NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

SCIENCE MISSION DIRECTORATE

Fiscal Year of Release = 2025

RESEARCH OPPORTUNITIES IN SPACE AND EARTH SCIENCES (ROSES) – 2025

NASA RESEARCH ANNOUNCEMENT (NRA)

ANNOUNCEMENT NUMBER: NNH25ZDA001N

ASSISTANCE LISTINGS NUMBER: 43.001

INITIAL ANNOUNCEMENT ISSUED: JULY 10, 2025

KEY DATES

FULL (STEP-2) PROPOSALS DUE

NO EARLIER THAN SEPTEMBER 8, 2025

SEE TABLES 2 AND 3 AND SECTION IV(A)

ANTICIPATED NOTIFICATION OF AWARD APPROXIMATELY 6 MONTHS AFTER DUE DATE

OMB CONTROL NUMBER 2700-0092

NOTICE: Amended July 15, 2025. Restrictions on funding interagency awards have been applied to Appendices A-D, and F.3 Exoplanets research, see #3 on the list of significant changes since last year's ROSES in Section I(d)i, Section III(a), and the research program overviews (A.1 – D.1 & F.1).

Six-Page Summary of ROSES-2025

A. ROSES-2025 Basic Information

1. Funding Details:

   Available Funding for the entire omnibus NOFO: Approximately $125-150 Million, contingent on funding.

   Available dollar value or range for each of the approximately 35 proposal opportunities is given in the summary table at the end of each.

   Anticipated number of awards for the entire omnibus NOFO: Approximately 300 Awards

   Anticipated number of awards for each of the approximately 35 proposal opportunities is given in the summary table at the end of each program element.

   Expected dollar value or funding range of awards: A wide range from tens of thousands per year for data analysis to millions per year for flight.

   Expected dollar value or funding range of awards for each of the proposal opportunities may be calculated from the budget and number of awards given in the summary table at the end of each program element.

   Anticipated Award Date: Approximately 6 months after proposal due date.

   Full/Step-2 Due dates are from September 2025 - May 2026.

2. Executive Summary:

   Approximately 35 proposal opportunities comprise this "ROSES" Solicitation that supports a wide range of research relevant to NASA's Science Mission Directorate including: theory about what will be observed; the development of technology to make observations to test those theories; collection of samples and data from land, sea, air and space; analysis of samples and data collected; laboratory measurements of samples and fundamental parameters to compare to data; and modeling using the data, resulting in a better understanding of the real-world implications of all of the above, for e.g., effects of natural disasters on Earth and the exploration of space. For more information see Section I(b) and the list at https://solicitation.nasaprs.com/ROSES2025table3

3. Contact Information:

   Contact for the entire Omnibus NOFO: sara@nasa.gov

   A program specific technical point of contact for each opportunity is given in the summary table at the end of each program element.

   For technical assistance with NSPIRES, please contact the NSPIRES Help Desk at nspires-help@nasaprs.com or (202) 479-9376, Monday through Friday, 8:00 AM – 6:00 PM ET

For technical assistance with Grants.gov, call the customer support hotline 24 hours per day,7 days per week (except federal holidays) at (800) 518-4726 or email support@grants.gov.

B. Eligibility

1. Eligibility: Unless otherwise specified in a program element, all organizations of all types are eligible to propose, but not all can receive funding, see Section III. However, see below regarding the People's Republic of China (PRC).
2. Cost Sharing: Unless otherwise specified in a program element, cost sharing is not required, see Section III(d).
3. Other Eligibility Criteria: Participation in ROSES-funded research by non-U.S. organizations is welcome on a "no exchange of funds" basis, see Section III(b). Moreover, proposals from or involving bilateral participation by the People's Republic of China (PRC) are prohibited, see Section III(c).

C. Program Description

Research Opportunities in Space and Earth Sciences (ROSES) is an omnibus NOFO containing many active proposal opportunities each with its own topics and schedule that, together, solicit research and technology development activities across NASA's Science Mission Directorate (SMD). The first five appendices of ROSES correspond to the five Science Divisions of SMD and they are:

- The Earth Science Research, Applied Sciences, Technology, and Data Systems Programs sponsor integrative research to understand the Earth system and its climate, integrate and advance knowledge of the Earth as a system to meet the challenges of environmental change, strengthen our Nation, and improve life for all people (Appendix A).
- The Heliophysics Research Program sponsors research to understand the Sun and its interactions with the Earth and the Solar System, including space weather (Appendix B).
- The Planetary Science Research Program sponsors research to explore the Solar System to study its origins and evolution, including the origins of life within it (Appendix C).
- The Astrophysics Research Program sponsors research to explore the Universe from the search for extrasolar planets to the origin, evolution, structure, and destiny of the Universe itself (Appendix D).
- The Biological and Physical Sciences Research Program sponsors research to understand how biological and physical systems respond to and accommodate spaceflight environments (Appendix E).

In addition, there are topics solicited that pertain to more than one of these five divisions above (e.g., Exoplanets Research). This cross-division research is in Appendix F.

For a full list of all of the program elements in ROSES-25 see https://solicitation.nasaprs.com/ROSES2025table3

D. Application Format and Contents

1. Format

All program elements in ROSES require the same format for all proposal PDF files: The body text and captions may not, on average across a solid block of text, exceed 15 characters per horizontal inch, including spaces, though text within figures and tables may be smaller if still judged by the reviewers to be readable. Proposals may not have more than 5.5 lines per vertical inch of text, must have at least one-inch margins, be set for US letter size (8.5x11) paper, and may not have expository text necessary for the proposal located solely in figures, tables, or their captions, see Section IV(b)ii for more information.

2. Components and Content of the Application

Typically, an electronic proposal consists of electronic forms (i.e., the NSPIRES cover pages) and either two or three required attachments, e.g., the technical proposal including the Scientific/Technical/Management (S/T/M) Section, a separately uploaded Total budget file, and an optional high-end computing (HEC) request, see Section I(e). If the program is using dual-anonymous peer review (DAPR), see Section V(b)i, the main technical proposal is divided into two parts: an anonymized proposal and a separate "Expertise and Resources Not Anonymized" document.

Please note that the budgets and justifications in peer reviewed proposals should not include salary, fringe, or overhead, see Section IV(b)iii.

In general, the required components of a proposal are listed in Table 1 of ROSES and their content described in Section IV(b). An "Open Science and Data Management Plan" replaces the default Agency requirement for a "Data Management Plan" and it is located right after the references and citations for the S/T/M Section, see Section II(c).

E. Submission Requirements and Deadlines

1. How To Request an Application Package

Applications may be submitted via NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) https://solicitation.nasaprs.com/ROSES2025 or via the Grants.gov. Submitting via NSPIRES does not require an "application packet". Most program elements will be set up for application via Grants.gov only if requested at least 30 days in advance of the due date. For more on Grants.gov submissions see Section IV(b)v. For more on submissions via NSPIRES, see Section IV(b)iv.

2. Unique Entity Identifier and System for Award Management

Entities doing business with the federal government must use a Unique Entity Identifier (UEI) created in the System for Award Management (SAM). See Sections I(k) and III.

3. Submission Instructions

In almost all cases submissions may be made through NSPIRES or Grants.gov, see above. Electronic proposal submission is required; no hard copy is permitted. For more

on Grants.gov submissions see Section IV(b)v. For more on submissions via NSPIRES, see Section IV(b)iv and the online NSPIRES help pages at

https://nspires.nasaprs.com/external/externalhelp/public/index.htm#t=First_Topic.htm

4. Submission Deadlines

As an omnibus NRA, ROSES has many active proposal opportunities each with its own due dates. These are listed in chronological order in Table 2, at https://solicitation.nasaprs.com/ROSES2025table2 and in Table 3, organized by topic at https://solicitation.nasaprs.com/ROSES2025table3.

Proposals must be submitted electronically and on time by one of the officials at the Principal Investigator's (PI) organization who is authorized to make such a submission. Hard copy submission is not permitted. Unless otherwise specified, the cut-off time is 11:59 pm Eastern Time. Late proposals will be handled according to the SMD Policy on Late Proposals. The vast majority of late proposals are rejected without review.

The Notice of Intent (NOI) to propose is a brief summary of the planned work by the proposer. Some program elements request, but do not require, an NOI, while some require an NOI, and some require a Step-1 proposal prior to the submission of a full proposal. Tables 2 and 3 and the text of the individual program elements indicate what is expected or required. For more about NOIs see Section IV(b)vi. For more on the two-step proposal submission process, see Section IV(b)vii.

5. Collection of Demographic Information

NASA collects demographic data from grant applicants for the purpose of analyzing demographic differences associated with its award processes. Information collected may include name, sex, race, ethnicity, and disability status. Submission of the information is voluntary and is not a precondition of award.

F. Review Information

1. Criteria

Compliant and responsive proposals are peer reviewed against the standard evaluation criteria defined in Section 12 of the *NASA Grants and Cooperative Agreement Manual (GCAM)* as described in Section V(a). By default, cost sharing is not considered for ROSES proposals. See also Section III(d) regarding cost sharing. If any other criteria are used or additional factors are considered, that will be described in the individual program element.

2. Review and Selection

Review and selection of proposals submitted to this NRA will be consistent with the policies and provisions given in the *NASA GCAM*, the *SMD Peer Review Policy*, and the *SMD policy on avoidance of Peer Review Conflicts of Interest*, see Section V(b).

SMD invites potential reviewers to volunteer to serve by filing out the web forms at https://science.nasa.gov/researchers/volunteer-review-panels and some program

elements explicitly request names of suggested reviewers, see Section V(c) Service as a Peer Reviewer.

See also Section V(b)i and https://science.nasa.gov/researchers/dual-anonymous-peer-review/ regarding Dual-Anonymous Peer Review.

See Section V(b)ii regarding selection.

3. Anticipated Award Dates

Anticipated start dates for awards are given in the summary table of key information at the end of each program element. Generally, start dates are approximately 6 months after the proposal due date or, for "No Due Date" programs (https://science.nasa.gov/researchers/NoDD) start dates are approximately 6 months after proposal submission, see Section V(e) Anticipated Selection Announcement and Federal Award Dates.

G. Award Notices

1. Notice of Award

Proposers will receive a notification via NSPIRES regarding the disposition of their proposal. The official notice from NASA will come from a NASA grants officer. See Section VI(a) Award Notices.

H. Post-Award Information

1. See Section VI(b) Administrative and National Policy Requirements.

2. NASA Terms and Conditions

NASA publishes its grant terms and conditions, at https://www.nasa.gov/grants-policy-and-compliance-team/#Regulations. In addition to these grant terms and conditions, programs may have additional program-specific terms and conditions in the grant award. See Section VI(b) Administrative and National Policy Requirements.

3. Funding Restrictions

All costs charged to awards covered by this NOFO must comply with the Uniform Administrative Requirements in 2 CFR 200 and 1800, unless otherwise indicated in the NOFO, the terms and conditions of the award, and the *NASA Grants and Cooperative Agreement Manual (GCAM)*. See Section IV(d) Funding Restrictions.

4. Environmental Statement

Awards of proposals related to this NOFO must comply with the National Environmental Policy Act (NEPA), see Section VI(b).

5. Reporting

By default, recipients must provide annual reports, see Section VI(c) of this document and Appendix C of the GCAM. Annual progress reports must include status of archiving of data, publications, and software, consistent with the "Open Science and Data

Management Plan" see Section II(c) Increasing Access to the Results of Federally Funded Research.

I. Other Information

The web page at https://sara.nasa.gov has useful information for new proposers including:

- A ROSES FAQ at https://science.nasa.gov/researchers/sara/faqs/,
- A list of points of contact for all of the proposal opportunities at https://science.nasa.gov/researchers/sara/program-officers-list/,
- Spreadsheets with numbers of submitted and selected proposals by program element at https://science.nasa.gov/researchers/sara/grant-stats/, and
- A "library" of policy documents and useful links at https://science.nasa.gov/researchers/sara/library-and-useful-links/ including talks about proposal writing.

1. Access to NASA Facilities/Systems

See Section I(h)

2. Limited Release of Proposers' Confidential Business Information

See Section V(b).

3. Cross-Waiver of Liability for International Space Station, Science or Space Exploration Activities

Per *NASA's Grant and Cooperative Agreement Award Terms and Conditions*, for work that involves the International Space Station, additional requirements apply. Cross-waivers will require the recipient to extend the cross-waiver terms and conditions to their subcontractors at any tier and related entities, ensuring those subcontractors and related entities also waive all claims against any entity or person defined in the provision for damages arising out of Protected Space Operations. This cross-waiver is intended to be broadly construed, and NASA extends it to its related entities as set forth in the provision. See Appendix E of the NASA Grants and Cooperative Agreement Manual for specific conditions that will apply to an approved award

4. Flight Activities

Select program elements in ROSES may solicit proposals for flight, e.g.:

- Suborbital (e.g., aircraft, balloons, sounding rockets, rocket-powered vehicles)
- Earth orbit (e.g., SmallSats/CubeSats)
- Beyond Earth Orbit (e.g., payloads to the surface of the Moon, cis-lunar space, Mars, and beyond).

For more information see Section VIII.

ROSES - 2025 SUMMARY OF SOLICITATION TABLE OF CONTENTS

Note: Table 2 and Table 3 of this NRA are posted and updated as separate html documents on the web and can be reached either by following the hypertext links above embedded in the electronic version of this document, or at: https://solicitation.nasaprs.com/ROSES2025table2 and https://solicitation.nasaprs.com/ROSES2025table3, respectively, or by going to https://solicitation.nasaprs.com/ROSES2025 and following the links there.

Table 1 of ROSES is now also available as a separate stand-alone PDF file here.

Any amendments to the program elements will be indicated as bold and red in Table 2 and Table 3 of this NRA. Potential proposers may receive notification of amendments to ROSES-2025 by signing up for the SMD NSPIRES mailing list. In addition, proposers may want to bookmark the ROSES-2025 Blog at https://science.nasa.gov/researchers/solicitations/roses-2025/

RESEARCH OPPORTUNITIES in SPACE and EARTH SCIENCES (ROSES) – 2025

SUMMARY of SOLICITATION

I. FUNDING OPPORTUNITY DESCRIPTION

This National Aeronautics and Space Administration (NASA) Research Announcement (NRA), Research Opportunities in Space and Earth Sciences (ROSES) – 2025, solicits basic and applied research in support of NASA's Science Mission Directorate (SMD).

Through this ROSES NRA, NASA encourages the participation of the space, Earth, and biological and physical science communities in SMD's research and technology programs. These programs form the foundation of both the basic and applied research that allows NASA's space, Earth, and biological and physical science programs to be properly planned and carried through to the successful interpretation of data and its application to the needs of end users. Comments about this NRA are welcome and may be directed to the point of contact for general questions and comments identified in Section VII.

ROSES is an omnibus NRA with many individual "program elements" (the calls for proposals) that together cover the wide range of basic and applied research and technology supported by SMD. See Table 2 and Table 3 of this NRA for a list of elements, each of which has its own topic(s) and due date(s).

(a) Strategic Objectives of NASA and the Science Mission Directorate

NASA is chartered in the National Aeronautics and Space Act [51 U.S.C. § 20101 et seq.] with, among other objectives, the expansion of human knowledge of the Earth and of phenomena in the atmosphere and space. Working from this Congressional authorization, U.S. National Space Policy directs NASA to advance fundamental scientific knowledge of our Earth system, Solar System, and the Universe. This direction is manifest in the *2022 NASA Strategic Plan*, which includes Strategic Objectives 1.1 (Understand the Earth system) and 1.2 (Understand the Sun, solar system, and universe).

Further insight into the strategic goals and objectives of SMD may be found in the documents available at https://science.nasa.gov/about-us/science-strategy/ including 2025-2026 NASA Science Plan: A Vision for Scientific Excellence, and any more up-to-date versions of the Science Plan or the NASA Strategic Plan that will be available there.

All program elements in this NRA are relevant to NASA's strategic goals and objectives. Each proposal to this NRA demonstrates the relevance of its proposed research to NASA by being relevant to the particular program element to which it was submitted. Further instructions concerning relevance and the other evaluation criteria are provided in Section V(a).

(b) Research Programs of NASA's Science Mission Directorate

NASA's SMD achieves its strategic objectives in part by supporting a wide variety of research and technology development through this ROSES NRA including:

1. Flight--based research and technology development projects in the Solar System;
2. Flight-based research and technology development projects in Earth orbit;
3. Suborbital-class research and technology development projects (on aircraft, balloons, sounding rockets, various types of Cube- and Small satellites, and commercial suborbital launch vehicles); and
4. Ground-based research and technology development activities that support flight missions.

These ground-based investigations include, but are not limited to:

- Theory, modeling, and analysis of SMD science data including data from SMD's international and/or interagency partners;
- Development of concepts, techniques, and advanced technologies suitable for future SMD space missions;
- Development of methods for laboratory analysis of both extraterrestrial samples returned by spacecraft and terrestrial samples that support or otherwise help verify observations from missions;
- Determination of atomic and composition parameters needed to analyze space data and returned samples from the Earth or space;
- Earth surface observations and field campaigns that support and/or complement SMD science missions to support NASA objectives;
- Development of integrated Earth system models;
- Development of systems for applying Earth science research data to societal needs;
- Development of applied information systems applicable to SMD objectives and data; and
- Conducting hypothesis-driven research experiments in the biological and physical sciences using ground-based analogs of space-associated stressors to inform work that needs to be done on future exploration missions in low Earth orbit and beyond.

SMD research and technology development activities are organized into five Science Divisions corresponding to the first five appendices of ROSES:

1. The Earth Science Research, Applied Sciences, Technology, and Data Systems Programs sponsor integrative research to understand the Earth system and its climate, integrate and advance knowledge of the Earth as a system to meet the challenges of environmental change, strengthen our Nation, and improve life for all people (Appendix A).
2. The Heliophysics Research Program sponsors research to understand the Sun and its interactions with the Earth and the Solar System, including space weather (Appendix B).
3. The Planetary Science Research Program sponsors research to explore the Solar System to study its origins and evolution, including the origins of life within it (Appendix C).

4. The Astrophysics Research Program sponsors research to explore the Universe from the search for extrasolar planets to the origin, evolution, structure, and destiny of the Universe itself (Appendix D).
5. The Biological and Physical Sciences Research Program sponsors research to understand how biological and physical systems respond to and accommodate spaceflight environments (Appendix E).

Appendices A, B, C, D, and E comprise program elements of these five Science Divisions, respectively. Additionally, Appendix F comprises cross-division program elements relevant to two or more of these science research programs.

Each of these appendices is prefaced with a Division Overview (A.1, B.1, C.1, D.1, E.1 and F.1) that introduces the research program content of that Appendix and lays out default rules that apply to all program elements within that appendix, if not superseded by individual program elements that make up each appendix.

Each one of these program elements has its own solicited topics, cadence, and due dates, if solicited this year. Hypertext lists of those program elements and due dates are given in Table 2 (ordered by due date) and Table 3 (ordered by Division/Topic, e.g., A. Earth Science, B. Heliophysics…). Each name is hypertext linked to a web page and on the right, at the bottom of the list of "Announcement Documents" a PDF version of that program element may be downloaded.

