Photography encouraged

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Prediction of flow intermittence in Drying River Networks using a process-based hydrological model

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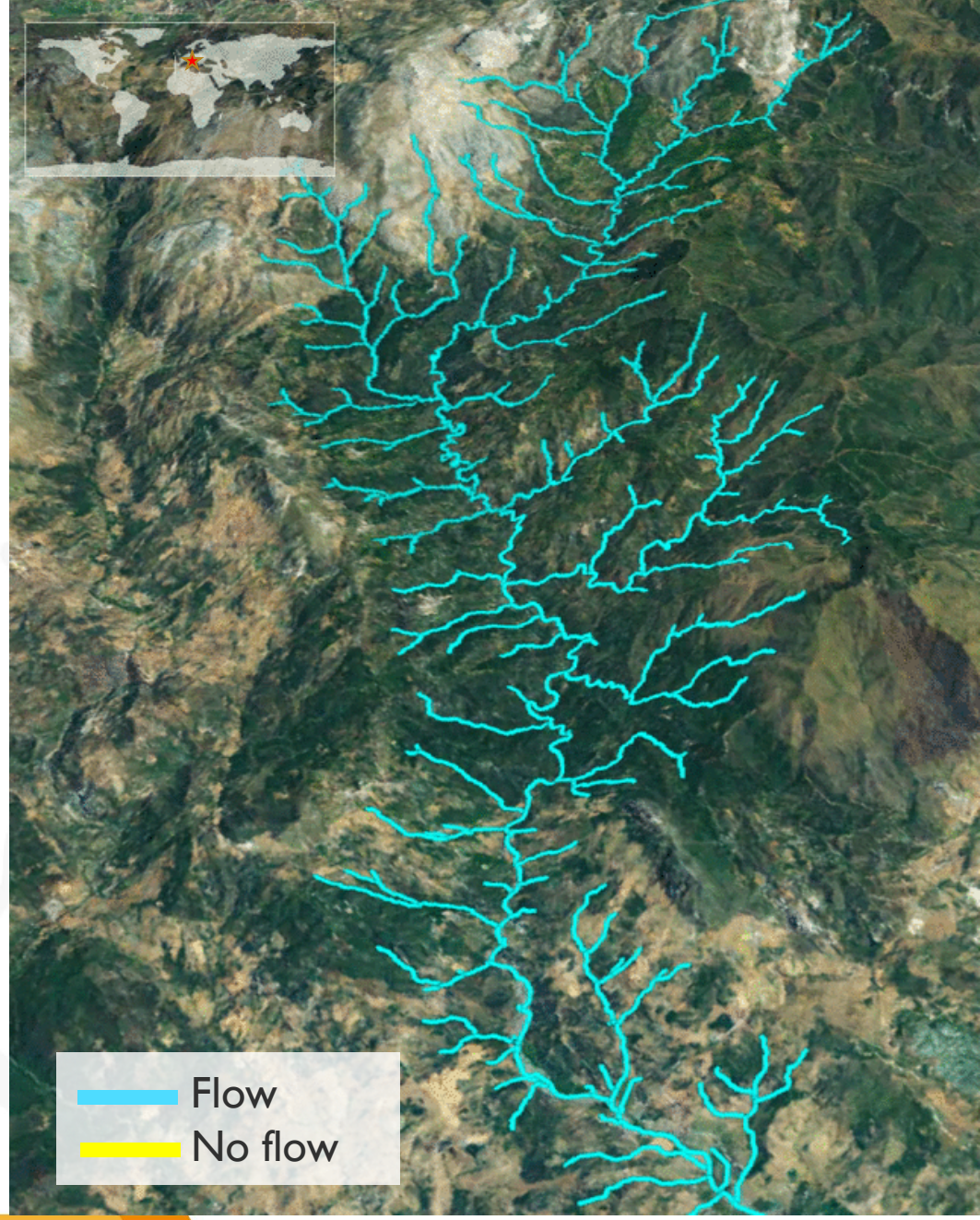
Künne et al. 2022

EGU General Assembly 2022



Daily flow states in Genal River Basin, Spain; April – October 2006)

