

Strengthening ties between observations and user communities with the USGS Community for Data Integration (CDI)

Leslie Hsu (lhsu@usgs.gov)
U.S. Geological Survey, Denver, CO

USGS data and the Community for Data Integration (CDI)

The U.S. Geological Survey (USGS) supplies timely, relevant, and useful information about the Earth to users that include decision makers, research scientists, and the general public. This information is built on observations from a wide range of topics including water, climate and land use change, energy, minerals, environmental health, hazards, and ecosystems.

The USGS Community for Data Integration (CDI) plays a role in making connections from USGS data to diverse user communities with its virtual and in-person events, working group activities, and funded projects.

Join us

- Want to present your observational resource to the USGS CDI community of practice?
- Want to host a joint Hackathon with the CDI?
- Want to join a working group on Citizen Science, Data Management, Tech Stack, Semantic Web, or Mobile App Development?
- Have an idea for connecting or leveraging your community with the CDI?

Contact the CDI Coordinators:
Leslie Hsu and Madison Langseth at cdi@usgs.gov



Four ways to connect observations and user communities:

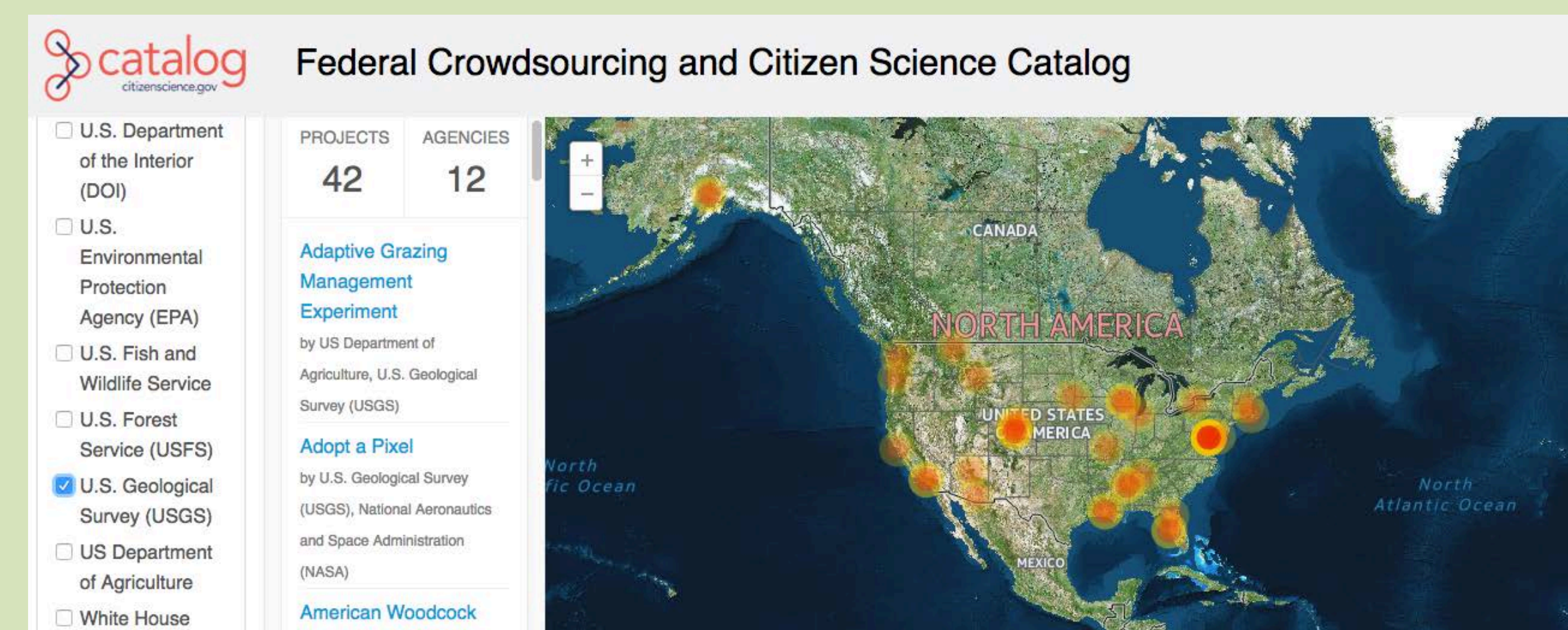
Give your data to hackers at a Hackathon

