
Interactive
comment

Interactive comment on “Tracking the $^{26}\text{Al}/^{10}\text{Be}$ source-area signal in sediment-routing systems of arid central Australia” by Martin Struck et al.

Anonymous Referee #1

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This manuscript "Tracking the $^{26}\text{Al}/^{10}\text{Be}$ source-area signal in sediment-routing systems of arid central Australia " by Struck et al., uses ^{26}Al and ^{10}Be inventories and ratios in bedrock , slope material and alluvial sediments to detect the sources of sediment into large rivers that flow into the western Eyre Basin. The authors conclude that in a setting of low relief topography, arid climate, and tectonic quiescence that characterize central Australia, the addition of stored sediments into the river system slowly changes the isotopic signature of the sediments such that they ultimately do not represent the erosional conditions at the source.

I think the paper is well written and interesting.

I do have a few comments:

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1. Cosmogenic isotopes, such as ^{10}Be , have been used as tracers for sediment routing at various temporal and spatial scales since the early 2000's. for example, in the Mojave Desert, in the Great Smoky Mountains, in the Negev desert. The authors should acknowledge this use and compare their conceptual results to previous ones.
2. The formation of desert pavements (Gibber) as described by Wells in 1995 and then demonstrated by Matmon et al., (2009) implies high Al and Be concentrations as well as ratios. The authors should include and consider that.
3. Please write $^{26}\text{Al}-^{10}\text{Be}$ when referring to the isotopic inventories and $^{26}\text{Al}/^{10}\text{Be}$ when referring to the isotopic ratios.
4. In regards to assumption ii about the discontinuity of sediment delivery. The discontinuity of sediment delivery is generally on an annual or decade scale. This temporal scale is obviously much shorter than the time scale measured by cosmogenic isotopes. Thus, in terms of cosmogenic isotopes the delivery of sediment is continuous. The authors should address this point.

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