



3D Monitoring of Onshore Active Faults in the Region of the Gulf of Corinth (Greece)

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The Gulf of Corinth is the most active extensional feature in Europe with extension rates of 7-16 mm/year in N-S direction. This extensional activity is accommodated on both offshore and onshore WNW-ESE trending faults and part of it is expressed through an intense seismicity at depth which often includes destructive earthquakes. However, it is uncertain in which scales and to what extent these deformation processes are expressed on active faults at the surface.

Our project concerns with the 3D monitoring of onshore faults at a sub-millimetre scale. The aim is to monitor the displacement behaviour of selected faults and therefore to quantify their tectonic activity. This will allow us to understand the nature of the fault displacements (seismic or aseismic-creeping movements) and to draw conclusions concerning the distribution of the extensional deformation onshore.

The monitoring technique is based on two different types of instruments, a so-called TM71 Moire extensometer and a Bragg-Gitter extensometer. These instruments have allowed so far the collection of displacement data for up to 3 years.

The monitoring data show that part of the regional extension is indeed accommodated on onshore faults. Clear displacement trends have been recorded with rates similar to those determined by other studies. Furthermore, it was possible to ascertain the influence of the climatic/seasonal effects on the measurements and to compare the efficiency of the two instrument types.

In addition to fault monitoring, other activities include the study of the tectonic fabric of the Gulf of Corinth during mapping and fieldwork and by the use satellite images, as well as the study of the potential relation between tectonic activity and slope instability

phenomena which are observed in many parts of region.