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Earth Surface Dynamics Discussions

# *Interactive comment on* "Woody debris as a confounding factor in interpreting the width of spring-fed streams" *by* Dana Ariel Lapides and Michael Manga

**Anonymous Referee #1**

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The authors have addressed a comparison of the influence of large wood in the channel morphology of spring-fed streams vs runoff-fed streams. This issue has been very little studied, and the authors have highlighted its importance.

In general, they have produced a very interesting manuscript.

I have several observations, some more relevant than others, and I will list all of them following the text.

I consider that some of my observationem are important and need to be solved, so my recommendation is to accept with Major Revision this manuscript. I am not asking for additional analyses, but parts of the manuscript must be revised and completed. I am



willing to revise a new version of this article.

Abstract: 1. Page 1, line 2. The authors write: "Due to the distinctive damped hydrograph of spring-fed streams, large woody debris is less mobile in spring-fed than runoff-fed stream channels". As the authors are introducing the reader to the topic, I suggest completing the phrase with a few words about the distinctive hydrograph of runoff-fed streams; this can appear a little obvious, but I consider it will complete the picture. 2. Page 1, phrase between lines 4 to 6, "We used high-resolution satellite imagery . . .. . . 38 spring-fed and 20 runoff-fed streams". This statement does not fully agree to what is written between lines 60-64, so please revise and rewrite. 3. Page 1, line 8. Additionally, to what? Please revise and complete. 4. Page 1, phrase between lines 6 to 9: what about wood jams? 5. Page, the last phrase of Abstract is very close to a repetition of the previous one. I suggest rewriting and merging them in just one phrase.

Introduction: 6. Page 2, line 26: environmental variables, such as? Please revise and complete. 7. Page 2, phrase beginning in line 30, about the Griffiths et al (2008) publication. The authors write that the study in Arizona was of spring-fed streams, but this phrase ends mentioning a comparison to runoff-fed streams. Please revise and rewrite accordingly. 8. Page 2, phrases between lines 33 to 42. The authors introduced the issue of LWD, and the differences of LWD load between streams. I consider that information of LWD recruitment mechanisms and sources and characteristics of riparian forests in these streams is needed.

Field area: 9. Page 3, line 68. Not clear what the spring-fed streams in El Tatio Geyser Field in Chile are really providing to this research. These streams do not have LWD (see page 5, line 96). This needs extra explanation, here, and in the rest of the manuscript.

Methods: 10. Page 4, line 108. Please complete giving the dimensions of the LWD. 11. Page 4, line 108. Please complete giving the resolution of the high-resolution

imagery. dimensions of the LWD. 12. Page 6, line 128. The precision of the technique of measuring length in Google Earth Pro was tested for longer LWD pieces, but what for shorter pieces? Please complete.

Discussion: 13. Page 14, line 285, the authors mention wood loading. Please explain and complete because this issue is not addressed or described in previous chapters (Methods, Results). 14. Page 15, line 327, the authors seem to consider that most longer wood pieces are outside of the channel. I am not convinced at all with this asseveration; if outside, are these long logs spanning the channel? Please revise and explain. 15. Page 16, line 332. LWD can be less important where streams are very narrow and where streams are very wide, but this is always in relation to wood dimensions (length in this case). Please complete. 16. Page 16, lines 334-336 and then 352 and 356, the authors discuss about streams narrower than 25 and 30 m. Why this difference? Please explain.

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