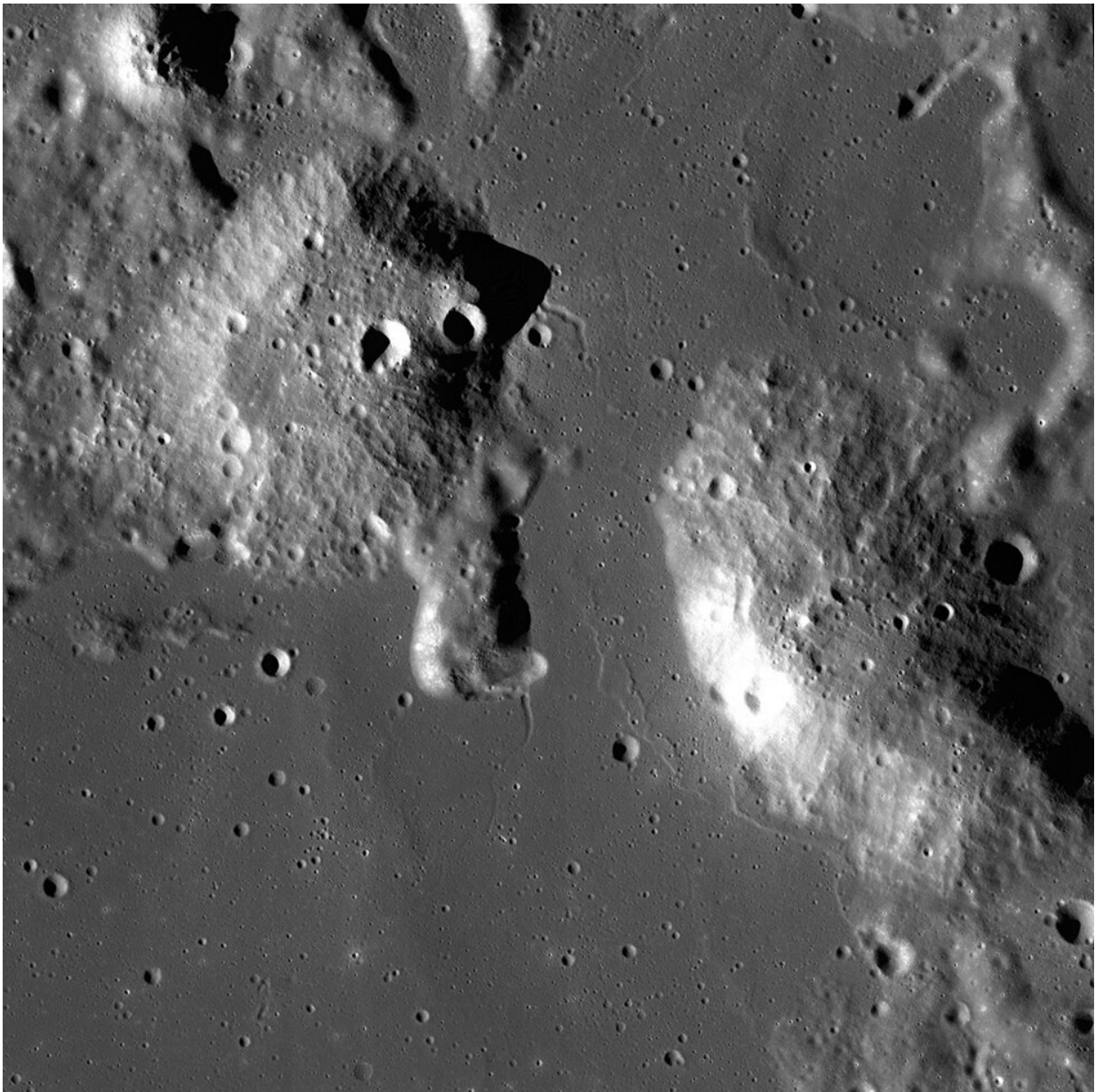


NASA selects new instruments for priority Artemis science on moon

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NASA is planning to send a lander and rover to the beautiful Gruithuisen Domes, seen in this controlled mosaic, and LROC images will help guide the way. The domes are located at 36.3° N, 319.8° E. Image 55 km wide, north is up. Credit: NASA/GSFC/Arizona State University

Adding to the growing list of commercial deliveries slated to explore more of the moon than ever before under Artemis, NASA has selected two new science instrument suites, including one that will study the mysterious Gruithuisen Domes for the first time.

