Flight Opportunities

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Dear Flight Opportunities Community,

As NASA continues its plans for future exploration missions, we're proud that our program is helping to facilitate the maturation of many technologies that will support the agency's future goals. We'll continue to see the fruits of that progress in the coming months as a range of payloads are slated for commercial flights.

In this month's issue:

- Read about a space solar cell calibration method flown on recent balloon flights from Black Sky Aerospace
- Learn About NASA's Research Opportunities in Space Biology solicitation – Step 1 proposals are due July 5
- Get to know Flight Opportunities Technology Analyst Alexander Van Dijk
- Read up on the latest commercial space news, and make plans for upcoming events

Recent Flights

Reaching For the Stars With Solar Cell Technology Fit For Space

In January and March 2019, researchers from The Aerospace Corporation began testing a method for **Rapid Calibration of Space Solar Cells** on low-cost high-altitude balloons from Black Sky Aerospace. The flights were made possible with funds awarded through NASA's Tech Flights solicitation.

Researchers plan to continue data collection and validation of the rapid calibration method on additional flights with both Black Sky and Angstrom Designs this summer.

If successful, Aerospace's technology development efforts could lead to fast, inexpensive, and highly-accurate near-space data collection for newly developed space solar cells—making it much faster and cheaper to determine the best of the best space solar technologies for further testing in orbit, enabling delivery of data to satellite solar array designers, and ultimately helping to power missions to the Moon and Mars.

Balloon flights conducted by Black Sky Aerospace in early 2019 enabled preliminary testing of The Aerospace Corporation's method for Rapid Calibration of Space Solar Cells. Credit: Colin Mann/The Aerospace Corporation

Other Opportunities Of Interest

Research Opportunities in Space Biology: Step 1 Proposals Due July 5

NASA has released the Research Opportunities in Space Biology (ROSBio) – 2018 "Appendix C: Development of Microgravity Food Production: Plant Watering, Volume Management, and Novel Plant Research on the International Space Station" solicitation.

This Space Biology Appendix to ROSBio-2018 represents a collaboration between NASA's Space Life and Physical Science Research and Applications Division (SLPSRAD) and NASA's Advanced Exploration Systems (AES). The goal of this collaboration is to solicit research and development (R&D) projects that will lead to the development of a more reliable water and nutrient delivery approach/concept for growing edible pick-and-eat plants for multiple generations in microgravity, that will eventually lead to new hardware.

Solicitation Number: NNH18ZTT001N-PT
Step 1 Proposals Due: July 5, 2019
Step 2 Proposals Due: September 26, 2019

Staff News

Staff Spotlight: Technology Analyst Alexander Van Dijk

Working with Flight Opportunities since its early days in 2010, Alexander van Dijk has seen the program from many angles. In his current role he tracks the program's portfolio of suborbital flight testing investments to inform both technology and program management. We talked with Alex about the value of researchers keeping the program informed about their technology developments, and the mutual benefit of maintaining that communication.

Alexander Van Dijk, right, on a 2011 parabolic flight for Flight Opportunities

What attracted you to working with Flight Opportunities?
When I was offered the opportunity to work with Flight Opportunities back in 2010 the effort was just getting underway. CRuSR, or Commercial Reusable Suborbital Research as it was known back then, was designed from the start to leverage capabilities emerging in the commercial spaceflight industry. I like to start new things, so it was a great opportunity to become part of this pathfinder initiative inside the agency to foster commercial space.

What is your primary focus now that the program itself has matured?
One of the key things I've been focused on, along with our technology manager Steve Ord, is tracking the portfolio of technologies we've invested in. This is important first to demonstrate to our stakeholders that we create value through our investments. Key examples are Made In Space's 3-D printing technology, which is now on the International Space Station, and Terrain Relative Navigation, a key technology that the agency is eyeing for Moon and Mars missions. Keeping track

of where these technologies go after they have completed their suborbital testing allows us to better understand our role in the space technology ecosystem. It also helps us point researchers to other funding opportunities and potential customers. So there is mutual benefit in PIs keeping us informed of what they're doing and where they're headed.

What kinds of news should PIs keep you informed about?
If they've published a paper as a result of their flights with us, or presented at a conference, if they've received additional funding, or are under consideration for a follow-on flight test or infusion into a mission… anything that will help us understand how the work they've done through Flight Opportunities has helped them continue to mature their technology.

Has your work with Flight Opportunities given you new perspective on aerospace?
Having trained as an aerospace engineer, working in the suborbital realm has enriched my appreciation for the planet. I've come to internalize the perspective of Earth as this giant ball that we're all walking around on. I think the more people who see this, either with their own eyes or through mediated views, the more they appreciate our planet and its thin atmosphere.

News & Events

Flight Opportunities In the News

University of Louisville researchers developing **a "freeze-dried" approach to storing blood** are using parabolic flights to test whether their technique will hold up in microgravity. **Full Story**

NASA-developed Doppler Lidar technology previously flown through Flight Opportunities is being commercialized. **Full Story** This technology was also selected to fly to the moon through NASA's Commercial Lunar Payload Services program (CLPS). **Full Story**

Draper tested its **vision-based navigation sensor** on a balloon flight funded by Flight Opportunities (they are the lead for one of the CLPS provider teams). **Full Story**

Carnegie Mellon University (the birth place of CLPS provider Astrobotic), was recently selected for a NIAC Phase III award for a **flyover terrain mapping and modeling concept** flown in 2015 with Masten Space Systems through Flight Opportunities funding. **Full Story**

Mark your calendars

We welcome the opportunity to meet with our community at the events and conferences we attend throughout the year. Two opportunities to do so are just around the corner:

First up, we'll be attending the **ISS R&D Conference** **July 29 – August 1 in Atlanta, GA**. We'll have a booth, so **let us know if you plan to be there**, or simply stop by to say hello.

We'll also be at the **SmallSat Conference**, **August 3-8 in Logan, UT**. Planning to be there? **Drop us a line** so we can make plans to meet with you.

Other upcoming events:

- NASA's Apollo 50th Anniversary Celebration – July 16-20, Washington, D.C.
- **NASA Exploration Science Forum** – July 23-25, Moffett Field, CA
- **AIAA Propulsion and Energy Forum & Exposition** – Aug 19-22, Indianapolis, IN

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