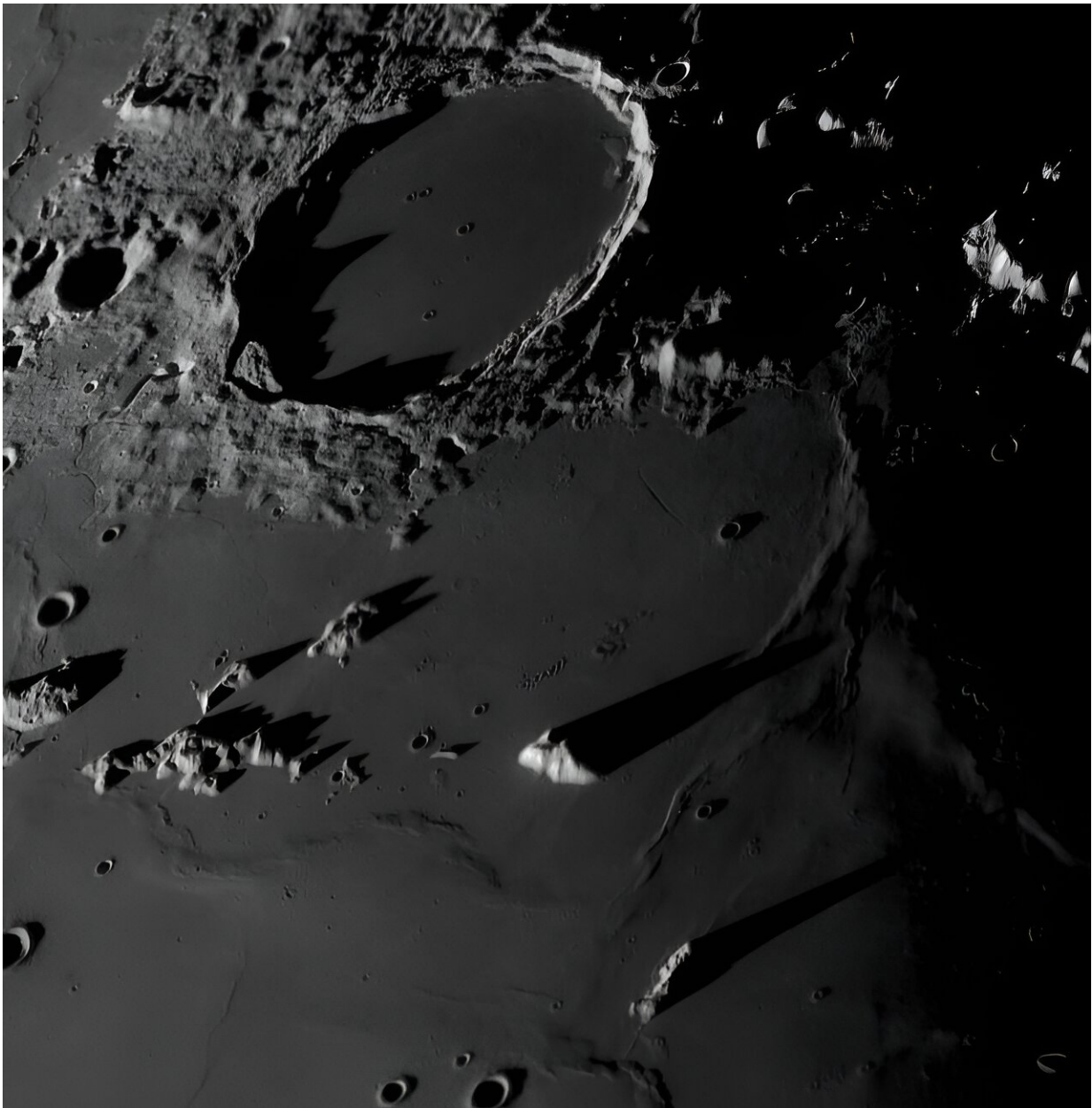


ESA is stockpiling simulated regolith for the ultimate lunar playground

December 26 2023, by Mark Thompson



Credit: NASA

Testing interplanetary landers means putting them in an environment as close to their destination as possible. Mars landers are often tested in the "Mars Yard" at NASA's Jet Propulsion Laboratory in South California, and now ESA is looking to build a similar test bed for the moon. They are mining a material in Greenland known as anorthosite to create the largest lunar test bed yet.

This amazing project has seen the European Space Agency enter into a partnership with Lumina Sustainable Materials to provide some rock samples that are similar to material found on the [moon](#). The international ESA team is made up of scientists from the VULCAN Facility in the UK and the LUNA facility in Germany—both part of the agency's preparations for long-term human and robotic spaceflight to the moon.

There are many challenges in exploring the moon's surface but its fine powdery nature makes it difficult for locomotion but also in clogging up moving parts in landers. The plan is to develop a testbed at the LUNA German Aerospace Center to replicate the lunar regolith, the fine powder dust covering the surface of the moon.

At the VULCAN test center, there is a collection of terrestrial samples that are very similar to the [lunar regolith](#) and it is these that are going to be used to develop the testbeds.

The team plans to develop a site that will measure 700 square meters and replicate the lunar mare [surface](#). A second smaller bed will simulate the lunar highland. To achieve this will require about 20 tons of anorthosite, a light colored igneous rock. A unique technology for mining the

material has been developed that relies upon no [chemical processes](#) enabling any waste to be safely returned to the environment, supporting the ESA sustainability strategy.

The team was able to see firsthand how the material was mined and processed giving valuable insight into handling large volumes of dusty material. Drawing on the valuable in-house expertise from the Lumina team, the ESA groups learned how to best control a dusty test environment. The test centers for [lunar surface](#) are due to be running some time during 2024 but the exact date is still to be confirmed.

Provided by Universe Today

Citation: ESA is stockpiling simulated regolith for the ultimate lunar playground (2023, December 26) retrieved 29 April 2024 from <https://phys.org/news/2023-12-esa-stockpiling-simulated-regolith-ultimate.html>

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