Stochastic rainfall synthesis for urban applications using different regionalization methods

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1. Motivation & Objectives
- Design and operation of urban drainage systems require long and continuous rain series.
  - **Problem:** Short data availability (temporal and spatial required resolutions).
  - **Solution:**
    - Development of a precipitation model;
    - Regionalization of the model;
    - Generation of long synthetic series.

2. Study Area & Data
- **State of Lower Saxony**
  - Surface: 47,624 km²
  - Location: North-west Germany.
- **Rain Gauge Stations:**
  - 81 stations (Fig. 1), 6-21 years of record,
  - Temporal resol.: 5 min.
- **Site Descriptors (SDs):**
  - climatic & non-climatic.
- **Fictional drainage system:**
  - Combined sewer system,
  - Total size: 168 Ha, Pipes: 5150 m.

3. Methodology

4. Results
- **Leave-one out cross-validation (LOOCV)**
  - **All Events**
  - **Extreme events**
  - Robustness analysis

5. Summary and Conclusions

References:

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