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Testing a Stochastic Weather Generator for Multivariate Climate Extremes in Present Climate across Europe

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Stochastic Weather Generators

Observed Data

(Daily, hourly)

→

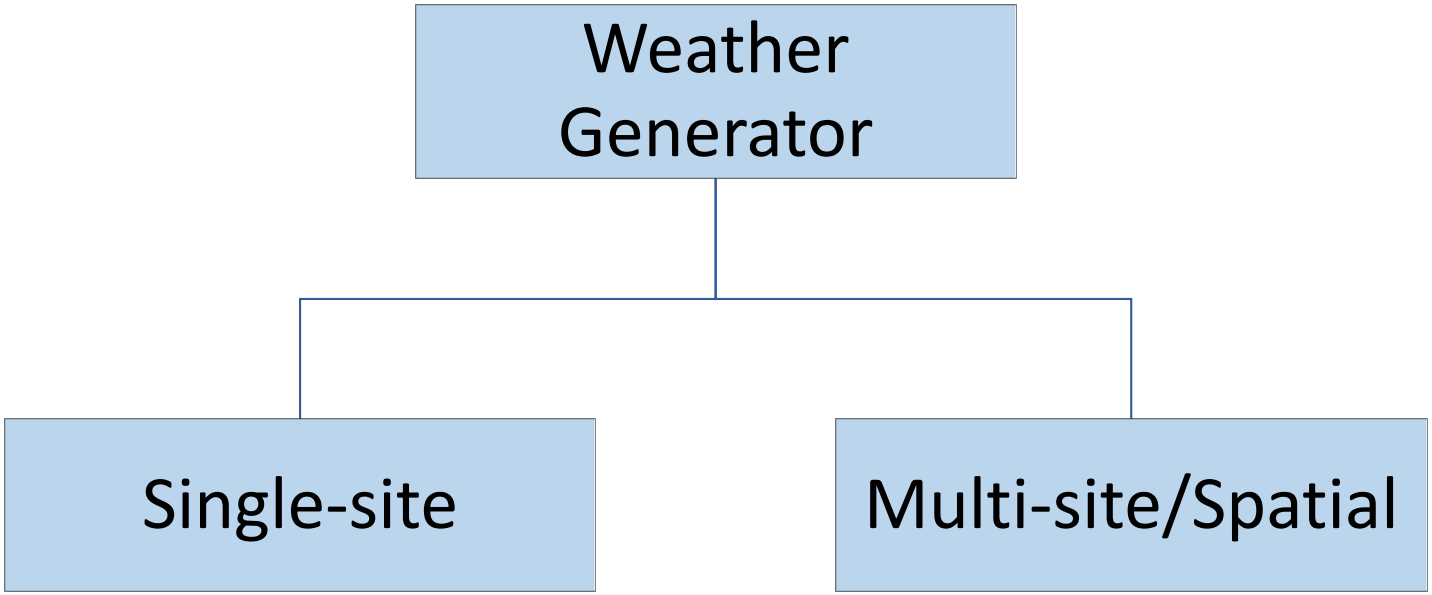
Stochastic Weather Generator

→

Synthetic Data

(Daily, hourly)

