Seminaris de l'IGC

IGC
Institut Geològic de Catalunya

Geologia estructural de la zona de Lorca

Dijous, 31 de maig de 2012 a les 18.00 hores

Programa

18.00 Presentació de l'acte

Xavier Berástegui Batalla, Subdirecció Tècnica de l'Institut Geològic de Catalunya
Tànit Frontera Genovard, Unitat de Xarxa Sísmica

18.15 "The 11 May 2011 earthquake at Lorca (SE Spain) viewed in a structural-tectonic context"

Reinoud L.M. Vissers, Dept Earth Sciences, Utrecht University, The Netherlands

19.10 Precs i preguntes

19.30 Finalització de l'acte

Sala d'actes de l'Institut Geològic de Catalunya
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Cal confirmar la vostra assistència a: info@igc.cat

Resum del contingut

The Lorca earthquake of 11 May 2011 at the Betic Cordillera of SE Spain occurred almost exactly on the Alhama de Murcia fault (AMF) that forms part of a NE-SW trending belt of faults and thrusts. The fault belt is reminiscent of a strike-slip corridor, but recent structural studies have provided evidence for reverse motions. Focal mechanisms of the main earthquake and foreshock are strikingly consistent with published structural data on the AMF.

At the epicenter area and immediately adjacent to the AMF, cataclastic fault rocks have been developed at the expense of a low-greenschist facies from the Alpujarride complex. A spectrum of structures exist at the area, ranging from sets of oriented fractures in cataclastic breccias to genuine fault gouges along Y- and R-type fault planes. Close to the AMF, localization of cataclastic deformation developed lensoid domains. Less faulted rocks are separated by intensely fractured and brecciated domains that are transected by numerous gouge bands. The entire fault zone is about 50 m wide.

The geological structure of the area strongly suggests that lithology at estimated hypocentral depths (4-5 km) is dominated by the same Alpujarride low-greenschistfacies rocks. They have been severely and recurrently deformed by the progressive motion on the AMF since the end of the Miocene. This geological context offers possibilities to quantitatively study the earthquake mechanics. Our current research of the Lorca earthquake is focused on deformation experiments under estimated hypocentral conditions, using representative rock samples from the exposed cataclastic domain at depth.

Generalitat de Catalunya
Departament de Territori i Sostenibilitat