Seafloor experimentation: how modern analogue studies inform paleoceanographic reconstructions

Dr. Ashley Burkett
Assistant Professor - Micropaleontology - Biostratigraphy - Climate
Oklahoma State University

Abstract: Several deployments of SEA3s, Seafloor Epibenthic Attachment Cubes, have resulted in the establishment of elevated epibenthic foraminiferal communities in regions not typically suitable for large populations. These epibenthic foraminifera are commonly used in paleoceanographic reconstructions, especially due to their fidelity in recording bottom water conditions in their carbonate shells. Because many epibenthic foraminifera species are not common in many deep-sea environments, especially those with limited oxygen, insights into their ecologic and geochemical reactions are essential for accurate paleoceanographic reconstructions. In the fossil record, changing environments, like decreases in available oxygen, result in drastic decreases or the disappearance of epibenthic foraminifera. The deployment of experimental materials in various modern deep-sea environments is a potential pathway for geochemical and ecological ground truthing of potentially rare epibenthic foraminifera.