Seismicity along the Western Eurasia-Africa Plate Boundary

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The western part of the Eurasia-Africa plate boundary, with different tectonic features, extends from the Azores Islands to the Strait of Gibraltar. The interaction between Iberia and Africa results in a complex region located in the western part of the Eurasian-African plate boundary. This region corresponds to the transition from an oceanic boundary, to a continental boundary where Iberia and Africa collide. The change in the seismicity along the Azores-Gibraltar-Algeria Plate boundary zone confirms that the present plate movement is transtensional in the Azores, dextral along the Gloria transform and convergent between the SW Atlantic margin and the Ibero-Maghrebian zone. The convergence rate decreases west (Azores plateau) to east (Ibero-Maghrebian zone). The plate boundary is very well delimited in the oceanic part, from the Azores Islands along the Azores-Gibraltar fault to approximately 12ºW (west of the Strait of Gibraltar). From 12ºW to 3.5ºE, including the Iberia-African region and extending to the western part of Algeria, the boundary is more diffuse and forms a wider area of deformation (Buforn et al., 2004; Borges et al., 2007; Bezzeghoud et al., 2008). This is also reflected by the occurrence of historical and instrumental large earthquakes, in particular by the recent earthquakes occurred in the Azores Islands, off coast of South-Western Portugal and in Ibero-Maghrebian zone. In this study we discuss the segmentation and complexity of this plate boundary using seismicity and focal mechanisms of large earthquakes occurred in this region. Some strong earthquakes occurred in the studied area will be addressed.