



Seismicity along the western part of the Eurasia-Nubian plate boundary

M. Bezzeghoud (1), C. Adam (1), E. Buforn (2), J.F. Borges (1), and B. Caldeira (1)

(1) Centro de Geofísica de Évora e Depto. de Física, ECT, University of Évora, Portugal, (2) Dpt. de Geofísica y Meteorología, Fac. CC. Físicas, Universidad Complutense, 28040 Madrid, Spain

The seismicity along the western part of the Eurasia-Nubian plate boundary is characterized by a very complex pattern. In average, the motion is transtensional in the Azores, dextral along the Gloria transform zone and convergent between the SW Portuguese Atlantic margin and the Ibero-Maghrebian zone. To constraint the factors controlling the seismicity, we provide a new seismotectonic synthesis using several significant seismic events. We show that the studied area can be divided into six different regions, each one characterized by a coherent seismicity pattern. The total seismic moment tensor and the average slip velocities are provided for each one of them. To understand the spatial distribution of the seismicity, we compute for each event from the focal mechanism the slip vector and compare it to the relative velocity between the Eurasia and Nubia plates, deduced from global kinematics models. Despite local departures in the Alboran Sea and in the proximity of the Mid Atlantic Ridge, we find a good correlation between these two independent vectors sets. Quantitatively, the slip velocities display a linear, non-affine correlation with the norms of the relative kinematics velocities. The norm of the slip velocities seems to also depend on the tectonic regime and on the morphology of the plates' boundary.