Stochastic Weather Generators

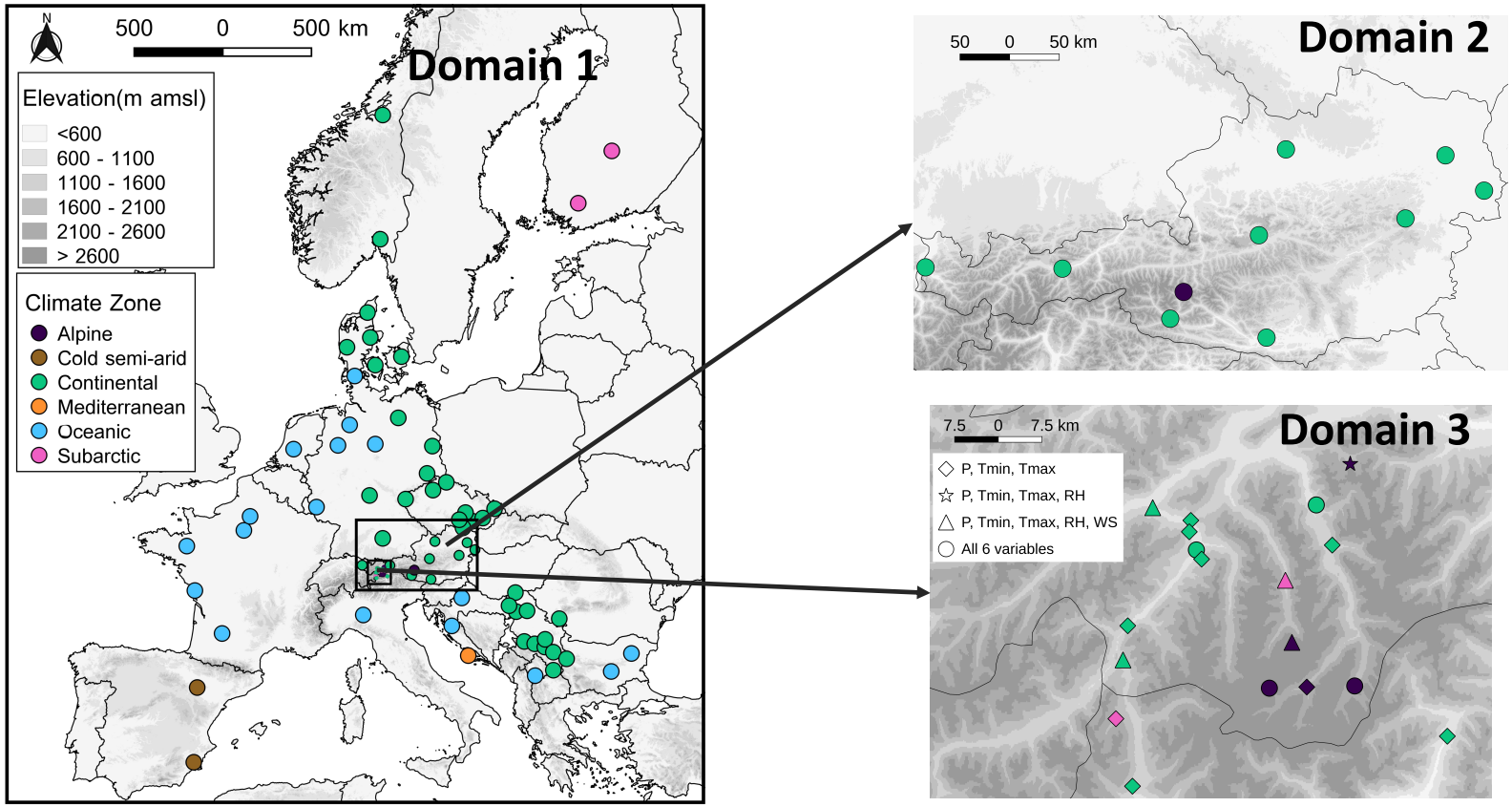


Validation of SiSi for present climate

- **Univariate Extremes**
  - Wet and Dry Spells (Precipitation only)
  - Warm and Cold Spells (Tmax, Tmin)

- **Multivariate Extremes**
  - Heat and Cold waves (Tmax and Tmin)
  - Co-occurrence of Wet/Dry spells and Heat/Cold waves (precipitation, Tmax and Tmin)
  - Heat Index (Tmax and RH)
  - Forest Fires (Tmax, Precipitation, RH and windspeed)

Study Area


N
500 0 500 km
Domain 1
Elevation(m amsl)
<600
600 - 1100
1100 - 1600
1600 - 2100
2100 - 2600
> 2600
Climate Zone
Alpine
Cold semi-arid
Continental
Mediterranean
Oceanic
Subarctic
50 0 50 km
Domain 2
7.5 0 7.5 km
Domain 3
P, Tmin, Tmax
P, Tmin, Tmax, RH
P, Tmin, Tmax, RH, WS
All 6 variables