

REVIEW egusphere-2025-4098 (2026-03-10)

The authors thoughtfully consider the reviewers comments and overall performed the required adjustments to the manuscript. This improved the manuscript considerably, particularly in terms of structure and clarity.

I only have a few small remaining comments that I would suggest considering before finally accepting the manuscript:

Small comments:

1. 1.172f: Can you add an explicit equation or reference for this calculation?
2. 1.256f: As already mentioned in the first review (smaller comment 4, 2nd sub-point): This sentence provides a lot of redundant information with the bullet points in 1.253f. Suggest removing bullet points or shorten text.
3. 1.300: Can you add the estimated value for s for this study?
4. 1. 326f: Related to the authors reply to smaller comment 8 from the first review: Thanks for the information. From your reply I understand that the cutoff scale is related to the background error correlations. Please add this information in the manuscript and specify the resulting correlation lengths of this study, if possible.
5. 1.448: I don't understand what you are referring to with "error patterns" of DA_AN and DA_PA. Fig.7d, 7f show the their deviations from CTR, right? Do you mean "deviation patterns" or "analysis increments". Please correct or clarify in the manuscript.

Technical and formulation-related comments:

- 1.35: “)” missing after “CONUS”.
- 1.80: A paper preprint related to Vogel et al.2025 is now available online (under review in NPG): <https://doi.org/10.5194/egusphere-2025-6386>
- 1.229: “and correlation” it looks like this was moved to the subsequent subsection, suggest removing from section title
- 1.293: You mean “equation 8”?