



GeoCODES



An Emerging Platform for Resource Registration, Discovery, and Access Utilizing Schema.org and Geoscience Vocabulary Extensions

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Motivation and Subaward Projects

Currently, there is **no common way** for geoscience data providers and researchers to publish data sets and other resources. The upcoming **GeoCODES** platform will enable **resource registration, discovery, and access** by applying web standard practices, community engagement, and cloud-based technologies and interfaces. **GeoCODES** is a computational services platform for accelerating multi-domain geoscience research and is the integration of four subaward projects managed and led by the

EarthCube Science Support Office at UCAR in Boulder, CO.



GeoCODES is an evolution of Project 418.

EarthCube.org/GeoCODES

[Project 418](#)

[Project 418 Graphical User Interface](#)

[Project 419 Upgrade](#)

[EarthCube Resource Registry](#)

Geoscience Resource Registration

GeoCODES offers mobile device-ready web applications for creating the JSON-LD metadata for your organization & data sets.

Easily enter and validate your metadata while being guided through several categories.

Generate valid JSON-LD for publication on your website using Schema.org + extensions.

Utilize intuitive user interfaces to enter spatial coverage, DOIs, keywords & measurements.

Load existing JSON-LD from a dataset and organization URL or JSON file upload.

Geoscience Dataset Search Tools

GeoCODES' web apps will enable researchers to easily conduct spatial, text/keyword, & temporal searches of registered datasets.

Conduct a text/keyword search across many geoscience domains from one intuitive cross-browser user interface.

Explore metadata & search results and access discovered data via download links.

Investigate spatial search results using modern Leaflet.js maps.

Utilize Leaflet.js mapping interfaces to create bounding boxes, polygons, or simple coordinates for your spatial search.

Methodology and Pilot Partners

GeoCODES utilizes the Schema.org metadata vocabulary as a basis set for resource discovery and access. But this vocabulary **must be extended** to accommodate geoscience-specific terms.

Partners include: esri, HORDS, CSDCO, RDA, uniData, IEDA, MathWorks, UNAVCO, OpenTopography, IRIS, HYDROSHARE, BALTO, istii, Jetstream, SIP, Make Data FAIR @AGU.

Geoscience Notebook Integration

GeoCODES' REST web services can be integrated with any programming language or eNotebook technology including Python Jupyter notebooks, R Studio, and MATLAB LiveScript.

Create interactive Jupyter notebooks with iPyWidgets for a rich user experience or use simple commands for your dataset search.

Conduct and explore search results using RStudio and R Markdown notebooks.

Utilize Folium mapping technology along with iPyWidgets for interactive python notebooks with spatial search capabilities.

Geoscience Workflow Integration

The workflow involves HORDS (NCAR EarthCube CHORDS) providing data to GeoCODES, which then integrates with esri for visualization and analysis.