Data + Community = Action

Erin Robinson, Executive Director ESIP



UNOOSA @UNOOSA - Nov 29

From space we can't see barriers between people. Space reminds us of our common bonds - let's never forget that #champion4space #space4sdgs

17 677 🖤 1.2K =

Helmholtz Open Science Webinars Webinar 49 – 23 / 28 May 2019 HELMHOLTZ Open Science



Kansas Agricultural Smoke, April 12, 2003









Making Data Matter



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[Open] Science User Barriers [to Open Data]

"The user cannot **find** the data;

If he can find them, he cannot access them;

If he can access them, he doesn't know how good they are;

if he finds them good, he can not merge them with other data"

Information Technology and the Conduct of Research: The User's View (1989)

Adapted from Leptoukh, 2012

Making Data Matter



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).



There is an urgent need to improve the infrastructure supporting the reuse of scholarly data.

- From The FAIR Guiding Principles for scientific data management and stewardship

New Questions

Old Science Questions

SciDI







There is an urgent need to improve the **Global Collaborative**] infrastructure supporting the **(re)** use of scholarly data.

- (Modified, Erin Robinson) From *The FAIR Guiding Principles for scientific data* management and stewardship

ESIP Vision

Leaders in promoting the collection, stewardship and (re)use Of Earth science data, information and knowledge that is responsive to societal needs.



Earth Science Information Partners (ESIP)

By the numbers:

120+ Member Orgs1000 Active Participants30+ Working Groups

Supported by:





Types of ESIP Members

Type I: Data Centers

SGCI

Science Gateways

Community Institute



Type III: Application Developers



Type IV: Strategic Partners



MOU Collaborators





And many more! ESIP has 110+ Members

Information Interoperability Stack



What ESIP community says..

The best network for those who want to work together across science domains and the data life cycle

Highly skilled people who are a good sounding board for ideas. Magnet for experts and leaders – draws top-notch data, tech and science professionals together..

> Clear professional 'home' for earth science data people

People participate across data life cycle – producers, researchers, to resolve common issues & create common pathways

Information Interoperability Stack

Shared Knowledge

ESIP does: Generate influential recommendations and work products Have a lasting impact in the recommendation of standards.

Collaborative Infrastructure

UU

Social Software Connecting Humans



ESIP does not:

- Provide data
- Sustain cyberinfrastructure
- Compete with our members
- Develop standards



DATA CITATION GUIDELINES

Log in



Learn

Submitted by superadmin on Thu, 03/01/2012 - 11:36

Commons

Event: Winter Meeling 2012 **Collaboration Area:** Data Preservation DOI /EZid: doi:10.7269/P34F1NNJ **Technical Reports:**

Document Status

This document was approved by the ESIP Assembly 5 January 2012. The Data Stewardship Committee was charged with maintaining the Guidelines to ensure they remain functional and relevant

The document was put out for review by all ESIP members 17 August 2011. As of 31 December 2011 some minor revisions have been made in response to feedback from the ESIP community and continually emerging guidance from the broader information science community

Introduction and Summary

Data citation is an evolving but increasingly important scientific practice. We see several important purposes of data citation

- . To aid scientific reproducibility through direct, unambiguous reference to the precise into used in a particular study. (This is the paramount purpose and also the hardest to achieve).
- To provide fair credit for data creators or authors, data per ds, and other critica omduction a
- · To ensure scientific transparency and reasonable accountability authors and stewards
- · To aid in tracking the impact of data set and the associated data center through reference in scientific literature.
- · To help data authors verily how their data are being used
- **Reused:** . To help future data users identify how o

- ESIP Data Stewardship created
- ESIP Assembly endorsed in 2012 (Way ahead of it's time)
- Served as a model for NASA, NOAA, NSF, Group on Earth Observations, ...
- ESIP has been influential in Force11 and RDA, influencing directions based on this work

http://commons.esipfed.org/node/308



http://commons.esipfed.org/datamanagementshortcourse

33 Modules Created in late 2012-2013



Lead: Nancy Hoebelheinrich, Knowledge Motifs

Researcher

SGCI



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

Read More



DCC Lifecycle - http://www.dcc.ac.uk/resources/curation-lifecycle-model

http://dmtclearinghouse.esipfed.org

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EXPLORE - Data Management Training

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2017 AGU received a 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.

