



BIO
DIVERSITY
NEXT

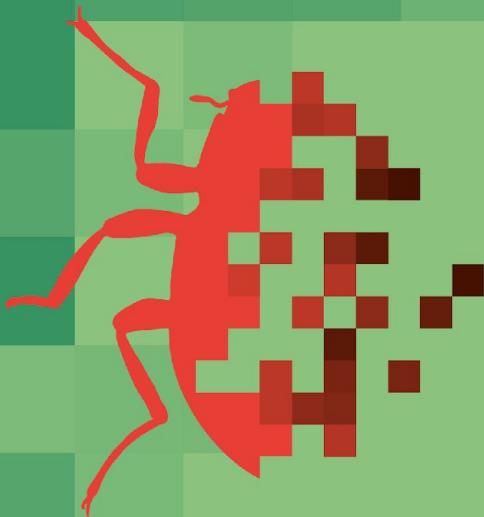
Biodiversity Informatics 101: Preparing for Biodiversity_Next and Beyond

Deborah L Paul | Florida State University and iDigBio

Holly Little* | Smithsonian

Laura Russell | Global Biodiversity Information Facility (GBIF)

Erica Krimmel | Florida State University and iDigBio



BIO DIVERSITY NEXT

Building a global infrastructure
for biodiversity data. Together.
22 - 25 October
Leiden - The Netherlands

