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

EGU 2020

Giova Mosquera

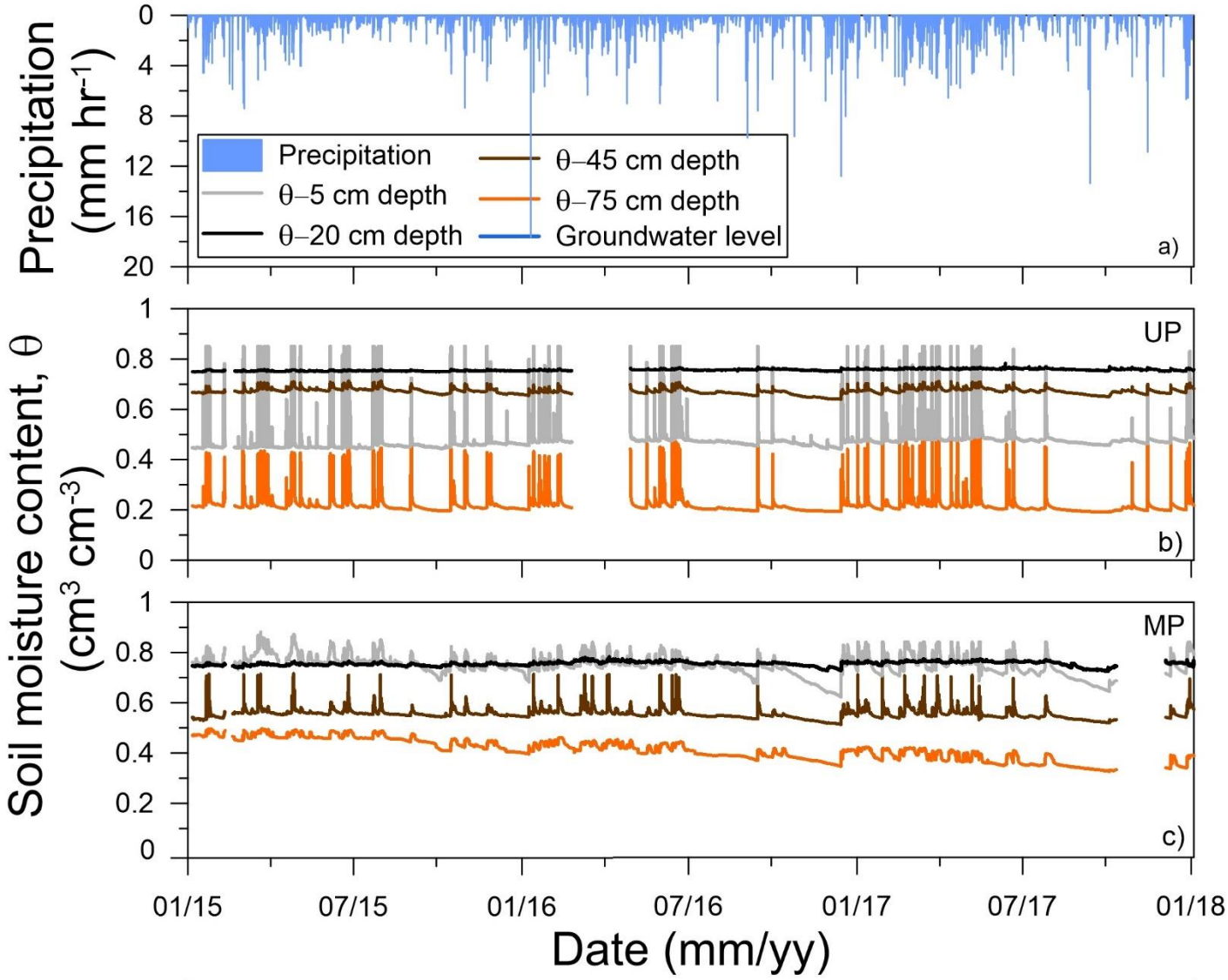
David Windhorst, Lutz Breuer, and Patricio Crespo

