



Assessing the role and consistency of satellite observation products in global physical-biogeochemical ocean reanalysis

David Ford

Met Office, United Kingdom (david.ford@metoffice.gov.uk)

As part of the European Space Agency's Climate Change Initiative programme, new sets of satellite observation products, intended to act as Climate Data Records, have been produced for Essential Climate Variables including ocean colour, sea surface temperature, sea level and sea ice. Climate Data Records are required to be sufficiently stable and consistent to be used to detect and monitor climate variability and change, in order to benefit climate studies including reanalyses. These new products have been assimilated into a global coupled physical-biogeochemical ocean model, to create a set of 13-year reanalyses at 1° resolution and 3-year reanalyses at $1/4^\circ$ resolution. In a series of experiments the variables have been assimilated individually and in combination, in order to assess their consistency in terms of physical-biogeochemical relationships, including the positioning of spatial features and temporal variability. The impact of the assimilation on the carbon cycle and other climate-relevant variables has also been assessed, and the quality and utility of biogeochemical reanalyses explored. This includes the study of inter-annual variability and phenology, and the potential for reanalyses to provide information about biases in climate models and projections.