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Rhine flood stories: Spatio-temporal analysis of historic and projected flood formation in the Rhine River basin

Display Material

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Introduction

- Formation of flood waves in large catchments often is complex
- Superposition of precipitation and snowmelt from different areas
- Understanding of flood formation crucial for the assessment of flood hazard

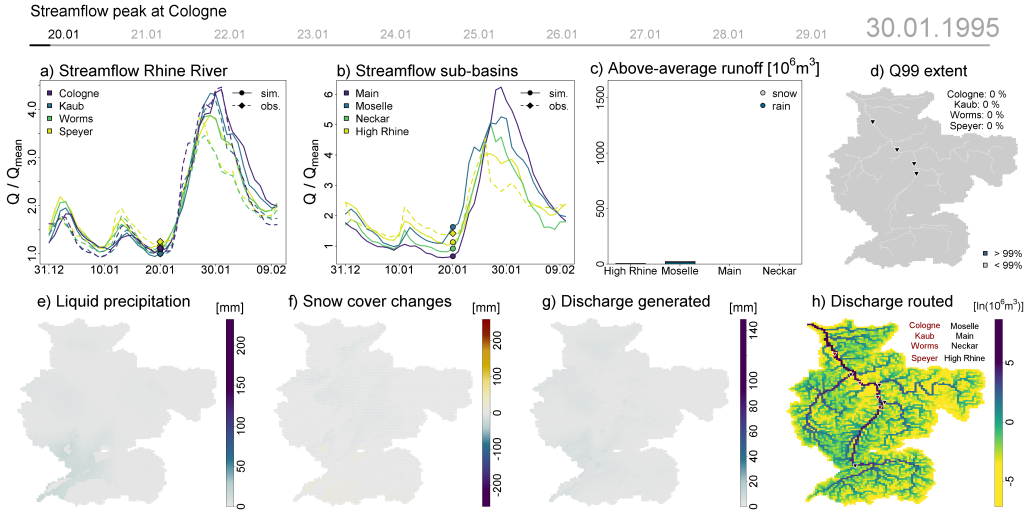
Spatio-temporal analysis of flood formation in the Rhine basin

Spatio-temporal analysis

Assessment of catchment dynamics in a sequence of figures:

- Simulated streamflow along the Rhine River (Speyer, Worms, Kaub und Cologne)
- Simulated discharge main tributaries (High Rhine, Neckar, Main and Moselle)
- Above-average runoff tributaries (runoff above long-term mean 1951-2000)
- Quantile extent (fraction grid cells generating runoff above 99% quantile)
- Maps with cumulative precipitation, snow cover changes und discharge

Historic example: Rhine flood January 1995



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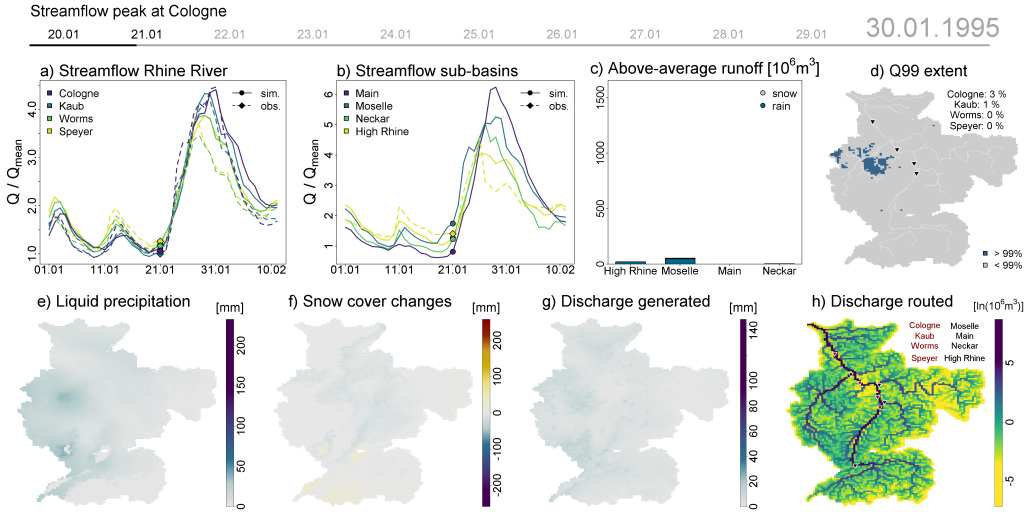

