WORLD-LEADING RESOURCE FOR CARBON STORAGE DATA

EDX®
Energy Data eXchange

Visit *edx.netl.doe.gov* to explore carbon storage resources

NETL'S ENERGY DATA EXCHANGE™ (EDX™) HAS CURATED ONE OF THE WORLD'S LARGEST COLLECTIONS OF OPEN-SOURCE CARBON STORAGE DATA RESOURCES
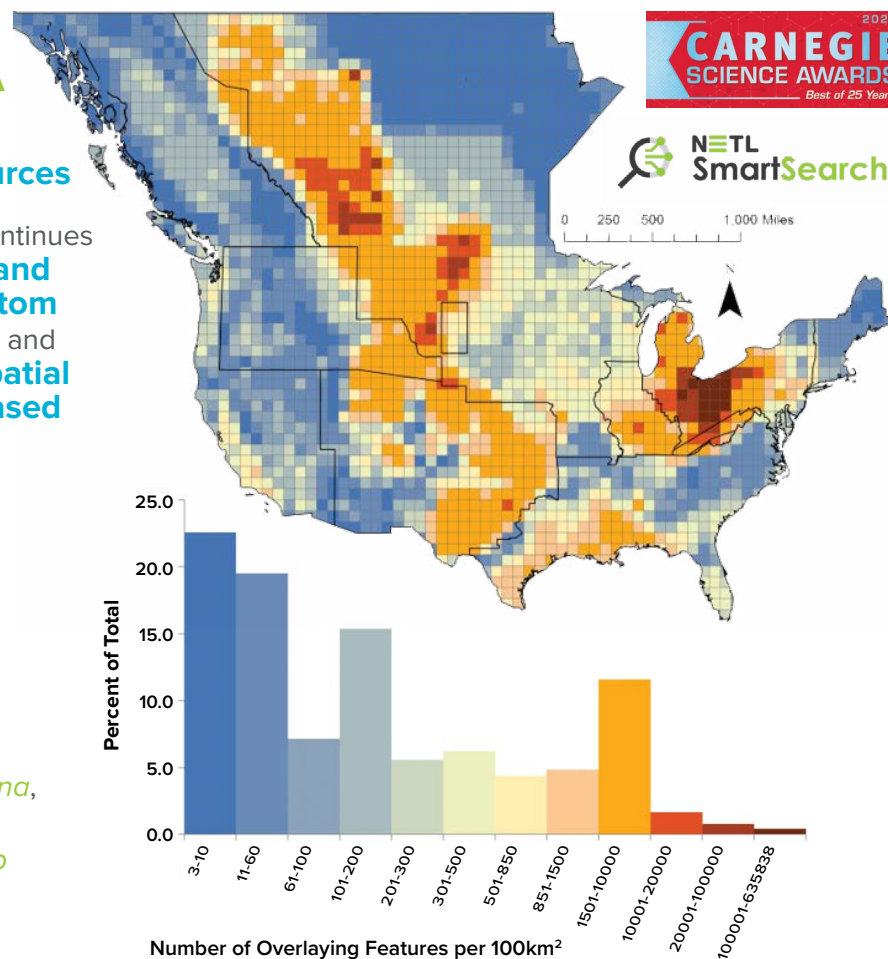
NETL systematically compiled and curated one of the **world's largest collections of open-source datasets, models, and tools for geologic carbon storage (CS) systems** utilizing award-winning deep learning and customized natural language processing (NLP) informed algorithms.

DIVERSE OPEN-SOURCE CARBON STORAGE DATA COLLECTION

EDX contains over 3,500 data resources from the FECM Carbon Storage Program's partnerships and research projects. Data continues to grow as **new assets are submitted and currently includes more than 15 custom models and tools** and million of features and attributes. The collection consists of **geospatial data, well logs, seismic data, text-based resources, tools, models, and data catalogs that include both surface and subsurface geology.**

EDX Data Sources Include:

- National Carbon Sequestration Database (*NATCARB*).
- The Regional Carbon Sequestration Partnership (*RCSP*) data.
- Field projects, including *FutureGen 2.0*, the *Illinois Basin Decatur Project*, *Kimberlina*, and the *Appalachian Basin*.
- *The National Risk Assessment Partnership* data, models, and tools.
- *CarbonSAFE* field project data.
- Other open-source authoritative resources from the world-wide web (*SmartSearch*).

