and the Northern Alpine Forelands are stable too. In the Southeast a region is moving from the Adriatic Sea to the Pannonian Basin with 2-3 mm/year. A smaller movement of 1-2 mm/year is recognized along the Danube valley towards the Pannonian Basin. More uncertain, because of only few stations, is the 1-2 mm/year eastern movement in the region where the Tauern Window is usually placed. The value increases from West to East. Unfortunately 2-3 stations of this region seem to have local movements of 4-7 mm/year which are clearly not representative. The analysis centre OLG does not only consider the Eastern Alps; but also the surrounding regions. The Central European Geodynamic Research Project (CERGOP) maintains a network (spacing about 100 km) which is observed since 1994. Additionally a permanent analysis of the GNSS stations in the Eastern Mediterranean and around the Arabian Plate tries to refine the location of the plate boundaries between Eurasia, Anatolia, Arabia, India, Nubia and Somalia plus their transition zones. All these results should contribute to a future European Velocity field.

The Moslavacka Gora Massif in Croatia

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The Moslavaèka Gora Massif is located about 50 km east-southeast of Zagreb and represents one of the major outcrops of crystalline basement within the Tertiary sediments of the Pannonian basin (PAMIC et al. 2002). The central part of the massif is built up of fine grained, mostly undeformed granite (Pleterac granite). The peripheral parts are dominated by metamorphic rocks. They include coarse and fine grained migmatitic metagranites (Jelen-grad, Gariæ-grad metagranite) as well as minor occurrences of amphibolites and metapelites.

The Moslavaèka Gora Massif has been considered as a major outcrop of Variscan crystalline basement of the south Tisia block. However, electron-microprobe-based Th-U-Pb dating on monazites from the granitic as well as the metamorphic rocks provide almost exclusively Cretaceous ages. Just in one sample of a metapelite, relics of monazites with a Permian age were found (STARIJAŠ et al. 2006). LA-ICP-MS U-Pb dating of zircons gave Lower Ordovician formation ages for the metagranitic rocks (Gariæ-grad metagranite: 486 ± 6 Ma, 483 ± 6 Ma; Jelen-grad metagranite: 491 ± 2 Ma). For the Pleterac granite, a Cretaceous formation age of 82 ± 1 Ma was obtained.

The Cretaceous metamorphism in the Moslavacka Gora Massif was of the low-pressure type and reached, at least in places, granulite facies conditions (700-750°C, 3-4 kbar). According to the available monazite ages, high-grade metamorphism occurred in the mid Cretaceous. A retrograde metamorphic event, which may be related to the intrusion of the Pleterac granite, occurred under conditions of ca. 550°C and 3 kbar.

Based on the new geochronological data, a correlation of the Moslavaèka Gora Massif with the Banatite magmatic belt of southeastern Europe may be possible. According to NEUBAUER (2002) the Banatite belt may have formed as a consequence of post-collisional slab break-off, representing a long but narrow zone with increased heat input from the asthenospheric mantle. The high T/ low P metamorphism recorded within the Moslavaèka Gora Massif would be compatible with such a model. Chemical data indicate that the Pleterac granite is most likely derived from a crustal source and not from a mantle source, as most magmas of the Banatite belt are. However, the Pleterac granite may have formed as secondary magma in the contact aureole of hot mafic mantle melts ponding at the base of the crust.

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Minor element chemistry of the Cu-deposit of the Kelchalm near Kitzbühel (N-Tyrol, Austria)

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The Cu-deposit from the Kelchalm lies in the western Greywacke Zone. The western Greywacke Zone is important for the investigation in the framework of the special research project HiMAT (history of mining activities in Tyrol and adjacent regions) and it's between northern Kalkalps and Central-alps. It can be subdivided in four nappes: Alpach Unit, Hohe Salve Unit, Jochberg Unit and Langeck Unit. The investigation area lies in the Jochberg Unit (= Glemmtal Unit), which is characterized by a mighty siliziclastical progression. This progression is named as „Wildschönauer Schiefer" and they are the main rocks in the Kitzbühl Alps and can be subdivide because of the age into two groups (the lower Wildschönau Schists and the higher Wildschönau Schists). We can distinguish between three types of rocks: sedimentary rocks, acid and alkaline volkanites and tuffs. The Jochberg-unit is characterised by numerous syngenetic Cu-deposits of the Lahn-Dill Typ.

These deposits are connected with the mafic volcanism in the Wildschönau Schists. The gangue consists of quartz, ankerite and dolomite. The primary ore assemblage mostly consists of chalcopyrite and pyrite. The secondary assemblage mostly consists of goethite replacing pyrite and chalcopyrite, and subordinately covelline, markasite and azurite.

In order to characterize the ore assemblage chemically for further provenance studies, 21 elements were analysed and counted for 50 seconds by WDS EMPA analyses on ca. 300 spots on pyrite and chalcopyrite, as well as NAA was performed on selected hand specimen. The data show significant differences to the ores from the largest Cu-deposits in the Eastern Alps namely the „Mitterberg-Mühlbachl-Larzenbach district"in the eastern continuation of the Jochberg Unit, hosted in the Pinzgau Phyllites. In the Kelchalm, Co (5,5-155 ppm) and Ni (48-749 ppm) are lower then in Mitterberg (Co: 241-1088 ppm, Ni: 838-1479 ppm). As on the other hand is much higher in Mitterberg (839-3039 ppm) than in the Kelchalm (4-240 ppm). Se (40-145 ppm) and Ag (4-25 ppm) are higher in Kelchalm than in Mitterberg (Se: 20-40 ppm, Ag: 5-10 ppm). It is the aim of this SFB project to create a large minor and trace element database for different Cu-ore deposits from North- and South-Tyrol, as well as from Vorarlberg and Salzburg for provenance studies concerning historical trade routes of pre-historic artefacts.