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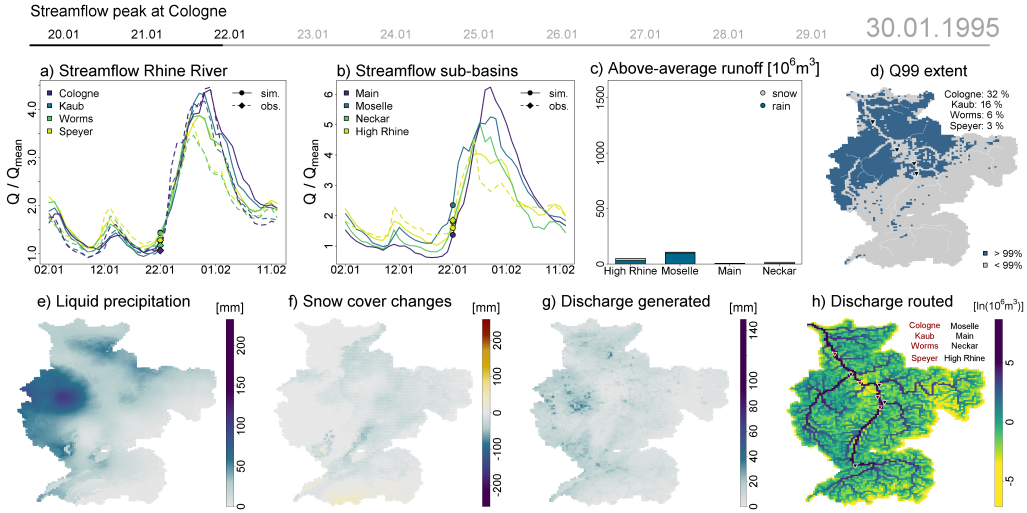

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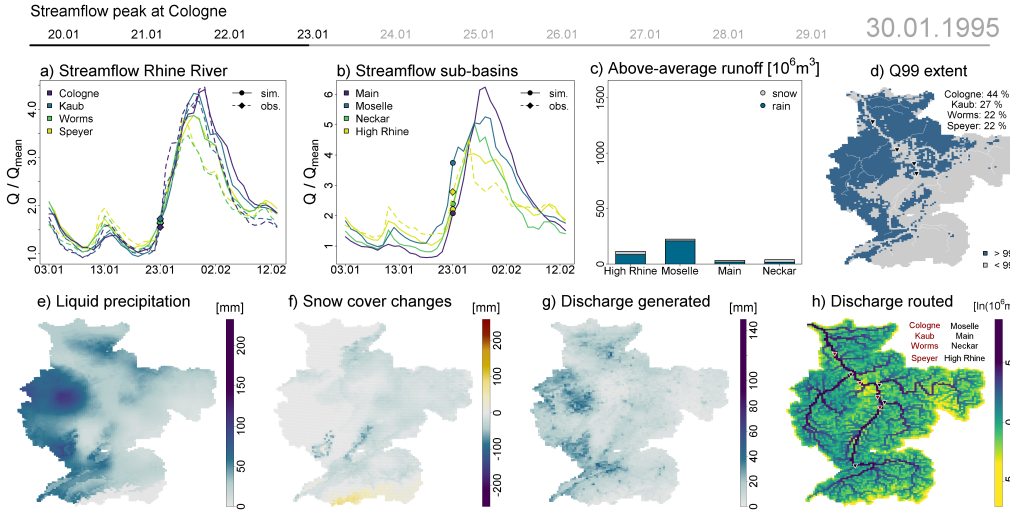

