

August 17, 2023

Louis Barbier, PhD
NASA Associate Chief Scientist
NASA Office of the Chief Scientist
300 E Street SW
Washington, D.C. 20546

RE: Response to NASA Request for Information on the NASA Public Access Plan

Dear Dr. Barbier,

Thank you for the opportunity to participate in this RFI for the NASA Public Access Plan. In the US, NASA is an important leader in adopting open science practices and incorporating them into policy, practice, and incentives.

AGU's response to the RFI is based on our experience working with NASA researchers, the work we are doing in moving all AGU journals to open access, and the challenges researchers bring to us in complying with NASA policy and AGU data and software guidance.

Sincerely,



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1. How to best ensure equity in publication opportunities for NASA-supported investigators

For public sharing of articles, we believe AGU authors have a route of compliance through self-archiving and preprinting their author-accepted manuscript. Authors are permitted to share the author-accepted manuscript on any preprint server or institutional repository. Our journal guidelines state this clearly. As more of AGU's journals convert to fully open access, AGU has worked to ensure waivers are available for those without funding. The ability to provide discounts and waivers is dependent on having a proportion of papers where authors with funding pay the full publication fee. It is important that funders of research make provisions for covering reasonable publication fees so that journals can be as inclusive as possible to all authors and the published research can be widely accessible.

2. Steps for improving equity in access and accessibility of publications

The AGU Board and Publications Committee is completing a multi-year plan to move the bulk of AGU's journals from hybrid to fully open access. Currently, 11 of AGU's 23 journals are fully open access and 70% of articles are publishing as immediate open access in 2023.

AGU's members have been very supportive of this initiative. Because of the risk this brings to our operational budget, each journal along with its editorial staff work with the community it represents to schedule the time for transition. This is done intentionally with communication occurring months and years in advance. AGU strives to keep our open access publishing as equitable and inclusive as possible by ensuring that there are waivers available for those without funding regardless of country or institution where the work was done. We also include automatic waivers for work done in countries included in [Research4Life](#). Creating structures where all are able to publish the final version of record as open access will ensure that publications are accessible to the widest possible audience

3. Methods for monitoring evolving costs and impacts on affected communities

AGU expects that NASA'S public access policies requiring immediate public sharing will negatively affect subscriptions and accelerate the shift of our journals program to fully gold open access models. AGU now has 11 fully open access and 12 hybrid journals. So far in 2023, 70% of AGU articles were published with open access licenses. Because of the move toward open access models needed for publishers to survive, more researchers will need to find funding to support publishing in journals, while publishers work to ensure inclusion for those that do not have funding. **AGU recommends that NASA intentionally plan for reasonable costs researchers will incur when publishing in an open access journal.**

Public access includes research publications as well as the digital objects that support the research. AGU recommends that NASA provide the **financial support for all funded researchers to have access to data and software managers that provide services to help with proper metadata, vocabulary, and preservation.** This includes derived datasets and other

digital objects from NASA's broad set of digital preservation properties or any primary data. Data managers assist with making data as interoperable and reusable as possible. Software managers provide guidance on designing and developing software that is easier to test and maintain, platform-agnostic, and well-documented.

4. Efforts to increase findability and transparency of research

AGU believes there needs to be a framework for supporting researchers to help them with data and software preservation and sharing in compliance with the FAIR guidelines and open science practices.

As stated in the public access plan, published research should include information on the data and other digital outputs that support the research. What is still needed is the ability to easily understand the primary data used for this research. In AGU publications we are seeing an increase in citations of data supporting the research, but not information on what primary data was used and how that data was selected. This inhibits the ability to understand the reuse of this data and how it supports research findings. **AGU recommends that NASA encourage researchers to include information about the primary data used and the workflow taken that resulted in the final data product.**

NASA datasets supporting papers in AGU journals primarily use generalist repositories such as Zenodo, Figshare, and Mendeley. Generalist repositories do not provide researchers with data management support that includes curation, metadata recommendations, and vocabulary recommendations – essentially, the expertise that helps support interoperability, reuse, and AI-readiness. **AGU recommends that NASA provide researchers with the needed data management support and/or infrastructure necessary to help others better understand the datasets that support the published research.**

In support of this recommendation, below are the metrics for two relevant AGU journals characterizing 2022 publications.

