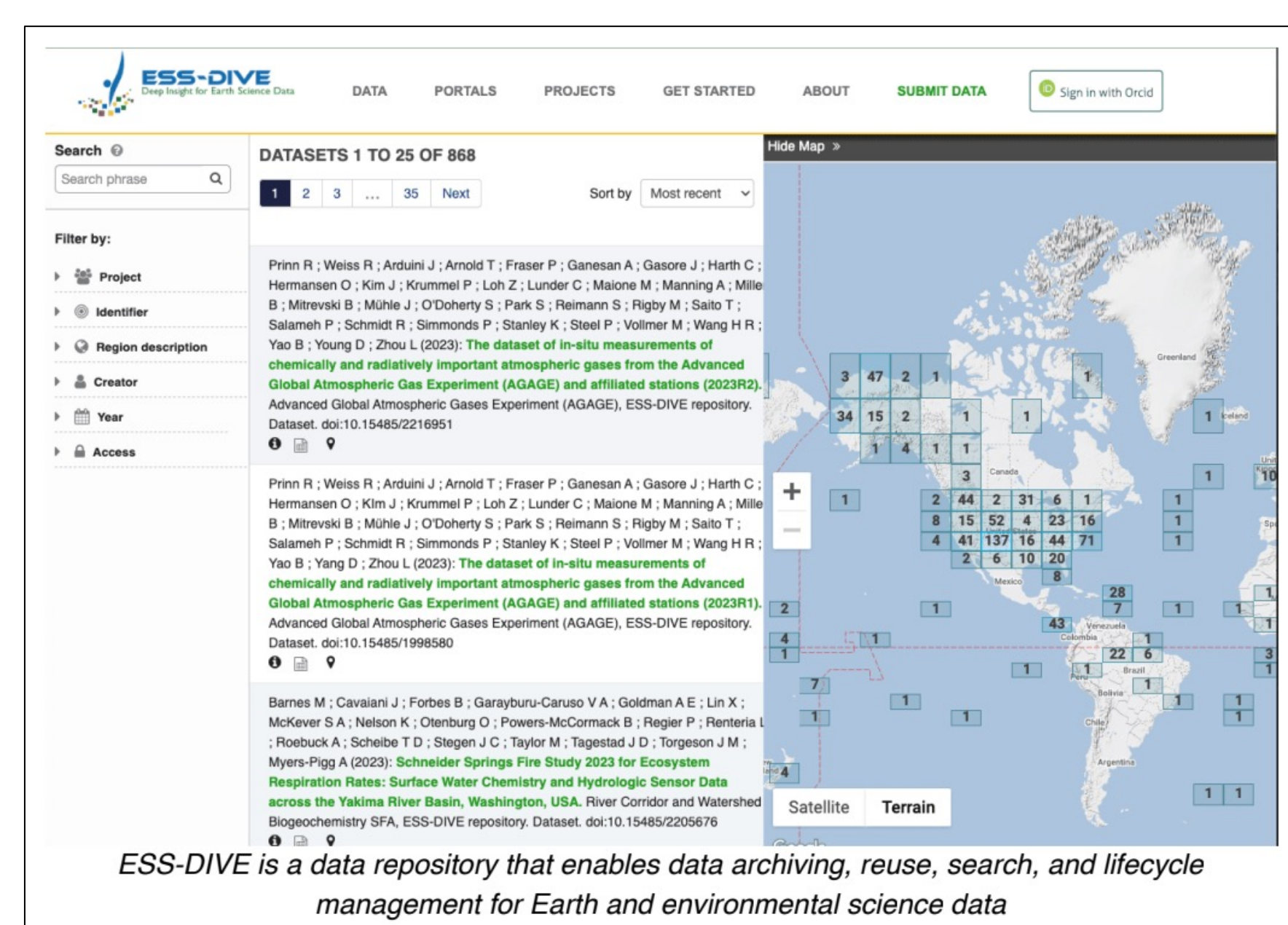


ESS-DIVE Data Repository

Charuleka Varadharajan, Shreyas Cholia, Joan Damerow, Deb Agarwal, Hesham Elbashandy, Fianna O'Brien, Dylan O'Ryan, Emily Robles, Mario Melara, Madison Burrus, Karen Whitenack, Catherine Wong, Shalki Shrivastava, Sarah Poon, Matthew B. Jones, Jing Tao, Matthew Brooke, Rushiraj Nenuji

About ESS-DIVE

ESS-DIVE is a data repository to preserve, expand access to and improve usability of Environmental Systems Science (ESS) data.