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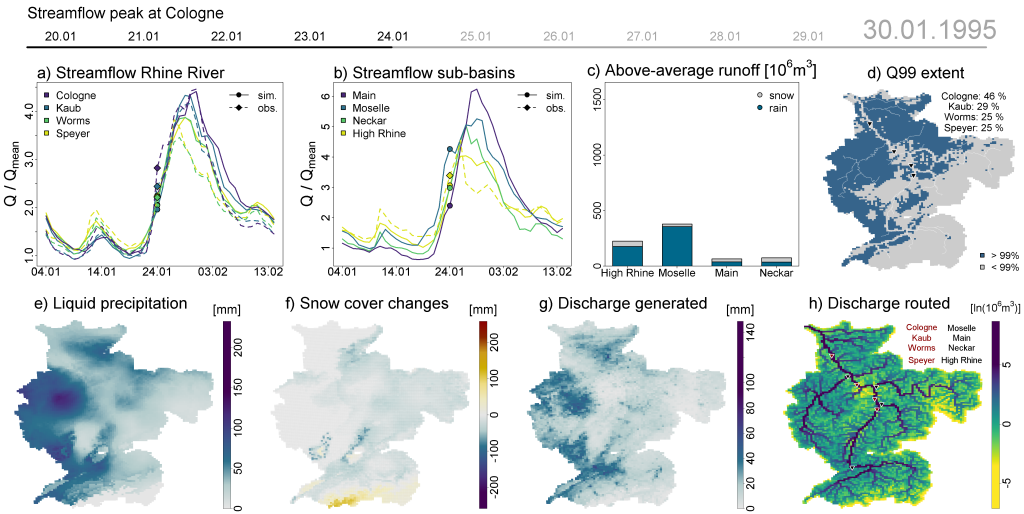

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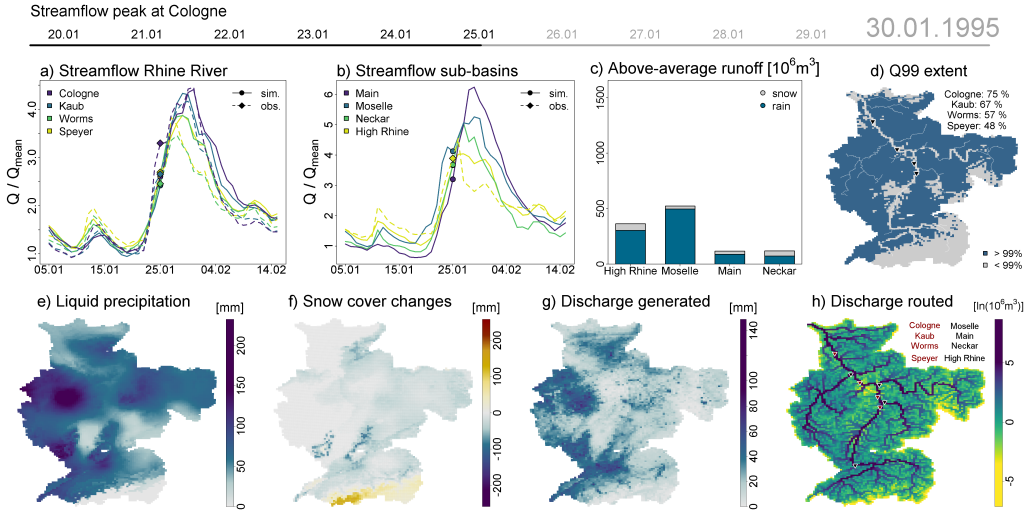

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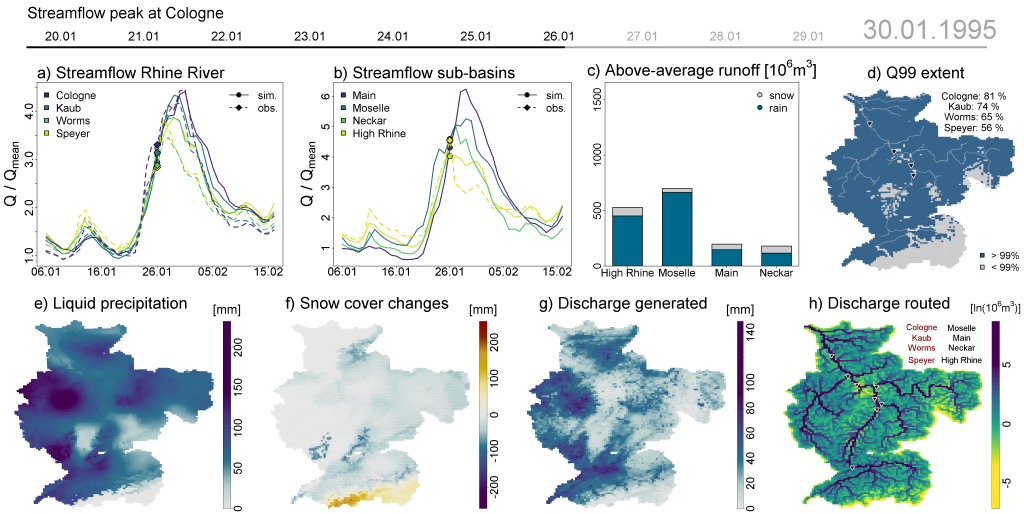

