

Interactive comment on “Lithology and orographic precipitation control river incision in the tropical Andes” by Benjamin Campforts et al.

Anonymous Referee #2

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General Comments: Given the focus on rainfall variability in the introduction text, I expected a paper that would advance our knowledge on the impact of rainfall variability on long term incision rates. Essentially what I read was a paper that concludes that lithological strength variability is very important in correctly predicting erosion rates and that accounting for rainfall variability also helps some (results in table 5, especially). I think the introduction needs to be revised somewhat to better reflect the results presented in the paper. The abstract does a better job of communicating the essence of the paper. Generally, the manuscript is very heavy on the methodology and too light on the discussion of the results and why these results matter. I also think the authors sometimes overreach on the significance of some results. It seemed like a long slog through the methodology section with many figures that did not seem terribly

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relevant OR were uninterpretable (Figures 3,5,7,8,9,11,13). Not all of these need to be relegated to Supplementary Material, but it would be helpful if some of them were and the important figures referenced more prominently in the text. I often felt like I had to hunt down the authors motivation for a methodology or intuit the reasons why results were significant. The authors need to be clearer through out the manuscript on both of these points. With some substantial improvements to this manuscript, particularly in cutting down the methodology section and refining and expanding the results section, I think it can be published as a valuable contribution to the geomorphology community. I have many specific comments on science issues and several technical corrections that are included in an annotated PDF that I will attach.

Please also note the supplement to this comment:

<https://www.earth-surf-dynam-discuss.net/esurf-2019-48/esurf-2019-48-RC2-supplement.pdf>

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2019-48>, 2019.

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