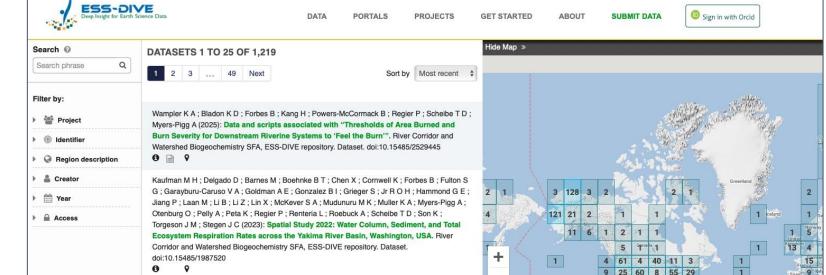
2025 Environmental ESS-DIVE: Advancing DOE ESS Data Management, Systems Sciences PI Discovery, and Use

Shreyas Cholia¹, Joan Damerow², Deb Agarwal¹, Madison Burrus², Hesham Elbashandy¹, Valerie Hendrix¹, Matthew B. Jones³, Emily Nagamoto², Rushiraj Nenuji³, Fianna O'Brien¹, Dylan O'Ryan², Shalki Shrivastava¹, Jing Tao³, Karen Whitenack¹, Charuleka Varadharajan²

¹Scientific Data Division, Lawrence Berkeley National Laboratory; ²Earth & Environmental Sciences Area, Lawrence Berkeley National Laboratory; ³National Center for Ecological Research and Synthesis

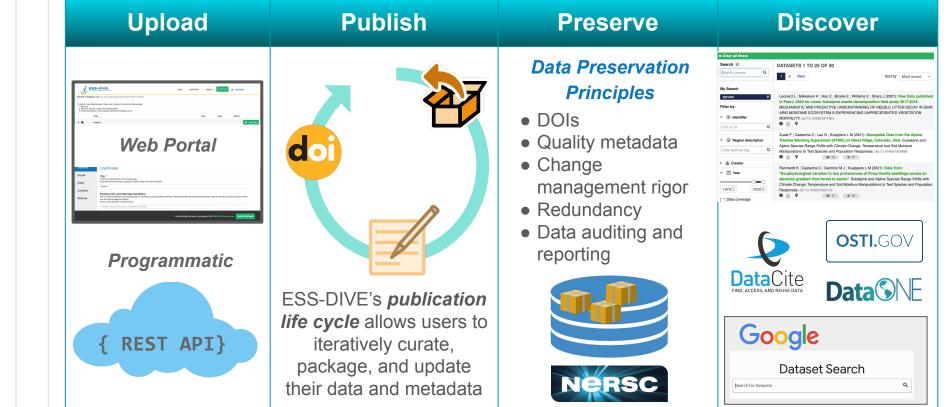
About ESS-DIVE

ESS-DIVE is a **CoreTrustSeal certified data repository** that enables data management, discovery, and use of a variety of DOE's Environmental Systems Science (ESS) data.



Project Data Management

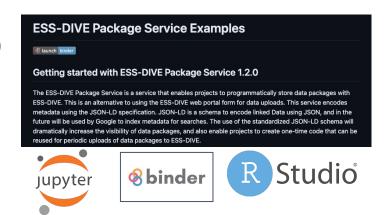
ESS-DIVE supports end-to-end data management lifecycle, and offers project-specific features that allow researchers to collaborate, share, and manage data within their teams.



Using & Citing 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



meeting

• Find datasets by project, DOI, author or other search terms

• Search & download data files or metadata in bulk

FusionDB - Deep Dive API (fusion.ess-dive.lbl.gov)

ESS-DIVE Deep Dive API makes standardized data searchable



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1 1 atellite Terrair

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

- Data from a wide range of natural and urban systems
- Data from field, lab experiments, modeling, remote sensing data



