



Sensitivity of a complex ocean ecosystem model to choice of physical general circulation model

B. Sinha (1) and T. R. Anderson (1)

(1) National Oceanography Centre, Southampton, UK.

Experiments were performed where the same ecosystem model, with identical parameterizations of biogeochemical processes, was embedded in two contrasting physical models, namely OCCAM and OPA. The two physical models have comparable horizontal resolution and external forcing, but different numerical grids, vertical resolution and mixing parameterizations. The PLANKTOM5.0 ecosystem model was used in this study, which includes five plankton functional types or PFTs (three phytoplankton and two zooplankton), as well as biogeochemical cycling of five elements (carbon, oxygen, phosphate, silicate and iron). Comparison of bulk ecosystem properties (primary production, export, biomass), and partitioning among the different PFTs, between the two simulations indicates considerable sensitivity to choice of both physical model and ecosystem parameterizations. The implications of our findings for climate change simulations are discussed.