NEW KNOWLEDGE OF THE LIW DETACHMENT FROM THE WESTERN SARDINIAN SLOPE

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The circulation at intermediate depth in the western basin of the Mediterranean Sea is investigated using both results of the high resolution MED16 model (MERCATOR) and observations of the ELISA/MATER experiment. Coming from the Tyrrhenian Sea, the Levantine Intermediate Water (LIW) enters the algero-provencal basin closed to the southern slope of Sardinia. Then, the LIW propagates following the bathymetry and partly spreads westwards thanks to eddy detachments due to the Algerian Gyre separation from the continental slope south-west of Sardinia. We called "Sardinian Eddies" these anticyclonic and strongly barotropic eddies in opposite to the Leddies or the Weddies which are supposed to be mostly baroclinic. The spreading of these Sardinian Eddies contributes to the mixing of LIW in the whole western basin. In the model, strong anticyclonic signatures appear at the surface in about two months after their formation alongslope and the rate of formation of the Sardinian Eddies (about 4-5 each year) is related to the seasonal variability of the Algerian gyre. These eddies accumulate and merge between Minorca and Sardinia and then, the resulting eddy begins to flow southwards to drift cyclonically in the Algerian basin like other anticyclonic Algerian Eddies formed by meanders of the Algerian current. The formation and behaviour of these eddies are investigated using criteria separating the fluid in dynamical regions, like
the Okubo-Weiss criterium.