A Wet Layered Sloping Sponge? The Role of Volcanic Ash Soils in Water Transport and Tracer Mixing at a Tropical Hillslope

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Giova Mosquera
David Windhorst, Lutz Breuer, and Patricio Crespo
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Soil moisture dynamics

A perched water layer (black lines) is formed below the root zone (grey lines).
Soil moisture dynamics

Fast response in the entire soil profile during rainfall events from the rooted (grey lines) to the mineral layers (orange lines)
Soil water isotopic composition and transit times

Short transit times in the organic horizon of the soil (grey and black lines) despite the formation of the perched layer
Soil water isotopic composition and transit times

The subsurface hydrological behavior of volcanic ash soils (Andosols) resembles that of a “wet layered sponge” in which vertical flow paths dominate despite the formation of a perched water layer below the root zone.
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Water transport and tracer mixing in volcanic ash soils at a tropical hillslope: A wet layered sloping sponge

Giovanny M. Mosquera, Patricio Crespo, Lutz Breuer, Jan Feyen, David Windhorst