

F.5 FUTURE INVESTIGATORS IN NASA EARTH AND SPACE SCIENCE AND TECHNOLOGY

NOTICE: Amended February 14, 2023. This amendment delays the due date for FINESST proposals. Proposals are due February 21, 2023.

Amended February 3, 2023. This amendment delays the due date for FINESST proposals. Proposals are due ~~February 14, 2023~~. Also, in Section 3 a reference to NASA civil servants has been clarified to address legal concerns. New text is in bold and deleted text is struck through.

NOTICE: Amended November 28, 2022. This Amendment releases the final text for this program that solicits graduate student research, which had been listed as "TBD". Notices of Intent may not be submitted. Proposals are due ~~February 14, 2023~~ ~~February 7, 2023~~. An optional, pre-proposal teleconference will occur on January 13, 2023, at 2 PM eastern time, see Section 12.8. Although structured as Question and Answers (Q&A), Sections 12 & 13 will be legally binding on awardees. The short URL for the NSPIRES page for this program element is <https://go.nasa.gov/FINESST22>.

1. Introduction and Funding Opportunity Description

The Future Investigators in NASA Earth and Space Science and Technology (FINESST) is a program element in Research Opportunities in Space and Earth Sciences (ROSES)-2022. Through FINESST, the Science Mission Directorate (SMD) solicits proposals from accredited U.S. universities and other eligible organizations for graduate student-designed and performed research projects that contribute to SMD's science, technology, and exploration goals. The Future Investigator (FI) i.e., the student participant, shall have the primary initiative to define the proposed FINESST research project and must be the primary author, with input or supervision from the proposal's Principal Investigator (PI), as appropriate.

The proposal must present a well-defined research problem/activity and a justification of its scientific significance to NASA, as well as a detailed approach for its solution/conduct. Proposals should explain how the research is relevant to the particular SMD division that will review the proposal. The proposal should reference Section 2 below regarding suitable research topic(s) solicited by a participating Division: Earth Science, Planetary Science, Astrophysics, Heliophysics, and Biological and Physical Sciences. Those who have never proposed to ROSES before may refer to the introductory note at the start of Section 12: Ancillary information for proposers.

Information on NASA's Strategic Goals and Objectives and SMD's high-level objectives is in the [NASA 2022 Strategic Plan](#). Detailed plans/objectives that correspond to four of the five science divisions of SMD (Heliophysics, Earth Science, Planetary Science, and Astrophysics) appear in [Chapter 4 of the 2014 NASA Science Plan](#). All FINESST proposals must address its relevance to at least one participating SMD division (see Section 4.1.1). The NASA Science Strategy or Plan for the Science Mission Directorate entitled [Science 2020-2024: A Vision for Scientific Excellence](#) articulates SMD's principles.

FINESST awards are research grants and are similar to a fixed amount award as described in 2 CFR §200.1 "Definitions". See also Section 6, Award Information and Restrictions, and Section 13, Ancillary information for awardees, at the end of this document.

2. Scope of Program: Division Research Overviews

This section presents a partial overview of the research funded by SMD's science divisions that accept FINESST proposals. Proposers may refer to the list of research program element(s) solicited by a particular division(s) in [Table 3 of this year's ROSES solicitation](#) to get an indication of topics that are covered by each division. This list is not exhaustive since it changes from year to year. If a particular program element for SMD's FINESST participating divisions is listed as "not solicited this year", TBD, or even absent, that topic is still in scope for FINESST. Lastly, proposals for research that cross divisional boundaries (e.g., sun-climate connection, upper/lower atmosphere connection, comparative planetary atmospheres and/or atmosphere/surface interactions, Earth as an analogue for exoplanets, common physical/chemical data and/or processes in support of modeling or observations) will be jointly considered by the relevant divisions.

2.1 Earth Science Research Program

The overarching goal of NASA's Earth Science program is to develop a scientific understanding of Earth as a system. NASA's Earth Science Research Program supports research activities that address the Earth system and seek to characterize its properties on a broad range of spatial and temporal scales, to understand the naturally occurring and human-induced processes that drive the Earth system, and to improve our capability for predicting its future evolution. The focus of the Earth Science Research Program is the use of space-based measurements to provide information not available by other means.

The Earth Science Research Program contributes to NASA's mission, in particular, Strategic Objective 1.1: "Understand the Earth system and its climate" (from the [NASA 2022 Strategic Plan](#)). This strategic objective involves the following key goals:

- Advance the understanding of changes in the Earth's radiation balance, air quality, and the ozone layer that result from changes in atmospheric composition;
- Improve the capability to predict weather and extreme weather events;
- Detect and predict changes in Earth's ecosystems and biogeochemical cycles, including land cover, biodiversity, and the global carbon cycle;
- Enable better assessment and management of water quality and quantity to accurately predict how the global water cycle evolves in response to climate change;
- Improve the ability to predict climate changes by better understanding the roles and interactions of the oceans, atmosphere, land, and ice in the climate system;
- Characterize the dynamics of the Earth's surface and interior, improving the capability to assess and respond to natural hazards and extreme events; and
- Further the use of Earth system science research to inform decisions and provide benefits to society.

Earth Science proposers should review ROSES-2022 [A.1 Earth Science Research Overview](#) for additional details. The Earth Science Division (ESD) welcomes FINESST proposals that relate to the following sections of A.1: Research and Analysis (Section 2), Applied Sciences (Section 3), Technology (Section 4), and Data Systems (Section 5).

FINESST Earth science proposals must demonstrate a clear link to past, present, or future NASA Earth science data and/or models in the Science/Technical/Management section of their proposal. This link could include, but is not limited to: NASA satellite remote sensing data (including joint missions of NASA and its interagency and international partners), remote sensing data that pertains to future NASA observing systems, remote sensing and *in situ* data from NASA or NASA-affiliated suborbital activities such as airborne campaigns and surface-based networks, data acquired via NASA's Commercial SmallSat Data Acquisition ([CSDA](#)) Program (which is available at no cost to NASA-funded researchers), NASA models that incorporate satellite and/or suborbital data, and technology projects related to current and future NASA observing systems. Proposals that anticipate and/or allow for enhanced scientific return from the [Earth System Observatory](#) are welcome. Proposals that incorporate non-NASA data, including international satellite data, commercial satellite data, and social science data are also welcome.

Any data proposed to be analyzed from any source, including NASA and other satellite data, ancillary data, and data from commercial sources, must use publicly available data, in the sense that these data are openly accessible. Commercial data need not be free, but it must be purchasable by all potential investigators. Wherever possible, proposals should reflect the principles of Open Science as described on the [Earthdata](#) website.

2.2 [Heliophysics Research Program](#)

Heliophysics proposers must review ROSES-2022 [B.1 Heliophysics Research Program Overview](#) for complete information.

In pursuit of the part of the NASA Strategic Objective related to Heliophysics, i.e., to understand the Sun, Earth, Solar System, and Universe, and with guidance from the National Research Council's most recent decadal survey, *Solar and Space Physics, A Science for a Technological Society* ([download free PDF](#)), key objectives are:

- Explore and characterize the physical processes in the space environment from the Sun to the heliopause and throughout the universe
- Advance our understanding of the Sun's activity, and the connections between solar variability and Earth and planetary space environments, the outer reaches of our solar system, and the interstellar medium
- Develop the knowledge and capability to detect and predict extreme conditions in space to protect life and society and to safeguard human and robotic explorers beyond Earth.

The research program supports theory, modeling, and data analysis utilizing remote sensing and *in situ* measurements. The Heliophysics Research Program supports investigations in all research regimes of Heliophysics: Sun, heliosphere, magnetosphere, ionosphere, and upper atmosphere. It supports investigations focused

on processes that create space weather events and investigations to enable a capability for predicting future space weather events. The research program also supports investigations that span the regimes and address a systems approach – emphasizing the understanding of fundamental processes and interconnections across the traditional science disciplines on a broad range of spatial and temporal scales.

For further information, consult *Our Dynamic Space Environment: Heliophysics Science and Technology Roadmap for 2014-2033* ([download PDF](#)).

2.3 Planetary Science Research Program

Planetary Science proposers must review ROSES-2022 [C.1 Planetary Science Research Program Overview](#) for complete information.

The Planetary Science Research Program, managed by the Planetary Science Division, supports investigations to address the broad strategic objective to "Advance scientific knowledge of the origin and history of the solar system, the potential for life elsewhere, and the hazards and resources present as humans explore space" as described in NASA's Science Vision.

Proposals that are relevant to the Planetary Science Division (PSD) must demonstrate the relevance of the proposed work to at least one or more of the following:

- the core programs solicited by PSD (Appendix C; C.2 through C.11 and C.16)
- the cross-divisional programs (F.3 Exoplanets Research Program or F.4 Habitable Worlds)
- the C.12 Planetary Instrument Concepts for the Advancement of Solar System Observations (PICASSO); proposals relevant to other technology programs are not solicited at this time. In addition, proposals relevant to C.12 must demonstrate must address specific scientific objectives of likely future planetary science missions.

Proposals that do not demonstrate relevance to one or more of the listed programs shall be returned without review.

The Planetary Science Research Program invites proposals to address the themes from the most [recent planetary decadal survey](#) and the associated priority questions.

2.4 Astrophysics Research Program

Astrophysics proposers must review the ROSES-2022 [D.1 Astrophysics Research Program Overview](#) for complete information.

The Astrophysics Research Program, managed by the Astrophysics Division, has the strategic objective to discover how the universe works, explore how it began and evolved, and search for life on planets around other stars. The science goals that shape efforts toward fulfilling these objectives are:

- Probe the origin and destiny of our universe, including the nature of black holes, dark energy, dark matter, and gravity.
- Explore the origin and evolution of the galaxies, stars and planets that make up our universe.
- Discover and study planets around other stars and explore whether they could harbor life.

- Develop cutting-edge technologies to support NASA Astrophysics research, including, but not limited to, detectors developments, supporting technologies (e.g., optics, mirrors, coatings, or gratings), and laboratory Astrophysics investigations.

Investigations submitted to the Astrophysics research program should explicitly support past, present, or future NASA astrophysics missions. These investigations may include theory, simulation, data analysis, laboratory astrophysics, and technology development.

2.5 Biological and Physical Sciences Research Program

Biological and Physical Sciences (BPS) proposers must review ROSES-2022 [E.1 Biological and Physical Sciences Research Program Overview](#) for complete information. BPS seeks advances in the biological and physical sciences through space-based research, and studies the behavior and adaptation of physical processes, living organisms, and ecosystems to environments beyond Earth, to enable space exploration and pioneer scientific discovery.

[Space Biology](#): Space Biology focuses on the effects of short and long duration spaceflight environment exposure on the biology of animals and plants. In addition, the effects of microbial systems on plants and animals and the use of cellular systems to delineate the mechanistic effects of spaceflight on animal and plants systems are of interest to the program.

