Geotechnical characteristics of the pyroclastic mesa and of the clayey slope of Civita di Bagnoregio

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Summary

The paper summarises the geotechnical properties of the geological formations (massive ignimbrite, stratified pyroclastites and clayey substratum, from top to bottom) of the mesa where Civita di Bagnoregio is settled, through a detailed analysis of literature data and risk mitigation projects carried out over the past 60 years. The ignimbrite layer is characterised by extremely low values of the uniaxial compressive and tensile strengths. The material forming the clayey slope is softened in the first few meters and gains significant consistency with depth. This data analysis establishes a framework for the mechanical characterization of the materials forming the mesa, except for the stratified pyroclastites, which could not be sampled in an undisturbed state through boreholes. However, this study demonstrates the need for more extensive and refined future geotechnical campaigns to improve the geotechnical knowledge of the site. This enhanced framework should lead to a more rational understanding of the landslide mechanisms and an effective design of stabilization measures.