**Regional chlorophyll-a algorithms in the Arctic Ocean and their effect on NPP estimates**

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The Arctic is warming at approximately twice the global rate in response to anthropogenic climate change, resulting in disappearing sea ice, increased open water area, a longer growing season, and increased annual net primary production (NPP) by 30% (Arrigo & van Dijken 2014).

To quantify changes in NPP, models require inputs of chlorophyll *a* concentrations (Chl *a*), which serve as a biomass proxy for phytoplankton. While global ocean color algorithms are useful for global estimates of Chl *a*, the algorithms are prone to errors at high latitudes for two main reasons. First, high latitude systems are severely underrepresented in the calibration of global Chl *a* algorithms. Second, the Arctic Ocean deviates from global trends because of the bio-optics of the region resulting from high pigment-packaging and high CDOM concentrations.

In this study, we compare satellite retrievals of Chl *a* and the resultant NPP estimates against in situ data from recent oceanographic cruises in the Chukchi Sea to identify the best Chl *a* product to use in estimating NPP for various regions of the Arctic Ocean.