

Elemental Analysis of Lime Mud on Great Bahama Bank: Implications for the formation mechanism of whittings?

The origin of whittings has been a sedimentological dilemma for many decades despite continued research. “Whiting” describes areas of light, cloudy waters where lime-mud (calcium carbonate) is suspended and eventually deposited. Great Bahama Bank (GBB), a large isolated carbonate platform in the Bahamas, is an area with notable whiting formation particularly in the winter. This study aims to identify if African dust contributes to the formation of whittings in GBB by analyzing the chemical compositions, specifically dust relevant elements (Mg, P, S, Fe, Cu, rare earth elements), in the fine fraction of sediment samples from across the platform top. The results show variability in dust-related elements, and further work is focused on resolving these variations. Lime mud is especially important in Earth history because it is the primary type of carbonate observed in deep time before the evolution of shell-bearing organisms. Understanding how lime mud forms allows for better understanding of lime mud in the geologic record.