Review of: "Global carbon budget of reservoirs is overturned by the quantification of drawdown areas"

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Reservoir is important wetland ecosystem. Quantifying its carbon budget is of great significance for responding to global climate change. I appreciate the important research article recently published in Nature Geoscience by Keller et al.. Authors quantified the extend of global reservoir drawdown areas for the first time, revealed its temporal and spatial patters, and chosen stepwise multiple linear regression (MLR) to analyze the driving factors affecting the increase drawdown-area extent. In addition, based on the published areal emission rates, the contribution of global main greenhouse gas (CO_2, CH_4 and N_2O) emissions from reservoirs was re-assessed. They found that the drawdown areas have become carbon sources, of which carbon dioxide emissions was the most important source, rather than the carbon sinks considered by the traditional research. The new discovery challenges traditional opinion on the understanding of the carbon budget of reservoirs. In summary, the research is better unique and novel, and the analysis process in the research methods is relatively reasonable. Specifically, authors described the detailed analysis of uncertainty error propagation. However, there are the following problems or suggestions, please confirm them if necessary.

1. Authors showed that the proportions of climatic variables and anthropogenic factors to the effect of drawdown areas were very close, but the total contribution of the two accounted for only about half (52%). I would like to know if there are other climatic variables. For example, how much is the effect of evapotranspiration?
2. Baseline water stress measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Can this indicator be regarded as just a climate variable?
3. This sentence "Cohen’s D effect size=0.9; Table 1 and Fig. 3)" seems to be inconsistent with the label in the Fig. 3. Since this is the simulation effect for total CO_2e emissions from reservoirs, I guess Cohen’s D effect size=0.1.
4. The label of e in the title of Extended Data Fig. 7 should be modified to d.
5. Schematic diagram on the right of Figure 8 seems to be a 1:1 split ratio. I assume that it is easier to understand if it is modified to a split ratio of 3:2.

I am sincerely looking forward to your response!