

ESS-DIVE Bio-Eco Data Integration Updates

Joan Damerow and Dylan O’Ryan

Objectives



- ESS-DIVE contributing toward **global search capability across BER** data systems (BERTron, led by Kjiersten Fagnan JGI)
- **Link datasets to related research outputs** across BER and beyond
- How to **connect datasets and papers** through proper citations
- (If time) **Link ESS samples** to associated data across BER and beyond

5 BER Resources are Collaborating to Prototype a Unified Data Access Layer



Unifying Access Layer Components

BERtron - Global Search supported by common APIs - **find and reuse** data

Data Transfer Service - **maintain provenance, propagate credit**



Sample metadata,
standardized data
products



Biogeochemical
measurements,
sensor data



Proteomics,
metabolomics,
imaging



(meta)genomics,
-transcriptomics,
metadata

..... Future work

———— DTS Prototype complete



Data Portal

API: <https://files.jgi.doe.gov/apidoc>

BERtron Team - Global Search



Kjersten Fagnan
Lead



Ratna Saripalli
Deputy Lead



Steven Wilson
User Research Lead



Chuck Parker
Engineering Lead



Shreyas Cholia
ESS-DIVE, NMDC



Val Hendrix
ESS-DIVE API



Joan Damerow
Sample User Eng



Gazi Mahmud
KBase Infra



Alicia Clum
NMDC API



Elisha Wood-Charlson
GROW User Eng.



Erin Bredeweg
Fungal User Eng.



Eric Cavanna
NMDC API



James Carr
EMSL API



Makena Dettmann
EMSL API



Luiz Irber
JGI Search



Jeff Johnson
KBase DTS



AJ Ireland
KBase DTS



Sarah Leichty
MONet User Eng.

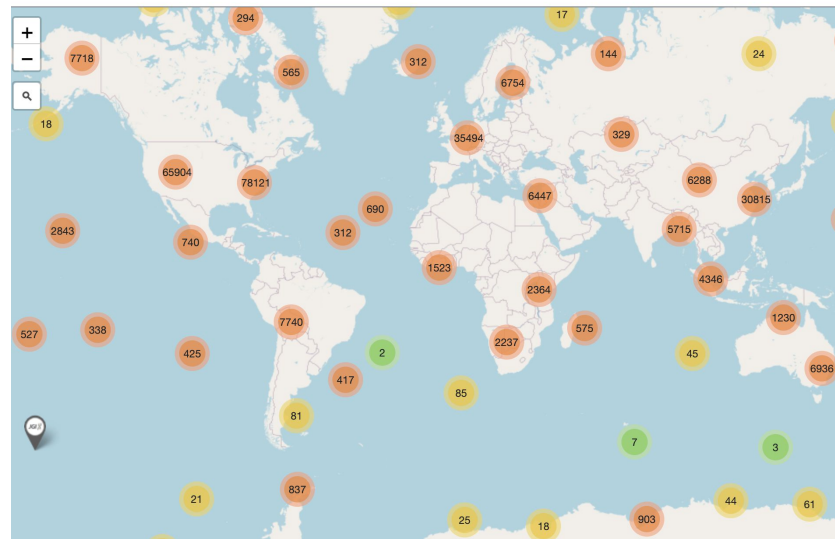
Codeathons

- NMDC, EMSL, KBase, ESS-DIVE, JGI developers working together to query APIs to search for data across systems
- Harmonizing queries across common fields: lat/long, keyword, ORCID, PI, citation etc.

Interviews - Questions on current processes for data use (Round 1), management, and sharing (Round 2)

- what BER resources they use
- how they get data
- what could be improved
- what works well

BERtron Map



Mapping Geolocated Data Across BER resources

Kjiersten Fagnan will present in BSSD PI meeting, and ESS CI/PI meeting

BER Data Integration: Interviewee Recruitment



Do you need to find & download data from different BER resources?



How can we make finding & downloading data easier for you?

What makes it challenging for you to find & download data from different BER resources?

How do you know where to look for data?



If you're interested in helping us help you and the larger community...

SIGN UP HERE!

One 45-minute interview



ESS-DIVE work to Connect Datasets to Related Research Outputs



Environmental System Science Program

U.S. Department of Energy | Office of Science | Biological and Environmental Research Program



[About](#) ▾ [Research](#) ▾ [UIFLs](#) [Community](#) ▾ [PI Meeting](#) [Highlights](#) ▾ [Funding](#) ▾ [Assistance](#) ▾

Search...



The Environmental System Science program, within the U.S. Department of Energy's Biological and Environmental Research Program, examines complex ecological and hydro-biogeochemical processes within terrestrial and coastal systems to understand inherent and emergent properties of changes to Earth and environmental systems.



Watershed Sciences



Terrestrial Ecology



Coastal Systems



Urban Integrated Field Laboratories

U.S. Department of Energy | Office of Science | Biological and Environmental Research Program

Automated Metadata Exchange - Improve ESS Data Discoverability

- Metadata only datasets linking to external data
- Target datasets - automate transfer and publication
- Enhancements to ESS-DIVE APIs
- Processes for managing dataset updates



Need: Improving Discovery and Access of Related BER ESS Data



User feedback: more easily see and access all the related bio and environmental data for a project/dataset