NASA Space Biology goals are to:

1. Discover how biological systems respond and adapt to the space environment
2. Develop integrated physiological models for biology in space
3. Identify the underlying mechanisms and networks that govern biological processes in the space environment
4. Promote open science through the [GeneLab Data System](#) and [Life Sciences Data Archive](#)
5. Develop cutting-edge biological technologies to facilitate spaceflight research
6. Develop mechanistic understanding to support human health in space
7. Enable the transfer of knowledge and technology to the understanding of life on Earth

Please see the [Task Book: Biological & Physical Sciences Division and Human Research Program](#) for present and past funded research projects.

For detailed information on experimental data from past space biology experiments please see the [GeneLab](#) database and [Life Sciences Data Archives](#).

[Physical Sciences](#): Physical Science investigations should focus on theory development, experimental research, or numerical simulation that contributes to an interpretive context for past, current, or potential future space experiments in one of NASA's Physical Sciences Research Program discipline areas: Combustion Science, Complex Fluids, Fluid Physics, Fundamental Physics or Materials Science.

NASA Physical Sciences Research Program objectives:

- Investigate fundamental laws of physics, often using either microgravity or interplanetary distances as research tools

- Provide mechanistic understanding of fundamental reduced gravity fluid physics processes underlying future space exploration systems such as power generation and storage, space propulsion, life support systems, and also fire safety
- Develop and increase understanding of extraction techniques to generate useful materials, such as metals, glasses, water ice for Lunar infrastructure materials or consumables from regolith (using a simulant) to advance the Artemis mission of returning humans to the Moon.
- Support the transfer of knowledge and technology of space-based research to terrestrial systems to benefit life on Earth such as: smart reactive soft materials, metamaterials, additive manufacturing and the theoretical understanding of nonequilibrium phenomena in soft matter, fluid physics and combustion science.
- Developing cutting-edge technologies to facilitate spaceflight research
- Promote open science through data sharing

Please see the [Task Book: Biological & Physical Sciences Division and Human Research Program](#) for present and past funded research projects.

For detailed information on past physical sciences scientific experiments including data please see the [Physical Science Informatics](#) database.

2.6 Science Activation Program

The Science Activation Program (F.6), managed by the Science Engagement & Partnerships Division, will NOT accept proposals in this cycle. Those interested in future opportunities can find more information about the Science Activation program at <https://science.nasa.gov/learners>. There will be no means to create a FINESST proposal addressed to Science Activation.

2.7 Additional Information on ROSES Cross -Division Research Programs

For a proposal that possibly spans more than one type of SMD research there may be an existing funding opportunity designed to support such activities in Appendix F, see [F.1 the Cross Division Research Overview](#). FINESST primarily serves as a joint notice of funding opportunity for the six SMD divisions listed 2.1 through 2.6 Most program elements in Appendix F are eligible to be used as a relevance statement for a FINESST proposal. However, as a practical matter, proposers must pick one of the 5 participating FINESST divisions when starting a proposal. Thus, a proposal relevant to a Cross Division program should submit to the FINESST division most closely aligned with the specific nature of the proposed research.

3. FINESST Program Eligibility

The Future Investigator (FI) named on the proposal is primarily responsible for writing a FINESST proposal. The FI should be listed on the proposal in Section VI as a Team Member (Select "Graduate/Undergraduate Student" as the FI's "Team Member Role").

To be eligible, the FI must meet the following criteria:

- By the proposal due date, the student, known as a future investigator (FI), must have
 - applied to, or

- been admitted to, or
- be enrolled as a graduate student, i.e., a Master's or Ph.D. degree student, or both, in an Earth- or space sciences-related discipline, at an eligible, accredited U.S. university.
- Have never previously accepted a FINESST award or
 - If an FI was previously a named student participant on a FINESST or NESSF grant as originally submitted, the new proposal submitted to this solicitation may not request support such that the time requested from both proposals exceeds 36 months. For example, if an FI was awarded a twelve-month FINESST grant for master's research, that FI may propose for up to 24 months of FINESST support for Ph.D. research but may not propose 36 months of support.
 - If an FI was supported via a NESSF or FINESST grant where they were not listed as the original named student on the award – most commonly in the case where a PI requested that a new student be allowed to use funds remaining on a FINESST or NESSF grant originally awarded to a different student – the FI may request a full 36 months provided that they received less than \$50,000 from the previous award.
 - FIs who proposed to, but are not funded by, a prior FINESST or another solicitation such as the Earth and Space Sciences Fellowship (NESSF) are eligible.

An FI may be listed on only one FINESST proposal per solicitation year.

The Principal Investigator (PI) normally is the FI's mentor and holistically supports the FI's research and professional development. However, SMD understands that there are some situations where the mentor named in the mentoring plan may not be the PI. In such cases, the mentor should be shown as a Co-I on the NSPIRES cover page. Unless the submitting institution has a requirement, NASA has no requirement that the mentor be at the proposing institution. The PI and, if different, the mentor(s) are determined based on the norms, policies, and practices of the proposing institution.

NASA does not advise on or assist in identifying who should be the PI or mentor. SMD, however, expects the PI/Mentor to support the FI during proposal development, and if awarded, during the conduct of the project.

Federal civil servants, contractors, or federal contractor equivalents who are proposing through an eligible institution ~~may~~ **to** serve as PIs and FIs shall only use non-NASA email addresses for the PI or FI to demonstrate qualifying status at the proposing institution. **Reminder to NASA Civil Servants Seeking to Propose as a PI or FI: Signing a FINESST proposal on behalf of third-party addressed to NASA, would be a prohibited representation to the U.S. Government under current U.S. legal code.** NASA civil servants/contractors may serve as mentors when they are listed as a Co-I. **[Clarified February 3, 2023]**

There is no limit on the number of proposals a PI or organization may submit.

Most commonly, a university will submit the proposal. However, other institutions that may receive a grant may submit the proposal when they have a relationship with the accredited U.S. higher education institution at which the FI is or will be enrolled. In such

a case, the budget justification or narrative must provide evidence from the accredited U.S. education institution of the student's enrollment/good standing in an eligible degree program. Note that NASA Centers and other Federal entities that do not grant degrees are not eligible institutions for FINESST awards.

Participation by non-U.S. organizations is welcome, but on a "no exchange of funds" basis, see Section 3.1 below.

All proposal participants must be listed on the cover page, so that NASA may manage organizational conflict of interest during peer review. Technical Note: Generally, team members beyond the PI and FI do not confer any advantage during the review process.

3.1 International Traffic in Arms Regulations (ITAR), Export Administration Regulation (EAR), Foreign Institutions, and the People's Republic of China

FINESST primarily supports fundamental research and/or technology development projects that normally are not subject to export control. However, should the FI's proposed research project fall under International Traffic in Arms Regulations (ITAR) or Export Administration Regulations (EAR), then only U.S. persons may be the PI and FI, and proposers must identify the parts of the proposal that contain ITAR material as instructed in Appendix A of the [2022 NASA Guidebook for Proposers](#). Proposers whose research might occur outside of the U.S. or with organizations outside the U.S. should see Section 12 regarding "Foreign Participation".

Export controls are restrictions applied by the U.S. Government to the transfer of certain goods, services, software, technical data, and technology to foreign entities. FINESST is primarily for research, i.e., work, that supports open, basic, or fundamental science and technology. However, the NSPIRES Cover Page includes this question: Does this proposal contain information and data that are subject to U.S. export control laws and regulations including Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR). Please note: If the answer is "yes," the cover of the proposal shall have a notice clearly indicating which parts of the proposal (e.g., page number, section, figure) contain export control information. Indicate all information and data that are subject to provisions of U.S. export control laws and regulations.

Describe and clearly highlight information and/or data that contain export-controlled material because it may be necessary during review for NASA to redact such information. The proposer's Authorized Organization Representative (AOR) or sponsored research office will be able to provide information about EAR and ITAR requirements, if any. If you think this is an issue for your research, talk to your PI and AOR about how your organization manages proposals that contain EAR/ITAR.

International students who are enrolled at a U.S. university are eligible to be Future Investigators for a FINESST proposal only through that university. FINESST proposals that include participants affiliated with only organizations in the U.S. and People's Republic of China (PRC) may be considered a bilateral activity and thus ineligible for funding from NASA because of legal prohibitions. Proposing organizations must certify the proposed activity is not PRC-U.S. bilateral to receive an award from NASA. See Section III.c of the *ROSES Summary of Solicitation* and <https://science.nasa.gov/researchers/sara/faqs/prc-faq-roses/>.

3.2 Data Limitations and Requirements

3.2.1 *Data Eligibility*

Spacecraft mission data to be used in the proposed work must be available in a publicly accessible archive (see <https://science.nasa.gov/researchers/science-data>) at least 30 days prior to the proposal due date.

Proposals that require spacecraft mission data that have not been public for at least 30 days prior to the proposal due date are not compliant and may be returned without review or declined after review, no matter the peer review rating. The 30-day portion of the data eligibility requirement applies only to spacecraft mission data, not to other kinds of data, such as airborne campaigns, field campaigns, fieldwork, etc., or that are collected as part of the proposed research. Proposers to the Earth Science Division should review Section 2.1 for specific requirements.

Proposals that can proceed with existing or public data, i.e., are not reliant on future data, but would make use of future data if/when it becomes available during the duration of the award are acceptable. Proposers should make it clear that the project would be improved by future data, but such data is not necessary to complete the proposed objectives. Proposing to use any kind of data that has not yet been collected is a risk but is not prohibited. If a project is completely dependent on data not yet acquired, publicly available, etc., that could prevent selection and/or be noted as a proposal weakness.

3.2.2 *Data Management Plans*

The point of the required Data Management Plan (DMP) is to ensure that the proposer plans what data will be made public and that time is allocated to that important task. A DMP, or an explanation of why one is not needed given the nature of the work proposed, is required to be contained within the NSPIRES cover pages. Unlike other ROSES-22 program elements, the DMP for FINESST proposals is not part of the proposal pdf, and it is limited to two, 4000-character plain text boxes on the NSPIRES web pages associated with the proposal.

Proposers should plan that all data and software developed during the proposed work will be made available by the end of the award, with certain notable exceptions: work that is proprietary or may affect U.S. economic competitiveness; work that results in personally identifiable human subjects research data; export-controlled data; controlled unclassified information data; national security classified data; and SBIR/STTR contracts. A DMP should answer the following questions:

1. What are the data types, volumes, formats, and data standards, where relevant?
2. What repository do the proposers intend to make these data available?
3. When will these data be made available?
4. Who will do the archiving and what experience do they have with this kind of data, archive, etc.?
5. How will software be developed and released (if applicable)?

