ALLOGENIC CONTROLS ON PALEO-CHANNEL SYSTEMS: OFFSHORE SOUTH CAROLINA

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ABSTRACT

The post-Miocene paleo-channel systems of the South Carolina have been well documented onshore; however, few studies have focused on the positions and fill histories of these systems on the continental shelf. The research proposed for this application is focused on unraveling the allogenic controls on these systems, specifically in terms of the spatial distribution of the incisions and the depositional history and nature of the fills. In order to investigate these controls on paleo-channel systems, a suite of high-resolution seismo-acoustic data and sediment vibracores will be used to integrate seismic facies and core derived lithofacies to constrain the depositional environments of the fill. Existing offshore datasets have been and will continue to be used to document underlying structural and stratigraphic fabrics older than the post-Miocene in the sedimentary record. By integrating these results with the published tectonic setting and onshore interpretations, some of the controls on paleo-channel positions can be inferred. Additionally, age constraints are necessary to understand the rates of sedimentation and to deduce which external events may have triggered a change in depositional style (if any). Preliminary results suggest the stress caused by the uplift along the Cape Fear Arch has been accommodated by shallow folding and reactivation of deeper structures in the northeastern South Carolina offshore province. The resultant topography may have dictated both the position and geometry of the incisions across the shelf. This in turn could have influenced the accommodation available to be filled in as sea level fluctuates.

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