



UNIVERSITY OF JAÉN

Vice-chancellorship of Communication and Institutional Relations

The Office of Communication *Press Release*

Wednesday, May 11th 2011

University of Jaen investigators do research project to investigate the fault that produced the Lorca earthquakes

Researchers at the University of Jaén currently are engaging in a research project on the Alhama de Murcia fault, which has caused the earthquake, whose epicenter is located seven kilometers (4.5 miles) east of the town of Lorca Murcia.

At the University of Jaén, the research group “Procesos y Recursos Geológico” (Processes and Geological Resources) of the Geology department is currently conducting research on these fault zones within the framework of two research project; “Partnerships and clay mineral factories in the developed in fault rocks: implications for the structure of the permeability, fluid flow an mechanical behavior of fault zones,” funded by the ministry of Education and Science and led by Geology Professor **Juan Jiménez Millán**, and “Mineralogical, geochemical and hydrodynamic processes involved in the deformation of faults,” funded by University’s own plan and directed by the Professor **Isabel Abad**.

Juan Jiménez said that the earthquakes that have occurred on Wednesday “are related to the activity of the Alhama de Murcia fault.” This fracture is in a great system of strike-slip faults active in the orientation Northeast-Southwest, stretching from Almeria to Alicante area known as the trans-Alborán shear.

This set is composed of the fault systems of Carboneras Palomares and Alhama de Murcia, whose globe movement system is similar to that the one developed by the San Andreas fault in California, although at a much lower magnitude, leading to the South Eastern Iberian peninsula to gradually move towards the northeast.

Historical records of seismicity since 1500 AD (before Christ) indicate a small to moderate activity. Each system has an area of about 20 to 40km in length and over 1 mile wide, and consists of a set of anastomosing faults or subvertical fault zones surrounding lenses of less intensely deformed rocks.

The length and continuity of this fault system is the largest of the Betic Mountains and therefore makes the system more conducive to generating large earthquakes.



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Juan Jiménez explains that the seismicity is mainly characterized by the low-moderate magnitude events. However, in this region earthquakes of great destructive power have occurred, such as those in Vera (1518, magnitude 9), Almeria (1522, magnitude 9) or Torreveja (1829, magnitude 10), “confirming that the coast of southern Spain and northern Africa the risk of earthquakes is high. The high destructive effect of the earthquakes that have taken place today is due to the fact that the hypocenter (depth where the earthquake is located) is less than 1 km (0.62 miles), as indicated by the first seismic data.”

Therefore, despite it being only an intensity of 5.2, “the shallowness of the earthquake has increased the level of destruction. A similar situation occurred in the recent earthquake in Haiti, although this was more intense,” he said.

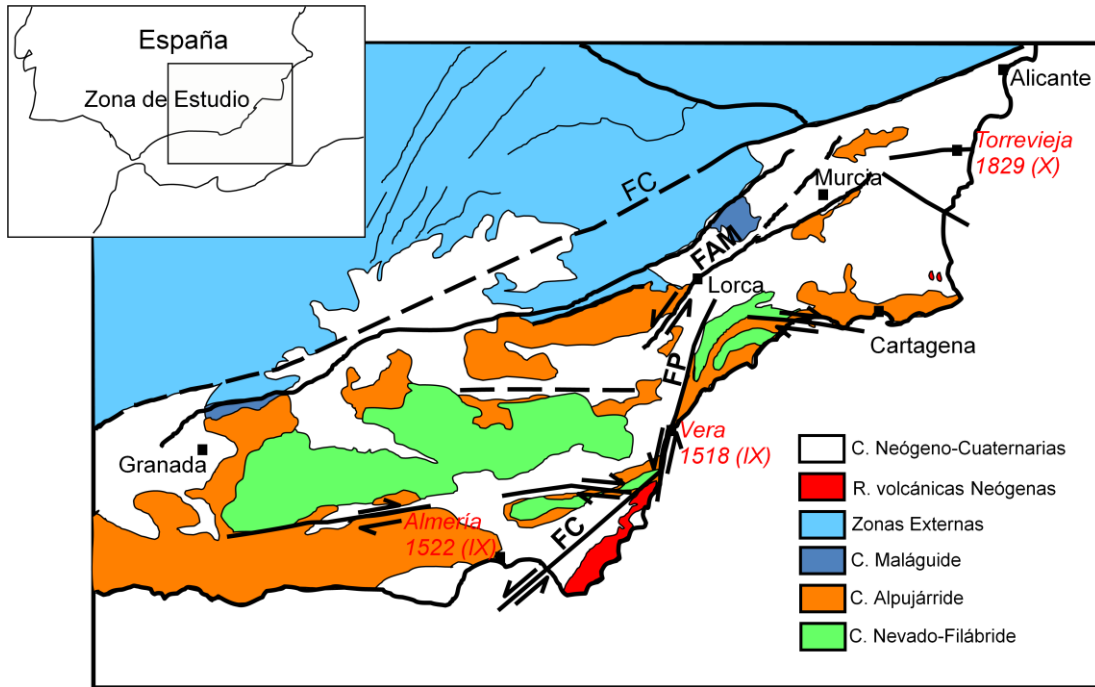


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Geological Map of the Area Trans-Alboran shear. CF: Carboneras Fault. FP: Failure of Palomares. FAM: Alama de Murcia fault. In red are indicated the major earthquakes and their magnitude. Modified from Grace et al. (2006).