

New camera system to offer high-resolution images and video of lunar landings

July 2 2019, by Alan Fischer



The Heimdall camera system. Credit: Malin Space Science Systems

A new spacecraft-mounted camera system funded by NASA is poised to return the first high-resolution video of a landing plume as it lands on the moon.

The Heimdall [camera system](#) project, headed by Planetary Science Institute Senior Scientist R. Aileen Yingst, consists of four color cameras and a DVR to store images until they can be uplinked to Earth.

"The [camera](#) system will return the highest resolution images of the undisturbed lunar surface yet obtained, which is important for understanding regolith properties," Yingst said. "We will be able to

essentially video the [landing](#) in [high resolution](#) for the first time, so we can understand how the [plume](#) behaves—how far it spreads, how long particles are lofted. This information is crucial for the safety of future landings.

"Like its namesake in Norse mythology Heimdall the watchman of the gods, the Heimdall camera system has broad vision—it is designed to image a lunar landing site from above the horizon to the ground directly below the lander," said Yingst, Principal Investigator on the project. "Also like its namesake, it is a shapeshifter; the system has flexible mounting options adaptable to a range of payload or mission goals."

Heimdall includes a wide-angle descent imager positioned to capture near-video-speed images of the interactions of the exhaust plume with the [lunar regolith](#), and a narrow-angle regolith imager positioned looking down, to image the surface at approximately 35 $\mu\text{m}/\text{pixel}$ (less than the width of a human hair). Two wide-angle panoramic imagers will be positioned to look outward at the landscape.

PSI Research Scientist Ryan Watkins is part of the Heimdall team. She will be studying the interaction of rocket exhaust plumes with the surface of the moon, and will create digital terrain models.

"We will characterize potential landing sites, which will be informative for future missions to the moon," Watkins said. "Heimdall will help ensure safe landings, and give us great science data in terms of the geology of the landing sites."

Provided by Planetary Science Institute

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