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Comment

Interactive comment on “Remote sensing the dynamics of suspended particles in the Mackenzie River plume (Canadian Arctic Ocean)” by D. Doxaran et al.

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This paper deals with the in-situ and remotely assessed distribution of particulate properties in the Mackenzie River plume. The topic is important as the region in question is remote and barely accessible and is experiencing important changes (hence the need for baseline). I applaud the authors for their efforts to obtain these data.

I recommend this paper for publication but have several comments below (and many on the manuscript) that I believe can make this work much stronger.

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The paper could benefit from further editing (I have annotated a lot on the attached PDF). The science presented is sound but could benefit from more comparison of what people have found at other coastal environments (to answer the question: does every river need a fine-tuned algorithm or can we use one for most). Indeed, the results found here are consistent with those found at many other coastal environments.

An algorithm for the detection of SPM is proposed, validated and applied. Several such algorithms exist yet there is no attempt to explain why they were not applied. Only MODIS aqua data is used and it is not clear why other available remote sensing data were not applied, especially given the paucity of data.

There are speculations about flocculation being an important process in the plume. Salt-induced flocculation is important at the low salinity end of the spectrum ($\ll 4$ psu). Beyond that horizon dilution (and maybe settling) could explain the observation. Linear relationships with salinity suggest 'conservative' behavior such that is associated with dilution. Particulate composition seems to be consistent with that (Fig. 10).

Dear authors, I am often wrong. If you feel I have 'missed the ball' feel free to contact me and, if proven wrong, I will be happy to change my opinion.

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/9/C1396/2012/bgd-9-C1396-2012-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 9, 5205, 2012.

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