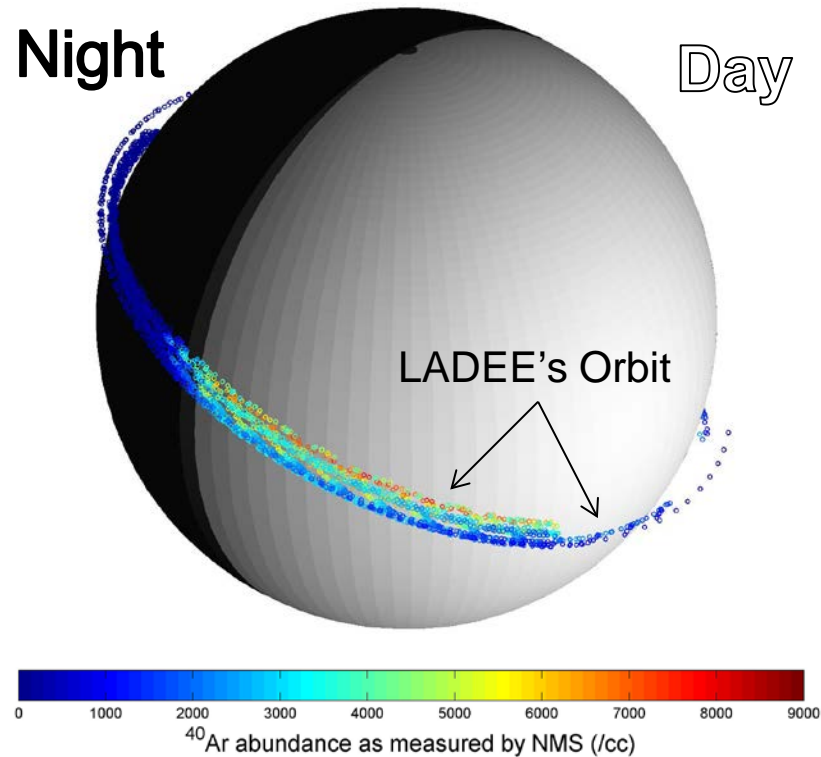


Characterizing the Lunar Atmosphere: First results from LADEE Argon measurements

- The LACE experiment on Apollo 17 detected argon in the lunar atmosphere. However, it was not initially found by the LAMP instrument on LRO, leading to debate over whether argon was a component of the lunar atmosphere.
- The LADEE neutral mass spectrometer (NMS) has resolved this puzzle by not only detecting argon, but also mapping out how argon moves over the course of a lunar day.
- The NMS findings indicate that a very thin layer of Argon sticks to the surface on the cold nightside of the moon (much like frost is deposited during the night on Earth) and is released as the sun heats the surface. After release, these atoms do not immediately escape from the moon, as gravity keeps them within the orbit and they bounce off the warmer daytime surface where they can be detected by the NMS.



- This data set provides the basis for higher fidelity models of the interaction of argon and other gases with the lunar surface, and by extension to other bodies in the solar system that have very thin atmospheres.