



## **The Effect of Unsaturated Flow and the Root System on the Vegetated Slope Stability**

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This research established an unsaturated vegetated slope stability model combines the hysteretic flow and the root strength model. The hysteresis effect and the root system of vegetation are important impact factors in the mechanics of unsaturated shear strength. Engineers should consider the influence of the transportation of soil water content and the root strength of vegetation elements on the surficial slope instability. In this paper, the present process of the integrated model calculated the changes of the factor of safety (FS) in accordance with different wetting front process profiles and the species of vegetation. This process will enable us to select and compare combinations of vegetation species and densities in order to find the optimum location for increased FS and thus promptly improve slope stability prior to slope destruction. An advanced understanding of the process mechanism, afforded by the model, is critical for the reliable and appropriate design for slope stabilization.

Keywords: hysteretic flow, root strength, factor of safety (FS)