

## ***Interactive comment on “Erosion rates deduced from Seasonal mass balance along an active braided river in Tianshan” by Y. Liu et al.***

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In his review Dr. Wulf raises two main points. We will first address them. A precise answer will then be given to specific comments.

### **1 General comments:**

- *"Unfortunately, the manuscript is not well written, neither concise nor in a correct grammar. This makes it in parts really challenging to understand the author's intention and to evaluate their procedures."* The submitted manuscript was edited by a professional English editor as quoted in the acknowledgements (this is not the case for this

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reply). Although professional editing does not warrant the quality of the scientific content, it is very difficult for us to take the general paragraph and specific statements (most of figures 1 to 15) on editing and clarity into consideration, especially since, as honestly stated by himself, Dr. Wulf is not a native English speaker.

- *"I doubt that it is valid to infer the long-term sediment budget based on river discharge data"*: This is an opinion statement, as no detailed argument is provided, no reference is given, no proof of any kind is disclosed.

Remind that in a scientific review process, authors can only reply to argued points on the structure — why and how is the structure of the paper an issue ? —, and the scientific content — where and what are the problems with measurements made, analyses and conclusions derived ? —, contained in the document.

### **2 Specific comments:**

- *Title: Erosion rates deduced from Seasonal mass balance along an active braided river in Tianshan* - What does the word "active" refer to? Is that important for the erosion rates? - *Suggestion: Erosion rates deduced from fluvial sediment flux data of the Urumqi River, Tianshan.* Seasonal mass balance is important but we agree with the comment on active braiding and we will change the title to take this into account.

- *"an active mountain range in"* - *The Tianshan is known as a mountain range not necessary to mention that.* - *Further information of the sampled catchment area might be interesting.* We will keep this statement for clarity. Details on the catchment are provided in section 2.

- *"secular"* - *you mean "long-term"?* Yes but we will change this in the text to clarify.

- *"this high mountain catchment of Central Asia."* - *redundant* -. See general comment on language above.

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- “can not be neglected” - double negative, say clearly what you mean and keep it short  
 - i.e. “Bed load in form of sand and gravel is significant, as it accounts for one third of the solid load of the river.” See general comment on language above.

- “Overall, the mean denudation rates are low, ...”. Why is that so ? This sentence is taken out of the abstract. The paper is about the way we reach this conclusion. We do not clearly understand the meaning of this question.

- “The rates we obtain are in agreement with rates obtained from the mass balance reconstruction of the Plio- 15 Quaternary gravely deposits of the foreland but significantly lower than the rates recently obtained from cosmogenic dating of river sand.” - you mean the Tianshan foreland? - Where is the location of the cosmogenic dates? Rates were obtained by Charreau et al. (2011), on the Kuitun river east of the Urumqi river as stated and discussed in the manuscript in paragraph 6.3. We will modify the abstract to clarify this point.

- “remains an essential topic of research” - is an important research field Additional specific comments are given in the attached pdf file. My apologies for this unorthodox editing style, but given the scale of comments I found this the most convenient way. As this statement the overwhelming majority of the comments included in figs 1 to 15 pertain to the English language issue discussed above. We have tried to answer each time language or structure was not the primary subject. L stands for language issue, c for comment.

• Fig. 1:

- c1-5 : L
- c6-7 : “Provide actual numbers”: a thorough discussion on values found by different authors can be found in the discussion section of the submitted manuscript.
- c8-10 : L

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• Fig. 2:

- c1-4: L
- c6-10: L

• Fig. 3

- c1: “Is this relevant for the study” : relevance is discussed in details in the discussion section.
- c2: “What is the actual catchment size you survey”: The total drainage is more than 900 km<sup>2</sup> as mentioned in the text but the size of the catchment at the survey point is 45 km<sup>2</sup>. We will add it in the site description.

• Fig. 4

- c1: “Which relevant facts can you take from your study”: relevant facts are described in the paragraphs following this remark
- c2: “On what is this estimate base”: gauging stations, Li et al. (2010) for example. We will specify this.

• Figs. 5-8. L

• Fig. 9

- c1: “Did you mention which months cover the high flow season ?”: yes melting occurs from May to September on orographic precipitations occur in summer as stated in the description paragraph.
- c2: “Is the flood defined by any threshold or do you mean annual peak discharge”: neither of these. We will change to peak discharge to clarify.
- c3: “Isn’t that a common feature in bed load transport ?”: can you provide references ?

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- c4: L
  - c5: “Do you assume constant rainwater composition [...]”: yes, the composition is given in table 1 and the origin of the data discussed in the text.
- Fig. 10-14 : L
- Fig. 15:
  - c1: “Which influence” : the influence of the form of the hydrograph on sediment fluxes.
  - c2: L

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Interactive comment on Solid Earth Discuss., 3, 541, 2011.