Flight Opportunities

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Dear Flight Opportunities Community,

Nine Flight Opportunities-supported payloads flew on Blue Origin's latest venture into space, rounding up the latest flights for our community, along with a recent flight campaign for two more payloads completed by World View Enterprises. The summer season is looking to be a busy one and we hope you'll enjoy reading up on these recent tech flights and the latest news.

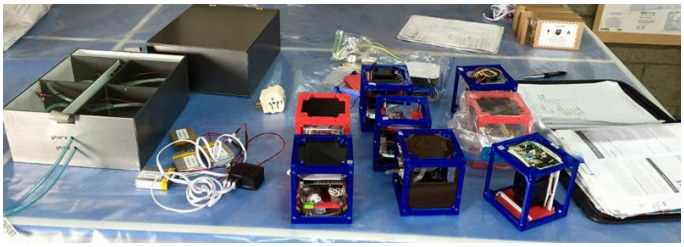
In this month's issue:

- Read about the latest technologies flown with Blue Origin and World View
- Get to know Resource Analyst Tai Leathers in our Staff Spotlight
- Plan for upcoming events and conferences

Looking forward,
The Flight Opportunities Team

Recent Flights

NASA and Blue Origin Help Classrooms and Researchers Reach Space



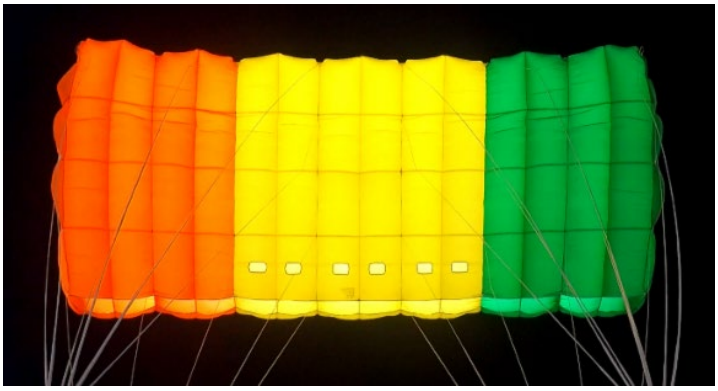
Teachers in Space flew a standardized framework for classroom-developed space experiments on Blue Origin's most recent flight. Comprised of 3D-printed CubeSat frames, a standard set of customizable processors, and a fireproof cabinet housing, the equipment will provide a turnkey solution for housing student- and teacher-developed payloads on future flights to space. Credit: Teachers in Space

"We are now on the verge of giving students and teachers the ability to build and fly affordable experiments in space. When teachers are this excited about putting experiments in space, their students can't help but get excited about space, too."

Elizabeth Kennick, president of Teachers in Space, does not take the opportunity to fly an experiment to space for granted. The nonprofit organization has worked with educators and engineers to design and test **standard equipment** for classroom-developed experiments, including 3D-printed CubeSat frames, customizable processors, power adaptors and more. The equipment first flew on high-altitude balloons and more recently on a stratospheric glider. Thanks to support from Flight Opportunities, the equipment has now flown higher than ever before: to space on the May 2 launch of Blue Origin's New Shepard rocket.

The Teachers in Space experiment was in the company of eight other Flight Opportunities-supported payloads on the recent launch. **Read about them all in the full NASA web feature.**

Precision Payload Recovery Experiment Successfully Tested Above 100,000 Feet



Airborne's parachute is shown in stable, steady-state flight at an altitude of approximately 85,000 feet at noon. The sun is behind the canopy, giving the sky the illusion of darkness. Credit: Airborne Systems North America

A NASA Flight Opportunities-supported precision payload recovery experiment from Airborne Systems North America was successfully tested on April 9 on a balloon provided by World View Enterprises. The payload was released at an altitude above 100,000 feet—its highest achieved to date—and resulted in an accurate landing and recovery within 200 feet from a programmed landing target using a parafoil parachute. During the successful flight, the guided parafoil payload was deployed, inflated, and flew for 57 minutes, achieving non-spiral flight at higher altitudes and autonomous control.

Ultimately, the guided parafoil experiment aims to precisely glide, steer, and navigate to a logistically accessible recovery zone—potentially reducing costs as well as shortening the time required for payload recovery and turnaround. This technology also has the potential to improve mid-air retrieval of payloads returning from space.

Also onboard, the **Draper Multi-Environment Navigator (DMEN)** is a suite of sensors that aims to address the need for precision entry, descent, and landing (EDL) for both human and robotic exploration missions. Balloon flights are enabling data collection and validation of algorithms for DMEN's descent capability. Along with Airborne's experiment, DMEN will fly with World View for a second time later this year.

Staff Spotlight: Resource Analyst Tai Leathers

Affectionately known to our community as the 'money lady,' Tai Leathers oversees the task of making sure the funds that Flight Opportunities awards are invoiced, paid, and reported to Congress–critical functions that keep programs like ours running smoothly. Her work also extends to strategic planning based on agency priorities, in collaboration with our program manager and technology manager. We sat down with Tai to hear a bit more about her career at NASA and her work with Flight Opportunities.

Resource Analyst Tai Leathers

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How long have you worked with NASA and Flight Opportunities?
I started at NASA in February 2016 as an intern during my graduate studies. In my first few assignments, I was exposed to high-level financial analyses for all of Armstrong Flight Research Center. Then, starting in October 2018, I was able to bring the learning from that high-level view to the program level when I started working with the space programs, including Flight Opportunities.

How does working on a program that extends to partners in the commercial space community impact what you do?
As Flight Opportunities increases the number of flights facilitated and technologies selected through the program, my background and expertise in grants and cooperative agreements is becoming central to my work. We have such a dynamic program, and with that comes a lot of visibility from both the public and Congress. So when a flight goes up, it's great because cool space technologies are being tested. But it's also great because we can then write the checks for those flights, demonstrating to Congress that the funds they've allocated to Flight Opportunities are truly being used to advance technologies that support NASA's goals.

How will your work impact NASA's initiative to return to the Moon?
In working on the most recent Tech Flights solicitation, NASA's plans to return to the Moon by 2024 influenced the types of technologies that will be considered and how I'll be working with our program manager to allocate funds to work toward this goal. It's an exciting time because we can see our activities really paying off with commercial flight providers increasing their capabilities and so many exciting space technologies being matured as a result of the investments the program has made.

Fun fact about you beyond the budgets?
NASA is actually my second career. I did a human rights fellowship during undergrad and went on to work in non-profit administration for 10 years. Like NASA, I like to explore new worlds, so this has been an exciting next chapter.

Conferences & Events

Mark your calendars

Coming up July 16-20, we'll be attending NASA's long-awaited **Apollo 50th Anniversary** celebration in Washington, D.C. Come be a part of this historic event, and drop us a line so we can meet you there. Can't attend? NASA has compiled **a list of Apollo Anniversary Events** throughout the country (many running now through 2020)–great inspiration for the technology that will help us **return to the Moon**.

Other upcoming events:

- **International Space Development Conference** – June 6-9, Arlington, VA
- **SBIR/STTR Spring Innovation Conference** – June 17-19, Boston, MA
- **2019 AIAA Aviation Forum** – June 17-21, Dallas, TX
- **Spaceport America Cup** – June 18-22, Spaceport America, NM
- **Commercial and Government Responsive Access to Space Technology Exchange (CRASTE)** – June 24-27, Henderson, NV

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