



New High-Resolution seismic data through the Rharb continental shelf (North-Western Morocco) : Characterization of the recent evolution of the Western termination of the Southern Rif Corridor

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The recent high-resolution seismic survey Protit2, carried out during summer 2003 and conducted by the University of Brest in France and the Faculté des Sciences d'El Jadida in Morocco recorded 900 km of seismic lines through the Rharb continental shelf. The integration of new data with industrial seismic lines (Flinch, 1993), bathymetry (Vanney, 1982; Gutscher, Delila cruise report 2004) 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. Seismic stratigraphy analysis clarifies the main steps in the postnappe evolution of the offshore Rharb basin during Neogene times. The Tortonian/Lower Pliocene step corresponds to the foredeep stage induced by loading of the Rif thrust sheets. Results show evidence of flexural extension of the Adjacent Rif foreland during these stage. It consists of reactivation of Hercynian N150°E trending faults corresponding to the offshore extension of the Cherrat Horst. The basin records a new uplift of its southern margin during Upper Pliocene and Pleistocene times. Seismic profiles display the segmentation of the continental shelf controlled by the clear individualisation of the

present-day topographic front of the Prerifaine Nappe. Tectonics remains active until Upper Pleistocene as shown by faulting of the coastal dunes. This segmentation constrains the distribution of the Sebou deposits through the continental shelf. Preliminary results show that deformation occurs from Tortonian to Quaternary times and controls the evolution of Rharb foreland basin system at the western termination of Southern Rif Corridor.