ESS-DIVE stores a variety of data types from ESS-sponsored research, which include:

- Data from a wide range of natural and urban systems
- Diverse datasets that include hydrology, geology, ecology, geochemistry, biology, climate, geophysics.
- Field, lab experiments, modeling, remote sensing data

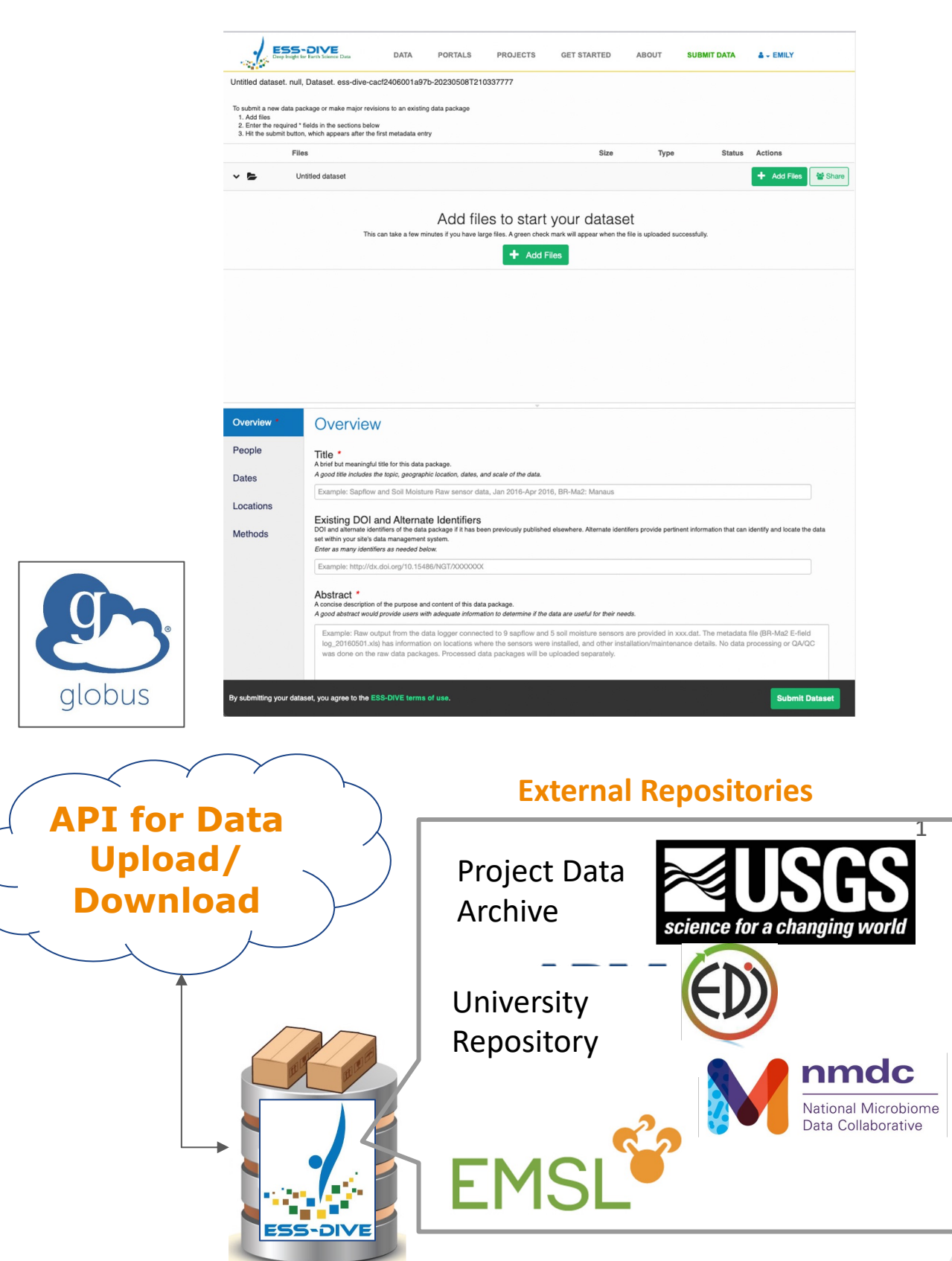


Website: <https://ess-dive.lbl.gov>
Data Access: <https://data.ess-dive.lbl.gov>

Authorized Users	Public Datasets	Private Datasets	Contributing Projects	Temporal Coverage
380	918	262	90	1841 to 2024
Number of Views	Number of Downloads	Public Portals	Total size of files stored	Tier 2 files stored
738700	415200	15	2.82 TB	7.3 TB

