

Author Response to Referees and the Editor

The Potsdam Soil Moisture Observatory: High-coverage reference observations at kilometer scale

Peter M. Grosse, Elodie Marret, et al.

Earth Syst. Sci. Data Discuss., doi:10.5194/essd-2025-546

RC: Reviewer Comment, AR: Author Response, Manuscript text

Dear editor,

we thank you and the referees again for the time and effort you invested in reviewing our manuscript, that is the revised version submitted earlier. And we happily noted that all three referees involved assess this revised version as excellent. Thus, we have focused on resolving the minor issues you requested, which only result from two remarks by referee #2.

Kind regards,

Lena Scheffele and Sascha Oswald (on behalf of the author team)

1. Responses to referee #2

RC: *I noted, however, that multiple terms (e.g., “soil water content” and “soil moisture”) are used to refer to the same variable. For clarity and precision, I recommend defining the variable once and using a single, consistent term throughout the text, figures, and tables. Given that “soil moisture” is used in the title, it would be logical to use this term consistently.*

AR: We now use mainly “soil moisture” except when we have to be more specific about what property we name and provide values. Therefore, in this respect only we use “water content”, but only if “soil volumetric water content” is addressed; and for that we have switched to the more common abbreviation “VWC” throughout the text and the graphs.

RC: *L580-581: I agree that the data can be used for the validation of large-scale soil moisture products. However, I do not see how it could support their development and calibration due to its small spatial extent. In contrast, the data set is well suited to support the development, calibration, and validation of process-based hydrological models. I therefore recommend revising the Conclusions section accordingly.*

AR: We have modified this passage in the conclusion section.

2. Remarks from the preceding review file validation

RC: *Regarding your figure 1: Please use the proper copyright statement for Google Earth according to the guidelines (please see <https://www.earth-system-science-data.net/submission.html#mapsaerials>) 2. Regarding*

figure 4: please include a copyright statement in the caption, too.

AR: These earlier remarks are mainly outdated, see the answer from your editorial office from 22/Dec/2025. The only possible issue relates to use the proper copyright statement in Figure 2, your statement "In fact, you are right and Figure 2 might be worth checking. The only critical point would be the red dot in the green part while the rest might be perfectly fine." We have improved the copyright statement in Figure 1 and 2. We have not changed the graph, as the red dots also have a visible labeling number, which helps to identify it. Also, we rephrased a sentence in the section on "External data".

3. Modifications on own account

We further modified the manuscript to

- correct a fragment of naming the right remote sensing product in the text, which we had revised only in the caption of Figure 9, but not the text itself.
- remove two typos
- consistently use full journal names in the list of references (not visible in the track changes version)
- remove unnecessary capitalizing of words in titles in the list of references (not visible in the track changes version)

4. Closing statement

Thus, finally we hope for this further revised version now to be accepted as is.

Best regards,

the corresponding authors on behalf of the author team