Comment on hess-2021-597
Anonymous Referee #1

Referee 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-RC1, 2022

Unfortunately, despite an admirable effort by the authors to produce a robust paper, it is a fatally flawed approach to assess impacts.

Here are several papers that discuss this issue.

Burgess et al: 2020: IPCC baseline scenarios have over-projected CO2 emissions and economic growth Environmental Research Letters 16 (1), 014016


Pielke Jr et al 2021::Most plausible 2005-2040 emissions scenarios project less than 2.5 degrees C of warming by 2100 R Pielke Jr, MG Burgess, J Ritchie SocArXiv

The more robust way to assess risk is the contextual approach proposed by
Applications of this approach can be found in


These uses of scenarios have become a cottage industry, but are poor science in my view.

If the authors still disagree, they need to quantitatively show in hindcast runs that the models can skillfully predict changes in regional climate statistics that matter to the hydrological impacts they are assessing. Reanalyses (of changes in regional climate statistics) are the baseline to compare with the models not between models.

This statement from their paper summarizies the inadequacy of the study

“The experiment resulted in a group consensus among the climate modellers that all models should have an equal probability (similar weight) as it was not possible to discriminate between single climate models, while also maintaining the importance of using as many climate models as possible in order to cover the full uncertainty space in climate model projection”

The uncertainty of the model results does NOT bracket the real world uncertainty. These types of studies are misleading policymakers.
I checked "reconsider after major revisions", rather than recommending "rejection" since the authors' methodology of accepting the climate model results as having demonstrated skill at multidecadal regional climate change statistics is applied throughout the impacts communities. The authors need to objectively respond to the view that the approach they are using is not scientific robust.