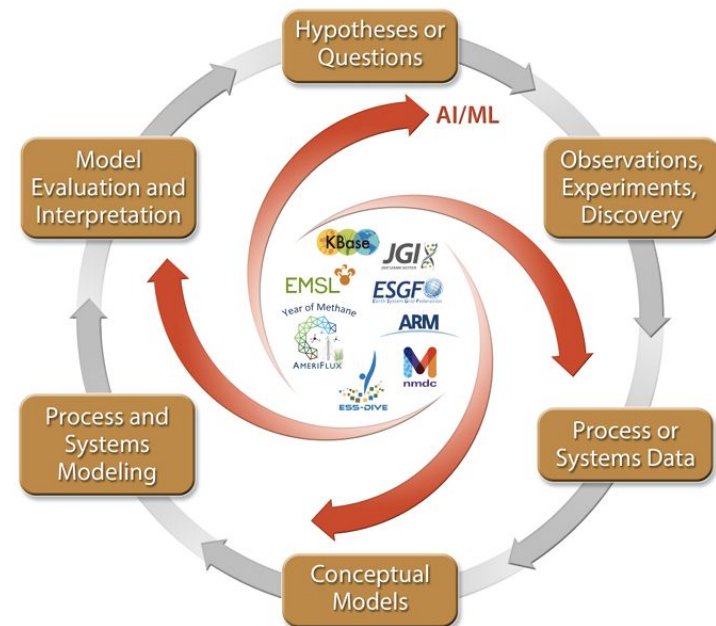
- Connect related field to lab to model (meta)data
- Samples, 'omics, sensors, remote sensing, model outputs, processed data, papers

Make Interdisciplinary ESS Data more FAIR

Provenance tracking and reproducibility

More advanced search and integration possible

Citations and credit



Connecting BER Data for ModEx

Figure from AI4CH4 workshop report (US DOE 2023)

Standard Approach for Connecting Datasets



OSTI and DataCite - register DOIs

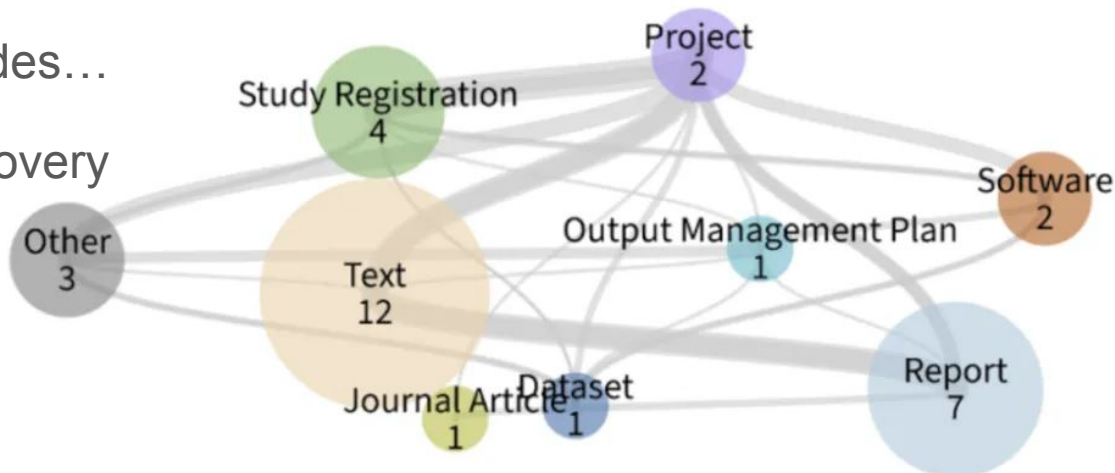


DataCite Standard Metadata for DOIs (Related ID, Relationship, Resource Type)

<https://support.datacite.org/docs/connecting-to-works>

DataCite Commons then provides...

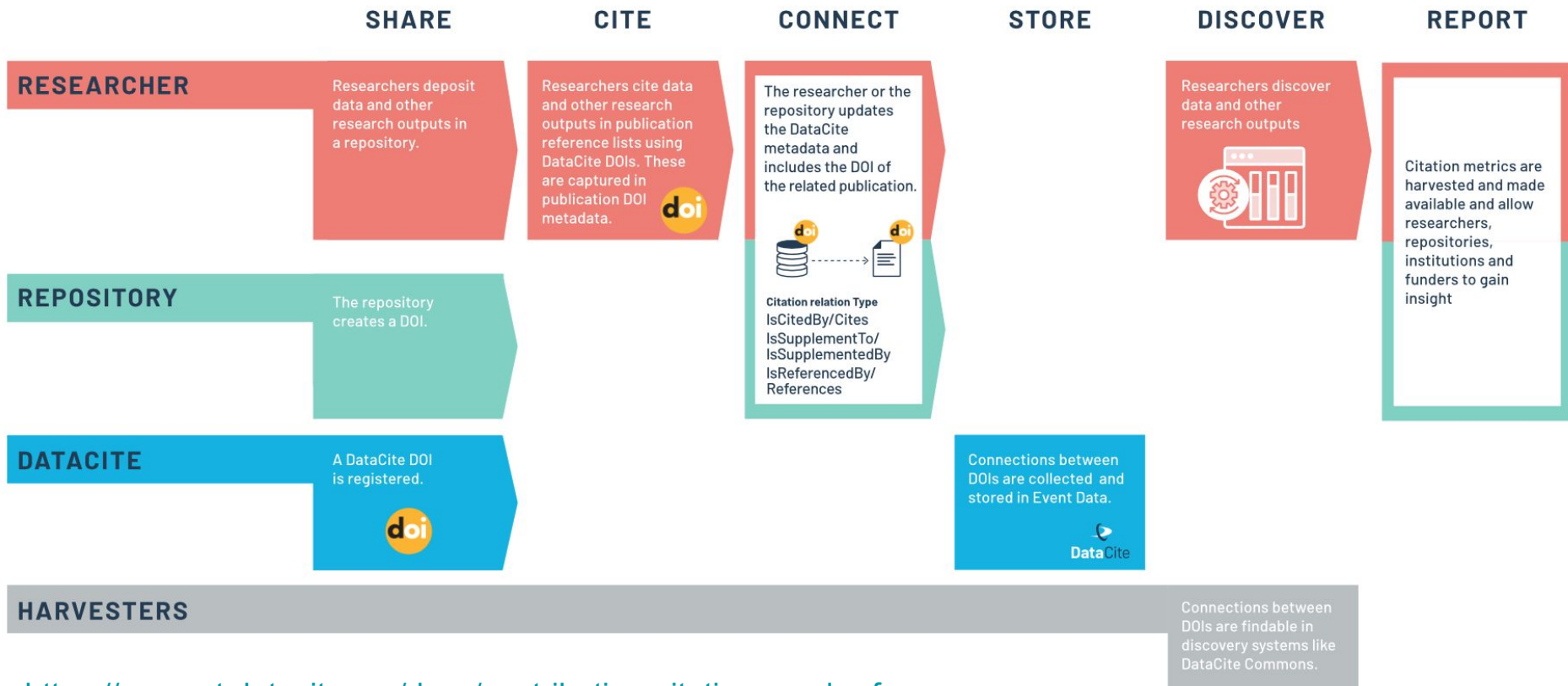
- Cross repository data discovery
- Citation Counts
- Network graph
- Links to related resources



