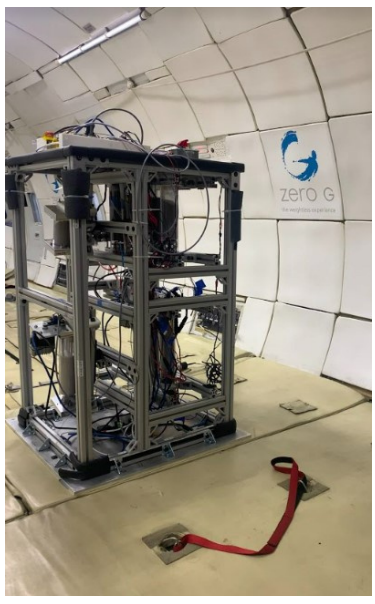
STRATA-2P

a parabolic flight experiment to advance our knowledge of studying lunar regolith



who

The University of Central Florida
Southwest Research Institute
Exolith Labs

what

The testing of tools and experimental techniques that can be utilized to further understand the properties and interactions of multiple types of lunar regolith in varying gravity environments.

where

Experiments are designed to fit inside tubes that contain lunar regolith simulants. Tubes can be evacuated to vacuum environments. These tubes mount to a rack that is designed to fly onboard the Zero G Parabolic Flight airplane.

when

Experiments are conducted during all 30 parabolas during the nearly 2 hour flight. Each parabola includes approximately 20-30 seconds of either Lunar, Martian, or Zero Gravity during which the experiments can take place. The Strata-2P team worked together throughout 2021 and 2022.

why

Future missions to the moon will need to utilize materials that are already available on the lunar surface. Understanding the electrical, compression, and thermal properties of regolith will allow for the design of spacesuits to function in lunar environments and astronauts to use regolith as a resource.

how

A rack bolted to the Zero G parabolic flight vehicle holds tubes that contain different experiments. The team operates the mechanisms within each tube to start data collection. Cameras, sensors, and data collection devices within and around each tube allowed us to observe and analyze the regolith properties and interactions during each of the 30 parabolas of reduced gravity environments - Martian, Lunar, and zero.