



## UFZ-Seminar

Research Unit



## Water Resources and Environment



17 June 2019, 10 a.m.

Room E 01, Theodor-Lieser-Straße 4, Halle/Saale

### Paolo Benettin

Laboratory of Ecohydrology at EPF Lausanne, Switzerland

will give a talk on:

### Transport in soils and catchments: a Travel Time Distribution approach

After a storm event, the hydrologic response of a watershed is known to rapidly displace large amounts of water that had been contained in the system storage prior to the arrival of the storm. The actual time spent by water within a catchment spans a large range of timescales and typically exceeds the characteristic times of the hydrologic response by at least two orders of magnitude. Water travel time distributions express how long water takes to travel through a watershed and can be used to address a number of environmental challenges, such as modeling the dynamics of solutes exported to rivers. Among different approaches, the “StorAge Selection” (SAS) framework considers water parcels as a dynamic population that evolves through time and gets progressively routed to the different catchment outlets (i.e. streamflow and evapotranspiration). Although the methodology was originally developed for hydrologic transport in watersheds, parallels and applications will be made to the evolution of other populations, like humans or forests. This seminar aims to illustrate methods and results related to water age modeling in catchments and to show how the SAS approach is a versatile framework that applies to multiple challenges in ecohydrology.