Biogeosciences Discussions

Biogeosciences Discuss., referee comment RC2
https://doi.org/10.5194/bg-2020-462-RC2, 2021

Comment on bg-2020-462

Anonymous Referee #2

Referee comment on "The impact of the freeze–melt cycle of land-fast ice on the distribution of dissolved organic matter in the Laptev and East Siberian seas (Siberian Arctic)" by Jens A. Hölemann et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2020-462-RC2, 2021

The authors present an impressive data set collected over a longer period, from a region which importance for the Arctic Ocean is substantial. This data simply needs to be published and the authors are acknoweldged for making the data publicly available.

That said, I found that the manuscript only scratches the surface, and the authors could have done a much thorough job to at least have a closer look at some aspects of the data they present. Admittedly the Siberian shelf system with runoff, sea-ice formation, sea-ice melt, complex circulation pattern is also very complex to understand, and thus also a more thorough examination of the data is warranted.

Salinity-property plots are not well equipped in such a system with multiple source waters, and the oxygen isotope data available to the authors should have been exploited more fully with the DOC and CDOM data. Also a closer look at the S275-295 for evidence of possible photodegradaton should have been done more thoroughly.

It would also be nice to see a more thorough discussion on how this data can help to explain the formation of the Arctic halocline waters.

Detailed comments are given in the attached pdfs (as a zip file).

Please also note the supplement to this comment:
https://bg.copernicus.org/preprints/bg-2020-462/bg-2020-462-RC2-supplement.zip