Initialising seasonal forecasts of global ocean biogeochemistry

Recent progress in Earth System Models (ESMs), particularly the representation of ocean biogeochemistry, has begun to allow ESMs to be used to predict changes in key ocean biogeochemical variables (e.g., pH, oxygen, net primary production, chlorophyll) at seasonal to decadal time scales. Such predictions could be used for environmental monitoring, fisheries management, and other purposes. Ocean observations are vital for initialising and validating such predictions. The European Space Agency (ESA) Climate Change Initiative (CCI) Climate Modelling User Group (CMUG) provides a dedicated forum through which the Earth observation data community and the climate modelling, prediction and reanalysis community can work closely together. A current study within CMUG is on "Seasonal predictability of ocean biogeochemistry and potential benefits of ESA CCI data assimilation." This study is exploring the relative potential of satellite observations of sea surface temperature, sea surface salinity, sea level anomaly, sea ice concentration, and ocean colour to constrain initial conditions for seasonal forecasts of ocean biogeochemistry when assimilated into the ocean components of two different ESMs. The poster will give an overview of the study and its aims and methods, and showcase preliminary results.

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