<https://datacite.org/blog/visualizing-the-network-of-scholarly-works-on-datacite-commons/>

DataCite Citation Workflow

Citations for all Research Outputs



<https://support.datacite.org/docs/contributing-citations-and-references>

ESS Datasets in DataCite Commons



WHONDRS Summer 2019 Sampling Campaign: Global River Corridor Sediment FTICR-MS, Dissolved Organic Carbon, Aerobic Respiration, Elemental Composition, Grain Size, Total Nitrogen and Organic Carbon Content, Bacterial Abundance, and Stable Isotopes (v8)

Related Works



Shows connections and list of related works when Related IDs reported



Using Community Science to Reveal the Global Chemogeography of River Metabolomes

Vanessa A. Garayburu-Caruso, Robert E. Danczak, James C. Stegen, Lupita Renteria, Marcy McCall, Amy E. Goldman, Rosalie K. Chu, Jason Toyoda, Charles T. Resch, Joshua M. Torgeson, Jacqueline Wells, Sarah Fansler, Swatantar Kumar & Emily B. Graham
Journal Article published 2020 in *Metabolites*

<https://commons.datacite.org/doi.org/10.15485/1729719>

ESS-DIVE Dataset Linking Use Cases

How are your **interdisciplinary ESS-DIVE datasets** connected to related research outputs elsewhere?

- **6 ESS Projects**, add links for **20 datasets**
 - Categorized 230 related IDs
 - Add to landing pages
- Connected to **78 publishers**
 - 6 BER data systems
- Updated dataset metadata - related references

Hosted by **ESS-DIVE**

ESS-DIVE Related Identifier Use Cases

ESS-DIVE along with multiple Department of Energy (DOE) national laboratories and Biological and Environmental Research (BER) data systems (e.g., NMDC, JGL, KBase, EML) worked on a collaborative effort to connect related biological and environmental data and other research outputs. This work culminated in multiple use cases, where we worked through adding all related identifiers of data and research outputs within ESS-DIVE datasets. This portal contains published datasets on ESS-DIVE that participated in the ESS-DIVE related identifier use cases.

Data	Metrics
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Search

Search these datasets

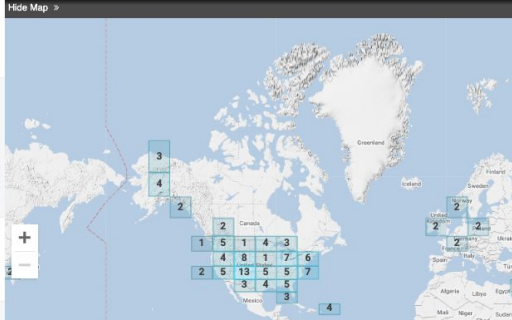
DATASETS 1 TO 20 OF 20

Sort by

Cordelio A L; Cusack D F; Guerrero-Ramirez N; Norby R J; Toro L; Wong M Y; Wright S J; Cabugao K G M; Andersen K M; Fuchsjaeger L; Iversen C M; Soper F; Ghimire O P; Lugli L F; Miron A C; Valverde-Barrantes O; Arnaud M; Battarman S; Dietterich L H; Lee M Y; Weemstra M R; Yaffar D; Addo-Danso S D; Pierick K; Bridges R; Easton C; Felsing I; Gonçalves N B; Krudop R; McKinzie M R; Perbohrer J; Pozzoli-Oropeza A N; Samaniego M; Smilor A W; Vargas I S; Webb L; Nikitin T; Powers J S; McCormack M L (2025): **Data from TropiRoot 1.0 database: tropical root characteristics across environments**. Synthesis of existing tropical root data: How do natural, episodic disturbances alter tropical forest carbon cycles via changes in belowground dynamics?, ESS-DIVE repository. Dataset. doi:10.15485/2507279