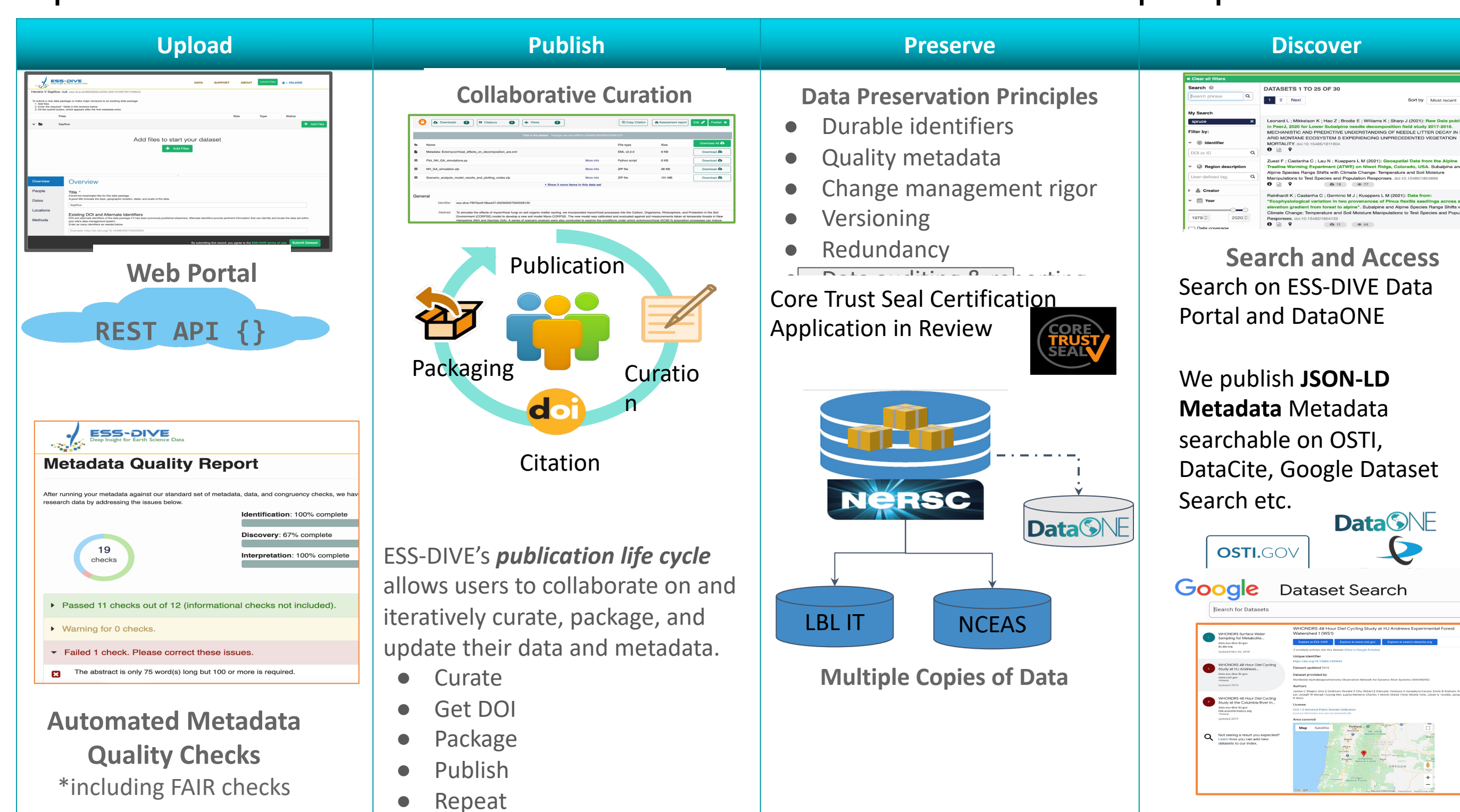
Data Upload

- Web portal** - Web form provides easy upload of files & metadata. Search & download using maps, other filters to discover relevant datasets.
- External Linking** - Make data stored in other systems searchable in ESS-DIVE, add links to additional resources
- Large and bulk datasets** - REST API programmatic access, Globus for high performance data transfer. Secondary direct access storage tier for large hierarchical datasets
