



Basin Research; Findings in the Area of Basin Research Reported from China University of Geosciences (Tectonic Controls On the Evolution of Mixed Carbonate-siliciclastic Systems: Insights From the Late Palaeozoic Ouachita-marathon Foreland, United States)

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2021 APR 30 (VerticalNews) -- By a News Reporter-Staff News Editor at Chemicals & Chemistry -- Data detailed on Basin Research have been presented. According to news originating from Beijing, People's Republic of China, by VerticalNews correspondents, research stated, "Sea level is thought to be the primary driver of alternating deposition of carbonate and siliciclastic sediment in shelf settings, with carbonates dominating during transgressive/highstands and siliciclastics during lowstands. Although sediment supply is critically important for shelf-margin growth in siliciclastic systems, few studies demonstrate its impact on mixed carbonate-siliciclastic systems."

Financial supporters for this research include State of Texas Advanced Oil and Gas Resource Recovery Program, Quantitative Clastics Laboratory (QCL) at the **Bureau of Economic Geology** (BEG).

Our news journalists obtained a quote from the research from the China University of Geosciences, "The Permian Basin in Texas, United States, provides an opportunity to investigate the basin evolution regarding the source, sediment routing and particularly shelf/slope growth from syn- to postorogenic phases during alternating carbonate and siliciclastic sedimentation. Published detrital zircon data show that the proportion of orogen-related sources decreased significantly from an earliest Permian synorogenic phase (ca. 298 Ma) to a Leonardian (ca. 280-271 Ma) postorogenic phase, in concert with a grain-size change from fine- to medium-grained sand to silt. Although along-strike lateral variabilities exist on the shelf margin, the shelf-margin evolution characteristics show a significant difference among the Northern Shelf, Eastern Shelf and Central Basin Platform. The synorogenic Eastern Shelf exhibits a significant higher progradation rate than does the postorogenic Northern Shelf. The progradation and aggradation ratio of siliciclastic-rich intervals in the Eastern Shelf is significantly higher than those of carbonate-rich intervals in the Eastern Shelf and carbonate- or siliciclastic-rich intervals in the Northern Shelf. In contrast, the Central Basin Platform, with no siliciclastic sediment supply, records almost no progradation regardless of orogenic phases. There is an increase in slope gradient with decreasing sediment supply during this second-order sequence from the Permian Cisuralian Series to the end of the Guadalupian Series."

According to the news editors, the research concluded: "This study demonstrates that tectonically driven siliciclastic sediment supply was the main mechanism controlling the shelf and slope evolution in alternating siliciclastic and carbonate deposition."

This research has been peer-reviewed.

For more information on this research see: Tectonic Controls On the Evolution of Mixed Carbonate-siliciclastic Systems: Insights From the Late Palaeozoic Ouachita-marathon Foreland, United States. Basin Research, 2021. Basin Research can be contacted at: Wiley, 111 River St, Hoboken 07030-5774, NJ, USA. (Wiley-Blackwell - www.wiley.com/; Basin Research - [onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1365-2117](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2117))

The news correspondents report that additional information may be obtained from Li Liu, China University of Geosciences, State Key Lab Geol Proc & Mineral Resources, Beijing, People's Republic of China. Additional authors for this research include William A. Ambrose, Timothy F. Lawton and Daniel F. Stockli.

Keywords for this news article include: Beijing, People's Republic of China, Asia, Basin Research, Alkalies, Anions, Carbonates, Carbonic Acid, China University of Geosciences.

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