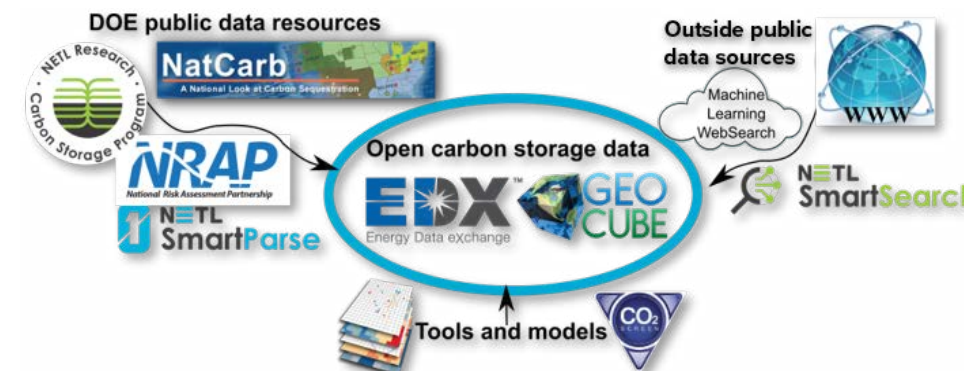CARNEGIE SCIENCE AWARDS 2021 Best of 25 Years

NETL SmartSearch

0   250   500   1,000 Miles

Histogram: Percent of Total vs. Number of Overlaying Features per 100km²
(x-axis categories: 3-10, 11-60, 61-100, 101-200, 201-300, 301-500, 501-850, 851-1500, 1501-10000, 10001-20000, 2001-100000, 100001-635838)

329	3,500	Millions	15	The Numbers
Geospatial Data Layers	Individual Data Resources	of Individual Attributes	Models and Tools	Continue to Grow!

VISIT THE OPEN CARBON STORAGE DATA COLLECTION:

ENSURING ACCESS TO CRITICAL DATASETS

Supporting DOE FECM's Carbon Storage Program by:

- Systematically curating NETL/FECM-funded research products.
- Using data science methods to improve access, discoverability, and reuse of these data resources using the *EDX platform* and the geospatial data mapping module, *GeoCube*.

The application of these EDX-driven artificial intelligence, machine learning, and NLP capabilities has **helped discover, label, and integrate additional carbon storage data resources while ensuring enduring access to the resources in the future**.
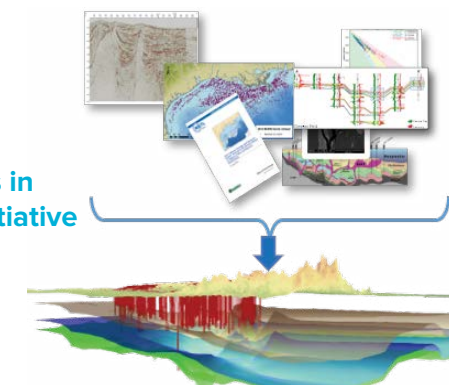
DOE public data resources — NatCarb — NRAP — NETL SmartParse — Open carbon storage data — EDX — GEOCUBE — Tools and models — Outside public data sources — Machine Learning WebSearch — WWW — NETL SmartSearch

CATALYZING THE CARBON STORAGE ECONOMY

Applications Using EDX's CS Data Volume to Support Net-Zero Carbon Emissions Goals:

- Site Screening
- CCS Risk Modeling
- Reservoir Modeling
- Storage Estimation

Data Users

- **State Geologic Surveys**
- *CarbonSAFE* **Projects**
- **Industry Groups (e.g., EPRI)**
- **Science-informed Machine Learning for Accelerating Real-Time Decisions in Subsurface Applications (*SMART*) Initiative**
- *National Risk Assessment Partnership*
- **Advancing ML/NLP Research**

PARTNERS

Big Sky Carbon Sequestration Partnership — Los Alamos National Laboratory — PCOR Partnership — SWP — SMART — USGS science for a changing world — Brookhaven National Laboratory — MGSC — MRCSP Midwest Regional Carbon Sequestration Partnership — NRAP National Risk Assessment Partnership — SECARB Southeast Regional Carbon Sequestration Partnership — West Coast Regional Carbon Sequestration Partnership westcarb.org — EPA — Lawrence Livermore National Laboratory — Oak Ridge National Laboratory — Pacific Northwest National Laboratory

FECM RDD&D PRIORITIES

- **ADVANCE CARBON DIOXIDE REMOVAL AND LOW-CARBON SUPPLY CHAINS**
- **DEMONSTRATE AND DEPLOY POINT-SOURCE CARBON CAPTURE**
- **INCREASE EFFICIENT USE OF BIG DATA AND ARTIFICIAL INTELLIGENCE**
- **INVEST IN THOUGHTFUL TRANSITION STRATEGIES**
- **LOW-CARBON INDUSTRIAL SUPPLY CHAINS**