The Paleogene Structural Inversion and the Oligo-Miocene Subsidence in Tunisia: Toward an Unified Tectonic Interpretation of the Maghrebian Atlas System

Sami Khomsi[1]*, Dominque Frizon de[2], Mourad Bédir[1], Mohamed Ghazi Ben Jemia[3], Mohamed Soussi[4], and Kmar Ben Ismaîl-Lattrache[4]

[1] Laboratoire géoressources, Centre des recherches et technologie des eaux. Technopôlr de Borj Cédria, Tunis, Tunisie

[2] Université Cergy Pontoise, Dép artement des Sciences de la Terre et de l'Environnement (CNRS, UMR 7072), Neuville/Oise, 95 031 Cergy-Pontoise Cedex, France

[3] Kuwait foreign petroleum company, Tunisia Limited (KUFPEC), Berges du Lac, Tunis, Tunisie

[4] Université de Tunis El Manar, Faculté des Sciences de Tunis, Tunisie * Adresse de correspondance : 57 rue 7301 par avenue, Tahar Ben Ammar Menzah 9 B, 1013, Tunis, Tunisie

Structural interpretation of surface and subsurface data in Tunisia, allows us to recognize inversion structures expressed and recorded in the Paleogene sedimentary pile of the Atlas domain. This compressive episode is followed by a period of relative tectonic quiescence during Oligocene-Lower Miocene with development of extensional tectonic structures with slightly tilted panels, grabens and locally the development of listric normal faults linked to reactivation of the "décollement" surfaces.

Comparison of the seismic and field data collected along the Atlas, in the Tellian domain as well as in the Eastern Tunisia foreland, allows us to propose a coherent tectonic scenario at the scale of Tunisia. In particular, we emphasise the role of the so-called "Atlas event" (Middle-Late Eocene), which was initially defined in Algeria but remains poorly known and defined in Tunisia. We will show that that the tectonic agenda defined in Tunisia is consistent with the one proposed elsewhere in the Maghreb allowing us to propose an unified view of the geodynamic evolution of the whole Atlas system.

So, the Cenozoic tectonic history of the whole Maghreb seems to be dominated by two periods of uplifts (Middle-Late Eocene and Plio-Quaternary) separated by a period of subsidence during the Oligo-Miocene. The Oligo-Miocene is the period during which the convergence between Europe and Africa is accommodated by subduction, with slab roll-back and back-arc spreading, in the west Mediterranean. So the subsidence observed at the same time in the Africa plate can be linked to its flexuration in front of the moving Tell-Rif internal zones.

Key words: Maghreb geodynamics, Paleogene, structural inversions, Tunisia, subsurface data, field data, Tellian domain, Atlas, foreland