

Dear Editor,

Thank you for the comments and the opportunity to revise my manuscript. The reviewer comments and corresponding responses are provided below.

Reviewer Comment 1:

Add a note in the abstract clarifying that while S1 may be useful in other regions, it shows limited reliability in much of the Western U.S., including ERB, to avoid overgeneralizing the findings.

Author Response:

We agree and have revised the abstract to include a clarifying statement noting that although Sentinel-1 may be valuable in other regions, our results highlight its limited reliability in much of the Western U.S., including the East River Basin, and caution against broad generalizations of DA performance.

Reviewer Comment 2:

Clarify the justification for using a static error with the PF. The reviewer suggests explaining why a PF was used instead of a PBS with a dynamic error model, and adding a discussion referencing the preprint <https://doi.org/10.5194/egusphere-2025-2306>.

Author Response:

We appreciate this insightful comment. We have expanded the discussion to clarify our treatment of observation errors and the rationale for including PF tests. Specifically, we now explain that noisy observations are not inherently problematic for data assimilation if their uncertainty is well characterized. Our analysis showed increasing errors over time but no consistent spatial or interannual patterns, which limited the development of sophisticated dynamic error models. For simplicity, we treated observational errors as time-invariant for the PBS but acknowledge that dynamic errors can be incorporated, particularly in sequential DA methods such as the PF. To evaluate their potential benefit, we compared PBS results with PF implementations using constant and dynamic error formulations. The results indicated minimal improvement (<0.040 m MAE), consistent with recent findings (e.g., Dunmire et al., 2025; Lievens et al., 2022). We therefore conclude that using a constant observation error likely did not significantly affect our PBS results, though future studies should further investigate this assumption.

Sincerely,
Bareera Mirza