

# Enabling FAIR Data in the Earth, Space, and Environmental Sciences



National Data Service and the Midwest Big Data Hub are sponsoring the  
Data Science Tools & Methods Workshop

## Enabling Discovery through Data Stewardship

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Shelley Stall  
Director, AGU Data Programs  
[sstall@agu.org](mailto:sstall@agu.org)



# American Geophysical Union

- > 60,000 members across 144 countries
- 20 peer-reviewed scholarly journals
- 100 year anniversary coming in 2019
- Scientific meetings
- Eos.org - online and print magazine
- ESSOAr – preprint server

Galvanizes a community of earth and space scientists that collaboratively advances and communicates science and its power to ensure a sustainable future.

# AGU's position statement on data affirms that

**“Earth and space sciences data are a world heritage. Properly documented, credited, and preserved, they will help future scientists understand the Earth, planetary, and heliophysics systems.”**



# FAIR Guiding Principles

**FAIR is...**

**Findable**

**Accessible**

**Interoperable**

**Reusable**

Article in Nature journal *Scientific Data*: Wilkinson, M. D. *et al.* The FAIR Guiding Principles for scientific data management and stewardship. *Sci. Data* 3:160018 doi: 10.1038/sdata.2016.18 (2016).





## New Grant from Laura and John Arnold Foundations (LJAF)

Align publishers and repositories in following best practices to enable FAIR and open data and to create workflows so that researchers will have a simplified, common experience when submitting their paper to any leading Earth and space science journal.

This will accelerate scientific discovery and enhance the integrity, transparency, and reproducibility of this data.



# Enabling FAIR Data Project - Objectives

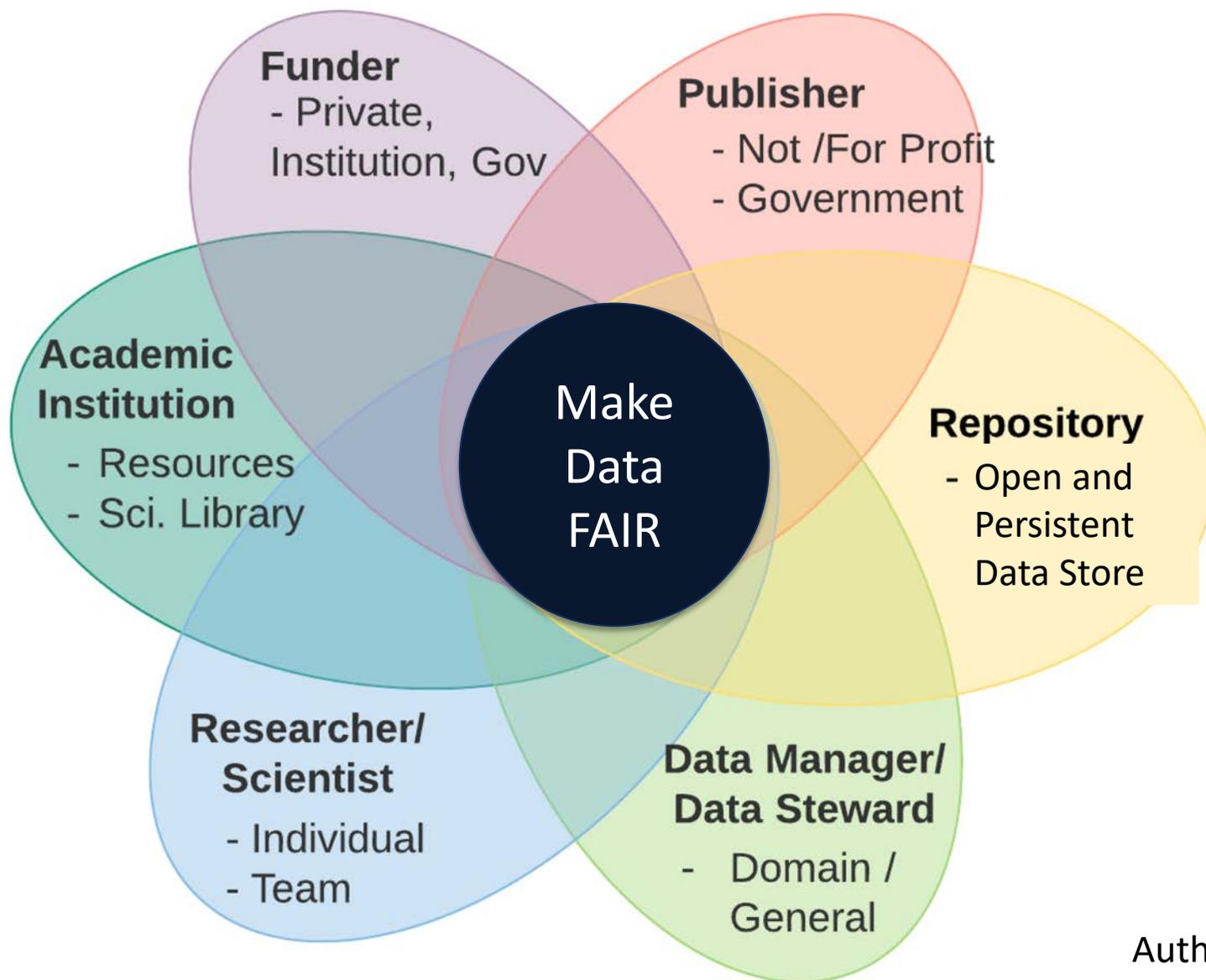
- **FAIR-aligned data repositories** add value to research data, provide metadata and landing pages for discoverability, and support researchers with documentation guidance, citation support, and curation.
- **FAIR-aligned Earth, space, and environmental science publishers** align their policies to establish a similar experience for researchers. Data, software, technology will be available through citations that resolve to repository landing pages. Availability statements are provided. Data are not placed in the supplemental information.

