



## **Pleistocene deformations in the context of the Rharb foredeep basin (north western Atlantic Moroccan margin)**

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This study relates to the Cenozoic post rift deformations of Rharb foredeep basin in response to the Europe-Africa convergence. Here we are going to retail the tectonic structures of the Rharb basin, in particular the active front of the Prerifaine nappe in the area of Lalla Zahra. The method is based on the interpretations of the high resolution seismic reflection data acquired during the Protit2 (2003) and the Nomads cruises (2007). The surveys were conducted by the University of Brest in France and the Faculté des Sciences d'El Jadida in Morocco. They allowed to record more than 2000 km of seismic lines through the Rharb continental shelf. The integration of new data with industrial seismic lines provided by ONHYM and field observations collected along the coastline allows us to identify the formation and the recent evolution of the western termination of the Southern Rif Corridor. This coastal basin corresponds to the foredeep basin linked to the Rif Cordillera and extends southwards through the northern Moroccan Meseta that defines the foreland region of the Western Rif (Flinch,93). The integrated study clarifies the post-nappe evolution of the offshore Rharb basin during Neogene and quaternary times.

A succession of deformations affect the Rharb basin with separating episodes of relaxation and quiescence. Their ages are based on chronostratigraphical attribution of mean unconformities.

A Lower Pliocene episode is characterized by reactivation of faults affecting the Nappe.

The uplift of the basin and the individualization of the Lallah Zarah ridge increases and controls the terrigenous fluxes.

A Middle Pleistocene still active episode and corresponds to a new uplift of the two margins of the basin. Faulting remains more active in the North along the Lallah Zarah ridge and offshore Larache where large active listric faults are observed.

The progressive segmentation of the basin determinates the sedimentary filling with cyclic sequences extending progressively Southward.

Seismic analysis allows to describe successive episodes of faults reactivation with uplift of the southern forebulge and individualization of the northern topographic front. The detailed analysis of the post-nappe sedimentary evolution underlines the tectonic control of the Rharb basin with important lateral shift of the depocenter during Upper Pliocene and Quaternary.