



Session 27

Innovating and integrating: Bringing new science into Earthquake Hazard and Risk Assessment for Europe

Conveners:

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The past decade has witnessed a leap forward in the development of earthquake hazard and risk models. This has taken place not only at local and national scales. With the establishment of the European Facilities for Earthquake Hazard and Risk (EFEHR) Consortium, new datasets and ideas from across the European seismology and engineering communities have underpinned the latest European Seismic Hazard and Risk Models (ESHM20 and ESRM20). Looking to the future, we can see the emergence of new technologies and scientific innovations that have the potential to address the challenges in the characterisation of earthquakes and their impacts on society.

This EFEHR-organised session aims to highlight innovative developments in seismic hazard and risk modelling across Europe, with emphasis on how we can integrate emerging science and technologies into future generations of models to serve a wide range of applications. We encourage submissions on a diverse range of topics, including:

- State-of-the-art earthquake hazard, vulnerability, exposure, and risk models in Europe;
- Capitalising on new datasets and advanced technologies including remote sensing, geodesy, crowd-sourced data, machine learning, distributed acoustic sensing;
- Physics-based simulations of the earthquake rupture and strong ground shaking;
- Time-dependent hazard and risk analysis;
- Multi-hazard modelling integrating earthquake-induced events such as subaerial and submarine landslides, tsunamis, liquefaction, and co-seismic displacements;
- Novel methods for quantification, propagation, and reduction of uncertainties, and for validation and verification of models against data;
- Societal impact and applications in industry, including seismic design, catastrophe modelling, impact forecasting, and risk assessment.

