

The boundary conditions for alkali exospheres around Mercury and the Moon.

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Summary: A new kinetic simulation of the desorption of sodium and potassium gases from 1mm-thick simulants of porous soils enabled a detailed study of the desorption processes from planetary regoliths. Trapping of a considerable fraction of deposited adsorbates was found at all lunar temperatures, where photodesorption dominates thermal desorption. Additionally, at temperatures relevant to Mercury adsorbates were found to experience high barriers for thermal desorption. Results from these simulations provide guidelines for improved treatment of sources and sinks in global exospheres models for these two species.