Better data - better science - better policies

Biodiversity_Next is commissioned by



Biodiversity_Next is hosted by



A joint conference by

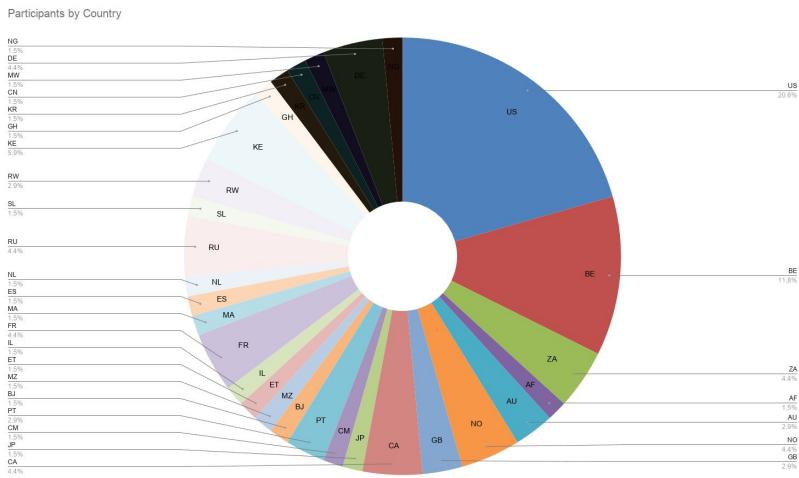


Biodiversity
Information
Standards
TDWG



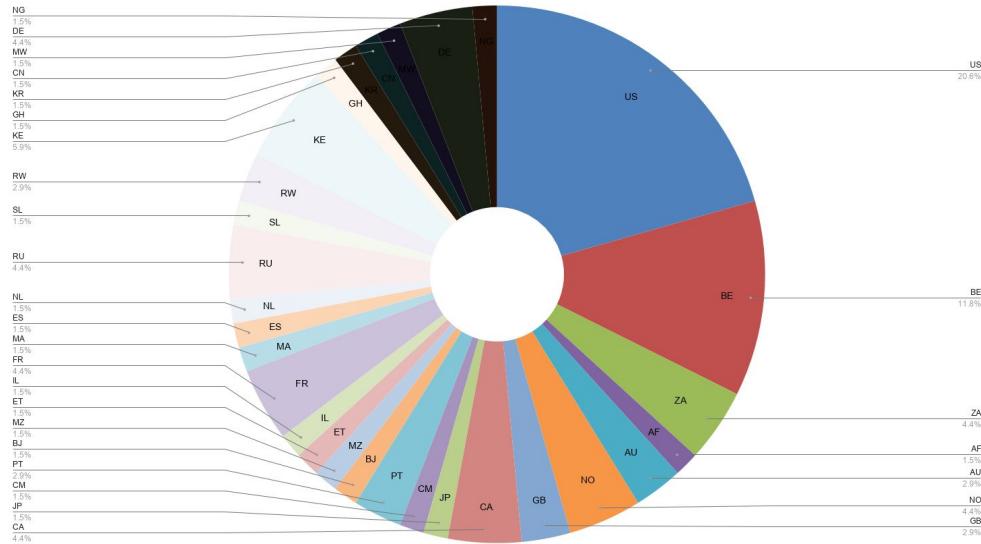
Biodiv 101 Logistics

- why this workshop
 - organizers, partners
- format of the day
 - unconference
 - 2 minute standups
- name tags ~ add 101
- materials (minute cards, usb, git repo)
- agenda /group notes / follow ups
- group photo
- post-event survey
- enjoy!



Where we are from ~ we are international!

