NewsRx™

Energy - Oil and Gas Research; Findings from University of Texas Austin Broaden Understanding of Oil and Gas Research (The Influence of Variable Progradation To Aggradation Ratio and Facies Partitioning On the Development of Syndepositional Deformation In Steep-walled ...)

582 words
22 May 2020
Energy Weekly News
ENRGWK
158
English

2020 MAY 29 (VerticalNews) -- By a News Reporter-Staff News Editor at Energy Weekly News -- Researchers detail new data in Energy - Oil and Gas Research. According to news reporting originating in Austin, Texas, by VerticalNews journalists, research stated, "One of the remaining questions in carbonate geology and reservoir studies is the origin of steep-walled carbonate platform margins and the role of gravity versus other structural processes in controlling the distribution of fracture networks and failure surfaces. This study is an attempt to document the role of gravity, interacting with stratigraphic architecture in controlling fracture patterns and margin collapse."

Financial supporters for this research include Reservoir Characterization Research Laboratory (RCRL), an Industrial Associates program at the **Bureau of Economic Geology**, Jackson School of Geosciences (JSG), AAPG Foundation, Calvert Memorial Scholarship from the Houston Geological Society, Ronald K. DeFord field scholarship from the JSG, UT-Austin.

The news reporters obtained a quote from the research from the University of Texas Austin, "We employ finite-discrete element models to illustrate that progradation/aggradation (P/A) ratio and facies tract partitioning in steep-walled carbonate platforms affects the development, distribution, and intensity of syndepositional deformation. All models are under the influence of only gravitational loading, where pore pressure is held constant. We utilize a modified Mohr-Coulomb constitutive law with a Rankine Rotating crack tensile corner to capture both tensile and shear brittle failure. Our results illustrate that P/A ratio affects the distribution and intensity of discrete fractures that form in steep-walled carbonate platforms. Our results suggest that deformation is more extensive in a progradational carbonate platform, where shelf edge angles are greatest and the clinoform is thickest. Alternatively, aggradational carbonate platforms experience localized deformation in front of the antecedent shelf edge where the clinoform is thickest and steepest. The introduction of mechanical heterogeneity associated with facies tract partitioning affects the intensity of fracturing in both progradational and aggradational models, with the greatest number of fractures developing in reef facies in both scenarios. Development of brittle deformation under the sole application of gravity and lack of seaward lithostatic confinement is consistent with the syndepositional nature of deformation in these settings."

According to the news reporters, the research concluded: "This work illustrates the interplay between carbonate platform geometry, facies distribution, and the resulting syndepositional deformation."

For more information on this research see: The Influence of Variable Progradation To Aggradation Ratio and Facies Partitioning On the Development of Syndepositional Deformation In Steep-walled Carbonate Platforms. Marine and Petroleum Geology, 2020;114():. Marine and Petroleum Geology can be contacted at: Elsevier Sci Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, Oxon, England. (Elsevier - www.elsevier.com; Marine and Petroleum Geology - www.journals.elsevier.com/marine-and-petroleum-geology/)

Our news correspondents report that additional information may be obtained by contacting A. Nolting, University of Texas Austin, Dept. of Geological Sciences, Jackson School of Geosciences, 2275 Speedway, Austin, TX 78712, United States. Additional authors for this research include C. Kerans, Y. Alzayer and C.K. Zahm.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Oil and Gas Research, Energy, Alkalies, Anions, Carbonates, Carbonic Acid, University of Texas Austin.

Document ENRGWK0020200522eg5m0004g