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Reply on RC1

Melissa Sophia Schwab et al.

Author comment on "Environmental and hydrologic controls on sediment and organic carbon export from a subalpine catchment: insights from a time series" by Melissa Sophia Schwab et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-705-AC2, 2022

We appreciate the encouraging comments and wish to thank the reviewer for the effort and time spent reviewing the manuscript.

Current literature provides several accepted protocols for handling and storing dissolved organic carbon. Storage and preservation methods include a variety of containers (borosilicate vs HDPE), biocides (e.g., $HgCl_2$, NaN_3, HCl, HNO_3), and storage temperatures (refrigerated vs frozen). The commonly recommended methods are frozen storage (Walker et al., 2017; Heinz and Zak, 2018) and the storage of acidified samples in cold temperatures (4º C) (Cook et al., 2016; Nachimuthu et al., 2020). However, both options are characterized by advantages and disadvantages. Thieme et al. (2016) and Walker et al. (2017) demonstrate that freezing might preserve dissolved organic carbon concentrations and isotopic compositions while Spencer et al. (2007) and Thieme et al. (2016) argue that freeze/thaw cycles likely affect chemical and optical compositions of dissolved organic matter. Opinions further differ regarding the pre-treatment of dissolved organic carbon for freshwater and marine water samples. Regardless of the preservation method, organic carbon will be subjected to decomposition and alteration with increasing storage time.

Due to the low concentrations of dissolved organic carbon concentrations in the Sihl River, 20 mL of sample material were concentrated in precombusted gas-tight 12 mL exetainer vials by repeated freeze-drying of 5 mL aliquots. The vials were stored frozen until further analysis. We have failed to include this preparation step in the methods and have revised section 2.3.

References

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