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A European vision for hydrological observations and experimentation

The WATSON COST Action - WATer isotopeS in the critical zONe: from groundwater recharge to plant transpiration

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The WATSON COST Action (CA19120; https://watson-cost.eu/) is a large European network of researchers and stakeholders started in September 2020. The main objective of the Action is to integrate and synthesize current interdisciplinary scientific knowledge on the use of the stable isotopes of hydrogen and oxygen in the water molecule to understand the mixing and partitioning of water in the Earth's Critical Zone.

The Action currently includes roughly 230 members from 37 European countries. WATSON is organized into working groups that focus on a major scientific challenge: 1) groundwater recharge and soil water mixing processes; 2) vegetation water uptake and transpiration; and 3) catchment-scale residence time and travel times. A fourth working group organizes the network and dissemination activities.

WATSON aims at better connecting academia and stakeholders from industry, non-profit organizations, and government agencies. WATSON fosters the exchange of information and expertise among scientists and stakeholders, builds capacity in the use of the latest isotope approaches and translates scientific cutting-edge knowledge into tangible outputs and recommendations on how to use stable water isotopes to effectively address water management needs.

My talk will describe the WATSON network, as well as its activities. These include the preparation of an open-access database of water isotope-based studies in the Critical Zone, the development of protocols for water sampling and stable isotope analysis, the preparation of review papers, the organization of virtual and face-to-face meetings, seminars, training schools, and the exchange of students, researchers, and technicians via short term scientific missions.