

Oceanography Seminar

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“Rethinking the role of the seafloor in ocean chemistry and long-term climate”

What controls the long-term trajectory of Earth's climate and ocean chemistry? How do marine sediments regulate – and bear witness to – these changes? My research investigates the diverse and dynamic subseafloor geochemical processes interacting with the ocean and long-term changes in climate. In this talk, I will present a new hypothesis supported with empirical evidence that invokes changes in reverse weathering on the seafloor to explain the increase in seawater Mg/Ca and global cooling observed over the past 50 million years. This hypothesis inverts the prevailing mechanisms that require an increase in silicate weathering as the driver of many elemental and isotopic trends over the Cenozoic. Additionally, this research opens avenues to reconsider the role of the seafloor in many (bio)geochemical and climate enigmas.