



Earthquake and Environmental Hazard (EEH) *PhD course*

4th Welcome Day – XXXVI Cycle



Background:

- **2015-2018** bachelor degree in structural geology
 - “Control of fracture systems on karst phenomena in the ‘Grotte del Cavallone’ area (Taranta Peligna, Abruzzo)”
- **2018-2020** master degree in seismic tomography
 - “Seismogenic thickness, crustal structure and Vp – Vs anomalies in Central Southern Italy: role of fluids and seismotectonic implications”
- **2019** internship (INGV* – Ancona / UNICH)
 - “Waveform analysis of microseismic events: the case of Mt. Porrara”
- **2020** scholarship in “Seismological and geological data analysis for seismotectonic purposes”

Affiliations:

- EGU (European Geoscience Union) membership

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)
- *INGV: Istituto Nazionale di Geofisica e Vulcanologia
- **GNGTS: Gruppo Nazionale di Geofisica della Terra Solida

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Reconstruction of 3D seismogenic sources: role of seismic tomography and uncertainties from multi-source datasets

Scientific purposes: give a contribution to the definition of 3D fault models, test seismic tomography potentials in this field, understand limitations derived from different datasets, provide a quantitative quality evaluation of the final 3D model

I year goals

✓ Implementation of the seismic tomography code (sequential and parallel)

✓ Test of real case:

- Performance of the code
- Reliability of results

• Definition of study area/s

• Data collection (literature and field trip)

• Preliminary analysis

II year goals

• Data processing

• Seismic tomography (abroad experiences)

– University of Cambridge

– prof. Nicholas Rawlinson (traveltime tomography)

– Johannes Gutenberg

universitat (Mainz) – prof. Luca De Siena (attenuation tomography)

III year goals

• Quantitative 3D fault model building

• Evaluation of uncertainties

Work in progress

• EGU21 vPICO presentation

• “Regional fast-marching tomography in intracontinental settings: preliminary analysis of limitations and potential” – D. Talone, R. de Nardis, G. Lavecchia, L. De Siena (2021)

• Scientific paper about tomography in Central – Southern Apennines

Research project
PhD tutor: Prof.ssa Rita de Nardis