National Aeronautics and Space Administration (nasa.gov): NASA: ROSES Open Science and Data Management Plan (all science divisions)

Data Management

Expected data types, formats, volumes, and standards.
Describe the scientifically useful data expected to be produced from the proposed activities. Include:

- types of data to be produced (e.g., time series, images, spectrograms)
- the approximate volume of each data type expected
- the machine-readable format of the data
- applicable standards for the data or associated metadata

This may be provided either in narrative form or as a table.

Guidance:

The data section of the OSDMP must contain the following elements, as appropriate to the project, in adequate detail for review:

- A description of data types, volume, formats, and (where relevant) standards;
- A description of the schedule for data archiving and sharing;
- A description of the intended repositories for archived data, including mechanisms for public access and distribution;
- A discussion of how the plan enables long-term preservation of data;
- A discussion of roles and responsibilities of team members in accomplishing the OSDMP. If funds are required for data management activities, these should be covered in the normal budget and budget justification sections of the proposal.

For more information, see 'Software Management and Sharing' in the SMD Open-Source Science Guidance. The method of archiving software will not result in a weakness for proposals to ROSES-2024. No later than the end of calendar 2025, SMD plans to provide more options for the long-term archiving of software produced from SMD ROSES awards, in addition to those in the SMD Open-Source Science Guidance. Thus, researchers need not include the cost of public access to their software, maintaining their software, or storing their software beyond the end of the period of performance of their award in their budgets. Guidance on how to share software including providing a DOI is described in the SMD Open-Source Science Guidance at https://science.nasa.gov/oss-guidance. Future guidance and instructions related to how to publicly share software will be made available via the Scientific Information Policy website.

Data archiving and accessibility.
Describe how the data will be archived and made publicly accessible. Include:

- the repository(ies) that will be used to archive and provide public access to data and metadata arising from the proposed activities
- the schedule for making data publicly available
- the license under which the data will be shared to enable reusability
- a description of how the data will be made citable with a persistent identifier

The repositories to be used should ensure long-term preservation of the data. For guidance on the selection of an appropriate repository, refer to the guidance in the program element and/or the ROSES OSDMP web page at https://science.nasa.gov/researchers/sara/faqs/OSDMP.

Guidance:

Any data needed to validate the scientific conclusions of peer-reviewed publications that result from an award must be made available at the time of publication; this includes data required to derive the findings communicated in figures, maps, and tables. The remaining scientifically useful data must be made available at the end of the award, consistent with the OSDMP. "Made available" means publicly and electronically archived in a place where it can be found and it is likely to persist, e.g., in the supplemental material of the article, a community-endorsed repository, a NASA repository such as http://data.nasa.gov/, a repository supported by a division, or a combination of different resources as would be most appropriate to the data being shared. When shared, the data must include robust metadata and be made available for access, download, or export in non-proprietary, modifiable, open, and machine-readable formats consistent with standards used in the disciplines. Publicly shared data must receive a persistent identifier, such as a Digital Object Identifier, to support citation. The data should be released with an open license such as Creative Commons Zero. In a case where no appropriate archive exists for a particular data set, the OSDMP must discuss alternative methods for making the data publicly available.

Description of data types that are exempt from data sharing requirements.

If applicable, specify data types that are excluded from requirements to make the data publicly available and cite the relevant laws, regulations, or policies that generate the exclusion. If all scientifically useful data produced by the project will be made publicly available, this section may be omitted.

Guidance:

Any limitations to the sharing of data should be described as part of the OSDMP. "Data" does not include laboratory notebooks, preliminary analyses, private communications, or certain other types of information that have been excluded from the definition in SPD-41a. In the case of a project that would produce no "data", or only data specifically exempted, the OSDMP must state that no data preservation or data sharing is needed and explain why.

Software Management

Expected software development.

Describe the software expected to be produced from the proposed activities. Include:

- types of software to be developed, which may include the addition of new features or updates to existing software
- a description of how the software will be developed. If applicable, this can include the platforms used for development, project management, and community-based best practices such as documentation, testing, dependencies, code of conduct, and versioning.

Guidance:

See pages 14-17 of NASA's Open-Source Science Guidance (PDF) for more details on software management.

Software archiving and accessibility.

Describe how the software developed by the project will be archived and made publicly accessible. Include:

- the schedule for making software publicly available
- the repository(ies) that will be used to archive software
- the license under which the software will be made available
- a description of how software packages, if developed, will be made citable

Guidance:

Software needed to validate the conclusions of a peer-reviewed publication resulting from a ROSES award must be made available at the time of publication. Starting with awards that result from ROSES-2023, the remaining useful software must be made available at the end of the award, consistent with the OSDMP. Software packages

developed under a federal assistance award must be reported to https://invention.nasa.gov. Publicly available software projects developed under the grant must include a code of conduct and guidelines for contributors and, when released, have a digital persistent identifier, such as a Digital Object Identifier, associated with it to support citation.

Software should be released with an open, permissive license such as Apache 2.0, BSD 3-Clause “Revised” License, or MIT License.

