



## **A simplified model to simulate subsurface flow for a very steep hillslope with a complex geometry**

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Recent literature [*Fan e Bras*, 1998; *Ogden e Watts*, 2000; *Willgoose e Perera*, 2001] emphasizes the need to develop simple but realistic models to represent hydrological processes at the hillslope and the catchment scales. Such models should be able to quantify properly both surface and subsurface flow, adopting a simple but complete schematization. At the same time, the spatial and temporal variability of all hydrological, topographic and geomorphologic input should be included, minimizing the computational effort and the number of parameters. The results obtained could also be applied to evaluate the hillslope stability.

The HSB model [*Troch et al.*, 2003] is applied to simulate the dynamics of subsurface water storage and groundwater flow for a very steep hillslope (about 50%). The investigated area ( $S \cong 5500 \text{ m}^2$ ) is located in Val Ferrera on the Northern side of Italy.

The water table fluctuation is compared with results obtained applying the Richards equation to a 3D domain. The aim is to evaluate approximation introduced by the simplification for the development of appropriate analytical solutions for groundwater flow along complex hillslopes.