Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2020-501

Anonymous Referee #2

Referee comment on "Aquifer recharge in the Piedmont Alpine zone: historical trends and future scenarios" by Elisa Brussolo et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2020-501-RC2, 2021

Dear editor, dear authors,

the HESS-manuscript submission “Aquifer recharge in the Piedmont Alpine zone: Historical trends and future scenarios” by Brussolo et al. addresses the impacts of climate change on the components of the water balance in northwestern Italy. Overall, the manuscript is well written and structured. Generally, the paper could be shortened by omitting repetitions; Tables could be prepared as illustrations or moved to the supplementary information; Figures 1 & 2 could be merged. At several locations (indicated in the annotated manuscript) specification would help.

As the main topic is “aquifer recharge”, the description of different groundwater recharge comes a little bit short. E.g. provide details on interaction processes of groundwater resources and surface waters (in- & exfitlration, etc.). Likewise, the whole link to groundwater (residual term of the water balance) and temperature imprinting is weak, resulting in a more qualitative assessment concerning the main topic “aquifer recharge”.

Beside annotated manuscript here some more specific comments:

- 68: *Recharge (for the sake of simplicity here defined as the difference between precipitation and actual evapotranspiration);* even though maybe appropriate for the investigations this must be justified in more detail.
- 96 – 103: move to methods section?
- 138: The difference between surface and subsurface catchments at least should be discussed to justify this assumption.
- “not shown here”: Maybe include in supplementary material?

Best regards

Please also note the supplement to this comment:
https://hess.copernicus.org/preprints/hess-2020-501/hess-2020-501-RC2-supplement.pdf