



On the deep water masses outflow in the Aegean Sea: a pre- and post-EMT analysis

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In the last decades, the Aegean Sea (AS) has drawn attention and interest from the oceanographic community about the role that this sea has played in the Eastern Mediterranean Transient (EMT), with the key result of a “new” deep-water formation site in the eastern Mediterranean basin. This deep-water formation was due to different reasons: i) water budget anomalies that increased salinity of the surface and intermediate water masses; ii) the enters of these waters in the AS from Eastern Mediterranean Sea through the Cretan Straits, and iii) episodes of strong winter cooling. Here, we explore the importance of deep water masses outflow from Aegean Sea throughout the Cretan Sea into the oriental basin of the Mediterranean Sea, in relation to last recent studies, focusing on the EMT event and its time table.

To such goal we use all available, in situ, hydrologic data collected in the period 1985-1999, by trying to describe the outflow of the deep-water masses in the Levantine basin. Preliminary results revealed that the main source of dense water was between Samarcande and its northern coast while the entrance of dense water in the Cyclades Plateau was essentially a flow between the Islands of Euboea and Andros, confirming what found by Bellacicco et al. (2016) from numerical results and marine geological evidences. The new analysis, moreover, points out the presence of a dense water mass debouching in the Levantine from the Cretean Sea during the spring time (i.e. maximum mixing period) of 1986-1988. Our results may allow to open new research question on the actual EMT timing and triggering, also considering theoretical model analyses (Smith 1975, Bellacicco et al., 2016).