

## ***Interactive comment on “Steady state, continuity, and the erosion of layered rocks” by Matija Perne et al.***

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Received and published: 19 September 2016

We thank Whipple for his careful examination of our work, and the large amount of time that he has obviously put in to try to understand it (even running his own simulations). Undoubtedly, these comments will help to clarify and correct our manuscript. Before we post a more general reply, we want to make sure that we correctly understand the explanation that Whipple puts forward. This is our understanding of his explanation:

- 1) In a layered rock scenario, either the strong (if  $n < 1$ ) or weak (if  $n > 1$ ) layers control the horizontal retreat rates of a channel at the contact.
- 2) The kinematic wave speed of the non-controlling rock layer adjusts to match the kinematic wave speed of the controlling rock layer.

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3) The controlling rock layer maintains the same slope and kinematic wave speed that it would have under equilibrium conditions if it were the only rock layer (this is the point that we were least certain of).

Do we understand correctly? If so, these ideas should be fairly easy to test from our model outputs.

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Interactive comment on Earth Surf. Dynam. Discuss., doi:10.5194/esurf-2016-41, 2016.

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