Flight Opportunities

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Enjoy!
The Flight Opportunities team

News

NASA Announces 2021 TechFlights Selections

NASA has selected nine space technologies under the agency's 2021 **TechFlights solicitation** for testing aboard parabolic aircraft, high-altitude balloons, and suborbital rocket-powered systems. This $5.5 million investment in technology demonstration activities will support the advancement of a wide range of technologies that address mission needs for both NASA and the commercial space industry. By exposing these innovations to many of the rigors and characteristics of spaceflight – without the expense of an orbital flight – NASA can more rapidly help ensure these technologies work correctly when they are deployed on future missions.

Read the **NASA web feature** to learn more about the 2021 TechFlights technology selections, and access **resources to begin preparing** for the 2022 solicitation.

Recent Flights

Parabolic Flights Cap off 2021, Putting 20 Program-Supported Technologies to the Test in Microgravity

In November and December, two parabolic flight campaigns with Zero Gravity Corporation enabled Flight Opportunities-supported researchers to assess their space technologies in challenging microgravity conditions. Space-based farming and food production, propellant management, additive manufacturing, in-space medical care, and more were among the innovations put to the test. Each of the 11 flights exposed the payloads to approximately 30 parabolas with brief periods of microgravity. This contributed to valuable data collection and learning, helping researchers advance technology readiness levels, prepare for subsequent suborbital flight testing, and even refine payloads in advance of orbital demonstrations on the International Space Station.

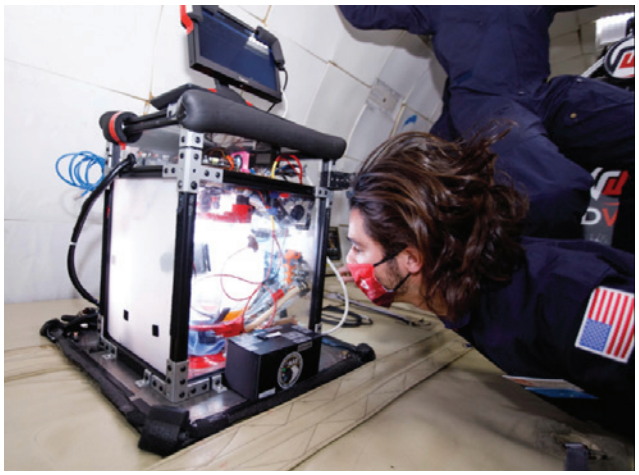


Image details: Carthage College student Nicolas Welker prepares to start a zero-gravity transfer of propellant simulant during a flight on Zero Gravity Corporation's G-FORCE ONE on Nov. 16, 2021. Credits: Zero Gravity Corporation/Steve Boxall

Read more about the first flight campaign on Twitter, and follow **@NASA_Technology** to catch news about the second flight campaign in the coming days.

Opportunities

Now Open: Technology Development Research Announcement to Leverage ISS National Lab

A **new research announcement** is now open soliciting flight projects leveraging the International Space Station (ISS) National Laboratory to advance technology development applications. This research announcement seeks flight projects within the areas of applied research and development, translational medicine, technology readiness level maturation, and technology demonstration. As a public service enterprise, the ISS National Lab allows researchers to leverage this multi-user facility to improve quality of life on Earth, mature space-based business models, advance science literacy in the future workforce, and expand a sustainable and scalable market in low-Earth orbit (LEO).

Through this research announcement, investigators can use the unique ISS environment to develop, test, or mature products and processes that have a demonstrated potential to produce near-term, positive economic impact.

Concept Summaries due: February 14, 2022
Full Proposals (by invitation) due: May 2, 2022

Learn more about this opportunity.

Spotlight

Researchers Weigh in on the Impact of 2021 Flight Tests

"Flight Opportunities has been essential to the maturation of this technology. We had performed previous drop tower testing, but that's only a few seconds of free fall and doesn't let us test overall capabilities in micro-g. We're frankly not sure how we would have increased the technology readiness level without this program."

Kasthuri Venkateswaran, principal investigator for the Microgravity-Tolerant Instrument for Automated Nucleic Acid Extraction, NASA's Jet Propulsion Laboratory

