

Interactive comment on “Scenario-based impacts of land use and climate changes on the hydrology of a lowland rainforest catchment in Ghana, West Africa” by Michael S. Aduah et al.

HHG Savenije (Referee)

h.h.g.savenije@tudelft.nl

Received and published: 6 December 2017

This paper presents a well-documented and well-performed scenario study of climate and land-use changes in a Ghanaian rainforest catchment. As a case study, this is interesting for our audience, although one can doubt the innovation of the approach itself. Although it is essentially a scenario study to support management decisions, it may be considered under the category of ‘cutting edge case studies’, in a catchment where such studies have not been done before.

Regarding the impact of land use on runoff, it would have been good if the authors had specified how land-use is connected to the parametrization of the hydrological

C1

model. It is not completely clear to me how land-use scenarios were coupled to model parameters and why certain values of these parameters were selected. As a result, it is very hard to judge how realistic the model results are in response to changing land use. I think that Section 2.2 and Section 2.3.1 should provide more detail on how land use is parameterized in the hydrological model, and how the model reflects the different land use scenarios.

Minor comments:

In line 77, please use the correct units [mm/y]. the mere mention of the word ‘annual’ in the text is no excuse for using the wrong unit. Precipitation is a flux and not a stock.

In line 23-34: ‘first ever and the most current information’ is a bit overstated. I suggest to write ‘necessary information’ instead

Figure 1 is hardly readable. Please use colours to distinguish the different boundaries and the river. Also the graphs would become clearer if clearer colours were used. For instance, Figure 11 is difficult to read.

In the caption of Table 3 write mean annual precipitation (MAP) in full.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-591>, 2017.

C2