Referee #1:

In my opinion the authors revised the paper accordingly so that it can be published. It is a great contribution for uncertainty quantification with NNs. While I consider it publishable, I still have some minor comments that could be addressed.

Reply: We thank the contribution from referees through this reviewing process.

L. 22 - 23

" while still addressing the higher uncertainty in out-of-domain samples."

This part of the sentence should be deleted, because it does not do so very effectively (as can be seen from the out of sample PICP).

Reply: Done.

L. 62 - 72

While I requested that such a section should be added, I feel it is now a bit too long and not well connected with the previous section and following section. It is important to mention QR due to its popularity and that it can be combined with CP. Then it can be discussed that QR is not (yet) available for all different types of NNs, which is why this new framework is

introduced based on MC and that MC, like QR, can be conformalized.

Reply: Thank you for the comment. We decided to keep this section as this part was also requested by the other referee in the first review round. This section is meant to provide introduction on other methods to quantify uncertainty, such as QR and Bayesian CNN.

We added a description to mention that QR is not yet available for all DL models and that CP can be integrated with QR and MC dropout.

"However, QR is not yet available for every DL model." In Line 66.

"CP can therefore be integrated with methods such as QR and MC dropout." In Line 94.

L. 99 - 103.

While I requested further context about other methods, in my opinion this new section can be deleted. It is not disruptive but also does not add much since this method is not really used. However, the authors also refer to UNEEC in L. 333, so if the authors deem it necessary, it can be kept.

Reply: Thank you for the suggestions, we decided to keep it as we also refer to it in discussion.

L. 106 - 107

It could be still useful to mention that it is also known as conformalized monte carlo prediction, as it is then easier to find this paper with search algorithms, as this is the more common name.

Reply: We add "Also known as Conformalised Monte Carlo Prediction" in Line 108.

L. 153

X_i needs to be italic like the other variables.

Reply: Done.

L. 380:

"address out-of-domain uncertainties." it only does so to a limited degree. Better drop this from the conclusions.

Reply: Done.

#L. 390 Data availability

When the authors publish the code, they should add the GitHub (or other code repository) link in this section and rename it to "Data and code availability"

Reply: Done. We added "The code used to perform MC-CP in this study is available via a GitHub repository (https://doi.org/10.5281/zenodo.15401499, Huang, 2025, and https://github.com/LloydYCHuang/Soil-MC-CP)." In Line 393.