

The Triasico-Liasic Rifting Related to the Central Atlantic Opening: Geometry at Ground and Sea

Azzouz Kchikach¹, Jacques Malod², Jean -Pierre Rehault³, Mohammed Jaffal¹, and Mostafa Amrhar⁴

¹ Enseignant chercheur, FST, Université Cadi Ayyad, Marrakech

² Chercheur, Institut Universitaire Européen de la Mer, Brest, France

³ Professeur, Institut Universitaire Européen de la Mer, Brest, France

⁴ Enseignant chercheur, Faculté des Sciences Semlalia, Université Cadi Ayyad, Marrakech

The control of the triasico-liasic basins structure in the Atlantic Central and at conjugate margins (East American and Nova Scotian) is necessary to reconstitute the Pangean kinematic dislocation. Synthesis studies (Olivier and Al, 1984; LeRoy and Piqué, 2001; Sahabi, 2004; Sahabi and Al, 2004) show that the Triasico-liasic basins in these margins correspond to a system of grabens or half-grabens located at ground or on the deep of Moroccan margin.

Recent works completed by scientists: University of Bretagne Occidentale (IUEM), CNRS-French (GDR "Marges"), IFREMER-French, Geophysical Institute of Lisbon, University of Marrakech and El Jadida (Morocco), aimed at looking further into knowledge of the structural development of the Atlantic margin off NW Morocco. This study related to: margin formation and segmentation, salt diapiric structure repartition in deep basins, continent-ocean crustal transition off Morocco and explain the mechanisms of the lithospheric breaking off between Moroccan margin and its conjugate Canadian margin.

Following this work, Maillard and Al, 2006 proposes a subdivision and a 2D-model of the conjugate margins of Morocco and Nova Scotia at a rifting pre-rupture stage. A deep penetration seismic survey, carried out during the SISMAR cruise, allowed us to propose a new subdivision of the NW Moroccan margin. Great faulted structures, extension and geometry of salt triassic basins are clearly mapped at the broad of El Jadida. Other structures having the same age, observed in the Moroccan Meseta and High Atlas, are compiled from bibliography and integrated in the data base to allow an exhaustive interpretation for the first phases of the Atlantic opening.

Acknowledgment: This study was supported by « integrated action n° MA/75F/03 » and SISMAR project. We acknowledge deeply the invaluable help of all colleagues (IUEM) to make our various stays in Brest profitable and pleasant. Thanks to friends (ONHYM, Rabat) for communicating data of Meseta.

References:

- LeRoy P. ; Pique A., (2001). Triassic-Liassic Western Moroccan synrift basins in relation to the Central Atlantic opening. *Marine Geology*, 172, pp. 359-381.
- Maillard A. ; Malod J. ; Thiebot E. ; Klingelhoefer F.; Rehault J. P. (2006). Imaging a lithospheric detachment at the continent-ocean crustal transition off Morocco. *Earth and Planetary Science Letters*, 241, pp. 686-698.
- Olivet J.-L., Bonnin J., Beuzart P., Auzende J.-M., (1984). Cinématique de l'Atlantique nord et central, *CNEXO*, Plouzane, 84, 108.
- Sahabi M. (2004). Evolution cinématique triasico-jurassique de l'atlantique central : Implications sur l'évolution géodynamique des marges homologues nord ouest africaine et est américaine, Thèse de doctorat, Univ. Chouaib Doukkali, 210p.
- Sahabi M., Aslanian D., Olivet J. L. (2004). Un nouveau point de départ pour l'histoire de l'Atlantique central, *C. R. Geoscience*, 336, pp. 1041-1052.

Key words: deep seismic profiling, Central Atlantic, rifting, geometry