

# Rhea Space Activity to Test Hypersonic GPS-Denied Navigation Payload on Varda W-6 Mission

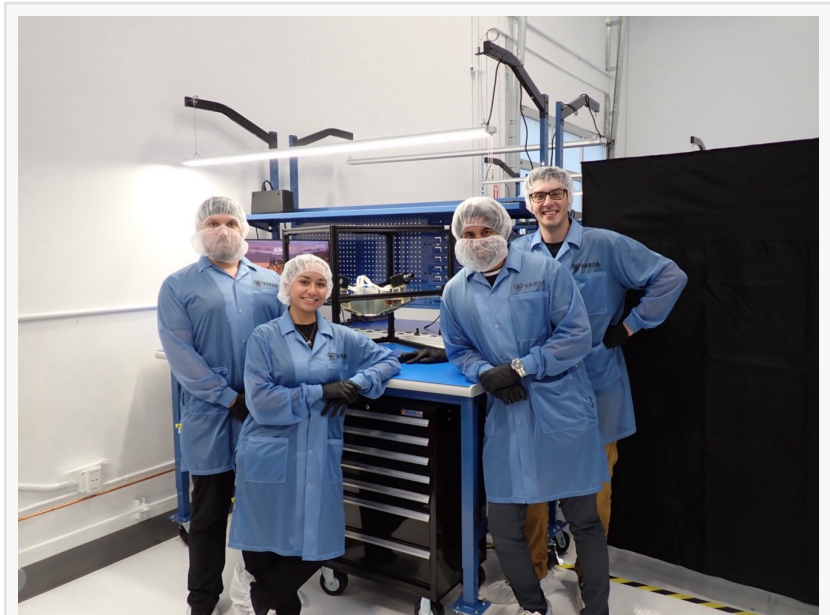
*Launch Will Test GPS-denied Navigation Module During Atmospheric Reentry*

WASHINGTON, DC, UNITED STATES, March 31, 2026 /EINPresswire.com/ -- Rhea Space Activity (RSA) is launching a hosted payload on Varda's W-6 Mission. Comprising two cameras and a flight computer, the unit will collect imagery during the hypersonic flight to further test the company's AutoNav autonomous navigation system.

The launch will allow RSA to test its proprietary algorithm, AutoNav, on a hypersonic vehicle. AutoNav was originally developed by JPL for NASA's Deep Impact mission to autonomously steer a projectile into a comet at a speed of 22,000 mph, resulting in an explosion equivalent to 4.8 tons of TNT. The software takes photos of space and looks for resident space objects - stars and low-earth-orbit satellites - cross-referencing them with known objects in the U.S. Space Force's Unified Data Library to determine position.

"AutoNav is a high-TRL deep space technology, but it has never been used on a hypersonic vehicle during atmospheric reentry. Collecting imagery of LEO-satellites during reentry is especially challenging, as we have to see through the plasma sheath that envelops the reentry vehicle as it penetrates the Earth's atmosphere. Our team developed a custom camera system informed by spectrographic surveys of Starlink satellites at the Magdalena Ridge Observatory to ensure we can navigate during the RF blackout period associated with reentry," said RSA's Founder and CEO, Dr. Shawn Usman.

The plasma sheath that envelops space capsules during reentry into the atmosphere creates a radio blackout. This is why the Apollo-13 astronauts lost radio communications during



RSA's engineering team and payload at Varda headquarters.

atmospheric reentry on their return to Earth. GPS signals, which operate in the radio-spectrum, are also blocked during reentry, meaning that they cannot be used during hypersonic flight. "Celestial navigation through the plasma sheath is a reliable way for reentry systems to navigate during GPS and radio blackout periods," said Elliott M. Sanders, National Security Coordinator at RSA.

The unique conditions beyond Earth's atmosphere - the vacuum of space, extreme temperature fluctuations created by sunlight and shadow, and various types of radiation - required a rigorous testing campaign as the flight unit was being built. "To qualify several of the components for space flight, we implemented vibration, thermal vacuum, and electromagnetic interference (EMI) testing. We also worked with a specialized provider to drill vents into our off-the-shelf cameras, preventing damage in exoatmospheric environments," said Jake Singh, principal investigator on the project and one of RSA's Guidance, Navigation, and Control (GNC) engineers.

"Once this GPS-denied navigation capability is proven in the representative environment, we expect to deploy it on a variety of hypersonic systems on a global scale," said Dr. Usman.

Varda's W-6 Mission is expected to launch from Vandenberg SFB, CA, in March of 2026 - with RSA's navigation test kit aboard.

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Rhea Space Activity, Inc. (RSA) is a team of brilliant minds applying advanced and disruptive tech to solve the world's security challenges. RSA specializes in innovative solutions for secure communication and reliable navigation in challenging environments. The company is headquartered in Washington, DC, with subsidiaries in the United Kingdom and Australia.

For more information, please visit [www.rheaspaceactivity.com](http://www.rheaspaceactivity.com).

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