The CDI and ESIP held a joint Hackathon in April 2016 where participants worked on small teams to solve challenges with USGS data and services from Critical Minerals, OBIS USA, and ScienceBase. **Offering your observational data as a hackathon challenge connects you with new viewpoints and multiplies your solving power.**



Promote crowdsourcing and citizen science projects

The USGS is one of the leaders in sponsoring federally-funded crowdsourcing and citizen science projects, with 42 projects listed in the catalog at citizenscience.gov. The CDI informs the community about opportunities and resources for implementing crowdsourcing, citizen science, and civic hacking projects. **These projects both collect and connect observations with users in the general public, academia, and government.**



Ask users to help design mobile apps for data collection

Mobile field data collection apps help to connect users more efficiently to their observations, and **getting users involved in the app design is key for user buy-in and future use.** USGS and the Bureau of Reclamation are hosting a design challenge for a field data collection app, and asked for user feedback on the app design during a CDI virtual monthly meeting. bit.ly/bor-usgs-data-app

Data App Challenge:

The Problem:

- Data collection is fundamental to water and environmental science and management
- Use of mobile devices (tablets, smartphones) in field data collection is rapidly increasing
- Many data collection apps exist ... But all have significant limitations

Lack of user: Based on proprietary software or technologies import, export, and syncing

Lack of interface: Require expensive third-party development for specific projects or programs engagement and sharing

Limited QA/QC methods: Lack of Etc... Etc... Etc...

Data App Challenge:

The Solution:

- Flexible, extensible, and open-source mobile application framework to support field data collection and capture using mobile devices
- Focus on:
 - Robust framework ... support broad range of features and tailored, extensible architecture ... features APIs, editors, programs, etc.
 - Easy-to-use integration ... from CRM to shared dataset
 - Community-driven approach ... allow communities of practice to develop and share

Data App Challenge:

Take a look ... and give us your input!

Have we adequately defined the problem?

- Features and functions?
- Architectural concepts to follow (or avoid)?
- Technologies to use (or avoid)?
- Other ... ?

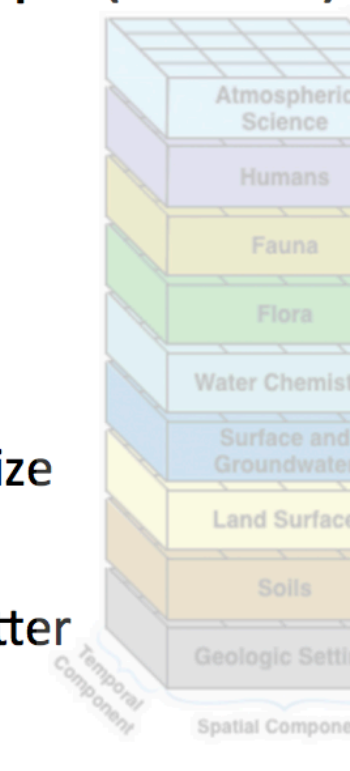
Questionnaire (Google Form):
<https://www.google.com/forms/d/1G-0Aa7N8w7o1>

Facilitate working groups that share resources across traditional boundaries

The CDI provides communities of practice that cross geographical and organizational boundaries, where resources can be shared widely. Users post questions and requests on group forums and gain knowledge and access to observational information and resources that were previously unknown. The CDI Earth Science Themes working group (formerly Data Theme Focus Groups) was formed to **bring data producers into more direct and regular contact with research scientist users.**

Data Theme Focus Groups (DTFGs)

- Each attracts scientists from different Mission areas with different scientific views and questions ("contexts")
- Collaboration helps cross-fertilize
- Leverage foundational data better



Data Theme Focus Groups (DTFGs)

- Role of a DTFG
 - Understand content, constraints, gaps, functionality, metadata, and structure of focus theme
 - Develop and promote BPs and methods around theme
 - e.g., efficient, accurate algs for routing w/NHD, use of standards like CF conventions
 - Explore how focus theme used in different science contexts
 - How does theme fit into Critical Zone?
 - What are linkages to other data themes?

