



Contribution of a new active faults map and sedimentary cores to the characterization of seismogenic sources in an interdisciplinary approach (Western Gulf of Corinth, Greece)

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The Corinth rift is one of the fastest spreading rifts on Earth. 5 earthquakes of magnitude greater than 5.8 occurred during the last 40 years. The question of seismic hazard is consequently particularly relevant. Despite a long earthquake catalogue, estimations of earthquake hazard remain problematic because of the difficulty to associate each historical event to one of the many active faults mapped in the area. Consequently, combining seismology, history and paleoseismology in an interdisciplinary approach is here necessary and is the goal of the ANR-SISCOR project. In this framework, we investigated the offshore sediments in order to (1) better constraint the length of the active offshore faults, and (2) look for sedimentary signature of historical earthquakes. 600 km of high resolution seismic reflexion data have been acquired during two surveys and 12 short gravity cores have been retrieved. The latter are 0.5 to 1 m long, allowing us to analyze about 500 yrs of sedimentation. Two new faults potentially able to trigger $M > 5.5$ earthquakes have been mapped in the northern part of the gulf based on seismic data. Sedimentary events (turbidites and mud flows) have been identified in some cores, essentially in the deep basin and in a 180m-deep sub-basin close to the northern coast. The comparison with the critically reviewed historical records shows that some of these events could have been triggered by historical earthquakes. The link between these potential earthquakes sedimentary signatures, historical events and active faults is discussed based on intensity maps and our new active fault map.