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Analysis of flood-rich and flood-poor periods across Germany

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It has often been suggested that flood occurrence is clustered in flood-rich and flood-poor periods. We test this suggestion for 68 catchments across Germany for the common period 1932-2005. For assessing the robustness of the results, we use three methods to derive the significance of temporal clustering. Clustering is assessed for different thresholds and time scales to understand whether it changes with flood severity and time scale. The majority of catchments show temporal clustering at the 5 % significance level for low thresholds and time scales of one to a few years. However, clustering decreases substantially with increasing threshold and time scale. We hypothesize that flood clustering in Germany is mainly caused by catchment memory effects along with intra- to inter-annual climate variability, and that decadal climate variability plays a minor role.