



## **Sediment dynamics in flat landscapes – insights from central Australia**

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Erosion and sediment routing are key to understanding landscape evolution. In this regard, steep mountain regions have been the focus of most research efforts, leaving flat landscapes effectively unstudied in spite of their vast global extent. However, the timescales of material transfer and storage in regions of low relief are considered much longer than in their steep counterparts. Here we apply in situ-produced cosmogenic nuclides (CNs) to examine the sediment transport and storage history of a low-gradient catchment, Peake River, in arid central Australia. Previous work in central Australia has been restricted to mainly local measurements of landscape lowering and bedrock erosion; however, to better understand the processes shaping these landscapes, we adopt a source-to-sink approach coupling bedrock and hillslope colluvium measurements of CNs with basin-wide measurements in fluvial sediment. Variation in concentrations and ratios of cosmogenic  $^{10}\text{Be}$  and  $^{26}\text{Al}$  in sediment provide insights to rates of sediment residence times and burial history as grains are transmitted through the bedrock-hillslope-stream sediment conveyor. We present our preliminary CN results from sediments and bedrock, and discuss basin-wide sediment dynamics in flat landscapes, emphasizing the contrast with well-studied mountainous regions.