

Interactive comment on “Planform river channel perturbations resulting from active landsliding in the High Himalaya of Bhutan” by Larissa de Palézieux et al.

Laure Guerit (Referee)

laure.guerit@univ-rennes1.fr

Received and published: 9 February 2021

The authors propose to develop a measurement of the lateral deviation of river channel due to creeping landslides. They work on a previously published catalogue of creeping landslides in Bhutan and they show that most of these landslides are associated with rivers that deviate from a “normal” path. To go further, they propose that creeping landslides are associated with migrating knickpoints that are able to destabilise hillslopes. In addition to the landslide offset, they thus estimate an age since the knickpoint has passed and build a rate of channel offset which they interpret in terms of landslide/channel dynamics through time. The approach is interesting and

Printer-friendly version

Discussion paper



supported by very clean and elegant figures. I think it is of interest for publication but the manuscript requires thorough revisions. I do not see any major issue with these revisions so I'm confident the authors will be able to address them. First of all, I think that the manuscript should be reorganized as currently, all the sections are mixed. The introduction is extremely long and does not present clearly the context. The geological setting must be expanded and should be a separate section to ease the reading. More importantly, a lot of results are within the discussion, which does not really discuss the results. This is a bit confusing and it makes the manuscript quite difficult to follow. As a consequence, it is difficult to get a clear idea of the results. Second, some working hypothesis must be better explain and/or justify. For example, the authors mention that tectonic activity is very low and that it can not be responsible for the landslides. They thus associate landslides with migrating knickpoints. But then, what is driving these knickpoints ? And what about climate and lithology ? I identify other aspects that must be clarified in the attached annotated document. Third, I have some issues with the units and names used by the authors. A striking one is the designation of delta chi, a measure in meter, as a time. This is detailed in the attached document. Finally, there are a lot of vague terms like process, low, insights, and of multiple ways to say the same thing (for example comment on Figure 5). Please check for consistency and simplify as much as possible. I also notice minor corrections to do (typo, missing information, missing captions, etc). Again, it prevents me from getting a clear idea of your objectives and results so I really suggest the authors to check the manuscript carefully and to be more explicite to gain in clarity and strength.

Please also note the supplement to this comment:

<https://esurf.copernicus.org/preprints/esurf-2020-85/esurf-2020-85-RC2-supplement.pdf>

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2020-85>, 2020.