Foraminiferal and Ostracodal Assemblages Associated with Tempestite Deposition from Baffin Bay, Texas

Van Nieuwenhuise, Donald S.[1] (1) Earth and Atmospheric Sciences, University of Houston, Houston, TX.

The results reported here are parts of a broader study examining tempestite deposition along the Texas coast. The focus of this element of our study is deposition of the cyanobacterial mats near Baffin Bay, Texas, that are punctuated by tempestite deposition. Two cores, one meter each, were taken in 1974 that captured tempestites from Hurricane Carla (1970) and Hurricane Beulah (1967). Mat depositional rates are on the order of 1.25 cm per year whereas tempestite deposits are on the order of 45 cm per event. The thickness of the tempestite deposits relate to the relief of the pond itself at the time storm surge overwhelmed the mat. Sediments display surge and retreat settling stages for each tempestite. Additional cores in other parts of the coast have similar sediment accumulation rates.

In general, periods of relatively quiet deposition are dominated by Cyprideis ovata and Ammonia becarrii s.l. which can tolerate these euryhaline ponds most of the time. The pond we cored at Kleburg Point, like many others along the coast, are occasionally subjected to wind-tide influenced inundation by bay waters and at other times may be subjected to heavy down pours of rain water that cause the overlying ponds to become temporarily freshwater. In the former case microfauna associated with bay conditions may temporarily colonize these ponds. In the latter case these ponds may be colonized by large populations of juvenile molts of freshwater ostracodes suggesting these events are short lived. In contrast, tempestite deposits show clear evidence of additional bay and shallow marine assemblages along with coarse-grained sediments, shell and shell fragments, and significant amounts of mud settling after the retreat of the storm surge.