



Upper ocean subduction in an idealized eastern boundary upwelling model

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In the traditional view the newly upwelled water is transported offshore in the surface layer via Ekman transport in upwelling systems. However eddies and filaments are responsible for major spatio-temporal modulations of the transport of productive waters offshore. In fact a fraction of recently upwelled waters undergo expeditious frontal subduction and return back into the thermocline. Here we study this subduction process in an idealized upwelling model using CROCO (Coastal and Regional Ocean COmmunity model, www.croco-ocean.org). The horizontal resolution ranges from mesoscale resolving (8 km) to submesoscale rich (200 m). A simple tracer model used to study the subduction of phytoplankton like tracer. The model ability to produce the submesoscale turbulence typical of eastern boundary systems is highly sensitive to resolution but our lowest resolution configurations are able to generate substantial subduction.