Was the Periadriatic Line originally curved or straight? - A multidisciplinary study on boudinaged elements along the Giudicarie fault system (Poster)

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The Giudicarie fault system (GFS) forms part of the Periadriatic line (PL) separating the Southern Alps from the more internal units. Two end members are generally discussed concerning the Cenozoic evolution of the GFS: an originally straight Periadriatic line, dissected and displaced by a sinistrally active GFS in the Miocene (e.g. Laubscher, 1971; Frisch et al., 1998; Stipp et al., 2004) or Neogene compressional inversions of an inherited Early Permian to Lower Liassic NE-SW trending horst and graben structure (e.g. Castellarin and Vai, 1982; Viola, et al., 2001; Castellarin et al., 2006).

The NNE-SSW striking GFS terminates the E-W striking dextral strike-slip Tonale fault zone to the east. The endpoint of the Tonale fault zone defines a northern and a southern sector of the GFS. The southern GFS delimits the Adamello pluton to the east while small Tertiary intrusive bodies, the tonalitic lamellae are aligned along the northern GFS and its northeastern prolongation, the Meran Mauls fault. Their relationship to the Adamello pluton, the magmatic emplacement and the solid state deformation is not yet well understood.

Preliminary results indicate that both the northern rim of the Adamello pluton and the tonalitic lamellae show mylonitic foliations which are parallel to the adjacent segments of the PL. The mylonitic foliation at the northeastern corner of the Adamello pluton bends from an E-W into a NE-SW trending orientation close to the intersection with the GFS. Along the northern GFS and the Meran Mauls fault mylonitized tonalites and adjacent basement units display subhorizontal stretching lineations and a dextral sense of shear. We interpret these mylonites as boudinaged and rotated elements of the Tonale mylonites which formed during dextral strike slip movements along the PL in the Palaeogene. The nearly horizontal stretching lineation is overprinted by a clearly younger dip slip lineation, revealing (Neogene) top ESE to SE thrusting. Late-stage brittle overprinting seems to be partly related to the size of the tonalitic bodies with smaller bodies being more affected.

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