

# Climate Change Implications for the Flow Characteristics of Two Karst Catchments in Slovenia

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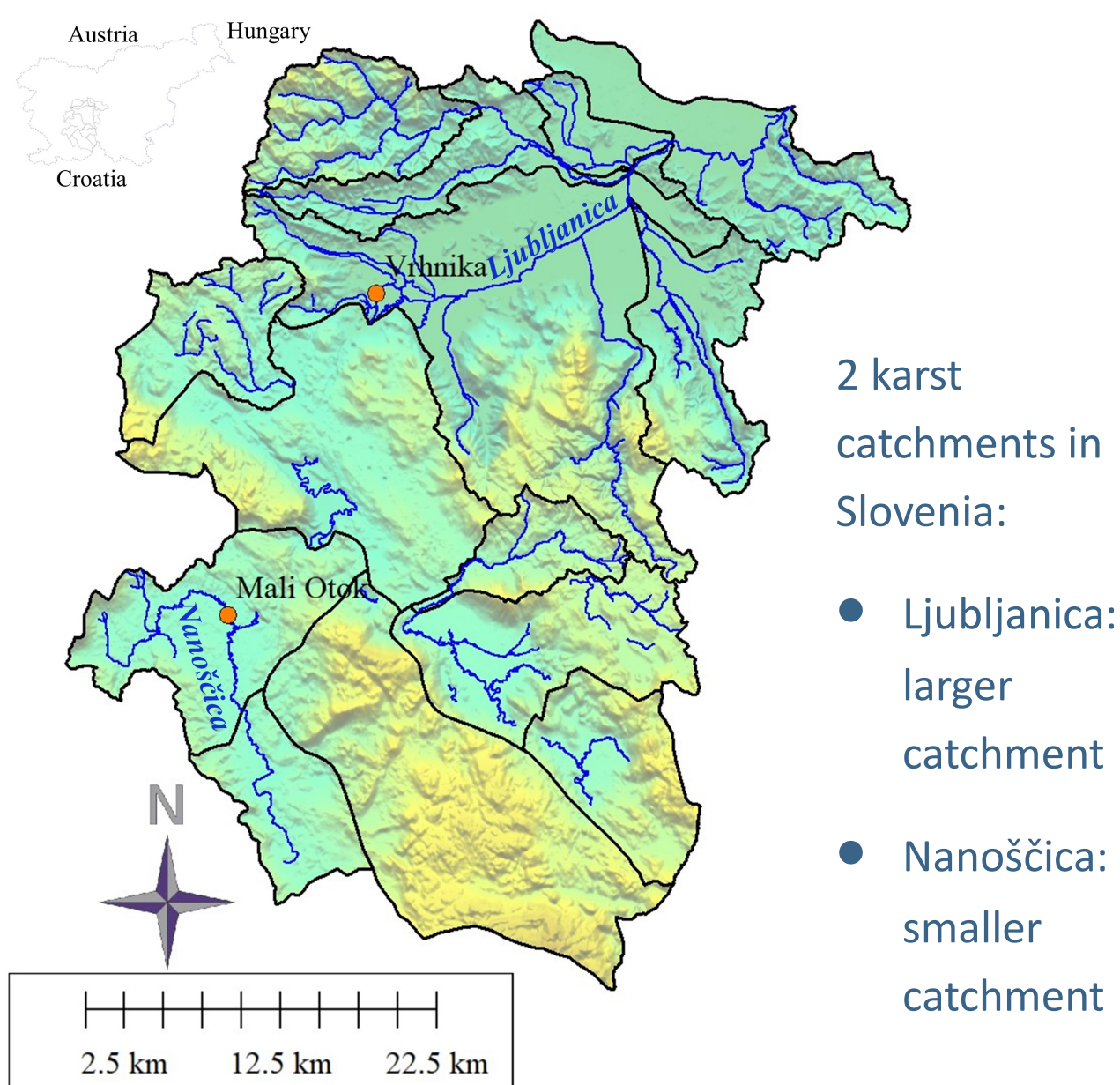
## Introduction

- 1/3 of the population in Slovenia depends on the karst water resources.
- Recent investigations show that climate change will affect flow dynamics (Blöschl et al., 2017).
- However, there is a lot of ambiguity about the effects of rising air temperature on changes in water resources especially at the local and catchment scale.

