



Correlations between LDEX Measurements and the Lunar Plasma Environment

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The Lunar Dust Experiment (LDEX) aboard the Lunar Atmosphere and Dust Environment Explorer (LADEE) is an impact ionization dust detector capable of measuring the mass of sub-micron sized dust grains above the lunar surface. LDEX can also search for the putative population of grains with radii on the order of $\sim 0.1 \mu\text{m}$ lofted over the terminator regions by measuring the collective current of dust grains that are below the detection threshold for single impacts. This current, intended to measure the collective impact plasma from multiple small grain impacts, has also shown considerable correlations with plasma measurements from the ARTEMIS (Acceleration, Reconnection, Turbulence, & Electrodynamics of Moon's Interaction with the Sun) mission. Through LADEE's many orbits, LDEX sees time periods with very low variability, having almost no activity as well as periods with very high variability. Since this type of high activity is also observed in anti-ram pointing measurements, much of this current cannot be explained by collections of small dust grain impacts. Given this, comparisons to ARTEMIS data provide a promising way to explain such measurements. This presentation will focus on the correlations between LDEX and ARTEMIS data.