



# Hazard Activities and Challenges at the Global Earthquake Model

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**Abstract:** The hazard team at the Global Earthquake Model (GEM) Foundation develops hazard models and tools for performing probabilistic seismic hazard analysis. Two of the most successful products are the hazard component of the OpenQuake Engine - an open-source software for computing probabilistic seismic hazard and risk - and the Global Mosaic of hazard models. A large community of users currently employs the OpenQuake Engine to complete various analyses, including studies at a national scale and site-specific analyses. The mosaic is a collection of thirty probabilistic hazard analysis input models developed by national agencies, international projects, public and private organizations and GEM. In this presentation, an overview of the main products and activities carried out at GEM in the hazard space, including ongoing projects and future research directions are provided, followed by a discussion on the challenges encountered in hazard modelling.

**Biography:** Marco Pagani is the Seismic Hazard Coordinator at the Global Earthquake Model (GEM) Foundation and adjunct professor at the Institute of Catastrophe Risk Management, Nanyang Technological University in Singapore. He received a Master's degree in Geological Sciences and a PhD degree in Earth Sciences from the Università degli Studi di Milano. He has more than 25 years of experience in Probabilistic Seismic Hazard Analysis (PSHA), PSHA input model building, seismic microzonation and exploratory data analysis. His research interests involve the creation of PSHA input models combining different information and new approaches, the development of PSHA calculation methodologies and their incorporation into openly accessible tools including the OpenQuake Engine. He was involved in several national and international projects dealing with seismic hazard and risk analysis as well as consultancy projects for seismic hazard assessment of critical facilities in Europe, Africa and Asia. As part of his duties, he managed various national and international PSHA projects in South America, the Caribbean and Central America, and Africa. Currently, he is a member of the Technical Advisory Group (TAG) supervising the creation of the new national hazard maps for New Zealand and, the coordinator of the hazard work package of the European projects METIS and TREAD.