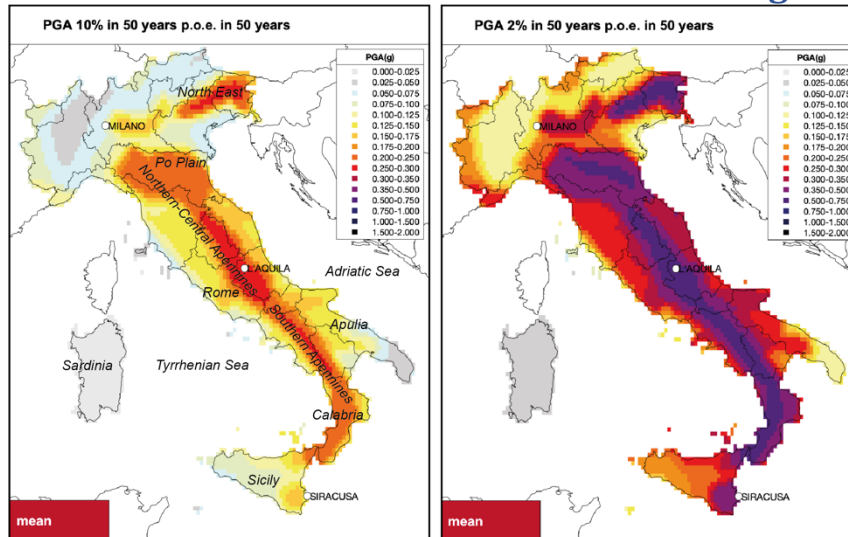




Course announcement Seismic Hazard & Risk

Dr. Francesco Visini

Istituto Nazionale di Geofisica e Vulcanologia



20 hours - 4 cfu

Classes will be in English
Compulsory attendance

Final essay based on a set of questions provided on the first day. Final essay is compulsory to obtain 4 cfu

ABSTRACT

Among natural hazards, geophysical hazards are among the most common and life-threatening. Among all the geophysical hazards that can impact society, earthquakes are probably the most serious, as strong seismic events tend to result in numerous injuries, loss of life, and significant economic impacts. These impacts typically necessitate the reconstruction of infrastructure, transportation networks, and people's homes.

These impacts have led to the need to address hazard evaluation, quantify uncertainties, and implement structural reliability approaches to develop partial safety factors. Seismic hazard refers to the probability of an earthquake occurring in a specific area within a given time frame, with ground motion intensity exceeding a certain threshold. By calculating seismic hazard, we can assess risk and incorporate it into building codes and land use planning.

This course is designed for an audience with diverse backgrounds and expertise. Participants will learn the fundamental concepts of earthquake hazard and risk assessment through step-by-step examples and hands-on sessions, which will help solidify these concepts. Additionally, participants will explore the commonly used OpenQuake engine for various types of calculations.

OBJECTIVES

This course is oriented to:



- Provide about PSHA and overview of the OpenQuake-engine hazard and risk calculators.
- Introduce theoretically and practically various seismic hazard calculation: classical Probabilistic Seismic Hazard Assessment (PSHA), event-based hazard and scenario hazard.
- Provide practical application for calculating hazard curves, hazard maps, uniform hazard spectra, disaggregation, stochastic earthquake event sets and ground motion fields.
- Introduce theoretically and practically classical PSHA-based risk, event-based risk, scenario risk and Scenario damage.
- Provide practical application for calculating asset-specific loss exceedance curves, average annual loss, loss maps, collapse maps, damage distribution per asset and building typology.

✉ **Register by Feb 23, 2024** sending email to:

Tea.taraborelli@unich.it & Francesco.visini@ingv.it (in cc)

For those not at University of Chieti-Pescara it is possible to follow the short course online: specify request when you register.

TIMETABLE – Aula del Consiglio INGEO			
MONDAY	26/02/2024	09:00	13:00
TUESDAY	27/02/2024	09:00	13:00
WEDNESDAY	28/02/2024	09:00	13:00
MONDAY	4/03/2024	09:00	13:00
TUESDAY	5/03/2024	09:00	13:00