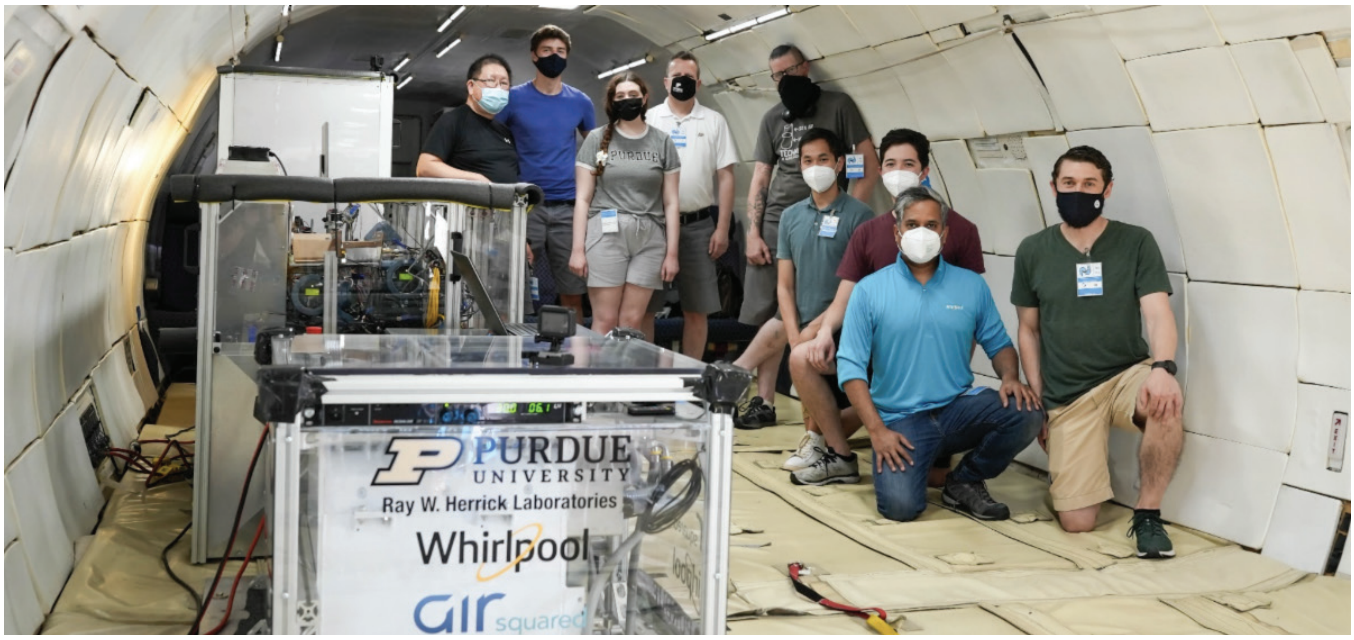
"Suborbital flights facilitated by Flight Opportunities have given us the ability to advance our technology at a much lower cost before we move on to the next step of proposing an orbital experiment on the International Space Station."

Christine Escobar, principal investigator for the Microgravity Investigation of Thin Film Hydroponics, Space Lab Technologies

"This was such a great real-world learning experience for me, making sure hardware and software integrated together, isolating instrumentation for post-flight verification, and working with other hardware and software engineers. And I'm so proud that all of this data and learning has culminated in my Master's thesis."

Justin Williams, graduate student and payload manager for RadPC, Montana State University

Join Flight Opportunities and Small Spacecraft Technology Programs for Webinars in January



A research team led by Air Squared leveraged Flight Opportunities as part of the company's SBIR award, enabling them to test a vapor compression refrigeration system on parabolic flights in 2021. Credit: Zero Gravity Corporation/Steve Boxall

Leveraging SBIR Awards for Suborbital Flight Tests
with Stephen Caskey, Ph.D., Air Squared; Michael Ewert, NASA's Johnson Space Center; and Alexander van Dijk, NASA Flight Opportunities

Presented by NASA Flight Opportunities
Wednesday, January 5, 2021
10 a.m. - 11 a.m. PST

Accessing a suborbital flight test via a Small Business Innovation Research (SBIR) award is a lesser-known but highly valuable avenue into the Flight Opportunities program. In **this session**, Dr. Stephen Caskey of Air Squared and NASA's Michael Ewert will share how they collaborated with Alexander van Dijk to secure Flight Opportunities as an external investor for Air Squared's SBIR award. The conversation will highlight how NASA stakeholders and the Flight Opportunities program can work together to support small businesses with technology advancement, especially into the later stages of technology readiness.

How to Join the Webinar
Join on your computer or mobile app
Click here to join the meeting
Or call in (audio only)
+1 626-657-0506
Phone Conference ID: 427 177 257#

Community of Practice *(cont)*

IceCube Mission Overview
with Dr. Dong Wu, NASA's Goddard Space Flight Center

Presented by NASA Small Spacecraft Systems Virtual Institute
Wednesday, January 12, 2022
10 a.m. PST

Visit the **Small Spacecraft Community of Practice webpage** to learn more about this webinar and join online.

Lessons From the Launchpad

Avoid Payload Changes After Integration and Testing
The period following integration and testing (I&T) can sometimes be a hectic one as researchers attempt to make last-minute updates to their payload designs. We recommend avoiding this if possible.

Keep in mind that all payload configurations are considered "locked" after combined system/electromagnetic interference testing with the other payloads manifested on your flight. Changes you make to your payload may impact others and vice versa.

Engage with your flight provider to discuss any post I&T changes, but only after you have considered ways to avoid any reconfiguration. If changes are truly unavoidable, they must be negotiated with and approved by your flight provider.

Be prepared for the fact that any last-minute changes to hardware, software, or experiment procedures will require a thorough and rigorous calibration and operational checkout prior to flight.

Events

AIAA SciTech Forum and Exposition
January 3-7, 2022
San Diego, CA and online

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Have ideas or feedback for the Flight Opportunities newsletter? Drop us a line at:
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STAY CONNECTED:

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