

COMPDYN 2023

12-14 June 2023, Athens, Greece

9th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering

MS - Monitoring, damage modelling and soil-structure-interaction in cultural heritage constructions

A large part of the world-historical and architectural heritage is located in areas subjected to earthquakes or other natural phenomena such as landslides. These buildings are mainly composed of reinforced concrete, masonry as well as hybrid timber constructions. As their safety could be compromised by detrimental factors like time, material degradation, previous damage or changes in external loading and environmental conditions (e.g. climate change), cultural heritage constructions need to be scrupulously assessed, protected and preserved for the next generations. However, this is a very challenging task that not only involves complex structural analyses requiring nonlinear and large displacement formulations. As well-known, the static and dynamic response of a structure may significantly change if it is supported on a stiff or soft soil. Therefore, a reliable safety assessment for cultural heritage constructions cannot be achieved without a detailed modelling of the subsoil and eventually accounting for the contribution of soil-structure interaction.

This Minisymposium aims to bring together researchers with different expertise such as structural mechanics, geotechnical engineering, structural dynamics, earthquake engineering, geomechanics, materials science, computational and numerical methods, experimental tests, history of constructions to discuss damage patterns modelling, including new approaches, analytical, numerical and phenomenological models, able to capture different loading and displacement situations. Topics of particular interest include but are not limited to:

- soil-structure interaction
- ambient vibrations
- dynamic in-situ tests
- uncertainties identification
- effects of foundation settlements
- interaction with adjacent constructions
- damage identifications techniques and inverse analyses
- structural health monitoring
- coupled building–foundation systems

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