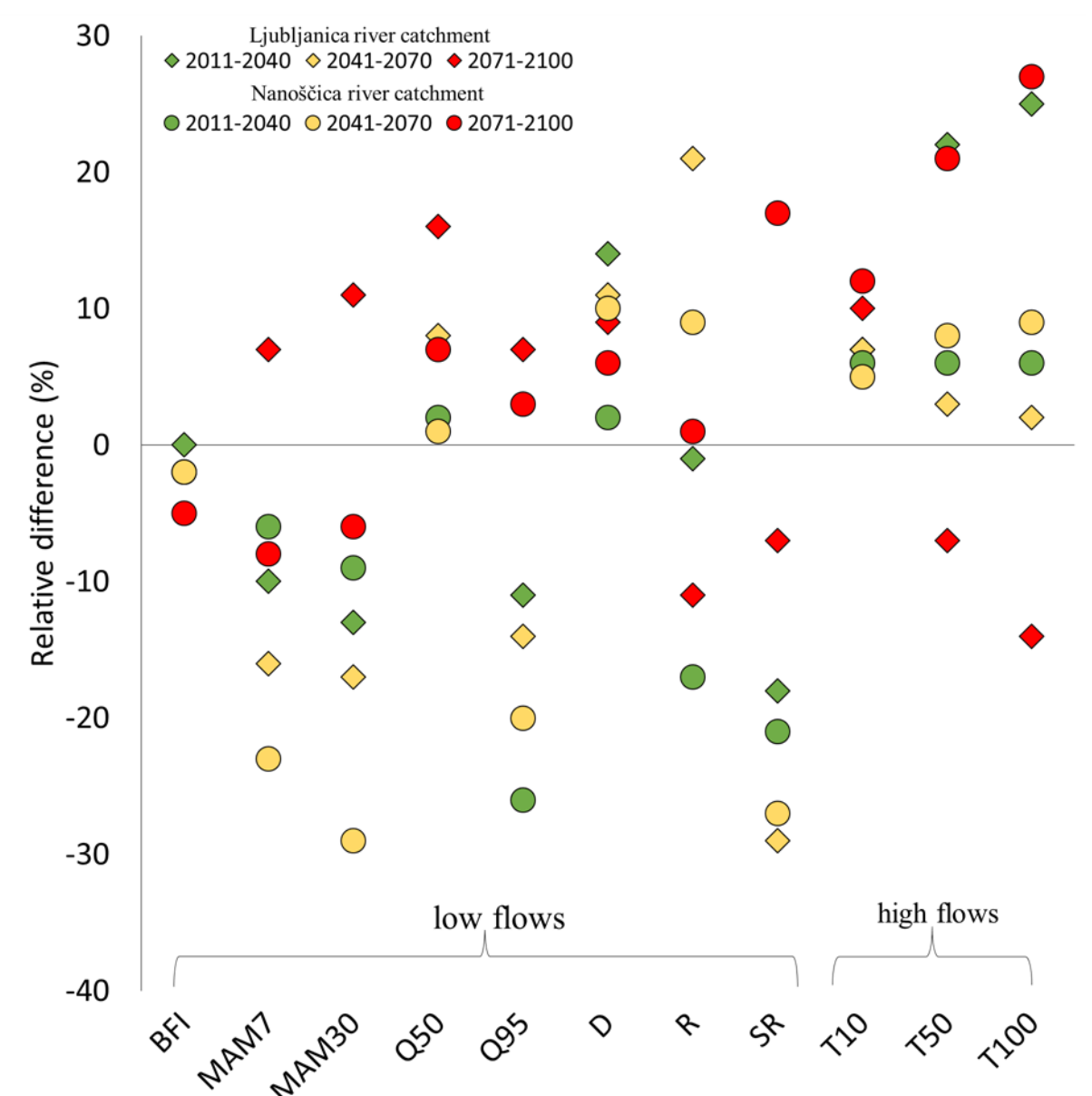
## Climate change implications

- low-flow indices:
  - baseflow index (BFI)
  - mean annual minima for the duration of 7 and 30 days (MAM7, MAM30)
  - flows that are exceeded 50% and 95% of the time (Q50, Q95)
  - date of the low-flow occurrence (D)
  - seasonality ratio (S)
- high-flow indices:
  - discharge with 10-, 50, and 100-year return period (T10, T50, T100)
- evaluation periods: 2011-2040, 2041-2070, 2071-2100
- reference period: 1981-2010
- compared value: median

## Case study



## Results



Low- and high-flow indices based on the 1981-2010 period. Circles and squares represent Nanošča and Ljubljana river catchment, respectively.

## Modelling

Hydrological model: CemaNeigeGR6J (Ljubljana), GR6J (Nanošča)

Input data: daily data P, ET<sub>0</sub>, T<sub>air</sub>

Calibration: daily discharge data

Climate change modeling: RCP4.5, 5 different combinations of global and regional climate change models

## More

Sapač K, Medved A, Rusjan S, Bezak N (2019) Investigation of low- and high-flow characteristics of karst catchments under climate change. Water (Switzerland) 11, 5, 925. <https://doi.org/10.3390/w11050925>; e-mail: [klaudija.lebar@fgg.uni-lj.si](mailto:klaudija.lebar@fgg.uni-lj.si)