

Formation of basin-wide bottom nepheloid layers in the western Mediterranean after major dense shelf water cascading events

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The analysis of a compilation of deep CTD cast conducted in the western Mediterranean from 1998 to 2010 have documented the role that dense shelf water cascading off the Gulf of Lions plays in transporting suspended particulate matter from the coastal regions down to the basin. Deep CTD casts revealed that after the 1999 and 2005-2006 major cascading events the Western Mediterranean Deep Water (WMDW) was characterized by the presence of a thick bottom nepheloid layer that scaled in thickness with a thermo-haline anomaly generated by the mixture of dense waters formed by deep convection at open sea and by cascading. This nepheloid layer can be hundred-meters thick, last for several years and cover the entire western Mediterranean basin. The aim of this talk is to highlight the fact that the WMDW can be periodically modified by the arrival of suspended particles generated by resuspension processes during major cascading events, being a key process that could significantly affect the trace-element cycles in the western Mediterranean.