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# Focal mechanisms of earthquake multiplets in the western part of the Corinth rift (Greece)

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The Gulf of Corinth is one of the most seismically active zones in Europe. The seismicity mainly occurs between 5 and 12 km (seismogenic zone, Rigo et al. 1996) and follows a swarm organization with alternation of intensive crisis and more quiescent periods. Fluids seem to play a key role in the occurrence of the seismic activity (Bourouis and Cornet 2009, Pacchiani and Lyon-Caen 2009).
In the western part of the Gulf, the Corinth rift laboratory seismological network (CRLNET) is composed of 12 short period 3-component seismometers and records the seismic activity since 2000. The analysis of multiplets (groups of earthquakes with similar waveform) from 2000 to 2007 and a detailed relocation using double-difference techniques have highlighted multiplets located along planar structures (Lambotte et al, in preparation).
In this study we determine the composite fault plane solution for 24 of the largest multiplets. The focal mechanisms are computed by jointly inverting P polarity and SV/P, SH/P, SV/SH amplitude ratios of the direct waves. This inversion method is based on the non linear inversion scheme of the direct P, SV and SH amplitudes proposed by Godano et al. (2009). The fault plane solutions are determined using 1D velocity model (Rigo et al. 1996) and 3D velocity model (Gauthier et al. 2006). Solutions computed with the 3D velocity model have a better misfit function than the 1D solutions and are essentially E-NE/W-SW and W-NW/E-SE normal faults which is in accordance with the N-S extensional regime.
For 18 multiplets, one of the nodal planes has strike and dip in accordance with the structure delineated by the earthquakes. It is then possible to make the hypothesis that such nodal plane is the fault plane. We can observe a clear decrease of the fault plane dip along the depth and toward the north. This could highlight the rooting of steep dip faults on a low dip structure.
We finally discuss the relation between the multiplets (geometry and focal mechanisms) and the fault mapped on the south edge of the western Corinth gulf.