From Corinth gulf extension to Ionian subduction/collision (W. Greece) : micro-seismicity survey to constrain local tectonics and regional geodynamics

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The North-Eastern zone of the Gulf of Corinth in Greece is characterized by the rotation of a micro-plate in formation. The Island Akarnanian Block (IAB) have been progressively individualized since the Pleistocene (less than ~ 1.5 My ago). This micro-plate is the result of a larger-scale tectonic context, with on one side the N-S extension of the Gulf of Corinth to the East and on the other side the Hellenic subduction to the South and the Apulian collision to the West. To the Northeast, the IAB micro-plate is bounded by a large North-South sinistral strike-slip faults system, the Katouna-Stamna Fault (KSF) and by several normal faults. To the North, normal faults reach the limit between Apulian and Eurasian plates and to the East they form the East-West graben of Trichonis lake.
Although the structures and dynamics behind the Gulf of Corinth extension are today relatively known, nevertheless, the set of faults linking the Gulf of Corinth to the Western subduction structures remain poorly studied. The seismicity recorded by the Greek national network shows discrepancies regarding to the faults mapped on the surface.
At the end of 2015, a new micro-seismicity campaign started with the deployment of a temporary seismological network in an area ranging from the Gulf of Patras to the Amvrakikos Gulf toward the North. This network includes 17 seismic stations, recording continuously, added to the permanent stations of the Corinth Rift Laboratory (CRL) and of the Hellenic Unified Seismic Network (HUSN).
The analysis of the seismological records is still in process for the 2016 and 2017 years. Our study consists first in picking the *P*- and *S*- waves, and then to precisely localize the seismic events recorded by our temporary seismological network combined with the permanent ones. We will present here the event location map obtained for the 2016-2017 period, a new seismic velocity model, and focal mechanisms. The seismic activity including thousands of events, is characterized by the presence of numerous clusters of few days to few weeks duration. The clusters are analysed in detail by relative relocations in order to appraise their physical processes and their implications in the fault activity. We will discuss the deformation mode of the region and build a seismotectonic model consistent with the regional geodynamics and observations.

Keywords : Seismology, Tectonics