



The mesoscale circulation in the Levantine Basin

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The Eastern Mediterranean Levantine mesoscale circulation was first described in the late 1980s during POEM, to consist of several alternative cyclonic and anticyclonic gyres and eddies, whose interaction and variability are responsible for the generation of an offshore cross basin current, named as the Mid Mediterranean Jet. New in-situ data collected in the SE Levantine from various observing platforms, mainly within the frame of the hydrographic cruises and gliders measurement programs, from mid 1990s until early 2011, made it possible not only to confirm the previous POEM results on the mesoscale circulation in the Levantine, but also to describe the seasonal and inter-annual variability of the dominant and quasi-permanent Cyprus warm core eddy. This warm core eddy undergoes strong seasonal and inter-annual fluctuations in terms of shape, size, intensity and location. Moreover, the new in-situ data clarified that the periodic appearance of a secondary anticyclonic eddy, named Shikmona eddy, generated offshore Israel-Lebanese coast due to the instability of the northward coastal current, lead to the re-establishment for a certain period of the non permanent Shikmona gyre, with the co-existence of these eddies. The periodic re-appearance of these flow features was confirmed by satellite altimetry and by the operational forecasts of MOON-CYCOFOS. In this view, the Mid Mediterranean Jet is documented to transfer Atlantic Water eastward within the Levantine sub-basin, particularly along the periphery of the Cyprus warm core eddy. Atlantic Water has also been observed close to the Egyptian coast, as a result of a westward re-circulation, either of the Mid Mediterranean Jet or of the extension of the north African current flowing eastward close the Egyptian coast.