Small Crater Lifetime on the Moon

Meter- to decameter-scale craters form regularly on the Moon. After formation, they start to widen and fill-in with regolith, and this infilling eventually makes them unrecognizable. We calculated rates for this process. Craters smaller than 4m survive less than 50 million years.

- With estimates for crater production rates and two models for crater equilibrium (where crater destruction and production balance), we evaluated how topography of craters evolves at different scales.
- The lifetime of small craters is much shorter than large craters.
- If VIPER sees water ice in the interior of fresh, small craters, and evidence that it post-dated crater formation, it would imply volatiles were emplaced recently.