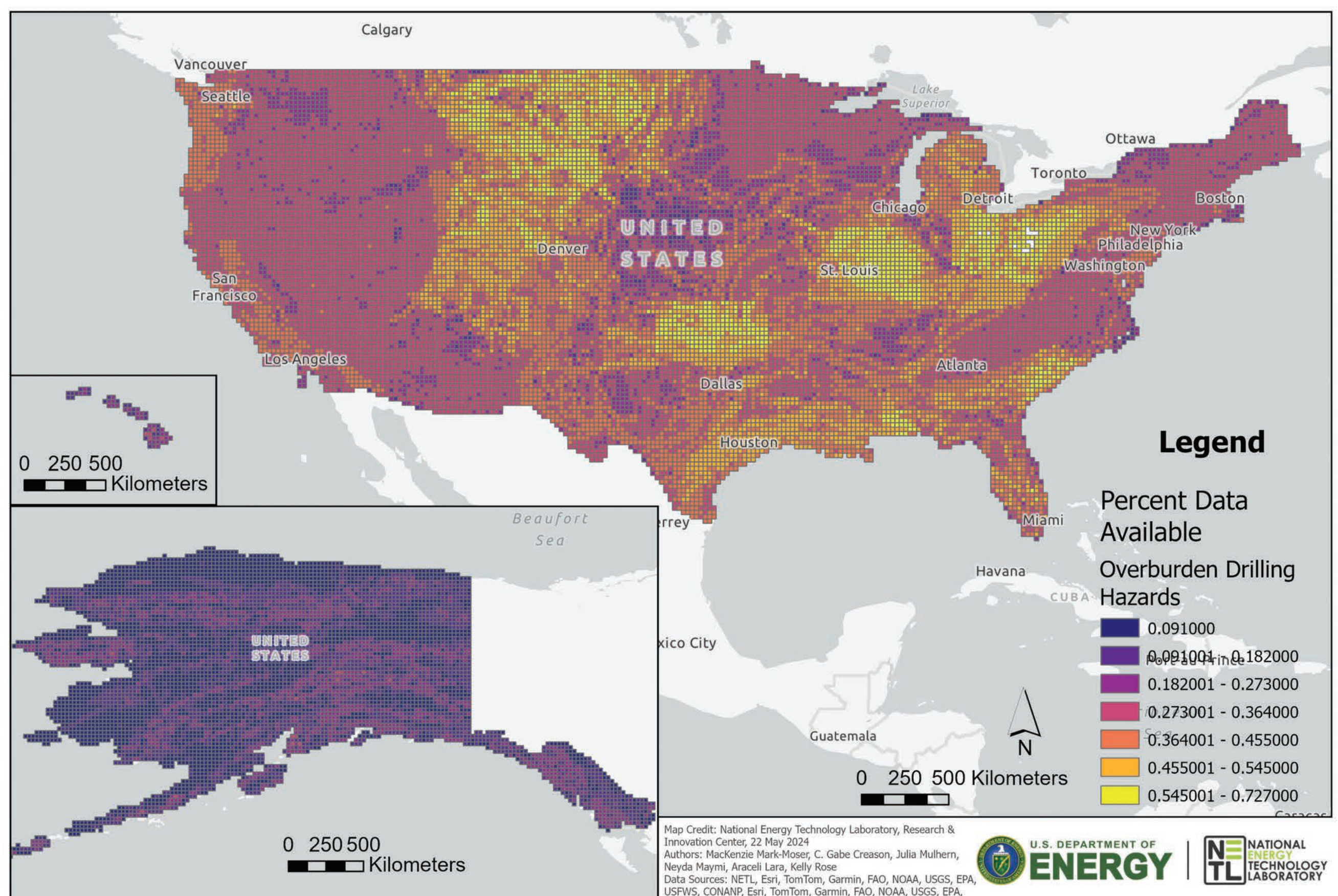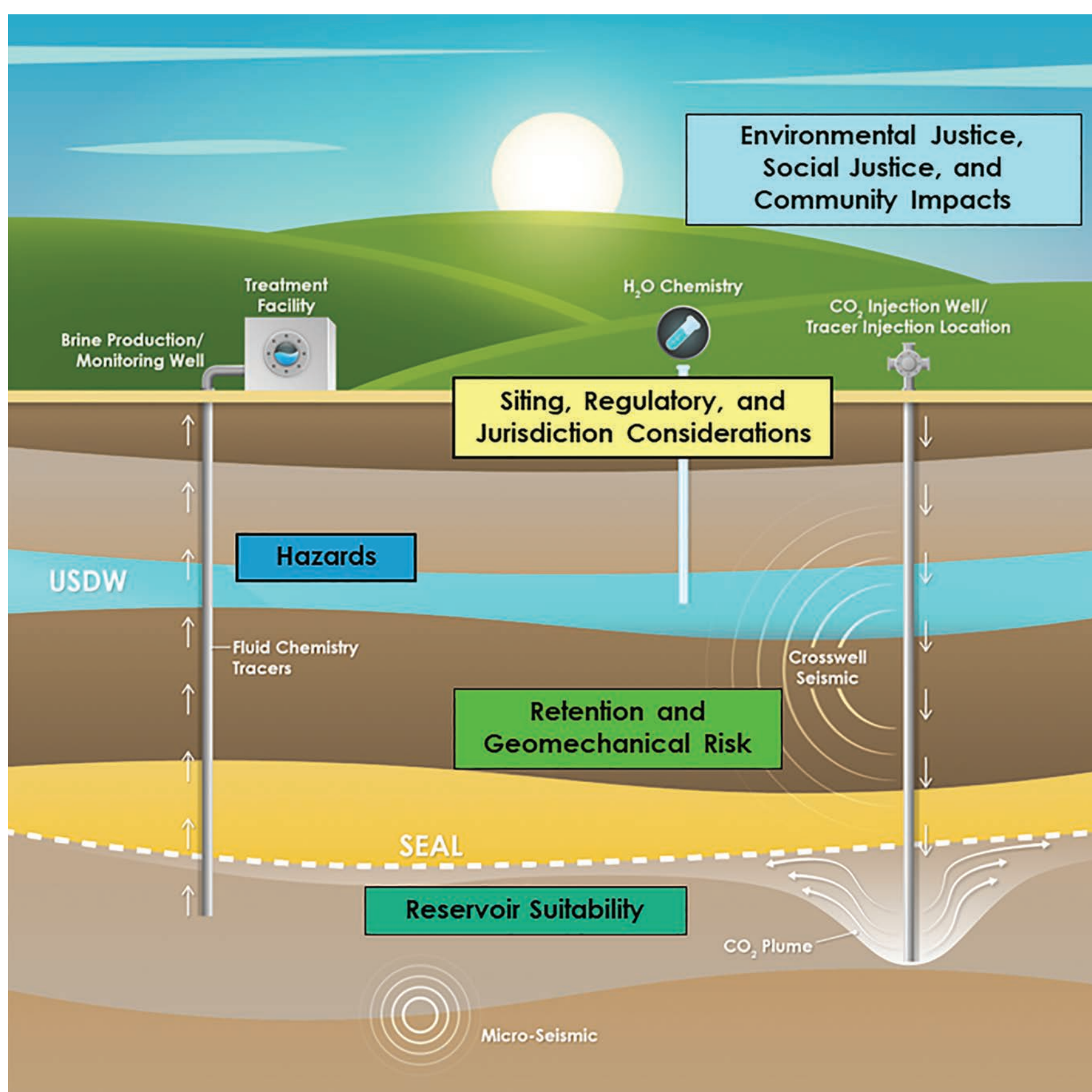# NETL Develops Cutting-Edge Approaches for Carbon Storage Viability Using Data Science

