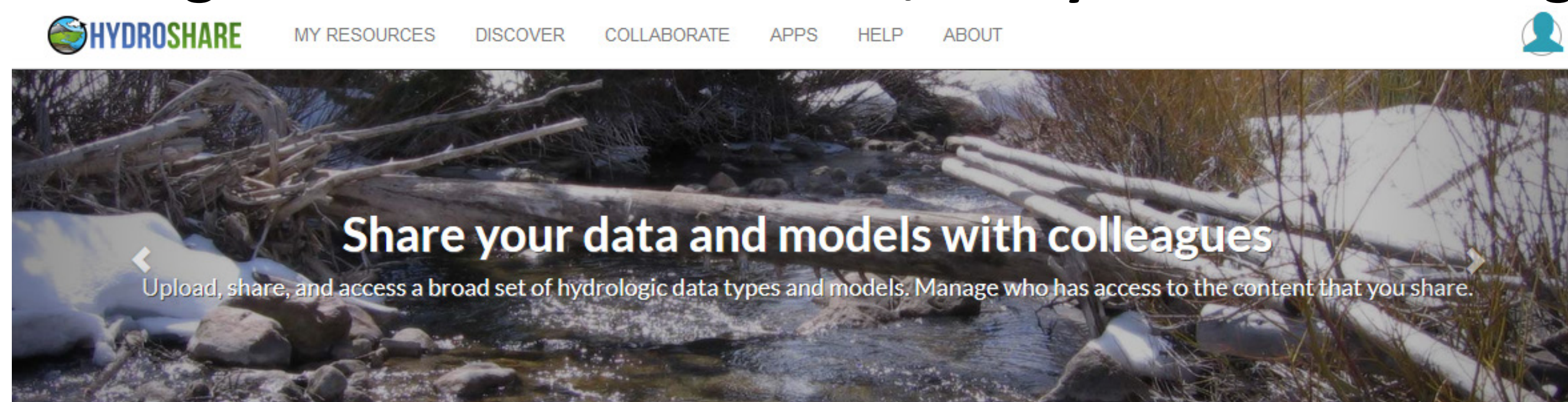


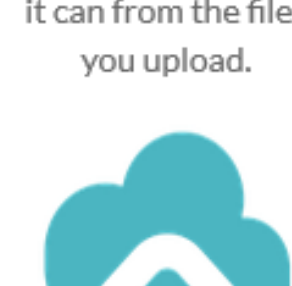
What is HydroShare ?

An online hydrologic information system for sharing data, models and code to enable more rapid advances in hydrologic understanding through collaborative research, analysis and modeling.



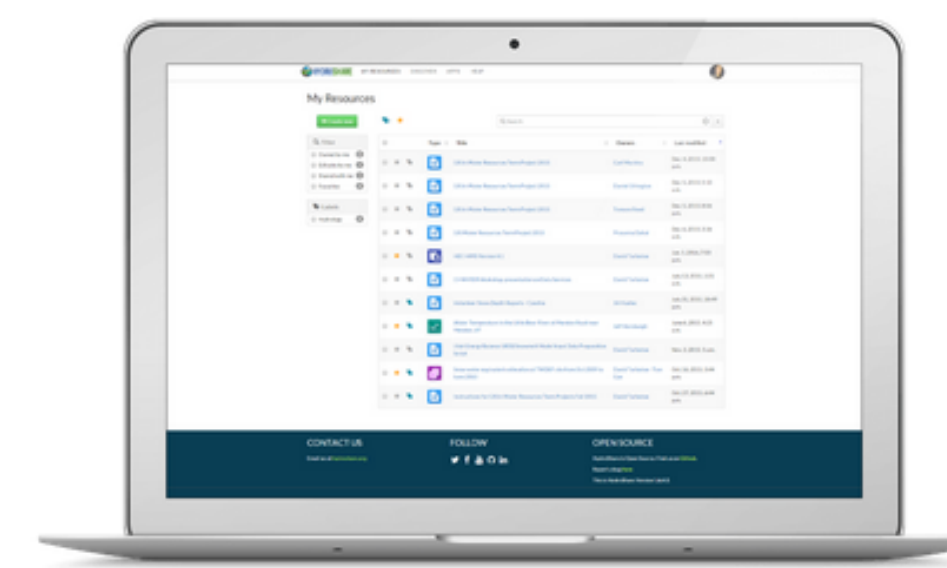
How it works

- Create data**
Collect your data using the same methods you use now. HydroShare supports a broad set of hydrologic data types.
- Upload to HydroShare**
Upload your data files to HydroShare through the web user interface. HydroShare will automatically extract as much metadata as it can from the files you upload.
- Describe with metadata**
Use HydroShare's simple metadata entry forms to finish describing your data so that your colleagues can find, access, and interpret it.
- Share with colleagues**
Choose who has access to the data and models you have uploaded to HydroShare. You can share with individual users or make your resources public for everyone to access.
- Permanently Publish**
Obtain a Digital Object Identifier (DOI) so your work can be easily cited. Reference related journal publications in your metadata.



What you can do with HydroShare

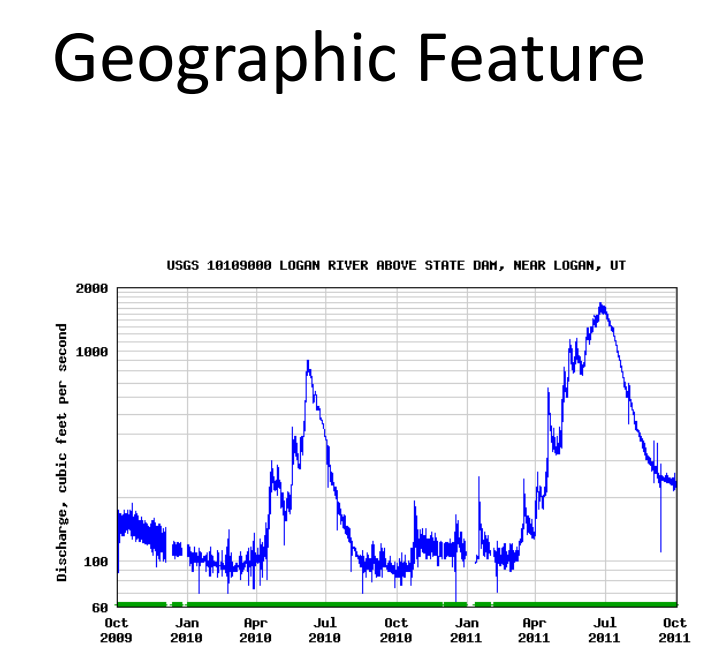
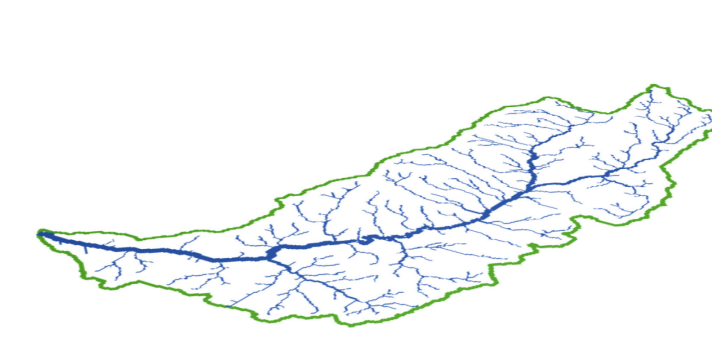
- ✓ Share your data and models with colleagues
- ✓ Manage who has access to the content that you share
- ✓ Share, access, visualize and manipulate a broad set of hydrologic data types and models
- ✓ Use the web services API to program automated and client access
- ✓ Publish data and models to meet the requirements of your data management plan
- ✓ Discover and access data and models published by others
- ✓ Use web apps to visualize, analyze and run models on data in HydroShare