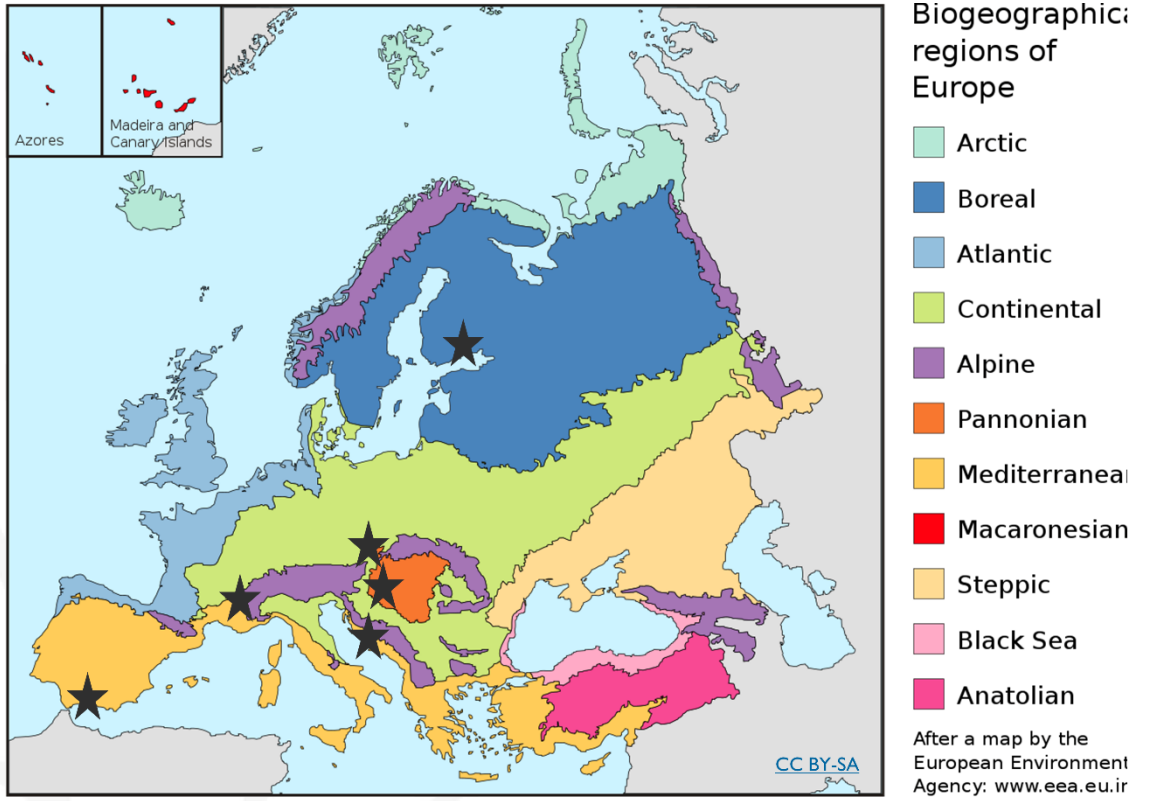
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869226

Pilot DRNs across Europe

- **Spain**: Guadiaro River Basin
- **Croatia**: Krka River Basin
- **Czech Republic**: Morava River Basin
- **Hungary**: Fekete River Basin
- **France**: Ain River Basin
- **Finland**: Vantaanjoki River Basin

