

Highlights

Optimal monitoring design for uncertainty quantification during geologic CO₂ sequestration: A machine learning approach

Misael M. Morales, Mohamed Mehana, Carlos Torres-Verdín, Michael J. Pyrcz, Bailian Chen

- Filtering-based data assimilation method is developed to perform monitoring design.
- Machine learning reduced-order model is used to reduce computational cost of data assimilation process.
- Optimal monitoring design is obtained by optimizing the monitoring well location and monitoring measurement type to reduce the uncertainty in leakage risks prediction.