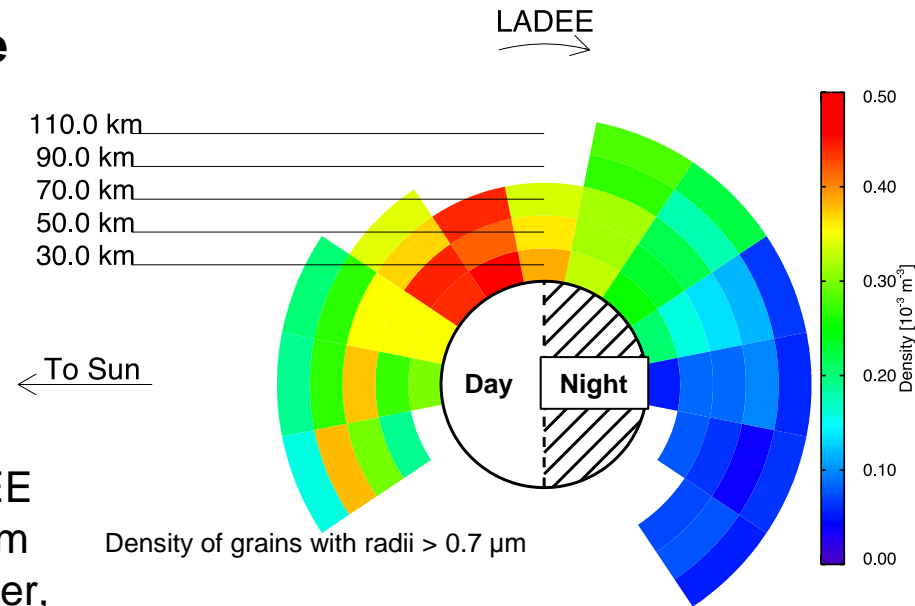


Characterizing the Lunar Dust Environment: First results from LADEE Dust measurements

The discovery of the lunar dust exosphere by the Lunar Atmosphere and Dust Environment Explorer (LADEE) opens the door to new approaches to surface composition studies and will improve our hazard estimates of large ($> 100 \mu\text{m}$) dust impacts.

- The Lunar Dust Experiment (LDEX) on the LADEE spacecraft has recorded over 11,000 impacts from dust particles since arriving at the Moon in October, 2013. It measured dust even in its highest orbit, at 250km above the Moon's surface, much higher than expected.
- These findings confirm that there is a dust cloud engulfing the Moon, created as micrometeorites continually bombard the surface and knock this dust into the atmosphere.
- Intermittently, LDEX has also observed intense bursts of particles, likely dust generated by micrometeorite impacts on the surface that occur just minutes before LADEE passes by.



There is significant variation in the density of impacts of dust particles measured by LADEE at different heights above the surface and at different times of the lunar day. The atmosphere is densest close to the surface, and on the leading edge of the Moon as it moves around the Sun while orbiting the Earth, but was also measured at much higher altitudes than models would have suggested.