiation of these two local groundwater bodies only lasted for one hydrologic year, we cannot give evidence for dynamic processes of mixing of these two groundwater systems.

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