Regardless of what the DMP submitted with the proposal says, grantees must still meet the mandatory minimum requirement that the data behind figures and tables in peer-

reviewed publications be available electronically at the time of release, ideally in supplementary material with the article.

Third-party resource support letters to archive the data, permissions from data owners/authors, data licenses, or any other scenario are not required. Simply state in the DMP who has agreed to what. If the proposers choose to submit a data resource support letter(s) it may be included with the FINESST budget. For additional guidance, see Section 4.1.7 "Budget Narrative". Do not add resource support letters from any collaborator or team member listed under Section VI of the NSPIRES cover page and who acknowledges commitment via NSPIRES. When a data collaborator directly confirms in NSPIRES, that is sufficient resource commitment to the FINESST project.

4. Proposal Preparation and Submission

The FI (student) must be the primary author of the proposal's research project description and research readiness statement.

All proposals must be submitted in electronic format via NSPIRES or grants.gov. When creating the proposal in NSPIRES, the proposer must choose a division (see Section 2) to which the proposal will be submitted, even if its interdivisional research, see Section 2.6. The main body text of proposals and captions must use an easy-to-read font of no more than 15 characters per horizontal inch (typical of 12-point Times New Roman) and no more than 5.5 lines per vertical inch (i.e., single-spaced). There must be at least one-inch margins on all sides, and the proposal must be sized for U.S. letter size (8.5x11) paper. In accordance with [ROSES Table 1](#), no technical content may be put in the margins; page numbers or disclaimers are permitted. Proposals deemed non-compliant with formatting requirements may be returned without review.

4.1 The Elements of a FINESST Proposal

The contents of the proposal must include these elements (in the order listed and compiled in a single PDF file): Science/Technical/Management Section, References/Citations, Acknowledgement(s), Research Readiness Statement, CV of PI, CV of FI, CV of Co-I(s) (optional), Current and Pending Support Statement for PI, Current and Pending Statement for FI, Mentoring Plan or Agreement, Budget and Narrative. An optional High End Computing Appendix may be submitted as a separate PDF. FINESST proposals do not require a Summary Table of Work Effort. In addition to (and after) the table of contents, the content of the proposal is as follows:

4.1.1 Science/Technical/Management Section

This section describes the proposed research project and should be self-contained without relying on other sections of the proposal, such as the Research Readiness Statement or Budget Narrative. Proposers may include figures and tables as appropriate. This section, excluding citations, may total no more than six (6) pages conforming to formatting requirements detailed above. The project description should include the following elements:

- a. A well-defined problem with a justification of its scientific significance and a detailed approach for its resolution.

- b. A statement describing the relevance of the proposed work to the appropriate SMD Division and a program within that division. If the research is relevant to more than one division/program, please identify the other division(s).
- c. A description of the approach to be taken to address the chosen problem. A period of performance for the proposed project describing anticipated accomplishments and major milestones, including planned publications. In cases when the PI already has an ongoing research award from NASA, the research proposed under FINESST may address a similar topic, but the proposal should make clear how the proposed research goes beyond what NASA has already funded or selected for funding.

4.1.2 *References and Acknowledgements*

References and/or endnotes must directly follow the project description and are not included in the research description's 6-page limit. Provide all references for the 6-page project description using easily understandable, standard abbreviations for journals and complete names for books. Providing URLs can be useful in the references section but are discouraged in the main body of the proposal and reviewers are not obligated to follow any links.

In an acknowledgement statement of up to 150 words, there must be a statement that affirms that the FI was the primary developer for the proposed science. In addition, the roles of the other team member(s) in preparing the proposal must be described. For example, when the FI discusses the proposed idea with others or receives editorial and/or graphic support from, a writing center, copy editor, PI, colleagues, and peers to improve the proposal (e.g., grammar, clarity, structure), such discussions, contributions, or editorial help should be acknowledged.

Though this FINESST element does not specify what is "allowed content" for either References or the Acknowledgements section, these sections should not include technical information that belongs in the project description. [The 2022 NASA Guidebook for Proposers](#) explains restrictions and preferences for bibliographies and appendices.

4.1.3 *Research Readiness Statement*

This section consists of a research readiness statement of up to one page authored by the FI that must include (a) and (b) conforming to formatting requirements (line spacing, etc.) described above.

- a. State and describe how the FI's undergraduate and/or graduate degree program and interactions with the mentor(s) prepare, or will prepare, the FI for the proposed research.
Some possible questions to address include (but are not limited to): has the FI's past, current, and/or planned coursework and self-directed study given the FI a good foundational understanding of the general subject area related to the proposed research? If a particular computer programming language, statistical analysis tool, experimental technique is required for the proposed project, is the FI proficient or has a plan to become proficient?
- b. Provide a graduate study timeline that states i) the degree type (Ph.D., Master's, both or other type of graduate degree, e.g., M.D.); ii) the subject area, iii) how

long the FI has been (or if not yet admitted, expects to be) enrolled in the program, and iv) the estimated graduation date in Month/Year format.

Part (c) should be included as appropriate, and should conform to formatting requirements (line spacing, etc.) described above:

- c. State and describe other experiences and/or self-directed learning activities that are relevant to the proposed research.

This includes, but is not limited to, short courses offered at conferences, summer/winter schools, independent research projects, internships, work experience, volunteer experience, or teaching experience.

4.1.4 *Curriculum Vitae for the PI (mentor) and the FI*

The PI's and FI's *Curriculum Vitae* (CV) or resume are mandatory and limited to two pages each. Any mentors beyond the PI may be given the role of (unfunded) Co-I or collaborators, depending on their level of involvement. A one-page CV is optional for any Co-I(s). Do not provide CVs for collaborators.

4.1.5 *Current and Pending Statements for the PI and the FI*

Current and Pending (C&P) Support has no page limits. In a deviation from ROSES, FIs must identify, when applicable, any external-to-the-proposing organization funding, e.g., from U.S. federal, U.S. non-federal, and non-U.S. sources or active applications for grants, fellowships etc., particularly those that have overlap with the proposed work. All PIs, regardless of the time devoted to FINESST, likewise must report C&P. There is no template established for reporting this information and if the reviewing Division has a template posted, such templates may be used, but are not required. C&P templates or forms in use by the proposing institution are welcome.

To make it clear to NASA when the FI and/or PI have no C&P to report, include a joint statement or separate statements, if applicable, that there is "No C&P funding to report".

4.1.6 *Mentoring Plan or Agreement*

This section should not exceed two pages, except in the exception noted below. The Mentoring Plan/Agreement's purpose is to provide the FI with a holistic plan for developing skills and acquiring knowledge and experience necessary to complete the research project and/or personal professional development. This plan is reviewed under the research readiness criterion from Section 5.1. This mentoring plan does not need to re-state information provided in response to Sections 4.1.1 - 4.1.4. The mentor(s) may explain in the mentoring plan why they have agreed to support this FI's research. See also Section 12.20.

Both the FI and mentor prepare this agreement. It may include more than one mentor; however, having additional mentors does not extend the page limit. Non-PI mentors do not have to be at the submitting institution. It is optional to include mentors beyond the PI, but if they are named, they must be added to the NSPIRES cover page as team members and must confirm their participation via NSPIRES.

The content, format, and organization of the mentoring plan are at the discretion of the PI-FI team.

Exception: If the submitting institution has a standard Mentor-Mentee checklist, plan, agreement, template, that is longer than two pages, uses font size, margins, etc., that do not conform to this solicitation's formatting requirements, the institution's standard is acceptable, the proposal will not be labeled as non-compliant nor rejected for this reason.

4.1.7 *Budget and Narrative*

This section may not exceed two pages, though some exceptions are given below. Unlike other ROSES programs, there is no need for a separate "Total Budget" file.

Proposers may request FI funding in one of three different ways:

1. As a direct labor cost, the same as a key or other personnel;
2. As a scholarship or other student aid that shall comply with the requirements in 2 CFR 200.466, Scholarships and student aid costs; or
3. As a participant support cost as defined in 2 CFR 200.1, Definitions.

While the NSPIRES cover pages ask for cursory budget data, that is not sufficient; it is necessary to include a section within the proposal. FINESST awards are subject to the normal government and NASA policies regarding allowable costs, e.g., see 12.13 and 12.16 below.

The within-proposal budget must include proposed start and end dates and include information by cost categories. Given NASA's review schedule and other limitations, the start date should be close to September 1 and the latest allowable start date is one year (approximately) from this solicitation's February due date (See Section 11 for specific dates). NASA reserves the right to change the requested start date/end date for the award's period of performance.

The budget normally is broken down by year. The year may be a calendar year or some other logical period, e.g., academic year. The total amount proposed may not exceed \$50,000 per 12-months for all costs combined, i.e., stipend, travel related costs (e.g., registration, airfare, meals and incidental expenses, ground transportation) in support of conferences, symposia, or collaborative meetings and/or research, fees/tuition, and other FI support costs (e.g., expendable laboratory supplies, page charges for journal articles, printing of a thesis, health insurance policy, textbooks, or other instructional supports).

The budget narrative should provide justifications of the requested amount in each category. When requesting participant support costs, input the FI costs on the NSPIRES cover pages under letter E. Direct Costs-Participant/Trainee Support Cost. NSPIRES listed subcategories are: 1) Tuition/Fees/Health Insurance, 2) Stipends, 3) Travel, 4) Subsistence, and 5) Other.

Excepted from the two-page limit is any necessary special documentation. This could include documentation that may be required from a non-profit that is not an education organization that the proposed FI is enrolled/in good standing at an eligible degree program at a university. Another example of special documentation allowed by ROSES and Section 3.17 in the *Proposer's Guidebook* are "Letters of Resource Support" to demonstrate that a facility or resource is available for the proposed use, though if the

proposing team has regular access to a facility or resource, no letter of support is needed.

4.1.8 *Optional High-End Computing Appendix*

The High-End Computing (HEC) program (<https://www.hec.nasa.gov/>) provides a specialized computational infrastructure to support NASA's research community. Proposers to FINESST may apply for HEC resources to support their research by uploading an Appendix as a separate PDF file, so do not include it in the main proposal PDF file. See 12.27-12.31 for details on how to pursue this option.

4.2 Proposal Compliance

FINESST requirements supersede other guidance provided in the *NASA Guidebook to Proposers* and the *ROSES Summary of Solicitation*, see Section 12.

Do not include undergraduate or graduate transcripts for the FI and letters of recommendation from the PI, or from anyone else in the proposal. Proposals containing such unsolicited appendices/attachments may be declared noncompliant and may be returned without review.

Proposals not submitted by the due date, and/or that do not meet the eligibility, page length, formatting and/or other requirements may be returned without review.