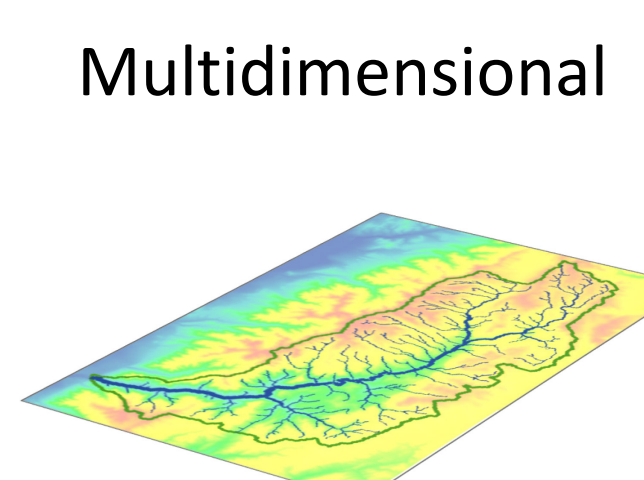
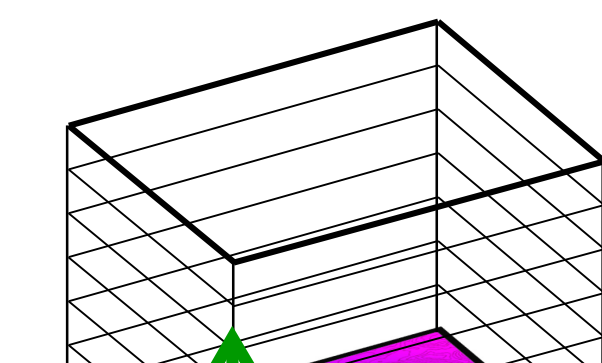
www.hydroshare.org

What can you store in HydroShare ?

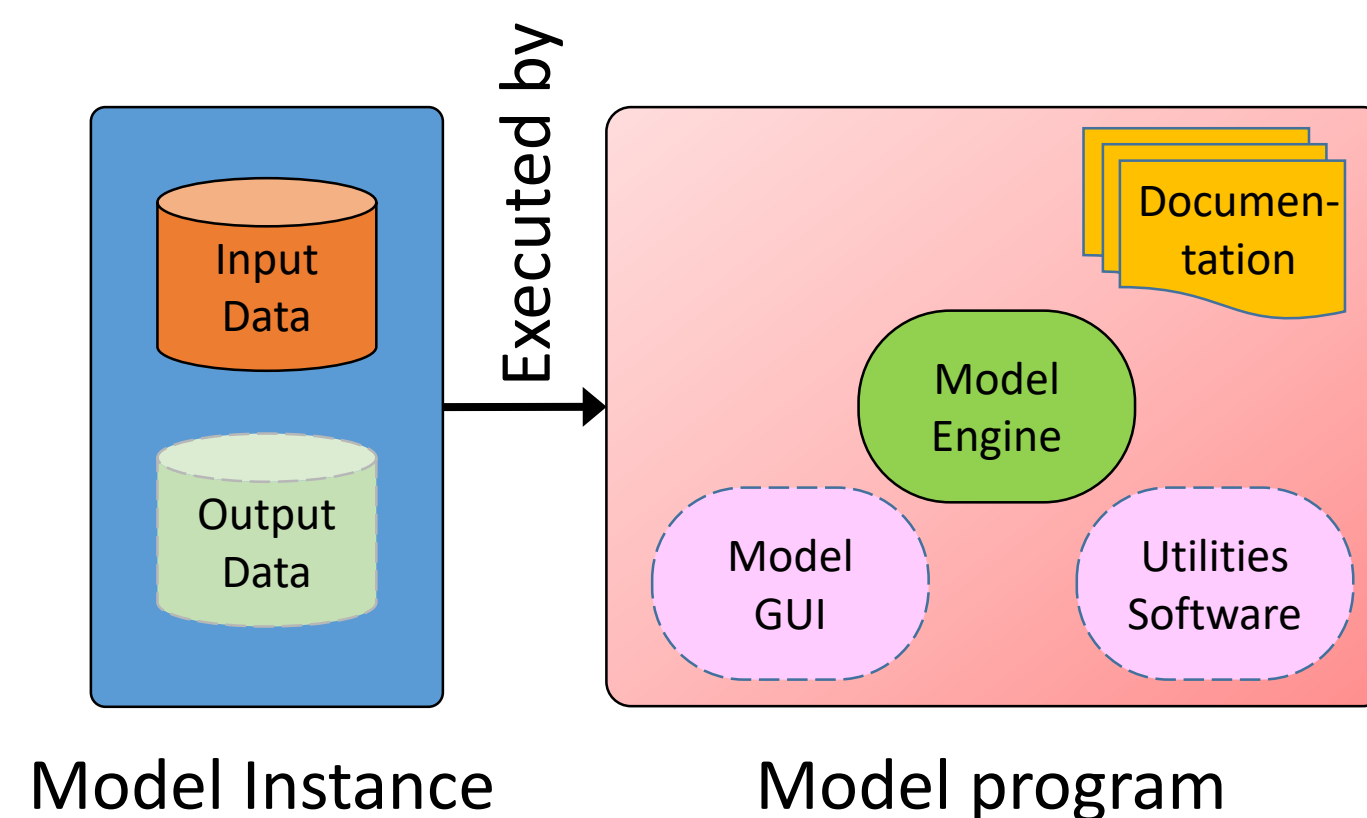
- In HydroShare, data and model files are stored as **resources**.
- HydroShare supports any file, including several specific data formats.
- Content “aggregations” hold data formats common in hydrology and support description with additional content specific metadata. Apps can act on specific content types.
- Collections group together multiple resources related to a project or study.
- Model Programs and Model Instances hold specific hydrologic models and associated data for application at a location.



