

# Implementation and Changes to Science Policy Document (SPD)-41: Science Information Policy

**NOTICE: Amended January 10, 2022. The Response Date has been deferred to March 4, 2022.**

## Request for Information

Solicitation Number: NNH22ZDA006L

Release Date: November 19, 2021

Response Date: ~~February 11~~ **March 4**, 2022

This Science Mission Directorate Request for Information (RFI) does not constitute a commitment, implied or otherwise, that the National Aeronautics and Space Administration (NASA) will take action in this matter. Responses to this RFI are sought broadly from “interested parties”, e.g., U.S. industry, universities, non-profit organizations, NASA centers, and other U.S. government agencies, and will be used by NASA to further inform program planning and SMD’s overall acquisition and assistance awards strategy development.

### 1. Summary

The NASA Science Mission Directorate (SMD) requests information about changes and implementation of the SMD Policy Document SPD-41: The Scientific Information Policy. As part of the [NASA Plan for Increasing Access to the Results of Scientific Research](#) and the [Strategy for Data and Computing for Groundbreaking Science 2019-2024](#), SMD recognizes the need to maximize the openness of scientifically-useful information that is produced as part of our research activities while assuring the quality and preservation of that information. As the diverse SMD community has a wide breadth of needs and the policy may have different impacts on that community, SMD is requesting information on two aspects of SPD-41.

Aspect One: SMD is requesting information about how the proposed changes (included in Appendix A of the RFI) to the existing SPD-41 may impact the research and related activities of different SMD communities. While these changes or additions to SPD-41 are created based on Federal guidance, NASA policy, National Academy studies, or community best practices, SMD strives to minimize the burden on our community in the implementation of these policies. Therefore, SMD requests help to identify areas that will be particularly affected by SPD-41.

Aspect Two: SMD is requesting information about what support, services, training, funding, or further guidance is needed to support the successful implementation of the existing or proposed information policy. This could include specific training that will be necessary for your community, technologies or services that have been particularly helpful in sharing research information, or mechanisms that are needed to be developed to fully support the policy.

This information will be used to help inform SMD and each of the scientific divisions about how best to implement the policy and to maximize openness for the information generated from SMD supported research.

The SMD information policy applies to all scientific divisions within SMD. The policy sets the expectation for openness across the directorate so there is a uniform minimum requirement for the information that is produced from SMD funding. All SMD scientific divisions are developing new policies to provide further guidance or reviewing current policies to ensure they align with SPD-41.

## 2. Background

The information produced as part of NASA's scientific research activities represents a significant public investment. NASA holds this information as a public trust to increase knowledge and serve the public good. This information includes publications, data, and software created in the pursuit of scientific knowledge. Results of federally funded research and development need to be shared openly to maximize the benefit and reach of the information. Data need not only to be archived but also to be curated – that is, the data are assured to have continued accessibility and usability for multiple decades. The availability of software enhances the discoverability, accessibility, sustainability, and reproducibility of NASA science while maximizing the benefit of NASA to society.

It is SMD policy, consistent with NASA and Federal policy, that information produced from SMD-funded scientific research activities be made publicly available.

The Science Mission Directorate plans to expand the existing scientific information policy, [SPD41](#), to increase the accessibility of scientific information that is produced from NASA SMD funding. The current information policy is a consolidation of existing requirements related to NASA SMD research information. The changes being proposed here are based on existing Federal directives and NASA policy as well as National Academy Studies, community best practices, and community-led studies. The policy continues the goals of the [NASA Plan for Increasing Access to the Results of Scientific Research](#) and is based on the recommendation from the [Strategy for Data and Computing for Groundbreaking Science 2019-2024](#).

The proposed updated information policy, SPD-41a, is provided at this [link](#). A change log of the proposed changes is provided in Appendix A at the end of the RFI. The SPD-41a draft includes a full set of references and supporting material including definitions. In addition, a document with further guidance is also provided on the [Scientific Information Policy website](#).

## 3. Definitions

A full list of definitions is provided as part of the DRAFT updated policy. For convenience, we provide a subset of the most relevant definitions here:

- a. Information: Scientific knowledge produced as part of a research activity. This can include, but is not limited to, publications, data, and software.
- b. Publications: Scientific and technical documents released through print, electronic, or alternative media.
  - i. This includes peer reviewed manuscripts, technical reports, conference materials, and books.
  - ii. This does not include laboratory notebooks, preliminary analyses, drafts of scientific papers or preprints, plans for future research, peer review reports, or communications with colleagues.
- c. Data: information that can be stored digitally and accessed electronically.
  - iii. Information produced by missions include observations, calibrations, coefficients, documentation, algorithms, and any ancillary information.
  - iv. Information needed to validate the scientific conclusions of peer-reviewed publications. This includes data underlying figures, maps, and tables.
  - v. This does not include laboratory notebooks, preliminary analyses, drafts of scientific papers, plans for future research, peer review reports, communications with colleagues, or physical objects, such as laboratory specimens.
- d. Software: computer programs in both source and object code that provide users some degree of scientific utility or produce a scientific result or service.

