

**THE 300-KM-LONG INNSBRUCK-SALZBURG-AMSTETTEN (ISAM) FAULT SYSTEM:
A MAJOR DISPLACEMENT LINE IN THE NORTHERN EASTERN ALPS**

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Detailed mapping and microtectonic surveys allow to trace a large scale shear zone in the northern Eastern Alps between Innsbruck and Amstetten (Lower Austria). This 300-km-long fault system is the eastward continuation of the well known Inntal fault and crosses the Northern Calcareous Alps (NCA), the Flysch zone, the Ultrahelvetic units and finally the Molasse zone. The ISAM-fault accommodated eastward movements during Oligo-Miocene lateral extrusion. Minimum cumulative sinistral offset in the Flysch and Molasse zone is 48 km.

The NE-striking ISAM-fault is kinematically linked with the N-S trending Brenner normal fault which merge together near Innsbruck. Normal displacement of the Brenner line during unroofing of the Tauern window was transferred to sinistral strike-slip faulting along the western segment of the ISAM-fault which follows the Inn valley east of Innsbruck. North of Kufstein the fault system bends 20° from a NE- to ENE-direction heading towards the city of Salzburg. North of the bend zone an array of NNE-trending sinistral faults branches off from the main system. East of the bend zone, the fault separates the Tirolic and Bajuvaric nappe system of the NCA. Near Salzburg, the fault reaches the northern margin of the NCA and follows the floor thrust of the NCA before entering the Flysch units. Deformation there is partitioned into sinistral faulting on ENE-trending strike-slip faults and NE-directed thrusting. A large part of the disappearance of the Bajuvaric nappe system can be attributed to oblique sinistral movement along the ISAM-fault which offsets the thrust boundary between the two nappe systems. The continuation of the fault system in the Flysch zone is locally covered by NE-directed out-of-sequence reactivations of the floor thrust of the NCA. Several off-branching splay faults offset the Flysch floor thrust onto the Molasse. Finally, the main fault segment offsets the Flysch/Molasse boundary SW of Steyr for at least 20 km. A part of the sinistral offset is accommodated by high-angle reverse faulting along older NW-SE striking faults in the NCA. East of Steyr, the sinistral ISAM-strike-slip fault merges into the thrusts of the subalpine Molasse causing NNE-directed movements.

