



Hydrographic Conditions in the Western Mediterranean Sea after the Eastern Mediterranean Transient

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The horizontal and vertical distribution of physical properties of the different water masses in the Western Mediterranean Sea (WMED) are examined in detail, using data collected during the MEDOCC05 survey. The campaign was carried out in spring 2005 in a large portion of the western basin, monitoring the main passages connecting different sub-basins.

The well known changes in the deep thermohaline circulation of the Eastern Mediterranean, the so-called Eastern Mediterranean Transient (EMT), led to significant changes in the WMED inflow through the Sicily Strait and, as a consequence, to modifications of other western water masses. The climatic transient has reached the western basin in 1992, when denser water, a mixture of intermediate and deep water, crossed the Sicily Strait. The result was its cascading in the deep Tyrrhenian Sea with a remarkable deep injection of heat and salt. Successively, the arrival in the WMED of saltier and warmer water modified the intermediate layer. The propagation of this effect can be observed in different regions. Time series analysis in the Corsica Channel and in the Ligurian Sea indicate increased heat and salt contents of the intermediate layer, especially after 2000.

The principal aim of this survey is to update our knowledge about the western basin hydrographic conditions after the EMT and to understand how the EMT is propagating through the different western sub-basins. During the oceanographic survey peculiar θ - S shapes have been found in the Provencal basin, denoting the presence of

a recently formed Western Mediterranean Deep Water. This water mass has a more complex composition than usually observed, together with higher salinity, temperature and density values, with respect both to the resident deep water and to historical observations. A possible influence of the EMT on the western deep water formation processes is examined.