
Geology; Studies from University of Texas at Austin Add New Findings in the Area of Geology (Accommodation-versus Supply-dominated Systems for Sediment Partitioning To Deep Water)

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2019 MAY 24 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- A new study on Geology is now available. According to news reporting originating from Austin, United States, by NewsRx correspondents, research stated, "Several decades of studies on shelf-margin evolution have led to recognition that both accommodation-dominated and supply-dominated sediment-delivery systems are capable of transporting sediments from the shelf down into deep-water basins. The former case relies on falling sea level and lowstands to move deltas to the shelf edge, whereas the latter depends on well-supplied deltas reaching the shelf edge regardless of sea-level rise."

Funders for this research include State of Texas Advanced Resource Recovery (STARR) program at the University of Texas at Austin **Bureau of Economic Geology**, RioMAR Consortium, ExxonMobil, Shell, Chevron, Eni, Statoil, Anadarko.

Our news editors obtained a quote from the research from the University of Texas at Austin, "However, it remains unclear how to distinguish between the two sediment-dispersal alternatives, and which of these is more efficient in delivering sediments to deep water. We explore sediment-volume partitioning into deep-water areas by analyzing >1600 runs of a geometric delta model with varying eustatic, shelf-morphologic, and sediment-supply conditions. Previous studies suggest that greenhouse eustatic (low amplitude and frequency) conditions generate lower shelf accommodation, and permit the shoreline to arrive at the shelf edge quickly. Further investigation reveals that (1) this argument works only for the supply-dominated system, and (2) the proportion of total sediment that reaches deep water is not correlated to the frequency of sea-level change, but depends strongly on the shelf width and the amplitude of sea-level change. We suggest a ratio between (1) the product of shelf width and the amplitude of sea-level change and (2) total sediment supply to quantitatively characterize the sediment dispersal system. A ratio of 0.4 forms a good boundary between accommodation-and supply-dominated systems in the modeling results, and in three well-studied ancient systems (the Maastrichtian Washakie Basin, Wyoming, USA; the Pliocene paleo-Orinoco margin, Trinidad and Tobago; and the Miocene New Jersey margin, northeastern USA)."

According to the news editors, the research concluded: "This work also suggests that the sediment mass balance becomes more important for continental margin building regardless of sea-level scenarios over the longer term."

For more information on this research see: Accommodation-versus Supply-dominated Systems for Sediment Partitioning To Deep Water. *Geology*, 2019;47(5):419-422. *Geology* can be contacted at: Geological Soc Amer, Inc, PO Box 9140, Boulder, CO 80301-9140, USA.

The news editors report that additional information may be obtained by contacting J.Y. Zhang, University of Texas - Austin, Bur Econ Geol, Jackson School of Geosciences, Austin, TX 78758, United States. Additional authors for this research include W. Kim, C. Olariu and R. Steel.

Keywords for this news article include: Austin, United States, North and Central America, Geology, University of Texas at Austin.

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