These payload suites mark the second selection through the agency's Payloads and Research Investigations on the Surface of the moon (PRISM) call for proposals. Both payloads will be delivered to the lunar surface on future flights through NASA's Commercial Lunar Payload Services (CLPS) initiative, which is one part of the agency's larger lunar exploration architecture planned for this decade.

"The two selected studies will address important scientific questions related to the moon," said Joel Kearns, deputy associate administrator for exploration in NASA's Science Mission Directorate. "The first will study geologic processes of early planetary bodies that are preserved on the moon, by investigating a rare form of lunar volcanism. The second will study the effects of the moon's low gravity and radiation environment on yeast, a model organism used to understand DNA damage response and repair."

The Lunar Vulkan Imaging and Spectroscopy Explorer (Lunar-VISE) investigation consists of a suite of five instruments, two of which will be mounted on a stationary lander and three mounted on a mobile rover to be provided as a service by the CLPS vendor.

Over the course of 10 Earth days (one lunar day), Lunar-VISE will explore the summit of one of the Gruithuisen Domes. These domes are suspected to have been formed by a sticky [magma](#) rich in [silica](#), similar in composition to [granite](#). On Earth, formations like these need oceans of liquid water and plate tectonics to form, but without these key ingredients on the moon, lunar scientists have been left to wonder how these domes formed and evolved over time.

By analyzing the [lunar regolith](#) at the top of one of these domes, the data collected and returned by Lunar-VISE's instruments will help scientists answer fundamental open questions regarding how these formations came to be. The data also will help inform future robotic and human missions to the moon. Dr. Kerri Donaldson Hanna of the University of Central Florida will lead this payload suite.

The second selected investigation, the Lunar Explorer Instrument for space biology Applications (LEIA) science suite, is a small CubeSat-based device. LEIA will provide biological research on the moon—which cannot be simulated or replicated with high fidelity on the Earth or International Space Station—by delivering the yeast *Saccharomyces cerevisiae* to the lunar surface and studying its response to radiation and lunar gravity. *S. cerevisiae* is an important model of human biology, especially in the areas of genetics, cellular and molecular replication and division processes, and DNA damage response to environmental factors such as radiation. The data returned by LEIA, in conjunction with previously existing data from other biological studies, could help scientists answer a decades-old question of how [partial gravity](#) and actual [deep space radiation](#) in combination influence [biological processes](#). Dr. Andrew Settles of NASA's Ames Research Center in Silicon Valley, California will lead the LEIA payload suite.

With these selections in place, NASA will work with the CLPS office at the agency's Johnson Space Center in Houston to issue task orders to

deliver these payload suites to the moon in the 2026 timeframe.

For these payload suites, the agency also has selected two project scientists to coordinate science activities for the selected instrument suites, including working with the payloads on landing site selection, developing concepts of operations, and archiving science data acquired during surface operations. Dr. John Karcz of NASA Ames Research Center in California will coordinate the Lunar-VISE investigation suite for delivery to the Gruithuisen Domes, and Dr. Cindy Young of NASA's Langley Research Center in Hampton, Virginia, will coordinate the LEIA investigation suite for delivery.

CLPS is a key part of NASA's Artemis lunar exploration plans. The science and technology payloads sent to the moon's surface will help lay the foundation for human missions on and around the [moon](#). The agency has made seven task order awards to CLPS providers for lunar deliveries between in the early 2020s with more delivery awards expected through 2028.

Provided by NASA

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