

# SwRI's BORE microgravity payload flies aboard commercial suborbital spaceflight

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A Southwest Research Institute (SwRI) experiment designed to assess the surface properties and processes of near-Earth asteroids successfully flew aboard Blue Origin's New Shepard space vehicle April 2.

The Box of Rocks Experiment (BORE) consists of two transparent boxes enclosing two types of rocks that simulate an asteroid's regolith—the layer of loose, heterogeneous material covering small asteroids. Video cameras recorded the piles of rocks through the entire flight. Researchers will now track and analyze the rocks' movement from frame to frame to better understand the dynamics involved in the formation and evolution of coarse regolith on small asteroids.

"BORE was designed as a simple, no-moving-parts experiment to study the settling effects of regolith," said Dr. Dan Durda, BORE principal investigator, of the SwRI Space Science and Engineering Division. "We know very little about the low-gravity geological processes on the surfaces of these small bodies. Even watching the jostling behavior during low-speed collisions as these regolith simulants settle in microgravity can teach us a lot about what to expect as we set off to explore them."

BORE is one of three experiment payloads designed and developed for eventual human-tended suborbital spaceflight under SwRI's suborbital science program, led by Associate Vice President Dr. Alan Stern.

"This is an exciting time," said Stern. "Congratulations to Blue Origin

and the BORE team. We are looking forward to many more flights and many more kinds of experiments in the coming era of commercial suborbital space flight."

The BORE payload flew in collaboration with a University of Central Florida experiment called COLLIDE as part of Blue Origin's Pathfinder Payloads program.

Provided by Southwest Research Institute

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