

Principal Investigator Guide



ISS National Laboratory

CENTER FOR THE ADVANCEMENT OF SCIENCE IN SPACE

Dear Principal Investigator,

Congratulations on completing the steps to be an investigator on the International Space Station (ISS) U.S. National Laboratory!

Your Spaceflight Team

On your journey from Earth to the ISS, there are three major groups that will help guide your research opportunity from concept to execution: the ISS National Lab (managed by the Center for the Advancement of Science in Space), your Implementation Partner, and NASA. Below is an overview of each of these groups and their role.

ISS National Lab:

The ISS National Lab is your experiment sponsor, responsible for allocating ISS resources to the experiment and advocating on your behalf to NASA and the ISS Program. The ISS National Lab is also responsible for communicating the value of your research to various stakeholders, NASA, Congress, and the U.S. taxpayer. In outreach materials that you and your team create, we require that the ISS National Lab be identified as your experiment sponsor (see “Publication/Distribution of Materials” below). Your main point of contact at the ISS National Lab regarding the progress and milestones of your experiment will be your Operations Project Manager. The Operations Project Manager will assist you with any challenges that may arise during the integration/operations phases of your experiment. Additional members of the ISS National Lab team may also interface with your research team as needed, including business development experts who maintain awareness of projects and shepherd ongoing future planning, scientists with decades of experience in spaceflight research, a marketing team that will highlight your research in digital/print media, contracts and compliance officials to assist with any contractual issues or changes, and an education team for student outreach opportunities.

Implementation Partner:

Your Implementation Partner is responsible for the Mission Integration and Operations (MI&O) of your experiment. They will communicate with NASA on your behalf throughout the payload integration life cycle. They will provide NASA with the appropriate technical specifications and requirements to execute your experiment and provide the appropriate documentation to verify your experiment hardware meets the engineering and safety requirements of the ISS and launch vehicles. They will also work with the NASA operations team to develop training and procedures required to execute your experiment.

NASA:

NASA provides the ISS National Lab with the resources required to execute your experiment on the ISS, including transport to and from the orbiting laboratory. NASA is ultimately responsible for the integration of all experiments utilizing the ISS and ensures that your experiment is safe to operate. From the ISS Program office, your project will be assigned a Research Portfolio Manager (RPM) and Payload Integration Manager (PIM) to guide your experiment through the ISS Program payload integration process. As necessary, the program will assign other subject matter experts to aid in the integration and development of your experiment. You may be asked by a NASA representative to partake in a science symposium in advance of the launch of your experiment to the ISS.

Payload Success

The ISS National Lab is committed to helping your payload achieve success by bringing it from concept to flight project on schedule and within budget. Achieving your research objectives is our primary goal. However, there are many factors that can affect your budget and/or schedule. Modifying your research objectives or experimental setup can have an adverse effect on our ability to execute your payload within the agreed time frame. Early testing using experiment hardware can help alleviate any challenges that may arise during the development and integration of the experiment. The earlier challenges are identified, the more likely it is we can identify solutions without affecting schedule and/or budget. Leading up to launch, you and the Implementation Partner will need to agree on a final design and experimental setup. Any changes made after the design is frozen should be driven by significant science impact. When science necessitates, changes will be accommodated, but it will likely cause a significant schedule delay and may come at a cost to all parties. It is important to understand that even small changes can invalidate all paperwork submitted to date, and all documentation will need to be updated and reviewed again by NASA. In the event changes are necessary, it is critical that they be communicated to your Operations Project Manager early and with as much detail as possible to allow implementation of modifications to your support plan in a timely and efficient manner.

Reporting Overview

Per your contractual agreement and to ensure that your project is receiving adequate resources and proceeding according to plan, you will be required to submit periodic reports to the ISS National Lab. **In accordance with the agreement, you will be required to complete four or more Progress Reports, a Postflight Report, and a Final Report.** Templates for these report types are included with this document. Please submit reports in accordance with the milestone schedule in your agreement with the ISS National Lab. Please send all reports and invoices (if applicable) to contracts@issnationallab.org and copy your Operations Project Manager.

