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# *Interactive comment on* "Human amplified changes in precipitation-runoff patterns in large river basins of the Midwestern United States" *by* Sara A. Kelly et al.

**Anonymous Referee #4**

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This paper treats an interesting topic: the effect of human activities on the precipitation-runoff patters in the Midwestern United States. In the last century, the land transformation from natural to agriculture and urban areas seriously affected changes in the hydrology of the study area. The results suggested that storage has decreased in intensively drained and cultivated basins by 30%-200% since 1975, but increased by 30% in the less agricultural basin. This has amplified the streamflow response to precipitation increases in the Midwest.

While the results are quite interesting some important information is obscured or not well described:

- infiltration and hydraulic soil properties (e.g. spatial data);



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Discussion paper

- water storage capacity of ditches (what kind of ditches are these? Only surface drainage system? What about the sub-surface drainage network?);

- methodology to recognize/map ditches (the authors highlighted some issues in the underestimation of their extent; is this issue critical for the suitability of the final results?);

- surface runoff related to the different agriculture practices through years.

Also, some recent relevant papers related to the drainage ditch role in water storage capacity, effects of the changes in drainage ditches density and agricultural practices on water storage capacity are missed in the literature review.

Unfortunately, because of the above critical issues, the paper needs to be restructured adding extra info to provide a more clear view of the processes involved in the study area.

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