The natural lunar regolith simulant from Lower Silesia basalts

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The production of a natural lunar regolith simulant is essential for advancing space technologies, especially in the context of lunar exploration. Due to the limited availability of natural lunar regolith analogues, this study focuses on identifying suitable raw materials from Lower Silesia, Poland. The research involves chemical and mineralogical analyses of basaltic rocks and mine dust from this region, comparing them with lunar samples collected during Apollo and Luna missions.

The findings highlight the potential of Lower Silesian basalts to serve as a viable substitute for lunar regolith, with the added benefit of utilizing basaltic dust, a byproduct of mining activities, in the production process. The next phase will focus on refining the particle size and incorporating impact glass, a significant component of lunar soil, to create a Polish natural lunar regolith analogue. This development will provide a valuable resource for space research and technology innovation.