- Quality checks** - Metadata curation before publication to make data FAIR



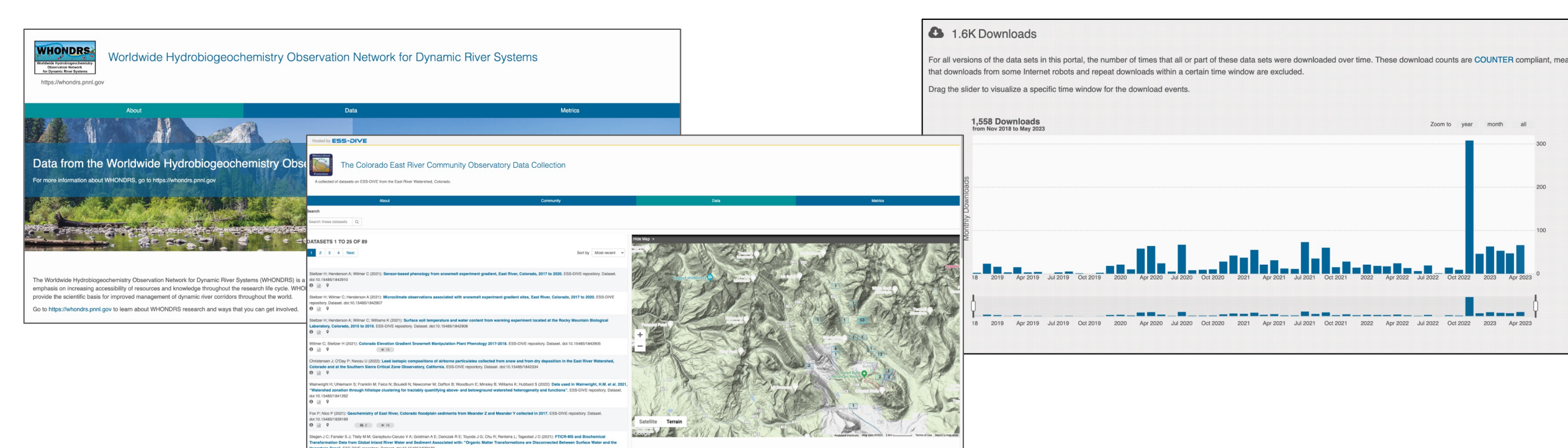
ESS-DIVE for project data management

ESS-DIVE supports the **end-to-end data management lifecycle**, including data upload, an iterative publication process, robust data preservation and searchable metadata across multiple platforms.



