



FLIGHT OPPORTUNITIES



ISSUE 77 — NOVEMBER 2024

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Tech Transition Success • Other Opportunities

EVENT REMINDERS

American Society for Gravitational and Space Research Conference

DEC. 3-7 • SAN JUAN, PUERTO RICO

Engage with NASA's Flight Opportunities program at [ASGSR's annual meeting](#) in the Exhibit Hall and these sessions:

NASA Biological and Physical Sciences Update (including [Robert Ferl](#))

Thur. Dec. 5 • 11:15am AST

Flight Opportunities (more info below)

Fri. Dec. 6 • 12pm AST

Orbital Science on Hosted Platforms

DEC. 8 • 1:00-6:00 p.m. EST
WASHINGTON, D.C.

This community discussion brings together stakeholders to explore and discuss opportunities for collaboration and innovation in the use of hosted payloads on orbital platforms, including through NASA's Flight Opportunities program and its [new hosted orbital vendors](#).

Attendance is free; no registration required.



TechLeap: Space Technology Payload Challenge

NASA expects to issue a new challenge as part of the [TechLeap Prize](#) in December 2024. NASA intends to award up to nine \$500K prizes and the opportunity for a flight test, focusing on a wide variety of [NASA's prioritized shortfalls](#).



On-Demand TechLeap Q&A Webinar

Flight Opportunities hosted this webinar to answer questions about the upcoming TechLeap opportunity.

- [Watch the Q&A webinar](#)
- [Sign up to be notified when the challenge opens.](#)
- Mark your calendar for another webinar **Jan. 8 at 10am PST**



TechFlights Reminder

As noted in our October edition of this newsletter, Flight Opportunities will not be issuing a TechFlights solicitation in 2024. Instead, we urge you to consider applying for this year's forthcoming [TechLeap Prize](#).

[Learn More About TechLeap](#)

RECENT FLIGHTS



G-Force One Credits: Zero Gravity Corporation

Testing Fluid Management, Manufacturing, and More in Microgravity

From Oct. 29 to Nov. 7, NASA's Flight Opportunities program supported flight testing for 11 payloads in a series of six parabolic flights aboard Zero Gravity Corp.'s G-Force One. With a focus on solving key challenges for space exploration, researchers collected data about their technologies during brief periods of microgravity. Some of the technology areas included resource utilization, manufacturing in space, propulsion systems, and lunar surface operations — specifically targeting applications for lunar missions and long-duration spaceflight.

Lidar Hazard Detection System for Safe and Precise Lunar Landing Successfully Captures High-Precision Terrain Data

With Flight Opportunities support, Astrobotic flight tested its [advanced hazard detection system](#) to determine its ability to select a safe landing site by detecting and avoiding rocks, craters, and slopes using lidar (light detection and ranging). The system processes 3D lidar point cloud data into a terrain hazard map upon descent.

During several flight tests Nov. 5–14, the hazard detection lidar sensor successfully collected terrain data while mounted on Astrobotic’s Xodiac vertical takeoff vertical landing rocket. A final free flight over a simulated lunar terrain captured high-precision data to enhance hazard detection for future lunar lander missions.



Astrobotic’s Xodiac lander flies over its simulated lunar surface during the Nov. 14 test of the company’s advanced lidar hazard detection system. Credits: Astrobotic

Flight summaries of these two campaigns will be added to our website soon

LIVE FROM ASGSR! AN IN-PERSON COMMUNITY OF PRACTICE SESSION

NASA’s Flight Opportunities program will host a 90-minute panel conversation at the [ASGSR 2024](#) meeting in San Juan, Puerto Rico. Conference attendees are encouraged to join us!

Advancing Science with Suborbital and Hosted Orbital Flight Test

Friday, Dec. 6 from 12:30-2 pm AST (local time)

The session will focus on commercial flight testing and its value in advancing science and technology, using the recent [researcher-tended flight test](#) with Blue Origin as an example of how researchers can take advantage of these emerging capabilities.

The session will also include details about the new **TechLeap Prize** challenge, for which NASA expects to offer up to nine winners prizes of up to \$500,000 plus the opportunity for a flight test at no additional cost.

Notional session schedule:

- **~12:30-1:00 pm:** Overview of NASA’s Flight Opportunities program and how to engage with the program, including the upcoming TechLeap Prize challenge (~30-40 min.)
- **~1:00-1:30:** University of Florida co-principal investigators Drs. Robert Ferl and Anna-Lisa Paul will speak about the researcher-tended flight test aboard a Blue Origin reusable suborbital rocket system (~20-30 min.)
- **~1:30-2:00 pm: Q&A** (~30 min.)



The laser that transmits between NASA's Psyche spacecraft and Earth-based observatories for the Deep Space Optical Communications experiment successfully reaches its target thanks, in part, to a vibration isolation platform developed by Controlled Dynamics Inc., and supported by several Space Technology Mission Directorate programs. **Credits: NASA/JPL-Caltech**

Award Winning Invention's Suborbital Flight Test History

NASA's Deep Space Optical Communications (DSOC) technology demonstration — one of **TIME's Inventions of 2024** — has a bit of Flight Opportunities heritage.

Over a decade ago, Controlled Dynamics Inc. (CDI) created a **platform to isolate** orbiting experiments from vibrations caused by their host spacecraft, other payloads, crew movements, or even their own equipment. Tests with Flight Opportunities in 2013 helped CDI's technology earn **a spot on the International Space Station** in 2016. These flights were followed by a rapid series of tests aboard Blue Origin, UP Aerospace, and Virgin Galactic vehicles.

CDI technology is now one of the technologies aiding the extremely precise pointing required for the DSOC laser to successfully reach Earth from millions of miles away in deep space.

"Flight Opportunities was instrumental in our development," said Dr. Scott Green, CDI's co-founder and the platform's principal investigator. "With five separate flight campaigns in just eight months, those tests allowed us to build up flight maturity and readiness so we could transition to deep space."

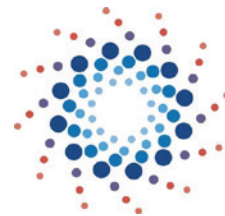
[Learn more about this successful technology transition](#)

OTHER OPPORTUNITIES

Dec. 9-13 SBIR/STTR Phase I Subtopic Ask Me Anything (AMA) Webinars

To help small businesses and research institutions prepare for the 2025 **NASA SBIR/STTR** Phase I Solicitations, NASA will hold a series of Ask Me Anything webinars the week of Dec. 9 to introduce the research subtopics. These webinars will include brief synopses and live Q&As with subject matter experts (SMEs). This will be an opportunity to not only hear the perspective of NASA SMEs but also ask them questions about the research subtopics, which will be released to the public Dec. 2. The SBIR/STTR Phase I Solicitations are anticipated to open January 2025.

[Learn how to attend these webinars](#)



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Dec. 2 Webinar for the LunaRecycle Challenge

The **LunaRecycle Challenge** is a \$3 million, two track, two-phase competition focused on the design and development of recycling solutions that can reduce solid waste and improve the sustainability of longer term lunar missions.

In a **webinar scheduled for Dec. 2** at 1:00 p.m. EST, attendees will gain a deeper understanding of NASA's current approaches, challenges, and opportunities in waste management for lunar missions. Presenters will explore the types of waste expected in upcoming Artemis missions, discuss NASA's technological investments, and share their expertise on space and terrestrial recycling practices.

[Learn more about the LunaRecycle Challenge](#)



NASA Flight Opportunities Program

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

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