

## Oman belt: In search of the Tethyan rifted margin and its role for orogenesis

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Collisional orogen results from the superimposition of different geodynamic stages during convergence. As a consequence, the geological record of pre-collisional convergence stages (e.g. early orogenesis, subduction) as well as the pre-convergence template is heavily overprinted and cannot be easily investigated. To reach initial stages of orogenesis linked to the shortening of rifted margins, we investigate the Oman belt that failed to reach a mature continental collision. This obduction belt is known to results from the Late Cretaceous shortening of a Permian-Triassic Tethyan rifted margin. As such, this belt may have preserved its early orogenic and rift record, but the link between the margin structure with orogenic processes is poorly documented so far. The rift-related record is today exposed along the eastern Oman belt. As it escaped from pervasive orogenic deformation, pre-orogenic relationships between the Neo-Proterozoic basement and rift basins can be described along the Ja'Alan massif in the field. In the SW, the massif represents the former proximal margin as the eroded basement is sealed by post-rift to syn-orogenic shallow marine facies. By contrast, the NE side of the massif is flanked by deep basin syn- to post-rift facies. These two domains are limited by a major N110-oriented thick-skinned normal fault with dip-slip kinematic indicators (slikensides, S/Cs). The fault zone is made of cataclasites and gouges overlain by base-of-slope polymictic breccias. These latter rework the neighboring basement lithologies and are affected by extensional deformation. Ontop of it, younger successions are onlapping and sealing the normal fault. The late Cenozoic shortening consists in the tightening of this inherited slope. From this geological record, we interpret this area as the former Arabian necking zone that was limiting the propagation of shortening. It is noteworthy that this structure is the lateral continuation of the frontal thrust system. This indicates that the former architecture of the rifted margin may have been a significant driver for obduction orogenesis.

**Mots-Clés :** Arabian plate, Oman belt, Rift-related structures, Tectonic inversion