

# **ASSESSMENT, MANAGEMENT AND MITIGATION OF SEISMIC RISK FOR HYDRAULIC INFRASTRUCTURES**

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## **ABSTRACT**

Hydraulic infrastructures, such as dams, levees, hydraulic supports, spillways, channels, and flood expansion areas, play a crucial role in water resource management and hydrogeological risk mitigation. However, their exposure to seismic events can trigger cascading effects with critical consequences for public and environmental safety.

This special session will focus on the latest developments in seismic risk assessment and post-earthquake management and response strategies for these infrastructures. The objective is to promote the adoption of best practices in seismic engineering, fostering dialogue among experts, researchers and professionals in the field, and identifying major challenges for the near future.

The session will cover the following key aspects in detail:

- Advanced methodologies for seismic risk assessment, including probabilistic analysis and development of fragility curves for structural and non-structural elements.
- Assessment of damage and collapse mechanisms of hydraulic infrastructures, with a focus on post-event inspection protocols and strategies for monitoring structural degradation and the obsolescence of non-structural components.
- Risk management procedures, with particular emphasis on the application of FMECA-type procedures for the identification of vulnerabilities of main retaining structures, water depth control systems, actuators, measurement devices, mechanical and electrical components.
- Emergency preparedness and management to ensure the safety and operational continuity of hydraulic infrastructure in case of seismic events.

This session will provide an opportunity to discuss innovations in the field, promote knowledge transfer and contribute to the development of effective solutions to improve the resilience of these strategic infrastructures.