Numerical Modeling; New Data from University of Texas Illuminate Findings in Numerical Modeling (Effect of carbonate platform morphology on syndepositional deformation: Insights from numerical modeling)

515 words
5 October 2018
Science Letter
SCLT
341
English

2018 OCT 12 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Researchers detail new data in Numerical Modeling. According to news reporting out of Austin, Texas, by NewsRx editors, research stated, "We use finite element numerical modeling to show that carbonate platform morphology is a control on syndepositional deformation in steep-walled carbonate platforms. We simulate gravity application on three end-member carbonate platform margin morphologies: (1) a mixed planar-concave up shaped shelf margin from Tobacco Cay, Belize, (2) a concave up shaped system representing the Capitan Profile, Guadalupe Mountains West Texas, and (3) a sigmoidal, Jurassic Amellago ramp."

Financial supporters for this research include Reservoir Characterization Research Laboratory, **Bureau of Economic Geology**, Jackson School of Geosciences, AAPG Foundation, Houston Geological Society.

Our news journalists obtained a quote from the research from the University of Texas, "We model the platform material with a brittle failure criteria that captures tensile and shear failure. We show that the presence of a vertical reef wall and, thereby, lack of lateral confining stress seaward leads to a tensile stress state in the middle of the shelf and the shelf edge, promoting the development of opening-mode (Mode I) tensile fractures. Fractures occur in the absence of additional loading or burial, indicating that their formation is consistent with a syndepositional setting. Overall, OUT results demonstrate that carbonate platforms with a near vertical reef wall are routinely modified by syndepositional deformation and failure in the absence of compaction."

According to the news editors, the research concluded: "We show that zones of high tensile stress can result in brittle, tensile failure and confirm that tensile failure is a critical element of building and may contribute to maintaining steep-walled carbonate platform systems."

For more information on this research see: Effect of carbonate platform morphology on syndepositional deformation: Insights from numerical modeling. Journal of Structural Geology, 2018;115():91-102. Journal of Structural Geology can be contacted at: Pergamon-Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England. (Elsevier - www.elsevier.com; Journal of Structural Geology - www.journals.elsevier.com/journal-of-structural-geology/)

Our news journalists report that additional information may be obtained by contacting A. Nolting, Univ Texas Austin, Dept. of Geol Sci, Jackson Sch Geosci, Austin, TX 78712, United States. Additional authors for this research include C.K. Zahm, C. Kerans and M.A. Nikolinakou.

The direct object identifier (DOI) for that additional information is: https://doi.org/10.1016/j.jsg.2018.07.003. This DOI is a link to an online electronic document that is either free or for purchase, and can be your direct source for a journal article and its citation.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Numerical Modeling, Carbonic Acid, Mathematics, Carbonates, Alkalies, Anions, University of Texas.

Document SCLT000020181005eea5000cp