predicting the iceberg from its tip: resolving integrated, water-column particle biogeochemistry using measurements from just the upper optical depth

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As satellite ocean color algorithms advance to measuring new products other than just chlorophyll *a*, there is a fundamental need to extrapolate surface biogeochemical products such as particulate inorganic carbon (PIC), coccolith concentration, particulate organic carbon (POC) and biogenic silica (BSi) to integrated values throughout the euphotic zone. We summarize the results of 16 cruises throughout the world ocean, measuring such surface and vertical profiles from high latitudes to equatorial waters. We test whether these vertical distributions differ from an assumption of homogeneity, and how the vertical profiles vary from each other and also from the vertical profiles of chlorophyll *a*.

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