

# TELLING THE STORY OF A SEDIMENT GRAIN FROM PROVENANCE TO TRANSPORT: THE ROLE OF LANDSCAPE CONNECTIVITY

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Date & time: Monday, November 11<sup>th</sup> 2024 at 1-2 PM (ET)

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The proposed research aims to advance our understanding of how critical interfaces in landscapes affect transport and hydrobiogeochemical phenomena from the small scale to the landscape scale, and from the event time scale to seasonal, inter-annual and decadal time scales.

We will systematically look at the structure, evolution, and functioning of two interfaces that are particularly relevant to critical zone strongly affected by human action and weather: (i) the near land-surface; and (ii) the river corridor advance prediction of sediment movement in order to overcome predictability bottlenecks, and large uncertainty in the estimation of sediment budgets.



Dr. Papanicolaou (Thanos) is a world leader in flow turbulence-sediment interactions and developing Critical Zone science. His research “connects” uplands to the river and estuarine environment in a way that integrates human activities with the natural environment for the benefit of both, including: (a) isotopic sediment fingerprinting as a means to track non-point source pollution across scales; (b) the relation between near-turbulence and incipient motion of bed sediment to explain intermittency in sediment movement; (c) water erosion processes over a soil surface using fusion of models and sensors; (d) perturbation theory and knickpoint migration with implications to infrastructure; and (e) dynamics of soil carbon.

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