

## ***Interactive comment on “Land cover effects on hydrologic services under a precipitation gradient” by Ane Zabaleta et al.***

**Anonymous Referee #2**

Received and published: 7 September 2018

This paper, discussing the influence of precipitation and land cover on hydrological indicators, is well-written and fits well within the scope of HESS. There are a few things to clarify though before publication, as listed below. The main things I would like to see more clarified are how the base and 5 other land cover combinations are created and how dependent your conclusions are on changes in your assumptions (for instance a slight change in those combinations, or using only seasonal instead of 6 month precipitation, etc).

Introduction: P2, line 8-10: what is the deforestation in hectares and /or the afforestation in %?

Study area: P3: is the study area a closed drainage network (I assume so) or is there inflow from other / higher regions?

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Methodology: P4, line 26-30: for clarity you could already indicate here that the land cover for 2002 and 2009 is very similar, to support the ‘merging’ of the two 5-year periods of hydrologic observations P4: line 31: in specific discharge unit L/s/km<sup>2</sup> what is L? The letter would indicate a length but specific discharge = discharge / area so L would be a volume? P5, line 29-20: ‘Seasonal precipitation amounts . . . were also computed’, are they also based on estimates from the Environment and Hydraulic Works Department like annual precipitation or do you yourself compute them from the annual precipitation? P6, line 21-34: this section would be a bit more clear if you switch the paragraph starting in line 30 with that starting in line 25, since the “real values of explanatory variables” in line 23 are the land cover combinations explained starting from line 30 if I understand correctly? P6 line 25-29: How sensitive are your results to the choice to exclude outliers and to add precipitation of the previous study? i.e. are your conclusions different if you do not exclude outliers and / or only include precipitation of the 3-month season? P6 line 30 – P7 line 5: are your 6 land cover combinations the most common ones in the region? If so how much of the area do they represent?

Results and discussion: P8 line 20: Table 6 is mentioned before Table 5. Furthermore, you could mention in the table captions that you do not show insignificant results (now I wondered for instance why Table 6 did not include Sp90m – that results for Sp90m are insignificant is only mentioned in later sections). P8 line 21: I think you refer to figure 2b (Sp50m) instead if 3b (Sp10m) P9 line 14-16: what potentials are usually claimed?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2018-366, 2018.

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