

Interactive comment on “Interactions between channels and tributary alluvial fans: channel adjustments and sediment-signal propagation” by Sara Savi et al.

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The manuscript presents an experimental investigation into the impact of tributary channels, in particular the presence of alluvial fans, on river channel behaviour. The results from six experiments are presented to understand the impact on channel slope, profile, aggradation/incision patterns and sediment dynamics. This is an interesting study and I believe that it adds to established literature in this field and represents a contribution to scientific knowledge in this area that would be of interest to the readership. I support publication of the manuscript following some modification.

The following aspects should be addressed:

C1

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â€” Section 2 could be reduced and integrated into the general context provided in the first section; there is repetition of much of the material between these sections and an overview of basic theory that could be condensed

â€” In the methods section there needs to be further clarification on how the input conditions were determined for the experiments, i.e. how were the initial Q_w and Q_s values decided upon? How was the ratio between tributary and main channel initial size, Q_s and Q_w calculated? There are different $Q_w:Q_s$ ratios between group 1 and group 2 to promote aggradation or incision but how did you determine what was an appropriate ratio? Also why was there only one Q_w change in the T_IWMC experiment when there were 2 changes for the tributary conditions in the group 1 experiments

â€” There are a lot of figures in the paper, these are presented to a high quality and are informative but the number is overwhelming at the moment and some consideration could be given to reducing the number of these in the main paper and moving some to the supplementary information (i.e. Figure 6 could be removed, and it is not necessary to have both Figures 9 and 10). Additionally, the figure headings are very long and often repeat what is said in the main text – therefore this information could be removed from one or other of these to make the paper overall more concise.

Minor changes: â€” Title: suggest revising the word “channel” and being more specific that you are referring to the main/trunk channel in a river â€” Line 74: there have been some papers that have explored the influence of tributary fans on main channels in the field (i.e. Giles, 2016 that you refer to later) and there should be some description here of what these have shown â€” Table 1 could be expanded (or a separate table used) to include a brief summary of each of the experiments (this is covered in section 3.2 but a concise summary for reference would be useful) and also including the duration of each experiment. The spin-up time for each could also be stated â€” Line 352: why is the Q_s -out only recorded over a 10 second period rather than over the whole 10 minute recording period? â€” Line 670 remove the colon at the end of this sentence, or remove the sub-section heading for 5.3.1 and 5.3.2 â€” Be consistent in your use of

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hyphens with certain words, i.e. grain size and grain-size

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2019-73>, 2019.

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