This "*Summary of Solicitation*" you are reading now lays out rules that, by default, apply to all program elements in ROSES unless superseded by a Division Overview or an individual program element. See Section I(g) for more on the order of precedence of the several places where proposal rules are described.

Unless a particular program element explicitly mentions contracts, proposers from non-governmental organizations should assume that awards will be made as grants or cooperative agreements, see Section II(a).

The SARA website at https://sara.nasa.gov has information for the research community, including ROSES FAQs, a library of reference documents, selection statistics, a blog for changes to ROSES-25, pages to sign up as a reviewer, and a list of all of the technical points of contact for all of the program elements, to whom technical questions about the contents of a specific program element should be directed.

(c) Flight-Based Research Investigations

Because investigations that require flight pose distinct challenges and have certain requirements in common, Section VIII is devoted to such flight investigations.

(d) Significant Changes from Recent ROSES

(i) Changes from last year

First, there are a series of changes that derive from the update to 2 CFR 200 on October 1, 2024:

1. The default Agency-level guidance for proposers that used to be called the Proposer's Guidebook has been replaced with the *NASA Grant and Cooperative Agreement Manual (GCAM)* available at https://www.nasa.gov/grants-policy-and-compliance-team/#Regulations

2. Proposers must use the NASA grants policy provided standard templates for Biographical Sketches and Current and Pending (C&P) Support. There is no longer a page limit for Biographical Sketch. The NASA grants policy template for the new Biographical Sketch (CV) format may be found at: https://www.nasa.gov/wp-content/uploads/2024/09/biosketch-form.docx
3. The NASA grants policy template for C&P support has been posted at: https://www.nasa.gov/wp-content/uploads/2024/09/current-and-pending-support-cps-form.docx This supersedes any prior division specific templates for current and pending.
4. As you will see from the forms, the rules about what must be reported have changed. Refer to the grants policy list of requirements (PDF) at https://www.nasa.gov/wp-content/uploads/2024/09/nasa-pre-award-and-post-award-disclosure-requirements-2.pdf
5. See also the NASA grants policy YouTube video at https://www.youtube.com/watch?v=qXraCMrhSeE
6. Caveat: the NASA grants policy instructions tell proposers to digitally sign documents, but this must not be done in a way that locks the file since anything that locks a proposal PDF is a problem for NSPIRES. Please refer to the NASA grants policy instructions on "How to Sign Biosketch or Current and Pending Support Form" (PDF) at the bottom of the page at https://www.nasa.gov/grants-policy-and-compliance-team/#Regulations under the heading "Grant Forms". The key point is: Do not click the box next to "Lock Document after Signing". Also, after having uploaded your documents to NSPIRES, please click the “Generate” button to be sure that your PDF files are compatible. It is an easy way to know that your PDF files are compliant, and the cover page need not be finished, and you don’t need to be ready to submit to take that step.
7. Questions about the new Biographical Sketch and C&P documents, requirements, and instructions should be directed to Grants Policy at: hq-dl-grants-policy-compliance@nasa.gov

The following other significant changes occurred since last year’s ROSES solicitation:

1. Based on the president’s budget request, fewer program elements are solicited than in prior years. In most cases, when program elements are not solicited, they do not appear in the tables of due dates and program elements have been renumbered.
2. Dual-Anonymous Peer Review (DAPR) is now the default review process for ROSES. See Section V(b)i and https://science.nasa.gov/researchers/dual-anonymous-peer-review/ for an introduction to DAPR. All but a few programs in ROSES-25 will employ DAPR thus most technical proposals must be anonymized. This summary of solicitation has been updated in several ways because DAPR is now the default review process, e.g., the part of Section IV(b)i, that describes the various proposal attachments has been updated. The program element will say explicitly whether it’s using the DAPR review process or not and, if so, describe how the anonymized technical proposal is to be prepared.
3. All Earth Science Division (Appendix A) **and Planetary Science Division (Appendix C)** program elements have a new eligibility restriction: Federal

agencies other than NASA and FFRDCs **that are funded via** other **government agencies** ~~than JPL~~ will not receive funding from Appendix A **and C** elements. Team members from government agencies other than NASA are welcome at no cost (as unfunded Co-Is or collaborators). **Potential proposers to Heliophysics (Appendix B), Astrophysics (Appendix D), and F.3 The Exoplanets Research Program must receive approval from the program element point of contact prior to submitting proposals with investigators or organizations funded via interagency awards, see B.1, D.1 and F.1. In Astrophysics (Appendix D) there is also a dollar threshold for IATs, see D.1. [Amended July 15, 2025]**

4. Table 1 of ROSES has been updated to place the Table of Personnel and Work Effort before the Biographical Sketches, since it makes sense to see who is participating before getting into their details.
5. SMD is now providing an optional standard SMD template for the Open Science and Data Management Plan (OSDMP) that will work across all of ROSES at https://science.nasa.gov/researchers/sara/faqs/OSDMP. The template is optional, merely provided for the convenience of proposers. See Section II(c).
6. The past requirement for "Inclusion Plans" in select programs has been removed.
7. Historically, very few proposals have been submitted via Grants.gov. Starting with ROSES-25 though ROSES program elements will be synopsized on Grants.gov, few will be automatically set up to receive proposals via Grants.gov. Most program elements will be set up for submission via grants.gov only if requested at least 30 days in advance of the proposal due date, see Section IV(a), Section IV(b)v and the summary table of key information at the end of the program element of interest. Thus, the default mode of submission remains NSPIRES, as described in E.1, above, on page iv.
8. SMD does not anticipate soliciting proposal for experiments on or launched from the International Space Station.
9. Proposers from, or with, funded team members from other government Agencies should be aware that NASA is using the new "G-Invoicing" system for interagency agreements, see the end of Section II(a). It's taken up to a year to finalize new interagency agreements, so proposers should take this into account in their planning.

There have been many changes to the program elements within ROSES including but not limited to:

- Appendix A (Earth Science) has been substantially reduced and reorganized: Most elements from last year are not solicited this year. We anticipate that all program elements in Appendix A will be DAPR, see Section IV(b)i and Section V(b)i. A.1 Earth Science Overview has been significantly revised to include Earth Science to Action Strategy. New program elements in Appendix A include: A.2 PREFIRE and TROPICS Science Team, A.3 NISAR Research and Applications Science Team, and two new EVS-4 Science Team elements this year: A.5 Snow4Flow Science Team and A.6 Landslide Change Characterization Experiment Science Team. New Earth Action elements include: A.7 Water Quality Applications, A.8 Water Resources Applications, A.9 User-Centered Applications with Large Foundation Models, and A.10 Impactful and Novel use of NASA Earth Observations and Models for Value-

Added Applications, Technology, and Societal Benefits (INNOVATE). Rapid Response and Novel Research in Earth Science continues as A.4 with rolling submissions. Finally, some programs in Appendix A encourage use of the Earth Science standard template for the Table of Work Effort at https://science.nasa.gov/researchers/templates-for-earth-science-division-appendix-a-roses-proposals.

- Appendix B (Heliophysics) has been substantially reduced and reorganized: Most elements from last year are not solicited this year. We anticipate that all program elements in Appendix B will be DAPR, see Section IV(b)i and Section V(b)i. Heliophysics Supporting Research, Heliophysics Theory, Modeling, and Simulations, and Heliophysics Guest Investigators – Open have been consolidated into the new B.2 Heliophysics Foundational Research. What was previously solicited via B.16 Artificial Intelligence/Machine Learning-Ready Data and B.22 Artificial Intelligence Applications in Heliophysics programs is now solicited via the new B.5 Research and Development of Initiatives of Advanced New Technologies (RADIANT) program element (TBD at the time of release of ROSES-25).
- Appendix C (Planetary Science) has been substantially reduced and reorganized: the program elements that were the Emerging Worlds, Solar System Workings, Solar System Observations, Planetary Data Archiving, Restoration, and Tools, Exobiology, Data Analysis Programs, Laboratory Analysis of Returned Samples, and the Planetary Science and Technology Through Analog Research are no longer solicited. Proposals that would have been relevant to any of these programs, with few exceptions, should be submitted to the new C.2 Solar System Science. For C.2 Solar System Science, the anonymized proposal and accompanying references only are submitted, no budget or E&R document is requested at the time of submission. The budget and E&R will be requested later only from selectable proposals, see Section V(b)i. The following programs are not solicited this year in Appendix C: Maturation of Instruments for Solar System Exploration, Planetary Science Enabling Facilities, Interdisciplinary Consortia for Astrobiology Research, Analog Activities to Support Artemis Lunar Operations, Planetary Instrument Concepts for the Advancement of Solar System Observations. Proposals that would be relevant to any of these program elements are not eligible for submission to any other Appendix C program element. C.10 Lunar Mapping is the only program element in Appendix C that is not using dual-anonymous peer review. Conforming to the ROSES default, OSDMPs are not included in the S/T/M Section for any program in Appendix C. Proposers to Appendix C are strongly encouraged to use the planetary science template for Table of Personnel and Work Effort that may be downloaded from: https://science.nasa.gov/researchers/templates-planetary-science-division-appendix-c-roses-proposals.
- In Appendix D (Astrophysics), has been substantially reduced and reorganized: The PDFs for all of the Guest Observer/Guest Investigator program elements have been combined into a single “omnibus” in D.3 AGIGO but, for this year, they do not all share the same due date and row in Tables 2 and 3. D.2 Astrophysics Data Analysis (ADAP) is TBD at the time of release but, if it is solicited, will continue to not request budgets with the proposal, just cost category (small, medium, or large); budgets will be requested later for selectable proposals. Moreover, for D.2 ADAP only, the

anonymized proposal only is submitted, no E&R documents are included at proposal submission. The E&R will be requested later only from selectable proposals. See Section V(b)i.

- In Appendix E (Biological and Physical Sciences) plans to solicit two program elements: A single Physical Sciences program element in E.2, Physical Sciences Research Studies, and a single Biological Sciences program element in E.3 Space Biology Research Studies. Both are currently TBD, and both will evaluate proposals using DAPR, see Section V(b).
- In Appendix F (Cross-Division) SMD plans to solicit a new program element: the Artemis III Participating Scientist Program in program element F.15. F.4 Habitable Worlds (HW) is no longer solicited separately in Appendix F. The subject matter that was previously solicited via F.4 HW is now part of C.2 Solar System Science and F.3 Exoplanets Research. Finally, the program elements with titles starting with "Economic, Social, and Policy Analyses of..." from NASA's Office of Technology, Policy, and Strategy and the ”MOSAICS” elements are no longer solicited.

Other small changes have been made throughout this document and to program elements. It is the proposer's responsibility to read this entire document and the relevant program element to understand the requirements. Changes that occur after this initial release will be announced by amendments, corrections, or clarifications. Subscribe to the NSPIRES mailing lists (by logging in and checking the appropriate boxes under "Account Management" and "Email Subscriptions") and the ROSES-2025 Blog for such updates.

(ii) Changes made in recent years

The following other significant changes or announcements were made in recent years:

- SMD does not prohibit the use of Generative Artificial Intelligence (AI) tools, such as ChatGPT, or professional human writers. However, proposers and grantees must acknowledge content that is not the creative product of the proposal team. Thus, any material contained in proposals (or in reports) to NASA that is not the product of the team must be cited, e.g., either the name of the professional writer and a statement describing to which portions of the document they contributed or, if AI is used, the name of the program, version number, the date and time, and a statement on how the Generative AI was used. For more information see https://science.nasa.gov/researchers/sara/faqs/#faq-32.
- In 2024 Subsection (ii) "Collision Avoidance / Conjunction Assessment Requirements" was added to Section VIII(b) General Guidelines for flight-based research proposals. This requirement applies only to investigations for which all three bullets at the top of Section VIII(b)ii are true. See Section VIII(b)ii.
- In 2023, the requirements regarding archiving of data, software, and publications were strengthened. In particular: 1) As-accepted manuscript versions of publications that derive from ROSES awards must be publicly available at the time of publication 2) Data and software developed using ROSES funding in support of a peer-reviewed publication shall be made publicly available at the time of publication, 3) Scientifically useful data and software developed during the award that was not already published must be made publicly available by the end of the award, and 4) To be eligible to

receive funding, PIs and Co-Is must provide their digital persistent identifier (e.g., ORCID) via NSPIRES under Account Management → Personal Profile.

(e) NASA High-End Computing (HEC) Resources

Proposers may request high-end computing resources from the NASA Center for Climate Simulation (NCCS) at the Goddard Space Flight Center (GSFC) or the NASA Advanced Supercomputing (NAS) facility at the Ames Research Center (ARC). Available computing resources are summarized at https://www.hec.nasa.gov/about/overview.html. Proposers to any ROSES program element may request computing resources at NAS. Computing resources at NCCS are primarily available to the Earth Science community. Proposers to ROSES elements outside of Appendix A must include a justification if requesting computing resources at NCCS.

Starting with ROSES-2025, SMD-funded users of computing resources at NAS will be charged for their use per Standard Billing Unit (SBU, see https://hec.nasa.gov/user/policies/sbus.html for an explanation of the SBU). Proposers requesting computing resources at NAS must include the estimated costs for high-end computing in their proposal budgets. The cost per SBU to be used for budgeting purposes will be provided via a ROSES amendment.

(i) How to Request HEC Resources

To inform science review panels and program officers of your computational needs and, if your ROSES proposal is selected, establish eligibility to use HEC resources, complete and submit a request in the HEC Request Management System (RMS, https://request.hec.nasa.gov).

Please note that proposers who do not have active NASA login credentials (a “NASA Identity”) will need to set up and maintain a NASA Guest Account in order to log into RMS. NASA Guest Accounts can be set up at https://guest.nasa.gov. New users having difficulties getting a NASA Guest Account should contact user support below.

For further information or questions about NASA High End Computing resources, please visit https://www.nas.nasa.gov/hecc/support/user_support.html for NAS User Support and https://www.nccs.nasa.gov/about-us/contact-us for NCCS User Services Group.

(ii) Instructions to Upload Request for HEC Resources

Save a PDF copy of your request after submitting it using the link provided in RMS. During your proposal submission in the NSPIRES system:

- Upload the PDF version of your computing request as a separate file from your proposal; select "Appendix" as the document type when uploading. For DAPR programs, upload as document type “Optional HEC appendix”. Do not combine with the "Expertise and Resources Not Anonymized" document; submit two separate files.
- On the NSPIRES Cover Page
  - Check the box indicating that a request for HEC resources is included in the proposal; and

– Enter the HEC Request Number (specified on the PDF).

This requirement for a separate document is an exception to the general ROSES rule that proposals are made up of only three PDF files: the anonymized proposal, the Expertise and Resources Not Anonymized document, and the Total Budget. For proposals submitted via Grants.gov, the resource request should be attached as an appendix to any appropriate location and the HEC request number should be included on the form provided as part of the application instructions package.

Selection of a ROSES proposal does not guarantee that a HEC request will be fully allocated; HEC requests of selected proposals progress to the next step for evaluation by NASA High-End Computing (see Section iii below). While some HEC time is guaranteed, allocation may differ from the request given resource constraints.

(iii) Allocation of HEC Resources

If your proposal is selected for funding, your HEC request will be evaluated and allocated by the SMD's HEC Allocation Authority group of program scientists.

- HEC requests from selected proposals must be affiliated with an active NASA grant, contract, cooperative agreement or WBS number before they can be allocated. It is the PI's responsibility to provide proof of affiliation (generally a copy of the grant award document). Proof of affiliation should be sent to support@hec.nasa.gov. The PI should also send a list of any users not named in the proposal who would work on the computational project. New users will need to establish their "NASA identity" as described in section (i).
- NASA High-End Computing may adjust the period of performance of the request to match the period of performance of the awarded project.
- Upon the end of the affiliation, access to NASA High-End Computing resources will be terminated.

Allocations may differ from requests due to limited resource availability. However, PIs may submit requests to increase or decrease allocations of HEC resources if there are unexpected changes to computational needs. Requests for modifications must be submitted via the RMS. Allocation in full cannot be guaranteed, but SMD will make every attempt to satisfy the needs in the context of the overall set of requirements, resource constraints, and science priorities.

(f) Successor, Renewal, Resubmitted, Multiple and Duplicate Proposals

Proposers are welcome to submit "successor" or "renewal" proposals that seek to continue a previously funded line of research if it is in scope of the program element to which it is submitted. However, such successor proposals will be considered with neither advantage nor disadvantage along with new proposals that are submitted for that same program. Unless otherwise specified in the program element, such proposals need not explicitly say that they are "renewals", as indicated in Section 11.3 of the GCAM. Moreover, resubmissions of previously declined proposals (GCAM section 14.3) are also welcome if in scope of the program element to which it is submitted. Resubmissions need not discuss how major weaknesses from previous submissions have been addressed.

Proposers are welcome to resubmit proposals (or tasks) that were not funded previously. Such submissions will be peer reviewed and considered with neither advantage nor disadvantage along with new proposals.

Some limits on submissions are given in the overviews and program elements but a brief summary is:

The first limitation on submission bars multiple proposals by a PI to a given program element. Some program elements in Appendix B (Heliophysics), e.g., B.2 Heliophysics Foundational Research, prohibit any individual from being the Principal Investigator (PI) of more than one proposal in the same cycle.

The second limitation bars concurrent submission of "duplicate" proposals. B.1 Heliophysics Research Program Overview and D.1 Astrophysics Research Program Overview both prohibit the submission of proposals that are "the same or essentially the same" proposals already under consideration. In such cases, the first proposal submitted will be evaluated but subsequent duplicate proposals will be returned without review. See Section 1.5 of B.1 Heliophysics Research Program Overview and Section 2 of D.1 Astrophysics Research Program Overview for more information.

Third, the Planetary Science Division bars submission of duplicate proposals to multiple programs within a single ROSES year, or, in the case of the no due date programs, resubmission of proposals that were previously submitted within the past calendar year. See Section 3.2 of C.1 Planetary Science Research Program Overview.

(g) Order of Precedence

There are layers of instructions, starting with the default Agency-level *NASA Grant and Cooperative Agreement Manual (GCAM)* at the lowest in the hierarchy of instructions, followed by - in increasing order of precedence - this *Summary of Solicitation* (SoS), the Division Research Program Overviews (e.g., A.1, B.1…), and finally the individual program elements, which are the highest priority, other than statute, of course, which supersedes everything else. Thus, the *GCAM* sets out the most basic information (like the definitions of the evaluation criteria), but it may be superseded by this ROSES SoS, which presents default information that applies to all program elements within it (like redaction of budgets, the OMB Approval Number 2700-0092, and the CFDA Number 43.001 which are not repeated within each program element). This ROSES SoS in turn may be superseded any program element or Research Program Overview.

