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The interplay between hydrological flushing and biogeochemical cycling in a 3rd order stream

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High-resolution water quality data obtained with *in situ* sensors and analysers coupled to flow discharge records can reveal critical information on hydrochemical and biogeochemical functioning of aquatic ecosystems. In this study we explore a rich high-resolution hydrochemical dataset to synthesise the impact of hydrological flushing and biogeochemical cycling on water quality in a 3rd order groundwater-fed stream draining an agricultural catchment dominated by grassland. Our results show that despite large storm to storm diversity in hydrochemical responses, storm event magnitude and timing have a critical role in controlling the type of mobilisation, flushing and cycling behaviour. These results can be used to evaluate pollution risks in streams and their effects on freshwater quality.