

## **Internship available – L3 / M1 / M2 (Lyon)**

### **Estimation of seismic hazard in the Balkan peninsula via geodetic moment rate estimates.**

Recent geodetic methods (GPS, InSAR) allow for mapping the lithospheric surface strain field with very high spatiotemporal resolution. How these current day deformation maps could be used in estimating the regional seismic hazard remains a discussed topic in the scientific community. One standard procedure proposed by Kostrov in 1974 involves : (i) the estimate of the geodetic moment rate that is calculated as a function of the maximum eigen value of the 2D strain rate tensor, the lithospheric thickness and the size of the studied area; (ii) the comparison between this geodetic moment rate and the seismically released moment rate based on historical and instrumental seismicity. This comparison could emphasize zones where earthquakes are due or where slow slip may be occurring.

The aim of the internship would be to apply this Kostrov procedure to the Balkans peninsula, one of the most tectonically active region of Europe, based on previously published strain rate maps (Métois et al. 2015).

The intern will learn to manipulate earthquake catalogs and the GMT mapping software to produce maps and conduct proper calculations. He/she will have to produce small scripts in Python or csh/Bash. He/she will discuss its findings in term of seismic hazard assessment.

The intern will work under the supervision of Marianne Métois (LGLTPE, Lyon 1) and will be assisted by a PhD student working on probabilistic strain rate estimates (C.Pagani).