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Special Session: CC-S2

Underground Structures in Liquefiable Ground

Organizers:

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Aims and scope of the special session:

Liquefaction of soil would result catastrophic collapse of buildings due to lack of bearing capacity or ground flow. The trigger of soil liquefaction was studied for decades, but mostly focused on surface buildings or foundation. Tunnels or metro stations as key infrastructures would cross liquefiable ground inevitably. Much efforts have been put on experiments not only element tests on the dynamic performance of sand, but centrifuge tests with typical underground structures. However, the critical interpretation of the testing results require the theory of computational soil dynamics, structural mechanics, and the mechanics of soil-structure interaction.

This special session aims to consider every aspect of the computational approaches to reveal the mechanism of underground structures in liquefiable ground. Experts and researchers worldwide are expected to present their pioneer exploration. Modeling of element tests with variable density, loading path, saturated conditions are the basic aspects. Simulation of laboratory tests with centrifuges, 1-g shaking tables, or even field tests are also encouraged, especially with different types of underground structures. New types of numerical methods are also a topic for this challenging subject.