**LABORATORY INVESTIGATION OF THE ROLE OF INITIAL CONDITIONS OF ELECTROSTATIC DUST LOFTING.**

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**Introduction:** Electrostatic dust lofting has been postulated as a mechanism behind various phenomena on airless planetary bodies. Recently, a patched charge model was developed and confirmed by experiments, demonstrating that negative charge can accumulate on the surfaces of microcavities in the regolith and the mutual repulsive force causes dust to become transported or mobilized. In this paper, we present the results of laboratory experiments which characterize initial conditions of lofted dust, including the charge, size, velocity, and lofting rate. We find, as predicted by the patched charge model, that all lofted particles are charged negatively, regardless of whether they were exposed to UV radiation or electron beam. Large aggregates of particles were also lofted, approaching diameters of up to 140 microns. Extrapolating from laboratory experiments on the rate at which dust lofts, we show that dust lofting could reach a peak rate of several particles$\cdot$cm$^{-2}\cdot$s$^{2}$ on the surface of airless bodies at 1AU. This rate could be sufficient to sustain phenomena such as the lunar horizon glow. Preliminary results suggest that small particles have higher initial velocities than large particles and that particles on the order of 10 microns in diameter are lofted at a velocity on the order of 1 m/s. However, since cohesive forces vary drastically, the launch velocity has a wide distribution. These results are critical for future studies to understand dust dynamics on airless bodies.