



The Tell-Rif belt in the geodynamic frame of the West Mediterranean

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The Tell-Rif (Tell in Algeria and Tunisia; Rif in Morocco) or Maghrebides is the orogenic system fringing the West Mediterranean basins to the south. This system comprises 3 major tectonic-paleogeographic zones from north to south: (1) the internal zones (AlKaPeCa for Alboran, Kabylies, Peloritan, Calabria) originated from the former northern European margin of the Maghrebian Tethys (MT); (2) the “flysch zone” regarded as the former sedimentary cover of the MT and (3) the external zones, the former southern African passive margin of the MT. In the geodynamic frame of the West Mediterranean basins formation, the Tell-Rif is interpreted as the direct result of the progressive closure of the MT until the collision between AlKaPeCa and Africa at 17 Ma and the propagation of the deformation within Africa. Such a scenario gives a consistent explanation for the off-shore geodynamics and is now shared by almost all the authors. Nevertheless, all the geodynamic models do not integrate recent developments regarding the geology the Tell-Rif. In particular, the following points must be integrated in any models: (1) The importance of pre-Late Oligocene (pre-30 Ma) contractional events not only in the Atlas System, where they are well established, but also in the Tell-Rif system, where their effects are often ignored or minimized; (2) The existence of MP-BT metamorphic rocks associated with fragments of ophiolites in the Eastern External Rif and likely in the Western External Tell suggesting that the southern Maghrebian Tethys margin is more complicated than what could be expected for a single linear oceanic domain; (3) The presence over the Rif and western Tell of wide Miocene basins developed along with the ones of the West Mediterranean Basins. Among these basins, the Cheliff Basin occupies a large part of the western Tell in Algeria. These elements must be taken into account for a reassessment of the complex relationships between the West Mediterranean Basins and the surrounding mountain belts. Integration of these major issues allows us to re-evaluate the configuration of the African margin before the inversion and to propose a kinematic scenario for the Tell-Rif.