Hydrol. Earth Syst. Sci. Discuss., 12, C6016–C6017, 2016
www.hydrol-earth-syst-sci-discuss.net/12/C6016/2016/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Predicting future US water yield and ecosystem productivity by linking an ecohydrological model to WRF dynamically downscaled climate projections" *by* S. Sun et al.

Anonymous Referee #3

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Major Comments: This work done by Sun et al. is trying to assess the potential impact of future climate change on water and carbon balance over the entire continental US by using dynamic downscaled climate data and process-based watershed scale ecohydrological model. The writing and data analysis are sound while it's hard to find novelties from this study. The authors talked about the impacts of future climate change on both ET and GPP but didn't discuss the linkage and interactions between these two fluxes.

This study seems not filling gaps the authors mentioned in the instruction. For example, the author listed two major research gaps. As to the first gap (i.e. few studies assess

impacts of future climate change on water and carbon balances at watershed scale), the authors mentioned that "key hydrological processes (e.g., lateral surface and subsurface flows among grid boxes) embedded in LSMs have not been considered", did this study considers these processes? As to the second gap (i.e. "future climate projections have high uncertainty"), the authors argued that "the statistical downscaling methods ... could introduce uncertainties into the crucial land surface variables", while they didn't discuss the advantage or new message come from this study by using WRF dynamically downscaled climate data, which I thought could be the uniqueness of this activity.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 12703, 2015.

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Interactive Discussion

Discussion Paper