Pennington S C; Bond-Lamberty B; Rich R; Cheng S; Peixoto R B; LaGorga L; Machado-Silva F; Maler K; Megonigal P; Peresta D; Phillips E; Regier P; Sandoval L; Stearns A; Ward N D; Weintraub M; Wilson S J; Bailey V (2024): **COMPASS-FME Synoptic Sites Level 1 Sensor Data v1-2**. COMPASS-FME, ESS-DIVE repository. Dataset. doi:10.15485/2439400

Forbes B; Barnes M; Boehnke B T; Chen X; Corneil K; Delgado D; Fulton S G; Garayburu-Caruso V A; Gary S;



<https://data.ess-dive.lbl.gov/portals/related-identifiers>

Coordinating on connecting related data across BER

ESS Projects



Amy Goldman
RCSFA



Brienne Forbes
RCSFA



Stephanie Pennington
COMPASS-FME



Dylan O'Ryan
WFSFA/ESS-DIVE



Madison Burrus
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Kristin Boye
SLAC SFA/WFSFA



Debjani Sihi
University Project



Amanda Cordeiro
Synthesis Project



William Mobley
TACC, SETx-UIFL

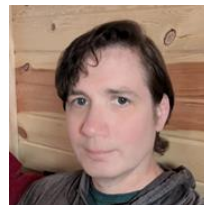


Lydia Fletcher
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BER Data Systems



Neil Byers
JGI



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JGI



Ratna Saripalli
EMSL



Makena Dettmann
EMSL



Giri Prakash
ARM



Wade Darnell
ARM



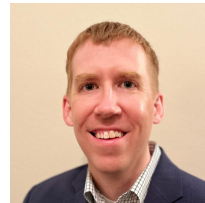
Joan Damerow
ESS-DIVE



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Chris Mungall
NMDC



Casey Burleyson
MSD-LIVE



Elisha Wood-Charlson
KBase

ESS Project Members Contributing to Linking Datasets



Amy Goldman, PNNL
River Corridor SFA / WHONDRS



Brienne Forbes, PNNL
River Corridor SFA / WHONDRS



Stephanie Pennington, PNNL
COMPASS-FME



Dylan O'Ryan, LBNL
Watershed Function SFA



Madison Burrus, LBNL
Watershed Function SFA



Kristin Boye, SLAC
Groundwater Quality SFA



Amanda Cordeiro, Univ. of Minnesota
Synthesis Project

Use Case Themes for Connecting ESS-DIVE Datasets across BER and more broadly



1. Components of dataset
2. General related information
3. Data synthesis studies
4. Modeling, Observation, Experimentation (ModEx) Research Approach
5. Interdisciplinary samples

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

Help track provenance and citations

ESS-DIVE Proposed Related Works Categories



Components of Dataset

- Samples, Sites, Workflow, Code

Associated Journal Article (41)

References

- Journal Article (13), Related Dataset (44),
Study Registration (9, JGI/NCBI), Workflow (2)

Source Data (111)

- Journal Article, Dataset, Study Registration
(EMSL)

Data Derived from this Dataset (isSourceOf) (10)

Dataset DOI hasPart Sample IGSN ID

Dataset DOI isSupplementTo Journal DOI

Dataset DOI References NCBI BioProject

*Dataset DOI (hasPart, IsDerivedFrom,
References) EMSL Study DOI*

*Dataset DOI (hasPart, IsDerivedFrom,
Reference) EMSL Study DOI*

dataset_doi	relation_type	resource_type_general	related_id	related_id_publisher
doi:10.15485/1960313	References	Dataset	https://doi.org/10.15485/2439400	ESS-DIVE
doi:10.15485/1960313	HasPart; References; IsDerivedFrom	StudyRegistration	https://doi.org/10.46936/cpcy.proj.2022.60511/60008517	EMSL
doi:10.15485/1960313	IsSupplementTo	JournalArticle	http://doi.org/10.1038/s41597-023-02548-7	Nature Scientific Data
doi:10.15485/2439400	References	Dataset	https://doi.org/10.15485/1960313	ESS-DIVE
doi:10.15485/1729719	IsSupplementTo	JournalArticle	https://doi.org/10.3390/metabo10120518	MDPI Metabolites
doi:10.15485/1729719	IsSupplementTo	JournalArticle	https://doi.org/10.3389/frwa.2022.870453	Frontiers in Water
doi:10.15485/1729719	IsSupplementTo	JournalArticle	https://doi.org/10.5194/bg-19-3099-2022	EGU Biogeosciences
doi:10.15485/1729719	IsSupplementTo	JournalArticle	https://doi.org/10.3389/frwa.2023.1005792	Frontiers in Water
doi:10.15485/1729719	IsSupplementTo	JournalArticle	https://doi.org/10.3389/frwa.2023.1156042	Frontiers in Water
doi:10.15485/1729719	IsSupplementTo	Preprint	https://doi.org/10.21203/rs.3.rs-3453829/v1	Research Square
doi:10.15485/1729719	IsSupplementTo	Preprint	https://doi.org/10.1101/2023.07.22.550117	bioRxiv
doi:10.15485/1729719	References	Dataset	https://doi.org/10.15485/1603775	ESS-DIVE
doi:10.15485/1729719	References	Dataset	https://doi.org/10.15485/1660470	ESS-DIVE
doi:10.15485/1729719	References	Dataset	https://doi.org/10.15485/1734841	ESS-DIVE
doi:10.15485/1729719	References	Dataset	https://doi.org/10.15485/1734840	ESS-DIVE
doi:10.15485/1729719	References	StudyRegistration	https://genome.jgi.doe.gov/portal/CretheWatSystems/CretheWatSystems.info.html	JGI
doi:10.15485/1729719	References	StudyRegistration	https://doi.org/10.46936/10.25585/60001289	JGI
doi:10.15485/1729719	References	StudyRegistration	https://data.microbiomedata.org/details/study/nmdc:sty-11-5tgfr349	NMDC
doi:10.15485/1729719	References	StudyRegistration	https://www.ncbi.nlm.nih.gov/bioproject/946291	NCBI
doi:10.15485/1729719	References	StudyRegistration	https://doi.org/10.25982/109073.30/1895615	KBase

