



Flight Opportunities



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Dear Flight Opportunities Community,

Welcome to the first issue of the new monthly **Flight Opportunities (FO) Program newsletter!** We are excited to get this new communication format off the ground (so to speak) and into your inboxes. For those of you who follow us regularly via our e-mails, you'll find much of the news you used to see in those messages contained right here—in one monthly publication that you can refer back to and share with friends and colleagues.

Each month, we'll bring you the latest information from NASA's FO Program. We'll include program milestones, notable technologies, recent and upcoming flights, solicitation news, and more.



Ronald Young, Program Manager

This issue includes:

- Details about NASA's Recent **Flight Success: Flight Opportunities Technologies Head to the ISS.**
- Highlights of the **Vibration Isolation Platform (VIP)** technology from Controlled Dynamics, Inc., that flew in March 2016.
- A roundup of the **latest FO Program news** from FY2016 as well as **solicitation info** that's well worth the read for those of you planning to submit proposals this year.

As always, we're interested in providing information that is useful to you. If you have any comments about this new format, please **tell us!**

Thank you for reading, and enjoy!

Ronald Young, Program Manager
NASA's Flight Opportunities Program

"My #1 metric for NASA Space Technology is the number of technologies infused into missions that made those missions possible."

— Steve Jurczyk, Associate Administrator, NASA Space Technology Mission Directorate

Recent Flight Success: Flight Opportunities Technologies Head to the ISS

On March 22, Orbital ATK's **Cygnus OA6** commercial resupply services mission headed for the International Space Station (ISS) with three technologies onboard that were tested and matured through Flight Opportunities:

- **Additive manufacturing facility (T0004)** developed by **Made in Space** enables 3D printing in the micro-gravity environment
- **Strata-1 (T0122)** was inspired by work done with the University of Central Florida through a NASA Undergraduate Student Instrument Project (USIP) award, investigating the properties and behavior of regolith on small, airless bodies
- **Gecko Grippers (T0135)** is a technology developed by NASA's Jet Propulsion Laboratory (JPL) for grappling non-cooperative objects in microgravity using switchable adhesives

This **launch** demonstrates the power of Flight Opportunities to help advance **technologies** that are critical for the space program.

Vibration Isolation Platform for Precisely Controlled Testing Environments

Vibration Isolation Platform (VIP) technology offers a free-floating mounting platform—one completely isolated from the disturbances and vibrations of the host vehicle and other payloads. The technology provides non-contact isolation that allows experiments to float freely in the space between the host vehicle and the platform.

The result is that any disturbance from the experiment or connected umbilicals is cancelled out, giving researchers precisely controlled acceleration environments uniquely tailored to the mounted payload. The VIP technology can benefit several types of payloads, particularly:

- **Optical communications technologies**
- **Gravity-sensitive experiments**



Principle Investigator Dr. Scott Green (left) and Director of Systems Engineering Brian Weltmer are shown here with the VIP technology payload.



The Vibration Isolation Platform technology is shown here, inside a mid-deck locker insert.

As part of its ongoing development with NASA's FO Program, the VIP technology was flown in early March on the Terrier-Orion suborbital rocket. The testing goal was to demonstrate a high-quality microgravity research environment for a sustained period of nearly 5 minutes. This test was a precursor milestone leading up to the VIP technology's mission to the International Space Station (ISS) this summer through a **CASIS** grant. During testing, the payload instrumentation recorded a full suite of measurements, which the company is now analyzing to help researchers understand some unexpected operations and component vulnerabilities observed during flight. This ongoing research will help the company isolate the root cause of these issues so that they can address them in further development.

This latest test phase represents the most recent valuable technology maturation goal for Controlled Dynamics. Previous milestones have included Phase I and Phase II SBIR awards, through which the VIP technology is being demonstrated on NASA's Jet Propulsion Laboratory's Deep-Space Optical Communications testbed.

[Read More](#)

“Our Terrier-Orion flight experience clearly demonstrates the value of the Flight Opportunities Program. Fly early. Fly often. With an upcoming summertime flight to the International Space Station, we are very appreciative of this opportunity for a launch and free-fall test to determine if there are any vulnerabilities in our payload.”

