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Interactive comment on “The role of log jams and exceptional flood events in mobilizing coarse particulate organic matter in a steep headwater stream” by M. Jochner et al.

M. Jochner et al.

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We thank the reviewer for her/his helpful remarks. Below we give a brief reply to the reviewer’s main comment, regarding the omission of a paper by May and Gresswell (2003) on a related topic. The other comments relate to requests for further information on methods, some language editing, and some additional data on RFID tags and wood export. This information will be provided in the final response and the revised manuscript, together with a detailed outline of changes made to the manuscript.

Reviewer’s comment:

“My main concern is about the insufficient credit paid to previous works dedicated to

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LWD dynamics in steep mountain streams, which already proposed some conceptual models not so different from the one proposed in this paper. See for example May and Gresswell 2003 (ESPL) work in the Oregon Coast Range.”

Response:

We thank the reviewer for pointing out the article of May & Gresswell (2003) that we had not been aware of. The paper is very interesting indeed, and we see three main differences between their study and ours. First, CPOM and sediment transport in the Erlenbach mountain stream is fluvial, and there are no signs and records of debris flow activity (cf. Turowski et al., 2009). We will put more emphasis on this important fact in our manuscript. Second, the conceptual model of May & Gresswell (2003) assumes temporally constant input of LW. Total wood input is related to the time since the last debris flow event. The correlation shows an exponential increase of material with time, which to some extent contradicts the hypothesis of steady supply. In contrast, we propose that LW input occurs mostly during and shortly after extreme events. Third, the space-for-time approach employed in the study of May & Gresswell (2003) raises questions on the inter-comparability of the different streams. For example, for a direct comparison one needs to assume that supply rate is the same in each of the studied catchments. For the Erlenbach we have some constraints on the variability of supply within a single stream. We will add a discussion of these issues in a revised version of our paper.

References:

May, C.L., Gresswell, R.E., 2003. Processes and rates of sediment and wood accumulation in headwater streams of the Oregon Coast Range, USA. *Earth Surface Processes and Landforms* 28, 409-424

Turowski, J. M., Yager, E. M., Badoux, A., Rickenmann, D., and Molnar, P.: The impact of exceptional events on erosion, bedload transport and channel stability in a step-pool channel, *Earth Surf. Proc. Land.*, 34, 1661–1673, 2009.

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Interactive comment on Earth Surf. Dynam. Discuss., 3, 173, 2015.

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