

Over the summer 2014 at UGA, I analyzed authigenic carbonates from the deep continental shelf and slope of the Gulf of Mexico (GOM) from sites Green Canyon (GC600) and Mississippi Canyon (MC118) (1,000 m) using trace elemental geochemical signatures for evidence of microbial communities. I measured rates of denitrification, sulfate reduction and aerobic/anaerobic methane oxidation over set timepoints. Based on the measured rates, there is evidence that microbial communities are abundant and thriving on these carbonate rocks at hydrocarbon seeps in the Gulf of Mexico. For my Honors, I will be conducting petrology analysis on these rocks along with carbonates from sites Outer Continental Shelf-Galveston (OCSG2) and Green Canyon 272 (GC272) to examine the textures and proportions of carbonate cements, incorporated local sediment, and other mineralogic features. By comparing carbonate from different seep localities, I hope to determine the age of the rock samples, along with seepage composition, the length of activity of the seeps the range of microbial activity, and the chemical composition of the rocks.

