

# WE'RE HIRING!

an exciting PhD position at the GEM Foundation under the daTa and pRocessess in sEismic hAzard (TREAD) Project is waiting for you!

If you're interested in the challenges of earthquake forecasting in complex tectonic settings using integrated observations and physics:

send your application to [proposal-support@innovationacta.eu](mailto:proposal-support@innovationacta.eu) by April 30th, 2023.



## Modelling distributed seismicity using innovative approaches

### Objectives

In this PhD, we aim to address two aspects related to the modelling of distributed seismicity sources. We will test methods that define earthquake occurrence by considering deformation transients (e.g., changes in long-term background rates/coupling or fluid intrusions and related swarms). For example, we will test the definition of time-varying seismicity rates inverted from geodetic data and examine the definition of a strain-dependent corner-magnitude in a tapered Gutenberg-Richter distribution. We will test the methodologies proposed using seismicity models based on ETAS or MISD. In the second part, we will address the problem of combining distributed and fault sources within active areas. Firstly, the doctoral candidate will study the scaling of seismicity occurring in the proximity of faults. In the following phase, they will test various criteria for combining faults and distributed seismicity models and analyze the impact that different approaches have on the spatial pattern of earthquake occurrence and seismic hazard. Overall, the expected results will have an impact on the way in which we model seismic hazard in various tectonic regions and will help to improve the hazard and risk forecasts based on probabilistic methods.

### Expected Results

1. New approaches to define distributed seismicity sources, relying on geological and geodetic information;
2. New methods for combining distributed seismicity and fault sources.



### Main Supervisor

Marco Pagani (GEM)

### Co-Supervisors

C. Beauval, A. Soquet, D. Marsan (UGA),  
F. Agliardi (UNIMIB)



### Contacts

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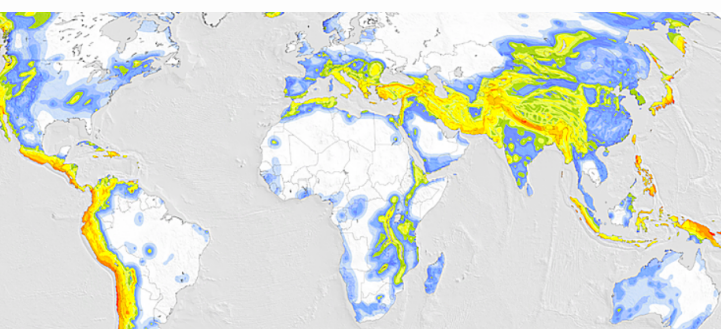


### Location & Duration

GEM Foundation (Italy) for a duration of three years)

### Additional advantageous skills

coding (e.g., Python, Julia, Matlab, C, etc.),  
statistics and seismic hazard.



For additional information about benefits, eligibility criteria and application process, visit:  
<https://euraxess.ec.europa.eu/jobs/59623>