The karst and the furious – ways to keep calm when dealing with karst hydrology

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The dissolution of carbonate rock ‘karstification’ creates pronounced surface and subsurface heterogeneity and results in complex flow and transport dynamics. Consequently, water resources managers face significant challenges keeping calm when dealing with karst water resources especially in times of environmental change. My lecture not only will provide an overview of the peculiarities of karst hydrology but it will also offer some approaches that facilitate the assessment of environmental changes on karst water resources. Using two case studies, one at the plot scale and the other at the scale of an entire continent, I will contrast the opportunities and challenges of dealing with karst across different scales and climatic regions. Along these case studies, I will elaborate (1) how understanding on dominant karst processes can be obtained, (2) how this understanding can be incorporated into karst specific modelling approaches, and (3) how karst models developed at different scales can be used for water management. The presentation will conclude with some thoughts to facilitate less furious implementations of karst approaches for everyone.