In the case of any conflict, the order of precedence is as follows:

1. Statutes and regulations take precedence followed by
2. Program elements
3. Division Research Program Overviews (e.g., A.1, B.1…)
4. The *Summary of Solicitation* of the ROSES NRA (i.e., this document)
5. *The NASA Grant and Cooperative Agreement Manual (GCAM)*

In other words, unless it is superseded by statute or regulation, do what the program element says. If the program element does not tell you what to do, refer to the Division Research Program Overview. If the Overview does tell you what to do, then do what this *ROSES Summary of Solicitation* says. If (and only if) none of them tell you what to do, then default to the instructions in the *GCAM*.

(i) Examples

A example of when this *ROSES Summary of Solicitation* supersedes the *NASA GCAM* is that budgets in ROSES proposals should not include salary, fringe or overhead, see Section IV(b)iii. An example of how an individual program element may supersede the *GCAM* is "letters of affirmation" (sometimes called letters of endorsement). The *GCAM* states that letters that endorse the value or merit of a proposal will not be considered in the evaluation of the proposal, but an individual program element in ROSES may supersede this general guidance and allow such letters of affirmation. An example of a program element superseding this *Summary of Solicitation* is in how Relevance is evaluated. Section V(a) lays out a general approach to evaluating relevance, but an individual program element may require an explicit statement of relevance, e.g., via mandatory text boxes on the NSPIRES cover pages. An example of a research program overview superseding this *Summary of Solicitation* are the limits in C.1 Planetary Science Research Program Overview on the resubmission of proposals to No Due Date (NoDD) or Flexible Due Date programs within a year of the prior submission. For more information, including differences between NoDD and "flexible" see Section 3.2 of C.1 Planetary Science Research Program Overview, https://science.nasa.gov/researchers/nodd/, and the FAQ downloadable from that page.

Questions about differences between ROSES and the *NASA GCAM* should be directed to sara@nasa.gov. Questions about a difference between either of those and an individual program element should be directed to the point of contact for the particular program element and cc sara@nasa.gov.

Answers to these questions may appear in the ROSES NRA Frequently Asked Questions (FAQ) at https://science.nasa.gov/researchers/sara/faqs/. Any FAQs for individual program elements will appear under "other documents" on the NSPIRES web page for the program element. FAQs merely clarify, they do not contradict instructions in the *NASA GCAM*, *ROSES Summary of Solicitation* or program elements.

(h) Access to NASA Facilities/Systems

Recipients shall work with NASA project/program staff to ensure proper credentialing for any individuals who need access to NASA facilities and/or systems. That includes access to High-End Computing Resources. Such individuals include U.S. citizens, lawful permanent residents (“green card” holders), and foreign nationals (those who are neither U.S. citizens nor permanent residents).

(i) Citizen Science

Citizen science projects rely on volunteers. Proposers to any ROSES program element are invited to incorporate citizen science methodologies into their submissions, where such methodologies will advance the scientific objectives of the proposed investigation. In addition, there are ROSES elements that specifically emphasize citizen science. See, for example, F.9 Citizen Science Seed Funding program element of this ROSES solicitation. See the citizen science web page at https://science.nasa.gov/citizenscience for information about existing SMD-funded projects and the NASA Citizen Science Community.

(j) Science Activation

NASA's Science Mission Directorate recognizes the importance that its content and experts play in advancing human knowledge. Through competitively selected teams and community-based organizations across the U.S. and online, a robust set of public engagement resources and opportunities are created. To learn more and find resources you might leverage, visit: https://science.nasa.gov/learn/about-science-activation/. SMD is evaluating whether to solicit proposals to refresh the SciAct teams under element F.6 Science Activation. You can also volunteer as a subject matter expert in the Science Activation program, see https://science.nasa.gov/learners/sme-map.

(k) Other Information about this Solicitation

As stated in Section IV(b)(i), registration in either proposal submission system which may be used to submit proposals to this solicitation, NSPIRES or https://www.grants.gov/, must be performed by an organization's electronic business point-of-contact in the System for Award Management (SAM). The Data Universal Number (DUNS) number is no longer be the official identifier for doing business with the U.S. Government. Entities doing business with the federal government must use a Unique Entity Identifier created in SAM.

In general, ROSES proposals are solicited by the Science Mission Directorate, as indicated by Assistance listing number 43.001 on the front page. However, if a program element is solicited jointly with another part of NASA or another agency the assistance listing number(s) will be given in the relevant program element(s).

II. Award Information

(a) Funding and Award Policies

Prospective proposers are warned that funds are not available for new awards for most program elements at the time of its release. The Government's obligation to make awards is contingent upon the availability of sufficient appropriated funds from which payment can be made and the receipt of proposals that are found to be acceptable for award under this NRA.

Awards from ROSES may support projects as they were proposed, or NASA may offer to fund only selected parts, or all or part of what was proposed for a shorter duration than proposed (e.g., a one-year pilot study), or a combination of duration and content reductions. Awards may depend on receipt of acceptable revised budgets, statements of work, open science and data management plans, or other elements of proposals described in ROSES or in the *NASA GCAM*. Moreover, even after an award letter has been sent or an award has begun, NASA has the authority to suspend or terminate a grant in whole or in part in accordance with 2 CFR (Code of Federal Regulations) 200.339–341.

The funds expected to be available for the first year of new awards for proposals submitted in response to this NRA are given in the Summary Table of Key Information at the end of each program element. An estimate of the number of awards that might be made for each program element is also given in this table, contingent on budget

allocation to that program element, availability of funding, and presuming the submission of sufficient highly rated proposals.

The typical period of performance for an award is three years, but some programs may allow up to five years and others may specify shorter periods. Proposals may request fewer than the maximum number of years allowed by a program element (e.g., for pilot studies to demonstrate of the viability of methods or hypotheses) but may not request more than the maximum number of years given in the Summary Table of Key Information at the end of each program element.

NASA's goal is to initiate new awards as rapidly as possible after the selection of proposals is announced. However, the workload experienced by NASA, the availability of appropriated funds, and any necessary post-selection negotiations with the proposing organization(s) needed for the award(s) in question can all cause delays. Regarding this last item, every proposer is especially encouraged to submit full and detailed explanations of the requested budget to help expedite the processing of the award, should their proposal be selected.

The ROSES NRA is structured to allow NASA to make the full range of award types: grants, cooperative agreements, contracts, and intra- (within NASA) or inter- agency transfers. The budget narrative need not state the type of award instrument that is anticipated. However, unless otherwise stated in a program element (or the result of a pre-existing contracts, e.g., JPL), ROSES proposals from non-governmental organizations will result in federal assistance awards, not contracts. In the rare cases where proposals would result in contracts, the program element will say so explicitly. At the time of release, no program elements offer contracts.

A NASA awards officer will determine the appropriate award instrument for the selections resulting from this solicitation based on the guidance in Section 3 of the *NASA Grant and Cooperative Agreement Manual (GCAM).* As indicated in the GCAM*,* whether non-governmental organizations will receive grants or cooperative agreements (CAs) depends on whether there is substantial NASA involvement in addition to the NASA funding. For example, if the proposing org is a NASA Center, then a funded Co-Investigator at a non-governmental organization would receive a CA. When NASA provides or procures the launch service, see Section VIII, or if a NASA civil servant is a Co-Investigator, the non-governmental organization would receive a CA. Finally, if a NASA contractor is a Co-Investigator the non-governmental organization may receive a CA, depending on the scope of work.

If a prospective proposer thinks that their work should be funded as a contract, but the program element does not explicitly allow this, the proposer should communicate with the point of contact for that program element and cc sara@nasa.gov well in advance of proposal submission. Even so, a contract will only be issued if appropriate, e.g., if it would provide a product or service for NASA, to satisfy a NASA requirement.

Grants and cooperative agreements will be subject to the policies and provisions identified in the regulations at 2 CFR (Code of Federal Regulations) 200 and 2 CFR 1800, the NASA Grant and Cooperative Agreement Manual (GCAM). Contracts will be subject to the provisions of the Federal Acquisition Regulations (FAR) and the NASA FAR Supplement. 2 CFR 200 is currently hosted here.

All awards issued will be compliant with Executive Orders, see https://www.nasa.gov/nasa-global-contractor-and-grantee-community-memos/.

Awards to governmental agencies other than NASA will be made as interagency agreements (IAAs). Governmental proposers should specify whether they think that their IAA should be an assisted acquisition (FAR definition) or not, if known. NASA is required to use the Treasury's G-Invoicing system for IAAs, if the other agency can accommodate their use. If not, NASA will continue to use its legacy processes utilizing the 7600 forms and Treasury's IPAC system in accordance with Treasury's G-Invoicing Rules of Engagement. Processing time for new interagency agreements can be as much as a year from selection to the arrival of funds. Interagency agreements must comply with executive orders, see https://www.nasa.gov/nasa-global-contractor-and-grantee-community-memos/.

(b) Award Period of Performance

The maximum period of performance (duration) for new awards from proposals submitted in response to this NRA is given in the Summary of Key Information at the end of each program element. The period of performance ranges from one year to five years for extensive, comprehensive studies, with three years being typical. Award durations may be longer in special cases, such as teams of long-duration space missions. Whatever the proposed period of performance, it must be justified in the proposal. The appropriateness of the proposed period of performance will be evaluated by peer review. SMD may offer to support an award of shorter duration than was proposed. Award start and end dates will vary by program element, but award start dates are rarely less than 6 months from the proposal due date. The NASA Shared Services Center will communicate with non-governmental proposers about the start date.

(c) Increasing Access to the Results of Federally Funded Research

Unless otherwise stated in a program element, in keeping with NASA's Public Access Plan (PDF), all full (= Step-2) proposals must include an Open Science and Data Management Plan (OSDMP), see below. The requirements regarding archiving of data, software, and publications were strengthened in recent years. In particular: 1) As-accepted manuscript versions of publications that derive from ROSES awards must be publicly available at the time of publication; 2) Data and software developed using ROSES funding in support of a peer-reviewed publication shall be made publicly available at the time of publication; 3) Scientifically useful data and software developed during the award that was not already published must be made publicly available by the end of the award; and 4) To be eligible to receive funding, PIs and Co-Is must provide their digital persistent identifier (e.g., ORCID) via NSPIRES under Account Management → Personal Profile. See the section on "Persistent Identifiers for Investigators" in the SMD Open-Source Science Guidance. To support the sharing of scientific information, SMD will provide a Digital Objective Identifier (DOI) for the information released publicly for the award (title, abstract, and authors).

If a program element requires an OSDMP, it will be evaluated as part of the proposal's intrinsic merit and thus will have a bearing on whether the proposal is selected. Unless otherwise stated, the OSDMP will be placed in a two-page section in the proposal PDF

immediately following the references and citations for the Scientific/Technical/ Management (S/T/M) section of the proposal and does not count against the page limit for the S/T/M Section. SMD is now providing an optional standard SMD template for the Open Science and Data Management Plan (OSDMP) that will work across all of ROSES at https://science.nasa.gov/researchers/sara/faqs/OSDMP. Use of the template is optional, merely provided for the convenience of proposers. This new SMD template supersedes division-specific templates provided previously. See also the SMD Open-Source Science Guidance at http://science.nasa.gov/oss-guidance**.**

Program elements that do not conform to the default approach for OSDMPs described here will say so explicitly. For some proposals, the nature of the work is inexorably linked to the manipulation and processing of data, so the OSDMP is an integral part of the page-limited S/T/M section of the proposal. Examples include (but are not necessarily limited to) certain proposals to D.2 Astrophysics Data Analysis. Additionally, instrument development and technology development programs are generally exempted from providing an OSDMP under the presumption that no "data" will be generated. However, even if an OSDMP is not a required part of a proposal, if an award is made the standard obligations regarding the release of data, software, and publications described here still apply.

As always with ROSES, this *Summary of Solicitation* sets the defaults, but any division may modify or supersede these in the Division Research Program Overviews (e.g., A.1, B.1…) or in a specific program element, see Section I(g). For example, some elements may require and allocate more space for a separate Software Development Plan and/or may require that software must be made publicly available under a certain license, may specify preferred archives, or may otherwise require more than is outlined in this *Summary of Solicitation*.

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.

The archiving of data, software, and manuscripts must be addressed in the annual progress reports. Not appropriately archiving these important results of ROSES-funded research, as described below, may delay, or prevent annual increments of funds.

For the convenience of proposers, we address separately below the requirements on data, software, and publications that result from ROSES awards.

(i) Data

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. 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. 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.

For more information about meeting these requirements, see 'Data Management and Sharing' in the SMD Open-Source Science Guidance. No later than the end of calendar 2025, SMD plans to provide additional options for the long-term hosting of data produced from SMD ROSES awards. This may include hosting at NASA or Federal data repositories, community-based repositories, or other instructions for how the data should be archived. Thus, researchers need not include the cost of public access to their data or storing their data beyond the end of the period of performance of their award in their budgets. Per 2 CFR 200.455 costs related to data and evaluation are allowable grant expenditures. Future guidance and instructions related to how to publicly share the data will be made available via the Scientific Information Policy website.

(ii) Software

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

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. 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. Future guidance and instructions related to how to publicly share software will be made available via the Scientific Information Policy website. Guidance on how to share software including providing a DOI is described in the SMD Open-Source Science Guidance.

(iii) Publications

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**.** 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.

(d) Rephasing of Award Budgets, Family or Medical Leave, and No-Cost Time Extensions

Occasionally the schedule for a research project changes, and this will change the phasing of the funding requirement. "Rephasing" funding may be initiated either at the request of the PI or NASA.

In keeping with NASA's policy, SMD will accommodate all reasonable requests from the PI or Authorized Organization Representative (AOR) to rephase ROSES awards to accommodate a PI's need to care for family and health (e.g., for family or medical leave). In the case of contracts, contact your contracting officer regarding rephasing given previously agreed upon project goals, timelines, or deliverables associated with a NASA requirement described in the contract.

NASA policy allows recipients of federal assistance awards to initiate first time no-cost extensions (NCEs) of up to 12 months. Recipients should use the form at https://www.nssc.nasa.gov/nocostextension to request NCEs well in advance of the end date of the award, see https://science.nasa.gov/researchers/sara/faqs/#faq-10. Under "Type of Administrative Supplement request" check the box for "No-Cost Extension Request". PIs at other Agencies who have questions about modifying an interagency agreement or at NASA Centers who wish to rephase funds must contact their program officer directly.

SMD program officers may engage in active grant management to diminish carrying forward uncosted funds from one fiscal year to the next fiscal year (carryover). Program officers may invite PIs to rephase their funding requirement where funds for a year or more are being carried forward. In this way, the awarding of future year funds can more

closely align with the timing of project activities. The total funds disbursed over the period of performance will not change, only the fiscal year (FY) in which they arrive.

SMD policy is that rephasing should not cause work on continuing awards to be deferred because of a delay in receipt of funds. PIs should communicate clearly to the program officer if a rephasing would interfere with the planned schedule for the award. If an award is rephased, NASA will make every reasonable effort to provide the next fiscal year funding in a timely manner. Honoring commitments and ensuring the continuation of existing projects is a high priority of SMD.

III. ELIGIBILITY

Unless otherwise restricted by a particular program element, organizations of every type, domestic and foreign, Government and private, for-profit, and not-for-profit, may submit proposals without restriction on teaming arrangements, other than with China, see subsection (c), below. However, not all organizations will receive funding: foreign organizations in general are not funded, see (b) below and Earth Science Division (i.e., Appendix A) program elements have a new eligibility restriction: Federal agencies other than NASA and FFRDCs other than JPL will not receive funding from Appendix A elements. Team members from government agencies other than NASA are welcome at no cost (as unfunded Co-Is or collaborators). Other than any statutory restrictions related to ITAR and EAR there are no default ROSES eligibility restrictions related to citizenship. See also ROSES FAQ 31.

Each applicant for NASA funding (unless the applicant is an individual or is granted an exception by a Grant Officer utilizing flexibilities in 2 CFR 25.110) is required to follow requirements in 2 CFR 25.200 and 205 which stipulates that applicants must:

- Be registered in the System for Award Management (SAM https://sam.gov/) before submitting an application;
- Provide its Unique Entity Identifier (UEI) in each application or plan it submits to NASA. UEIs may be obtained by registering in SAM.gov; and
- Continue to maintain an active registration in SAM.gov with current information at all times during which there is an active Federal award or an application or plan under consideration by NASA.

NASA does not make awards or financial modifications to an existing award to entities unless they have an active SAM.gov registration with current information.

Proposing organizations must be registered in SAM. Registration may take several weeks to complete so proposing organizations are encouraged to begin well in advance of the proposal due date. Once the organization has a SAM record, the listed Organization Point of Contact must register as a user with NSPIRES, log on, then begin the organization registration process. Proposing organizations must maintain an active SAM registration with current information including on immediate and highest-level owner and subsidiaries, as well as on all predecessors that have been awarded a Federal contract or grant within the last three years, if applicable, for all times during which it has an active Federal award or an application or plan under consideration by NASA, and provide its UEI (obtained by registering in SAM.gov) with each submission. NASA may not issue an award or financial modification to an existing award unless the

entity has provided a valid UEI and maintains an active SAM registration with current information. At the time of issuing an award, if the intended recipient has not complied with the UEI or SAM requirements, NASA may determine that the applicant is not qualified to receive an award.

Per Federal statutes and NASA policy, no eligible applicant shall experience exclusion from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NASA on the grounds of their race, color, age, sex, national origin, or disability.

To broaden the base of investigators involved in SMD-supported science and engineering, SMD especially seeks proposals from investigators who and institutions that have rarely if ever received funding from SMD. A resource that some proposers may find useful is the NASA MSI Exchange at https://msiexchange.nasa.gov/.

(a) Number of Proposals and Teaming Arrangements

There is no general restriction on the number of proposals that an organization may submit to this solicitation, nor on the teaming arrangements, including teaming with NASA Centers and the Jet Propulsion Laboratory. However, some division research overviews (e.g., A.1, B.1 etc.) or program elements limit the number of proposals that may be submitted on behalf of an individual PI to a program element or bar duplicate proposals, see Section I(f).

Moreover, Earth Science (Appendix A) and Planetary Science (Appendix C) will not fund via interagency awards (awards to or through other government agencies). Team members from government agencies other than NASA are welcome at no cost (as unfunded Co-Is or collaborators). Potential proposers to Heliophysics (Appendix B), Astrophysics (Appendix D), and The Exoplanets Research Program must receive approval from the program element point of contact prior to submitting proposals with investigators or organizations funded via interagency awards (see B.1, D.1 and F.1). Potential proposers to Astrophysics (Appendix D) should refer to D.1 regarding dollar thresholds for IATs. [Amended July 15, 2025]

(b) Foreign Participation in General

Participation in ROSES-funded research by non-U.S. organizations is welcome on a "no exchange of funds" basis (see NFS 1835.016). That is, unless otherwise stated, NASA will fund research at selected U.S. organizations and the sponsoring foreign agency or institution must do the same for theirs. NASA does not fund research efforts at foreign organizations, including travel, whether proposed directly by a foreign organization, or as part of proposals submitted by U.S. organizations. However, the direct purchase of goods, supplies and/or services, which do not constitute research, from non-U.S. sources by U.S. award recipients is permitted.

