Geophysical Research Abstracts
Vol. 19, EGU2017-6712, 2017
EGU General Assembly 2017

Spectral analysis of sea surface height in Mercator Ocean's global ocean model with and without assimilation and comparison to altimetric data

Angelique Melet (1), Mounir Benkiran (1), Romain Bourdallé-Badié (1), Charly Regnier (1), Marie Drevillon (1), Olivier Legalloudec (1), Claire Dufau (2), Eric Chassignet (3,1)

(1) MERCATOR OCEAN, Ramonville St Agne, France (angelique.melet@mercator-ocean.fr), (2) CLS, Ramonville St Agne, France, (3) Florida State University, FL, USA

The ocean energy content at different spatial scales, cascade of energy, and the dynamics of geostrophic flows can be characterized using wavenumber spectra. In this study, we compute wavenumber spectra of sea level anomalies from altimetric along-track data and from collocated global numerical ocean circulation model simulations to compare their spectral slopes at mesoscales, and ultimately their energy content and resolution capability. Global eddy-resolving (1/12°) numerical simulations of the ocean performed by Mercator Ocean in the framework of the Copernicus Marine Environment and Monitoring Service (CMEMS) with different degrees of data assimilation are considered for the analysis to further assess the ability of data assimilation to constrain meso- and submesoscale dynamics. Analyses are performed over the global ocean. As spectral slopes values are sensitive to the preprocessing of data and choices of the calculation of the spectrum, the same methodology is applied to the global HYCOM ocean model with data assimilation to compare spectral slopes of the HYCOM and Mercator Ocean 1/12° global models.