

Die Koordinatenzeitreihen der GPS-Auswertung sind in sehr guter Näherung Gerade, die in den jeweiligen Fallinien liegen. Die geringen Abweichungen zeigen aber eine überraschende Systematik, die durch die Skalierung der drei Hauptbewegungskomponenten (Fallinie, Hangnormale und Horizontale normal zu beiden) mit dem Kehrwert ihrer Streuungen sichtbar gemacht werden kann (Abb. 2). Die Punkte MA und MD bewegen sich schraubenförmig im Uhrzeigersinn um die Gerade, MB und MC aber gegen den Uhrzeigersinn. Während der kurzen Perioden schneller Hangbewegungen befinden sich die Punkte bis zu 10 cm über der Geraden, sonst bis zu 5 cm darunter. Zum Vergleich: die Hauptbewegungskomponente (parallel zur Fallinie) beträgt etwa das 10fache, die seitlichen Abweichungen dagegen nur einige mm. Die Höhenabweichung während schneller Hangbewegung kann als Querausdehnung als Antwort auf die Kompression durch das von oben auflaufende Rutschmaterial angesehen werden.

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**The Werfen Imbricate zone in central southern sectors of Northern Calcareous Alps revisited: Permian to Triassic facies evolution and Cretaceous to Paleogene tectonics**

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The origin of the Werfen Imbricate zone of central southern Northern Calcareous Alps is still an unresolved issue. We conducted a preliminary field survey along the southern edge of Tennengebirge (Werfenweng region) in order to reveal the lithostratigraphy, the structure and the structural evolution of the Werfen Imbricate zone in this peculiar region. The main results deviating from previous knowledge are as follows: The entire region comprises several major tectonic nappes with mainly Permian to Middle Triassic formations, which are cut along their hangingwall margins, and remnants of the Haselgebirge formation are common on top the uppermost nappe of the Werfen Imbricate zone. Our new data show that the Permian to Lower Triassic portion of the sections of all nappes are dominated by siltstones and subordinate fine-grained, thin-bedded sandstones. In purple fine-grained sandstones considered to represent part of the Fellersbach Formation we detected a shell fauna (molluscs) with a number of distinct species. A hitherto unknown several tens of meters thick formation of greyish siltstones with intercalated thin-bedded sandstones is directly overlain by thin-bedded greyish to beige Werfen Limestone. This new formation also yielded

a mollusc fauna in tempestitic sandstones. We interpret this facies as offshore facies below storm-wave base deposited in a local off-shore depression. The uppermost nappe of the Werfen Imbricate zone comprises abundant Hallstatt facies type limestones, which were not found in lower nappes. Furthermore, the main body of the overlying Tirolic Tennengebirge nappe comprises spectacular evidence for synsedimentary pre-Dachstein Formation block tilting, and upper portions of Middle to lowermost Upper Triassic formations were eroded before deposition of the Dachstein Formation.

The siliciclastic Permian to Lower Triassic formations show abundant E-W trending folds with axial plane foliation and, therefore, evidence for N-S shortening during Cretaceous very-low grade conditions of metamorphism. However, stratigraphic relationships thrust ramps of nappes show evidence for ca. E-W transport as an important mechanism of formation of the Werfen Imbricate zone. The thrust surfaces were later reactivated by Cenozoic strike-slip faults and back-thrusts. Consequently, the present-day structure of the Werfen Imbricate zone is the result of superimposed deformation stages.

**The sinistral Innsbruck-Salzburg-Amstetten strike-slip fault system in Salzburg (Austria): a structural study**

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The ENE-trending sinistral Innsbruck-Salzburg-Amstetten (ISAM) strike-slip fault system transects the northern central sectors of Eastern Alps and is part of the northern wrench corridor, which led to eastward extrusion of blocks of central Eastern Alps during Miocene times. We conducted a field survey between Reichenhall and Mondsee with the main emphasis of the Salzburg city area in order to discuss the structure and the structural evolution of the ISAM strike-slip fault system in this area. At the SW edge of the Salzburg-Reichenhall Gosau basin and in the area of Salzburg city, the ISAM fault system is represented by several ENE-trending secondary faults, which represent the northern margin of the Salzburg-Reichenhall Gosau basin and which partly interfere with the thrust fault at the northern margin of Northern Calcareous Alps (NCA). Peculiarly the Kapuzinerberg and the Kühberg are confined both along northern and southern edges by well exposed strike-slip faults and the ISAM fault system includes therefore the NCA hills within Salzburg city as shear lenses. The Kapuzinerberg exposes a fold structure cut by above mentioned strike-slip faults.

A kinematic study allows deduce the post-Gosau deformation history along this segment of the ISAM strike-slip fault system. The following paleostress tensor groups were observed in Triassic-Jurassic formations of NCA and