If a proposal with a non-U.S. institution is selected, NASA will determine whether such participation should be covered by and implemented through an international agreement between NASA and the sponsoring foreign agency or funding/sponsoring institution under which the parties agree to each bear the cost of discharging their respective

responsibilities. Any such agreements would have to comply with executive orders, see https://www.nasa.gov/nasa-global-contractor-and-grantee-community-memos/.

Co-Is from foreign organizations on proposals from U.S. organizations must include a letter of certification from their government agency or funding/sponsoring institution indicating that, should NASA select the proposal, the support needed by the foreign Co-I for their portion of the research will be provided.

Further information on participation by foreign organizations is provided in ROSES FAQ #14 on this topic and the *NASA GCAM*.

(c) Restrictions Involving China

Proposals involving bilateral participation, collaboration, or coordination in any way with People's Republic of China (PRC) or any PRC-owned company, whether funded or performed under a no-exchange-of-funds basis, shall be ineligible for award.

Proposals directly from PRC organizations and/or with a PI affiliated with a PRC organization, are not eligible and will be declined without review.

For more information, please see the ROSES PRC FAQ on the SARA web page at https://science.nasa.gov/researchers/sara/faqs/prc-faq-roses/.

(d) Cost Sharing or Matching

Unless otherwise specified, cost sharing is not required to receive a grant or cooperative agreement, although NASA may accept cost sharing if it is voluntarily offered, see Section 23 of the NASA *Grant and Cooperative Agreement Manual (GCAM)*, 2 CFR 200.306, and 2 CFR 1800.306. Warning: cost share is a serious commitment and not making it can have serious consequences. As described in Section 23 of the GCAM, should the recipient not be able to meet the cost share, the award amount may be reduced in proportion to the cost share not provided.

Each proposal must include a Table of Personnel and Work Effort with names and planned work of all personnel necessary to perform the proposed effort, regardless of whether that work effort requires funding or not. As this is outside of the budget section, any work listed in this table that is not to be funded by NASA is not considered cost sharing as defined in 2 CFR 200. Level of effort estimates for unfunded team members are not intended to represent voluntary committed cost sharing. Collaborators must be listed on the table, but their level of effort may be simply given as "de minimis." See Section IV(b)iii for an example.

IV. Proposal and Submission Information

Almost all information needed to apply to this solicitation is contained in this ROSES NRA and anything not mentioned here is subject to the default Agency rules in the *NASA GCAM*. 48 CFR 1852.235-72 "*Instructions for responding to NASA Research Announcements*" appears by reference in the *NASA GCAM*. Proposers are responsible for understanding and complying with its procedures for the successful, timely preparation, and submission of their proposals. Proposals that are clearly not responsive or not relevant or do not conform to the (formatting or content) standards

may be declared noncompliant and returned without review or may be declined after review.

The introductory material, as well as the appendices, of the *GCAM* provides additional information about the entire NRA process, including NASA policies for the solicitation of proposals, guidelines for writing complete and effective proposals, and NASA's general policies and procedures for the review and selection of proposals and for issuing and managing the awards to the institutions that submitted selected proposals.

Unless otherwise stated in the program element, each proposal must be a single separate, stand-alone, complete PDF document for evaluation purposes, other than the Total Budget file, the (optional) HEC request appendix, and, if relevant, documentation associated with the Dual-Anonymous Peer Review (DAPR) process.

Frequently Asked Questions (FAQs) for ROSES may be found at https://science.nasa.gov/researchers/sara/faqs/. High-level grants policy FAQs about federal assistance awards are at:https://www.nasa.gov/grants-policy-and-compliance-team/#Frequently-Asked-Questions-(FAQs).

NASA collects optional demographic data (sex, race, ethnicity, disability status, and year of final degree) from proposers via NSPIRES for the purpose of analyzing its award processes, see for example: https://science.nasa.gov/roses2021yearbook/. Submission of this demographic information is strictly voluntary, is not communicated to program officers, and is neither any part of the evaluation or selection process nor a precondition of award.

(a) Web Addresses for Due Dates and Amendments

This ROSES-2025 NRA will be available as PDF files, at https://solicitation.nasaprs.com/ROSES2025 and is synopsized on Grants.gov (https://www.grants.gov). The names of the program elements that make up ROSES are given in Table 2 (ordered by proposal due date) and Table 3 (ordered by Division/Topic). Each program element name in these tables is hypertext linked to a web page. On the right of that page, at the bottom of the list of "Announcement Documents", a PDF version of that program element may be downloaded. Individual program elements in ROSES expected to result in grants (and/or cooperative agreements) are synopsized on Grants.gov at the time of their release, but most will not automatically have an application package on Grants.gov. Starting in 2025, for most program elements, application via grants.gov will only be available if it’s requested at least 30 days in advance of the proposal due date. This is clearly stated in the Summary of Key Information at the end of each program element.

SMD maintains an electronic notification system to alert all registered users of the NASA proposal database system at https://nspires.nasaprs.com of its research program announcements. To add or change a subscription to the electronic notification system (e.g., to learn of additional new program elements or amendments to ROSES), users should login, select "Account Management" then "email Subscriptions." Owing to the increasingly multidisciplinary nature of SMD programs, this email service will notify all subscribers to the Science Mission Directorate General Subscription List of (i) all NASA SMD research program solicitations regardless of their type or science objectives; (ii)

amendments to all SMD solicitations that have been released for which the proposal due dates have not passed; and (iii) special information that SMD wishes to communicate to those interested in proposing to its sponsored research programs. Altogether, a subscriber may receive 75-100 notifications per year. SMD maintains this subscription list in confidence and does not attempt to discern the identity of its subscribers. Division-specific subscription lists are used to communicate non-solicitation information of interest to that Division's community. Automated spam filtering software may identify SMD's electronic notifications as spam or junk mail. Subscribers are advised to ensure that email received from "…@listsrv2.nasaprs.com", "NSPIRES-help@nasaprs.com", or nspires@nasaprs.com are not identified by any automated email filtering system as unwanted email. Note that the latter address is an outgoing (from NSPIRES) address only; all enquiries should be directed to the help address.

In addition, potential proposers to ROSES are encouraged to subscribe to:

- The ROSES-2025 Blog for amendments, clarifications, and corrections at https://science.nasa.gov/researchers/solicitations/roses-2025/ and
- The ROSES-2025 due date Google calendars. Instructions are at https://science.nasa.gov/researchers/sara/library-and-useful-links.

Questions regarding a program element should be directed to the program officer identified in the Summary Table of Key Information at the end of each program element or on the list of program officers on the SARA web page. Any clarifications or questions and answers that are published will be posted on the relevant program element's index page in NSPIRES.

(b) Content and Form of the Proposal

The technical content required of a ROSES proposal is determined by the individual program elements listed in and hypertext linked from Table 2 (ordered by due date) and Table 3 (ordered by Division/Topic). The constituent parts of the proposals are given in Table 1 at the end of this *ROSES Summary of Solicitation*.

For more information about the types of research supported by the individual program elements solicited in previous editions of this NRA and other predecessor NRAs, the titles and abstracts of all investigations selected through previous solicitations are available by program element at https://nspires.nasaprs.com: click "CLOSED/PAST", filter by keyword for the particular ROSES program element of interest, follow the link to the page, and information on the selected proposals will be in a downloadable PDF file. For example, the selections from proposals submitted to F.3 Exoplanets Research in ROSES-2024 may be found on the NSPIRES page for that program element, by downloading the PDF linked from the words "Exoplanets Research 2024 Selections" under the heading "Selections".

(i) Electronic Proposal Submission

All proposals in response to this ROSES NRA must be submitted electronically and on time by one of the officials at the PI's organization who is authorized to make such a submission. No hard copy submission of the proposal is permitted. Electronic submission by a person authorized to do so for the organization (see below) serves as the required "signature" of the proposing organization. Difficulty in registering with or

using a proposal submission system is not, in and of itself, a sufficient reason for NASA to consider a proposal that is submitted after the proposal due date (See the SMD Policy on Late Proposals). After submission via NSPIRES, proposers can verify successful proposal submission by logging into NSPIRES and selecting "proposals" and "Submitted Proposals/NOIs". Additionally, the proposal PI and the submitting organization's AOR(s) will receive an email from NSPIRES confirming that the submission has been completed.

Proposers may opt to submit proposals in response to this ROSES NRA via either of two different electronic proposal submission systems: the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) at https://nspires.nasaprs.com; see Section IV(b)(iv) below, or Grants.gov at https://www.grants.gov; see Section IV(b)(v) below. The only exceptions are occasional joint calls with other Agencies that use the other Agency submission system and the Astrophysics General Investigator (GI) and General Observer (GO) programs for which Phase-1 proposals can only be submitted via the Astrophysics Research Knowledgebase Remote Proposal System. See Section IV(b)viii on the two-phase process and those program elements for details.

Note the following requirements for submission of an electronic proposal, regardless of the intent to submit via NSPIRES or Grants.gov:

- Every organization that intends to submit a proposal to NASA in response to this NRA, including educational institutions, industry, not-for-profit institutions, the Jet Propulsion Laboratory, NASA Centers, and other U.S. Government agencies, must be registered in NSPIRES. This applies equally for proposals submitted via Grants.gov. Every organization that intends to submit a proposal through Grants.gov must also be registered in Grants.gov, as well as in NSPIRES. Registration for either proposal data system must be performed by an organization's electronic business point-of-contact in the System for Award Management (https://www.sam.gov/SAM/). Applicants must maintain an active SAM registration, with current information loaded, at all times while competing for a federal award, and, if applicable, during the period of performance of the award.
- Any organization requesting NASA funds through the proposed investigation must be listed on the Proposal Cover Page. NASA will not fund organizations that do not appear on the Proposal Cover Page.
- Unless specifically allowed by an individual program element, Co-PIs are not permitted. The use of other team member roles in NSPIRES (described in the *GCAM*) including Co-I/Science PI, Co-I/Institutional PI, and Co-I/Co-PI (only from a non-U.S. organization under specific circumstances), are permitted. Any role with "PI" in the title is subject to the rules, requirements, page limits, etc. laid out for the PI. For more information on rules and expectations regarding the Co-I/Science PI, please see SARA FAQ #9.
- Each individual team member (e.g., PI, Co-Investigators, and Collaborators), including all personnel named on the proposal's electronic cover page, must be registered in NSPIRES. NSPIRES registration applies equally for proposals submitted via Grants.gov since these databased names and affiliations are used for

conflict-of-interest checking. Additionally, each team member must confirm their participation on that proposal (indicating team member role) and must specify an organizational affiliation. For proposals submitted via NSPIRES, this confirmation is via NSPIRES (see Section IV(b)(iv), below). For proposals submitted via Grants.gov, this confirmation is via "Letters of Commitment" included within the proposal. The organizational affiliation specified on the cover page must be the organization through which the team member would work and receive funding while participating in the proposed investigation. If the individual has multiple affiliations, then this organization may be different from the individual's primary employer or preferred mailing address. Team members are asked to ensure that their contact information in NSPIRES is up to date. Changes can be made using the "Account Management" link on the "NSPIRES Options" page.

Submission of proposals via either NSPIRES or Grants.gov is a two-part process. When the PI has completed entry of the data requested in the required electronic forms and attachment of the allowed PDF attachments, including the Science/Technical/ Management section, an official at the PI's organization who is authorized to make such a submission, referred to as the Authorized Organizational Representative (AOR), must submit the electronic proposal (forms plus attachments). Coordination between the PI and his/her AOR on the final editing and submission of the proposal materials is facilitated through their respective accounts in NSPIRES and/or Grants.gov.

(ii) Proposal Format and Contents

All proposals submitted in response to this NRA must include responses to any questions and/or electronic forms required by NSPIRES or Grants.gov. For example, submission requires online input of a 4000-character Proposal Summary (the award purpose, goals, and outcomes and, if applicable, indicators and beneficiaries written in plain language for public release, if selected), Business Data (such as dates and fiscal years), Other Project Information (such as Environmental Impact), Budget information, Program Specific Data (such as government participation), and online confirmation of team members.

The Technical proposal must be submitted as a searchable, unlocked PDF file that is attached to the electronic submission using one of the proposal submission systems. The proposal must contain the information needed for the reviewers to evaluate the application. The proposal may include links, but reviewers are not obligated to follow them. Proposers must comply with all format requirements specified in this NRA (see below and Table 1 of this *Summary of Solicitation*) and in the *GCAM*. The S/T/M section is page limited and only the parts specified in Table 1 are permitted. Proposals that exceed page limits, violate formatting rules, or contain extra sections or appendices that are not specifically requested or allowed by this NRA or a program element, may be declared noncompliant and returned without review or rejected after review, no matter what their rating. The *GCAM* provides default Agency-wide discussions of the content and organization of proposals, as well as the default page limits of a proposal's constituent parts. Those apply by default unless superseded by instructions detailed in ROSES, see Section I(g).

Program elements may specify page limits for the Science/Technical/Management section of the proposal that differ from and supersede the 15-page default; if so, these page limits will be prominently given in the Summary of Key Information subsection that concludes each program element description. In the event the information in this NRA is different from or contradictory to the information in the *GCAM*, ROSES takes precedence, see Section I(g).

Typically, an electronic proposal consists of electronic forms (i.e., the NSPIRES cover pages) and either two or three required attachments, depending on whether or not the program is using dual-anonymous peer review (DAPR), see Section V(b). In addition, there may also be an optional high-end computing (HEC) request, see Section I(e).

We will now go through each one of these parts in turn.

The electronic forms (i.e., the NSPIRES cover pages) contain information about the proposing organization, team members, and other things that will appear on a proposal's cover pages (like the proposal summary) that will be stored with the proposal in the NSPIRES database. For a walkthrough please refer to the NSPIRES help pages.

In most cases, a proposal submitted in response to this NRA must be prepared for dual-anonymous peer review (DAPR), see Section V(b) and thus most proposals will have three required attachments (in addition to an optional HEC request): 1) the anonymized technical proposal PDF, 2) the not anonymized expertise and resources document, and 3) the Total Budget PDF. In the vast majority of cases where DAPR will be used, the program element text will list which parts of the proposal go into the anonymized technical proposal PDF and which go into the not anonymized expertise and resources document.

For the few cases where DAPR will not be used (e.g., C.10 LMAP), there are two required attachments (in addition to an optional HEC request): 1) the proposal PDF, 2) the Total Budget PDF. In these few cases where DAPR will not be used, the proposal PDF contains all ten sections of the proposal listed in Table 1, including the optional Table of Contents, main Science/Technical/Management (S/T/M) section, References, Open Science and Data Management Plan (see Section IIc for exceptions), Biographical sketches/CVs, Table of Personnel and Work Effort, Current and Pending Support, any Statements of Commitment or Letters, Budget (excluding any salary, fringe or overhead see Section IV(b)iii), and Facilities and Equipment.

The main S/T/M section includes the items in the "Content" rows on page 2 of Table 1 of ROSES and Section 10.3 of the *NASA GCAM*. Note, quantification of uncertainty is a key component of "Gold Standard Science" and proposals must address sources of error and uncertainties and what effect they may have on the robustness of potential results and conclusions.

Unless specifically excluded by the program element (see below), the separately uploaded Total Budget PDF is required and contains the full and complete budget, including salary, fringe and overhead (see Section IV(b)iii). Exceptions, i.e., proposals that do not have a separately uploaded Total Budget PDF are of two types:

- First, ROSES programs that do not request budgets with the proposal, just cost category (small, medium, or large) like C.2 Solar System Science, and D.2 Astrophysics Data Analysis Program (ADAP) and,
- Second, Phase-1 proposals for the astrophysics General Investigator General Observer (GO) programs, see Section IV(b)(viii).

If there is an accompanying HEC request (see Section I(d) above) then a HEC Appendix is uploaded as a separate, third PDF.

Unless otherwise stated in the appendix or program element, proposals submitted in response to ROSES must follow these rules for formatting: The body text and captions may not, on average across a solid block of text, exceed 15 characters per horizontal inch, including spaces, though text within figures and tables may be smaller if still judged by the reviewers to be readable. Easily read sans serif fonts (e.g., Arial, Helvetica, Verdana) are encouraged but not required. Proposals may not have more than 5.5 lines per vertical inch of text, must have at least one-inch margins, be set for US letter size (8.5x11) paper, and may not have expository text necessary for the proposal located solely in figures, tables, or their captions. Moving images are not allowed unless explicitly permitted by the program element. Pages must be numbered.

Important note on creating PDF files for upload: It is essential that all PDF files generated and submitted meet NASA requirements. This will ensure that the submitted files can be ingested by NSPIRES regardless of whether the proposal is submitted via NSPIRES or Grants.gov. At a minimum, it is the responsibility of the proposer to: (1) ensure that all PDF files are unlocked and that edit permission (e.g., document assembly) is allowed – this is necessary to allow NSPIRES to concatenate submitted files into a single PDF document; and (2) ensure that all fonts are embedded in the PDF file and that only Type 1 or TrueType fonts are used. TeX and LaTeX users are strongly cautioned to ensure that their settings conform with the paper size, font size, margins etc., listed above. Do not include any digital signatures in the proposal document, NSPIRES cannot concatenate these PDF files with the cover page, total budget, etc. For more information on creating NSPIRES compliant PDF documents see the NSPIRES PDF guidelines. PDF files that do not meet NASA requirements cannot be ingested by the NSPIRES system; such files may be declared noncompliant and not submitted to peer review for evaluation.

There is a 20 MB size limit for proposals. Proposers may not use acronyms in the S/T/M section that are defined solely outside of the page-limited S/T/M section. Acronyms must first be defined in the S/T/M Section.

If a proposal contains export-controlled material, program specific data questions on the cover page shall be answered appropriately and the material shall be presented in the proposal document in a red font or enclosed in a red-bordered box, and the following statement shall be prominently displayed on a title page (that doesn't count against the page limit) at the very beginning of the uploaded proposal document:

"The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance

agreement. The identified information (data) is (are) printed in a red font and figure(s) and table(s) containing the identified information (data) is (are) placed in a red-bordered box."

See also the ROSES FAQ on export-controlled material in proposals at: https://science.nasa.gov/researchers/sara/faqs/#faq-31.

(iii) Table of Work Effort and Redaction of Salary, Fringe and Overhead Costs

Peer reviewers need to see the individual effort that will be spent on the project, whether or not at the proposing organization, and whether or not NASA would be paying for it as a result of this proposal. Thus, every proposal must include at least one Table of Personnel and Work Effort. DAPR programs typically require two: one anonymized in the proposal and another not anonymized in the "Expertise and Resources Not Anonymized" document. See Section IV(b)i and Section V(b) for more information. The Table of Personnel and Work Effort simply lists all the planned work commitment, by person or role without any technical details.