Community-Driven Project – Partnership Includes:

- Science Data Communities
 - AGU and 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
 - Wiley

- International Repositories
- National Computational Infrastructure (NCI)
- AuScope
- Australian Research Data Commons (ARDC)

And Growing!!

- Center for Open Science
- DataCite / re3data
- ORCID
- CrossRef
- CHORUS
- Scholix
- OSGeo
- Pangaea
- DataONE

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 journal supplements.

Commitment Statement



Link to the Commitment Statement: <u>http://bit.ly/FAIRCommitment</u> (case sensitive)

Final Version



FAIR-Aligned: Researcher Commitment

- 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.



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Resource Object Citation Cluster

Title: Software and Services Citation Guidelines and Examples Collaboration Area: Software and Service Citations Cluster DOI: 10.6084/m9.figshare.7640426 Technical Reports: Version: 1 Recommended Citation: ESIP Software and Services Citation Cluster. (2019). Software and Services Citation (and Examples. Ver. 1. ESIP. <u>https://doi.org/10.6084/m9.figshare.7640426</u>. Figshare link: https://esip.figshare.com/articles/Software_and_Services_Citation_Guidelines_and_E 640426

Document Status

Approved by ESIP Assembly Meeting 16 January 2019

Data Citation Guidelines for Earth Science Data

Version 2

Suggested Citation:

ESIP Data Preservation and Stewardship Committee. 2019. Data Citation Guidelines for Earth Science Data. Ver. 2. Earth Science Information Partners. https://doi.org/10....

Table of Contents

Document Status Related ESIP Documents Introduction Citation Content Overview **Details on Core Concepts** Author or Creator Public Release Date Title Version ID Repository Resolvable Persistent (dentifier (PID) Access Date and Time Additional Considerations Resource type Editor, Compiler, or other important roles Data Within a Larger Work Dynamic and Micro-citation Versioning Subset Used Resolving Citations Note on Locators vs. Identifiers Landing Pages Content Actionability Acknowledgements Bibliography Appendix: Mapping of Core Concepts to Common Metadata Dialects



Resource Object Citation Cluster

- New cluster spun of the Data Stewardship Committee and in combination with the Software and Services Citation Cluster
- First task: update data citation guidelines.
 - Refinement core concepts and issues and mapped concepts to more metadata dialects
 - New guidance on "Dynamic data citation" notably to use the RDA Recommendation
 - New section on resolving citations: especially how to construct landing pages and make them machine actionable.
- Now examining all the "concerns" and research objects that citation can or should address.



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Physical sample collections part of this conversation

Developed by: DataCite/re3data

https://repositoryfinder.datacite.org

Repository Finder

Find a repository to upload your data.

Repository Finder, a pilot project of the Enabling FAIR Data Project led by the American Geophysical Union (AGU) in partnership with DataCite and the Earth, space and environment sciences community, can help you find an appropriate repository to deposit your research data. The tool is hosted by DataCite and queries the re3data registry of research data repositories.

Search re3data for a repository to upload your data



or

See the repositories in re3data that meet the criteria of the Enabling FAIR Data Project.



EXPLORE - Data Management Training

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More

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Framework DataONE Education Modules (10) **ESIP Data Management for** Scientists Short Course (33) **FAIR Data Principles** ICSU - World Data System Training Resources Guide (76) The Digital Preservation Network (7) **USGS Science Support** Framework (21) **Steps for FAIR Data Principles** Accessible (18)

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	Overview of Interdisciplinary Earth Data Alliance (IEDA) Data Management Resources	More
	E FAIR Data Principles	
	Introduction to Scientific Visualization	More
	FAIR Data Principles	August 20
	Simplifying the Reuse and Interoperability of Hydrologic Data Sets and Models with Semantic Metadata that is Human-Readable & Machine-Actionable	More
	FAIR Data Principles	May 20
	EarthChem Library: How to Complete a Data Submission Template	More
	FAIR Data Principles	April 20

iData Tutorial

FAIR Data Principles



– Rama Ramapriyan, NASA/SSAI





Thank you!

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