Geology - Sedimentary Geology; Researchers from University of Texas at Austin Report New Studies and Findings in the Area of Sedimentary Geology (Stratal Architecture of a Halokinetically Controlled Patch Reef Complex and Implications for Reservoir Quality: a Case Study From ...)

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2019 JUL 12 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Research findings on Geology - Sedimentary Geology are discussed in a new report. According to news reporting out of Austin, United States, by NewsRx editors, research stated, "Widespread carbonate platform growth in the Cretaceous Tethys is associated with expansive reef margin and interior patch reef development. These reefs and their associated facies have the potential to be significant hydrocarbon reservoirs, but characterization is challenging because of complex fades distributions, inadequate understanding of biotic communities and processes impacting their development, and difficulties delineating timelines in systems that build their own topography."

Funders for this research include Reservoir Characterization Research Laboratory (RCRL) at the **Bureau of Economic Geology**, The University of Texas at Austin, RCRL.

Our news journalists obtained a quote from the research from the University of Texas at Austin, "Other factors that may impact underlying topography, such as tectonics or halokinesis, further complicate the story. This study delves into these complexities in a dataset from the Fairway Field, a large oil and gas field (115 km(2), 410 million barrels original oil-in-place) that produces from the Aptian James Limestone in the East Texas Basin, Texas, USA. The field contains a patch reef complex, here defined as an assemblage of patch reefs that grew near each other without necessarily being physically connected, that has significant lateral and vertical facies heterogeneity. Previous attempts at characterization have failed to fully recognize the importance of its proximity to four salt domes, which modified topography and influenced deposition prior to and during reef development. Here, we reassess the stratal architecture of the Fairway Field from a sequence stratigraphic perspective, with the goal of augmenting understanding of timing of reef development and facies distributions and ultimately building a better stratigraphic framework for a halokinetically influenced patch reef complex. Core descriptions and core-calibrated wireline-log correlation across the field yield a model that explains the relationship between halokinetic topography, energy regime, relative water depth, and reef- and reef-associated facies development. Porosity and permeability measurements taken across the field are analyzed to determine best reservoir facies and their distribution. The new stratigraphic model is useful for predicting facies architecture in other analogous reef complexes, such as those elsewhere in the Gulf of Mexico and in the Middle East; its tie to reservoir facies distributions also improves its utility for exploration purposes."

According to the news editors, the research concluded: "Furthermore, this work demonstrates that halokinesis has a major impact on carbonate development and necessitates a new generalized model for halokinetically altered carbonate platforms."

For more information on this research see: Stratal Architecture of a Halokinetically Controlled Patch Reef Complex and Implications for Reservoir Quality: a Case Study From the Aptian James Limestone In the Fairway Field, East Texas Basin. Sedimentary Geology, 2019;387():87-103. Sedimentary Geology can be contacted at: Elsevier Science Bv, PO Box 211, 1000 Ae Amsterdam, Netherlands. (Elsevier - www.elsevier.com; Sedimentary Geology - www.journals.elsevier.com/sedimentary-geology/)

Our news journalists report that additional information may be obtained by contacting K.E. Hattori, University of Texas - Austin, Bur Econ Geol, Jackson School of Geosciences, Austin, TX 78758, United States. Additional authors for this research include R.G. Loucks and C. Kerans.

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