All team members must be listed on the NSPIRES cover page. A proposal may not be submitted if any listed team member, including unfunded collaborators, do not log into NSPIRES and confirm their role on the proposal.

The FI is to be added to the Team member section of the cover page with the role "Graduate/Undergraduate Student" and can be given edit privileges to allow them to edit the cover page and upload the proposal.

4.3 Confirmation of Proposal Submission and Late Proposals

Proposals must be completed and submitted electronically by 11:59 p.m. Eastern Time on the due date given in Tables [2](#) and [3](#) of ROSES. NSPIRES generates an automatic acknowledgement when any proposal is submitted. Proposals submitted late may be returned without review.

5. Proposal Evaluation and Selection

Prior to peer review, SMD staff or contractors may conduct a compliance/relevance review. If, prior to review, SMD staff suspect that a proposal has been submitted to the wrong division, then the proposer will be given the opportunity to move to another SMD division or shared with another SMD division for additional review.

5.1 Review

The standard proposal review process includes an assessment of a proposal's strengths and weaknesses for each review criterion. The default definitions of evaluation criteria are given in see Appendix D of [The 2022 NASA Guidebook for Proposers](#). These criteria are applied as described in Section V of the *ROSES Summary of Solicitation* and are slightly modified as described below.

The criteria for evaluation of FINESST proposals are:

(a) The scientific merit of the proposed research project. Assessment of the scientific merit of the proposed research includes:

1. The compelling nature of the research topic.
2. The exhibited depth of understanding of the research topic.
3. The expected impact of the research, should it succeed.
4. The feasibility of the proposed research plan, including the availability of resources for successful completion of the project.
5. The robustness of the research plan to anticipated setbacks.

(b) The relevance of the proposed research or technology development project to high-level SMD goals and objectives, or specific outcomes identified in SMD program documents, findings in decadal surveys, reports of NASA advisory groups, etc. Links to the NASA Science Plan entitled *Science 2020-2024: A Vision for Scientific Excellence*, the prior (2014) Science Plan, the NASA 2018 Strategic Plan, and other documents, at <https://science.nasa.gov/about-us/science-strategy>. Space Biology and Physical Sciences research priorities and goals in this NRA were set by the 2011 National Academies report [*Recapturing a Future for Space Exploration: Life and Physical Sciences Research for a New Era*](#), and further defined by the 2017 report [*A Midterm Assessment of Implementation of the Decadal Survey on Life and Physical Sciences Research at NASA*](#). Assessment of the relevance of the proposed research includes:

1. SMD's objectives as described in Section 2: Division Research Overviews.
2. How the proposal describes the relevance of the proposed work to the particular division that will review the proposal.
3. How the proposed research relates to one or more of the four cross-cutting priorities: Exploration and Scientific Discovery, Innovation, Interconnectivity and Partnerships, and Inspiration in [*Science 2020-2024: A Vision for Scientific Excellence*](#).

Peer reviewers may comment on relevance and may even provide a rating, but the funding SMD Division makes the ultimate determination on relevance.

(c) Research readiness assessment

This criterion focuses on how the FI's research design and approach correlate with their actual research skills/capabilities as described in the:

1. FI's research readiness statement.
2. The PI-FI Mentoring Plan/Agreement.
3. The FI's curriculum vitae/resume.
4. The PI's curriculum vitae/resume.

Assessment of the research readiness may include:

- i. Demonstration of a good understanding of the general subject area and background science related to the proposed research
- ii. FI's involvement in any activities that make them particularly capable of conducting the proposed research.
- iii. Whether the FI has the required technical skill(s) to carry out the project currently, or whether the FI and/or the mentor(s) have plans for the FI to gain such skill(s).

- iv. Whether the PI and other research mentor(s), if applicable, possess qualifications suited for the proposed research project.
- v. Whether the proposed mentoring activities will advance the ability of the FI to conduct the proposed research.

(d) Cost reasonableness

FINESST grants are limited cost category awards. NASA personnel will look at the split between stipend and other participant support costs (see Section 6).

6. Award Information and Restrictions

Unless otherwise specified in the proposal, the default start date of all new awards is September 1, 2023.

The maximum amount of a FINESST award is \$50,000 per 12-months and up to \$150,000 total for a maximum period of performance of up to 36 months, not including any hiatus or leave without stipend, if applicable, or any no cost extension (NCE).

SMD suggests a student stipend of \$40,000 per 12 months; however, the stipend should be comparable with the institution's prevailing rate. When the FI's level of effort will be less than 12 months, then the institution normally prorates the FINESST stipend in the budget.

The FINESST grant can fund up to a three-year research project, contingent upon availability of funds and satisfactory performance as demonstrated through the annual progress report from the PI and FI. Not all projects require the maximum amount available in the period of performance. Proposers should lay out the proposal's budget justification as explained in 4.1.7 *Budget and Narrative*.

Students funded by a FINESST grant may receive funding from other sources for expenses not covered by this award (e.g., to purchase equipment). FIs may take a hiatus to pursue other activities such as internships, family leave, military leave, etc. When a student is on hiatus for any period after the funding has been awarded, the student will not receive a FINESST stipend and the institution shall not draw down/spend the FINESST stipend funds during the FI's hiatus.

During the period that a FINESST proposal is under consideration or during the period of performance of a FINESST grant, the funded institution's Authorized Organization Representative (AOR) must inform NASA if the student has accepted any Federal fellowship or traineeship that 1) provides stipend and other participant support costs, e.g., tuition, and 2) is longer than three months in duration. In an instance when such a proposal is selected to receive a FINESST grant, NASA may require a revised budget and, if appropriate, a revised proposal for any active award to ensure that the FI can devote sufficient time to the FINESST research.

A PI may have FINESST and other (e.g., ROSES, NSF, DoD) proposals with overlapping scope of work submitted at the same time. In this case, the PI should acknowledge in the budget justification or note in the C&P that funds are requested elsewhere. If accepting a FINESST grant, the PI must alert the FINESST technical officer of any overlap so that budget negotiations/adjustments may ensue. The bottom line is that NASA will not fund duplicative work.

7. Reporting Requirements

In accordance with any award terms and conditions provided by the NSSC at the time of award, a progress report must be emailed annually by March 15. If an adequate progress report is not received, then the NSSC will not send funds. For details see Section 13 “Ancillary information for awardees”.

8. Collection of Demographic Information

NASA requests and collects demographic data from principal investigators, future investigators, and other NSPIRES users for the purpose of analyzing demographic differences associated with its award processes. Information collected will include name, gender, race, ethnicity, and disability status. Submission of the information is voluntary, confidential, and is not a precondition of award.

9. Points of Contact and Frequently Asked Questions

The participating Divisions all have representatives on the FINESST Team. Email questions to: HQ-FINESST@mail.nasa.gov, being sure to include the division to which your proposal would likely be submitted in the subject line.

10. Proposal Preparation: Item Check List, Page Limits and Number of PDF Files

All FINESST proposals must include the materials listed below. First, the system-generated proposal cover pages created by filling out the required fields such as name of the FI, electronic commitments from Co-Is or any collaborators, answering the questions on the NSPIRES web page, e.g., providing the Data Management Plan, a research abstract suitable for public posting upon selection, etc. There is no cover page limit. NSPIRES will generate the required number of pages and automatically place this at the front of the proposal if the fields are filled out. There is no need to download the cover page and attach it to the uploaded PDF file.

Checklist of Items to be included in the single proposal PDF File (all page limits maximum, unless specified):

- Table of Contents - 1 page.
- Science/Technical/Management Section (authored by the FI) - 6 pages, including illustrations, tables, figures, and foldouts.
- References and Acknowledgements (authored by the FI) at minimum include an acknowledgement regarding the FI's contributions to proposal. No page limit.
- Research Readiness Statement (authored by the FI) - 1 page.
- Curriculum Vitae (CV) for the PI (mentor) and the FI - 2 pages each.
- CV for Co-I(s) Optional - 1 page each. Do not include CV for collaborators.
- Current and Pending Statements for the PI and the FI (one statement each, as needed; if no Current and Pending, state "No current and pending to report.") No page limit.
- Mentoring Plan or Agreement - up to 2 pages. Exception: If the submitting institution has a standard Mentor-Mentee checklist, plan, agreement, template, etc., and it is longer than 2-pages, uses font size, margins, etc., that do conform to this solicitation, then the institution's standard is acceptable.

- Budget and Narrative - 2 pages, which may be exceeded if special documentation is needed e.g., if a submitting institution is not an education organization, proof will be needed that the proposed FI is enrolled/in good standing in an eligible degree program at a university, etc.

Second PDF File - only when applicable:

- Optional High-End Computing (HEC) Appendix, See Sections 12.27-12.31 for details.

11. Summary of Key Information [Amended February 14, 2023]

Expected annual program budget for new awards	No dedicated budget: selected proposals will be funded by the relevant SMD Division or program.
Number of new awards pending adequate proposals of merit	Awards by division may range from 1 to ~60. See "Historical Numbers of New Awards" in Section 12,
Maximum duration of awards	3 years and see Section 6.
Due date for Notice of Intent to propose (NOI)	Not Applicable. Notices of Intent are not requested/accepted for this program element.
Due date for proposals	Proposals may be submitted at any time until 11:59 pm Eastern time on February 21, February 7, 2023.
Planning date for start of investigation	Typically, September 1, 2023. No earlier than August 1, 2023. No later than February 21, February 07, 2024.
Page limit for the central Science/Technical/Management section of proposal	6 pages; see also Sections 4.1 and 10 of this program element.
Relevance	See Section 2. Proposals that are relevant to this program element are, by definition, relevant to NASA.
General information and overview of this solicitation	See the <i>ROSES-2022 Summary of Solicitation</i> .
Award information	See Section 12, below.
General requirements for content of proposals	See Section 4.1 The Elements of a FINESST Proposal.
Submission medium	Electronic proposal submission via NSPIRES or Grants.gov is required; no other type of submission is permitted.
General instructions for proposal preparation and ROSES-specific instructions	the NASA Guidebook for Proposers and Section IV(b) of the <i>ROSES Summary of Solicitation</i> .
Website and detailed instructions for the submission of proposals via NSPIRES	https://nspires.nasaprs.com See NSPIRES Online Help (help desk available at nspires-help@nasaprs.com or (202) 479-9376)

Web site for submission of proposal via Grants.gov	https://www.grants.gov/ (help desk available at support@grants.gov or (800) 518-4726)
Funding opportunity number for downloading a proposal package from Grants.gov	NNH22ZDA001N-FINESST
Coordinating point of contact concerning this program	The HQ-FINESST Team Email: HQ-FINESST@mail.nasa.gov
Funding Points of Contact	<p>FINESST Program Scientists by Division:</p> <p>Earth Science: allison.k.leidner@nasa.gov amy.p.chen@nasa.gov</p> <p>Planetary Science: amanda.l.nahm@nasa.gov lindsay.hays@nasa.gov</p> <p>Astrophysics: antonino.cucchiara@nasa.gov stefan.m.immler@nasa.gov</p> <p>Heliophysics: patrick.koehn@nasa.gov</p> <p>Biological & Physical Science: lisa.a.scottcarnell@nasa.gov</p>

Reminder: Science Engagement and Partnerships (SE&P) is not participating.
Email any SE&P comments or questions to lin.h.chambers@nasa.gov.