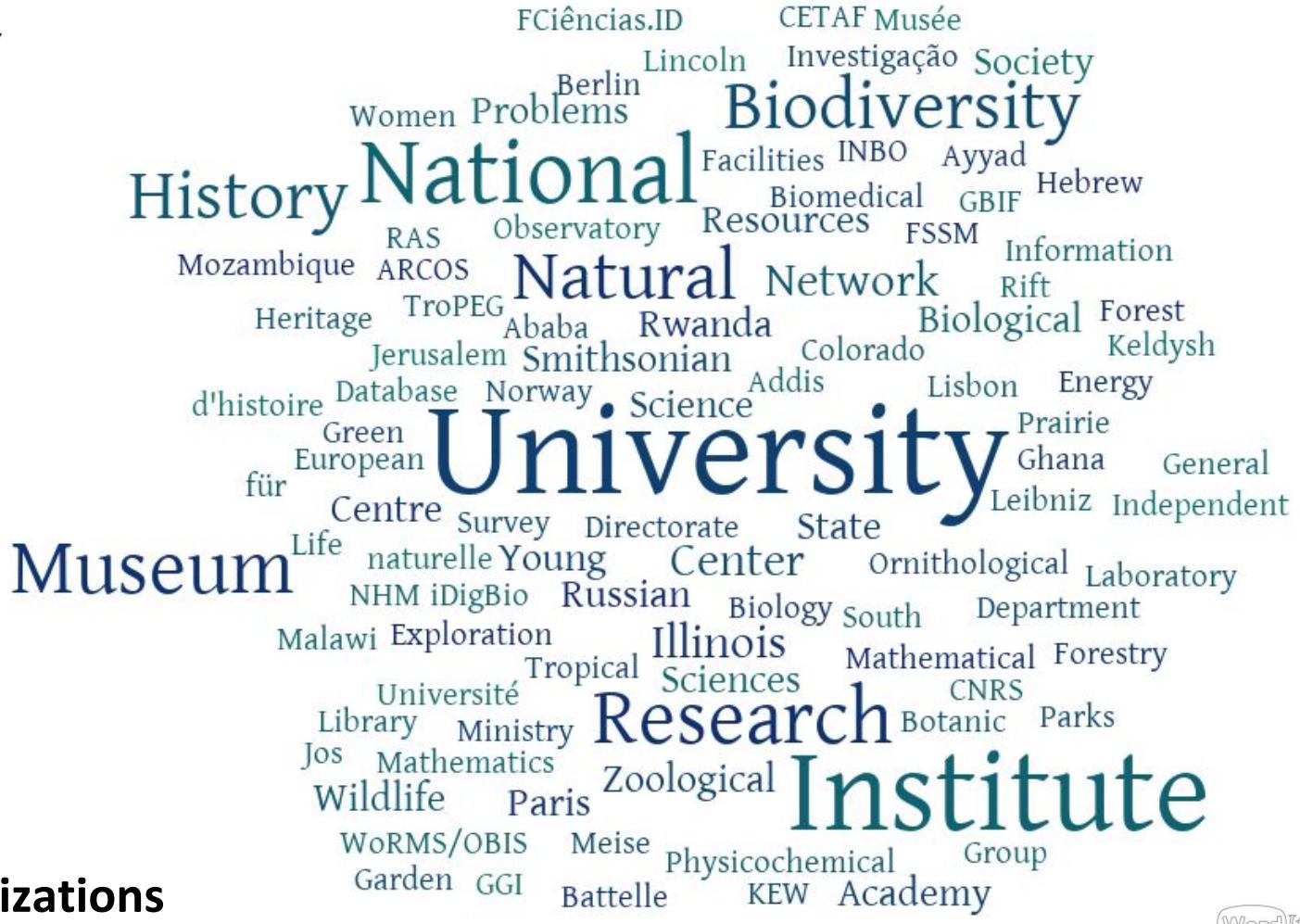
Participants by Country



Afghanistan	Kenya
Australia	Korea
Belgium	Luxembourg
Benin	Morocco
Canada	Malawi
Cameroon	Mozambique
China	Nigeria
Denmark	Netherlands
Germany	Norway
Spain	Portugal
Ethiopia	Russian Federation
France	Rwanda
Great Britain	Sierra Leone
Ghana	USA
Israel	South Africa
Japan	



Biodiv 101 Participant organizations

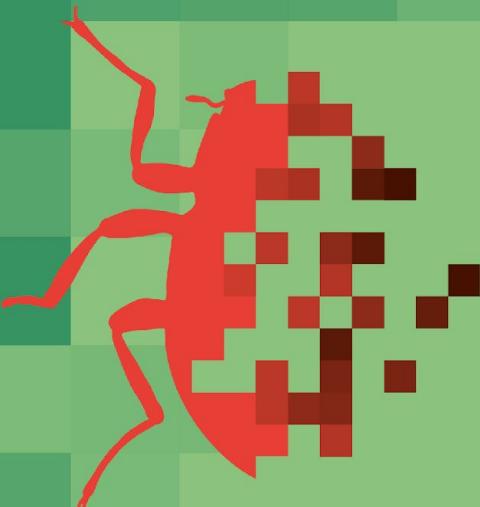


Conservation Informatician **Scientist**
Database Department Programmer Postdoctoral
cooperation **Assistant** Community
adviser Librarian Ernst Scientific Software
Lead Management Wildlife student
policy de Executive analyst Regulatory
Specialist networks **Data** PhD Parks Library
Ph.D Program NEON title CEO
Systems Science Collection Mayr Plant Development
Mobilization advisor Landscape
Chief **Research** Barcoding Director
Computer Head Information Professor recherche
Biology d'études Officer international developer
LifeWatch Researcher Coordinator Affairs
Reseaarcher Leader Chargeé ICT
Manager Project Associate Technical MoRENet Directeur
Senior Chair Project Engineer
Biodiversity

Why this workshop?

- The B Next contributors
- Where this workshop comes from
- Why do it?
 - framework
 - networking
 - community-building
 - expertise-sharing
- Who are we?
 - 30 countries
 - Researchers (word cloud of organizations?)
 - See participant list

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Global Biodiversity
Information Facility

Free and open access to information about all types of life on Earth

- Which species or organism?
- Where and when was it found?
- What is the evidence?

International network and research infrastructure that provides free and open access to biodiversity data

Funded by participating national governments that have signed voluntary memorandum of understanding

