



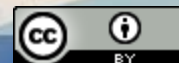
Hybrid

World Data System

Members
Forum

2023

Sunday, 22 October



World Data System Members Forum Sunday, 22 October 2023

Venue

Mozart Hall 4+5

Salzburg Congress

Auerspergstraße 6, 5020 Salzburg, Austria



Adobe Stock Image

Agenda:

11:00 am-12:00 pm Plenary Session 1 - WDS updates

12:00-1:00 pm Scientific Session 1 - Member Lighting Talks

1:00-2:00 pm Lunch

2:00-3:00 pm Scientific Session 2 - Member Lighting Talks

3:00-3:30 pm Break

3:30-4:15 pm Scientific Session 3 - Facilitated Discussion

4:15-5:10 pm Plenary Session 2 - Action Plan Activity

5:10-5:30 pm Plenary Session 3 - Value Narratives

11:00am-12:00 pm Plenary Session 1

- Welcome
- International Program Office & International Technology Office Updates
- Early Career Researcher Network Update
- Scientific Committee Update - Action Plan Status

11:00am-12:00 pm
Plenary Session 1

Welcome

David Castle, WDS Scientific Committee Chair

11:00am-12:00 pm
Plenary Session 1

International Program Office &
International Technology Office Updates

Meredith P. Goins

Reyna Jenkyns

IPO Updates Our Team



Meredith P. Goins
Executive Director



Daniela Santos Oliveira



Vinnie Bernabeo



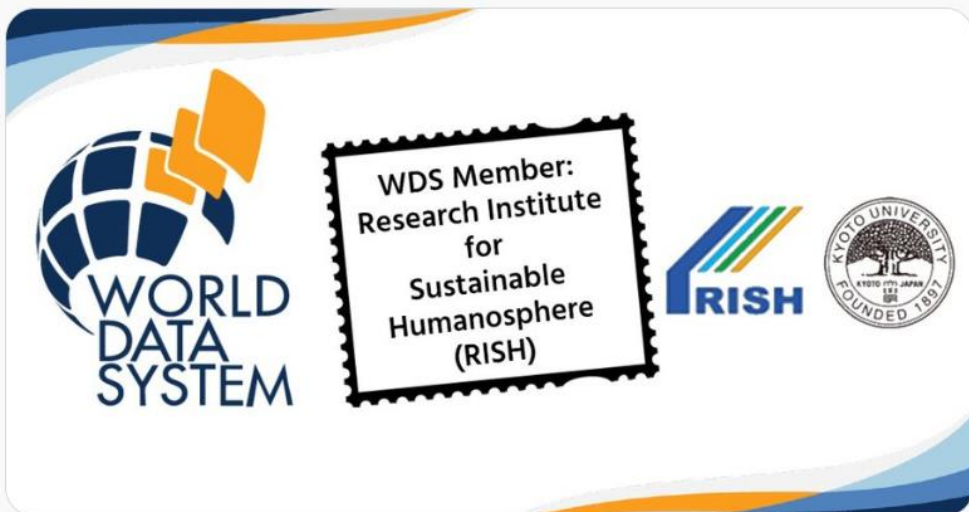
Katherine Read

Communications



World Data System @ISC_WDS · May 12

Meet our member repository: the Research Institute for Sustainable Humanosphere (RISH) at Kyoto University. They study Humanosphere Science to create a sustainable society in harmony with nature. Learn more about their missions and facilities here: worlddatasystem.org/wds-member-hig...



WDS WEBINAR SERIES

Applying the CARE Principles for Indigenous Data Governance to Ecology and Biodiversity Research with Maui Hudson



THE CARE PRINCIPLES FOR INDIGENOUS DATA GOVERNANCE

- Collective Benefit
- Authority to Control
- Responsibility
- Ethics



14
NOVEMBER
AT
10PM UTC

15
NOVEMBER
AT
11AM NZT

REGISTER NOW

<https://worlddatasystem.org/webinars/>

WDS Open Office Hours

Hello to the Americas!

Please join us for our open office hour on 11 October at 2pm UTC



For a complete listing of dates and times, please visit

Our virtual office door is always open!

We want to connect with our members across the globe, so each month the time of the office hours will vary to ensure that we have a time for you - no matter your time zone.

worlddatasystem.org/office-hours



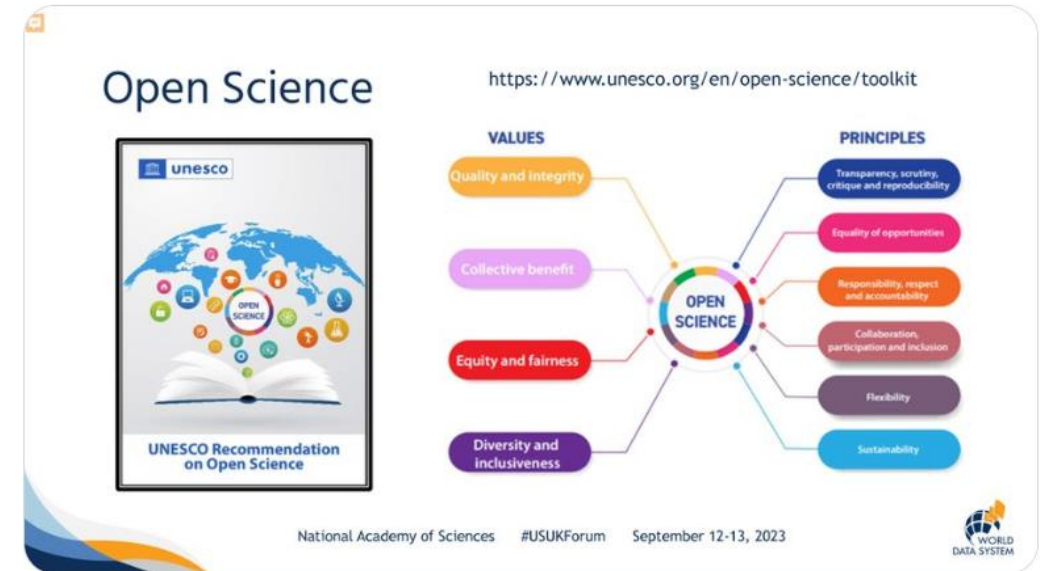
Outreach



National Academy of Sciences @theNASciences · Sep 13

Meredith Goins (@mgoins) of @ISC_WDS notes the role of data repositories as a "natural point of science convergence" and their responsibility to uphold data and data services as a global public good that should be shared openly and equitably. #USUKForum

bit.ly/usukforum-rese...



25 presentations received 468 views and 277 downloads between October 2022-2023.

Community engagement

<https://worlddatasystem.glueup.com/>

The screenshot shows a user profile for Meredith Goins, Executive Director of World Data System International Program Office, located in Knoxville, Tennessee. The profile includes a bio, location, and a 'MY BUSINESS CARD' button. To the right is a post by Vinnie Bernabeo, Communications Director at World Data System, announcing SciDataCon 2023. The right sidebar shows 'MY CONNECTIONS' with one business card sent and received, and 'UPCOMING EVENTS' with one event listed.

Home [Home] [Profile] [Messages] [Notifications] [User Avatar]

Meredith Goins
Executive Director of World Data System International Program Office
Knoxville, Tennessee United States
[My Profile](#)
[MY BUSINESS CARD](#)

Write something
[Photo] [Video] [Document]

Vinnie Bernabeo Admin
Communications Director at Worl... • 1 day ago
Posted in WDS Members Community

Last chance to register for [#SciDataCon23](#), part of [#IDWSalzburg2023](#), 23-26 Oct in Salzburg, Austria & online. Seven themes incl. data ethics, tech, advocacy. Register at <https://internationaldataweek.org/idw2023/registration/> by tomorrow to join the [#FestivalofData](#)

SciDataCon 2023
organized by
WORLD DATA SYSTEM **CODATA**
COMMITTEE ON DATA INTERNATIONAL SCIENCE COUNCIL

MY ACTIVE MEMBERSHIP
WORLD DATA SYSTEM
World Data System Early Career Researcher Network

MY CONNECTIONS
1 Business cards

Latest

- Reyna Jenkyns** Business Card Sent
- Reyna Jenkyns** Business Card Received

[View My Connections](#)

UPCOMING EVENTS
World Data System has 1 upcoming event.
[Check them out](#)



