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Interactive comment on "Are researchers following best storage practices for measuring soil biochemical properties?" *by* Jennifer M. Rhymes et al.

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The authors of this manuscript investigate the effects of storage method and duration on soil dissolved organic carbon (C) and nitrogen (N), and inorganic N. They identified common storage parameters through a literature survey and an online survey, and then tested how these common storage methods affected recovery of extractable dissolved C and N. Based on this experiment they report recommendations for storage of soil samples. This manuscript is important to Soil science community and fits well within the scope of SOIL. The manuscript highlights the of standardization in storage parameters when measuring dissolved C and N. Furthermore, they found that different

soils (subsoil vs topsoil) were affected differently by storage method. This manuscript was well written and pleasant to review. My major recommendations are related to the esentation of the case study data, and discussion of Soil storage methods. General comments: I believe the manuscript as a whole would benefit from including the major findings from the case study into the main text. These results are currently included in the Results section of the supplement. Furthremore, when included in the main text, the major findings of the case study should be briefly summarized in the abstract. Section 1 clearly states the importance of the standardizing soil storage methods.

Section 2 The Case Study is the strongest evidence that there is a problem with non standardized storage methods. Therefore, the results of the study should be included in the manuscript. The figures could remain supplementary since Table 2 summarizes the results. However, the Results should be moved to the main text with appropriate figure citations included in text. Line 93. Were the statistics performed in R? This should be stated and if the mixed effects models were performed using an R package that package should be cited. It appears they are cited in the supplement. That should be moved to the main text. Line 111-115 - Table 2: There appears to be a discontinuity between the table legend and the table itself. The table legend specifies that Red and Green squares, while the table has dark and light grey squares. It appears to be properly labeled in the note at the bottom of the table. Line 112-113 - I am not following the statement from the legend, "Green denotes appropriate storage method with additional recommendations for storage length". Where are the additional recommendations? If they are in the main text I believe that should be specified. Line 113 - I am also confused by this statement "Where we do not specify, stored samples did not differ from fresh samples through the entire experiment, 430 days." The only areas not specified are the dark grey boxes, which I understand to indicate an inappropriate storage method. Please clarify. Additionally, if they did not differ during that time, then the sign should be greater than or equal to, or simply stated that recommendations beyond 430 days can not be made due to the length of the experiment.

Section 3 and 4 are strong. However, it appears to be implied that these recommendations are specific to studies comparing different soil, e.g. topsoil vs subsoil. Based on the study and the recommendations, it does not appear to apply to researchers carrying out an ecological study using a single soil that has been experimentally manipulated. If the authors agree with my conclusion then they should state that their recommendations do not apply in the circumstance. If they do not, then I they should provide a strong argument for why not.

Section 5 The authors should also address experimental manipulations of single soil types here as well.

Technical notes Line 19 space needed between “andNO3” Line 31 I think this citation may be wrong in the citation manager because it does not have the author’s name here or at the beginning of the citation in the references Line 60 Add a space after the 4 and before the degree symbol Table 1 Formatting to prevent last letter of some words moving to next line Line 180, I don’t think the parentheses are necessary around 2020

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