Changes to carbonate sediments after they are deposited often occlude geochemical records of important biogeochemical events in Earth history. In this project, we will use a suite of previously collected USGS cores (right) from Enewetak Atoll, Marshall Islands, to evaluate the degree of spatial variability in diagenetic changes across an atoll margin. The PhD student will gain expertise in QQQ-ICP-MS, sedimentology, and statistical analysis of geochemical datasets to develop a 3D perspective of diagenesis in shallow marine settings.