SEDIMENTARY ROCKS AND THE INPUT OF NITROGEN FROM WEATHERING REACTIONS WORLDWIDE

BENJAMIN Z. HOULTON¹

¹Department of Land, Air and Water Resources, University of California – Davis, Davis, California, USA

Cases of "missing" chemical elements from a global budgetary perspective abound in the scientific literature. Most elments that interact with the biosphere are inadequately constrained at many scales. Nitrogen may "take the cake" as the most enigmatic; it occurs in dissolved, gaseous, and solid phases, among the atmosphere, hydrophere, biosphere, and pedosphere. Further, recent advances sugget that perspectives of rock nitrogen weathering over Earth history have significant implications for modern-day biogeochemical cycles. This presentation will focus on rock nitrogen weathering fluxes, uncertainty, and pathways forward. In the context of the Chadwick legecy, particlar attention will be placed on using multiple isotopic and modeling approaches to examine rock weathering and its conversion into soil and plant nitrogen pools. As deftly noted by Chadwick and colleagues: the distinction between rock- vs. atmospherically-derived nutrients isn't always that, and the systematic blurring of this boundary is a great testament to Chadwick's enduring impact on the field.