The CAFE Model: A Next-Generation Net Primary Production Model

**Greg Silsbe**, Michael Behrenfeld, and Toby Westberry

Department of Botany & Plant Pathology, Oregon State University, USA

Abstract:

This poster describes the on-going development of the CAFE model (Carbon, Absorption, Fluorescence, and Euphotic Resolved), a next-generation approach to model global net phytoplankton production and growth rates from ocean color imagery. A central component to this model is an improved mechanistic understanding of phytoplankton photoacclimation in the global ocean (Behrenfeld et al. submitted). The CAFE model parameterizes this new photoacclimation model in terms of cellular stoichiometry (light-harvesting capacity to carbon) and photo-physiology (the light saturation parameter EK). These data are then applied to ocean color imagery to explore phytoplankton phenology and productivity across major oceanic biomes.