ITO Update Our Team



Reyna Jenkyns
ITO Director
Since 2023-07



Chantelle Verhey

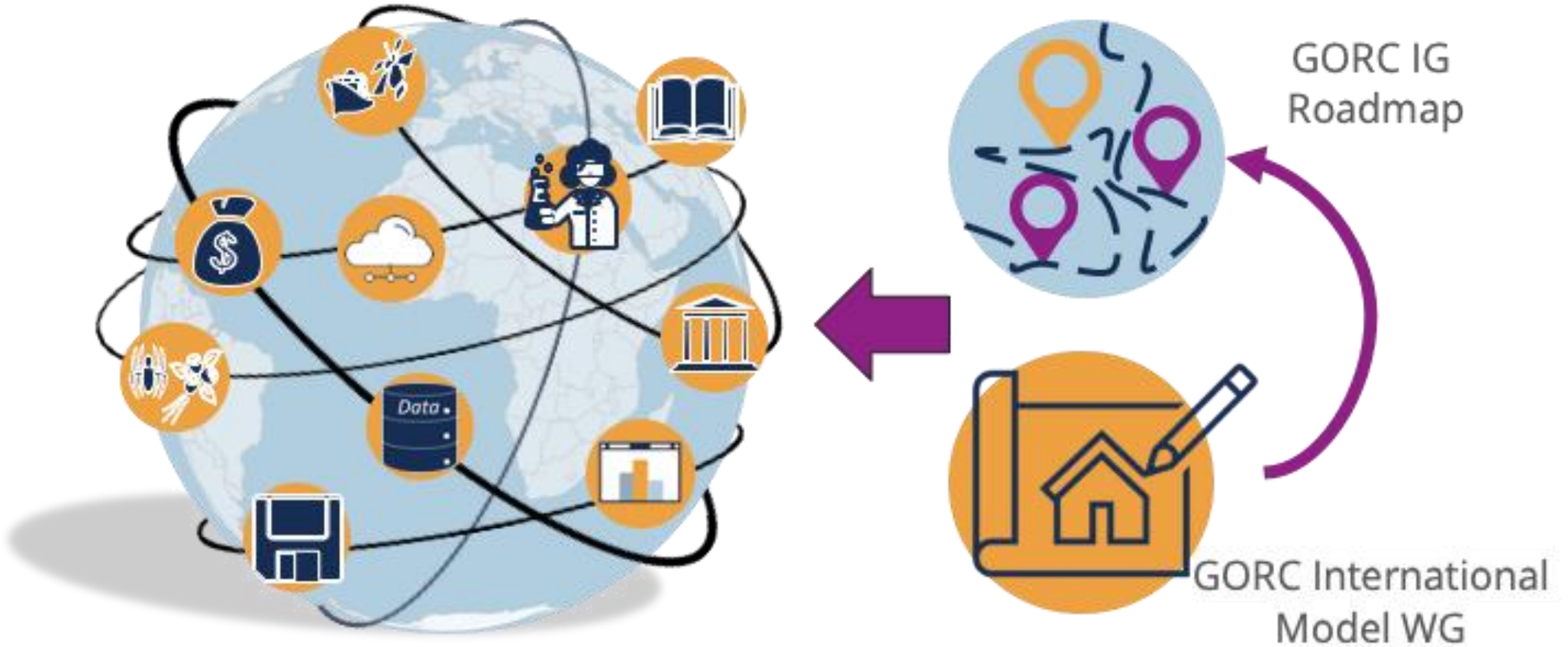


CJ Woodford

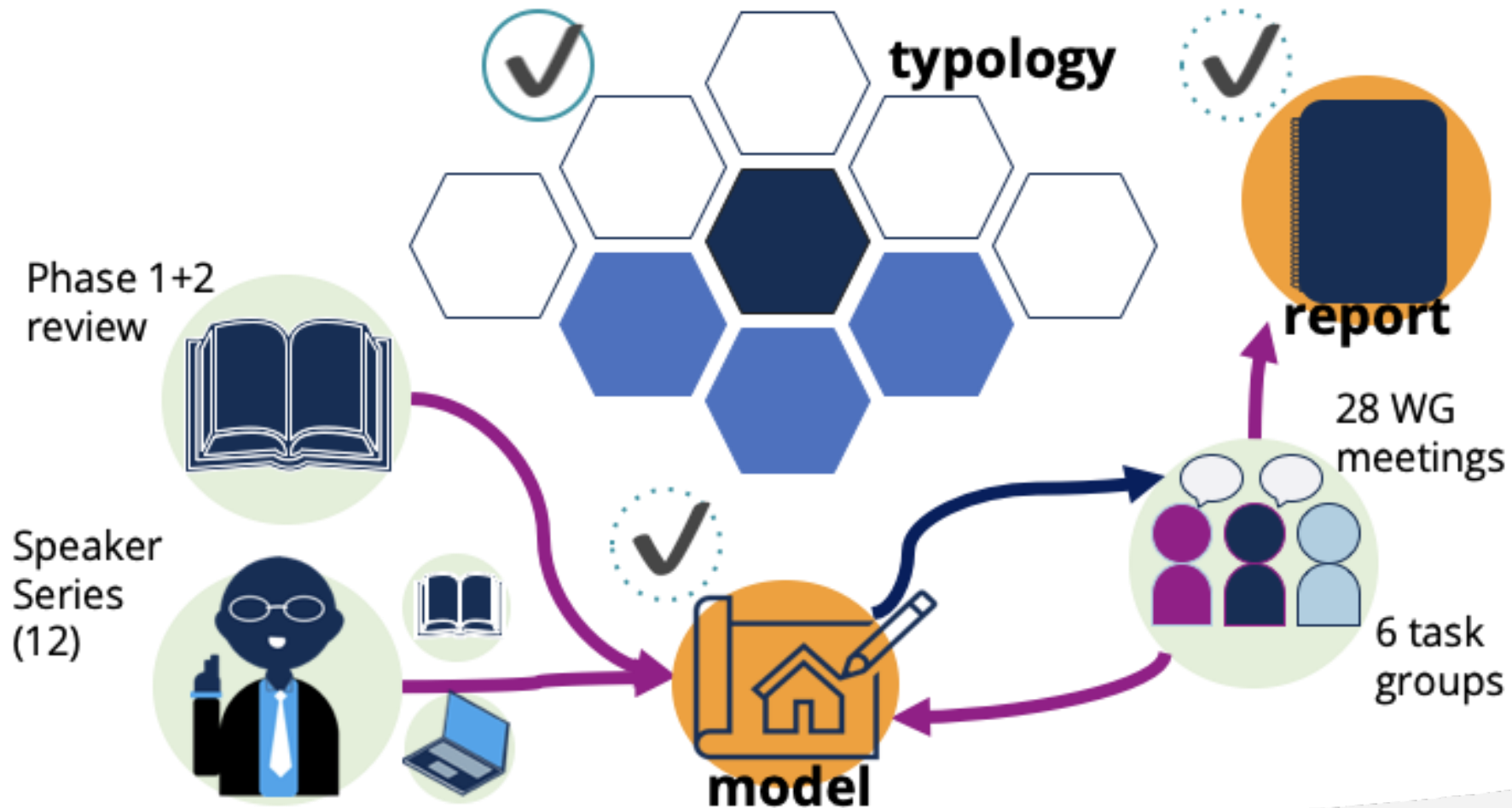


Dominik Bednarczyk

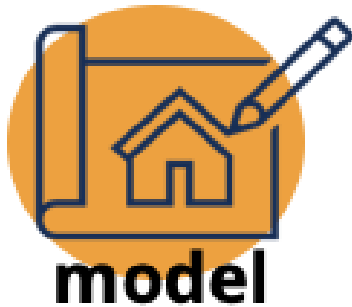
ITO WP1: Global Open Research Commons (GORC)



ITO WP1: GORC-IG Supporting Outputs

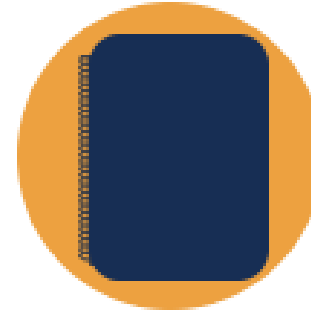


ITO WP1: GORC-WG Status



The Global Open Research Commons International Model, Version 1, <https://doi.org/10.15497/RDA00099>

- Non-prescriptive guide
- Spreadsheet container (for now)
- Organized by IG essential elements, broken down into categories & subcategories
- Extended description, examples, sources, consideration level.
- Glossary
- KPIs & metrics



The Global Open Research Commons International Model Report, Version. <https://doi.org/10.15497/RDA00097>

- Background information and intent
- Detailed methodology
- Narrative summary of model
- Current and intended use of the model
- Areas of future work

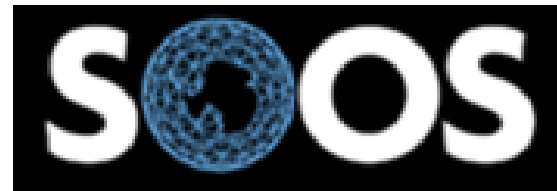
Join us at 9:00 AT on Thursday in Karajan-Hall 2+3!

ITO WP2: Polar Semantics & Interoperability

Core of the Work Package:

The office has focused on federated search and data enhancement practices that bridge the gap between data holdings in the Arctic and Antarctic polar research communities and has built a shared catalog characterized by harmonized “dialects” of metadata standards

- 3 Pronged approach:
 1. Semantic Interoperability
 2. Community Support
 3. Technical Support



ARCTICDATA COMMITTEE



ITO WP2: Polar Semantics & Interoperability

- Federated Search is a single search interface where researchers, stakeholders, and rightsholder can go and search the metadata from participating repositories.
- Alignment and Collaboration with other Federation initiatives (ie Ocean Info Hub)
- Semantic Technologies include utilizing Controlled vocabularies, Metadata Harvesting, Standardized Best Practices

POLDER Federated Search

[Home](#) [About](#) [Help](#)

Use any or all of the fields below to search for datasets about Earth's polar regions.

Search for text in titles, keywords, or other metadata:

Search for date ranges representing when data was collected

Data collection began between	Data collection ended between
Start date: <input type="text" value="yyyy-mm-dd"/>	Start date: <input type="text" value="yyyy-mm-dd"/>
and	and
End date: <input type="text" value="yyyy-mm-dd"/>	End date: <input type="text" value="yyyy-mm-dd"/>

Search for authors named:



ITO WP2: Polar Semantics & Interoperability

For WDS Members:

Host any data from the Arctic/Antarctic regions? Have Schema.org mark-up? Joining the PFS is as simple as sharing your landing page

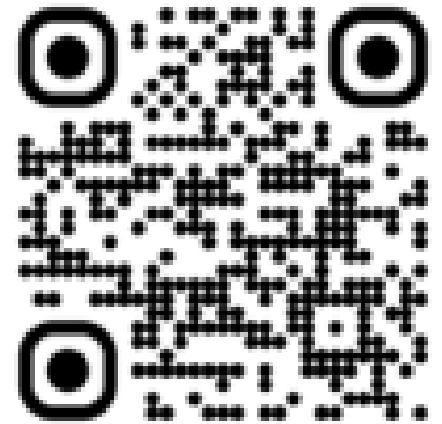
Supporting documentation for schema.org mark-up for earth-science repositories enhancing repository data discovery.

Suite of Resources:

1. Workshop recordings on <https://www.polder.info>
2. Github Repository for cross-domain replication "Polder-crew"
3. Best Practices Documentation
4. Journal Articles:

Payne, K., & Verhey, C. (2021). Schema.org for Research Data Managers: A Primer. International Journal of Big Data Management. <https://www.doi.org/10.1504/IJBDM.2022.10048569>.

Verhey, C., Minch, M., & Payne, K. (2023). Polar federated search: New infrastructure to support the polar community. Polar Science, Volume 36, June 2023, 100947. <https://doi.org/10.1016/j.polar.2023.100947>



ITO WP2: Biodiversity



Local
Contexts

international
BARCODE
OF LIFE



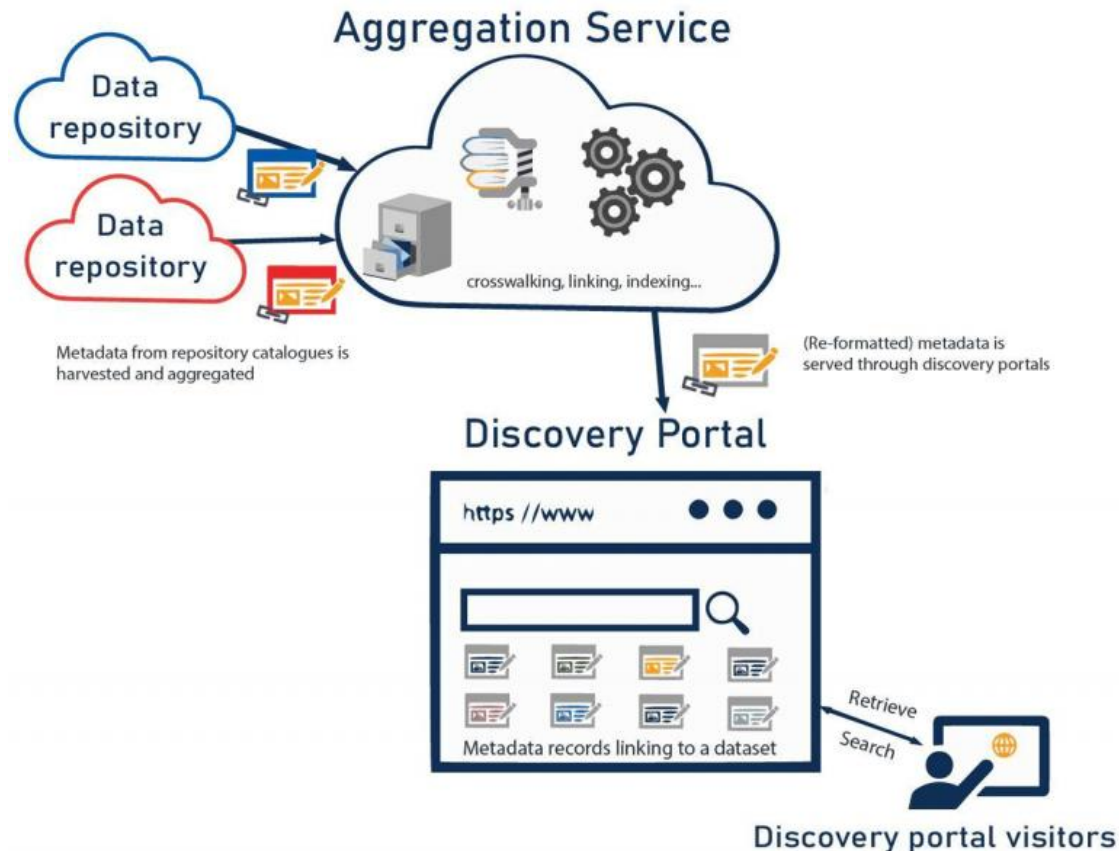
Project Formation

- Climate change reaches far beyond the polar regions and is intricately linked with the degradation of biodiversity.
- How can we effectively integrate services emerging from national and domain-specific communities, especially those housing a significant concentration of researchers?