This table (see simple example below) is outside of and distinct from the budget and the page-limited main part of the proposal. Thus, any person time listed in the table of work effort that is offered at no cost by the proposing organization is assumed to be an estimate and not cost sharing. Descriptions of the work that each team member would be performing must be included in the page-limited S/T/M section of the proposal, not in this table.

Example (not anonymized) Table of Personnel and Work Effort

Person and/or Role	Time charged to this proposal	Time not charged to this proposal	Total Time per person/year
PI, Bennet, Eliza	3 months/year	N/A	3 months/year
Co-I, Darcy, Fitzwilliam	4 months/year	N/A	4 months/year
Co-I, Lucas, Charlotte*	N/A	1.5 months/year	1.5 months/year
Collaborator, C. Bingley	N/A	*de minimis*	*de minimis*
Grad Student, G. Wickham°	N/A	12 months/year	12 months/year

* Funded by a de Bourgh Fellowship at the Rosing's Park Church School, Ms. Lucas is participating at no cost to this proposal.

° A letter of support is provided for George Wickham a Graduate student from the Gretna Green space academy (foreign organization) participating at no cost to this proposal.

The example table above presumes a simple case for which all investigators are working the same amount of time on the project each year. The reality is often more complicated, and your table should reflect the best estimate of the amount of time each team member will spend on the project. Planetary Science Division Templates have been provided for those proposing to Appendix C, and Earth Science Division Templates for the Table of Work Effort are now strongly encouraged for an increasing number of program elements in Appendix A.

Peer reviewers do not need to know salaries or overhead rates to evaluate the cost reasonableness of ROSES proposals. Thus, proposals should not include costs of

salary, fringe, or overhead anywhere in the uploaded proposal PDF, including the budget detail or justification sections in the main proposal, which will be seen by peer reviewers. Unless otherwise specified by the program element, all proposers must include all costs, including salary, fringe and overhead of NASA civil servants, all subawards, and any separate Co-I awards in two places outside of the uploaded proposal PDF: the NSPIRES web page budgets and the separately uploaded "Total Budget" PDF file, see below and the walkthrough on this subject.

However, peer reviewers certainly do need to see the costs of everything other than salary, fringe, and overhead. Although quotes are not required, proposers are strongly encouraged to include both adequate budget detail and justification for the peer reviewers to evaluate whether costs of things (other than team members) are reasonable. For example, if a "6 Series B MSO" Oscilloscope that costs tens of thousands of dollars is needed, the proposal must give the price in the detailed budget and, in the budget justification, explain why such an expensive oscilloscope is needed, when a TBS1000C or TBS2000B can be purchased for a fraction of the price.

The budget justification in the main proposal PDF may refer to person time, but should not give costs for a subaward that involves salary, fringe or overhead, e.g., "Four months/year are allocated for Co-I Mr. Darcy, as can be seen in the Table of Personnel and Work Effort. Mr. Darcy will be funded via a subaward to the Pemberly Institute. The total cost for that subaward is given in the NSPIRES cover page budget in Section F line 5 and is included in the separately uploaded Total Budget PDF file but is not included here in the proposal." In this example we have named the person, assuming that the proposal need not be anonymized. For programs that are using dual-anonymous peer review (DAPR, see Section V(b)i), the names are given only in the "Expertise and Resources Not Anonymized" document, see Section IV(b)i.

Almost all program elements are set up to allow proposers to fill out the NSPIRES web page budgets for proposals. These NSPIRES web page budgets are not required for NOIs or Step-1 proposals (see Section IV(b)vii). Unless otherwise specified in the ROSES program element, these NSPIRES web page budgets should include all costs, including salary, fringe and overhead of all funded investigators. The full NSPIRES web page budgets will not be seen by peer reviewers. Where more than one organization is involved, the total cost for the Co-I organization is simply given as a single number in rows 5 and 8-12 of Section F (of the NSPIRES cover page budget). These rows are configurable and hidden from peer reviewers. When funds are going to Co-I organizations funded directly by NASA, such as NASA centers and other government labs, then lines 8-12 should be used and customized. Rows 13-17 in Section F are also configurable but are seen by peer reviewers, so those should be used for reporting things (e.g., subawards) that do not have any salary component. Proposers are strongly encouraged to read the FAQs with a walkthrough on this subject.

Almost all ROSES program elements are set up to allow proposers to separately upload a "Total Budget" PDF along with their (full or Step-2) proposal. Unless otherwise specified in the ROSES program element (e.g., C.2 Solar System Science, D.2 ADAP, and Phase-1 Astrophysics General Investigator and General Observer programs), all proposals must include this separate Total Budget PDF. The Total Budget should include the full and complete budget from your proposing organization and that of your

Co-Is (in whatever is the standard form used by your organizations). This means that proposers need to get this information from their Co-Investigators, whether or not they are Civil Servants. Budgets are generally laid out by project year but, since NASA Civil Servant salaries must be charged to present fiscal year dollars, proposals that include NASA Civil Servant salaries may need to phase the funds for NASA Centers by fiscal year.

The Total Budget PDF must lay out clearly how much is going to each organization, indicating whether the funds are passing through the proposing organization, and which are not. Where the funds are passing through the proposing organization to a Co-I organization, the Total Budget PDF must specify any overhead charged on funds passing through. Such charges never apply to funds sent directly to Co-I organizations such as NASA centers and other government labs. The Total Budget PDF is uploaded in the same way as the proposal PDF is uploaded, but by choosing document type "Total Budget". This Total Budget file will not be seen by peer reviewers. These budget files are not required for Step-1 proposals (see Section IV(b)vii).

NASA Civil Servant time must be included in the summary table of work effort and all costs for NASA civil servant investigators must be included in the Total Budgets just as it would be for any other team member. In general, it is not anticipated that directed work to NASA Centers will overlap with work proposed via ROSES. However, any questions about whether NASA Civil Servant participation on a ROSES proposal is already covered by directed work and how to present this in a proposal budget should be directed to the appropriate Headquarters SMD division R&A Lead, who may be found at https://science.nasa.gov/researchers/sara/program-officers-list/.

Proposers from the Jet Propulsion Lab (JPL) shall not include the JPL award fee in the funds requested via ROSES, nor should the budgets of JPL Co-Investigators on proposals from other institutions include the JPL award fee in their budgets. JPL award fees are paid for and accounted for by a different mechanism than that used to fund awards from ROSES.

(iv) Submission of Proposals via NSPIRES, the NASA Proposal Data System

Proposals may be submitted electronically via NASA's Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES; https://nspires.nasaprs.com). Potential applicants are urged to access this site well in advance of the Notice of Intent (NOI) and proposal due dates of interest to familiarize themselves with its structure and enter the requested identifier information. Potential PIs should ensure that their organization is also registered in NSPIRES, as it is only an official from the PI's registered organization, not the PI, who can submit a proposal (as opposed to an NOI).

Every individual named on the proposal's electronic Cover Page form (see below) as a team member (even Collaborators) must be registered in NSPIRES and must confirm their commitment to the proposal and the organization through which they are participating via NSPIRES prior to proposal submission. When a registered individual is added to a proposal team, they will receive an email from NSPIRES indicating that they have been added to the proposal and must log in to NSPIRES to confirm. For information on the confirmation process please see this NSPIRES help page.

- Note that the organization through which the proposal team member is participating in the proposal might not be the proposal team member's primary employer.
- NSPIRES will send an email to both the team member and the PI confirming that the commitment was made, and the organization was identified.

Proposers must complete the required elements of the NSPIRES Proposal "Cover Page" form to be able to submit a proposal. This form is composed of several distinct sections: a Proposal Summary that provides an overview of the proposed investigation that is suitable for release through a publicly accessible archive should the proposal be selected; Business Data that provides the proposed start and end dates, as well as other proposal characteristics; a Budget form that contains a budget summary of the proposed research effort; Program Specific Data that includes required questions specific to ROSES and that particular program element; and Proposal Team that provides the Co-Investigators and other proposal team members. This Cover Page form is available for access and submission well in advance of the proposal due dates given in Tables 2 and 3 of this NRA and remains open until the proposal due date for each program element. Unless specified in the program element description itself, no other web-based forms are required for proposal submission via NSPIRES.

The proposer is responsible for assembling the complete proposal document for peer review. For proposals subject to dual-anonymous peer review (DAPR), see Section V(b), an additional expertise and resources not anonymized document is uploaded in addition to the anonymized proposal document for peer review. The Proposal and, in the case of DAPR, the separate "Expertise and Resources Not Anonymized" document, must be uploaded as searchable, unlocked PDF documents. Unless otherwise specified in the program element, the only permitted separate attachments are the required Total Budget file, see Section IV(b)(iii) and HEC request, if any, see Section I(e). Documents such as team member biographical sketches, letters (e.g., of commitment or resource support), and current and pending support, as well as the proposal abstract (proposal summary) may not be uploaded to NSPIRES as separate files.

NSPIRES generates error and warning messages as part of the element check concerning possibly missing data. An error (designated by an X in a red circle) will preclude proposal submission to NASA by the AOR so those must be addressed prior to submission. A warning, indicated by an exclamation mark (!) on a yellow triangle, is an indication that data may be missing and may be ignored if the proposer has verified that it's not referring to something essential to the proposal (e.g., "Yes, we know the budget is only one year, it was intentional"). Any actions taken because of warnings are at the PI's discretion.

Please do not attempt to download the Proposal Cover Page and incorporate it into the uploaded Proposal Document. NSPIRES automatically includes it with the proposal.

Proposers are encouraged to begin their submission process early. NSPIRES help topics may be accessed through the NSPIRES online help. For any technical questions not resolved with the available online help menus, contact nspires-help@nasaprs.com or (202) 479-9376, Monday through Friday, excluding Federal Holidays, 8:00 a.m. – 6:00 p.m. Eastern Time.

(v) Submission of Proposals via Grants.gov

Grants.gov may be used to submit proposals in response to almost all program elements this ROSES NRA. Although most ROSES program elements will continue to be synopsized on Grants.gov, starting this year in ROSES-25 most program elements will not be automatically set up to receive proposals via Grants.gov by default. Instead, most program elements of ROSES-25 will be set up for application via Grants.gov only if a proposer requests it of the point of contact (with cc to sara@nasa.gov) at least 30 days in advance of the due date.

For those programs that accept submissions via Grants.gov the PI must use Workspace environment for either online completion of forms or downloading of forms for completion offline. In addition, proposers must download the program-specific instruction package from Grants.gov. Identifying the appropriate application package requires the funding opportunity number for that program element; the Grants.gov funding opportunity number may be found in the Summary of Key Information table at the end of each ROSES program element. That number will be of the form NNH25ZDA001N-XXXX where the "XXXX" will be an abbreviation for that program, e.g., NNH25ZDA001N-RRNES for A.4 Rapid Response and Novel Research in Earth Science (RRNES). For more information about how to prepare a proposal via Grants.gov please refer to the grants.gov instructions posted at https://science.nasa.gov/researchers/sara/faqs/#faq-17.

Potential applicants are urged to access the Grants.gov site well in advance of the proposal due date(s) of interest to familiarize themselves with its structure and download the appropriate application packages, instructions and forms, and tools.

Potential applicants considering employing Grants.gov should pay special attention to program elements that require a Notice of Intent, as Grants.gov does not provide the capability to submit an NOI. See Section IV(b)vi, below.

Additional instructions for formatting and submitting proposals via Grants.gov may be found in file entitled Submitting a ROSES proposal via Grants.gov posted among the Announcement Documents on the right side of any ROSES NSPIRES page and Section 11.4.2 of the *GCAM*. Instructions for the use of Grants.gov may be found at https://www.grants.gov/applicants/workspace-overview. Instructions for NASA-specific forms and NASA program-specific forms may be found in the application instructions package. For any questions that cannot be resolved with the available online help menus and documentation, requests for assistance may be directed by email to support@grants.gov or by telephone to (800) 518-4726 twenty-four hours a day, seven days a week, except Federal holidays when the support center is closed.

(vi) Notice of Intent to Propose

The Notice of Intent (NOI) to propose is a brief summary of the planned work by the proposer. Such statements are often used to identify expertise needed for the review panel and to avoid inviting panelists who are planning to propose. Many program elements in Earth Science (Appendix A) request NOIs. In most cases where NOIs are requested, they are not required for submission of proposals. However, some programs require an NOI as a prerequisite for submission of a full proposal, A.7 Water Quality

Applications, B.5 RADIANT, and D.5 Astrophysics Pioneers, for example. For those program elements where the NOI is mandatory, this will be stated clearly in the program element and NOI due dates will be marked "mandatory" in the tables of due dates. To submit a proposal, NOIs must be submitted via NSPIRES directly by the PI no later than 11:59 p.m. Eastern Time on the due date given in Tables 2 and 3 of this NRA; no action by an organization's AOR is required to submit an NOI. Proposals not proceeded by an on-time NOI will be returned without review.

Moreover, some program elements do not request an NOI. For example, those programs to which one may submit a proposal at any time don't request an NOI.

Grants.gov does not provide NOI capability; therefore, when required (or requested) by a program element, NOIs must (or should) be submitted via NSPIRES, whether the proposal will be submitted via NSPIRES or Grants.gov. Interested proposers must register with NSPIRES before it can be accessed for use. NSPIRES is open for the submission of NOIs for typically 30 days, starting about 90 days in advance of the due date for the proposals themselves. When NOIs are requested but not required, late NOIs may be submitted by email to the main point of contact given in the Summary Table of Key Information at the end of the individual program element.

(vii) The Two-Step Proposal Process

Some ROSES program elements require that proposals be submitted using a two-step process in which NOIs are replaced by required Step-1 proposals. The tables of due dates clearly indicate which program elements require a Step-1 proposal. In most cases, a Step-1 proposal is an abbreviated presentation of the intended research. However, unlike a Notice of Intent that may be submitted by an individual, the Step-1 proposal must be submitted by an Authorized Organizational Representative of the proposing organization. The Step-1 proposal is a prerequisite for submission of a Step-2 proposal, but it does not obligate offerors to submit a Step-2 proposal later. Budget data will not be requested as part of the Step-1 proposal. Proposers are encouraged to read the instructions document on Submitting Step-1 proposals that appears under "Other Documents" on the NSPIRES web page of any program element that requires a Step-1 proposal.

The required Step-1 proposal is typically just the contents of the 4000-character limited Proposal Summary field in the cover pages but rarely may require a PDF document upload. When the Step-1 proposal is an uploaded PDF document, the permitted page length and required contents for the Step-1 proposal will be specified in the program element description.

The two-step process can be structured in two ways: 1) A "Nonbinding" two-step process in which Step-2 proposals may be submitted even if the preceding Step-1 proposals were discouraged or 2) A "binding" two-step process in which Step-2 proposals can only be submitted if "invited". B.4 Space Weather Research-to-Operations-to-Research is an example of a program that requires a PDF upload for Step-1 and is binding. In either case, proposers will be informed no later than four weeks prior to the Step-2 due date whether their Step-2 proposal is "encouraged" (or "discouraged") or "invited" (or "not invited").

In some cases (e.g., Appendix C, Planetary Science), the team may be adjusted between the Step-1 and Step-2 proposal, but in other cases (e.g., Appendix B, Heliophysics), changes to the team are limited. When a Step-2 proposal is created, the team members and their confirmation are carried forward from the Step-1 automatically.

However, if a Step-1 team member has changed organizations since confirmation on the Step-1 proposals, this could prevent the submission of the Step-2 proposal. When a confirmed Step-1 team member has changed organizations, the proposer must instruct the team member to update his or her participation confirmation in NSPIRES for the Step-2 proposal and inform the NASA POC immediately. If the PI has changed organizations since the Step-1 proposal was submitted, manual intervention is required before the Step-2 proposal can be created. PIs should contact the program element POC as soon as the move is confirmed and must update their NSPIRES account to get a confirmed affiliation with the new organization and establish the name of the new AOR as soon as possible.

For some program elements, the purpose of Step-1 proposals is simply to avoid conflicts of interest or appearance of bias in the assembly of the review panel and no written responses to their Step-1 proposals will be provided to proposers. For other program elements, Step-1 proposals may be evaluated to determine if the anticipated research project exhibits sufficient programmatic relevance and responsiveness to the program element to encourage or invite submission of Step-2 proposals.

(viii) The Two-Phase Proposal Process

On occasion, NASA will solicit proposals using a two-phase proposal process for which Phase-1 is a request for an observation to be performed by a NASA space observatory as part of a NASA general investigator/observer program element. The Phase-1 observing request must be submitted to the observatory web page (http://heasarc.gsfc.nasa.gov/ark/rps/) by 4:30 pm Eastern Time on the proposal due date in Tables 2 and 3 of this NRA. Note the time and mode of proposal submission is not standard. Phase-2, invited from select proposers, is merely a funding request that is not peer reviewed. As such the Phase-2 proposals are not subject to the requirements in Section IV(b)iii to omit salary, fringe and overhead from submitted budgets.

This ROSES NRA contains several General Investigator (GI) and General Observer (GO) opportunities in D.3 AGIGO that use the two-phase proposal process, with Phase-1 proposals due by 4:30 p.m. Eastern time via the ARK/RPS web page at https://heasarc.gsfc.nasa.gov/ark/rps/ by the date given in Tables 2 and 3 of this ROSES NRA.

Phase-1 observing requests for these programs cannot be submitted via either NSPIRES or Grants.gov. They must be submitted via the URL given in the Summary Table of Key Information given at the end of program element description. The Phase-2 proposals for funding will later be submitted via NSPIRES only by those who are "invited" to do so. The Phase-2 proposal due date will be provided to invited proposers when NASA announces the disposition of the Phase-1 observing requests. The process and requirements for the submission of Phase-1 observing requests and Phase-2 proposals may differ for each program element; proposers should carefully read

program element D.3 AGIGO of this ROSES NRA. The tables of due dates clearly indicate which program elements require a Phase-1 proposal.

(c) Proposal Due Dates

Tables 2 and 3 of this NRA, which are posted at https://solicitation.nasaprs.com/ROSES2025table2 and https://solicitation.nasaprs.com/ROSES2025table3, respectively, provide proposal due dates and hypertext links to descriptions of the solicited program elements in the appendices of this NRA. For each program element, the electronic proposal must be submitted in its entirety by an Authorized Organizational Representative (AOR) no later than the proposal deadline (time) on the appropriate proposal due date given in Tables 2 and 3 of this NRA. Unless stated otherwise in the program element, the proposal deadline is 11:59 p.m. Eastern Time and must be submitted electronically using either NSPIRES or Grants.gov (see Sections IV(b)(i-iii) above).

The two common exceptions are: 1) Phase-1 proposals for Astrophysics General Investigator and Observer programs, which are due at 4:30 pm Eastern Time via the Astrophysics Research Knowledgebase Remote Proposal System. See Section IV(b)viii for more information on the 2-Phase submission process. 2) Programs to which proposals may be submitted at any time during the open period of ROSES. See https://science.nasa.gov/researchers/NoDD.

Proposals submitted after the proposal due date and deadline will be labeled "late" by the NSPIRES system and proposals (including certain types of Step-1 proposals) that are late will be handled in accordance with the SMD Policy on Late Proposals. The vast majority of late proposals are rejected without review.

