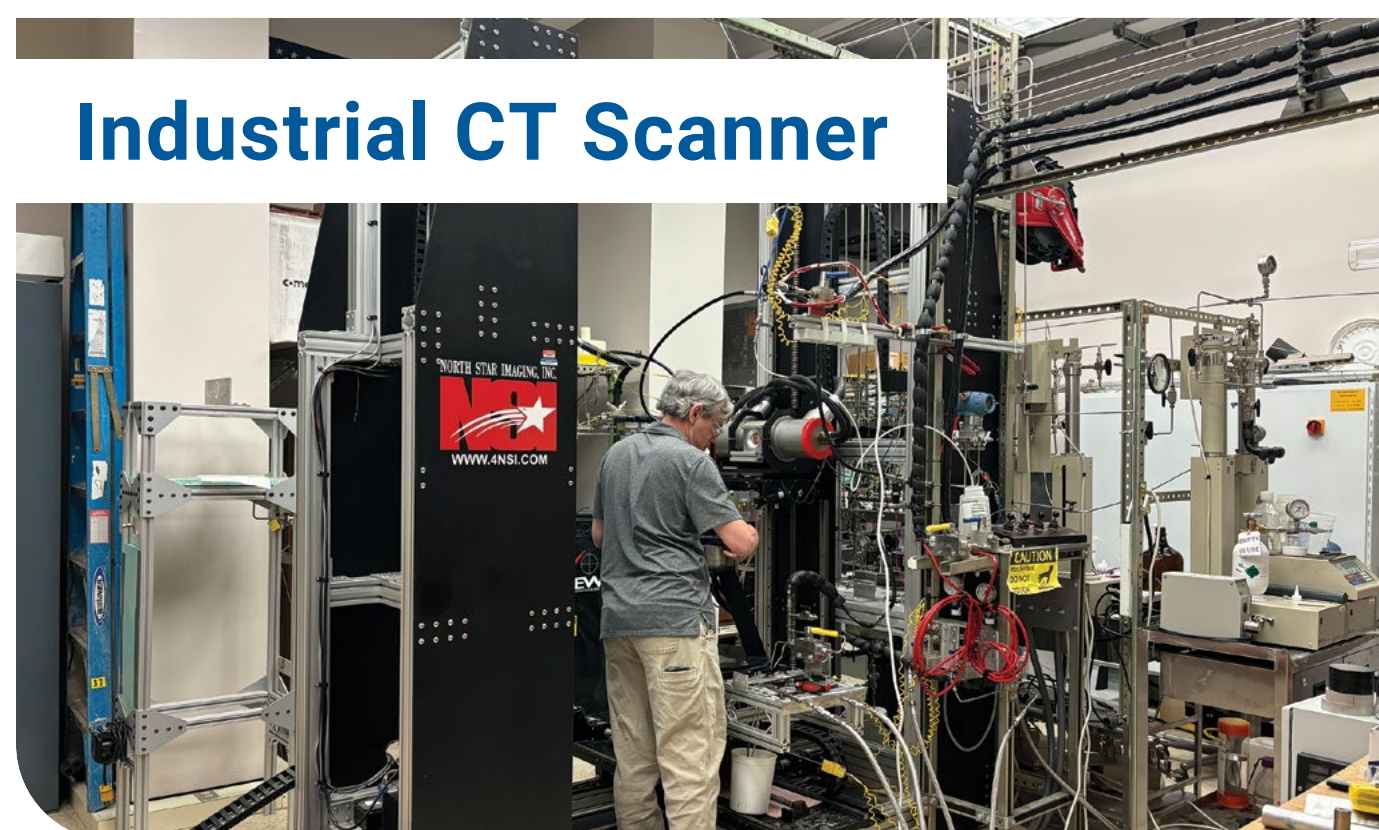


NETL's Material Visualization and Evaluation Capabilities Tackle Subsurface Challenges

NETL's laboratory tools are providing insight into subsurface energy resources, aiding in developing more efficient exploration strategies and helping assure safe and permanent geologic CO₂ and hydrogen storage.



A variety of visualization and analytical technologies can be utilized in tandem to provide characteristic geologic and geophysical information on subsurface materials at multiple scales.

NETL's imaging and evaluation technologies test, monitor and characterize a variety of geomaterials from sandstones to fluids and cements. Complex energy system needs are investigated, including caprock integrity and critical mineral characterization. Applications include geologic storage of CO₂ and hydrogen.

- Tools include computed tomography scanners for geomaterial imaging with micron-to-millimeter 3D resolution, controlled flow systems for core evaluation, multi-sensor geologic core loggers, fluid contact angle measurement system, nuclear magnetic resonance for detection and monitoring of fluids in porous media, and laser-induced breakdown spectroscopy for precise and cost-effective elemental composition analysis.
- Real-world applications can be examined in the lab using samples and fluids from specific project sites. Evaluation can occur under site-specific temperature, pressure and saturation conditions.
- Resulting analytical data can be used to generate more realistic site models, economic valuations, resource maps and field characterization efforts, and to inform operational decision making.

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