08/05/2020

UNIVERSIDAD DE CUENCA
Educamos para el desarrollo

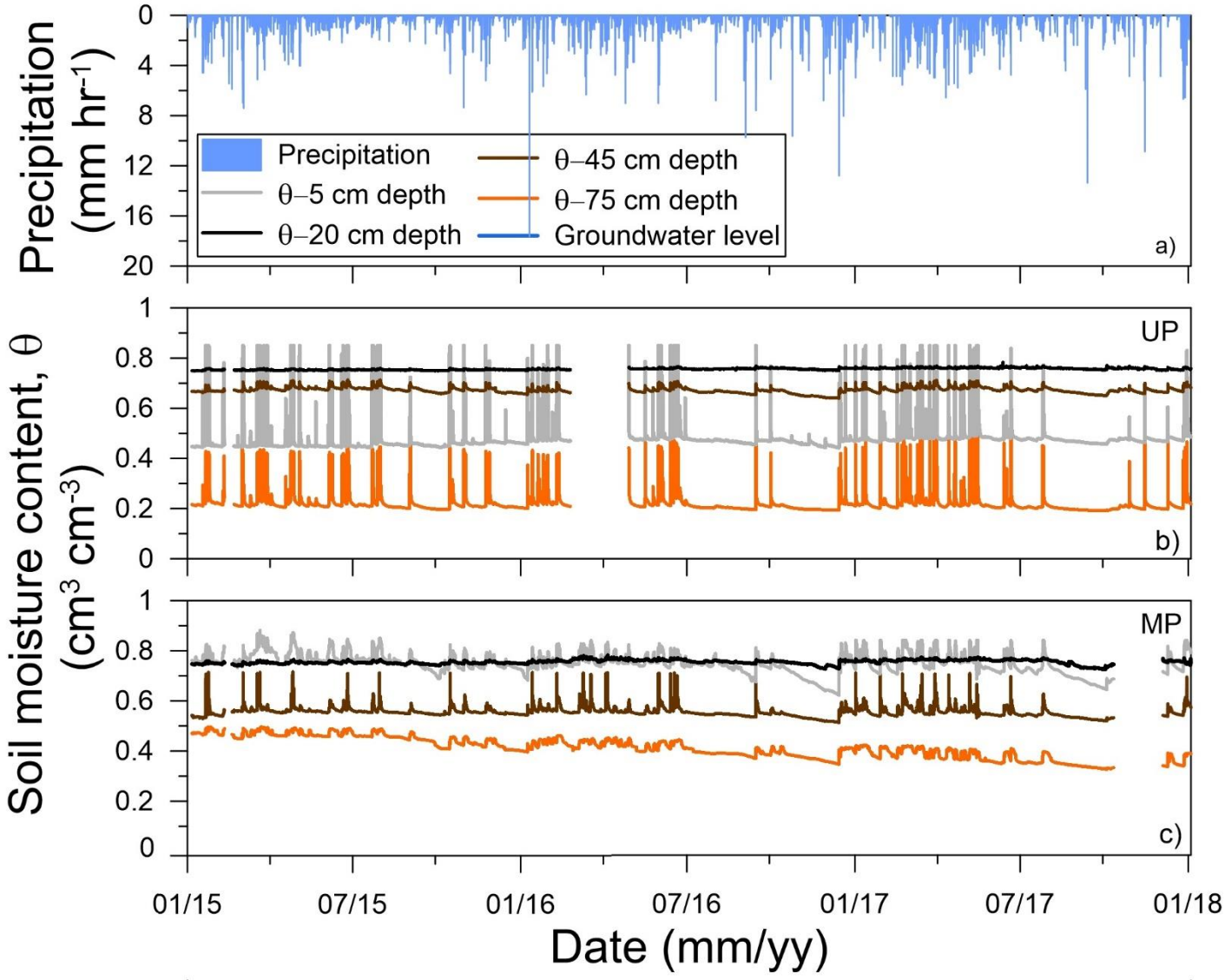
JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

Soil moisture dynamics



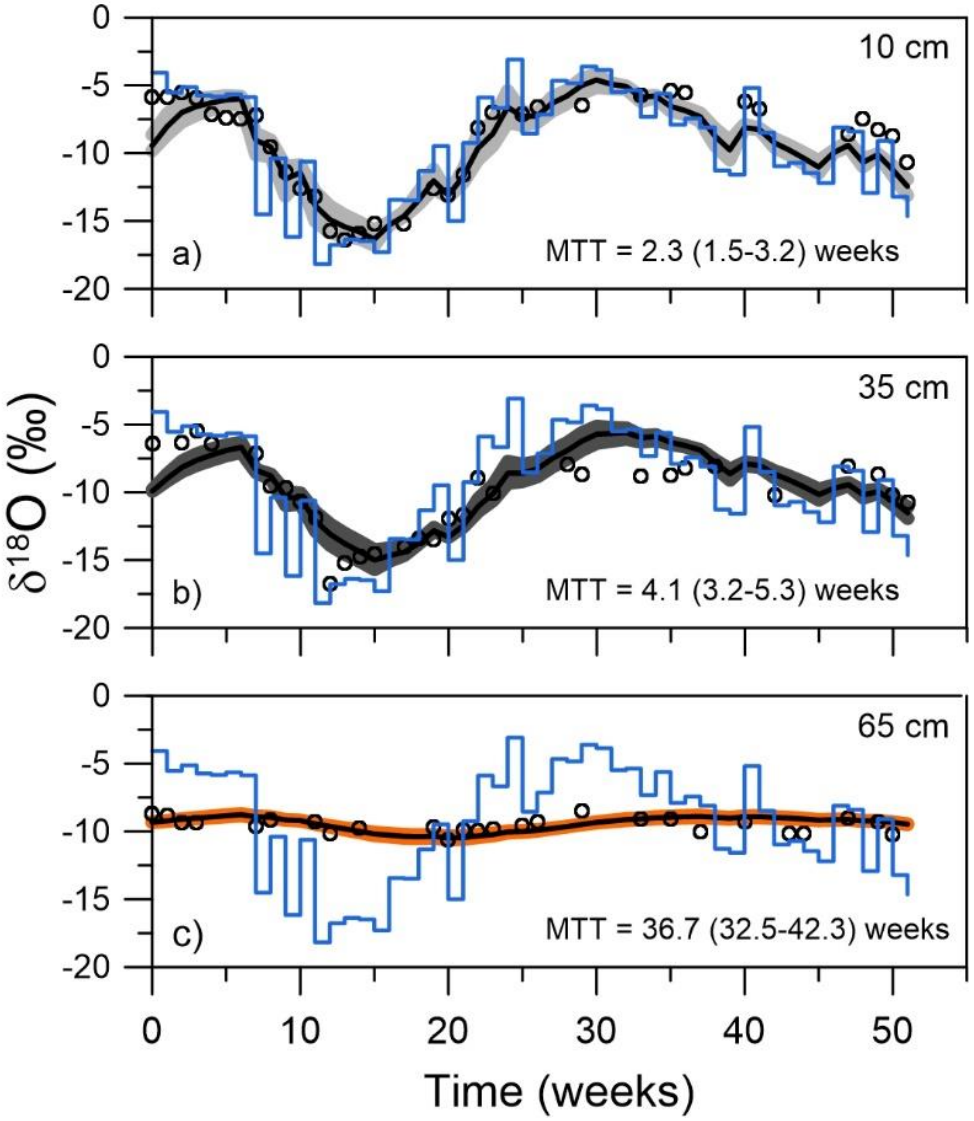
*A perched water layer (**black lines**) is formed below the root zone (**grey lines**)*

