

Reviewer #1:

The authors presented a study evaluating the impact of soil management and climate on saturated and near saturated hydraulic conductivity measured by tension-disk infiltrometry. Therefore, the authors make use of an existing database and extended those by additional data published. In general, the topic well suits to HESS and has high relevance as the impact of climate and soil management on (mainly) saturated hydraulic conductivity has been discussed in recent papers but no such holistic analysis as those presented has been published yet. Even, as the authors pointed out, still climatic feedbacks on the (un) saturated hydraulic conductivity remain partly unresolved the results presented are a huge and important step forward. The manuscript is well written and structured and it was a pleasure for me to read. I would like to get more articles in such an excellent shape on my desk to review. As the methodology is well described and the analysis is rigorous and detailed I would recommend minor revisions. Some minor points are listed below and some very minor ones can be found in the attached scan.

We are thanking the reviewer for the positive feedback. We will address carefully all the reviewers' remarks in a revised version of this manuscript.

Line 57: ..soil with larger near-saturated K tend to generate less water flow in macropore networks... Maybe I got it wrong, but shouldn't soil with lower near-saturated K generate less macropore flow. Or is this a question at which pressure head range you define macropore flow or near saturation K?

What we mean here is that at a specific irrigation rate (e.g. 5 mm/h), a soil with a higher near-saturated K will generate less preferential macropore flow than another soil with lower near-saturated K. This is because pores with larger diameters (and tensions closer to 0) are necessary to maintain the same water flow rate in the second case than in the first case. We will make this clearer in the revised version of the manuscript.

Line 65:....double ring infiltrometer methods....

OK.

Line 91:.... and organic carbon as predictors for Ks.

OK.

Line 324: K100 should be introduced even if it should be K @ -100 cm I expect

OK.

Line 332: ...in the wet range... should be above 70 mm I believe as we are in the negative range.

We are thanking the reviewer for this comment. Throughout the manuscript, we have been addressing the matrix potential in terms of tensions, i.e. negative pressure. The wet range then corresponds to tensions below 70 mm. We prefer to retain this convention. We will point it out explicitly in the revised manuscript.

Table 4, 5 and 6: would be good to have the same colour coding for the Spearman rang correlation. Intuitively, I would use green as the best and red as the lowest but this is only a suggestion

We agree and will adapt the color coding of table 4 to the ones of tables 5 and 6 in the revised manuscript.

We also thank the reviewer for marking typos and errors in the sub- and superscripting in the annotated version of the manuscript sent by this reviewer. We will fix them in a revised version of the manuscript.