



Field Evidence of Slab Break-off in the Internal Dinarides: An Emerging Picture of Dinaric Post Tethyan-Closure Tectonics.

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Syn or post collisional extension is expressed in several Mediterranean orogens as mid-crustal rocks exhumed along low angle normal faults and has variously been attributed to slab roll-back or break-off. The Dinarides are a late Cretaceous-presently active fold-and-thrust belt driven by the collision between the Adria microplate and Eurasia. The Mid-Bosnian Schist Mountains (MBSM) are a fault bounded body of lower greenschist facies metamorphic rocks in the hinterland of the active Dinaric fold-and-thrust belt. Existing geologic maps and cross sections indicate that the faults bounding the MBSM are thrust faults and interpret the emplacement of these mid-crustal rocks as a compressional event. However, field observations along the fault bounding the east side of the MBSM support a normal shear sense suggesting an extensional tectonic exhumation. New low temperature thermochronologic dates along with published Ar/Ar dates reveal an Eocene-Oligocene episode of relatively rapid cooling synchronous with foreland shortening. We propose that the MBSM represent the tectonic inversion from shortening to extension in an active fold-and-thrust belt. The relatively short duration and geographically restricted extent of exhumation supports a slab break-off event rather than an ongoing and migrating process (roll-back) as the exhumational driving force.

Several important considerations remain regarding the implications of tectonic inversion in the Dinaric setting. First, exhumation occurred along the paleogeographic margin of a thick carbonate platform. Second, tomographic images across the Dinarides reveal an intact shallowly dipping slab, the entirety of which may have been subducted following break-off of a pre-existing slab. The questions arise: What is the role of upper crustal lithology on microplate interaction, and what drives subduction in the absence of a negatively buoyant slab?