



ISS NATIONAL LABORATORY®
CENTER FOR THE ADVANCEMENT OF SCIENCE IN SPACE

**Leveraging the ISS National Lab for STEM Education and Workforce
Development**

ISS National Lab Research Announcement (NLRA) 2025-6

Instructions to Offerors

Center for the Advancement of Science in Space

1005 Viera Boulevard, Suite 101, Rockledge, FL 32955

Issuance Date: February 12, 2025

End Date of Step 1: Concept Summary submission period: March 26, 2025

Due Date for Step 2: Full Proposal Submission: June 2, 2025*

(* by invitation only)

Note: For any updates regarding submission deadlines, please visit www.issnationallab.org/research-on-the-iss/solicitations. For general questions related to this research announcement, please email info@ISSNationalLab.org.

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I. SUMMARY

Since 2000, the International Space Station (ISS) has enabled humans to live and work in space, supporting research and technology development (R&D) that is not possible anywhere on Earth. Since its designation in 2005, the ISS National Laboratory® has expanded access to this orbiting laboratory to research communities from U.S. academic institutions, government agencies, and the private sector. ISS National Lab-sponsored research seeks scientific discovery and technology advancement on the ISS that directly benefits humanity by increasing fundamental knowledge; scientific application; science, technology, engineering, and mathematics (STEM) education; workforce development; and demand creation for sustainable, scalable innovation and production in low Earth orbit (LEO).

As managers of this national laboratory in partnership with NASA, the Center for the Advancement of Science in Space (CASIS) awards access to funding and resources on the ISS via competitive grant solicitations to support non-exploration science and technology development as well as STEM education and workforce development initiatives from U.S.-based institutions.

As a U.S. taxpayer-funded organization, CASIS only contracts with U.S. persons¹. This document will assist offerors in the development of quality proposals to leverage the ISS and space-based research to advance U.S. leadership in space-based R&D while supporting STEM education and workforce development.

II. DESCRIPTION OF RESEARCH

The ISS has enabled a revolution in educational access to space. The same assets that make the ISS a powerful laboratory for scientists also make it an invaluable platform for STEM education and workforce development. Accessible through frequent launches, real-time connectivity to data streams from in-orbit experiments, and crew member activities, the ISS offers access to a unique perspective of Earth, persistent microgravity to explore its effects on living and nonliving things, and the environmental extremes of LEO. Moreover, a global cadre of scientists, engineers, educators, and entrepreneurs are committed to pushing the envelope to convert innovative R&D ideas realized in space into realities that improve life on Earth—including those that support STEM education and workforce development.

The ISS National Lab partners with a spectrum of community of educators, learners, and organizations that leverage the unique platform of the ISS National Lab to provide valuable STEM educational experiences. The ISS National Lab collaborates with these and other partner organizations on innovative learning programs and resources for K-12 students, educators, higher education institutions, and the public, including opportunities to design student-led experiments that launch to space, function as ground controls for flight experiments, or utilize data generated from flight experiments. *The ISS National Lab seeks to expand on its partner programming and extend the learning community to support programs that build a STEM-capable workforce, including opportunities targeting higher education and future workforce development.*

¹ U.S. person: a natural person who is a lawful permanent resident as defined in 8 U.S.C. 1101(a)(20) or who is a protected individual as defined by 8 U.S.C. 1324b(a)(3). It also means any corporation, business association, partnership, society, trust, or any other entity, organization, or group that is incorporated to do business in the U.S. It also includes any governmental (federal, state, or local) entity.

Program Objectives and Priorities

The purpose of this ISS National Lab Research Announcement (NLRA) is to solicit applications directed toward utilization of the ISS National Lab from principal investigators and stakeholders associated with any U.S.-based institution (academic, government, commercial, not-for-profit) with a vested interest in workforce development and STEM education. The ISS National Lab regards workforce development as the creation and implementation of programs, training, and skills building that help develop a world-class STEM workforce to ensure the nation's scientific, technological, and economic leadership.

Applications must seek to create new or expand current education programs, projects, or public-private partnerships that leverage the ISS or space-based research to engage post-secondary students (including colleges, universities, community/junior colleges, and vocational institutions), K-12 students, and/or educators.

Examples of organization types that would be a good fit for this research announcement:

- Institutions of higher education, including universities, colleges, community colleges, or vocational/technical schools desiring to expand space-related courses, internships, fellowships, or other offerings to students to further encourage the pursuit of STEM careers.
- Nonacademic institutions, whether nonprofit or for-profit, including aerospace companies and other organizations with a vested interest in workforce development and/or professional development for educators who are training the future workforce.
- Educational organizations, whether nonprofit or for-profit, that support students and educators and seek to leverage science on station to bring opportunities to wide audiences. These organizations can be existing Space Station Explorers partners or other educational organizations.

Proposals for flight projects must include a statement defining how the scientific aims will benefit from being executed in space and why the proposed investigation can only be performed in space.

Background

For the past 20 years, students have investigated thought-provoking questions by directly or indirectly using the unique microgravity environment of the ISS. For information on all ISS National Lab educational programming, visit www.issnationallab.org/stem.

