



NETL's Science-based AI/ML Institute

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SAMI is enabling AI-driven solutions and support to applied energy science, addressing the nation's environmental, economic and social challenges.



NETL established SAMI, a joint Institute for AI and ML, in 2020.

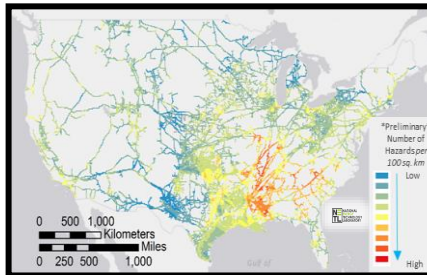
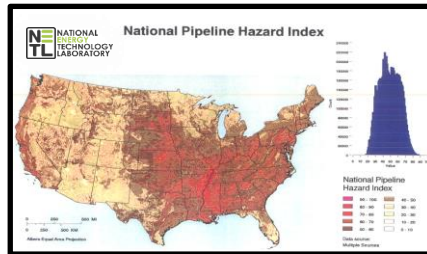
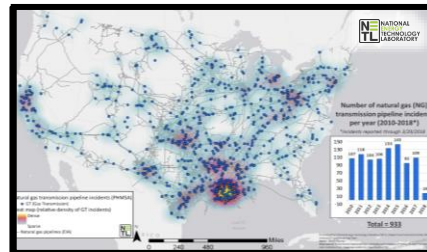
SAMI is a **crosscutting catalyzer of AI- and ML-driven solutions**, to support the acceleration across the NETL R&D mission space.

SAMI addresses fundamental challenges of applying AI/ML: Available data sets, data management, science-AI integration, and governance.

SAMI applies AI/ML capabilities in the applied energy domains, such as **subsurface** (SMART), **material** (eXtremeMAT), **computational science** (MFiX), and **system analysis** (IDAES) with research **data curation, management and virtual computational capabilities** (EDX++).



Geospatial Optimization for Pipeline Sensor Deployment



AI/ML and geo-data science for risk, resource & resiliency analyses

- AI to rapidly find & aggregate infrastructure geo for CH4 emissions mitigation and orphan well predictions
- ML to Forecast Subsurface Storage Leakage & Induced Seismicity Risks
- Data science & ML to support energy transitions and inform energy, social & environmental justice activities
- ML for Pipeline Planning & Hazards Mitigation
- Big data & digitalization to support supply chain & manufacturing

Identified priority areas for monitoring, maintenance, and improvements

Optimized placement of advanced sensing & monitoring tools

Justman, et al. (2022). A database and framework for carbon ore resources and associated supply chain data. Data in Brief. <https://doi.org/10.1016/j.dib.2021.107761>

Infrastructure and Sensing R&D includes predicting infrastructure risks, mitigating pipeline hazards, supply chain digitalization, and more.

Learn more about SAMI:

Contact Us: SAMI@netl.doe.gov

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