

Second review of '*Patterns of suspended particulate matter across the continental margin in the Canadian Beaufort Sea during summer*' by Ehn, Reynolds, Stramski, Doxaran, Lansard and Babin

Many improvements have been made to this manuscript. It is now much easier to read, has a more logical structure, and the important results are clearer. There were still a few places where I found the manuscript confusing. In addition, I questioned why 2007 were data removed from the revised manuscript? I also have some minor suggestions, listed below:

- Page 1, Line 18 – Put (Fig. 1) after Mackenzie Shelf
- Figure 1:
  - o Mackenzie Trough and Kugmallit Valley should be labeled
  - o I still can't tell the difference between the purple and red stars
  - o Please make it clear in the caption that the small black dots are stations sampled by the barge
- Page 2, line 23 – Where is the proof that the material reaching the Canada Basin deep ocean is thousands of years old?
- Page 3, lines 3 to 11 – I find these sentences difficult to read and confusing. I suggest that the authors tighten up the writing so that the main points are clearer.
- Page 6, lines 23 to 24 – Why are the end members used here for Pacific Summer Water different than those used by Yamamoto-Kawai et al. (2008)?
- Section 2.6 – Please state in this section the depth of the various instruments on the moorings.
- Figure 2 – I think that this figure would be much easier to read if the stations were added to it. I find the varying bathymetry disorienting and I think it would be easier to read if the stations were on the figures as stable objects.
- Figure 3:
  - o I can't read the colorbars in a) and d)
  - o I suggest that the range for all colorbars is the same (-9 to 9 cm/s)
- Page 8, lines 11 to 15 – Please rewrite to make the key points clearer. Has this eastward current been observed before in this area?
- Page 8, lines 25 to 26 – This sentence doesn't make sense to me. Please clarify.
- Page 9, lines 2 to 3 – Water at 13 m is not surface water. Please clarify.
- Page 9, lines 15 to 16 – Here POC/SPM ratios are reported in fractions but they are reported in percentage in Figure 5. I suggest that these units are consistent.
- Page 9, lines 16 to 18 – Please add (Fig. 5a) at the end of this sentence.
- Page 9, line 34 – Based on the caption, I don't think that Fig. 5c shows subsurface water, just surface samples
- Section 3.4:
  - o Why weren't sections of POC shown?
  - o Why was 2007 data excluded from the revised manuscript?
- Page 12, line 17 – I suggest adding 'At the surface' before 'SPM decreased...'

- Page 13, lines 10 to 13 – I find this sentence confusing. I don't see any data describing shelf circulation in this manuscript.
- Section 3.4.2
  - I suggest that this section is rewritten so that it has more clarity. I found it difficult to follow and to understand the key points of this section
- Page 13, line 19 – I don't think 'inversions' is the right word here. Perhaps 'features' is a better word?
- Page 13, line 23 – Which station has a 1000 m thick BNL?
- Page 13, line 26 – At what depth was the BNL at station CB-27?
- Page 13, line 31 – At what depth was the INL at stations CB23, CB27, and CB21?
- Page 15, lines 21 to 22 – Please add a reference to this sentence.
- Figure 12
  - I find figures 12a and 12b difficult to read
    - The labels are challenging (e.g. does D08 stand for December 08?)
    - I can't see the inset line of axes values on Figure 12b
    - I suggest that for CASES, MALINA, and CFL that data from 1-2 months before the cruises are shown. I don't think that a full year of data are needed here
  - Figure 12 c – there is no colorbar to indicate current direction – please add
- Page 15, line 31 – I think that there are westerly winds from October and December through March?
- Pages 15, lines 30 to 34 – I find these sentences confusing and contradictory. Please clarify.
- Page 16, lines 16 to 17 – I can't see cross-shelf currents in figure 12a. They're undoubtedly there but there is not enough information in the caption or figure for me to tell when currents are cross-shelf