



## **The Catalan seismic crisis (1427 and 1428; NE Iberian Peninsula): Geological sources and earthquake triggering**

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The Catalan seismic crisis of the years 1427 and 1428 is one of the most destructive seismic episodes that happened in the northeastern Iberian Peninsula in historical times. The main earthquakes of this crisis occurred on March 19th 1427 in the zone around Amer (IEMS-98=VIII), May 15th 1427 in the vicinity of Olot (IEMS-98=VIII) and on February 2nd 1428 in the area close to Camprodon (IEMS-98=IX). There is much evidence that the Amer fault produced the first two events of this crisis, but is still uncertain which fault generated the earthquake on February 2nd 1428. Using newly available macroseismic data, the earthquake area sources of the three main earthquakes of the crisis have been obtained and they corroborate that the Amer fault may be the origin of the first two events. However, the area source corresponding to the last earthquake of the crisis cannot be associated to a single fault and indicates three possible candidates: the Vallfogona and Ribes-Camprodon thrusts and the Amer normal fault. Modeling of the Coulomb failure stress transfer has been performed to help determine the best candidate responsible for the February event. The results of the modeling points to: a) a triggering relationship between the three main events of the crisis and b) the Amer fault, or a similar extensional fault close and parallel to it, as the most probable origin of the earthquake on February 2nd 1428.