

SEMINAR

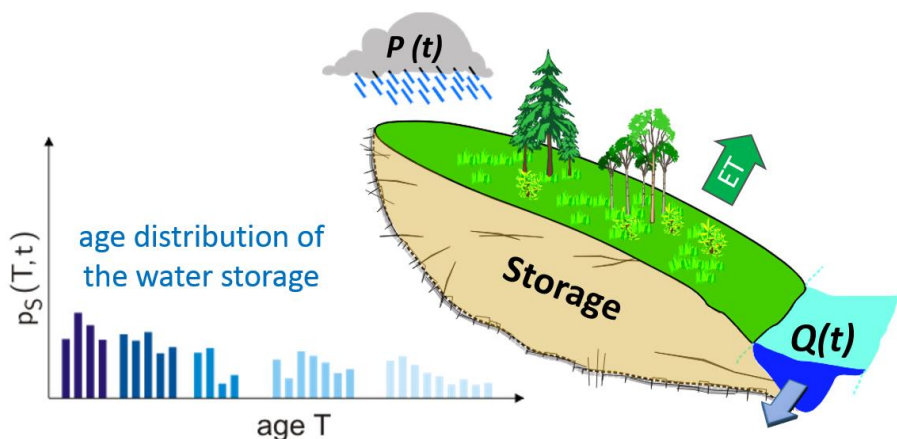
Tuesday, May 29, 17:00 h, ETH Hönggerberg HIL D 10.2

Dr. Paolo Benettin
Laboratory of Ecohydrology ENAC/IIE/ECHO
EPFL Lausanne, CH

Travel Time Distributions in Environmental Systems

Abstract:

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 subsurface 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 river water quality, quantifying the interactions between shallow and deep flow systems and understanding nutrient loads persistence. A new framework will be outlined, where water parcels are seen as a dynamic population that evolves in time following the sequence of water inputs and outputs to a watershed. This approach allows exploring watersheds' affinity for releasing younger/older water to streamflow and its broader implications.



SHORT bio

Paolo Benettin is a scientist at the Laboratory of Ecohydrology at EPFL since 2015. He owns a master and a Ph.D. in Environmental Engineering from University of Padova, Italy. The main research field is catchment hydrology, with special interest in hydrologic transport and travel time distributions. His work aims at bridging and implementing theories of transport at catchment scale with empirical evidence from field measurements.

EPFL web page <https://people.epfl.ch/259200>

For more information contact: Peter Molnar (molnar@ifu.baug.ethz.ch)