

## Cryosphere journal review:

Review article: Terrestrial dissolved organic carbon in northern permafrost

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### General Comments

I thank the authors for their reply to my comments and concerns about the manuscript. The changes made in response to all reviewers comments have improved the manuscript. I've noted a few typos and minor changes that could be made below, but on the whole, I think it is a good paper that will add to the body of evidence on DOC concentrations. I also think it is important to highlight the data gaps found by compiling this database. The lack of mobilisation measurements and data show a clear gap in the C cycle of northern peatlands.

### Specific Comments

#### Abstract

The DOC concentrations in lines 36 to 40 are confusing: Are these maximum concentrations? "DOC concentrations were greatest in the sporadic permafrost zone (101 mg L<sup>-1</sup>) while lower concentrations were found in the discontinuous (60 mg L<sup>-1</sup>) and continuous (59 mg L<sup>-1</sup>) permafrost zones."

Then reporting median values as 'highest medians'? These values are smaller than those in the previous sentence.

"The highest median DOC concentrations of 66 mg L<sup>-1</sup> and 63 mg L<sup>-1</sup> were found in coastal tundra and permafrost bog ecosystems, respectively. Coastal tundra (130 mg L<sup>-1</sup>), permafrost bogs (78 mg L<sup>-1</sup>), and permafrost wetlands (57 mg L<sup>-1</sup>) had the highest DOC concentrations in the permafrost lens, representing a potentially long-term store of DOC."

#### Introduction

Paragraph 1 makes the purpose of the paper really clear

Line 77 typo 'concentrations'

#### Method

The literature search method is mostly clear. I'm still not sure why the search on Google Scholar is mentioned twice in section 2.1 though. Could Tables 1 and 2 could be combined into one table, reducing repetition?

Was the carbon:nitrogen ratio (mentioned in line 207) a ratio of DOC:DON, or soil C content:soil N content?

Line 212: "Ratios in C:N have been shown..." do you mean decomposition rate, or potential? Or how decomposed the soil already is?

Line 220 – 269: Could some of the site, ecosystem and soil info be put into a table? The list in prose is quite hard to follow as it contains so much information. I appreciate some of this text was added in response to a query in my first review.

### Results

I appreciate the addition of section 3.4 to the results, and the change in the way median and interquartile ranges are reported.

Line 489 typo: acro

Line 505 typo: in in

### Discussion

Line 798 typo: assessed..