(d) Funding Restrictions

These are the default rules: All costs charged to awards from ROSES must comply with the Uniform Administrative Requirements in 2 CFR 200 and 1800, unless otherwise indicated, the terms and conditions of the award, and the NASA Grants and Cooperative Agreement Manual (GCAM).

- All proposed funds must be allowable, allocable, and reasonable. Funds may only be used for the project. All activities charged under indirect costs must be allowed under 2 CFR 200, cost principles.
- Grants and cooperative agreements shall not provide for the payment of fee or profit to the recipient.
- Unless otherwise directed in 2 CFR 200, for changes to the negotiated indirect cost rate that occur throughout the project period, the recipient must apply the rate negotiated for that year, whether higher or lower than at the time the budget and application was awarded.
- Any funds used for cost sharing must be allowable under 2 CFR 200.
- The recipient or subrecipient must use one of the methods of procurement as prescribed in 2 CFR 200.320.

In addition, the following information and/or restrictions are applicable to this ROSES NRA:

- The estimated funding and number of proposals anticipated to be funded, as shown in the Summary of Key Information at the end of each program element, are subject to the availability of appropriated funds, as well as the submission of a sufficient number of proposals of adequate merit.
- In general, the proposing organization is expected to make subawards to other funded non-Government organizations. Exceptions will be considered when found to be in the interest of the Government and consistent with appropriate law, regulation, policy, and practice. Proposers hoping for such split awards, should write to the point of contact for the program and cc sara@nasa.gov.
- In general, SMD will send funds directly to Co-Is at NASA Centers and other U.S. Government organizations, including JPL. Thus, if a proposal submitted by a university has a Government Co-I, the funds will not pass through the university, so the university (or other institution that receives an award) may not include overhead or any other pass-through charges on those funds. Regardless of whether a Co-I will be funded through a subaward via the proposing institution or funded directly by NASA, the cover page budget for the proposal must include all funding requested from NASA for the proposed investigation, including salaries for NASA civil servants, see Section IV(b)iii. Time for Co-Is, costs of procurements (not labor or overhead), and other (non-salary) direct costs (e.g., technical support costs for on-site contractors) at NASA Centers and other U.S. Government organizations must be justified in the proposal's Budget Narrative. No indirect burden from non-governmental organizations should be applied to funds for Co-Is at NASA Centers and other U.S. Government organizations, see the *NASA GCAM*.
- Purchase of computers is allowable under grants if they are essential for the project. It is no longer required that computers be used exclusively for the project. See ROSES FAQ #27 for more information on this topic.
- Travel, including travel outside of the U.S. by team members at U.S. organizations, is allowed, if necessary for the meaningful completion of the proposed investigation, including publicizing its results at appropriate professional meetings. NASA funding may not be used for travel expenses by any team member who is not participating as a member of a U.S. organization.
- Proposers from NASA Centers should consult their Center implementing policy on the latest NASA guidance on conference spending and reporting requirements. Note that selection of a proposal and approval of a proposed budget that includes travel for civil servant does not guarantee that a NASA Center has sufficient travel authority to approve the proposed travel.
- NASA funding may not be used for subcontracted foreign research efforts, i.e., grant funds may not pay for research at non-U.S. organizations. U.S. research award recipients may directly purchase supplies and/or services from non-U.S. sources that do not constitute research, but award funds may not be used to fund research carried out by non-U.S. organizations. However, a foreign national may receive remuneration through a NASA award for the conduct of research while employed either full- or part-time by a U.S. organization. Special restrictions apply to collaboration with China, see Section III(c).

- As noted in the *NASA GCAM*, costs of preparing, publishing, and disseminating the results of NASA funded research (e.g., page charges, open access fees) may be included in research proposals and are allowable charges against the grant, if the charges are levied impartially on all research papers published by the journal.
- Non-NASA U.S. Government organizations should propose based on full-cost accounting, unless no such standards are in effect; in that case such proposers should follow the Managerial Cost Accounting Standards for the Federal Government as recommended by the Federal Accounting Standards Advisory Board. NSPIRES cover pages and uploaded "Total" budgets must include all costs that will be paid out of the resulting award.
- Regardless of whether functioning as a team lead or as a team member, personnel from NASA Centers must propose budgets consistent with the current NASA accounting implementation for the requested year of performance. All NSPIRES cover page budgets must include all costs that will be paid out of the resulting award, including costs of NASA civil servants. Costs that will not be paid out of the resulting award but would be paid from a separate NASA budget and are not based on the success of this specific proposal should not be included in the proposal budget. Other direct charges (including procurements and labor) to the proposed research task must be included. NASA civil servant Co-Is must provide to the proposing organization all costs requested of the ROSES program, so that the proposing organization may correctly complete the cover page budgets in NSPIRES.
- NASA applicants do not need to obtain prior approval for pre-award costs incurred 90 days or less before an award's period of performance start date, per 2 CFR §1800.210. Pre-award costs more than 90 days before an award's period of performance start date are allowable with NASA Grant Officer prior approval. Contact your program manager about the possibility of pre-award costs > 90 days before the award start date.

(e) Other Submission Requirements

(i) Demonstration of Access to Required Facility

For any facility required for the proposed effort, the proposal must state (in the Expertise and Resources Not Anonymized document for DAPR) which team member has access or provide a letter of resource support from the facility or resource confirming that it is available for the proposed use during the proposed period. ROSES no longer requires that the facility or resource be under the "control" of the team member.

V. PROPOSAL REVIEW INFORMATION

Proposals may be declined without technical review if they are not compliant (e.g., don't follow format or content rules, see Section IV(b)ii), if they don't pass basic administrative review, e.g., the proposal is not responsive to the opportunity or, for a program element intended to make multiple small awards, requests exceeding the budget available for the entire program.

(a) Evaluation Criteria

As stated in the *GCAM*, proposals are ordinarily evaluated on three criteria: intrinsic

merit, relevance, and cost reasonableness. A ROSES proposal that is not relevant is not selectable, no matter the scores for merit or cost reasonableness, or the mean or median of all three criteria scores. Indeed, SMD may return without peer review a proposal deemed to be not relevant. The way SMD evaluates ROSES proposals for relevance and cost varies from program to program. ROSES proposals may be scored by peer reviewers for all three criteria on the full five-level scale from the *NASA GCAM*, or the proposal may be scored on the full scale only for merit, with relevance and/or cost evaluated on an abridged scale, or with only comments provided for relevance and/or cost, or the peer review panel may not be asked to comment on relevance and cost at all.

Note the following specific points:

- Some program elements will give specific factors, based on the solicited research objectives, which will be considered when evaluating a proposal's science and/or technical merits and/or its relevance to program objectives.
- Unless otherwise stated, relevance will be judged by whether the proposal addresses goals and objectives for the ROSES program element to which it was submitted, rather than NASA's broader goals. In general, relevance is judged based on whether the work proposed is deemed to be relevant, independent of whether it includes an overt and direct statement of relevance. That is, unless otherwise stated, no proposal will be returned as noncompliant for lack of a relevance section or statement. However, a program element may supersede and require an explicit statement of relevance.
- Resources requested may be evaluated by peer review (for reasonableness) and total costs by NASA program personnel (for consistency with the available budget). Proposers must follow the budget requirements in Section IV(b)iii and Table 1 of this document. When evaluating the cost reasonableness of the proposals, reviewers will assess whether the proposed level of effort (i.e., labor FTEs) and the proposed other direct costs (i.e., supplies, equipment, travel) are commensurate with those required to accomplish the goals of the investigation. Salary levels, fringe benefit rates, and overhead rates are not part of that evaluation and will be hidden from peer reviewers.
- Except in rare instances where it is explicitly stated in the program element, neither the existence of proposed voluntary cost sharing, nor the lack thereof, nor the magnitude of such cost sharing will be used as evaluation factors or as a precondition for award. If voluntary cost sharing is proposed, the proposer should describe, in detail, any proposed cost sharing arrangements (see Section III(d) above). The Table of Personnel and Work Effort is not part of the budget section, and any planned work commitment not funded by NASA is not considered cost sharing as defined in 2 CFR 200.29.
- The *NASA GCAM* gives definitions for the five scores on the full five-level scale (from Excellent down to Poor). SMD may provide decision letters and/or evaluations with intermediate scores such as "Excellent/Very Good".
- NASA Grant Officers will conduct a pre-award review of risk associated with the applicant as required by 2 CFR 200.206, Federal awarding agency review of risk posed by applicants. For all proposals selected for award, the Grant Officer will

review the submitting organization's information available through multiple government-wide repositories, as outlined in the NASA Grant and Cooperative Agreement Manual (GCAM).

(b) Review and Selection Processes

Review and selection of proposals submitted to this NRA will be consistent with the policies and provisions given in the *NASA GCAM*, the *SMD Peer Review Policy*, and the *SMD policy on avoidance of Peer Review Conflicts of Interest*.

For proposal evaluation and other administrative processing, NASA may find it necessary to release information submitted by the proposer to individuals not employed by NASA. Business information that would ordinarily be entitled to confidential treatment may be included in the information released to these individuals. Accordingly, by submission of this proposal the proposer hereby consents to a limited release of its confidential business information (CBI). Except where otherwise provided by law, NASA will permit the limited release of CBI only pursuant to non-disclosure agreements signed by the assisting contractor or subcontractor, and their individual employees who may require access to the CBI to perform the assisting contract.

(i) Dual-Anonymous Peer Review

SMD is strongly committed to ensuring that the review of proposals is performed in a fair manner. To this end, most program elements under ROSES will evaluate proposals using dual-anonymous peer review (DAPR) in which the reviewers are not told the identity of proposers until after they have evaluated all the anonymized proposals.

Proposers to programs using DAPR must adhere to the instructions in those program elements on how to prepare anonymized proposals. Also, detailed instructions for the preparation of proposals will be posted on the NSPIRES page for these ROSES elements and at https://science.nasa.gov/researchers/dual-anonymous-peer-review.

In brief, proposers to these program elements will provide their proposal in two parts: an anonymized proposal and a separate non-anonymized document that contains elements of the proposal that would reveal the identities and affiliations of participating researchers, such as expertise, facilities, and resources. To upload the latter, choose Attachment Type = "Expertise and Resources Not Anonymized". Any program element that is using DAPR will 1) include a notification indicating that this is the case, 2) contain a special section with detailed instructions about how to prepare proposals, 3) link to a special web FAQ on this subject, and 4) will host "Guidelines for Anonymous Proposals" under "Other documents" on the program element's NSPIRES page. As always, a separate (not anonymized) Total Budget file will also be required. Please see Section IV(b)i, above, for more information about how to prepare proposals for DAPR. Proposers are strongly encouraged to ensure that the anonymized proposal does not include identifying metadata.

In most cases, after the evaluation of all anonymized proposals in the panel is finalized, will panelists be provided with the "Expertise and Resources Not Anonymized" documents, typically for a subset of proposals that scored highly (depending on the grades and projected selection rates). The panel will then assess the qualifications and capabilities of the team for these proposals and provide comments to NASA. Unless

otherwise stated, this validation of expertise and resources will not alter the evaluation of the anonymized proposal.

For C.2 Solar System Science, the anonymized proposal only is submitted, no E&R documents are included at the time of proposal submission. The E&R documents are invited later only for selectable proposals. For those programs, the anonymized technical proposals are peer reviewed, as always. However, the validation of the qualifications and capabilities factor of Merit, based on the E&R documents, may be done internally by NASA staff only.

(ii) Selection

The Selection Official chooses which proposals will be funded and which will be declined based on recommendation(s) from the program officer(s) as described in Section 13 of the GCAM.

Although not part of the peer review process, the selection official may take into account programmatic considerations such as impact on current or future missions, balance across: subdisciplines, technologies, methodologies, career stage, risk, innovation, types of institutions (e.g., PUI, vs. R1), and project size (such as funding several small investigations instead of one large one).

Unless otherwise specified, the SMD Division Director responsible for a research program (or a delegate, such as the R&A Lead) is the Selection Official. If NASA anticipates that the total Federal share will be greater than the simplified acquisition threshold (currently $250,000) over the period of performance, prior to making the award:

i. NASA will review and consider any information about the applicant that is in the responsibilities/qualification section of SAM.gov (see 41 U.S.C. §2313);
ii. An applicant, may review the SAM.gov information and comment on any information about itself that a Federal awarding agency previously entered;
iii. NASA will consider any comments by the applicant before making decisions in the risk review required by 2 CFR 200.206.

(c) Service as a Peer Reviewer

The success of NASA's research program rests on the quality of peer review. NASA will contact expert investigators and ask them to serve as peer reviewers. Since those whose proposals were selected in prior competitions are highly qualified and may not be submitting a proposal to the current competition, they are highly encouraged to serve on SMD peer review panels. Any qualified person who wants to gain insight into our review process is encouraged to volunteer by filling out one of the review forms at https://science.nasa.gov/researchers/volunteer-review-panels or by sending an email to the manager of the program of interest, see the SARA program officer list. It is good experience for early-career scientists, and the addition of new reviewers is healthy for the process. We are eager to have qualified reviewers from institutions not normally funded by SMD.

(d) Processes for Appeals

(i) Reconsideration by SMD

SMD has a process for requesting a debrief and/or reconsideration of a declined proposal submitted in response to an SMD NASA Research Announcement and Cooperative Agreement Notices. Reconsideration may be requested if the PI believes that the proposal evaluation contained factual errors or was otherwise handled improperly. This process is described in the SMD Policy on Reconsideration (SPD-09D) available at https://science.nasa.gov/researchers/sara/library-and-useful-links/

(ii) Ombudsman Program

The NASA Procurement Ombudsman Program is available under this NRA as a procedure for addressing concerns and disagreements. The clause at NASA FAR Supplement (NFS) 1852.215-84 ("Ombudsman") is incorporated into this NRA.

The cognizant ombudsman is:

Marvin Horne
Deputy Assistant Administrator for Procurement
Email: agency-procurementombudsman@nasa.gov

(iii) Protests

Only contract awards are subject to bid protest, either at the Government Accountability Office (GAO) or with the Agency, as defined in FAR 33.101. The provisions at FAR 52.233-2 (Service of Protest) and NFS 1852.233-70 (Protests to NASA) are incorporated into this NRA. Under both provisions, the designated official for receipt of protests to the Agency and copies of protests filed with the GAO is:

Marvin Horne
Deputy Assistant Administrator for Procurement
Email: marvin.l.horne@nasa.gov

(e) Anticipated Selection Announcement and Federal Award Dates

SMD's goal is to announce selections within 150 days of the proposal due date and within 60 days after the conclusion of the peer review. Selections are typically announced between 150 days and 220 days after the proposal due date. Although there are many reasons why selections are not announced earlier, the most common are the uncertainty in the NASA budget at the time selection decisions could be made and the time required to conduct an appropriate peer review and selection process. Therefore, a delay in the budget process for NASA usually results in a delay of the selection announcement date. After 150 days have passed since the proposal due date, proposers may contact the responsible Program Officer listed at the conclusion of that program element and on the SARA web page. If the program officer does not respond proposers may send an inquiry to SARA@nasa.gov.

To announce selection decisions as soon as is practical, even in the presence of budget uncertainties, SMD may announce decisions about some proposals and defer decisions on others. If a Selection Official uses this option, then proposers may be told that a proposal has been "selected", "declined," or that a decision has not yet been made, in

which case the proposal is termed "selectable" and will be considered for a supplemental selection if circumstances allow. Eventually, proposers will be notified whether their proposal is selected or is no longer being considered for selection. All proposers will be notified via NSPIRES and provided with a written review (usually the panel evaluation) of the proposal. Proposers may contact the Program Officer for a "debriefing" to gain a better understanding of the evaluation process and the reasoning supporting the decision not to select the proposal, see the SMD Reconsideration Policy for more information.

Information that successful proposers must submit after notification of award may include evidence of compliance with requirements relating to human subjects or information needed to comply with the National Environmental Policy Act (NEPA 42 U.S.C. 4321-4370h), see Section VI(c).

VI. Award Administration Information

As mentioned above, grants and cooperative agreements will be subject to the policies and provisions identified in the regulations at 2 CFR 200 and 2 CFR 1800, and the NASA Grant and Cooperative Agreement Manual (GCAM). Contracts will be subject to the provisions of the Federal Acquisition Regulations (FAR) and the NASA FAR Supplement.

(a) Award Notices

All proposers will be notified via NSPIRES from which they will be able to retrieve their proposal evaluation and what is often called "decision" or "notification" letter (called a "Notification of Intent to Make a Federal Award" in the GCAM). If a proposal is selected, the business office of the offeror will be contacted by a NASA Grants Officer from the NASA Shared Services Center, who is the only official authorized to obligate the Government.

NASA will notify successful grant recipients of funding via a Notice of Award (NASA Form 1687) signed by the Grant Officer. This Notice of Award is the authorizing document and will be sent to the proposers via email. All expenses incurred on grant activities prior to the period of performance start date listed on the Notice of Award are at the risk of the non-Federal entity until the Notice of Award is received and period of performance commences.

(b) Administrative and National Policy Requirements

All awards made in response to proposals to this solicitation must comply with the National Environmental Policy Act (NEPA); thus, proposers are encouraged to plan and budget for any anticipated environmental impacts. While most research awards will not trigger action-specific NEPA review, some activities (including international actions) will. Most grant-related activities are categorically excluded from this action-specific NEPA review as research and development (R&D) projects that do not pose any adverse environmental impact. A blanket NASA Grants Record of Environmental Consideration (REC) provides NEPA coverage for these anticipated activities. The NSPIRES award application cover page includes questions to determine whether a specific proposal falls within the Grants REC and must be completed as part of the proposal submission process. Activities outside of the bounding conditions of the Grants REC will require

additional NEPA analysis. Examples of actions that will likely require NEPA analysis include but are not limited to suborbital-class flights not conducted by a NASA Program Office, activities involving breaking ground, construction, fieldwork, and certain payload activities such as the use of dropsondes. Questions concerning environmental compliance may be addressed to: Amy Keith, Headquarters NEPA Manager, at amy.keith@nasa.gov or 256-701-2815.

In addition to the requirements in this section and in this NOFO, NASA may place specific terms and conditions on individual awards in accordance with 2 C.F.R. Part 200. Recipients of NASA grant funding shall adhere to requirements set forth in 2 CFR 200, 2 CFR 1800, 2 CFR 170, 2 CFR 175, 2 CFR 182, and 2 CFR 183.

By default, the *NASA Grant and Cooperative Agreement Manual* will apply to any awards that derive from this NRA. Moreover, when a grant or cooperative agreement is issued for research, additional research terms and conditions apply – see section 24 of the *GCAM* and for NASA's implementation of the November 2020 changes to 2 CFR 200 including revised Research Terms and Conditions see the Agency implementation statements and the NSF website.