Project Targets

- Comprehensive analysis of current Biodiversity Data Landscape, and WDS member holdings.
- Standardizing consistent and ethical application of metadata when engaging with indigenous communities.
- Work with WDS community members and indigenous groups to further improve data collection practices.

ITO Update: Harvestable Metadata Services



Featuring Members:

- Centre de Données Astronomiques de Strasbourg
- Global Change Research Data Publishing and Repository (
- International Real-time Magnetic Observatory Network
- International Service of Geomagnetic Indices
- International GNSS Service
- National Space Science Data Center
- Socioeconomic Data and Applications Center
- World Data Center for Geomagnetism
- World Data Centre for Renewable Resources and Environment

Downs, R.R., Díaz, A.U., Xu, Q., Wang, J., Chambodot, A., Liu, C., Flower, S. and Payne, K., 2023. Harvestable Metadata Services Development: Analysis of Use Cases from the World Data System. *Data Science Journal*, 22(1), p.20. <https://doi.org/10.5334/dsj-2023-020>

11:00am-12:00 pm
Plenary Session 1

Scientific Committee Update - Action Plan Status

David Castle, WDS SC Chair

WDS 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



Scan to view
WDS Action
Plan

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:

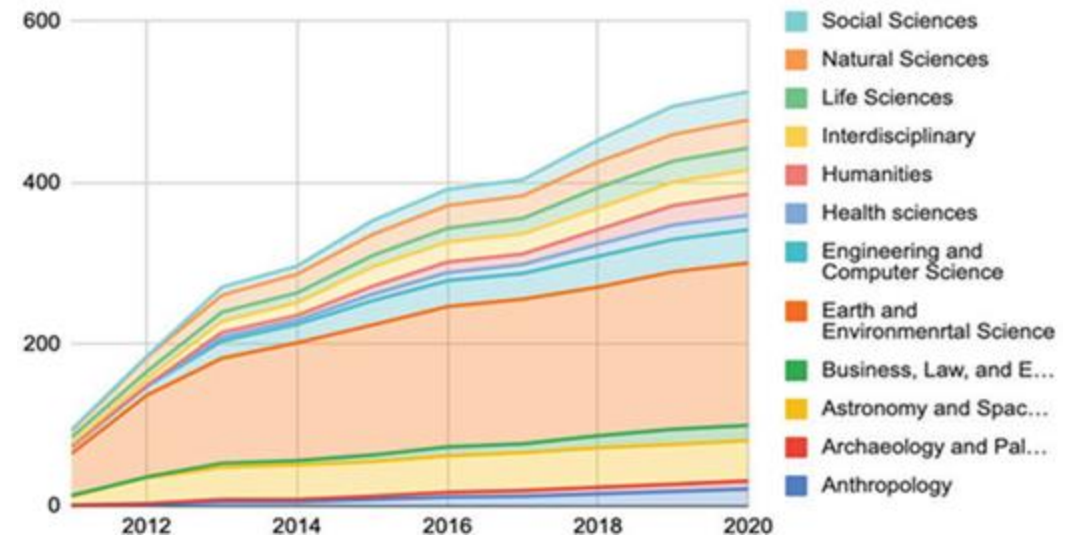
Renew existing members and continue to serve their interests and needs

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

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

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

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*

2

Develop value narratives for WDS members

Repositories, an essential element of the scientific enterprise, must demonstrate continued relevance to the research communities they serve. They must also demonstrate value to funders, a challenging proposition when the ubiquity of data and the seamlessness of well-managed technology leaves the impression that repository costs should decline, when in fact, these elements have substantial costs attached to them. The WDS, in response to members' concerns about funding and sustainability, will work with each member to develop resources to demonstrate relevance and value to research communities and funders. This objective will be supported by three actions:

1. WDS is clearly positioned as the **voice for data repositories globally**, and **clearly expresses the value proposition for each WDS member repository**
1. Partnering with each repository to **develop value narratives for the purposes of communications, funding, and sustainability**
1. **Awarding a data prize that rewards innovative use, analysis and visualization of data** found within WDS member repositories which demonstrates tangible value.



3

Provide global leadership and agenda setting

The WDS is positioned to provide global leadership and contribute to setting the international agenda for data-intensive science. Through collaboration with other international organizations, working with WDS members, and engaging research communities, the WDS will lead in priority setting and supporting the global data community in its development of workforce capacity and skills development. The WDS will work towards this goal by:

1. WDS members, ITO, IPO and SC **servicing in leadership positions** in relevant organizations that are setting priorities, developing standards, and creating roadmaps
2. WDS and CODATA can **collaborate on shared objectives** and initiatives, and as affiliated bodies of the ISC, can jointly support the ISC's mission and action plans
3. Enhancing workforce capacity and skills development through **education and training** opportunities that meet the scientific and technical needs of repositories and more broadly in response to research communities
4. **Supporting Early Career Researchers (ECR)** through the WDS Data Stewardship Award and the ECR Network
5. **Promoting open science** and encouraging adherence to the WDS **Data Sharing Principles** as seen in the WDS Bylaws to current and potential users, the media, and the public.
6. Offering **member training and guidance** on becoming a trustworthy repository and adopting new technologies

4 Enhance access, quality and accessibility of data worldwide

Data availability and quality is foundational to the success of the global scientific effort. The WDS exists to promote the availability and use of data worldwide, and increasingly there is an associated need to maintain trust in the data that is provided by WDS members. The WDS can develop an integrated standard for trust in data that incorporates the four dimensions of trust:

- assurance of the ethical and legal provenance of data sources,
- stewardship and certification that ensures data quality,
- adoption of recognized research security practices to protect data,
- integration of WDS data as part of the larger global research infrastructure.

This approach combines elements of CARE, FAIR, and TRUST principles, but goes further in two other respects. The first is to expand the concept of data integrity to include the UNESCO Recommendation on Open Science, evolving requirements of the Core Trust Seal certification, and leading data security practices. Second, the WDS can work with existing and new members to make these data integrity factors repository-centric, that is, to interpret them in a guidance document of direct relevance to repository managers and data stewards. Questions surrounding provenance, integrity, and appropriate use of data can be addressed both through technical and community building activities. The WDS will address this objective by:

1. Developing a work plan to identify key issues around trust in data.
2. Creating a framework to address and respond to issues of repository and data security.
3. Developing a repository-centric approach to trustworthiness for inclusion in each member's value proposition.
4. Developing a roadmap for a global research commons, in conjunction with partners within and outside of WDS.

11:00am-12:00 pm
Plenary Session 1

Early Career Researcher Network Update

Maja Dolinar, WDS ECR Network co-chair

WDS-ECR Network

WDS-ECR Network serves as a platform for self-defined ECRs dedicated to advancing data stewardship and best practices in data management. Its primary objective is to connect ECRs across scientific communities and disciplines, fostering collaboration and active participation in the development of innovative approaches to data integration and sharing.

- **Work done in 2023:**

- WDS-ECR Network Charter has been updated to correspond to the changes
- A regular monthly newsletter was set up, sharing scholarship and career opportunities, publications of interest, and important events
- A membership community was set up on Glue Up
- Change of Chairs of the Network: a new co-chair has been selected
- Current Co-Chair lineup: Maja Dolinar (Slovenian Social Science Dana Archives, Faculty of Social Sciences, University of Ljubljana), Lianchong Zhang (Aerospace Information Research Institute, Chinese Academy of Sciences), Claire Rye (New Zealand eScience Infrastructure (NeSI), University of Auckland)
- Poster presentation of the WDS-ECR Network at SciDataCon-IDW Salzburg 2023

WDS-ECR Network

Plans for 2024:

- Plans for future activities in progress:
 - webinars, events, social presence, promotion of the network on events
- A revision of social media has been made
- A LinkedIn account was created

<https://worlddatasystem.org/early-career-researchers-network/>

12:00-1:00pm
Scientific Session 1

Onsite Member Lighting Talks



In Person Attendees

- Johnathan Kool, Australian Antarctic Data Centre
- Natalia Atkins, Australian Ocean Data Network
- Sarah Reay, World Data Centre for Geomagnetism, Edinburgh
- Kerstin Lehnert, Interdisciplinary Earth Data Alliance
- Jürgen Matzka, INTERMAGNET
- Bob Downs, NASA Socioeconomic Data and Applications Center
- Danie Kinkade, Biological and Chemical Oceanography Data Management Office (BCO-DMO)

The Australian Antarctic Data Centre

(Department of Climate Change, Energy, Environment and Water)

Dr Johnathan Kool and Dave Connell



Introduction

- Established in the late 1990s
 - Antarctic Treaty
 - Part of the Australian Commonwealth Government
- 20+ Staff
 - Information Services
 - *including library services and records management*
 - Applications & Infrastructure
 - Mapping & GIS



Milestones

- Commissioning RSV Nuyina
 - Dedicated data officers
- S3 Storage Capability
 - Very large datasets
- Electronic Data System
- Data Notebooks & Machine Learning





World Data System
Hybrid
Members
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2023
Sunday, 22 October

Plans for the next year

- Uplift and new capability for spatial applications
- Migrating old systems onto our new web architecture
 - Metadata edit/create tool
 - Data Management Planning application
- ChatGPT for metadata / AI for Data Management



Challenges

- Increasing volume and complexity of data
- Increased desire for speed of access, versatility of queries, while maintaining ease of use
- Deprecating legacy systems
- Antarctic Treaty requires free availability!



Questions?



Introduction of the Australian Ocean Data Network to the WDS 2023 Members Forum

Natalia Atkins, AODN Metadata Manager

15
YEARS
of IMOS


Integrated **Marine**
Observing System

IMOS acknowledges the Traditional Custodians and Elders of the land and sea on which we work and observe and recognise their unique connection to land and sea. We pay our respects to Aboriginal and Torres Strait Islander peoples past, present and future.

How IMOS works

Satellite
Remote
Sensing



Deep Water Moorings



Argo Floats



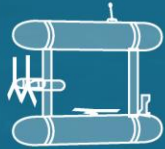
Ocean Gliders



Animal Tracking #2
Animal Tagging



Ships of Opportunity



Autonomous
Underwater
Vehicles



National
Mooring
Network



Animal Tracking #1
Acoustic Telemetry



Wireless
Sensor
Networks



Ocean
Radar



Marine
Microbiome
Initiative



New
Technology
Proving

010011
101001
000100



Australian Ocean Data Network

The Australian Ocean Data Network (AODN)

- Is an interoperable online network of marine and climate data resources
 - Large geographic area
 - Wide range of observed parameters (physical, chemical, and biological)
 - Made freely and openly available to the public via the AODN Portal and AODN metadata catalogue
- Primary role is the data management facility for IMOS funded data
- Includes organisations and individuals of the Australian and New Zealand marine research community

Highlights of milestones from the past year

- Achieved CoreTrustSeal certification for the first time
 - November 2022
- The AODN was accepted as a WDS Regular Member
 - April 2023
- Led an Australian Research Data Commons (ARDC) project to develop national infrastructure for in-situ ocean wave observations.

