WORKSHOP:

UNDERSTANDING EARTHQUAKE HAZARD & RISK IN THE SOUTHWEST PACIFIC REGION

FORCE Project - Forecasting and Communicating Earthquake Hazard and Risk

November 18-19, 2024 | Suva, Fiji

BUILDING RESILIENCE: UNDERSTANDING EARTHQUAKE HAZARD AND RISK IN THE PACIFIC

The islands of the Southwest Pacific region are among the most vulnerable in the world to natural hazards, particularly earthquakes. Located along the Pacific "Ring of Fire", these islands face significant risks from seismic activity, which can lead to devastating tsunamis, ground shaking, and infrastructure damage. Understanding seismic hazard and risk is crucial for building resilient communities, protecting lives, and ensuring sustainable development in the region.

WORKSHOP TOPICS AND PLANNED OUTCOMES

This workshop will provide participants with a comprehensive understanding of seismic hazard and risk in the Southwest Pacific region. Key topics include:

- **Distinguishing between seismic hazard and risk:** Understand the key differences between seismic hazard, which refers to the potential for shaking and other earthquake effects to occur in an area, and seismic risk, which describes the possible consequences of an earthquake to society.
- **Probabilistic Seismic Hazard Analysis (PSHA):** Gain insights into the principles of PSHA, a widely used method for assessing earthquake hazard, and learn about its applications. Learn how seismic hazard models are developed and used to estimate the likelihood and severity of earthquakes in a given region.
- **Risk assessment outputs and applications:** Explore various risk assessment outputs, such as displaced population and vulnerable buildings, and their application in disaster risk reduction.
- **GEM's seismic hazard and risk models:** Explore the availability and accessibility of GEM's earthquake hazard and risk models for the Southwest Pacific region.
- **OpenQuake engine:** Discover the capabilities of the OpenQuake engine, a powerful open-source software for earthquake hazard and risk analysis.
- **Overview of the FORCE Project:** Learn about the objectives and activities of the FORCE Project in promoting earthquake preparedness and resilience.

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AGENDA

Day 1: Monday, November 18	
Afternoon	**Session 1:** Seismic hazard and risk activities in the Southwest Pacific • Opening • Introduction to GEM Foundation and the FORCE project • Presentations on ongoing activities: MRD in Fiji, SPC, UNESCO • Selected presentations for ongoing activities by country representatives
	Session 2: Global seismic hazard and risk assessment (GEM) • Global Seismic Hazard Mosaic and maps • Global Seismic Risk Assessment and maps
Day 2: Tuesday, November 19	
Morning	**Session 3:** Introduction to Probabilistic Seismic Hazard Assessment (PSHA) • Seismic hazard and risk vocabulary: general concepts • Conceptual introduction to GEM's OpenQuake Engine • Types of PSHA results and representations, hazard curves, hazard maps, and uniform hazard spectra • PSHA components: seismic source and ground motion characterisation • ***Interactive session:*** exploring seismic hazard results and data for the southern Pacific Islands region • Uncertainties, challenges and limitations to modelling hazard
Afternoon	**Session 4:** Introduction to Probabilistic Seismic Risk Assessment (PSRA) • Seismic risk analysis components: hazard, exposure, and vulnerability • Types of seismic risk results • ***Interactive session:*** GEM's risk models for the Pacific Islands countries • Seismic risk assessment results for DRR applications • Challenges and limitations; opportunities for improving the models
	Conclusion: Discussions, closing remarks and way to move forward

IMPORTANT NOTES

- **Date and Venue:** November 18-19, 2024 | Tanoa Hotel | Suva, Fiji
- **Required equipment:** Personal laptops for the hands-on exercises.
- **Registration:** The workshop is free, but registration is required. To sign up, please send an email to *training@openquake.org*.
- **Related event:** The STAR Conference (18th-22nd November 2024, Suva, Fiji) will explore the security of ocean and earth resources in the Pacific.

ABOUT THE GLOBAL EARTHQUAKE MODEL (GEM) FOUNDATION AND FORCE PROJECT

The Global Earthquake Model (GEM) Foundation is an international organisation dedicated to advancing the understanding and management of earthquake risk worldwide. Through open-source tools, comprehensive data, and collaborative research, GEM supports decision-makers, planners, and communities in their efforts to mitigate the impacts of earthquakes. GEM's work is especially relevant in regions like the Pacific, where seismic hazards are a constant threat, making it essential to integrate advanced risk models into local disaster preparedness strategies.

Within GEM's suite of initiatives is the Forecasting and Communicating Earthquake Hazard and Risk (FORCE) Project, supported by USAID, which specifically aims to enhance earthquake forecasting and improve the communication of associated risks. The FORCE Project is instrumental in developing strategies that are particularly relevant for regions like the Pacific Islands, where the need for accurate hazard and risk assessment is crucial.