Spatial patterns of beryllium-10 abundance in arid Australia

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Abstract

The abundance of beryllium-10 measured in a handful of river sand is often lower than it is for at-a-point samples collected upstream. But not always. Do we really understand why? The role of some factors such as mass-wasting and sediment storage are well understood. Others less so. We explore this question with a beryllium-10 dataset (n_˜300, mostly unpublished) from arid Australia, which enables comparing nuclide concentrations in fluvial samples with those from a range of landforms upstream, including bedrock hillslopes and escarpments, screes, pediments, stone pavements, alluvial terraces and aeolian dunes. Our findings prompt reflections on how we think about and use catchment-scale denudation rates to gauge landscape evolution.

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