# Community-Driven Project – Partnership Includes:

- **Science Data Communities**
  - AGU / EGU
  - Earth Science Information Partners (ESIP)
  - Research Data Alliance (RDA)
  - EarthCube / Council for Data Facilities
  - FORCE11
- **Publishers**
  - AGU
  - Proceedings of the National Academy of Sciences (PNAS)
  - Nature
  - Science/AAAS
  - Elsevier
  - PLOS
  - Hindawi
  - Copernicus/EGU
  - Wiley
- **International Repositories (300+)**
  - National Computational Infrastructure (NCI)
  - AuScope
  - Australian National Data Service (ANDS)
  - Center for Open Science
  - DataCite / re3data
  - ORCID
  - CrossRef
  - CHORUS
  - Scholix
  - OSGeo
  - Pangaea

**And Growing!!**

# Research Data Ecosystem



## Other Roles:

- Research Labs
- Service providers to the ecosystem (e.g. PID providers like DataCite, github/Zenodo, CrossRef, CHORUS, Scholix)
- Research offices -- not at institutions (e.g. Ronin)
- International Efforts
- Societies

Authors: Shelley Stall and Erin Robinson

# FAIR Training Needs – Researcher Edition

- Locating trustworthy, community-accepted, FAIR-aligned repositories that support:
  - Documenting data and software (and other research outputs as is possible) to agreed community standards that describe provenance and enable discovery, assessment of reliability, and reuse
  - Persistent identifiers for data and software (and other research outputs as is possible)
  - Licenses for data and software (and other research outputs as is possible) that is as open as possible to enable the widest potential reuse.
- Citing data, software, physical samples, and other research products
- Developing data availability statements
- Preparing and managing data management plans. Make them living documents.

# Project Next Steps – Invitations to Sign and Implement

1. **July 23<sup>rd</sup> (week of):** The Enabling FAIR Data “neutral” website ready to receive signatories of the [commitment statement](#).
2. **End of July through Sept 12-13 (Second Stakeholder Meeting):** Engage with the first-line support to researchers: Editors, research offices, program officers, librarians, data managers, etc.,
3. **First week of September:** Completion of Repository Finder Tool. Developed by DataCite/re3data
4. **Between Sept 12-13 (Second Stakeholder Meeting) - and the week of November 5<sup>th</sup>** with International Data Week, **public announcement** of the Commitment Statement.
5. **Following the public release,** conduct researcher-focused webinar series - short 10-15mins episodes

# Commitment Statement

**Link to the Commitment Statement:**

**<http://bit.ly/FAIRCommitment> (case sensitive)**

**Final Version**



# Repository Finder Tool

Based on original work by Ruth Duerr, The Ronin Institute

Further designed by the Repository Guidance for Researchers (TAG A/D)  
Co-Chairs: Danie Kinkade, Michael Witt

Developed by: DataCite/re3data

Currently collecting names for usability testing. Send me your name and I'll share the webform signup.

