FLIGHT OPPORTUNITIES

ISSUE 82 — MAY 2025

Regolith Roundtable webinar | Parabolic flight tests | ECF25 and SBIR Ignite solicitations | Podcast feature | TechRise students' payloads complete | Upcoming events

COMMUNITY OF PRACTICE WEBINAR

June Webinar: Regolith Roundtable: Best Practices and Insights for Working with Regolith in Flight Testing

Wednesday, June 4, 2025 • 10–11 a.m. PT

Let's talk regolith! Join us on June 4 for a roundtable discussion exploring the complexities and challenges of working with regolith in various flight test environments.

The Flight Opportunities team is bringing together researchers with diverse expertise and hands-on experience testing regolith-related payloads across a variety of flight platforms. The conversation will include:

- Experiment preparation
- How regolith reacts to different activities like digging or plume-surface interaction
- Differences between simulants
- Key platform-specific insights

This roundtable aims to foster valuable dialogue and knowledge exchange within the community.

While diminishing dust hazards on the lunar surface is needed for safe and productive missions, lunar regolith also has potential as an important resource. Credit: NASA

LEARN ABOUT OUR JUNE 4 WEBINAR

ON-DEMAND WEBINARS

Watch any of our past webinars on demand!

Our May 7, 2025, webinar: **"New Capability Allows Payloads to Experience Lunar Gravity Aboard Suborbital Rocket"** is now available.

Watch the recorded May 7 webinar

RECENT FLIGHTS

Parabolic Flights Buy Down Risk for Lunar Technologies and More

April 29–May 18, 2025

Industry and university teams tested their innovations in relevant environments for future missions to the Moon, Mars, and other destinations aboard Zero Gravity Corporation parabolic flights in Salina, Kansas.

A three-week series of parabolic flights exposed more than a dozen technology payloads to relevant environments to advance a range of technologies for future space missions. Many of the payloads required parabolas that simulated lunar gravity (one-sixth Earth's gravity), while others were designed to operate in the microgravity environment of space.

During the flight tests, researchers confirmed their systems and subsystems could successfully maintain their integrity, reliability, and successful operations in micro- and/or lunar gravity. Their payloads crushed/processed regolith simulant into feedstock, deployed pantographic structures, tested self-folding shape memory polymers, advanced a metal processing system, printed precise patterns with a dry multi-material system, characterized nanobubbles to enhance gas delivery, and more — moving the technologies another rung up the readiness ladder. They also gained valuable insights to further improve their innovations, following the Flight Opportunities program's fly-fix-fly philosophy.

Mason Maloney (foreground) and Tom Conboy from Creare LLC monitor their experiment in microgravity on the May 5, 2025 parabolic flight. Credit: Zero Gravity Corporation

Read more about the technologies

New Release: 2025 Early Career Faculty (ECF25) Solicitation

Released May 6, this **appendix** to the **Space Tech REDDI** solicitation seeks to tap into the talent base of highly skilled engineers, scientists, and technologists at U.S. universities. It challenges early-career faculty to examine the theoretical feasibility of new ideas and approaches that are critical to making space exploration, space science, and other civil space pursuits more effective, affordable, and sustainable.

ECF25 contains two topics:

1. Advanced Diagnostics for High-Enthalpy Test Facilities Simulating Spacecraft Atmospheric Entry
2. Planning for Autonomous Spacecraft Using Machine Learning Methods to Enable Onboard Guidance, Navigation, and Control

- **Notices of intent due:** June 10, 2025
- **Proposals due:** July 10, 2025

Email questions about the Early Career Faculty opportunity to: **hq-ecf-call@mail.nasa.gov**

NSPIRES - ECF25 Solicitation

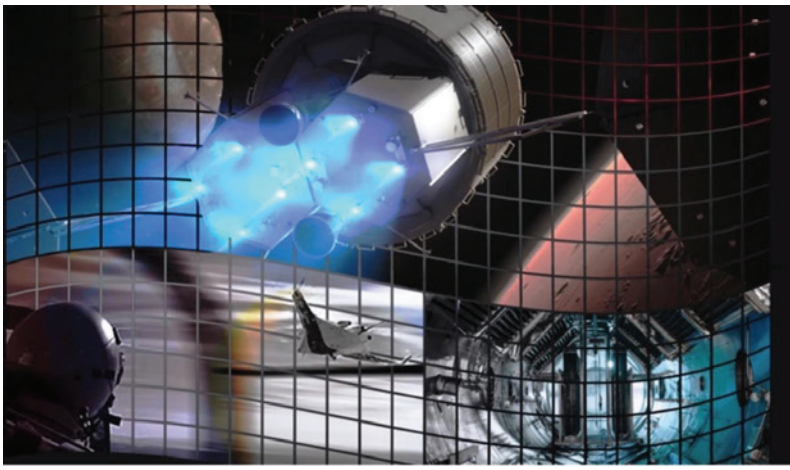
2025 NASA SBIR Ignite Phase I Solicitation

Subtopic Pre-Release!

To help U.S. small businesses prepare for the upcoming **2025 NASA SBIR Ignite** solicitation, NASA has **pre-released the subtopics**. The Phase I solicitation is scheduled to open in summer 2025.

