

UNCERTAINTY QUANTIFICATION FOR INFERRING MARINE BIOGEOCHEMICAL CYCLES

Nature is not linear; we often model it that way because solutions come to us more readily. Organisms rely on their environment to sustain them and understanding how is a grand challenge in a resource-depleted world. The article by Parslow et al. (2013) to appear in *Ecological Applications* ([view article here](#)) considers the very building blocks of the ocean, namely nutrients in the form of nitrogen, phytoplankton, and zooplankton. Their interaction is modeled by a series of non-linear differential equations embedded in a Bayesian hierarchical model, where particle filtering was used to compute the posterior and predictive distributions. Our data in this article come from a single ocean station and hence are purely temporal, but we are well into developing our approach for spatio-temporal data from many stations. We are now able to address questions about biogeochemical cycles, in the presence of uncertainty, for this crucial part of the ocean's food web.

For further information, contact [Distinguished Professor Noel Cressie](#).