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ELECTRODYNAMIC REGOLITH CONVEYOR SUB-ORBITAL FLIGHT EXPERIMENT

Abstract

The Electrodynamic Regolith Conveyor (ERC) is a technology that is being developed for soil sampling, beneficiation, specialized conveying applications and dust mitigation. The ERC is an extension of the Electrodynamic Dust Shield (EDS). The EDS has been developed for lenses, solar panels, radiators, fabric, and other applications and is scheduled for a technology demonstration mission on the Moon in 2024. The objective of the ERC sub-orbital flight experiment is to perform testing to advance the TRL of the ERC technology by measuring the regolith transport flow rate, power consumption and range of particle trajectories at four different inclinations in a simulated lunar gravity environment. This testing supports discrete element modeling efforts by grounding the simulations with test data.