Time Series



Geographic Raster



Why HydroShare ?

Collaboration: Share your data and model files; integrate information from multiple sources; organize individual, team, and group work.

Reproducibility, transparency and trust: Publish your work in any format, including data and models with a citable digital object identifier (DOI).

Do Science: Run Apps and models from a browser without installing software; access computational services for your big data and model analysis.

Learning: Use a platform where all students have access to the same functionality regardless of their computer.

HydroShare is a system to advance hydrologic science by enabling the community to more easily and freely share products resulting from their research, not just the scientific publication summarizing a study, but also the data and models used to create the scientific publication.

- Findable
- Accessible
- Interoperable
- Reusable

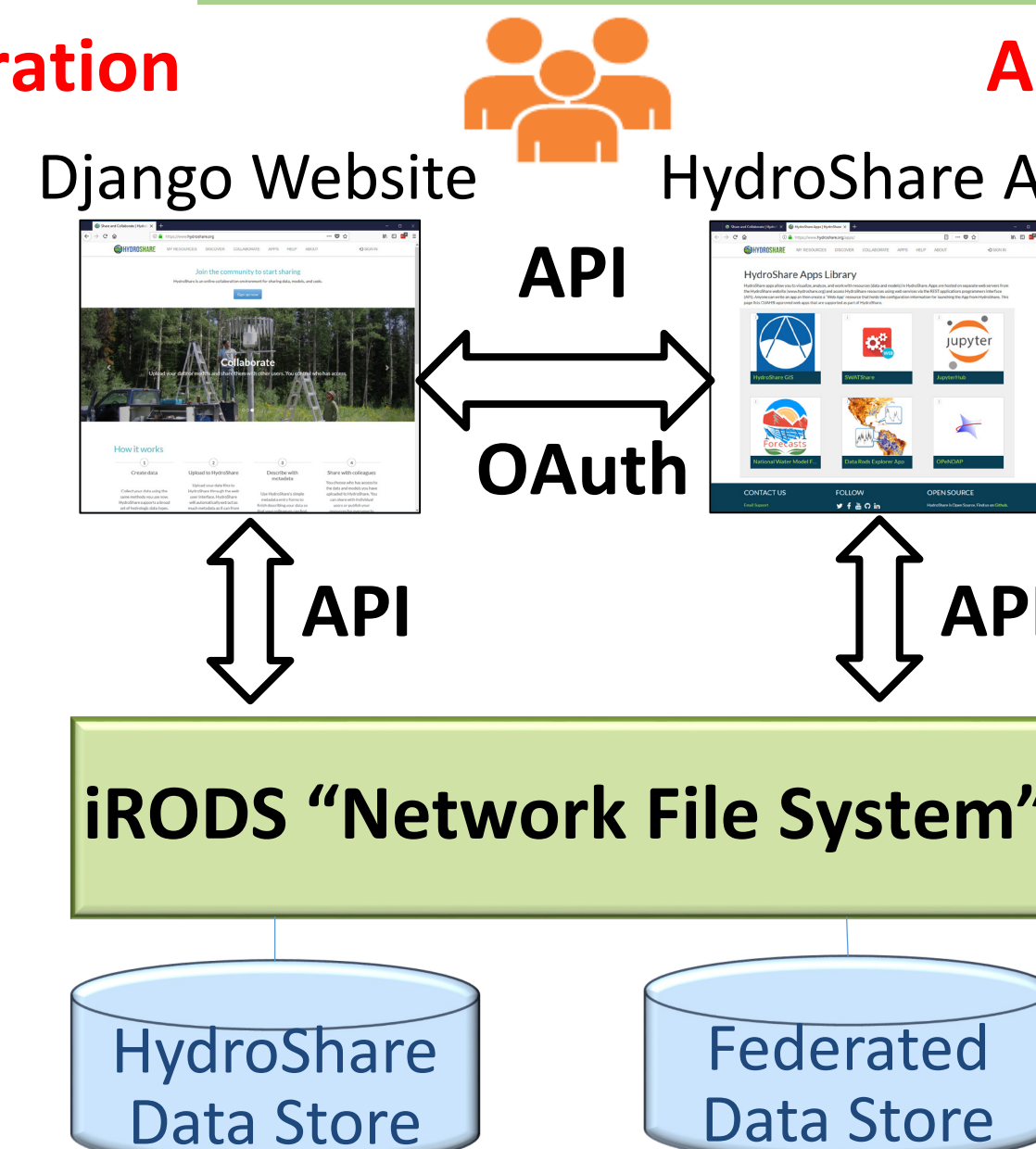


Design

Resource exploration

- Organize and annotate your content
- Manage access

Distributed file storage



Actions on Resources

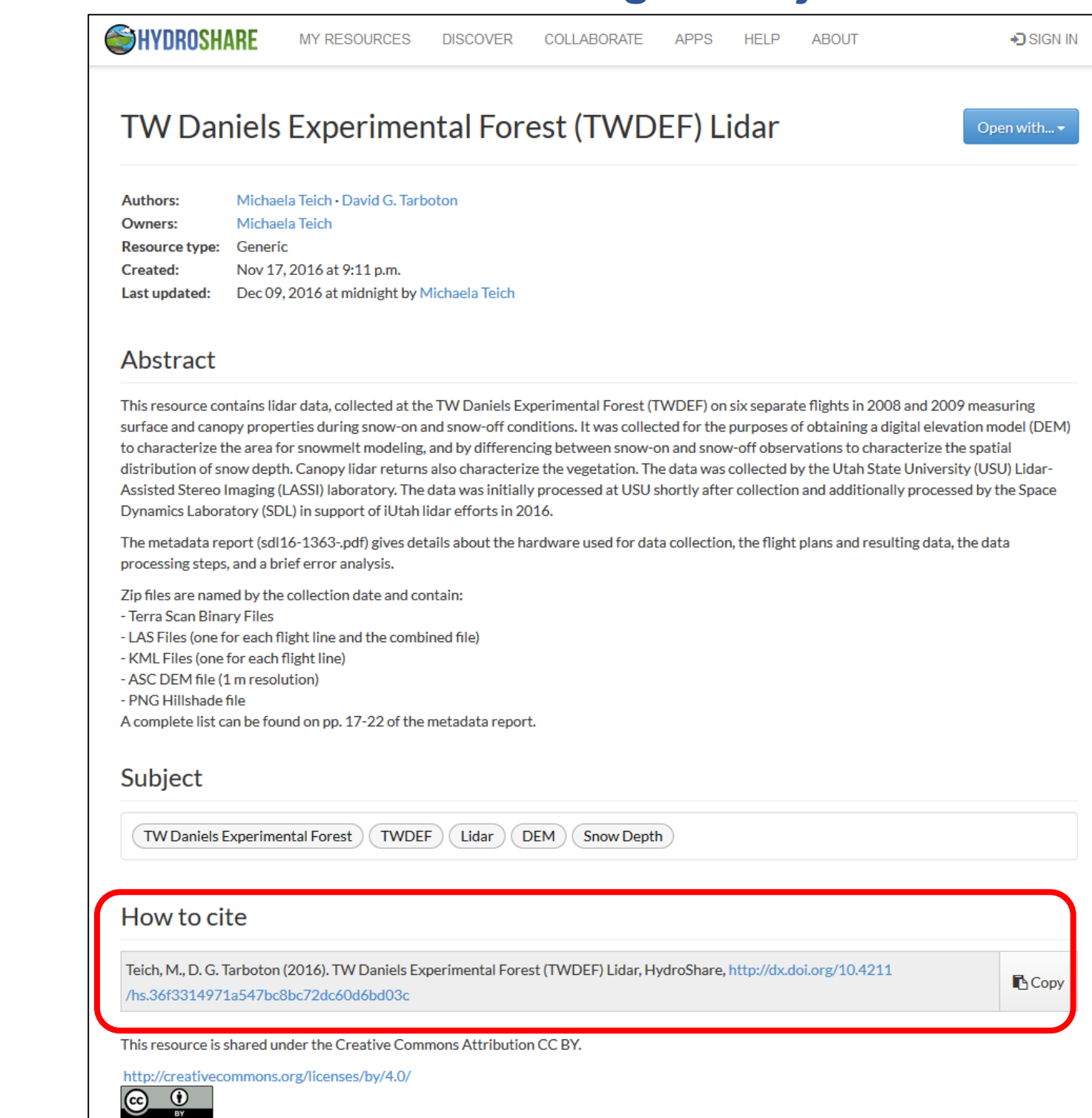
- Web software to operate on content you have access to (Apps)
- Extensibility: Anyone can set up a server/app platform (software service) to operate on HydroShare resources through iRODS and API

e.g. NCSA, TACC, USU

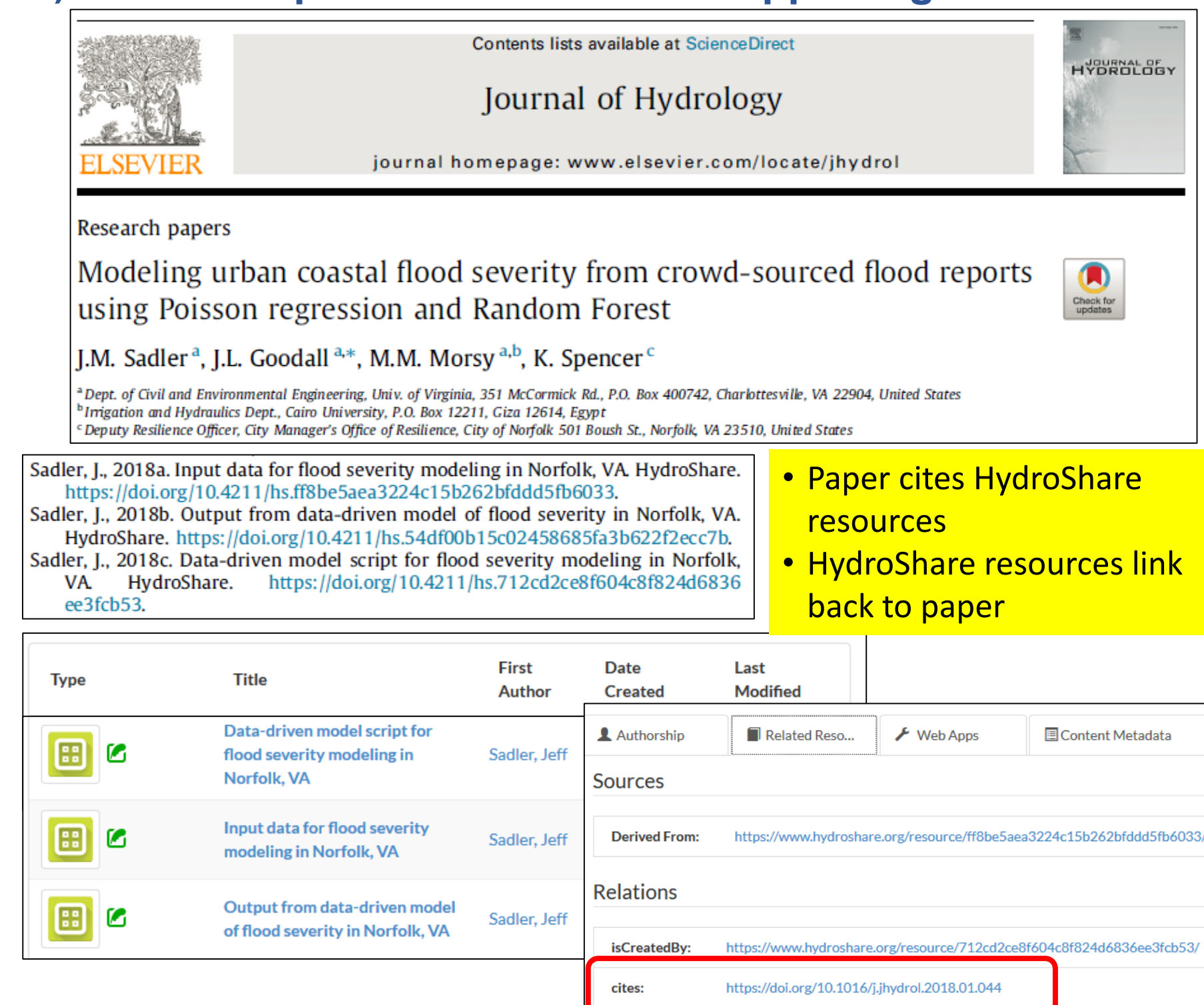
Moving towards fully web based hydrologic innovation environment