12. Ancillary information for proposers

The Structure of ROSES and its Relationship to Other Guidance

A "program element" in ROSES, such as this one, F.5 FINESST may contain specific requirements that supersede the common requirements found in the *ROSES Summary of Solicitation* and the requirements for all NASA solicitations in the [NASA Guidebook for Proposers](#). The order of precedence is the following: F.5 FINESST takes precedence, followed by F.1 the *ROSES Summary of Solicitation*, followed by the *Proposer's Guidebook*. That is, if FINESST tells you to do something different than what ROSES or the *Guidebook* says, do what FINESST tells you to do. If you have a question, write to HQ-FINESST@mail.nasa.gov.

Foreign Participation

Participation in ROSES-funded research by non-U.S. organizations is welcome on a "no exchange of funds" basis, see [ROSES FAQ #14 on this topic](#) and the [NASA Guidebook for Proposers](#).

Proposals that involve research or collaboration outside the United States in "Designated Countries" that also are "State Sponsors of Terrorism" will be subject to additional levels of review by the Office of International and Interagency Relations (OIIR) that may result in a proposal's denial. NASA's "Designated Country (DC) List" is hosted on the NASA Export Control website at <https://www.nasa.gov/oiir/export-control>. The relevant part of the list is Column II, i.e., Countries determined by the Department of State to support Terrorism. The DC list is updated regularly; therefore, please consult the website to ensure use of the most up-to-date list.

Historical Number of New Awards

The number of proposals selected will be dependent on the number and quality of proposals submitted and on the availability of funds from the relevant SMD Division or program. The selection statistics for 2019 – 2021 are included in the spreadsheet on [the SARA GrantStats Webpage](#).

Proposal Preparation

Because the final, federal-wide implementation of Common Disclosure Forms for the Biographical Sketch and Current and Pending (Other) Support per the [National Security Presidential Memorandum \(NSPM-33\)](#) is not finalized as of the issuance of this competition, NASA may ask FINESST Statements of Current and Pending Support be updated or that other documentation be submitted upon selection or award. The National Science Foundation (NSF) has agreed to serve as steward for these common forms as well as for posting and maintenance of the table entitled, "NSPM-33 Implementation Guidance Pre- and Post-Award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support" at https://www.nsf.gov/bfa/dias/policy/nstc_disclosure.jsp

12.1 How do I know if my proposal has all of the required elements?

See the Section 10. "FINESST Proposal Preparation: Item Checklist, Page Limits and Number of PDF Files."

12.2 Where can I find information about past selected proposals?

The titles and abstracts of selected proposals to the most recent FINESST competition, presented by the participating divisions, are posted on [the NSPIRES page for FINESST from ROSES-2021](#) and [the NSPIRES page for FINESST from ROSES-2020](#) as PDF files under the heading "Selections".

12.3 What if my proposal is relevant to multiple divisions?

Proposal submission requires choosing just one reviewing division. However, proposals that are relevant to more than one division are welcome. Note: If the research is relevant to more than one division/program, please identify the other division(s) in the abstract. If, prior to a proposal's review, NASA determines that a submitted proposal belongs to a different division, then it may suggest to the proposer that the proposal be reassigned to another division or shared for additional review.

12.4 May I propose to do research that may overlap work previously funded by NASA, or work that is currently submitted to NASA and is under review?

In cases when the PI already has an ongoing research award from NASA, the research proposed under FINESST may address a similar topic, but the proposal should make clear that the proposed research does not duplicate the existing award and how the proposed research goes beyond what NASA has already agreed to support. It is OK if a proposal to another ROSES program and under review has overlap with the proposed FINESST work, but both of the proposals must be listed in the "Current and Pending Funding" section of the proposal, and if both are selected, it is up to the discretion of the program officer(s) whether both proposals are selected for full funding, or if one (or both) budgets are decreased.

12.5 May I resubmit a FINESST proposal submitted to a previous FINESST or NESSF solicitation?

The resubmission of any declined proposal from a prior competition is permitted and will be treated the same as an entirely new submission. There is no requirement to identify that a submitted proposal, whether revised or unrevised, is a resubmission. If the PI desires to identify the proposal as a resubmission, then put that information in Section 4.1.2 "References and Acknowledgements".

12.6 I received financial support from a previously funded FINESST or NESSF (NASA Earth and Space Sciences Fellowship) grant originally awarded to another student to finish up the project. Am I eligible to apply for a new FINESST grant?

Yes, when the student who succeeded the original FI or NESSF was funded on a remainder budget in the amount of \$50,000 or less, then the new proposal may request the maximum of 36 months for an independent project. In any extremely rare instance

that a successor FI may have received more than \$50,000, the new FINESST proposal should be adjusted or pro-rated in budget amount and number of months supported.

12.7 May a NASA Civil Servant serve as an FI?

Typically, NASA civil servants at Centers or facilities, who also have a qualifying student affiliation at an eligible degree-awarding institution may not be proposed as an FI. Such NASA civil servants who have questions about their potential FI eligibility options must consult their Center's General Counsel or other qualified Center authority.

12.8 Will there be a Pre-Proposal Teleconference?

Yes, on a no-advance-reservation, first-to-dial-in basis callers may attend the pre-proposal teleconference. This optional, audio-only teleconference will be January 13, 2023, 2 p.m. Eastern Time. There will be no operator greeting or hold music. Please do not engage in discussions with other callers or unmute yourself during the presentation. To preserve anonymity of callers, callers must not disclose their names or institutions.

Email HQ-FINESST@mail.nasa.gov with agenda suggestions and questions using "FINESST 2022 Telecon" in the email's subject line on or before January 6, 2023. SMD will post the teleconference charts no later than noon (12 p.m.) Eastern Time on the teleconference day under "Other Documents" on FINESST's NSPIRES page.

If a caller can't join the call for any reason, e.g., scheduling conflict, number of callers exceeds capacity, see 12.9 below.

No earlier than 15 minutes prior to the start time, call +1 256-715-9946. If prompted for a Participant Passcode or a Phone Conference ID input: 360 678 472#.. Restrictions, however, may prevent the use of a or free-phone from telephones outside or inside the U.S.

For TTY-equipped callers or other types of relay services in the United States, no earlier than 15 minutes before the start of the teleconference, call 711 and provide the same conference call and participant code numbers

12.9 Will the telecon be recorded and available for replay?

The Telecon will be recorded for the purposes of creating a summary. There will be no, on-demand replays of the pre-proposal teleconference. The telecon's summary and any associated question and answers will be posted under the "Other Documents" section at <https://go.nasa.gov/FINESST22>.

12.10 Will the telecon and relay services be available outside of the U.S.?

Calls from outside the U.S. should work, but U.S. restrictions may prevent the use of a free-phone, including from these types of telephones outside the U.S., or from computer software such as Skype. 711 will not work outside the U.S.

12.11 How should travel be addressed in a proposal due to COVID-19 or other safety concerns?

Because conditions can change rapidly in any country at any time for a variety of reasons and disrupt the proposed or awarded FINESST, proposals that include travel planned outside the U.S. must, at a minimum, demonstrate consultation of the State

Department Travel Advisories website. For travel in the U.S. for the duration of the Coronavirus Disease 2019 (COVID-19) pandemic, proposers making requests for travel support must consult and address the Centers for Disease Control (CDC) “Considerations for Travelers - Coronavirus in the U.S.” website as well as any applicable state, county, or municipal laws or executive orders. The CDC also provides international travel information at <https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>.

A proposal that requests to include any NASA civil servant as an unfunded Co-I or collaborator and requires travel to work with these individuals, is advised that NASA (as of the FINESST issuance date) adheres to all stipulations of the most recent Model Safety Principles on the Safer Federal Workforce website. NASA Contractor employees also may be subject to similar limitations and they will consult their management regarding potential travel. Include any such information for NASA contractors, contractor equivalents, i.e., individuals funded on a NASA cooperative agreement, and NASA civil servants in the budget narrative as a letter of commitment.

12.12 May we request that the FINESST award be a cooperative agreement?

FINESST awards will be grants. FINESST has not awarded cooperative agreements in the past because SMD does not plan to offer or share personnel, property, facilities, equipment, etc. In rare circumstances when a NASA Center may offer significant non-monetary support, a cooperative agreement instead of a research grant may be put in place.

12.13 May visa costs be included in the proposal’s budget?

Visa costs may be requested only when such costs qualify both as a) “Recruiting costs” per 2 CFR 200.463 and b) participant support costs. For these costs to be directly charged to a FINESST award, however, the budget narrative must demonstrate that the non-U.S. FI:

1. Is critical and necessary for the conduct of the proposed FINESST research;
 2. Is allowable under the applicable cost principles;
 3. Is consistent with the non-Federal entity's cost accounting practices and non-Federal entity policy; and
 4. Meets the definition of “direct cost” as described in the applicable cost principles.
- For additional information see Subpart E - Cost Principles in 2 CFR 200.

12.14 What is the expected amount of the FI Stipend? What if I would like to request more than this expected amount?

SMD suggests an FI’s maximum stipend is \$40,000 in any 12-month period. However, if the standard student stipend is greater than \$40,000, then up to \$50,000 for stipend may be requested provided that the other support categories are reduced to cover the increased stipend.

In cases where the FINESST \$50,000 is 1) not enough to cover the standard student stipend or 2) not enough to cover the standard FI costs at the university for a 12-month period, the university may choose to cover expenses from other sources and may show

in the proposed budget the amount and source of the cost share. Alternatively, the proposal can plan that the FI take a hiatus to work on something funded by a non-FINESST source. Other creative FI support strategies may be proposed, particularly in cases where the institution treats the FI as an employee and not as a participant.

12.15 If an FI's stipend will be less than \$40,000 in a 12-month period, then may the amounts in the stipend and other participant support budget categories be adjusted/exchanged such that the total budget for each year does not exceed \$50,000?

Yes, if an FI's stipend will be less than \$40,000, then the amounts in the stipend and other participant support budget categories may be adjusted/exchanged. Normally, however, the FI's non-stipend costs, travel, tuition, registration fees, and other participant support costs do not exceed \$10,000 in a 12-month period.

12.16 Is overhead allowable on a FINESST proposal? Post award may the budget be adjusted to cover overhead or other costs not originally requested?

