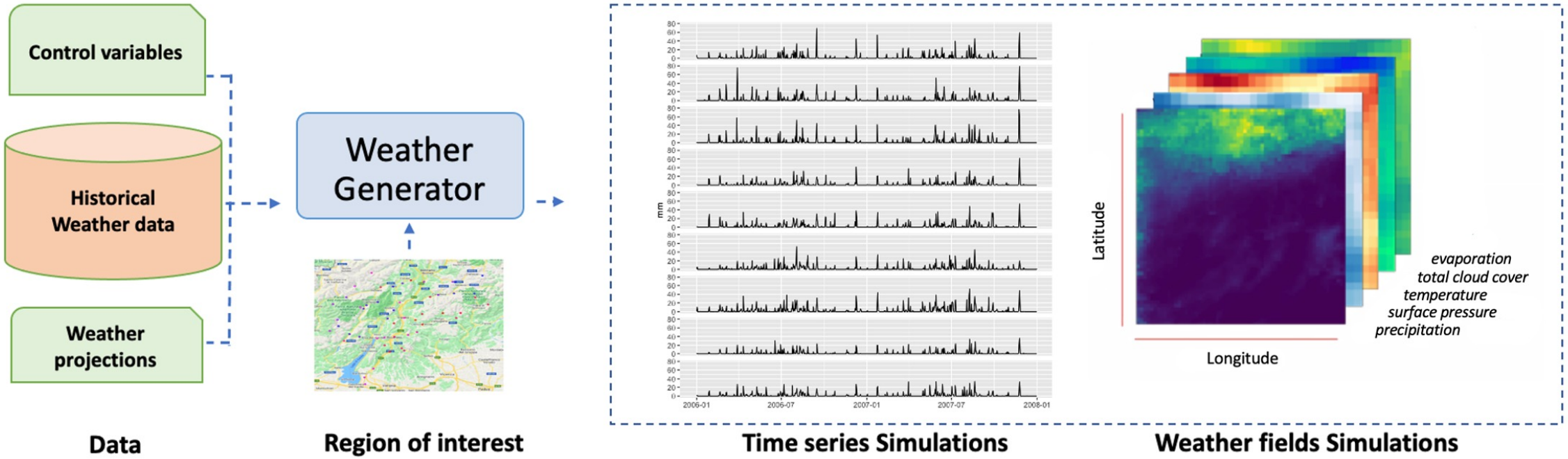
IBM Weather Generator features & capabilities



IBM / IBMWeatherGen — a ***gridded***, ***multisite***, ***multivariate***, ***daily***, and ***sub-daily*** weather generator

Applications :

- Flood models, Risk& uncertanty analysis, what-if/conterfactual analysis, data augmentation for training DL/foundation models,…

Project Ideas

Incorporate Enhanced OSS Practices — containerization, test units, documentation, CI/CD pipelines

(skills: Python, software engineering, Devops)

Implementation&integration of generative AI algorithms — (non-parametric) Direct Sampling, quicksampling or parametric (GAN, VAE, Diffusion models) for creating variations, superresolution and extreme events

(skills, Python, taste for algorithms implementation)

Optimization of Computing Time and Memory Usage — enhance performance by introducing parallel processing techniques and utilizing efficient data structures tailored for handling large weather datasets and complex algorithms.

(skills, Python, parallel computing, algorithms implementation)

Validation metrics implementation — develop and integrate validation metrics to assess the quality of synthetic data generated by the weather generator

(skills, Python, data science, statistical methods)

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- Github https://github.com/IBM/IBMWeatherGen/