Awards from this funding announcement that are issued under 2 CFR 1800 are subject to the Federal Research Terms and Conditions (RTC) located at https://www.nsf.gov/awards/managing/rtc.jsp. In addition to the RTC and NASA-specific guidance, three companion resources can also be found on the website: Appendix A - Prior Approval Matrix, Appendix B - Subaward Requirements Matrix, and Appendix C - National Policy Requirements Matrix.

(c) Reporting

The default reporting requirement for NASA and ROSES is that the mandatory minimum government wide standard Research Performance Progress Report (RPPR) annual progress report be submitted 60 days prior to the anniversary date of award and a Final Performance Report be submitted within 120 days after the end of the award's period of performance. Programs that require progress reporting more frequent than annually will clearly state the nature and cadence of the requirement (e.g., quarterly quad charts) in the program element. Reporting more frequently than annual may be specified by the program element.

As part of their (typically annual) technical reports, award recipients must report on progress not just in conducting the research but also archiving of final peer-reviewed manuscripts, data, and software, consistent with their Open Science and Data Management Plan, (formerly called the Data Management Plans), see Section II(c) Increasing Access to the Results of Federally Funded Research.

If the total value of currently active awards from all Federal awarding agencies exceeds $10,000,000 for any period of time during the period of performance of this Federal award, additional reporting requirements will apply. See 2 CFR 200 Appendix XII—Award Term and Condition for Recipient Integrity and Performance Matters.

Awards under this solicitation that are $500,000 or more may be subject to the post award reporting requirements reflected in 2 CFR 200 Appendix XII.

The Suspension and Debarment Disclosure reporting requirement pertains to disclosing information related to government-wide suspension and debarment requirements. Before a recipient enters into a grant award with NASA, the recipient must notify NASA if it knows if it or any of the recipient's principals under the award fall under one or more of the four criteria listed at 2 CFR Part 180.335. At any time after accepting the award, if the recipient learns that it, or any of its principals, fall under one or more of the criteria listed at 2 CFR Part 180.335, the recipient must provide immediate written notice to NASA in accordance with 2 CFR Part 180.350.

(d) Acknowledgement of Support, including for Antarctic Access

All information disseminated as a result of a ROSES award shall contain a statement that acknowledges NASA's support and identifies the award by number, e.g., "The material is based upon work supported by NASA under award number(s) XXXXX." See Section 4.8 of the NASA Grant and Cooperative Agreement Terms and Conditions at https://www.nasa.gov/grants-policy-and-compliance-team/#Regulations.

Moreover, science projects that receive assistance from the U.S. Antarctic Program, support must acknowledge it in publications, i.e.,: "Logistical support for this project in Antarctica was provided by the U.S. National Science Foundation through the U.S. Antarctic Program."

VII. POINTS OF CONTACT

Specific questions about a given program element in this NRA should be directed to the Program Officer(s) listed in the Summary Table of Key Information at the end of each program element appendix. Up-to-date contact information for program officers can also be found online at the SARA web page's Program Officers List at https://science.nasa.gov/researchers/sara/program-officers-list.

General questions and comments about ROSES may be directed to the office of the SMD Deputy Associate Administrator for Research via: sara@nasa.gov.

Note: Proposals must not be submitted to this address. Proposals must be submitted electronically, as described in Section IV(b)(iv) above.

Points of contact for suborbital-class platforms can be found in Section VIII(c).

Inquiries about accessing or using the NASA proposal submission web interface at https://nspires.nasaprs.com should be directed by an email that includes a telephone number to nspires-help@nasaprs.com or by calling (202) 479-9376. This help center is staffed Monday through Friday, 8:00 a.m. - 6:00 p.m. Eastern Time, except Federal holidays.

Inquiries about accessing or using Grants.gov submission web interface at https://www.grants.gov should be directed by an email to support@grants.gov or by calling (800) 518-4726 twenty-four hours a day, seven days a week, except Federal holidays when the center is closed.

The NSPIRES and Grants.gov Help Desks are qualified to answer questions about using their respective systems (e.g., how to create or submit a proposal). Questions of

content and policy are to be directed to the Program Officer(s) listed in the program element in question.

Students, faculty, or staff in programs receiving NASA financial assistance, such as grant awards from this solicitation, may raise allegations of discrimination, including harassment via https://missionstem.nasa.gov/filing-a-complaint.html.

Grantees may not create or operate public social media accounts with use of the NASA name, likeness, or emblems, without prior approval from NASA. For information or approval please contact Emily Furfaro at emily.furfaro@nasa.gov.

VIII. Other Information: Flight-Based Research Investigations

Flight-based research and/or technology development investigations may be solicited in all of the five ROSES Appendices corresponding to the SMD Science Divisions (Appendices A-E) and may also be solicited in Cross-Division Appendix F. Unless otherwise specified in a program element, flight-based research or technology development investigations solicited through ROSES are managed using the requirements of NPR 7120.8, NASA Research and Technology Program and Project Management Requirements, have modest costs (compared to flight missions solicited via announcements of opportunity that are managed under NPR 7120.5, NASA Space Flight Program and Project Management Requirements), and reduced mission assurance requirements appropriate for a research program. Given the nature of the work solicited, based on the guidance in Section 3 of the GCAM, awards to non-governmental organizations will be federal assistance (i.e., grants or, if NASA provides or procures the ride, cooperative agreements). See also Section II(a) on award type.

If contracts are to be awarded and/or selected projects will be managed under NPR 7120.5, the program element will say so explicitly.

(a) Overview of Flight Platforms

Flight investigations are of three types depending on destination.

- Suborbital (e.g., aircraft, balloons, sounding rockets, rocket-powered vehicles) including:
  - Traditional NASA-provided balloons, sounding rockets, and airborne investigations
  - Commercial suborbital flight services procured via STMD's Flight Opportunities Program (FOP) Indefinite Delivery/Indefinite Quantity (IDIQ) contracts
  - Proposer-provided commercial suborbital flight services
- Earth orbit (e.g., SmallSats/CubeSats)
- Beyond Earth Orbit (e.g., payloads to the surface of the Moon, cis-lunar space, Mars, and beyond).

Hereinafter, no matter which type, all flight-based research and/or technology development investigations may be referred to using the term "flight".

Since each platform has its own point of contact, subsection (c) below is organized by platform. General requirements for proposals to use any of these platforms (except aircraft, see below) are discussed in this section of ROSES. Note: NASA Flight

Opportunities Program (FOP) is no longer using the term suborbital reusable launch vehicle. They now refer to ‘rocket-powered vehicles' including suborbital launch vehicles that reach high altitudes and may include periods of microgravity.

Proposers who plan to include airborne activities (not regular passenger travel) such as aircraft or helicopter flight services, including Uncrewed Aircraft Systems (UAS)/Drones operations or the acquisition or construction of such flight vehicles, should refer to Section 16.3 (Flight Activities) of the *NASA GCAM*. Earth Science proposers should also refer to Section 7.5 of A.1 Earth Science Research Program Overview and https://airbornescience.nasa.gov/.

Generally, proposals for investigations that are carried out through development, launch, and operation of a short duration orbital experiment, such as one on a Small Satellite (Sat) / CubeSat are permitted in any ROSES program element that solicits investigations for use on suborbital-class platforms. In this sense, a SmallSat/CubeSat investigation is considered a "suborbital class", even if it will be placed into orbit. Such "suborbital class" investigations are subject to the same cost constraints to which traditional suborbital investigations are subject.

(b) General Guidelines for Flight Proposals

ROSES awards support science investigations and/or technology demonstration utilizing payloads flown on suborbital-class platforms. Unless otherwise specified, flight proposals, like all ROSES proposals, are for complete science investigations, including development of any necessary hardware/instruments, collection of data, and plans for reduction, analysis, and archiving of the data; plans for management of all elements must be given in the proposal. Although most awards are three or four years in duration, a five-year proposal may be accepted to develop a completely new, highly meritorious investigation through its first flight. Suborbital-class payloads may be recovered, refurbished, and reflown, to complete an investigation. Please read the individual ROSES program element for program specific requirements.

Budgets of flight proposals are expected to cover complete investigations, including payload development and construction, instrument calibration, travel expenses to support integration and launch activities, launch, data analysis, publication of results, and archiving. The number of investigations that can be supported is limited and heavily dependent on the funds available to the relevant research program. Note that NASA does not carry reserves for Suborbital-Class Investigations and proposers should not expect NASA to accommodate any cost overrun incurred by a particular investigation, including the damage and/or loss of the payload owing to a suborbital-class platform system failure. Therefore, failure to make adequate progress within the proposed time and budget could require descoping the initially proposed investigation, delaying it, canceling a particular launch opportunity, or canceling the investigation altogether.

Regardless of whether proposers would use a NASA-provided traditional suborbital platform or a NASA-procured commercial suborbital flight service, unless otherwise stated in the program element, the cost should not be included in the proposal budget, but the budget justification must describe which NASA-provided service is to be used. When proposers elect to acquire or arrange for a commercial suborbital flight service themselves, to ensure that cost is seen by NASA personnel but not peer reviewers, the

cost of the subcontract for the ride is to be included: 1) on the NSPIRES cover page budgets in Section F lines 5 or 8-12, which are redacted for peer reviewers, and 2) in the separately uploaded total budget. Reminder: individual program elements may supersede the instructions given here.

(i) Additional Guidelines for Suborbital Proposals

NASA provides several avenues for the provision of suborbital launch vehicle platforms and flight service, namely:

- Sounding rockets provided by the NASA Sounding Rockets Program Office (SRPO) at the NASA Goddard Space Flight Center/Wallops Flight Facility (NASA/GSFC/WFF)
- Balloons provided by the NASA Balloon Program Office (BPO) at the NASA/GSFC/WFF
- Commercial flight service using rocket-powered vehicles and high-altitude balloons procured through the NASA Space Technology Mission Directorate's (STMD) Flight Opportunities Program (FOP)

NASA recognizes the unique capabilities and cost advantages of using commercial suborbital platforms, whether procured by proposers or through NASA's Flight Opportunities Program and encourages proposers to consider proposing innovative investigations to take advantage of them to increase the scientific yield and impact of the proposed research. NASA expects to fly smaller and cheaper payloads that take advantage of these capabilities at a higher cadence, if proposals are of sufficient quality.

All suborbital flight proposals using NASA-provided suborbital platforms or NASA-procured flight services using commercial suborbital platforms must be accompanied by a Payload Reference Document (PRD) to identify key payload parameters and flight requirements (e.g., payload mass, minimum and maximum altitudes) for the investigation. Please refer to the instructions in the program element for specific guidance on the PRD. Proposers may specify a candidate launch vehicle, but NASA has the final authority in the choice of which vehicle is to be used.

In general proposers using NASA-provided traditional suborbital flight services or NASA-procured commercial suborbital flights are do not include those flight costs in their budgets, but read the instructions in the program element to which you are proposing.

Proposers may continue to provide their own commercial suborbital launch vehicle see Section VIII(c)iv.

(ii) Collision Avoidance / Conjunction Assessment Requirements

NASA has established conjunction assessment risk analysis requirements in NPR 8079.1 that apply to a specific subset of flight projects:

- Spacecraft owned, developed, or operated by NASA or a contractor at the behest of NASA, e.g., proposals from NASA Centers and those funded via NASA contract (such as JPL and APL in some cases). The requirement does not apply to proposers who would develop spacecraft under federal assistance awards (grants or cooperative agreements), but they are encouraged to apply the best

practices, as possible/appropriate.
- Free-Flying Spacecraft (i.e., not attached payloads nor single instruments that are part of a larger flight project).
- Orbital or beyond (i.e., the requirement does not apply to suborbital).

If all of the bullets above are true of your award, then the new requirements in NPR 8079.1 will apply. Costs are expected to be approximately $100K for non-maneuverable spacecraft and slightly more for maneuverable ones. See "Appendix D. Best Practices for NASA Missions" in the *NASA Spacecraft Conjunction Assessment and Collision Avoidance Best Practices Handbook.* If you think that this requirement may apply to your proposed investigation, please write to the point of contact for the program element who may ask you to fill out a Conjunction Assessment / Collision Avoidance Questionnaire.

For additional information regarding Collision Avoidance / Conjunction Assessment Requirements, including potential input on orbit and trajectory trade studies, proposers may contact Lauri Newman (Telephone: 240-374-9146; email: lauri.k.newman@nasa.gov). For information regarding the Multi-mission Automated Deepspace Conjunction Assessment Process (MADCAP) team at the Jet Propulsion Laboratory for NASA spacecraft not orbiting the Earth, please contact David Berry (Telephone: 818-354-0764; email: david.s.berry@jpl.nasa.gov).

(c) Points of Contact for Flight Platforms

NASA provides several avenues for procurement of suborbital launch vehicle and flight services, including: sounding rockets provided by the NASA Sounding Rockets Program Office (SRPO) at the NASA Goddard Space Flight Center/Wallops Flight Facility (NASA/GSFC/WFF), balloons provided by the NASA Balloon Program Office (BPO) at the NASA/GSFC/WFF, as well as other commercial suborbital flight services, to include rocket-powered vehicles and high altitude balloons procured through the NASA Space Technology Mission Directorate's (STMD) Flight Opportunities Program (FOP).

SMD also solicits investigations as CubeSats and as small International Space Station payloads. Regardless of which launch vehicle service is anticipated, all prospective PIs are required to demonstrate the capacity, availability, and commitment of the suborbital-class platform to support their investigation.

PIs are strongly urged to discuss prospective investigations with NASA program personnel (see below) prior to submitting their proposal to ensure that probable operational costs are properly anticipated.

(i) NASA-provided Sounding Rocket Services

Information on the capabilities of currently available sounding rocket vehicles is available in Appendix A of the NASA Sounding Rockets User Handbook at https://sites.wff.nasa.gov/code810/files/SRHB.pdf. Proposers are encouraged to consider these capabilities in designing their investigations, but the Sounding Rockets Program Office (SRPO) has the final authority in the choice of which vehicle is to be used.

The nominal U.S. launch sites for sounding rockets are White Sands Missile Range (WSMR) in New Mexico, Wallops Flight Facility in Virginia, Poker Flat Research Range (PFRR) in Alaska, and Reagan Test Site in the Kwajalein Atoll. The SRPO also conducts launches from the established non-U.S. launch sites at Andoya, Norway (Andoya Space); Kiruna, Sweden (Esrange); Peru (Punta Lobos); or Australia, subject to science community requirements and the availability of SRPO operations funding to conduct the campaign. Additional details about these launch sites can be found in Section 8.1 and Appendix B of the NASA Sounding Rockets User Handbook at https://sites.wff.nasa.gov/code810/files/SRHB.pdf.

Investigators proposing payloads to be flown on sounding rockets should answer the program-specific questions on the Payload Reference Document mentioned in Section VIII(b)i. This information is needed by the SRPO to generate a rough order of magnitude cost estimate for the operational requirements associated with a proposed investigation and is used for planning purposes. The required information includes the envisioned vehicle type, payload mass and diameter, trajectory requirements, launch site, telemetry requirements, attitude control, or pointing requirements, and any plans for payload recovery and reuse.

Investigators proposing sounding rocket payloads should contact the SRPO to obtain technical information related to SRPO launch vehicle capabilities, services, and the latest planned campaign schedules. Questions concerning sounding rockets for Low-Cost Access to Space may be addressed to wff-srpo-lcas@mail.nasa.gov, for Astrophysics Research and Analysis Program may be addressed to wff-srpo-apra@mail.nasa.gov and all other inquiries may be addressed to:

Giovanni Rosanova
Sounding Rockets Program Office
Code 810
GSFC/Wallops Flight Facility
National Aeronautics and Space Administration
Wallops Island, VA 23337
Telephone: (757) 824-2202
Email: giovanni.rosanova@nasa.gov

(ii) NASA-provided Balloon Services

Information on the capabilities of current available balloon vehicles is available at https://www.nasa.gov/scientificballoons and at https://www.csbf.nasa.gov/balloons.html.

Proposers are encouraged to consider these capabilities in designing their investigations, but the Balloon Program Office (BPO) has the final authority in the choice of which vehicles to be used.

The nominal U.S. launch sites for Balloons are Fort Sumner, New Mexico, and at the Columbia Scientific Balloon Facility in Palestine, Texas. The BPO also conducts launches from established non-U.S. launch sites at McMurdo, Antarctica; Alice Springs, Australia; Kiruna, Sweden (Esrange); or Wanaka, New Zealand, subject to science community requirements and the availability of BPO operations funding to conduct the campaign.

Investigators proposing payloads to be flown on stratospheric balloons should answer the program-specific questions on the Payload Reference Document. Investigators proposing balloon payloads should contact the BPO to obtain technical information related to BPO balloon capabilities, services, and the latest planned campaign schedules.

Proposers needing investigation-unique engineering, flight support systems, and/or technical support services from NASA, such as the Wallops Arc-Second Pointing System (WASP), should also contact the BPO directly for an estimate of the cost of the desired support. Questions concerning balloons may be addressed to:

Gabriel Garde
Balloon Program Office
Code 820, GSFC/Wallops Flight Facility
National Aeronautics and Space Administration
Wallops Island, VA 23337
Telephone: (757) 824-2598
Email: Gabriel.j.garde@nasa.gov

(iii) STMD Flight Opportunities Program Commercial Suborbital Flight Services

Proposers may avail themselves of STMD's Flight Opportunities Program (FOP) Indefinite Delivery/Indefinite Quantity (IDIQ) contracts to suborbital flight service providers. Information on commercial suborbital flight services, including general vehicle capabilities and contact information for some vendors, is available at https://www.nasa.gov/directorates/spacetech/flightopportunities/flightproviders. A list of providers may be found at: https://www.nasa.gov/stmd-flight-opportunities/nasa-contracted-flight-providers/ For payloads to be flown on FOP-contracted commercial suborbital flights, the flight and all other services provided by the commercial vendor will be procured directly by the FOP rather than through the award. The payloads to be flown on FOP-contracted suborbital flights must either be automated or remotely operated. ROSES does not solicit proposals that include humans to fly on FOP-procured commercial suborbital launch vehicles. FOP is not currently offering aircraft parabolic flights to SMD proposers through ROSES.

Appendix E (BPS) uses of the FOP generally don't fall under the default backstop rules that appear here. Please see the Appendix E program element for details and communicate with the point of contact for that Appendix E program element for more information.

Investigators proposing FOP-contracted commercial suborbital flight service payloads are strongly urged to discuss prospective investigations with operations personnel in the Flight Opportunities Program and/or a potential vendor to ensure that probable integration, safety and mission assurance, and operational costs are properly anticipated.

Questions concerning FOP-contracted commercial suborbital flight services may be addressed to:

Macarena Parra
NASA Flight Opportunities – Commercial suborbital and hosted orbital flights

Phone: 650 448-5716
Email: nasa-flightopportunities@mail.nasa.gov

(iv) Proposer-provided Commercial Suborbital Launch Vehicles

In addition to the description of the science investigation required of all proposals, proposals that would use Proposer-Provided commercial Suborbital Launch Vehicles (PPSLVs) must describe vehicle integration, launch, and flight operations. Proposers planning to use PPSLVs must identify a vehicle that will provide the technical capabilities required to successfully conduct the proposed investigation.