Several features for **collaborative project data curation**

- Dataset sharing within project teams to promote collaborative editing and curation of data packages
- Project level team management and access control
- Data search within a project
- Custom project-centric data portals - curated collections of project data or other views (e.g. field site, campaign)
- Project data citations and metrics



Link related resources on ESS-DIVE and elsewhere

- Use the external linking feature to connect data
- Provide input on linking related resources (papers, samples, datasets) for scientific use, and complex data citations

ESS-DIVE metadata enable links to related external data

External Links to Data or Metadata		
External links for this dataset		
Description	Relationship	URL
Soil thickness estimation v1.0 (archived at Zenodo)	[archived at] Complete copy of the data in this dataset	http://doi.org/10.5281/zenodo.4445383

Adopt ESS-DIVE developed **data and metadata reporting formats** in your project's data collection and publication workflows

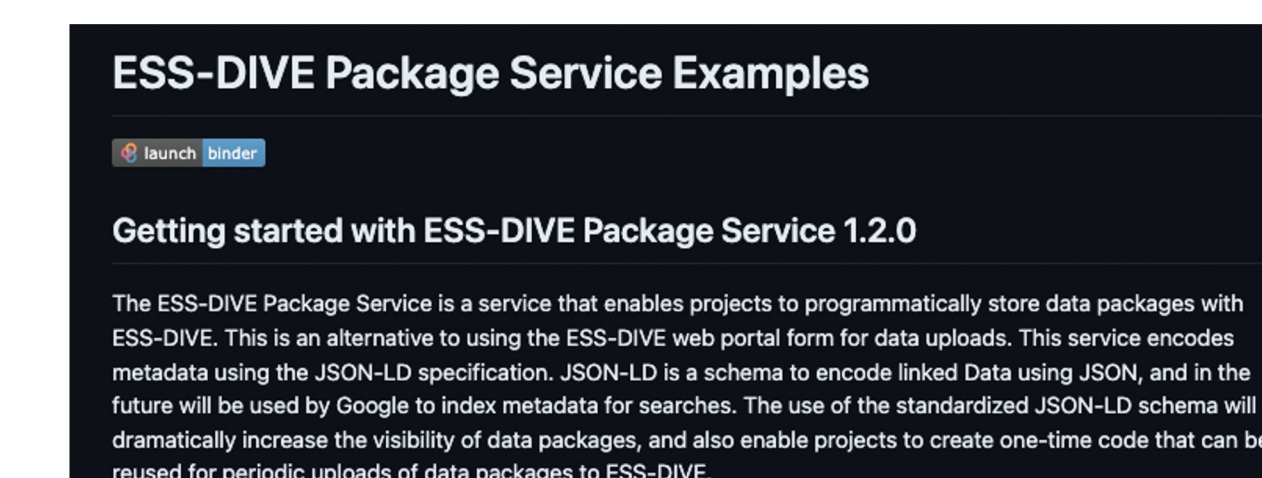
- ESS-DIVE developed 12 data and metadata reporting formats for diverse environmental data, in partnership with ESS researchers to help organize project data, curate metadata, and improve data discoverability and reuse.
- See poster: "ESS-DIVE: Enabling Integration Across Diverse ESS Datasets" and project data management tutorial.

Using ESS-DIVE Data

ESS-DIVE provides many features to **access and use data**.

Dataset API (api.ess-dive.lbl.gov) **Package service API** enables programmatic submission, management, search and download of datasets with ESS-DIVE

- Find datasets by project, DOI, author or other search terms
- Search & download data files or metadata in bulk
- See tutorials in python, R and Java and demo notebooks on binder