Repository/Organisation plans in the near term

- Develop modern AODN infrastructure
 - Data ingestion/processing
 - Data discovery
 - Data storage formats
 - Visualisation capabilities
- Grow the AODN
 - Add new datasets (IMOS and others)
 - Make it easier to contribute
- Secure data assets
 - Backup and recovery
 - Improve cyber security posture

Top challenges faced

- Increasing metadata/data contribution rates by AODN Partners
- Maintainability of the system
- Planning for Infrastructure upgrades



Australia's Integrated Marine Observing System (IMOS) is enabled by the National Collaborative Research Infrastructure Strategy (NCRIS). It is operated by a consortium of institutions as an unincorporated joint venture, with the University of Tasmania as Lead Agent. www.imos.org.au

PRINCIPAL PARTICIPANTS



SIMS is a partnership involving four universities.

ASSOCIATE PARTICIPANTS



IMOS acknowledges the Traditional Custodians and Elders of the land and sea on which we work and observe and recognise their unique connection to land and sea. We pay our respects to Aboriginal and Torres Strait Islander peoples past, present and future.

World Data Centre for Geomagnetism, Edinburgh

Sarah Reay
British Geological Survey
sjr@bgs.ac.uk



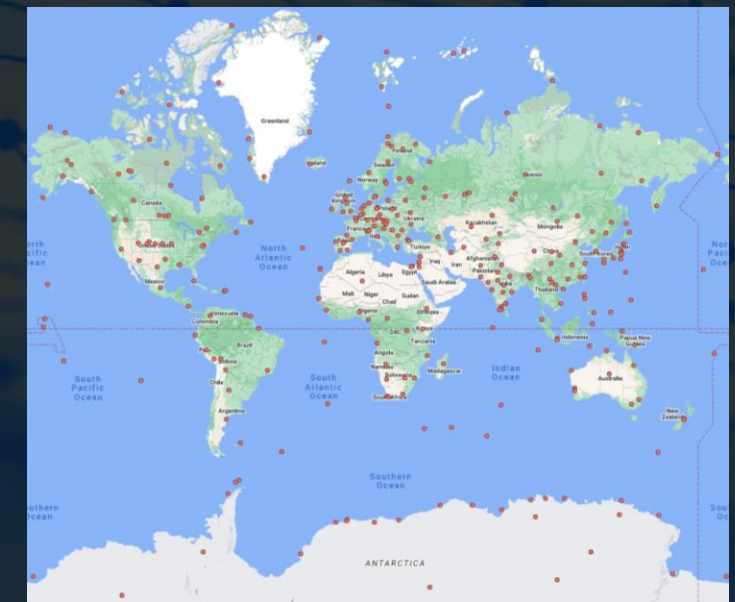
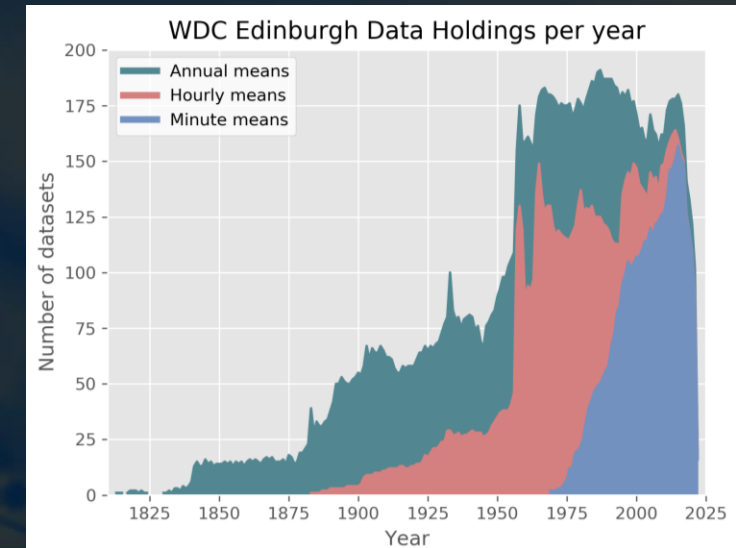
Introduction

The World Data Centre (WDC) for Geomagnetism, Edinburgh serves the geomagnetism community.

Operating since the 1960s it has been a Regular member of the World Data System since 2012.

The WDC for Geomagnetism, Edinburgh holds:

- Data and metadata for ~500 magnetic observatories worldwide.
- Geomagnetic observatory data: annual means (from 1813), hourly means (from 1883), minute means (from 1969).
- Magnetic field models & magnetic survey records.
- Historic UK magnetograms (from 1850), including an online archive of scans.
- Historic observatory yearbooks from UK and worldwide.



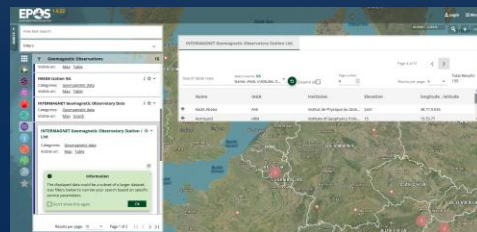
Temporal and spatial distribution of data held in the WDC Geomagnetism, Edinburgh

Recent developments

Community Metadata Database

- A Geomagnetism Observatory Metadata database has been created for the community.
- The metadata API is integrated into the WDC, INTERMAGNET and EPOS portals.

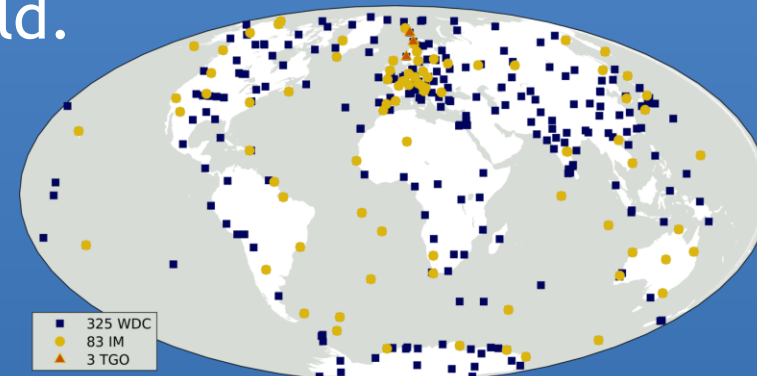
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    opened: "1923-01-01"
    closed: ""
    latitude: "60.138"
    longitude: "358.817"
    altitude: "85.0"
    country: "United Kingdom of Great Britain and N Ireland (GB)"
    website_url: "https://geomag.bgs.ac.uk/operations/lerwick.html"
    INTERMAGNET_member: "1991 -"
    notes: "Yearbooks can be found h_ourly means recalculated"
    contacts:
      0:
        name: "Chris Turbitt"
        address: "British Geological Survey<br>The Lyell Centre<br>Research Avenue South<br>Edinburgh<br>United Kingdom<br>EH14 4AP"
        email: "cvtu@bgs.ac.uk"
        fax: "+44 (0)131 650 0265"
      1:
        name: "Sarah Reay"
        address: "British Geological Survey<br>The Lyell Centre<br>Research Avenue South<br>Edinburgh<br>United Kingdom<br>EH14 4AP"
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        fax: "+44 131 668 2683"
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SAGA code	Name	Country	Latitude	Longitude	Status	GIN	Details
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AAE	Addis Ababa	Ethiopia	9.035	38.77	closed	Par	view
ABG	Alibag	India	18.638	72.872	imo	Kyo	view
ABK	Abisko	Sweden	68.358	18.823	imo	Edi	view
AAA	Faraday Islan...	Antarctica	-65.245	295.742	imo	Edi	view

Monthly Means Database

- A new database of observatory monthly mean data has been created.
- These data are derived from all available hourly definitive observatory data in the WDC, plus other sources.
- These monthly means are a useful tool for the study Earth's core field.



Plans for next year / challenges ahead

Community metadata review

- We aim to launch a community consultation to review the BGS Geomagnetism Observatory Metadata Database.
- This will give data providers the opportunity to check and update metadata held.

A new data portal

- We intend to introduce a new integrated portal giving improved access to magnetic observatory data and metadata.
- New APIs to access data and metadata are in development. These will be OpenAPI compliant.

CoreTrustSeal accreditation

- We hope to be successful in CoreTrustSeal accreditation.
- Currently responding to feedback from second review round.



IEDA²: Interdisciplinary Earth Data Alliance

Next Generation Data Infrastructure for FAIR Geoscience Sample Data

Community-driven data services to promote discovery, accessibility, interoperability, and reusability of geochemical and petrological data, and Earth and Space sciences samples.



Funded by the US National Science Foundation through a Cooperative Agreement



Operated at the

 **COLUMBIA CLIMATE SCHOOL**
LAMONT-DOHERTY EARTH OBSERVATORY

IEDA²: A Collaborative Data Infrastructure

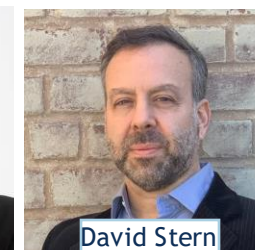
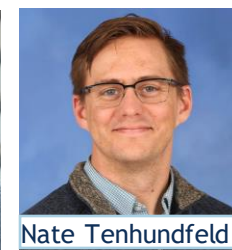
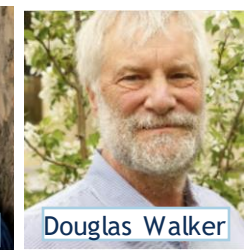
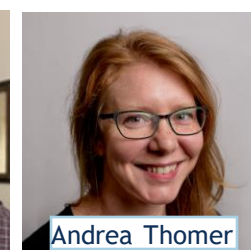
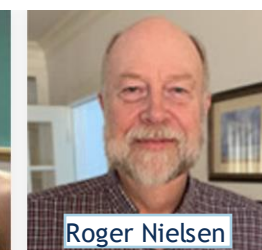
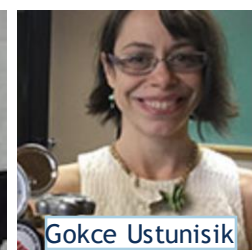
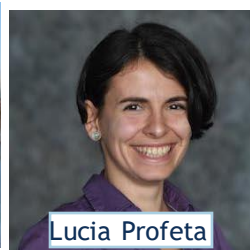
 COLUMBIA CLIMATE SCHOOL
LAMONT-DOHERTY EARTH OBSERVATORY