Theme 1: Components of a Dataset



External Linking – hasPart, archivedAt

Sites from Geographic Region and/or Location metadata reporting format file

Samples from Samples reporting format
- More details in Theme 5

Projects

1. COMPASS-FME: 2 datasets
2. River Corridor SFA: 3 datasets
3. WHONDRS: 1 datasets
4. Watershed Function SFA: 4 datasets

Specifying identifiers included as part of a dataset - can be connection points to other datasets and systems

External Links to Data or Metadata

External links for this dataset		
Description	Relationship	URL
DSM Shade	[has part] Data that is part of this dataset.	https://code.earthengine.google.com/?asset=users/pgbrodrick/SFA/collections/shade_priority
DTM + CHM Shade	[has part] Data that is part of this dataset.	https://code.earthengine.google.com/?asset=users/pgbrodrick/SFA/collections/shade_tch_priority
Custom Reflectance	[has part] Data that is part of this dataset.	https://code.earthengine.google.com/?asset=users/pgbrodrick/SFA/collections/ciicorn_priority
OBS data	[has part] Data that is	https://code.earthengine.google.com/?

Brodrick et al., 2020 <https://doi.org/10.15485/1618131>

Related References

SITES IN THIS DATASET

Globally unique identifier (IGSN) for sites associated with dataset. There are a total of 48 sites associated with the dataset. More information describing these sites is provided in `igsn_metadata_sites_for_samples.csv` dataset file (within `ESS_DIVE_Infrastructure_ONLY.zip`).

Garayburu-Caruso et al., 2021 <https://doi.org/10.15485/1834208>

Theme 2: General Related Information

Associated Journal Articles

References to Related Datasets, Journal Articles, Study Registration

Projects

1. COMPASS-FME: 2 datasets
2. River Corridor SFA: 3 datasets
3. WHONDRS: 2 datasets
4. Groundwater Quality SFA: 7 datasets
5. Watershed Function SFA: 5 datasets
6. ESS Synthesis Project: 1 dataset

Find/access additional data contextual information and related data, track citations

Related References

ASSOCIATED JOURNAL ARTICLE(S)

Engel et al., (2023) "Structure and composition of natural ferrihydrite nano-colloids in anoxic groundwater" <https://doi.org/10.1016/j.watres.2023.119990>

REFERENCES - RELATED DATASET(S)

Pierce & Bargar (2021) "Specific conductivity, pH, dissolved oxygen, water temperature and alkalinity in-situ data; Slate River floodplain, Crested Butte, CO; March 2021-October 2021". ESS-DIVE. <https://doi.org/10.15485/1829500>

Pierce & Bargar (2021) "Total metals & anion concentration data; Slate River floodplain, Crested Butte, CO; May 2020-September 2020". ESS-DIVE. <https://doi.org/10.15485/1810547>

Pierce et al., (2022) "Total metals, sulfur and organic carbon data; Slate River floodplain, Crested Butte, CO; March 2021-October 2021". ESS-DIVE. <https://doi.org/10.15485/1875296>

Pierce & Bargar (2021) "Specific conductivity, pH, dissolved oxygen, water temperature, alkalinity and sulfide in-situ data; Slate River floodplain, Crested Butte, CO; May 2020-October 2020". ESS-DIVE. <https://doi.org/10.15485/1813302>

Pierce & Boye, 2022 <https://doi.org/10.15485/1896309>

Theme 3: Data Synthesis Studies

Source Data from Journal Articles, Datasets

ESS Synthesis Project

How do natural, episodic disturbances alter tropical forest carbon cycles via changes in belowground dynamics?

- Synthesis of tropical root characteristics from 104 papers

Related References

REFERENCES - JOURNAL ARTICLE(S)

Cusack DF, Addo-Danso SD, Agee EA, Andersen KM, Arnaud M, Batterman SA, Brearley FQ, Ciochina MI, Cordeiro AL, Dallstream C, Diaz-Toribio MH, Dietterich LH, Fisher JB, Fleischer K, Fortunel C, Fuchslueger L, Guerrero-Ramirez NR, Kotowska MM, Lugli LF, Marin C, McCulloch LA, Maeght J-L, Metcalfe D, Norby RJ, Oliveira RS, Powers JS, Reichert T, Smith SW, Smith-Martin CM, Soper FM, Toro L, Umaña MN, Valverde-Barrantes O, Weemstra M, Werden LK, Wong M, Wright CL, Wright SJ, Yaffar D. 2021. Tradeoffs and Synergies in Tropical Forest Root Traits and Dynamics for Nutrient and Water Acquisition: Field and Modeling Advances. *Frontiers in Forests and Global Change* 4. <https://doi.org/10.3389/ffgc.2021.704469>