The total maximum budget request, including any allowable overhead, remains \$50,000 annually up to \$150,000 for 36 months. Whether overhead is allowable will depend on the budget submitted. Sometimes, for administrative convenience, organizations ask to propose FINESST payments to students or on behalf of students via specialized, existing financial systems, such as but not limited to, 1) an employee payroll system or 2) a non-employee or "fellowship" system or 3) some other unique system.

Budgets should begin by specifying whether the institution is treating the FI as 1) an employee or 2) a participant or 3) some organizationally-unique category, as this may impact what costs are reasonable, allocable, and allowable, including overhead. Grants Officers (GO) at NASA Shared Services Center, not the FINESST Team, will have the final word on all and any costs in the budget.

Reminder: NASA does not permit indirect costs (overhead) to be requested or recovered on participant support costs. In addition, per § 200.456: "Participant support cost. Participant support costs as defined in § 200.1 are allowable with the prior approval of the Federal awarding agency." Translation: An awarded FINESST budget provides NASA's prior approval.

In cases where post award an organization wants to move money from participant support costs into direct or overhead cost categories, per NASA's award conditions described in the GCAM, budget revisions must be approved by the GO at the NSSC before such budget changes are implemented. The AOR will need to provide a revised budget and justification to the Technical Officer and the NSSC for review.

12.17 Are PI or Co-I costs allowable on a FINESST proposal?

FINESST awards are intended to support only student projects and research and therefore no salary, travel, or other costs shall be requested from SMD for the PI's, Co-

l's, or Collaborator's use. Additionally, it is expected that a PI's, Co-I's, or Collaborator's current employment will include compensation and continues whether or not the proposal is selected by NASA. Exceptions for joint publication or similar costs may be permitted to the PI.

12.18 Are equipment costs allowable on a FINESST proposal?

While the purchase or lease of equipment or services in excess of \$5,000 is not permitted through FINESST awards, if an institution's policy permits the purchase of computers, software, digital devices, or services or materials, such as to support mentoring or research activities for the FI or to construct a CubeSat, then these "other" charges are allowable.

Proposers who request these "other" purchase types, or who propose to contract with a service provider for videoconferencing, augmented reality, telepresence robots, communications software/licenses, etc., under participant support costs in lieu of the FI's travel to events or to conduct the research must explain the importance of these purchases/services and how they relate to the success, accessibility, and safety considerations for the research performance in the budget narrative.

12.19 Are the overall budget categories strictly fixed, or is there any flexibility?

If NASA determines the proposal provides sufficient justification, then the amounts in the stipend and other budget categories are adjustable as long as the total amount requested does not exceed \$50,000 in a 12-month period. FINESST is similar to what [2CFR200.1 Definitions](#) calls a "Fixed Amount Award". "Fixed amount awards means a type of grant or cooperative agreement under which the Federal awarding agency or pass-through entity provides a specific level of support without regard to actual costs incurred under the Federal award. This type of Federal award reduces some of the administrative burden and record-keeping requirements for both the non-Federal entity and Federal awarding agency or pass-through entity. Accountability is based primarily on performance and results."

12.20 What is a mentoring plan?

A mentoring plan or an agreement is not a confidential recommendation; rather, it sets respectful, reasonable expectations or goals for the collaboration between the PI/Mentor and FI and, thus, may help to foster a good working relationship that will further the FINESST research and the development of the FI as a scientist. The FINESST mentoring plan/agreement should set appropriate expectations for the working relationship early, be reviewed regularly, and be easily revisable, providing an opportunity for FIs to request adjustments that they may otherwise find uncomfortable bringing up with the PIs.

Through the mentoring plan, the PI/Mentor and FI will identify and work toward research career development goals designed to deepen the FI's understanding of the FINESST research, career pathways, broaden resource networks, and facilitate growth as new professionals. A non-exhaustive list of mentoring activities that a plan may include, but is not limited to, includes: 1) training in the preparation of data, publications,

presentations, etc.; 2) opportunities to collaborate with researchers from diverse backgrounds and/or disciplinary areas; and/or 3) responsible professional practices.

12.21 Where can I find some examples of a Mentoring Plan?

Your organization may have mentorship resources or templates available. Go to your institution's website and search for keywords, such as, “mentor”, “mentee”, “mentor resources”, etc., and communicate with your PI/Mentor and organization about mentorship resources. If your proposing organization has mentorship information, please use it and refer to it. If your organization has no mentorship resources, then adapting a mentoring plan designed originally for another purpose (such as a postdoctoral fellowship, NSF award) for use with FINESST is acceptable.

For resources related to STEM mentoring, selected URLs include:

American Association for the Advancement of Science STEM Mentor Resources:
<https://www.aaas.org/stemmentoring>

Pathways to Science: Mentoring Manual:
<https://www.pathwaystoscience.org/manual.aspx?sort=6#pagetop>

Committee on the Status of Women in Astronomy’s Mentoring Page:
<https://aas.org/comms/cswa/resources/mentoring>

12.22 How can I learn to use NSPIRES?

Find instructions and FAQs at [NSPIRES Online Help](#).

12.23 How do I know NASA got the proposal? What if my proposal is marked late?

NSPIRES generates an automatic acknowledgement when any proposal is submitted. If the institution did not receive an email confirming submission of a proposal, check spam filters and junk boxes. If unable to locate the email acknowledgement log in to NSPIRES to check a submission status.

NSPIRES marks FINESST proposals submitted after the due date or deadline as "late". Late proposals will be handled in accordance with [the SMD Policy on Late Proposals](#). SMD does not pre-approve the submission of a late proposal. The decision to submit a late proposal is solely that of the proposer, and it is then NASA’s decision whether to accept it or not. Late proposals are rarely accepted. The FINESST program scientists/administrators are not empowered to authorize the submission of a late proposal.

When the FINESST solicitation completely shuts down on NSPIRES, the proposer is prevented from finishing a submission

12.24 How are FINESST proposals reviewed?

SMD scientist(s) and program managers/executives, or their designees, conduct proposal evaluations through one or a combination of the following methods: individual reviews, virtual panels, or face-to-face panels. Reviewers can be from the external community, including scientists at NASA Centers. While reviewers may not be experts in every subtopic or discipline within the FI’s proposed research field, the reviewers will

be experts in the broader research. Thus, it is recommended that proposers write their proposals for a general scientific audience appropriate to their field.

12.25 How are proposals selected?

The Directors of the Divisions of SMD at NASA Headquarters or their designees make the respective award selections. The Selection Officials will select proposals as judged against the evaluation criteria in Section 5.1, division objectives and those in this announcement, programmatic considerations, and the available financial resources.

Many proposals will receive ratings that make them selectable but still may not be selected for programmatic reasons, e.g., either because the proposed work is redundant with another funded FINESST or other NASA project or the topic is deemed by NASA to be of lower priority for funding/selection. Other programmatic considerations include, but are not limited to, balance across subdisciplines and institution types, technologies, methodologies, data accessibility, etc.

12.26 How will I be notified whether my proposal is selected or declined?

At the conclusion of the review and selection process, an email will be sent to the PI and the Authorized Organizational Representative (AOR) from NSPIRES and the university asking them to log into the NSPIRES. PIs/organization representatives are responsible for downloading NASA letters and evaluation forms and sharing with the FI.

12.27 Are high-end computing resources available for FINESST proposals?

Yes. SMD provides a specialized computational infrastructure to support its research community, managed on its behalf by NASA's High-End Computing (HEC) program (see the HEC website at <https://www.hec.nasa.gov/>). Two major computing facilities are offered, namely, the NASA Center for Climate Simulation (NCCS) at the Goddard Space Flight Center (GSFC) and the NASA Advanced Supercomputing (NAS) facility at the Ames Research Center (ARC).

The HEC program facilities maintain a range of computing systems with significant data storage resources. These offerings are summarized at <https://www.hec.nasa.gov/about/overview.html>. Augmentation and refreshment of these central systems occur on a periodic basis. The HEC program also provides assistance in code porting, performance tuning, scientific data visualization, and data transfer.

Any need for computing time and other HEC Program resources for the proposed research must be justified by completing a request for inclusion with a FINESST proposal (see sections below).

12.28 How do I generate a request for HEC Resources?

The PI (not the FI) completes and submits a request in the HEC Request Management System (RMS) at <https://request.hec.nasa.gov>. The purpose of this step is to inform FINESST reviewers at NASA of your computational needs, and if the FINESST proposal is selected, establish eligibility to use HEC resources. The form includes a written justification of how the computational resources would support the investigation as well as a multi-year resource-phasing plan, in annual increments, identifying the

computing time and data storage requirements covering the duration of the proposed award period.

About the RMS User Interface: The RMS asks for information in six different sections.

Some RMS items within these sections will capture responses in a text box and some items provided restricted or limited choices. When RMS asks:

- NASA Sponsoring Directorate, select NASA Science Mission Directorate (SMD).
- NASA Sponsoring Program, select the proposal's reviewing/funding division, e.g., Astrophysics Division (APD), etc.
- Requested Start Date, type in 09/01/2023. Reminder: Normally FINESST start on this date, but if you have a different start date on your NSPIRES cover page, then use that date.
- Project Duration (in years), select either 1 or 2 or 3.
- Funding Type, select Research Opportunities in Space and Earth Science (ROSES). Funding types are listed in alphabetical order. You may need to scroll to make the correct selection.
- Funding Year, select 2022
- Funding Name, select Future Investigators in NASA Earth and Space Science and Technology (FINESST).
- Funding Manager, select the name of funding division's FINESST Program Scientist, i.e., Astrophysics (APD) = Stefan Immler, Earth (ESD) = Allison Leidner, Heliophysics (HPD) = Patrick Koehn, and Planetary (PSD) = Lindsay Hays, Biological and Physical Science (BPS) = Lisa Scott Carnell.

Computing time must be described in the request using Standard Billing Units (SBUs), a common unit of measurement employed by the HEC program for allocating and tracking computing usage across its various computing architectures. The RMS has a built-in calculator to help convert processor (CPU) hours to SBUs. SBU Conversion Factors are also available at <https://www.hec.nasa.gov/user/policies/sbus.html>, or proposers may contact HEC support staff for further assistance calculating SBUs. Contact information can be found at https://www.nas.nasa.gov/hecc/support/user_support.html for NAS User Support and <https://www.nccs.nasa.gov> for NCCS User Services Group.

If you are having difficulties using RMS and need technical support, then please email to support@hec.nasa.gov and specify in the subject line "NNH22ZDA001N-FINESST HEC Request". Please allow 72 hours for a response before sending a second email.

Upload Request for HEC Resources

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

- Upload the PDF version of your computing time request as a separate file from your proposal and select "Appendix" as the document type when uploading.
- 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). Reminder: Be sure to answer the HEC Program Specific Data questions with the NSPIRES Cover Page.

