

***Interactive comment on “Analysis of feedback effects and atmosphere responses when 2-way coupling a hydrological land surface model with a regional climate model – a case study for the Upper-Danube catchment” by F. Zabel and W. Mauser***

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Dear Editor, the submitted paper is based on the work, described in the paper of Zabel et al. (2012), published in HESS. However, the paper discussed here includes substantially important and new information – as the validation! In order to validate the bidirectional coupling approach, we focused on the Upper Danube catchment. Here,

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we showed that near surface air temperature could be improved by the use of the bidirectional coupling approach when compared with interpolated data from 277 meteorological weather stations. Further, this study includes catchment analyzes, including the impact on runoff and the water balance. We wanted everyone to be able to read the paper as a standalone paper, without reading Zabel et al. (2012) first. Therefore, e.g. Figure 1, that is essential for understanding the methodology is similar to the already published paper of Zabel et al. (2012). Reviewer #1 criticized the title of the paper: The atmosphere response to the bidirectional coupling is shown by the air temperature and precipitation, which in turn causes feedback effects at the land surface, shown by evapotranspiration and finally the water balance. Nevertheless, we suggest changing the title into: “Analysis of feedback effects and atmosphere responses when 2-way coupling the hydrological land surface model PROMET with the regional climate model MM5. A case study for the Upper-Danube catchment.” Lingual deficits according to the comments were corrected.

With best regards, Florian Zabel

Zabel, F., Mauser, W., Marke, T., Pfeiffer, A., Zängl, G., and Wastl, C.: Inter-comparison of two land-surface models applied at different scales and their feedbacks while coupled with a regional climate model, Hydrol. Earth Syst. Sci., 16, 1017-1031, Doi: 10.5194/hess-16-1017-2012, 2012.

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