**Science - Planetary Science; Studies in the Area of Planetary Science Reported from University of Texas (Sediment unmixing using detrital geochronology)**

508 words
10 November 2017
Science Letter
SCLT
English


2017 NOV 17 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Researchers detail new data in Science - Planetary Science. According to news reporting out of Austin, Texas, by NewsRx editors, research stated, "Sediment mixing within sediment routing systems can exert a strong influence on the preservation of provenance signals that yield insight into the effect of environmental forcing (e.g., tectonism, climate) on the Earth's surface. Here, we discuss two approaches to unmixing detrital geochronologic data in an effort to characterize complex changes in the sedimentary record."

Financial support for this research came from Bureau of Economic Geology.

Our news journalists obtained a quote from the research from the University of Texas, "First, we summarize 'top-down' mixing, which has been successfully employed in the past to characterize the different fractions of prescribed source distributions ('parents') that characterize a derived sample or set of samples ('daughters'). Second, we propose the use of 'bottom-up' methods, previously used primarily for grain size distributions, to model parent distributions and the abundances of these parents within a set of daughters. We demonstrate the utility of both top-down and bottom-up approaches to unmixing detrital geochronologic data within a well-constrained sediment routing system in central California. Use of a variety of goodness-of-fit metrics in top-down modeling reveals the importance of considering the range of allowable that is well mixed over any single best-fit mixture calculation. Bottom-up modeling of 12 daughter samples from beaches and submarine canyons yields modeled parent distributions that are remarkably similar to those expected from the geologic context of the sediment-routing system."

According to the news editors, the research concluded: "In general, mixture modeling has the potential to supplement more widely applied approaches in comparing detrital geochronologic data by casting differences between samples as differing proportions of geologically meaningful end-member provenance categories."

For more information on this research see: Sediment unmixing using detrital geochronology. Earth and Planetary Science Letters, 2017;477():183-194. Earth and Planetary Science Letters can be contacted at: Elsevier Science Bv, PO Box 211, 1000 Ae Amsterdam, Netherlands. (Elsevier - www.elsevier.com; Earth and Planetary Science Letters - www.journals.elsevier.com/earth-and-planetary-science-letters/)

Our news journalists report that additional information may be obtained by contacting G.R. Sharman, Univ Texas Austin, Bur Econ Geol, Jackson Sch Geosci, Austin, TX, United States.

The direct object identifier (DOI) for that additional information is: https://doi.org/10.1016/j.epsl.2017.07.044. 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, Planetary Science, Science, University of Texas.



Document SCLT000020171110edba0017a