



## **Global patterns of the human interplay with floods and droughts**

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What opportunities and limitations do high-resolution global data pose for unravelling the human interplay with floods and droughts? The mutual interplay between societies and hydrological extremes is not yet fully understood, involving several puzzles. For instance, two hypotheses on how societal water management strategies can lead to unintended long-term consequences are the safe development paradox of “the levee effect”, as well as the “water-supply-demand-cycle”.

My research will investigate this socio-hydrological interplay between societies and hydrological extremes on a global scale - through testing theoretical hypotheses and case study results from co-researchers within the ERC funded research project HydroSocialExtremes. The aim of this global comparative analysis will be to answer whether tested dynamics are exceptional cases or generic patterns. And if so, do they occur under identifiable circumstances? The gain of this knowledge will be to improve the understanding of where, how and why risk changes over time. This would in turn improve the assessments of alternative water management strategies’ short- and long-term effects and therefore also reduce society’s vulnerability to hydrological extremes.

The spatiotemporal global analysis will use recent advancements in open worldwide inventories and freely distributed remote sensing data. For instance, this includes data related to: 1) Hydrological extremes (e.g. drought and flood inundation maps derived from satellite imagery), 2) Disaster impacts (e.g. global database of losses and fatalities), 3) Society (e.g. satellite night-time as proxies of economic activity), and 4) Human alterations (e.g. global land-use maps).