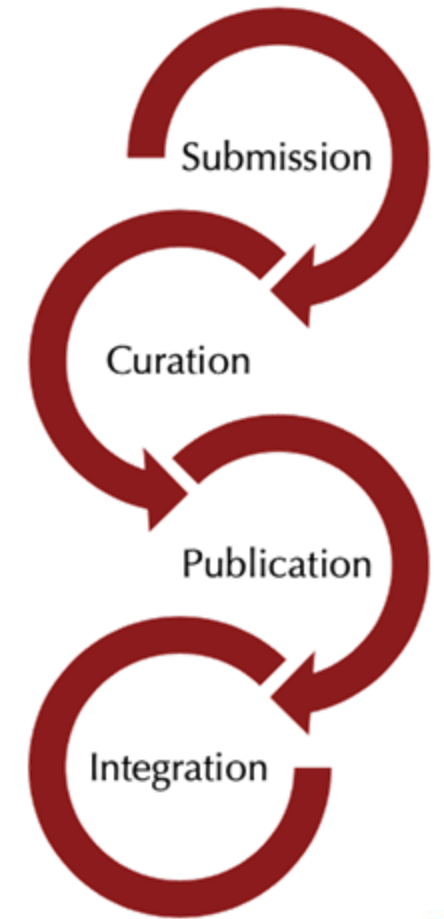
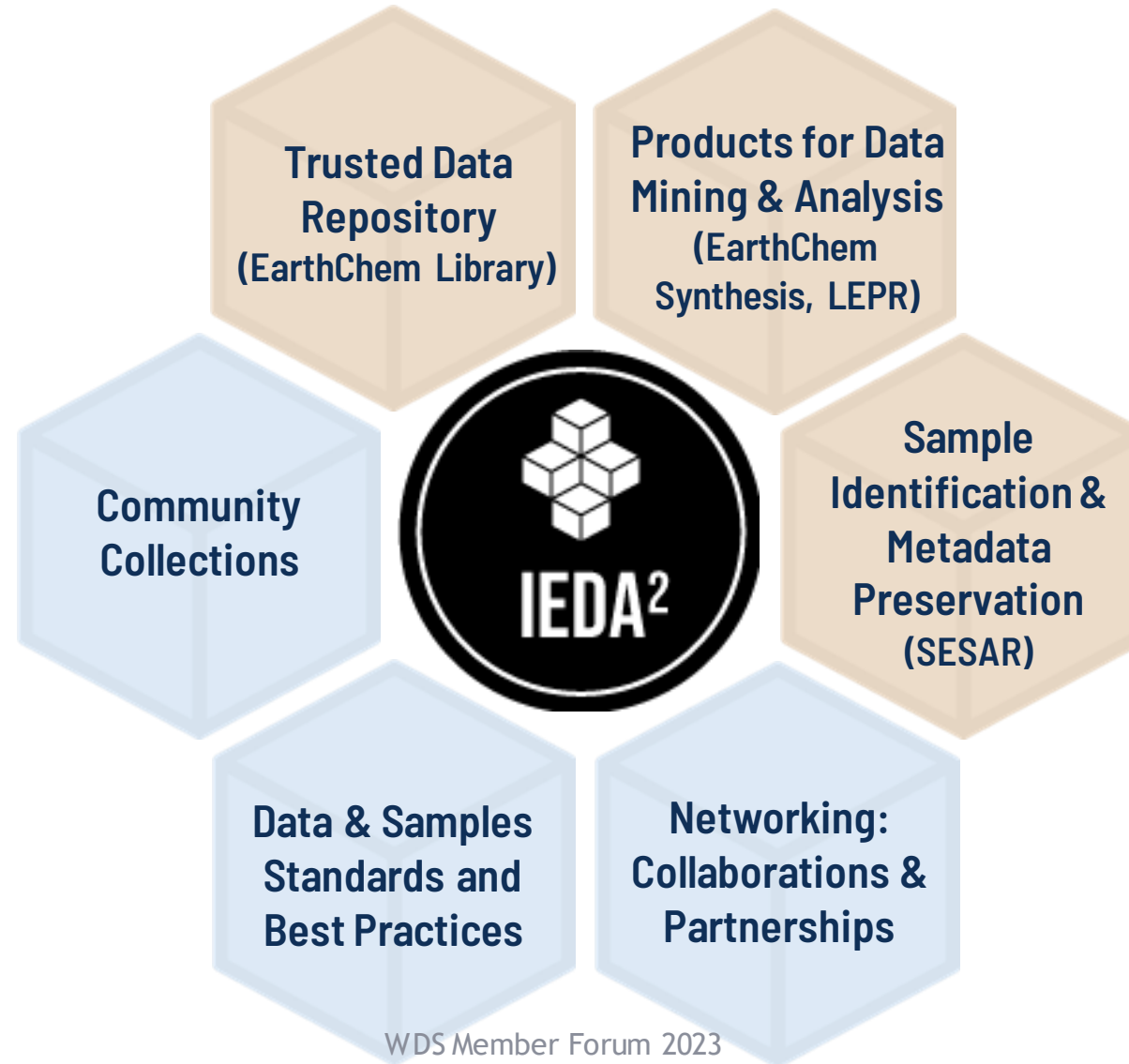
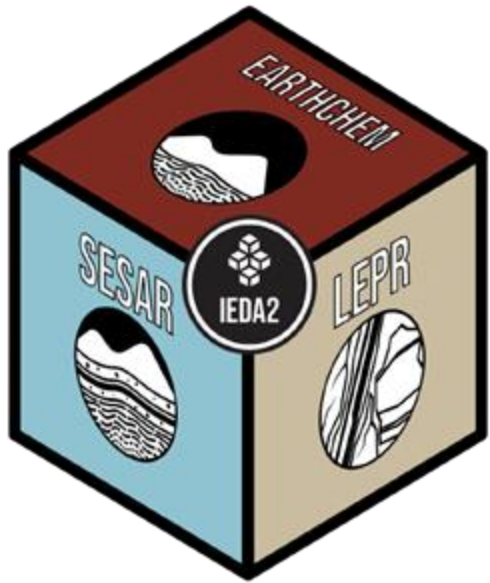
The City College
of New York



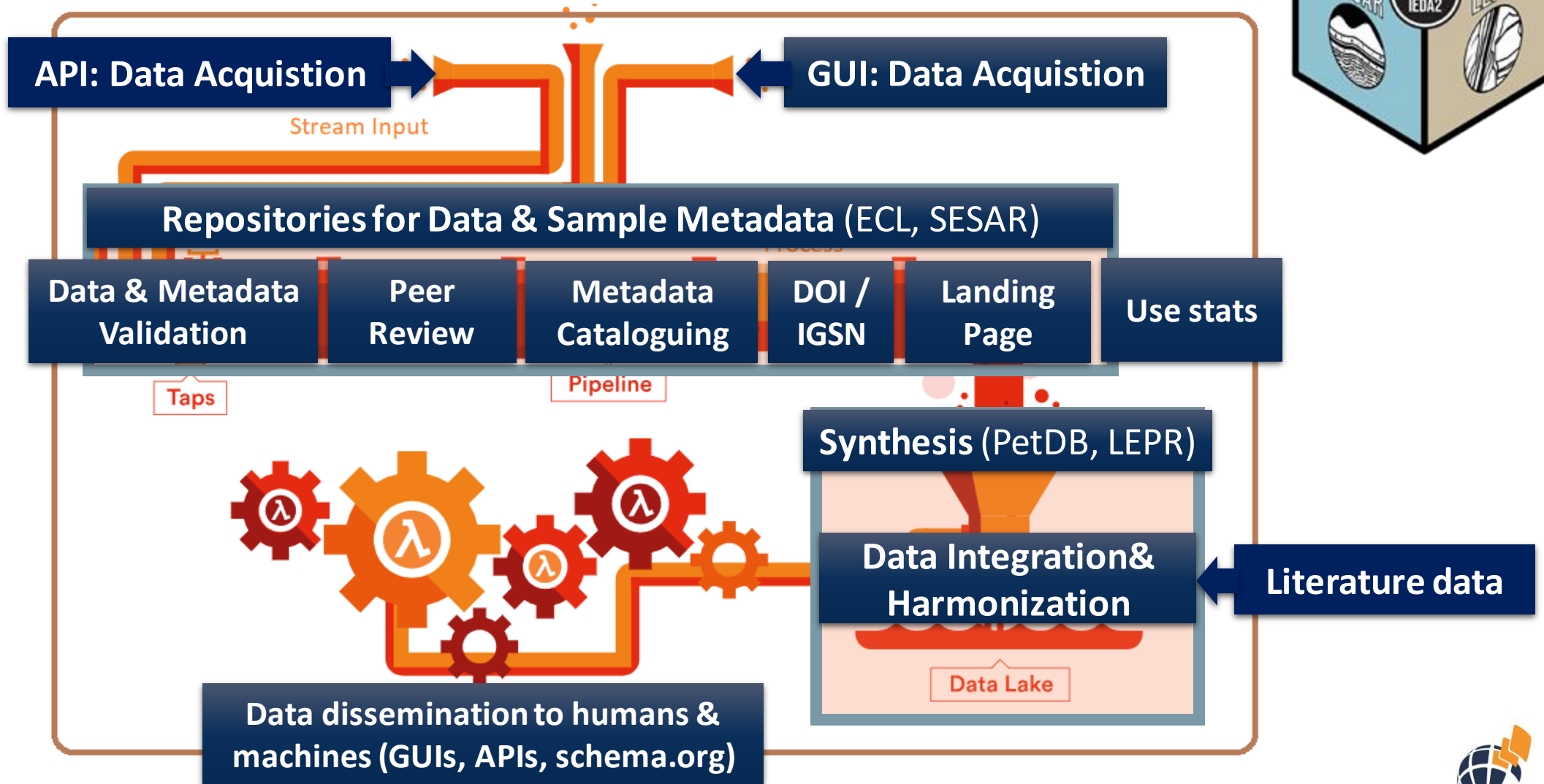
- IEDA was restructured 2020-2022 based on recommendations from the IEDA AC:
 - “Cluster components of IEDA along disciplinary lines to improve connection to users & to the funding programs within NSF.”
- IEDA2 is funded by NSF/GEO 2022-2027 as a Cooperative Agreement
- Since 2019 close partnership with the NASA-funded Astromaterials Data System
- Team includes 27 researchers, software developers, data curators, and project managers (15 at Columbia University)



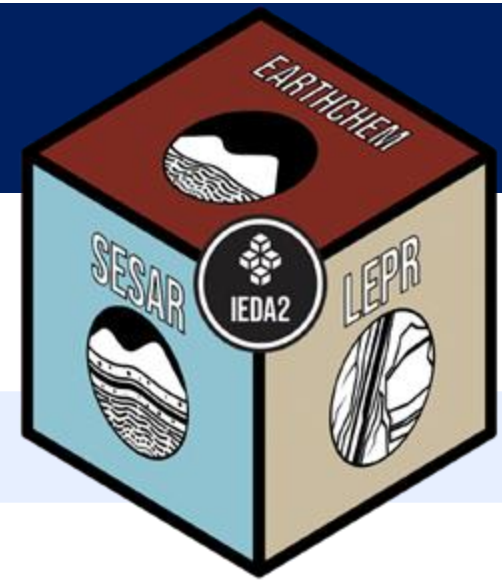
Services for FAIR Data & Samples



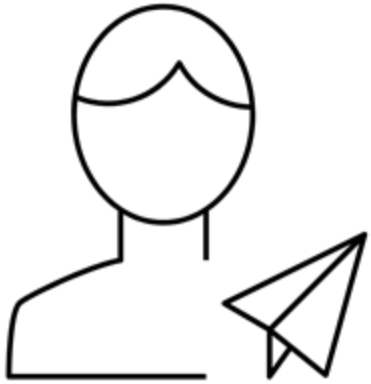
IEDA Data Services



IEDA²: Data for Science & Society



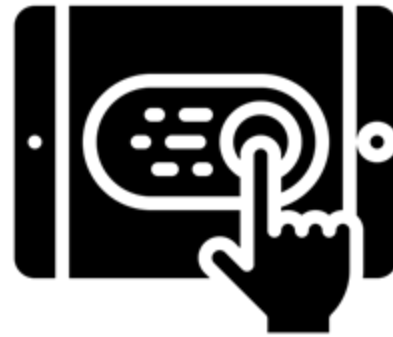
5 Main Scientific and Societal Impact Goals:



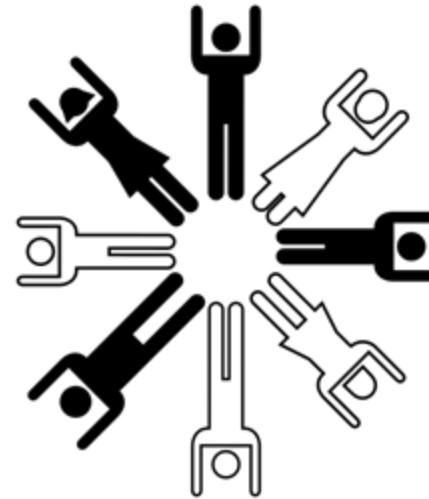
Enable user contributions



Network sample data



Enhance usability

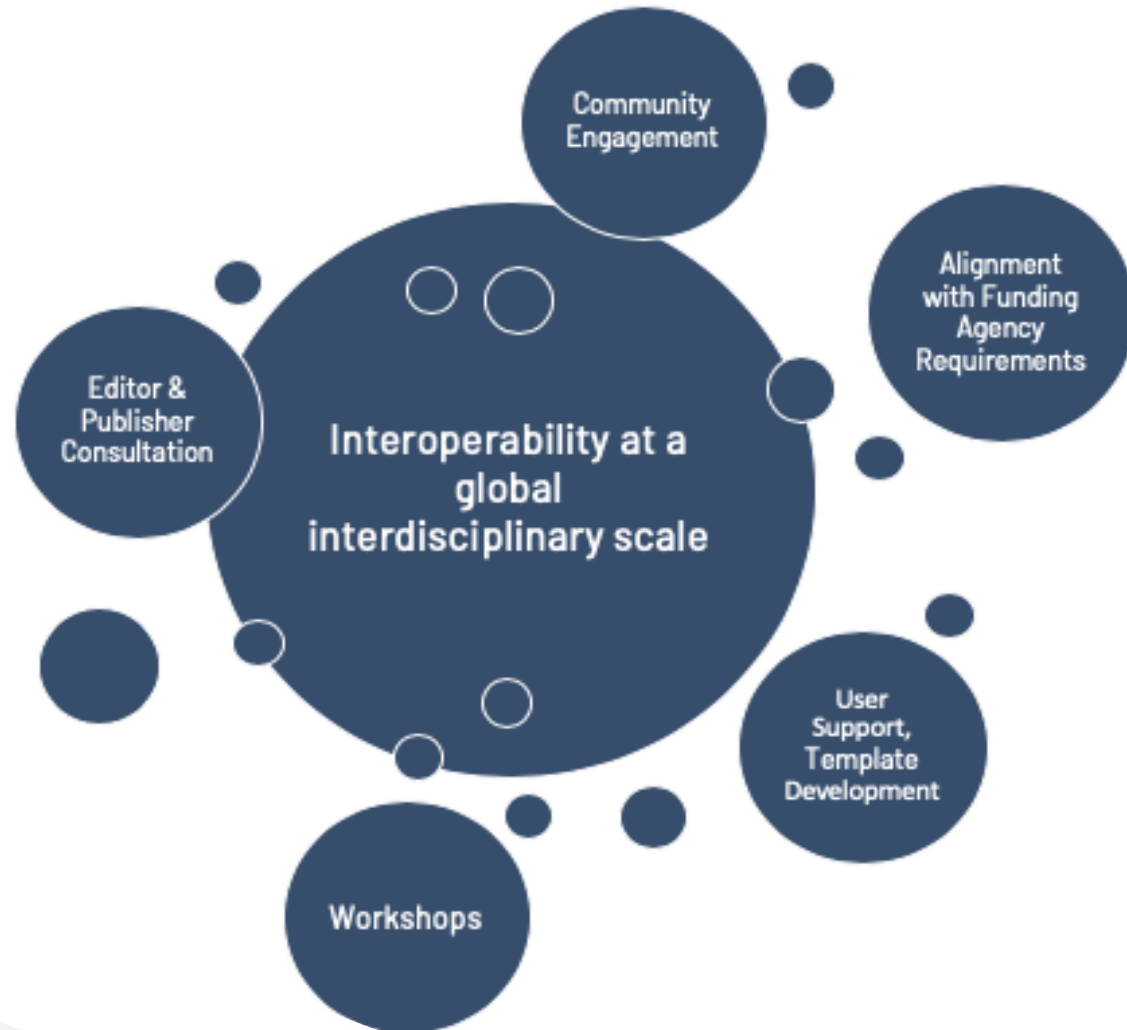


Engage a diverse Next Generation



Collaborate globally on data

Fostering a Culture of Collaboration & Partnership



iSamples
The internet of samples



WorldFAIR

Intermagnet and the World Data System

Jürgen Matzka, INTERMAGNET Operations Committee



INTERMAGNET's Vision

“A global, real-time, permanent geomagnetic observatory network, which is recognized as a key Earth observation system and which provides data that serves scientific research into the Earth, from its deep interior to space, and supports operational services benefiting society.”

Member countries: 53

Member institutes: 66

Member observatories: 126



INTERMAGNET's key products

- Global 1-minute and 1-second provisional geomagnetic observatory data in real-time
- Global peer reviewed 1-minute definitive geomagnetic observatory data
- Software to work with geomagnetic data
- A comprehensive technical reference manual
- A source of advice and support for observatories

Achievements in 2023

INTERMAGNET completed the transfer of its data portal from Natural Resources Canada to the British Geological Survey.

A key component of the case for resilience of Intermagnet's data services has been the ability of our institutes to transfer responsibilities in this way.

 **INTERMAGNET - British Geological Survey** 

INTERMAGNET Data Viewer

For help using the form click on any of the descriptive text 'labels' to the left of each of the text input boxes.

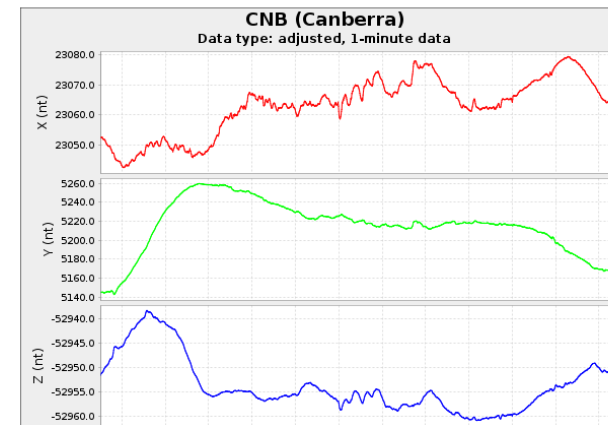
Observatory: Data type:

Start date: Duration (days):

Sample period:

Download data: [XML](#) [JSON](#) [COVJSON](#) [HTML](#) [IAGA-2002](#) [ImagCDF](#) [IMFv1.22](#) [WDC](#)

Download magnetogram: [PDF](#) [PNG](#)



Achievements in 2023

- Addition of the “HAPI”^[1] web service standard to the INTERMAGNET data portal.
- First face-to-face INTERMAGNET meeting since 2019.
- Publication of definitive geomagnetic data DOI for the year 2019^[2].

Notes:

1. An introduction to the Heliophysics Data Application Programmer’s Interface (HAPI) is available here - https://hapi-server.org/docs/HAPI_OnePager_v4.pdf
2. A list of Intermagnet DOIs is available here:
https://geomag.bgs.ac.uk/data_service/intermagnet/home.html

Plans for 2024

- Continue work to improve the real-time delivery of provisional geomagnetic data
- Continue publication of definitive geomagnetic data
- Build and further engage the community

Top challenges

- Encouraging members to do the work needed to submit data in real-time
- Implementation of DOIs for real-time data

NASA Socioeconomic Data and Applications Center (SEDAC)

A Data Center in NASA's Earth Observing System Data and Information System (EOSDIS)
Hosted by Center for International Earth Science Information Network (CIESIN)
Columbia Climate School, Columbia University

SEDAC focuses on improving understanding of human interactions in the environment.

Alexander M. de Sherbinin, SEDAC Manager
Sri Vinay, Deputy SEDAC Manager & Systems Engineer
Susana B. Adamo, SEDAC Co-Project Scientist
Robert R. Downs, SEDAC Co-Project Scientist
Robert S. Chen, Former SEDAC Manager

World Data System Members Forum
22 October 2023



Major Milestones Achieved over the Past Year

- Began new SEDAC contract on August 1, 2023
 - One year with four option years
- Established new SEDAC leadership team
 - SEDAC Manager: Alexander M. de Sherbinin
 - Deputy SEDAC Manager and Systems Engineer: Sri Vinay
 - SEDAC Co-Project Scientists: Susana B. Adamo & Robert R. Downs
 - Assistant SEDAC Systems Engineer: Kytt MacManus
 - SEDAC IT Security Point of Contact & Operations Manager: Hans Bosch
- Pursuing environmental justice, inclusivity, and collaboration
 - Diversifying User Working Group and supporting traditionally under-represented students
- Contributed to Group on Earth Observation (GEO) activities
 - GEO Data Working Group (DWG) and GEO Open Data and Open Knowledge (ODOK) Workshop
- Assessed current usage of SEDAC users in published studies
 - Identifying tools, disciplines, methods, and data used to improve future capabilities

Plans & Objectives for the Upcoming Year

- Release of new SEDAC website
 - New design on Drupal with direction towards NASA Earthdata web unification
- Begin migration of data to NASA cloud
 - Identifying capabilities for enabling cloud-based use of SEDAC data and services
- Pursue opportunities to work across NASA divisions and repositories
 - Improving open source science and FAIR use across NASA Science Mission Directorate
- Increase collaboration with minority serving institutions
 - Collaborating with Lehman College to develop early career researchers
- Increase collaboration with Columbia Climate School
 - Researchers across Lamont-Doherty Earth Observatory (LDEO) and Climate School

Key Challenges Anticipated

- Enabling open science for diverse users, disciplines, and general public
 - Increasing the diversity of users and uses of data disseminated by SEDAC
 - Fostering wider discovery and use of SEDAC data and tools across levels of expertise
- Migrating SEDAC website to the unified NASA Earthdata website
 - Converting SEDAC documentation and services to Earthdata web pages and services
- Migrating SEDAC data products and services to the NASA cloud
 - Providing capabilities for integration and interoperability across NASA repositories

Biological and Chemical Oceanography Data Management Office (BCO-DMO): Activities and Accomplishments