Publishing data and models

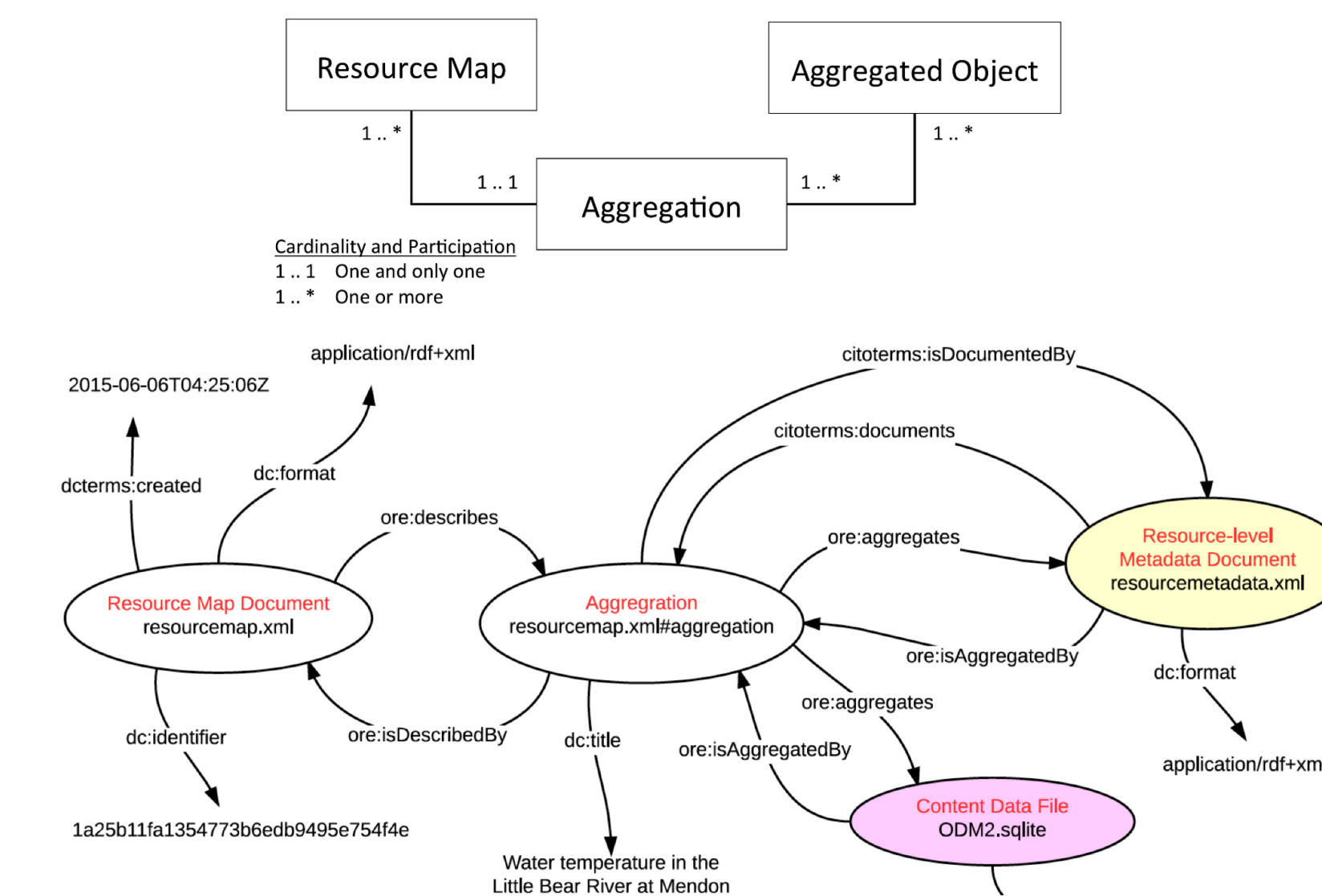
Publication with Citable Digital Object Identifier (DOI)



Link publications to their supporting data



OAI-ORE standard based Resource Data Model



Horsburgh, J. S., et al., (2016), "Hydroshare: Sharing Diverse Environmental Data Types and Models as Social Objects with Application to the Hydrology Domain," JAWRA, <http://dx.doi.org/10.1111/1752-1688.12363>.

Dublin Core machine readable metadata and data model to make data in HydroShare, Findable, Accessible, Interoperable, Reusable