During the review of the proposed investigation, NASA will consider whether the computing time requested is an appropriate use of the highly constrained resources dedicated to FINESST and factor this into HEC selection decisions.

Selection of your FINESST proposal does not guarantee that your HEC request will be fully allocated; it means that your HEC request is eligible to progress to the next step for evaluation by the HEC Program. While you are guaranteed some HEC time, it may differ from your request given resource and other constraints.

If your proposal is selected for funding, your HEC request will be evaluated by the SMD's HEC Allocation Authority. There is also a separate identity verification process conducted by other authorities at NASA who work in various security- and export control-related offices. Most identity verifications are processed within 9-14 business days or 3 to 4 calendar weeks. However, verification processing is case-by case and may be longer if there is a foreign national from a designated country involved.

Scenarios that cause extended processing time include:

- FI or PI delayed responses for additional information. Typically, this is for additional information related to the work description but can also be related to documentation of a foreign national's (FN) visit or their identity.
- Delays in providing proof of a FN's valid entry into the U.S. Part of the NASA check requires determining how long FNs are allowed to remain in the U.S. and/or to determine they entered the country legally.
- Affiliation with China. If a U.S. person or foreign national is affiliated with China (whether as a Chinese citizen or through some organization or educational institution) the request may be submitted for review to individuals outside of NASA, i.e. Congressional Committees, etc. This is the most significant cause of delays and can add many, many months to the HEC allocation process.

The HEC program will then issue letters identifying yearly allocations of HEC resources for the duration of the project, which again, may differ from your request due to limited availability of resources. 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 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.

To expedite initiation of new projects where PIs are foreign nationals (whose accounts will require additional documentation and longer processing), the HEC program will consider providing a minimal allocation to such projects that have been notified of pending funding soon after the PI submits an allocation request in RMS. PIs must provide the name of the FI participant (note that an FI is not a Co-I) who may use the account and identify foreign national status in the HEC request abstract.

For further information (no how-to-use-RMS nor what-is-involved-with-identity-verification type questions) about NASA-provided High-End Computing resources, please contact Dr. Tsengdar Lee at Tsengdar.J.Lee@nasa.gov or 202-358-0860.

12.29 What must be done in NSPIRES when submitting a proposal with an HEC appendix?

During the proposal submission in the NSPIRES system, upload the PDF version of your computing time request that you saved using the button provided in RMS as a separate file from your proposal and select “Appendix” as the document type when uploading.

Check the box on the proposal cover page indicating that a request for HEC resources is included in the proposal, and enter the HEC Request Number (specified on the PDF). Reminder: Be sure to answer the HEC Program Specific Data questions with the NSPIRES Cover Page.

12.30 How are the HEC requests reviewed?

During the review of the proposed investigation, NASA will consider whether the computing time requested is an appropriate use of the highly constrained resources dedicated to FINESST and factor this into HEC selection decisions. If your proposal is selected for funding, your HEC request will be evaluated by the SMD’s HEC Allocation Authority. See section titled “Allocation of HEC resources” for more information.

12.31 How are HEC resources allocated?

Please note that selection of your FINESST proposal does not guarantee that your HEC request will be fully allocated; it means that your HEC request is eligible to progress to the next step for evaluation by the HEC Program. 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.

If your proposal is selected for funding, your HEC request will be evaluated by the SMD’s HEC Allocation Authority. SMD allocates quarterly in October, January, April and July. Out of cycle allocation requests are handled on a case-by-case basis. The HEC program will then issue letters identifying yearly allocations of HEC resources for the duration of the project, which again, may differ from your request due to limited availability of resources. 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 RMS.

To expedite initiation of new projects where PIs are foreign nationals (whose accounts will require additional documentation and longer processing), the HEC program will consider providing a minimal allocation to such projects that have been notified of pending funding soon after the PI submits an allocation request in RMS. PIs must provide the name of the FI participant who may use the account and identify foreign national status in the HEC request abstract, where appropriate.

12.32 What if the FI is pursuing a graduate degree in a particular department or school that doesn’t have earth or space in the name, i.e., medical, education, law, business, agriculture, etc. Are such degrees eligible to propose to FINESST?

FINESST is not a fellowship. We don’t publish a list of eligible schools/disciplines or determine eligibility by department/school type prior to a proposal’s review. There are

many degrees that are earth and space science related that don't use those adjectives. Nor does the FINESST team determine a proposal's eligibility prior to a proposal's receipt. The research proposal must address a well-defined problem/activity and a justification of its scientific significance to SMD, as well as a detailed approach for its solution/conduct.

12.33 When a non-degree-granting institution proposes an FI, what kind of "evidence" is SMD looking for "from the accredited U.S. education institution of the student's enrollment/good standing in an eligible degree program." Is a canned form letter OK? Or are you looking for transcript or endorsement? Does it have to be from an education institution? Or can the nondegree-granting proposing institution certify the student?

This is administrative requirement not an endorsement or recommendation. Do not include student transcripts. Canned letters from a qualified source attached to the budget justification is the evidence, i.e., proof that the proposed FI is enrolled/in good standing at an eligible U.S. university.

12.34 When submitting a proposal that was reviewed but not funded last year (or a prior year), that fact may be added to the acknowledgement section. Is it acceptable also to include this language throughout the proposal? For example would it be advised to address reviewers comments by saying "I have addressed previous comments by adding something regarding my aims"?

A prior year(s) review is not cumulative. You're starting fresh when you submit to this FINESST solicitation. FINESST-22 reviewers will not have access to earlier proposals or reviewer comments. There is no requirement or encouragement to acknowledge prior reviewer's comments anywhere in the proposal. Acknowledgment of a past review is optional.

12.35 Is FINESST a program that participates in Dual-Anonymous Peer Review (DAPR)? Is it OK to prepare and submit a FINESST proposal as a DAPR proposal?

FINESST-22 does not participate in DAPR. Please prepare your non-anonymous proposal as requested in the FINESST solicitation. If you submit your proposal as a DAPR it will be subject to the same review as non-anonymous proposals. Or an anonymous proposal may be returned as noncompliant.

12.36 Would a proposal be discounted because the broad research topic was funded at least once last year or the year before, even though the goals are very different? How does SMD decide what is different enough or not from previous projects?

The questions assume that SMD is making selection decisions on a cumulative basis. That is not the case in most FINESST divisions. For divisions that make multiple awards, there may be several projects under an overall research topic in a given year or none at all. Funding availability is a key factor for how projects get selected.

13. Ancillary information for awardees

Grants and cooperative agreements will be subject to the policies and provisions identified in the regulations at 2 CFR (Code of Federal Regulations) 200, *NASA Grants and Cooperative Agreements Manual* (GCAM), and the *NASA Guidebook*

for Proposers. References to the Grant and Cooperative Agreement Manual (GCAM) use the October 2022 version. Awards, however, will be subject to a revised, forthcoming GCAM. GCAM editions are available from the Grants Policy and Compliance Branch webpages at

https://www.nasa.gov/offices/procurement/gpc/regulations_and_guidance

13.1 If a proposal has been selected, but funds have not yet been received at the institution, can costs be incurred?

Yes. Up to 90 calendar days before NASA issues an award, NASA has waived the requirement for award recipients to obtain written approval prior to incurring project costs. In other words, all new awards receive an automatic 90 days of pre-award spending approval. However, expenses incurred more than 90 calendar days before the award require prior written approval from a NASA Grant Officer at the NSSC. All costs incurred before NASA makes the award are at the recipient's risk (i.e., NASA is not required to reimburse such costs if for any reason the recipient does not receive an award or if the award is less than anticipated and inadequate to cover such costs). Note that a proposed project's proposed start date may or may not be the same as its award date.

Changes to awards

13.2 What if the Program Officer requests a change to the proposed budget?

A revised budget and revised detailed narrative justification may be requested before a selection or an award can be made. No commitment on the part of NASA should be inferred from technical or budgetary communications with a SMD civil servant, contractor, or JPL employee requesting budget revisions. Proposers are cautioned that only a NASA Grant/Contracting Officer from the NSSC may make commitments, obligations, or awards on behalf of NASA or authorize the expenditure of funds.

13.3 What if the awardee would like a change in the Period of Performance (POP) for a FINESST award?

Changes to the period performance, including no cost extensions, will follow normal NASA grant procedures. The PI and FI are to work with the university's Office of Sponsored Research, or its equivalent, to determine the appropriate allocation in each budget category at the time of proposal and any subsequent changes to the budget post award in the annual progress report.

If the NSSC implements the change of a period of performance as an administrative supplement (or amendment), the duration or project's period of performance may exceed three calendar years or 36 months. For example, SMD will accommodate reasonable requests for a hiatus (to pause and later resume funding for the research project) for family, medical, or military leave or for the student to gain other experiences (e.g., teaching, conducting fieldwork).

13.4 At the end of a FINESST POP, are these awards eligible for a no cost extension?

Yes. Awardees who would like to seek a No-Cost Extension Request must visit <https://www.nssc.nasa.gov/nocostextension>.

13.5 What if there needs to be a change to the personnel originally proposed/awarded or a change in recipient/proposing institution?

The process will depend on whether or not a NASA award was issued. See also 13.7.

If an award is in place and the PI needs to be changed, then the standard NASA policies and practices apply per the Grants and Cooperative Agreement Manual (GCAM) Section 7.7 “Change of Principal Investigator or Recipient Institution”.

If post-selection notification but prior to a NASA award, i.e., transfer from NSPIRES to the NSSC, the PI or recipient institution, needs to be changed, then the AOR must contact the selecting division and email HQ-FINESST@mail.nasa.gov. If it is a simple PI change, the AOR should be able to submit a request to change the PI by providing the proposed new PI’s CV, C&P and an updated mentoring plan uploaded to NSPIRES as a revised proposal before the proposal is transferred to the NSSC.

If post-selection notification but prior to a NASA award, the proposing institution does not intend to name a new PI and prefers to allow the selected proposal to move or transfer to a different institution, then the AOR should contact the selecting division and email HQ-FINESST@mail.nasa.gov and officially turn down the selection. When a FINESST proposal is selected after the PI and FI together have changed organizations and the selecting division has been notified, the transferring PI and FI and a new AOR must submit a proposal using the same topic as the selected research via NSPIRES using F.99 “Principal Investigator Organization Change” ([NNH22ZDA001N-PIMOVE22](#)).

In the event that an FI leaves the institution prior the completion of the awarded research project or ceases to participate in the FINESST research for any other reason, and prior to an official change request, the PI and FI should email the grant’s technical officer, and if different, the Division’s point of contact listed in Section 11, to let them know of the anticipated request so that the Division can weigh in on the best course of action, and make recommendations on a case-by-case basis.