Ideal for high-growth, product-oriented entrepreneurs, startups, and small businesses that have not worked with NASA before, the NASA SBIR Ignite initiative encourages companies to develop commercialization-focused technologies. The research topic areas of interest for the 2025 solicitation have been specifically selected for their commercial relevance.

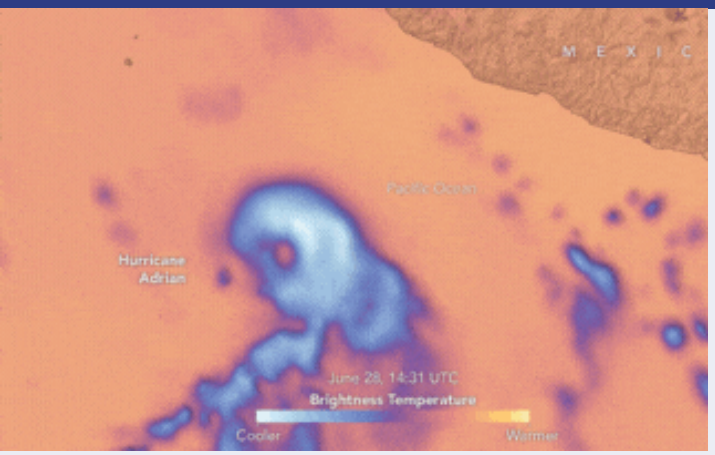
Proposers must demonstrate how their technology meets a need within the commercial market and provide a strong plan for commercialization of the technology to be competitive for award.



View the 2025 NASA SBIR Phase I pre-released subtopics

TECHNOLOGY TRANSITIONS

Share your transition story



Have you transitioned technology you tested with Flight Opportunities to a NASA mission or commercial use?

Let us know!

Share your story!

Did you know?

An **MIT-developed dual-spin CubeSat technology**, flight tested in microgravity with support from Flight Opportunities, flew on NASA's TROPICS (Time-Resolved Observations of Precipitation) mission in May 2023. The CubeSats gather data to understand the evolution of tropical cyclone intensity and to demonstrate that Earth science data can be obtained with improved resolution, greater flexibility and reliability, and extremely low-cost launches.

Credits: Lauren Dauphin, NASA Earth Observatory images, using data provided by the TROPICS team.

Visit our Technology Transitions webpage

RESOURCE

T-Minus Podcast: Inside NASA's Flight Opportunities Program with Danielle McCulloch

On the T-Minus Deep Space podcast, program executive Danielle McCulloch spoke about how Flight Opportunities helps researchers test space technologies through cost-effective suborbital and hosted orbital flights using commercial providers. Danielle stressed that early-stage testing builds crucial flight heritage and boosts mission success. She also shared how competitions like NASA's **TechLeap Prize** and **TechRise Student Challenge** managed by the program make space research accessible to all.

Listen to the podcast

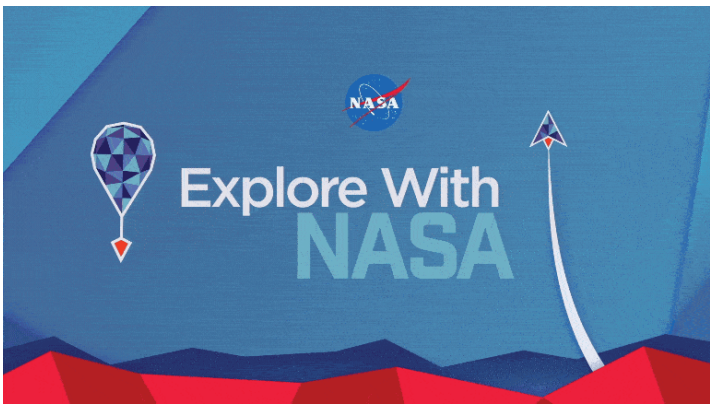
STEM INITIATIVE

Student Teams' Payloads Complete!

The payloads prepared by 60 winning teams in NASA's fourth **TechRise Student Challenge** are packed up and ready to fly aboard an upcoming high-altitude balloon operated by World View Enterprises of Tucson, Arizona. **Read about the experiments** prepared by more than 530 6-12 graders from 50 U.S. states and territories.

NASA expects to open the next TechRise challenge in August 2025; **pre-register here** to be notified when it opens. This nationwide contest engages students in technology, science, and space exploration, with each team receiving:

- $1,500 to build their experiments
- A flight box in which to house it
- Technical support
- An assigned spot for their experiments on a Flight Opportunities-supported flight test



Read about the winning teams and their experiments

UPCOMING EVENTS

Attending any of these upcoming meetings? Let us know!

- **CRASTE/NSMMS | June 23-26 | Norfolk, VA**
- **ASCEND 2025 | July 22-24 | Las Vegas, NV**
- **ISS R&D Conference | July 28-31 | Seattle, WA**
- **Small Satellite Conference | August 10-13 | Salt Lake City, UT**
- **ASGSR 2025 | December 3-6 | Phoenix, AZ**

NASA Flight Opportunities Program

Flight Opportunities is part of NASA's Space Technology Mission Directorate.

Visit **nasa.gov/stmd-flight-opportunities**

National Aeronautics and Space Administration

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