Add files to start your dataset

Website: https://ess-dive.lbl.gov Data Access: https://data.ess-dive.lbl.gov Features: https://ess-dive.lbl.gov/our-features-and-services

egistered users	100 Contributing projects	278 Events
215	283	13.6 TB
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94K	1M	16
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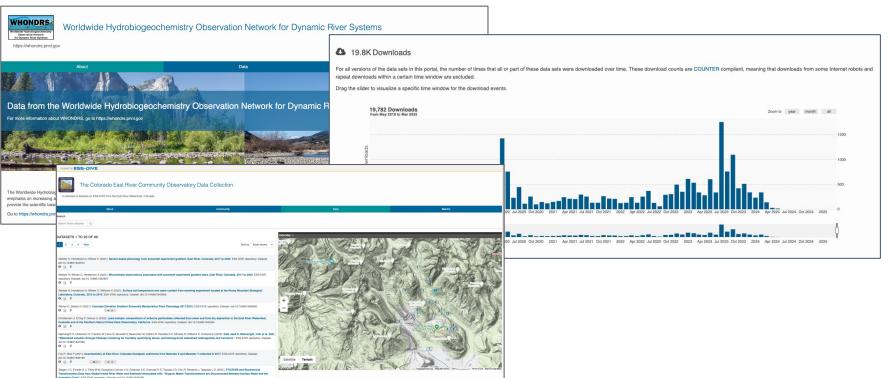
Data Upload & Review

NEW: Revamped publication interface allow for **reservation of DOIs** before publication, clear **dataset** and DOI statuses, and intuitive dataset publication

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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

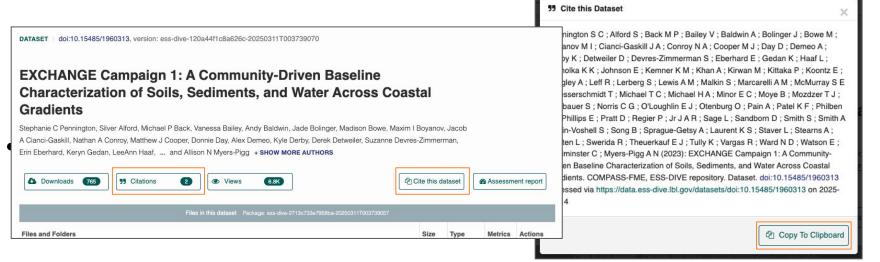


• Search within data files and find specific variables

relevant to your scientific research

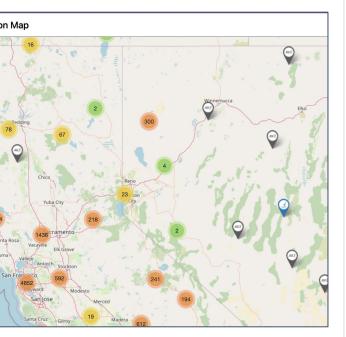
Citing ESS-DIVE Datasets

• Include ESS-DIVE datasets in the *data availability statement* and as a *reference* in your papers



BER Data Integration

BER Bio-Eco Data Integration project (BERTron) to harmonize and integrate data across ESS-DIVE, NMDC, KBase, EMSL, and JGI



- Enabling Unified Search
- Standardizing on schema terms
- Code-a-thons
- User Interviews

BER Related Data Use Cases

20+ use cases completed to connect interdisciplinary ESS-DIVE datasets to related research outputs, such as sites and samples, associated

Common ways data are connected:

