Session ID: TNM-1

Title
TSUNAMI RISK ENGINEERING: AN INTER-DISCIPLINARY CHALLENGE

Convenors
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Description
Strong tsunamis are low-probability and high-consequence events. They are usually triggered by large subduction earthquakes, such as the 2004 Indian Ocean event. They can also be caused by complex cascades, such as flank collapse caused by the 2018 Anak Krakatau volcanic eruption and the 2018 Sulawesi submarine landslides triggered by a large strike-slip earthquake. They cause havoc and destruction along their paths and can have severe impacts and consequences on communities very far from their points of origin.

Tsunami research is a perfect example of inter- and trans-disciplinary collaboration. There are major research challenges that make it an extremely vibrant and stimulating field: gaps in coverage of historical data and use of paleo-seismic and tsunami data, physics-based modelling of tsunami genesis and propagation, modelling of structural response to tsunami waves, loss and consequence modelling, the need for high-performance computing and simulations, uncertainty treatment in tsunami risk assessments, issuing timely warning, complexities related to modelling of human response to tsunami, and the central role of communication and capacity building. The physical sciences and engineering community can contribute significantly towards addressing these challenges.

This technical section will welcome contributions across various aspects of tsunami risk engineering in a broad and inter-disciplinary sense: probabilistic tsunami hazard and risk analysis, modelling physical consequences of tsunami on buildings, infrastructure, and industrial facilities, tsunami resistant design in codes, design of vertical evacuation structures, experimental testing of tsunamis, damage-dependent fragility assessment, tsunami vulnerability and loss assessment, digital twins of tsunami and its consequences, physical countermeasures, tsunami early warning and impact forecasting, tsunami evacuation modelling, financial measures for tsunami preparedness, and tsunami risk communication.

Invited Speakers
P. Catalan [3,4], R. Cienfuegos [4], R. De Risi [5], S. Lorito [6], D. Samut Cambaz [7], A. Suppasri [8]

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