Proposals using PPSLVs as platforms must specify the technical requirements that their investigation places on the vehicle. Proposals for investigations using PPSLVs as platforms must provide a description of the instrument; its current status; a clear assessment of what it will take to develop, modify, and integrate the instrument onto the PPSLV; and include a plan to provide calibrated, research grade data.

SMD will conduct a continuing investigation review (CIR) for all PPSLV-based projects. The CIR is a safety review, but also evaluates the Product Assurance, Procedures and Management (Cost and Schedule) to determine if the proposed activity met a reasonable expectation of a safe launch. The CIR will take place following maturity of the suborbital launch vehicle-based project to the equivalent of a Phase A concept study report or a systems requirement review. A proposal for a PPSLV-based project must describe the proposed schedule for CIR and the proposed funding required to reach CIR.

The CIR will examine payload description, flight performance assessment, proposed payload configuration and interfaces, mission success criteria, requirements matrix, operational requirements, launch vehicle, and project schedule. The CIR will be conducted when the PI believes that the PPSLV-based project has reached an appropriate level of design maturity. It is expected that PPSLV-based projects will spend no more than approximately 10-20% of the project's cost (approximately ~ $100K) prior to CIR approval.

Proposals for PPSLV-based investigations must be submitted to the appropriate ROSES program element, depending on the science to be addressed by the proposed investigation. The proposed PPSLV-based investigation must meet the constraints of the program element to which it is being proposed. This explicitly includes any constraints on the areas of science that are solicited, on the available funding, and on the requirement for a complete science investigation.

Proposers who choose to provide their own commercial suborbital launch vehicles, rather than using STMD's Flight Opportunities Program (FOP) contracts for commercial suborbital platforms, must do the following:

- Inform the point of contact for the program element prior to submission and copy SARA@nasa.gov,
- The cost to SMD for the flight and related services being performed for the proposer must be included in the NSPIRES cover page budget in Section F, lines 5 or 8-12, that are redacted for peer reviewers, and in the separately uploaded "Total Budget" PDF.

- The proposal document must describe the commercial flight services in adequate detail for peer review and include a statement as to why the proposer chose that launch, how it satisfies their requirements, e.g., as opposed to FOP.

Unless otherwise specified in a program element, in addition to the normal evaluation factors specified in Section V(a) and the *NASA GCAM*, evaluation of the intrinsic merit of SLV-based proposals shall include the following additional factors:

- The likelihood that the proposed vehicle will be available at the proposed time for flight and that it will be capable of providing the required technical capabilities;
- The feasibility of the proposed technical investigation, including the concept for conducting the experiment during the suborbital flight and the plans for calibrating and analyzing the data obtained to accomplish the proposed science objectives; and
- The quality of the plans for completing the preliminary design prior to the continuing investigation review.

The evaluation of cost reasonableness of a proposal shall include a pre-selection assessment, by NASA personnel, of the affordability of the proposed vehicle vendor cost for the flight and other required services compared to available budget.

(v) Research Investigations Utilizing the International Space Station

ROSES may solicit science and technology development payload opportunities on the International Space Station (ISS) through 2030. At the time of release of ROSES-25, no program elements in ROSES solicit experiments on or launched from the ISS.

Appendix E (BPS) uses of the ISS generally don't fall under the default backstop rules. Please see the Appendix E program element for details and communicate with the point of contact for that Appendix E program element for more information.

For ISS Program accommodation support, please email both of these points of contact from the ISS Program's Research Office:

Name	email
Janice Makinen	janice.v.makinen@nasa.gov
Christine Reichert	christine.m.reichert@nasa.gov

(vi) Short Duration Orbital Platforms, including CubeSats and other SmallSats

Short duration (<2 years in orbit) orbital platforms, including CubeSats and other SmallSats, have been used as teaching tools and technology demonstrators, and offer newly developed capabilities for conducting NASA scientific research and technology advancement. CubeSats are a type of SmallSat. CubeSats may be proposed as a single unit (1U), weighing less than 1.33 kg, or combined in units of two, three, six (2x1x3 form factor), or twelve (2x2x3 form factor); e.g., when it is solicited Astrophysics Research and Analysis (APRA) allows up to 12U. In some cases, even larger, for example, D.5 Pioneers allow CubeSats up to 27U, with those greater than 12U dispensed from a Secondary Payload Adapter port. Proposers should communicate with the point of contact for the ROSES program element to which they plan to propose

to verify the availability of an appropriate dispenser and that costs can be accommodated by the particular program element.

Proposals for science investigations utilizing short duration orbital platforms, such as CubeSats, must be for complete investigations, and must describe a complete science investigation, including CubeSat construction, payload integration and test, launch vehicle integration, communications, mission operations, data analysis, publication of results, and archiving.

CubeSats are typically launched as secondary payloads to low-Earth orbit or from the International Space Station. Further, additional commercial opportunities to leave Earth orbit as a secondary payload may arise on future mission launches. To bolster development of the Science, Technology, Engineering and Mathematics (STEM) and NASA engineering workforce, the CubeSat Launch Initiative (CSLI) program limits eligibility for CSLI to projects led and carried out entirely by early career (10 years since terminal degree) investigators and students. An experienced mentor (who need not be early career) is encouraged. For more information proposers may refer to the CubeSat Launch Initiative Announcement "Partnership" Opportunity web page and inquire of the CSLI Point of Contact (POC) listed at the end of this section. Proposals to ROSES that do not meet this early-career eligibility requirement for a CSLI launch may avail themselves of NASA-provided rides via the Launch Services Program (LSP).

NASA's Launch Services Program, or LSP, facilitates the launch of uncrewed rockets delivering science and robotic missions from nanosats to flagship level primary payloads. LSP's focus is bringing together those with a payload needing a ride to space with the appropriate launch vehicle provider, based on cost, schedule, and technical capabilities. LSP is able to utilize a variety of contracting and partnership opportunities to find the appropriate launch opportunity for the PI. Additional information including performance quotes for orbits/destinations, mission integration inquiries, and standard services may be obtained from the LSP point of contact below. At an appropriate time after selection, SMD will provide mission specific direction to the Launch Services Office. This direction will request the project be considered for manifest on a launch vehicle going to an appropriate orbit via LSP contracting mechanisms.

As a result of their secondary payload status, CubeSats are placed into orbits that are dictated by the primary payload. Therefore, in any given year a finite number of specific orbits (e.g., inclinations and altitudes) will be available for CubeSats, and the types of orbits available will vary from year to year. Thus, CubeSat-based missions requiring very specific orbital parameters may be at a disadvantage for securing a timely launch. Proposals should include the CubeSat Mission Parameters Table (below) and clearly indicate both the required and the acceptable range of orbital parameters needed to meet mission objectives.

CubeSat Mission Parameters								
Mission Name	Mass	Cube Size	Desired Orbit		Acceptable Orbit Range	400 km @ 51.6 degree incl. Acceptable – Yes or No	Ready Date	Desired Mission Life
			Altitude					
			Inclination					

CubeSats must be compliant with the Launch Services Program, Program-Level Dispenser and CubeSat Requirements Document (LSP-Req-317.01 Revision B) and the Compliance and Reference Documents referenced therein. That document may be found at: https://www.nasa.gov/wp-content/uploads/2018/01/627972main_lsp-req-317_01a.pdf. CubeSats are also strongly encouraged to comply with the latest CubeSat design specification found at the CubeSat Launch Initiative Resources Page.

Unless otherwise stated, awards made in response to proposals to ROSES do not fall under NASA Procedural Requirement (NPR) 7120.5. Instead, they fall under NASA Procedural Requirement (NPR) 7120.8, NASA Research and Technology Program and Project Management Requirements, appropriately tailored depending on the project size, complexity, and scope.

Proposals for CubeSat investigations should note the following:

- For missions that are eligible for CSLI, launch costs ≤$300K are generally adequate for CubeSats up to 3U to Low Earth Orbit (LEO) and will be covered under CSLI, at no cost to the investigation. For this standard case, proposers should mention (e.g., in the budget justification) that only the standard CSLI-provided launch services are needed. Proposers should not include such CSLI launch service charges in the budgets of a ROSES proposal.
- Proposals that are not eligible for CSLI must contact LSP representatives (see below) to obtain a cost estimate. Proposals shall state explicitly in the budget justification that there are additional costs for launch and give those costs on the NSPIRES cover page in Section F, lines 5 or 8-12, that are redacted for peer reviewers, and in the separately uploaded Total Budget file, see (b) General Guidelines for Flight Proposals above. However, such quoted launch services costs are not in the hands of the proposing organization and overhead must not be charged on those costs.
- The proposed CubeSat investigation must meet the constraints of the program element to which it is being proposed. This explicitly includes any constraints on the areas of science that are solicited, on the available funding, and on the requirement for a complete science investigation.
- In addition to the factors specified in the *NASA GCAM*, the proposal will be evaluated against any additional (e.g., flight-related) factors called out in the program element to which it is being proposed.
- Proposals for investigations using CubeSats must satisfy the constraints for a standard CubeSat and the NASA CubeSat deployer.

- Proposals must specify any constraints placed on the required orbit and orbital lifetime. The likely availability of NASA launches satisfying any constraints in the time period contemplated will be a consideration for the ROSES evaluation. The less stringent the orbital constraints, the more probable it will be that NASA can manifest the CubeSat investigation for launch.
- Proposals must demonstrate knowledge of the requirements for limiting orbital debris and must address how the mission will meet the requirements of NPR 8715.6 for Limiting Orbital Debris.
- Proposals must address the approach to downlink and uplink communications licensing, frequency band selection, and frequency coordination for operations between space and ground within the Radio Frequency spectrum.
- All costs for preparing, testing, and delivering the CubeSat for launch must be included in the proposal.
- Proposals for short duration orbital experiments other than CubeSats must include provisions for access to space as part of the proposal.
- Review the CubeSat Launch Initiative Resources Page for CubeSat Design Specifications.

Investigators with questions regarding constraints, launch opportunities, and other related technical matters please see contacts below.

Investigators may direct questions about regarding constraints, launch opportunities, and other technical matters the point of contact for the ROSES program element to which they plan to propose.

For further information on SMD CubeSats, please contact:

Rachele Cocks
Phone: (202) 358-1084
Email: rachele.b.cocks@nasa.gov and

For further information on LSP and CSLI, please contact:

Norman Phelps,
Launch Services Program Mission Manager,
Phone: 321-698-5707
Email: norman.l.phelps@nasa.gov

TABLE 1: CHECKLIST FOR ROSES-2025 PROPOSALS

This list does not apply to Step-1 proposals. Many items on this checklist may be superseded by the program element and, if there is a difference, the text in the program element takes precedence. The instructions here may supersede the *NASA GCAM*; if there is a difference, see Section I(g).		
NSPIRES cover pages: This table lists the few aspects that most commonly cause difficulties to proposers. There are many required parts to the cover pages, see the NSPIRES online help for guidance.		
Section or topic		Requirements, caveats, citations, notes, link for more information
	Team	All investigators must indicate participation via NSPIRES, except proposals submitted via Grants.gov. If any team member doesn't confirm their participation the AOR will get an error that prevents submission.
	Team	Paid team members may not be collaborators, they should be given a role permitted to receive funds, such as Co-I.
	Team	A critical partner with a sustained, continuing role is a Co-I, not a collaborator, even if unpaid. See also FAQ #21.
	Project Summary	Proposal Summary (abstract) must be in the 4000-character text box in the NSPIRES cover pages, not the Science/Technical/ Management section of the proposal.
	Budget	List all costs. Include all salary and indirect costs in the NSPIRES cover page budgets but not in the "proposal document" PDF, see Section IV(b)iii.
	Submission	The author must "release" the proposal and the AOR must "submit" prior to the due date.
	Other	There are questions that must be answered and there may be other required content, e.g., some program elements collect a relevance statement via the cover page, see I(g).
Full / Step-2 Proposal document – Must be anonymized for DAPR, see Section V(b)i		
Table of contents		First component of proposal. One page at most and optional.
Scientific/ Technical/ Management (S/T/M) Section		Second component and the main part of the proposal. Must be anonymized for DAPR, see Section V(b)i. The content order below is merely recommended; proposers may order the elements as they prefer unless otherwise specified in the program element.
	Length restriction	Typically, 15 pages for full / Step-2 proposals but more may be permitted for some (e.g., 30 pp for D.5 Pioneers) and fewer for others (e.g., 5 pp combined for parts A and B of F.15 Artemis III Participating Scientists Program). Please read the program element and refer to the summary table of key information.
	Format	8.5" x 11.0" page size
	Format	Single spaced, single column text (unless otherwise specified).
	Format	One-inch margins on all four sides. No reviewable content in margins.
	Format	No more than 5.5 lines per vertical inch

Table 1 Continued: Checklist for ROSES-2025 Proposals

	Text Format	No more than 15 characters per horizontal inch, including spaces. This is typically consistent with a font size of 12.
	Captions Format	As above (font size 12 etc.). Text necessary for the proposal may not be solely in figures, tables, or their captions.
	Figure Format	Text and content on/in figures must be easily legible without magnification.
	Table Format	Text and content on/in Tables must be easily legible without magnification.
	Content	Discuss objectives and their significance.
	Content	Discuss perceived impact of the work.
	Content	Discuss relevance of the work to the program element. See V(a)
	Content	Explain the technical approach and methodology.
	Content	Discuss potential sources of uncertainty
	Content	Present mitigation strategy or alternate approach given obstacles
	Content	Discuss roles of all team members so it's clear what they are doing
	Content	Present a work plan, with milestones, management structure
	Content	Present a data sharing and/or archiving plan in the S/T/M section only if it is required by program element, see Section II.(c).
	Special Content	Provide other special requirements of program element, e.g., special statements for participating scientists, team leads, etc.
References: Third component of proposal		
	Length	No page limit
	Excluded	No references to documents unavailable to reviewers. See FAQ19
Open Science and Data Management Plan (OSDMP) fourth part of proposal. Location differs from that in *the GCAM*. See Section II(c) for exceptions.		
	Length	2 pages
	Required	Unless otherwise stated, an OSDMP or explanation of why it is not needed must be provided in this section.
	Content	See Section II(c) and the OSDMP for content and templates.
Table of Personnel and Work Effort: This is the fifth component of the proposal. Location differs from that given in the *GCAM*. See Section IV(b)iii		
	Exception	Note requirements for anonymity in DAPR programs.
	Required	List of all personnel to perform the proposed effort
	Required	Planned work commitment (e.g., in weeks, months etc.) to be funded by NASA see example in Section IV(b)iii.
	Required	Planned work commitment (e.g., in weeks, months etc.) that will not be funded by NASA, if any. See example in Section IV(b)iii.
	Note	This table is outside of the budget Section. Time commitment included here that is not funded by NASA is not considered cost sharing, as defined in 2 CFR § 200.29.
	General	Where names are not known, include the position, such as postdoctoral fellow or technician.

Table 1 Continued: Checklist for ROSES-2025 Proposals

Biographical Sketches/Curriculum Vitae (CVs): sixth component of proposal		
	Required	For a PI and any Co-Is who would devote ≥10% of their time in any year to the proposed work.
	Length	No page limit.
	Format	Use the new NASA Grants Policy format. See the grants policy list of requirements and Grants Policy Youtube video.
	Not required	CVs for collaborators (and others for whom it is not required) may be included.
Current and Pending Support: seventh component of the proposal, not page limited.		
	Required	Required for the PI and funded team members who would devote ≥10% of their time in any year to the proposed work. Use the new Grants Policy template (docx).
	Required	For each current project or pending proposal, list the level of effort for that team member (only) per year. See the grants policy list of requirements.
	Excluded	Do not include Current and Pending for collaborators.
	Discouraged	Current and Pending for students is discouraged.
	Discouraged	Current and Pending for foreign Co-Is is discouraged.
Statements of Commitment and Letters of Support, Feasibility and Endorsement, the eighth component of the proposal.		
	General	Statements of Commitment by team members have been replaced by an indication of participation via the NSPIRES web interface.
	Statements of Commitment	Statements of Commitment must be included for Grants.gov proposals since web confirmation of team member participation is not possible via Grants.gov.
	Letter of Endorsement – only permitted in special cases.	In general, not permitted. Special cases include 1) foreign Co-Is must include letters of endorsement from their government agency or funding/sponsoring institution in their country and 2) Letters from commercial vendor are required for proposals for investigations using SLVs not contracted by the Flight Opportunities Program. See Section VIII(c)iii.
	Letter of Resource Support	See Section IV(e) for when a letter of resource support is needed from a necessary facility or resource confirming that it is available for the proposed use during the proposed period.
	Letter of feasibility	A letter of feasibility from the NASA Space Station Payload Office must be included with proposals to use ISS.
	Letter of affirmation	In general, letters of affirmation are not permitted for normal research proposals, but letters from the community, e.g., end users may be included (only) when explicitly allowed.

Table 1 Continued: Checklist for ROSES-2025 Proposals

Budget: The ninth component of the proposal, no page limit overall. Do not include information that should be in the S/T/M section, like schedule/GANTT charts.		
Budget Narrative (a.k.a. Budget Justification)		
	General	Please explain in words what is being purchased and why it is reasonable. See the *GCAM*
	Required	Budget Narrative: justify each proposed component of cost, including subcontracts/subawards, consultants, other direct costs (including travel), and facilities and equipment. Give the "basis of estimate;" quotes need not be provided, but the proposal should indicate that the cost was based upon a quote, prior experience, etc.
	Excluded	Omit all values for salary, fringe, or overhead.
	Optional	Proposers need not specify anticipated award type (i.e., grant vs. contract), see Section II(a)
Budget Details (a.k.a. Detailed Budget)		
	Required	Detailed budget, itemizing expenses.
	Recommended	Separate detailed budget from each subaward organization.
	Excluded	Do not include any $ or % values for salary, fringe, or overhead in this section which is peer reviewed. See the FAQ#8.
Facilities and Equipment: The tenth component of the proposal, no page limit.		
	Length	As needed
	Excluded content	May not include scientific or technical information beyond a description of the facilities and equipment, i.e., don't add here what should be in the page-limited scientific/technical section.
PDF Appendices Separate from the main proposal document		
	"Total" Budget Document (separate PDF file attached as type "Total Budget").	
	Required	Separately uploaded "Total" Budget PDF file see Section IV(b)(iii).
	HEC Appendix Document (separate PDF file attached as "Appendix")	
	Required for High-End Computing	If the Program Specific Data Question on the use of NASA-provided HEC was answered in the affirmative, an appendix document must be provided. See Section I(e) for information.
	Expertise and Resources Not Anonymized (separate PDF file attached as document type " Expertise and Resources Not Anonymized ")	
	Required for most programs	Required for program elements employing Dual-Anonymous Peer Review (DAPR), see Section V(b)i. The anonymization of DAPR proposals changes some of the components of this table, e.g., CVs, Table of Work Effort, Current and Pending, etc. See Section IV(b)i for more information.