

An extensive Western Mediterranean Deep Water Renewal between 2004 and 2006

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Abstract

The deep waters of the western Mediterranean are known to have an almost constant trend towards higher salinity and temperature values since the 1950s. Recent observations have shown an acceleration of this tendency, which has been attributed by some authors to the effect of the propagation of the signal of the Eastern Mediterranean Transient, from east to west. From 2004 to 2006 five basin-scale oceanographic cruises evidenced a relevant change in the deep structure of the western Mediterranean. In less than two years almost the whole deep basin has been filled with highly saline and warm new deep water, which substantially renewed the resident deep water. The paper shows evidence of the rapid basin-wide extension of the event, giving insights into the origin and the propagation of the new deep water towards the basin interior and showing the evolution of the deep characteristics.

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