Takaji Kokusho

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Liquefaction Research by Laboratory Tests versus In Situ Behavior

Abstract

Major advances in liquefaction research in the laboratory to understand the basic mechanisms in comparison with in situ behavior during previous earthquakes are reviewed. Then, several issues related to liquefaction triggering and post-liquefaction deformation are selected for further discussion in the author's perspective. These include effects of fines associated with aging, effects of gravels, effects of initial shear stress and lateral spreading and lateral flow due to void redistribution. It has been disclosed that a quite a few issues still remain to be settled in evaluating liquefaction onset and post-liquefaction deformations for improving engineering design, particularly for Performance-Based Design (PBD).

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Biography

Dr Takaji Kokusho is a Registered Engineer based in Japan. Since 2015, he has been the Professor Emeritus at Chuo University. Prior to this, he was a Professor in the Civil & Environmental Engineering Department, Faculty of Science and Engineering at Chuo University. Dr Kokusho specializes in dynamic soil properties and their evaluation, dynamic response of ground, liquefaction of sand/gravelly fines containing sands and earthquake induced slope failure. His awards include the Research paper Award from the Japanese Geotechnical Society (2014) and the Research paper Award from Japan Society for Civil Engineers (2005).