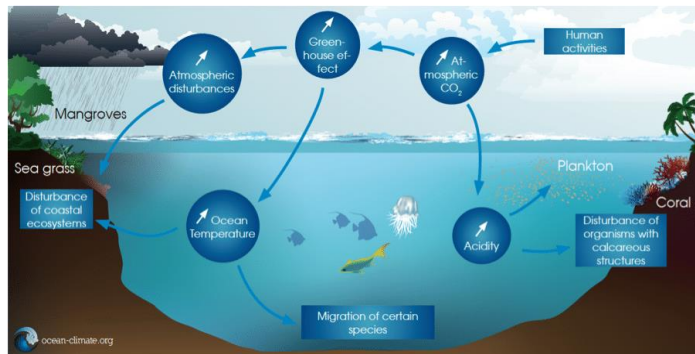
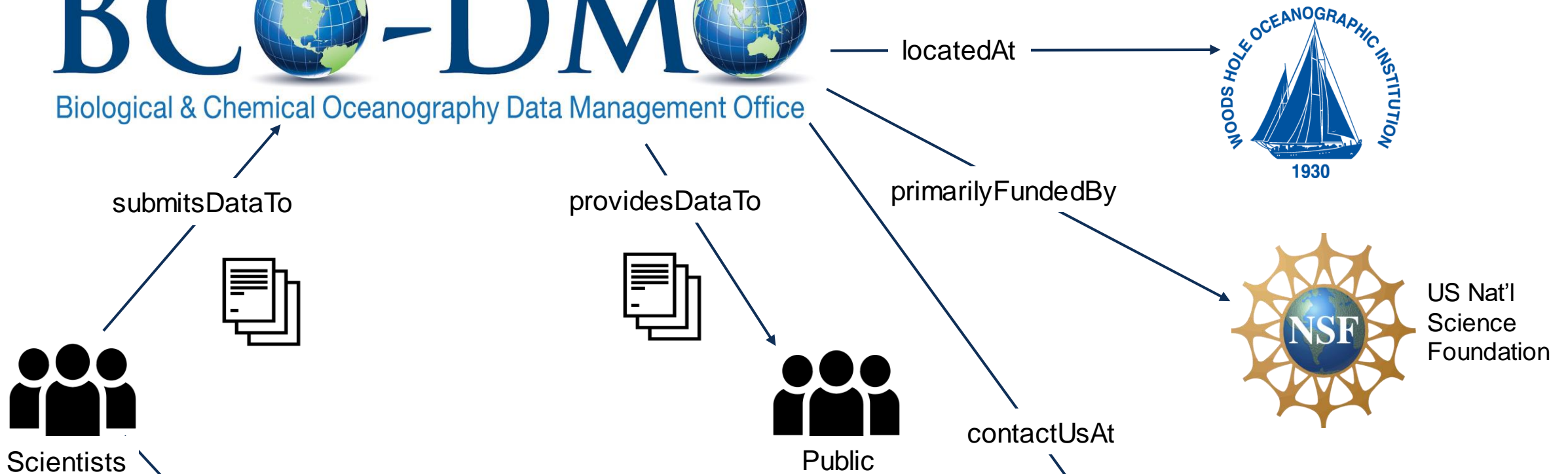
Danie Kinkade
WDS Member Forum
22 October, 2023



What is BCO-DMO

BCO-DMO

Biological & Chemical Oceanography Data Management Office



Danie Kinkade, Director: dkinkade@whoi.edu
Adam Shepherd, Tech. Director: ashepherd@whoi.edu
General: info@bco-dmo.org



Accomplishments: Current Funding Cycle



Migration of data and operations from local disk to cloud



Data Processing Service (leveraging data containerization tools)



Data Access Service (employing a community developed open-source platform)



Data Submission Service (web-based user interface streamlining metadata capture)



New Website (launching this fall)



Data Usage Metrics



Aggregated Data Download (Data Cart)



CTS Certification and Renewal



Community Resource Development and Education

- Data Type Templates (for oceanography researchers)
- Ocean Data Management Guidelines
- Student Intern opportunities



Completed




Near
Completion

Looking Down The Road...

- **Automating data management workflows**
- **Responding to emerging research community needs**
- **Seeking Opportunities to Increase Sustainability**
- **Exploring Quality Assessment of Data Management Practices and data observations**

Challenges:

- **Cloud Environment Operations**- navigating sustainable operations in commercial cloud environments
- **Sustainability and innovation** to keep up with emerging best practices (expectations of FAIRness for repositories) and technologies



We are at lunch from
1 - 2 PM and will be
back within the hour.

Thank you for your
patience!

Sunday, 22 October

2:00-3:00 pm
Scientific Session 2

Virtual Member Lighting Talks

Virtual Attendees

- Niels Batjes, WDC-Soils, Netherlands
- Hiroyuki Hashiguchi, Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan
- Xiukuan Zhao, World Data Center for Geophysics, Beijing
- Elizabeth Bradshaw, Permanent Service for Mean Sea Level
- Hidekatsu Jin, World Data Center for Ionosphere and Space Weather
- Ayako Matsuoka, World Data Center for Geomagnetism, Kyoto
- Douglas Schuster, National Center for Atmospheric Research
- Simon Goring, Neotoma Paleoecology Database
- Linying Mi, National Astronomical Data Center
- Mark Allen, Strasbourg Astronomical Data Center
- Jean Abouadarham, World Data Center for Solar Activity/BASS2000
- Susan Shingledecker, Earth Science Information Partner
- Mingmei Dong, World Data Center for Oceanography, Tianjin

World Data Centre for Soils

Neils Batjes





Hybrid

World Data System

Members
Forum

2023

Sunday, 22 October

Research Institute for Sustainable Humanosphere (RISH), Kyoto University

Hiroyuki Hashiguchi





Brief Introduction of Research Institute for Sustainable Humanosphere, Kyoto University

Hiroyuki Hashiguchi

Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan



World Data Centre for Geophysics, Beijing

Xiukuan Zhao





Recent activities of WDC for Geophysics, Beijing



Xiukuan Zhao

zxk@mail.iggcas.ac.cn

Institute of Geology and Geophysics, Chinese Academy of Sciences



Permanent Service for Mean Sea Level

Elizabeth Bradshaw





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World Data System

Members
Forum

2023

Sunday, 22 October

World Data Centre for Ionosphere and Space Weather

Hidekatsu Jin



Recent Activities of WDC for Ionosphere and Space Weather in 2023

National Institute of Information and Communications
Technology (NICT), Japan



DATA



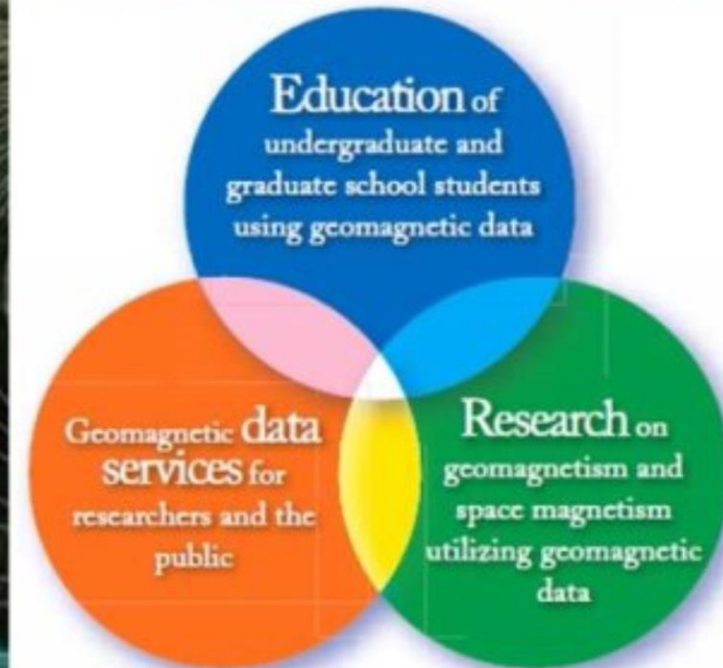
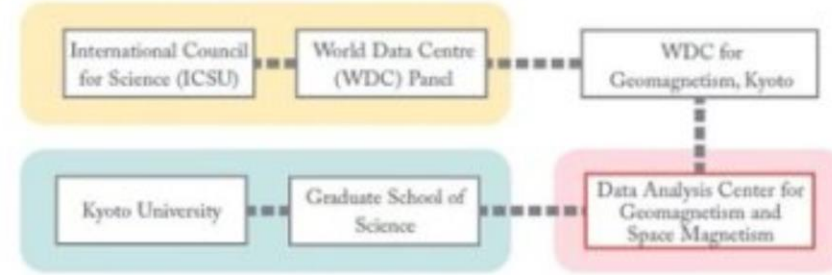
World Data Centre for Geomagnetism, Kyoto

Sarah Reay
British Geological Survey
sjr@bgs.ac.uk



OUTLINE

The Data Analysis Center for Geomagnetism and Space Magnetism has dual aspects: it is a facility of the Graduate School of Science, Kyoto University and it is part of the international organization, World Data Centers. As a university institution, we are in charge of student education as well as scientific research on geomagnetism and space magnetism. It is also our task to collect geomagnetic data from all over the globe and distribute those data to researchers and data users.



Synergy of the three elements above enables the advanced research, education and data services.

National Center for Atmospheric Research

Douglas Schuster



Broadening Access to Data Resources

At the National Center for Atmospheric Research

***Doug Schuster, schuster@ucar.edu**
NCAR/CISL/ISD Acting Director*



Neotoma Paleocology Database

Database Summary - 2023
<https://neotomadb.org>
Simon Goring



Neotoma Paleocology Database

Database Summary - 2023
<https://neotomadb.org>
Simon Goring



National Astronomical Data Center

Linying Mi





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2023

Sunday, 22 October

Strasbourg Astronomical Data Center

Mark Allen



World Data Center for Solar Activity BASS2000

Jean Aboudarham





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Forum

2023

Sunday, 22 October



Earth Science Information Partner

Susan Shingledecker





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2023

Sunday, 22 October

World Data Center for Oceanography, Tianjin

Mingmei Dong





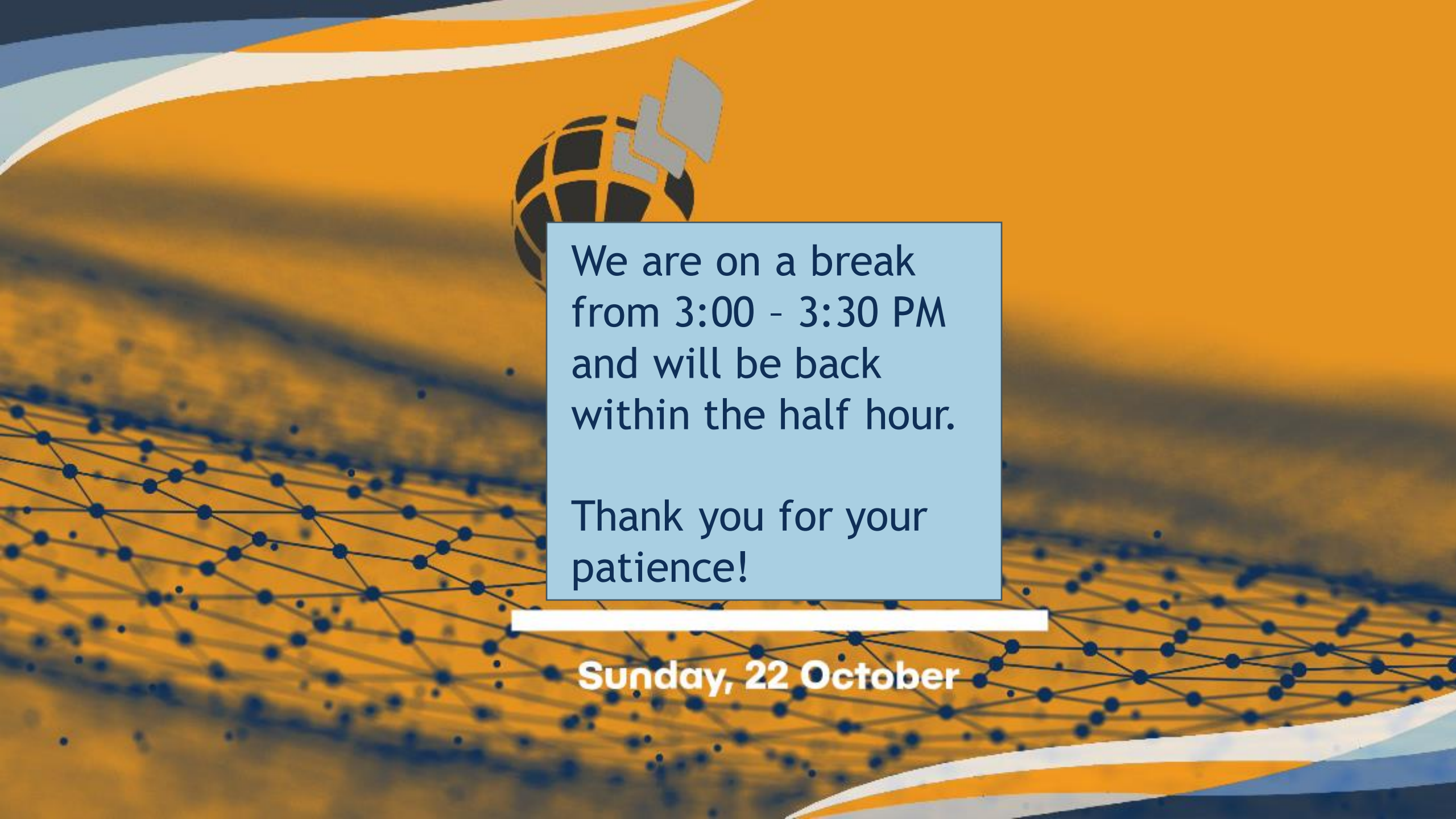
Hybrid

World Data System

Members
Forum

2023

Sunday, 22 October



We are on a break
from 3:00 - 3:30 PM
and will be back
within the half hour.