#### 4. Requested Response Topics

Interested parties, e.g., U.S. industry, universities, non-profit organizations, NASA centers, other U.S. government agencies, and individual researchers, are requested to respond to this RFI by submitting a PDF through NSPIRES following the instructions below. The response text shall not exceed 5 pages (including attachments) and shall use a minimum font size of 12 point. Interested parties may submit multiple responses but each response must be to a unique aspect of requested information.

Your response should include name, contact information, and indicate whether a U.S. entity; identify co-authors, if any, to the response; identify relevant SMD divisions; and your response to the RFI. An example template is available in Appendix B within the release of this RFI.

Any public discussion of the results of this RFI will not disclose the identities of the respondents, but parts of or the full response may be made publicly available.

#### DISCLAIMER

Since this is a request for information, no evaluation letters and/or results will be issued to the respondents.

It is emphasized that this RFI is NOT a Request for Proposal, nor is it an Invitation for Bid. This RFI is being used to obtain information for planning purposes only, and the Government does not intend to award a contract at this time. As stipulated in FAR 15.201(e), responses to this

notice are not considered offers and cannot be accepted by the Government to form a binding contract. Pursuant to FAR 52.215-3, entitled Request for Information or Solicitation for Planning Purposes, this information is being made available for market research, information, and planning purposes and to allow the broader community the opportunity to verify reasonableness and feasibility of the requirement, as well as promote competition. This RFI is subject to review or cancellation at any time and is not to be construed as a commitment by the Government to enter into a contract. The Government will not pay for the information submitted in response to this request.

Please do not request a copy of the solicitation, as no solicitation exists at this time. If a firm requirement is developed and a solicitation is issued, the solicitation will be made available through NSPIRES (<https://nspires.nasaprs.com/external/>). It is the responsibility of Offerors and interested parties to monitor the internet sites for the release of the solicitation and amendments, if any, and they will be responsible for downloading their own copy of the documents. NASA Clause 1852.215-84, Ombudsman, is applicable. The Center Ombudsman for potential acquisitions can be found at <https://www.hq.nasa.gov/office/procurement/regs/ProcurementOmbuds-Comp-Advocate-Listing.pdf>.

## 5. Requested Information

Respondents may not submit confidential information, Controlled Unclassified Information (CUI), proprietary information, or export-controlled information, including International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR) restricted information, in response to this RFI.

The response must contain the following information:

- Name of submitter and contact information (institutional affiliation, E-mail address, USentity).
- Name and contact information for all Co-authors on the RFI response.
- SMD division(s), office, or branches that the response is relevant to.
- [OPTION 1] Response to the question on impact of the proposed changes or additions to SPD-41.
- [OPTION 2] Response to the question on implementation of SPD-41.

## 6. Response Instructions

All responses must be received by 11:59 p.m. Eastern time on ~~February 11~~ **March 4**, 2022.

All responses to this RFI must be submitted in an electronic format via the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES), located at <http://nspires.nasaprs.com/>. Appendix B provides an optional or suggested response template.

For this RFI, a response submission will take the form of a Notice of Intent (NOI) within the

NSPIRES online announcement data management system. The RFI response itself will be a PDF-formatted document that is attached (uploaded) to the NSPIRES system. All responses must adhere to the following formatting requirements:

|            |   |
|------------|---|
| Length:    | 5 pages   |
| Page size: | 8.5" x 11.0" paper size   |
| Paragraph: | Single-spaced, single-column text with no more than 5.5 lines per vertical inch of text                       |
| Margins:   | One-inch margins on all four sides with no content in the margins   |
| Font:      | Font size 12, not to exceed 15 characters per horizontal inch, including spaces, sans serif font recommended. |
| Inserts:   | Figures, tables, and other inserts are permitted  |

You must be registered with NSPIRES to submit a RFI response. See registration instructions at <http://nspires.nasaprs.com/> (select "Create an account"). Neither institution registration nor an institution affiliation is required to respond to this RFI.

