

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2022-173

Anonymous Referee #1

Referee comment on "Technical note: A sigmoidal soil water retention curve without asymptote that is robust when dry-range data are unreliable" by Gerrit Huibert de Rooij, Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-173-RC1>, 2022

Great thanks for the author's efforts in deriving a closed-form SWRC with a logarithmic dry branch for addressing dry-range data issues. This is particularly helpful when the SWRC is parameterized (within a physical range) for soils in arid and semi-arid areas, for which the numerical solution of Richards equations can easily crash. This reviewer is very interested by the proposed model, and had tried out the code with the example input and obs data as provided. Although this reviewer recommended the acceptance of this manuscript, there are a few technical comments for the author's considerations as below:

1. The model seems not working well for soil C2 and C4 soils. This reviewer is wondering if the author could help explain or hypothesize the relevant potential physical mechanisms behind it?

2. This reviewer appreciates very much the author for sharing his data/code/manual. And it is very well documented as well. Just a trial to make the applications easier for various users, and for their understanding, perhaps it would be nice to indicate a few places (in the code) to which equations (as numbered in the manuscript) the code are corresponding.

Some minor technical adjustments are attached.

Please also note the supplement to this comment:

<https://hess.copernicus.org/preprints/hess-2022-173/hess-2022-173-RC1-supplement.pdf>