

1. Short Title: (you can enter up to 1000 characters)

2. Type of institution:

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3. Carnegie Classification

*Please indicate the PI's organization Carnegie Classification. See <https://carnegieclassifications.acenet.edu/carnegie-classification/classification-methodology/basic-classification/> for the classification of R1 vs not R1 research activities. See <https://tinyurl.com/PUIdefinition> for information on Primarily Undergraduate Institution (PUIs).*

Very highly research intensive (R1)

Not very highly research intensive but offering advanced degrees (some doctorates, masters degrees)

Primarily undergraduate institution (two- or four-year)

Not a degree granting institution

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4. Will any funding be provided to a federal government organization including NASA Centers, JPL, other Federal agencies, government laboratories, or Federally Funded Research and Development Centers (FFRDCs)?

Yes

No

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5. Is this Federal government organization a different organization from the proposing (PI) organization?

*(Answer N/A if answer to previous question is NO. Answer YES for different NASA Centers).*

Yes

No

N/A

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6. Does this proposal include the use of NASA-provided high end computing (HEC)?

*\* If you answer "yes" to this question, you must provide as a separate PDF upload "appendix" the information requested in a template. See the Summary of Solicitation, Section I (d) for instructions on accessing the template document. Please note that this question only refers to the computer resources described in Section I (d) of the ROSES Summary of Solicitation.*

Yes

No

7. HEC Request Number (you can enter up to 1000 characters)

*If you indicated above that the proposal would contain a request for HEC time, please provide the HEC Request Number (e.g. HEC-SMD-XX-XXXX) provided as part of PDF file and the RMS request confirmation email.*

8. Research Category:

*This question is asked for broad, SMD directorate level statistical purposes. Please choose the category that closest describes the work being done. If a particular program element does not permit a type of work, this question is not meant to imply that it is allowed.*

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9. Flight Services

*Does this proposal's budget request NASA funding for non-passenger aircraft or helicopter flight services, including Unmanned Aircraft Systems (UAS)/Drones or the acquisition or construction of such flight vehicles?*

Yes

No

10. Team members not confirmed via NSPIRES (you can enter up to 4000 characters)

*If a Team Member cannot confirm their participation via NSPIRES, they must be listed here. Give name, institution, city, state or country, and a brief description of the role. A statement of commitment is required for those listed here, see Section IV(b)v of the ROSES Summary of Solicitation for an example. Do not list administrative support staff, such as resource analysts, nor unnamed students or post docs.*

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11. Does this proposal contain information and/or data that are subject to U.S. export control laws and regulations including Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR)?

*\* It is the proposer's responsibility to determine whether any information in the submitted proposal is subject to provisions of the EAR and/or ITAR. This question addresses only the content of this proposal and not any activity that follows as a result of a potential award.*

Yes

No

12. I have identified the export-controlled material in this proposal.

*If you answered, "YES" above, you must identify explicitly (e.g., figure number, paragraph reference), by statements or highlighting, those parts of the proposal that contain export-controlled material so that it can be redacted if necessary.*

Yes

No

N/A

13. I acknowledge that the inclusion of such material in this proposal may complicate the government's ability to evaluate the proposal.

*While inclusion of export-controlled material in proposals is not prohibited, proposers are advised that inclusion of such material may complicate NASA's ability to evaluate proposals, as NASA may employ non-U.S. Persons, who are not lawful permanent residents of the U.S., to review proposals submitted to this solicitation.*

Yes

No

N/A

14. Does the proposed work include any involvement with collaborators in China or with Chinese organizations, or does the proposed work include activities in China?

*NASA's appropriation from Congress includes this restriction: "None of the funds made available by this [law] may be used for the National Aeronautics and Space Administration or the Office of Science and Technology Policy to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company unless such activities are specifically authorized by a law enacted after the date of enactment of this division."*

Yes

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**The National Environmental Policy Act (NEPA) obligates NASA to consider the potential environmental effects of proposed projects, including those that NASA funds which are implemented by grantees. The majority of grant-related activities are categorically excluded as research and development projects that do not pose adverse environmental impacts. The following questions enable NASA to ascertain whether your proposal will require additional NEPA analysis if selected (e.g., filling out an Environmental Checklist) or the completion of NASA's Executive Order (EO) 12114 Checklist for an activity to be conducted abroad. "Yes" responses are not selection criteria, however, if a "Yes" response is marked, proposers should consider NEPA and/or EO compliance in cost and schedule estimates.**

15. Would the proposal involve any activity that includes: a. Construction of new facilities or modification to the footprint of an existing-facility, or b. Ground disturbance (e.g., excavation, clearing of trees, installation of equipment, etc.), or c. Outdoor discharges of water (e.g., waste water runoff), air emissions (e.g., ozone-depleting substances) or generation of noise exceeding 115 dBA (excluding those associated with aircraft operations)?