Or...

Come to ESIP Summer next week and try it yourself.



# European Commission, Interim Report on FAIR Data & Action Plan – Comments Due by Aug 5

Please take the time to absorb these documents and provide your comments. The framework developed for how to move forward with FAIR is strong and viable -- valuable worldwide.

Turning FAIR data into reality: Interim report from the European Commission Expert Group on FAIR data

<https://doi.org/10.5281/zenodo.1285271>

FAIR Data Action Plan: Interim recommendations and actions from the European Commission Expert Group on FAIR data

<https://doi.org/10.5281/zenodo.1285289>

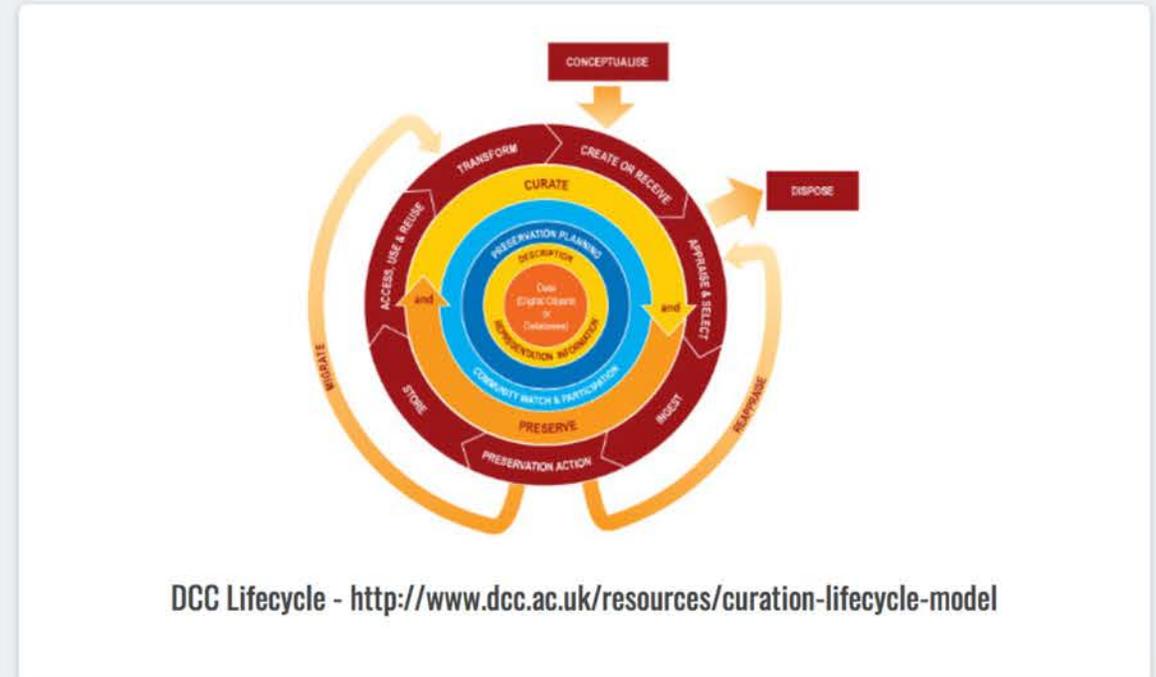
## Welcome to the DMT Clearinghouse

The Data Management Training (DMT) Clearinghouse is a registry for online learning resources focusing on research data management.

It was created in a collaboration between the [U.S. Geological Survey's Community for Data Integration](#), the [Earth Sciences Information Partnership \(ESIP\)](#), and [DataONE](#).

For questions or feedback, please contact [clearinghouseEd@esipfed.org](mailto:clearinghouseEd@esipfed.org)

[Read More](#)



<http://dmtclearinghouse.esipfed.org>

Thank You

Shelley Stall

Director, AGU Data Programs

[sstall@agu.org](mailto:sstall@agu.org)

@ShelleyStall

**AGU**

**100**

**ADVANCING EARTH  
AND SPACE SCIENCE**