

Constraining low-altitude lunar dust using the LADEE/UVS data

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Abstract. Dust-sized particles have been observed above the Moon's surface by a variety of remote-sensing and in-situ instruments. These particles could be launched by micrometeorite impacts and/or levitated by electrostatic forces. Studying lunar dust and its implications is vital to lunar exploration and other airless planetary bodies. The Ultraviolet-Visible Spectrometer (UVS) instrument which flew on the Lunar Atmosphere and Dust Environment Explorer (LADEE) spacecraft made a series of Almost Limb activities to look for lunar dust at low altitude after S/C crosses the terminator into lunar nightside and with the UVS telescope staring at a fixed location relative to the Sun to keep zodiacal light constant during each Almost Limb activity. The Almost Limb activities occurred late in the mission, when LADEE was decreasing in spacecraft altitude. The spectra obtained from these activities investigate altitude close to 1-3 km above the surface of the Moon. A comparison of this filtered spectra to the simulated radiance modeled using the Fraunhofer Model constrains the dust particle densities.