## Coupling Between Interannual Fluctuations of Mixed Layer Properties and Plankton Biomass Using Global Ocean Model Simulations and Remote Sensing Data

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Marine biota plays an extremely important role in the global carbon cycle. The biological pump transfers a considerable amount of carbon from the atmosphere and the euphotic zone to the deep ocean as organic matter, the basic mechanism being fixation of inorganic carbon into organic molecules during photosynthesis. This has an important bearing on the long-term climate in response to changes in atmospheric carbon dioxide arising out of anthropogenic emissions. Plankton biomass and mixed layer properties are the main components of the carbon cycle. Only modeling and synthesis will yield the insight into the physical, chemical and biological processes which influence the carbon cycle on wider spatial and temporal scales.

Based on the seasonal variations of the physical and biological properties of the mixed layer of different regions of the Indian ocean (30°S:27°N latitude and 35°E:110°E longitude), we have divided the ocean for this study into three components viz. Arabian sea, Bay of Bengal and South Indian Ocean. In this paper we intend to study the interannual and seasonal variations of mixed layer properties and plankton biomass using an OGCM (MOM4p1, GFDL) which is coupled to a sea-ice model having embedded with biology. The global ocean model was spun up with climatological forcing for 100 years and then forced with CORE inter annual fluxes.

For validating our model results we have used remotes sensing dataset from various sources.-monthly sea surface temperature from TMI, Chlrophyll-a from SeaWIFS, ocean surface winds from the QuikSCAT Scatterometer, temperature and salinity derived from ARGO profiles and TRITON buoy data. The details of the interannual changes will be presented at the conference.