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Partitioned transpression in the Triassic Aghdarband basin: evidence for a Cimmerian deformation in NE IRAN:

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The Lower-Middle Triassic Aghdarband Basin, NE Iran, consists of a strongly deformed arc-related marine succession deposited along the southern margin of Eurasia (Turan domain) in a highly mobile tectonic context. The marine deposits are unconformably covered by Upper Triassic continental beds, marking the Cimmerian collision of Iran with Eurasia. The Aghdarband Basin is a key-area for the study of the Cimmerian events, as the Triassic units were severely folded and thrust short time after the collision and were unconformably covered by the gently deformed Middle Jurassic succession which seals the Cimmerian structures.

The Triassic deposits form a north-verging thrust stack interacting with an important left-lateral strike-slip shear zone exposed in the northernmost part of the basin. Transpressional structures as strike-slip faults and vertical folds are here associated with high angle reverse faults forming intricate positive flower structures. Systematic asymmetry of major and parasitic folds, as well as their geometrical features indicate that they generated in a left-lateral transpressional regime roughly coeval to thrust imbrication to the south, as a consequence of a marked strain partitioning.

Aim of this presentation is to describe in detail the deformational structures of the Aghdarband region, based on structural mapping and detailed original mesoscopic field analyses, resuming from the excellent work performed in the ‘70s by Ruttner (1991). Our work is focused on the pre mid-Jurassic structures which can be related to the final stages of the Cimmerian deformation resulting from the oblique collision of the Iranian microplate with the southern margin of Eurasia, the so-called Turan domain. We will finally discuss the kinematic significance of the Late Triassic oblique convergence zone of Aghdarband in the frame of strain partitioning in transpressional deformation.

Structural weakness favouring strain partitioning can be related to inversion of syn-sedimentary faults active during the Triassic, resulting from the reactivation of previous Palaeozoic structural lineaments which characterize the Turan domain. A right-lateral reactivation of the main left-lateral fault zone followed during Neogene and Quaternary as a consequence of the Arabia collision to the south