Earthquake and Environmental Hazard (EEH) *PhD course*

5th Welcome Day – XXXVII Cycle

Background:

- 2015-2018 bachelor degree in structural geology: «Rilevamento geologico strutturale della Faglia delle Tre Selle»
- 2018-2020 master degree in structural geology and 3D geomodelling: «Ricostruzione tridimensionale delle strutture frontali delle catene dell'Abruzzo sud-orientale (Maiella e Casoli-Bomba) tramite interpretazione delle linee sismiche ed integrazione di dati geologici originali e pregressi»
- 2019 internship (INGV – Ancona / UNICH): «Waveform analysis of microseismic events: the case of Mt. Porrara»
- 2020 Erasmus period at Malta (5 months)
- 2020 scolarship in «Elaborazione di dati geologico-strutturali per la costruzione di modelli sismotettonici»

Posters/seminars:

- 2019 poster – 38° GNGTS Annual meeting Rome, Italy: «Tectonic Earthquake Swarm (TES) in different seismogenic domains: compressional and Extensional cases from Central Italy» - R. de Nardis, L. Carbone, C. Pandolfi, **F. Pietrolungo**, D. Talone, G. Monachesi, M. Cattaneo, S. Marzorati, G. Lavecchia (2019)

From field geology to statistical data analysis, 3D fault model building for seismotectonic purposes and scientific exploitation

Scientific purposes: use field geology to increase knowledge about the Italian fault population and understand any statistical pattern. With the help of seismic lines and their in-depth analysis, structures will be extended to the third dimension and modeled to understand, in a new perspective, if statistics can add knowledge to seismotectonic processes.

Frequently tridimensional products are represented as an image on a bidimensional image and have big problems also on scientific diffusion. International experience will be focused on increasing skills in exploitation and representation of work and workflow as clearly and smart as possible.

The choice of the area will be affected by an active collaboration with the CRUST research group on the PRIN project. The project (called MUSE 4D) is intended to study tectonic, dynamic and rheological control on seismogenic extensional faulting. The focus is on 4 M7-class multi-event Special EarthQuakes (SEQs): Irpinia 1980, Reggio-Messina 1908, Lucania 1857, South Calabria 1783.

I year goals	II year goals	III year goals
- Definition of a study area - Definition of critical area and field geology on it - Seismic lines interpretation - 3D first approach on an area	- 3D modelling on designed area - International experience: *Jacobs University Bremen – Department of Physics and Earth Science – Angelo Pio Rossi*	- Build an online page for 3D products - Statistical analysis on 3D at different scales - Evaluation of results