

SOIL Discuss., referee comment RC2
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Comment on soil-2021-13

Anonymous Referee #2

Referee comment on "Impact of freeze–thaw cycles on soil structure and soil hydraulic properties" by Frederic Leuther and Steffen Schlüter, SOIL Discuss.,
<https://doi.org/10.5194/soil-2021-13-RC2>, 2021

This study was to analyze the cumulative effects of multiple FTC on soil structure and soil hydraulic properties for two different textures and two different initial structures.

I have decided to minor revision for Soil due to the following reasons:

- The description of freeze-thaw experiment is not clear enough. It is unrecognizable from Fig. 1B that how long a specific freeze-thaw cycle is. It seems that the temperature in each cycle is not strictly controlled to reach the same temperature. What is the reason and practical significance author select this freeze-thaw temperature?
- In this study, the author proposed a concept of pore distance. However, it seems that the pore distance shown in Fig.1d is not consistent with the actual situation.
- Line 26: What is the definition of a meso-pore system?
- Lines 113-116: The effect of freeze-thaw cycles on soil structure would be controlled by soil moisture. The author changed the original soil water content before the experiment, but did not present relevant data.
- Figure 3 and 4: I'm confused about the unit of frequency.
- "3.2 Soil structure of subsamples after 19 FTCs", I think it should be "3.3".
- Beyond that, the "4 Conclusion" should be "5 Conclusion".