

A Palinspastic Restoration for the Evolution of the Green Knoll Salt Dome in the Gulf of Mexico

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ABSTRACT

The western portion of the Mississippi/Atwater foldbelt in the Gulf of Mexico contains what is known as the Green Knoll Salt Dome. A 2D palinspastic structural restoration was performed on the flanks of the Green Knoll Salt Dome using Midland Valley's Move software. The creation and growth of this salt diapir is punctuated by salt deposition, salt migration, sediment loading, and is linked to the "Frampton" foldbelt. An earlier study performed a palinspastic restoration on the Frampton foldbelt, and revealed a non-depositional unconformity at the Pliocene-Miocene chronostratigraphic boundary, where increased sedimentation rates caused salt growth to outpace deposition. The restoration performed on the Green Knoll Salt Dome reveals a major change in the structural fabric around the Pliocene-Miocene time intervals. The salt plumed upward through a weak point in the sediment, while the counter-regional reverse-fault-dominated foldbelt structure (exhibited in the Frampton foldbelt) is starting to appear.