→ Large RB: A ≈ 1,500 km² – 10,000 km²

→ Small RB: A ≈ 120 km² - 350 km²



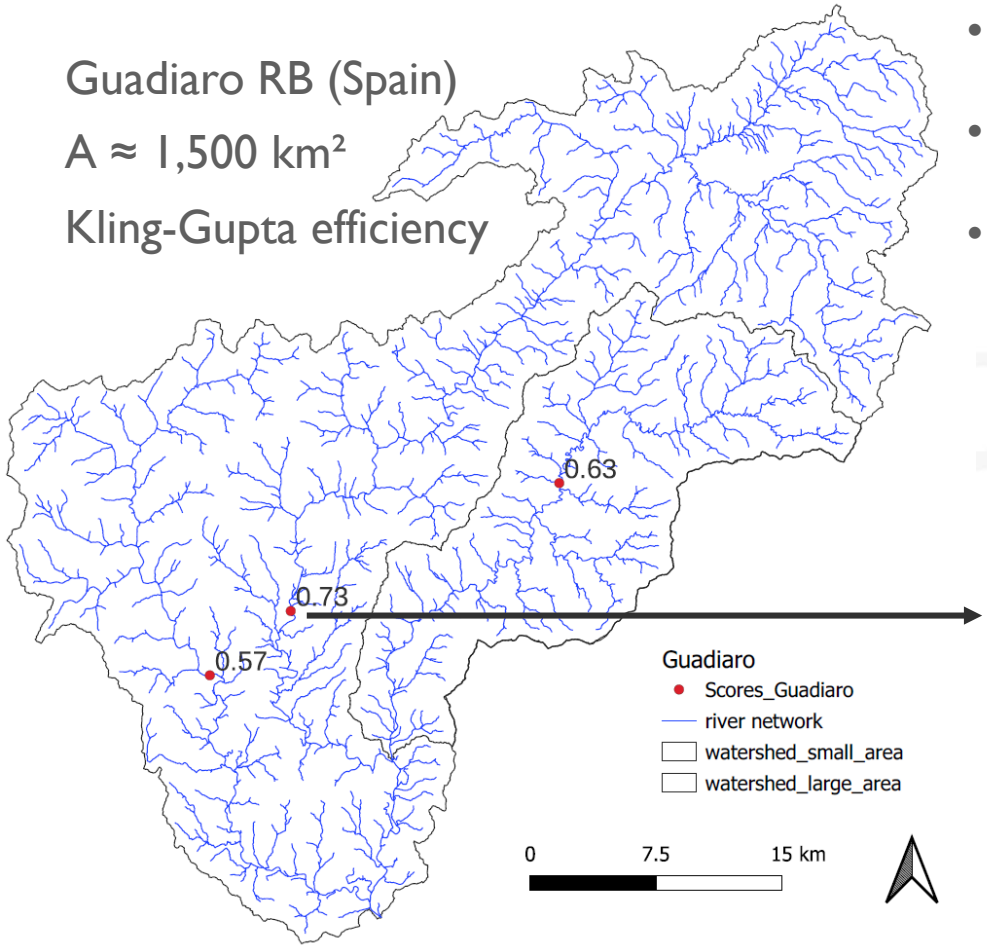
(Photos by Thibault Datry; INRAE)

Process-based distributed models based on JAMS/J2000

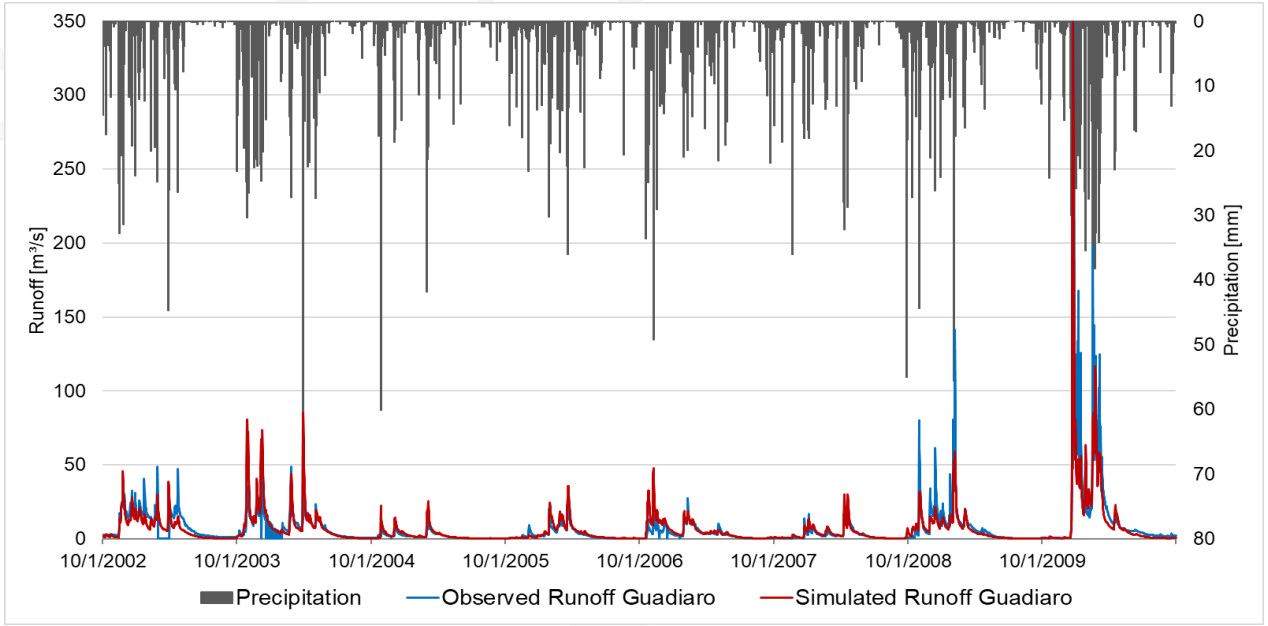
Guadiaro RB (Spain)

