Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., editor comment EC1
https://doi.org/10.5194/hess-2021-597-EC1, 2022

Comment on hess-2021-597

Lelys Bravo de Guenni (Editor)

Editor comment on "Use of expert elicitation to assign weights to climate and hydrological models in climate impact studies" by Eva Sebok et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2021-597-EC1, 2022

Initial Comments on HESS-2021-597

Use of expert elicitation to assign weights to climate and hydrological models in climate impact studies by Eva Sebok et al.

This work addresses a very important issue on climate impact studies, which is the uncertainty component associated to the use of different climate and hydrological models. However, the methods presented are rather unusual for the kind of analyses one is used to read in journals like this one. I praise your efforts in bringing the Hydrologist and Climate experts together, and your work demonstrate that there is a real difference in the physical systems modelling approach and model's predictability assessments between these two groups. However, I disagree about the use of the term "model democracy" especially if one is willing to accept the fact that "All models are wrong, but some are useful" (G.E.P. Box). Can you please properly define this term and/or use a different terminology?

Expert elicitation needs to be based on some prior information about model's performance, and this prior information can be updated when new data becomes available (Bayesian approach mindset). I am very concerned about your statement from line 375, and the fact that the climate experts were not comfortable with the EE methodology as a potential way of assigning weights to individual climate models. Can you please elaborate more on this?

I would also argue about how the experts' qualitative evaluation can be articulated within the most recent trends on the use of Artificial Intelligence and Machine Learning methods. How would you demonstrate that these expert's opinions are superior to a purely data driven approach? In addressing these important questions, you might enhance the contributions of your paper.

Reference error: Please note that there is a problem with the reference to Table 2 in line 195

Thanks again for your submission to HESS.