Thank you for your
patience!

Sunday, 22 October

3:30-4:15 pm
Scientific Session 3

Facilitated Discussion

4:15-5:10 pm Plenary Session 2

Action Plan Activity

- How to make further progress in this action plan?
- What should be in the next action plan?

WDS 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



Scan to view
WDS Action
Plan

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:

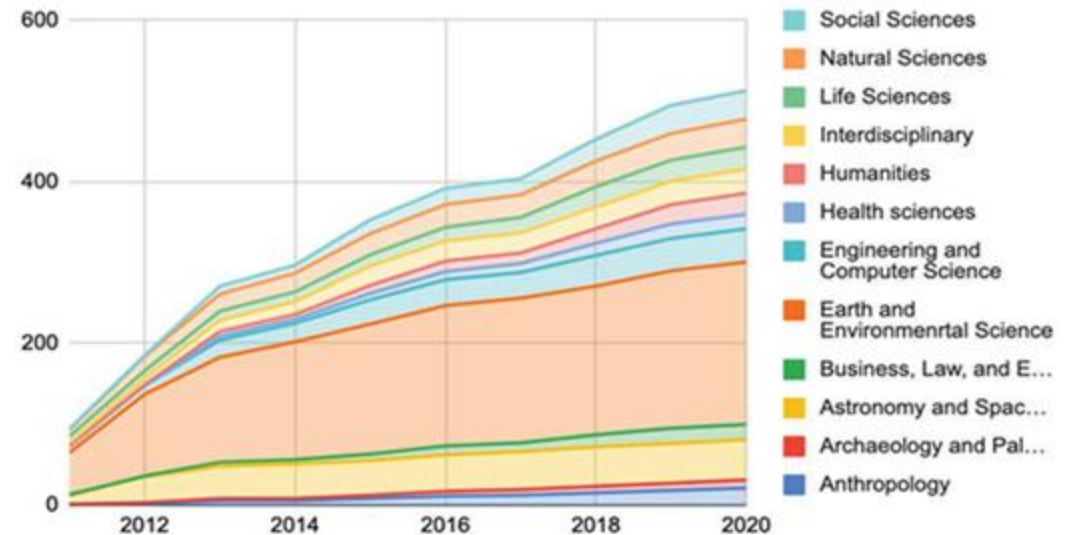
Renew existing members and continue to serve their interests and needs

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

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

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

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*

2

Develop value narratives for WDS members

Repositories, an essential element of the scientific enterprise, must demonstrate continued relevance to the research communities they serve. They must also demonstrate value to funders, a challenging proposition when the ubiquity of data and the seamlessness of well-managed technology leaves the impression that repository costs should decline, when in fact, these elements have substantial costs attached to them. The WDS, in response to members' concerns about funding and sustainability, will work with each member to develop resources to demonstrate relevance and value to research communities and funders. This objective will be supported by three actions:

1. WDS is clearly positioned as the **voice for data repositories globally**, and **clearly expresses the value proposition for each WDS member repository**
1. Partnering with each repository to **develop value narratives for the purposes of communications, funding, and sustainability**
1. **Awarding a data prize that rewards innovative use, analysis and visualization of data** found within WDS member repositories which demonstrates tangible value.



3 Provide global leadership and agenda setting

The WDS is positioned to provide global leadership and contribute to setting the international agenda for data-intensive science. Through collaboration with other international organizations, working with WDS members, and engaging research communities, the WDS will lead in priority setting and supporting the global data community in its development of workforce capacity and skills development. The WDS will work towards this goal by:

1. WDS members, ITO, IPO and SC **serving in leadership positions** in relevant organizations that are setting priorities, developing standards, and creating roadmaps
2. WDS and CODATA can **collaborate on shared objectives** and initiatives, and as affiliated bodies of the ISC, can jointly support the ISC's mission and action plans
3. Enhancing workforce capacity and skills development through **education and training** opportunities that meet the scientific and technical needs of repositories and more broadly in response to research communities
4. **Supporting Early Career Researchers (ECR)** through the WDS Data Stewardship Award and the ECR Network
5. **Promoting open science** and encouraging adherence to the **WDS Data Sharing Principles** as seen in the WDS Bylaws to current and potential users, the media, and the public.
6. Offering **member training and guidance** on becoming a trustworthy repository and adopting new technologies

4 Enhance access, quality and accessibility of data worldwide

Data availability and quality is foundational to the success of the global scientific effort. The WDS exists to promote the availability and use of data worldwide, and increasingly there is an associated need to maintain trust in the data that is provided by WDS members. The WDS can develop an integrated standard for trust in data that incorporates the four dimensions of trust:

- assurance of the ethical and legal provenance of data sources,
- stewardship and certification that ensures data quality,
- adoption of recognized research security practices to protect data,
- integration of WDS data as part of the larger global research infrastructure.

This approach combines elements of CARE, FAIR, and TRUST principles, but goes further in two other respects. The first is to expand the concept of data integrity to include the UNESCO Recommendation on Open Science, evolving requirements of the Core Trust Seal certification, and leading data security practices. Second, the WDS can work with existing and new members to make these data integrity factors repository-centric, that is, to interpret them in a guidance document of direct relevance to repository managers and data stewards. Questions surrounding provenance, integrity, and appropriate use of data can be addressed both through technical and community building activities. The WDS will address this objective by:

1. Developing a work plan to identify key issues around trust in data.
2. Creating a framework to address and respond to issues of repository and data security.
3. Developing a repository-centric approach to trustworthiness for inclusion in each member's value proposition.
4. Developing a roadmap for a global research commons, in conjunction with partners within and outside of WDS.

4:15-5:10 pm Plenary Session 2

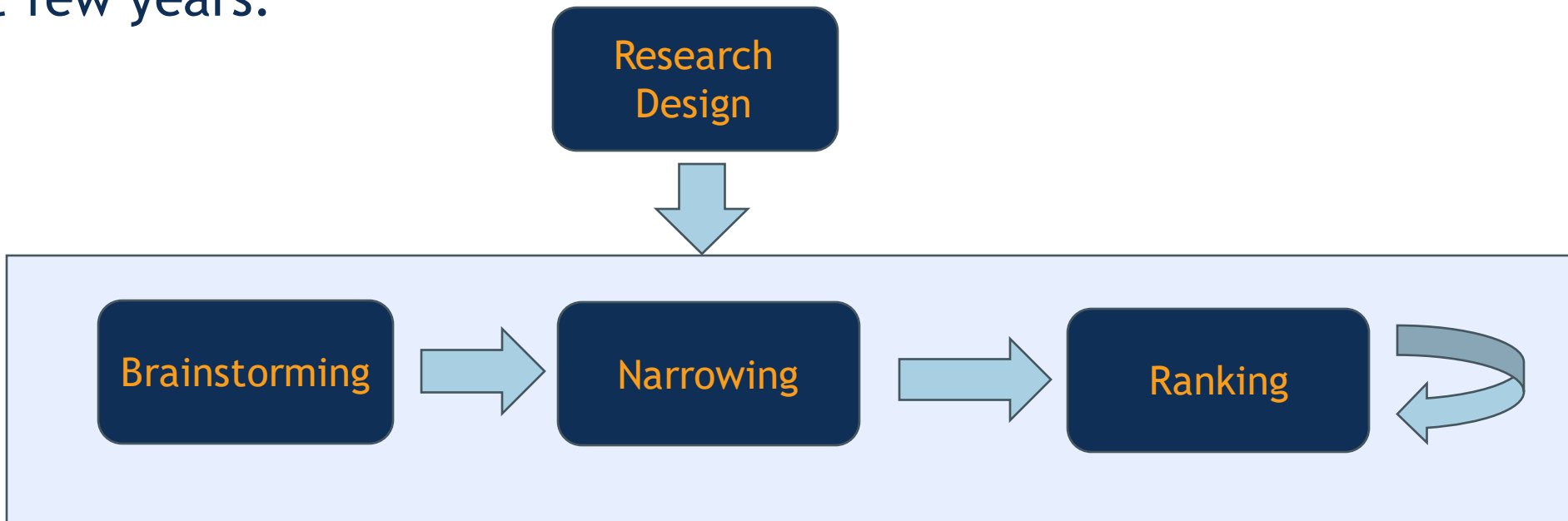
- What should be in the next action plan?

5:10-5:30 pm
Plenary Session 3

Value-Added Benefits of Repositories
In support of Action Plan Item #2

Value-Added Benefits of Repositories: Consensus

Part 1: 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.



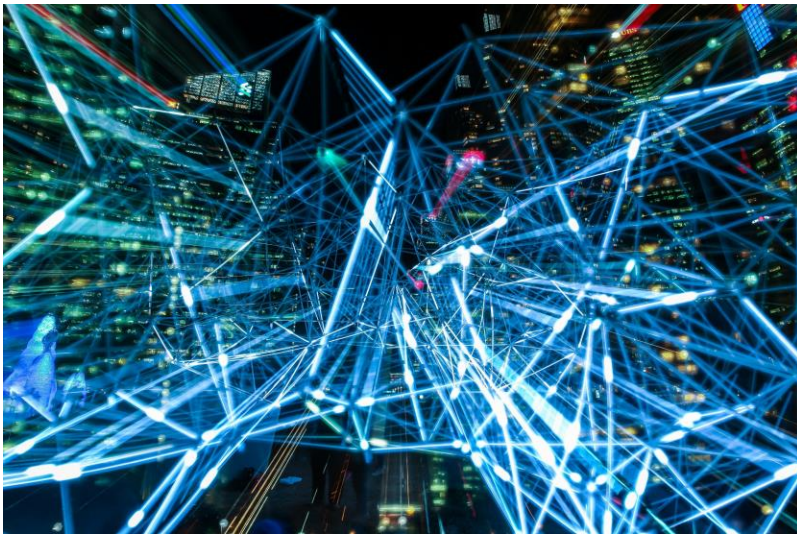
Value-Added Benefits of Repositories: Narratives

Part 2: Collect corresponding narratives from data repositories to further illustrate these values



Value-Added Benefits of Repositories: Data Usage

Part 3: Demonstrate values via **data usage** from the PID graph, trialing tools emerging within efforts like the Open Global Data Citation Corpus.



Value-Added Benefits of Repositories

Discussion

Please scan the QR code to complete our survey
or visit

https://tiny.utk.edu/WDS_Members_Forum



Thank you for attending!

