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Interactive comment on "Enrichment of trace metals from acid sulphate soils in sediments of the Kvarken Archipelago, eastern Gulf of Bothnia, Baltic Sea" *by* Joonas J. Virtasalo et al.

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Response to Referee #2

We thank Referee #2 for insightful and constructive comments that help improve the manuscript.

Referee's comments are justified and comparably minor. A few of comments require more consideration than changes to wording. These will be considered as follows.

The use of the sieve fraction <63 μm for multielement analyses is a common practice in geochemical analysis because cations generally are adsorbed onto fine particles.

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The studied sediments are fine grained, with the median grain sizes ranging between 2 and 3 μm. Only one sample had more than 1 % grains larger than 63 μm (6.7 %). Because of the insignificant contribution of grains larger than 63 μm in our samples, the analysis of sieved fraction is not considered to have significantly impacted our results or conclusions, as also suggested by Referee.

Multielement and grain size analysis results will be published in the PANGAEA online data archive after this manuscript has been accepted for publication.

We will elaborate the inferred relationship between trace metals from acid sulphate soils, 2-6 μm grain size fraction, and C&N in the revised manuscript. The statistical relationship is shown by two independent methods. However, we agree with Referee that the statistical relationship rather "suggests" than "indicates" a causal correlation.

The rest of Referee's comments can be fully addressed in the revised manuscript.

Kind regards on behalf of all co-authors,

Joonas Virtasalo, Geological Survey of Finland

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