Hydrol. Earth Syst. Sci. Discuss.,
doi:10.5194/hess-2015-526-AC2, 2016

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Vegetative impacts upon bedload transport capacity and channel stability for differing alluvial planforms in the Yellow River Source Zone" *by* Z. W. Li et al.

Z. W. Li et al.

lzhiwei2009@163.com

Received and published: 16 April 2016

We appreciate Prof. Coenders-Gerrits M. (Referee #2)'s comments and suggestions. These comments will be very used to enhance the manuscript during the following revision. A point-by-point responses to each comment are addressed below.

The authors present a relevant study on the effect of vegetation on bedload transport capacity and channel stability. Therefore, they study 4 reaches of the upper Yellow River, China. The 4 reaches differ in planform. Despite the potential interest, the paper is highly descriptive and hypothetical. Barely any data is collected to justify the conclusions. This leads to the question what we can learn from this study. The river planform is not really something we can easily adjust and the role of vegetation is more

a result of the planform, than a cause. Maybe this also relates to the fact that there is no study objective given.

Response: Many thanks for your objective remarks about the manuscript. We confess that the interesting phenomenon in the Yellow River source needs more data to verify our conclusion. This study about river planform of the Yellow River source is an intriguing but understudied part of the world – altitude, plateau landscapes, and its global significance, so we need strong foundation studies to set up further analyses-given data limitations, these will be inherently descriptive in the first instance, but it is important to get this right. We still believe the role of vegetation plays a great role on the planform in this region, though there is a lack of direct evidence. Perhaps we need to go further in making relations to other parts of the world, in terms of the influence of landscape and environmental setting upon river diversity that these relations are the same here, or there are some notable differences.

Abstract: The abstract starts immediately with describing what the study entails, but the existing knowledge gap is missing. As well as the 'reason for this study'.

Response:It is very good suggestion. We will add 1-2 sentence to explain the existing knowledge gap missed and the reason of this study.

Introduction: The introduction is really long and very general. It seems like a 'lecture' on river planforms in relation to bars. I would advise to shorten the introduction and focus on what is currently missing (knowledge gap) and why this study is relevant (what will it bring). Furthermore, I would also explain how the existing study differ from exiting studies.

Response: OK, we are pleased to accept this valuable advice to compress the introduction. The knowledge gap will be seriously considered and answer why this study is relevant and differs from existing studies.

P9L1-25: Add dimensions or units to symbols

Response: OK, I can do it.

Equation 3-5: Why do you need Eq. 4 if you can also derive it from Eq. 3 and 5?

Response:Definitely Eq.4 is derived from Eq.3 and Eq.5. Eq. 3 gives us the dimensionless bedload transport rate per channel width, but we want to obtain the dimensional bedload transport rate per unit channel width.So keeping Eq.4 in text is reasonable.

Section 5: Based on what can the authors conclude how the bars are developed/eroded? (fig 10, 12,13). Can this not better be answered with satellite images over several years?

Response:Figure 10, 12, 13 are simple sketches of the bars in braided, anabranching and meandering channel based on our field investigation and satellite images. Adopting the satellite images is a good option, but the difference of water depth in the different satellite images so that the submerging range in channel varies. After discussing with other authors, we will seriously consider the availability of satellite images in this study.

Figure 1: Naming R1, R2, R3, and R4 are not visible in the figure

Response: OK, I can do it.

Figure 8: What's happening during the low flows? This seems to weird behaviour. How can the stage drop when Q increases? That is remains constant is possible if the river width increase after a certain threshold, but this seems unrealistic. Please elaborate/explain.

Response:Your questions make sense. We believe the data is correct. During the low flows, the channel partly is frozen in December, January, February, March, and April. Because the water in lower layer is frozen, the stage of incoming flow increases but the discharge still very lower or keep constant. Therefore, in the low flows, the stage increases when Q is nearly constant.

Figure 9: Please be consistent. The upper graphs are Qh-plots, while the lower two

are hQ-plots.Furthermore, the coloring is not that clear, which makes the plot difficult to interpret.

Response: Many thanks for pointing out this mistake. The upper and lower graphs are Q-h plots, but the coordinate texts of the lower graphs are wrong. Meanwhile, we adopt Adobe Photoshop CS to processing the coloring image by increasing the resolution.

Figure 11: Is the stage unit correct? What is the datum of this stage?

Response:The stage value is correct. The datum of this stage is the elevation of water surface. We will double-check the data and add the explanation in data source avoiding the misunderstanding.

Throughout the entire manuscript: Textual: after "i.e." and "e.g." a comma should be placed

Response: Good point! I will add a comma in the latest version.

Order appearance figures in text, is order figure numbers (e.g., figure 11 and 12). Please check

Response:OK. I will update the figures order in text.

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/hess-2015-526/hess-2015-526-AC2-supplement.pdf

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2015-526, 2016.