Note: AGU acknowledges the fact that all data supporting a paper can be described in the Data Availability Statement, but not all data have a registered Digital Object Identifier (DOI) and can be cited in the References Section that supports automated attribution through downstream services. We monitor both the Data Availability Section as well as the References Section for compliance with our guidance.

JGR Planets

In 2022, 94% of the 258 papers published in JGR Planets contained an in-text data citation, identified in the Data Availability Statement of the paper, that linked to the References Section. This complies with AGU's data guidelines.

In 2022, 60% of all DOIs cited in the Data Availability Statement of JGR Planets' articles were published in a generalist repository, and 35% of those were preserved in Zenodo.

JGR Space Weather

In 2022, 27% of the 161 articles published in Space Weather contained in-text data citation, identified in the Data Availability Statement of the paper, that linked to the References Section. This complies with AGU's data guidelines.

In 2022, 66% of all DOIs cited in the Data Availability Statements of Space Weather articles were published in a generalist repository, and 48% of those were preserved in Zenodo.

5. Considerations on the sharing and archiving of software?

AGU has been developing its author guidance around software for several years. For NASA researchers we have several considerations:

1. There is a difference between the platform where software is developed and versioned versus the platform preserving a static copy that is part of the scientific record. To honor this difference, AGU's guidance states that the paper needs a citation to the static version, preferably in a repository that registers the deposit with a persistent identifier (e.g., DOI, Software Heritage ID). The guidance further includes providing a link in the Availability Statement to the development platform for access to the current version.
2. AGU does not require that software be managed and maintained beyond the publication of research that used that software.
3. AGU recognizes that not all software can or should be open. We encourage software to be open as much as possible. Situations that include security or safety may require that the software be protected.
4. For software that is managed by an ever-changing group of contributors, AGU recommends using platforms like GitHub to track those contributions. For this situation, groups having an agreed-upon method for giving attribution for software publication or preservation is important to ensure equitable treatment.

Software used for artificial intelligence (AI) or machine learning (ML) requires additional considerations. It is very difficult to evaluate research when using these methods. It requires the research team to take additional steps to document their work. AGU, funded by NASA, recently developed principles and responsibilities for practicing ethical AI/ML in the Earth, space, and environmental sciences: [10.22541/essoar.168132856.66485758/v1](https://doi.org/10.22541/essoar.168132856.66485758/v1)

References and Software Documentation and Citation Resources

Shelley Stall, Guido Cervone, Caroline Coward, et al. **Ethical and Responsible Use of AI/ML in the Earth, Space, and Environmental Sciences** . ESS Open Archive . April 12, 2023.

DOI: [10.22541/essoar.168132856.66485758/v1](https://doi.org/10.22541/essoar.168132856.66485758/v1)

Stall, Shelley, Specht, Alison, O'Brien, Margaret, Machicao, Jeaneth, Corrêa, Pedro Luiz Pizzigatti, David, Romain, Miyairi, Nobuko, Murayama, Yasuhiro, Santos, Solange, Wyborn, Lesley, Vellenich, Danton Ferreira, & Mabile, Laurence. (2023).

Software Documentation and Citation Checklist.

<https://doi.org/10.5281/zenodo.7062413>

Erdmann, Christopher, Stall, Shelley, Gentemann, Chelle, Holdgraf, Chris, Fernandes, Filipe P. A., Gehlen, Karsten Peters-von, Corvellec, Marianne. (2021, May 20). **Guidance for AGU Authors - Jupyter Notebooks**. Zenodo.

<http://doi.org/10.5281/zenodo.4774440>

Fox, Peter, Erdmann, Chris, Stall, Shelley, Griffies, Stephen M., Beal, Lisa M., Pinardi, Nadia, Hanson, Brooks, Friedrichs, Marjorie A. M., Feakins, Sarah, Bracco, Annalisa, Pirenne, Benoît, & Legg, Sonya. (2021). **Data and Software Sharing**

Guidance for Authors Submitting to AGU Journals. Zenodo. <https://doi.org/10.5281/zenodo.5121488>

Data and Software Availability and Citation Checklist: <https://data.agu.org/resources/availability-citation-checklist-for-authors>

Erdmann, Christopher, Meyer, Michael F., Little, John R., Hondula, Kelly, Stachelek, Jemma, Oleksy, Isabella, Brousil, Matthew R., Claborn, Kelly, Mesman, Jorrit, & Dennis, Tim. (2021). **Guidance for AGU Authors: R Script(s)/Markdown**.

Zenodo. <https://doi.org/10.5281/zenodo.5647997>