In addition, you will receive a survey upon completion of in-orbit activity. Survey responses are vital to the ISS National Lab's metrics and stakeholder reporting, and they provide data necessary to secure funding for future research. **A completed survey must be submitted with your Final Report.**

Should your project experience delays that invalidate the original milestone dates, contact your Operations Project Manager to initiate an agreement change that accounts for any schedule revisions.

Travel

You may need to travel during the course of your experiment development or to prepare your samples for loading at the launch site. Travel requirements should have been identified in your proposal to the ISS National Lab. Travel must be approved by prior written consent of ISS National Lab management at least five (5) business days in advance of travel and in accordance with Policy HR-029 identified in your agreement. Contact your Operations Project Manager to obtain the latest sponsored travel request form and gain approval before booking. Reasonable out-of-pocket expenses for out-of-area travel shall be reimbursed at cost, subject to the following conditions: (a) no expenses shall be reimbursed without prior authorization by the ISS National Lab, including expenses for airfare (coach only), lodging, rental car, and incidentals; (b) separate invoices must be provided for out-of-pocket expenses and travel reimbursement in connection with this agreement (invoices must include the supporting mileage log and receipt reflecting dates and costs incurred in conjunction with activities pertaining to this agreement).

Outreach

The ISS National Lab has a marketing and outreach team that is dedicated to communicating your research to the public and leveraging our vast social media audiences (and as applicable, NASA's) to bring visibility to the science taking place on the ISS. Take advantage of this team! From basic media releases to blogs, features within *Upward* magazine, research videos, media interviews and engagements, and ties to conferences and events, the outreach team has insight into the aerospace community that can heighten your research team's experience while utilizing the ISS National Lab. If your team is interested in publishing external materials and would like to incorporate the ISS National Lab marketing team, please correspond with them appropriately. To get started, ask your Operations Project Manager for both our communications overview and our guide to popular social media platforms to give you insight into how we can help. If you wish to promote your research through a press release, please contact our marketing department prior to release (two weeks prior to release is recommended) at marcomm@issnationallab.org.

Publication/Distribution of Materials

The ISS National Lab is interested in continued updates on your research. **Please provide any updates related to presentation or publishing of data, patents filed, or products created/improved that are related to your payload.** The ISS National Lab has mechanisms to co-promote this research to further the reach of your investigation. **Also, we remind you to acknowledge your ISS National Lab agreement** in any published/released materials by including the following statement: *"Research reported in this [publication/press release/web page] was supported by the International Space Station U.S. National Laboratory under [award/agreement] number (insert grant number)."* You are also responsible for ensuring that ISS National Lab support is orally acknowledged during all news media interviews, including popular media such as radio, television, and news magazines.

Logos

If you choose to incorporate the ISS NL logo into your presentations, publications, patches, stickers, and/or payload hardware, please use the following logos. Additional formats can be provided by the marketing and outreach team.



Once again, congratulations on becoming a Principal Investigator with the ISS National Lab. Please reach out to your Operations Project Manager with any questions.

Attachment A: Progress Report Template



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Progress Report

[Investigation Name]

[Principal Investigator and Affiliation]

Milestone – [X]

11/2/2021

Progress Report

I. Project Summary:

- A. *Define in first progress report. Should remain constant throughout project.*
- B. *Highlight changes if they occur and provide rationale for change.*

II. Estimated Flight Readiness:

- A. *Provide the estimated flight hardware readiness or target launch vehicle for your experiment.*
- B. *If changes occur, include the baseline date and the new date. Provide reasoning behind the change.*
- C. *As your project nears flight, provide the planned hardware turnover date. Your Implementation Partner can assist you with these dates.*

III. Project milestones and schedule updates:

- A. *Provide any updates to the project schedule as documented in your proposal.*
- B. *Provide analysis of unmet milestones, if any, and document progress towards the objectives in those milestones.*

IV. Preflight activities completed to date:

- A. *Provide a continuous list of all activities/milestones completed to date. The list should carry over to successive reports.*

V. Progress made since last report:

- A. *Provide a detailed status of activities, including ground test results, hardware development, payload integration and safety certifications.*
- B. *Include non-confidential results and relevant information from preflight activities, ground testing, and in-orbit testing completed to date, as appropriate.*
- C. *Describe changes to the experiment, if any, including methodology, hardware, software, data analysis, or processing based on recent progress.*
- D. *Provide status of development, testing, and operation of hardware, software, and other products, if appropriate. Confirm flight research and development complies with NASA's space station payload requirements.*