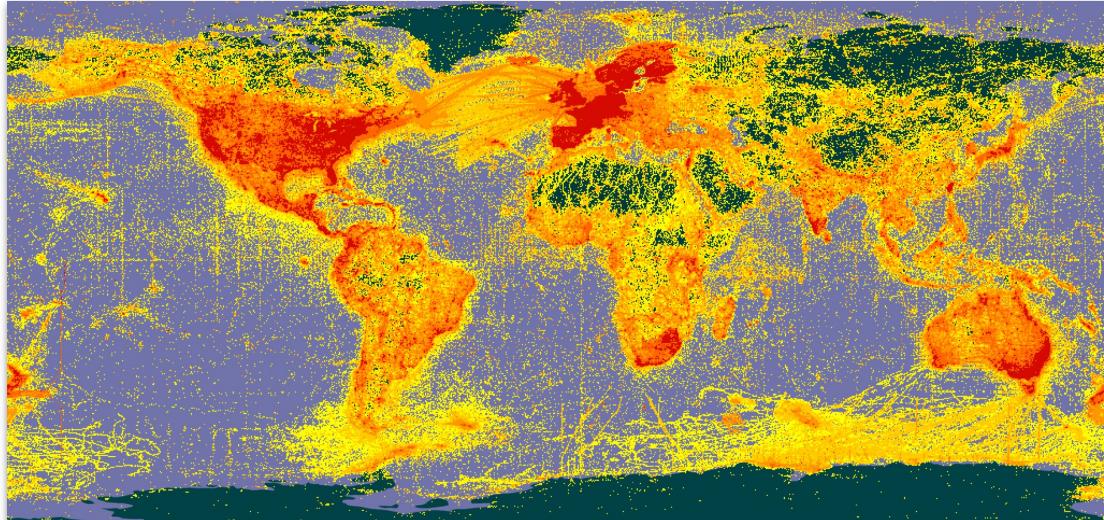
58
countries



38
organizations



1,442
data
publishers



GBIF Secretariat is ICSU-WDS CoreTrustSeal certified

20+ GBIF network members serve as trusted data hosting centres, serving national and thematic data and offering

- Consistent maintenance and administration of GBIF IPT
- Demonstrated track record of hosting data
- Capacity to provide help desk support



(Meta)data Aggregator

Community Building

Collections Data

PEOPLE IN THE LOOP



people graphic by Dorothy Allard

Advancing the Digitization of Biological Collections

iDigBio Hub and Thematic (Museum) Collection Networks

total: 121,768,942

Digitization

Workflows & Protocols
Dissemination

Research Use

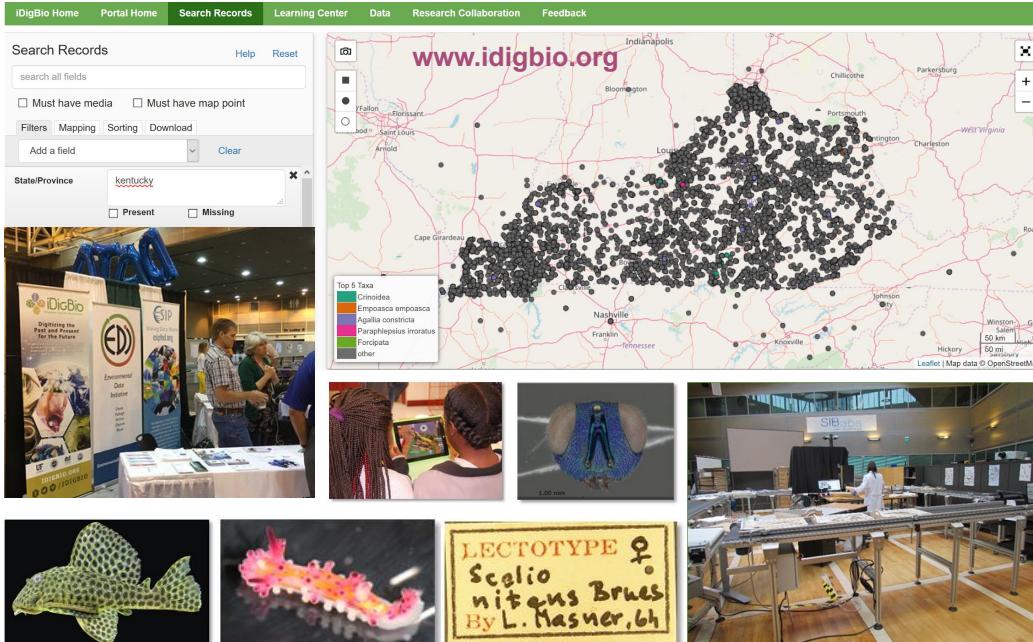
Cyberinfrastructure
Tool collaboration
Portal development
ENM workshop

Research focus

Data quality
APIs

Training

Biodiversity informatics
Data skills and literacy
Collections software
Imaging
Project Management



Education Outreach

Citizen Science
K-12 materials
Undergraduate
Fossil Clubs
Mentor teachers

Methods

Workshops
Webinars
Symposia
Conferences
Working Groups
Short Courses
Adobe Connect
Listservs
Publications
Social Media @idigbio

NATIONAL MUSEUM of NATURAL HISTORY

Understanding the natural world and our place in it

- ❖ >145 million specimens and artifacts
- ❖ 7 Research & Collections Departments



<https://naturalhistory.si.edu>

Biodiversity Informatics 101 - structure

- Data
- Tools
- Community
- Challenges Innovations
-
- <http://bit.ly/biodiv101agenda>
- Minute cards
- 2 minute standups
- the Unconference
- your input - group notes