Supporting successful carbon storage technical viability assessments that leverage pioneering artificial intelligence/machine learning (AI/ML) tools.

On the left, a schematic showing the Carbon Storage Technical Viability Approach matrix categories. On the right, a map showing an example of a carbon storage data availability analysis for overburden drilling hazards aligned to the Carbon Storage Technical Viability Approach.

NETL has developed a new geo-data science approach for holistically evaluating data availability for carbon storage sites across the U.S., comprising not only subsurface and infrastructure aspects but also hazards and environmental justice/social justice factors as well.

- The workflow leverages several of NETL's innovative AI/ML data science tools, previously developed under FE20 and FE30 programs, to facilitate data collection, integration and analysis.

This work, known as the Carbon Storage Technical Viability Approach (CS TVA), provides a data-knowledge framework and workflow that stakeholders can use to identify key data gaps for assessing carbon storage technical viability, ultimately supporting the scaling up of decarbonization.

- Ongoing research will incorporate AI/ML methods such as fuzzy logic, neural networks, natural language processing, and other approaches to the data availability workflow, enhancing and accelerating future data assessments.

- The CS TVA phase 1 development database was released in July 2024, providing a massive resource for advancing data science and carbon storage assessments.

- New, interactive data analyses and an updated database reflecting nationwide data availability for carbon storage assessments will be released via NETL's Energy Data eXchange DisCO$_2$ver platform in 2025.

DOE PROGRAM

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