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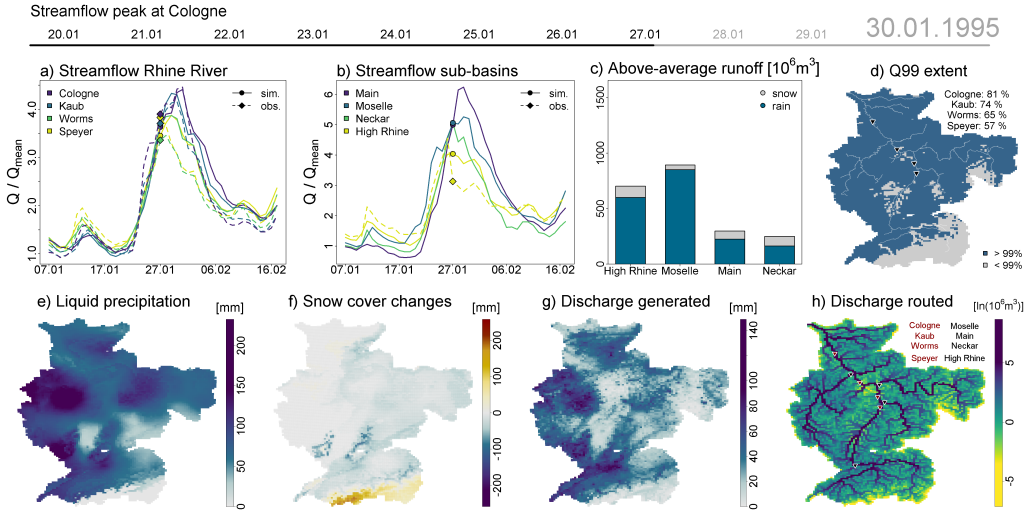

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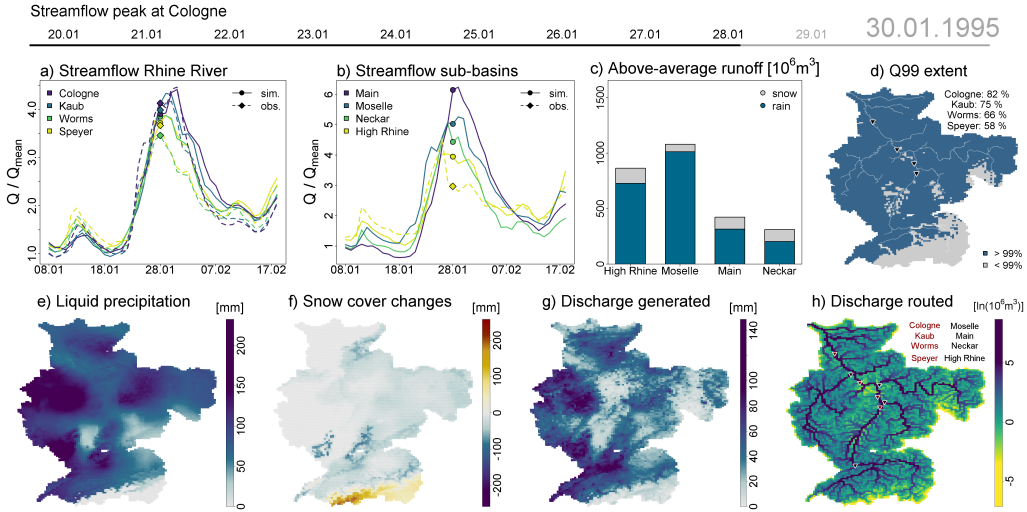