Logistics

When: Monday 21 October 2019

Where: Scheitema

Time: 9:00 - 17:00

Important Links

[Biodiv 101 Group Notes](#)

[Presentations and Resources Folder](#)

[Further Biodiv Informatics 101 Conversations](#)

Schedule for Biodiversity Informatics 101 Workshop

Biodiversity_Next, Leiden, 2019-10-21

Time	Length	Topic	Title	Presenter
09:00	10 min	Welcome	add title	Deb Paul
09:10	20 min	Introduction to Biodiversity Informatics	add title	James Macklin
09:30	10 min	DATA: Overview	add title	Holly Little
09:40	10 min	DATA: Standards	add title	Falko Glöckler, Marieke Petersen

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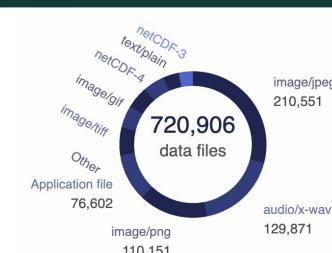
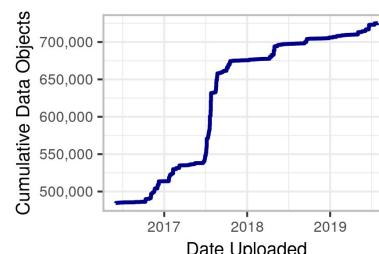


NSF

**ARCTIC
DATA
CENTER**

The Arctic Data Center

<https://arcticdata.io>

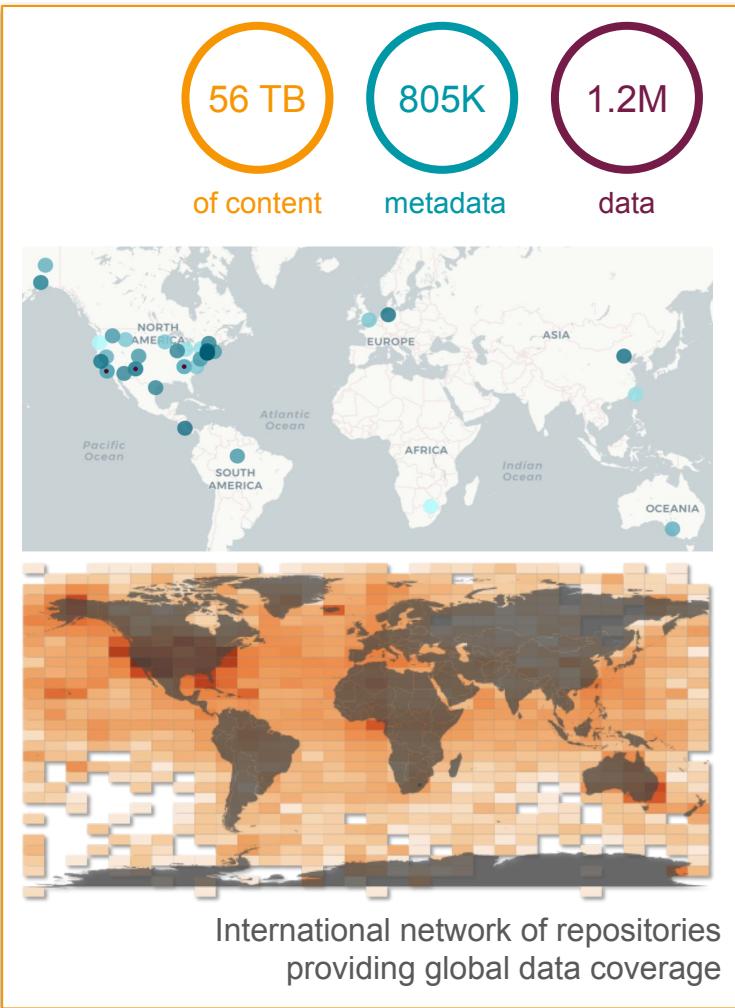
**Data Archive****Portal for data discovery****Tools for data and metadata submission****Support services****Training and Outreach****Data Rescue****5,800**
DATA SETS**1,500**
CREATORS**725K**
DATA FILES**14,000**
USERS**34 TB**
DATA STORAGE**990K+**
FILE DOWNLOADS



