



Evidence of mixing and entrainment in the mediterranean undercurrent from seismic reflection profiling

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As part of the European-funded GO Project (www.dur.ac.uk/eu.go) and the Spanish-funded Geocan Project, both aimed at exploring the potential of seismic reflection methods in oceanography, we processed multichannel seismic (MCS) data from the Iberian-Atlantic Margin (IAM) survey (1993). The goal was to interpret water column reflections corresponding to the Mediterranean undercurrent, a well-known hydrographic feature that initiates in the Strait of Gibraltar and flows westward, then northward, guided by bathymetry, buoyancy and the earth's rotation, along the coast of Portugal. Four seismic lines were processed and interpreted, beginning near Cape St. Vincent and continuing north, along the undercurrent's trajectory. Interpretations are proposed in the context of current and historical treatises of the undercurrent to explain the observed physical oceanographic structures. Data show laterally contiguous thermohaline fine structure which clearly identify the Mediterranean Water and the North Atlantic Central Water (NACW) and what are interpreted to be "Meddies", or Mediterranean Water eddies. We interpret seismically transparent zones to be evidence of well-mixed water masses brought on by entrainment of the NACW by the Mediterranean undercurrent.