

Synthesizing paleoecological and paleoenvironmental records of extinctions, Oceanic Anoxic Events, and major carbon-cycle perturbations during the Early Jurassic

There have been numerous significant extinctions and global biogeochemical perturbations throughout the history of life. My research seeks to understand how these significant carbon-cycle perturbation events lead to environmental change and biotic collapse. For example, how do large igneous province eruptions drive shifts in ocean temperatures, oxygenation, and acidification, which subsequently causes extinctions? Unlike larger mass extinctions, the Early Jurassic crisis (~183 million years ago) is one of few major carbon-cycle perturbations that modern marine biota survived with only moderate extinction rates. Therefore, it is the ideal interval to pose the question: under what conditions can ecosystems survive carbon-cycle perturbations? In this seminar I will discuss the research conducted by my team to synthesize geochemical, sedimentological, paleoecological, and taphonomic data about the Early Jurassic extinction event(s) in order to understand what environmental changes occurred globally *versus* locally as well as how different marine communities responded to specific stressors (e.g., heat, acidity, anoxia).