



The Quest for the Africa-Eurasia plate boundary West of the Strait of Gibraltar

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A new swath bathymetry compilation of the Gulf of Cadiz Area and SW Iberia is presented. The new map is the result of a collaborative research performed after year 2000 by teams from 7 European countries and 14 research institutions. This new dataset allow for the first time to present and to discuss the missing link in the plate boundary between Eurasia and Africa in the Central Atlantic. A set of almost linear and sub parallel dextral strike-slip faults, the SWIM Faults (SWIM is the acronym of the ESF EuroMargins project “Earthquake and Tsunami hazards of active faults at the South West Iberian Margin: deep structure, high-resolution imaging and paleoseismic signature”) was mapped using a the new swath bathymetry compilation available in the area. The SWIM Faults form a narrow band of deformation over a length of 600 km coincident with a small circle centred on the pole of rotation of Africa with respect to Eurasia, This narrow band of deformation connects the Gloria Fault to the Rif-Tell Fault Zone, two segments of the plate boundary between Africa and Eurasia. In addition, the SWIM faults cuts across the Gulf of Cadiz, in the Atlantic Ocean, where the 1755 Great Lisbon earthquake, $M \sim 8.5-8.7$, and tsunami were generated, providing a new insights on its source location.

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