

## ***Interactive comment on “Pigment signatures of phytoplankton communities in the Beaufort Sea” by P. Coupel et al.***

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We would like to thank referee 1 for his report about our paper. We greatly appreciate the positive and constructive comments and will take care to answer each of them. The referee feels that we could focus more on the importance of using different methods to characterize the phytoplankton communities. We fully agree with this point and will put more emphasis on the importance of using other, complementary, approaches to accurately characterize the phytoplankton communities. We will modify the introduction and conclusion accordingly, to avoid overselling the merits of the CHEMTAX method. Our aim was not to present pigments as a method that outperforms other approaches of characterizing phytoplankton communities. Some critical information such as the carbon content or species composition cannot be obtained with pigments. Nev-

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ertheless, we thought that the development of pigment-based method like CHEMTAX should be encouraged as it provides an especially well-adapted method, if regionally calibrated, to monitor the dominant phytoplankton groups from year to year with good reproducibility. We understand the hesitancy of referee 1 to create an “Arctic-specific” parameterization as the ratios and species require regional calibration. As proposed by the referee, we specified that our parameterization is adapted for use in the Beaufort Sea but can be used as a starting point for future Arctic CHEMTAX work. We added the root-mean square error (RMSE) in Fig. 8 and Fig. 9. Explanations are included in the figure captions. We greatly appreciate the time taken by referee 1 to point out the grammatical and conjugational mistakes in order to improve the manuscript. The detailed comments of referee 1 have helped to improve the manuscript. We will address all of the specific and technical comments raised by referee 1. As soon as a corrected version of the manuscript is available we will be able to provide a full report of the modifications with their line numbers.

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