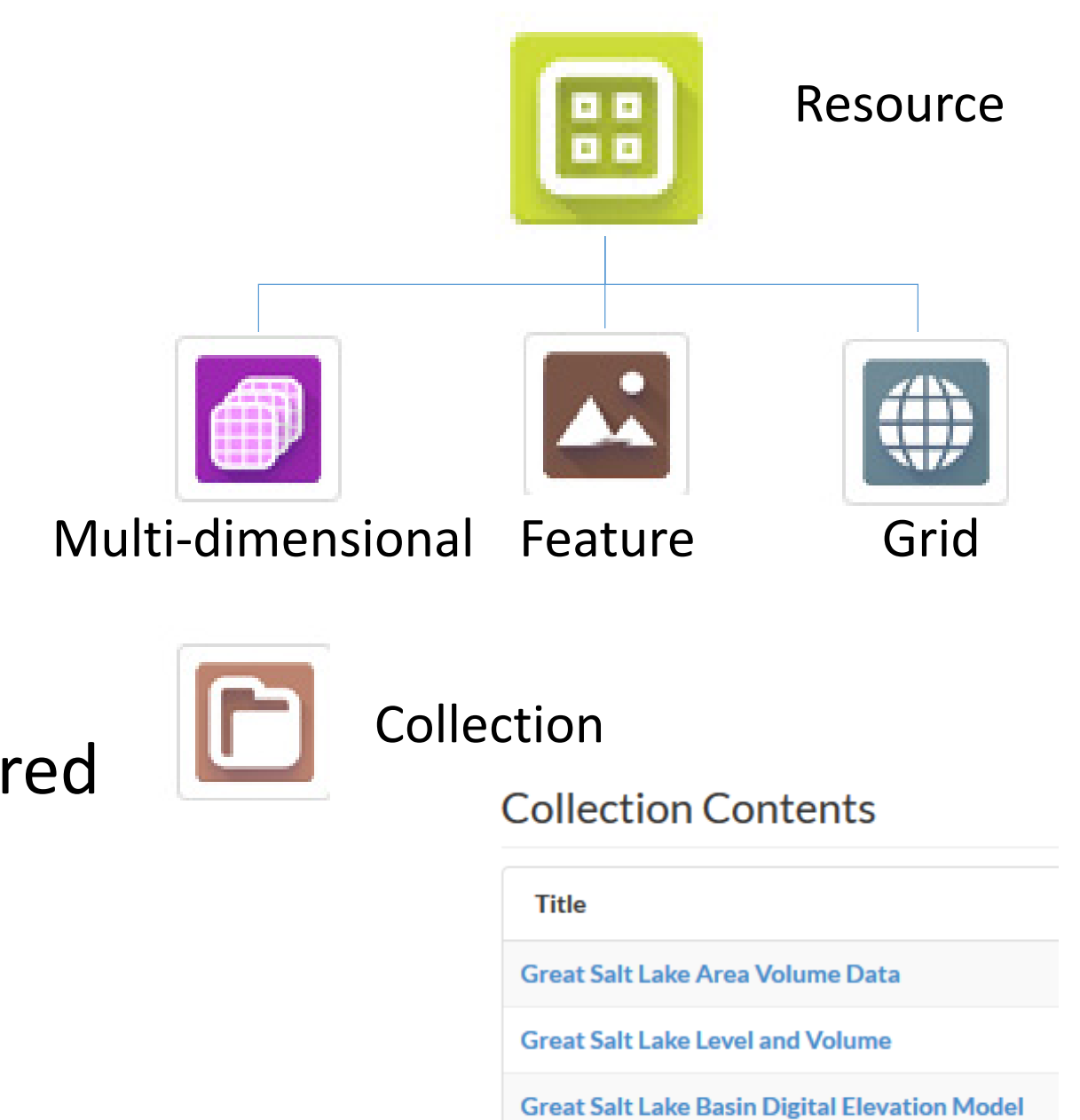


Resources, comprised of data and models, are framed as social objects, the basis for collaboration and interaction

Resource Organization

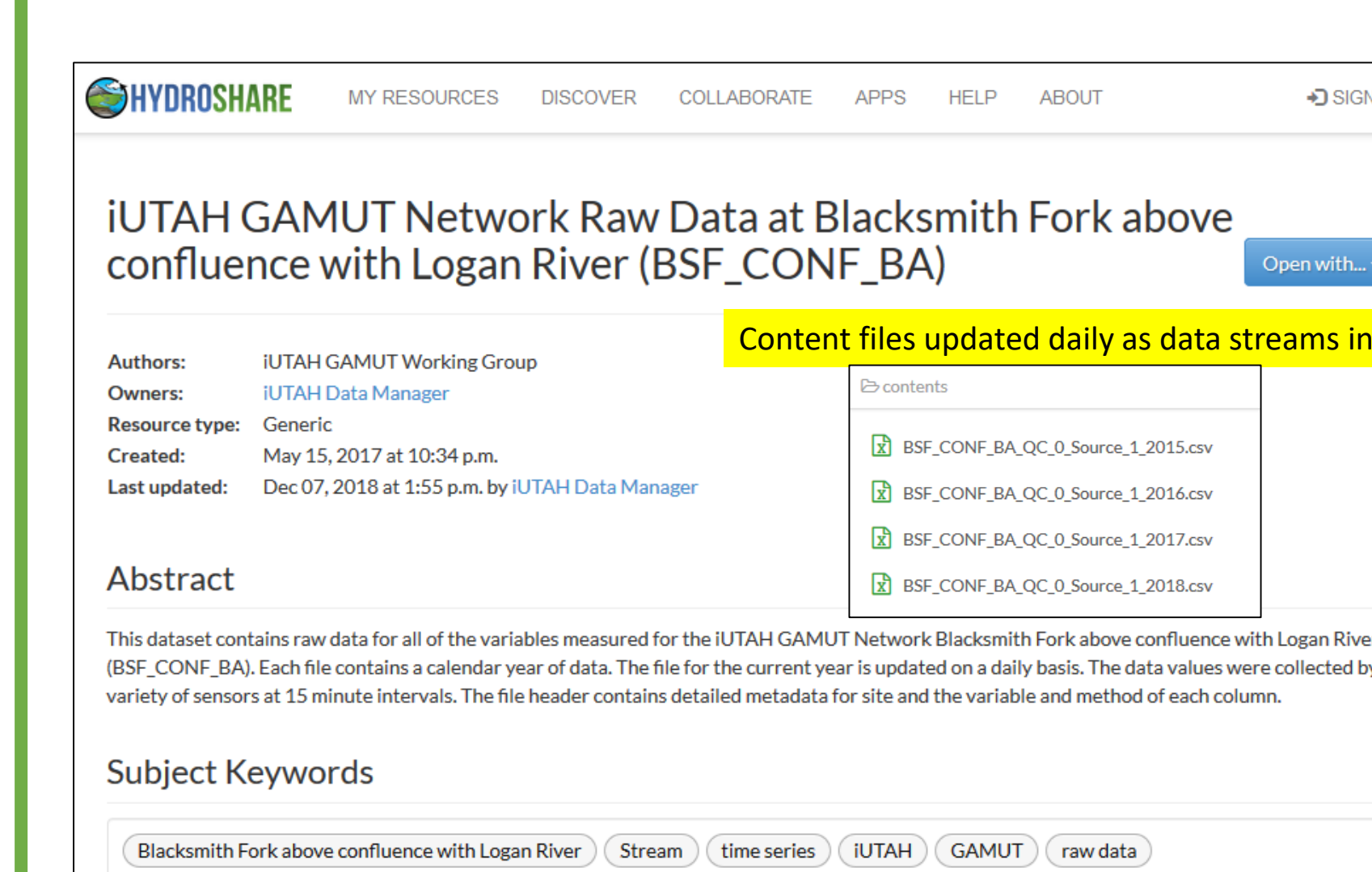
- A **resource** can hold multiple aggregations
 - Each being a different type of data with its own set of metadata
 - Managed as one discoverable resource
 - One set of access controls (Owners, Editors etc.)
 - One unique identifier
 - One set of resource level metadata

