

***Interactive comment on* “Climate or land cover variations: what is driving observed changes in river peak flows? A data-based attribution study” by Jan De Niel and Patrick Willems**

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Received and published: 12 October 2018

Dear reviewer Thanks for your evaluation of our manuscript. We appreciate your comments and suggestions and would like to respond to them below. See also the supplement to this reply for a draft revised manuscript, incorporating the suggested changes.

COMMENT 1. Page 1 Line 7 - "increased urbanization": Not only urbanization but also some other land use/cover categories can have a great impact on the hydrological cycle. This word is recommended to be revised.

REPLY. OK. This will be changed to “land use/land cover changes” in the revised

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manuscript.

COMMENT 2. Page 1 Line 19 - "...it is very likely that further changes will...": You have to give a citation here or tell readers why you can make this conclusion.

REPLY. The reason why we make this conclusion, is expressed further in that paragraph: climate change projections from IPCC (2014) and impact analysis from Tabari et al. (2015), and UN (2018), Poelmans (2010) and Ruimte Vlaanderen (2017) talk about future changes in the built environment.]

COMMENT 3. Page 2 Line 1 - "...knowledge on some driver-effect mechanisms is still limited (Blöschl et al., 2007; Merz et al., 2012)": When you make the conclusion of the limitation in this study, recent articles should be cited in order to inform the reader that the conclusion is not out of date.

REPLY. Okay, we will add more recent references in the revised manuscript: Van Loon et al (2016) and Dey and Mishra (2017).

COMMENT 4. Page 2 Line 15 - "...mainly because of the heterogeneity in catchments globally and the scale of the river basin/catchment considered": What kind of heterogeneity catchments have? (heterogeneity of land use/cover change or heterogeneity of hydrological responses) Moreover, citations should be given to the conclusion here if this result is not a part of your research.

REPLY. Here, we mean the heterogeneity of hydrological responses of the catchments, partially originating in the heterogeneity of lulc changes. We will clarify this in the revised manuscript, and give the reference to Zhang et al (2017) as an example.

COMMENT 5. Page 2 Line 30 - Use Section instead of Sect.

REPLY. OK. This will be changed in the revised manuscript.

COMMENT 6. Page 2 Line 32 - As you are talking about the study area. "Study area and data" is suggested to be used for this section.

REPLY. OK. This will be changed in the revised manuscript.

COMMENT 7. Page 2 Line 35 - Give the full explanation of mTAW.

REPLY. mTAW is the local height datum, equal to the height, in meters, above local mean seal level. This will be added in the revised manuscript.

COMMENT 8. Page 3 Line 9 - You have to make the consistent on the numeric format. Please be advised to use 29 instead of Twenty-nine.

REPLY. According to the “manuscript preparation guidelines for authors”, numbers are spelled out when they begin a sentence. Therefore, we use “Twenty-nine” here. Therefore, we suggest to leave this as it currently stands.

COMMENT 9. Page 3 Line 14&15 - " For soil texture, taken from www.dov.vlaanderen.be, 3 domina...": Minor grammar suggestion. You can use "soil texture data is obtained from..."

REPLY. OK. We will adjust the revised manuscript accordingly.

COMMENT 10. Page 3 Line 21 - "The aim of the study is to find the (main) drivers ...": You have to make a decision whether including the word in the bracket or not.

REPLY. OK. The brackets will be left out in the revised manuscript.

COMMENT 11. Page 4 Line 6 - "...based on the DTM, the slope at every point in the catchment...": You do not have to say at every point; this sentence is suggested to be revised to "the slope in the catchment".

REPLY. OK. This will be left out in the revised manuscript.

COMMENT 12. Page 5 Line 14 - Equation 2: What is capitalized T?

REPLY. Capitalized T is the transpose of the vector/matrix. This will be added in the revised manuscript.

COMMENT 13. Page 6 Line 12 - "...the model did not improve (not shown)...": The

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model did not improve what?

REPLY. We will change this to “... model performance did not improve ...”.

COMMENT 14. Page 7 Line 11 - "...as seen in Figure 9.": Figure 9 or Figure 10?

REPLY. Figure 9. The idea is here that we link conclusions from Figure 9 with the Wetspa model (Figure 10). We will change this sentence to: “As such, findings with respect to the potential runoff coefficient from Wetspa can be related with the conclusions based on Figure 9”.

COMMENT 15. Page 13 - Figure 2: You don't have to give the data source here.

REPLY. OK. We will delete the reference in the revised manuscript.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2018-385/hess-2018-385-AC3-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-385>, 2018.

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