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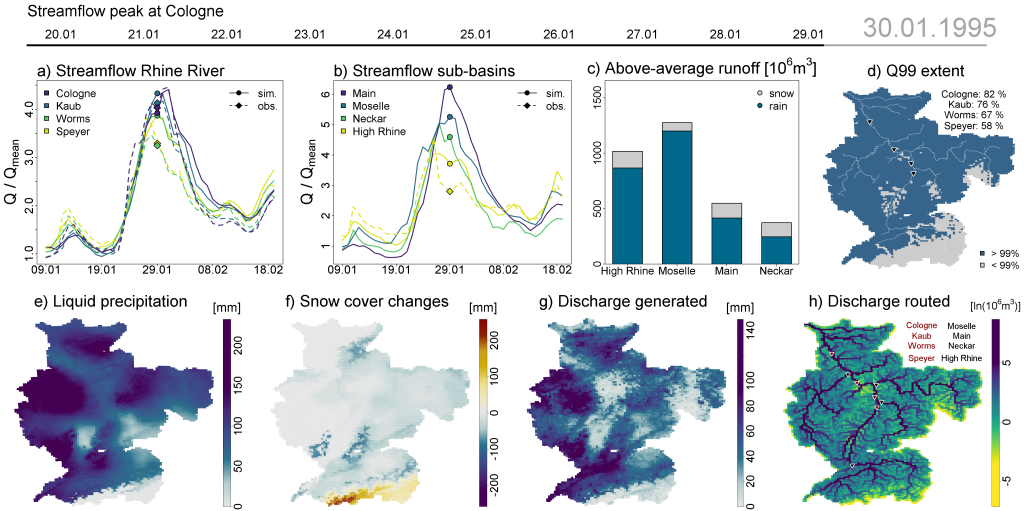

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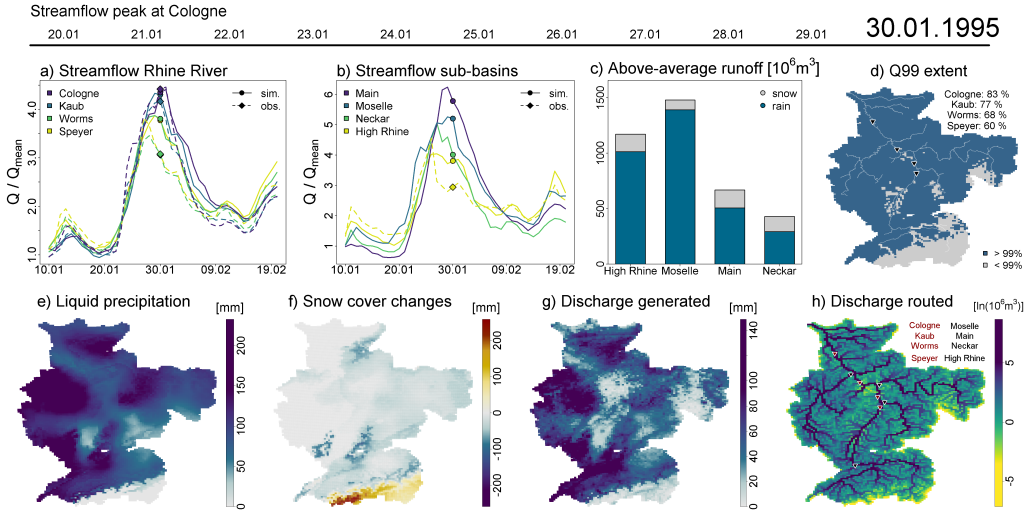

Summary

- Spatio-temporal analysis of 840 historic and projected streamflow peaks
- Collection of event-based flood formation information to be used in- and outside the scientific community to explore the complexity and diversity of flood genesis
- Easy access to all result figures with interactive web viewer:
  http://natriskchange.ad.umwelt.uni-potsdam.de:3838/rhine-flood-genesis/
- Contact: rottler@uni-potsdam.de