Cusack, D. F., B. Christoffersen, C. M. Smith-Martin, K. M. Andersen, A. L. Cordeiro, K. Fleischer, S. J. Wright, N. R. Guerrero-Ramirez, L. F. Lugli, L. A. McCulloch, M. Sanchez-Julia, S. A. Batterman, C. Dallstream, C. Fortunel, L. Toro, L. Fuchslueger, M. Y. Wong, D. Yaffar, J. B. Fisher, M. Arnaud, L. H. Dietterich, S. D. Addo-Danso, O. J. Valverde-Barrantes, M. Weemstra, J. C. Ng, and R. J. Norby. 2024. Toward a coordinated understanding of hydro-biogeochemical root functions in tropical forests for application in vegetation models. *New Phytol.* <https://doi.org/10.1111/nph.19561>

Iversen, C.M. and McCormack, M.L. (2021), Filling gaps in our understanding of belowground plant traits across the world: an introduction to a Virtual Issue. *New Phytol*, 231: 2097-2103. <https://doi.org/10.1111/nph.17326>

McCormack ML, Powell AS, Iversen CM. 2018. Better plant data at the root of ecosystem models. *Eos* 99. <https://doi.org/10.1029/2018EO104093>

Iversen CM, McCormack ML, Powell AS, Blackwood CB, Freschet GT, Kattge J, Roumet C, Stover DB, Soudzilovskaia NA, Valverde-Barrantes OJ, van Bodegom PM, Violle C. 2017. Viewpoints: A global Fine-Root Ecology Database to address belowground challenges in plant ecology. *New Phytologist* 215: 15-26. <https://doi.org/10.1111/nph.14459>

SOURCE DATA

This synthesis dataset compiles data from 104 related journal articles. More information describing the journal articles is provided in the TropiRoot_Database_1_0.csv dataset file.

Cordeiro et al., 2025 <https://doi.org/10.15485/2507279>

Track provenance of and cite source data

Theme 4: ModEx Studies

Sites, Samples

References (e.g. related data - sensor, remote sensing)

Data Derived from this Dataset

Source Data

Projects

1. River Corridor SFA: 1 dataset
 - a. CONUS-Scale Model-Sample Study
 - b. New machine learning models were created every month to guide sampling locations
2. Watershed Function SFA: 1 dataset

Related References

SITES IN THIS DATASET

Globally unique identifier (IGSN) for sites associated with dataset. There are a total of 145 sites associated with the dataset. More information describing these sites is provided in igsn_metadata_sites_for_samples.csv dataset file (within ESS_DIVE_Infrastructure_ONLY.zip).

SAMPLES WITHIN THIS DATASET

Globally unique identifier (IGSN) for physical sample associated with dataset. There are a total of 479 individual samples associated with the dataset, which consist of 161 Liquid>aqueous samples, 157 Sediment samples, and 161 other (filter) samples. More information describing the samples is provided in the v3_CM_SSS_Metadata_IGSN-Mapping.csv dataset file (within v4_CM_SSS_Data_Package.zip) or igsn_metadata_samples.csv dataset file (within ESS_DIVE_Infrastructure_ONLY.zip).

SOURCE DATA

Environmental Molecular Sciences Laboratory (EMSL) Award "River Corridor Hydrobiogeochemistry from Reaction to Basin Scale" <https://doi.org/10.46936/cpcy.proj.2022.60624/60008706>

Environmental Molecular Sciences Laboratory (EMSL) Award "River Corridor Hydrobiogeochemistry from Reaction to Basin Scale" <https://doi.org/10.46936/cont.proj.2023.61025/60012324>

Forbes et al., 2023 <https://doi.org/10.15485/1923689>

Help track data and resources related to ModEx workflows

Theme 5: Interdisciplinary Samples



Sites, Samples

References to Study Pages (JGI, NMDC, NCBI)

Source data (EMSL)

Projects

1. COMPASS-FME: 1 dataset
2. River Corridor SFA: 3 datasets
3. WHONDRS: 1 dataset
4. Belowground Biogeochemistry SFA: 1 dataset
5. LLNL ANL SFA: 2 datasets
6. Watershed Function SFA: 2 datasets

Connect sample-based data across BER systems and more broadly (at dataset-level)

Related References

SAMPLES IN THIS DATASET

Globally unique identifier (IGSN) for physical sample associated with dataset. There are a total of 880 individual samples associated with the dataset, which consist of 495 Soil, 275 Liquid>aqueous, and 110 Sediment samples. More information describing the samples is provided in the ec1_metadata_igsn_samples.csv dataset file (within ec1_metadata_v3.zip)

ASSOCIATED JOURNAL ARTICLE(S)

Myers-Pigg et al., (2023) "Biogeochemistry of upland to wetland soils, sediments, and surface waters across Mid-Atlantic and Great Lakes coastal interfaces" <https://doi.org/10.1038/s41597-023-02548-7>

REFERENCES - RELATED DATASET(S)

Pennington et al., (2024) "COMPASS-FME Synoptic Sites Level 1 Sensor Data v1-1". ESS-DIVE. <https://doi.org/10.15485/2439400>

SOURCE DATA

Environmental Molecular Sciences Laboratory (EMSL) Award for "Coastal Observations, Mechanisms, and Predictions Across Systems and Scales – Field, Measurements and Experiments"
<https://doi.org/10.46936/cpcy.proj.2022.60511/60008517>

Pennington et al., 2023 <https://doi.org/10.15485/1960313>

Datasets Can Have Many Related Resources



REFERENCES - STUDY REGISTRATION(S)

Joint Genome Institute (JGI) Award "Creating the GROW (Genome Resolved Open Watershed) Database: Leveraging Distributed Research Networks to Understand Watershed Systems"
<https://doi.org/10.46936/10.25585/60001289>

NMDC study page "Creating the GROW (Genome Resolved Open Watershed) Database: Leveraging Distributed Research Networks to Understand Watershed Systems"
<https://data.microbiomedata.org/details/study/nmdc:sty-11-5tgfr349>