Typically, in-orbit activities focus on the following benefits of performing research and technology development in space.

Microgravity: The ISS National Lab offers the opportunity to conduct long-duration research and technology development investigations in persistent microgravity, where gravity-driven physical forces are nearly absent. Results of research inspired by microgravity-driven phenomena have been shown to provide new practical insights and tangible benefits to multiple, cross-cutting life science, physical science, and engineering fields and areas of industrial application.

Extreme Conditions: In addition to microgravity, the extreme conditions of the space environment are demonstrably hostile to many materials. In LEO, these conditions include:

- Atomic oxygen, which is highly reactive with plastics and some metals, causing severe erosion.

- Ultraviolet radiation, which deteriorates and darkens many plastics and coatings.
- Vacuum conditions, which alter the physical properties of many materials.
- Impact from meteoroids and orbiting man-made debris, which can damage materials exposed in space.
- Continuous cycling between extreme high and low temperatures, which can result in accelerated thermal degradation of materials.

Vantage Point: The ISS offers a vantage point in LEO with unique opportunities for technology development and demonstration in remote sensing:

- The ISS orbits at an average altitude of 400 km (250 miles), offering a wide range of Earth viewing geometries and spatial resolutions for sensors mounted on the externally attached platforms. Sensors may also be mounted inside the ISS with access to observation windows offering Earth-facing or other orientations.
- The orbital inclination of 51.6 degrees covers approximately 90% of the Earth's populated area every 90 minutes and allows revisits of the same targets every 3-5 days.
- The ISS offers variable illumination conditions for Earth viewing and similar solar illumination conditions approximately every 63 days.
- The ISS provides power, communications, and data handling infrastructure to hosted payloads.
- Payloads may be returned for post-mission analysis; however, this is a heavily constrained resource, so payload return requests should include a strong rationale for this experiment requirement.

For more information about the benefits of R&D in space, see www.issnationallab.org/research-on-the-iss/areas-of-research.

ISS National Lab Implementation Partners, Facilities, and Capabilities

Offerors should be familiar with the capabilities of flight hardware for in-orbit studies that are relevant to their proposed scientific and technical objectives. Multiple facilities and services for research and technology development are available on the ISS. Facilities and services may be provided by NASA or by ISS National Lab [Implementation Partners](#). Existing flight hardware can be found using the ISS National Lab's [ISS Research Facilities Directory](#) or referenced on NASA's [Space Station Research Explorer website](#). Additional information is also provided in NASA's [ISS Researcher's Guide Series](#).

The ISS National Lab works with a variety of Implementation Partners, organizations that provide research, engineering, and technical services—and, in some cases, operate and maintain commercial payload facilities on the ISS—to support and facilitate flight projects. For details about these providers and their specific hardware/services, visit our [Implementation Partner directory](#). Where applicable, the ISS National Lab encourages contact between offerors and Implementation Partners prior to the submission of a Step 1: Concept Summary in order to obtain accurate and current information required for budget and schedule estimates. If requested, the ISS National Lab can facilitate contacts between Implementation Partners and offerors. Proposals to utilize commercial facilities owned and operated solely by international partners on the ISS will not be considered for this research announcement.

III. SUBMISSION AND SELECTION PROCESS

This research announcement will follow a two-step proposal submission process. Before being invited to submit a full proposal, all interested investigators must first complete and submit a Step 1: Concept Summary for review. The purpose of the Step 1: Concept Summary is to provide information for an initial evaluation of the offeror's concept.

Step 1: Concept Summary Submission

- All offerors must complete and submit a Step 1: Concept Summary for review. Concept summaries must be submitted electronically using the concept summary portal for which a link is provided on the research announcement webpage. Offerors must complete all sections of the online concept summary form.
- No concepts will be accepted after the Step 1: Concept Summary close date for a given cycle. Offerors may revise and resubmit the concept within the same cycle if received by the Step 1: Concept Summary close date.
- Concepts will be evaluated for STEM education and workforce development merit, compliance with the research announcement, and, if substantial flight operations are involved, implementation feasibility, flight operations, and ISS utilization.
- Concepts approved based on Step 1 evaluation will proceed to Step 2 by invitation only.
- Concepts not invited to submit a Step 2: Full Proposal will receive feedback.

Step 2: Full Proposal Submission

- The process for developing full proposals is outlined below and set forth in greater detail within the Proposal Instructions available from the research announcement webpage.
- Full proposals will be evaluated in accordance with proposal evaluation documents provided as attachments.
- At the end of Step 2: Full Proposals, the proposals recommended for selection will be presented for final determination to the CASIS chief executive officer, who is the selecting official.

Further details and requirements for the Step 1: Concept Summary and Step 2: Full Proposal submission, including instructions and templates, can be found in the zipped file available on the research announcement webpage.

Award Information

CASIS may award a funded or unfunded agreement for a selected proposal. Grant funding is available for both ground-based and flight efforts. All awarded flight proposals will receive ISS National Lab sponsorship of ISS resource utilization, payload launch to the ISS, in-orbit ISS crew time, data return, and payload return, if required.