- A **collection** can hold multiple resources
- Collections and their members may each be discovered separately
- Unique keyword tags form informal collections (e.g. "AGU2018")

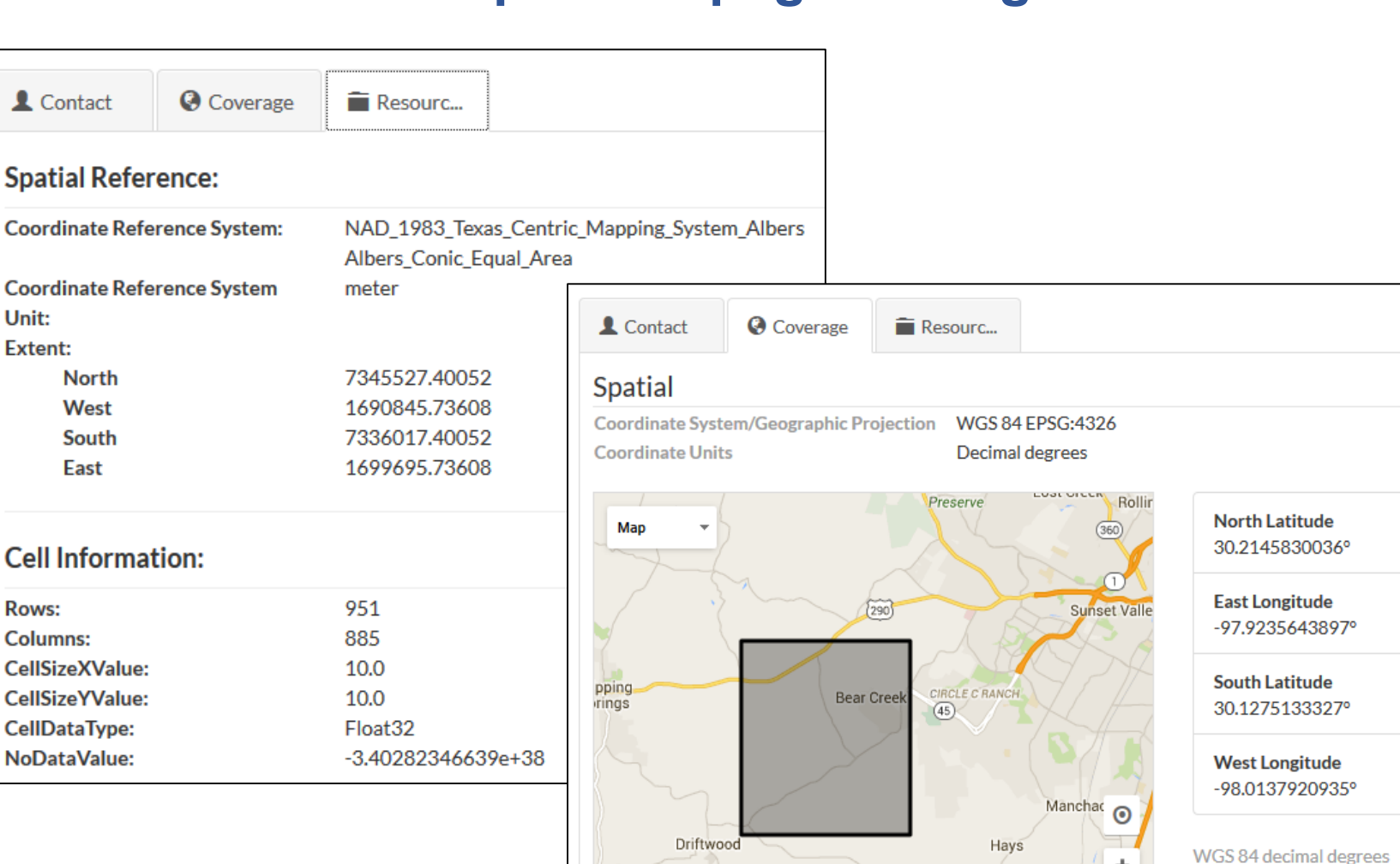


Key Functionality

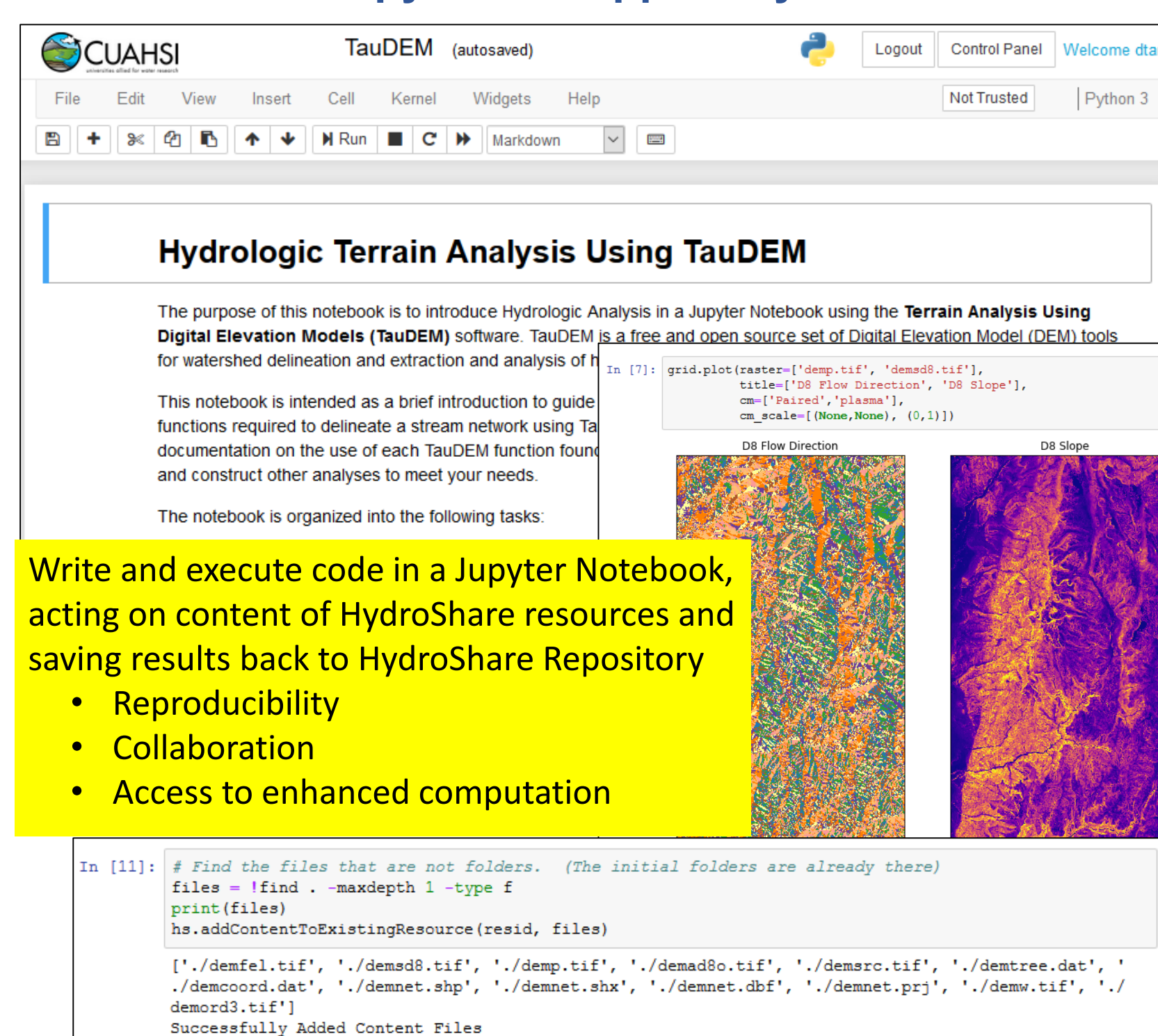
Data streamed into HydroShare as soon as it is collected



