



Centrifuge tests on small-scaled sandy slopes subjected to rainfall

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The stability of sandy slopes has been evaluated by performing centrifuge model tests on Nottingham Centre for Geomechanics (NCG) 2m radius geotechnical centrifuge. Small-scaled slope models from fine-grained silica sand were subjected to rainfall conditions in the increased gravity environment. The intensity of rainfall, with respect to the soil permeability, and the duration that leads to instability were determined, defining rainfall thresholds. Tests were performed in a controlled climatic environment, using a climatic chamber. Slope models were prepared in 1-g environment using moisture-tapping method, ensuring initial unsaturated conditions. The infiltration of rainfall water and the resulting changes to the pore water pressure regime before and during failure were recorded using miniature pore water pressure transducers (PPTs) and tensiometers, while deformations were determined using Particle Image Velocimetry (PIV). Finally, some preliminary results are presented concerning changes of soil's degree of saturation and pore water pressures during gravity turn-on.