Alliance 4 Open Science
Origins and Impacts

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Key Challenges of the 21st century (and beyond): Convergent science for the benefit of humanity

1 Habitable Planet

All major sustainability issues are convergent and transdisciplinary

- Population 8-10 billion; food-energy-water?
- Major health issues are convergent science: include clean air, soil, and water, geohealth, pandemics, etc.
- All ecosystems and biogeochemical cycles are human dominated
- Huge climate change experiment underway
- Key limited resources (Li, P, REE's, clean water…)
- Imminent energy transition
- Transportation, navigation, trade (e.g., economy) all convergent science based
- Natural hazards, weather, and climate forecasting

All require massive data and integration with modeling and across science and with society. Open science with Integrity is a must.

Societies are Key to Support Open Scholarship and Culture

- ➢ Disciplinary standards, ethics, ethos
- ➢ Focus on integrity, quality
- ➢ Leading journals and meetings
- ➢ Professional affiliation and development
  - Training
  - Mentoring
  - Communication and outreach
- ➢ Connected internationally
- ➢ Focus on equity and inclusion
- ➢ Awards and recognition as part of culture
- ➢ Growing focus on working together—for convergent meetings, aligned efforts

Key Society Efforts Lay Groundwork for All4OS

Leading Society Coalitions Supporting Open Scholarship:
➤ DORA (Declaration on Open Research Assessment--started and continued by ASCB)
➤ Society coalition addressing sexual harassment (AAAS, AGU, others)
➤ Data Stewards (AAS); Data Help Desks at meetings.
➤ Some societies closely connected with domain/disciplinary repositories
➤ Dryad (Ecological and evolutionary biology societies)
➤ COPDESS (Coalition on Publishing Data in the Earth and Space Sciences---Earth science societies, publishers, and repositories)
➤ FAIR data initiative and other society efforts (https://wesharedata.org)

Societies have been leaders in flipping journals to Open Access:
➤ ASM, AAS IEEE, AGU, others; New OA journals
➤ New diamond OA efforts in journals and books
➤ Focus on equity and expanded participation
➤ Focus on quality

Leading preprint servers (AAA, ACS, AGU and partners (ESA, SETAC, ASLO, ACSESS))
Elevating Community Science and Broader Impacts

Some steps in including Open Science in awards
Efforts in DEI, community science, broader impacts

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NASEM Roundtable Ad hoc Advisory Group Discussion Starting in Late 2021

- Many efforts, but mostly disconnected across open science space
- Societies are key players for disciplinary movement and culture change and enabling convergent science together
- Collective sharing/actions across Open Science needed

➢ Form coalition of key willing societies to pilot and exemplify = All4OS

ALL4OS
Alliance for Open Scholarship

The Alliance for Open Scholarship is a cohort of societies and associations collaborating to identify, articulate, and socialize appropriate open scholarship norms within their disciplines. All4OS works with participating organizations to tailor field-specific guidance on core considerations like supporting and sustaining open infrastructure; providing training on good open research and scholarship practices; and aligning awards and recognition schemes to promote a culture of open research and scholarship.

American Anthropological Association

FABBS — Federation of Associations in Behavioral & Brain Sciences

Academic Data Science Alliance

ECOLOGICAL SOCIETY OF AMERICA — esa

LSA — Linguistic Society of America

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AMERICAN SOCIETY FOR MICROBIOLOGY

FASEB — Federation of American Societies for Experimental Biology

AMS — AMERICAN MATHEMATICAL SOCIETY

aps — ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

All4OS Joint Statement

Our organizations commit to…developing discipline-specific guidance on:

- Supporting and sustaining open infrastructure, including…data, code and software repositories, ontologies, and tools that enable machine reading and data mining. Where appropriate,… encourage the use of domain-specific open infrastructure, and encourage universities, funders, and government agencies to do the same.

- Providing training opportunities and resources to current and next generation researchers on good open research and scholarship practices…

- Devising recommendations for colleges and universities to properly evaluate and incentivize good open research and scholarship practices for…hiring, review, tenure, and promotion.

- Promoting the direct links among open research and scholarship; broader societal impacts; diversity, equity, inclusivity, and accessibility; and community engagement.

- Aligning awards and recognition schemes to promote a culture of open research and scholarship.

