

World Data System

CI4MP 2024 Lightning Talk
18 January 2024



Mission Statement

The mission of the World Data System is to **enhance the capabilities, impact, and sustainability of our member data repositories** and data services by:



Creating trusted communities of scientific data repositories

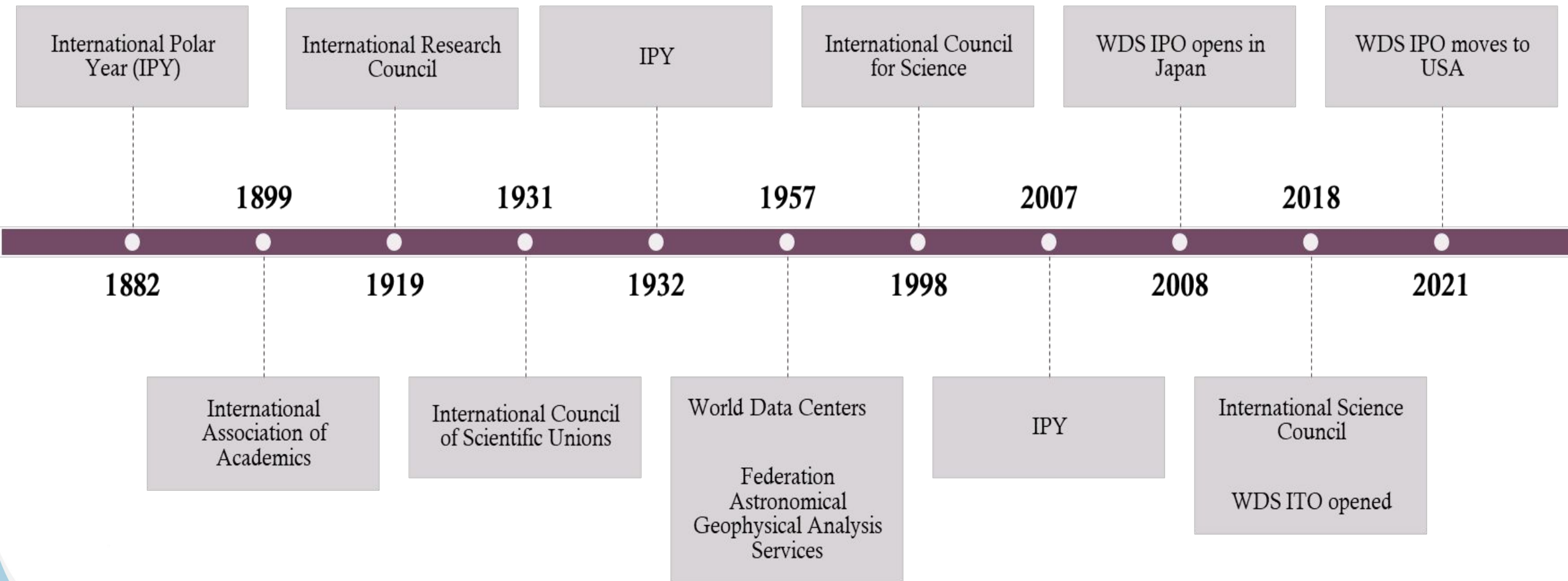


Strengthening the scientific enterprise throughout the entire lifecycle of data and all related components creating first-class data that feeds first-class research output



Advocating for accessible data and transparent and reproducible science

History



The Scientific Committee



Meredith Goins wds-ipo@utk.edu worlddatasystem.org

ACTION PLAN

This Action Plan focuses on making progress on **four objectives in the next two years:**

1 Provide services and support to existing and new members

2 Develop value narratives for WDS members

3 Provide global leadership and agenda setting

4 Enhance access, quality, and accessibility of data worldwide

1 Provide services and support to existing and new members

The objective to provide services and support to existing and new members will be implemented through the following actions:

Renew existing members and continue to serve their interests and needs

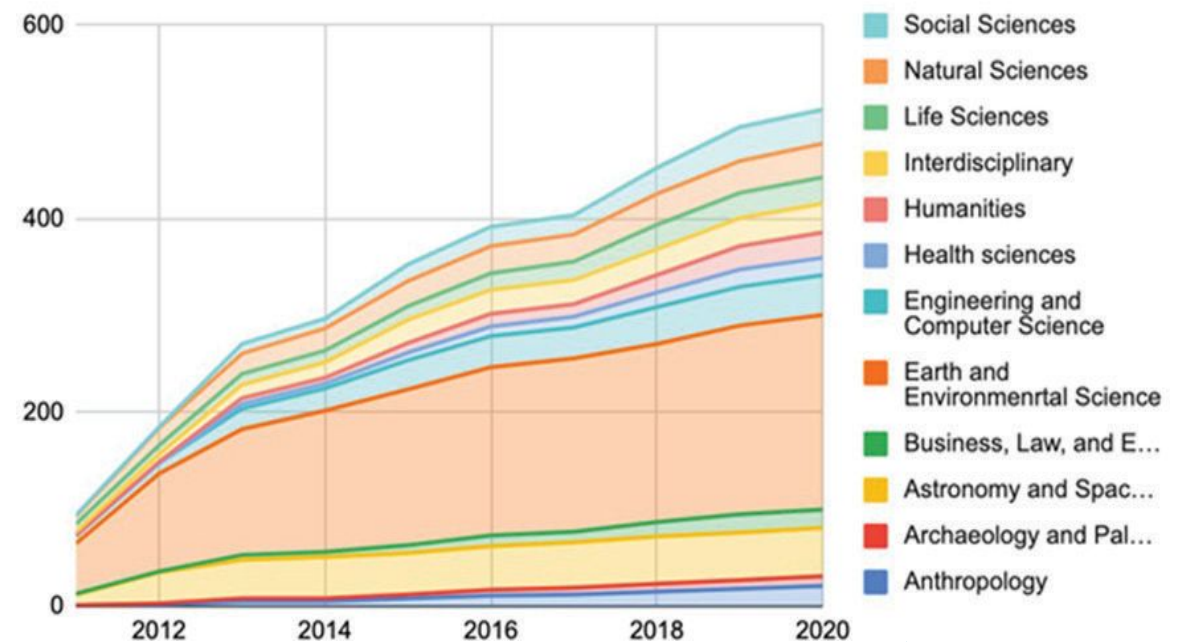
Enhance communication with members to encourage greater participation and better understand their needs

Continue to develop federated infrastructure and coordinate activities amongst data managers.

Increase the number of WDS members generally, with focus on:

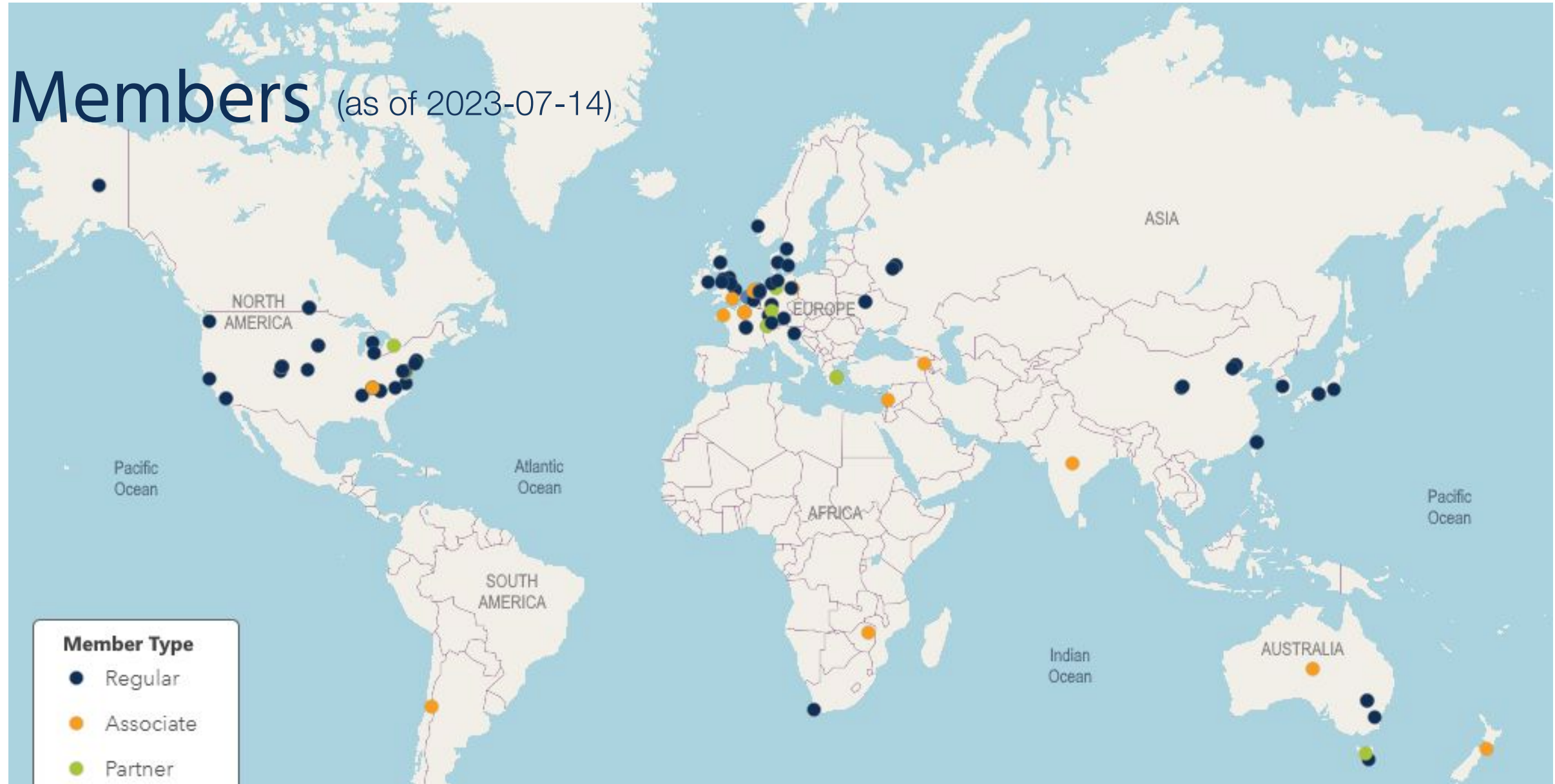
- Addressing membership gaps in the global south
- Addressing membership gaps in under-represented, data-intensive fields