For more information, see 'Software Management and Sharing' in the SMD Open-Source Science Guidance. The method of archiving software will not result in a weakness for proposals to ROSES-2024. No later than 2025, SMD plans to provide more options for the long-term archiving of software produced from SMD ROSES awards, in addition to those in the SMD Open-Source Science Guidance. Thus, researchers need not include the cost of public access to their software, maintaining their software, or storing their software beyond the end of the period of performance of their award in their budgets. Guidance on how to share software including providing a DOI is described in the SMD Open-Source Science Guidance at https://science.nasa.gov/oss-guidance. Future guidance and instructions related to how to publicly share software will be made available via the Scientific Information Policy website.

Description of software that are exempt from software sharing requirements.

If applicable, specify types of software to be developed by the project that are excluded from requirements to make the software publicly available and cite the relevant laws, regulations, or policies that generate the exclusion. If all software developed by the project will be made publicly available, this section may be omitted.

Guidance:

Any limitations to sharing the software should be described as part of the OSDMP.

Publication Sharing

Describe the types of publications that are expected to be produced from the activities (e.g., peer reviewed manuscripts, technical reports, conference materials, and books). Outline the methods expected to be used to make the publications publicly available at time of publication. This can include making a peer reviewed manuscript available in a NASA designated repository, publishing as Open Access, or other activities as described on the STI Public Access website.

Guidance:

For awards that result from this ROSES, the as-accepted manuscript, or the version of record of peer-reviewed publications must be made publicly available at the time of publication. There are two options for how to comply with this requirement: Either (1) the manuscript may be individually uploaded to NASA PubSpace by the time of publication, or (2) it may be published in a journal that makes it openly available at the time of publication and is indexed by ADS, CHORUS, or NASA Science Explorer (scixplorer.org).

For more information about meeting the requirements on published papers, see "How to Share Publications" at https://science.nasa.gov/researchers/sara/faqs/OSDMP, or in the SMD Open-Source Science Guidance at https://science.nasa.gov/oss-guidance. SMD encourages publications to be published Open Access, and any cost to do so may be included in the proposal budget. SMD also encourages publications to be posted on community appropriate preprint servers.

How to Share Publications

For articles that are published as Open Access (see Open Access Publishing), the final published article (i.e., the publisher’s version of record) may be made publicly available in the STI Repository:

For articles published as Open Access by journal publishers participating in the Clearinghouse for the Open Research of the United States (CHORUS), the published article will be made publicly available in the STI Repository on behalf of the authors. Authors should verify that their article is available in the STI Repository following its publication, in which case no further action is required by the author. View a list of journal publishers participating in CHORUS.

For articles published as Open Access that are indexed in the NASA Astrophysics Data System (ADS), no further action is required by the researcher to comply with public access requirements for the article at this time.

For articles published as Open Access that are not covered by CHORUS or ADS, authors must submit either the final published article or the author’s copy of an accepted manuscript to the NASA STI Repository via the PubSpace submission page no later than the article’s publication date.

For an article that is not open access, someone must submit at least the accepted manuscript* version to the NASA STI Repository via the PubSpace submission page no later than the article’s publication date. In some cases,

archiving without embargo may be done for you by the journal but, in most cases, it must be done by the author. Look on the website of the journal for information about whether they will archive in NASA Pubspace at the time of publication or ask your journal editor. Ultimately, it is on the author to determine what they must do to make at least the manuscript version publicly accessible at the time of publication.

* The accepted manuscript is the final, peer-reviewed version of the article that has been accepted for publication by a publisher. The accepted manuscript includes all changes made during the peer review process and contains the same content as the final published article, but it does not include the publisher's copyediting, stylistic, or formatting edits that will appear in the final journal publication (i.e., the version of record).

Other Open Science Activities

If applicable and within the scope of the ROSES program element, include a description of additional open science activities associated with the proposed work (if not described elsewhere in the proposal). This may include: holding scientific workshops and meetings openly, providing project personnel with open science training or enablement, preregistering research plans in advance of conducting scientific activities, and contributions to or involvement in open science communities.

If physical samples are involved, this section must describe plans to make publicly available any physical materials with scientific value that would not be consumed during the research (if not described elsewhere in the proposal or OSDMP). Describe the intended repository for the materials. Describe plans for the public availability of the materials or justify why it is not practical or scientifically useful to do so. Describe the plans and timeline for making scientific data derived from the materials publicly available.

Roles and Responsibilities

Specify the project personnel who will ensure the implementation of the OSDMP. This may be its own section or integrated into the sections above.

Guidance:

The OSDMP should explain the roles and responsibilities of team members in accomplishing the plan. Proposals should allocate suitable time and resources for making available these important results of federally funded research. If funds are required for information management activities, these should be covered in the normal budget and budget justification sections of the proposal. For information about data rights and other aspects of intellectual property such as invention rights resulting from awards, see Section 3 of the NASA Grant and Cooperative Agreement Terms and Conditions.