All4OS Joint Statement
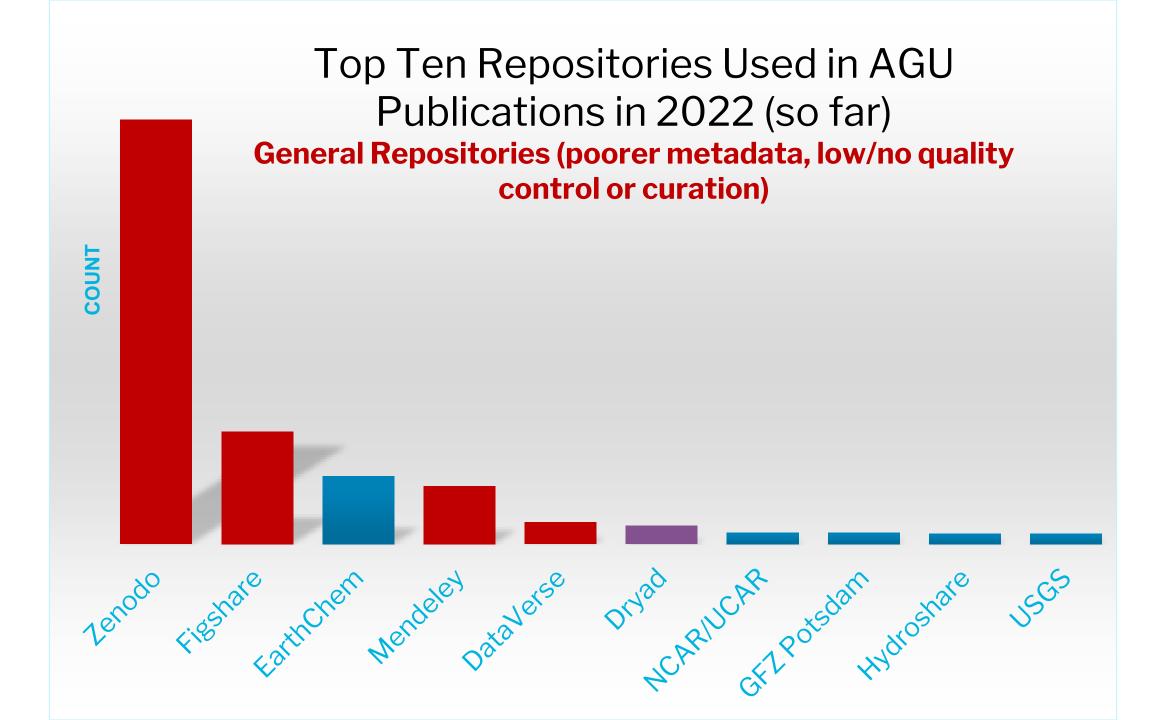## https://www.all4os.org/statement

Additionally, to ensure that our words are backed by actions, our organizations commit to….a public plan that will include at least the following:
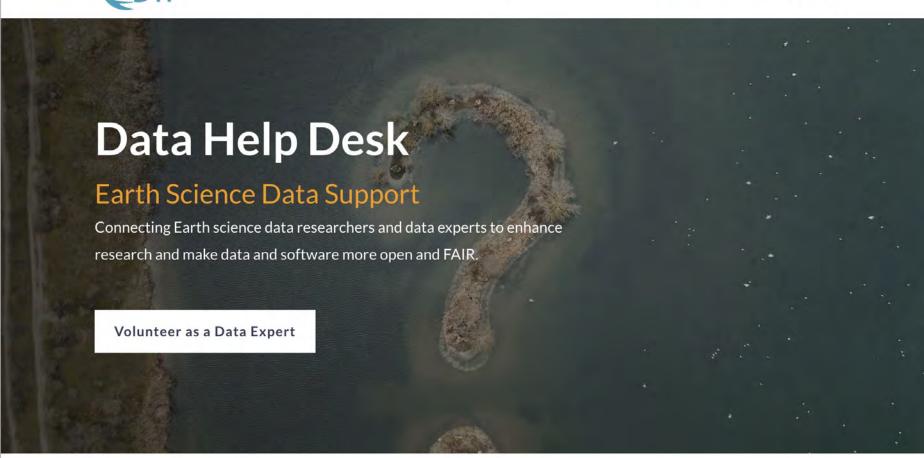
- Designating a high-level representative to coordinate open research within our organization.

- Developing community input mechanisms (e.g., working groups, convenings, open calls) to solicit input and share progress.

- Meeting regularly with similarly engaged societies and associations to discuss…open research/scholarship strategies.

- Acting collectively with societies…, colleges and universities, philanthropies, government agencies, and others to amplify, harmonize, and catalyze open research/scholarship…

- Sharing an annual update on our individual and collective progress…

Open Science Challenges

1. Equity—Worldwide and even in US/Europe.
2. Infrastructure, solutions, and support ($)--needed
3. Training, engagement, and adoption by researchers—needed especially early in research (DMPs)
4. Adoption by publishers, funders, institutions
5. Ensuring quality/integrity--societies have a key role
6. Culture change (awards, rewards, practices)

Top Ten Repositories Used in AGU Publications in 2022 (so far)

General Repositories (poorer metadata, low/no quality control or curation)

COUNT

Zenodo · Figshare · EarthChem · Mendeley · DataVerse · Dryad · NCAR/UCAR · GFZ Potsdam · Hydroshare · USGS

Collaboration among societies and disciplinary data repositories to help guide researchers—ideally early in research process

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New Context for AGU Fellows Nominations

Nominees are expected to have shown leadership in following and promulgating AGU values.

This leadership may include but is not limited to *fostering equity, integrity, diversity, and* <u>*open science;*</u> *mentoring; public engagement; and communication.*

➢ Larger review of awards and prizes in progress
➢ Finalizing an Open Science Award

Thank you

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