



On the connection between the Mediterranean Outflow-driven Beta-plume and the Azores Current.

A. Peliz (1) and S. Kida (2)

(1) Center of Oceanography, Faculty of Sciences, University of Lisbon, Portugal (ajpeliz@fc.ul.pt), (2) Earth Simulator Center, JAMSTEC, Japan (kidas@jamstec.go.jp)

In many recent realistic models of the North Atlantic the establishment of a realistic Azores Current is dependent on the inclusion/representation of the Mediterranean Outflow (MO) in the configurations. The link between the Azores Current and the MO has become accepted despite fact that the dynamics beyond this connection are not completely understood.

We revisit the problem of induction of time-averaged upper ocean circulation by the MO using a set of high resolution numerical experiments, with different degrees of realism. We show that in topography-resolving simulations forced only by the MO, the generated beta-plume has a transport on the order of 4 Sv which is below half of the transport observed in the real ocean Azores Current. The mean latitude of the zonal jet associated with the beta-plume is also about 2 degrees north of the observed Azores Current. We hypothesize that the MO is a necessary but not the only mechanism responsible for the generation of a Azores Current-like zonal jet, and analyze the coupling of the MO driven beta-plume with the wind driven circulation using several idealized simulations.