NCBI Bioproject associated with "Genome Resolved Open Watersheds database (GROWdb)" <https://www.ncbi.nlm.nih.gov/bioproject/946291>

REFERENCES - WORKFLOW(S)

Borton et al., (2022) "GROWdb US River Systems - Samples". KBase. <https://doi.org/10.25982/109073.30/1895615>

REFERENCES - JOURNAL ARTICLE(S)

Stegen & Goldman, (2018) "WHONDORS: a community resource for studying dynamic river corridors" <https://doi.org/10.1128/mSystems.00151-18>

DATA DERIVED FROM THIS DATASET

Gary et al., (2024) "Models, data, and scripts associated with 'Prediction of Distributed River Sediment Respiration Rates using Community-Generated Data and Machine Learning'". ESS-DIVE.
<https://doi.org/10.15485/2318723>

Stegen et al., (2021) "FTICR-MS and Biochemical Transformation Data from Global Inland River Water and Sediment Associated with: 'Organic Matter Transformations are Disconnected Between Surface Water and the Hyporheic Zone'". ESS-DIVE. <https://doi.org/10.15485/1839188>

Garayburu-Caruso et al., (2022) "FTICR-MS Data from Multi-continent River Water and Sediment and from Coastal River Fresh and Saline Sediment Associated with: 'Dissolved Organic Matter Functional Trait Relationships are Conserved Across Rivers'". ESS-DIVE. <https://doi.org/10.15485/1824222>

Roebuck et al., (2023) "Scripts and data associated with a manuscript linking soil and sediment elemental composition with dissolved organic matter chemistry across CONUS". ESS-DIVE.
<https://doi.org/10.15485/2246724>

Muller et al., (2024) "Data and Scripts associated with 'Lambda-PFLOTTRAN: Workflow for Incorporating Organic Matter Chemistry Informed by Ultra High Resolution Mass Spectrometry into Biogeochemical Modeling.'". ESS-DIVE. <https://doi.org/10.15485/2281403>

SOURCE DATA

Environmental Molecular Sciences Laboratory (EMSL) Award "Influences of Hydrologic Exchange Flows on River Corridor and Watershed Biogeochemical Function"
<https://doi.org/10.46936/cpcy.proj.2019.51180/60006718>

ESS-DIVE Next Steps for Related IDs

Current: Related Identifiers portal and 20 datasets with Related References

- Recorded standard metadata for OSTI/DataCite update
- Not yet in OSTI/DataCite records

Next Steps:

- Send related ID and connection metadata to OSTI/DataCite
 - Connections shown in DataCite Commons
- Implementation plan for ESS-DIVE dataset metadata
 - How should it look in submission form and dataset landing page?
- Interested in adding related works to your dataset?
 - Email ess-dive-support@lbl.gov

Summary: Why link datasets to related resources?



- Automate metadata exchange
- Improve citation counts
 - Track/see all the places your data were used!
- Make interdisciplinary datasets more
 - Discoverable - find related data
 - Accessible - access with clear links
 - Reusable - more information on processing methods, etc needed for reuse
 - Reproducible

WHONDRS Summer 2019 Sampling Campaign: Dissolved Organic Carbon, Aerobic Respiration Nitrogen and Organic Carbon Content, Bacteria

Amy E Goldman, Shai Arnon, Edo Bar-Zeev, Rosalie K Chu, Robert E Danczak, Rebecca A Daly, I Graham, Maggi Laan, Marcy L McCall, Sophia McKeever, Kaizad F Patel, Huiying Ren, Lupita Rent

[+ SHOW MORE AUTHORS](#)

Downloads 672 Citations 11 Views 11.2K

11 Citations

Roebuck, J Alan, Rod, Kenton A, Garayburu-Caruso, Vanessa A, Chu, Rosalie K, Goldman, Amy E, Renteria, Lupita, Taylor, Micah, Stegen, & James C. (2024). *Linkages Between Mineral Element Composition of Soils and Sediments With Hyporheic Zone Dissolved Organic Matter Chemistry Across the Contiguous United States*. *Geophysical Research Letters*. Vol. 51. doi:10.1029/2023gl106220

Stefan F Gary, Timothy D Scheibe, Em Rexer, Alvaro Vidal Torreira, Vanessa A Garayburu-Caruso, Amy Goldman, & James C Stegen. (2024). *Prediction of Distributed River Sediment Respiration Rates Using Community-Generated Data and Machine Learning*. *Journal of Geophysical Research: Machine Learning and Computation*. Vol. 1. doi:10.1029/2024JH000199

Moritz Müller, Juliana D'Andrilli, Victoria Silverman, Raven L Bier, Malcolm A Barnard, Miko Chang May Lee, Florina Richard, Andrew J Tanentzap, Jianjun Wang, Michaela de Melo, & YueHan Lu. (2024). *Machine-learning based approach to examine ecological processes influencing the diversity of riverine dissolved organic matter composition*. *Frontiers in Water*. Vol. 6. doi:10.3389/frwa.2024.1379284

Jessica Z Buser-Young, Patricia E Garcia, Matthew O Schrenk, Peter J Regier, Nicholas D Ward, Kadir Biçe, Scott C Brooks, Erika C Freeman, & Christian Lönborg. (2023). *Determining the biogeochemical*

Citing Data in Papers

Cite Data in Papers

- Data availability AND
- References section

DATASET | doi:10.15485/1960313, version: ess-dive-120a44f1c8a626c-20250311T003739070