Metadata harvested automatically or captured via simple web page editing



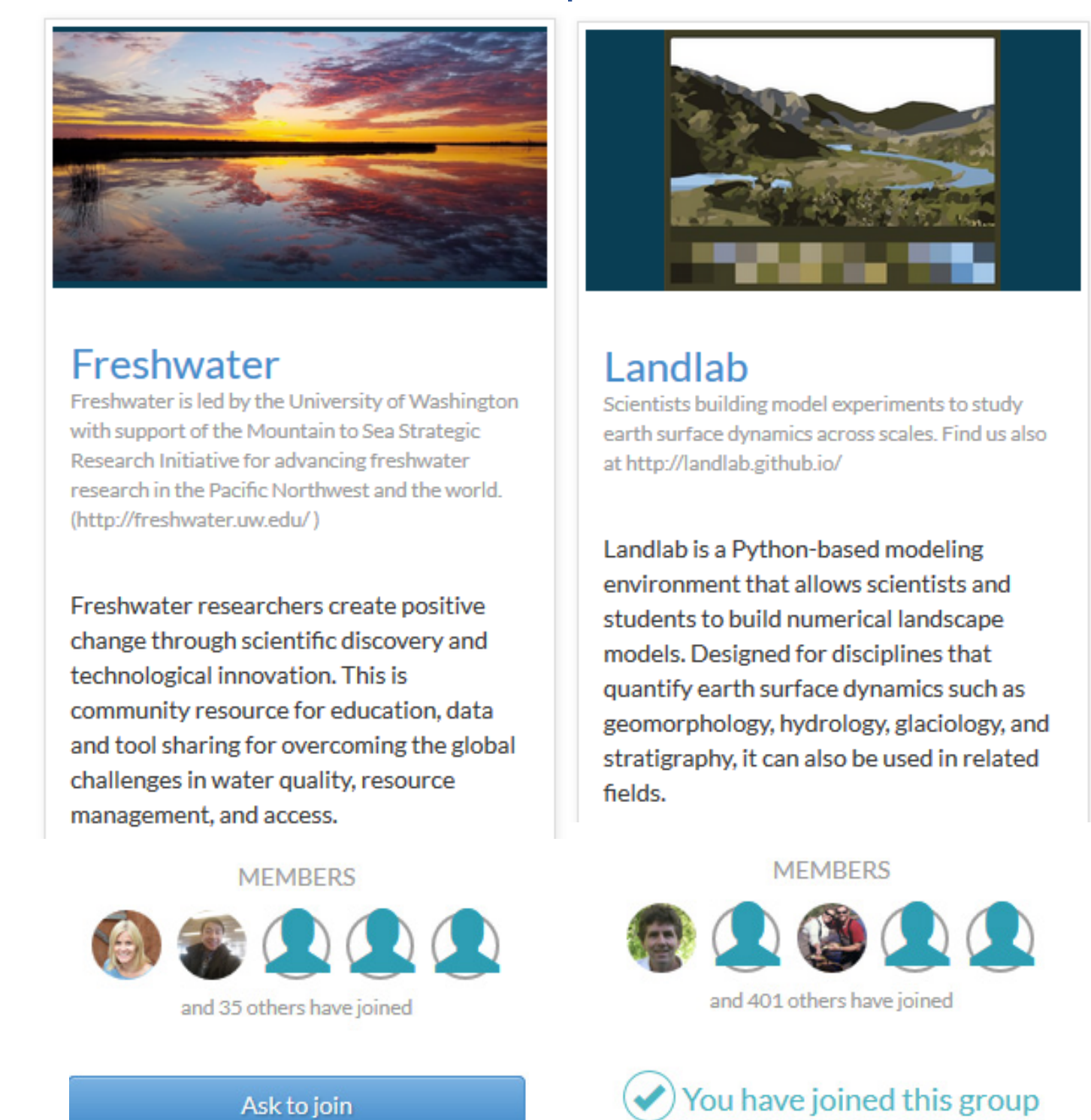
JupyterHub App Analysis



Write and execute code in a Jupyter Notebook, acting on content of HydroShare resources and saving results back to HydroShare Repository

- Reproducibility
- Collaboration
- Access to enhanced computation

Groups



Freshwater
Freshwater is led by the University of Washington with support of the Mountain to Sea Strategic Research Initiative for advancing freshwater research in the Pacific Northwest and the world. (<http://freshwater.uw.edu/>)

Landlab
Scientists building model experiments to study earth surface dynamics across scales. Find us also at <http://landlab.github.io/>

Freshwater researchers create positive change through scientific discovery and technological innovation. This is community resource for education, data and tool sharing for overcoming the global challenges in water quality, resource management, and access.

MEMBERS
and 25 others have joined
Ask to join
You have joined this group



OAC-1664061
OAC-1664018
OAC-1664119

HydroShare is operated by CUAHSI with ongoing development through a collaborative project among Utah State University, RENCI University of North Carolina, Brigham Young University, CyberGIS Center University of Illinois, Tufts, University of Virginia, NCAR, and University of Washington.



Universities Allied for Water Research

