

Interactive comment on “Tracing the transport of colored dissolved organic matter in water masses of the Southern Beaufort Sea: relationship with hydrographic characteristics” by A. Matsuoka et al.

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Dear Reviewer #3, Responding to your comments, the text has been revised. Please find below our detailed response to your comments and suggestions.

This is an interesting and well written paper. The analysis is intuitively sound, the figures are clear, and it is a much needed contribution to the literature on the global distribution and dynamics of CDOM. I would only ask for a few changes.

In the introduction, page 1107, there are several references to papers (Amon and
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Benner, Opsahl) which the authors state discuss origins of CDOM. This isn't strictly correct; those papers deal with bulk DOM and do not specifically address the visible-light-absorbing fraction. The authors should recast this to reflect this, as it is a question whether bulk DOM characterization and processes apply to CDOM in particular. Clearly in some cases they do not - in the case of bleaching of CDOM in surface waters of the subtropics the absorption property of the water is greatly decreased while the DOC content is increasing.

Corrected (lines 138-143).

In the conclusions, the authors mention for the first time fluorescence of CDOM. This should be removed, as the authors don't present fluorescence data. It is not clear that fluorescence always correlates to CDOM absorption. In this paper the authors clearly show that there is a good case for local correlation between CDOM and DOC, which is fine; this is backed by data. Fluorescence is not, in this case.

We agree with the reviewer. However, this conclusion is important for tracing different water masses using a fluorescence sensor in the future. So, we added the description about the relationship between aCDOM(440) and fCDOM in the appendix A3 (lines 604-640) with Figure A3 and Table A1. Using those coefficients provided in the Table A1, aCDOM(440) can be derived from fCDOM value alone in different water masses in a field observation.

p.111010/references: Aagaard is misspelled (only one g I believe)

Corrected (lines 101, 231, 256, 452, 643, 645, and 694).

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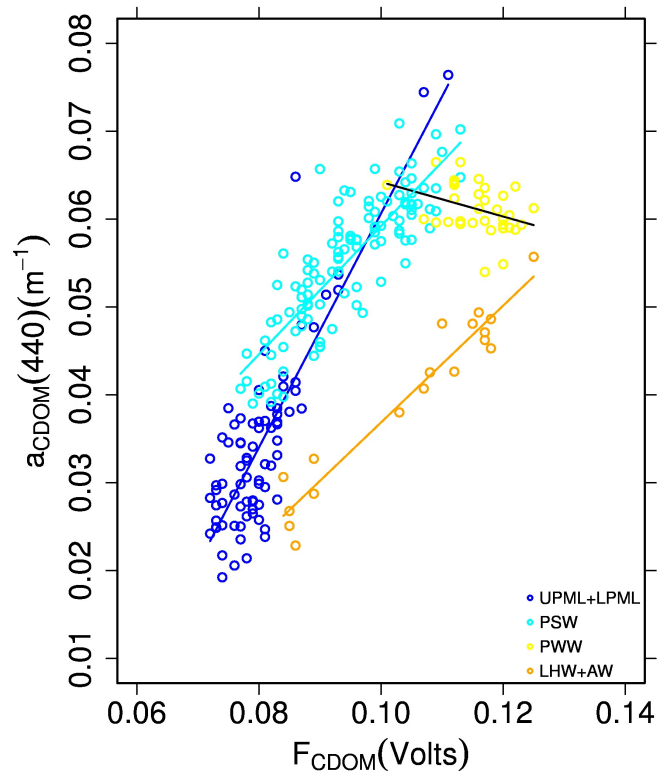


Fig. 1.

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