GLIDER CAMPAIGN TO ESTIMATE THE 3D STRUCTURE OF AN EDDY IN THE SOUTHEASTERN BAY OF BISCAY (GESEBB)

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The irregular topography of the southeastern Bay of Biscay favours the generation of mesoscale eddies during winter, when a seasonal slope current reaches the area. Within these mesoscale structures there is an anticyclonic eddy, named SWODDY, that instead of migrating towards the open sea, it remains between 3ºW and 4ºW for several months. This mesoscale structure has been observed by in situ data, remote sensing images/data, as well as simulated by an eddy-resolving model (ROMS). Nevertheless, there is a lack of vertical sampling, which could help to know how the vertical structure of the water column is modified and to validate the 3D outputs of the model. In order to fill this gap, a two-month campaign (so-called GESSEB) was carried out, in summer 2013. During this campaign, data from a Slocum-1000 type glider equipped with a CTD, dissolved oxygen, and fluorescence-turbidity sensors, two drifters with a holey sock drogue centred at 50 m depth and from altimetry, as well as near-real time SST (AVHRR 1 km) and Chlorophyll-a concentration (MODIS 1 km) maps were obtained. The measurements show that the seasonal thermocline was located around 50 m depth, where the fluorescence was maximum. At this same depth, there was also a relative maximum in the dissolved oxygen concentration, and below this relative maximum, the concentration decreased significantly. With regard to the modification of the water column as a consequence of eddy dynamics, the mixed layer was modified depending on the gyre sense of the eddies. In the core of cyclonic eddies, it was observed a depression of the seasonal thermocline, together with a doming of the permanent thermocline. The opposite behaviour was observed in the anticyclonic eddy case.

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