

Seismic Reflection imaging of the Alhama de Murcia Fault (Epicentral area of the Lorca 2011 Earthquake)

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ABSTRACT

The Alhama de Murcia fault (AMF) is one of the most active faults of the Iberian Peninsula and the source of the Lorca 2011 earthquake that caused significant damage including several casualties. This NE-SW oblique fault, with more than 100 km long, has been extensively mapped to characterize its surface structure but almost no information of the structure and geometry at depth is available. This is especially significant in order to correctly interpret the paleoseismic data, obtained from previous works, considering that the knowledge of the structural relationship in depth among different branches of the fault is necessary. Accordingly, and within the InterGEO project, a 2D seismic reflection acquisition experiment was carried out along the AMF, focusing in the more interesting segments in the Lorca-Totana area. In this work we present the very first results of the acquired seismic reflection profiles that show the first structural image in depth of this fault which allows understanding the seismic behaviour of the fault, and determine its relevance in seismic hazard.