Monday, October 8
Poster Session 1
16:00–18:00

Poster 81

MOVING UP THE FOOD CHAIN; SATELLITE BASED ESTIMATES OF HETEROTROPHIC RATES AND CARBON EXPORT POTENTIAL

Surface ocean organic particles, specifically total particulate organic carbon (POC) and one of its constituents, phytoplankton carbon (Cphyto), represent important components of the marine carbon cycle. Empirically derived optical proxies for these carbon pools applied to satellite retrievals of particulate backscattering offer global coverage of POC and Cphyto. POC and Cphyto display distinct spatial and temporal patterns associated with oceanic provinces, often with similar seasonal patterns but distinctly different from the pattern in Cphyto:POC ratio. While the concentrations of these organic particles are in and of themselves interesting, understanding the processes that drive their variability are important for understanding the fate of carbon in the marine environment. The particles we measure and observe in the ocean represent the particulate matter that has escaped a multitude of loss processes (e.g. viral lysis, grazing, bacterial degradation, physical removal). We investigated the patterns in organic particle pools, as well as Cphyto:POC, relative to s0me of the dominant loss processes, including bacterial carbon demand and zooplankton grazing, measured over a wide range of oceanic conditions. In doing so, we found relationships that allow us to evaluate rates of these dominant heterotrophic processes at the global scale. This approach will provide a better understanding of the balance between loss processes impacting patterns in Cphyto and POC. Perhaps more importantly, it allows us to explore where and when particulate carbon in the surface ocean is more likely to be recycled in the mixed layer or exported to the deep ocean.

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