

Dr. Davide Vanzo

Senior Research Assistant at the Laboratory of Hydraulics, Hydrology and Glaciology (VAW), Swiss Federal Institute of Technology (ETH), Switzerland.

**Eco-morphodynamic modelling:
challenges (and opportunities) for river restoration and adaptation**

15. September 2023

11:30-13:00 Uhr

KIT, Geb. 10.81, Room 305

or online:

<https://kit-lecture.zoom.us/j/63188721189>



Eco-morphodynamic modelling: challenges (and opportunities) for river restoration and adaptation

Abstract

Riverscapes are highly dynamic systems hosting a plethora of physical, ecological, and biochemical processes. Anthropogenic alterations, such as channelization and hydropower production, together with global warming pose increasing challenges to river scientists and managers for the mitigation of natural hazards but also for the conservation and adaptation of river ecosystems. Hydropower production has several adverse consequences on downstream reaches, such as alteration of flow regime and hydropeaking (sharp variation of discharge due to hydroelectricity production) and reduction of sediment dynamics. To develop modelling approaches for the simulation of eco-morphodynamic processes, the understanding and quantification of underlying river processes are of crucial relevance. In this seminar I'll share my experience on the development and application of eco-morphodynamic models, spanning from habitat dynamics and morphological changes to the recruitment of riparian vegetation, with a particular focus on hydropeaking rivers.



Biography

Davide gained his Ph.D. in Environmental Engineering at the University of Trento (IT), working on the modelling and quantification of hydropeaking alterations in rivers. He then joined the Laboratory of Hydraulics, Hydrology and Glaciology (VAW) of ETH Zürich, where he focused on gravel-bed river morphodynamic modelling. He then moved to Eawag (Swiss Federal Institute of Aquatic Science and Technology) where he worked in close contact with freshwater biologists and ecologists. There he investigated the water thermal heterogeneity in rivers affected by hydropower production. Since 2020 he is senior researcher at ETH Zürich, working on different topics related to morphodynamic modelling and ecohydraulic processes.