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HR: 08:30h

AN: **OS21A-03**

TI: [Seismic Reflection Along the Path of the Mediterranean Undercurrent](#)

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AB: Seismic reflection profiling is applied to the study of large scale physical oceanographic processes in the Gulf of Cadiz and western Iberian coast, coinciding with the path of the Mediterranean Undercurrent. The multi-channel seismic reflection method provides clear images of thermohaline finestructure with a horizontal resolution approximately two orders of magnitude higher than CTD casting. The seismic data are corroborated against co-located historical oceanographic data. Seismic images show that different water masses are stratified and coherent over horizontal distances of some tens of kilometers. However, both the intensity of the reflectors and their horizontal coherence decreases downstream. This decrease in seismic reflectivity is probably the result of diminished vertical thermohaline contrasts while the reduced horizontal coherence suggests that mixing processes become dominant. Three identified seismic reflectivity zones are identified, North Atlantic Central Water, Mediterranean Water and North Atlantic Deep Water. Seismic evidence for the Mediterranean Undercurrent is found in the reflectivity patterns seen between about 500-1500 m. Lateral thermohaline stratification decreases downstream

especially within the nearest 80 km from the coast of Portugal, where the Mediterranean Undercurrent flows attached to the continental shelf of Iberia. Analysis of root mean square (rms) seismic amplitudes in comparison with average temperature and salinity for the Mediterranean Undercurrent reveals similarly decreasing trends indicating that there is a causal relationship between observed thermohaline fine structure and true seismic amplitudes. To this end, the evolution of the MU may be studied seismically.

DE: 4524 Fine structure and microstructure

DE: 4568 Turbulence, diffusion, and mixing processes (4490)

DE: 4594 Instruments and techniques

SC: Ocean Sciences [OS]

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