Review of: "Falling Objects and Dust Particles' Motion in the "Collecting Lunar Rock on the Buster Crater" Sequence of the Apollo XVI Footage"

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Potential competing interests: No potential competing interests to declare.

The summary and observations of the research article titled “Falling Objects and Dust Particles' Motion in the "Collecting Lunar Rock on the Buster Crater" Sequence of the Apollo XVI Footage” are as follows:

Overall comments:

One of the primary contributions of this manuscript is its ability to validate or challenge existing motion models under lunar conditions. By examining the dust particles' motion and the behavior of falling objects in the lunar environment, the study provides empirical data that can either support or call into question the assumptions made in theoretical models. This is crucial for refining our understanding of lunar dust dynamics, which has implications for future lunar missions and the development of technologies and strategies for operating on the lunar surface.

This manuscript enhances the existing body of research on lunar dust dynamics by integrating previous studies and introducing advanced analytical methods to trace and analyze dust particles' movement during the Apollo XVI mission. Through meticulous tracking and comparison with theoretical models, the study provides valuable insights into the kinematics of lunar dust and the environmental conditions of the lunar surface, contributing to the broader goal of improving our understanding and capabilities for lunar exploration.

Specific comments:

1. “550 meters west of the LM on the southern rim of Buster Crater” – LM is mentioned for the first time; abbreviation not available.
2. Fall of the Lunar Rock Bags Dispenser section is well written and mathematically derived systematically.
3. Collection of cataclastic anorthosite 62275 section – “they are intrusive magmatic rocks that characterize the high lunar lands and the Precambrian shields on Earth.” – Rather than the above lines, it can be written as follows: “Anorthosite is a type of igneous rock predominantly composed of plagioclase feldspar, often found in the lunar highlands,” which provides the correct geological meaning.
4. Figure D22 – Calibration of the measuring system – Kindly enlarge the values in the figure; presently not visible
5. Mention the software used for plotting graphs and calculations worked on, i.e., Matlab or Excel.
6. Kindly add a conclusion section to the manuscript.