



## Neogene and Quaternary tectonic evolution of the Gulf of Cadiz-SW Portugal's offshore

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In the last fifteen years a large amount of geological and geophysical data have been acquired by several European scientific institutions offshore SW Iberia which culminated in the cooperative project SWIM (Earthquake and Tsunami hazards of active faults at the **SouthWest Iberian Margin**: deep structure, high-resolution imaging and paleoseismic signature) on behalf the European Science Foundation project "Euro-margins". These have led to the creation, under the umbrella of SWIM, of a large data base of geological and geophysical data which, together with the new data acquisition, allowed the understanding of the main geological processes active in the area. Within this frame, a completely new bathymetric map, based on several high-resolution multi beam surveys, is now available (Diez et al., 2005) allowing us to recognize the detailed morphology of the Gulf of Cadiz and to identify recent seafloor structures such as active faults, potential tectonic sources of large earthquakes. The existence of active compressional deformation which involves either the continental crust either the oceanic crust of Southwest Portugal, of the Gulf of Cadiz and of the Moroccan margin encompassing the Tagus, Horseshoe and Seine Abyssal Plains it is now well established. Most of the tectonic structures observed are related to the Africa-Europe plate convergence and most of the deformation is accommodated by few major active structures of the order of tens of kilometres. In addition, the detailed mapping of the active structures will allow for the first time to relate, in this area, the trace of the active tectonics to the present day seismicity and may shed light on the way the different tectonic structures interact during a very large earthquake.