Disciplinary Focus of Members



Disciplines represented by WDS Regular Members. Total exceeds number of members because many members serve multiple disciplines. *Graphic created by Wim Hugo*

Members (as of 2023-07-14)



https://worlddatasystem.org/members/member_directory/

Meredith Goins wds-ipo@utk.edu worlddatasystem.org

Membership Categories

86 Regular

Data stewards and/or data analysis services –
Certified as Trustworthy Data Repositories

11 Network

Umbrella bodies of data stewards – Certified as
Trustworthy Data Networks

11 Partner

Contribute support to WDS membership

20 Associate

Interested in the WDS endeavour

NEW!

Wish to become Regular Members, but not yet in a
position to undergo certification – mentor
opportunity

Candidate



Meredith Goins wds-ipo@utk.edu worlddatasystem.org

2

Develop value narratives for WDS members

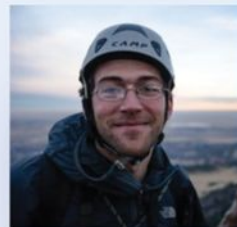
WDS is positioned as the voice for data repositories globally and clearly expresses the value proposition for each WDS member repository

- July 2023 WDS Repository Sustainability Summit

Partnering with each repository to develop value narratives for communications, funding, and sustainability

- Delphi Study to identify **top 10 value-added benefits** that data repositories provide to the international research ecosystem, looking ahead over the next few years

Awarding a data prize that rewards innovative use, analysis, and visualization of data found within WDS member repositories which demonstrates tangible value.



Ethan Welty
2020 WDS Data Stewardship Award Recipient

Ethan Welty is a glaciologist specializing in the analysis of glacier time-lapse photographs. He also works as a scientific data and software consultant for organizations such as the Cascadia Field Station of the United States Geological Survey, Catalyst Cooperative, and the World Glacier Monitoring Service (WGMS, WDS Regular Member).

3 Provide global leadership and agenda setting

WDS Data Sharing Principles

- Data, metadata, products, and information should be fully and openly shared, subject to national or international jurisdictional laws and policies, including respecting appropriate extant restrictions, and in accordance with international standards of ethical research conduct.
- Data, metadata, products, and information produced for research, education, and public-domain use will be made available with minimum time delay and free of charge, or for no more than the cost of dissemination, which may be waived for lower-income user communities to support equity in access.
- All who produce, share, and use data and metadata are stewards of those data, and have responsibility for ensuring that the authenticity, quality, and integrity of the data are preserved, and respect for the data source is maintained by ensuring privacy where appropriate, and encouraging appropriate citation of the dataset and original work and acknowledgement of the data repository.
- Data should be labelled 'sensitive' or 'restricted' only with appropriate justification and following clearly defined protocols, and should in any event be made available for use on the least restrictive basis possible.

Community Engagement:

Early Career Researcher Network

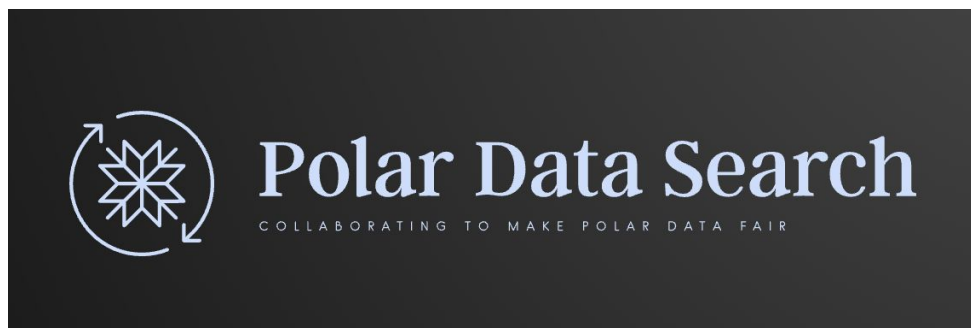
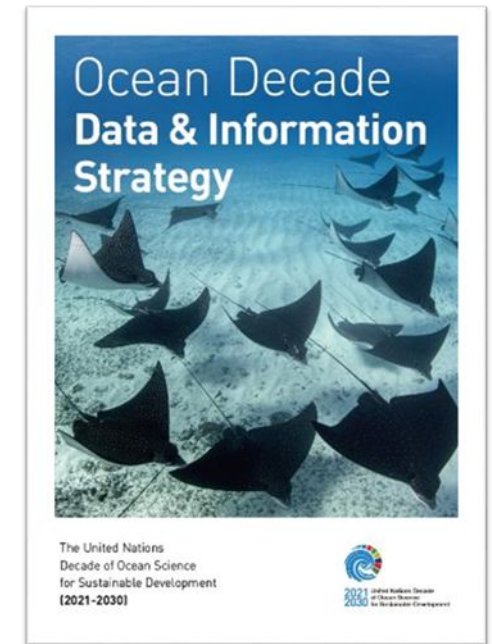
(WDS-ECR Network)



4 Enhance access, quality, and accessibility of data worldwide

Data availability:

- Ocean Data and Information System (ODIS) and the Ocean InfoHub
- Polar Data Search
- WDS-ITO very active in Polar RDM Working Groups:
 - Arctic Data Committee
 - Polar Observation Assets Working Group



4 Enhance access, quality, and accessibility of data worldwide

Quality Assessments: AI readiness

Data inputs are crucial to avoid erroneous, biased, and harmful outputs.

Brooks Hanson, Shelley Stall, Joel Cutcher-Gershenfeld, Kristina Vrouwenvelder, Christopher Wirz, Yuhan (Douglas) Rao & Ge Peng. Garbage in, garbage out: mitigating risks and maximizing benefits of AI in research. *Nature* 623, 28-31 (2023). doi: <https://doi.org/10.1038/d41586-023-03316-8>

Make environmental data ready for AI application development and reduce the burden of data preparation for users like AI developers.

ESIP Data Readiness Cluster (2023). Checklist to Examine AI-readiness for Open Environmental Datasets. Version 1.0. Earth Science Information Partners. <https://github.com/ESIPFed/data-readiness> [2023-11].

Near-term:

- Conduct workshop with WDS Members,
- Support members through self-evaluations
- Contribute evaluations to the cluster outputs
- Provide feedback to WG
- Analyze the state of readiness.

Longer term:

- Support potential efforts to automate checks on a dataset leveraging commonly used standardized metadata schemas and data formats
- Repositories identify areas for improvement and convey readiness to users.
- Coordinate with AI Developers for suitable data inputs.

4 Enhance access, quality, and accessibility of data worldwide

Quality Assessments: Repository Attributes

Pursue adoption in coordination with WG, Re3Data and WDS repositories.

1. Establish baseline by evaluating completeness/gaps of repository records in Re3data
2. Conduct workshop, support completion of attributes with existing re3data fields
3. Support completion of attributes with fields pending Re3data schema updates
4. Analyze results, produce visualizations and present adoption at an RDA plenary

Future potential work to support mapping to schema.org content (ESIP Science-on-Schema cluster has done some preliminary work to show existing mappings possible)

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

Search

<https://www.rd-alliance.org/groups/data-repository-attributes-wg>

INTERNATIONAL DATA WEEK 2025

*Trusted research data driving
innovation and a better world*



See you in
Brisbane
Australia
13 - 16 OCTOBER 2025

Contact us

WDS International Program Office c/o WDS-IPO @
UTORII

1 Bethel Valley Road Building 5100, Room 272

MS 6173
Oak Ridge, TN 37831

worlddatasystem.org

Instagram @wds_ipo

Facebook @WorldDataSystem.International

LinkedIn @company/world-data-system

X @ISC_WDS

Vimeo @worlddatasystem



World Data System International Program Office (WDS-IPO) is hosted by the University of Tennessee Oak Ridge Innovation Institute. This work is supported by a cooperative agreement (DE- SC0021915) with the U.S. Department of Energy Office of Science. Contact WDS-IPO at wds-ipo@utk.edu.

World Data System International Technology Office (WDS-ITO) is hosted by the University of Victoria. This work is supported by the Digital Research Alliance of Canada and Ocean Networks Canada. Contact WDS-ITO at ito-webadmin@oceannetworks.ca.