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Groundwater effects on flood dynamics

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Fluvial floods are typically the result of large precipitation or snowmelt events, often conditioned by high pre-event soil moisture levels. However, soil moisture represents only a small fraction of the water stored in landscapes. Groundwater, often a much larger water store, may also contribute a significant proportion of river flow but its role in large-scale flood assessments often remains understudied. Here I discuss how (ground)water storage conditions can shape multi-year variability and long-term trends of river flow and flooding across thousands of catchments worldwide. Since often relatively slow groundwater dynamics can affect the much faster and more erratic flood responses, incorporating groundwater may be important to accurately model and analyze these hydrological extremes.