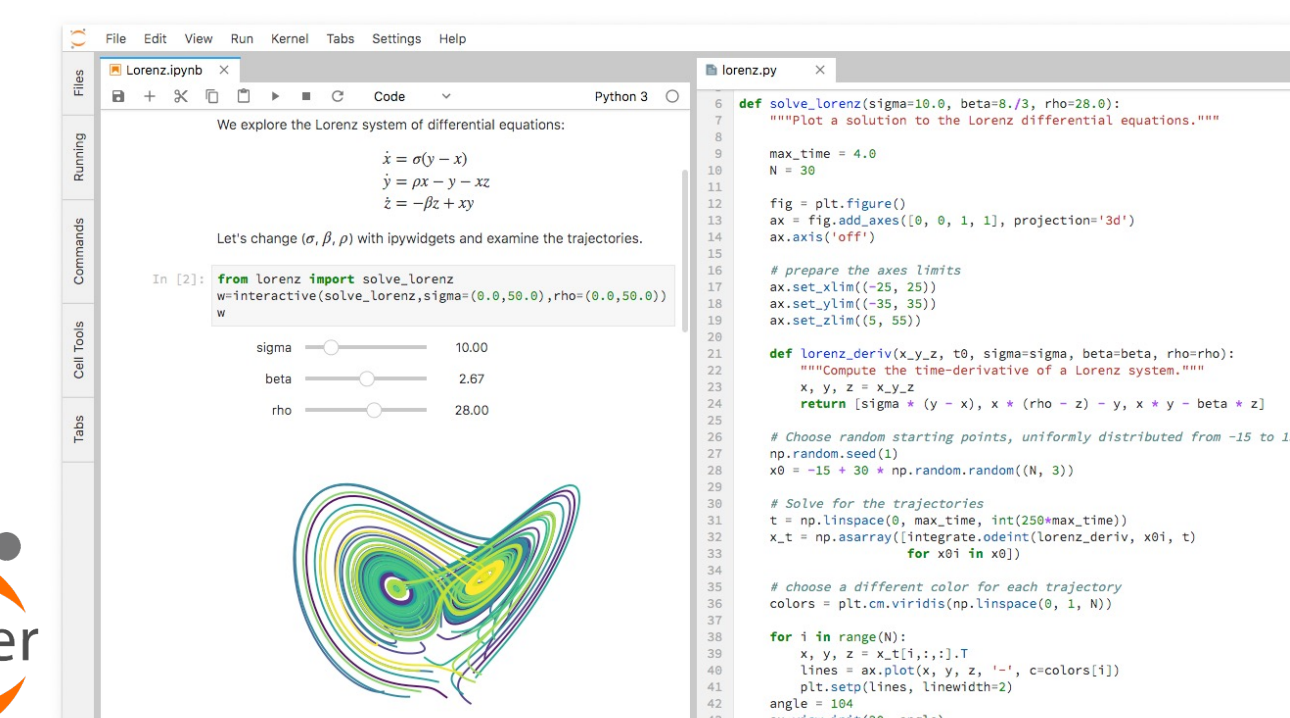
NEW: Dataset Deep Dive API (fusion.ess-dive.lbl.gov)

ESS-DIVE Fusion DB API makes standardized data searchable

- Find datasets relevant to your scientific research
- Understand if data is valid for your scientific goal using specific search filters (e.g., for variables)
- Download data of interest
- See data integration poster for more details.

NEW: Community Jupyterhub workspaces to directly operate on ESS-DIVE data:

Easily access ESS-DIVE data in notebooks, view tutorials for submitting, searching for, and downloading datasets



Learn More

Connect with us in various ways:

- On-demand office hours, tutorials, webinars, annual workshop
- Project meeting presentations and site visits (contact us if you would like us to present at your next project All-Hands meeting!)
- User interviews to solicit input and feedback on ESS-DIVE features
- PI meeting tutorials, participation in ESS Cyberinfrastructure Working Groups
- ESS-DIVE Archive Partnership Board consisting of leads of major ESS projects provides input into ESS-DIVE features and activities

Questions? ess-dive-support@lbl.gov

ESS-DIVE Documentation: <https://docs.ess-dive.lbl.gov/>

Webinars: <https://ess-dive.lbl.gov/webinars/>

Tutorials: <https://ess-dive.lbl.gov/video-tutorials/>

Acknowledgements

This research is supported as part of the ESS-DIVE repository and funded by the U.S. Department of Energy, Office of Science, Office of Biological and Environmental Research under Award no. DE-AC02-05CH11231. This research used resources of the National Energy Research Scientific Computing Center (NERSC), a U.S. Department of Energy Office of Science User Facility operated under Contract No. DE-AC02-05CH11231.