

A Comparison of Particulate Organic Carbon (POC) From *In situ* and Satellite Ocean Color Data off the Coast of Antarctica

Particulate organic carbon (POC) in the ocean is an important component of the global carbon cycle. The fluxes of carbon in the ocean are important, but still not fully understood, especially how the fluxes will vary due to climate change. Estimating POC from ocean color satellite data is a vital tool for understanding the carbon cycle. POC algorithms need to be validated because they involve optical proxies to estimate a globally dynamic and complex geophysical parameter. In this study, three different bio-optical algorithms were compared to *in situ* POC measurements for samples collected near the Antarctic Peninsula. *In situ* POC concentrations ranged from 79.0 to 232.2 $\mu\text{g/L}$ while satellite POC estimations ranged between 16.0 and 244.4 $\mu\text{g/L}$ for the same dates and locations. The mean absolute percent differences for the three algorithms ranged between 16.4 and 67.1%. No significant difference exists between the three algorithms and the *in situ* data. These results support the validation of all three of these algorithms for this study region, however Algorithm 1 estimated POC with the smallest uncertainty.

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