1. When you have an NSPIRES account, go to [the NSPIRES page](#) for "Request for Information: Implementation and Changes to Science Policy Document (SPD)-41: Science Information Policy" Number: NNH22ZDA006L.
2. Click "Create"
3. Log in when requested
4. Enter the Request for Information: Response title NOTE: NSPIRES will show this as "NOI title"
5. Select "do not link at this time" for submitting organization page.
6. Click "Save" on next page.
7. It is not necessary to complete any of the "NOI Details"; all requested information should be included in the attached PDF document. Information which is entered into "NOI Details" but not included in the attached PDF document will not be considered
8. Prepare your RFI response offline and save as a PDF document (NSPIRES instructions on PDF formats are described in the NSPIRES PDF Guidelines available at [http://nspires.nasaprs.com/tutorials/PDF\\_Guidelines.pdf](http://nspires.nasaprs.com/tutorials/PDF_Guidelines.pdf)). The response document must include the respondent's Name, institution, and e-mail address so the file is self contained. File names format should be "PI Last Name - First Name – Number - RFI". "Number" will be used to distinguish multiple responses from the same PI. The response should not exceed 5 pages in length excluding references.
9. To attach (upload) your PDF document:
  - a.) Click "add" under NOI attachments section.
  - b.) Select "Proposal Document" from the drop-down list.
  - c.) Browse to attach your PDF file.
  - d.) Select "Upload".
  - e.) Click "OK".
  - f.) Your RFI document has been uploaded to NSPIRES.
10. Click Submit NOI button. NOTE: Clicking "Submit NOI" does not complete the submission process.

11. Ignore any warnings about incomplete NOI elements.
12. Click "Submit". This will take you to the NOI submission confirmation page, which provides you with the NOI/RFI number for your records.

Please note: You may delete and replace form fields and uploaded documents any time before the submission deadline, however once your RFI is submitted, it cannot be deleted. Unsubmitted responses will not be considered.

## 6. Point of Contact

Please email questions and comments concerning this RFI to [HQ-SMD-SPD41@mail.nasa.gov](mailto:HQ-SMD-SPD41@mail.nasa.gov) no later than March 2, 2022 at 11:59 Eastern time, with the subject line: "NASA SPD-41 RFI Question/Clarification". Depending on the nature of received questions, NASA may respond on an individual basis by email or may post responses to inquiries in a "Questions and Answers" document available at <https://go.nasa.gov/RFISPD41>. Any posted Q&A will be edited to preserve the anonymity of persons and institutions who submit questions and are intended to address inquiries of broader interest and general clarification.

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Pronouns: he/him/his  
[HQ-SMD-SPD41@mail.nasa.gov](mailto:HQ-SMD-SPD41@mail.nasa.gov)

The preceding email may not be used to submit RFI responses; any submissions made via this email address will not be considered.

## Appendix A: Proposed Changes to SPD-41

- B. Changes to Section III General Policies, Part B relating to Data:
- a. SMD-funded data should follow the FAIR Guiding Principles for scientific data management and stewardship. This means data should be findable, accessible, interoperable, and reusable ([FAIR](#)).
  - b. SMD-funded data shall be made available in convenient<sup>1</sup>, modifiable, and open formats.
  - c. SMD-funded data shall be findable such that the data can be retrieved, downloaded, indexed, and searched.
  - d. SMD-funded data shall include robust, standards-compliant metadata that clearly and explicitly describe the data.
  - e. SMD-funded data shall be reusable with a clear, open, and accessible data license.<sup>23</sup>
  - f. SMD-funded data collections shall be citable using a persistent identifier, and SMD should encourage that data users to cite the sources of the information used to conduct peer-reviewed, published research.
- C. Changes to Section III General Policies, Part C relating to software:
- a. When released, SMD-funded software should follow best practices in the relevant open source and research communities.
  - b. SMD-funded software shall be released under a permissive license that has broad acceptance in the community.
  - c. SMD-funded software projects shall include a code of conduct and guidelines for how to make contributions.
  - d. SMD-funded software shall be made available in a publicly accessible repository that is widely recognized by the community.
  - e. SMD-funded software shall be citable using a persistent identifier, and SMD should encourage that users to cite the software if used to conduct peer-reviewed, published research.<sup>3</sup>
- D. Change related to Section III General Policies, Part G relating to Data Management Plans:
- a. Variances for DMP plans are moved from the selection officer to the data officer
- E. Additions to Section III: General Policies
- a. All SMD-funded activities shall include a software management plan describing the management and release of software to facilitate the implementation of these information policies.
  - b. SMD shall require that all investigators supported by SMD funding have a persistent identifier such as ORCID.
  - c. SMD shall provide a persistent identifier for all funding mechanisms and missions.
  - d. SMD shall provide information for how best to meet these policies. Where possible, SMD should provide additional information and tools to support meeting these policies.

