

Forcing the Atlantic equatorial deep jets: A basin-wide reconstruction of the intraseasonal eddy momentum flux convergence

Swantje Bastin (1), Martin Claus (1,2), Peter Brandt (1,2), Richard J. Greatbatch (1,2)

(1) GEOMAR Helmholtz Centre for Ocean Research Kiel, Kiel, Germany, (2) Kiel University, Kiel, Germany

Equatorial deep jets (EDJs) are vertically stacked, downward propagating zonal jets that alternate in direction with depth. In the tropical Atlantic, they have been shown to influence both surface conditions and tracer variability. Despite their importance, the EDJs are absent in most ocean models, most likely due to a lack of vertical resolution. However, when the vertical resolution is sufficiently high, EDJs are present in idealised model configurations driven by steady wind forcing. We have used such a model for a basin-wide reconstruction of the intraseasonal eddy momentum flux convergence, which has recently been shown to be a large contributor to the EDJ maintenance. Applying this forcing to models at both high and standard vertical resolution results in the establishment of periodically oscillating EDJs. Here we show results including the EDJs' development in the models and their impact on the mean equatorial zonal current system through non-linear terms.