Yes

No

16. Would the proposal involve any field activity that would: a. Release equipment (e.g., dropsondes, sensors, etc.) or chemicals (e.g., dyes, tracers, etc.) into the air, bodies of water or on the ground, or b. Release a parachute or use equipment that would not be recovered, or c. Involve equipment or a payload that contains hazardous (e.g., petroleum, hypergols, oxidizers, solid propellants, etc.) or radioactive materials?

Yes

No

17. Would the proposal involve the launch of a payload, equipment, or instrument (e.g., via launch vehicle, sounding rocket, balloon, etc.)?

Yes

No

18. Would the proposal involve any activity to be conducted outside the United States or its territories excluding travel for meetings or conferences?

Yes

No

19. Comments (you can enter up to 4000 characters)

*The Comments block below allows you to expand on any "Yes" responses to the NEPA questions above to provide context, background and perspective.*

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20. Does this proposal contain a citizen science component?

*Citizen Science is a form of "open collaboration" in which individuals or organizations participate voluntarily in the scientific process in various ways. Citizen science projects must be open to participation by new volunteers at some phase of the project, not limited to a pre-determined list of participants. Before submitting a citizen science proposal please read the Policy for SMD-funded citizen science projects which, along with examples of SMD citizen science projects, may be found at <https://science.nasa.gov/citizen-science/>. Questions about citizen science may be directed to [Marc.J.Kuchner@nasa.gov](mailto:Marc.J.Kuchner@nasa.gov).*

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Yes

No

21. AI or ML?

*Would Artificial Intelligence (AI) or Machine-Learning (ML) tools be used or developed?*

Yes

No

22. Division(s) Relevance (To which SMD divisions are the results of this proposal applicable? )

*\* To which SMD divisions are the results of this proposal applicable? (the strategic objectives for each division may be found at: <https://science.nasa.gov/astrophysics/science-questions/>, <https://science.nasa.gov/planetary-science/science-questions/>, <https://science.nasa.gov/heliophysics/science-questions/>, <https://science.nasa.gov/earth-science/>, <https://science.nasa.gov/biological-physical/>)*

Astrophysics

Biological and Physical Sciences

Earth Science

Heliophysics

Planetary Science

23. Interdivisional Explanation (you can enter up to 4000 characters)

*If you chose more than one division, please add an explanation for your answers above. Your answer to this question will solely be used to understand the amount of interdivisional research proposed to ROSES. It will play no role in proposal evaluation or selection.*

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24. PDS Nodes

*Does this proposal plan to archive at least some of its data with the Planetary Data System (PDS)? Proposers intending to archive data in the PDS must obtain a letter of support from the appropriate PDS Discipline Node confirming that the PDS is willing to accept their submission. See Section 3.7.6 of Appendix C.1 for additional information.*

No

Yes, at the Atmospheres Node.

Yes, at the Cartography and Imaging Node.

Yes, at the Geosciences Node.

Yes, at the Planetary Plasma Interactions Node.

Yes, at the Ring-Moon Systems Node.

Yes, at the Small Bodies Node.

Yes, at the Navigation and Ancillary Information Facility (NAIF).

Yes, at multiple PDS nodes.