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<sup>1</sup> Convenient means the data are accessible without requiring proprietary software.

<sup>2</sup> Government works are by default in the U.S. public domain and should be used if no other license applies.

<sup>3</sup> Open Source software policy options for Earth and Space Science

- e. Information shall be archived in repositories that are capable of maintaining the information for a period of at least 25 years.

F. Additions to Section IV: Additional Policies for Missions

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- a. Mission software shall be developed openly in a publicly accessible, versioncontrolled platform that allows for contributions and engagement from the community.

G. Additions to Section V: Additional Policies for Research

- a. At the end of a research award, scientifically useful data associated with the award that has not already been made public shall be made publicly available.
  - i. Extensions, variances, and exceptions of up to one year may be requested from the program officer. Any period longer than one year will follow the process in Section VII Variances.
- b. In order to achieve reproducibility, research software developed using NASA SMD funding and used in support of a scientific, peer-reviewed publication shall be released as open source software no later than the publication date.
  - i. This does not include commercial software.
  - ii. Software that was developed as part of a previous work is only required to be included if enhancements were made as part of the SMD-funded work.
- c. At the end of a research award, scientifically useful software developed or enhanced as part of the award shall be released as open source software.
  - i. Extensions, variances, and exceptions of up to one year may be requested from the program officer. Any period longer than one year will follow the process in Section VII Variances.
- d. During SMD reviews, peer reviewed data and software shall be recognized as having the commensurate value as peer reviewed manuscripts.
- e. Lack of compliance with this policy by SMD-funded Principal Investigators will reduce the likelihood of selection of future proposals submitted to SMD programs by that individual as Principal Investigator.

H. Additions to Section VI: Additional Policies for other SMD-funded Activities

- a. The policy will apply to conferences, workshops, and symposia in the following way:
  - i. Conferences, workshops, and symposia for which SMD is the primary sponsor shall follow this policy and make any information produced during the conference publicly accessible. Publications, presentations, data, software, media, or other materials produced as part of the conference shall be deposited in the appropriate NASA repository.
  - ii. Participants sponsored to attend conferences, workshops, and symposia with SMD funding shall deposit their contributions in the appropriate NASA repository.
  - iii. Conference, workshops, or symposia for which SMD is not the primary sponsor shall be encouraged to adopt this policy for the information produced as part of the event.

I. Changes to Section VII: Variances



- a. The SMD Associate Administrator (AA) is the final authority on this policy and shall determine the reasonableness of any variances to it.
  - i. The SMD Data Officer shall have authority to grant any variances to this policy.
  - ii. Requests for variances to the policy may be submitted by the program or project manager, or by the SMD program scientists or program officer, shall receive concurrence from the SMD division director, and approval from the SMD Data Officer.
  - iii. Appeals to the decision of the SMD Data Officer may be submitted to the SMD AA, who has final approval authority for variances or deviations with dissent.
  - iv. Each of these named individuals (program or project manager, SMD program scientist or program officer, SMD division director, SMD data officer, SMD AA) may delegate their responsibility as needed.
  - v. Variances may be requested for an entire program or for an individual project.
- b. If available, the recommendations of any peer review panels will be considered as part of assessing the reasonableness of a variance.
- J. Changes to Section VIII: Measurement and Verification
  - a. SMD will collect a variety of metrics intended to measure or assess the efficacy of its data systems and services to assess user satisfaction. Consistent with applicable laws, SMD will make those metrics available for review and will conduct independent reviews on SMD compliance with this policy at least once every five years.
  - b. The policy will be reviewed at least once every five years.
- K. Added Appendix D. Guidelines for a repository
- L. Added Appendix E. Levels of Mission Data

## Appendix B: Suggested Response Template – Text Document

Document:

TITLE of RESPONSE

Response to RFI: Implementation and Changes to Science Policy Document  
(SPD)-41: Science Information Policy

Primary Author Name, Contact Information

Additional partners/Co-authors, including contact information

Brief Summary (2-3 sentences)

<insert text here>

Title/Question/Topic/Response

<insert text here>

NOTE: This template is a suggestion. Respondents should feel free to utilize visual elements (borders, colors, figures, etc.) to communicate their response.

NOTE: All submissions to NSPIRES must be in PDF format. Be sure to review your submission in PDF format for any conversion errors before uploading to NSPIRES.

References (does not count towards 5-page limit)