Serpentinite Slivers and MP-LT Metamorphism in the External Maghrebides: A Hint for an Intracontinental Suture in the North African Paleomargin (Morocco, Algeria)

André Michard[1], Michel Durand-Delga[2], Dominique Frizon de Lamotte[3], and François Negro[4]
[1] Ecole Normale Supérieure, 24 rue Lhomond, F75231 Paris Cedex 05
[2] La Pélisserie, F81150 Marssac
[3] Département des Sciences de la Terre, Université de Cergy- Pontoise, F95031 Cergy-Pontoise Cedex
[4] Laboratoire de Géologie, Université de Neuchâtel, CH2007

The main suture zone of the Alpine Maghrebide orogen extends between the North African paleomargin units and the Alboran-Kabylias terranes, in correspondence with the former Flysch oceanic domain. We describe here a subsidiary suture zone located within the North African paleomargin itself. This intracontinental suture is well documented in the Eastern Rif between the Intrarif and Mesorif domains. It is first recorded by the occurrence of serpentinites slivers of Jurassic-Early Cretaceous probable age in the Nekor Fault zone (Beni Malek massif), associated with metabasites and recrystallised serpentinite sands. Second, we assume that the subduction of the Temsamane Mesorif beneath the Ketama massif of the Intrarif is evidenced by the moderate pressure, low temperature (MP-LT) chloritoid-phengite metamorphism recorded in the Ras Afraou, Tres-Forcas and Khebaba units during the Late Oligocene (40Ar-39Ar dates at 23-20 Ma). A quite similar setting can be observed in the Oran massif, with serpentinite slivers associated with chloritoid-bearing schists overlain by the epi-Tellian nappes). This intra-margin suture can be followed eastward up to the Cheliff massifs at least, i.e. over >500 km E-W. West of the Nekor Fault lateral ramp, the suture is likely hidden beneath the Intrarif thrust units. We suggest that the South Ketama-Nekor-Cheliff suture corresponds to the inversion of a thinned crust/serpentinite crust zone formed between the proximal and distal parts of the African paleomargin during the Ligurian-Maghrebian Tethys opening (Upper Jurassic). It now records a thick-skinned shortening tectonics of the internal paleomargin during the Late Oligocene inception of the Maghrebide collision.

Key words: Collision, Metamorphism, Suture, Rif, Tell