A ≈ 1,500 km²

Kling-Gupta efficiency



- modelling streamflow at reach level → average reach length ≈ 990 m
- multi-gauge calibration/validation → 3 to 24 stations per RB
- multi-objective → considering high-flows and low-flow

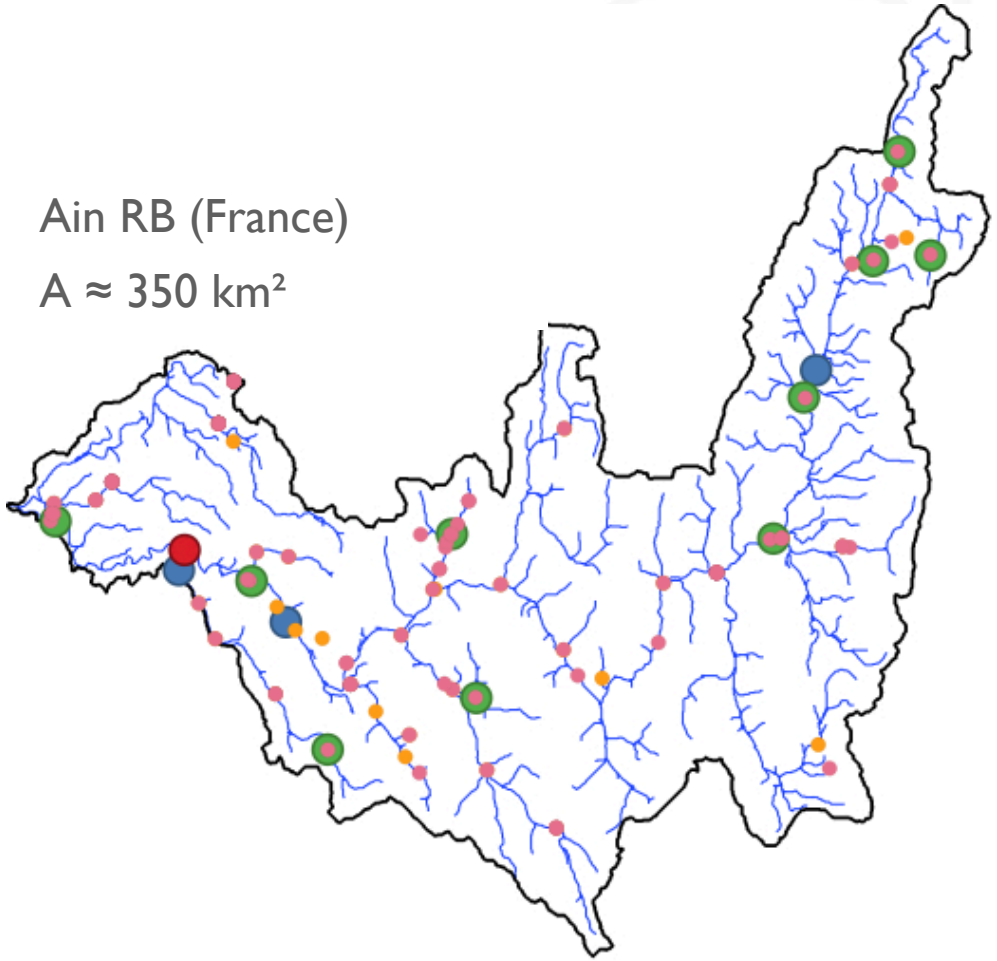


(JAMS: Kralisch & Krause 2006;
J2000: Krause et al. 2006)

