

Episodic Water Release on the Moon

New results show episodic releases of water into the tenuous lunar atmosphere, indicative of a dynamic water cycle.

- Observations collected in 2013-2014 by the Neutral Mass Spectrometer on board the LADEE spacecraft showed water releases due to constant meteoroid bombardment of the lunar surface that are most intense when the Moon encounters strong meteor showers.
- The analysis of the amounts of water released during meteor streams of different sizes revealed that the uppermost few centimeters of lunar soil are dry. Below this thin crust, water is uniformly present at concentrations of up to 0.05% per weight.
- The observed release rate is equivalent to a loss of 50 – 200 tons of water per year. This water would have been delivered to the Moon long ago or was present at lunar formation.

The lunar water cycle:

