Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/nhess-2022-174-RC2, 2022

Comment on nhess-2022-174

Anonymous Referee #2

Referee comment on "Analyzing the informative value of alternative hazard indicators for monitoring drought risk for human water supply and river ecosystems at the global scale" by Claudia Herbert and Petra Döll, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-174-RC2, 2022

Review "Analyzing the informative value of alternative hazards indicators for monitoring drought risks for human water supply and river ecosystems at the global scale"

This paper analyses which drought hazard indicators are suitable for assessing and monitoring streamflow drought risks for human surface water supply and for river ecosystems. The authors recommend considering the habituation of people and ecosystems to the streamflow regime when selecting indicators. Eight existing indicators and three new indicators are proposed and evaluated using the model results of WaterGap.

The paper has potential but needs a proper revision before publication. The paper is very long and thereby is not always that clear/focussed and repetitive in some aspects. Overall sections can be shortened and may be ordered in a more logical way. For example, the introduction is very lengthy and lacks focus relevant to the objective of the work. Also, the methodology is at some aspects lengthy (too lengthy) whereas other aspects are not discussed at all. Altogether, from the current version of the manuscript, it is hard to judge the full potential of the research and research paper.

Methods and data:

Section 2.1: First, a minor comment, the model names WaterGAP2.2d, WGHM, WaterGAP are used for the same model I assume. However, this is a bit confusing. Furthermore, previous model results are used (namely from Müller Schmied et al 2021) and all details on model description and evaluation are not discussed in this paper. However, to better understand the results it would be useful to at least read a summarized description of the, for this study, most important parameters, assumptions made, uncertainties, and sensitivities and how this has, or has not, an impact on the evaluation of your drought

indicators.

Section 2.2: this section is very long and could be focused more on the new indicators and evaluation of the results.

In the method section, there is no description of how the results will be presented or evaluated/compared.

Figures:

It is not clear why the two grid cells were chosen. Also, it is not clear why March 2002 was chosen.

In the current manuscript legends and labels are off for e.g. Fig 3 (what are the lower and upper labels in the left legend, and the upper label in the right); Fig 4, placement of '0' and what is meant with '0 >0'; what comes after '1'; Fig 5, placement of '0'; etc.