Multimethod comparison and optimization of remote sensing algorithms within the Gulf of Alaska

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Abstract

Ocean color-derived quantities are invaluable for providing spatial and temporal coverage of the global ocean across many physically and biologically relevant length scales. In this study we compare existing global algorithms for chlorophyll-a, particulate organic matter, and net primary production (NPP) with regionally optimized parameterizations to explore apparent regional idiosyncrasies. We find that autonomous underway instrumentations provide valuable context for sub-grid scale variability.

**1. Introduction**

**2. Methods**

**2.1 In situ Observations**

*Chlorophyll—*Discrete chlorophyll samples were taken at 6-8 depths at every station.

*Particulate Organic Matter—*Particulate organic matter concentrations were determined at 6 depths spanning the euphotic zone. Two liter samples taken from the Niskin rosette were filtered onto precombusted GF/F (Whatman) filters under gentle vacuum. Filters were then frozen and stored at -80C until laboratory analysis.

*Net Primary Production*—Primary productivity was determined through 24 hour incubations of labeled 13C bicarbonate uptake.

*Particulate Backscatter and CPhyto*—Continuous underway measurements of particulate backscatter were collected.

**2.2. Remote Sensing Retrievals**

**2.3 Remote Sensing Algorithms**

**3. Results**

**4. Discussion**

**References**