

What the geochemistry of rivers tells us about critical zone processes and representation.

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In this talk I will try to give an overview of the present state of art of how it is possible to use river chemistry to better know (and represent) this fine pellicle at the surface of the Globe that we call the critical zone and on which humans live. River chemistry has been studied for a very long time because rivers have this great property of "doing the average" of all soil/groundwater/biota connected processes at all scales. Since the earlier studies back in the 80's, we now have a better view of the advantages and drawbacks of this approach. I will summarize some of the major advances in river geochemistry over the last decades, show how the initial idea evolved and enunciate what are, according to me, the big scientific challenges that remain to be solved.