

Geochemistry, Weathering and Other Processes - A Teachable Moment

ADINA PAYTAN¹

¹University of California Santa Cruz, 1156 High Street, Santa Cruz, CA 95064, USA, apaytan@ucsc.edu

Weathering is a key process in the rock cycle and a major player in modulating atmospheric carbon-dioxide concentrations, hence affecting climate on geological time-scales. Because of the centre role this process plays in modulating Earth climate and reflecting changes in tectonics many geochemical proxies have been developed over the years to shed light on present and past rates and modes of weathering (Sr, Li, Os, mineral composition, grain size, sediment accumulation, chemical indices of alteration, and more). Despite this recognition and the inclusion of these processes and relations in text books there is still considerable confusion about the controls (temperature, precipitation, elevation, vegetation, etc.) on different processes (e.g. chemical weathering, physical weathering, erosion, denudation) within this cycle and particularly ongoing debate about the feedbacks in the rock-water-carbon-climate nexus and the appropriate time-scale operation of these feedbacks. In this lecture a brief overview of the history and current ideas in this conundrum will be discussed.