Geology - Sedimentary Geology; Reports Outline Sedimentary Geology Study Findings from University of Texas Austin (Sedimentology of the Upper Pennsylvanian Organic-rich Cline Shale, Midland Basin: From Gravity Flows To Pelagic Suspension Fallout)

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2021 FEB 5 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Investigators publish new report on Geology - Sedimentary Geology. According to news reporting originating in Austin, Texas, by NewsRx editors, the research stated, "Although deep-water fine-grained sedimentary rocks comprise approximately two-thirds of the stratigraphic record, the transportation and depositional processes are poorly understood compared with their shelf counterparts. This study reports the range of fine-grained sedimentary rock lithofacies, transport, and depositional processes and cyclicities recorded in deep-water deposits on the basis of three continuous cored wells from the Upper Pennsylvanian Cline Shale, Midland Basin, USA, with the goal of elucidating general principles that can inform synthesis depositional models for deep-water fine-grained sedimentary systems."

Funders for this research include State of Texas Advanced Resource Recovery (STARR) program at the **Bureau of Economic Geology** (BEG), China Scholarship Council.

The news reporters obtained a quote from the research from the University of Texas Austin, "A combination of sedimentological, petrographic and bulk geochemical analysis has defined seven lithofacies that stack in a repeated pattern to constitute ca 8 to 20 m thick composite cycle sets. The lower unit of each composite cycle set is characterized by basal siliciclastic-rich lithofacies interpreted to record dilute, low-density turbidity currents, potentially derived from hyperpycnal input which grade upward into carbonate-rich lithofacies interpreted as debris-flow deposits or pelagic suspension deposits. The upper unit of each composite cycle set is characterized by basal carbonate-rich lithofacies interpreted as debris-flow deposits or pelagic suspension deposits which grades upward into siliciclastic-rich lithofacies interpreted to record dilute, low-density turbidity currents, potentially derived from hyperpycnal input. The cyclicities recorded in the Cline Shale are believed to be controlled by high-amplitude glacioeustatic sea-level fluctuation (mean: ca 100 m). The siliciclastic-rich lithofacies, potentially derived from hyperpycnal turbidity flows, were deposited during sea-level lowstand, when siliciclastic sediment-transport systems extended across the wide Eastern Shelf and deltas developed at the shelf margin. Carbonate-rich lithofacies are interpreted to be deposited from debris flows or pelagic suspension fallout during sea-level highstand when carbonate platforms were developed on the surrounding shelves."

According to the news reporters, the research concluded: "The prevalence of sediment density flow deposits, even in distal basin floor environments, challenges the conventional model that deep-water fine-grained sedimentary rocks are dominantly background sedimentation."

This research has been peer-reviewed.

For more information on this research see: Sedimentology of the Upper Pennsylvanian Organic-rich Cline Shale, Midland Basin: From Gravity Flows To Pelagic Suspension Fallout. Sedimentology, 2020. Sedimentology can be contacted at: Wiley (Blackwell Publishing), 111 River St, Hoboken 07030-5774, NJ, USA. (Wiley-Blackwell - www.wiley.com/; Sedimentology - onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3091)

Our news correspondents report that additional information may be obtained by contacting Junwen Peng, University of Texas Austin, Jackson School of Geosciences, Bur Econ Geol, Austin, TX 78713, United States.

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