EXCHANGE Campaign 1: A Community-Driven Baseline Characterization of Soils, Sediments, and Water Across Coastal Gradients

Stephanie C Pennington, Silver Alford, Michael P Back, Vanessa Bailey, Andy Baldwin, Jade Bolinger, Maciej Boyanov, A Cianci-Gaskill, Nathan A Conroy, Matthew J Cooper, Donnie Day, Alex Demeo, Kyle Derby, Derek Detweiler, Suzanne Devres-Zimmerman, Erin Eberhard, Keryn Gedan, LeeAnn Haaf, ... and Allison N Myers-Pigg [+ SHOW MORE AUTHORS](#)

Downloads 765

Citations 2

Views 6.8K

Cite this dataset

Assessment report

Files in this dataset Package: ess-dive-2713c733e7959ba-20250311T003739057

Files and Folders

Size Type Metrics Actions

Cite this Dataset

Pennington S C ; Alford S ; Back M P ; Bailey V ; Baldwin A ; Bolinger J ; Bowe M ; Boyanov M I ; Cianci-Gaskill J A ; Conroy N A ; Cooper M J ; Day D ; Demeo A ; Derby K ; Detweiler D ; Devres-Zimmerman S ; Eberhard E ; Gedan K ; Haaf L ; Homolka K K ; Johnson E ; Kemner K M ; Khan A ; Kirwan M ; Kittaka P ; Koontz E ; Langley A ; Leff R ; Lerberg S ; Lewis A M ; Malkin S ; Marcarelli A M ; McMurray S E ; Messerschmidt T ; Michael T C ; Michael H A ; Minor E C ; Moyer B ; Mozdzer T J ; Neubauer S ; Norris C G ; O'Loughlin E J ; Otenburg O ; Pain A ; Patel K F ; Philben M ; Phillips E ; Pratt D ; Regier P ; Jr J A R ; Sage L ; Sandborn D ; Smith S ; Smith A ; Soin-Voshell S ; Song B ; Sprague-Getsy A ; Laurent K S ; Staver L ; Stearns A ; Stetten L ; Swerida R ; Theuerkauf E J ; Tully K ; Vargas R ; Ward N D ; Watson E ; Weilminster C ; Myers-Pigg A N (2023): EXCHANGE Campaign 1: A Community-Driven Baseline Characterization of Soils, Sediments, and Water Across Coastal Gradients. COMPASS-FME, ESS-DIVE repository. Dataset. doi:10.15485/1960313 accessed via <https://data.ess-dive.lbl.gov/datasets/doi:10.15485/1960313> on 2025-03-14

Copy To Clipboard

Register Citations in ESS-DIVE



Home / Search / Metadata

DATASET | doi:10.15485/1896309, version: ess-dive-6887b4

In-situ electrochemical and water quality data from floodplains, Crested Butte, CO

Samuel Pierce and Kristin Boye

Downloads 62 Citations 1

Files and Folders

- In-situ electrochemical and water quality data; Slate River and...
- Metadata: In-situ electrochemical and water quality data
- SR_ER_2022_WaterTemp_data.csv
- SR_ER_2022_Alkalinity_data.csv

1 Citation

Babey, Tristan, Perzan, Zach, Pierce, Sam, Rogers, Brian, Wang, Lijing, Carroll, Rosemary W H, Bargar, John R, Boye, Kristin, Maher, & Kate. (2024). *Mountainous Floodplain Connectivity in Response to Hydrological Transitions*. Water Resources Research. Vol. 60. doi:10.1029/2024wr037162

If this dataset has additional citations, you can now register them in ESS-DIVE

+ Register Citation

Enter DOI of the Publication

doi:10.1037/0003-066X

✓ Choose...

Publication cites this dataset

Publication uses this dataset

CITES the dataset (that is, the dataset is explicitly identified or linked to somewhere in the text or references)

Register

<https://docs.ess-dive.lbl.gov/manage-data/register-dataset-citations>

Example Data Availability Statement for Bio-Eco Data



Availability of data

67. Matheus Carnevali P, Hobson C, Geller-McGrath D, Dong W, Falco N, Wainwright H, et al. Genome-resolved metagenomics and metatranscriptomics of microbial communities in three meander-bound floodplain soils along the East River, Colorado. In: Environmental system science data infrastructure for a virtual ecosystem; 2020.

The datasets generated during and/or analyzed during the current study are available in NCBI's SRA repository; all metagenomes and metatranscriptomes can be accessed using the umbrella accession number (PRJNA630765). Table S1 (Additional file [1](#)) includes NCBI Bioproject accession numbers for individual metagenomes metatranscriptomes. Representative genomes at the subspecies level (98% ANI set) and the species level (95% ANI set), in addition to the environmental data (metadata) that support the findings of this study are available in ESS-DIVE with the identifier DOI: <https://doi.org/10.15485/1631979> [67].

Cites NCBI Bioproject accession numbers and ESS-DIVE dataset in data availability, with formal citation in references

Key Takeaways on Connecting Datasets

Make interdisciplinary ESS datasets more FAIR by connecting related resources

ESS-DIVE can report related IDs to DataCite to help:

- Improve citation counts
- Contribute to network graph of related research outputs

You can contribute by:

- Listing related resources in datasets (email ess-dive-support@lbl.gov)
- Use ESS-DIVE reporting formats (file-level metadata, samples, locations)
- Citing data in paper data availability AND references sections
- *(Sample level) Provide source sample IGSN IDs to ESS-DIVE, JGI, EMSL, NMDC*

Questions?
Feedback?