



Changes in the deep Tyrrhenian Sea

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The study of the Tyrrhenian deep water properties and their distribution over time and space seems to be particularly relevant to the impact of climatic variability on the Mediterranean Sea. This work aims to contribute to a better understanding of the thermohaline variability, the main deep-water formation mechanisms, such as heat-salt fluxes associated with the double-diffusive activity, and tries to provide a representation of the deep-water characteristics based on long-term hydrological measurements in the Tyrrhenian basin. The analysis of these measurements (ARGO floats, CTD probes, gliders, expendable bathythermographs [XBT] and fixed moorings) enables to follow the evolution of the water mass characteristics under the influence of the climatic variability, which modified both the intermediate and the deep water. The analysis of these measurements appears to be crucial in order to perceive the role of mixing water masses from the eastern and western Mediterranean and to estimate the ocean heat content, its redistribution and the relationship with the air-sea interface, which is fundamental for understanding climate variability and change.