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Abstract for an Invited Paper
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The Lunar Environment¹

MIHALY HORANYI, University of Colorado Boulder

This talk will summarize the recent results from Lunar The Lunar Dust Experiment (LDEX) onboard the Lunar Atmosphere and Dust Environment Explorer (LADEE) mission. LDEX discovered a permanently present dust cloud engulfing the Moon. The cloud is non-spherical, showing higher densities in a direction canted towards the Sun from the lunar orbital motion. The size, velocity, and density distributions of the dust particles are consistent with ejecta clouds generated from the continual bombardment of the lunar surface by sporadic interplanetary dust particles. Intermittent density enhancements were observed during several of the annual meteoroid streams, especially during the Geminids. LDEX found no evidence of the suspected density enhancements over the terminators where electrostatic processes were predicted to efficiently loft small grains. The talk will conclude by summarizing our current understanding of the interactions of the solar wind plasma flow and UV radiation with the lunar surface, and the possible generalization to other airless bodies in the solar system.

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