

Quantification of vegetation effects on slope stability using a new investigation approach

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The quantification of slope stability, increased due to developing vegetation is not satisfactorily solved yet. The role of plant associations on slope stabilisation is the result of highly complex interactive processes under natural conditions as well as after soil bioengineering measures have been applied.

Therefore, at WSL a new method was developed for quantifying these multifaceted effects (Böll & Graf 2001). This approach is based on the analysis of soil aggregate stability at saturated conditions referring to observations of structured soils at the critical point of failure during heavy rainfall events. The method is convincing due to its quick and easy application, cost efficiency, and the fact that samples are tested as functional unit, including all natural aspects, biological as well as physical.

Results are presented of three different investigations conducted at WSL that tested the new method with natural and artificially prepared samples, respectively. Furthermore, these data are compared with such of other studies using different approaches to address vegetation effects on slope stability. There will be some speculation on new potential applications of the method and data interpretation, too.