



Hydrographic and Biological Survey of a Surface-Intensified Anticyclonic Eddy in the Caribbean Sea

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In the Caribbean Sea, mesoscale anticyclonic ocean eddies impact the local ecosystem by mixing of low salinity river outflow with the nutrient-rich waters upwelling along the Venezuelan and Colombian coast. To gain insight in the physics and the ecological impact of these anticyclones, we performed a combined hydrographic and biological survey of one Caribbean anticyclone in February 2018. We found that the anticyclone was surface intensified with strongest velocities ($>0.1\text{m/s}$) in the upper 200 m of the water column. Below, isopycnal displacements were found down to 700 dbar. The core of the anticyclone entrained waters from the Orinoco River Plume, and contained slightly elevated chlorophyll concentrations compared to the surroundings. At the edge of the anticyclone we observed higher densities of flying fish, but not higher densities of predators like seabirds and cetaceans. Below the surface, a strong temperature inversion (0.98 degrees C) was present within a barrier layer. In addition, we found thermohaline staircases that originated from double diffusion processes within Tropical Atlantic Central Water.