

Interactive comment on “Intra-catchment variability of surface saturation — insights from longterm observations and simulations” by Barbara Glaser et al.

Barbara Glaser et al.

barbara.glaser@list.lu

Received and published: 1 July 2019

We wish to thank the reviewer for the supportive assessment of our manuscript and we will consider the given comments and suggestions to improve the manuscript. In order to address the raised three main critics, we will revise the last part of the introduction and clarify the novelty, research questions, and structure of the manuscript as follows:

Novelty: The novelty of the study is that we investigate the spatial and temporal variability of surface saturation in a range of saturated riparian areas with different characteristics and potentially different occurring hydrological processes. This goes beyond previous work elsewhere and also beyond previous simulation studies in the Weier-

[Printer-friendly version](#)

[Discussion paper](#)



bach catchment (Glaser et al. 16, Glaser et al. 19) that only investigated one specific riparian area in a 6 ha headwater area of the catchment. We admit that this needs to be more clear from the introduction and the manuscript will be revised accordingly.

Research questions: We will rephrase the second research question and replace the phrase ‘What can we learn about the reasons for. . .’ by stating more precisely that we aim to explore the key driving controls on the generation of surface saturation (e.g. ‘Can we identify key controls controlling . . .’). In addition, we are considering to reshape the presentation of the objectives in order to better point out that we investigate the objectives (what’s the variability of surface saturation between different riparian areas, can we reproduce it with the model, can we identify controlling factors for it from matches and mismatches) with regard to the different surface saturation characteristics i) temporal dynamics, ii) relationship to discharge, iii) spatial patterns, and iv) spatial frequencies.

Structure: We think that reshaping the presentation of the objectives will help to clarify the structure of the result and discussion section, which are both structured following the saturation characteristics i) to iv). Section 4.1 and 4.5 present results of the catchment simulation that are not directly related to one of the surface saturation characteristics i) to iv) but these presented results provide necessary information about model performance and functioning. Therefore, result section 4.1 and 4.5 do not have a direct correspondence in the discussion section. With regard to the comment on the current structure, we consider to move the current result section 4.5 before section 4.2. By this, the results would start with an analysis of the simulation results for the entire catchment (4.1 and current 4.5) and then continue with the specific analysis of the surface saturation dynamics of different riparian areas (current 4.2 and 4.3) and the spatial patterns within the distinct areas (current 4.4). This structure may be specified in the section titles. The conclusion follows the separation between the different objectives and saturation characteristics, although the order of saturation characteristics i) to iv) is changed compared to the results and discussion. We think it makes sense to keep

[Printer-friendly version](#)

[Discussion paper](#)



the current structure, as it separates the presentation of the saturation characteristics according to the identified matches (referring to i) and iii)) and mismatches (referring to ii) and iv)).

On behalf of all co-authors

Barbara Glaser

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-203>, 2019.

Printer-friendly version

Discussion paper