25. Equipment request

*Does the (Step-2) proposal contain a request for any substantial equipment exceeding \$50k?*

Yes

No

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## 26. Geologic Map Production

*Will this investigation result in the production of a geologic map to be published by the USGS? Investigators who intend to produce a USGS geologic map are required to include a Confirmation of Technical Specification document, obtained from the USGS Map Coordinator, in their Step-2 (full) proposal to be included with Statements of Commitment and Letters of Support. See Section 3.9.2 of Appendix C.1 for additional information.*

Yes

No

## 27. Fieldwork plan

*Does the proposal include fieldwork and were the elements discussed in Section 3.14 addressed in a maximum of 2 additional pages outside the STM of the proposal? If your proposal includes fieldwork, please refer to Section 3.14 of Appendix C.1 for additional information.*

Yes

No

## 28. Facilities Request

*\* If this proposal contains a plan to use the facilities listed in Appendix C.1 of the Planetary Science Research Program Overview, please indicate which facilities will be used.*

Ames Vertical Gun Range (AVGR) [NASA Ames]

The NASA Facility for Astromaterials Research (NFAR) [JSC]

Colorado Dust Accelerator Facility [U. Colorado, Boulder]

Gamma ray Neutron Test Facility (GNTF) [GSFC/GGAO]

GeoSoilEnviroCARS (GSECARS) Synchrotron Facility [Argonne National Lab.]

Glenn Extreme Environment Rig (GEER) [NASA Glenn]

High Resolution X-ray CT Facility [U. Texas, Austin]

KiloElectron-Volt Ion Irradiation Facility for Space Science (KEVION) [U. Virginia]

Kuiper-Arizona Laboratory for Astromaterials Analysis (K-ALFAA) [U. Arizona]

Livermore-NASA In-situ Microanalysis Facility [LLNL]

Nano-IR Spectroscopy and Imaging Facility [SUNY Stony Brook]

NASA's In Situ Carbon Evolution Experiment Facility (ICEE) [NASA Ames]

Planetary Aeolian Facility (PAL) [NASA Ames]

Planetary Cloud Aerosol Research Facility [JPL]

Purdue Resources Empowering Coordinated Investigations for Sample Exploration (PRECISE) [Purdue U.]

Reflectance Experiment Laboratory (RELAB) [Brown U.]

Rocky Mountain Noble Gas Lab for Extraterrestrial Samples (RM-NobLES) [U. Colorado, Boulder]

The Lunar and Planetary Institute Scanning Electron Microscope Facility [LPI]

Venus In-situ Chamber Investigations (VICI) [NASA Goddard]

WiscSIMS Laboratory for In Situ Isotope Analysis of Extraterrestrial Samples [U Wisconsin, Madison]

Other

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29. Year of the PI's terminal degree (you can enter up to 1000 characters)

*\* What is the year of the PI's terminal degree?*

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30. Potential Reviewer Contact Information (you can enter up to 4000 characters)

*Please provide names and email addresses of five experts qualified to review your proposal. Researchers from postdoc or equivalent level onward are appropriate for nomination, and NASA welcomes qualified reviewers from all career stages and institutions. We ask that your suggestions not be from the institutions of the PI or Co-Is or stand to benefit financially from the selection (or otherwise) of the proposal*

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31. Primary decadal survey priority topic

*\* Select the primary decadal survey priority topic*

32. Other primary decadal survey priority topic explanation (you can enter up to 1000 characters)

*If selected 'Other' above please explain.*

33. Secondary decadal survey priority topic

*Select a secondary decadal survey priority topic.*

34. Does the proposal address any of the emphasized priorities described in the following subsections of C.2?

\*

Section 1.1.1 Lunar Science

Section 1.1.2 Mars Science

Section 1.1.3 Astrobiology

35. Does the proposal include any of the following as a primary focus

\*

Creation of new higher-order data products, data archives, reference materials, or geologic maps, or geologic maps, or geologic maps

Laboratory instrumentation or analytical technique development

Planetary Protection

Software tool development

36. Award Size

*\* What is the size of the average annual budget of this proposal?*

Small (<\$150K average annual budget)

Medium (between \$150K and \$250K average annual budget)

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Large (>\$250K average annual budget)

37. Award Duration

*\* What is the duration of the proposed investigation?*

One year or less

Two years

Three years

Four or more years

38. Primary targets

*\* What are the primary targets of this proposal? Note that this drop down menu allows for multiple selections*

39. Other Target Explanation (you can enter up to 1000 characters)

*If selected 'Other' above please explain.*

40. PDS data

*\* If the proposal includes analysis of data already in the PDS, select up to two missions the data primarily comes from. Note that this drop down menu allows for multiple selections*

41. Other Mission Explanation (you can enter up to 1000 characters)

*If selected 'Other' above please explain.*

42. Most Relevant Discipline(s)

*\* Please check the discipline(s) most relevant to the proposal. Note that this drop down menu allows for multiple selections*