An institution may propose that an eligible graduate student at the institution, who is pursuing similar research, be named to expend the balance of the FINESST funds already with the institution. The request from the PI and the Office of Sponsored Research should come in the form of an email to the award’s technical officer at HQ, the grants officer at the NSSC, and to HQ-FINESST@mail.nasa.gov, and must include: 1) A statement (preferably from the original FI) indicating the date and reason for departure; 2) The successor FI’s 2-page CV; 3) A new mentoring plan; 3) Confirmation of the substitute student’s status as a M.Sc. or Ph.D. student; and 4) Specify what, if any, change(s) is necessary to the period of performance and/or research scope. NASA will evaluate FI changes for administrative and/or merit-based reasons. However, students who had three years of NESSF or FINESST funding are not eligible to be named as an FI.

NASA review of such change requests includes, but is not limited to, scientific merit and continued relevance to NASA factors before deciding whether to approve. If approved, NASA may choose only to allow a substitute student to use the current grant year funds and will not provide additional funds in future years. In cases when there is substantial

time left on the grant, then NASA likely will deny the request. Such large amounts are more appropriate for NASA's direct competitive award. Submit a request for one student and do not submit requests to fund two (or more) students to replace the original FI.

If the institution chooses not to propose a substitute FI, then the AOR still must email the award's program or technical officer at HQ, grants officer at the NSSC, and HQ-FINESST@mail.nasa.gov with the news of the FI's departure and request an earlier end date to the period of performance. NASA will then proceed to close out the grant.

13.6 What if the FI graduates or leaves the project early?

Make sure the organization's sponsored research office (i.e., the grant's AOR) is notified before reaching out to NASA. Some institutions do not permit the naming of a successor FI. In the event that an FI leaves the institution prior the completion of the research project or ceases to participate in the FINESST research for any other reason, and prior to an official change request (e.g. to name a new student as the FI), the PI and FI should email the grant's technical officer, and if different, the Division's point of contact listed in Section 11, to let them know of the anticipated request so that the Division can weigh in on the best course of action, and make recommendations on a case-by-case basis.

If an FI obtains a Master's Degree in under three years and is continuing as a Ph.D. student at the awarded institution, then the FINESST grant can continue.

After completing a terminal degree (Master's or Ph.D.), if there is a year or less remaining on the FINESST award, and if it is acceptable to the awarded institution, the FI may remain at the grantee institution to continue the research, but no additional funds will be sent for the award.

13.7 If the FI moves to a new organization, can the FINESST award be moved as well?

FINESST awards may follow a student to a new institution. FIs who have not used the full three years of FINESST funding may be proposed from the new institution with a new PI. The Science Mission Directorate may consider funding such a FI on a single source proposal, i.e., a non-competitive, invitation-only mechanism or, if time permits, ask that a follow-on or transfer proposal be submitted to an open FINESST solicitation.

These decisions are made on a case-by-case basis with approval required from the funding SMD Division's Selecting Official and the NASA Shared Services Center. For example, when only the student and not the PI is transferring to a new institution, then the FI, PI, or AOR must email HQ-FINESST@mail.nasa.gov. In conjunction with the NSSC, the FINESST award's technical officer to determine whether funding is available. Send such requests immediately and allow at least six months for NASA processing.

13.8 What happens if there is a disruption to the project during the award Period of Performance?

SMD is deeply concerned for the health and safety of people involved in NASA research and we will do our part to help awardees to develop into future leaders, particularly graduate students, postdocs, and early career researchers in the United States. Therefore, should funded FINESST projects be disrupted due to local, national, or

international natural or other disasters and require a performance period extension and/or to change scope, SMD program managers will be flexible and will ask the NSSC to be as accommodating as Federal Grant Policy Regulations permit. See for example the Grant Notice (GN 20-2) entitled "Guidance Regarding Salary Flexibility for Grant Recipients Impacted by COVID-19".

13.9 What is a progress report?

Performance (also known as progress) reports are short documents of approximately 2-4 pages that give an update on the work that has been done in a given project over the last year since the previous report was submitted, or in the case of a first report, since the award was initiated. They may be shorter in the first year.

13.10 When are annual progress reports due?

Progress reports are due annually by March 15. As is normal for NASA grants under 2 CFR 200, this program requires only the standard mandatory minimum Research Performance Progress Report (RPPR). Regardless of initial performance start date, progress reports are due annually by March 15. When March 15 falls on a non-workday, the next business day is a suitable email delivery/send date. The first progress report is due by March 15, 2024.

13.11 What email addresses should be used for the Progress Reports?

Email an annual progress report as PDF attachments to NSSC-Grant-Report@mail.nasa.gov and the technical officer identified on NASA Form 1687 (the first page of the grant award documents from the NSSC).

All FINESST progress report emails must have a subject line that states 1) the NSSC-issued award number, 2) the PI Name, and 3) the Institution Name. Failure to use and include the three items in the email subject line may significantly delay processing.

13.12 What should be included in the Progress Report?

Progress report elements must be combined into a single PDF document and include the following, although each given section may be brief:

I. Administrative

- A. Name and address of the recipient's institution & Award Number
- B. Name of the Principal Investigator
- C. Name of the Future Investigator
- D. Award Title
- E. Type of Report: Choose one: Annual/Final
- F. Period covered by the report: <Month/Year to Month/Year>
- G. New Technology: Indicate/Choose one: i.) No New Technology to Report or ii.) New Technology is Reported under Accomplishments.

II. Accomplishments

- A. Start by reminding NASA what are the major goals and objectives of the project, and what did the FI do to progress toward those goals?

- B. Did the FI do coursework or receive any professional development funded by the project? Provide an update toward completing a degree program with month/year completion date estimated. If no coursework was planned or taken, state no coursework for this period.
- III. Status/Changes/Issues/Updated Budget Narrative Justification (if applicable)
 - A. FI should discuss any stated goals not met or started.
 - B. If the PI/Institution got a warning/notification from the NSSC (e.g., "zero drawdown") because funds are not being spent, then the progress report should explain the lack of funds drawn down (e.g., because the student is on hiatus).
 - C. If not previously reported in writing to the NASA Shared Services Center and the awards technical officer at NASA Headquarters through other mechanisms (i.e., calls, emails), provide the following additional information:
 - Changes in approach and reason for change.
 - Actual or anticipated problems or delays and actions or plans to resolve them.
 - Changes that have a significant impact on expenditures.
 - An updated budget justification narrative, if needed, especially if it is anticipated that the student may graduate, take a hiatus, or leave the program or university for any reason during the remainder of the grant.
- IV. Dissemination Activities (if applicable)
 - A. Have the results/activities been disseminated? For example, include a list of presentations, publications, videos with URLs, etc. Publications, including web postings, should acknowledge NASA support, including the FINESST program name and the NASA award number.
- V. An Updated PI/FI mentoring plan/agreement (optional)
- VI. Known Future Plans
 - A. Do the PI/FI anticipate a hiatus and/or no-cost extension?
 - B. If this is a final report, will the work continue post funding?
 - C. Is the FI remaining at the institution or moving on to new studies or a job offer, etc.?
- VII. High-End Computing (if applicable)
 - A. If applicable, a progress report may include a new (or updated) request or modify high-end computing resources. If the PI wants to submit a new HEC request, see section 12.27 etc. for details. A copy of a new HEC request should be provided as separate PDF file from FINESST award's progress report to the technical officer. The NSSC will need a copy of the HEC request. If the project has an existing HEC-issued award and a modification is needed, please follow the guidance provided from HEC.

13.13 What needs to be done if the FI will not be continuing the project?

If, for any reason, the organization will not be requesting continuation of a FINESST grant, send an email to the award's 1) technical officer, 2) HQ-FINESST@mail.nasa.gov, and 3) the Grant's Officer at the NASA Shared Services Center (NSSC) to indicate that the project is ending early and a final report is forthcoming to close out the award. Various final and closeout reports will be described in the NSSC award documentation.

13.14 Is spending on FINESST awards potentially subject to future audits?

Expenditures under any NASA grants, including FINESST, are subject to inspection and audit during the period of the grant and for three years thereafter. Records at the awarded institution must be maintained in sufficient detail to evidence prudent management and to facilitate the preparation of the required reports for determining whether expenditures are being/were made for the purposes for which the funds were granted.

13.15 Are there any requirements for reporting or archiving work published from this project?

The NASA grant or cooperative agreement recipient must submit final peer-reviewed manuscripts (accepted for publication) to the NASA-designated repository per instructions found on the Scientific Technical and Information program webpage within one year of peer-review. In keeping with the [NASA Plan for Increasing Access to Results of Federally Funded Research](#), awards require that "as accepted" manuscript versions of peer-reviewed publications and associated data are deposited in the agency's designated repository, NASA PubSpace. This excludes patents, publications that contain material governed by personal privacy, export control, proprietary restrictions, or national security law or regulations.

NASA has entered into a partnership agreement with the Clearinghouse for the Open Research of the United States (CHORUS) publishing group. NASA researchers who publish in a CHORUS member's journal can now more easily satisfy the [Agency's requirements for public access](#).

For the most recent information, visit: <https://sti.nasa.gov/research-access/>.

13.16 Are there any intellectual property (IP) rights for the work produced during the course of this project?

For information about data rights and other aspects of intellectual property such as patent rights resulting from awards, see, for example, Sections D10. Patent Rights and D11. Rights in Data in the most recent *NASA Grant and Cooperative Agreement Manual*. Technical Note: NASA changes award conditions related to data and IP whenever there is a new funding increment awarded using the most recent GCAM.

13.17 Does NASA offer support for individuals receiving funding who experience discrimination or harassment during their work?

NASA does not offer "support" services; however, depending on the individual's employment status at the grantee institution, local support resources may be available

through a union, a Veteran and Military Affairs (VMA) Office; the State-level equivalent of the Equal Employment Opportunity Commission (EEOC), etc.. Many higher education institutions have support resources for non-employees, e.g., students, such as but not limited to health services, Offices of Diversity, Equity and Inclusion, and community service officers. A search of the recipient institution's website may help to locate resources related to bias, bullying, harassment, etc.

Assault or threats of assault of any kind are a criminal offenses over which NASA has no authority. NASA strongly encourages assault victims and witnesses to report to the local police, and if applicable campus police, and the NASA Office of the Inspector General at <https://oig.nasa.gov/contact.html>. Always report immediate threats to 911.

Students, faculty or staff in programs receiving NASA financial assistance, such as grant awards from this program, may raise allegations of discrimination, including harassment, by contacting the NASA Office of Diversity and Equal Opportunity. Find information on filing a complaint through ODEO at <https://missionstem.nasa.gov/filing-a-complaint.html> or send email to hq-civilrightsinfo@mail.nasa.gov or phone 202-358-2180.