VI. Near-term forward work:

- A. *Describe activities that will occur between now and the next progress report.*

VII. Issues/Concerns/Risks:

- A. *Technical: Click or tap here to enter text.*
- B. *Schedule: Click or tap here to enter text.*

C. Cost/Contract: Click or tap here to enter text.

VIII. Presentations/Publications/Patents:

A. *Provide references to any presentations, publications, or patents related to your experiment.*

Attachment B: Postflight Report Template



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Postflight Report

[Investigation Name]

[Principal Investigator and Affiliation]

Milestone – [X]

11/2/2021

Postflight Report

I. Project Summary

- A. *Objectives of Investigation*
- B. *Previous Mission Experience*
- C. *Background/History of Project*

II. Methods/Research Operations

- A. *Discussion of Methodology/ Protocol*

III. Flight Operation Summary

- A. *Preflight*
 - Describe the handover process. Did it meet your expectations? If you utilized a lab at KSC-SSPF or SLSL to prepare your sample for flight, were the accommodations satisfactory? Any recommendations to improve the experience?
- B. *Flight*
 - Describe your experience with the in-orbit operations. Were you able to participate through your Implementation Partner? Did the hardware and/or crew meet your expectations? Any challenges to executing the science or communicating your requirements?
- C. *Postflight*
 - Describe the experiment return process. *Note that the postflight summary should include the following at a minimum:*
 - Sample return date(s)
 - Flight sample condition
 - Experiment hardware condition
 - Please note any issues with sample and/or hardware return that violate return requirements such as improper orientation, temperature excursions, and/or visible damage.
- D. *Anomalies*
 - Note any anomalies that occurred throughout the experiment process. Please indicate if anomalies are expected to negatively affect the outcome of the experiment.
 1. *Preflight*
 2. *In-flight*
 3. *Postflight*

IV. Status of Data Analysis

- Provide indication on whether the final report will be on time or if there will be any issues with the original milestone timeline.

- If there were any science losses this is where any known effects of that loss on the overall results can be detailed.
- This does not need to be used to report early results, just to provide a status update on the results process if the timeline has changed from the original plan.

V. Lessons Learned/What I Wish I Had Known When I Started

- Provide initial feedback on working with the ISSNL and your Implementation Partner.
- Provide any questions you wished you had asked the ISSNL or your Implementation Partner at the beginning of the process.
 - Any information that you wish that you had at the start of the process that would be useful to future researchers.

As a reminder, in your publications, you are requested to add the following acknowledgement: "Research reported in this publication was supported by the Center for the Advancement of Science in Space and sponsored by the International Space Station U.S. National Laboratory under grant/agreement number XX-XXXX-XXXX."

Attachment C: Final Report Template



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Final Report

[Investigation Name]

[Principal Investigator and Affiliation]

Milestone – [X]

11/2/2021

Final Report

I. Executive Summary (Abstract)

- *Background of project's purpose*
- *Summary of what report will discuss*

II. Technical Approach/Research Findings Update

- *Summary of approach/research performed*
- *Summary of approach/research results*
- *Listing of objectives outlined in the original proposal*
- *Extent to which each objective was met*
- *For unmet objectives, an analysis of underlying issues and assumptions that may have influenced the unexpected outcome*
- *New findings as an outcome of the experiment (especially as they relate to microgravity or other flight-related variables)*

III. Final Budget

- *Summary of budget usage, tracking, changes, etc.*

IV. Future Work/Opportunities

- A. *Discussion of any future research related to findings*

V. Appendix

- A. *Supporting tables, graphics, etc.*
- B. *Publications, presentations, patents, etc.*
- C. *References*
- D. *Other team members (not for cover page)*
- E. *Report of any Government Furnished Equipment (GFE) or Government Furnished Information (GFI) used for the experiment*

* Upon submission of your Postflight Report, the ISS National Lab will send you a link to an online "Value Impact Survey." You are required to submit a completed survey with your Final Report.