Soil moisture dynamics



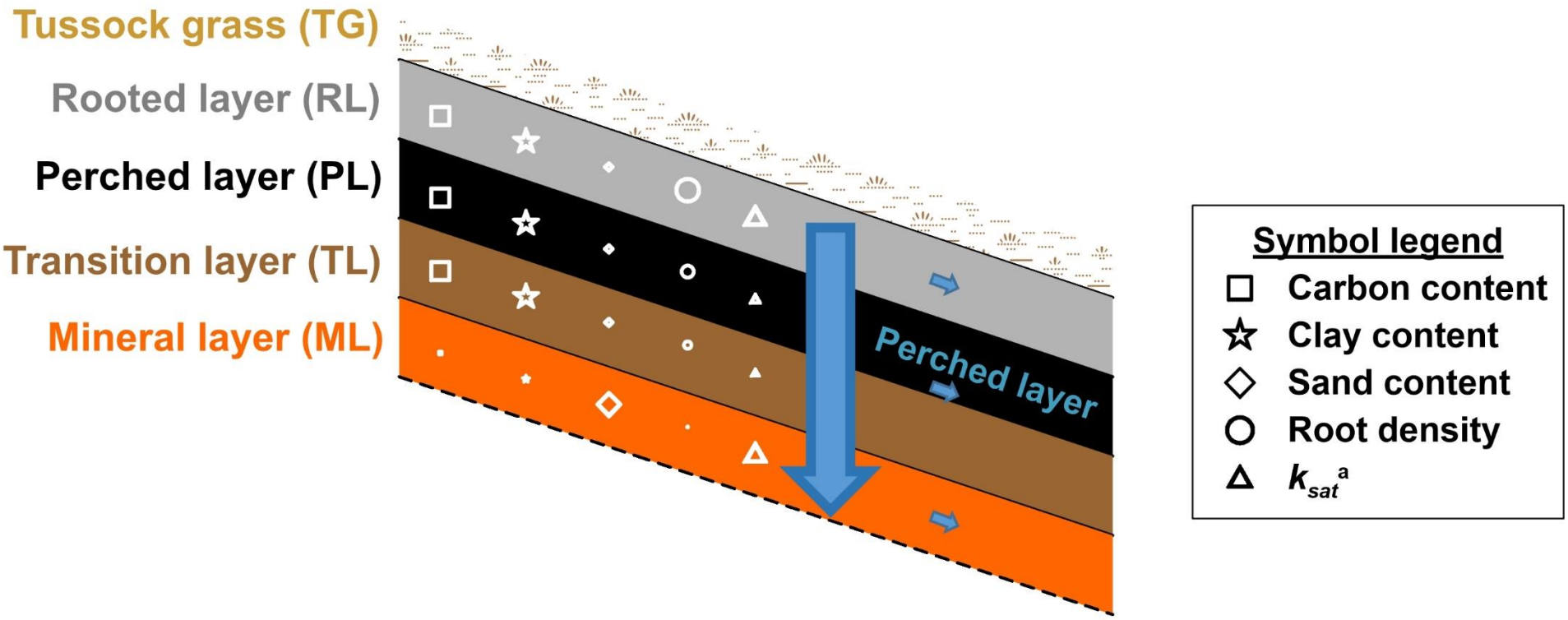
*Fast response in the entire soil profile during rainfall events from the rooted (**grey lines**)to the mineral layers (**orange lines**)*

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 d**espite the formation of a perched water layer below the root zone.*

Related publication

Hydrological Processes

USING WATER AGE TO EXPLORE HYDROLOGICAL PROCESSES IN CONTRASTING ENVIRONMENTS | Open Access

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