

Interactive comment on “Millennial-scale denudation rates in the Himalaya of Far Western Nepal” by Lujendra Ojha et al.

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This manuscript adds new cosmogenic ^{10}Be data to the growing number of studies mapping out modern denudation rates across the Himalayan arc and fills a data-gap in Western-Nepal where no such data was published so-far. Calculated denudation rates are at par with other central-Himalayan catchments and the authors discuss it in the context of tectonic and climatic driving processes.

This data-set is relatively modest in size (7 samples) and the study is not very ambitious in the way it is set up. However, it provides new and useful data that is worth publishing in my opinion. The authors provide a very detailed and careful discussion of the limitation of the cosmogenic nuclide-derived denudation approach, carefully evalu-

C1

ating the different steps which is something I have appreciated. The writing is clear and the figures are informative. I, however, think that the rationale for the study could be improved so that it reads less like a simple data-report (which is not a bad thing per se, but in that case, an e-surf research article might not be the most appropriate format).

As it currently stands, the authors are focusing on the climate vs. tectonics debate to motivate their study. But I feel that with a limited number of additional samples and a relatively short analysis they do not contribute much to this discussion. This would require a more thorough re-analysis of all ^{10}Be along the Himalayan arc than what is presented here. On the other hand, the authors could have focused in more details on the specificities of the Karnali catchment with older AFT ages and lower stream power values compared to other parts of the range (e.g. van der Beek et al., 2016 – Geology). How these characteristics may or may not be expressed in surface catchment denudation rates seems a worthy discussion angle for this manuscript that is not necessarily very well addressed in this submission.

Some more detailed considerations:

- It seems that the authors try to provide a global overview of ^{10}Be data available across the Himalayan range (Figure 1). This is useful but is incomplete. At least 4 papers (maybe more) were omitted and should be mentioned: Puchol et al., 2014 – Geomorphology; West et al., 2015 – Esurf; Lupker et al., 2017 – Esurf; Dingle et al., 2018 – Esurf.
- The comparison between this dataset and published data (e.g. Figure 4) should be made carefully. If I understand it correctly the denudation rate, as well as steepness or stream power, have not been recalculated in a homogeneous way for different datasets. Given that the authors report some large variations between different approaches (e.g. snow cover effect) it is uncertain how these differences may bias this type of comparison. I would suggest to recalculate the data using a homogeneous procedure (even though I am aware that this represents a significant amount of work) or convincingly

C2

show that the differences are minor.

- The use of a topographic shielding correction in catchment-wide denudation rates has been recently questioned DiBiase, 2018 – Esurf

- p.6, l.52: it is not clear to me how grain-size data on fluvial sediments will tell you much about the importance of landslide inputs given transport segregation processes.

- On the effect of chemical erosion on ^{10}Be denudation estimate (p.7, section 5.2): the fact that chemical denudation is only a very small fraction of the overall mass export (as mentioned later in the manuscript) should provide a rough estimate on the magnitude of this bias. - p.8, l.26: Puchol et al., 2015 – Geomorphology provides a direct example of ^{10}Be concentrations correlated with grain-size induced by landslide processes in a Himalayan catchment.

- p.9, l. 1-2 the difference between short-term denudation estimates and long-term rates in the Himalaya has been very recently discussed in the context of large landslide occurrences: Marc et al., 2019 – Esurf

I am looking forward to seeing this manuscript published in a revised form. Maarten Lupker

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