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CALL FOR ABSTRACTS

Special session on
*Probabilistic vulnerability estimation, lifetime assessment
and climate change adaptation of existing and new
infrastructure*

Description

Infrastructure assets are crucial components for ensuring the sustainable development of modern societies. They are usually designed to guarantee serviceability and safety levels based on the loading and environmental actions that are expected to occur during their lifetime. Since changes in climate could modify the lifetime performance of infrastructure by increasing or decreasing failure risks, a rational and scientific approach is necessary to deal with the adaptation of existing and new deteriorating infrastructure in a comprehensive way.

Motivation

This special session addresses the probabilistic vulnerability, lifetime assessment and adaptation of existing and new infrastructure to interceptable and non-interceptable events under various climate change scenarios. For example, coastal infrastructure assets in the Atlantic area are subjected to progressive deterioration (corrosion) and sudden events (floods, extreme winds, etc.) that affect their serviceability and safety.

Therefore, the use of probabilistic tools is of particularly relevance for considering the uncertainty associated with the occurrence of the natural hazards, the vulnerability of the infrastructures, as well as the ongoing climate change variability and its effect on both hazard and vulnerability.

Objective

This special session aims at gathering contributions from the research community and industry developing and applying probabilistic tools in the context referred before. The topics include, but are not limited to:

- Approaches for uncertainty and spatial variability quantification of structural condition and deterioration processes.
- Probabilistic service life prediction (e.g., physical or surrogate models), impact quantification and digital twinning considering climate change and variability effects.
- Decision-making, mitigation strategies and adaptation of infrastructure systems related to climate hazards.
- Study cases

Organizers

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