Geophysical Research Abstracts
Vol. 19, EGU2017-17930, 2017
EGU General Assembly 2017

SEAPODYM-LTL: a parsimonious zooplankton dynamic biomass model

Anna Conchon (2), Patrick Lehodey (2), Marion Gehlen (1), Olivier Titaud (2), Inna Senina (2), and Roland Séférian (3)

(1) Laboratoire des Sciences du Climat et de l'Environnement, LSCE/IPSL, Gif-sur-Yvette cedex, France, (2) CLS, Space Oceanography Division, Ramonville Saint-Agne, France, (3) CNRM-GAME, Météo-France/CNRS, Toulouse, France

Mesozooplankton organisms are of critical importance for the understanding of early life history of most fish stocks, as well as the nutrient cycles in the ocean. Ongoing climate change and the need for improved approaches to the management of living marine resources has driven recent advances in zooplankton modelling. The classical modeling approach tends to describe the whole biogeochemical and plankton cycle with increasing complexity. We propose here a different and parsimonious zooplankton dynamic biomass model (SEAPODYM-LTL) that is cost efficient and can be advantageously coupled with primary production estimated either from satellite derived ocean color data or biogeochemical models. In addition, the adjoint code of the model is developed allowing a robust optimization approach for estimating the few parameters of the model. In this study, we run the first optimization experiments using a global database of climatological zooplankton biomass data and we make a comparative analysis to assess the importance of resolution and primary production inputs on model fit to observations. We also compare SEAPODYM-LTL outputs to those produced by a more complex biogeochemical model (PISCES) but sharing the same physical forcings.