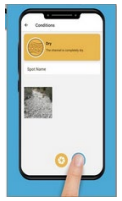
Spatio-temporal validation using multiple data sources

Ain RB (France)

A ≈ 350 km²



- DRYRivERS
- CrowdWater
- Intermittend gauging station
- Photo traps
- ONDE
- River network
- Albarine catchment



DRYRivERS

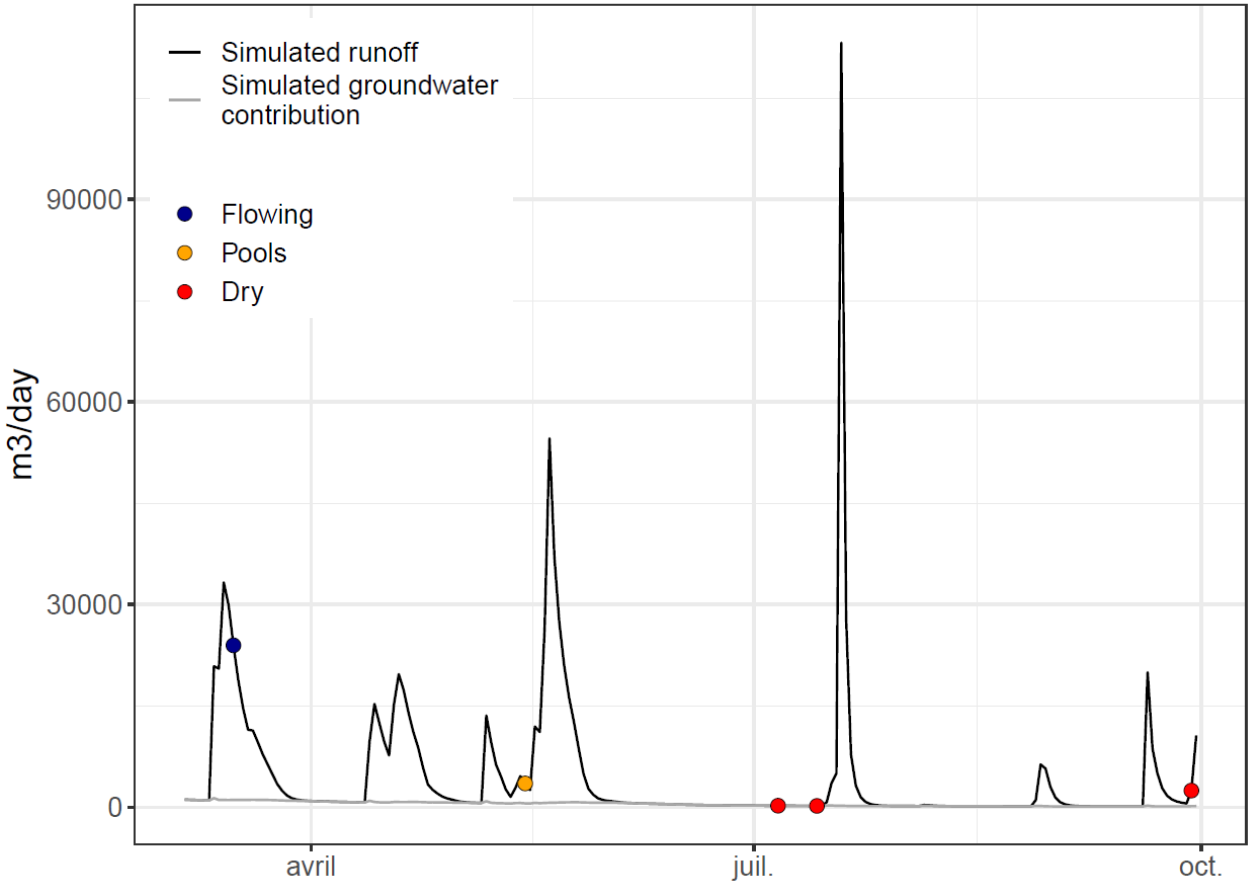
crowd water

onde Observatoire national des étiages

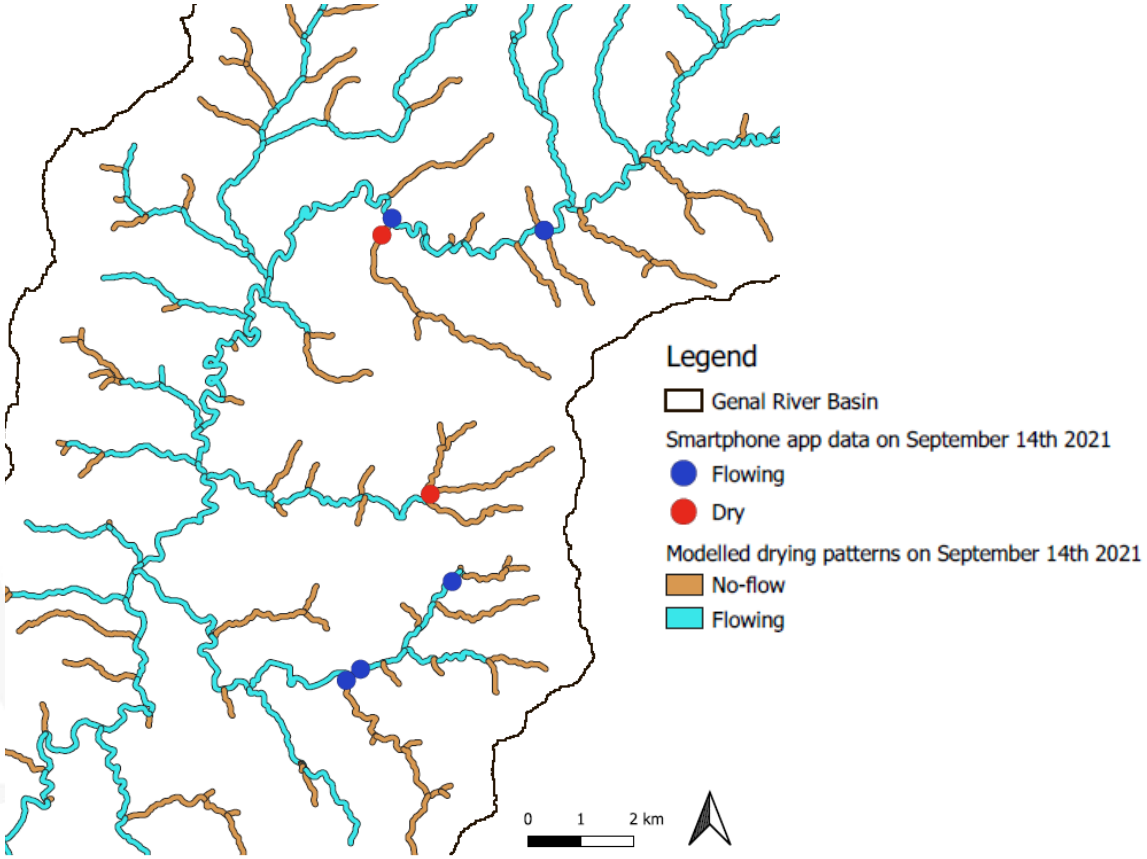
(Sources pictures: https://www.dryver.eu/citizen-science/how-does-it-work; https://crowdwater.ch; www.onde.eaufrance.fr)

Evaluation of modelled flow states at the reach-level

BUK 21 Káni (Hungary)



Genal, September 14th 2021 (Spain)



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- DRYvER: https://www.dryver.eu or Datry et al. 2021 →

DRYvER Project

- JAMS/J2K: http://jams.uni-jena.de/ →

JAMS

- Mimeau et al. (2022): Inter-comparison of climatological datasets for the hydrological modelling of six European catchments (HS2.4.2) →

Mimeau et al. 2022

- Devers et al. (2022): Using the advanced delta change approach and a distributed model for a rapid assessment of reach-scale streamflow projections in intermittent rivers (HS2.4.2)→

Devers et al. 2022

Thank you for your attention!

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