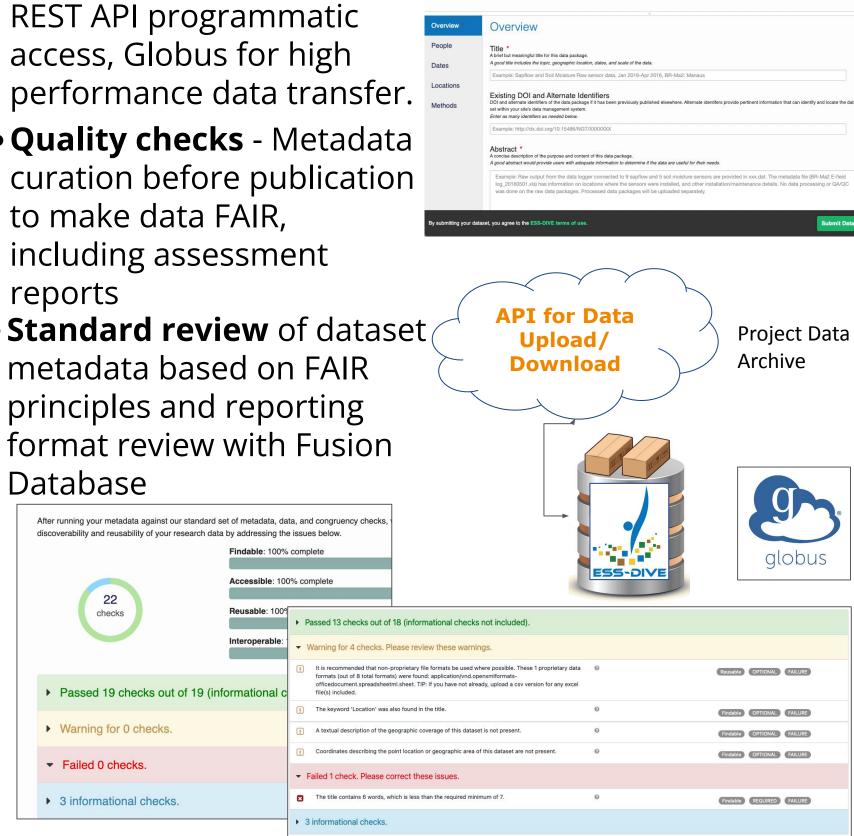
- Project, Sites, Samples
- Associated Journal Article Paper dataset created for (supplement)
- References related datasets, workflows, journal articles, code
- Data derived from this dataset child datasets
- **Source data** original source data used in dataset (e.g. EMSL), datasets included in a collection

• Web portal - Web form to upload of files & metadata.

• Large dataset support -Secondary (Tier-2) storage layer for large datasets including direct file access and hierarchical data

• Advanced Access -

REST API programmatic access, Globus for high performance data transfer. • Quality checks - Metadata curation before publication to make data FAIR, including assessment reports • Standard review of dataset metadata based on FAIR principles and reporting



Link related resources on ESS-DIVE and elsewhere

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

External Links to Data or Metadata URL Description Relationship Github link to the code in code_datasets_catchments_similarity.zip for [has part] Data that is part of this https://github.com/iNAIADS/catchmentssimilarity/tree/v1.0.1 Adopt data and metadata A) Use high-level reporting B) Next, choose data type specific formats that apply to a data reporting formats **reporting formats** in your wide-range of data types Model Data project's data collection and CSV File Structure Water-Soil-Sediment Chemistry publication workflows Sample Identifiers Leaf-Level Gas Exchange Data nd Metadata • 12 data and metadata Amplicon Data Locations Metadata reporting formats for Hydrologic Monitoring Data environmental data Soil Respiration Data

• See poster: "ESS-DIVE Partner Projects" for more details

Crystal-Ornelas, R., Varadharajan, C.*, O'Ryan, D. et al. Enabling FAIR data in Earth and environmental science with community-centric (meta)data reporting formats. Sci Data 9, 700 (2022). https://doi.org/10.1038/s41597-022-01606-w

Jnoccupied Aerial System (UAS)

C) Provide File-Level metadata: Describe each file uploaded

D) Submit dataset to ESS-DIVE: Using Package-Level Metadata

journal articles, references, derived and source data.

Help track provenance and citations

Interested in adding related works to your ESS-DIVE dataset? Contact us at ess-dive-support@lbl.gov

Learn More

Connect with us in various ways:

- Helpdesk, tutorials, webinars, annual workshop
- User interviews to solicit 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
- Attend the "ESS-DIVE Tutorial for Using Data" and "ESS-DIVE Tutorial for PIs and Data Managers"

Questions? <a>ess-dive-support@lbl.gov ESS-DIVE Documentation: https://docs.ess-dive.lbl.gov/ Webinars: https://ess-dive.lbl.gov/webinars/ Tutorials: <u>https://ess-dive.lbl.gov/video-tutorials/</u>

Acknowledgements

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