Enabling Access and Use of Data About Life and the Environment

Products and Services include:

- Faceted Data Search and Discovery
- Provenance Capture and Display
- Data Replication
- Data Science Training and Resources
- Metadata Quality Reporting
- Data Level Metrics
- Integrated DataONE Community





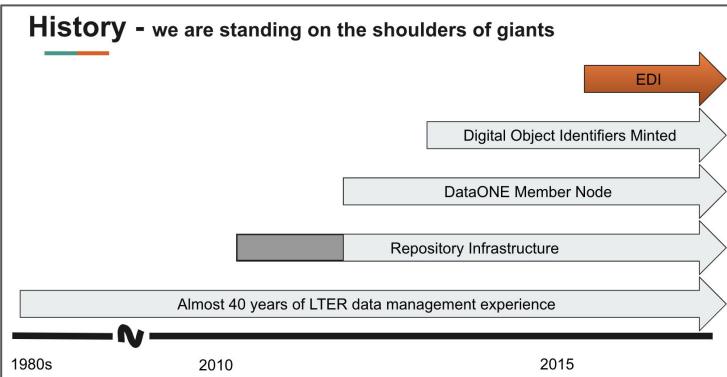
Environmental Data Initiative

Data Archive

Community Building

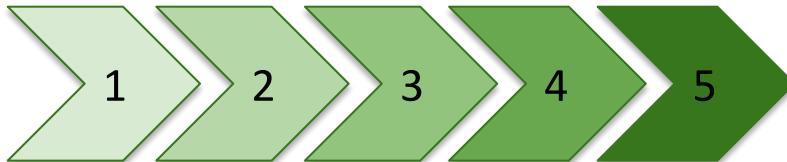
Ecosystem Science

History - we are standing on the shoulders of giants

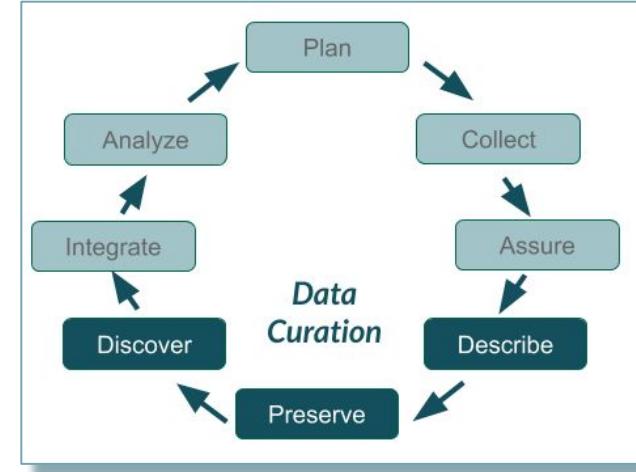


Data Contributor

1. Contact, plan
2. Assemble, organize
3. Prepare metadata
4. Upload
5. Access citation, DOI, published data

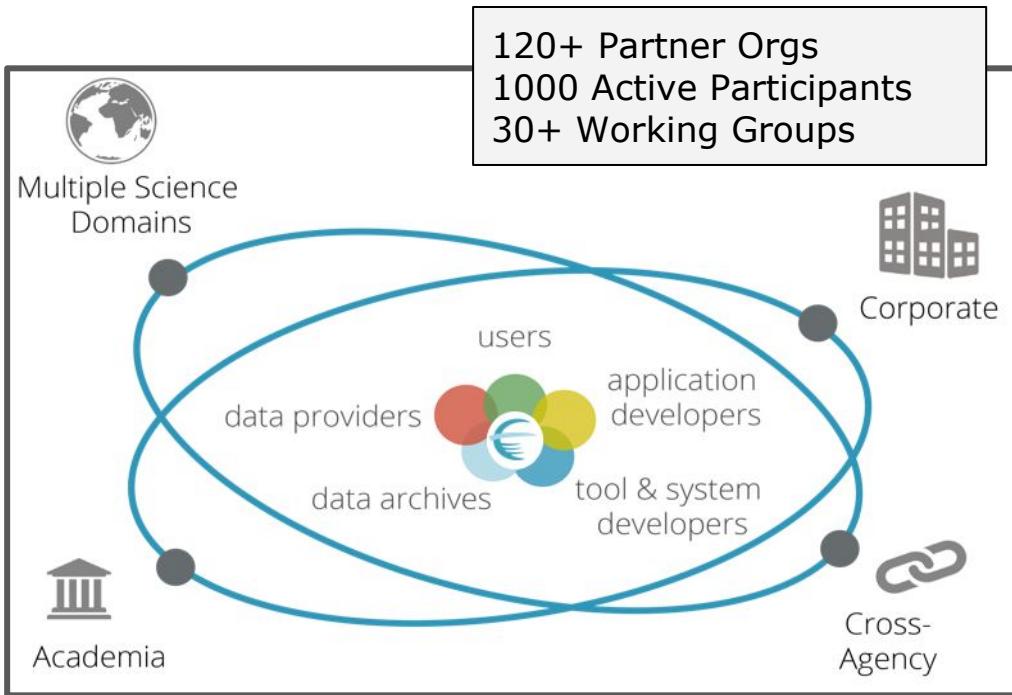


- A curly brace on the right side groups the following six items, which are also listed next to the EDI logo:
- A. Long-term, secure storage
 - B. Discovery, access, cited, revisions
 - C. Automated data checking
 - D. Conforms to industry standards
 - E. Workflows for data access & use
 - F. Feedback to improve local practice
- <https://environmentaldatainitiative.org/>



Earth Science Information Partners

Supported by:



DISCOVER

Find people and tools to make your data findable, accessible, interoperable, and reusable.



COLLABORATE

Join-in or create a new collaboration area around your Earth science data challenges.



INNOVATE

Utilize small-grant funding to build or expand Earth data technologies.



NETWORK

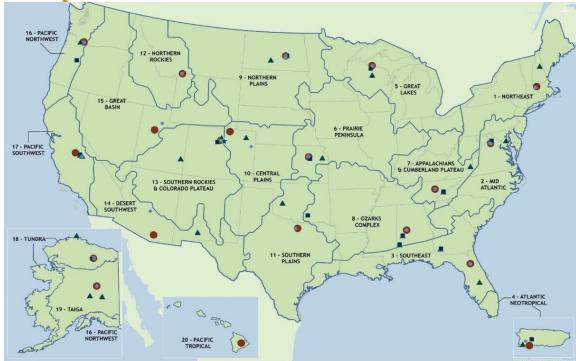
Extend your network. Build connections across federal agencies, the private setor, and academia.



neon
Operated by Battelle

National Ecological Observatory Network

Open data to understand our ecosystems



81 FIELD SITES
47 terrestrial, 34 aquatic

180 DATA PRODUCTS

100K SAMPLES/
SPECIMENS
Per year



Automated instruments

Micrometeorology (including C/H₂O/energy fluxes), surface and groundwater, and soil



