

## Tectonic and stratigraphic evolution in South Alboran Sea (Morocco)

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The Alboran Basin, in western Mediterranean, concentrates on a relatively small surface and densely-populated, a large structural complexity linked to seismic activity with recurrent mass-transport deposits that may trigger tsunamis. It was formed by Oligo-Miocene extension while tectonic inversion occurred since the Late Miocene (Tortonian) due to the African-European collision. This North-South compression produces a conjugated fault system located in the central area from Al Hoceima to Andalusia. Numerous instabilities are linked to the recent and present-day seismic activity and show the link between seismicity and erosion-sedimentation processes. On the Andalusia margin the active structures have been identified and recently mapped in detail by using MBES data (including backscatter), and high-resolution seismic data. Such detailed studies have not yet been carried out on the Moroccan margin. The Marlboro-1 oceanographic cruise (R/V Côtes de la Manche, July 2011) has imaged and constrained active structures and associated sedimentary systems through seismic reflection data (MCS).

The Xauen/Tofino banks (growth folds), the Alboran Ridge, and the Al Hoceima basin offshore Morocco have been selected because they constitute key-study areas that record a complete deformation history since the Tortonian. Active features including faults, growth folds, channels, mass transport deposits, contourites and volcanoes has provided first order tectonic and sedimentary markers of the basin's evolution. A high chrono-stratigraphical resolution will constitute the basis for reconstructing the evolution of this tectonically active area marked by strong seismic activity. The Marlboro-1 cruise will allow determining key-study area of the Marlboro-2 cruise scheduled for May 2012 (R/V Téthys-II, CNFC Call). These cruises should allow for the acquisition of data necessary to characterize basin morphology, active tectonic and sedimentary structures and also make the link with existing 2D seismic lines that image deeper structures.

The Marlboro proposals are linked to the international MerAlbo and SARAS cruises (Ifremer-IPEV-IRD and Eurofleets proposals), the French Termex CNRS Program, Actions Marges research group, and the Spanish and European programs Contouriber and Topomed.

The aim of these cruises is to acquire a full geophysical and geological dataset to allow increase our knowledge and understanding of the tectonic and sedimentary processes acting at different spatial and temporal scales that are responsible for creating potentially catastrophic events such as earthquakes, slope failures and consequently tsunamis.

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