



Multiplet analysis of the January 2004 microseismic crisis in the western-central Corinth rift (Greece)

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A network of twelve 3-components seismic stations was installed in April 2000 in the Gulf of Corinth, Greece, in the vicinity of the city of Aigio, some 40 km East from Patras. One of the objectives is to constrain the geometry of the fault structures at depth where the seismic activity is very significant, and the rate of deformation is large (1.5 cm/year of creep). The network, that detects events with magnitude larger or equal to 1, is equipped with 2 Hz velocimeters and records continuously at 125 Hz. In 2004 the observed seismic activity counts more than 10 000 post-trigger records. The most significant seismic swarms occurred in January, March, June and September. In this work we concentrate on the January crisis, in order to constrain the orientation of fracture planes. This crisis is of particular interest as it is located close to the root of the 10 km long Aigion fault. This fault has been intersected at 760 m below surface with the 1000 m deep AIG10 borehole that provides means to monitor pore pressure variations around this depth. One of the objectives is to investigate possible relationships between observed seismicity and pore pressure transients.

The analysis of seismic data made possible the classification of seismic events in doublets and multiplets. The precise re-location of the multiplets enabled us to identify the geometry of the major active structures, as well as the space-time evolution of the crisis. This allows us to propose a mechanical model for this seismic swarm.