

MECHANICS AND MODELLING OF SHALLOW LANDSLIDE IN PYROCLASTIC SOILS

Speaker

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Abstract

Landslides of the flow type are among the most severe natural hazards, and they often cause catastrophic consequences when involving pyroclastic soils. These soils are widespread all over the world, also in very highly populated regions. Modelling the triggering mechanisms of these landslides is a fundamental step for hazard assessment. Several approaches are available which, however, must be systematically checked through their application to well-documented case histories. In this lecture, a general discussion is provided for these phenomena. Then, a case study is selected from Southern Italy, where huge rainfall-induced landslides of the flow type caused 159 victims in May 1998. Based on geology, engineering geology, geotechnics and geomechanics, a multidisciplinary approach is used for the analysis, at different scales, of the occurred landslides and their triggering mechanisms have been individuated. For some triggering mechanisms, which are observed also in other geoenvironmental contexts and for other geomaterials, the geomechanical modelling is performed through limit equilibrium, uncoupled and hydro-mechanical coupled stress-strain analyses. Those results are achievable starting from standard and advanced laboratory testing of unsaturated volcanic silts and sands susceptible to instabilities and liquefaction upon wetting.

Biography

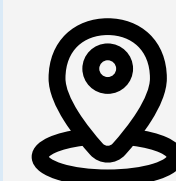
Sabatino Cuomo is a Professor of Geotechnical Engineering at the University of Salerno, Italy. His research interests include Landslide Mechanisms, Solid-fluid transition, Landslide Dynamics, Regional slope stability, Slope erosion, Geosynthetics reinforcement, Laboratory testing of unsaturated soils, and Constitutive Modelling. He has published more than 120 papers in international journals and conference proceedings. Prof. Sabatino Cuomo serves as Associate Editor-in-Chief of Geoenvironmental Disaster Journal, Springer, and member of the Editorial Board of Computers and Geotechnics, Canadian Geotechnical Journal, Soils and Foundations, Geotechnical Engineering, and Environmental Geotechnics. He is Coordinator of LARAM School (International School on "Landslide Risk Assessment and Mitigation") for PhD students, and a Board Officer for the Italian Chapter of IGS (International Geosynthetics Society).



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