— Scott Green, Controlled Dynamics, Inc.

Program Updates and Events



DEC 14-18, 2015

Parabolic Flight Campaign RGO-23

A C-9B parabolic flight from Ellington Field in Houston included successful microgravity testing of several payloads, including exploration of sintering of composite materials, evaporative heat transfer mechanisms, evaluation of a hermetic surgery system for reduced gravity, and experiments to support the first plant habitat on Earth's moon.

[View Photos](#)



NOV 18, 2015 &
JAN 12-15, 2016

Parabolic Flight Campaign RGO-22

During a Parabolic Flight Week in November and January, the FO Program flew the C9-B aircraft from Ellington Field. Technologies included a direct ammonia alkaline fuel cell (DAAFC), 3-D printing, a two-phase fluid flow separator, and zero-gravity fluid models.

[View Photos](#)



NOV 19, 2015

NASA Announces New Public-Private Partnerships to Advance 'Tipping Point' Emerging Space Technologies

NASA has secured partnerships with 22 U.S. companies through two solicitations to advance the agency's goals for robotic and human exploration of the solar system by shepherding the development of critical space technologies.

[Read More](#)



NOV 6, 2015

SpaceLoft-10 Mission Successfully Deploys NASA Re-Entry Research Capsule

UP Aerospace, Inc., launched its tenth SpaceLoft rocket (SL-10) from Spaceport America, New Mexico--its fourth mission for NASA's FO Program. The mission marked the debut of the company's new Automated Payload Deployment System.

[View Photos](#)

[View Video](#)



NOV 18, 2015

REDDI-15-F1 Payload Awards Announced

Eight space technology payloads were recently selected for reduced gravity flights on board specialized aircraft and commercial suborbital reusable launch vehicles (sRLVs). They will take to the skies in 2016 and 2017 on flights with U.S. commercial providers arranged by the selectees.

[Read More](#)

NSRC
June 2-4, 2016
Broomfield, CO



Mark your calendar for the **Next-Generation Suborbital Researchers Conference**

NSRC is the premier conference for the suborbital space research and education community—don't miss it!

[More info](#)

Opportunities

SpaceTech-REDDI-2016-F1 Solicitation--Now Closed

Under Space Technology Research, Development, Demonstration, and Infusion (SpaceTech-REDDI) solicitations, selected projects receive awards allowing the direct purchase of flights from any qualified U.S. suborbital flight vendors that best meet the project's needs. The most recent solicitation closed on March 8. Selected payloads are tentatively planned to be announced in June and awarded in August.

Are you REDDI? What Non-U.S. Government Professionals Should Know Before the Next Solicitation

The SpaceTech-REDDI program seeks proposals on a regular basis to demonstrate cross-cutting space technologies in relevant space-like environments using currently available U.S. commercial reduced-gravity, high-altitude balloon, and suborbital reusable flight opportunities. A REDDI Q&A and [other resources are now available online](#)—a must-read for any organization interested in submitting a proposal for the next SpaceTech-REDDI solicitation.

Calls for NASA & U.S. Government Payloads

The most recent call for NASA and other U.S. government payloads seeking flight demonstration in relevant space environments closed March 31. Subsequent calls are expected to be made quarterly for technologies seeking advancement from TRL 4 through flight demonstration. The Program will provide one or more flights from one of the flight providers currently on contract with Flight Opportunities.

On-Ramp Solicitation for New Flight Providers

[The most recent solicitation](#) for new flight providers closed on March 31. Selections are targeted to be made in the coming months.

Have ideas or feedback for the Flight Opportunities newsletter?

Drop us a line at: NASA-FlightOpportunities@mail.nasa.gov

And thanks to those of you who responded to our recent survey about what you would like to hear from us—here are the [results](#).

STAY CONNECTED:



NASA Flight Opportunities Program

650-604-5876 (Stephen Ord - Technology Manager) | www.nasa.gov/flighthopportunities

Flight Opportunities is part of the Commercial Partners Portfolio of NASA's Space Technology Mission Directorate.