



Flight Opportunities

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Enjoy!

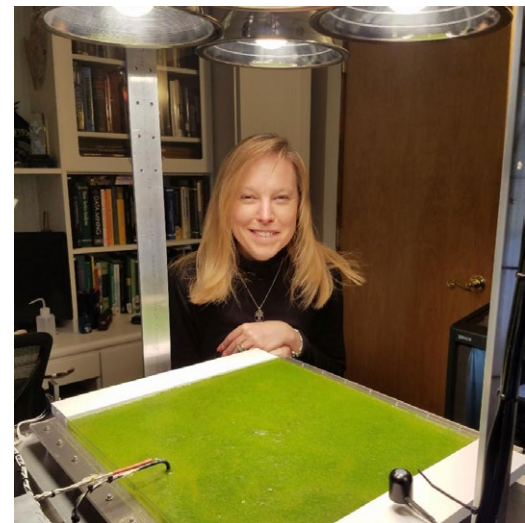
The Flight Opportunities team

Flights

Multiple Technologies Set to Launch on Blue Origin's New Shepard From precision landing to hydroponics and more

Blue Origin's New Shepard rocket-based system will soon launch to space carrying **eight payloads funded by Flight Opportunities**, as well as precision landing technologies supported by the agency's **Tipping Point partnership** with the flight provider. The flight provider is targeting Friday, Sept. 25, at 11:00 a.m. EDT for the New Shepard launch. NASA Television and the agency's **website** will air the company's webcast, scheduled to start at 10:30 a.m.

Among the innovations aboard: **a hydroponic chamber -- the "microgravity LilyPond" -- for growing edible aquatic plants in space** without the need for soil. Also supported by NASA's SBIR/STTR program, the technology may reduce materials, mass, and waste for resource-intensive space missions.



Principal Investigator Christine Escobar sits before a bed of duckweed—a crunchy lentil-like vegetable that grows rapidly in a hydroponic growth chamber. Credits: Space Lab Technologies

“The more we explore, the more we discover that it pays to reuse, recycle, and regenerate consumable resources on board a spacecraft, rather than carrying them all with you and then throwing away the waste,” said Christine Escobar, vice president of Space Lab and principal investigator for the microgravity LilyPond.

Exposing the payloads to more than two minutes of microgravity, the New Shepard flight should enable researchers to understand how their technologies respond to the reduced gravity environment of space.

Also aboard will be sensors and specialized software that are fundamental to NASA’s Safe and Precise Landing – Integrated Capabilities Evolution (SPLICE) technology suite. This flight test, the first of two under a **Tipping Point partnership** supported by Flight Opportunities and **NASA’s Game Changing Development Program**, aims to demonstrate the performance of two NASA-developed precision landing sensor systems, advanced algorithms, and a new computer.



Masten's Xodiac vertical takeoff vertical landing (VTVL) system lifts off from a launchpad in Mojave, California on Sept. 10, 2020 carrying a navigation payload from Psionic. NASA Photo/Lauren Hughes.

Psionic’s Navigation Doppler Lidar Tested on Masten’s Xodiac Successful test is the latest advancement for the NASA spinoff technology

On Sept. 10, a navigation doppler lidar (NDL) technology originally developed by NASA Langley was successfully tested on the Xodiac vehicle from Masten Space Systems in Mojave, California with support from Flight Opportunities. **Licensed in 2016 by Psionic** for both terrestrial and space applications, the NDL technology is designed to aid precision lunar and planetary landings. It transmits laser beams to the ground that bounce back to a sensor, providing information about the lander’s velocity and distance relative to the ground.

The successful flight test advanced the technical readiness level of Psionic’s latest iteration of NDL with a representative lunar landing trajectory. The company acquired data that will help advance the

robustness of the sensor-to-navigation computer interfaces. Both Psionic and Langley are continuing research, development, and testing of NDL in collaboration with commercial partners to continue advancing the technology's state of the art in advance of deploying the technology on landers bound for the Moon. Langley is also slated to test NDL technology on this month's launch of Blue Origin's New Shepard (see story above), along with several other NASA-supported innovations.

To learn more about the technology and the ongoing work among NASA and its commercial partners to advance NDL, [read the full NASA web feature](#).

Opportunities

Civilian Commercialization Readiness Pilot Program (CCRPP) Application Period Opens October 26

NASA's SBIR/STTR Program is offering the CCRPP for fiscal year 2021. The program is open to companies with prior SBIR/STTR Phase II awards resulting from Phase I awards that started in Program Year 2010 or later and whose base Phase II period of performance is completed by December 7, 2020.

The primary objective of CCRPP is infusion or commercialization. *For projects in which suborbital flight testing is applicable, the Flight Opportunities program may be an external investor. Read more about potential [Flight Opportunities investments](#) on the program website.*

CCRPP Application Period: Oct. 26, 2020 – Dec. 7, 2020

[Learn more.](#)

Astrophysics Pioneers Program Extends Proposal Deadline to October 8

NASA's ROSES-2020 Amendment 54 has delayed the due date for proposals to D.16 "[Astrophysics Pioneers](#)" to give more time for proposers displaced by fires in the west.

Proposals are now due October 8, 2020.

The Astrophysics Pioneers program element of ROSES solicits proposals for astrophysics space and sub-orbital science investigations that are greater in cost, scope, and capability than normally possible within ROSES (e.g., the Astrophysics Research and Analysis program - [D.3 of ROSES-2020](#)), but of lesser cost than the Astrophysics Explorers Mission of Opportunity program (e.g., [PEA O of SALMON-3 for the 2019 opportunity](#)).

Join Us for One-on-One Sessions at the Innovation and Opportunity Conference

Registration is now open for the **Innovation and Opportunity Virtual Conference, Oct. 20-22, 2020**. Brought to you by the NASA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program, this free conference is structured to provide small companies with resources, engagement opportunities, and actionable next steps towards transitioning their technology, both for organizations just starting their SBIR/STTR journey or pursuing a Phase III award.

Flight Opportunities team members will be available at the event for one-on-one meetings with members of the commercial space community and those interested in learning more about the program. During the registration process, be sure to indicate your desire to sign up for one-on-ones, and you will receive additional information from the conference organizers on how to schedule the meetings.

Join Us for ASCEND Online in November, and ASCENDxSummit Now

Flight Opportunities representatives will be speaking at this fall's **ASCEND conference**, and also plan to participate in the conference's ongoing ASCENDxSummit, a series of online presentations, panels and workshops bringing together technical and business leaders from the space community. Registrants for ASCEND are automatically registered for the Summit series, and you can also **register for the ASCENDxSummit series for free**.

ASCEND online: Nov. 16-18, 2020

ASCENDxSummit: Several ongoing monthly events (currently in progress)

Flight Opportunities Program Manager John Kelly will be a panelist for the **Space Policy and Education** session on October 21.

Register for ASCEND (includes Summit) — **Register for Summit only** (free)

Mark Your Calendar for Other Upcoming Events

- **SpaceCom Expo: Oct. 19-29** (online)
- **American Society for Gravitational and Space Research (ASGSR) Virtual Meeting: Nov. 5-6, 2020** (online)

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