



Recent seismic activity recorded by a new local seismographic deployment in the Gulfs of Zakynthos and Cefalonia, Western Peloponnese, Greece

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This study investigates fluid-driven seismicity in the Western Greece area. The region is characterized by the subduction of the Nubia (Africa) plate beneath the Aegean (Eurasia) plate (convergence rate of 40 mm/yr.) and is offset by the right-lateral active Cephalonia transform fault. The Ionian sedimentary basin is composed of thick Jurassic-Eocene carbonate and clastic sedimentary sequences underlain by Triassic evaporites that are thought to intrude through cataclastic zones generating diapiric structures. Due to the active tectonic and the abundance of fluids seeping in this region (with emphasis onshore Western Peloponnese) seismicity is often expressed as seismic swarms.

To better constrain and investigate the evolution of (possible) fluid-driven seismic sequences we deployed from September 2016 to April 2017 a seismic network spanning 200 km from North to South and about 150 km from east to west. The network is composed of 14 temporary installations, while 9 permanent seismological stations are also considered in our analyses. We present results of accurate earthquake locations using a 1D velocity model developed using VELEST, highlighting regions where seismic activity is focused, and fault plane solutions derived from moment tensor inversion and first motion polarities. During the deployment we recorded several regional earthquakes (i.e. larger than M4.0) that allowed us to verify the effects of incoming seismic energy in this region.