

Dear Editor and Reviewers,

We sincerely appreciate the time and effort you invested in evaluating our work, and we are especially grateful for your recognition of our study. Your thoughtful suggestions have undoubtedly improved the clarity and overall quality of the manuscript. Accordingly, in response to the reviewers' feedback, we have carefully revised the manuscript and addressed all comments in detail.

1. Please ensure that every abbreviation is defined at first use; the abbreviation "ALT" appears before its definition in Line 304.

We have carefully checked the entire manuscript and ensured that all abbreviations are defined upon their first use. In particular, we have revised the definition of "ALT" accordingly.

2. As a small addition to strengthen the manuscript, it may be worth citing one of the many studies discussing this issue, for example:

Orsolini, Y., Wegmann, M., Dutra, E., Liu, B., Balsamo, G., Yang, K., de Rosnay, P., Zhu, C., Wang, W., Senan, R., and Arduini, G. (2019): Evaluation of snow depth and snow cover over the Tibetan Plateau in global reanalyses using in situ and satellite remote sensing observations, *The Cryosphere*, 13, 2221–2239. <https://doi.org/10.5194/tc-13-2221-2019>

We have added references related to snow depth and snow cover over the Qinghai–Tibet Plateau (Orsolini et al., 2019; Cao et al., 2020) in “**Section 5.1 Applicability of the forcing data**” to better contextualize our findings. The revised text in Line 620 now reads:

“ERA5-Land skin temperature exhibits a notable winter cold bias over the QTP, likely due to overestimated snow cover persistence and excessive snowfall in the ERA5-Land snow reanalysis product. These factors enhance surface albedo, leading to exaggerated surface cooling—a bias well documented by Cao et al. (2020) and Orsolini et al. (2019).”

Reference

Orsolini, Y., Wegmann, M., Dutra, E., Liu, B., Balsamo, G., Yang, K., de Rosnay, P., Zhu, C., Wang, W., Senan, R., and Arduini, G. (2019): Evaluation of snow depth and snow cover over the Tibetan Plateau in global reanalyses using in situ and satellite remote sensing observations, *The Cryosphere*, 13, 2221–2239. <https://doi.org/10.5194/tc-13-2221-2019>

Cao, B., Gruber, S., Zheng, D., and Li, X.: The ERA5-Land soil temperature bias in permafrost

regions, *The Cryosphere*, 14, 2581–2595, <https://doi.org/10.5194/tc-14-2581-2020>, 2020.

Thank you once again for your time, effort, and support throughout the review process.

Best regards,

Lin Zhao

On behalf of all co-authors