

Interactive comment on “Geomorphic signatures of the transient fluvial response to tilting” by Helen W. Beeson and Scott W. McCoy

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Here's another comment regarding using the volcanic deposits as indicative of recent incision. I apologize for all of these short notes, but I find this Discussion very interesting and it is helping me guide my ideas on the evolution of the range. In my 2014 paper, I plotted local relief (calculated over a 5 km window) along a transect in the northern Sierra (see the first figure). You'll notice that relief increases gradually from the Central Valley, peaks where there is a band of resistant rock, dips slightly, and then becomes approximately constant. The patterns of incision shown in the two plots generated by the authors show this same trend. This similarity is not coincidental since the remnants of the volcanic rocks are predominantly found in the interfluves (the volcanic deposits on the valley walls having been mostly eroded away). It appears, then, that the plots

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of incision are really plots of landscape relief. It should be reasonable to expect that relief increases gradually as one goes from the Central Valley into the range but that, because of rock strength limitations, relief reaches a maximum and then remains constant. Therefore, the pattern seen in the incision plots can be explained on the basis of how relief changes in a mountain range and there is no need to appeal to tilting.

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2019-24>, 2019.

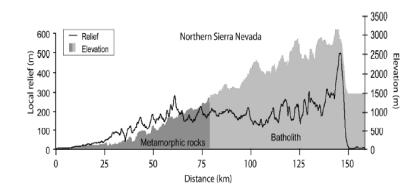
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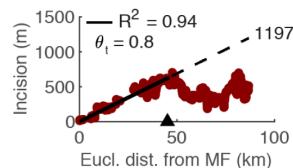
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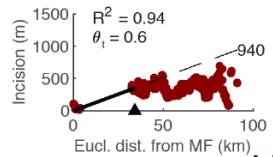




Rubicon/Middle Fork American River



South Fork American River



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Fig. 1. Fig 1