



Pacific International Space Center for Exploration Systems



NEWSLETTER

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@PISCES_HAWAII

Virgin Galactic Successfully Launches 3rd Test Flight in Preparation for Commercial Tours

Virgin Galactic successfully launched its third human space-flight last month, marking a new milestone in the path toward space tourism. On May 22, the company's VSS Unity spaceship rocketed into space with a horizontal take-off after detaching from its mother ship, VMS Eve, at roughly 50,000 feet.

Piloted by CJ Sturckow and Dave Mackay, Unity blasted up to Mach 3 before reaching apogee some 55 miles above New Mexico. Both pilots commented on the breathtaking view where the curvature of the Earth was visible as a blue arc set against the black expanse of space.

The test flight was the first Virgin Galactic launch from Spaceport America, a licensed commercial spaceport located in Jornada del Muerto desert basin in New Mexico.

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Above: VSS Unity rockets into space after a horizontal launch above New Mexico. Credit: Virgin Galactic

Message from the Director

This year has been by far the most challenging for PISCES in the legislative session. Until recently, everything seemed to point towards PISCES being transferred from the Department of Business, Economic Development and Tourism (DBEDT) to the University of Hawaii at Hilo,

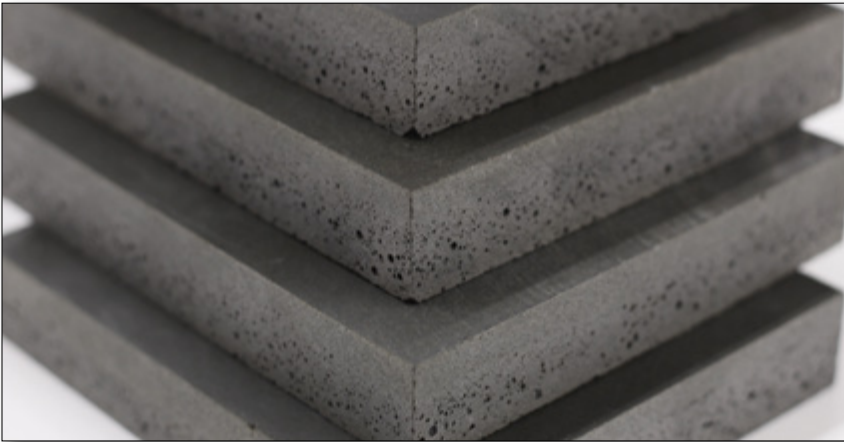
and for funds to be available for our operations. However, the situation now, both with regards to the transfer to UH and the funding of the program, seems to have a high level of uncertainty. We continue to work closely with legislators to find a solu-

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Rodrigo Romo

Masten & PISCES Named Among Top 3D Printing Projects



Above: PISCES' research to create ISRU basalt tiles will stack up to the challenge of a NASA STTR grant project.

An additive manufacturing project led by Masten Space Systems in partnership with PISCES was named last month among the top 15 most exciting 3-D printing projects funded by NASA this year. 3Dprint.com

recognized the project among more than 300 selected for NASA STTR and SBIR grant funding.

The project aims to develop a low-energy additive construction technique to build infrastructure on the moon and Mars using a novel binding agent. PISCES has been researching basalt sintering using heat; the inclusion of a binder in an aqueous solution would eliminate the requirement of a high-energy input. Initial tests have shown the binding agent will also work in the vacuum of space, and could be a game changer for additive manufacturing applications on other worlds.

Continued: Virgin Galactic Successfully Launches 3rd Test

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Spaceport America is the first facility of its kind in the world, designed and built specifically for commercial space purposes.

"Fifteen years ago, New Mexico embarked on a journey to create the world's first commercial spaceport," Virgin Group founder Sir Richard Branson said in a statement. "[On May 22], we launched the first human spaceflight from that very same place, marking an important milestone for both Virgin Galactic and New Mexico."

The test flight completed several objectives: gathering data for the FAA to clear Unity for commercial

spaceflights, testing a new digital steering control system, and resolving a problem with electromagnetic interference.

In addition to tourism, Virgin Galactic's flights are also intended for scientific research in microgravity and professional astronaut training.

Three additional test flights are planned this summer before commercial flights can begin. This latest flight was the first in more than two years.

Below: A tail camera captures VSS Unity reaching the height of its flight, overlooking Earth some 55 miles above New Mexico. Credit: Virgin Galactic



Cont: Message from the Director

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tion to the situation, especially the funding side. But the truth is, there is the possibility that PISCES will have to close down by the end of June.

Meanwhile, our Geology Technician Kyla Edison is wrapping up her work in preparation to go to the Colorado School of Mines to join their PhD Program in Space Resources. Kyla is an exemplary person who started with us as a summer intern and, given her dedication, earned a spot with PISCES through an STTR grant. She later became a full-time employee. Her work has been recognized in the ISRU community and earned her this wonderful opportunity. While we are going to miss her, we are very proud and happy for Kyla and wish her the best in her new adventure.

We are also about to start work on the STTR grant we received in collaboration with Masten Space Systems on a low-energy method for constructing lunar landing pads. We have high expectations of this technology and believe it could be a game changer for lunar infrastructure construction.

Finally, we are preparing our 7th annual STARS program this year. Due to lingering COVID-19 concerns, we are modifying the structure of the program to ensure everyone's health and safety. But the program still promises to be a fun and exciting week. The students will learn about

astronomy, build and launch their own rockets and have the opportunity to enter a rocketry competition. Students will also learn how to build their own telescopes and fly small drones. We can't thank enough our partners and especially our sponsors for this event: Microsoft, Caterpillar and the Hawaii Science & Technology Museum.

In economic development, we have been in talks with Dawn Aerospace, a New Zealand company with an innovative approach to launching small payloads into suborbital trajectories. They have expressed interest in doing flights from Hawaii and we are setting up a meeting between them and state lawmakers.

It has been a difficult month, and we are trying to find a solution to our situation in the hope that we will be able to continue doing our work in economic development, workforce development, applied research and outreach. To all of those who have provided support to PISCES this year, mahalo nui from the bottom of our hearts.

A hui hou,



Rodrigo Romo
Program Director



4th Annual EMER-GEN Program Returns in September



The 4th annual EMER-GEN program for young professional and students interested in space careers will return to Maui during Sept. 12 to 14. EMER-GEN is a joint initiative of the AMOS Conference (happening Sept. 14 to 17) and the Space Generation Advisory Council (SGAC). With the help of guest speakers and advisors from industry, government, academia and NGOs, the program will offer:

- **Mentoring** with renowned space specialists from the public sector (military and civil), private sector, and non-governmental organizations;
- **Networking** with other young professionals;
- **Technical Short** courses presented by specialists in space situational awareness;
- **Professional Development** sessions to enhance participants' effectiveness in a global environment.



The 2021 program includes three pre-event webinars with a focus on fostering innovation and entrepreneurship among the cohort. Throughout the program, participants will be challenged to solve a problem to create new opportunities for space-based technologies.

Scholarships are available for Hawaii-based residents. Learn more about the program, event schedule and how to apply at <http://www.emer-gen.com>.