Funds Availability: The obligation of CASIS to make an award is contingent upon the availability of funds from which payment can be made. The number of grants awarded and the amount of grant funding for each award will depend on the number of meritorious applications.

Funding for this Research Announcement: The total set aside funding for this research announcement is approximately \$350,000, with an expectation to make around two awards, for either ground-based programming and/or programs that require flight resource allocation. CASIS reserves the right to refuse award of grant if no meritorious offers are received. Matching funds are not required, but proposals that contribute resources (money or in-kind) will be reviewed more favorably than those that request full funding from CASIS.

Indirect Cost Rates: CASIS will allow any previously approved federal indirect cost rate that has been negotiated between the grantee and a U.S. government agency. If no such rate has been negotiated with a U.S. government agency, CASIS shall apply a de minimis indirect rate of ten percent (10%) for those seeking indirect costs in a grant award. Also, CASIS will allow a grantee to voluntarily waive indirect costs or charge less than the full de minimis indirect cost rate should they choose to do so.

All proposal submissions seeking funding from CASIS are subject to this policy. All grantees are required to provide satisfactory written evidence in or accompanying their proposal submission of a previously approved federal indirect rate. Such evidence shall demonstrate the existence of an approved federally recognized indirect cost rate negotiated between the grantee and a U.S. government agency. In the absence of this evidence, CASIS will apply the de minimis indirect cost rate stated above.

Notice of Award: For selected proposals, a CASIS officer will contact the principal investigator named in the proposal. Offerors have the right to be informed of the major factor(s) that led to the acceptance or rejection of their proposal.

Period of Performance: It is anticipated that the period of performance will be no longer than three (3) years from date of award.

CASIS assumes no liability (including bid and proposal costs) for cancelling this research announcement or for any entity's failure to receive notice of cancellation.

IV. PROPOSAL PREPARATION AND CONTENT

Step 1: Concept Summaries must be submitted using the online form for this solicitation. Offerors must complete all sections of the form. Failure to submit a complete concept form will delay processing and may result in disqualification.

When submitting a Step 2: Full Proposal, please follow the exact outline provided, answering each question completely and labeling each section to ensure ease of evaluation by external and internal evaluators. Submissions not following this format may be disqualified.

Offeror Qualifications

Proposals must be submitted by a Principal Investigator or an authorized official of the proposing organization. In addition, any business entity or institution capable of executing the proposed research may submit a proposal. However, CASIS will **ONLY** consider proposals from U.S. Persons (business and individual)¹. Regardless of who submits the proposal, all individuals listed as either the Principal Investigator or Co-Principal Investigator must be U.S. persons. In addition, the Principal Investigator's CV must demonstrate relevant expertise necessary to lead the investigation.

V. PROPOSAL EVALUATION AND SELECTION

Proposals will be evaluated under the ISS National Lab's review and selection criteria for its STEM education and workforce development line of business. The proposal evaluation factors are STEM education and/or workforce development and, if substantial flight operations are involved, implementation feasibility, flight operations, and ISS utilization. Project cost is not scored but is a factor

in the final selection, and a clearly defined proposed budget for the project is required to complete the proposal evaluation and selection process. Proposals that are determined to better fit other CASIS research announcements will be recommended for resubmission to those areas.

Please note that CASIS will not accept or consider proposals submitted by NASA and/or NASA civil servants.

The proposal review is guided by an overall assessment of expected project impact upon successful completion of proposed objectives. CASIS has overall responsibility for conducting and facilitating reviews, presenting information for final determination, and ensuring compliance with CASIS-defined processes. For further information on proposal evaluation and selection, including the relative importance of each evaluation factor, refer to the ISS National Lab Proposal Evaluator Instructions in the information packet linked to this research announcement's webpage.

VI. CONTRACTING

Offerors whose proposal is accepted will be required to enter into either a User Agreement (unfunded) or Grant Agreement (funded) with CASIS, at CASIS' sole discretion. CASIS is required contractually by the NASA Cooperative Agreement and by United States federal law, rules, and regulations to flow down various contractual terms and conditions to any award recipients. These terms and conditions are regulated in part by the Federal Acquisition Regulations (FAR), Title 48 of the C.F.R., as well as by NASA-specific rules, regulations, and policies. The terms and conditions in the agreements are non-negotiable. If invited to submit a full proposal, offerors will be required to agree and accept them by signing and returning the proposal cover page. Offerors that do not accept or fail to comply with these terms and conditions will not be considered for award and may also be rejected, at CASIS' sole discretion, for non-compliance to any other terms and conditions. Additionally, if the offeror's organization intends to work with any collaborators, the offeror must contract with those collaborators and include the CASIS flow down clauses. These terms and conditions from the NASA Cooperative Agreement will apply to all Grant Agreements and User Agreements. A copy of the standard Grant Agreement will be provided as a PDF file titled CASIS - Grant Agreement Template for Offerors 12.1.23.pdf in the zipped documents made available to offerors via the CASIS webpage for this solicitation.