Observational sampling

Aquatic & terrestrial organisms, soils & sediments, biogeochemistry, geomorphology, etc.



Airborne remote sensing

Camera, hyperspectral, LiDAR imagery

NEON serves as infrastructure for the community to conduct continental-scale research and experiments

Quick set up mobile sensor arrays and airborne remote sensing surveys available upon request



All NEON data, protocols and samples are openly available via the data portal and biorepository

Resources and programs focused on engaging students, educators and the general public

For access to data, samples, field protocols, and assignable assets, visit
<https://neonscience.org>

Primary Activity	Primary Research Domain	Geographic Domain	Ask us about...
 Support networking for the data sci community	Earth, environmental science	global	Is there a collaboration group on [my topic]?
 Aggregate search/delivery across many repositories	Earth, environmental, social science	global	How can [my favorite repository] become a node
 Archive/deliver data	Any	Arctic	NSF requirements, how to submit data
 Archive/deliver data	Environmental science, ecology	global	LTER; archiving for field stations, researchers, labs
 Distributed network & global data infrastructure	biodiversity	global	Publishing records, citing and tracking data uses
 Aggregate digitized museum specimen data	vouchered specimen collections, biodiversity	global	How to digitize, query data; foster data use
 Monitoring network	Environmental science	United States	How to download NEON data

ESAUSSEE Data Help Desk

Find us (in the exhibit hall)

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Christina



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Jeanette



Karl



Kelsey



Kristin



Kyle



Laura



Margaret



Megan



Nico



Rebekah



Stevan



William

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